

Company: ENCANA OIL & GAS (USA) INC

Well: ALP FEE 24-3D (J24NW)

Field: MAMM CREEK

County: GARFIELD

State: COLORADO

**SLIM CEMENT MAPPING LOG
CBL-VDL
GAMMA RAY-CCL**

County: GARFIELD
 Field: MAMM CREEK
 Location: SHL: 2483 FSL & 1852 FEL
 Well: ALP FEE 24-3D (J24NW)
 Company: ENCANA OIL & GAS (USA) INC

LOCATION			
SHL: 2483 FSL & 1852 FEL BHL: 1289 FNL & 2607 FWL	Elev.: K.B. 5702.00 ft G.L. 5680.00 ft D.F. 5701.00 ft		
Permanent Datum: _____	GROUND LEVEL _____	Elev.: 5680.00 ft	
Log Measured From: _____	KELLY BUSHING _____	22.00 ft	above Perm. Datum
Drilling Measured From: _____	KELLY BUSHING _____		
API Serial No. _____	Section _____	Township _____	Range _____
05-045-21803-0C	24	6S	93W

Logging Date	16-Aug-2013		
Run Number	1		
Depth Driller	8115 ft		
Schlumberger Depth	8022 ft		
Bottom Log Interval	8013 ft		
Top Log Interval	60 ft		
Casing Fluid Type	FRESH WATER		
Salinity			
Density	8.4 lbm/gal		
Fluid Level	60 ft		
BIT/CASING/TUBING STRING			
Bit Size	7.875 in		
From	5850 ft		
To	8115 ft		
Casing/Tubing Size	4.500 in		
Weight	11.6 lbm/ft		
Grade	S-80		
From	22 ft		
To	8095 ft		
Maximum Recorded Temperatures	217 degF		
Logger On Bottom	16-Aug-2013	5:45	
Unit Number	391	GRAND JUNCTION	
Recorded By	KIRSTIE BUNTING		
Witnessed By	BILLY MYERS		

PVT DATA			
Oil Density		Run 1	Run 2
Water Salinity			
Gas Gravity			
Bo			
Bw			
1/Bg			
Bubble Point Pressure			
Bubble Point Temperature			
Solution GOR			
Maximum Deviation			
CEMENTING DATA			
Primary/Squeeze		Primary	
Casing String No			
Lead Cement Type			
Volume			
Density			
Water Loss			
Additives			
Tail Cement Type			
Volume			
Density			
Water Loss			
Additives			
Expected Cement Top			
Logging Date			
Run Number			
Depth Driller			
Schlumberger Depth			
Bottom Log Interval			
Top Log Interval			
Casing Fluid Type			
Salinity			
Density			
Fluid Level			
BIT/CASING/TUBING STRING			
Bit Size			
From			
To			
Casing/Tubing Size			
Weight			
Grade			
From			
To			
Maximum Recorded Temperatures			
Logger On Bottom			
Unit Number			
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	Conveyance Method: Wireline
Calibration Cable Type: 1-25ZT	Number of Calibration Points: 10	Rig Type: LAND
Wheel Correction 1: -5	Calibration RMS: 3	
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.

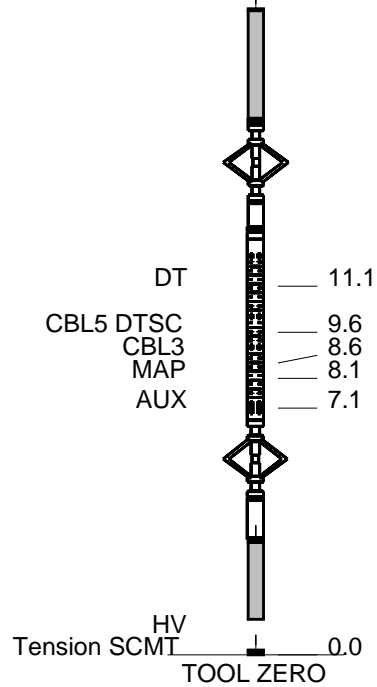
DISCLAIMER

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OTHER SERVICES1	OTHER SERVICES2
OS1: RESERVOIR SATURATION	OS1:
OS2: LOG	OS2:
OS3: SIGMA MODE	OS3:
OS4:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
FIRST RUN IN HOLE CORRELATED TO DOWN LOG	
TOOL RUN AS PER TOOL SKETCH	
ENTRANCE: 05:15	
TIME ON BOTTOM: 05:45	
EXIT: 08:00	

SCMT-CB
 SCMC-CA 8248
 SECH-CA
 CMIR-AG
 SCMS-CB 8179
 SCM-CA

20.2



AH-BNS

0.2

MAXIMUM STRING DIAMETER 1.72 IN
 MEASUREMENTS RELATIVE TO TOOL ZERO
 ALL LENGTHS IN FEET



MAIN PASS CBL VDL

MAXIS Field Log

Company: ENCAN OIL & GAS (USA) INC Well: ALP FEE 24-3D (J24NW)

Input DLIS Files

DEFAULT SCMT_RST_PSP_068LUP FN:67 PRODUCER 16-Aug-2013 05:39 8025.0 FT -2.5 FT

Output DLIS Files

DEFAULT SCMT_RST_PSP_071PUP FN:70 PRODUCER 16-Aug-2013 07:48 8029.0 FT -43.0 FT

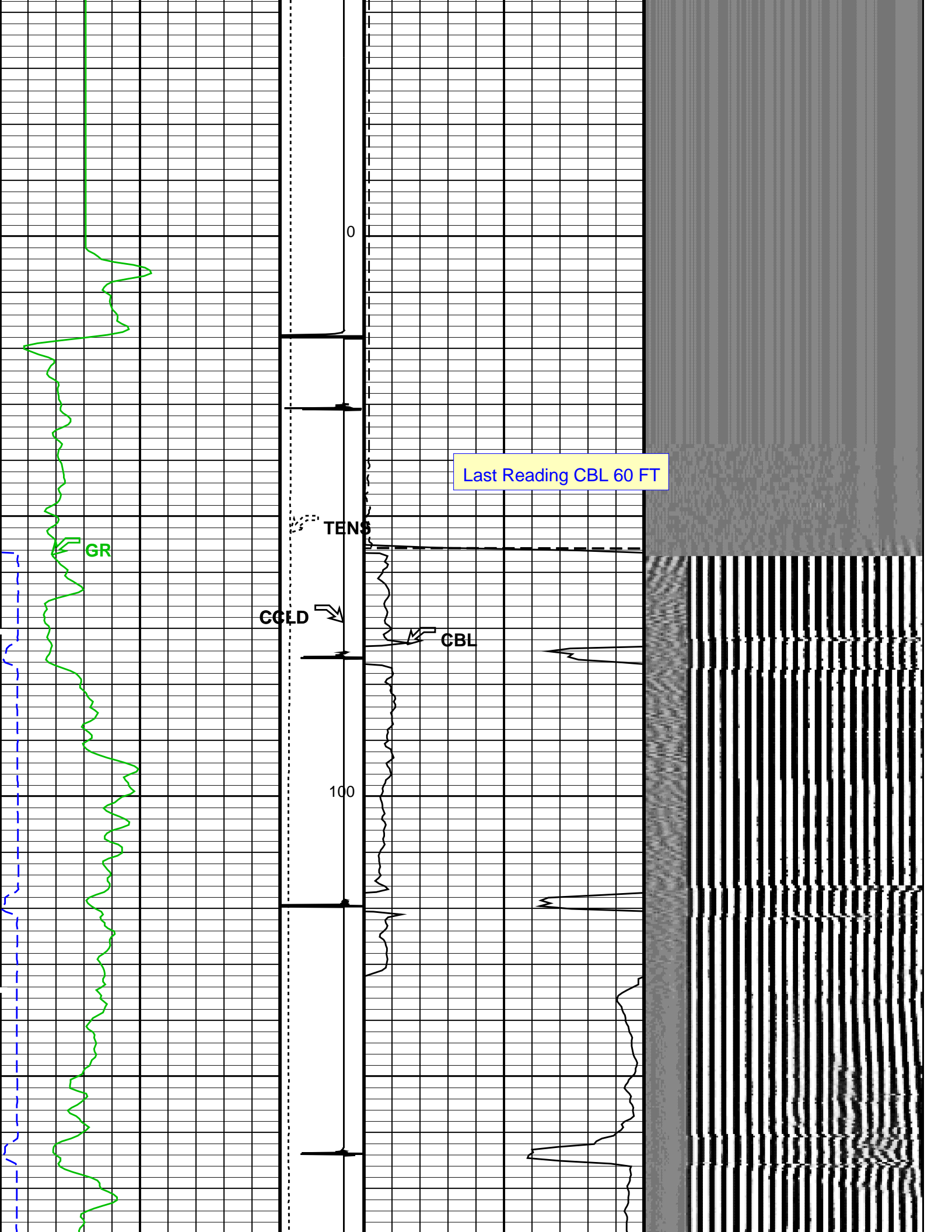
OP System Version: 19C0-187

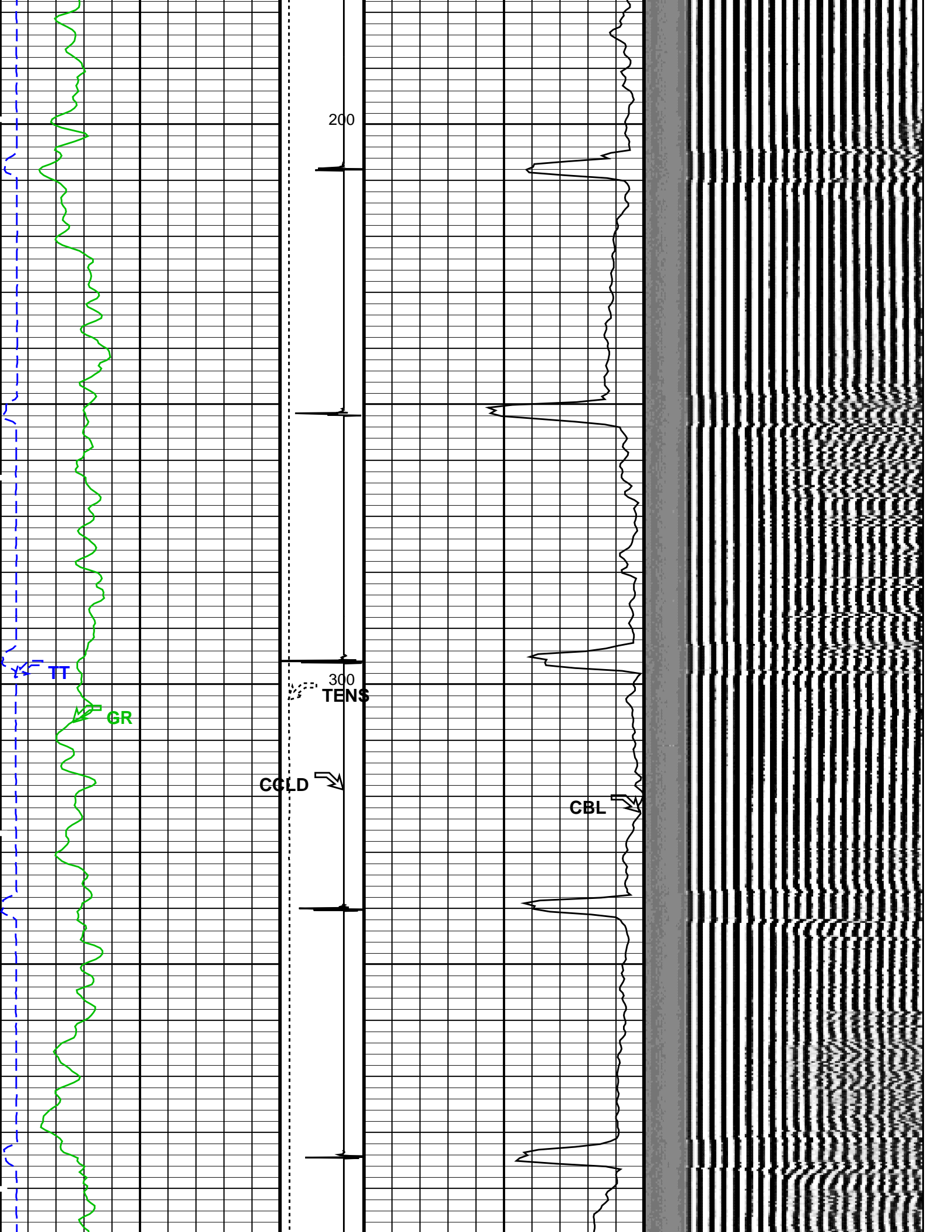
SCMT-CB SRPC-5214-H2-2012-OP1; RST-C SRPC-5214-H2-2012-OP1;
 PSPT SRPC-5214-H2-2012-OP1;

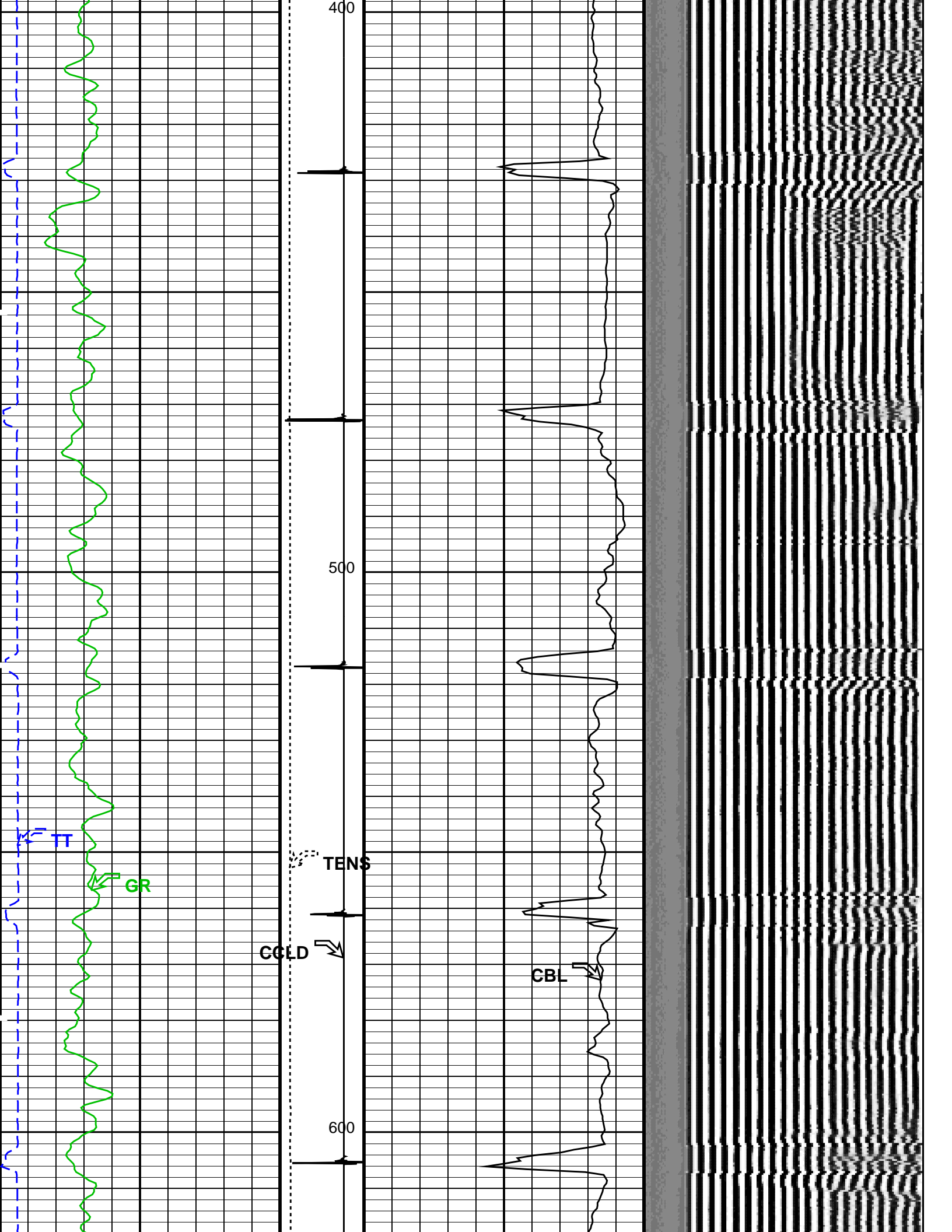
PIP SUMMARY

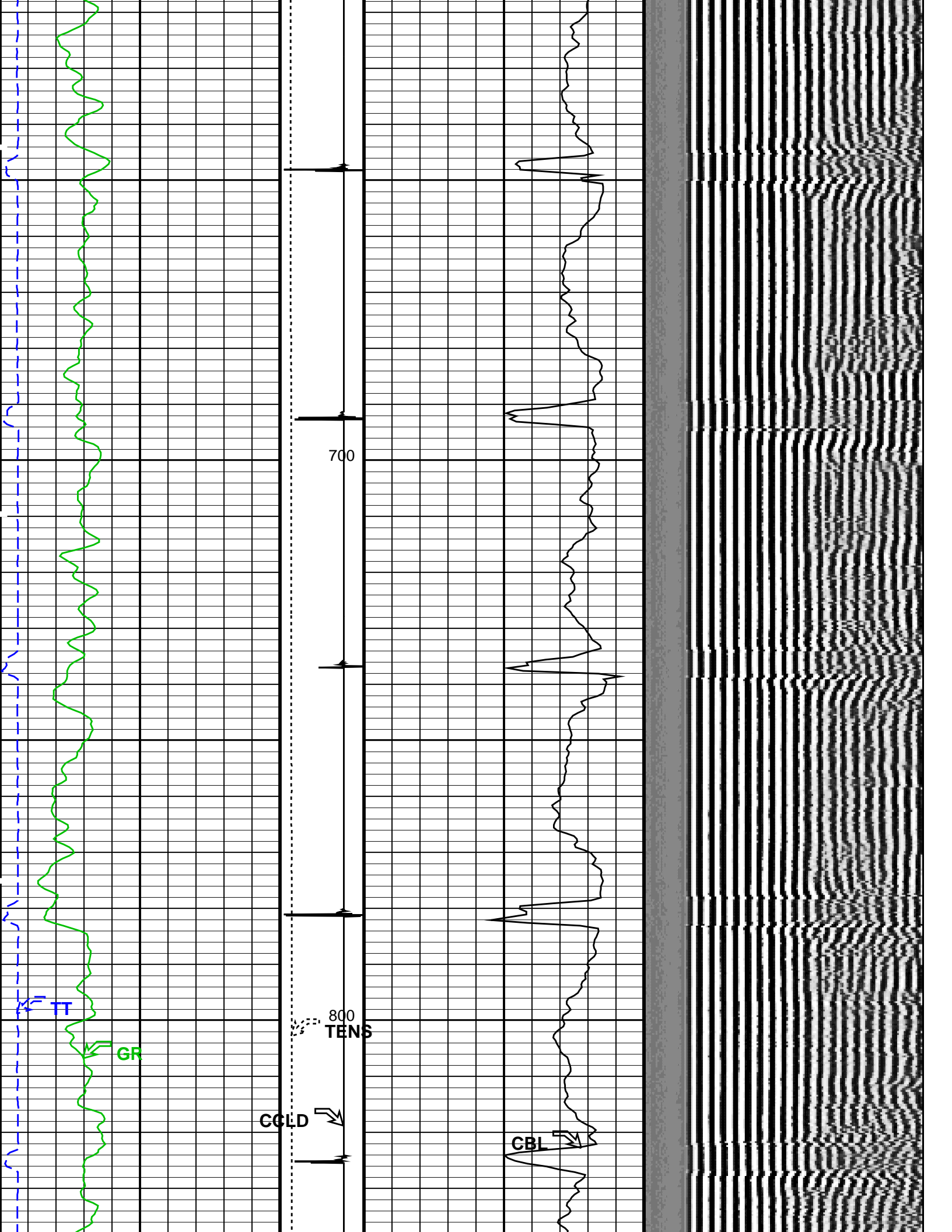
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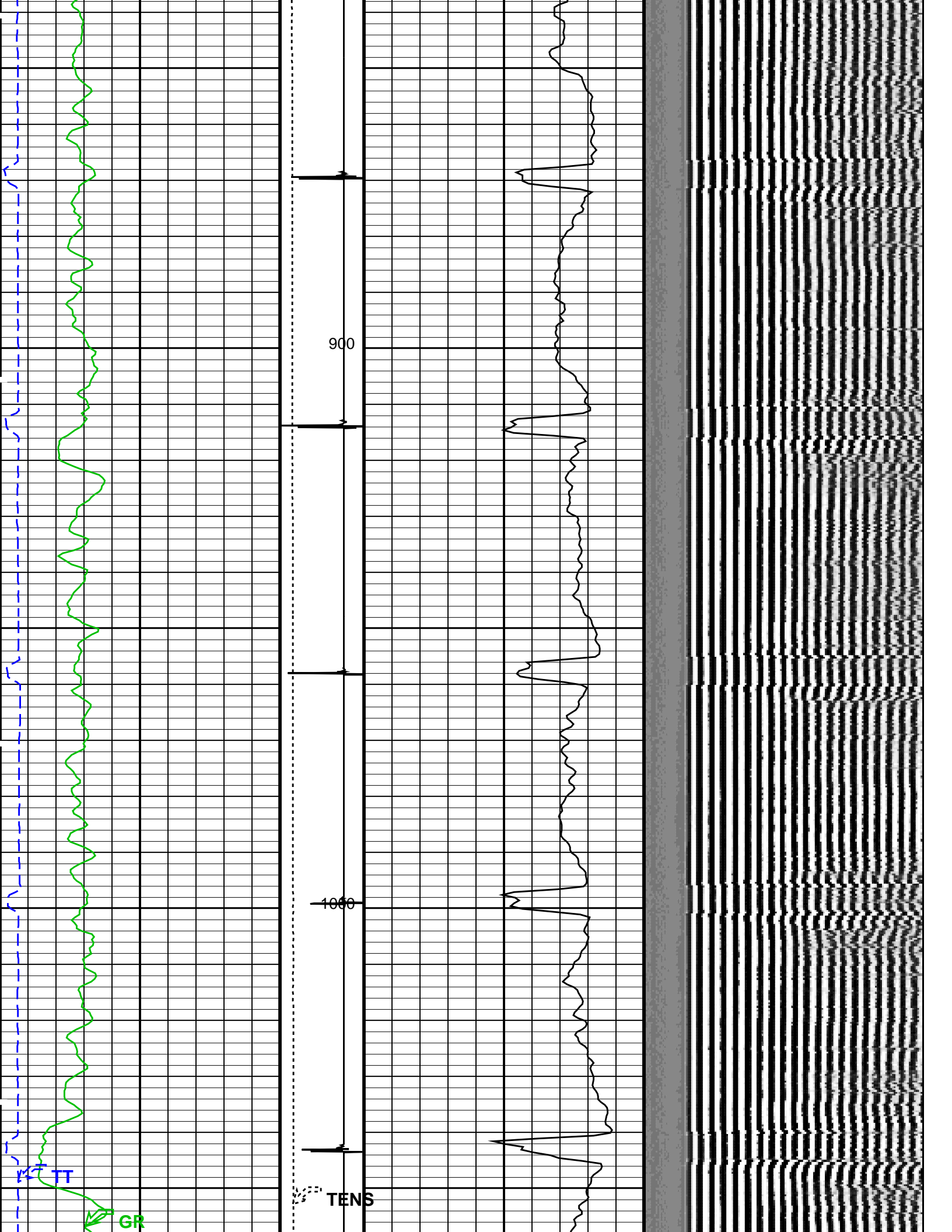
Transit Time (TT) (US)	Discriminat ed CCL (CCLD) (V)	CBL Amplitude (CBL) (MV)	
0 160	0 10 3 -1	0 100	
Gamma Ray (GR) (GAPI)	Tension (TENS) (LBF)	CBL Amplitude (CBL) (MV)	Min Amplitude Max VDL Variable Density (VDL) (US)
0 150	0 2000	0 100	200 1200

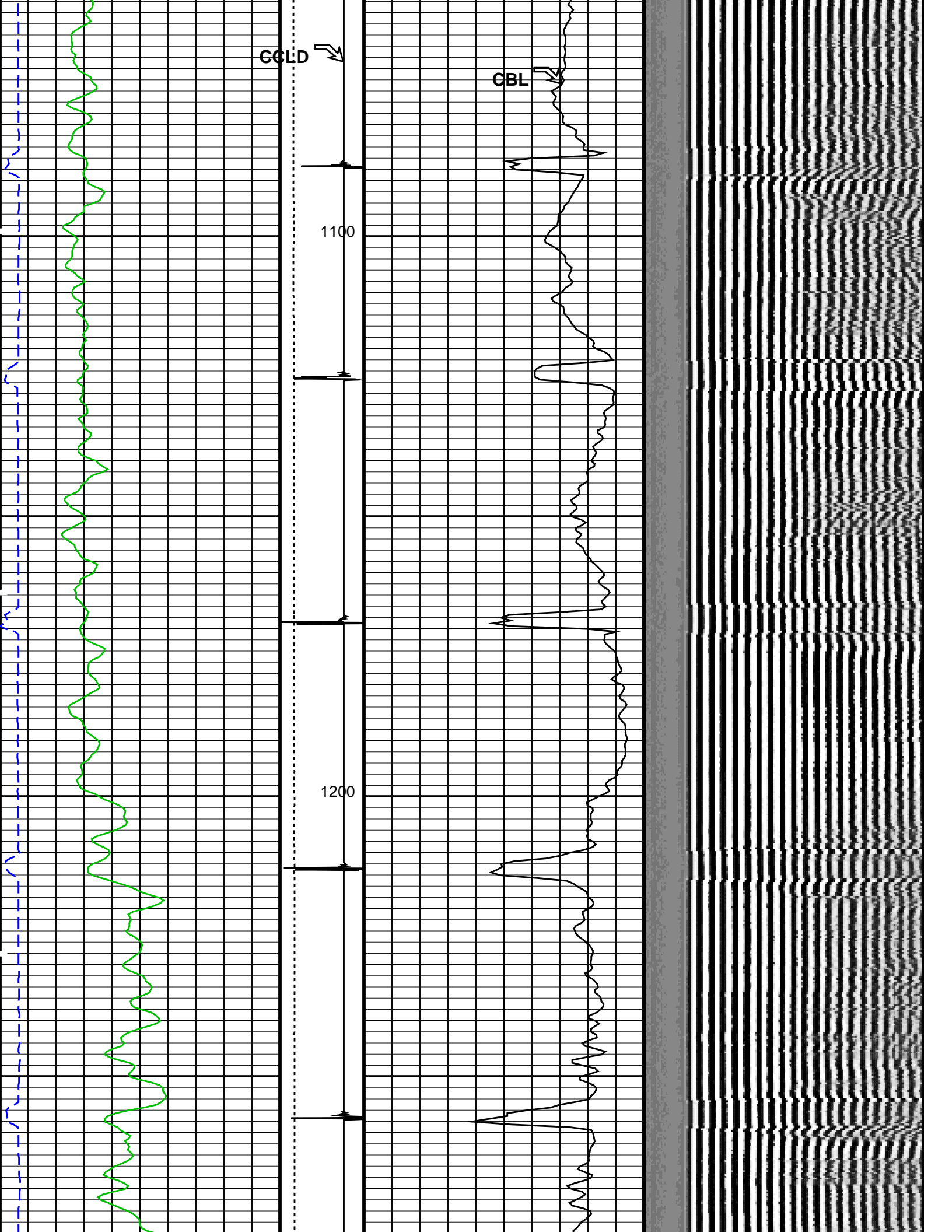












CGLD

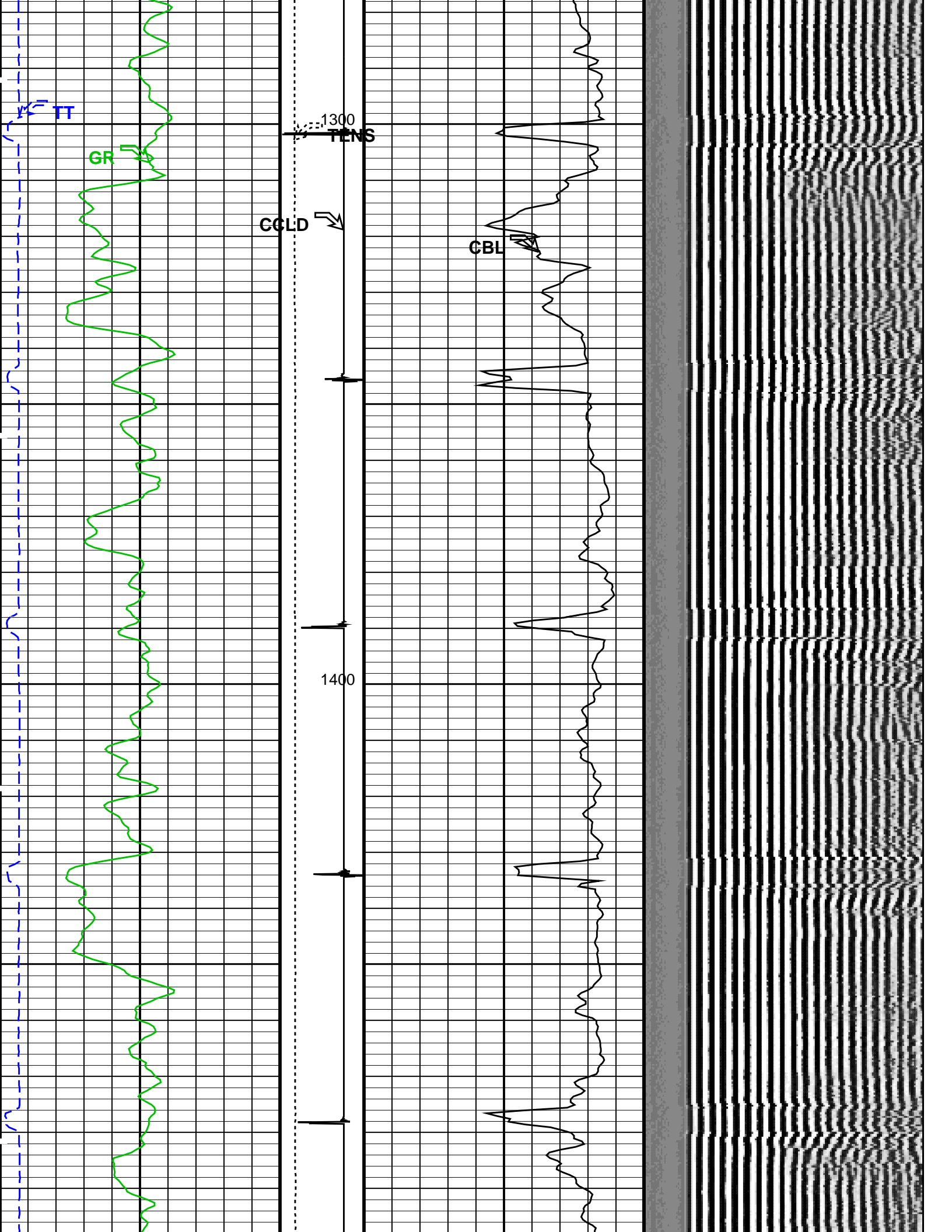


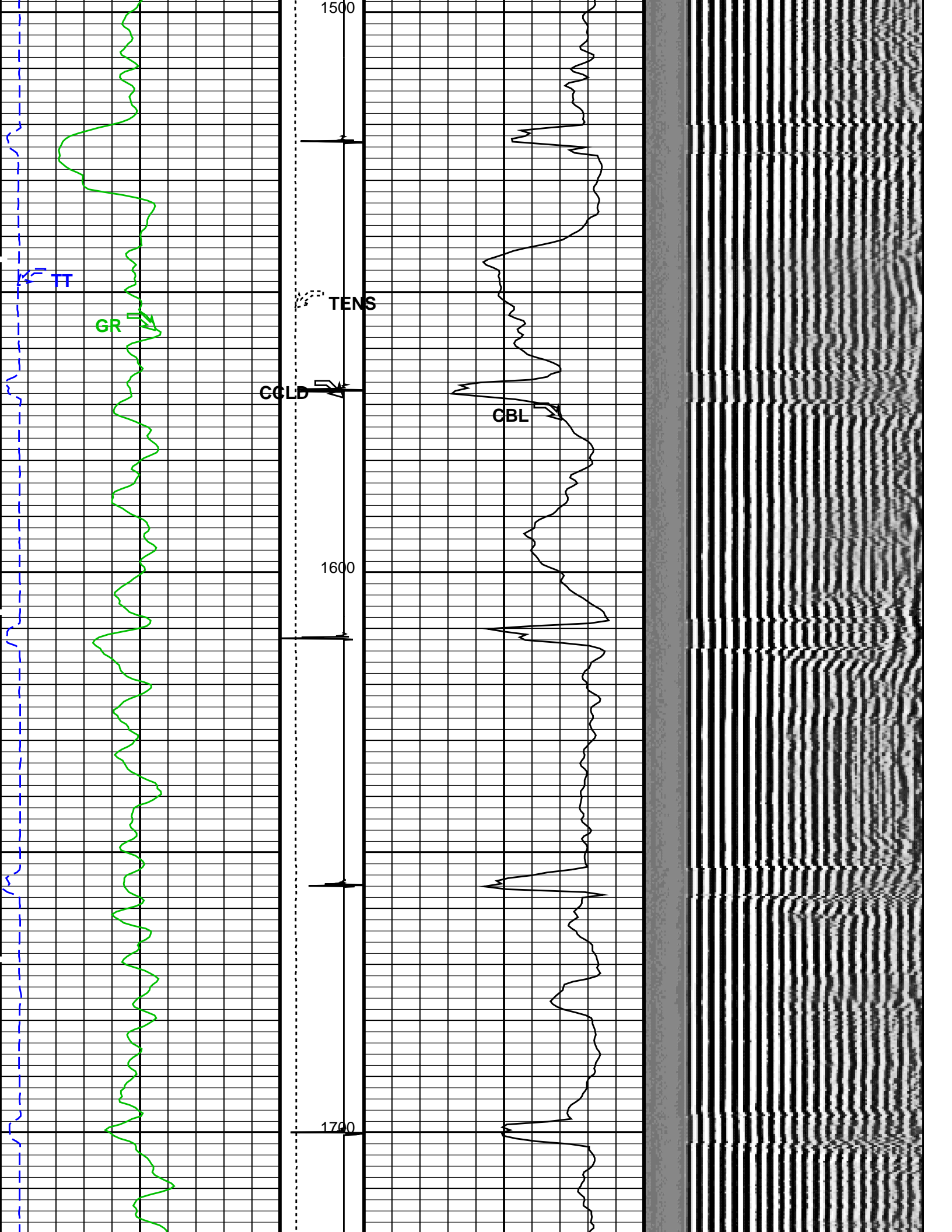
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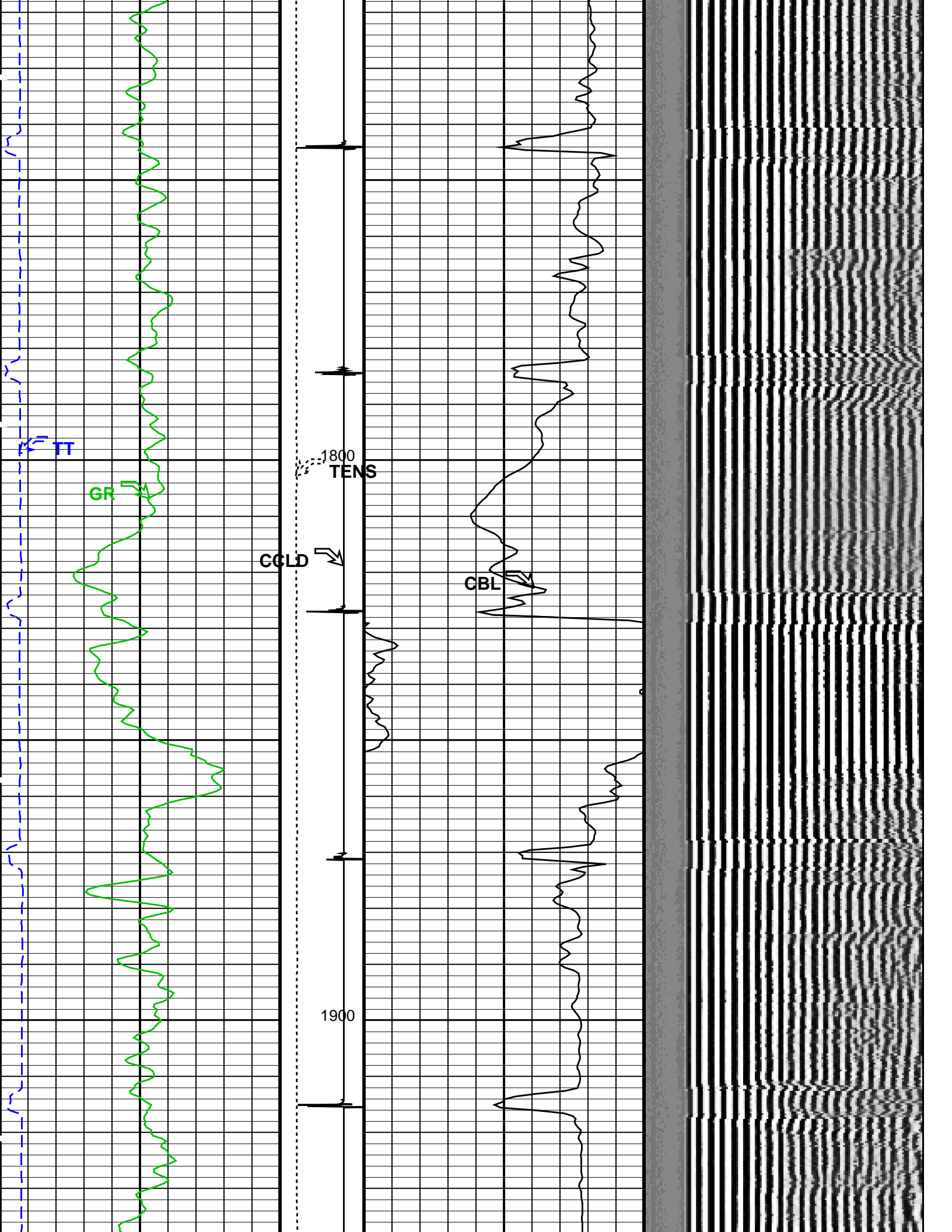


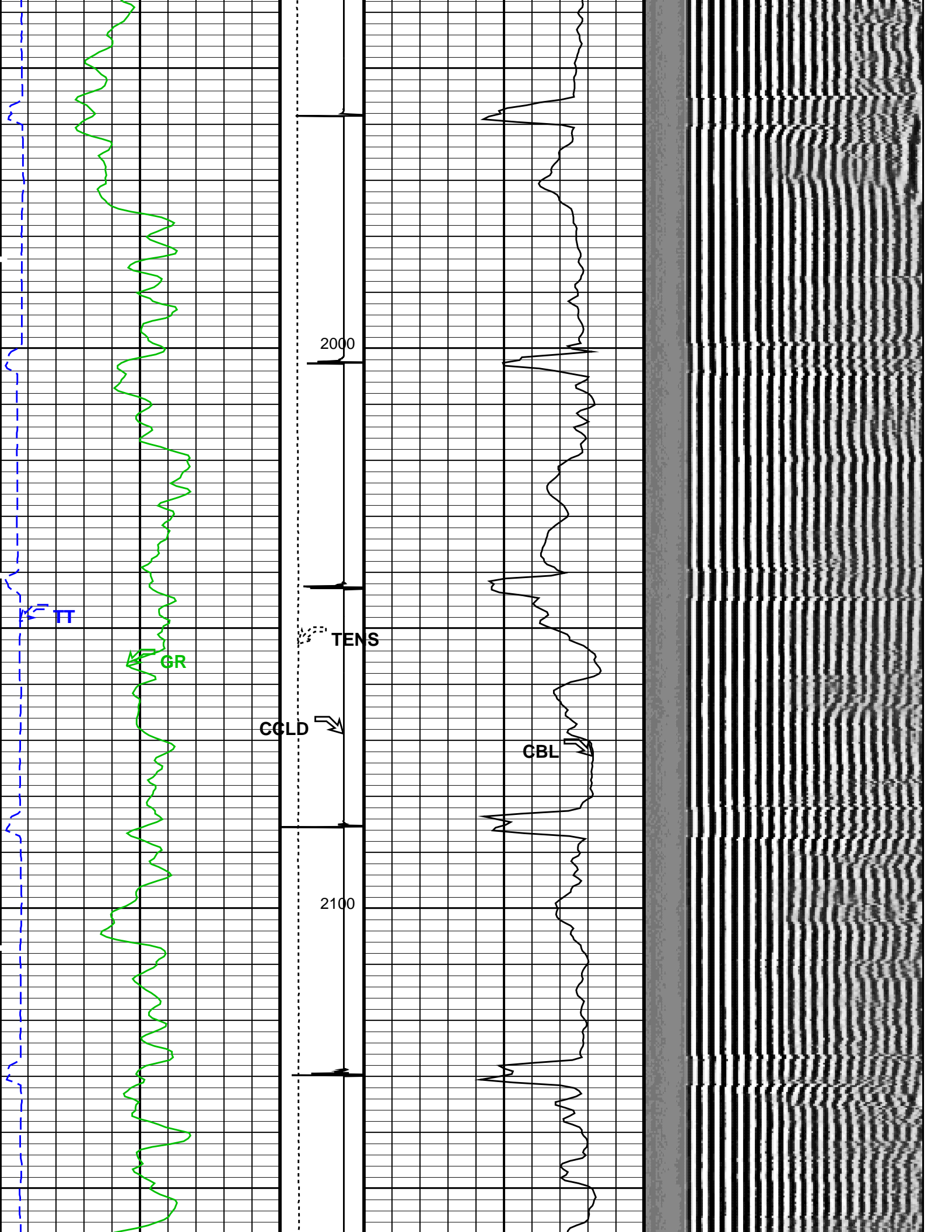
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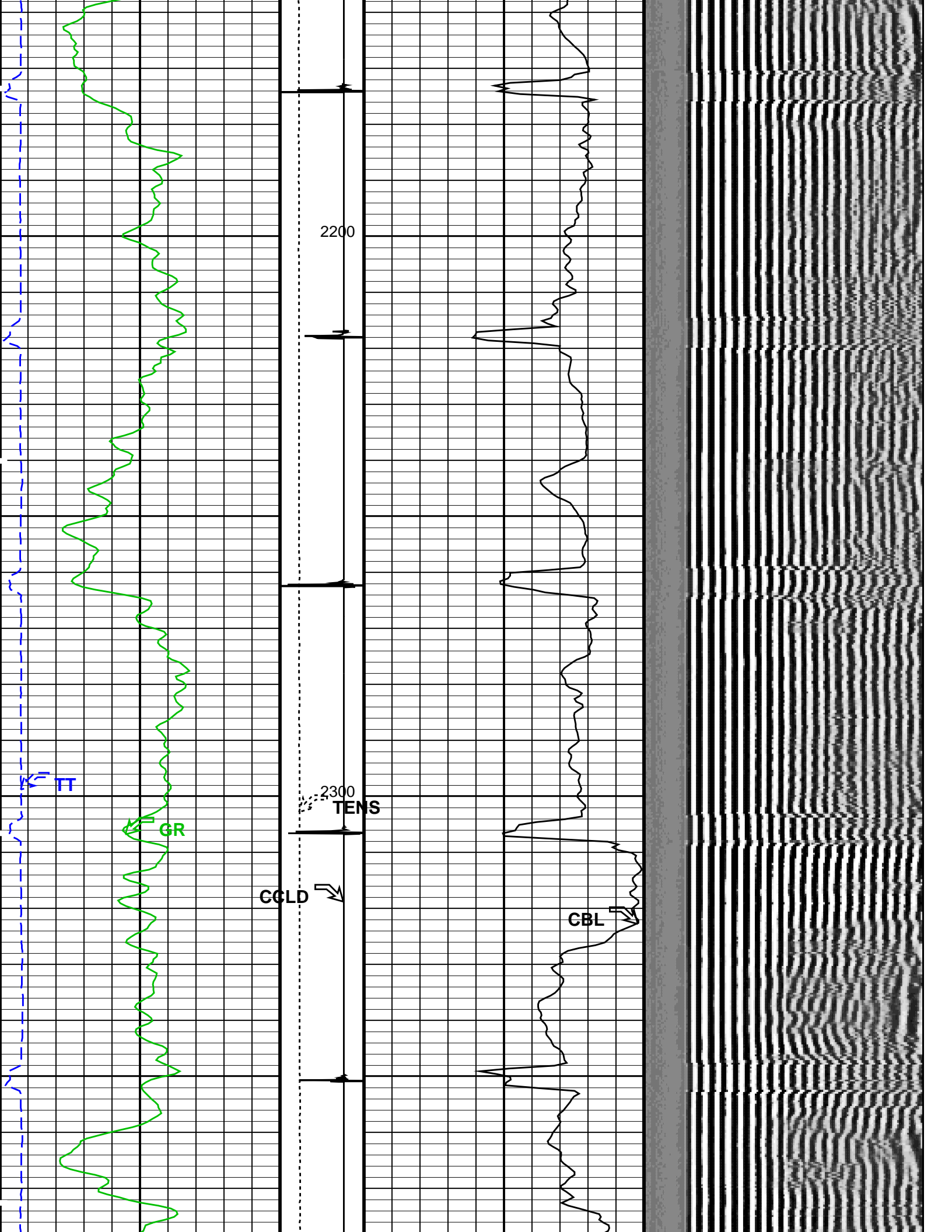
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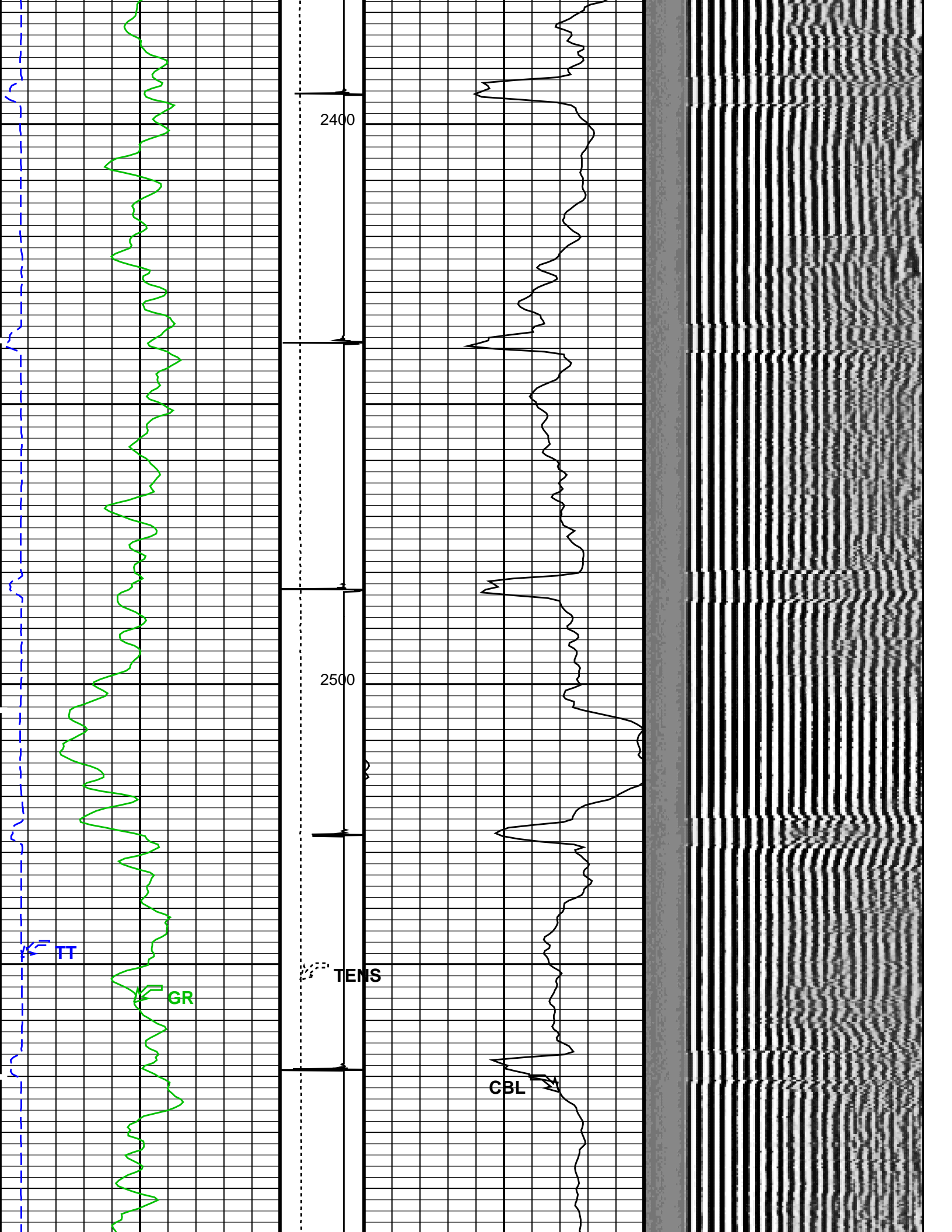


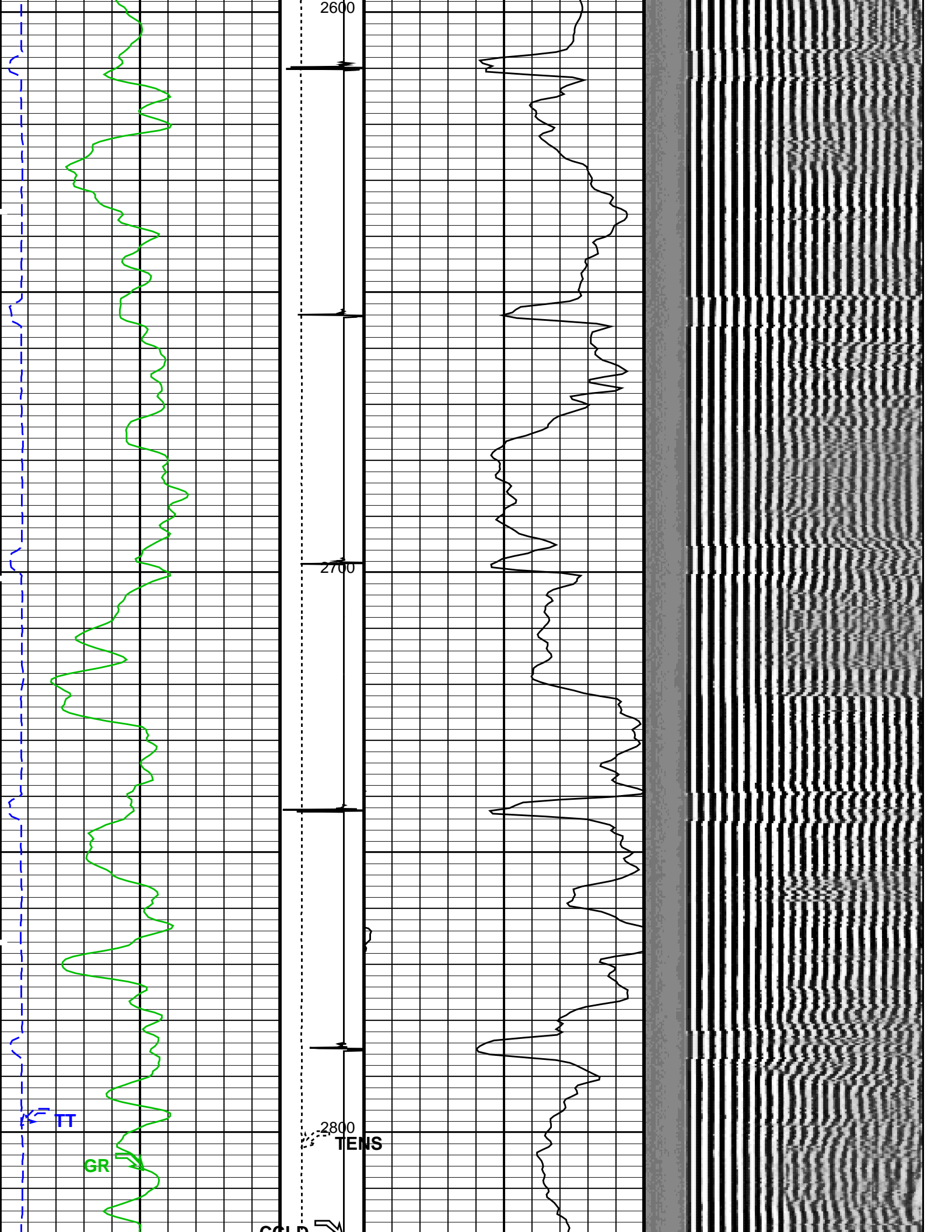


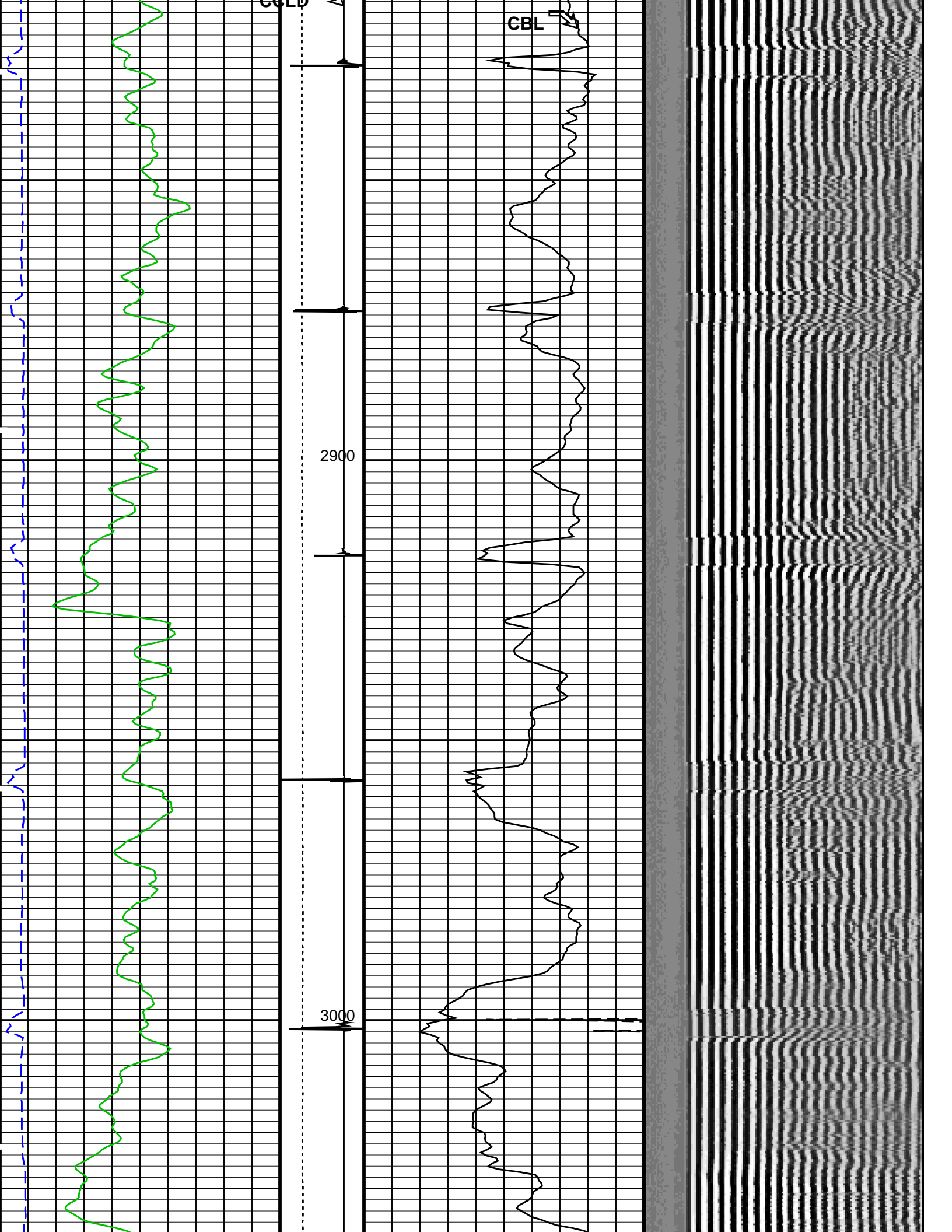


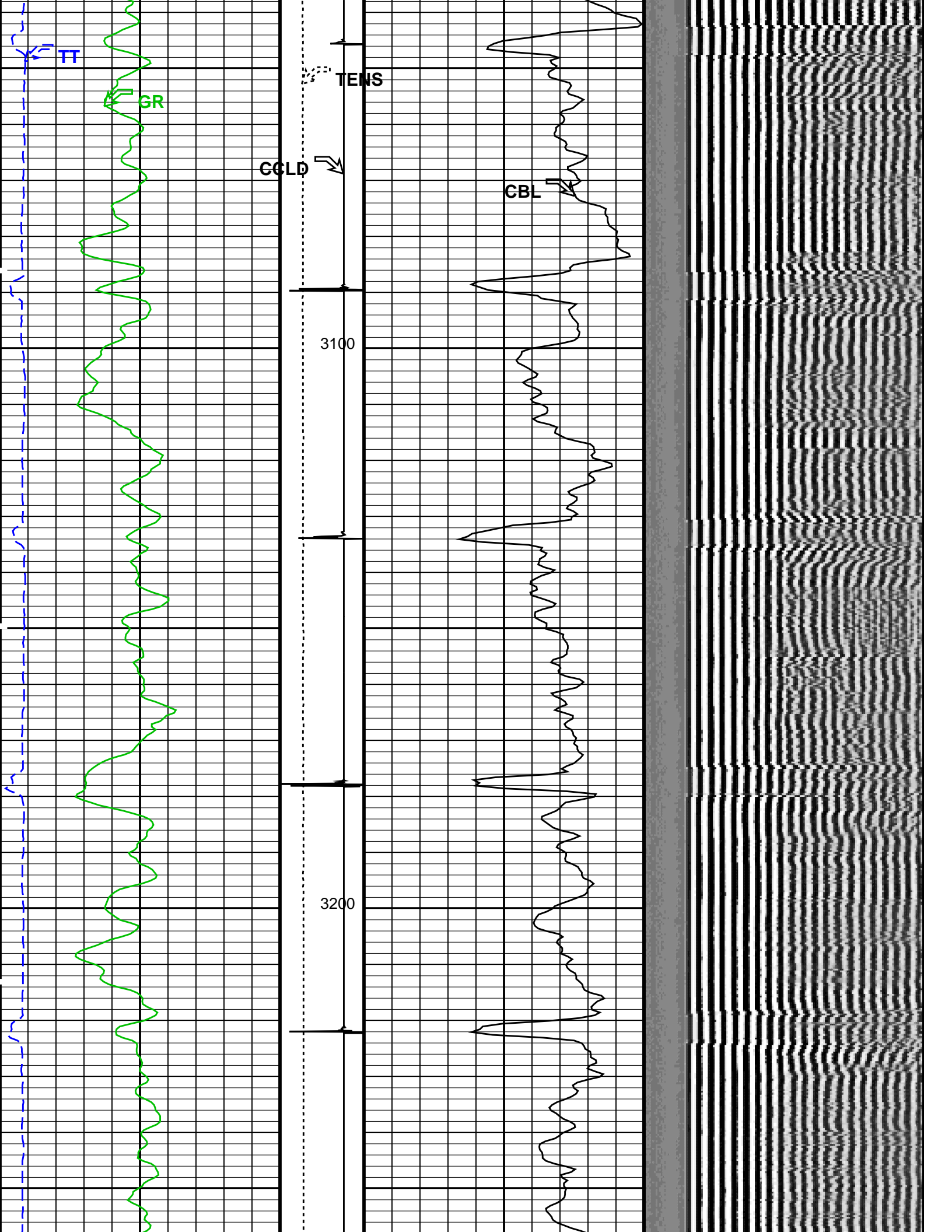


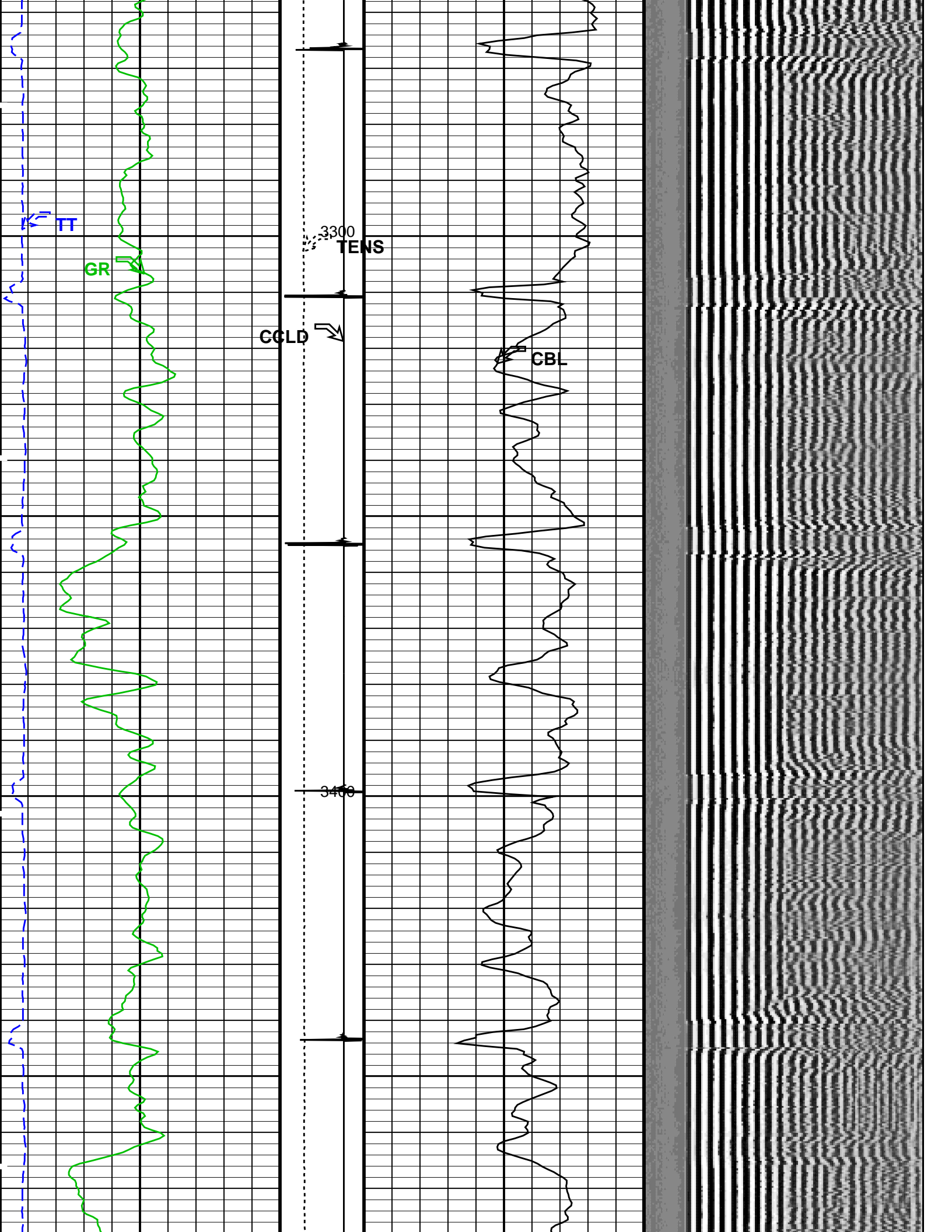


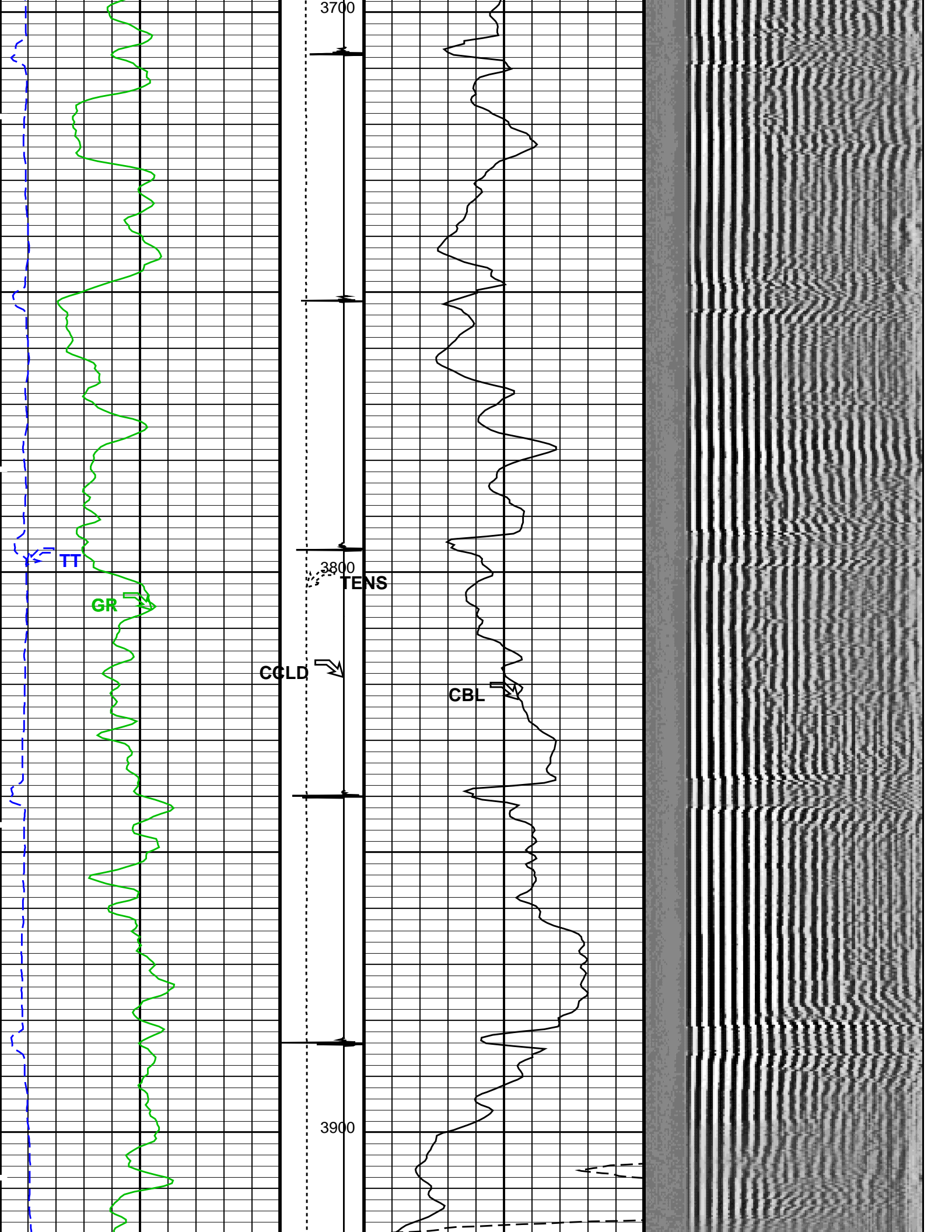


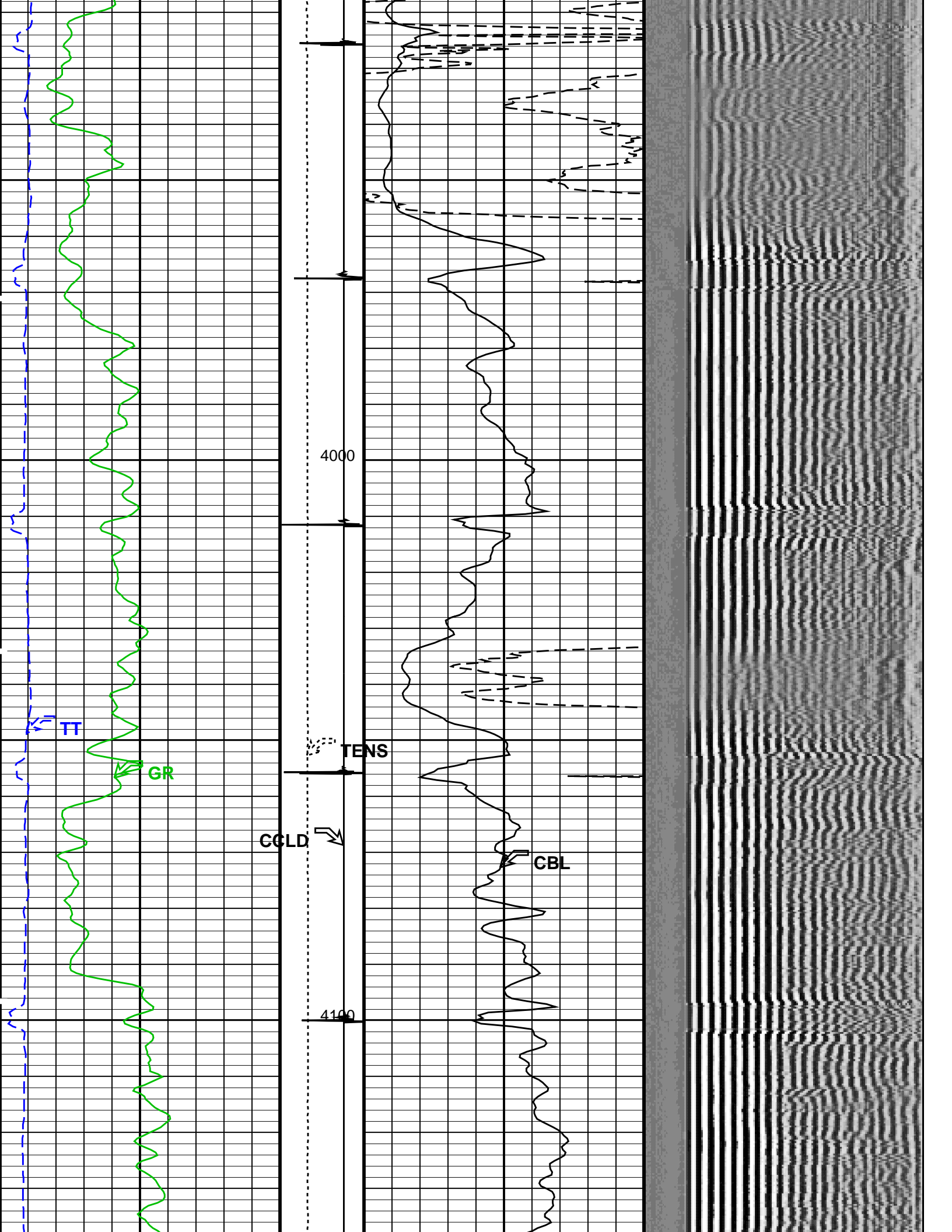


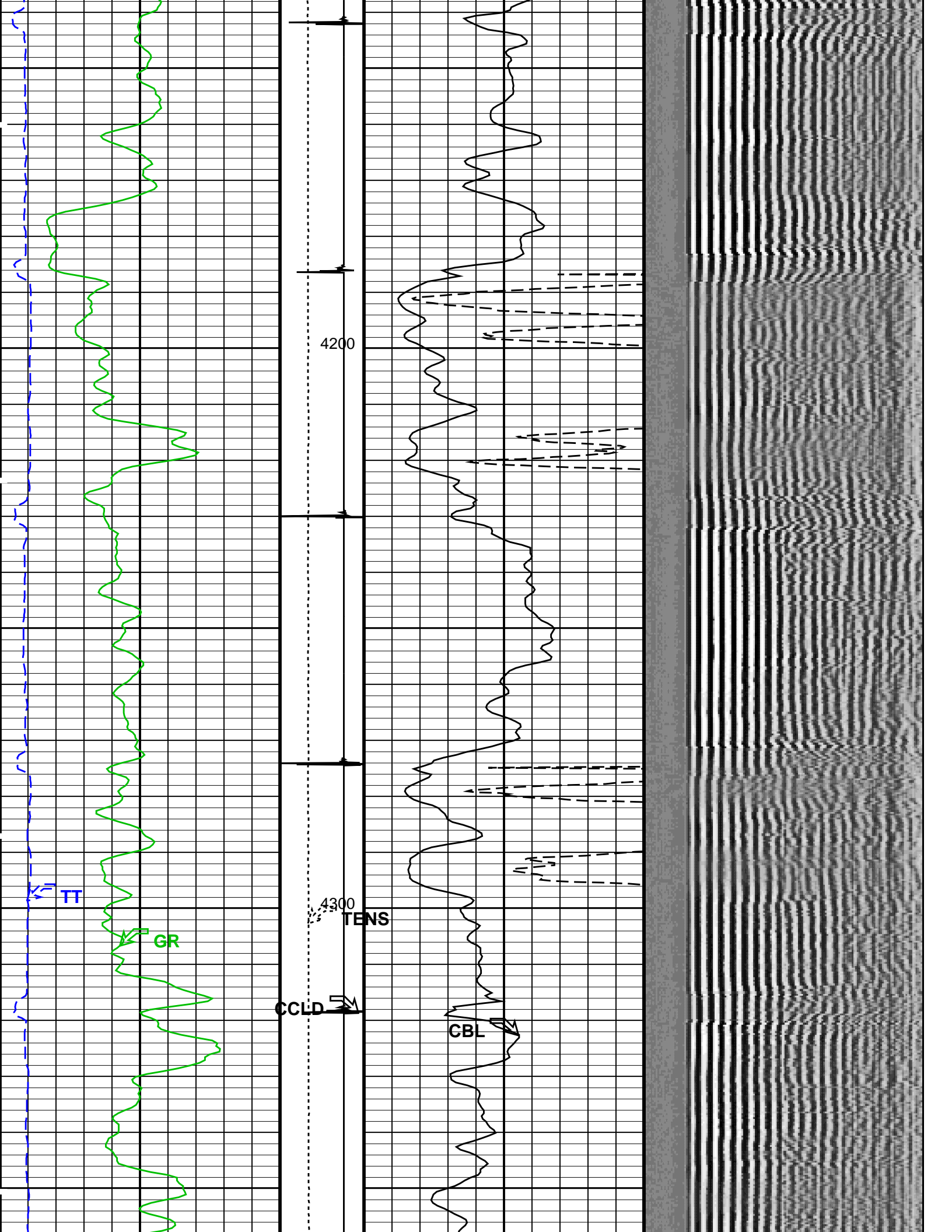


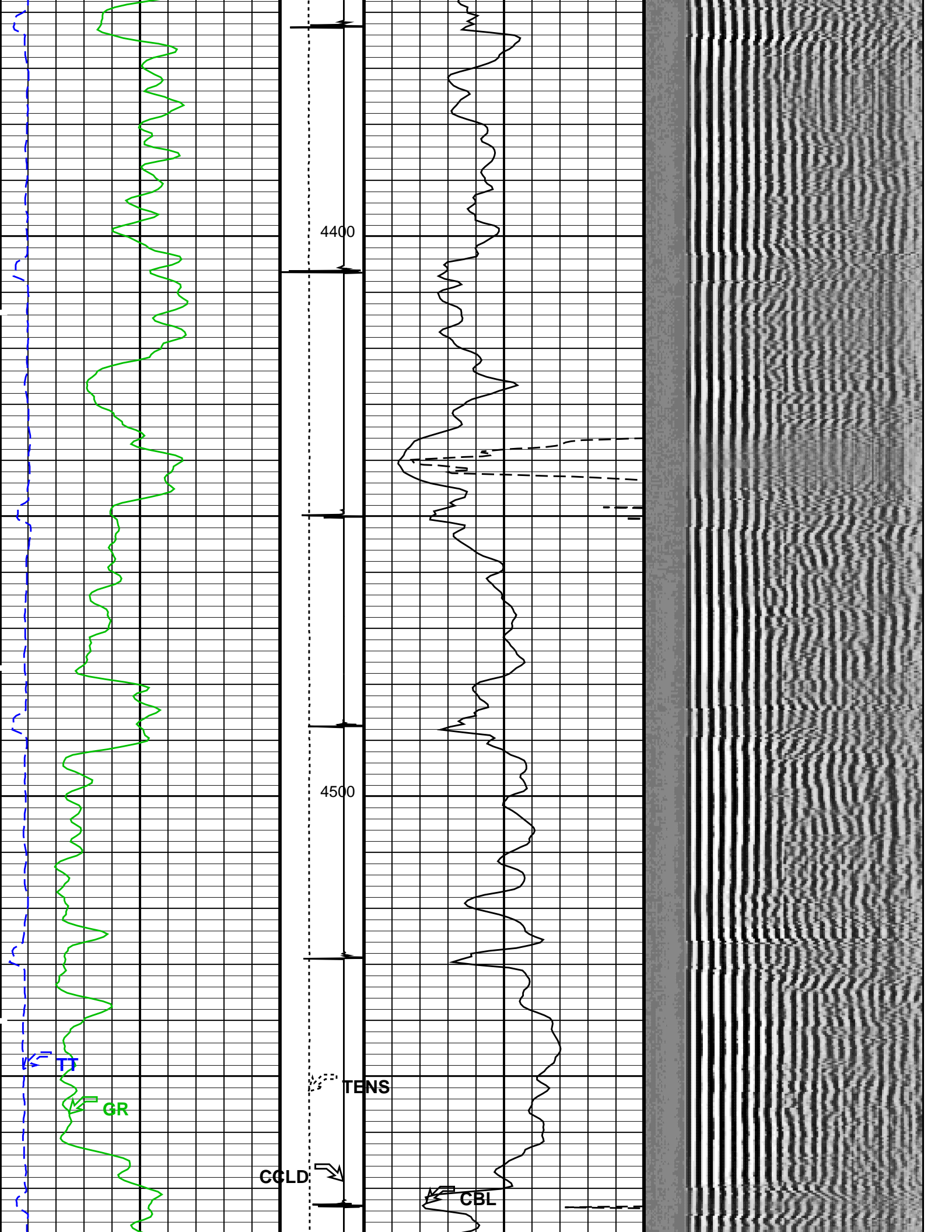


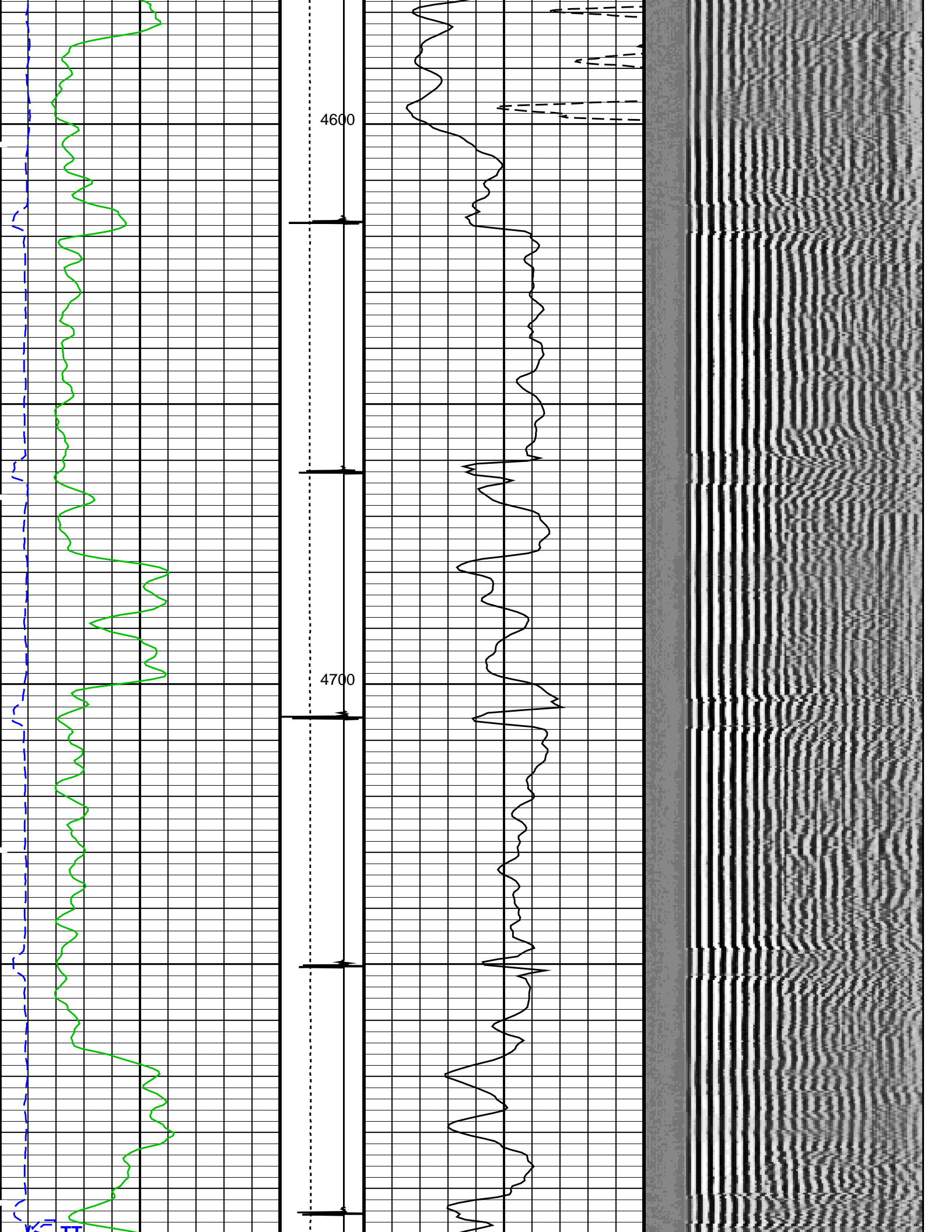


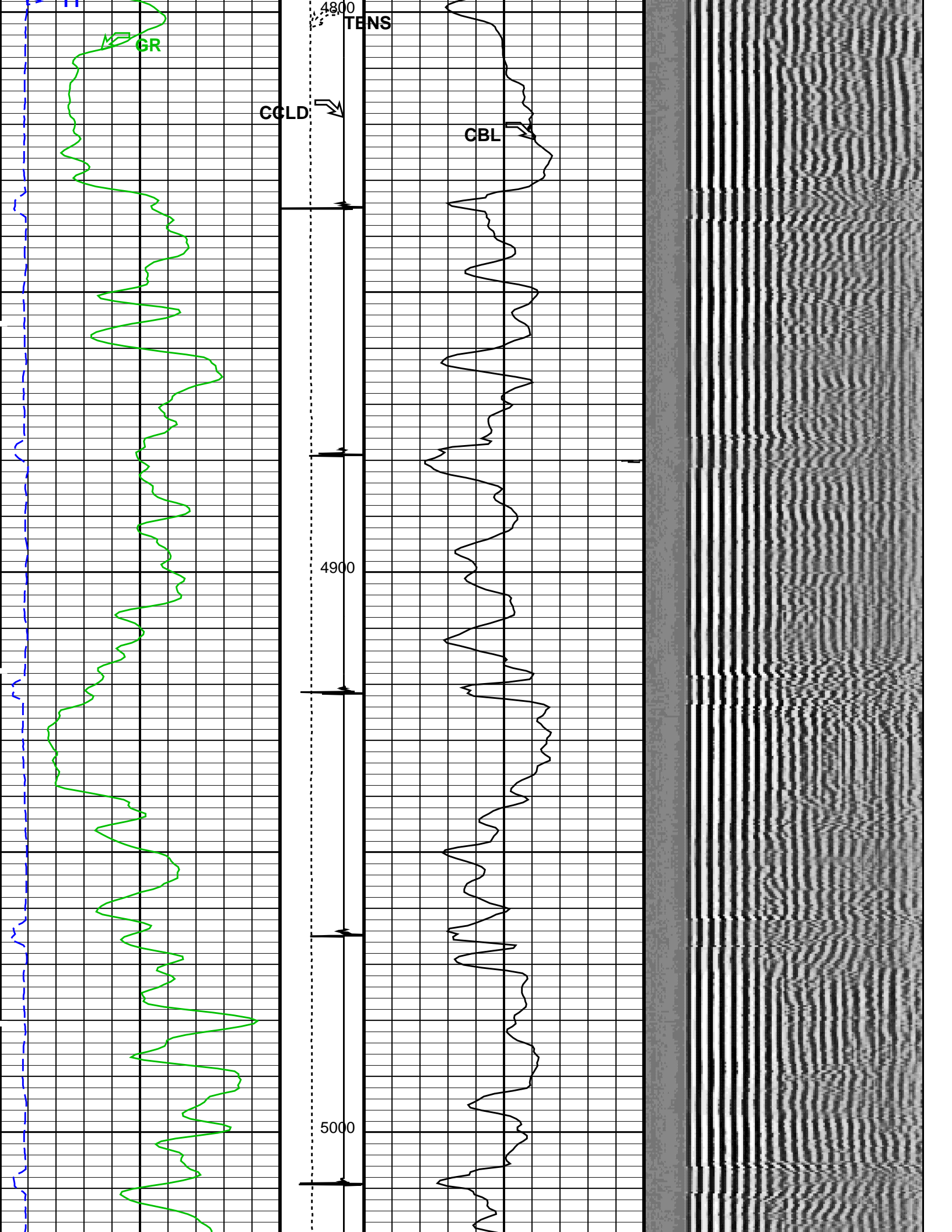


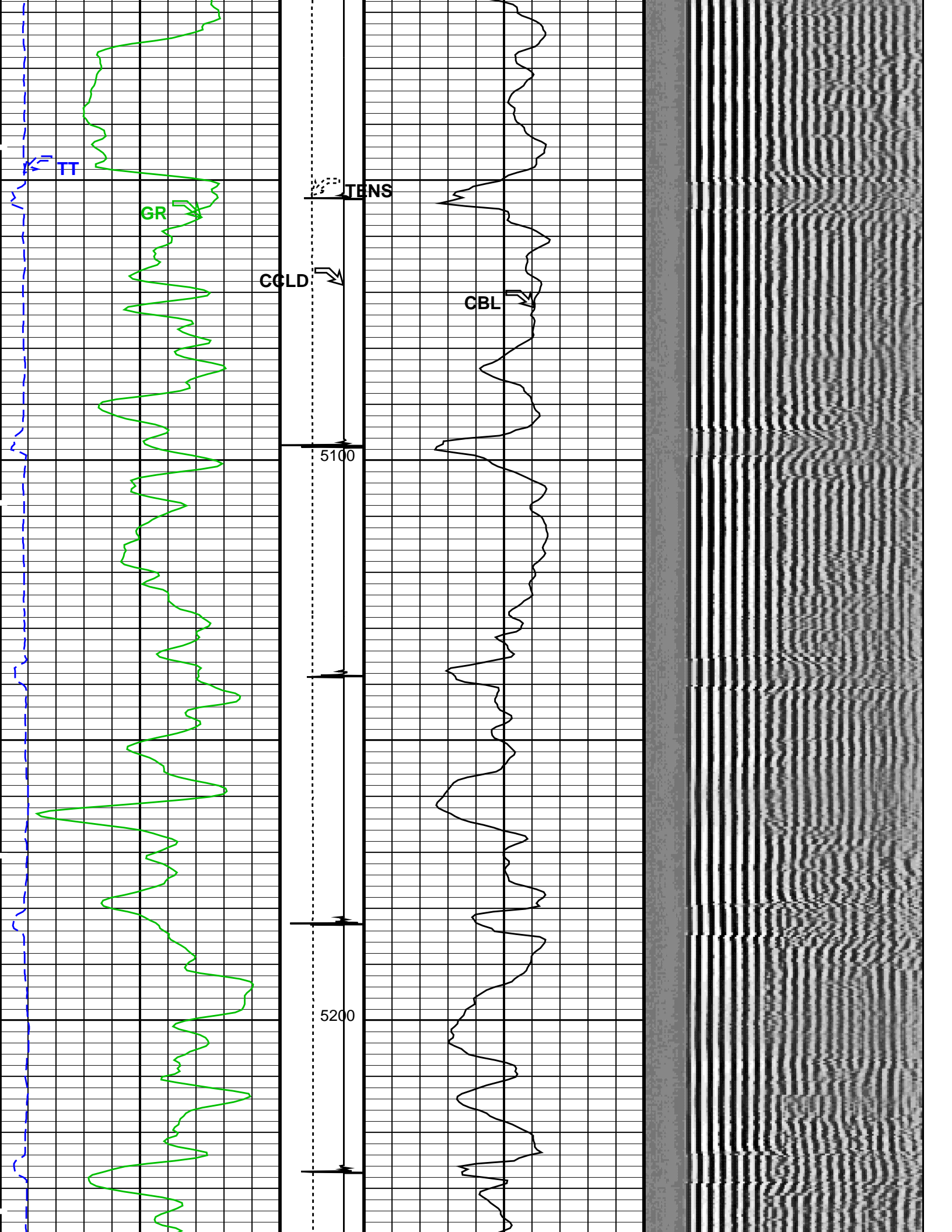


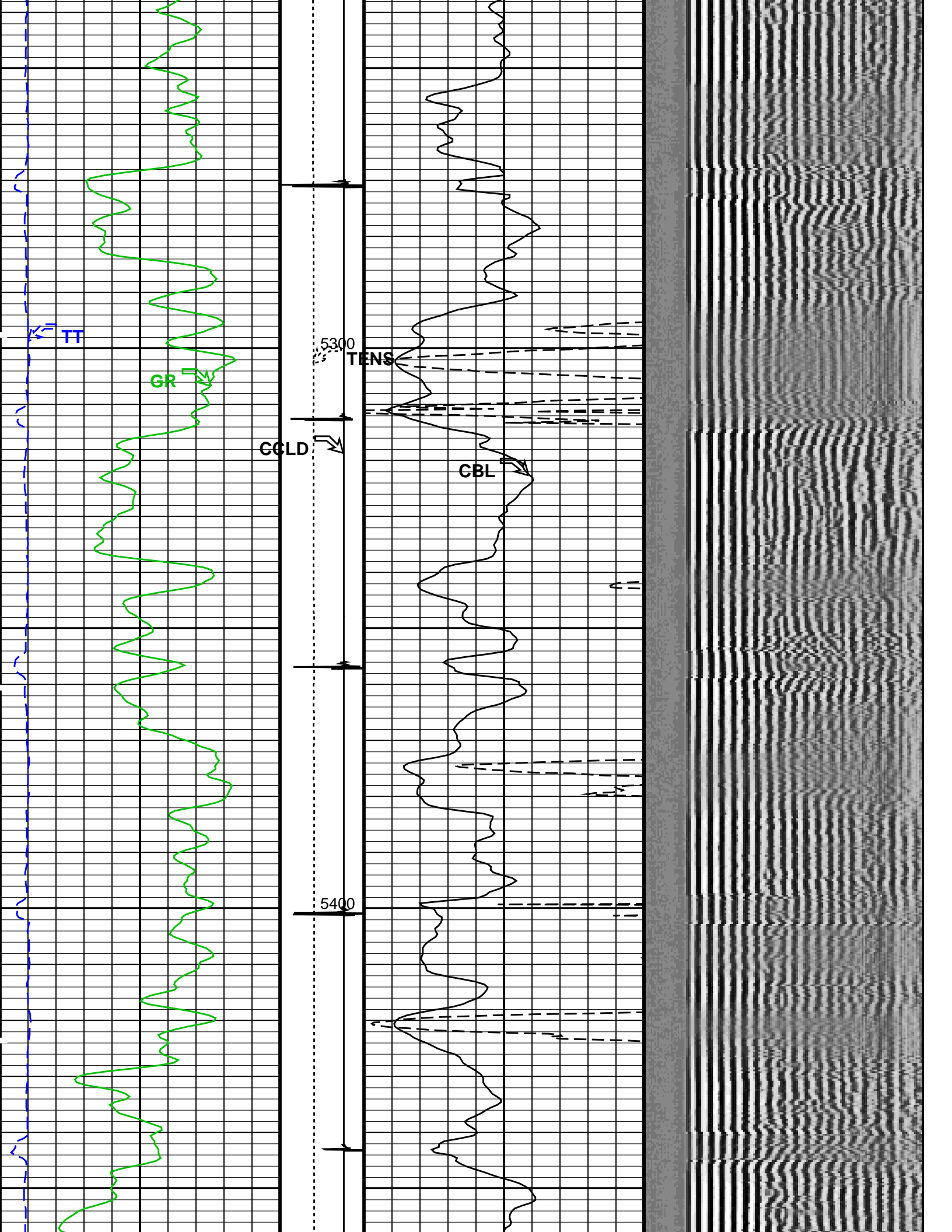


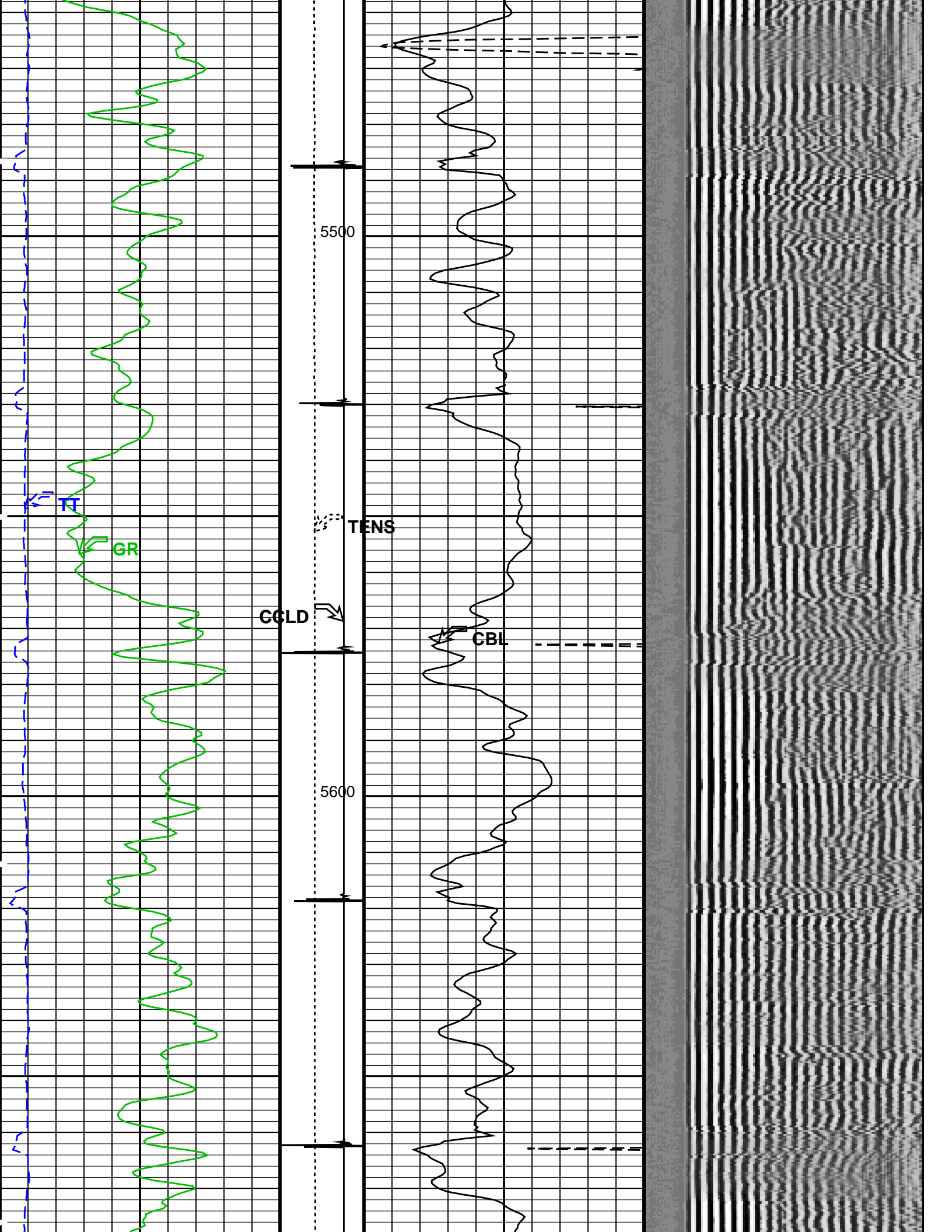


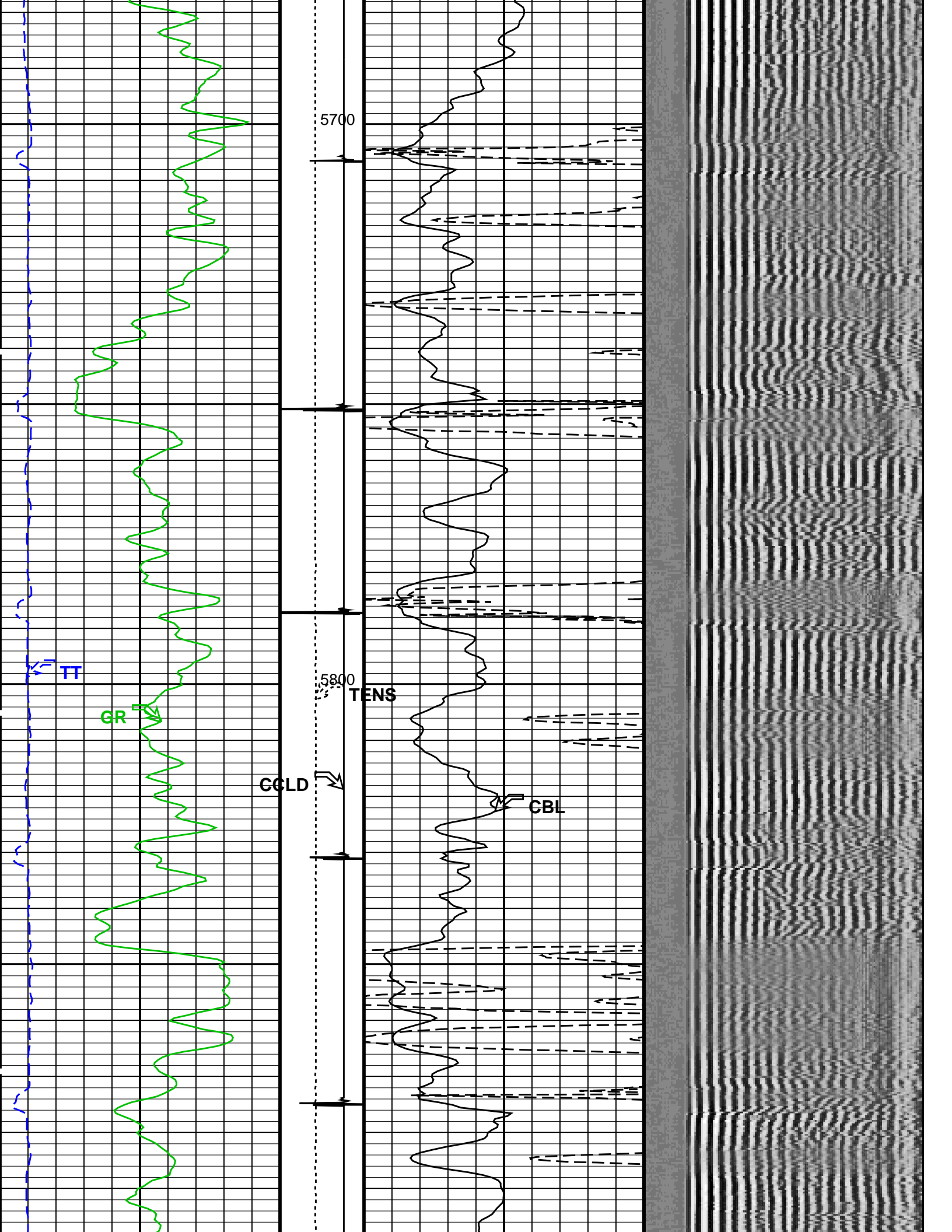


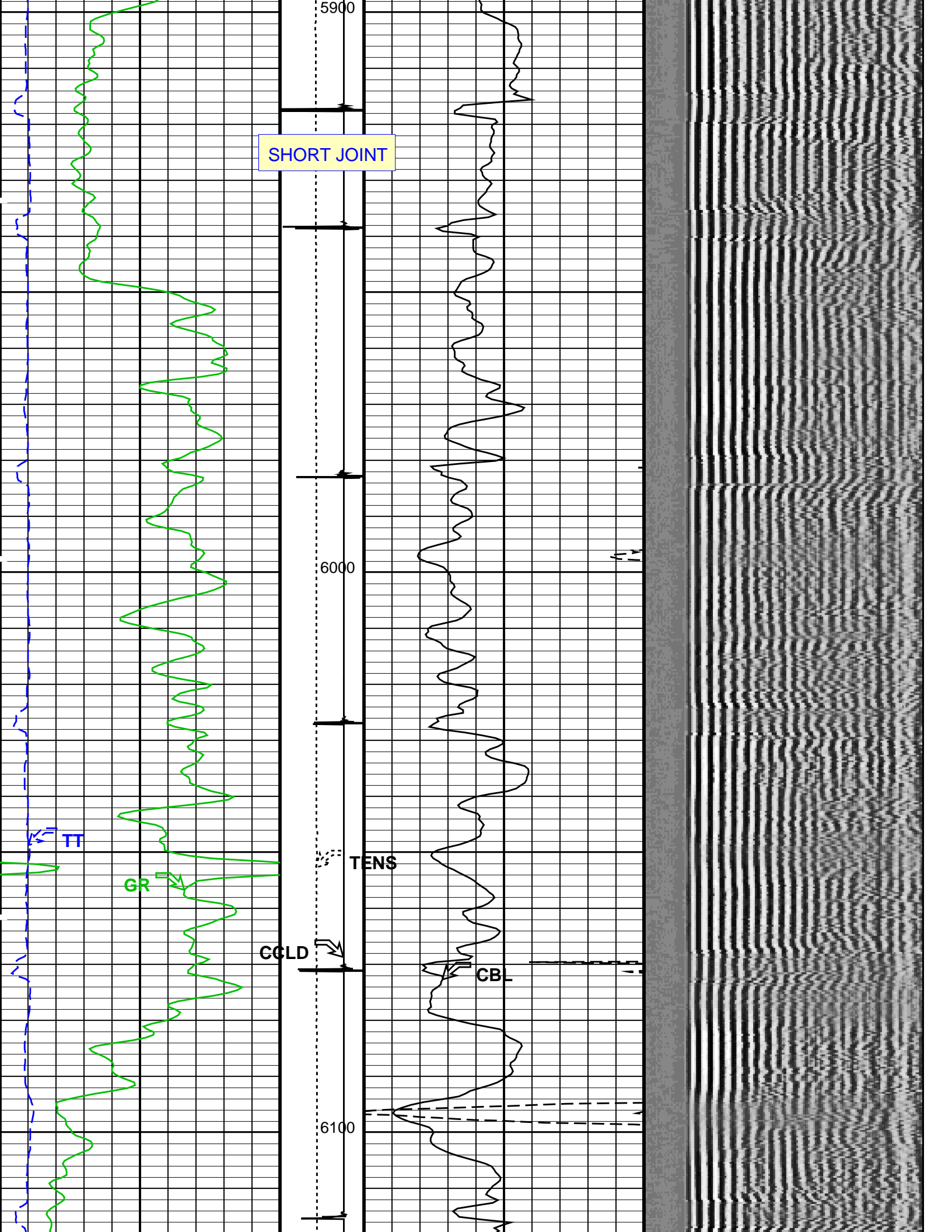


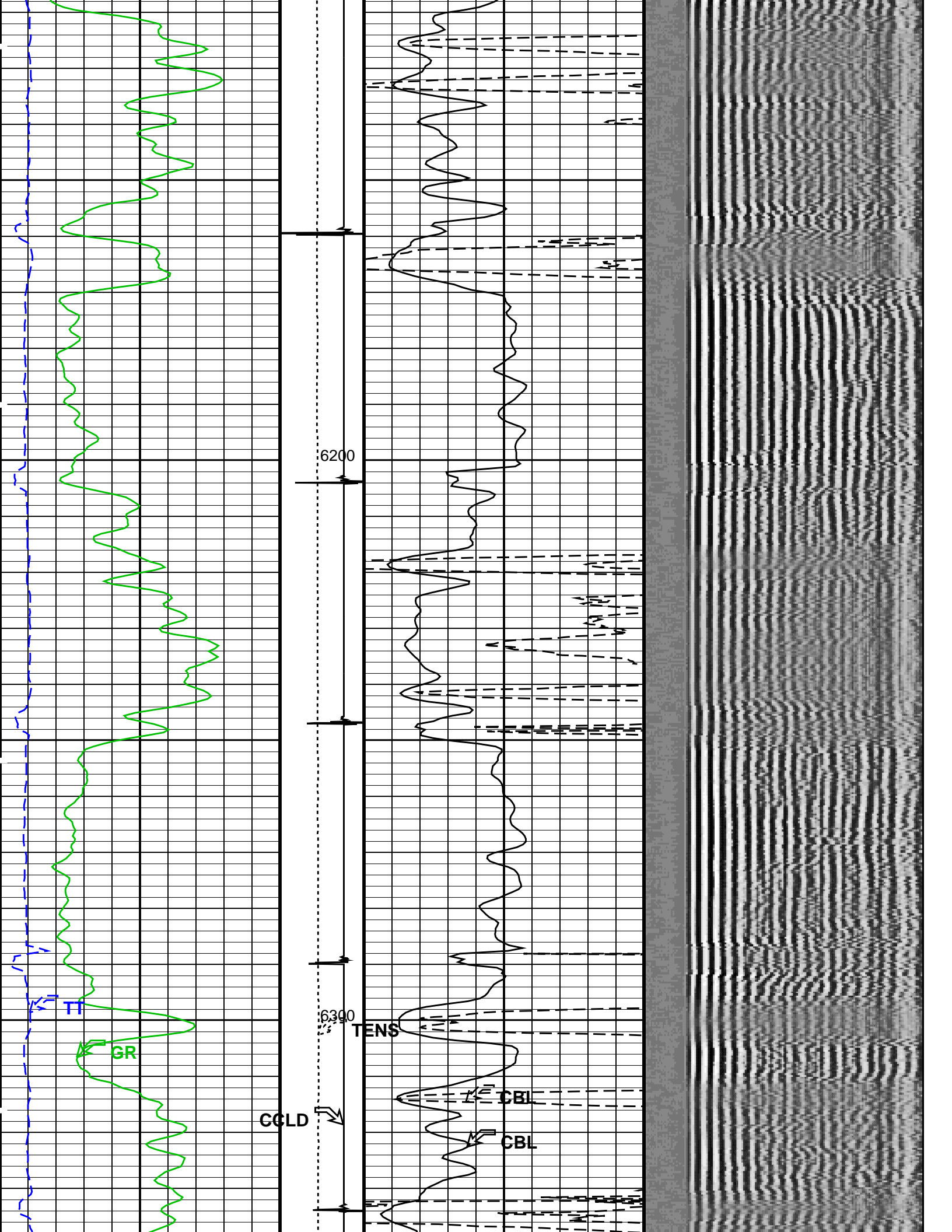


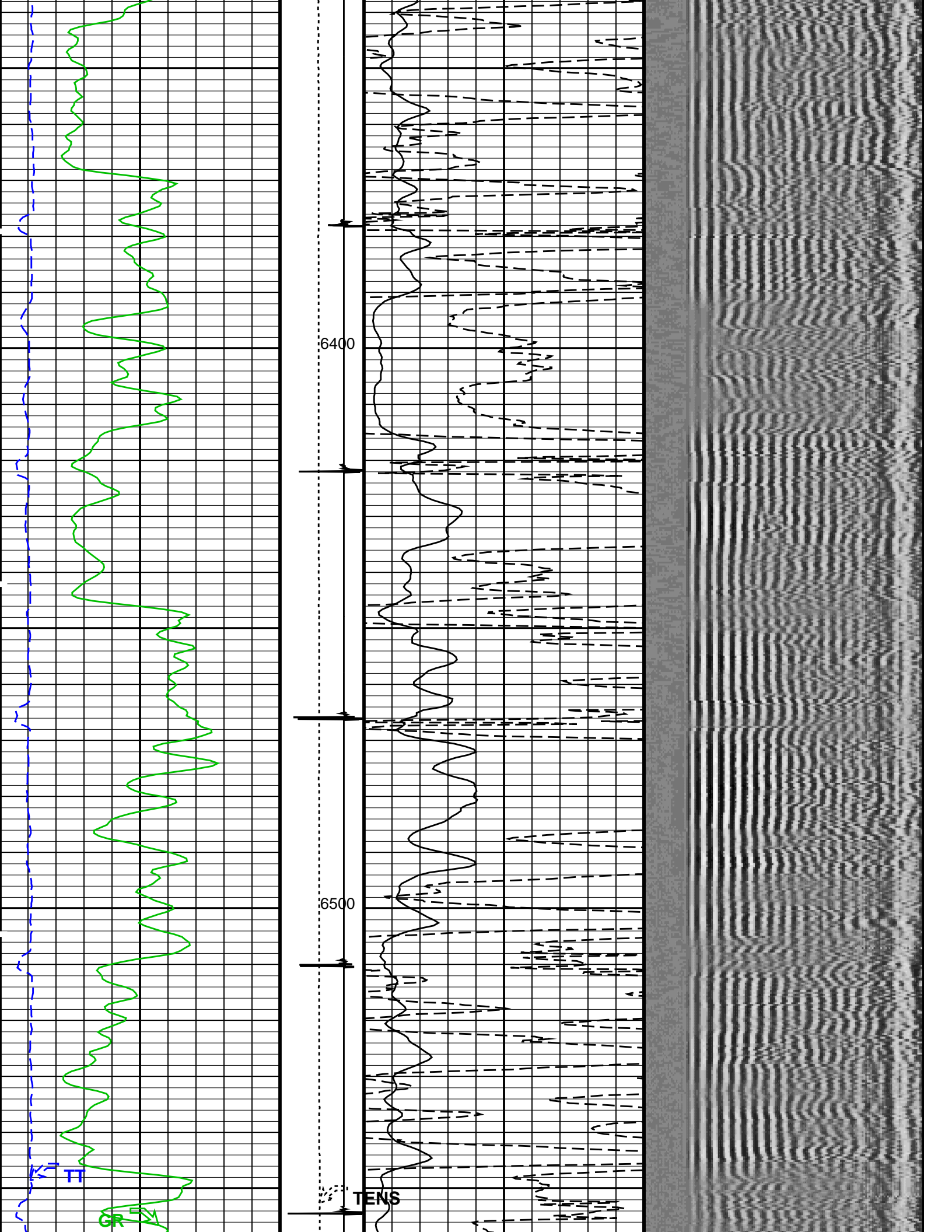


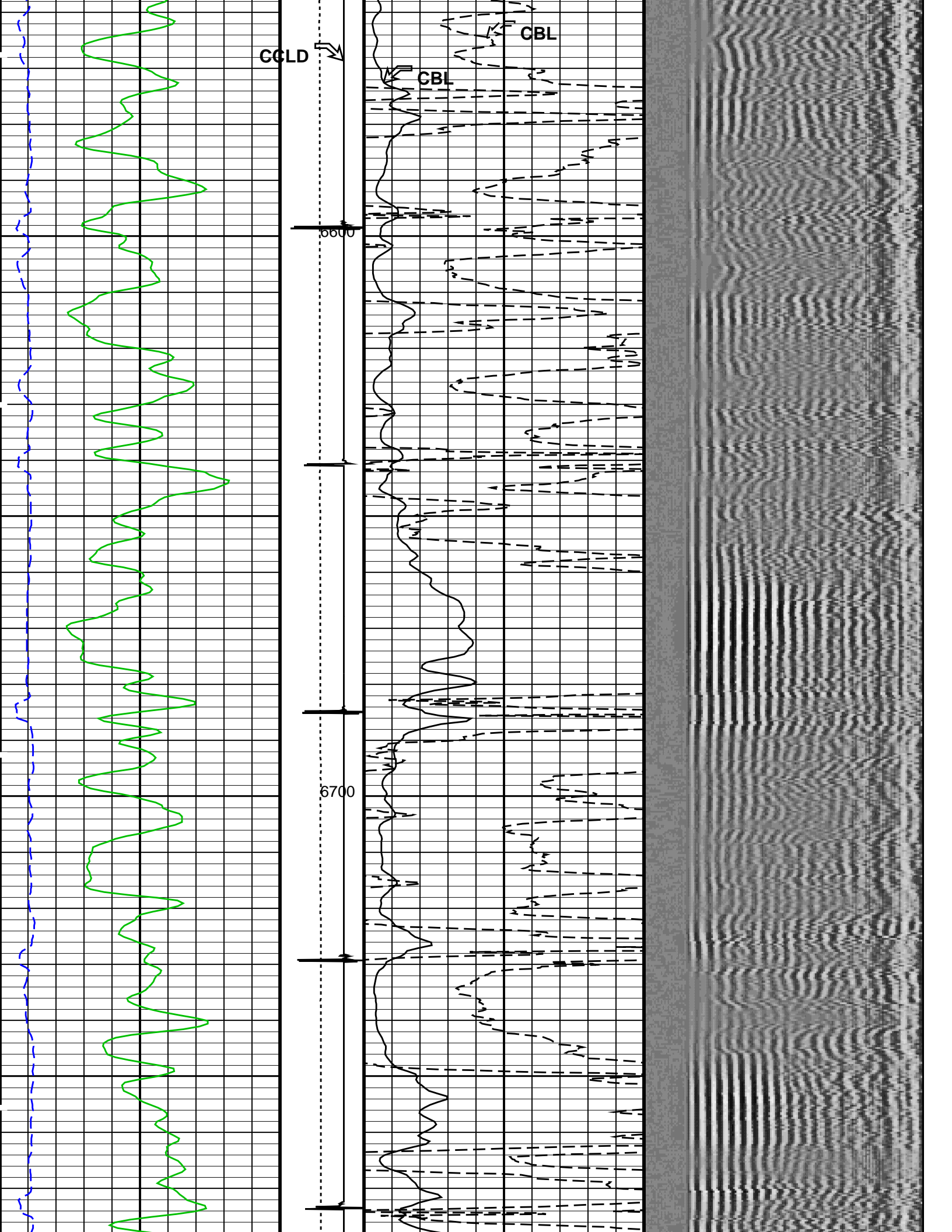


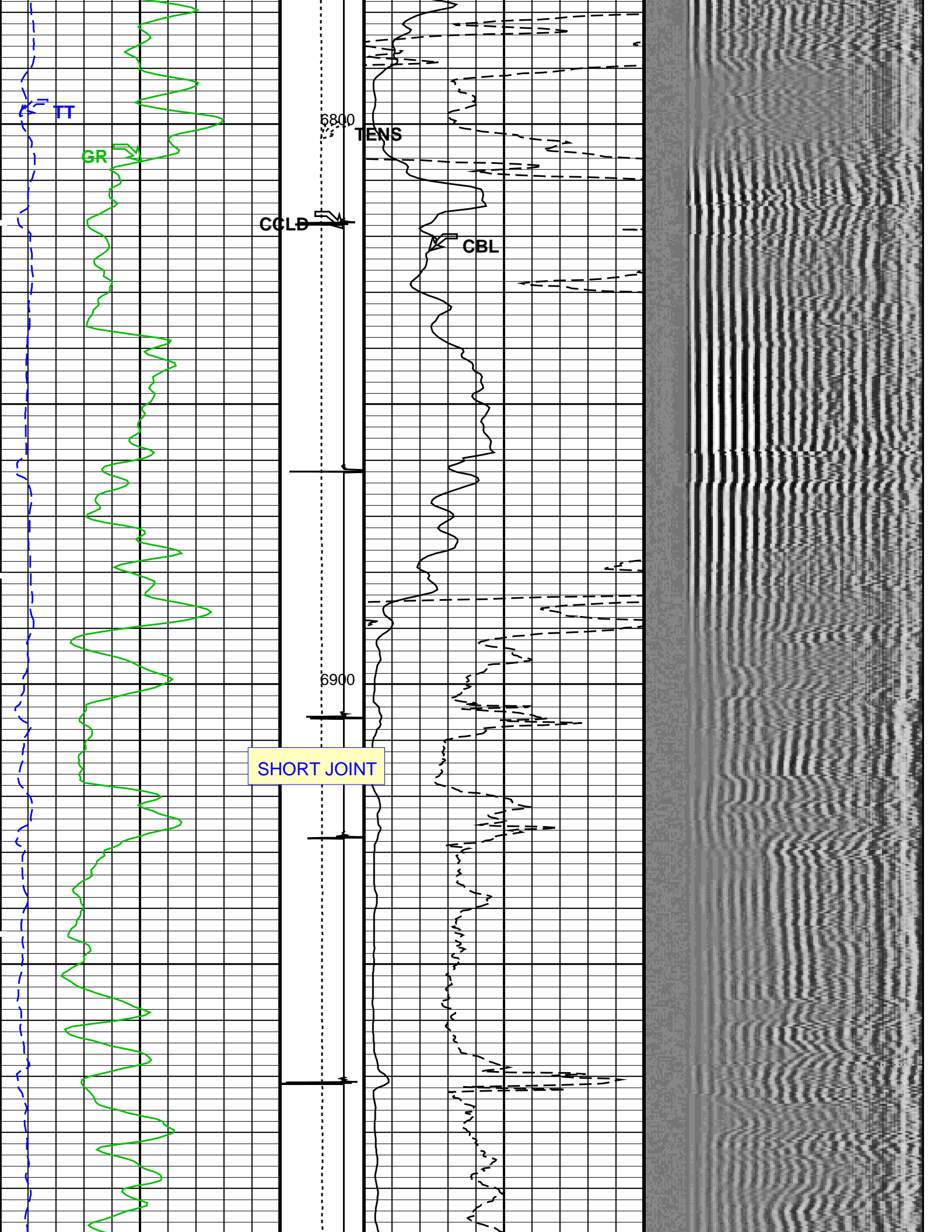


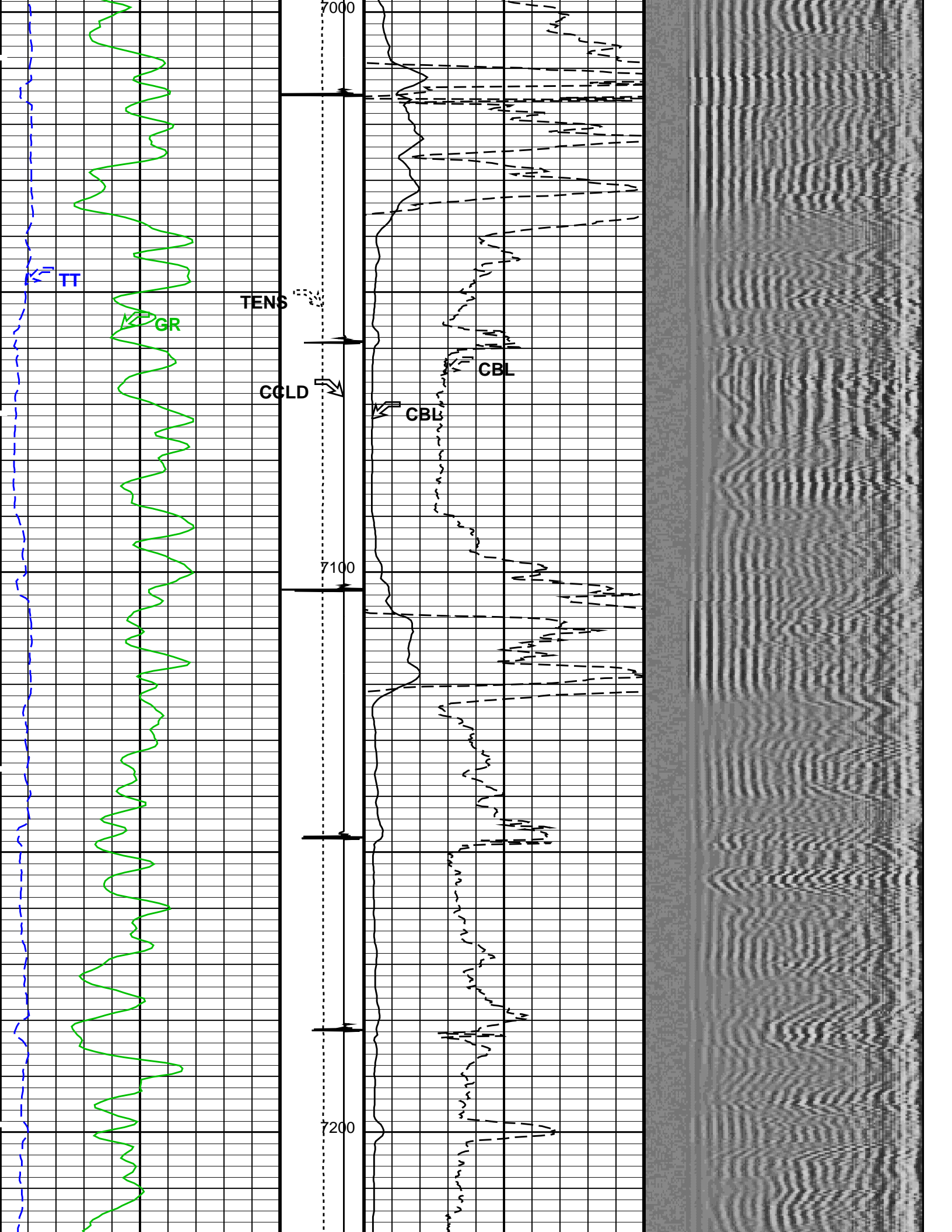


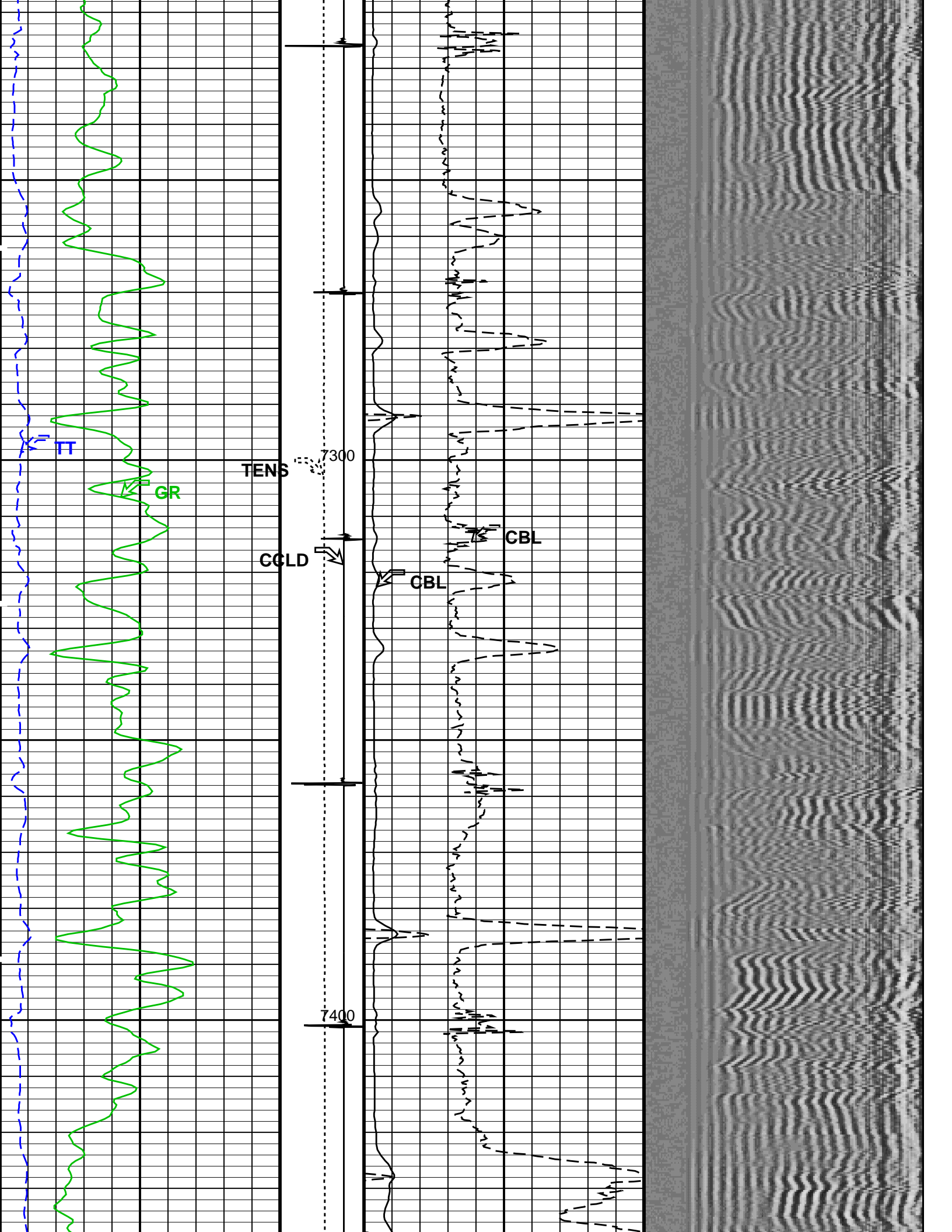


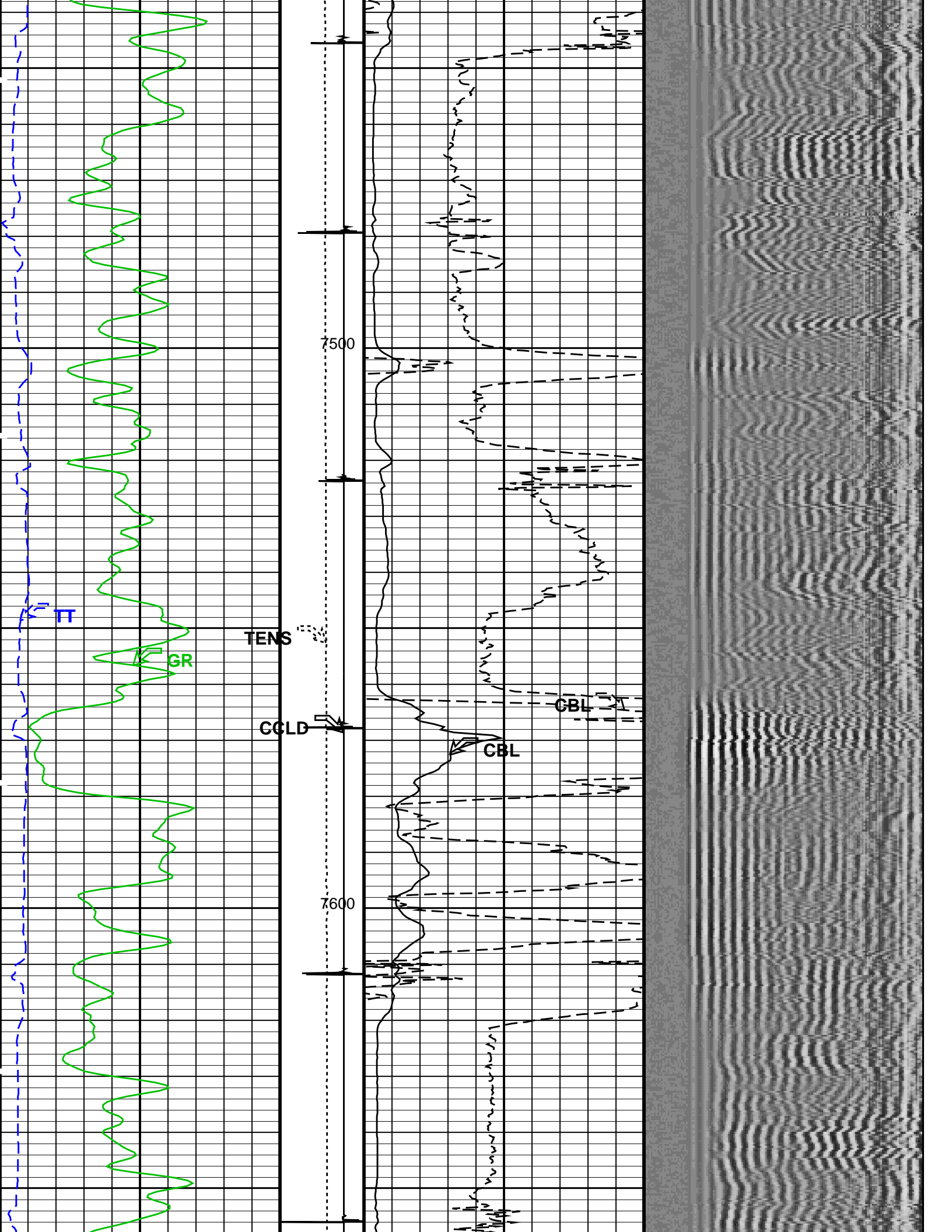


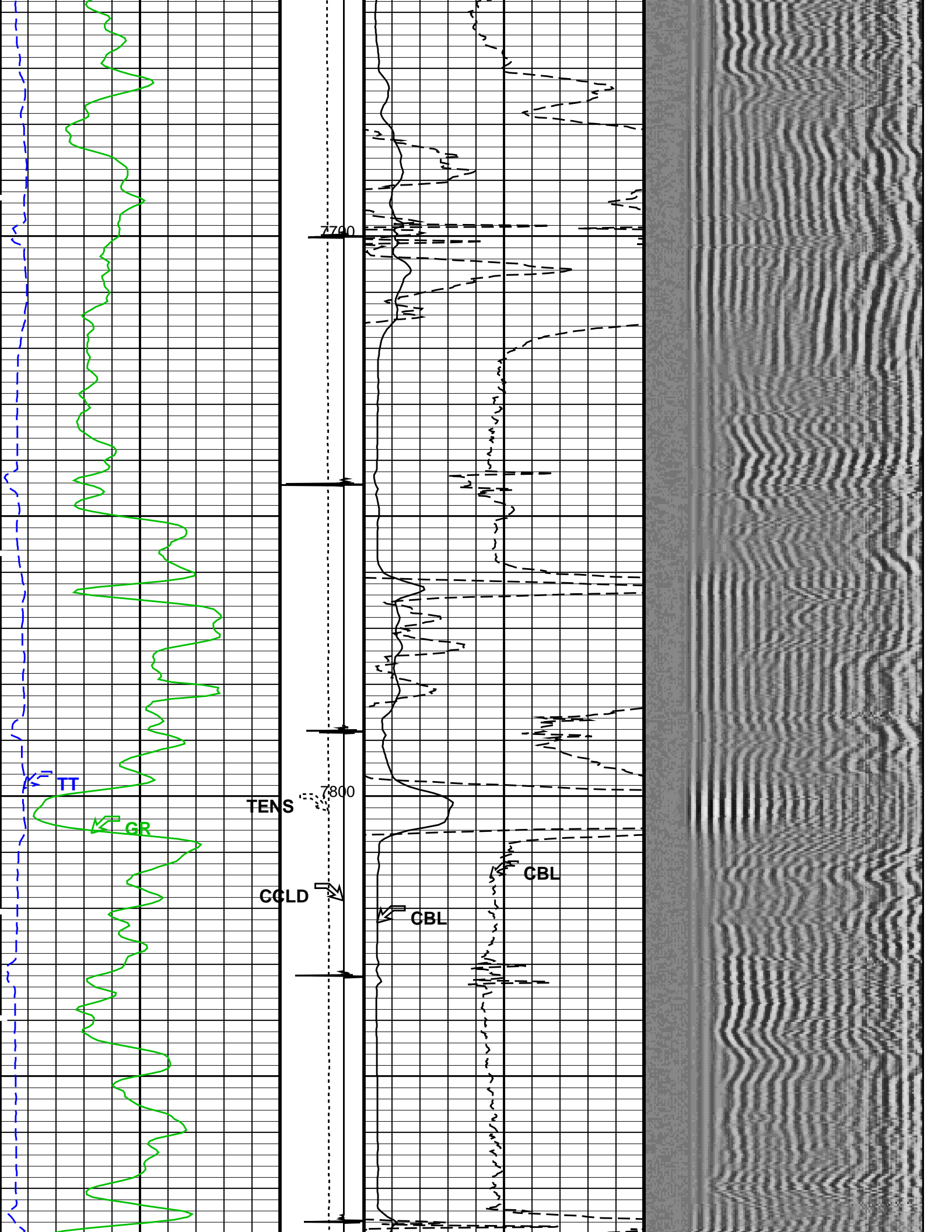


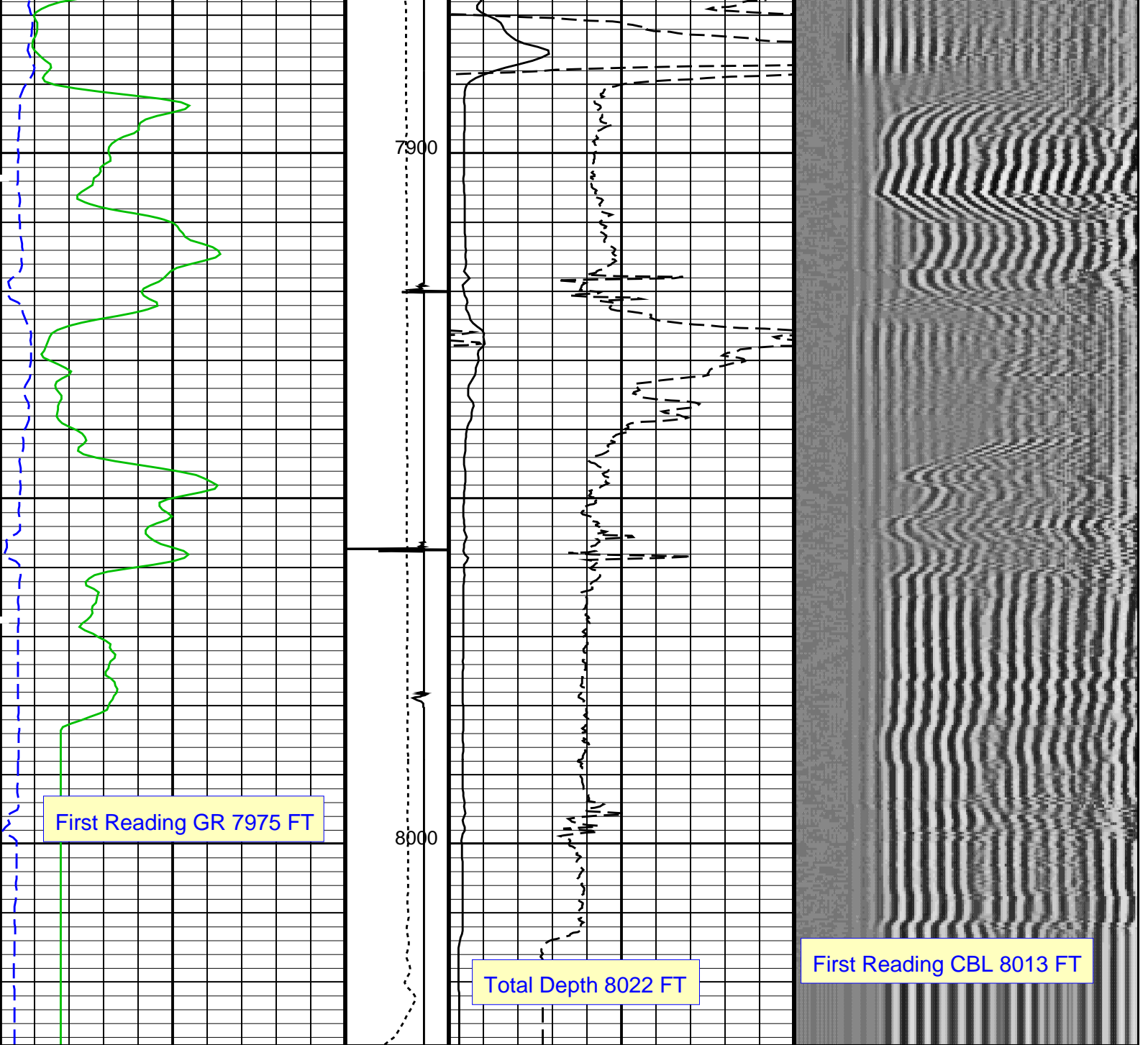












Gamma Ray (GR) (GAPI)	Tension (TENS) (LBF)	CBL Amplitude (CBL) (MV)	Min Amplitude Max VDL Variable Density (VDL) (US)
0 150	0 2000	0 100	200 1200
Transit Time (TT) (US)	Discriminat ed CCL (CCLD)	CBL Amplitude (CBL) (MV)	
260 160	3 (V) -1	0 10	

PIP SUMMARY

Time Mark Every 60 S
 Format: CBL_VDL Vertical Scale: 5" per 100' Graphics File Created: 16-Aug-2013 07:48

OP System Version: 19C0-187

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

<<<SCMT Cement Evaluation Information Summary>>>

Core Serial Number SCMT-GR-0170

Current Casing Size	4.50000 IN		
Casing Weight	11.6000 LB/F		
Expected CBL Amplitude in Free Pipe Section	80 MV	Minimum Sonic Amplitude	0.579149 MV (100% Cement) 1.55185 MV (80% Cement)
		MAP Minimum Sonic Amplitude	4.32284 MV (100% Cement) 8.10244 MV (80% Cement)

Master Calibration (Normalization)		Before Calibration (Adjustment)	
Date of Master Calibration	6-MAR-2012		
CBL Correction Factor	0.0704263	CBL Adjustment Factor (CBAF)	1.0
MAP 1 Correction Factor	0.0993191	MAP Adjustment Factor (MPAF)	1.0
MAP 2 Correction Factor	0.0941329		
MAP 3 Correction Factor	0.101552		
MAP 4 Correction Factor	0.114415		
MAP 5 Correction Factor	0.127992		
MAP 6 Correction Factor	0.121190		
MAP 7 Correction Factor	0.112867		
MAP 8 Correction Factor	0.102913		

Parameters

DLIS Name	Description	Value	
SCMT-CB: Slim Cement Mapping Tool, 1-11/16 OD			
BILI	Bond Index Level for Zone Isolation	0.8	
CB3D	SCMT CBL 3 ft Peak Detection Mode	PEAK	
CB3G	SCMT CBL 3 ft Peak Detection T0_Delay and Noise Gate	224.559	US
CB3T	SCMT CBL 3 ft Fixed Threshold Level	20	MV
CB5D	SCMT CBL 5 ft Peak Detection Mode	PEAK	
CB5G	SCMT CBL 5 ft Peak Detection T0_Delay and Noise Gate	338.559	US
CB5T	SCMT CBL 5 ft Fixed Threshold Level	20	MV
CBLG	CBL Gate Width	45	US
CBRA	CBL LQC Reference Amplitude in Free Pipe	80	MV
CMCF	CBL Cement Type Compensation Factor	1	
CMTC	SCMT Slow Channel Multiplexer Mode	SCAN	
CMTM	SCMT Operating Mode	LOG	
CSCS	SCMT Slow Channel Index	VCC	
CTHI	Casing Thickness	0.255617	IN
DTF	Delta-T Fluid	189	US/F
FATT	Acoustic Attenuation due to Fluid	0	DB/F
FCF	CBL Fluid Compensation Factor	0.924277	
GOBO	Good Bond	1.55185	MV
MAPD	SCMT MAP Peak Detection Mode	PEAK	
MAPG	SCMT MAP Peak Detection T0_Delay and Noise Gate	167.559	US
MAPT	SCMT MAP Fixed Threshold Level	30	MV
MATT	Maximum Attenuation	16.5449	DB/F
MCCF	MAP Cement Type Compensation Factor	1	
MCI	Minimum Cemented Interval for Isolation	1.25	FT
MMSA	MAP Minimum Sonic Amplitude	4.32284	MV
MSA	Minimum Sonic Amplitude	0.579149	MV
PEDE	Peak Detection On/Off Switch in Playback	OFF	
VDLG	VDL Manual Gain	5	
ZCMT	Acoustic Impedance of Cement	6.8	MRAY
System and Miscellaneous			
CSIZ	Current Casing Size	4.500	IN
CWEI	Casing Weight	11.60	LB/F
DFD	Drilling Fluid Density	8.40	LB/G
DO	Depth Offset for Playback	4.0	FT
PP	Playback Processing	RECOMPUTE	
TD	Total Depth	8022	FT

Input DLIS Files

DEFAULT	SCMT_RST_PSP_068LUP	FN:67	PRODUCER	16-Aug-2013 05:39	8025.0 FT	-2.5 FT
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Output DLIS Files

DEFAULT	SCMT_RST_PSP_071PUP	FN:70	PRODUCER	16-Aug-2013 07:48
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Company: ENCANA OIL & GAS (USA) INC Well: ALP FEE 24-3D (J24NW)

Input DLIS Files

DEFAULT	SCMT_RST_PSP_066LUP	FN:65	PRODUCER	16-Aug-2013 05:24	6086.0 FT	5732.5 FT
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Output DLIS Files

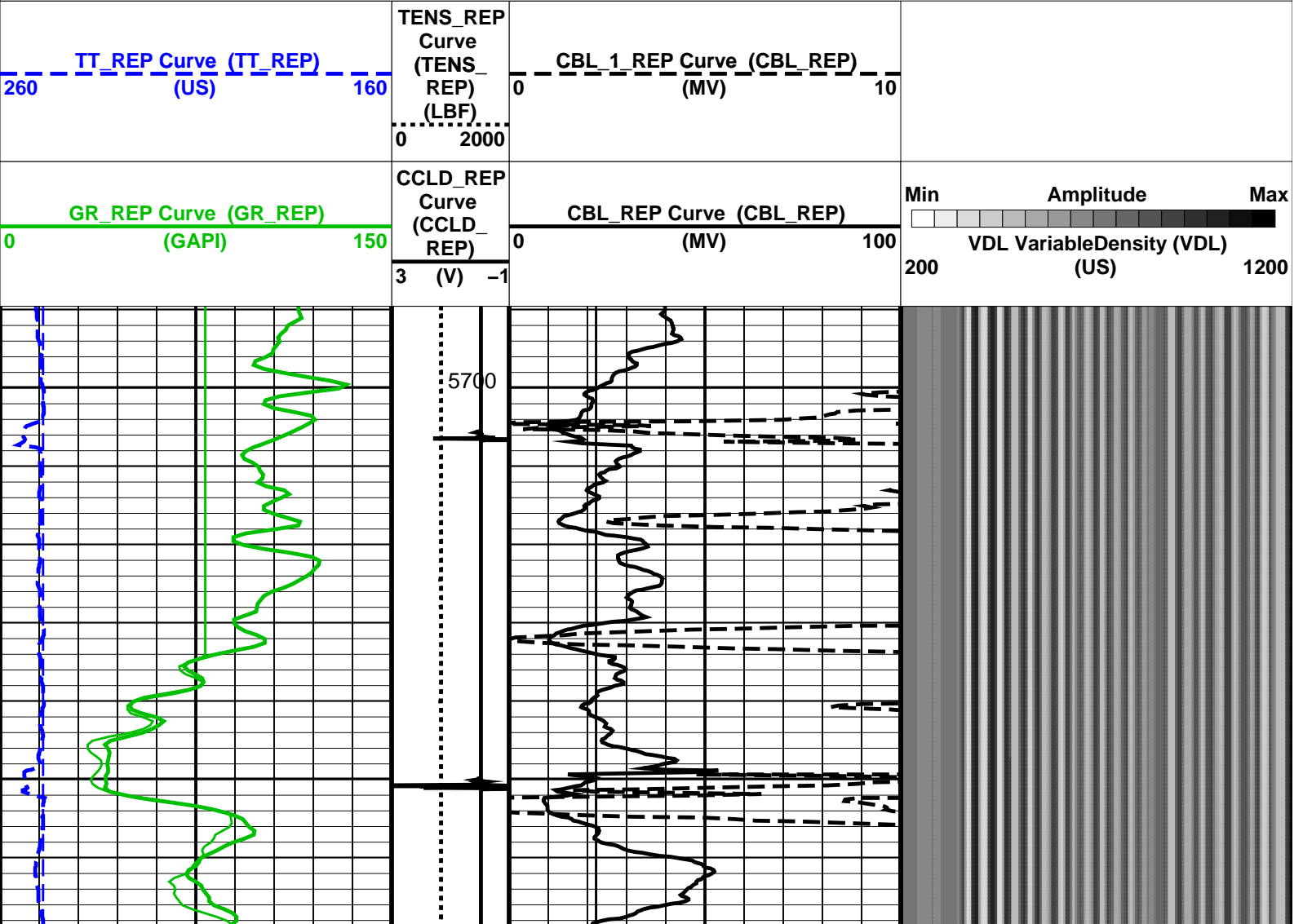
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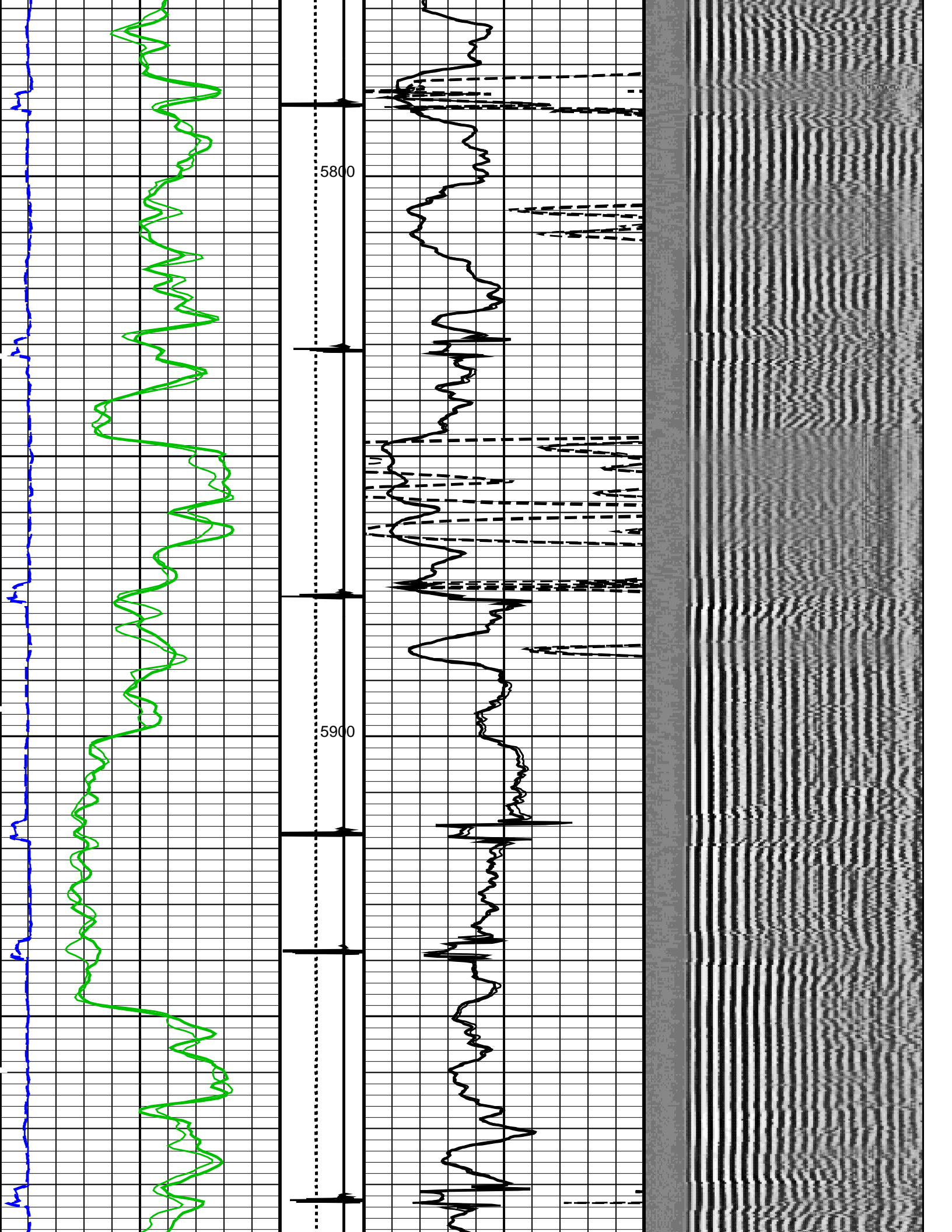
OP System Version: 19C0-187

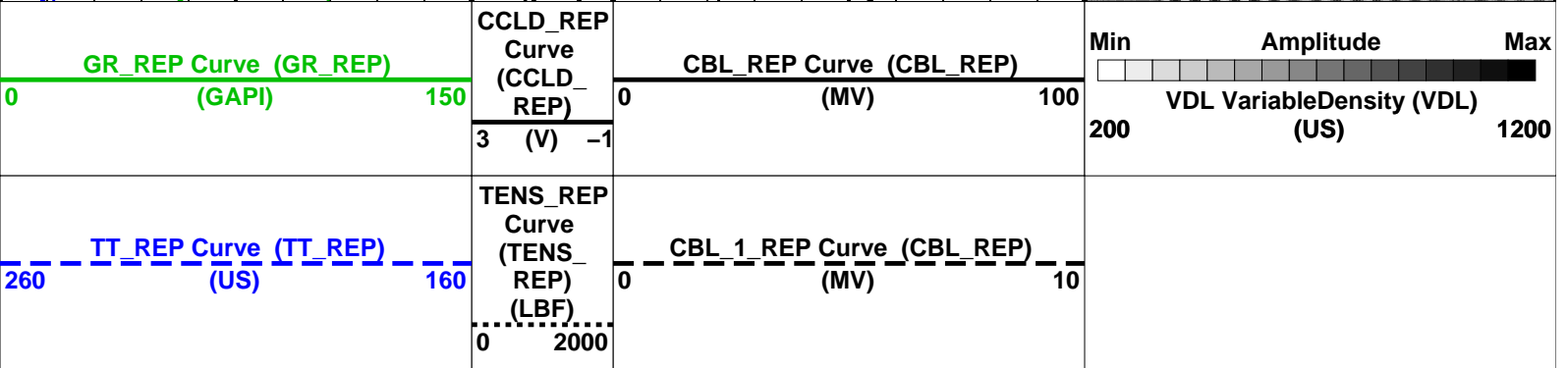
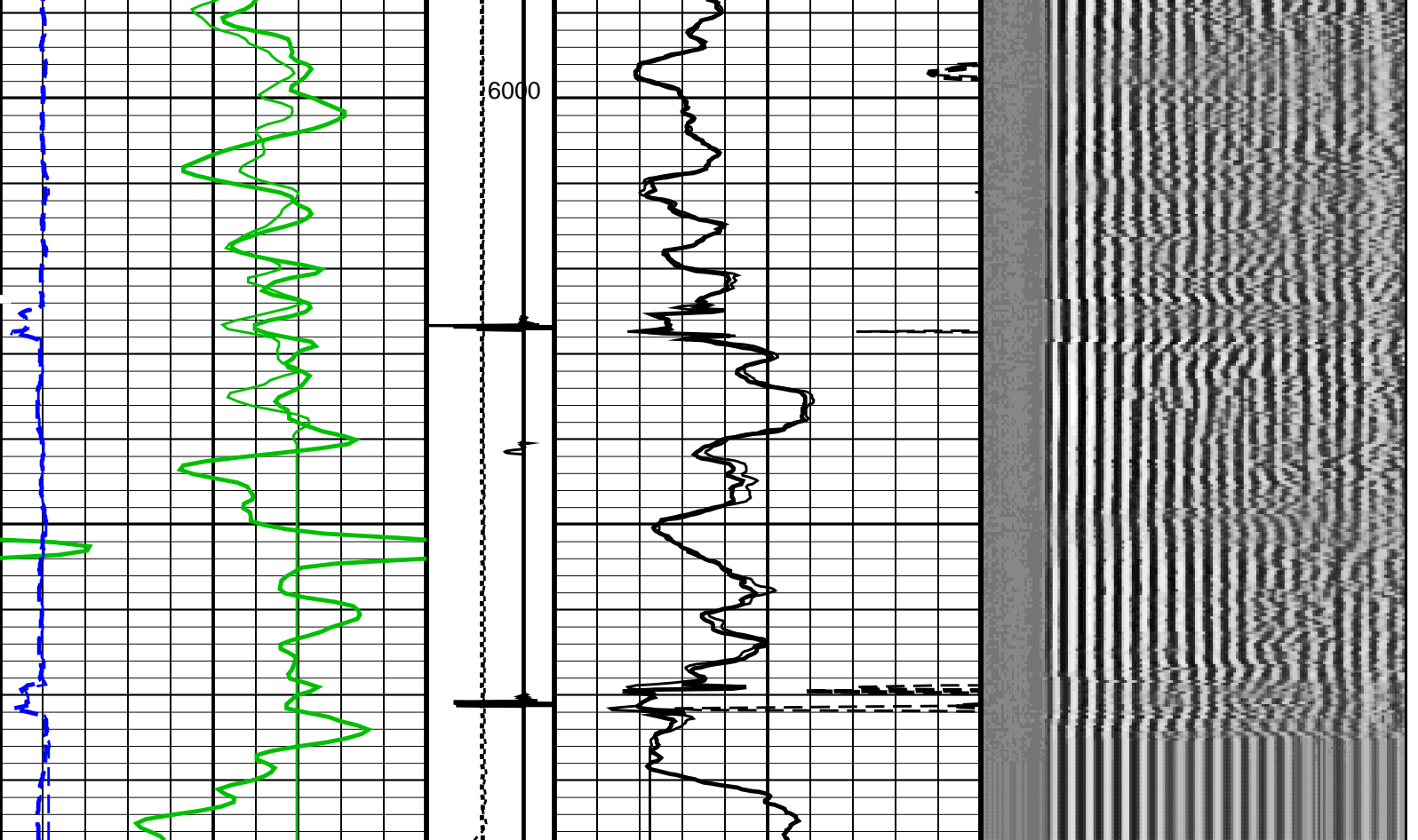
SCMT-CB PSPT	SRPC-5214-H2-2012-OP1!	RST-C	SRPC-5214-H2-2012-OP1!
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PIP SUMMARY

Time Mark Every 60 S







PIP SUMMARY

Time Mark Every 60 S

Format: CBL_VDL_REP Vertical Scale: 5" per 100' Graphics File Created: 16-Aug-2013 07:58

OP System Version: 19C0-187

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

<<<SCMT Cement Evaluation Information Summary>>>

Sonde Serial Number	SCMS-CB 8179		
Current Casing Size	4.50000 IN		
Casing Weight	11.6000 LB/F		
Expected CBL Amplitude in Free Pipe Section	80 MV	Minimum Sonic Amplitude	0.579149 MV (100% Cement) 1.55185 MV (80% Cement)
		MAP Minimum Sonic Amplitude	4.32284 MV (100% Cement) 8.10244 MV (80% Cement)

Master Calibration (Normalization)		Before Calibration (Adjustment)	
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Date of Master Calibration	6-MAR-2012		
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CBL Correction Factor	0.0704263	CBL Adjustment Factor (CBAF)	1.0
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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	1.0	FT
DORL	Depth Offset for Repeat Analysis	0.0	FT
PP	Playback Processing	RECOMPUTE	
TD	Total Depth	8022	FT

Input DLIS Files

DEFAULT	SCMT_RST_PSP_066LUP	FN:65	PRODUCER	16-Aug-2013 05:24	6086.0 FT	5732.5 FT
DEFAULT	SCMT_RST_PSP_071PUP	FN:70	PRODUCER	16-Aug-2013 07:48	8029.0 FT	-43.0 FT

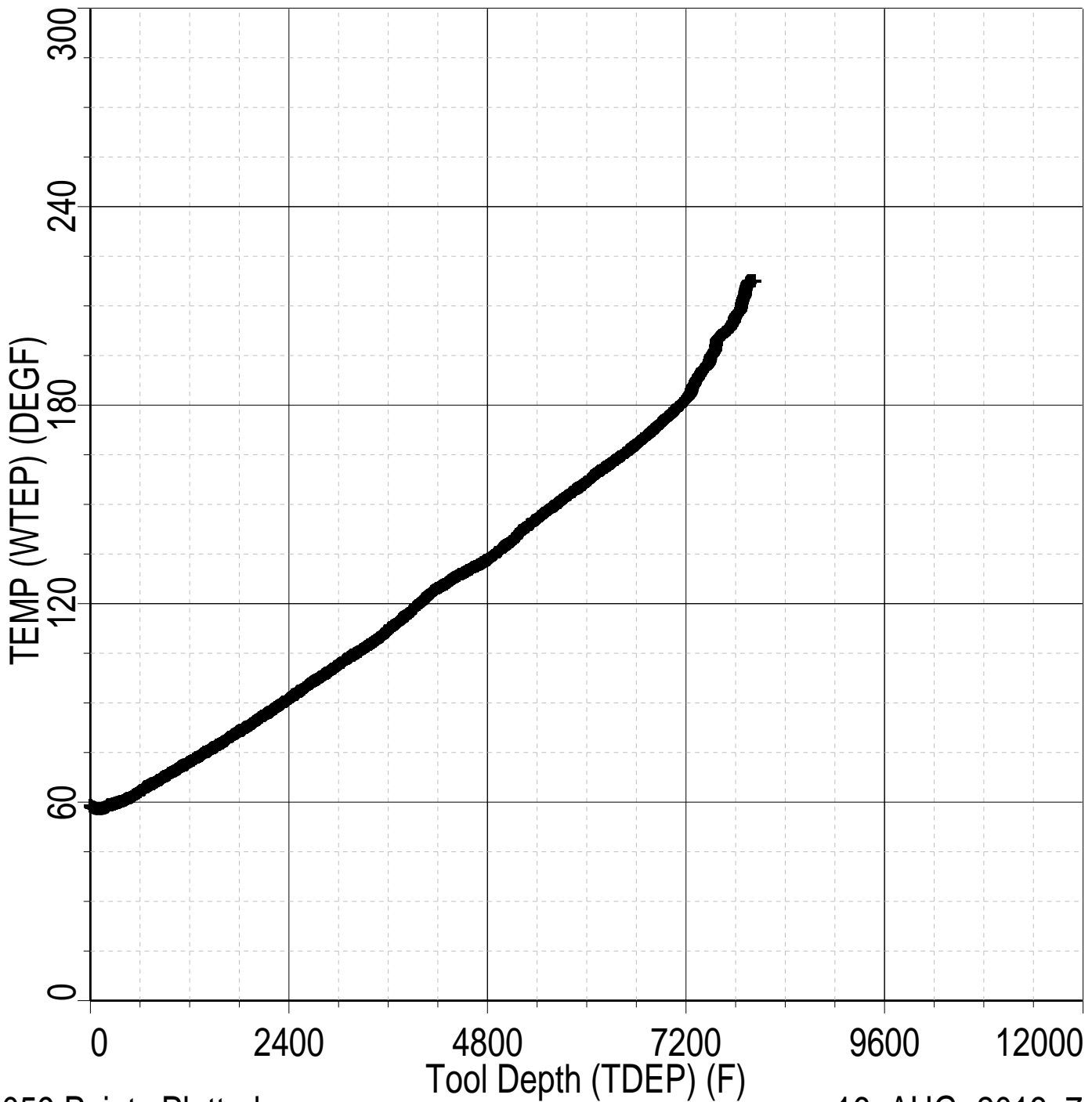
Output DLIS Files

DEFAULT	SCMT_RST_PSP_072PUP	FN:71	PRODUCER	16-Aug-2013 07:58		
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Schlumberger

TEMPERATURE PLOT

Index: 8029.0 – -43.0 FT



16059 Points Plotted

16-AUG-2013 7:57

Schlumberger

PBMS COEFFICIENTS

MAXIS Field Log

Client: ENCANA OIL & GAS (USA) INC

Field: MAMM CREEK

Tool: PSP

Sub Type: PBMS

PSP

PBMS

Well: ALP FEE 24-3D (J24NW)

Sensor:

Clock Model

Run date: 16-Aug-2013

PBMS Digitalization Clock

Sonde Serial NB

Sensor Serial NB 1978

Calib Date ddmmyy 040413

Matrix Size 16

Coeff CRC 32D3

Clock Coeff

	Temp**0	Temp**1	Temp**2
Temp**0	+ .197240577294E+02	- .385846870252E+01	- .884656308536E-01
	Temp**3	Temp**4	Temp**5
Temp**0	+ .864677466012E-03	+ .180389331248E-05	0.0

Client: ENCANA OIL & GAS (USA) INC

Tool: PSP

Field: MAMM CREEK

Sub Type: PBMS

Well: ALP FEE 24-3D (J24NW)

Sensor: Sapphire

Run date: 16-Aug-2013

PBMS Sapphire 10kPsi Gauge

Sonde Serial NB

COEFFICIENTS FOR SAPPHIRE PBMS-A.1978 S/N:

Sensor Serial NB 1978

Calib Date ddmmyy 040413

Matrix Size 66

Coeff CRC FC03

Pres Coeff

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

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

PBMS Sapphire 10kPsi Gauge

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

Temp Coeff

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

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

Client: ENCANA OIL & GAS (USA) INC
Field: MAMM CREEK
Well: ALP FEE 24-3D (J24NW)
Run date: 16-Aug-2013

Tool: PSP
Sub Type: PBMS
Sensor: GR

PBMS Gamma Ray

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

GR HV Rt

	Rt**0	Rt**1
Rt**0	+ .200000000000e+04	+ .238000000000e+04

Client: ENCANA OIL & GAS (USA) INC
Field: MAMM CREEK
Well: ALP FEE 24-3D (J24NW)
Run date: 16-Aug-2013

Tool: PSP
Sub Type: PBMS
Sensor: WellTemp RTD

PBMS RTD Well Thermometer

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

WTemp Coeff

	Tt**0	Tt**1	Tt**2
Tt**0	- .147060145836E+03	- .907965992712E+02	+ .770663084969E+02
	Tt**3	Tt**4	Tt**5
Tt**0	- .131119885893E+02	+ .876373733985E+00	0.0



MASTER CALIBRATION

MAXIS Field Log

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

Primary Equipment:

Slim Cement Mapping Xmitter Electronics	SCMX – CA	8251
Slim Cement Mapping Sonde	SCMS – CB	8179
Slim Cement Mapping Cartridge	SCMC – CA	8121

Auxiliary Equipment:

Slim Electronics Cartridge Housing	SECH – CA	8120
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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		1158	Master		1232
	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		1237	Master		1118
	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		1061	Master		1299
	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		1258	Master		1267
	500.0 (Minimum) 1075 (Nominal) 1650 (Maximum)			500.0 (Minimum) 1075 (Nominal) 1650 (Maximum)	
Phase	CBL Amplitude Plus MV	Value			
Master		1351			
	1000 (Minimum) 1350 (Nominal) 1700 (Maximum)				

Master: 2-Jan-2013 15:55

Company: **ENCANA OIL & GAS (USA) INC**Well: **ALP FEE 24-3D (J24NW)**

Field: **MAMM CREEK**
County: **GARFIELD**
State: **COLORADO**

SLIM CEMENT MAPPING LOG
CBL-VDL
GAMMA RAY-CCL