Schlumberger

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

Well: **HAGEN FEDERAL 22−4D (PC22)**
Field: **SOUTH PARACHUTE**
County: **GARFIELD** State: **COLORADO**

SLIM CEMENT MAPPING LOG
CBL−VDL
GAMMA RAY−CCL

County: GARFIELD
Field: SOUTH PARACHUTE
Location: SHL: 607 FNL & 1762 FWL
Well: HAGEN FEDERAL 22−4D (PC22)
Company: ENCANA OIL & GAS (USA) INC

LOCATION

SHL: 607 FNL & 1762 FWL
BHL: 1187 FNL & 1123 FWL

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

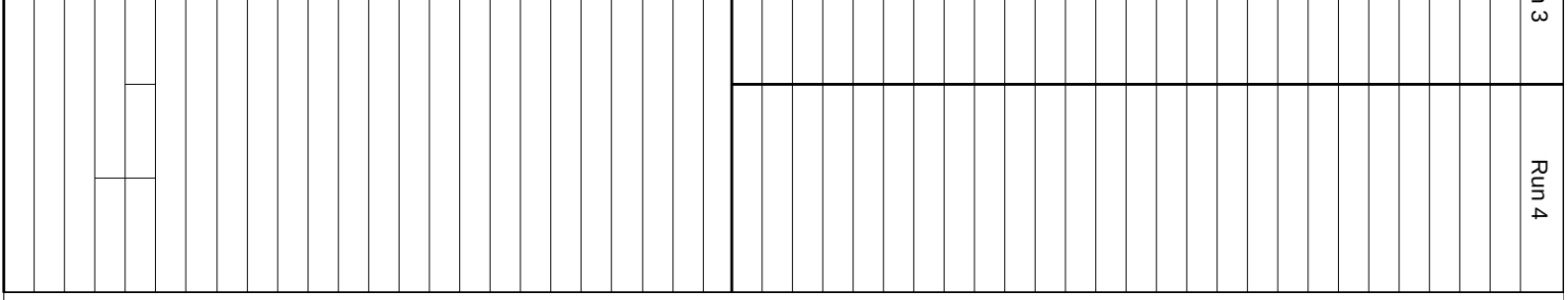
Permanent Datum: GROUND LEVEL Elev.: 6521.00 ft
Log Measured From: KELLY BUSHING 22.00 ft above Perm. Datum
Drilling Measured From: KELLY BUSHING

API Serial No.	Section	Township	Range
05−04522013−00	22	7S	95W

		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		13−Sep−2013						
Run Number		1						
Depth Driller		7822 ft						
Schlumberger Depth		7725 ft						
Bottom Log Interval		7716 ft						
Top Log Interval		50 ft						
Casing Fluid Type		FRESH WATER						
Salinity								
Density		8.4 lbm/gal						
Fluid Level		50 ft						
BIT/CASING/TUBING STRING								
Bit Size		8.750 in						
From		22 ft						
To		7822 ft						
Casing/Tubing Size		4.500 in						
Weight		11.6 lbm/ft						
Grade		S−80						
From		22 ft						
To		7790 ft						
Maximum Recorded Temperatures		218 degF						
Logger On Bottom	Time	13−Sep−2013	18:00					
Unit Number	Location	338	GRAND JUNCTION					
Recorded By		KIRSTIE BUNTING						
Witnessed By		JIM DYKEMAN						

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 RAN AS PER TOOL SKETCH	
ENTRANCE: 17:00	
TIME ON BOTTOM: 18:00	
EXIT: 20:00	

MAXIMUM RECORDED TEMPERATURE: 218 DEGF

MAXIMUM RECORDED PRESSURE: 3254 PSIA

SHORT JOINTS: 5412 FT & 6398 FT

MAIN PASS LOGGED UNDER ZERO SURFACE PRESSURE

EXPECTED CBL AMPLITUDE IN FREE PIPE IS 80MV

CREW: KBUNTING, KJOHNS, JMANN

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

RUN 1		RUN 2	
SERVICE ORDER #:	CGF9−00137	SERVICE ORDER #:	
PROGRAM VERSION:	19C0−187	PROGRAM VERSION:	
FLUID LEVEL:	50 ft	FLUID LEVEL:	

LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

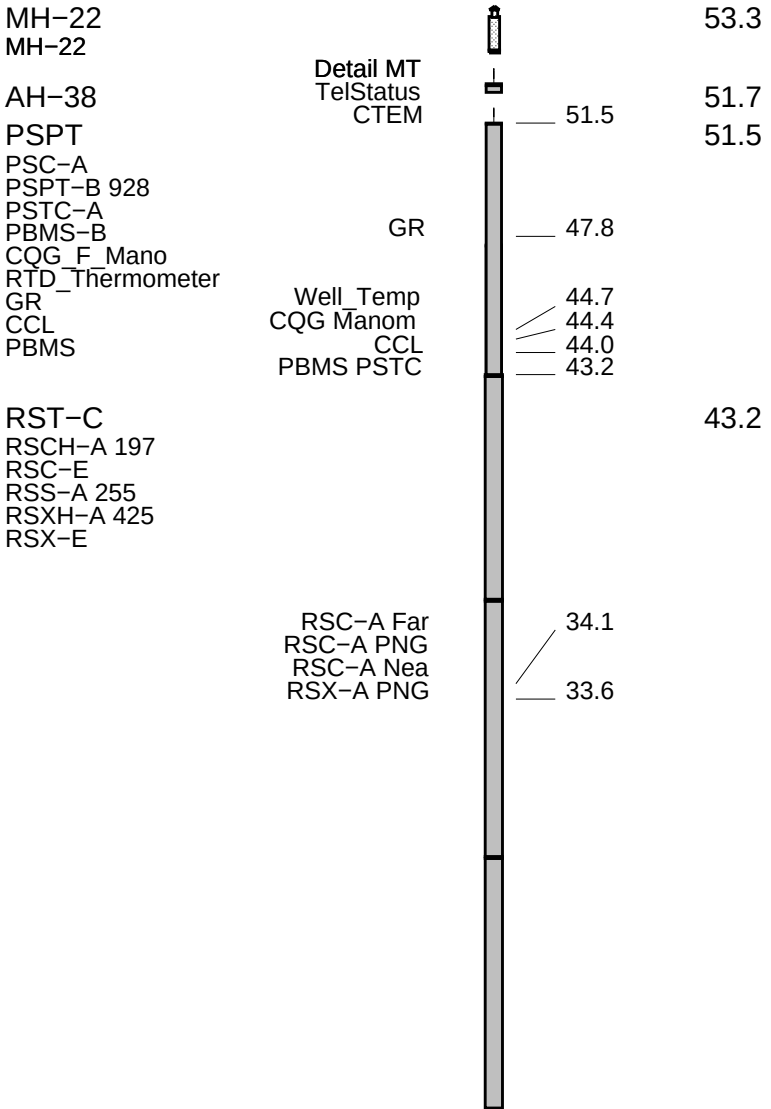
EQUIPMENT DESCRIPTION

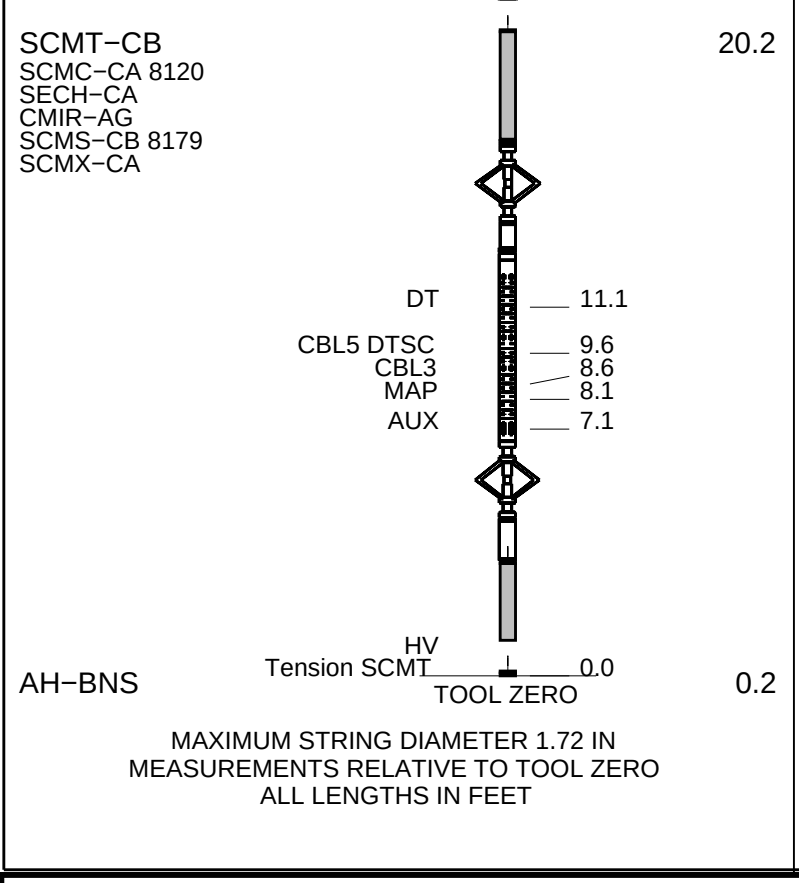
RUN 1 RUN 2

SURFACE EQUIPMENT

WITM−A
PSC_16MHZ

DOWNHOLE EQUIPMENT





Schlumberger

MAIN PASS CBL VDL

MAXIS Field Log

Company: ENCANA OIL & GAS (USA) INC **Well: HAGEN FEDERAL 22−4D (PC22)**

Input DLIS Files

DEFAULT	**Splice_SCMT_RST_PSP_031CUP**	**FN:1**	**PRODUCER**	**13−Sep−2013 20:14**	**7731.5 FT**	**−36.4 FT**

Output DLIS Files

DEFAULT	**SCMT_RST_PSP_032PUP**	**FN:30**	**PRODUCER**	**13−Sep−2013 20:16**	**7733.5 FT**	**−85.5 FT**

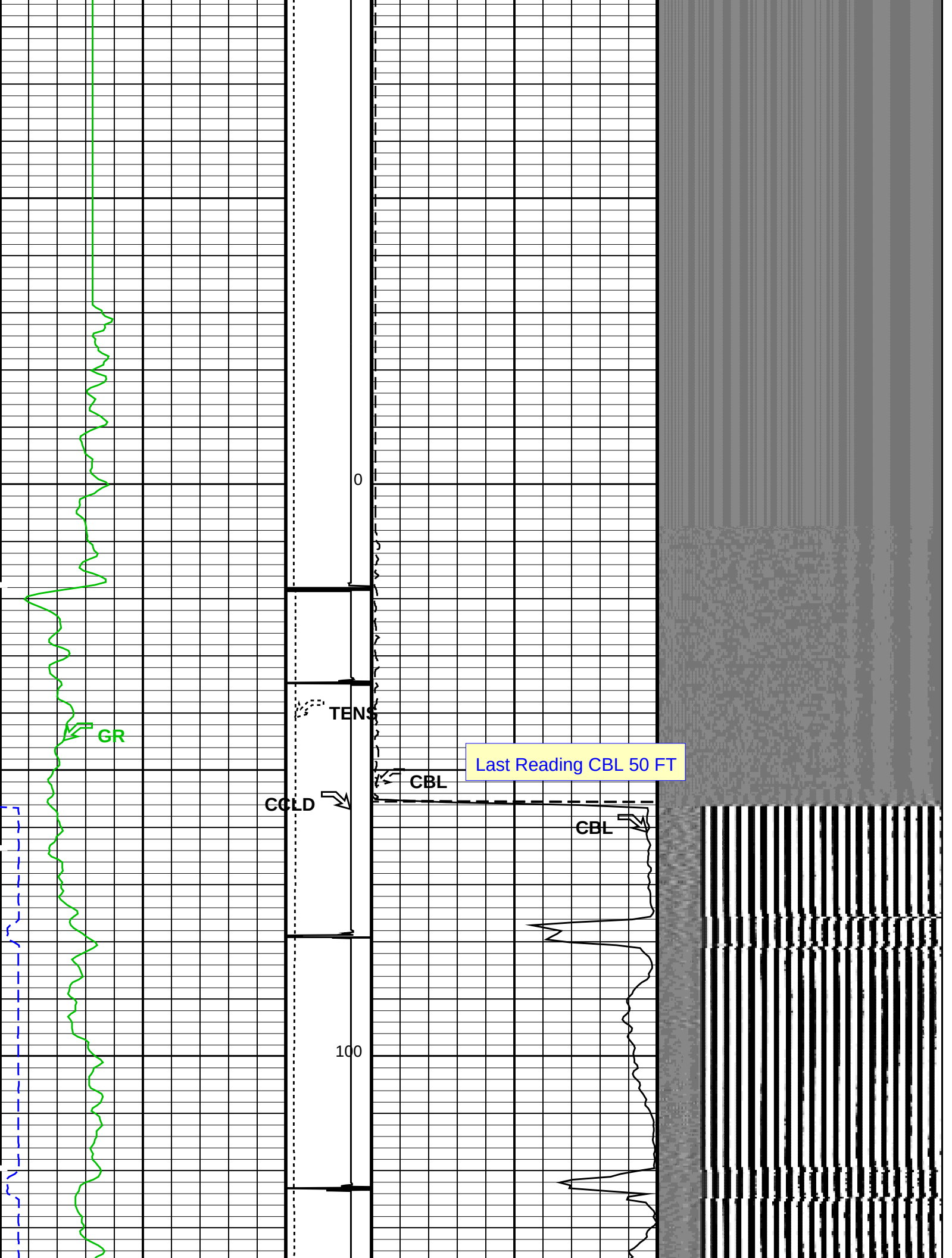
OP System Version: 19C0−187

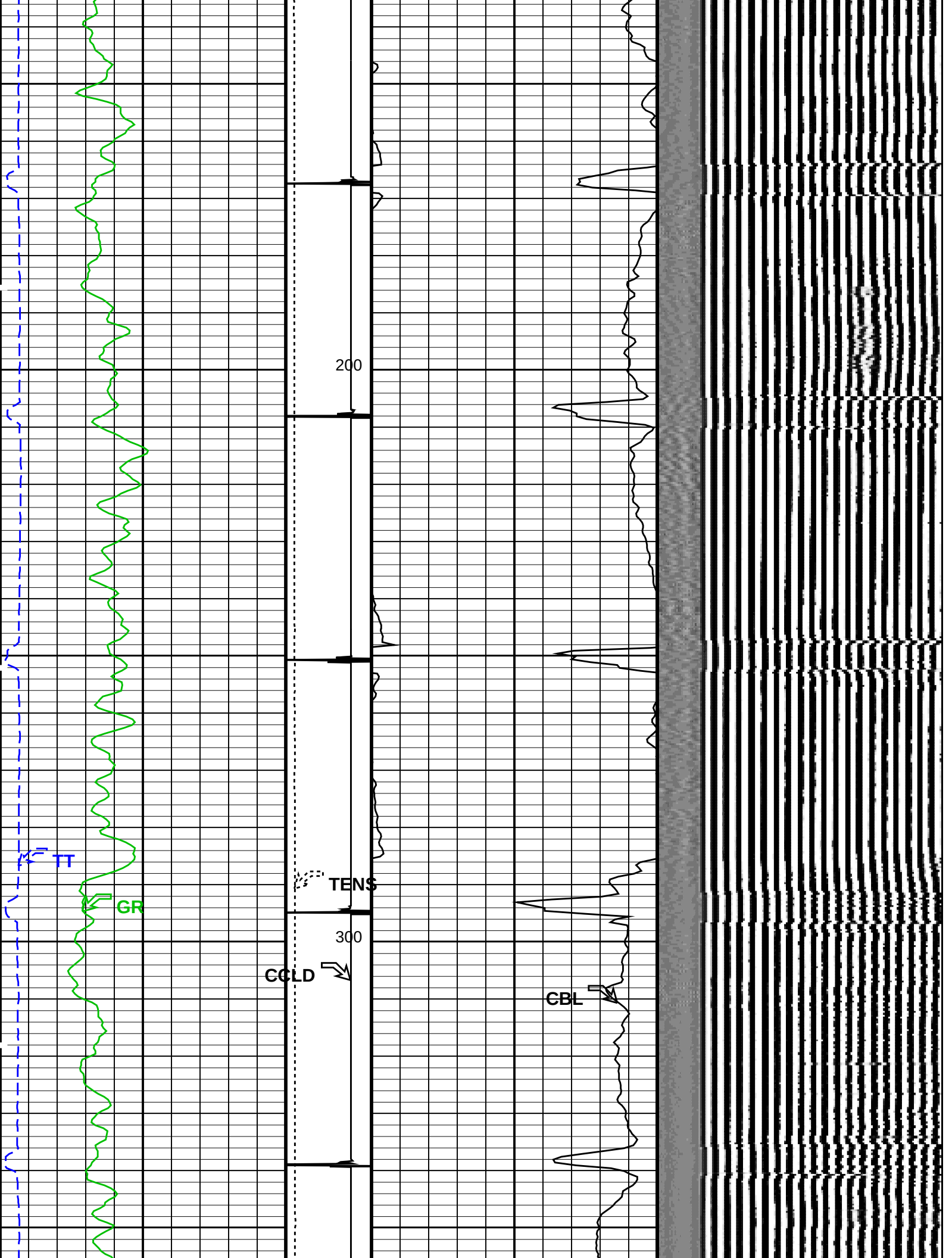
SCMT−CB	**19C0−187**	**RST−C**	**19C0−187**
PSPT	**19C0−187**		

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
GR
TENS
CBL
CCLD
Last Reading CBL 50 FT
CBL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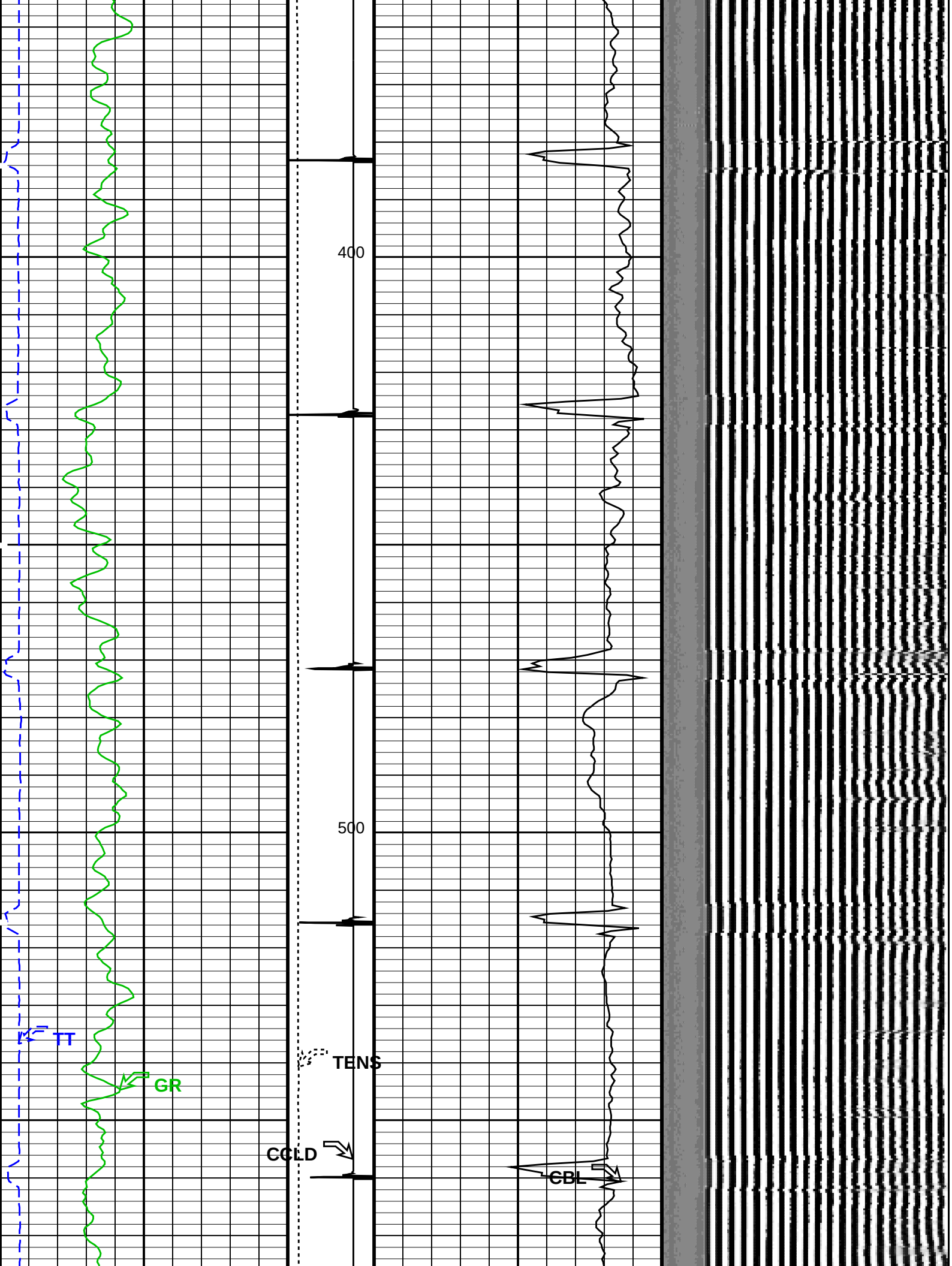
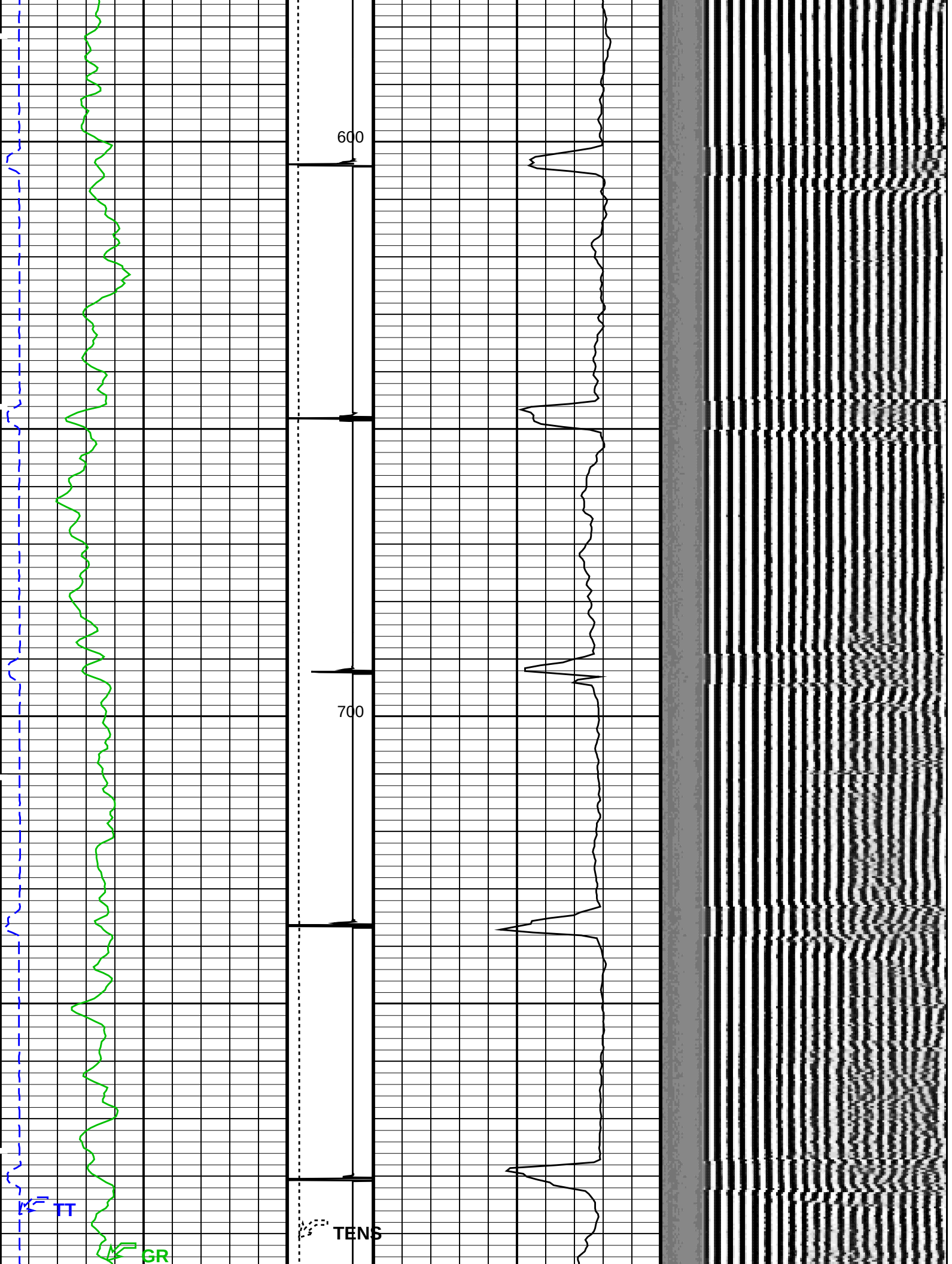
TT
TENS
GR
300
CCLD
CBL


400
500
TT
GR
TENS
CCLD
CBL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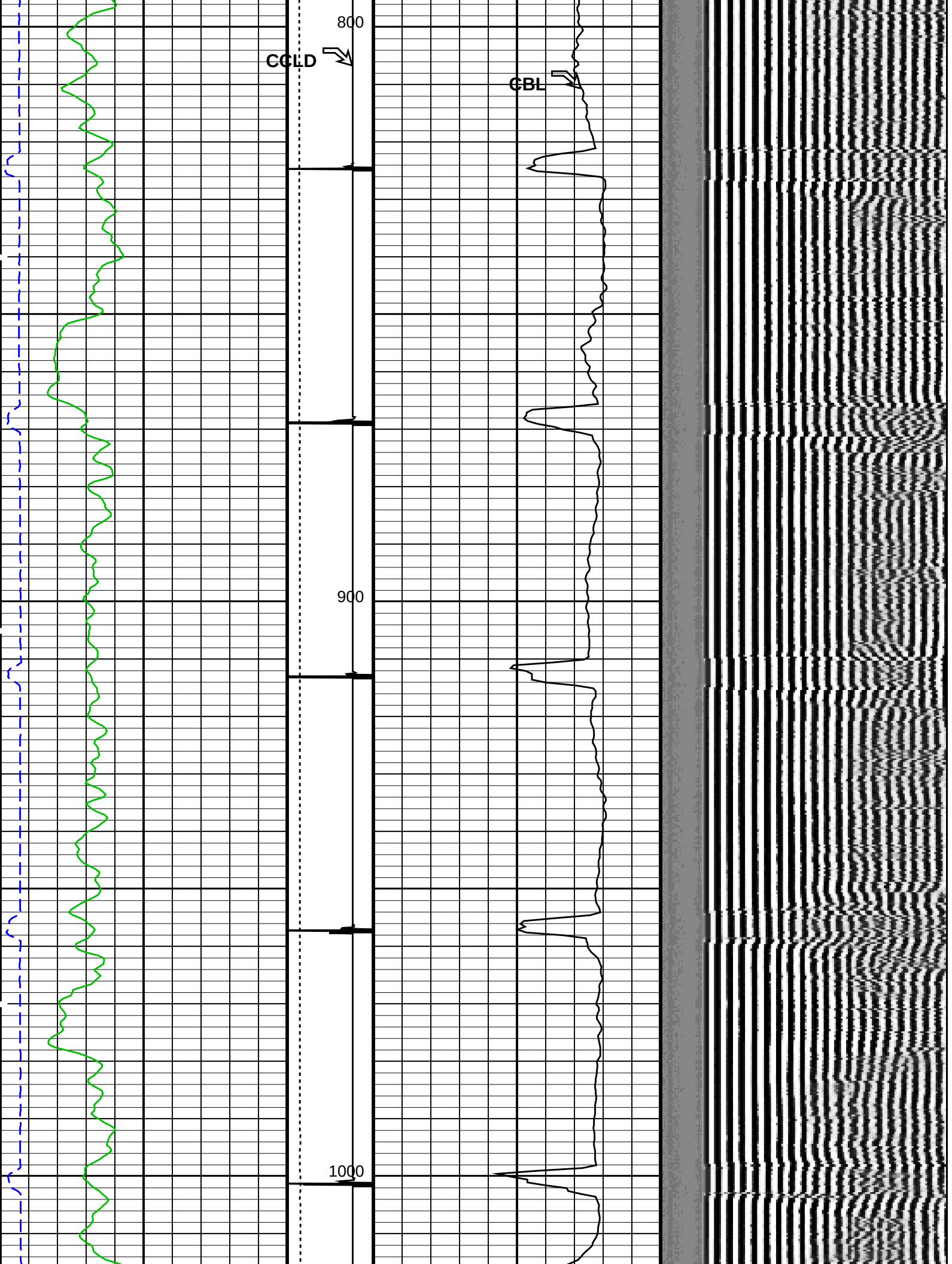
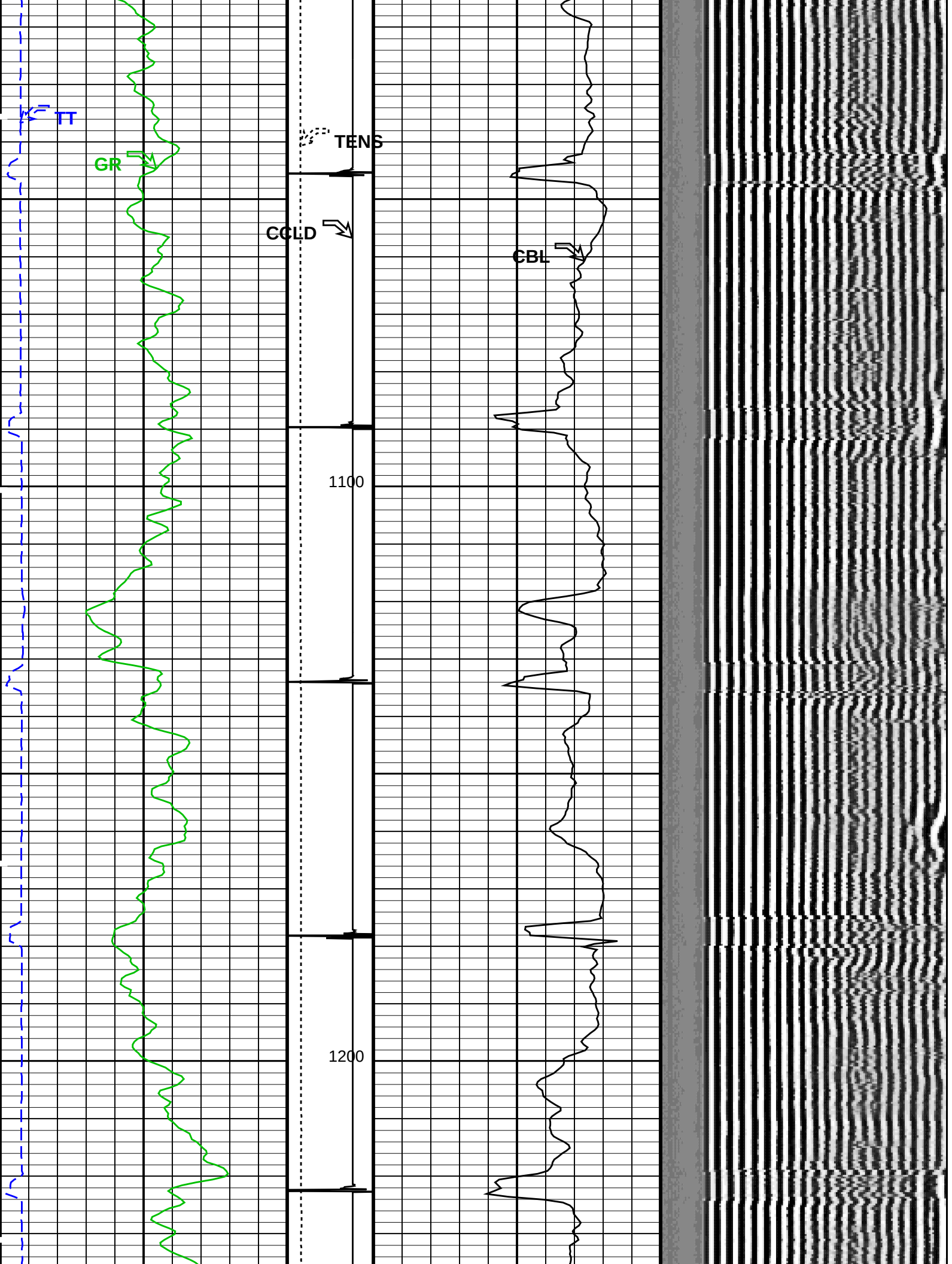
700
TT
GR
TENS


800
CCLD
CBL
900
1000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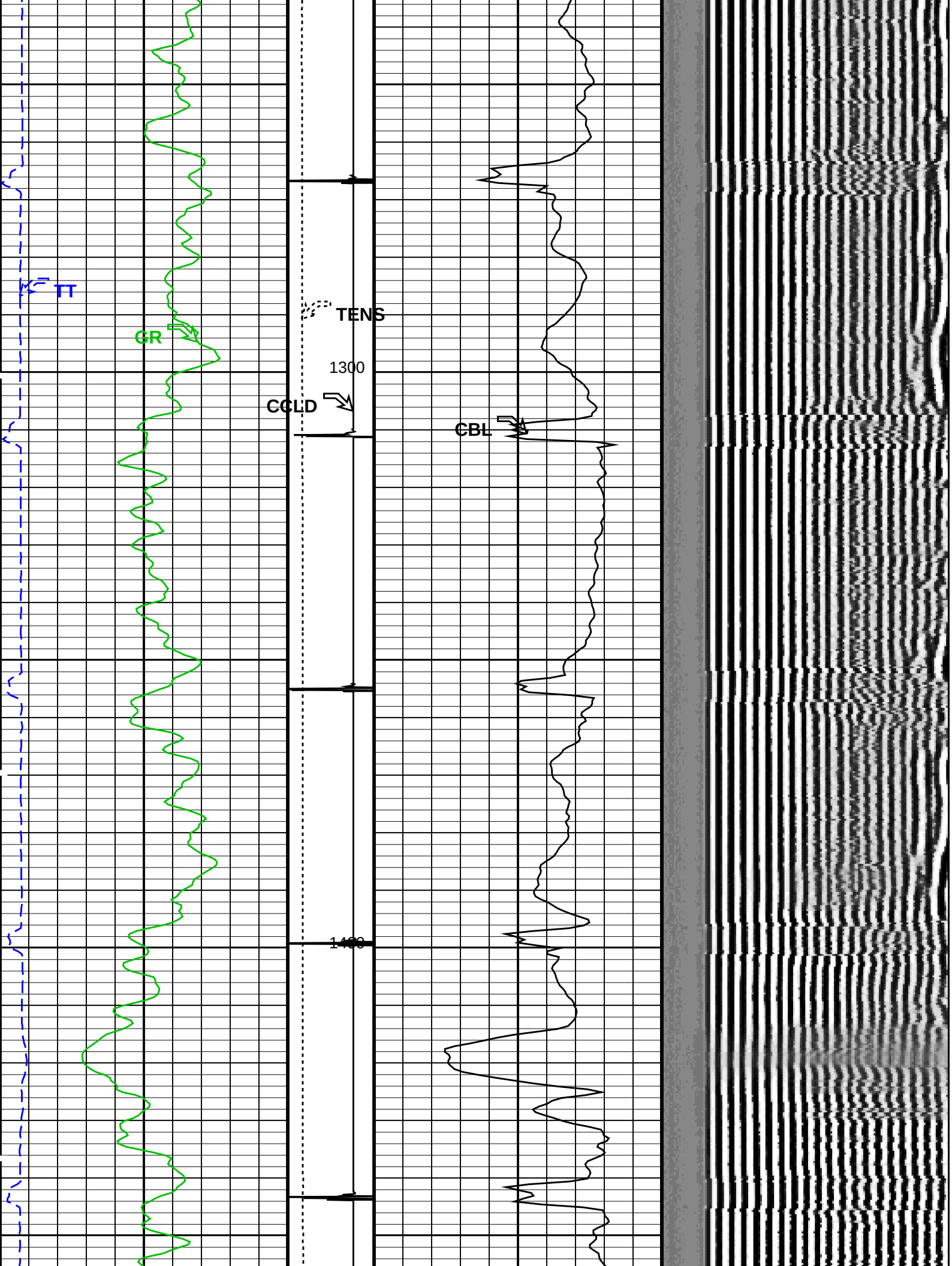
GR
TENS
CCLD
CBL
1100
1200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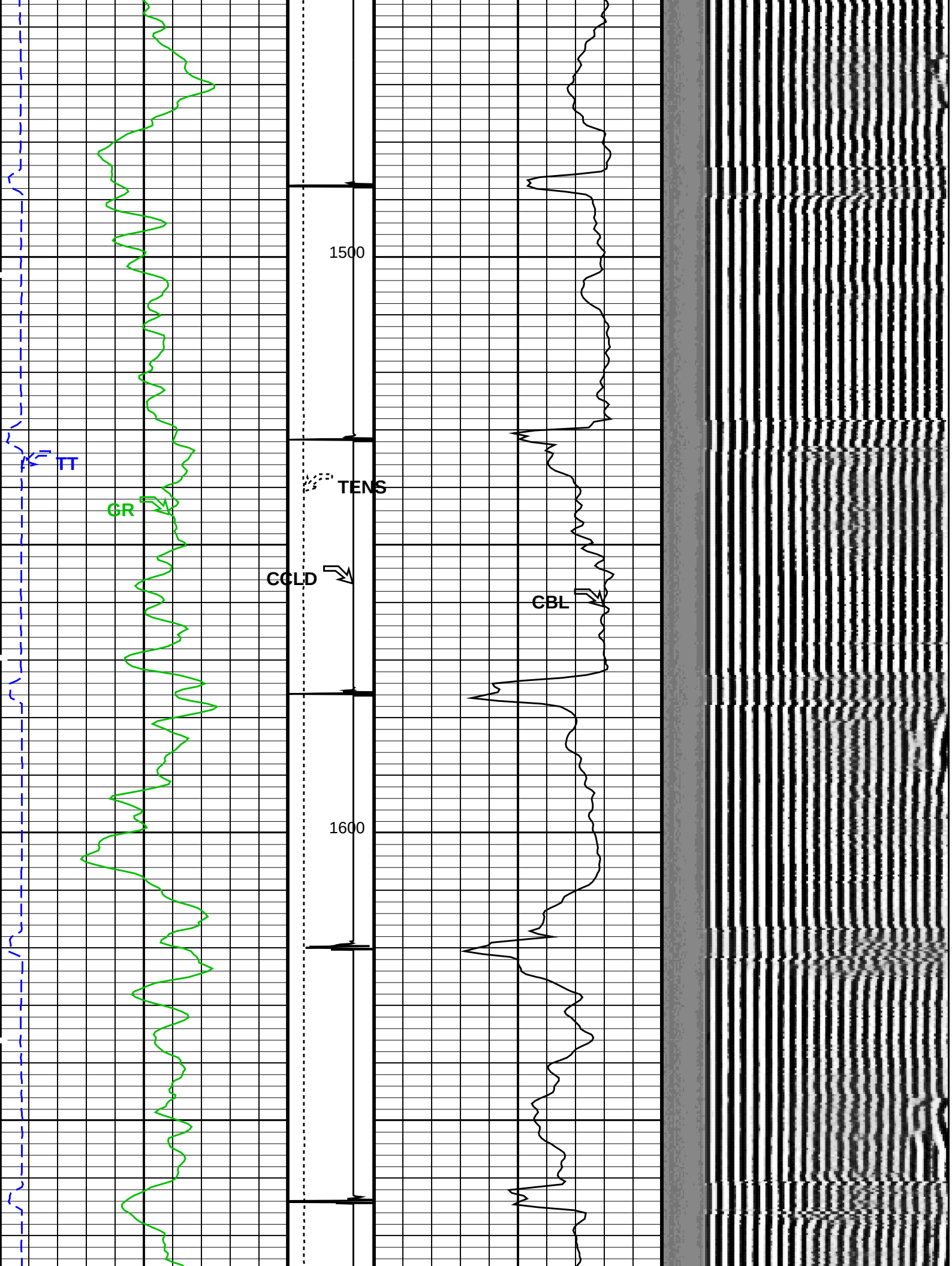
TENS
GR
1300
CCLD
CBL
1400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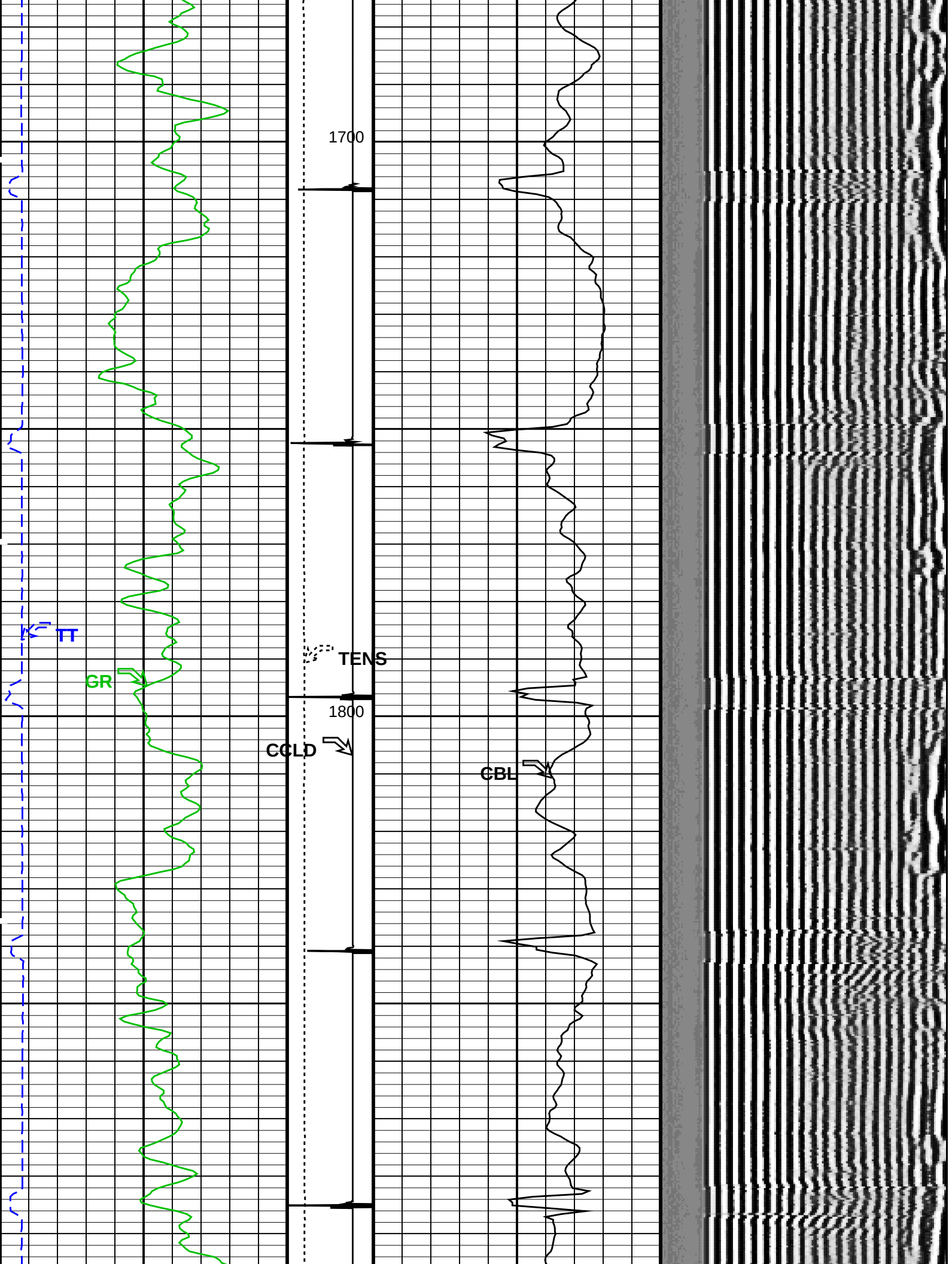
TT
TENS
GR
CCLD
CBL
1600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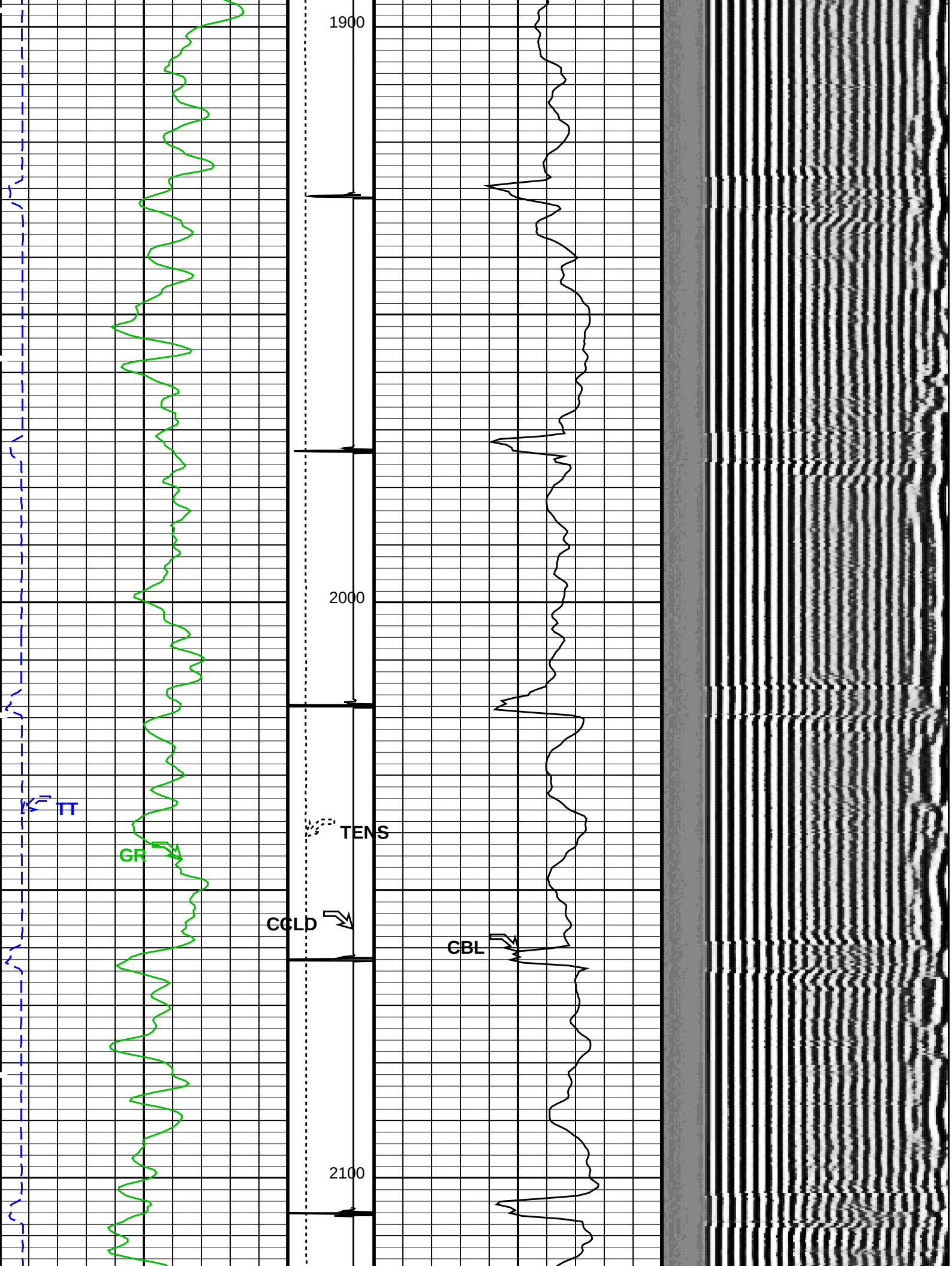
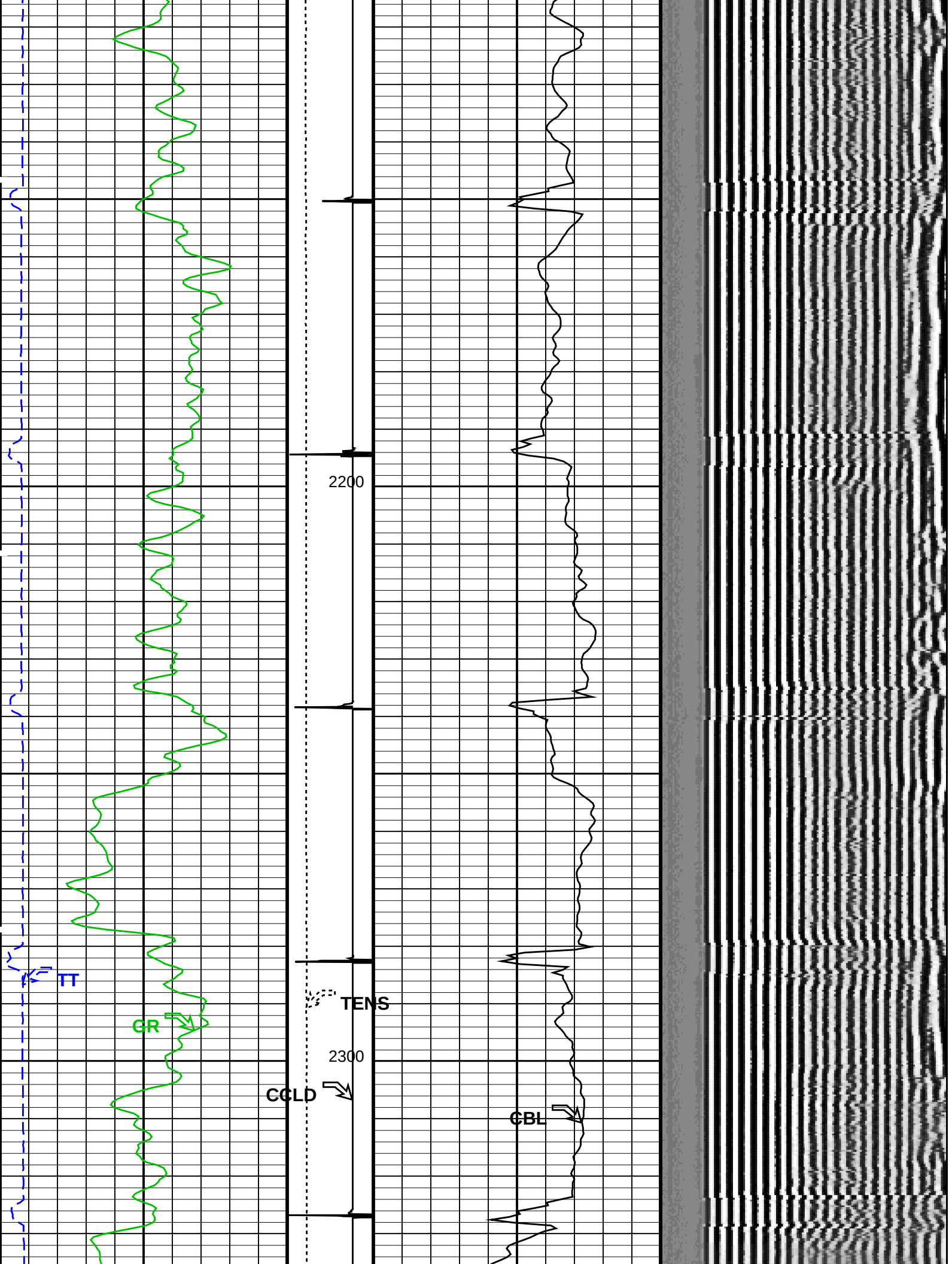
TT
TENS
GR
1800
CCLD
CBL


1900
2000
2100
TT
GR
TENS
CCLD
CBL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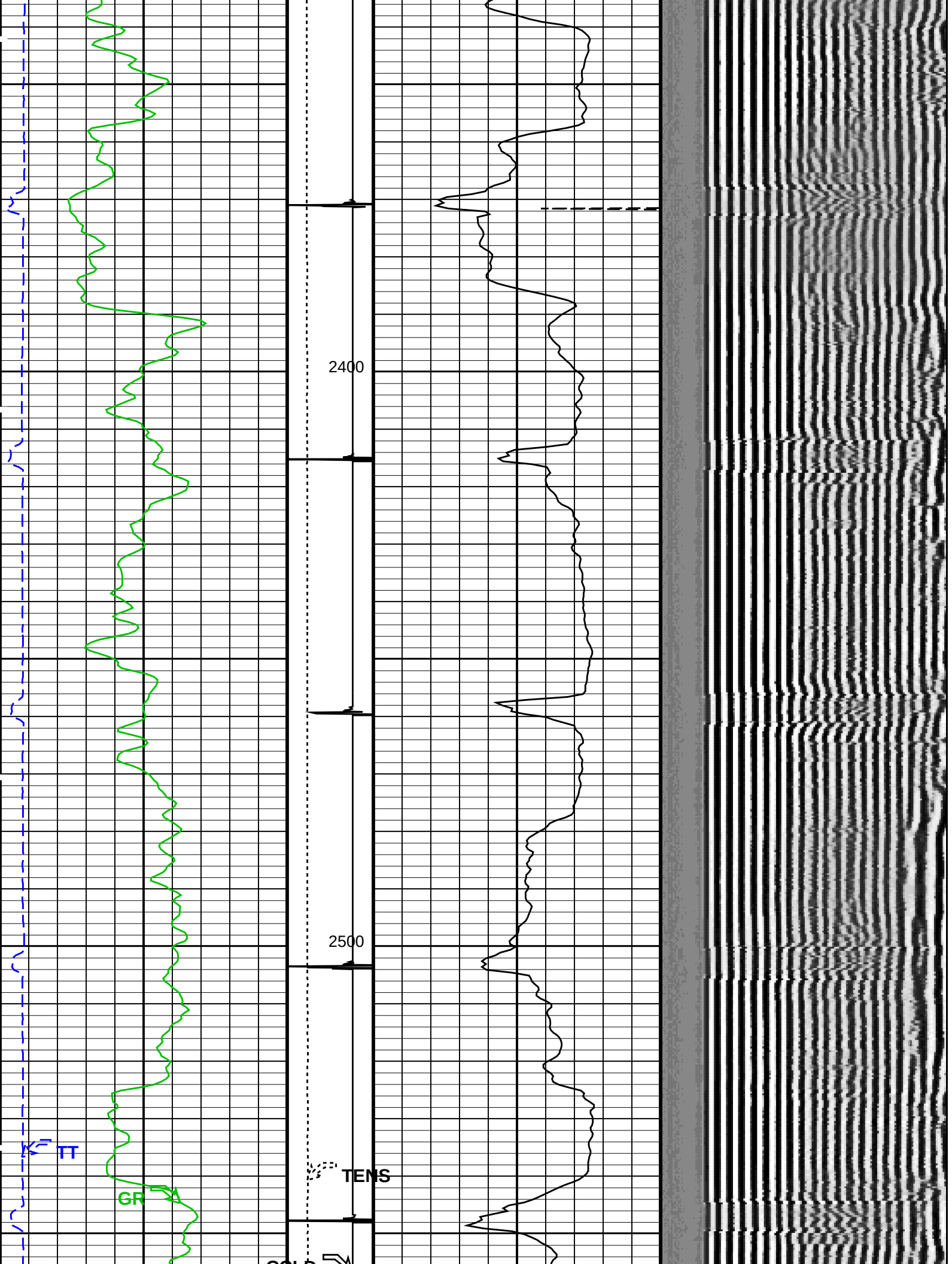
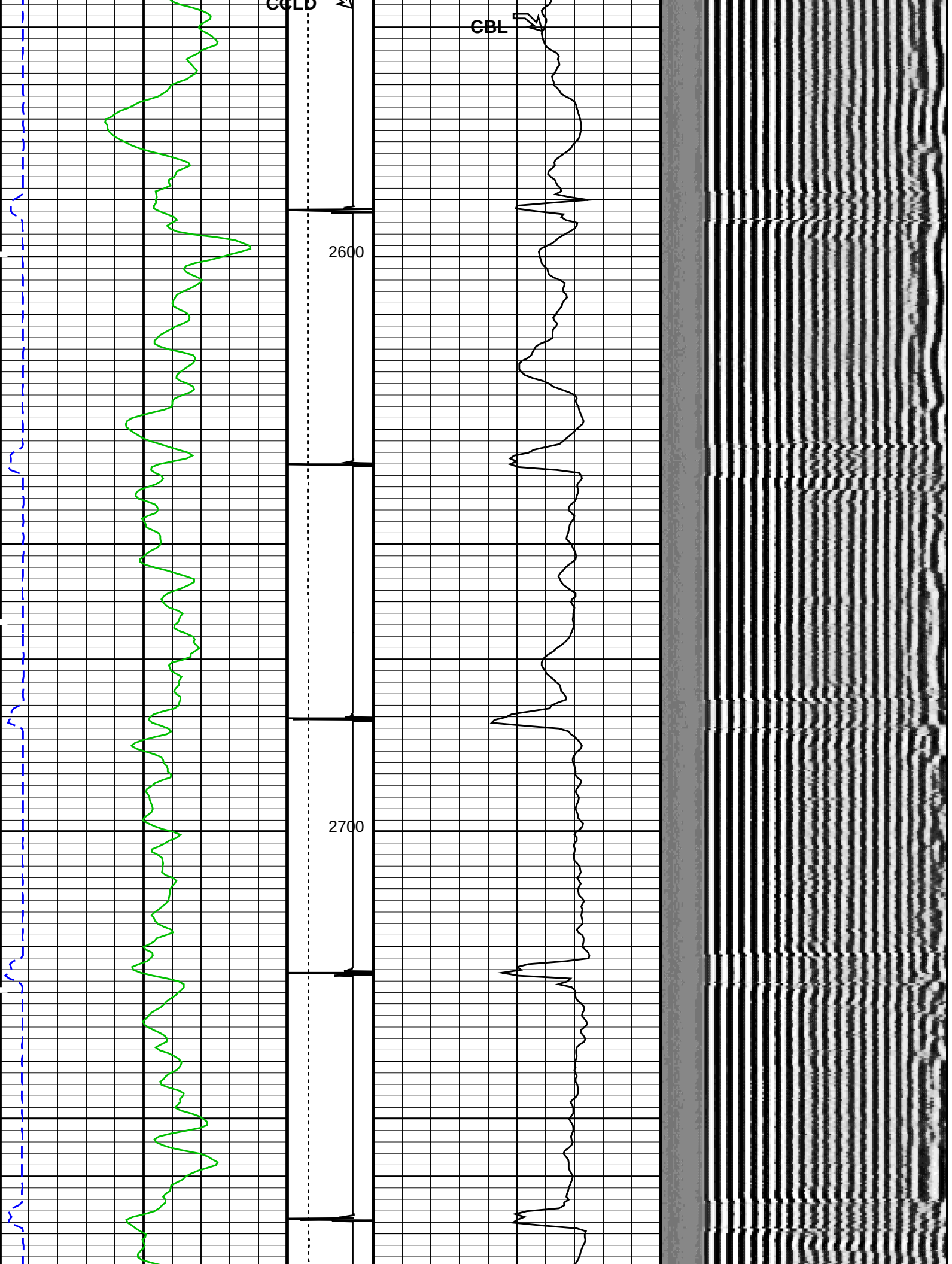
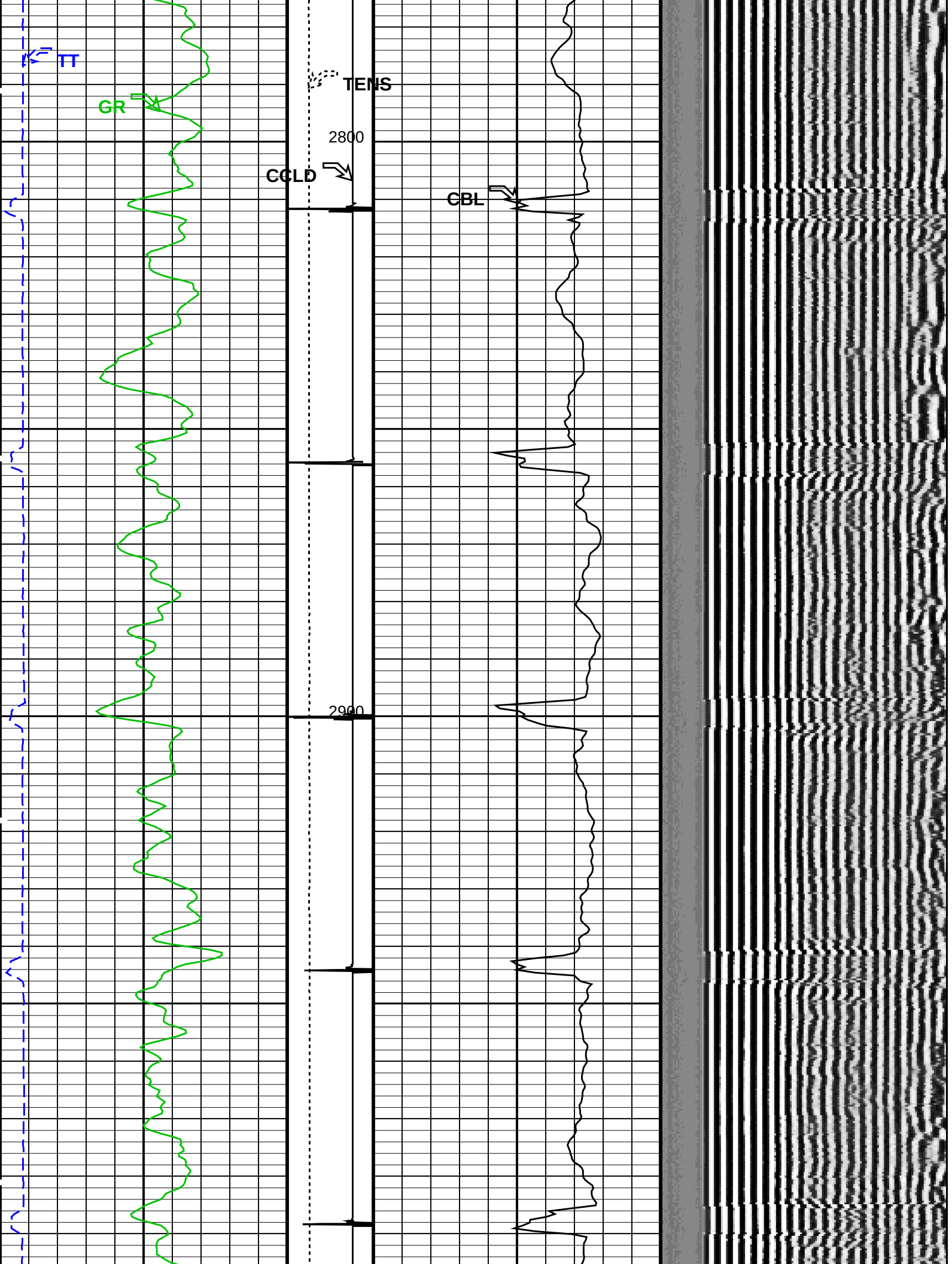
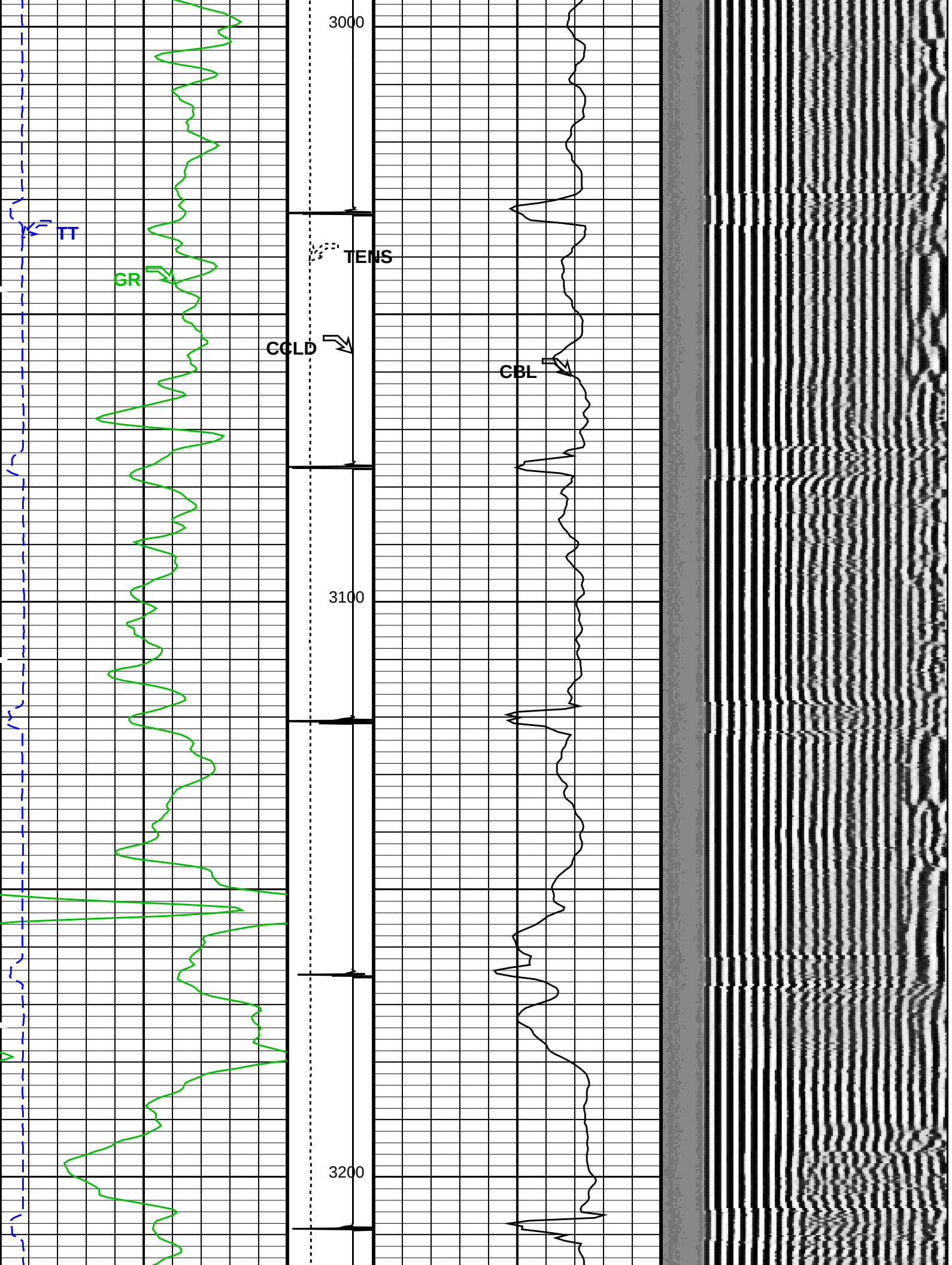
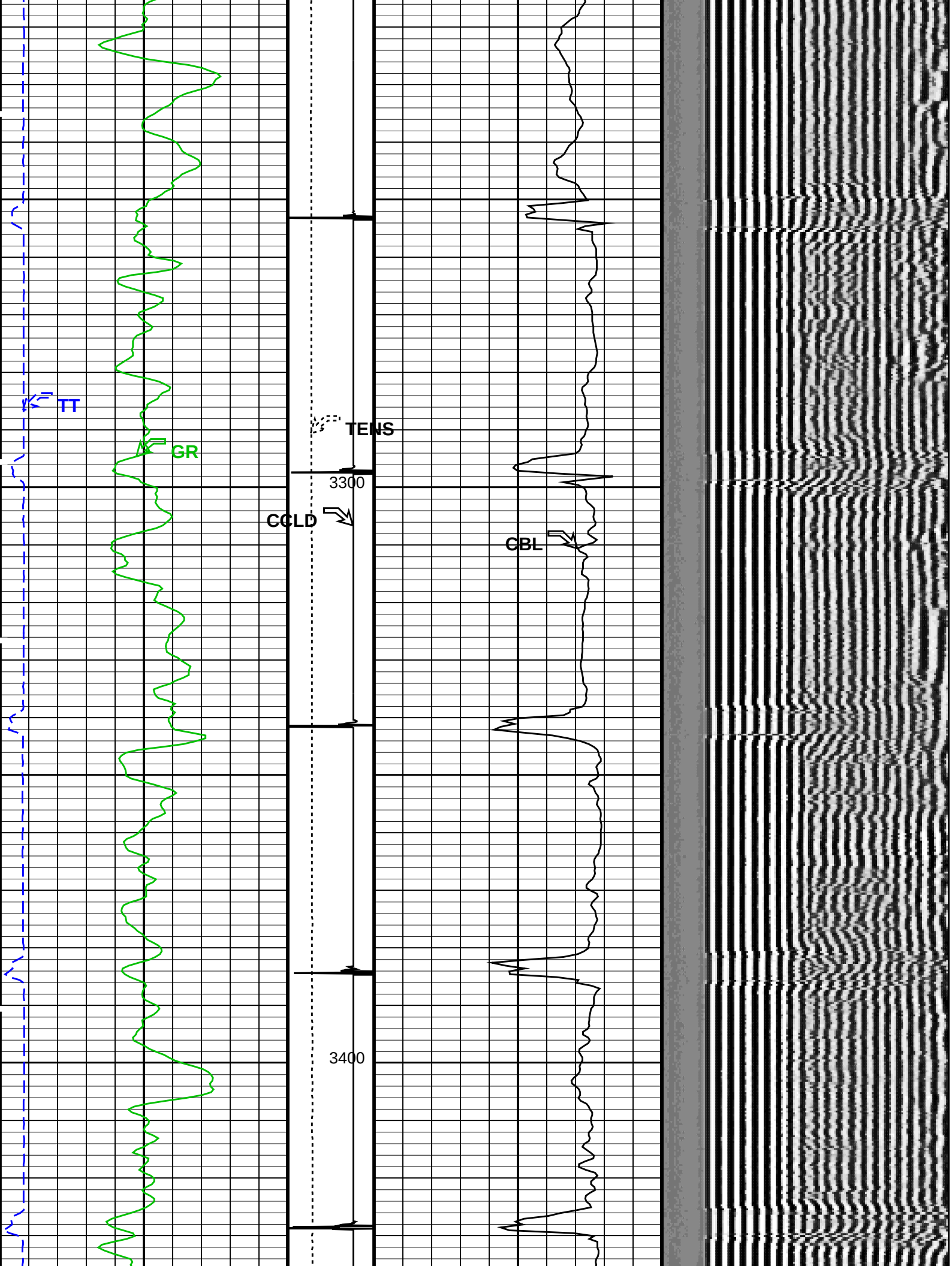
TT
TENS
GR
2300
CCLD
CBL

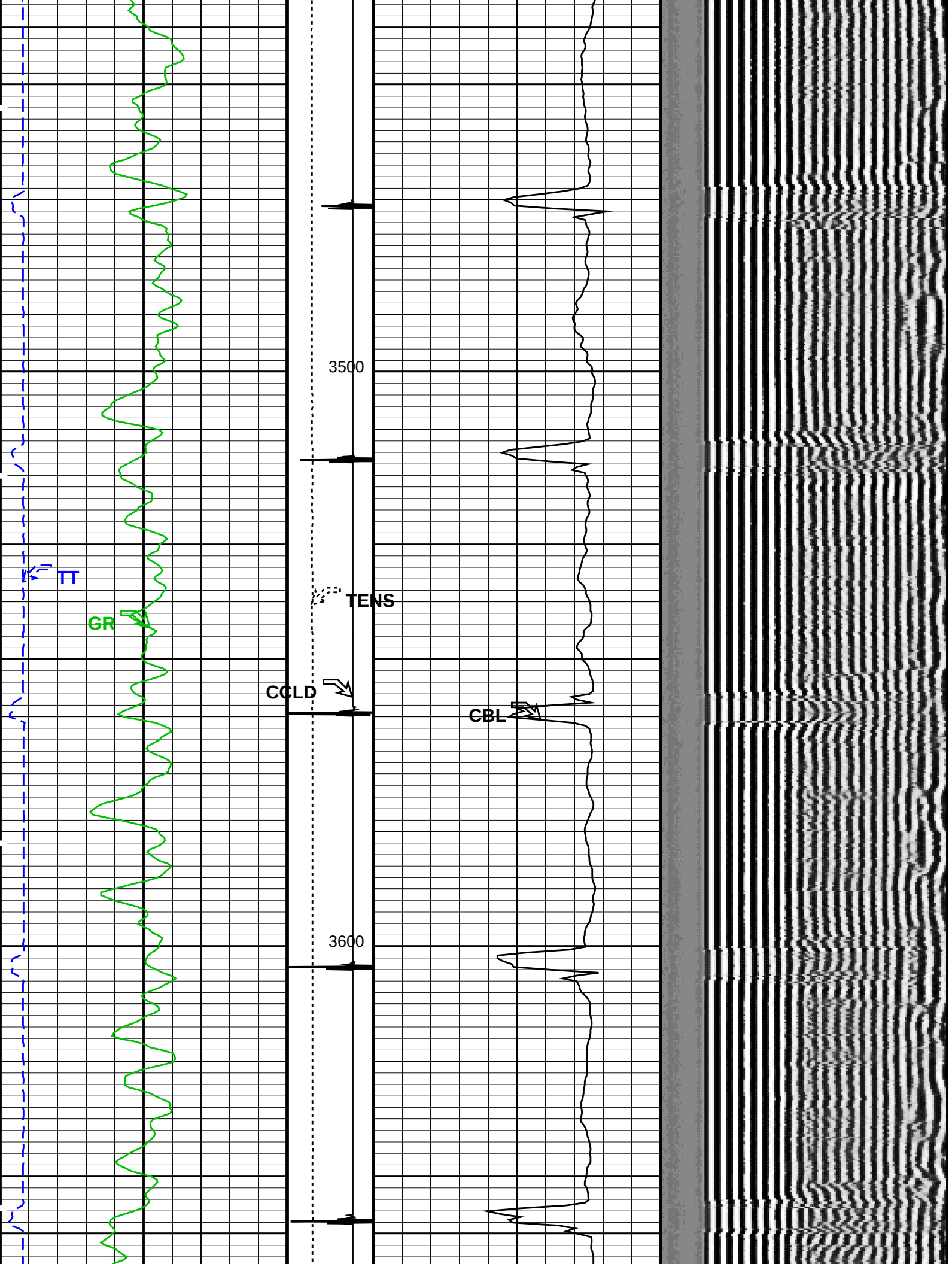

2400
2500
TT
GR
TENS


CCLD
CBL
2600
2700


TT
GR
TENS
2800
CCLD
CBL
2900


3000
TT
TENS
GR
CCLD
CBL
3100
3200


TT
GR
TENS
3300
CCLD
CBL
3400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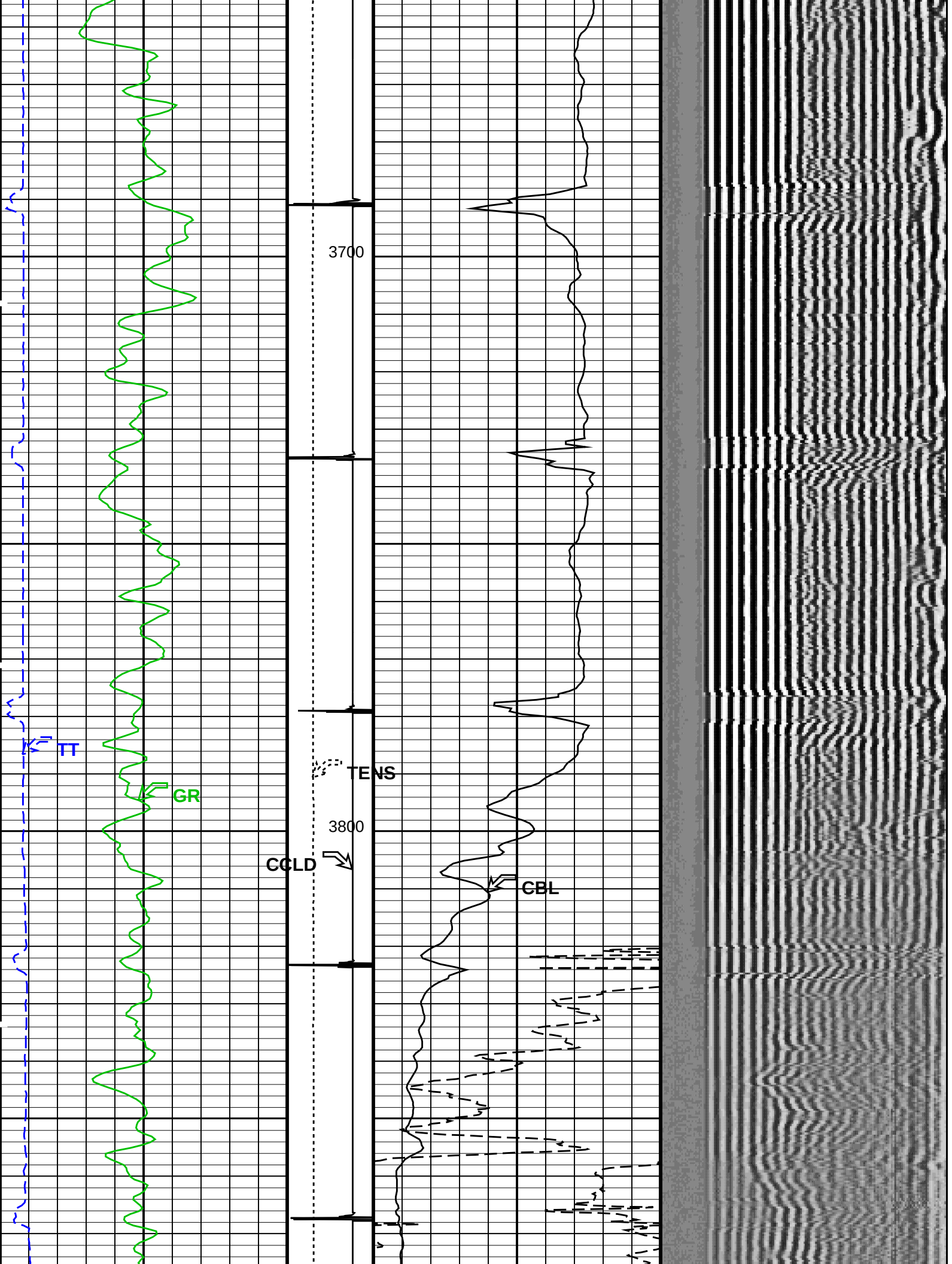
TT
TENS
GR
CCLD
CBL
3600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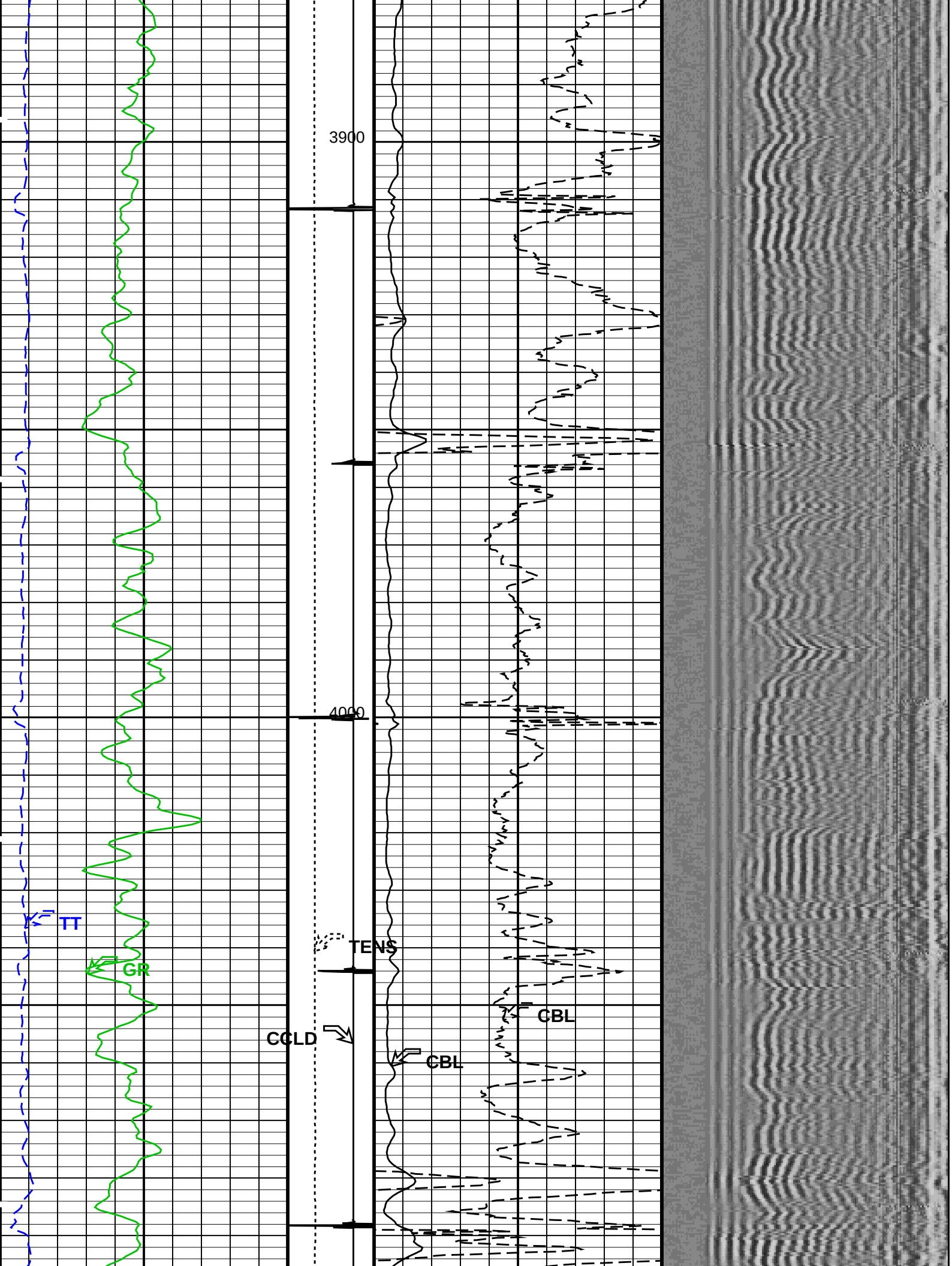
TT
GR
TENS
3800
CCLD
CBL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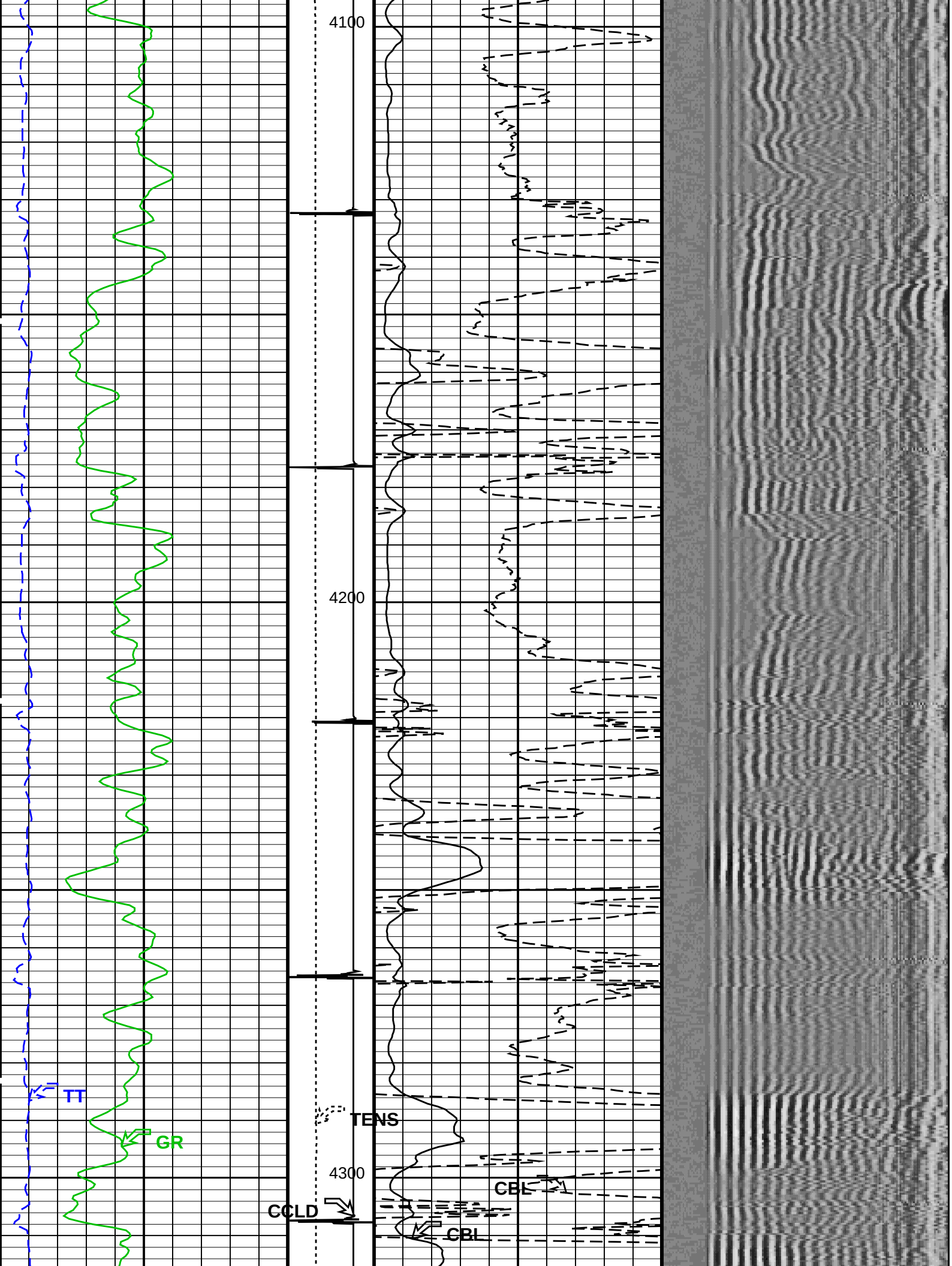
4000
TT
GR
TENS
CCLD
CBL
CBL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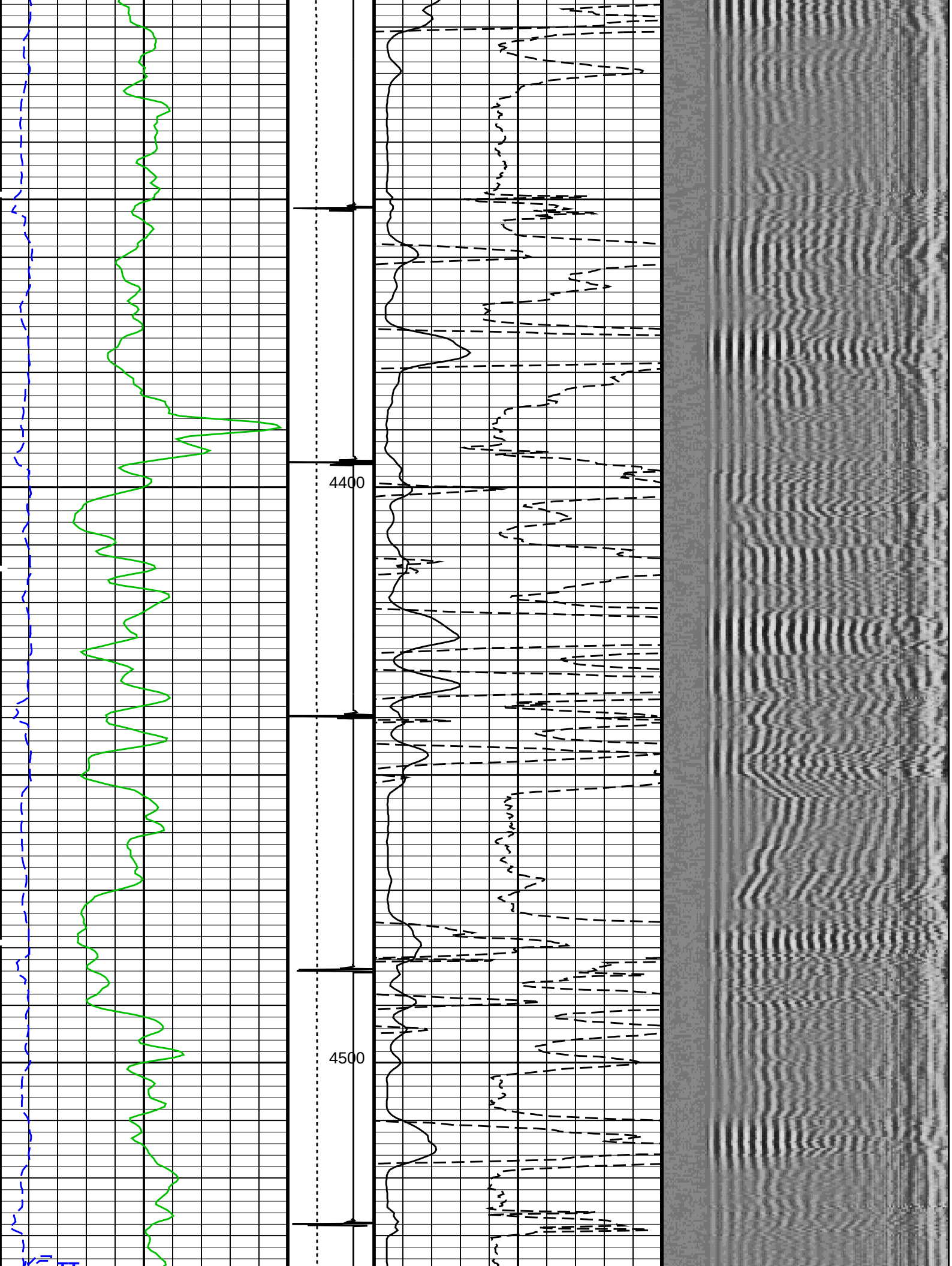
4200
4300
TT
GR
TENS
CCLD
CBL
CBL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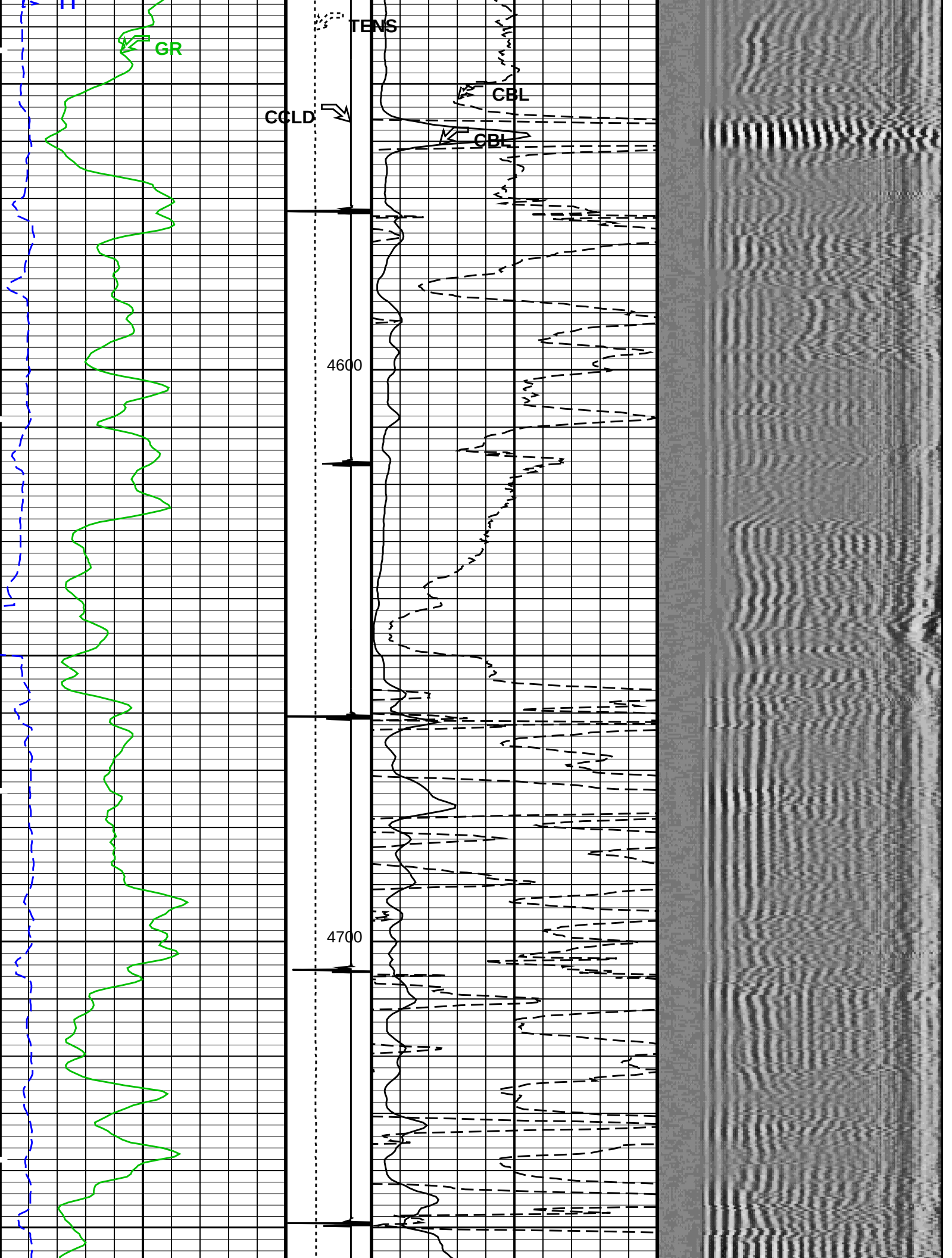
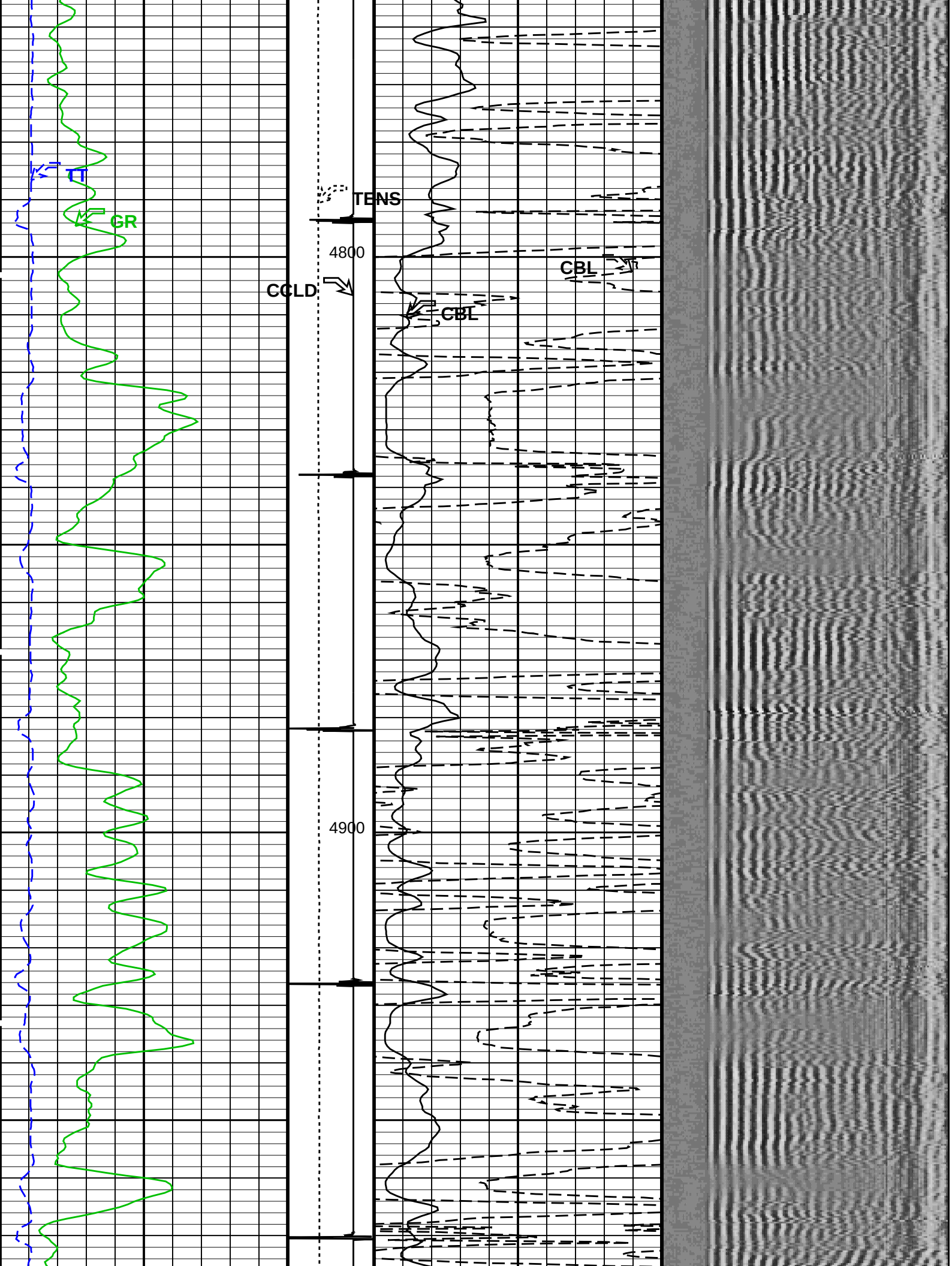
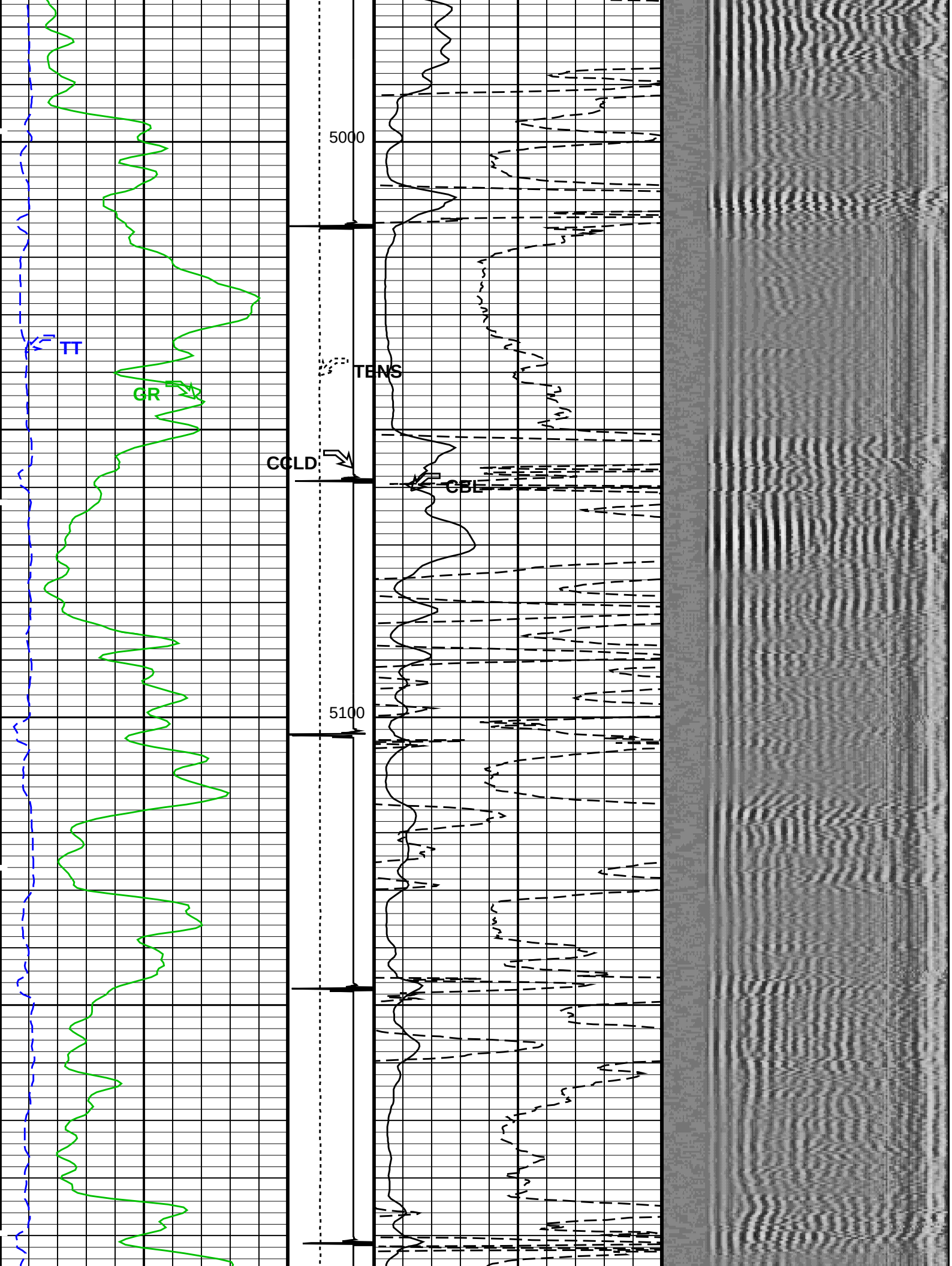

TENS
GR
CCLD
CBL
CBL
4600
4700


TT
GR
TENS
4800
CCLD
CBL
CBL
4900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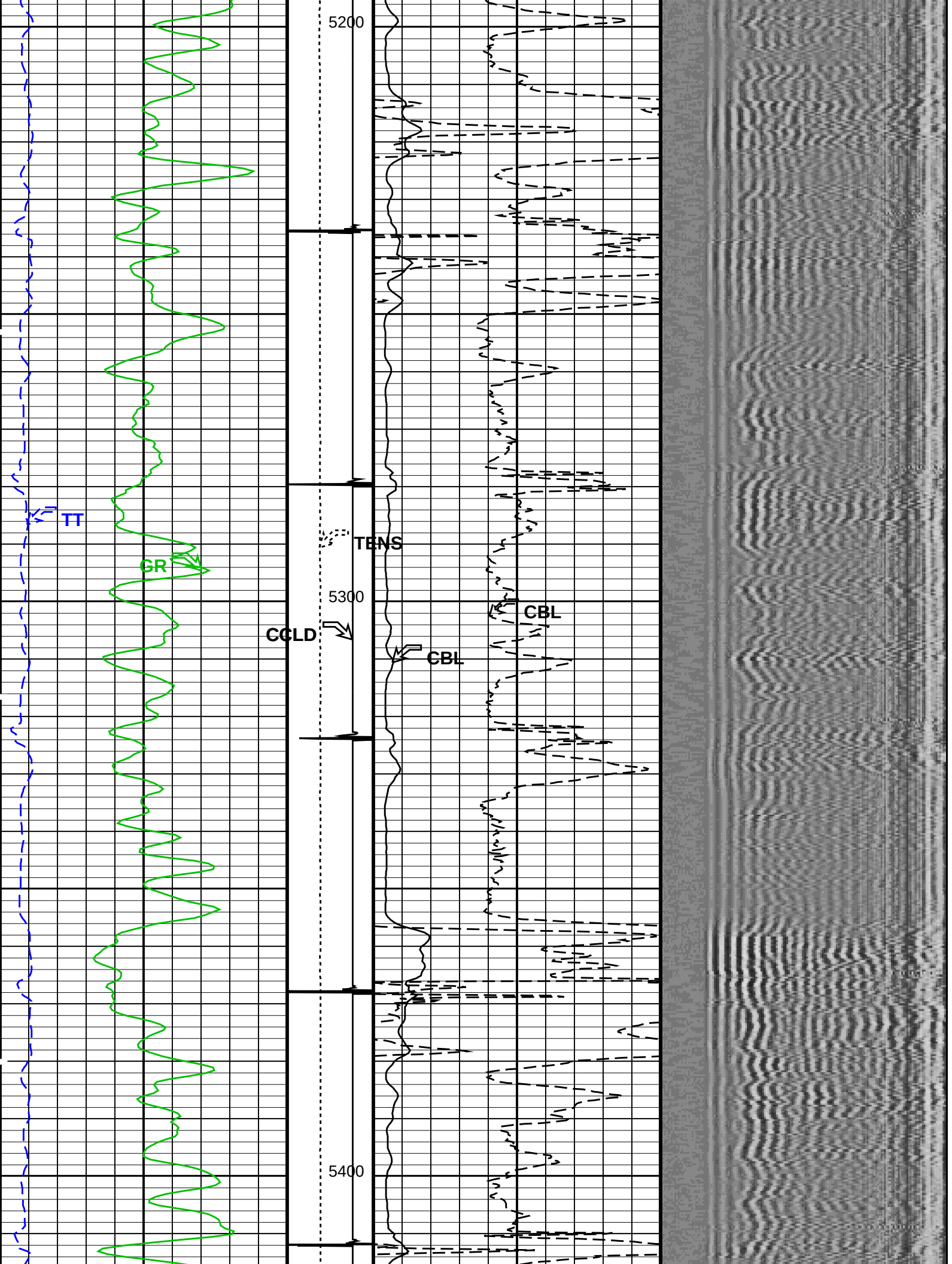
TT
TENS
GR
CCLD
CBL
5100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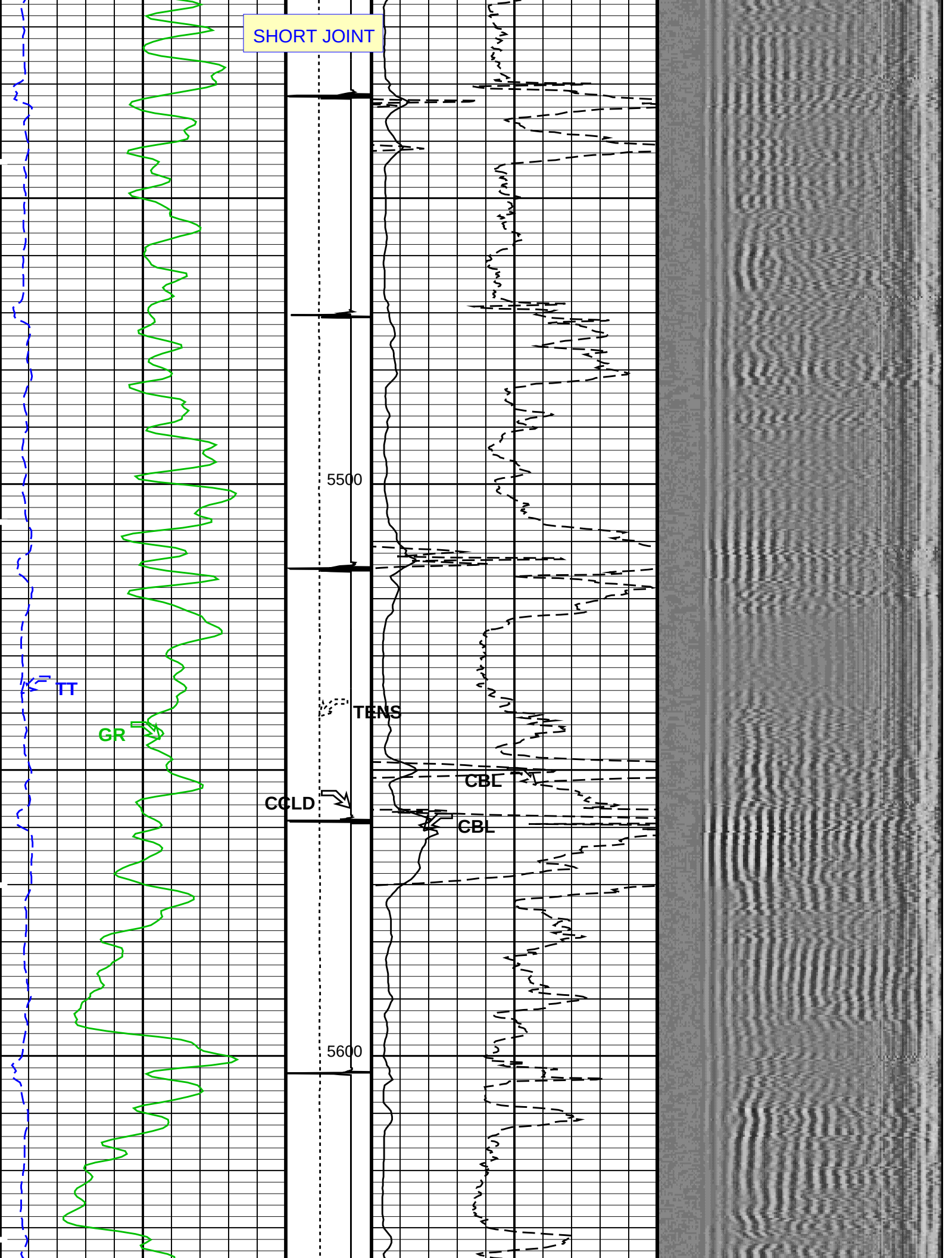
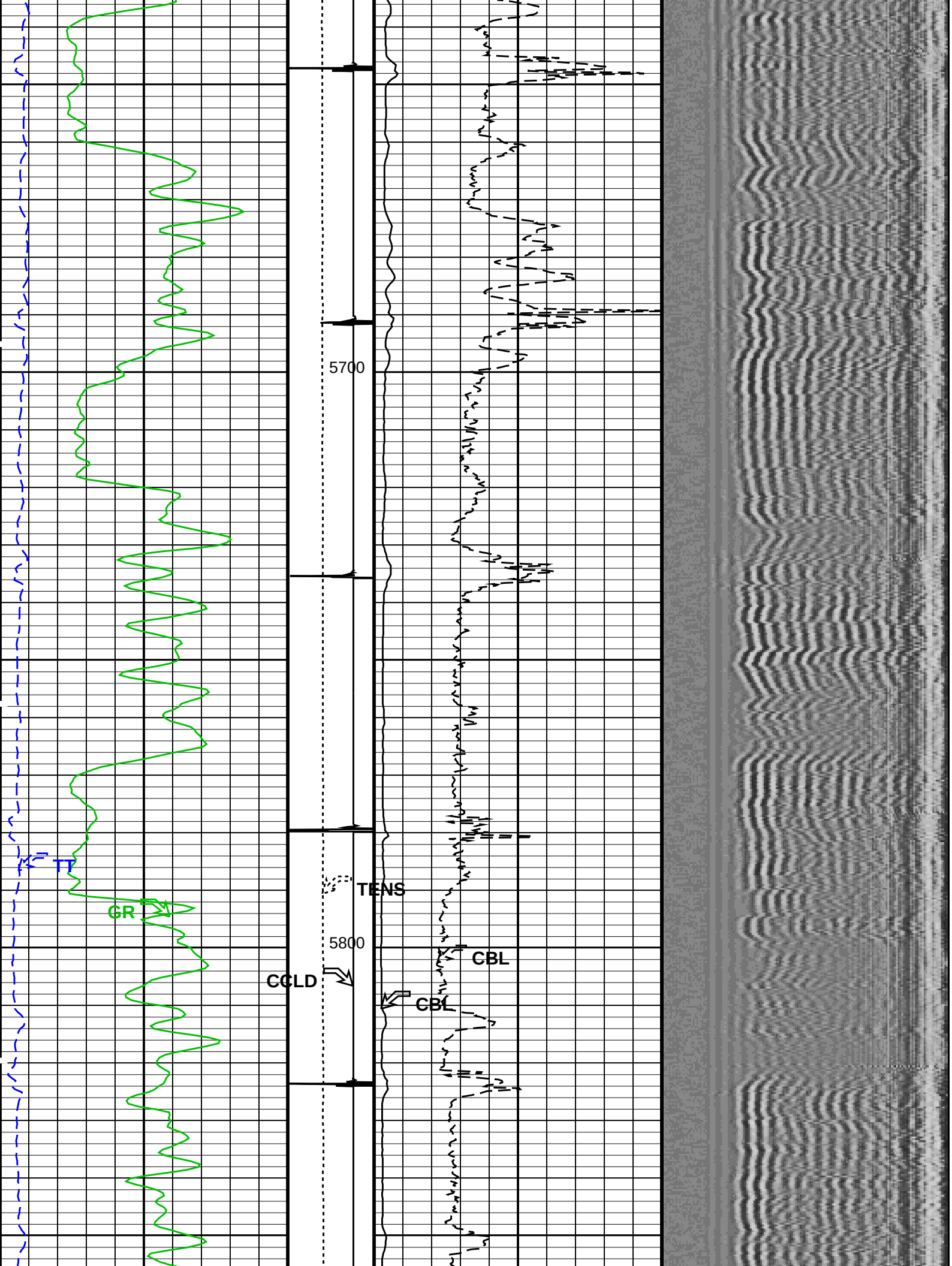
TT
TENS
GR
5300
CBL
CCLD
CBL
5400


SHORT JOINT
5500
TT
TENS
GR
CBL
CCLD
CBL
5600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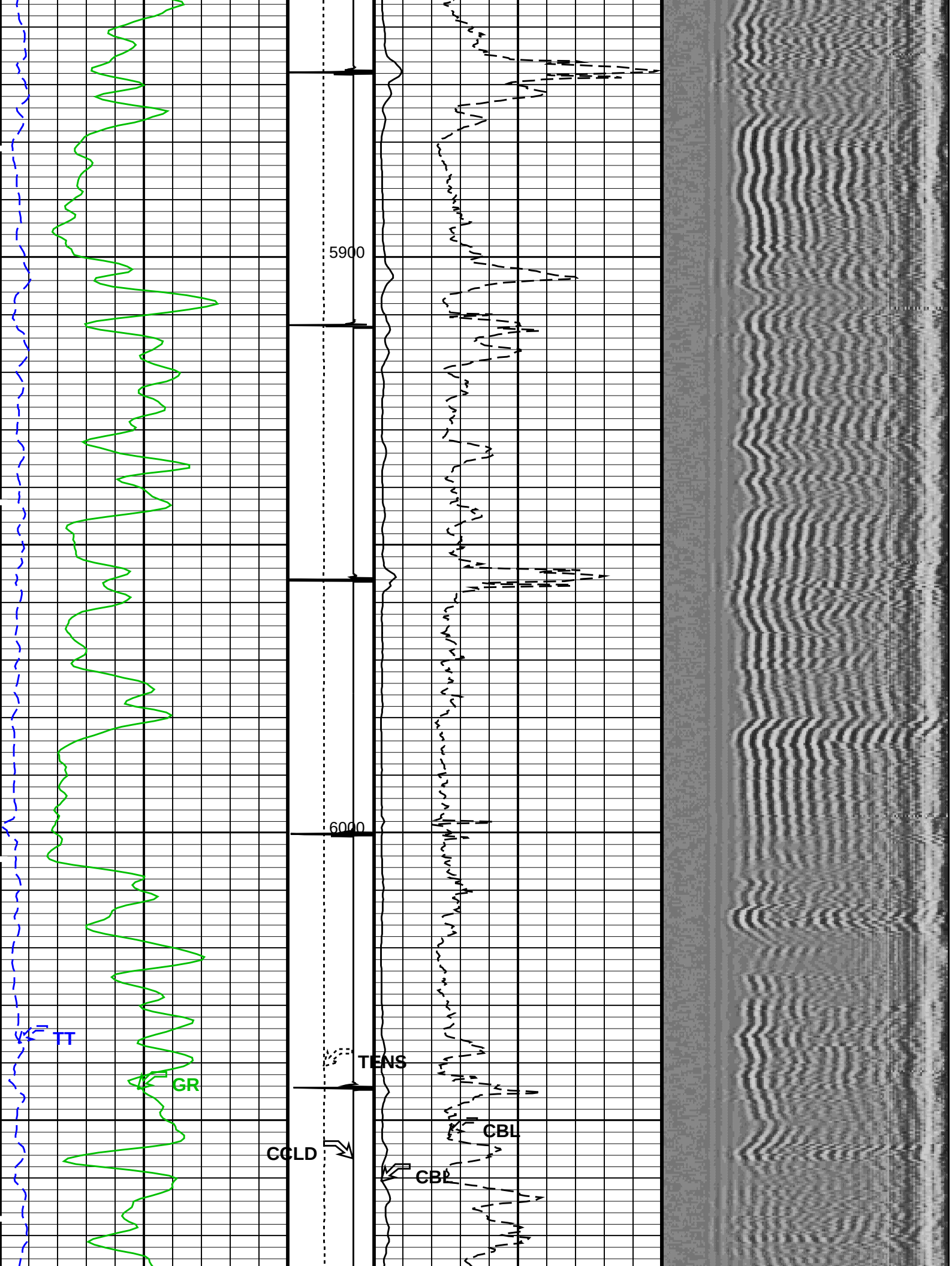
TT
TENS
GR
5800
CBL
CCLD
CBL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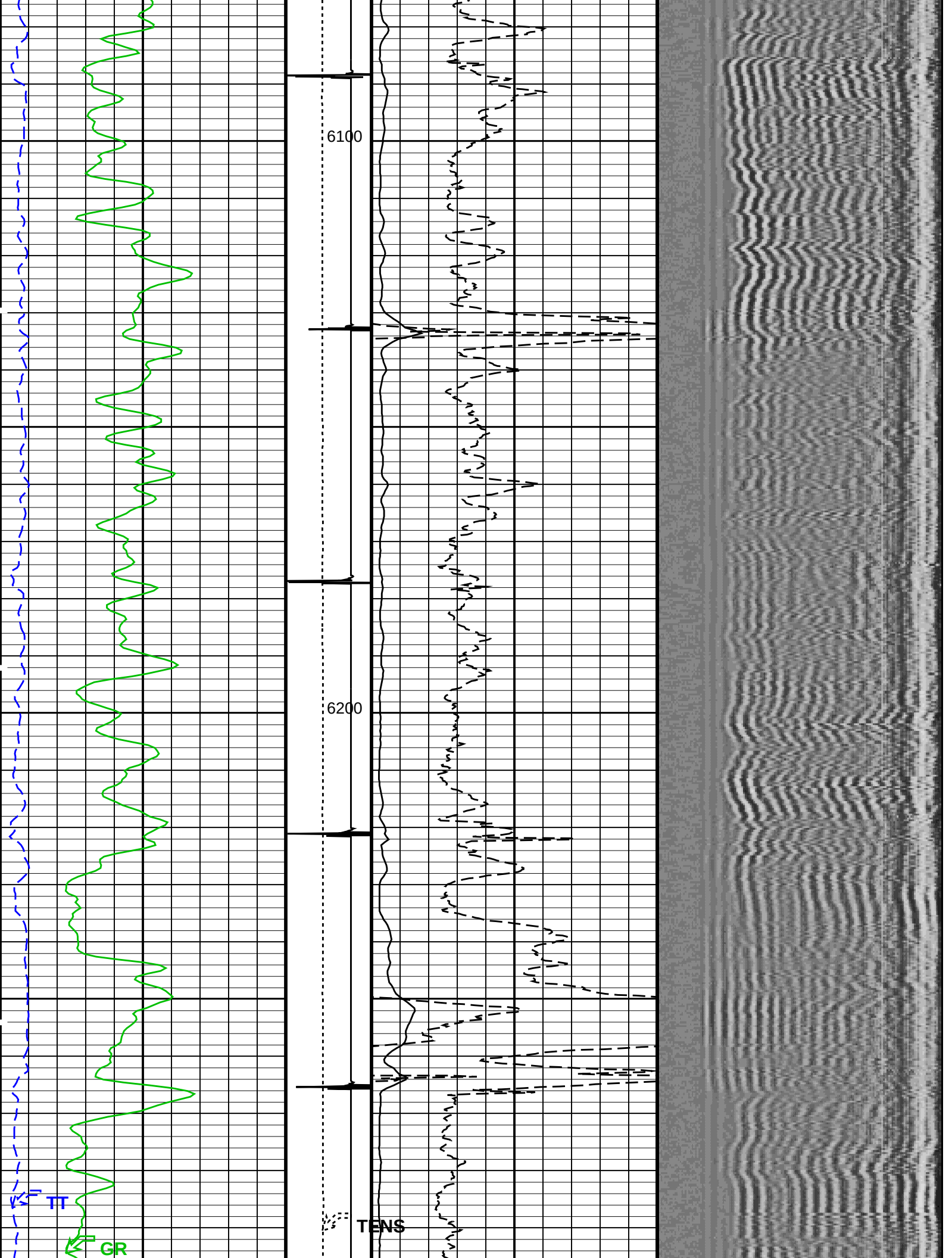
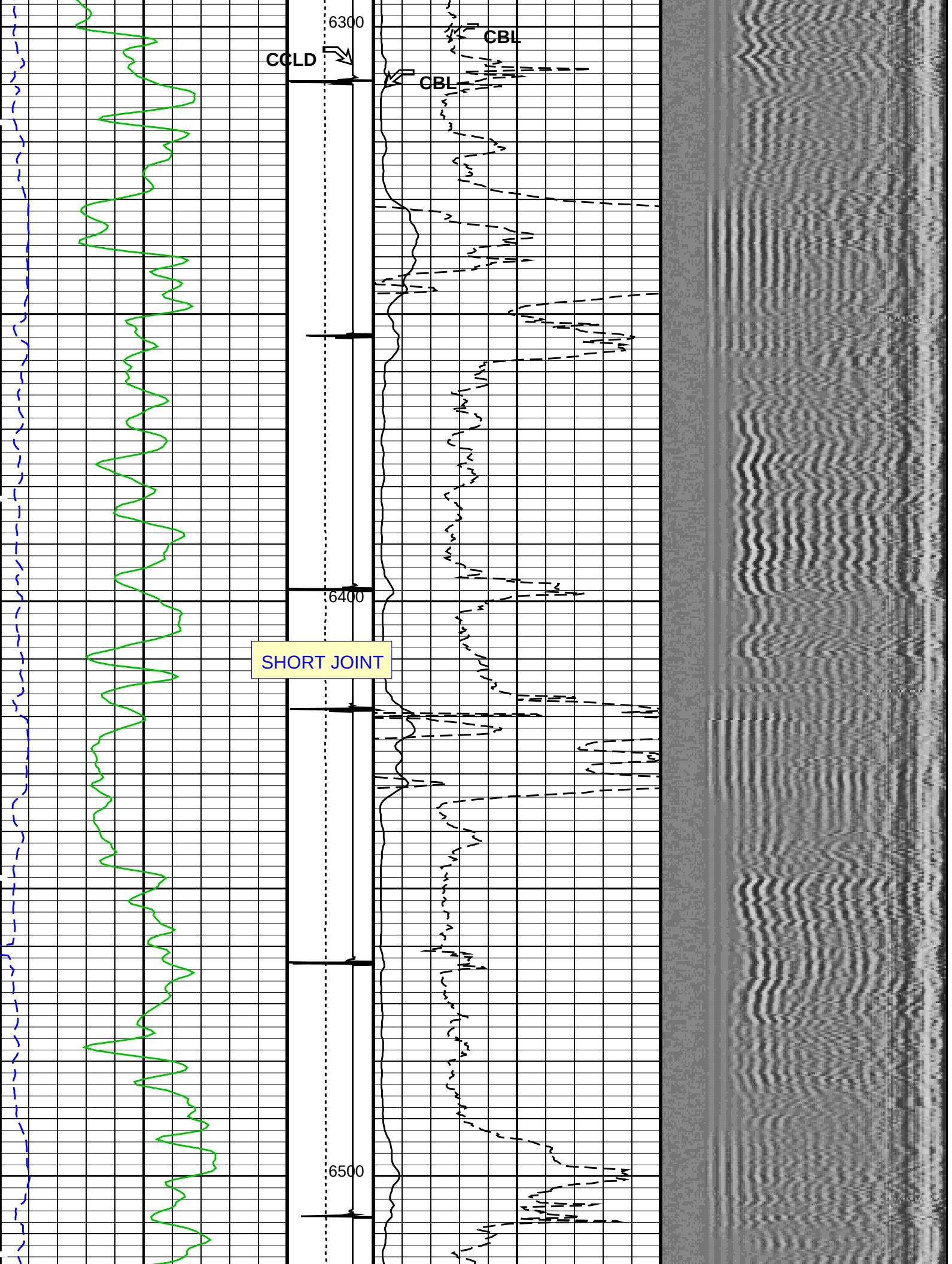
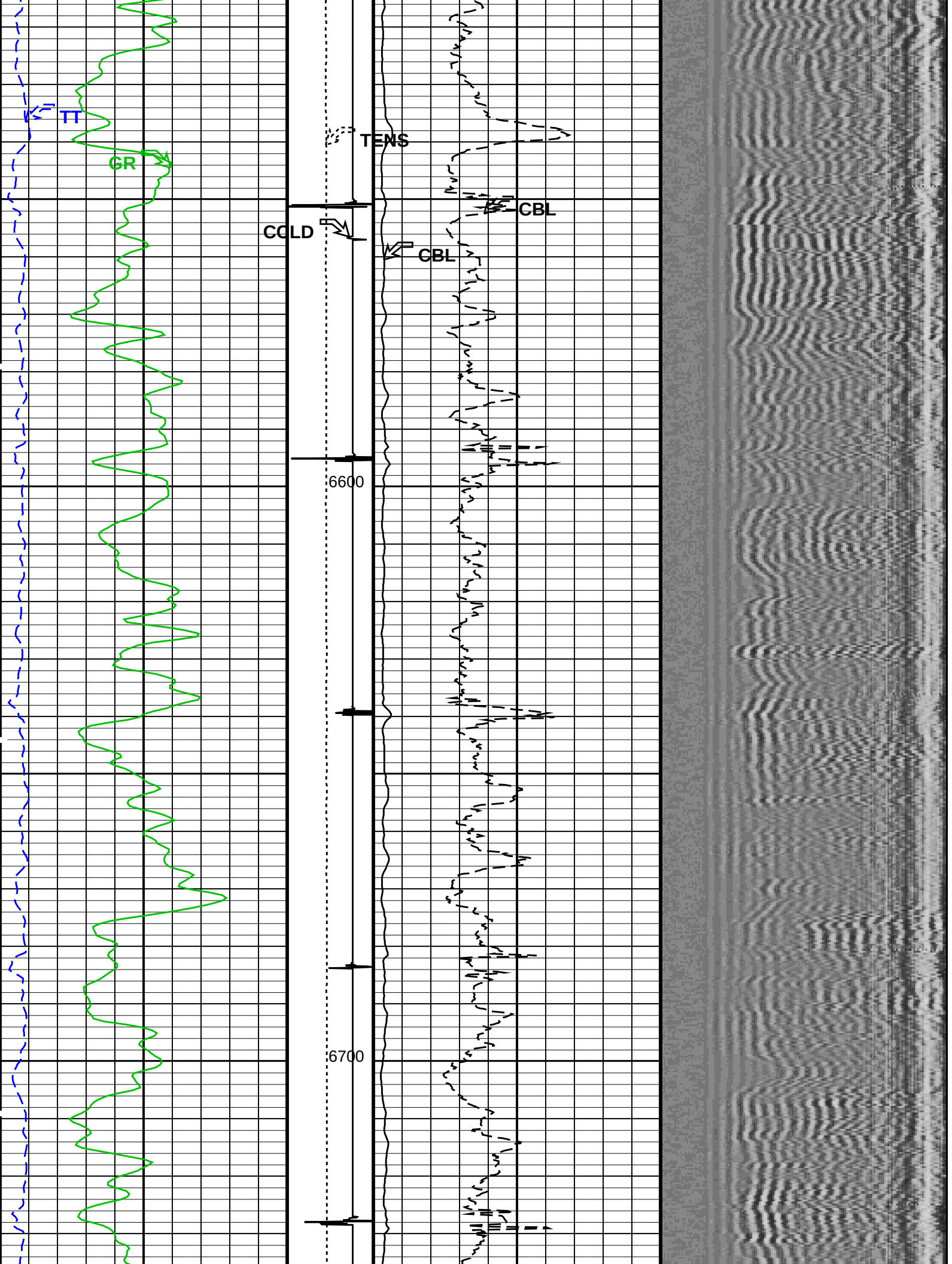
6000
TT
GR
TENS
CCLD
CBL
CBL


6100
6200
TT
GR
TENS


6300
CCLD
CBL
CBL
6400
SHORT JOINT
6500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GR
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CCLD
CBL
6600
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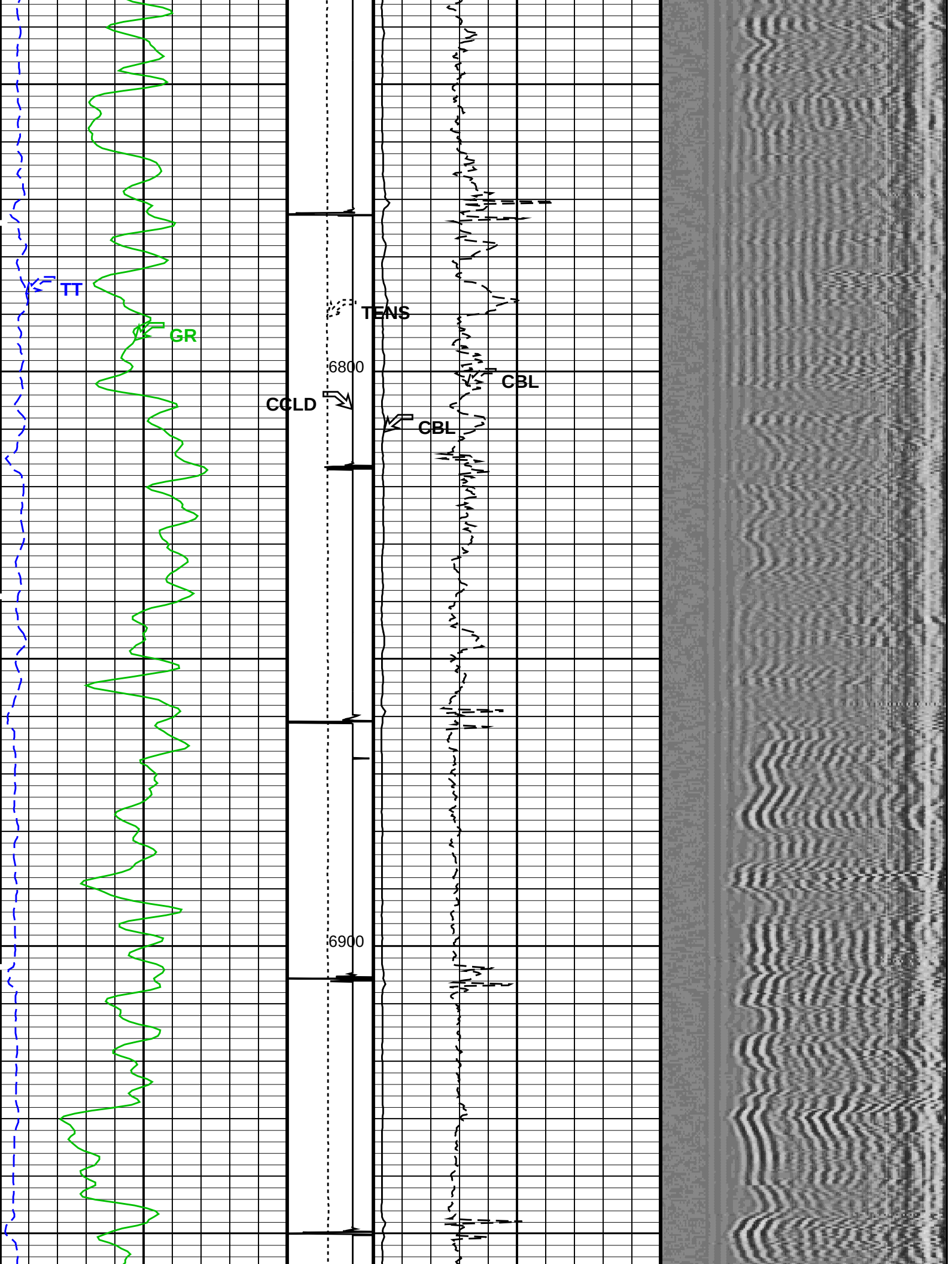
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TENS
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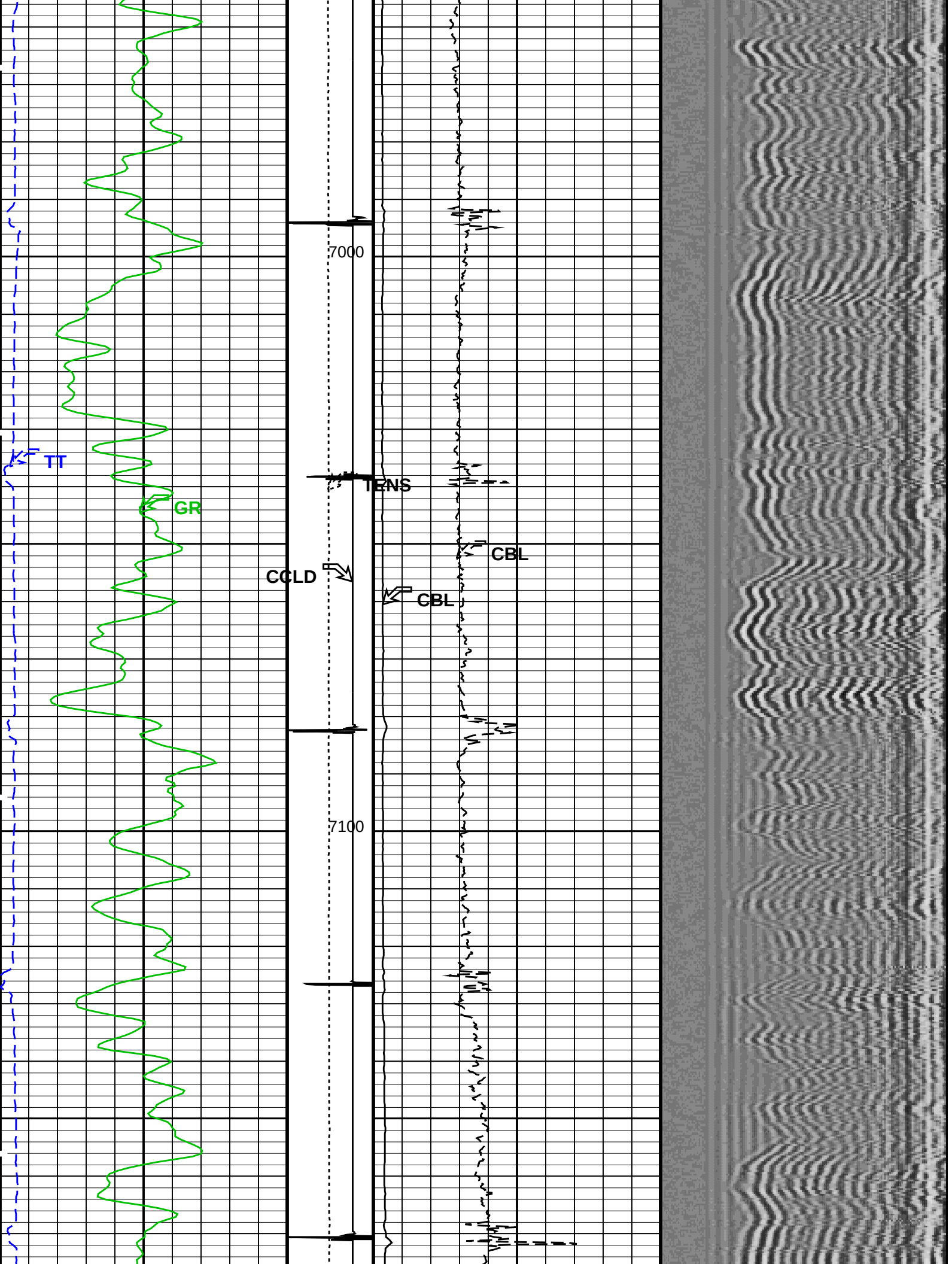
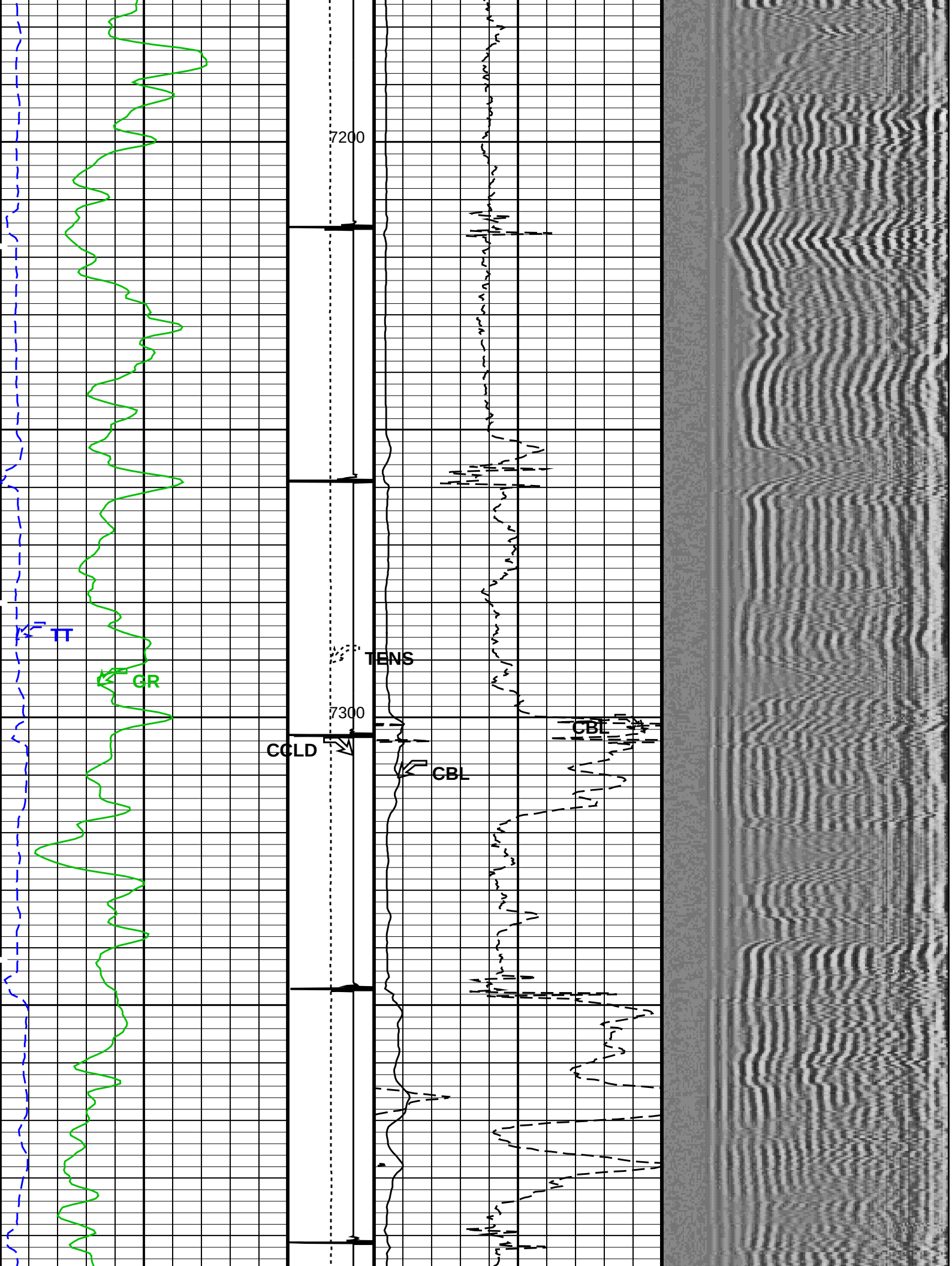
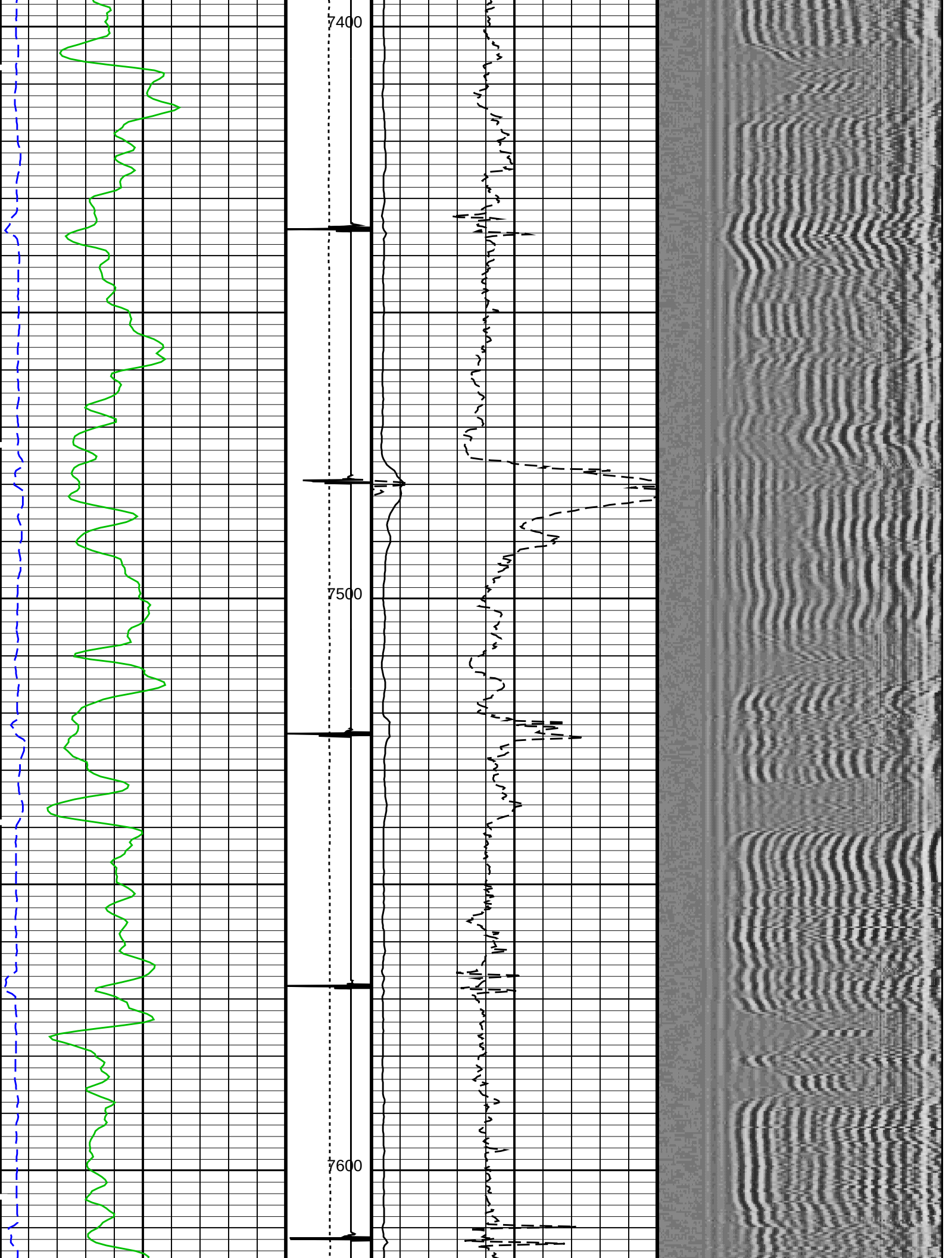
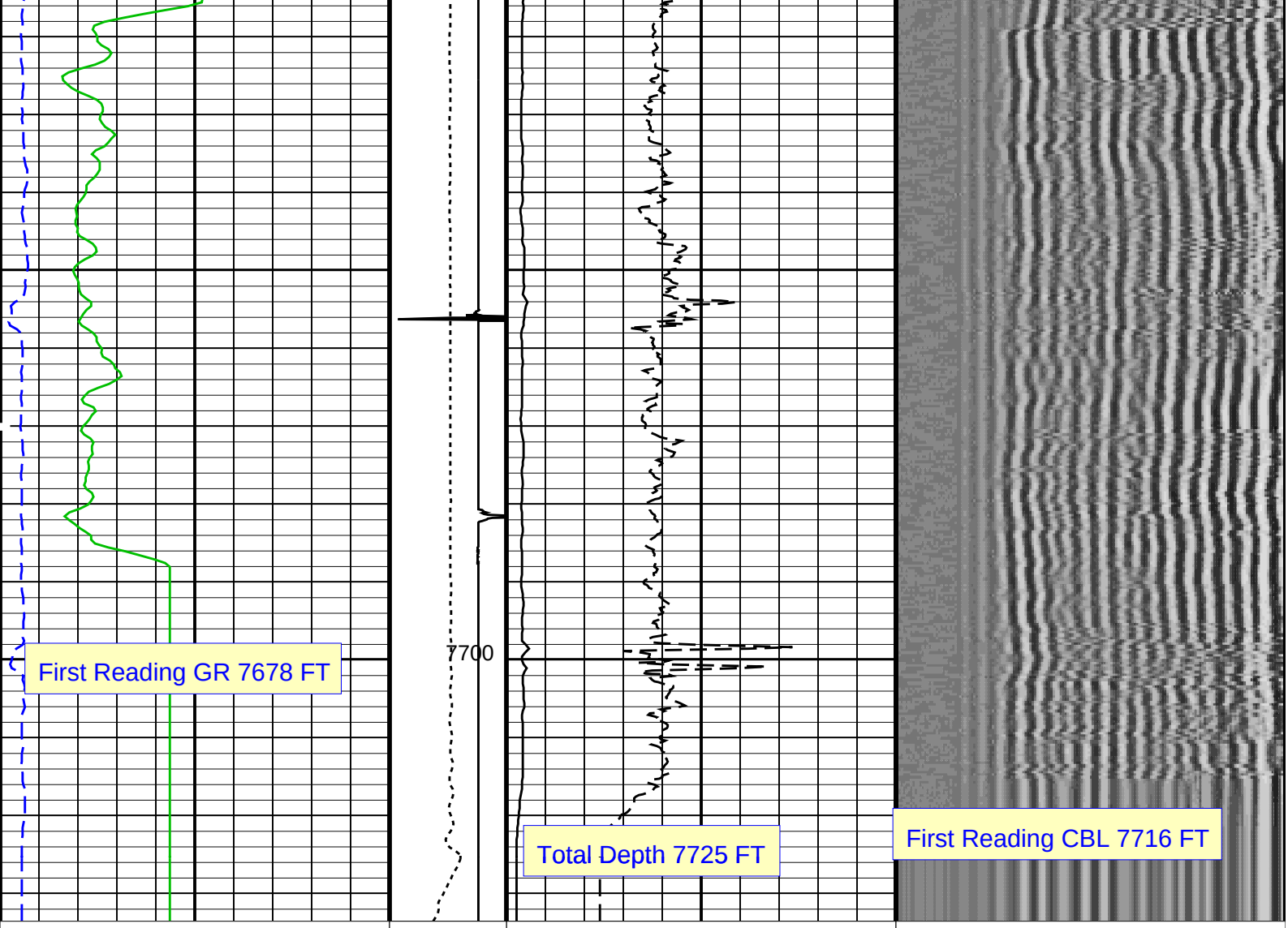
CBL
CBL
6900


7000
TT
TENS
GR
CBL
CCLD
CBL
7100


7200
TT
GR
TENS
7300
CCLD
CBL
CBL


7400
7500
7600



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: 13−Sep−2013 20:16

OP System Version: 19C0−187

SCMT−CB	19C0−187	RST−C	19C0−187
PSPT	19C0−187		

<<<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)	

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
PP	Playback Processing	RECOMPUTE	
TD	Total Depth	7725	FT

Input DLIS Files

DEFAULT	Splice_SCMT_RST_PSP_031CUP	FN:1	PRODUCER	13−Sep−2013 20:14	7731.5 FT	−36.4 FT

Output DLIS Files

DEFAULT	SCMT_RST_PSP_032PUP	FN:30	PRODUCER	13−Sep−2013 20:16

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REPEAT ANALYSIS CBL VDL

Company: ENCANA OIL & GAS (USA) INC | Well: HAGEN FEDERAL 22−4D (PC22)

Input DLIS Files

DEFAULT	SCMT_RST_PSP_025LUP	FN:24	PRODUCER	13−Sep−2013 17:40	5766.5 FT	5357.0 FT
DEFAULT	SCMT_RST_PSP_032PUP	FN:30	PRODUCER	13−Sep−2013 20:16	7733.5 FT	−85.5 FT

Output DLIS Files

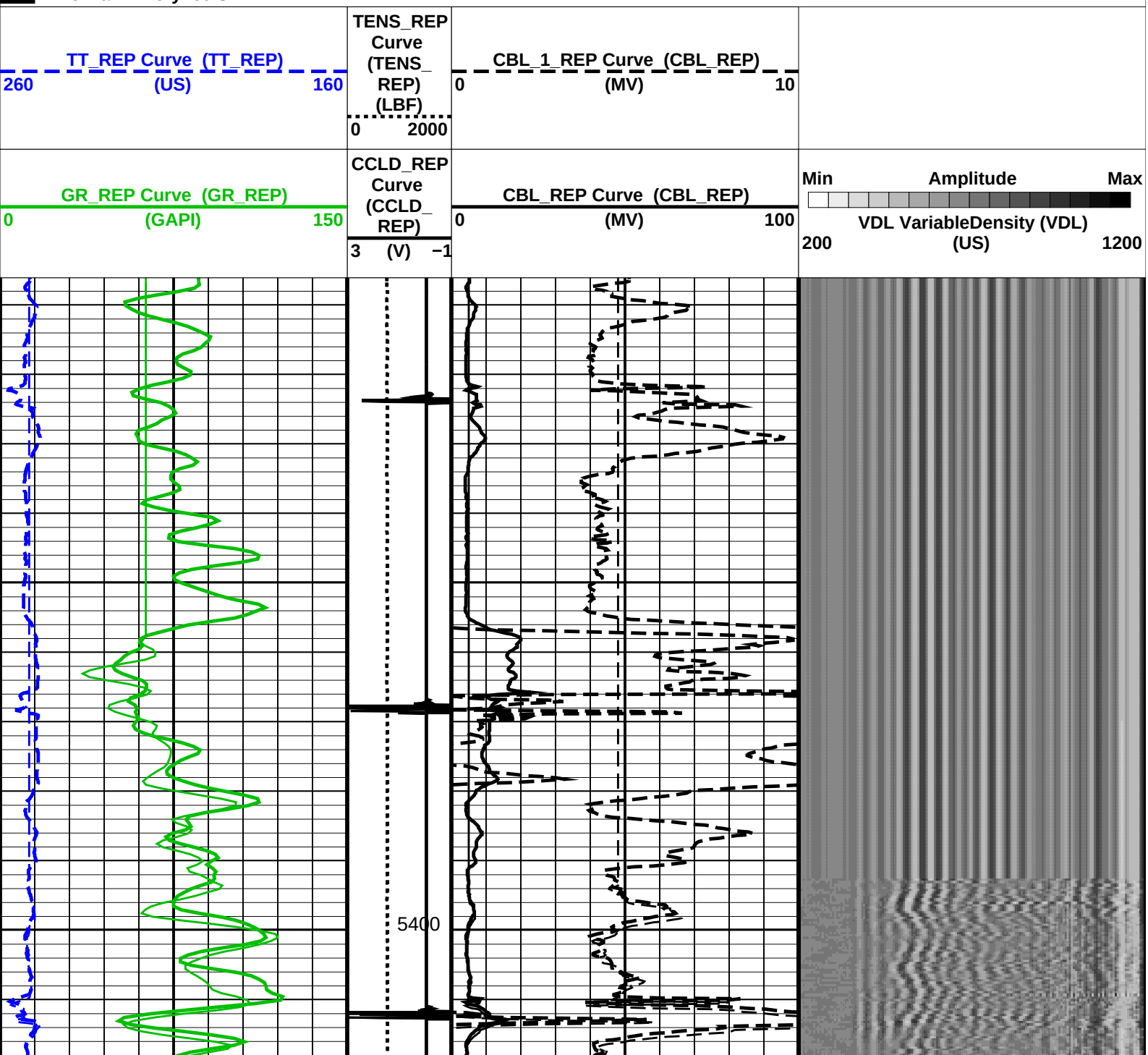
DEFAULT	SCMT_RST_PSP_033PUP	FN:31	PRODUCER	13−Sep−2013 20:21	5766.5 FT	5305.5 FT

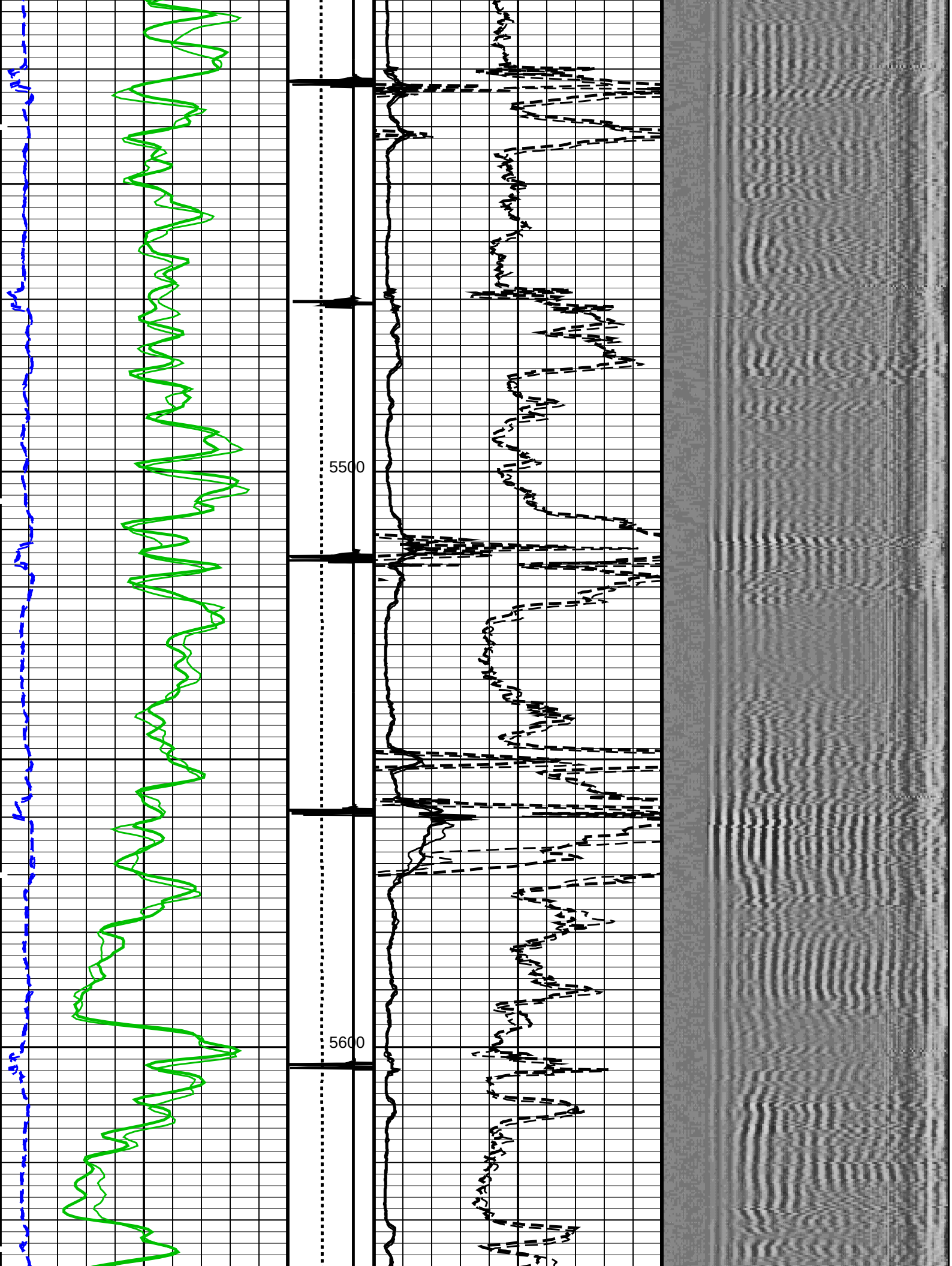
OP System Version: 19C0−187

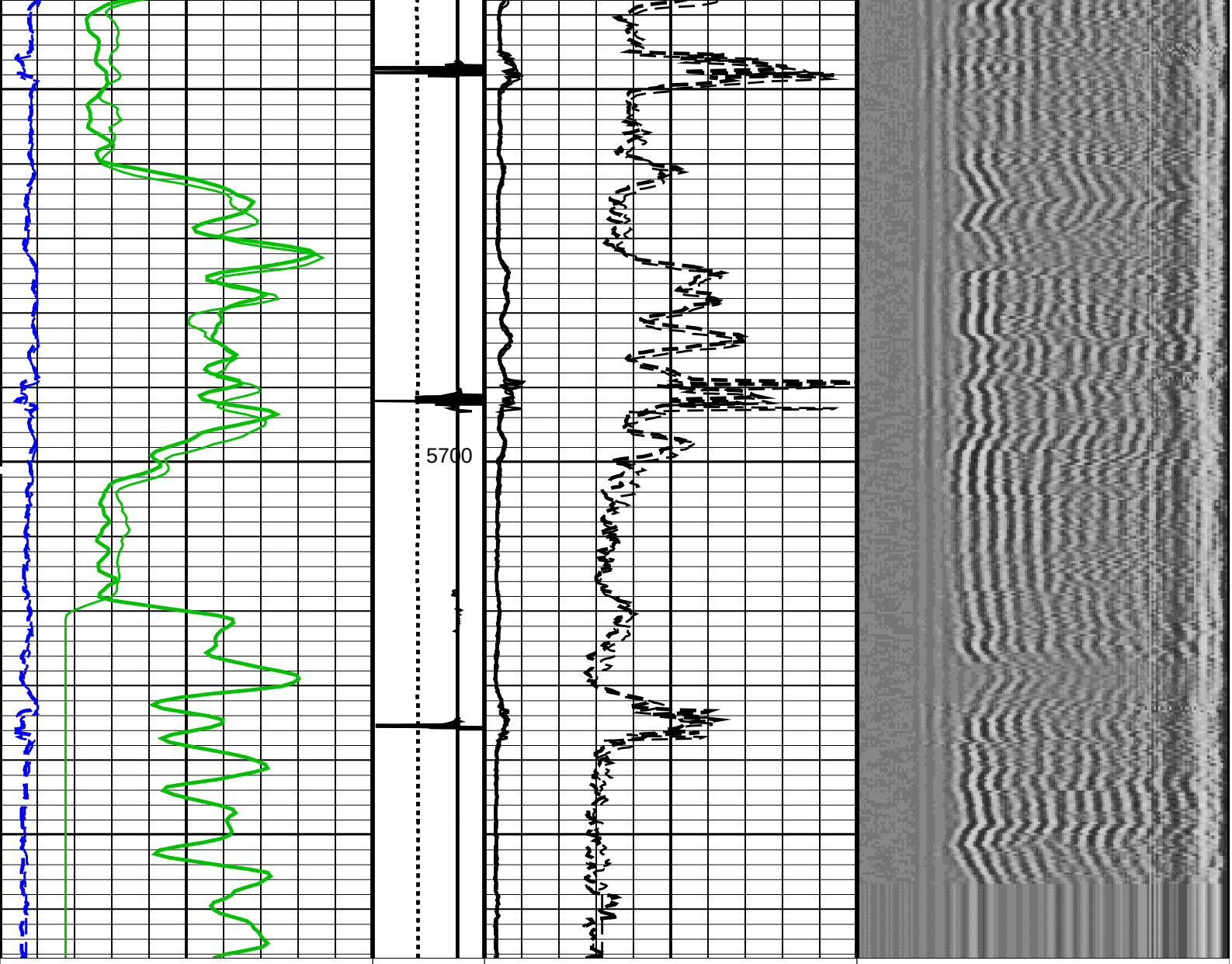
SCMT−CB	19C0−187	RST−C	19C0−187
PSPT	19C0−187		

PIP SUMMARY

Time Mark Every 60 S




5500
5600



GR_REP Curve (GR_REP) 0 (GAPI) 150	CCLD_REP Curve (CCLD_REP) 3 (V) −1	CBL_REP Curve (CBL_REP) 0 (MV) 100
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

Min Amplitude Max

VDL VariableDensity (VDL)

200 (US) 1200

PIP SUMMARY

Time Mark Every 60 S

Format: CBL_VDL_REP Vertical Scale: 5" per 100' Graphics File Created: 13−Sep−2013 20:21

OP System Version: 19C0−187

SCMT−CB	19C0−187	RST−C	19C0−187
PSPT	19C0−187		

<<<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**	**0.0**	**FT**
DORL	**Depth Offset for Repeat Analysis**	**0.0**	**FT**
PP	**Playback Processing**	**RECOMPUTE**	
TD	**Total Depth**	**7725**	**FT**

Input DLIS Files

DEFAULT	**SCMT_RST_PSP_025LUP**	**FN:24**	**PRODUCER**	**13−Sep−2013 17:40**	**5766.5 FT**	**5357.0 FT**
DEFAULT	**SCMT_RST_PSP_032PUP**	**FN:30**	**PRODUCER**	**13−Sep−2013 20:16**	**7733.5 FT**	**−85.5 FT**

Output DLIS Files

DEFAULT	**SCMT_RST_PSP_033PUP**	**FN:31**	**PRODUCER**	**13−Sep−2013 20:21**

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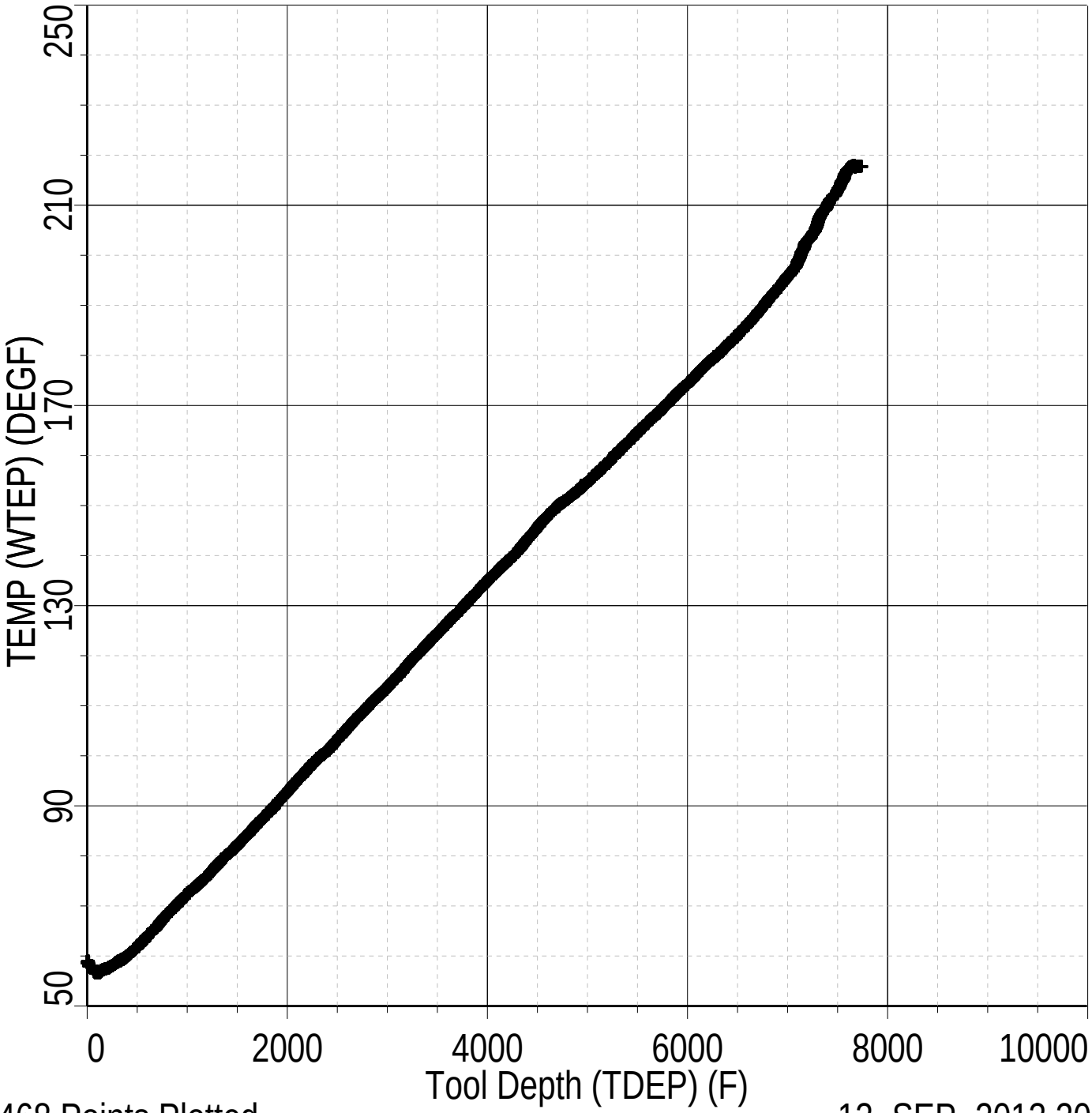
TEMPERATURE PLOT

MAXIS Field Log

Index: 7733.5 – −85.5 FT



15468 Points Plotted

13−SEP−2013 20:20

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PBMS COEFFICIENTS

Client:	**ENCANA OIL & GAS (USA) INC**	**Tool:**	**PSP**
Field:	**SOUTH PARACHUTE**	**Sub Type:**	**PBMS**
Well:	**HAGEN FEDERAL 22−4D (PC22)**	**Sensor:**	**GR**
Run date:	**13−Sep−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:	**SOUTH PARACHUTE**	**Sub Type:**	**PBMS**
Well:	**HAGEN FEDERAL 22−4D (PC22)**	**Sensor:**	**WellTemp RTD**
Run date:	**13−Sep−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

	Tt0**	**Tt**1**	**Tt**2**

	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 22−4D (PC22)**	**Sensor:**	**CQG**
Run date:	**13−Sep−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
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**

	Fc**3	Fc**4	Fc**5
Fb0**	**+.114322792679E−12**	**+.153807711176E−17**	**−.736714260866E−21**
Fb1**	**−.528037875456E−18**	**−.220337637519E−21**	**0.0**
Fb2**	**0.0**	**0.0**	**0.0**
Fb3**	**0.0**	**0.0**	**0.0**
Fb4**	**0.0**	**0.0**	**0.0**
Fb5**	**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	8179
Slim Cement Mapping Cartridge	SCMC − CA	8248

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		1208	Master		1275
	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		1182	Master		1049
	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		937.6	Master		990.2
	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		1063	Master		1166
	500.0 (Minimum) 1075 (Nominal) 1650 (Maximum)			500.0 (Minimum) 1075 (Nominal) 1650 (Maximum)	
Phase	CBL Amplitude Plus MV	Value			
Master		1363			
	1000 (Minimum) 1350 (Nominal) 1700 (Maximum)				

Master: Calibration out of date 6−Mar−2012 15:06

Company:	**ENCANA OIL & GAS (USA) INC**
Well:	**HAGEN FEDERAL 22−4D (PC22)**
Field:	**SOUTH PARACHUTE**
County:	**GARFIELD**
State:	**COLORADO**

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SLIM CEMENT MAPPING LOG
CBL−VDL
GAMMA RAY−CCL