

Schlumberger

Company: ENCANA OIL & GAS (USA) INC.

Well: SG 8509D-21 (N22496)

Field: Story Gulch

County: Garfield

State: Colorado

SLIM CEMENT MAPPING TOOL
CBL - VDL
GAMMA RAY - CCL

County: Garfield
Field: Story Gulch
Location: SHL: 1212 FSL 1966 FWL
Well: SG 8509D-21 (N22496)
Company: ENCANA OIL & GAS (USA) INC

LOCATION			
SHL: 1212 FSL 1966 FWL	Elev: K.B. 7607.00 ft		
BHL: 1799 FSL 1301 FEL	G.L. 7585.00 ft		
39.683886N 108.167197W	D.F. 7607.00 ft		
Permanent Datum:	GROUND LEVEL	Elev: 7585.00 ft	
Log Measured From:	KELLY BUSHING	22.00 ft	above Perm. Datum
Drilling Measured From:	KELLY BUSHING		
API Serial No.	Section	Township	Range
05-045-21 044-00	22	4S	96W
Logging Date	12-Jul-2012		
Run Number	1		
Depth Driller	11805 ft		
Schlumberger Depth	11747 ft		
Bottom Log Interval	11738 ft		
Top Log Interval	200 ft		
Casing Fluid Type	FRESH WATER		
Salinity			
Density	8.6 lbm/gal		
Fluid Level	22 ft		
BIT/CASING/TUBING STRING			
Bit Size	8.750 in		
From	0 ft		
To	11805 ft		
Casing/Tubing Size	4.500 in		
Weight	11.6 lbm/ft		
Grade	P-110		
From	0 ft		
To	11785 ft		
Maximum Recorded Temperatures	283 degF		
Logger On Bottom	12-Jul-2012	20:00	
Unit Number	391	Grand Junction	
Recorded By	Kirstie Bunting		
Witnessed By	SCOTT PITT		

PVT DATA			
Oil Density	Run 1	Run 2	Run
Water Salinity			
Gas Gravity			
Bo			
Bw			
1/Bq			
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			
Unit Number			
Recorded By			
Witnessed By			

DEPTH SUMMARY LISTING

Date Created: 10-JUL-2012 13:51:17

Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW-B	Type:	CMTD-B/A	Type:	1-25ZT
Serial Number:	5873	Serial Number:	5006	Serial Number:	391
Calibration Date:	20-DEC-2011	Calibration Date:	21-JUN-2012	Length:	24000 FT
Calibrator Serial Number:	33	Calibrator Serial Number:	174878	Conveyance Method: Wireline Rig Type: LAND	
Calibration Cable Type:	1-25ZT	Number of Calibration Points:	10		
Wheel Correction 1:	-3	Calibration RMS:	15		
Wheel Correction 2:	-3	Calibration Peak Error:	9		

Depth Control Parameters

Log Sequence: First Log In the Well

Rig Up Length At Surface: 200.00 FT

Rig Up Length At Bottom: 200.00 FT

Rig Up Length Correction: 0.00 FT

Stretch Correction: 0.00 FT

Tool Zero Check At Surface: 0.00 FT

Depth Control Remarks

1. ALL SCHLUMBERGER DEPTH PROCEDURES USED
2. PRIMARY DEPTH CONTROL: IDW
3. SECONDARY DEPTH CONTROL: DRUM COUNTER (SWPT)
- 4.
- 5.
- 6.

DISCLAIMER

THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE OF AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

OTHER SERVICES1

OS1: NONE

OS2:

OS3:

OS4:

OS5:

OTHER SERVICES2

OS1:

OS2:

OS3:

OS4:

OS5:

REMARKS: RUN NUMBER 1

FIRST RUN IN HOLE CORRELATED TO DOWN LOG

TOOL RAN AS PER TOOL SKETCH

ENTRANCE TIME: 19:15

TIME AT BOTTOM: 20:00

EXIT TIME: 00:15 (07/13)

TOTAL DEPTH = 11747 FT

REMARKS: RUN NUMBER 2

ESTIMATED TOP OF CEMENT = 1000 FT	
MAX RECORDED TEMPERATURE = 283 DEGF	
MAX RECORDED PRESSURE = 4631 PSIA	
STRETCH CORRECTION = 7 FT	
CBAF = .90	
CYCLE SKIPPING DUE TO GOOD BOND	
EXPECTED CBL AMP IN FREE PIPE 80 MV	
MAIN LOG RAN WITH ZERO SURFACE PRESSURE	

THANK YOU FOR CHOOSING SCHLUMBERGER!

RUN 1			RUN 2		
SERVICE ORDER #:			SERVICE ORDER #:		
PROGRAM VERSION:			PROGRAM VERSION:		
FLUID LEVEL:			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

MH-22

33.2

AH-38

HBMS-B

PSC-A

HUDH-A

HSTC-A

HBMC-A

GR

CCL

HBMC

HTPS-A 2884

HCQG E_Mano

RTD_Thermometer

Detail MT

TelStatus

CTEM

GR

CCL

HSTC Aux.

HBMC Aux.

CQG Manom

Well_Temp

31.6

31.3

31.3

26.4

24.0

22.5

21.1

20.2

SCMT-CB

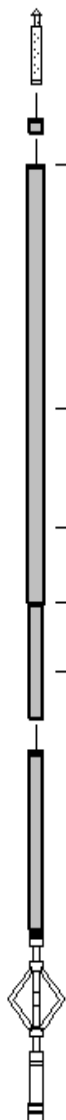
SCMC-CA 8172

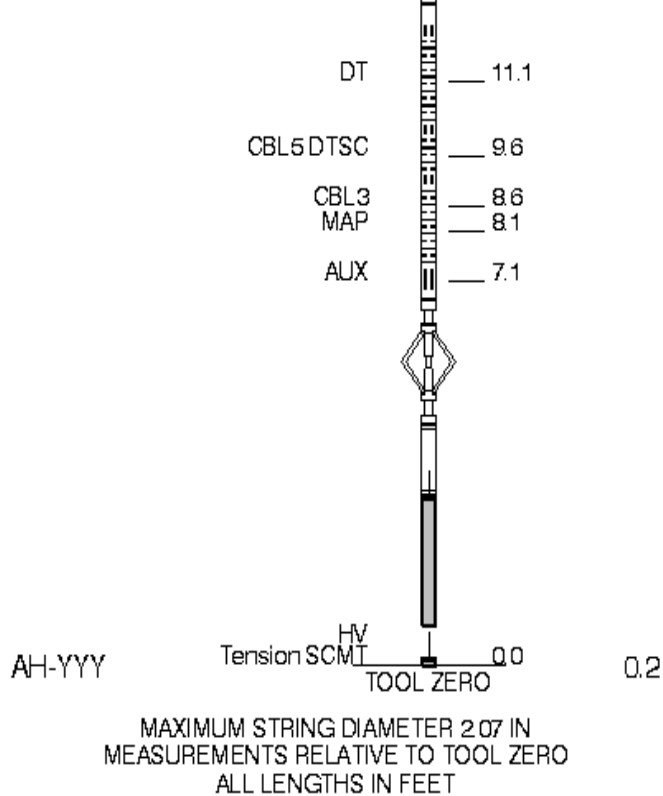
SECH-CA

CMIR-AG

SCMS-CB 8179

SCMX-CA





Schlumberger

MAIN PASS CBL VDL

MAXIS Field Log

Company: ENCANA OIL & GAS (USA) INC.

Well: SG 8509 D-21 (N22496)

Input DLIS Files

DEFAULT	Splice_SCMT_HBMS_123CUP	FN:1	PRODUCER	13-Jul-2012 00:28	11769.0 FT	103.0 FT
---------	-------------------------	------	----------	-------------------	------------	----------

Output DLIS Files

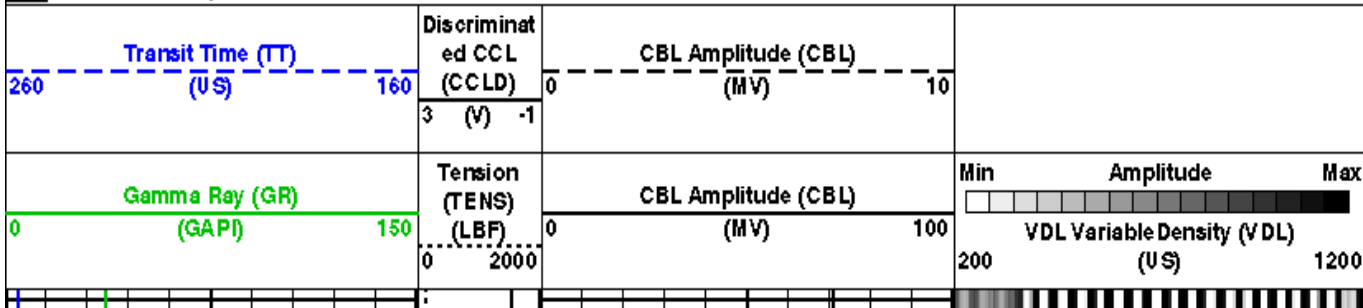
DEFAULT	SCMT_HBMS_124PUP	FN:113	PRODUCER	13-Jul-2012 00:31	11776.0 FT	78.5 FT
---------	------------------	--------	----------	-------------------	------------	---------

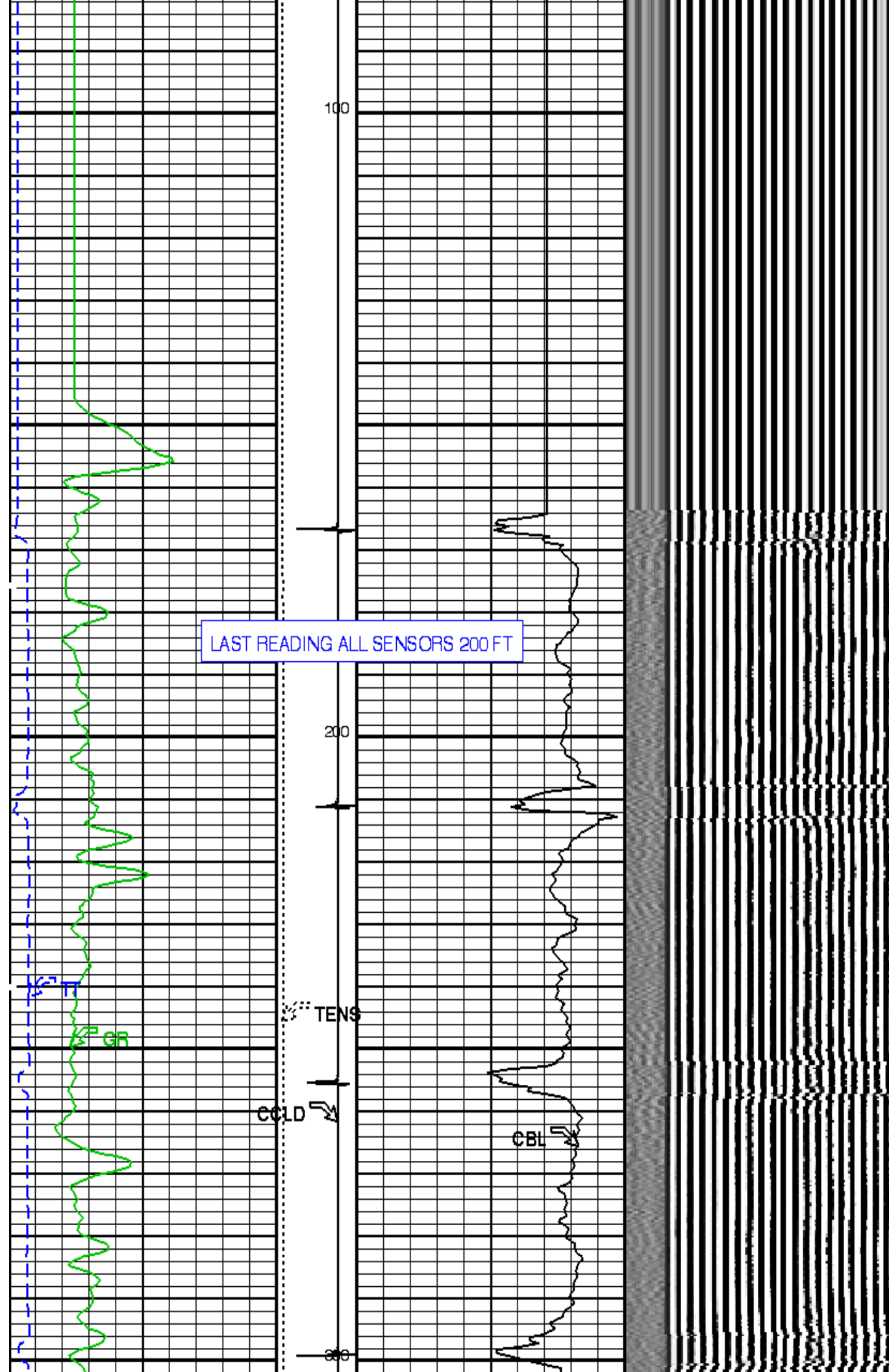
OP System Version: 19C0-187

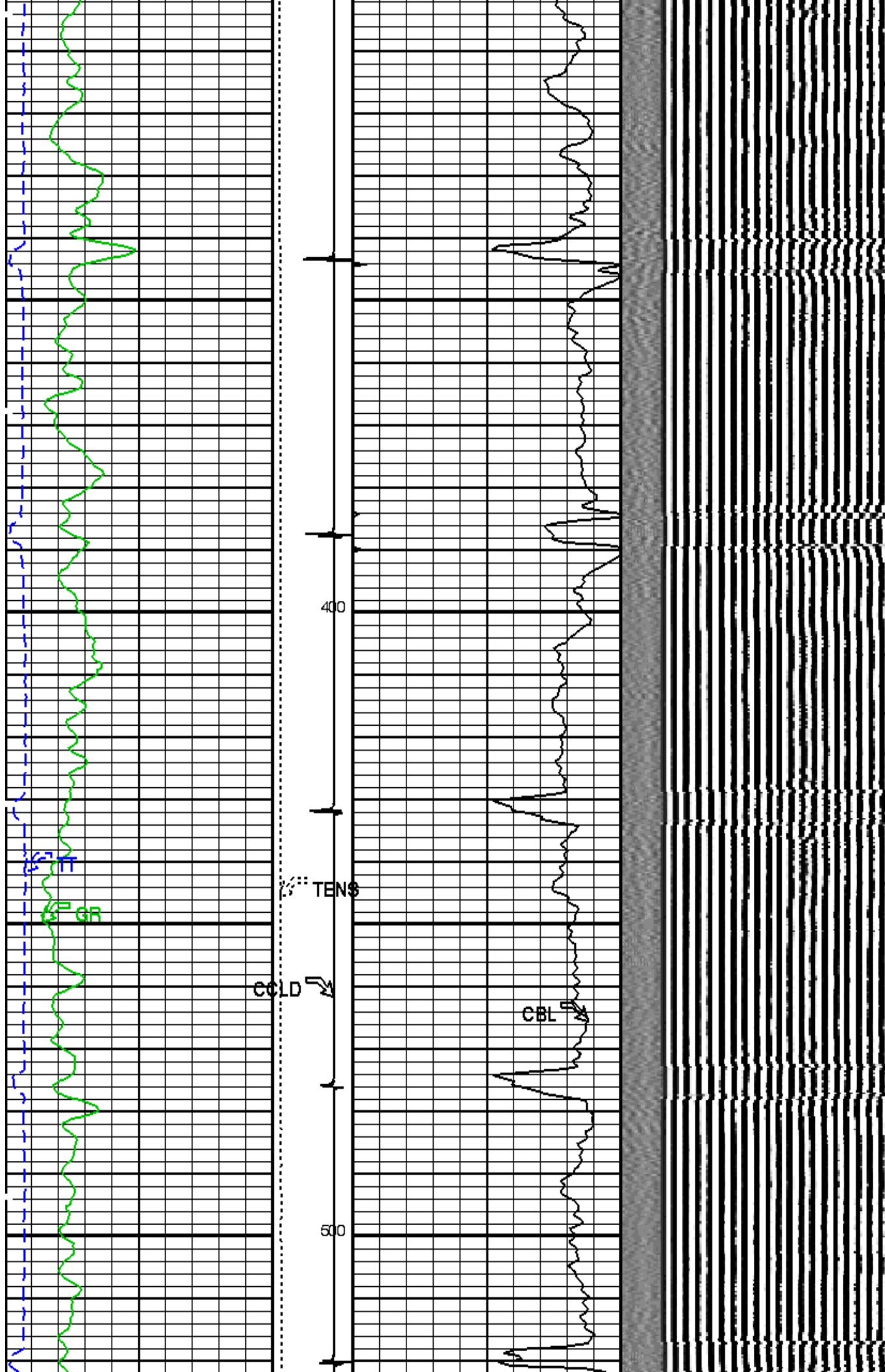
SCMT-CB	SRPC-5095-H2-2011-OP19	HBMS-B	19C0-187
---------	------------------------	--------	----------

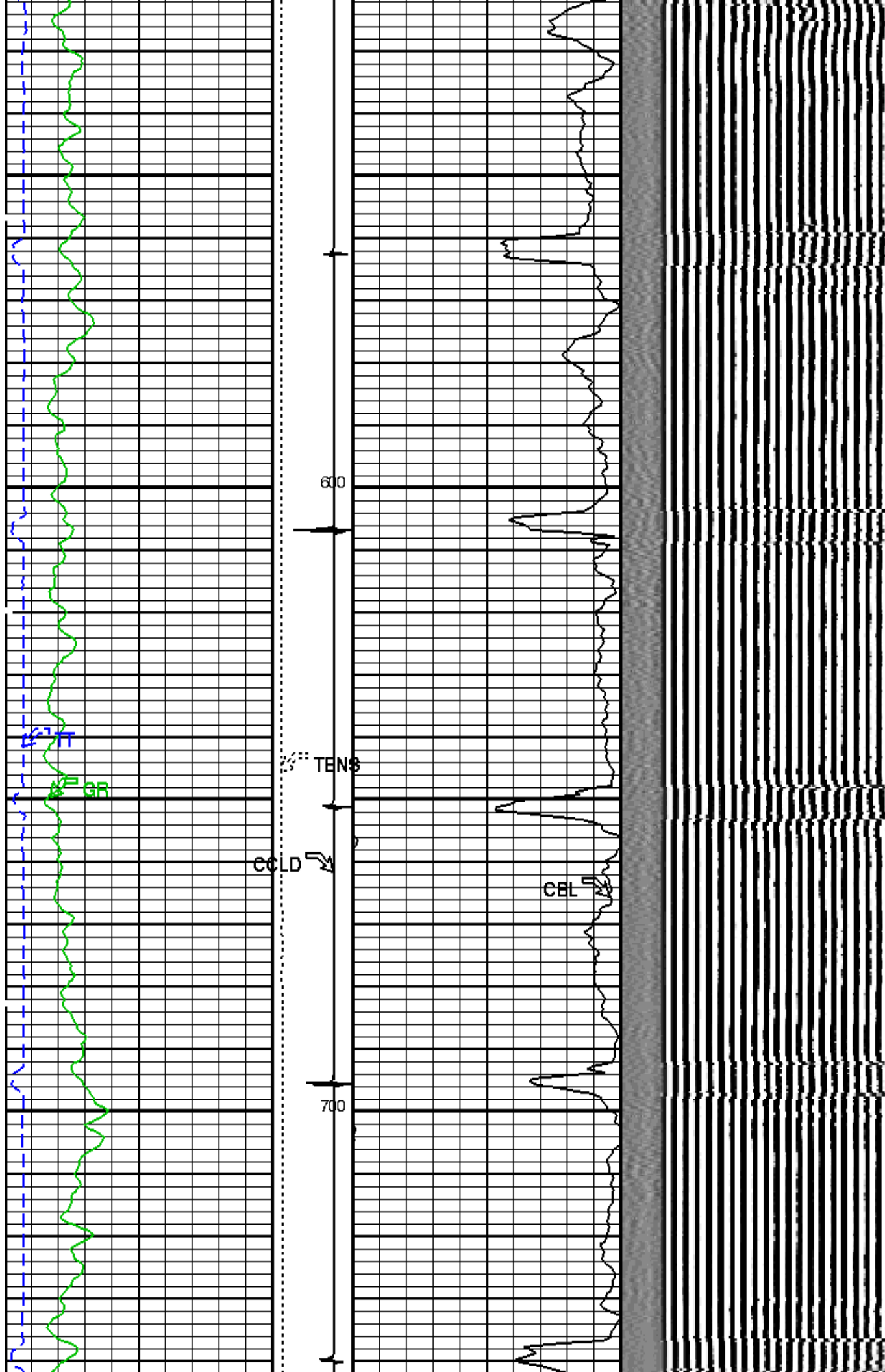
PIP SUMMARY

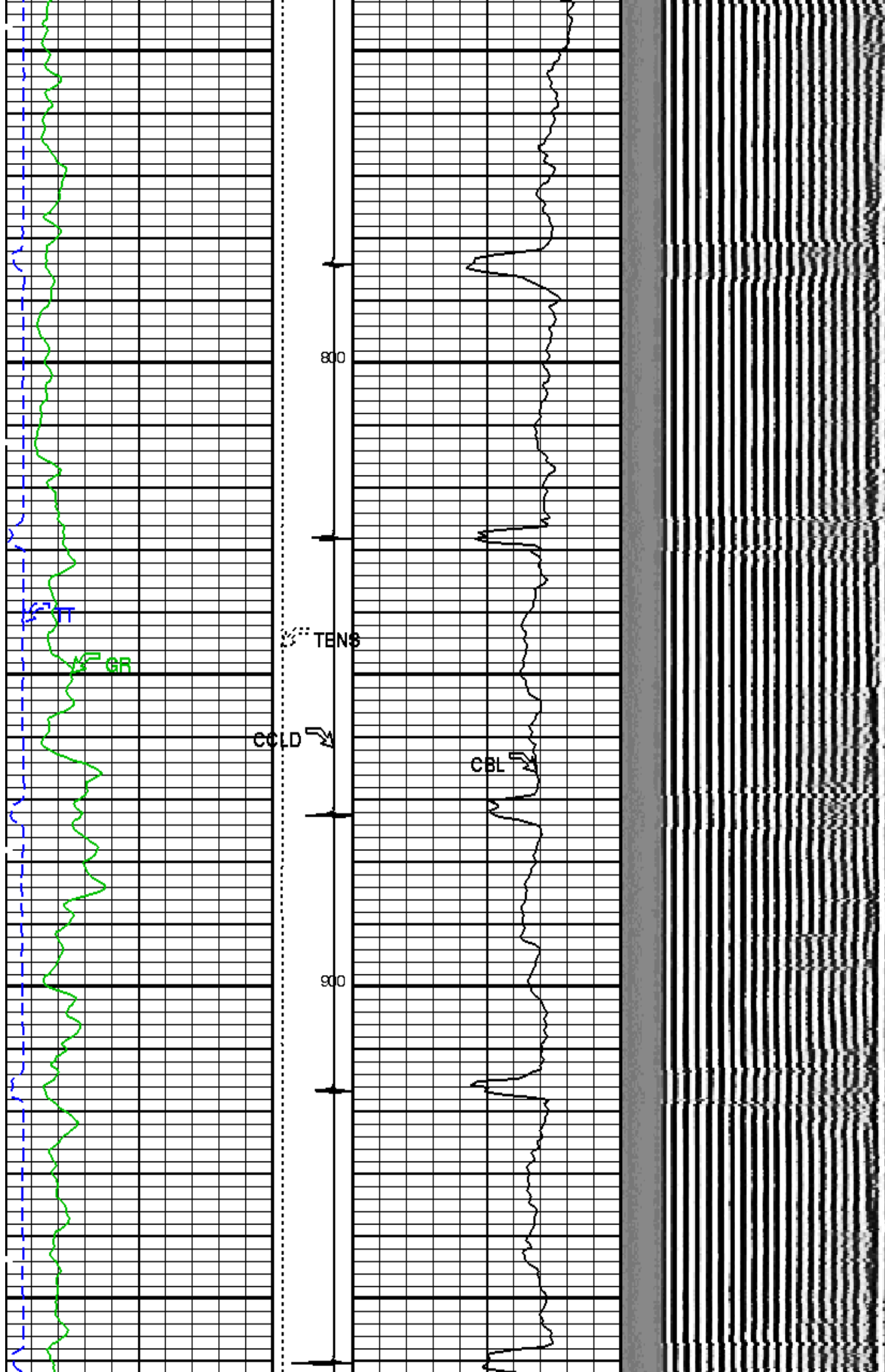
Time Mark Every 60 S

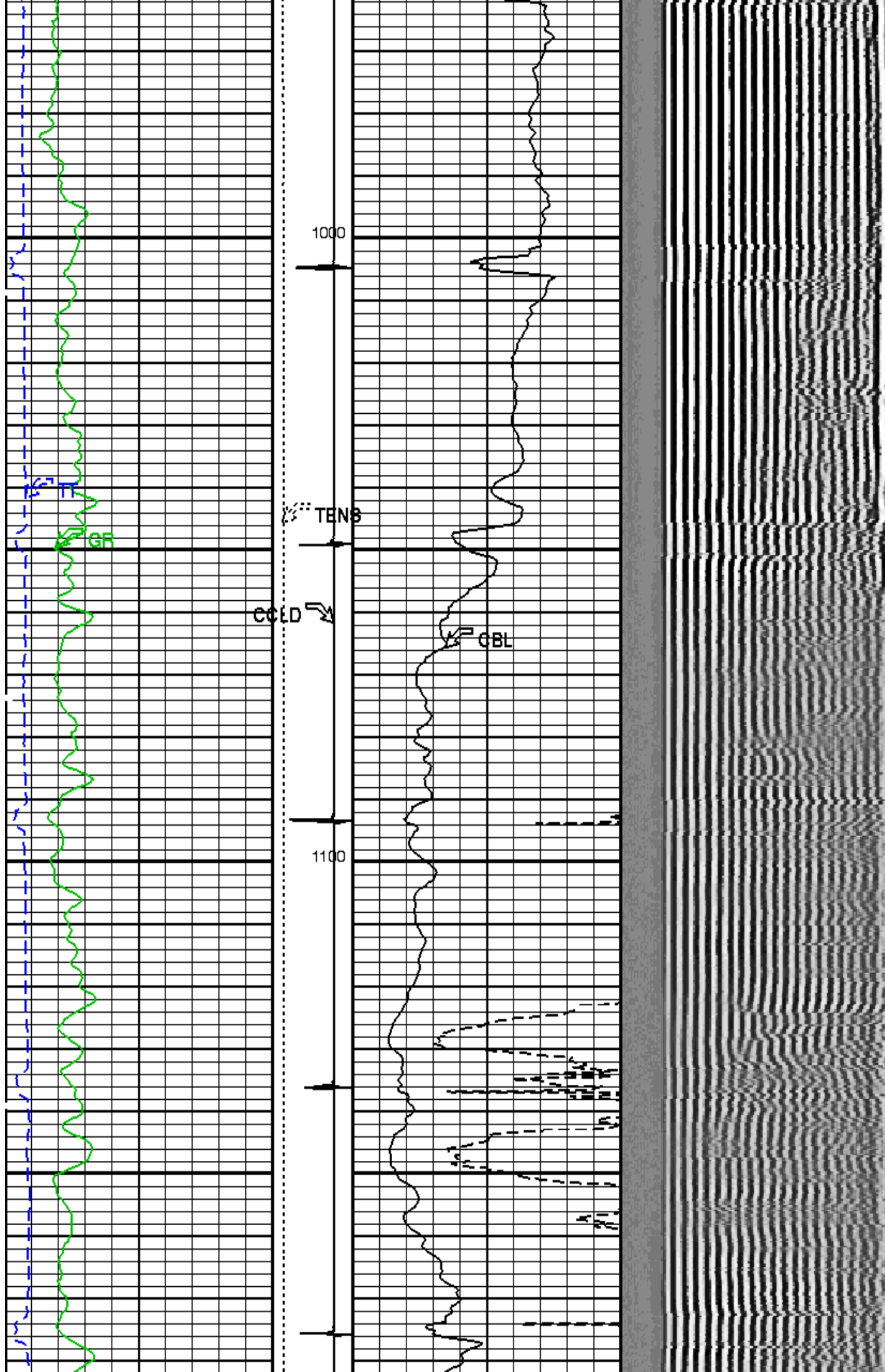


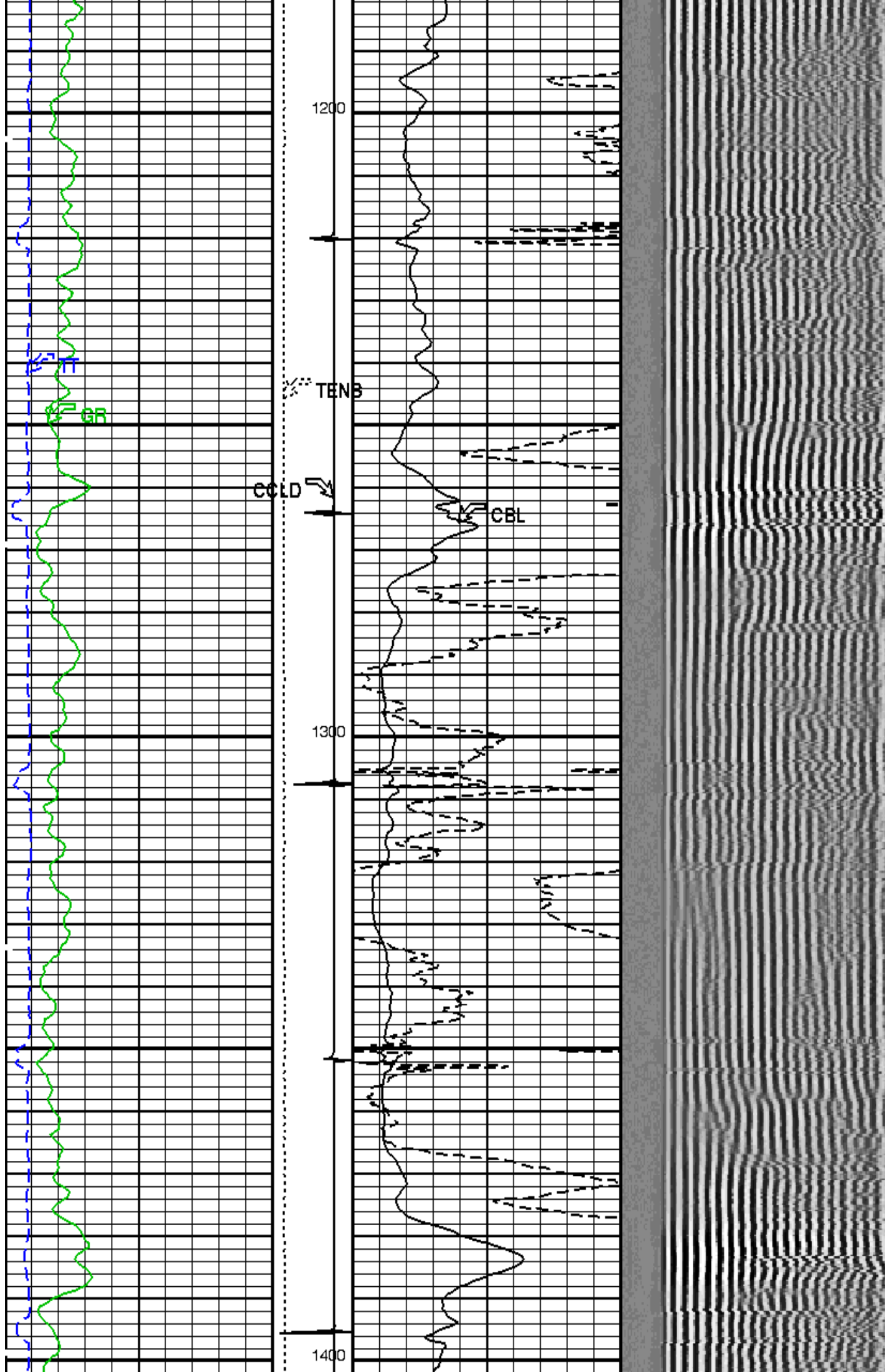


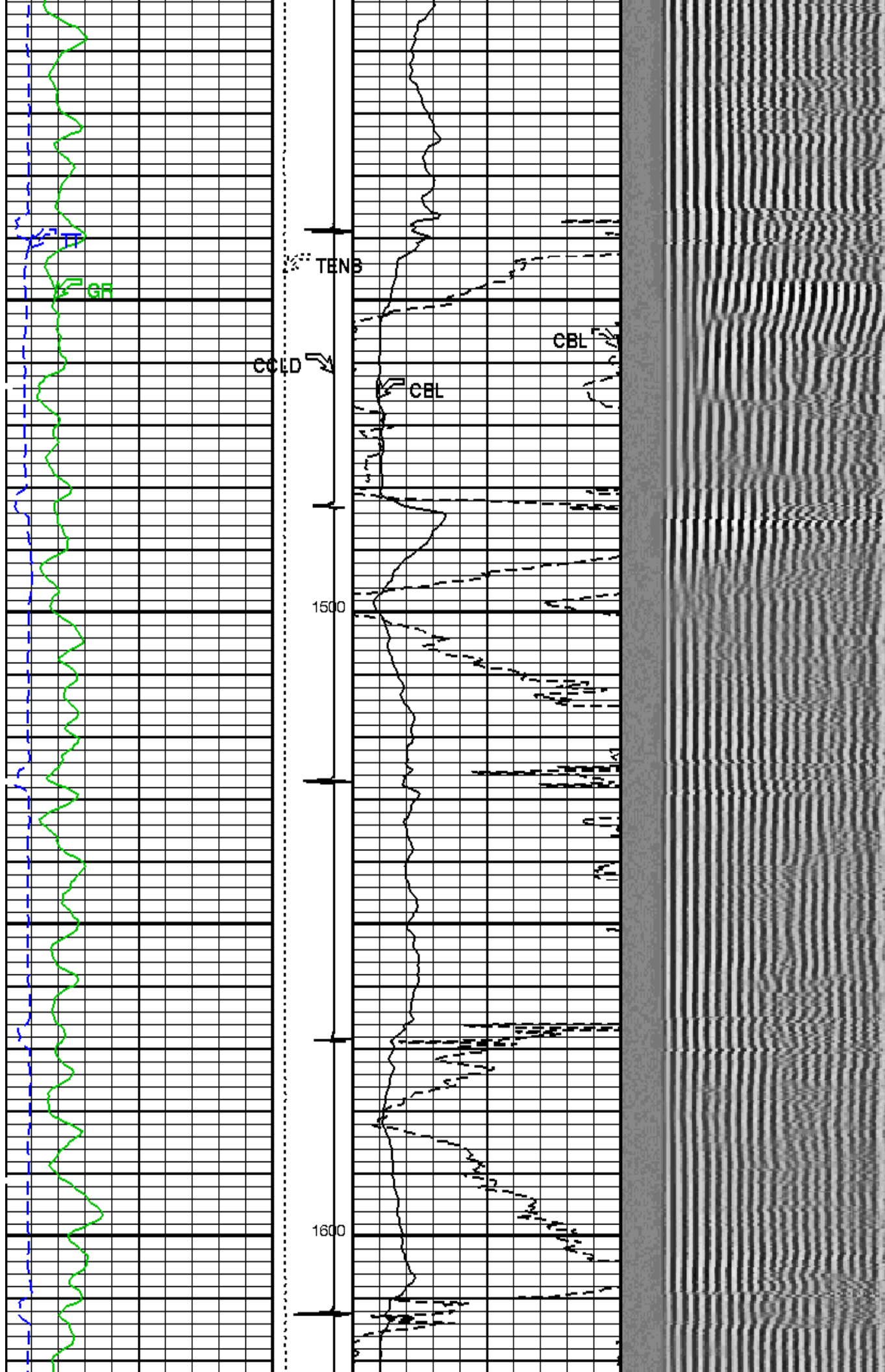


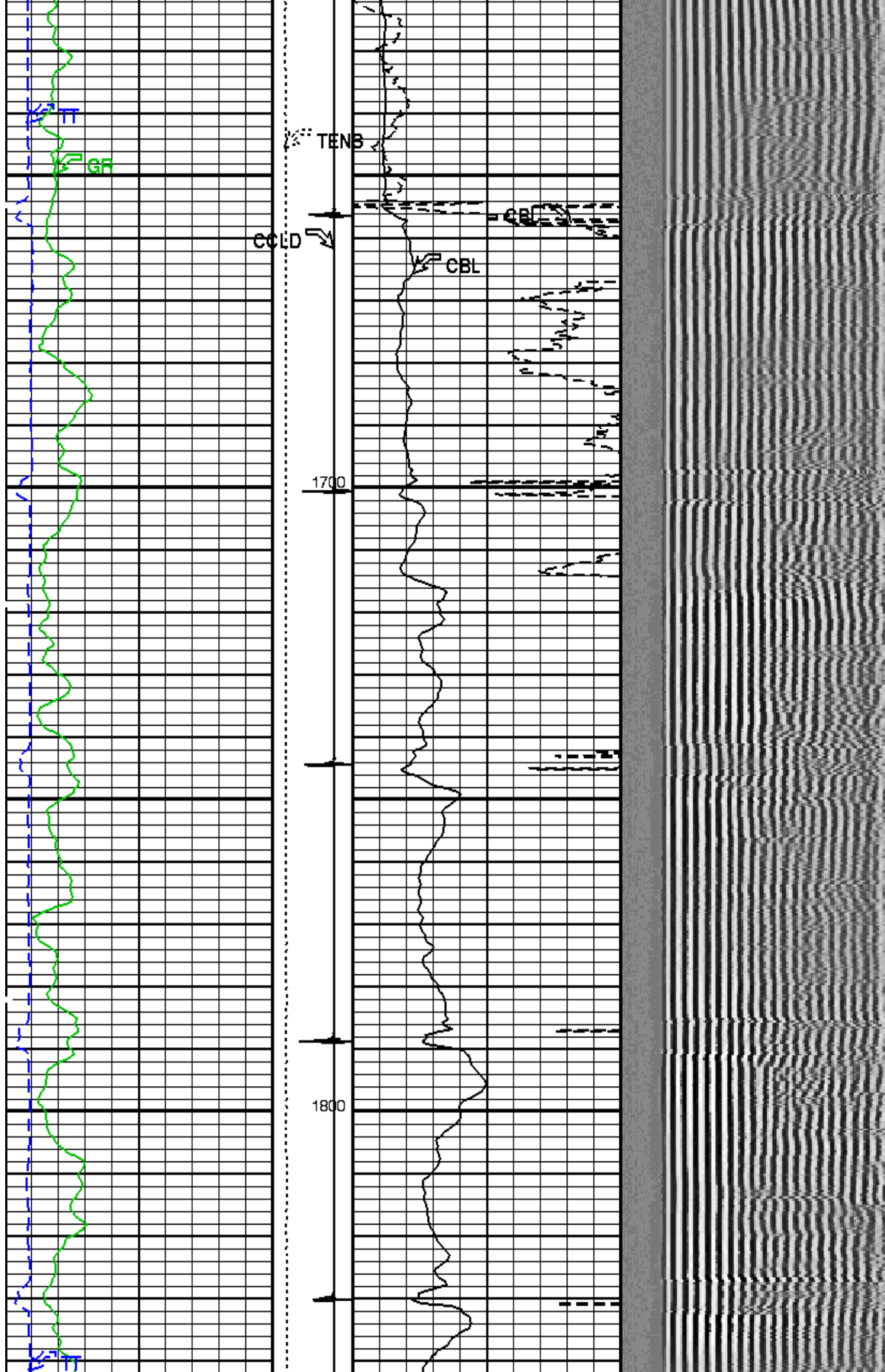


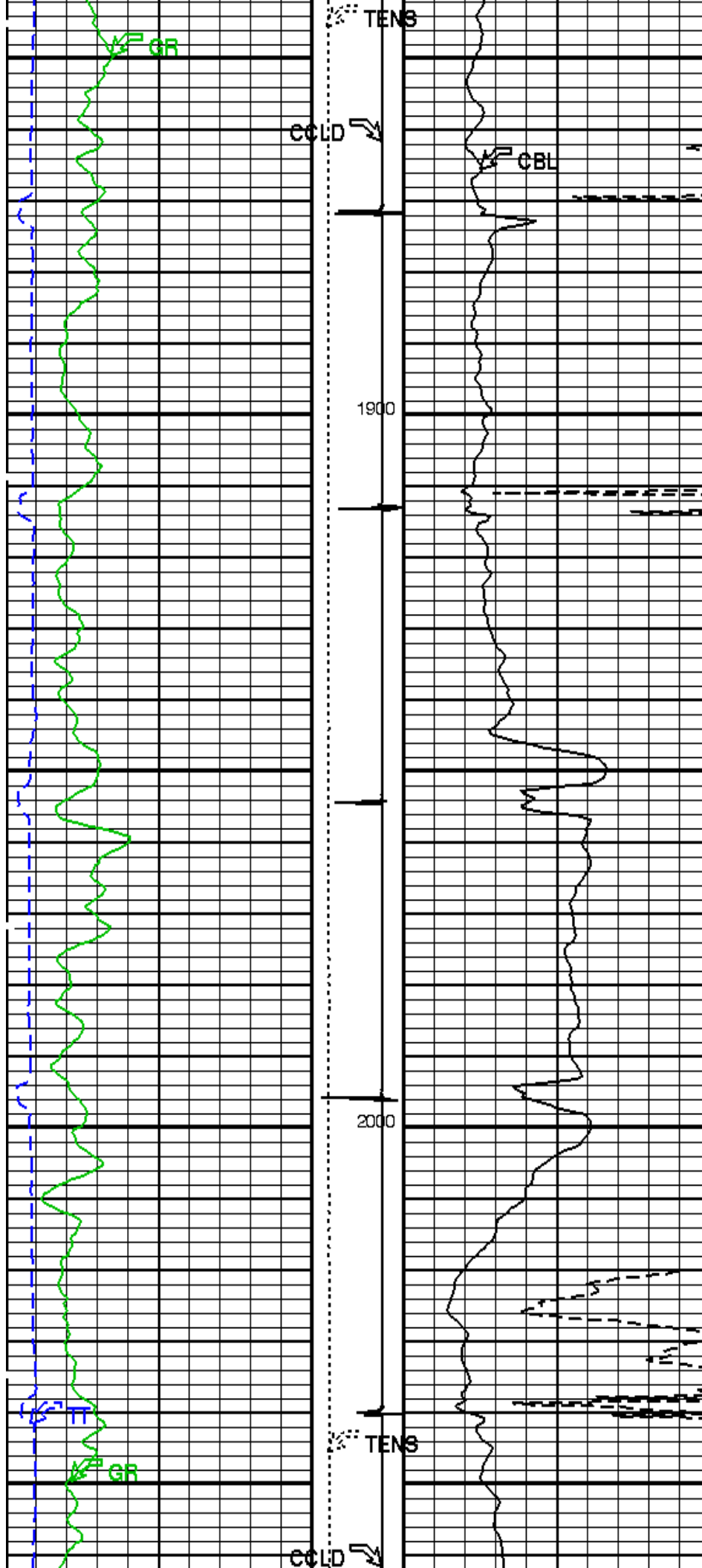


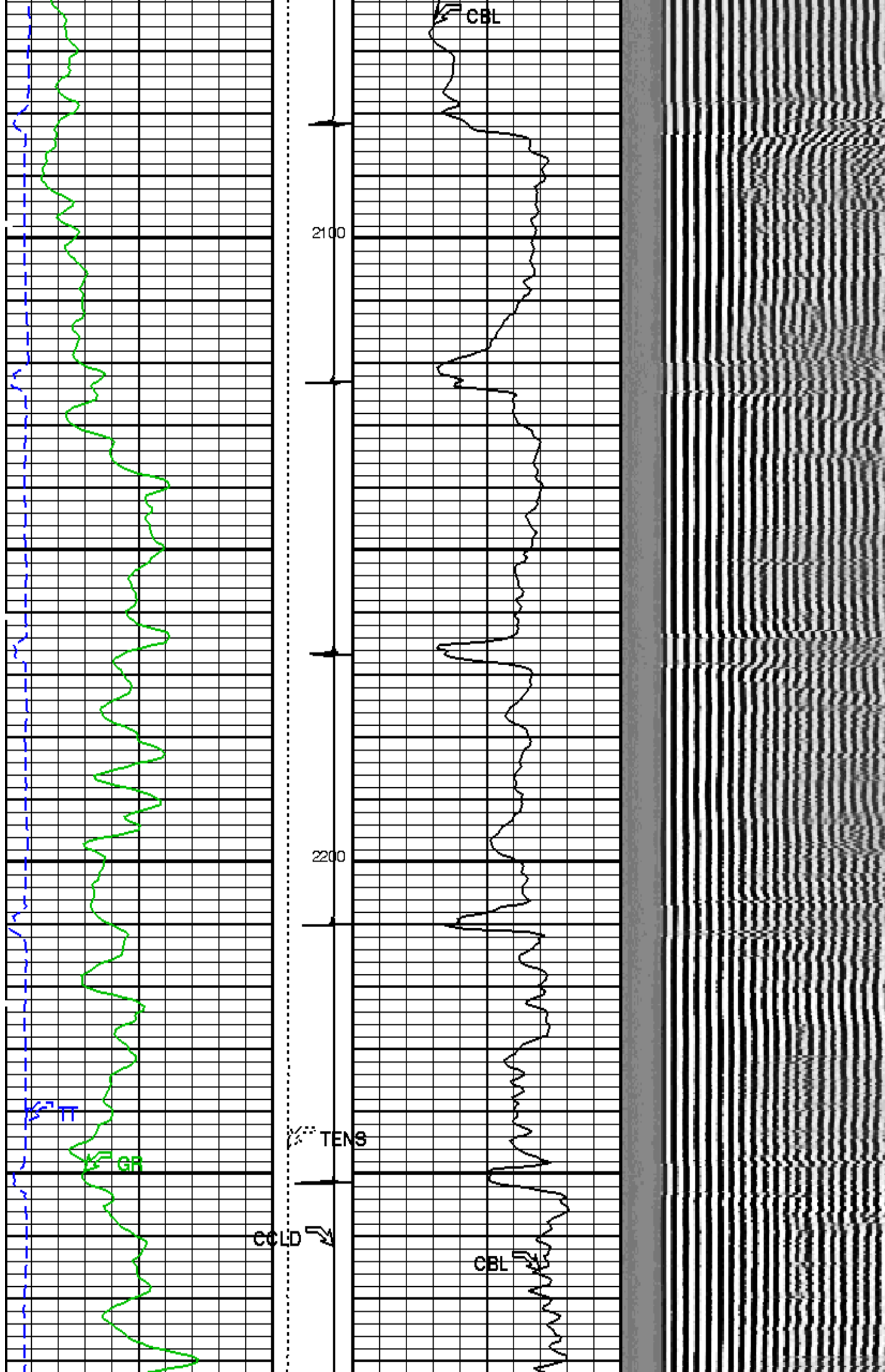


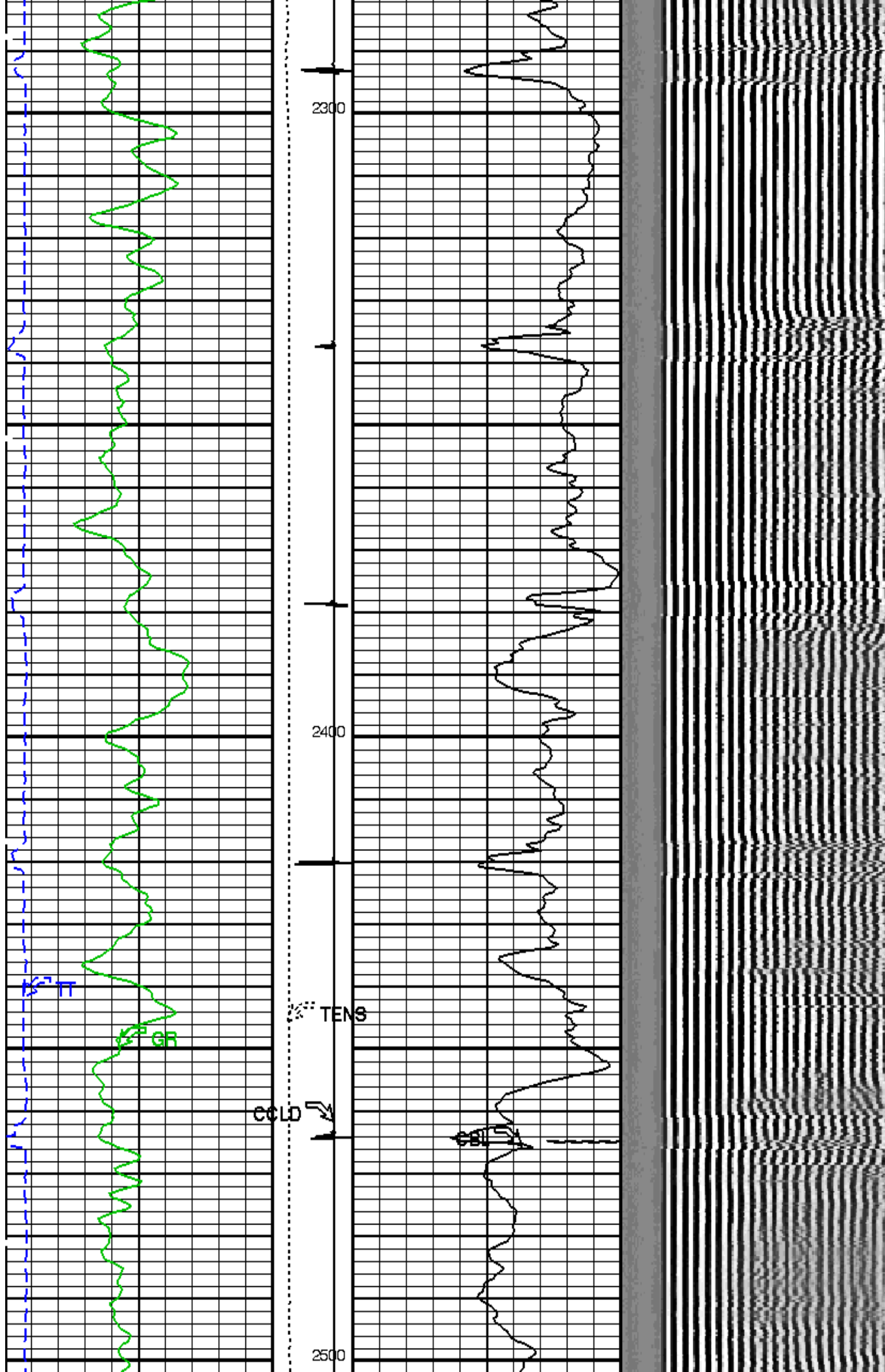


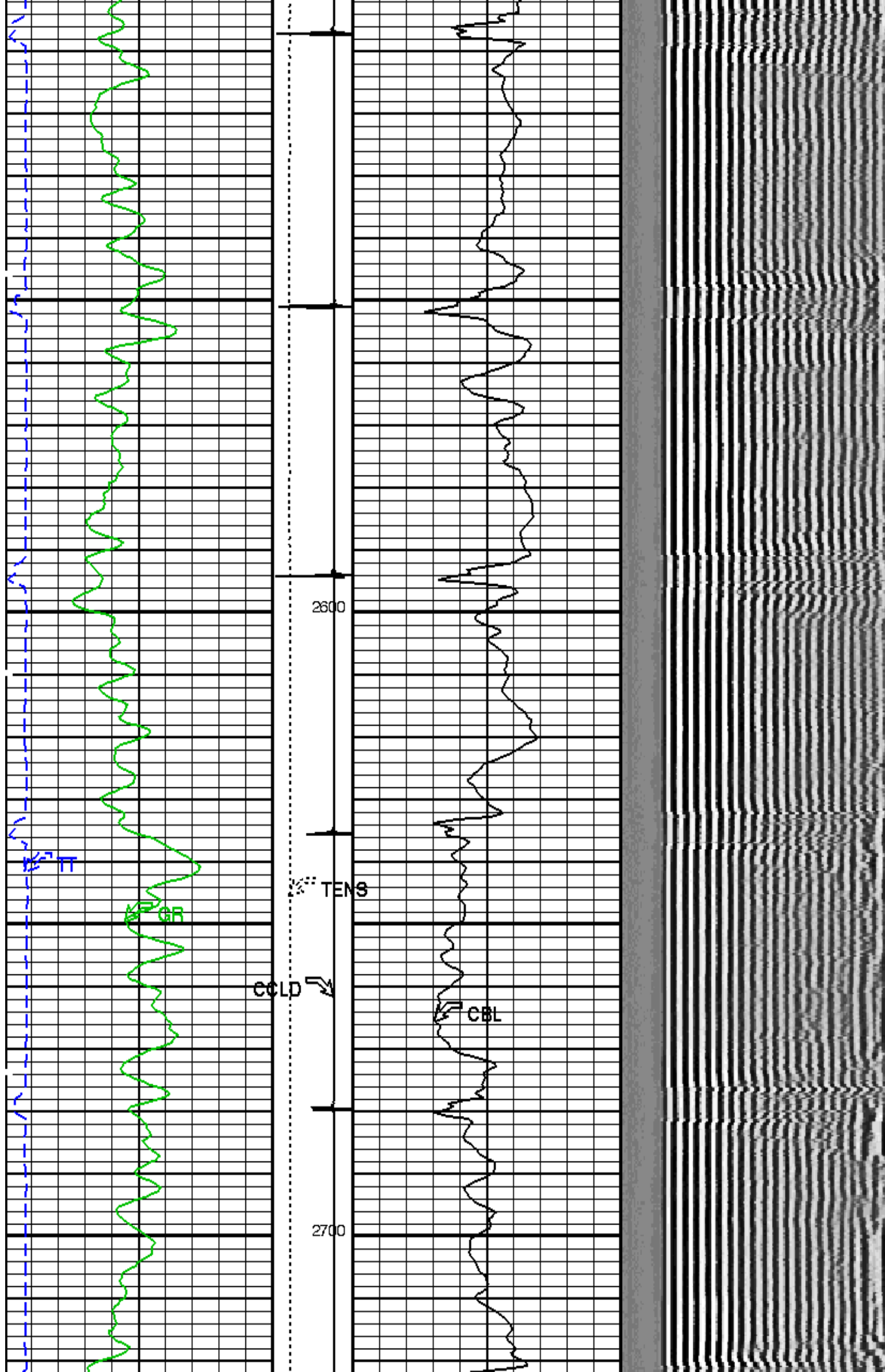


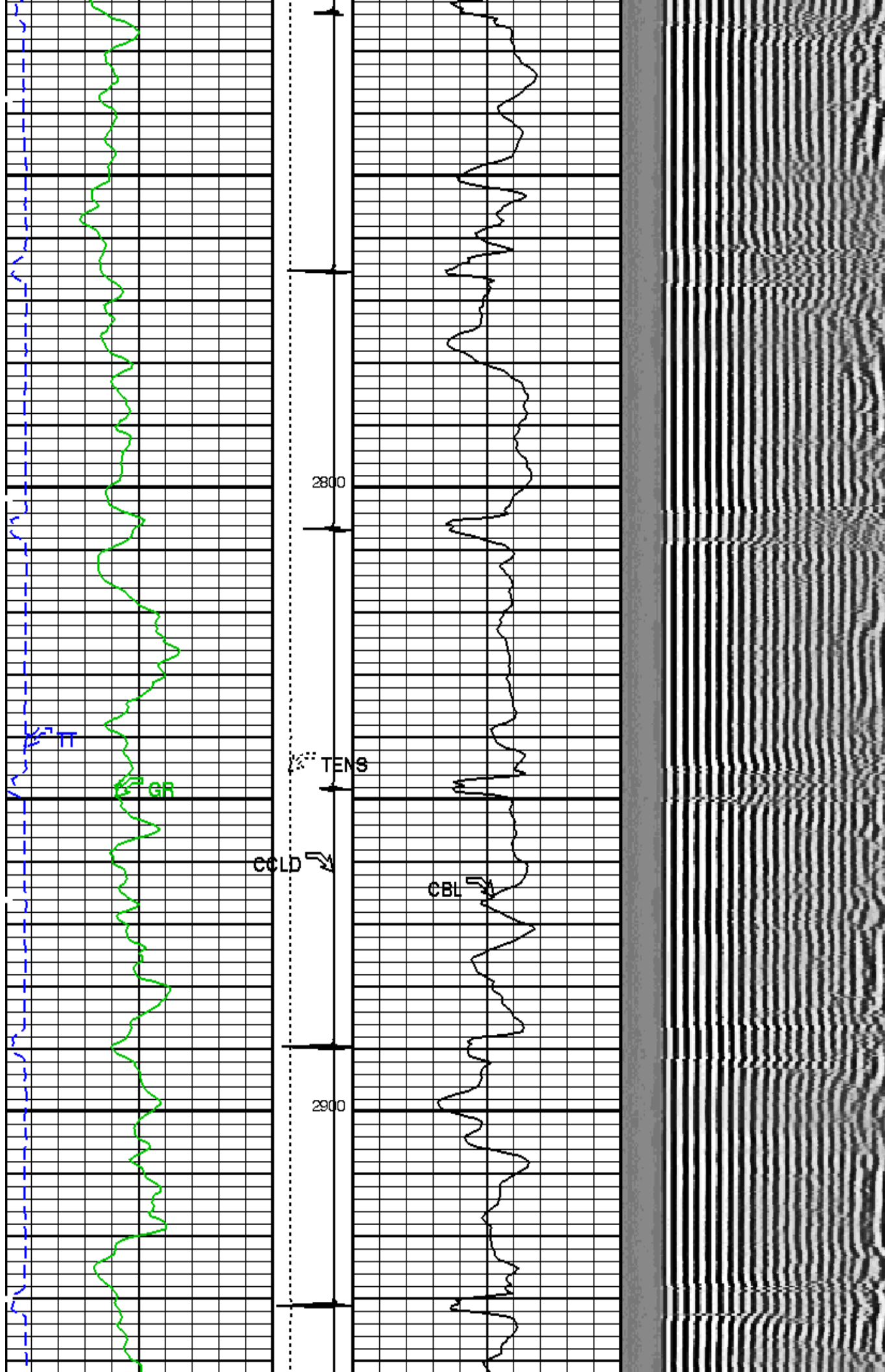


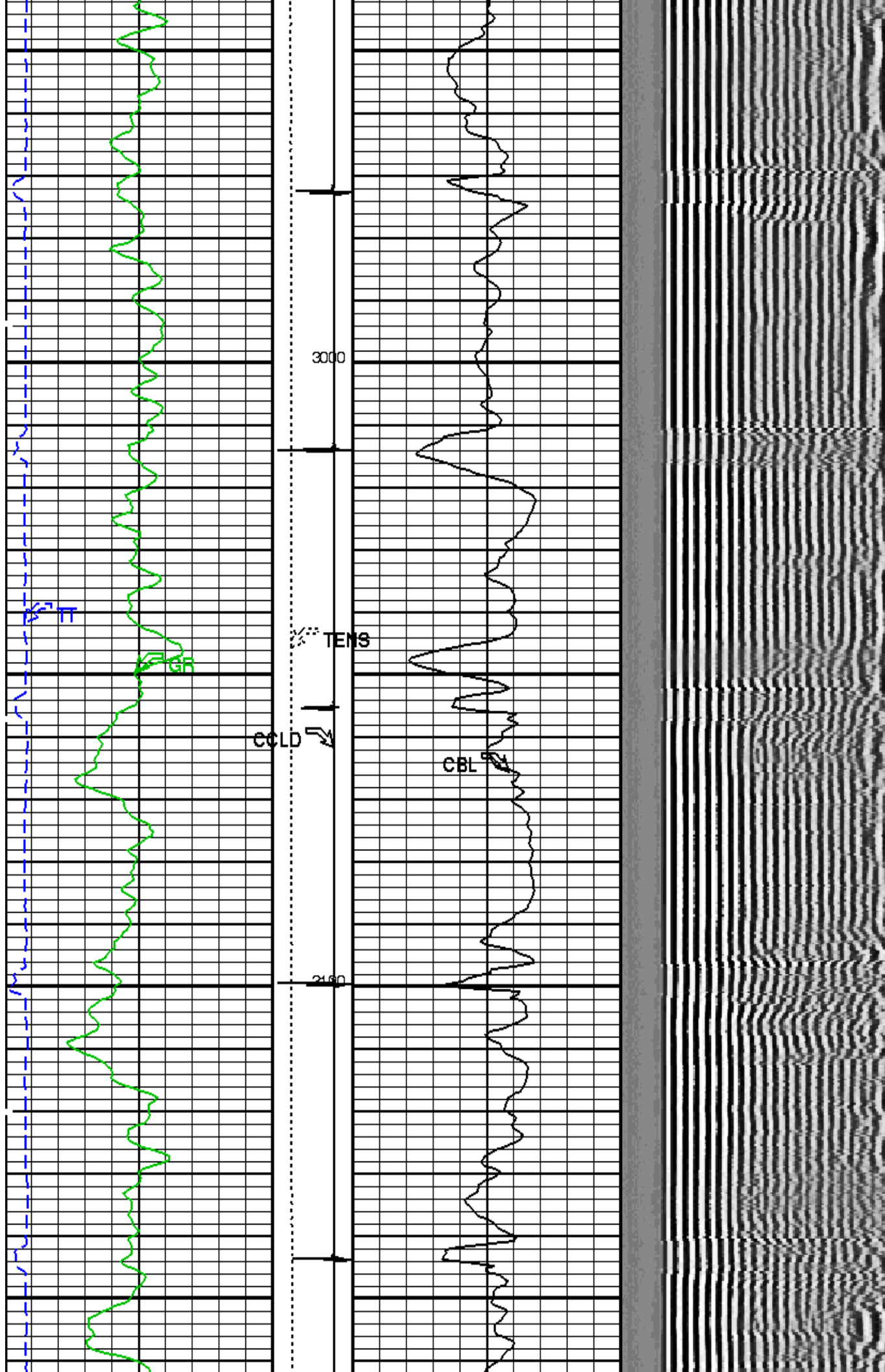


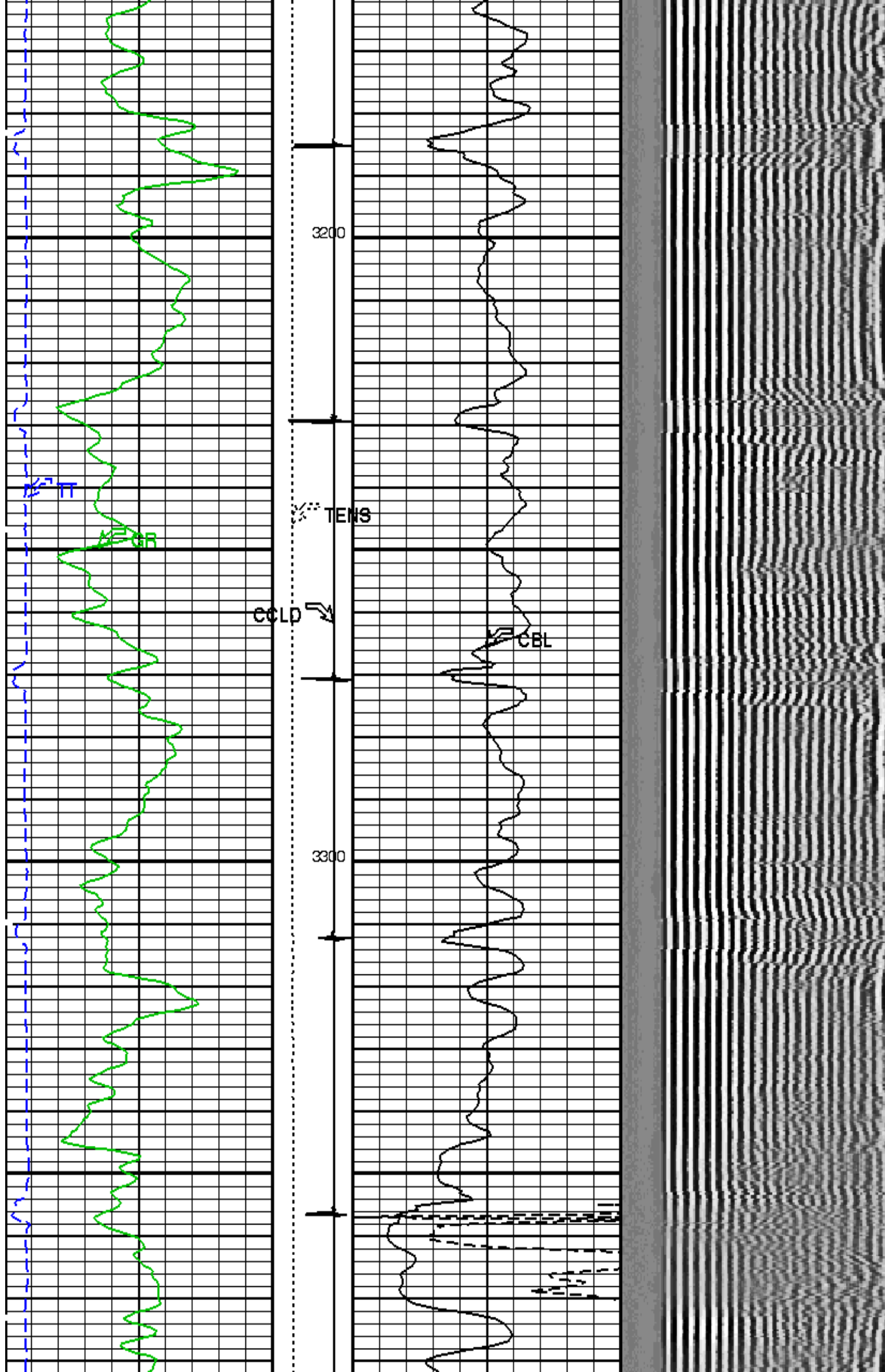


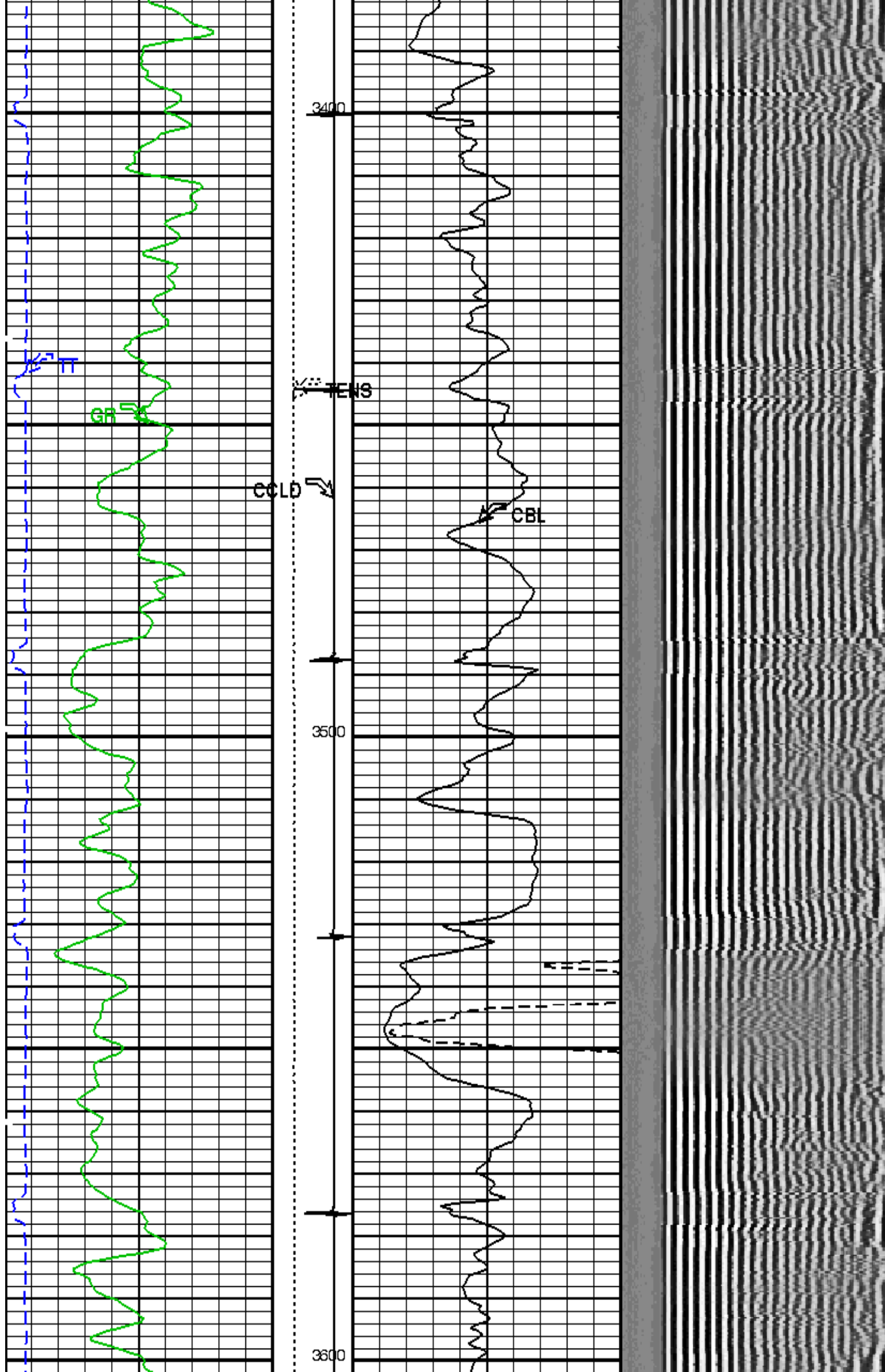


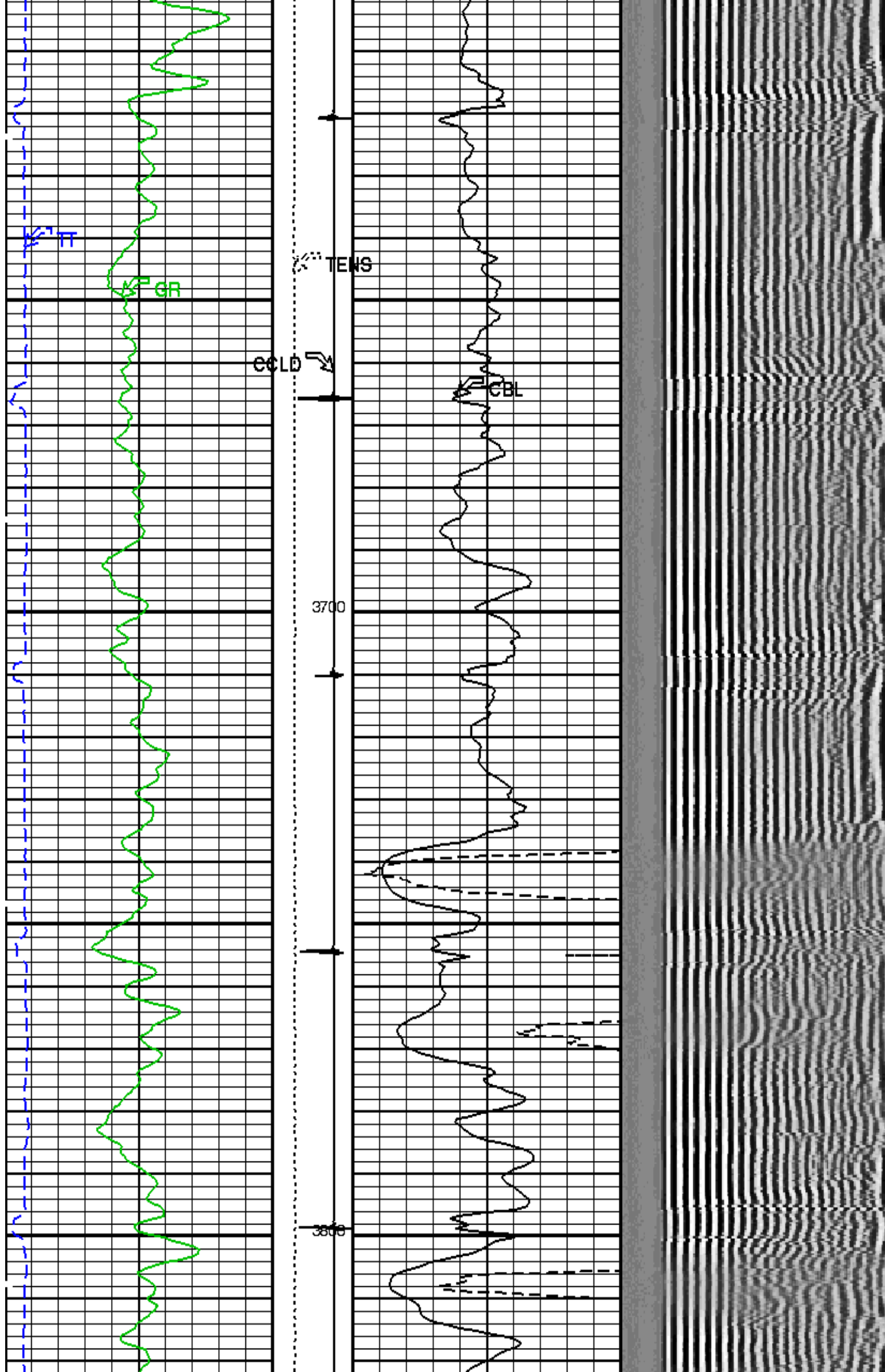


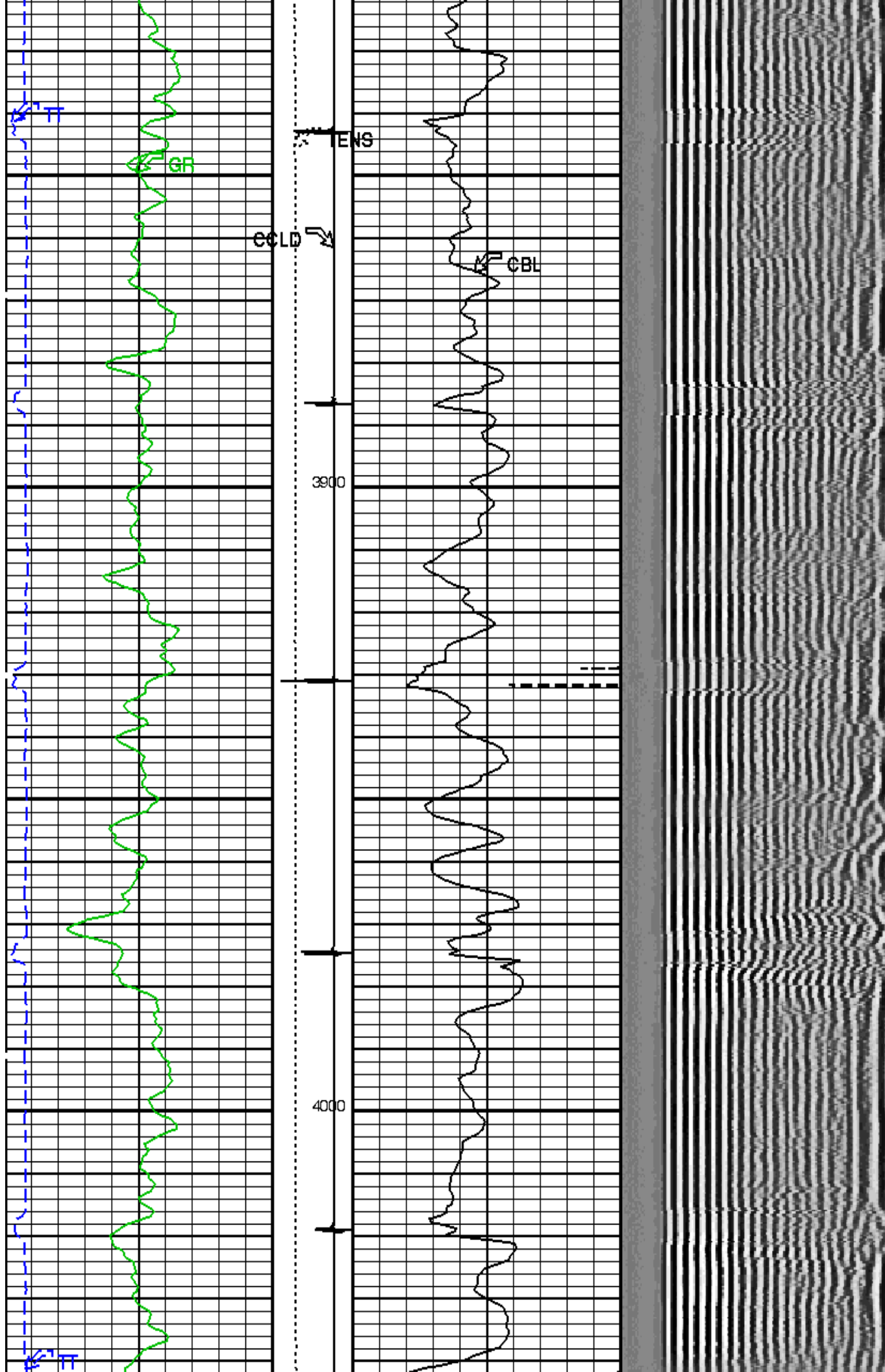


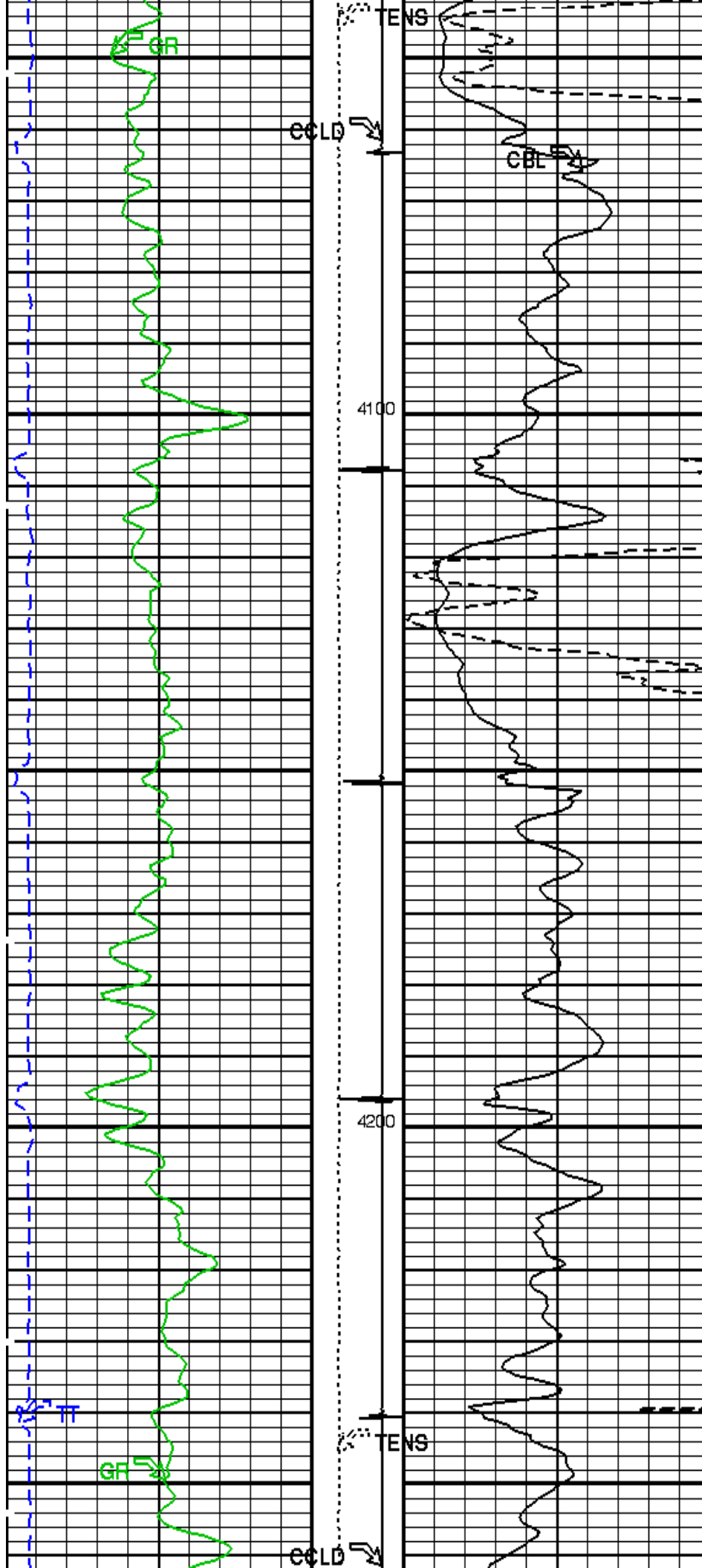


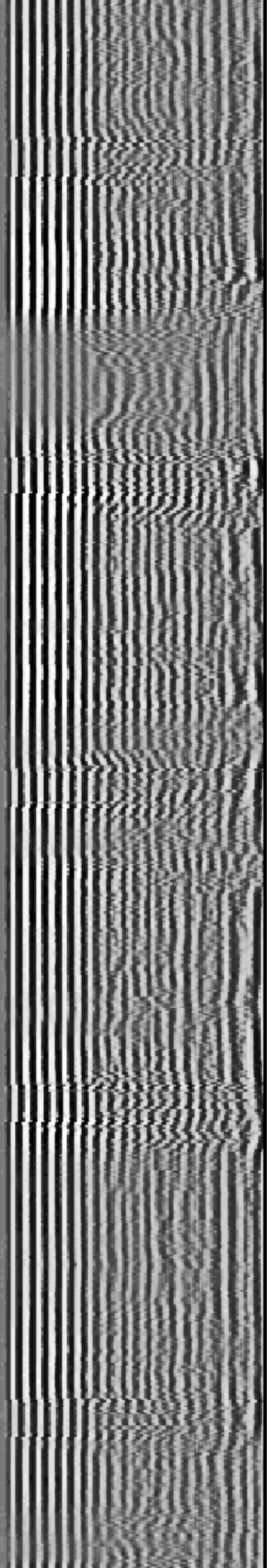
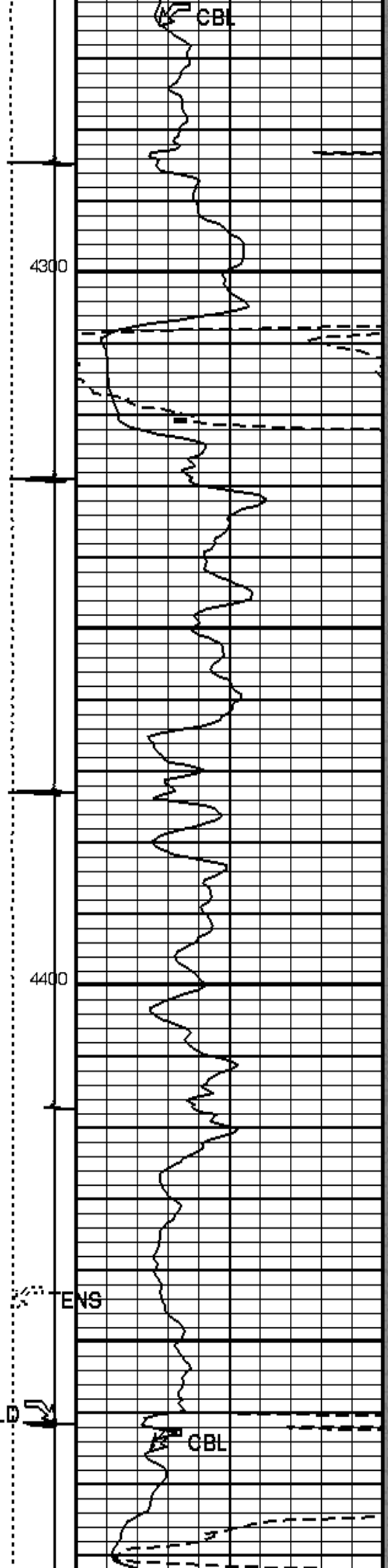
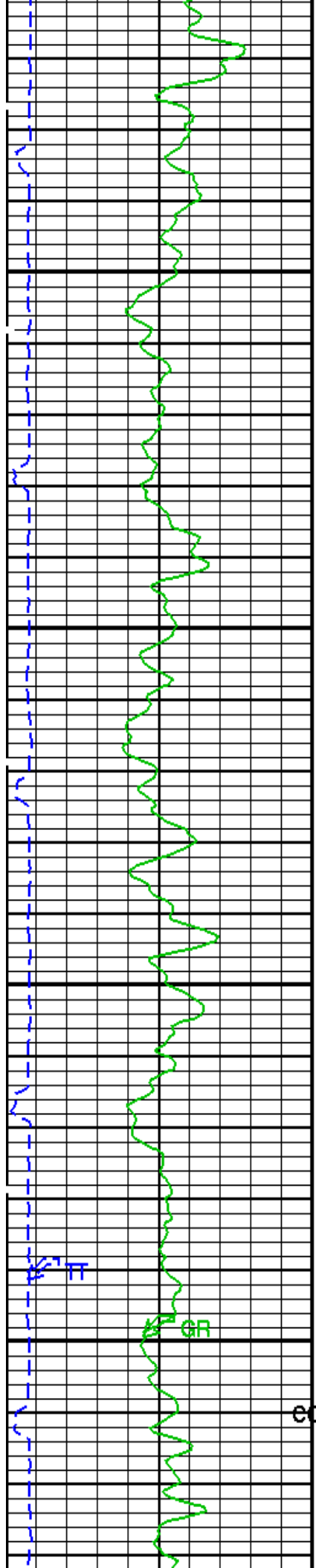


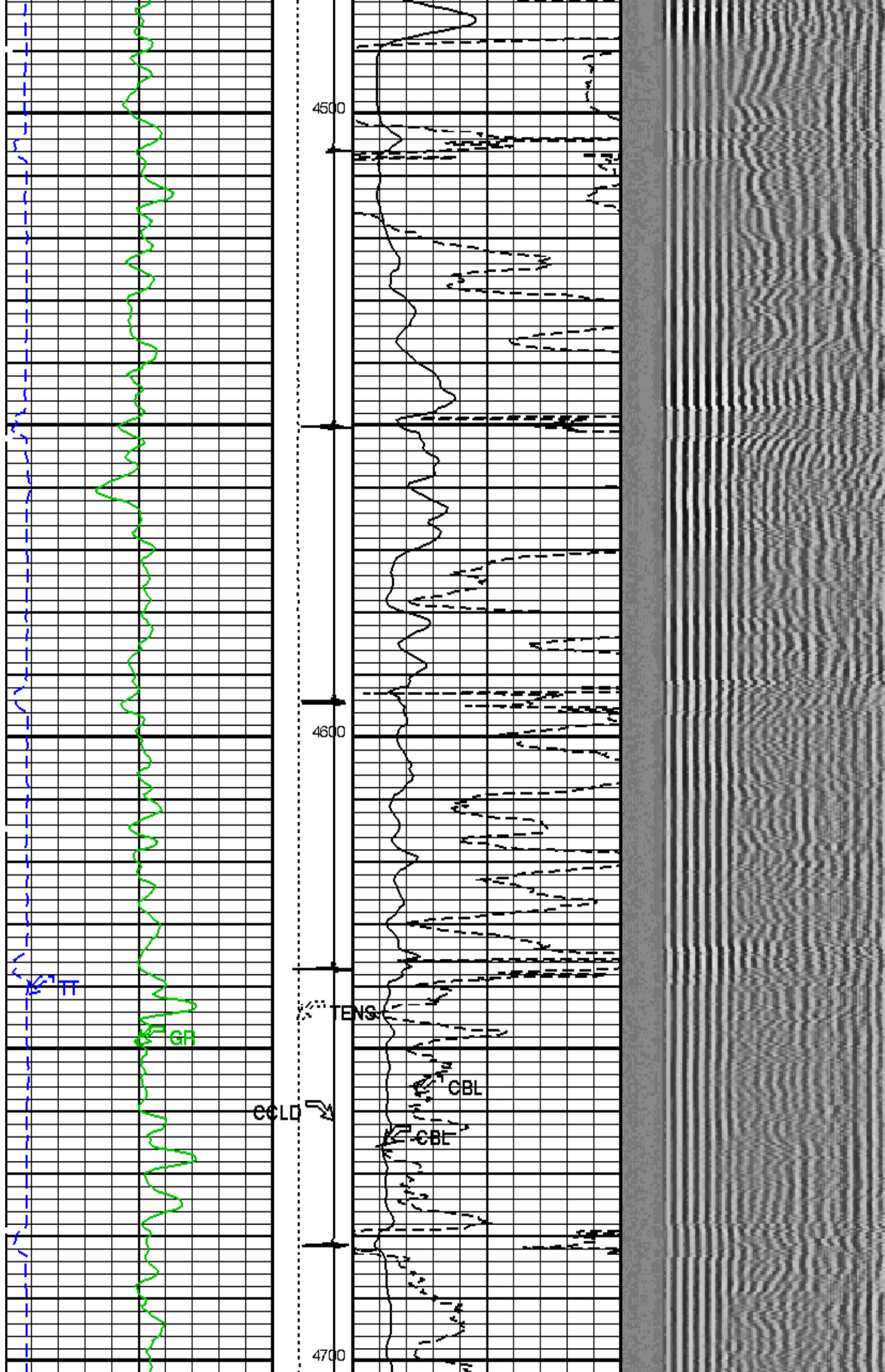


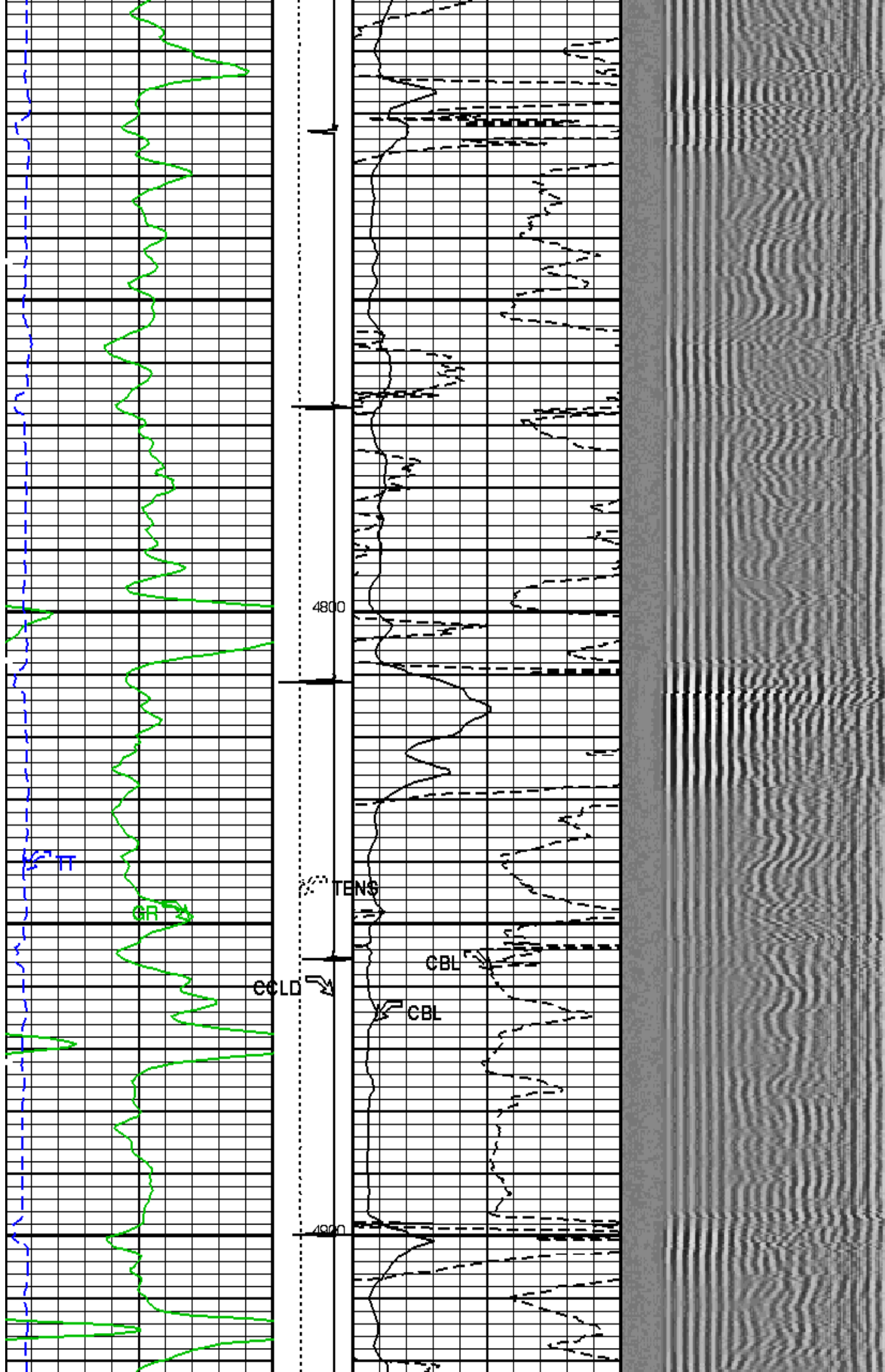


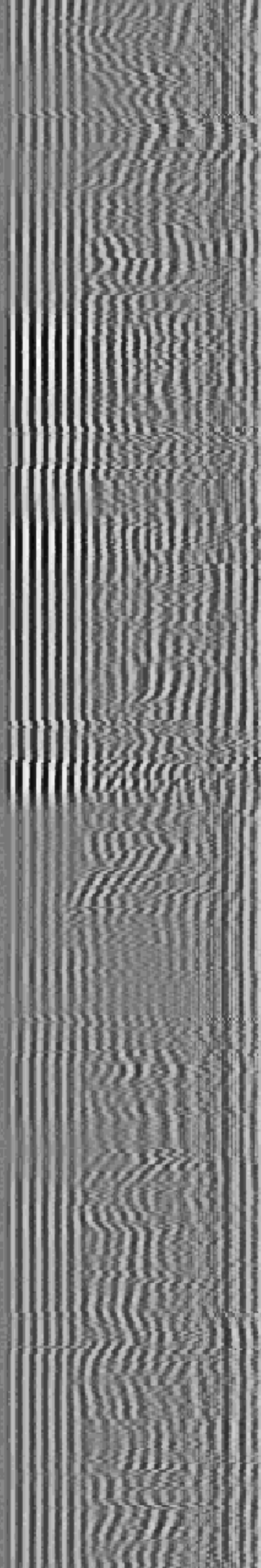
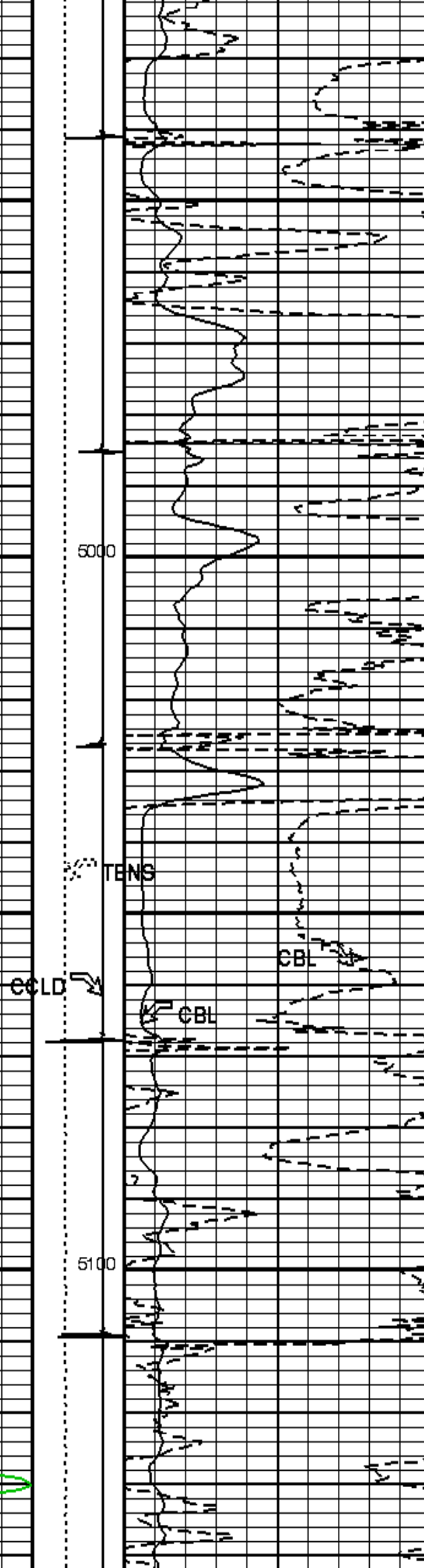
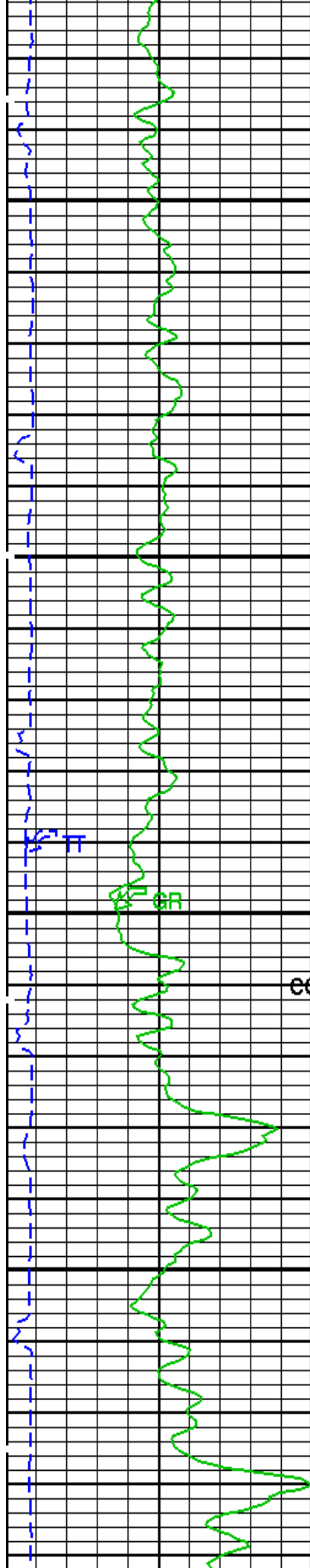


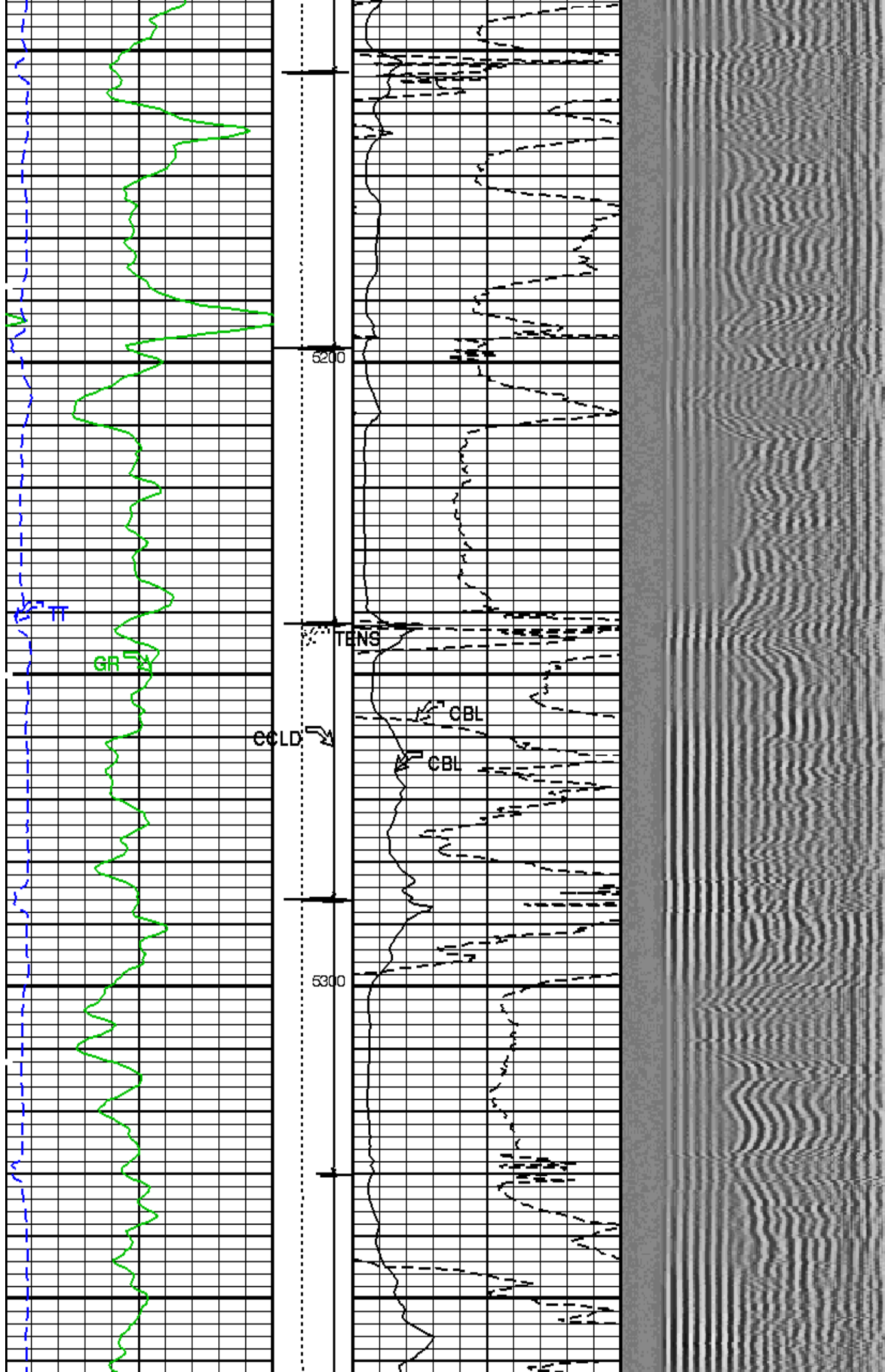


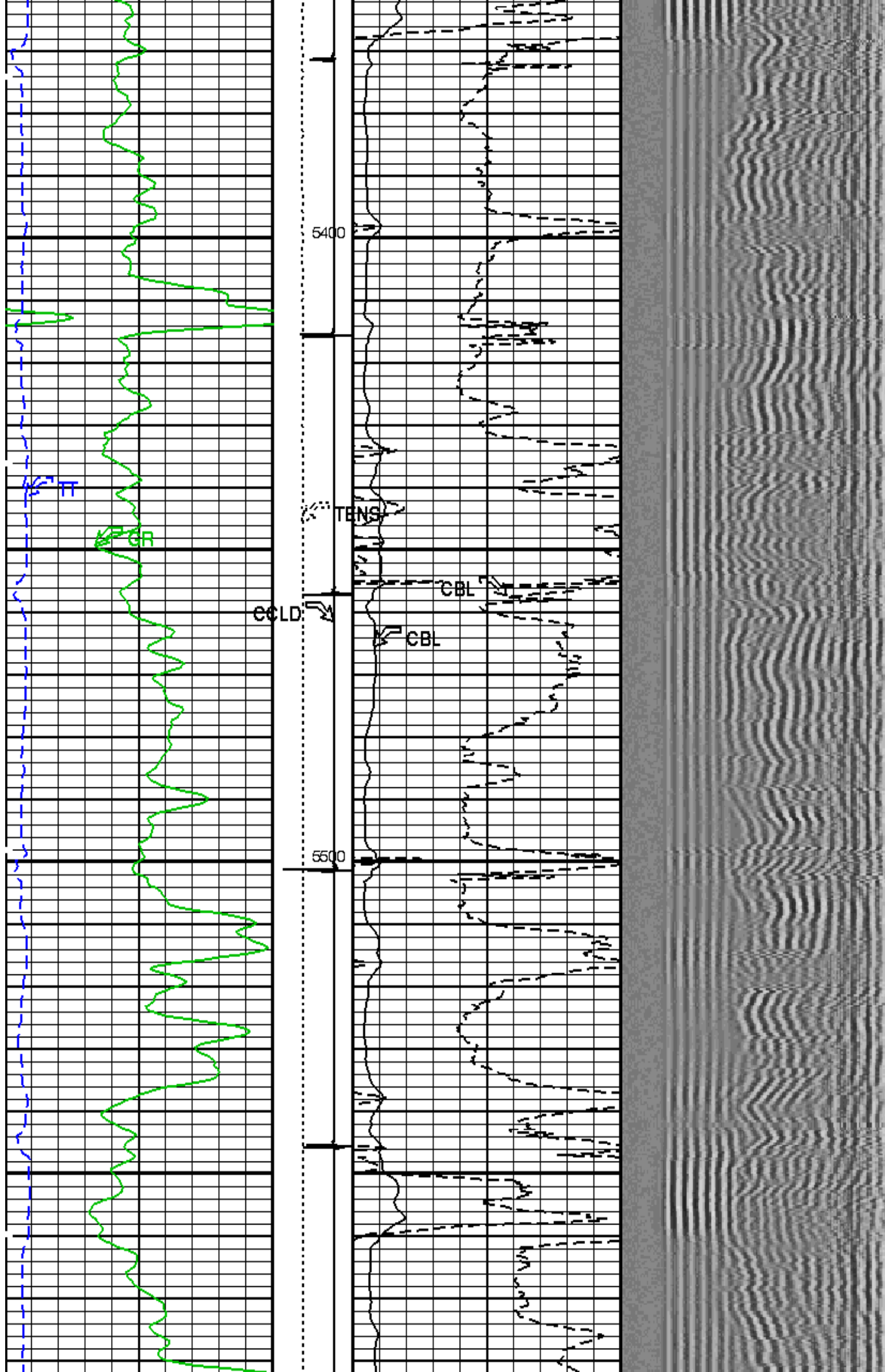


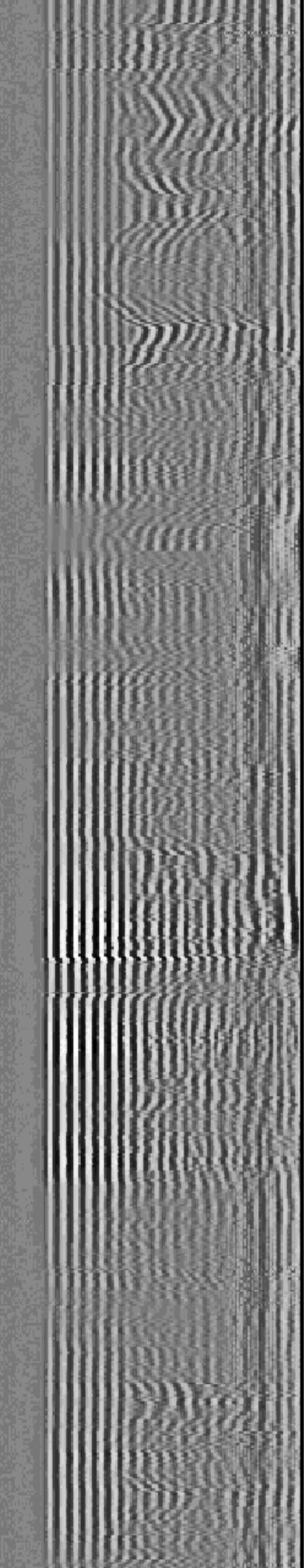
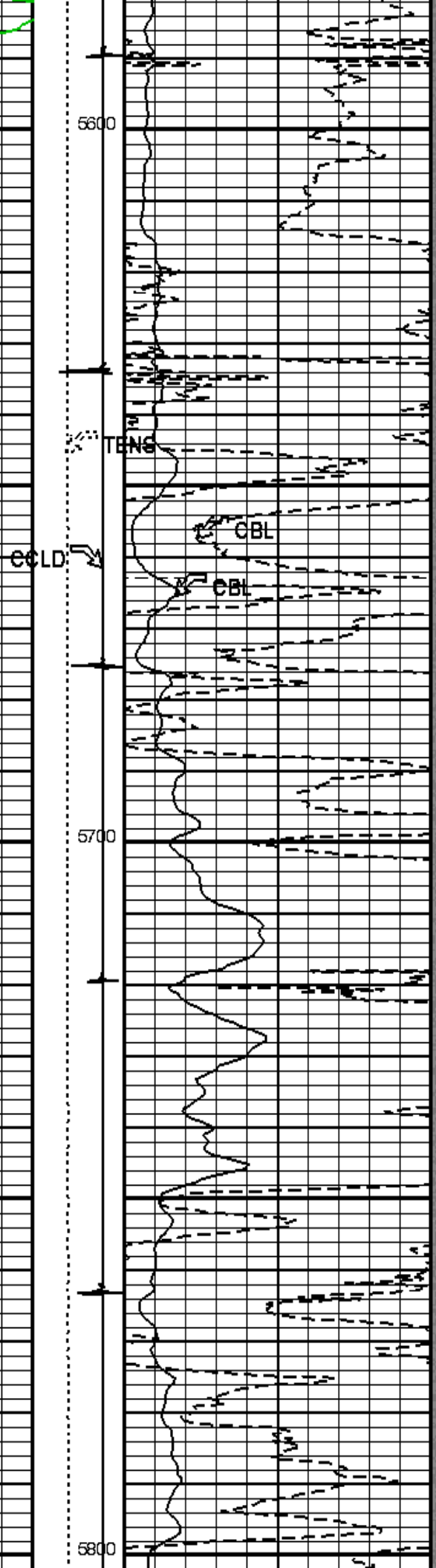
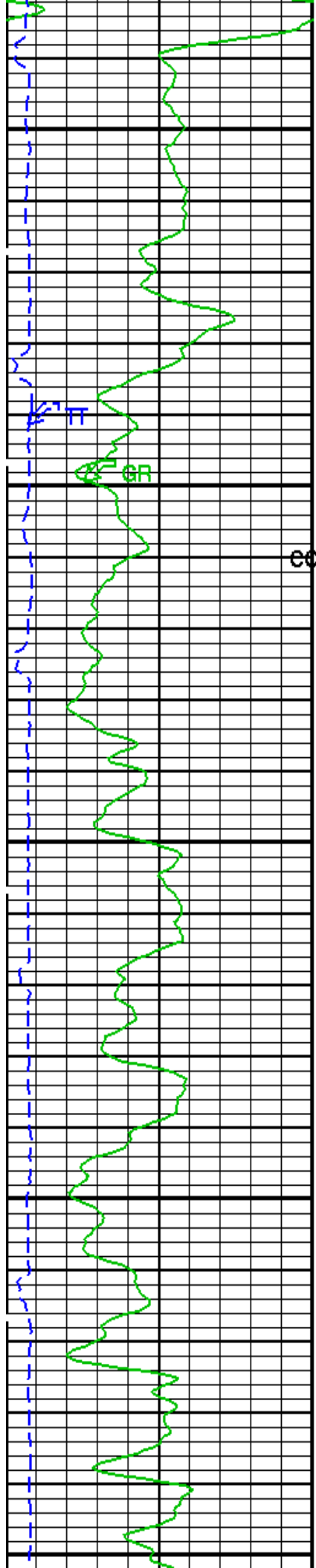


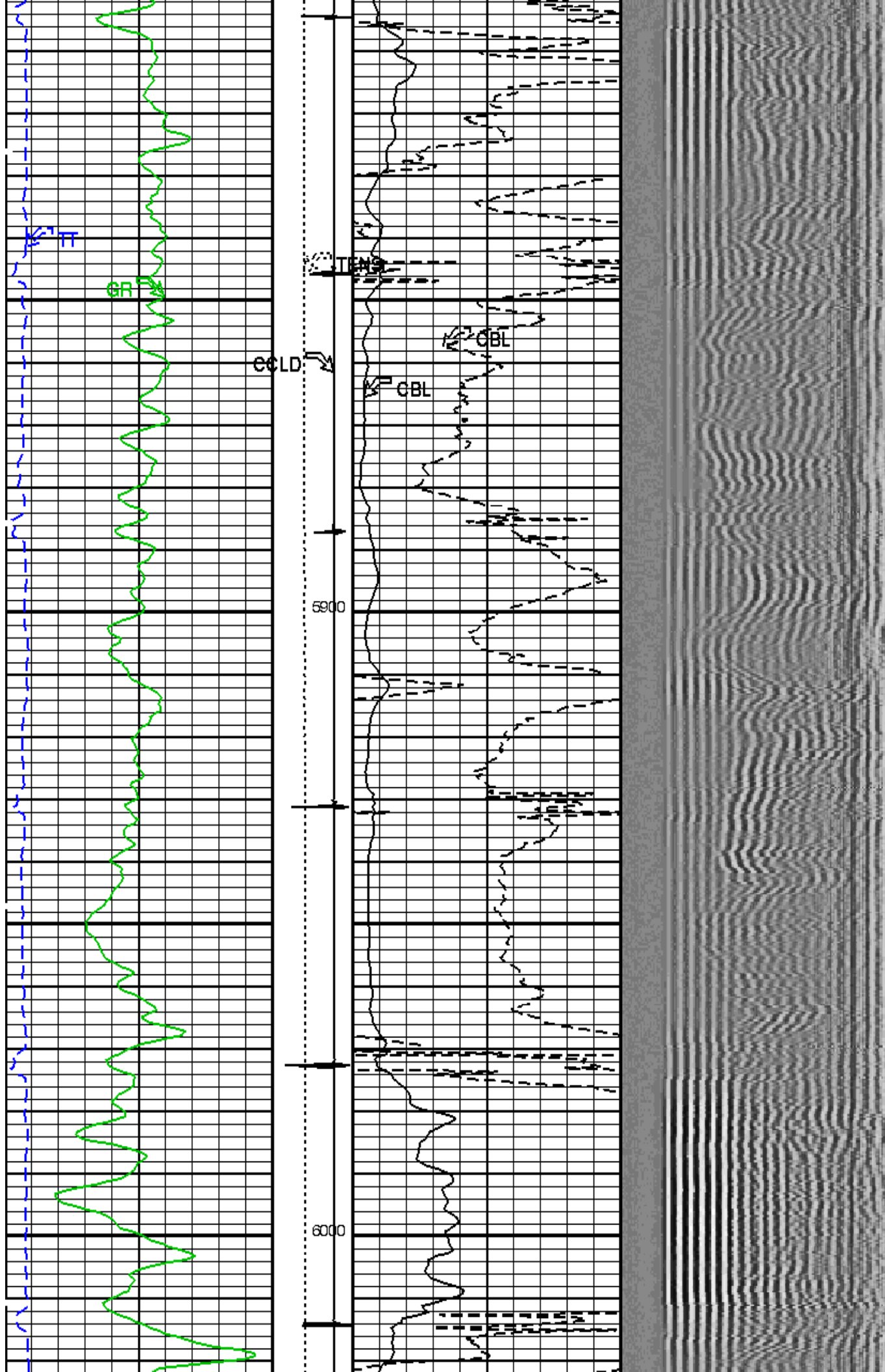


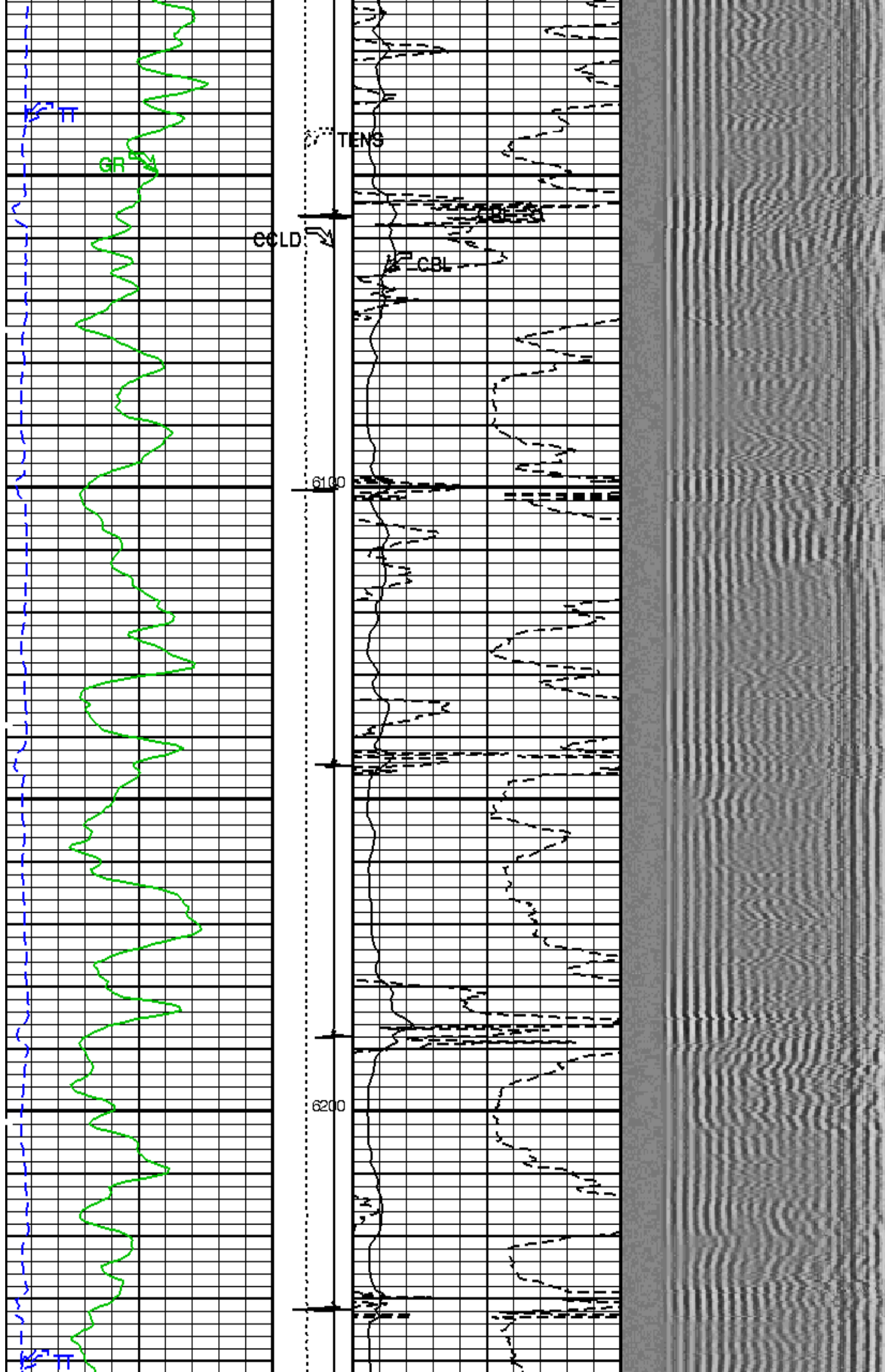


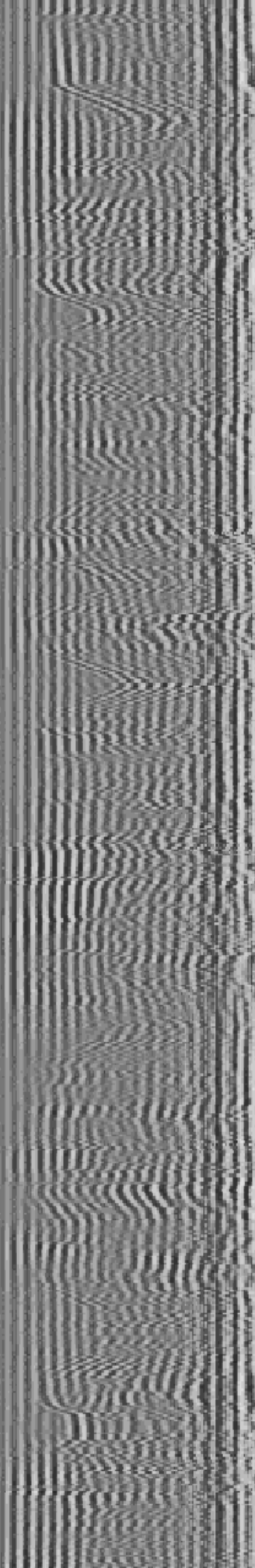
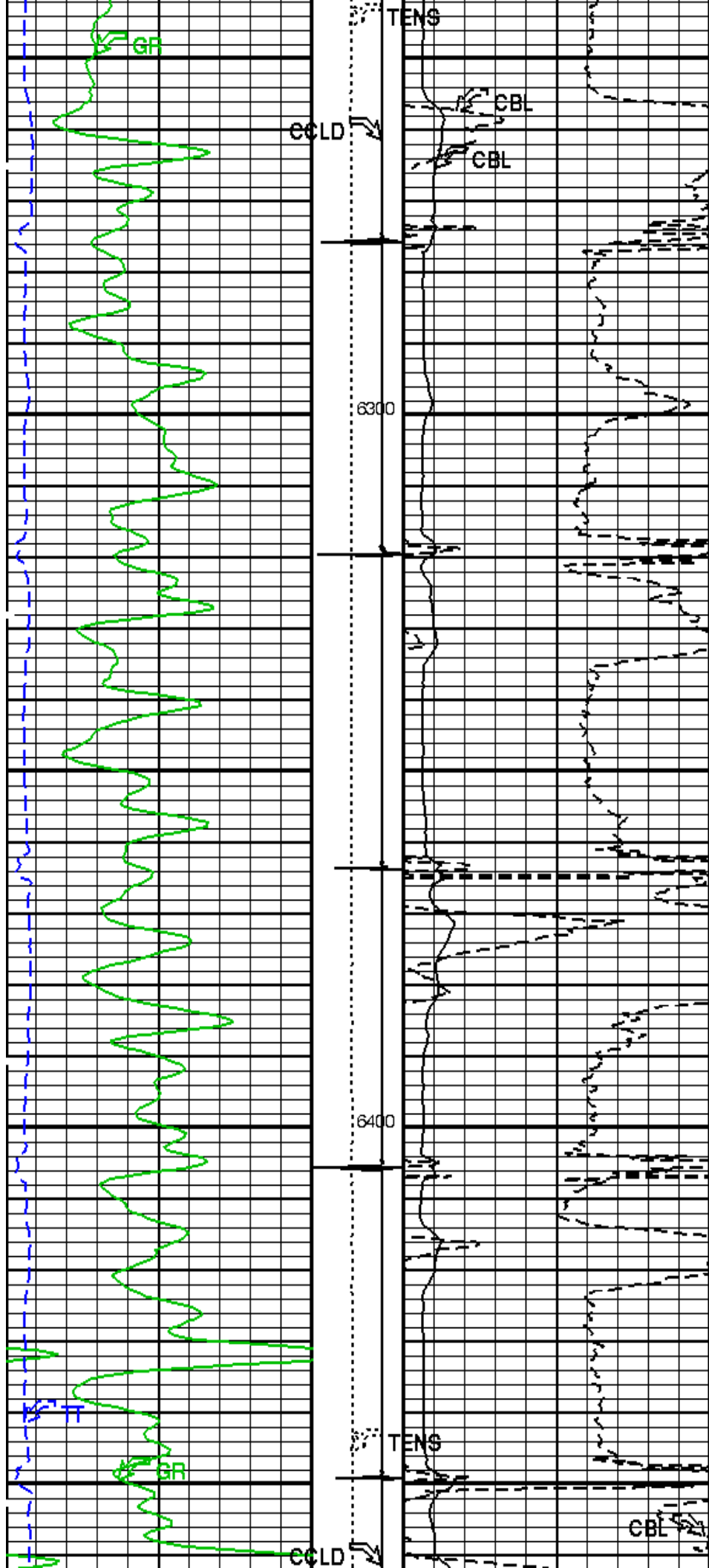


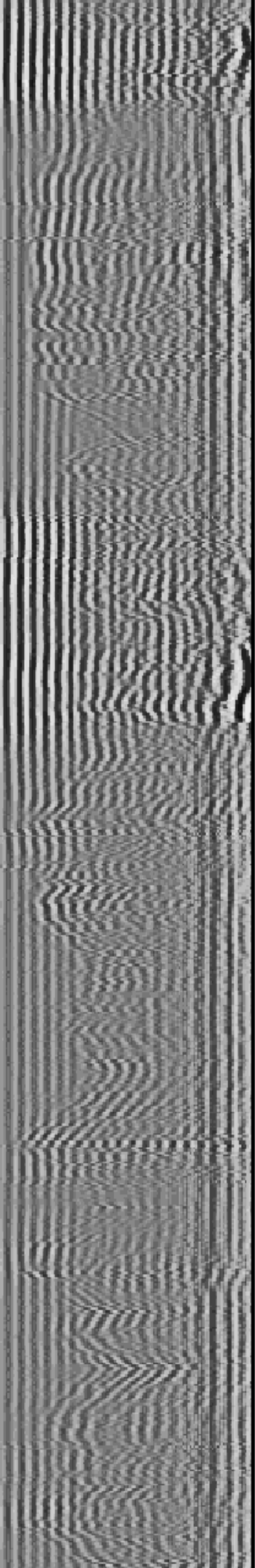
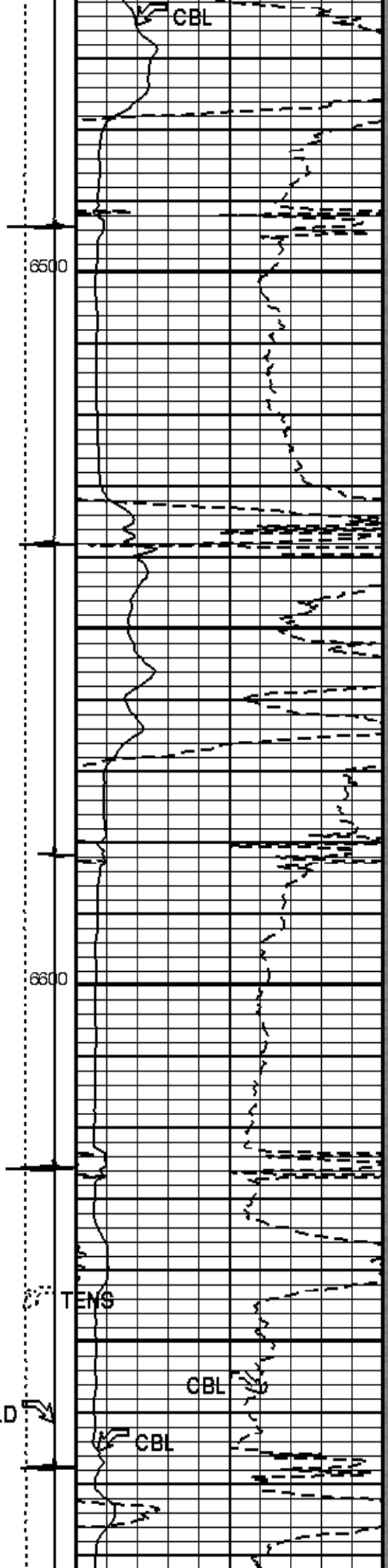
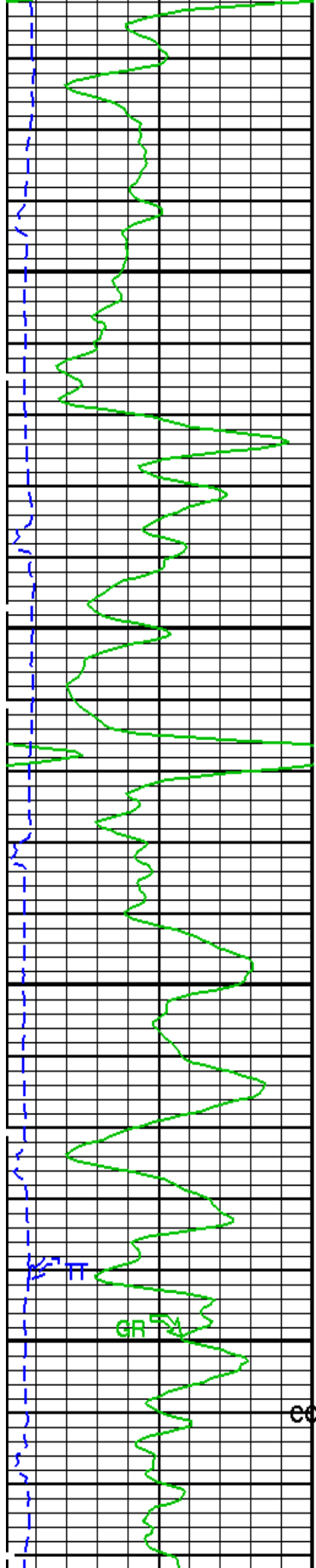


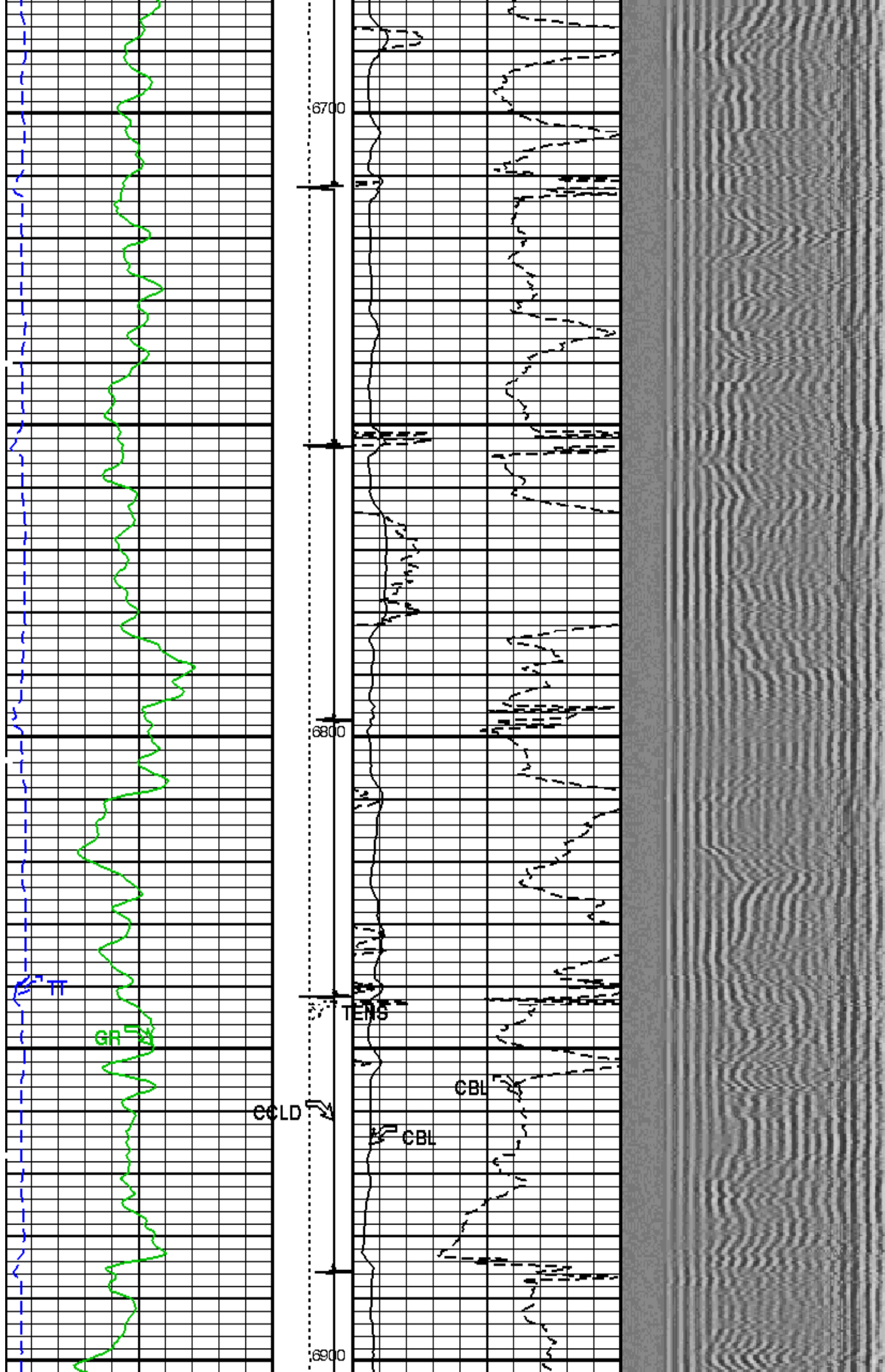


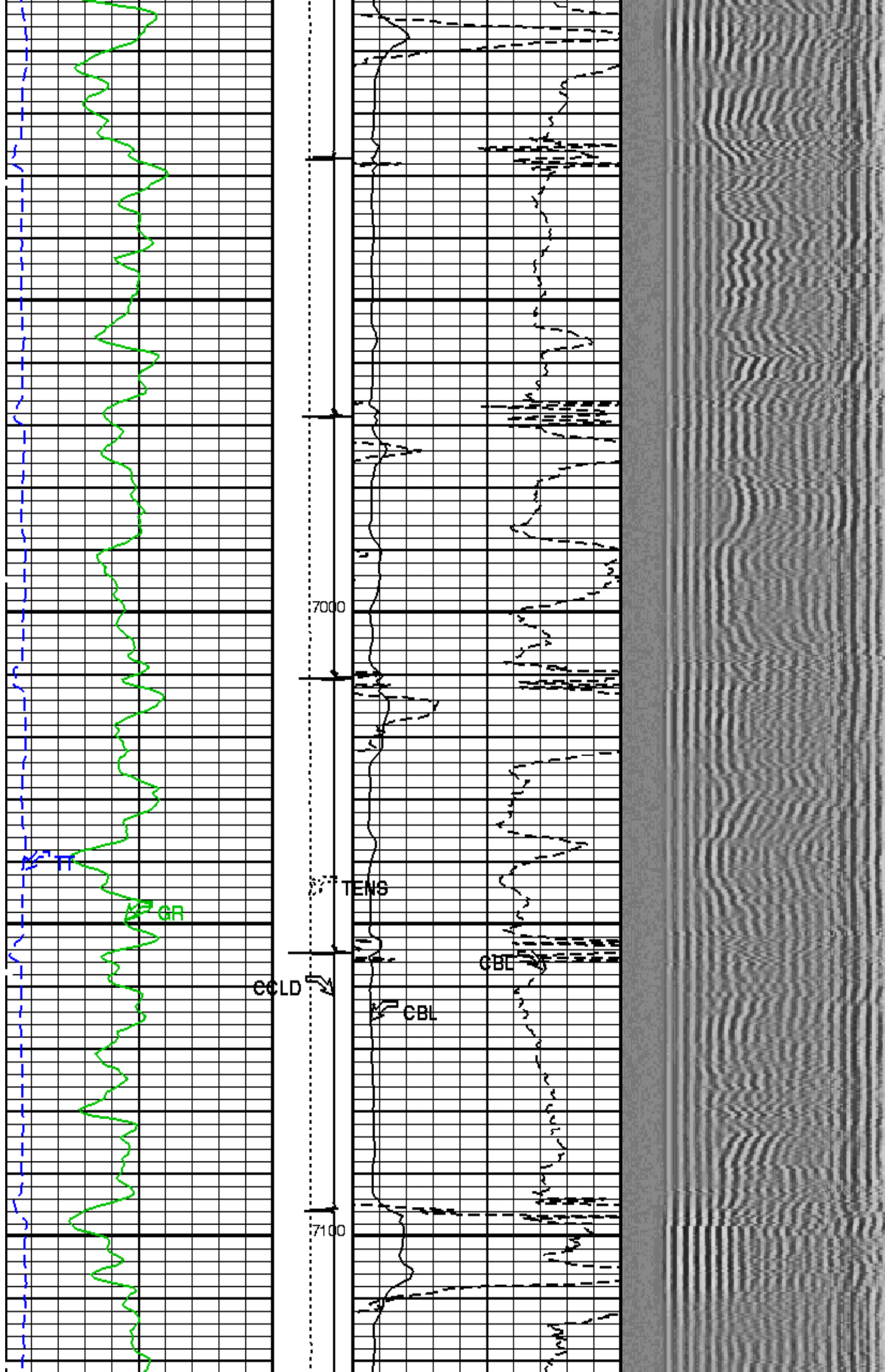


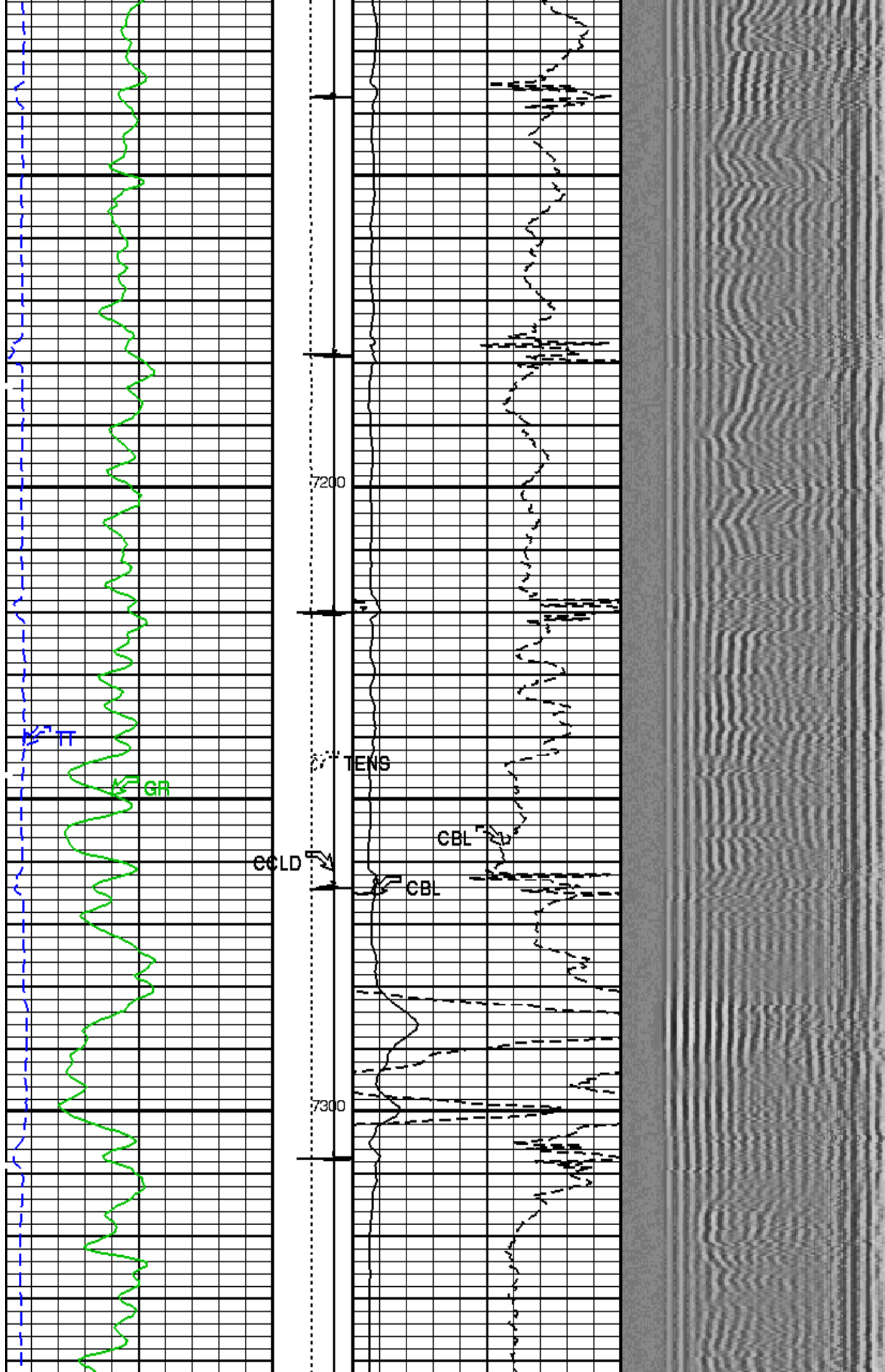












SHORT JOINT

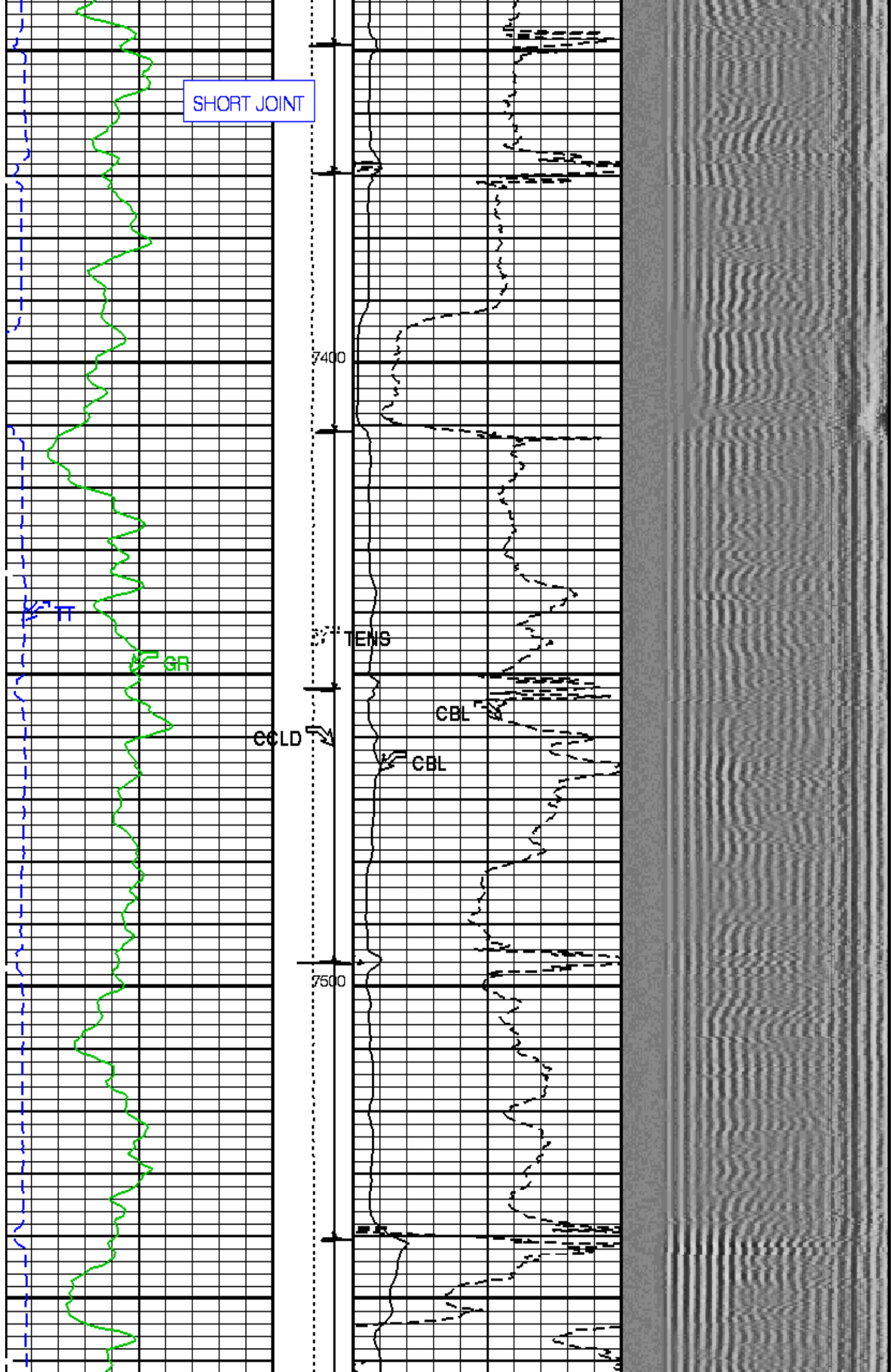
7400

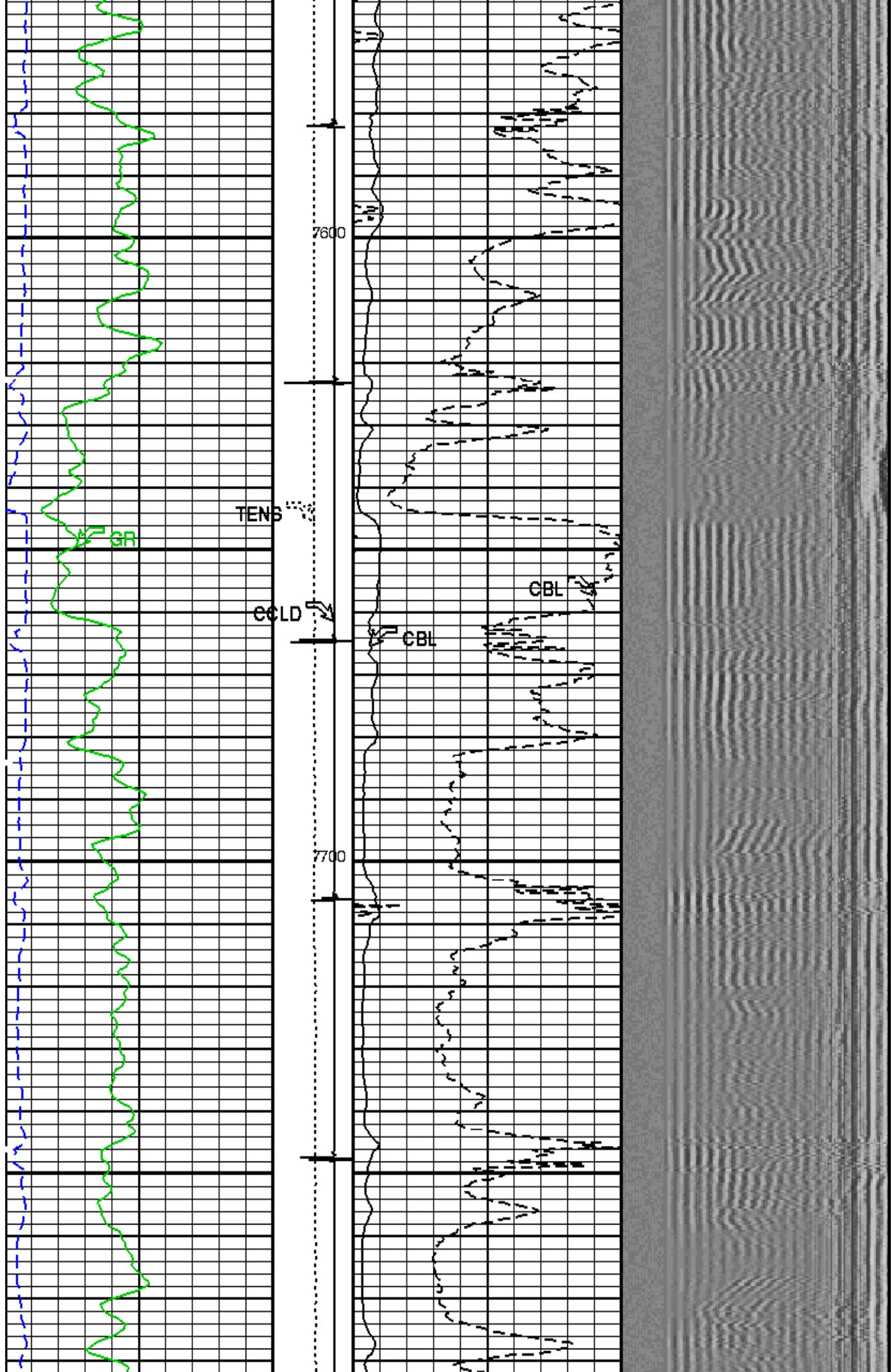
TENS

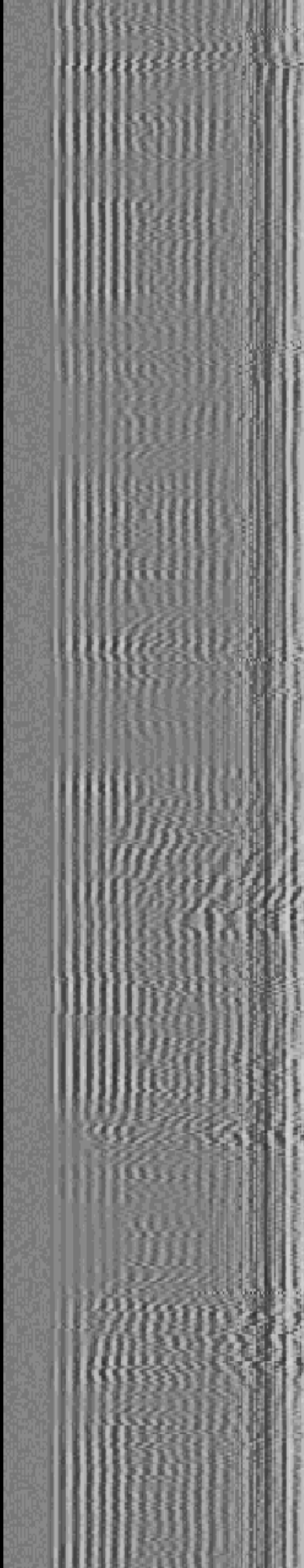
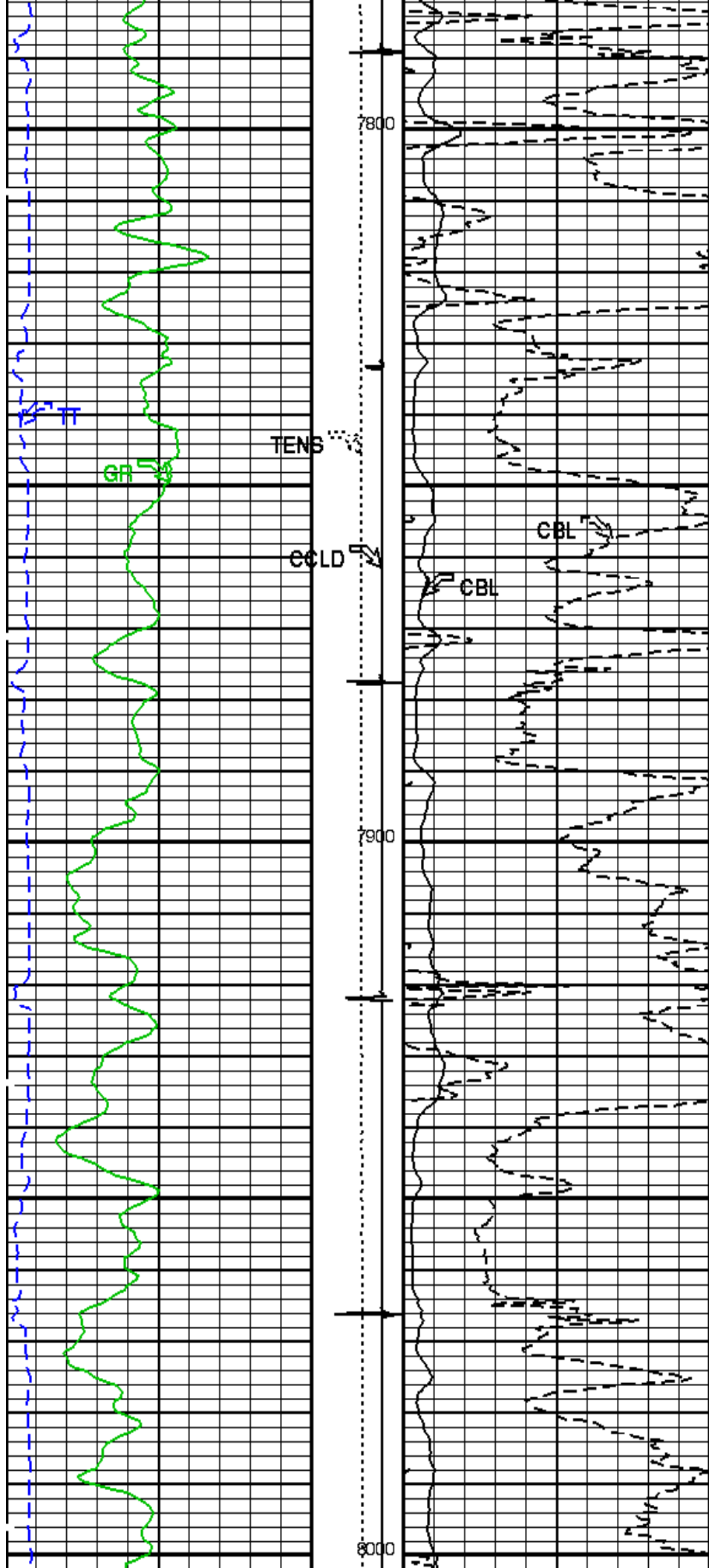
CBL

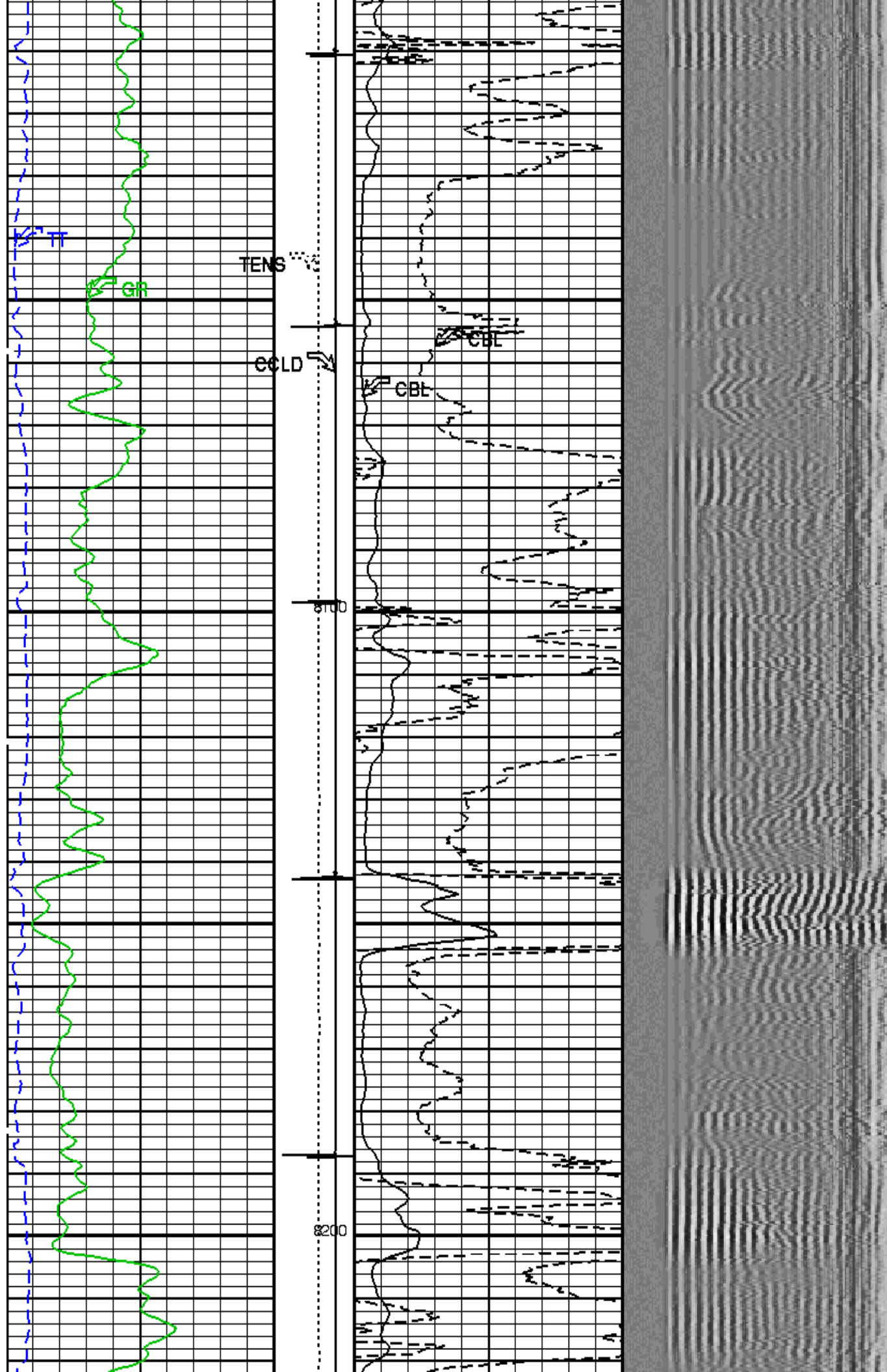
CBL

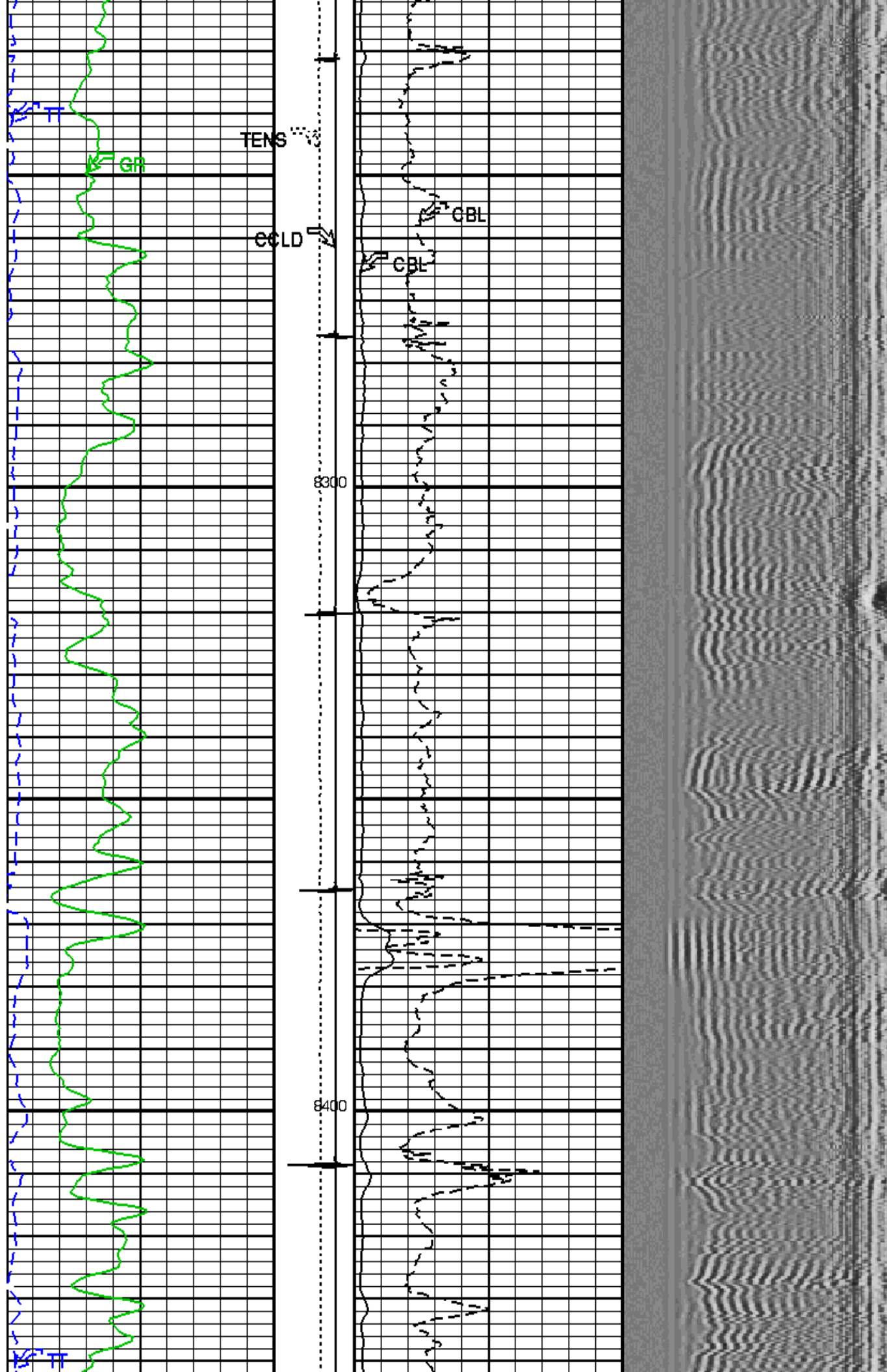
7500

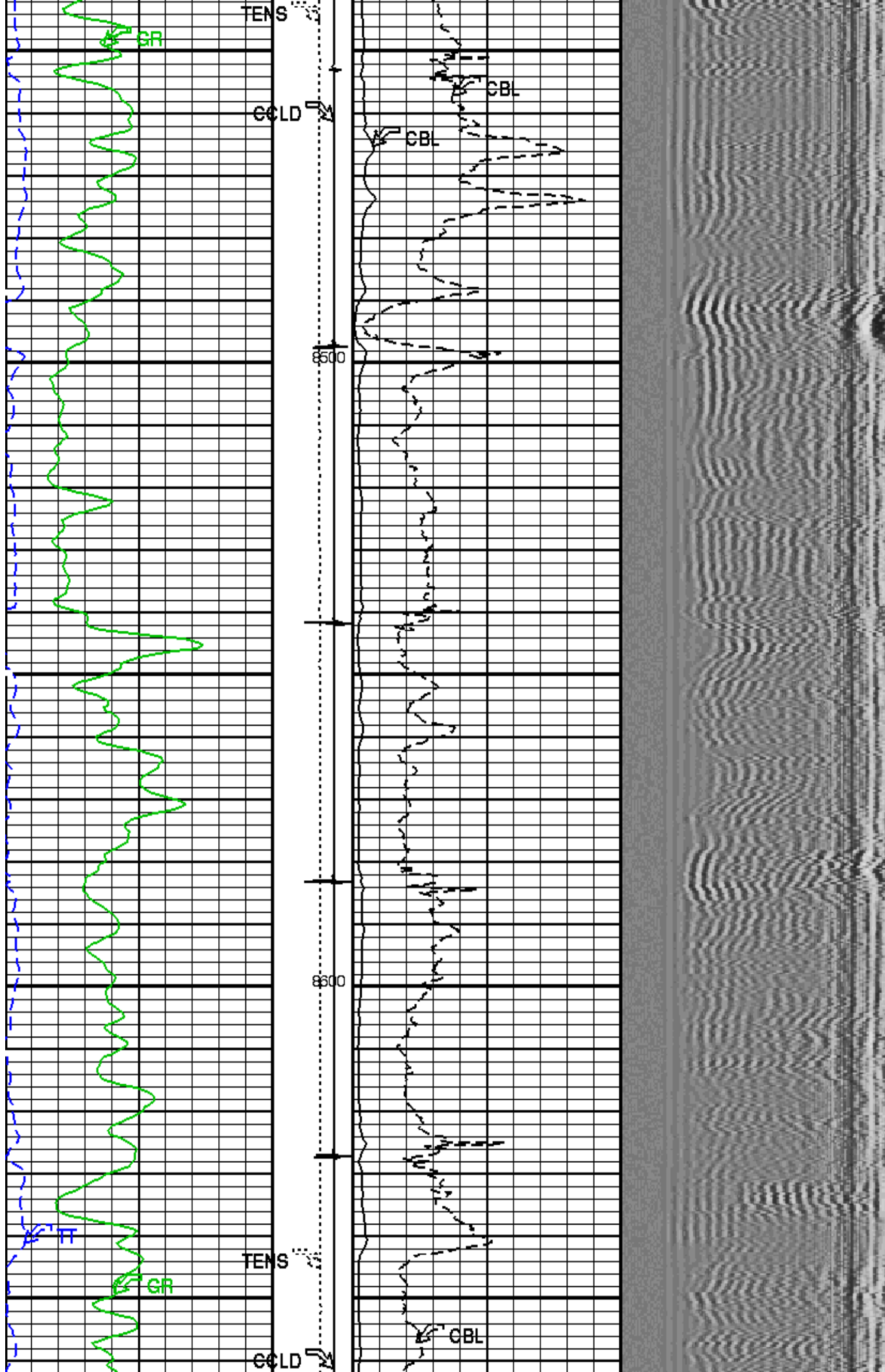


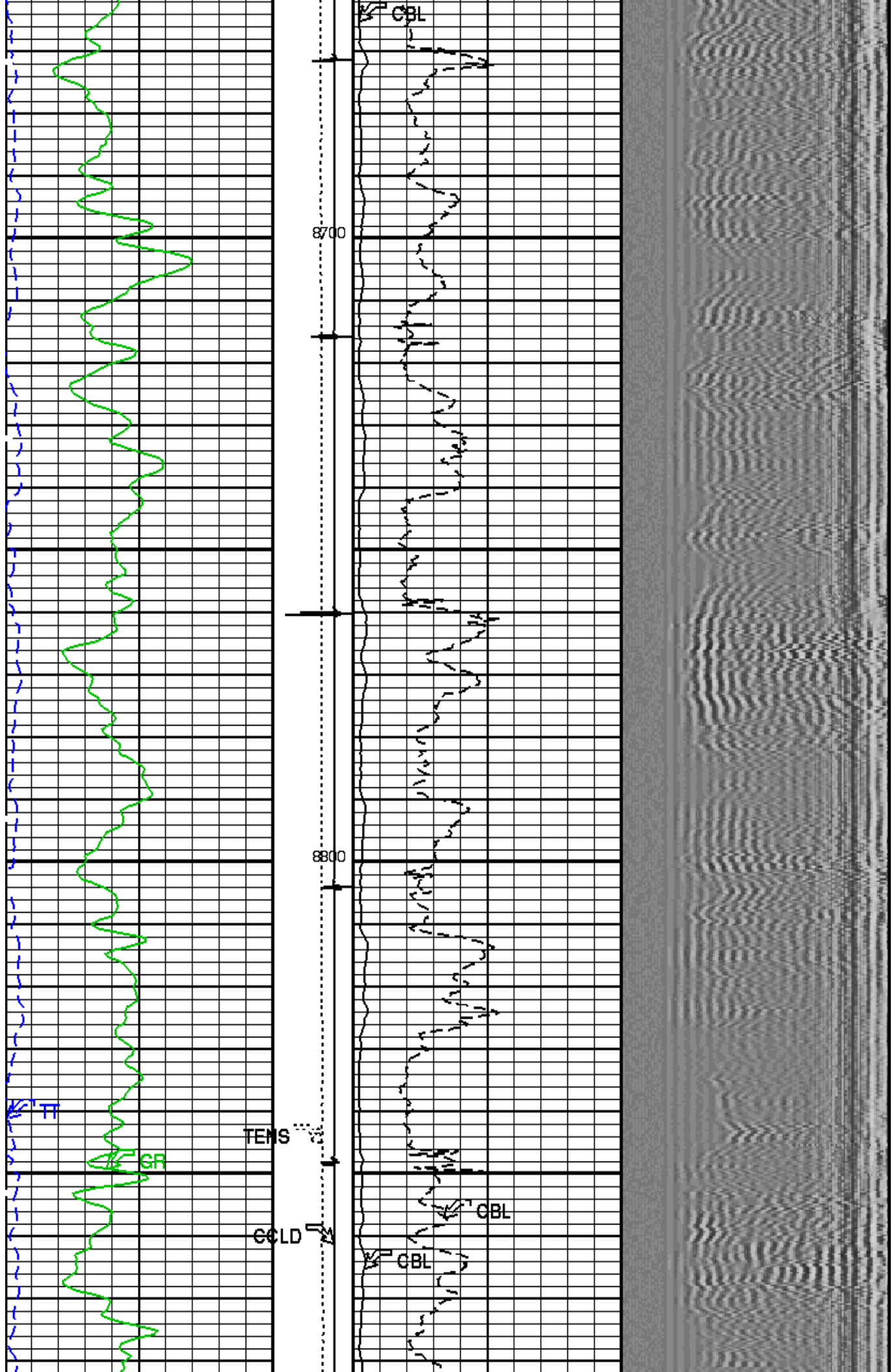


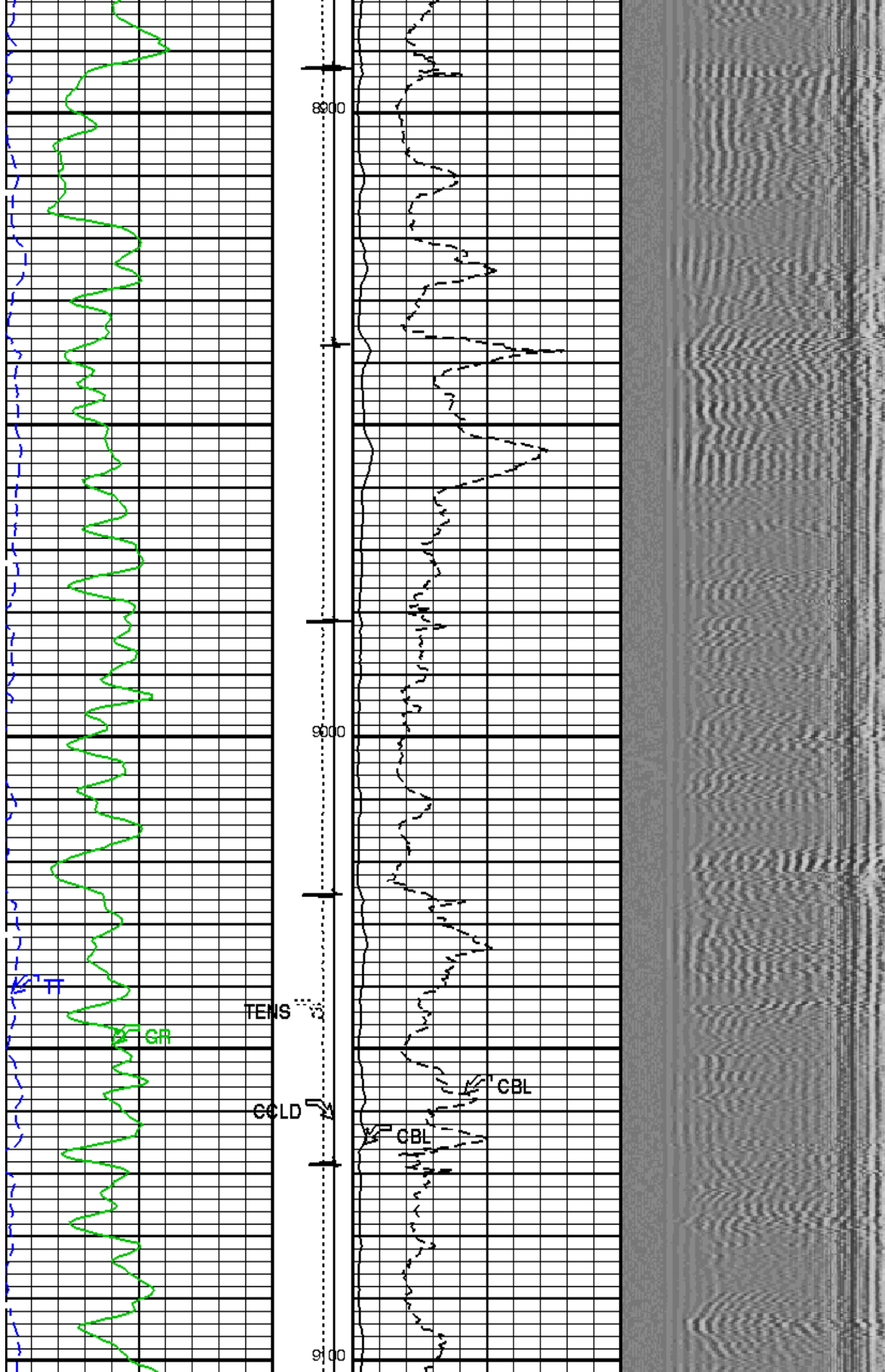


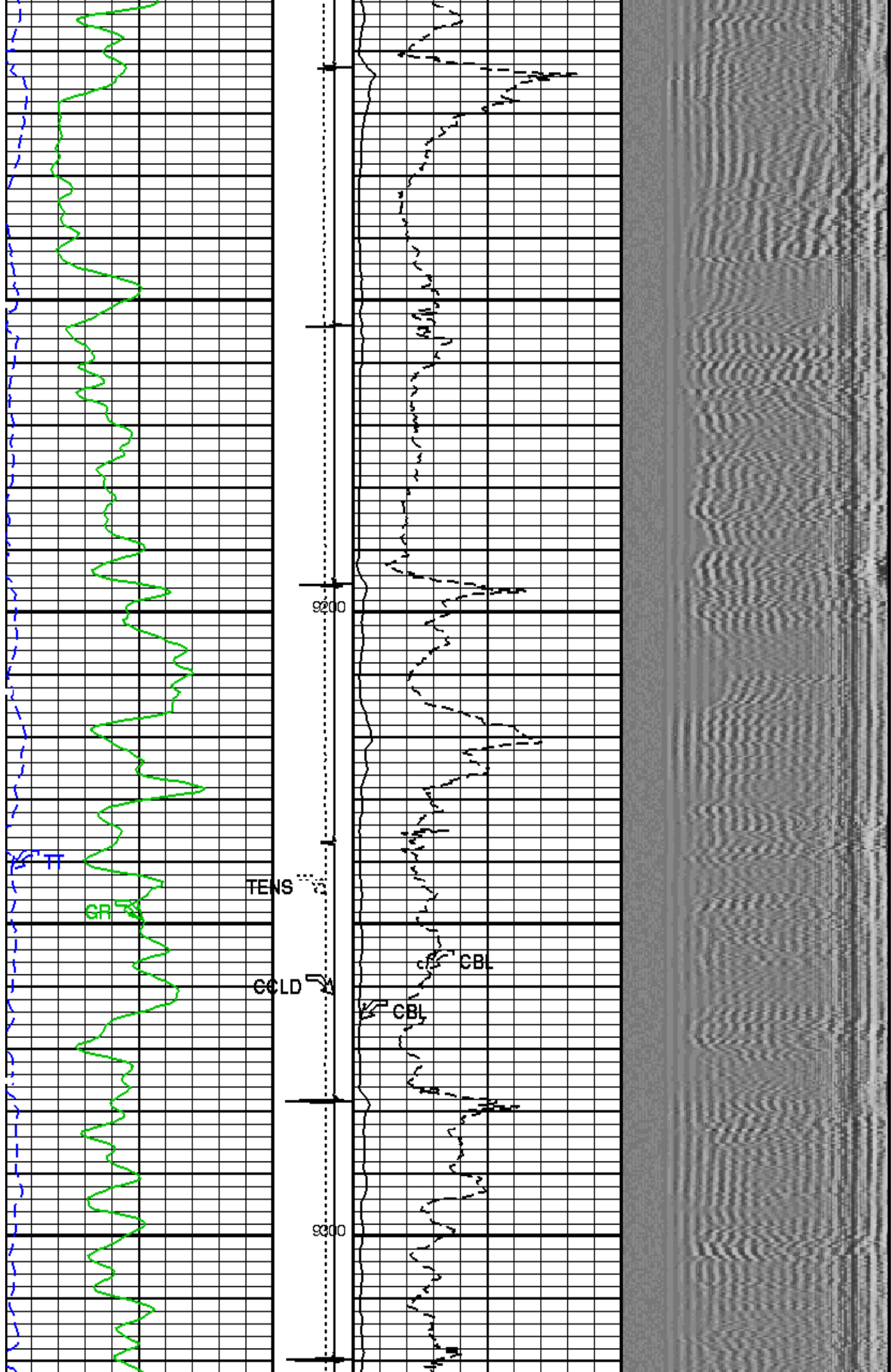


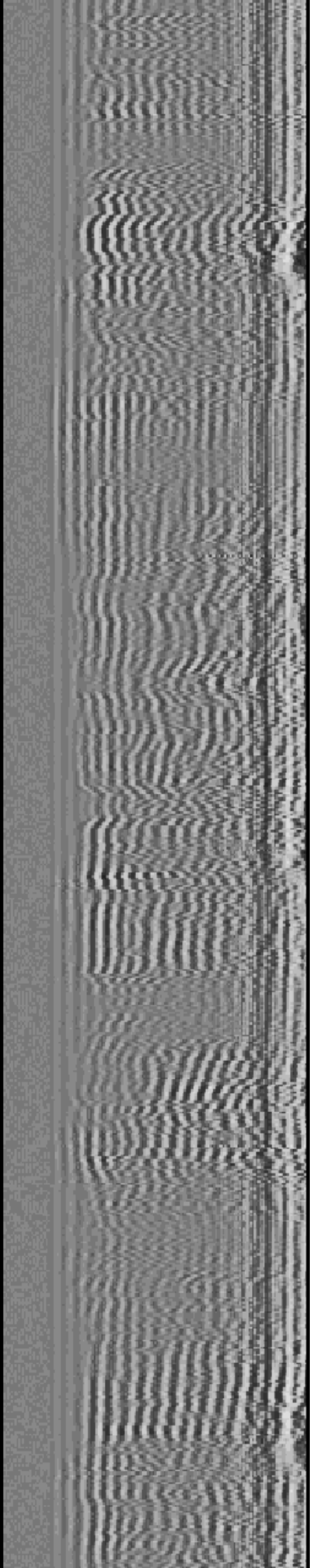
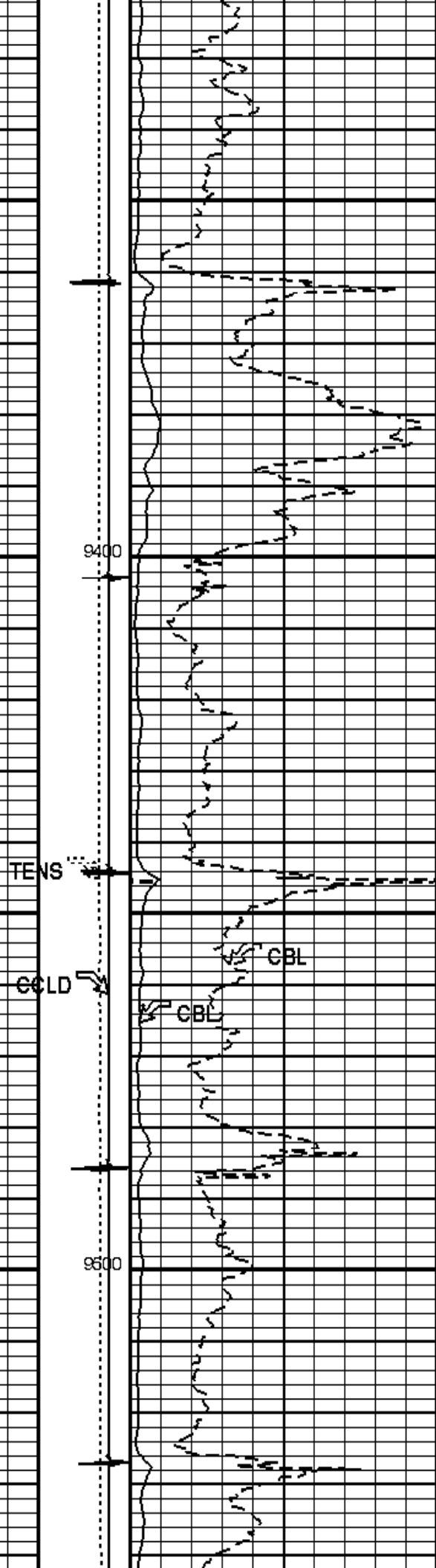
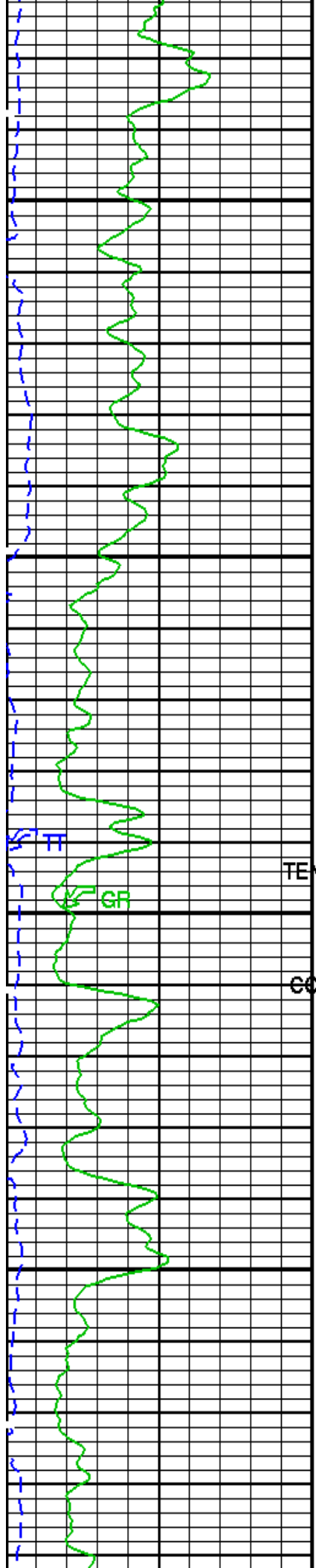


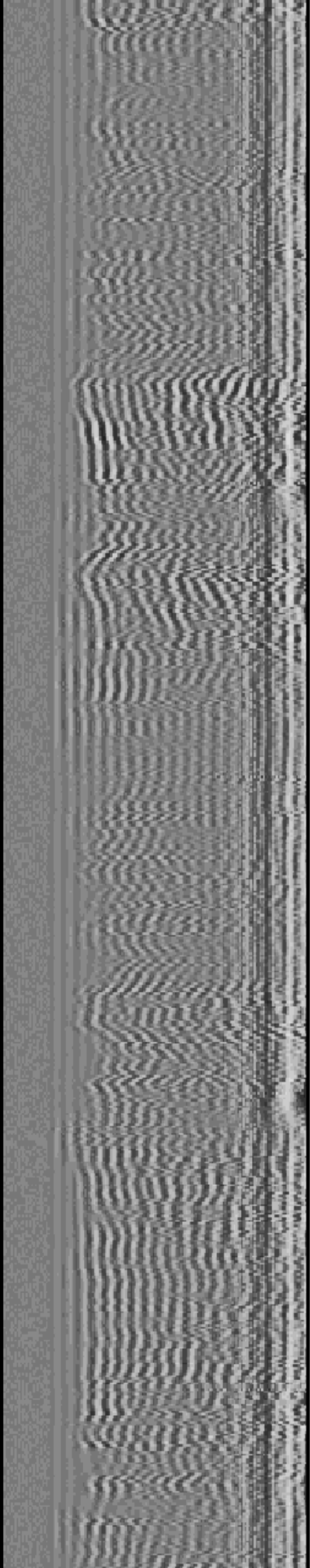
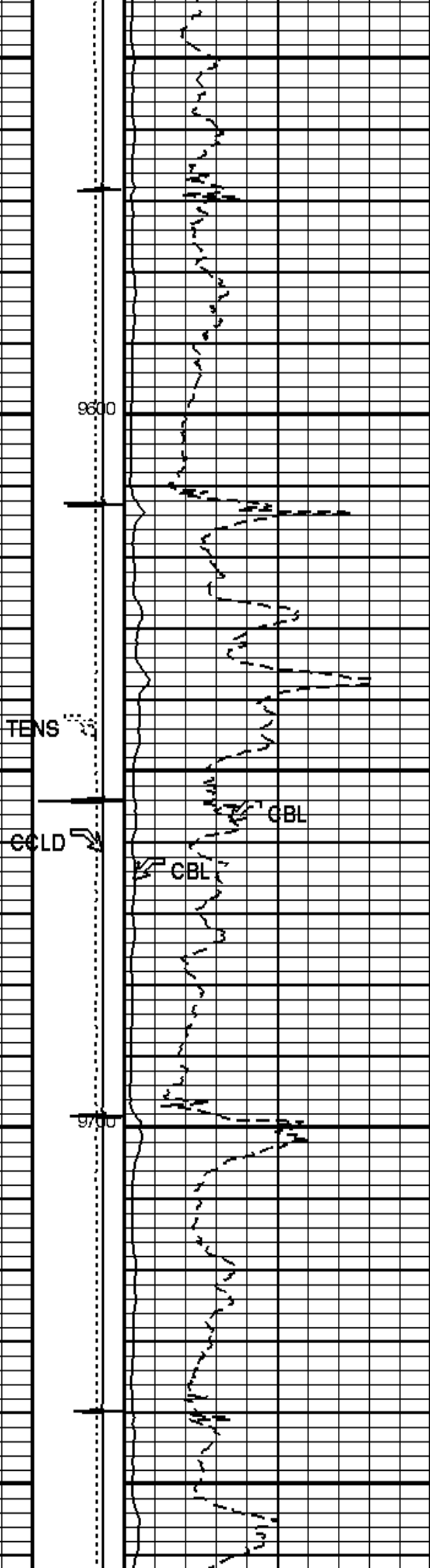
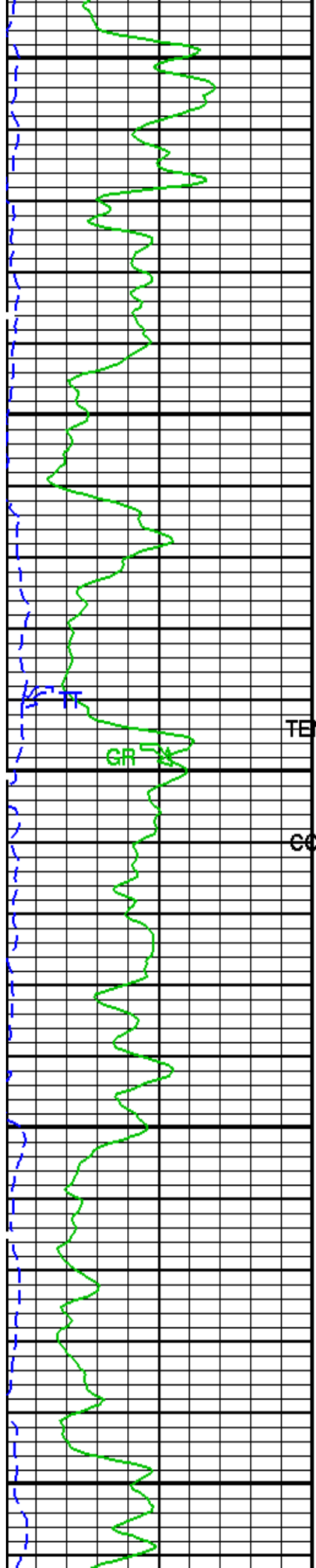


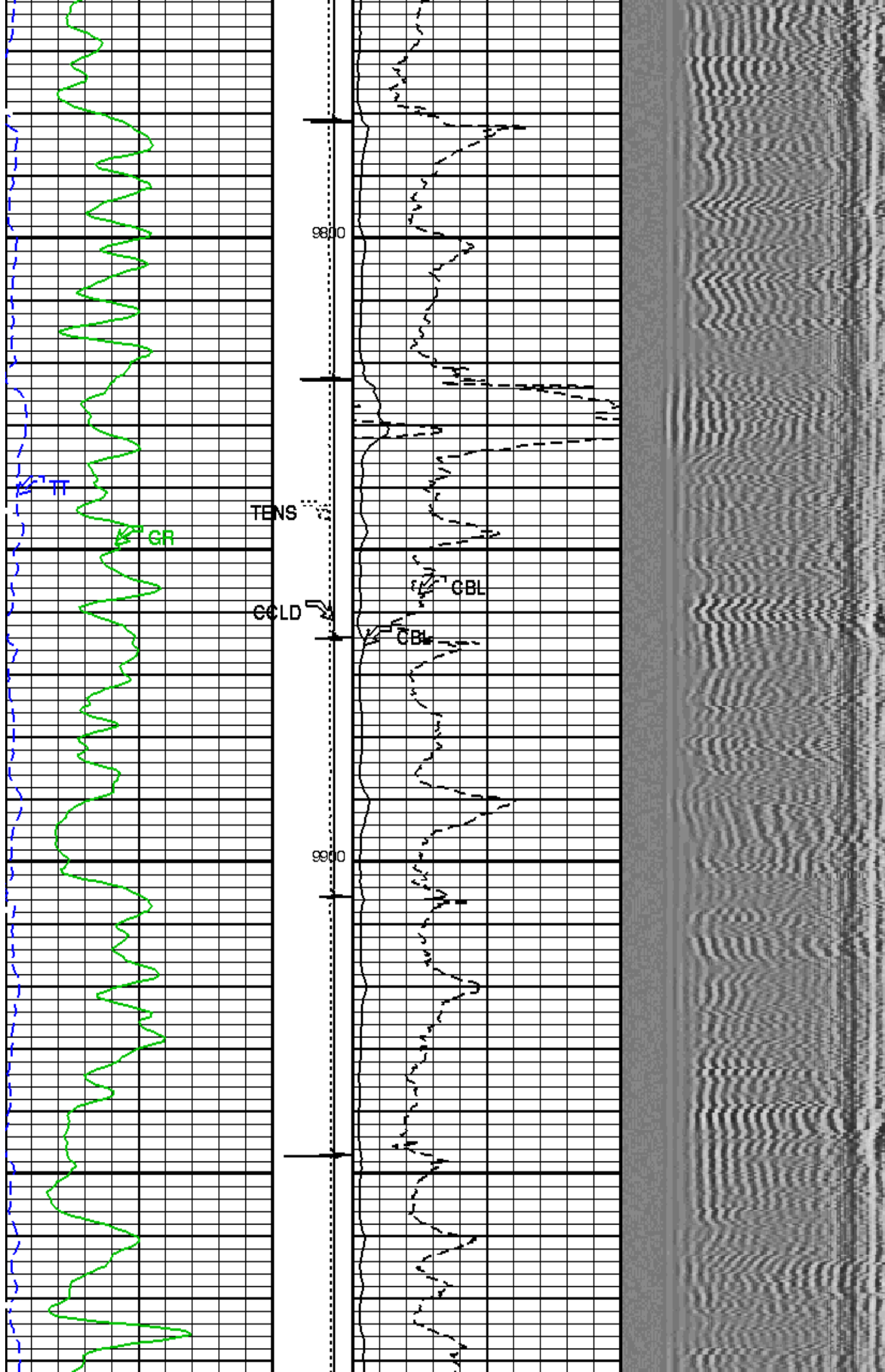


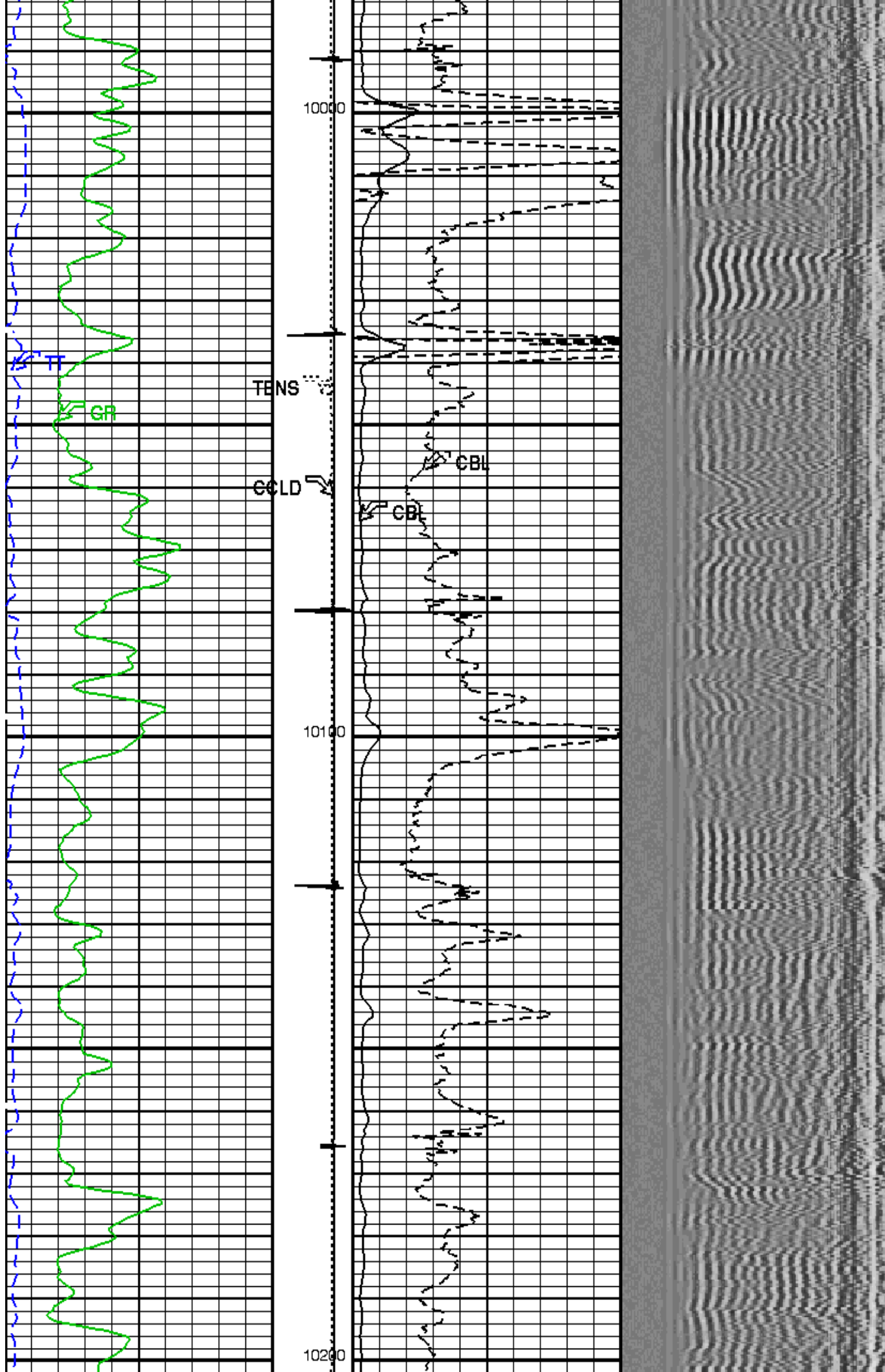


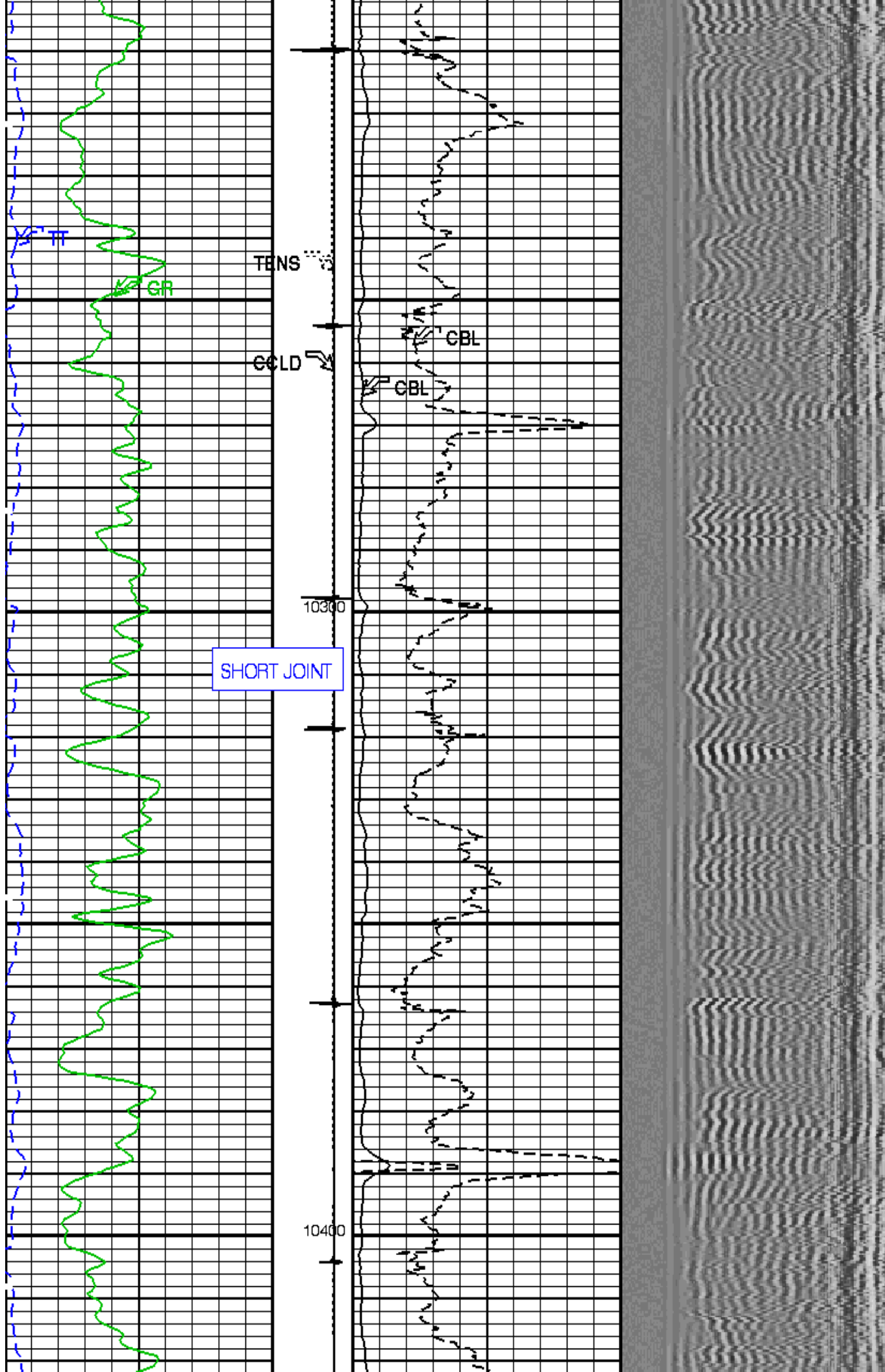


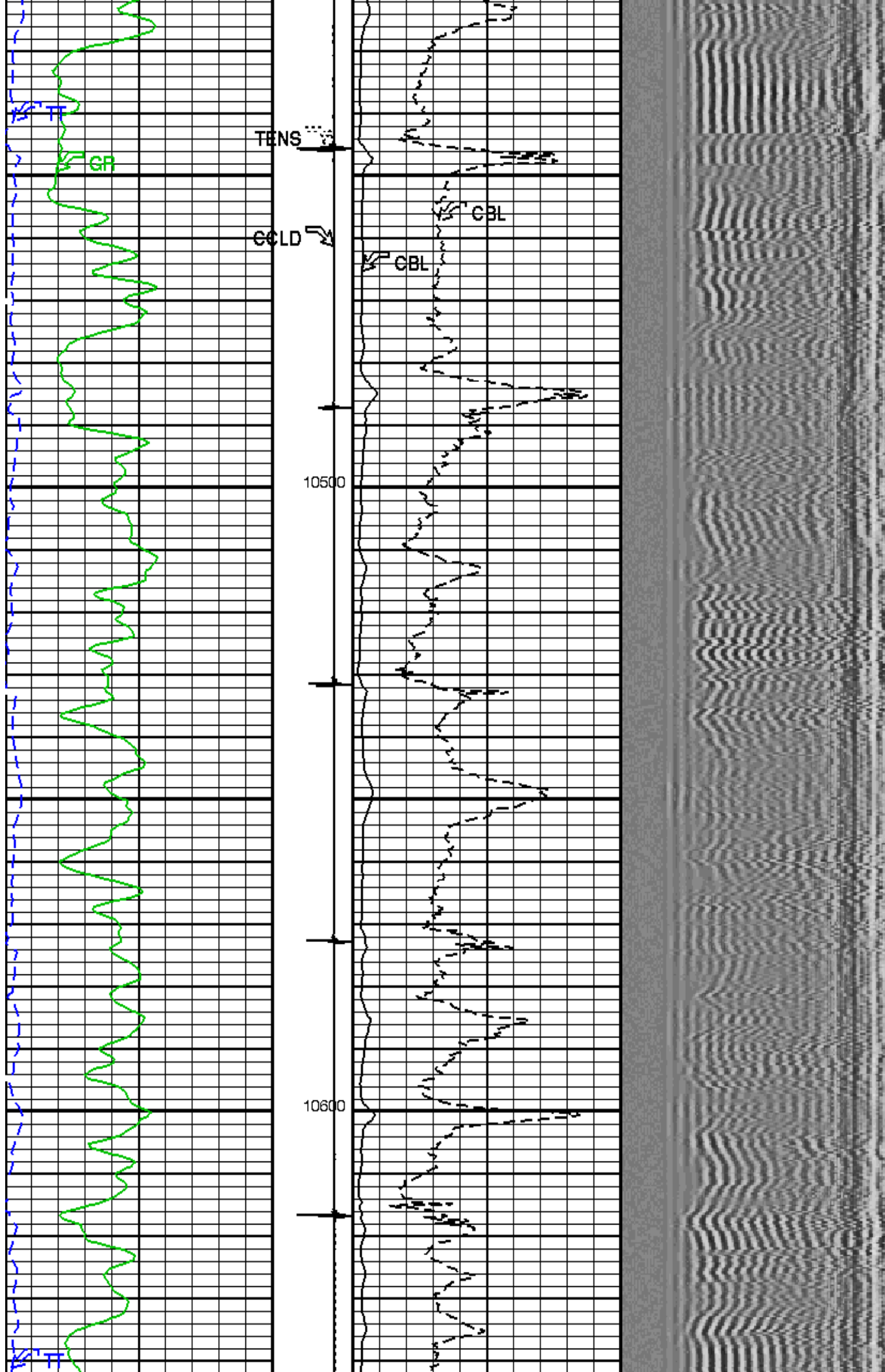


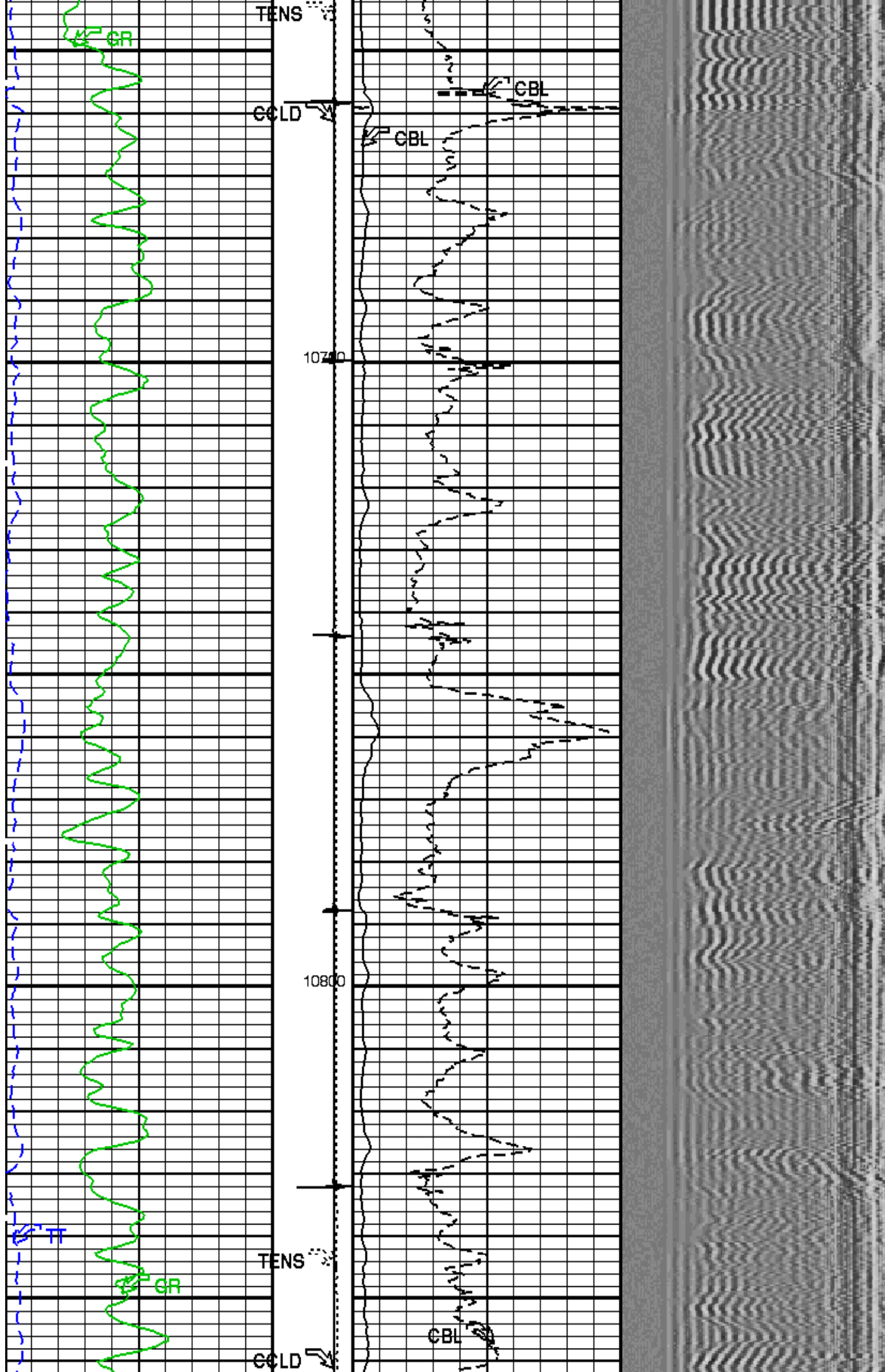


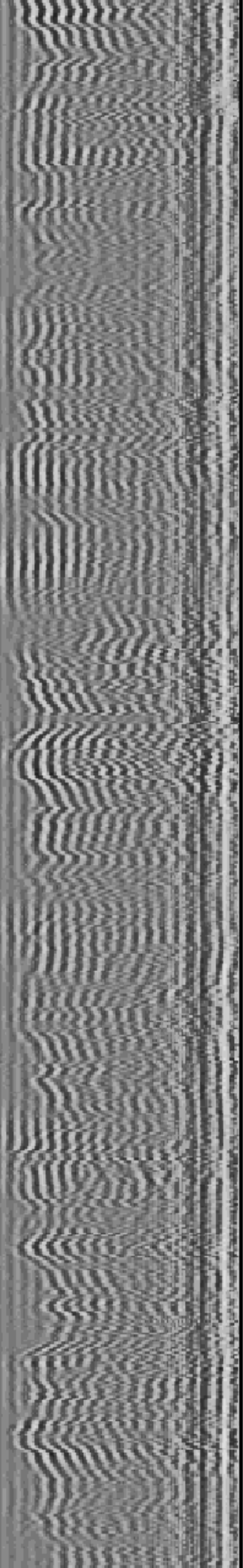
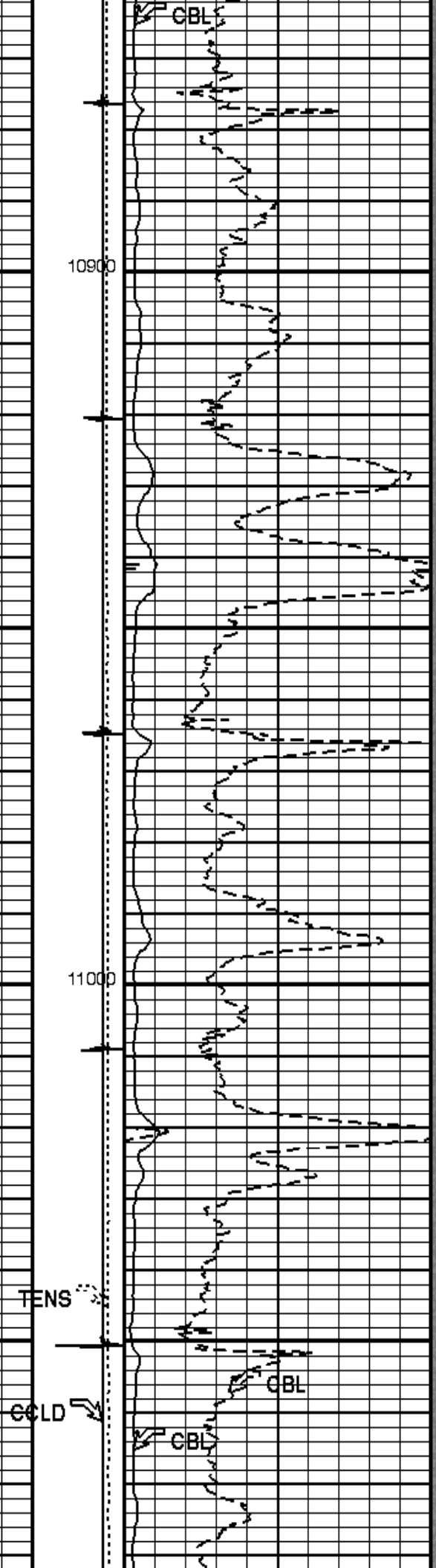
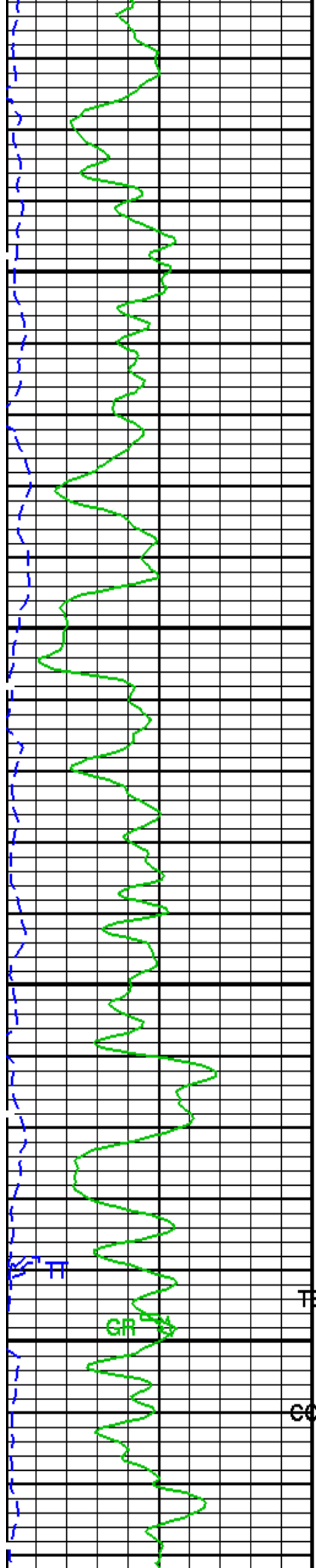


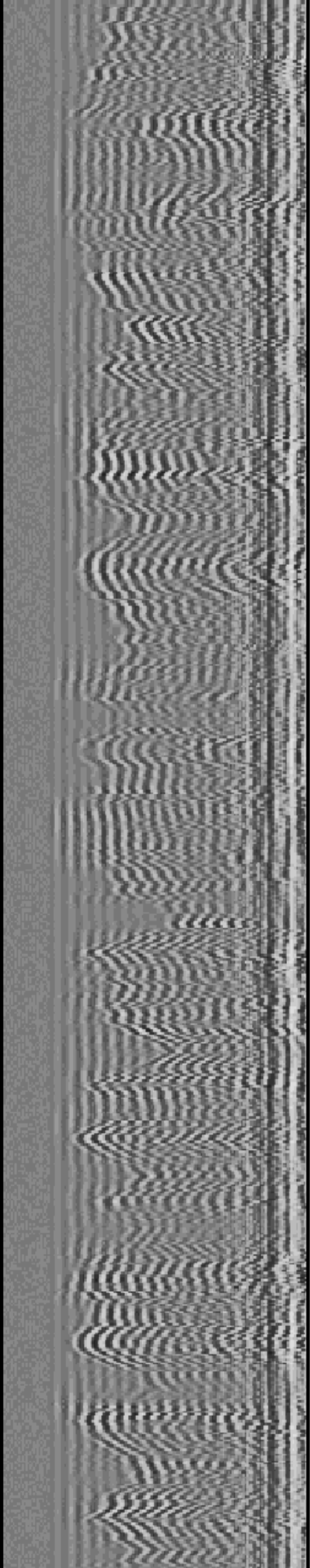
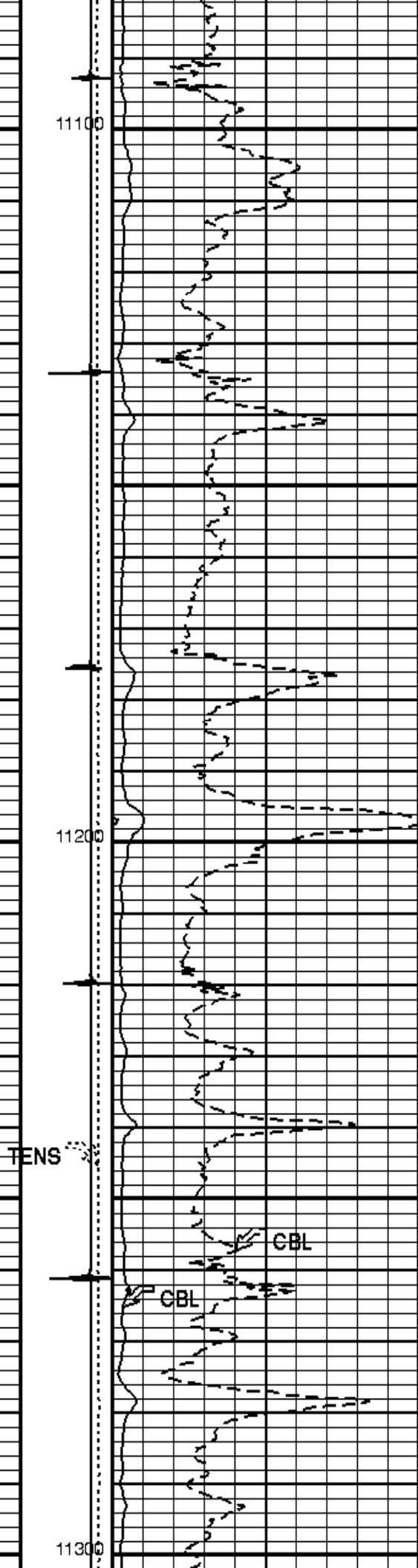
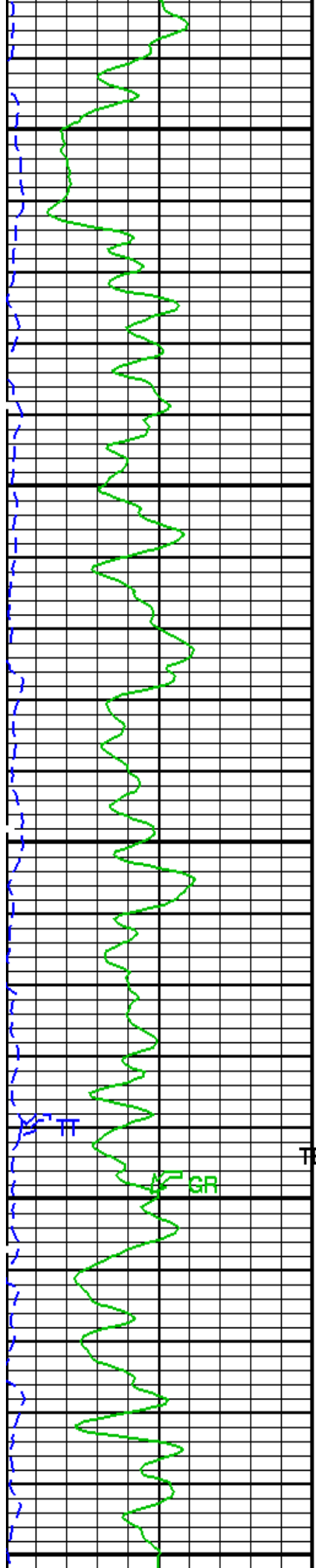


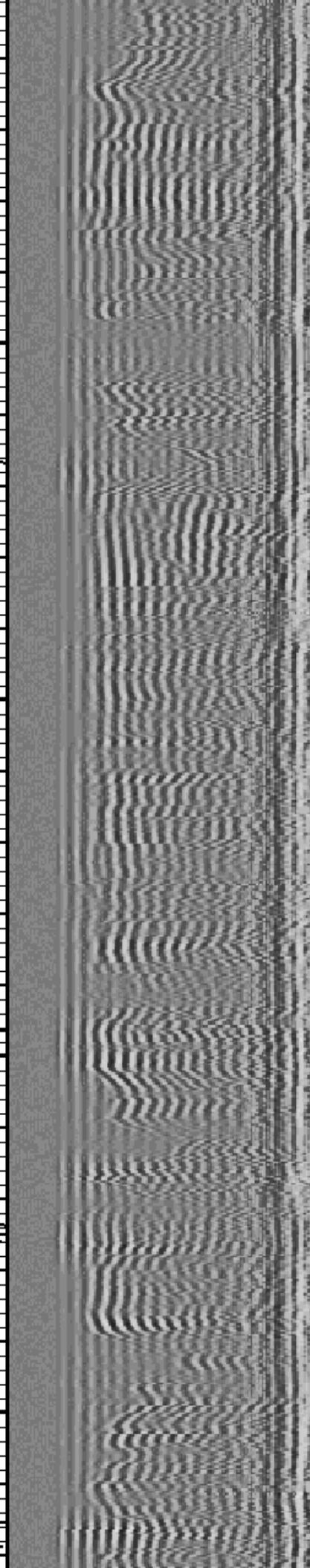
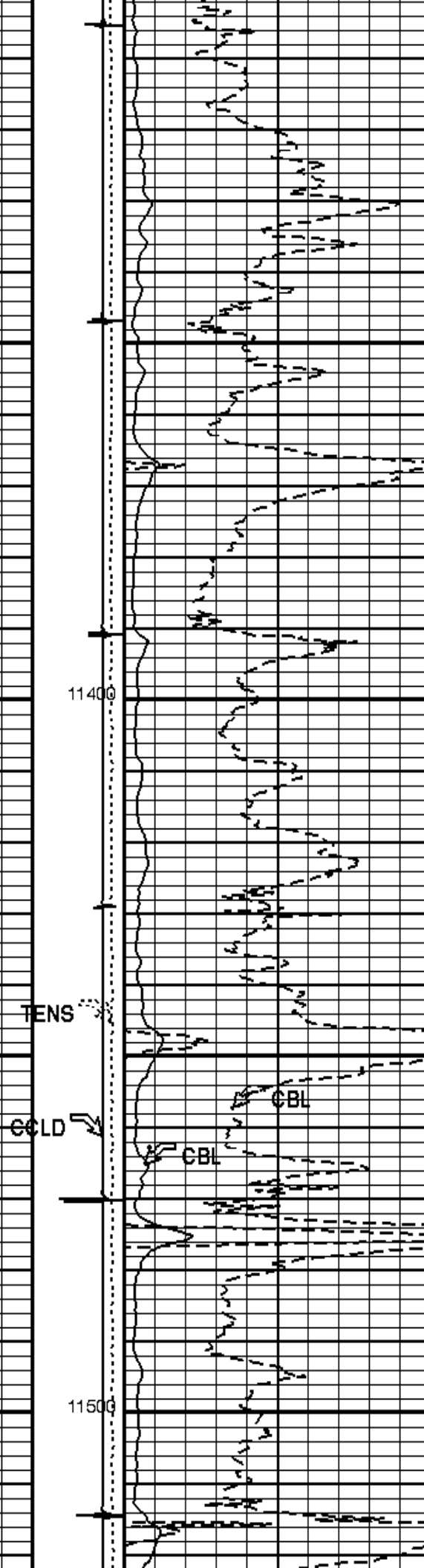
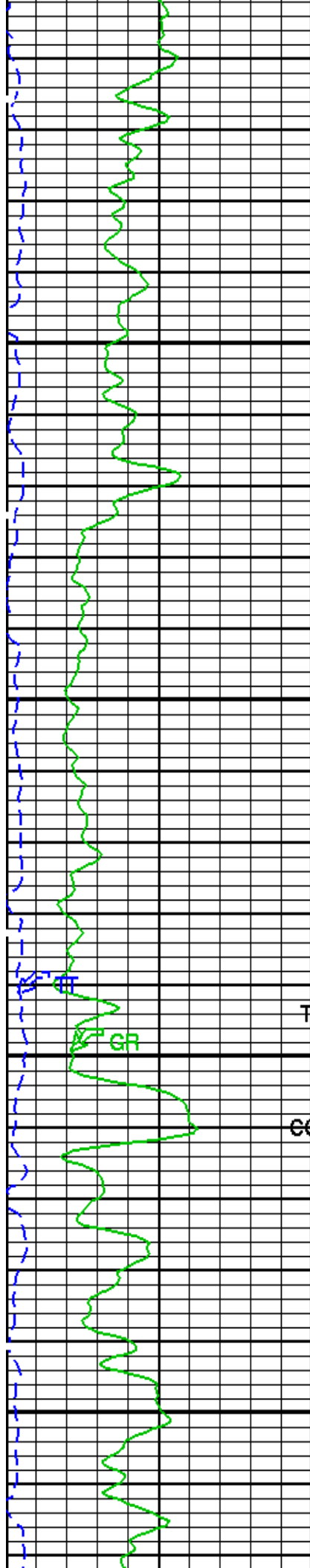


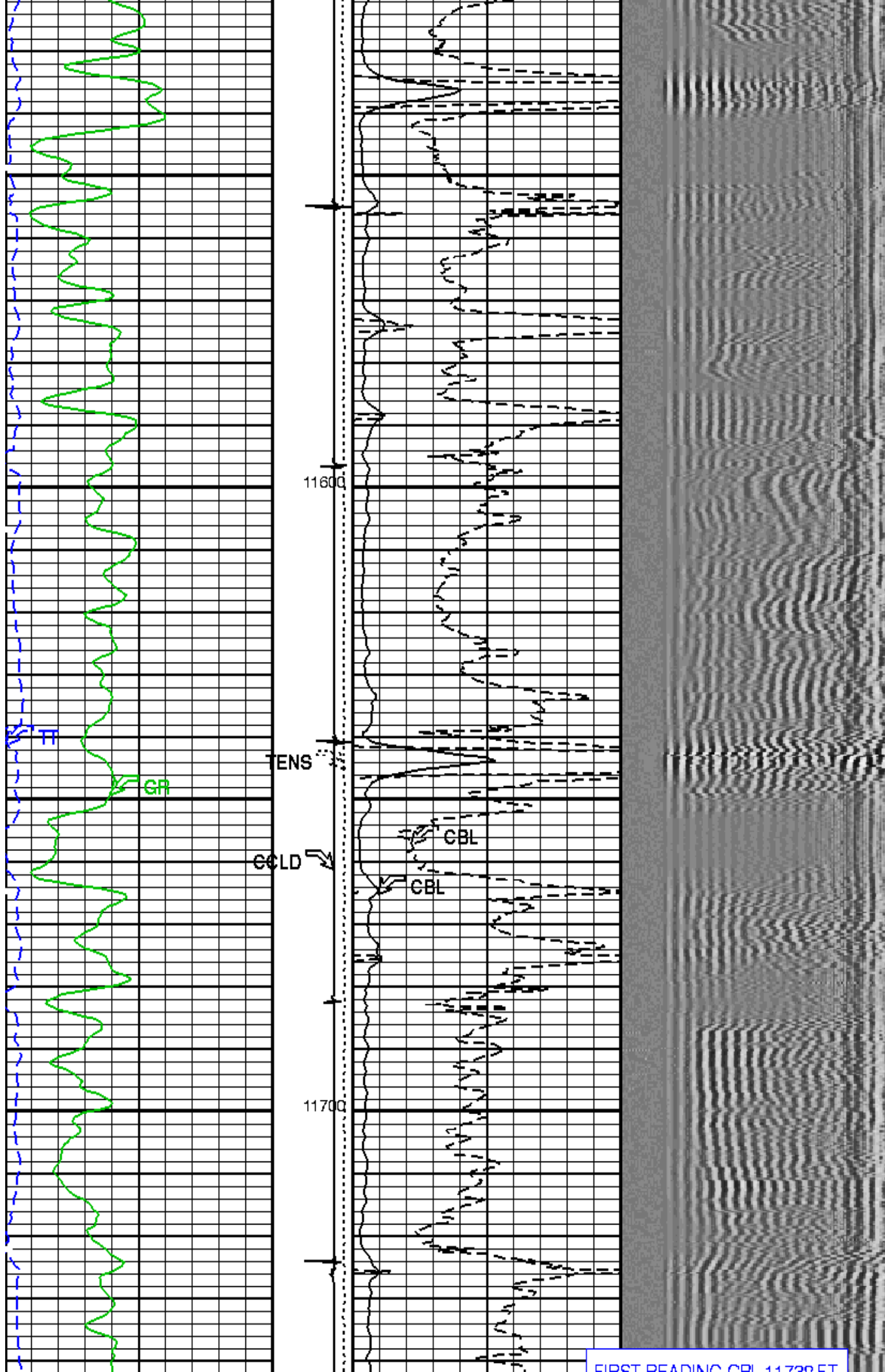










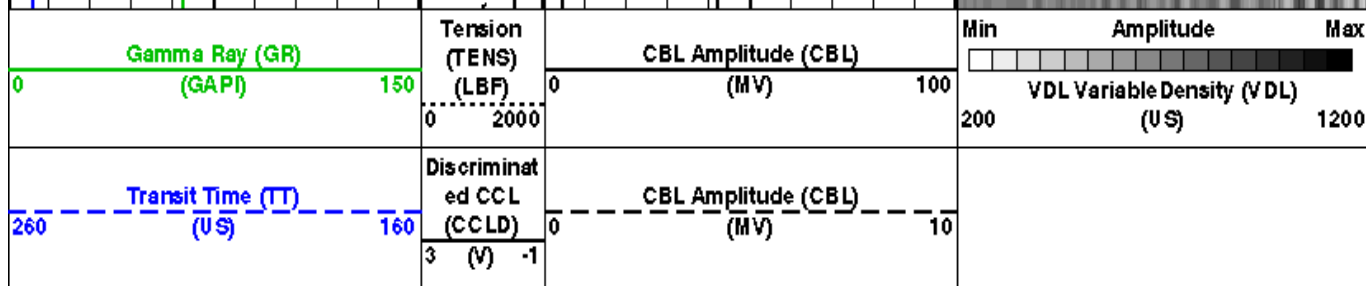


FIRST READING CBL 11738.5T

FIRST READING GR 11721 FT

TOTAL DEPTH 11747 FT

FIRST READING CBL 117381 FT



PIP SUMMARY

Time Mark Every 60 S

Format: CBL_VDL Vertical Scale: 5" per 100'

Graphics File Created: 13-Jul-2012 00:31

OP System Version: 19C0-187

SCMT-CB

SRPC-5095-H2-2011-OP19

HBMS-B

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)	0.900000
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
CBF	CBL Gate Factor	1.0

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	0.902782	
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	8.60	LB/G
DO	Depth Offset for Playback	7.0	FT
DORL	Depth Offset for Repeat Analysis	-2.0	FT
PP	Playback Processing	RECOMPUTE	
TD	Total Depth	11747	FT

Input DLIS Files

DEFAULT	Splice_SCMT_HBMS_123CUP	FN:1	PRODUCER	13-Jul-2012 00:28	11769.0 FT	103.0 FT
---------	-------------------------	------	----------	-------------------	------------	----------

Output DLIS Files

DEFAULT	SCMT_HBMS_124PUP	FN:113	PRODUCER	13-Jul-2012 00:31
---------	------------------	--------	----------	-------------------

Schlumberger

REPEAT ANALYSIS CBL VDL

MAXIS Field Log

Company: ENCANA OIL & GAS (USA) INC.

Well: SG 8509D-21 (N22496)

Input DLIS Files

DEFAULT	Splice_SCMT_HBMS_123CUP	FN:1	PRODUCER	13-Jul-2012 00:28	11769.0 FT	103.0 FT
DEFAULT	SCMT_HBMS_116LUP	FN:106	PRODUCER	12-Jul-2012 19:33	7535.0 FT	7177.0 FT

Output DLIS Files

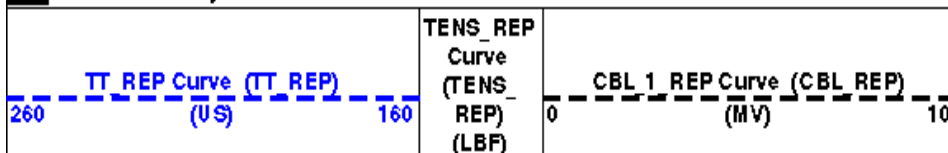
DEFAULT	SCMT_HBMS_124PUP	FN:113	PRODUCER	13-Jul-2012 00:31
---------	------------------	--------	----------	-------------------

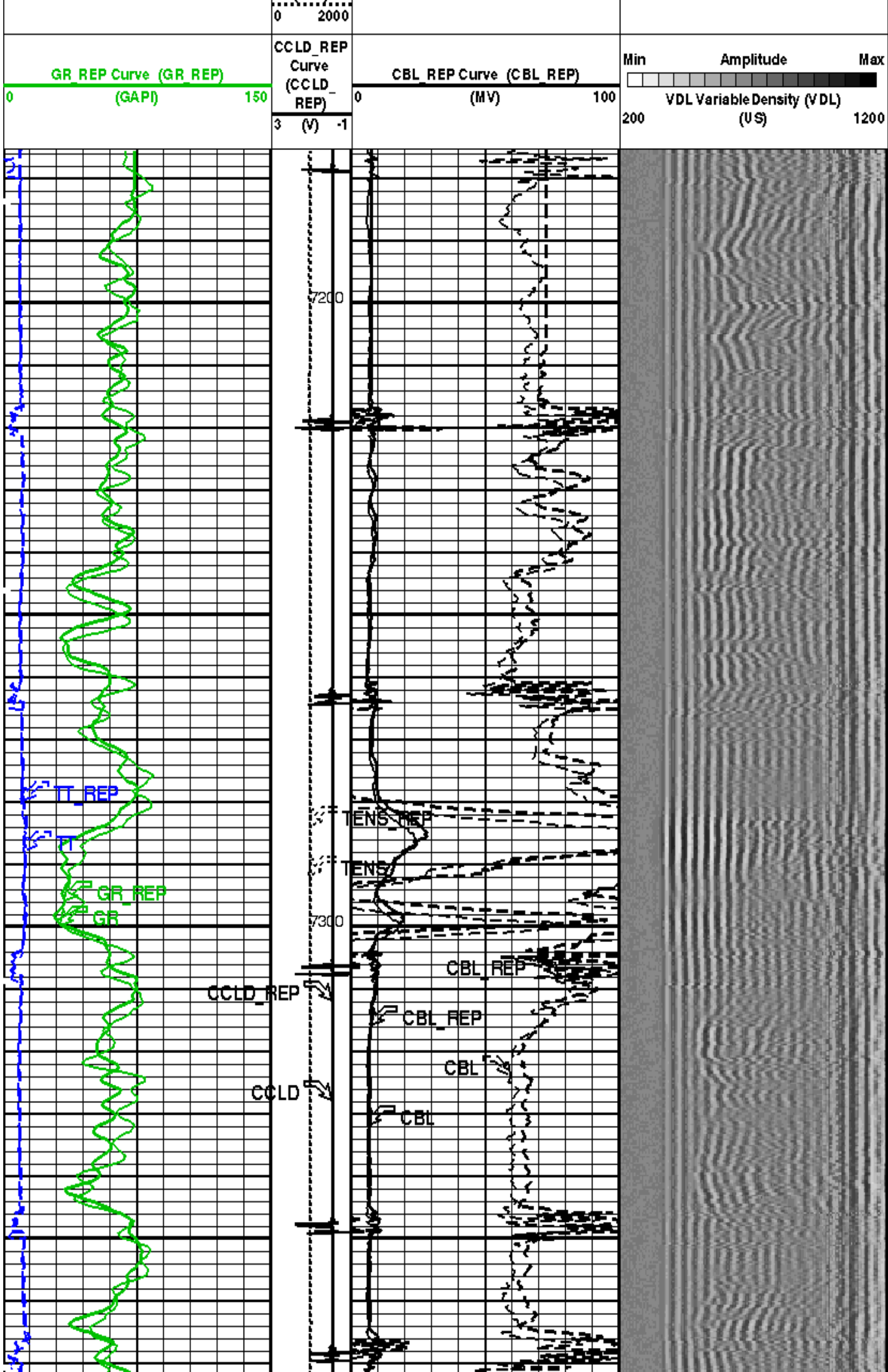
OP System Version: 19C0-187

SCMT-CB	SRPC-5095-H2-2011-OP19	HBMS-B	19C0-187
---------	------------------------	--------	----------

PIP SUMMARY

☒ Time Mark Every 60 S





<<<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)	0.900000
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	
CMTG	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	0.902782	
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	8.60	LB/G
DO	Depth Offset for Playback	7.0	FT
DORL	Depth Offset for Repeat Analysis	-2.0	FT
PP	Playback Processing	RECOMPUTE	
TD	Total Depth	11747	FT

Input DLIS Files

DEFAULT	Splice_SCMT_HBMS_123CUP	FN:1	PRODUCER	13-Jul-2012 00:28	11769.0 FT	103.0 FT
DEFAULT	SCMT_HBMS_116LUP	FN:106	PRODUCER	12-Jul-2012 19:33	7535.0 FT	7177.0 FT

Output DLIS Files

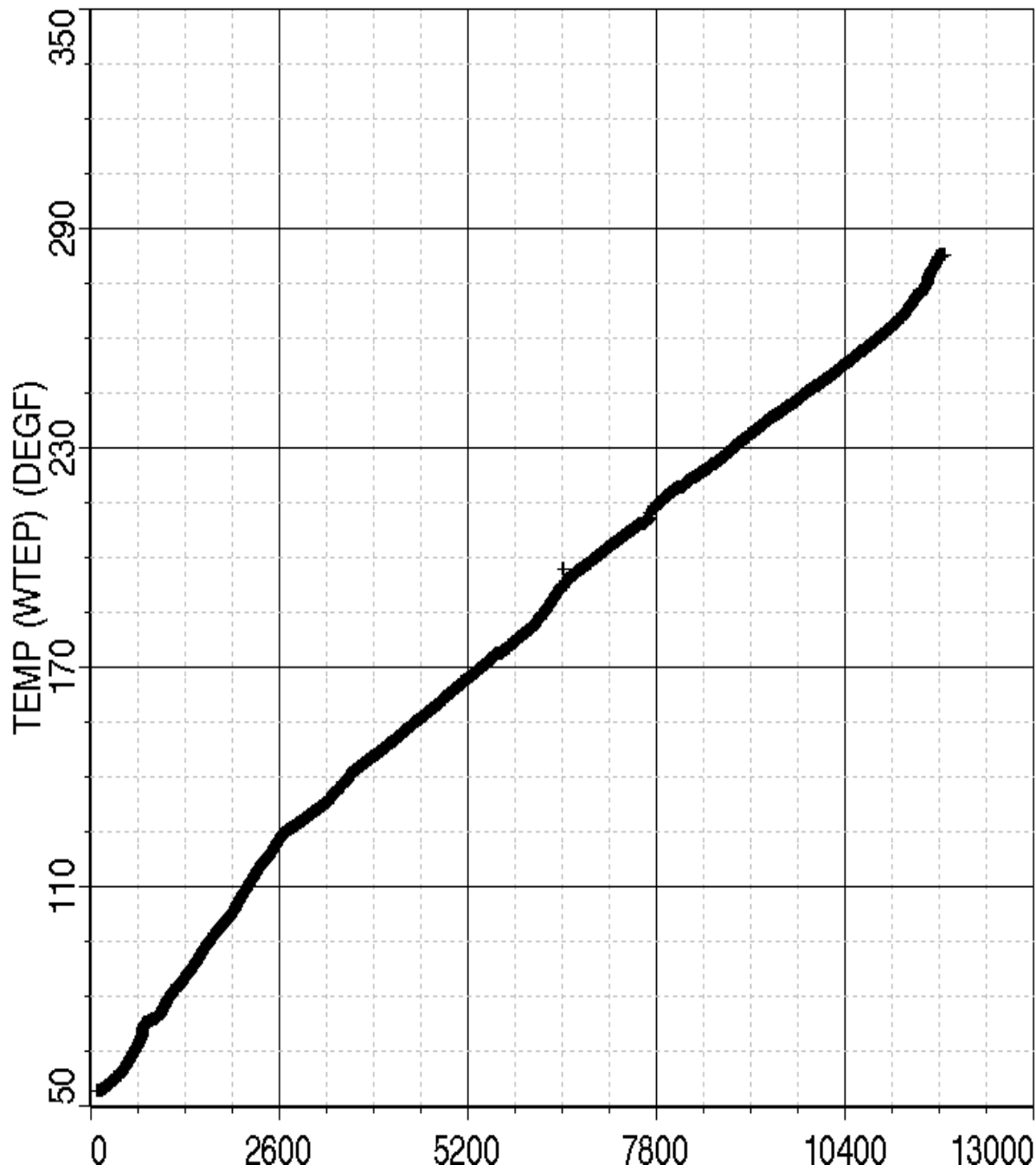
DEFAULT	SCMT_HBMS_124PUP	FN:113	PRODUCER	13-Jul-2012 00:31
---------	------------------	--------	----------	-------------------

Schlumberger

TEMPERATURE PLOT

MAXIS Field Log

Index: 11776.0 - 91.5 FT



Schlumberger**PBMS COEFFICIENTS**

MAXIS Field Log

Client: ENCANA OIL & GAS (USA) INC.
Field: Story Gulch
Well: SG 8509D-21 (N22496)
Run date: 12-Jul-2012

Tool: PSP
Sub Type: PBMS
Sensor: GR

PBMS Gamma Ray

Sonde Serial NB RESISTORS FOR GR SENSOR N.34473, TOOL HBMS-BA2884. SENSOR S/N:
Sensor Serial NB 34473
Calib Date ddmmyy 090506
Matrix Size 12
Coeff CRC 0708

GR HV Rt

Rt**0

Rt**1

Rt**0	+.200000000000e+04	+.190000000000e+04
-------	--------------------	--------------------

Client: ENCANA OIL & GAS (USA) INC.
Field: Story Gulch
Well: SG 8509D-21 (N22496)
Run date: 12-Jul-2012

Tool: PSP
Sub Type: PBMS
Sensor: WellTemp RTD

Sonde Serial NB COEFFICIENTS FOR RTD THERMOMETER PBMS-B.2884 S/N:

Sensor Serial NB 2884
Calib Date ddmmyy 290706
Matrix Size 16
Coeff CRC B134

WTemp Coeff

	T^{**0}	T^{**1}	T^{**2}
T^{**0}	$-.111322977181E+04$	$+.870150832462E+03$	$-.279503665762E+03$
	T^{**3}	T^{**4}	T^{**5}
T^{**0}	$+.449965652060E+02$	$-.264920434334E+01$	0.0

Client: ENCANA OIL & GAS (USA) INC.
Field: Story Gulch
Well: SG 8509D-21 (N22496)
Run date: 12-Jul-2012

Tool: PSP
Sub Type: PBMS
Sensor: CQG

PBMS Quartz Gauge type F

Sonde Serial NB COEFFICIENTS FOR CQG PBMS-B.2884 S/N:
Sensor Serial NB 2884
Calib Date ddmmyy 290706
Matrix Size 66
Coeff CRC CA7A

Pres Coeff

	Fb^{**0}	Fb^{**1}	Fb^{**2}
Fc^{**0}	$+.746225778248E+04$	$+.221418944849E-01$	$-.210426289152E-06$
Fc^{**1}	$-.104881478055E+01$	$-.124860716120E-04$	$-.949662972749E-10$
Fc^{**2}	$+.872904863754E-06$	$+.426833452654E-10$	$+.759423319181E-15$
Fc^{**3}	$+.239319347612E-11$	$+.290279345385E-15$	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}	$-.812091932516E-10$	$-.147717591127E-14$	$-.150620854654E-19$
Fc^{**1}	$+.145644303959E-15$	$+.160803895109E-19$	0.0
Fc^{**2}	0.0	0.0	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 2884
 Calib Date ddmmyy 290706
 Matrix Size 66
 Coeff CRC F21E

Temp Coeff

	Fc**0	Fc**1	Fc**2
Fb**0	+1.113897507996E+03	-.324965333678E-03	+.697134219555E-08
Fb**1	-.601014483015E-02	+.175847256148E-07	+.180458009797E-12
Fb**2	-.317240807344E-07	+.374112953741E-12	+.133653042149E-17
Fb**3	-.236568542854E-12	+.787205826536E-17	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	+.881675188724E-13	-.146952444192E-16	-.415359060767E-21
Fb**1	-.553774805449E-18	-.739378844697E-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 2884
 Calib Date ddmmyy 290706
 Matrix Size 16
 Coeff CRC 72C9

Clock Freq Coeff

	(Fb'-Fc')**0	(Fb'-Fc')**1	(Fb'-Fc')**2
(Fb'-Fc')**0	+.310161623072E+05	+.363878692519E-02	+.311171630292E-06

	(Fb'-Fc')**3	(Fb'-Fc')**4	(Fb'-Fc')**5
(Fb'-Fc')**0	-.277965051815E-10	-.181738305366E-14	-.633170122188E-20

PBMS Quartz Gauge type F

Sonde Serial NB :
 Sensor Serial NB 2884
 Calib Date ddmmyy 290706
 Matrix Size 16
 Coeff CRC 3E80

Clock Temp Coeff

	(Fb'-Fc')**0	(Fb'-Fc')**1	(Fb'-Fc')**2
(Fb'-Fc')**0	+1.11177101155E+03	-.545261137223E-02	-.112186276799E-06
	(Fb'-Fc')**3	(Fb'-Fc')**4	(Fb'-Fc')**5
(Fb'-Fc')**0	+.756690675632E-11	-.207457772298E-16	-.121623071907E-19



MASTER CALIBRATION

MAXIS Field Log

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Slim Cement Mapping Tool, 1-11/16 OD Master Calibration - SCMT CBL and MAP Amplitude Normalization in SFT-155/-255							
Master: 6-Mar-2012 15:06							
MAP 1 Amplitude Plus	1075	1208	-	-	-	-	MV
MAP 2 Amplitude Plus	1075	1275	-	-	-	-	MV
MAP 3 Amplitude Plus	1075	1182	-	-	-	-	MV
MAP 4 Amplitude Plus	1075	1049	-	-	-	-	MV
MAP 5 Amplitude Plus	1075	937.6	-	-	-	-	MV
MAP 6 Amplitude Plus	1075	990.2	-	-	-	-	MV
MAP 7 Amplitude Plus	1075	1063	-	-	-	-	MV
MAP 8 Amplitude Plus	1075	1166	-	-	-	-	MV
CBL Amplitude Plus	1350	1363	-	-	-	-	MV










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

Primary Equipment:

Slim Cement Mapping Xmitter Electronics	SCMX - CA	
Slim Cement Mapping Sonde	SCMS - CB	8179
Slim Cement Mapping Cartridge	SCMC - CA	8172

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: 6-Mar-2012 15:06							

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

Schlumberger

Well: **SG 8509D-21 (N22496)**

Field: **Story Gulch**

County: **Garfield**

State: **Colorado**

SLIM CEMENT MAPPING TOOL

CBL - VDL

GAMMA RAY - CCL