



Company: **CHEVRON NORTH AMERICA**

Well: **EMERALD 94X**

Field: **RANGELY**

County: **RIO BLANCO**

State: **COLORADO**

**CEMENT BOND LOG
VARIABLE DENSITY LOG
GAMMA RAY – CCL**

County: RIO BLANCO
Field: RANGELY
Location: SHL: 1243' FSL & 1055' FEL
Well: EMERALD 94X
Company: CHEVRON NORTH AMERICA

LOCATION			
SHL: 1243' FSL & 1055' FEL		Elev.:	K.B. 5520.00 ft
			G.L. 5504.00 ft
			D.F. 5519.00 ft
Permanent Datum:	GROUND LEVEL	Elev.:	5504.00 ft
Log Measured From:	KELLY BUSHING	16.00 ft	above Perm. Datum
Drilling Measured From:	KELLY BUSHING		
API Serial No. 05-103-11855-0000		Section 26	Township 2N
			Range 103W

		Run 1	Run 2	Run 3
PVT DATA				
Oil Density				
Water Salinity				
Gas Gravity				
Bo				
Bw				
1/Bg				
Bubble Point Pressure				
Bubble Point Temperature				
Solution GOR				
Maximum Deviation		17 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		1-Aug-2011	
Run Number	1		
Depth Driller	6410 ft		
Schlumberger Depth	6417 ft		
Bottom Log Interval	6413.1 ft		
Top Log Interval	200 ft		
Casing Fluid Type	FRESH WATER		
Salinity			
Density	8.4 lbm/gal		
Fluid Level			
BIT/CASING/TUBING STRING			
Bit Size	8.750 in		
From	16 ft		
To	6410 ft		
Casing/Tubing Size	7.000 in		
Weight	23 lbm/ft		
Grade			
From	16 ft		
To	6410 ft		
Maximum Recorded Temperatures	165 degF		
Logger On Bottom	1-Aug-2011	14:53	
Unit Number	2379	GRAND JUNCTION, CO	
Recorded By	M. ARNETT / J. ROSNER		
Witnessed By	RICK COOK		

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: 1-AUG-2011 16:27:35

Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW-B	Type:	CMTD-B/A	Type:	7-46ZV XXS
Serial Number:	6122	Serial Number:	8093	Serial Number:	709025
Calibration Date:	22-APR-2011	Calibration Date:	26-JUL-2011	Length:	15500 FT
Calibrator Serial Number:	1159	Calibrator Serial Number:	1159	Conveyance Method:	Wireline
Calibration Cable Type:	7-46P	Number of Calibration Points:	10	Rig Type:	LAND
Wheel Correction 1:	-6	Calibration RMS:	23		
Wheel Correction 2:	-7	Calibration Peak Error:	15		

Depth Control Parameters

Log Sequence:	First Log In the Well
Rig Up Length At Surface:	148.20 FT
Rig Up Length At Bottom:	148.20 FT
Rig Up Length Correction:	0.00 FT
Stretch Correction:	2.00 FT
Tool Zero Check At Surface:	0.10 FT

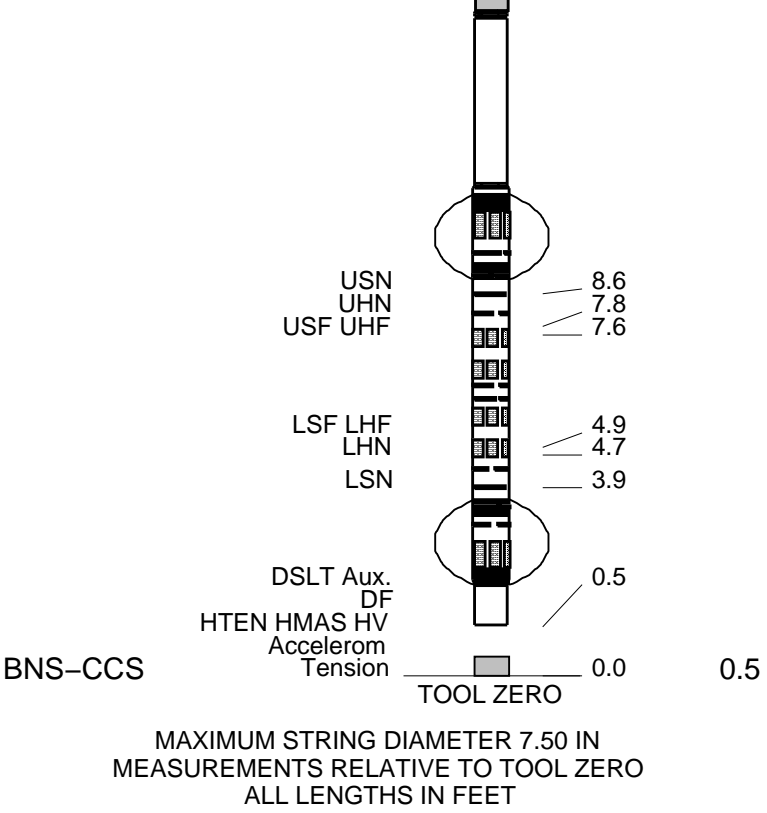
Depth Control Remarks

1. ALL SCHLUMBERGER DEPTH CONTROL POLICIES APPLIED
2. IDW USED AS PRIMARY DEPTH REFERENCE, Z-CHART USED AS SECONDARY
- 3.
- 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	REMARKS: RUN NUMBER 2
THIS IS THE FIRST RUN IN WELL	
TOOLSTRING RUN AS PER TOOLSKETCH	
DLST RAN WITH TWO CENTRALIZING GEMCOS	
MAXIMUM RECORDED TEMPERATURE: 165 DEG F	



MAIN PASS 0 PSI

MAXIS Field Log

Company: CHEVRON NORTH AMERICA Well: EMERALD 94X

Input DLIS Files

DEFAULT	SONIC_TLD_MCFL_CNL_009LUP	FN:15	PRODUCER	01-Aug-2011 15:02	6420.0 FT	180.0 FT
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Output DLIS Files

DEFAULT	SONIC_TLD_MCFL_CNL_012PUP	FN:20	PRODUCER	01-Aug-2011 16:46	6422.0 FT	182.0 FT
RTB	SONIC_TLD_MCFL_CNL_012PUP	FN:21	PRODUCER	01-Aug-2011 16:37	6422.0 FT	182.0 FT

OP System Version: 18C0-147

DSL T-H	18C0-147	HILTH-FTB	18C0-147
DTC-H	18C0-147	CAL-Y	18C0-147

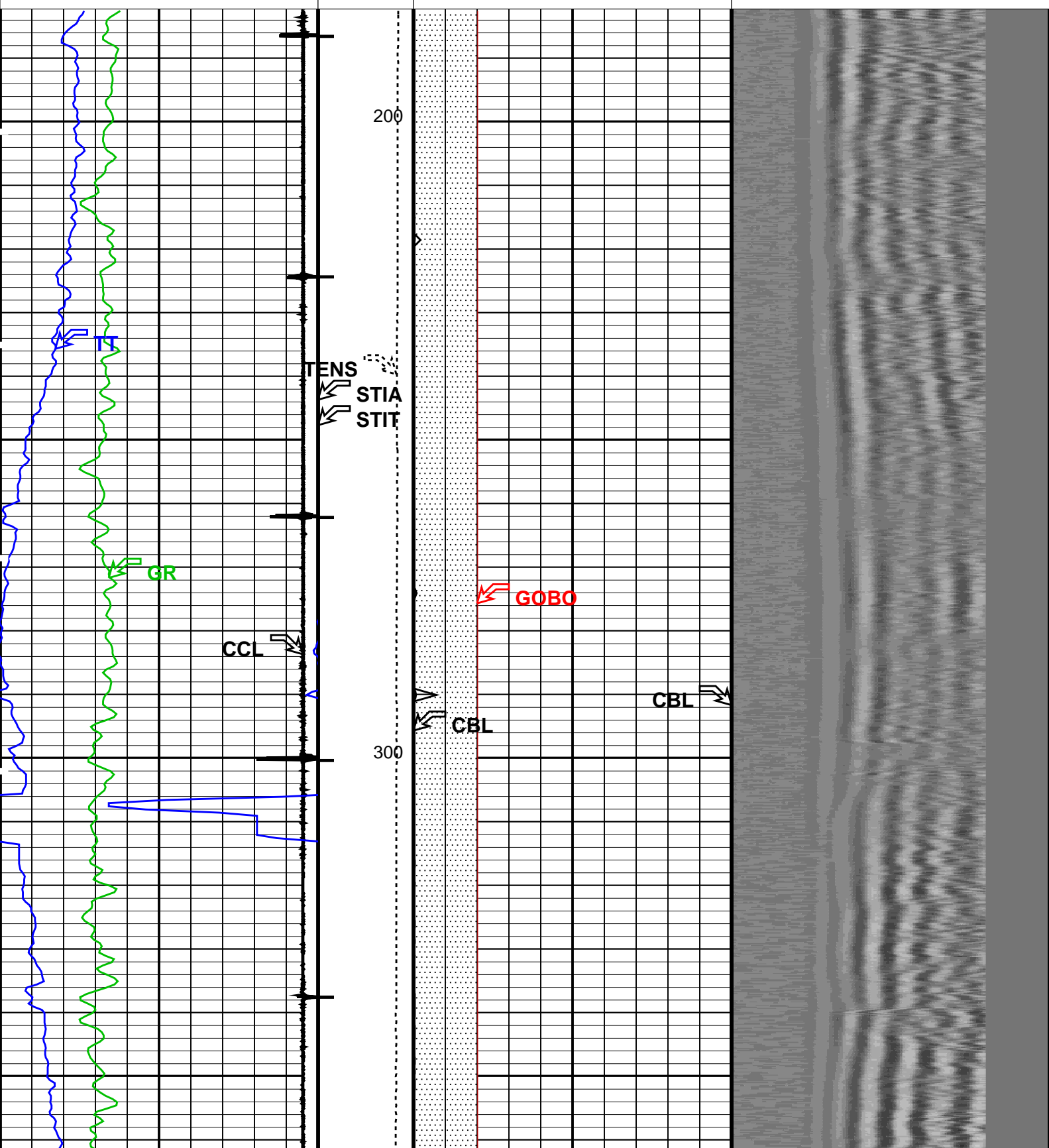
PIP SUMMARY

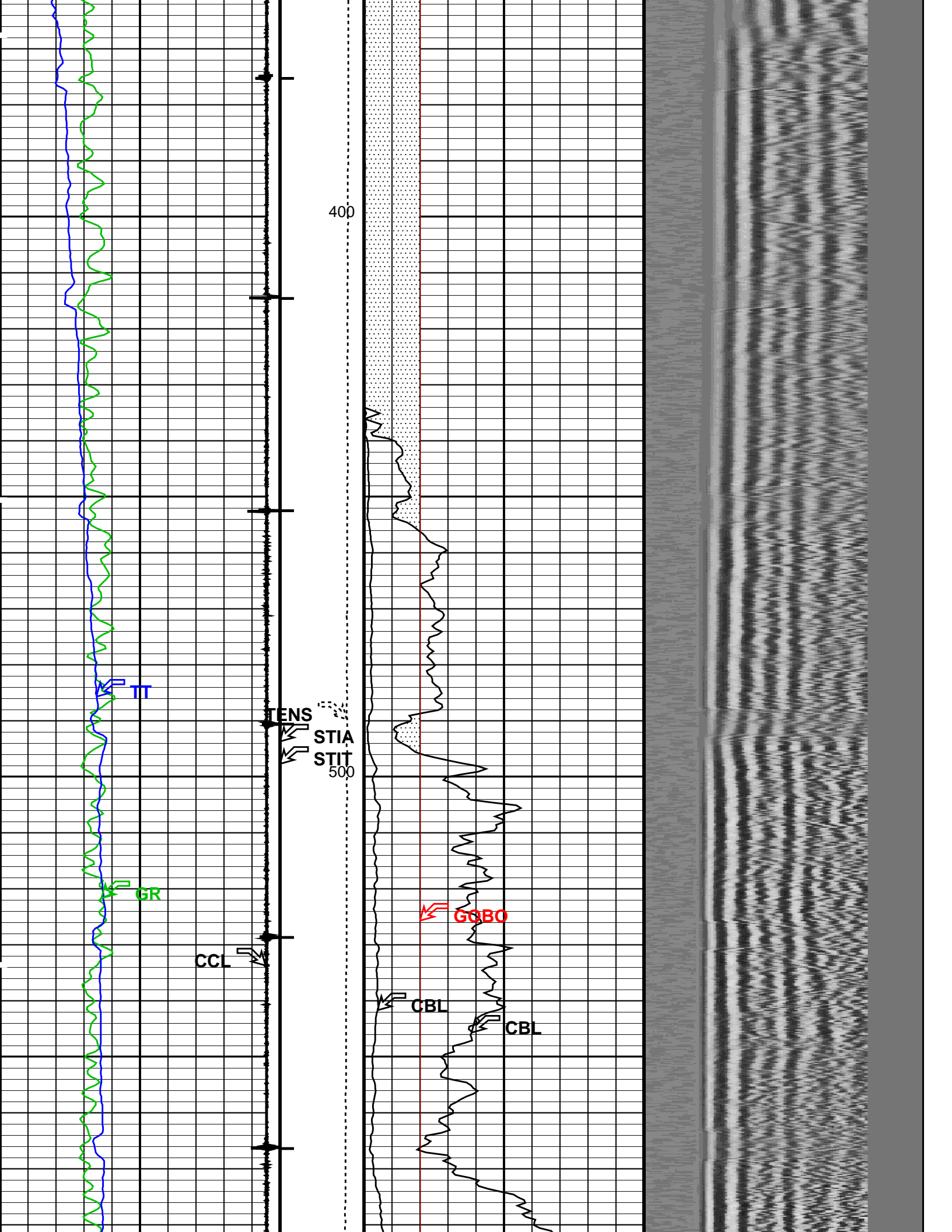
← Casing Collars

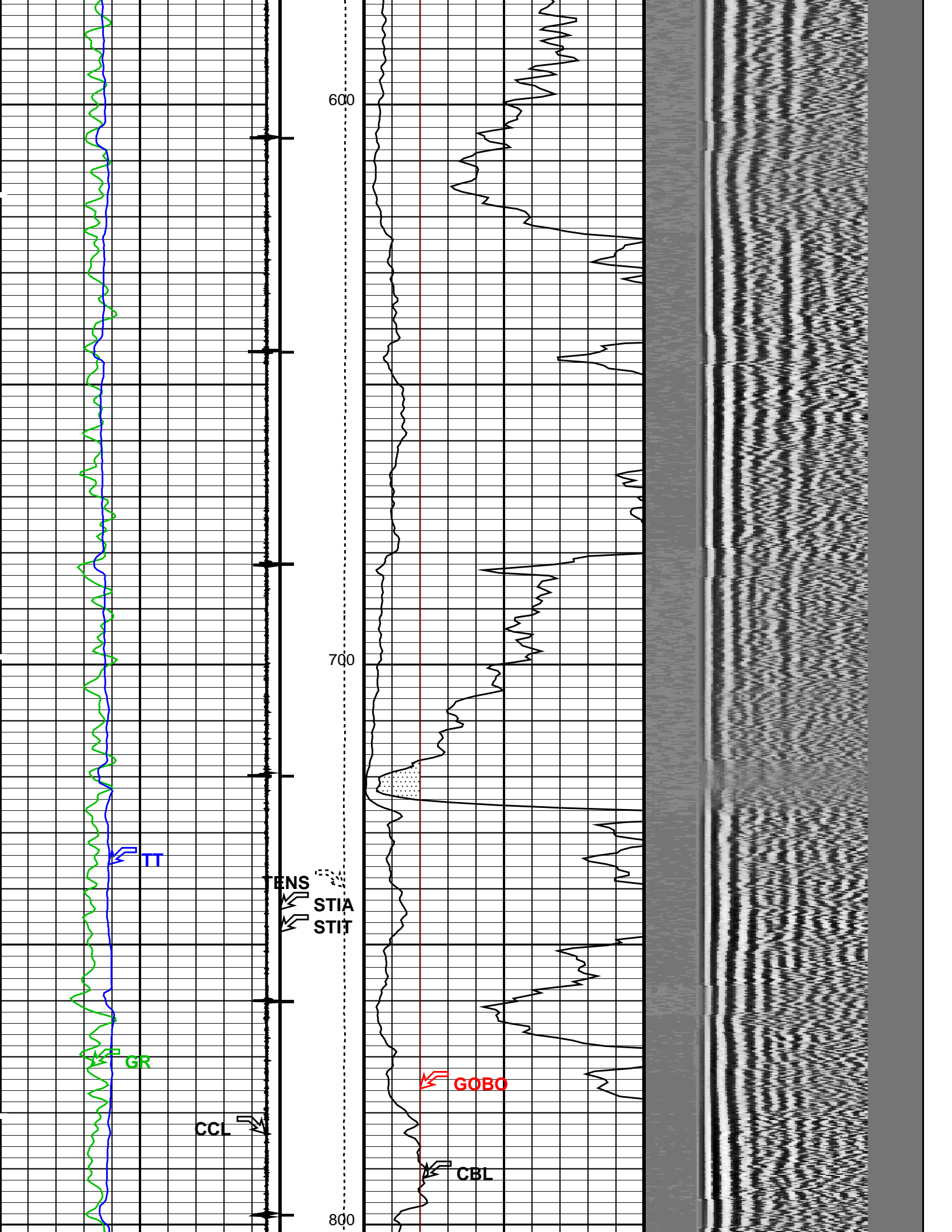
Time Mark Every 60 S

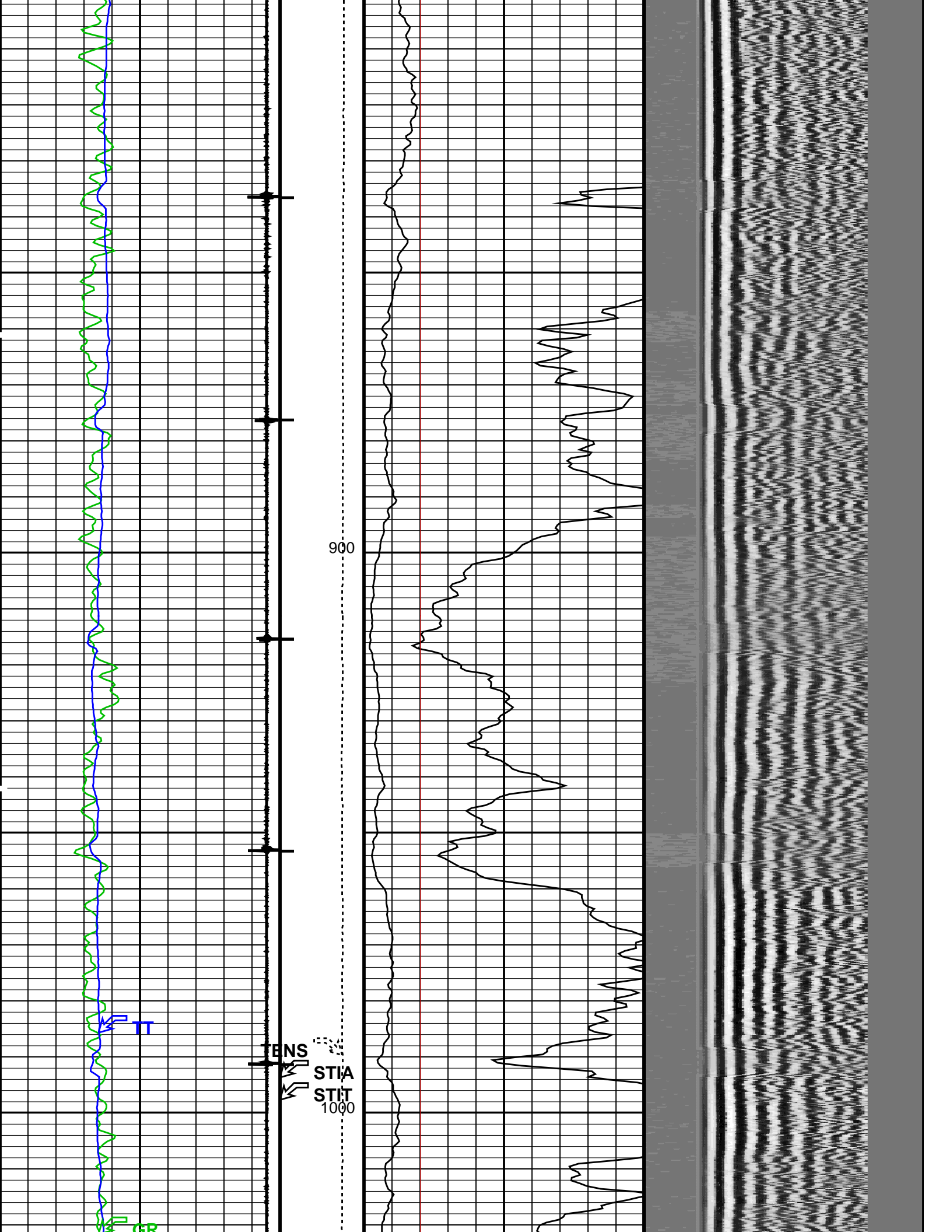
CasCollar From CCL to T1	Tool/Tot. Drag From D3T to STIA	GoodBond From ACBL to GOBO
Cable Collar (CC)	Cable	

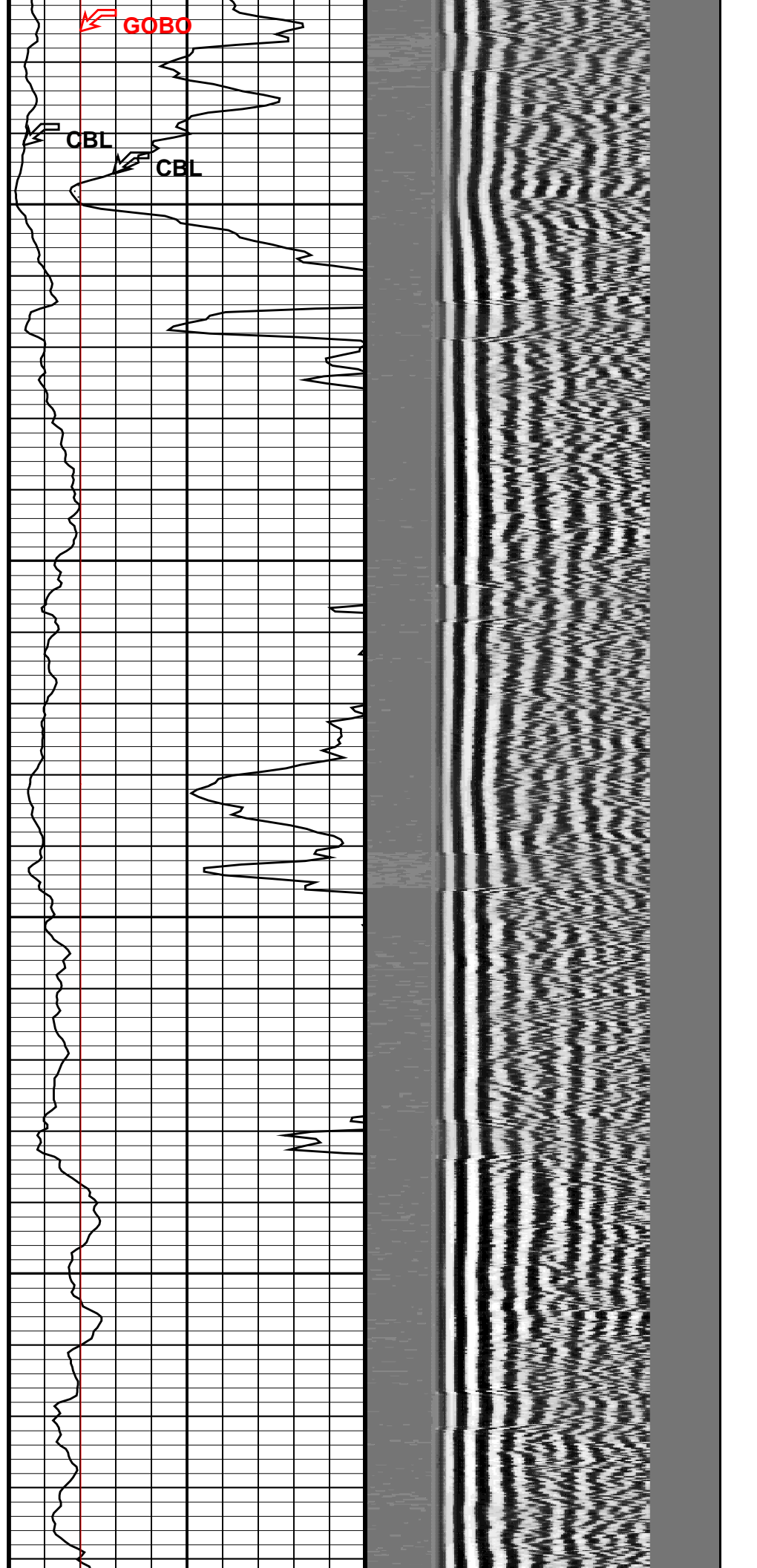
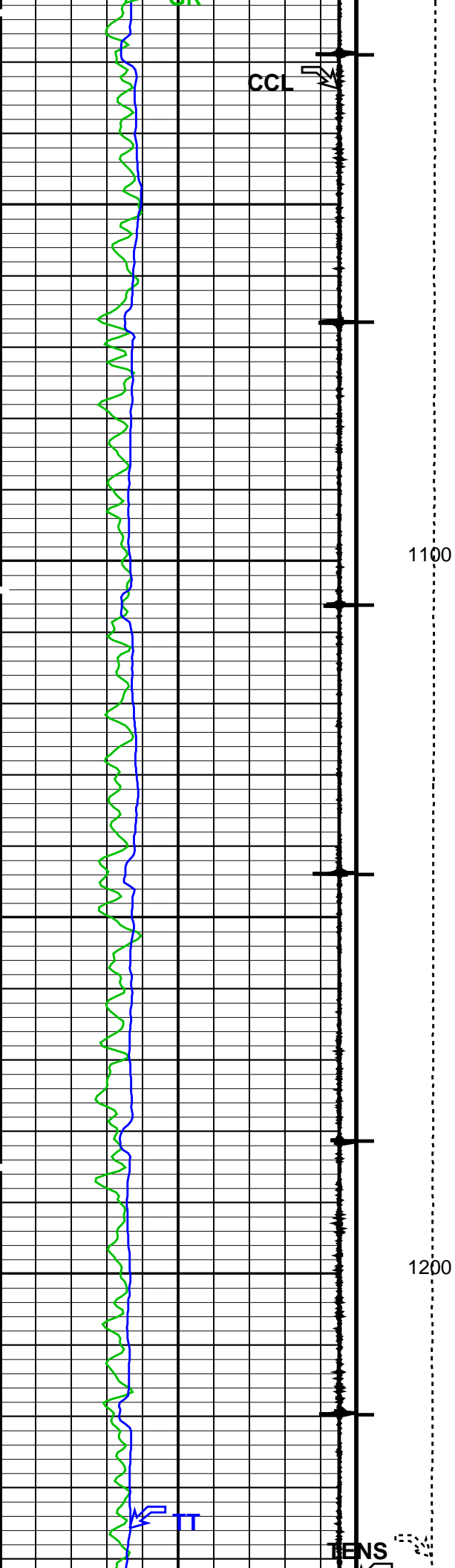
Casing Collar Locator (CCL) -19 (----) 1	Drag From STIA to STIT	Good Bond (GOBO) (MV)	0 10
Transit Time (TT) (US)	Stuck Stretch (STIT) 0 (F) 50	CBL Amplitude (CBL) (MV)	0 100
Gamma Ray (GR) (GAPI)	Tension (TENS) (LBF)	CBL Amplitude (CBL) (MV)	0 10
0 150	3000 0	Min Amplitude Max VDL VariableDensity (VDL) (US)	200 1200

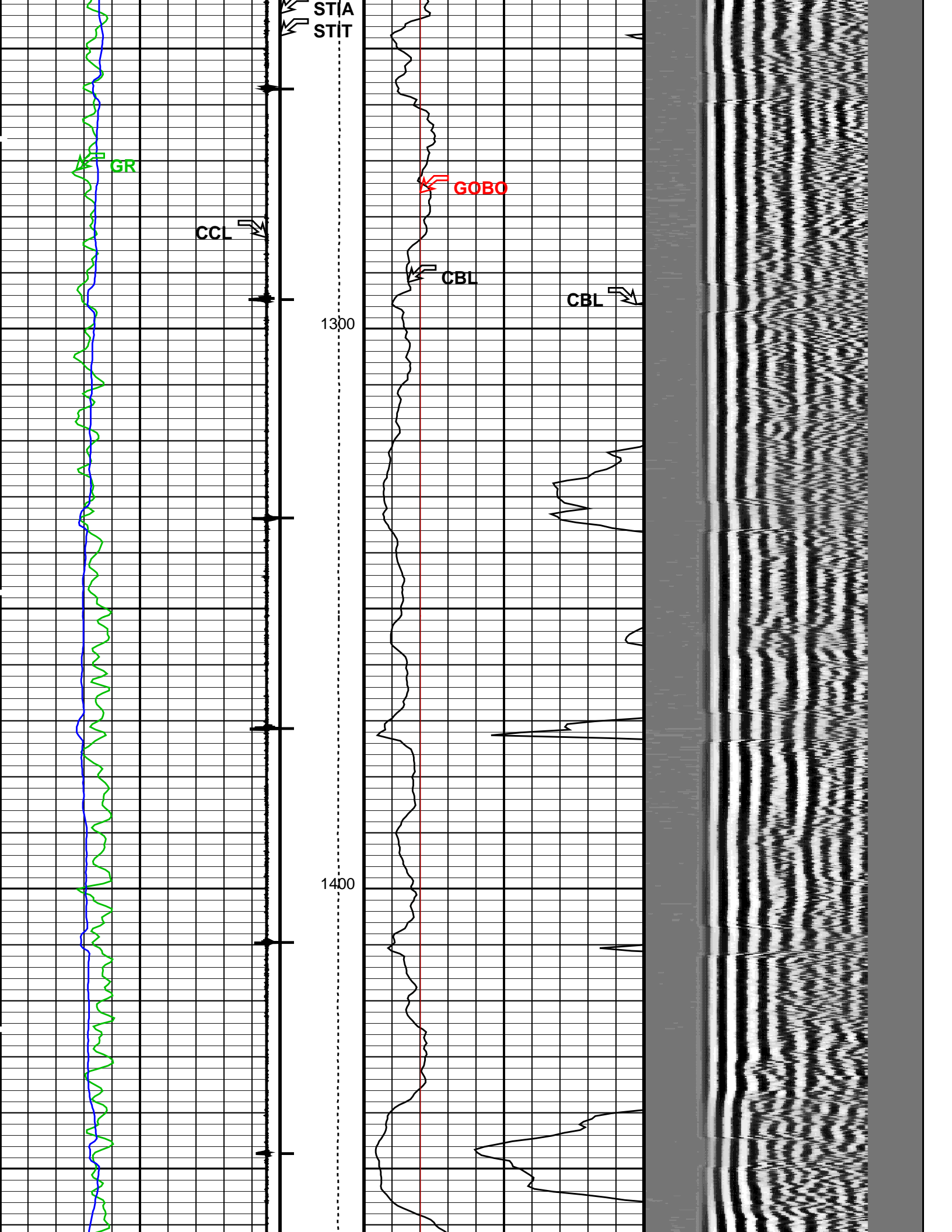


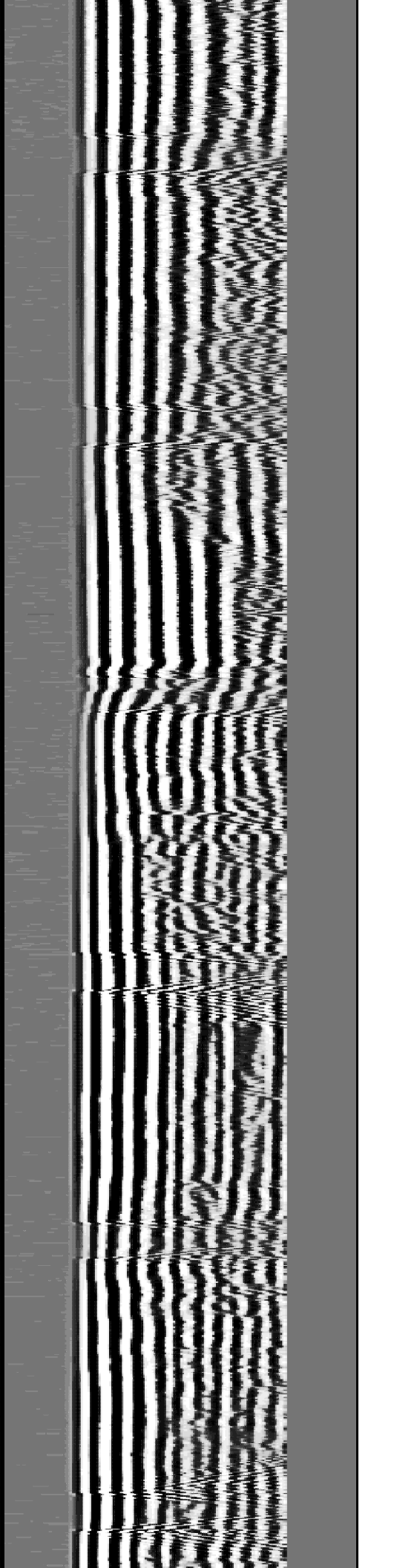
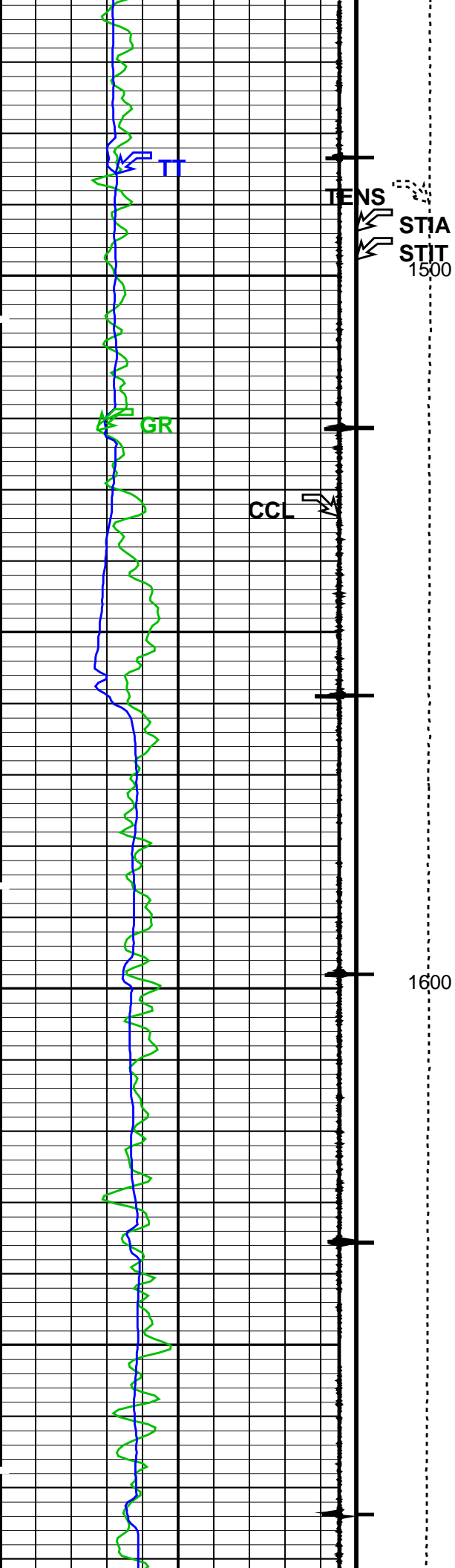


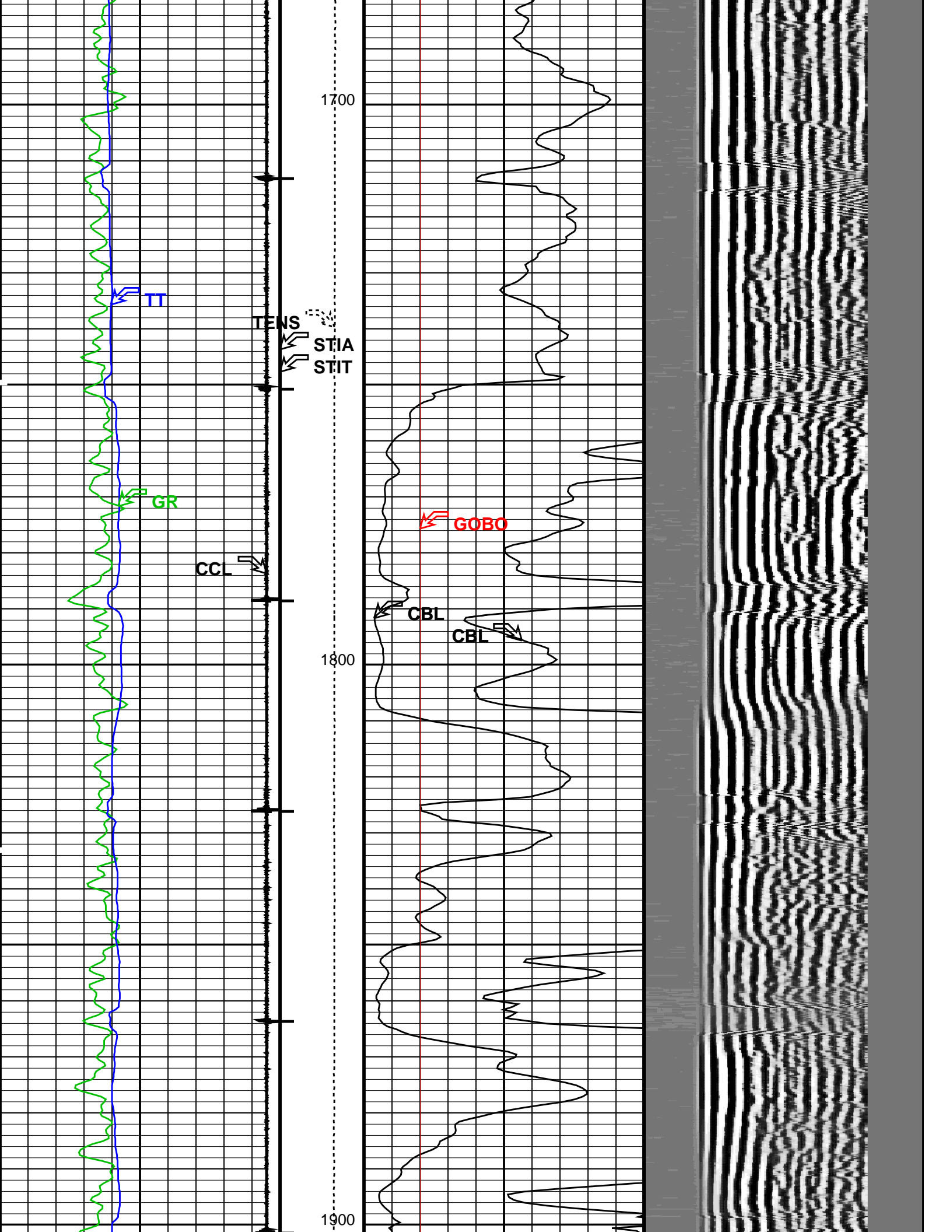


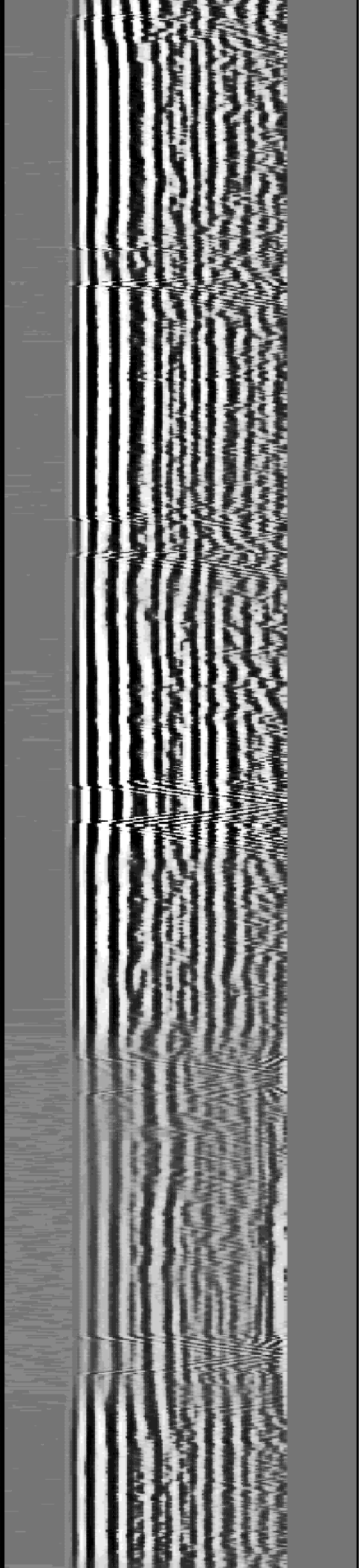
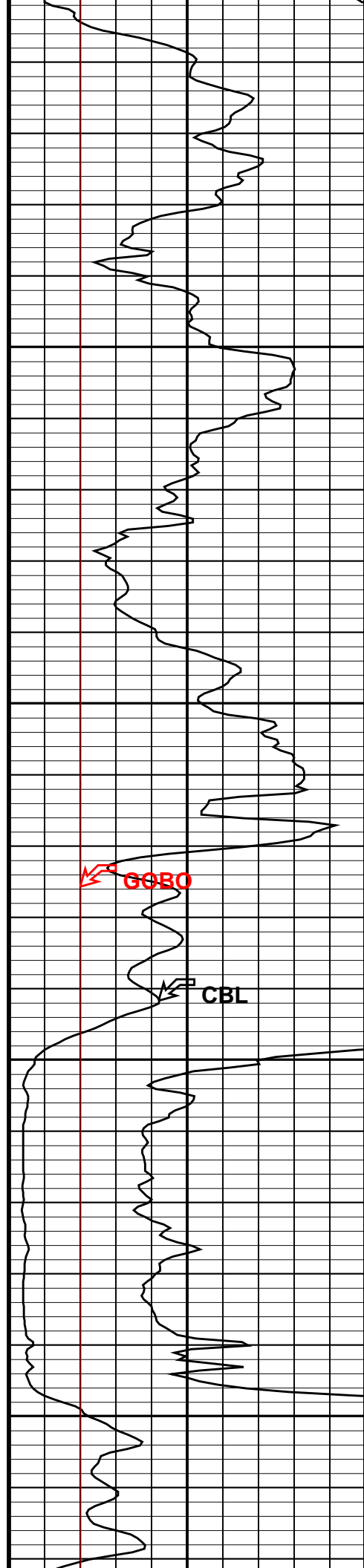
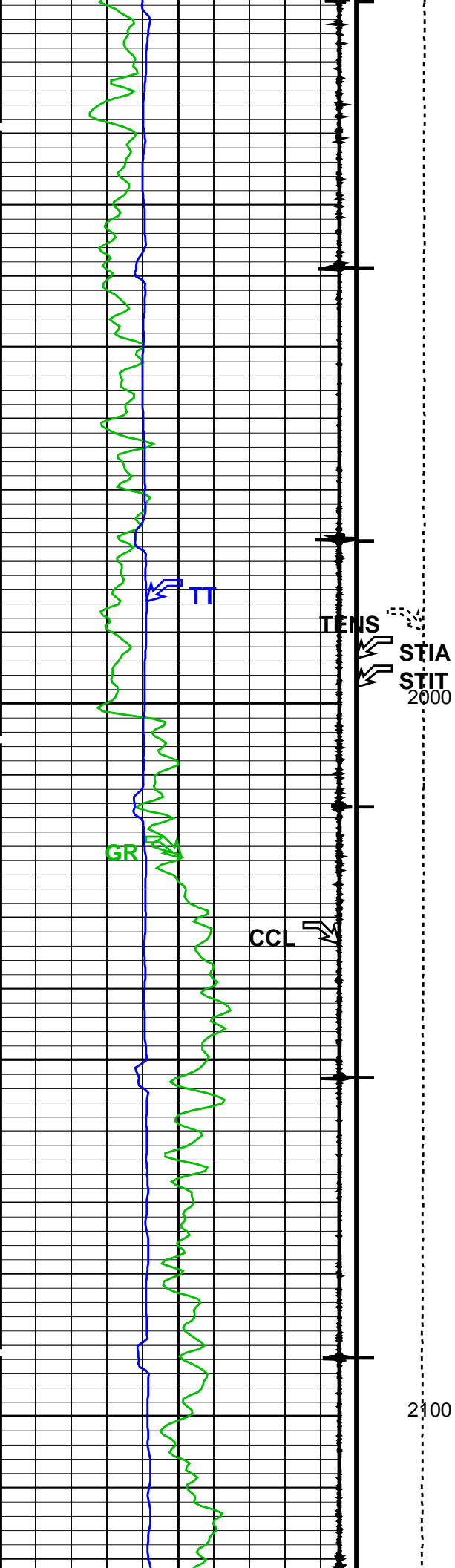


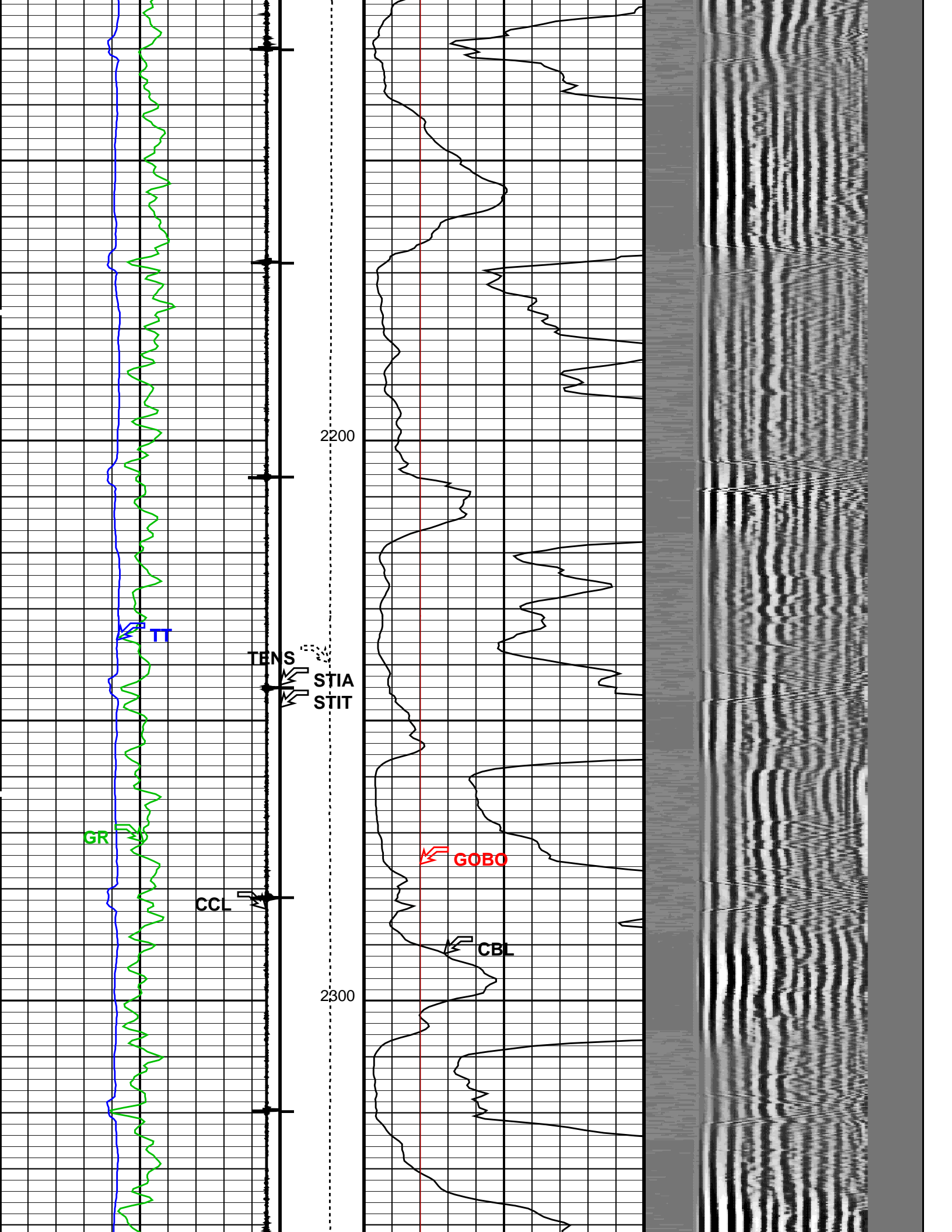


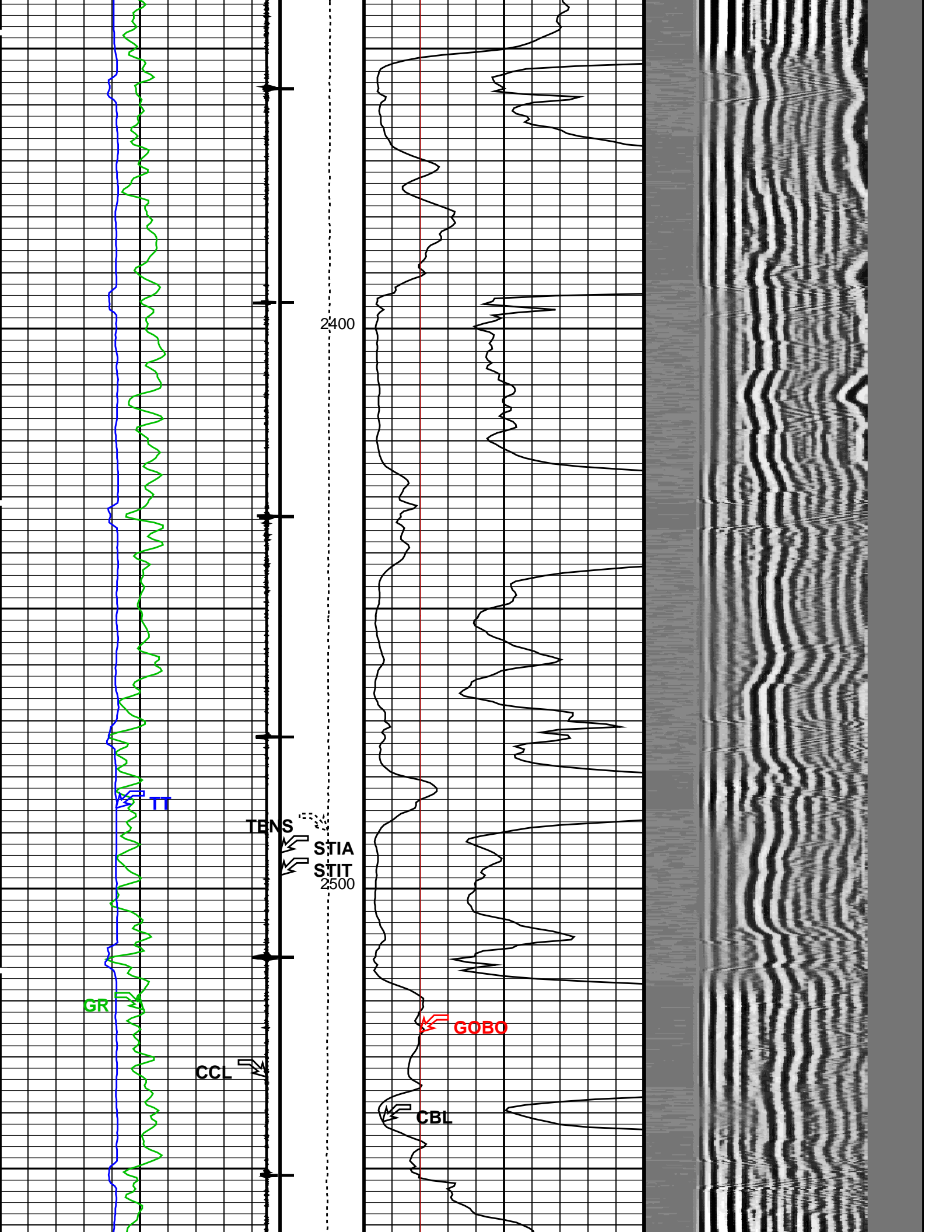


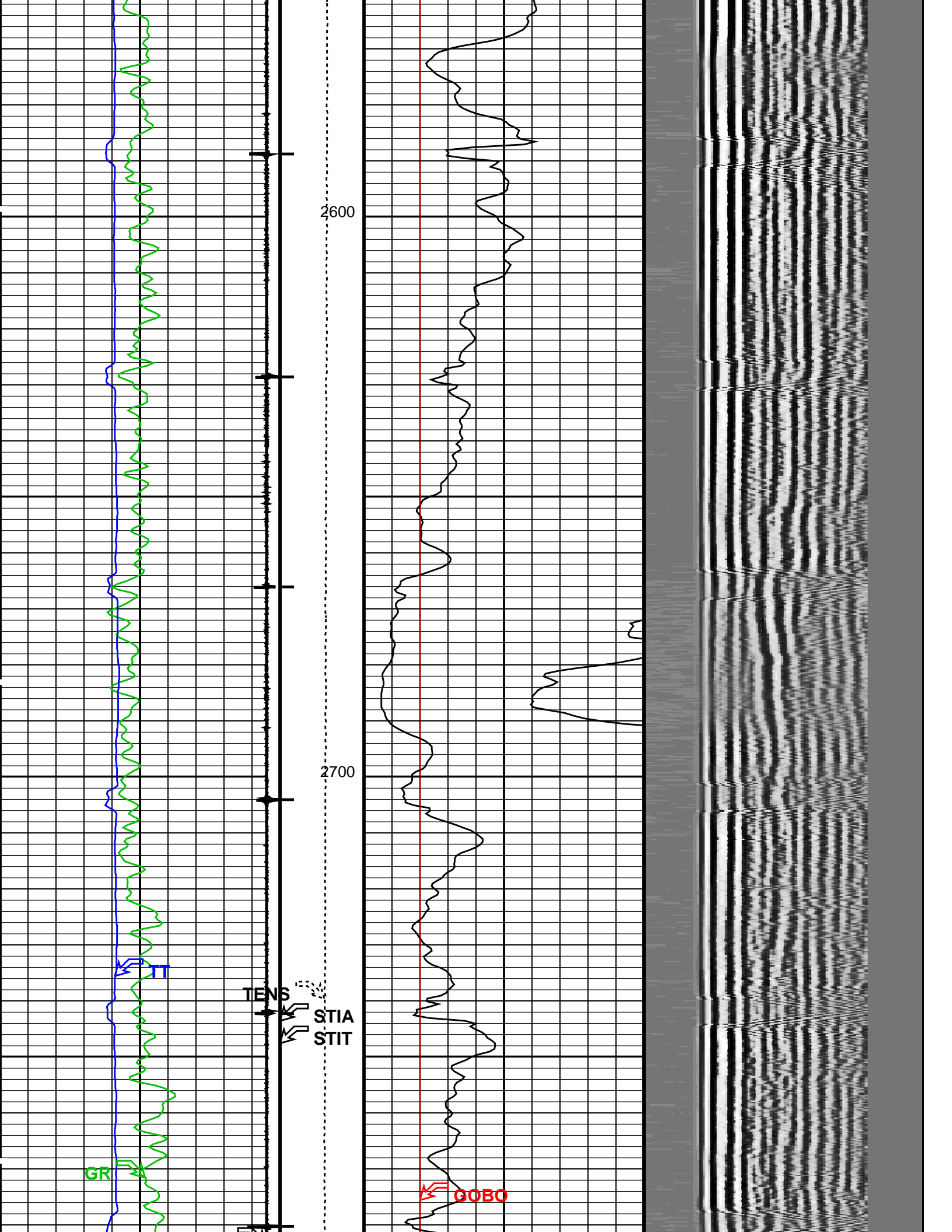


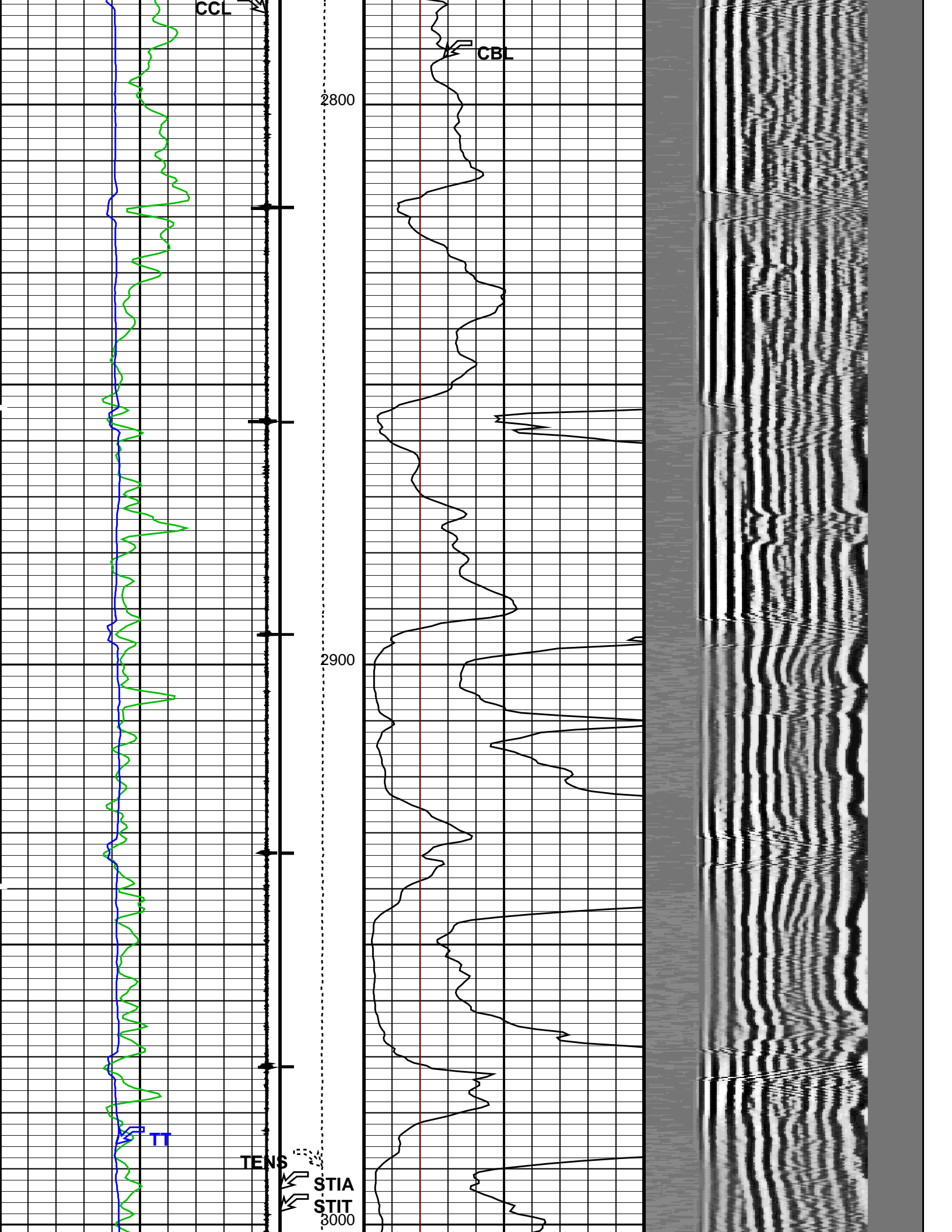


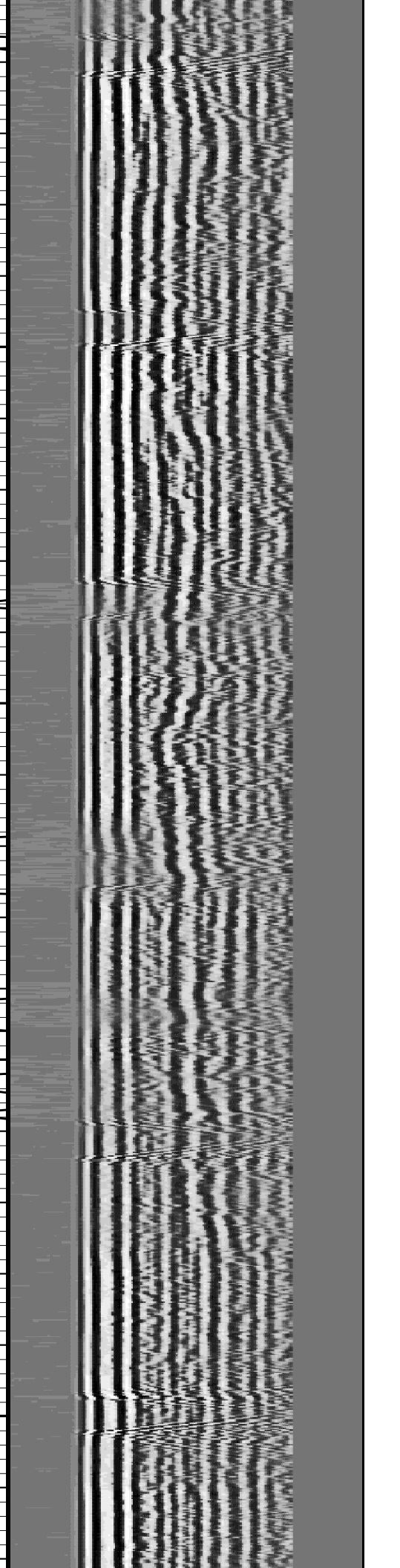
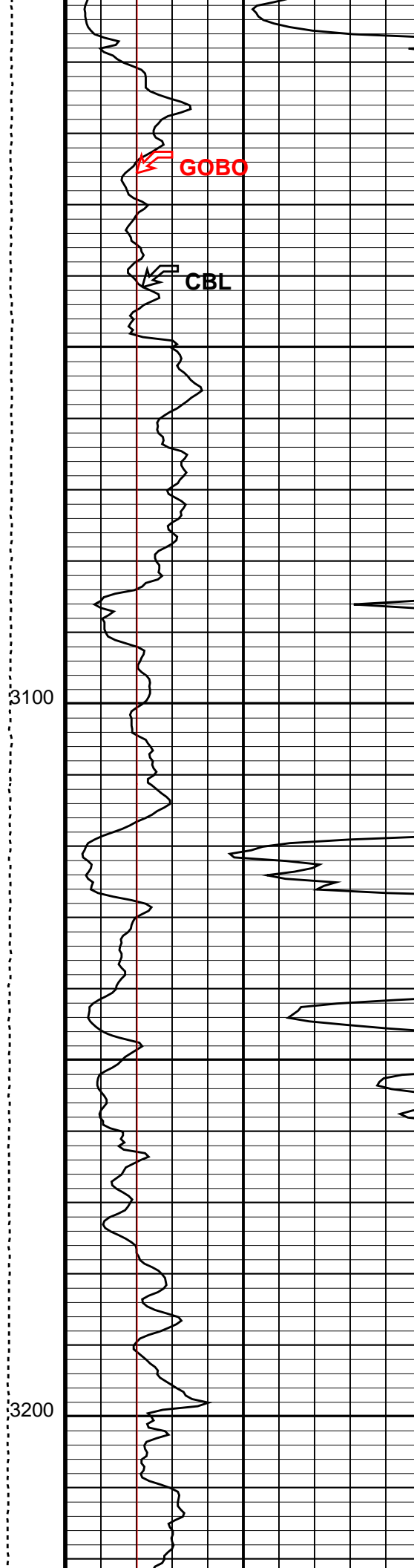
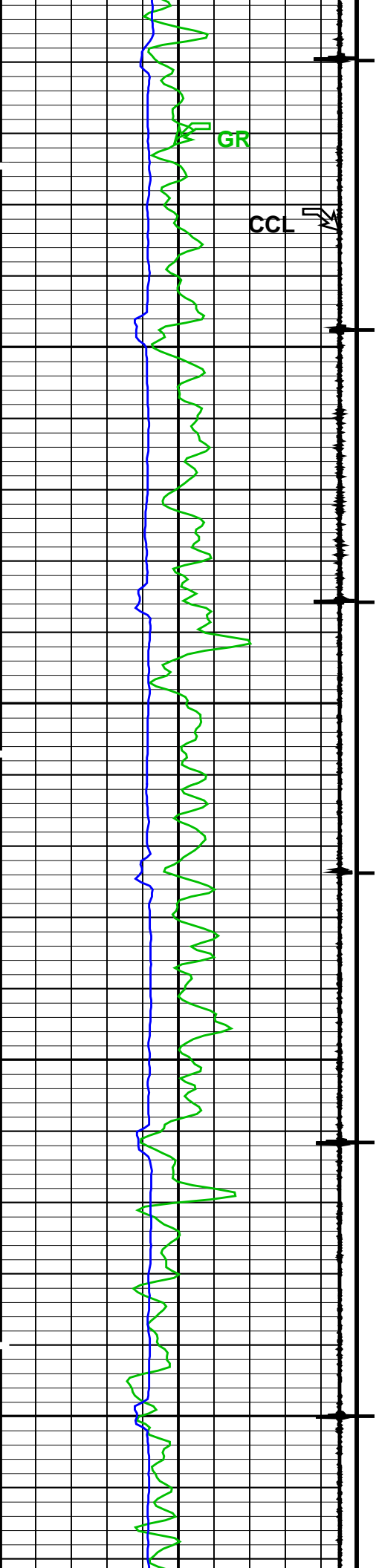


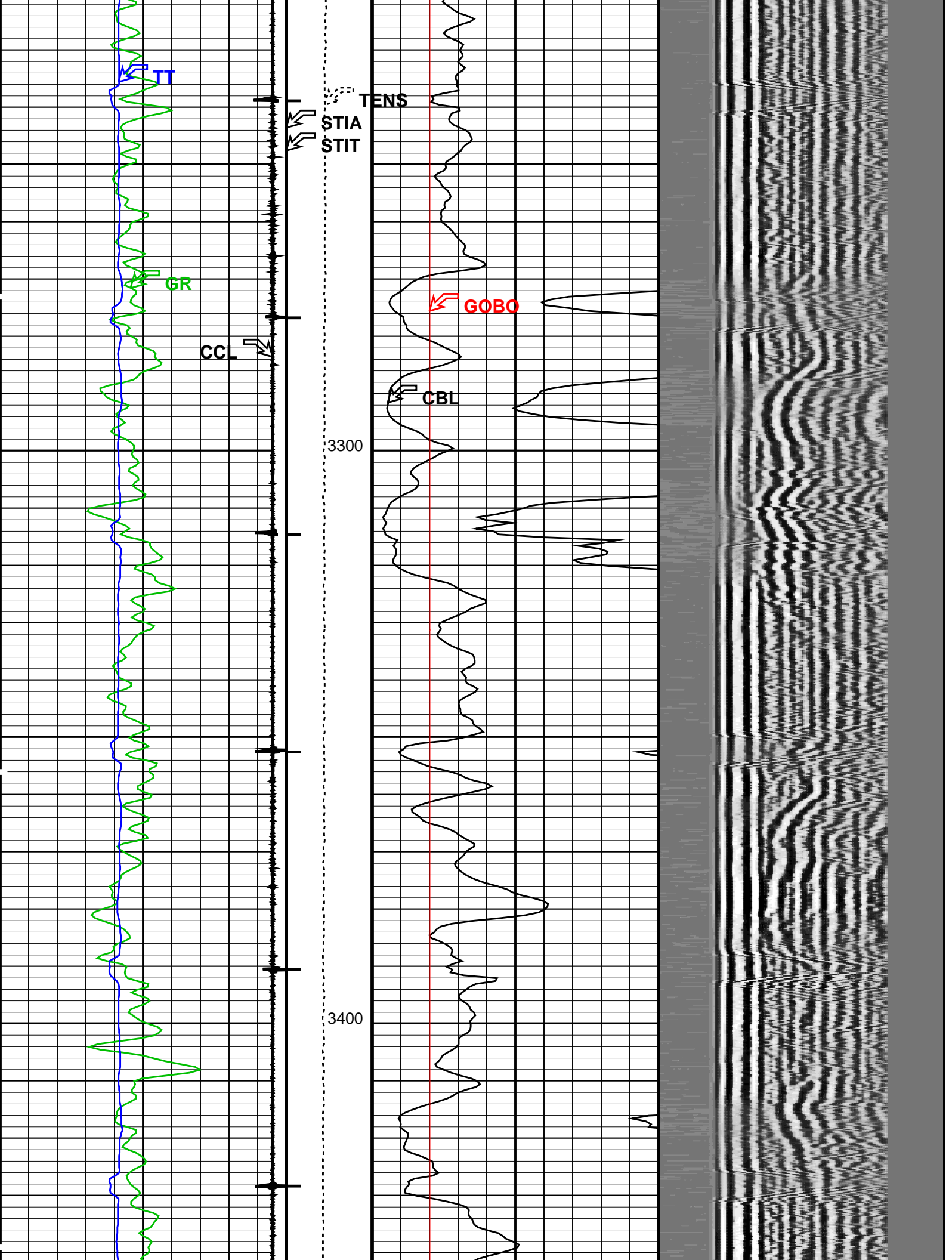


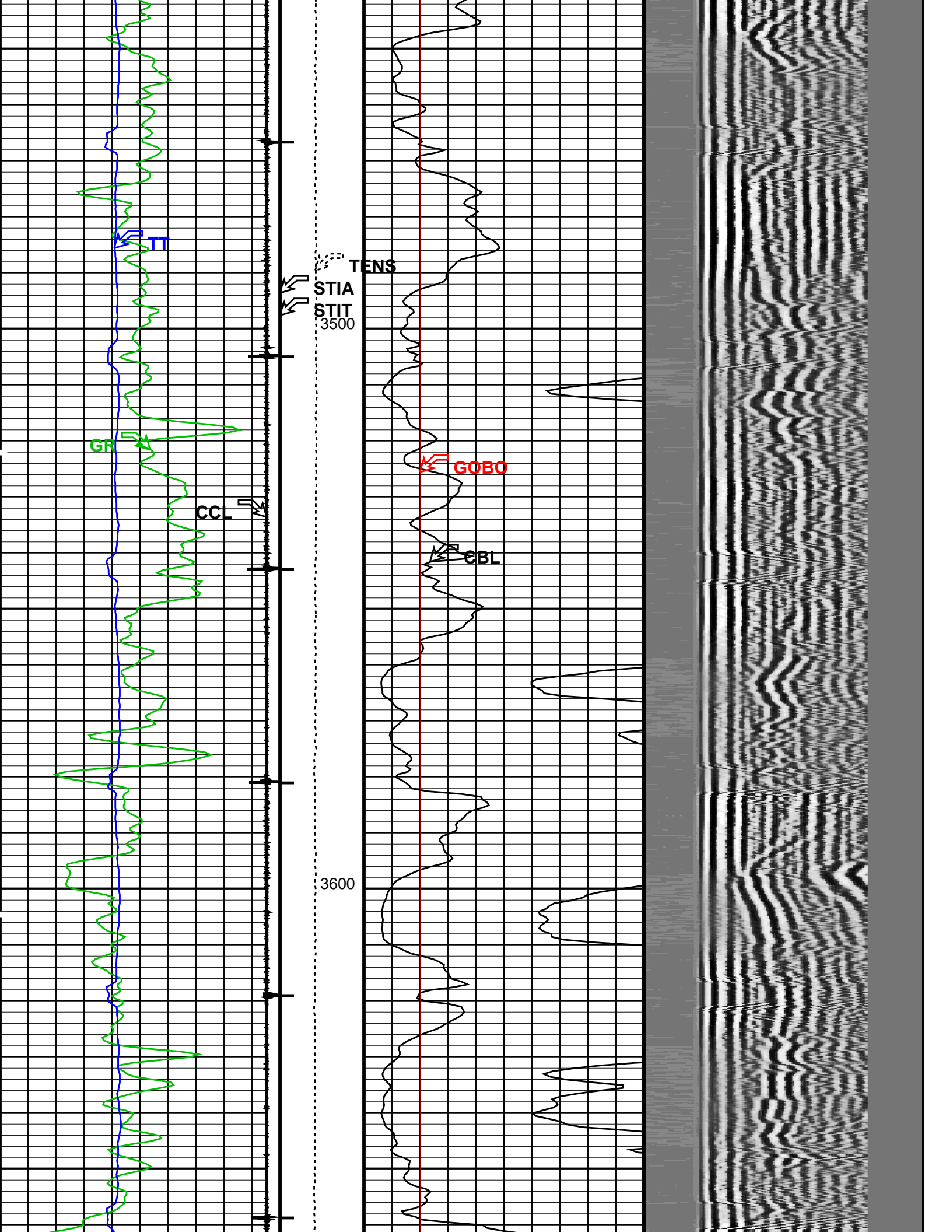


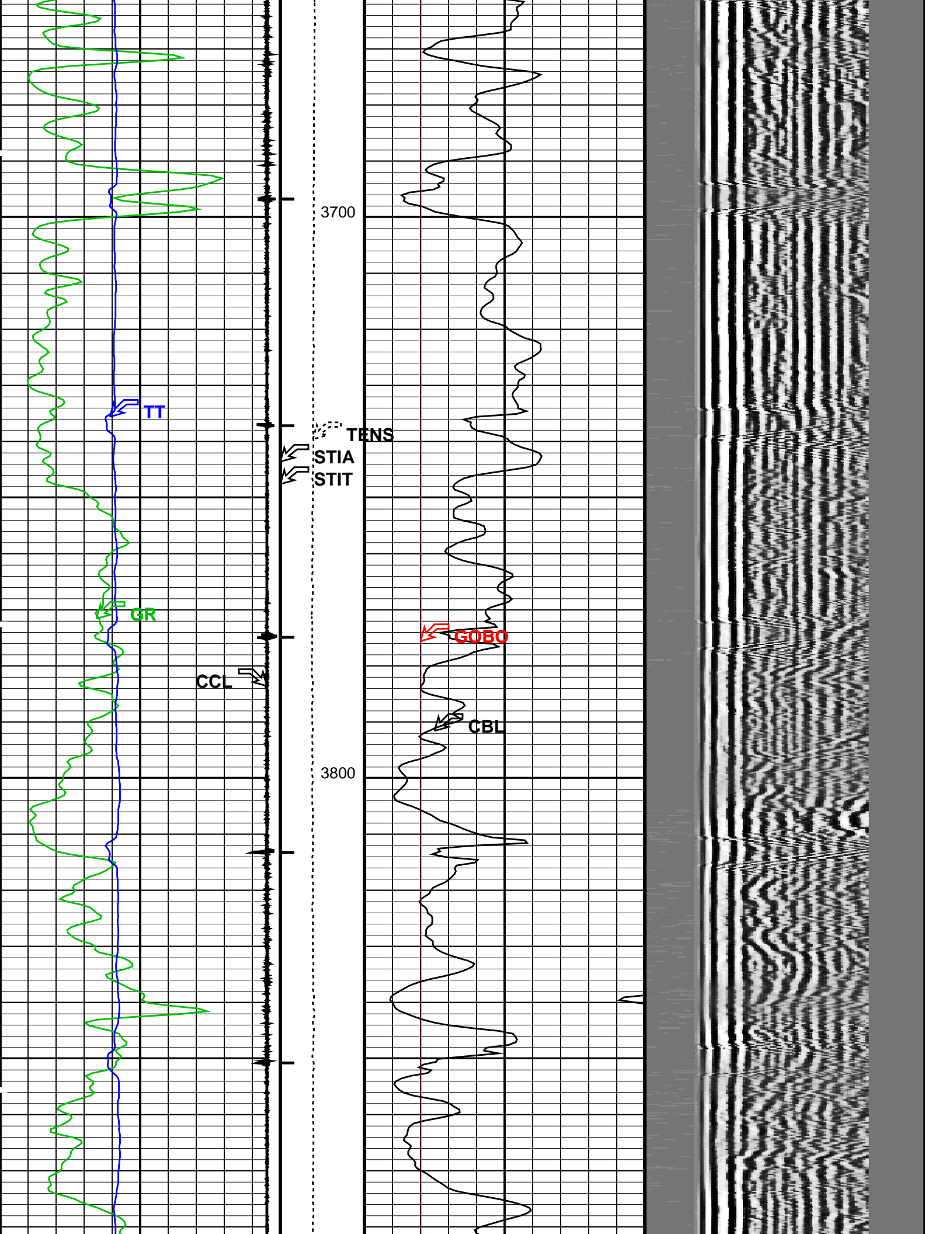


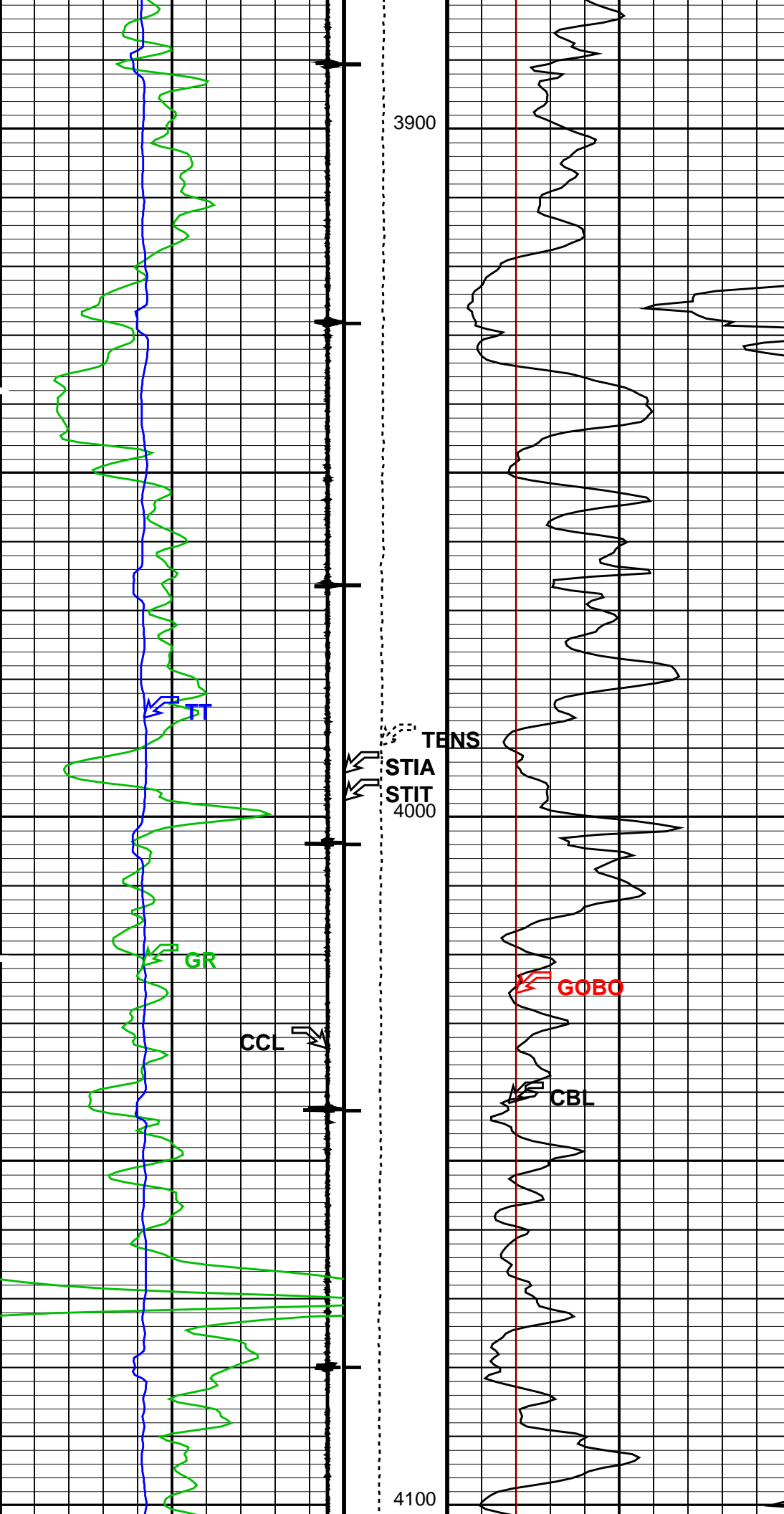


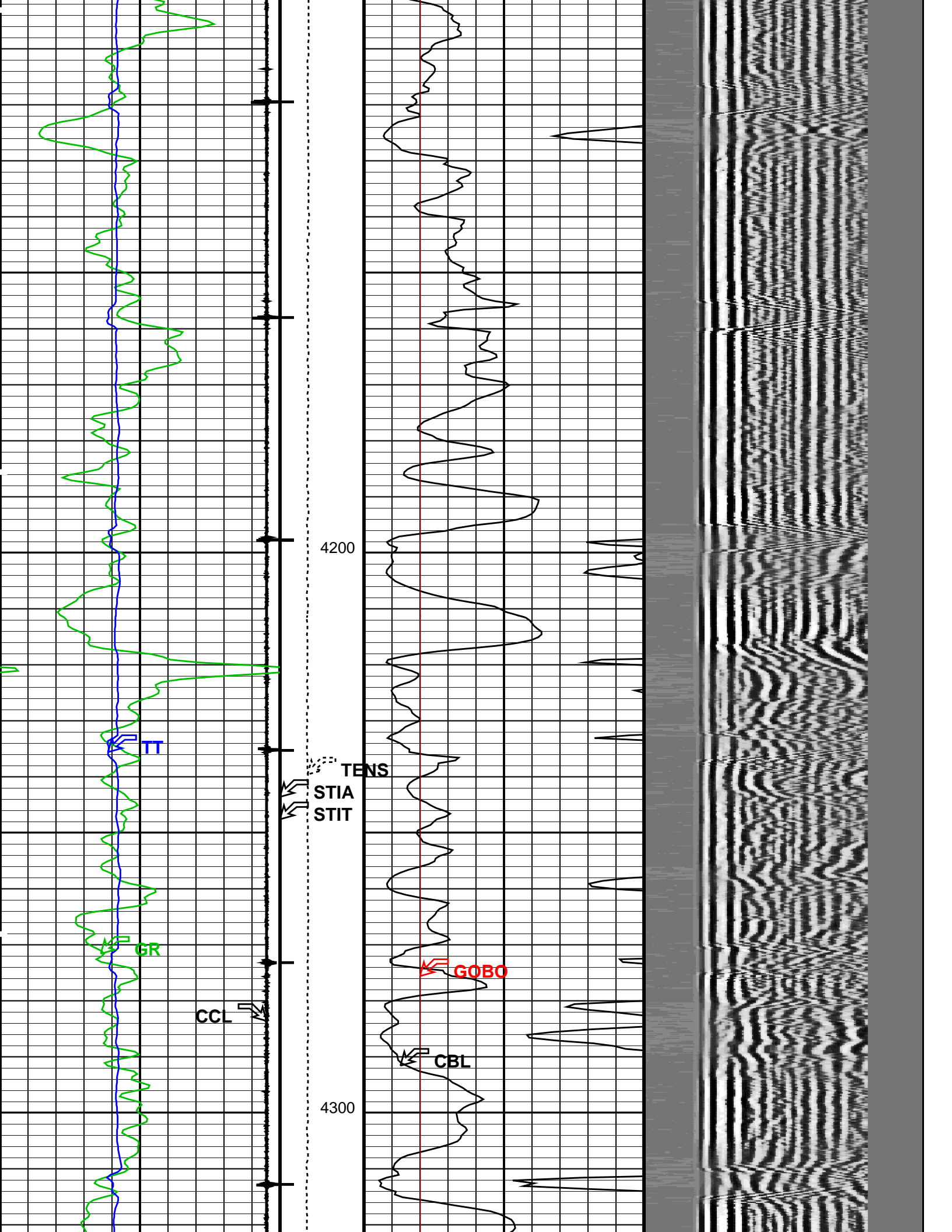


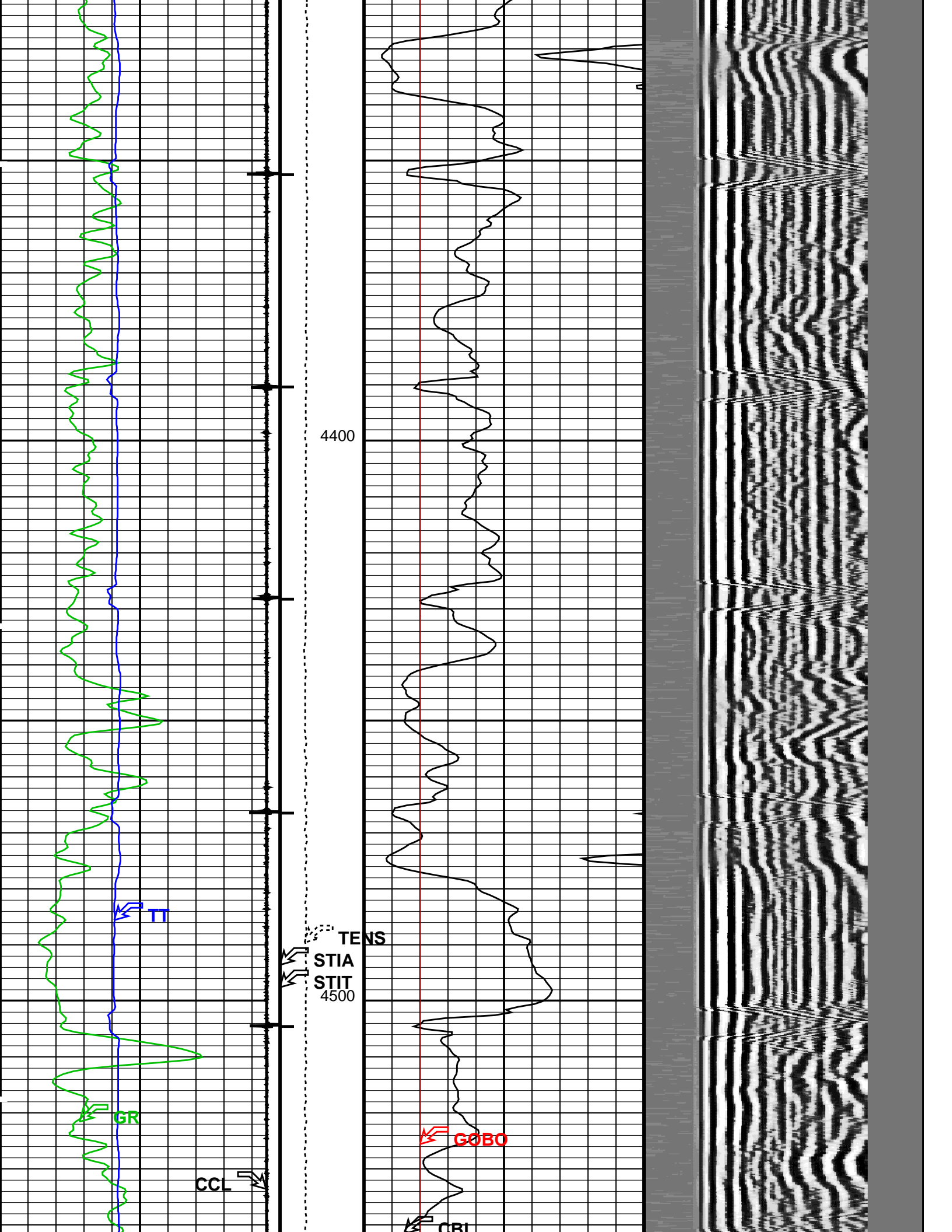


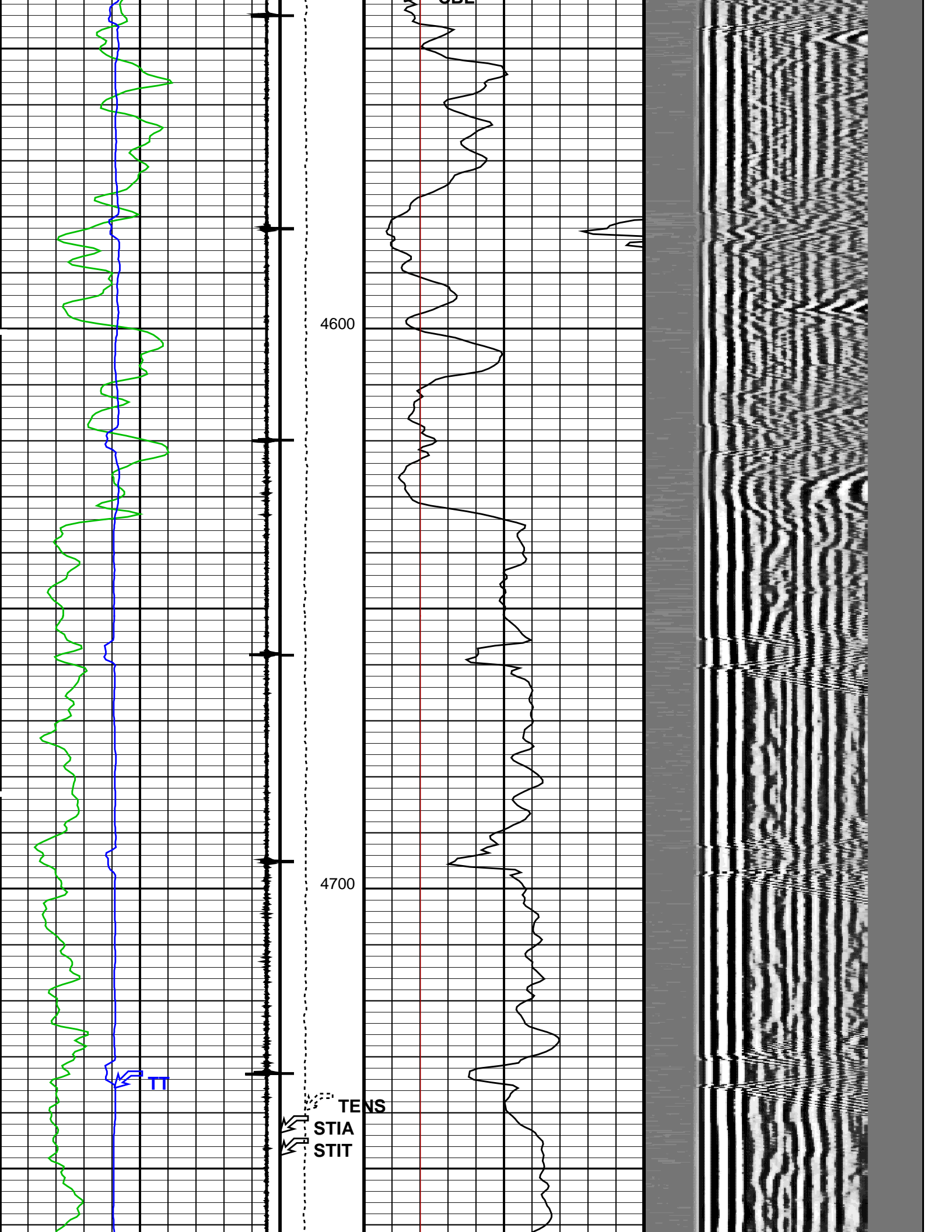


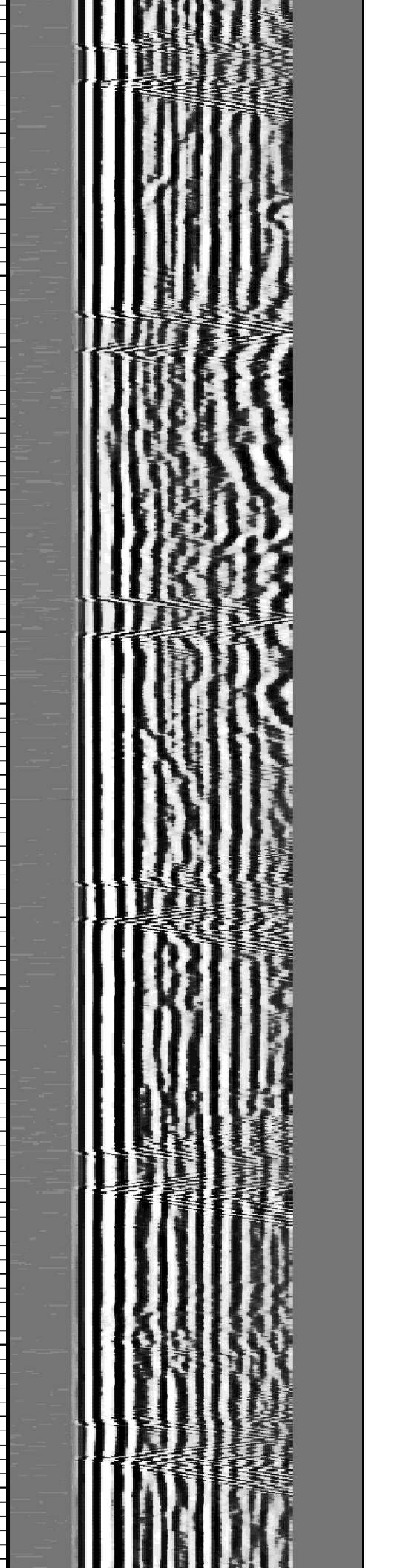
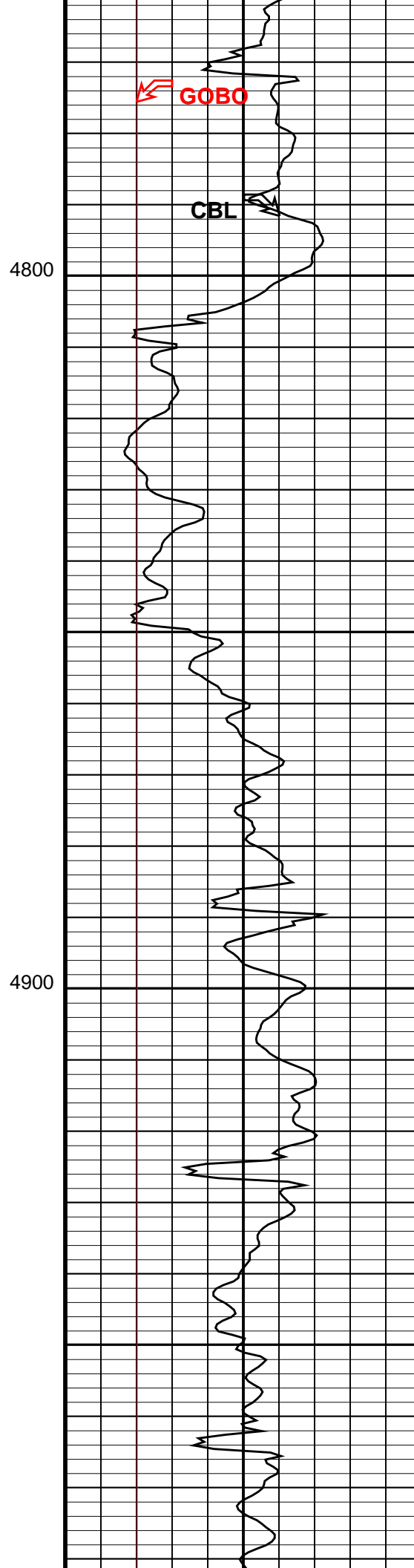
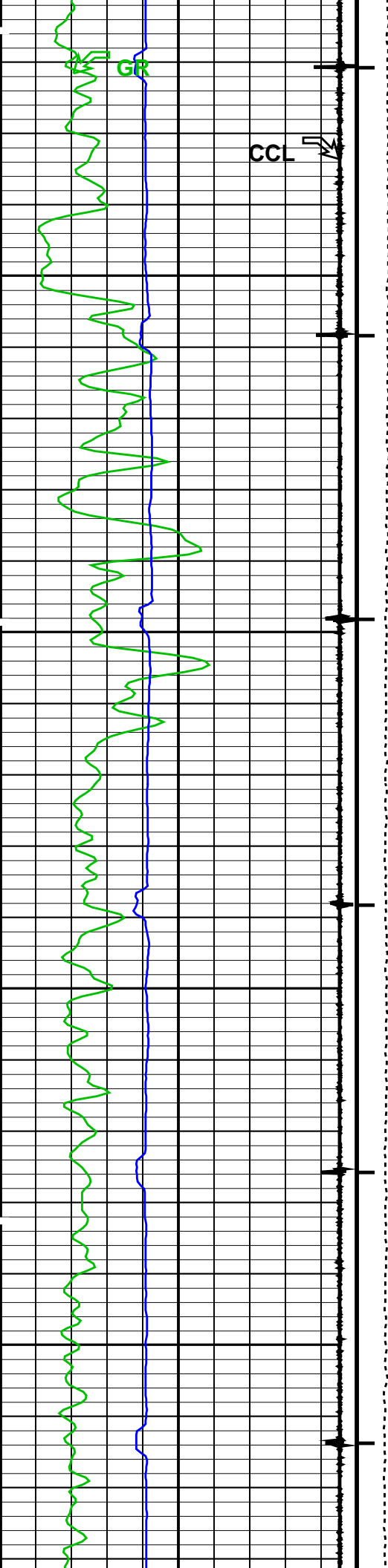


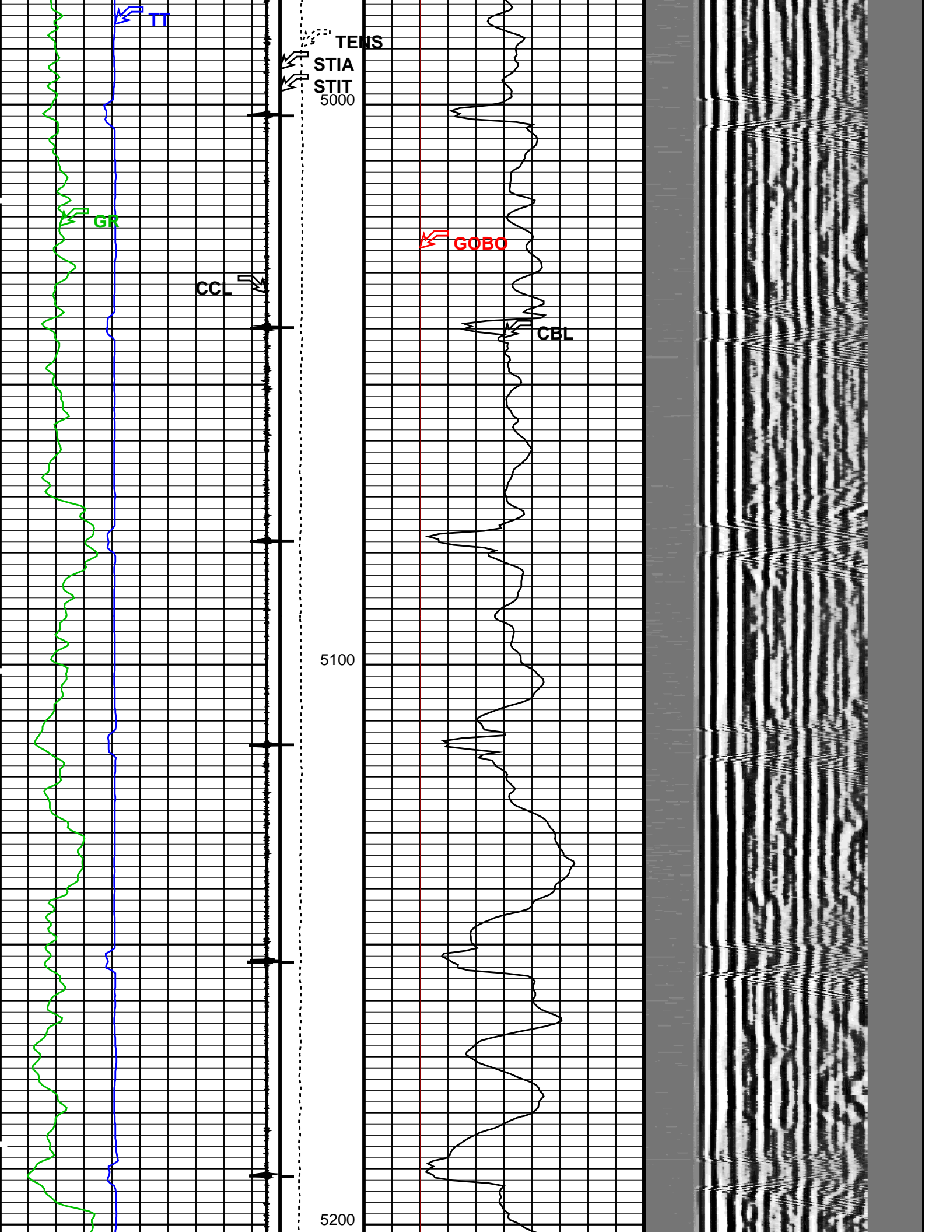


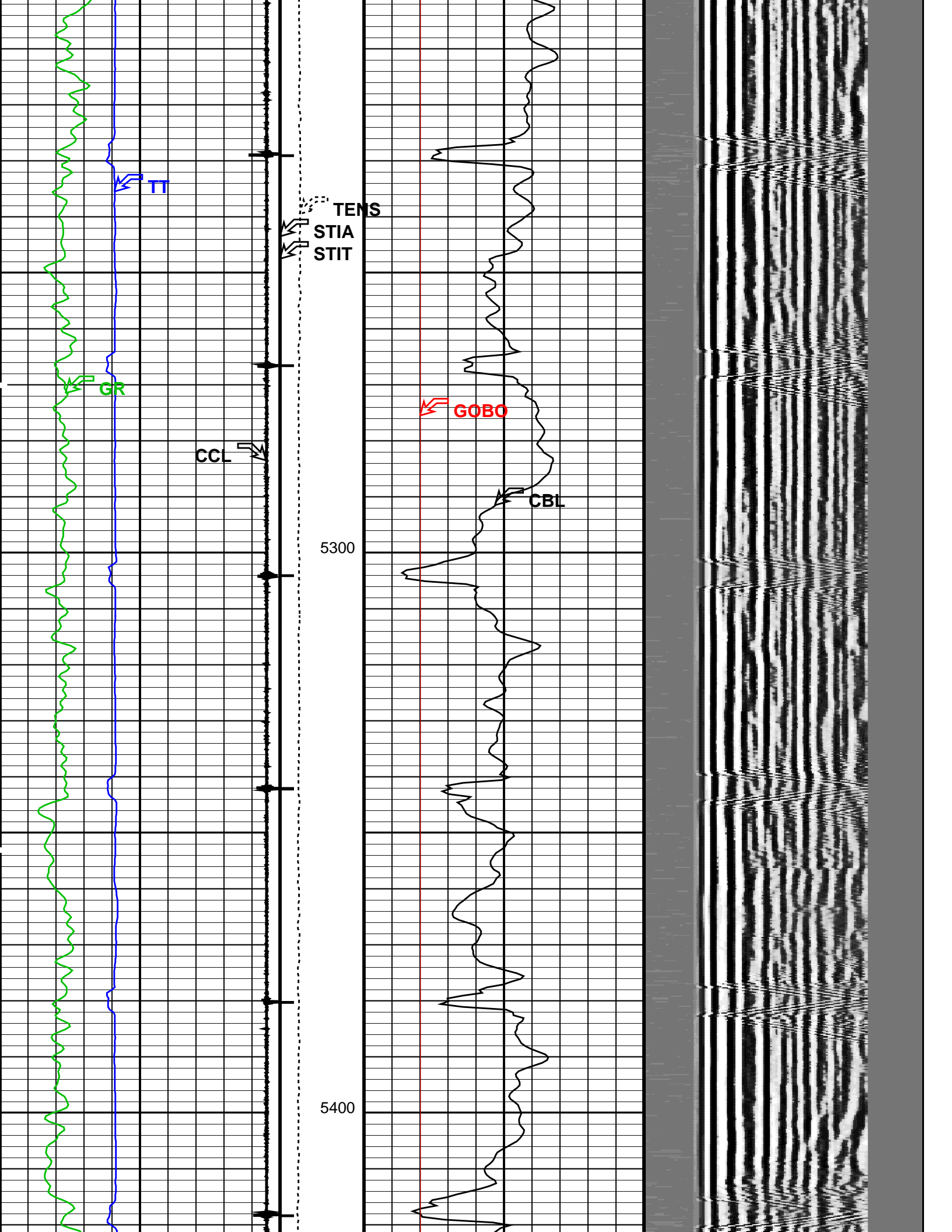


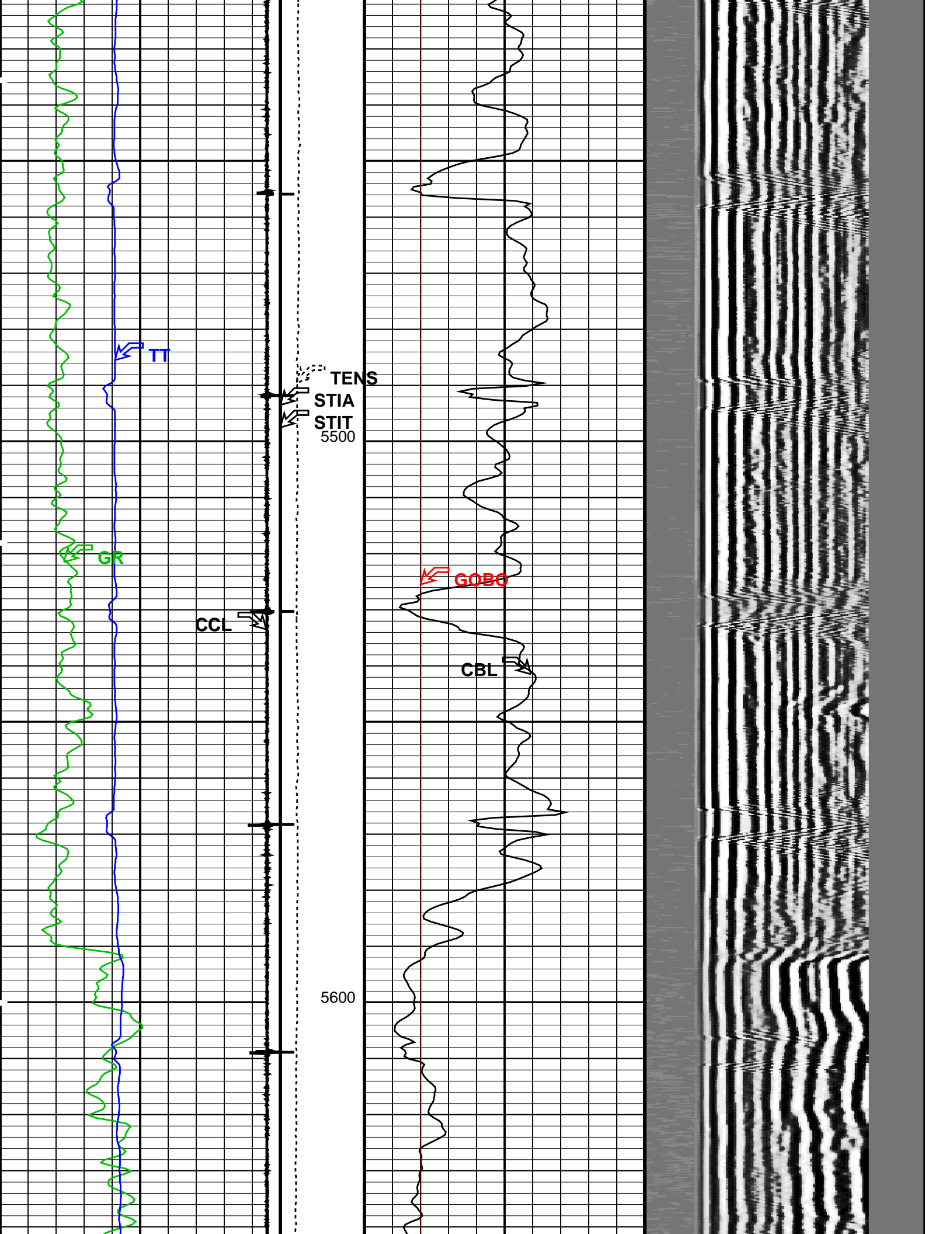


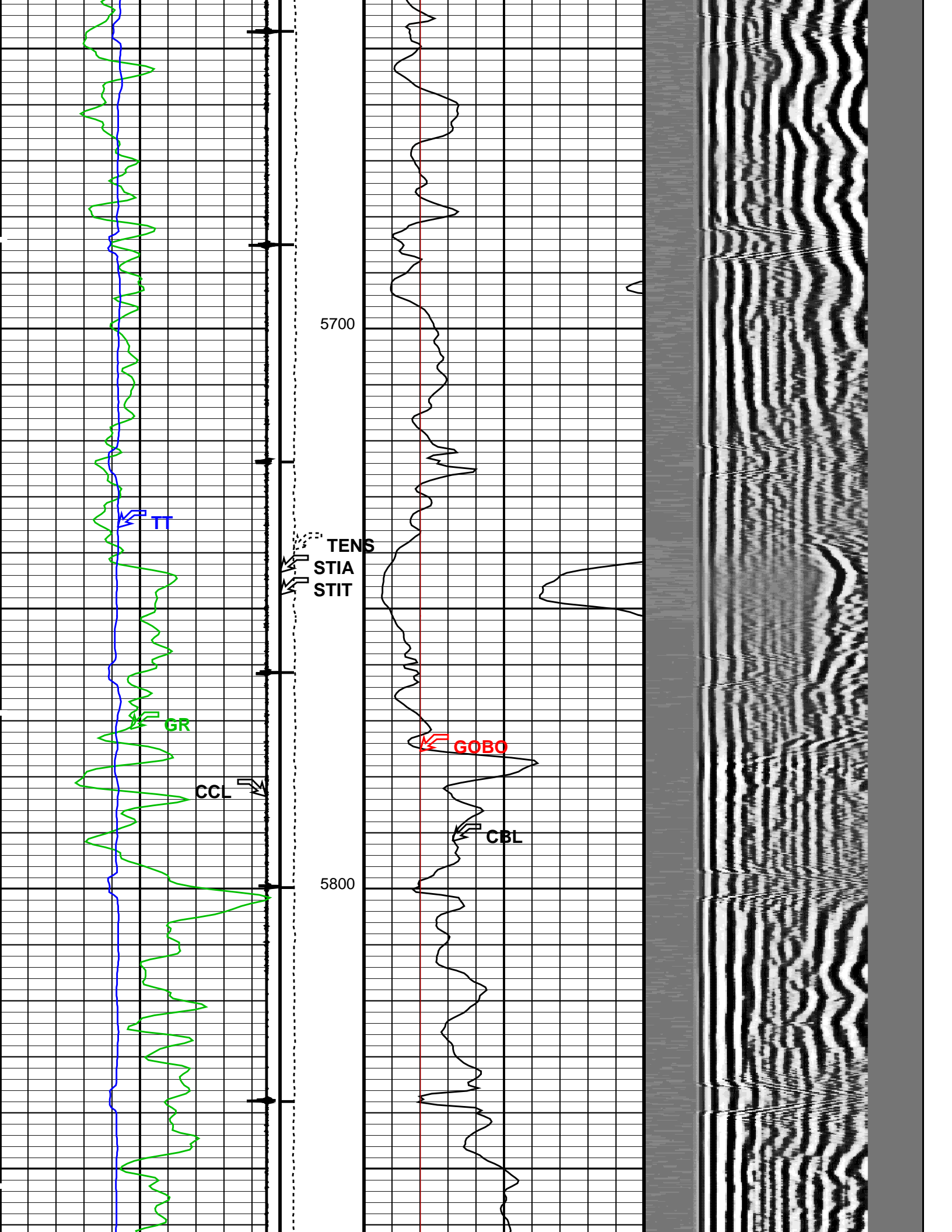


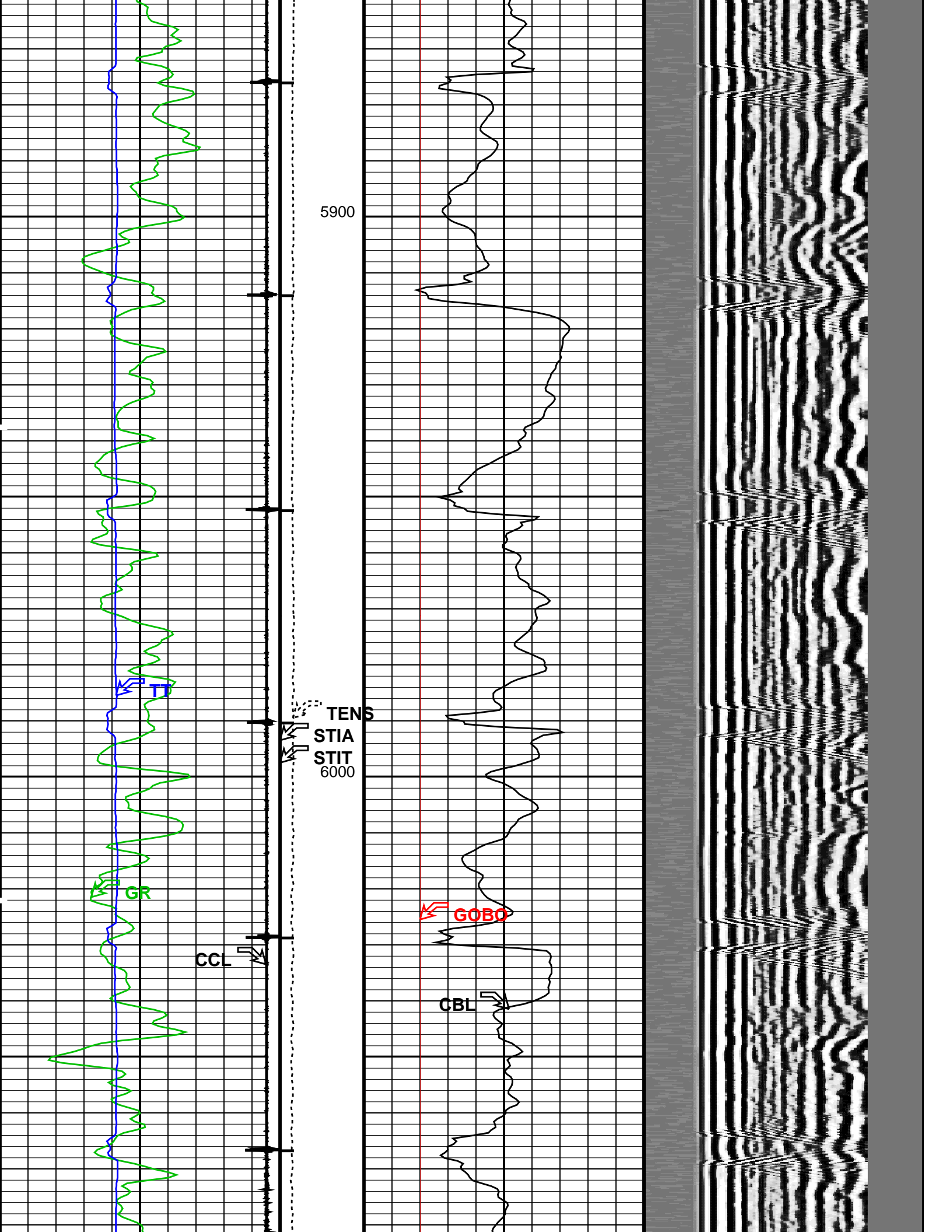


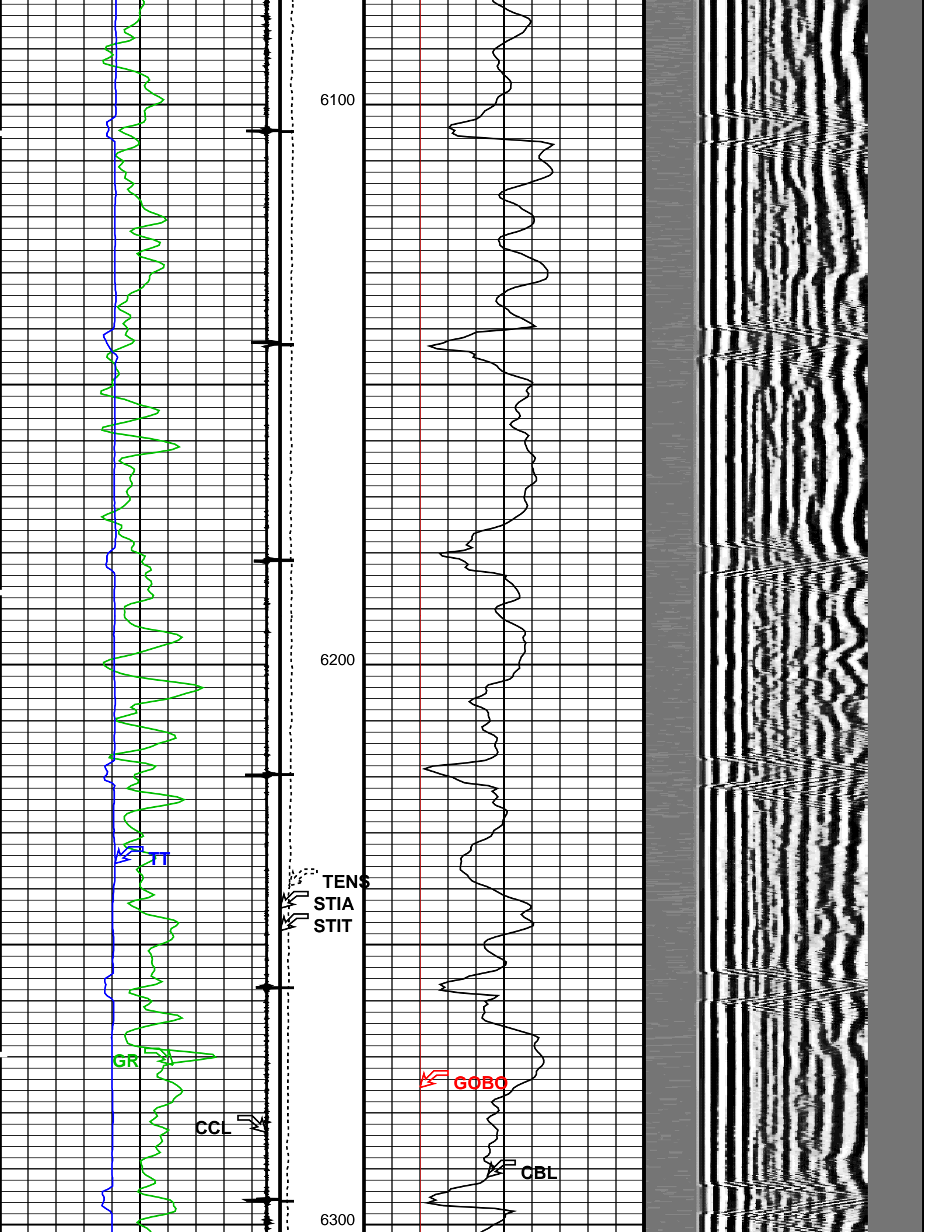


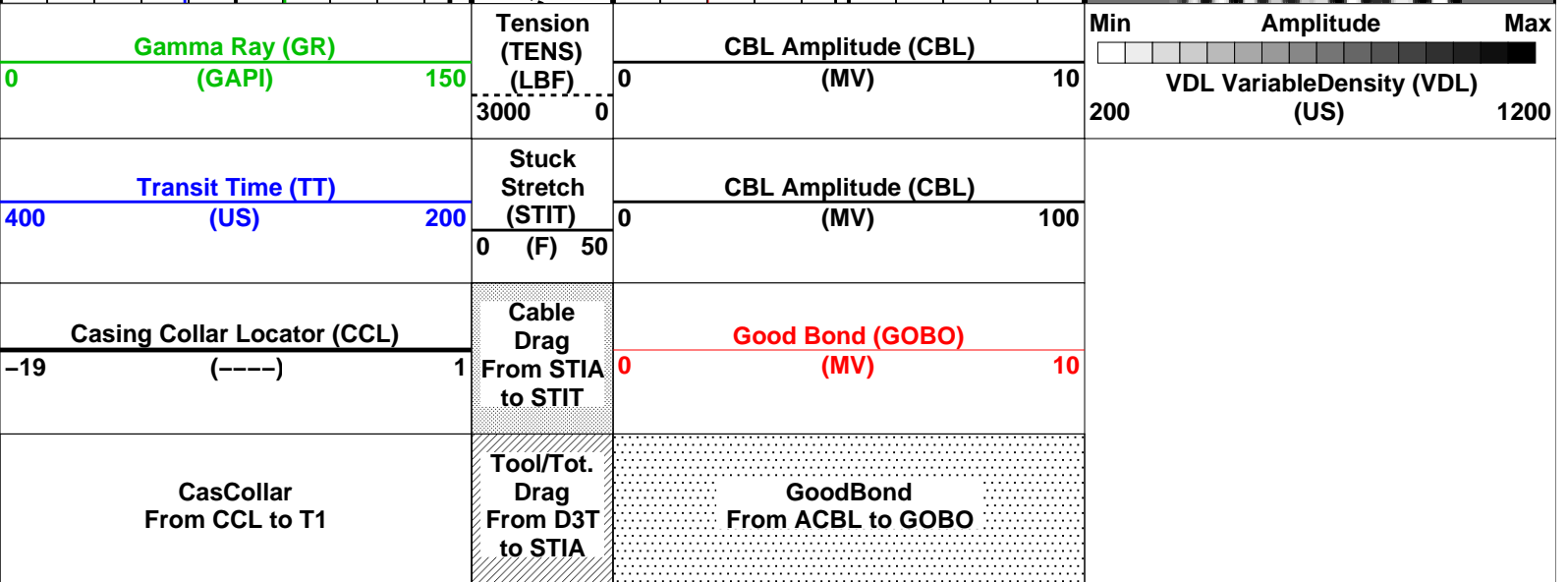
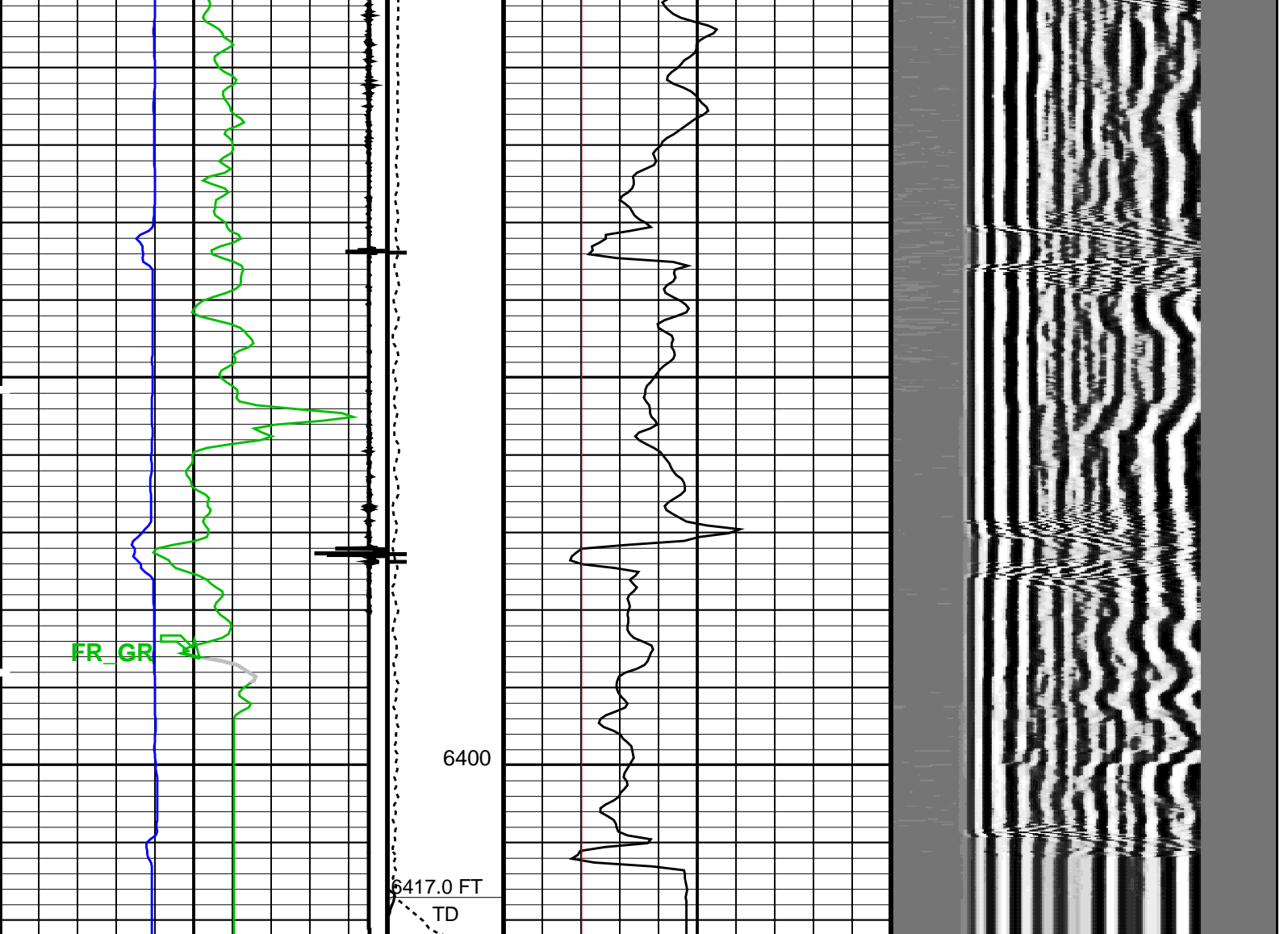












Information for DSLT Sonde Status and Casing Features

Sonde Type	Not Recorded
Sonde Serial Number	Not Recorded (0)
Casing Size (CSIZ)	7.0 IN
Casing Weight (CWEI)	23.0 LB/F
Expected CBL Amplitude in Free Pipe Section (CBRA)	62.0 MV
Minimum Sonic Amplitude (MSA : 100% Cement)	0.847080 MV
Minimum Sonic Amplitude (MSA : 80% Cement)	1.99902 MV
Date of Master Calibration	Not Recorded
CBLB Correction Factor (Master Calibration)	1.0
Depth of Before Calibration (BDEP)	Not Recorded
CBLB Adjustment Factor (CBAF : Before Calibration)	1.0

Parameters

DLIS Name	Description	Value	
DSLT-H: Digitizing Sonic Logging Tool			
	DSLT Firing Mode	CBLB_W	
	Telemetry Mode	DSLCL_FTB	
AMSG	Auxiliary Minimum Sliding Gate	140	US
CBAF	CBL Adjustment Factor	1	
CBLG	CBL Gate Width	59	US
DDEL	Digitizing Delay	0	US
DRCS	DSLT DLIS Recording Size	120	
DSIN	Digitizing Sample Interval	10	
DTFS	DSLCL Telemetry Frame Size	236	
DWCO	Digitizing Word Count	100	
GAI	Manual Gain	40	
GOBO	Good Bond	1.99902	MV
MAHTR	Manual High Threshold Reference	40	
MGAI	Maximum Gain	60	
MNHTR	Minimum High Threshold Reference	30	
NMSG	Near Minimum Sliding Gate	304	US
NMXG	Near Maximum Sliding Gate	801	US
RATE	Firing Rate	R15	
SFAF	Sonic Formation Attenuation Factor	0	DB/F
SGCL	Sliding Gate Closing Delta-T	250	US/F
SGDT	Sliding Gate Delta-T	53	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	
CAL-Y: Casing Anomaly Locator - Y			
CCLD	CCL reset delay	12	IN
CCLT	CCL Detection Level	0.3	V
STI: Stuck Tool Indicator			
LBFR	Trigger for MAXIS First Reading Label	STI	
STKT	STI Stuck Threshold	2.5	FT
TDD	Total Depth - Driller	6410.00	FT
TDL	Total Depth - Logger	6417.00	FT
System and Miscellaneous			
DO	Depth Offset for Playback	2.0	FT
PP	Playback Processing	RECOMPUTE	

Input DLIS Files

DEFAULT	SONIC_TLD_MCFL_CNL_009LUP	FN:15	PRODUCER	01-Aug-2011 15:02	6420.0 FT	180.0 FT
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Output DLIS Files

DEFAULT	SONIC_TLD_MCFL_CNL_012PUP	FN:20	PRODUCER	01-Aug-2011 16:46
RTB	SONIC_TLD_MCFL_CNL_012PUP	FN:21	PRODUCER	01-Aug-2011 16:37

Schlumberger

REPEAT PASS
0 PSI

MAXIS Field Log

Company: CHEVRON NORTH AMERICA

Well: EMERALD 94X

Input DLIS Files

DEFAULT	SONIC_TLD_MCFL_CNL_008LUP	FN:13	PRODUCER	01-Aug-2011 14:52	6419.5 FT	6069.0 FT
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Output DLIS Files

DEFAULT	SONIC_TLD_MCFL_CNL_011PUP	FN:18	PRODUCER	01-Aug-2011 16:46	6421.5 FT	6071.0 FT
RTB	SONIC_TLD_MCFL_CNL_011PUP	FN:19	PRODUCER	01-Aug-2011 16:36	6421.5 FT	6071.0 FT

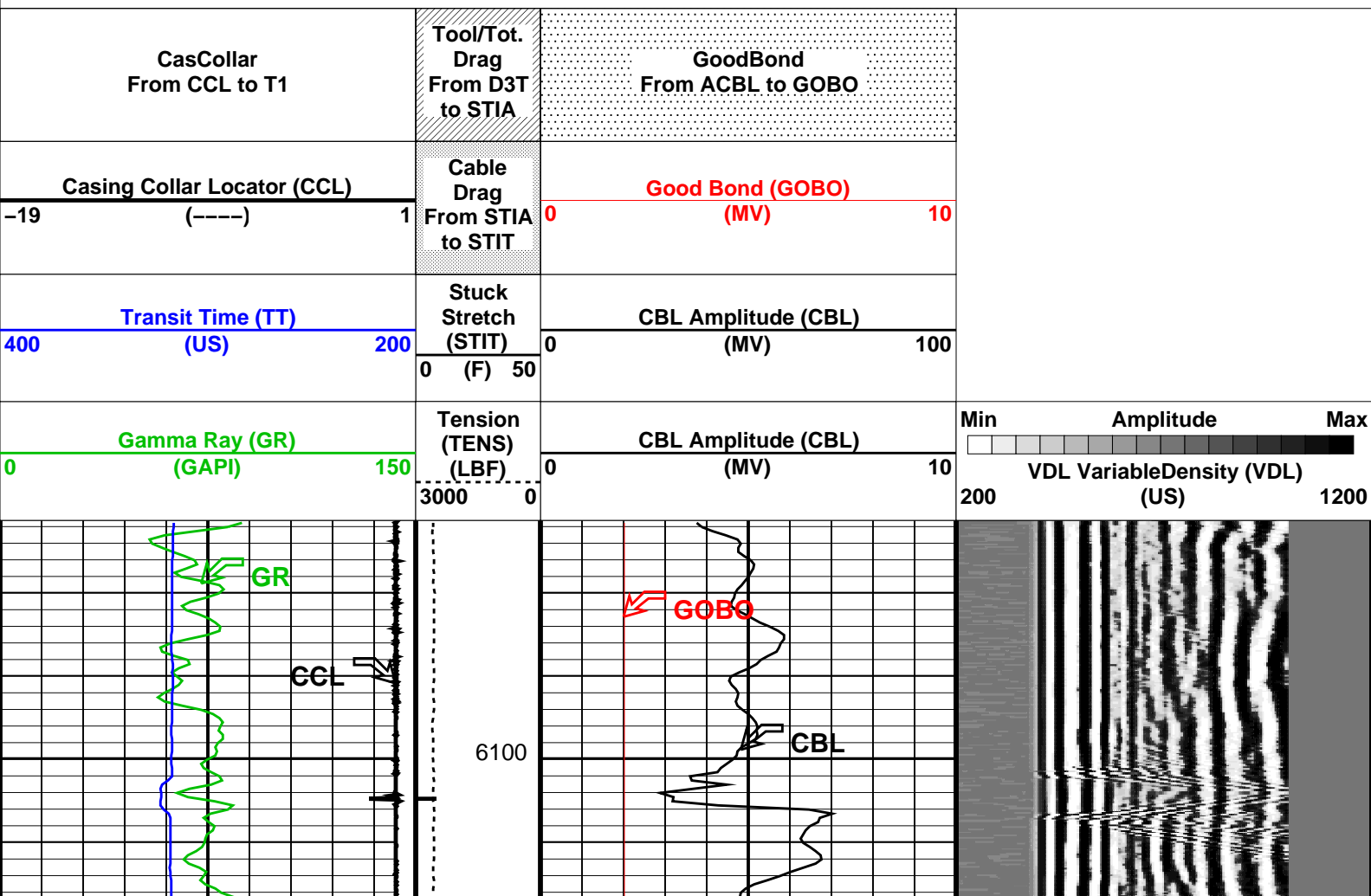
OP System Version: 18C0-147

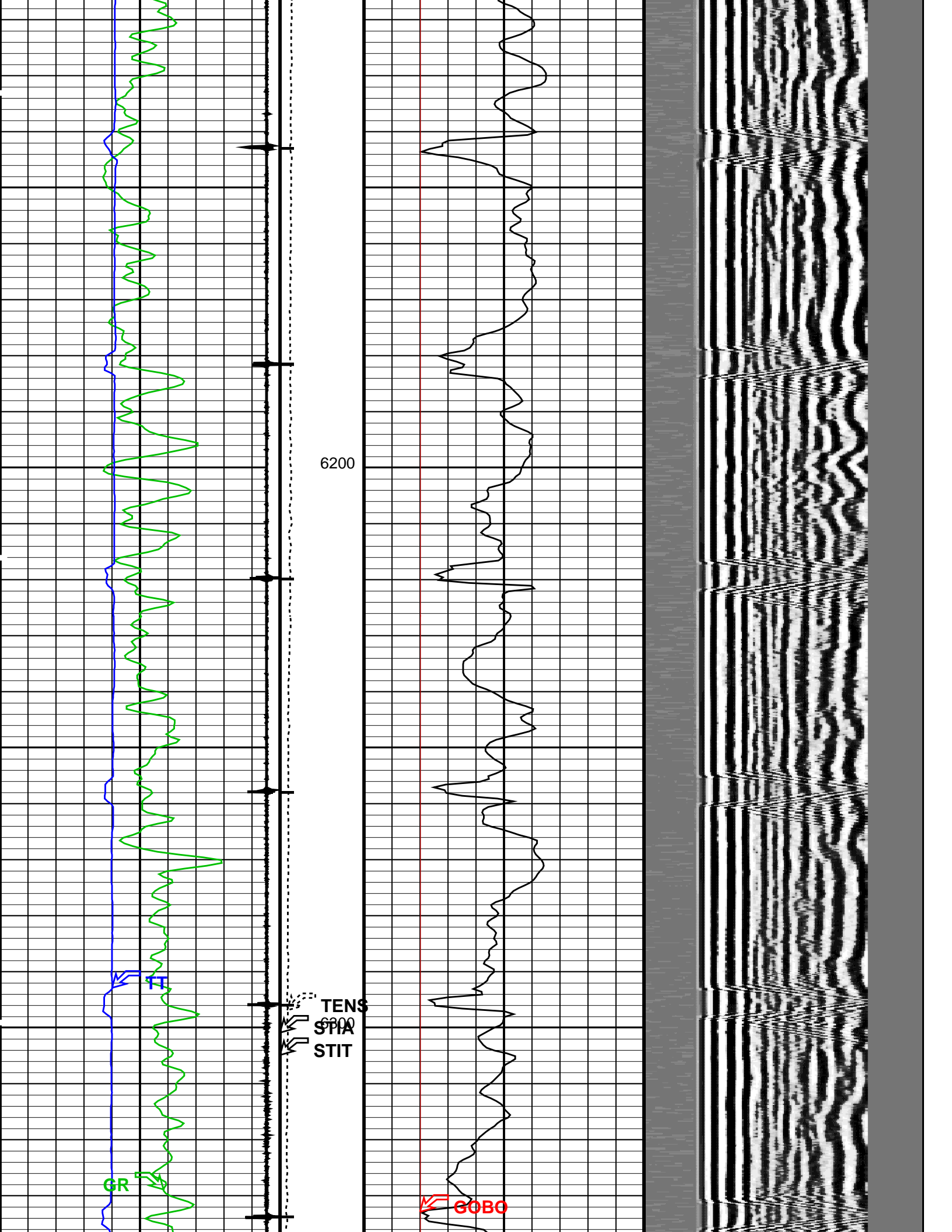
DSLT-H	18C0-147	HILTH-FTB	18C0-147
DTC-H	18C0-147	CAL-Y	18C0-147

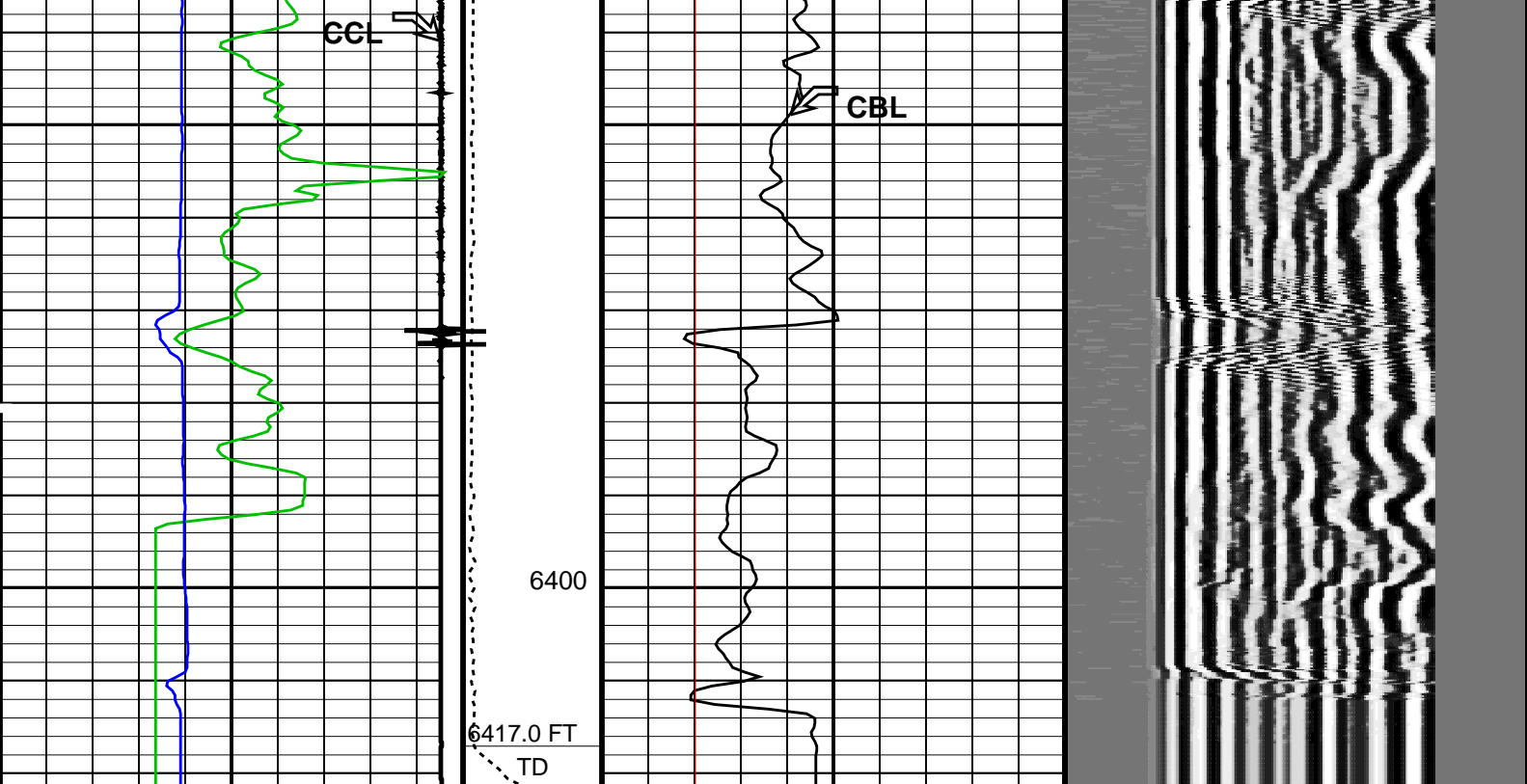
PIP SUMMARY


└─ Casing Collars

Time Mark Every 60 S







Gamma Ray (GR) (GAPI)		Tension (TENS) (LBF)	CBL Amplitude (CBL) (MV)		Min 200	Amplitude	Max 1200
0	150	3000 0	0	10			
Transit Time (TT) (US)		Stuck Stretch (STIT) (F)	CBL Amplitude (CBL) (MV)				
400	200	0 50	0	100			
Casing Collar Locator (CCL) (-----)		Cable Drag From STIA to STIT	Good Bond (GOBO) (MV)				
-19	1		0	10			
CasCollar From CCL to T1		Tool/Tot. Drag From D3T to STIA	GoodBond From ACBL to GOBO				

PIP SUMMARY

Time Mark Every 60 S

Casing Collars

Format: CBL_VDL_1 Vertical Scale: 5" per 100' Graphics File Created: 01-Aug-2011 16:46

OP System Version: 18C0-147

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

Information for DSLT Sonde Status and Casing Features

Sonde Type	Not Recorded
Sonde Serial Number	Not Recorded (0)
Casing Size (CSIZ)	7.0 IN
Casing Weight (CWEI)	23.0 LB/F

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CBLB Correction Factor (Master Calibration)	1.0
Depth of Before Calibration (BDEP)	Not Recorded
CBLB Adjustment Factor (CBAF : Before Calibration)	1.0

Parameters

DLIS Name	Description	Value	
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	Telemetry Mode	DSLCL_FTB	
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CBLG	CBL Gate Width	59	US
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DRCS	DSLT DLIS Recording Size	120	
DSIN	Digitizing Sample Interval	10	
DTFS	DSLCL Telemetry Frame Size	236	
DWCO	Digitizing Word Count	100	
GAI	Manual Gain	40	
GOBO	Good Bond	1.99902	MV
MAHTR	Manual High Threshold Reference	40	
MGAI	Maximum Gain	60	
MNHTR	Minimum High Threshold Reference	30	
NMSG	Near Minimum Sliding Gate	304	US
NMXG	Near Maximum Sliding Gate	801	US
RATE	Firing Rate	R15	
SFAF	Sonic Formation Attenuation Factor	0	DB/F
SGCL	Sliding Gate Closing Delta-T	250	US/F
SGDT	Sliding Gate Delta-T	53	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	
CAL-Y: Casing Anomaly Locator - Y			
CCLD	CCL reset delay	12	IN
CCLT	CCL Detection Level	0.3	V
STI: Stuck Tool Indicator			
LBFR	Trigger for MAXIS First Reading Label	STI	
STKT	STI Stuck Threshold	2.5	FT
TDD	Total Depth - Driller	6410.00	FT
TDL	Total Depth - Logger	6417.00	FT
System and Miscellaneous			
DO	Depth Offset for Playback	2.0	FT
PP	Playback Processing	RECOMPUTE	

Input DLIS Files

DEFAULT	SONIC_TLD_MCFL_CNL_008LUP	FN:13	PRODUCER	01-Aug-2011 14:52	6419.5 FT	6069.0 FT
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Output DLIS Files

DEFAULT	SONIC_TLD_MCFL_CNL_011PUP	FN:18	PRODUCER	01-Aug-2011 16:46	
RTB	SONIC_TLD_MCFL_CNL_011PUP	FN:19	PRODUCER	01-Aug-2011 16:36	



CALIBRATIONS

Calibration and Check Summary							
Measurement	Nominal	Master	Before	After	Change	Limit	Units
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Detector Calibration							
Before: 31–Jul–2011 1:56							
Gamma Ray Background	30.00	N/A	58.64	N/A	N/A	N/A	GAPI
Gamma Ray (Jig – Bkgd)	163.0	N/A	174.4	N/A	N/A	14.82	GAPI
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Zero Measurement							
Master: 18–Jul–2011 18:00 Before: 31–Jul–2011 1:45							
CNTC Background	26.91	26.91	27.00	N/A	N/A	4.036	CPS
CFTC Background	25.91	25.91	25.16	N/A	N/A	3.887	CPS
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Ratio Measurement							
Master: 18–Jul–2011 18:00							
Thermal Near Corr. (Tank)	5800	5049	N/A	N/A	N/A	N/A	CPS
Thermal Far Corr. (Tank)	2400	2114	N/A	N/A	N/A	N/A	CPS
CNTC/CFTC (Tank)	2.159	2.388	N/A	N/A	N/A	N/A	
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Accelerometer Calibration							
Before: 1–Aug–2011 13:41							
Z–Axis Acceleration	32.19	N/A	32.07	N/A	N/A	N/A	F/S2

The HGNS Neutron Master Calibration was done with the following parameters :

NCT–B Water Temperature

79.7

DEGF.

Thermal Housing Size



3.378





IN.



NSR–F serial number


0



High resolution Integrated Logging Tool–DTS / Equipment Identification			
Primary Equipment:			
HILT Gamma–Ray Neutron Sonde–DTS	HGNS – H	3935	
HGNS Gamma–Ray Device	HGR –		
HGNS Neutron Detector with Alpha Source	HCNT – H		
Z–Axis Accelerometer	HACC – H	4269	
Neutron Logging Source	NLS – KL		
Neutron Source Radioactive	NSR – F		
Compensated Neutron Box	CNB – AB		
HTBC Communication Assembly DTS Mode	HMCA – H		
Auxiliary Equipment:			
Neutron Calibration Tank	NCT – B		
Gamma Source Radioactive	GSR – U/Y		
HGNS Housing	HGNH –	3785	



High resolution Integrated Logging Tool–DTS Wellsite Calibration							
Detector Calibration							
Phase	Gamma Ray Background GAPI		Value	Phase	Gamma Ray (Jig – Bkgd) GAPI		Value
Before			58.64	Before			174.4
0		30.00	120.0	155.2		163.0	203.8
(Minimum)		(Nominal)	(Maximum)	(Minimum)		(Nominal)	(Maximum)
Before: 31–Jul–2011 1:56							

High resolution Integrated Logging Tool–DTS Wellsite Calibration							
Zero Measurement							
Phase	CNTC Background CPS		Value	Phase	CFTC Background CPS		Value
Master			26.91	Master			25.91
Before			27.00	Before			25.16
5.000		26.91	40.00	5.000		25.91	40.00
(Minimum)		(Nominal)	(Maximum)	(Minimum)		(Nominal)	(Maximum)

High resolution Integrated Logging Tool-DTS Wellsite Calibration									
Ratio Measurement									
Phase	Thermal Near Corr. (Tank) CPS			Value	Phase	Thermal Far Corr. (Tank) CPS			Value
Master				5049	Master				2114
	4700 (Minimum)	5800 (Nominal)	6900 (Maximum)			1900 (Minimum)	2400 (Nominal)	2900 (Maximum)	
Master: 18-Jul-2011 18:00									

High resolution Integrated Logging Tool-DTS Wellsite Calibration			
Accelerometer Calibration			
Phase	Z-Axis Acceleration F/S2	Value	
Before		32.07	
	31.53 (Minimum)	32.19 (Nominal)	32.84 (Maximum)
Before: 1-Aug-2011 13:41			

High resolution Integrated Logging Tool-DTS Master Calibration									
Zero Measurement									
Phase	CNTC Background CPS			Value	Phase	CFTC Background CPS			Value
Master				26.91	Master				25.91
	5.000 (Minimum)	26.91 (Nominal)	40.00 (Maximum)			5.000 (Minimum)	25.91 (Nominal)	40.00 (Maximum)	
Master: 18-Jul-2011 18:00									

High resolution Integrated Logging Tool-DTS Master Calibration									
Tank Measurement									
Phase	Thermal Near Corr. (Tank) CPS			Value	Phase	Thermal Far Corr. (Tank) CPS			Value
Master				5049	Master				2114
	4700 (Minimum)	5800 (Nominal)	6900 (Maximum)			1900 (Minimum)	2400 (Nominal)	2900 (Maximum)	
Master: 18-Jul-2011 18:00									

DTS Telemetry Tool / Equipment Identification

Primary Equipment:

DTC-H Auxiliary Cartridge
DTC-H Telemetry Cartridge

DTCH - A
DTCH - A

Auxiliary Equipment:

DTCH Telemetry Cartridge Housing

ECH - KC

10560

Company: **CHEVRON NORTH AMERICA****Schlumberger**Well: **EMERALD 94X**Field: **RANGELY**County: **RIO BLANCO**State: **COLORADO**

CEMENT BOND LOG
VARIABLE DENSITY LOG
GAMMA RAY - GCI

