Schlumberger

Company: Southern California Gas Company

Well: Porter 35

Field: Aliso Canyon

County: Los Angeles State: California

County: Los Angeles
Field: Aliso Canyon
Location: 2082.69' S & 2903.72' W
Well: Porter 35
Company: Southern California Gas Company

Ultrasonic Imager

GR-CCL-CBL-NL

7" 23-29# Casing

Location:			
2082.69' S & 2903.72' W From Station 84		Elev.: K.B. 2100.90 ft G.L. 2094.00 ft D.F.	
Permanent Datum:	Ground Level	Elev.:	2094.00 f
Log Measured From:	Kelly Bushing	6.90 ft	above Perm.Datum
Drilling Measured From:	Kelly Bushing		

API Serial No.	Section:	Township:	Range:
037-00722	28	3N	16W

Logging Date		22-Jan-2016	
Run Number		One	
Depth Driller		7750.00 ft	
Schlumberger Depth		7747.00 ft	
Bottom Log Interval		7746.00 ft	
Top Log Interval		30.00 ft	
Casing Fluid Type		Water	
Salinity			
Density		8.5 lbm/gal	
Fluid Level		8.00 ft	
BIT/CASING/TUBING STRING			
Bit Size		9.63 in	
From		510.00 ft	
To		7910.00 ft	
Casing/Tubing Size		7 in	
Weight		29 lbm/ft	
Grade		N/A	
From		6620.00 ft	
To		7910.00 ft	
Max Recorded Temperatures		169.5 degF	
Logger on Bottom	Time	23-Jan-2016 17:49:00	
Unit Number	Location:	2222 Long Beach	
Recorded By		Benjamin Kohner	
Witnessed By		Jeff Sandoval	

Disclaimer

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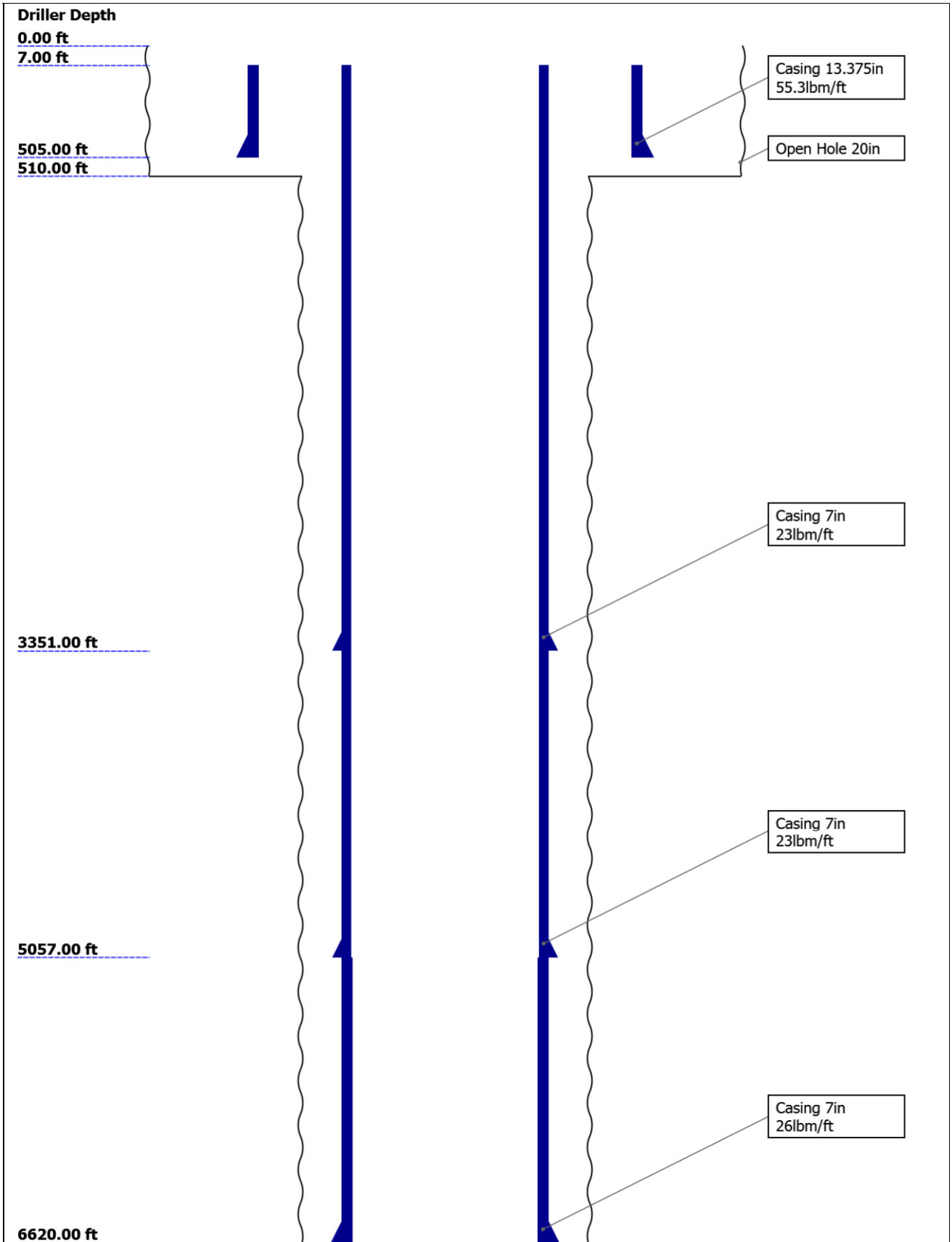
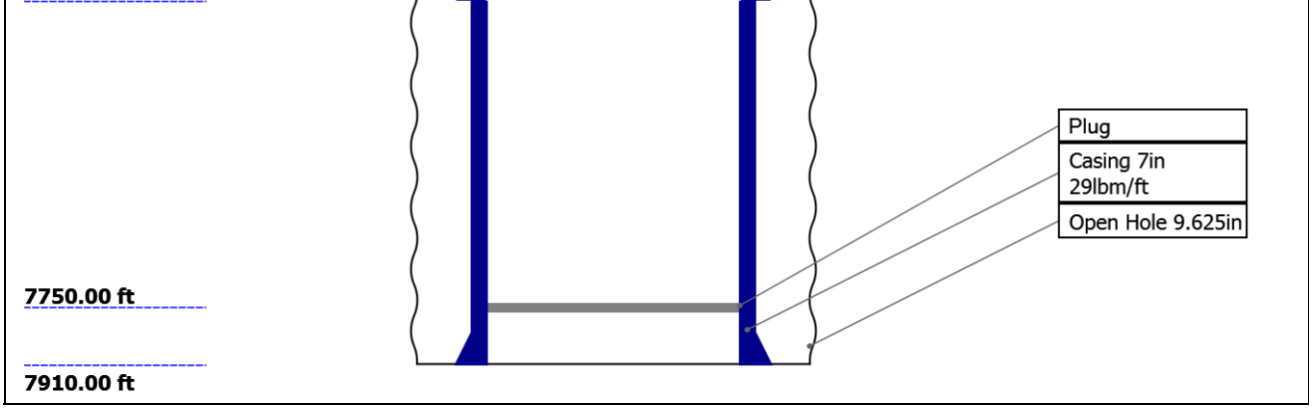
Well Sketch





Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	20	9.625				
Top Driller (ft)	0	510				
Top Logger (ft)	0	510				
Bottom Driller (ft)	510	7910				
Bottom Logger (ft)	510	7910				
Casing						
Size (in)	13.375	7	7	7	7	
Weight (lbm/ft)	55.3	23	23	26	29	
Inner Diameter (in)	12.595	6.366	6.366	6.276	6.184	
Grade	N/A	J55	N80	N80	N/A	
Top Driller (ft)	7	7	3351	5057	6620	
Top Logger (ft)	7	7	3351	5057	6620	
Bottom Driller (ft)	505	3351	5057	6620	7910	
Bottom Logger (ft)	505	3351	5057	6620	7910	

Remarks and Equipment Summary

One: Toolstring

Equip name	Length
LEH-QT:2867	**63.01**
LEH-QT:2867	
EDTC-B:8539	**60.09**
EDTH-B:8580	
EDTG-A:77702	
EDTC-B:8539	
HGNS-H:3923	**53.59**
HGNH:4819	
NPV-N	
NSR-F:5002	
HGNS-H:3923	
HMCA-H	
HACCZ-H:3923	

MP name	Offset
Blue	
CTEM	**56.59**
ACCZ	**0.00**
HV	**0.00**
Gamma Ray	**54.72**
TelStatus	**53.59**
Temperature	**53.57**
GR	**52.85**
CNL Porosity	**46.52**

One: Remarks

Rig: Ensign 341

Toolstring ran as per toolsketch.

Two 6.5" GEMCO and one CME-Y ran on CBL tool.

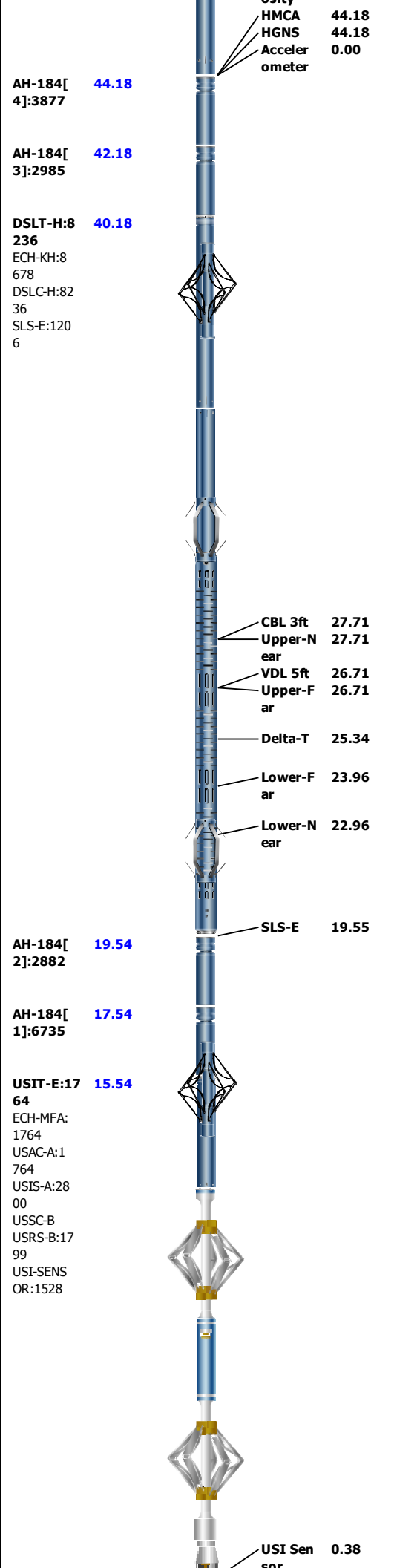
Two USIS centralizers and one CME-Y used to centralize ultrasonic tool.

ICE processing used with FVEL=Auto, ZMUD=FPA done 209-245' (UDFSZ=.01 MRayl, free pipe gas, DFD=8.5 ppg, N=1.07).

Top of sand tagged at 7,747' MD.

Schlumberger crew: J. Chumley, S. Alvarez.

Thank you for choosing Schlumberger!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Acceler ometer 0.00
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AH-184[3]:2985 42.18
DSLT-H:8236 40.18
ECH-KH:8678
DSLC-H:8236
SLS-E:1206
CBL 3ft 27.71
Upper-Near 27.71
VDL 5ft 26.71
Upper-Far 26.71
Delta-T 25.34
Lower-Far 23.96
Lower-Near 22.96
SLS-E 19.55
AH-184[2]:2882 19.54
AH-184[1]:6735 17.54
USIT-E:1764 15.54
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USSC-B
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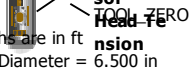


Lengths are in ft
Maximum Outer Diameter = 6.500 in
Line: Sensor Location, Value: Gating Offset
All measurements are relative to TOOL_ZERO

Depth Summary

	One		
Depth Measuring Device			
Type	IDW-JA		
Serial Number	6919		
Calibration Date	25-Mar-2015		
Calibrator Serial Number			
Calibration Cable Type	7-46 PXS		
Wheel Correction 1	-4		
Wheel Correction 2	-3		
Tension Device			
Type	CMTD-B/A		
Serial Number	187		
Calibration Date	18-Jan-2015		
Calibrator Serial Number	78138A		
Number of Calibration Points	10		
Calibration Root Mean Square Error	17		
Calibration Peak Error	29		
Logging Cable			
Type	7-46P-XS		
Serial Number	U713010		
Length	22000.00 ft		
Conveyance Type	Wireline		
Rig Type	Land		

One:Depth Control Parameters		Depth Control Remarks
Log Sequence	Subsequent Trip To the Well	All Schlumberger depth control procedures followed.
Reference Log Name	Dual Spacing Thermal Neutron Decay Time	IDW used as primary depth reference, Z-Chart used as secondary.
Reference Log Run Number	ONE	
Reference Log Date	02-Dec-1974	
Subsequent Trip Down Log Correction		

Job Event Summary

Event	Time	Duration	Interval	Remark
Log[1]:Down	Jan-22-2016 07:53	01:39:20	119.59 - 7731.7 ft	FPM
Log[2]:Up	Jan-22-2016 08:35	00:10:02	7745.83 - 7498.28 ft	Repeat Pass (Bottom)
Log[3]:Up	Jan-22-2016 08:47	05:15:23	7746.82 - 14.71 ft	Main Pass
Log[4]:Up	Jan-22-2016 22:27	01:35:40	7251.06 - 6056.2 ft	Repeat Pass
Log[5]:Up	Jan-22-2016 23:15	00:28:20	4030.17 - 2690.37 ft	Repeat
Log[6]:Up	Jan-22-2016 23:49	00:06:29	4020.16 - 3958.32 ft	Repeat 4000' Very HiRes
Log[7]:Up	Jan-22-2016 23:58	00:03:04	3630.62 - 3601.03 ft	Very HiRes Repeat 3620'
Log[8]:Up	Jan-23-2016 00:03	00:14:17	3470.48 - 3330.15 ft	VeryHiRes Repeat 3470-3370
Log[9]:Up	Jan-23-2016 00:18	00:10:32	3280.62 - 3172.3 ft	VeryHighRes Repeat 3280-3170
Log[10]:Up	Jan-23-2016 00:32	00:04:34	2541.49 - 2497.04 ft	Very HighRes Repeat 2530

Log[11]:Up	Jan-23-2016 00:38	00:08:47	2190.84 - 2115.02 ft	VeryHighRes Pass 2180-2120
Log[12]:Up	Jan-23-2016 00:54	00:10:57	578.03 - 466.3 ft	VeryHighRes Repeat 570-490

One

GR-CCL Correlation 5 IN = 100 FT

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[3]:Up	Up	16.71 ft	7748.81 ft	22-Jan-2016 8:47:51 AM	22-Jan-2016 2:03:15 PM	ON	2.00 ft	Yes

All depths are referenced to toolstring zero

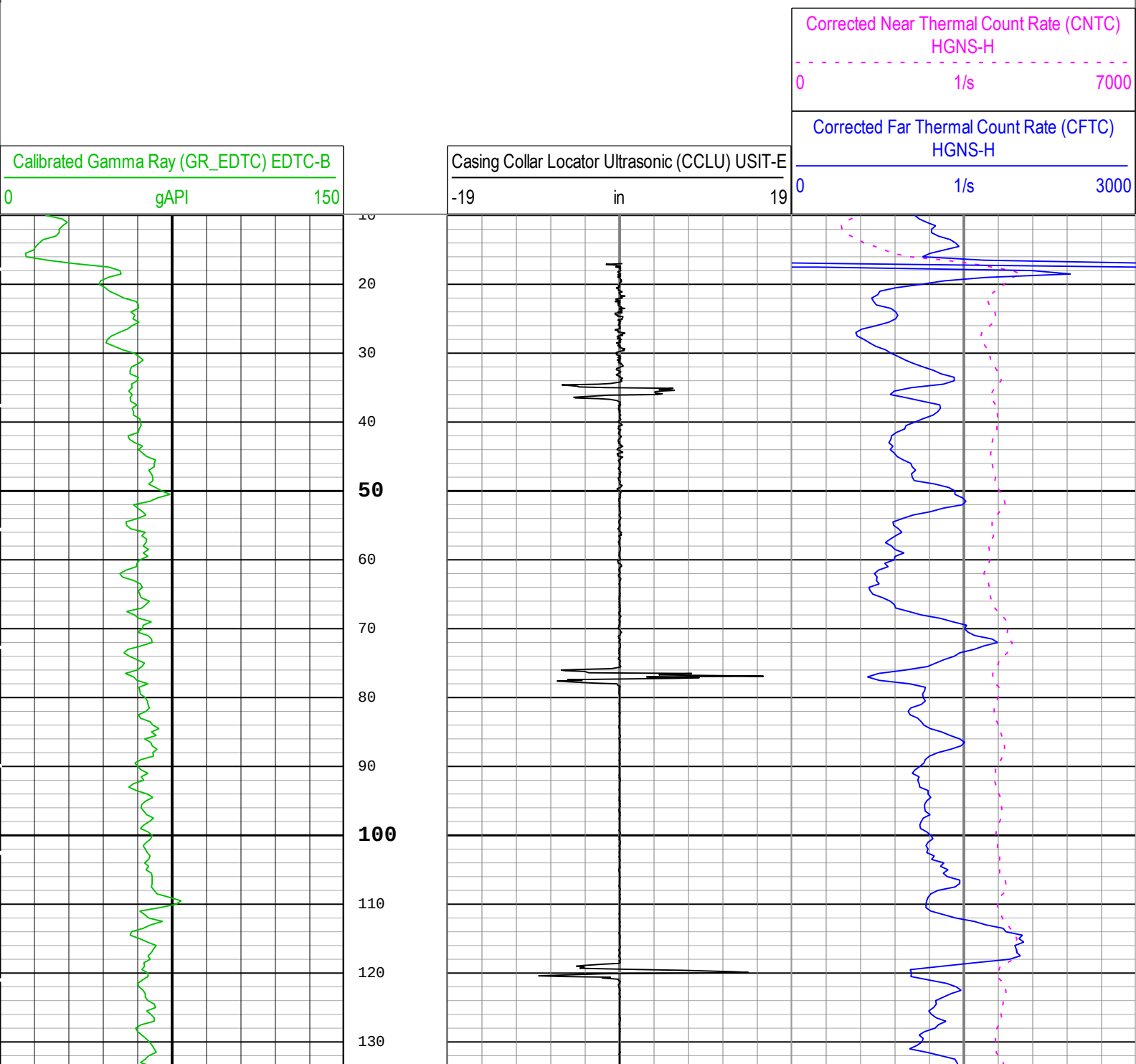
Log

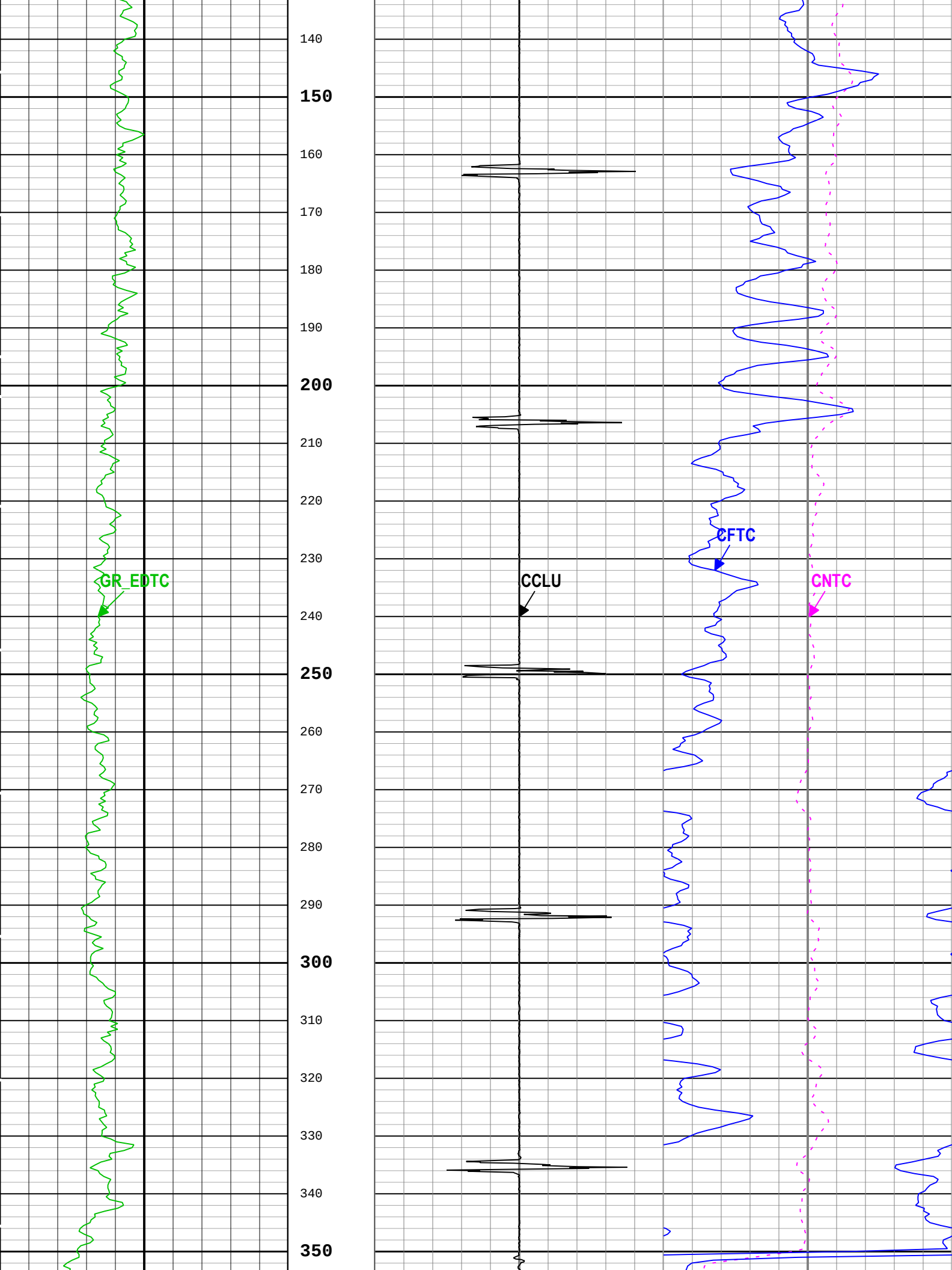
Company:Southern California Gas Company Well:Porter 35

One: Log[3]:Up:S008

Description: Format: Log (GR-CCLU Correlation) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 23-Jan-2016 06:56:13

TIME_1900 - Time Marked every 60.00 (s)

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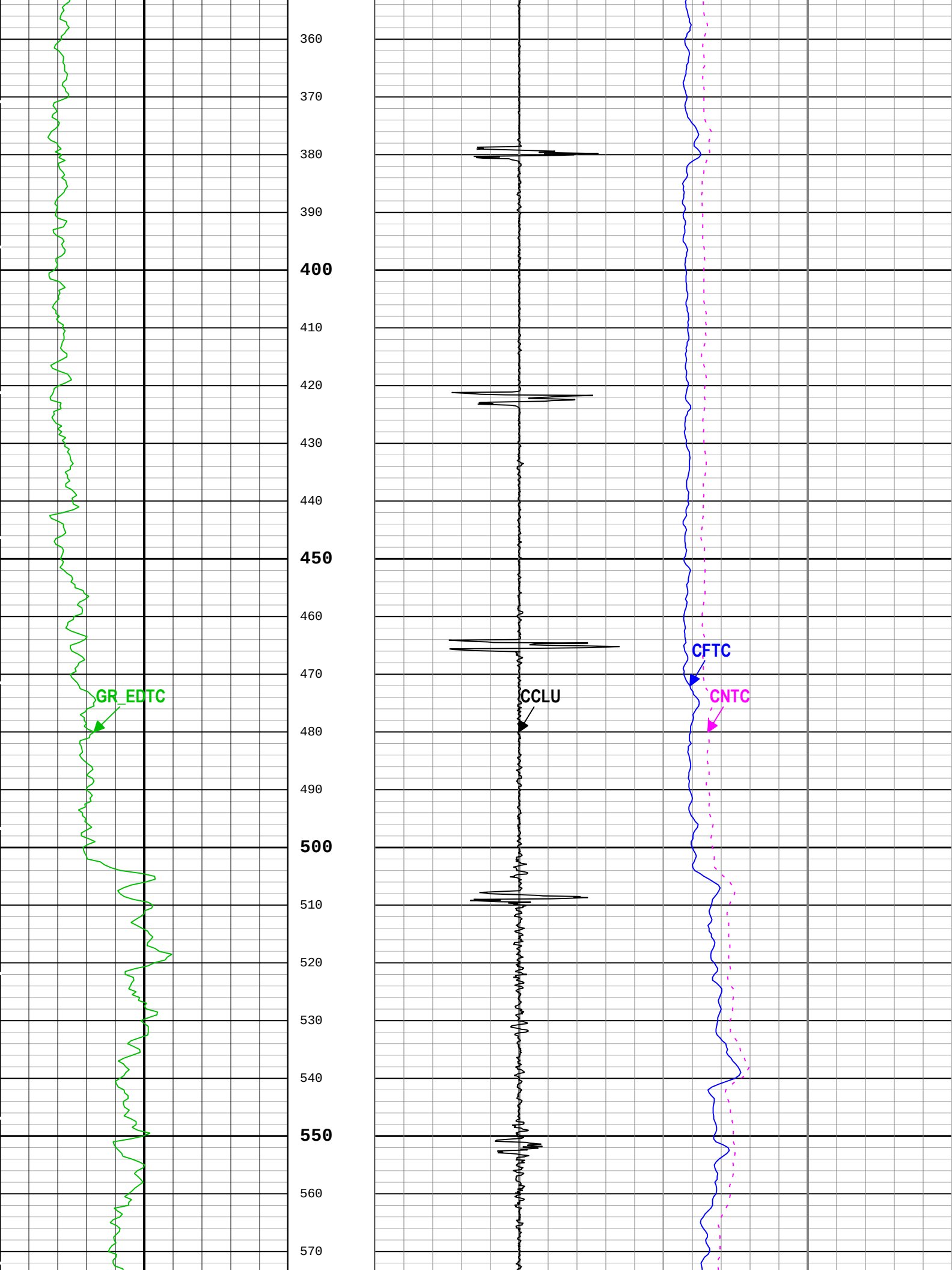
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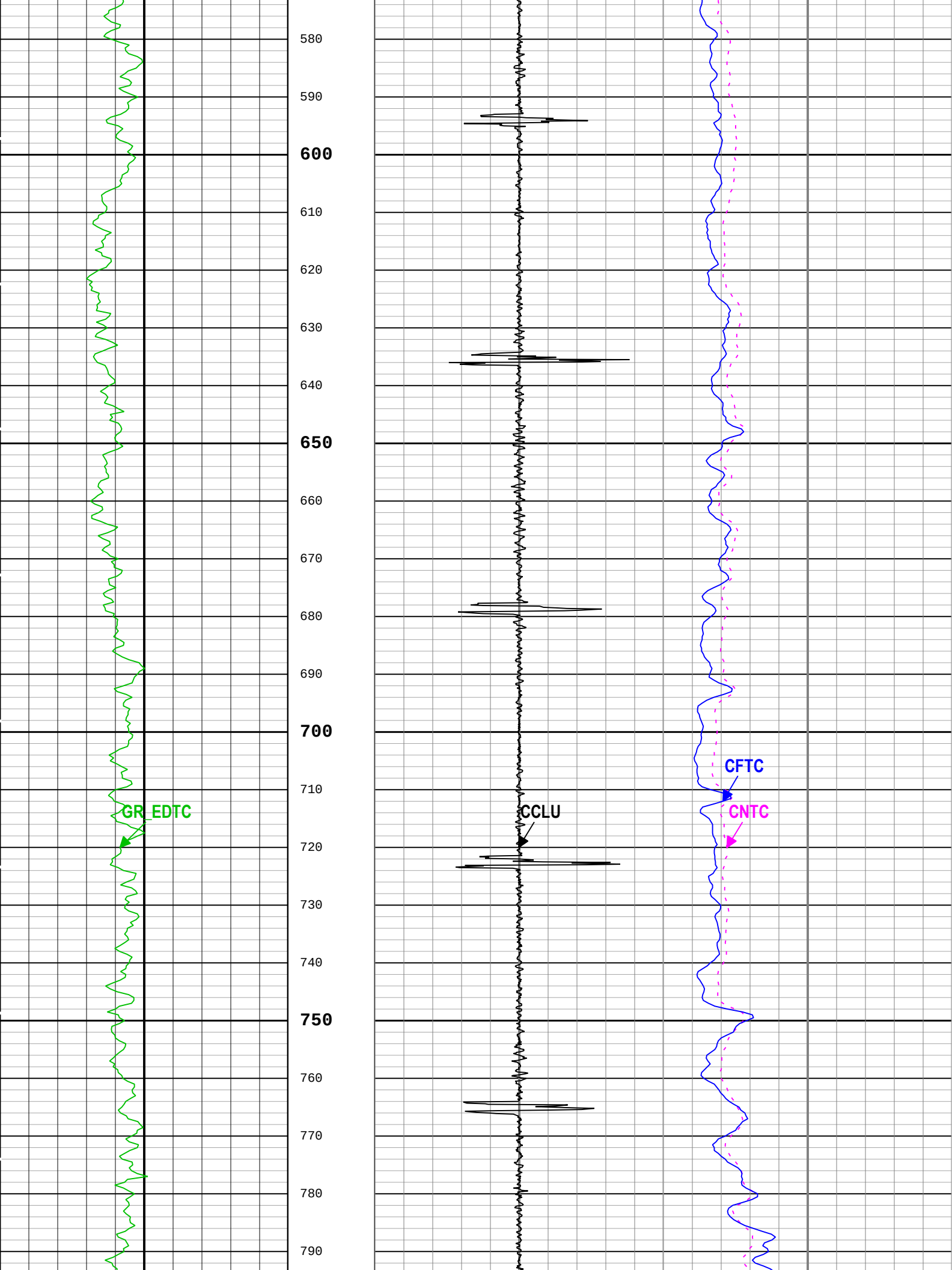
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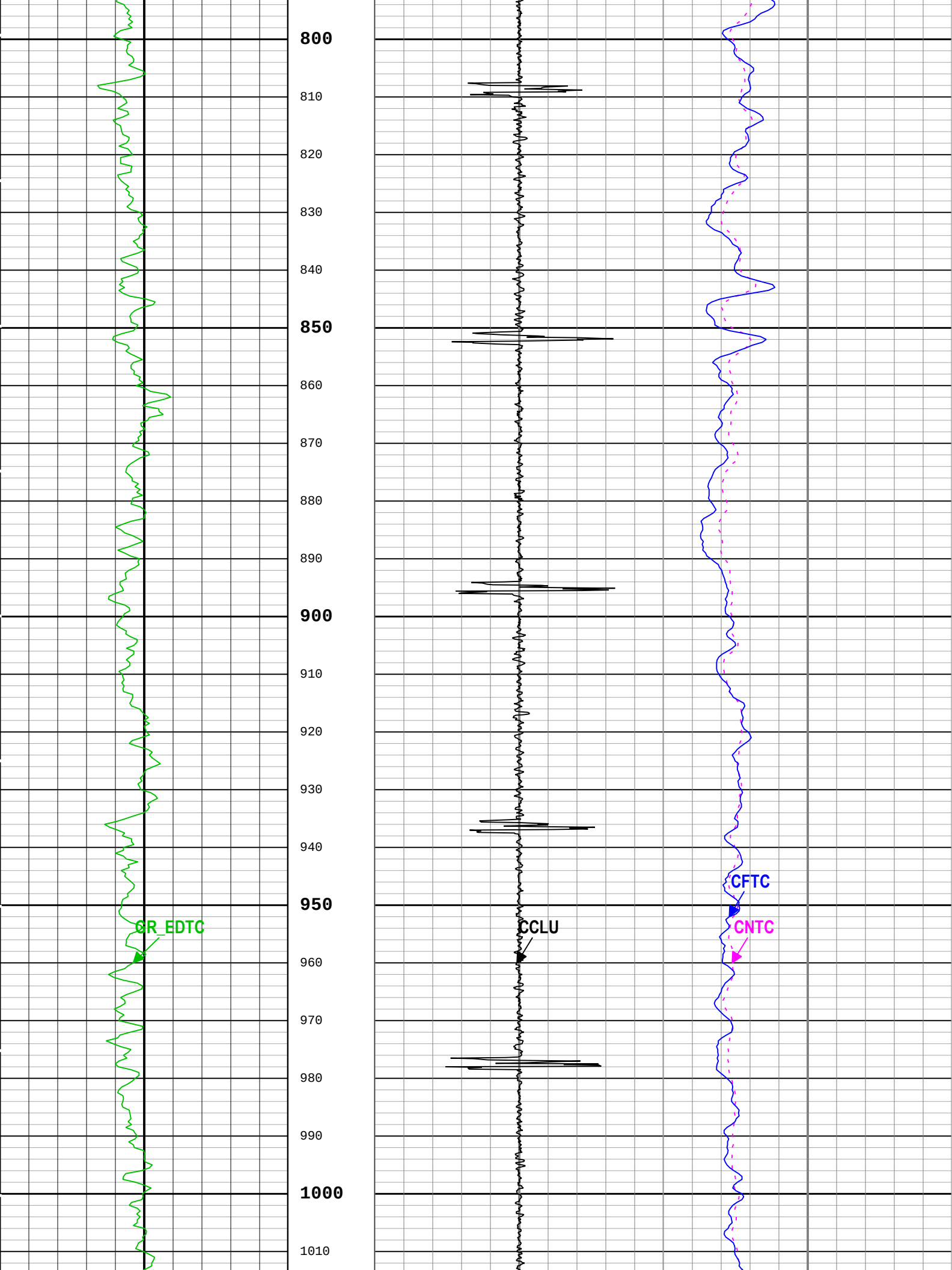
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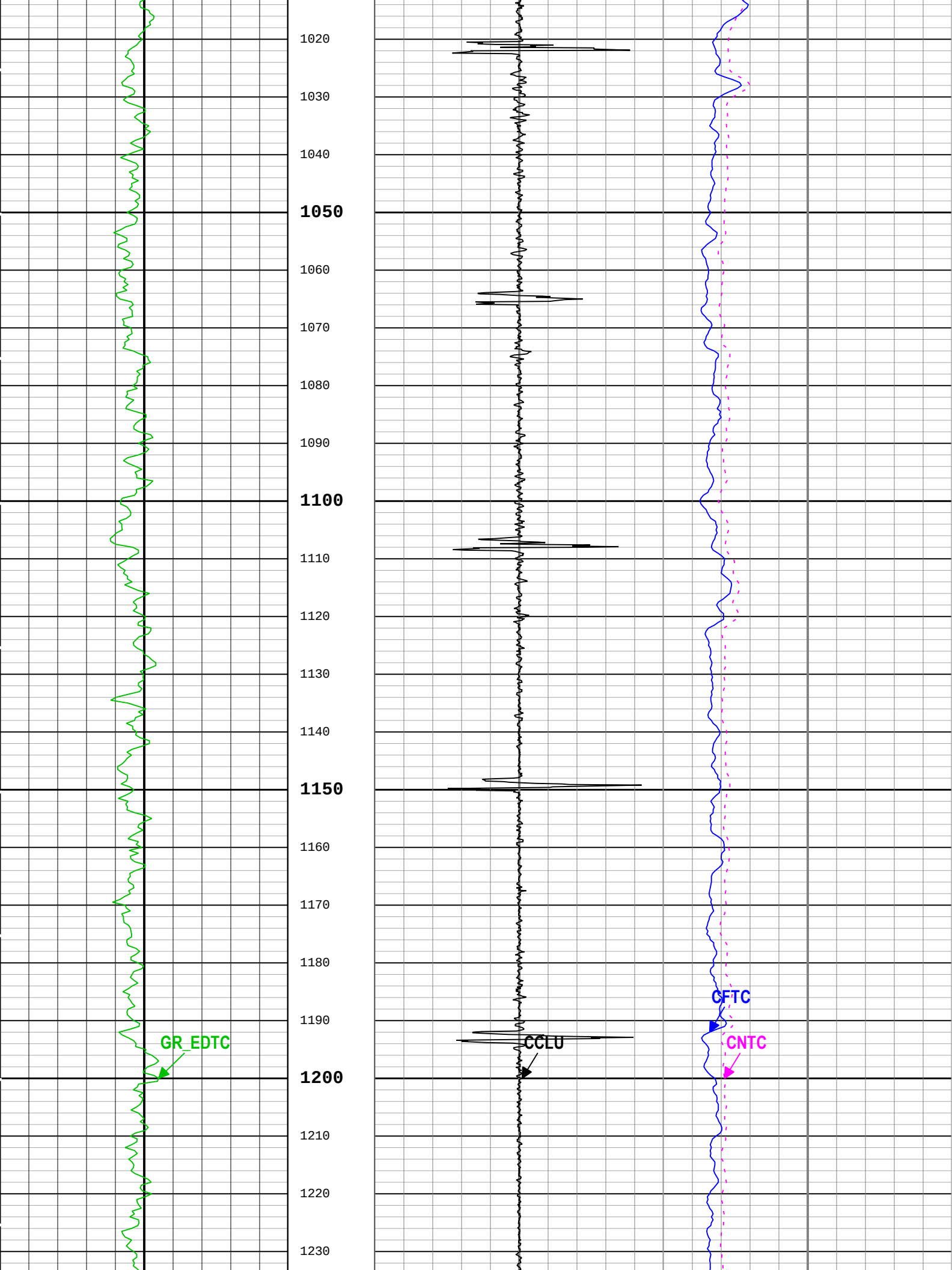
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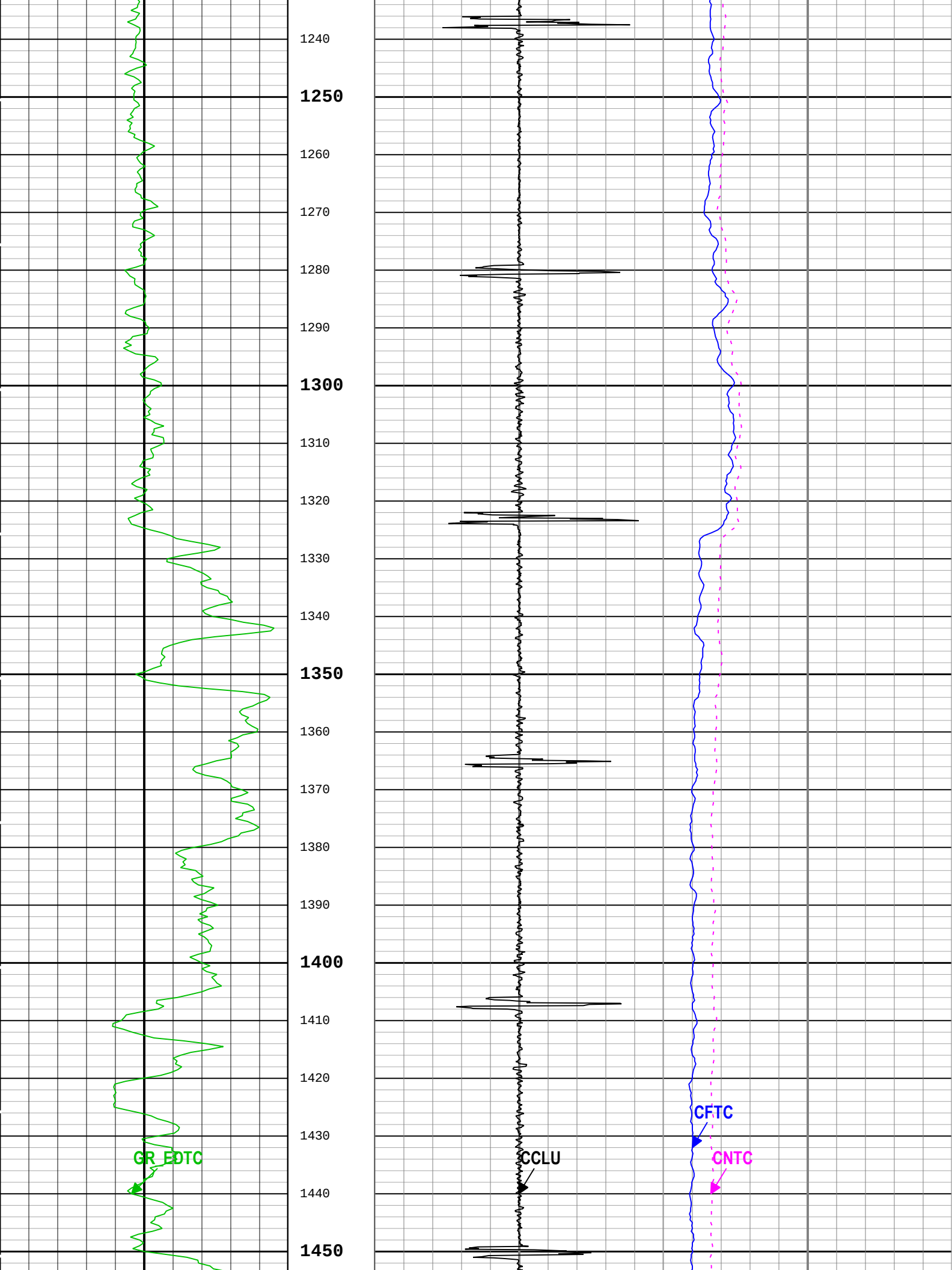
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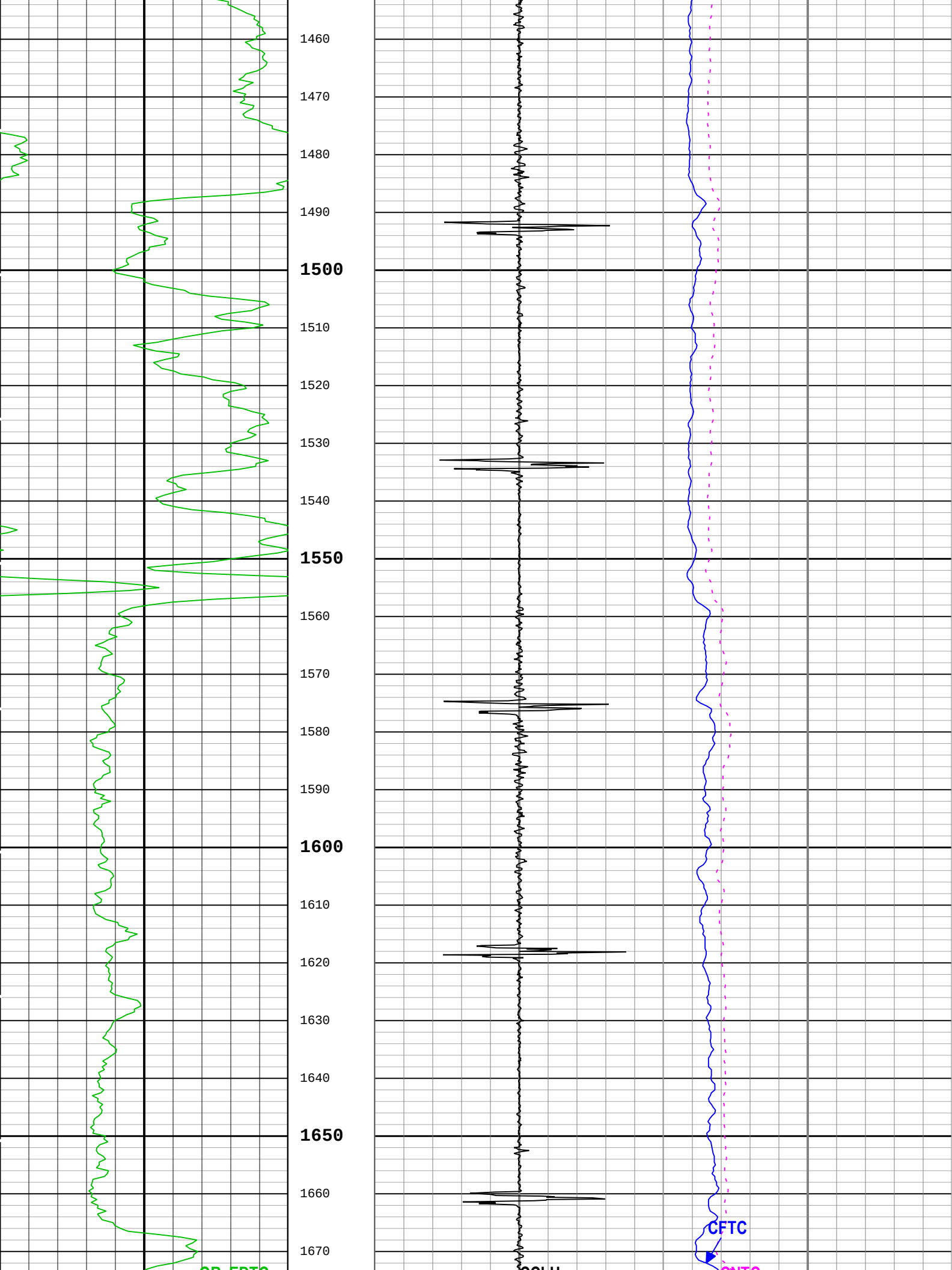
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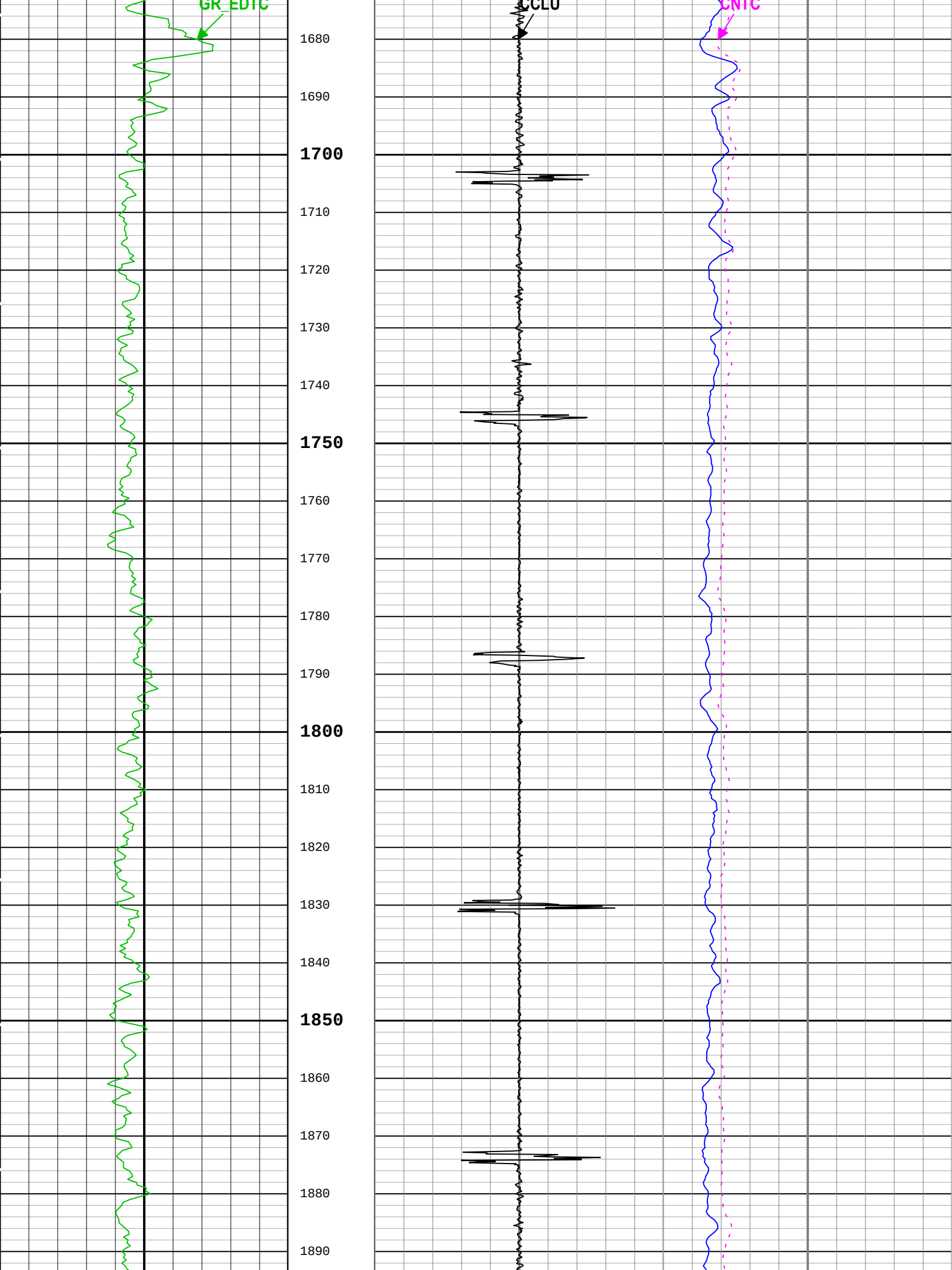
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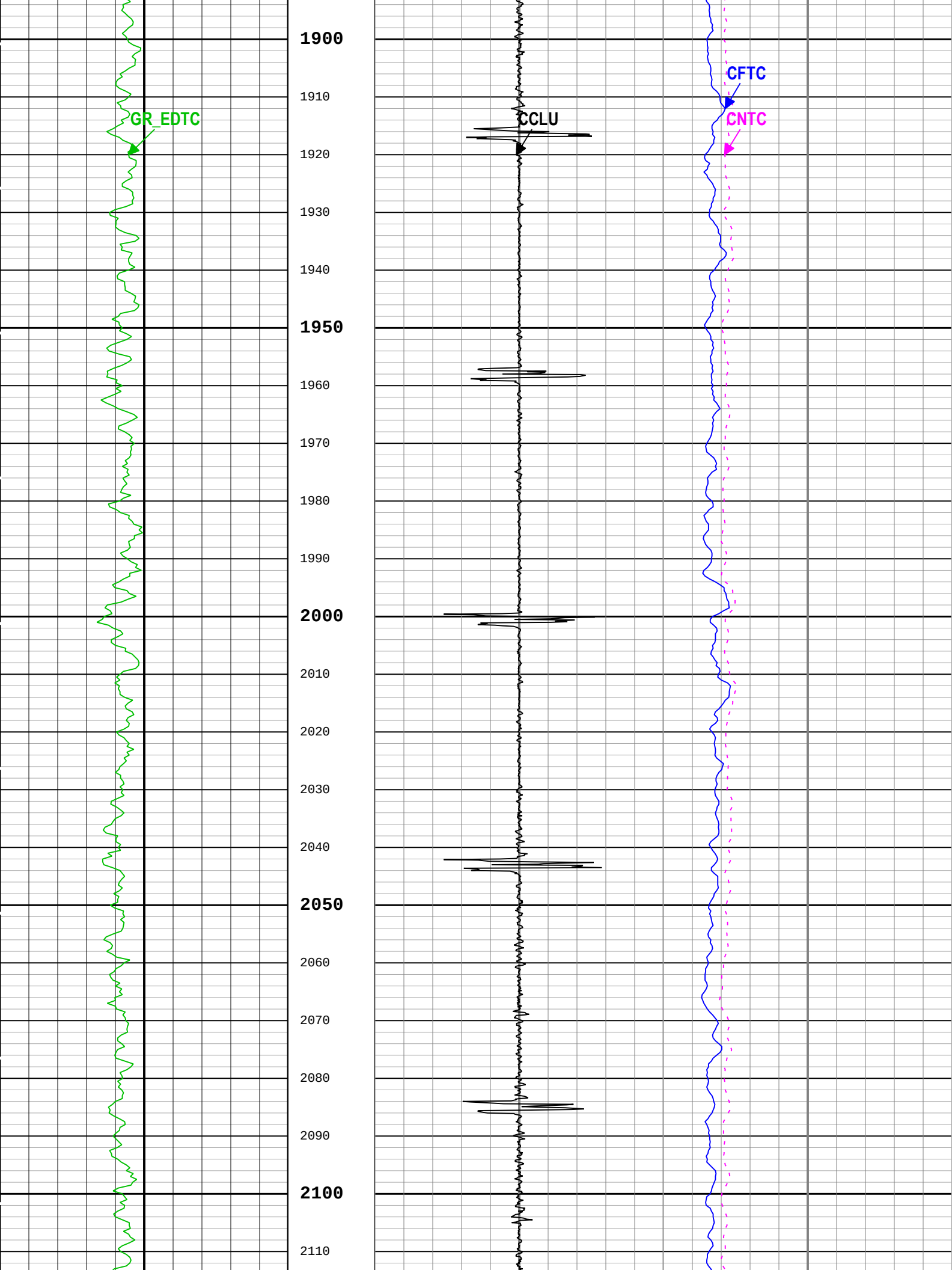
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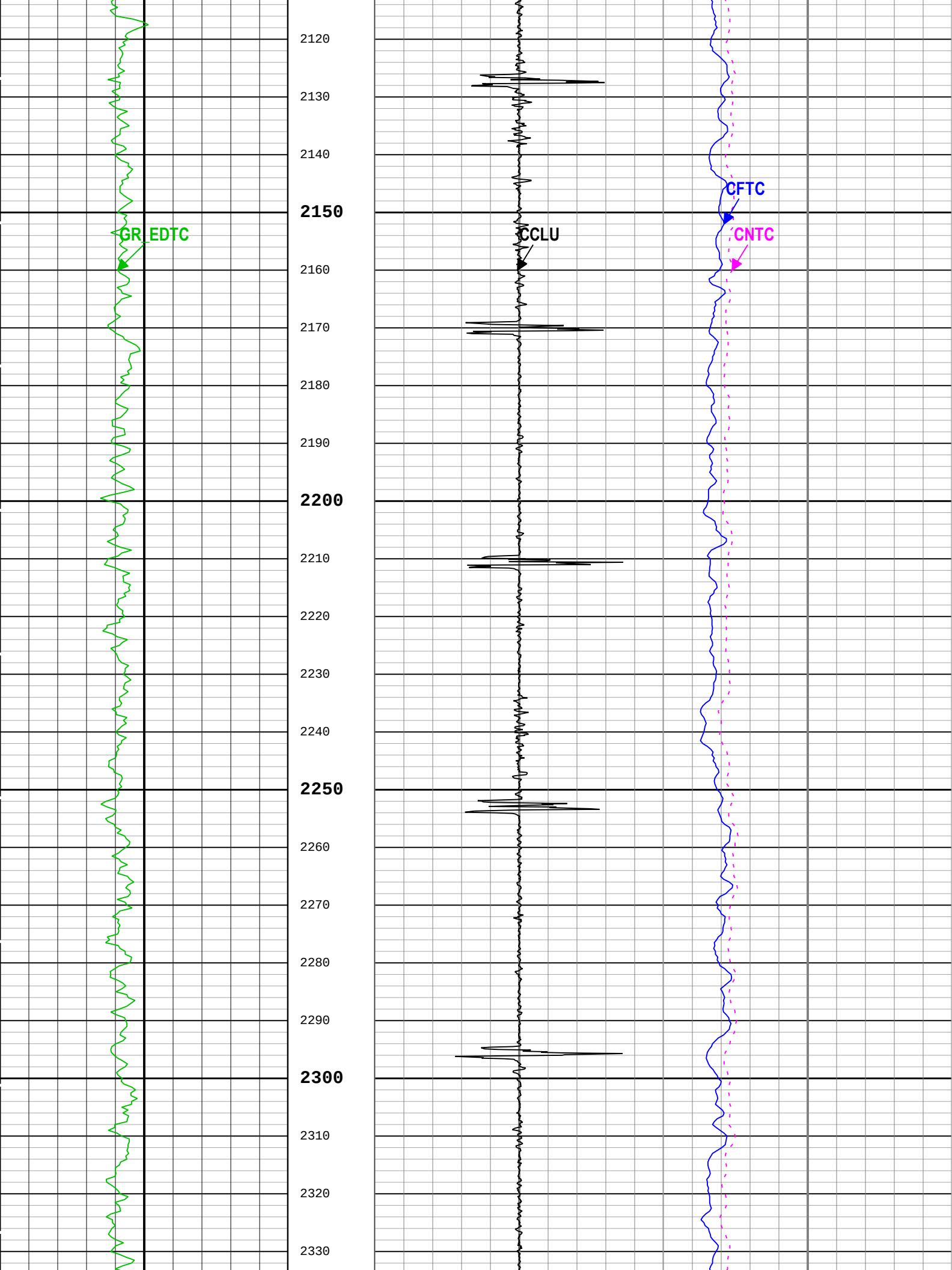
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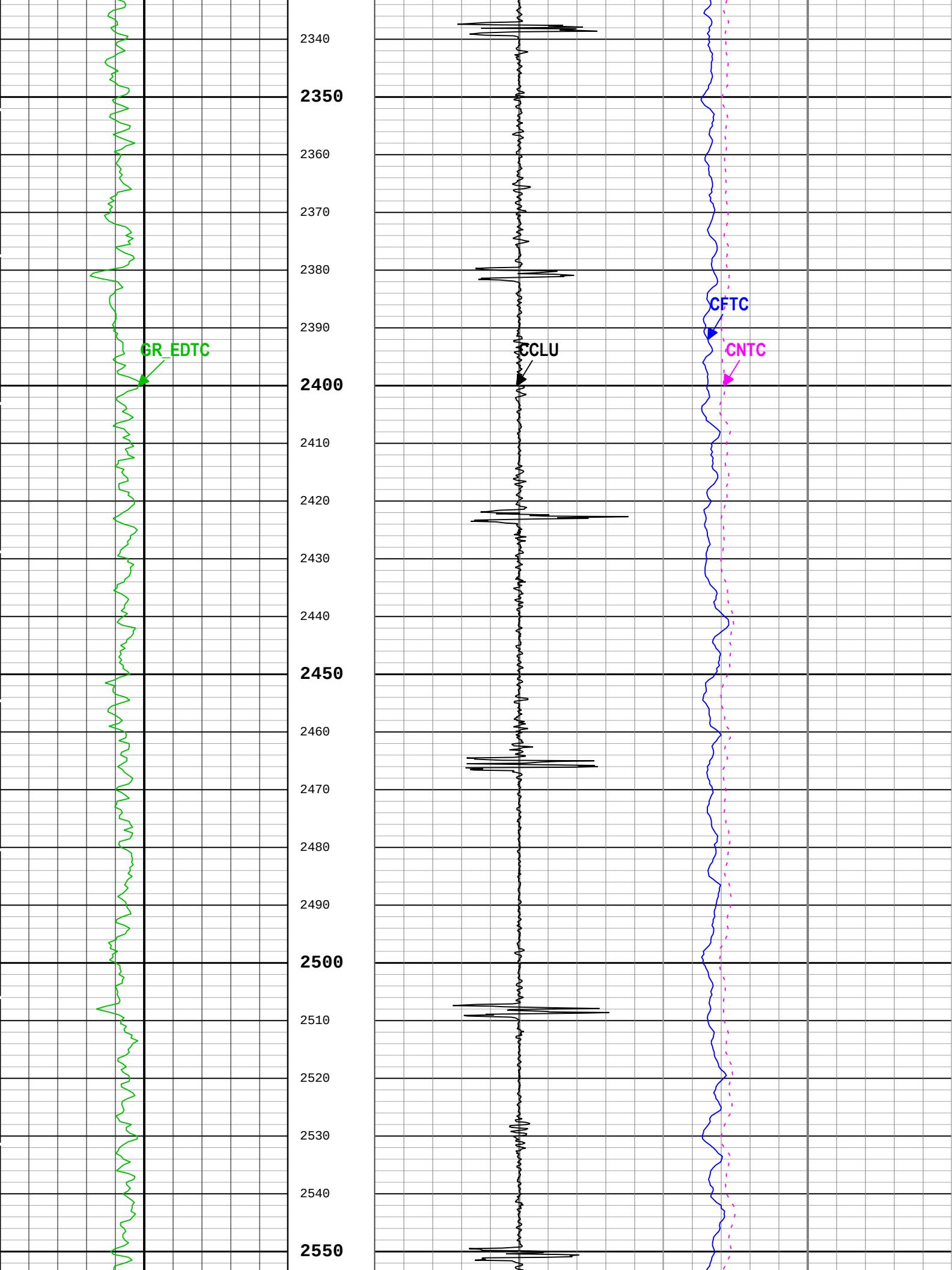
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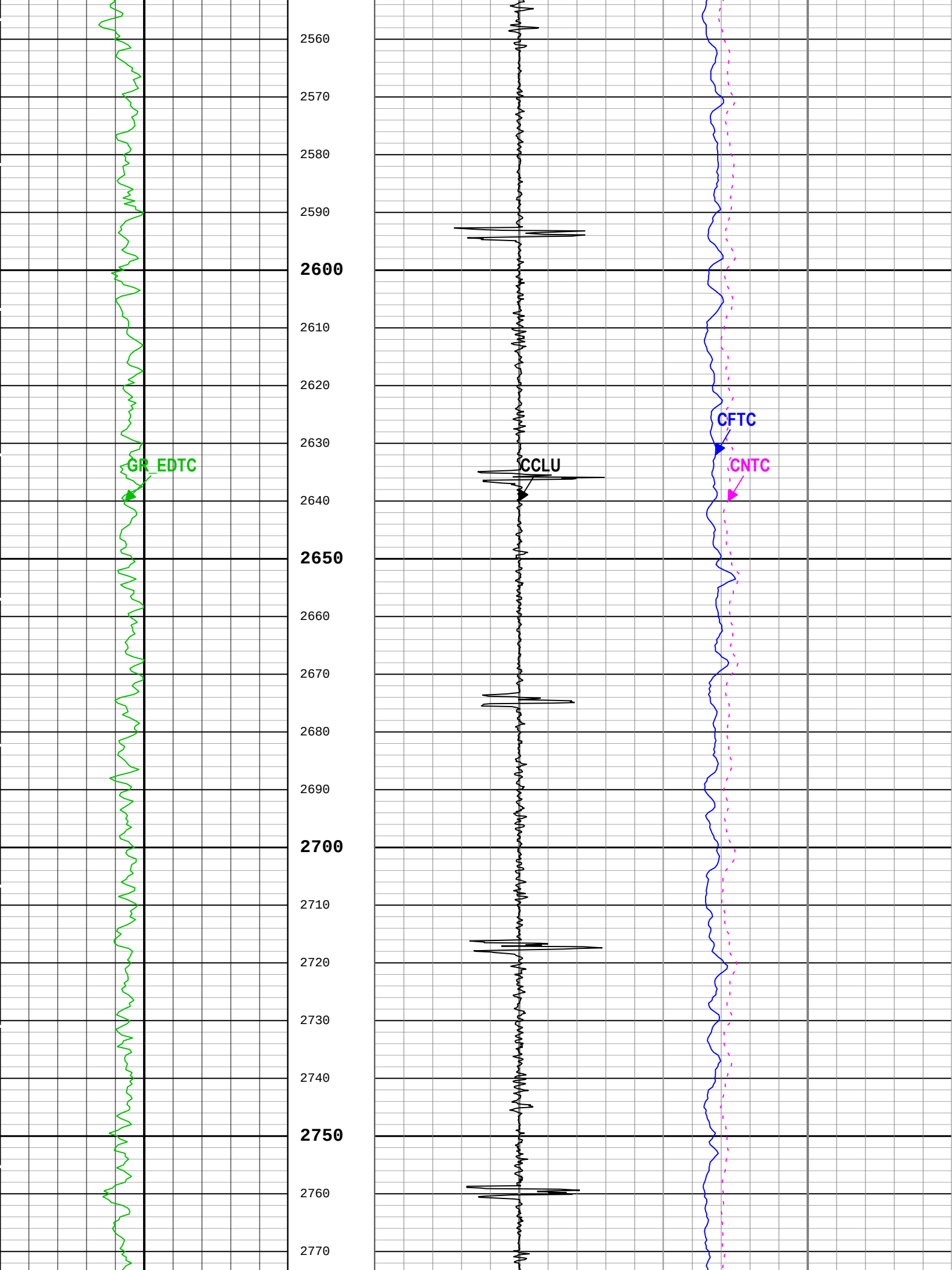
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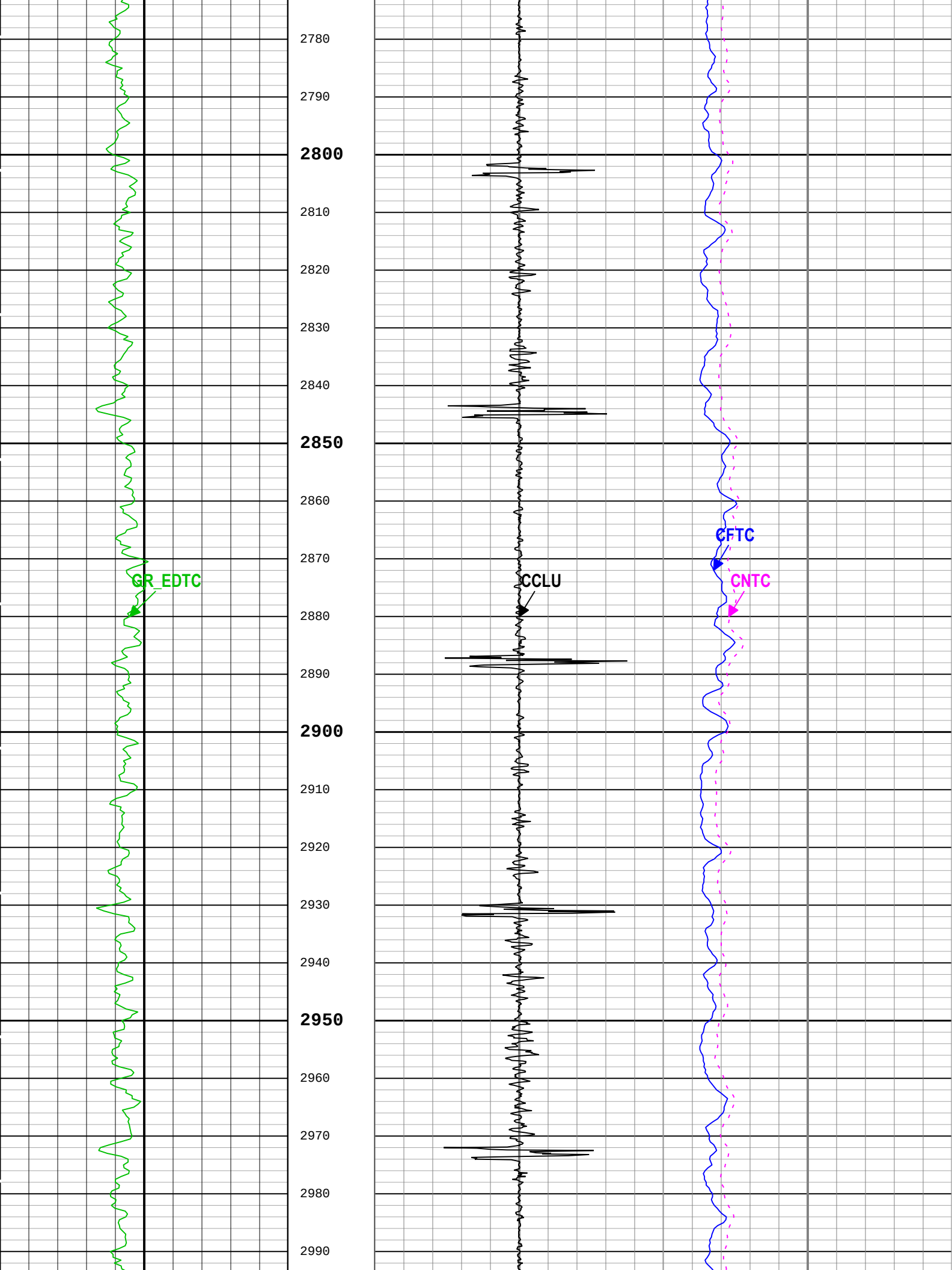
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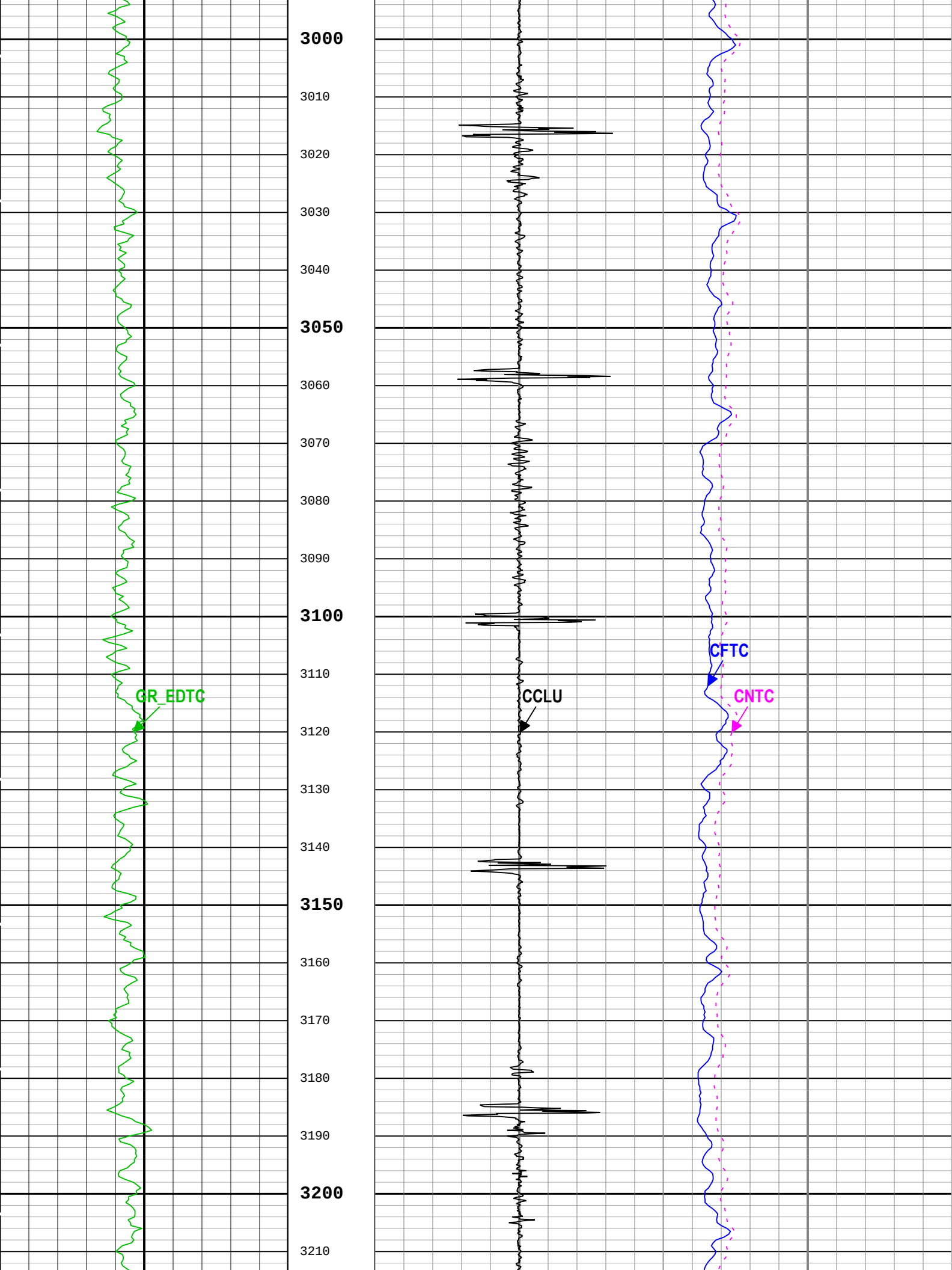
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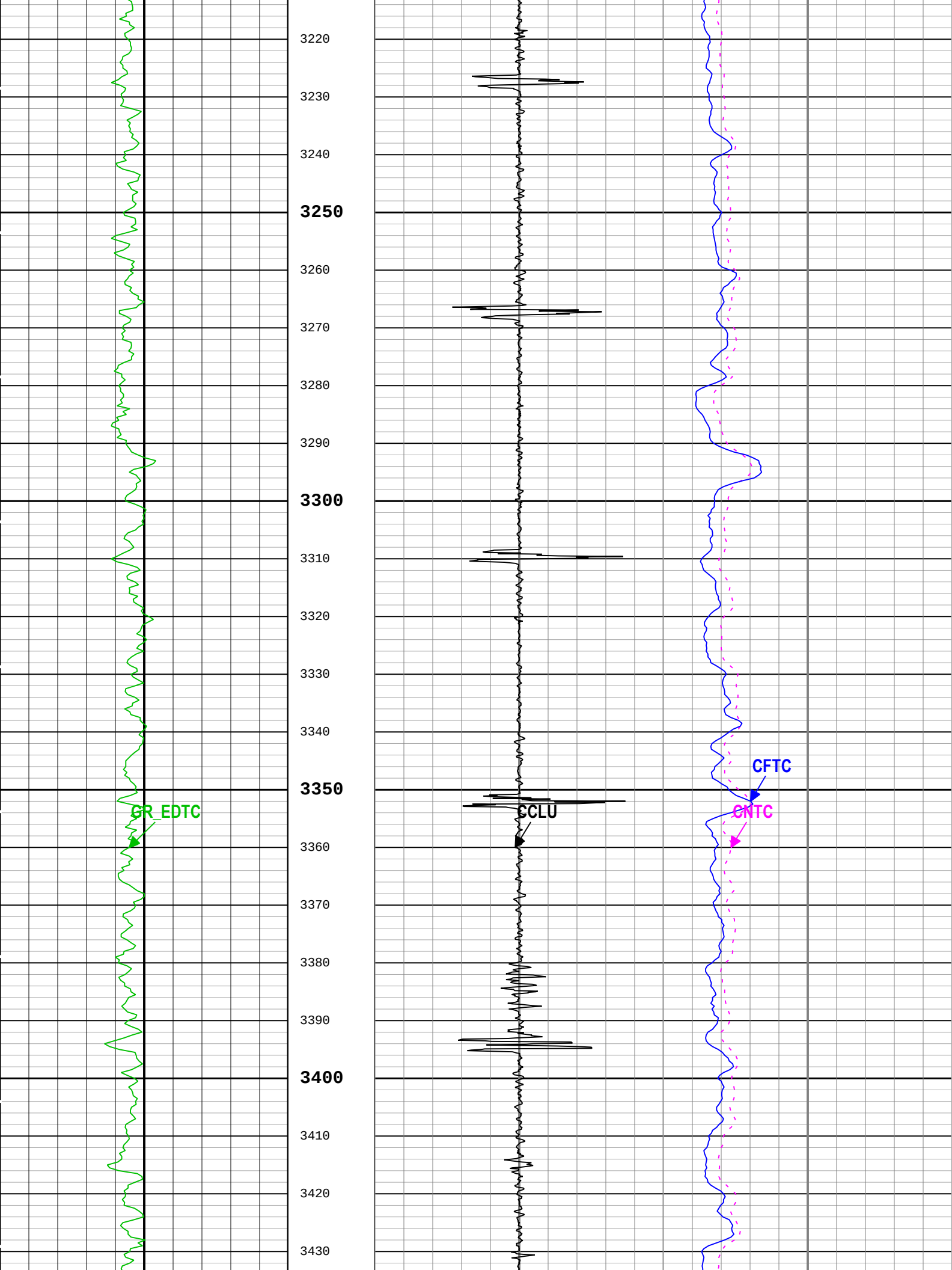
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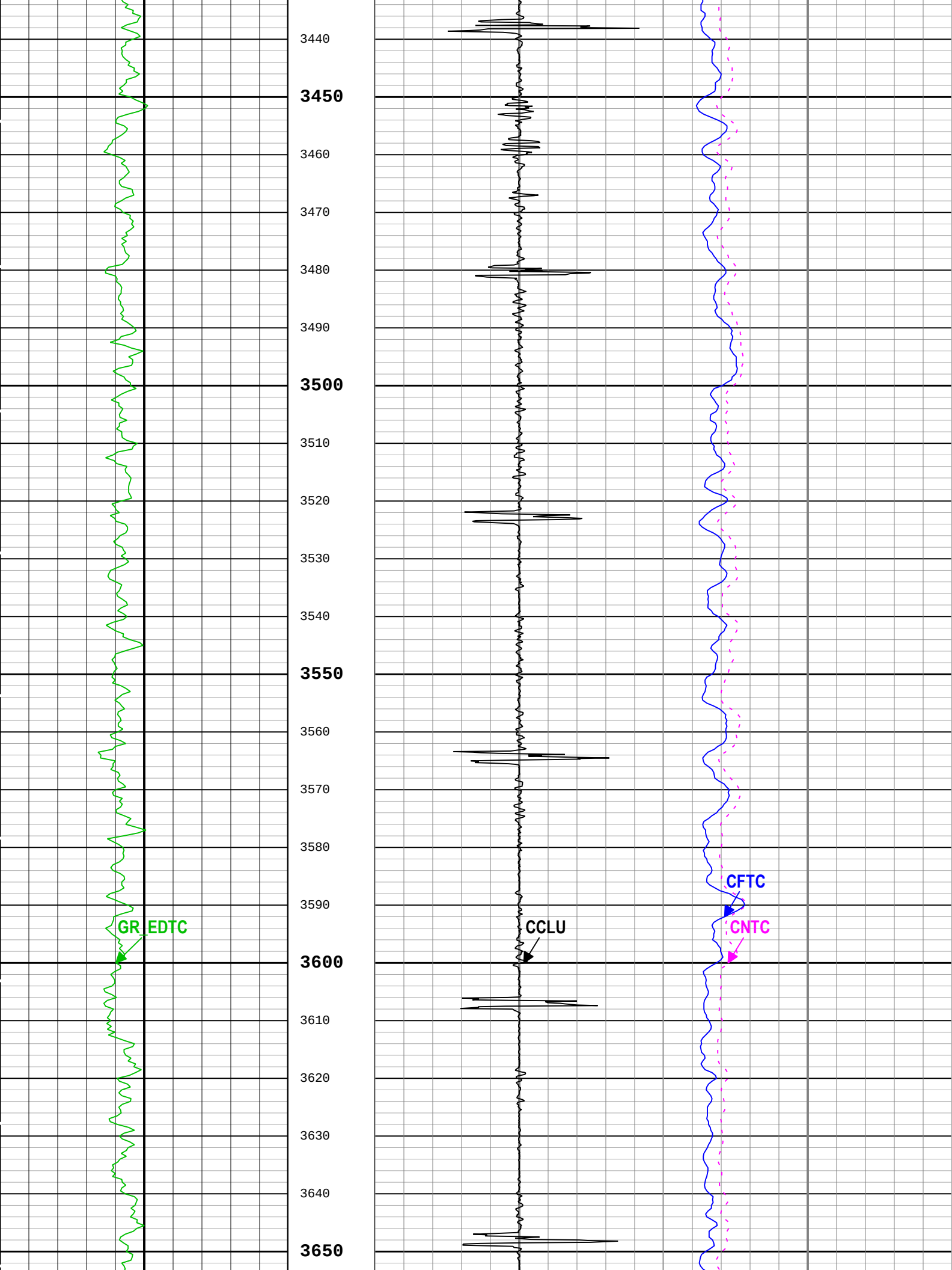
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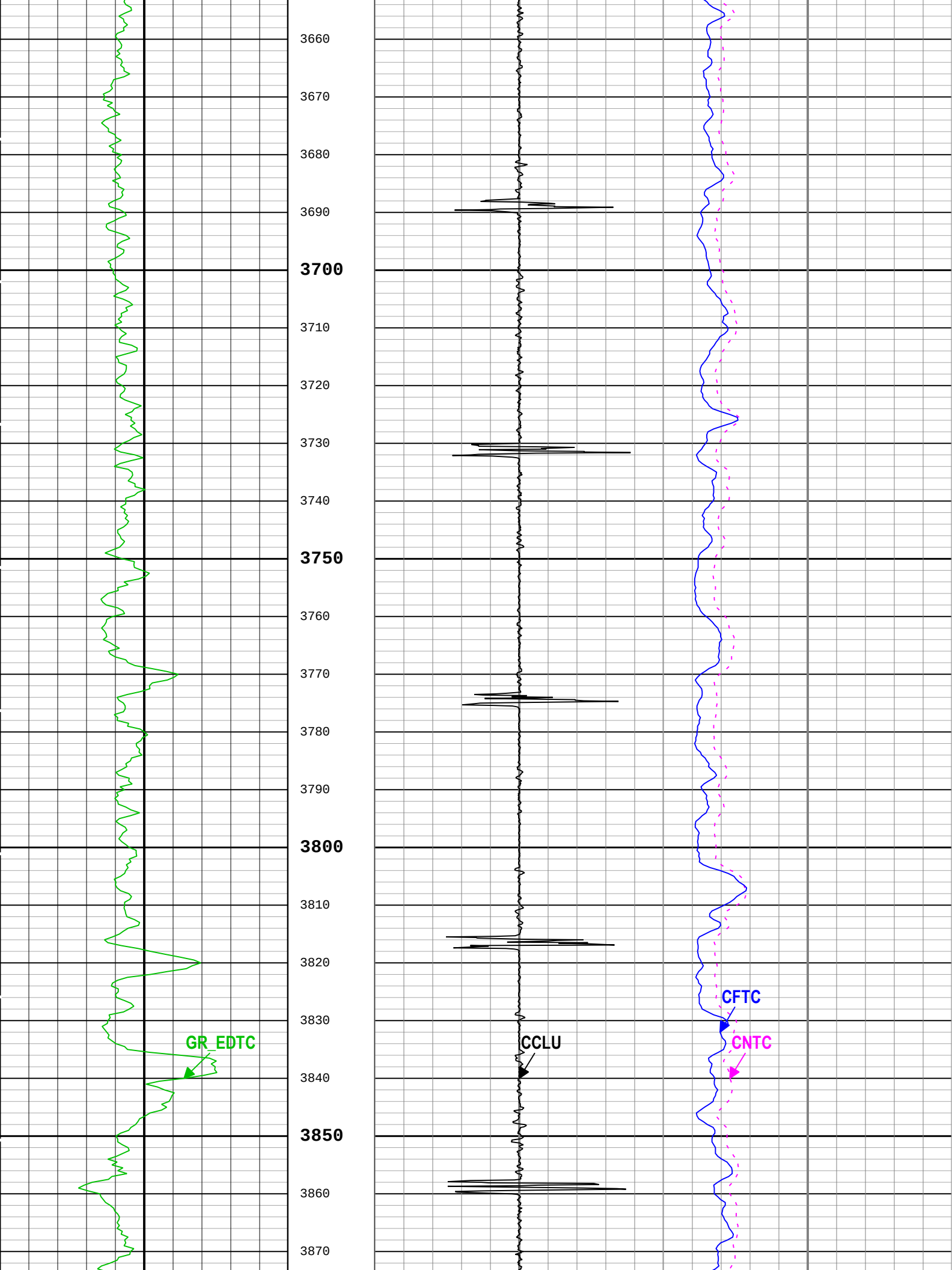
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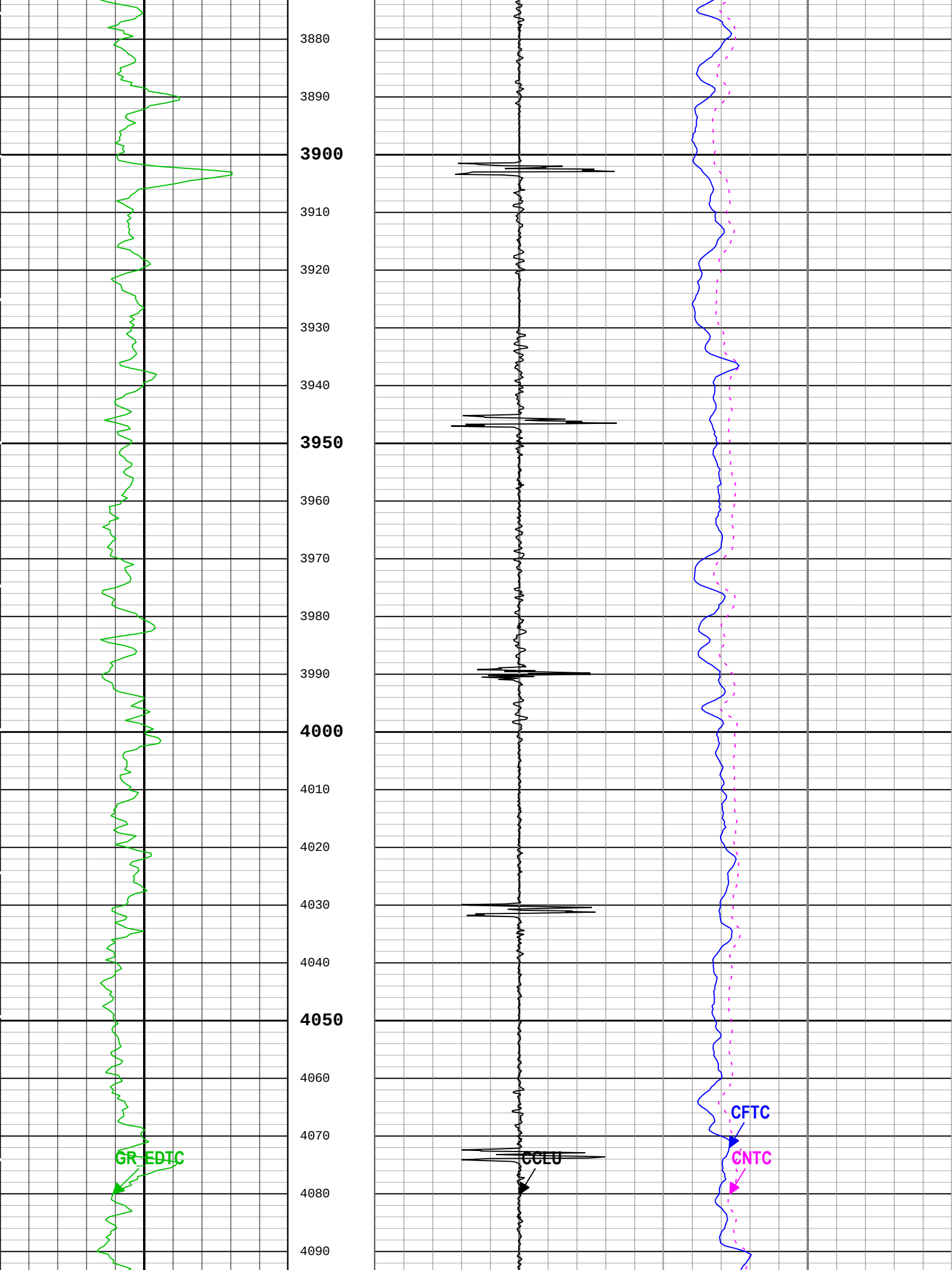
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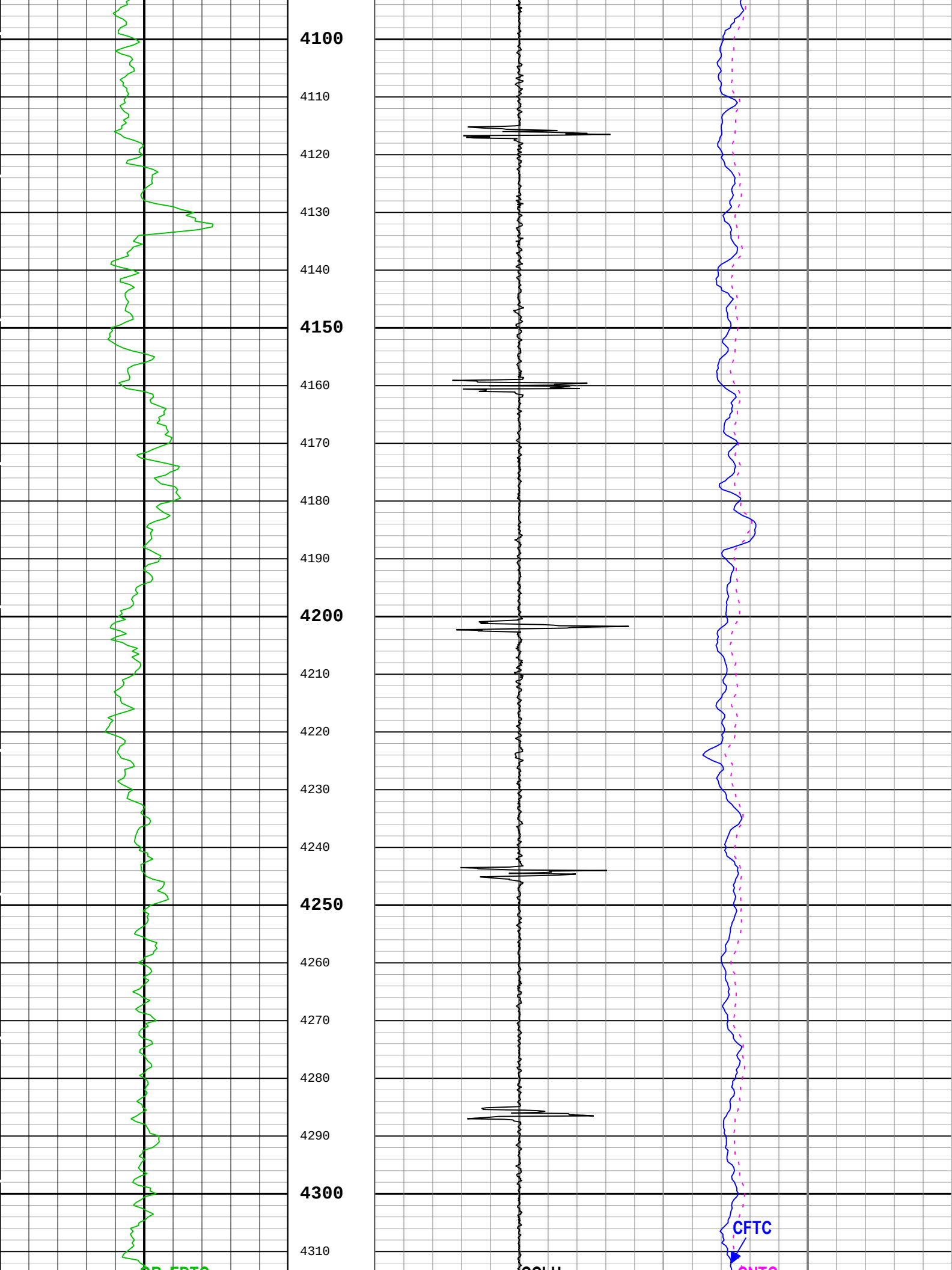
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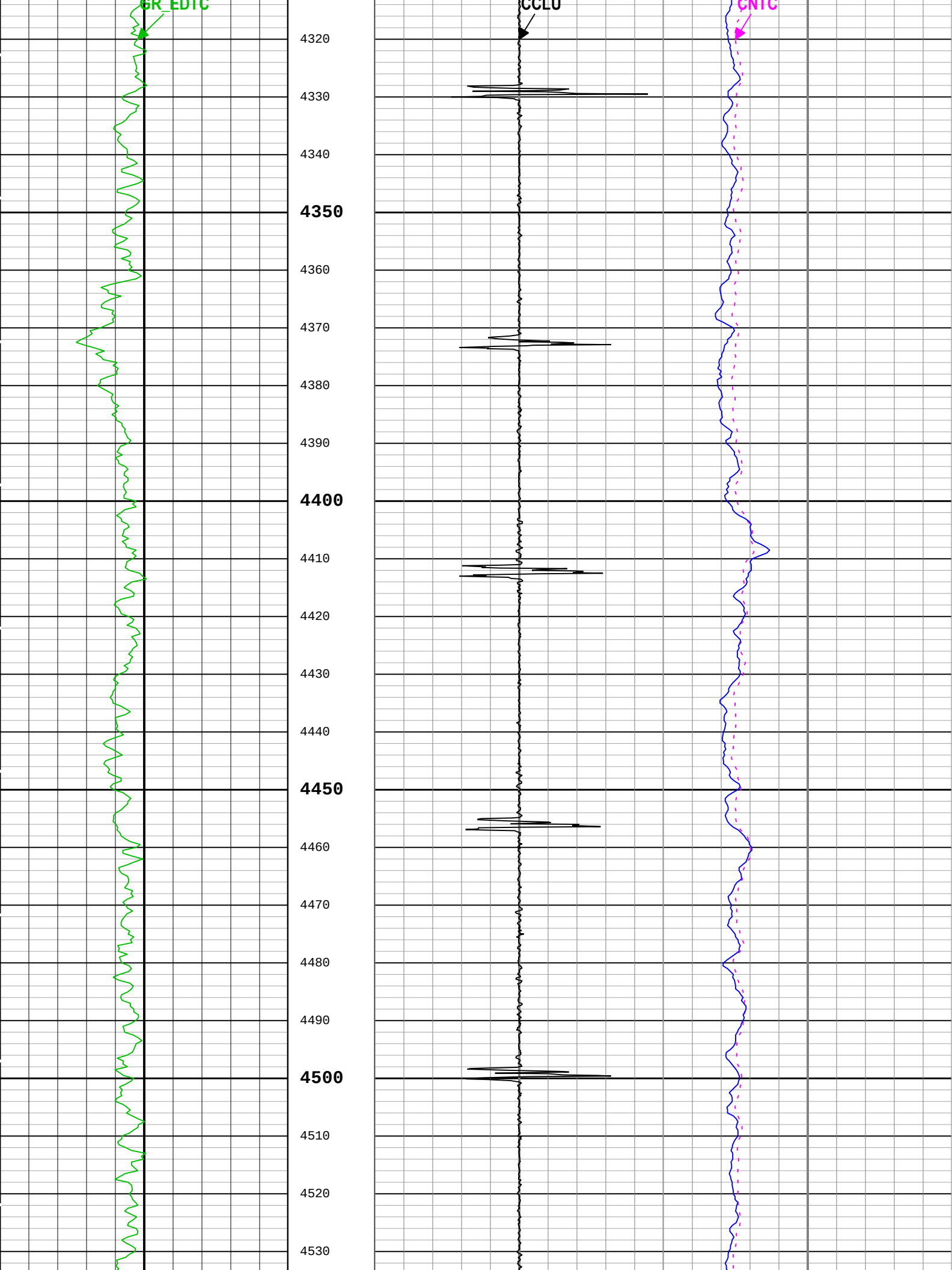
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CCLU
CNTC
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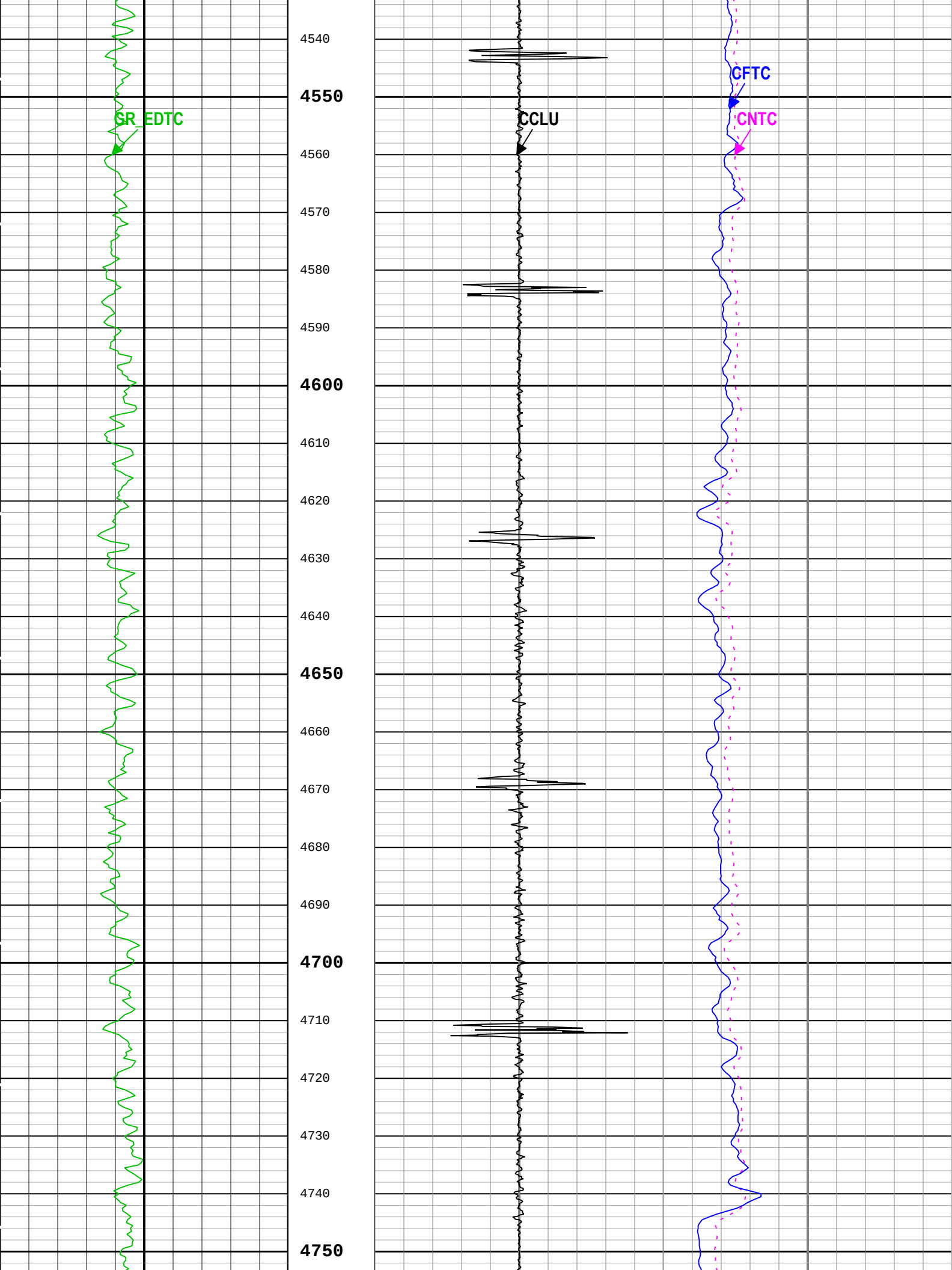
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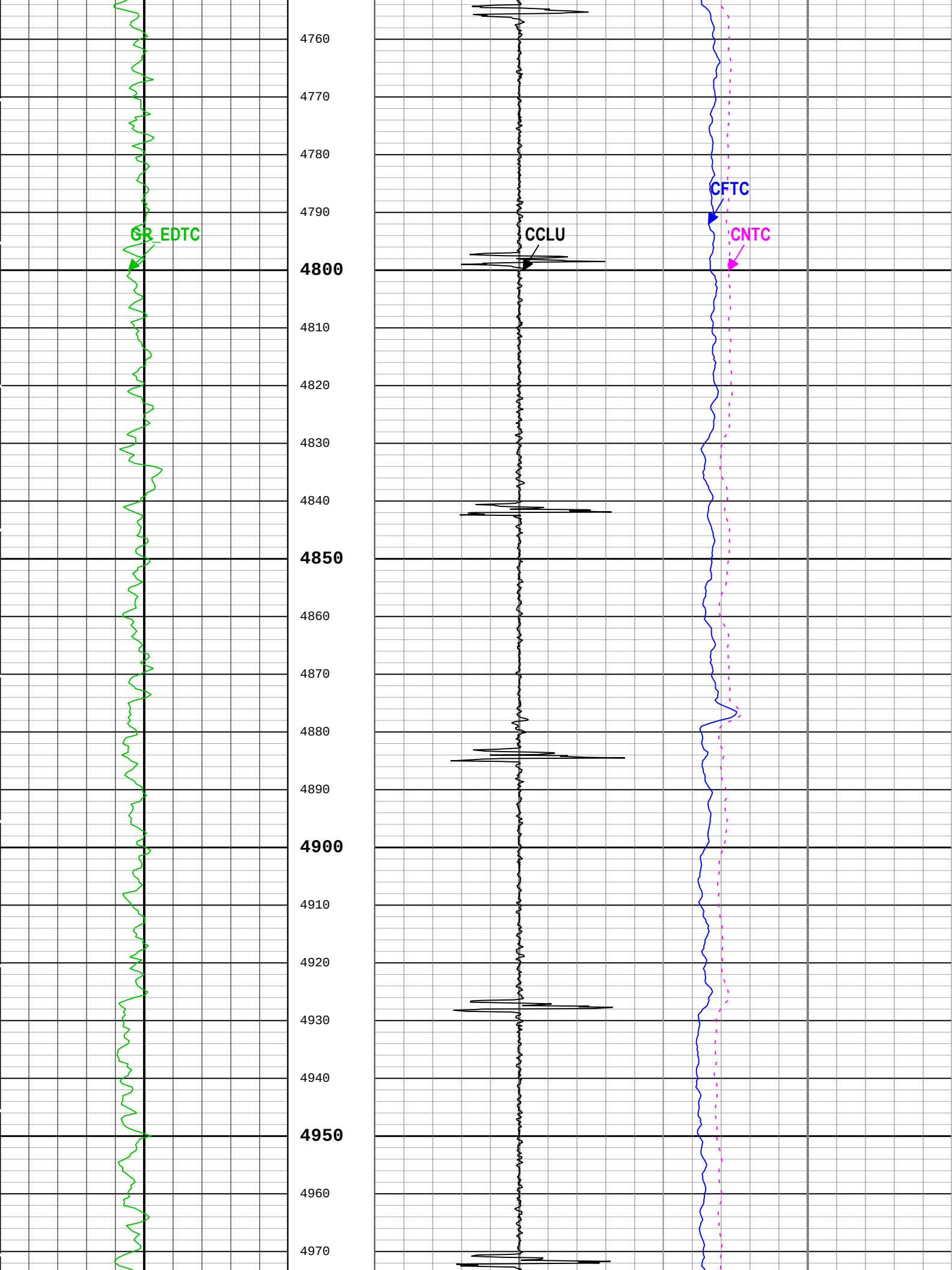
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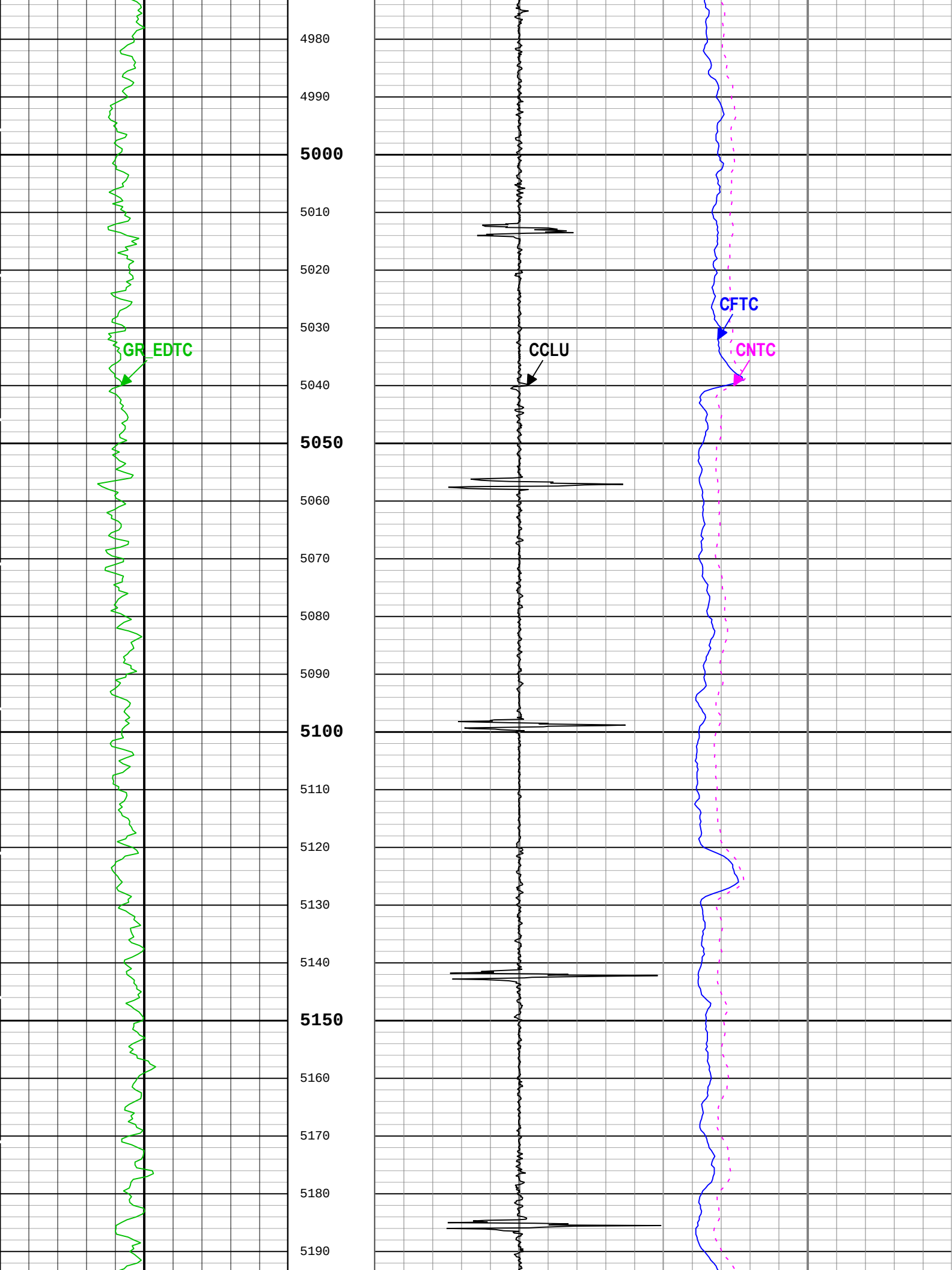
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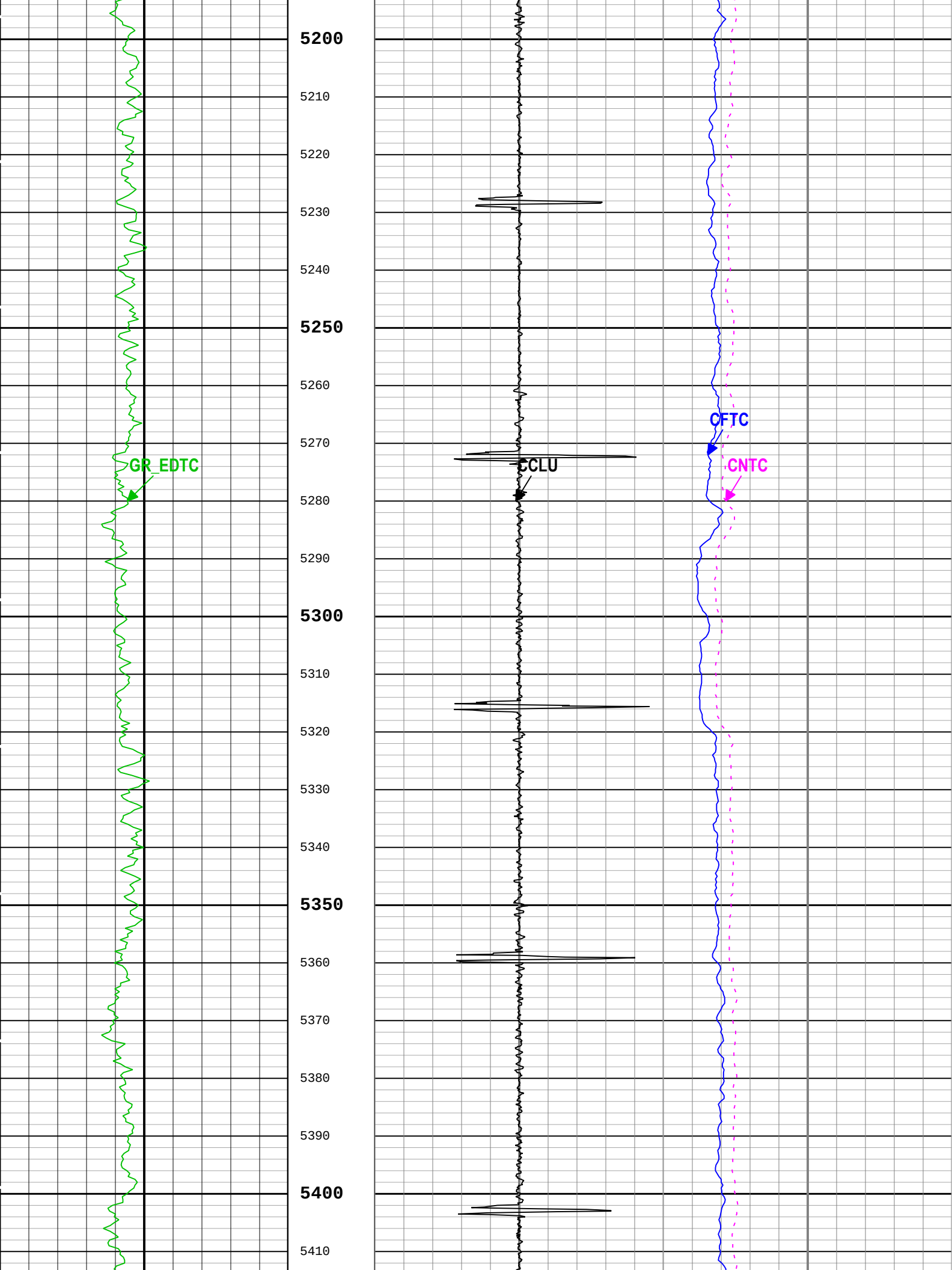
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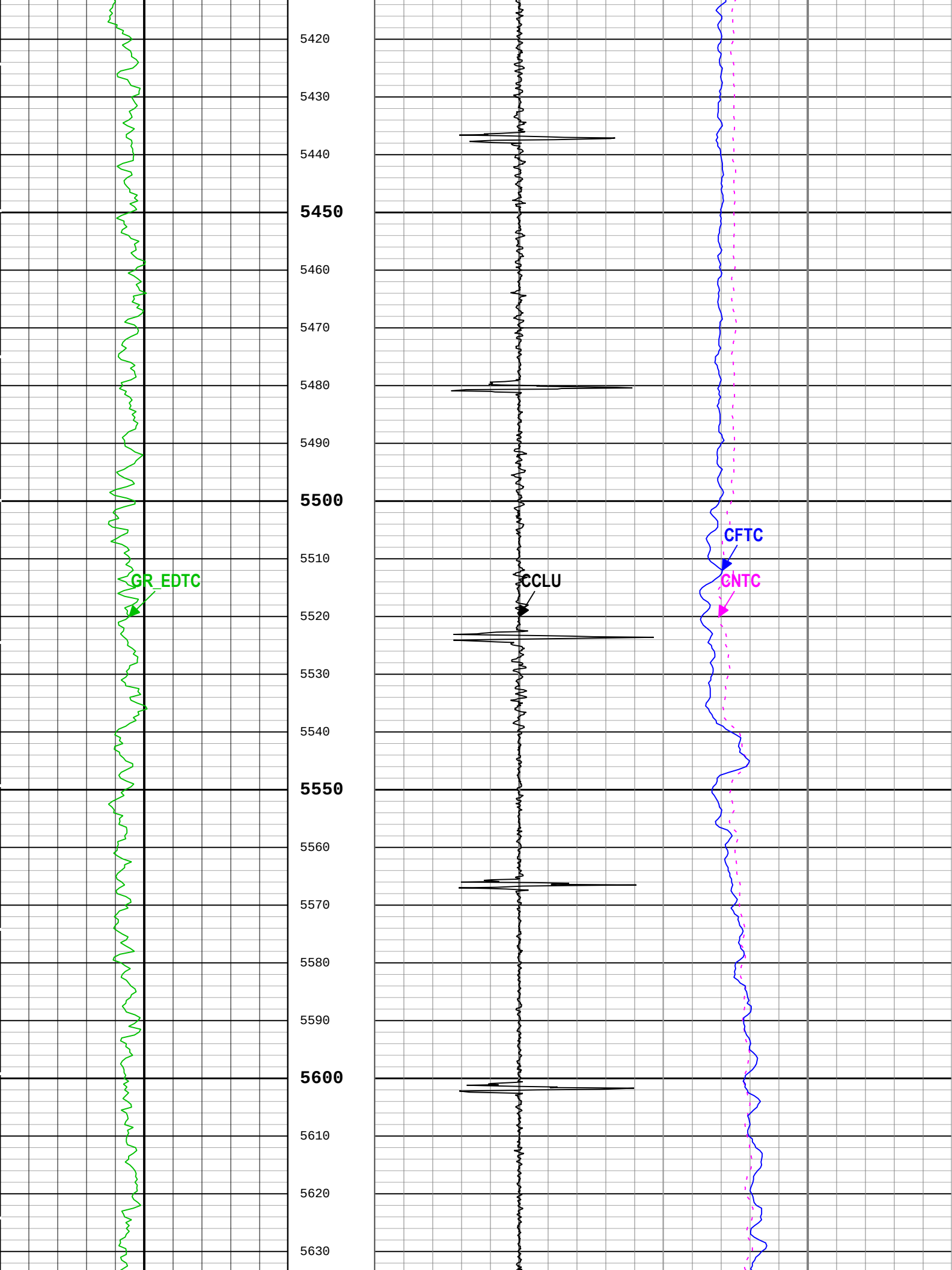
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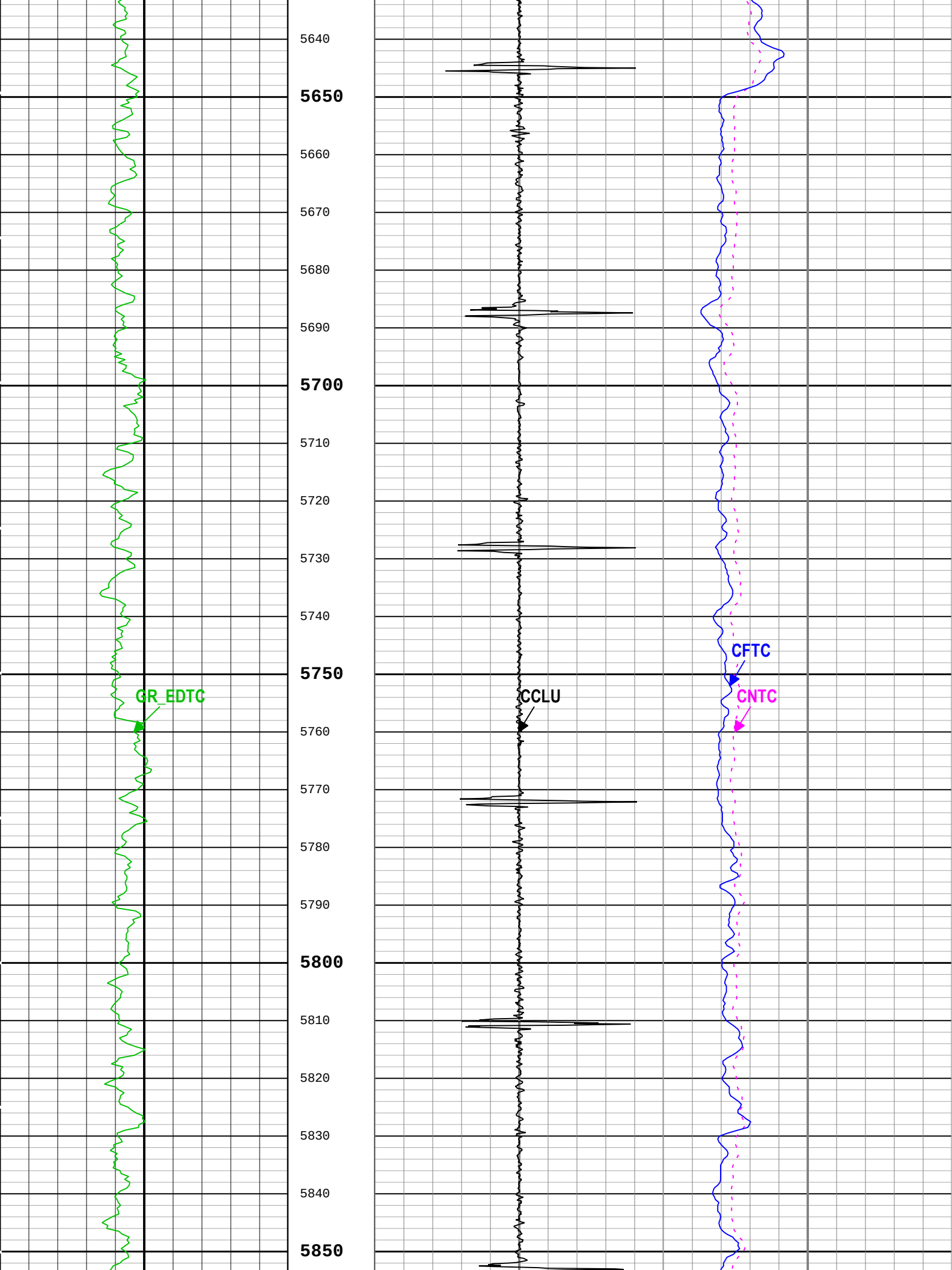
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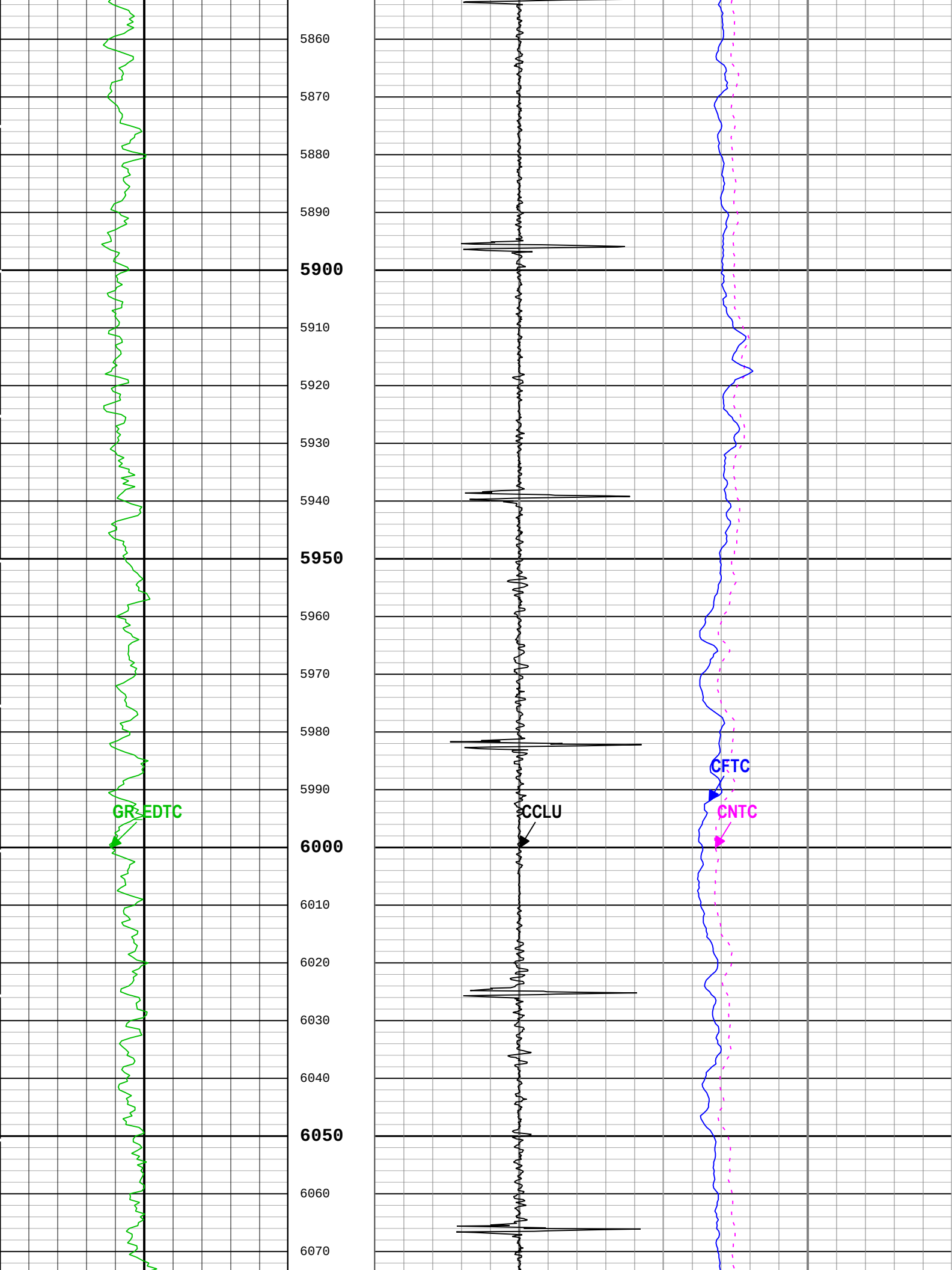
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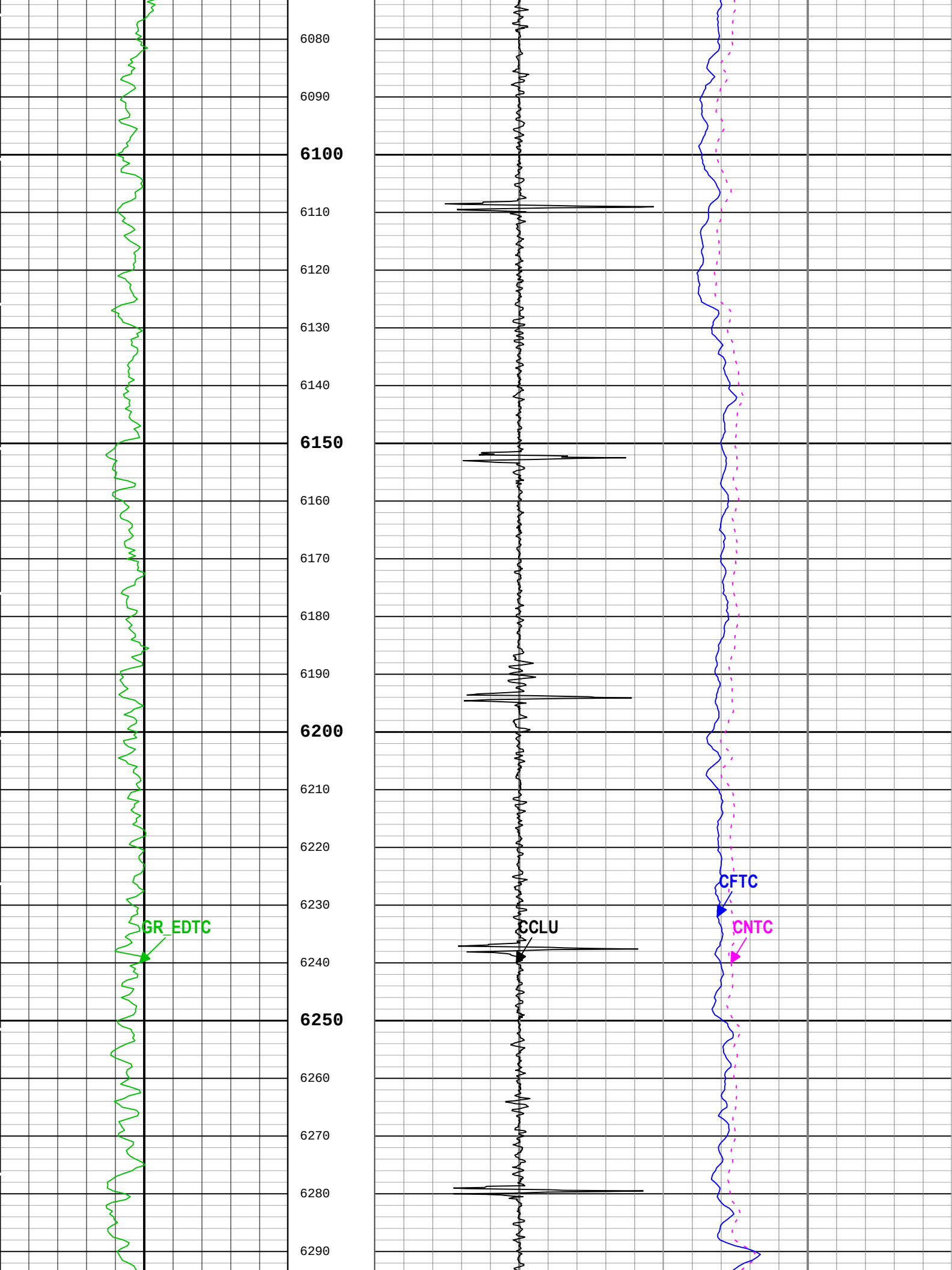
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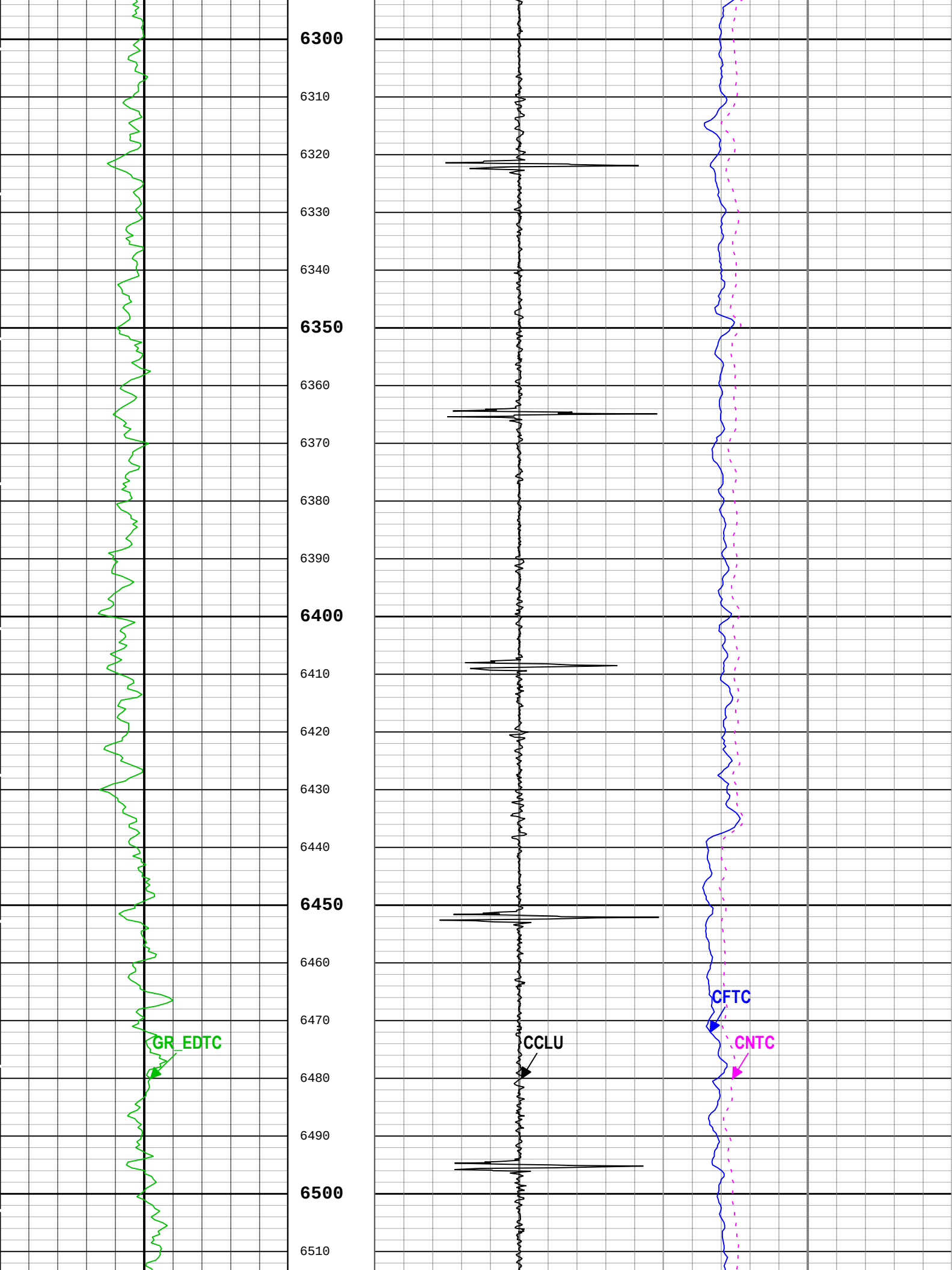
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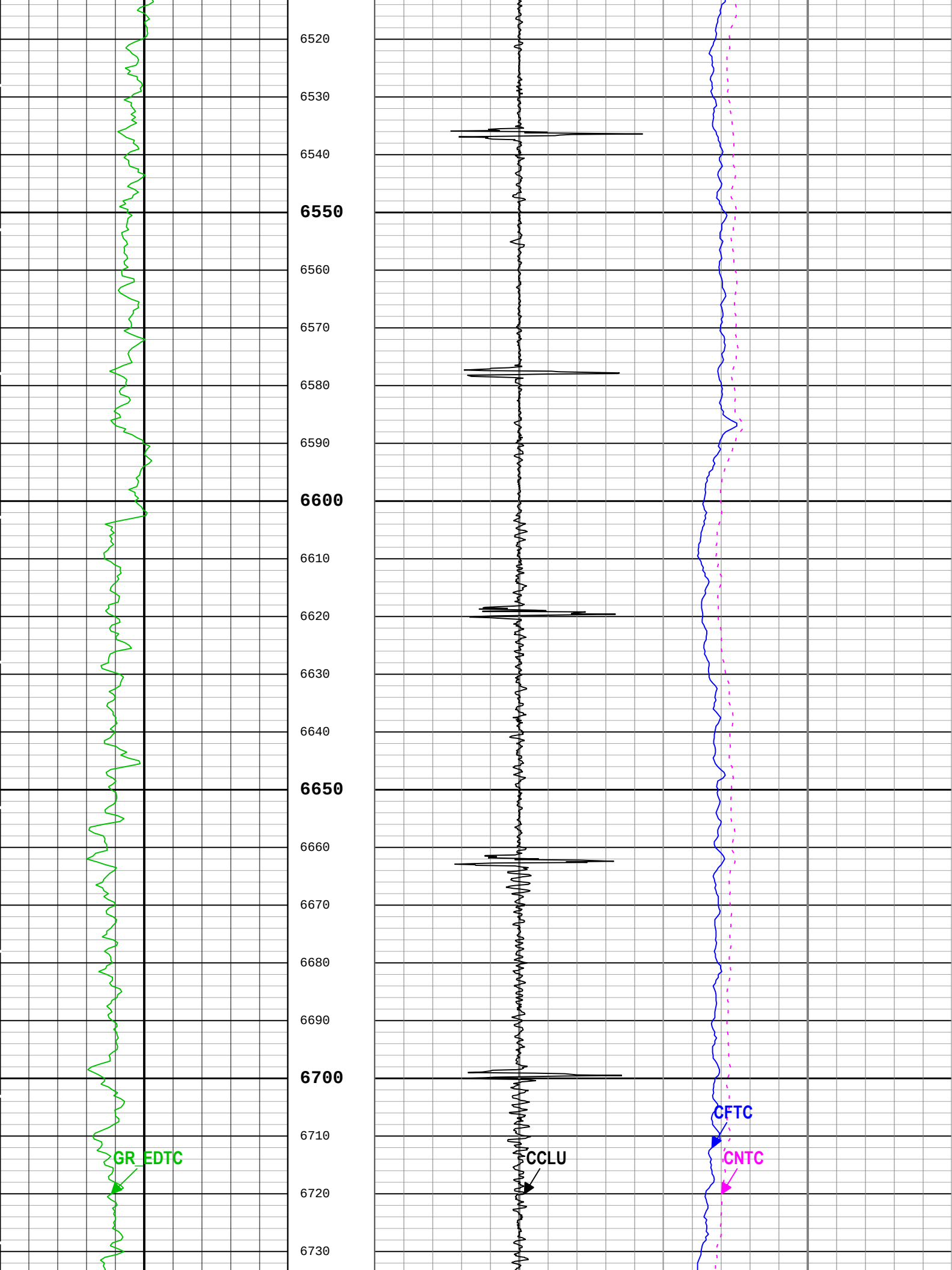
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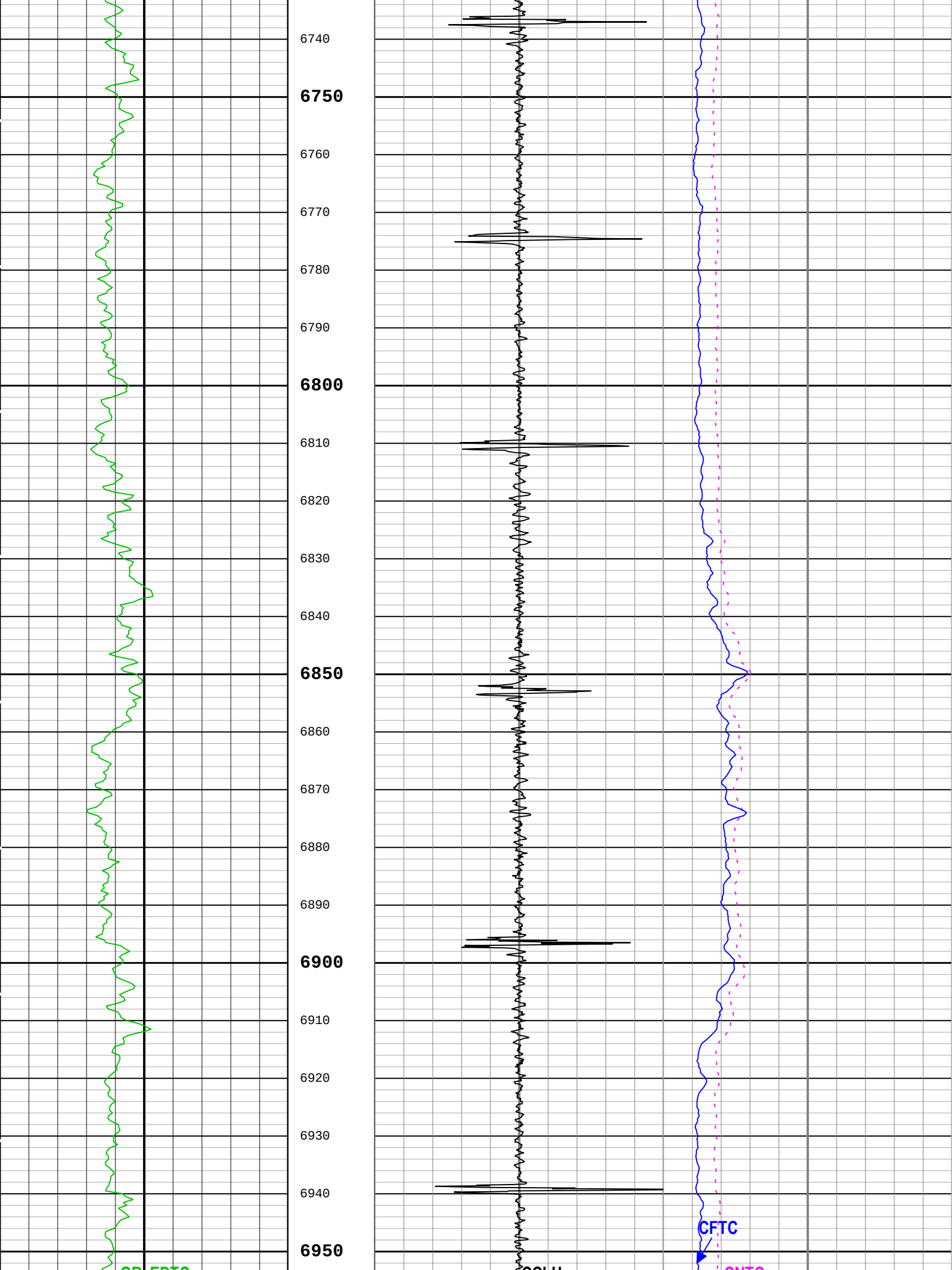
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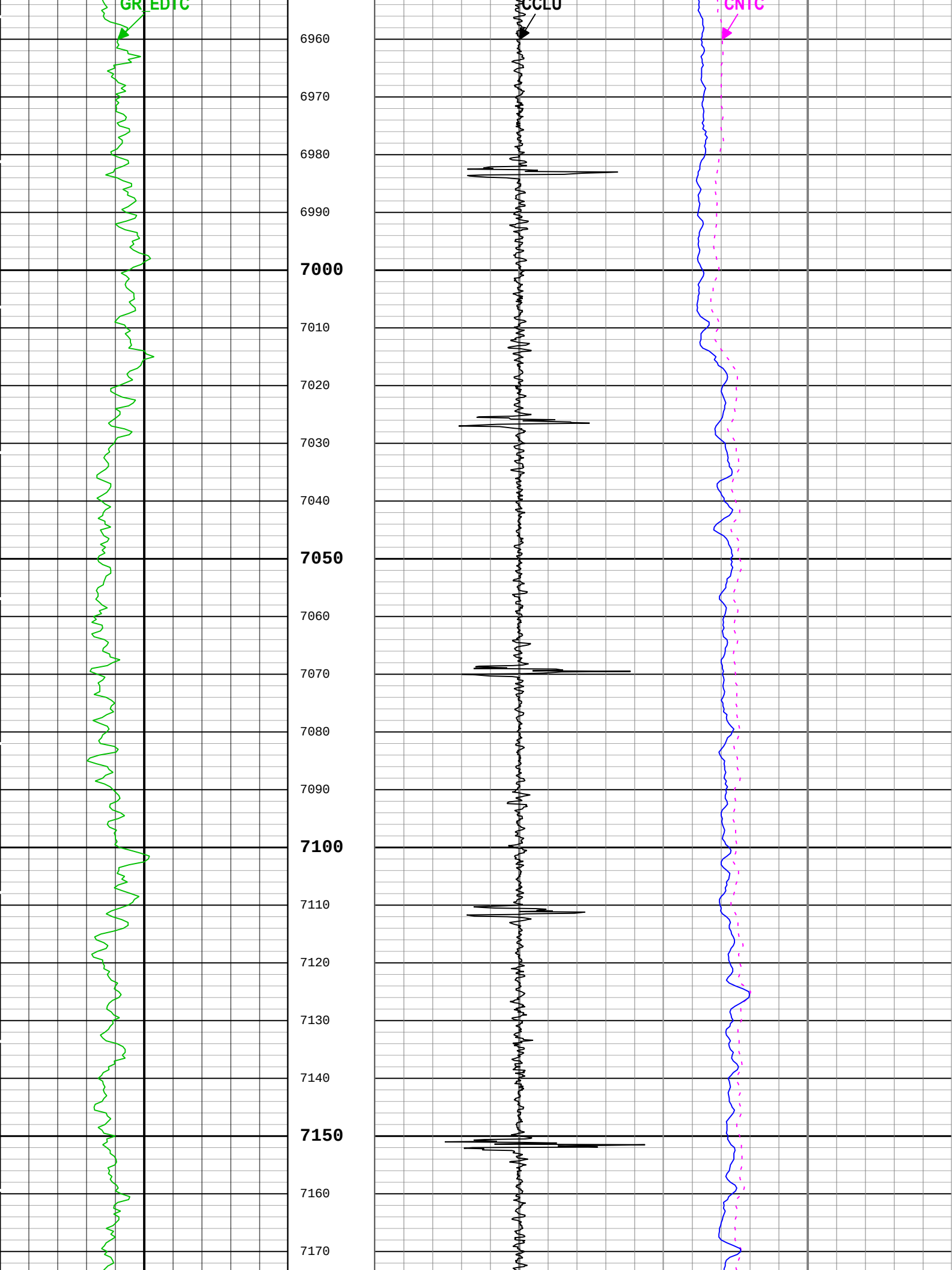
CFTC


GR EDTC
CCLU
CNTC
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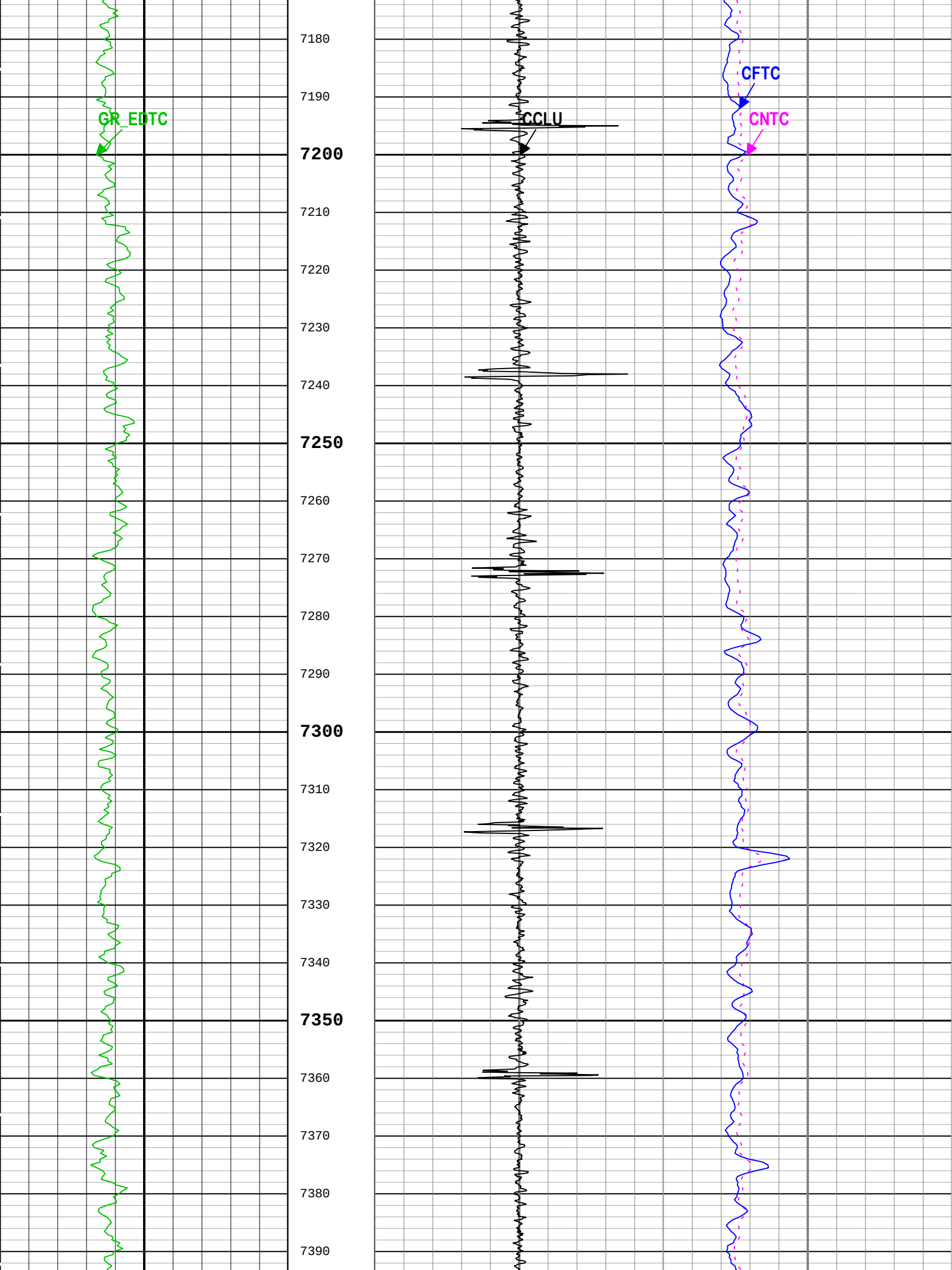
GR_EDTC
CCLU
CFTC
CNTC
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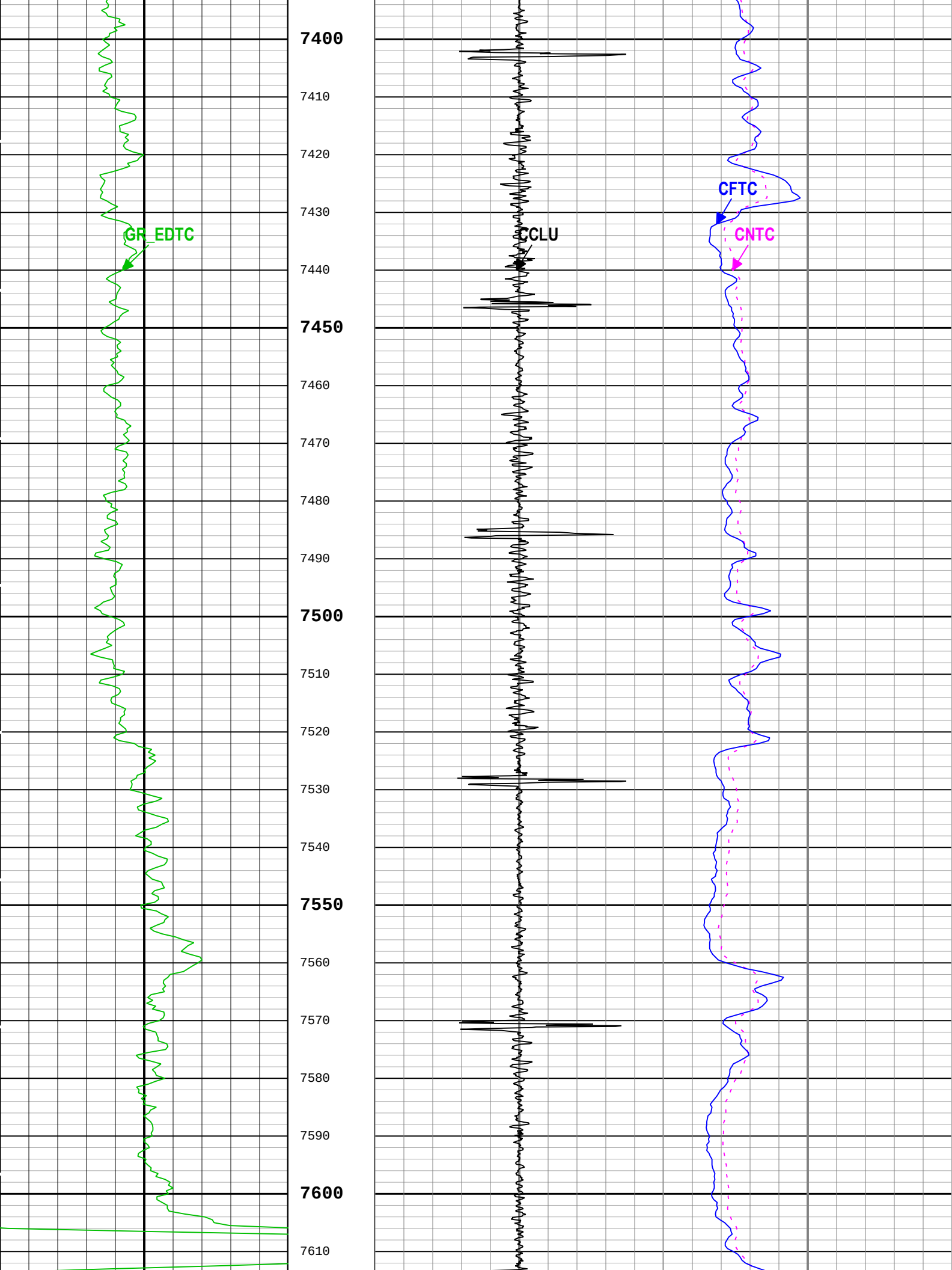
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CNTC
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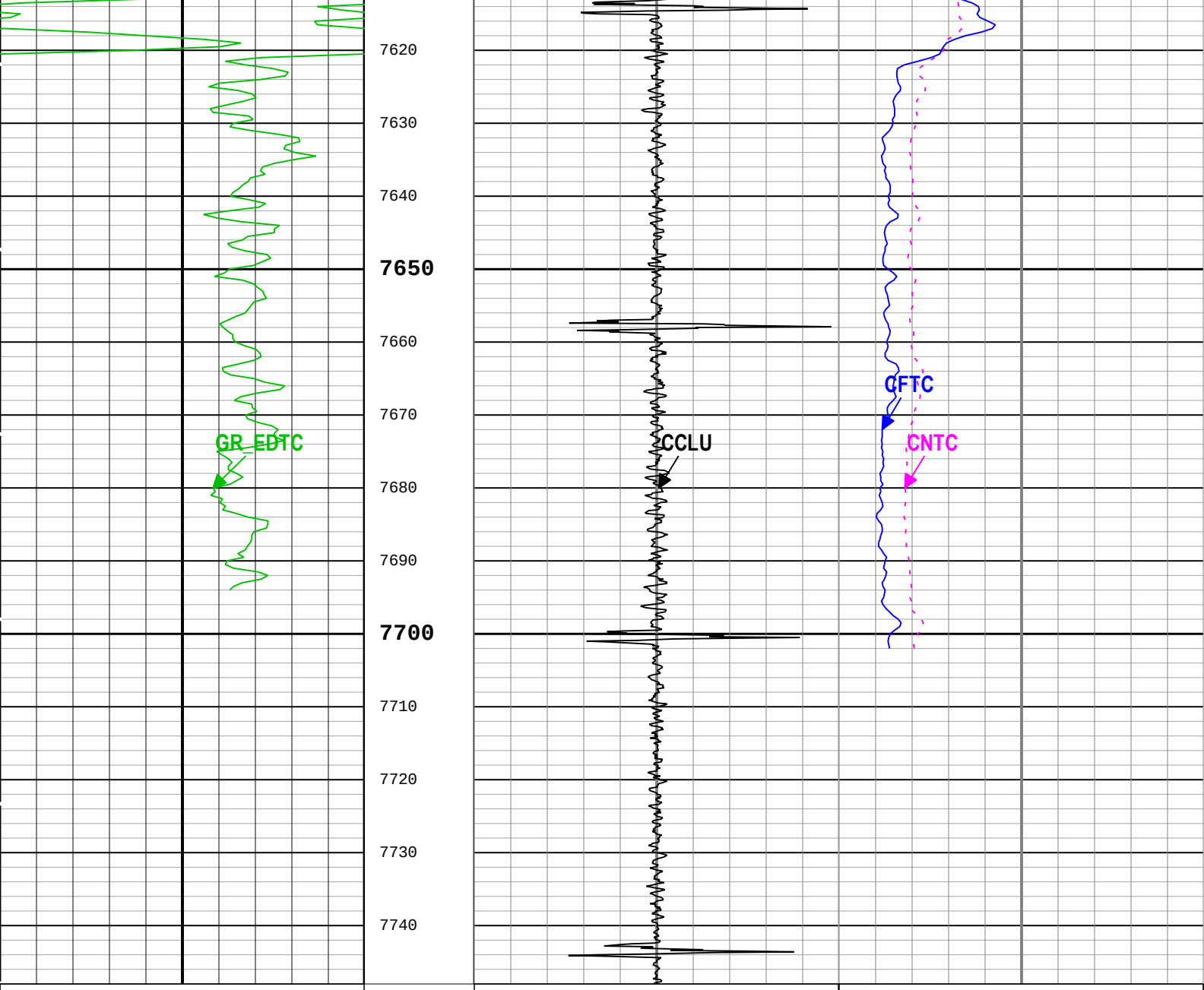


Calibrated Gamma Ray (GR_EDTC) EDTC-B
0 gAPI 150

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

Corrected Near Thermal Count Rate (CNTC) HGNS-H
0 1/s 7000

Corrected Far Thermal Count Rate (CFTC) HGNS-H
0 1/s 3000

TIME_1900 - Time Marked every 60.00 (s)

Description: Format: Log (GR-CCLU Correlation) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 23-Jan-2016 06:56:13

USIT - Fluid Properties Measurement

Run Name	Pass Name	Start Depth(ft)	Stop Depth(ft)
Run 1	Log[3]:Up	7748.81	16.71

Fluid Velocity = "Automatic".
CFVL equals DFSL channel

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

Mud Impedance = "FreePipe Norm.".
Free Pipe normalization zone is : 63.83m(209.41ft) to 74.79m(245.37ft)
MUD_N_FRP = 1.07
DFD = 1.02g/cm3(8.50lbm/gal)
CZMD median computed in free pipe normalization interval = 1.69 MRayl

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

One

USI-VDL Main Pass 5 in = 100 ft

Software Version

Acquisition System	Version
Maxwell 2016 SP1	6.1.58882.3100

Computation	Description	Version
CEVAL	Sonic Cement Evaluation Computation Ensemble provides common Parameters and Channels	6.1.58882.3100
Cementation	Cementation Computation Application	6.1.58882.3100

SoftwareVersion_Tool	SoftwareVersion_Run Version	SoftwareVersion_Build Version
WAFE-SEC	Synergy SV451EC version 9.10	Synergy SV451EC version 9.10
WAFE-FEC	Synergy SV451EC version 9.10	Synergy SV451EC version 9.10
WAFE-TMDI	Synergy SV451EC version 46.19	Synergy SV451EC version 46.19

Tool Elements	Description	Software Version	Firmware Version
SLS-E	Sonic Logging Sonde E supports 3'-5'BHC DT and CBL/VDL	6.1.58882.3100	4.0
USI-SENSOR	USIT Transducer Element	6.1.58882.3100	DSP: v1.82
EDTC-B	Enhanced Digital Telemetry Cartridge - B	6.1.58882.3100	

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[3]:Up	Up	16.71 ft	7748.81 ft	22-Jan-2016 8:47:51 AM	22-Jan-2016 2:03:15 PM	ON	2.00 ft	Yes

All depths are referenced to toolstring zero

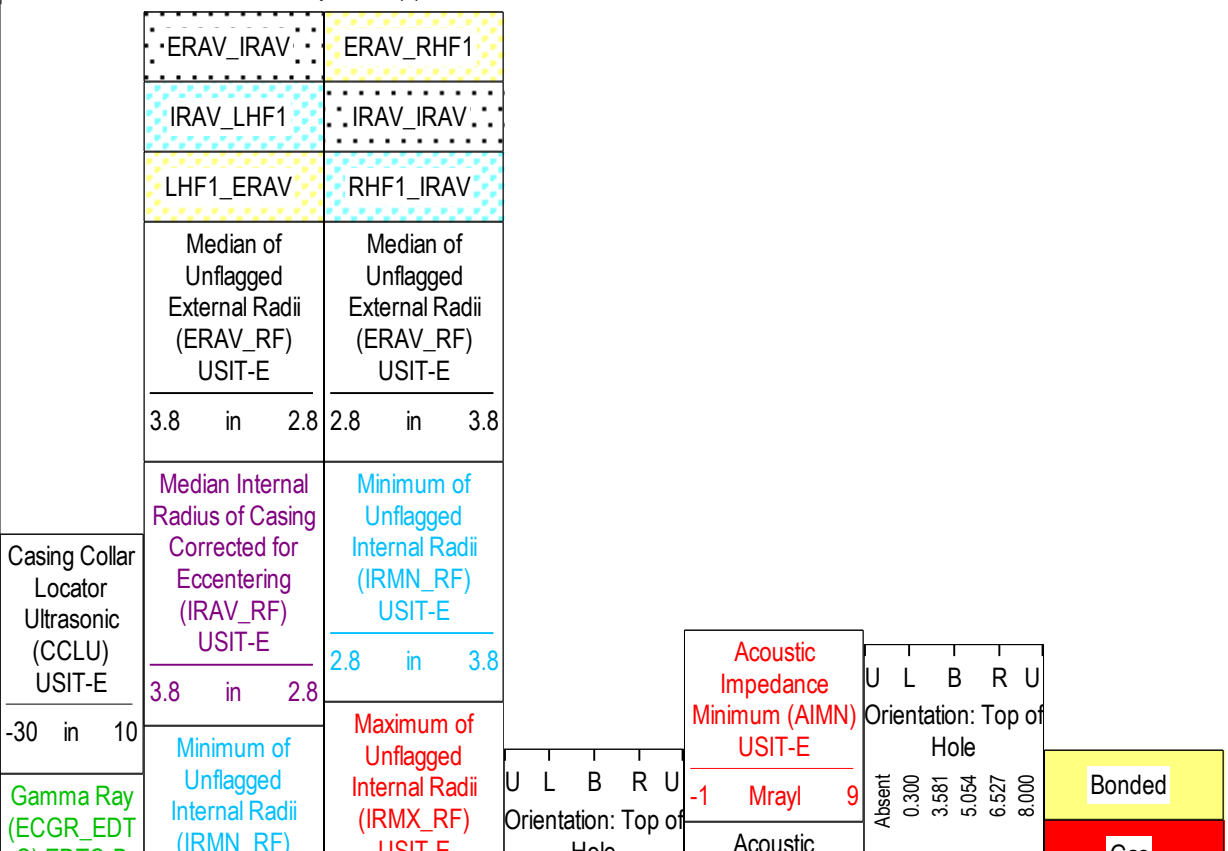
Log

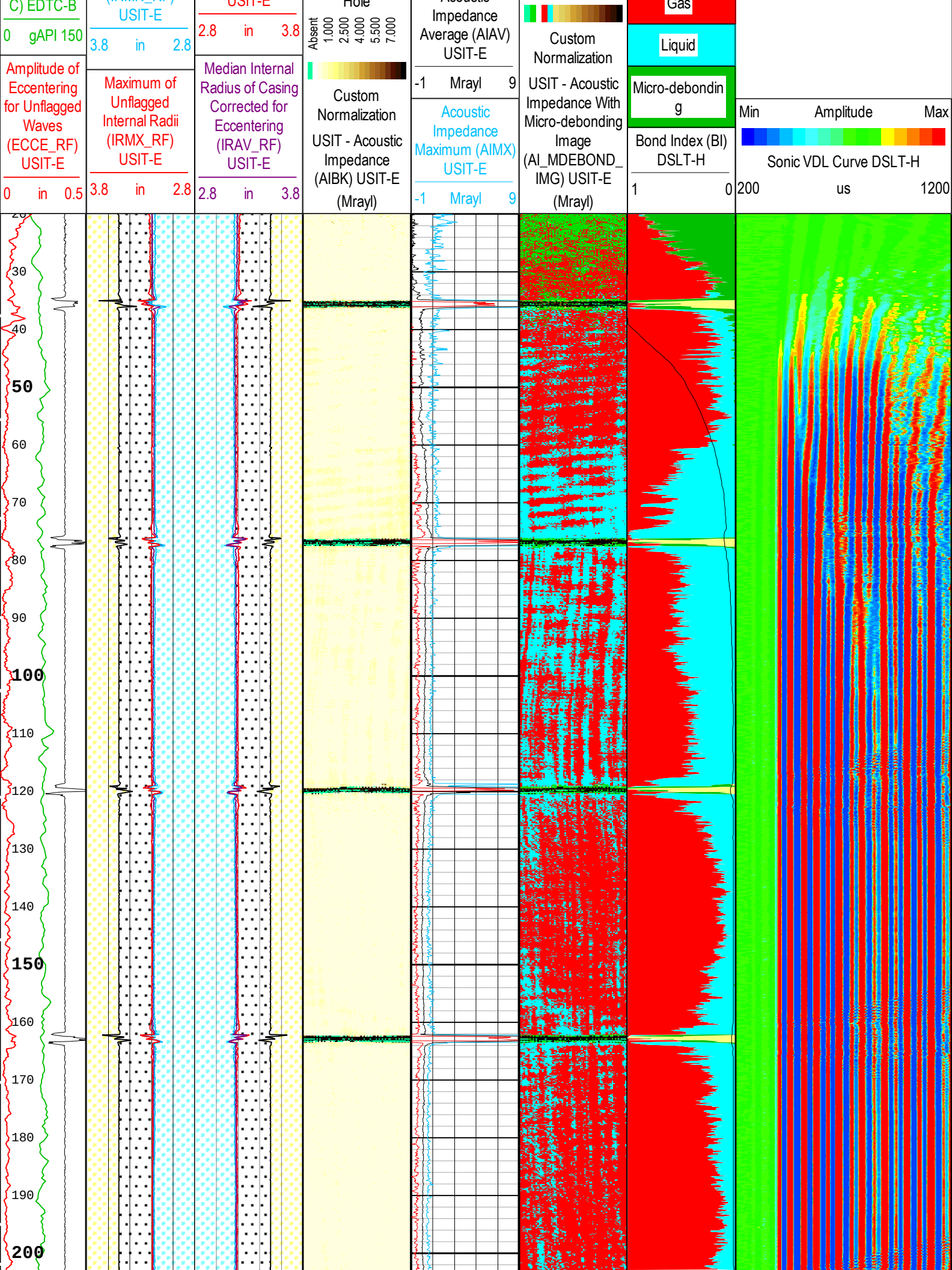
Company:Southern California Gas Company Well:Porter 35

One: Log[3]:Up:S008

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: 23-Jan-2016 06:56:24

TIME_1900 - Time Marked every 60.00 (s)




C) EDTC-B
0 gAPI 150
Amplitude of Eccentering for Unflagged Waves (ECCE_RF) USIT-E
0 in 0.5
USIT-E
3.8 in 2.8
Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
3.8 in 2.8
USIT-E
2.8 in 3.8
Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E
2.8 in 3.8
Hole
Absent
1.000
2.500
4.000
5.500
7.000
Custom Normalization
USIT - Acoustic Impedance (AIBK) USIT-E (Mrayl)
Impedance Average (AIAV) USIT-E
-1 Mrayl 9
Acoustic Impedance Maximum (AIMX) USIT-E
-1 Mrayl 9
Custom Normalization
USIT - Acoustic Impedance With Micro-debonding Image (AI_MDEBOND_IMG) USIT-E (Mrayl)
Gas
Liquid
Micro-debonding
Bond Index (BI) DSLT-H
1 0
Min Amplitude Max
Sonic VDL Curve DSLT-H
200 us 1200
30
40
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60
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90
100
110
120
130
140
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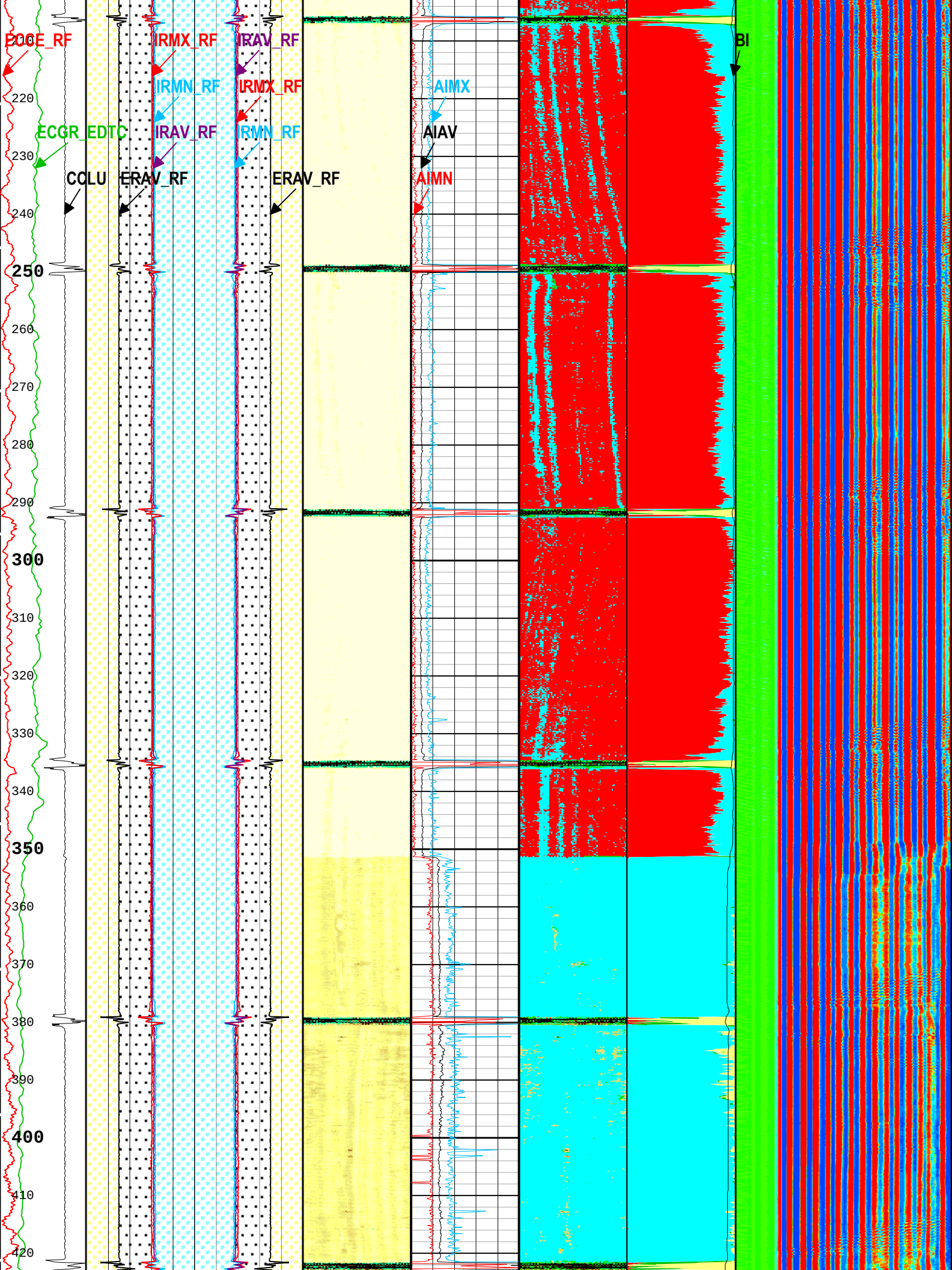
180
190
200


ECGE_RF
IRMX_RF
IRAV_RF
IRMN_RF
IRMX_RF
IRAV_RF
IRMN_RF
ECGR_EDTC
CCLU
ERAV_RF
ERAV_RF
AIMX
AIAV
AIMN
BI
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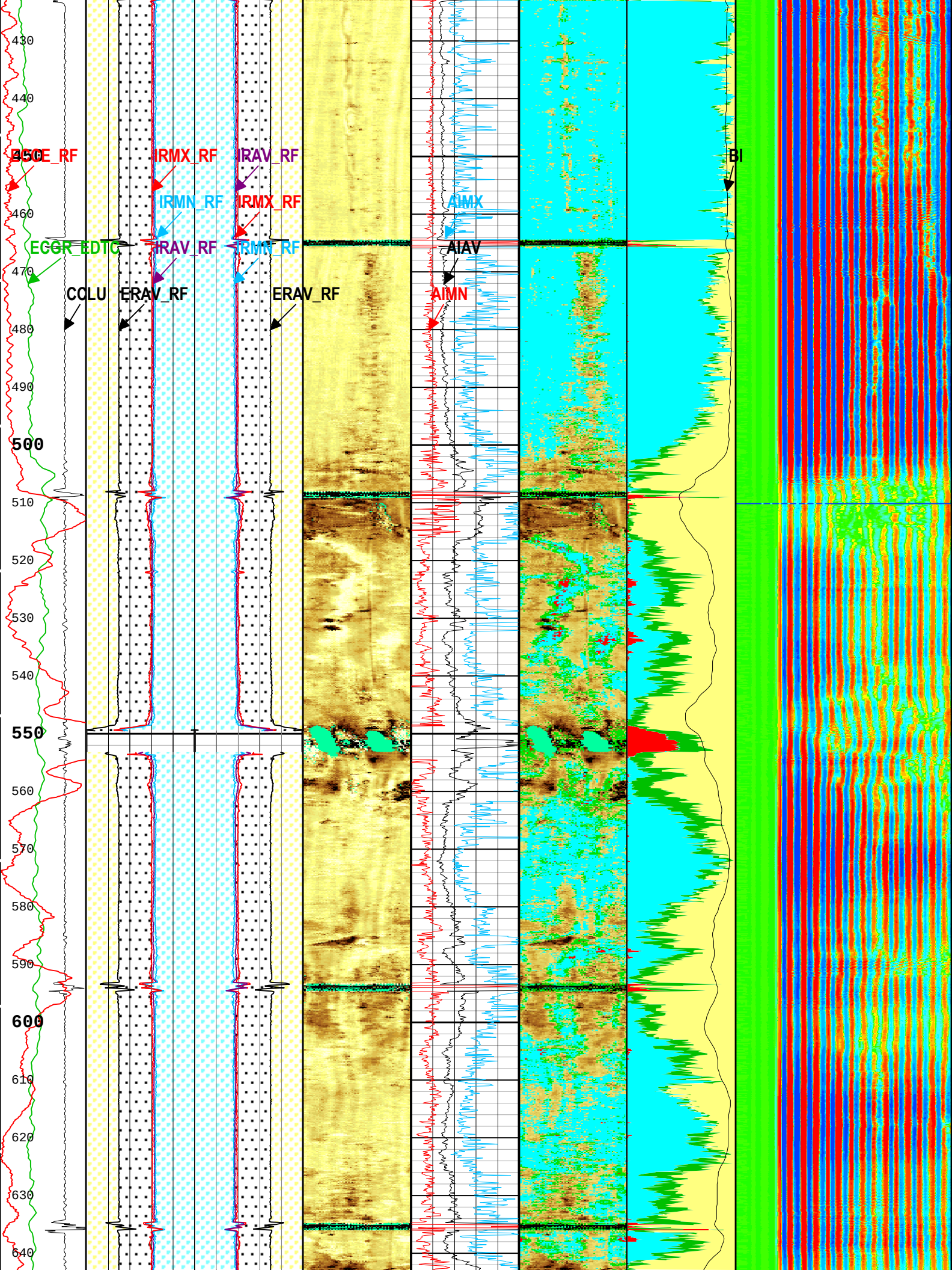
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IRMX_RF
IRAV_RF
IRMN_RF
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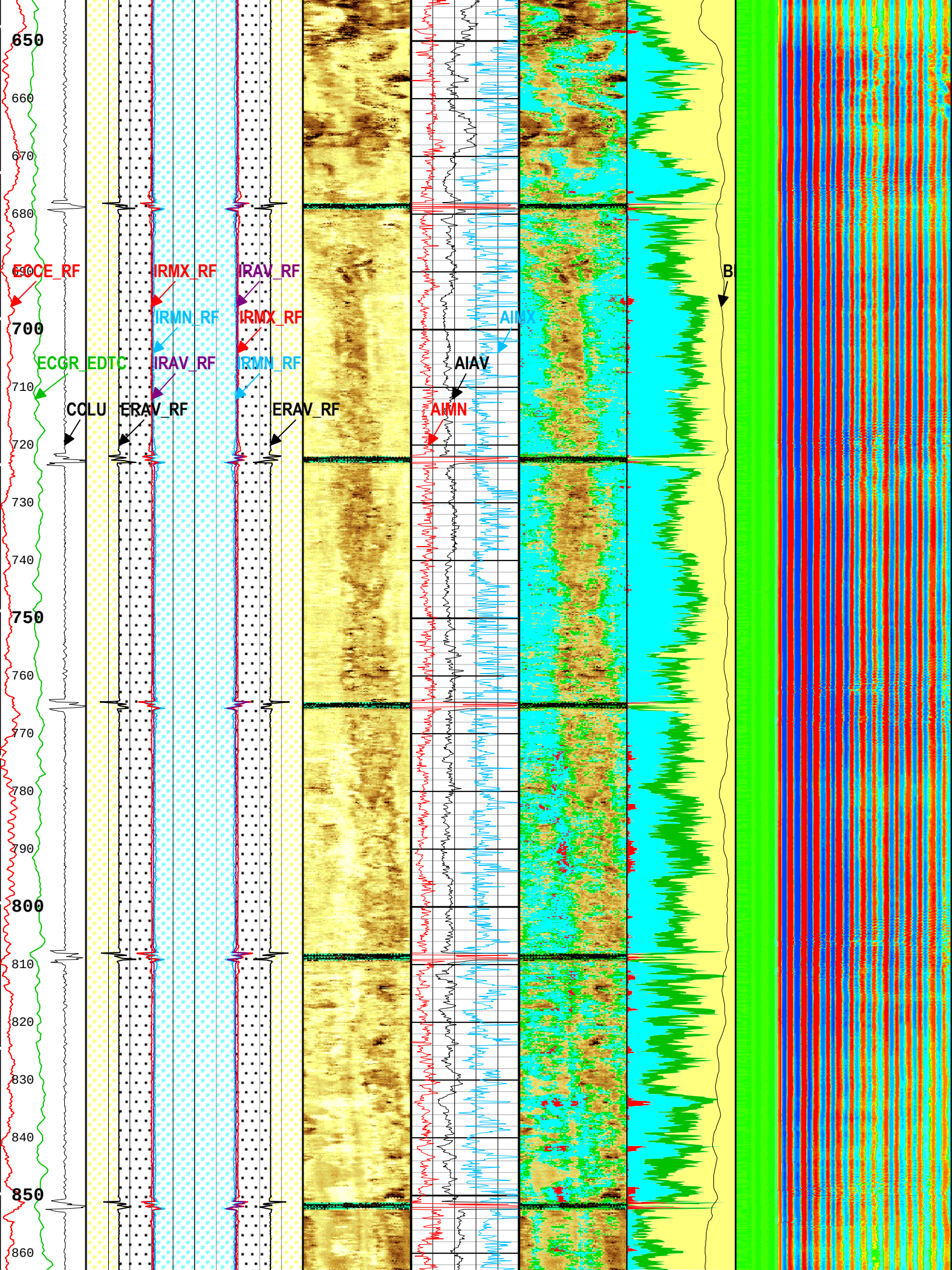
ECGR_EDTC
CCLU
ERAV_RF
ERAV_RF
AIMX
AIAV
AIMN
BI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850
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ECCE_RF
IRMX_RF
IRAV_RF
IRMN_RF
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ECGR_EDTC
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ERAV_RF
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AIMX
AIAV
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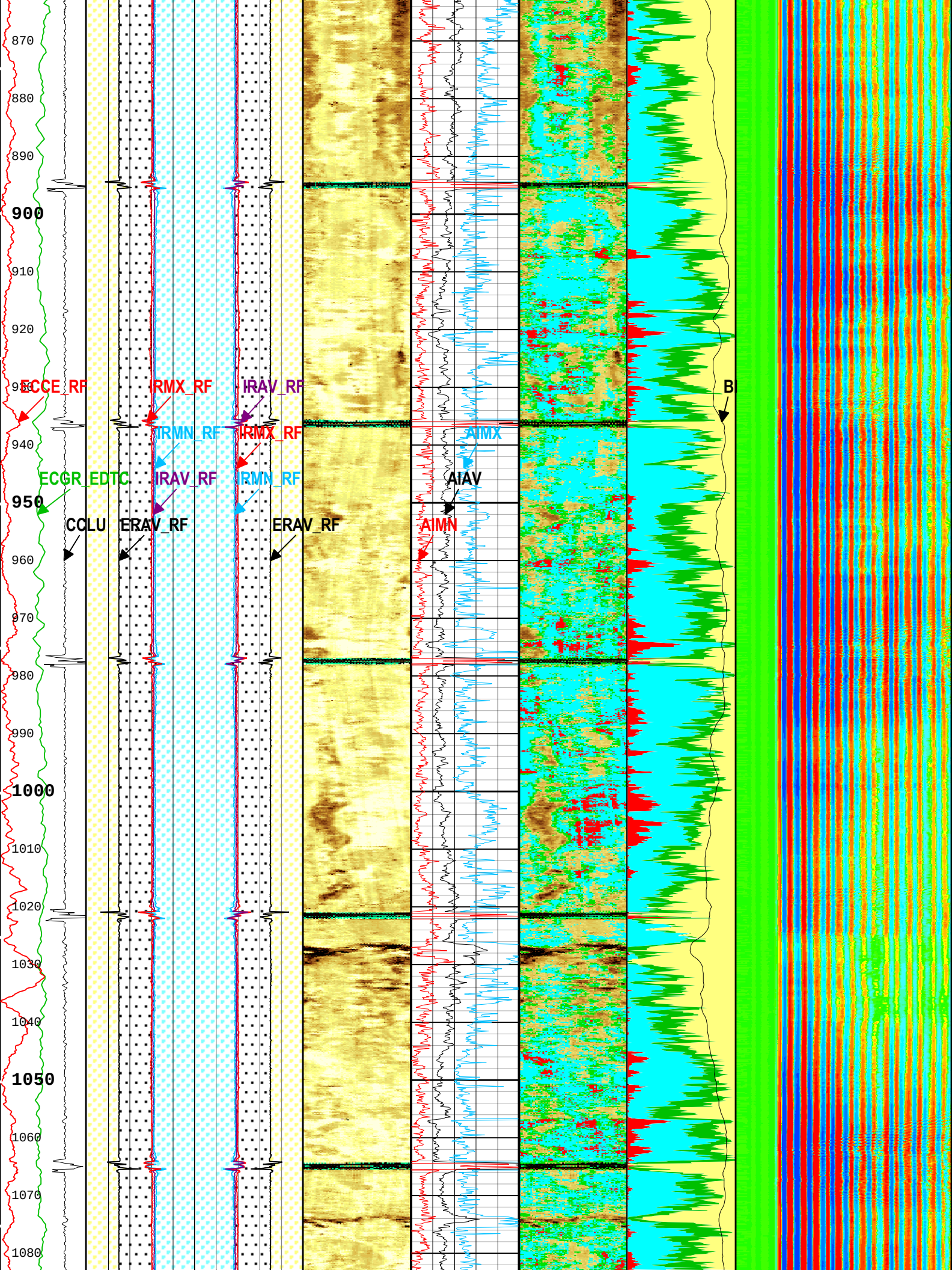
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ECCE_RF
IRMX_RF
IRAV_RF
IRMN_RF
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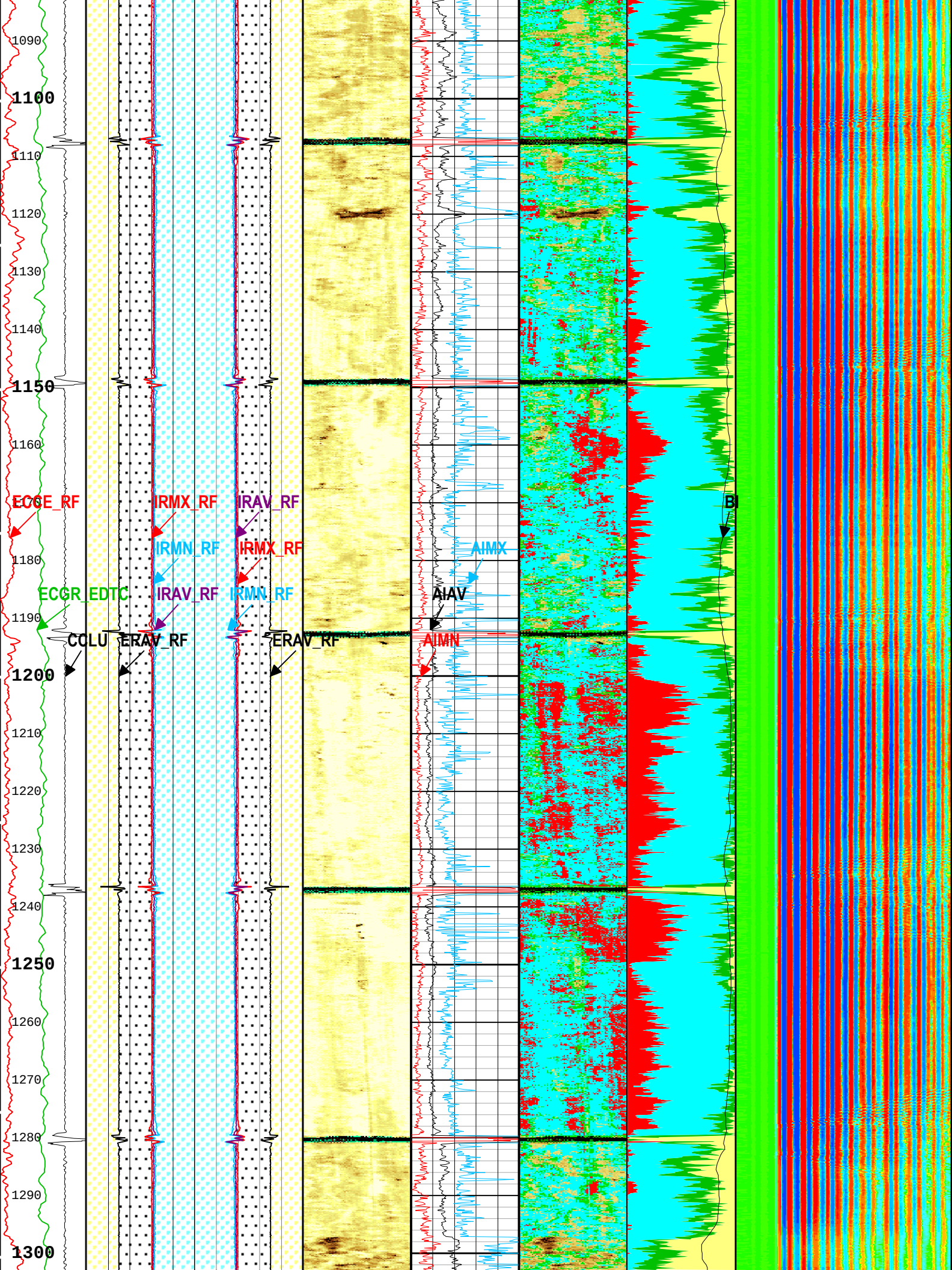
B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IRAV_RF
IRMN_RF
1190
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ERAV_RF
ERAV_RF
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AIAV
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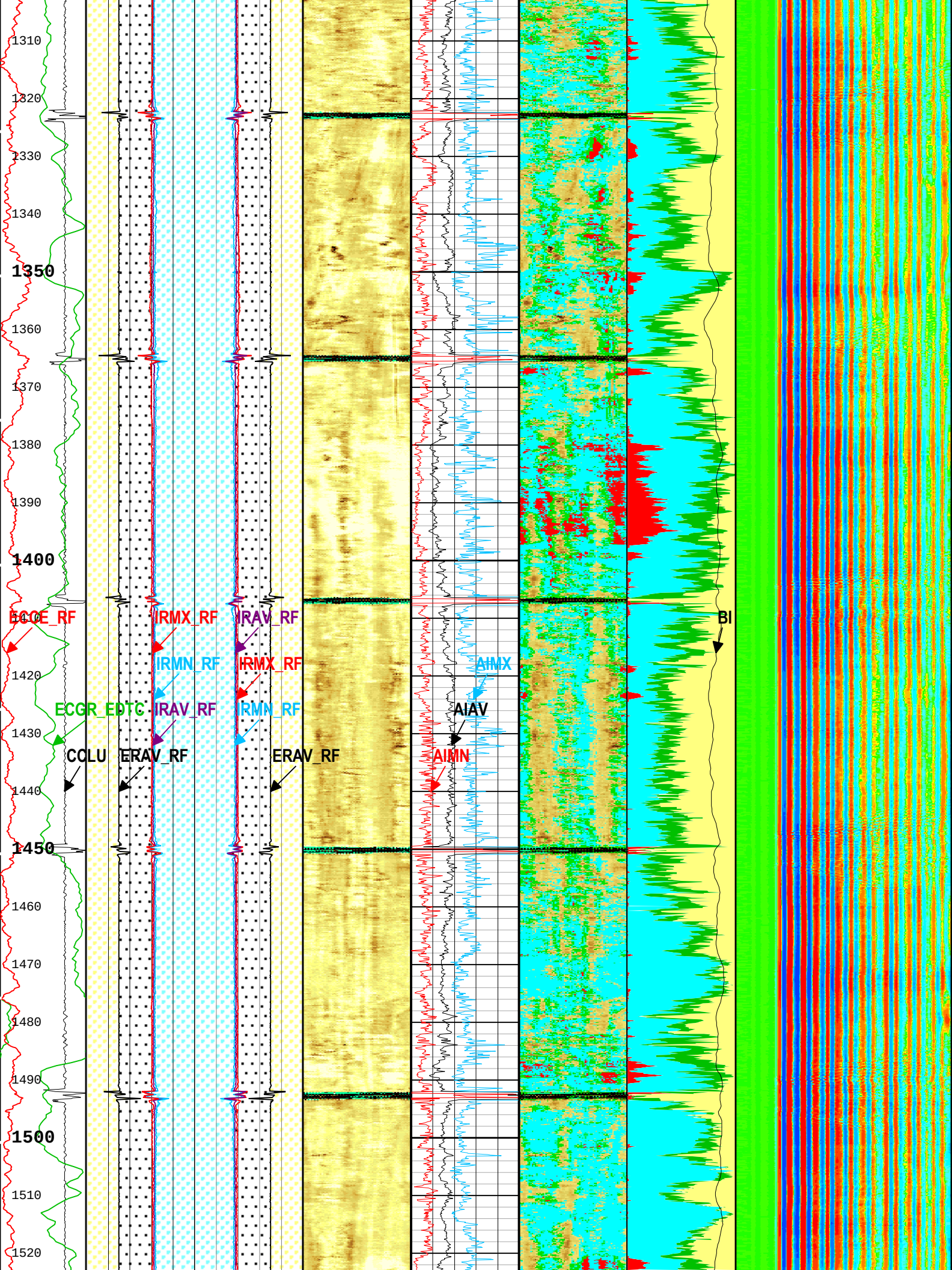
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IRAV_RF
IRMN_RF
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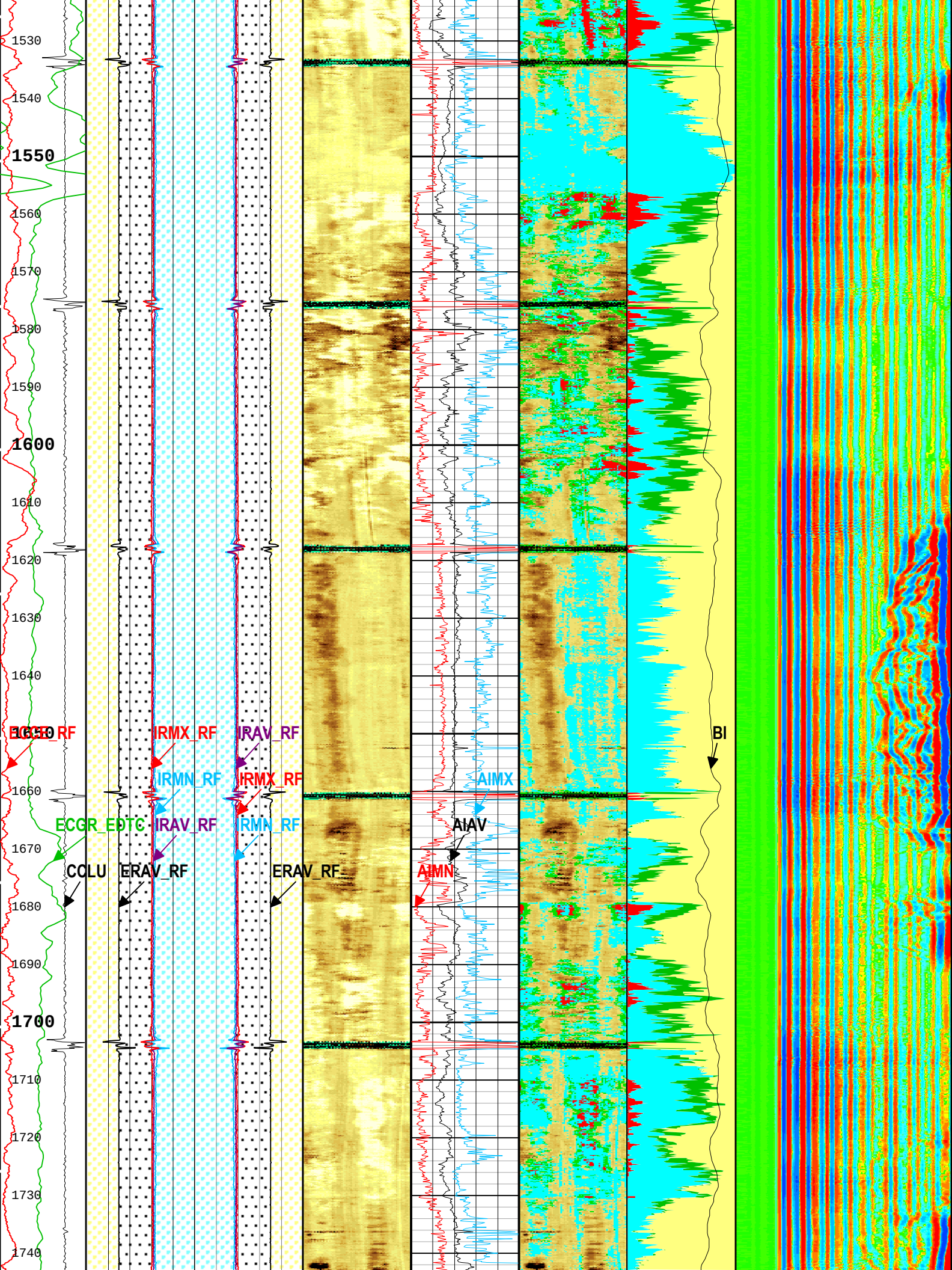
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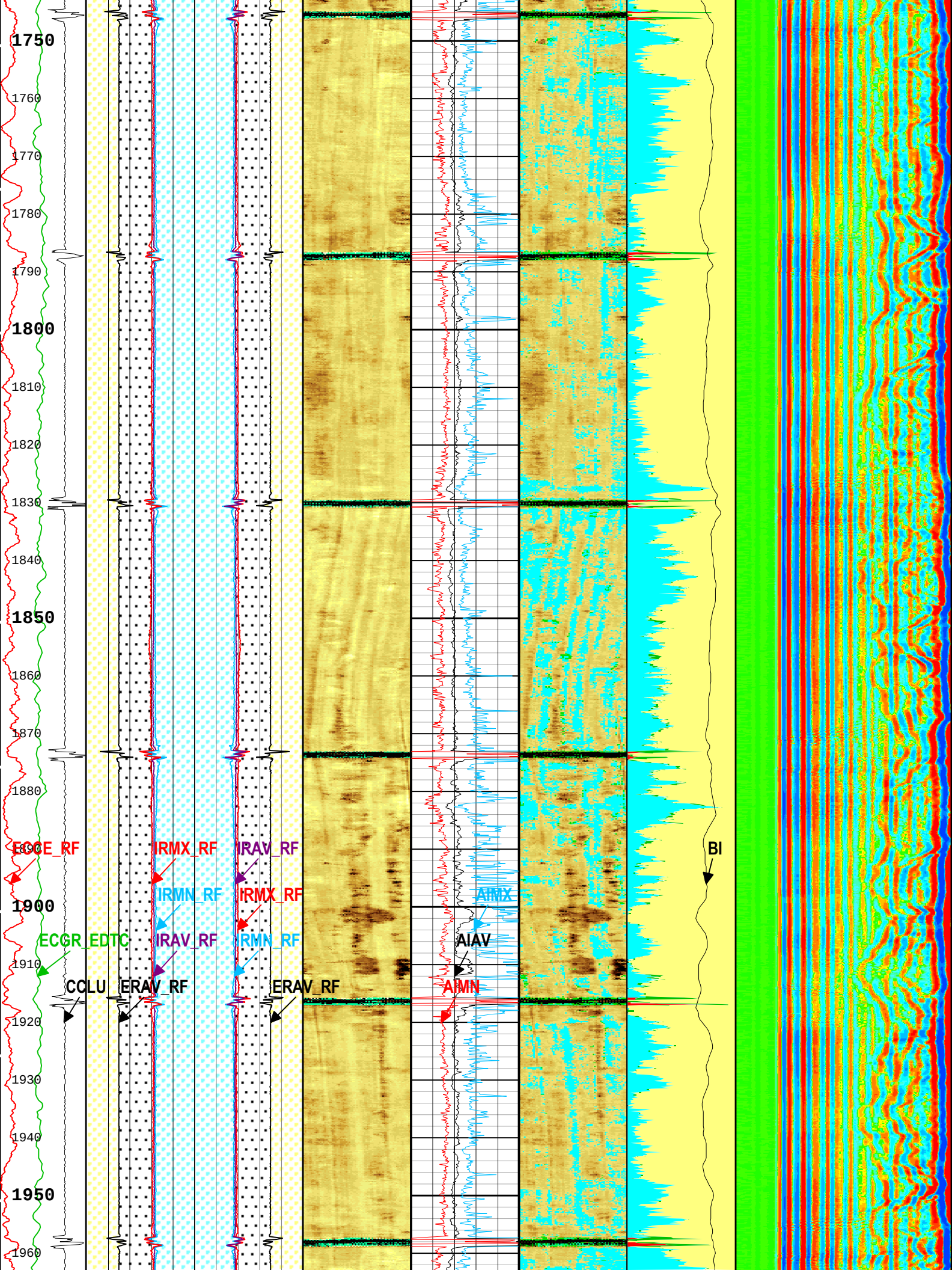
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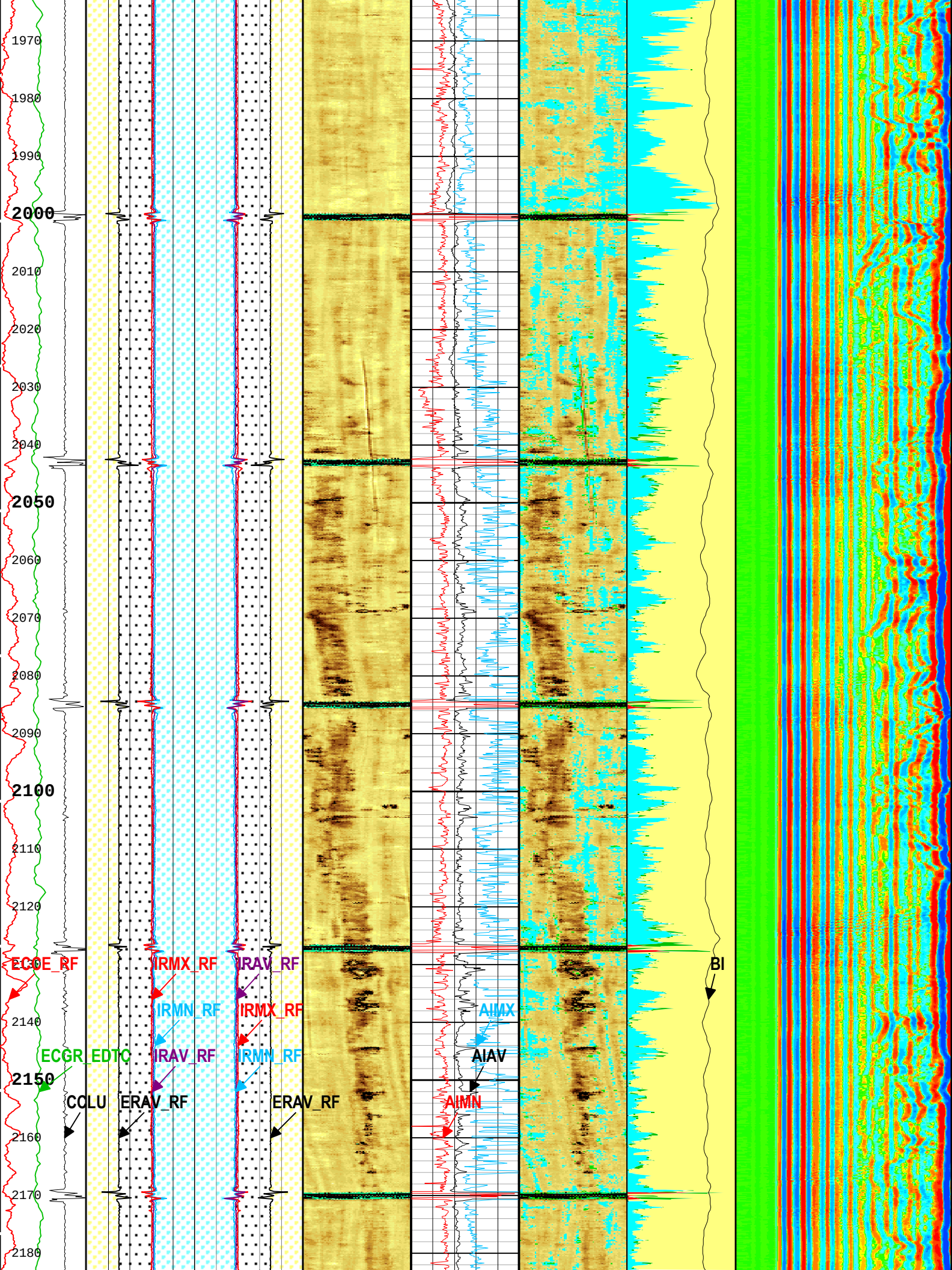
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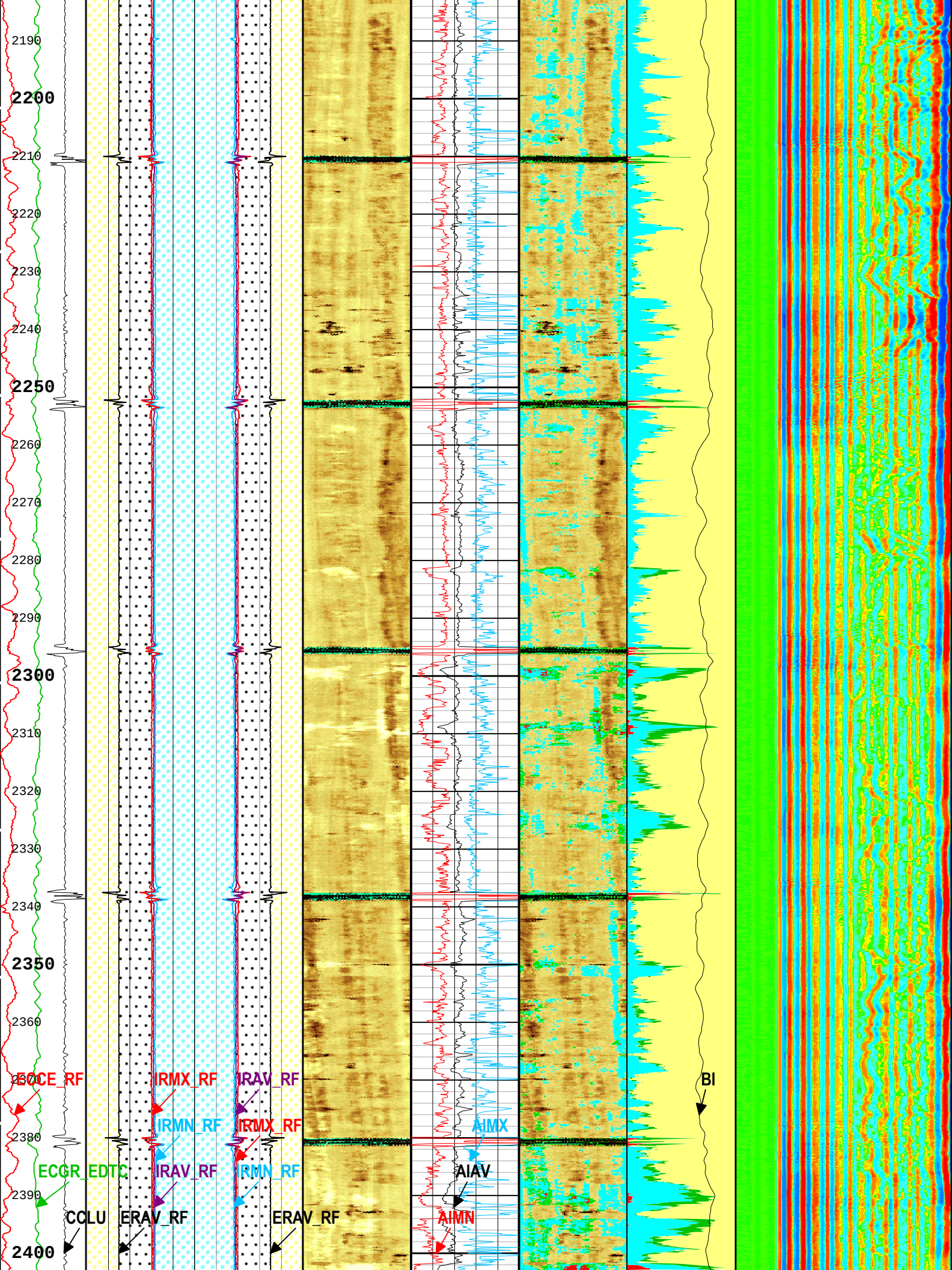
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IRMN_RF
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CCLU
ERAV_RF
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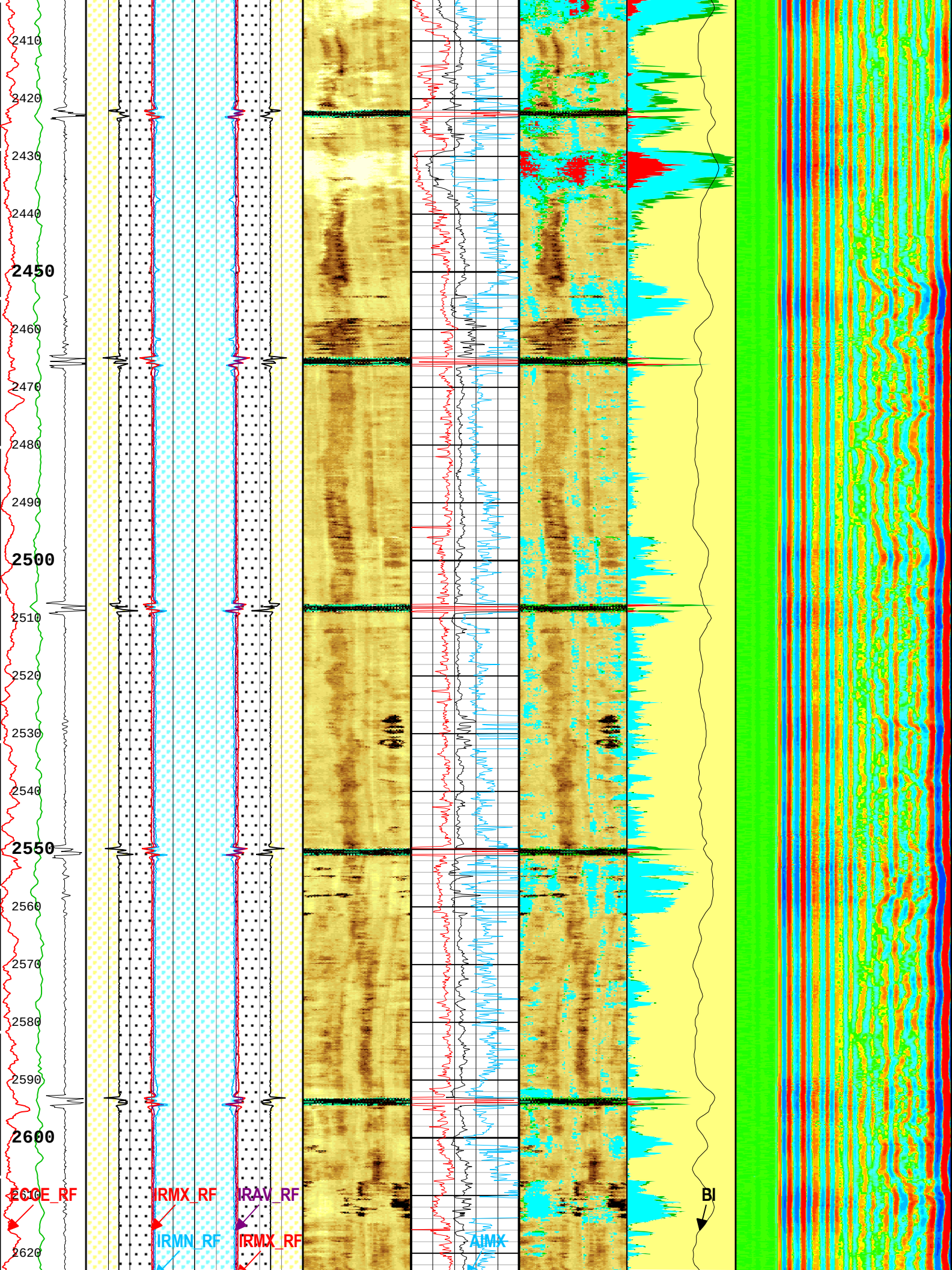
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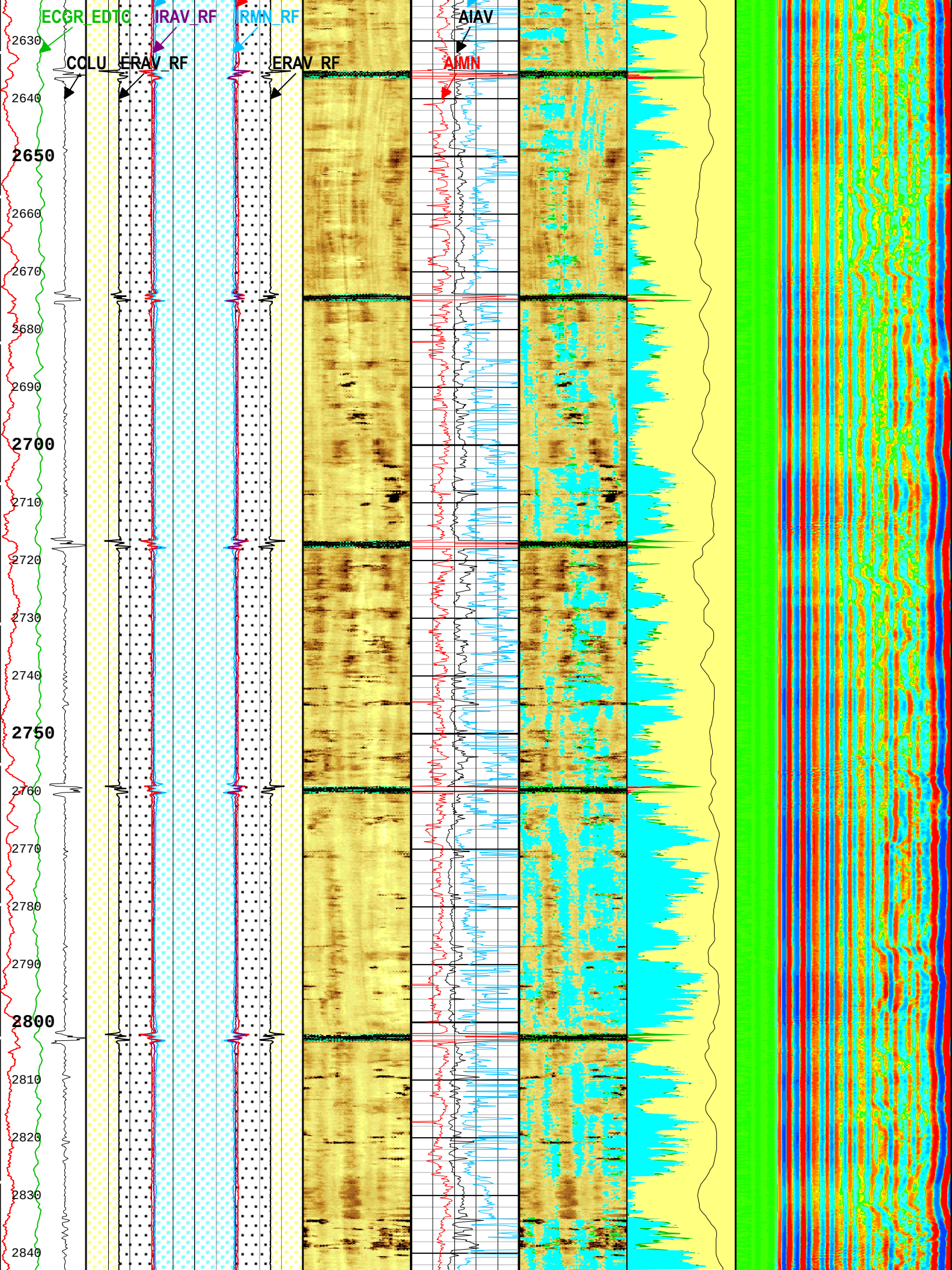
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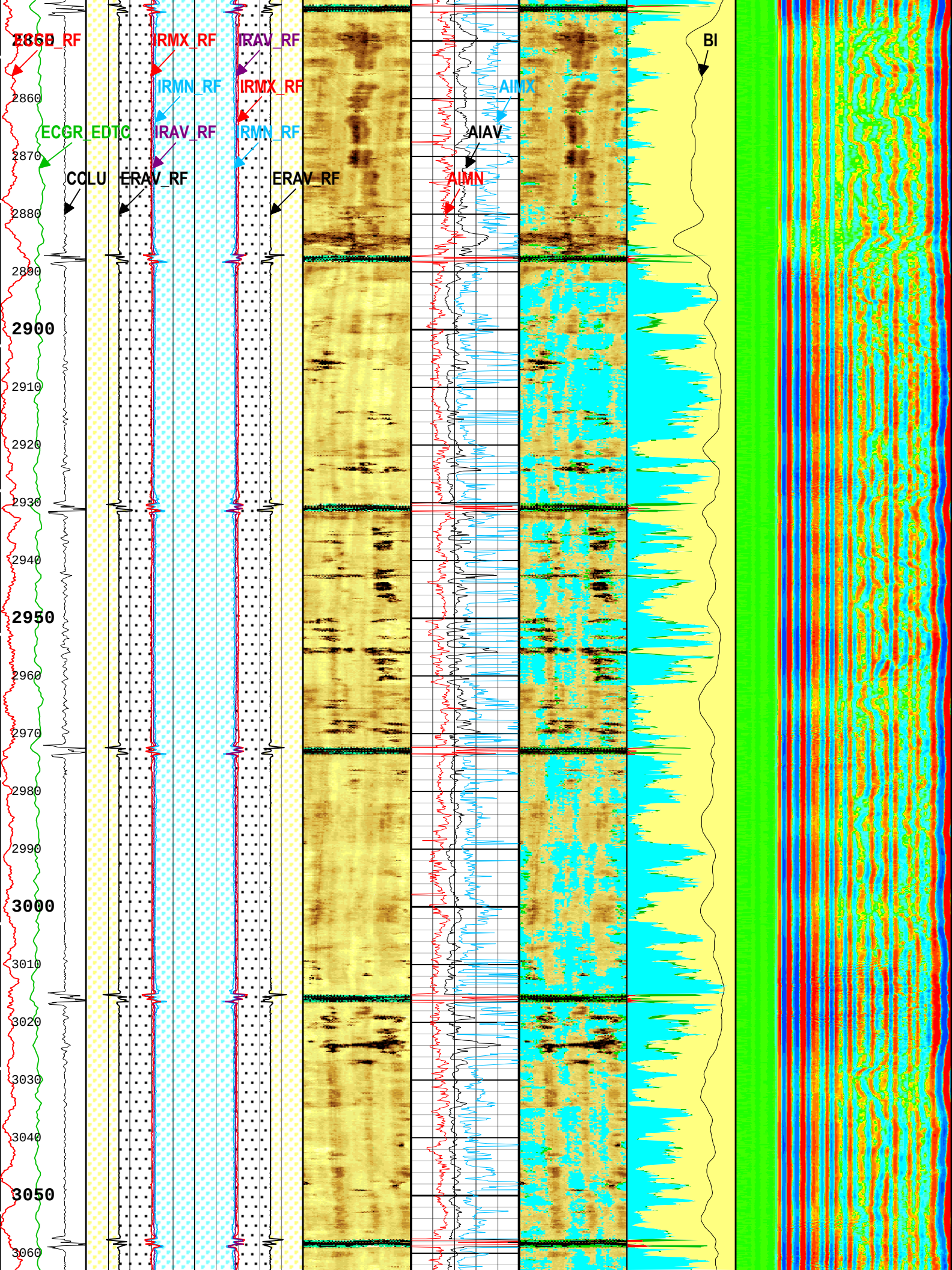
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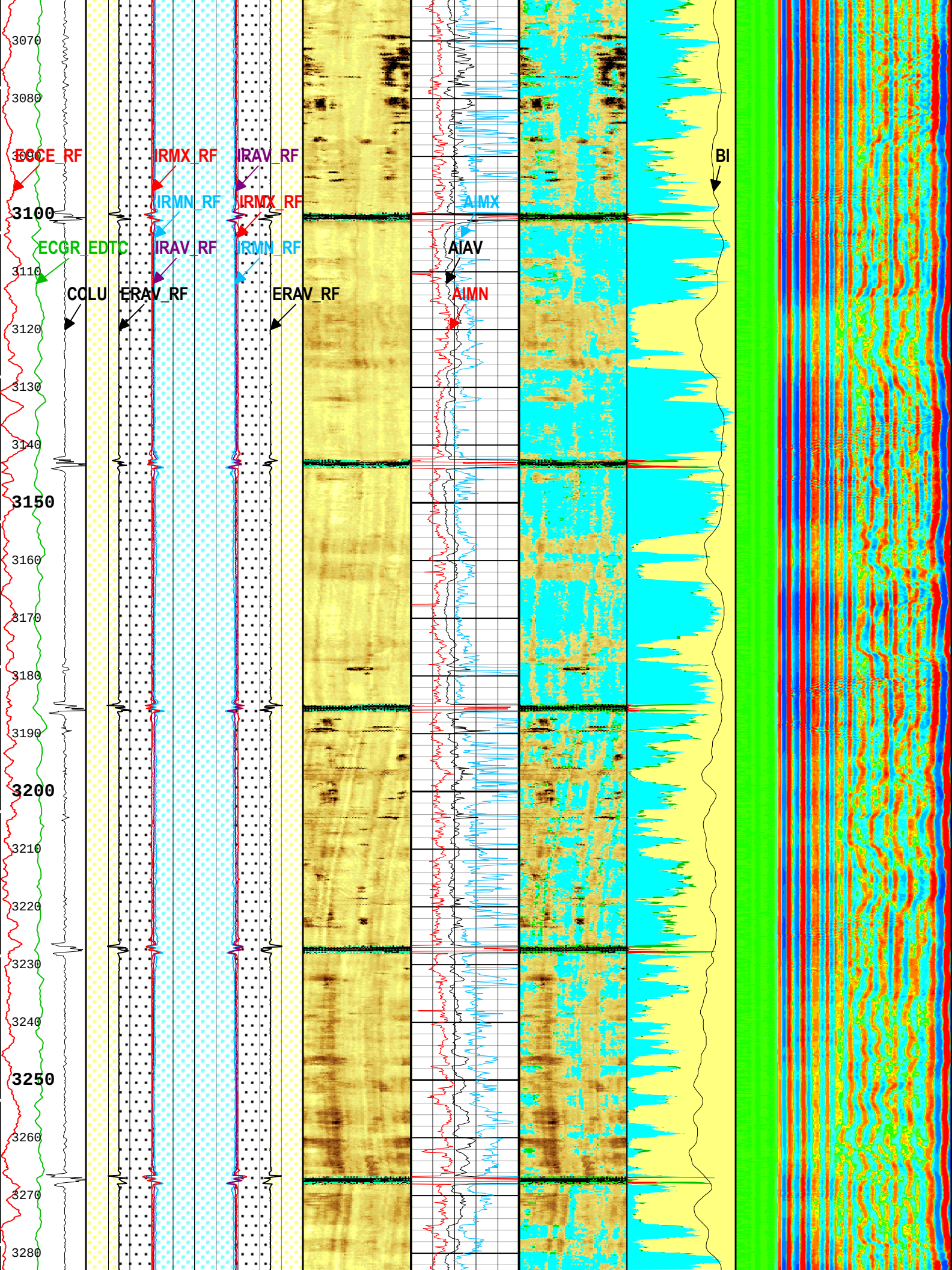
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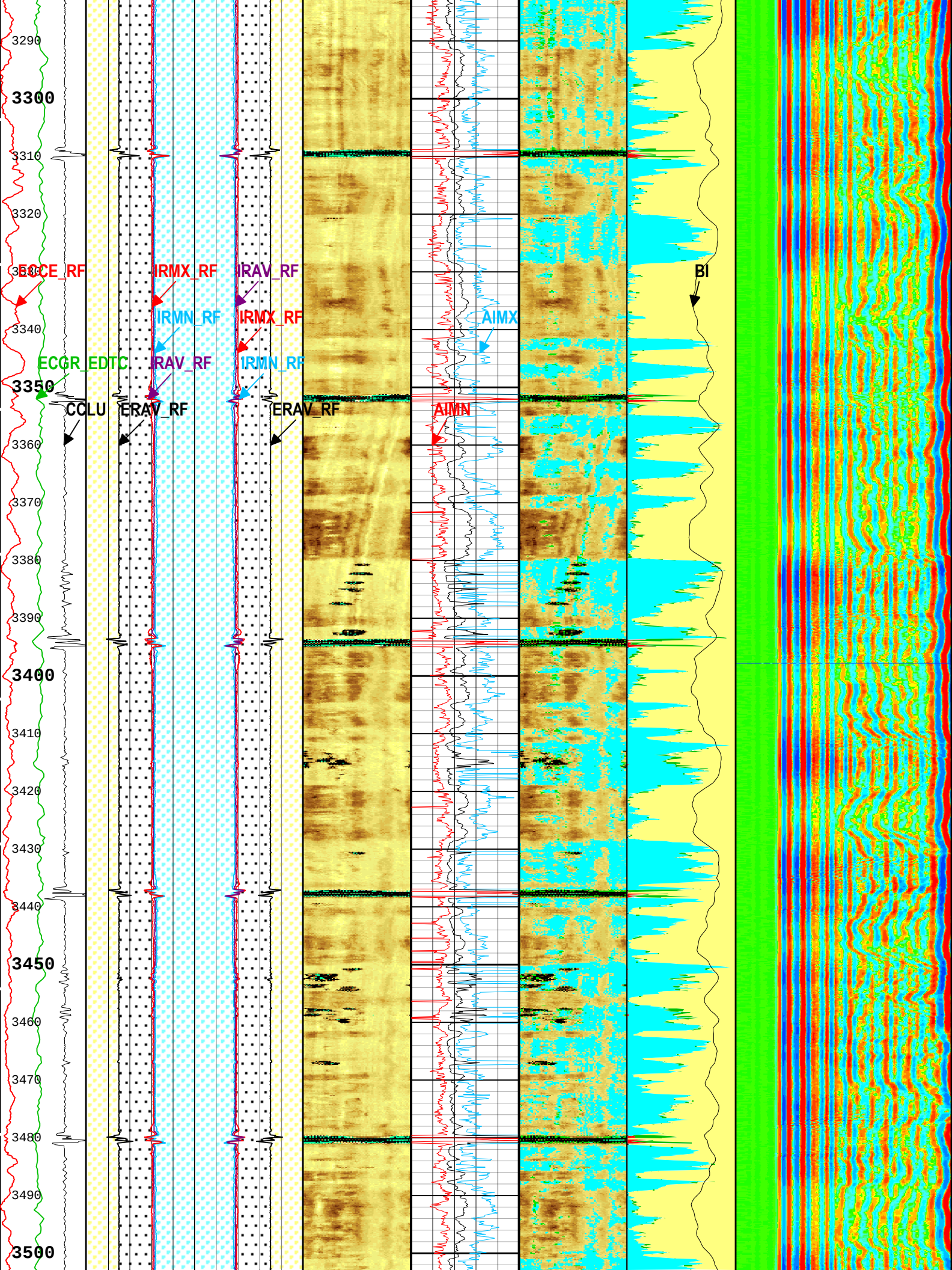
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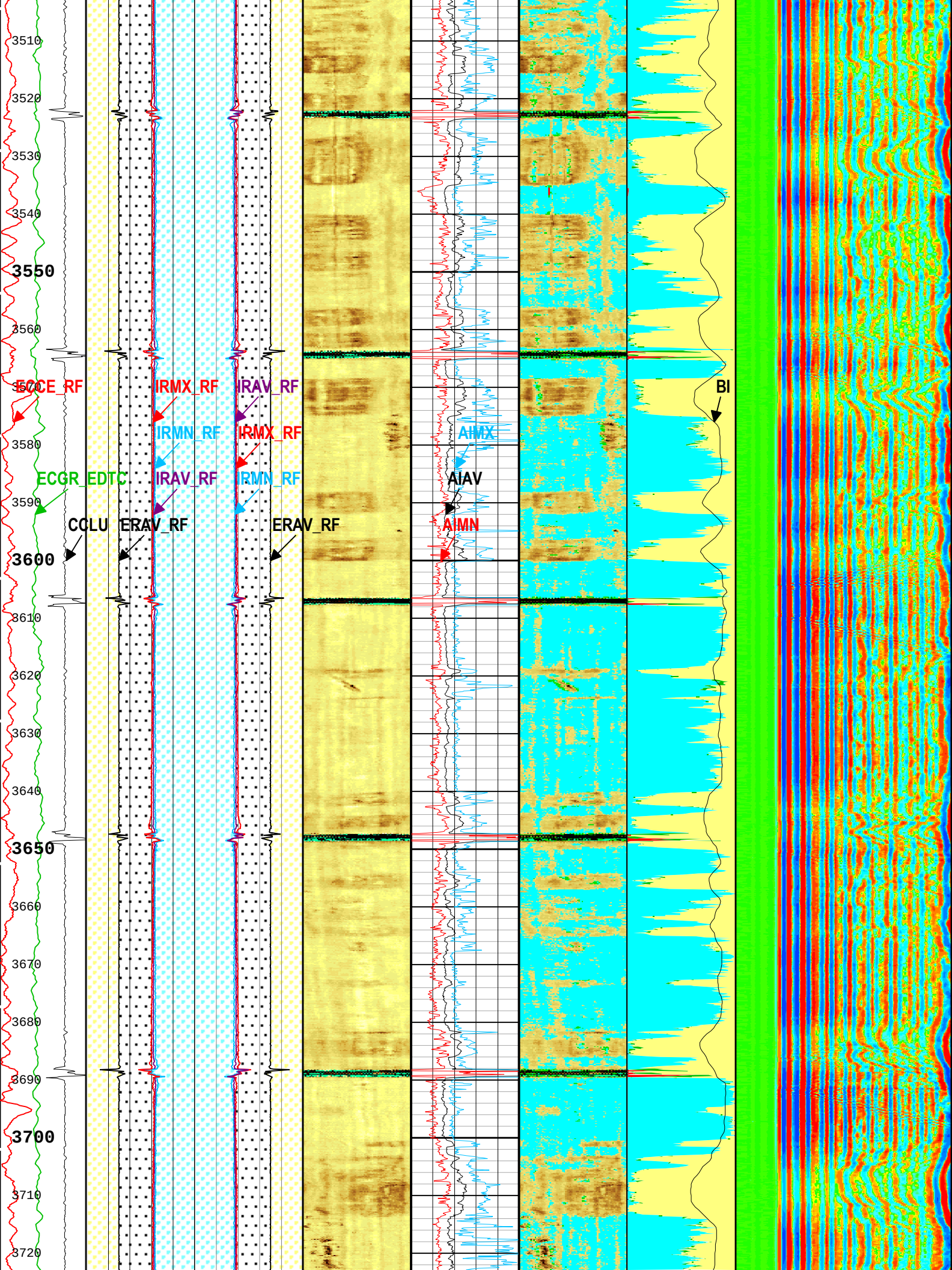
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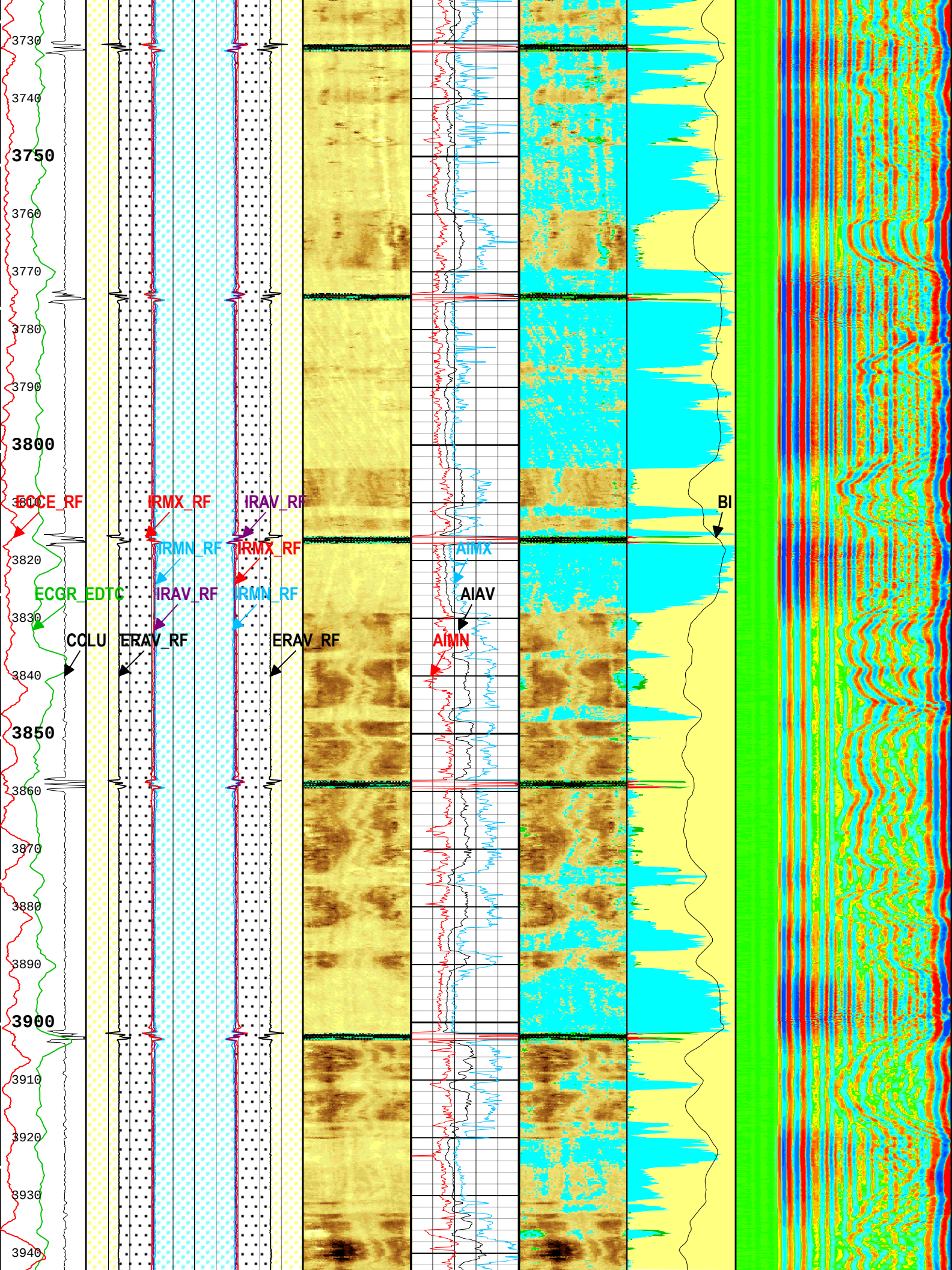
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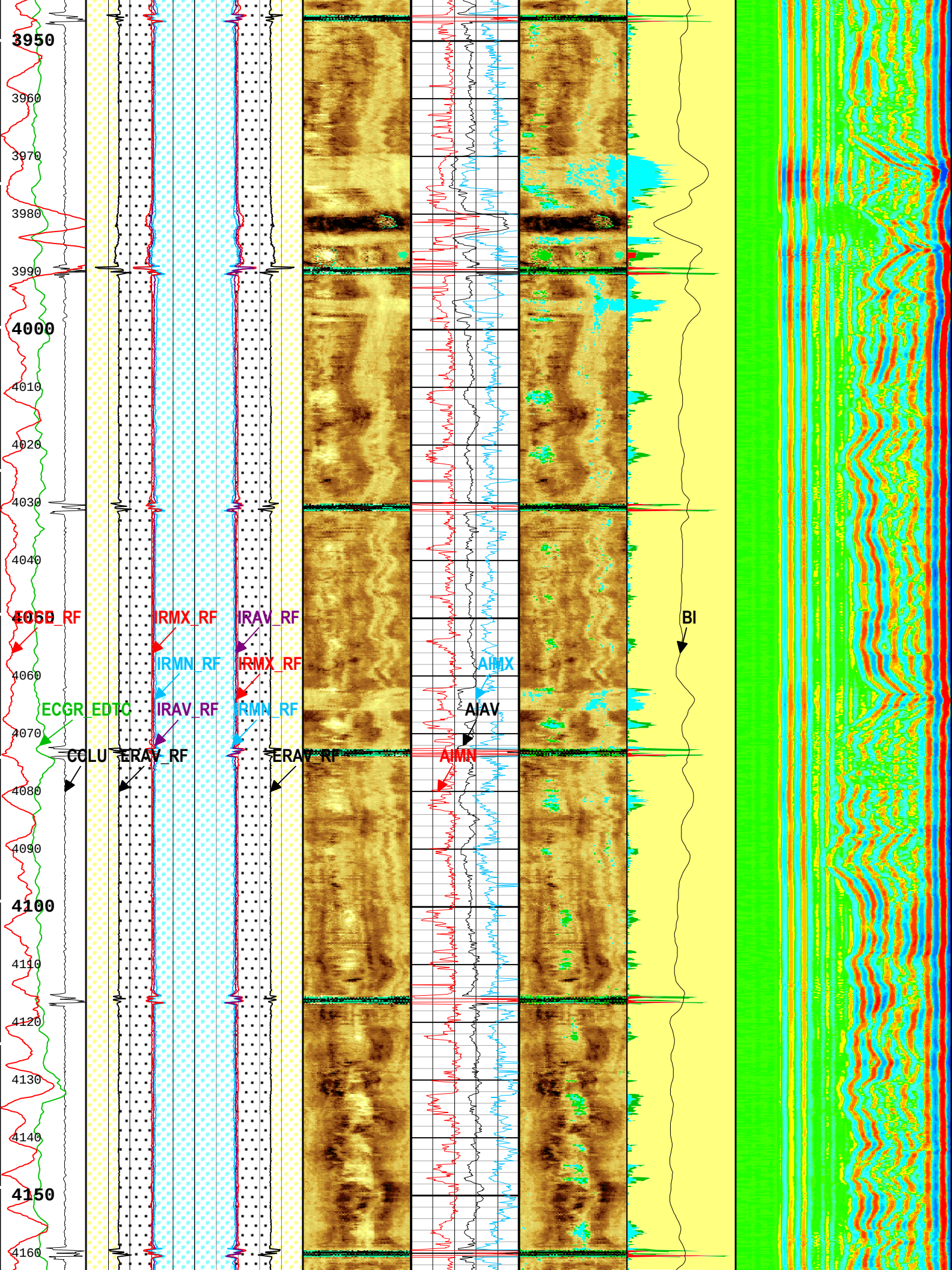
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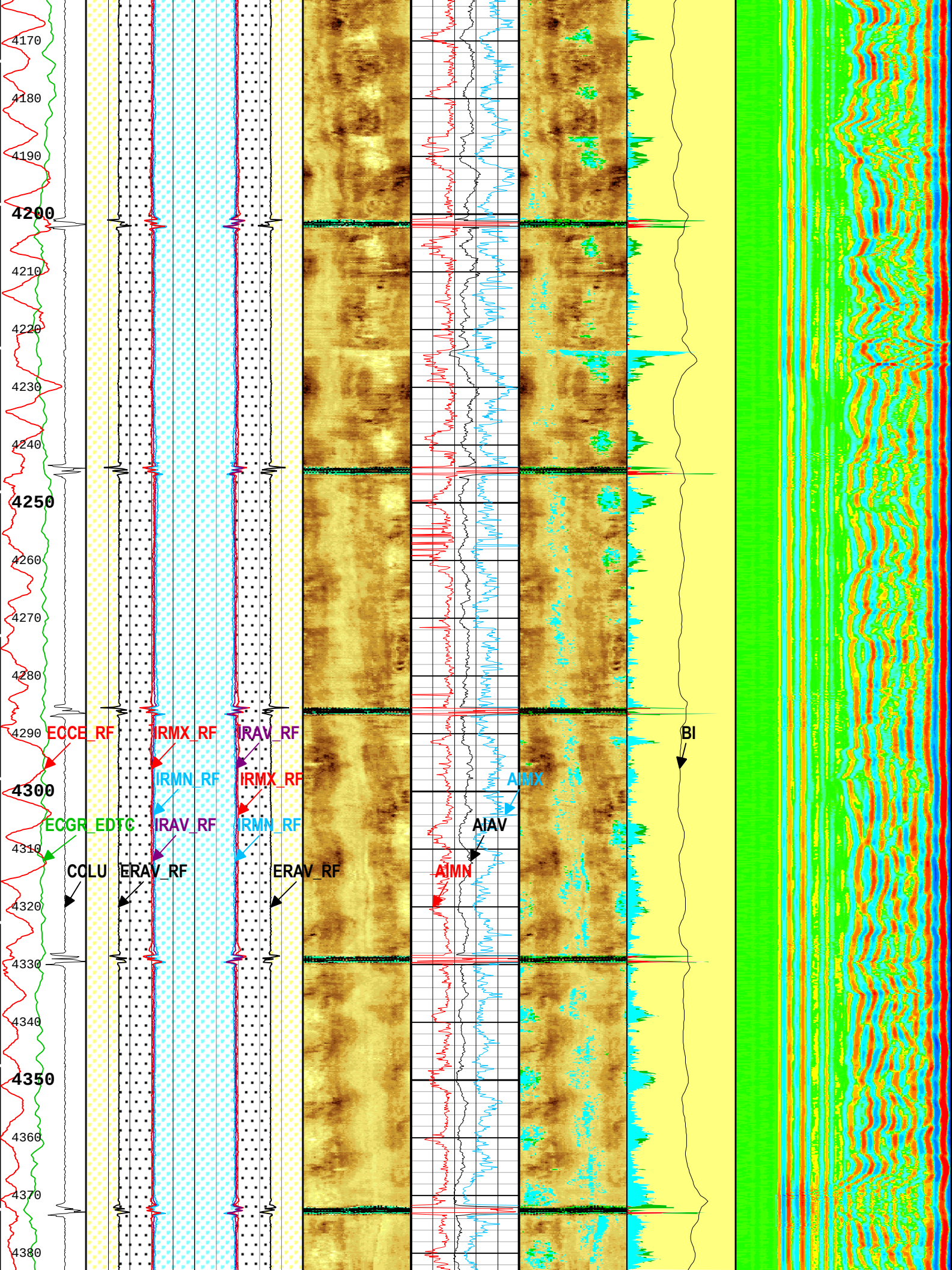
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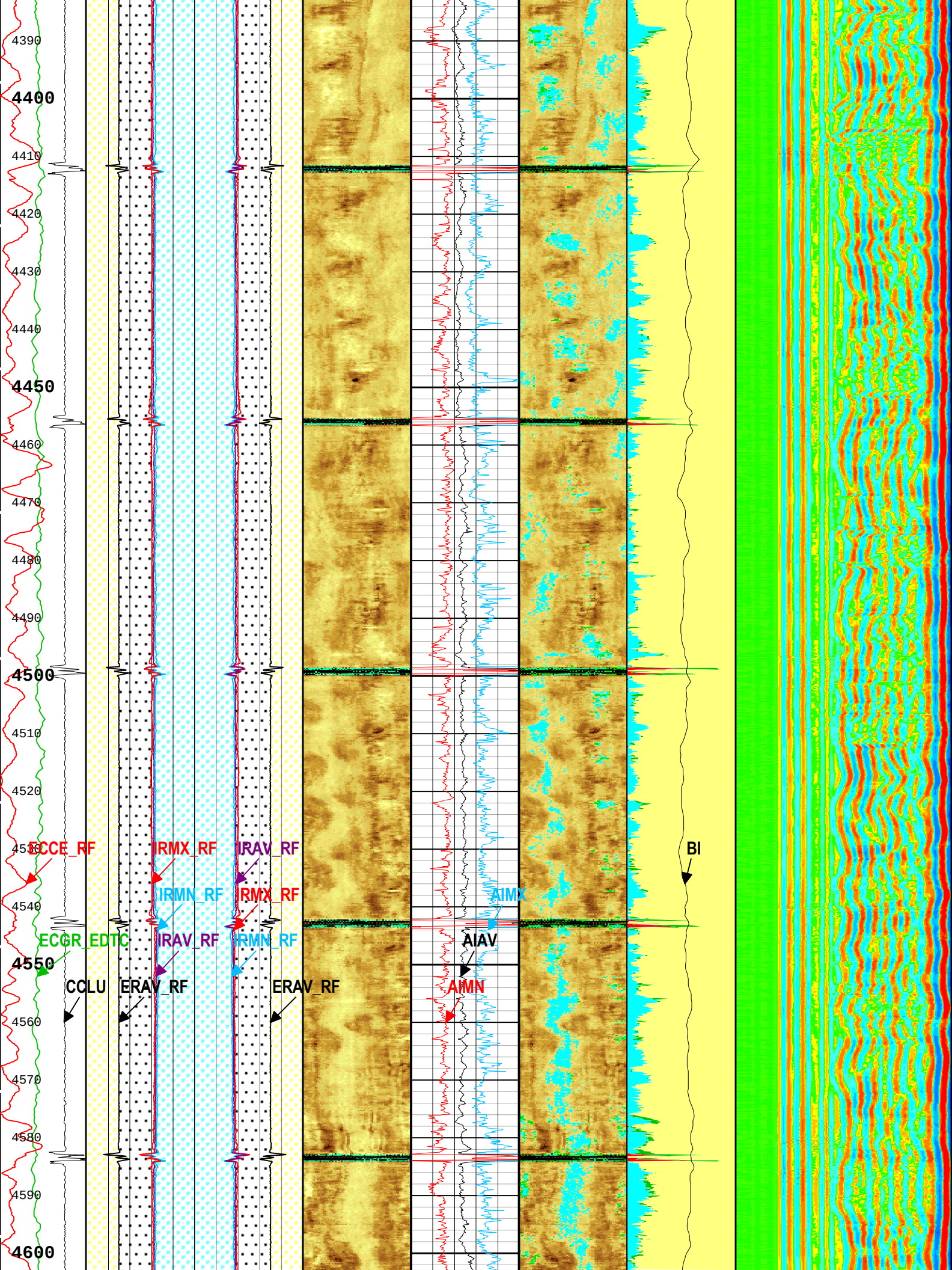
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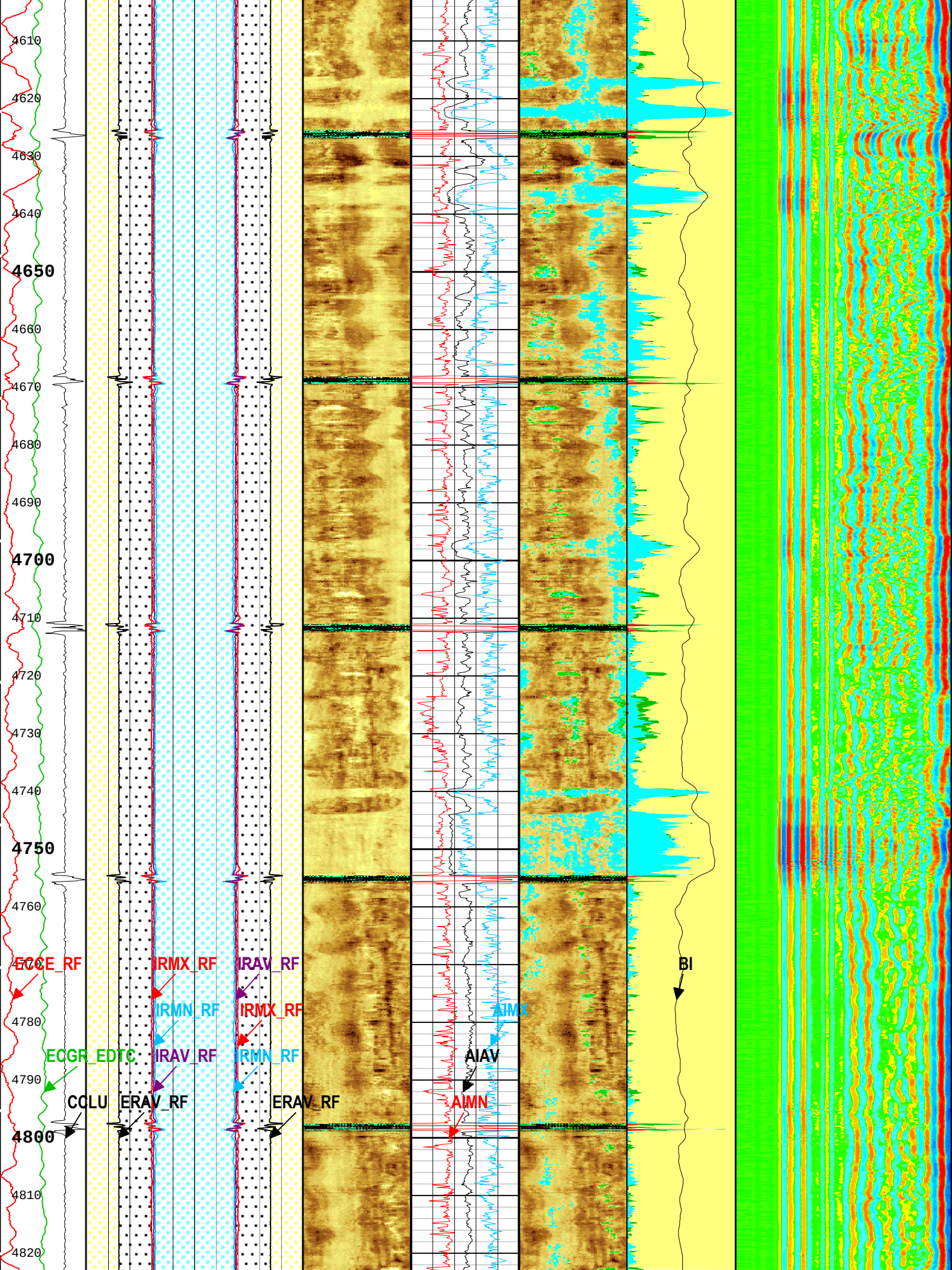
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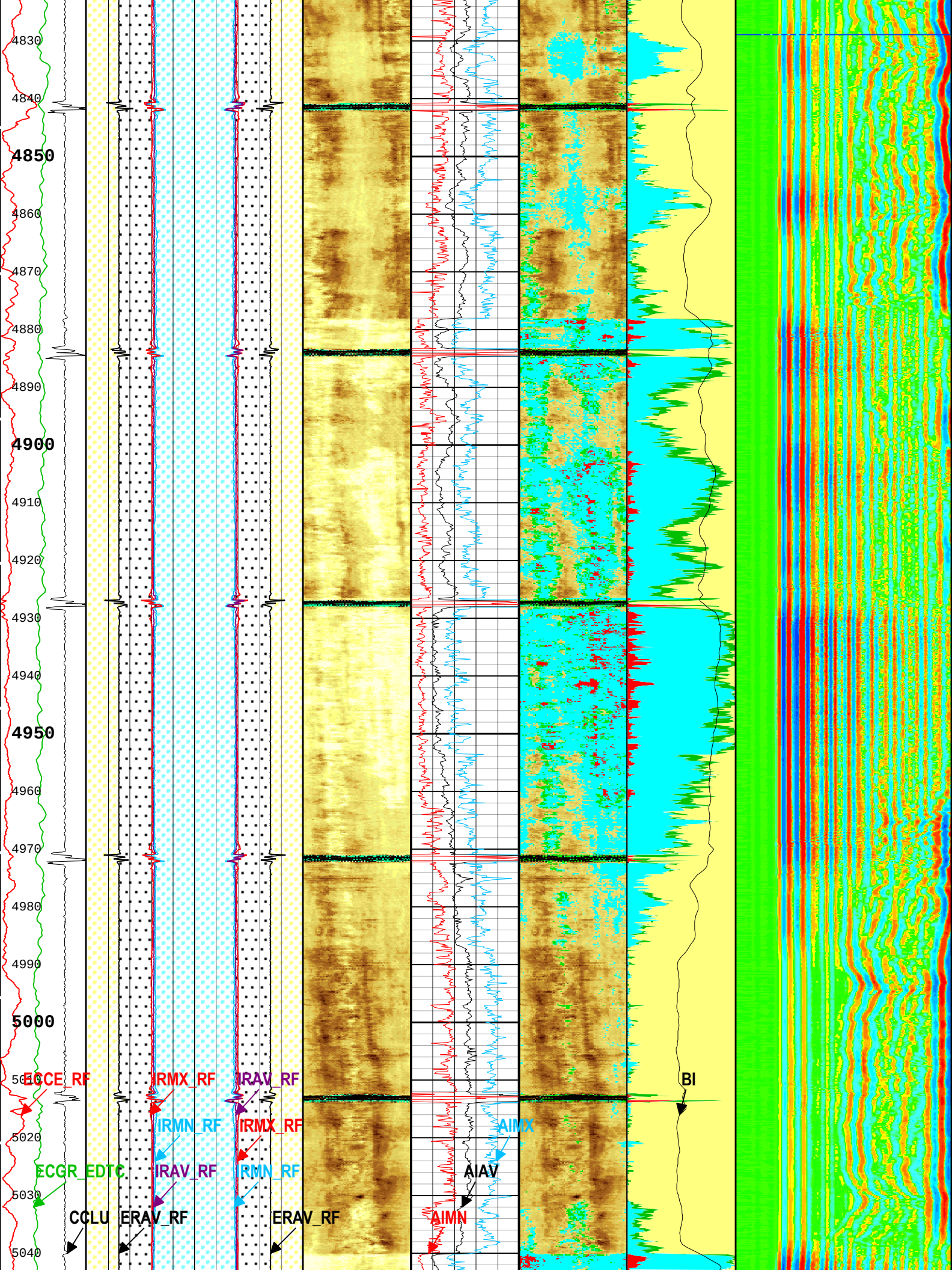
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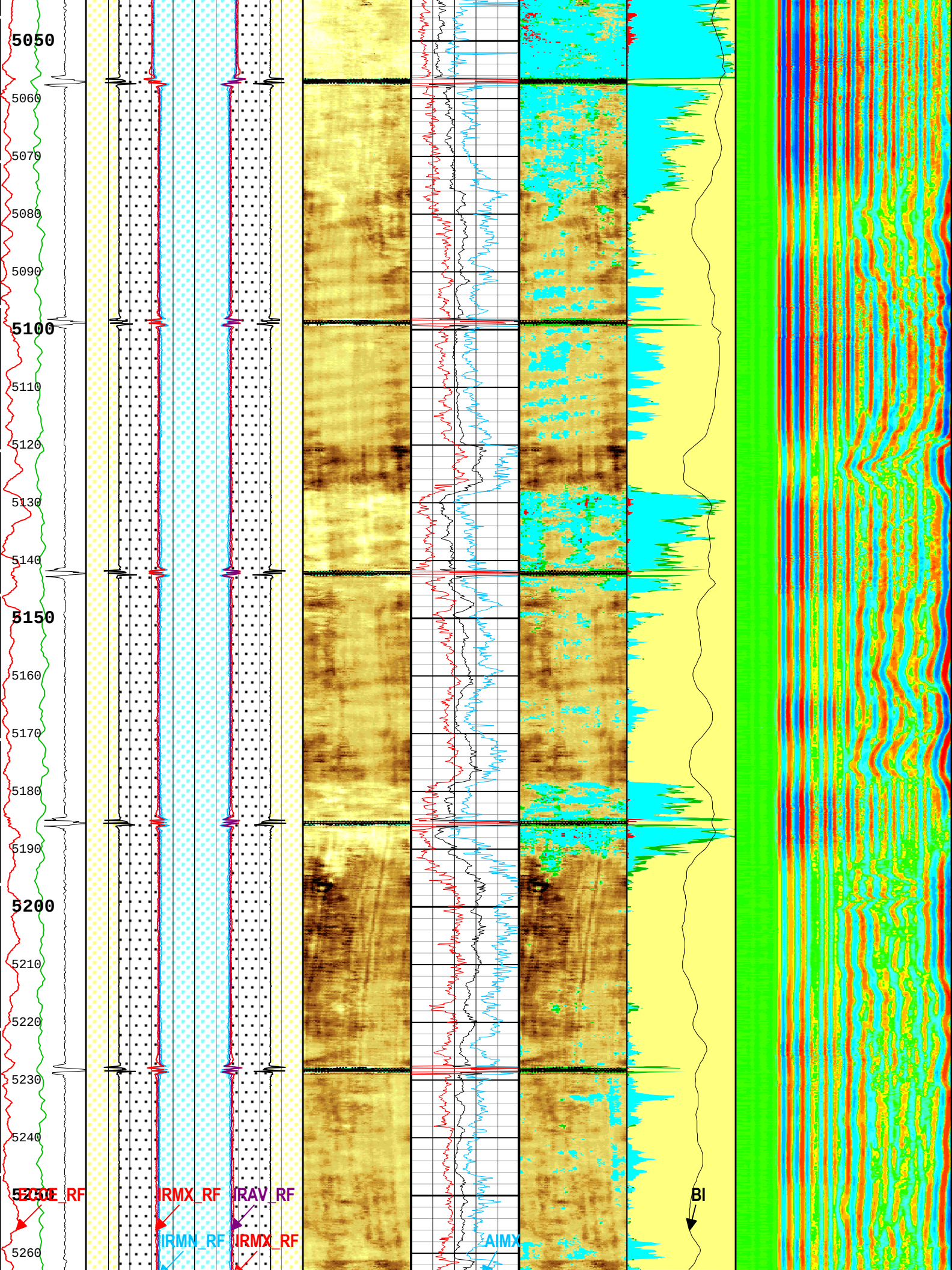
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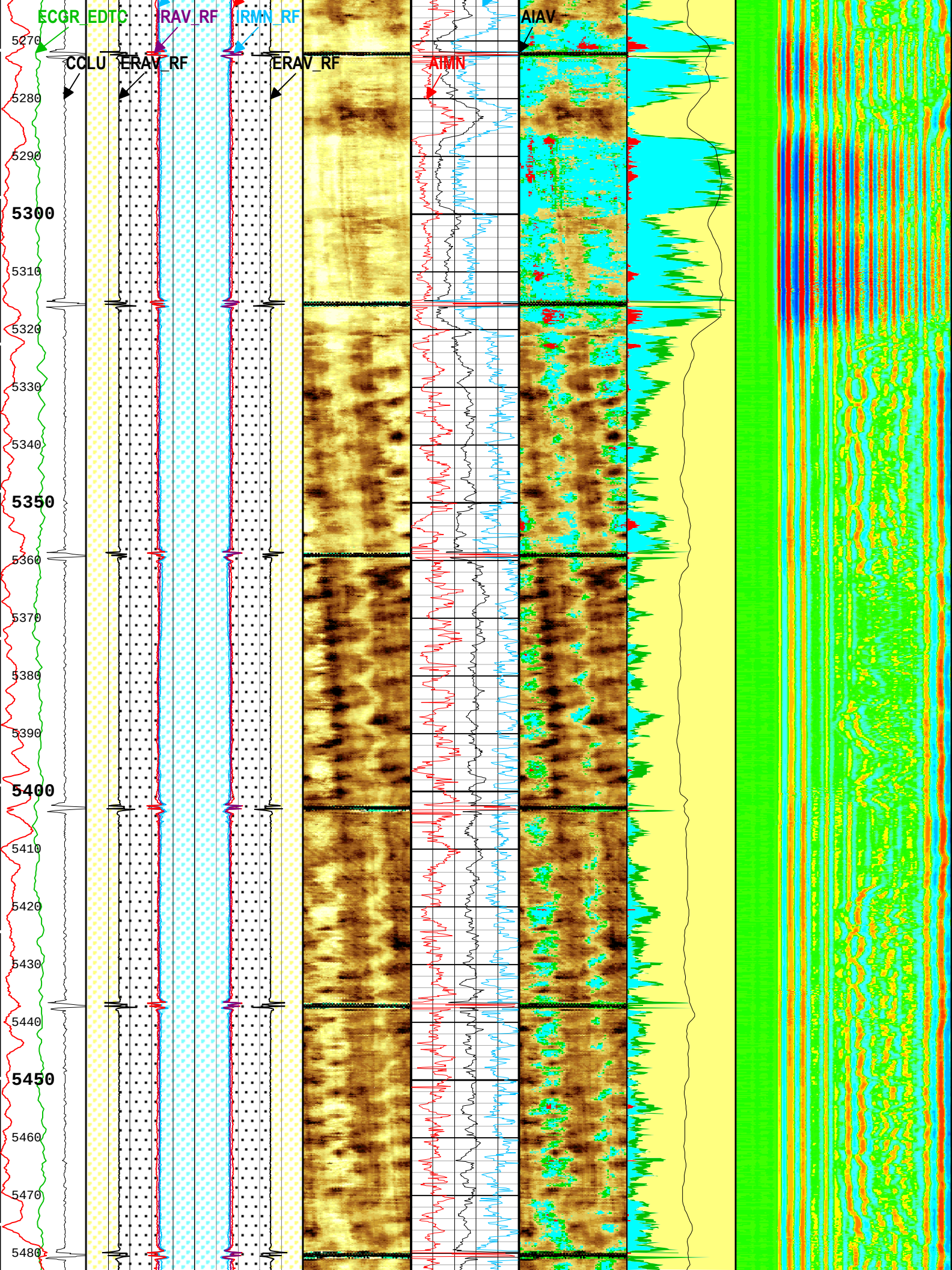
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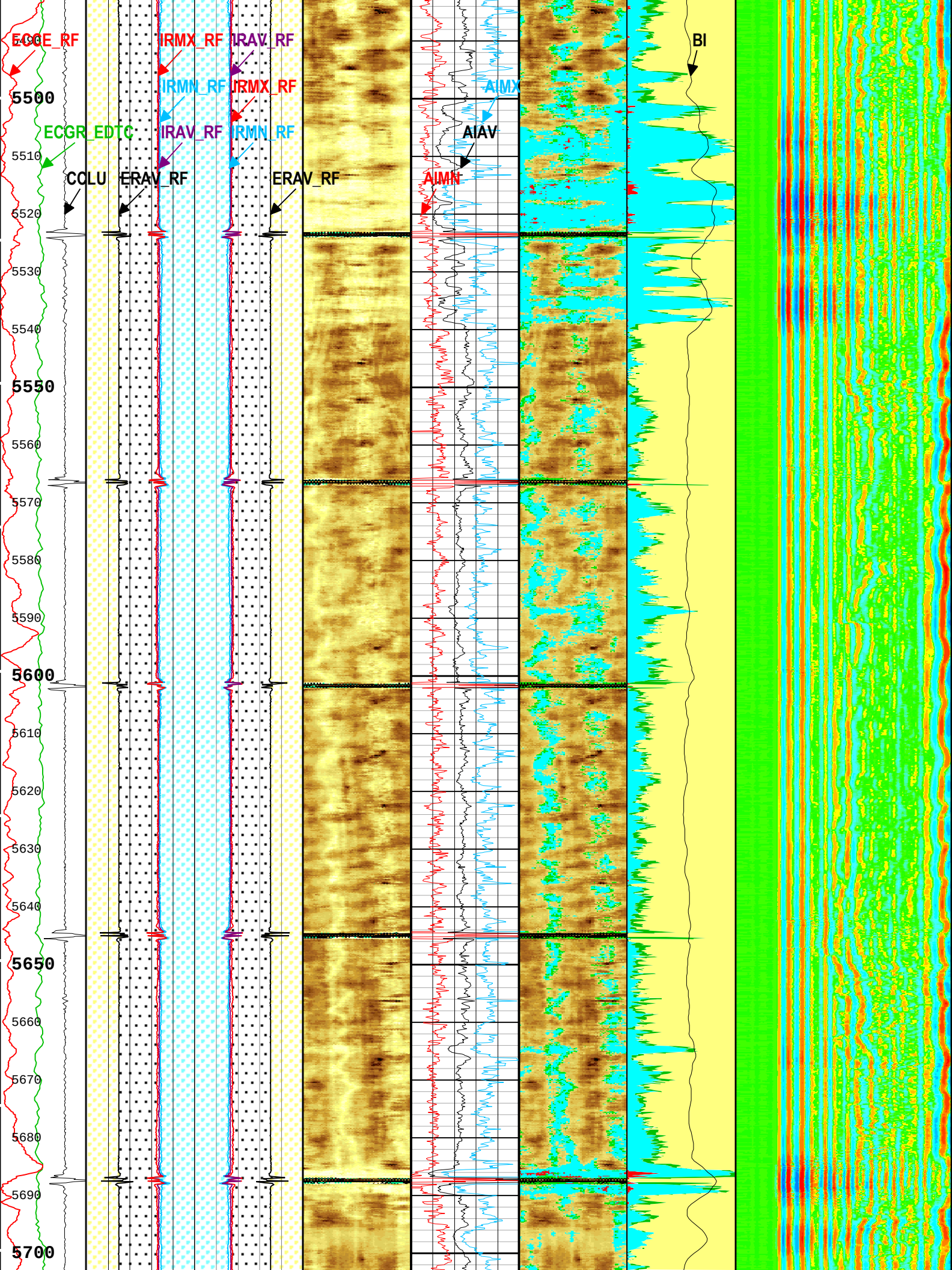
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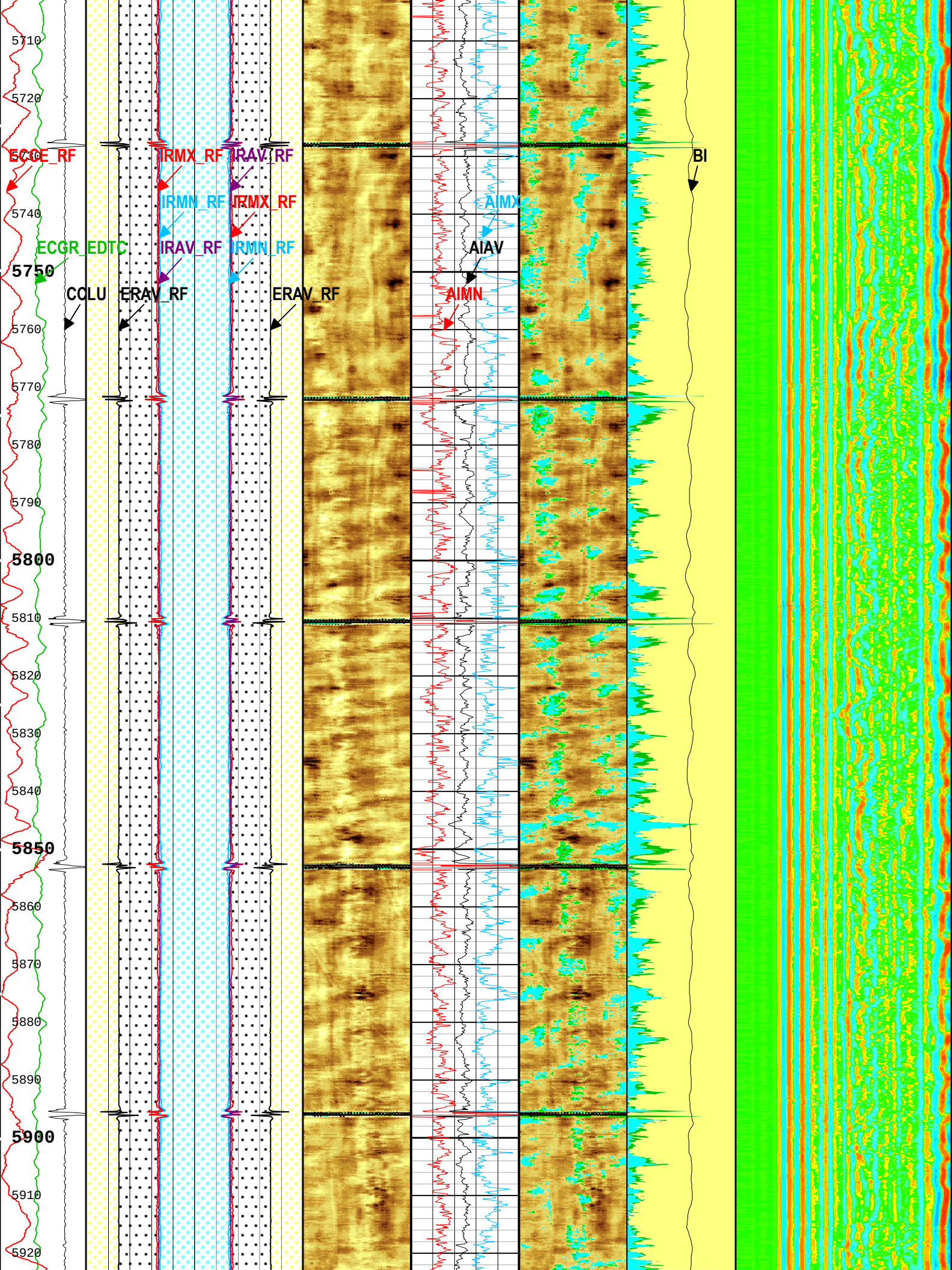
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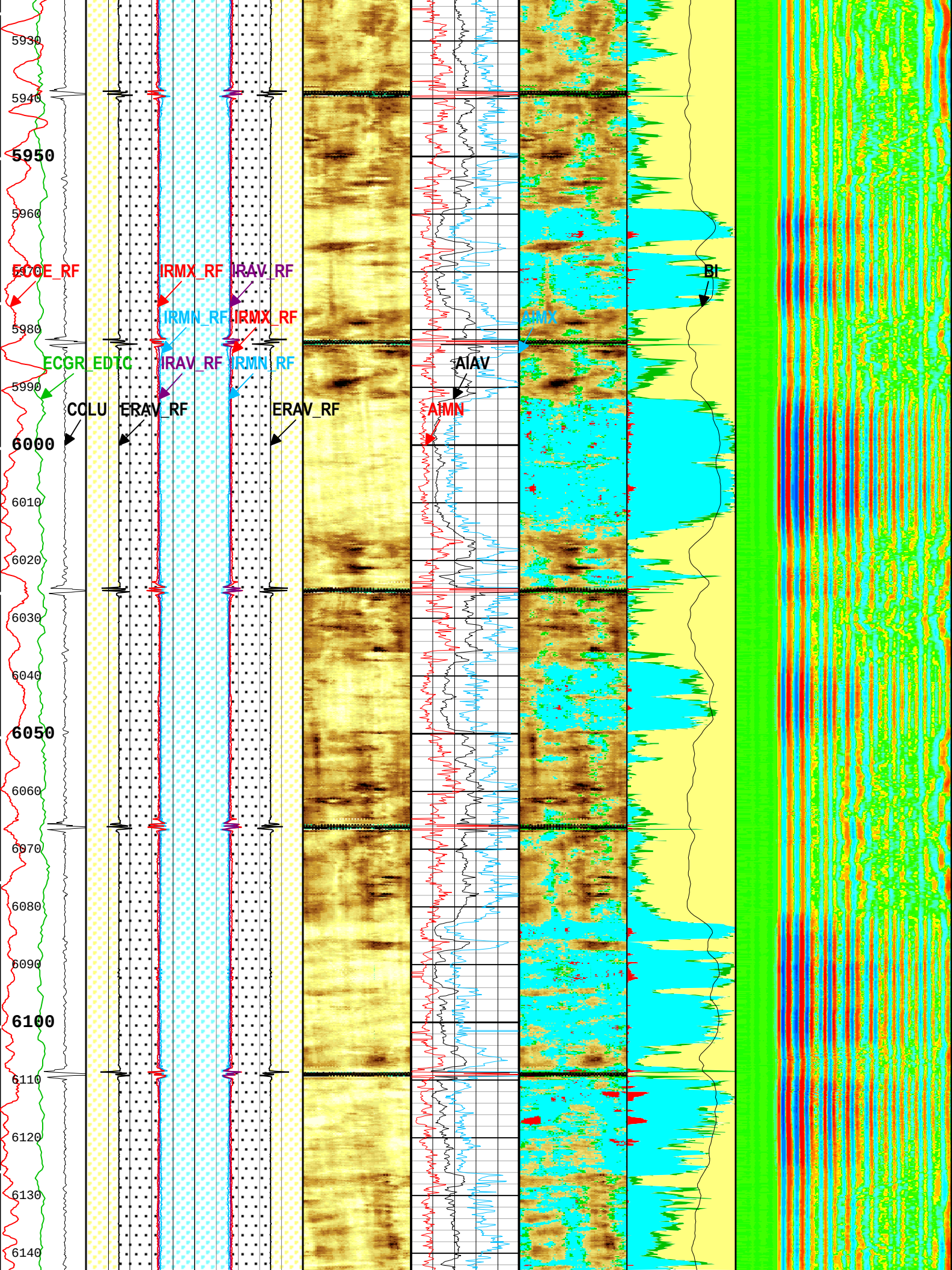
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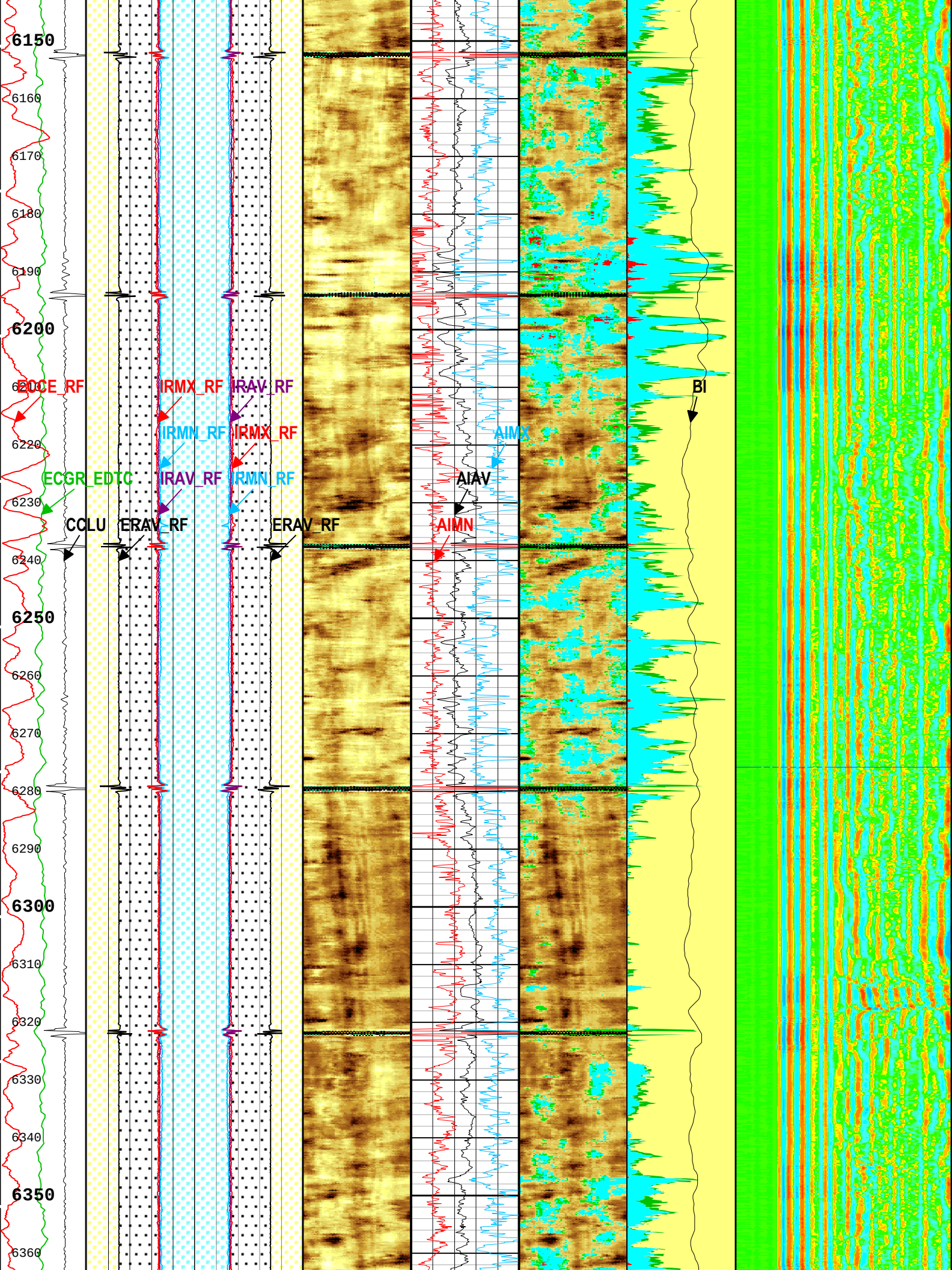
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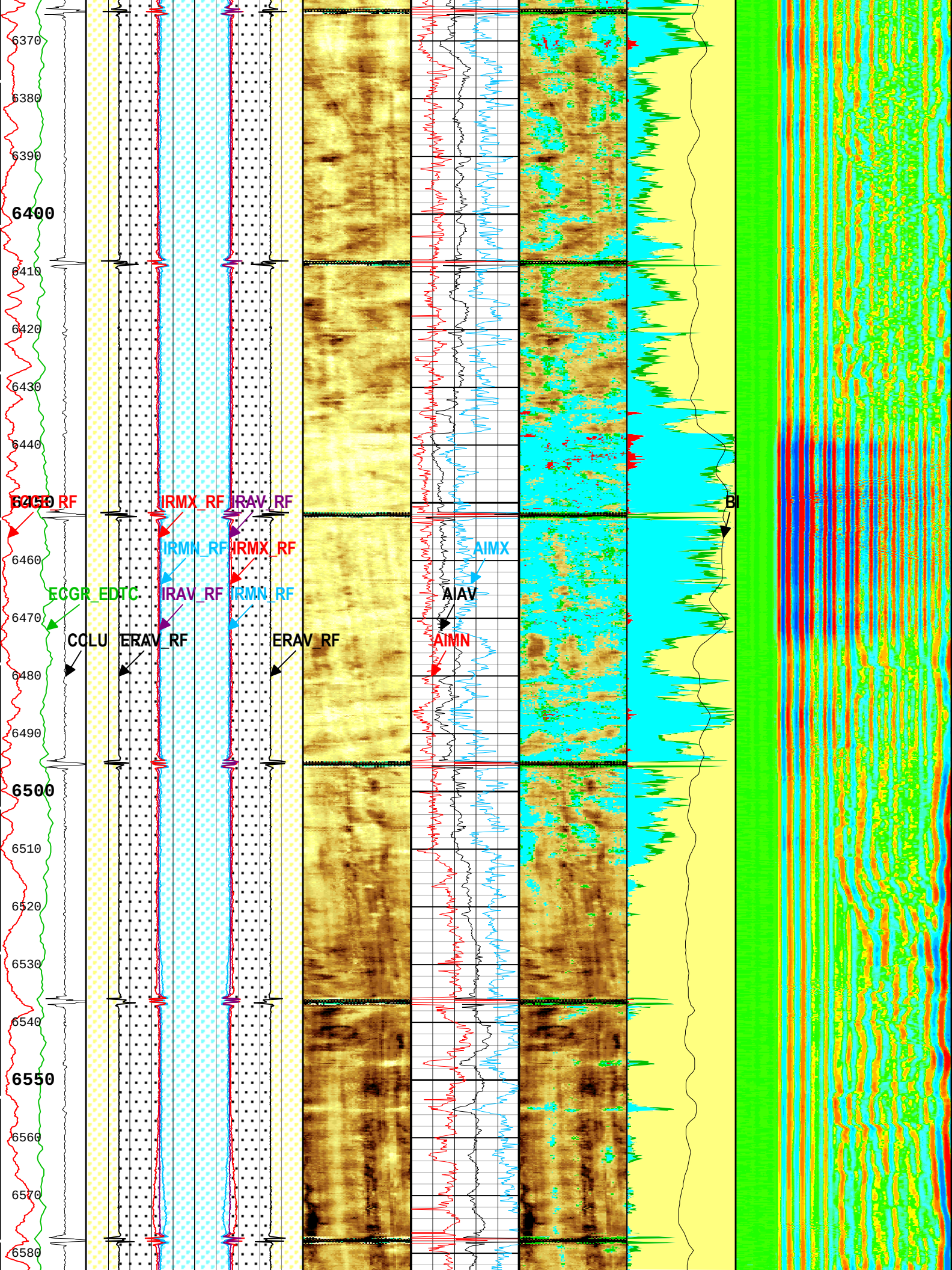
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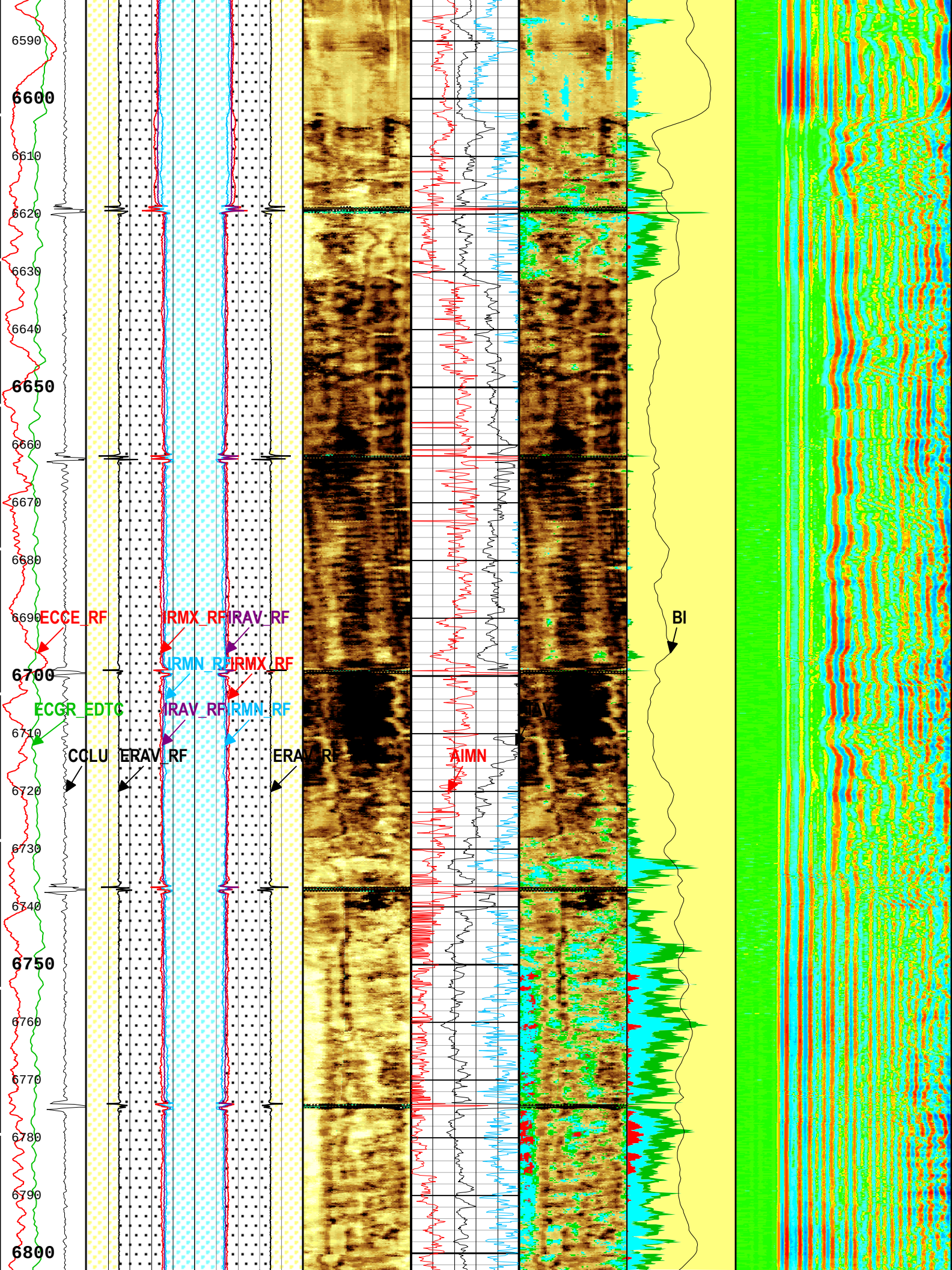
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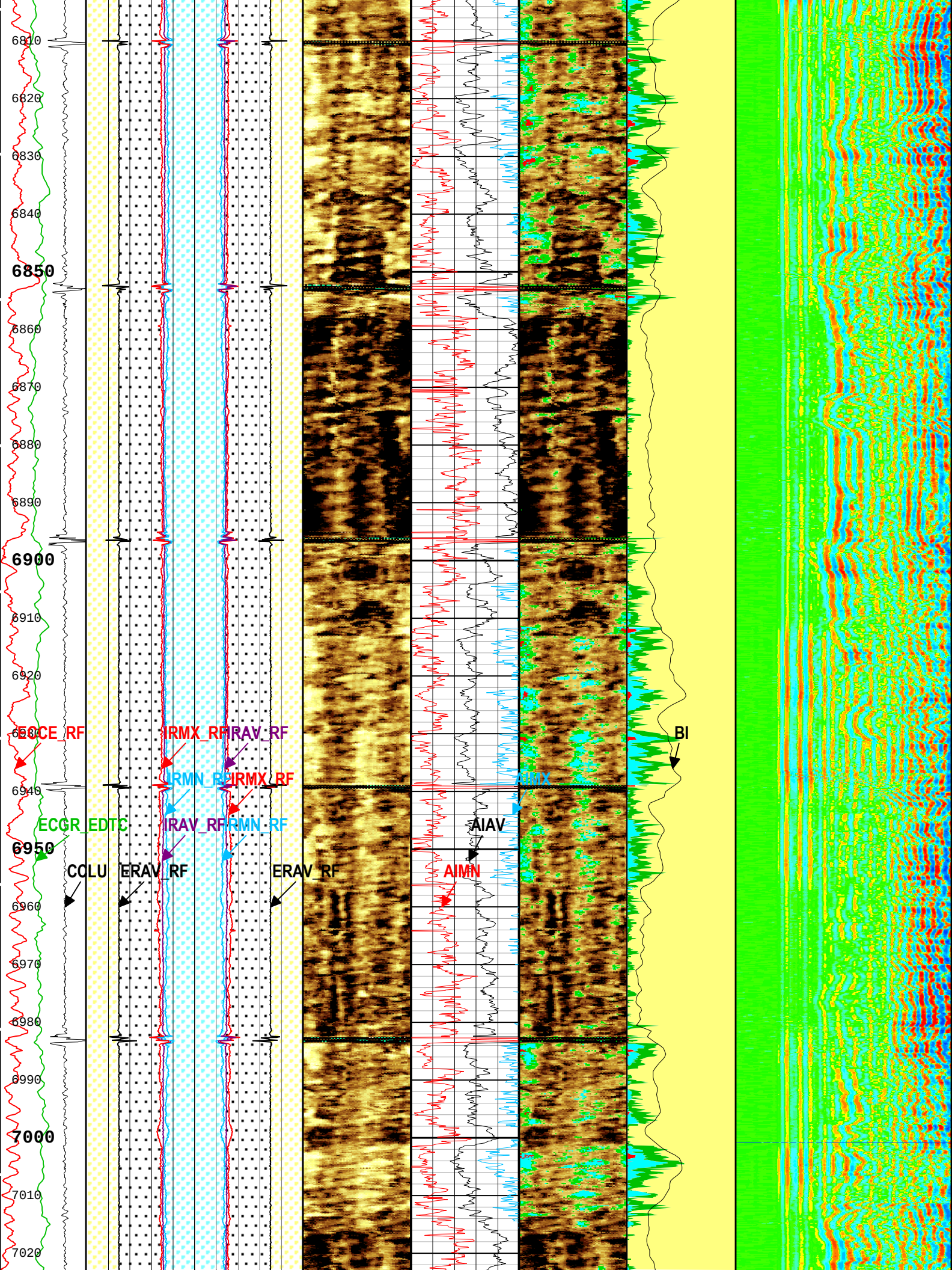
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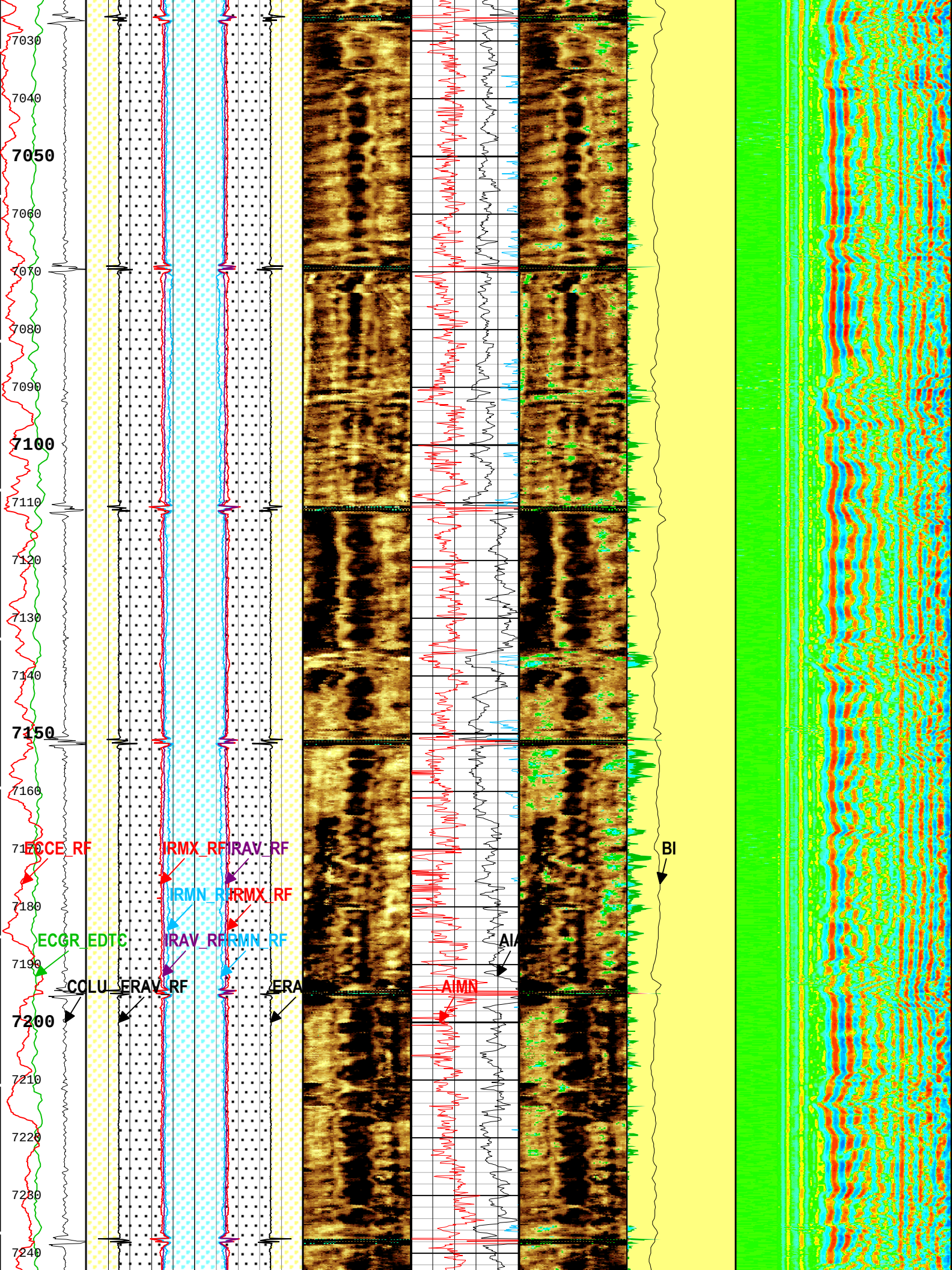
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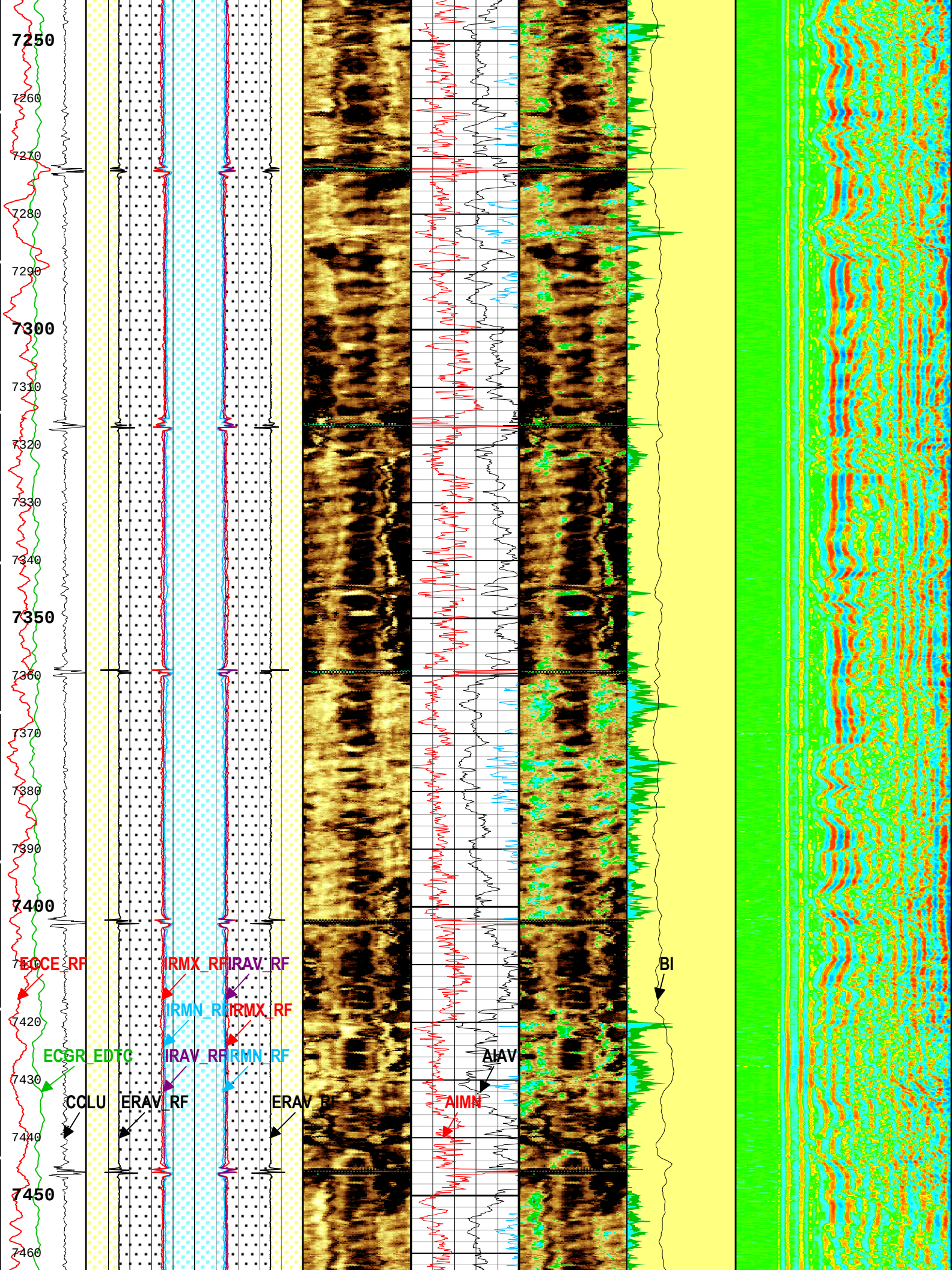
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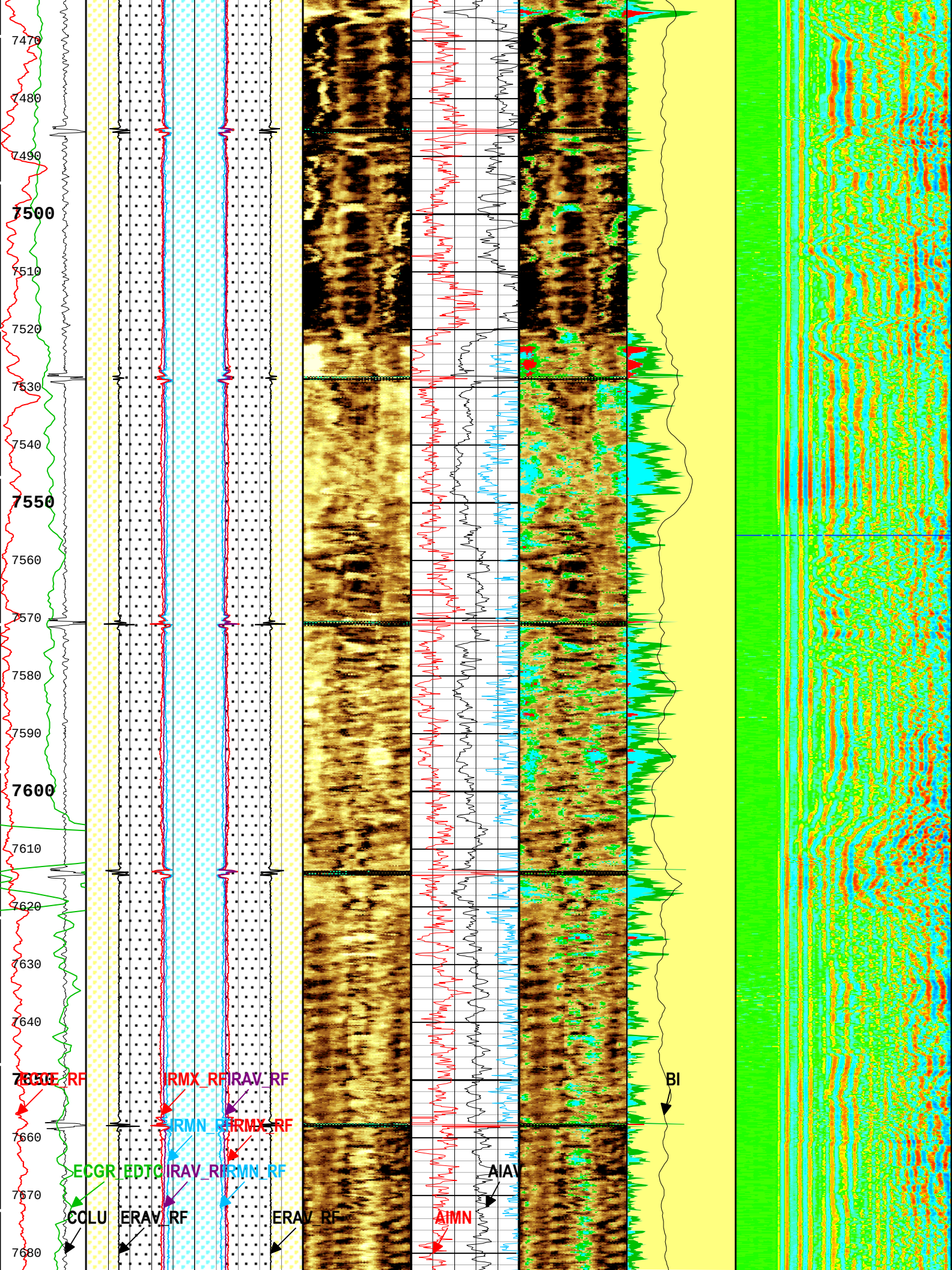
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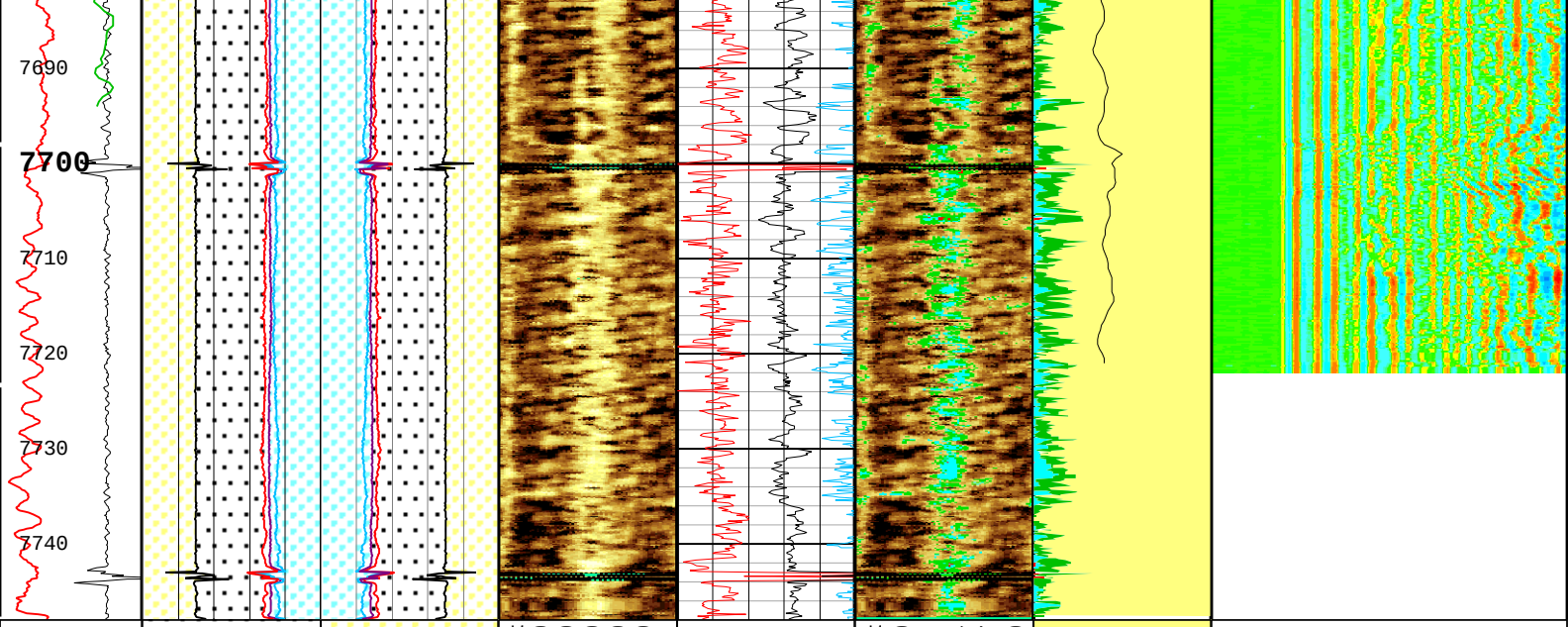

TIME_1900 - Time Marked every 60.00 (s)

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: 23-Jan-2016 06:56:24

Channel Processing Parameters

One: Parameters

Parameter	Description	Tool	Value	Unit

AMSG	Auxiliary Minimum Sliding Gate	DSLT-H	140	us
ISSBAR	Barite Mud Presence Flag	Borehole	No	
BERJ	Bad Echo Rejection	USIT-E	On	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BILI	Bond Index Level for Zone Isolation	DSLT-H	0.8	
BS	Bit Size	WLSESSION	Depth Zoned	in
CASING_PRATIO	Casing Poisson Ratio	USIT-E	Standard Poisson Ratio	
CBLG	CBL Gate Width	DSLT-H	45	us
CBLO	Casing Bottom (Logger)	WLSESSION	7910	ft
CBRA	CBL LQC Reference Amplitude in Free Pipe	DSLT-H	62	mV
CDEN	Cement Density	EDTC-B	2	g/cm3
CMCF	CBL Cement Type Compensation Factor	DSLT-H	1	
CMTY(U-USIT_CEMT)	Cement Type	USIT-E	Regular Cement	
THNO	Nominal Casing Thickness - Zoned along logger depths	WLSESSION	Depth Zoned	in
DETE	Delta-T Detection	DSLT-H	E1	
DFD	Drilling Fluid Density	Borehole	8.5	lbm/gal
DFT	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	190	us/ft
FCF	CBL Fluid Compensation Factor	DSLT-H	0.92	
FDII	FPM Data Interpolation Interval	USIT-E	0	ft
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	BS	
GOBO_CURR	Good Bond in Arbitrary Cement	DSLT-H	Depth Zoned	mV
GR_MULTIPLIER	Gamma Ray Multiplier	EDTC-B	1	
HEMA	Hematite Presence Flag	Borehole	No	
ICE_PROCESS	ICE Processing	USIT-E	Yes	
IMAR	Image Rotation	USIT-E	RB	
MAHTR	Manual High Threshold Reference for first arrival detection	DSLT-H	120	
MATT_CURR	Maximum Attenuation in Arbitrary Cement	DSLT-H	Depth Zoned	dB/ft
MCI	Minimum Cemented Interval for Isolation	DSLT-H	Depth Zoned	ft
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-E	Depth Zoned	us
MNHTR	Minimum High Threshold Reference for first arrival detection	DSLT-H	100	
MSA	Minimum Sonic Amplitude	DSLT-H	Depth Zoned	mV
MSA_CURR	Minimum Sonic Amplitude in Arbitrary Cement	DSLT-H	Depth Zoned	mV
MUD_N_FRP	Free Pipe Mud Normalization Factor	USIT-E	1.07	
MUD_N_THE	Theoretical Mud Normalization Factor	USIT-E	1.05	
NMSG	Near Minimum Sliding Gate	DSLT-H	280	us
NMXG	Near Maximum Sliding Gate	DSLT-H	940	us
NUMP	Number of Detection Passes	DSLT-H	2	
OPLEV	USIT Remove Flagged Data Level	USIT-E	OPT2	
RCOD	Reference Calibrator Outer Diameter	USIT-E	7	in
RCSO	Reference Calibrator Standoff	USIT-E	1.181	in
RCTH	Reference Calibrator Thickness	USIT-E	0.295	in
SDNV	Number of Vertical Samples used for Micro-debonding Computation	USIT-E	5	
SDTHOR	Acoustic Impedance STD Horizontal Threshold for Micro-debonding	USIT-E	0.5	Mrayl
SDTVER	Acoustic Impedance STD Vertical Threshold for Micro-debonding	USIT-E	0.3	Mrayl
SFAF	Sonic Formation Attenuation Factor	DSLT-H	3.25	dB/ft
SGAD	Sliding Gate Status	DSLT-H	Off	
SGCL	Sliding Gate Closing Delta-T	DSLT-H	130	us/ft
SGCW	Sliding Gate Closing Width	DSLT-H	25	us

SGDT	Sliding Gate Delta-T	DSLT-H	57	us/ft
SGW	Sliding Gate Width	DSLT-H	110	us
SLEV	Signal Level for AGC	DSLT-H	5000	mV
SOCN	Standoff Distance	EDTC-B	0.125	in
SOCO	Standoff Correction Option	EDTC-B	No	
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	65	%
TPOS_EDTC	Tool Position: Centered or Eccentered	EDTC-B	Eccentered	
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	0.01	Mrayl
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
USI_FSOD	USIT USI Fluid Slowness Fits Casing Outer Diameter	USIT-E	0_OFF	
USI_FVEL_SEL	USI Fluid Velocity Selection	USIT-E	Automatic	
USI_ZMUD_SEL	USI Mud Impedance Selection	USIT-E	FreePipe Norm.	
THDP	Thickness Detection Policy	USIT-E	Fundamental	
VCAS	Ultrasonic Transversal Velocity in Casing	USIT-E	51.4	us/ft
VDLG	VDL Manual Gain	DSLT-H	5	
ZCAS	Acoustic Impedance of Casing	USIT-E	46.25	Mrayl
ZCMT	Acoustic Impedance of Cement	DSLT-H	6.8	Mrayl
ZCMT_NEAT	Acoustic Impedance of Cement in Neat Cement	DSLT-H	6.8	Mrayl
ZINI	Initial Estimate of Cement Impedance	USIT-E	-1	Mrayl
ZMUD	Acoustic Impedance of Mud	Borehole	1.8	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-E	2.6	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

Depth Zone Parameters

Parameter	Value	Start (ft)	Stop (ft)
BS	20	20	510
BS	9.625	510	7748
THNO	0.317	20	5057
THNO	0.362	5057	6620
THNO	0.408	6620	7748
GOBO_CURR	1.89	20	6616
GOBO_CURR	2.9	6616	7748
MATT_CURR	13.39	20	6616
MATT_CURR	11.82	6616	7748
MCI	21.68	20	505
MCI	10	505	7748
MEAS_WLEN	19.62	20	6616
MEAS_WLEN	22.5	6616	7748
MSA	0.79	20	6616
MSA	1.35	6616	7748
MSA_CURR	0.79	20	6616
MSA_CURR	1.35	6616	7748

All depth are actual.

Tool Control Parameters

One: Parameters

Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	18	dB
DDEL	Digitizing Delay	DSLT-H	0	us
U-USIT_DDT5	USIC Downhole Decimation for T5 only	USIT-E	0_NONE	
DOT(DOS)	Distance between Opposite Transducer Faces	USIT-E	2.874	in
MODE	DSLT Acquisition Mode	DSLT-H	CBL	
RATE	DSLT Firing Rate	DSLT-H	15 Hz	
DTFS	DSLT Telemetry Frame Size	DSLT-H	536	
DWCO	Digitizer Word Count	DSLT-H	250	
EMXV	EMEX Voltage	USIT-E	45	V
HRES	Horizontal Resolution	USIT-E	5 deg	
MOTOR_PROTECT	Motor Protection	USIT-E	On	
SDTH	Switch Down Threshold	DSLT-H	20000	
SGAI	Selectable Acquisition Gain	DSLT-H	x1	
SUTH	Switch Up Threshold	DSLT-H	1000	
TMUC	Type of Mud	USIT-E	BRI	
UACLV_PERM	Ultrasonic ACLV Permanent	USIT-E	No	
ULOG	Logging Objective	USIT-E	MEASUREMENT	
UMFR	Modulation Frequency	USIT-E	333333	Hz
USFR	Ultrasonic Sampling Frequency	USIT-E	500000	Hz
UPAT	USIT Emission Pattern	USIT-E	Pattern 375 KHz	
UWKM	USIT Working Mode	USIT-E	Uncompressed 5 deg at 1.5 in LF	
USIT_DEPTHLOG	Starting Depth Log for Ultrasonics	USIT-E	6000	ft
USSP	Ultrasonic Service	USIT-E	USI	
VRES	Vertical Resolution	USIT-E	1.5 in	
WINB	Window Begin Time	USIT-E	33.86	us
WINE	Window End Time	USIT-E	73.87	us
WMOD	Waveform Firing Mode	DSLT-H	Full	

One

USI Composite Main Pass 5 IN = 100 FT

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[3]:Up	Up	16.71 ft	7748.81 ft	22-Jan-2016 8:47:51 AM	22-Jan-2016 2:03:15 PM	ON	2.00 ft	Yes

All depths are referenced to toolstring zero

Log

Company:Southern California Gas Company Well:Porter 35

One: Log[3]:Up:S008

Description: USI Composite Format: Log (LBV1_USI Composite 9.625inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth
Creation Date: 23-Jan-2016 06:56:58

TIME_1900 - Time Marked every 60.00 (s)

USIT Processing Flags (UFLG[0]) USIT-E

1 - UFLG 1 Value within [0.0 - 1.5] - : UTIM Error

2 - UFLG 2 Value within [1.5 - 2.5] - : Pulse Origin Not Detected

3 - UFLG 3 Value within [2.5 - 3.5] - : WINLEN Error

4 - UFLG 4 UFLG 5 UFLG 6 Value within [3.5 - 6.5] - : Casing Thickness Error

5 - UFLG 7 UFLG 8 UFLG 9 Value within [6.5 - 10] - : Loop Processing Error

U L B R U

Casing Collar Locator Ultrasonic (CCLU) USIT-E
-30 in 10

Amplitude of Eccentering for Unflagged Waves (ECCE_RF) USIT-E
0 in 0.5

Motor Revolution Speed (RSAV) USIT-E
6 c/s 8

Calibrated Gamma Ray (GR_EDTC) EDTC-B
0 gAPI 150

U L B R U
Orientation: Top of Hole
Absent 1.500 3.500
Explicit Normalization
USIT - USIT Processing Flags (UFLG) USIT-E

USIT Processing Flags (UFLG[0]) USIT-E
1 5

Orientation: Top of Hole
Absent -4.799 -2.799 -0.800
Explicit Normalization
USIT - Amplitude of Unflagged Wave (AWBK_RF) USIT-E (dB)

Minimum of Unflagged Wave Amplitude (AWMN_RF) USIT-E
0 dB 75

Average of Unflagged Wave Amplitude (AWAV_RF) USIT-E
0 dB 75

Maximum of Unflagged Wave Amplitude (AWMX_RF) USIT-E
0 dB 75

ERAV
ERAV-IRAV
IRAV

Median of Unflagged External Radii (ERAV_RF) USIT-E
3.8 in 2.8

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E
3.8 in 2.8

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
3.8 in 2.8

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
3.8 in 2.8

IRAV
ERAV
IRAV-ERAV

Median of Unflagged External Radii (ERAV_RF) USIT-E
2.8 in 3.8

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E
2.8 in 3.8

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
2.8 in 3.8

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
2.8 in 3.8

U L B R U
Orientation: Top of Hole
Absent -0.051 -0.012 0.028 0.068
Explicit Normalization
USIT - Unflagged Internal Radii minus Median Internal Radius (IRBKM_RF) USIT-E (in)

Minimum of Unflagged Casing Thickness (THMN_RF) USIT-E
0.1 in 0.6

Nominal Casing Thickness (THNO) USIT-E
0.1 in 0.6

Median of Unflagged Casing Thickness (THAV_RF) USIT-E
0.1 in 0.6

Maximum of Unflagged Casing Thickness (THMX_RF) USIT-E
0.1 in 0.6

U L B R U
Orientation: Top of Hole
Absent -0.051 -0.012 0.028 0.068
Explicit Normalization
USIT - Unflagged Casing Thickness minus Median of Unflagged Casing Thickness (THBKM_RF) USIT-E (in)

U L B R U
Orientation: Top of Hole
Absent 1.500 3.500 5.500 7.500
Custom Normalization
USIT - Acoustic Impedance (AIBK) USIT-E (Mrayl)

Ratio of Cement Measurements to Total (CEMR) USIT-E
1 0

Micro-debonding Ratio (MDR) USIT-E
1 0

Ratio of Gas Measurements to Total (GASR) USIT-E
1 0

Bonded
Gas
Liquid
Micro-debonding

Bond Index (BI) DSLT-H
1 0

U L B R U
Orientation: Top of Hole
Absent 3.090 5.054 7.018
Custom Normalization
USIT - Acoustic Impedance (AIBK) USIT-E (Mrayl)

U L B R U
Orientation: Top of Hole
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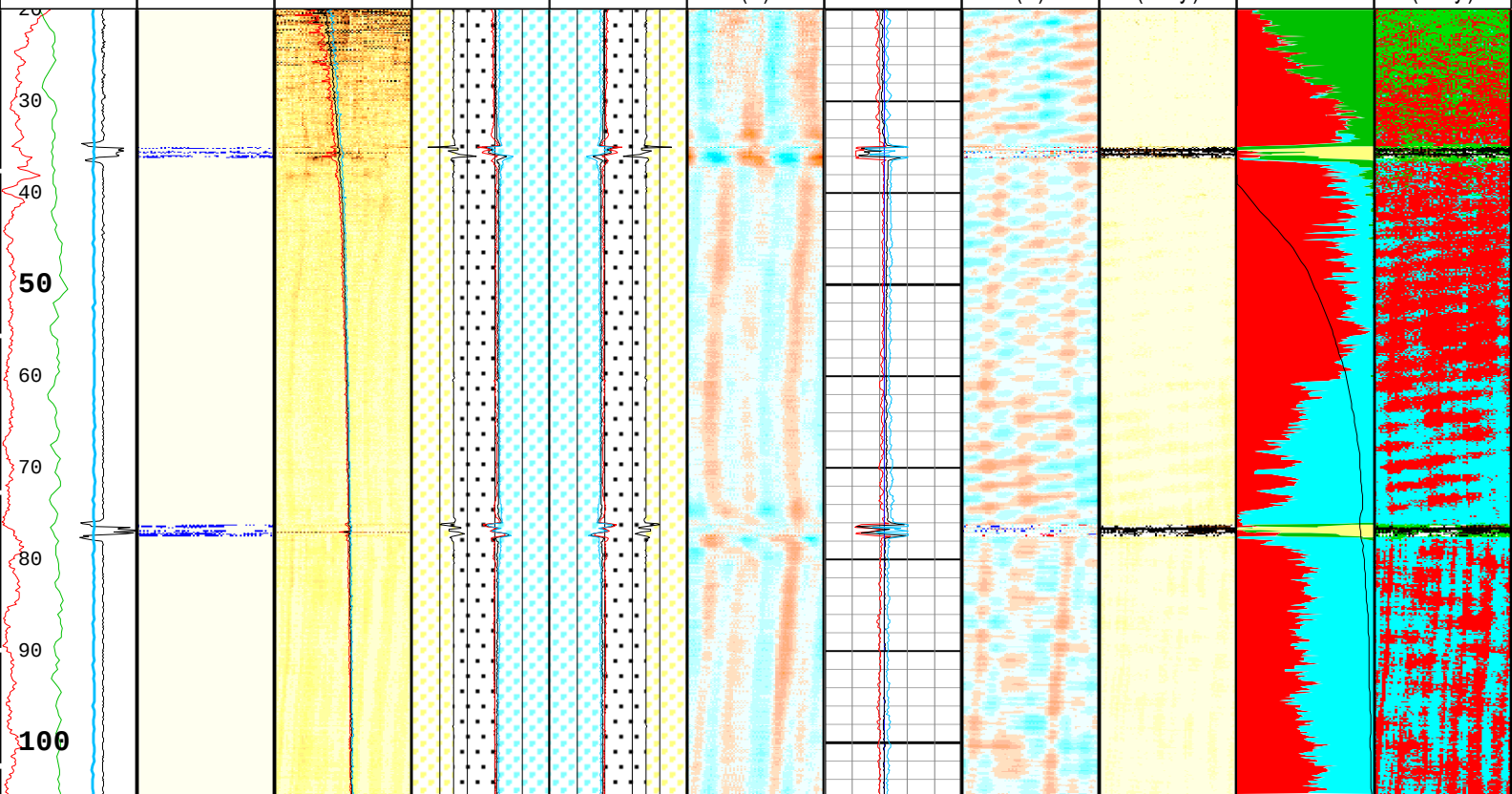
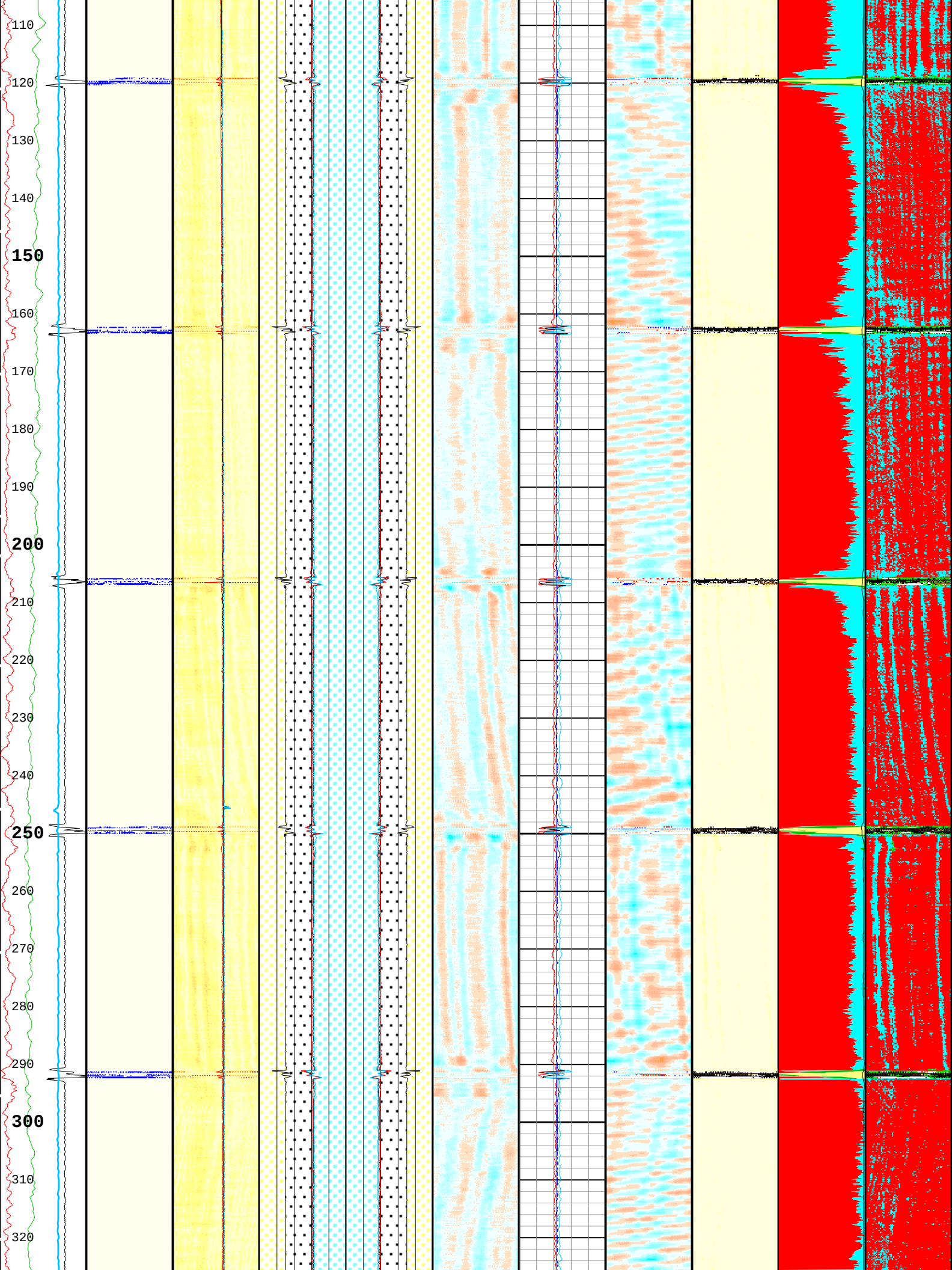
Custom Normalization
USIT - Acoustic Impedance With Micro-debonding Image (AI_MDEBOND_IMG) USIT-E (Mrayl)

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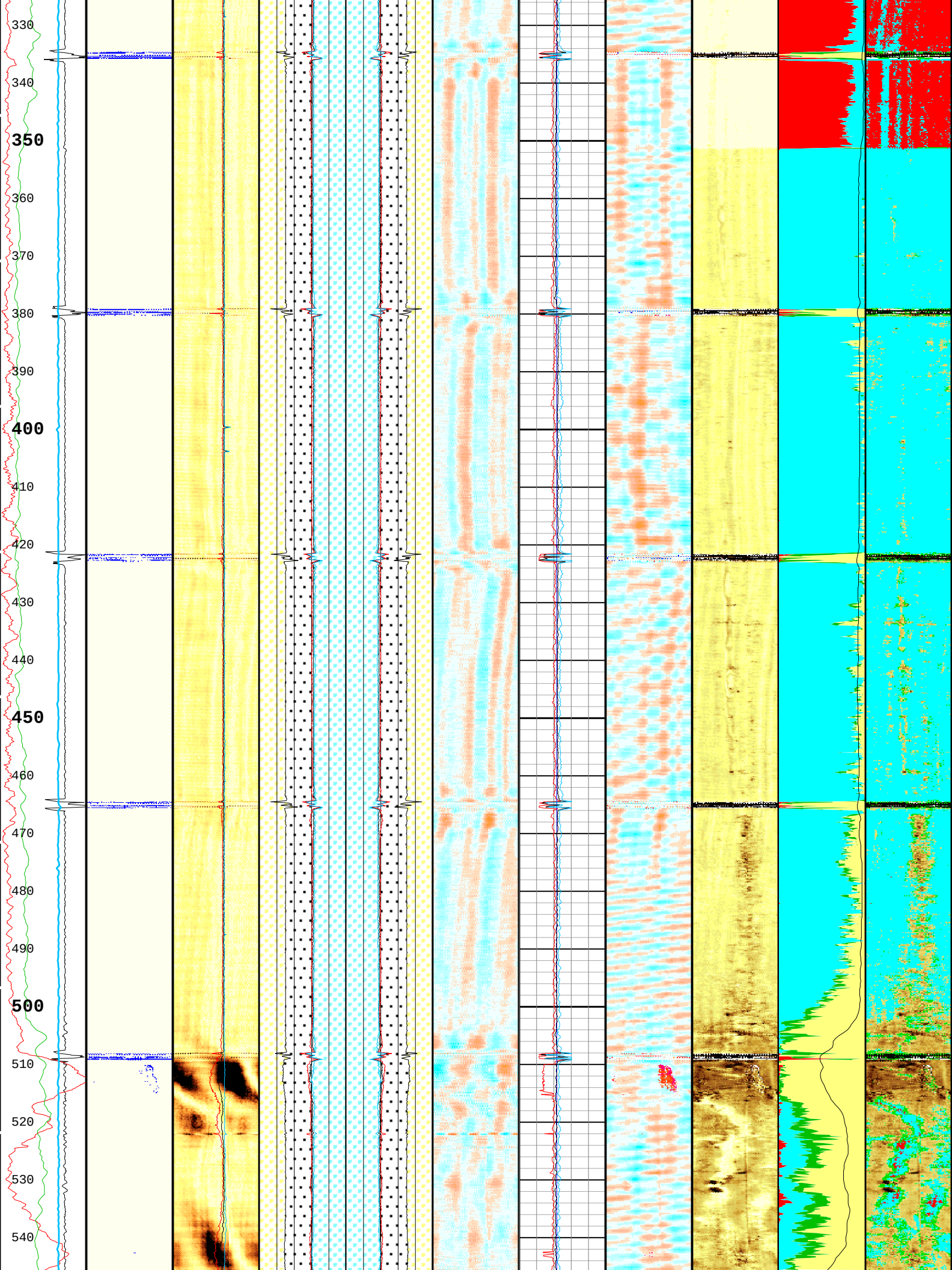
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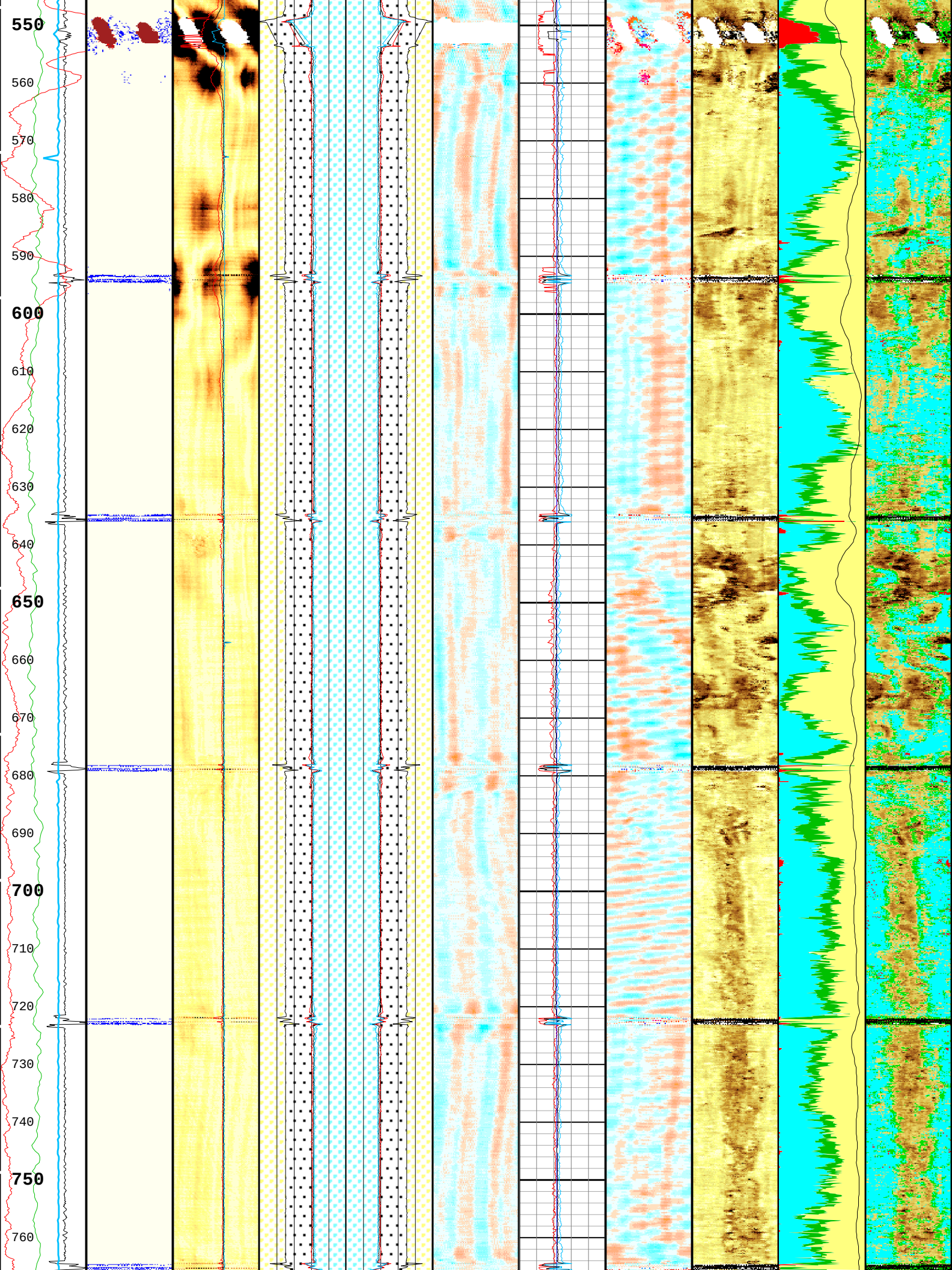
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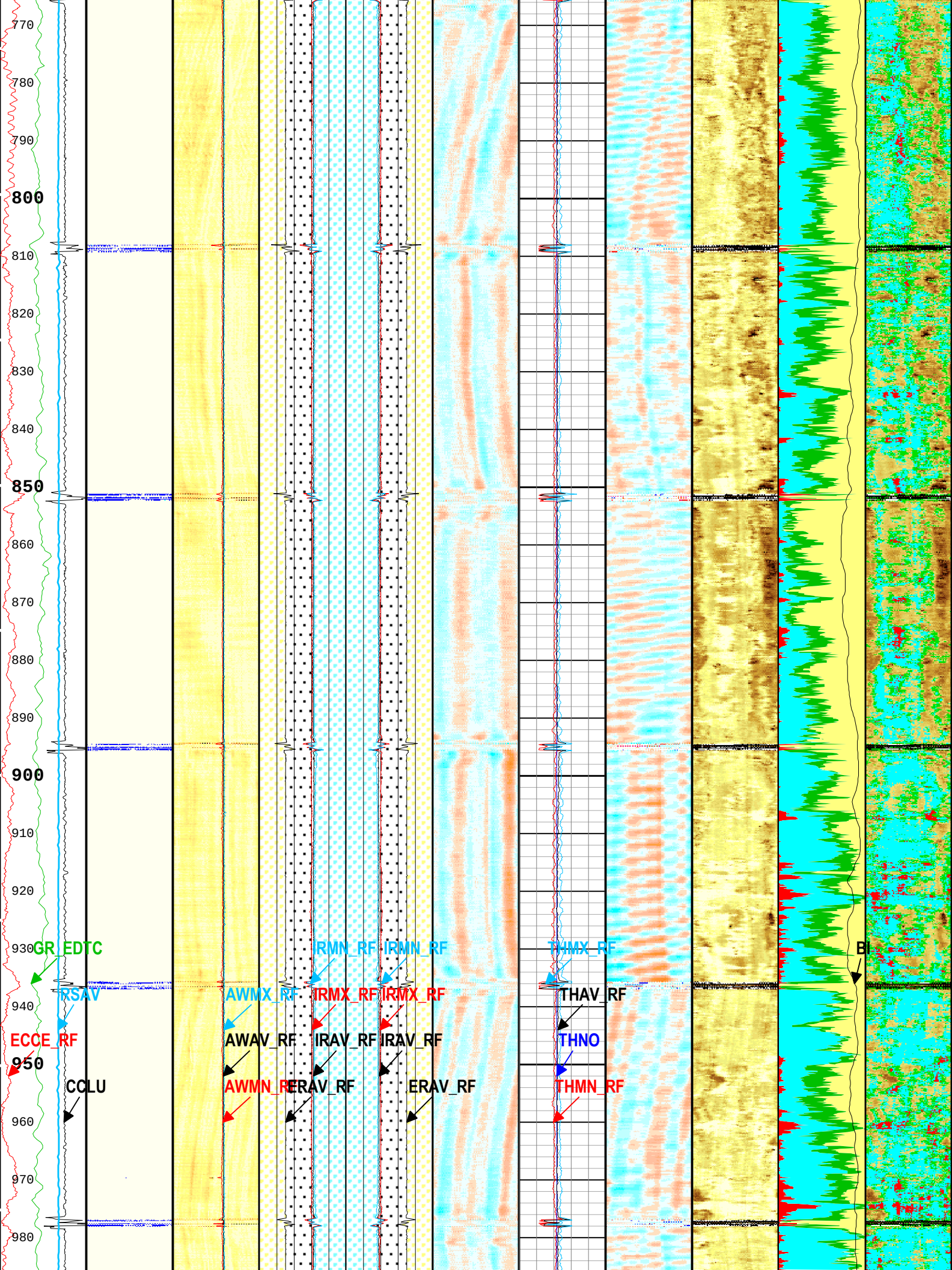
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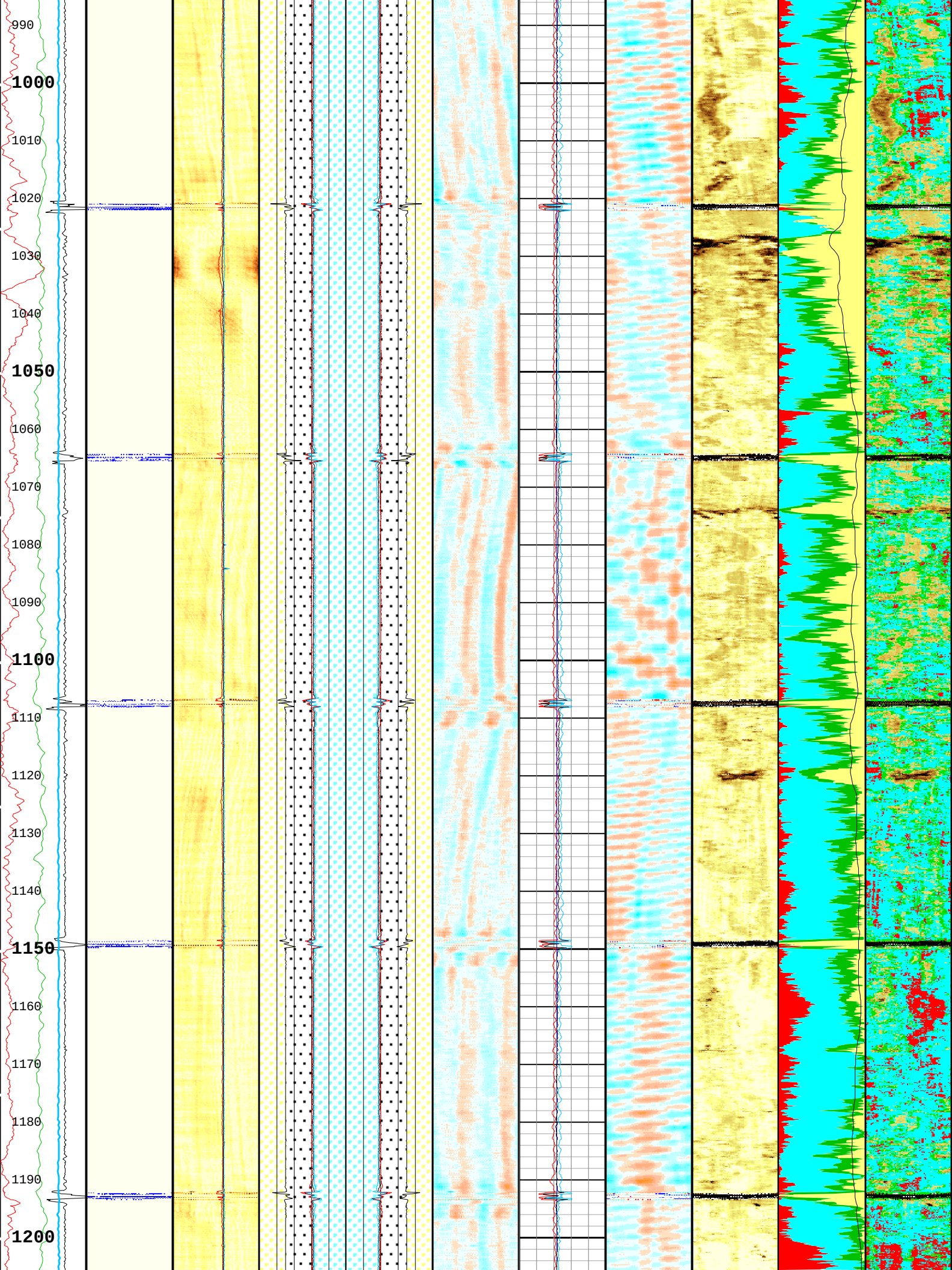
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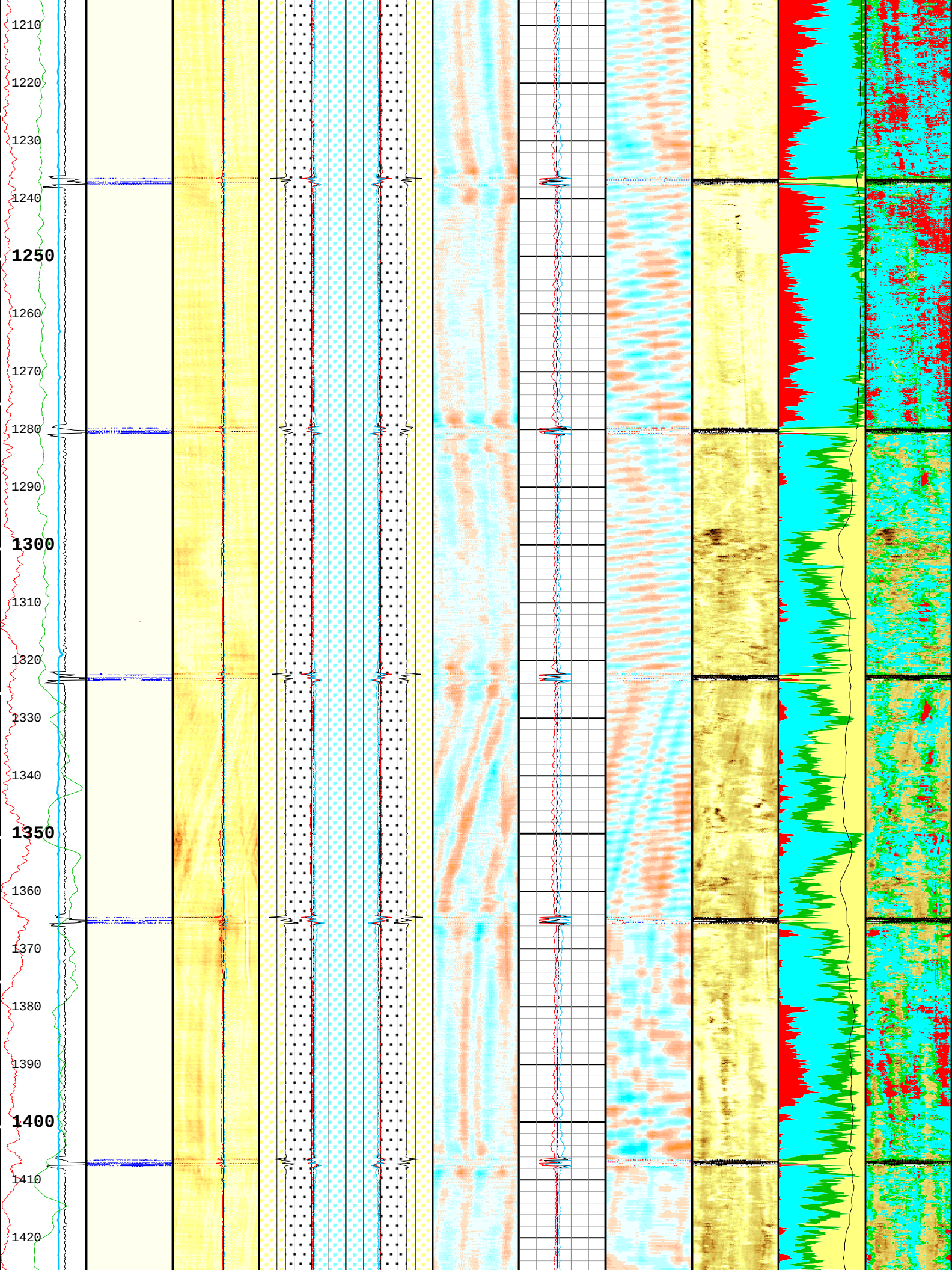
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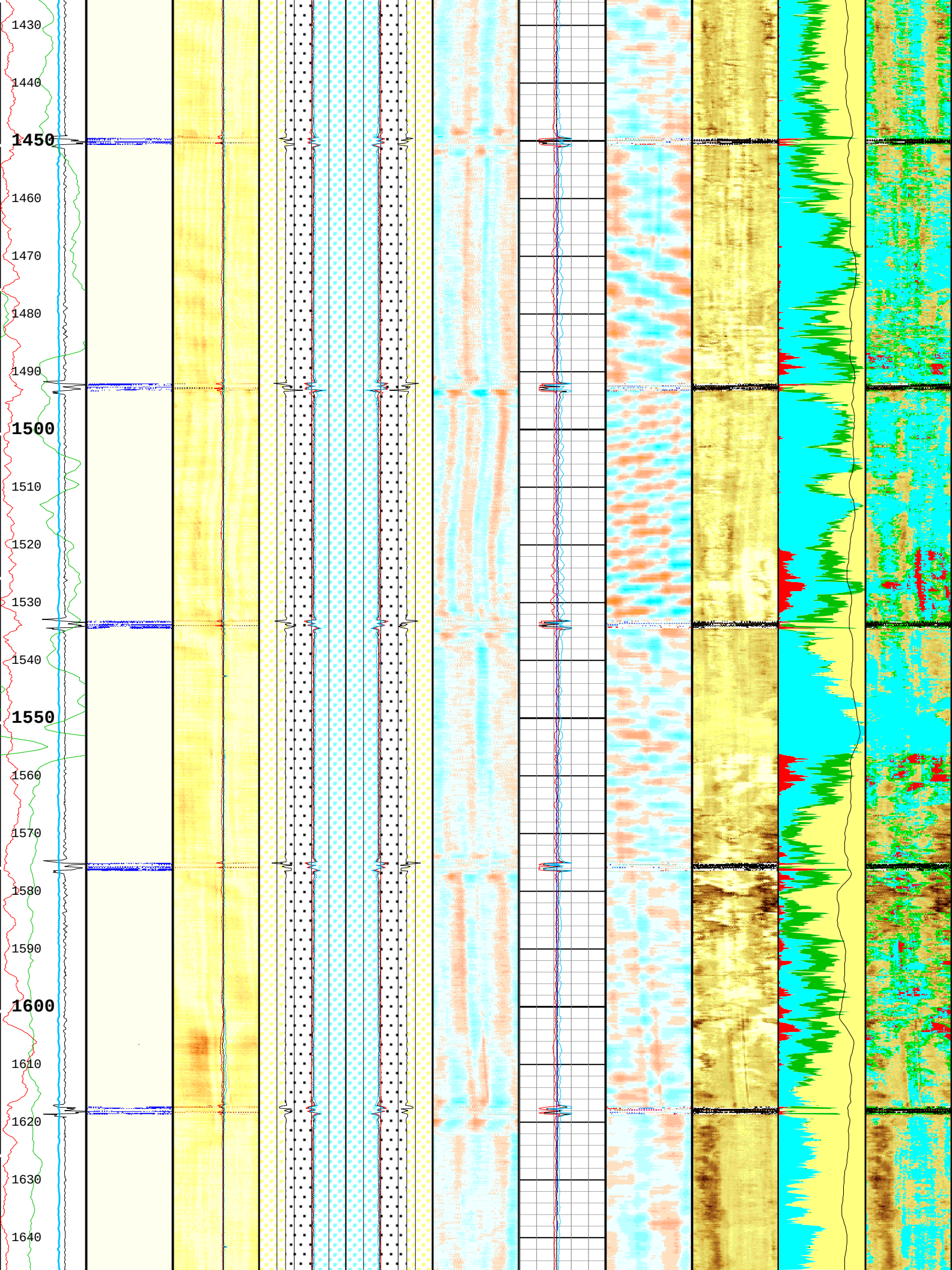
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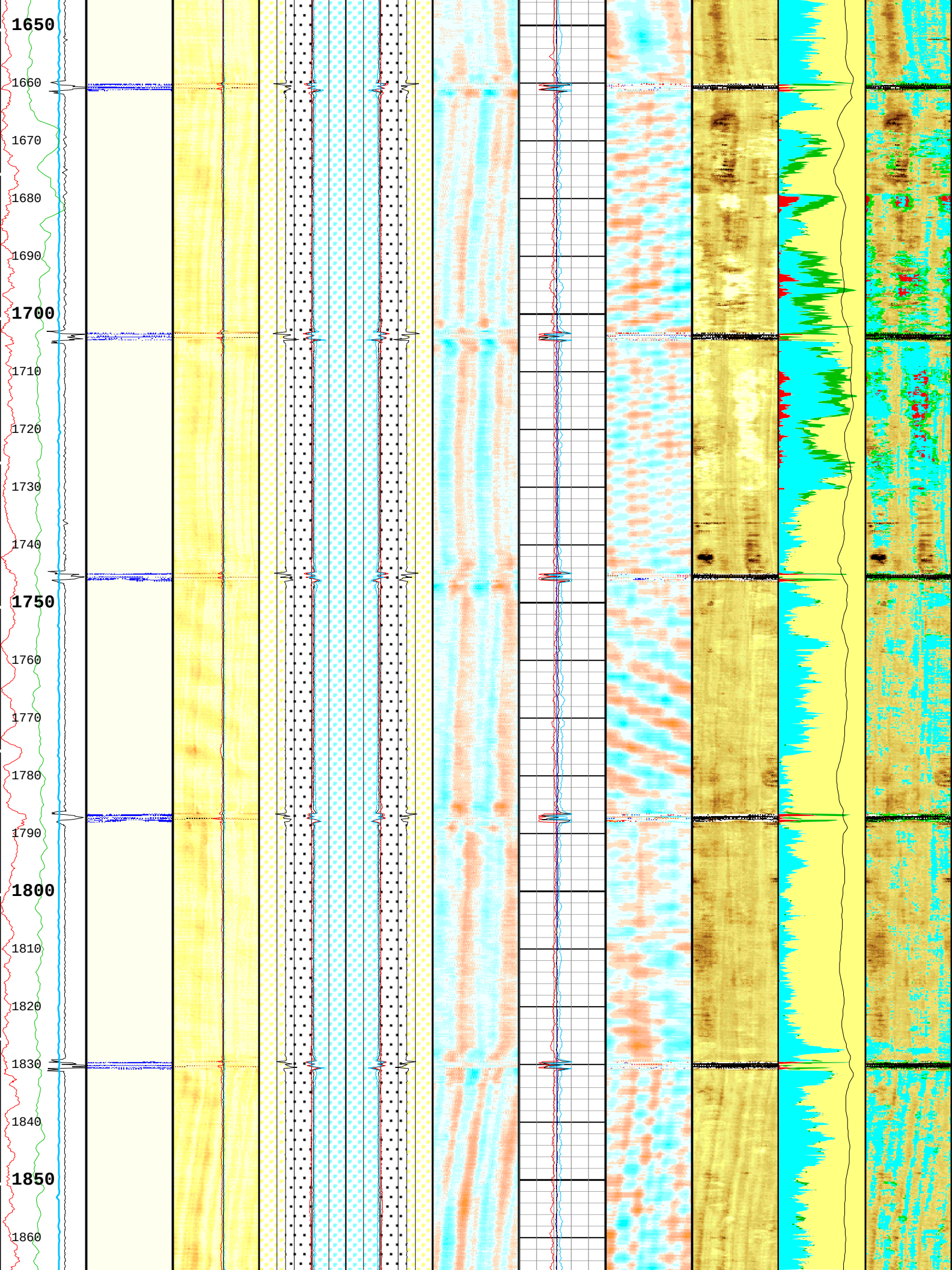
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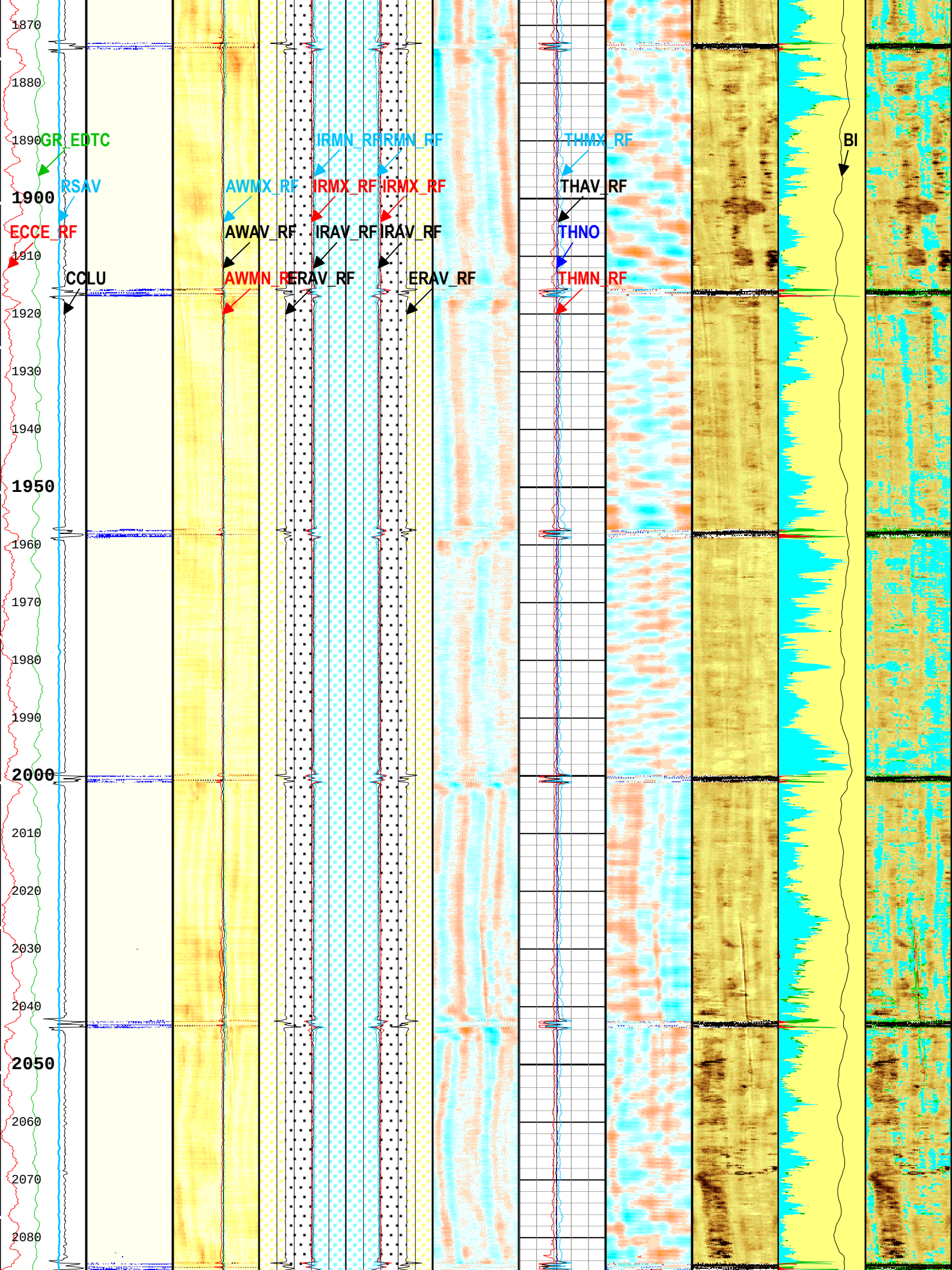
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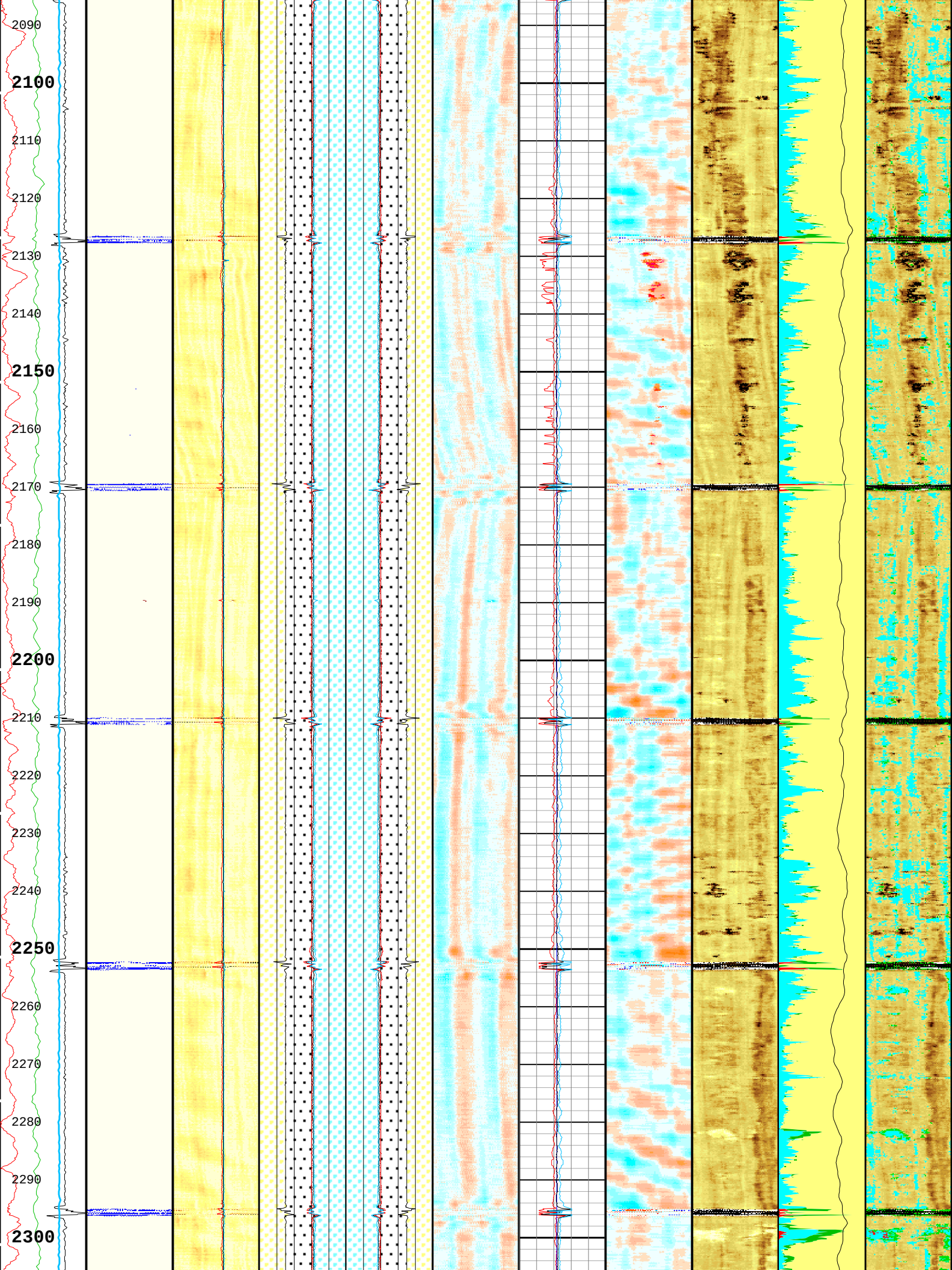
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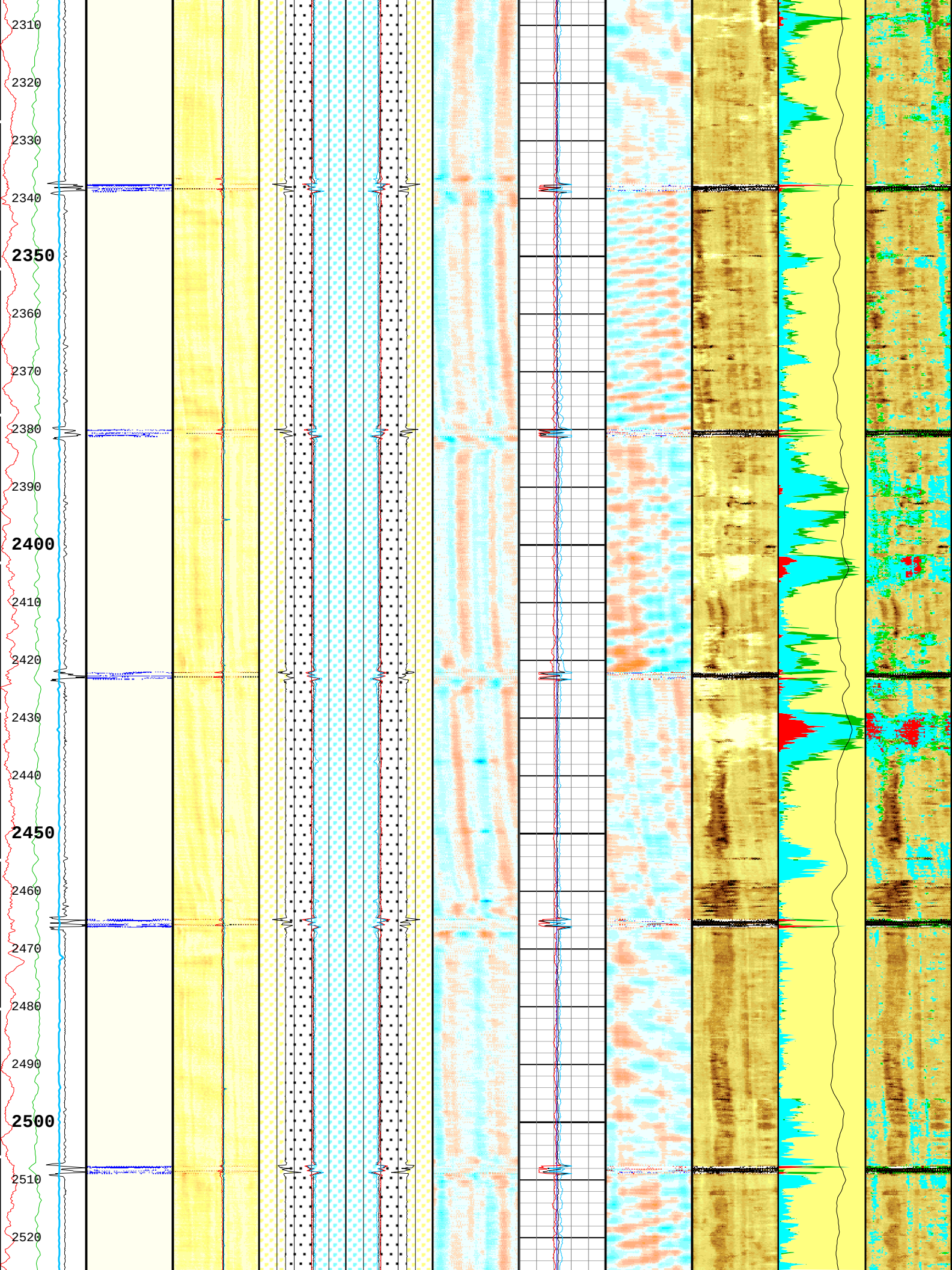
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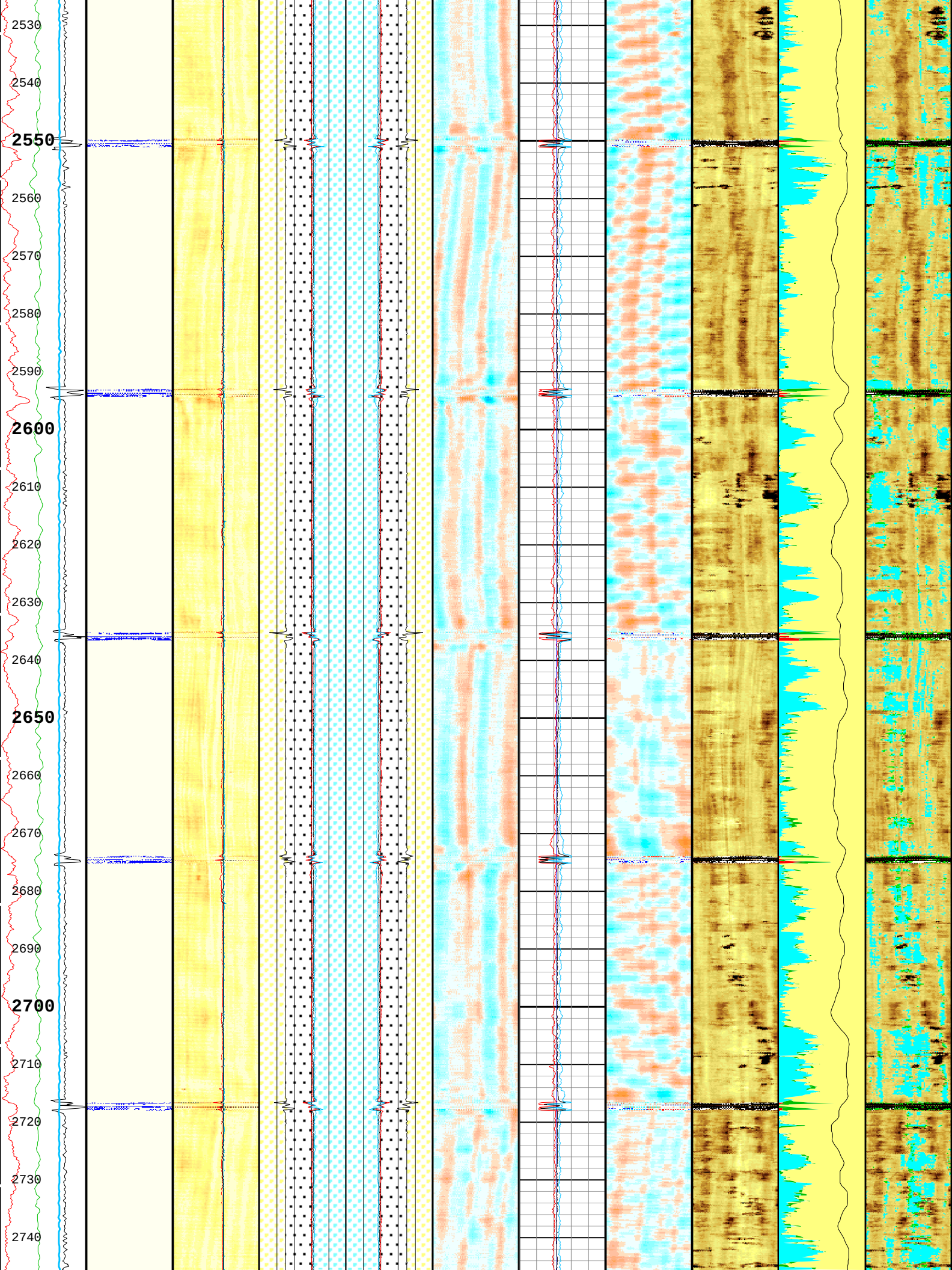
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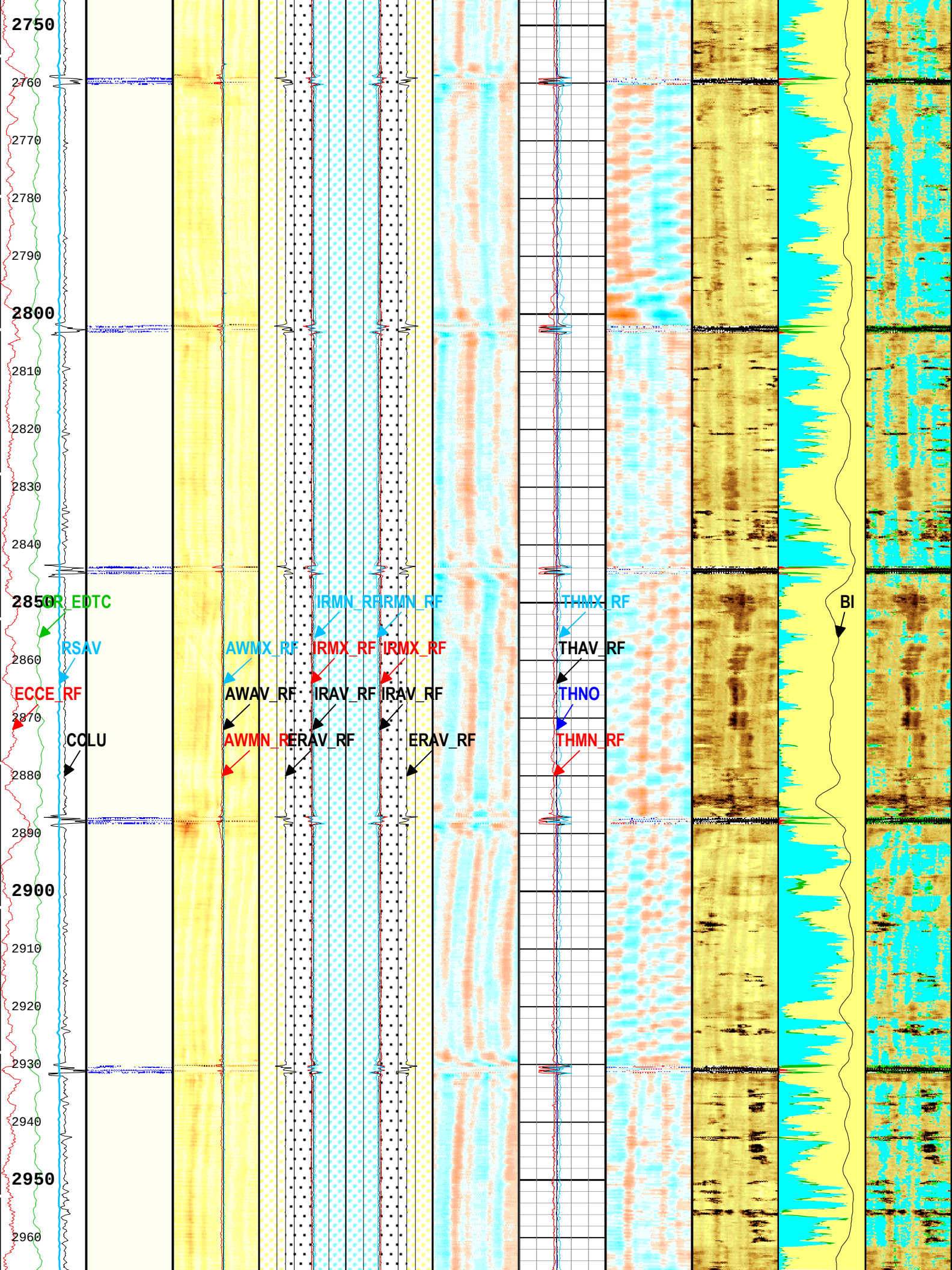
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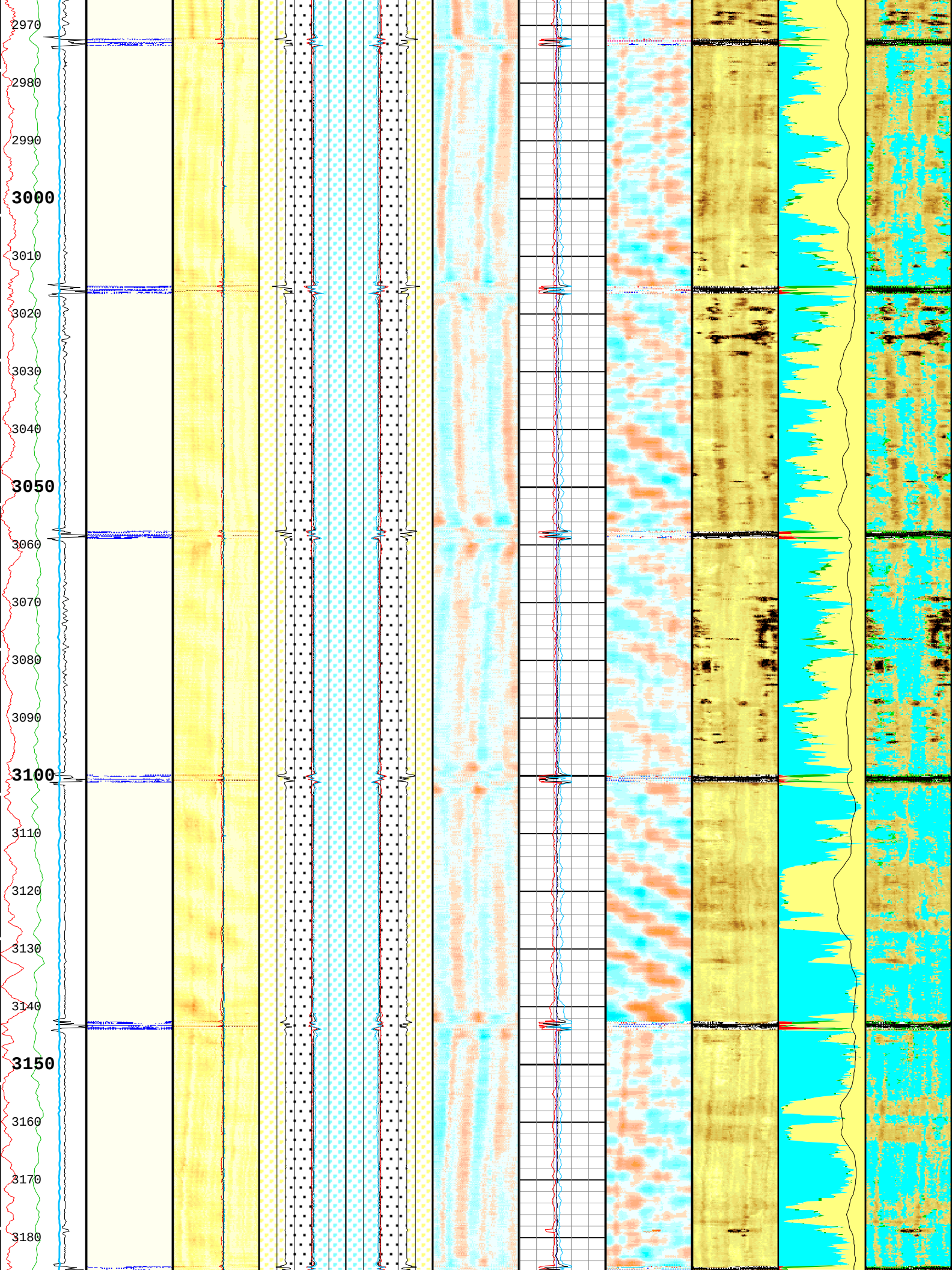
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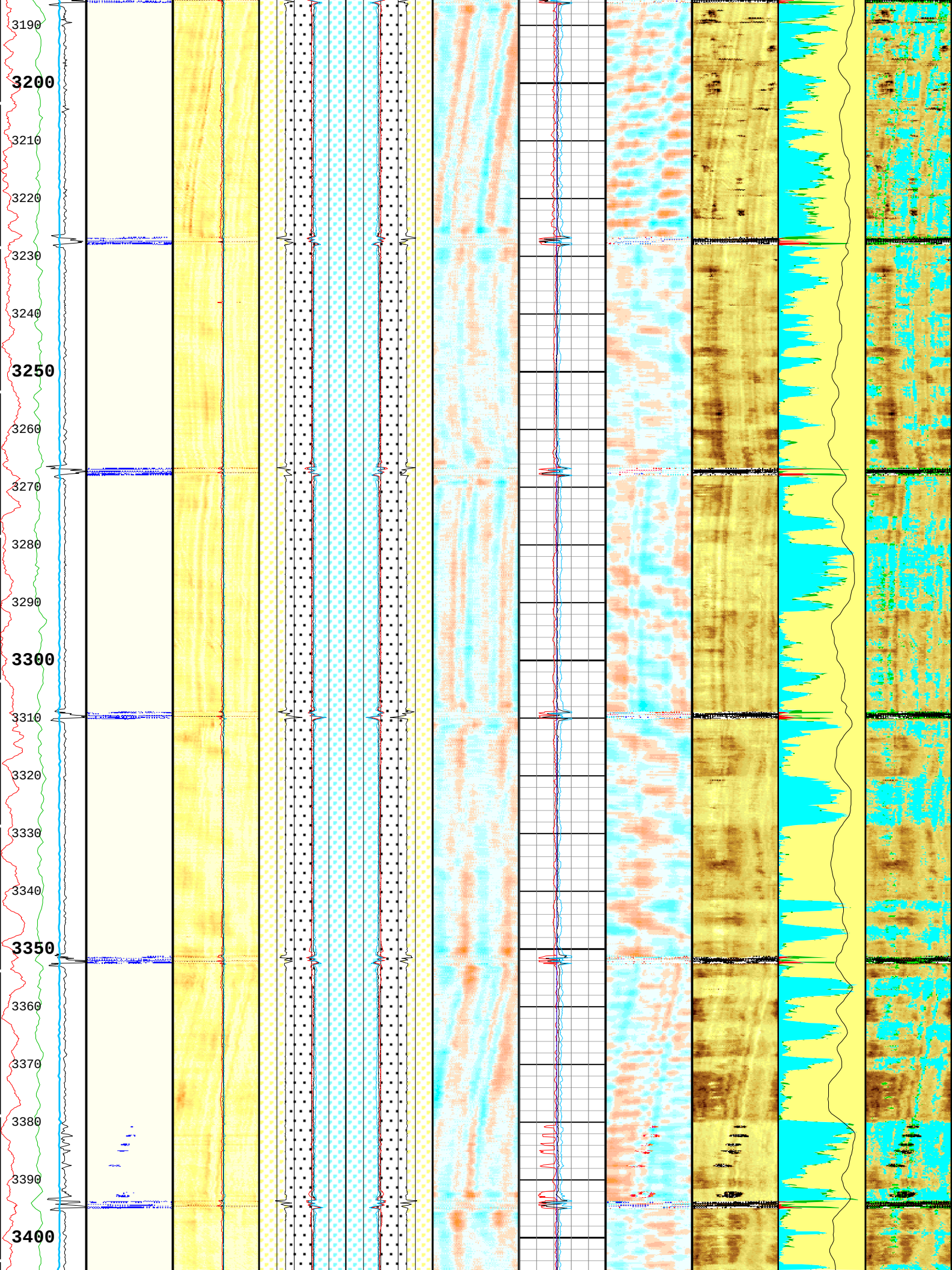
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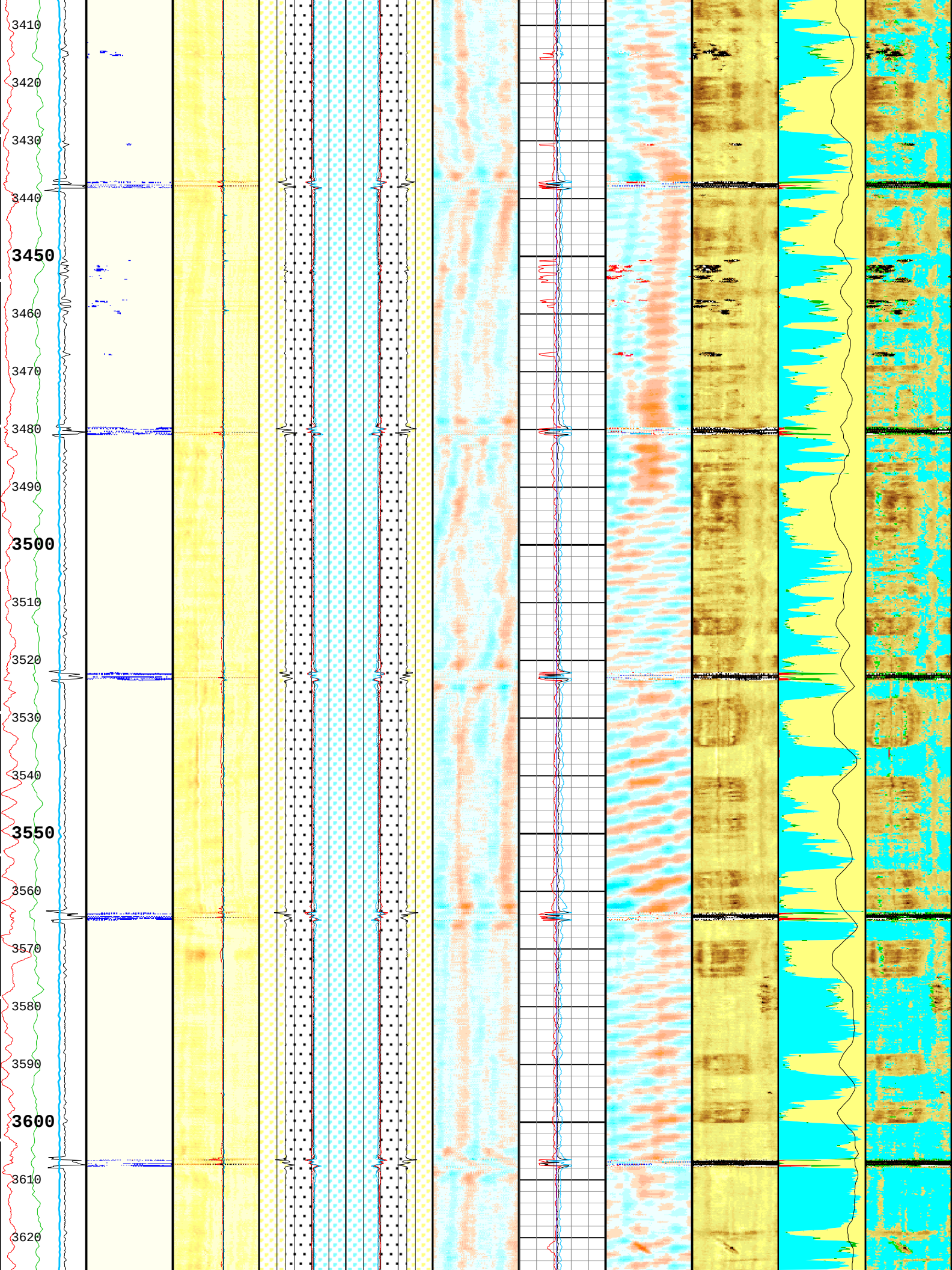
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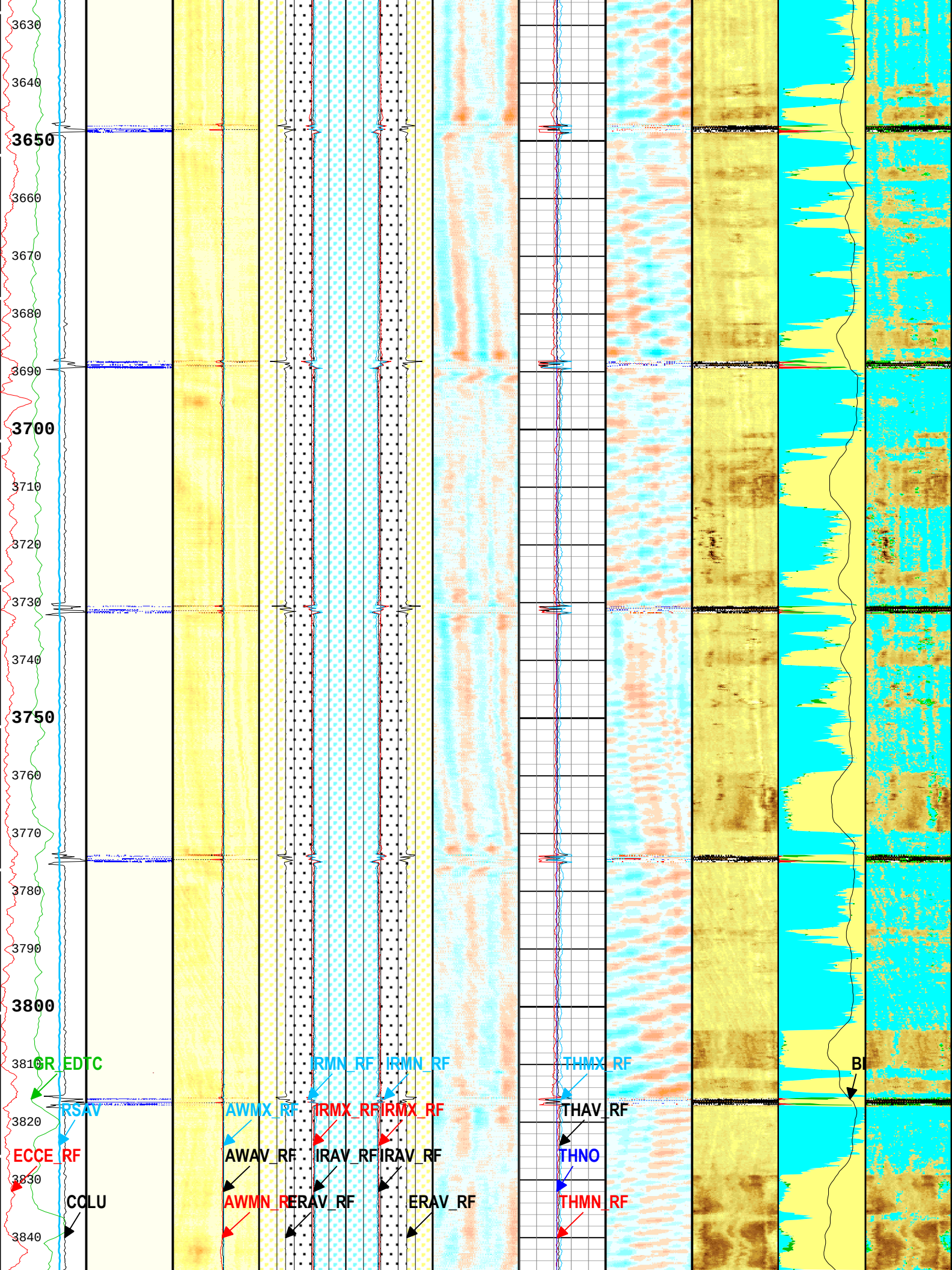
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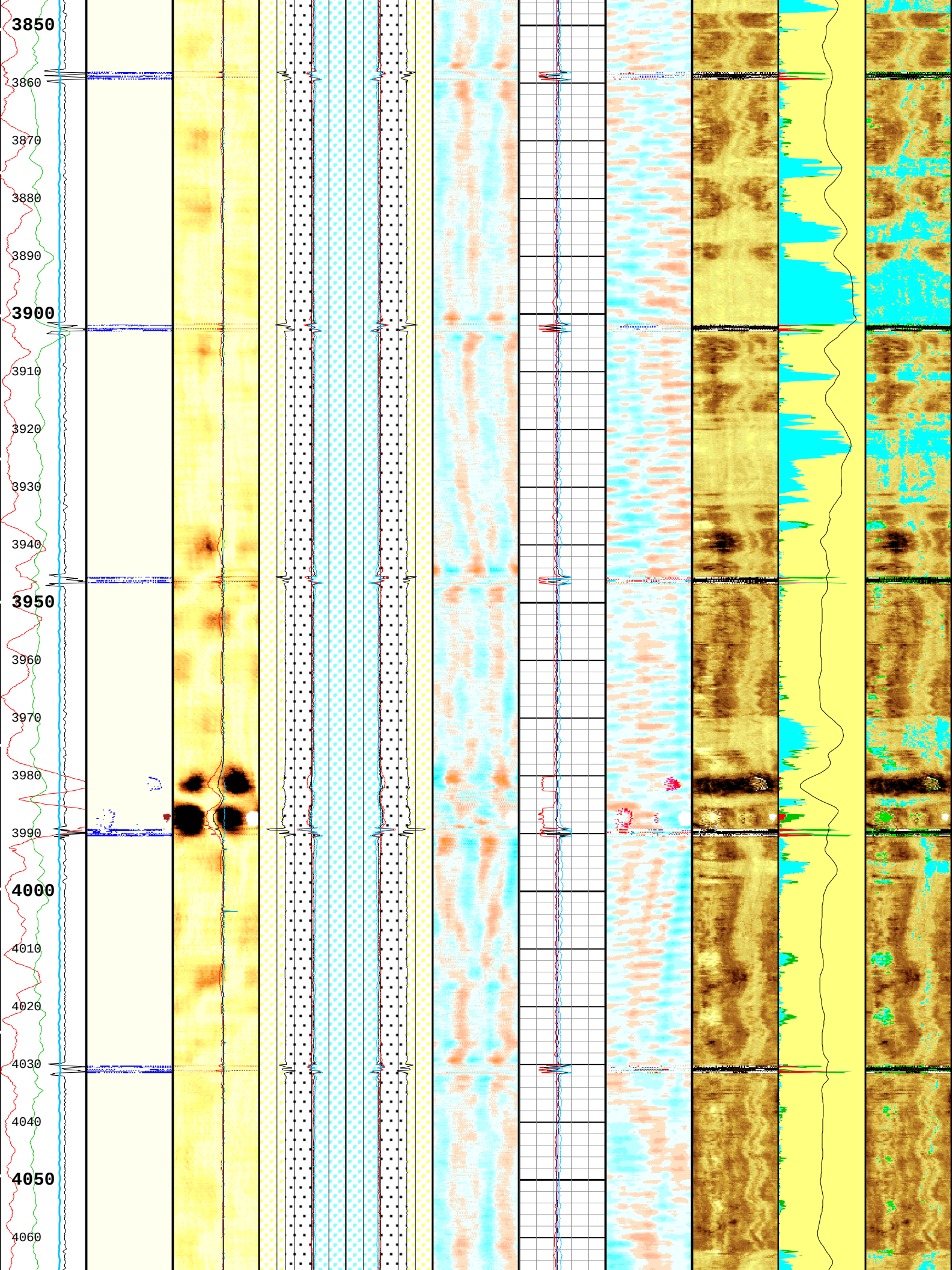
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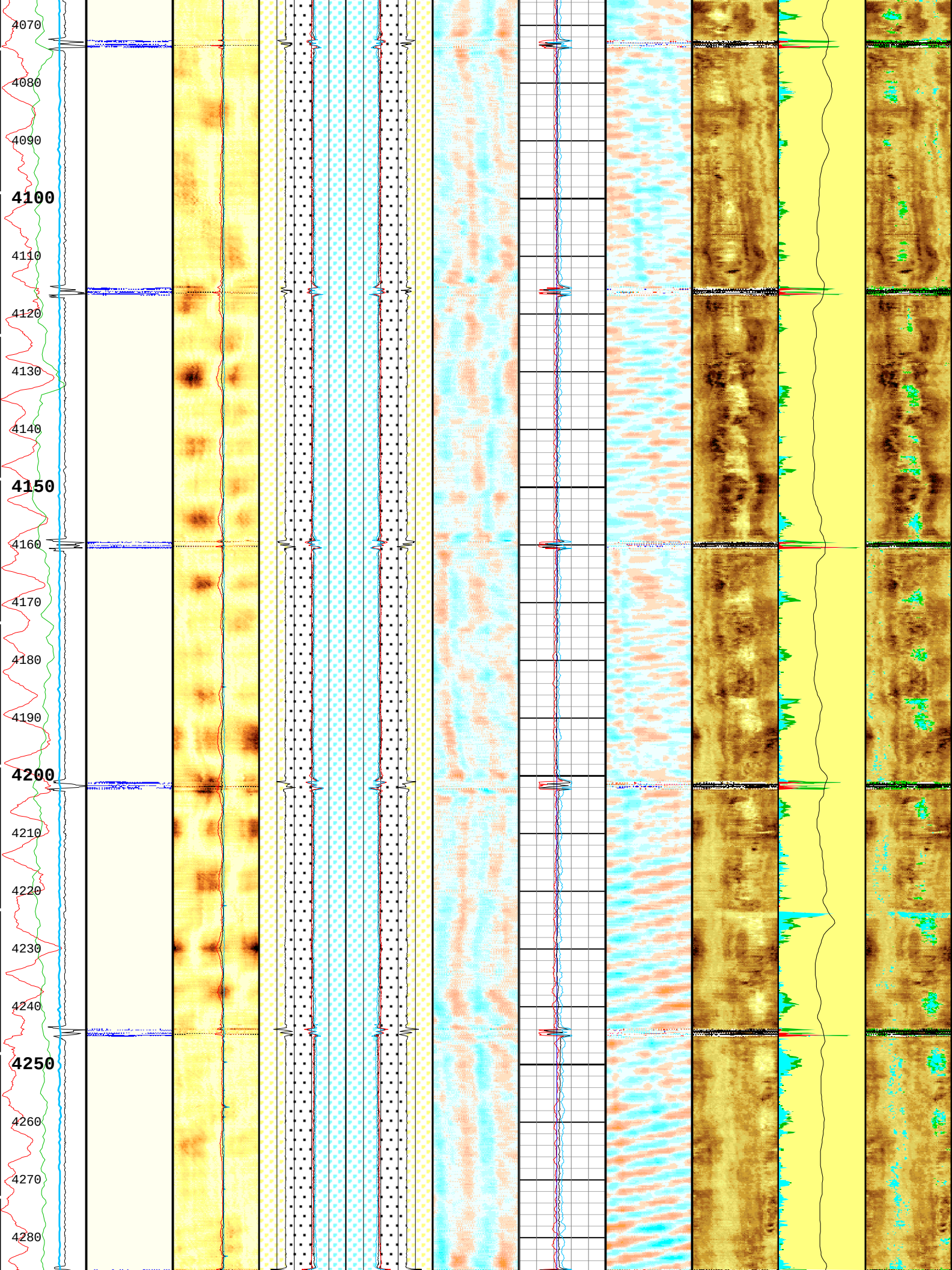
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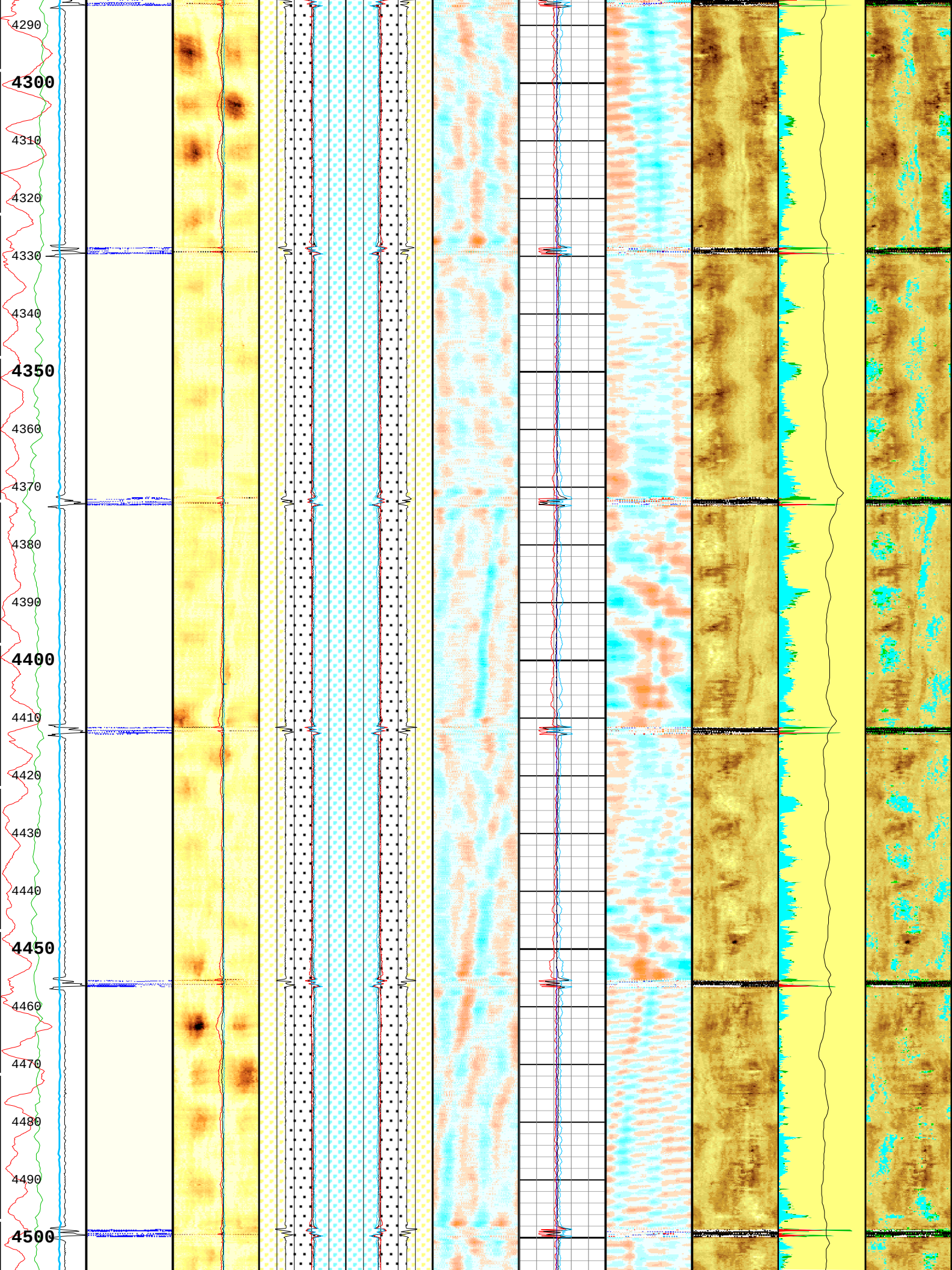
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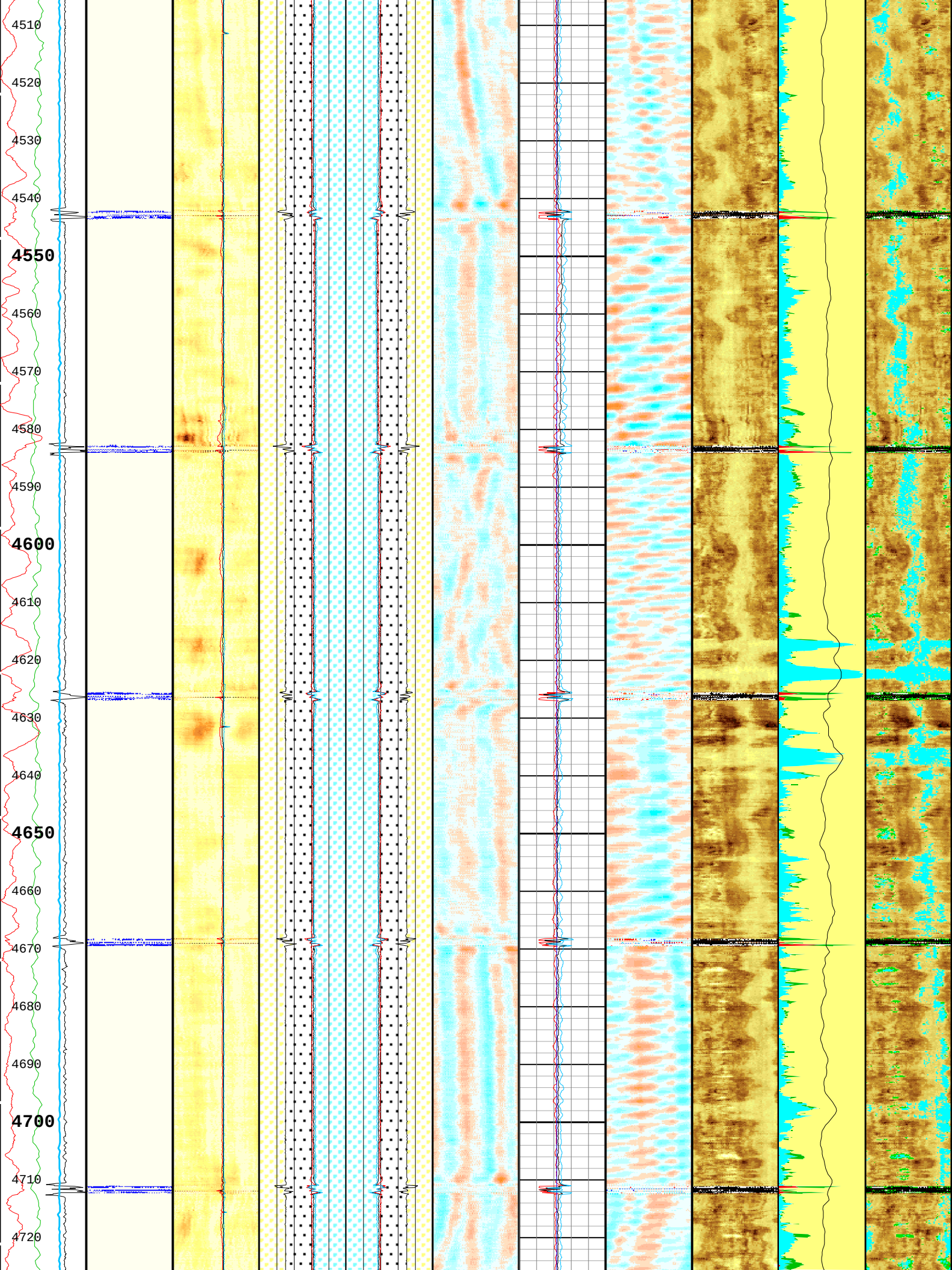
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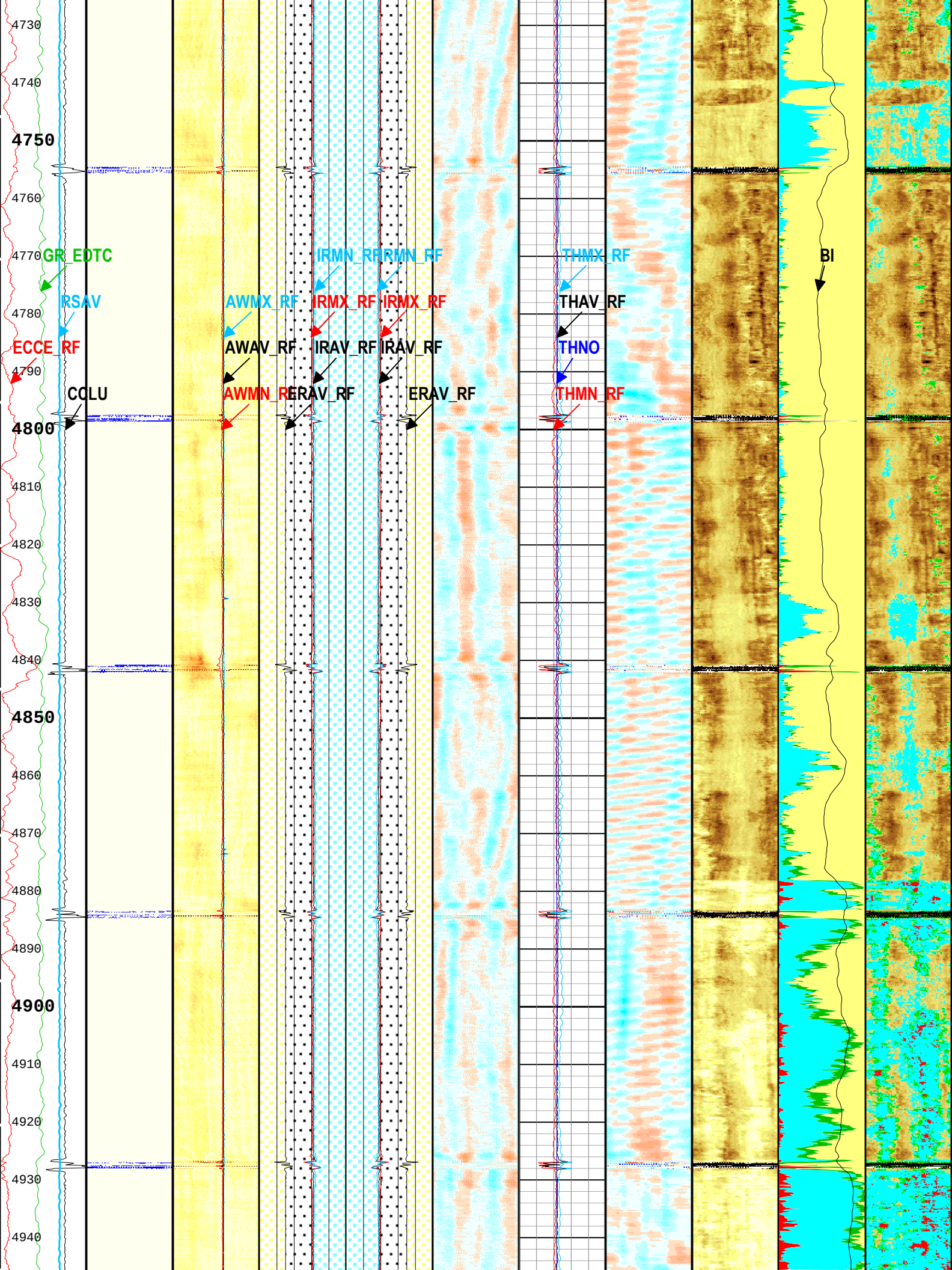
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AWAV_RF
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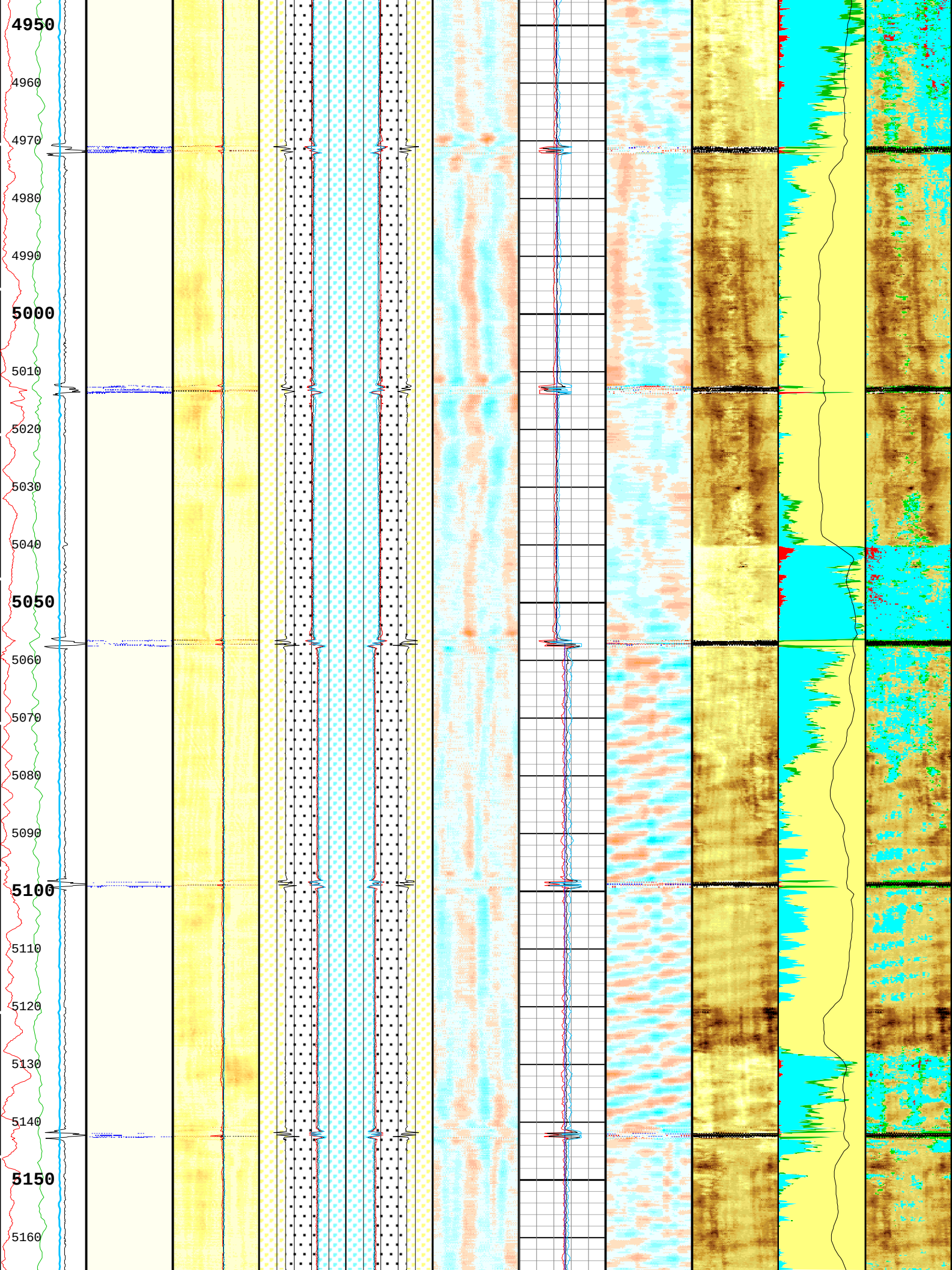
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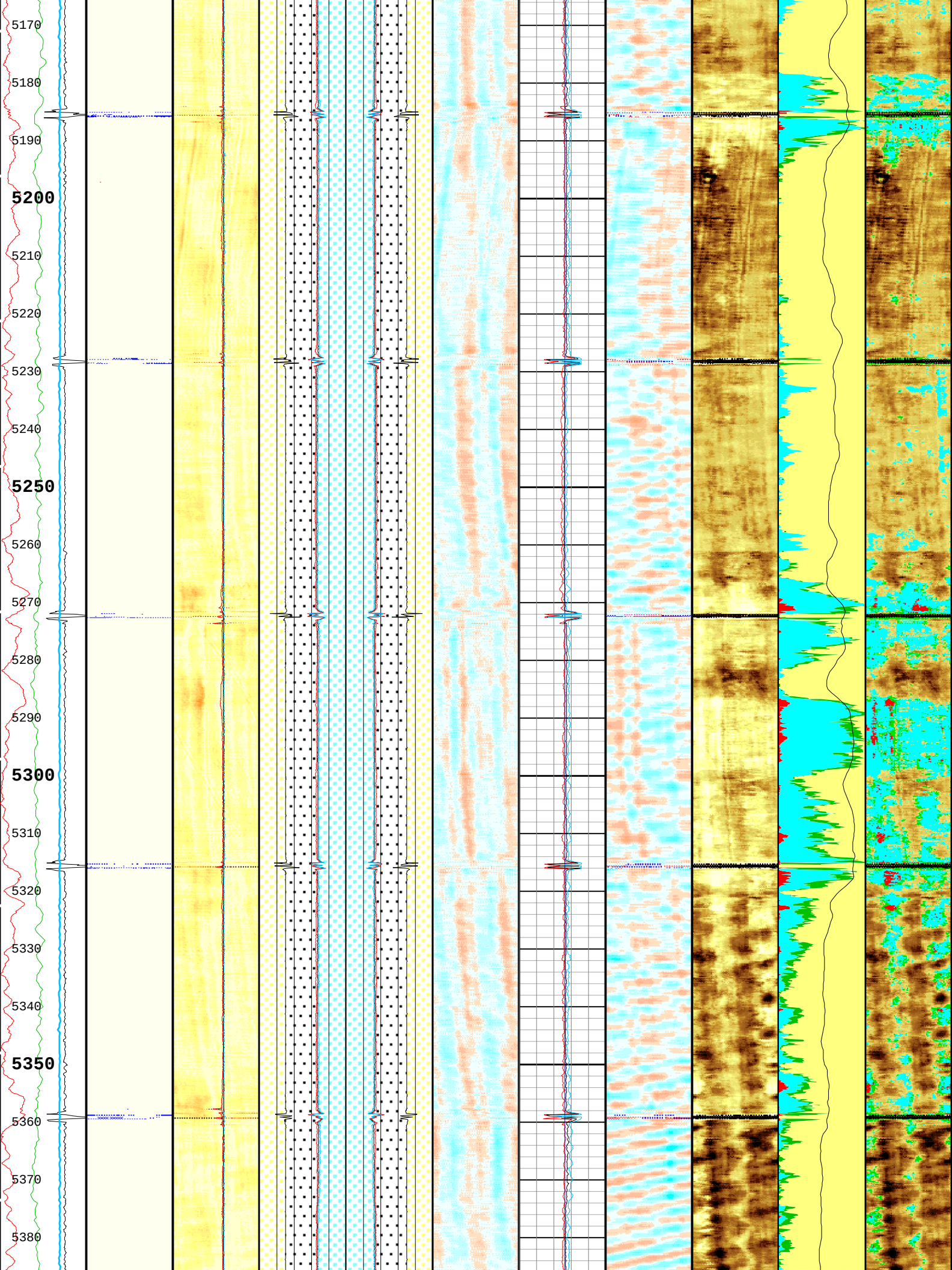
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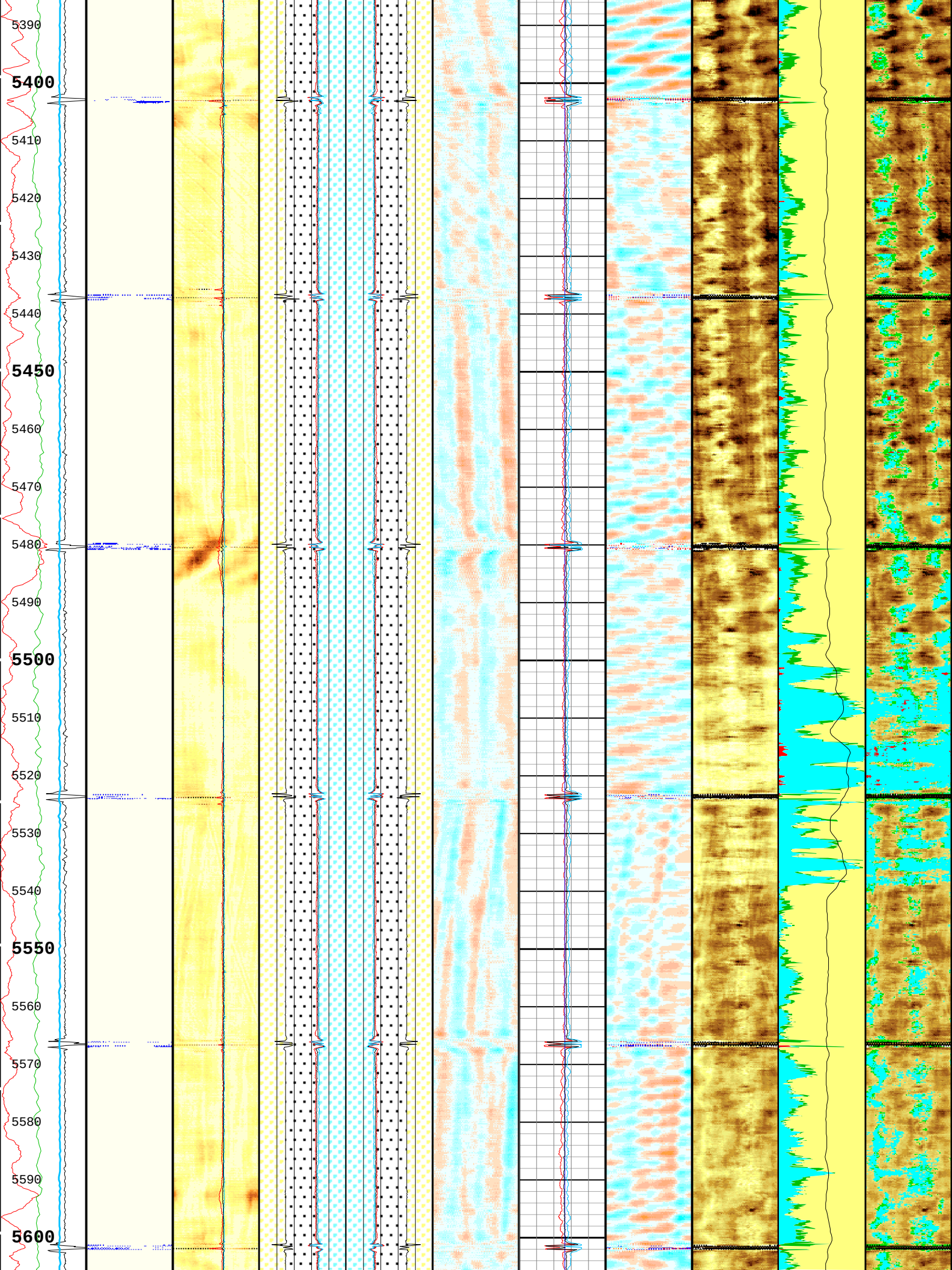
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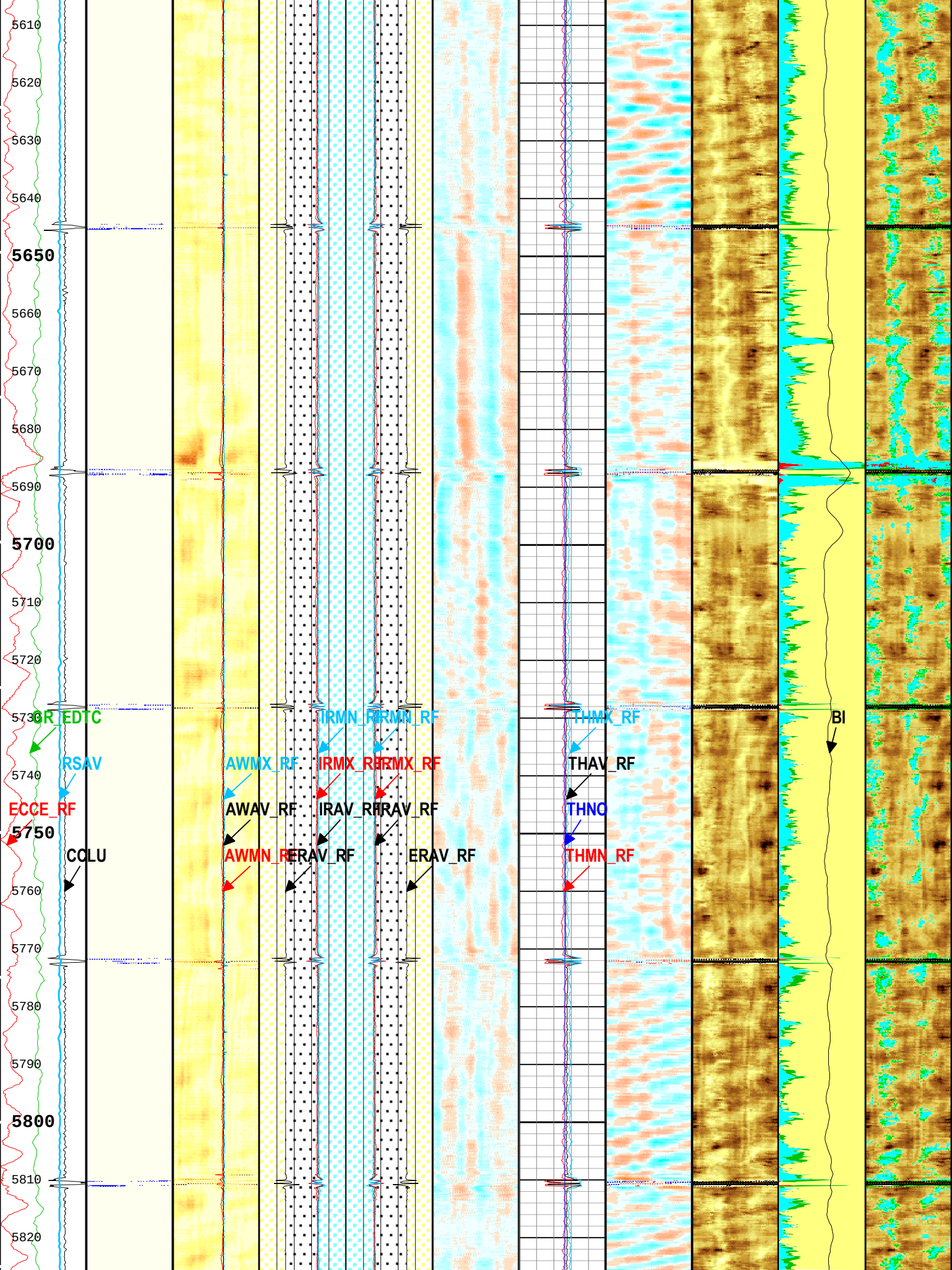
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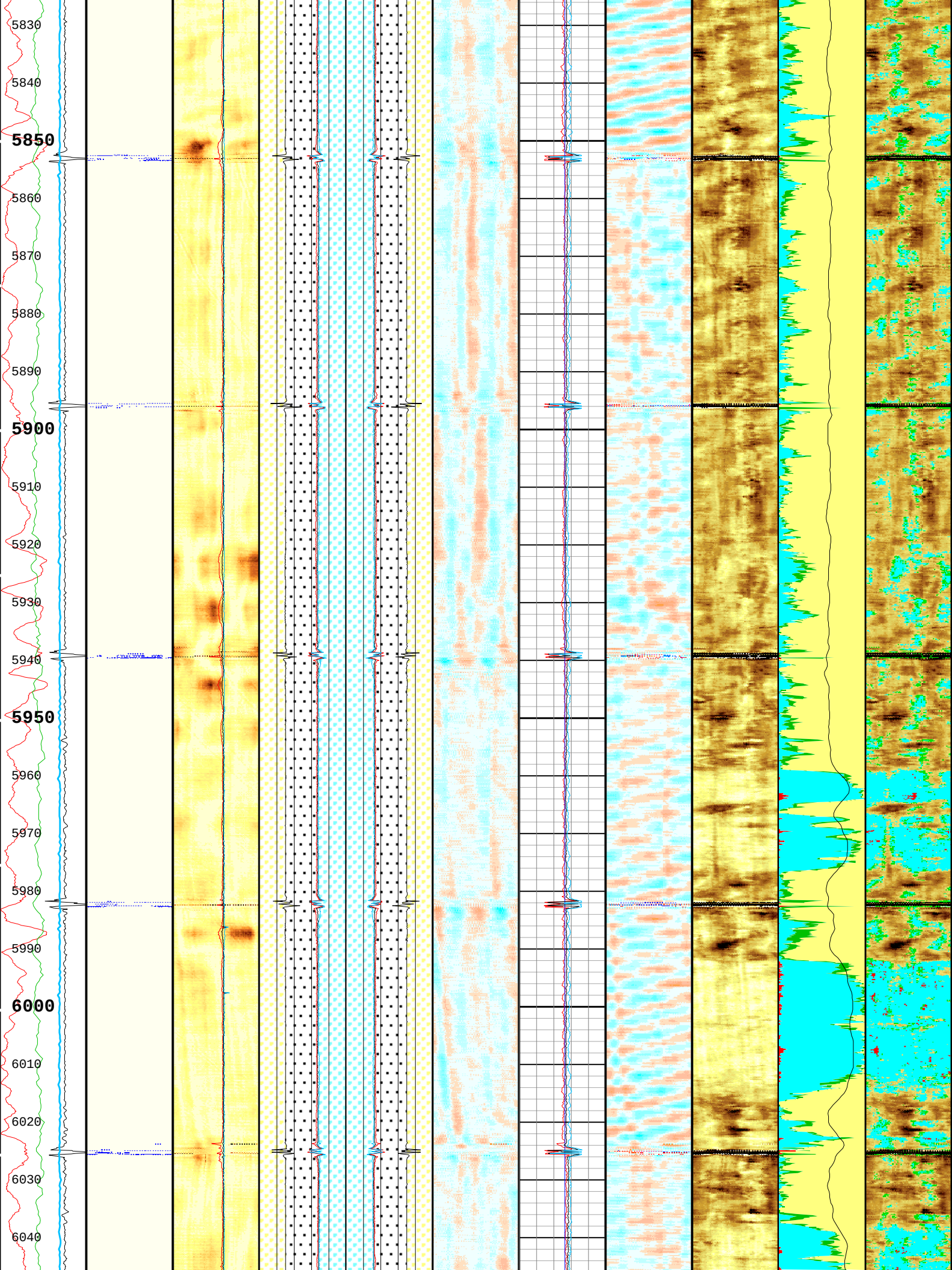
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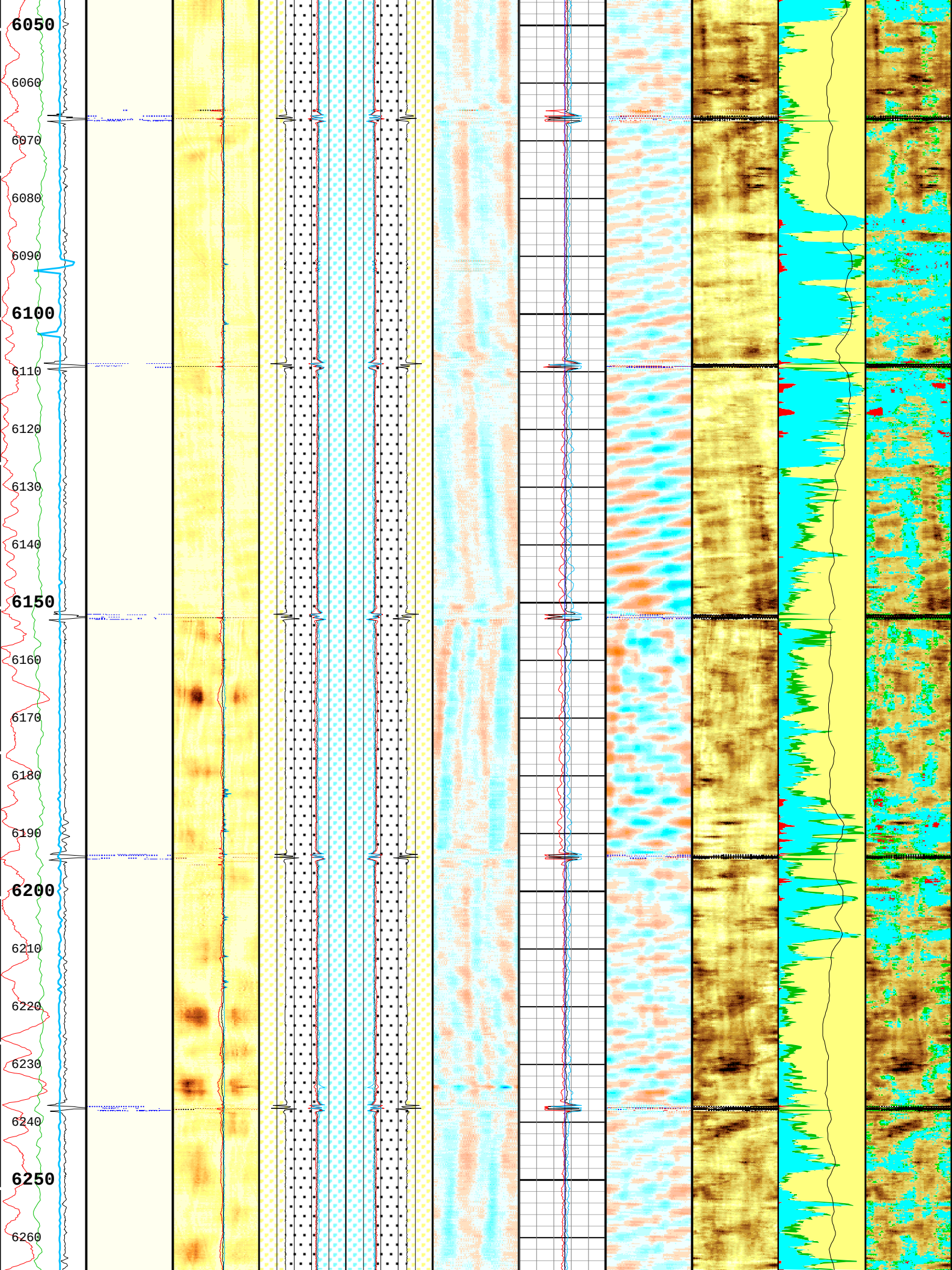
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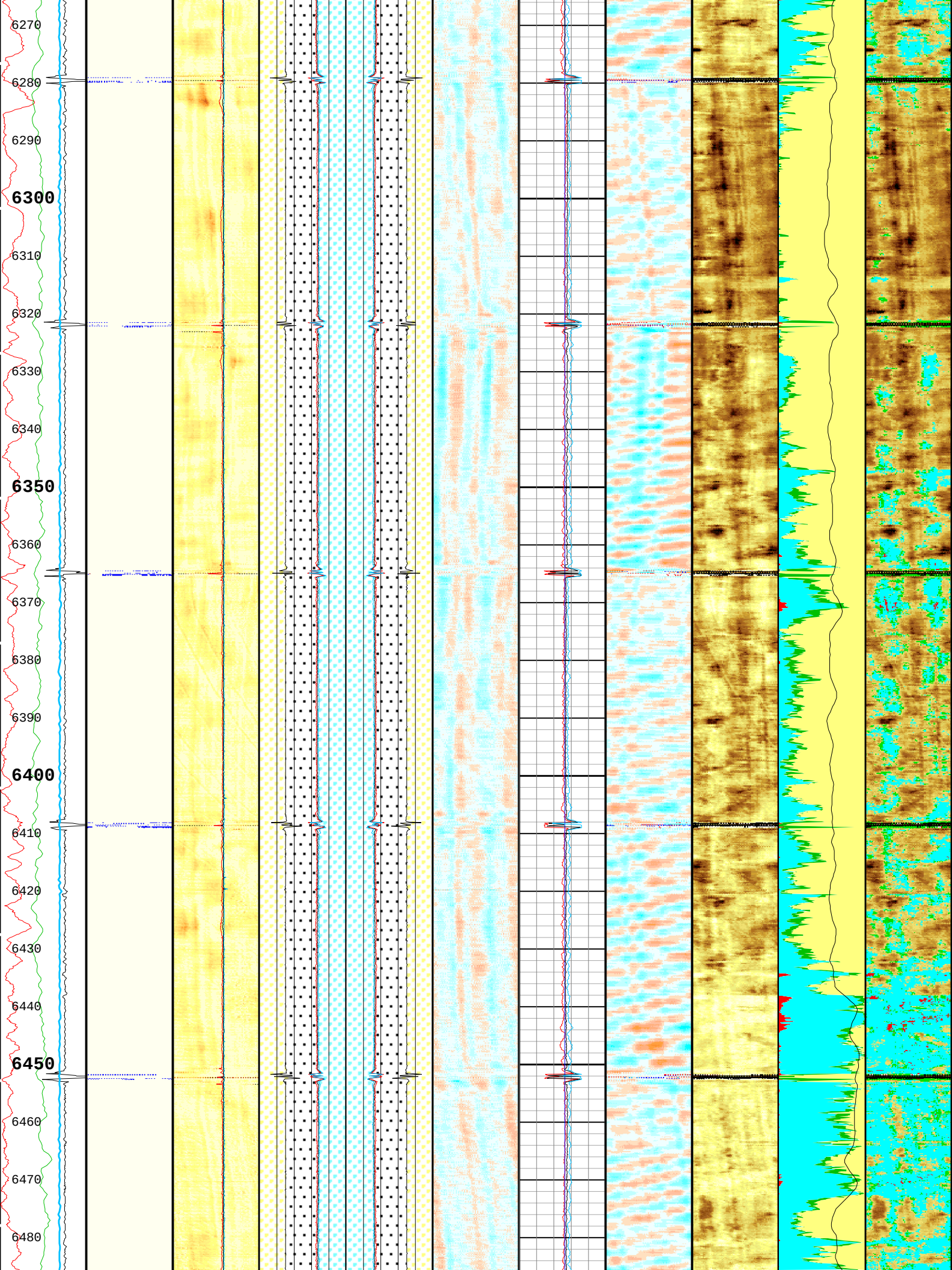
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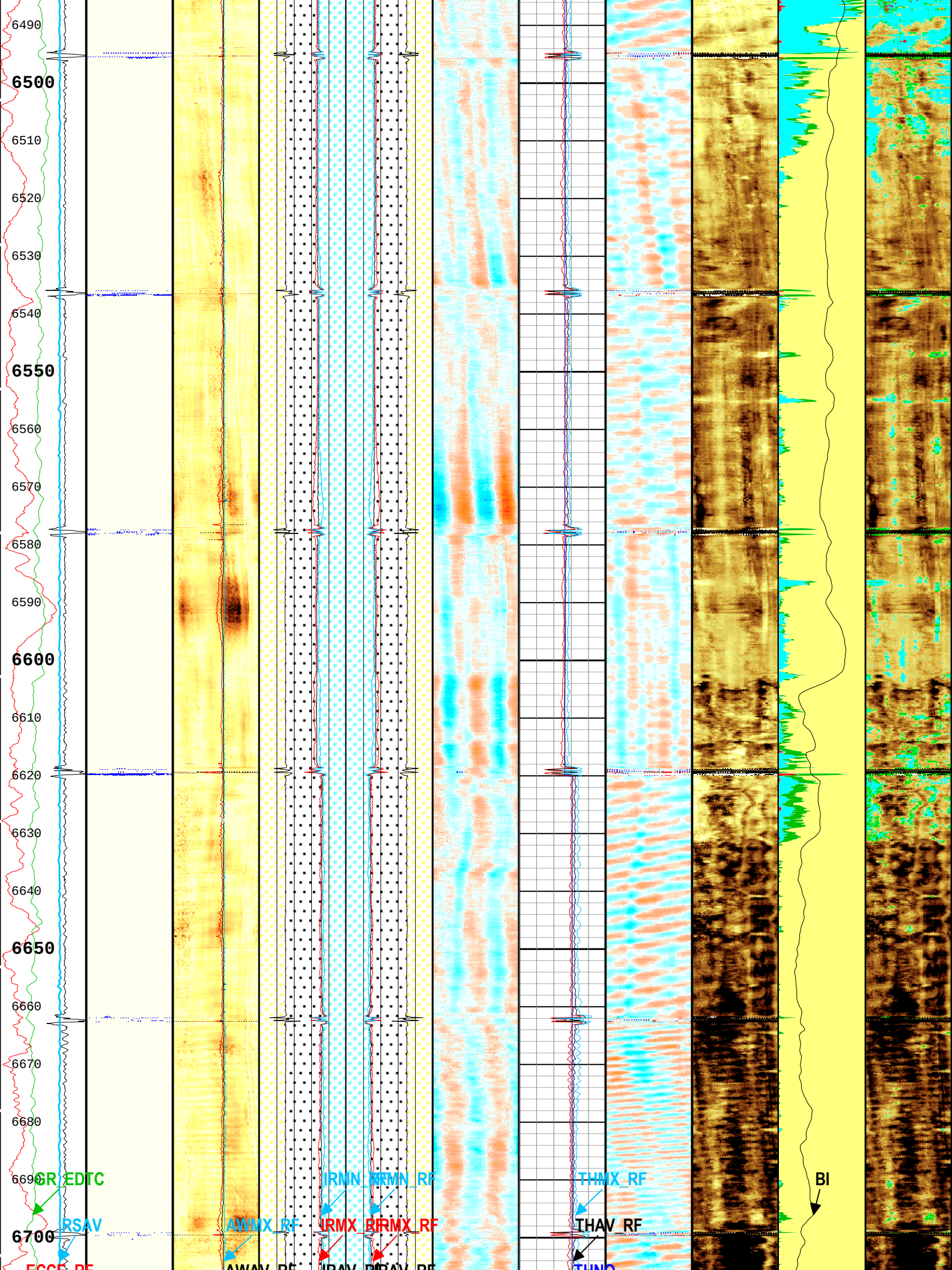
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RSAV
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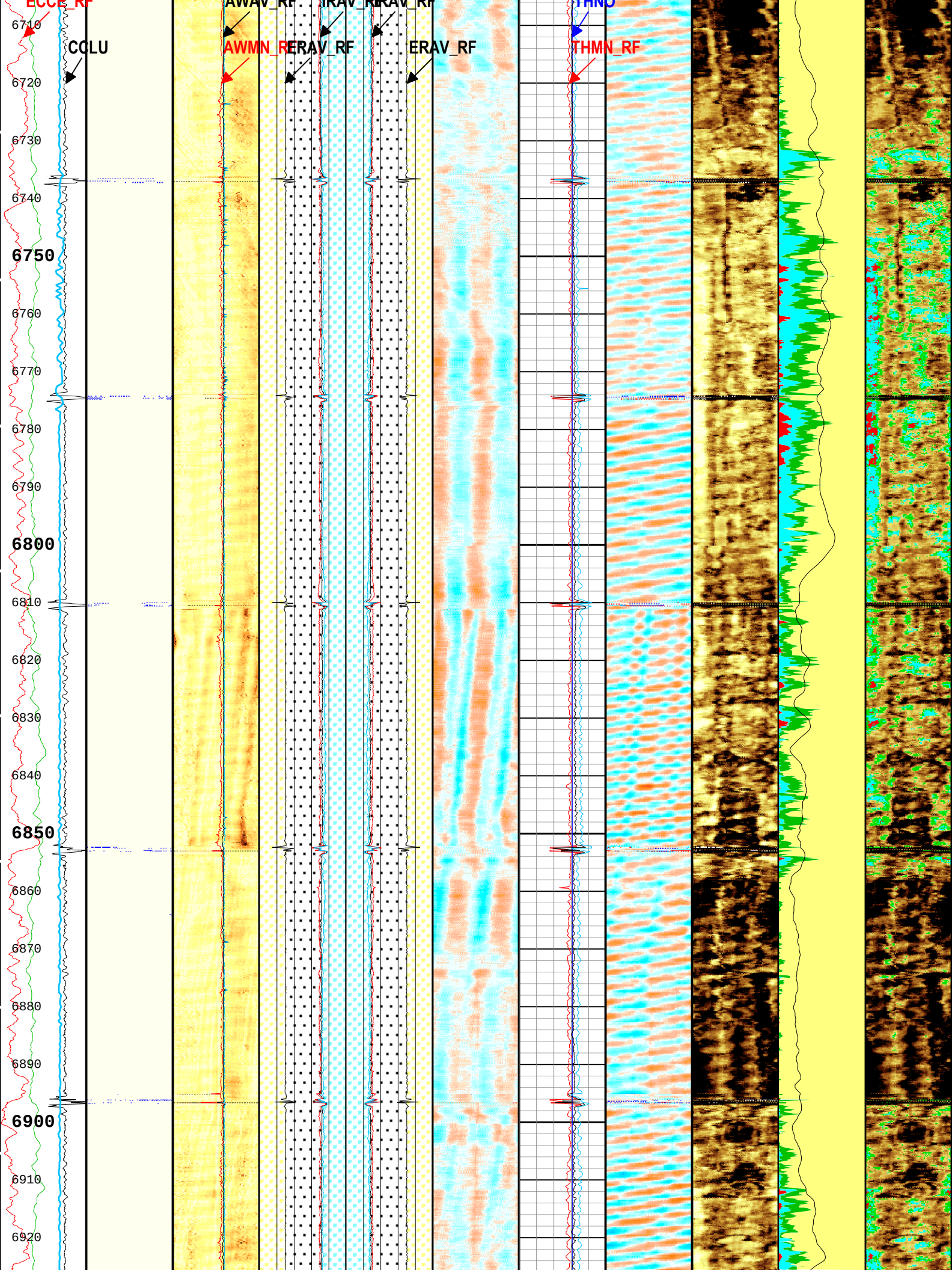
IRMN_RF
IRMX_RF
THMX_RF
THAV_RF
BI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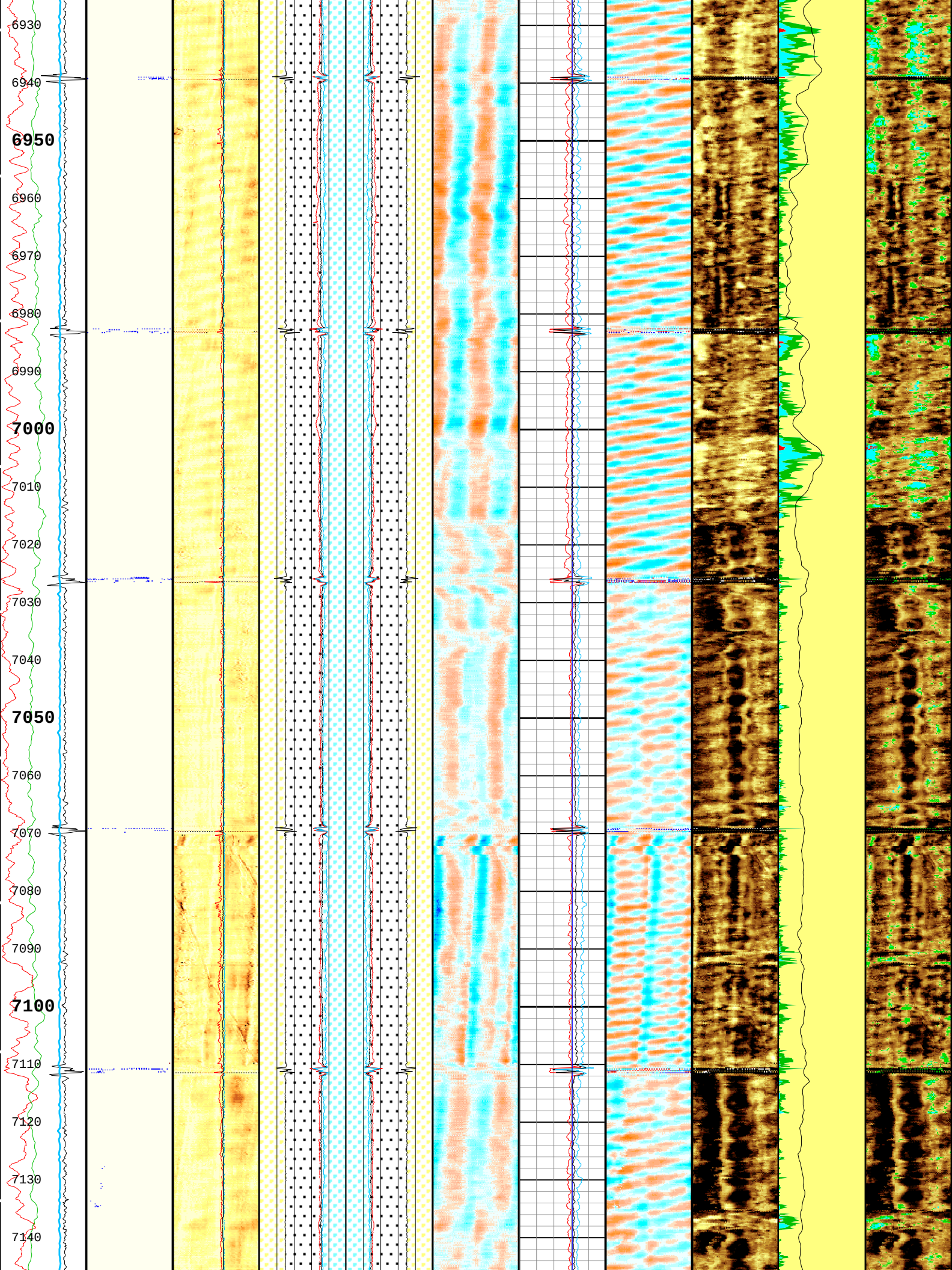
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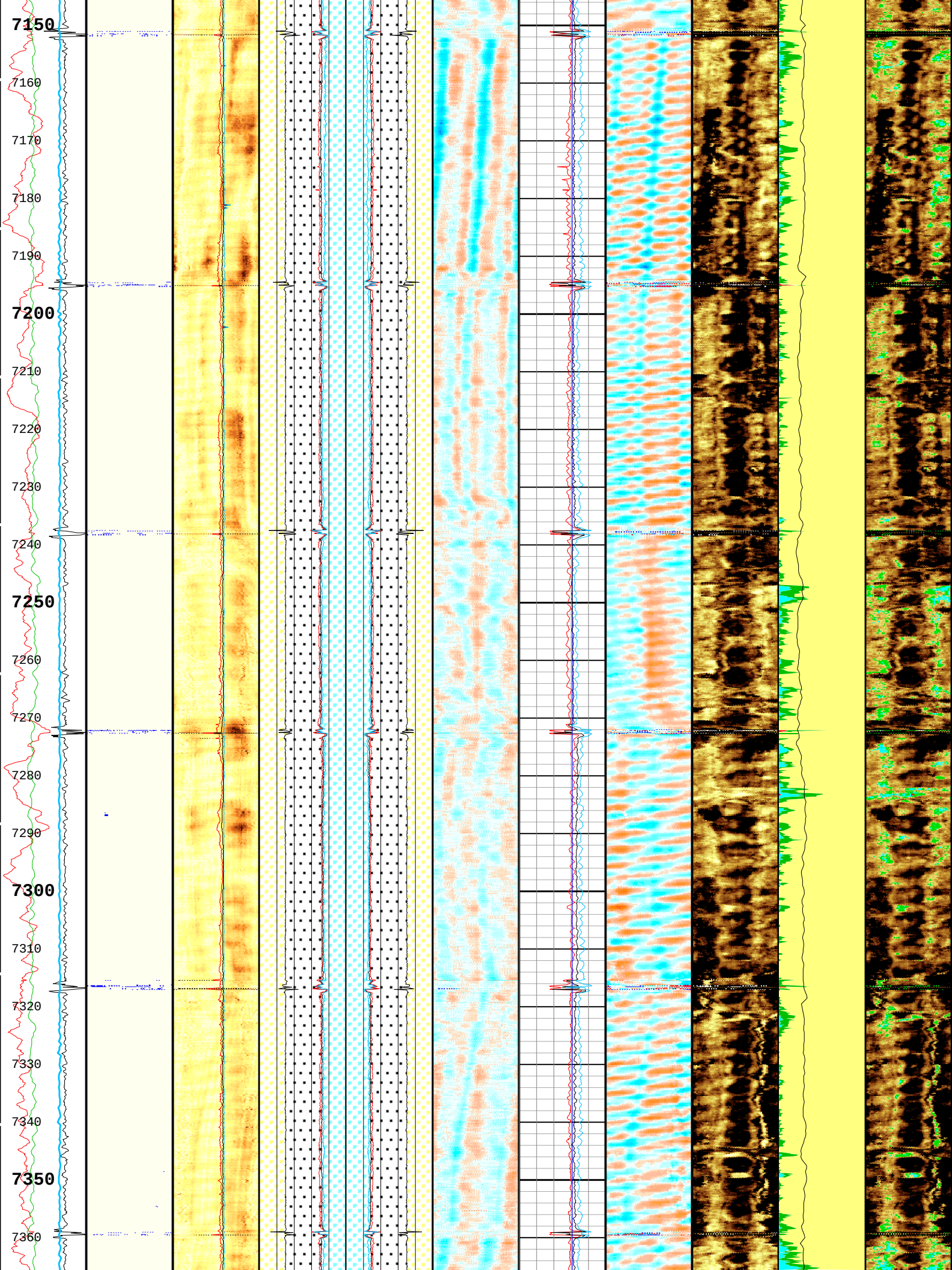
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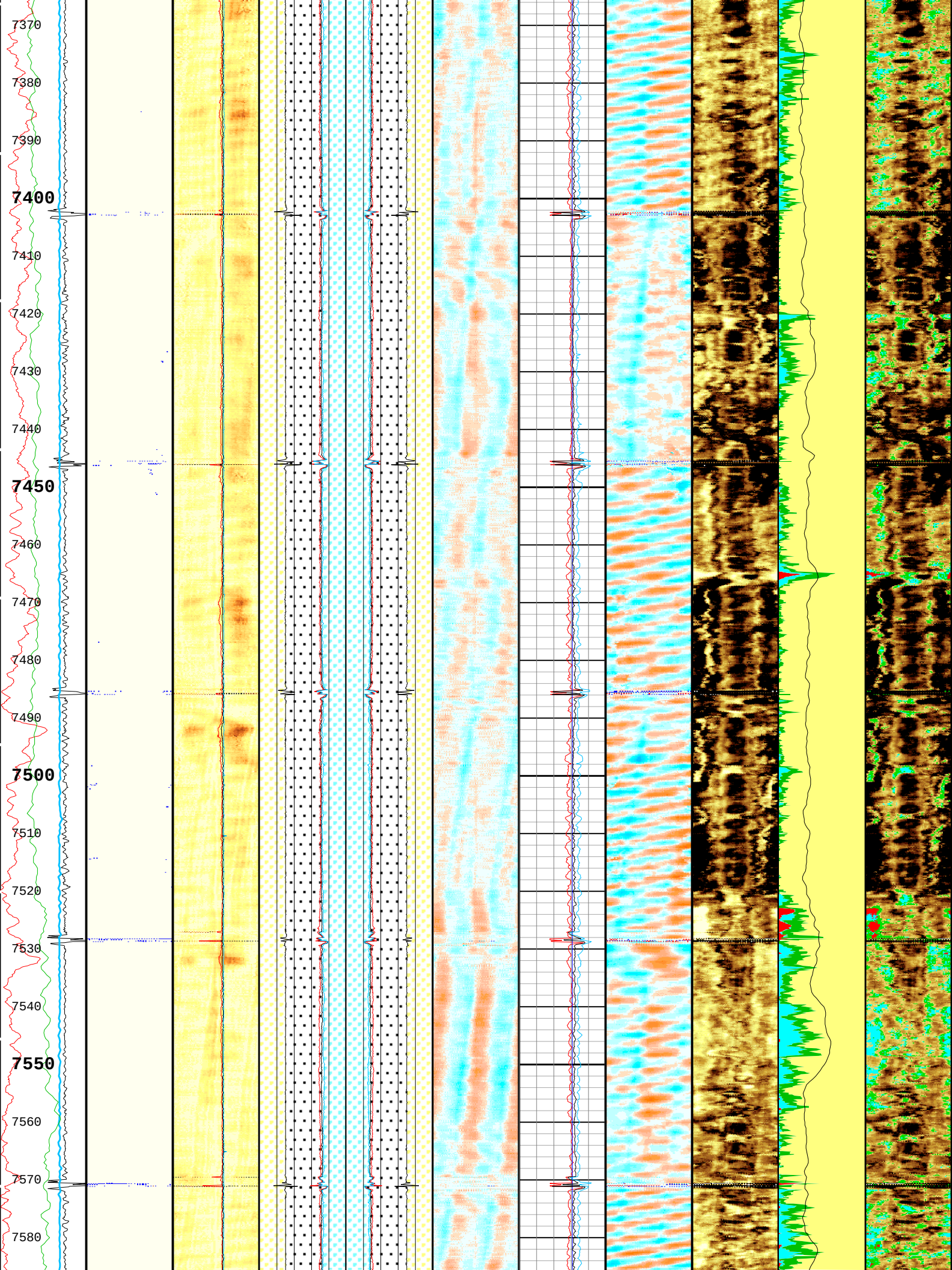
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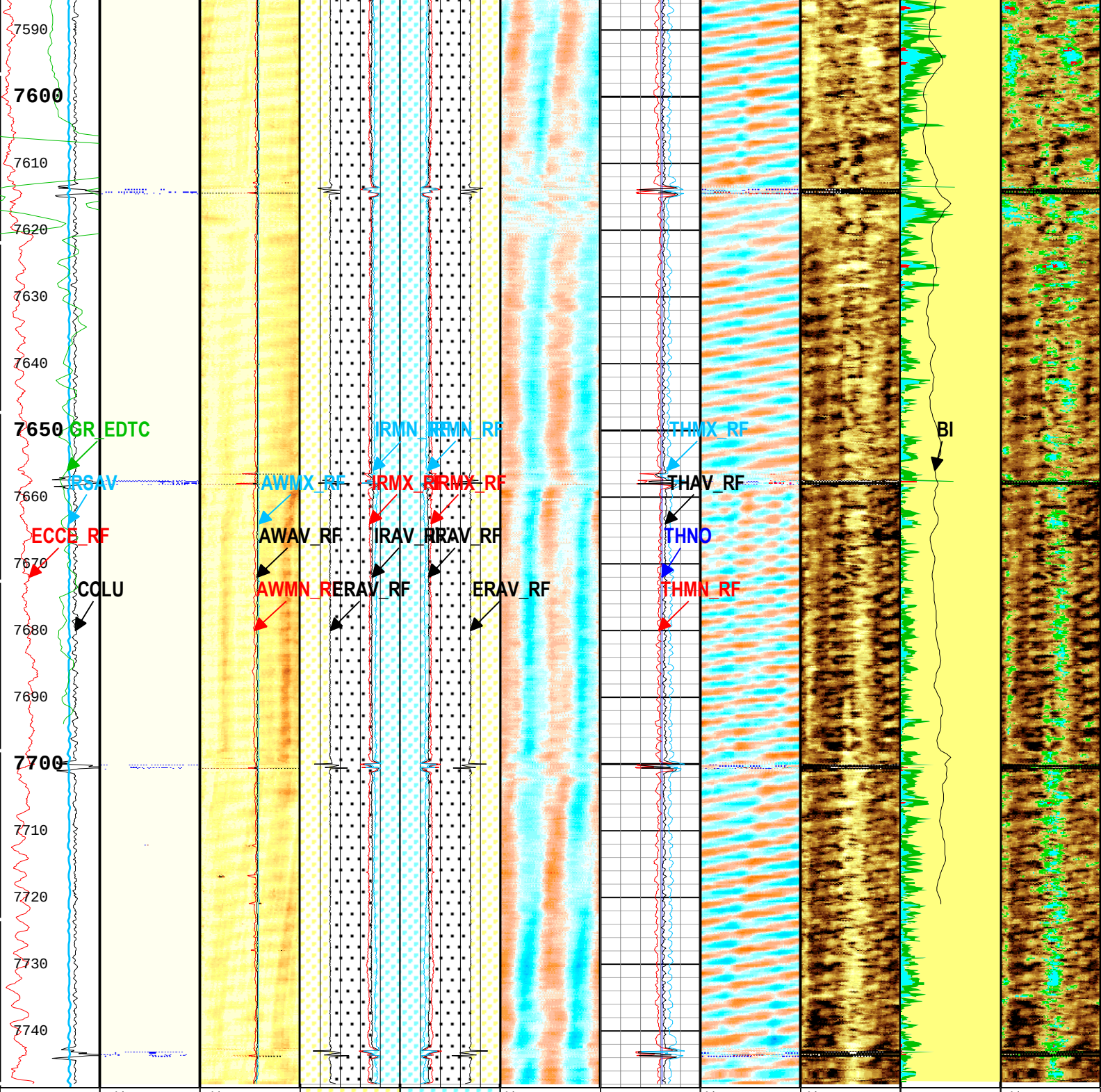


Casing Collar Locator Ultrasonic (CCLU) USIT-E	Amplitude of Eccentering for Unflagged Waves (ECCE_RF) USIT-E	Motor	USIT Processing Flags (UFLG) USIT-E	USIT - Amplitude of Unflagged Wave (AWBK_RF) USIT-E	ERAV-IRAV	IRAV-ERAV	Median of Unflagged External Radii (ERAV_RF) USIT-E	Explicit Normalization USIT - Unflagged Internal Radii minus Median Internal Radius (IRBKM_RF) USIT-E	Minimum of Unflagged Casing Thickness (THMN_RF) USIT-E	Nominal Casing Thickness (THNO) USIT-E	Explicit Normalization USIT - Unflagged Casing Thickness minus Median of Unflagged Casing Thickness (THBKM_RF) USIT-E	Custom Normalization USIT - Acoustic Impedance (AIBK) USIT-E (Mrayl)	Ratio of Cement Measurements to Total (CEMR) USIT-E	Micro-debonding Ratio (MDR) USIT-E	Ratio of Gas Measurements to Total	Custom Normalization USIT - Acoustic Impedance (AIBK) USIT-E (Mrayl)
-30 in 10	0 in 0.5		Absent, 1.500, 3.500; Explicit Normalization; Orientation: Top of Hole; U L B R U	Absent, -4.799, -2.799, -0.800; Explicit Normalization; (dB); Orientation: Top of Hole; U L B R U	3.8 in 2.8	2.8 in 3.8		Absent, -0.051, -0.012, 0.028, 0.068; Explicit Normalization; (in)	0.1 in 0.6	0.1 in 0.6	Absent, -0.051, -0.012, 0.028, 0.068; Explicit Normalization;	Absent, 1.500, 3.500, 5.500, 7.500; Custom Normalization; (Mrayl); Orientation: Top of Hole; U L B R U	1 0	1 0		Absent, 3.090, 5.054, 7.018; Custom Normalization; (Mrayl); Orientation: Top of Hole; U L B R U

Revolution Speed (RSAV) USIT-E
6 c/s 8

Calibrated Gamma Ray (GR_EDTC) EDTC-B
0 gAPI 150

(UFLG[0]) USIT-E
1 5

Minimum of Unflagged Wave Amplitude (AWMN_RF) USIT-E
0 dB 75

Average of Unflagged Wave Amplitude (AWAV_RF) USIT-E
0 dB 75

Maximum of Unflagged Wave Amplitude (AWMX_RF) USIT-E
0 dB 75

Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E
3.8 in 2.8

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
3.8 in 2.8

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
3.8 in 2.8

Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E
2.8 in 3.8

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
2.8 in 3.8

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
2.8 in 3.8

Orientation: Top of Hole
U L B R U

Unflagged Casing Thickness (THAV_RF) USIT-E
0.1 in 0.6

Maximum of Unflagged Casing Thickness (THMX_RF) USIT-E
0.1 in 0.6

(in)
Orientation: Top of Hole
U L B R U

(GASR) USIT-E
1 0

Bonded
Gas
Liquid
Micro-debonding

Bond Index (BI) DSLT-H
1 0

Abs
2.5
4.5
6.5

Custom Normalization

USIT - Acoustic Impedance With Micro-debonding Image (AI_MDEBOND_IMG) USIT-E
(Mrayl)

Orientation: Top of Hole
U L B R U

USIT Processing Flags (UFLG[0]) USIT-E

1 - UFLG 1 Value within [0.0 - 1.5] - :
2 - UFLG 2 Value within [1.5 - 2.5] - :
3 - UFLG 3 Value within [2.5 - 3.5] - :
4 - UFLG 4 UFLG 5 UFLG 6 Value within [3.5 - 6.5] - :
5 - UFLG 7 UFLG 8 UFLG 9 Value within [6.5 - 10] - :

UTIM Error
Pulse Origin Not Detected
WINLEN Error
Casing Thickness Error
Loop Processing Error

TIME_1900 - Time Marked every 60.00 (s)

Description: USI Composite Format: Log (LBV1_USI Composite 9.625inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth
Creation Date: 23-Jan-2016 06:56:58

One

USI Cement Log Main Pass 2 IN = 100 FT

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[3]:Up	Up	16.71 ft	7748.81 ft	22-Jan-2016 8:47:51 AM	22-Jan-2016 2:03:15 PM	ON	2.00 ft	Yes

All depths are referenced to toolstring zero

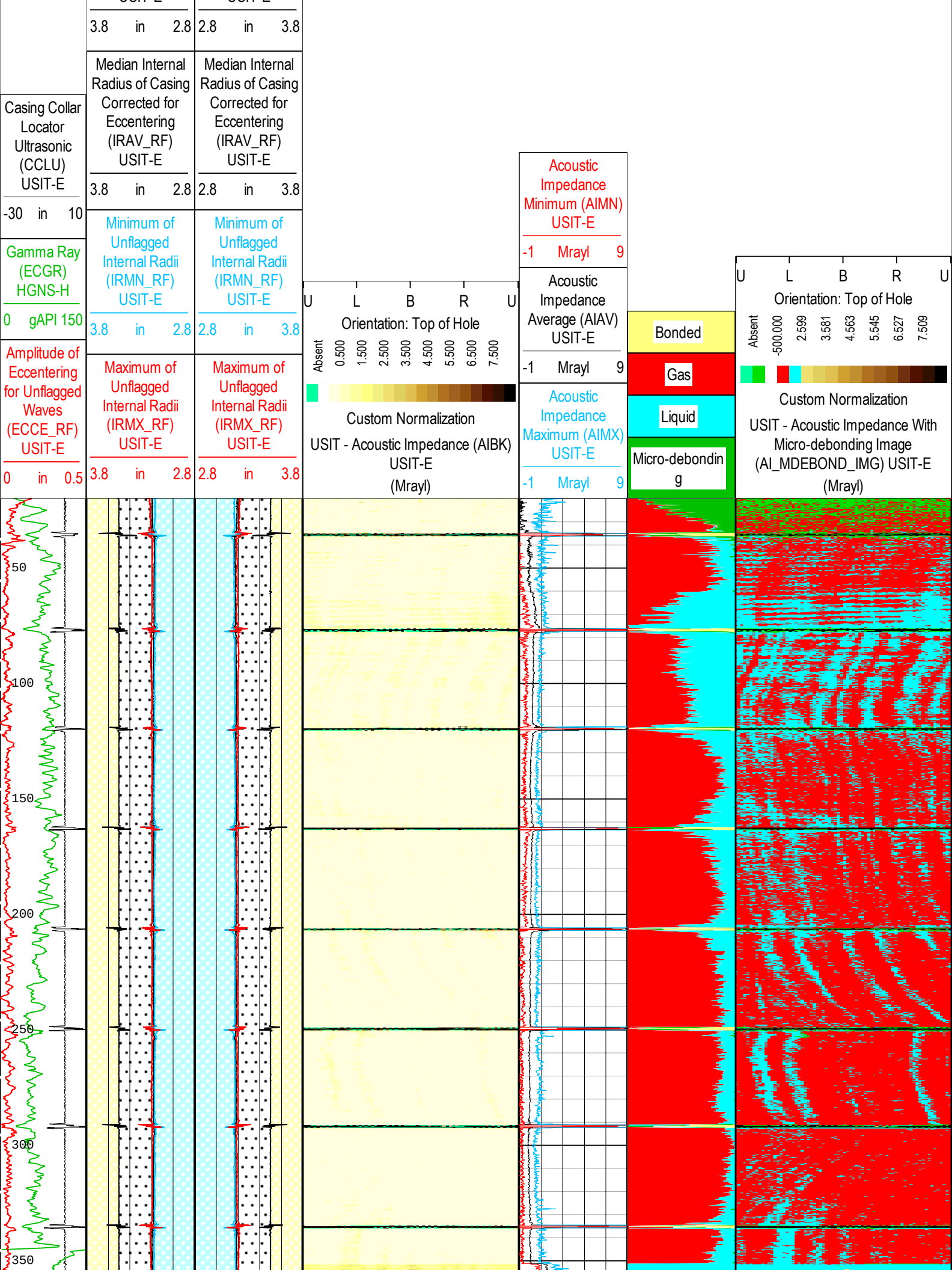
Log

Company:Southern California Gas Company Well:Porter 35
One: Log[3]:Up:S008

Description: USI Cement Format: Log (LBV1_USI Cement 9.625inch) Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 23-Jan-2016 06:57:17

TIME_1900 - Time Marked every 60.00 (s)

ERAV_IRAV	ERAV_RHF1
IRAV_LHF1	IRAV_IRAV
LHF1_ERAV	RHF1_IRAV
Median of Unflagged External Radii (ERAV_RF) USIT-E	Median of Unflagged External Radii (ERAV_RF) USIT-E


3.8 in 2.8
2.8 in 3.8
Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E
3.8 in 2.8
2.8 in 3.8
Casing Collar Locator Ultrasonic (CCLU) USIT-E
-30 in 10
Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
3.8 in 2.8
2.8 in 3.8
Gamma Ray (ECGR) HGNS-H
0 gAPI 150
Amplitude of Eccentering for Unflagged Waves (ECCE_RF) USIT-E
0 in 0.5
Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
3.8 in 2.8
2.8 in 3.8
U L B R U
Orientation: Top of Hole
Absent 0.500 1.500 2.500 3.500 4.500 5.500 6.500 7.500
Custom Normalization
USIT - Acoustic Impedance (AIBK) USIT-E (Mrayl)
Acoustic Impedance Minimum (AIMN) USIT-E
-1 Mrayl 9
Acoustic Impedance Average (AIAV) USIT-E
-1 Mrayl 9
Acoustic Impedance Maximum (AIMX) USIT-E
-1 Mrayl 9
Bonded
Gas
Liquid
Micro-debonding
U L B R U
Orientation: Top of Hole
Absent -500.000 2.599 3.581 4.563 5.545 6.527 7.509
Custom Normalization
USIT - Acoustic Impedance With Micro-debonding Image (AI_MDEBOND_IMG) USIT-E (Mrayl)
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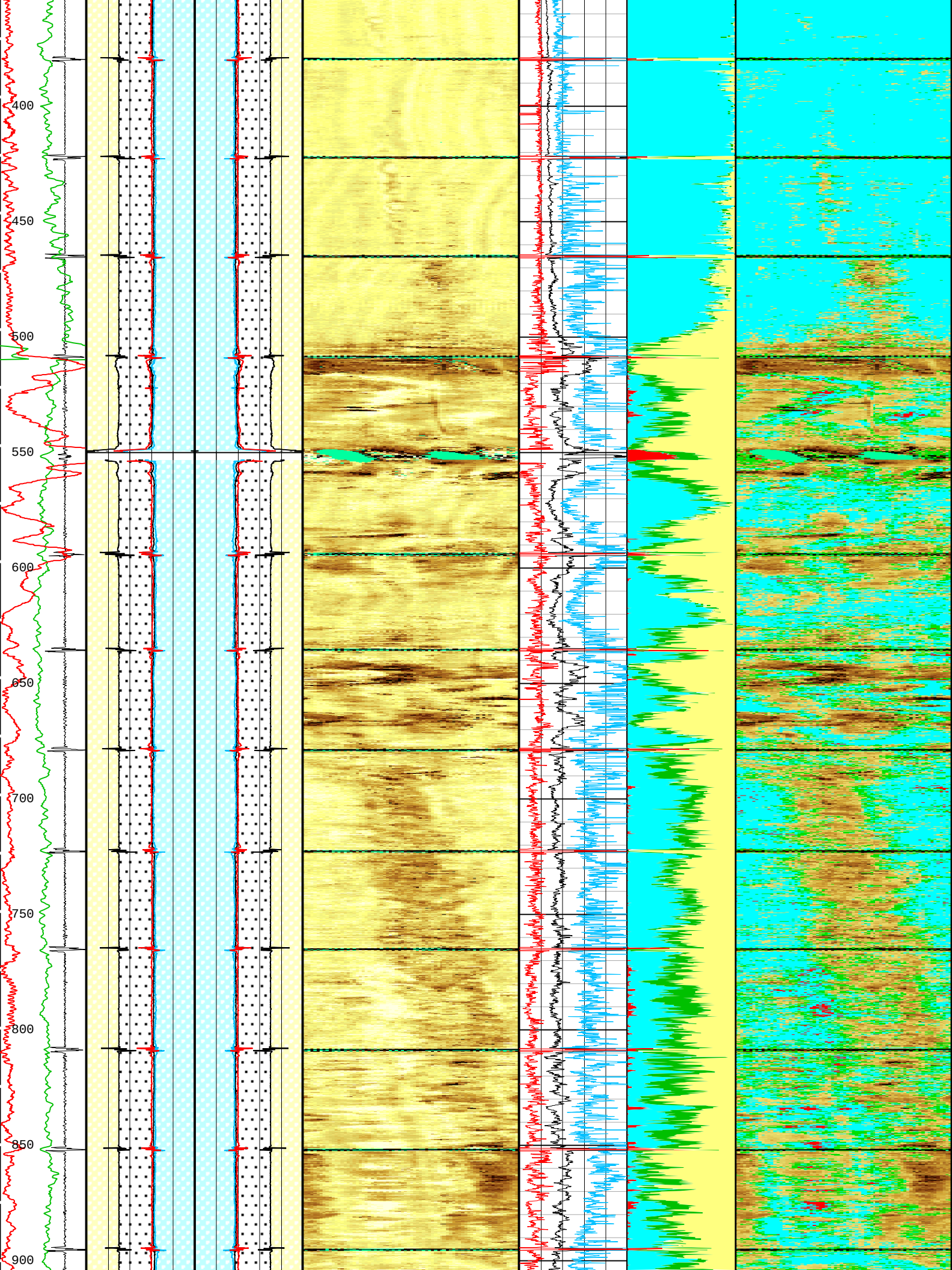
100
150
200
250
300
350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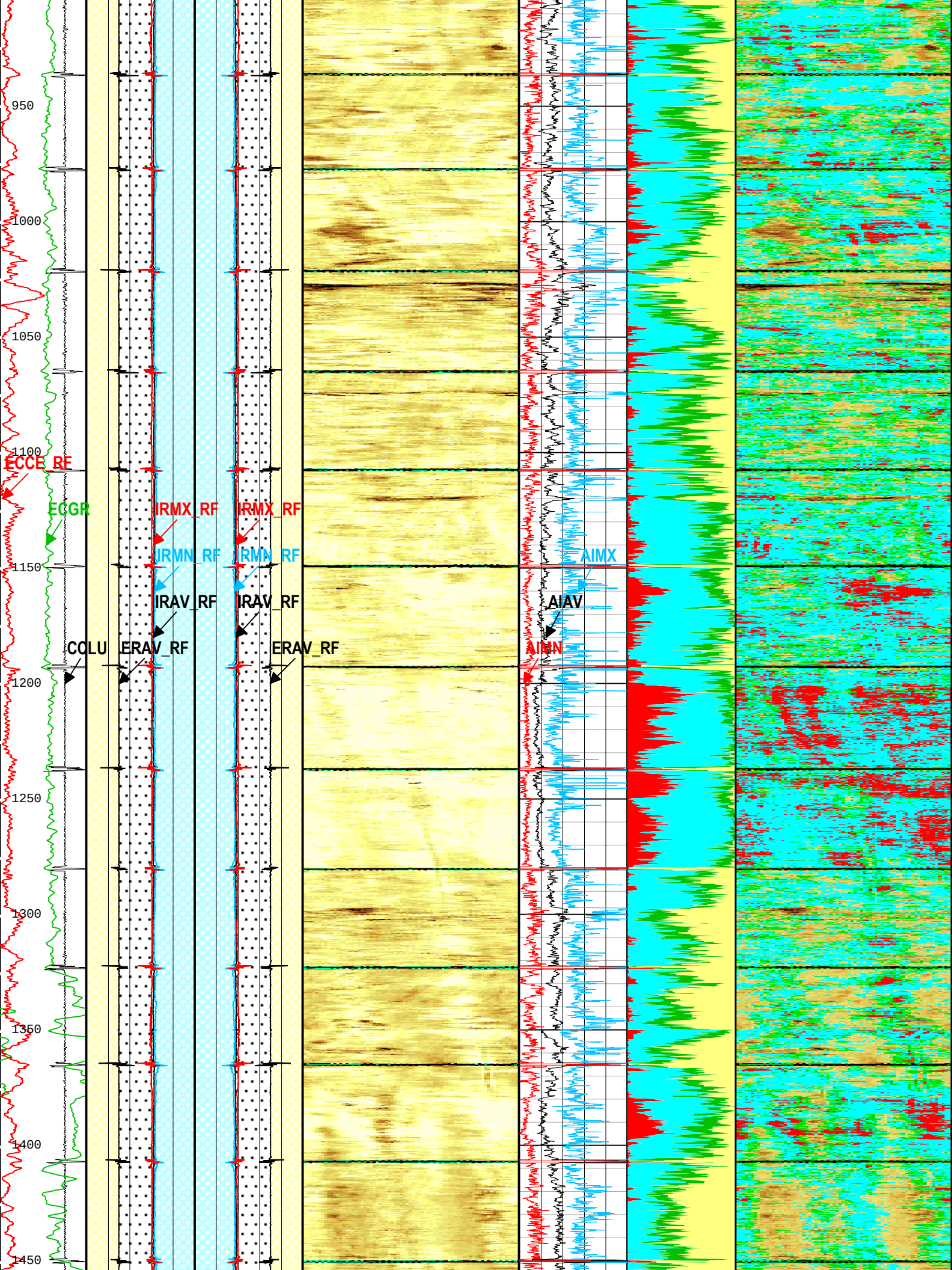
850
900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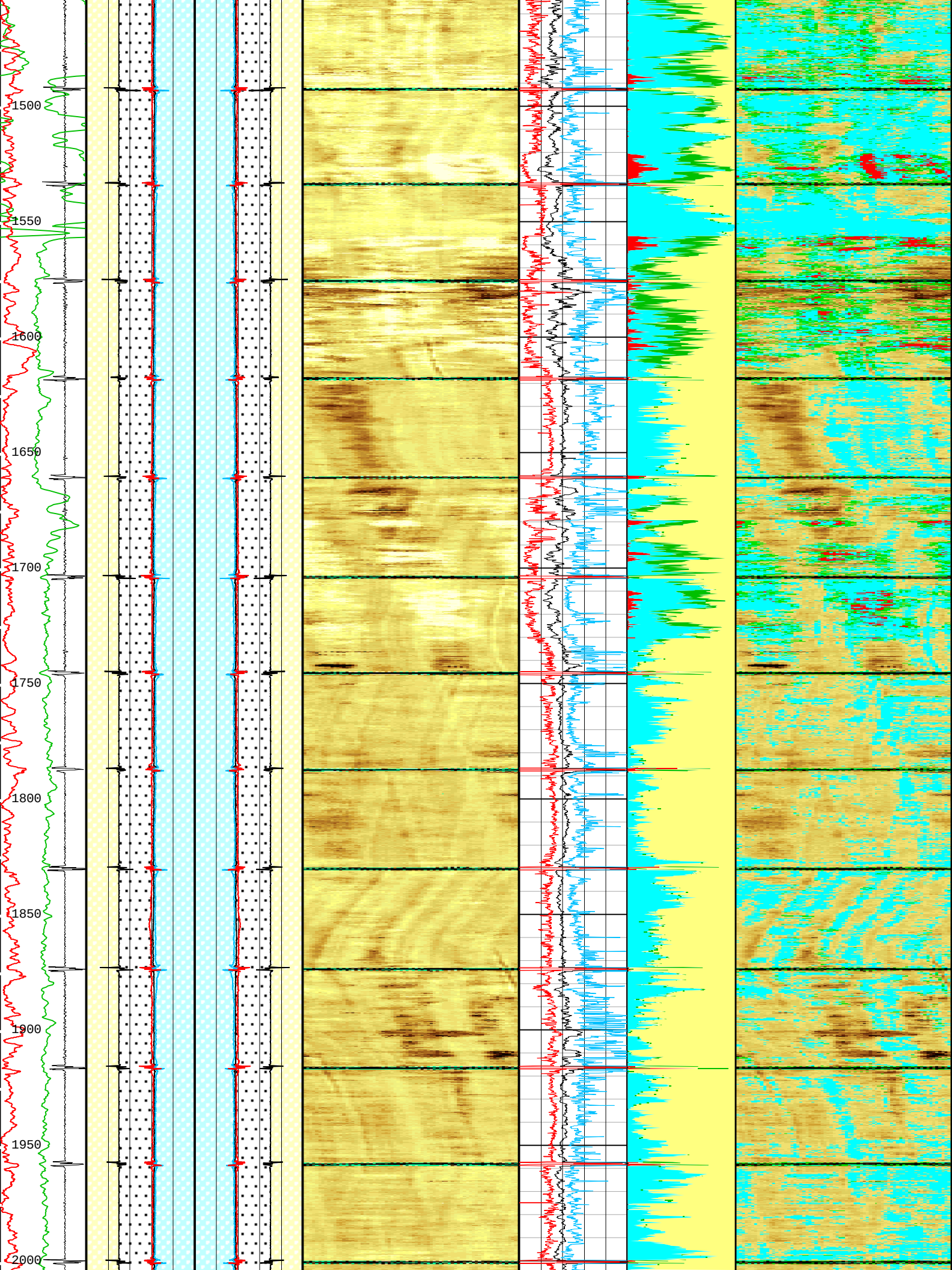
AIMX
AIAV
AIMN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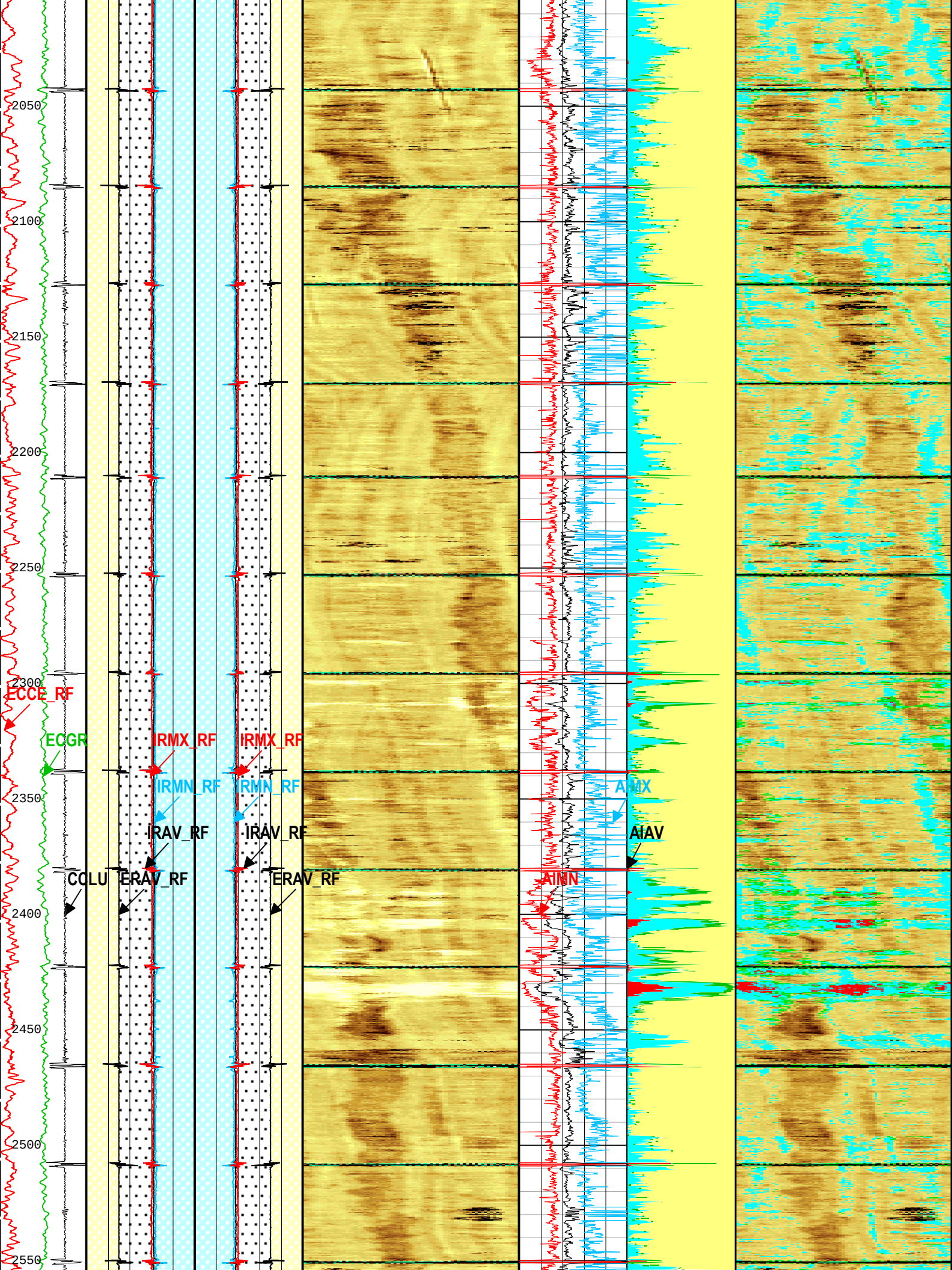
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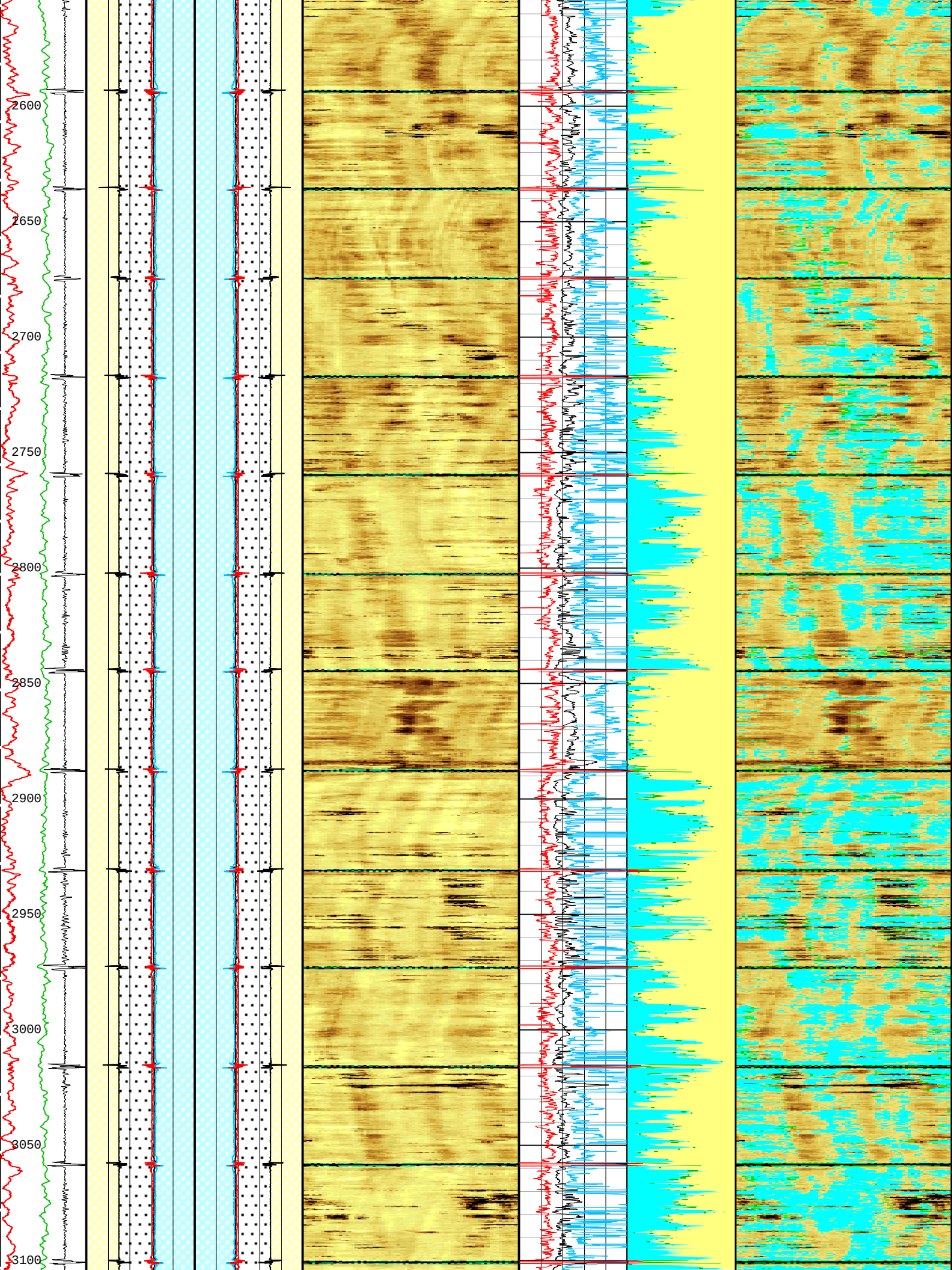
AIAV
AIMN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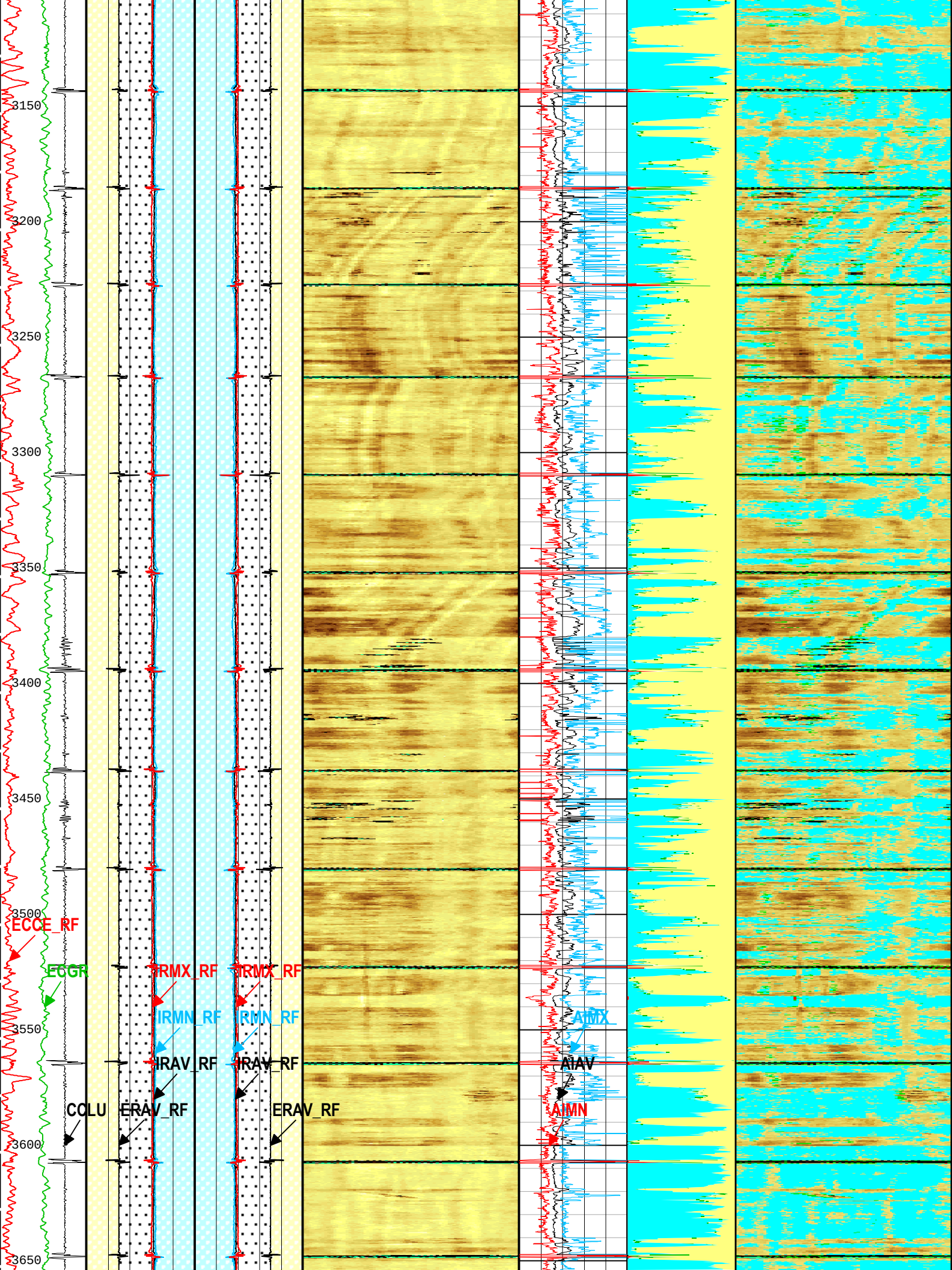
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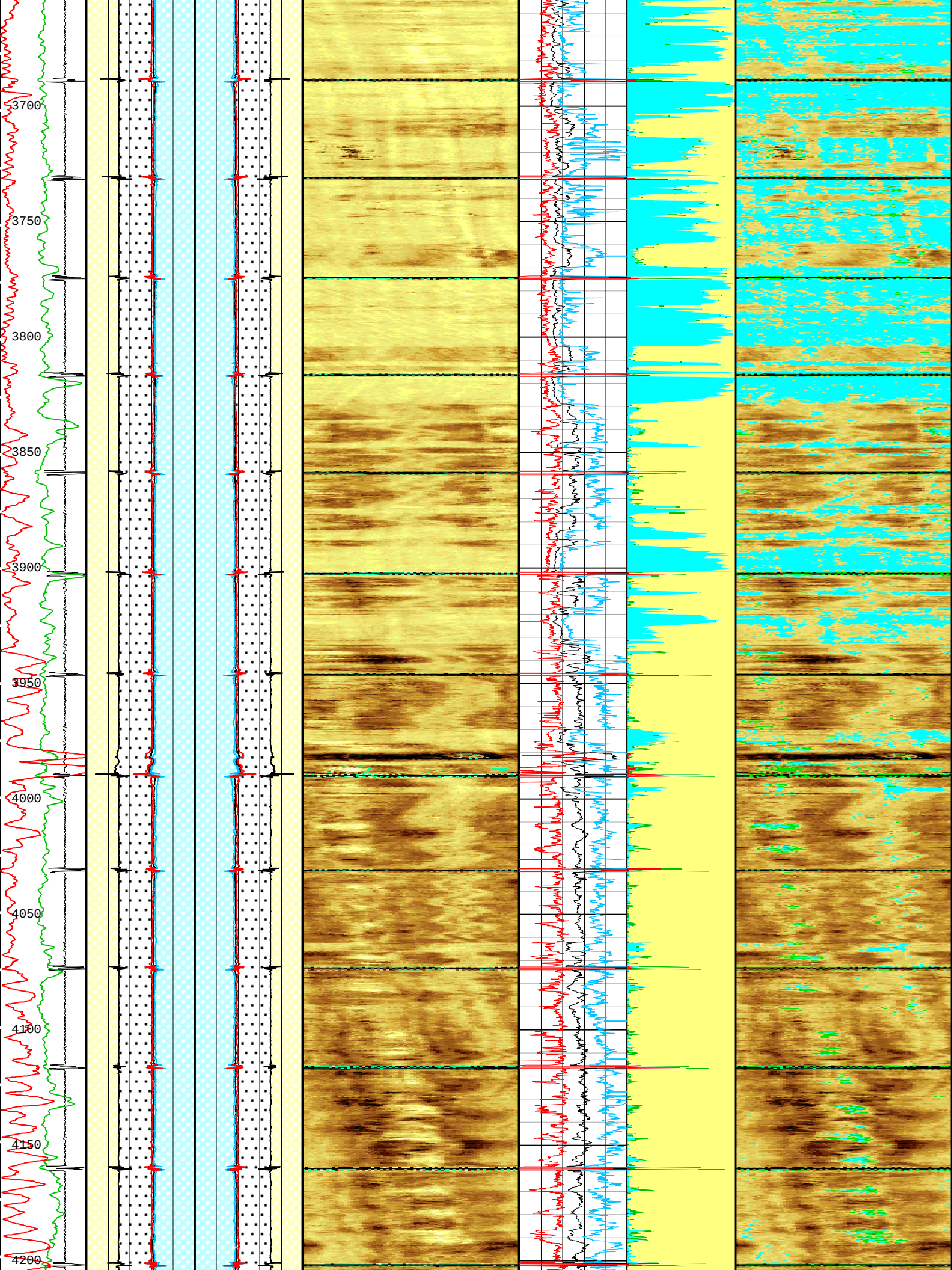
AIAV
AIMN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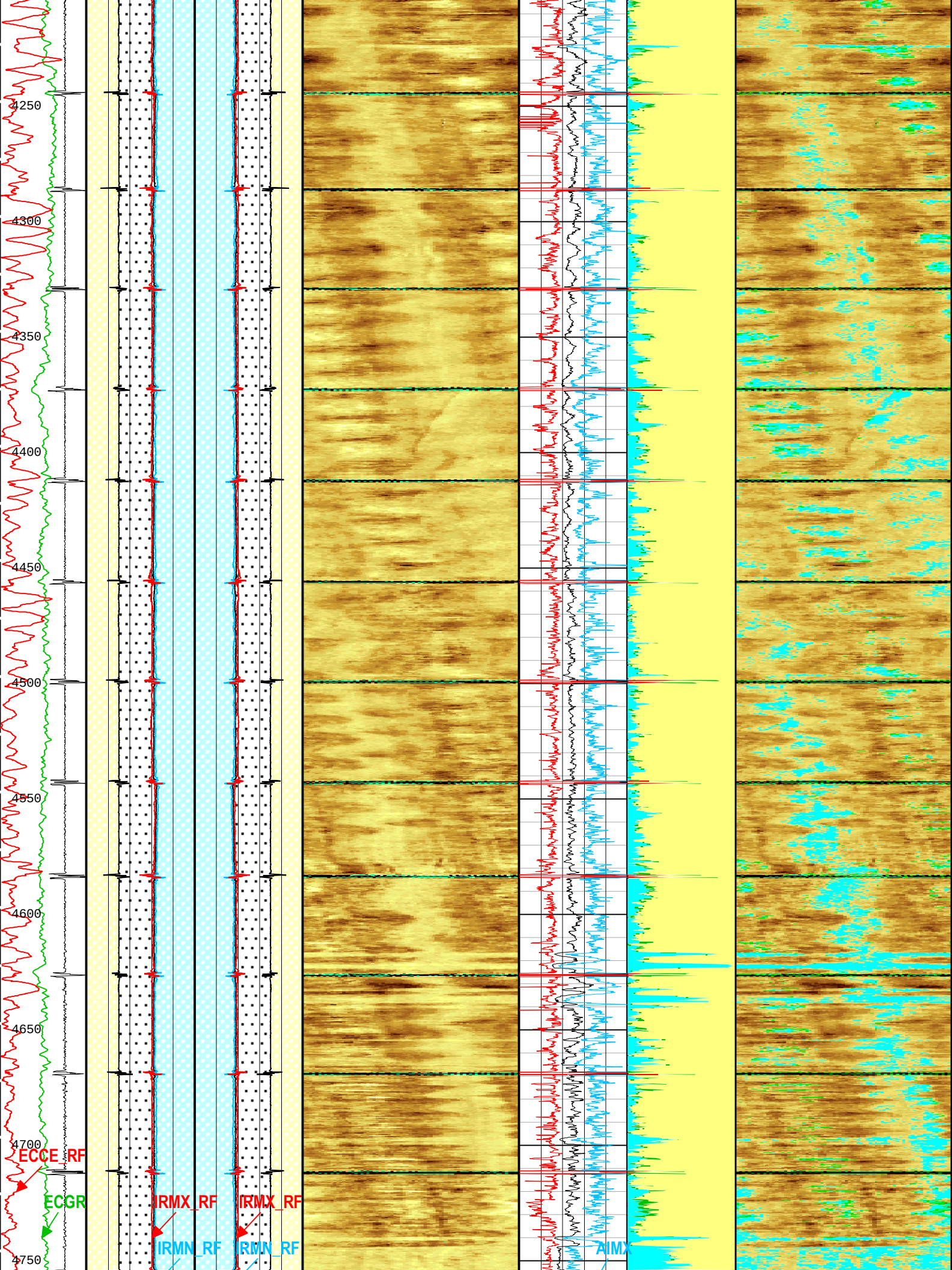
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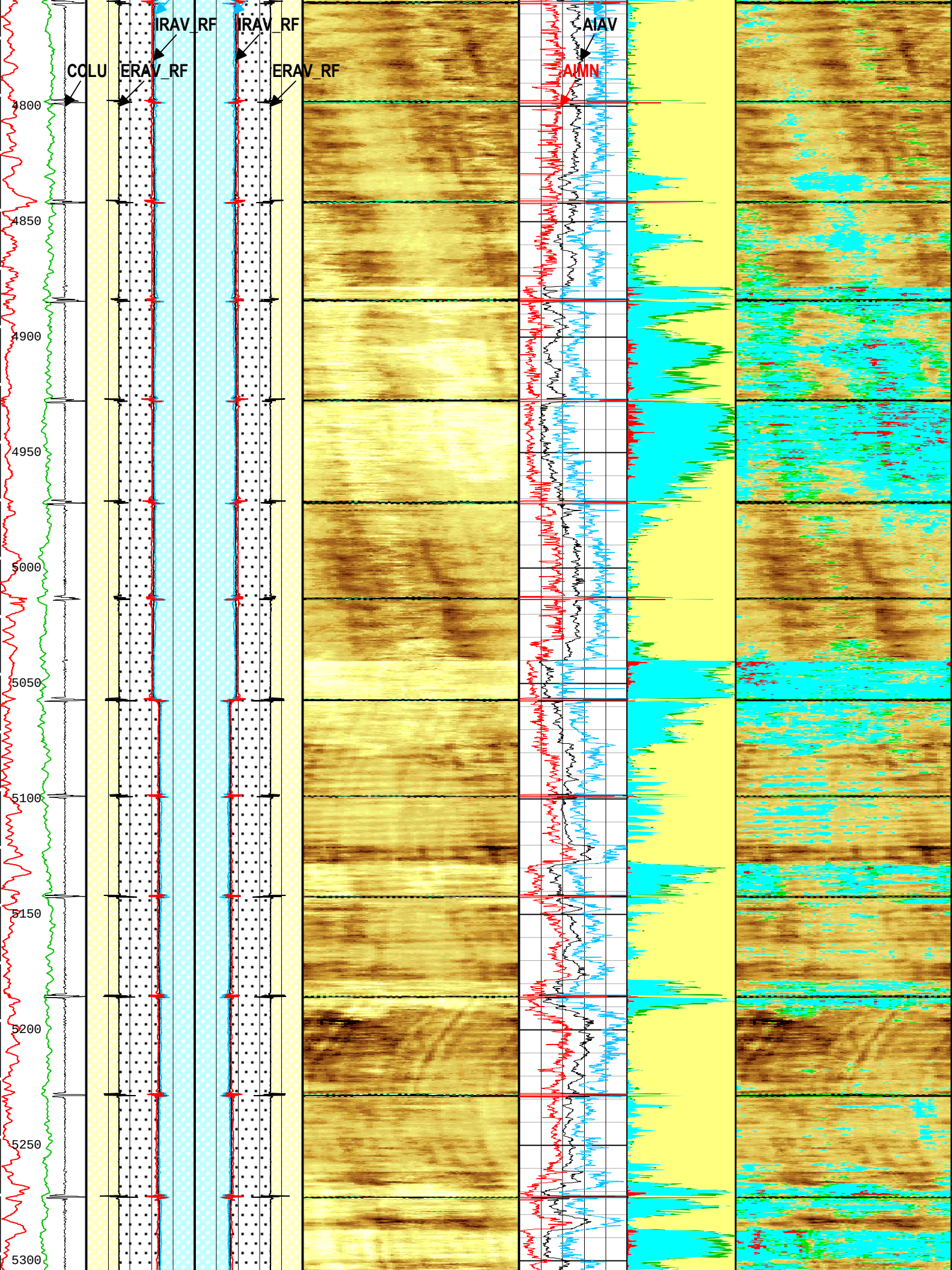
AIMX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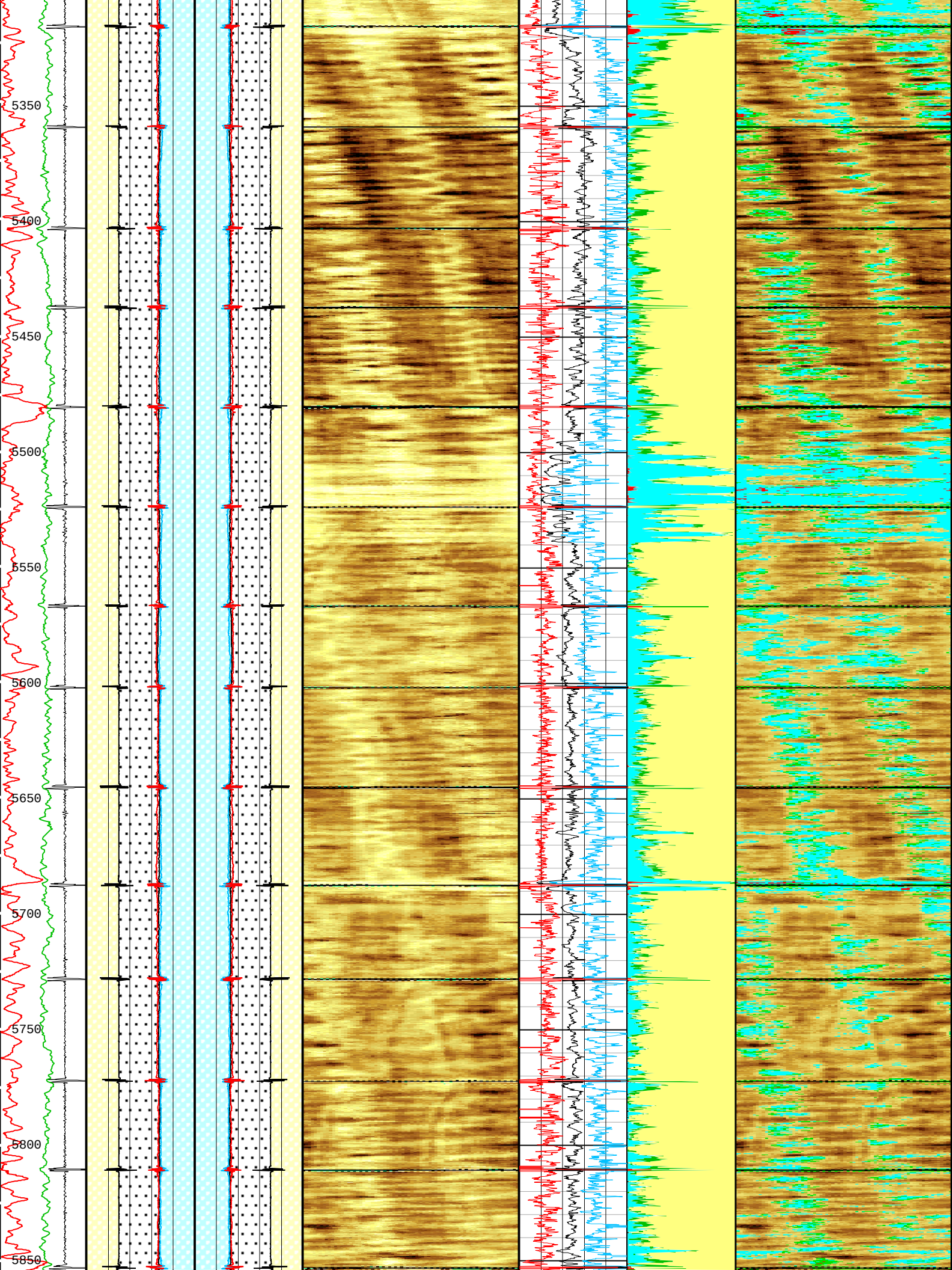
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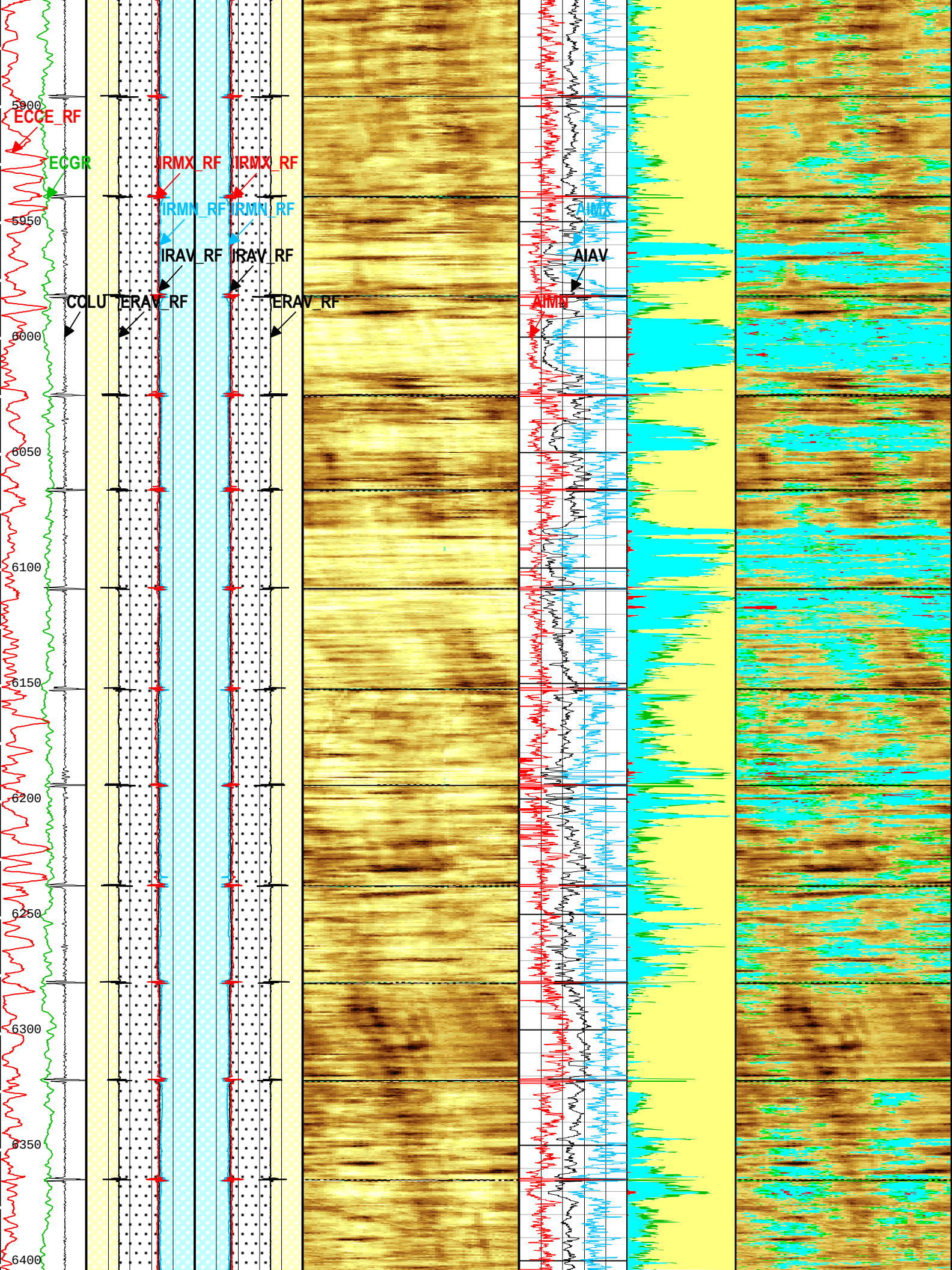
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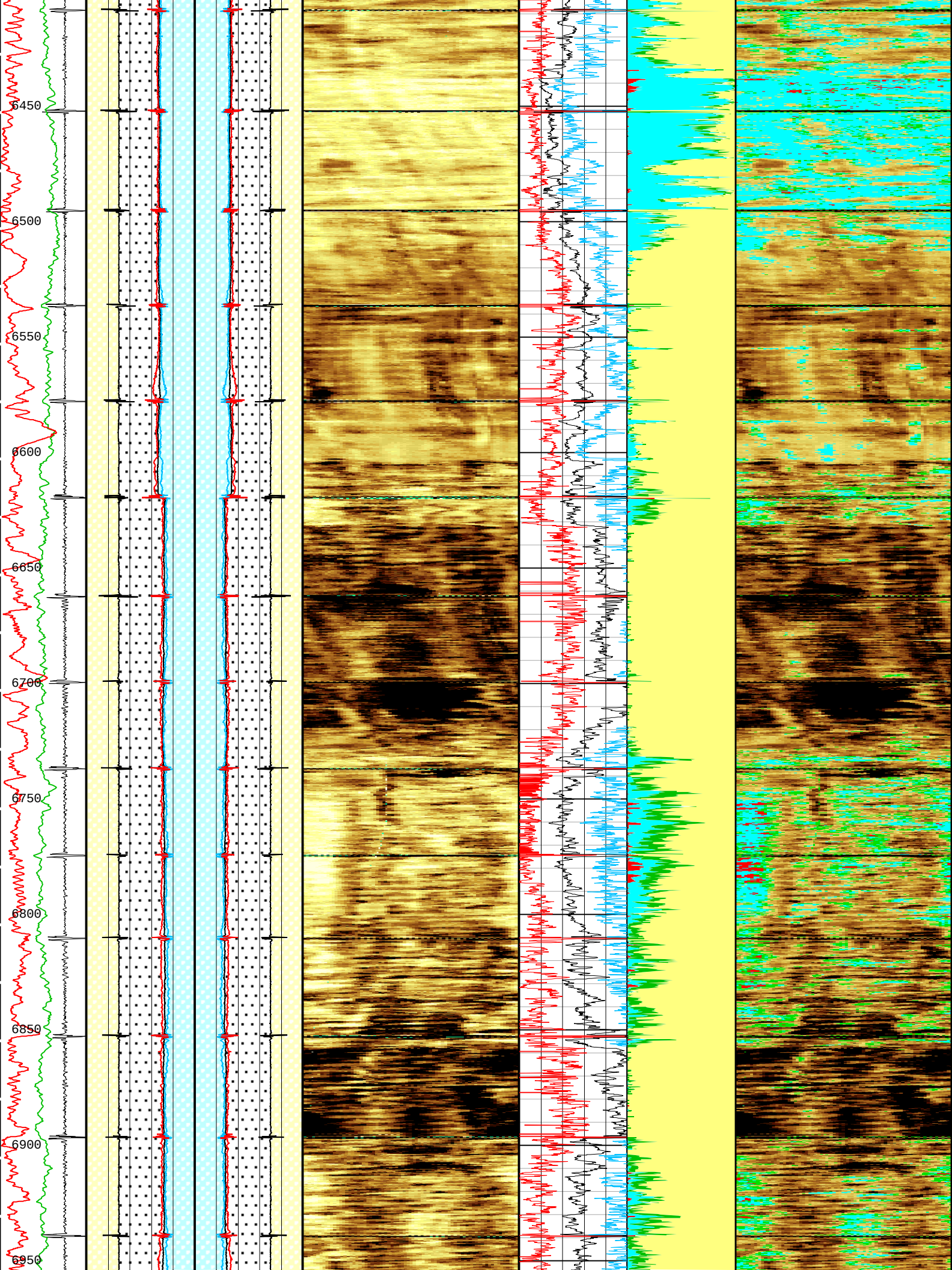
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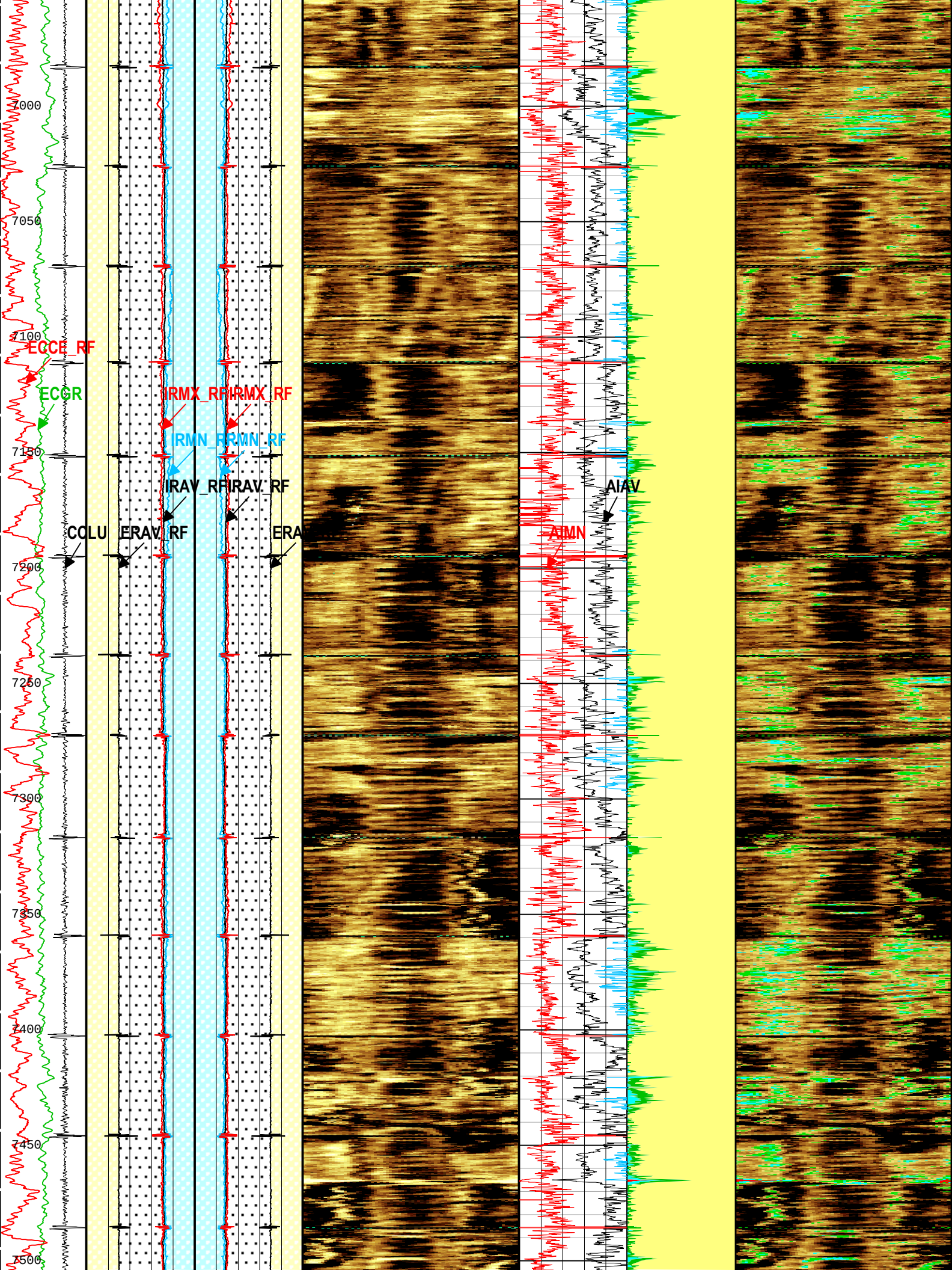
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7400
7450
7500
ECCE_RF
ECGR
IRMX_RF
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IRAV_RF
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COLU
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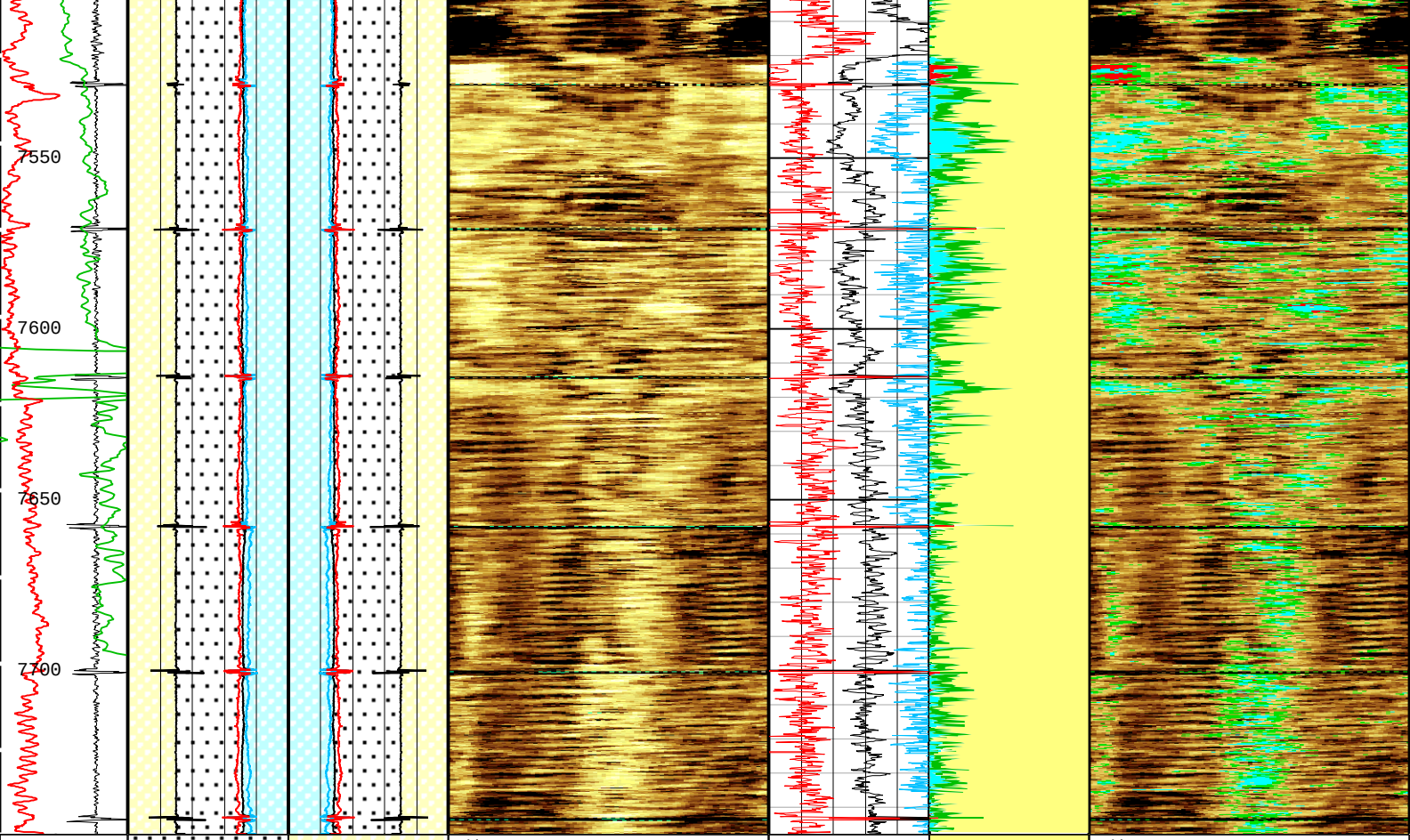
ERA
AIAV
AIMN



Casing Collar Locator Ultrasonic (CCLU) USIT-E
-30 in 10

Gamma Ray (ECGR) HGNS-H
0 gAPI 150

Amplitude of Eccentering for Unflagged Waves (ECCE_RF) USIT-E
0 in 0.5

Median of Unflagged External Radii (ERAV_RF) USIT-E
3.8 in 2.8

Median of Unflagged External Radii (ERAV_RF) USIT-E
2.8 in 3.8

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E
3.8 in 2.8

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E
2.8 in 3.8

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
3.8 in 2.8

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
2.8 in 3.8

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
3.8 in 2.8

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
2.8 in 3.8

Acoustic Impedance Minimum (AIMN) USIT-E
-1 Mrayl 9

Acoustic Impedance Average (AIAV) USIT-E
-1 Mrayl 9

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

TIME_1900 - Time Marked every 60.00 (s)

Description: USI Cement Format: Log (LBV1_USI Cement 9.625inch) Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 23-Jan-2016 06:57:17

One

USI Corrosion Log Main Pass 5 IN = 100 FT

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[3]:Up	Up	16.71 ft	7748.81 ft	22-Jan-2016 8:47:51 AM	22-Jan-2016 2:03:15 PM	ON	2.00 ft	Yes

All depths are referenced to toolstring zero

Log

Company:Southern California Gas Company Well:Porter 35

One: Log[3]:Up:S008

Description: USI Composite Format: Log (LBV1_USI Corrosion 9.625inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 23-Jan-2016 06:57:25

USIT Processing Flags (UFLG[0]) USIT-E

1 - UFLG 1 Value within [0.0 - 1.5] - :
2 - UFLG 2 Value within [1.5 - 2.5] - :
3 - UFLG 3 Value within [2.5 - 3.5] - :
4 - UFLG 4 UFLG 5 UFLG 6 Value within [3.5 - 6.5] - :
5 - UFLG 7 UFLG 8 UFLG 9 Value within [6.5 - 10] - :

- UTIM Error
- Pulse Origin Not Detected
- WINLEN Error
- Casing Thickness Error
- Loop Processing Error

TIME_1900 - Time Marked every 60.00 (s)

Casing Collar Locator Ultrasonic (CCLU) USIT-E
-30 in 10

Amplitude of Eccentering for Unflagged Waves (ECCE_RF) USIT-E
0 in 0.5

Motor Revolution Speed (RSAV) USIT-E
6 c/s 8

Calibrated Gamma Ray (GR_EDTC)

U L B R U
Orientation: Top of Hole
Absent 1.500 3.500
Explicit Normalization
USIT - USIT Processing Flags (UFLG) USIT-E

USIT Processing Flags (UFLG[0])

U L B R U
Orientation: Top of Hole
Absent -5.200 -3.600 -2.000 -0.400
Explicit Normalization
USIT - Amplitude of Unflagged Wave (AWBK_RF) USIT-E (dB)

Minimum of Unflagged Wave Amplitude (AWMN_RF) USIT-E
0 dB 75

Average of Unflagged Wave Amplitude (AWAV_RF) USIT-E
0 dB 75

Maximum of Unflagged Wave Amplitude (AWMX_RF)

U L B R U
Orientation: Top of Hole
Absent -0.059 -0.028 0.004 0.035 0.068
Explicit Normalization
USIT - Unflagged Internal Radii minus Median Internal Radius

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E
2.8 in 3.8

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
2.8 in 3.8

Maximum of Unflagged Internal Radii (IRMX_RF)

ERAV | IRAV
ERAV-IRAV | ERAV
IRAV | IRAV-ERAV

Median of Unflagged External Radii (ERAV_RF) USIT-E
3.8 in 2.8

Median of Unflagged External Radii (ERAV_RF) USIT-E
2.8 in 3.8

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E
3.8 in 2.8

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
3.8 in 2.8

Minimum of Unflagged Internal Radii (IRMN_RF)

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E
2.8 in 3.8

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
2.8 in 3.8

Minimum of Unflagged Internal Radii (IRMN_RF)

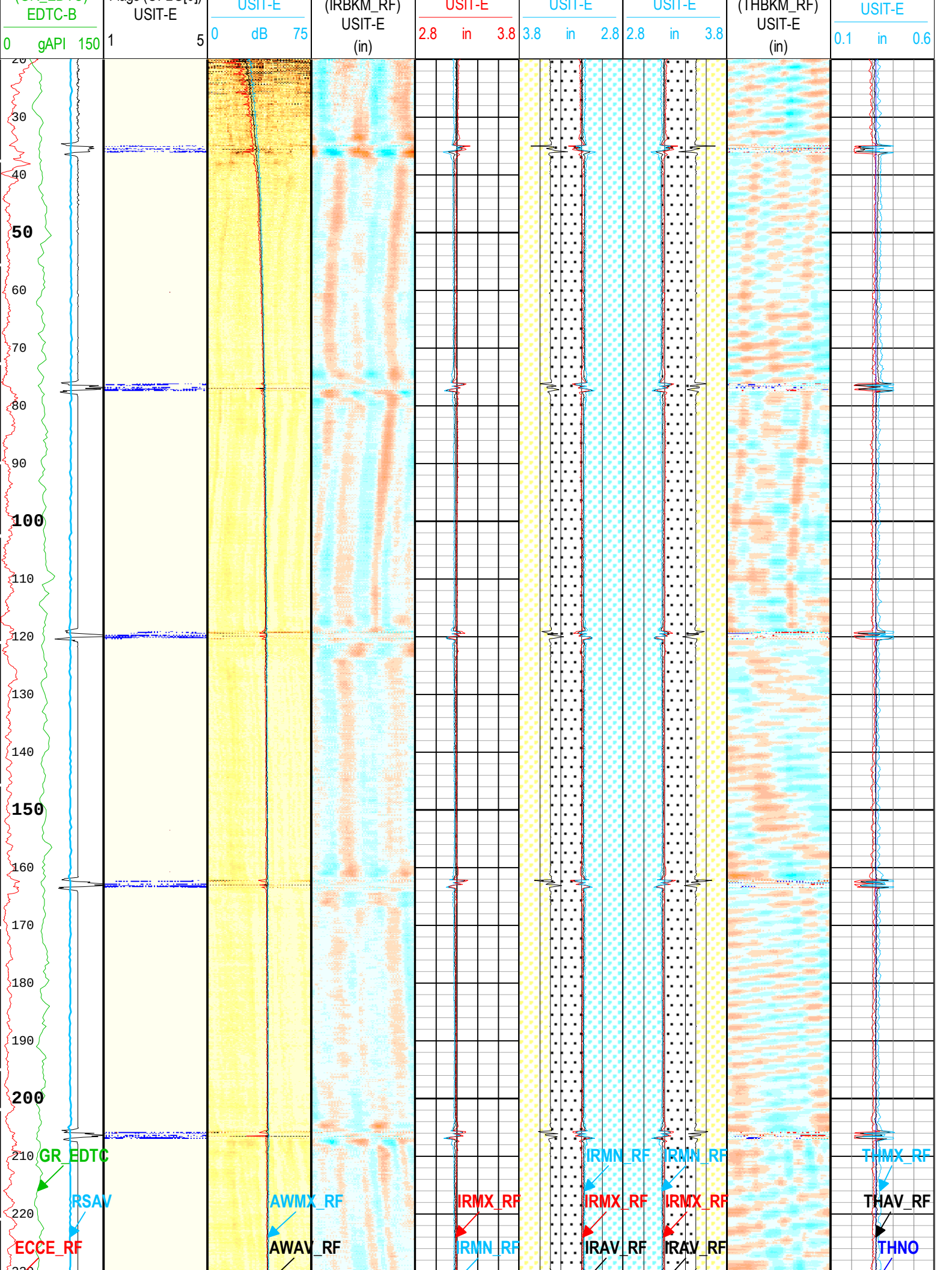
U L B R U
Orientation: Top of Hole
Absent -0.059 -0.028 0.004 0.035 0.068
Explicit Normalization
USIT - Unflagged Casing Thickness minus Median of Unflagged Casing Thickness

Minimum of Unflagged Casing Thickness (THMN_RF) USIT-E
0.1 in 0.6

Nominal Casing Thickness (THNO) USIT-E
0.1 in 0.6

Median of Unflagged Casing Thickness (THAV_RF) USIT-E
0.1 in 0.6

Maximum of Unflagged Casing Thickness (THMX_RF)


EDTC-B
0 gAPI 150
USIT-E
1 5
USIT-E
0 dB 75
(IRBKM_RF)
USIT-E
(in)
USIT-E
2.8 in 3.8
USIT-E
3.8 in 2.8
USIT-E
2.8 in 3.8
(THBKM_RF)
USIT-E
(in)
USIT-E
0.1 in 0.6
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
180
190
200
210
220
GR_EDTC
RSAV
ECCE_RF
AWMX_RF
AWAV_RF
IRMX_RF
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IRMX_RF
IRAV_RF
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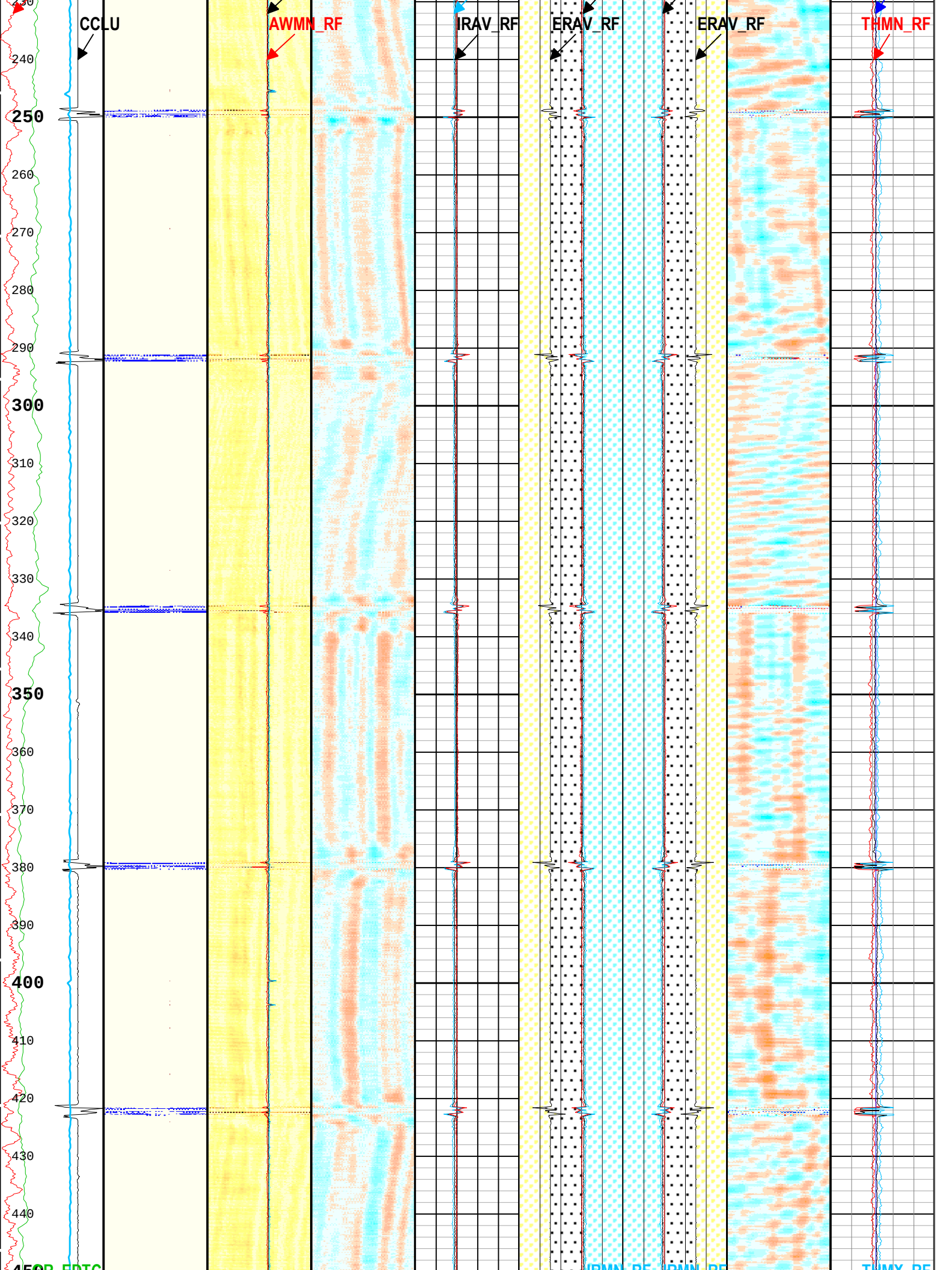
IRMX_RF
IRAV_RF
THMX_RF
THAV_RF
THNO


CCLU
AWMN_RF
IRAV_RF
ERAV_RF
ERAV_RF
THMN_RF
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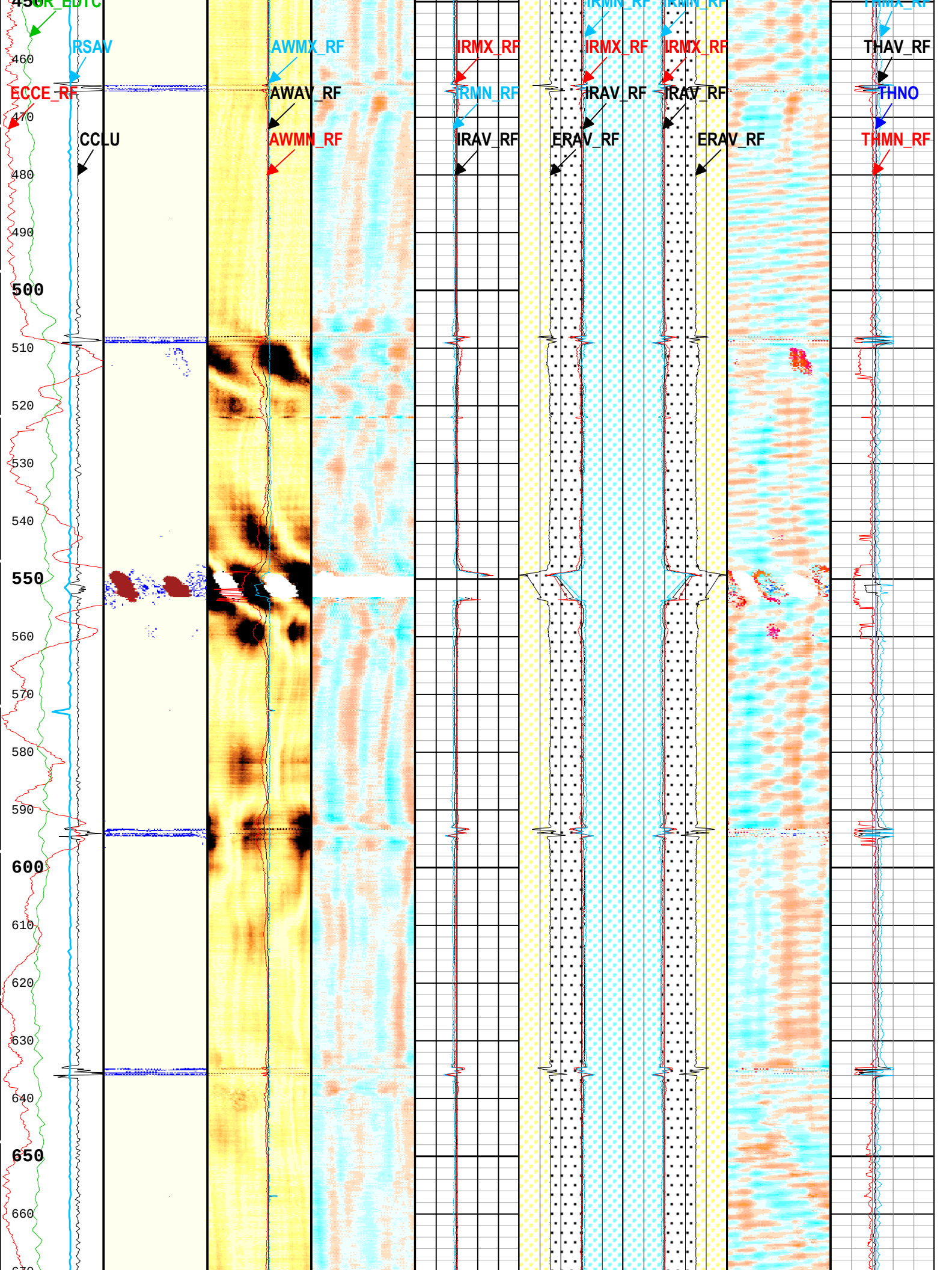
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RSAV
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CCLU
AWMX_RF
AWAV_RF
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IRMX_RF
IRMN_RF
IRAV_RF
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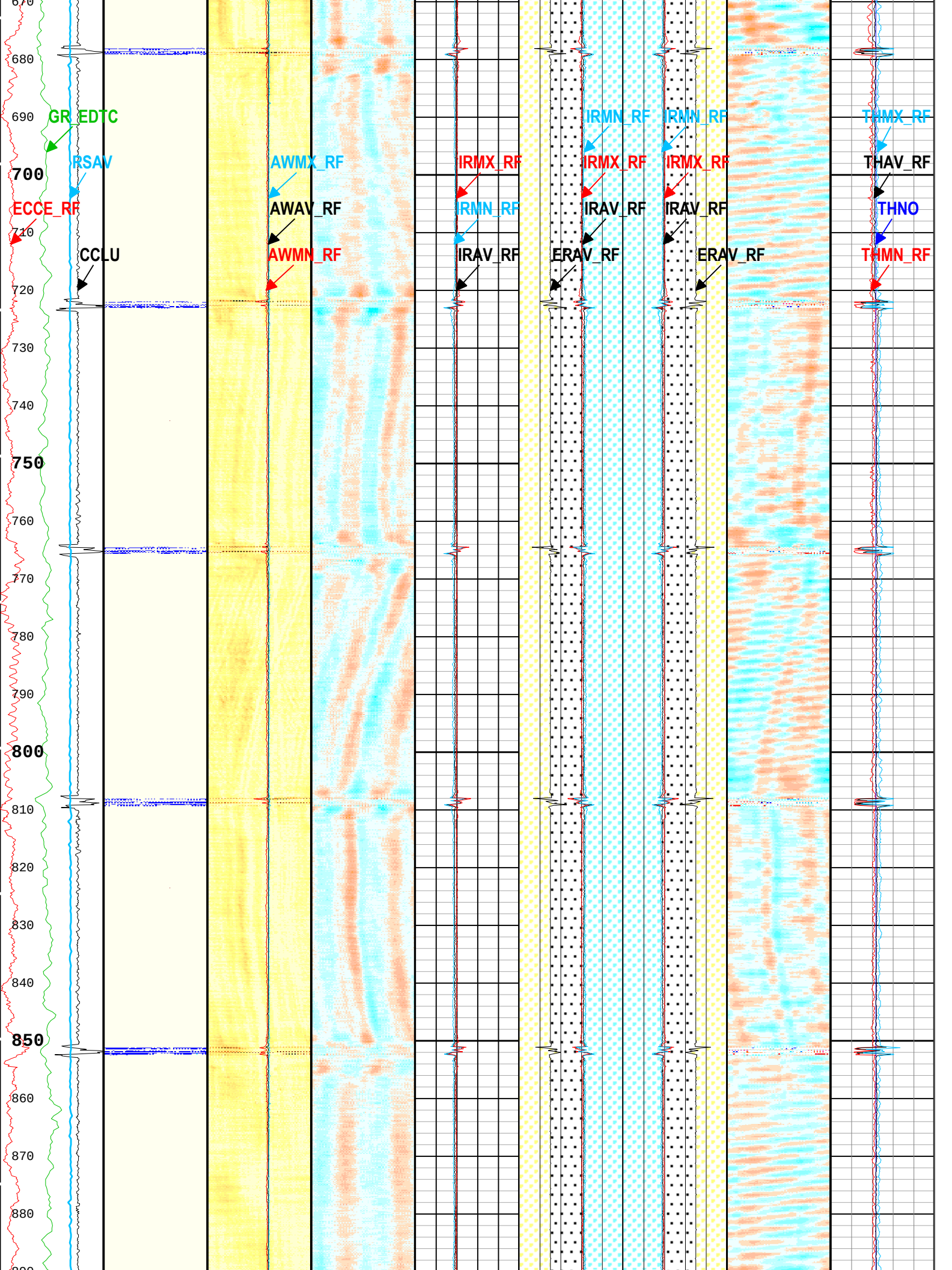
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870
880
GR_EDTC
RSAV
ECCE_RF
CCLU
AWMX_RF
AWAV_RF
AWMN_RF
IRMX_RF
IRMN_RF
IRAV_RF
IRMN_RF
IRMX_RF
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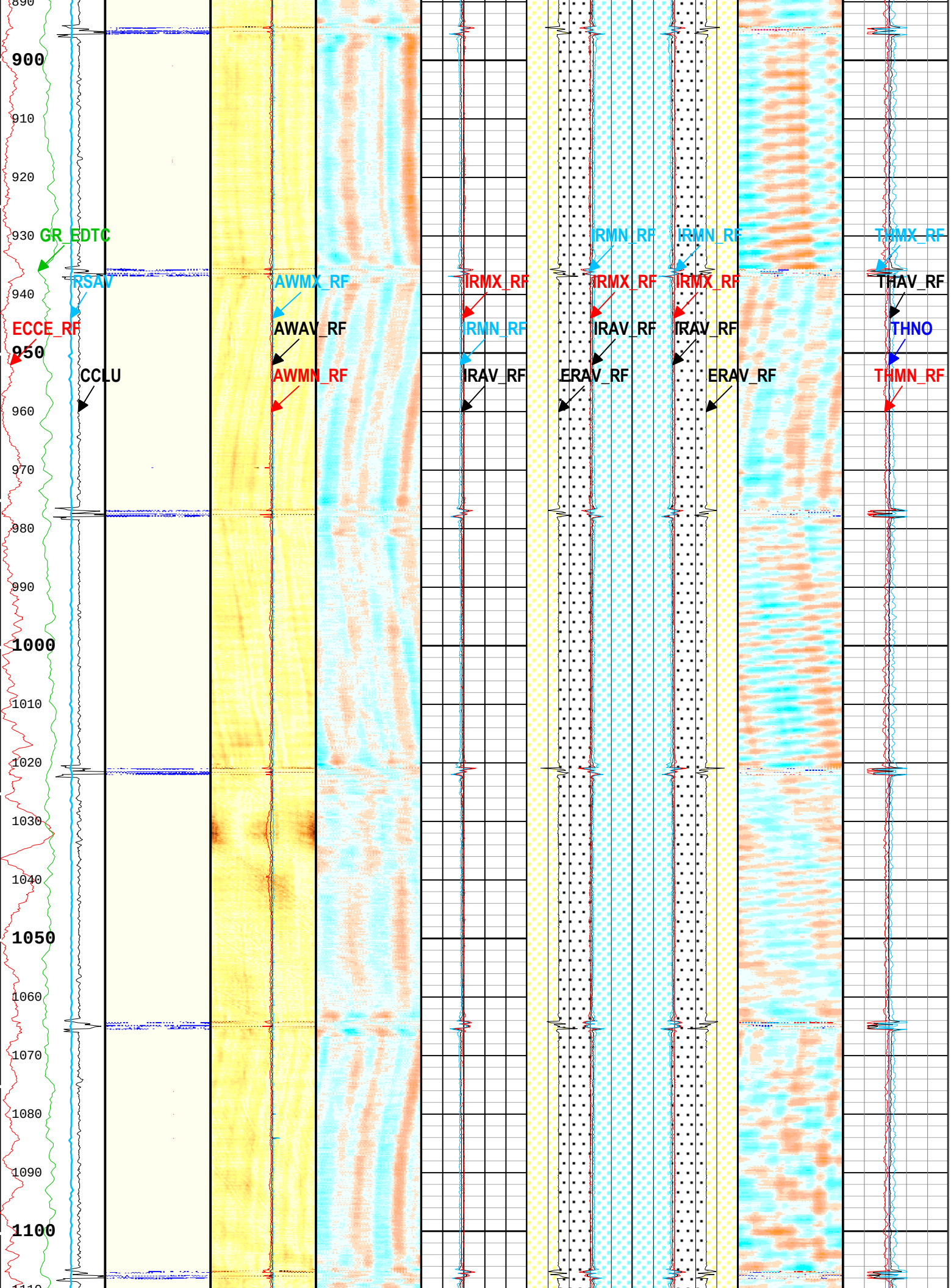
THAV_RF
THNO
THMN_RF


GR_EDTC
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AWAV_RF
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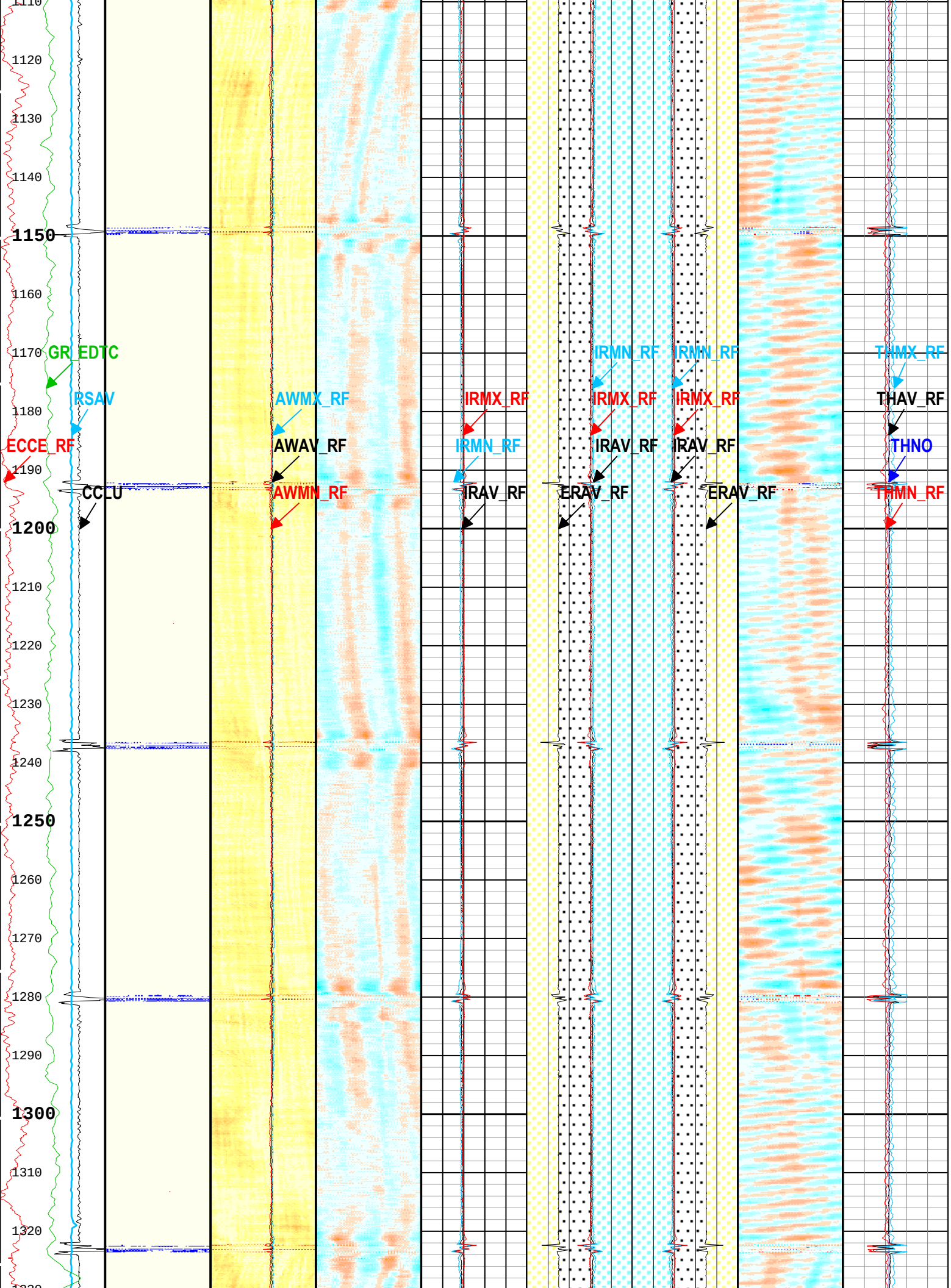
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RSAV
ECCE_RF
CC_U
AWMX_RF
AWAV_RF
AWMN_RF
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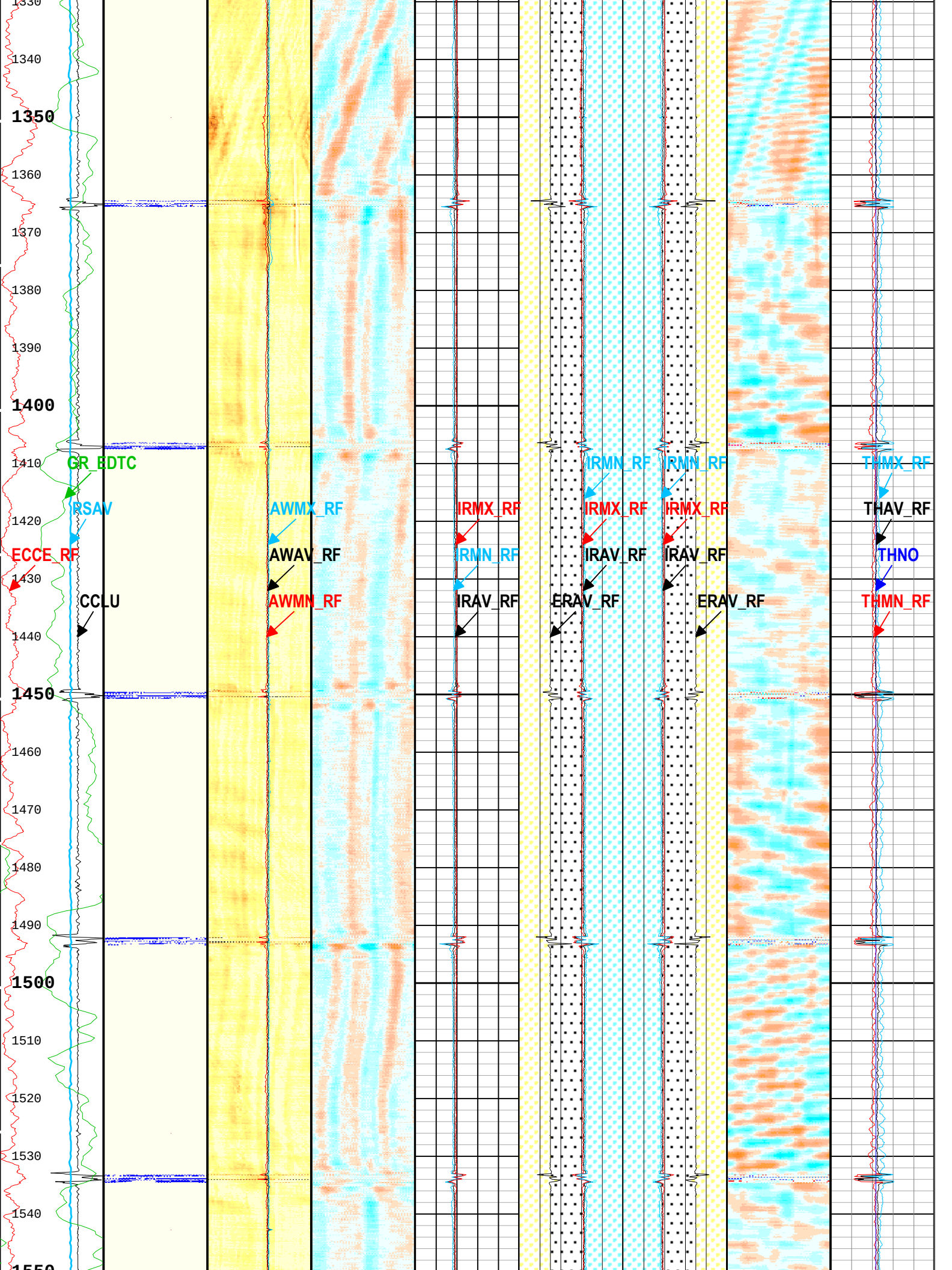
THMN_RF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RSAV
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CCLU
AWMX_RF
AWAV_RF
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IRMX_RF
IRMN_RF
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IRMX_RF
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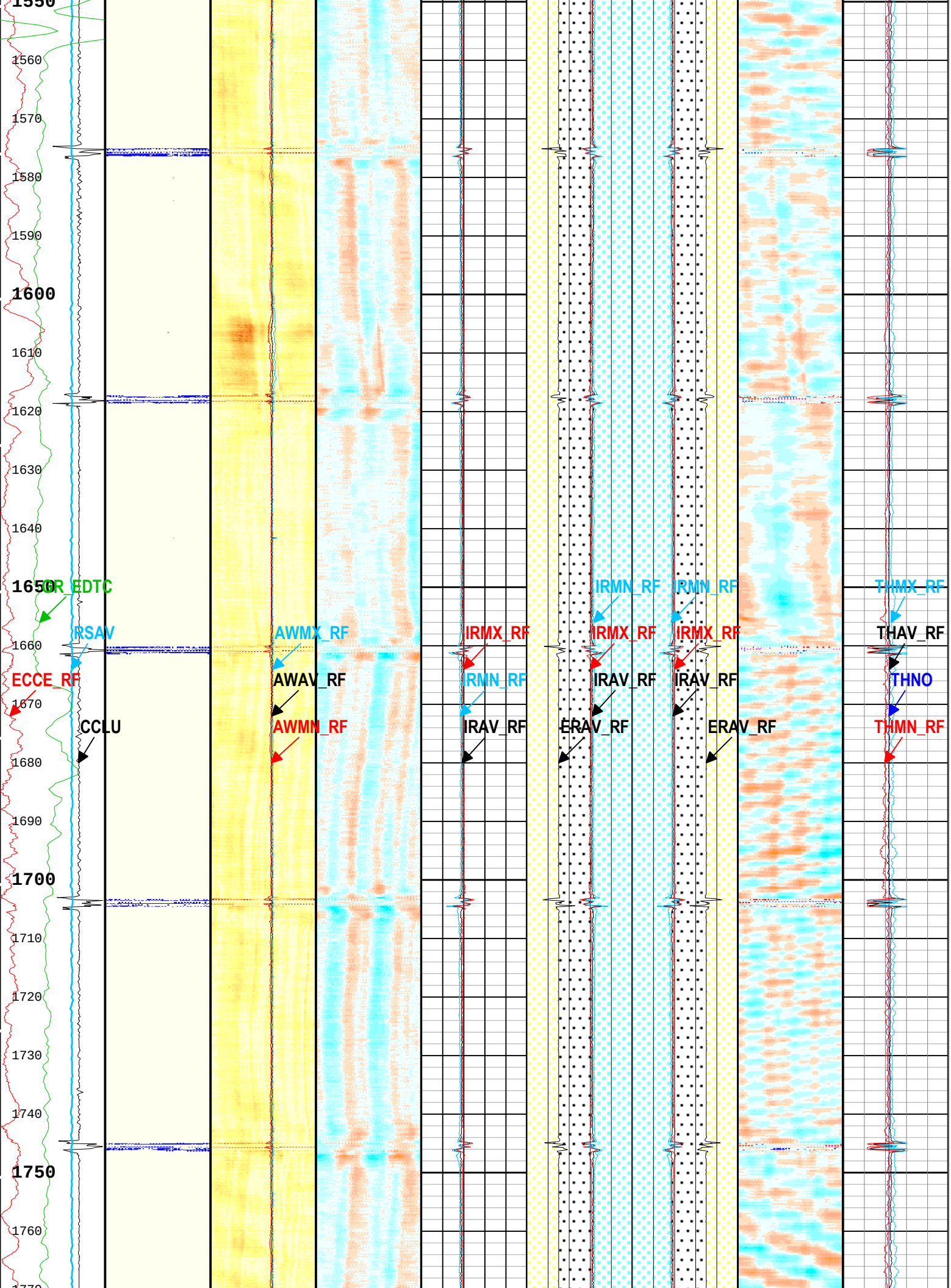
THNO
THMN_RF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RSAV
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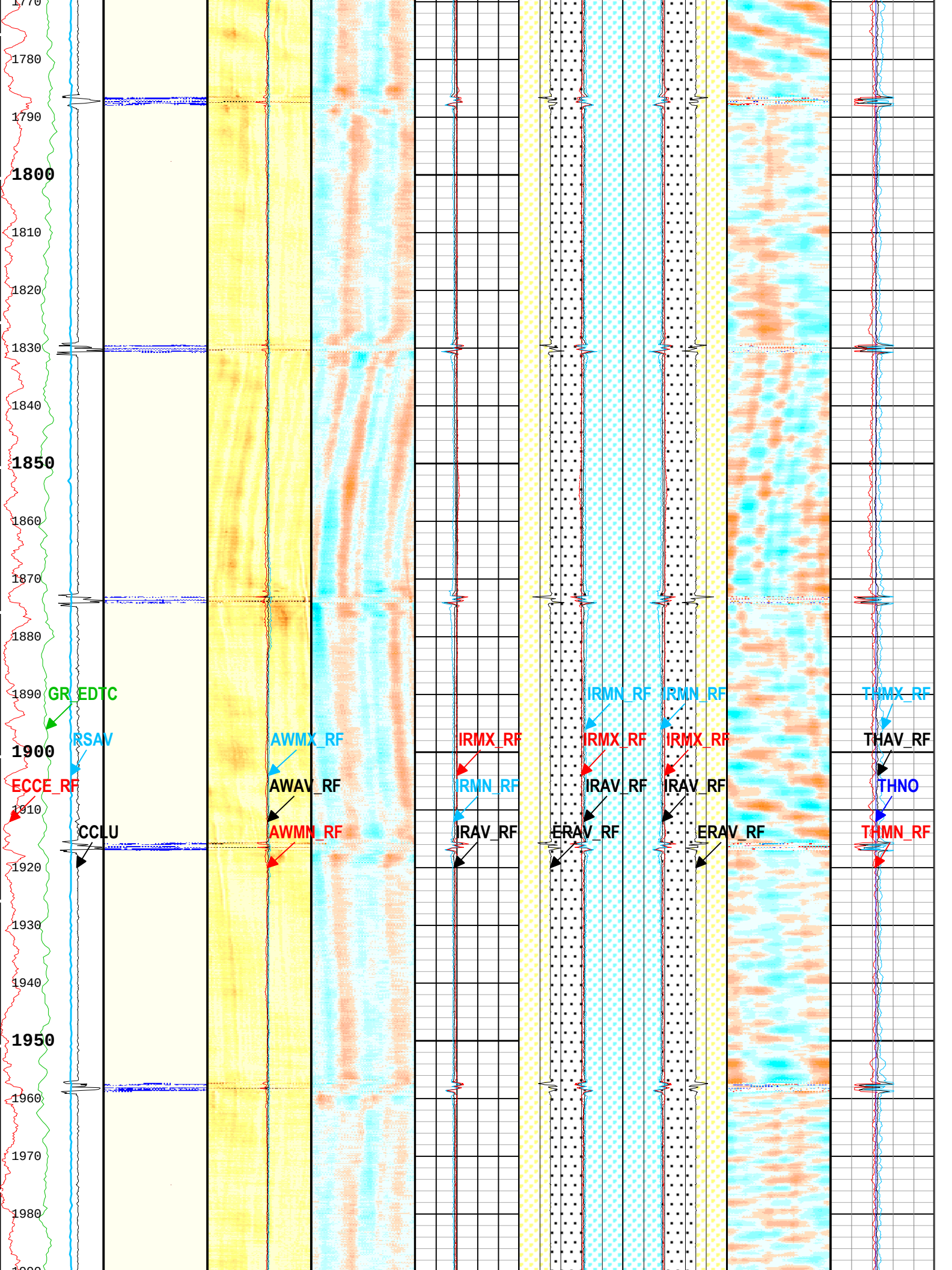
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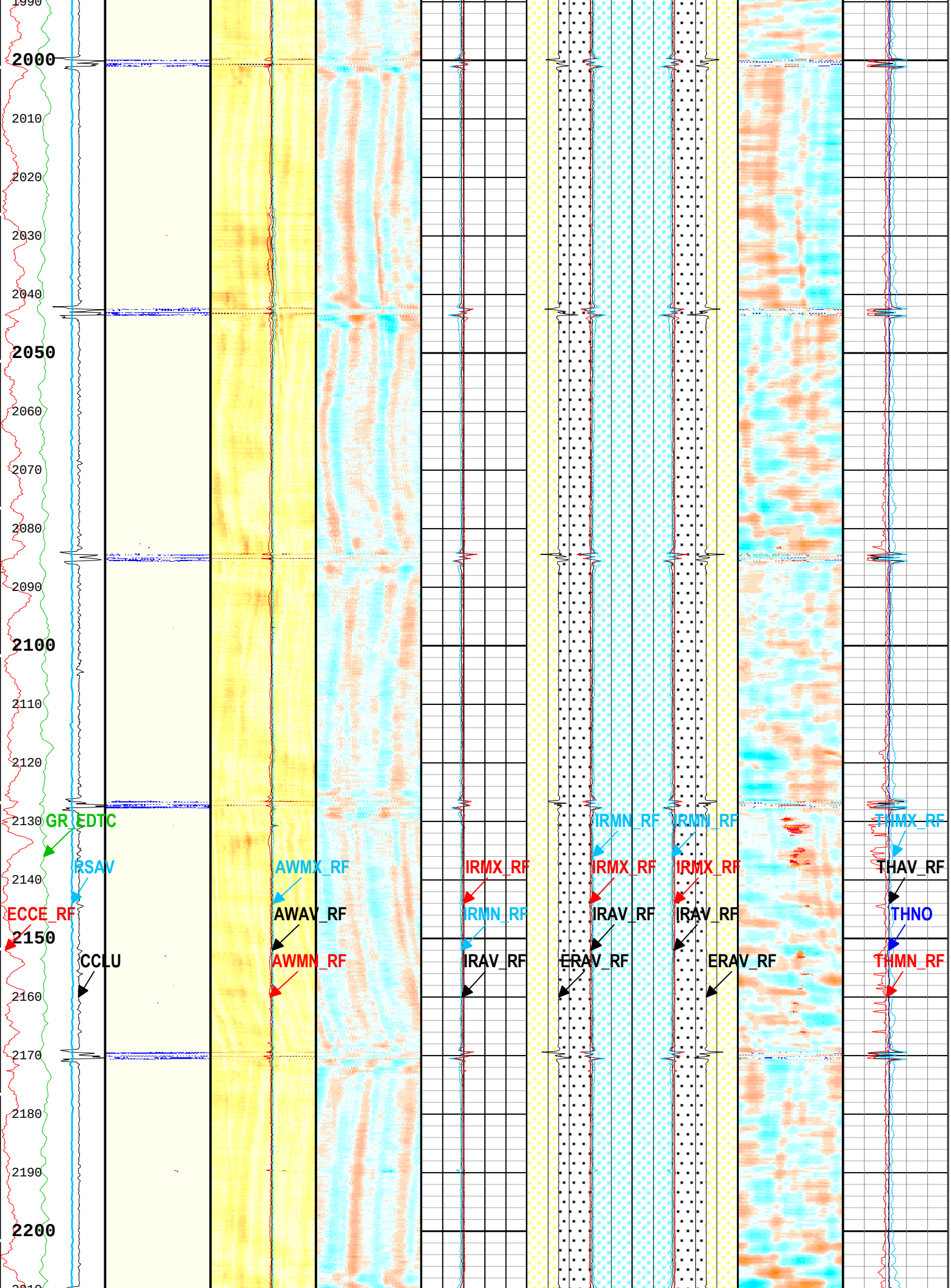
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RSAV
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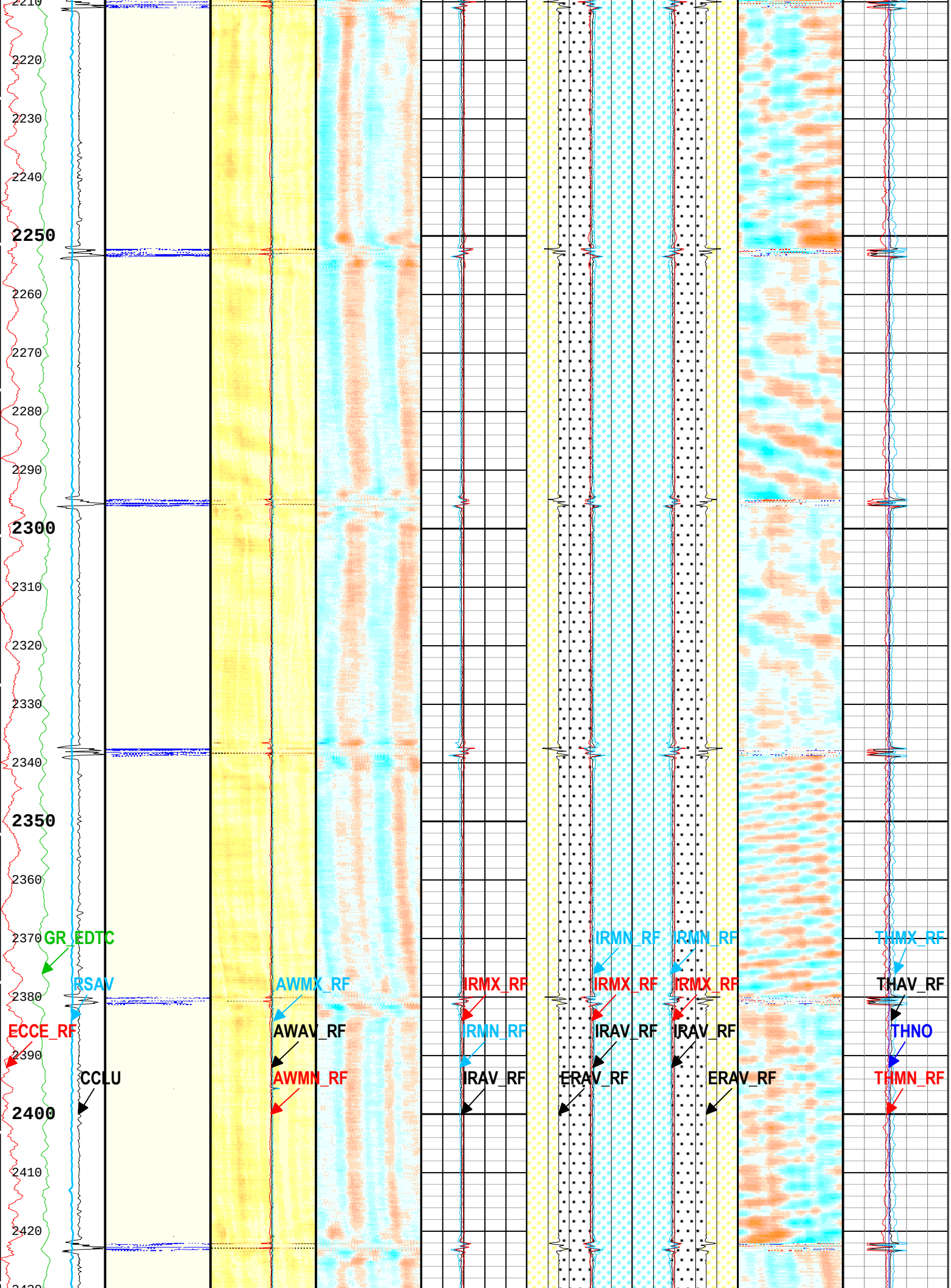
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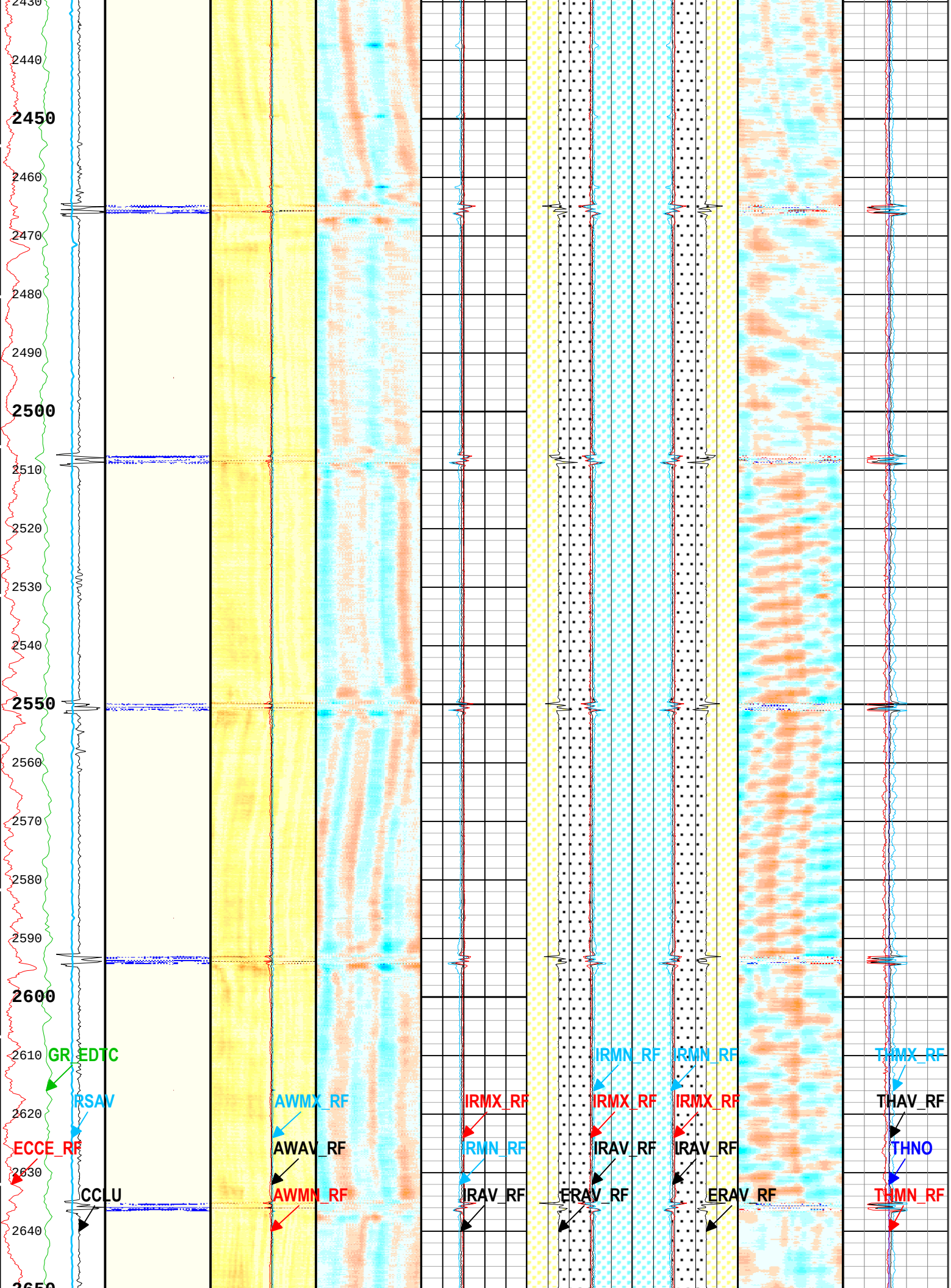
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RSAV
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CCLU
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AWAV_RF
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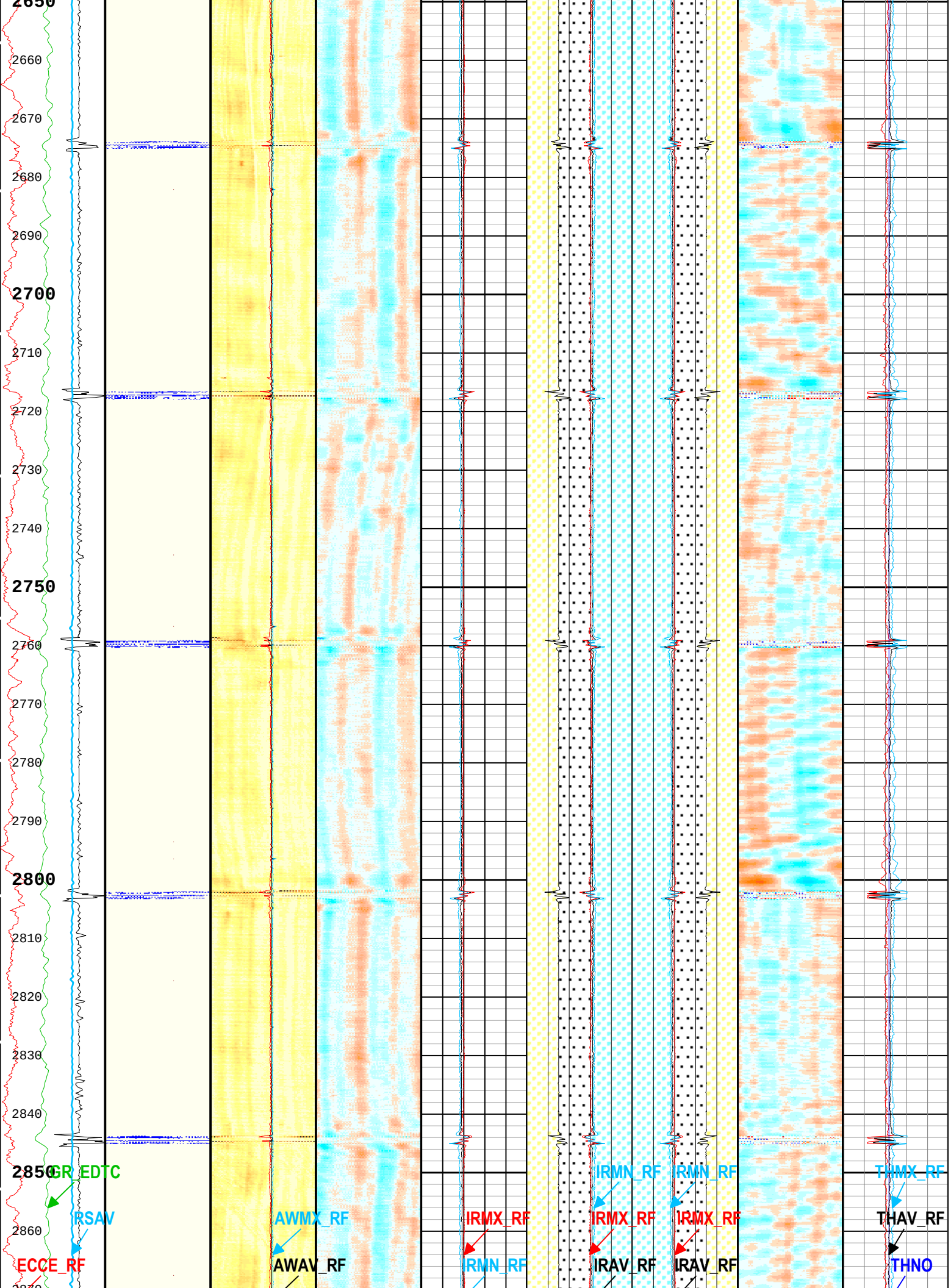
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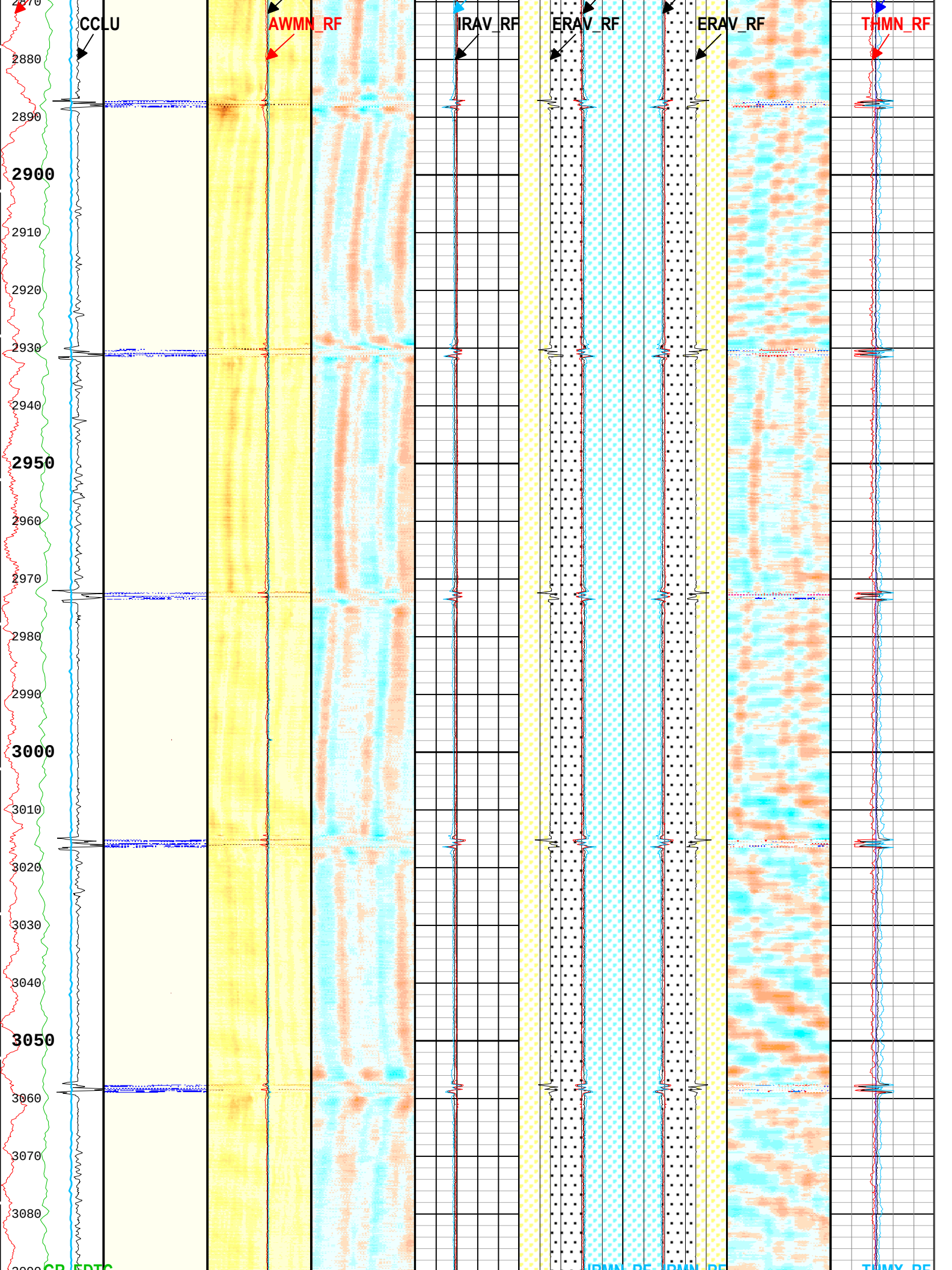
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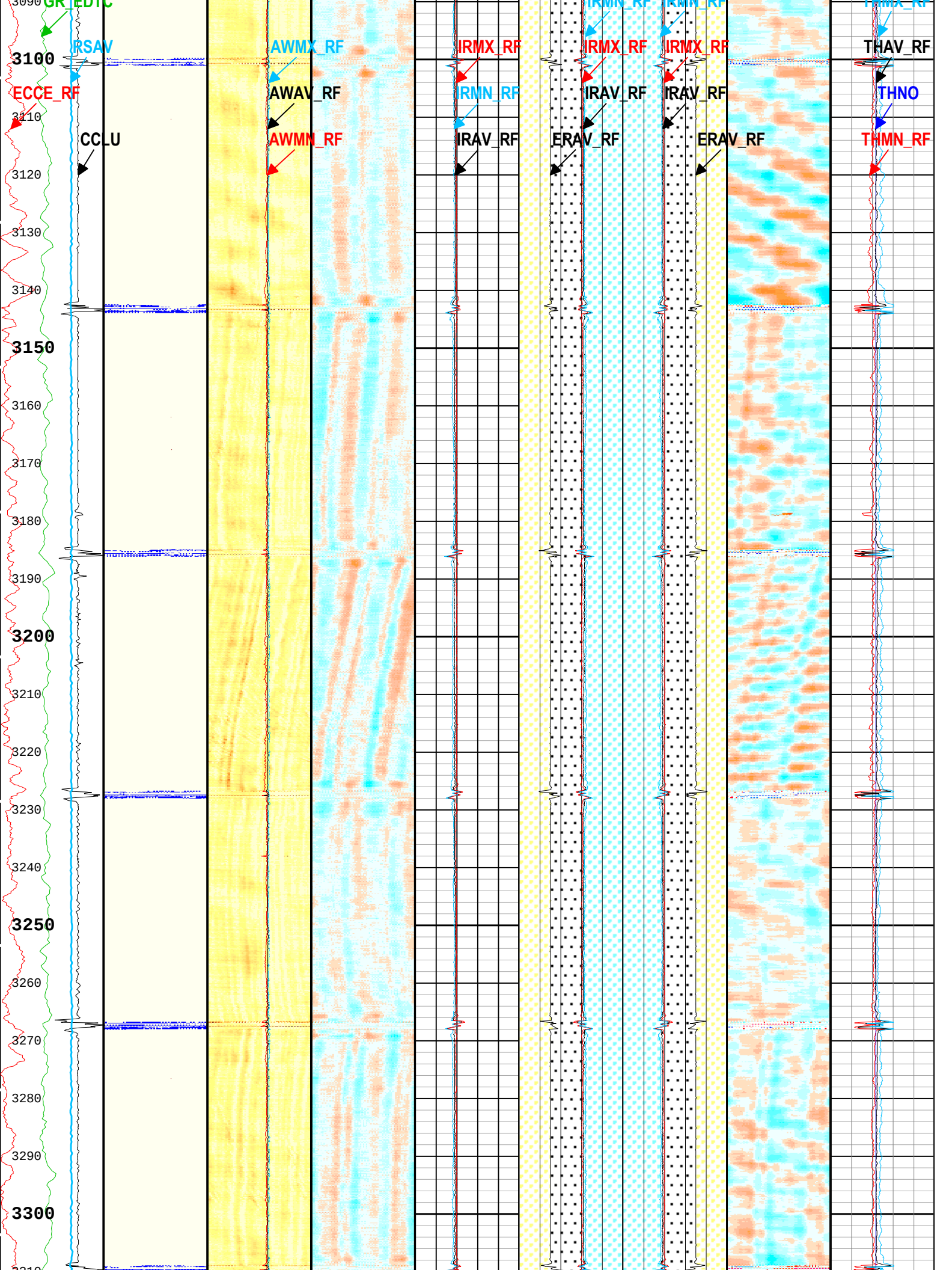
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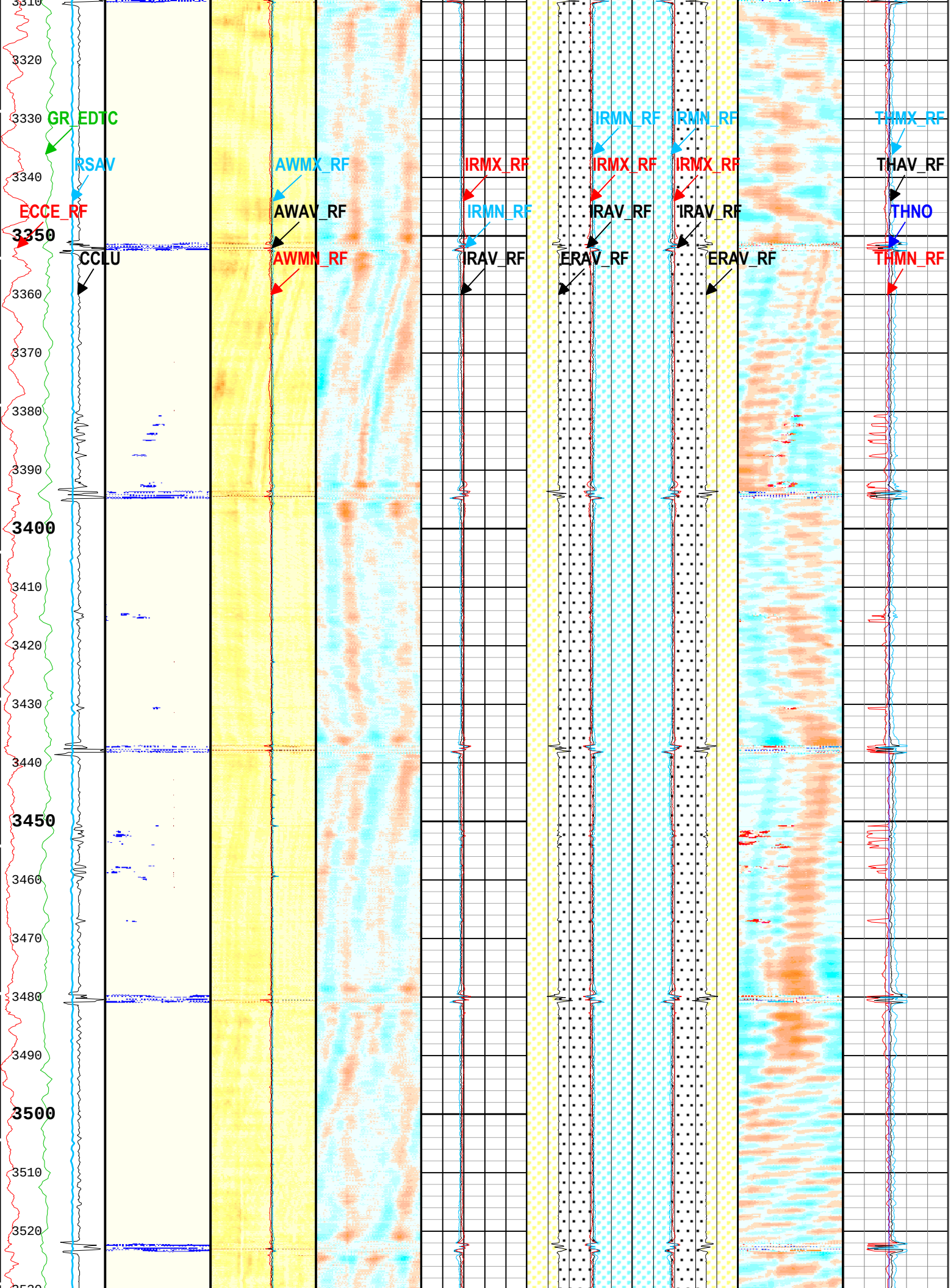
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RSAV
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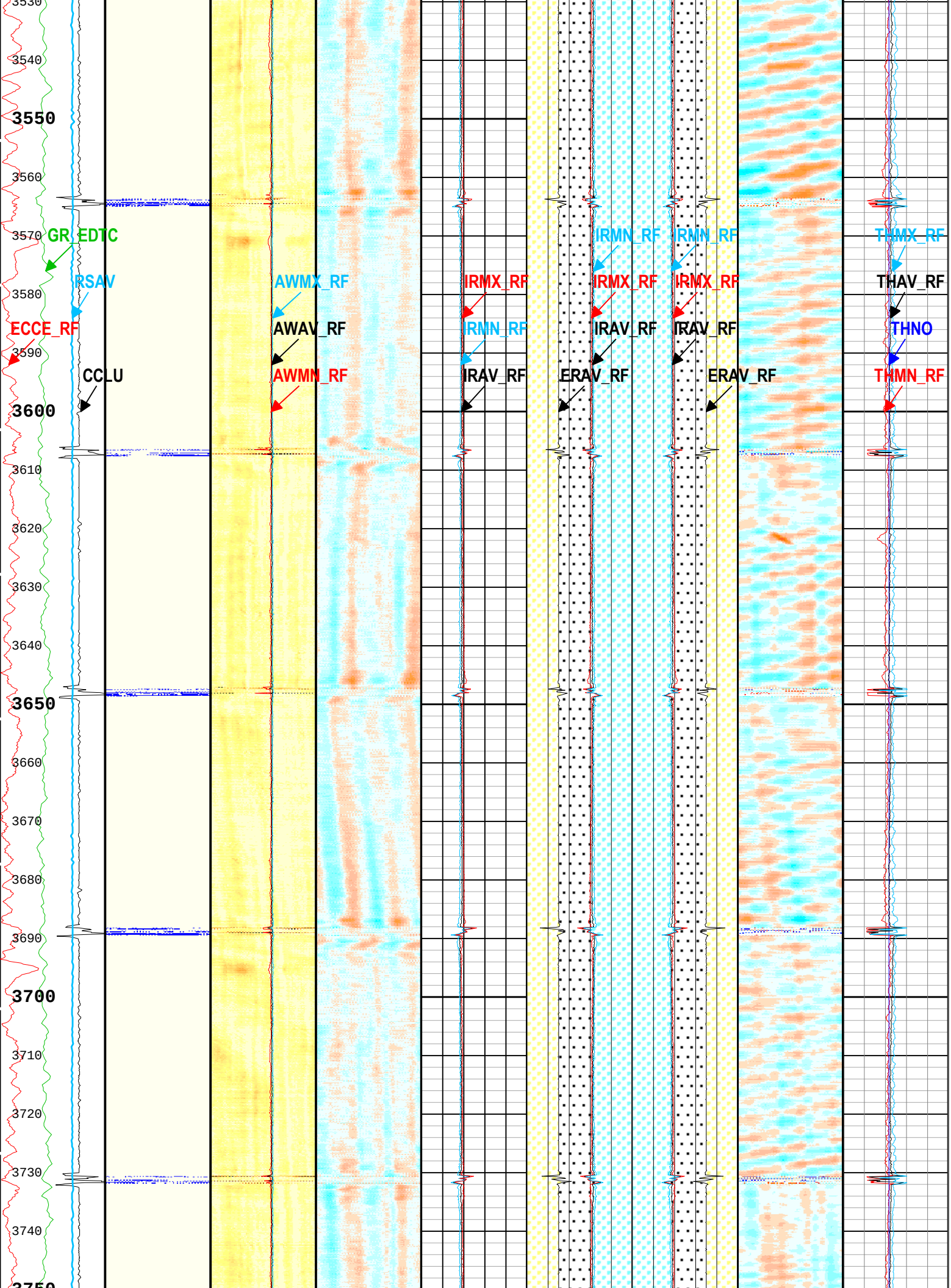
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RSAV
ECCE_RF
CCLU
AWMX_RF
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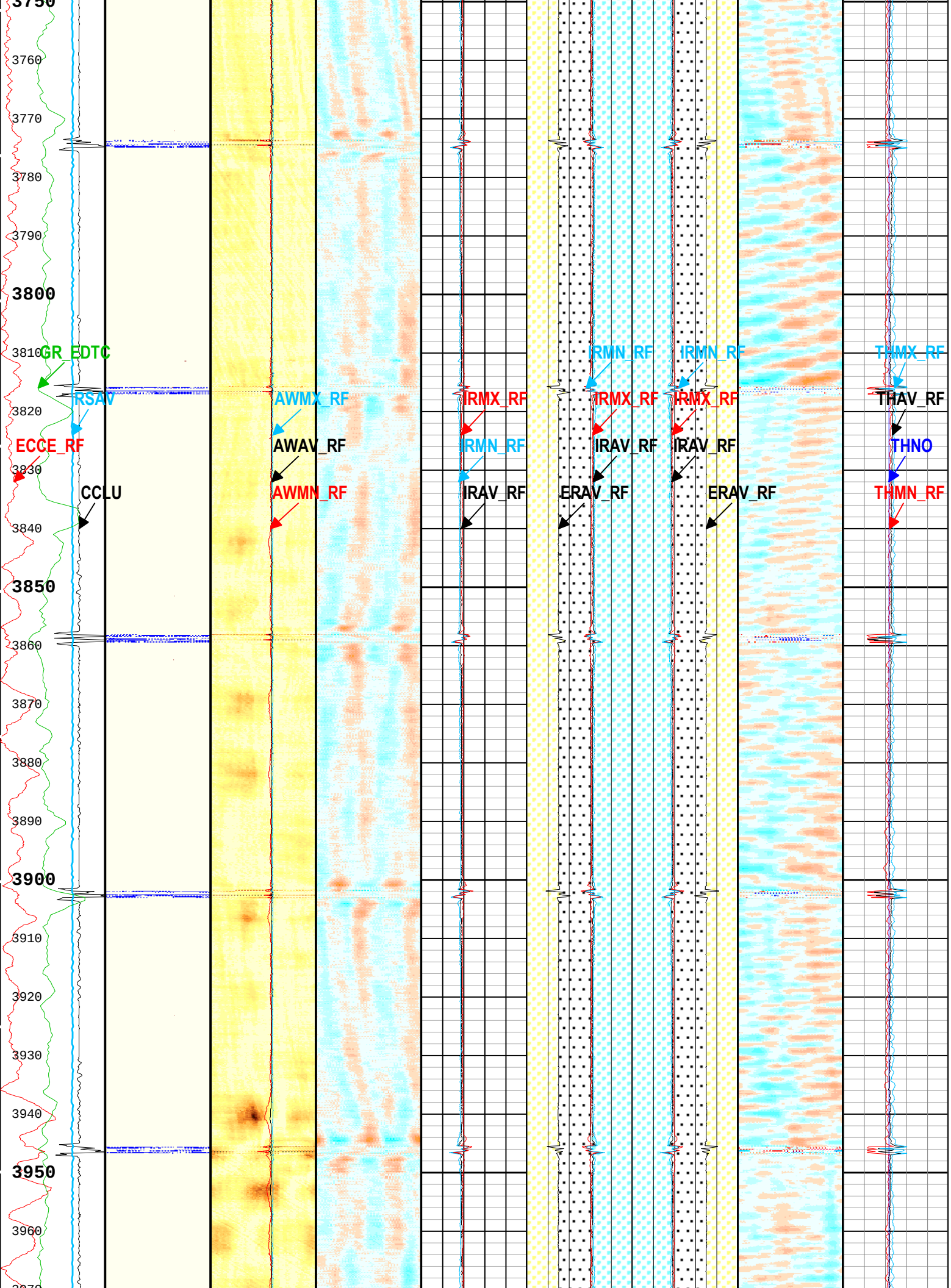
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3960
GR_EDTC
RSAV
ECCE_RF
CCLU
AWMX_RF
AWAV_RF
AWMN_RF
IRMX_RF
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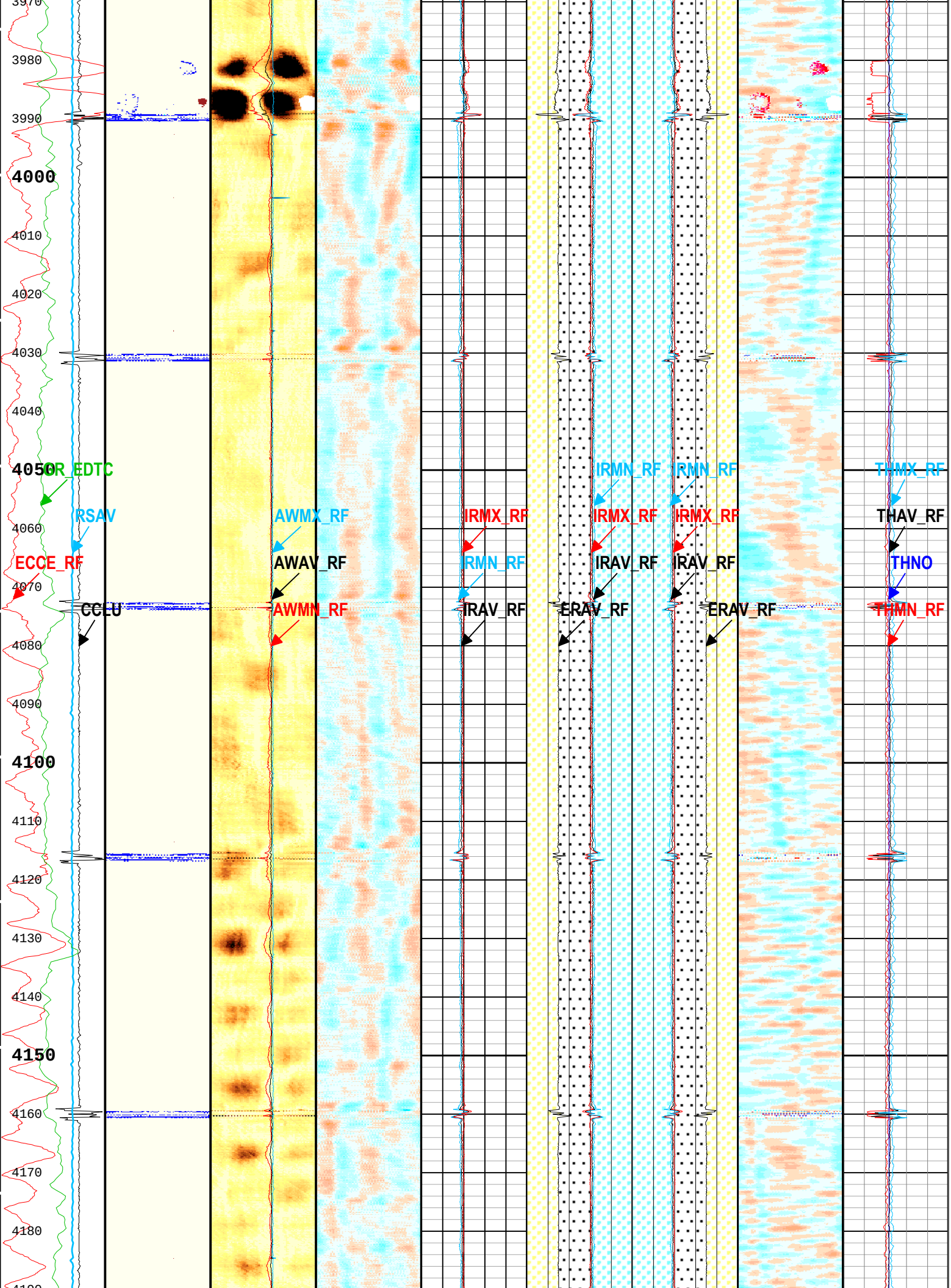
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4140
4150
4160
4170
4180
R_EDTC
RSAV
ECCE_RF
CCLU
AWMX_RF
AWAV_RF
AWMN_RF
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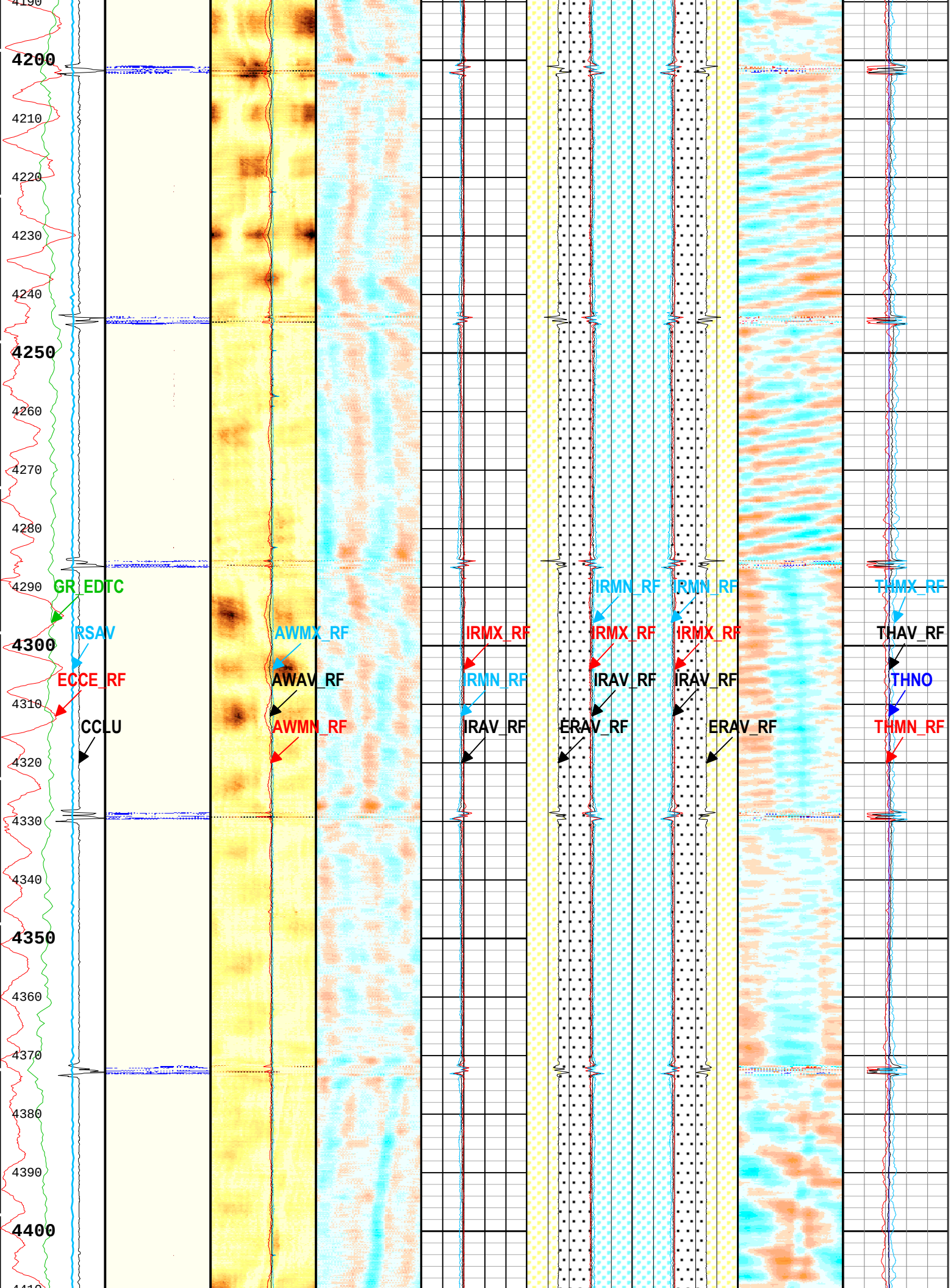
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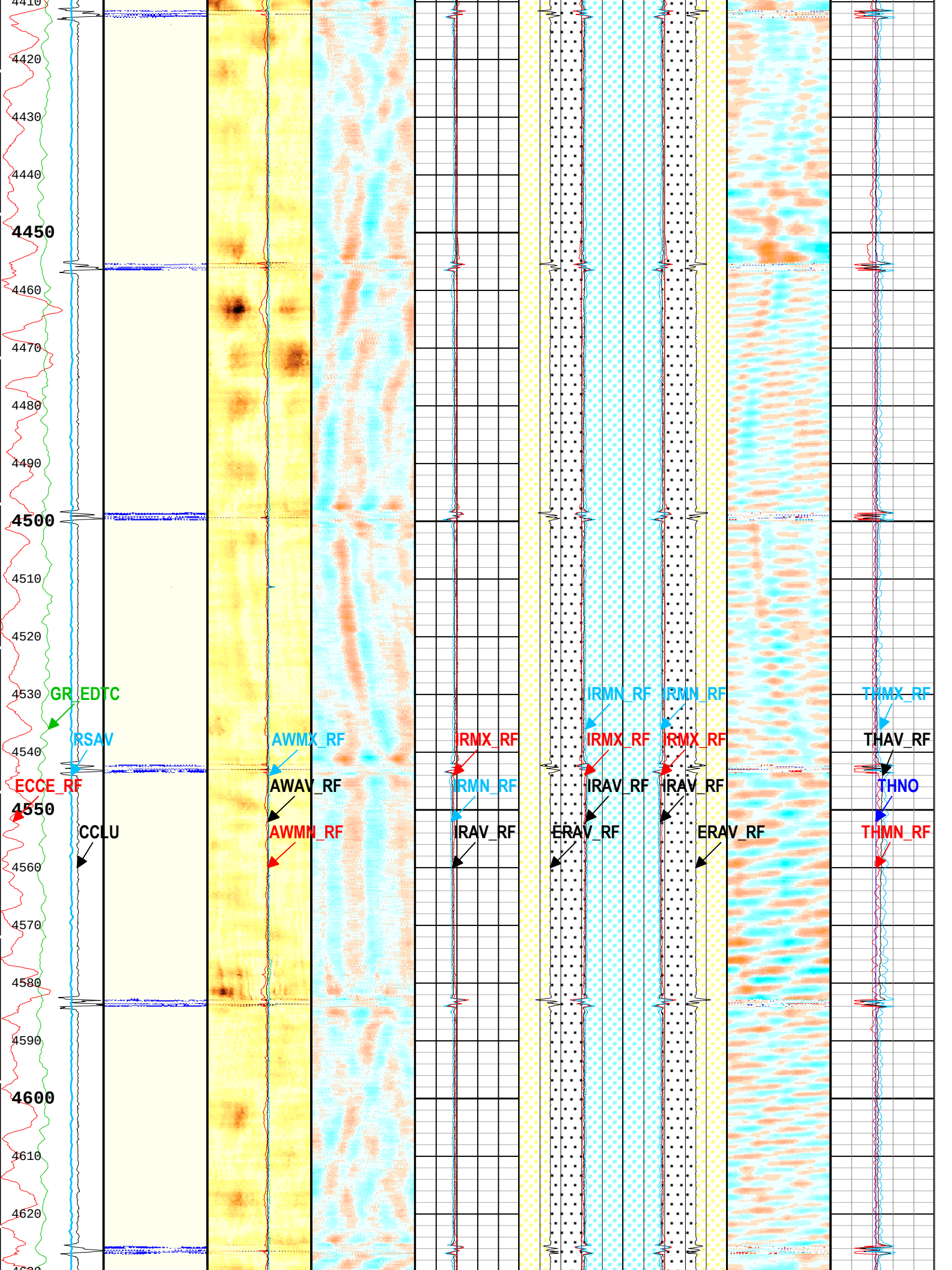
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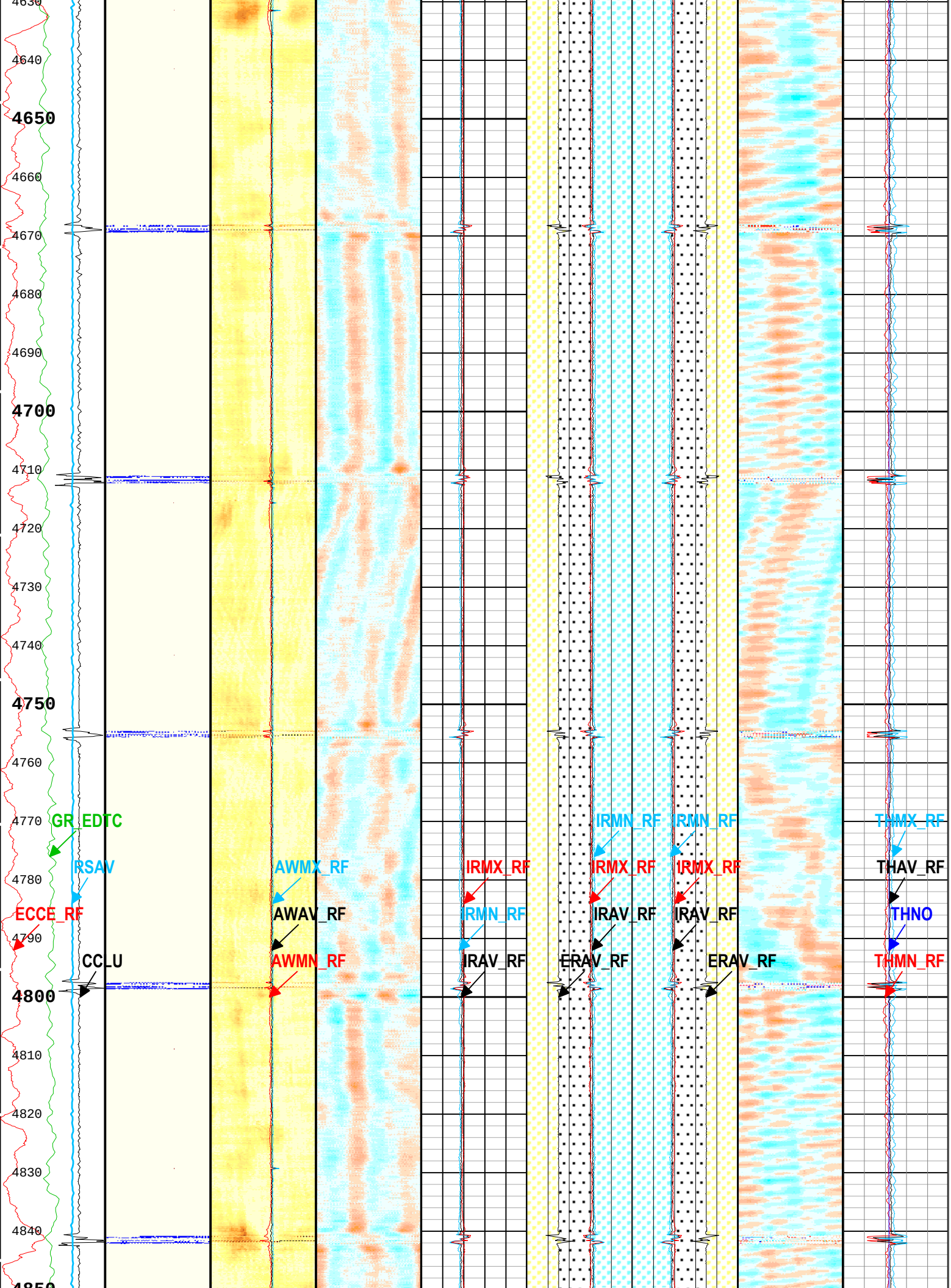
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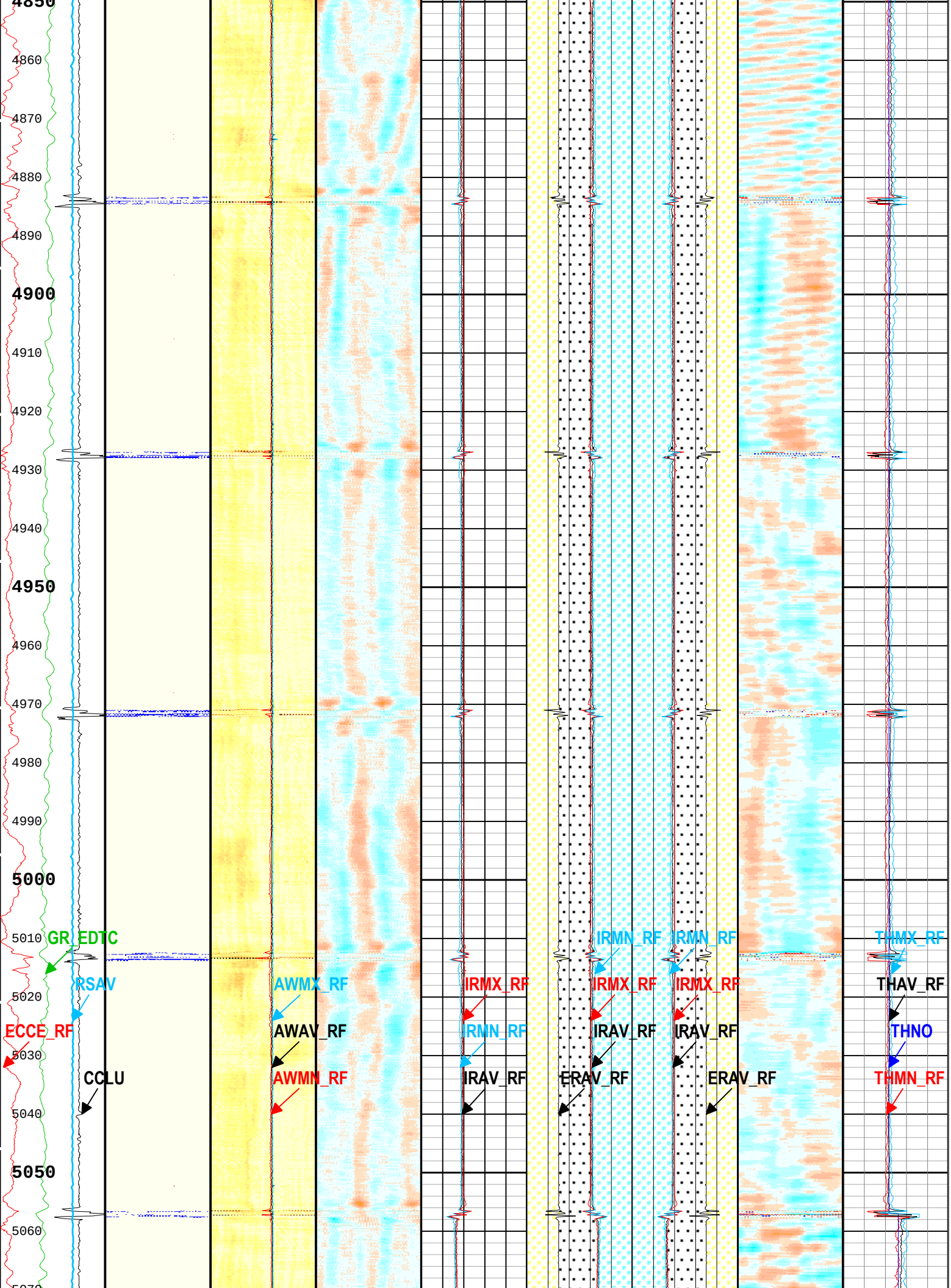
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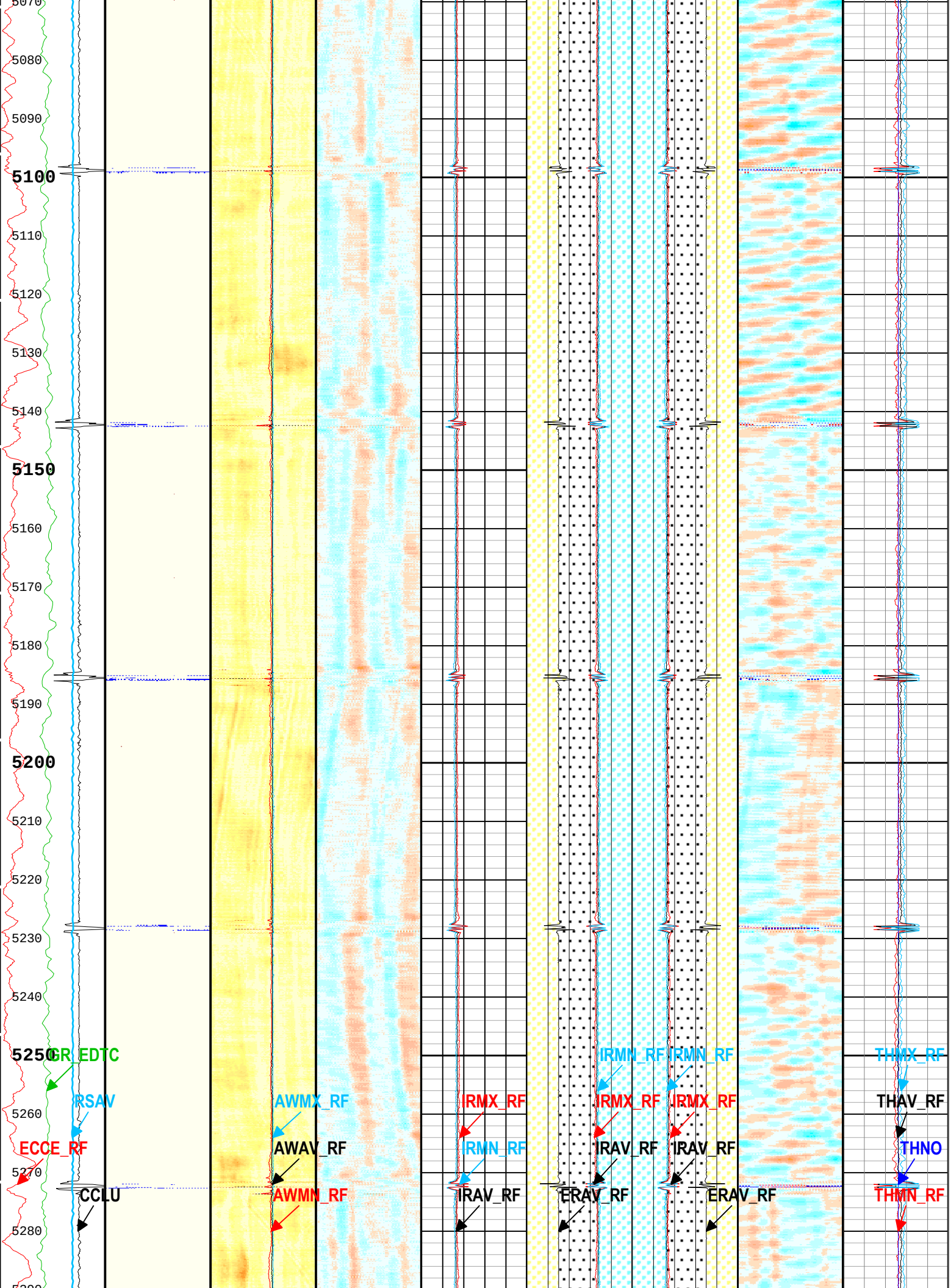
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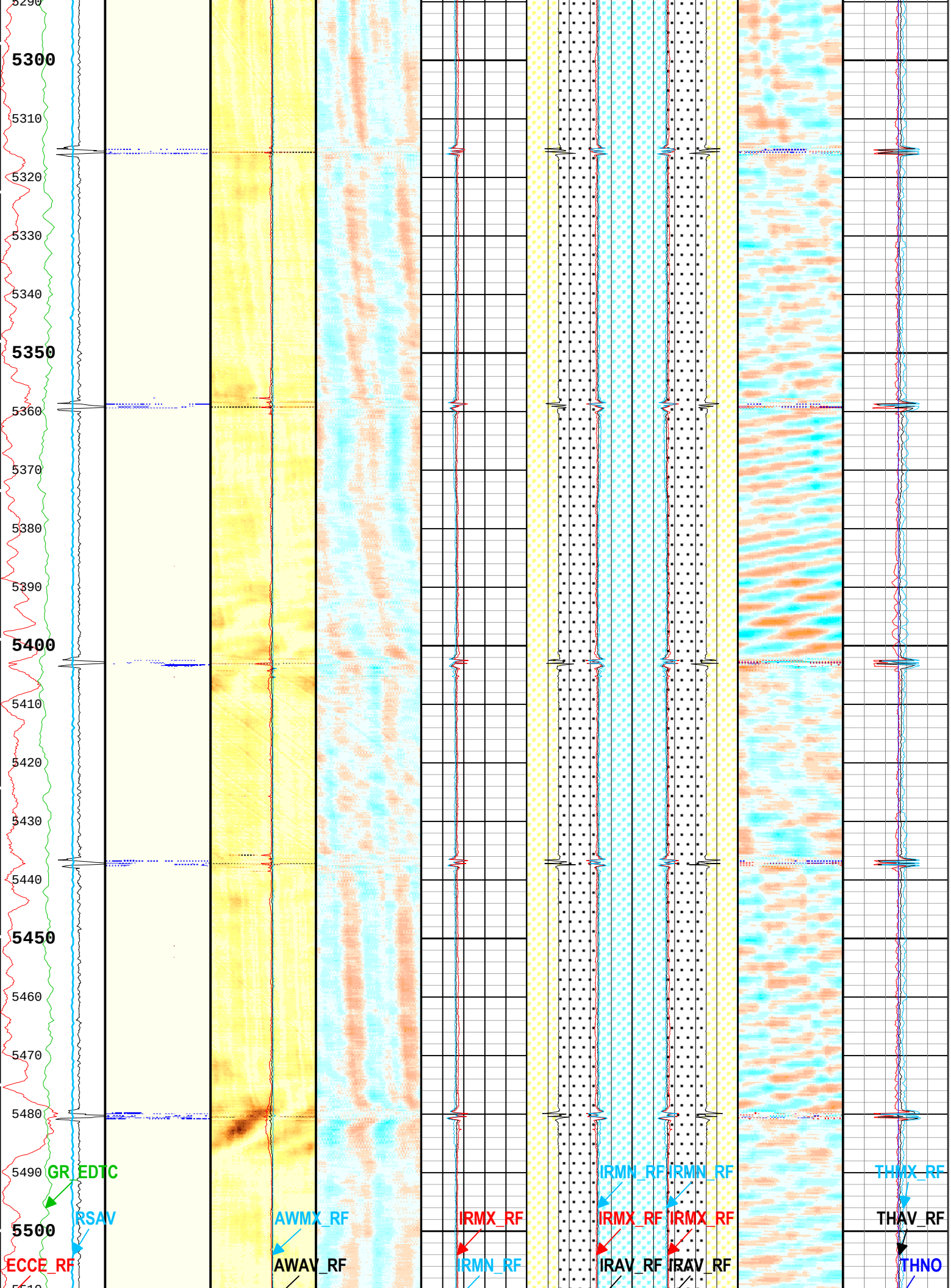
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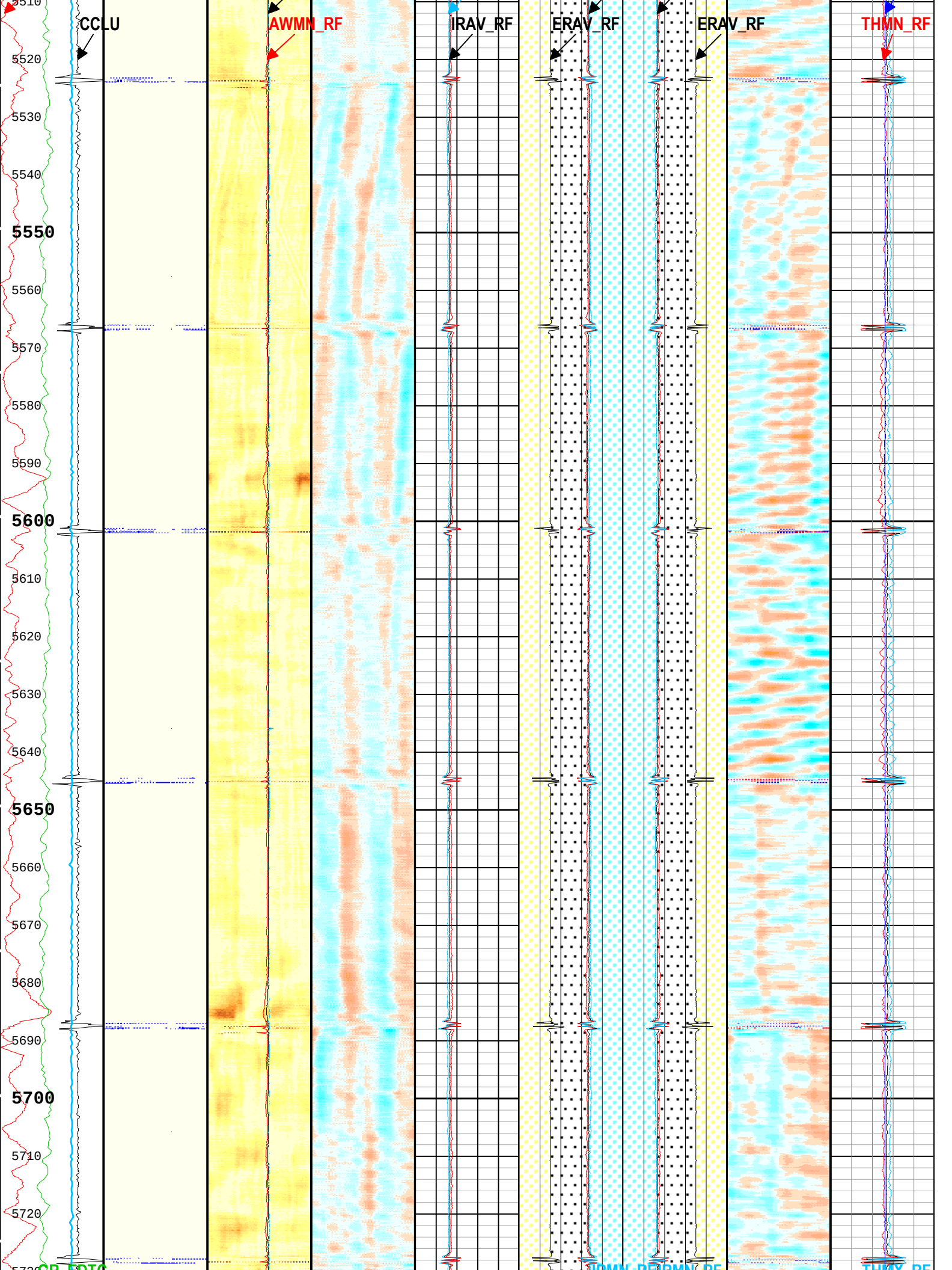
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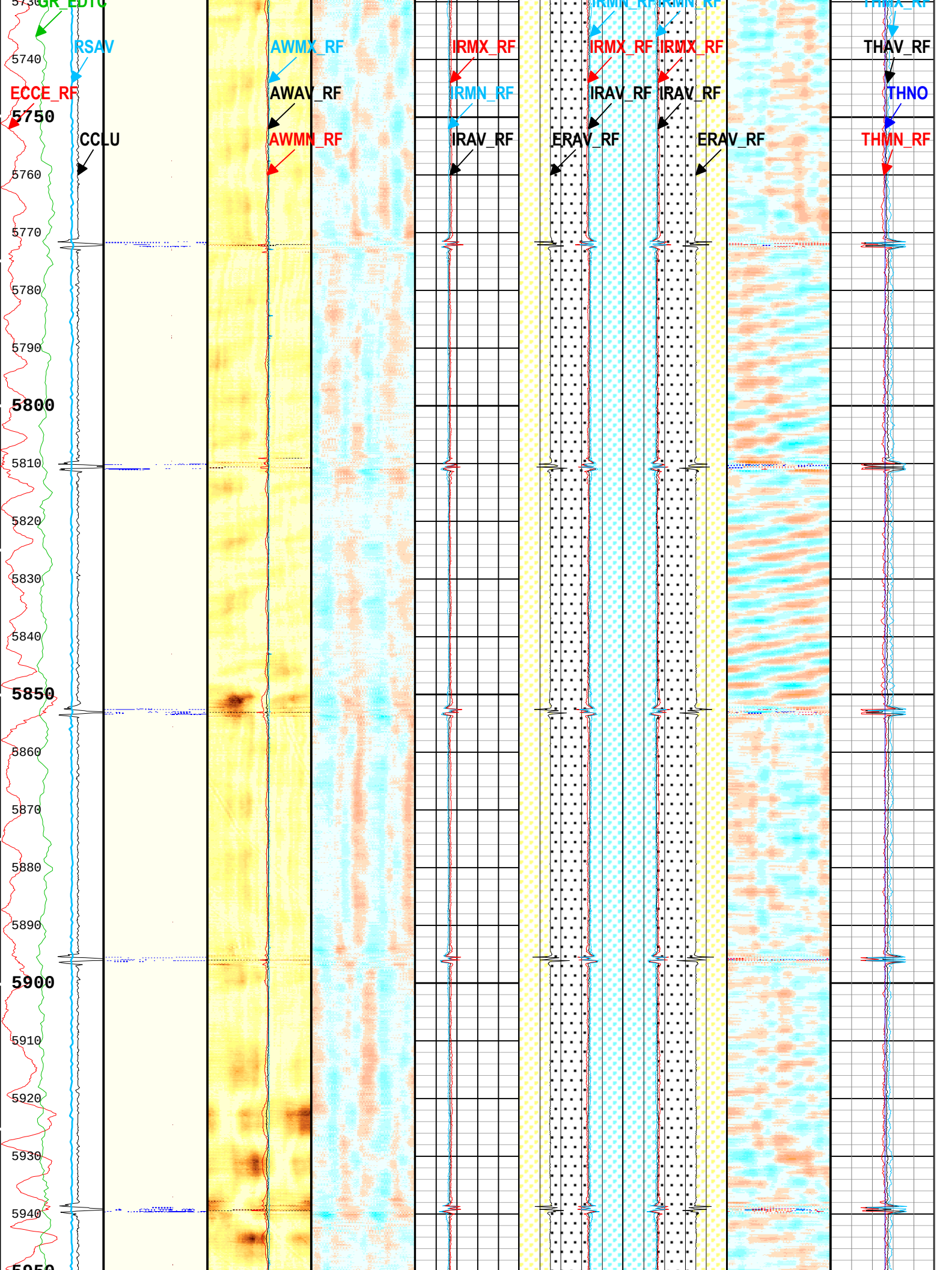
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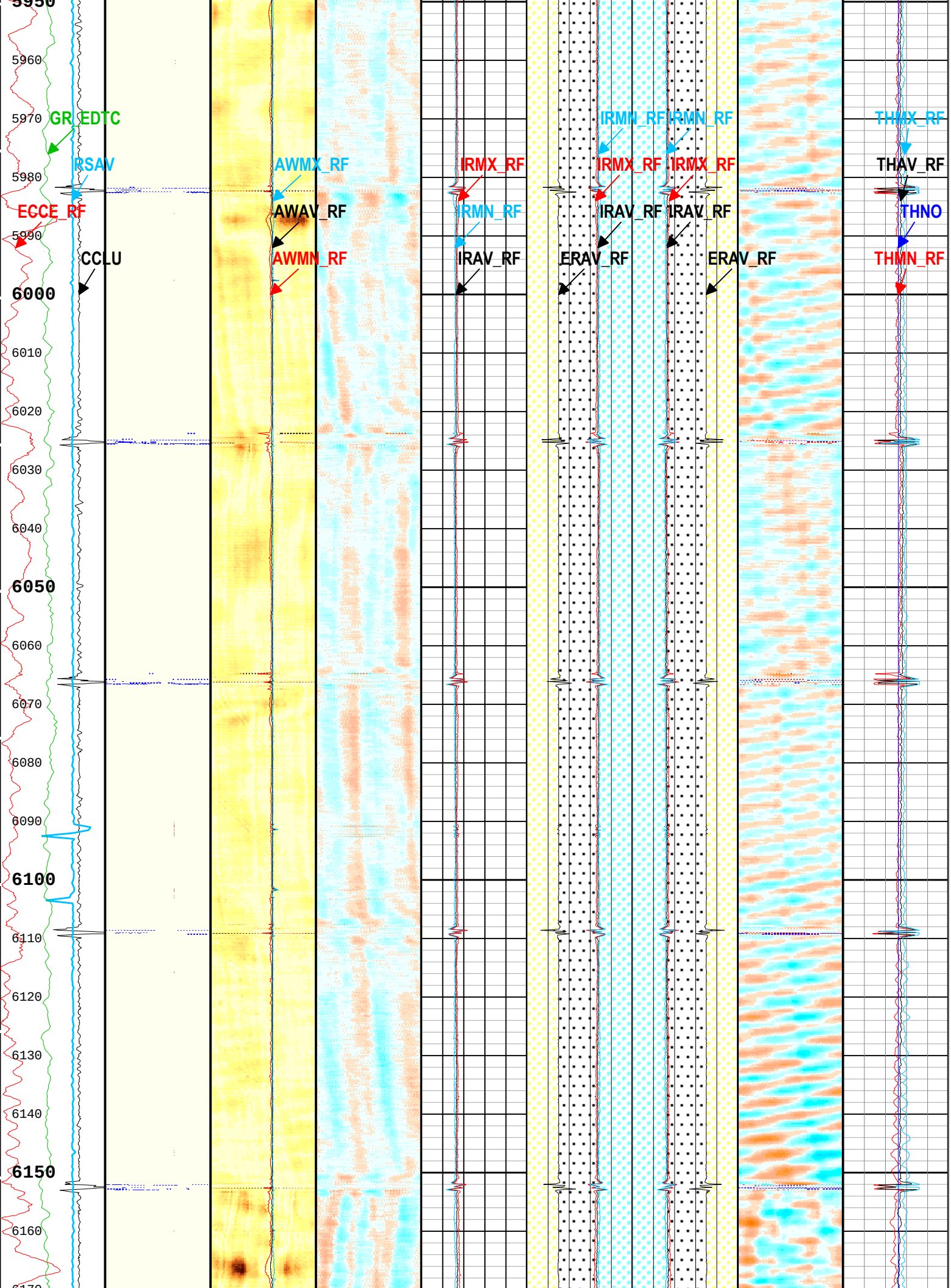
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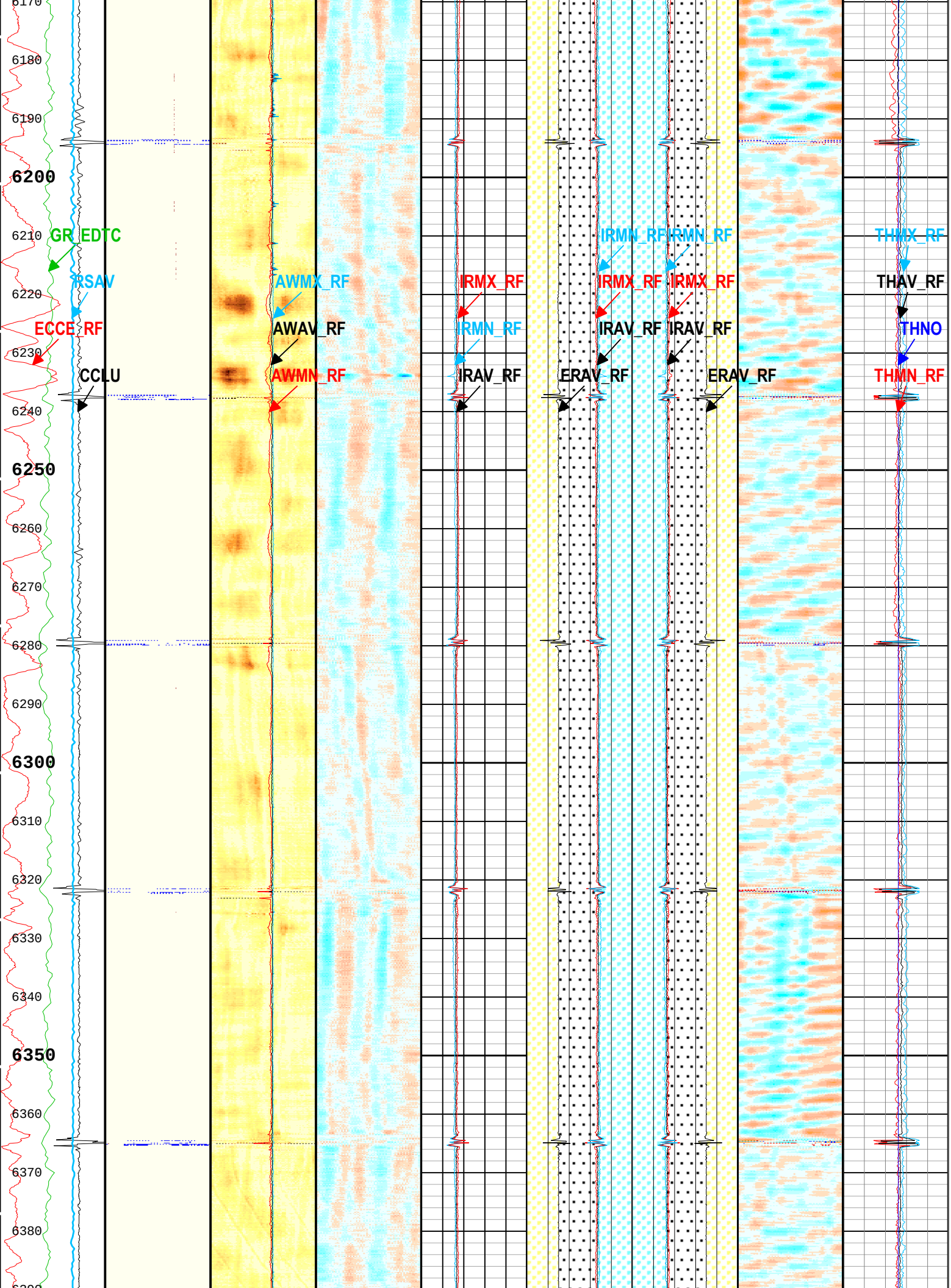
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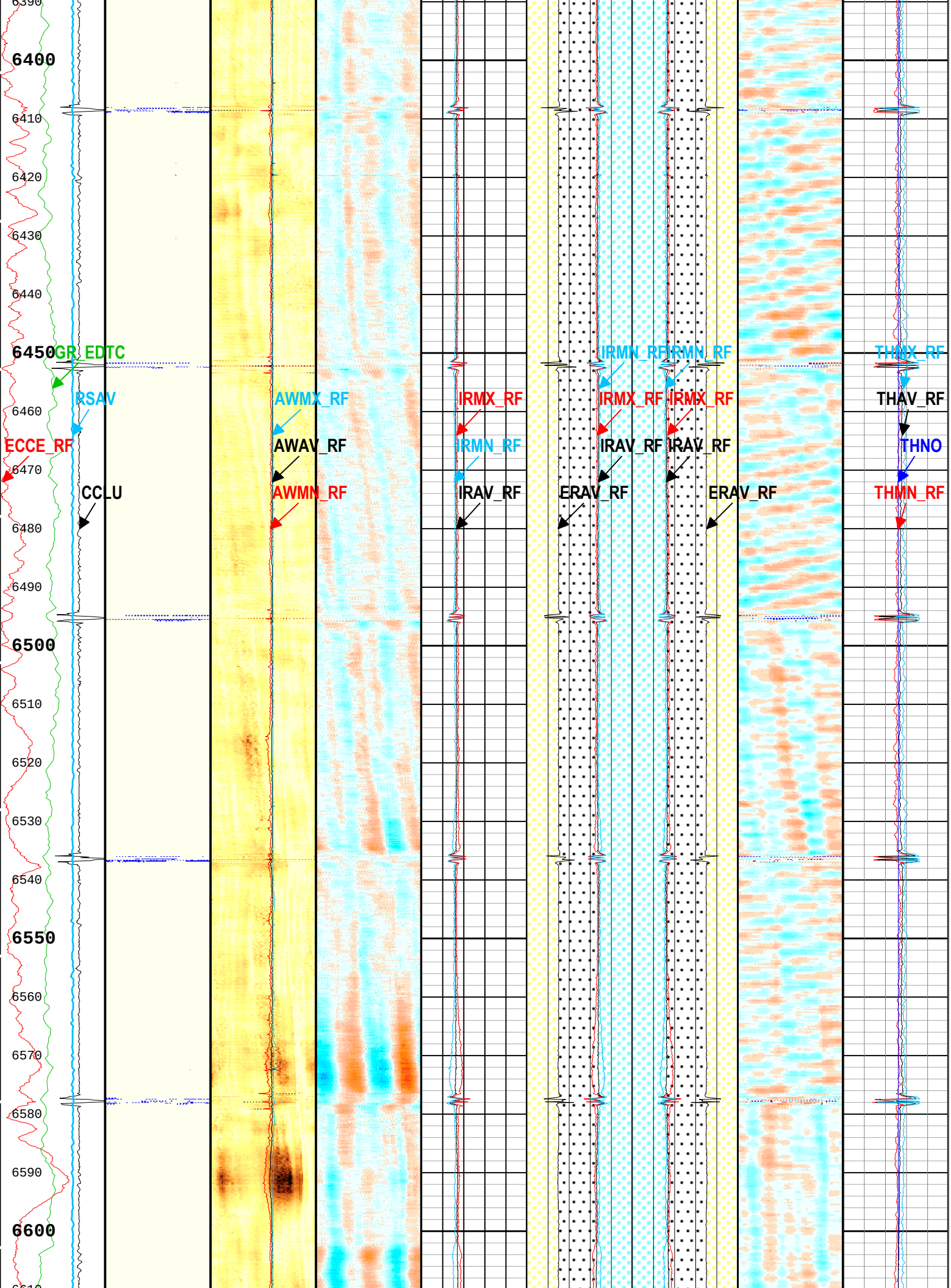
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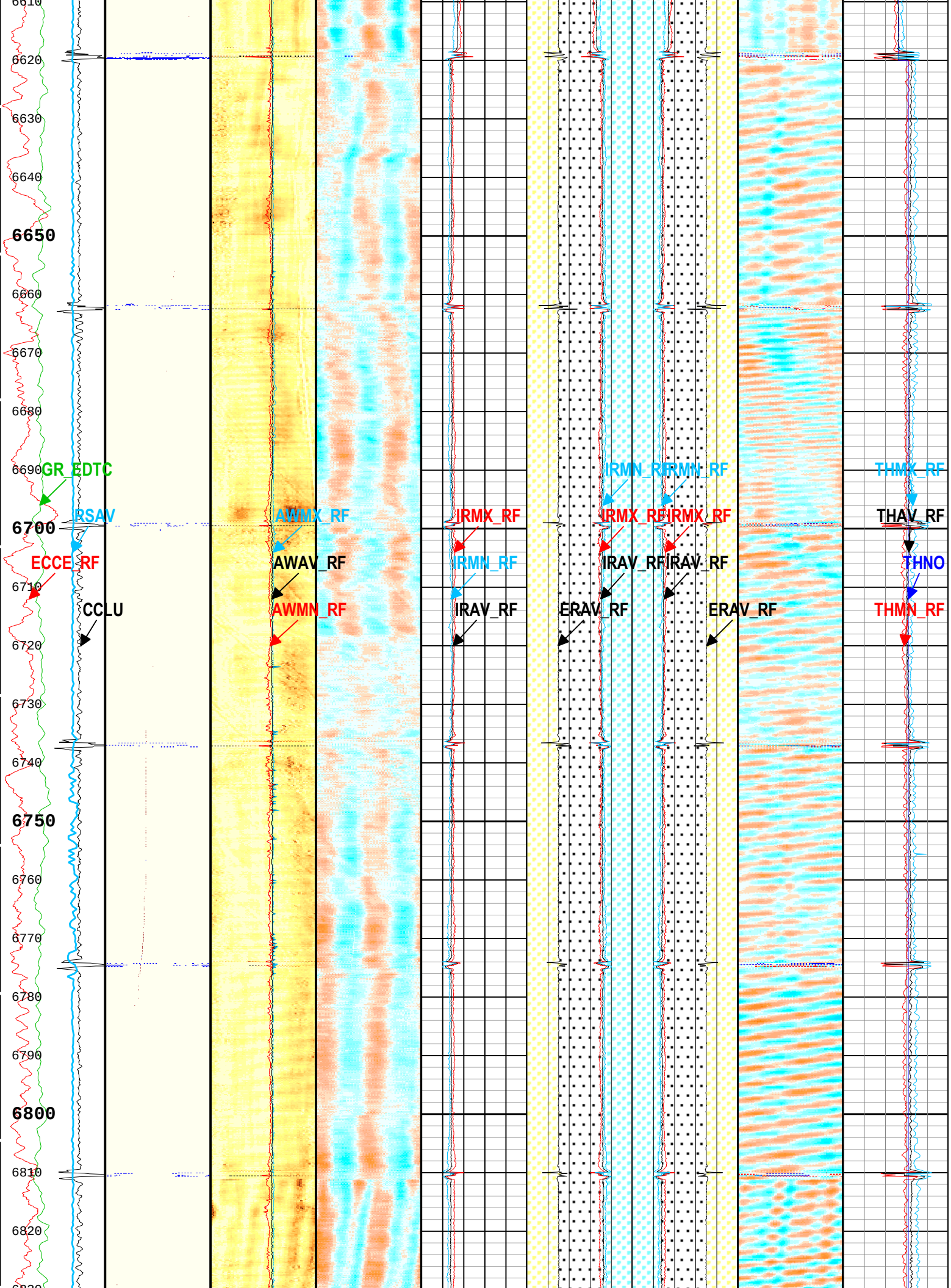
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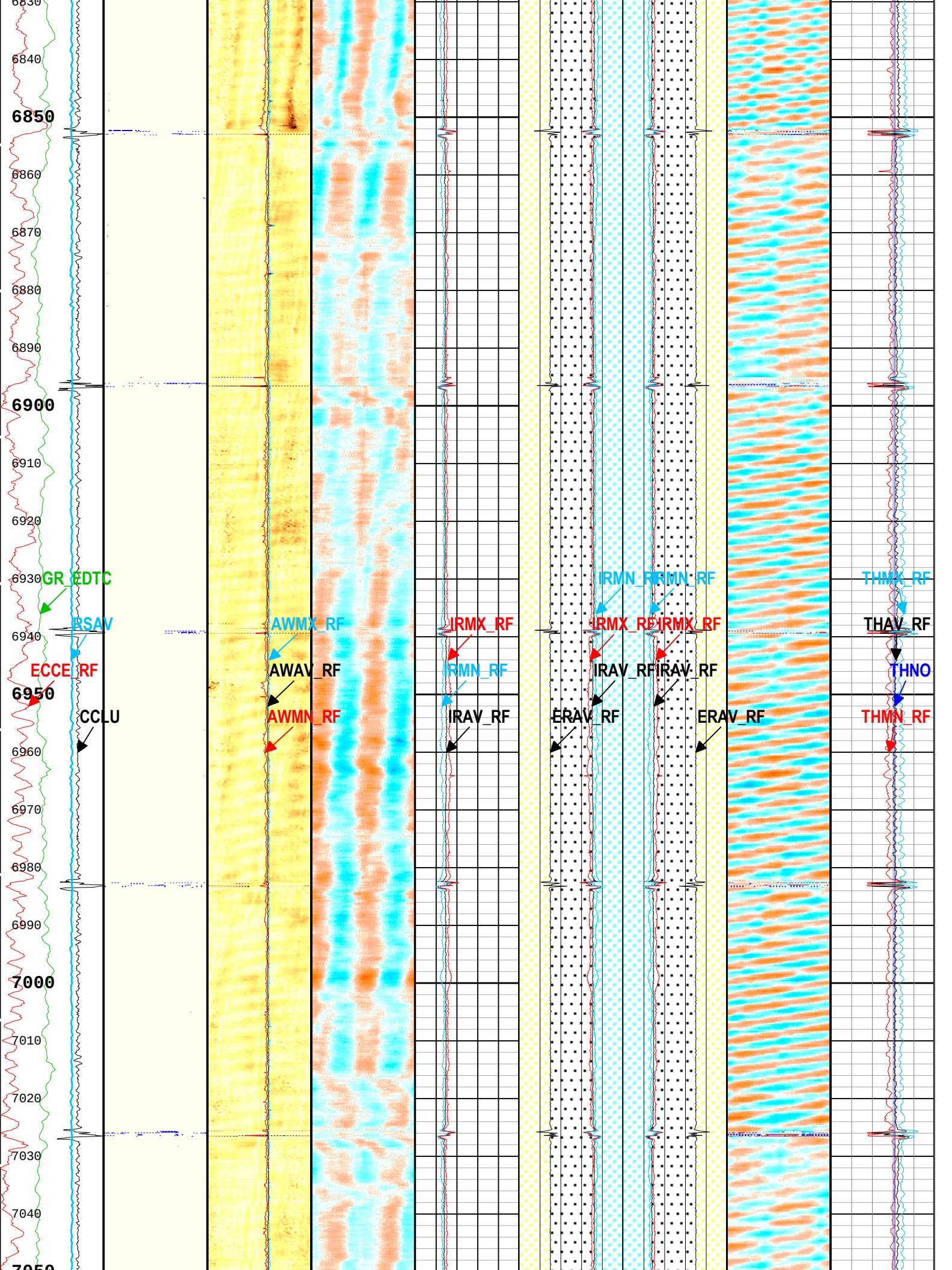
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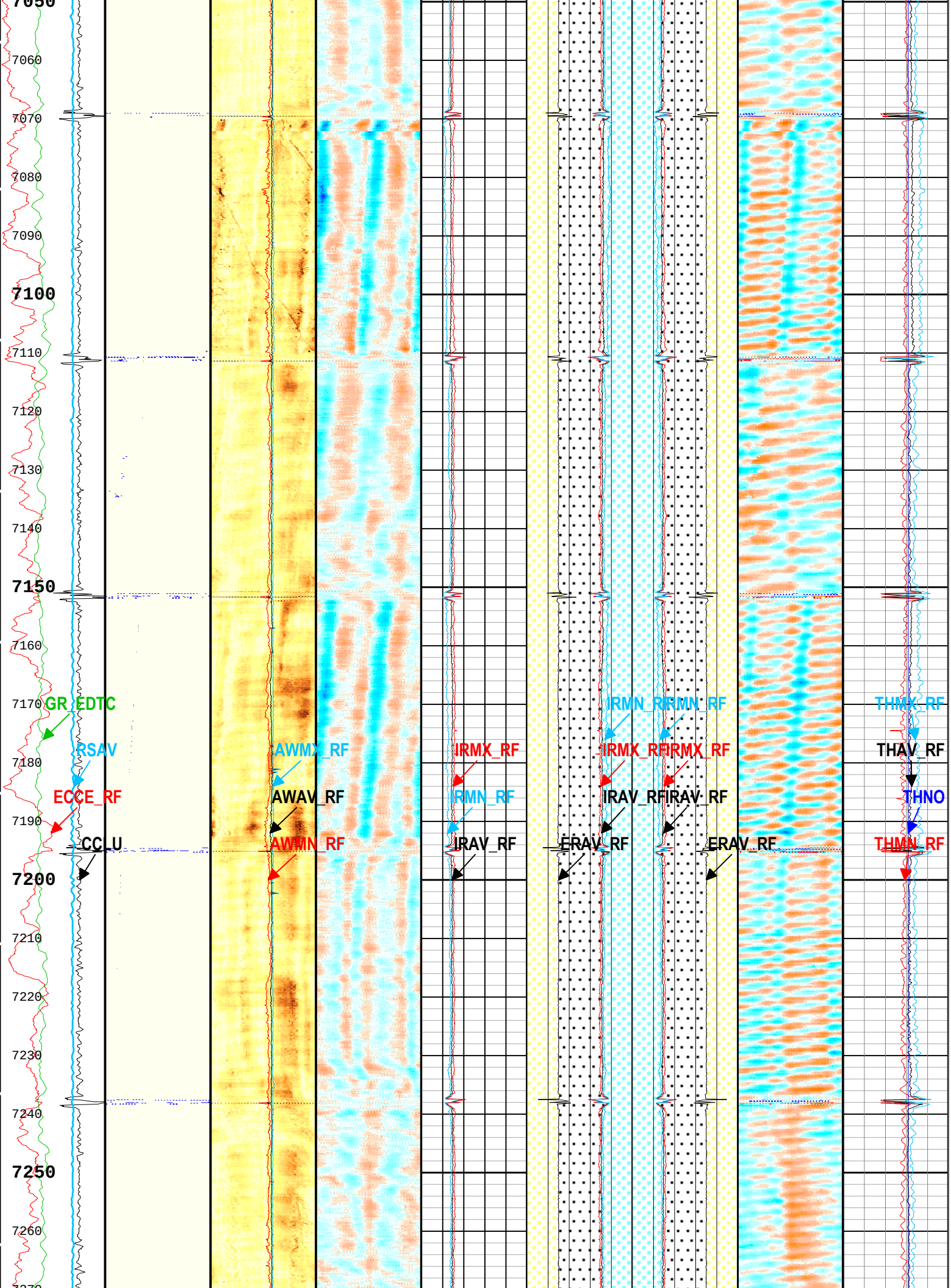
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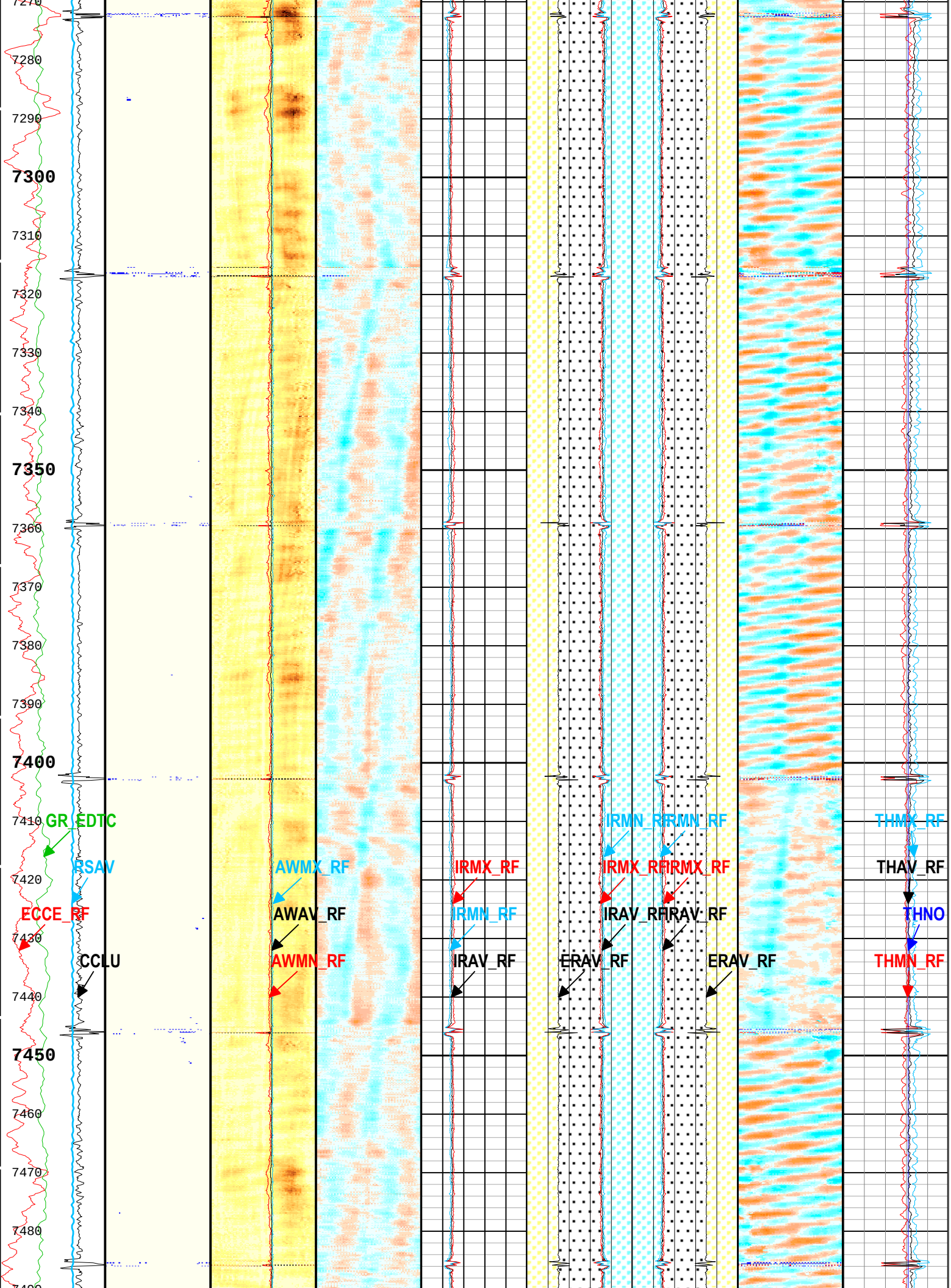
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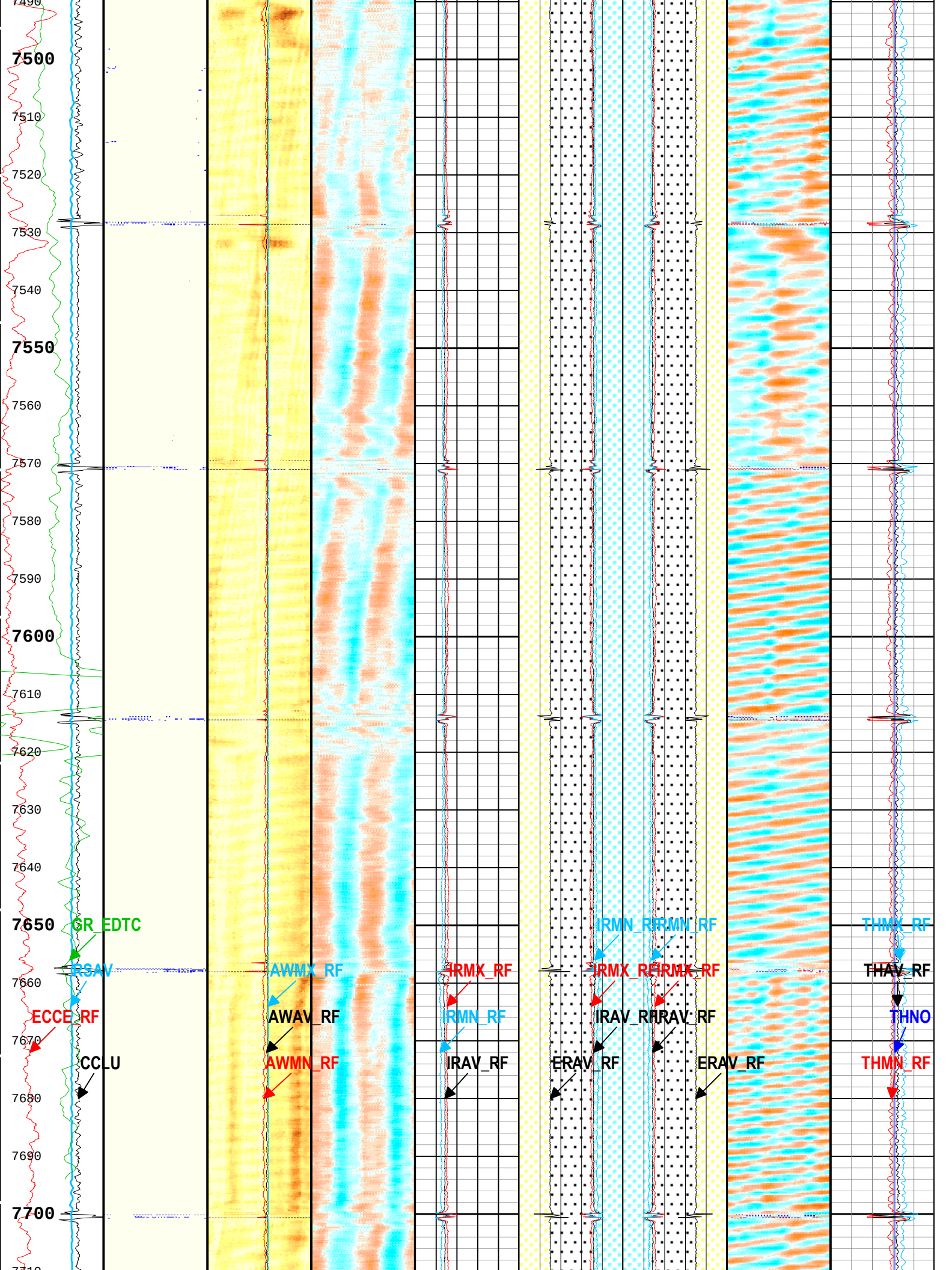
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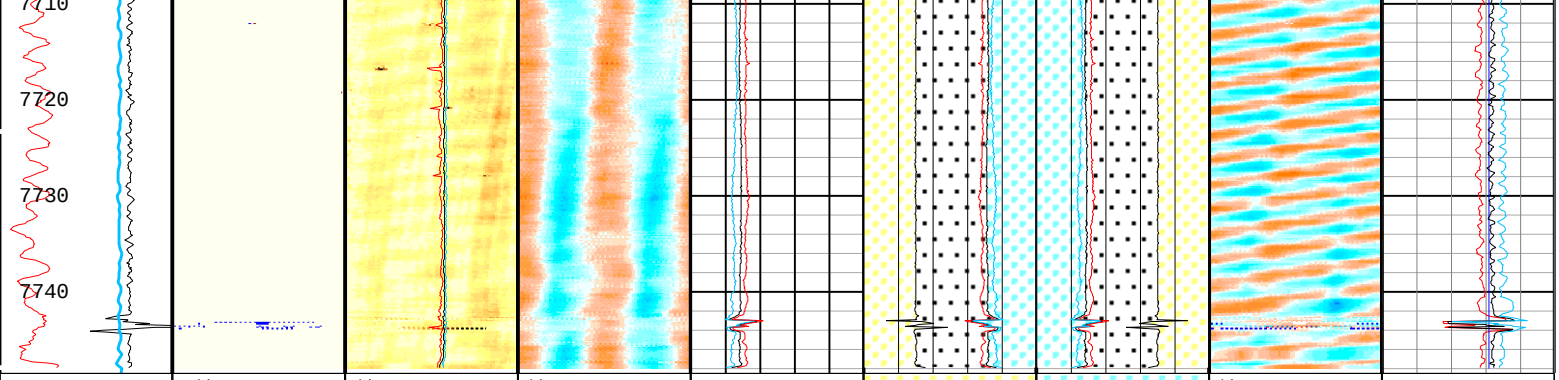


Casing Collar Locator Ultrasonic (CCLU) USIT-E
-30 in 10

Amplitude of Eccentering for Unflagged Waves (ECCE_RF) USIT-E
0 in 0.5

Motor Revolution Speed (RSAV) USIT-E
6 c/s 8

Calibrated Gamma Ray (GR_EDTC) EDTC-B
0 gAPI 150

Absent 1.500 3.500
Explicit Normalization
USIT - USIT Processing Flags (UFLG) USIT-E
Orientation: Top of Hole
U L B R U

USIT Processing Flags (UFLG[0]) USIT-E
1 5

Absent -5.200 -3.600 -2.000 -0.400
Explicit Normalization
USIT - Amplitude of Unflagged Wave (AWBK_RF) USIT-E
(dB)
Orientation: Top of Hole
U L B R U

Minimum of Unflagged Wave Amplitude (AWMN_RF) USIT-E
0 dB 75

Average of Unflagged Wave Amplitude (AWAV_RF) USIT-E
0 dB 75

Maximum of Unflagged Wave Amplitude (AWMX_RF) USIT-E
0 dB 75

Absent -0.059 -0.028 0.004 0.035 0.068
Explicit Normalization
USIT - Unflagged Internal Radii minus Median Internal Radius (IRBKM_RF) USIT-E
(in)
Orientation: Top of Hole
U L B R U

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E
2.8 in 3.8

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
2.8 in 3.8

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
2.8 in 3.8

ERAV
ERAV-IRAV
IRAV

Median of Unflagged External Radii (ERAV_RF) USIT-E
3.8 in 2.8

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E
3.8 in 2.8

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
3.8 in 2.8

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
3.8 in 2.8

IRAV
ERAV
IRAV-ERAV

Median of Unflagged External Radii (ERAV_RF) USIT-E
2.8 in 3.8

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E
2.8 in 3.8

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
2.8 in 3.8

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
2.8 in 3.8

Absent -0.059 -0.028 0.004 0.035 0.068
Explicit Normalization
USIT - Unflagged Casing Thickness minus Median of Unflagged Casing Thickness (THBKM_RF) USIT-E
(in)
Orientation: Top of Hole
U L B R U

Minimum of Unflagged Casing Thickness (THMN_RF) USIT-E
0.1 in 0.6

Nominal Casing Thickness (THNO) USIT-E
0.1 in 0.6

Median of Unflagged Casing Thickness (THAV_RF) USIT-E
0.1 in 0.6

Maximum of Unflagged Casing Thickness (THMX_RF) USIT-E
0.1 in 0.6

TIME_1900 - Time Marked every 60.00 (s)

USIT Processing Flags (UFLG[0]) USIT-E

1 - UFLG 1 Value within [0.0 - 1.5] - :
2 - UFLG 2 Value within [1.5 - 2.5] - :
3 - UFLG 3 Value within [2.5 - 3.5] - :
4 - UFLG 4 UFLG 5 UFLG 6 Value within [3.5 - 6.5] - :
5 - UFLG 7 UFLG 8 UFLG 9 Value within [6.5 - 10] - :

- UTIM Error
- Pulse Origin Not Detected
- WINLEN Error
- Casing Thickness Error
- Loop Processing Error

Description: USI Composite Format: Log (LBV1_USI Corrosion 9.625inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth
Creation Date: 23-Jan-2016 06:57:25

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[3]:Up	Up	16.71 ft	7748.81 ft	22-Jan-2016 8:47:51 AM	22-Jan-2016 2:03:15 PM	ON	2.00 ft	Yes

All depths are referenced to toolstring zero

Log

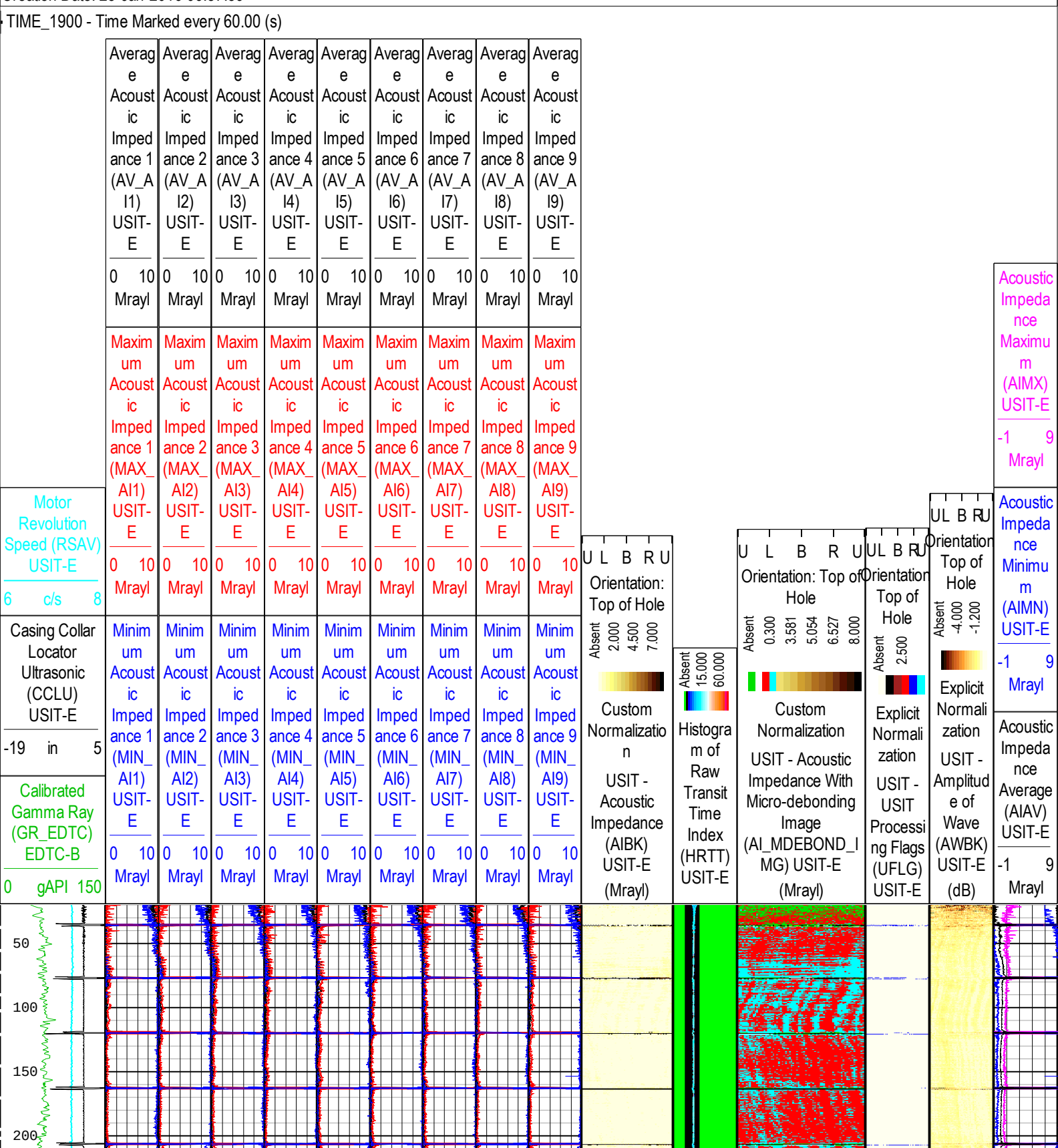
Company:Southern California Gas Company Well:Porter 35

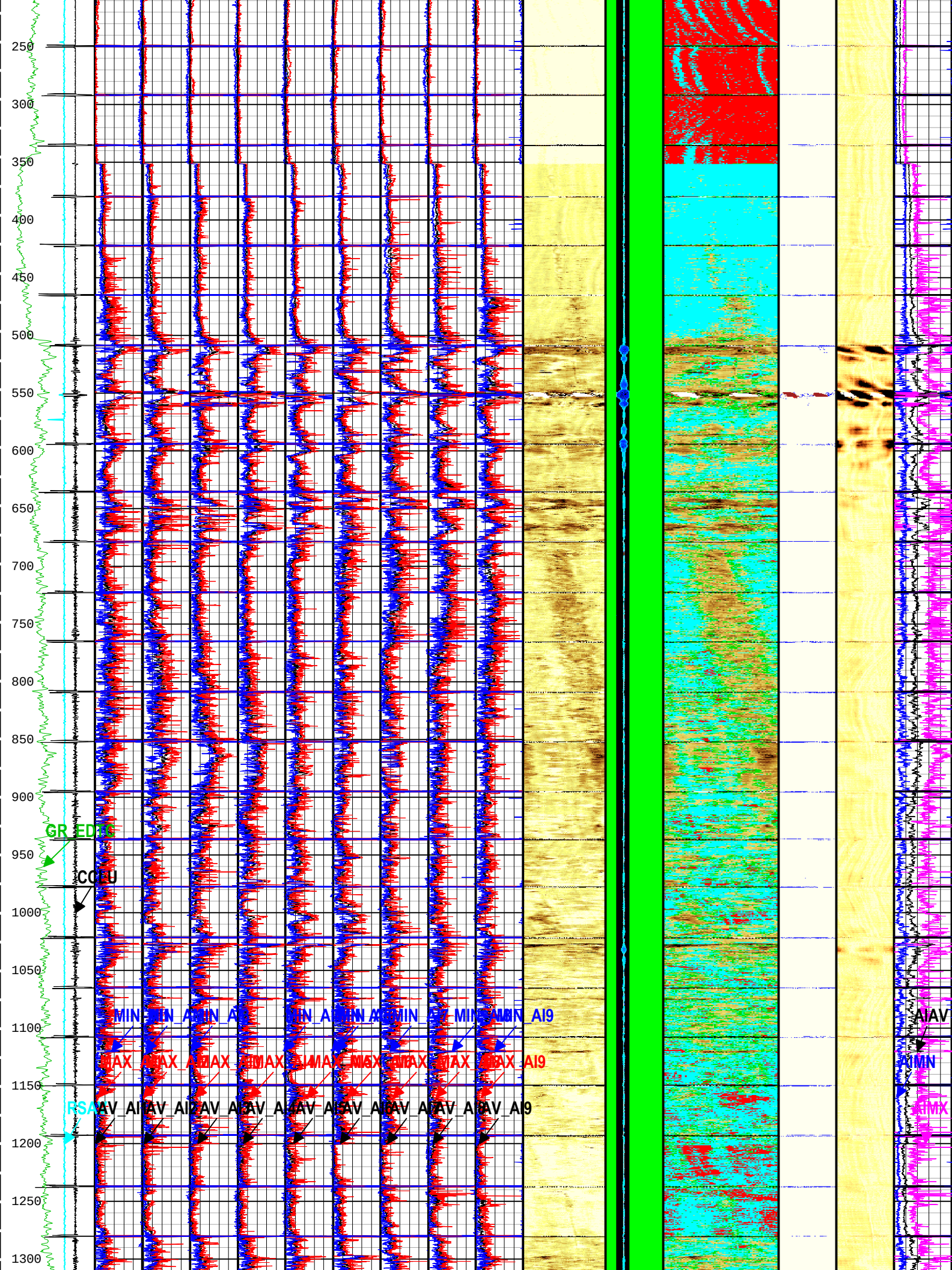
One: Log[3]:Up:S008

Description: USI Goodwin Format: Log (LBV1_Long Beach Custom Goodwin) Index Scale: 1 in per 100 ft Index Unit: ft Index Type: Measured Depth

Creation Date: 23-Jan-2016 06:57:39

TIME_1900 - Time Marked every 60.00 (s)

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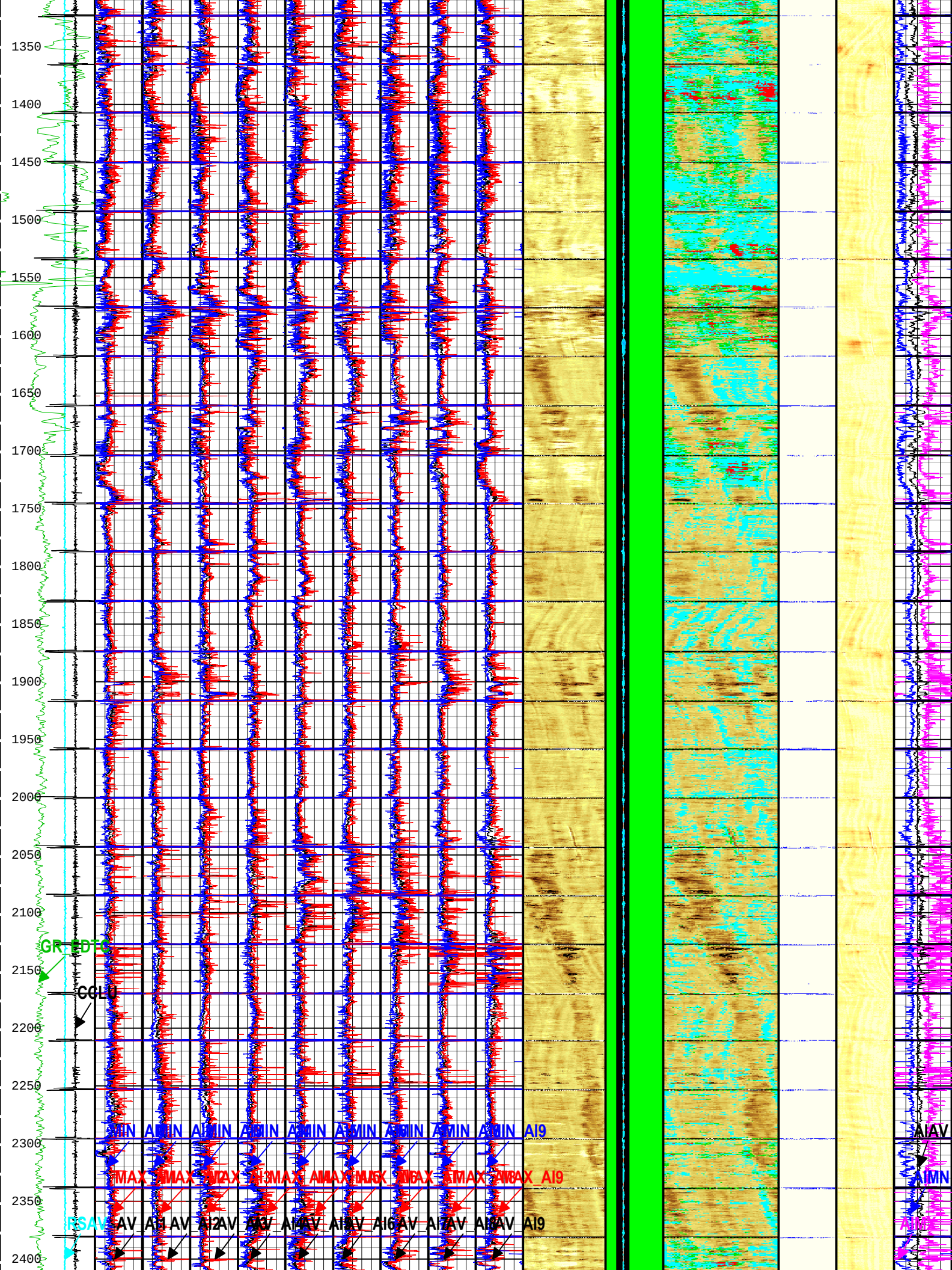
AIMX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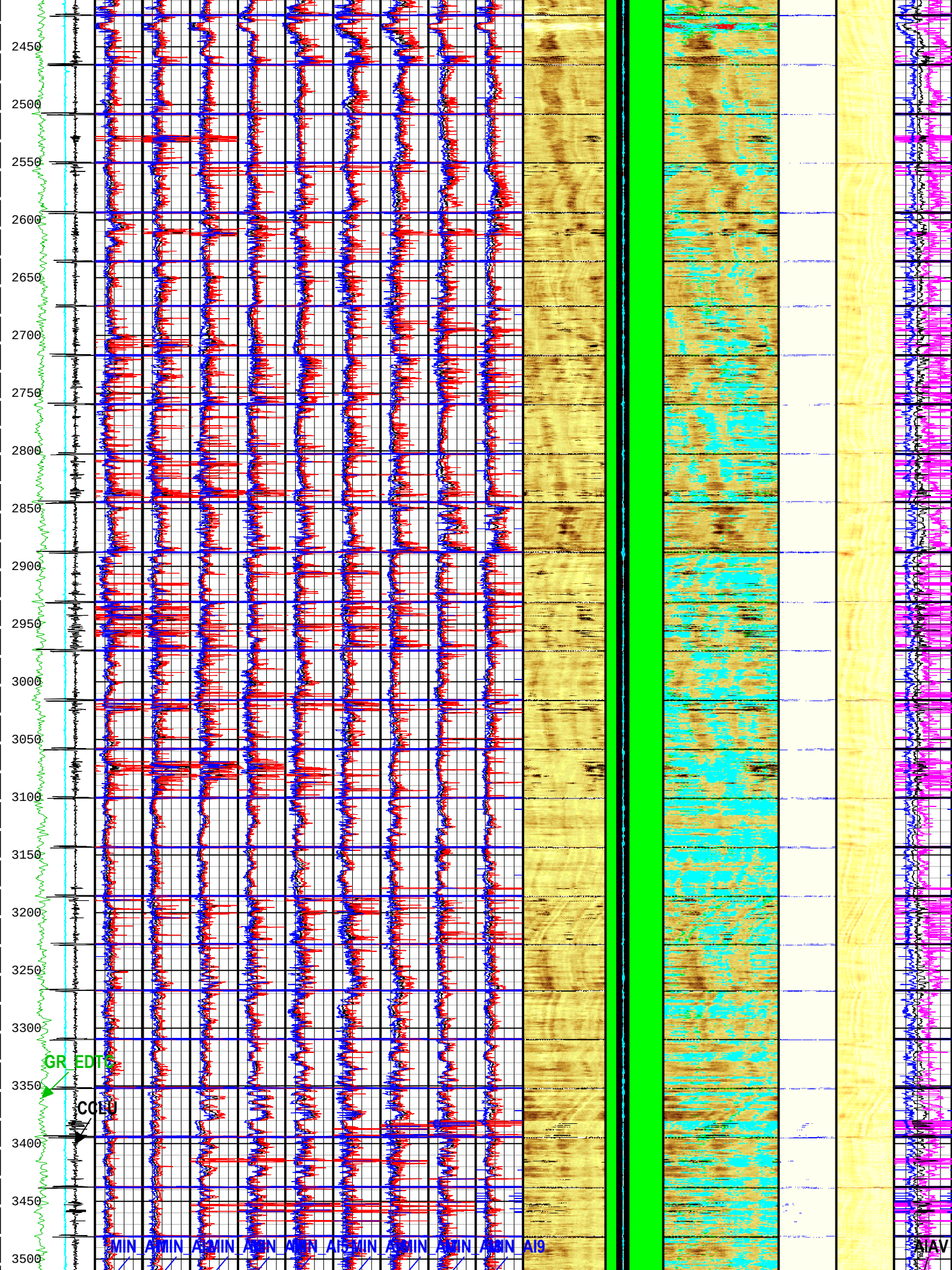
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GR_EDTC
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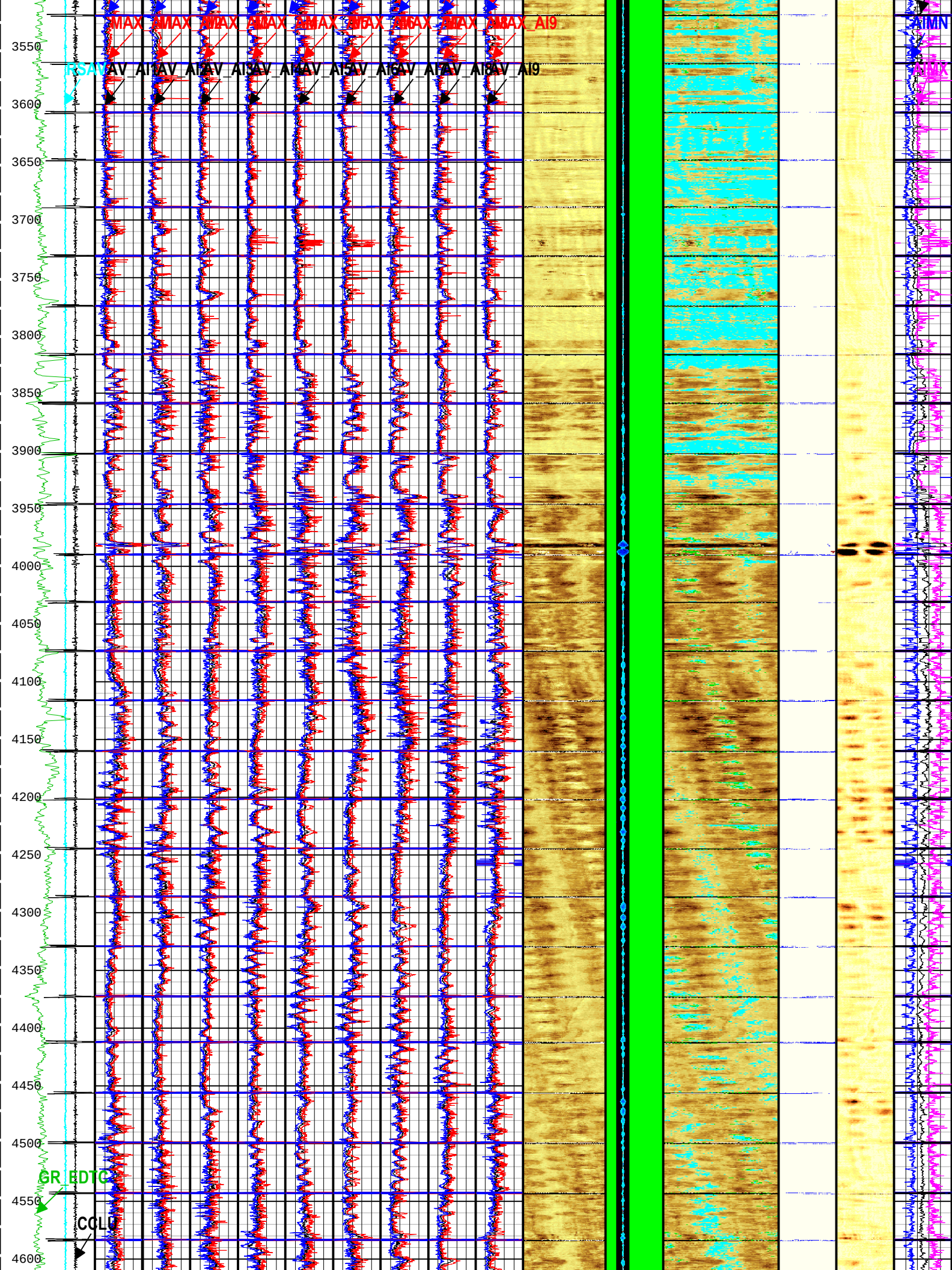
MIN
AI9
AIAV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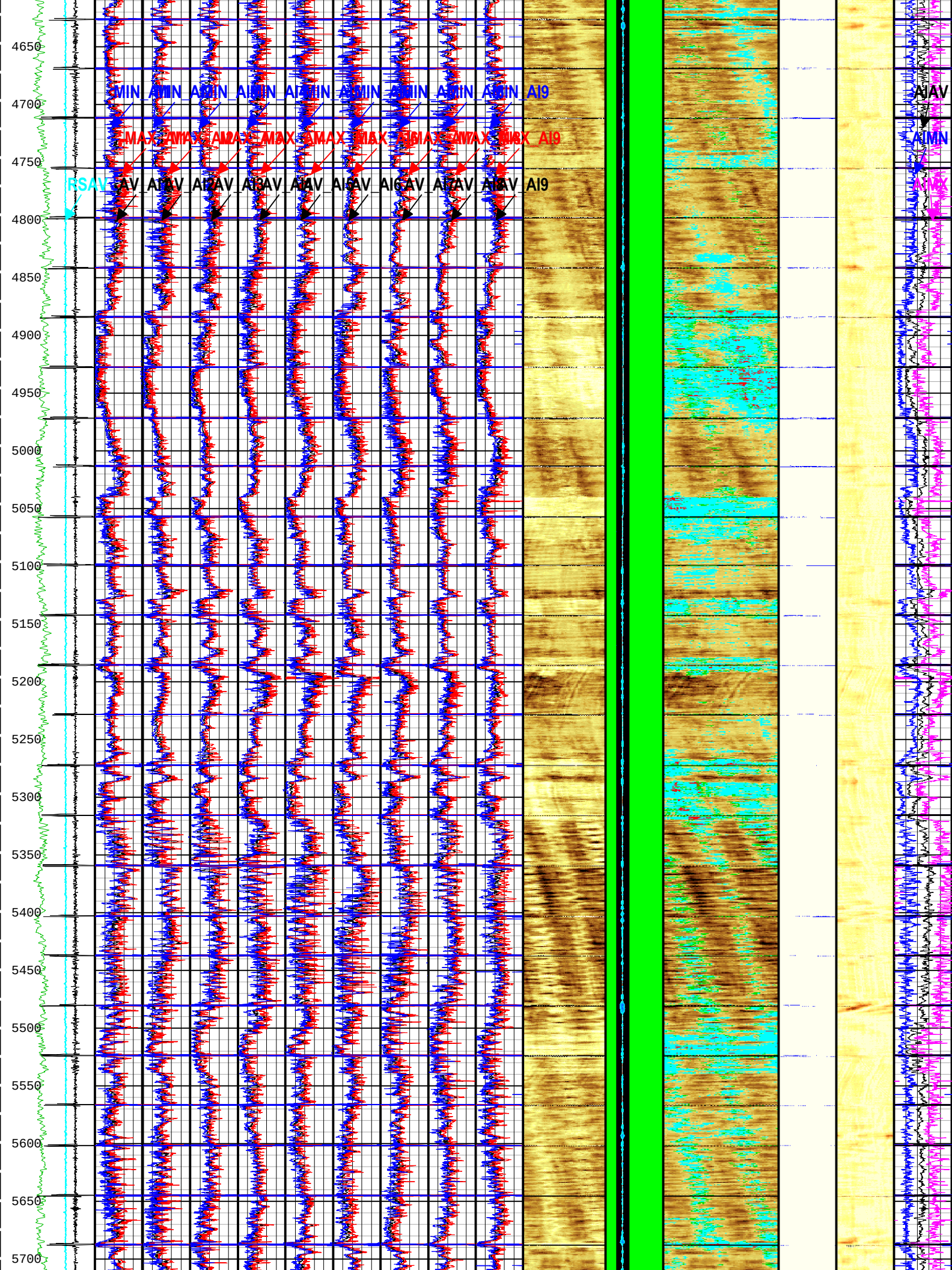
CCLD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AI9
AIAV
AIMN
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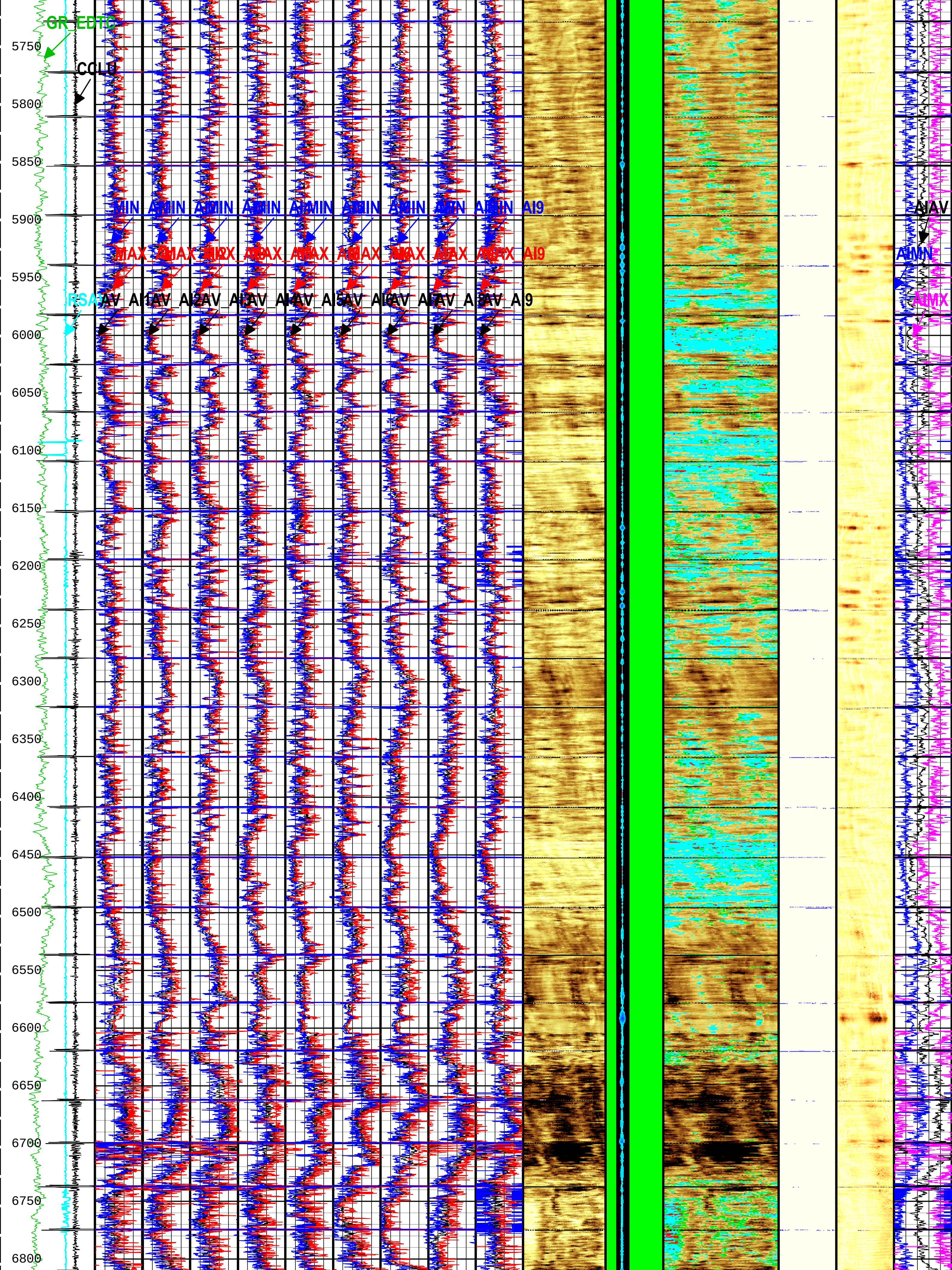
RSAV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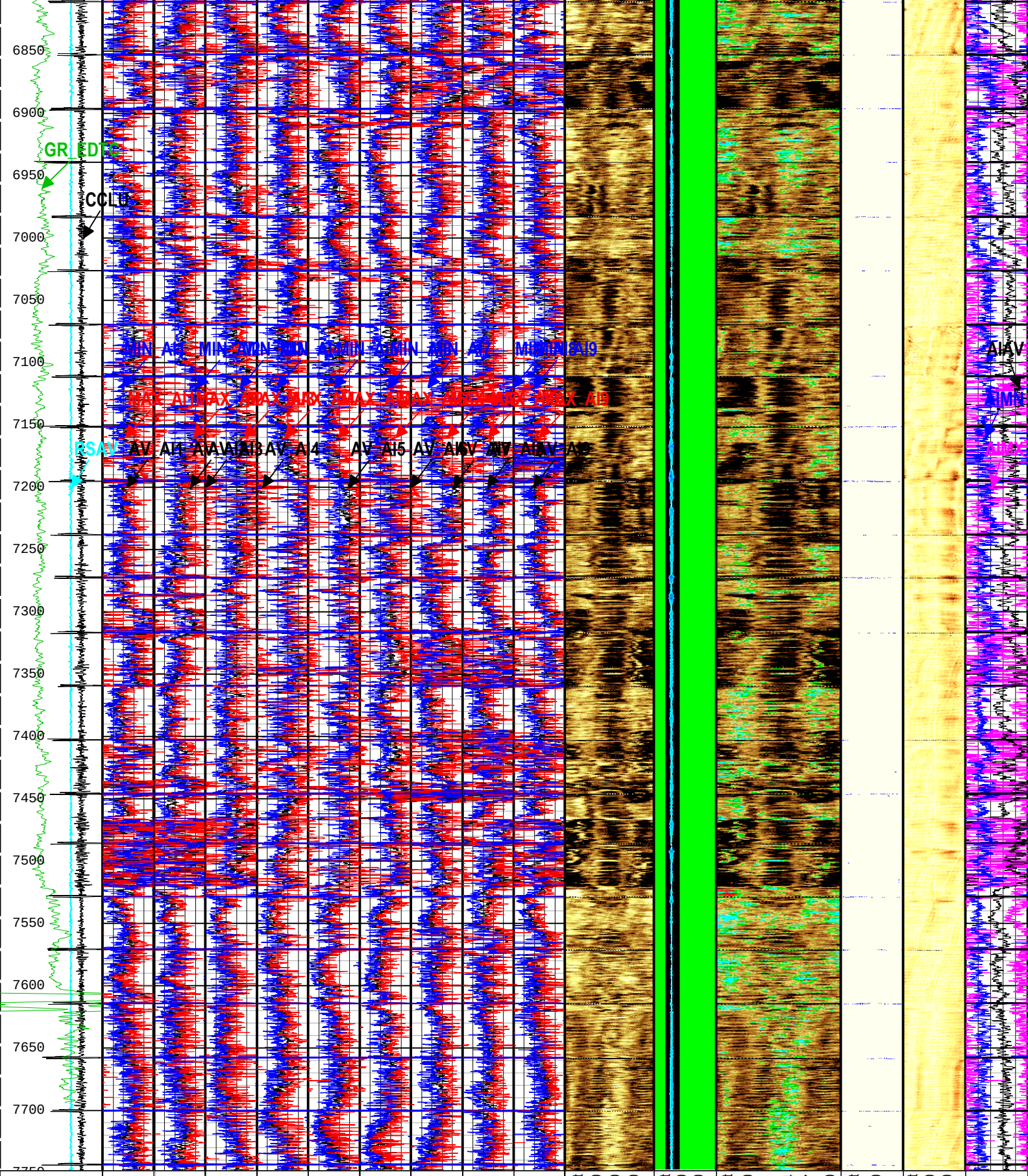


Motor Revolution Speed (RSAV) USIT-E 6 c/s 8	Casing Collar Locator Ultrasonic (CCLU)	Average Acoustic Impedance 1 (AV_AI1) USIT-E	Average Acoustic Impedance 2 (AV_AI2) USIT-E	Average Acoustic Impedance 3 (AV_AI3) USIT-E	Average Acoustic Impedance 4 (AV_AI4) USIT-E	Average Acoustic Impedance 5 (AV_AI5) USIT-E	Average Acoustic Impedance 6 (AV_AI6) USIT-E	Average Acoustic Impedance 7 (AV_AI7) USIT-E	Average Acoustic Impedance 8 (AV_AI8) USIT-E	Average Acoustic Impedance 9 (AV_AI9) USIT-E	Absent 2.000 4.500 7.000 Custom Normalization USIT - Acoustic Impedance	Absent 15.000 60.000 Histogram of Raw Transit Time Index (UPTT)	Absent 0.300 3.581 5.054 6.527 8.000 Custom Normalization USIT - Acoustic Impedance With Micro-debonding	Absent 2.500 Explicit Normalization USIT - USIT Processi	Absent -4.000 -1.200 Explicit Normalization USIT - Amplitude of	Acoustic Impedance Maximum (AIMX) USIT-E -1 9 Mrayl

(CCLU) USIT-E
-19 in 5

Calibrated Gamma Ray (GR_EDTC) EDTC-B
0 gAPI 150

0 10 Mrayl	0 10 Mrayl	0 10 Mrayl	0 10 Mrayl	0 10 Mrayl	0 10 Mrayl	0 10 Mrayl	0 10 Mrayl	0 10 Mrayl
Maximum Acoustic Impedance 1 (MAX_AI1) USIT-E 0 10 Mrayl	Maximum Acoustic Impedance 2 (MAX_AI2) USIT-E 0 10 Mrayl	Maximum Acoustic Impedance 3 (MAX_AI3) USIT-E 0 10 Mrayl	Maximum Acoustic Impedance 4 (MAX_AI4) USIT-E 0 10 Mrayl	Maximum Acoustic Impedance 5 (MAX_AI5) USIT-E 0 10 Mrayl	Maximum Acoustic Impedance 6 (MAX_AI6) USIT-E 0 10 Mrayl	Maximum Acoustic Impedance 7 (MAX_AI7) USIT-E 0 10 Mrayl	Maximum Acoustic Impedance 8 (MAX_AI8) USIT-E 0 10 Mrayl	Maximum Acoustic Impedance 9 (MAX_AI9) USIT-E 0 10 Mrayl
Minimum Acoustic Impedance 1 (MIN_AI1) USIT-E 0 10 Mrayl	Minimum Acoustic Impedance 2 (MIN_AI2) USIT-E 0 10 Mrayl	Minimum Acoustic Impedance 3 (MIN_AI3) USIT-E 0 10 Mrayl	Minimum Acoustic Impedance 4 (MIN_AI4) USIT-E 0 10 Mrayl	Minimum Acoustic Impedance 5 (MIN_AI5) USIT-E 0 10 Mrayl	Minimum Acoustic Impedance 6 (MIN_AI6) USIT-E 0 10 Mrayl	Minimum Acoustic Impedance 7 (MIN_AI7) USIT-E 0 10 Mrayl	Minimum Acoustic Impedance 8 (MIN_AI8) USIT-E 0 10 Mrayl	Minimum Acoustic Impedance 9 (MIN_AI9) USIT-E 0 10 Mrayl

Impedance (AIBK) USIT-E (Mrayl) Orientation: Top of Hole U L B R U

(HRTT) USIT-E

Image (AI_MDEBOND_IMG) USIT-E (Mrayl) Orientation: Top of Hole U L B R U

ng Flags (UFLG) USIT-E Orientation Top of Hole UL B RU

e or Wave (AWBK) USIT-E (dB) Orientation Top of Hole UL B RU

Acoustic Impedance Minimum (AIMN) USIT-E
-1 9 Mrayl

Acoustic Impedance Average (AIAV) USIT-E
-1 9 Mrayl

TIME_1900 - Time Marked every 60.00 (s)

Description: USI Goodwin Format: Log (LBV1_Long Beach Custom Goodwin) Index Scale: 1 in per 100 ft Index Unit: ft Index Type: Measured Depth
Creation Date: 23-Jan-2016 06:57:39

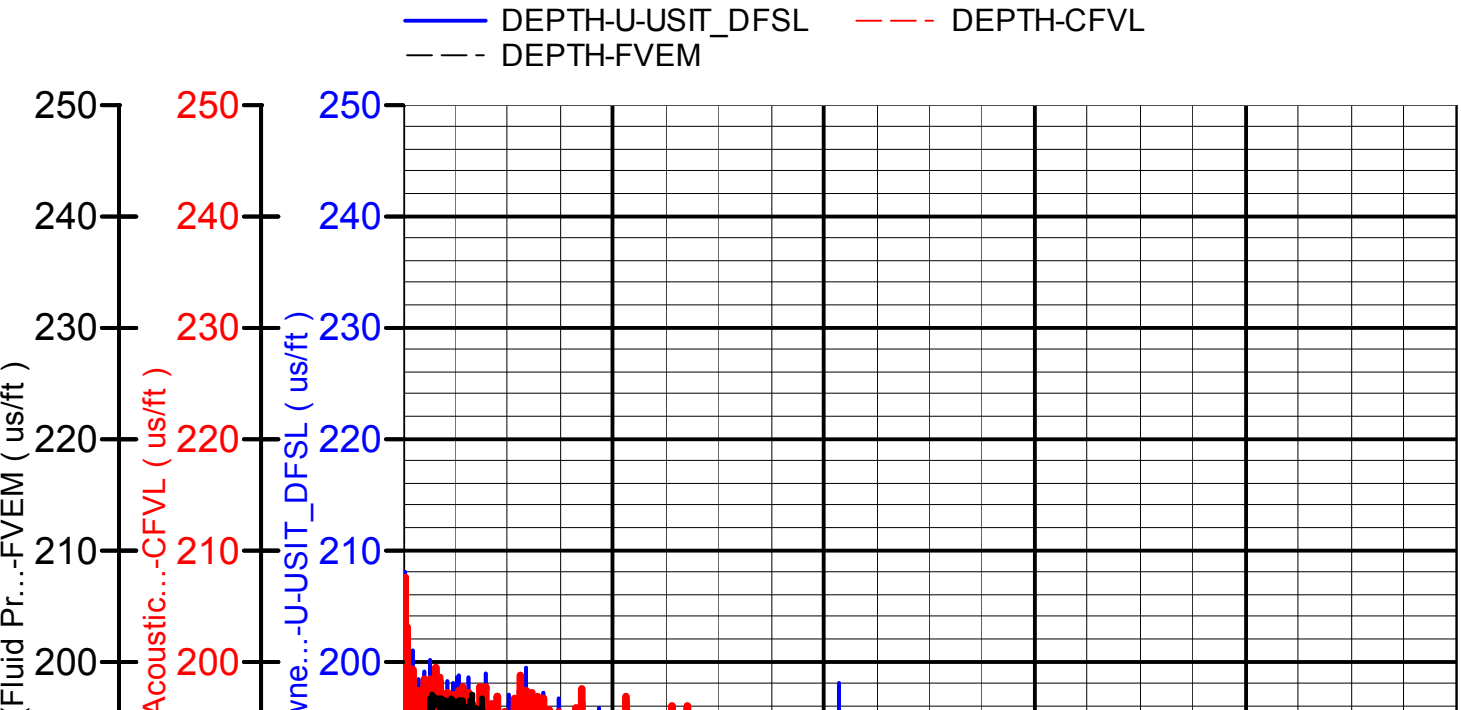
XYZ

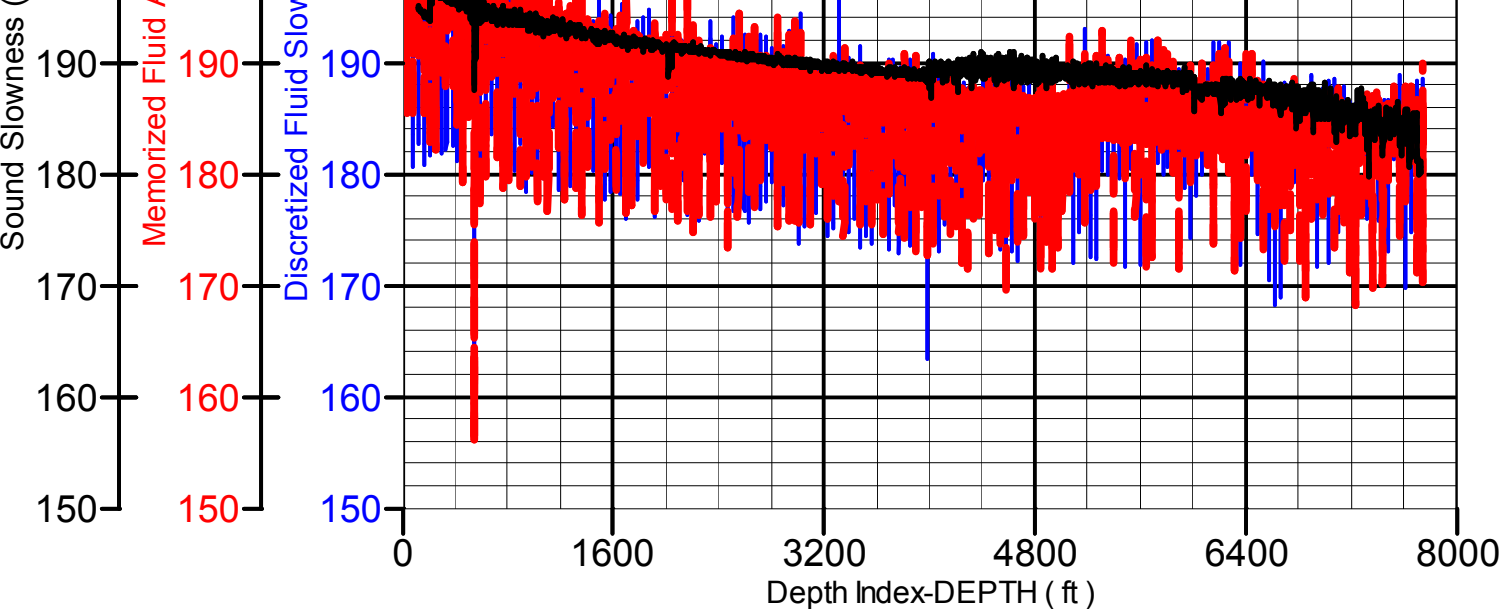
Company:Southern California Gas Company Well:Porter 35
FPM plus MAIN:S008

Fluid Acoustic Slowness vs Depth

2D Cross Plot

Index Range: From 16.37 to 7749.00 ft





XYZ

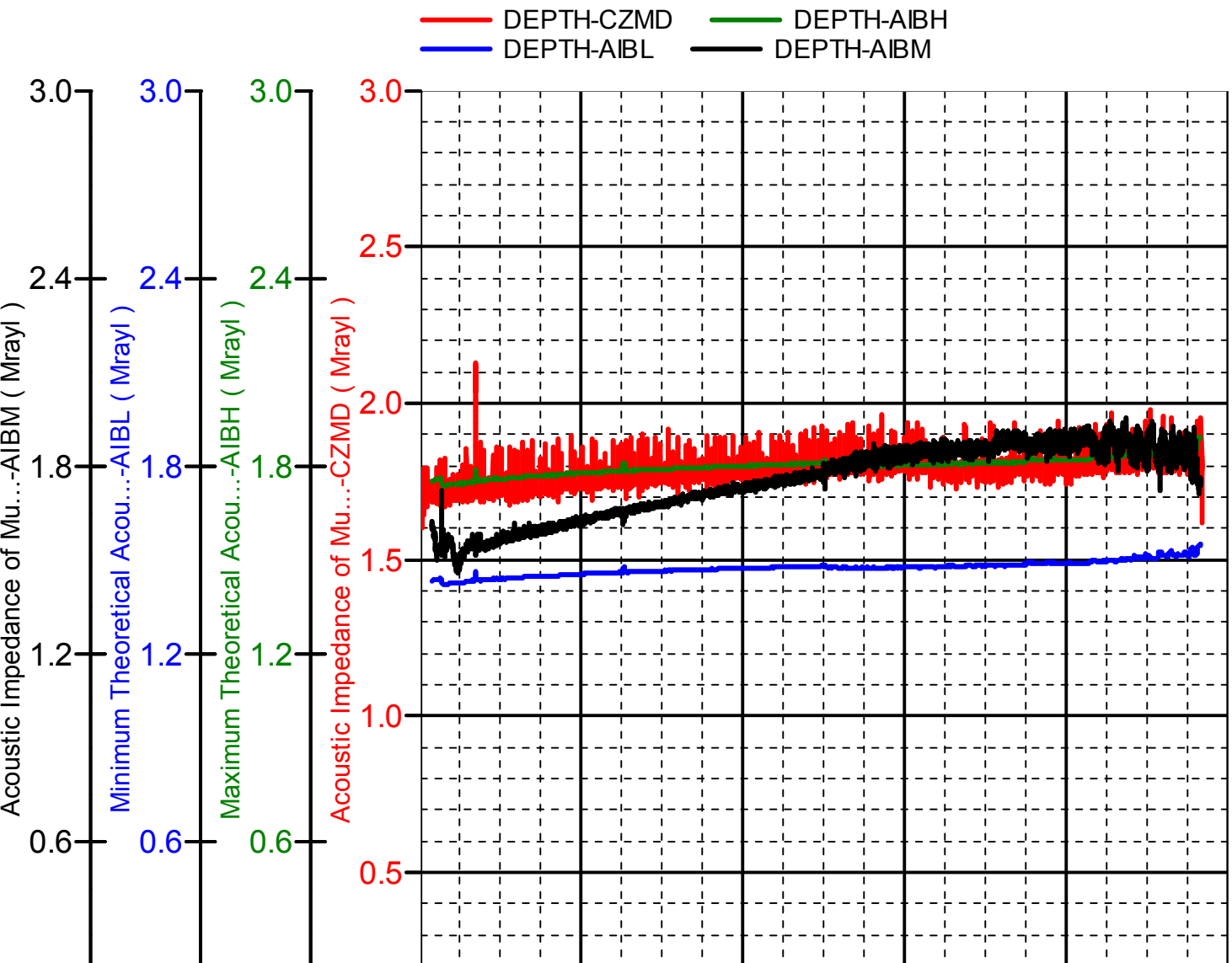
Company:Southern California Gas Company Well:Porter 35

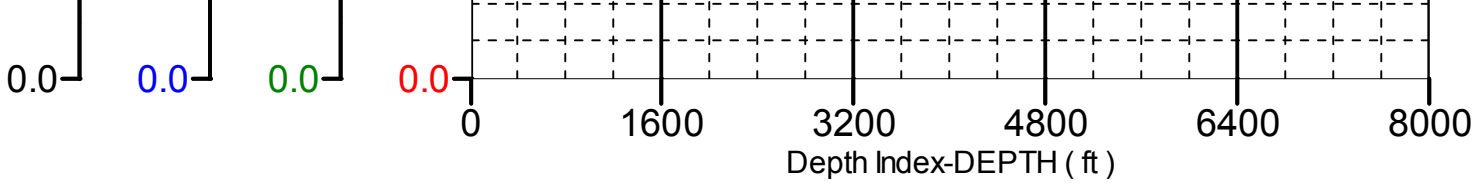
FPM plus MAIN:S008

Theoretical Acoustic Impedance of Mud vs Depth

2D Cross Plot

Index Range: From 16.37 to 7749.00 ft





Company:	Southern California Gas Company
Well:	Porter 35
Field:	Aliso Canyon
County:	Los Angeles
State:	California

Schlumberger

Ultrasonic Imager

GR-CCL-CBL-NL

7" 23-29# Casing