Schlumberger

Company: Southern California Gas Company

Well: Porter 25R RD

Field: Aliso Canyon

County: Los Angeles State: California

County: Los Angeles
Field: Aliso Canyon
Location: 206.7' South & 4510.5' West
Well: Porter 25R RD
Company: Southern California Gas Company

Cement Bond Log

Variable Density Log

Gamma Ray - CCL

Location:			
206.7' South & 4510.5' West from station 84'		Elev.: K.B.	2703.90 ft
		G.L.	2680.40 ft
		D.F.	
Permanent Datum:	Ground Level	Elev.:	2680.40 f
Log Measured From:	Kelly Bushing	23.50 ft	above Perm.Datum
Drilling Measured From:	Kelly Bushing		

API Serial No.	Section:	Township:	Range:
037-00712-01	28	3N	16W

Logging Date		29-Apr-2016	
Run Number		THREE	
Depth Driller		7672.00 ft	
Schlumberger Depth		7662.00 ft	
Bottom Log Interval		7662.00 ft	
Top Log Interval		22.00 ft	
Casing Fluid Type		KCL Polymer	
Salinity			
Density		9 lbm/gal	
Fluid Level		8.00 ft	
BIT/CASING/TUBING STRING			
Bit Size		12.25 in	
From		825.00 ft	
To		7802.00 ft	
Casing/Tubing Size		9.625 in	
Weight		47 lbm/ft	
Grade		N80	
From		0.00 ft	
To		7802.00 ft	
Max Recorded Temperatures			
Logger on Bottom	Time	29-Apr-2016 08:30:00	
Unit Number	Location:	3179 Ventura	
Recorded By		J. Lopez/K. Crow	
Witnessed By		Mr. Tom McMahon	

Disclaimer

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10. Composite 1 Main Pass 5 in = 100 ft
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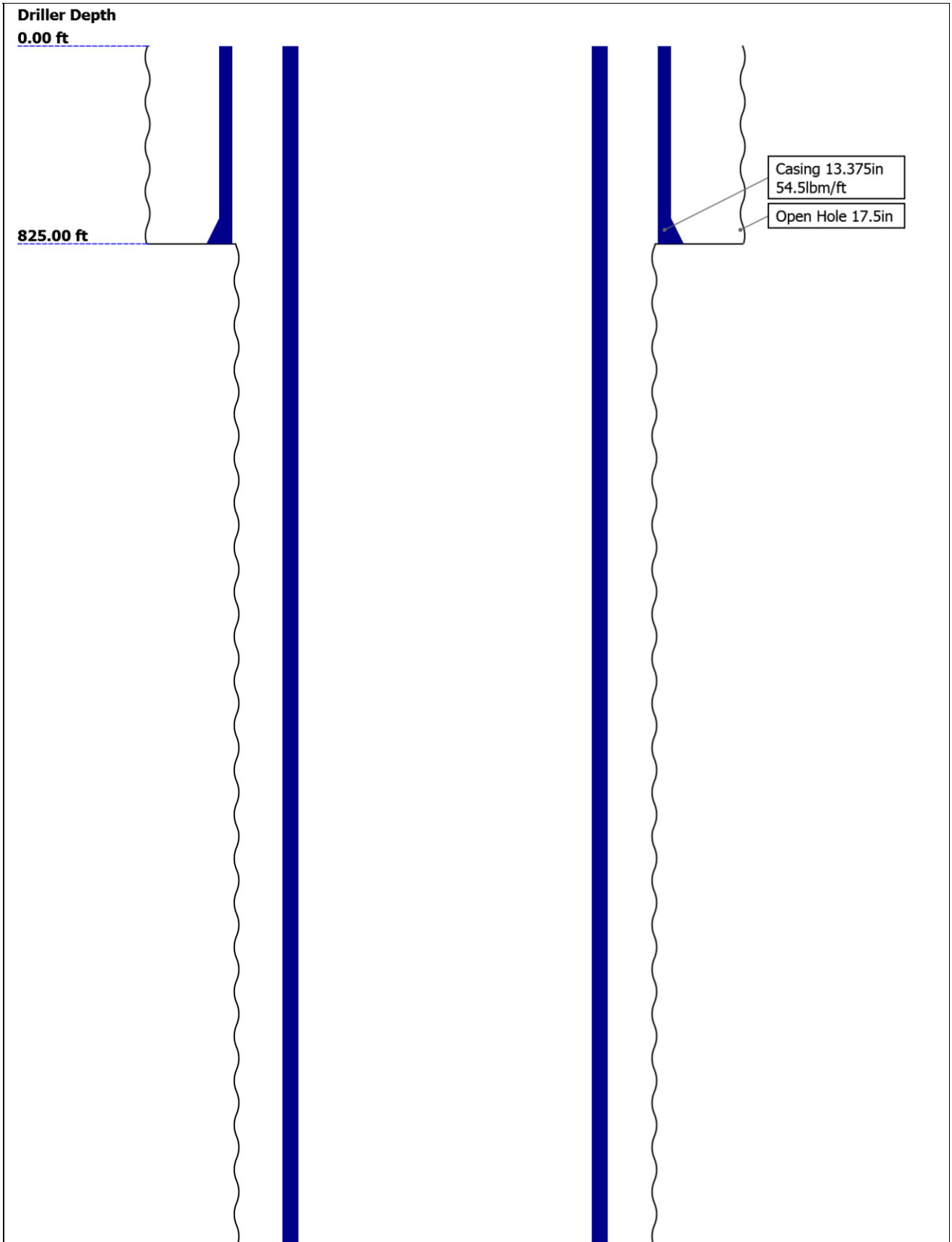
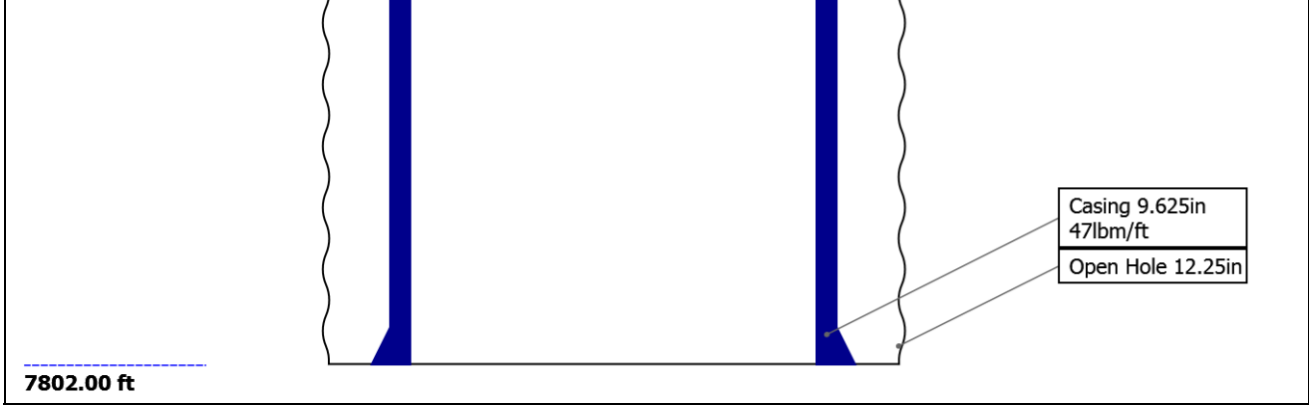
Well Sketch


Driller Depth
0.00 ft
825.00 ft
Casing 13.375in
54.5lbm/ft
Open Hole 17.5in



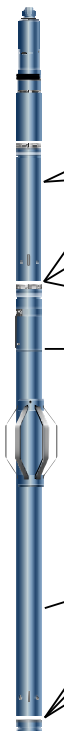
Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	17.5	12.25				
Top Driller (ft)	0	825				
Top Logger (ft)	0	825				
Bottom Driller (ft)	825	7802				
Bottom Logger (ft)	825	7802				
Casing						
Size (in)	13.375	9.625				
Weight (lbm/ft)	54.5	47				
Inner Diameter (in)	12.615	8.681				
Grade	J55	N80				
Top Driller (ft)	0	0				
Top Logger (ft)	0	0				
Bottom Driller (ft)	825	7802				
Bottom Logger (ft)	825	7802				

Remarks and Equipment Summary

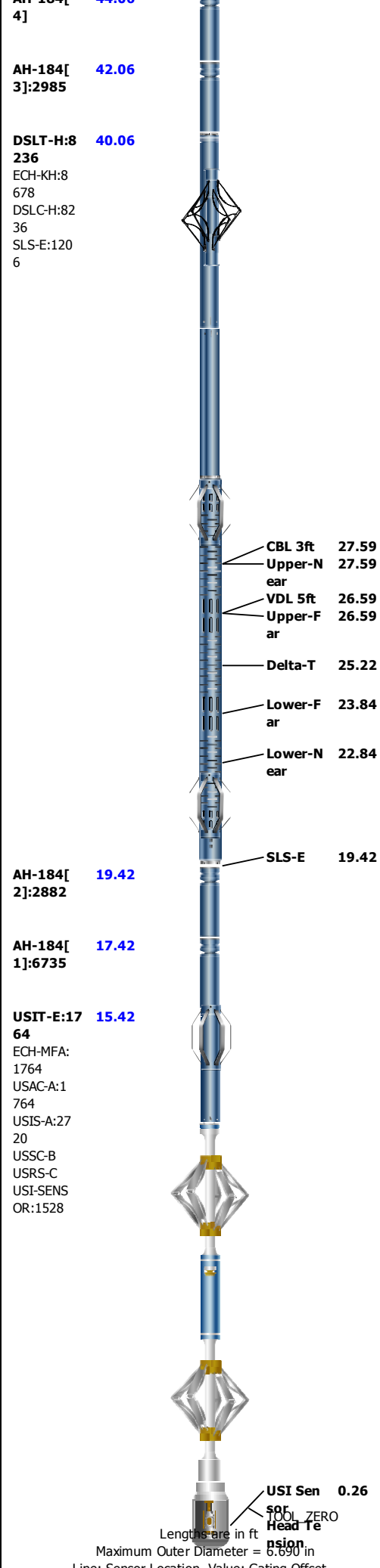
THREE: Toolstring

Equip name	Length	MP name	Offset
LEH-QT:2867 LEH-QT:2867	59.39	Red	
DTC-H ECH-KC DTC-H	56.47	**CTEM**	55.57
		HV	0.00
		TelStatus	53.47
		ToolStatus	53.47
HGNS-H:3923 HGNH:4819 NPV-N NSR-F:5002 HACCZ-H:3923 HGNS-H:3923 HMCA-H	53.47	**Temperature**	53.44
		GR	52.73
		CNL Porosity	46.4
		HGNS	44.06
		HMCA	44.06
		Accelerometer	0.00
AH-184[	44.06		



THREE: Remarks

9-5/8" 47# Casing CMT'D w/ 3151 CF, Trace CMT Returns to Surface. No Cement density's provided
Logging objective is cement and corrosion evaluation
Depths are measured depth (MD)
USIT logged at 10 deg/1.5 inch logging speed 2800 fph. Hi-res repeats done at 10 deg/.6 inch, logged at 900 fph
USIT run in combination with CBL, Neutron-GR
No pressure applied for logging passes
Rig: Rival 6
Toolstring ran as per toolsketch.
Two centralizers on USIS and two CME-Y used to centralize ultrasonic tool.
Log correlated to Dual Induction Log dated 25-Oct-1993
Thank you for choosing Schlumberger!



Lengths are in ft
Maximum Outer Diameter = 6.690 in
Line: Sensor Location, Value: Gating Offset
All measurements are relative to TOOL_ZERO

Job Event Summary

Event	Time	Duration	Interval	Remark
Log[1]:Down	Apr-29-2016 07:14	01:20:25	122.82 - 7665.87 ft	FPM
Log[2]:Up	Apr-29-2016 08:36	01:44:00	7658.5 - 5694.38 ft	Main Pass 1
Log[3]:Up	Apr-29-2016 09:23	02:48:39	5770.25 - 916.85 ft	Main Pass 2
Log[4]:Up	Apr-29-2016 11:21	00:26:26	971.51 - 86.98 ft	Main Pass 3
Log[5]:Up	Apr-29-2016 12:35	00:11:37	7581.28 - 7406.6 ft	Hi-Res Repeat 7581-7406
Log[6]:Up	Apr-29-2016 12:50	00:27:53	7012.67 - 6595.38 ft	Hi-Res Repeat 7012-6595
Log[7]:Up	Apr-29-2016 13:24	00:21:10	5831.53 - 5590.98 ft	Hi-Res Repeat 5831-5591
Log[8]:Up	Apr-29-2016 13:47	00:19:03	5287.36 - 4988.42 ft	Hi-Res Repeat 5287-4988
Log[9]:Up	Apr-29-2016 14:07	00:29:24	4885.13 - 4445.63 ft	Hi-Res Repeat 4885-4445
Log[10]:Up	Apr-29-2016 14:40	00:11:23	4118.97 - 4013.63 ft	Hi-Res Repeat 4119-4013
Log[12]:Up	Apr-29-2016 15:39	00:07:22	152 - 13.24 ft	Surface Main

Composite 1

Repeat Pass 5 in = 100 ft

Composite Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
THREE	Log[2]:Up	Up	5701.38 ft	7665.48 ft	29-Apr-2016 8:36:55 AM	29-Apr-2016 9:20:56 AM	ON	7.00 ft	Yes
THREE	Log[3]:Up	Up	923.85 ft	5777.29 ft	29-Apr-2016 9:23:00 AM	29-Apr-2016 11:11:40 AM	ON	7.00 ft	Yes
THREE	Log[4]:Up	Up	93.98 ft	978.49 ft	29-Apr-2016 11:21:50 AM	29-Apr-2016 11:48:16 AM	ON	7.00 ft	Yes
THREE	Log[12]:Up	Up	24.24 ft	162.98 ft	29-Apr-2016 3:39:20 PM	29-Apr-2016 3:46:43 PM	ON	11.00 ft	Yes

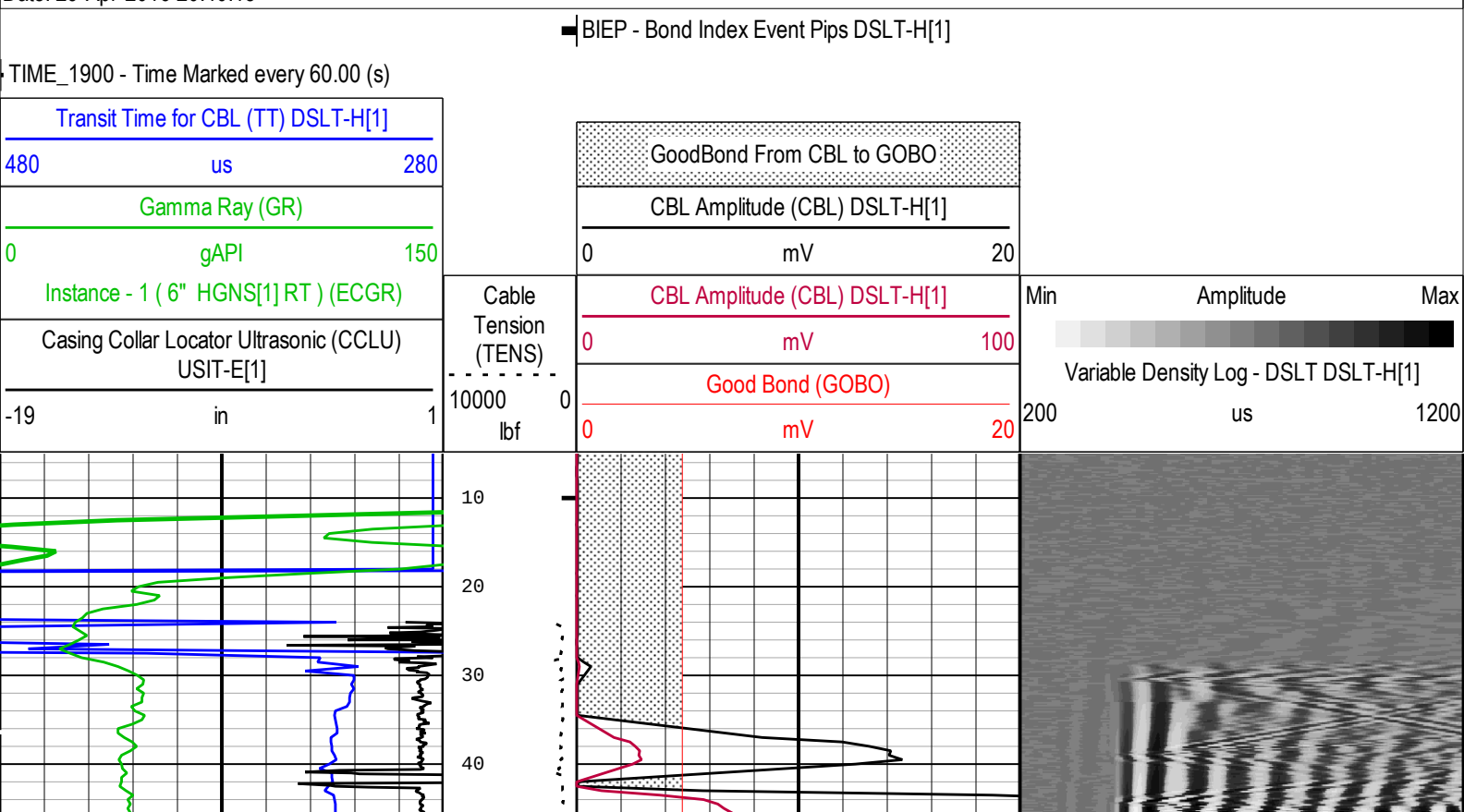
All depths are referenced to toolstring zero

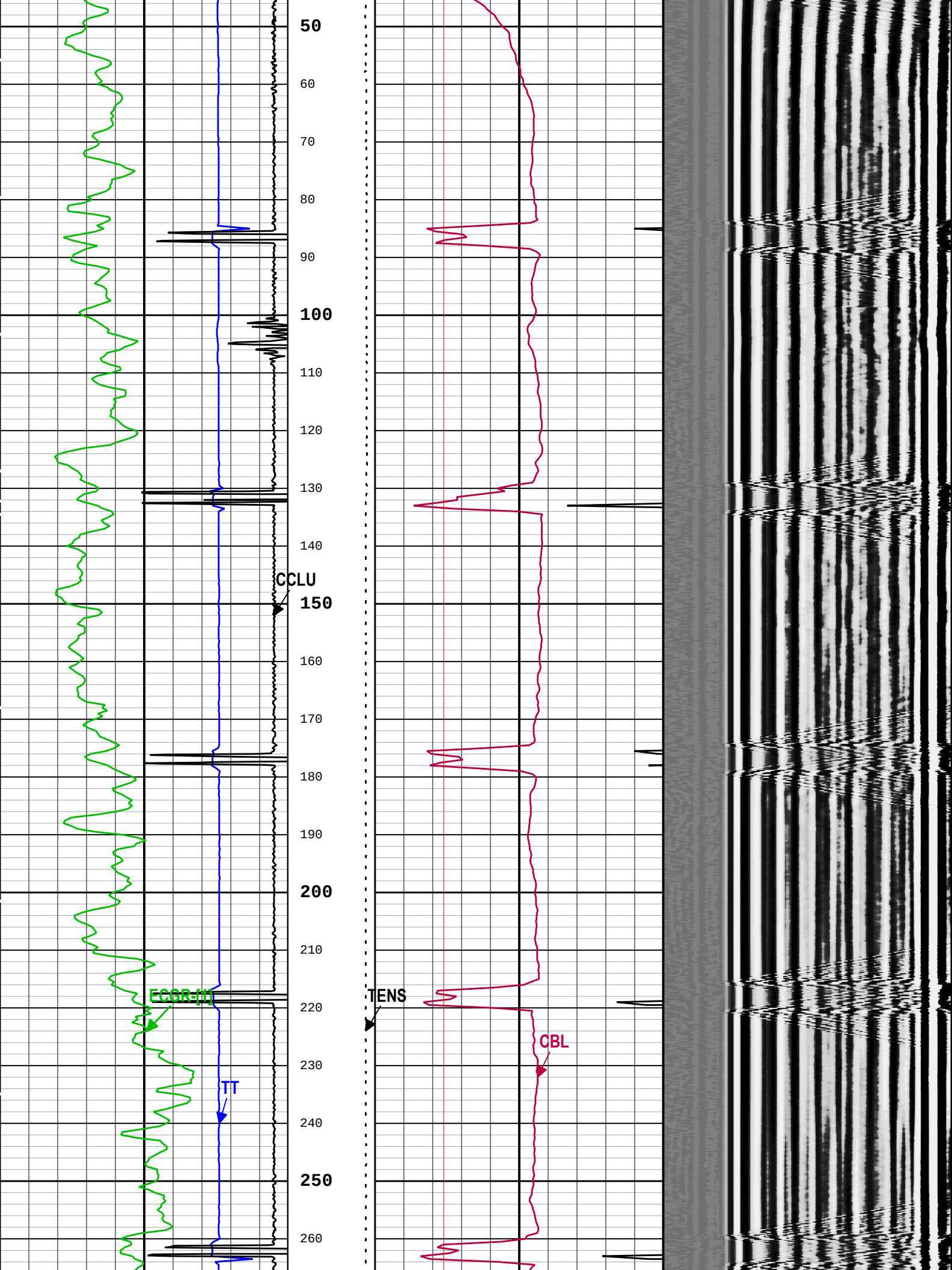
Log

Company:Southern California Gas Company Well:Porter 25R RD

Composite 1:S002

Description: Sonic CBL with VDL Format: Log (Sonic CBL with VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 29-Apr-2016 20:40:15

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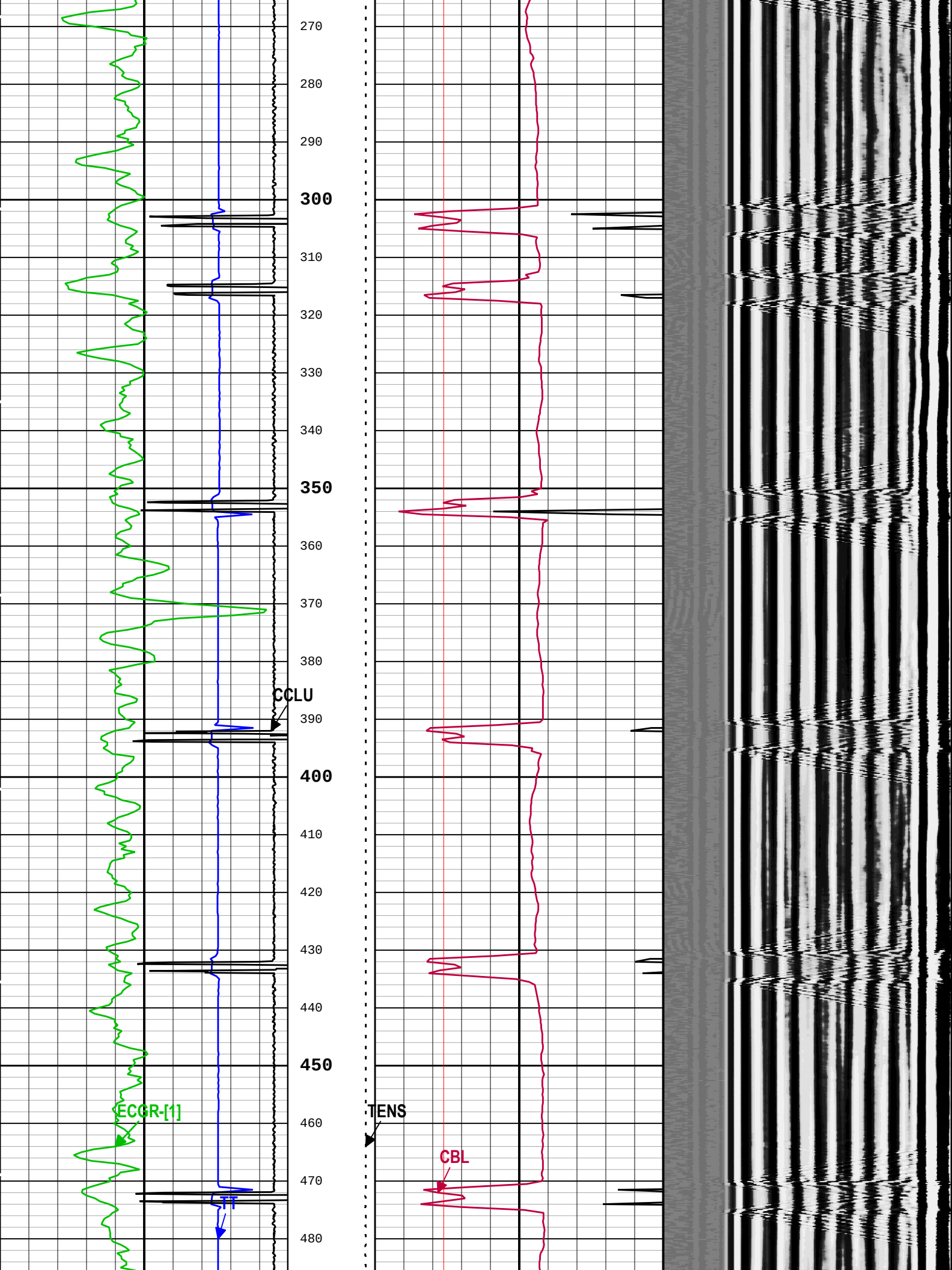
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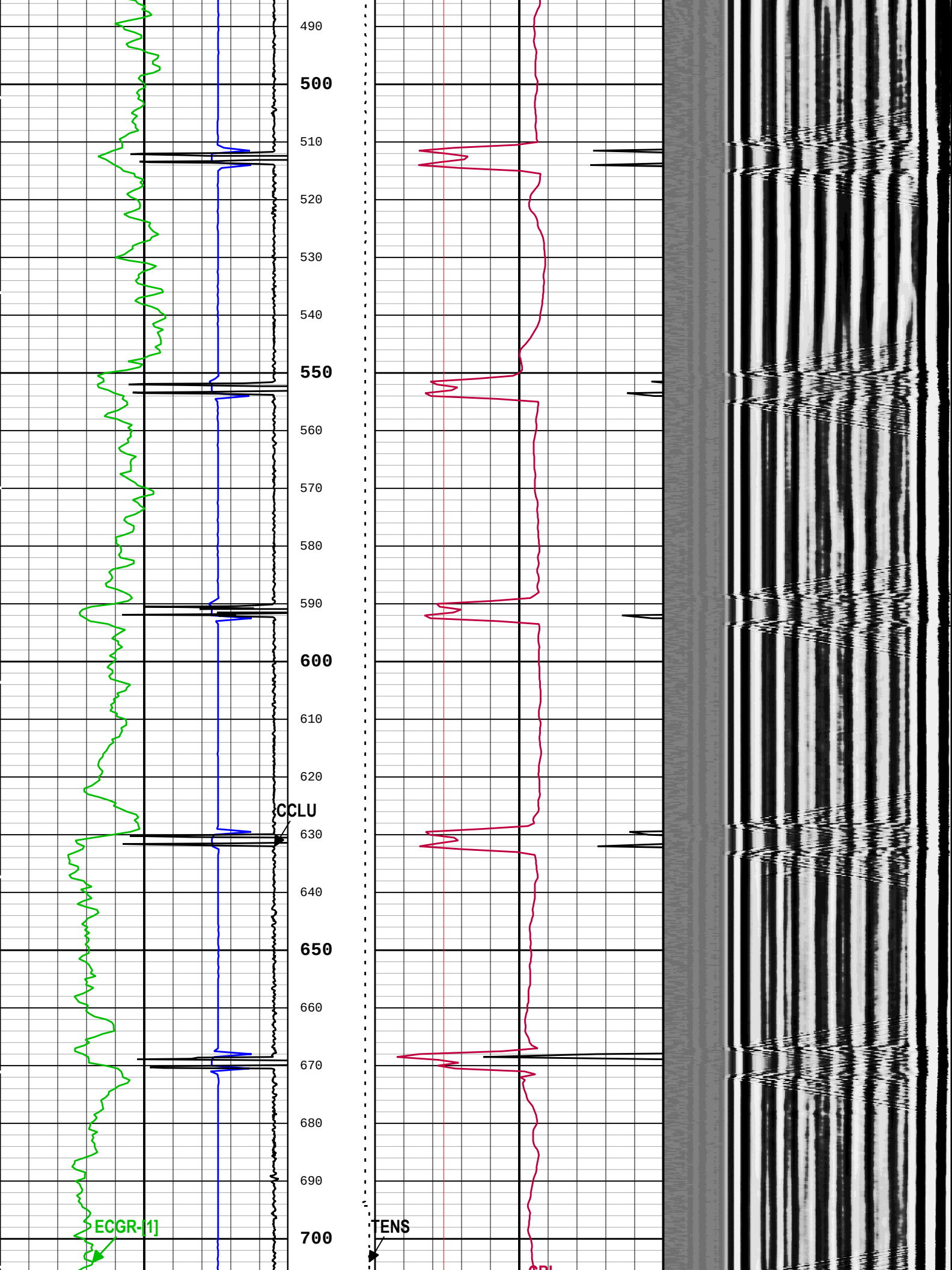
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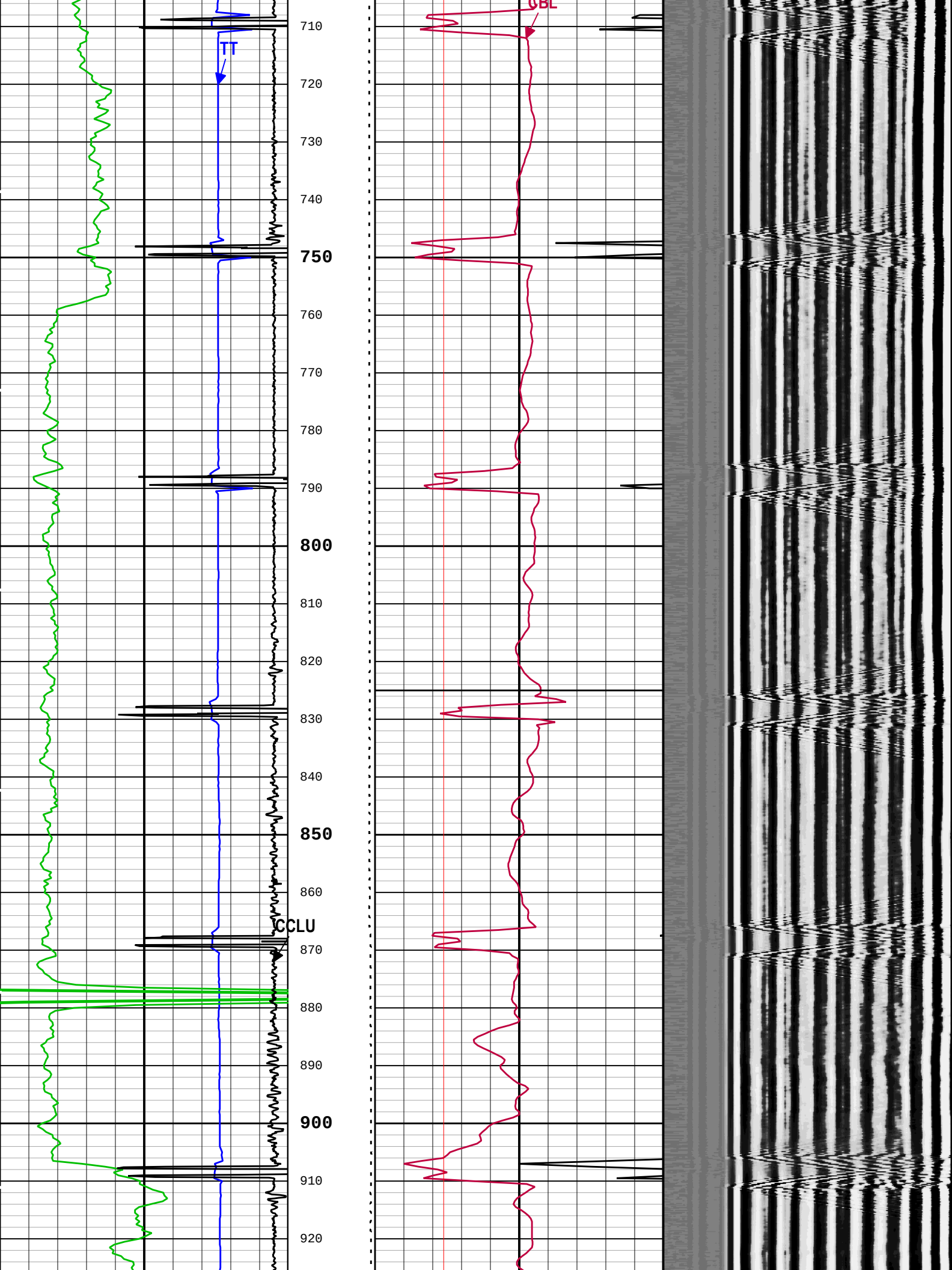
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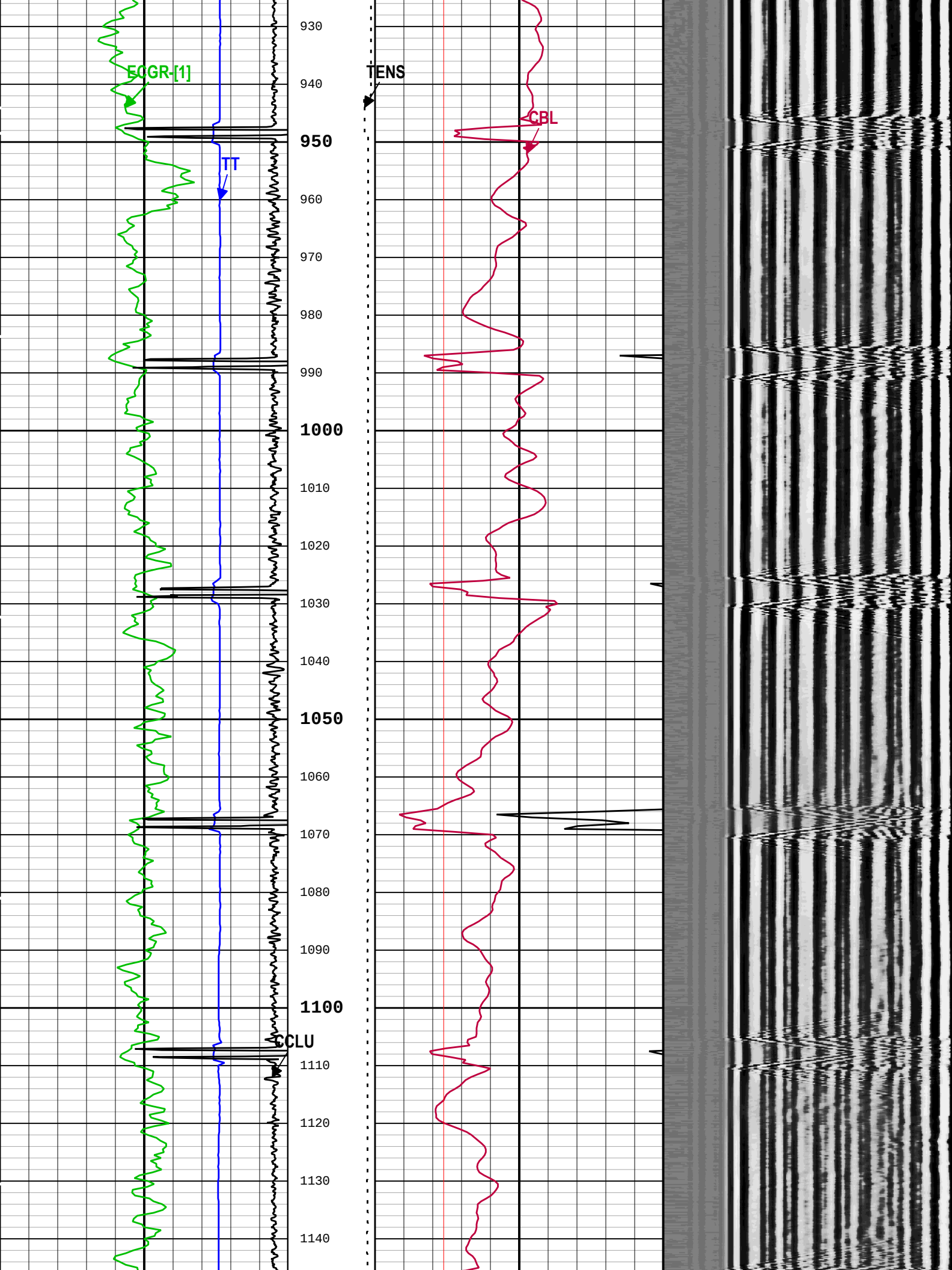
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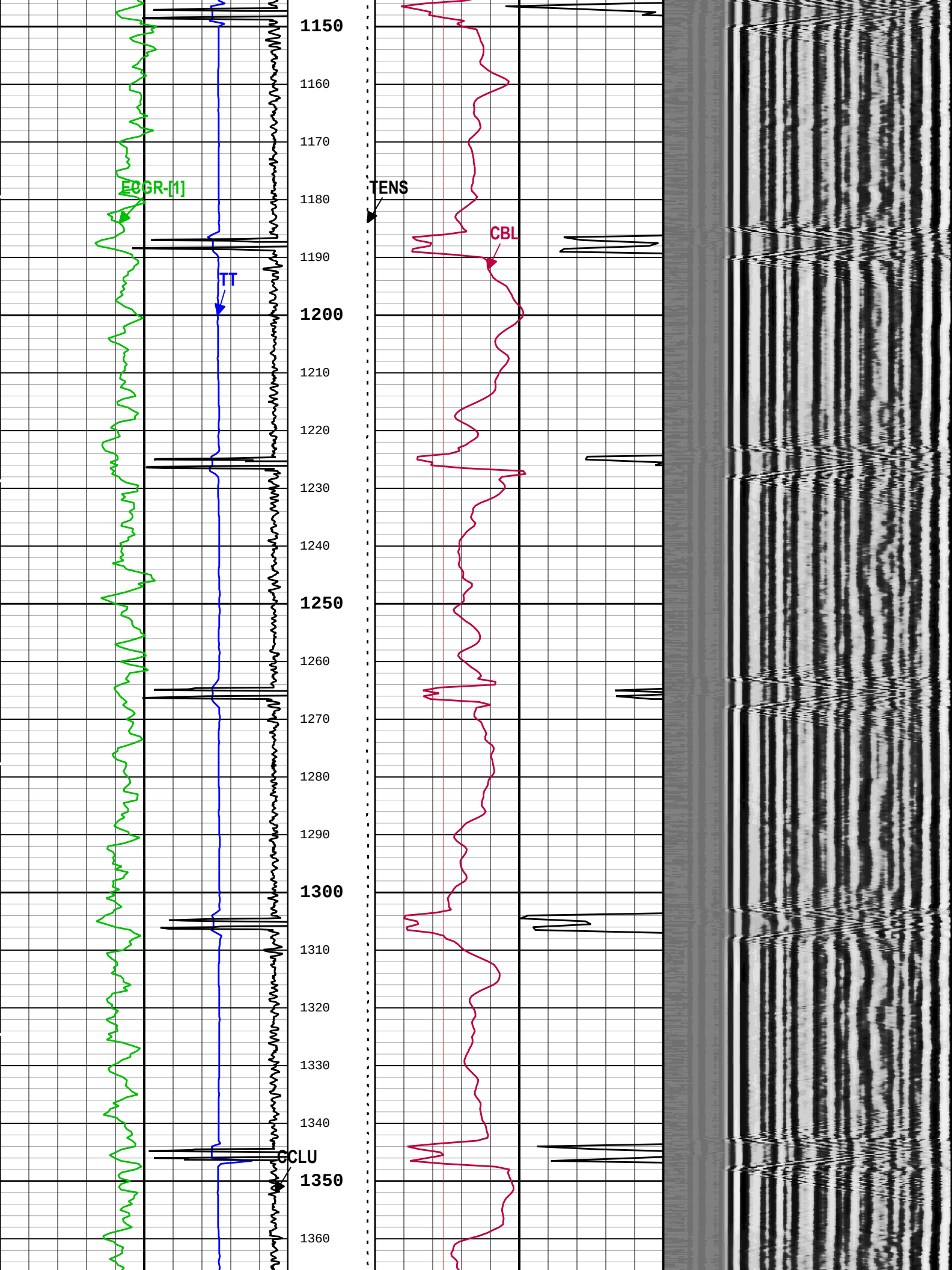
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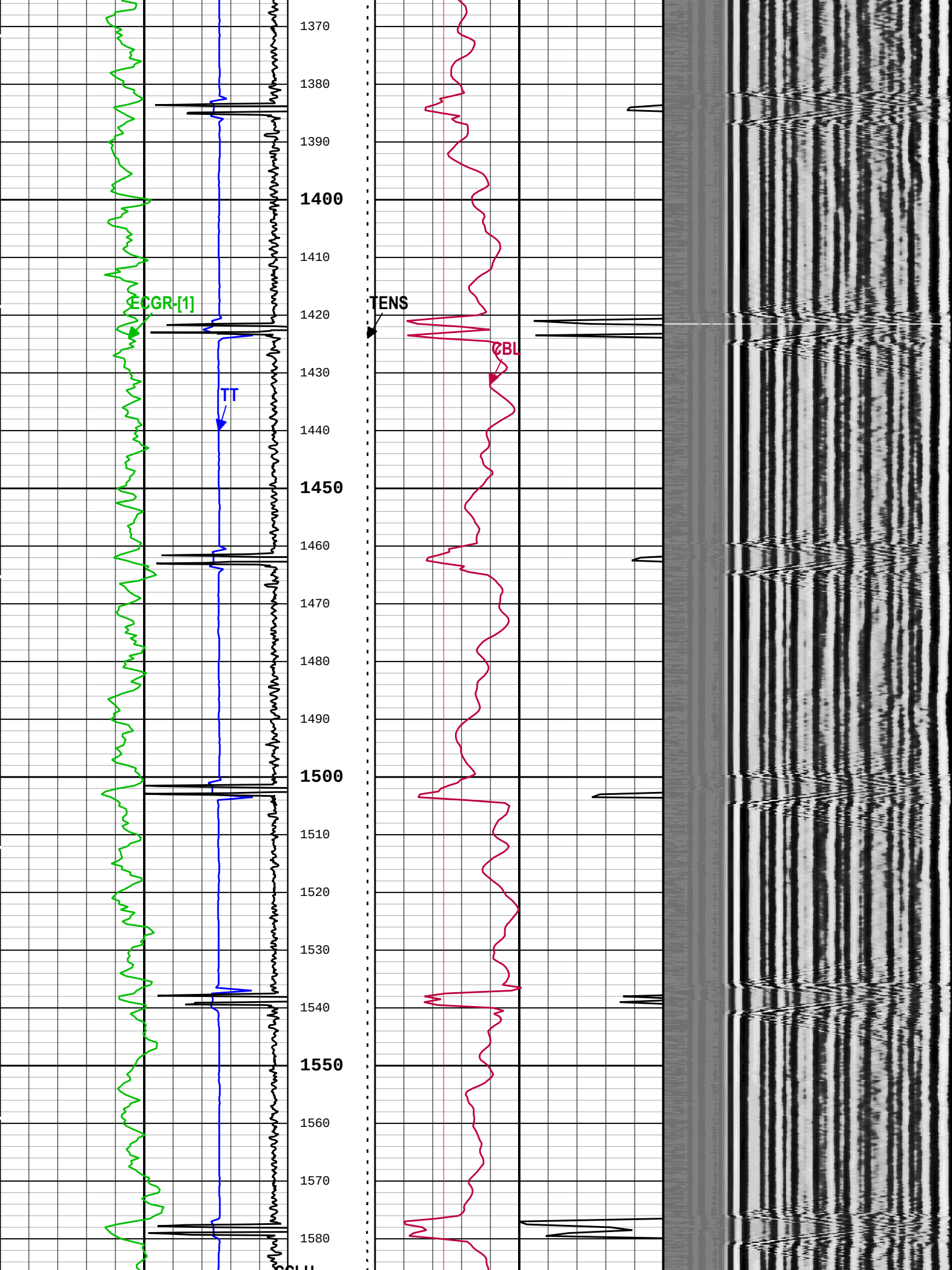
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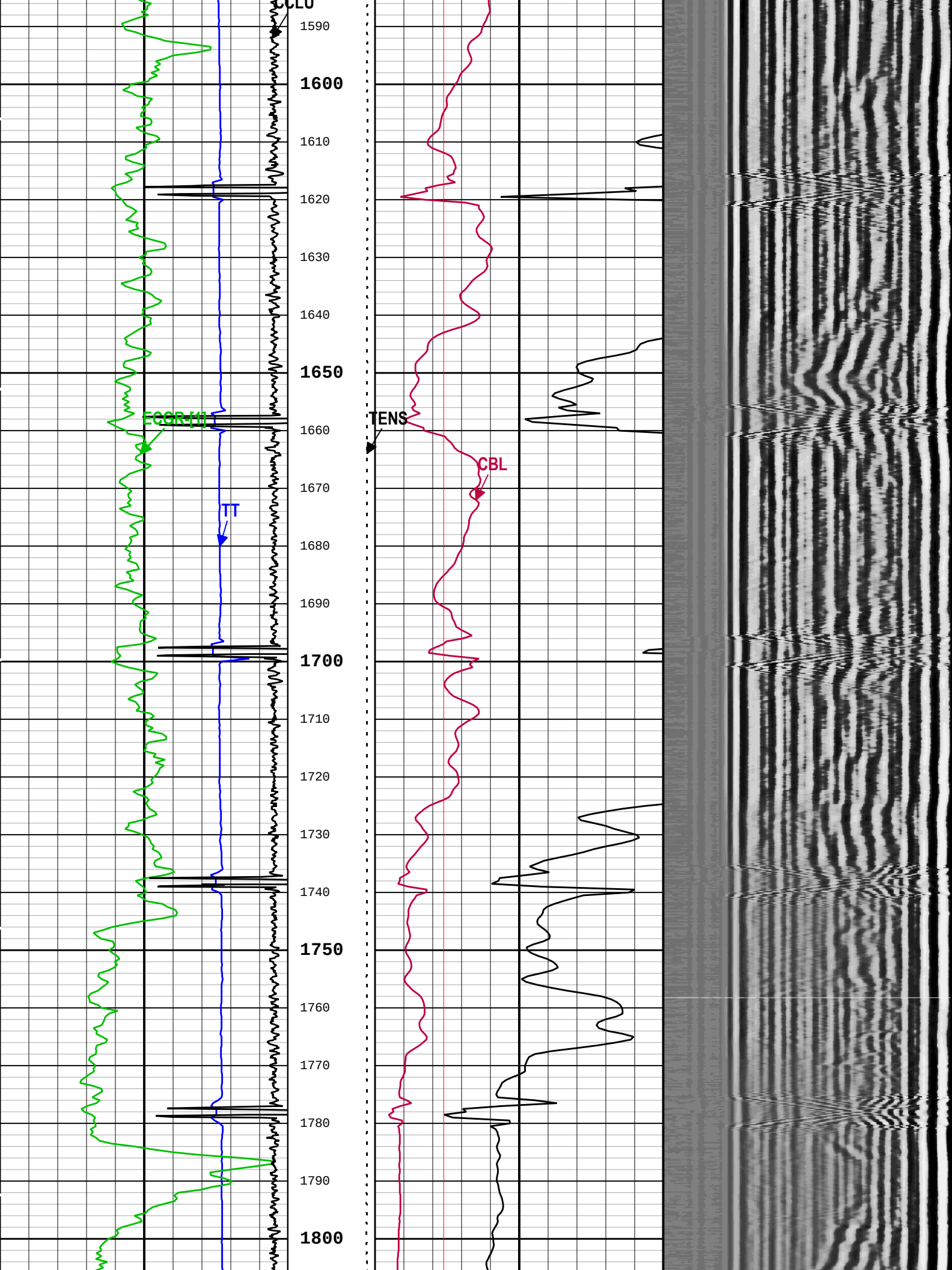
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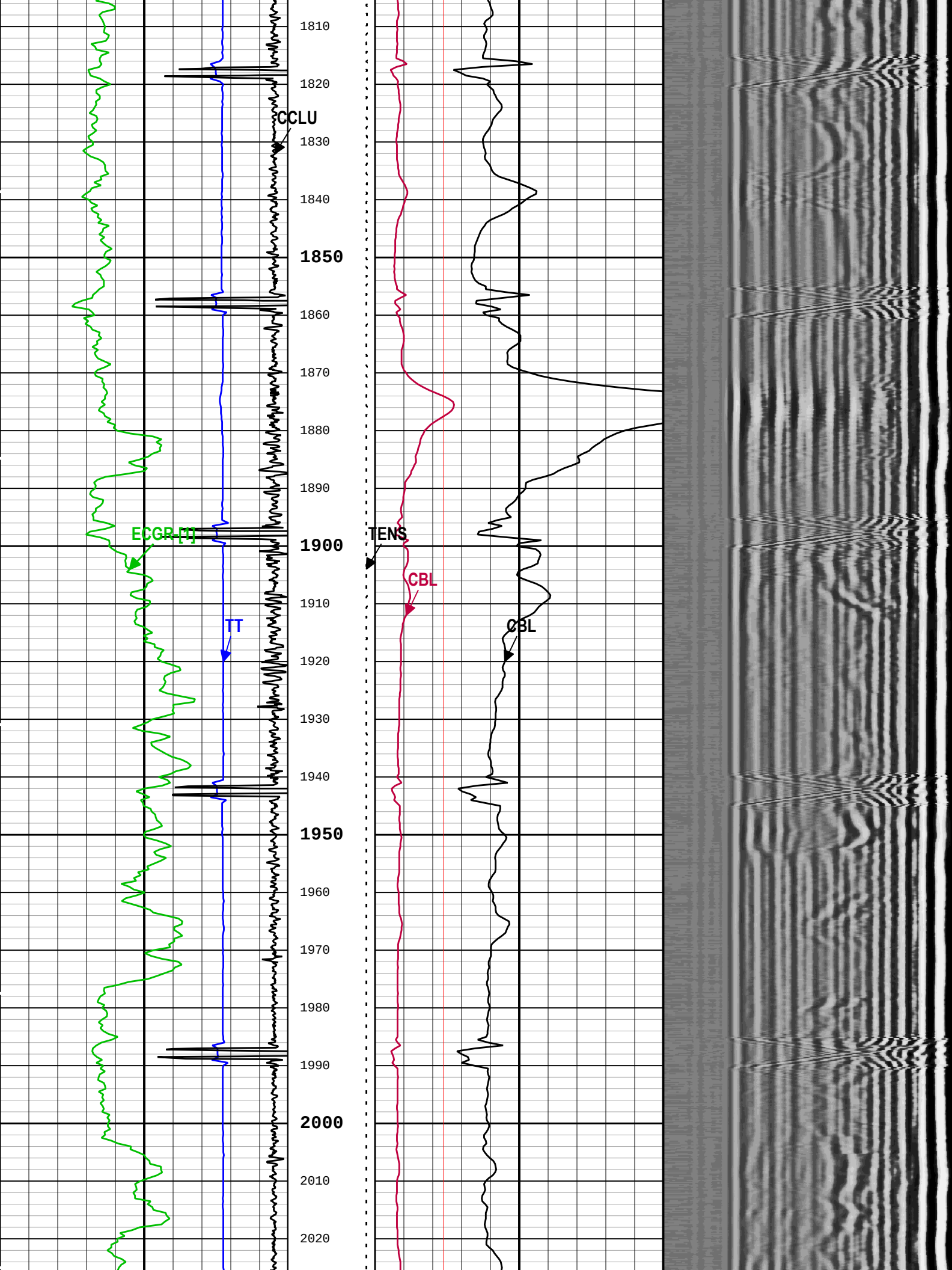
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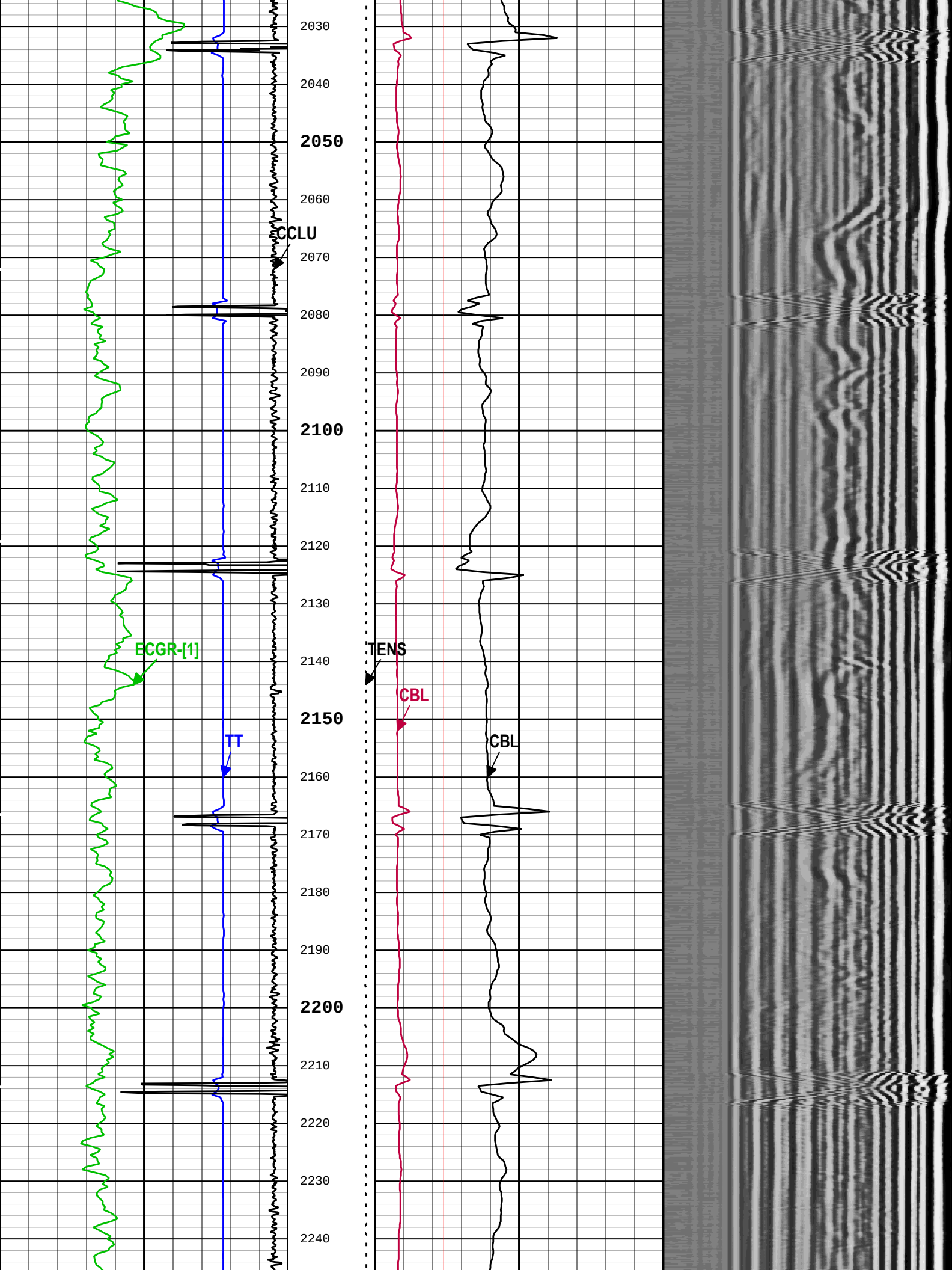
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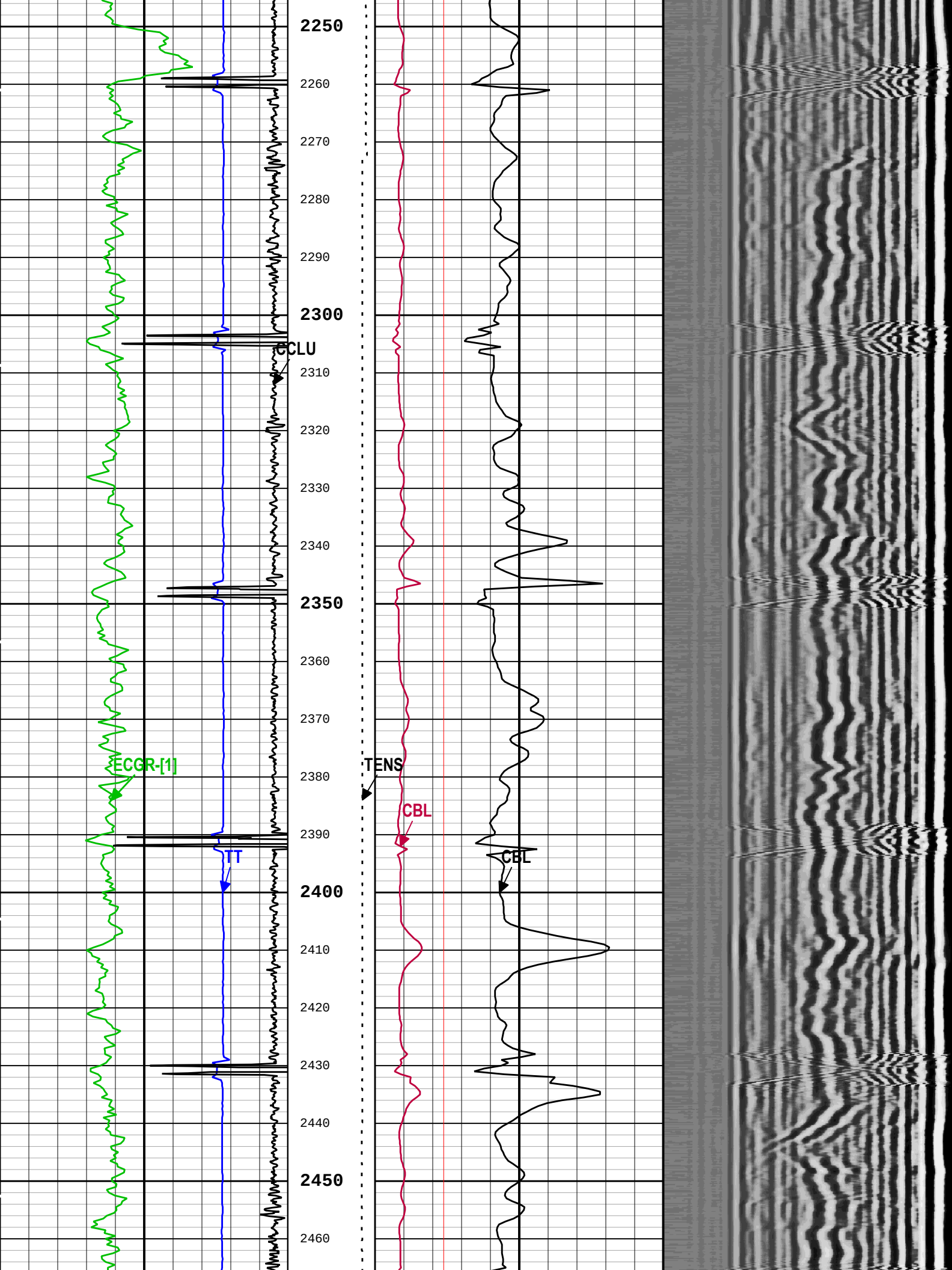
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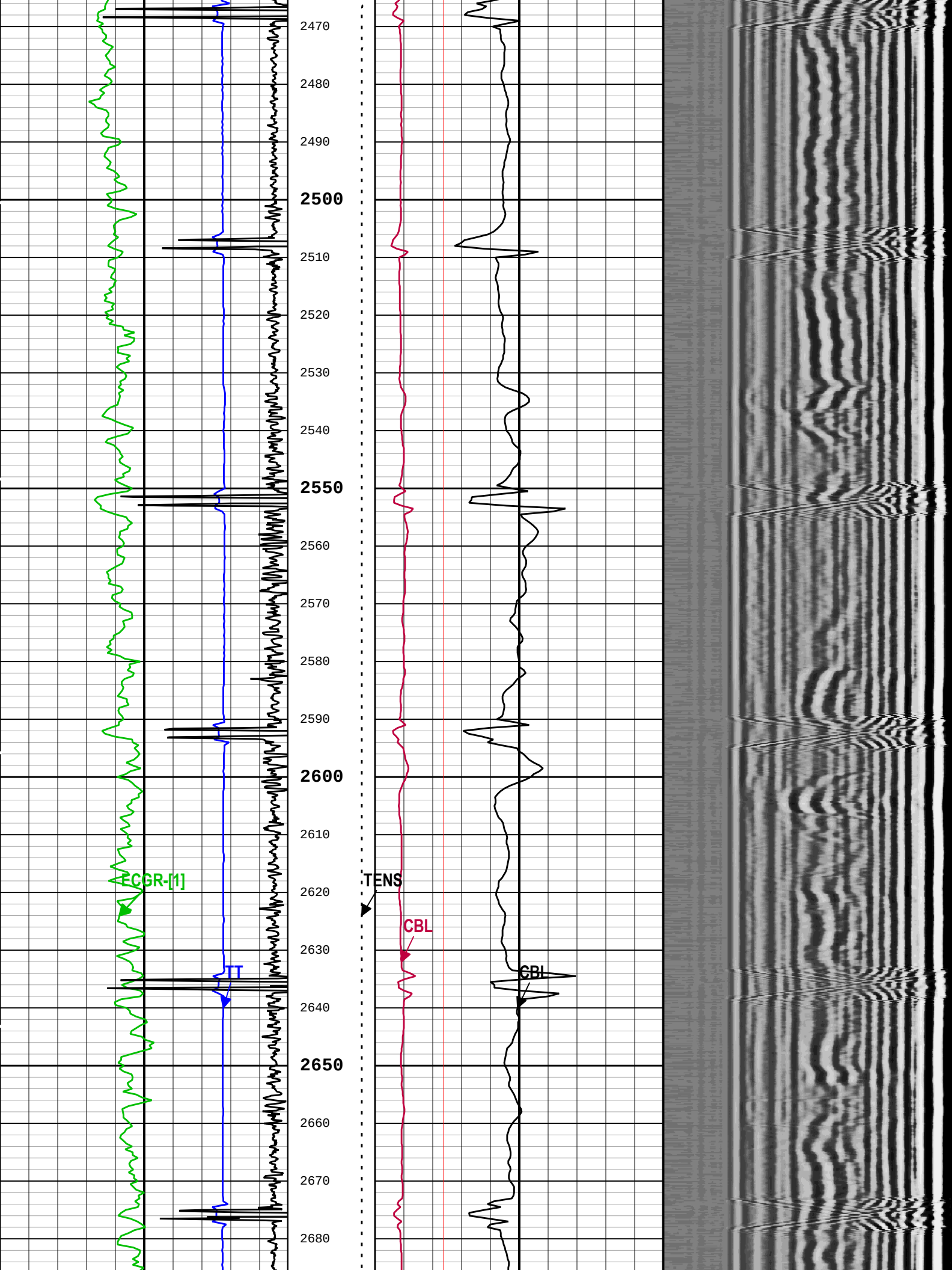
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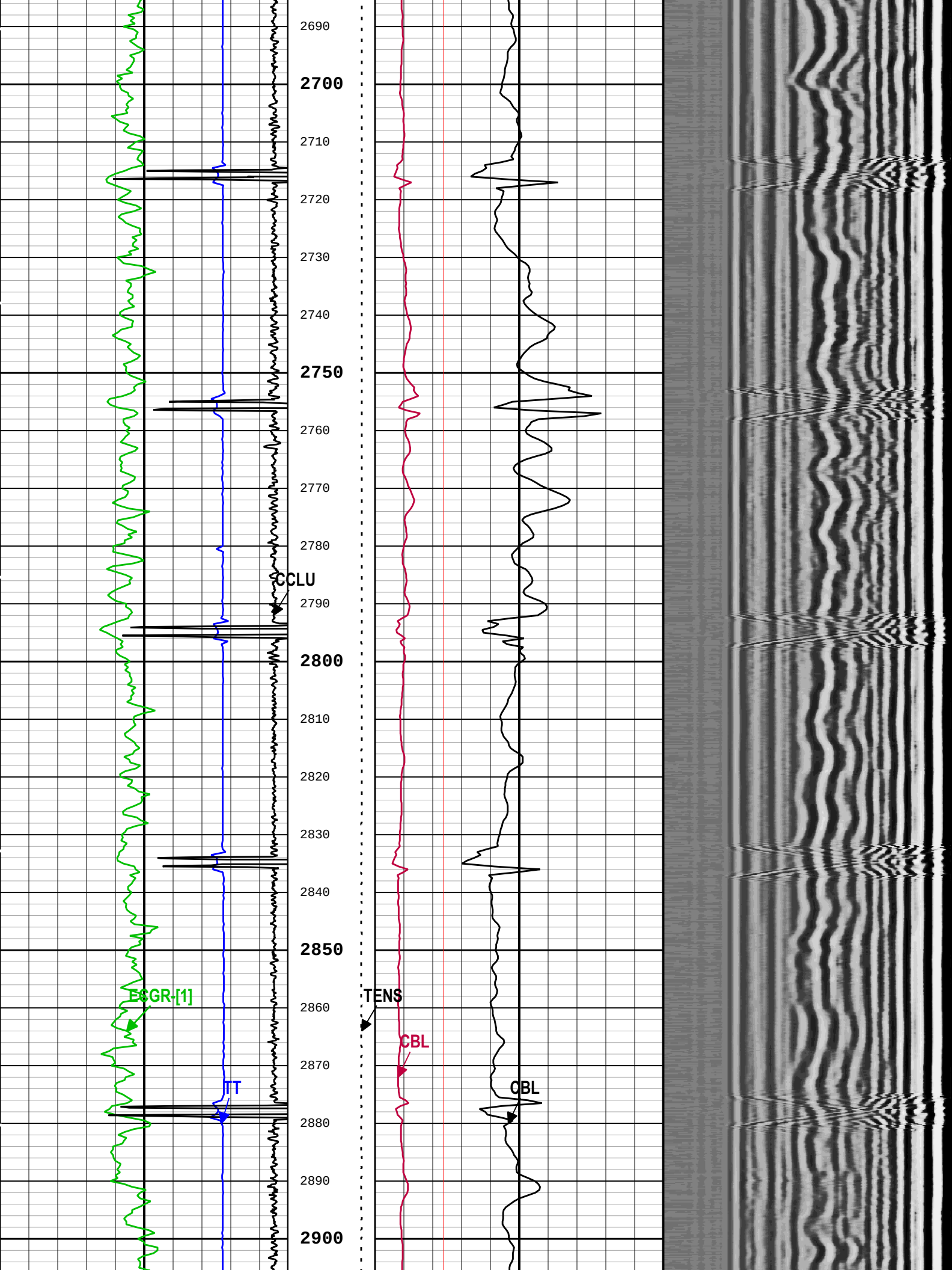
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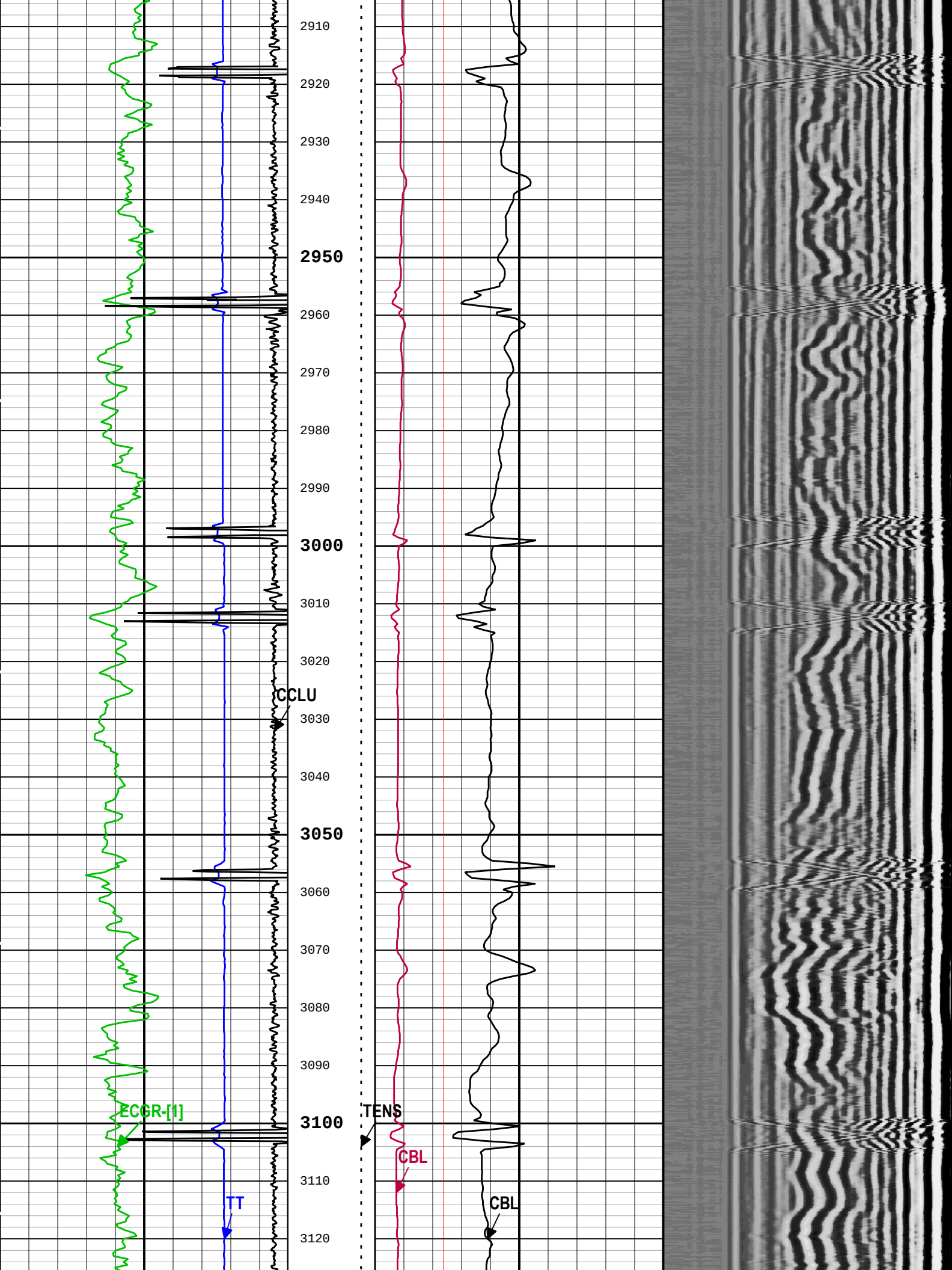
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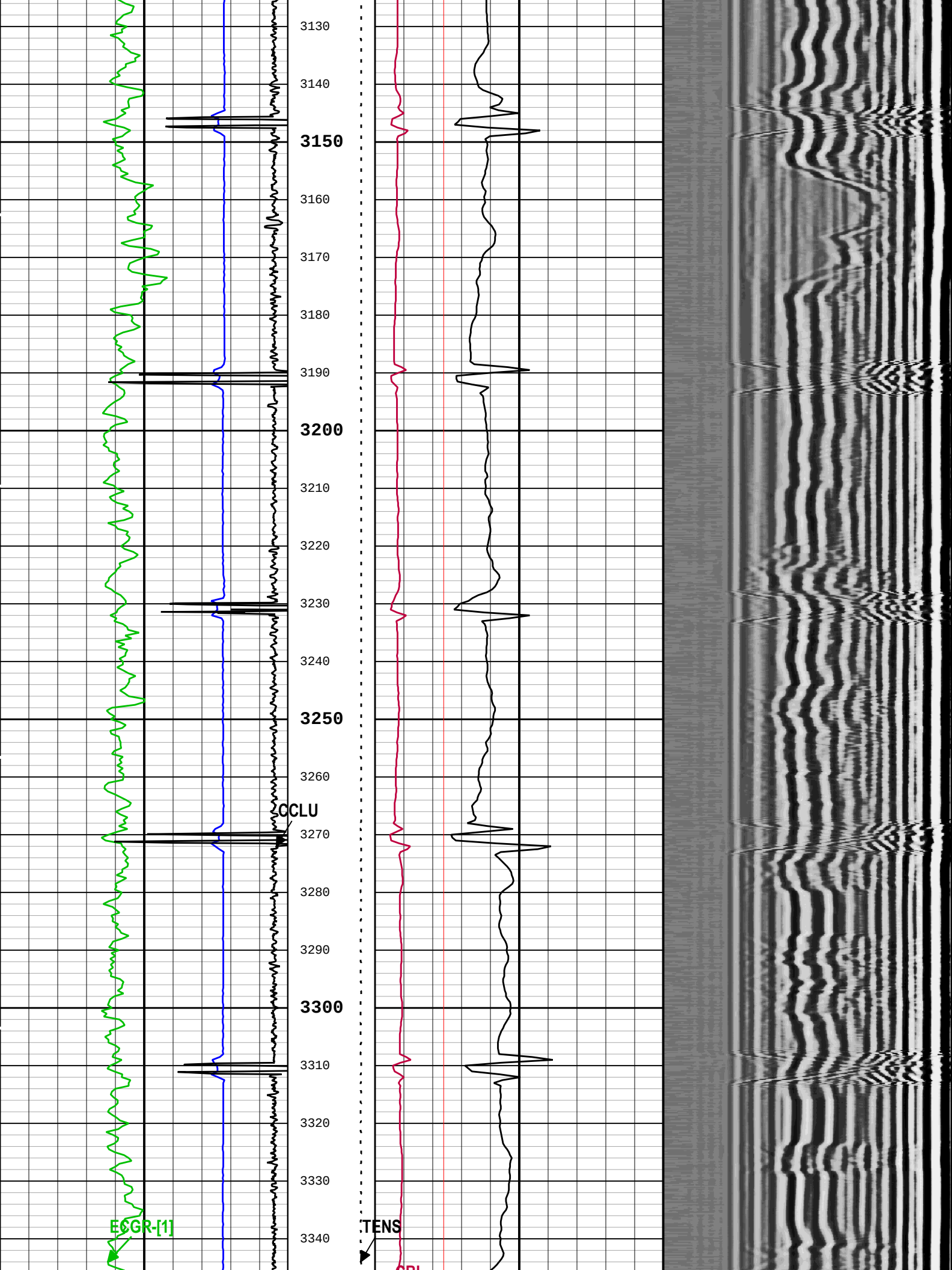
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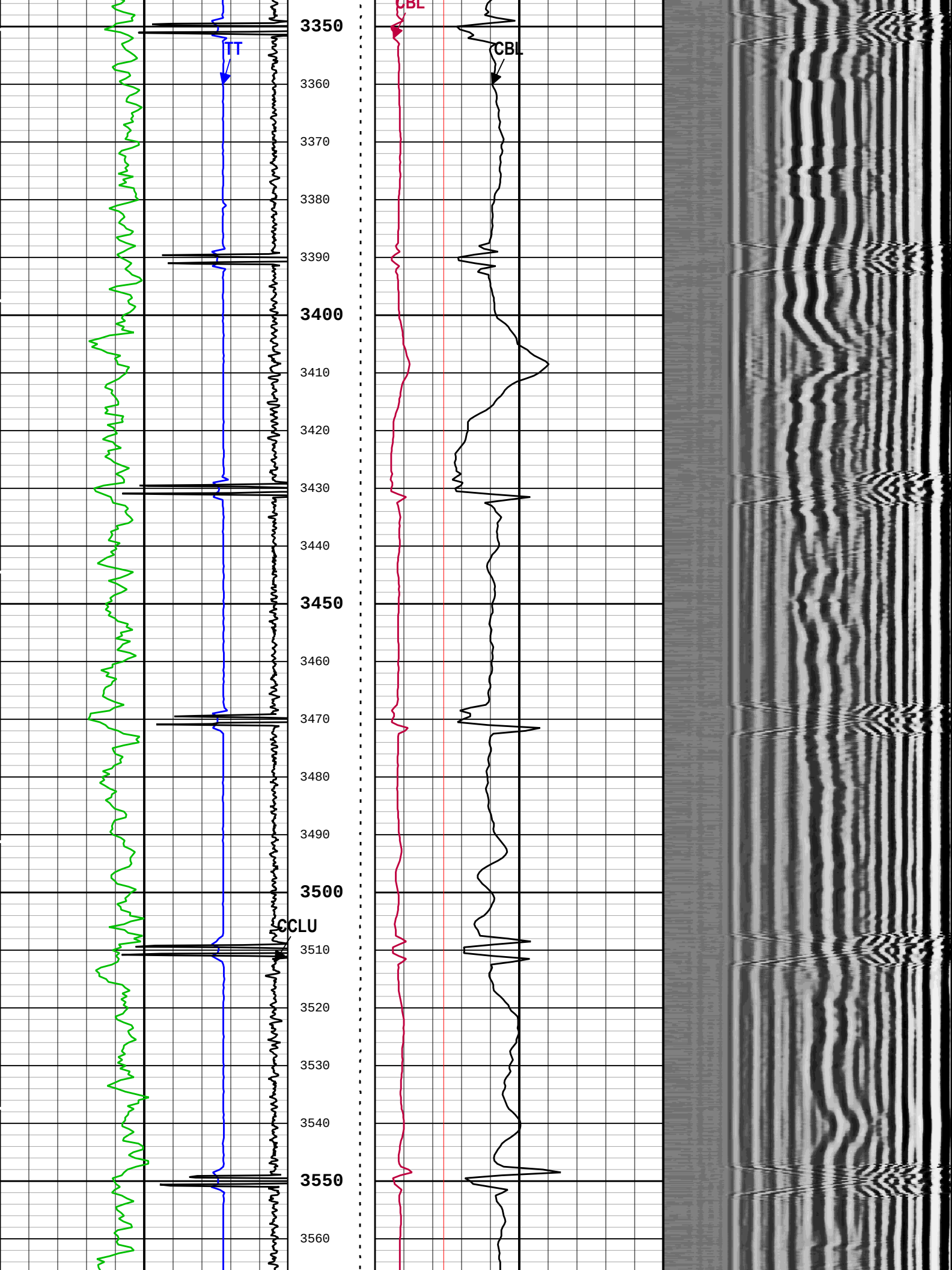
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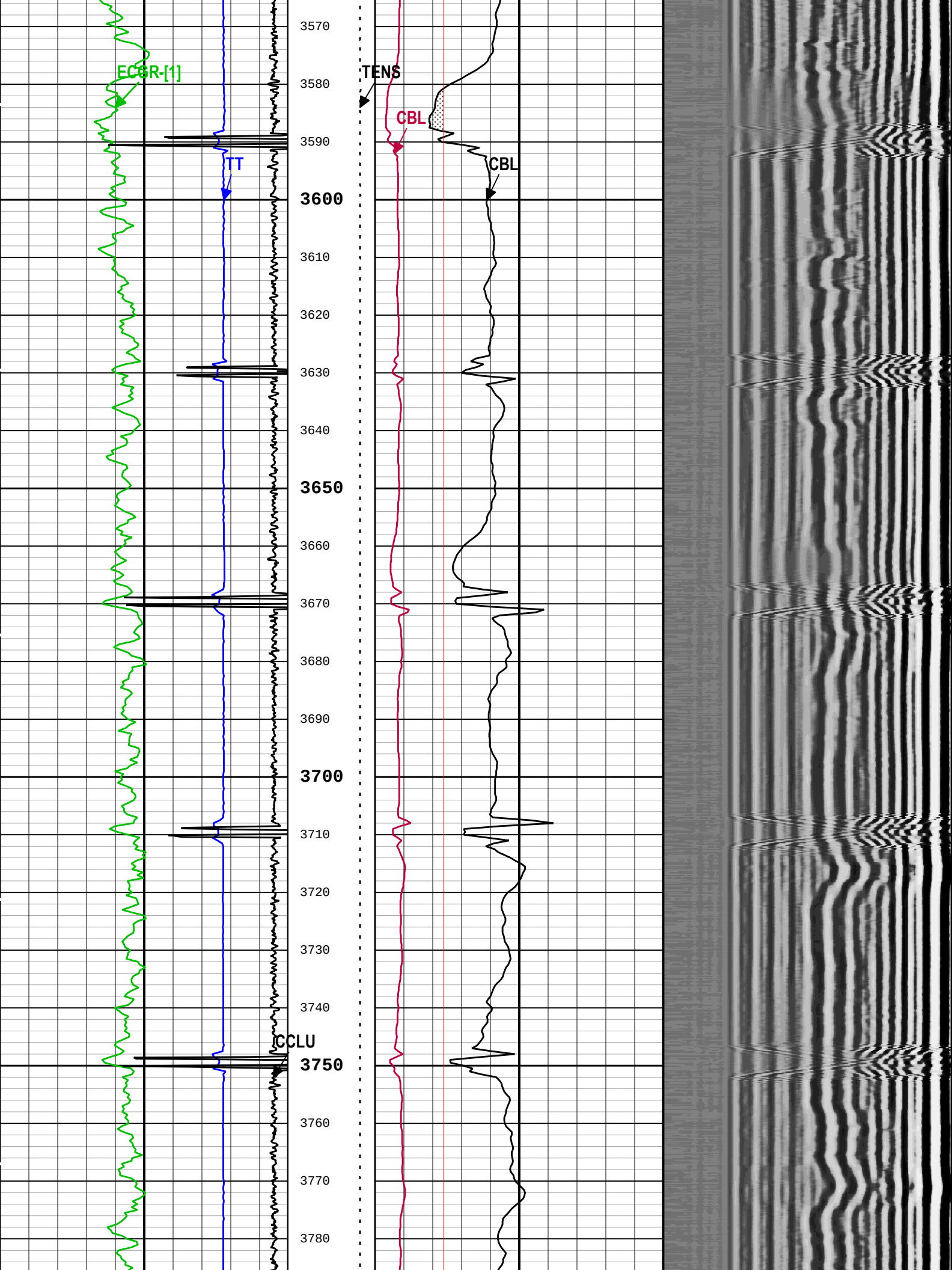
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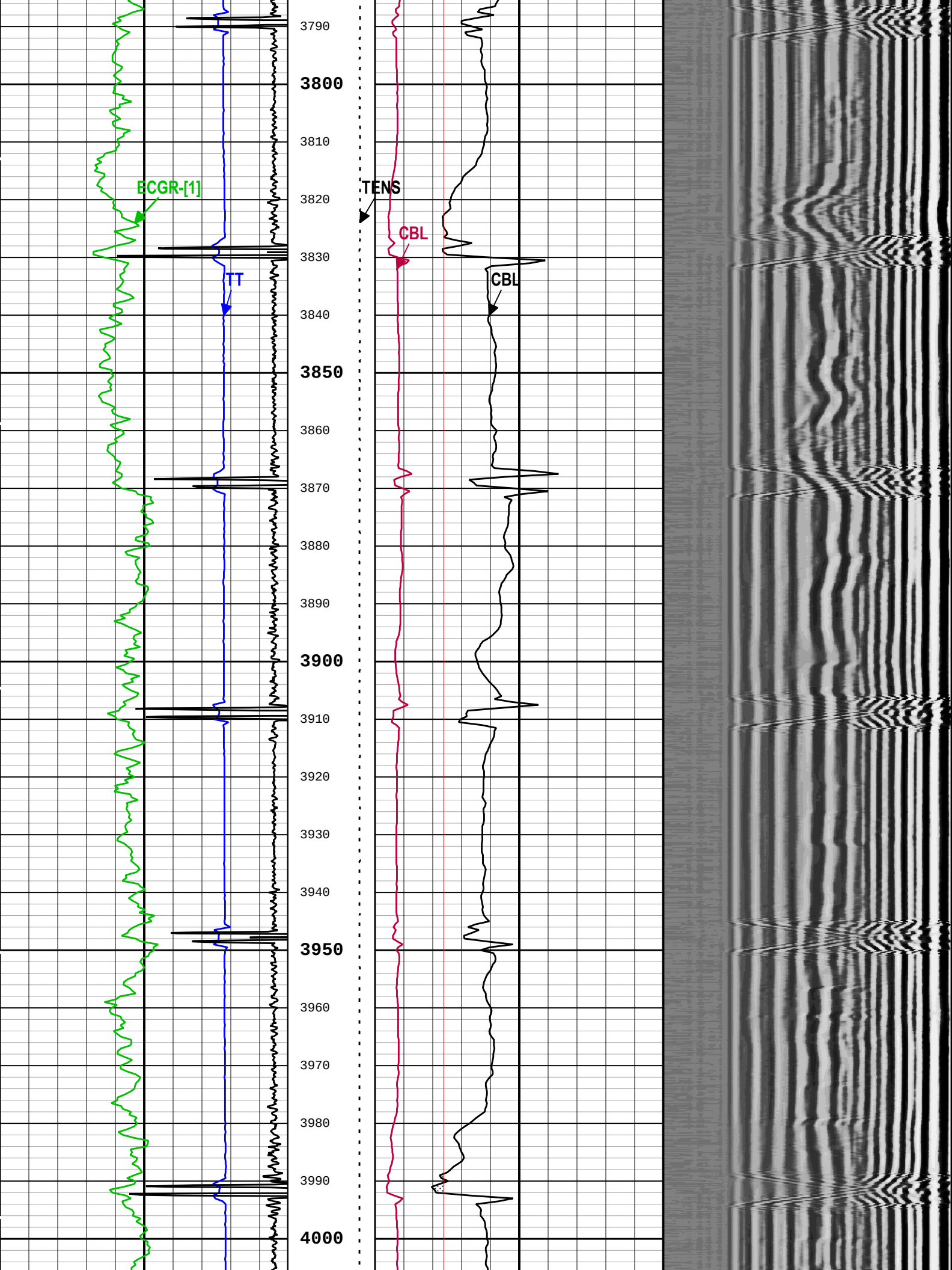
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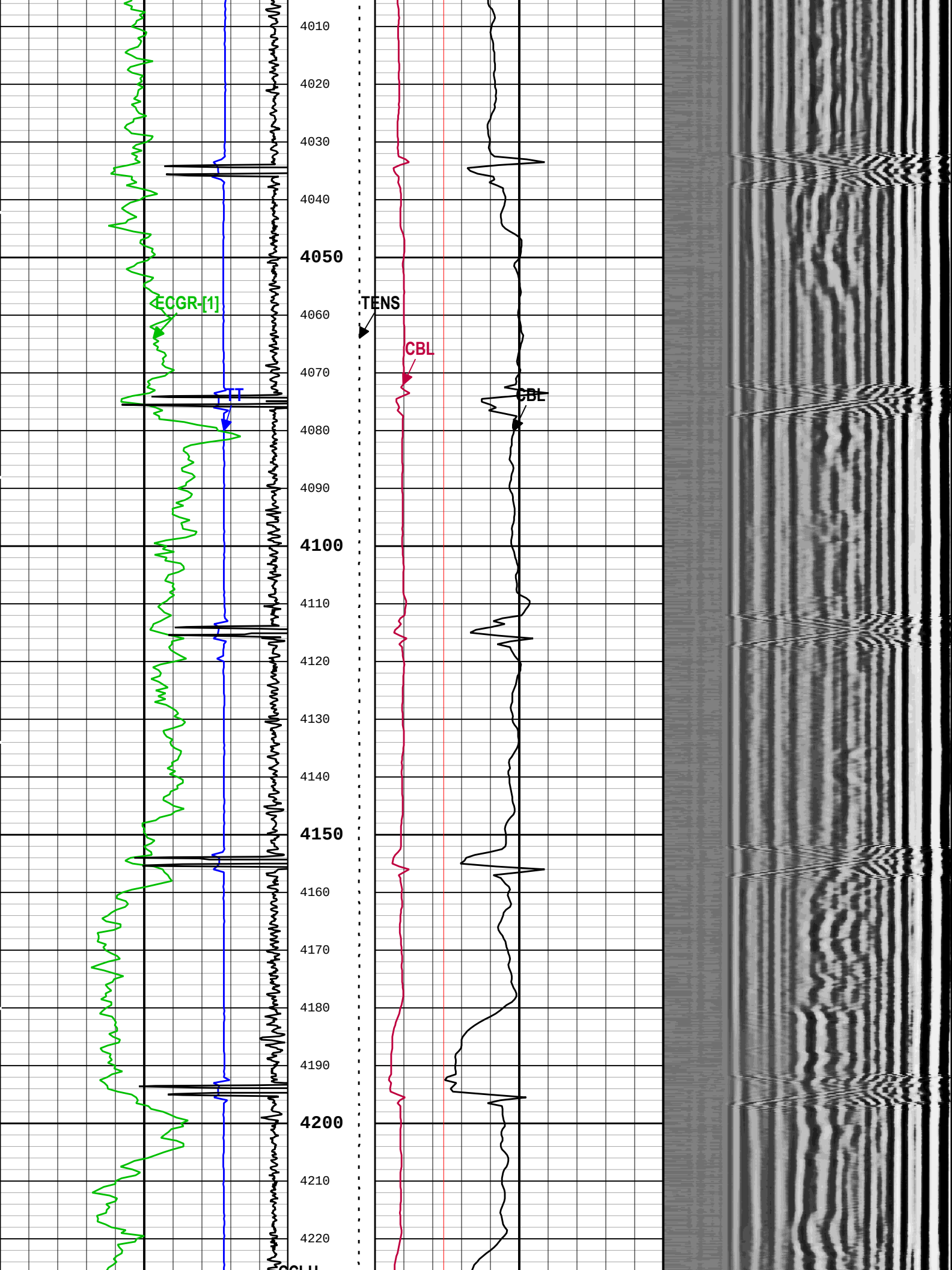
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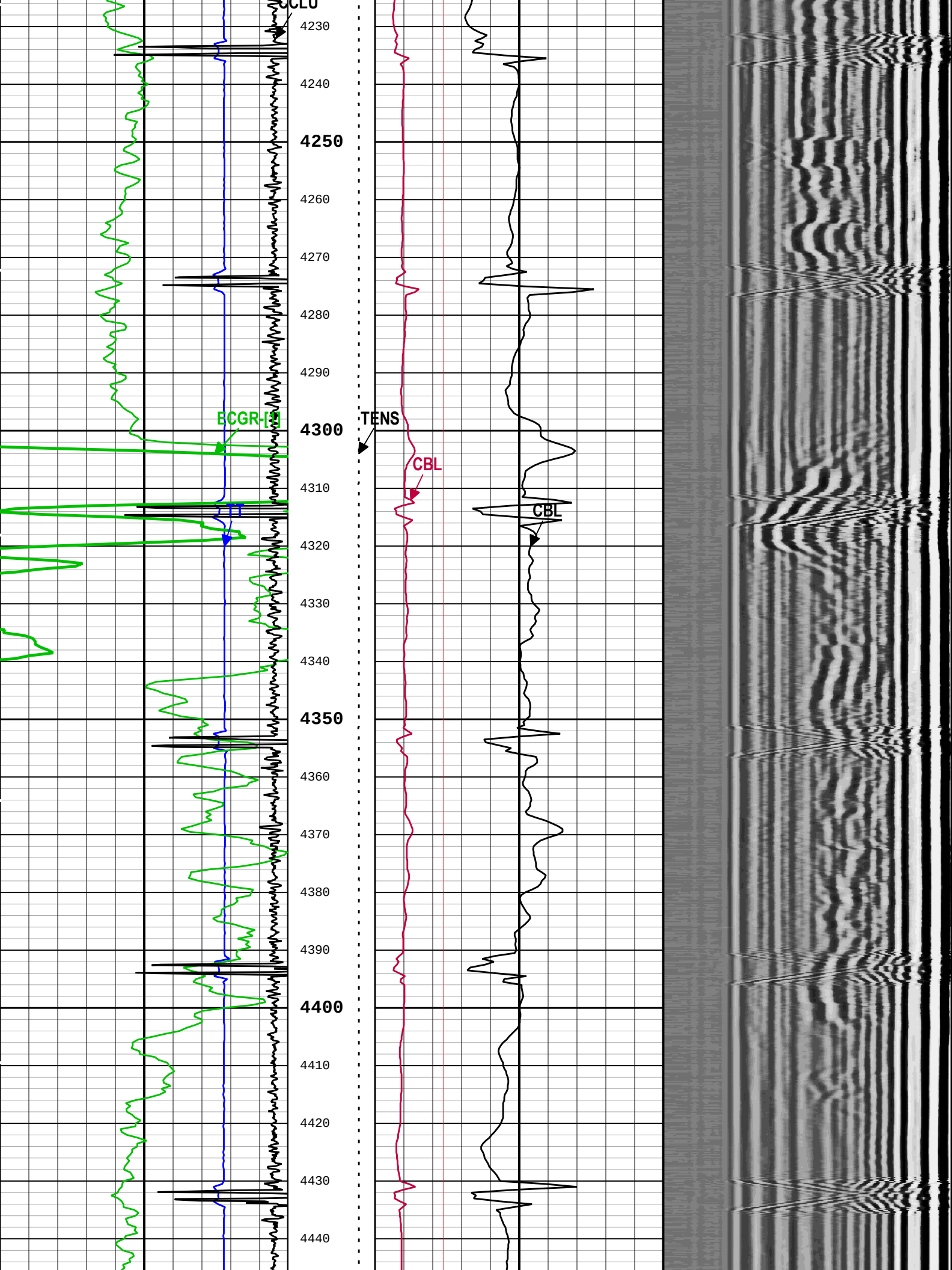
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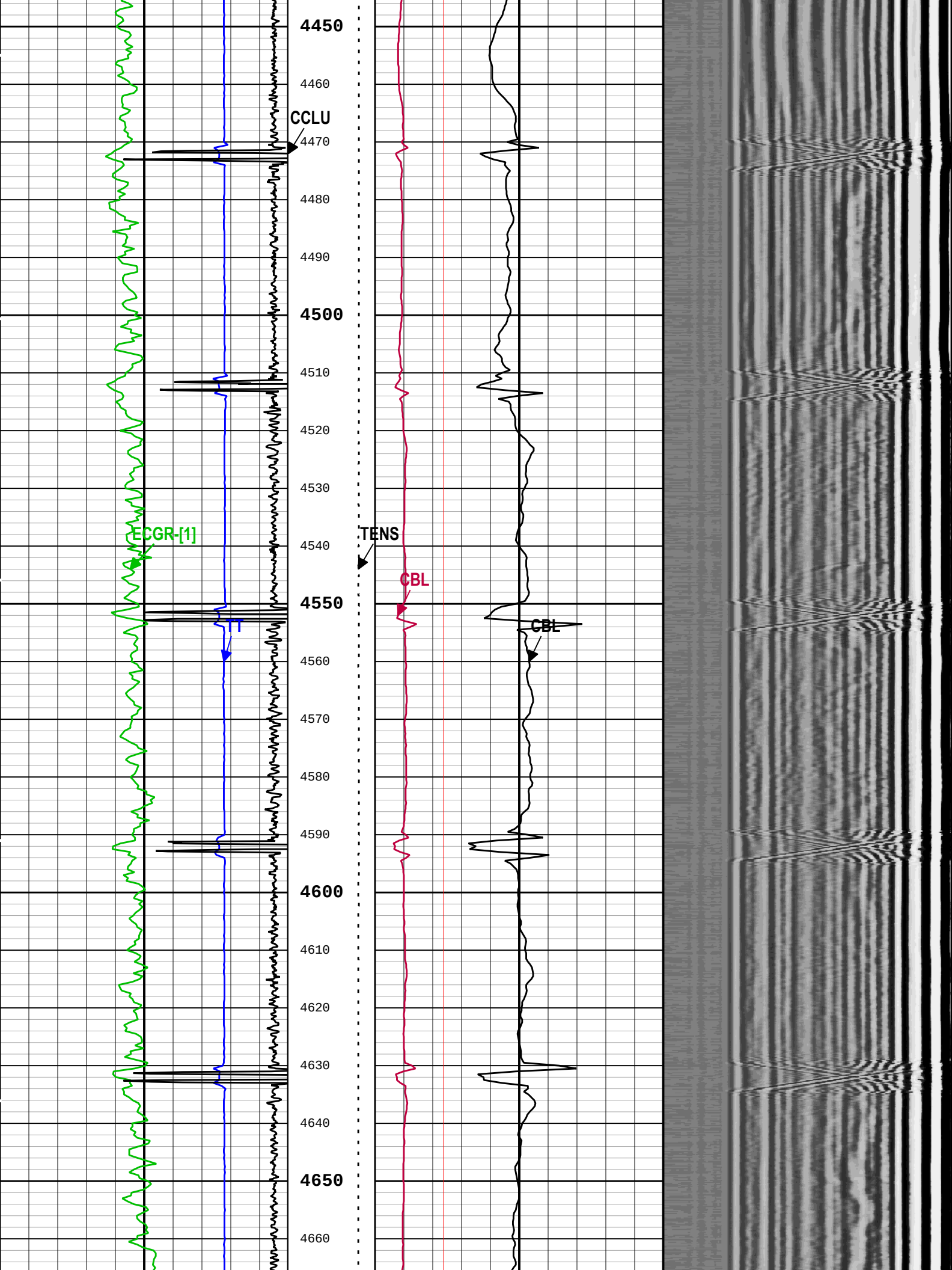
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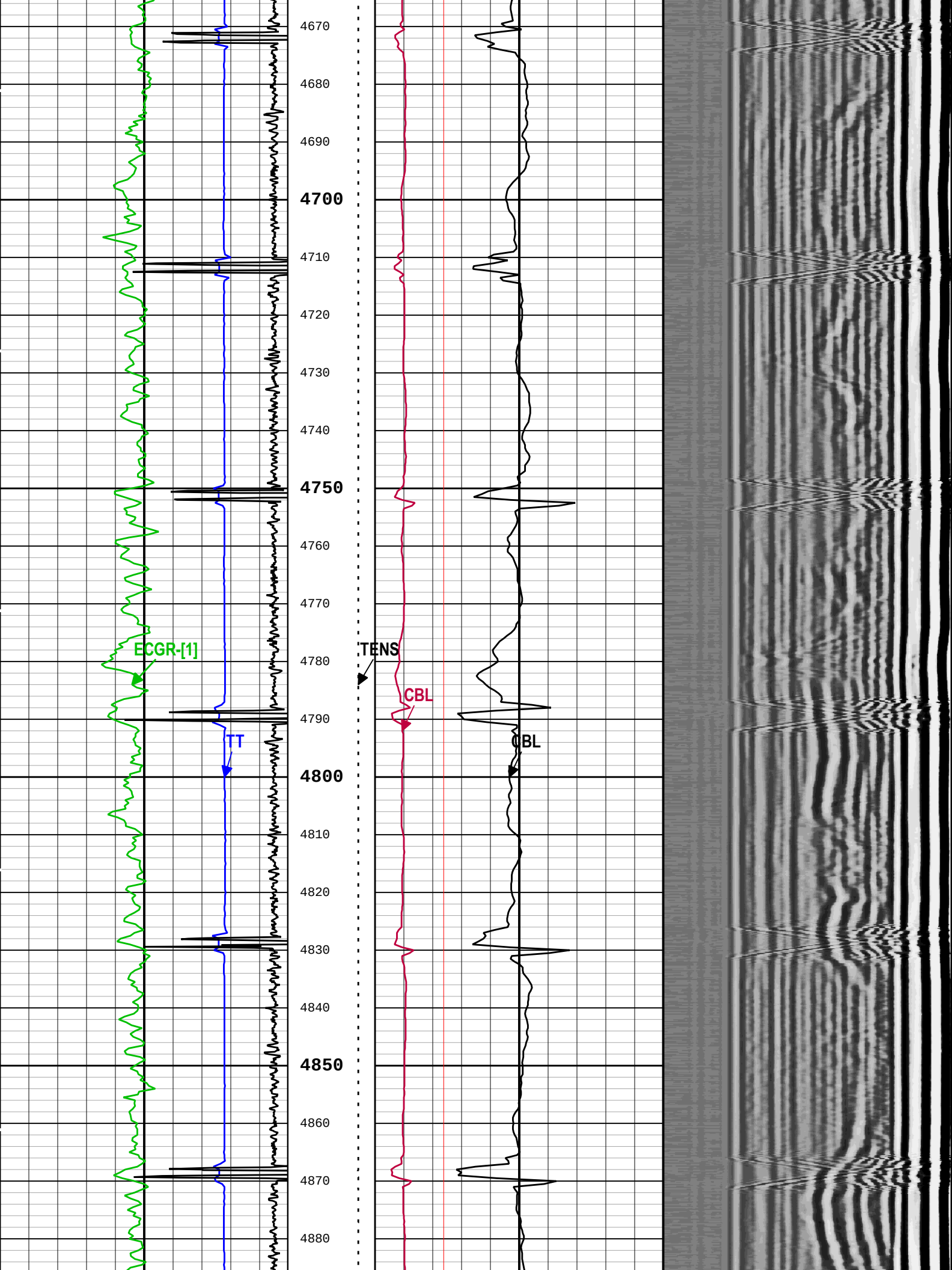
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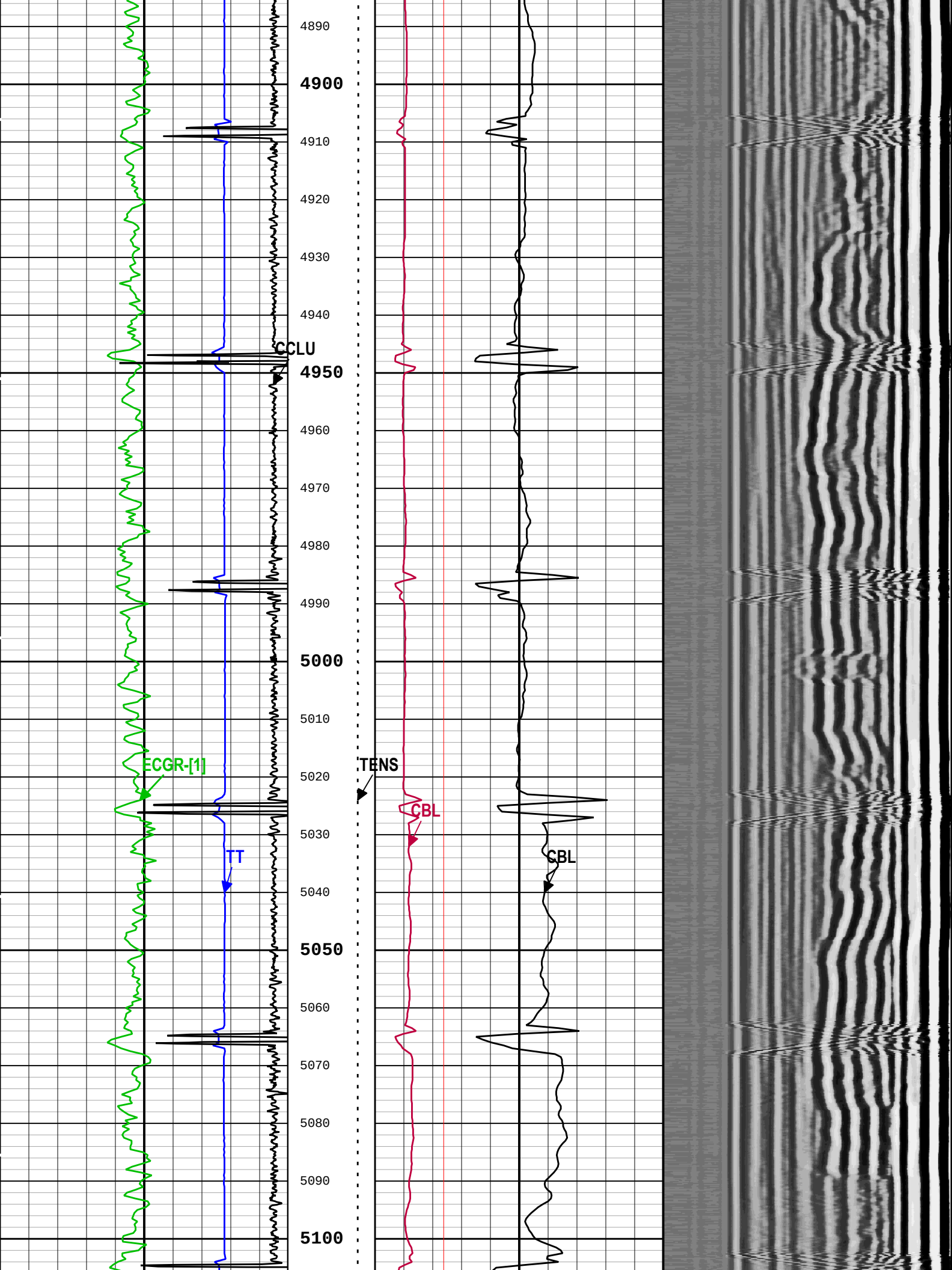
CBL
CBL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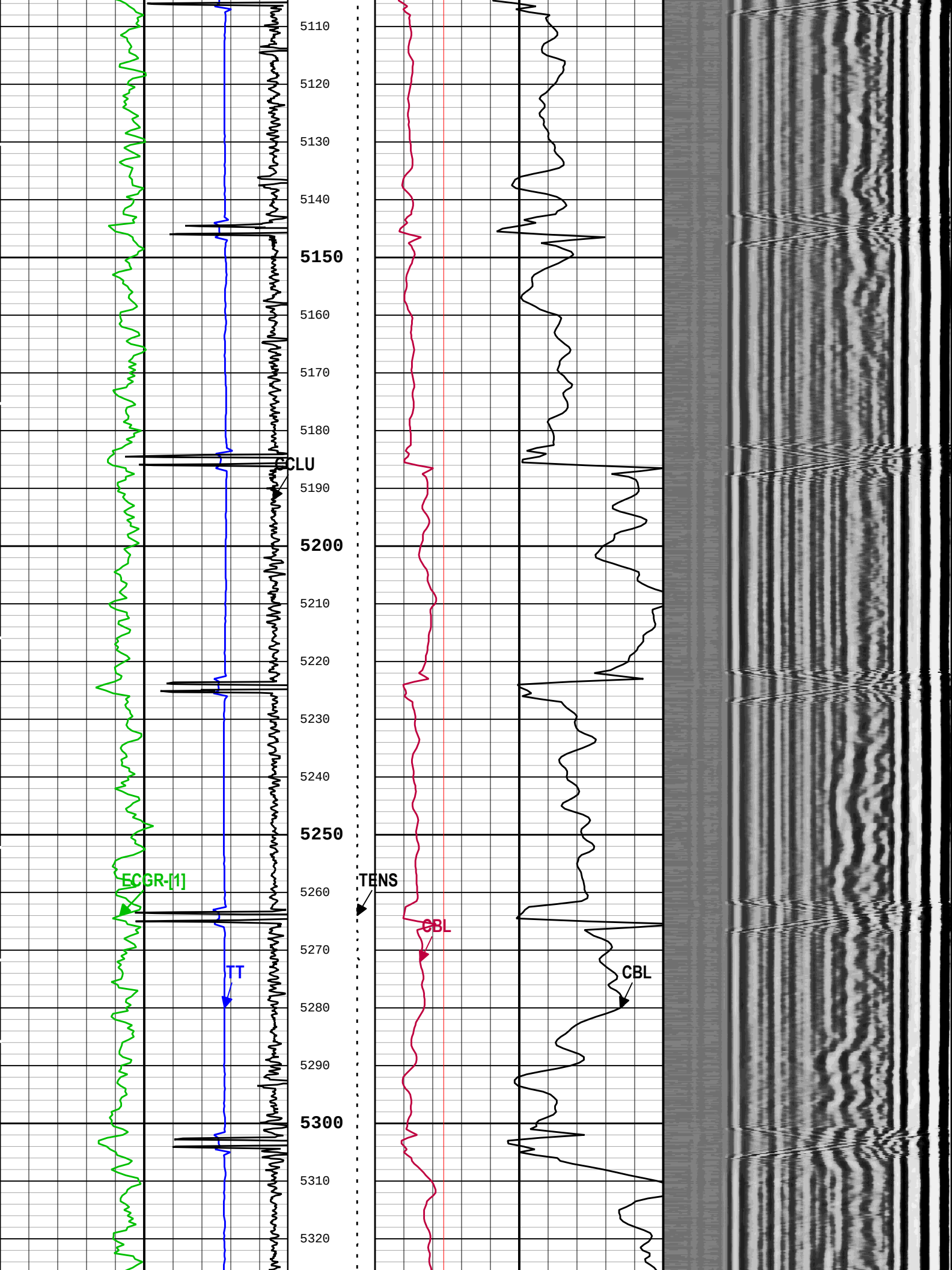
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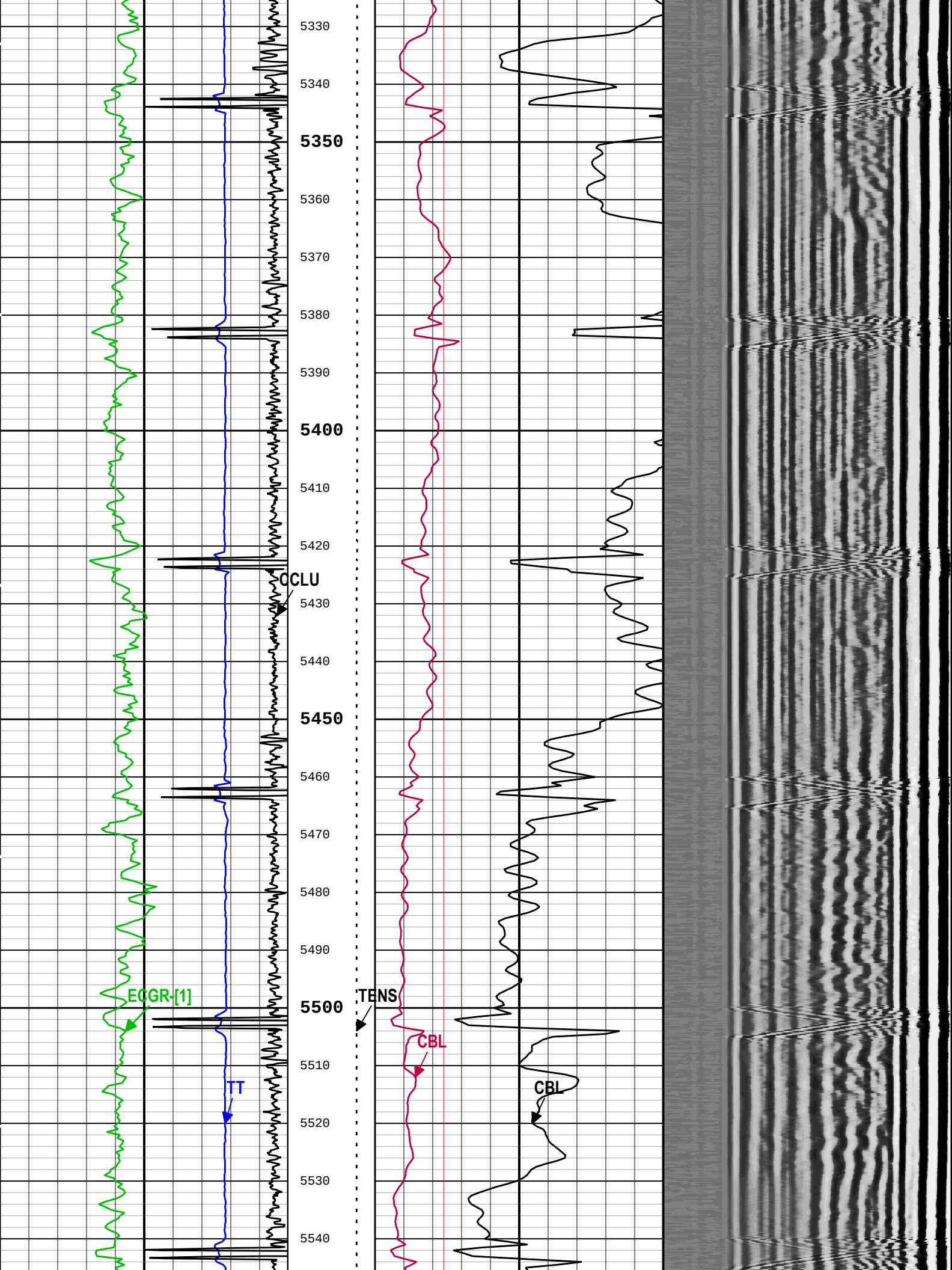
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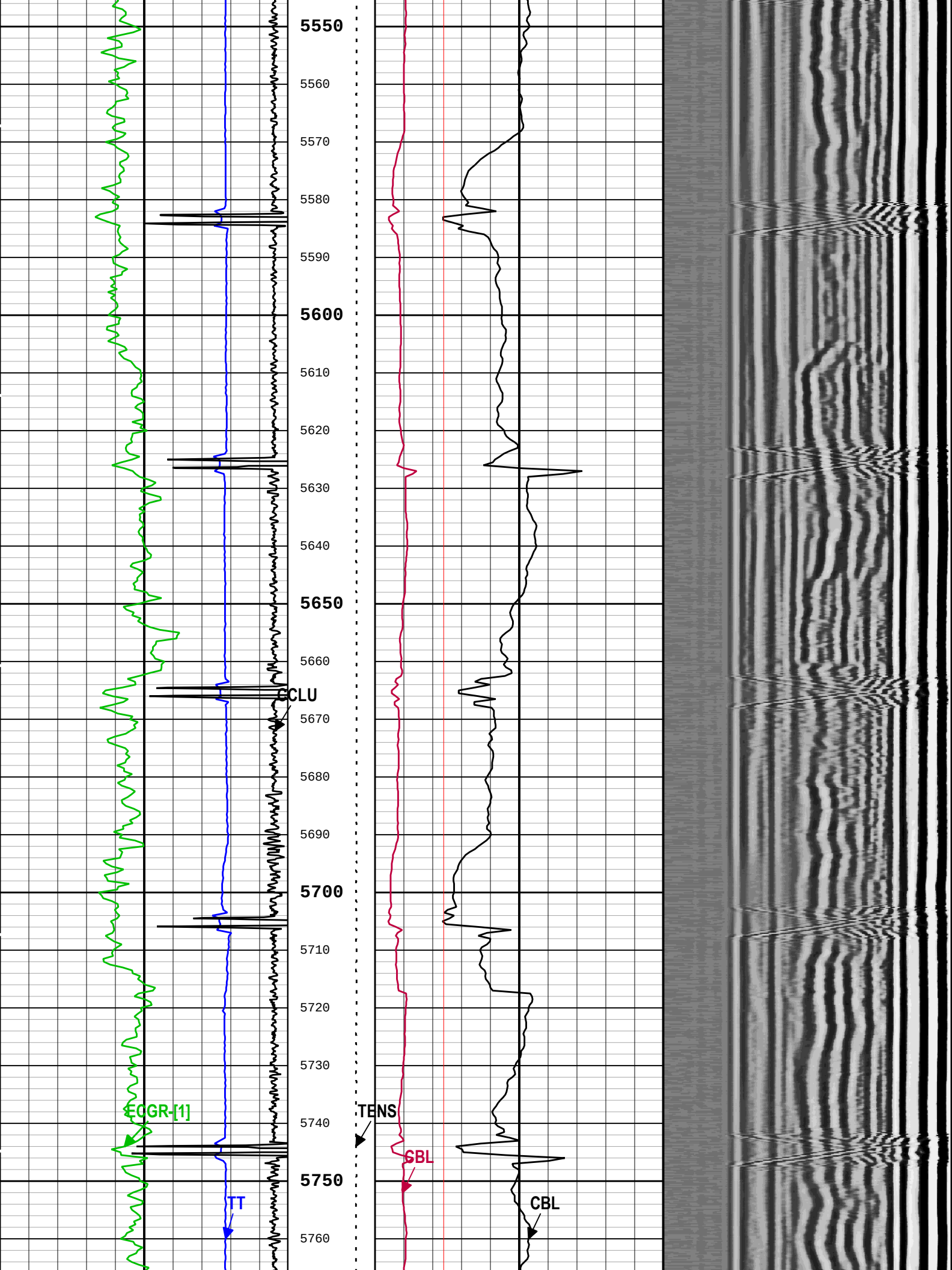
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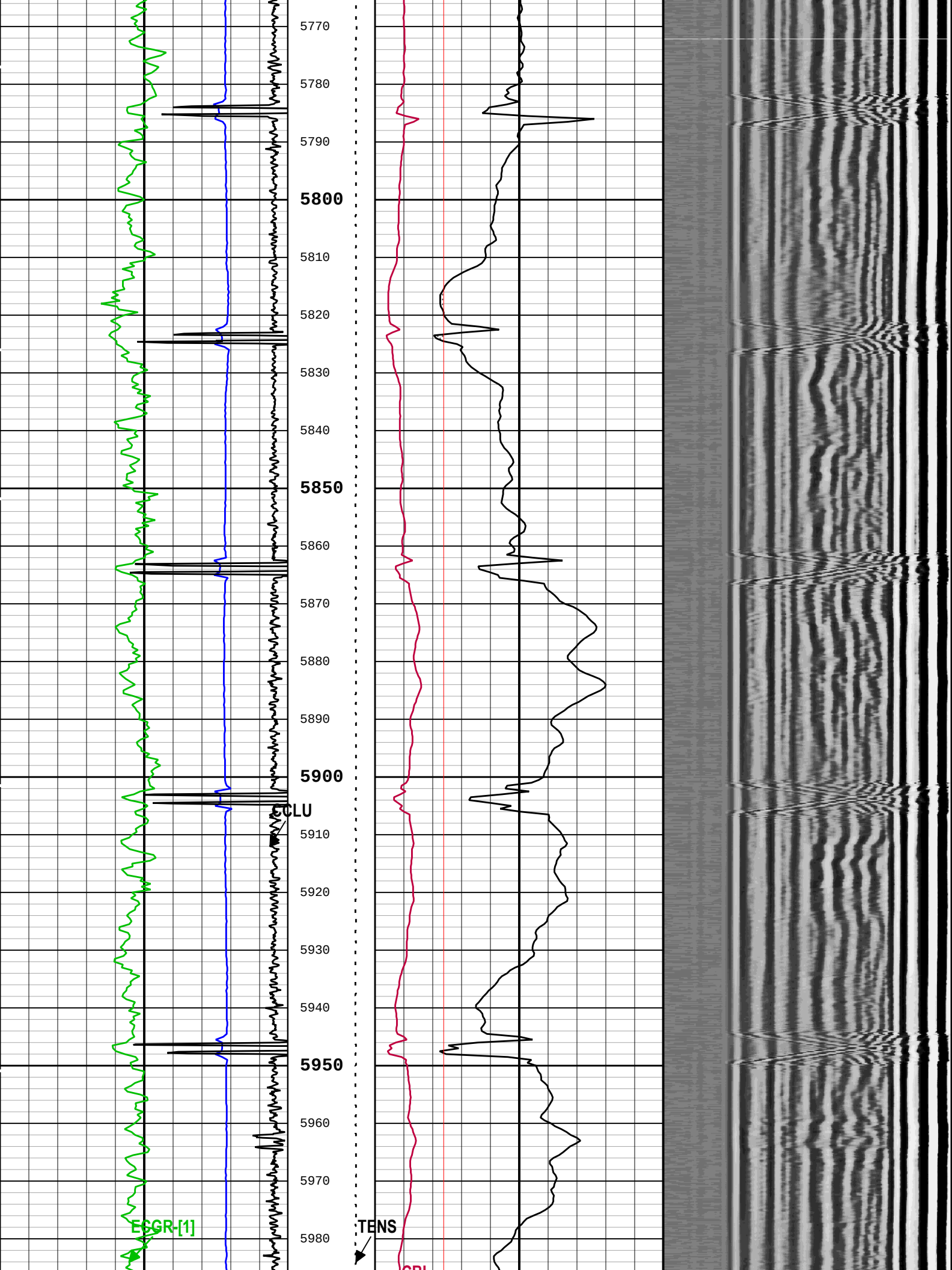
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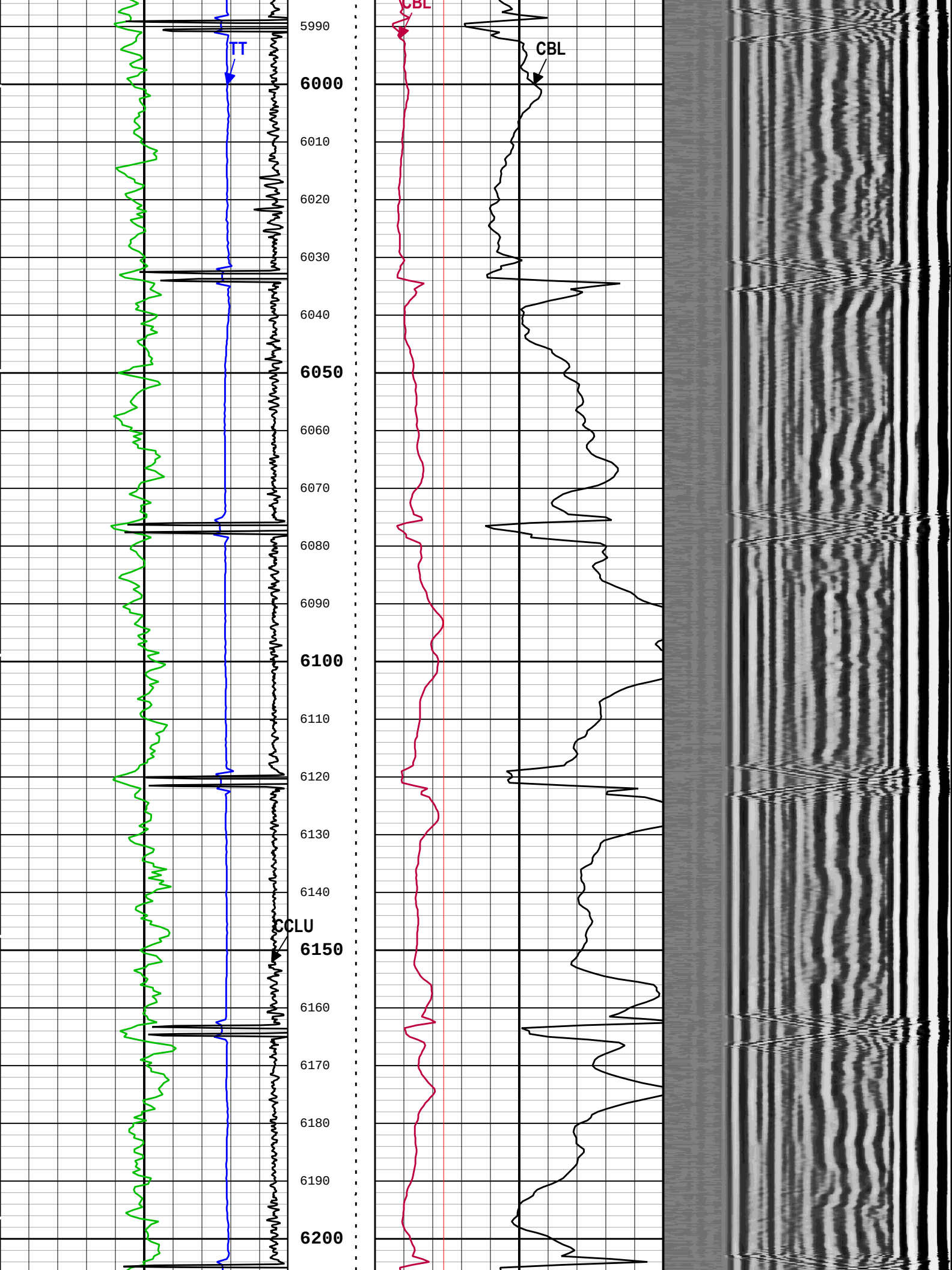
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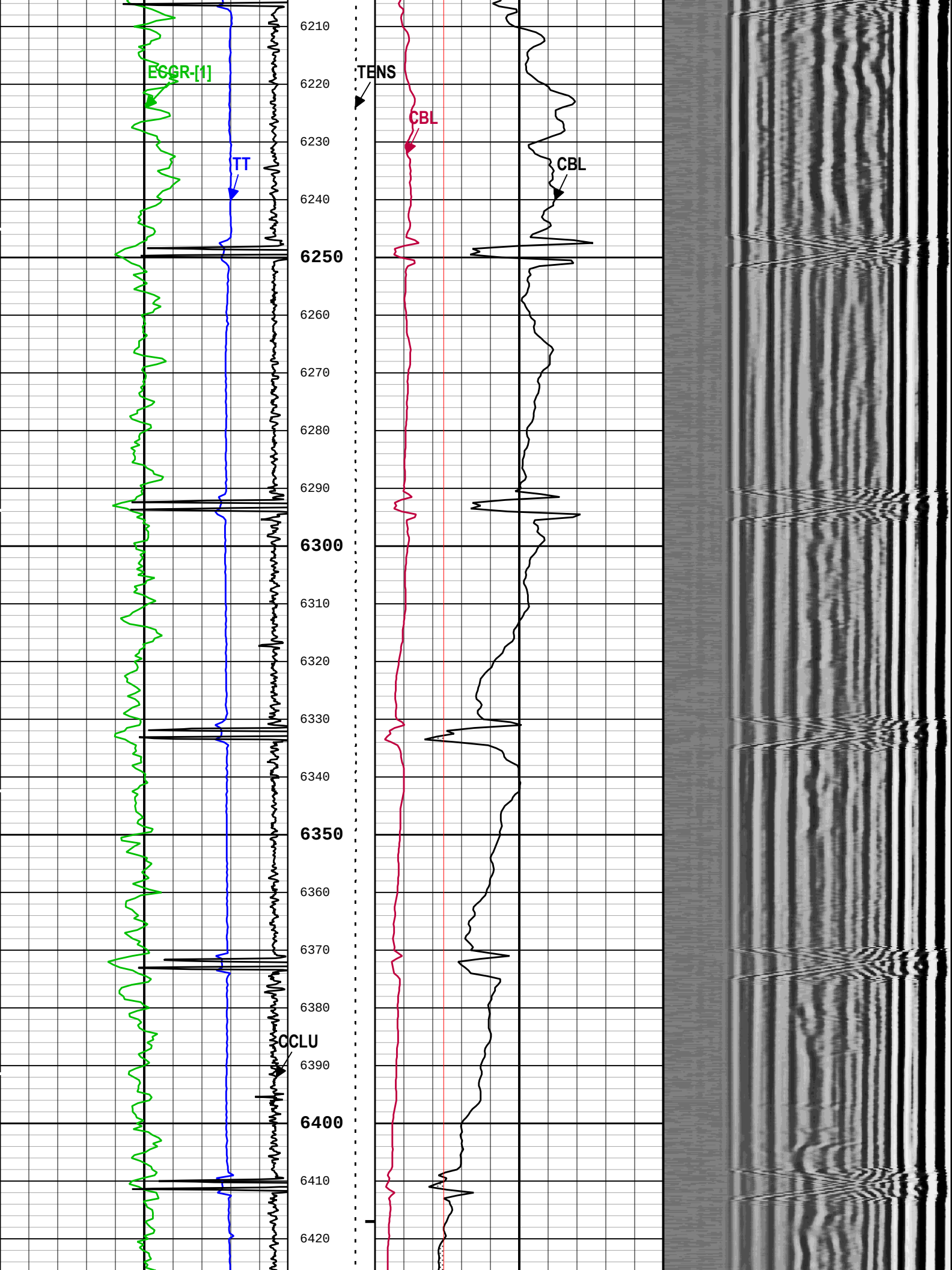
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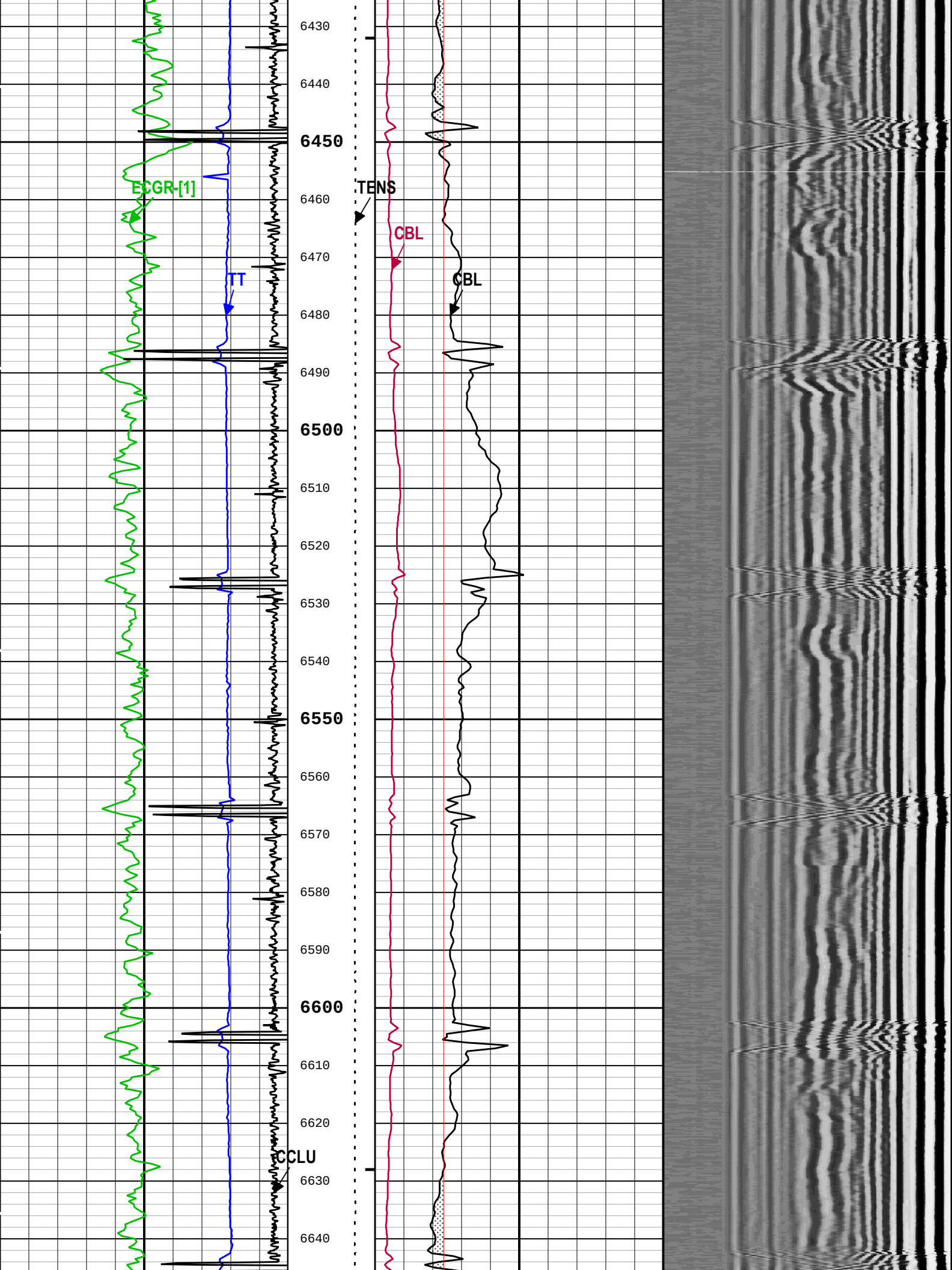
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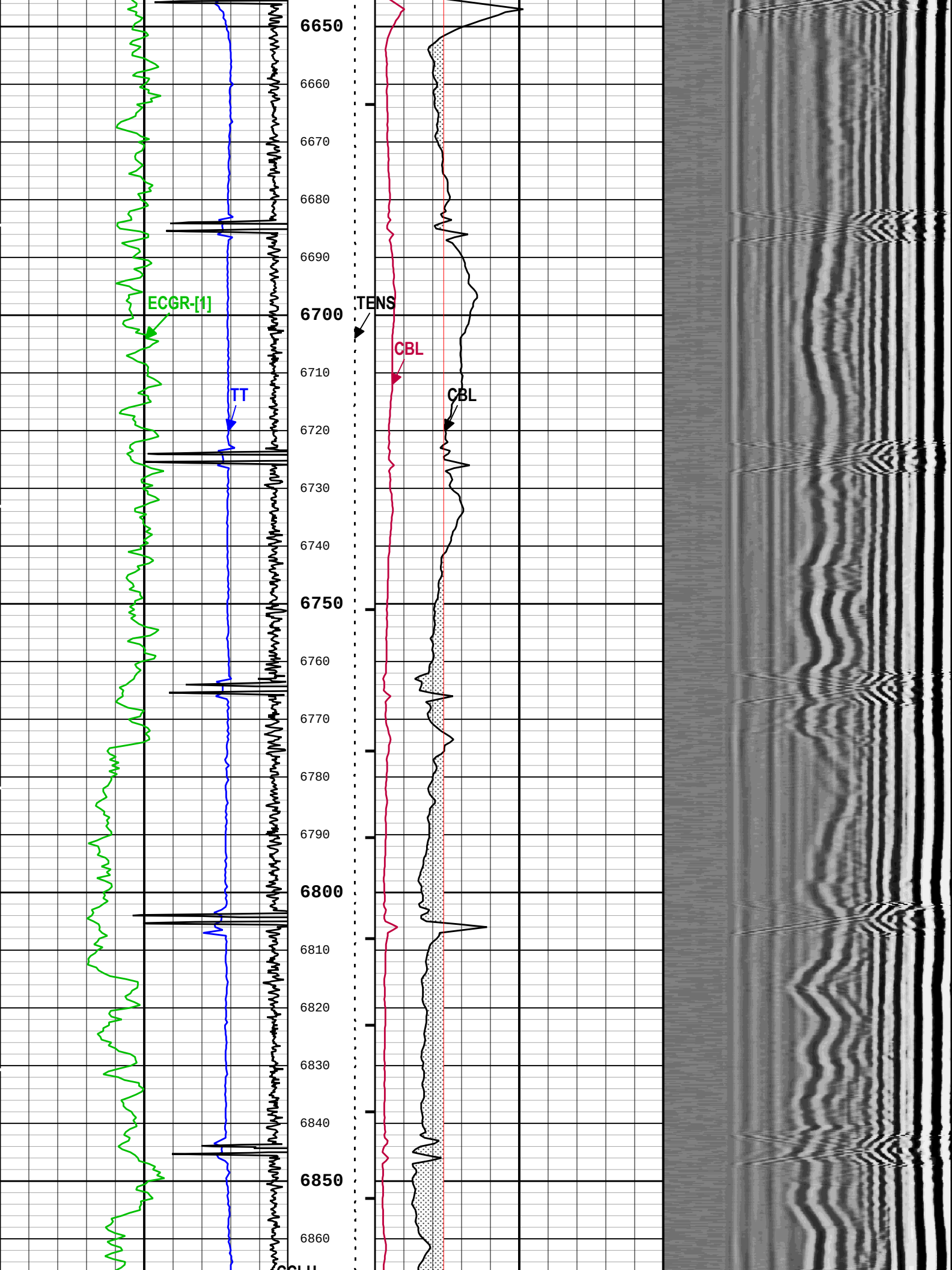
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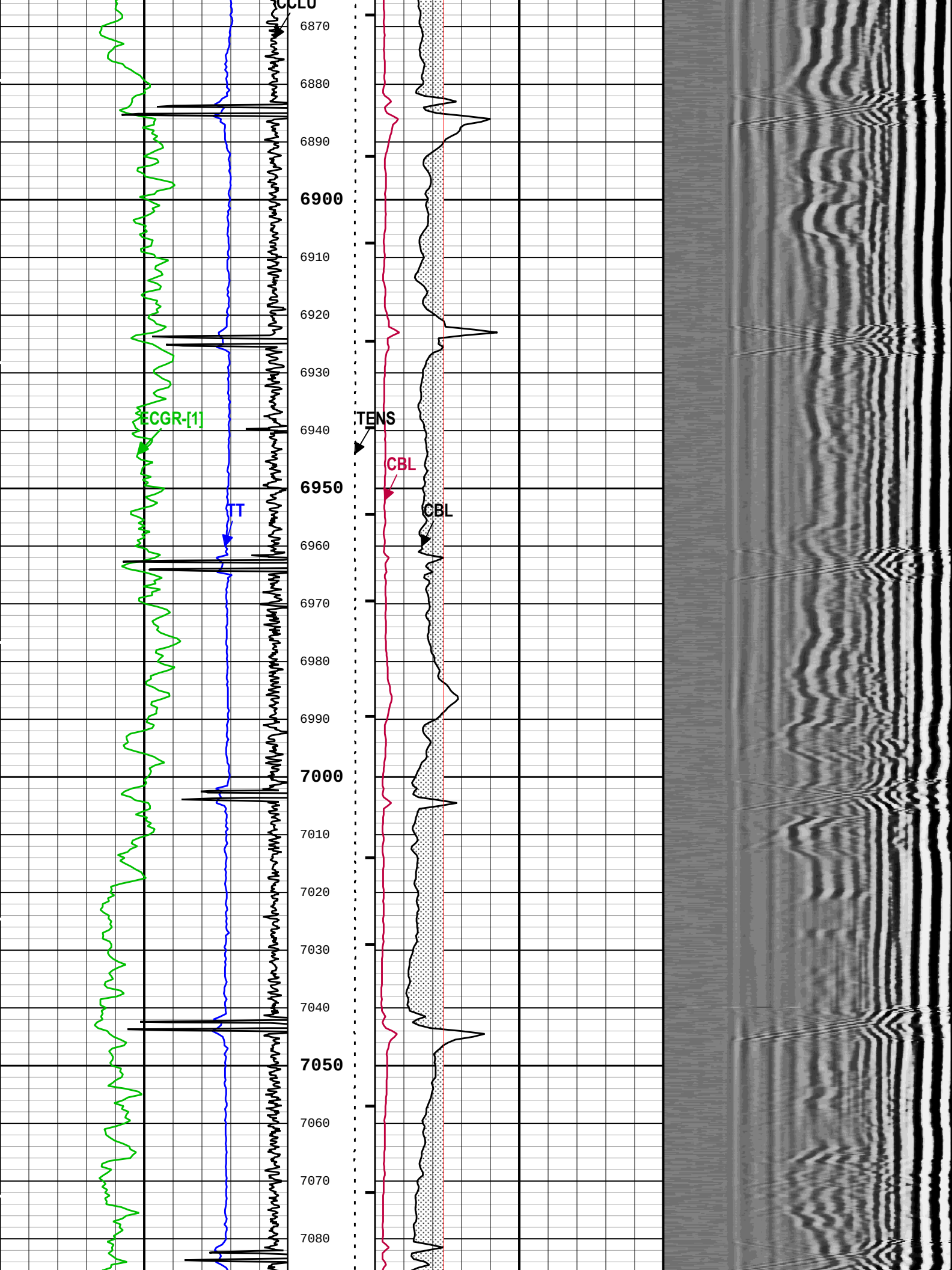
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ECGR-[1]
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TENS
CBL
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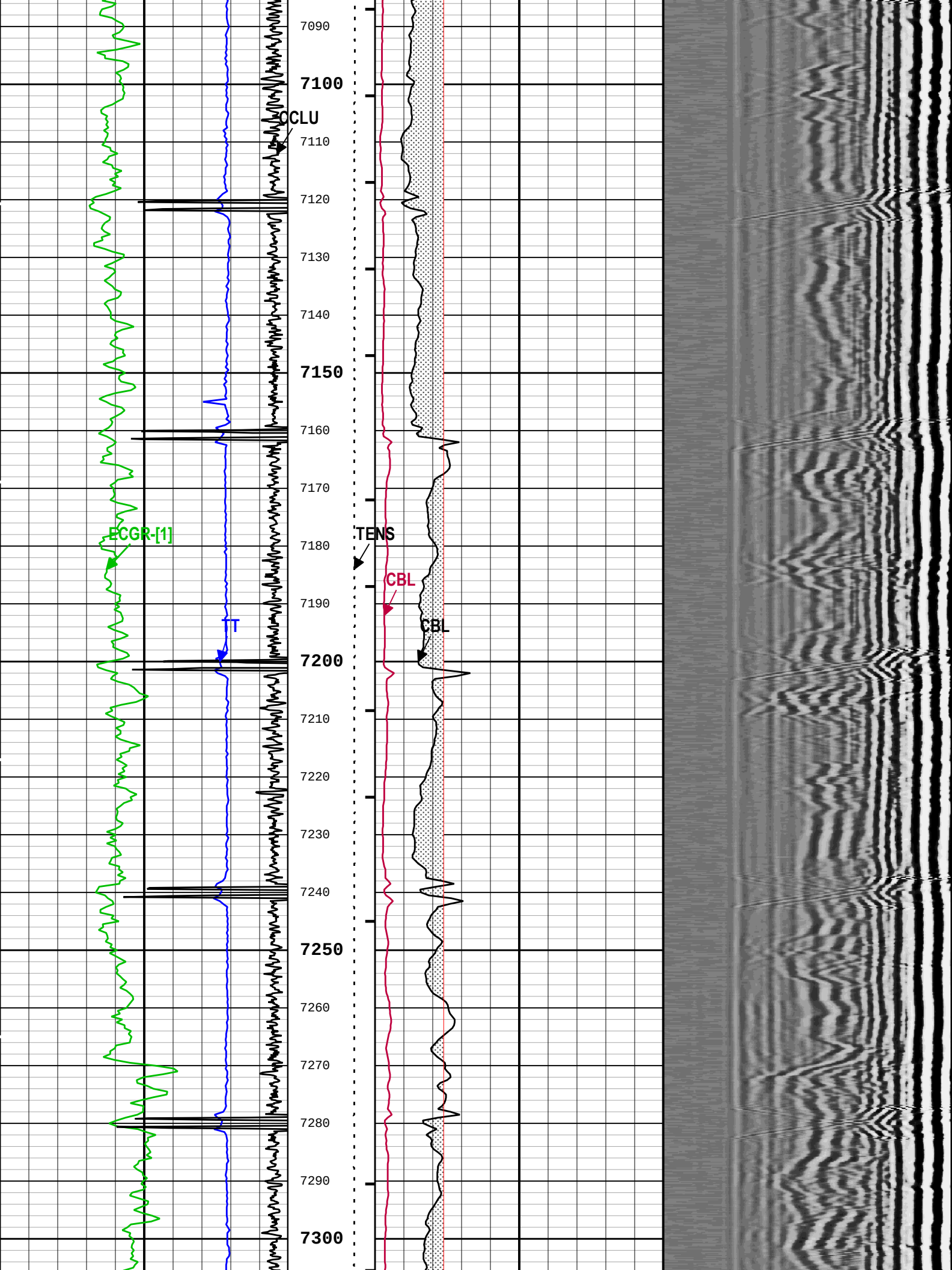
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ECGR-[1]
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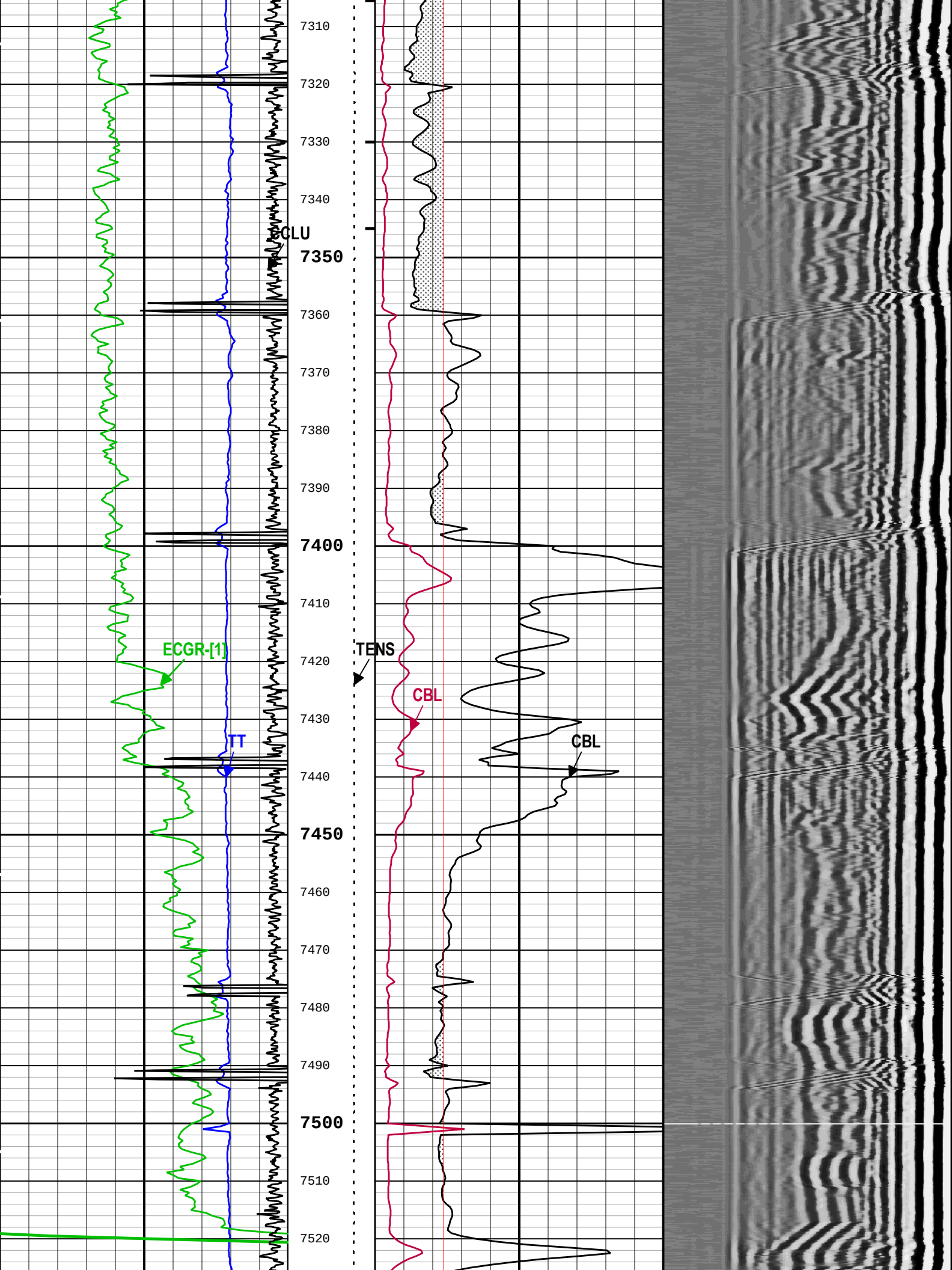
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ECGR-[1]
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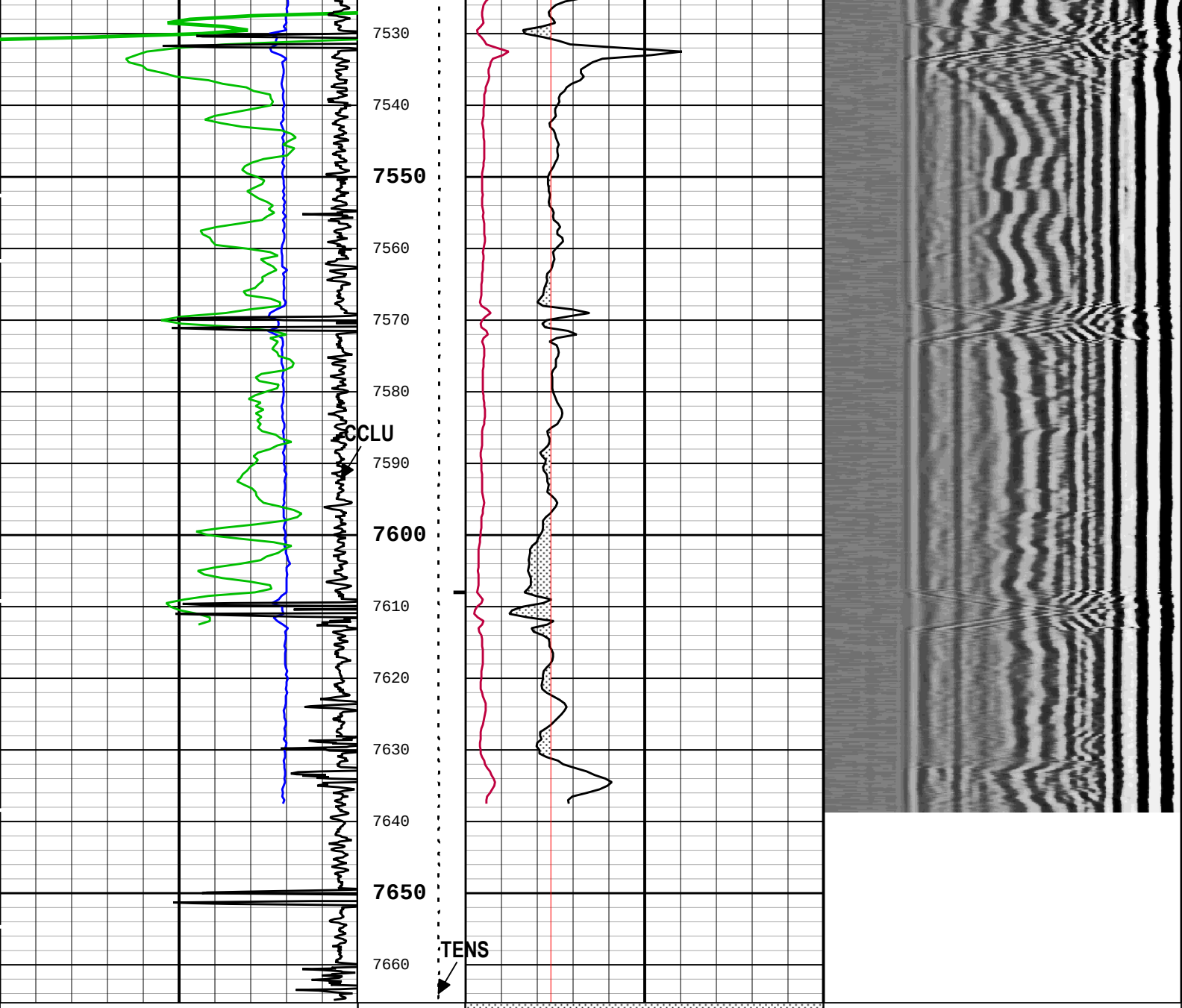


Transit Time for CBL (TT) DSLT-H[1]
480 us 280

Gamma Ray (GR)
0 gAPI 150
Instance - 1 (6" HGNS[1] RT) (ECGR)

Casing Collar Locator Ultrasonic (CCLU) USIT-E[1]
-19 in 1

Cable Tension (TENS)
10000 0
lbf

GoodBond From CBL to GOBO

CBL Amplitude (CBL) DSLT-H[1]
0 mV 20

CBL Amplitude (CBL) DSLT-H[1]
0 mV 100

Good Bond (GOBO)
0 mV 20

Min Amplitude Max

Variable Density Log - DSLT DSLT-H[1]
200 us 1200

TIME_1900 - Time Marked every 60.00 (s)

BIEP - Bond Index Event Pips DSLT-H[1]

Description: Sonic CBL with VDL Format: Log (Sonic CBL with VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 29-Apr-2016 20:40:15

USIT - Fluid Properties Measurement

Run Name	Pass Name	Start Depth(ft)	Stop Depth(ft)
Run 1	Log[1]:Down	122.82	7665.87

Fluid Velocity = "Automatic".
CFVL equals DFSL channel

Start Depth(ft)	Stop Depth(ft)	Start Value(us/ft)	End Value(us/ft)

Start Depth(ft)	Stop Depth(ft)	Start Value(us/ft)	End Value(us/ft)

Mud Impedance = "FreePipe Norm.".
Free Pipe normalization zone is : 65.36m(214.43ft) to 75.14m(246.51ft)
MUD_N_FRP = 1.02
DFD = 1.08g/cm3(9.00lbm/gal)
CZMD median computed in free pipe normalization interval = 1.64 MRayl

Start Depth(ft)	Stop Depth(ft)	Start Value(Mrayl)	End Value(Mrayl)

Composite 1

Main Pass 5 in = 100 ft

Composite Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
THREE	Log[2]:Up	Up	5701.38 ft	7665.48 ft	29-Apr-2016 8:36:55 AM	29-Apr-2016 9:20:56 AM	ON	7.00 ft	Yes
THREE	Log[3]:Up	Up	923.85 ft	5777.29 ft	29-Apr-2016 9:23:00 AM	29-Apr-2016 11:11:40 AM	ON	7.00 ft	Yes
THREE	Log[4]:Up	Up	93.98 ft	978.49 ft	29-Apr-2016 11:21:50 AM	29-Apr-2016 11:48:16 AM	ON	7.00 ft	Yes
THREE	Log[12]:Up	Up	24.24 ft	162.98 ft	29-Apr-2016 3:39:20 PM	29-Apr-2016 3:46:43 PM	ON	11.00 ft	Yes

All depths are referenced to toolstring zero

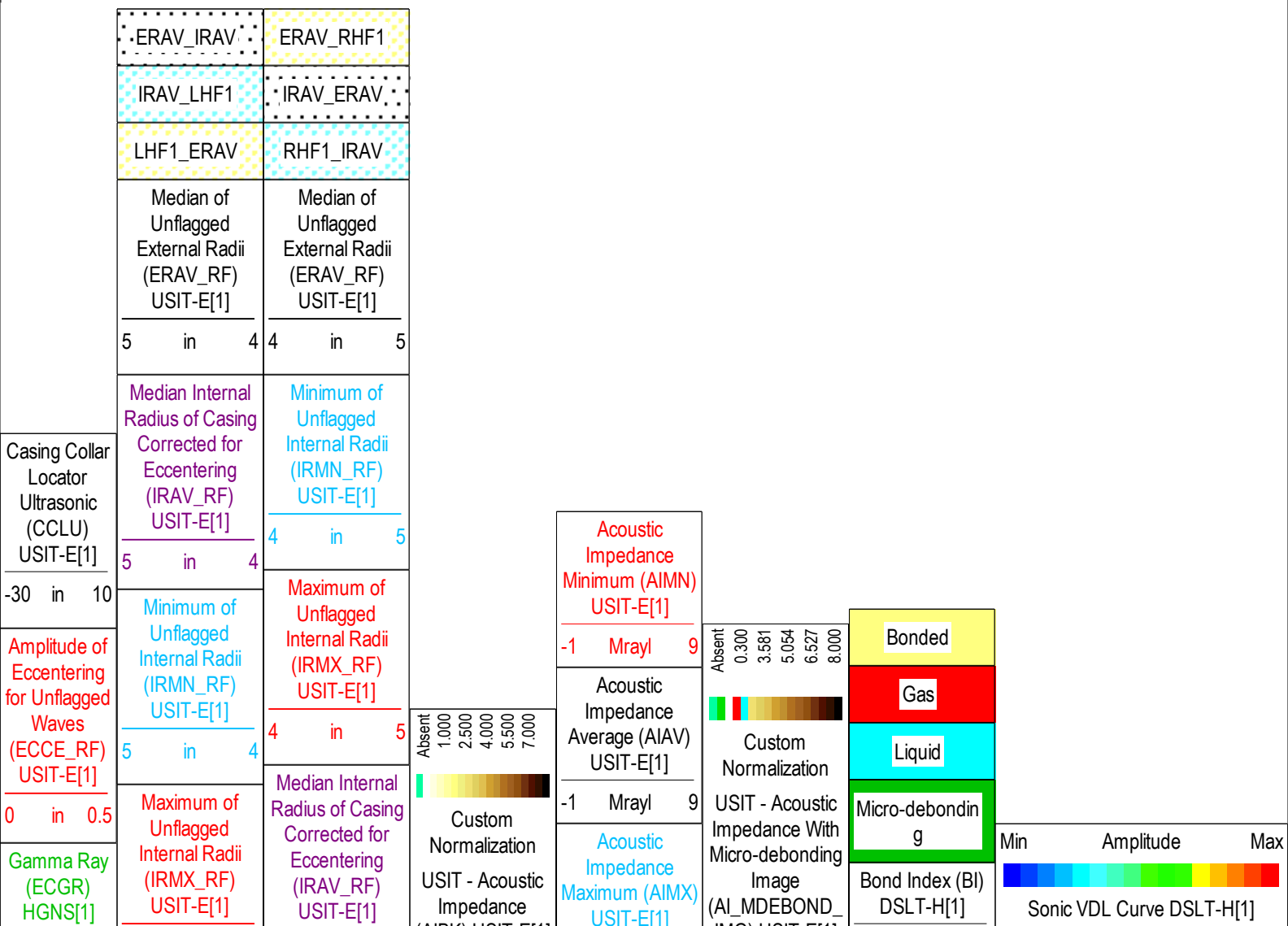
Log

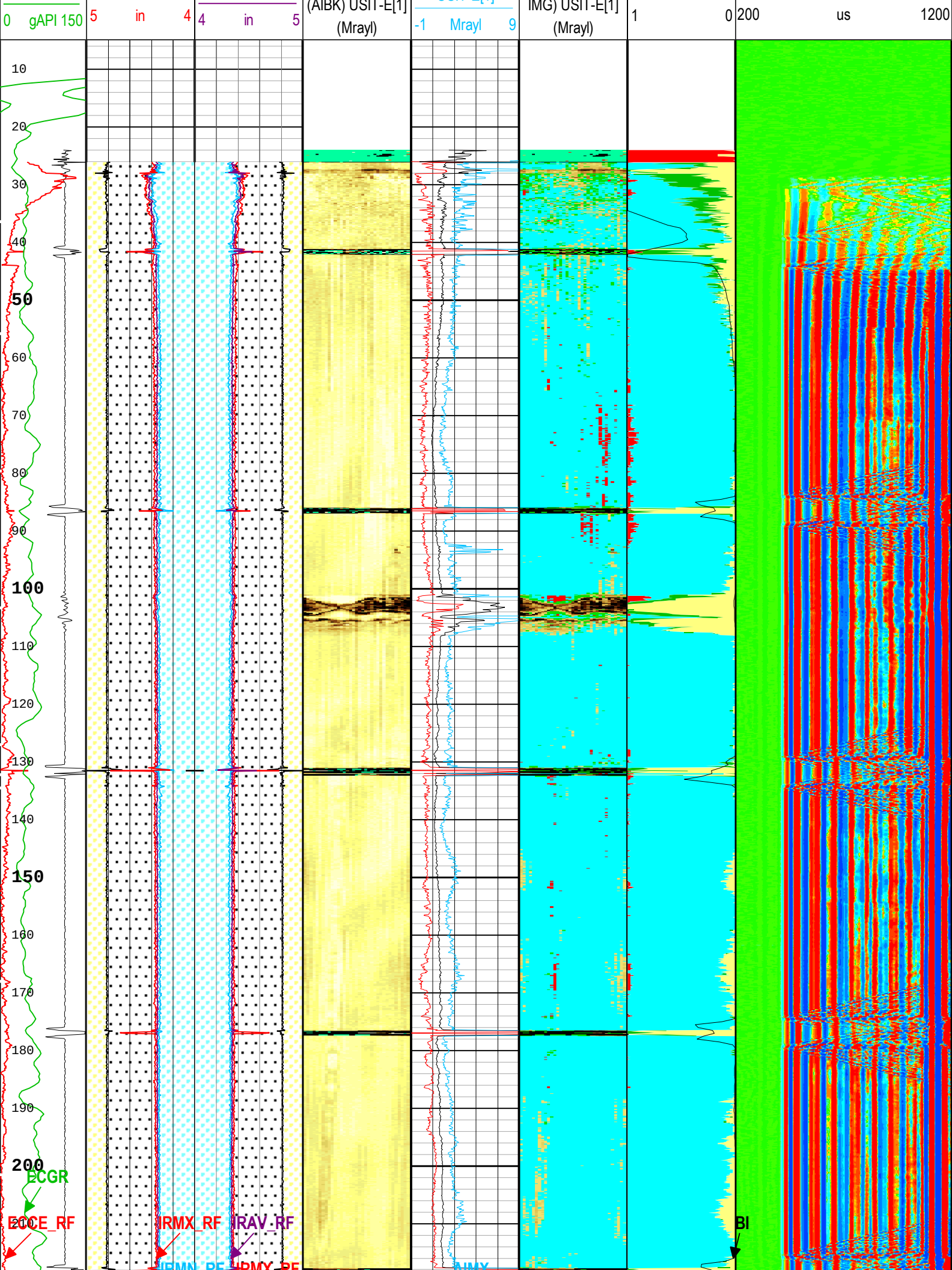
Company:Southern California Gas Company Well:Porter 25R RD

Composite 1:S002

Description: USI VDL Cement Format: Log (LBV1_USI-VDL (DSLT) Cement 9.625inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 29-Apr-2016 20:40:28

TIME_1900 - Time Marked every 60.00 (s)




0 gAPI 150
5 in 4
4 in 5
(AIBK) USIT-E[1]
(Mrayl)
-1 Mrayl 9
IMG) USIT-E[1]
(Mrayl)
1 0
200 us 1200
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
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180
190
200
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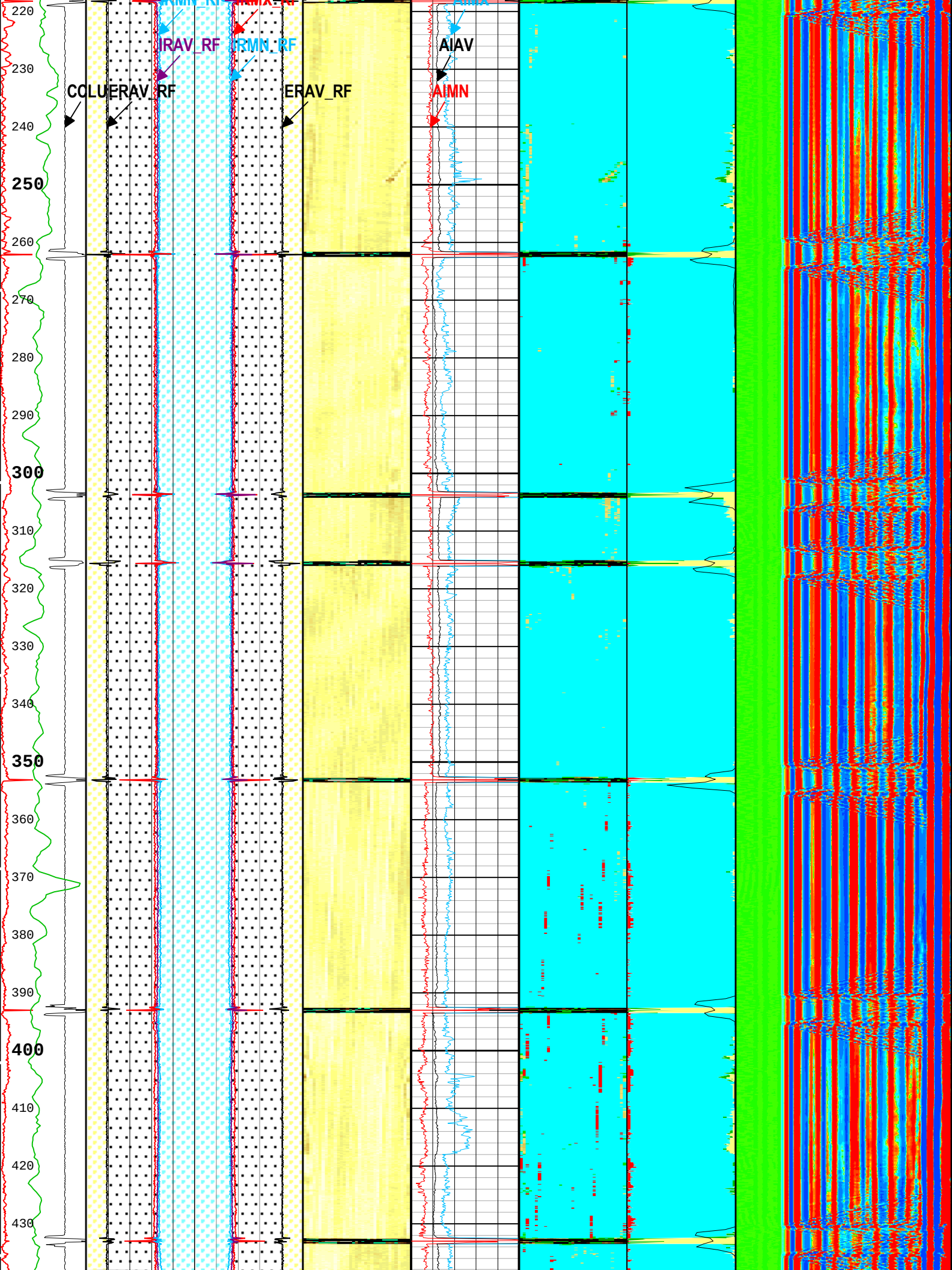
IRMX_RF
IRAV_RF
IRMN_RF
IRMX_RF
AIMX
BI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IRMN_RF
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COLU
ERAV_RF
ERAV_RF
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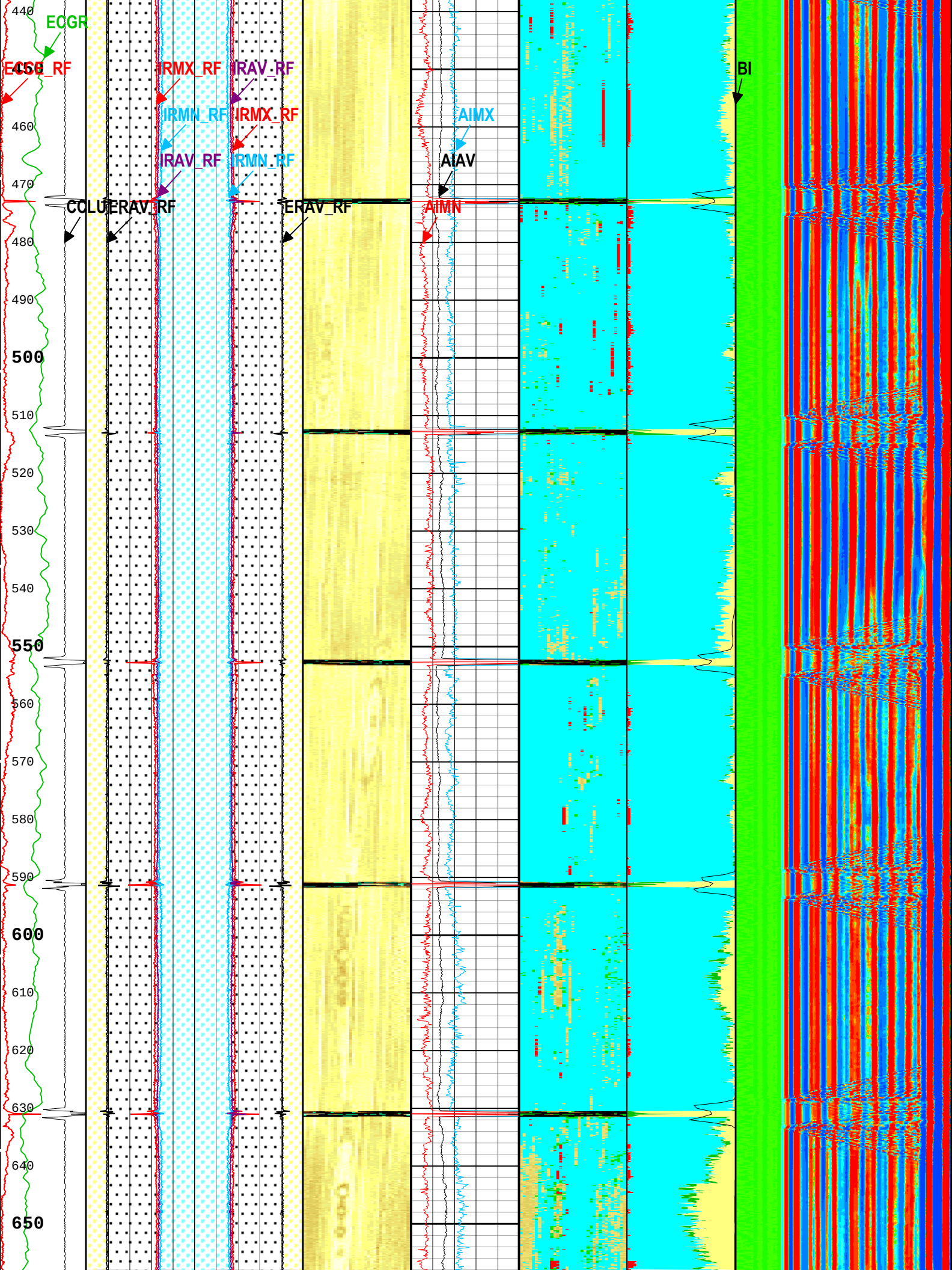
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BI
COLU
ERAV_RF
ERAV_RF
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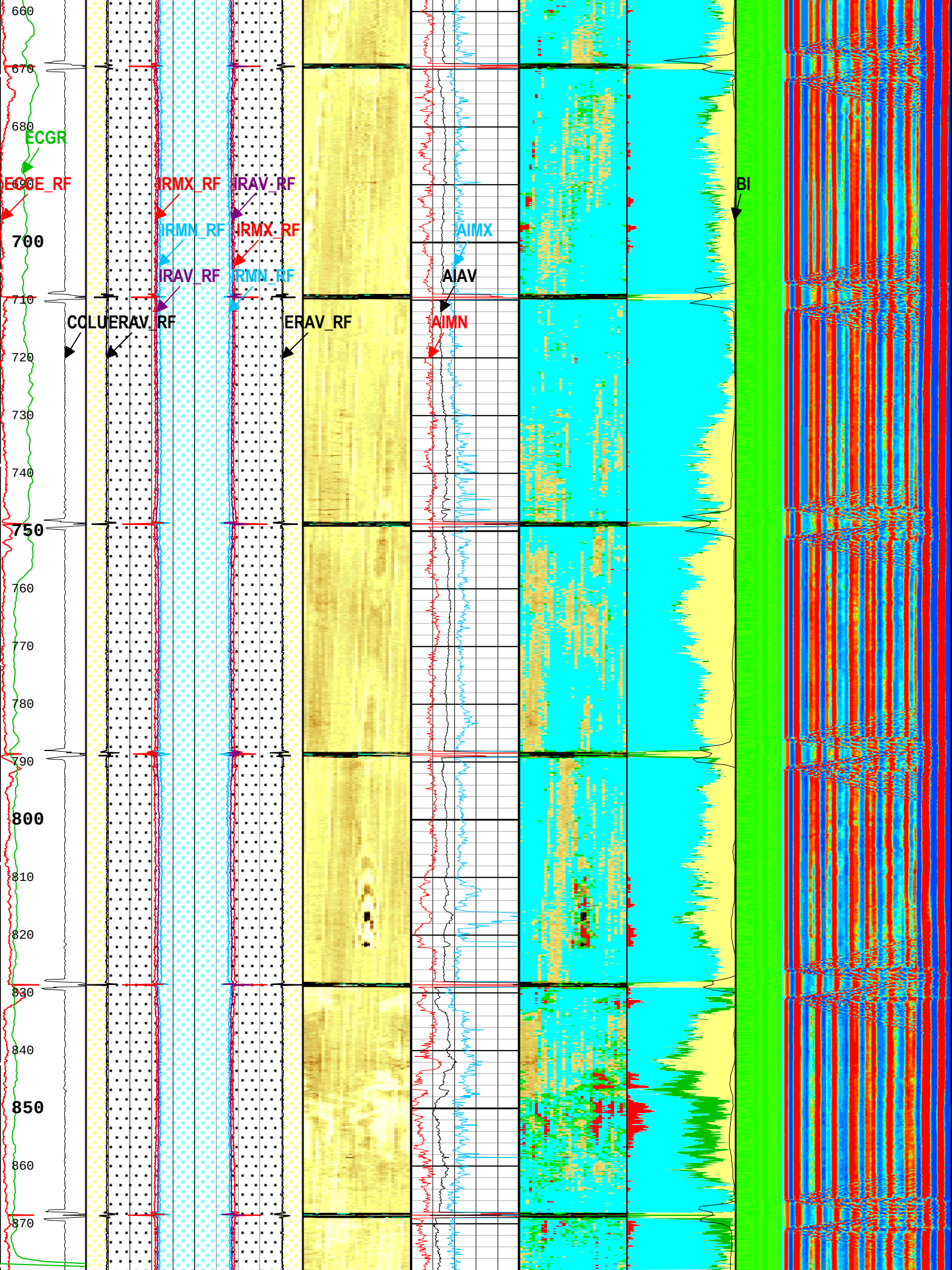
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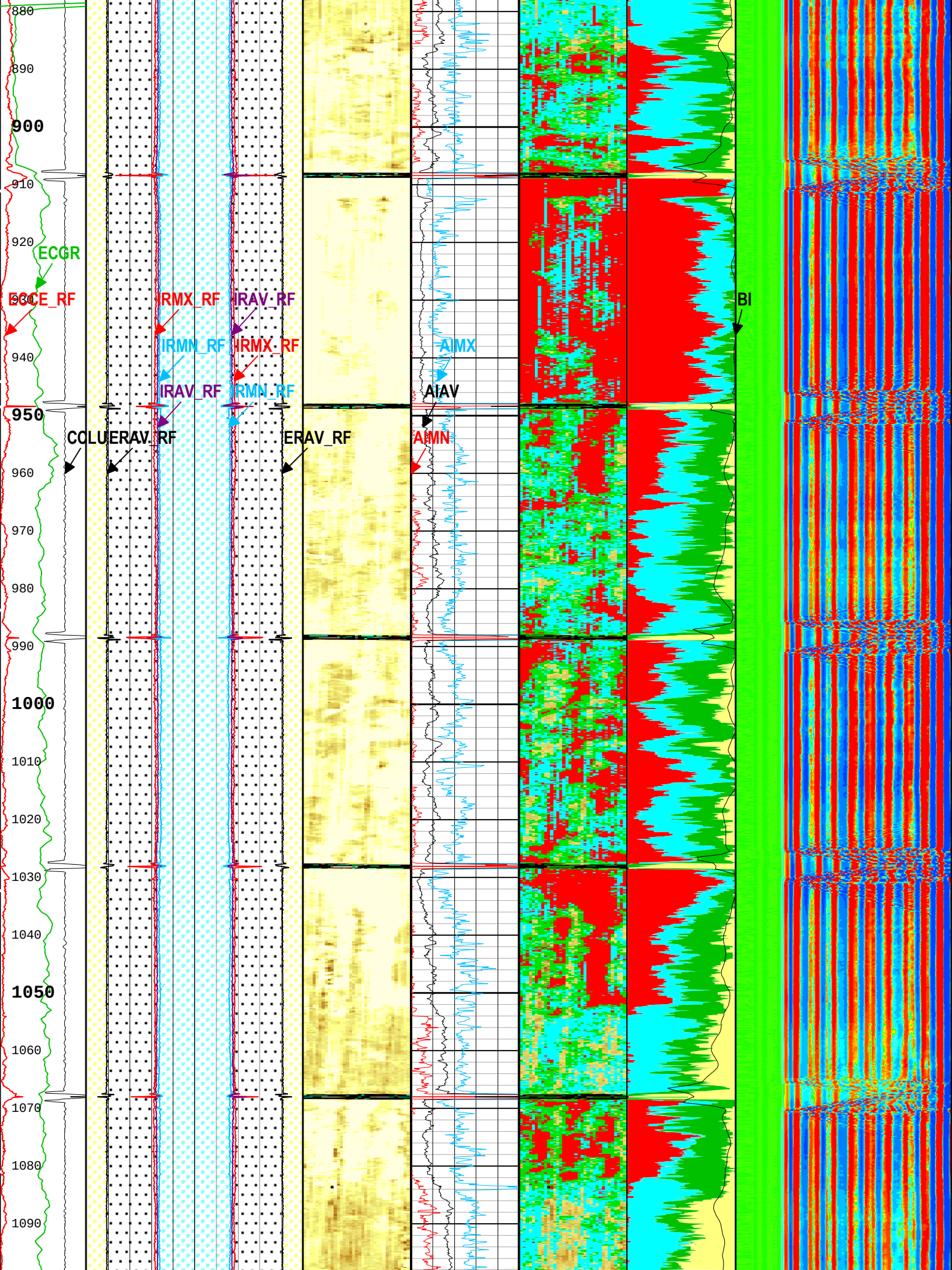
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ECCE_RF
IRMX_RF
IRAV_RF
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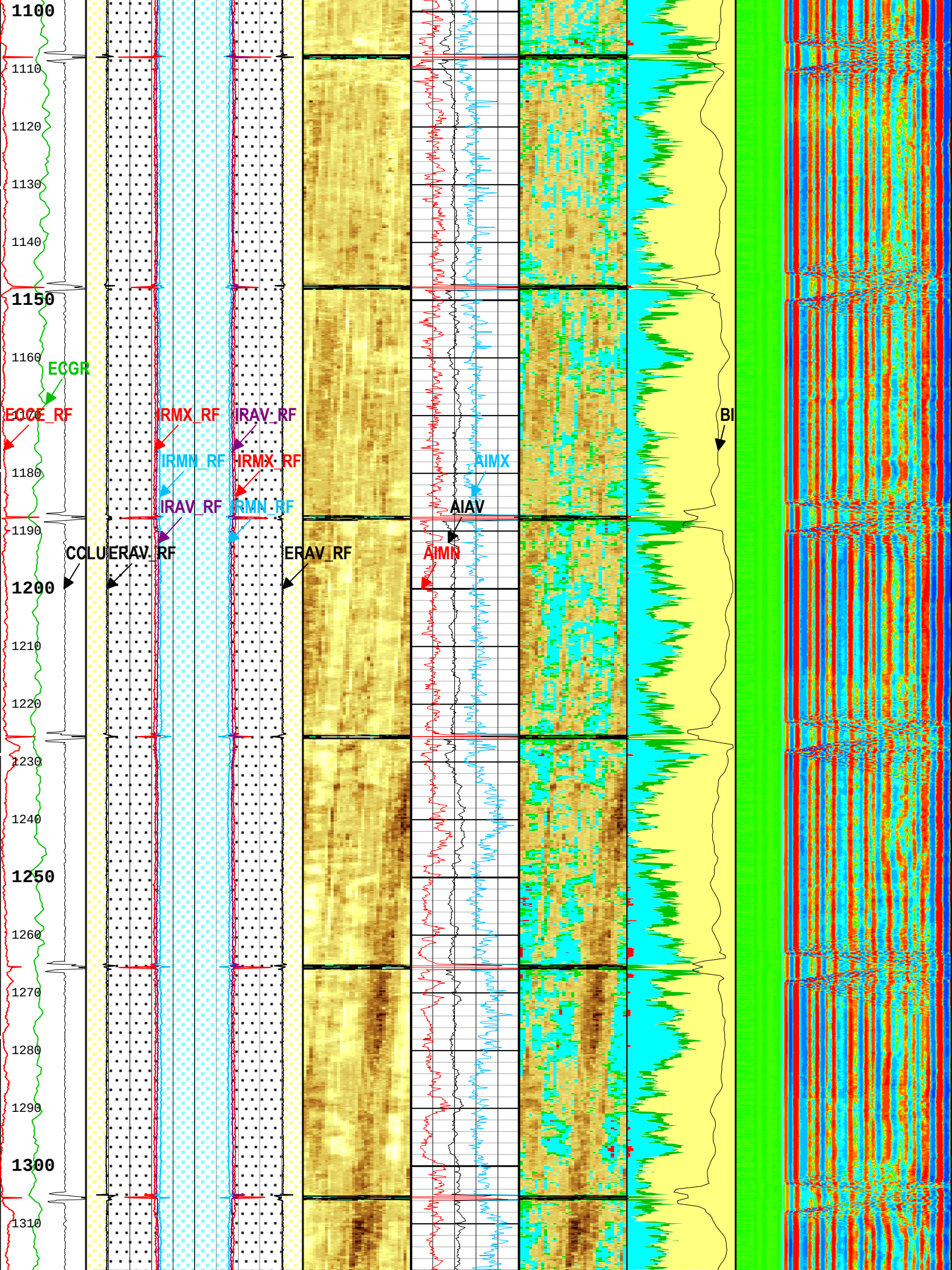
ERAV_RF
ERAV_RF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IRMN_RF
AIAV
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CCLU
ERAV_RF
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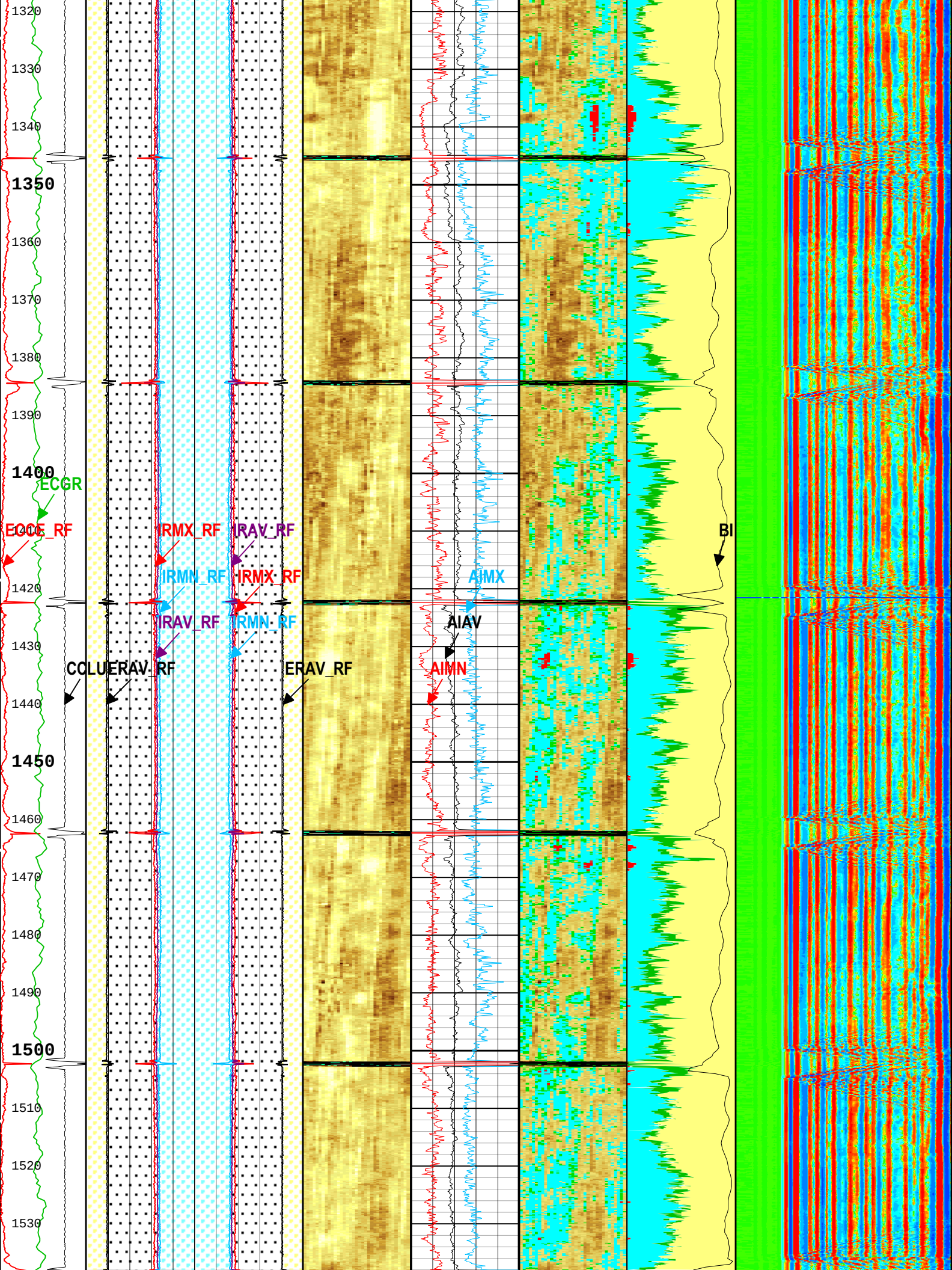
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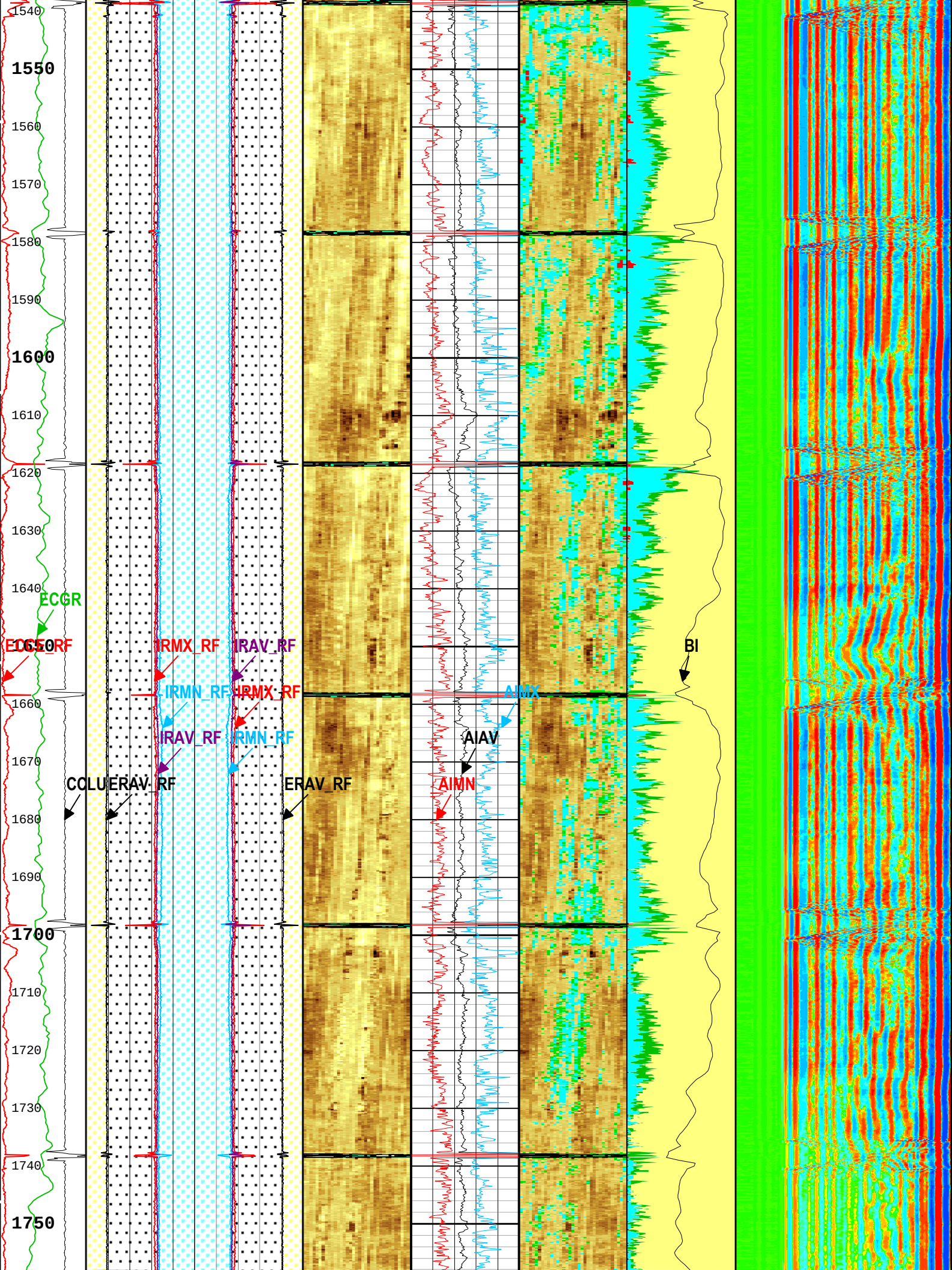

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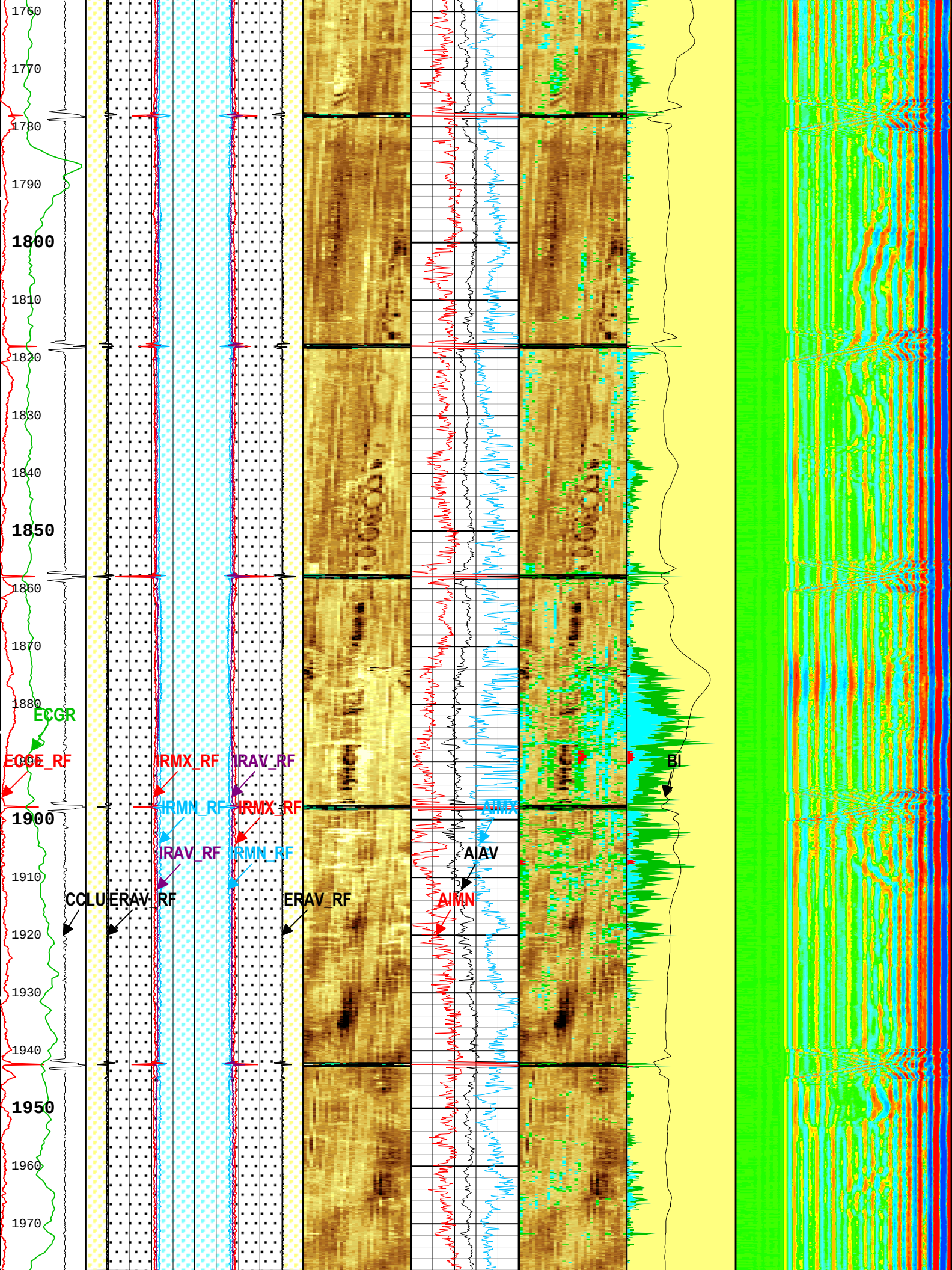
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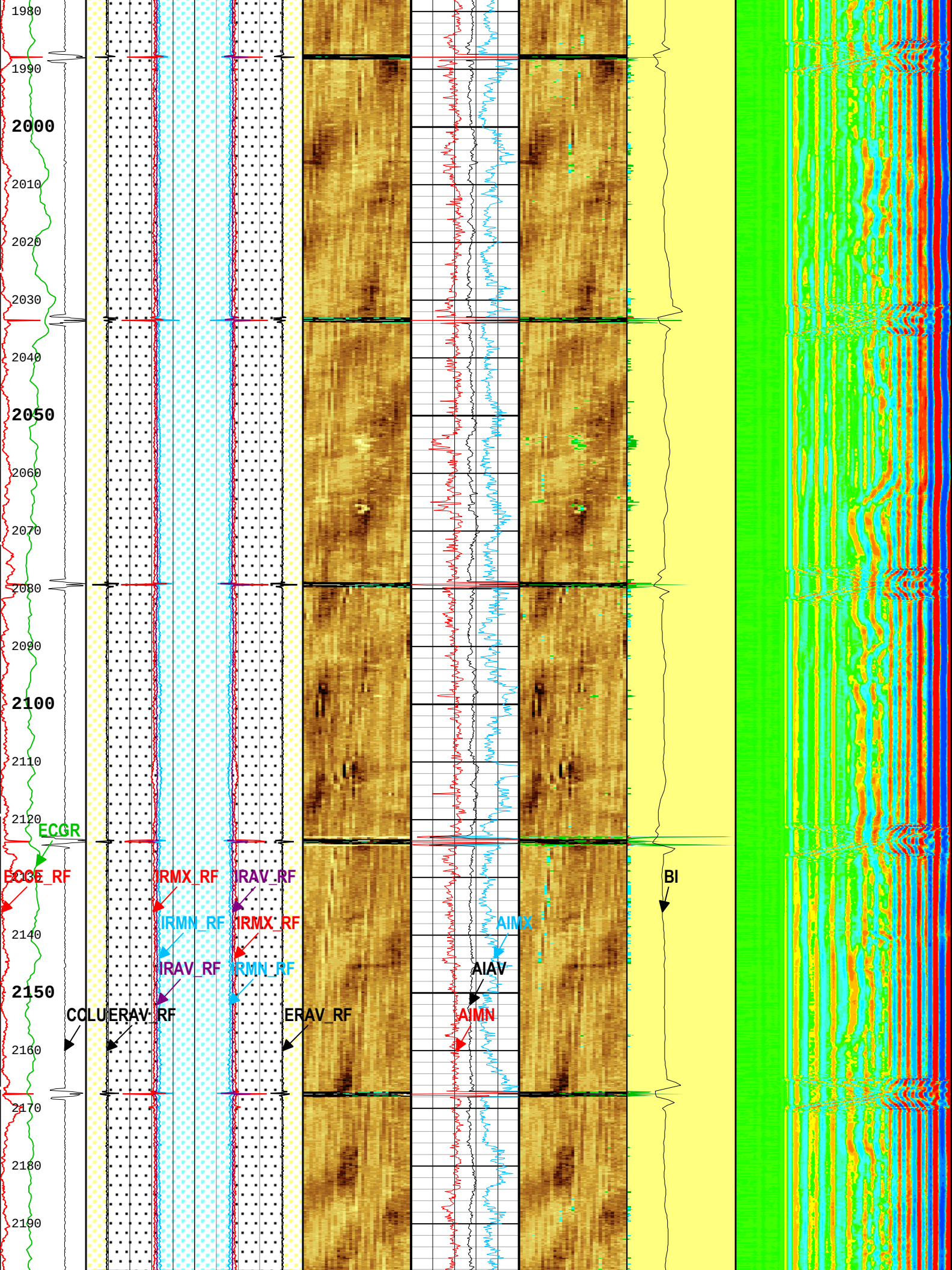
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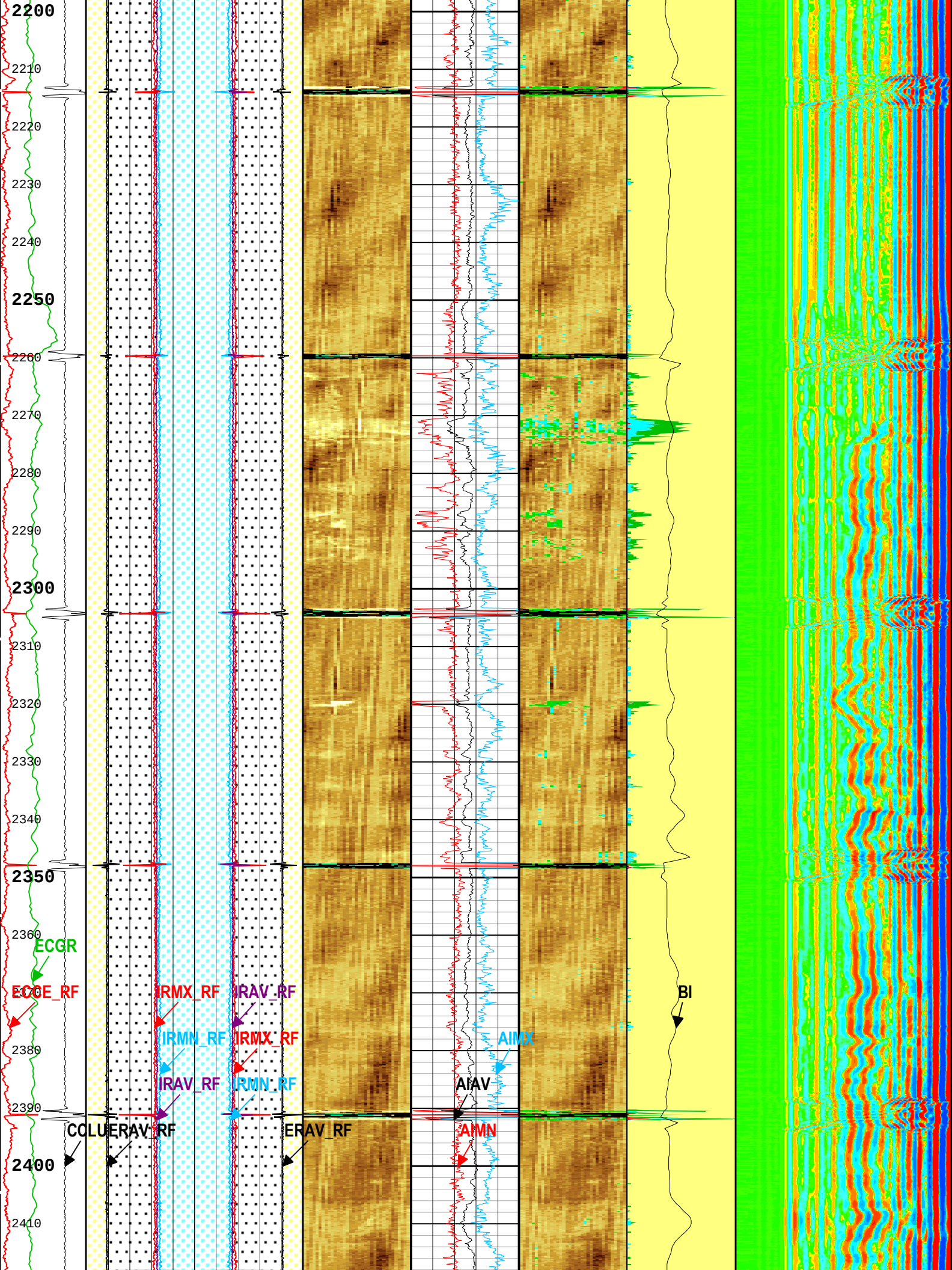
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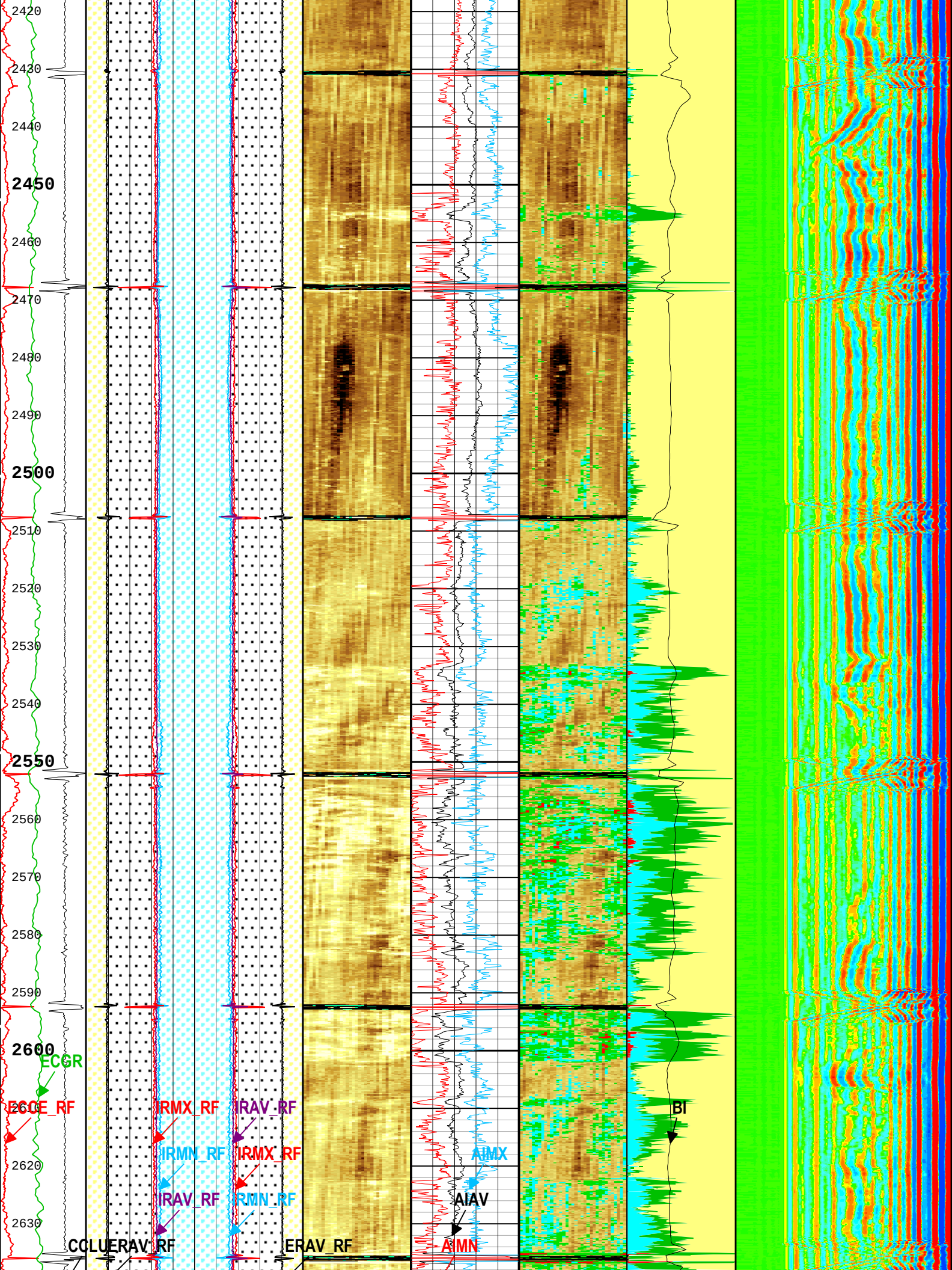
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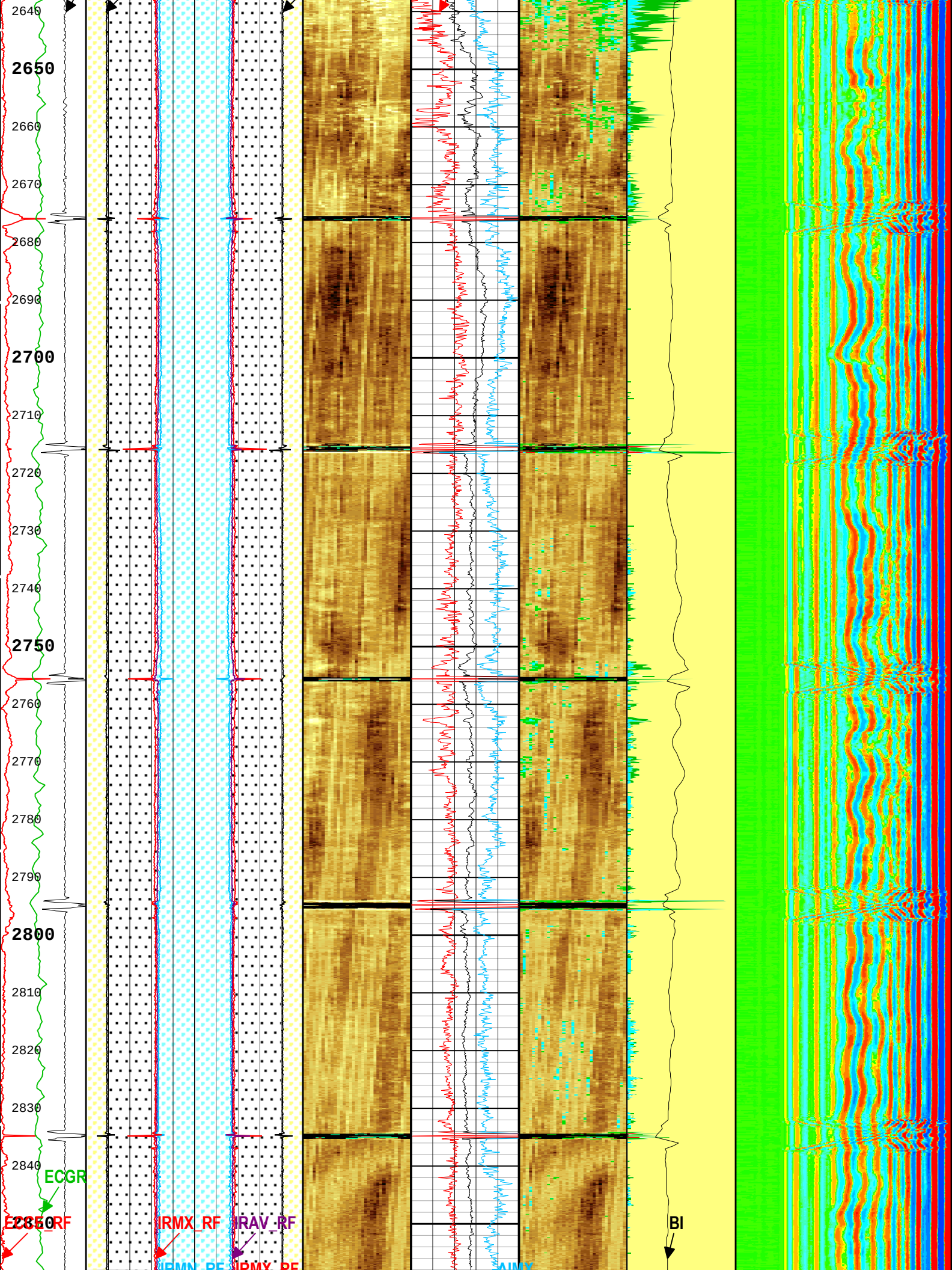
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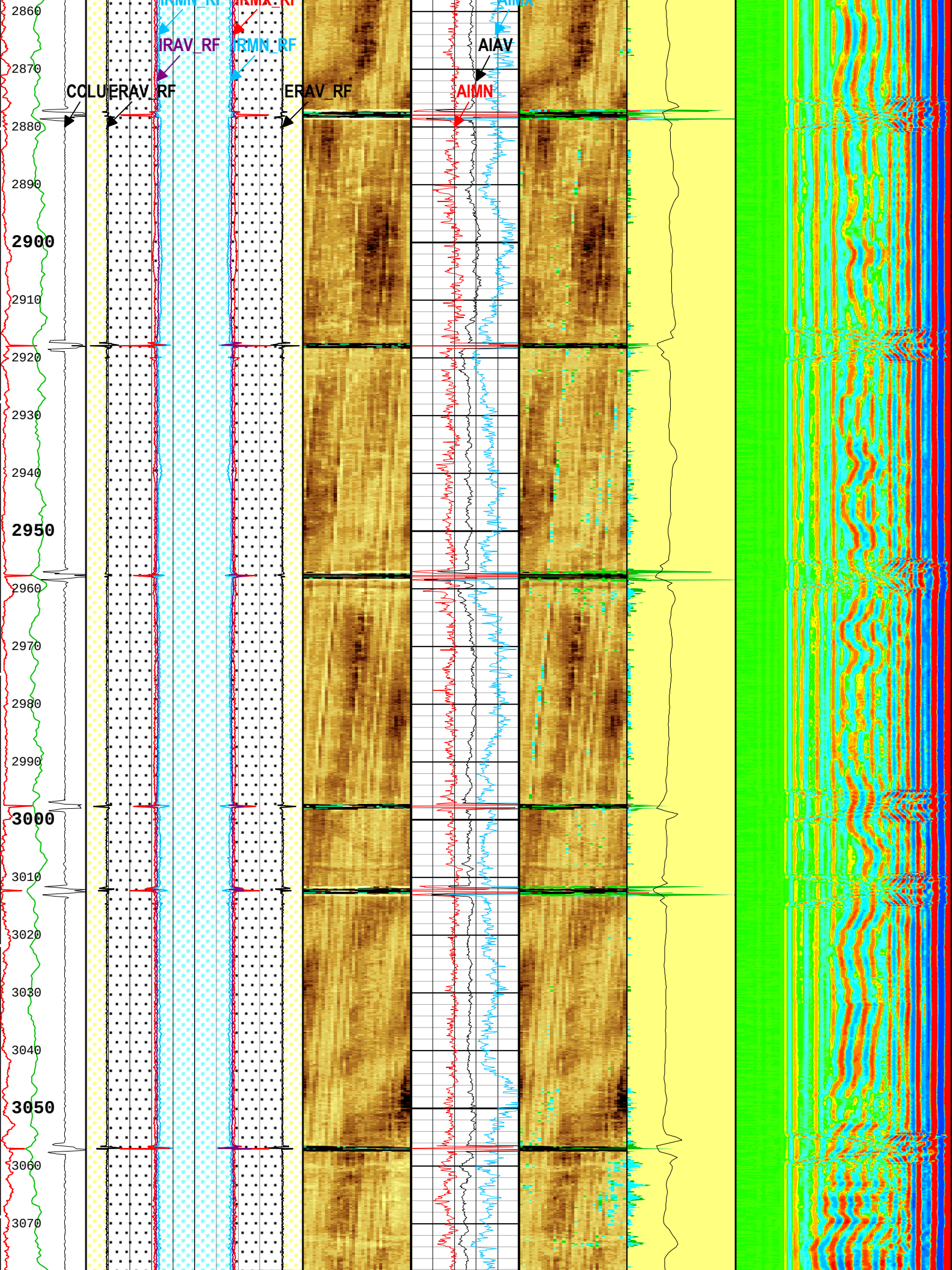
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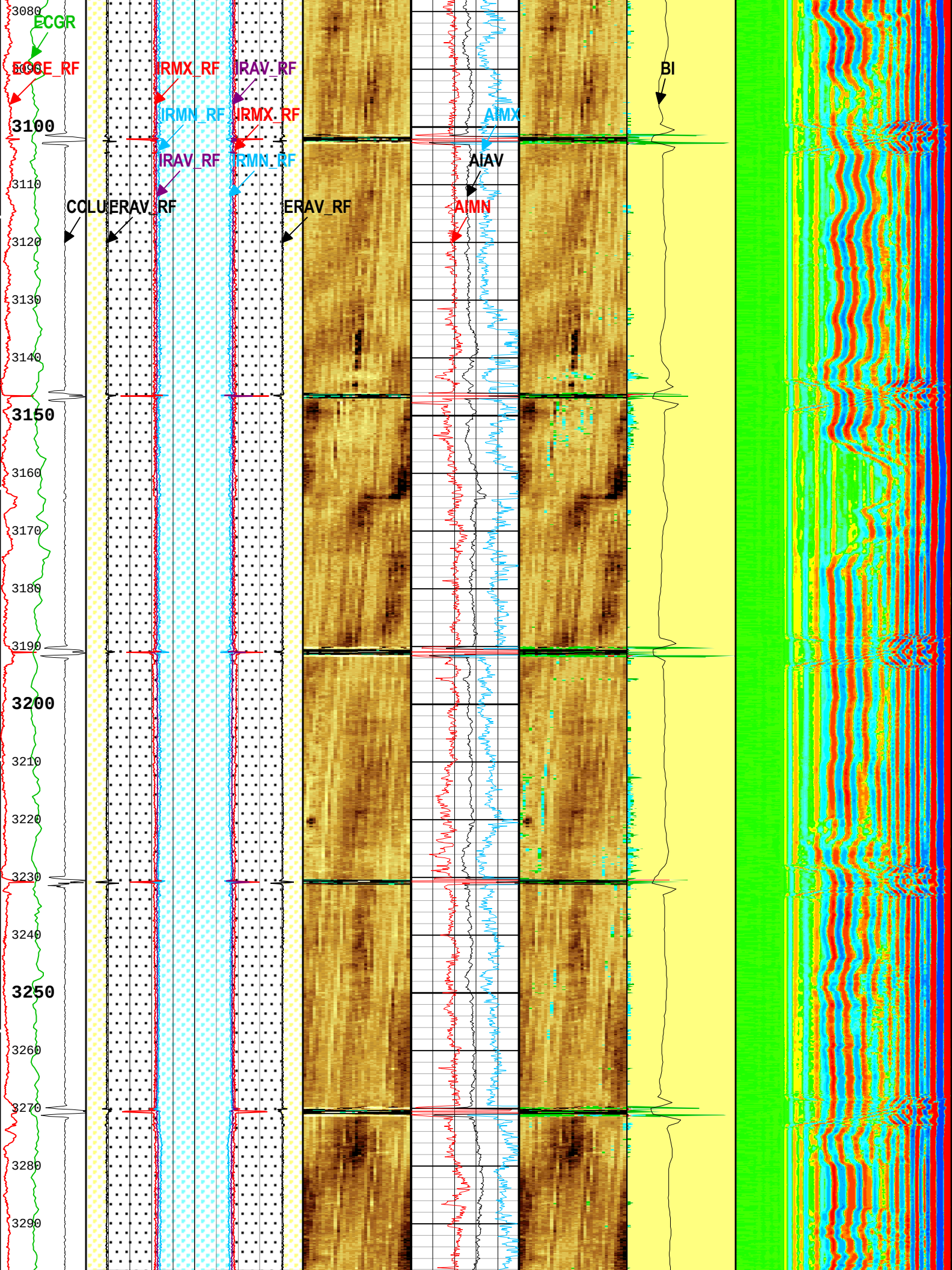
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AIMN
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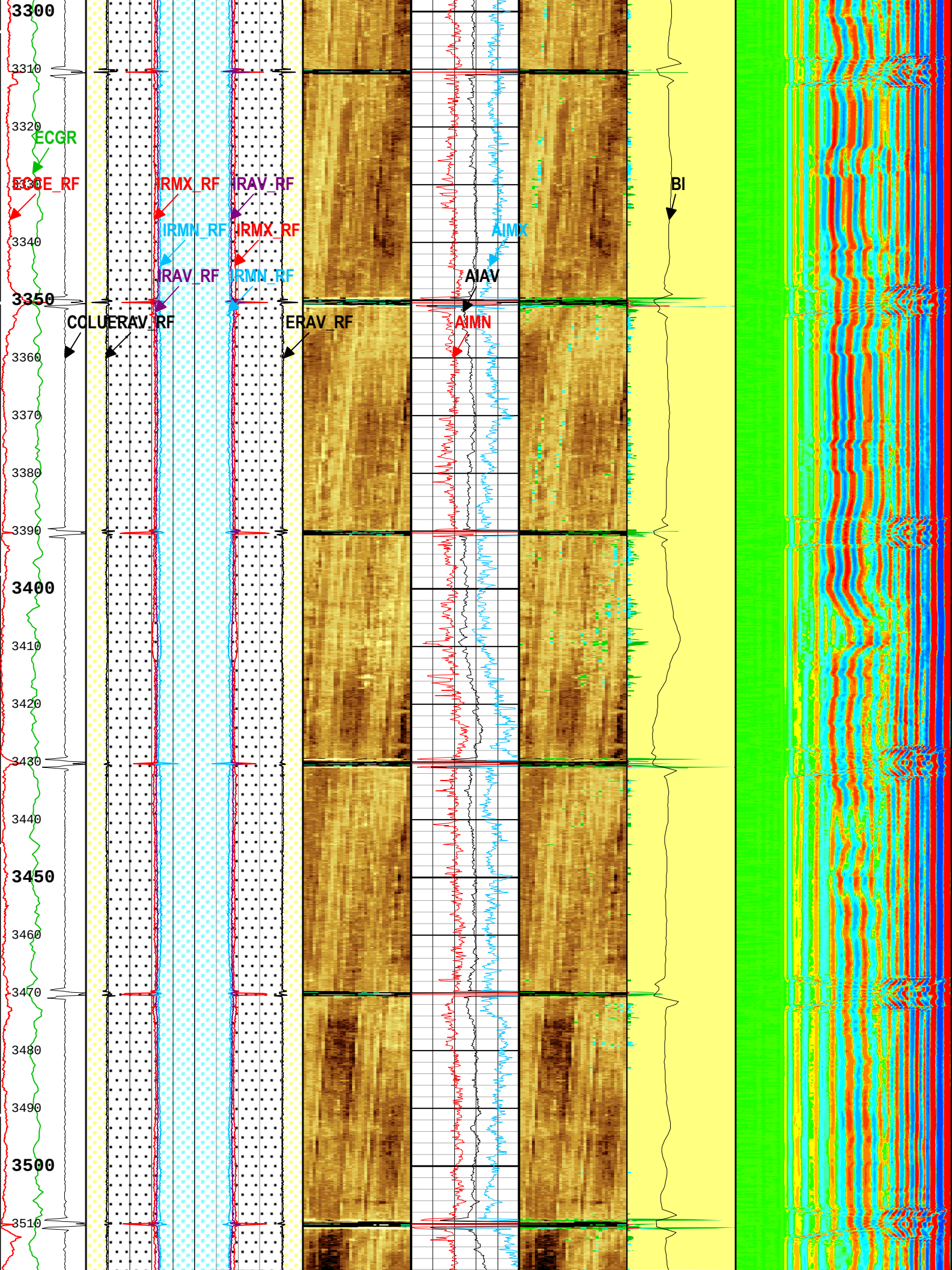
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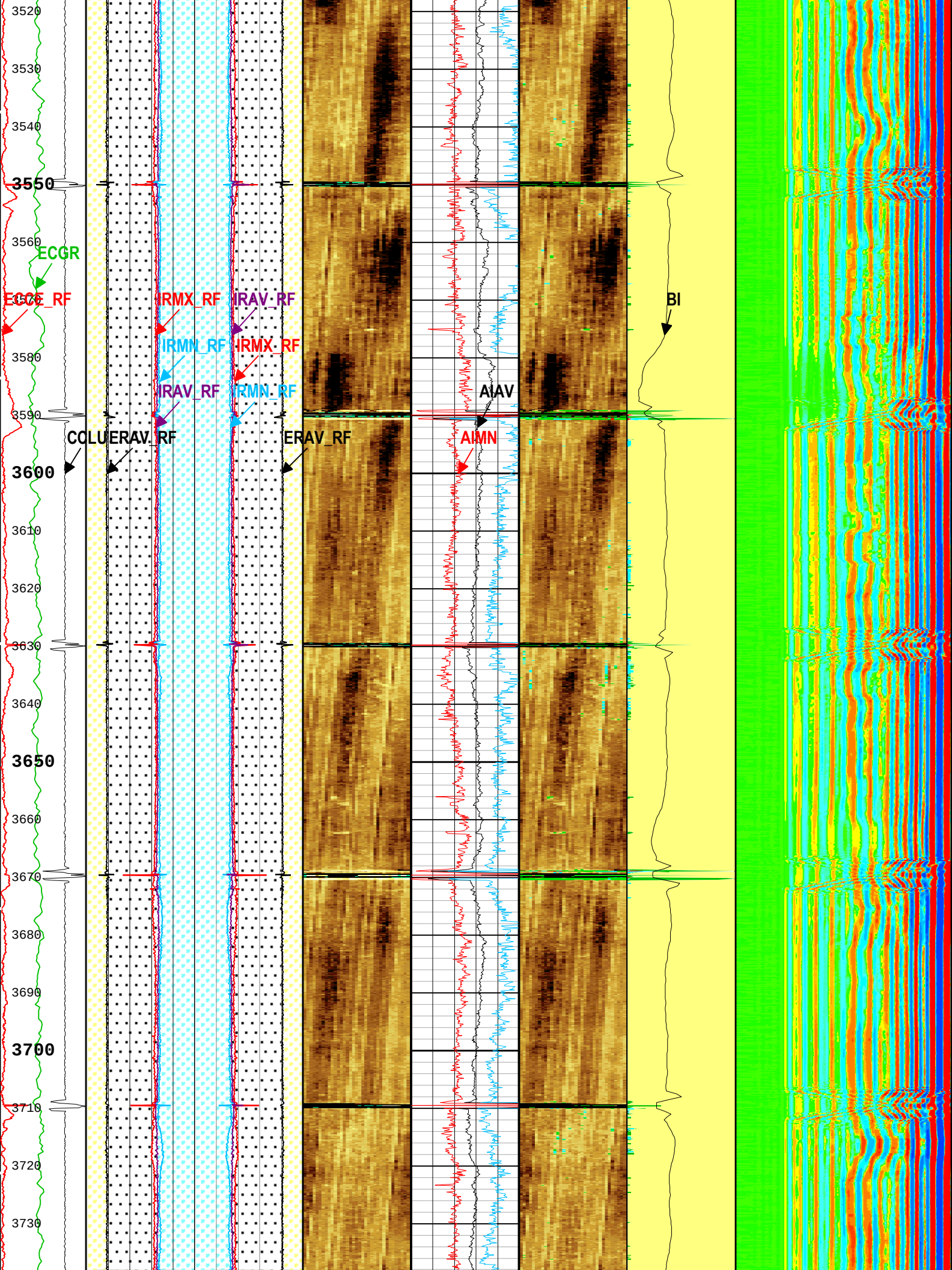
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ERAV_RF
ERAV_RF
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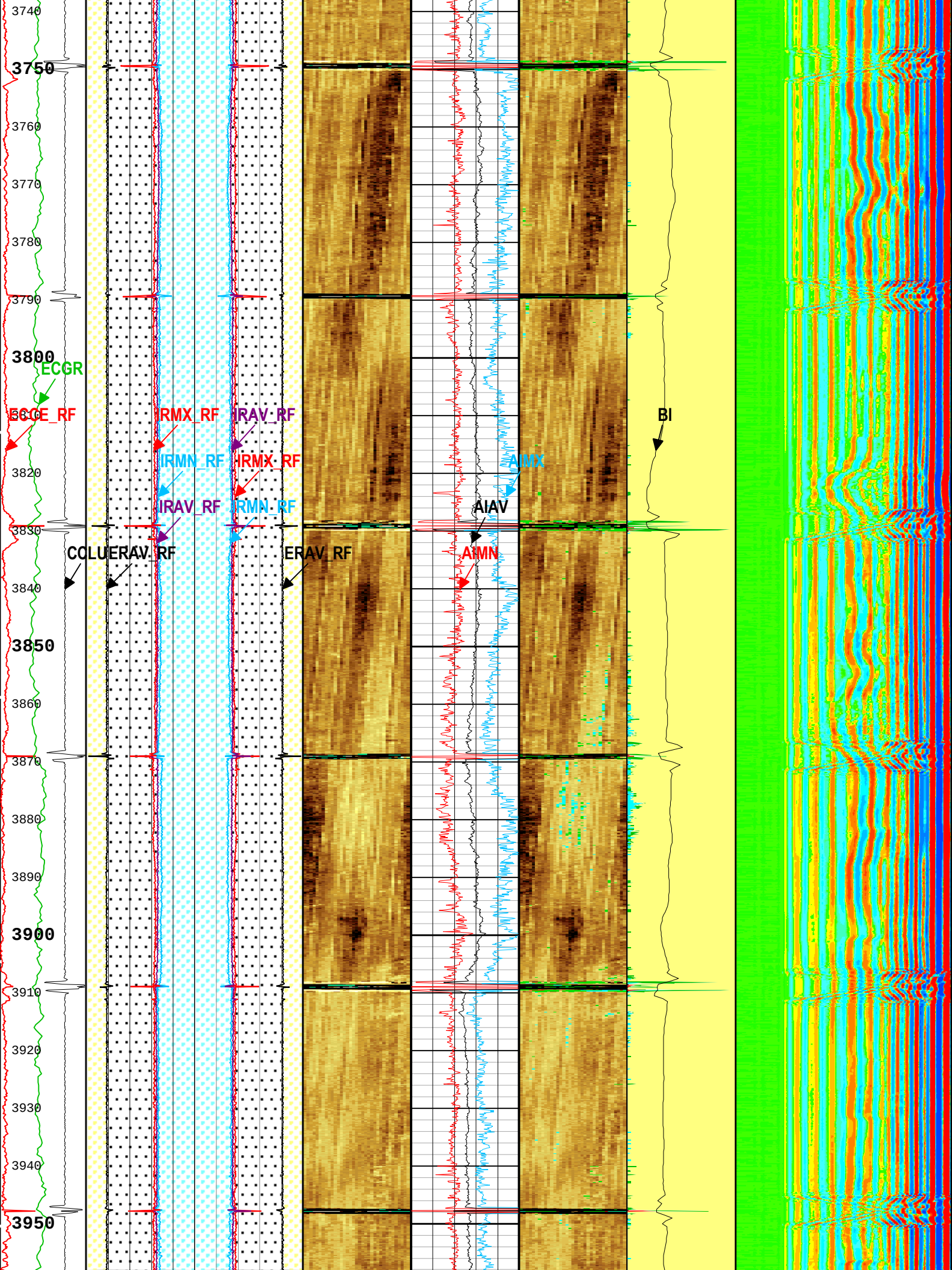
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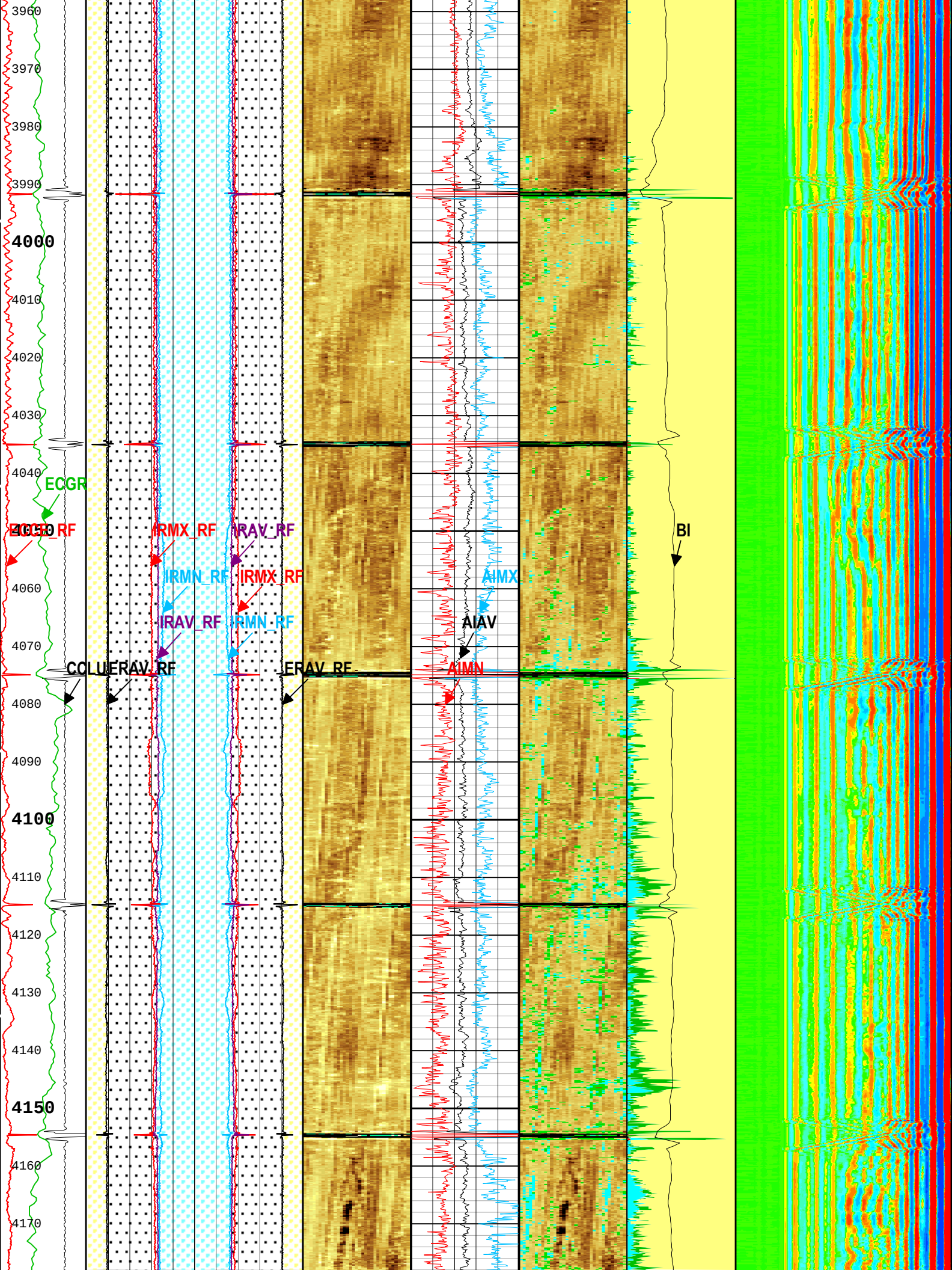

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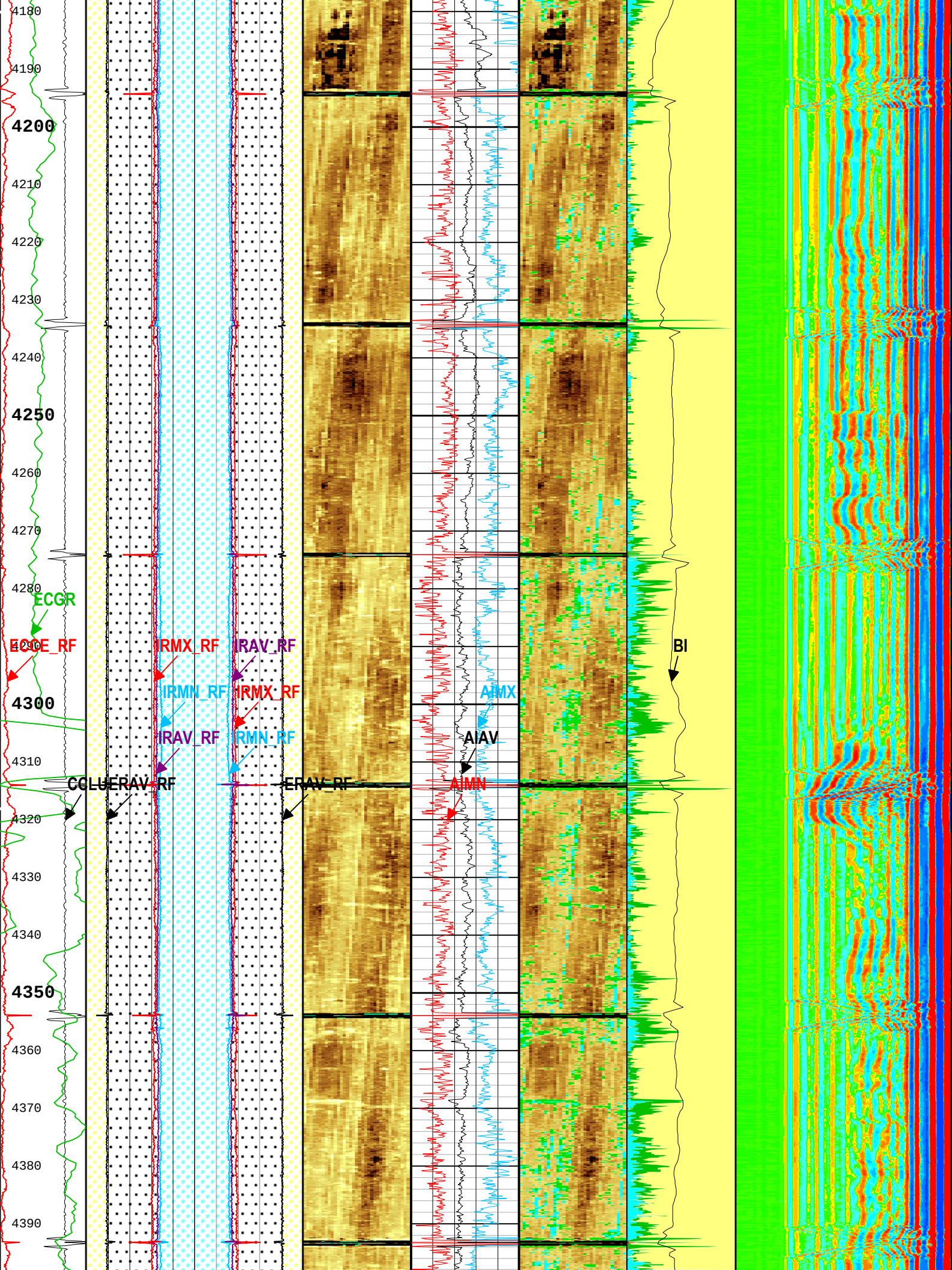
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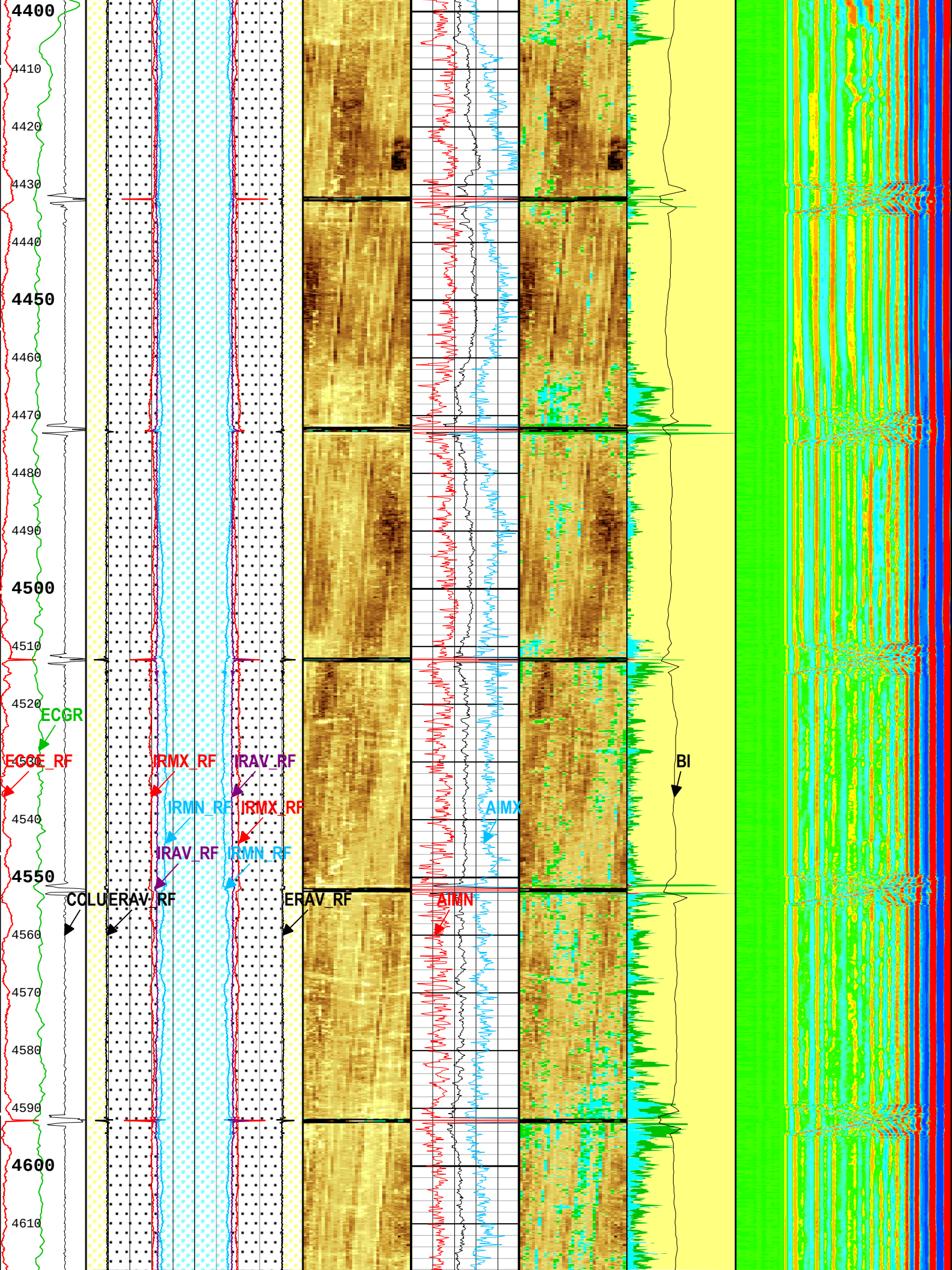
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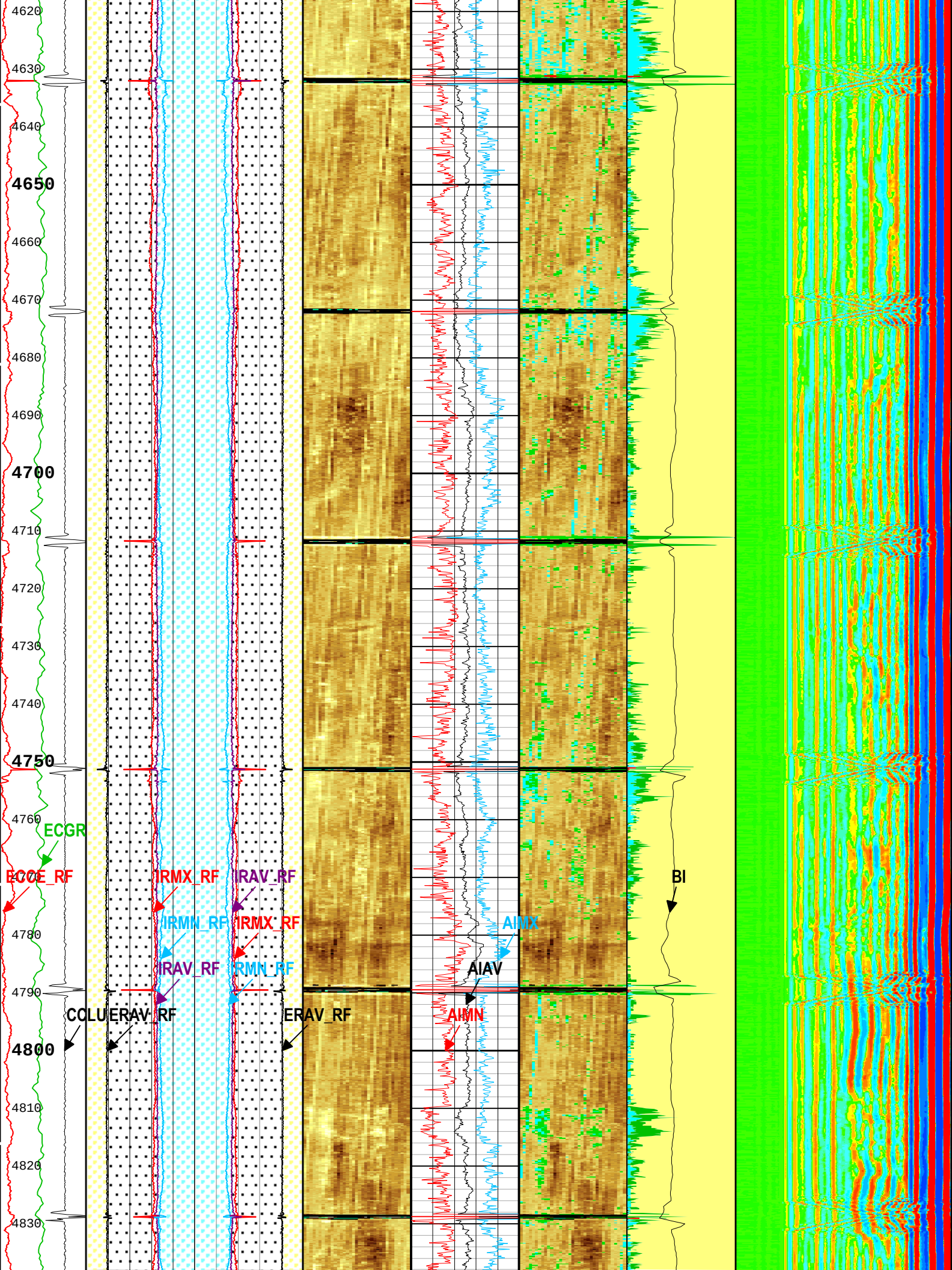
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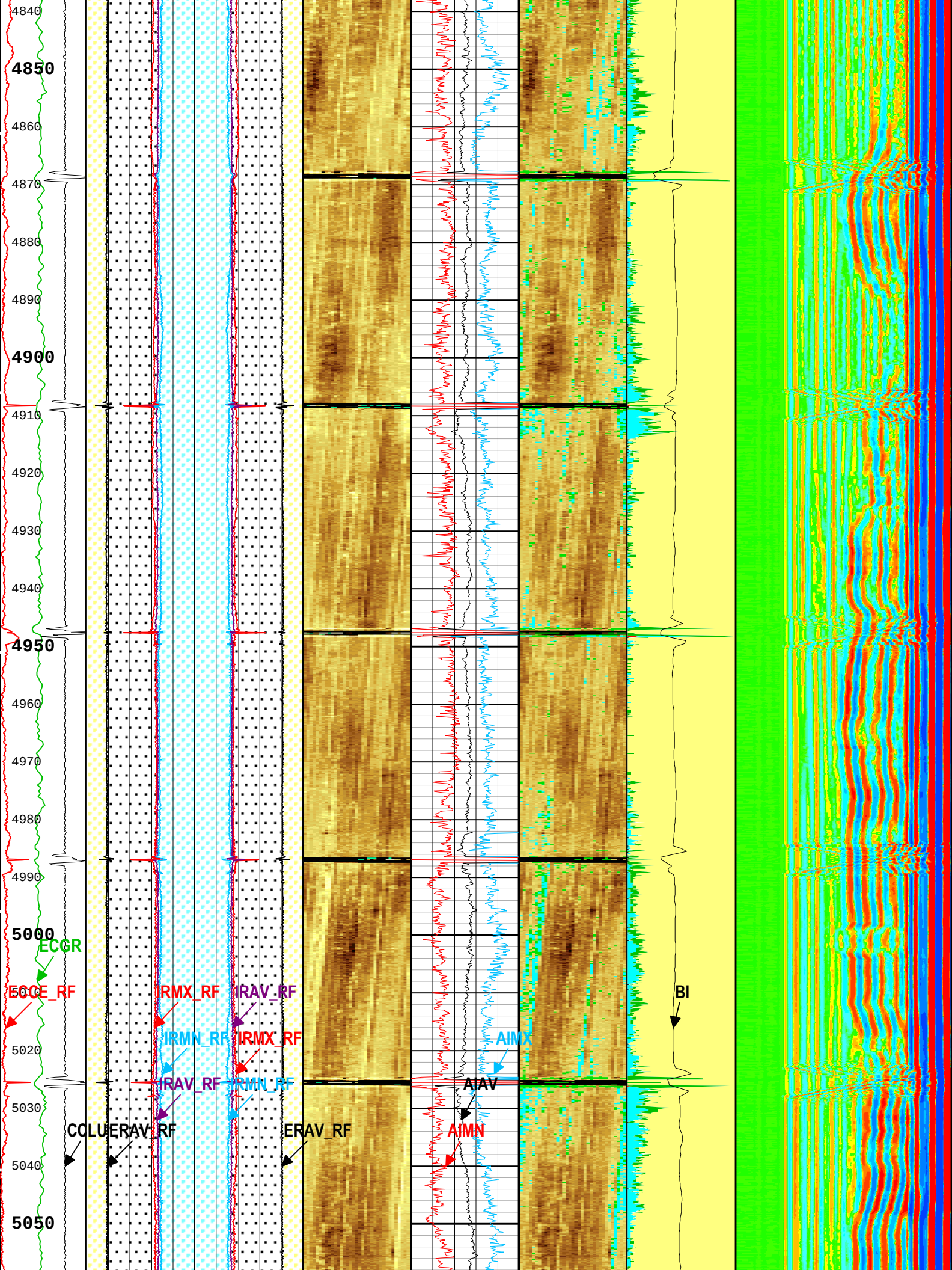
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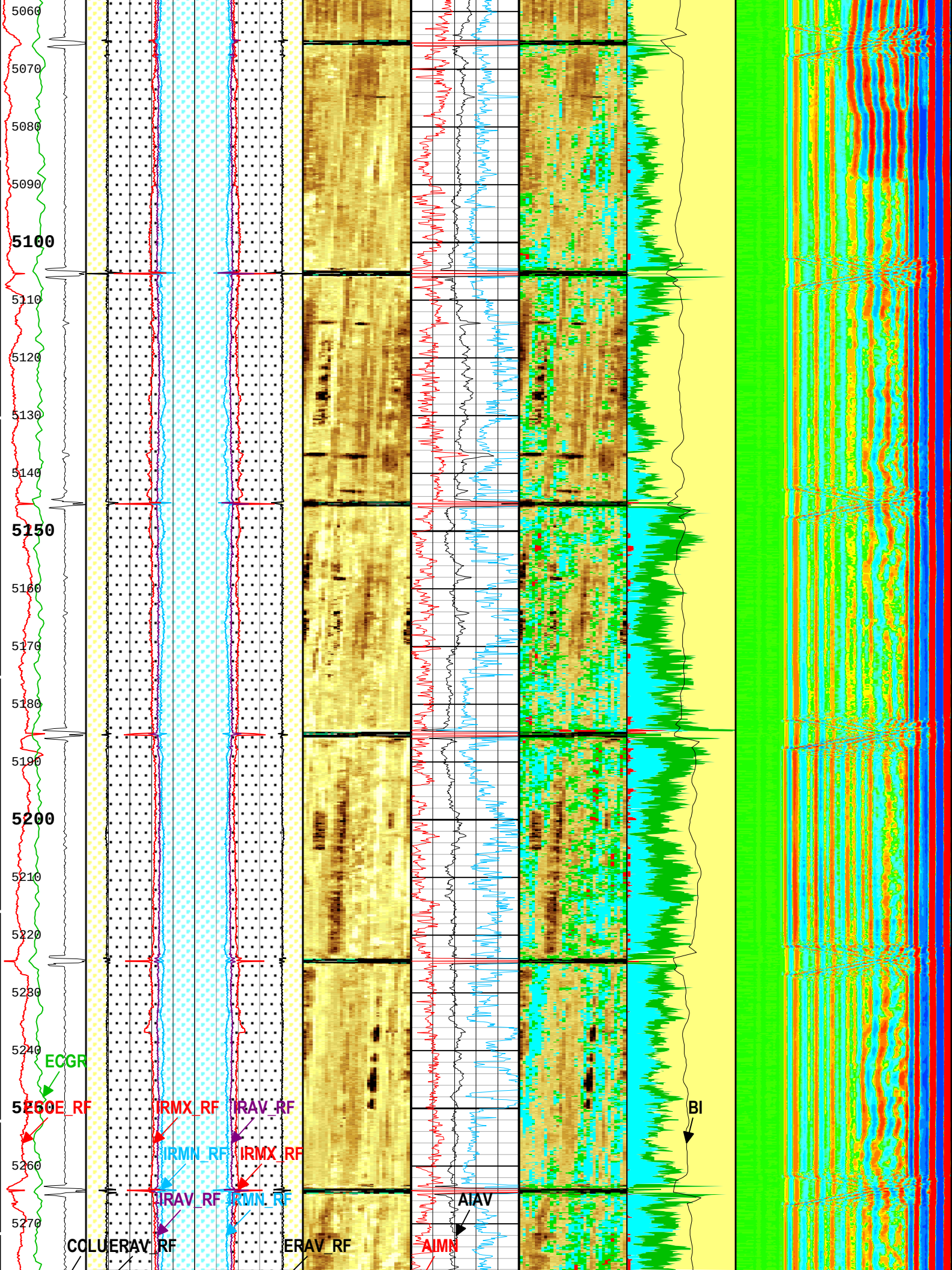
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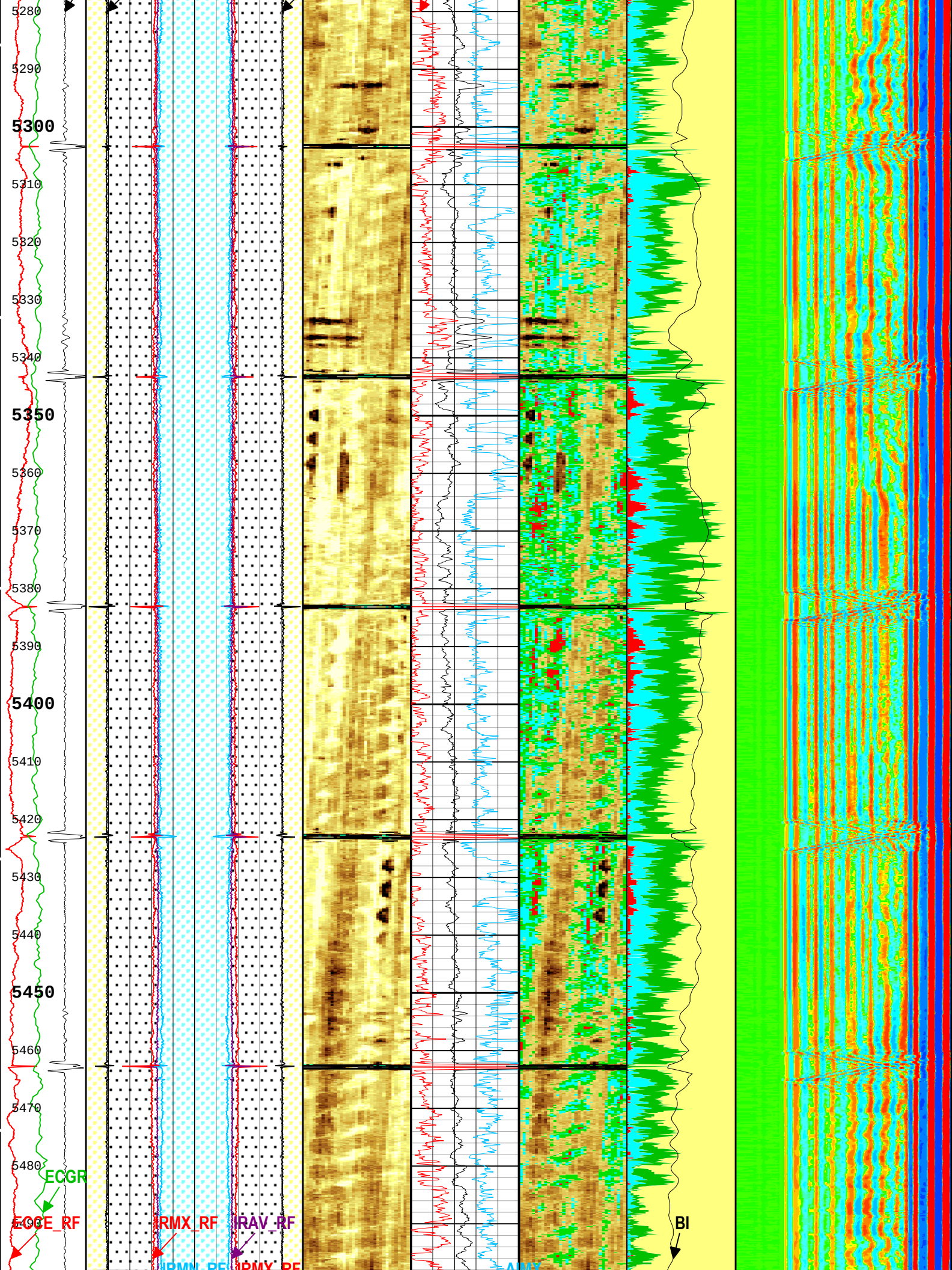
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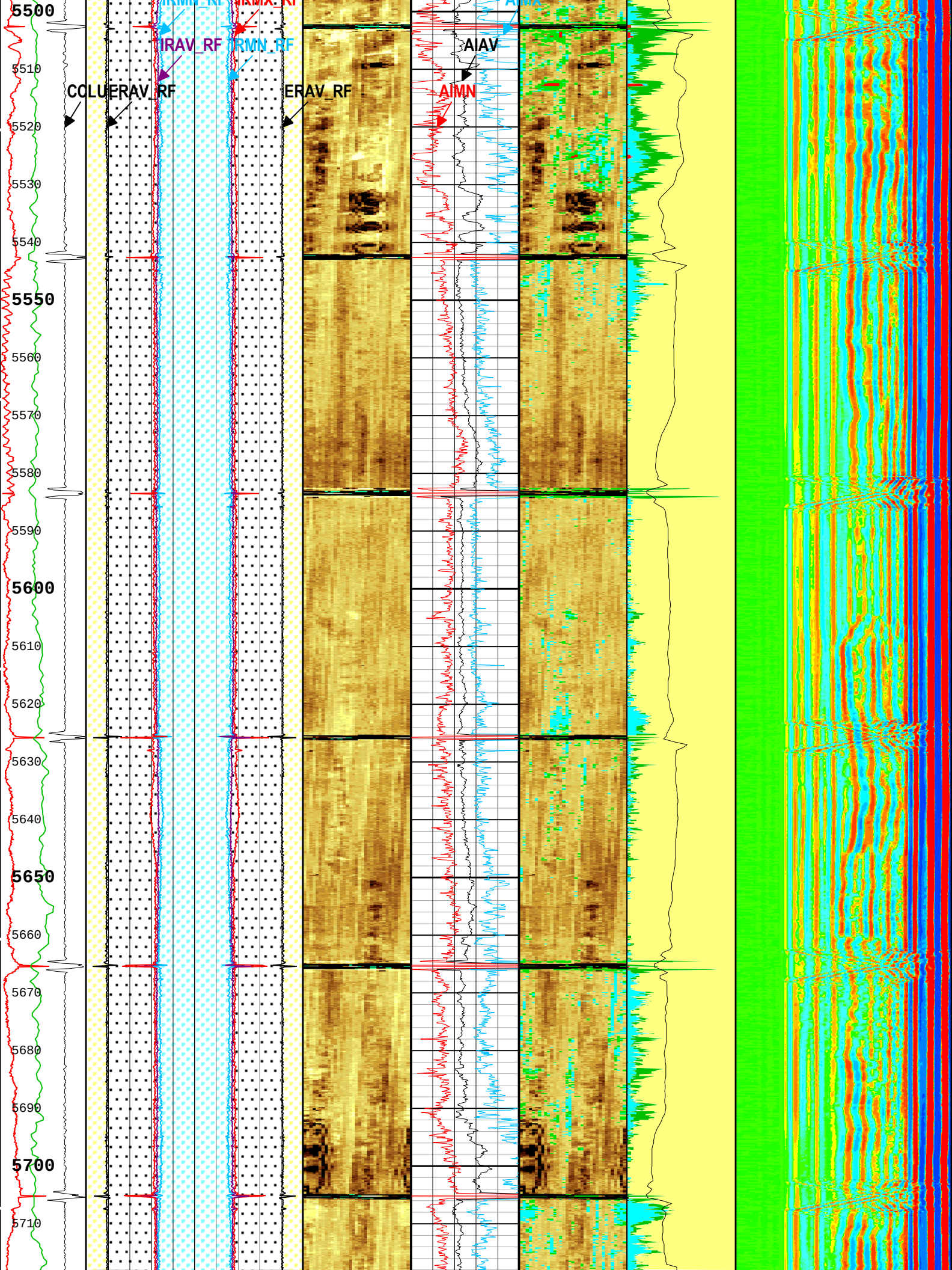
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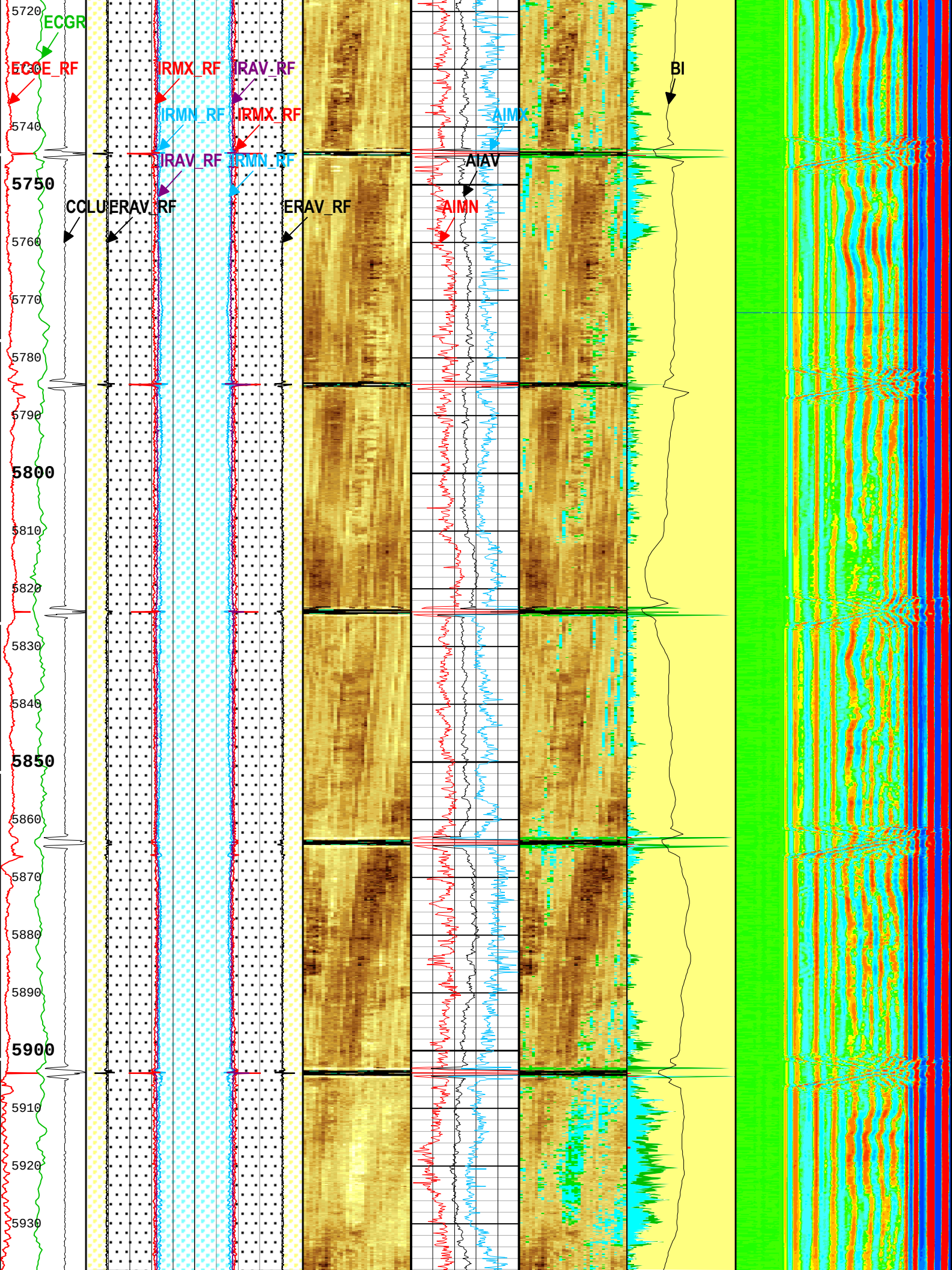
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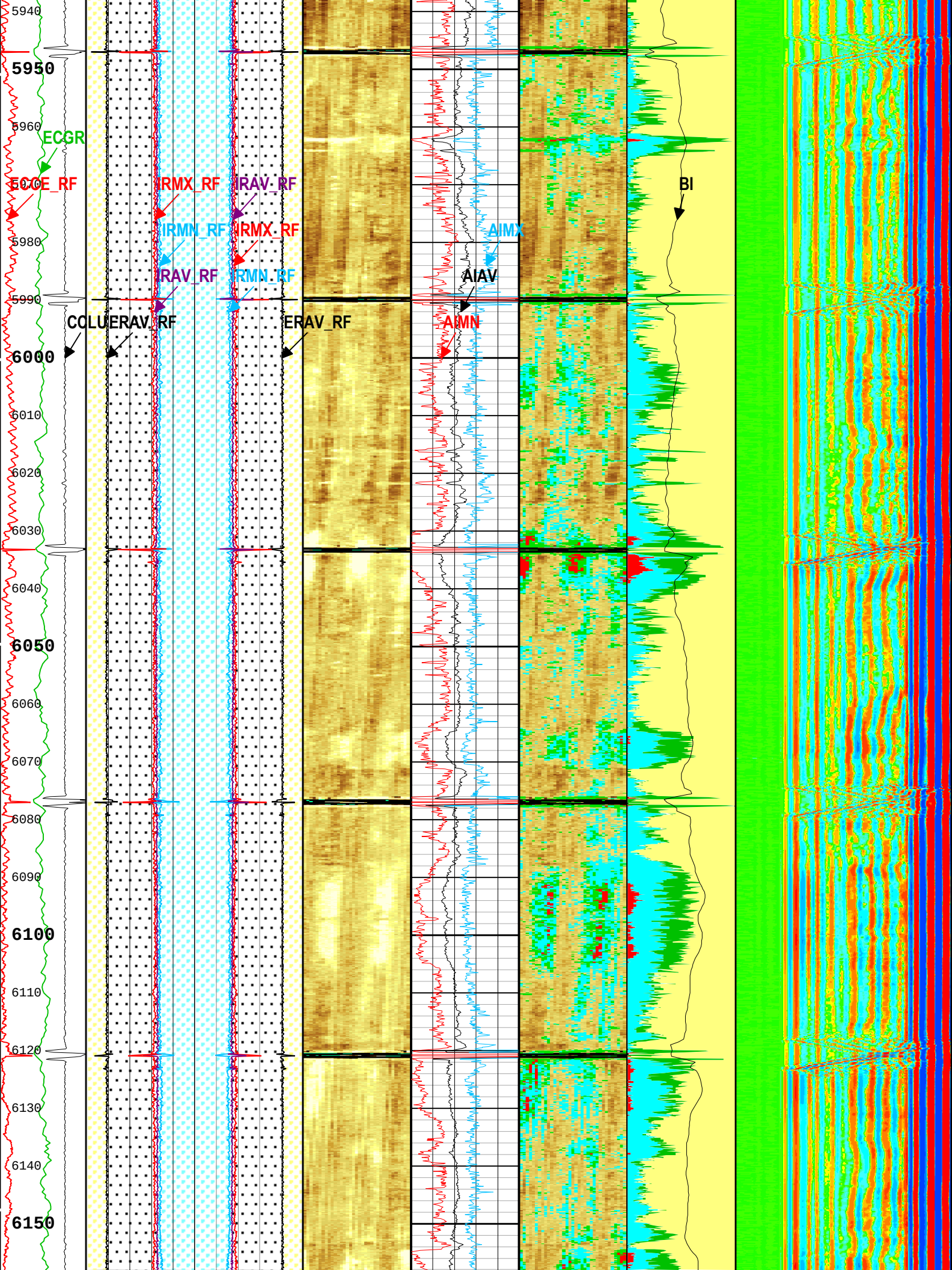
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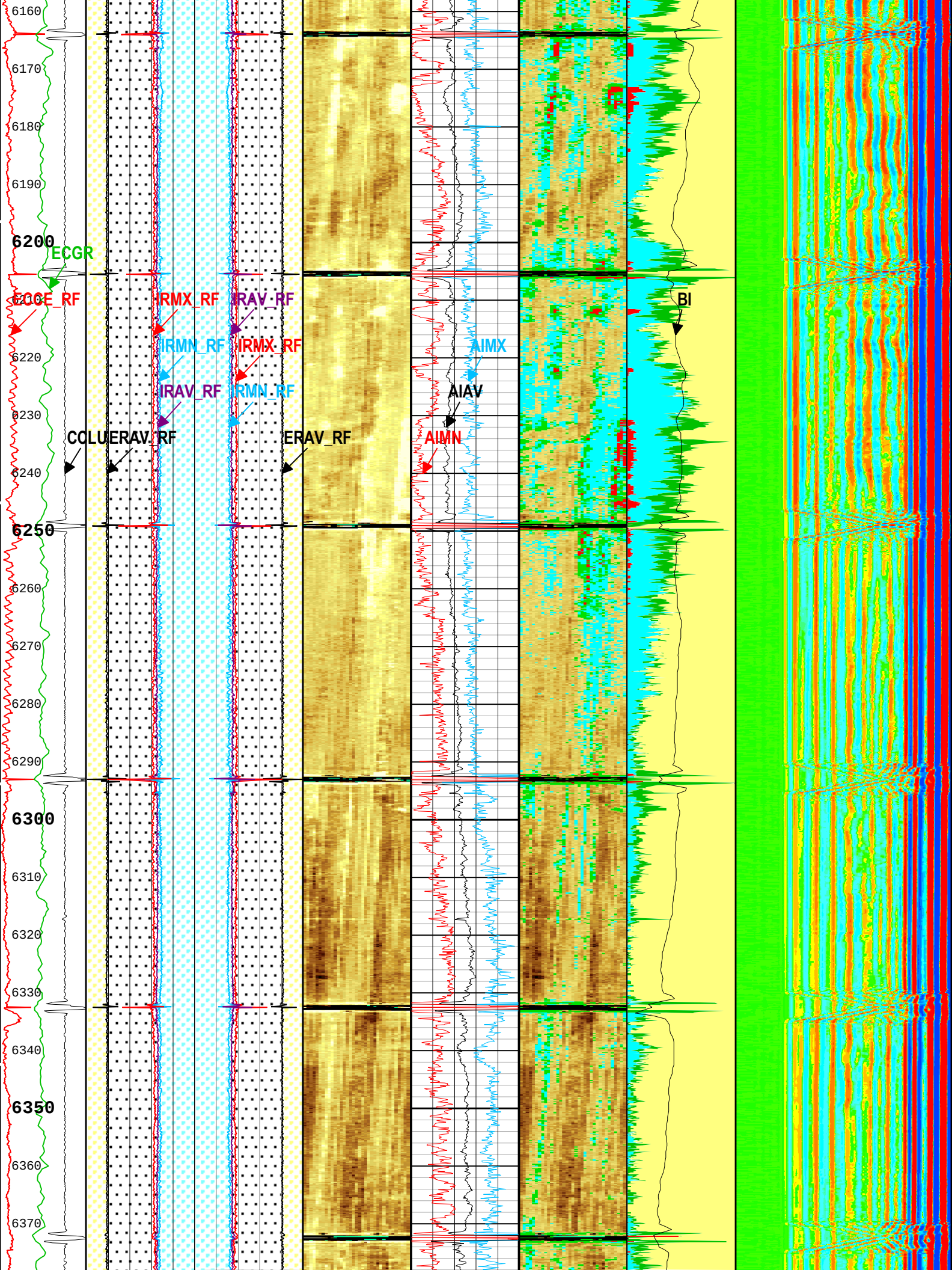
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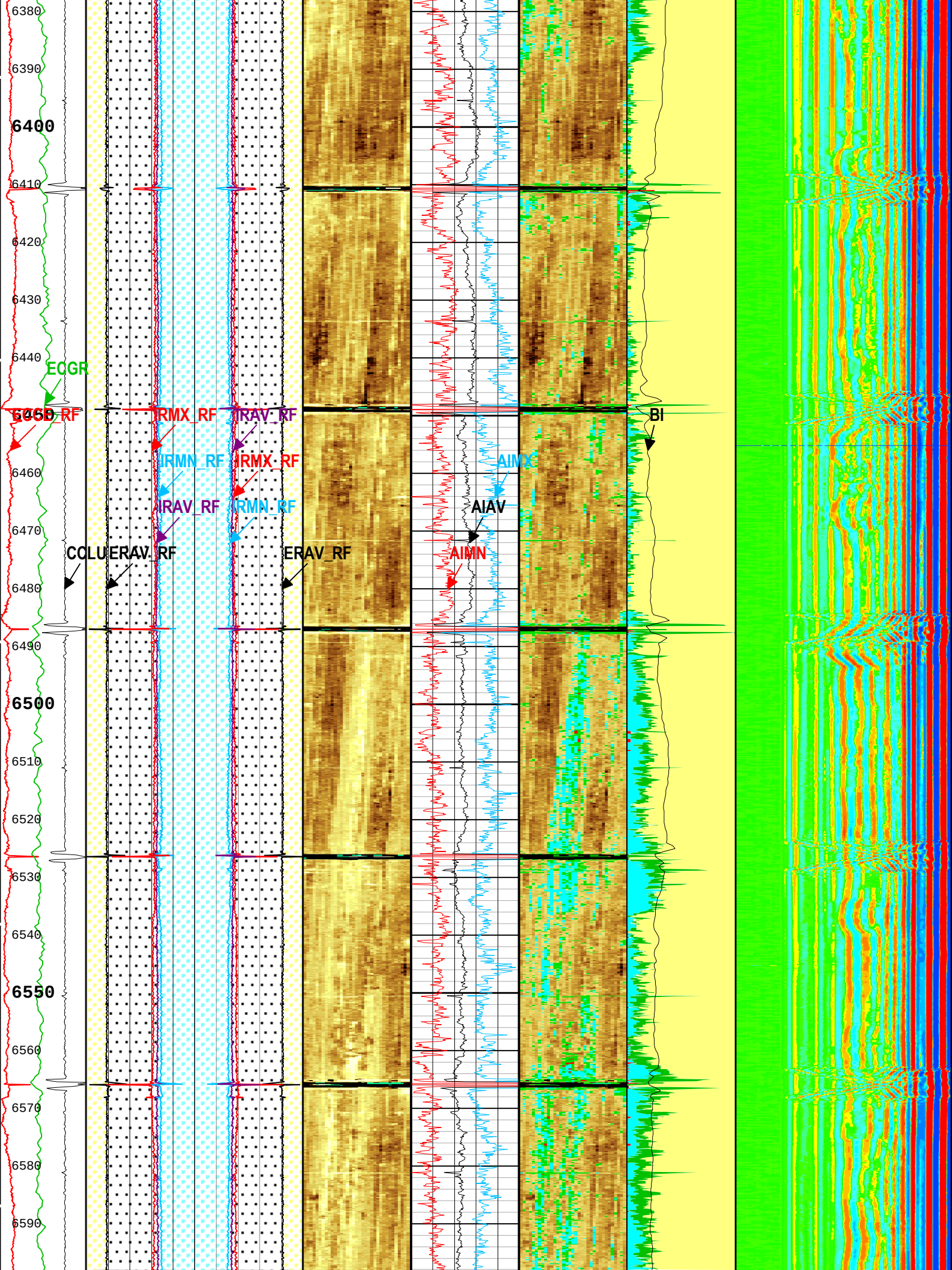
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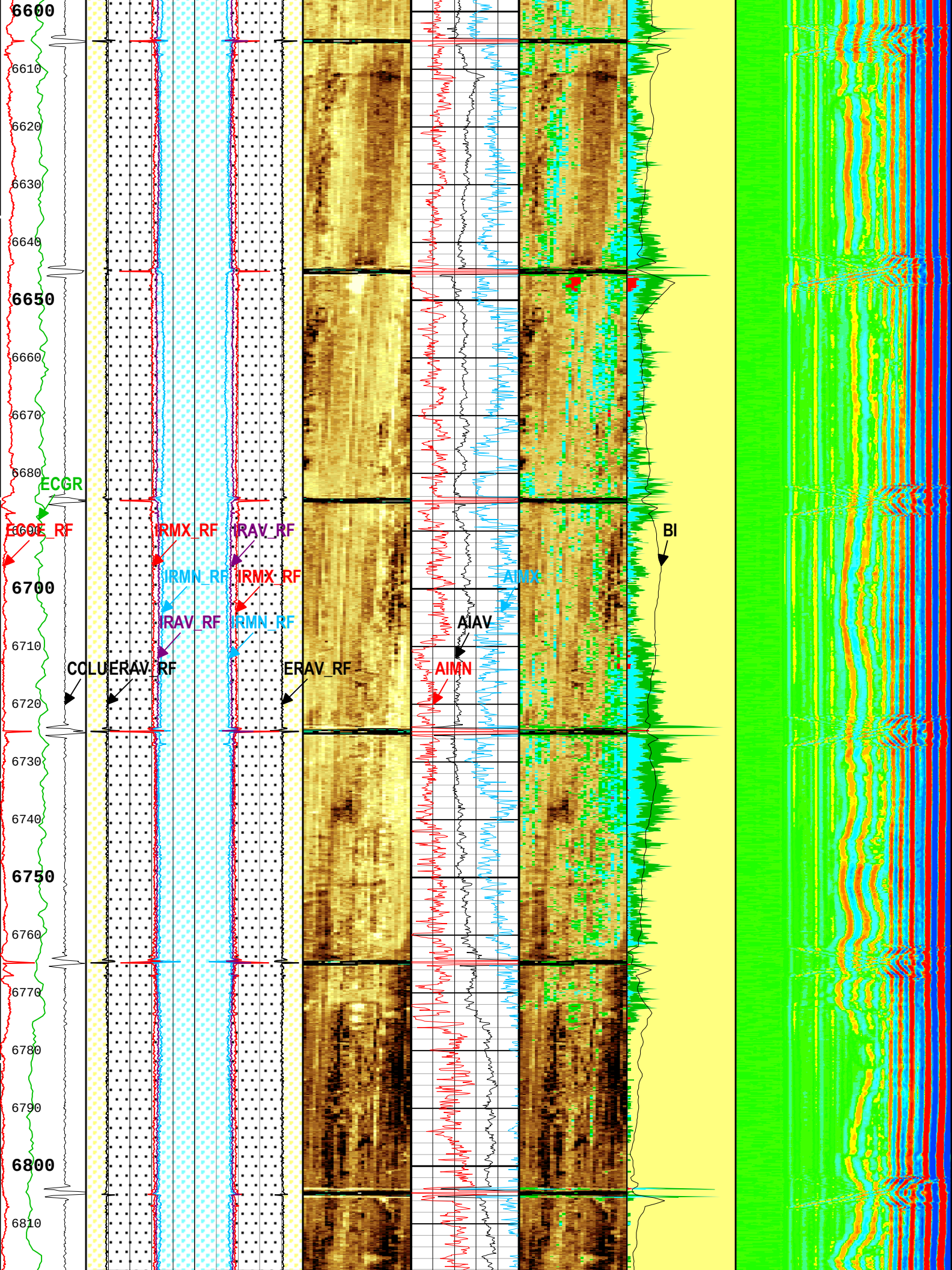
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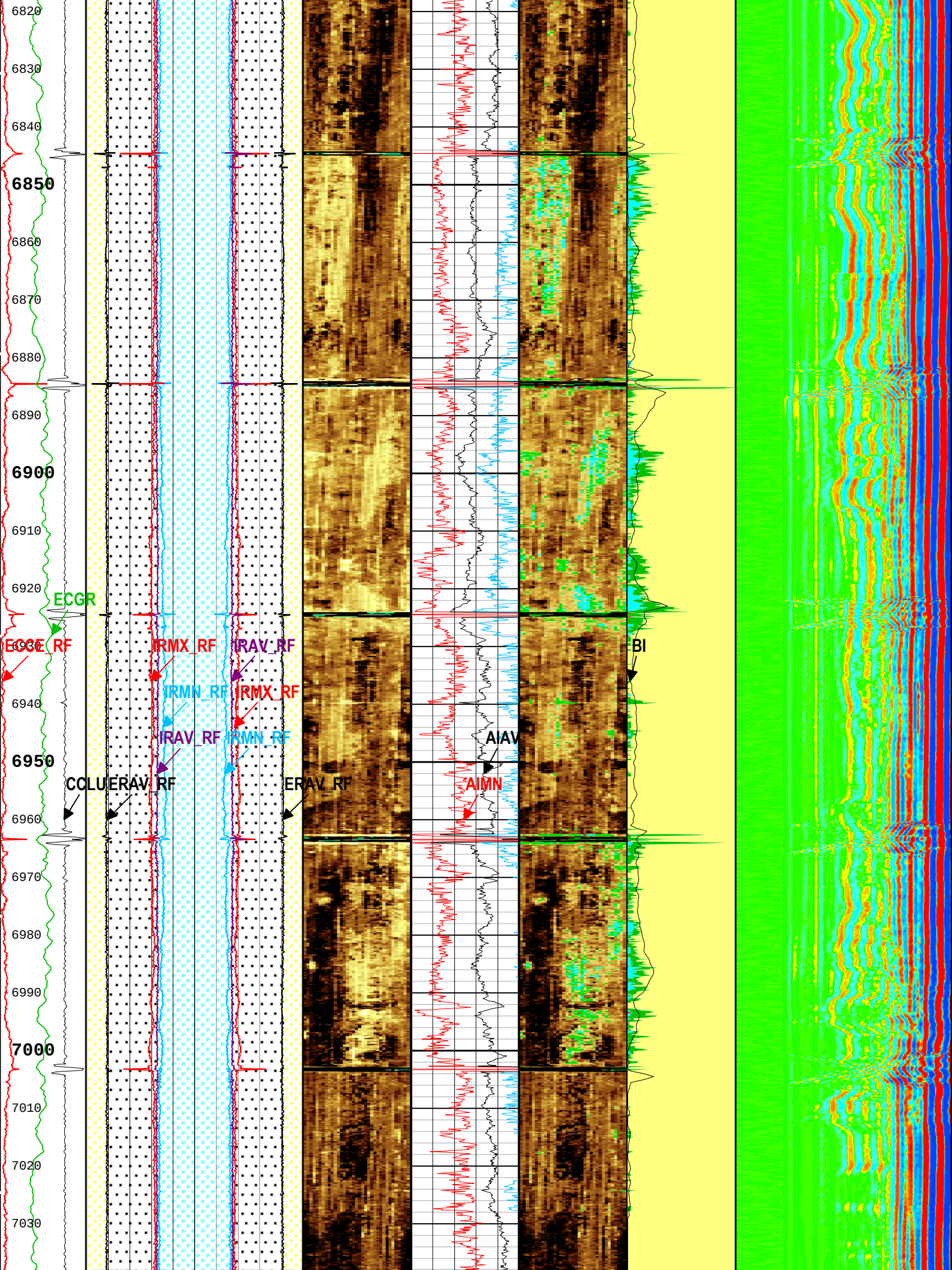
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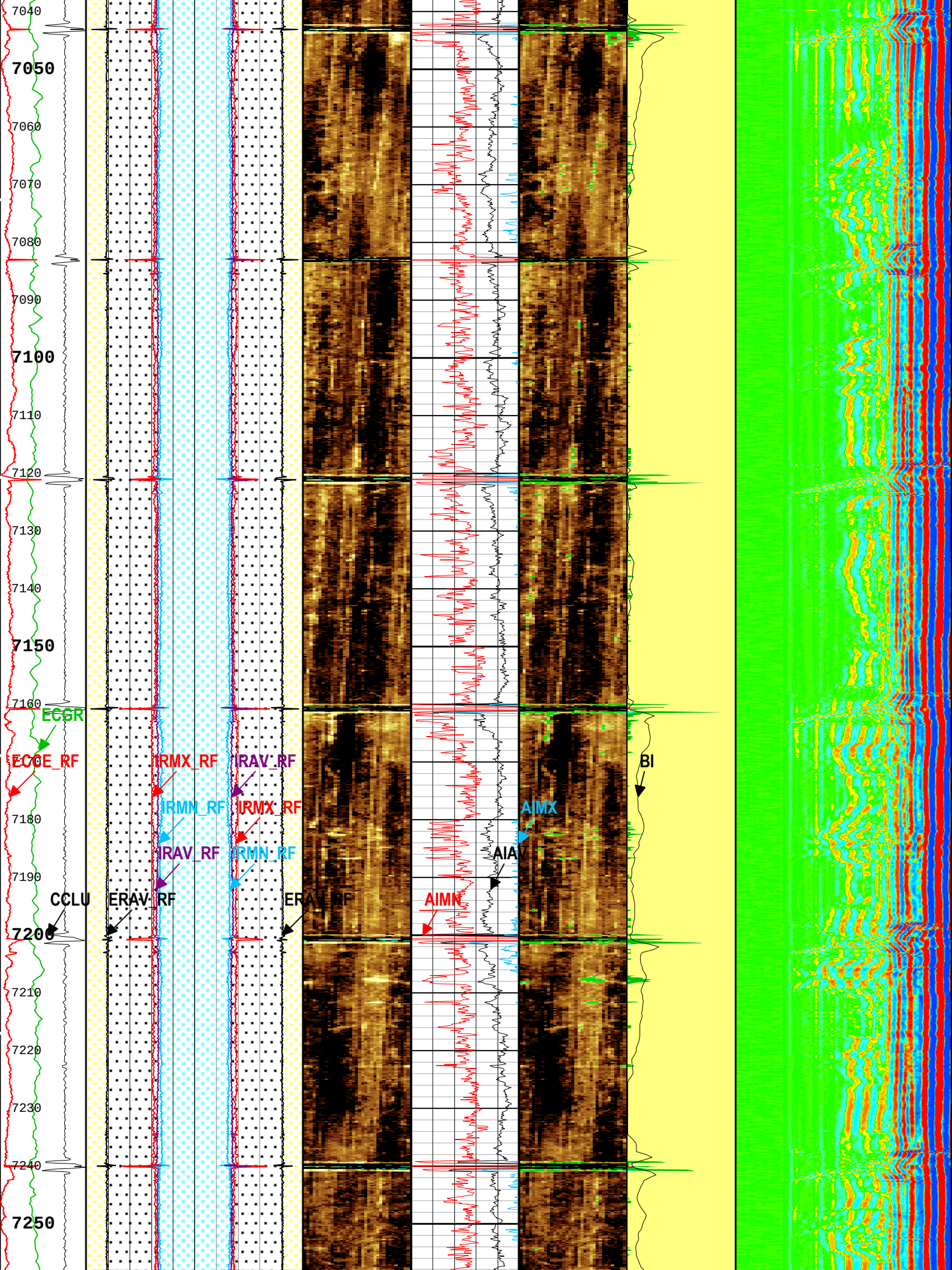
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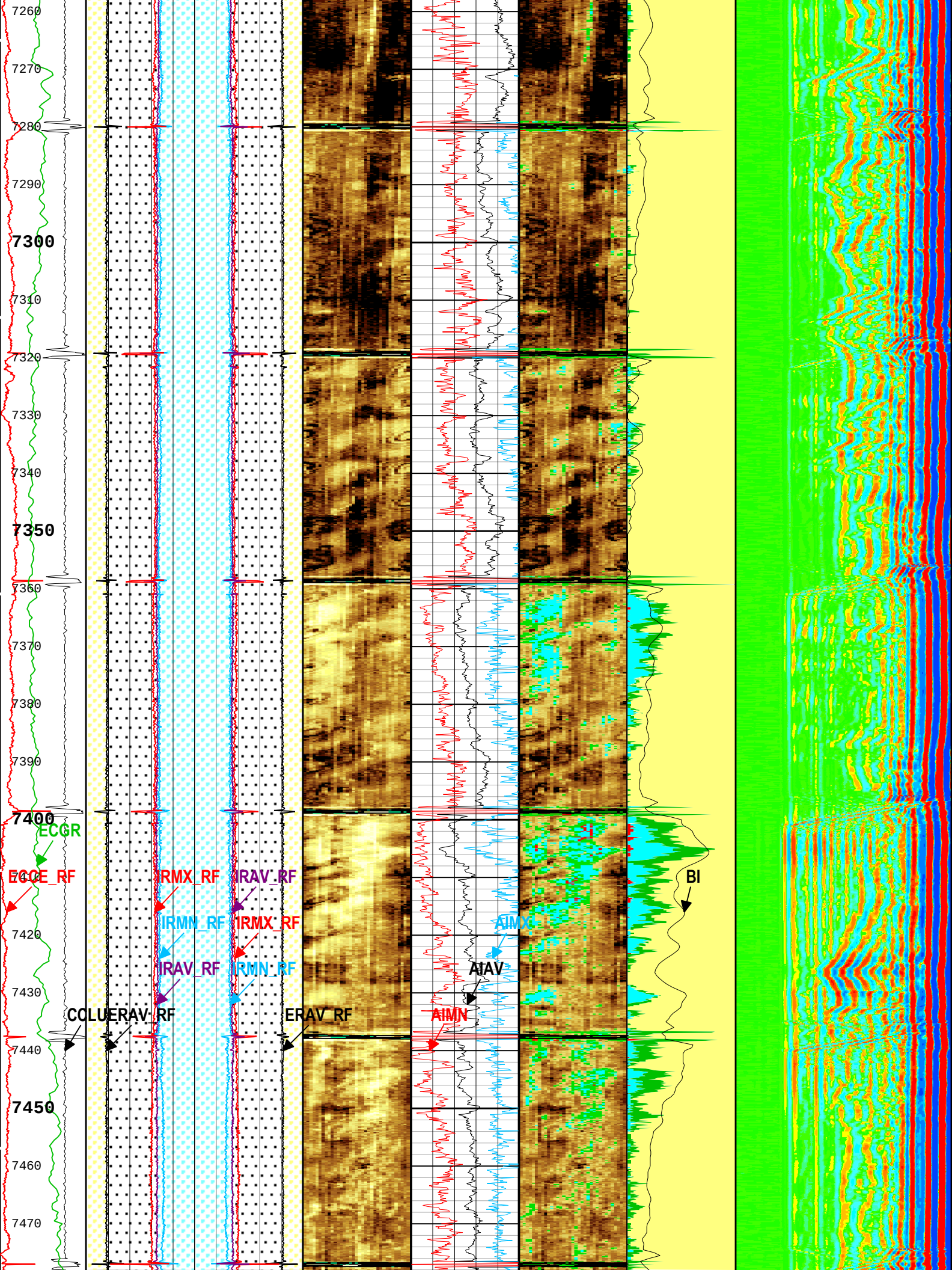
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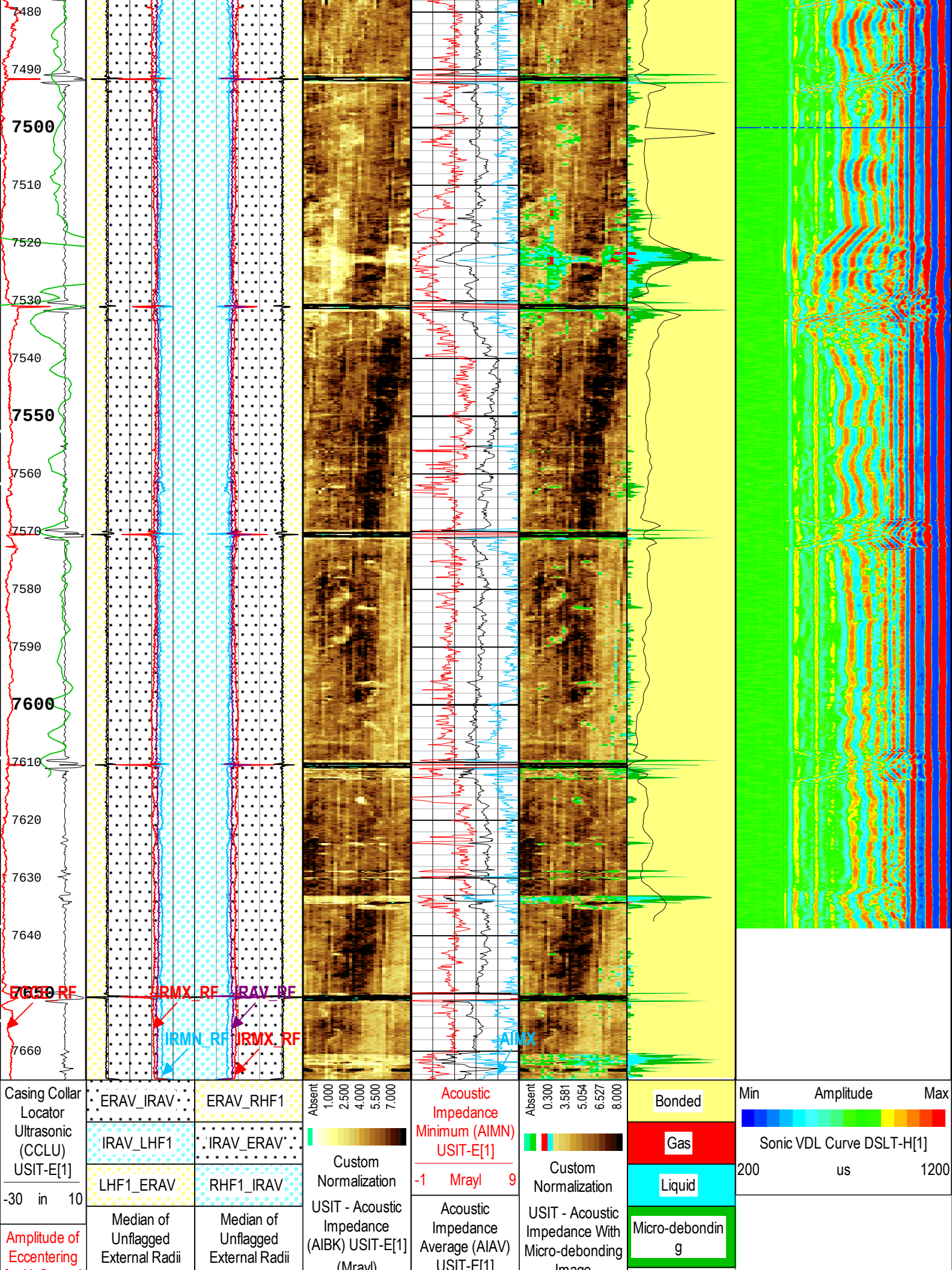
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7650
7660
IRMX_RF
IRAV_RF
IRMN_RF
IRMX_RF
AIMX
Casing Collar Locator Ultrasonic (CCLU) USIT-E[1]
-30 in 10
Amplitude of Eccentering
ERAV_IRAV
IRAV_LHF1
LHF1_ERAV
Median of Unflagged External Radii
ERAV_RHF1
IRAV_ERAV
RHF1_IRAV
Median of Unflagged External Radii
Absent 1.000 2.500 4.000 5.500 7.000
Custom Normalization
USIT - Acoustic Impedance (AIBK) USIT-E[1] (Mrayl)
Acoustic Impedance Minimum (AIMN) USIT-E[1]
-1 Mrayl 9
Acoustic Impedance Average (AIAV) USIT-E[1]
Absent 0.300 3.581 5.054 6.527 8.000
Custom Normalization
USIT - Acoustic Impedance With Micro-debonding Image
Bonded
Gas
Liquid
Micro-debonding
Min Amplitude Max
Sonic VDL Curve DSLT-H[1]
200 us 1200

for Unflagged Waves (ECCE_RF) USIT-E[1]
0 in 0.5

Gamma Ray (ECGR) HGNS[1]
0 gAPI 150

(ERAV_RF) USIT-E[1]
5 in 4

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E[1]
5 in 4

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E[1]
5 in 4

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E[1]
5 in 4

(ERAV_RF) USIT-E[1]
4 in 5

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E[1]
4 in 5

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E[1]
4 in 5

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E[1]
4 in 5

(Mrayl)

-1 Mrayl 9

Acoustic Impedance Maximum (AIMX) USIT-E[1]
-1 Mrayl 9

Image (AI_MDEBOND_IMG) USIT-E[1]
(Mrayl)

Bond Index (BI) DSLT-H[1]
1 0

TIME_1900 - Time Marked every 60.00 (s)

Description: USI VDL Cement Format: Log (LBV1_USI-VDL (DSLT) Cement 9.625inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 29-Apr-2016 20:40:28

Well:	Porter 25R RD
Field:	Aliso Canyon
County:	Los Angeles
State:	California

Cement Bond Log
Variable Density Log
Gamma Ray - CCL