

Company: ENCANA OIL & GAS (USA) INC.

Well: ORCHARD UNIT 23-10HM (D140U)

Field: ORCHARD UNIT

County: MESA

State: COLORADO

CEMENT BOND LOG
CBL - VDL
GAMMA RAY - CCL

County: MESA
 Field: ORCHARD UNIT
 Location: SHL: NWNW 590' FNL & 405' FW
 Well: ORCHARD UNIT 23-10HM (D140U)
 Company: ENCANA OIL & GAS (USA) INC.

LOCATION		Elev.:	K.B.	5975.00 ft
SHL: NWNW 590' FNL & 405' FWL			G.L.	5953.00 ft
BHL: NWSW 1580' FSL & 680' FWL			D.F.	5974.00 ft
Permanent Datum:	GROUND LEVEL	Elev.:	5953.00 ft	
Log Measured From:	KELLY BUSHING	22.00 ft	above Perm. Datum	
Drilling Measured From:	KELLY BUSHING			

API Serial No. 05-077-10149-0000	Section 14	Township 8S	Range 96W
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Logging Date	17-Sep-2011		
Run Number	TWO		
Depth Driller	14306 ft		
Schlumberger Depth	8206 ft		
Bottom Log Interval	8197.4 ft		
Top Log Interval	200 ft		
Casing Fluid Type	WATER		
Salinity			
Density	8.4 lbm/gal		
Fluid Level	22 ft		
BIT/CASING/TUBING STRING			
Bit Size	6.750 in		
From	22 ft		
To	14306 ft		
Casing/Tubing Size	5.000 in		
Weight	23.2 lbm/ft		
Grade	P110		
From	22 ft		
To	14290 ft		
Maximum Recorded Temperatures	234 degF		
Logger On Bottom	17-Sep-2011	20:43	
Unit Number	391	GRAND JUNCTION	
Recorded By	SHOWKAT HOSSAIN		
Witnessed By	UNATTENDED		

PVT DATA			
	Run 1	Run 2	Run
Oil Density			
Water Salinity			
Gas Gravity			
Bo			
Bw			
1/Bg			
Bubble Point Pressure			
Bubble Point Temperature			
Solution GOR			
Maximum Deviation	90 deg		
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: 17-SEP-2011 21:17:58

Depth System Equipment

Depth Measuring Device	Tension Device	Logging Cable
Type: IDW-B Serial Number: 6322 Calibration Date: 07-APR-2011 Calibrator Serial Number: 33 Calibration Cable Type: 1-25ZT Wheel Correction 1: -6 Wheel Correction 2: -5	Type: CMTD-C Serial Number: 5006 Calibration Date: 01-SEP-2011 Calibrator Serial Number: 174878 Number of Calibration Points: 10 Calibration RMS: 5 Calibration Peak Error: 13	Type: 1-25ZT Serial Number: 391 Length: 14500 FT Conveyance Method: Wireline Rig Type: LAND

Depth Control Parameters

Log Sequence:	Subsequent Trip To the Well
Reference Log Name:	CEMENT BOND LOG
Reference Log Run Number:	1
Reference Log Date:	03-SEP-2011
Subsequent Trip Down Log Correction:	16.00 FT

Depth Control Remarks

<ol style="list-style-type: none"> 1. ALL SCHLUMBERGER DEPTH CONTROL POLICIES FOLLOWED. 2. IDW USED AS PRIMARY DEPTH CONTROL. 3. Z-CHART USED AS SECONDARY DEPTH CONTROL. 4. 5. 6.
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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	OTHER SERVICES2
OS1: RST - SIGMA	OS1:
OS2:	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
THIS IS A SUBSEQUENT TRIP IN WELL.	
TOOL RAN AS PER TOOL SKETCH.	
CORRELATED TO SCHLUMBERGER CEMENT BOND LOG DATED 03-SEP-2011 AS RUN 1.	
TD TAGGED AT: 8206 FT	
MAXIMUM RECORDED PRESSURE AT TD: 3338 PSIA	
MAXIMUM RECORDED TEMPERATURE AT TD: 234 DEGF	
SHORT JOINTS: 6000 FT - 6022 FT & 7120 FT - 7123 FT	

EXPECTED FREE PIPE AMPLITUDE: 79 mV

AFE: 10145763

THANK YOU FOR CHOOSING SCHLUMBERGER.

CREW: 391- W.AZIZ AND J. ROSA

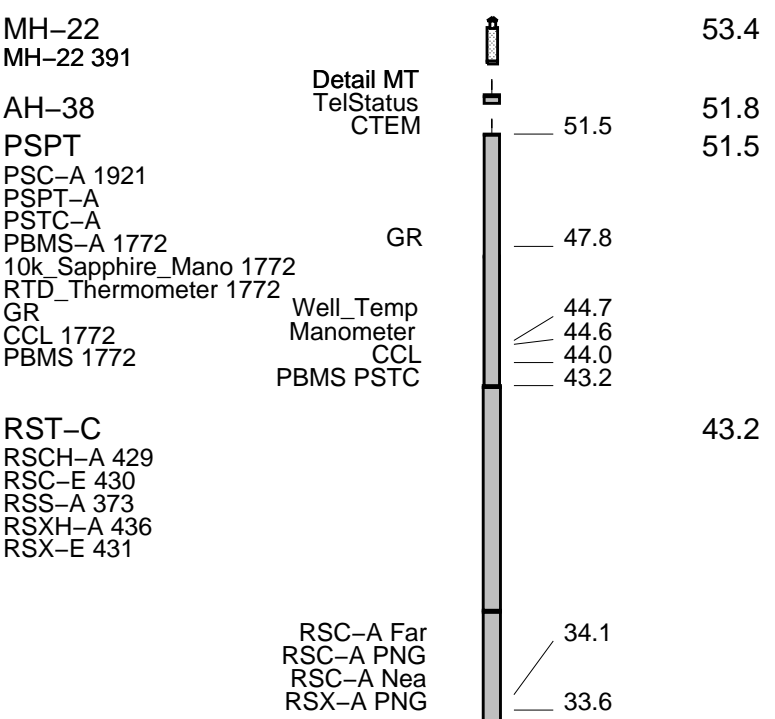
RUN 1			RUN 2		
SERVICE ORDER #:	BOC2-00124		SERVICE ORDER #:		
PROGRAM VERSION:	19C0-187		PROGRAM VERSION:		
FLUID LEVEL:	22 ft		FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION

RUN 1 RUN 2

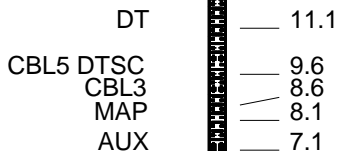
SURFACE EQUIPMENT
 WITM-A 3412
 PSC_16MHZ 3412

DOWNHOLE EQUIPMENT



SCMT-CB
 SCMC-CA 8172
 SECH-CA 8172
 CMIR-AG
 SCMS-CB 8303
 SCMX-CA

20.2



AH-BNS

HV
 Tension SCMT
 TOOL ZERO

0.2

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

Schlumberger

MAIN PASS 0 PSI

MAXIS Field Log

Company: ENCAN OIL & GAS (USA) INC.

Well: ORCHARD UNIT 23-10HM (D14OU)

Input DLIS Files

DEFAULT	SCMT_RST_PSP_024LUP	FN:22	PRODUCER	17-Sep-2011 20:43	8198.5 FT	135.0 FT
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Output DLIS Files

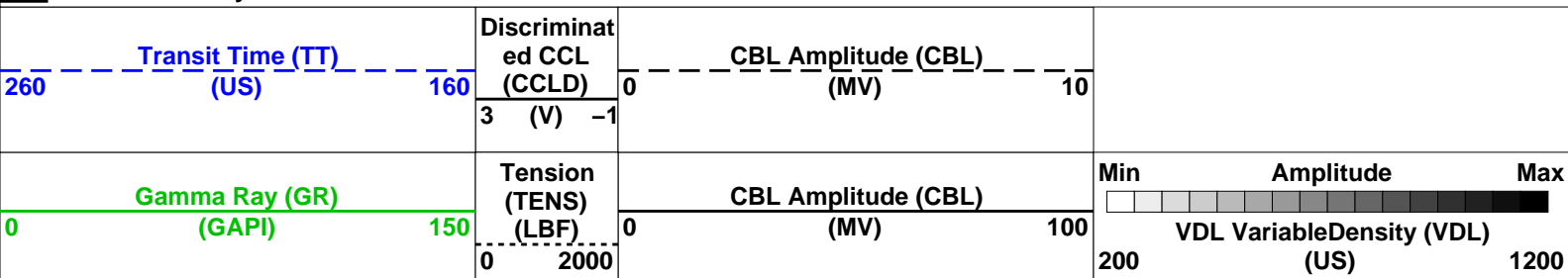
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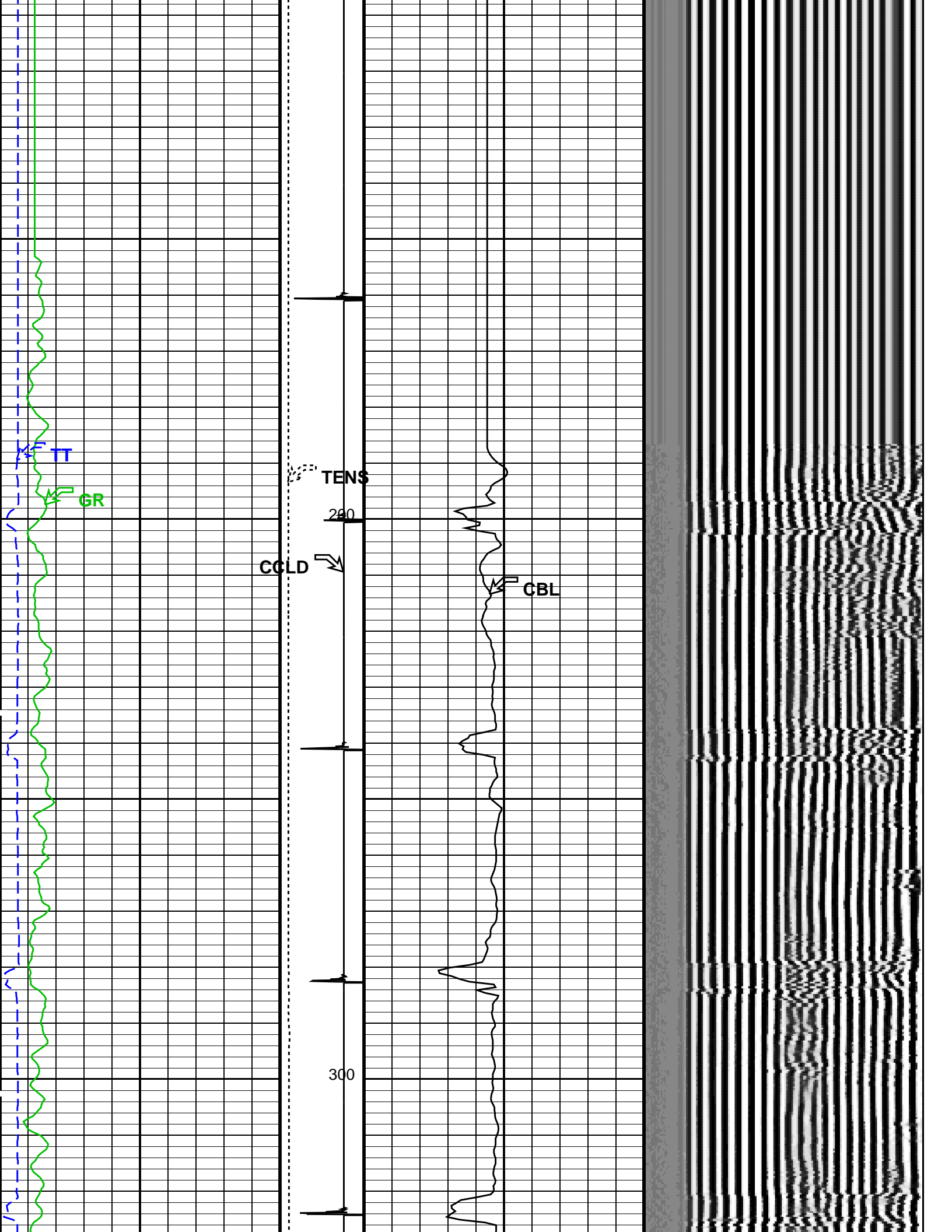
OP System Version: 19C0-187

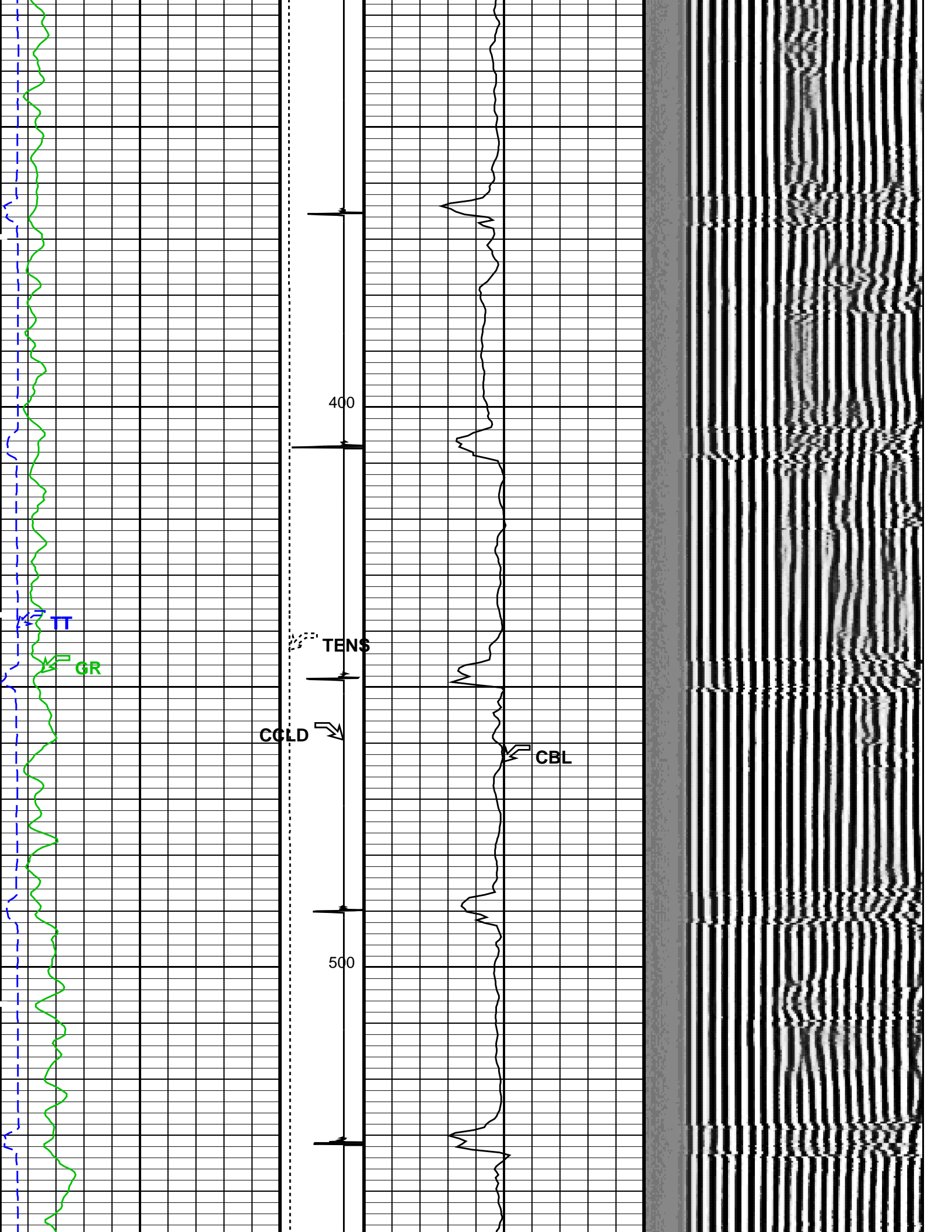
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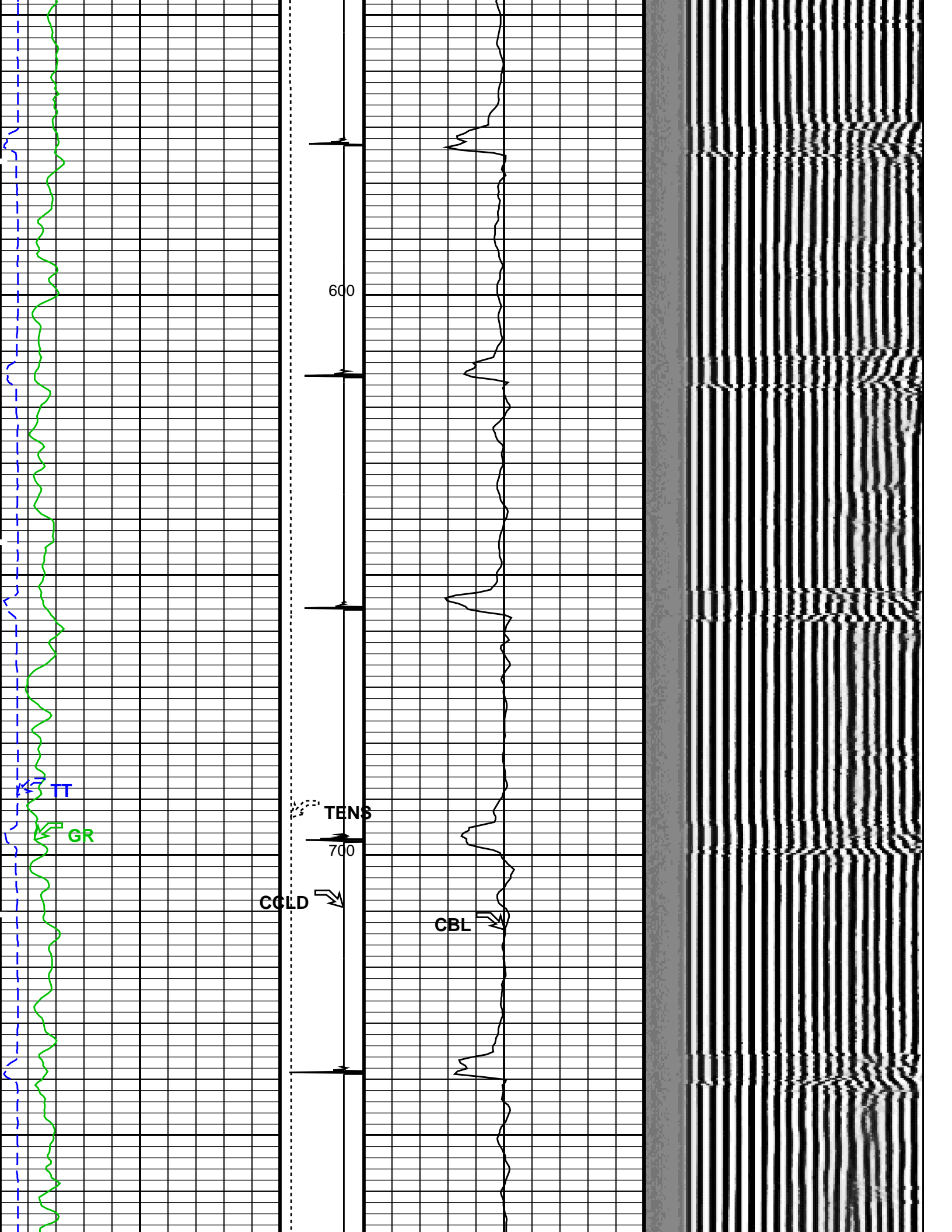
PIP SUMMARY

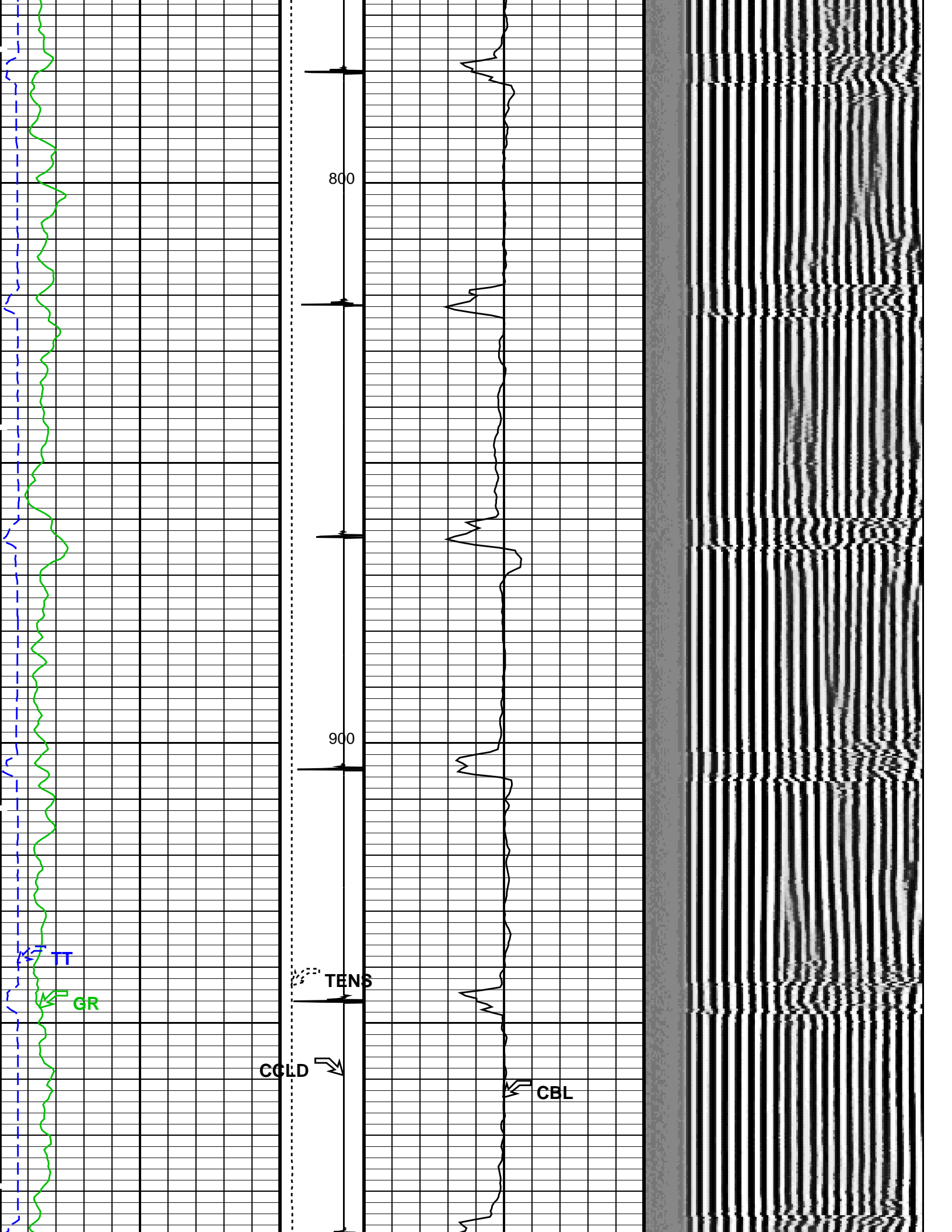
Time Mark Every 60 S

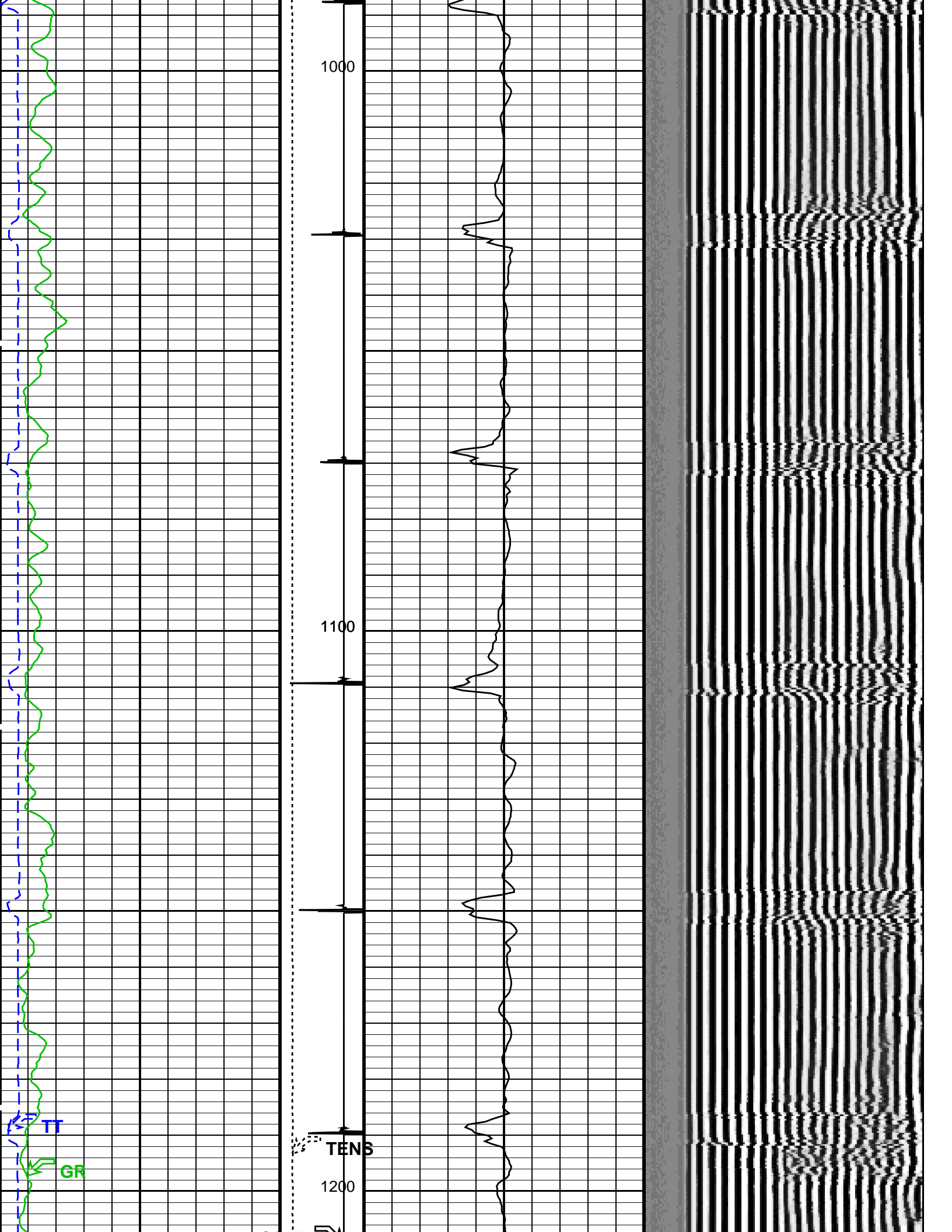


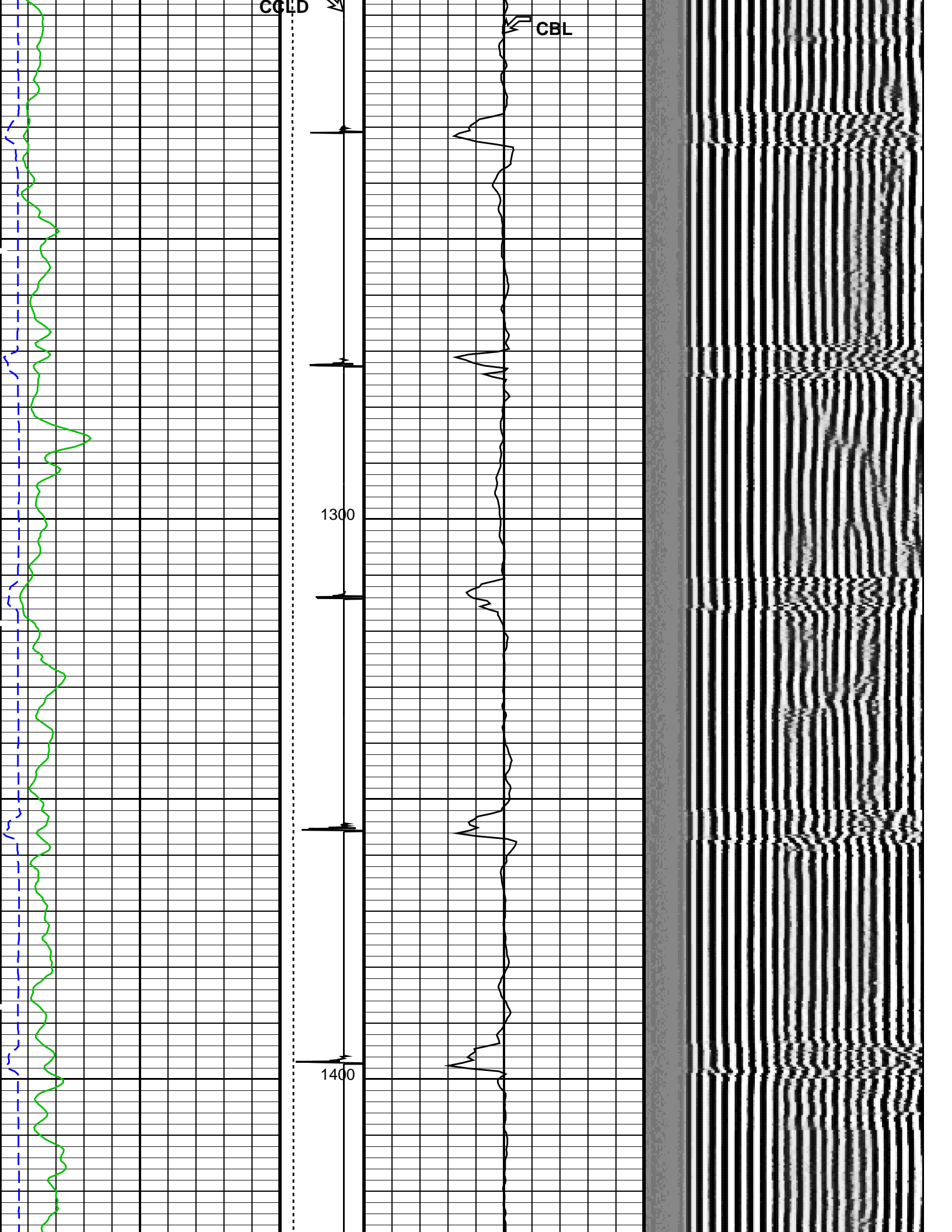


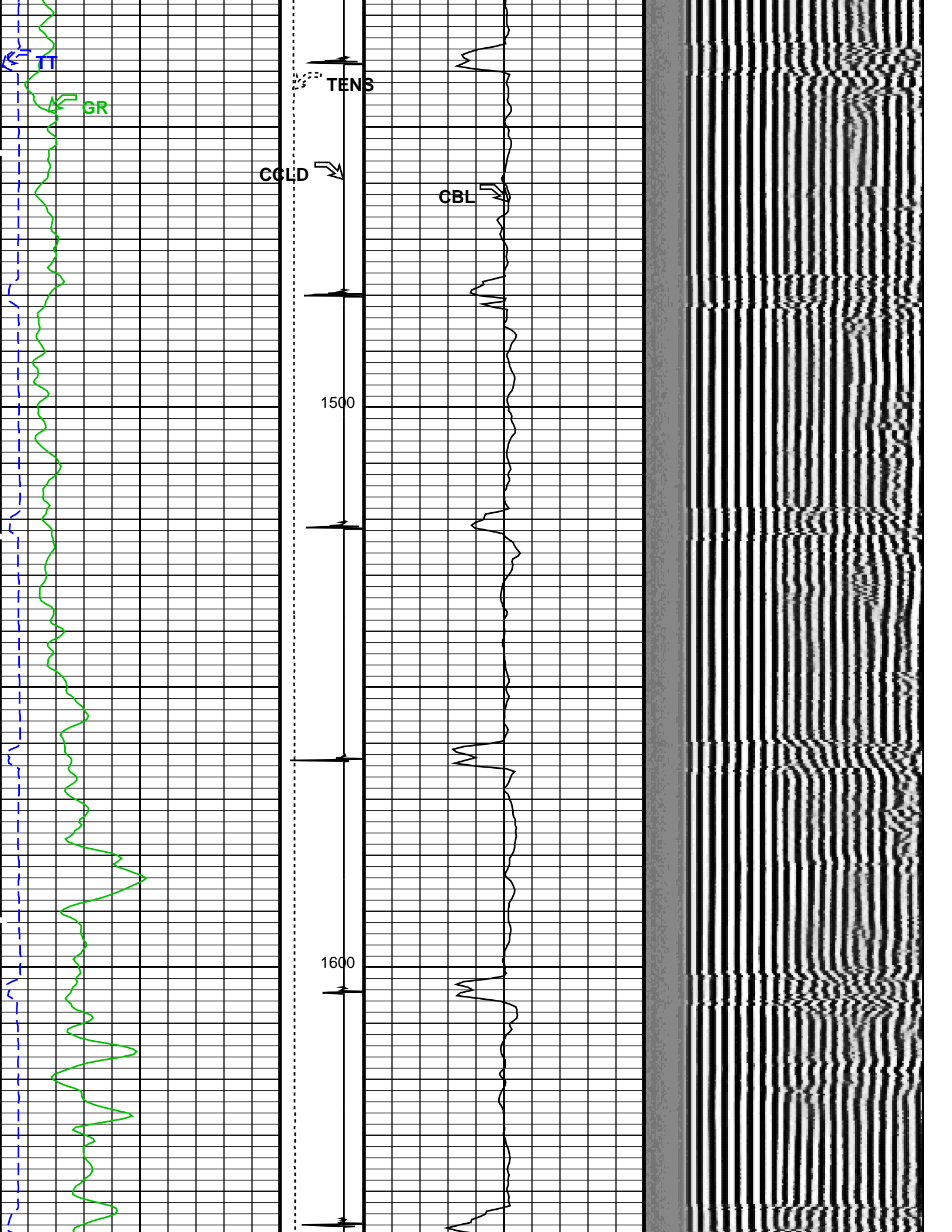


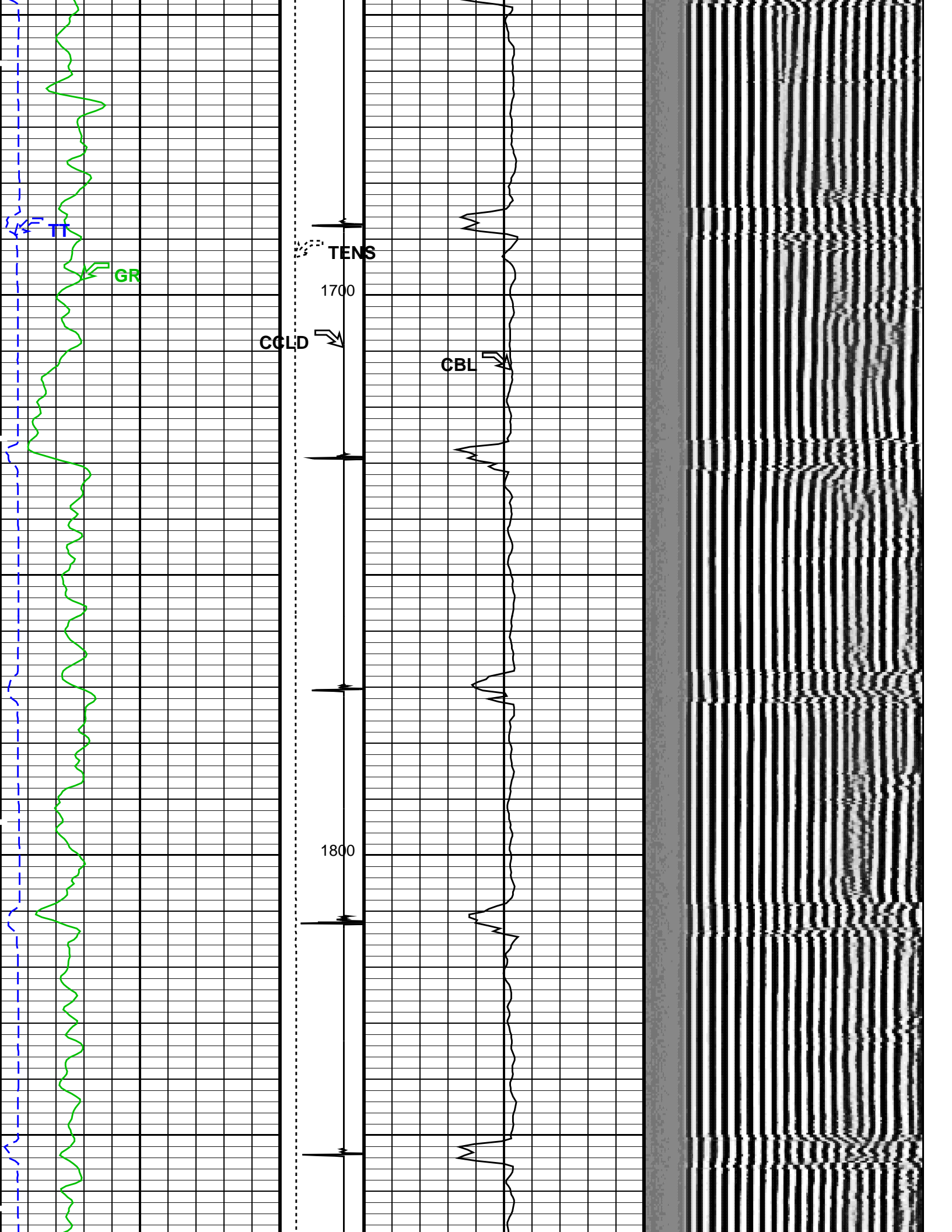


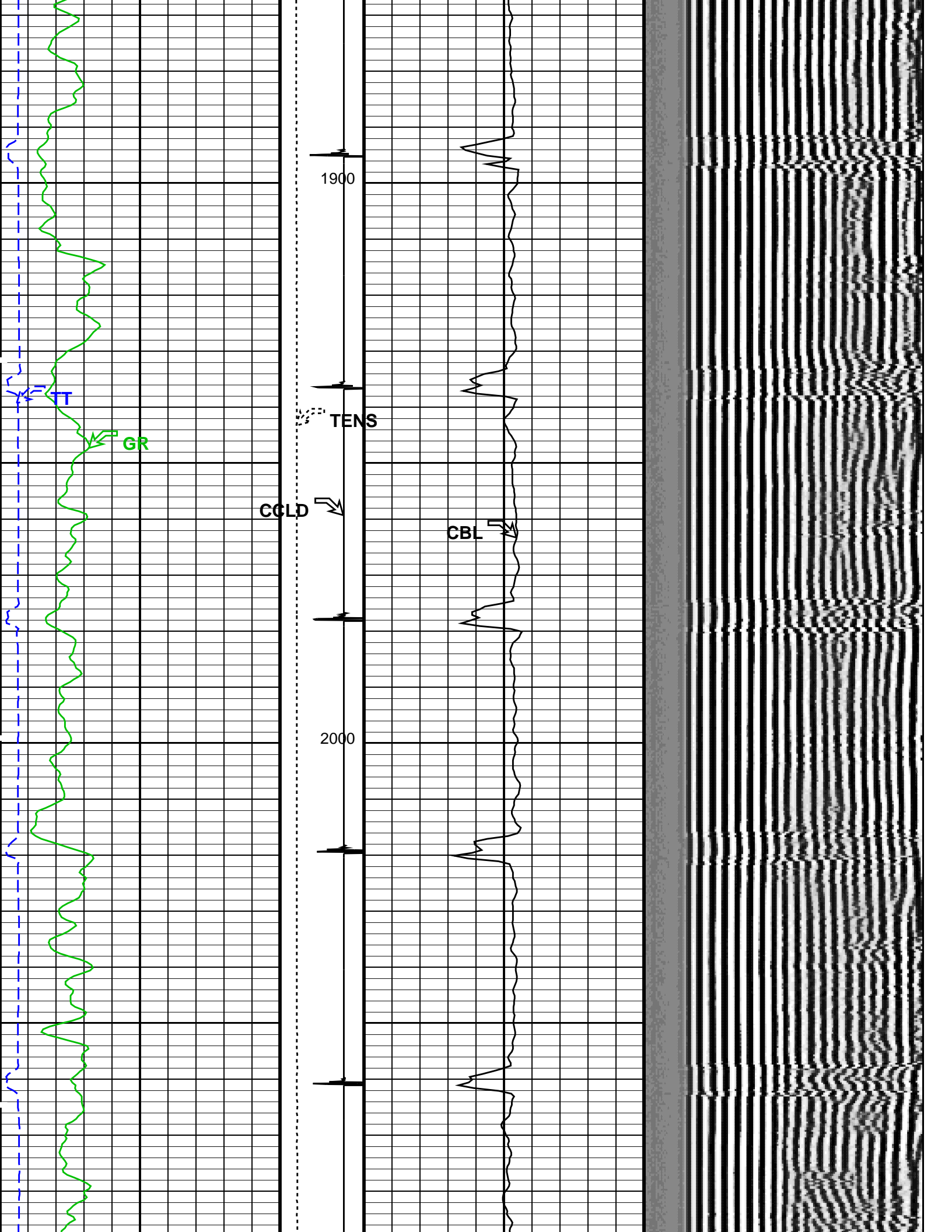


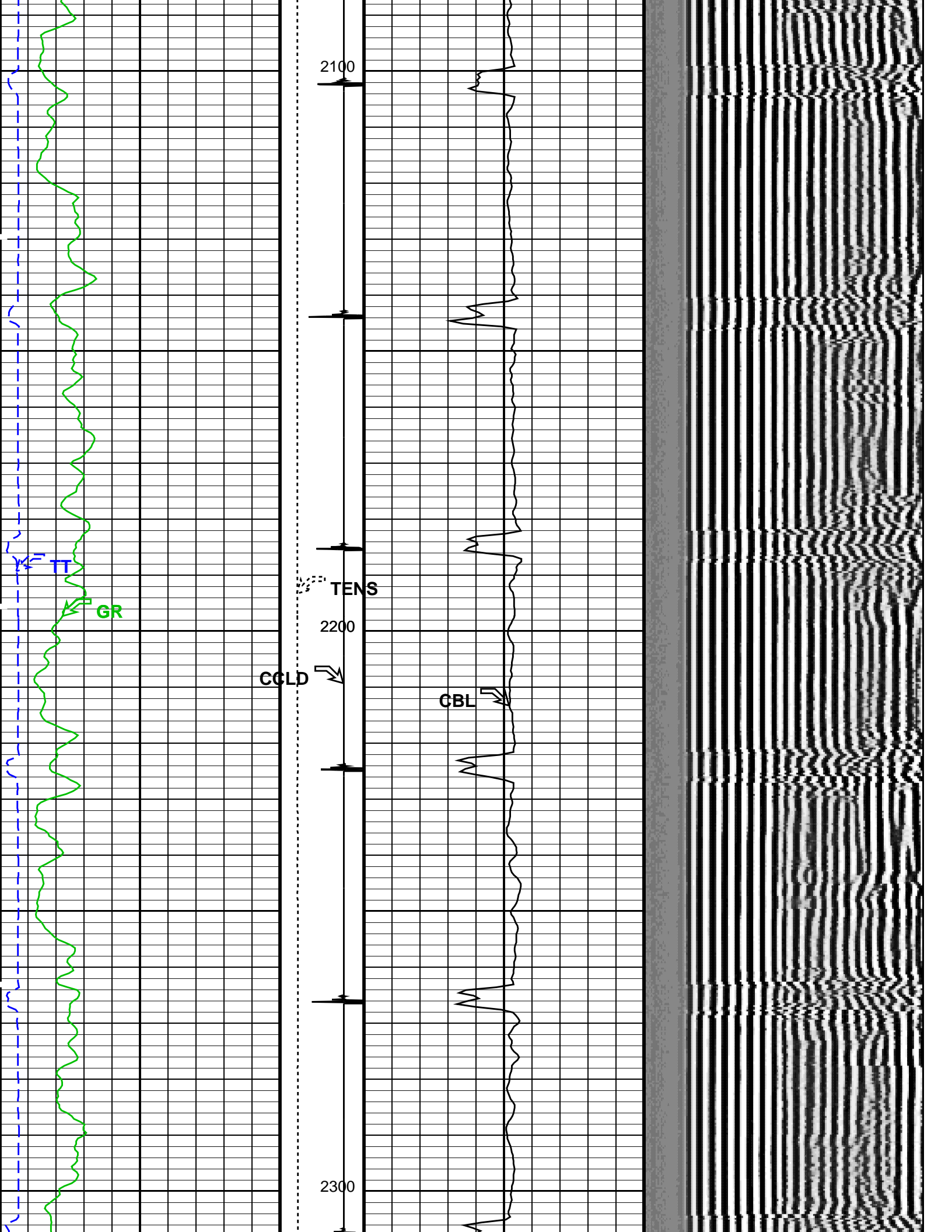


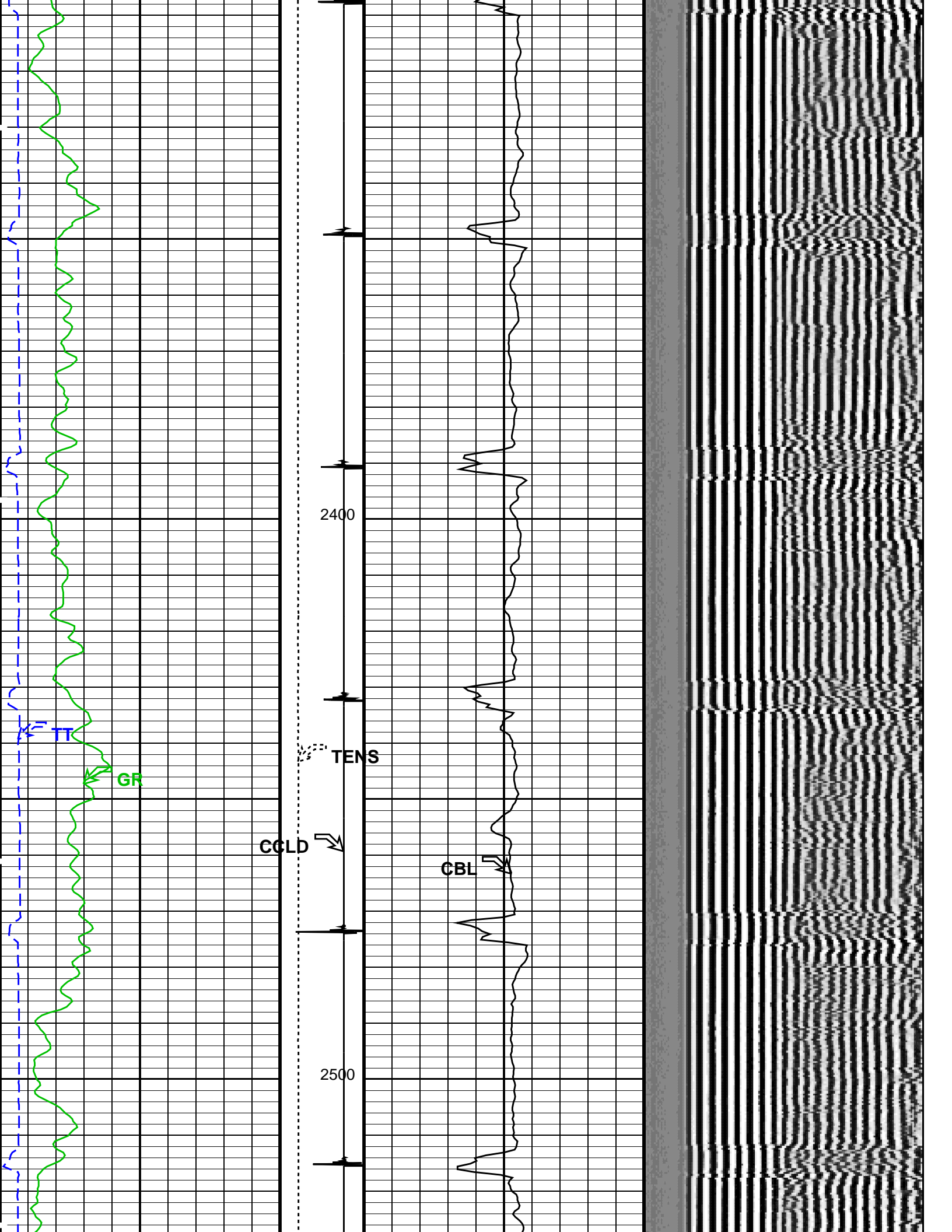


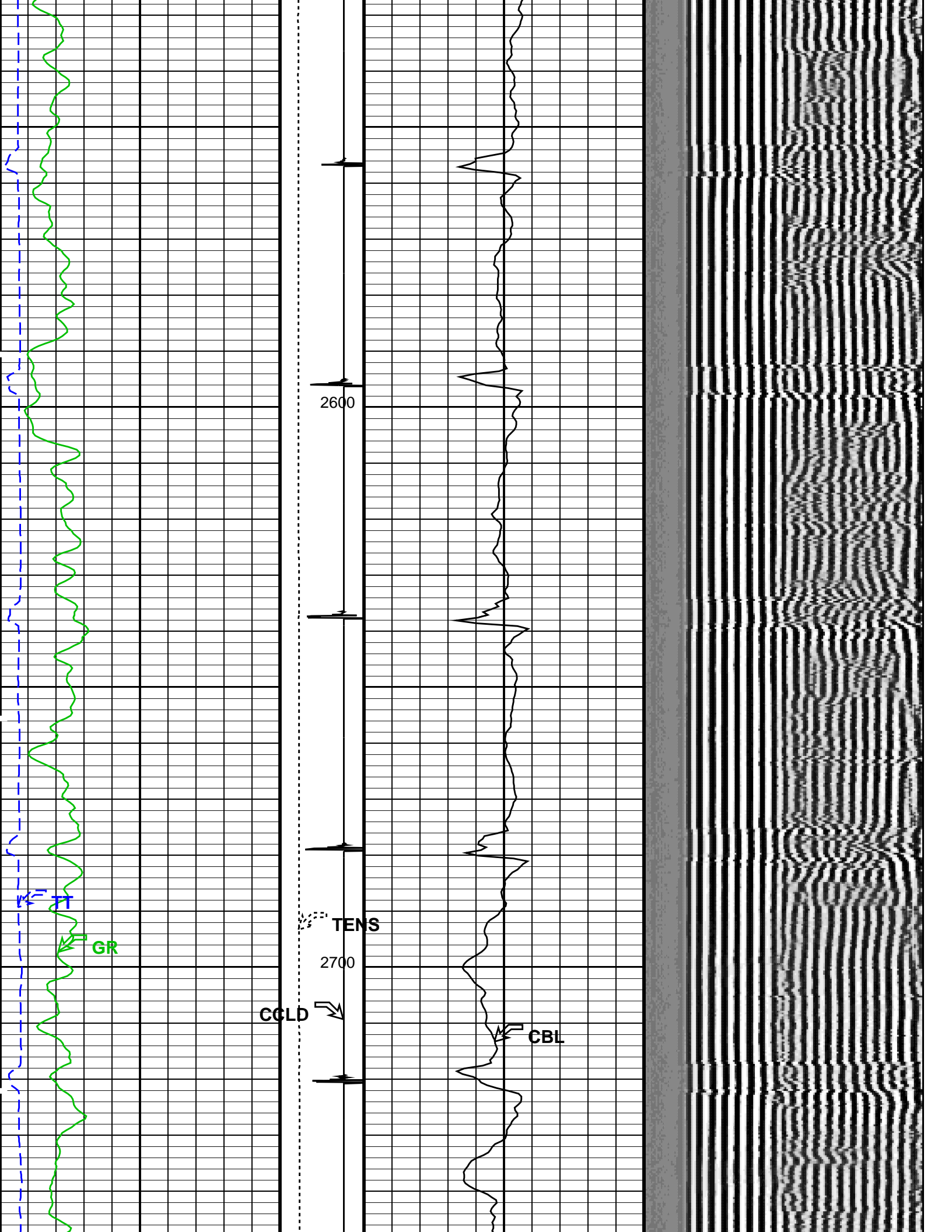












2600

TENS

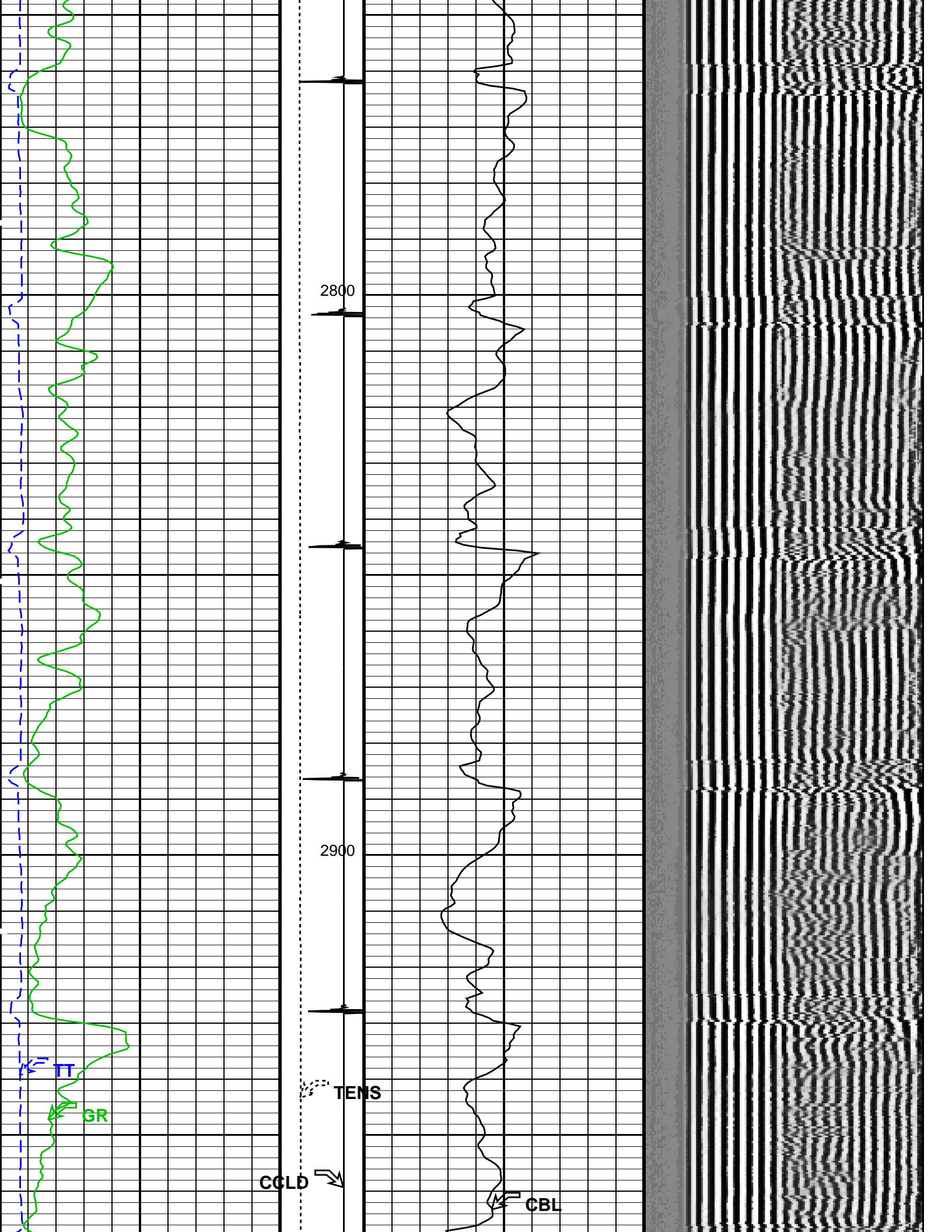
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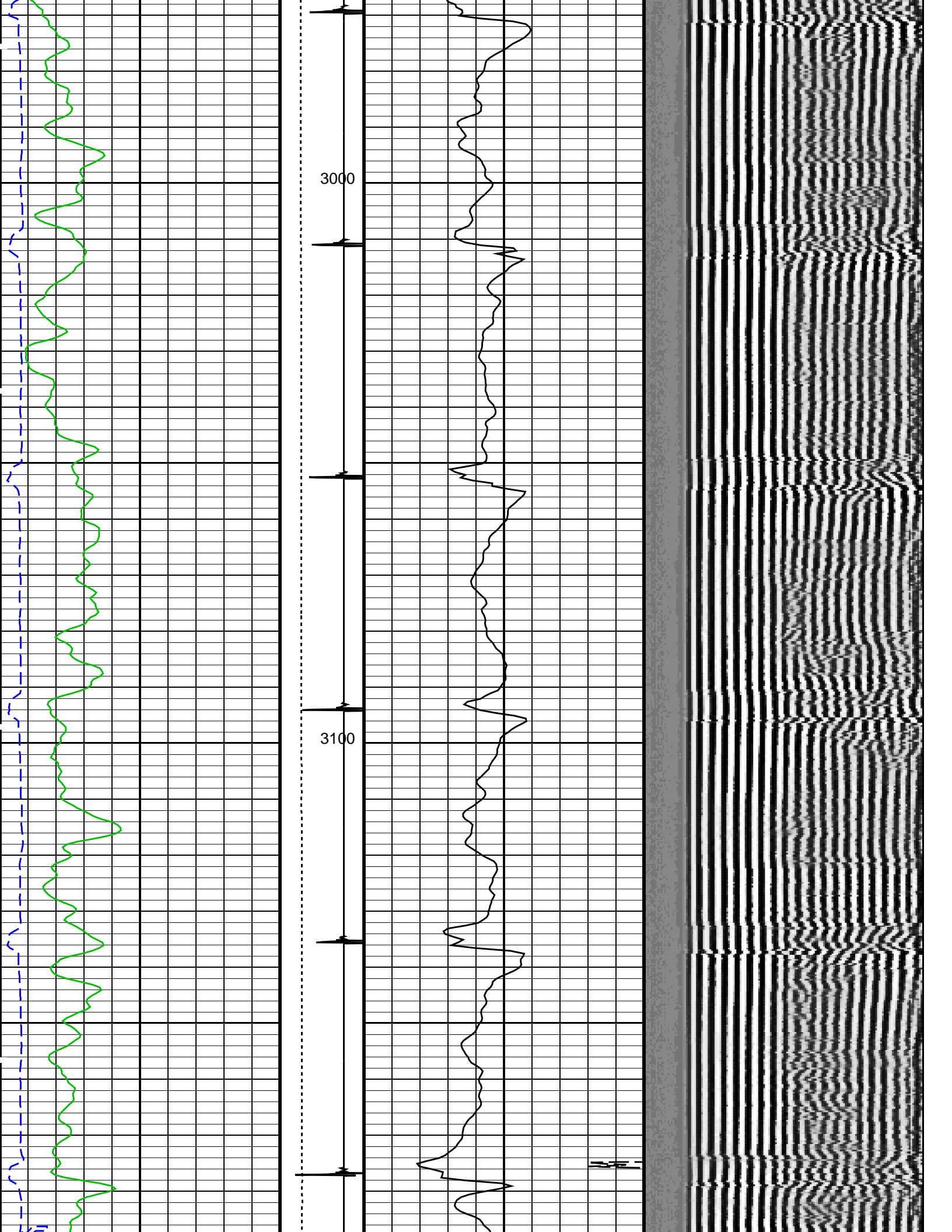
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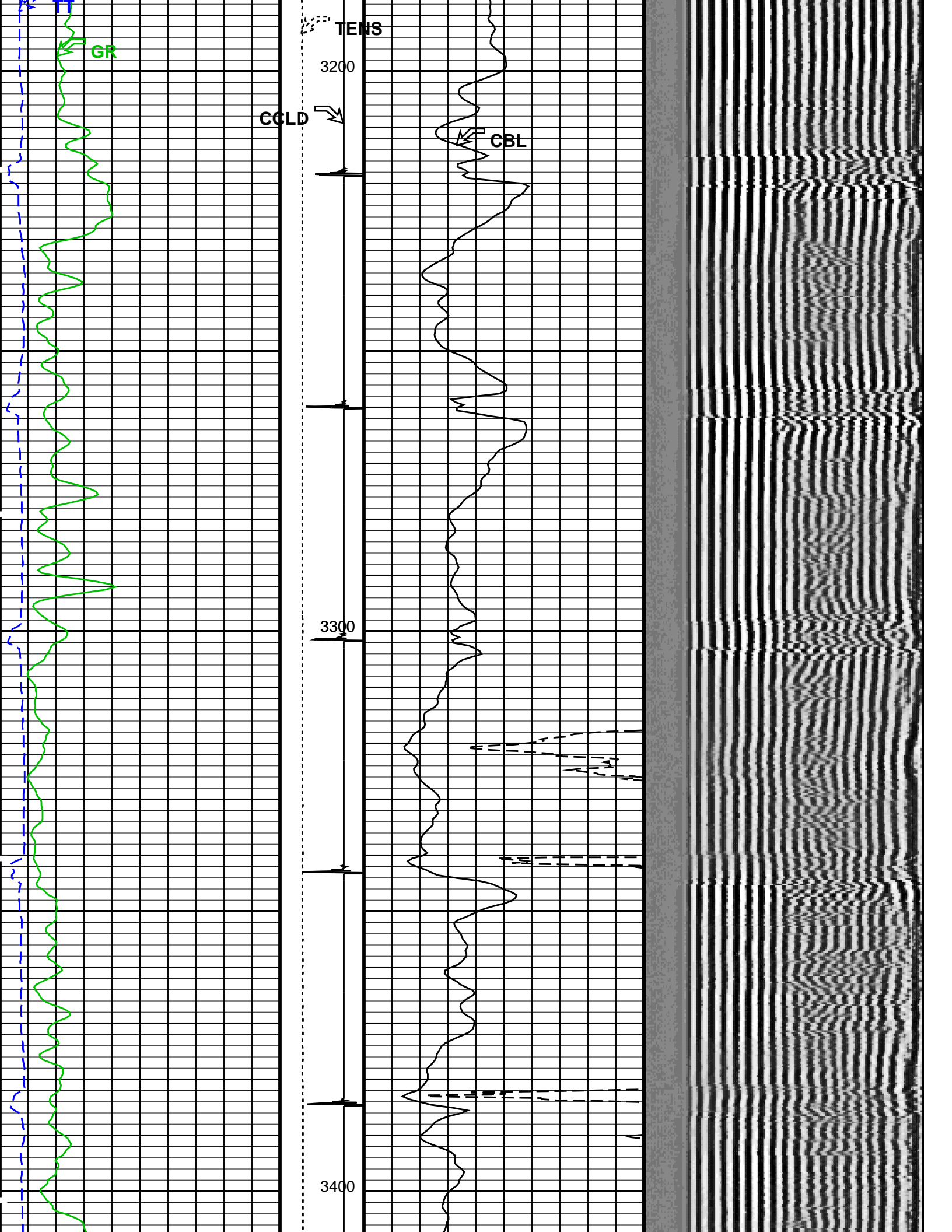
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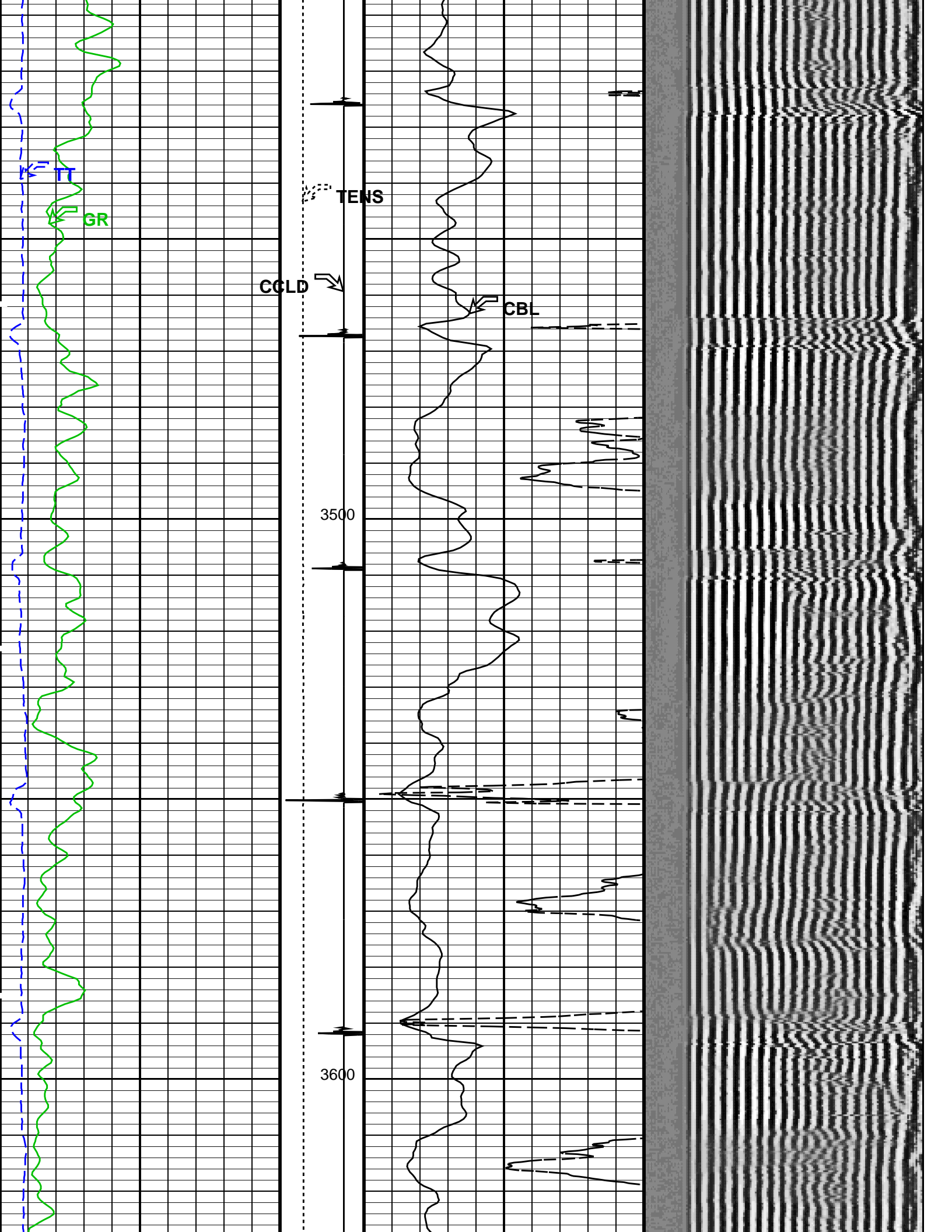
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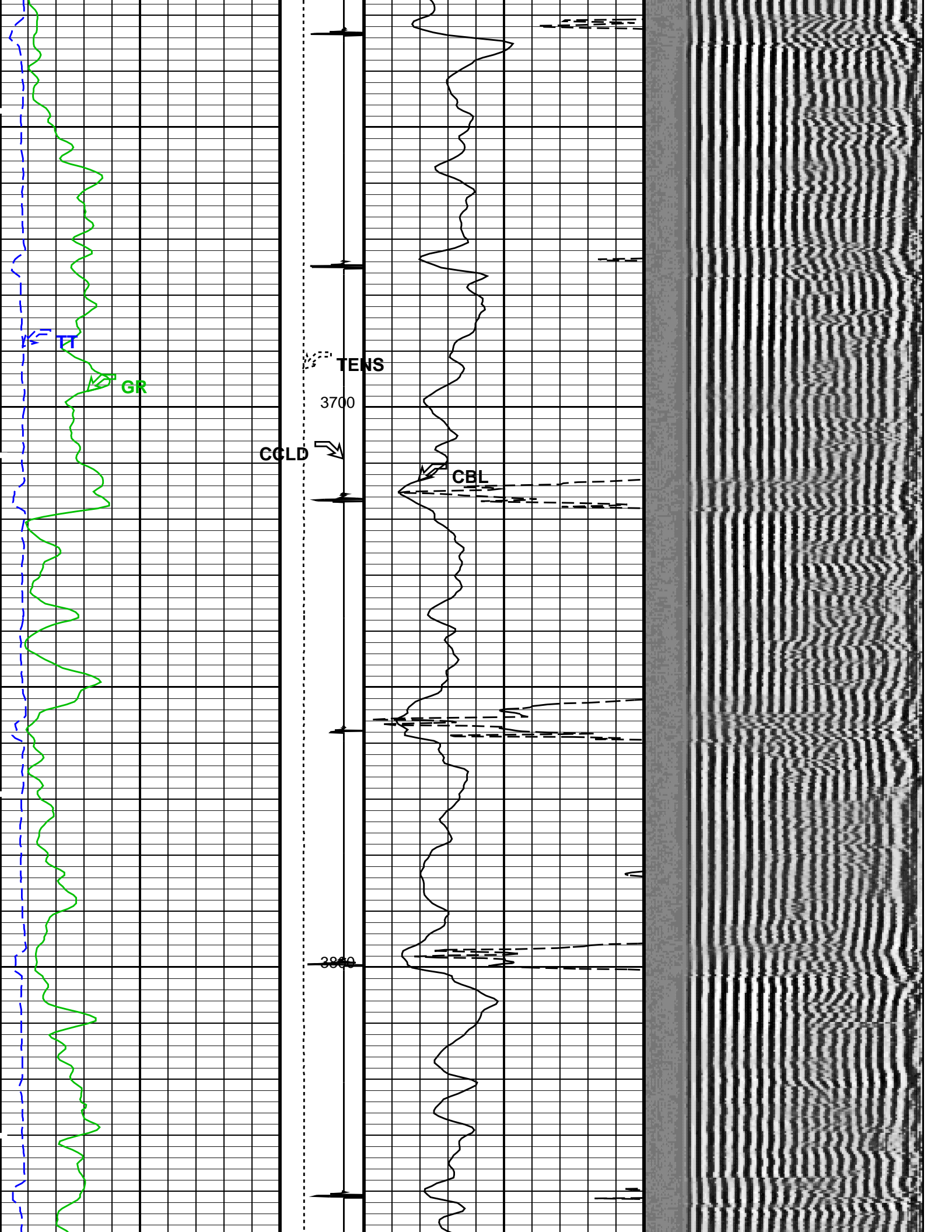
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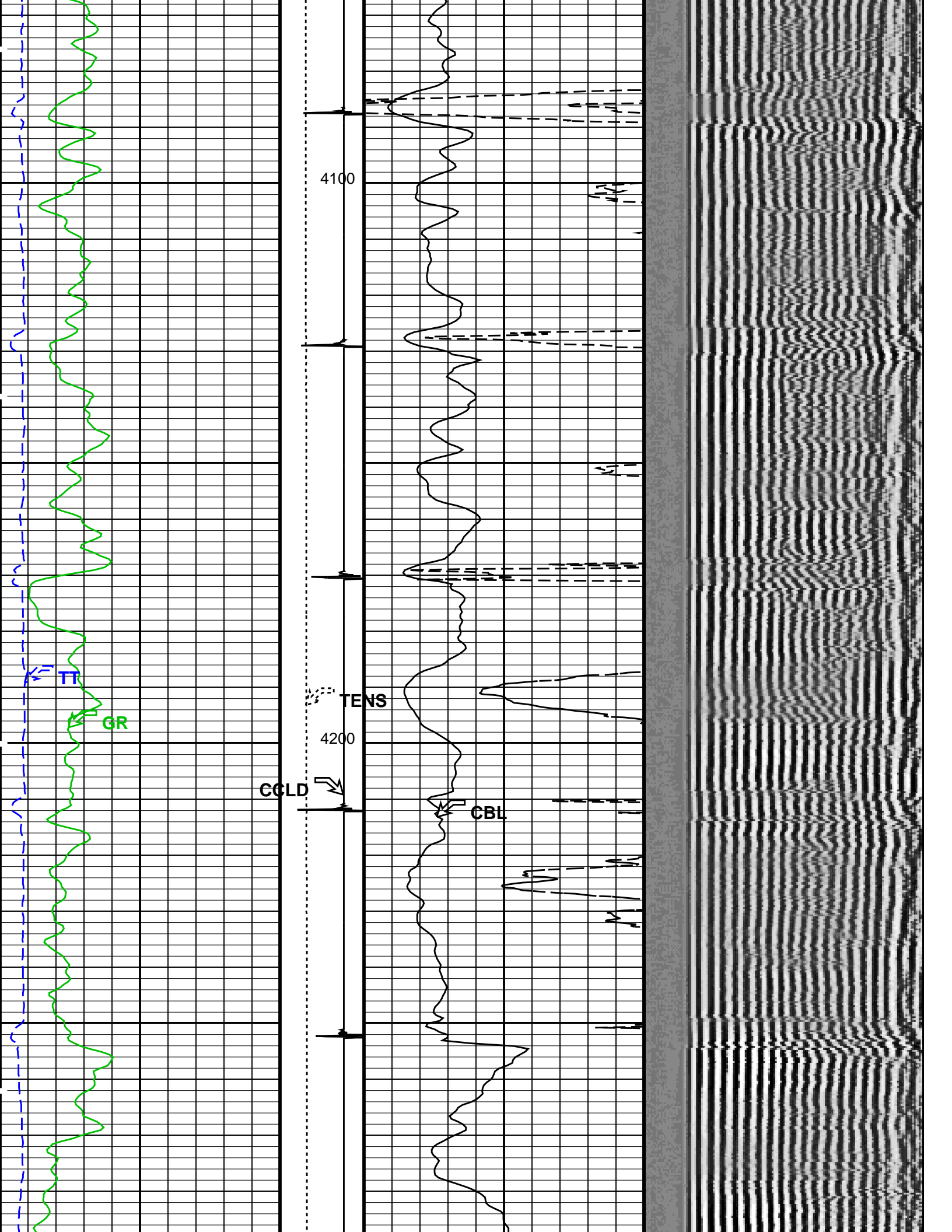


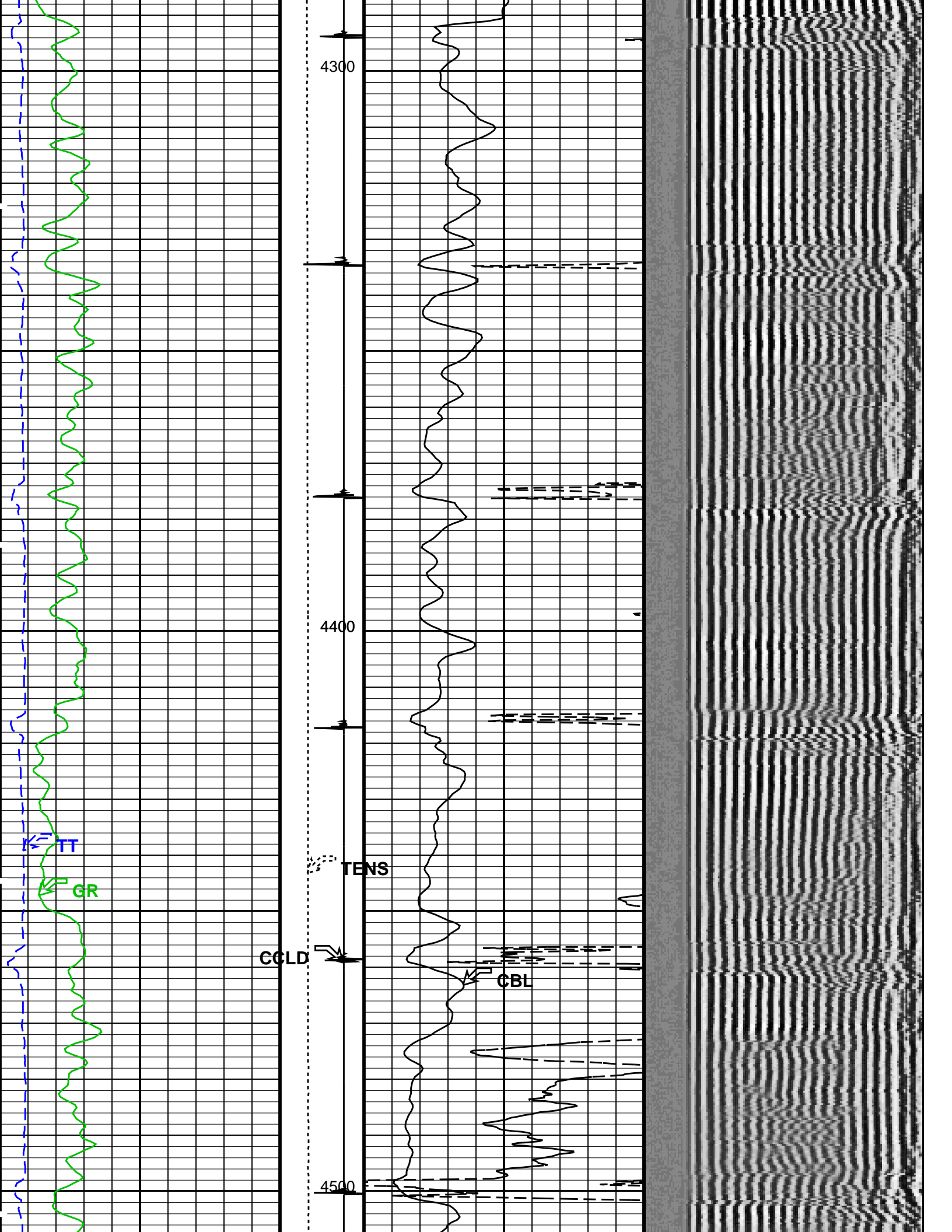


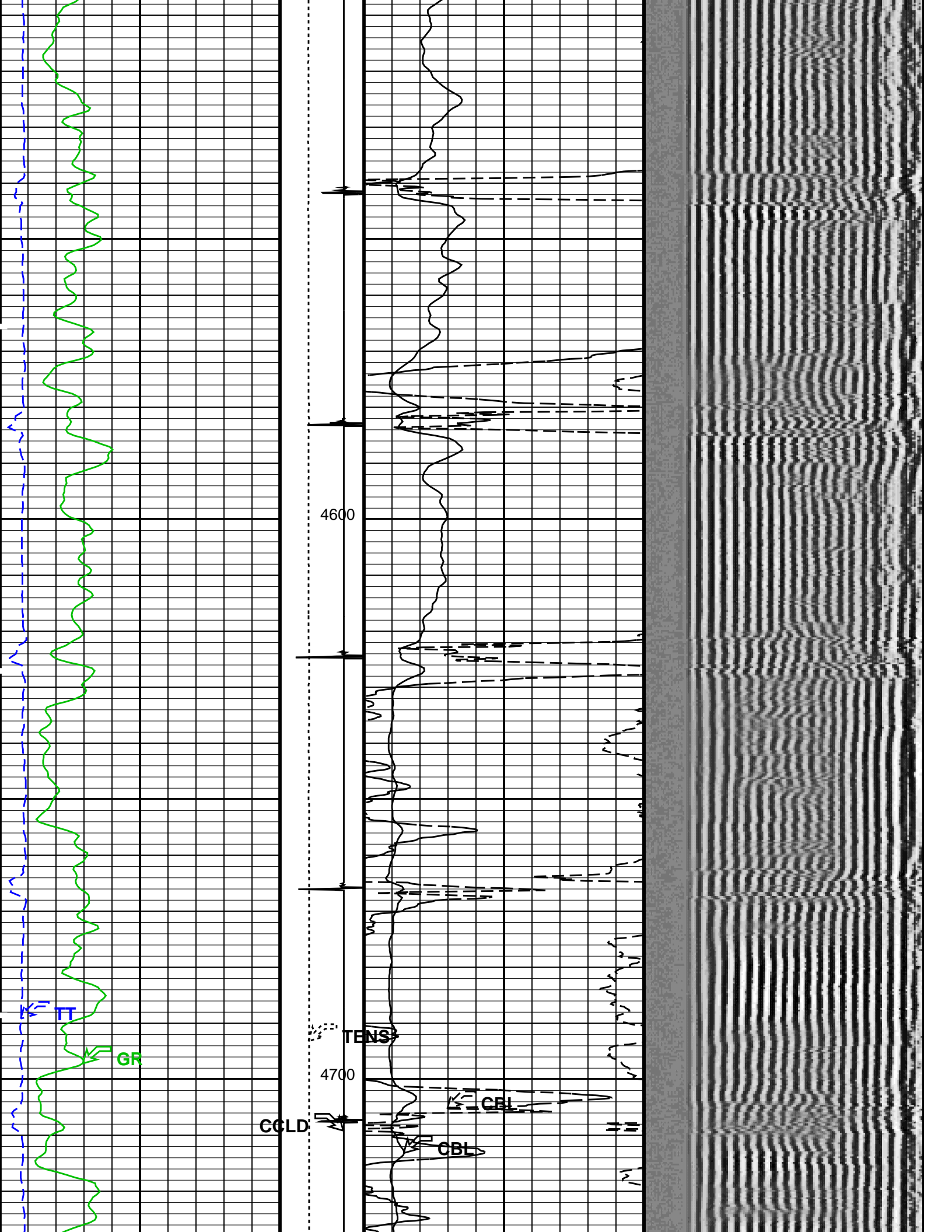


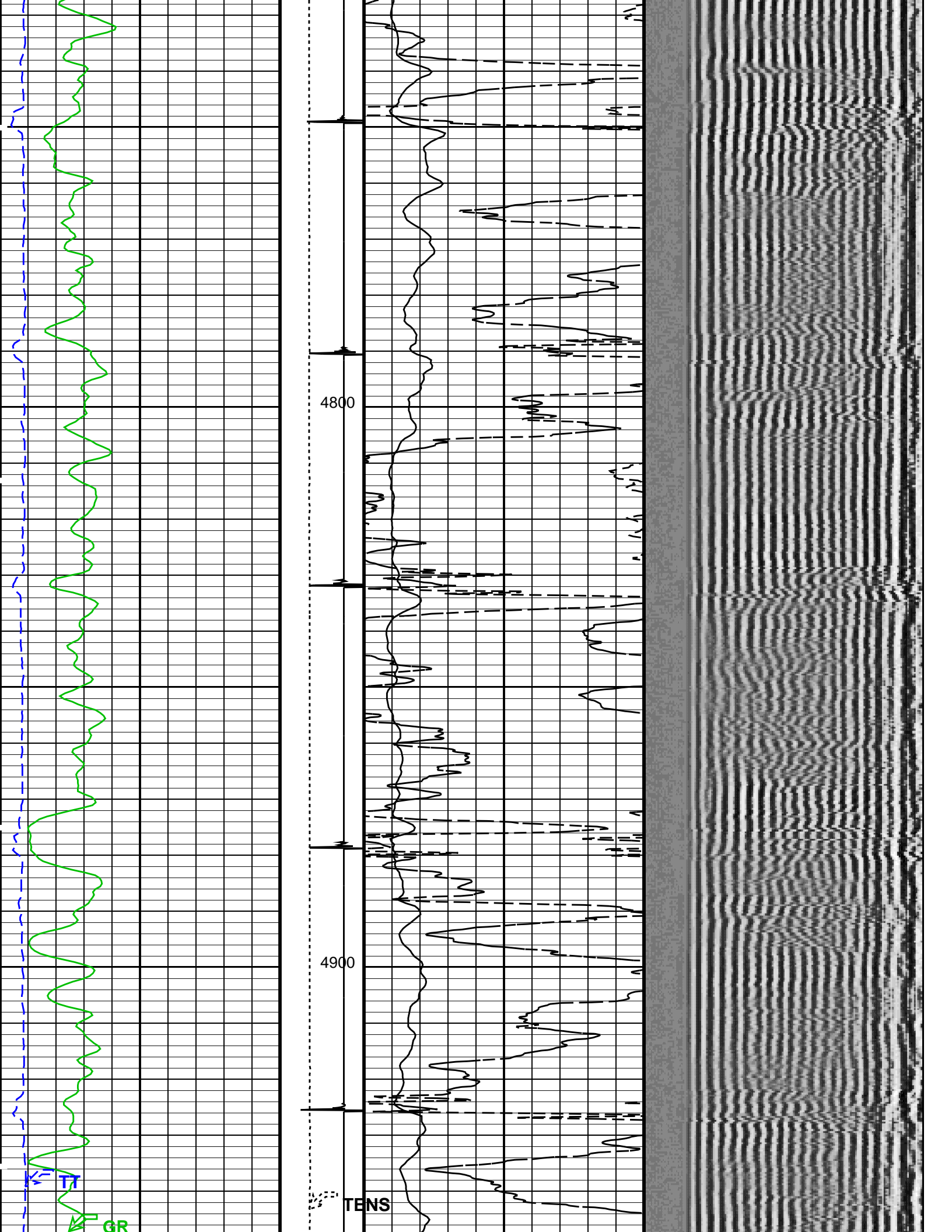


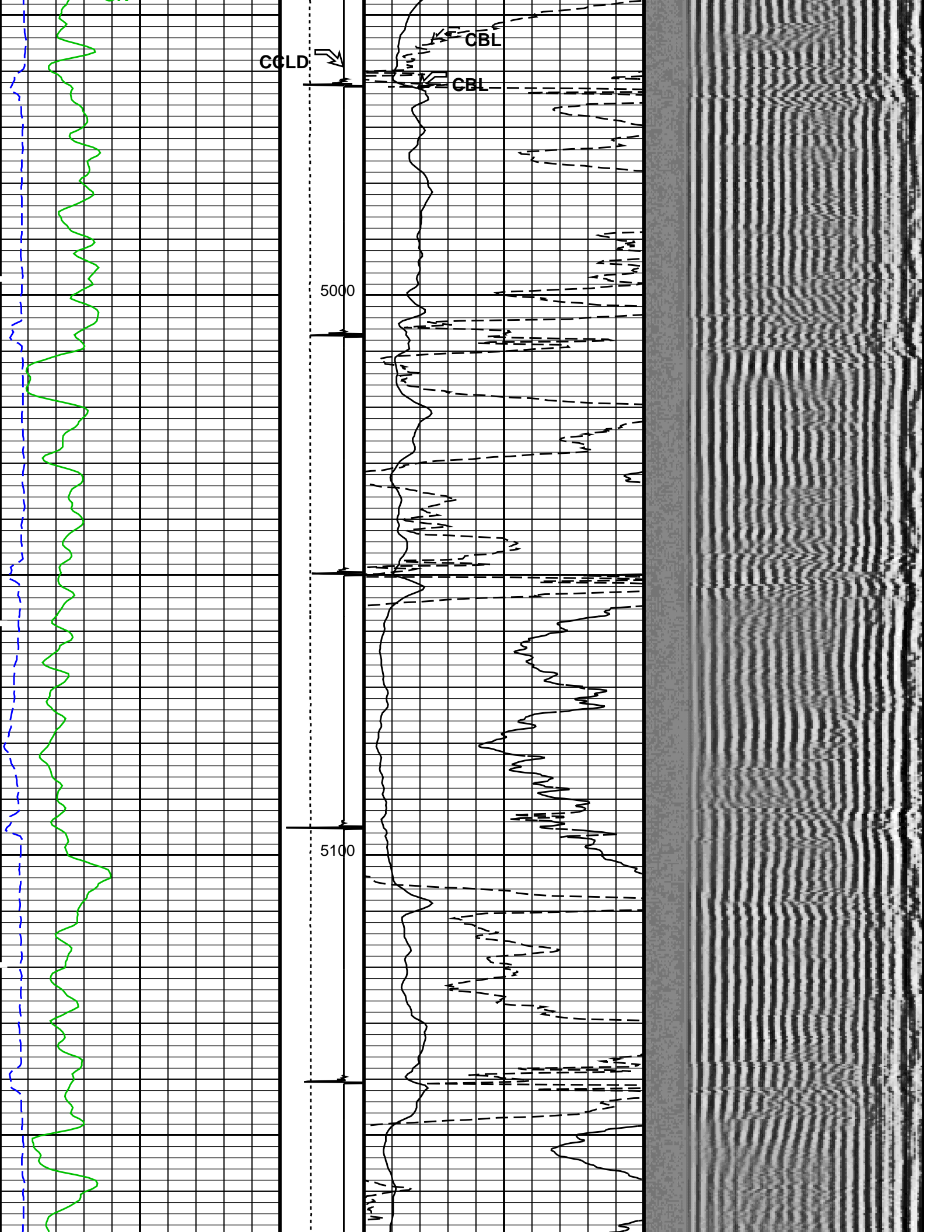


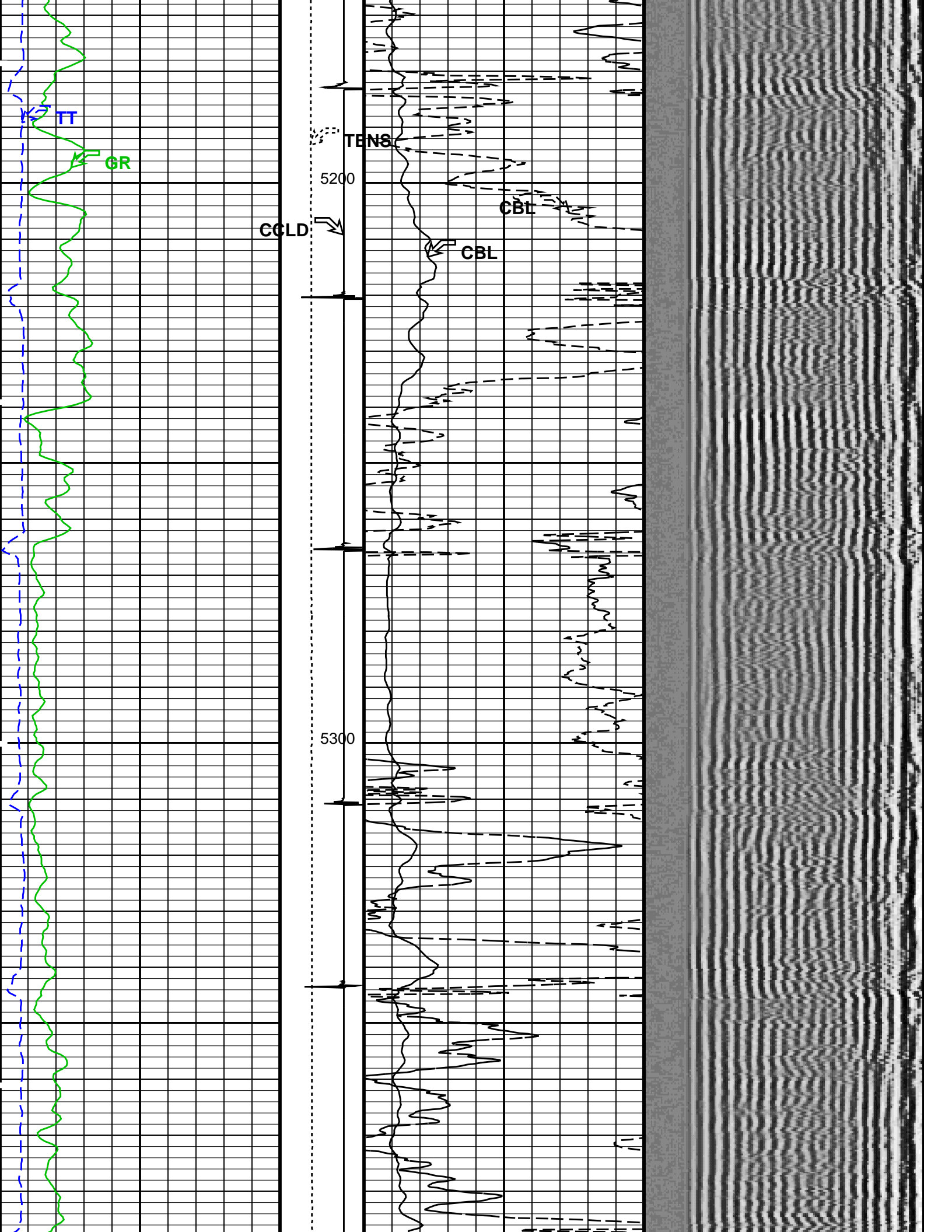


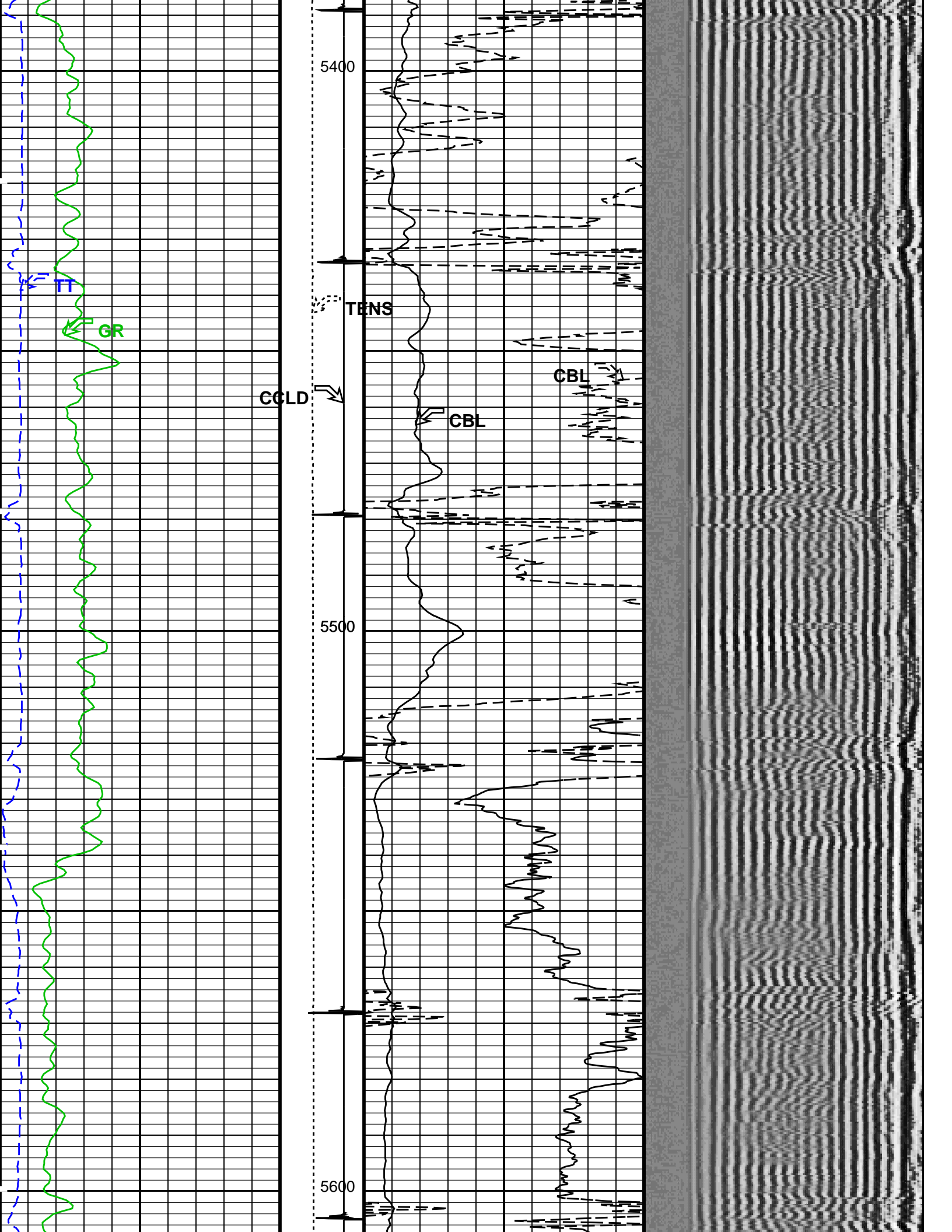


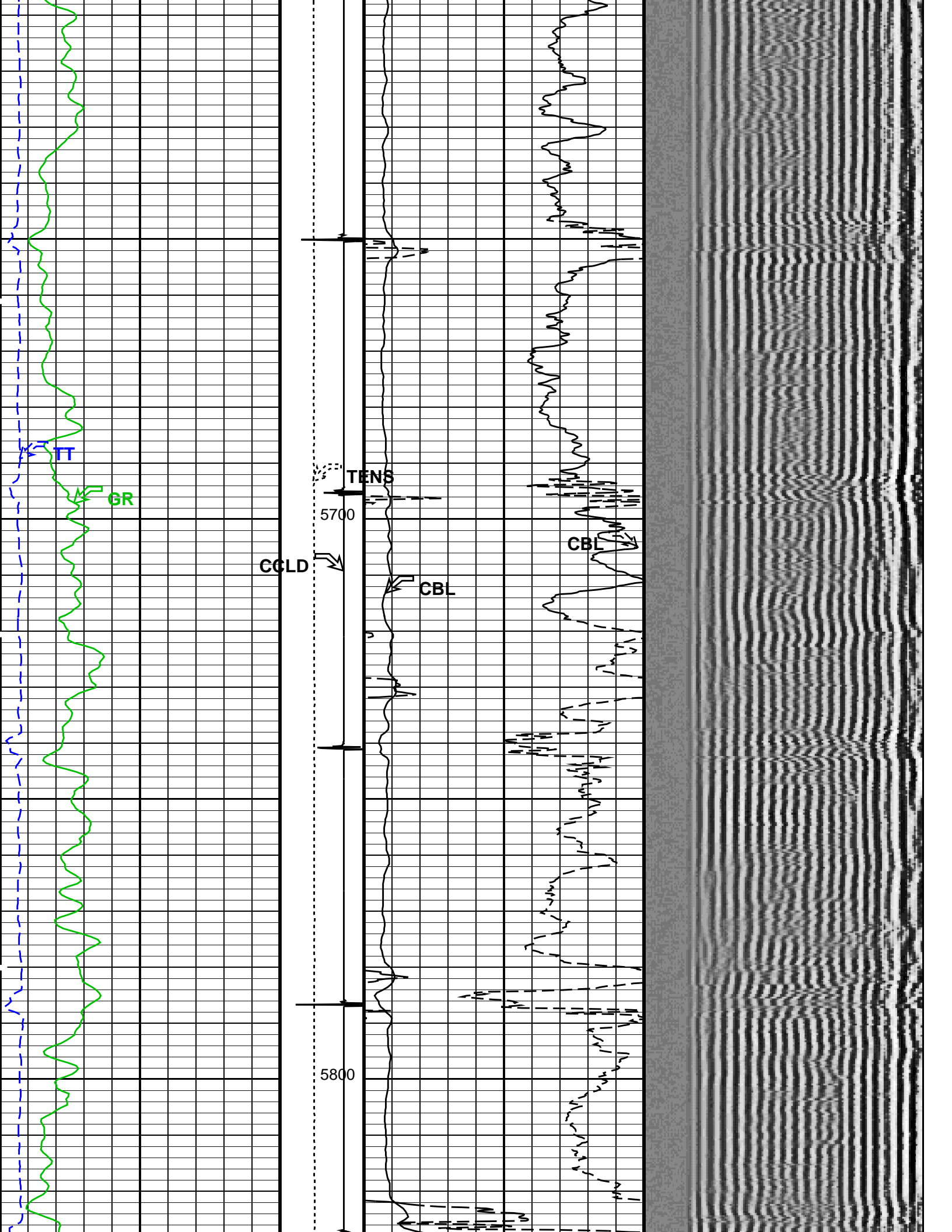


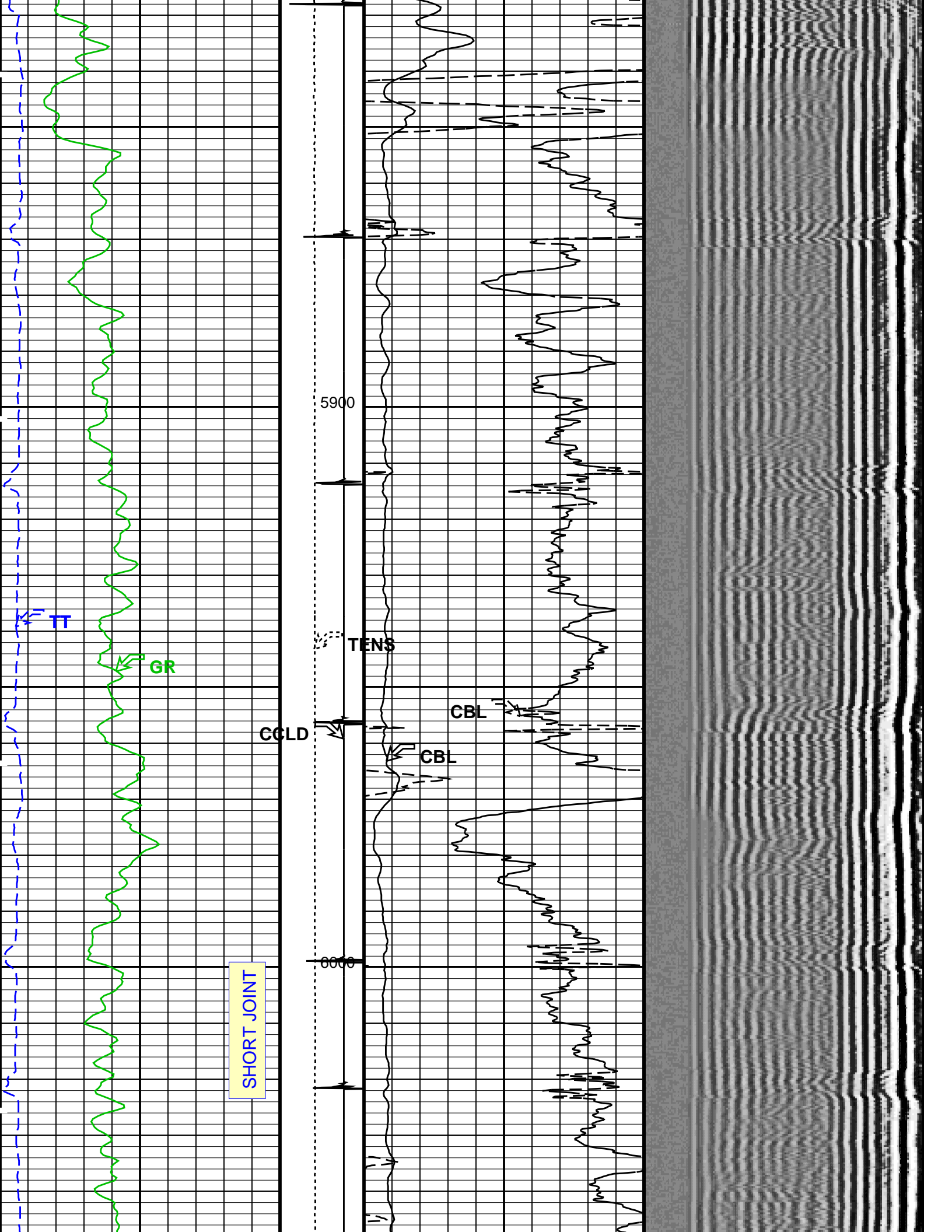


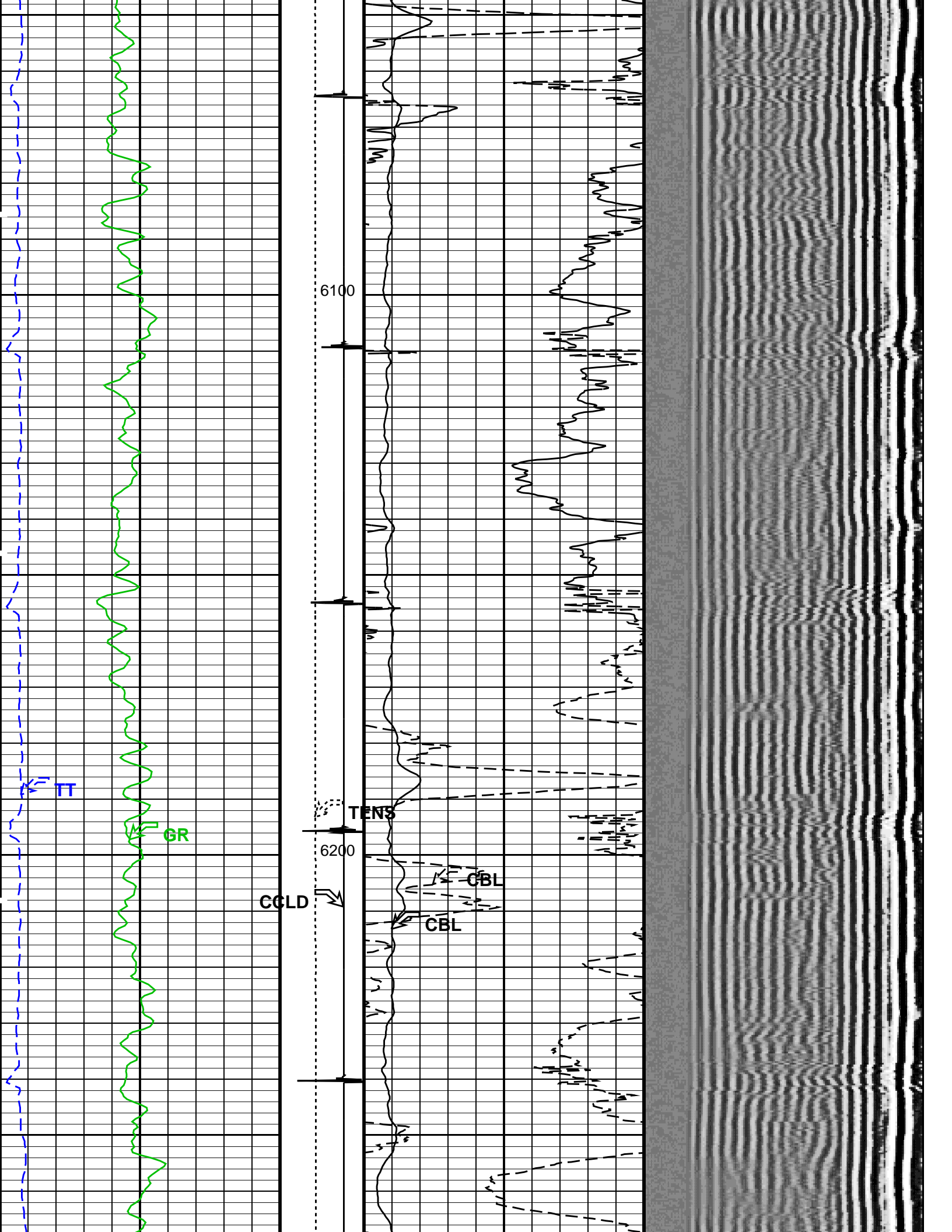


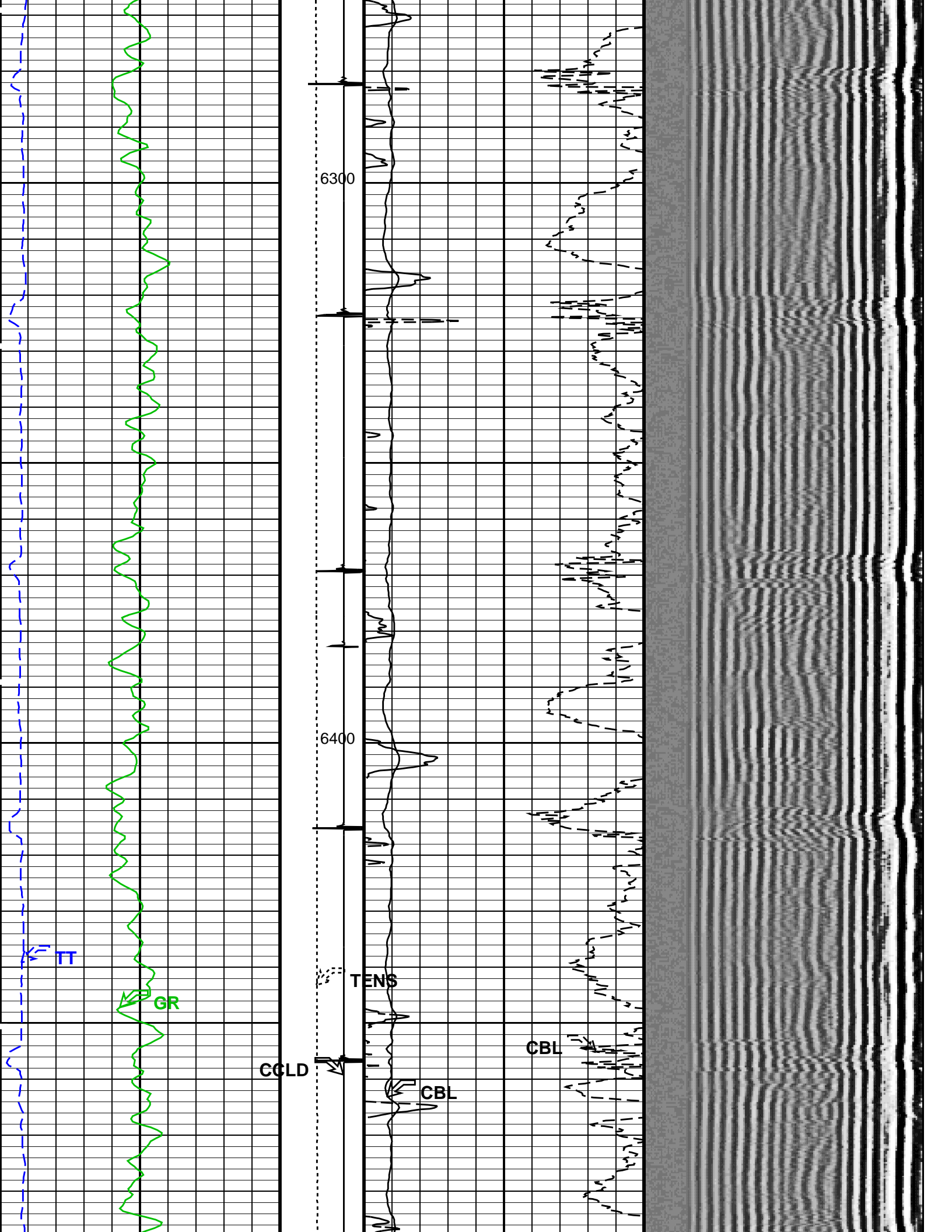


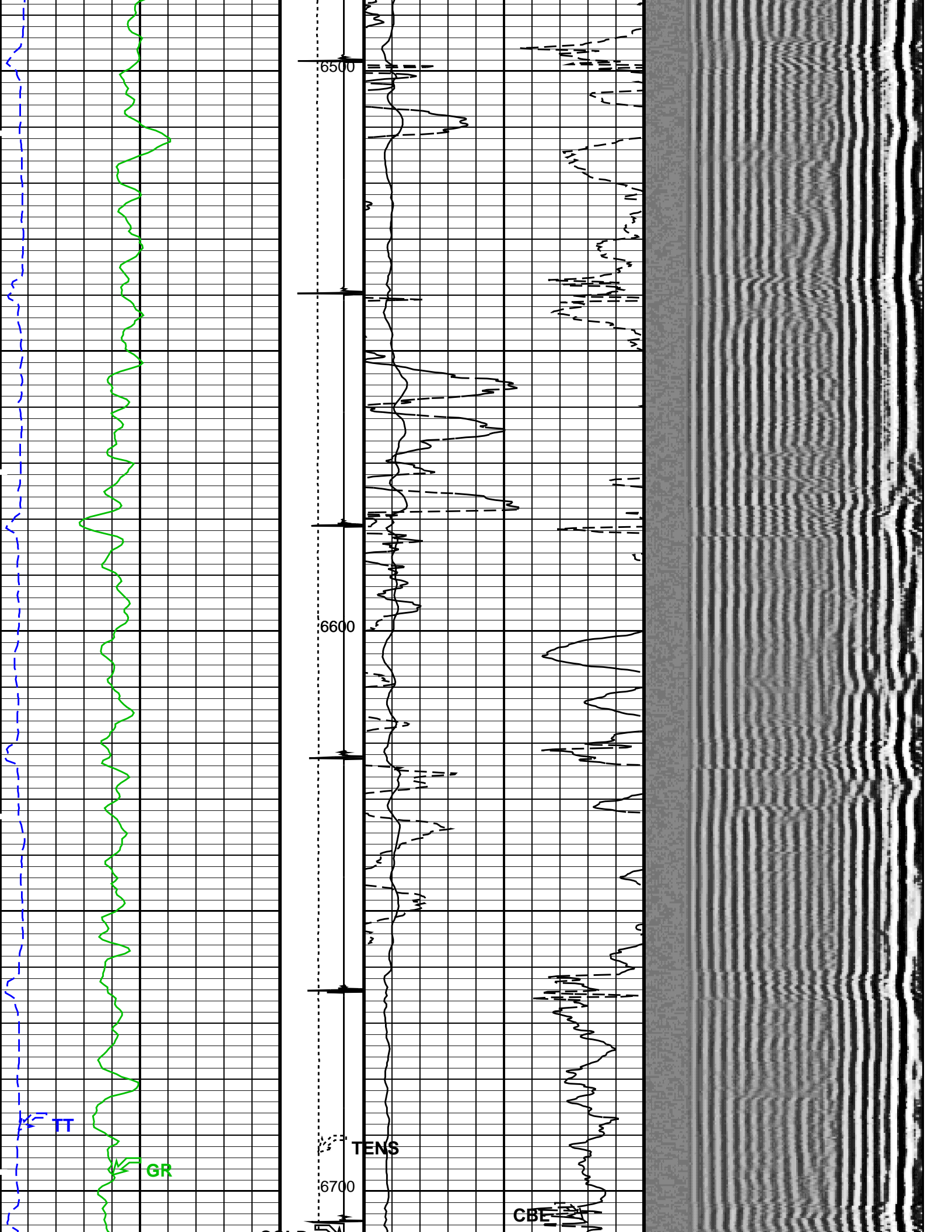










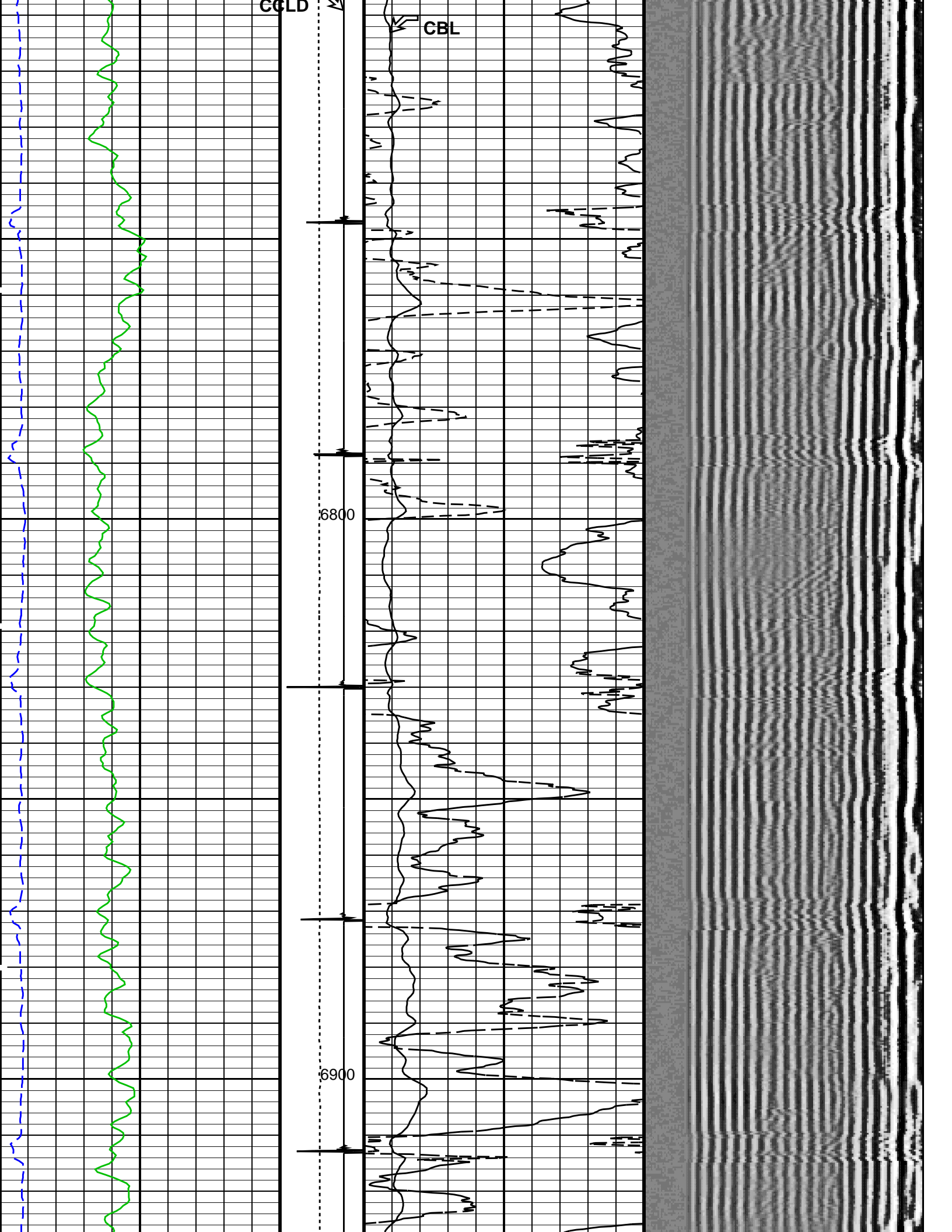


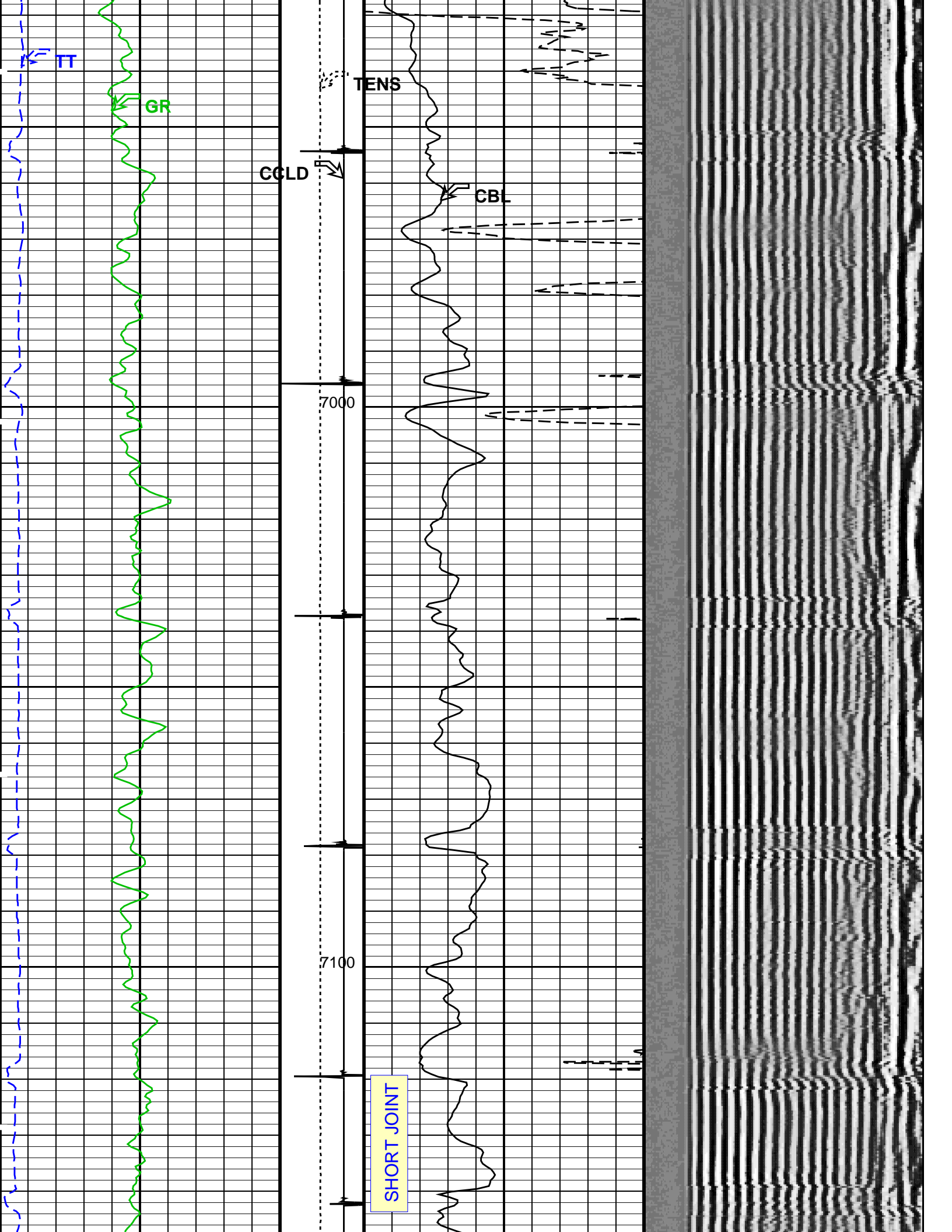
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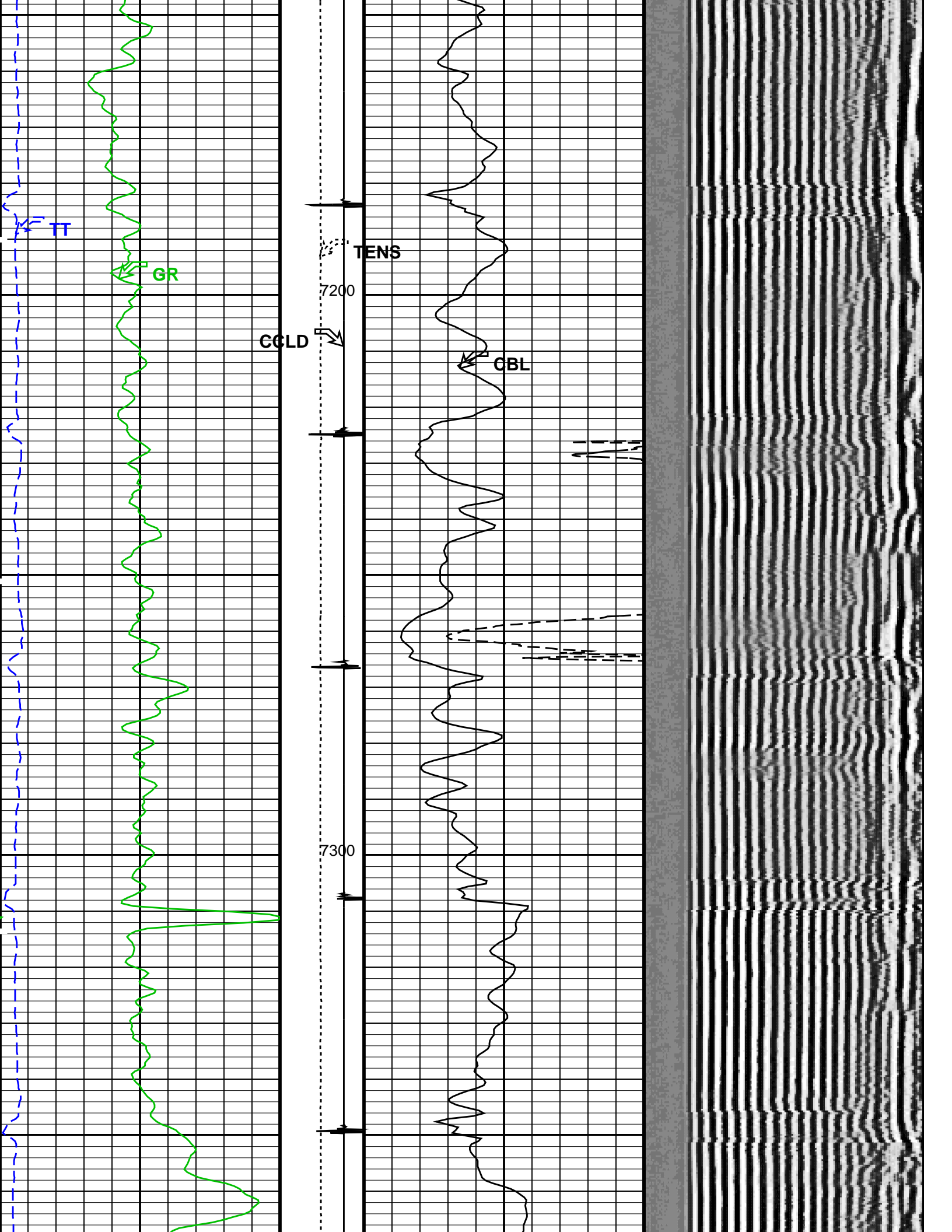
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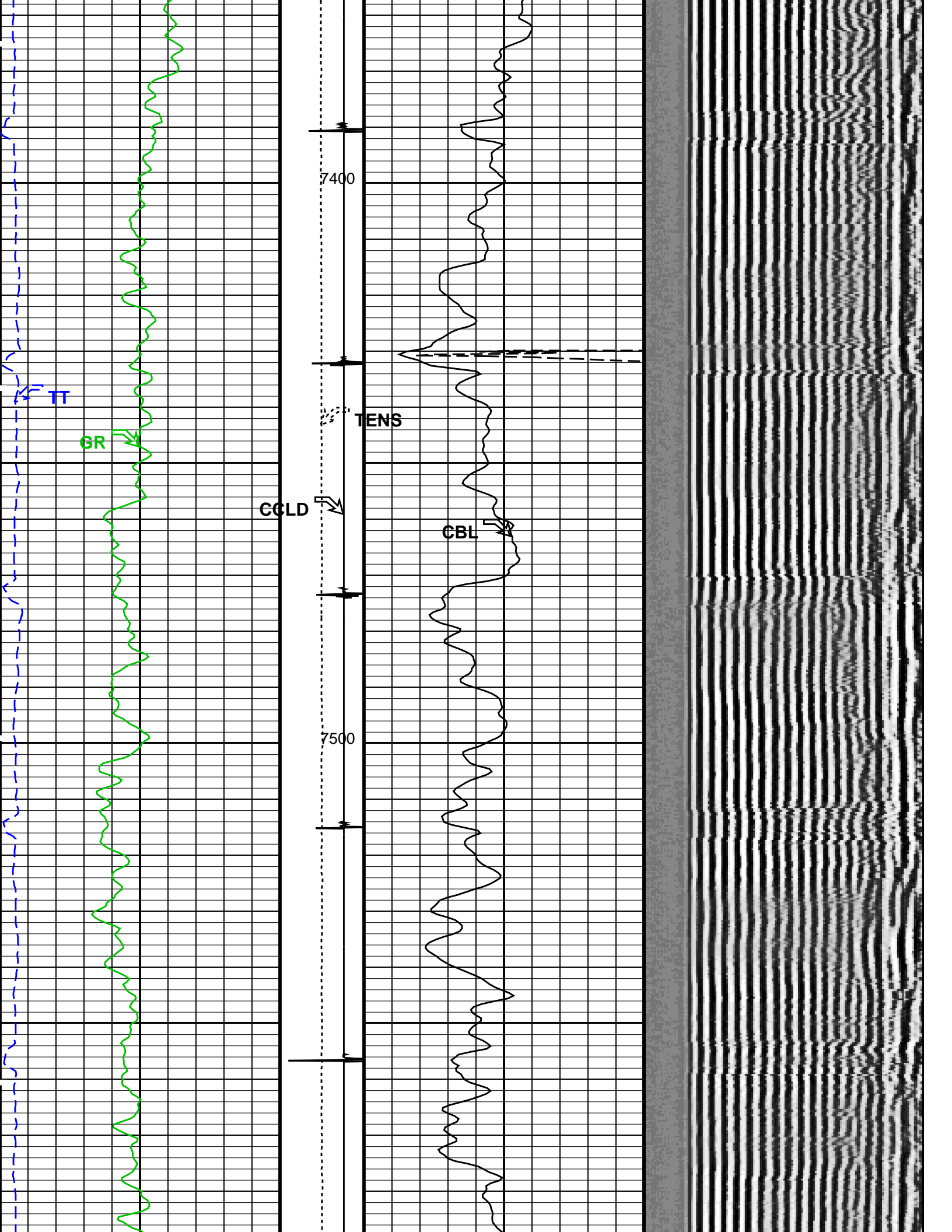
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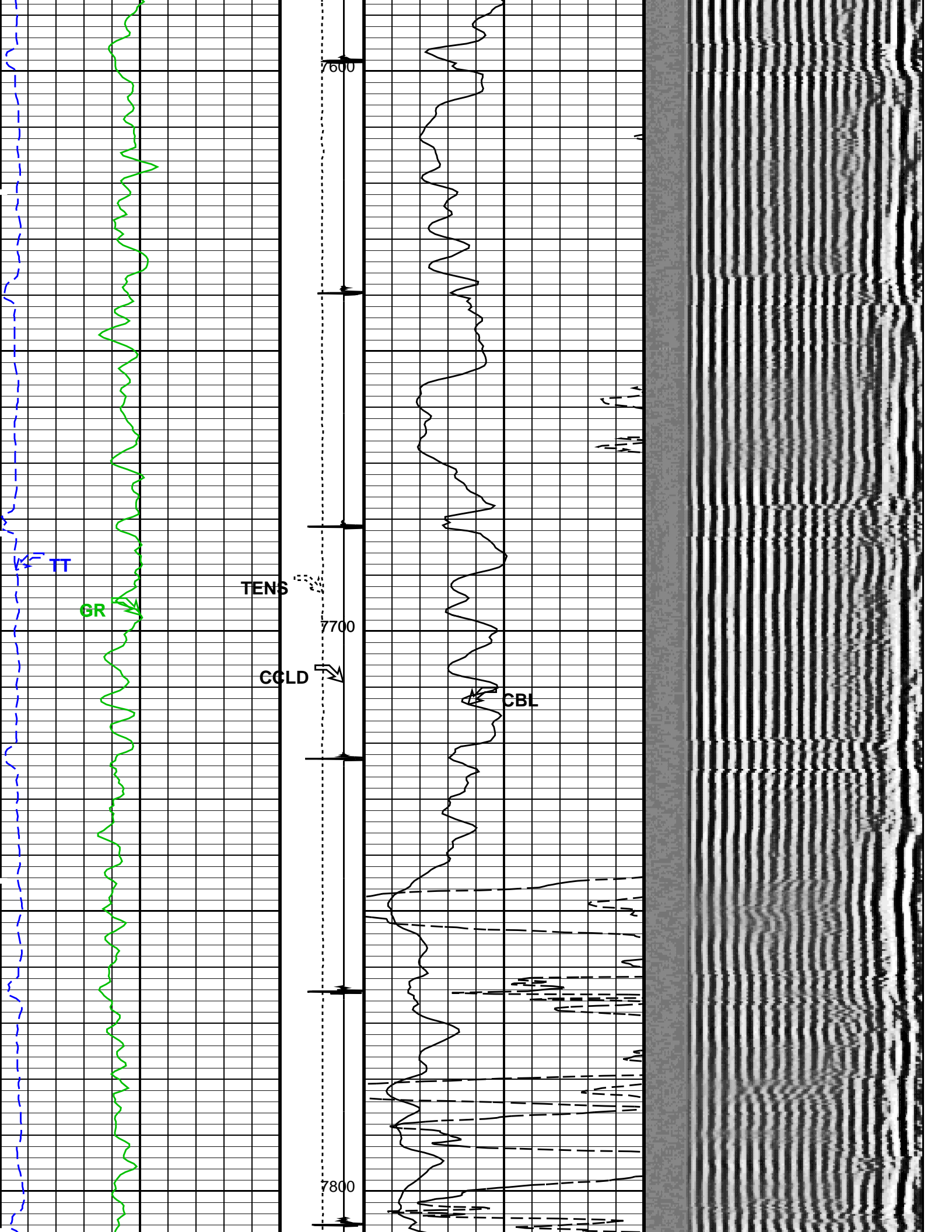
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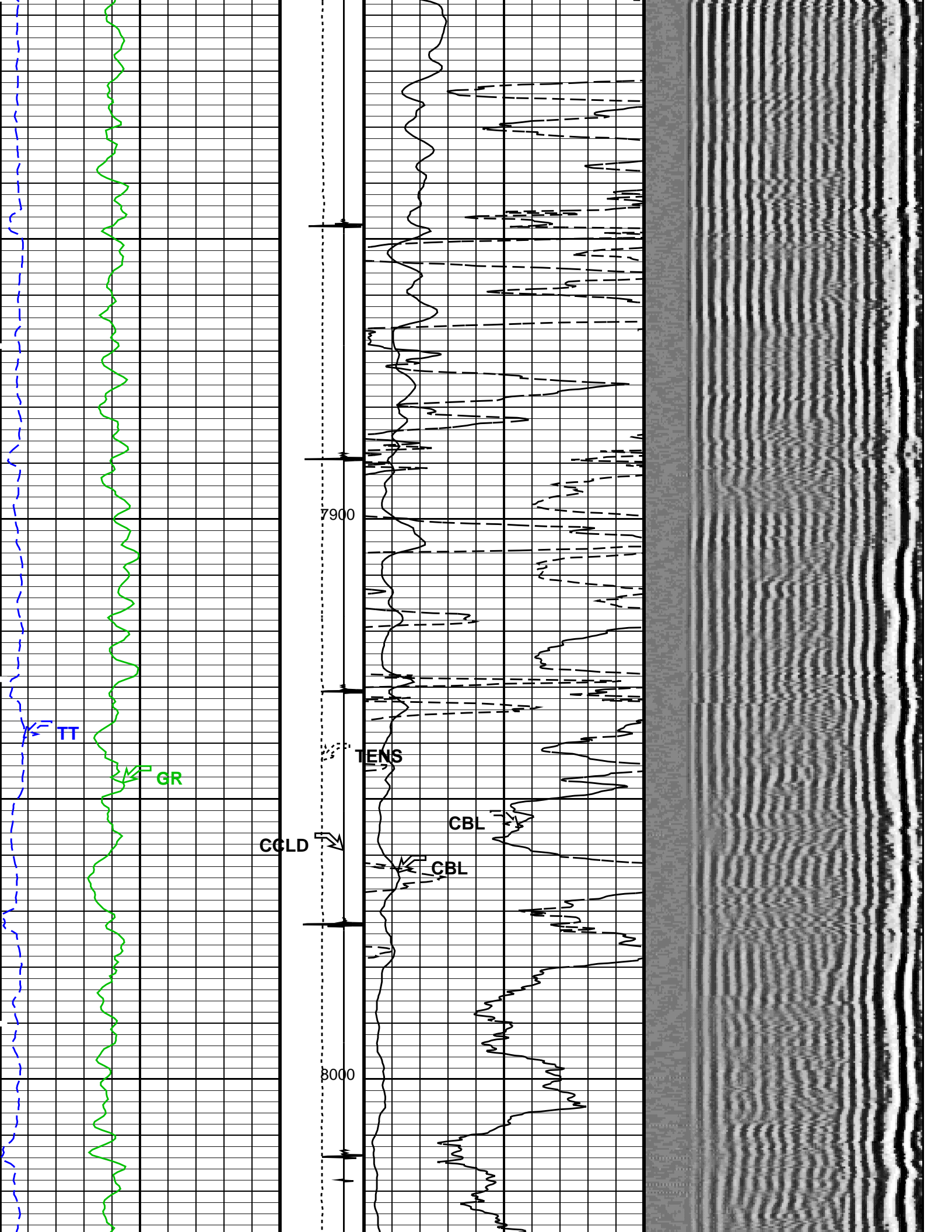


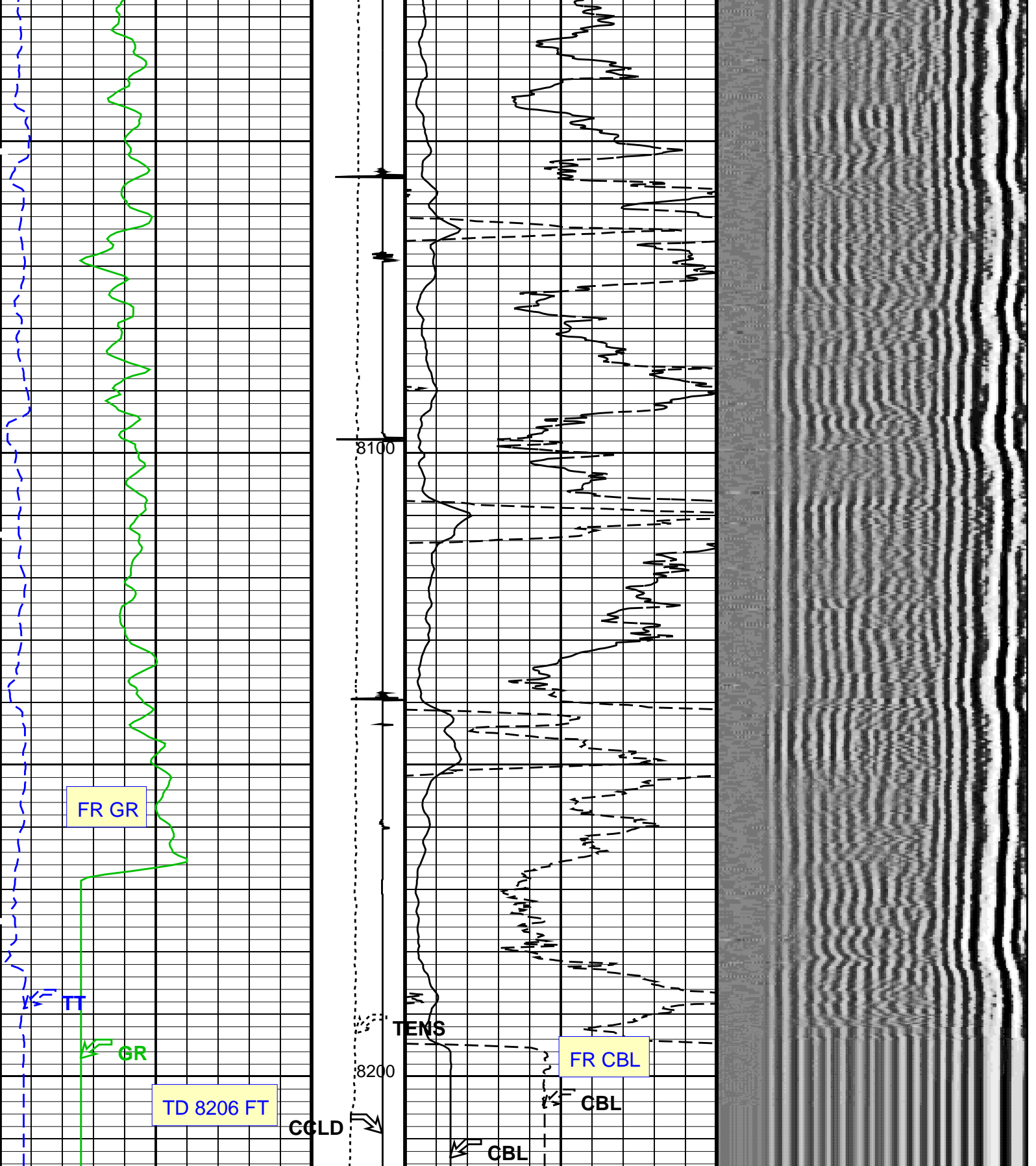












0	Gamma Ray (GR) (GAPI)	150	Tension (TENS) (LBF)	0	CBL Amplitude (CBL) (MV)	100	Min	Amplitude	Max
260	Transit Time (TT) (US)	160	Discriminat ed CCLD (CCLD)	0	CBL Amplitude (CBL) (MV)	10	200	VDL VariableDensity (VDL) (US)	1200
			3 (V) -1						

OP System Version: 19C0-187

SCMT-CB PSPT	SRPC-5047-H1-2011-OP19 19C0-187	RST-C	SRPC-5047-H1-2011-OP19
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<<<SCMT Cement Evaluation Information Summary>>>

Sonde Serial Number	SCMS-CB 8303			
Current Casing Size	5.0 IN			
Casing Weight	23.2000 LB/F			
Expected CBL Amplitude in Free Pipe Section	Expected CBL Amplitude	79 MV	Minimum Sonic Amplitude	5.93440 MV (100% Cement)
				9.95925 MV (80% Cement)
			MAP Minimum Sonic Amplitude	19.2132 MV (100% Cement)
				26.7227 MV (80% Cement)
Master Calibration (Normalization)		Before Calibration (Adjustment)		
Date of Master Calibration	17-JAN-2011			
CBL Correction Factor	0.0743637	CBL Adjustment Factor (CBAF)	1.0	
MAP 1 Correction Factor	0.165722	MAP Adjustment Factor (MPAF)	1.0	
MAP 2 Correction Factor	0.192039			
MAP 3 Correction Factor	0.132977			
MAP 4 Correction Factor	0.175062			
MAP 5 Correction Factor	0.161562			
MAP 6 Correction Factor	0.177685			
MAP 7 Correction Factor	0.144065			
MAP 8 Correction Factor	0.233552			

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	225.327	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	339.327	US
CB5T	SCMT CBL 5 ft Fixed Threshold Level	20	MV
CBLG	CBL Gate Width	40	US
CBRA	CBL LQC Reference Amplitude in Free Pipe	79	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	0.480067	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	9.95925	MV
MAPD	SCMT MAP Peak Detection Mode	PEAK	
MAPG	SCMT MAP Peak Detection T0_Delay and Noise Gate	168.327	US
MAPT	SCMT MAP Fixed Threshold Level	30	MV
MATT	Maximum Attenuation	9.1631	DB/F
MCCF	MAP Cement Type Compensation Factor	1	
MCI	Minimum Cemented Interval for Isolation	3	FT
MMSA	MAP Minimum Sonic Amplitude	19.2132	MV
MSA	Minimum Sonic Amplitude	5.9344	MV
PEDE	Peak Detection On/Off Switch in Playback	OFF	
VDLG	VDL Manual Gain	5	
ZCMT	Acoustic Impedance of Cement	6.8	MRAY
System and Miscellaneous			
CWEI	Casing Weight	23.20	LB/F
DFD	Drilling Fluid Density	8.40	LB/G
DO	Depth Offset for Playback	16.2	FT
DOBI	Depth Offset for Repeat Analysis	0.0	FT

Input DLIS Files

DEFAULT SCMT_RST_PSP_024LUP FN:22 PRODUCER 17-Sep-2011 20:43 8198.5 FT 135.0 FT

Output DLIS Files

DEFAULT SCMT_RST_PSP_029PUP FN:27 PRODUCER 17-Sep-2011 22:56



REPEAT ANALYSIS

MAXIS Field Log

Company: ENCANA OIL & GAS (USA) INC. Well: ORCHARD UNIT 23-10HM (D14OU)

Input DLIS Files

DEFAULT SCMT_RST_PSP_024LUP FN:22 PRODUCER 17-Sep-2011 20:43 8198.5 FT 135.0 FT
 DEFAULT SCMT_RST_PSP_028PUP FN:26 PRODUCER 17-Sep-2011 22:53 7346.0 FT 6961.0 FT

Output DLIS Files

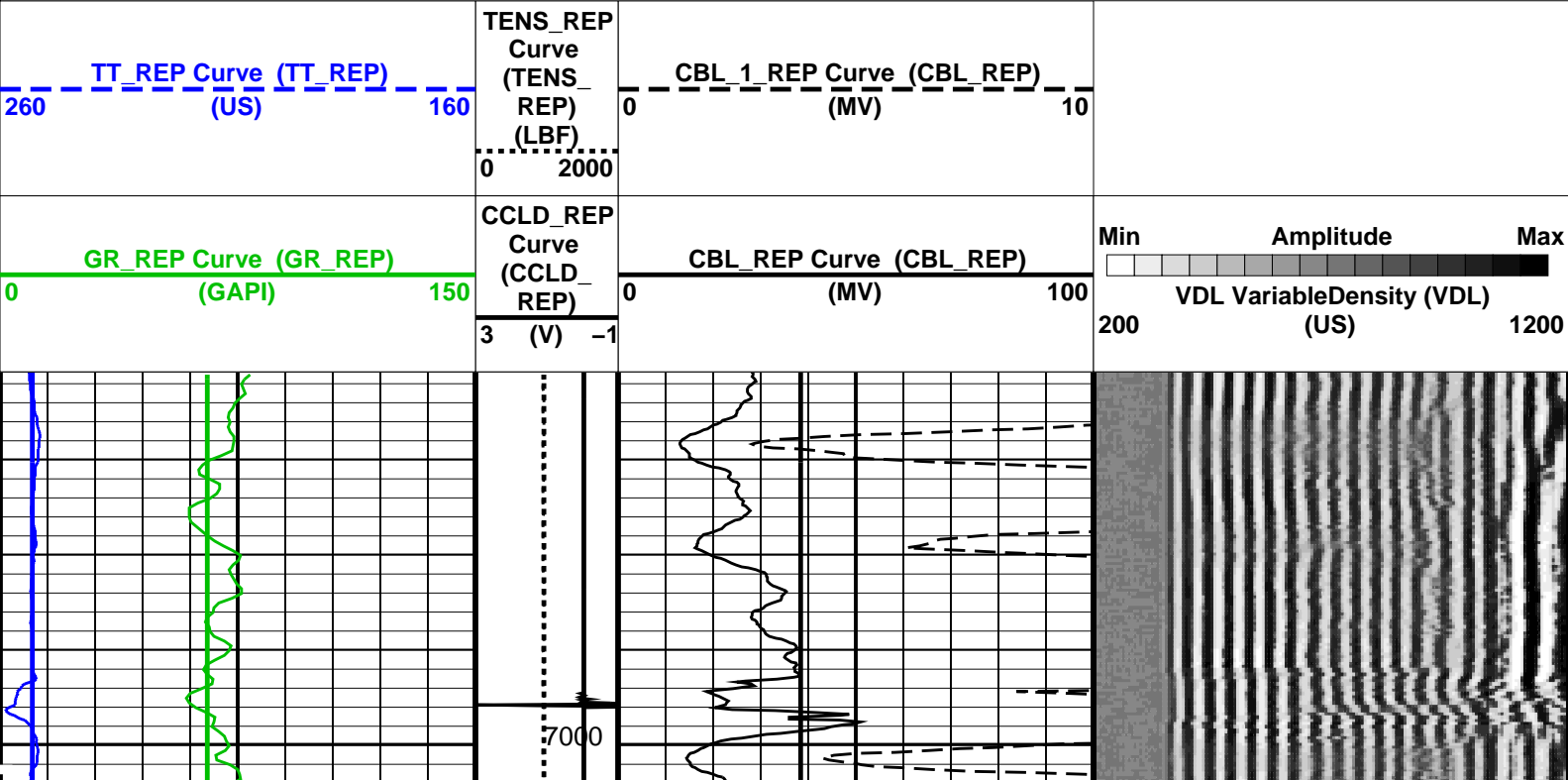
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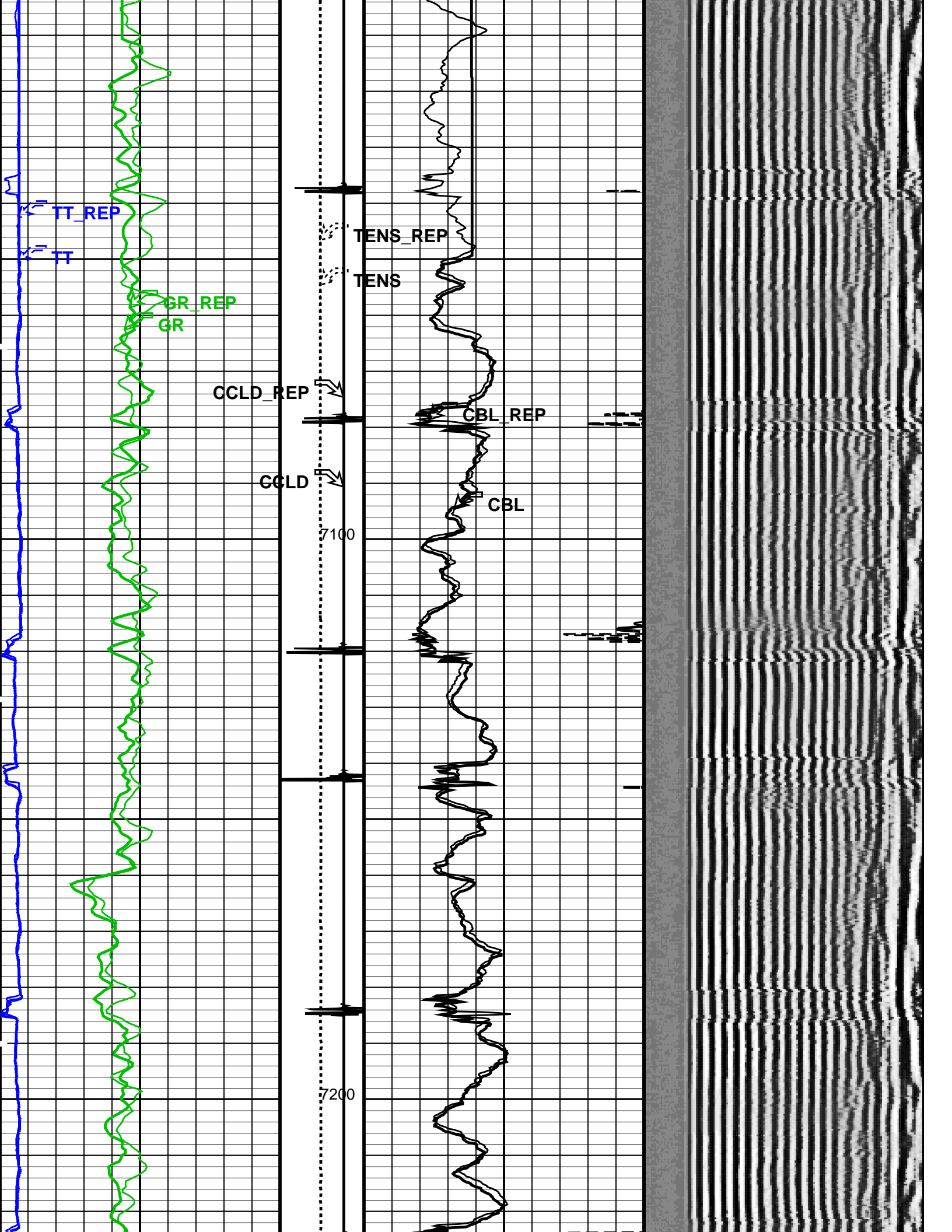
OP System Version: 19C0-187

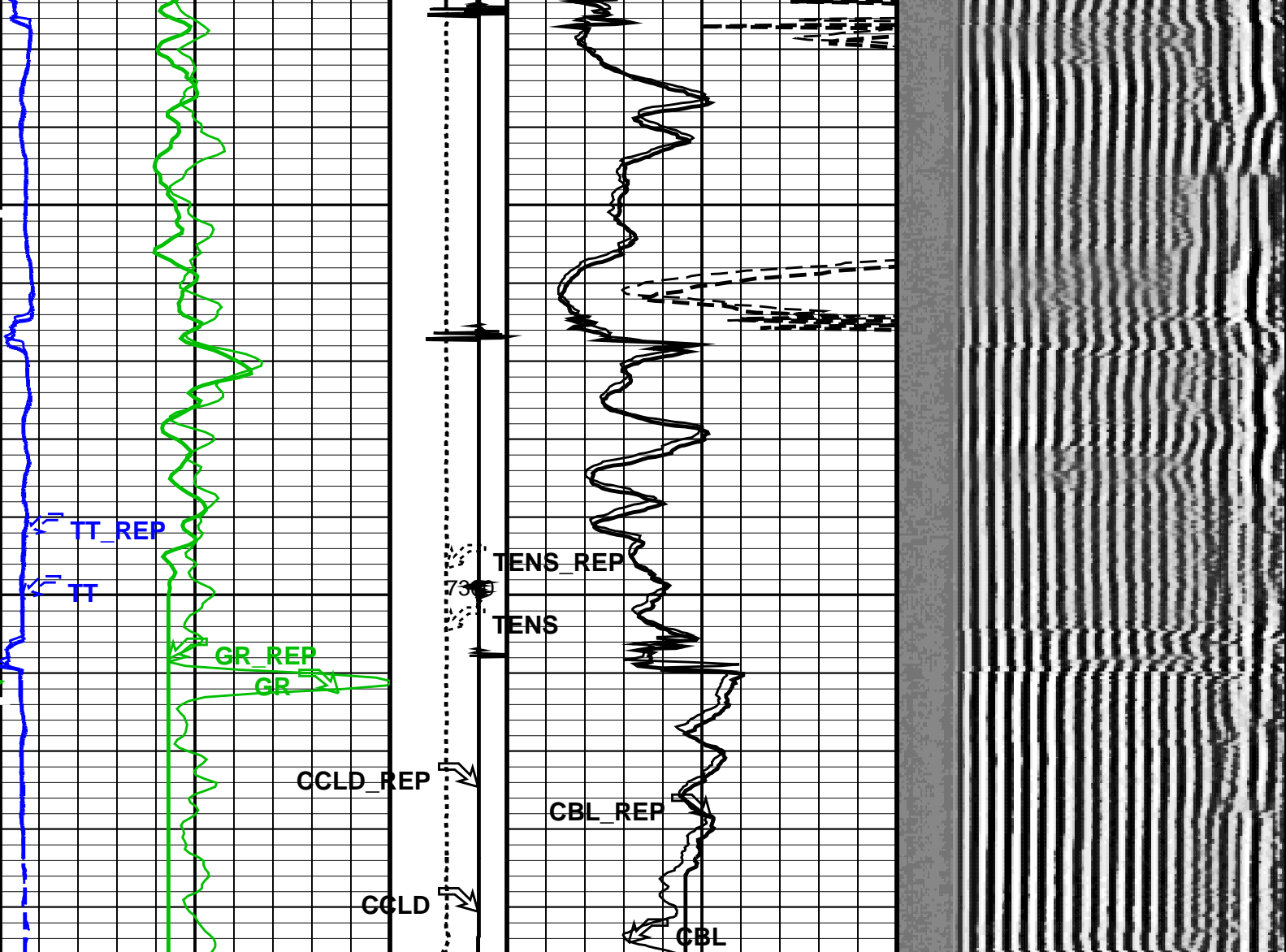
SCMT-CB PSPT SRPC-5047-H1-2011-OP19 19C0-187 RST-C SRPC-5047-H1-2011-OP19

PIP SUMMARY

Time Mark Every 60 S







<p>GR_REP Curve (GR_REP) (GAPI)</p> <p>0 150</p>	<p>CCLD_REP Curve (CCLD_REP) (V)</p> <p>3 -1</p>	<p>CBL_REP Curve (CBL_REP) (MV)</p> <p>0 100</p>	<p>Min Amplitude Max</p> <p>200 VDL VariableDensity (VDL) (US) 1200</p>
<p>TT_REP Curve (TT_REP) (US)</p> <p>260 160</p>	<p>TENS_REP Curve (TENS_REP) (LBF)</p> <p>0 2000</p>	<p>CBL_1_REP Curve (CBL_REP) (MV)</p> <p>0 10</p>	

PIP SUMMARY

Time Mark Every 60 S
 Format: CBL_VDL_REP Vertical Scale: 5" per 100' Graphics File Created: 17-Sep-2011 22:56

OP System Version: 19C0-187

SCMT-CB SRPC-5047-H1-2011-OP19 RST-C SRPC-5047-H1-2011-OP19
 PSPT 19C0-187

<<<SCMT Cement Evaluation Information Summary>>>

Sonde Serial Number	SCMS-CB 8303		
Current Casing Size	5.0 IN		
Casing Weight	23.2000 LB/F		
Expected CBL Amplitude in Free Pipe Section	79 MV	Minimum Sonic Amplitude	5.93440 MV (100% Cement) 0.95925 MV (90% Cement)

Master Calibration (Normalization)

Before Calibration (Adjustment)

Date of Master Calibration	17-JAN-2011
CBL Correction Factor	0.0743637
MAP 1 Correction Factor	0.165722
MAP 2 Correction Factor	0.192039
MAP 3 Correction Factor	0.132977
MAP 4 Correction Factor	0.175062
MAP 5 Correction Factor	0.161562
MAP 6 Correction Factor	0.177685
MAP 7 Correction Factor	0.144065
MAP 8 Correction Factor	0.233552

CBL Adjustment Factor (CBAF)	1.0
MAP Adjustment Factor (MPAF)	1.0

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	225.327	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	339.327	US
CB5T	SCMT CBL 5 ft Fixed Threshold Level	20	MV
CBLG	CBL Gate Width	40	US
CBRA	CBL LQC Reference Amplitude in Free Pipe	79	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	0.480067	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	9.95925	MV
MAPD	SCMT MAP Peak Detection Mode	PEAK	
MAPG	SCMT MAP Peak Detection T0_Delay and Noise Gate	168.327	US
MAPT	SCMT MAP Fixed Threshold Level	30	MV
MATT	Maximum Attenuation	9.1631	DB/F
MCCF	MAP Cement Type Compensation Factor	1	
MCI	Minimum Cemented Interval for Isolation	3	FT
MMSA	MAP Minimum Sonic Amplitude	19.2132	MV
MSA	Minimum Sonic Amplitude	5.9344	MV
PEDE	Peak Detection On/Off Switch in Playback	OFF	
VDLG	VDL Manual Gain	5	
ZCMT	Acoustic Impedance of Cement	6.8	MRAY
System and Miscellaneous			
CWEI	Casing Weight	23.20	LB/F
DFD	Drilling Fluid Density	8.40	LB/G
DO	Depth Offset for Playback	16.2	FT
DORL	Depth Offset for Repeat Analysis	0.0	FT
PP	Playback Processing	NORMAL	
TD	Total Depth	8206	FT

Input DLIS Files

DEFAULT	SCMT_RST_PSP_024LUP	FN:22	PRODUCER	17-Sep-2011 20:43	8198.5 FT	135.0 FT
DEFAULT	SCMT_RST_PSP_028PUP	FN:26	PRODUCER	17-Sep-2011 22:53	7346.0 FT	6961.0 FT

Output DLIS Files

DEFAULT	SCMT_RST_PSP_029PUP	FN:27	PRODUCER	17-Sep-2011 22:56		
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MAXIS Field Log

Client: ENCANA OIL & GAS (USA) INC.
 Field: ORCHARD UNIT
 Well: ORCHARD UNIT 15-12H (D14OU)
 Run date: 17-Sep-2011

Tool: PSP
 Sub Type: PBMS
 Sensor: Clock Model

PBMS Digitalization Clock

Sonde Serial NB
 Sensor Serial NB 1772
 Calib Date ddmmyy 250102
 Matrix Size 16
 Coeff CRC 279D

Clock Coeff

	Temp**0	Temp**1	Temp**2
Temp**0	-.161517143435E+03	-.455833634022E+01	-.104938566503E+00
	Temp**3	Temp**4	Temp**5
Temp**0	+.665806803953E-03	+.215816423936E-05	0.0

Client: ENCANA OIL & GAS (USA) INC.
 Field: ORCHARD UNIT
 Well: ORCHARD UNIT 15-12H (D14OU)
 Run date: 17-Sep-2011

Tool: PSP
 Sub Type: PBMS
 Sensor: Sapphire

PBMS Sapphire 10kPsi Gauge

Sonde Serial NB COEFFICIENTS FOR SAPPHIRE PBMS-A.1772 S/N:
 Sensor Serial NB 1772
 Calib Date ddmmyy 250102
 Matrix Size 66
 Coeff CRC 7015

Pres Coeff

	Tt**0	Tt**1	Tt**2
Tp**0	-.301728254764E+05	+.213698779657E+05	-.667784145806E+04
Tp**1	+.222783691269E+05	-.154949942910E+05	+.506915258152E+04
Tp**2	-.219998557234E+03	+.903672682639E+02	-.973284421881E+01
Tp**3	+.373083861809E+01	-.914930924512E+00	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	+.999867705458E+03	-.587093588268E+02	0.0
Tp**1	-.790152285056E+03	+.481404114544E+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 1772
Calib Date ddmmyy 250102
Matrix Size 66
Coeff CRC 8D09

Temp Coeff

	Tp**0	Tp**1	Tp**2
Tt**0	+.232726172867E+04	+.748146006300E+01	-.308596169368E+01
Tt**1	-.145543937674E+04	-.382344629538E+01	+.886665691754E+00
Tt**2	+.319573055861E+03	+.722043926946E+00	-.543588515298E-01
Tt**3	-.247026874426E+02	-.512988254724E-01	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	+.711608702827E+00	-.763411838100E-01	0.0
Tt**1	-.147911019947E+00	+.159378916834E-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: ORCHARD UNIT
Well: ORCHARD UNIT 15-12H (D14OU)
Run date: 17-Sep-2011

Tool: PSP
Sub Type: PBMS
Sensor: GR

PBMS Gamma Ray

Sonde Serial NB RESISTORS FOR GR SENSOR N.33401, TOOL PBMS-AA1772. SENSOR S/N:
Sensor Serial NB 33401
Calib Date ddmmyy 021101
Matrix Size 12
Coeff CRC 1F7D

GR HV Rt

Rt**0

Rt**1

Rt**0

+.150000000000e+04	+.236000000000e+04
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Client: ENCANA OIL & GAS (USA) INC.
Field: ORCHARD UNIT
Well: ORCHARD UNIT 15-12H (D14OU)
Run date: 17-Sep-2011

Tool: PSP
Sub Type: PBMS
Sensor: WellTemp RTD

PBMS RTD Well Thermometer

Sonde Serial NB
Sensor Serial NB 1772
Calib Date ddmmyy 250102
Matrix Size 16
Coeff CRC 0B6D

WTemp Coeff

Tt**0

Tt**1

Tt**2

Tt**0

-.578338733285E+03	+.354557410577E+03	-.963404561888E+02
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It**3

It**4

It**5

Tt**0

+ .167992041034E+02

- .106406976994E+01

0.0

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

Schlumberger

Well: **ORCHARD UNIT 23-10HM (D14OU)**

Field: **ORCHARD UNIT**

County: **MESA**

State: **COLORADO**

CEMENT BOND LOG

CBL - VDL

GAMMA RAY - CCL