

Company: EnCana Oil & Gas Inc.

Well: Orchard Unit 18-9HM (K200U)

Field: Orchard

County: Mesa

State: Colorado

County: Mesa

Field: Orchard

Location: SHL: NESW 1457' FSL & 1689' FWL

Well: Orchard Unit 18-9HM (K200U)

Company: EnCana Oil & Gas Inc.

CEMENT BOND LOG

CBL - VDL

GAMMA RAY

SHL: NESW 1457' FSL & 1689' FWL

BHL: NESE 1715' FSL & 474' FEL

Elev.: K.B. 5951.00 ft

G.L. 5929.00 ft

D.F. 5950.00 ft

LOCATION

Permanent Datum: GROUND LEVEL

Elev.: 5929.00 ft

Log Measured From: KELLY BUSHING

22.00 ft above Perm. Datum

Drilling Measured From: KELLY BUSHING

API Serial No. 05-077-10113-0000

Section 20

Township 8S

Range 96W

Logging Date	19-Jul-2011		
Run Number	2		
Depth Driller	6742 ft		
Schlumberger Depth	6694 ft		
Bottom Log Interval	6681 ft		
Top Log Interval	200 ft		
Casing Fluid Type	WATER BASED MUD		
Salinity			
Density	10.2 lbm/gal		
Fluid Level	0 ft		
BIT/CASING/TUBING STRING			
Bit Size	9.875 in		
From	22 ft		
To	6742 ft		
Casing/Tubing Size	7.625 in		
Weight	26.4 lbm/ft		
Grade	P-110		
From	22 ft		
To	6742 ft		
Maximum Recorded Temperatures	182 degF		
Logger On Bottom	19-Jul-2011	Time	7:26
Unit Number	Location		
Recorded By	Josh Rosner		
Witnessed By	Tony		

Oil Density		Run 1	Run 2	Run 3
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		Time		
Unit Number		Location		
Recorded By				
Witnessed By				

DEPTH SUMMARY LISTING

Date Created: 19-JUL-2011 9:40:13

Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW-B	Type:	CMTD-B/A	Type:	7-46A XS
Serial Number:	6122	Serial Number:	8093	Serial Number:	709025
Calibration Date:	22-APR-2011	Calibration Date:	8-JUL-2011	Length:	15500 FT
Calibrator Serial Number:	33	Calibrator Serial Number:	1159	<div>Conveyance Method: Wireline</div> <div>Rig Type: LAND</div>	
Calibration Cable Type:	7-46P	Number of Calibration Points:	10		
Wheel Correction 1:	-6	Calibration RMS:	33		
Wheel Correction 2:	-7	Calibration Peak Error:	85		

Depth Control Parameters

Log Sequence:	Subsequent Log In the Well
Reference Log Name:	RESERVOIR SATURATION TOOL
Reference Log Run Number:	1
Reference Log Date:	19-JUL-2011

Depth Control Remarks

1. SCHLUMBERGER DEPTH CONTROL STANDARDS FOLLOWED
2. IDW USED AS PRIMARY DEPTH CONTROL, Z-CHART USED AS SECONDARY DEPTH CONTROL
- 3.
- 4.
- 5.
- 6.

DISCLAIMER

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OTHER SERVICES1	OTHER SERVICES2
OS1: RST	OS1:
OS2:	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
THIS LOG CORRELATED TO RESERVOIR SATURATION TOOL LOG	
RAN ON 19-JUL-2011 BY SCHLUMBERGER	
TOOL STRING RAN AS PER TOOL SKETCH	

THANK YOU FOR CHOOSING SCHLUMBERGER!

RUN 1			RUN 2		
SERVICE ORDER #:		BEHA-00073	SERVICE ORDER #:		
PROGRAM VERSION:		18C0-147	PROGRAM VERSION:		
FLUID LEVEL:		0 ft	FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

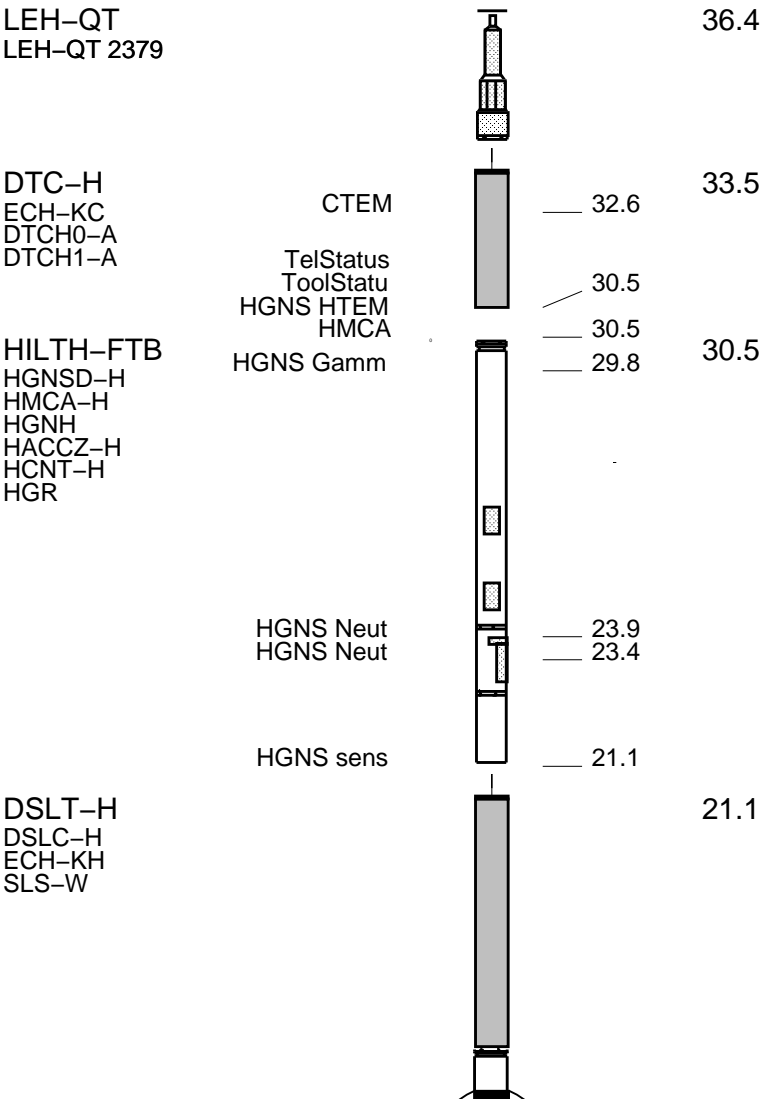
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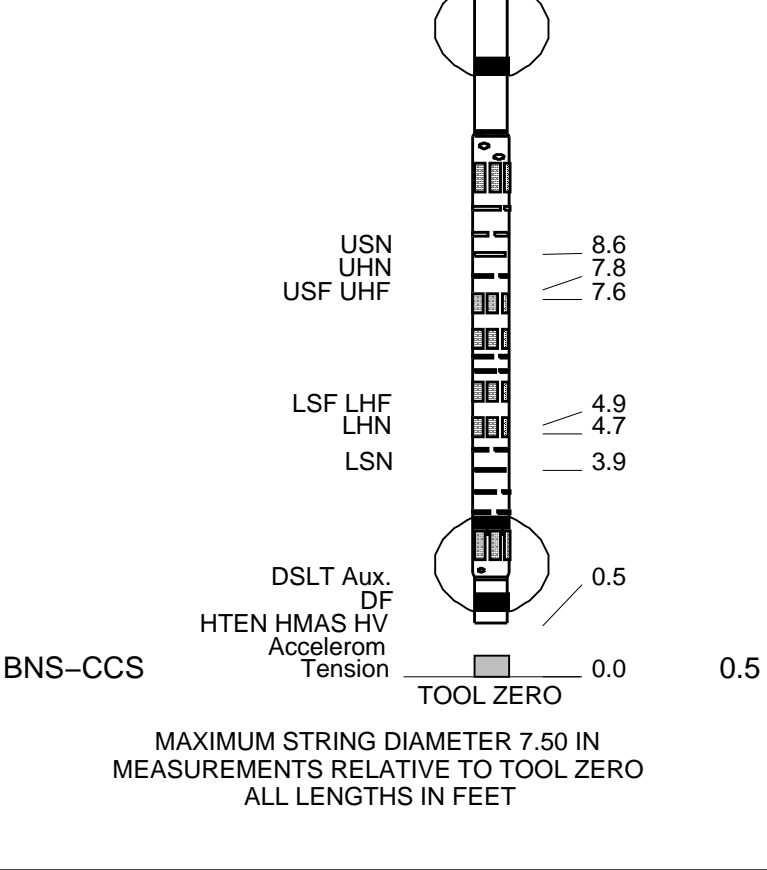
RUN 1		RUN 2	
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SURFACE EQUIPMENT

GSR-U/Y
NCT-B
CNB-AB
WITM (DTS)-A

DOWNHOLE EQUIPMENT





MAIN PASS
5" = 100'

MAXIS Field Log

Company: EnCana Oil & Gas Inc. Well: Orchard Unit 18-9HM (K20OU)

Input DLIS Files

DEFAULT	SONIC_TLD_MCFL_CNL_012LUP	FN:11	PRODUCER	19-Jul-2011 07:26	6703.5 FT	135.0 FT
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Output DLIS Files

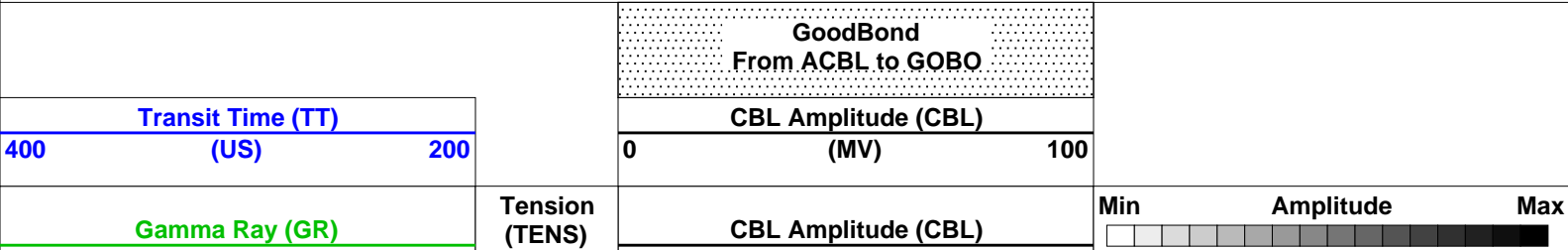
DEFAULT	SONIC_TLD_MCFL_CNL_019PUP	FN:22	PRODUCER	19-Jul-2011 09:54	6709.5 FT	127.7 FT
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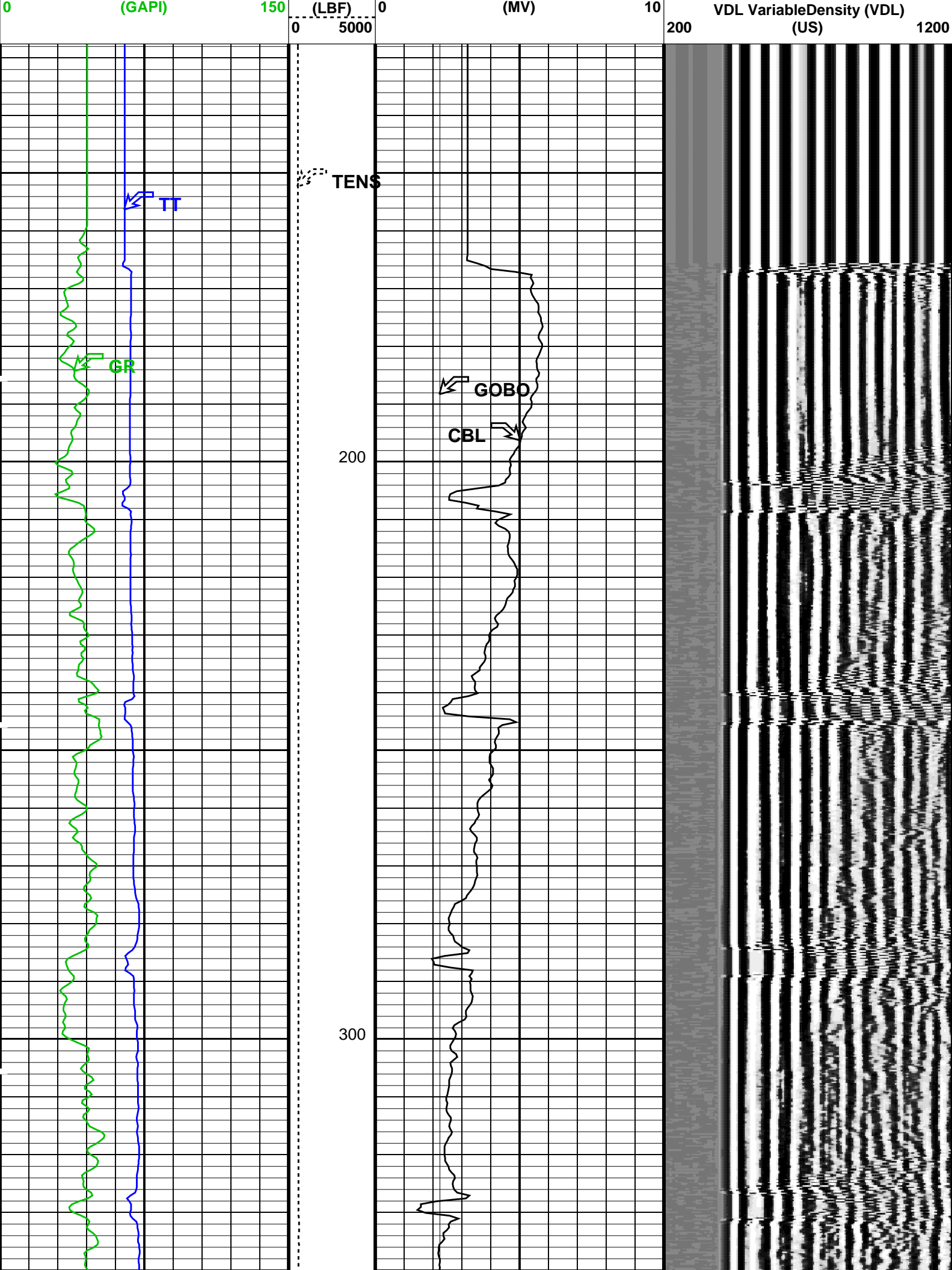
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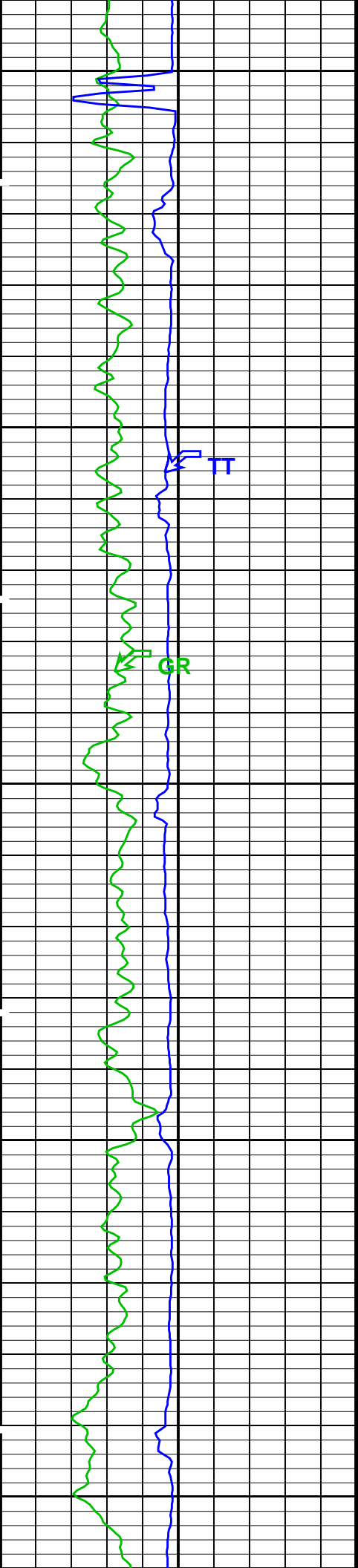
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DTC-H	18C0-147		

PIP SUMMARY

Time Mark Every 60 S

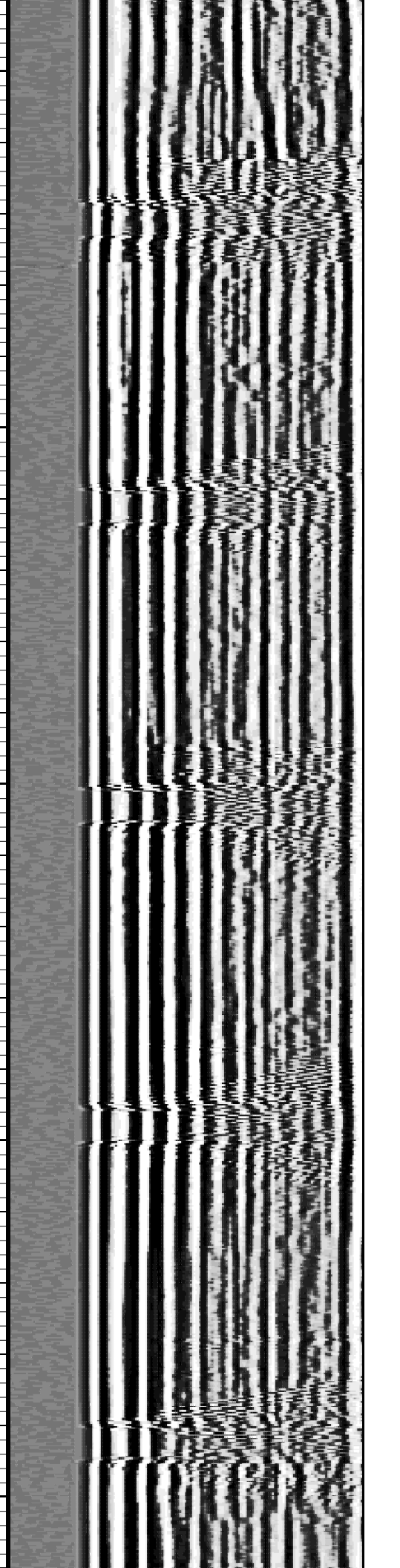
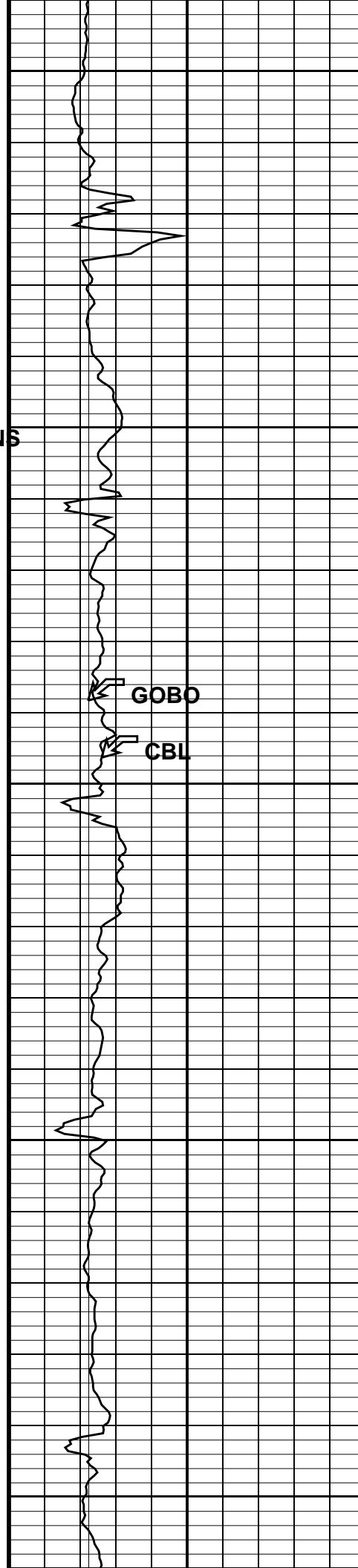


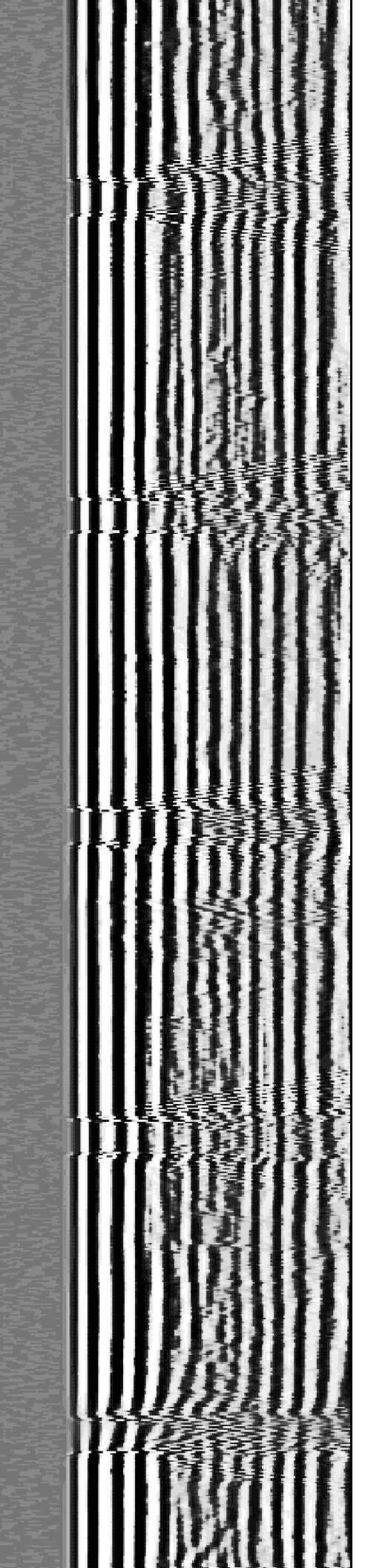
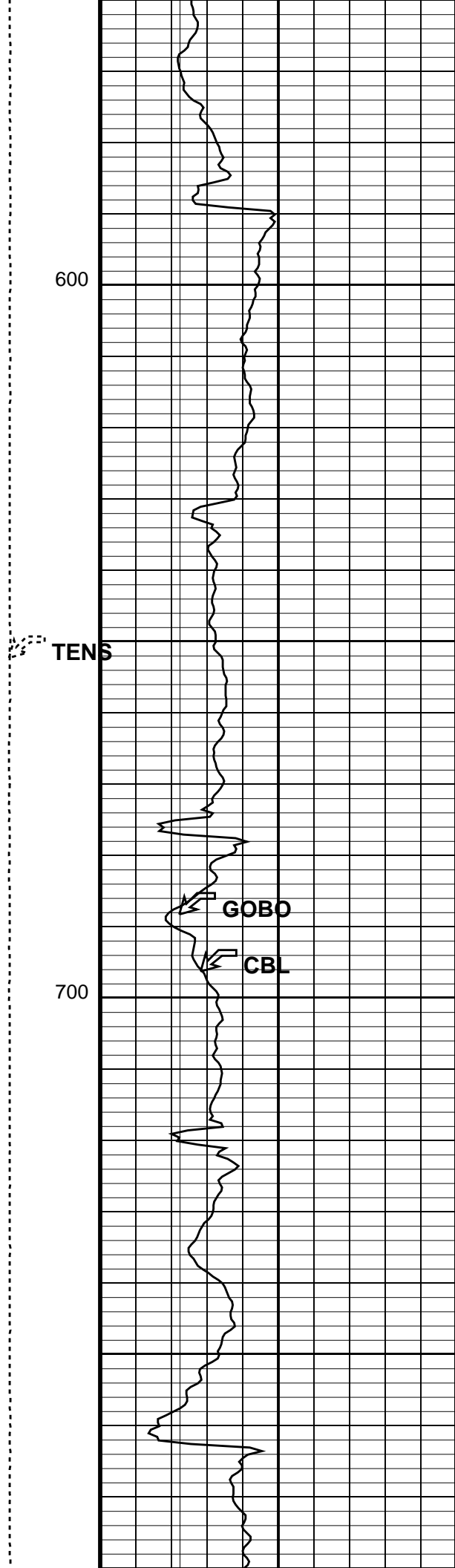
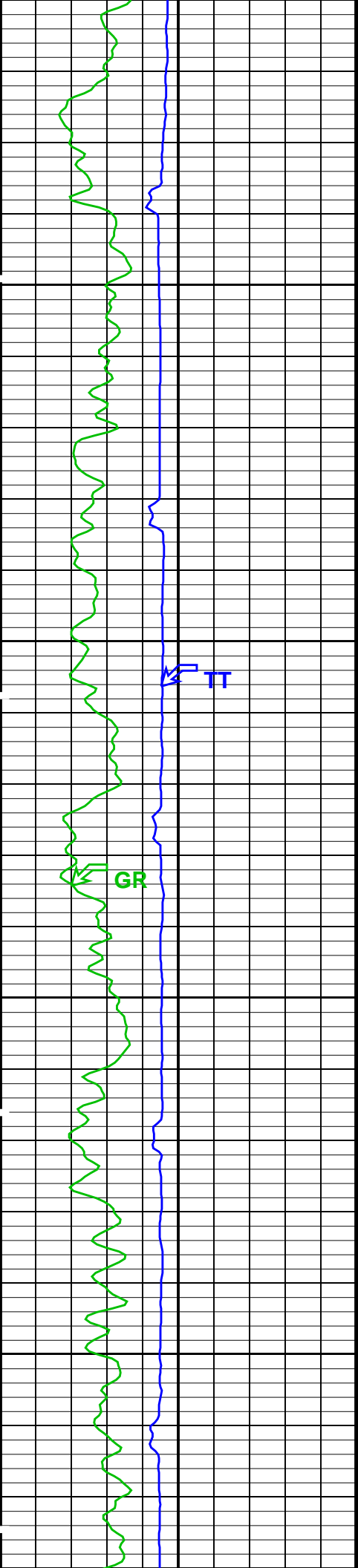


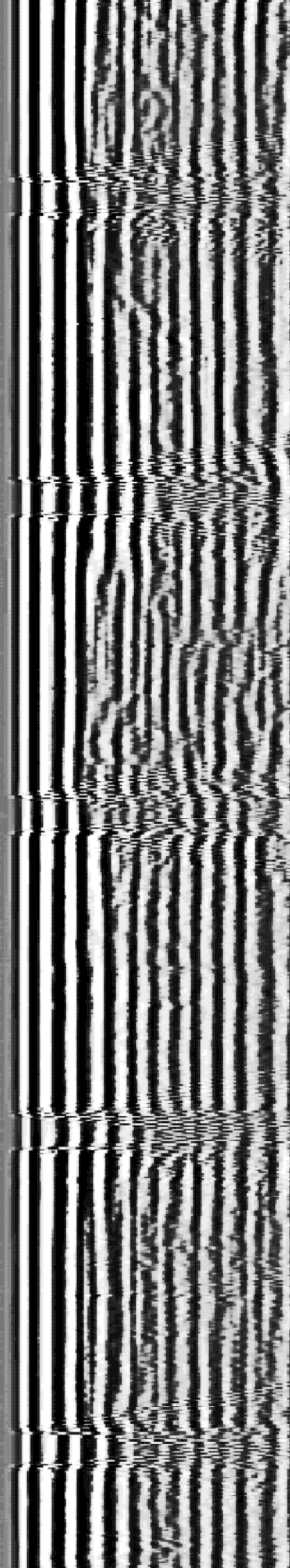
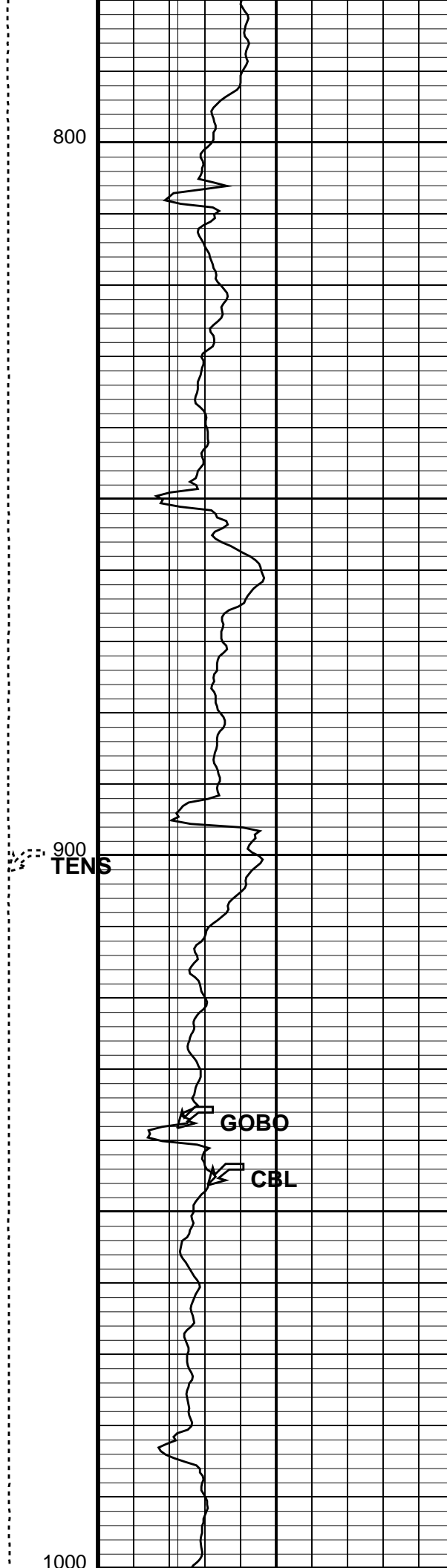
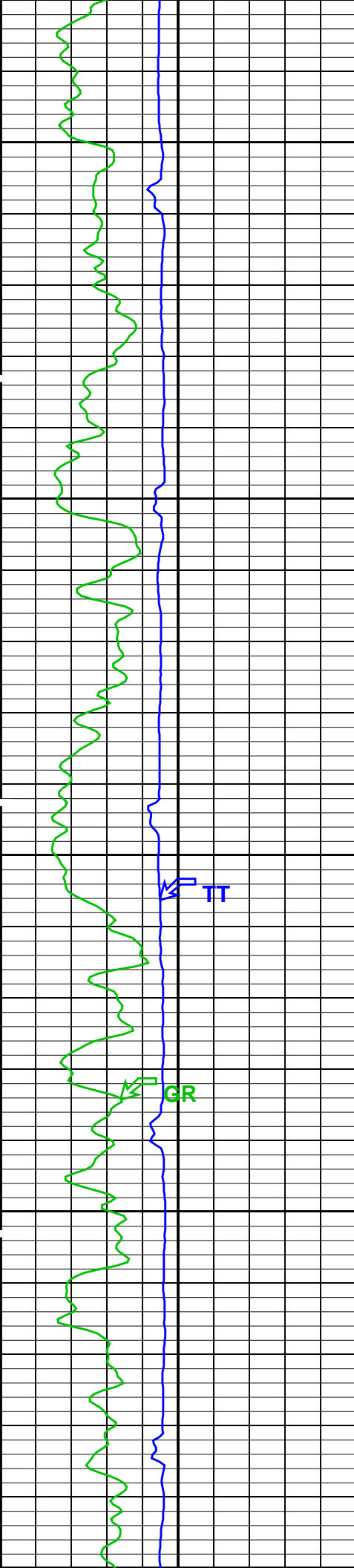


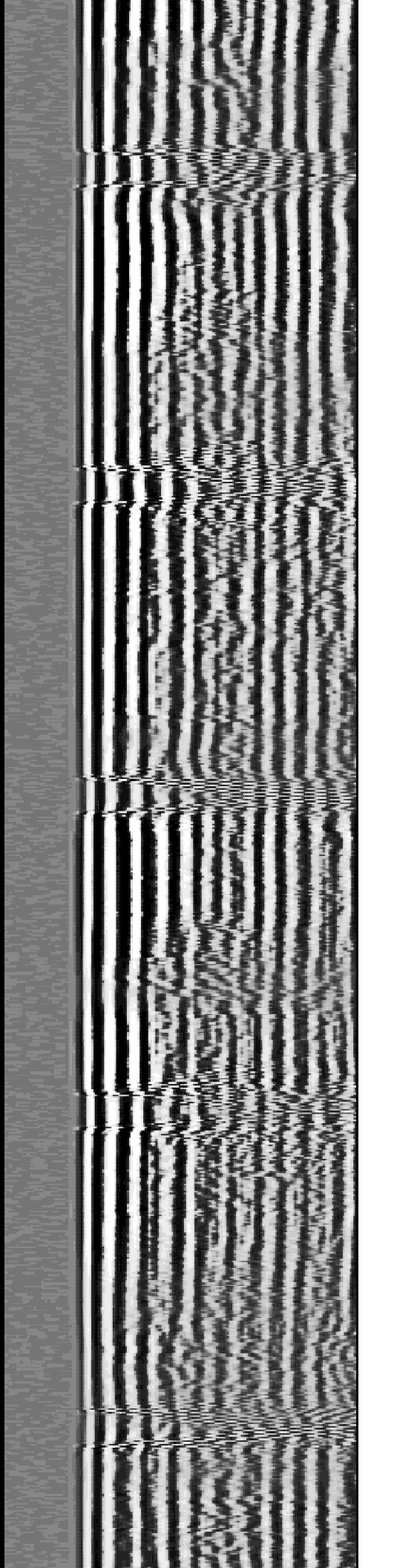
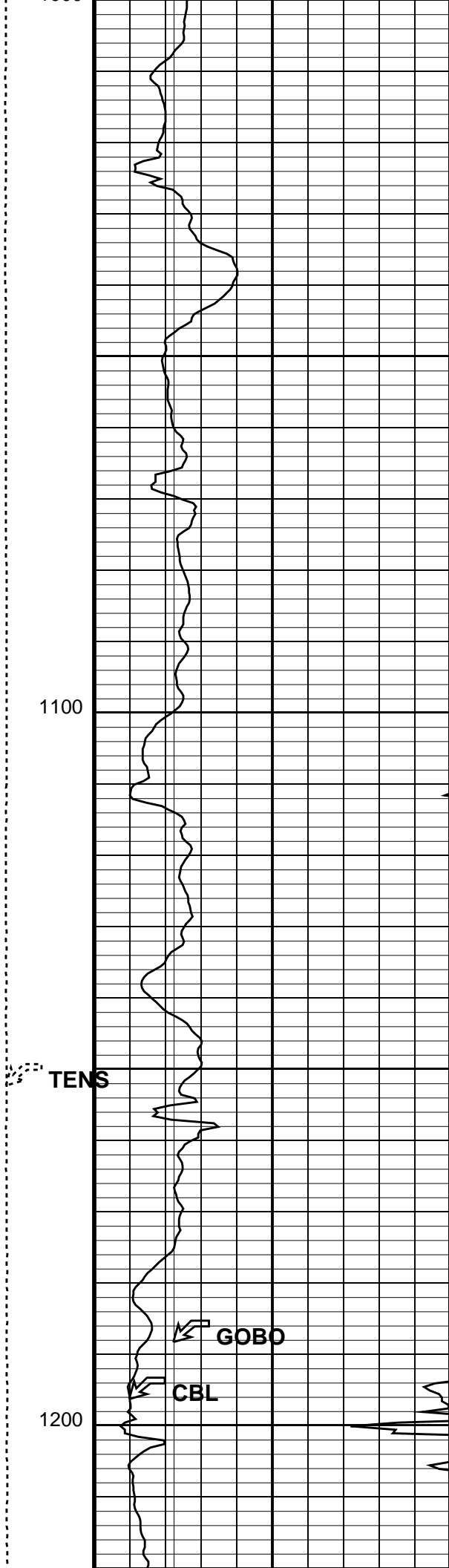
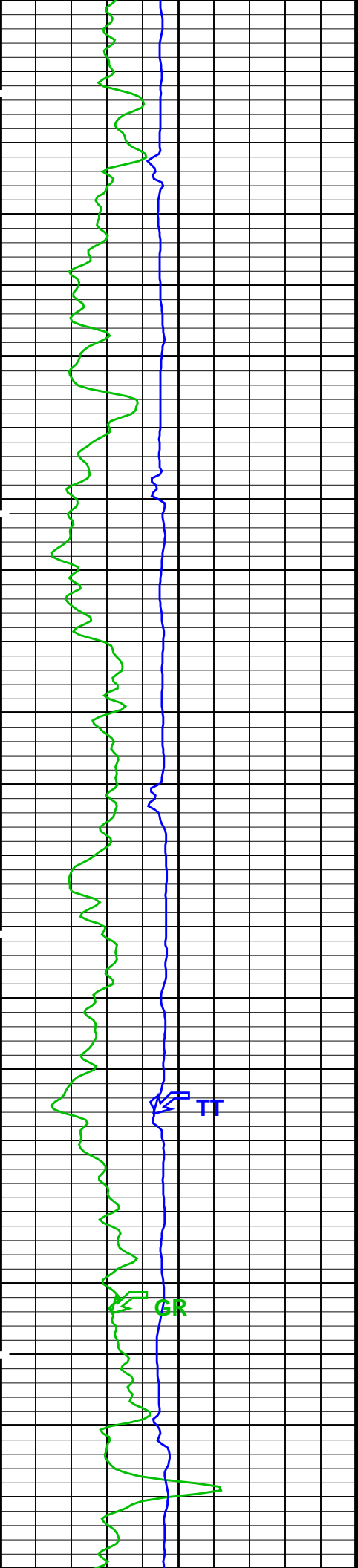
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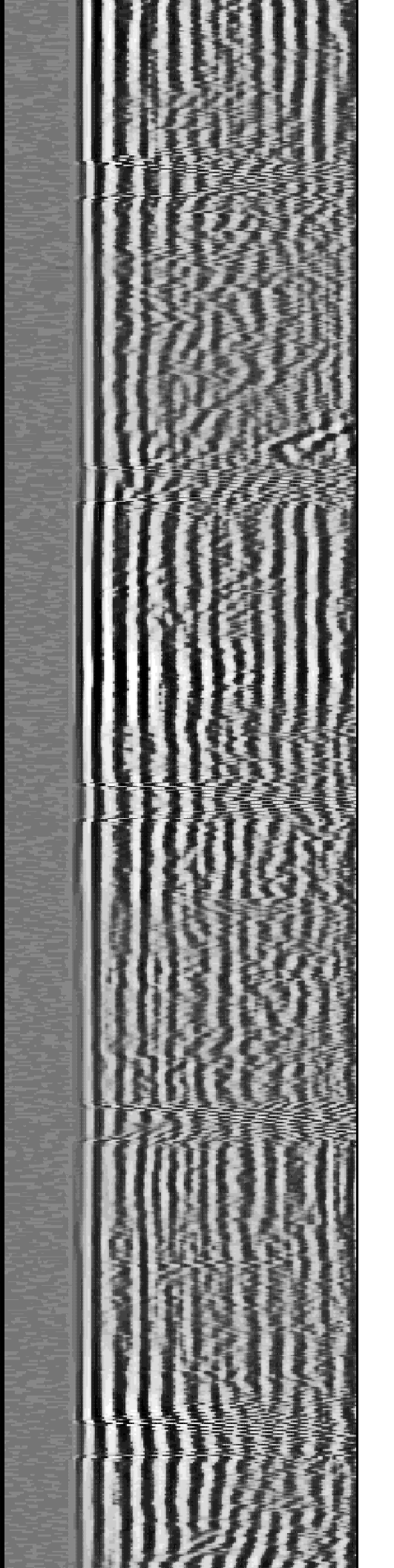
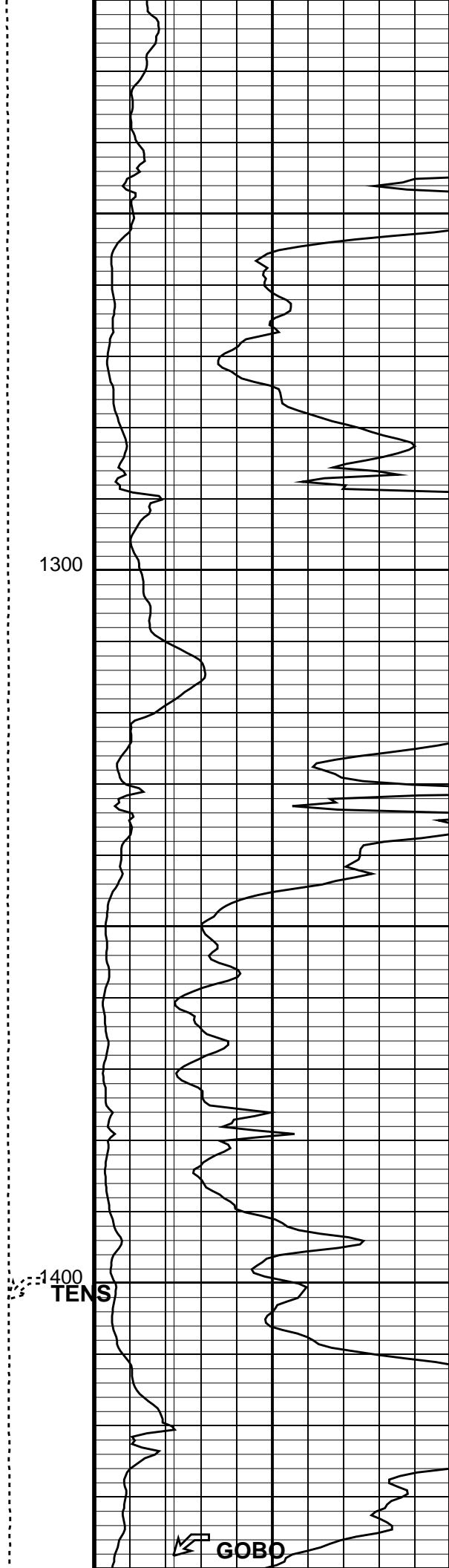
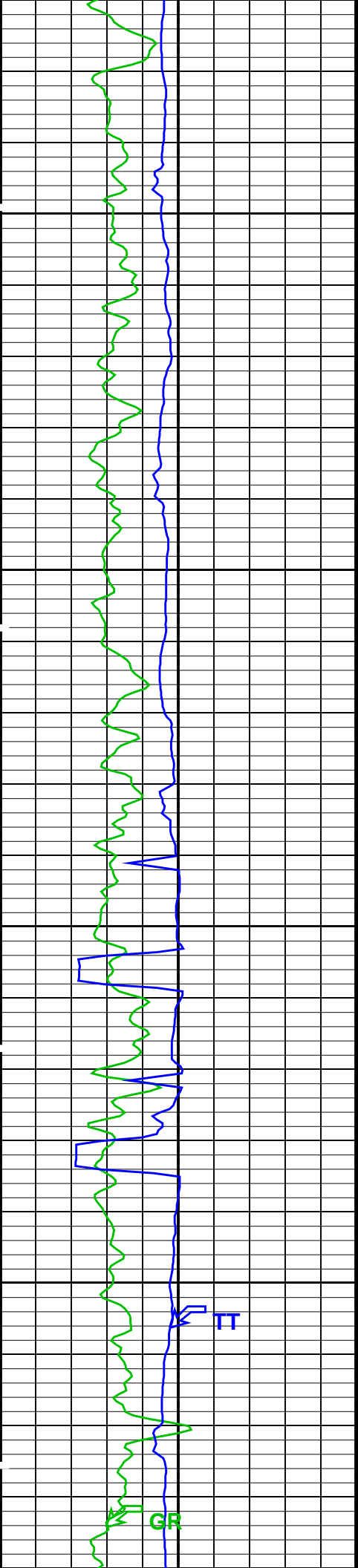
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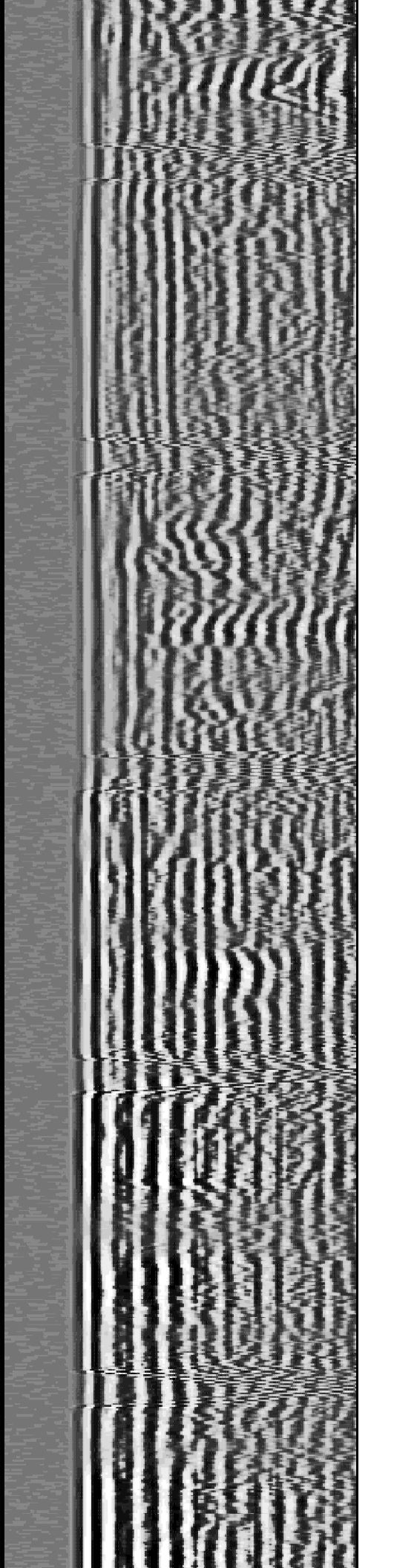
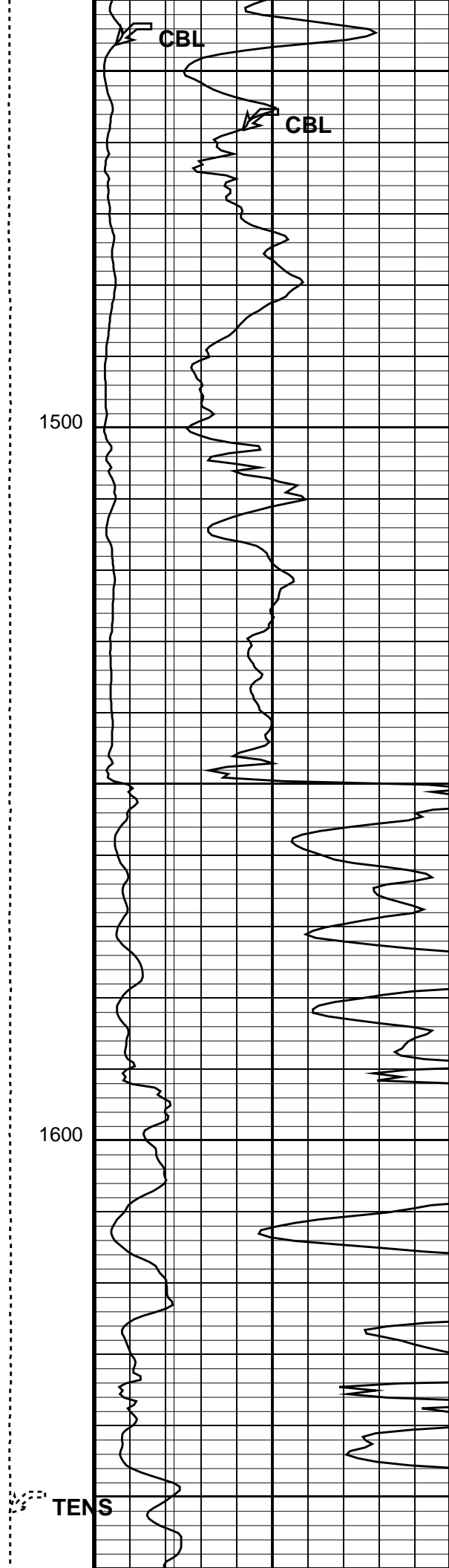
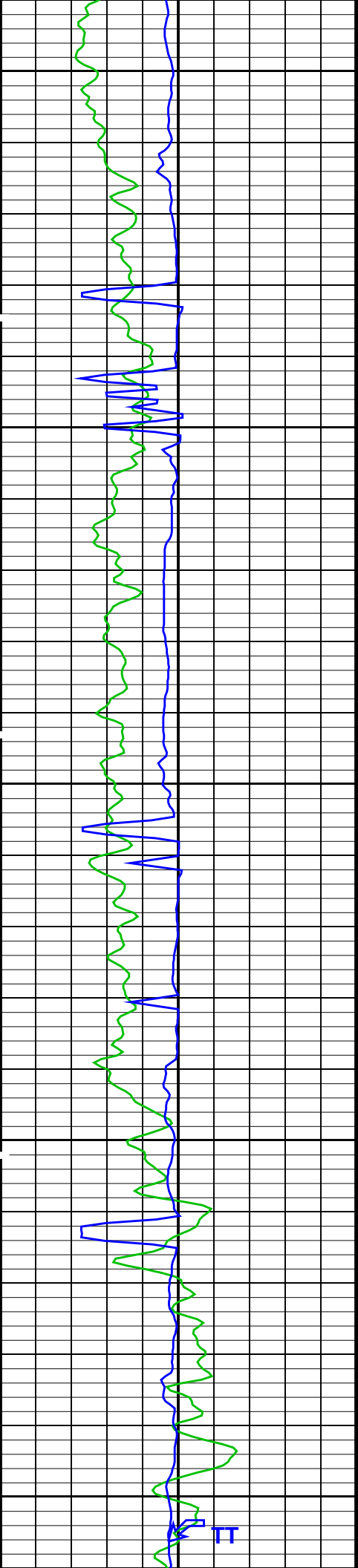


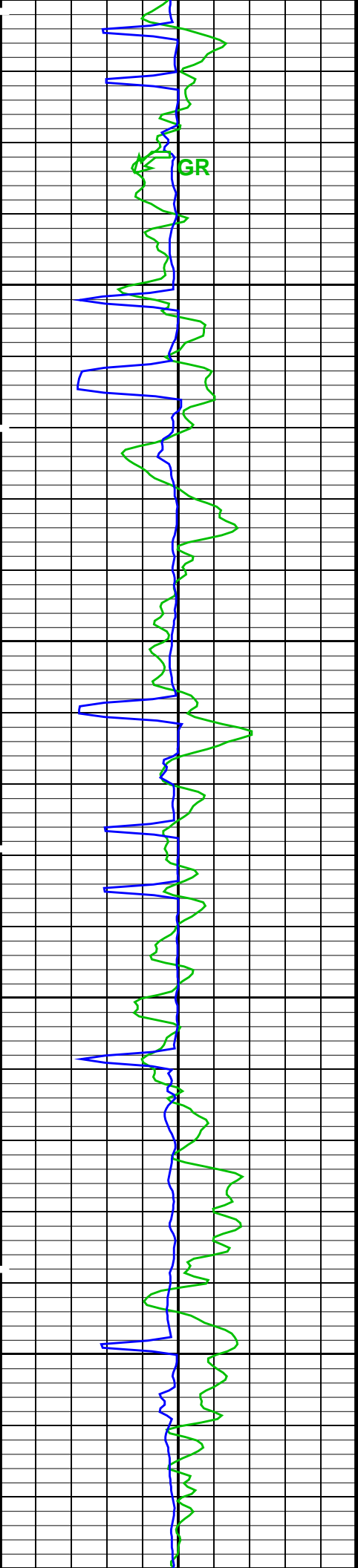






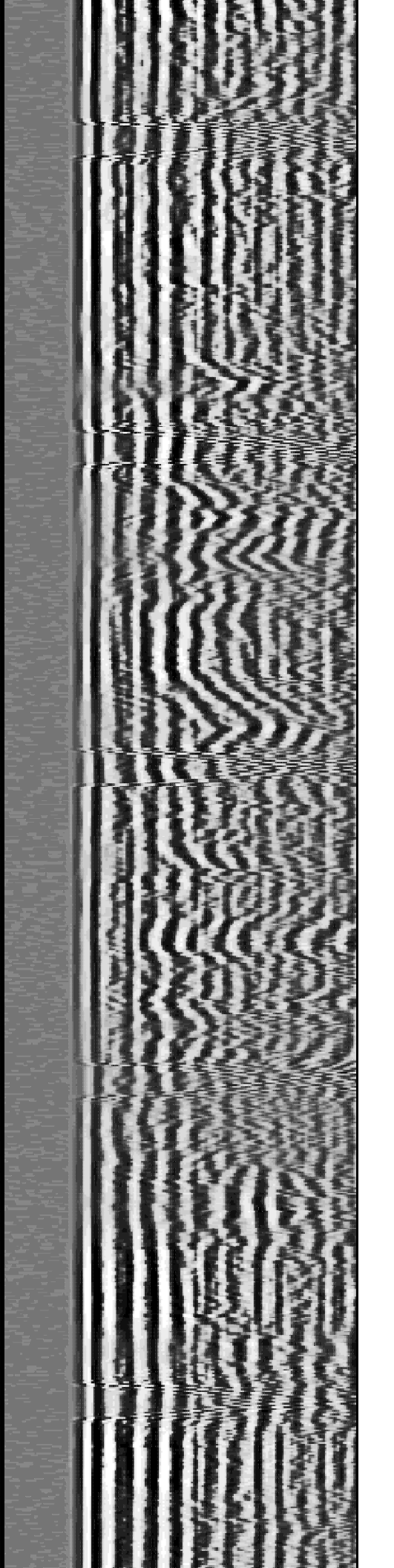
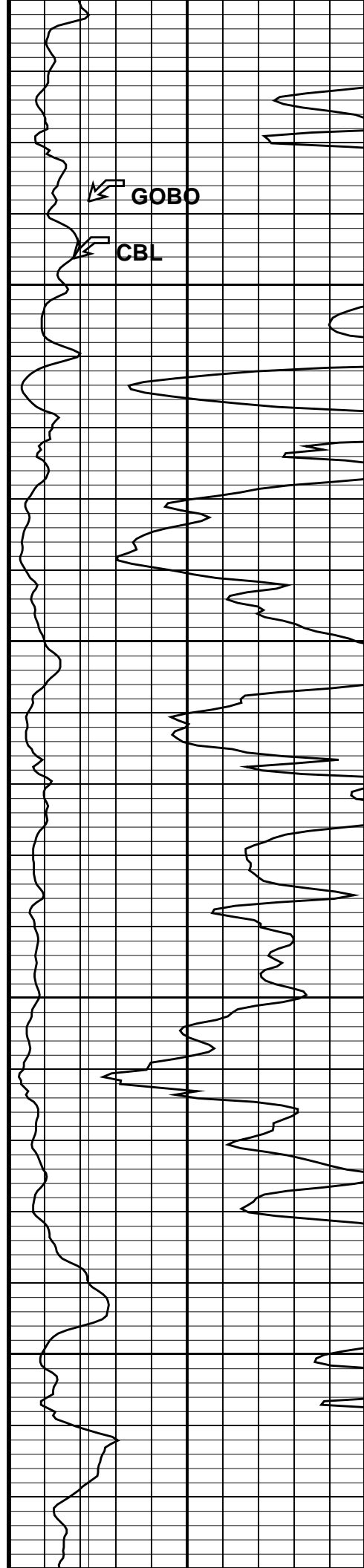


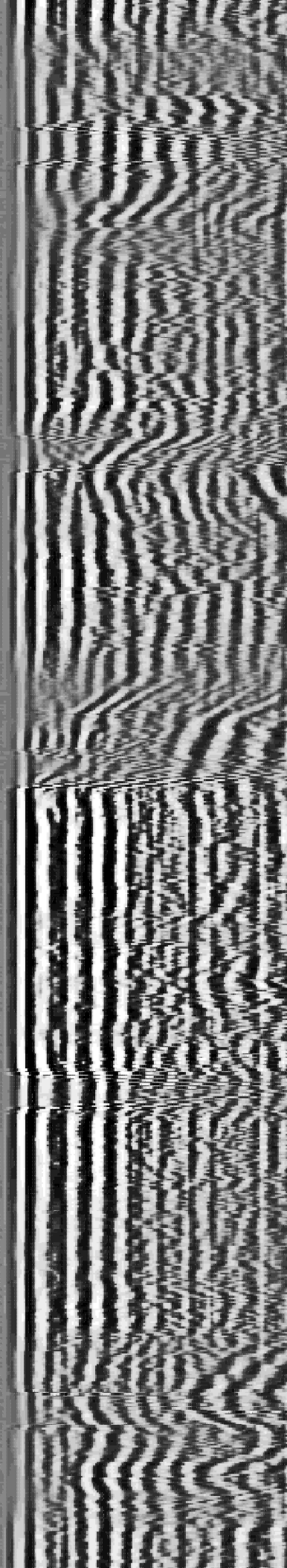
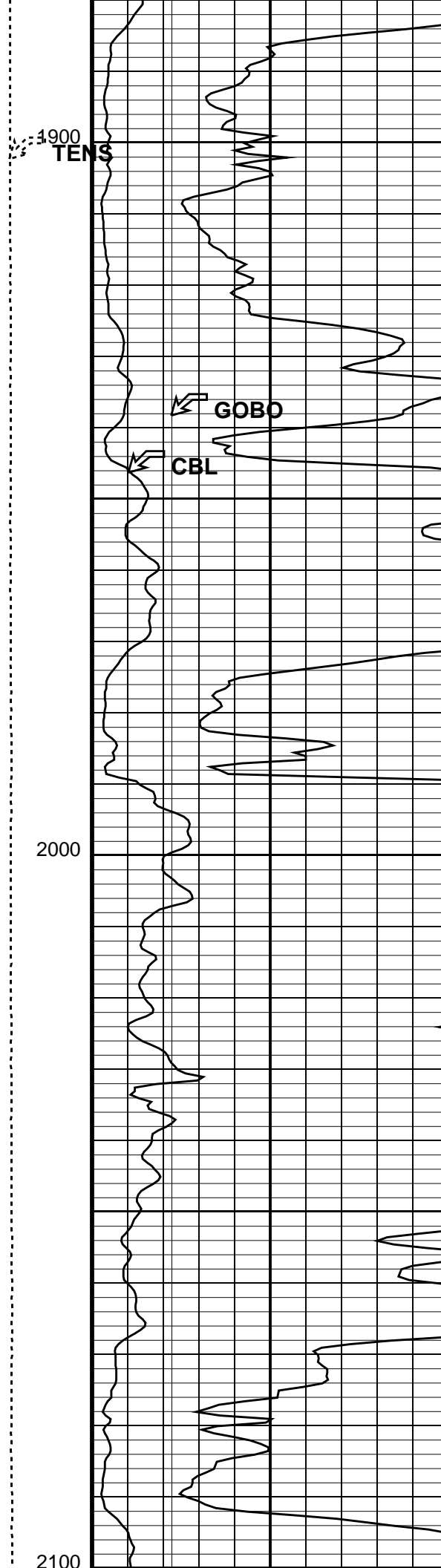
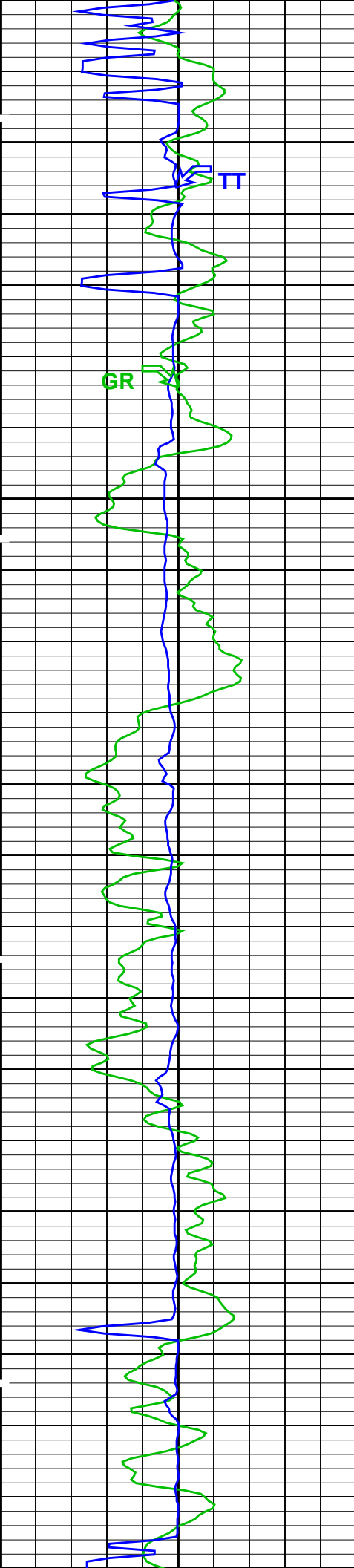


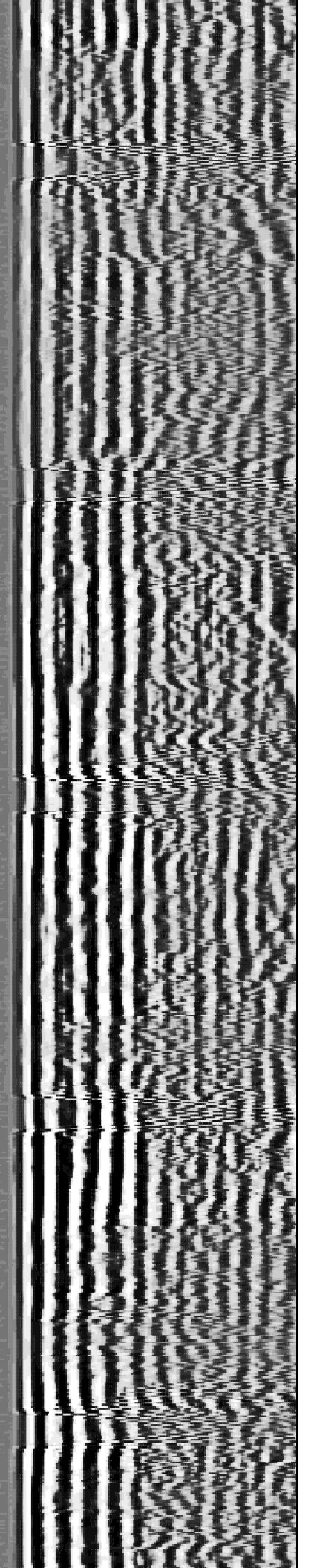
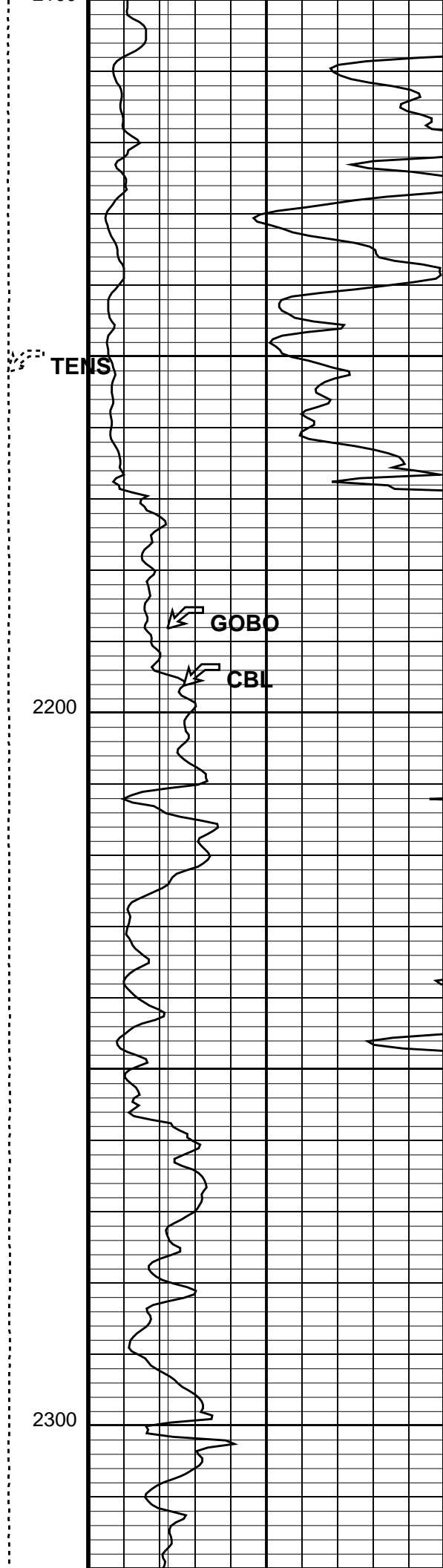
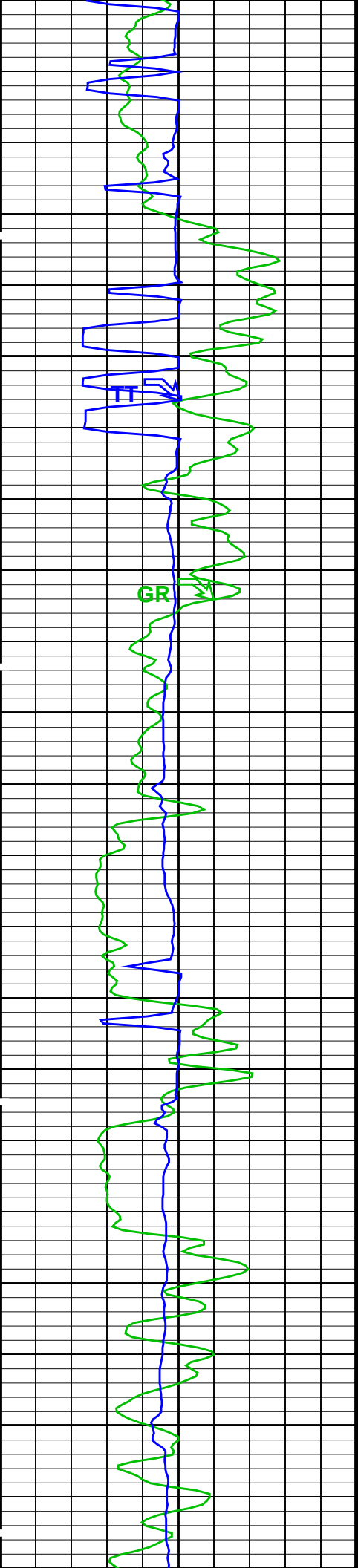


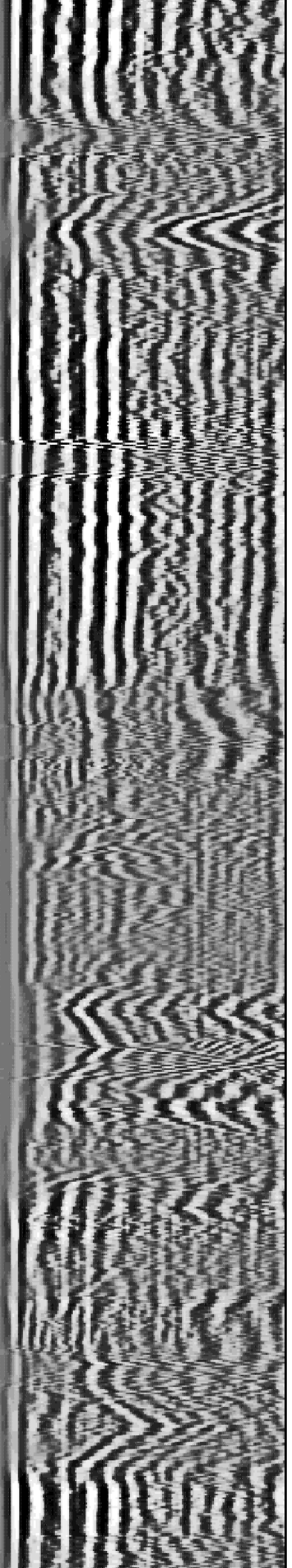
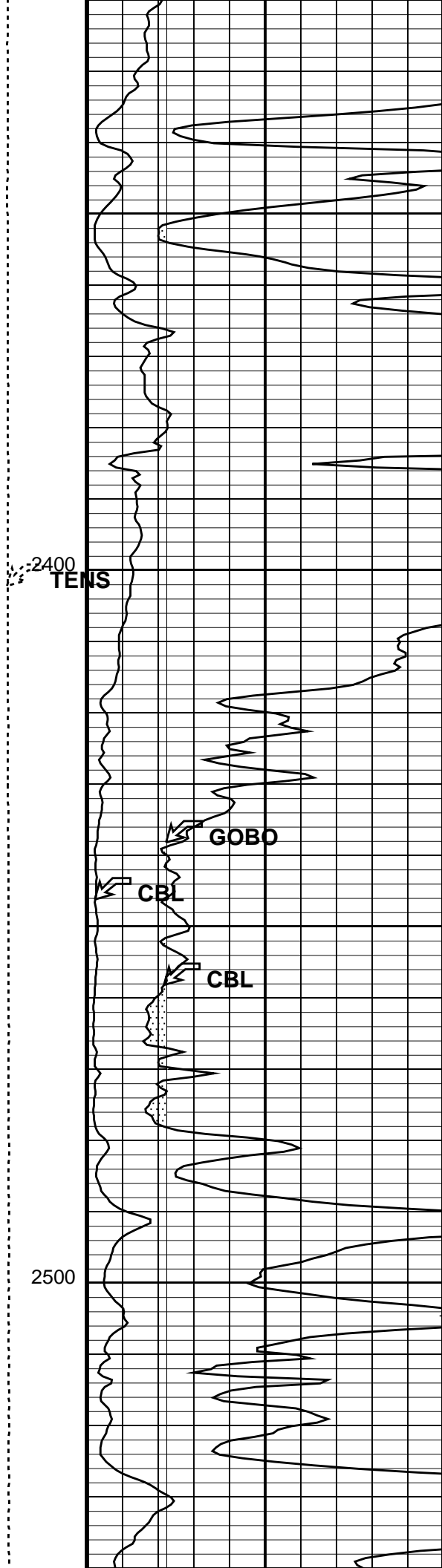
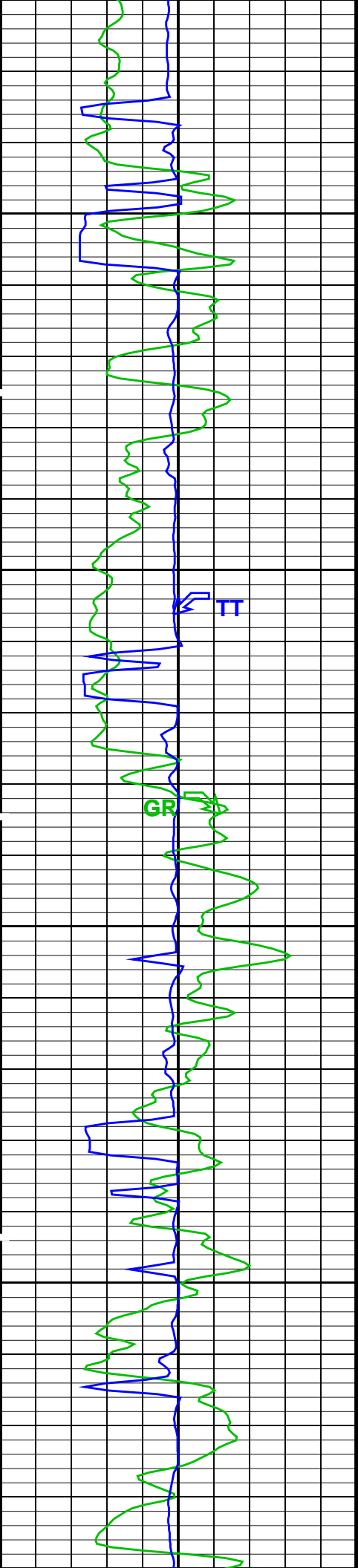
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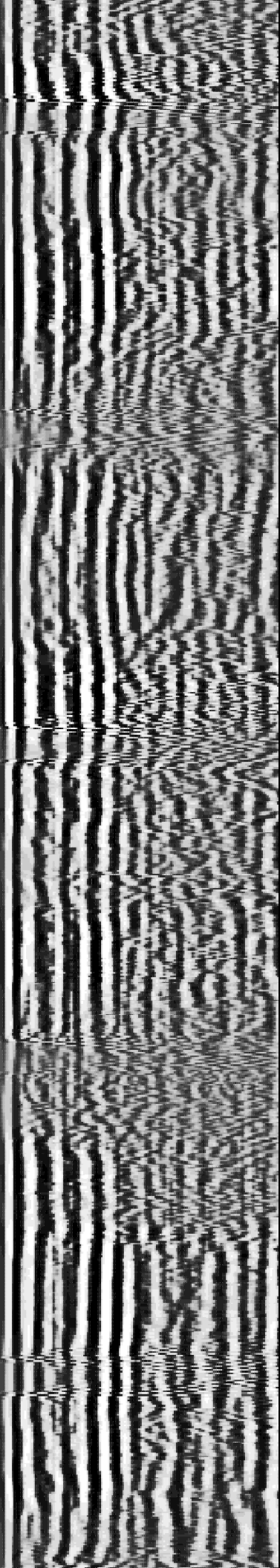
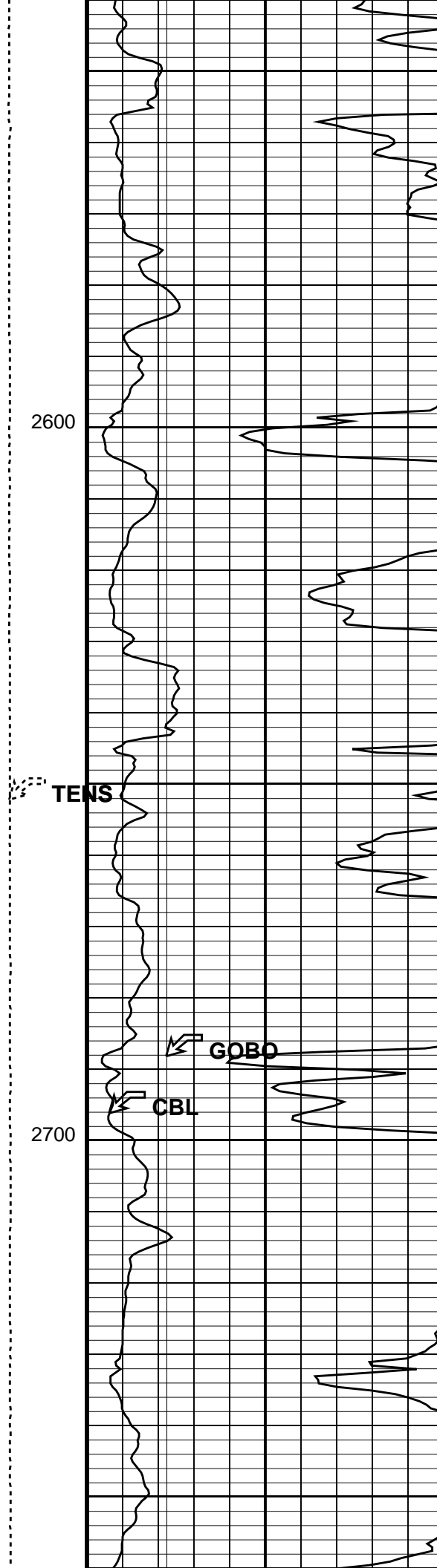
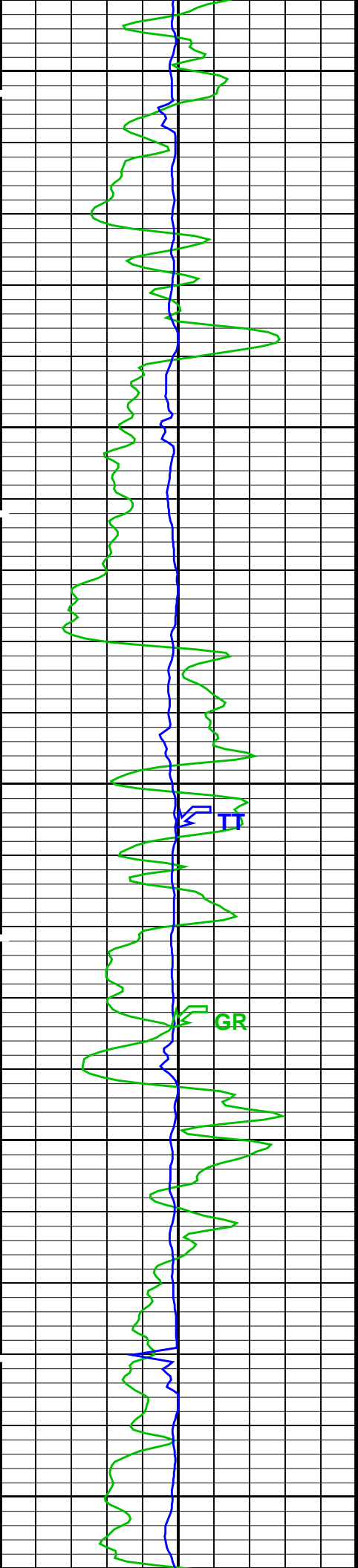
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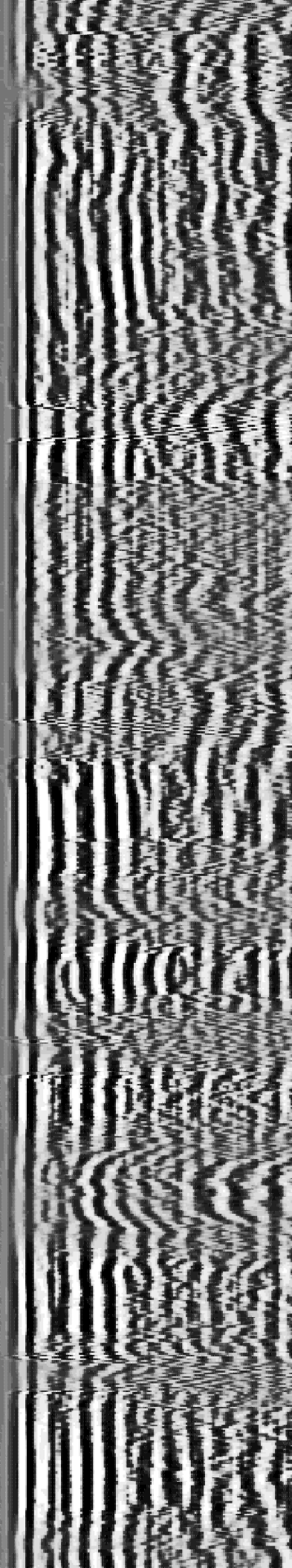
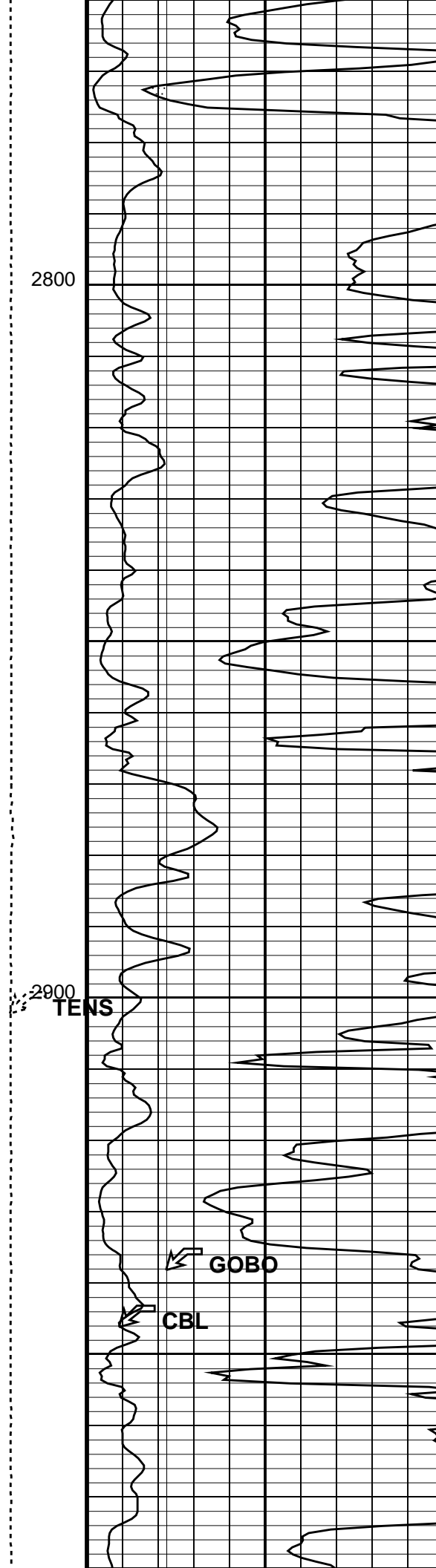
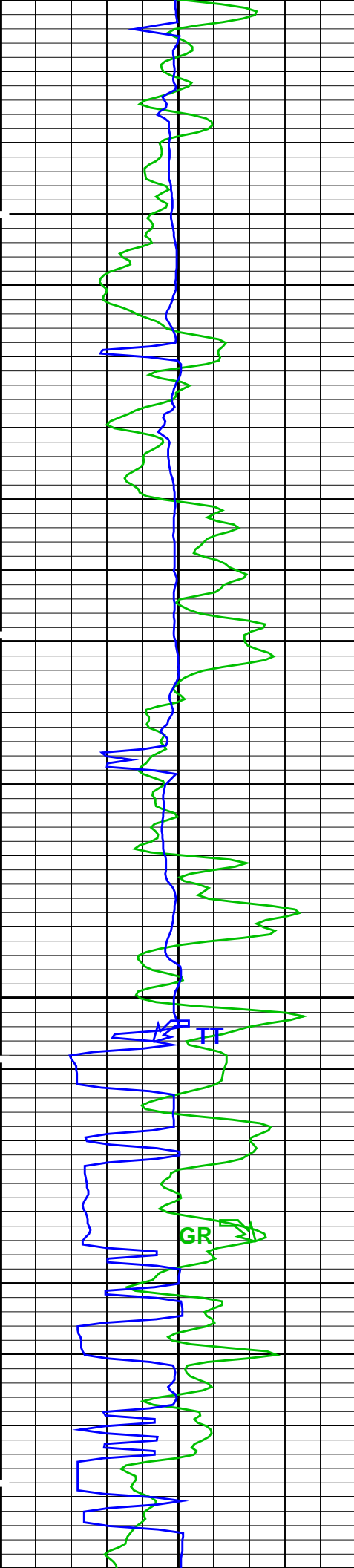


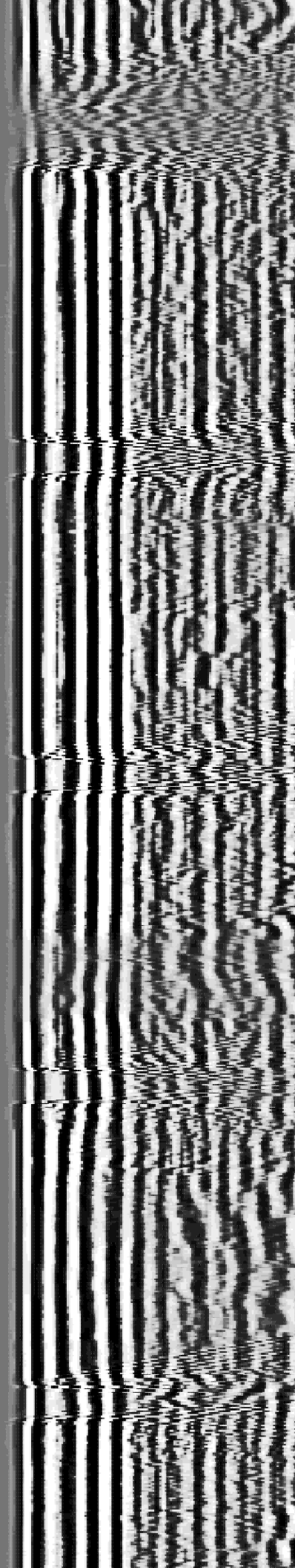
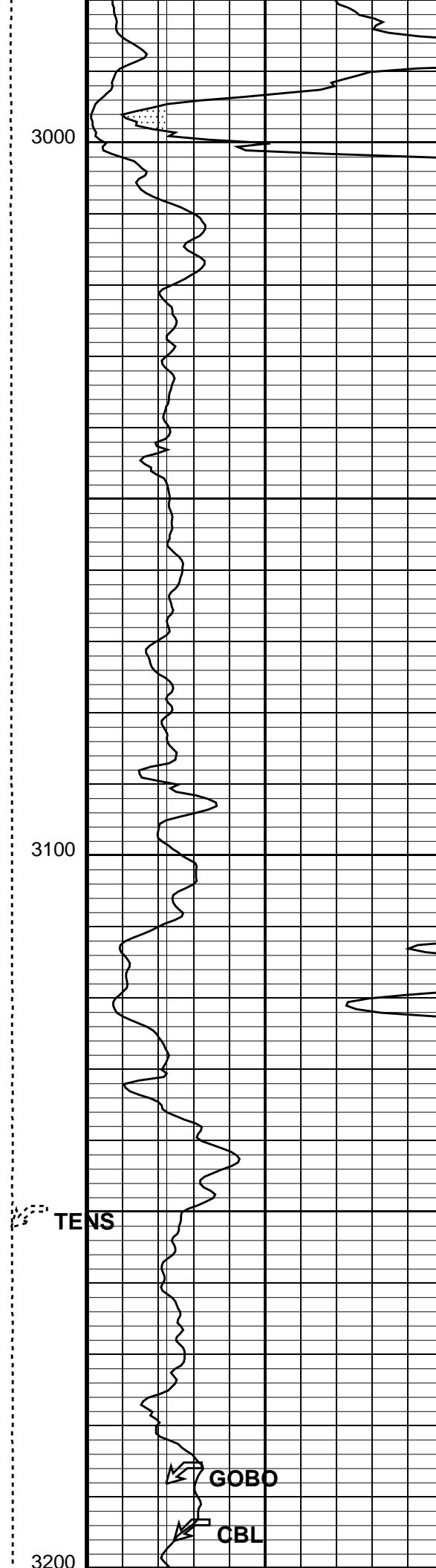
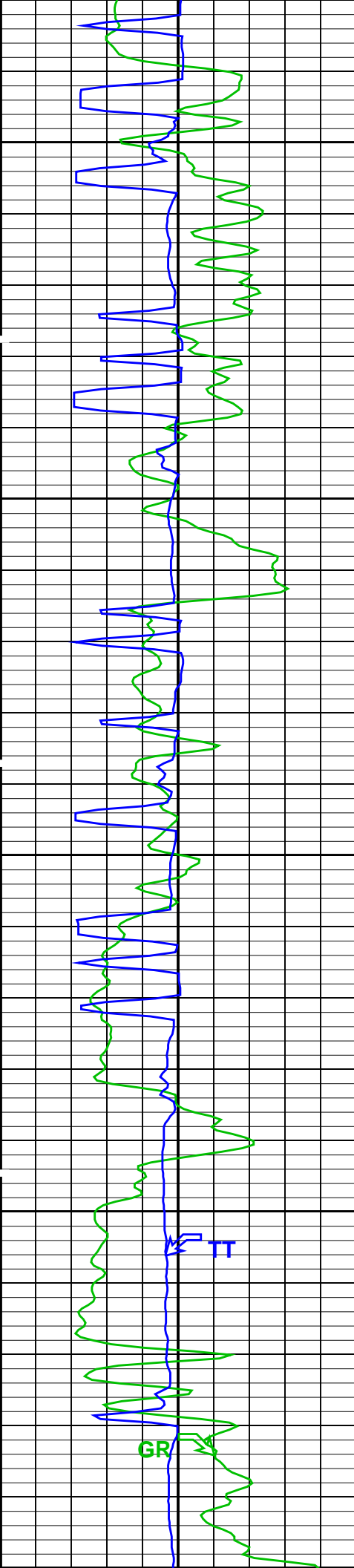


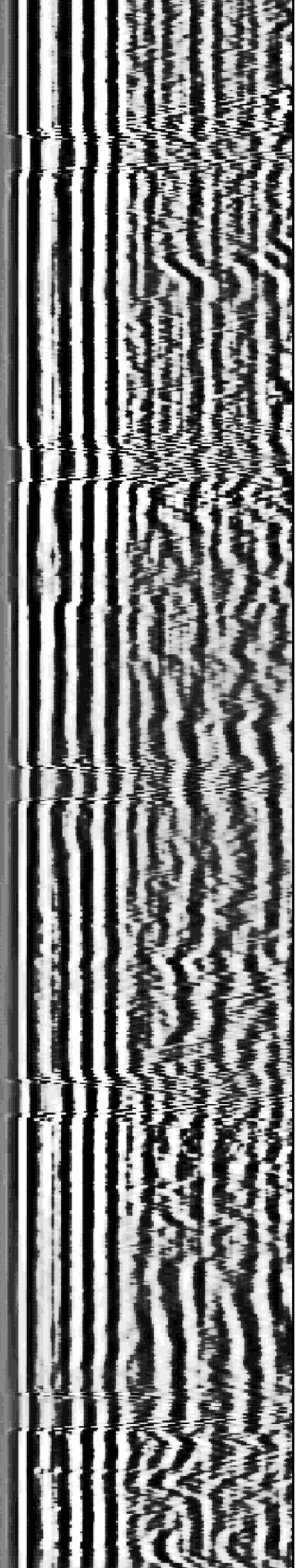
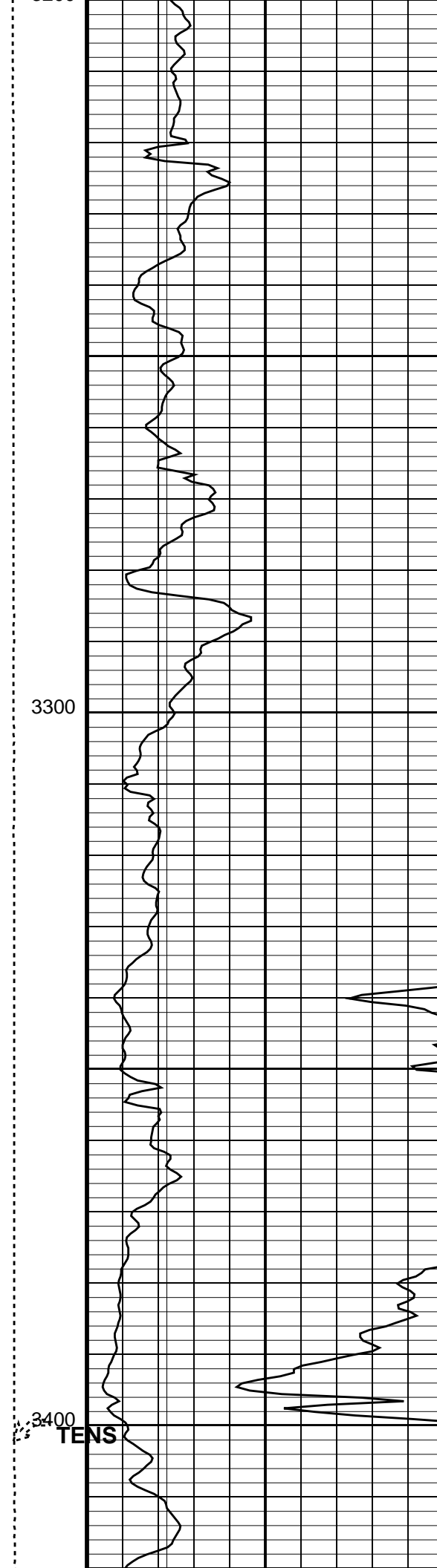
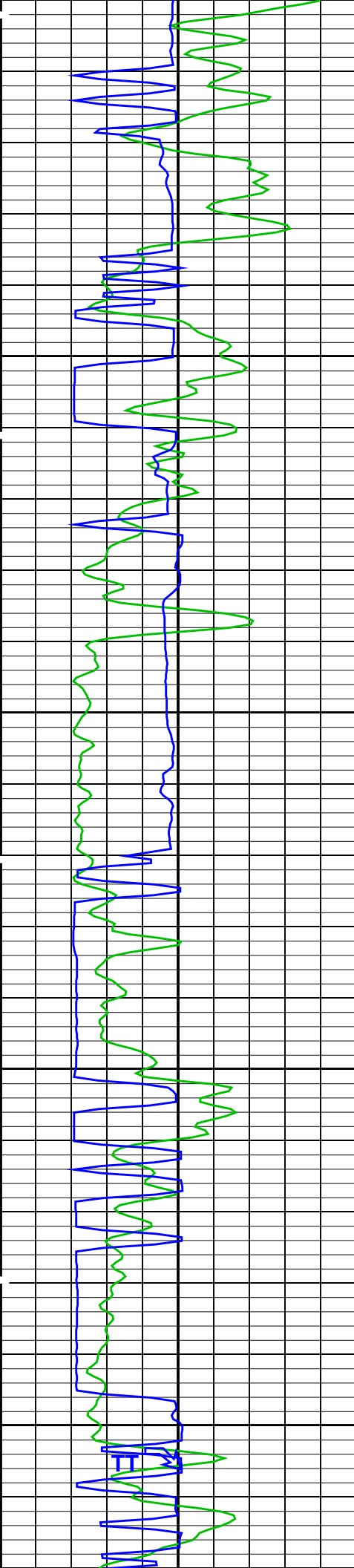


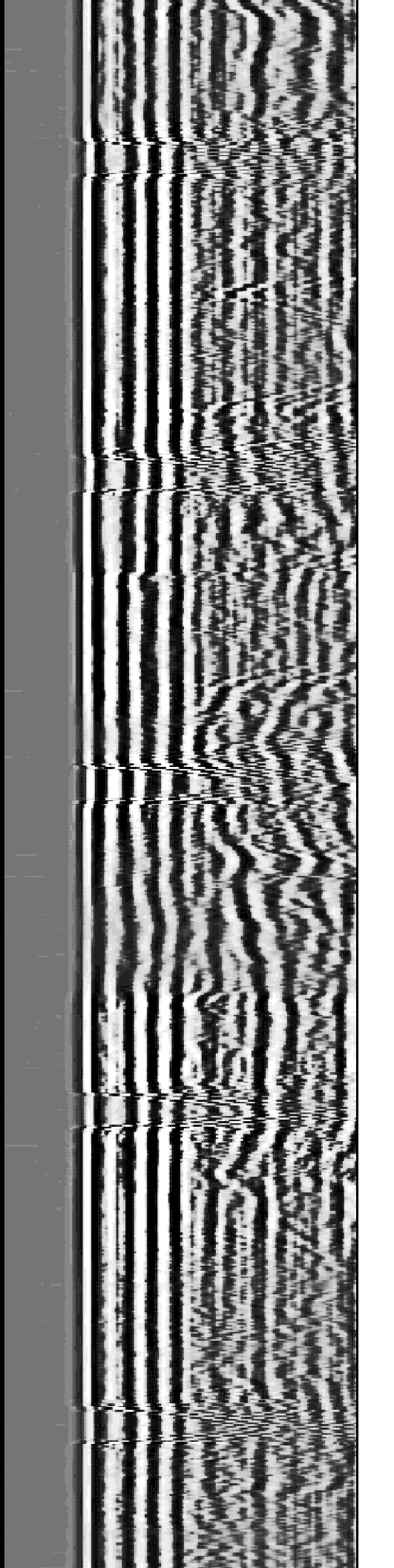
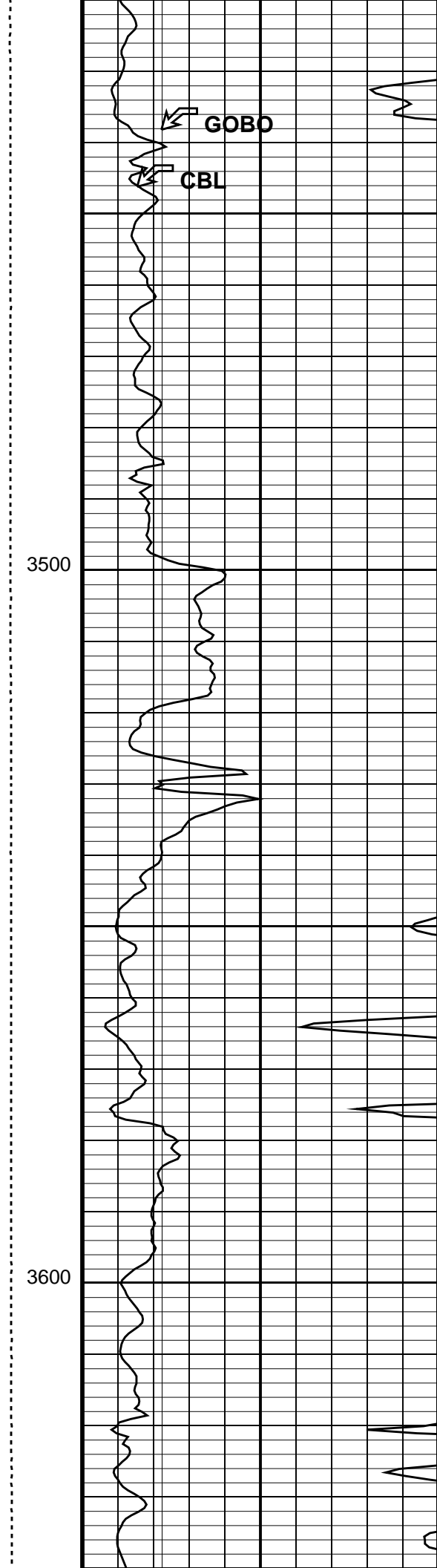
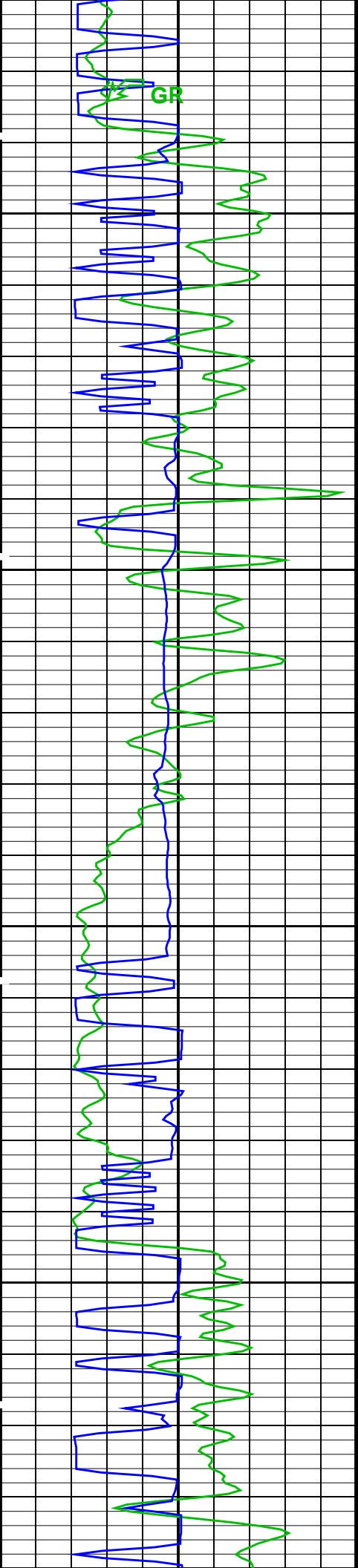


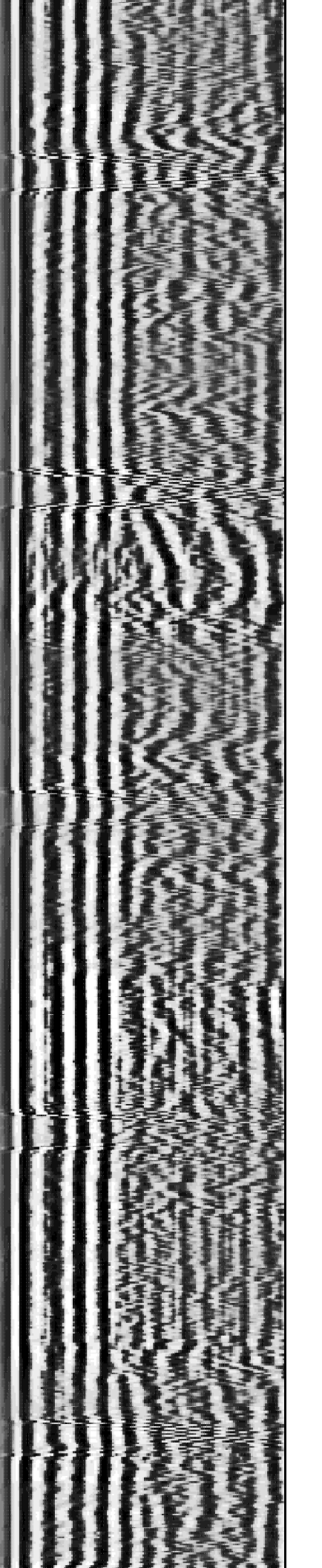
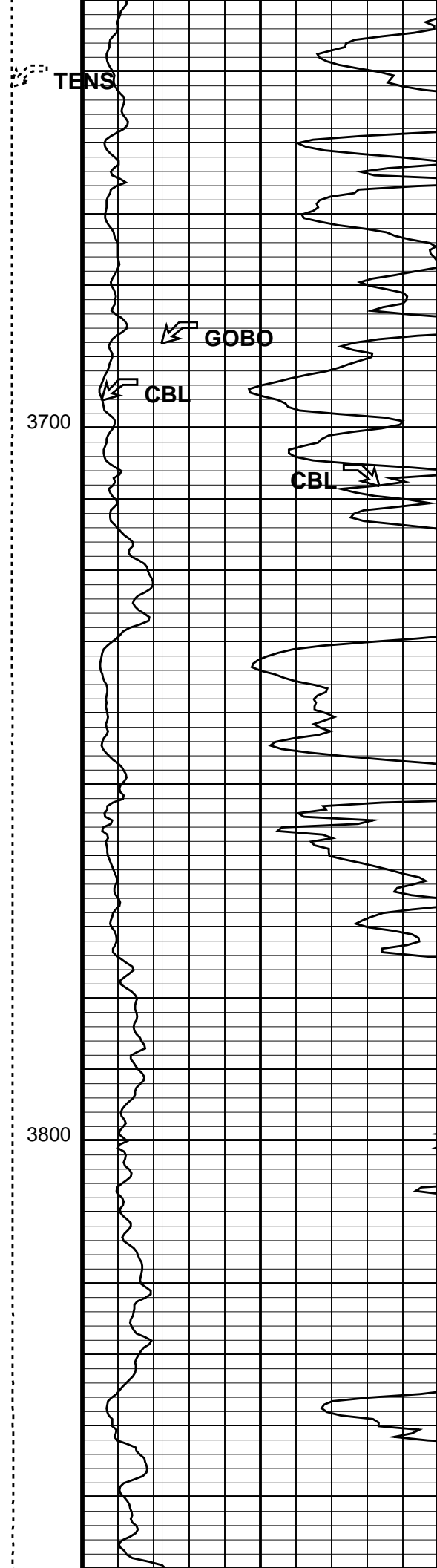
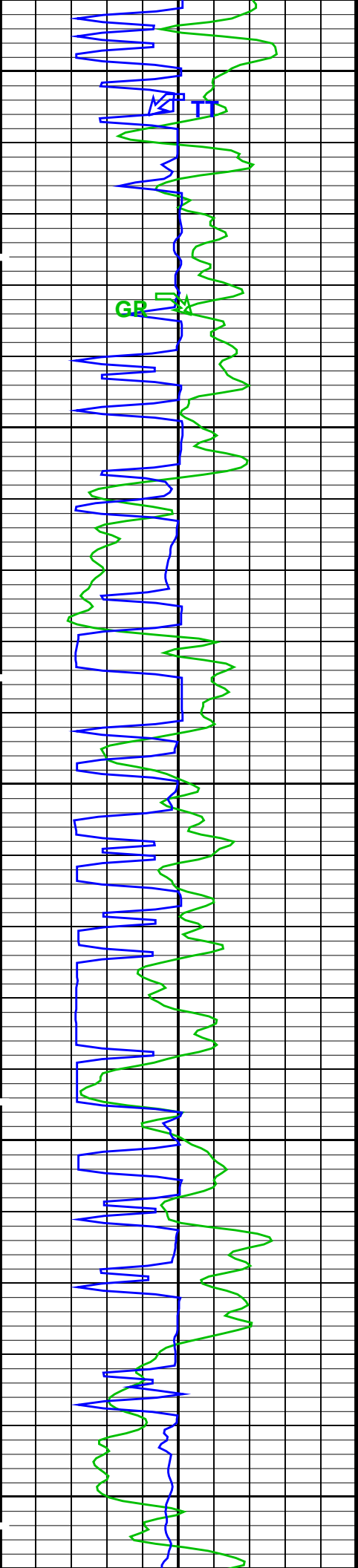


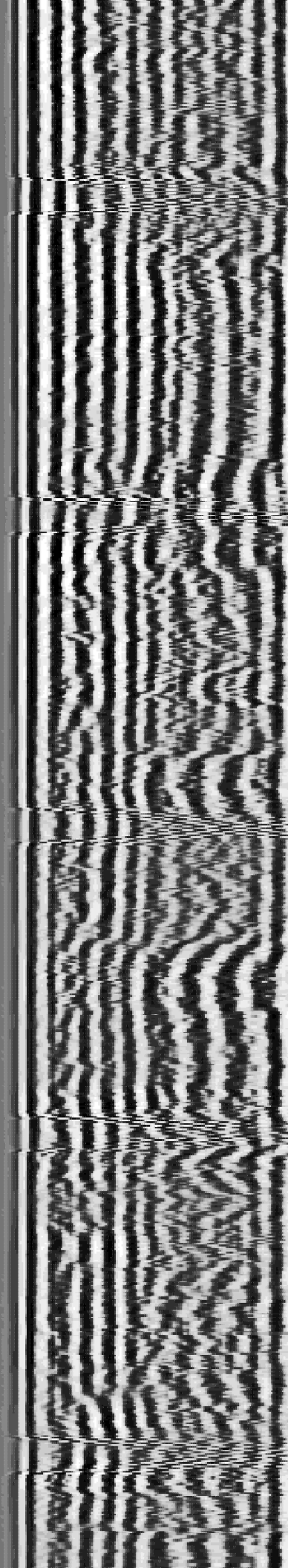
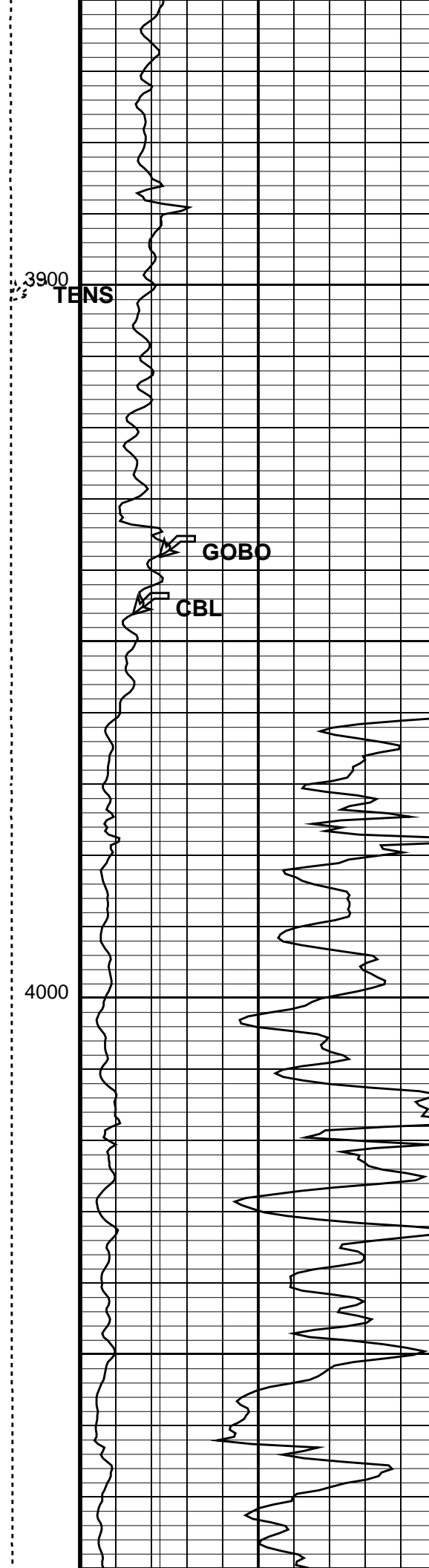
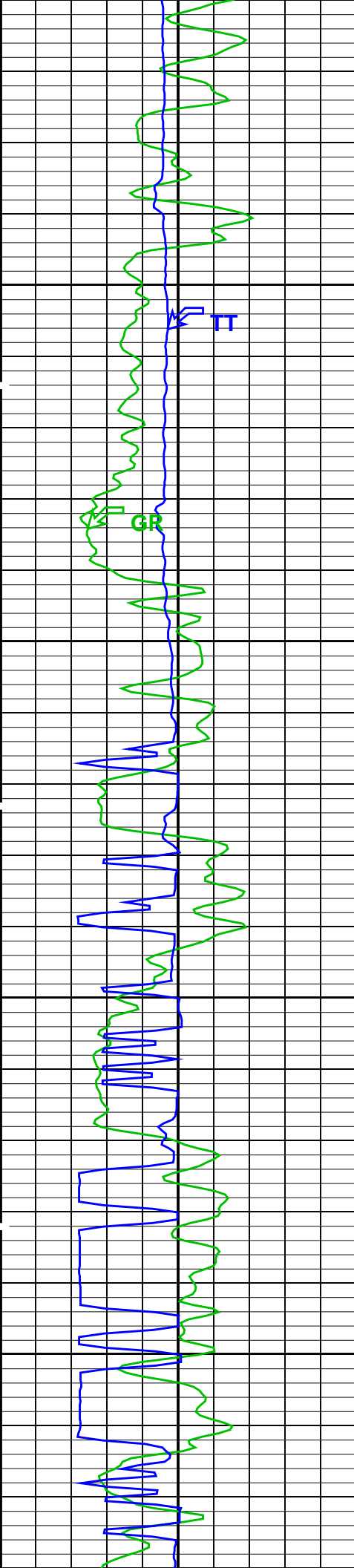


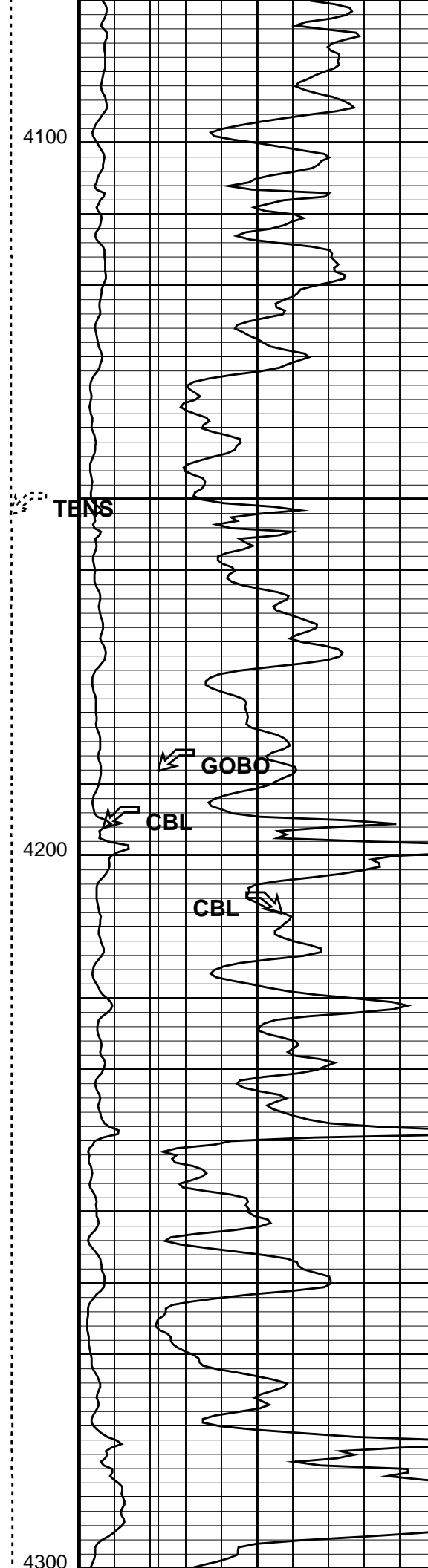
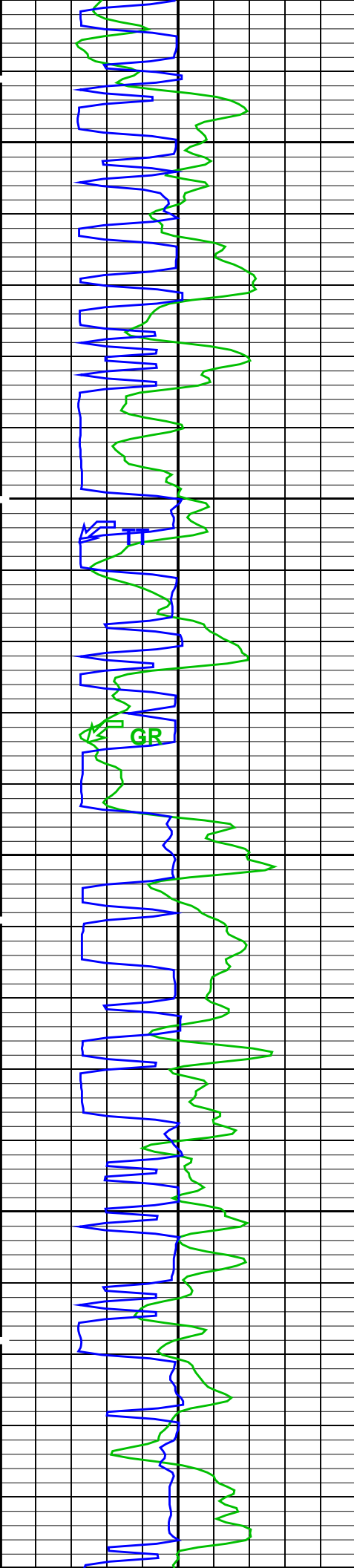


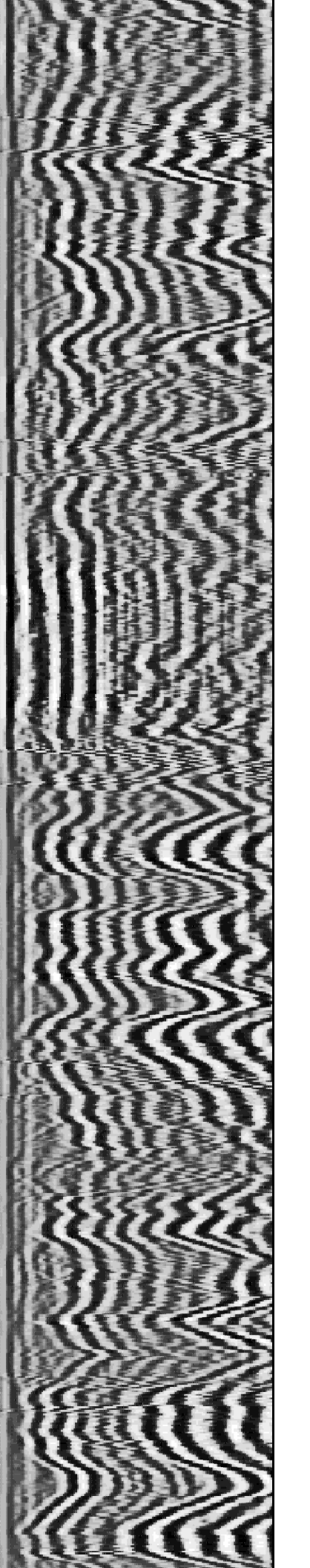
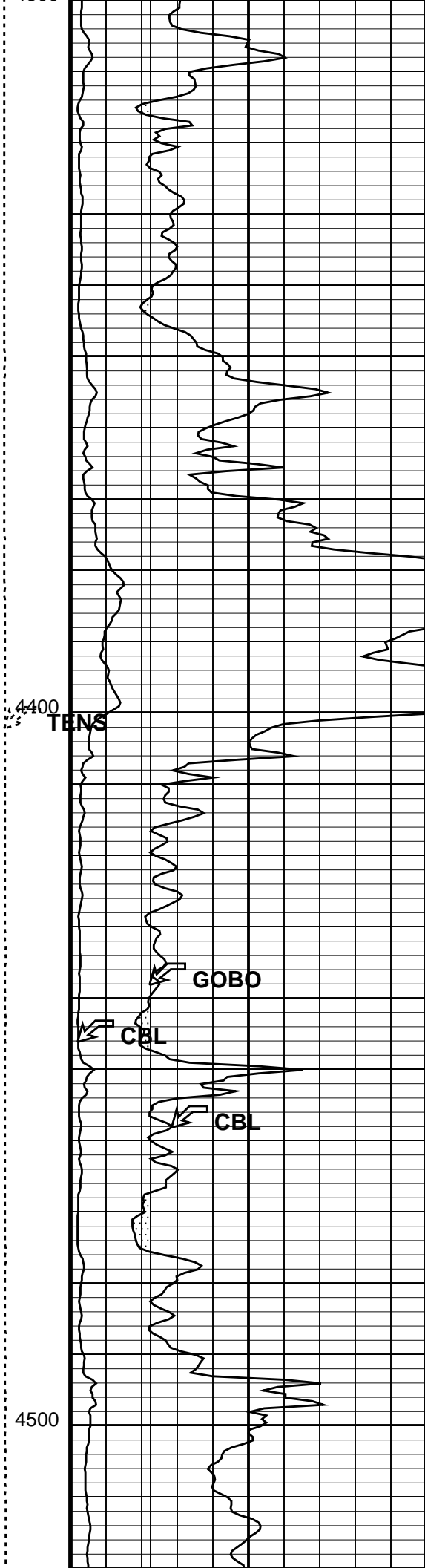
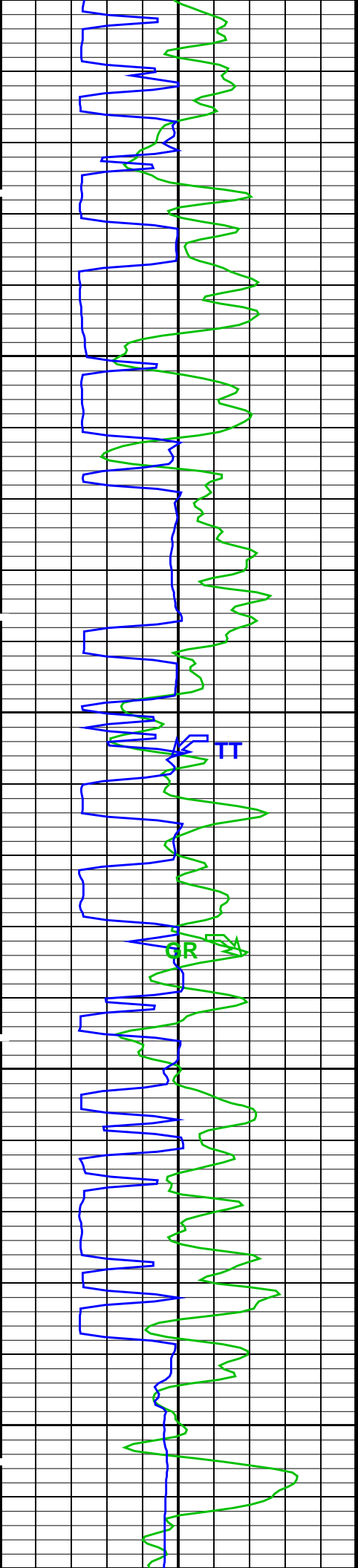


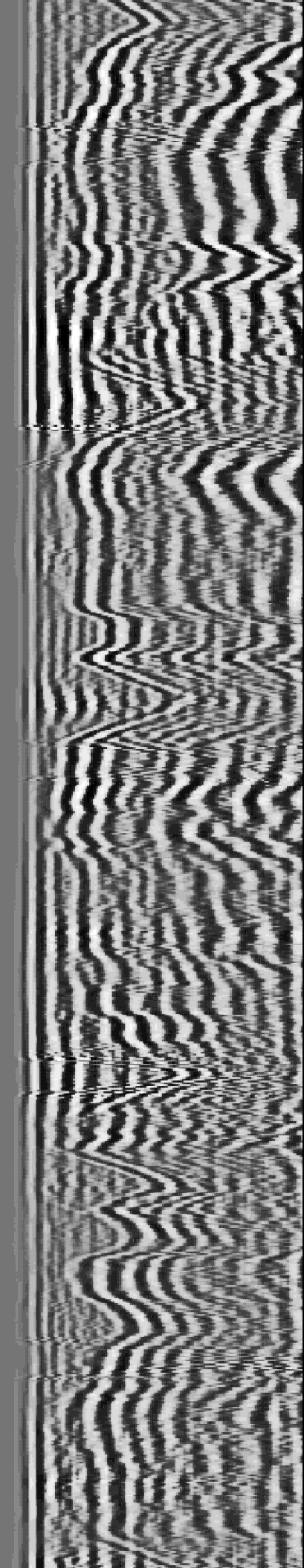
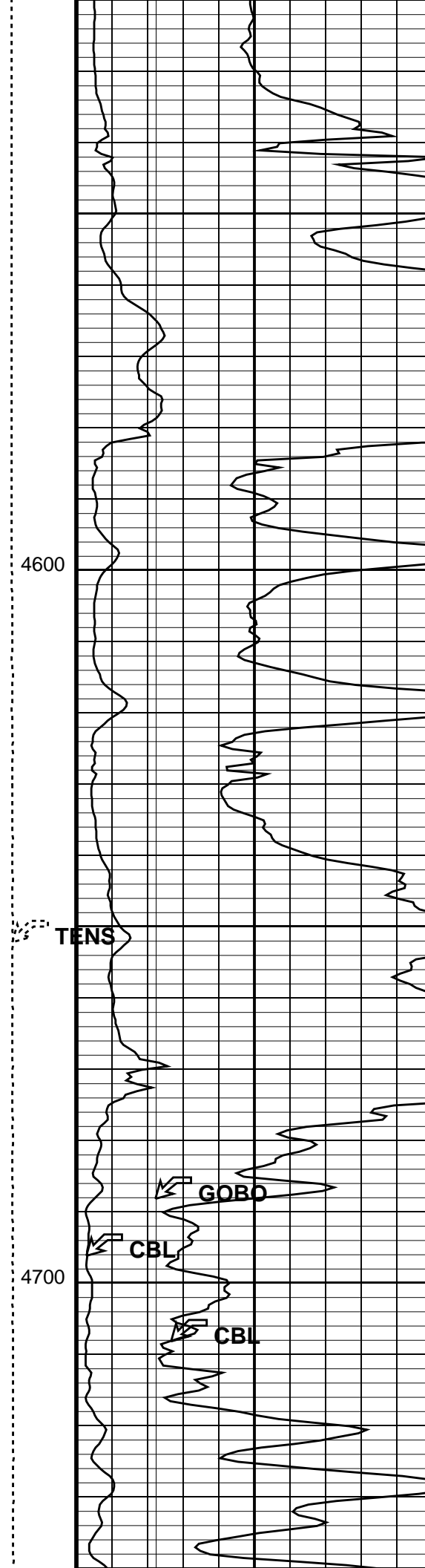
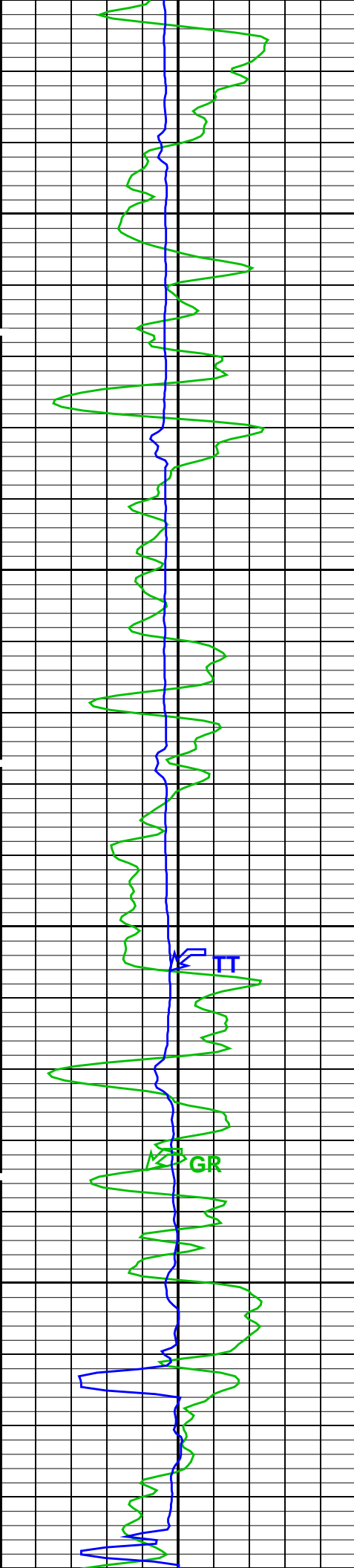


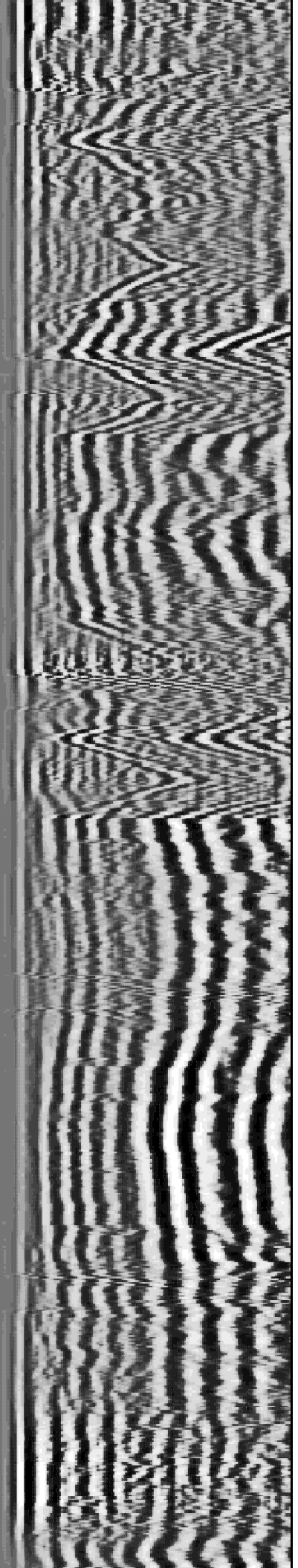
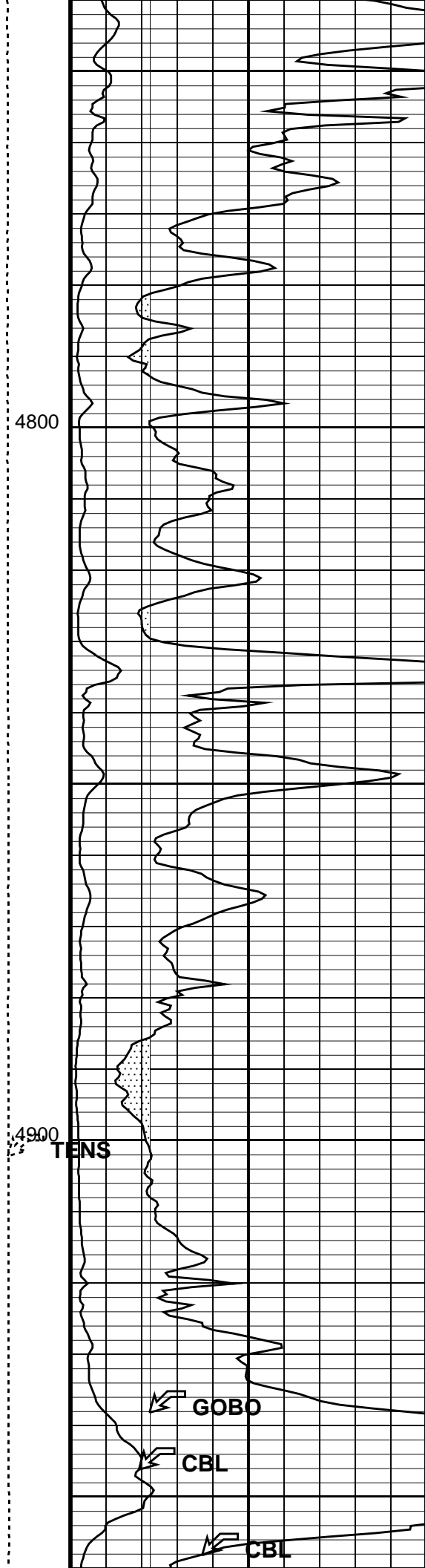
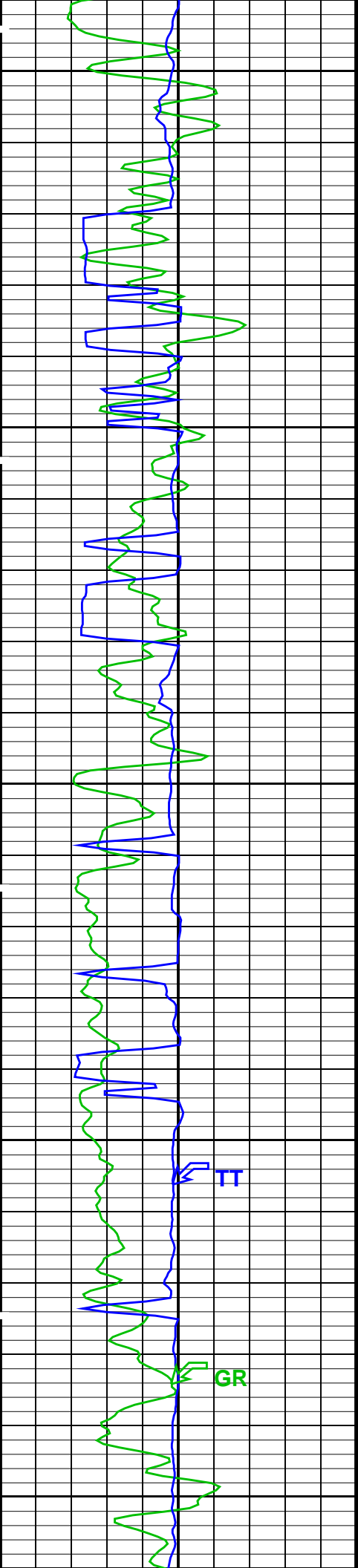


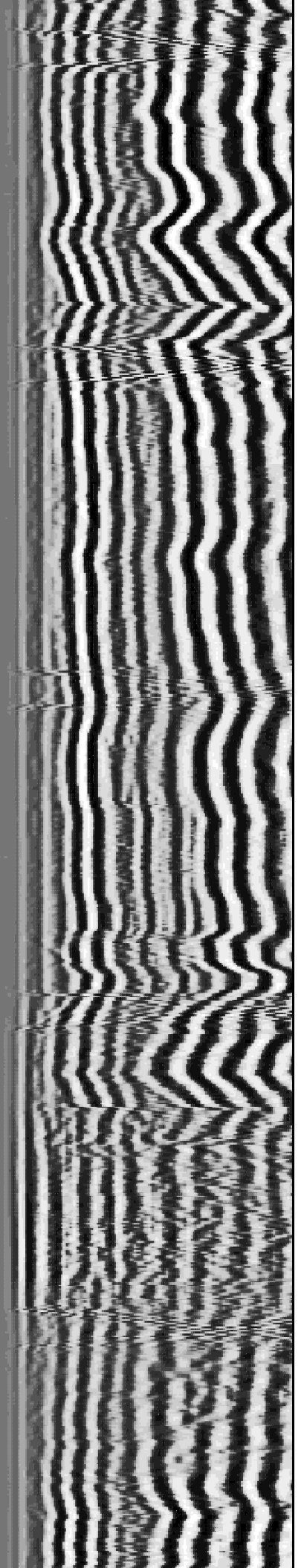
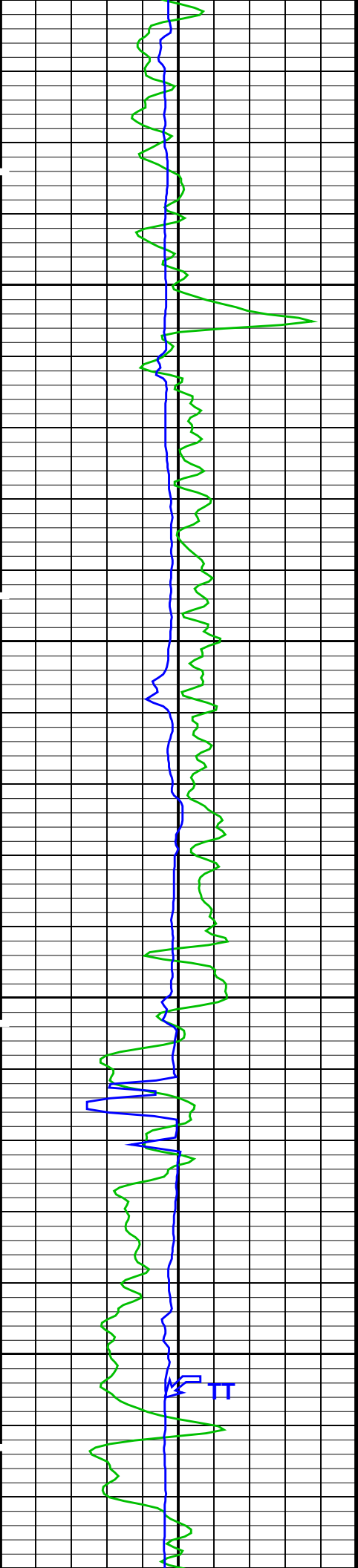


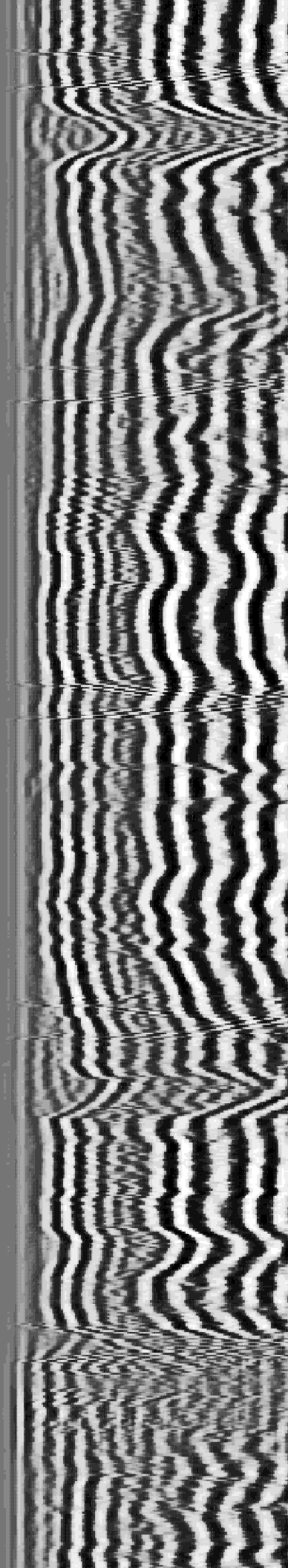
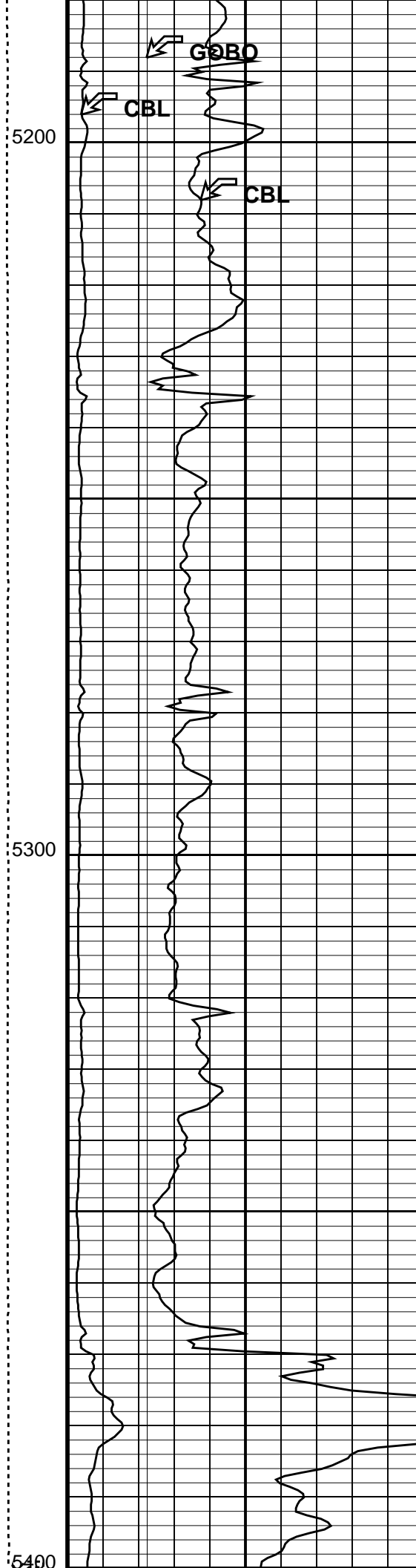
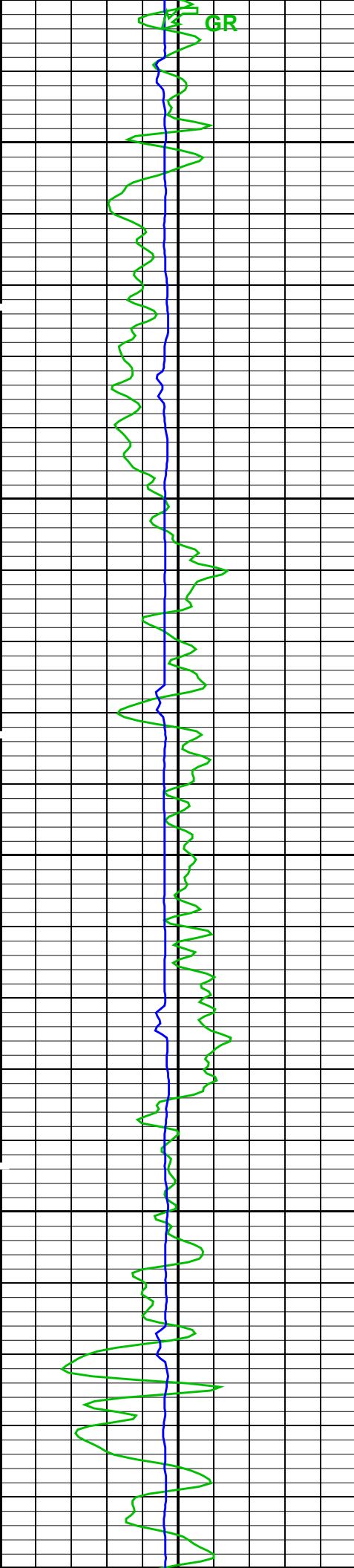


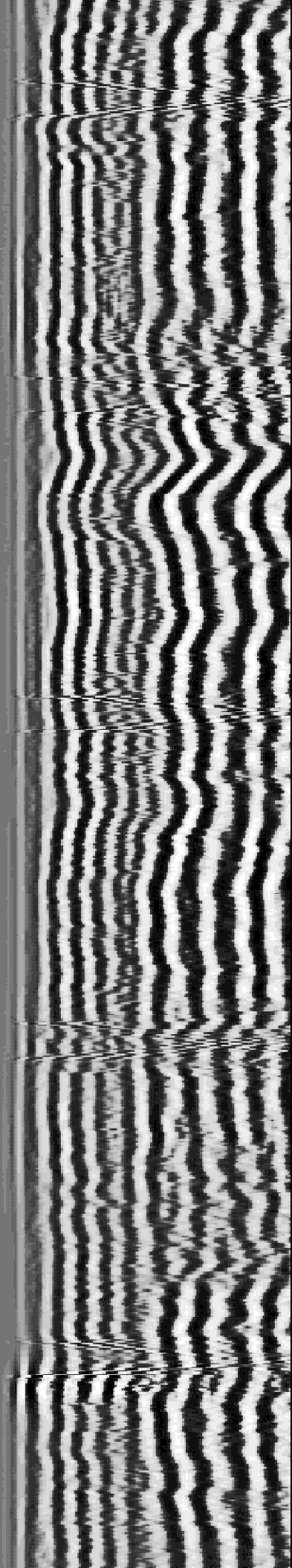
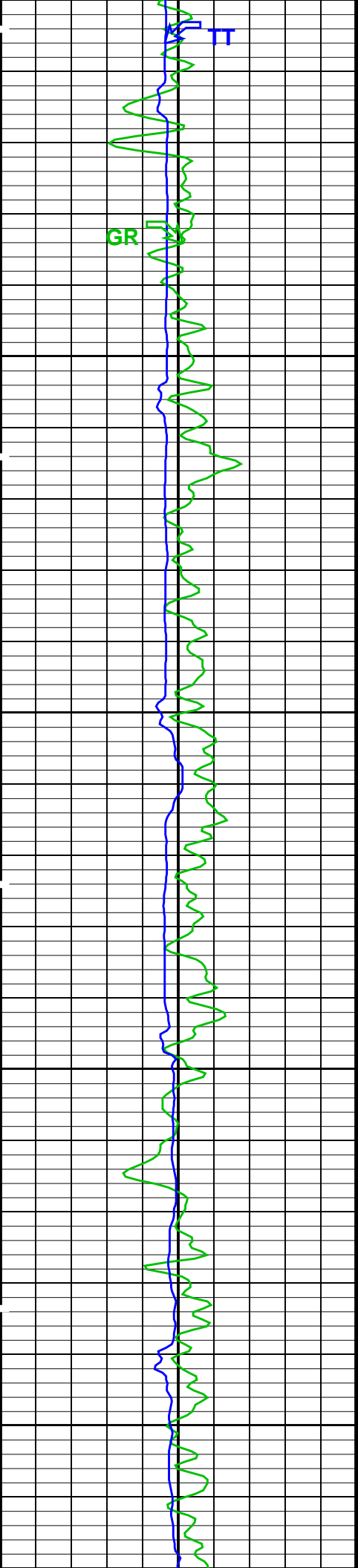


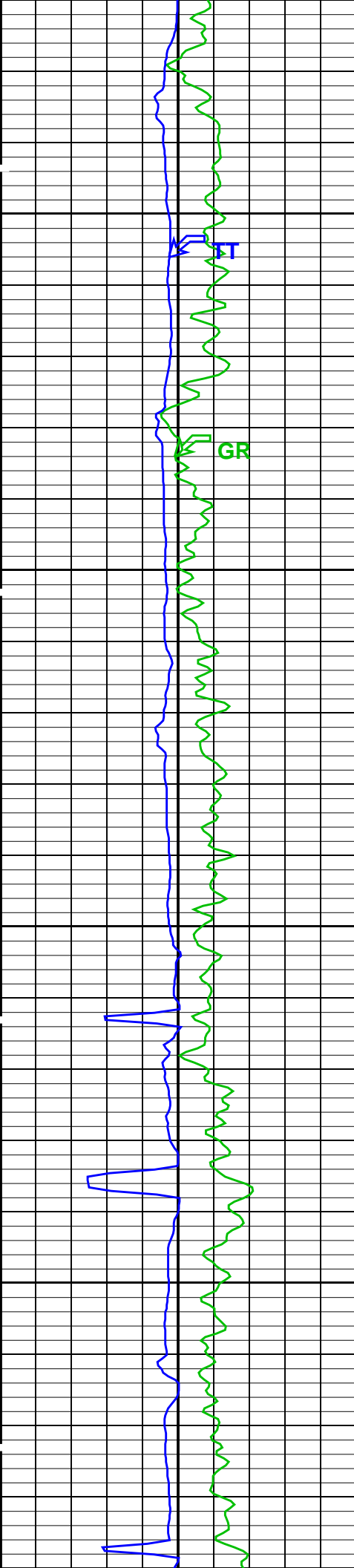


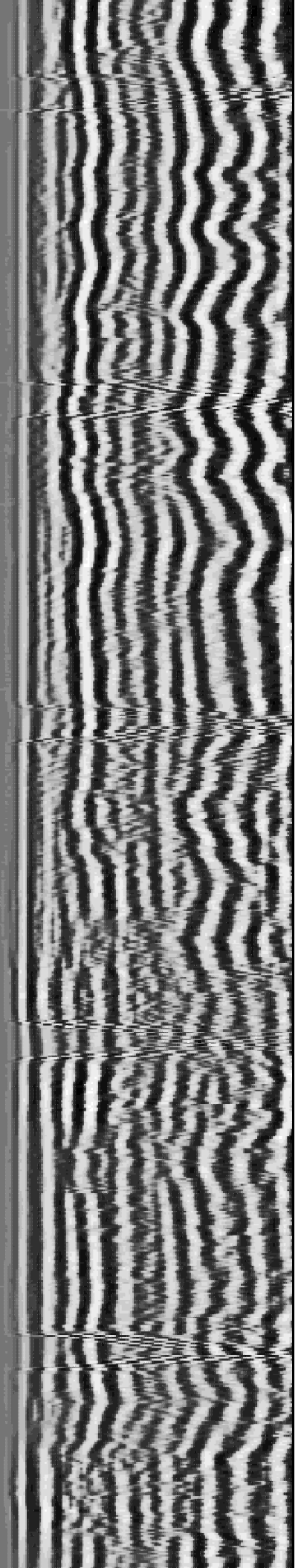
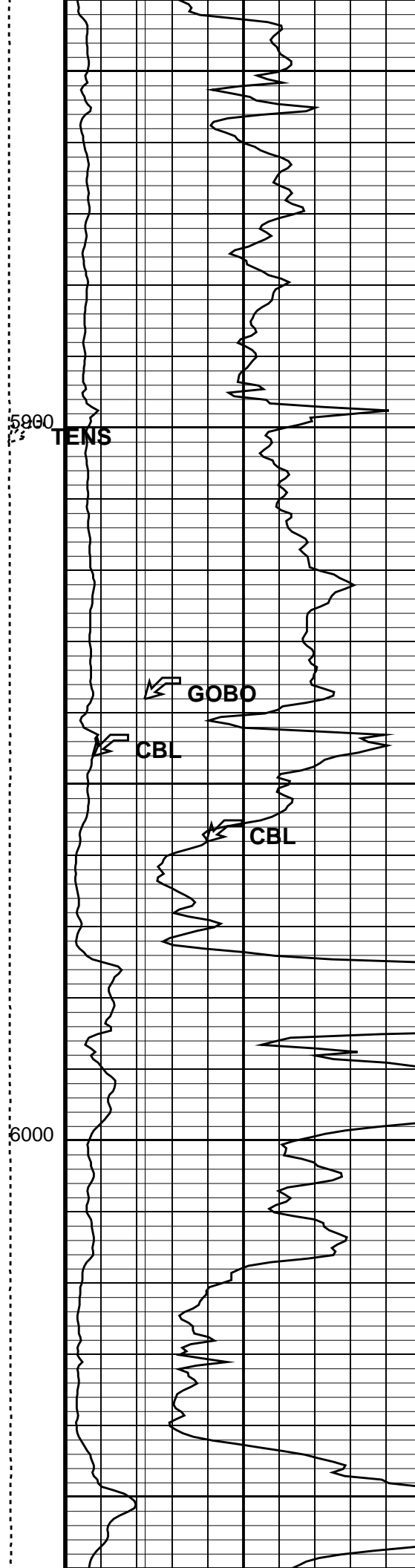
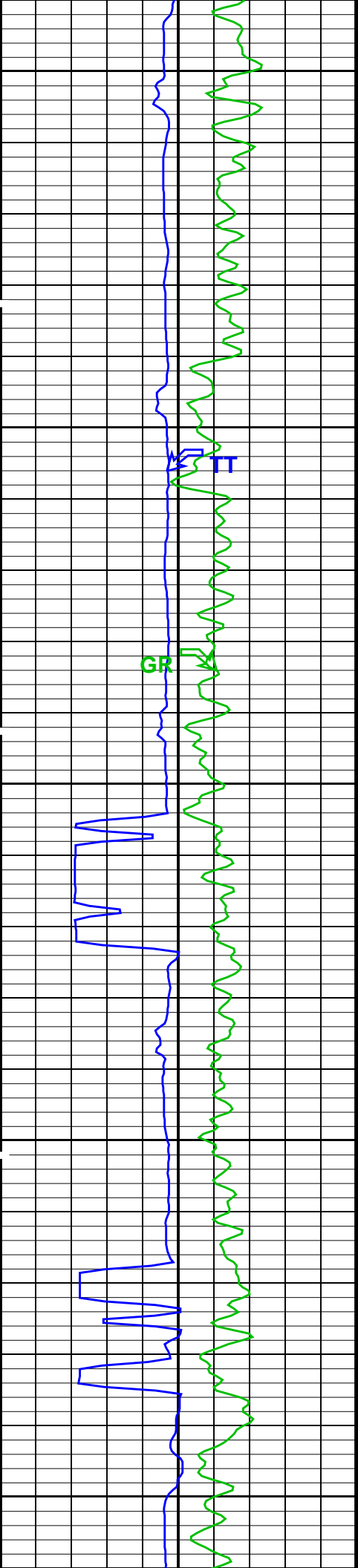


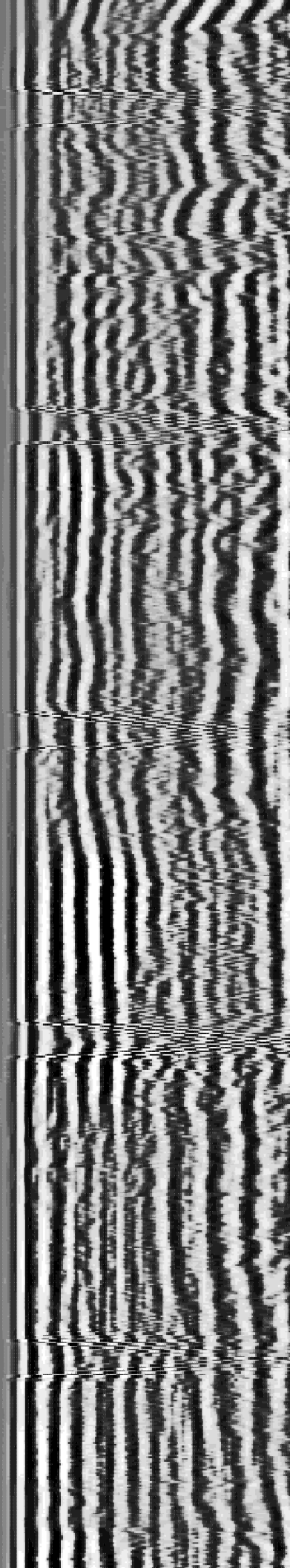
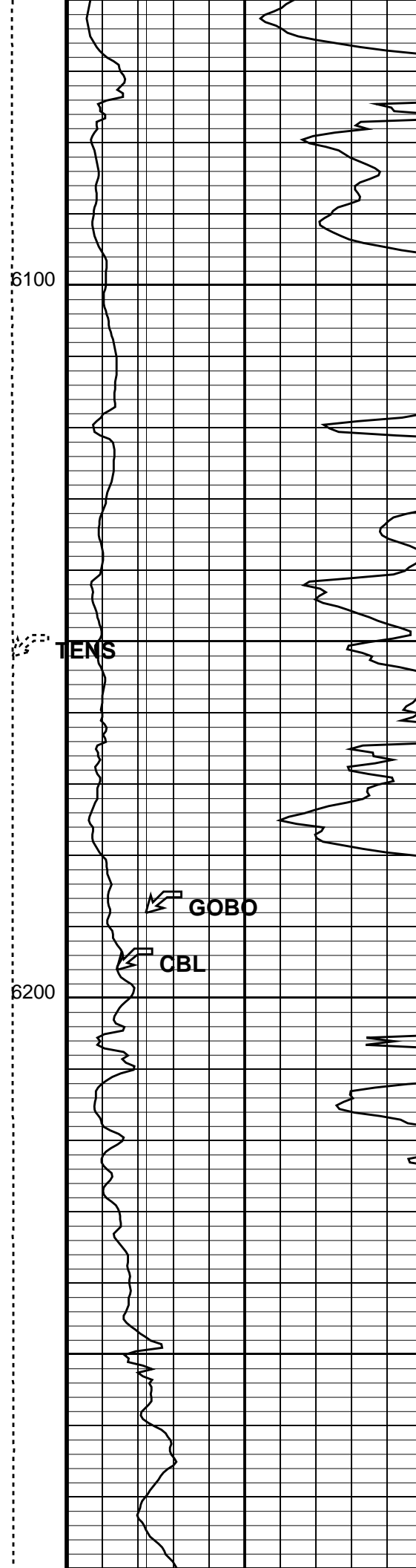
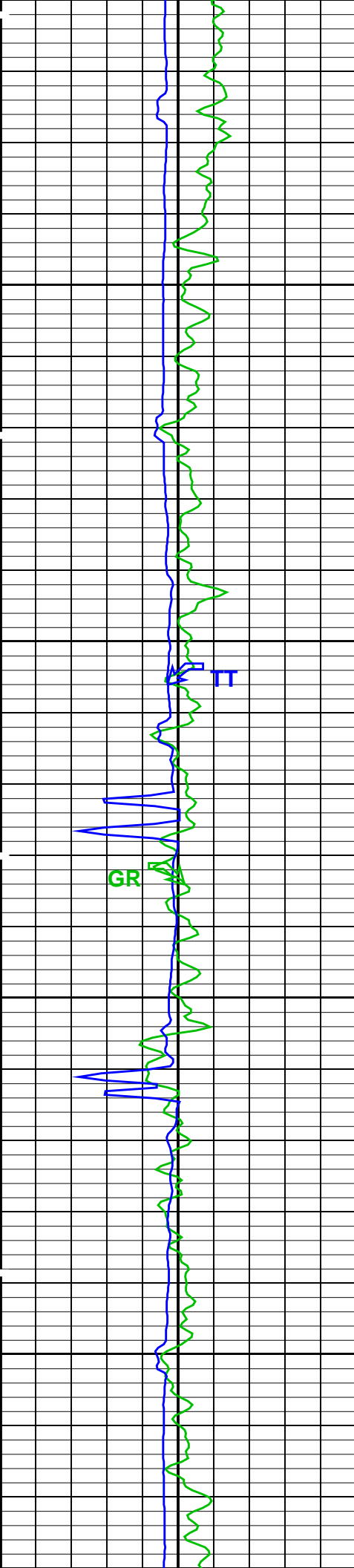


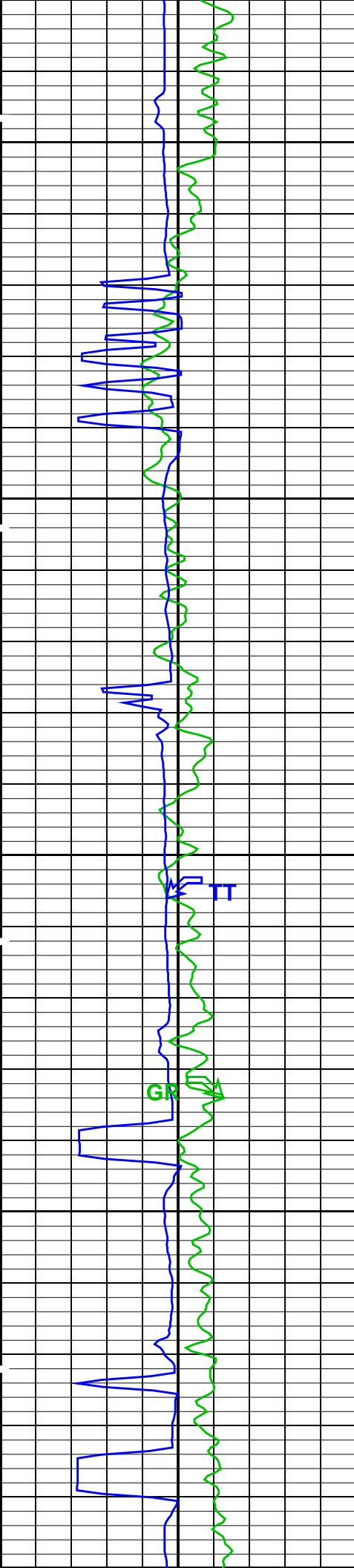












6300

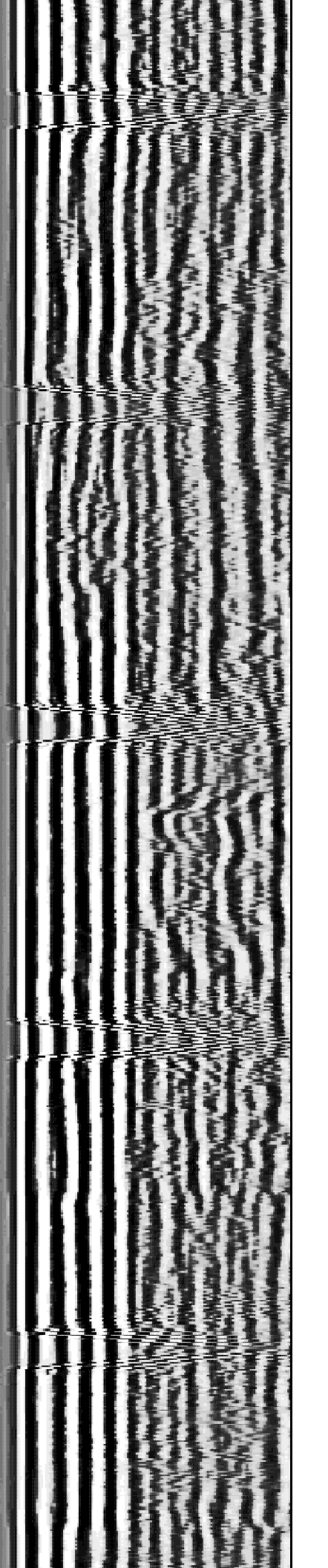
6400

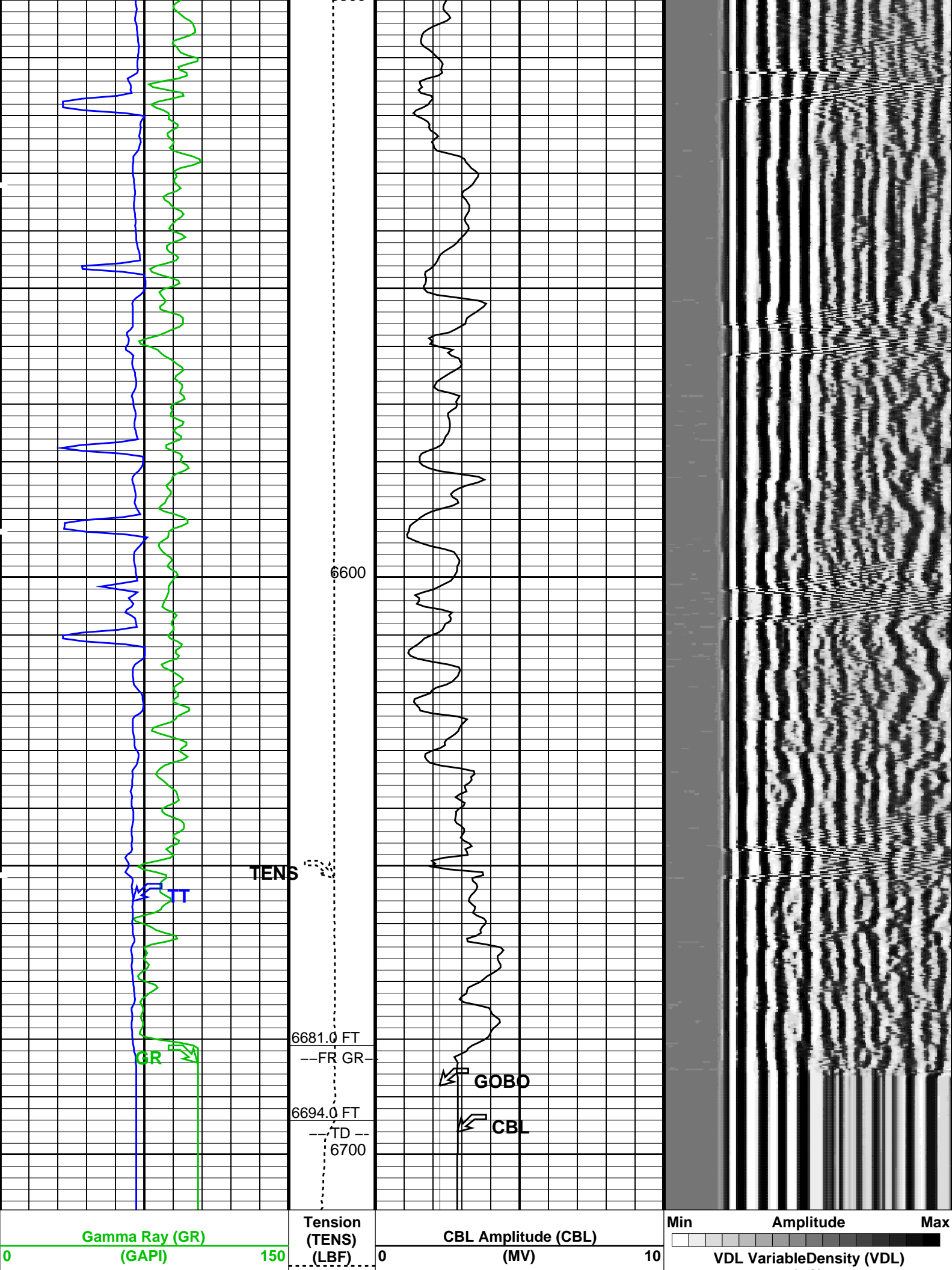
6500

TENS

GOBO

CBL





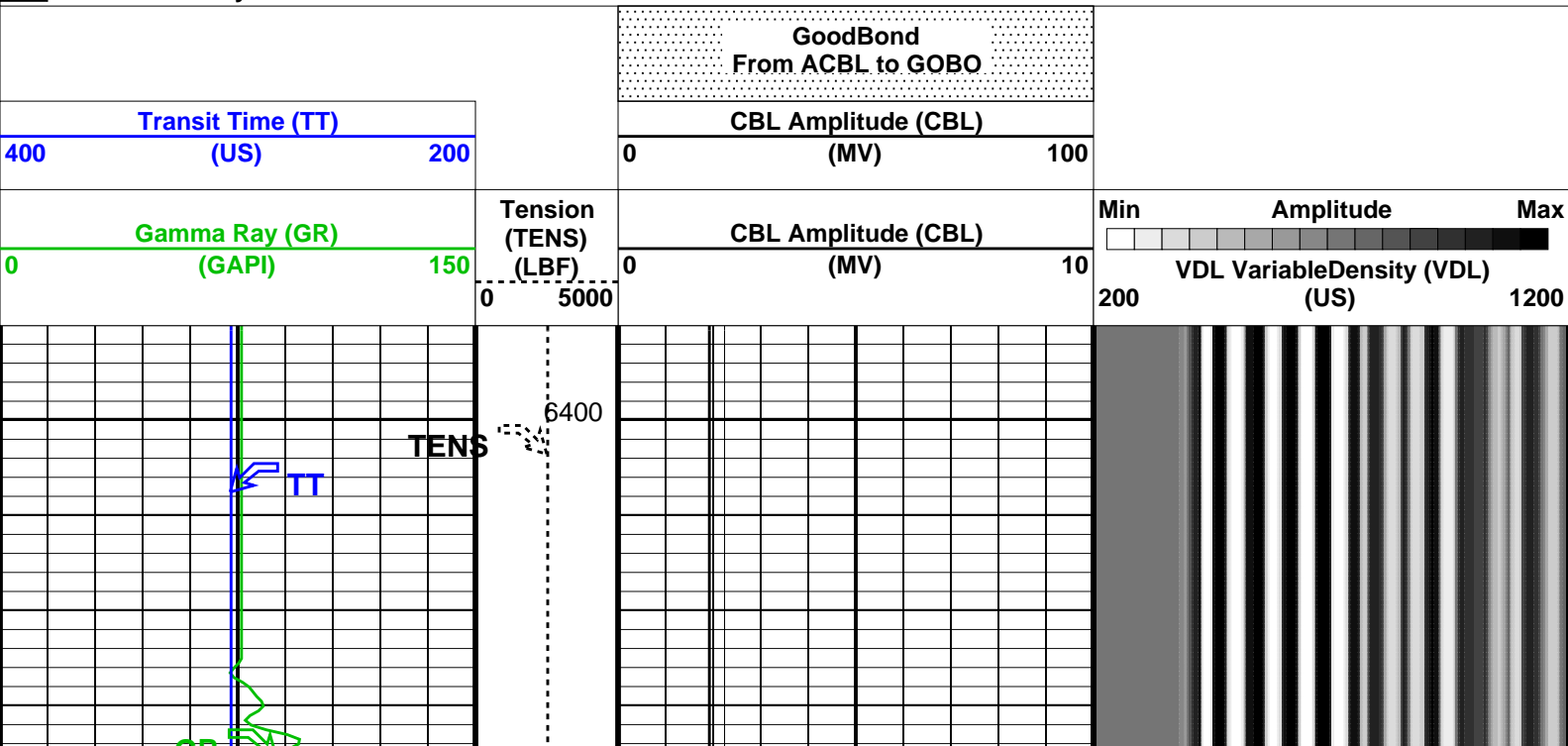
Transit Time (TT)		CBL Amplitude (CBL)		(US)	
400	(US)	200	0	(MV)	100
		GoodBond From ACBL to GOBO			

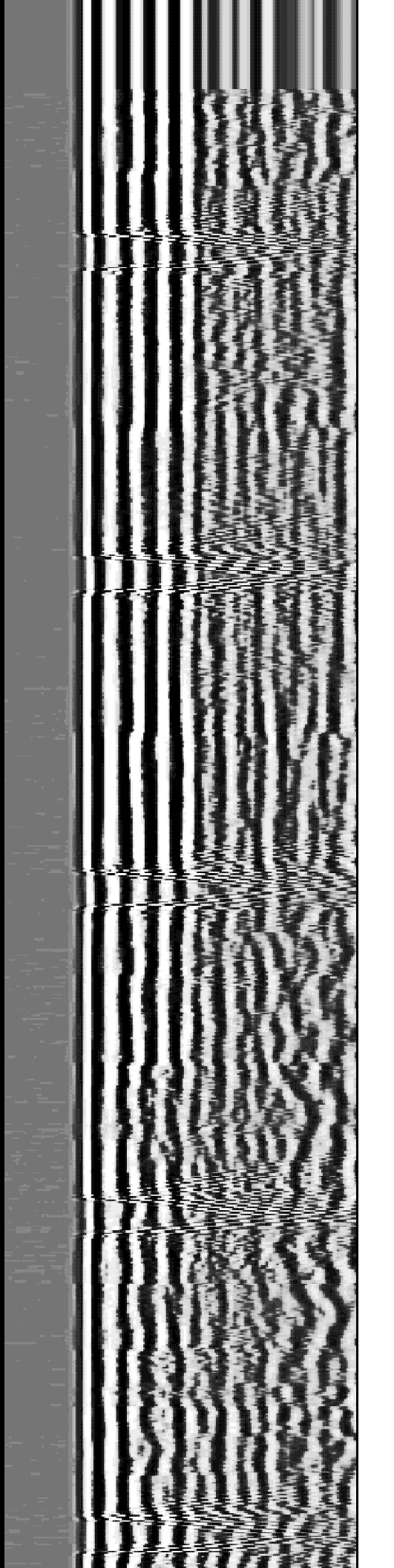
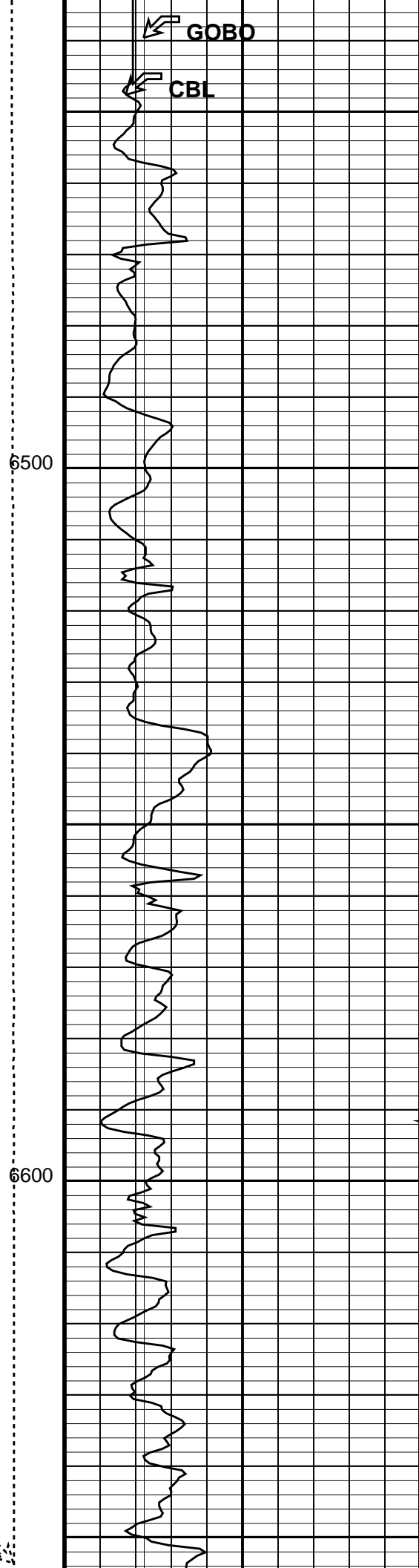
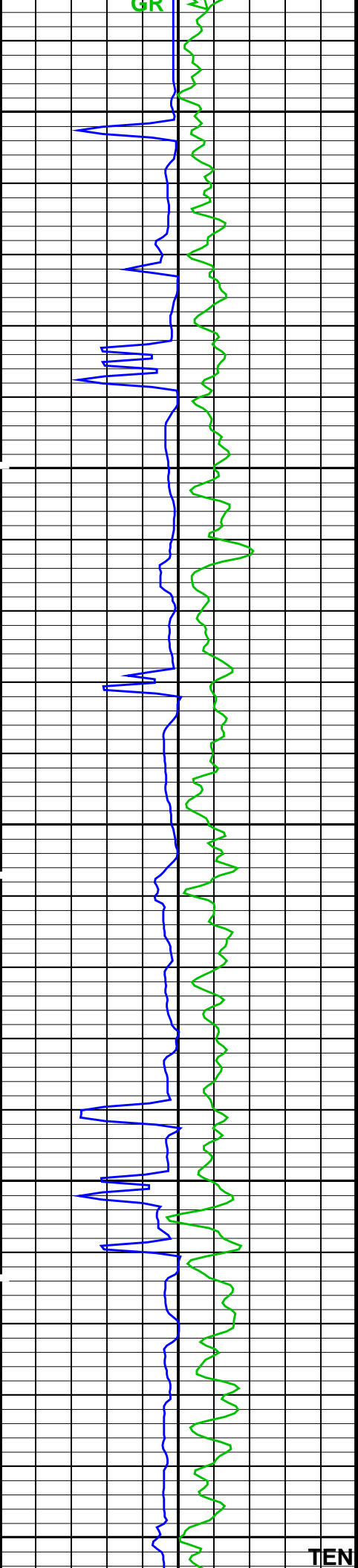
PIP SUMMARY					
Time Mark Every 60 S					
Format: CBL_VDL		Vertical Scale: 5" per 100'		Graphics File Created: 19-Jul-2011 09:54	

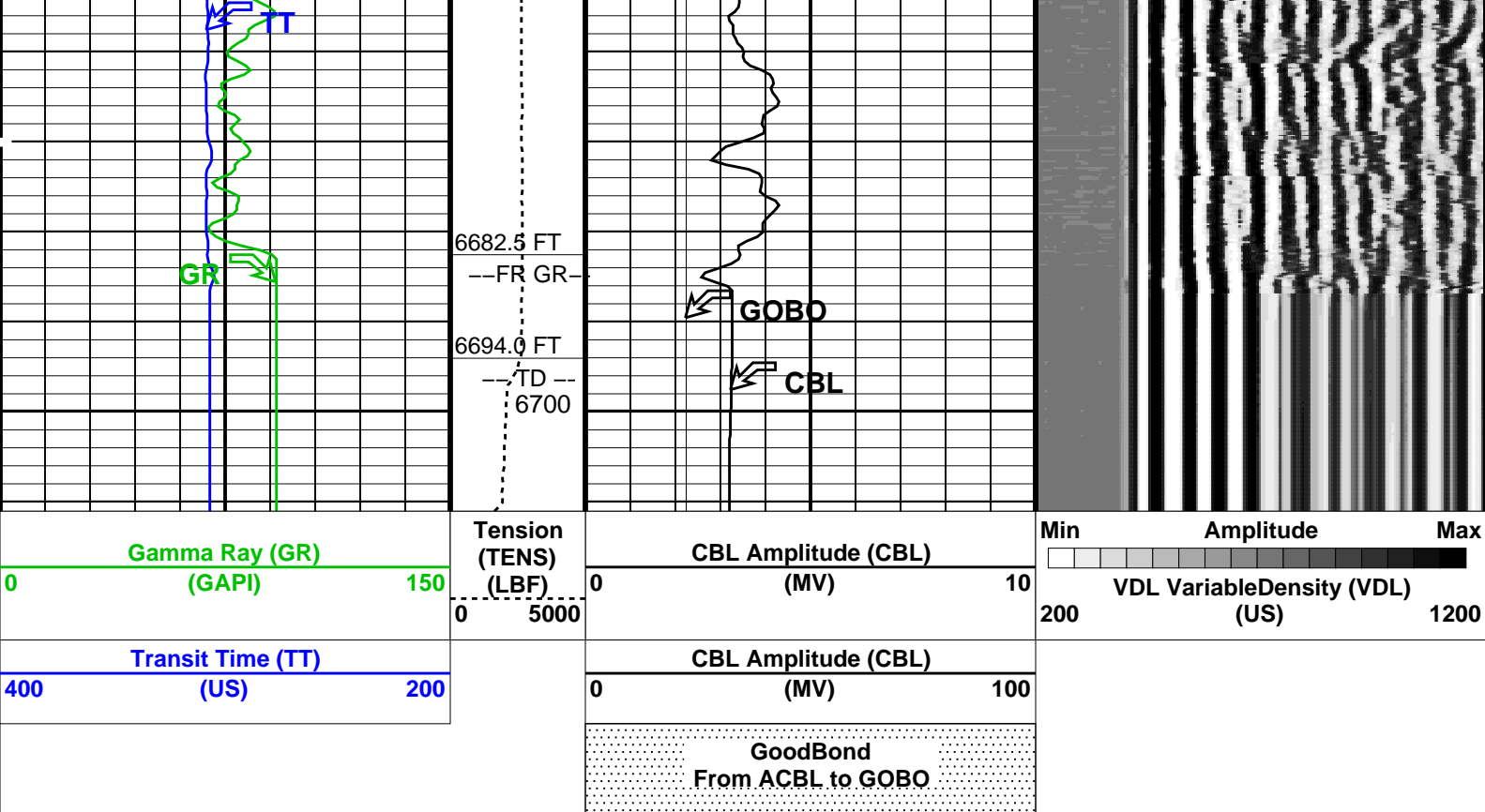
OP System Version: 18C0-147					
DSLT-H	18C0-147		HILTH-FTB	18C0-147	
DTC-H	18C0-147				

### Information for DSLT Sonde Status and Casing Features ###					
Sonde Type		Not Recorded			
Sonde Serial Number		Not Recorded (0)			
Casing Size (CSIZ)		7.62500 IN			
Casing Weight (CWEI)		26.4000 LB/F			
Expected CBL Amplitude in Free Pipe Section (CBRA)		59.0 MV			
Minimum Sonic Amplitude (MSA : 100% Cement)		0.980294 MV			
Minimum Sonic Amplitude (MSA : 80% Cement)		2.22462 MV			
Date of Master Calibration		Not Recorded			
CBL Correction Factor (Master Calibration)		2.50000			
Depth of Before Calibration (BDEP)		Not Recorded			
CBL Adjustment Factor (CBAF : Before Calibration)		1.0			

Parameters					
DLIS Name	Description	Value			
DSLT-H: Digitizing Sonic Logging Tool					
	Telemetry Mode	DSLCT_FTB			
	DSLT Firing Mode	CBL_W			
AMSG	Auxiliary Minimum Sliding Gate	120	US		
CBAF	CBL Adjustment Factor	1			
CBLG	CBL Gate Width	45	US		
DDEL	Digitizing Delay	0	US		
DRCS	DSLT DLIS Recording Size	120			
DSIN	Digitizing Sample Interval	10			
DTFS	DSLCT Telemetry Frame Size	236			
DWCO	Digitizing Word Count	120			
GAI	Manual Gain	40			
GOBO	Good Bond	2.22462	MV		
MAHTR	Manual High Threshold Reference	40			
MGA	Maximum Gain	1000			
MNHTR	Minimum High Threshold Reference	30			
NMSG	Near Minimum Sliding Gate	298	US		
NMXG	Near Maximum Sliding Gate	750	US		
RATE	Firing Rate	R7			
SFAF	Sonic Formation Attenuation Factor	0	DB/F		
SGCL	Sliding Gate Closing Delta-T	250	US/F		
SGDT	Sliding Gate Delta-T	57	US/F		
SGW	Sliding Gate Width	80	US		
SLEV	Signal Level for AGC	5000			
VDLG	VDL Manual Gain	5			
WAGC	Waveform AGC Allow/Disallow	OFF			
WMOD	Waveform Firing Mode	FULL			
System and Miscellaneous					







Time Mark Every 60 S

Format: CBL_VDL Vertical Scale: 5" per 100' Graphics File Created: 19-Jul-2011 09:20

OP System Version: 18C0-147


DSLT-H 18C0-147 HILTH-FTB 18C0-147
DTC-H 18C0-147

### Information for DSLT Sonde Status and Casing Features ###	
Sonde Type	Not Recorded
Sonde Serial Number	Not Recorded (0)
Casing Size (CSIZ)	7.62500 IN
Casing Weight (CWEI)	26.4000 LB/F
Expected CBL Amplitude in Free Pipe Section (CBRA)	59.0 MV
Minimum Sonic Amplitude (MSA : 100% Cement)	0.980294 MV
Minimum Sonic Amplitude (MSA : 80% Cement)	2.22462 MV
Date of Master Calibration	Not Recorded
CBL Correction Factor (Master Calibration)	2.50000
Depth of Before Calibration (BDEP)	Not Recorded
CBL Adjustment Factor (CBAF : Before Calibration)	1.0

Parameters		
DLIS Name	Description	Value
DSLT-H:	Digitizing Sonic Logging Tool Telemetry Mode	DSLT C FTB

AMSG	Telemetry Mode	DSLT Firing Mode	120	US
CBAF	Auxiliary Minimum Sliding Gate	CBL Adjustment Factor	1	
CBLG	CBL Gate Width	Digitizing Delay	45	US
DDEL	Digitizing Delay	DSLT DLIS Recording Size	0	US
DRCS	DSLT DLIS Recording Size	Digitizing Sample Interval	120	
DSIN	Digitizing Sample Interval	DSLC Telemetry Frame Size	10	
DTFS	DSLC Telemetry Frame Size	Digitizing Word Count	236	
DWCO	Digitizing Word Count	Manual Gain	120	
GAI	Manual Gain	Good Bond	40	
GOBO	Good Bond	2.22462	MV	
MAHTR	Manual High Threshold Reference	40		
MGAI	Maximum Gain	1000		
MNHTR	Minimum High Threshold Reference	30		
NMSG	Near Minimum Sliding Gate	298	US	
NMXG	Near Maximum Sliding Gate	750	US	
RATE	Firing Rate	R7		
SFAF	Sonic Formation Attenuation Factor	0	DB/F	
SGCL	Sliding Gate Closing Delta-T	250	US/F	
SGDT	Sliding Gate Delta-T	57	US/F	
SGW	Sliding Gate Width	80	US	
SLEV	Signal Level for AGC	5000		
VDLG	VDL Manual Gain	5		
WAGC	Waveform AGC Allow/Disallow	OFF		
WMOD	Waveform Firing Mode	FULL		
System and Miscellaneous				
DO	Depth Offset for Playback	6.0	FT	
PP	Playback Processing	NORMAL		

Input DLIS Files						
DEFAULT	SONIC_TLD_MCFL_CNL_011LUP	FN:10	PRODUCER	19-Jul-2011 07:18	6705.0 FT	6416.0 FT
Output DLIS Files						
DEFAULT	SONIC_TLD_MCFL_CNL_014PUP	FN:14	PRODUCER	19-Jul-2011 09:20		
RTB	SONIC_TLD_MCFL_CNL_014PUP	FN:15	PRODUCER	18-Jul-2011 09:20		



Calibrations

MAXIS Field Log

Calibration and Check Summary							
Measurement	Nominal	Master	Before	After	Change	Limit	Units
High resolution Integrated Logging Tool-DTS Wellsite Calibration – Detector Calibration							
Before: 16-Jul-2011 17:54							
Gamma Ray Background	30.00	N/A	36.09	N/A	N/A	N/A	GAPI
Gamma Ray (Jig – Bkgd)	165.0	N/A	164.2	N/A	N/A	15.00	GAPI
High resolution Integrated Logging Tool-DTS Wellsite Calibration – Zero Measurement							
Master: 30-May-2011 15:29 Before: 16-Jul-2011 17:55							
CNTC Background	27.98	27.98	27.70	N/A	N/A	4.197	CPS
CFTC Background	29.12	29.12	28.79	N/A	N/A	4.368	CPS
High resolution Integrated Logging Tool-DTS Wellsite Calibration – Ratio Measurement							
Master: 30-May-2011 15:29							
Thermal Near Corr. (Tank)	5800	5225	N/A	N/A	N/A	N/A	CPS
Thermal Far Corr. (Tank)	2400	2166	N/A	N/A	N/A	N/A	CPS
CNTC/CFTC (Tank)	2.159	2.412	N/A	N/A	N/A	N/A	
High resolution Integrated Logging Tool-DTS Wellsite Calibration – Accelerometer Calibration							
Before: 19-Jul-2011 7:04							
Z-Axis Acceleration	33.10	N/A	31.73	N/A	N/A	N/A	F/GS

High resolution Integrated Logging Tool–DTS Master Calibration														
Tank Measurement														
Phase	Thermal Near Corr. (Tank) CPS			Value	Phase	Thermal Far Corr. (Tank) CPS			Value	Phase	CNTC/CFTC (Tank)			Value
Master	<div><div></div></div>			5225	Master	<div><div></div></div>			2166	Master	<div><div></div></div>			2.412
	4700 (Minimum)	5800 (Nominal)	6900 (Maximum)		1900 (Minimum)	2400 (Nominal)	2900 (Maximum)			2.120 (Minimum)	2.159 (Nominal)	2.540 (Maximum)		
Master: 30–May–2011 15:29														

DTS Telemetry Tool / Equipment Identification	
Primary Equipment:	
DTC–H Auxiliary Cartridge	DTCH – A
DTC–H Telemetry Cartridge	DTCH – A
Auxiliary Equipment:	
DTCH Telemetry Cartridge Housing	ECH – KC

Company:	EnCana Oil & Gas Inc.	Schlumberger
Well:	Orchard Unit 18–9HM (K20OU)	
Field:	Orchard	
County:	Mesa	
State:	Colorado	
CEMENT BOND LOG		
CBL – VDL		
GAMMA RAY		