

Company: EOG Resources, Inc.

Well: Dragon 36 State 11 SWD

Field: Red Hills

County: Lea State: New Mexico

Cement Bond Log

GR-CCL

Lea
Red Hills
720' FNL & 1760' FWL
Dragon 36 State 11 SWD
EOG Resources, Inc.

Location:		Elev.:	
720' FNL & 1760' FWL		K.B. 3545.00 ft	
Sec: 35, Twn: 24S, Rng: 33E		G.L. 3521.00 ft	
		D.F. 3544.00 ft	
Permanent Datum:	Ground Level	Elev.:	3521.00 f
Log Measured From:	Kelly Bushing	24.00 ft	above Perm.Datum
Drilling Measured From:	Kelly Bushing		
API Serial No.	Section:	Township:	Range:
30-025-41615	35	24S	33E

Logging Date 04-Aug-2014

Run Number 4A

Depth Driller 5050.00 ft

Schlumberger Depth 3000.00 ft

Bottom Log Interval 3000.00 ft

Top Log Interval 24.00 ft

Casing Fluid Type Salt Brine

Salinity

Density 12.3 lbm/gal

Fluid Level 8.00 ft

BIT/CASING/TUBING STRING

Bit Size 8.75 in

From 1281.00 ft

To 5050.00 ft

Casing/Tubing Size 7 in

Weight 26 lbm/ft

Grade 1.80

From 0.00 ft

To 5050.00 ft

Max Recorded Temperatures

Logger on Bottom 04-Aug-2014 11:30:00

Unit Number 2132 Location: Midland

Recorded By DNoad

Witnessed By Shane Brannan

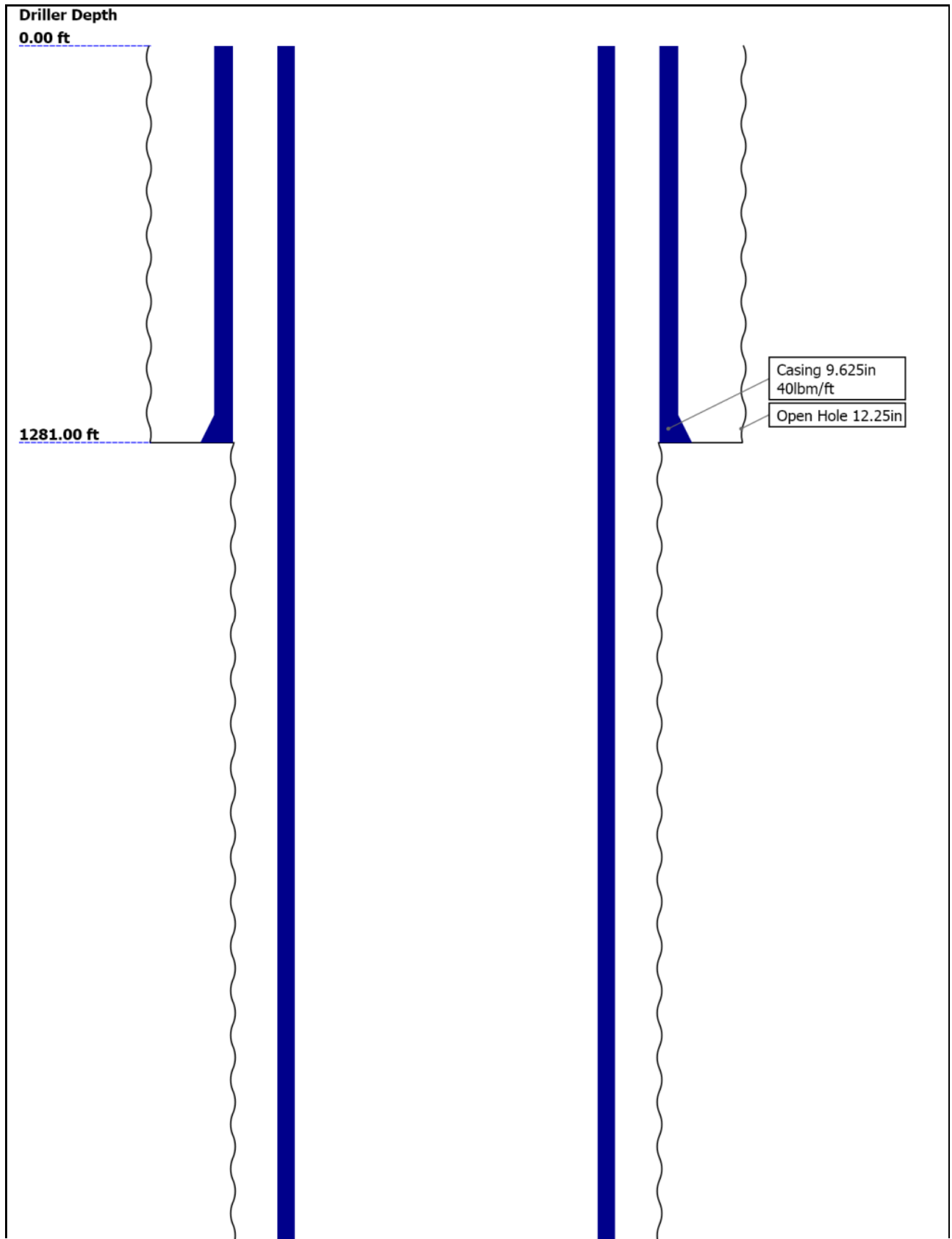
Disclaimer

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Well Sketch





Borehole Size/Casing/Tubing Record

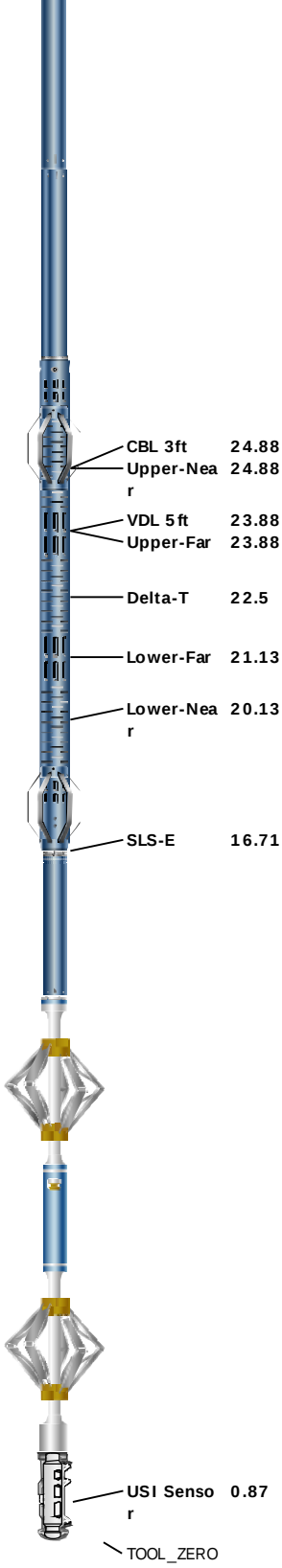
Bit						
Bit Size (in)	12.25	8.75				
Top Driller (ft)	0	1281				
Top Logger (ft)	0	1281				
Bottom Driller (ft)	1281	5050				
Bottom Logger (ft)	1281	5050				
Casing						
Size (in)	9.625	7				
Weight (lbm/ft)	40	26				
Inner Diameter (in)	8.835	6.276				
Grade	N/A	L80				
Top Driller (ft)	0	0				
Top Logger (ft)	0	0				
Bottom Driller (ft)	1281	5050				
Bottom Logger (ft)	1281	5050				

Remarks and Equipment Summary

4A: Toolstring				4A: Remarks
Equip name	Length	MP name	Offset	Toolstring run as per toolsketch. Logging Objective: Cement Evaluation from 3000ft to Surface All passes correlated to SLB CH log dated July 9th, 2014. Main and Repeat pass performed at 3000 psi. Surface Casing: 0-1281' 9.625" 40# Int. Casing: 7" 26# ERAD: 3.5" IRAD 3.14" Thickness 0.362" Cement Data: 14.8 ppg slurry pumped top-down during squeez job. Crew: Andrae, Bug, D'Angelo, and Dillon Schlumberger Wireline - Midland, TX (432) 694-0000
LEH-QC	51.81			
CAL-YA:50	49.35			
CAL-YA:50		CCL	48.56	
DTC-H:8898	45.85			
ECH-KC:9974		CTEM	44.95	
DTC-H:8898		HV	0.00	
		TelStatus	42.85	
		ToolStatus	42.85	
SGT-N:1039	42.85			
2		GR	41.93	
SGH-K:3170				
SGD-TAA:2189				
7				
SGC-TB:10392				
DSLT-H:803	37.35			
4				
ECH-KH:8490				
DSL C-H:8034				

USIT-E:900 16.71

ECH-MFA:1818
USAC-A:900
USIS-A:1994
USSC-B:797
IBCS-B:856
FAR-SENSOR
NEAR-SENSOR
USI-SENSOR
EMITTER-SENSOR



Lengths are in ft
Maximum Outer Diameter = 6.250 in
Line: Sensor Location, Value: Gating Offset
All measurements are relative to TOOL_ZERO

Depth Summary

4A

Depth Measuring Device

Type	IDW-B
Serial Number	6399
Calibration Date	
Calibrator Serial Number	33
Calibration Cable Type	7-39PLXS
Wheel Correction 1	-5

Type	CMTD-B/A		
Serial Number	1106		
Calibration Date	21-Jul-2014		
Calibrator Serial Number	33		
Number of Calibration Points	10		
Calibration Root Mean Square Error	8		
Calibration Peak Error	16		

Type	7-39P-LXS		
Serial Number	U71305		
Length	22000.00 ft		
Conveyance Type	Wireline		
Rig Type	Land		

Log Sequence	First Log In the Well	All Schlumberger Wireline Depth Control procedures followed.
Rig Up Length At Surface		IDW used as primary depth control.
Rig Up Length At Bottom		Z-Chart used as secondary depth control.
Rig Up Length Correction		Logs correlated to SLB CH Logs dated July 9, 2014.
Stretch Correction		
Tool Zero Check At Surface		

Main Pass 5" = 100'	
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Software Version	
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Acquisition System	Version
MaxWell	4.0.9163.3000
Application Patch	Patch-SP-10767_22480-4.0.9163.3001

Computation	Description		Version
CEVAL	Sonic Cement Evaluation Computation Ensemble provides common Parameters and Channels		4.0.9469.3000
Tool Elements	Description	Software Version	Firmware Version
CAL-YA	Casing Anomaly Locator 3-3/8 in 31 Pin Heads	4.0.9469.3000	
SLS-E	Sonic Logging Sonde E supports 3'-5'BHC DT and CBL/VDL	4.0.9469.3000	4.0
SGC-TB	Scintillation Gamma Cartridge	4.0.9469.3000	

Pass Summary				
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Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
4A	Main[3]:Up	Up	79.88 ft	3000.17 ft	04-Aug-2014 11:55:05 AM	04-Aug-2014 1:12:36 PM	ON	0.00 ft	No

Log	Company:EOG Resources, Inc.	Well:Dragon 36 State 11 SWD
		4A: Main[3]:Up:S010

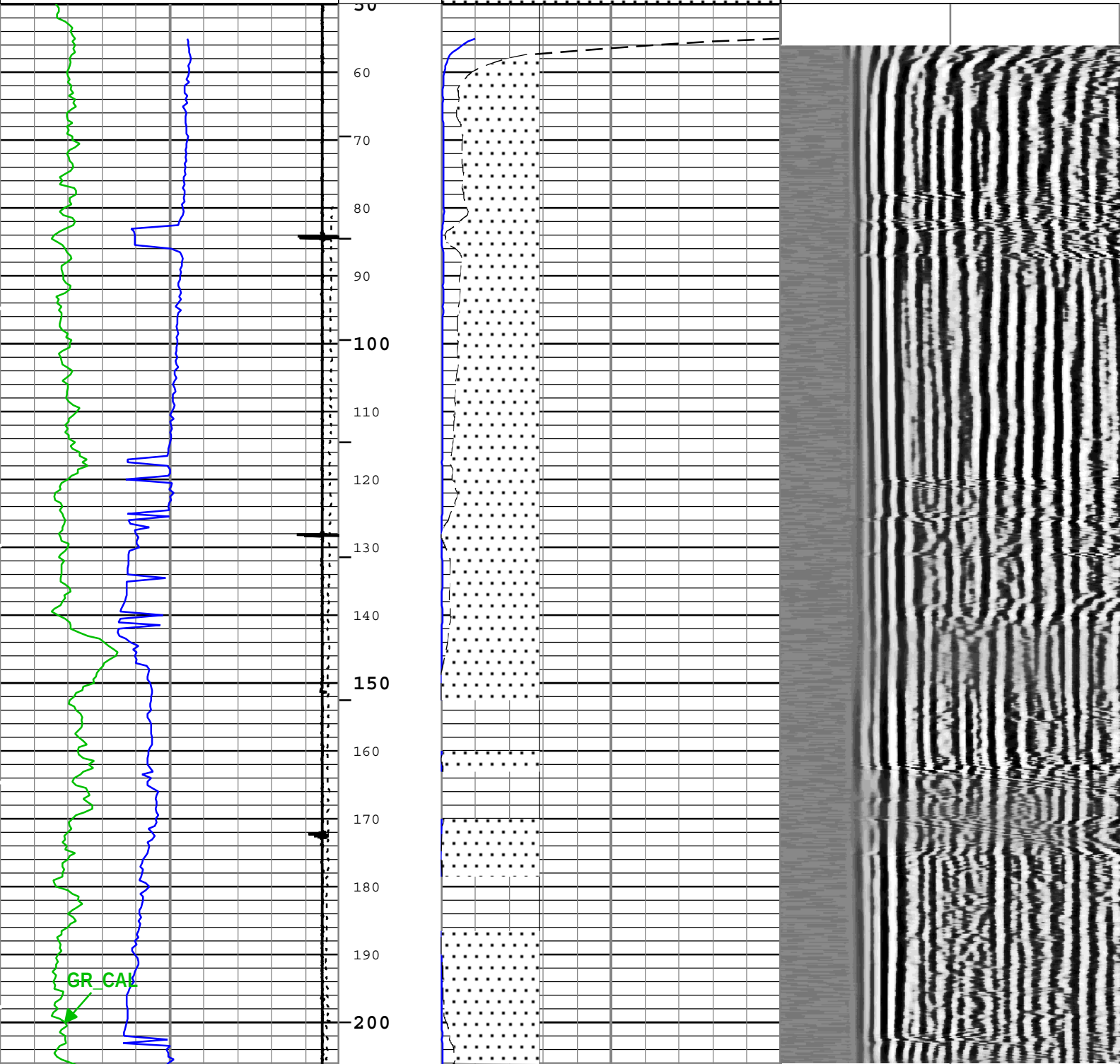
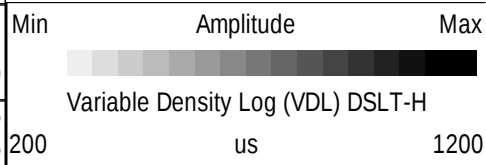
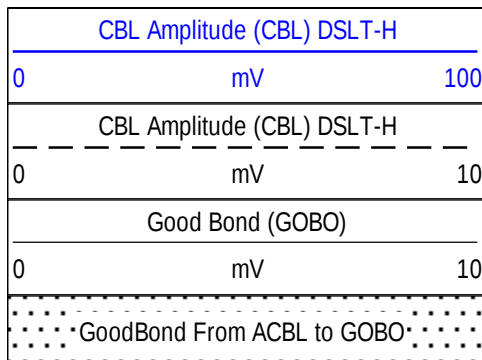
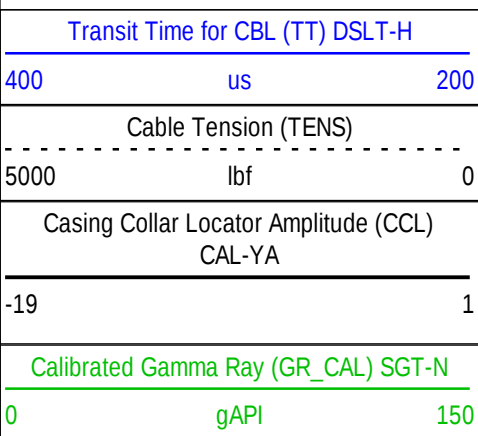
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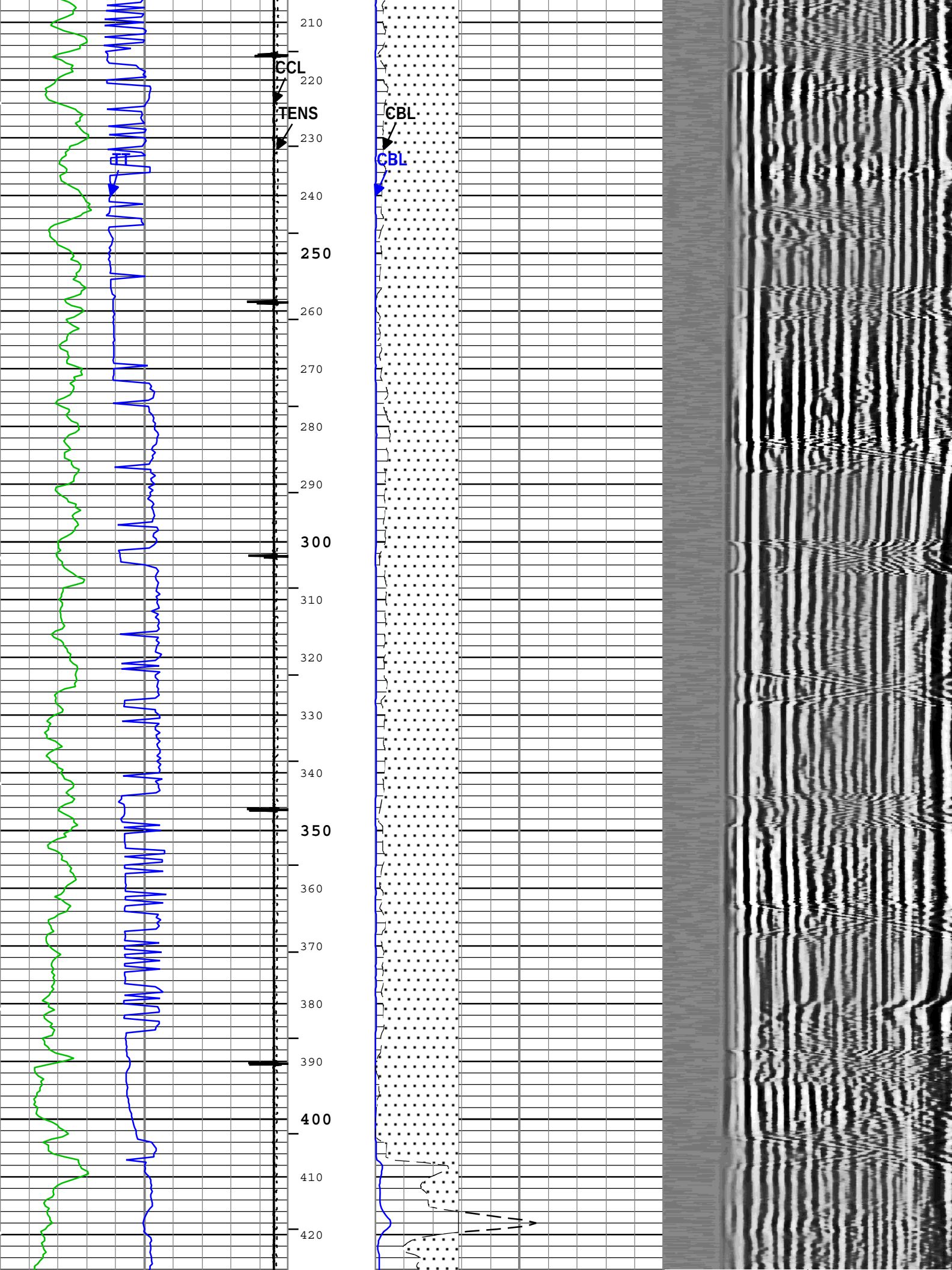
Channel	Source	Sampling
TT	DSLT-H:SLS-E:SLS-E	6in
BIEP	DSLT-H:SLS-E:SLS-E	6in
CBL	DSLT-H:SLS-E:SLS-E	6in
CCL	CAL-YA:CAL-YA:CAL-YA	1in
GR CAL	SGT-N:SGT-N:SGC-TB	6in

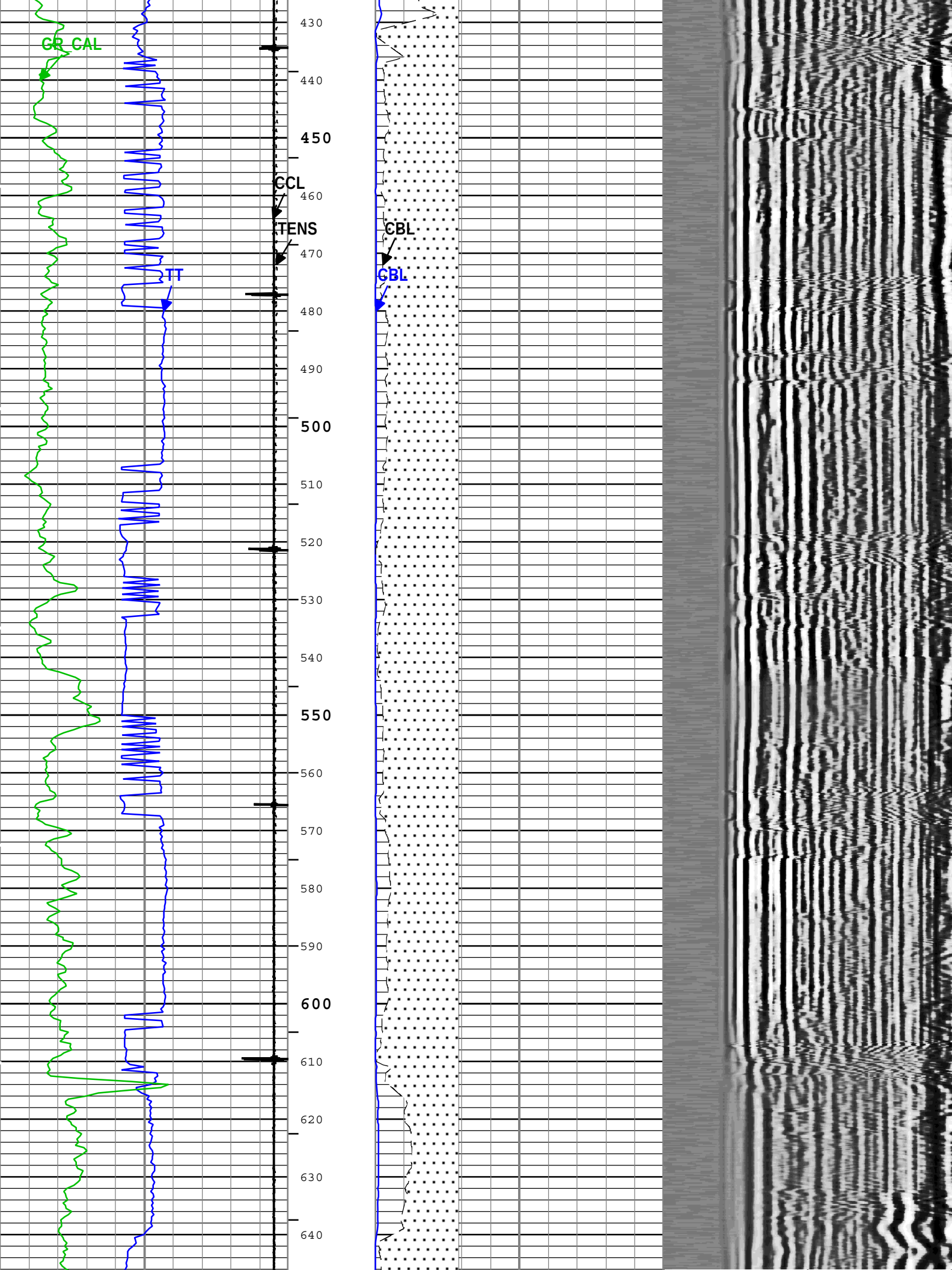
TENS WLWorkflow 1in
TIME_1900 0.1in

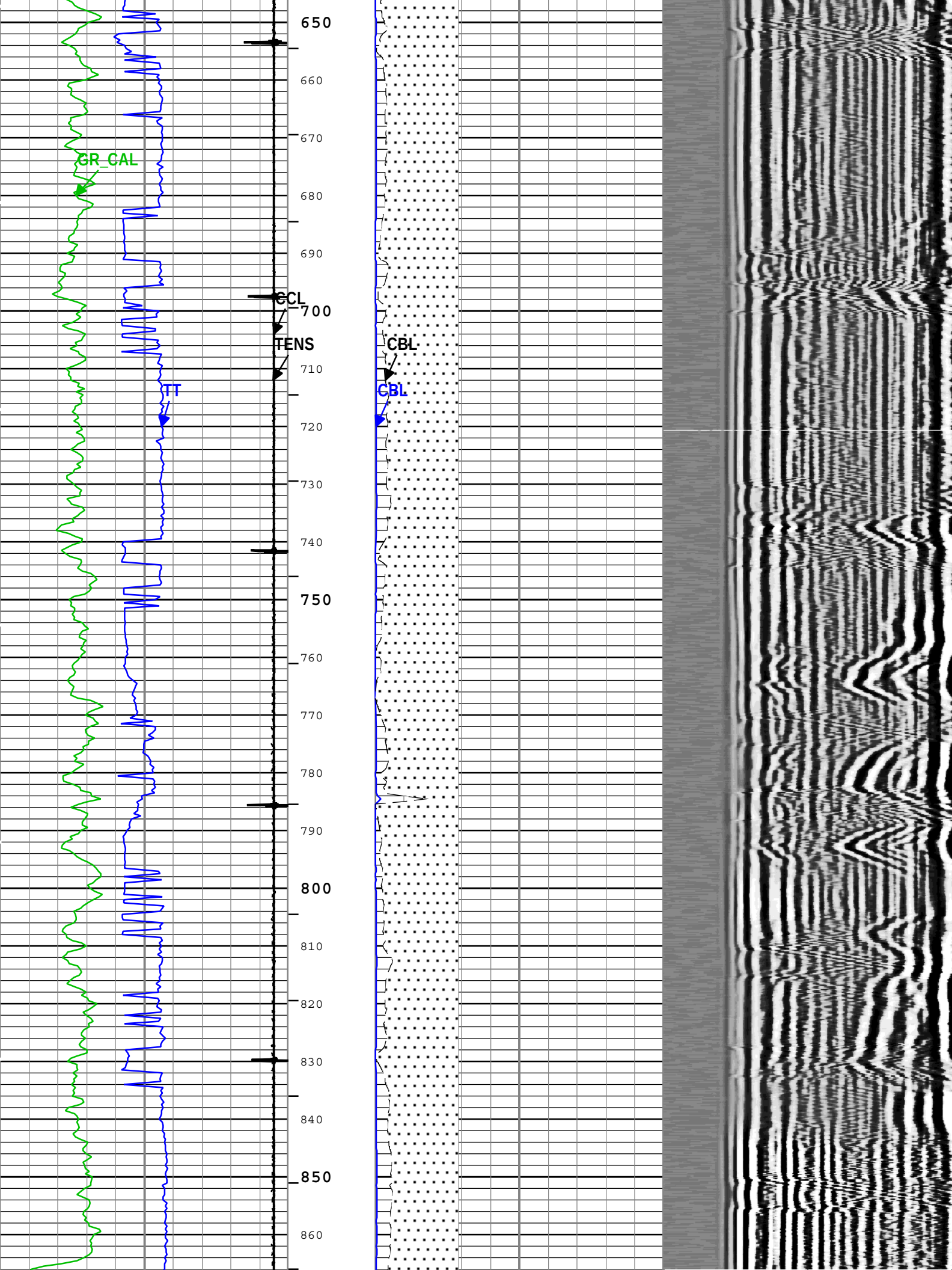
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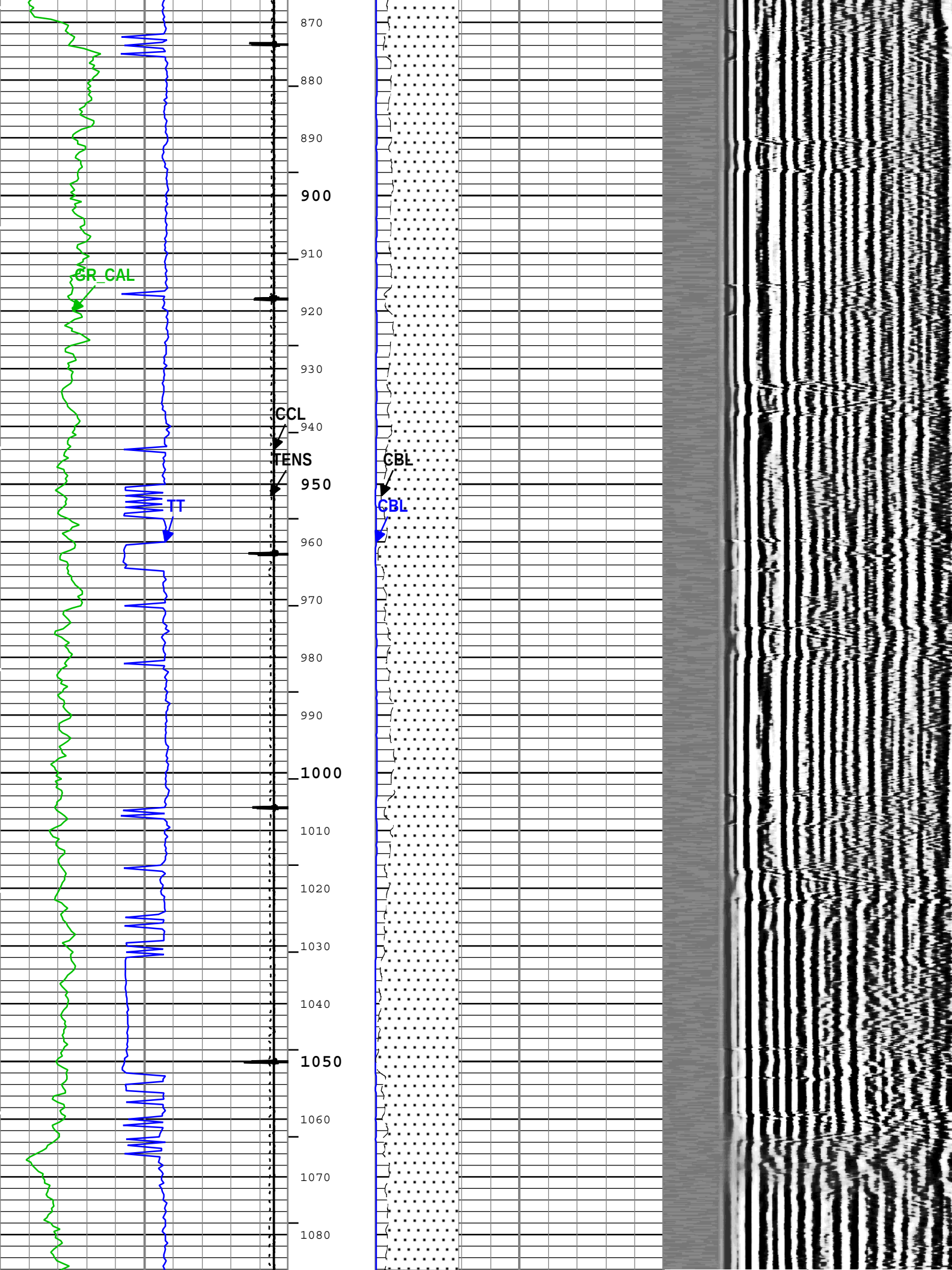
BIEP - Bond Index Event Pips DSLT-H

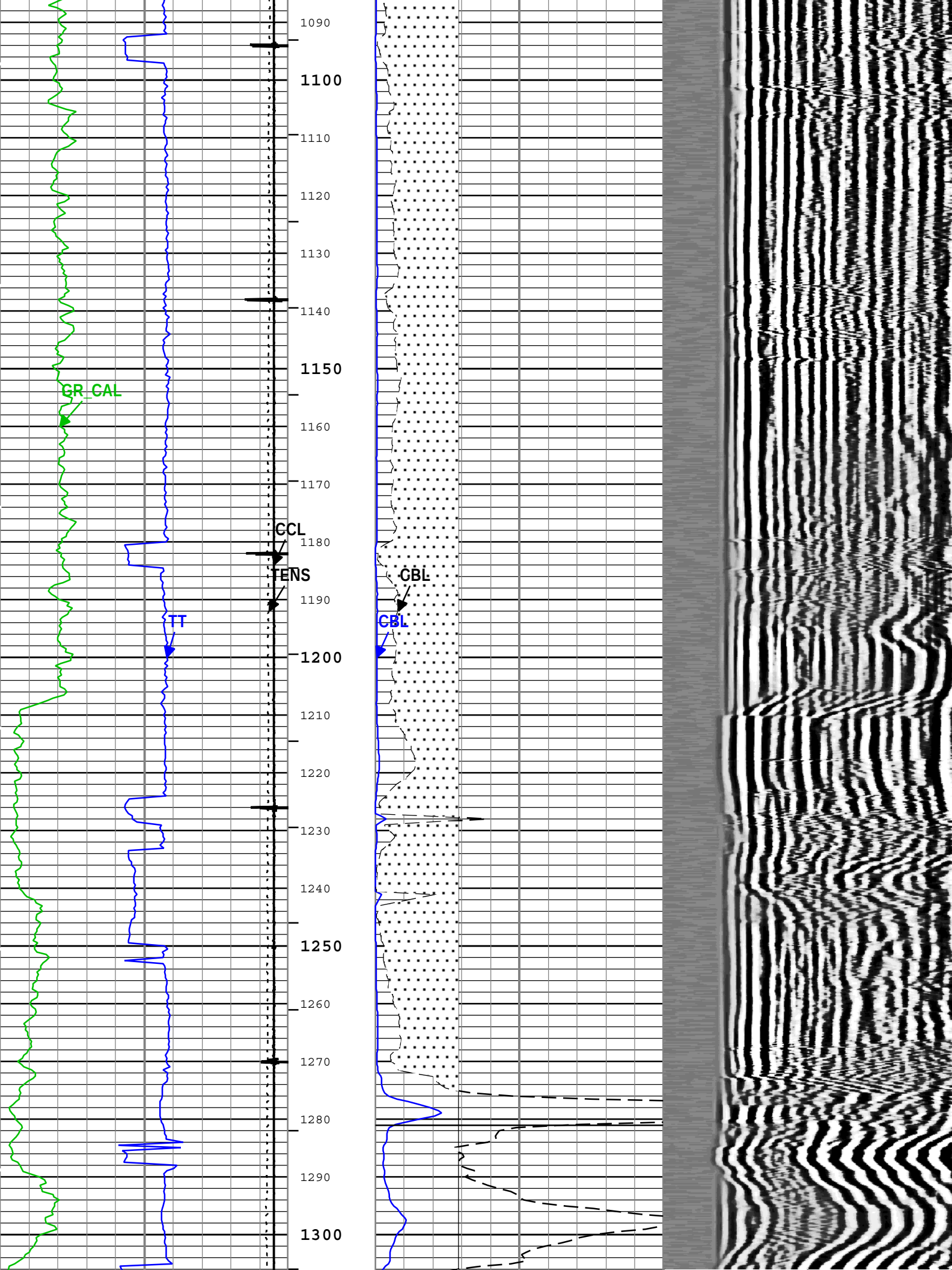


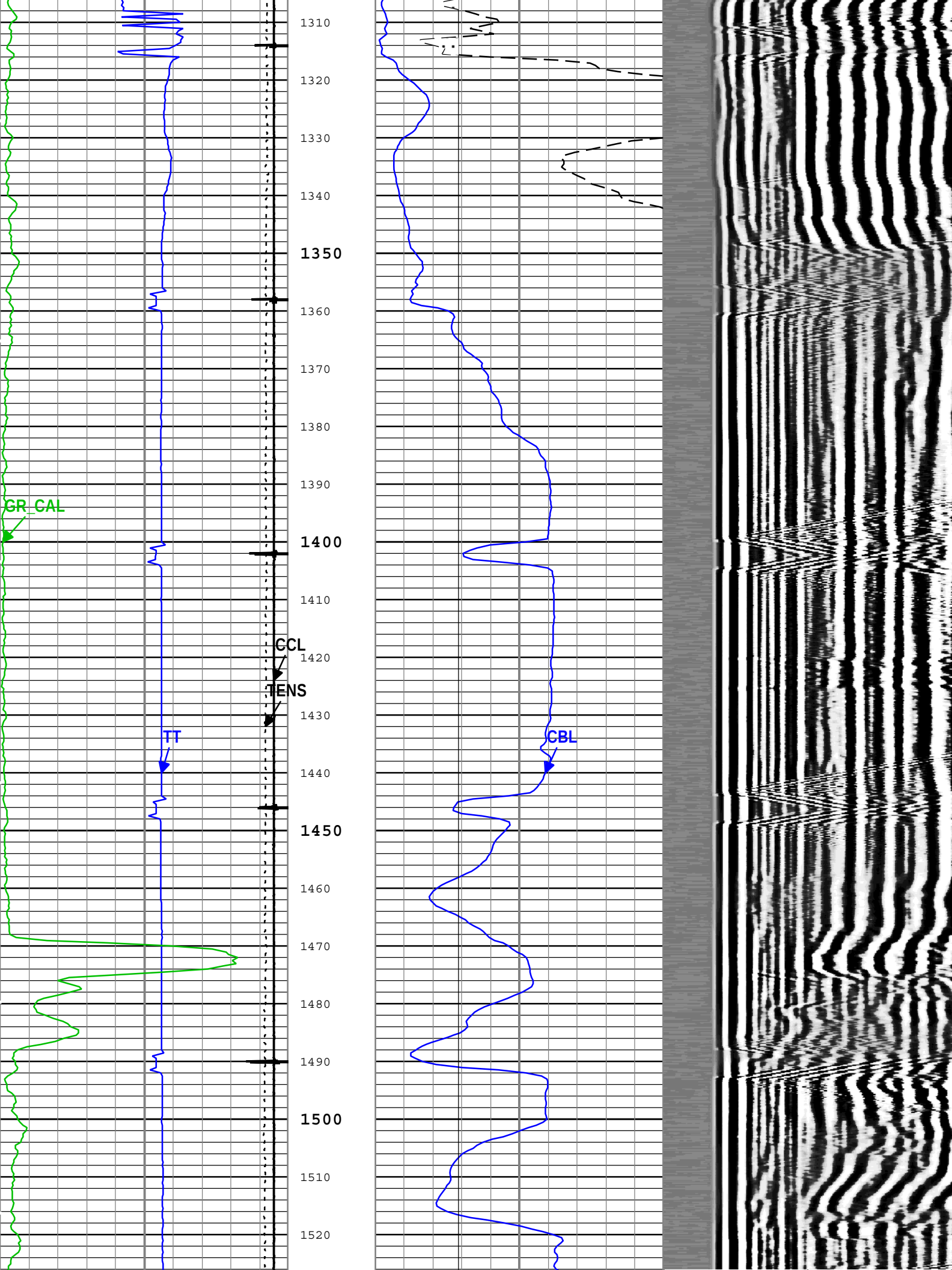


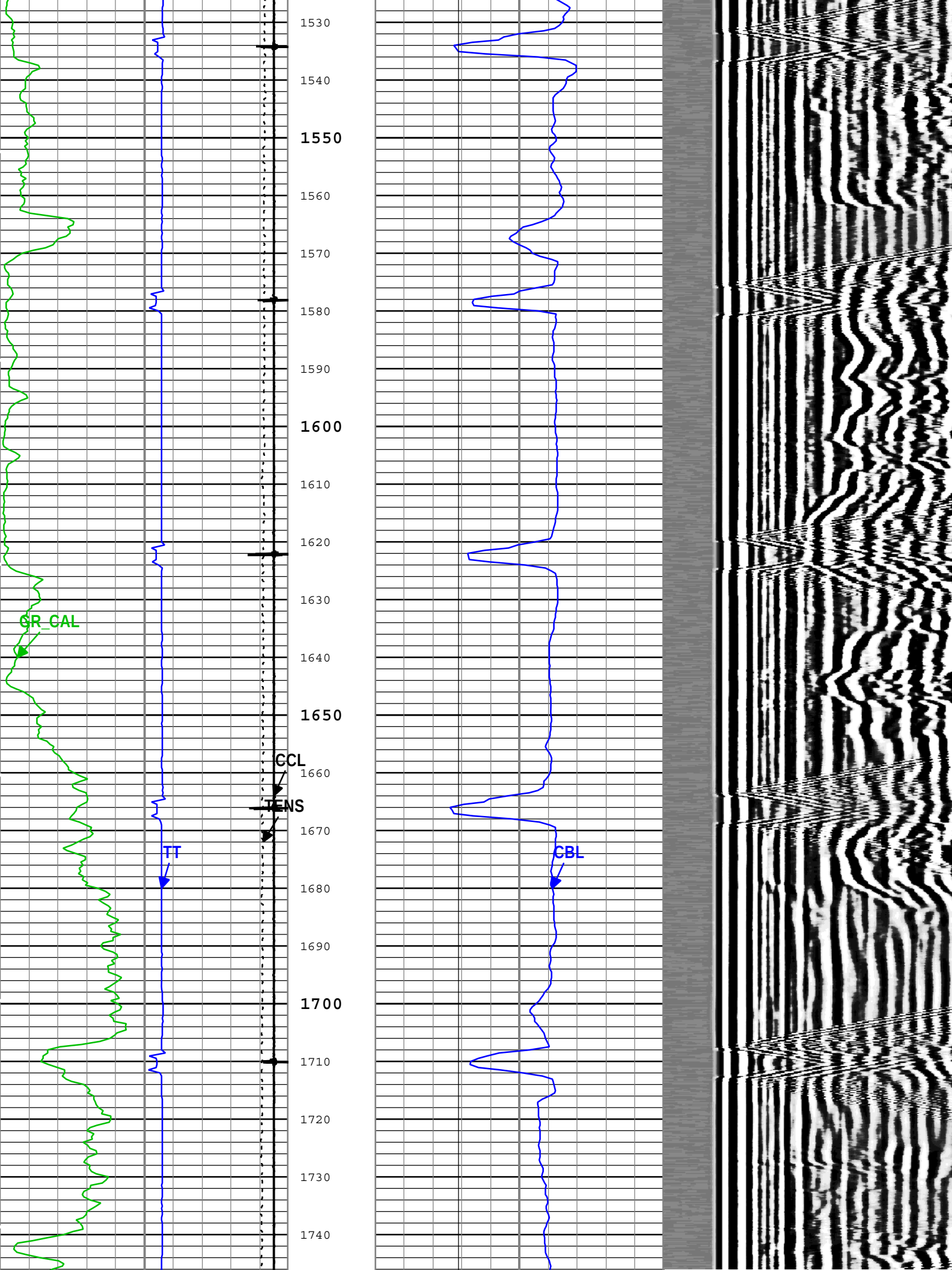


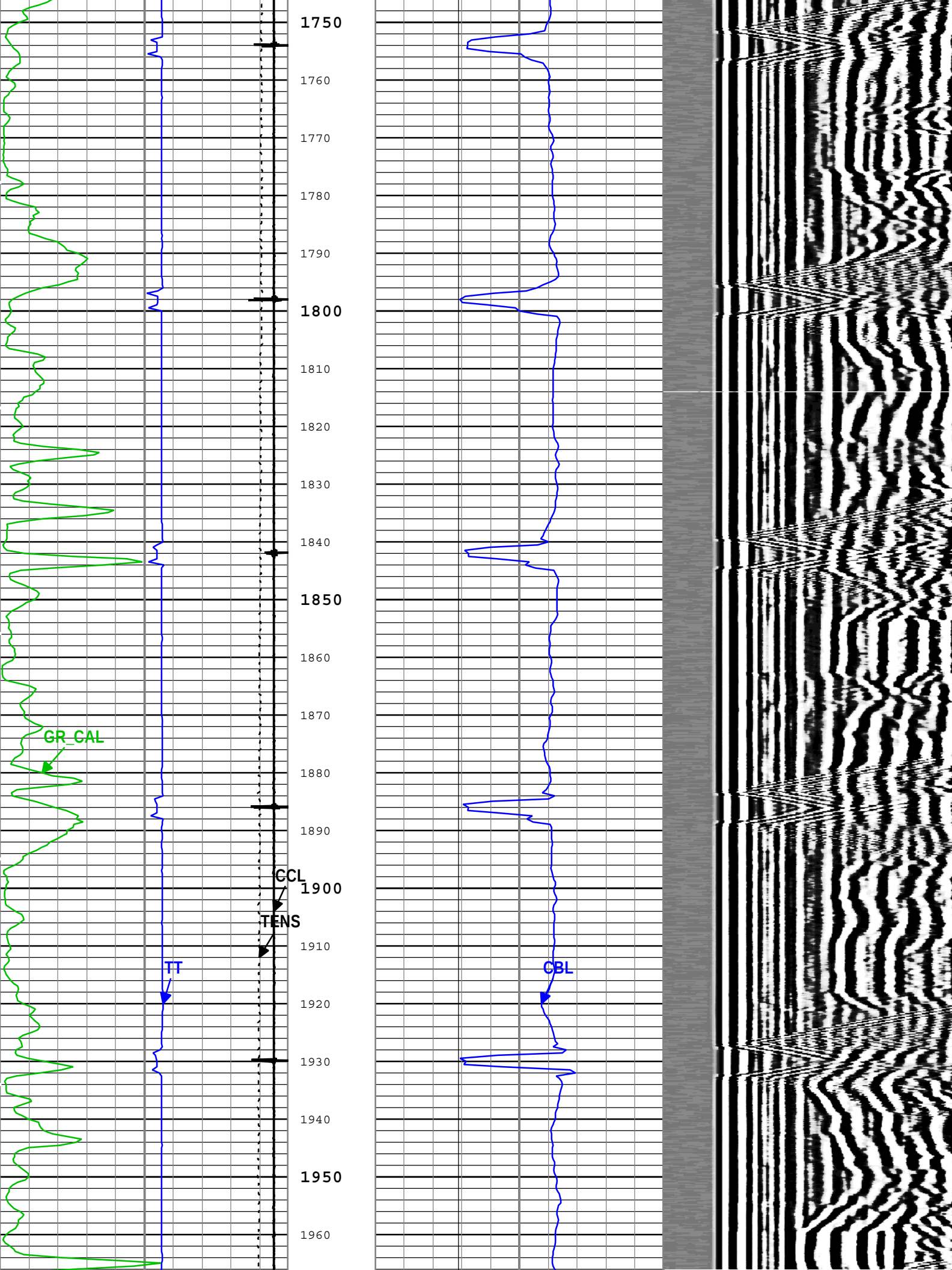


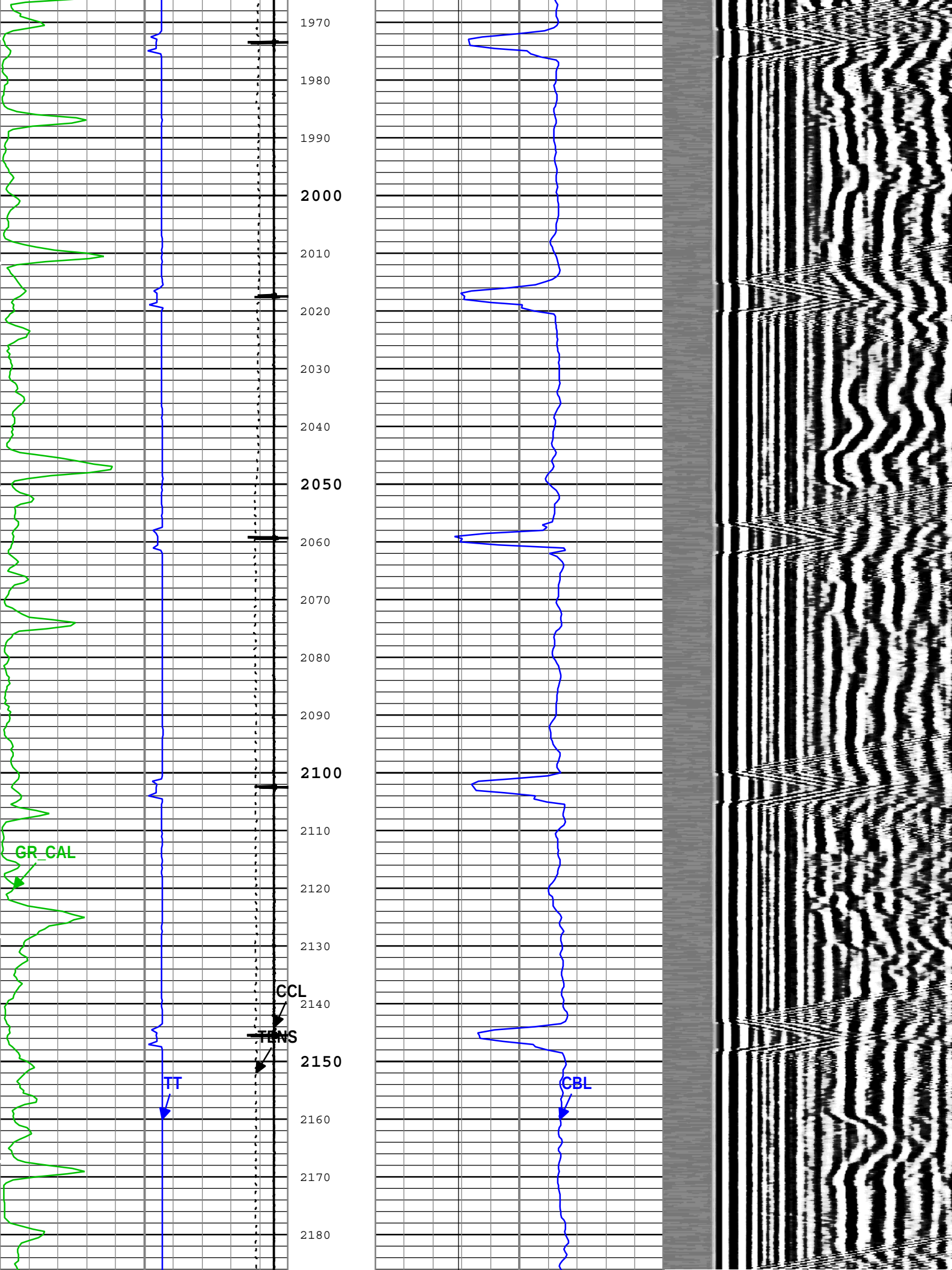


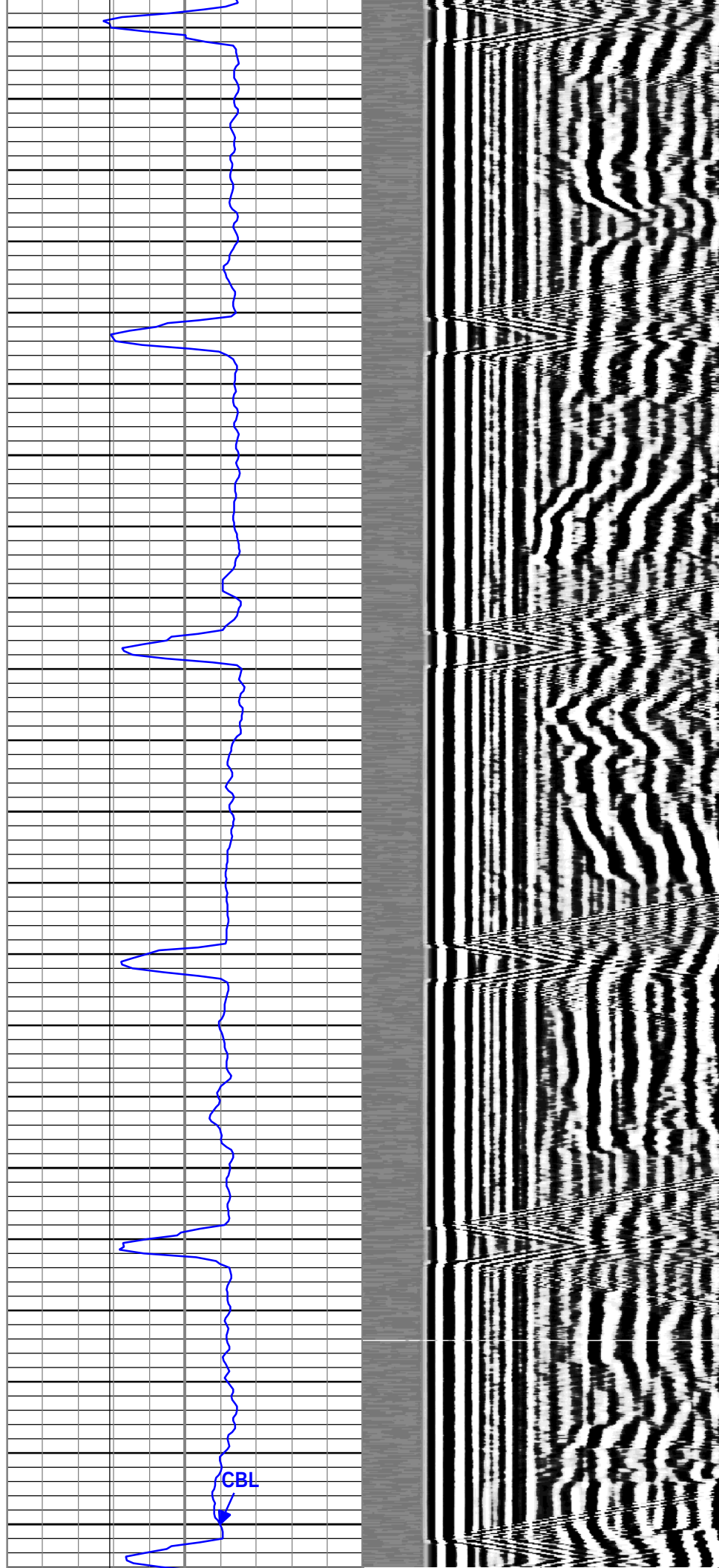
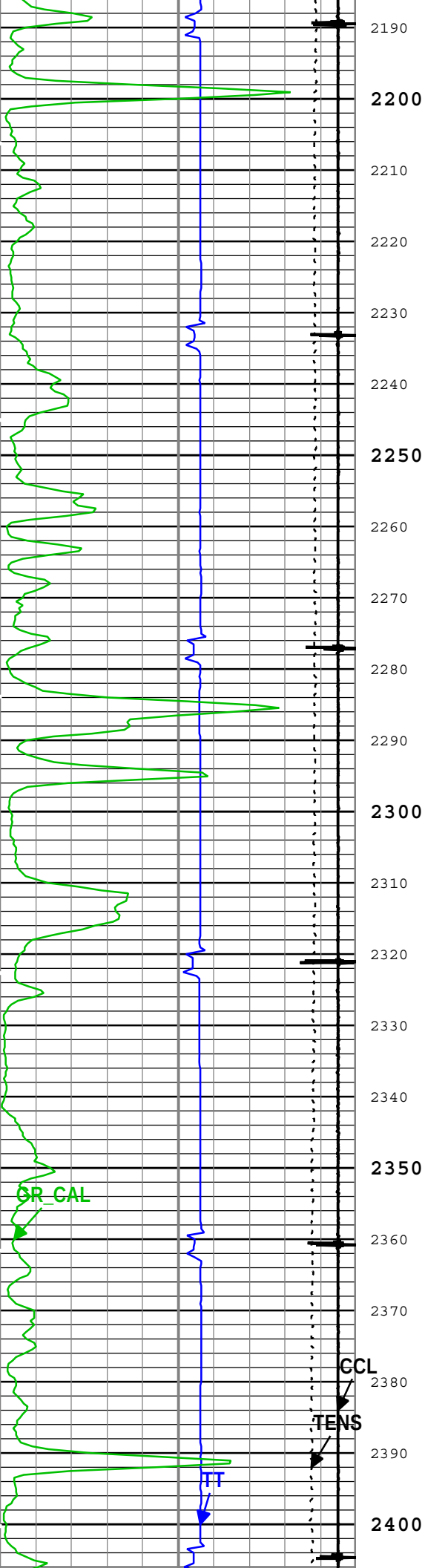


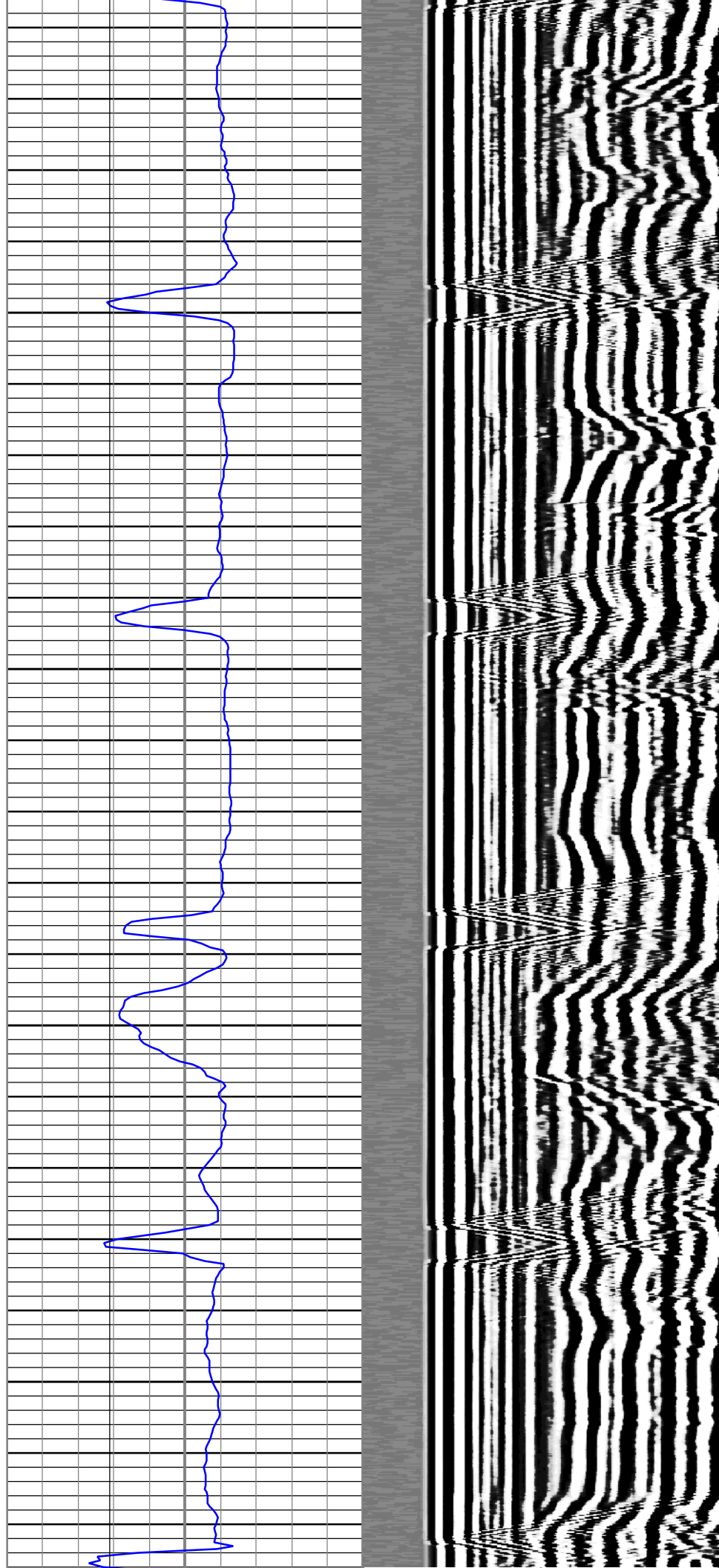
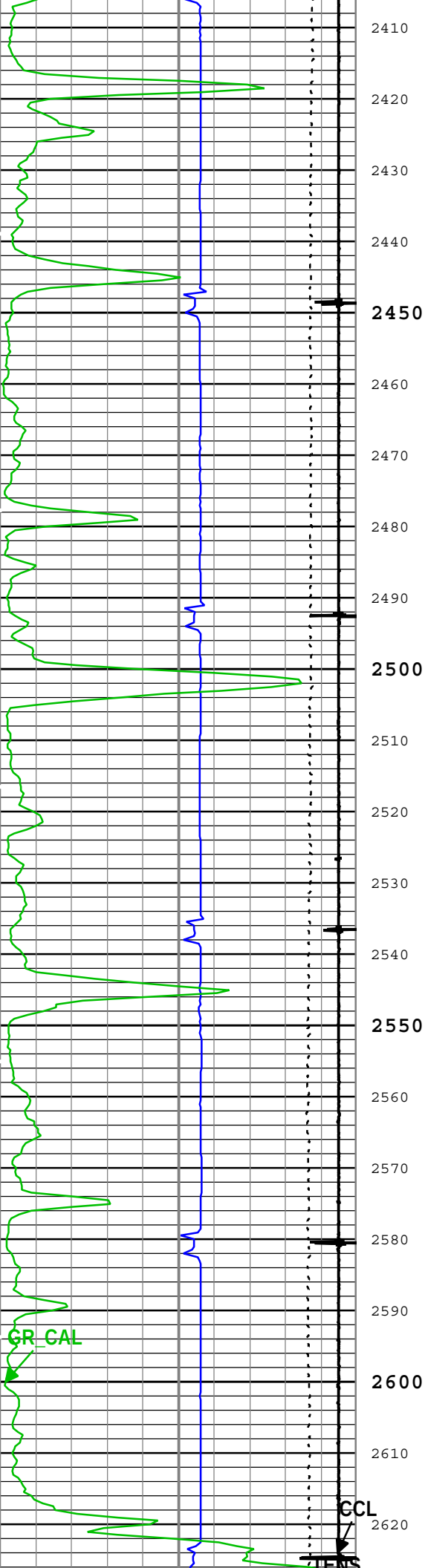


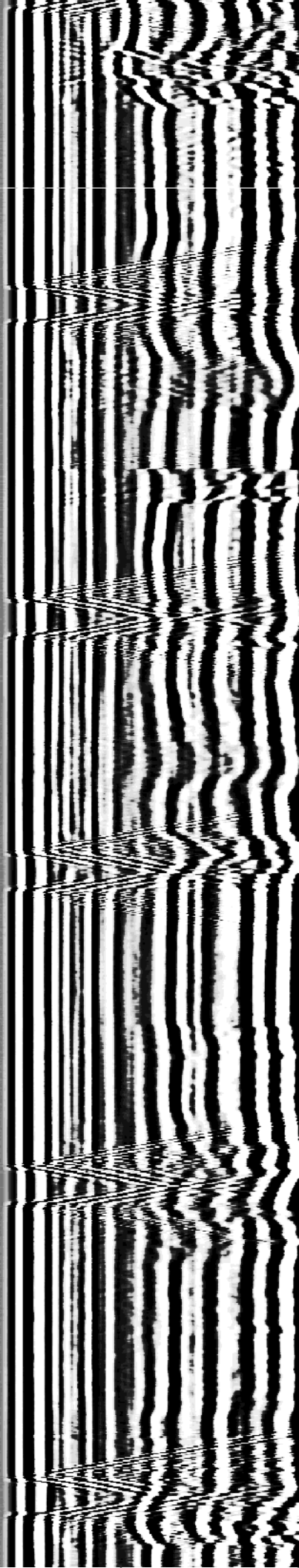
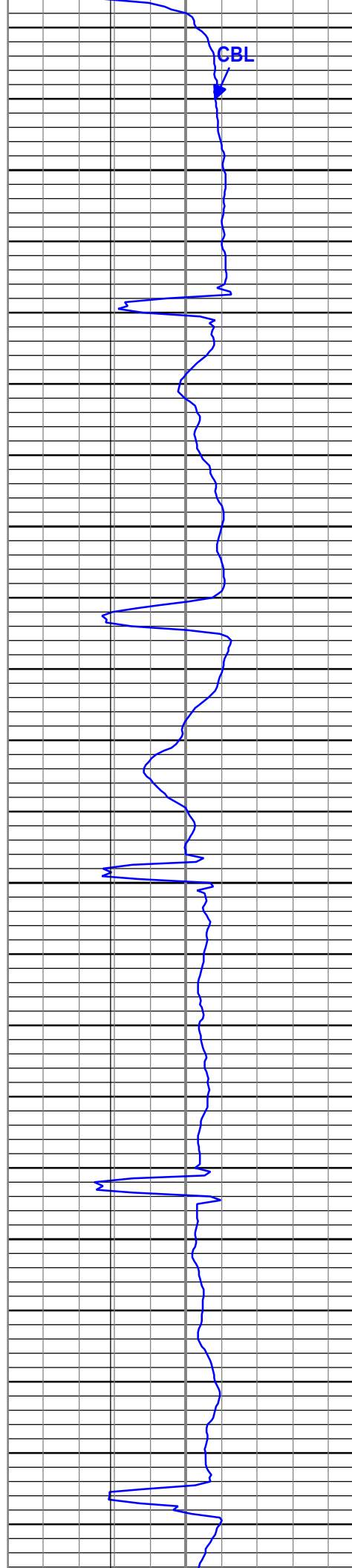
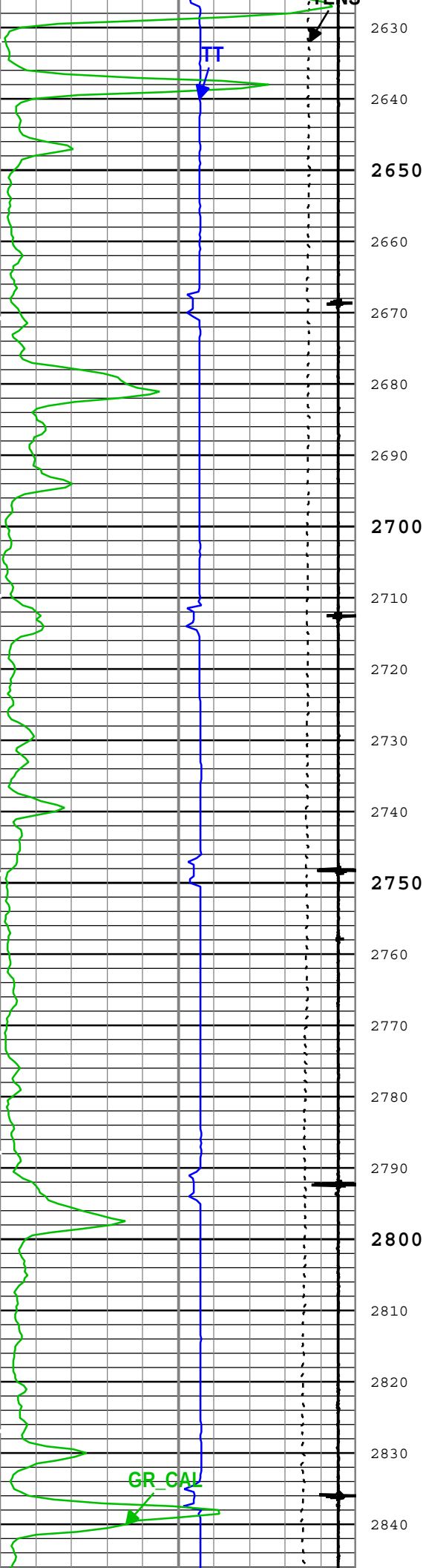


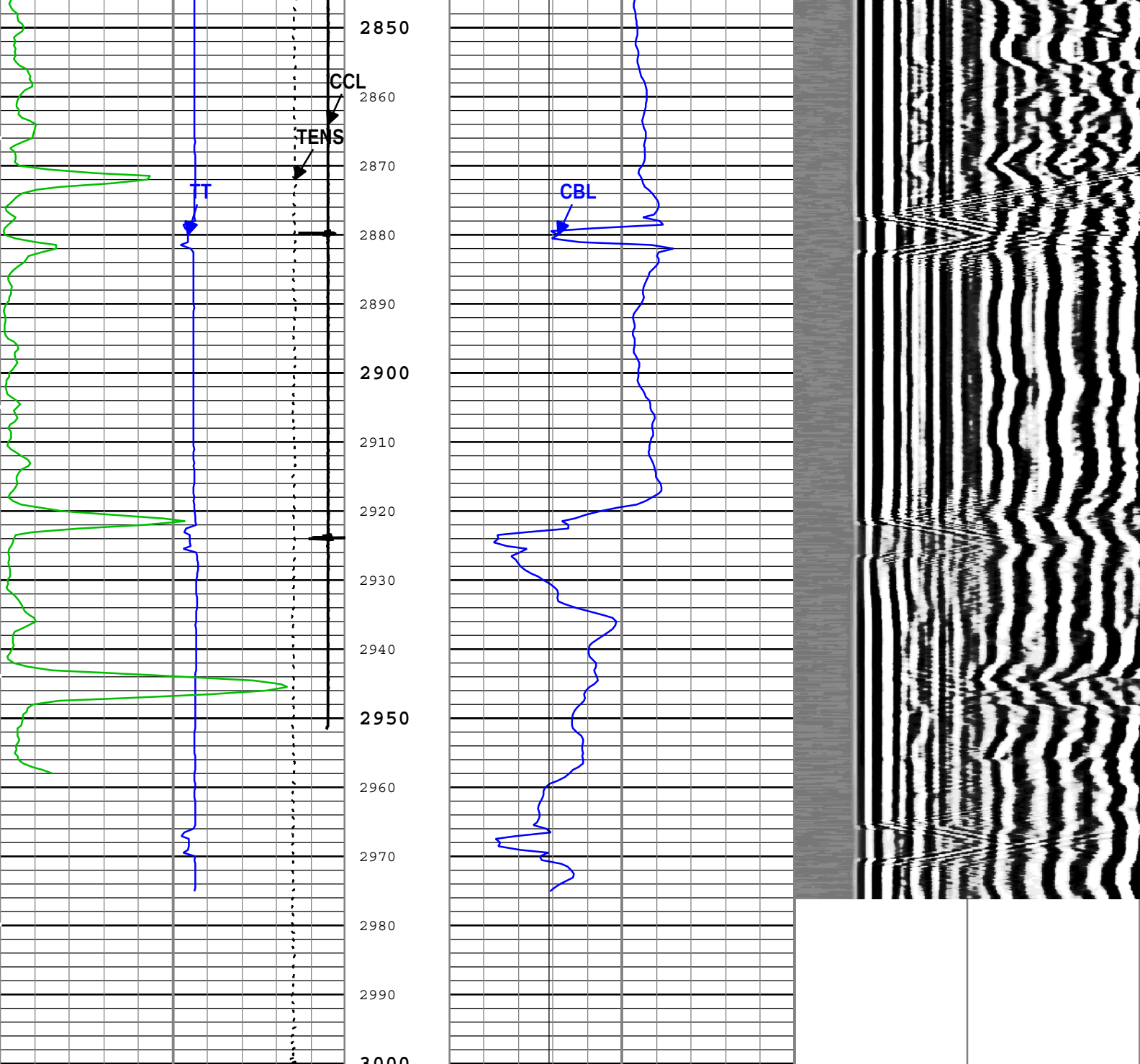












Transit Time for CBL (TT) DSLT-H		
400	us	200
Cable Tension (TENS)		
5000	lbf	0
Casing Collar Locator Amplitude (CCL) CAL-YA		
-19		1
Calibrated Gamma Ray (GR_CAL) SGT-N		
0	gAPI	150

CBL Amplitude (CBL) DSLT-H		
0	mV	100
CBL Amplitude (CBL) DSLT-H		
0	mV	10
Good Bond (GOBO)		
0	mV	10
GoodBond From ACBL to GOBO		

Min	Amplitude	Max
Variable Density Log (VDL) DSLT-H		
200	us	1200

Channel Processing Parameters

Parameter	Description	Tool	Value	Unit
CBRA	CBL LQC Reference Amplitude in Free Pipe	DSLT-H	62	mV
CCL_MULTIPLIER	Casing Collar Locator Multiplier	CAL-YA	1	
CDEN	Cement Density	USIT-E	1.53	g/cm3
CMTY	Cement Type	USIT-E	Light Cement	
DETE	Delta-T Detection	DSLT-H	E1	
GOBO_CURR	Good Bond Current	DSLT-H	2.9	mV
IBC_FRP_OFFSET	IBC Flexural Offset from Free Pipe	USIT-E	0	dB/ft
IBC_FSOD	USIT IBC Fluid Slowness Fits Casing Outer Diameter	USIT-E	0_OFF	
IBC_FVEL_SEL	IBC Fluid Velocity Selection	USIT-E	Automatic	
IBC_OFFSET_SEL	IBC Flexural Offset Selector	USIT-E	UFAO	
IBC_ZMUD_SEL	IBC Mud Impedance Selection	USIT-E	Theoretical	
IMAR	Image Rotation	USIT-E	Off	
MAHTR	Manual High Threshold Reference for first arrival detection	DSLT-H	120	
MATT_CURR	Maximum Attenuation Current	DSLT-H	11.82	dB/ft
MCI	Minimum Cemented Interval for Isolation	DSLT-H	Depth Zoned	ft
MNHTR	Minimum High Threshold Reference for first arrival detection	DSLT-H	100	
MSA	Minimum Sonic Amplitude	DSLT-H	1.35	mV
MSA_CURR	Minimum Sonic Amplitude Current	DSLT-H	1.35	mV
NMSG	Near Minimum Sliding Gate	DSLT-H	274	us
NMXG	Near Maximum Sliding Gate	DSLT-H	820	us
OCDI	Outer Casing Diameter	USIT-E	0	in
OCSH	Outer Casing Shoe	USIT-E	0	ft
OCWE	Outer Casing Weight	USIT-E	0	lbm/ft
RCTH	Reference Calibrator Thickness	USIT-E	0.295	in
SGAD	Sliding Gate Status	DSLT-H	Off	
TCUB	T^3 Processing Level	USIT-E	Loop	
THDH	Maximum Search Thickness (percentage of nominal)	USIT-E	130	%
THDL	Minimum Search Thickness (percentage of nominal)	USIT-E	70	%
UDFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	1.5	Mrayl
UFAO	SIT Flexural Attenuation Offset	USIT-E	7	dB/m
UFGDE	Fiberglass Density	USIT-E	1.95	g/cm3
UFGPS	Fiberglass Processing Selection	USIT-E	No	
UFGVL	Fiberglass Velocity	USIT-E	9678.48	ft/s
UIAP	IBC Answer Product Enabled	USIT-E	SolidLiquidGasMap	
UTHDP	Thickness Detection Policy	USIT-E	Fundamental	
VCAS	Ultrasonic Transversal Velocity in Casing	USIT-E	51.4	us/ft
ZCAS	Acoustic Impedance of Casing	USIT-E	46.25	Mrayl

Depth Zone Parameters

Parameter	Value	Start (ft)	Stop (ft)
MCI	14.81	50	1281
MCI	10	1281	3000.17

All depth are actual.

Tool Control Parameters

Parameter	Description	Tool	Value	Unit
DSLT_MODE	DSLT Acquisition Mode	DSLT-H	CBL	
DSLT_RATE	DSLT Firing Rate	DSLT-H	15 Hz	
DTFS	DSLT Telemetry Frame Size	DSLT-H	536	
MAX_LQC_SPEED	Tool Joint Maximum Rotational Speed	WELL SESSION	2700	60°

MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	2700	ft/n
UFWB	Far Receiver Window Begin Time	USIT-E	124	us
UFWE	Far Receiver Window End Time	USIT-E	164	us
ULOG	Logging Objective	USIT-E	MEASUREMENT	
UMFR	Modulation Frequency	USIT-E	333333	Hz
UNWB	Near Receiver Window Begin Time	USIT-E	93	us
UNWE	Near Receiver Window End Time	USIT-E	133	us
USI_UPAT	USIT Emission Pattern	USIT-E	Pattern 375 KHz	
USI_UWKM	USIT Working Mode	USIT-E	10 deg at 6.0 in LF	
USIT_DEPTHLOG	Starting Depth Log for Ultrasonics	USIT-E	3000	ft
UTAN	Transducer Angles	USIT-E	38_DEG	
VRES	Vertical Resolution	USIT-E	6.0 in	
WINB	Window Begin Time	USIT-E	29.1	us
WINE	Window End Time	USIT-E	69.1	us

4A

Repeat Analysis 5" = 100'

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
4A	Repeat[2]:Up	Up	2703.33 ft	2998.15 ft	04-Aug-2014 11:33:26 AM	04-Aug-2014 11:42:03 AM	ON	-2.00 ft	No
4A	Main[3]:Up	Up	79.88 ft	3000.17 ft	04-Aug-2014 11:55:05 AM	04-Aug-2014 1:12:36 PM	ON	0.00 ft	No

All depths are referenced to toolstring zero

Log

Company:EOG Resources, Inc. Well:Dragon 36 State 11 SWD
4A: Main[3]:Up:S010

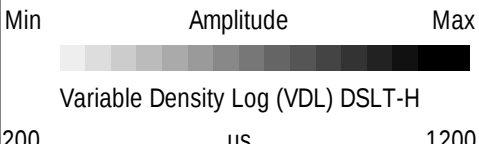
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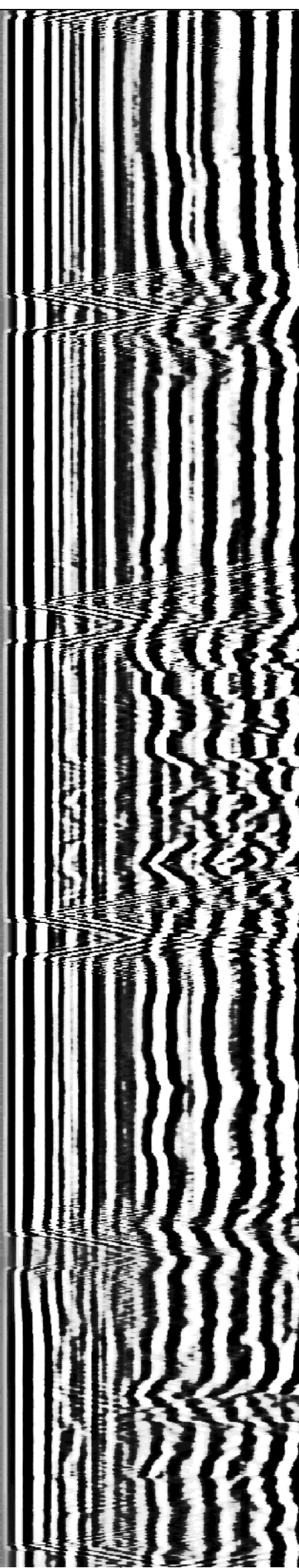
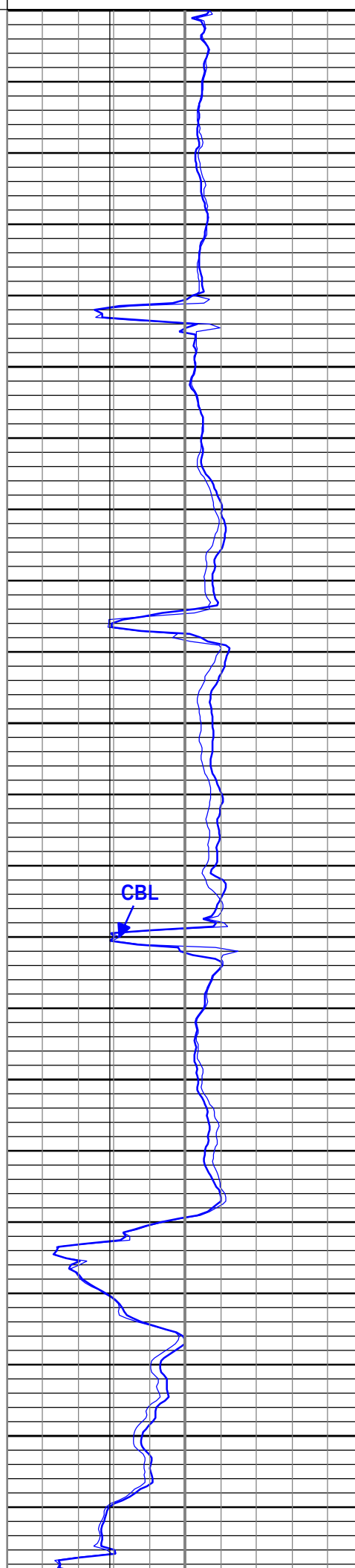
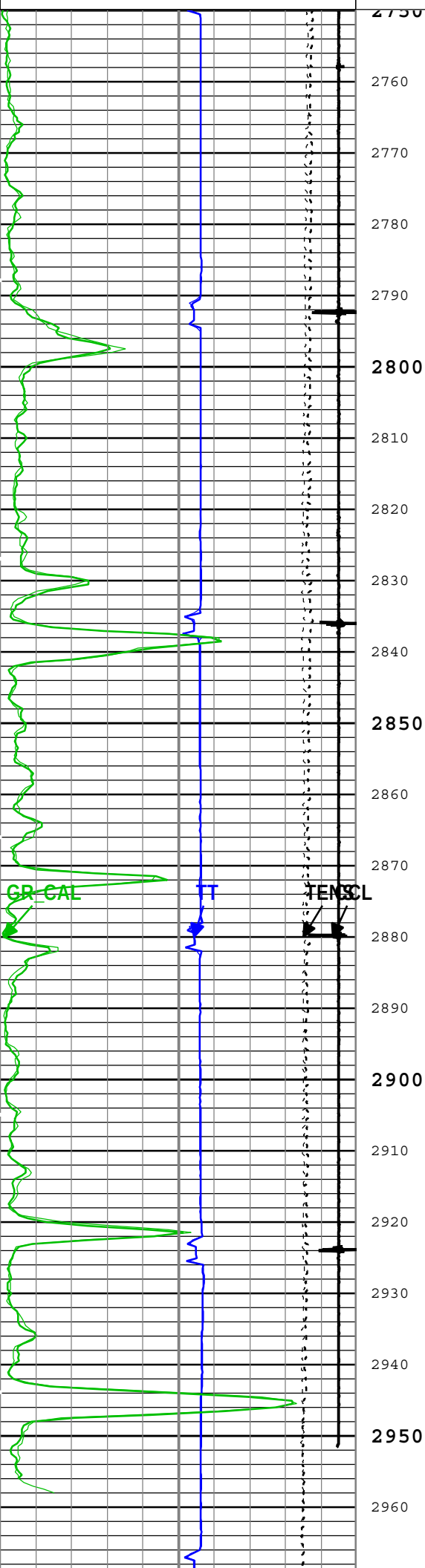
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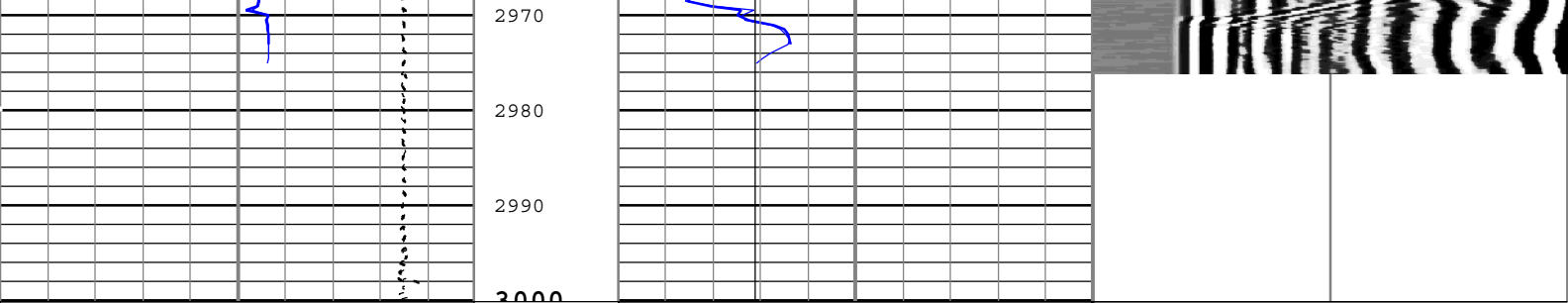
└─ BIEP - Bond Index Event Pips DSLT-H

Main To Repeat Repeat To Main Cable Tension (TENS) 5000 lbf0
Main To Repeat Repeat To Main Transit Time for CBL (TT) DSLT-H 400 us200
Main To Repeat Repeat To Main Calibrated Gamma Ray (GR_CAL) SGT-N 0 gAPI150
Casing Collar Locator Amplitude (CCL) CAL-YA -191

Main To Repeat Repeat To Main CBL Amplitude (CBL) DSLT-H 0 mV100
Main To Repeat Repeat To Main CBL Amplitude (CBL) DSLT-H 0 mV10
Good Bond (GOBO) 0 mV10



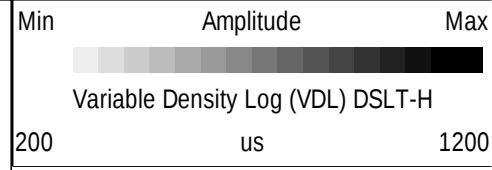




Main To Repeat		
Repeat To Main		
Cable Tension (TENS)		

5000	lbf	0
Main To Repeat		
Repeat To Main		
Transit Time for CBL (TT) DSLT-H		
400	us	200
Main To Repeat		
Repeat To Main		
Calibrated Gamma Ray (GR_CAL) SGT-N		
0	gAPI	150
Casing Collar Locator Amplitude (CCL)		
CAL-YA		
-19		1

Main To Repeat		
Repeat To Main		
CBL Amplitude (CBL) DSLT-H		
0	mV	100
Main To Repeat		
Repeat To Main		
CBL Amplitude (CBL) DSLT-H		
0	mV	10
Good Bond (GOBO)		
0	mV	10



TIME_1900 - Time Marked every 60.00 (s)

Description: CBL_VDL Format: Log (CH CBL VDL RA) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 04-Aug-2014 13:18:48

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Well:	Dragon 36 State 11 SWD	
Field:	Red Hills	
County:	Lea	
State:	New Mexico	
Cement Bond Log		
GR-CCL		