Schlumberger

Company: Southern California Gas Company

Well: Porter 69E

Field: Aliso Canyon

County: Los Angeles State: CALIFORNIA

County: Los Angeles
Field: Aliso Canyon
Location: 910 ft South, 3255 ft West from
Well: Porter 69E
Company: Southern California Gas Company

Ultrasonic Imager

Gamma Ray - CCL

9-5/8" 47# casing

Location:			
910 ft South, 3255 ft West from Station 84, Section 28	Elev.:	K.B. 2389.50 ft G.L. 2366.00 ft D.F.	
Permanent Datum: Ground Level	Elev.:	2366.00 f	
Log Measured From: Kelly Bushing	23.50 ft	above Perm.Datum	
Drilling Measured From: Kelly Bushing			

API Serial No.	Section:	Township:	Range:
037-24138	28	3N	16W

Logging Date		07-Sep-2016	
Run Number		8-Sep-2016	
Depth Driller		7166.00 ft	
Schlumberger Depth		7166.00 ft	
Bottom Log Interval		7162.00 ft	
Top Log Interval		12.00 ft	
Casing Fluid Type		Water	
Salinity			
Density		9.2 lbm/gal	
Fluid Level		10.00 ft	
BIT/CASING/TUBING STRING			
Bit Size		12.25 in	
From		843.00 ft	
To		7289.00 ft	
Casing/Tubing Size		9.625 in	
Weight		47 lbm/ft	
Grade		N80	
From		0.00 ft	
To		7289.00 ft	
Max Recorded Temperatures		155 degF	
Logger on Bottom	Time	08-Sep-2016 10:00:00	
Unit Number	Location:	3017 Ventura	
Recorded By		John Lopez	
Witnessed By		Mr Tom MacMahon	

Disclaimer

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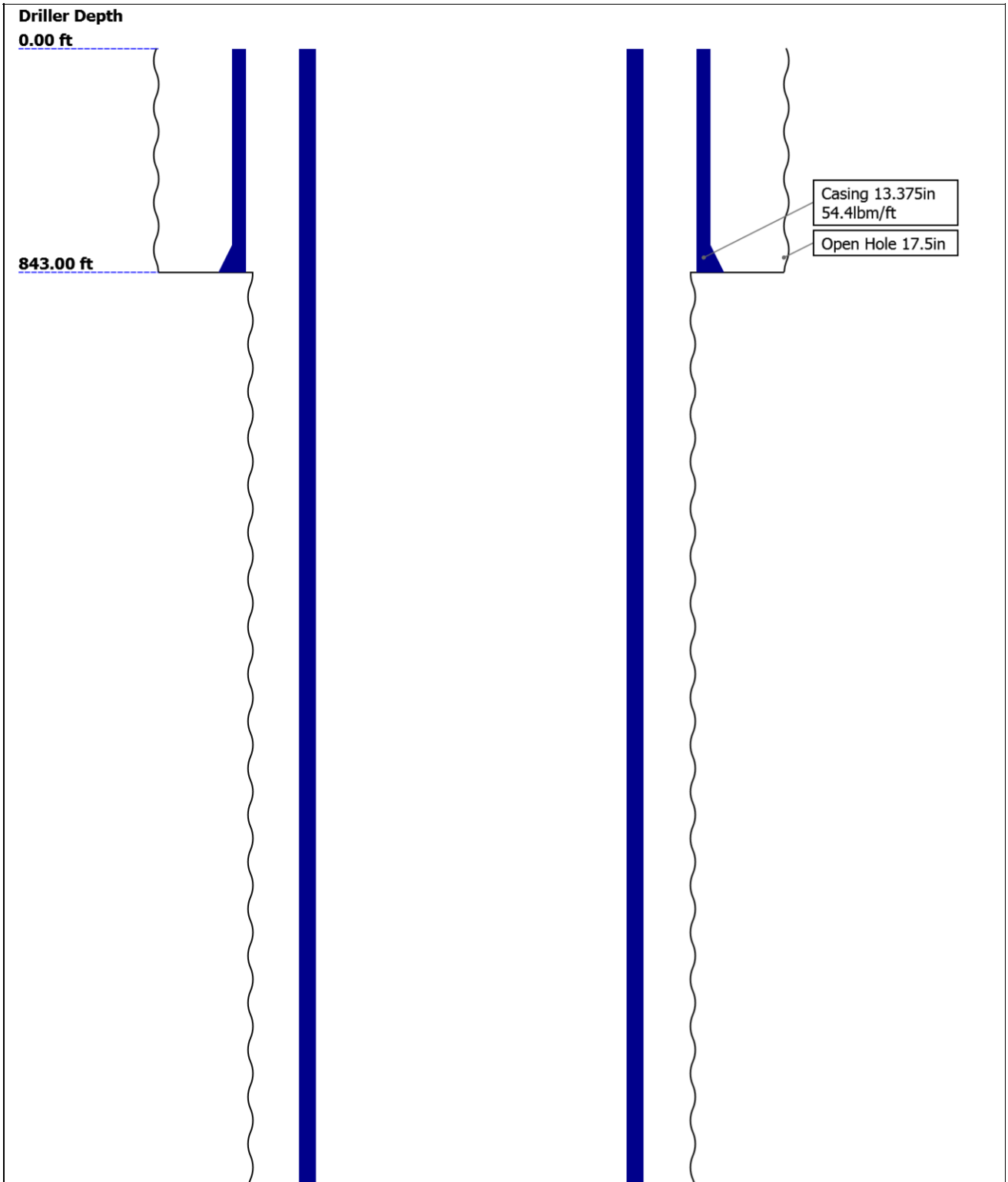
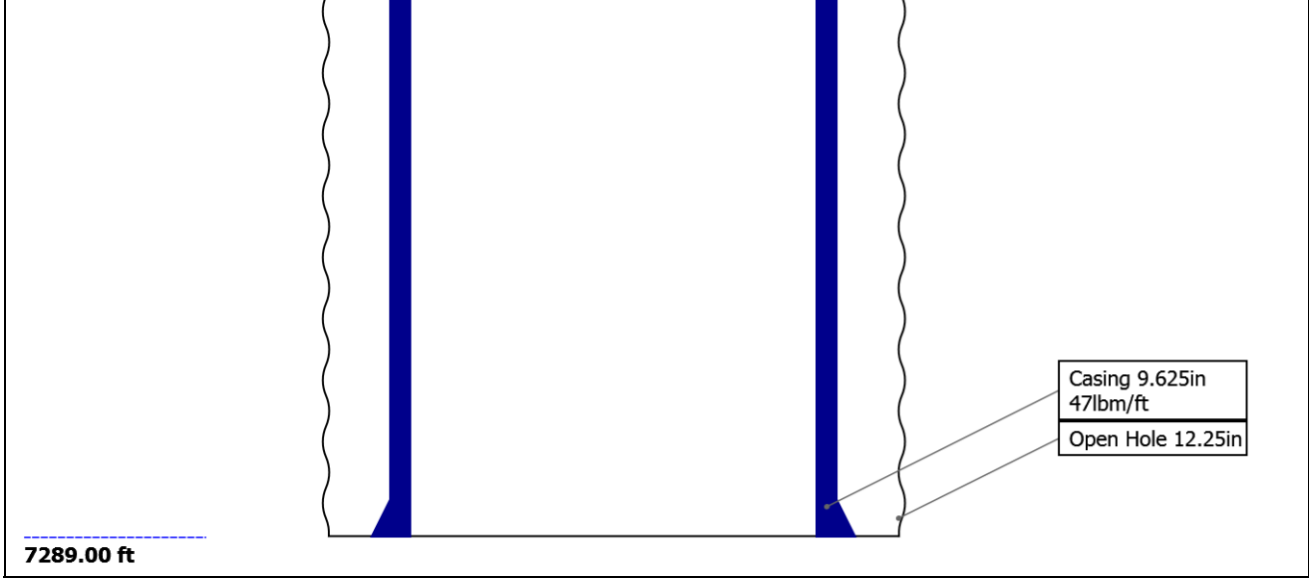
Well Sketch





Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	17.5	12.25				
Top Driller (ft)	0	843				
Top Logger (ft)	0	843				
Bottom Driller (ft)	843	7289				
Bottom Logger (ft)	843	7289				
Casing						
Size (in)	13.375	9.625				
Weight (lbm/ft)	54.4	47				
Inner Diameter (in)	12.608	8.681				
Grade	K55	N80				
Top Driller (ft)	0	0				
Top Logger (ft)	0	0				
Bottom Driller (ft)	843	7289				
Bottom Logger (ft)	843	7289				

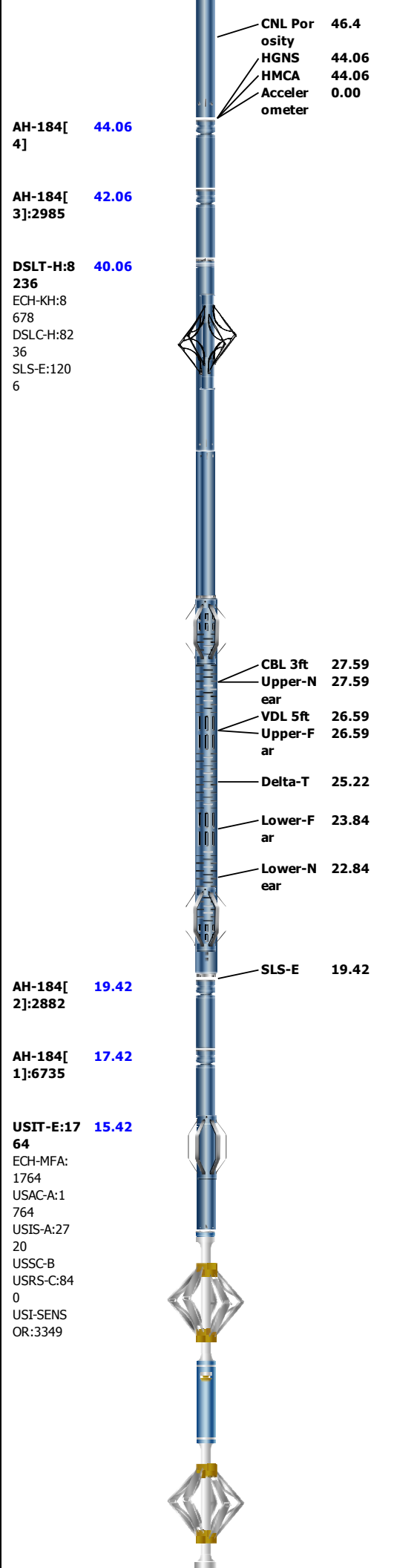
Remarks and Equipment Summary

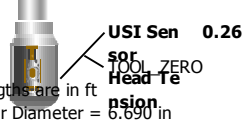
8-Sep-2016: Toolstring

Equip name	Length	MP name	Offset
LEH-QT:2867	**59.39**	Red	
LEH-QT:2867			
DTC-H	**56.47**	**CTEM**	**55.57**
ECH-KC		**HV**	**0.00**
DTC-H		**TelStatus**	**53.47**
		ToolStatus	**53.47**
HGNS-H:4177	**53.47**	**Temperature**	**53.44**
HGNH:4819		**GR**	**52.73**
NSR-F:5316			
NPV-N			
HMCA-H			
HACCZ-H:4177			
HGNS-H:4177			

8-Sep-2016: Remarks
Toolstring ran as per toolsketch.
Two centralizers on USIS and two CME-Y used to centralize ultrasonic tool.
Thank you for choosing Schlumberger!
Toolstring run as per toolsketch
Two centralizers on USIS and 2 CME-Y used on ultrasonic tool
Thank you for choosing Schlumberger
Correlated to Schlumberger USIT-GR log dated 31-Jul-2009
Rig: Rival 6, Crew: Martinez, Allen
Plug set at 7166 ft, tagged at 7166 ft, logging objective Corrosion and cement
USIT logged at 10 Deg 1.5 inch, logging speed 2800 fph, Hi-Res 10 Deg 0.6" 1200 fph

Logged main pass with no pressure, logged repeat pass with 1000 psi pressure applied.





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[4]:Up	Sep-07-2016 13:18	00:00:21	3991.89 - 3981.02 ft	
Log[5]:Down	Sep-08-2016 08:29	01:20:30	214.45 - 7180.48 ft	fpm
Log[6]:Up	Sep-08-2016 09:51	03:41:31	7165.27 - 149.92 ft	Main Pass no pressure
Log[7]:Up	Sep-08-2016 12:55	01:24:18	7161.37 - 5889.33 ft	Hi-Res 1000 PSI pressure
Log[8]:Up	Sep-08-2016 14:30	00:15:41	4103.28 - 3831.63 ft	Hi-Res pass no pressure
Log[9]:Up	Sep-08-2016 14:55	00:17:55	348.17 - 10.6 ft	Surface data no pressure applied

USIT - Fluid Properties Measurement

Run Name	Pass Name	Start Depth(ft)	Stop Depth(ft)
Run 1	Log[9]:Up	348.17	10.6

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 : 35.95m(117.93ft) to 44.39m(145.64ft)
MUD_N_FRP = 1.06
DFD = 1.10g/cm3(9.20lbm/gal)
CZMD median computed in free pipe normalization interval = 1.76 MRayl

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

Composite 1

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 8.10	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
HGNS-H	HILT Gamma-Ray and Neutron Sonde, 150 degC	6.1.58882.3100	2.0
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

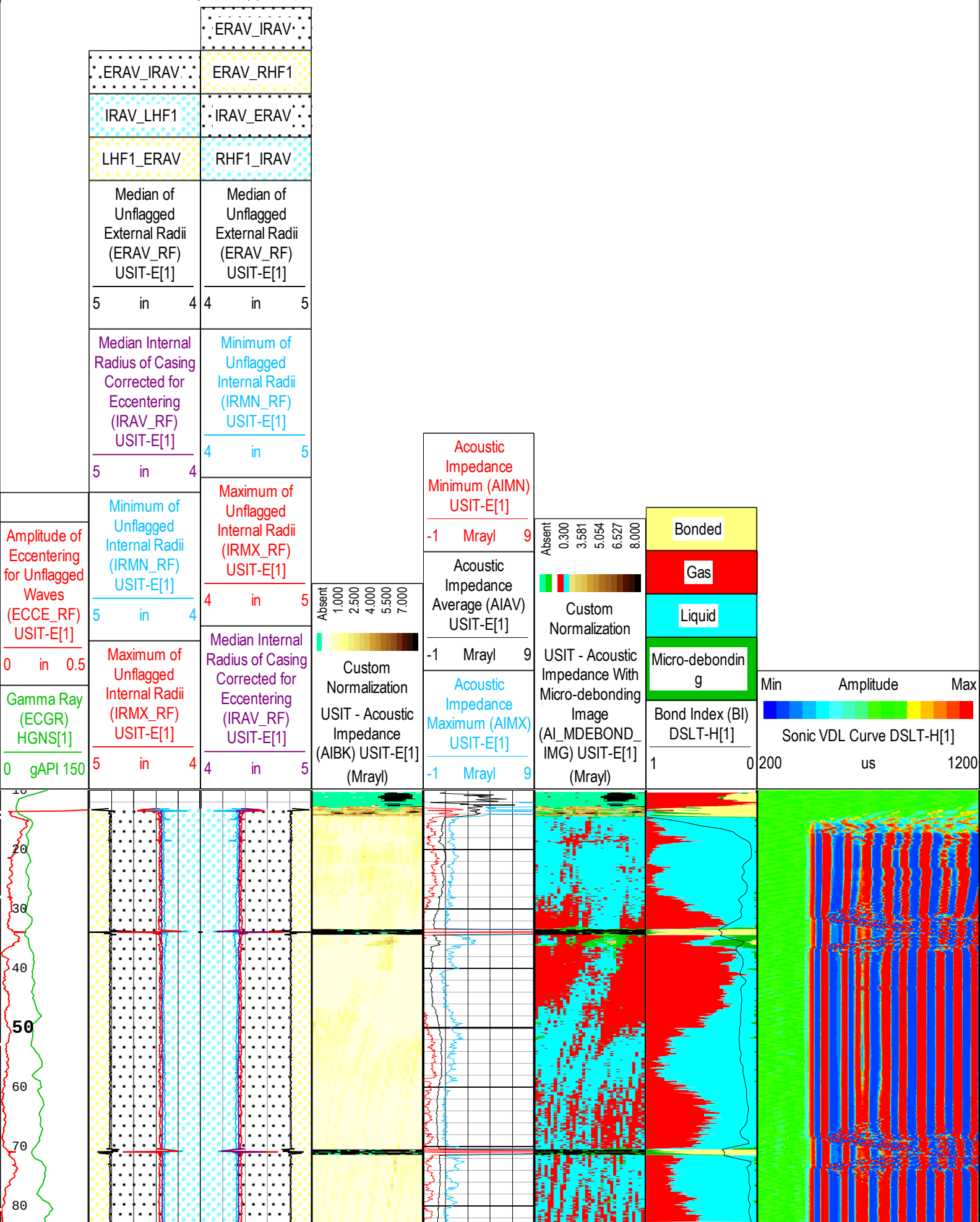
Composite Summary

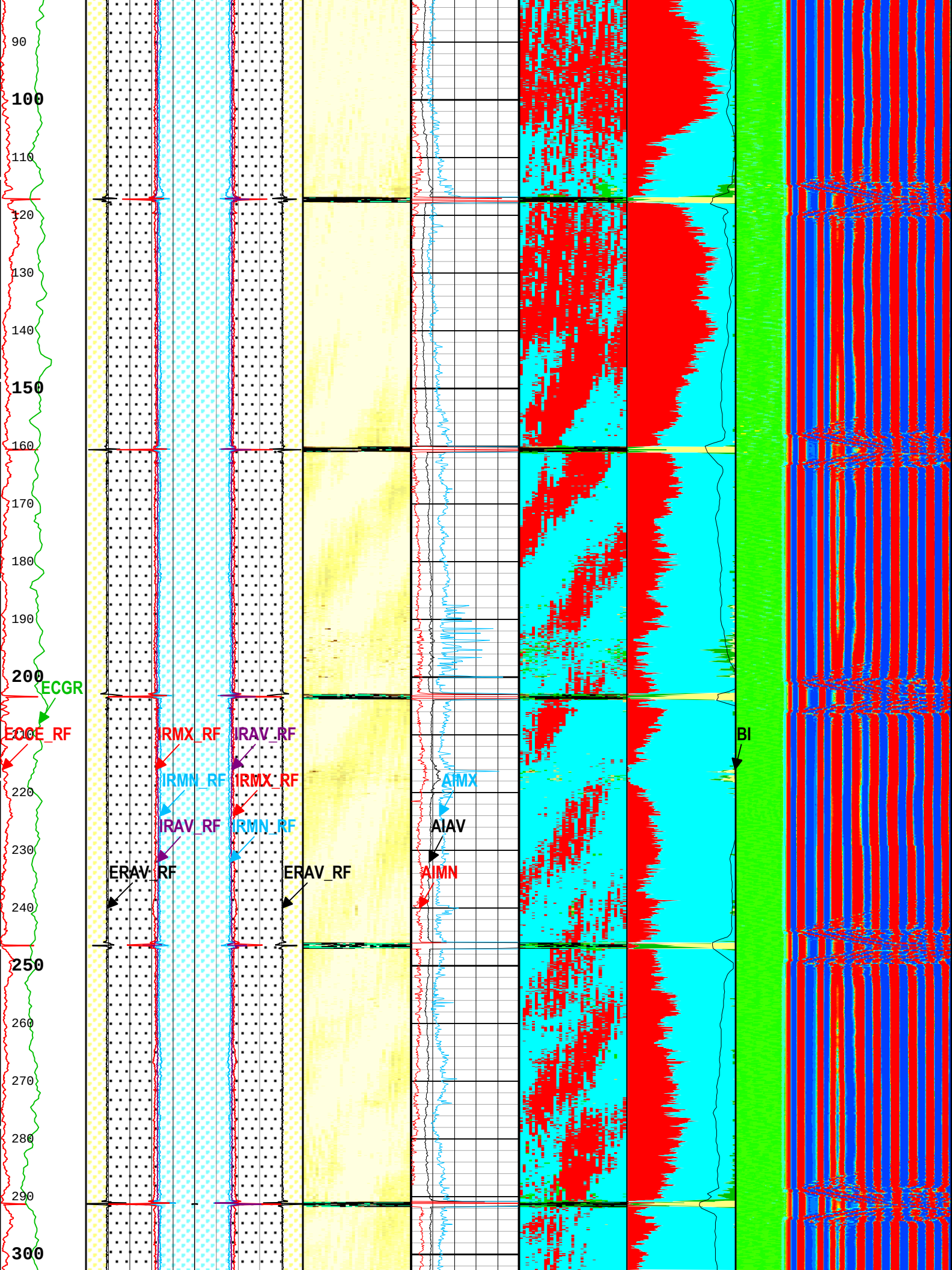
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
8-Sep-2016	Log[6]:Up	Up	149.92 ft	7165.27 ft	08-Sep-2016 9:51:46 AM	08-Sep-2016 12:33:17 PM	ON	-8.00 ft	No
8-Sep-2016	Log[9]:Up	Up	10.60 ft	348.17 ft	08-Sep-2016 2:55:22 PM	08-Sep-2016 3:13:17 PM	ON	2.00 ft	No

All depths are referenced to toolstring zero

Description: USI VDL Cement Format: Log (LBV1_USI-VDL (DSLT) Cement 9.625inch_hires) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 08-Sep-2016 19:55:05

TIME_1900 - Time Marked every 60.00 (s)

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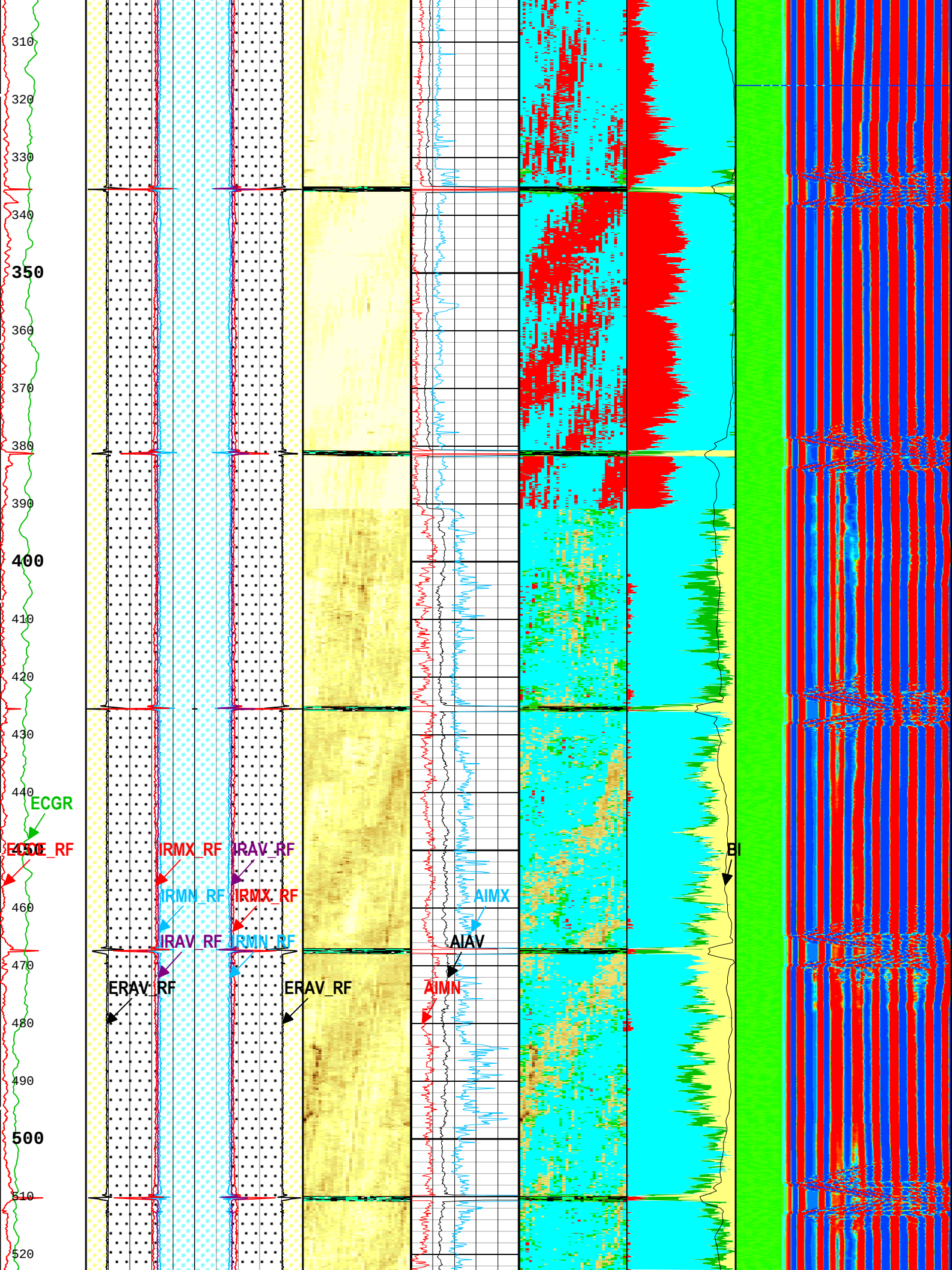
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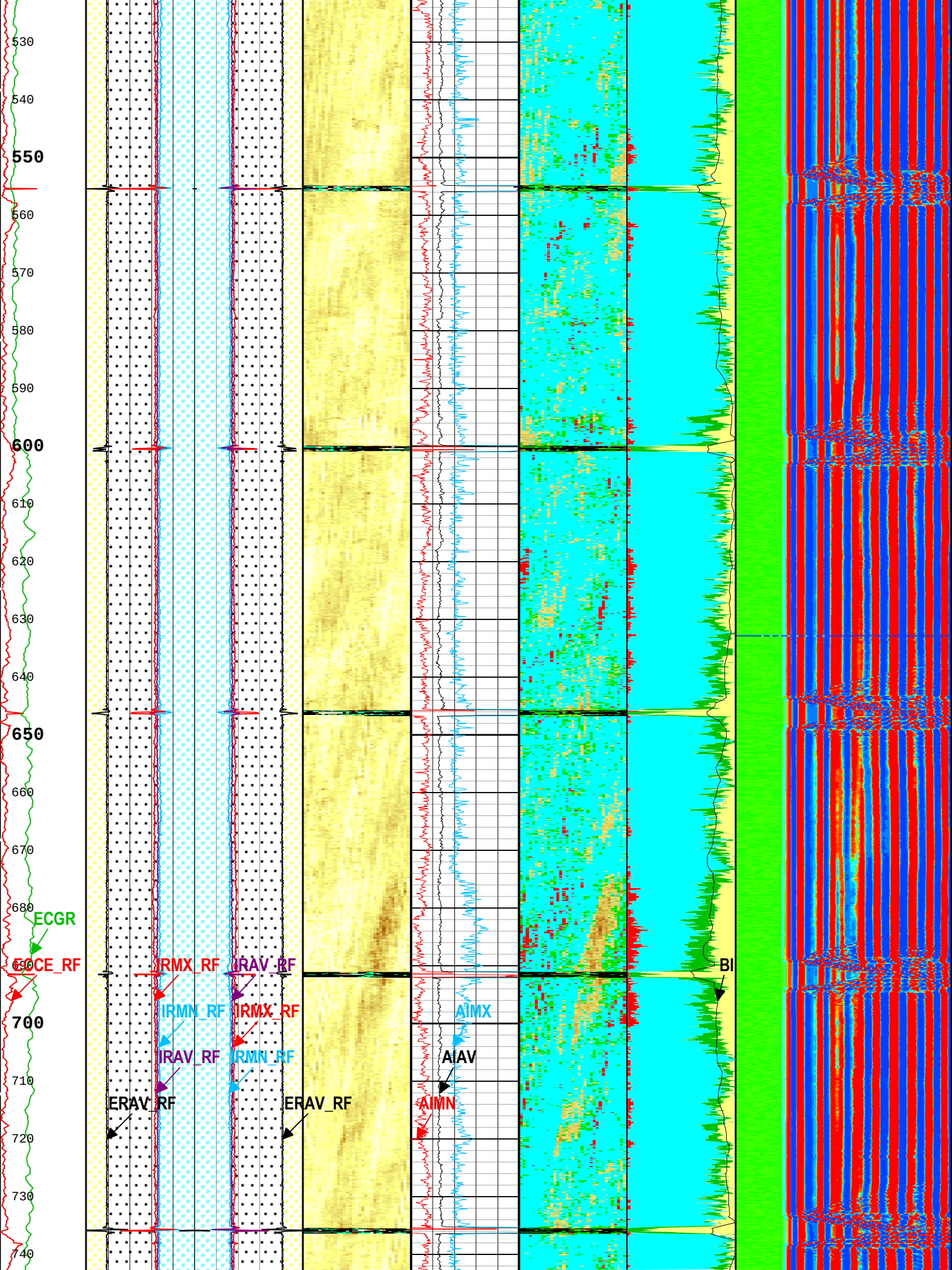
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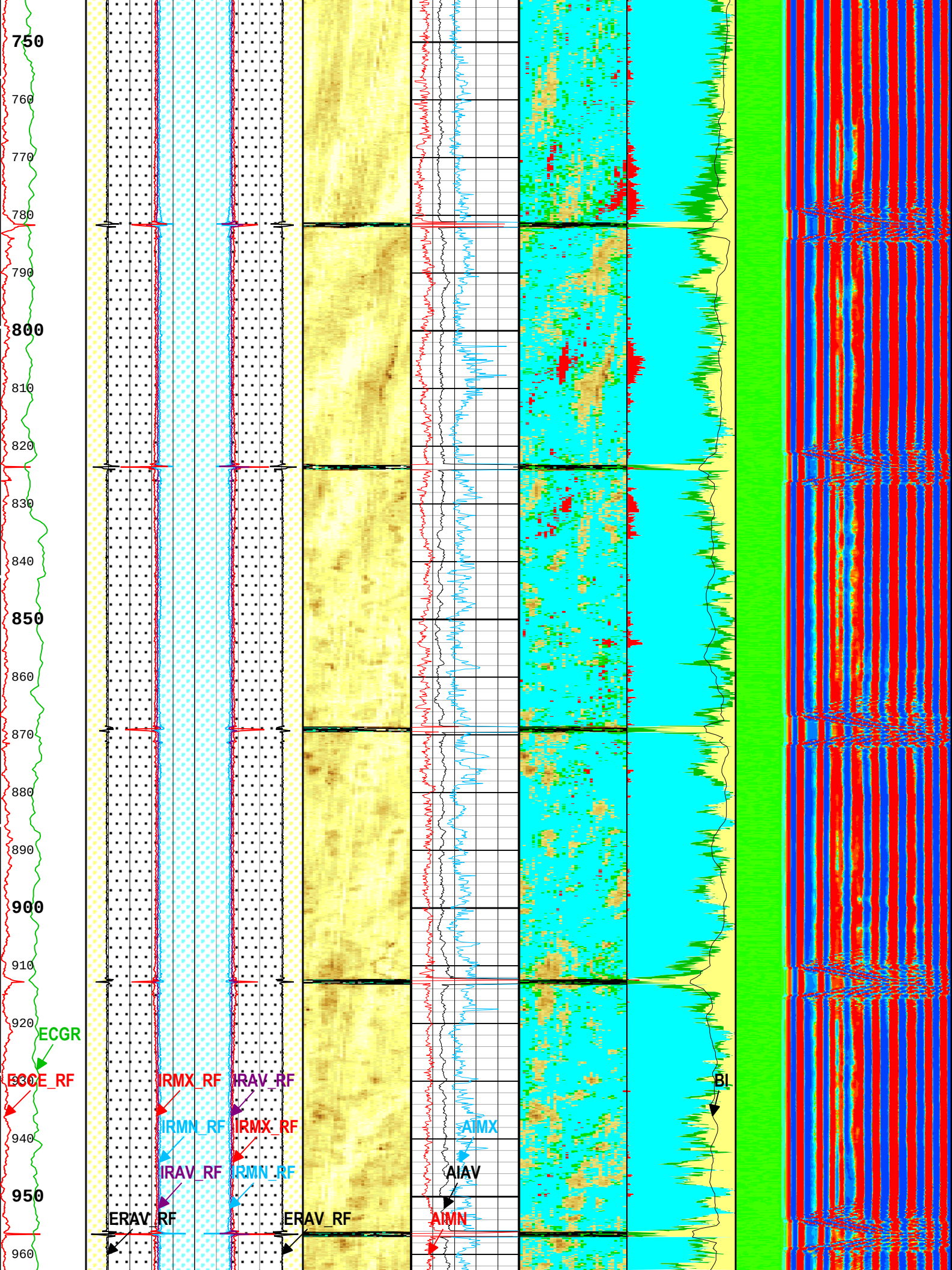
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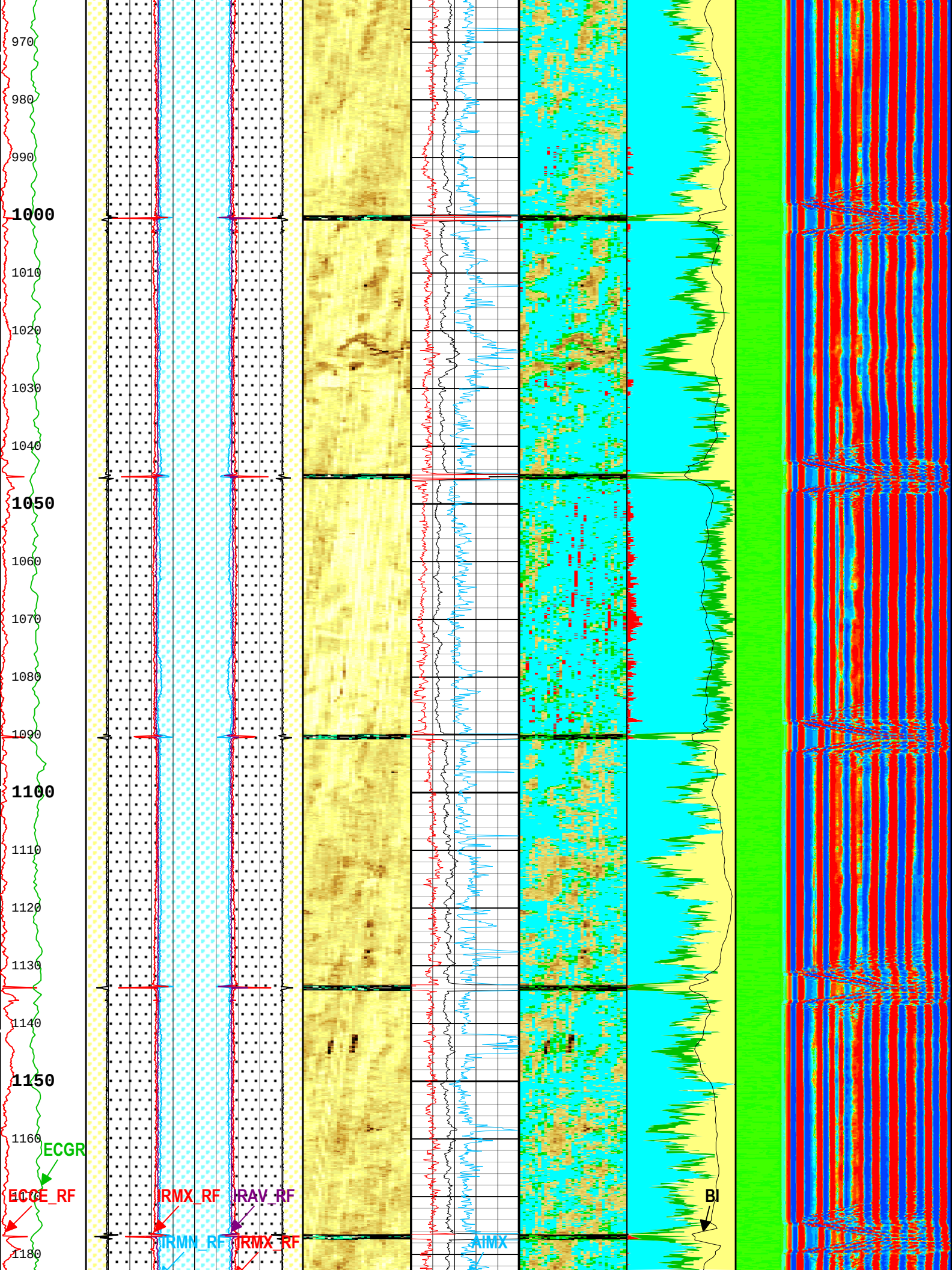
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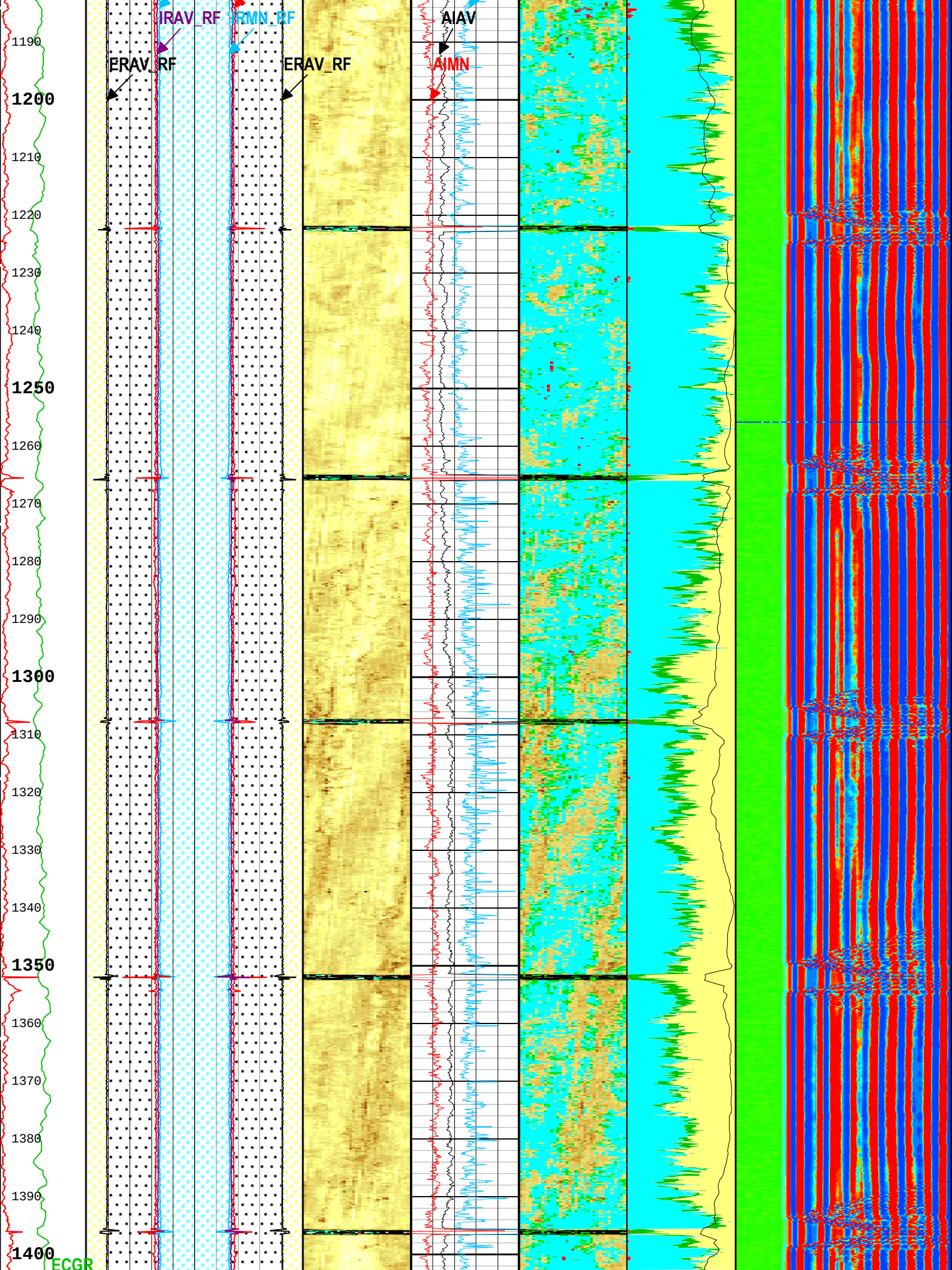
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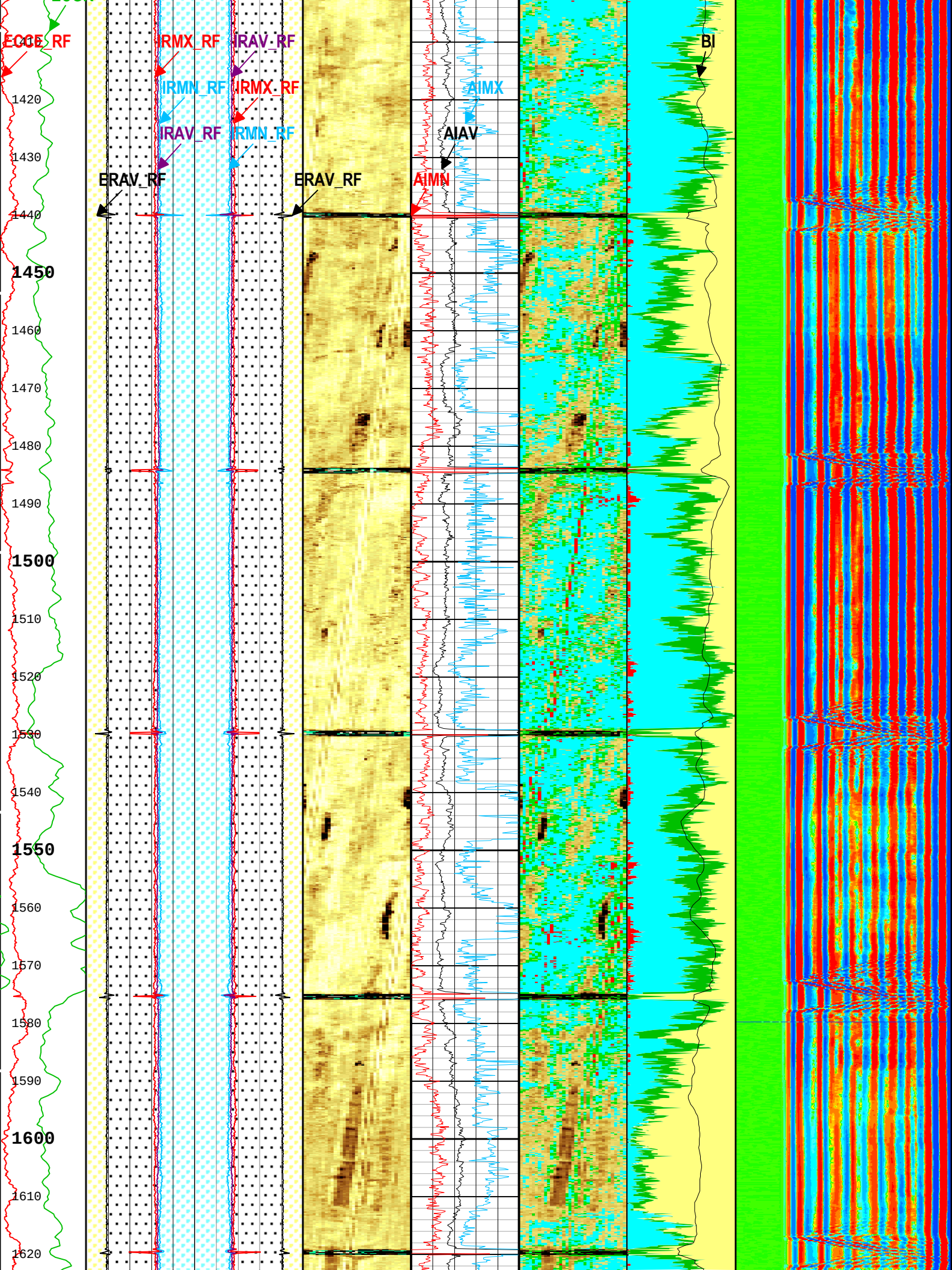
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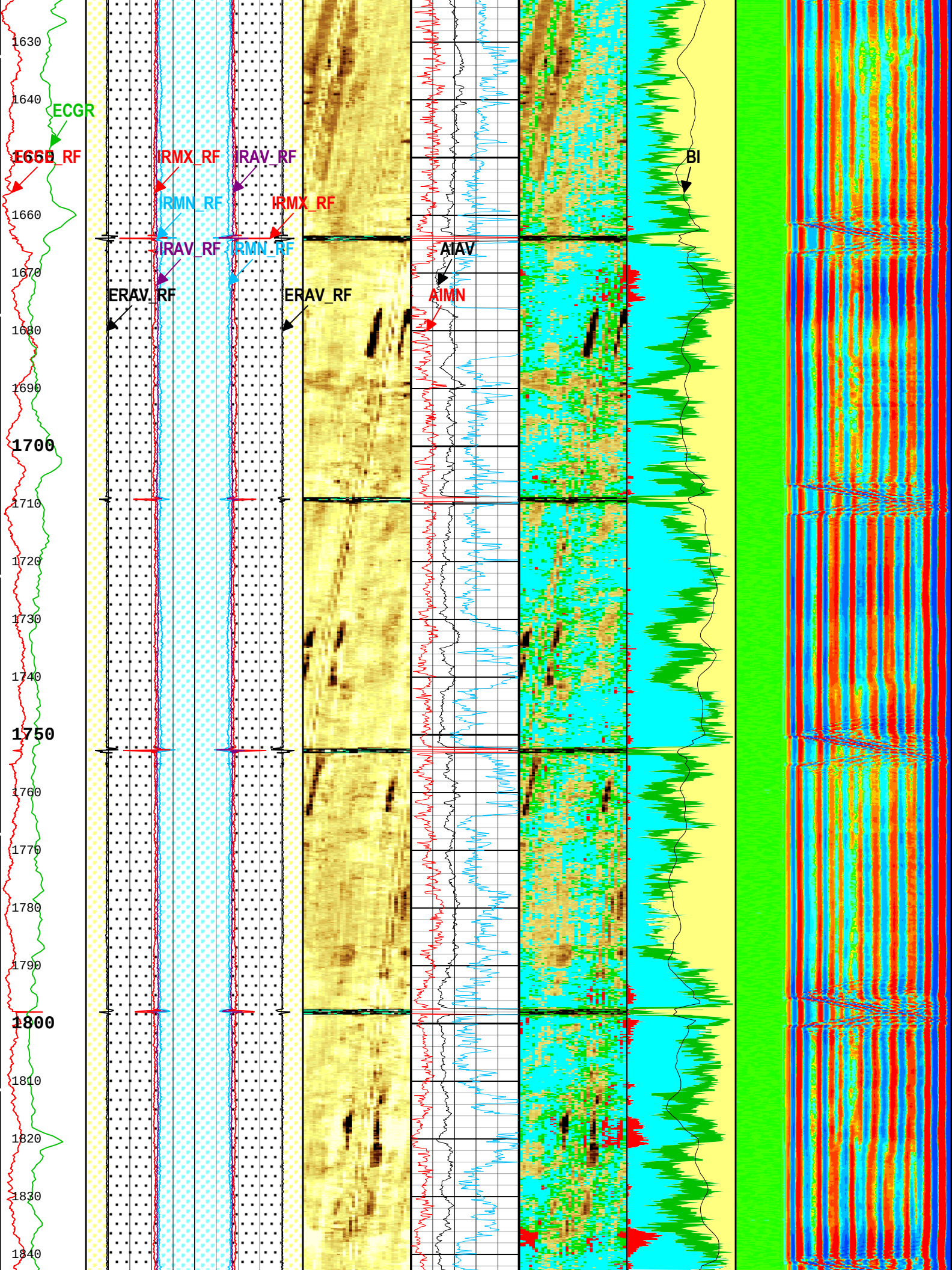
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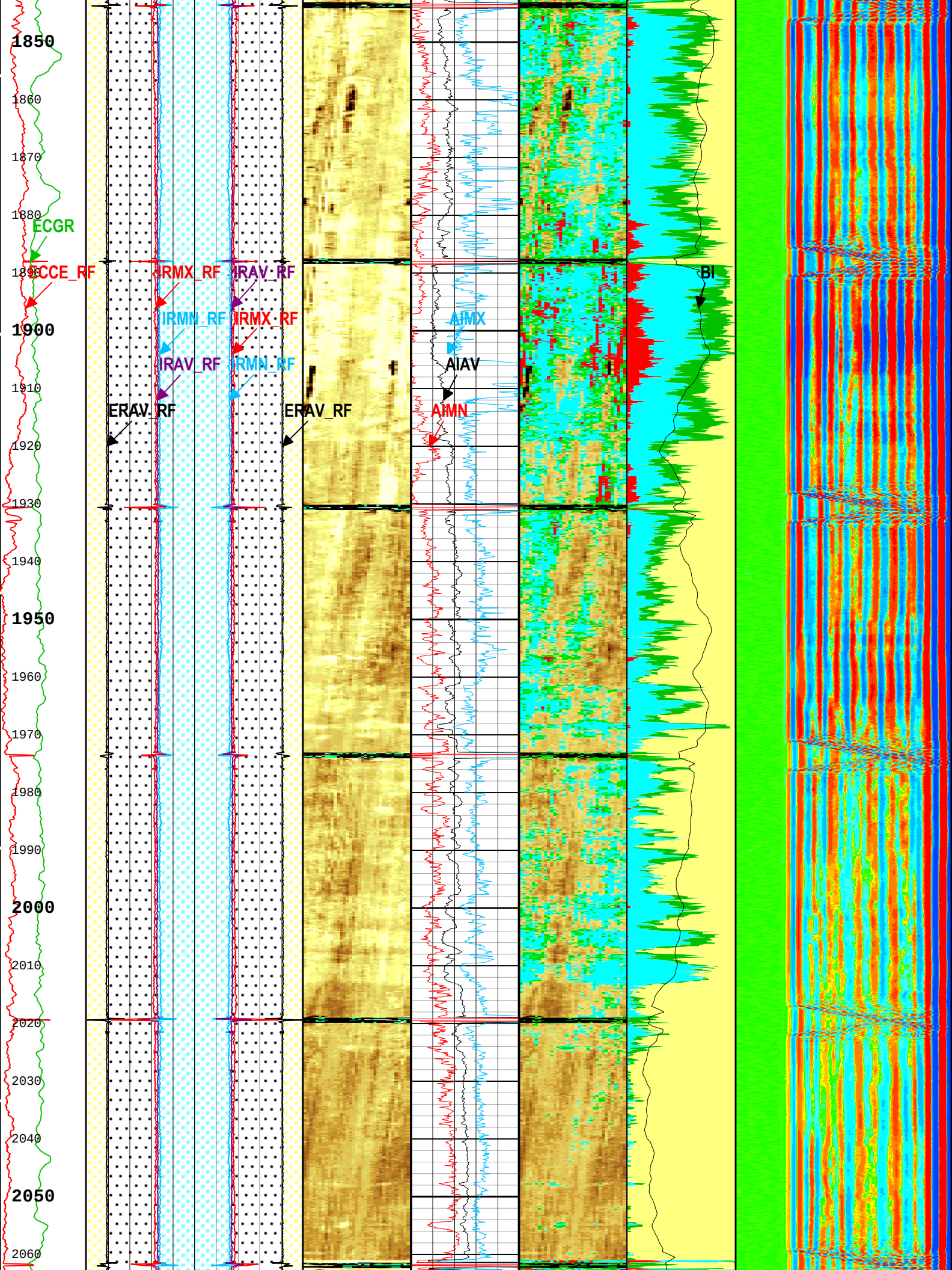
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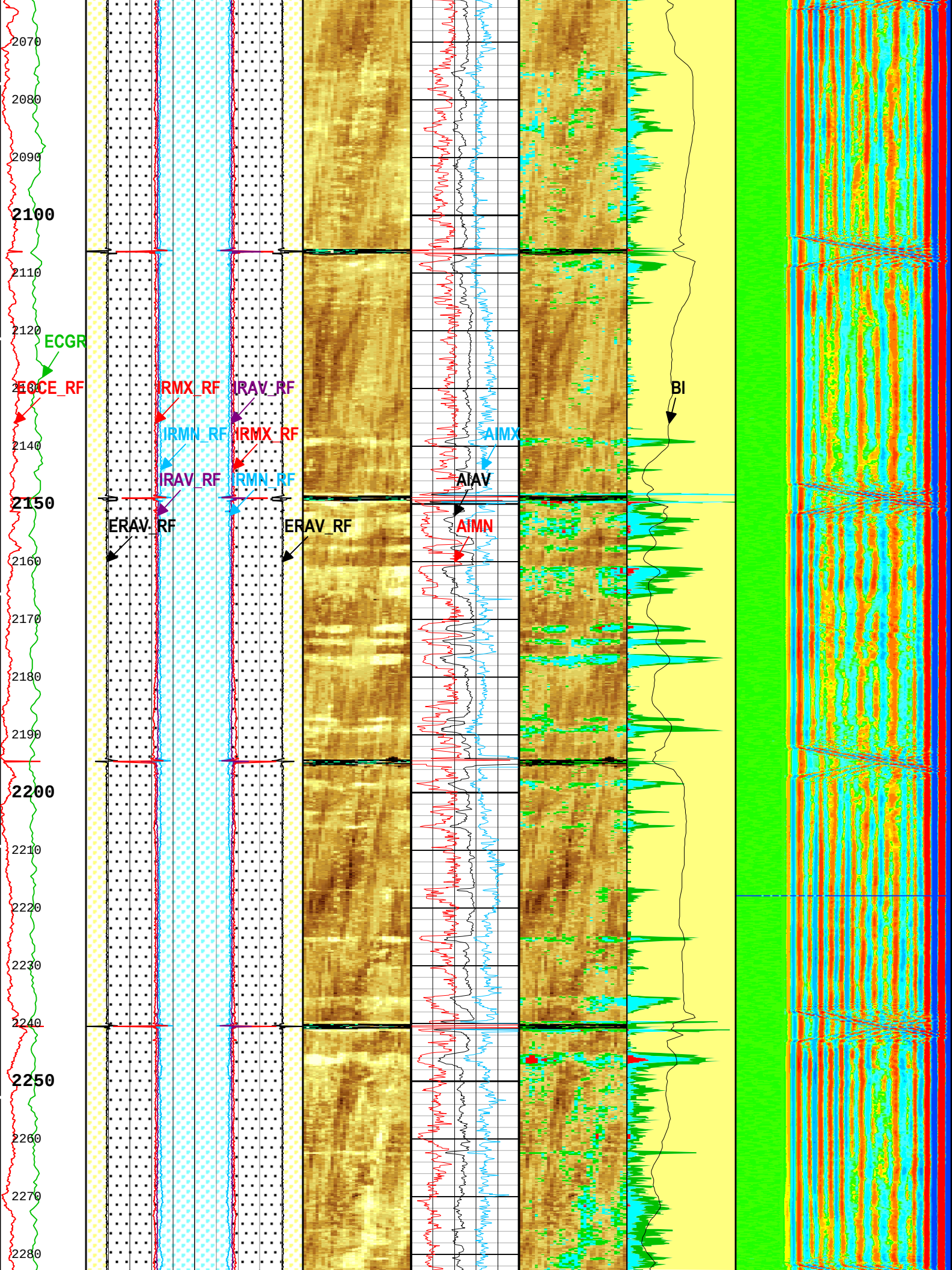
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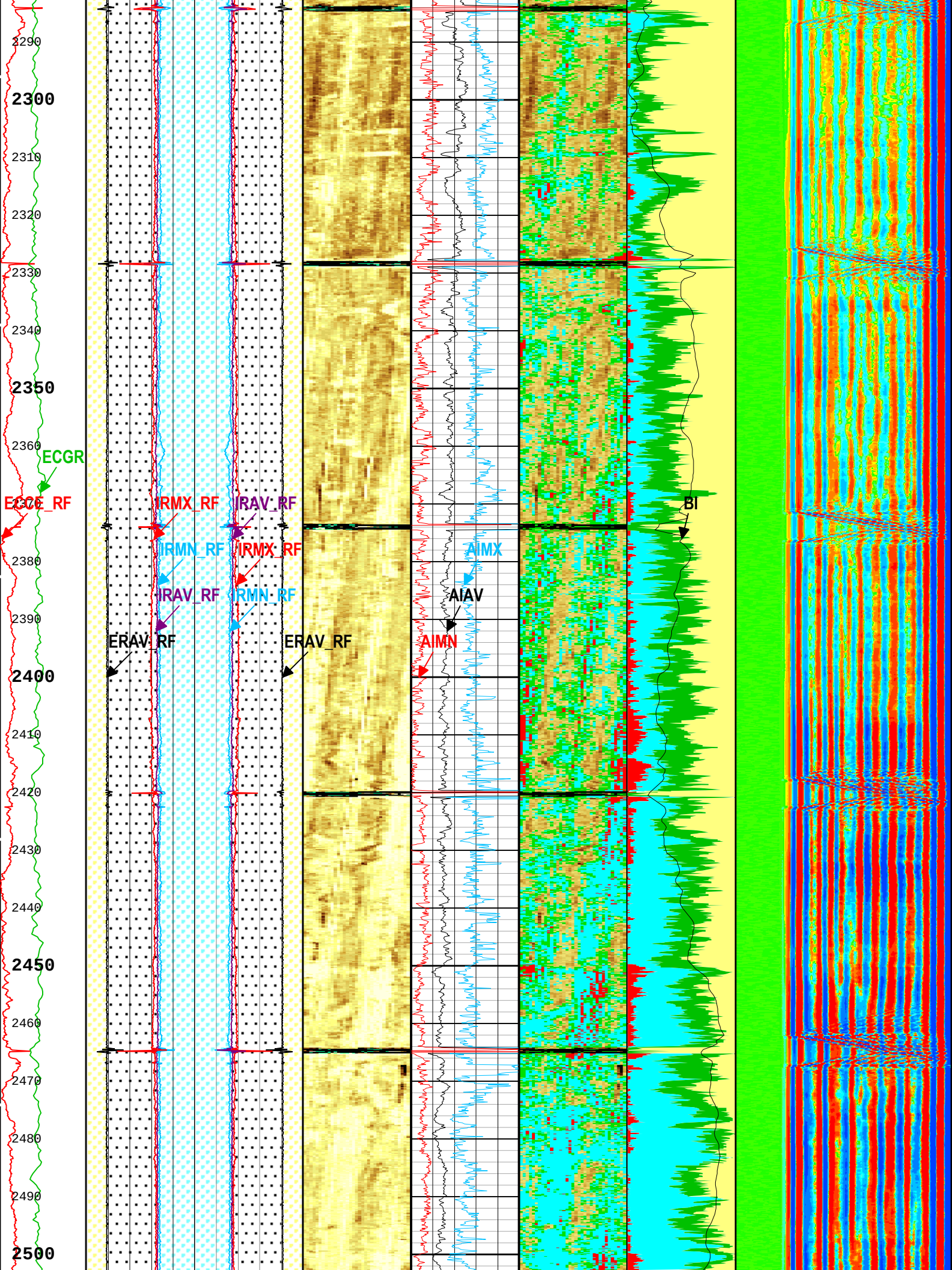
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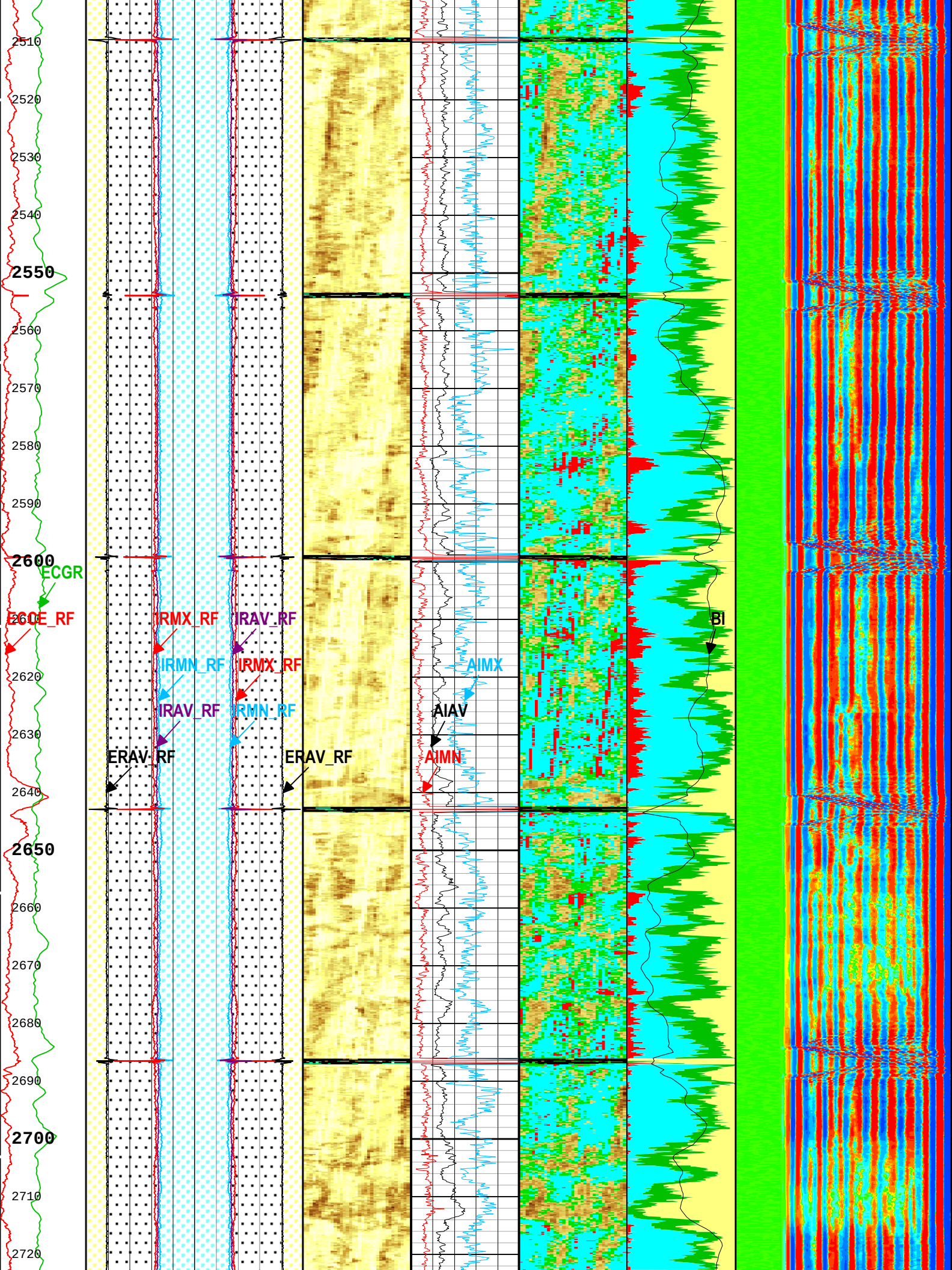
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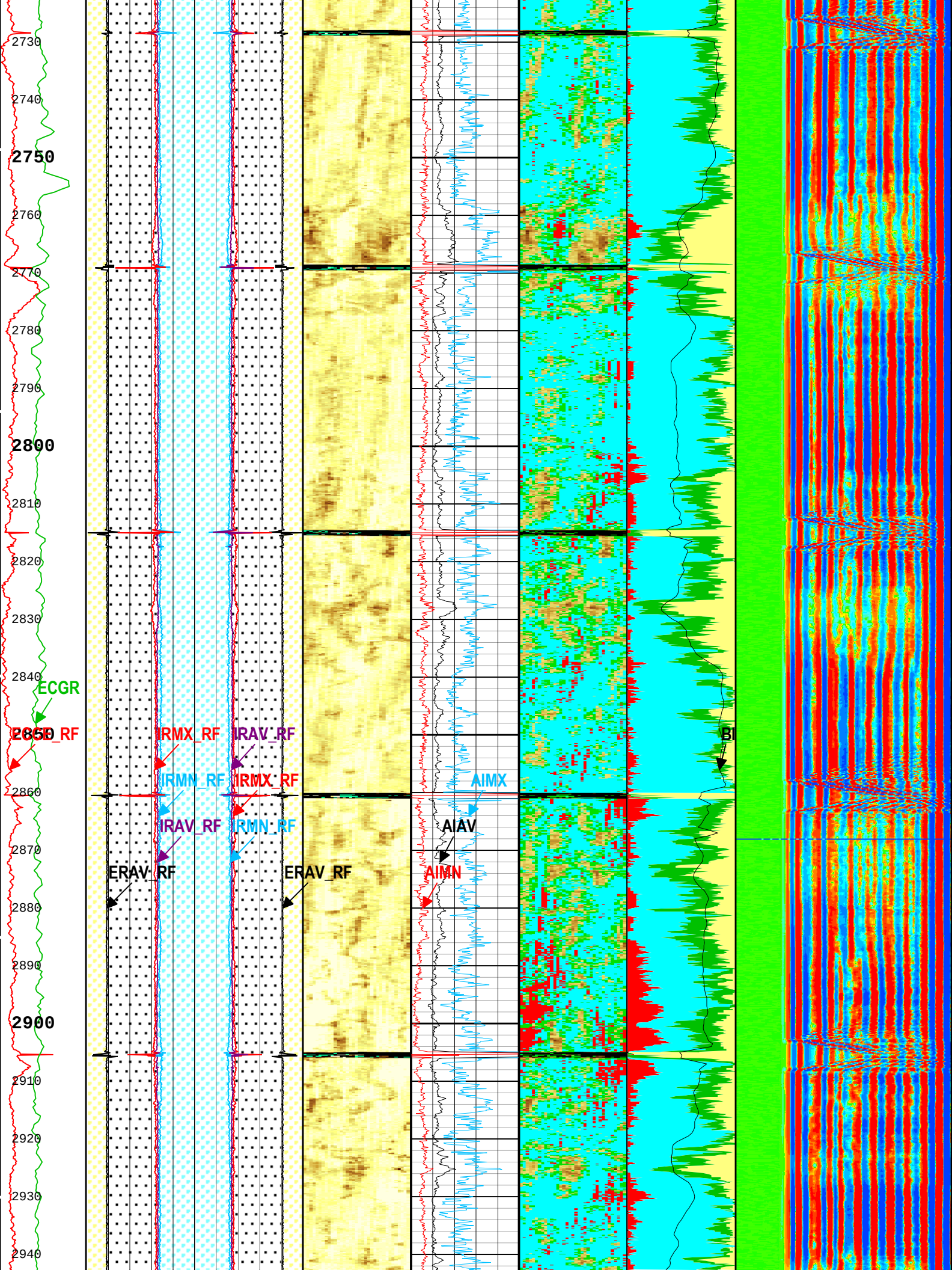
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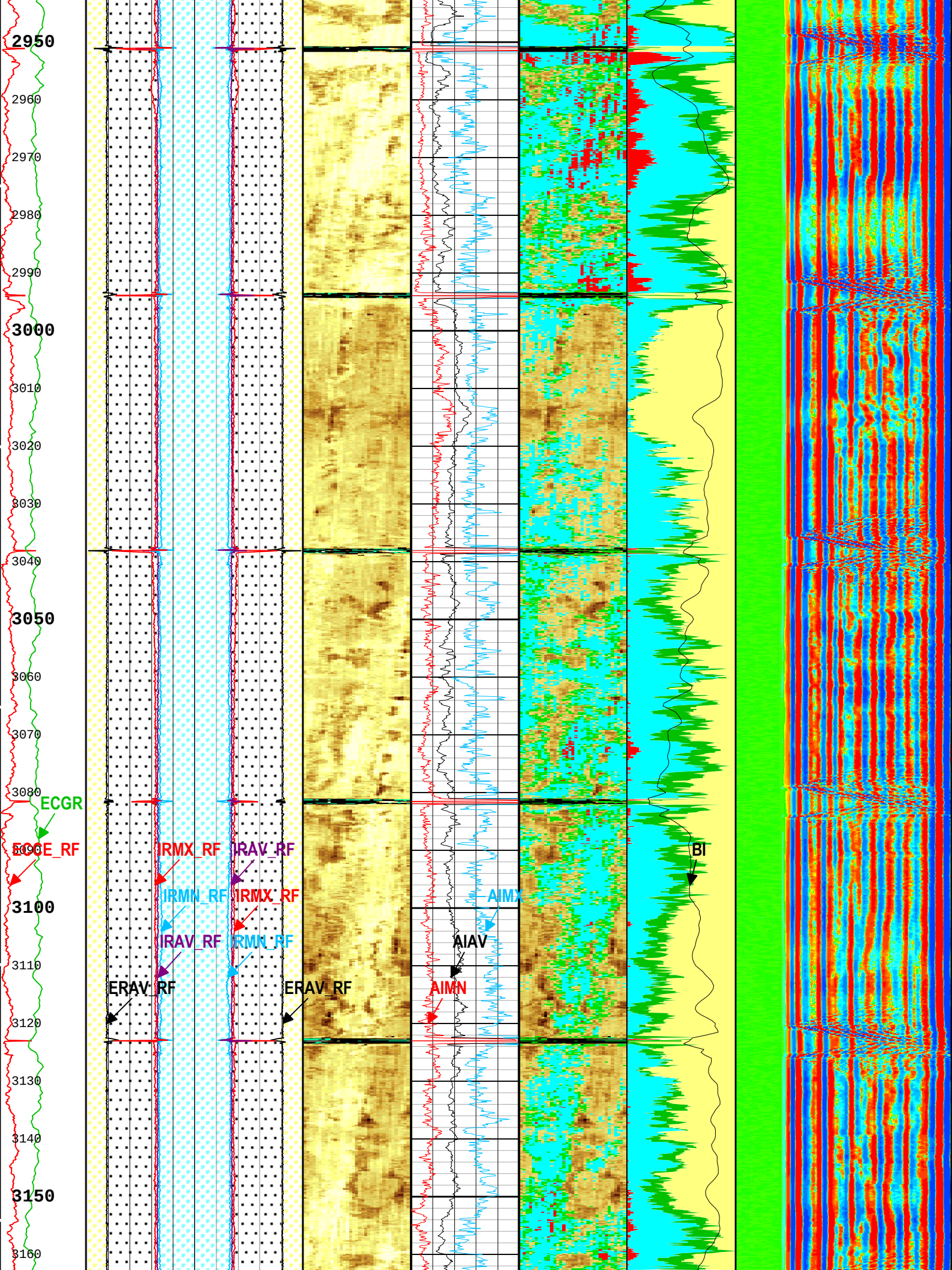
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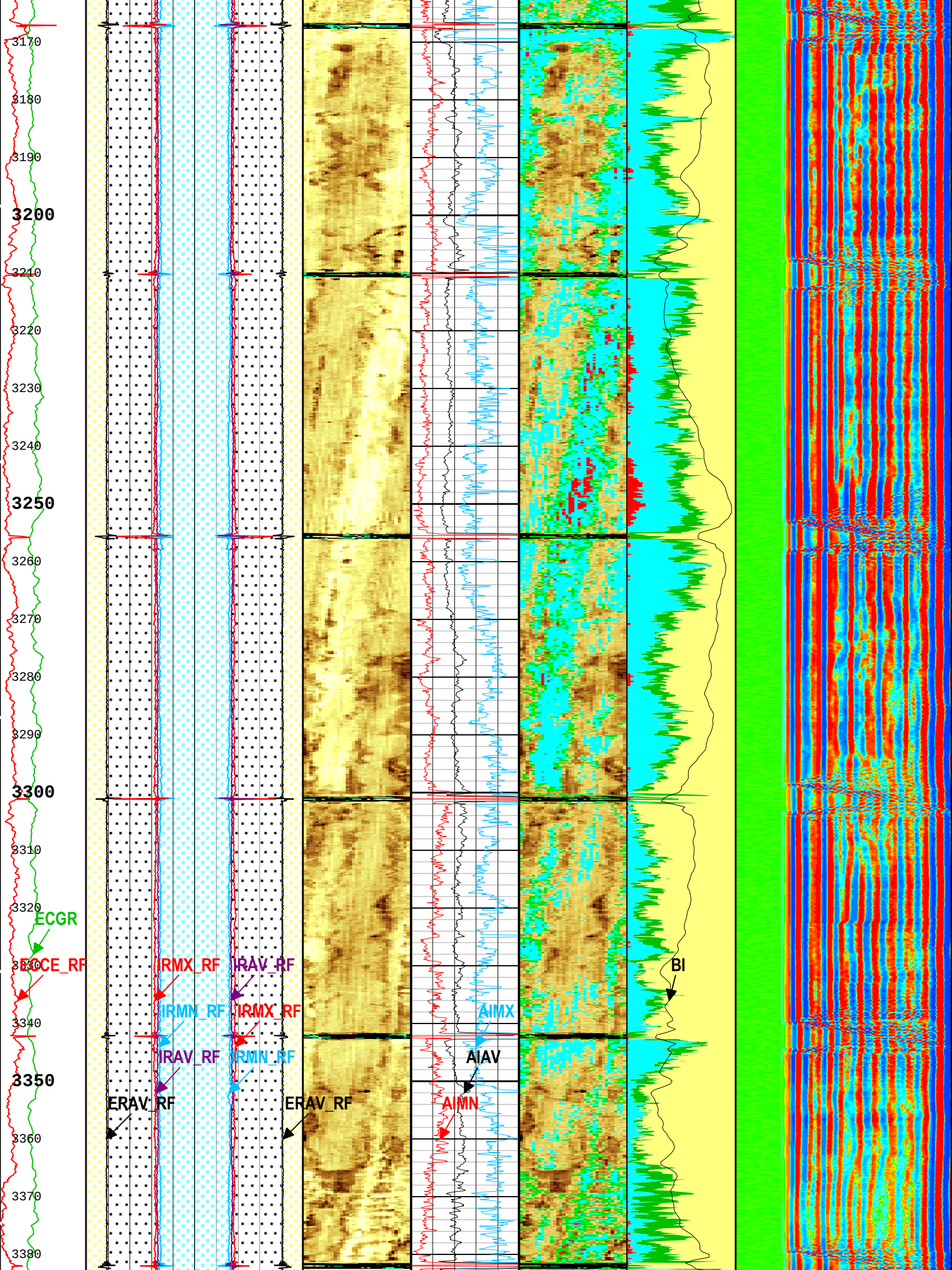
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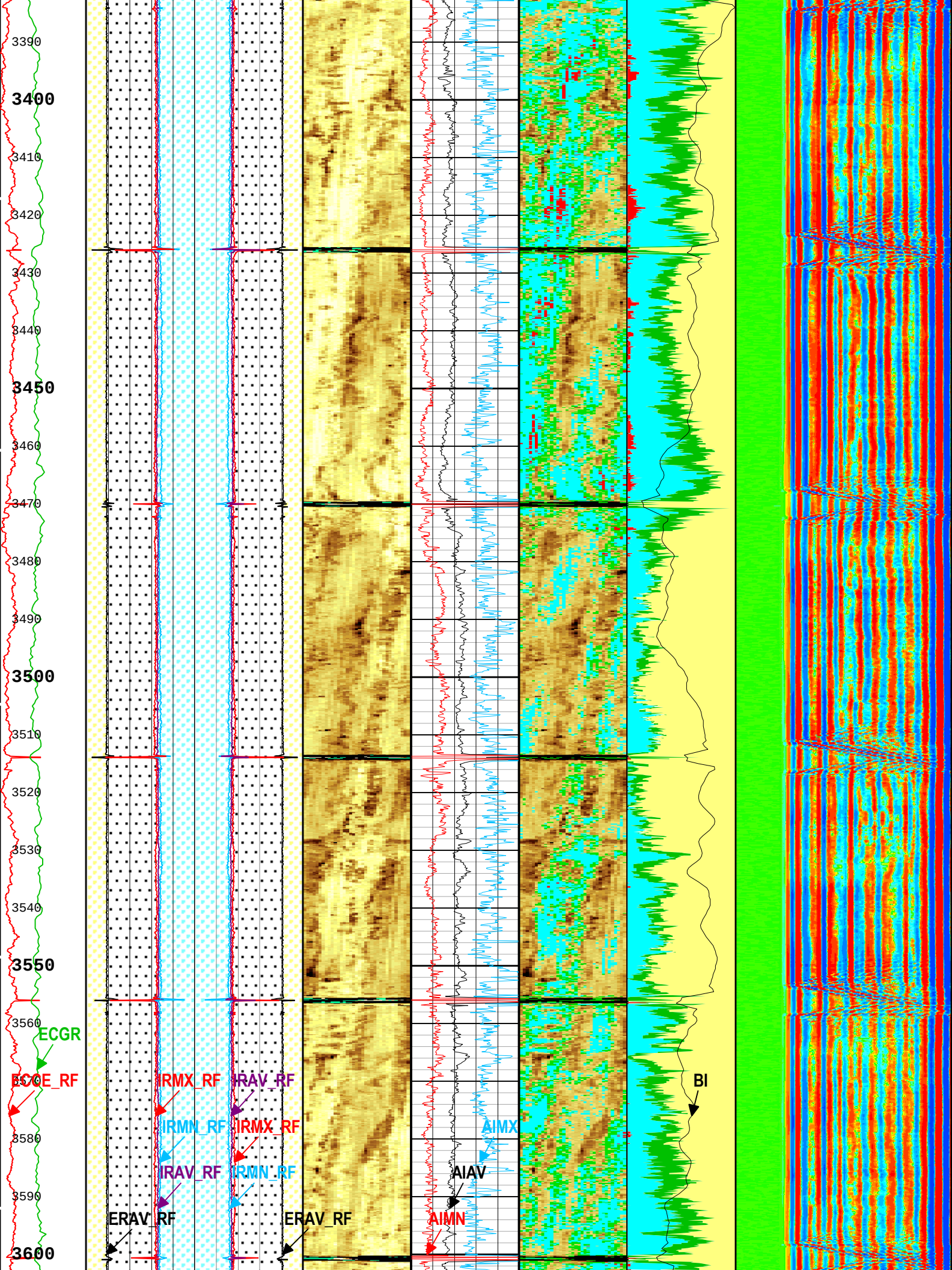
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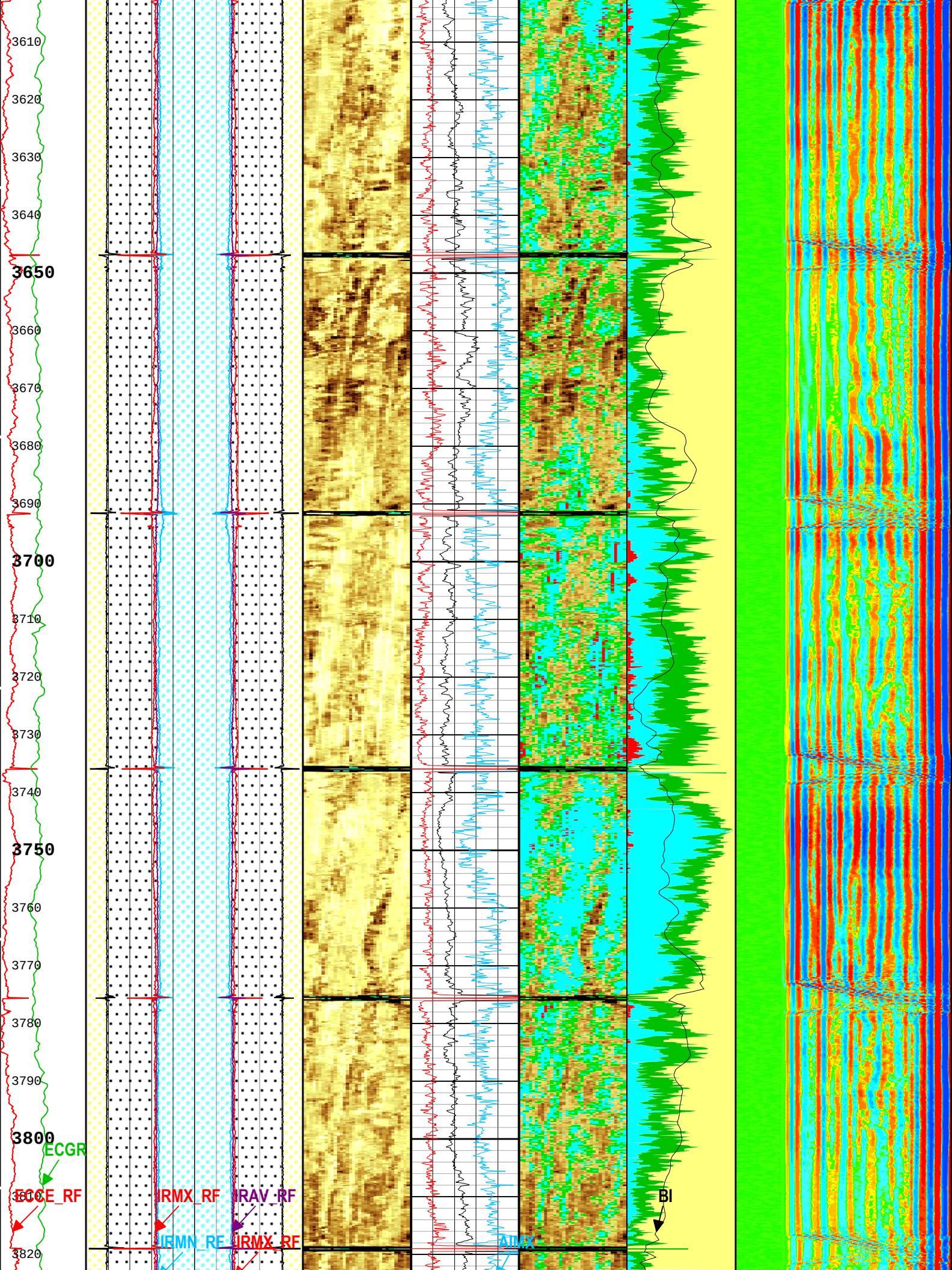
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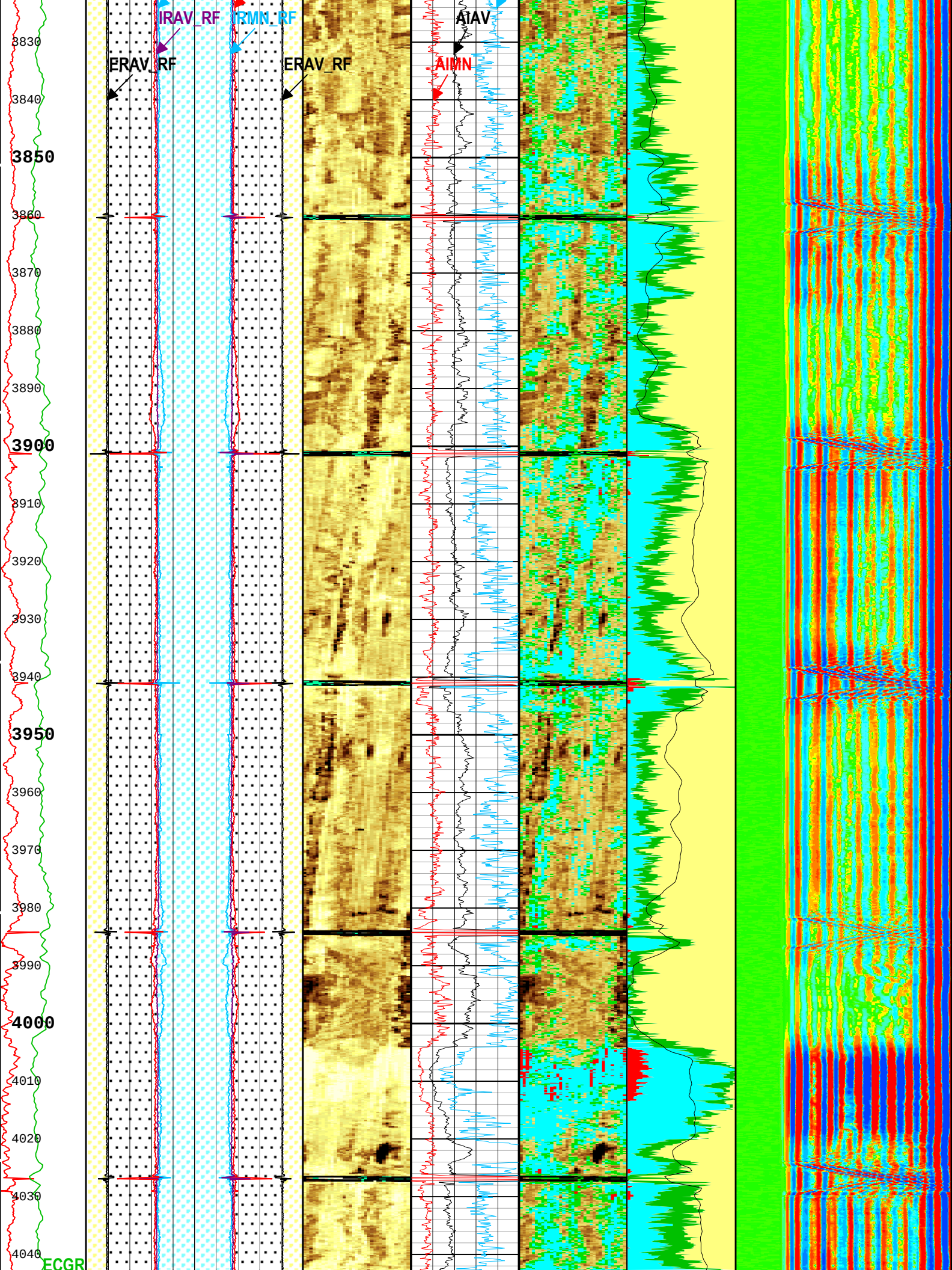
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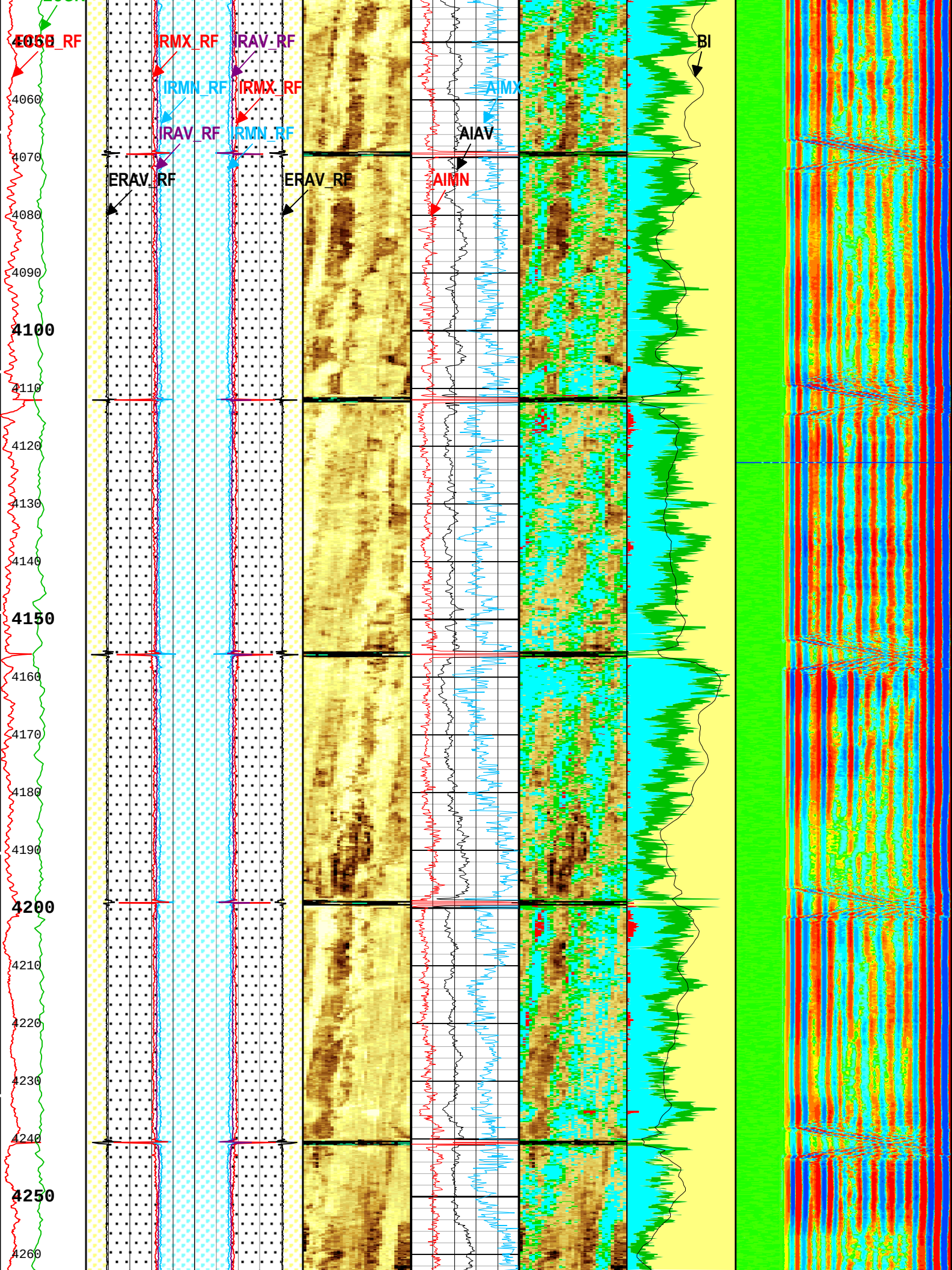
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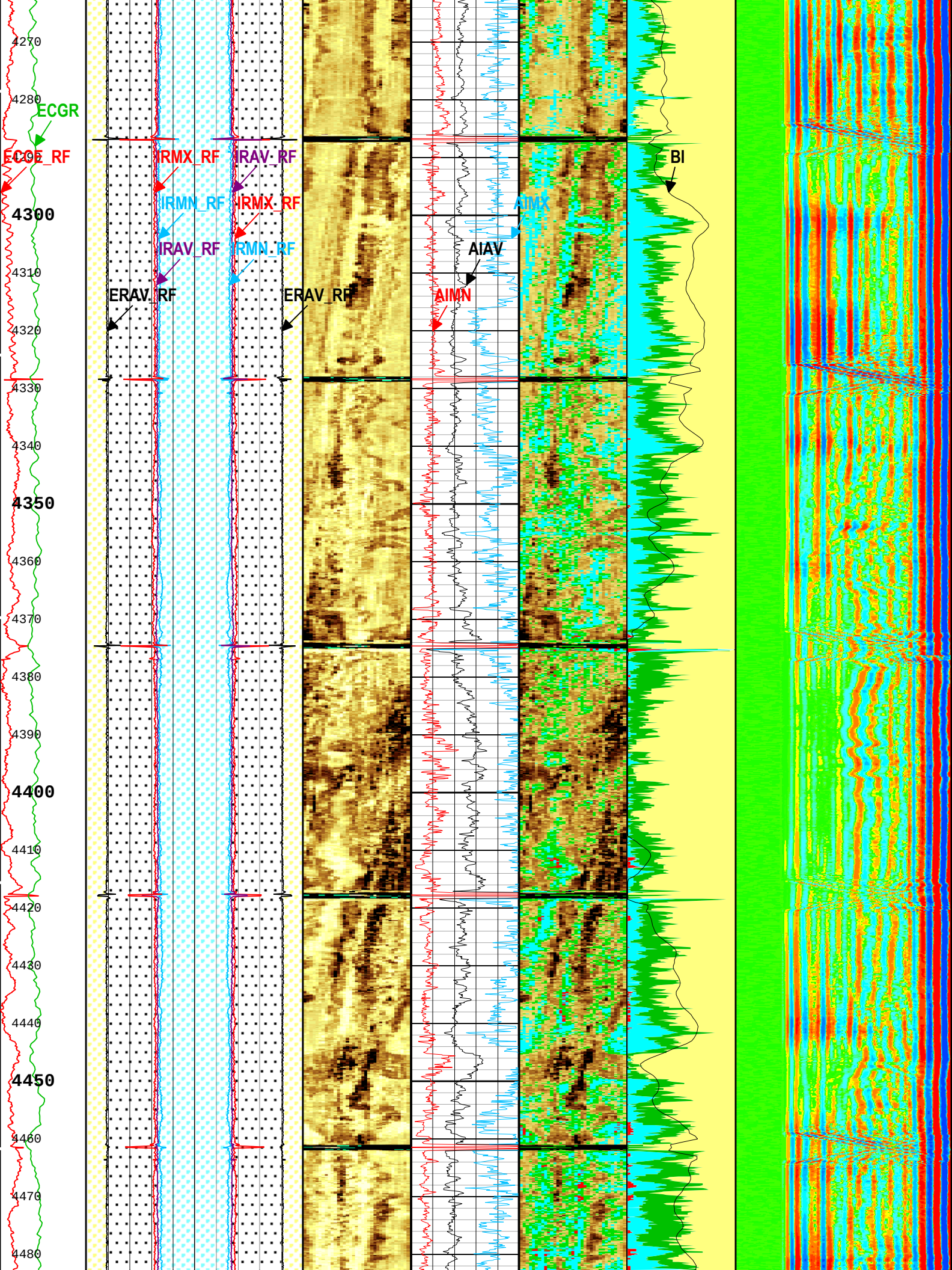
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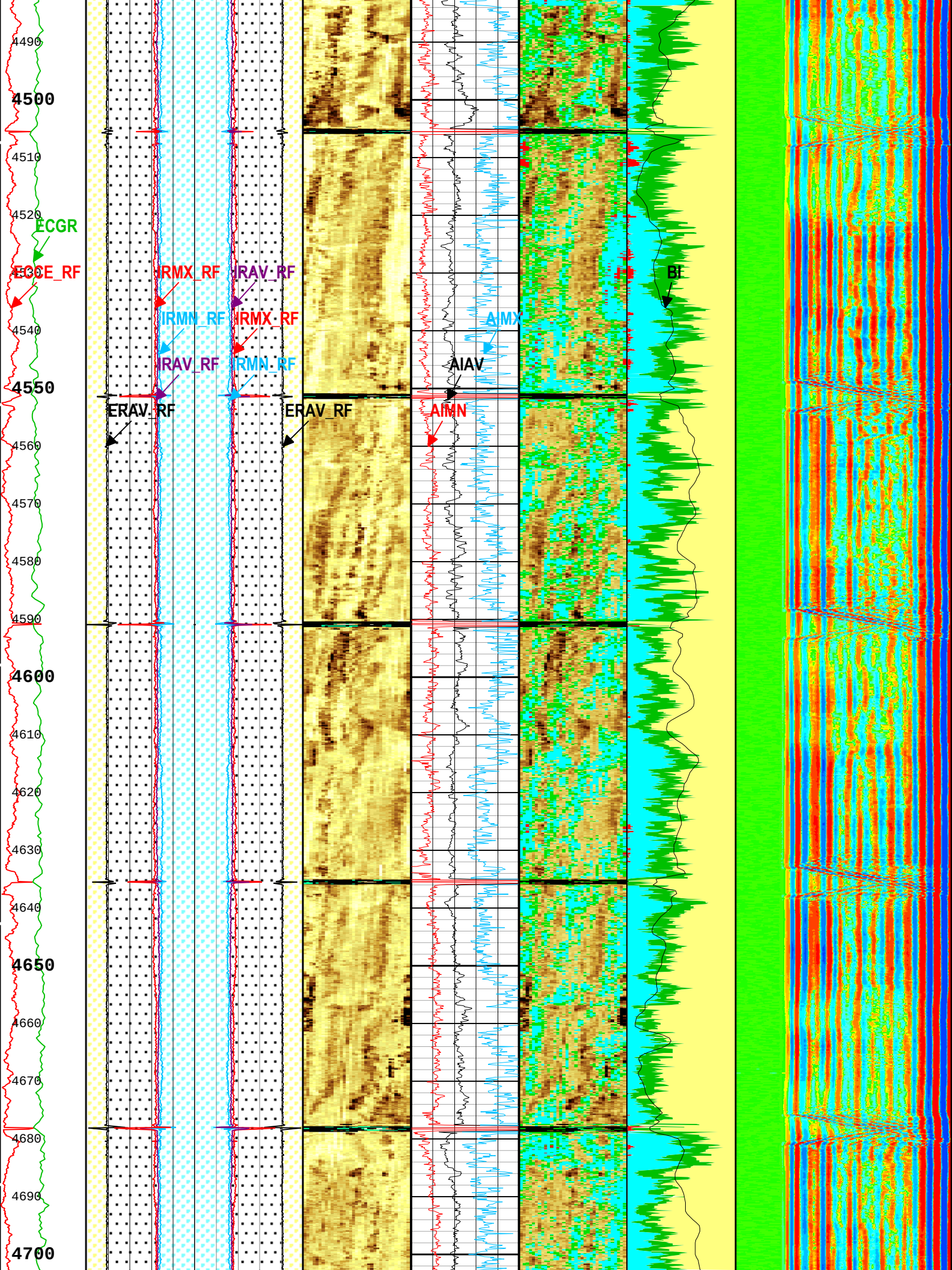
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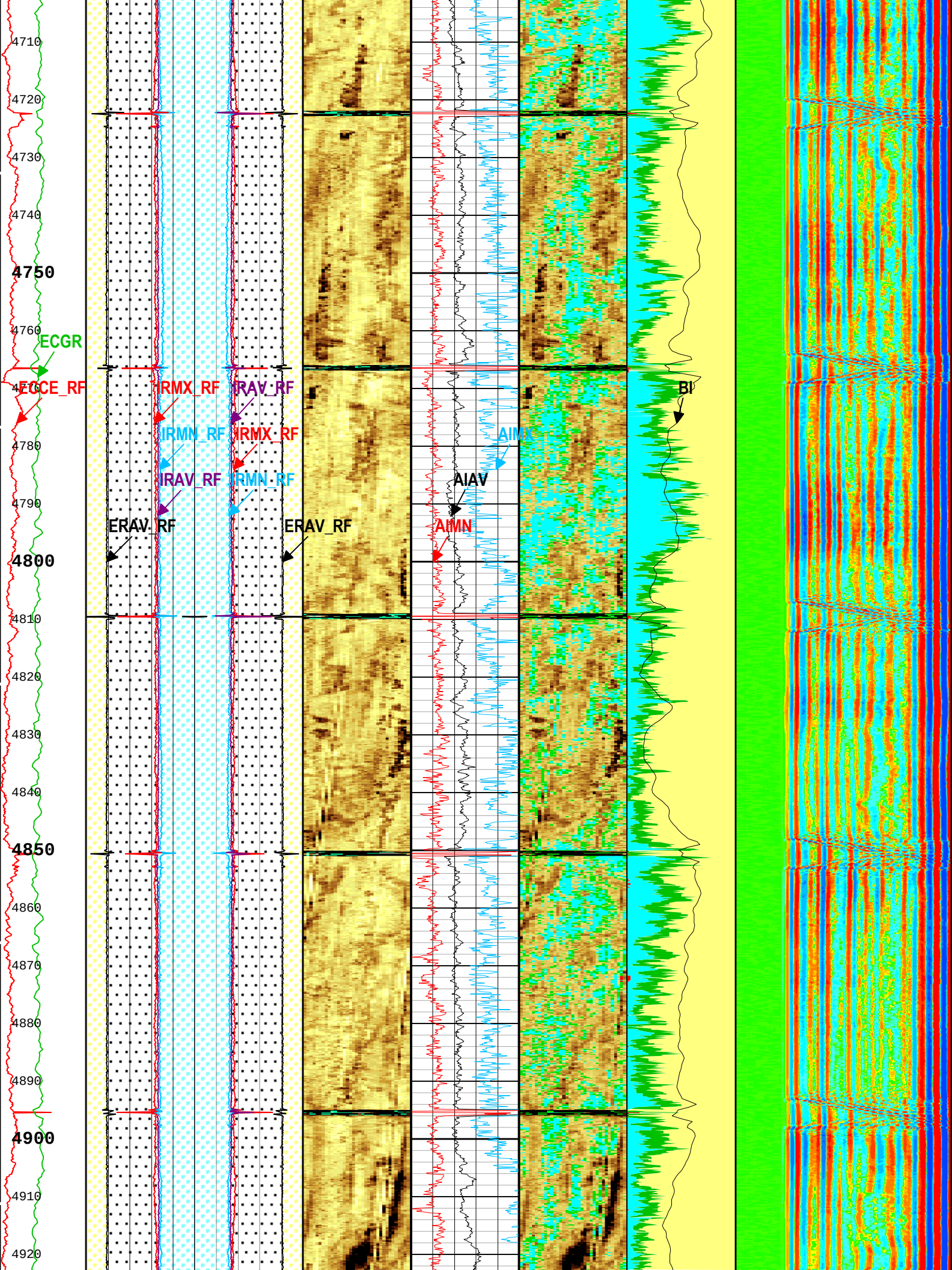
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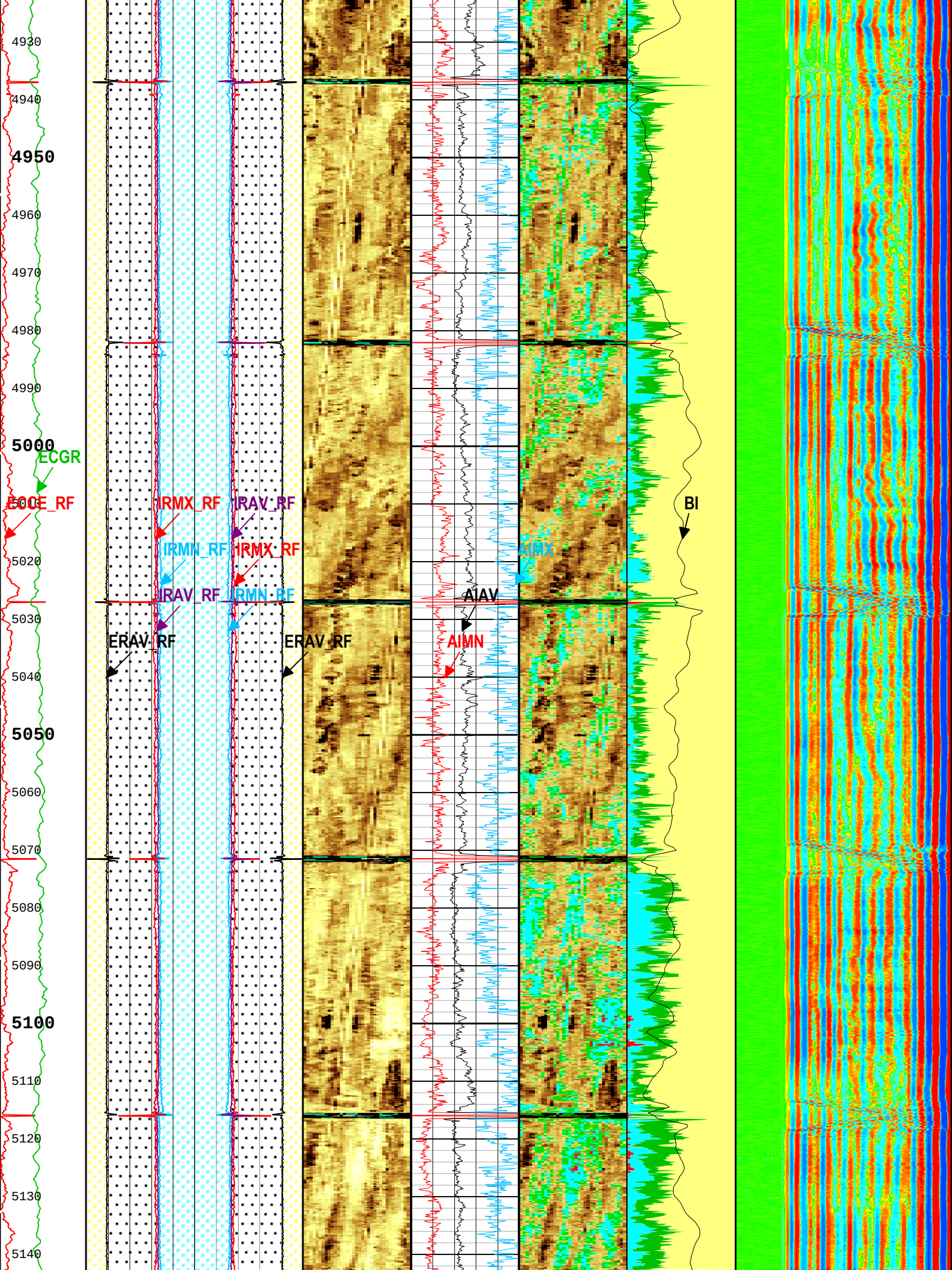
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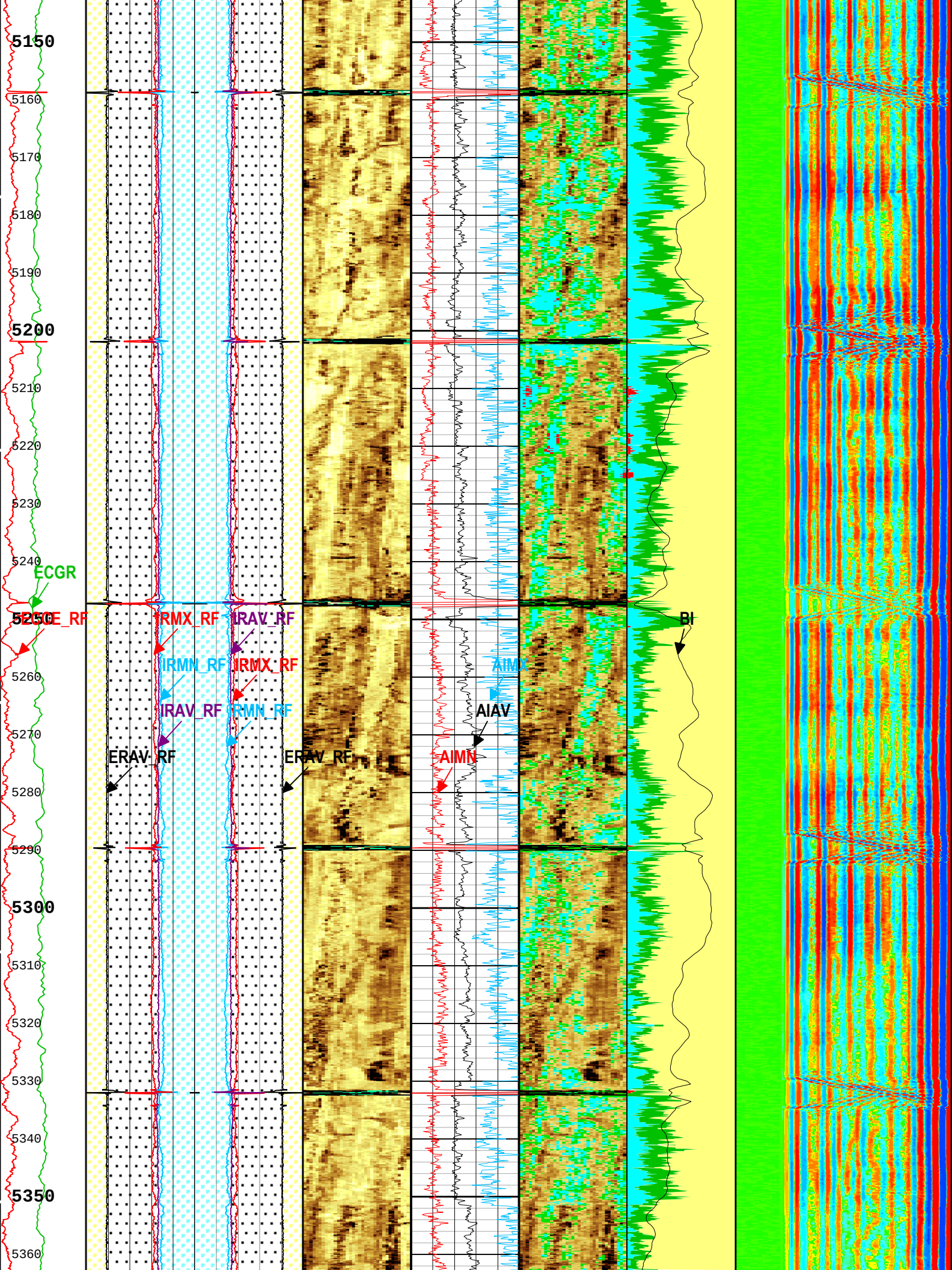
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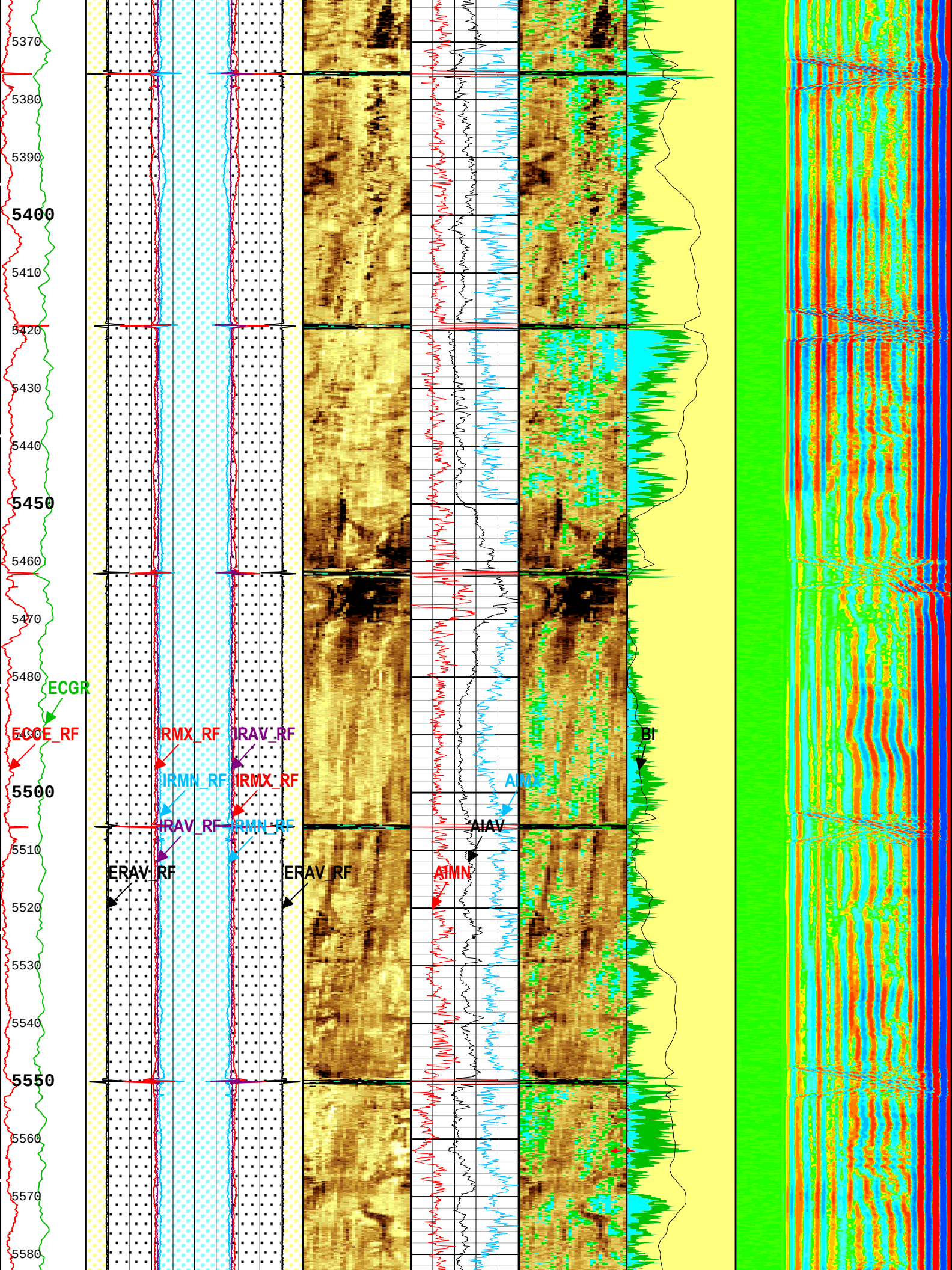
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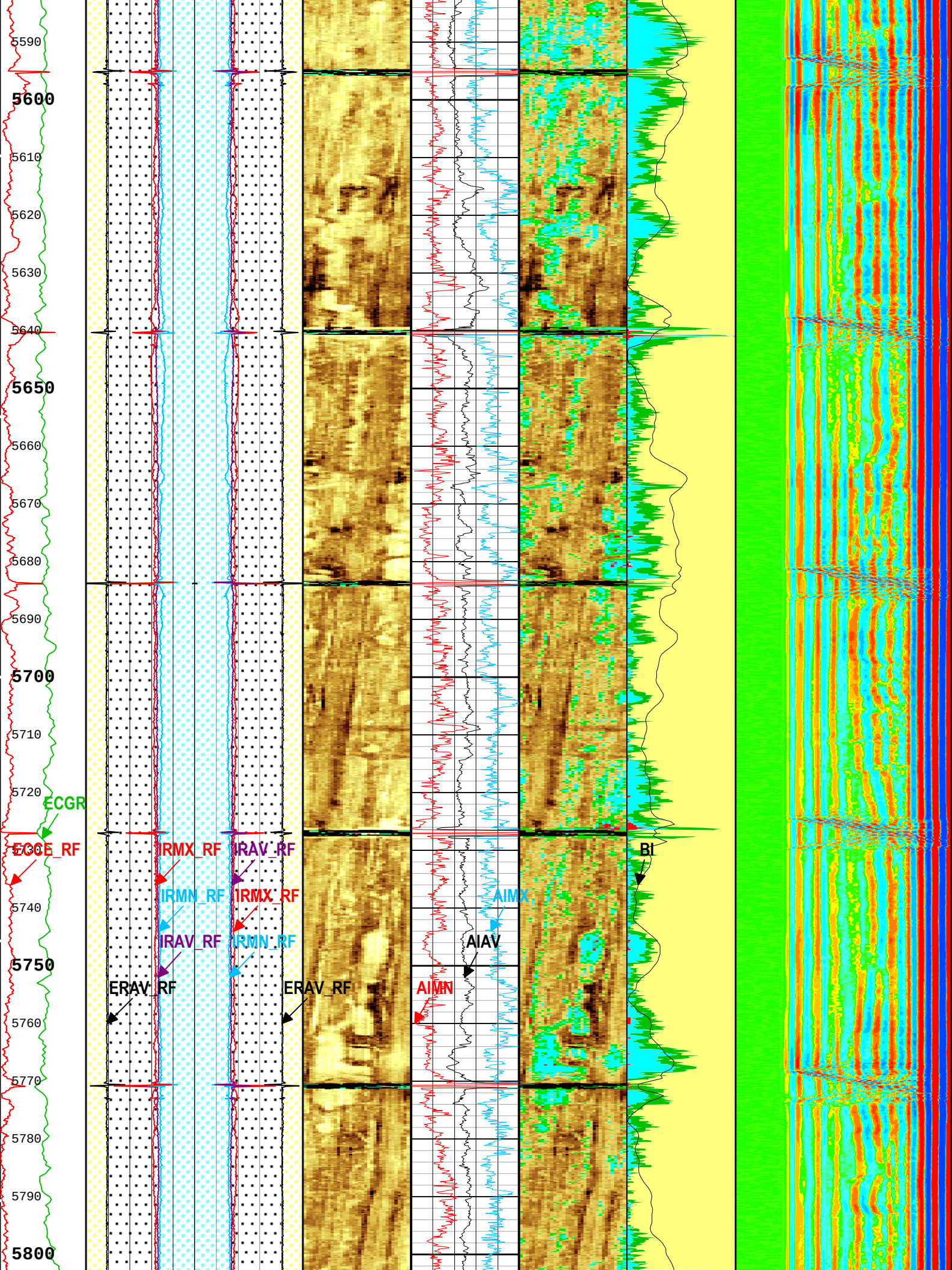
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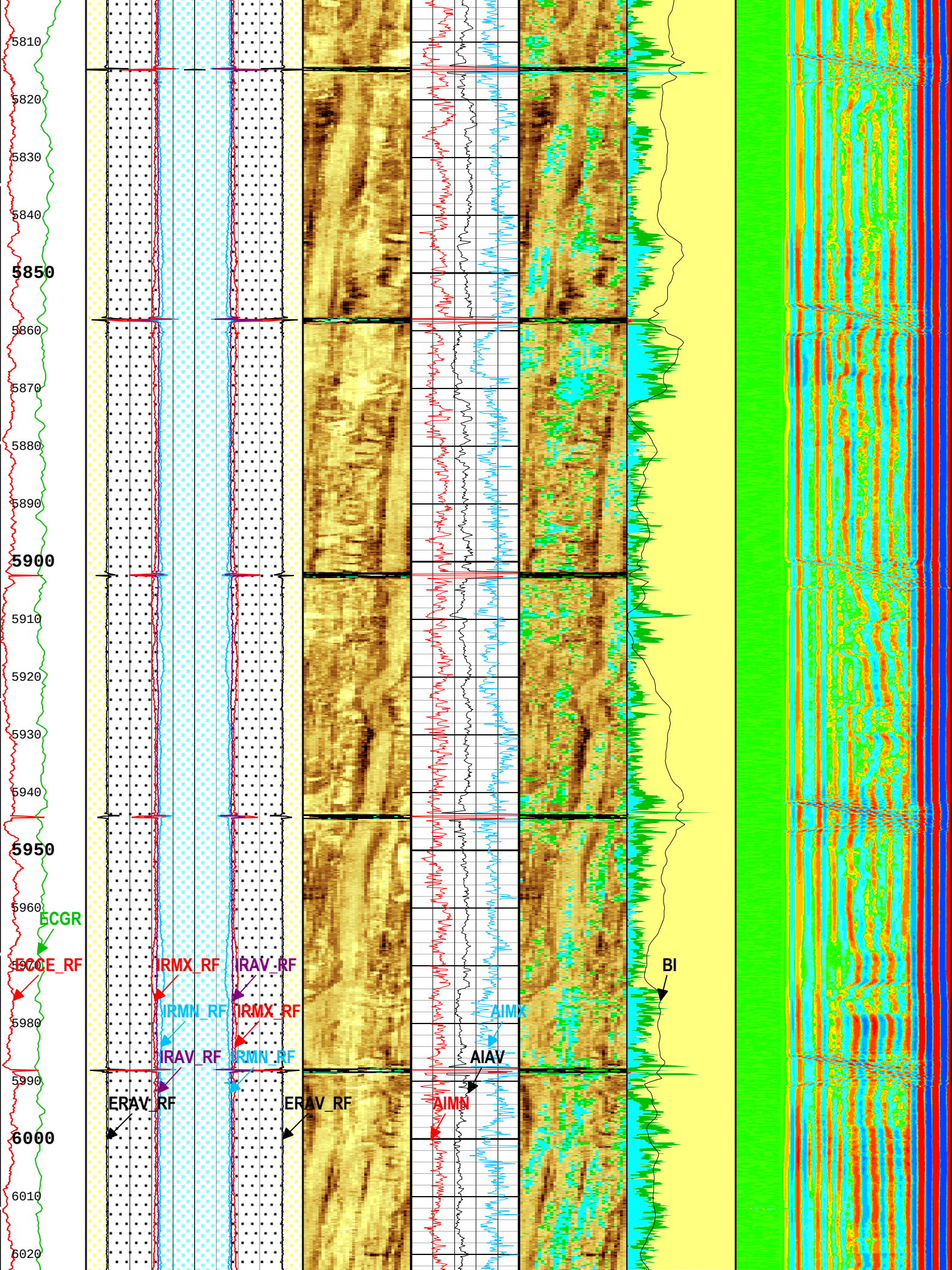
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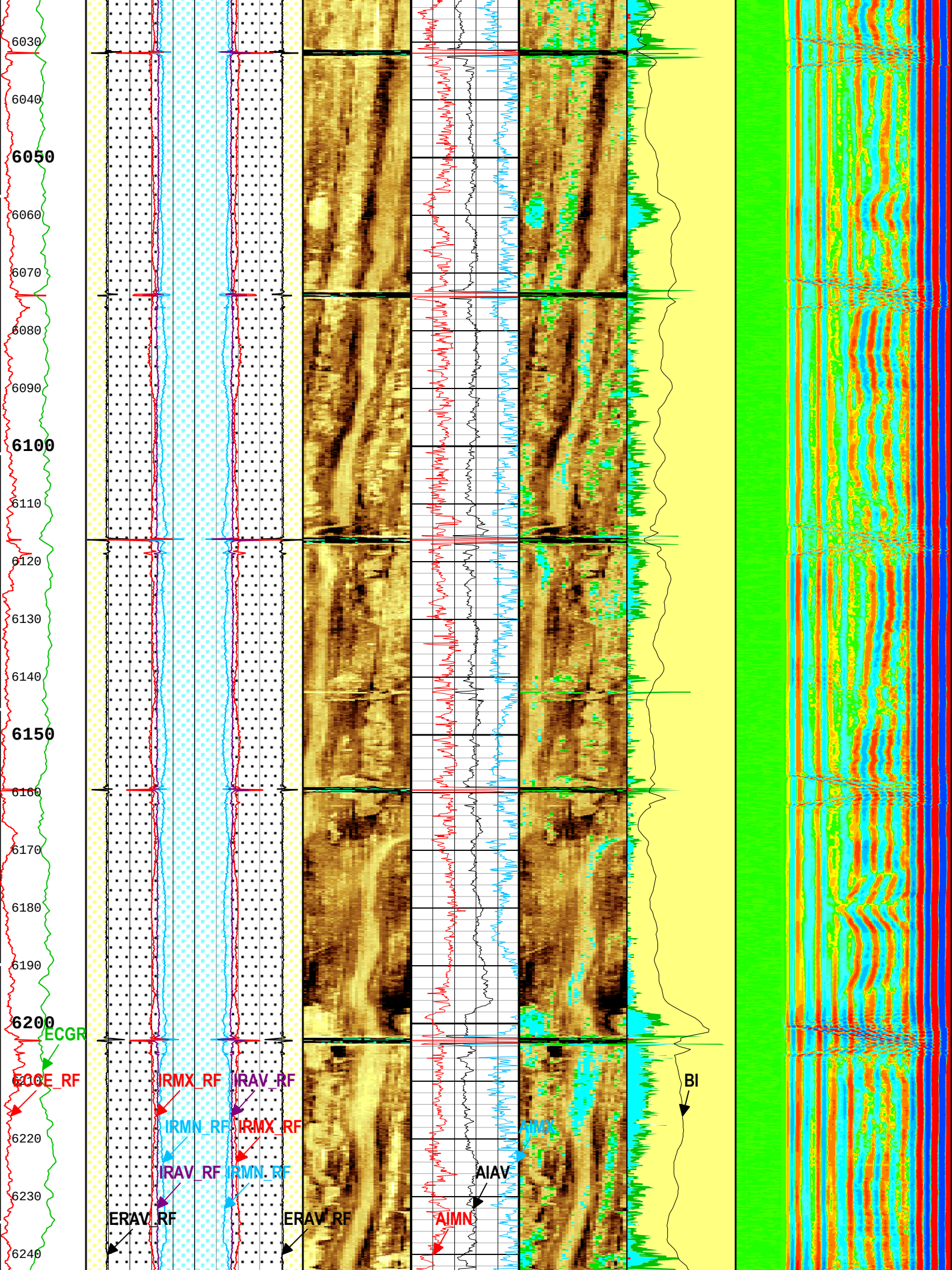
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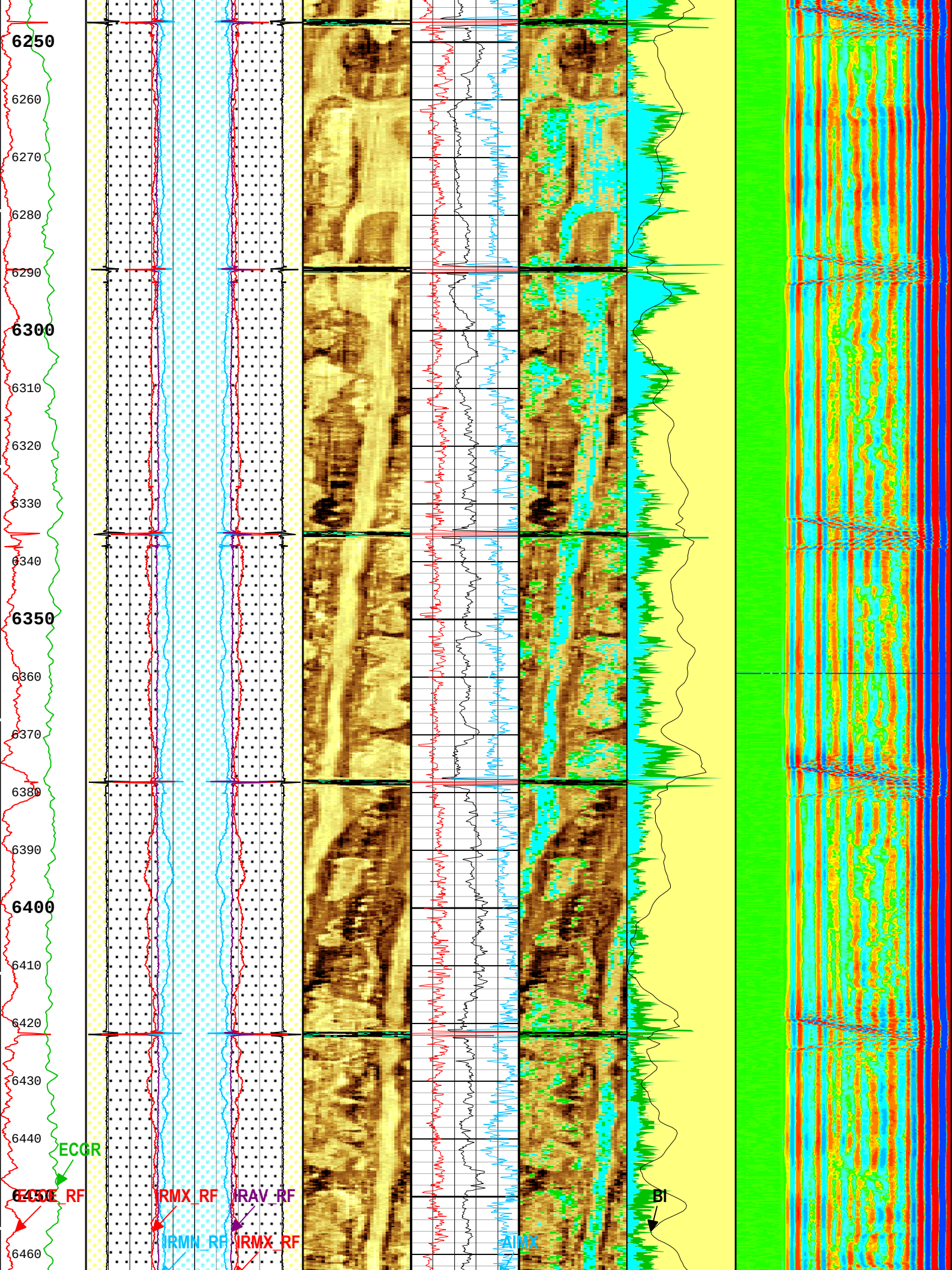
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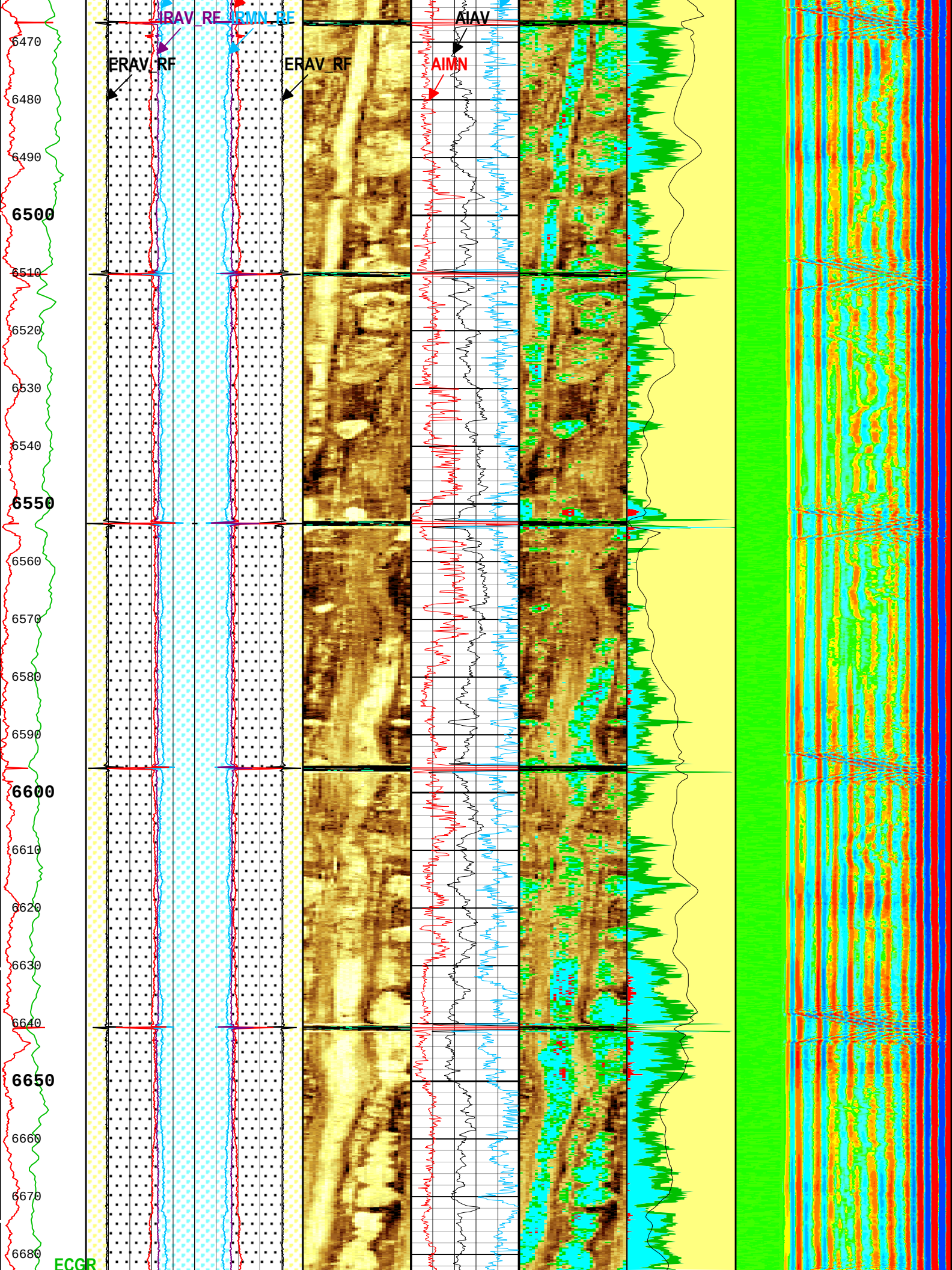
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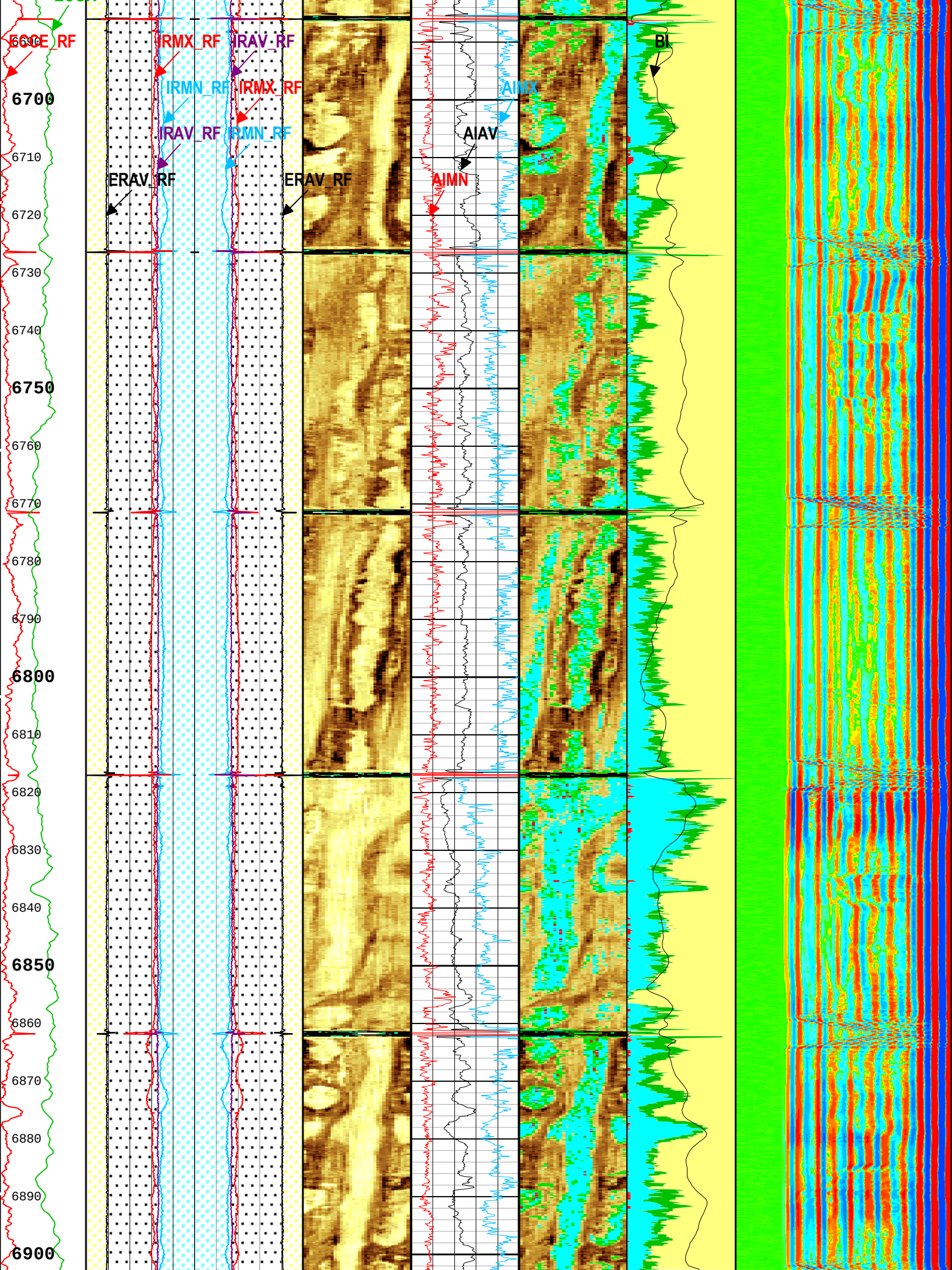
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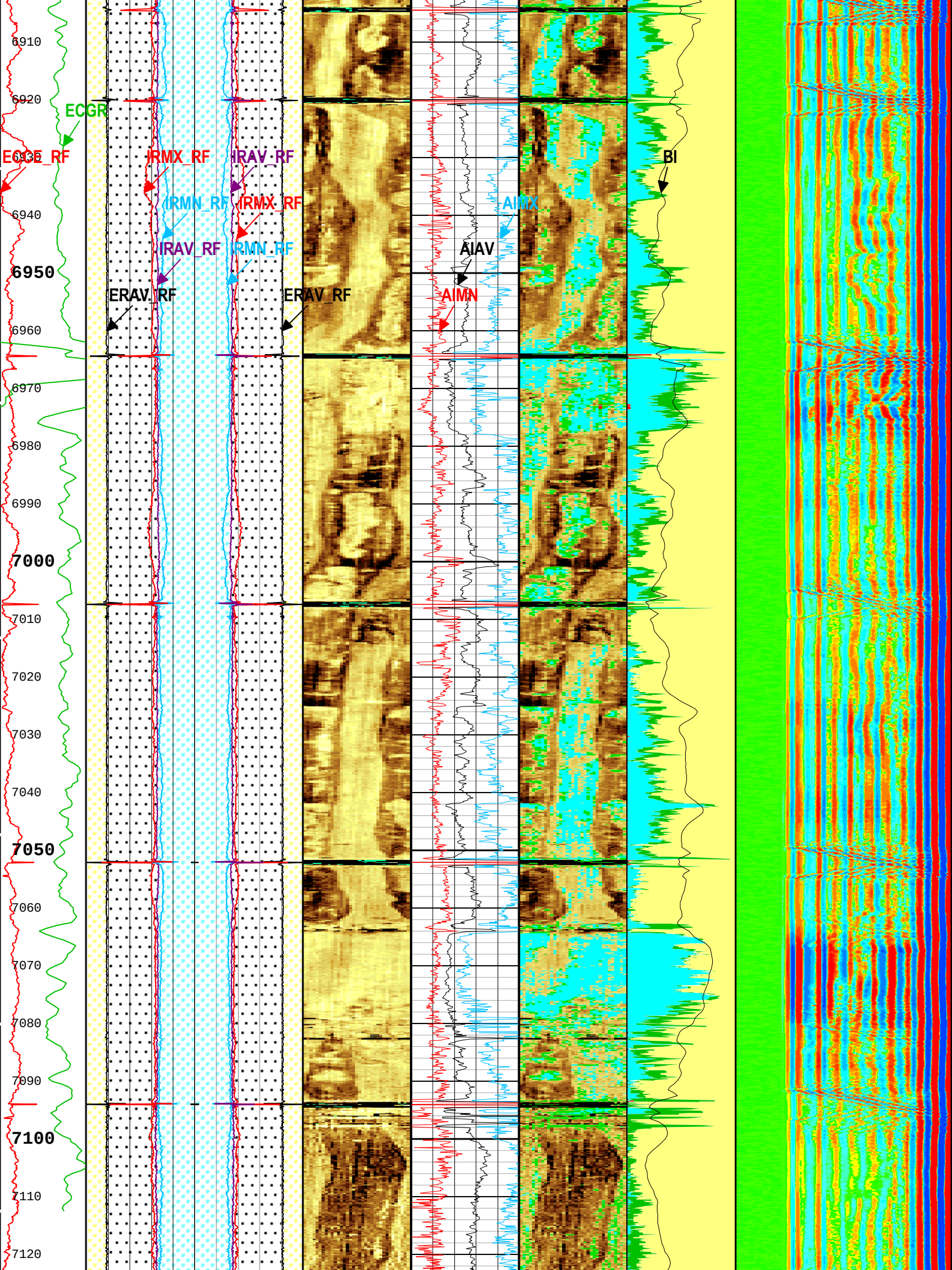
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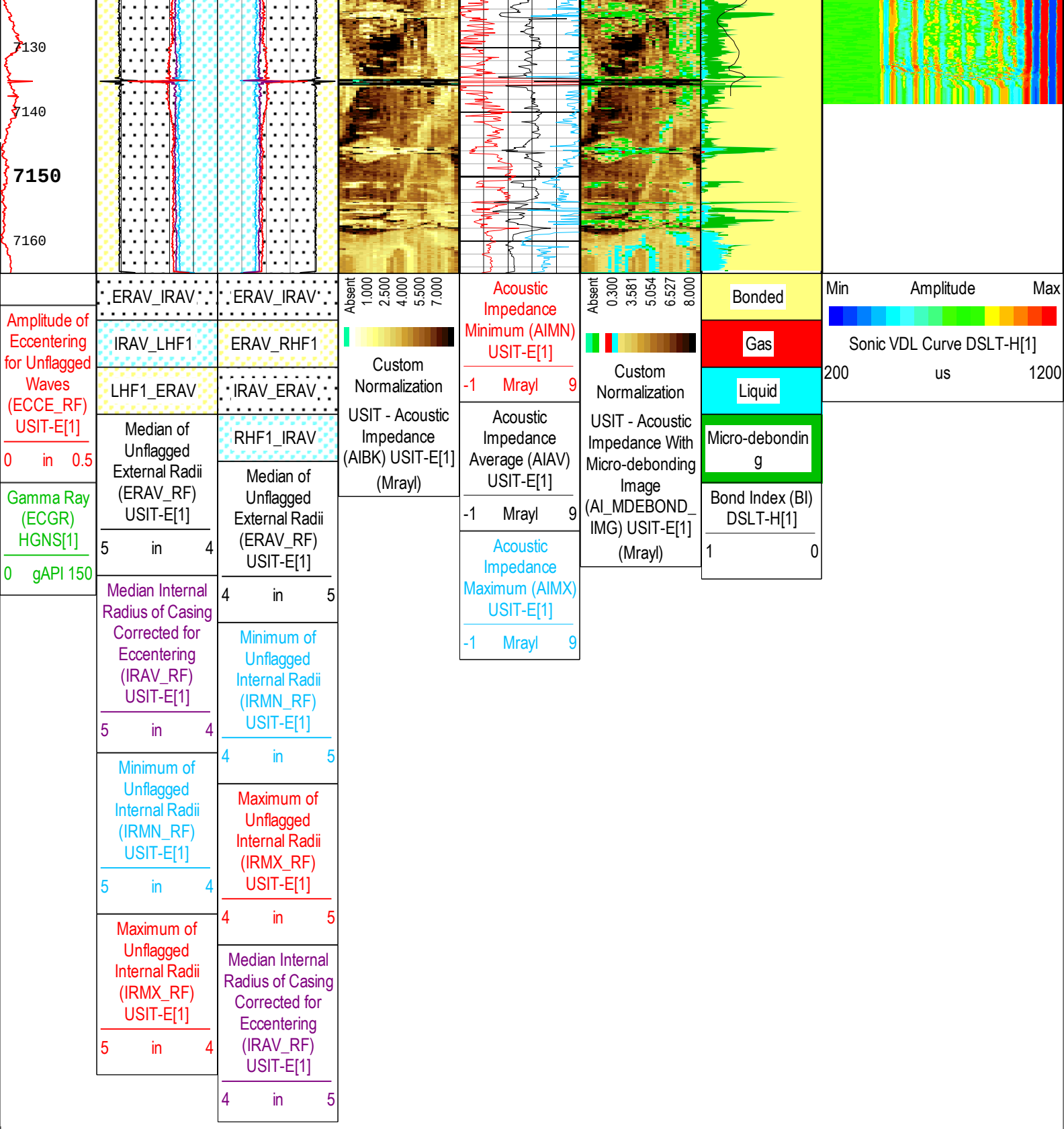


Description: USI VDL Cement Format: Log (LBV1_USI-VDL (DSLT) Cement 9.625inch_hires) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 08-Sep-2016 19:55:05

Channel Processing Parameters

8-Sep-2016: 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	7289	ft
CBRA	CBL LQC Reference Amplitude in Free Pipe	DSLT-H	52	mV
CDEN	Cement Density	HGNS-H	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	0.472	in
DETE	Delta-T Detection	DSLT-H	E1	
DFD	Drilling Fluid Density	Borehole	9.2	lbm/gal
DFT	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	206	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	4.74	mV
GR_MULTIPLIER	Gamma Ray Multiplier	HGNS-H	1	
HEMA	Hematite Presence Flag	Borehole	No	
ICE_PROCESS	ICE Processing	USIT-E	Yes	
IMAR	Image Rotation	USIT-E	Off	
MAHTR	Manual High Threshold Reference for first arrival detection	DSLT-H	120	
MATT_CURR	Maximum Attenuation in Arbitrary Cement	DSLT-H	9.3	dB/ft
MCI	Minimum Cemented Interval for Isolation	DSLT-H	Depth Zoned	ft
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-E	29.67	us
MNHTR	Minimum High Threshold Reference for first arrival detection	DSLT-H	100	
MSA	Minimum Sonic Amplitude	DSLT-H	2.61	mV
MSA_CURR	Minimum Sonic Amplitude in Arbitrary Cement	DSLT-H	2.61	mV
MUD_N_FRP	Free Pipe Mud Normalization Factor	USIT-E	1.06	
MUD_N_THE	Theoretical Mud Normalization Factor	USIT-E	1	
NMSG	Near Minimum Sliding Gate	DSLT-H	315	us
NMXG	Near Maximum Sliding Gate	DSLT-H	950	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	1.378	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	HGNS-H	0.125	in
SOCO	Standoff Correction Option	HGNS-H	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	70	%
HISC	Tool Position: Centered or Eccentered	HGNS-H	Eccentered	
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	0.1	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	1.48	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-E	2.6	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

8-Sep-2016Depth Zoned Parameters

Parameter	Value	Start (ft)	Stop (ft)
BS	17.5	10	843
BS	12.25	843	7165
MCI	21.68	10	843
MCI	14.81	843	7165

All depth are actual.

Tool Control Parameters

8-Sep-2016: 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	4.874	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	Time Zoned	V
HRES	Horizontal Resolution	USIT-E	10 deg	
MOTOR_PROTECT	Motor Protection	USIT-E	Off	
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 500 KHz	
UWKM	USIT Working Mode	USIT-E	Uncompressed 10 deg at 1.5 in LF	
USIT_DEPTHLOG	Starting Depth Log for Ultrasonics	USIT-E	7170	ft
USSP	Ultrasonic Service	USIT-E	USI	
VRES	Vertical Resolution	USIT-E	1.5 in	
WINB	Window Begin Time	USIT-E	Time Zoned	us
WINE	Window End Time	USIT-E	Time Zoned	us
WMOD	Waveform Firing Mode	DSLT-H	Full	

8-Sep-2016Time Zoned Parameters

Pass Log[6]:Up

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
EMXV	42	08-Sep-2016 09:51:46	08-Sep-2016 09:56:16	7165.26	7038.28
EMXV	35	08-Sep-2016 09:56:16	08-Sep-2016 09:56:25	7038.28	7033.18
EMXV	30	08-Sep-2016 09:56:25	08-Sep-2016 09:56:30	7033.18	7030.36
EMXV	32	08-Sep-2016 09:56:30	08-Sep-2016 12:33:17	7030.36	247.09
WINB	38	08-Sep-2016 09:52:20	08-Sep-2016 12:33:17	7165.26	247.09
WINE	100	08-Sep-2016 09:52:20	08-Sep-2016 12:33:17	7165.26	247.09

Pass Log[9]:Up

EMXV	32	08-Sep-2016 15:04:09	08-Sep-2016 15:13:17	246.88	10.63
WINB	45.35	08-Sep-2016 15:04:09	08-Sep-2016 15:13:17	246.88	10.63
WINE	85.35	08-Sep-2016 15:04:09	08-Sep-2016 15:13:17	246.88	10.63

All depth are at tool zero.

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
8-Sep-2016	Log[6]:Up	Up	149.92 ft	7165.27 ft	08-Sep-2016 9:51:46 AM	08-Sep-2016 12:33:17 PM	ON	-8.00 ft	No
8-Sep-2016	Log[9]:Up	Up	10.60 ft	348.17 ft	08-Sep-2016 2:55:22 PM	08-Sep-2016 3:13:17 PM	ON	2.00 ft	No

All depths are referenced to toolstring zero

Log

Company:Southern California Gas Company Well:Porter 69E

Composite 1:S002

Description: USI Composite Format: Log (LBV1_USI Composite 9.625inch_hires) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth
Creation Date: 08-Sep-2016 19:55:43

TIME_1900 - Time Marked every 60.00 (s)

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

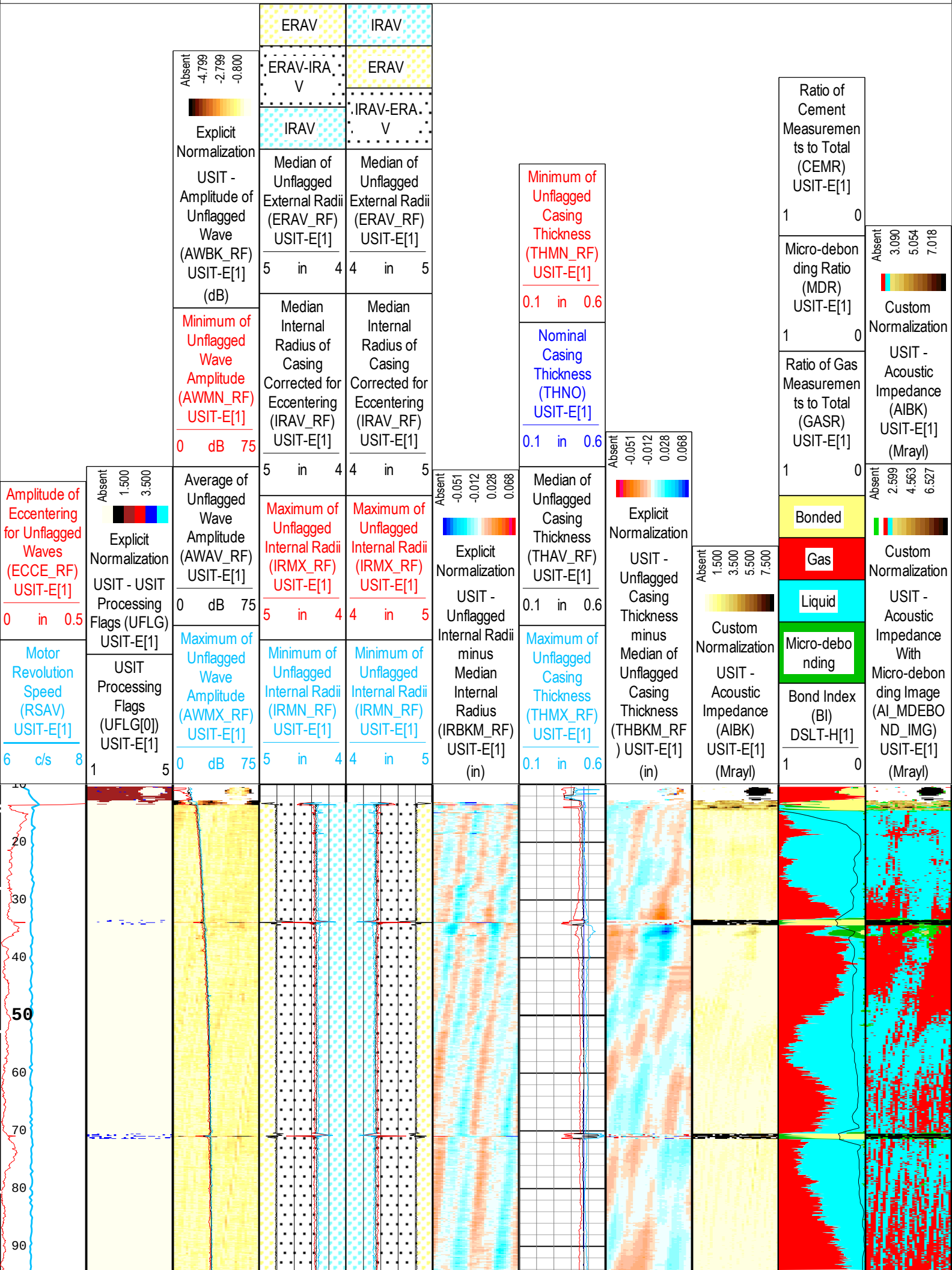
1 - UFLG 1 Value within [0.0 - 1.5] - : UTIM Error

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


Amplitude of Eccentering for Unflagged Waves (ECCE_RF) USIT-E[1]
0 in 0.5
Motor Revolution Speed (RSAV) USIT-E[1]
6 c/s 8
Absent 1.500 3.500
Explicit Normalization
USIT - USIT Processing Flags (UFLG) USIT-E[1]
USIT Processing Flags (UFLG[0]) USIT-E[1]
1 5
Absent -4.799 -2.799 -0.800
Explicit Normalization
USIT - Amplitude of Unflagged Wave (AWBK_RF) USIT-E[1] (dB)
Minimum of Unflagged Wave Amplitude (AWMN_RF) USIT-E[1]
0 dB 75
Average of Unflagged Wave Amplitude (AWAV_RF) USIT-E[1]
0 dB 75
Maximum of Unflagged Wave Amplitude (AWMX_RF) USIT-E[1]
0 dB 75
ERAV
ERAV-IRAV
IRAV
Median of Unflagged External Radii (ERAV_RF) USIT-E[1]
5 in 4
Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E[1]
5 in 4
Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E[1]
5 in 4
Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E[1]
5 in 4
IRAV
ERAV
IRAV-ERAV
Median of Unflagged External Radii (ERAV_RF) USIT-E[1]
4 in 5
Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E[1]
4 in 5
Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E[1]
4 in 5
Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E[1]
4 in 5
Absent -0.051 -0.012 0.028 0.068
Explicit Normalization
USIT - Unflagged Internal Radii minus Median Internal Radius (IRBKM_RF) USIT-E[1] (in)
Minimum of Unflagged Casing Thickness (THMN_RF) USIT-E[1]
0.1 in 0.6
Nominal Casing Thickness (THNO) USIT-E[1]
0.1 in 0.6
Median of Unflagged Casing Thickness (THAV_RF) USIT-E[1]
0.1 in 0.6
Maximum of Unflagged Casing Thickness (THMX_RF) USIT-E[1]
0.1 in 0.6
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[1] (in)
Absent 1.500 3.500 5.500 7.500
Custom Normalization
USIT - Acoustic Impedance (AIBK) USIT-E[1] (Mrayl)
Ratio of Cement Measurements to Total (CEMR) USIT-E[1]
1 0
Micro-debonding Ratio (MDR) USIT-E[1]
1 0
Ratio of Gas Measurements to Total (GASR) USIT-E[1]
1 0
Bonded
Gas
Liquid
Micro-debonding
Bond Index (BI) DSLT-H[1]
1 0
Absent 3.090 5.054 7.018
Custom Normalization
USIT - Acoustic Impedance (AIBK) USIT-E[1] (Mrayl)
Absent 2.599 4.563 6.527
Custom Normalization
USIT - Acoustic Impedance With Micro-debonding Image (AI_MDEBOND_IMG) USIT-E[1] (Mrayl)
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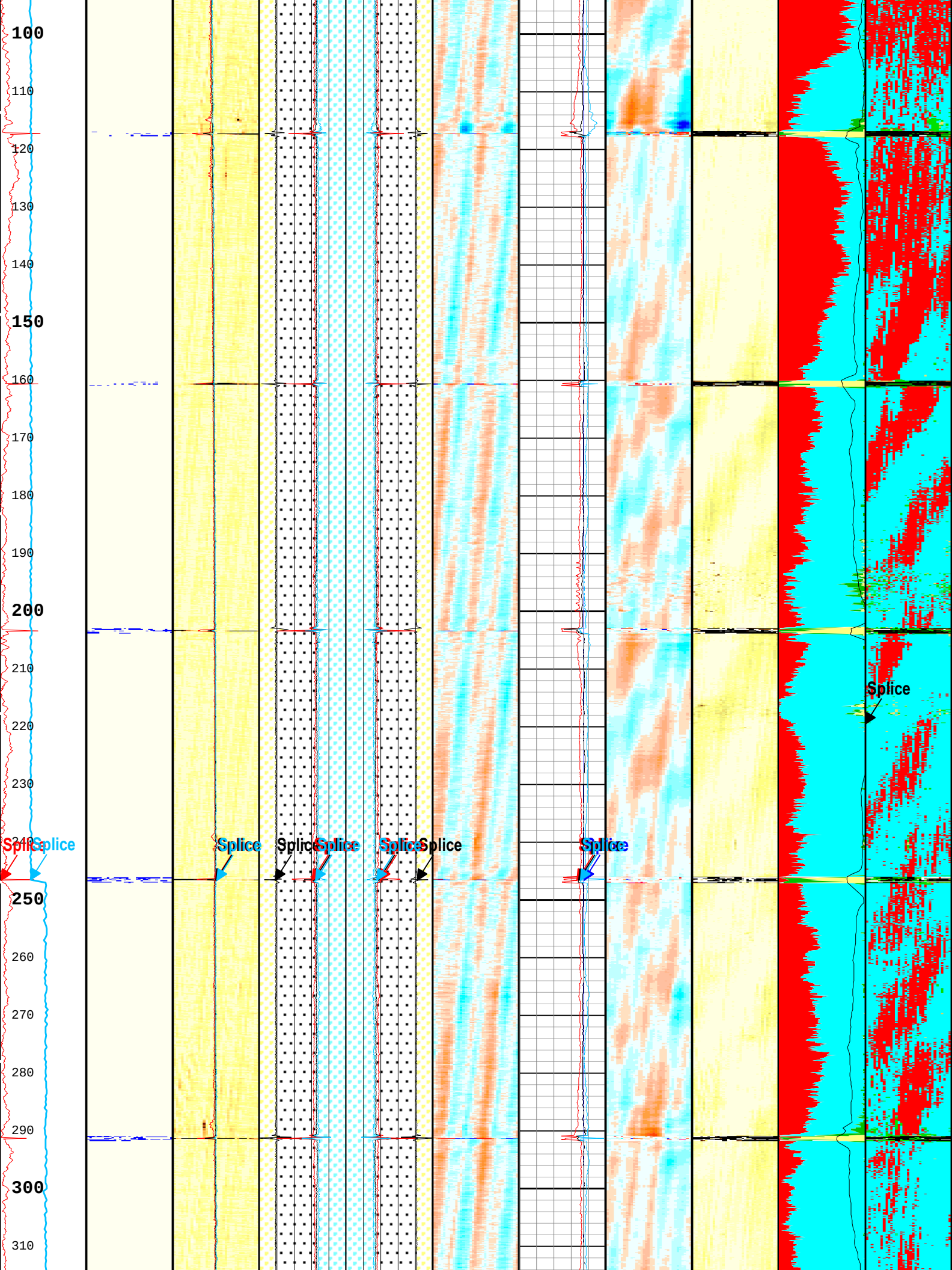
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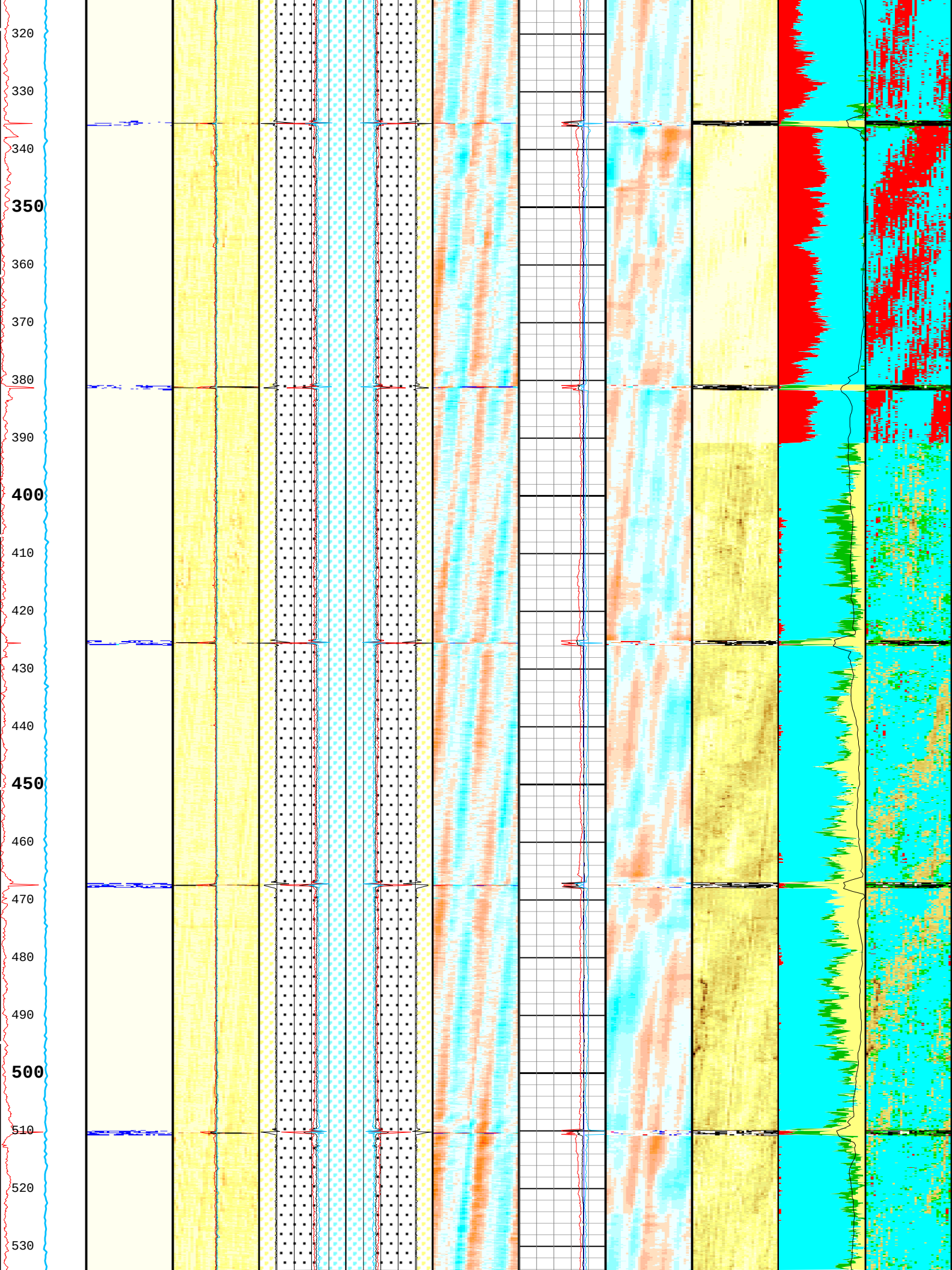
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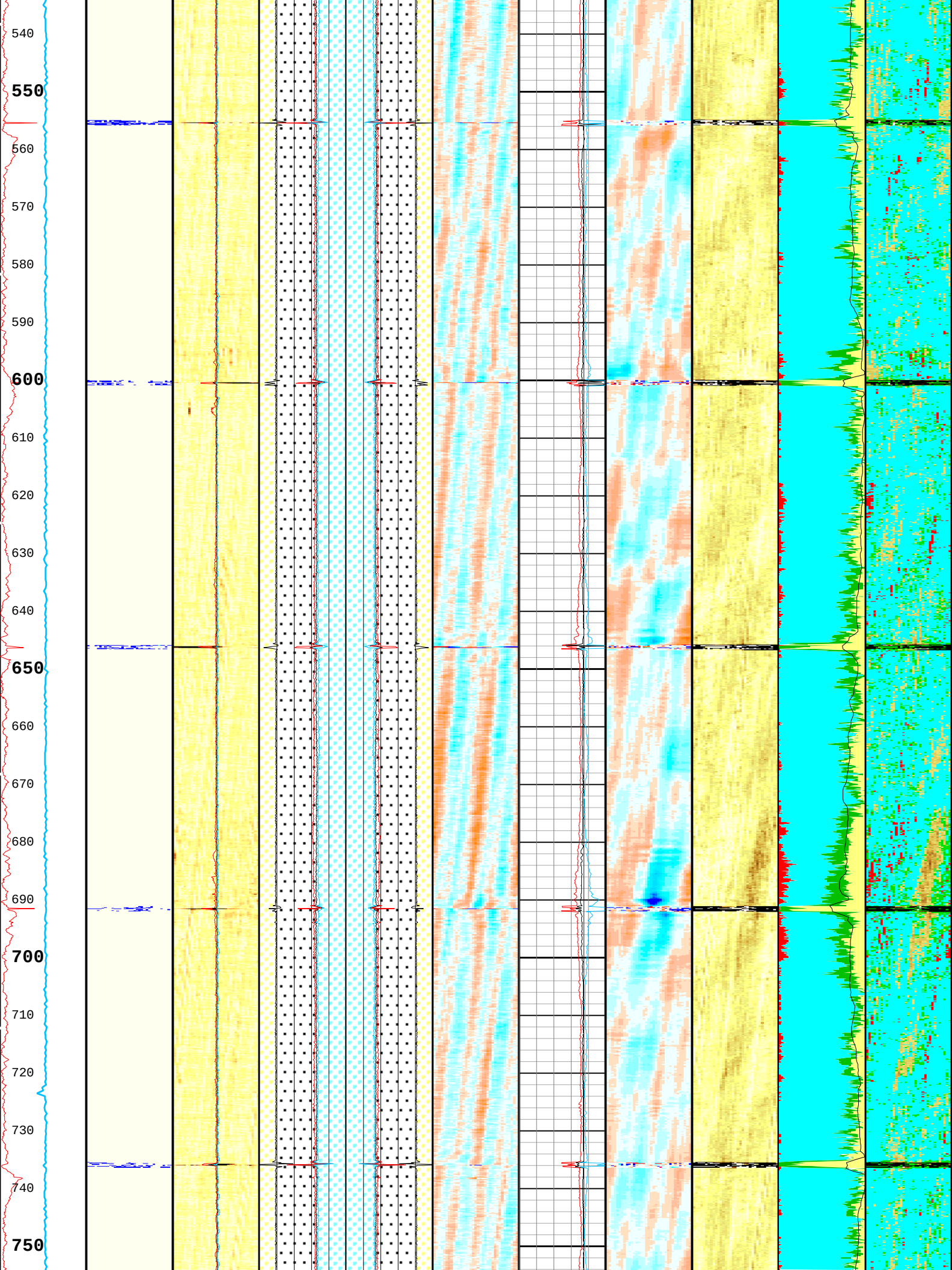
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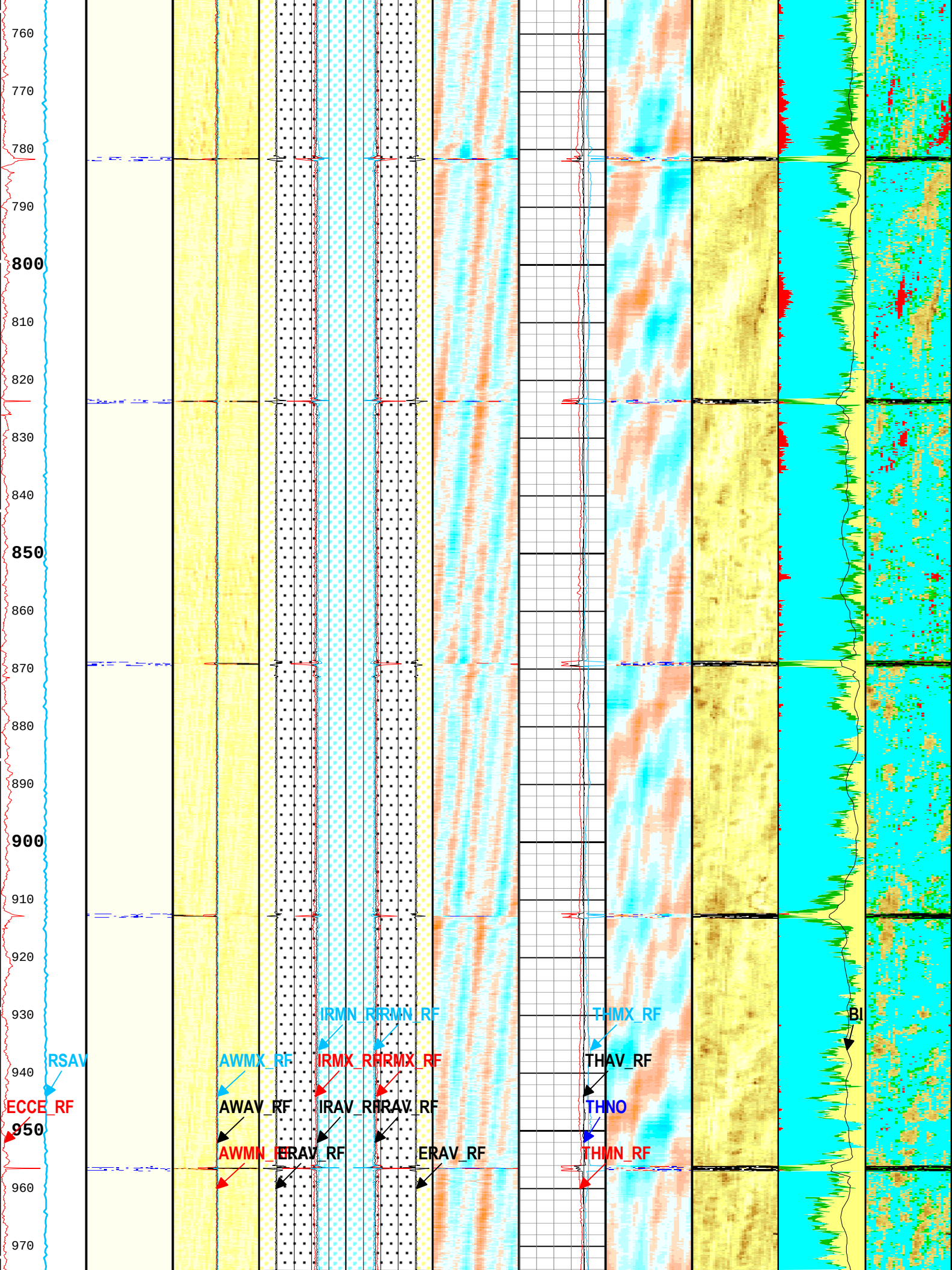
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RSAV
ECCE_RF
AWMX_RF
AWAV_RF
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IRMN_RF
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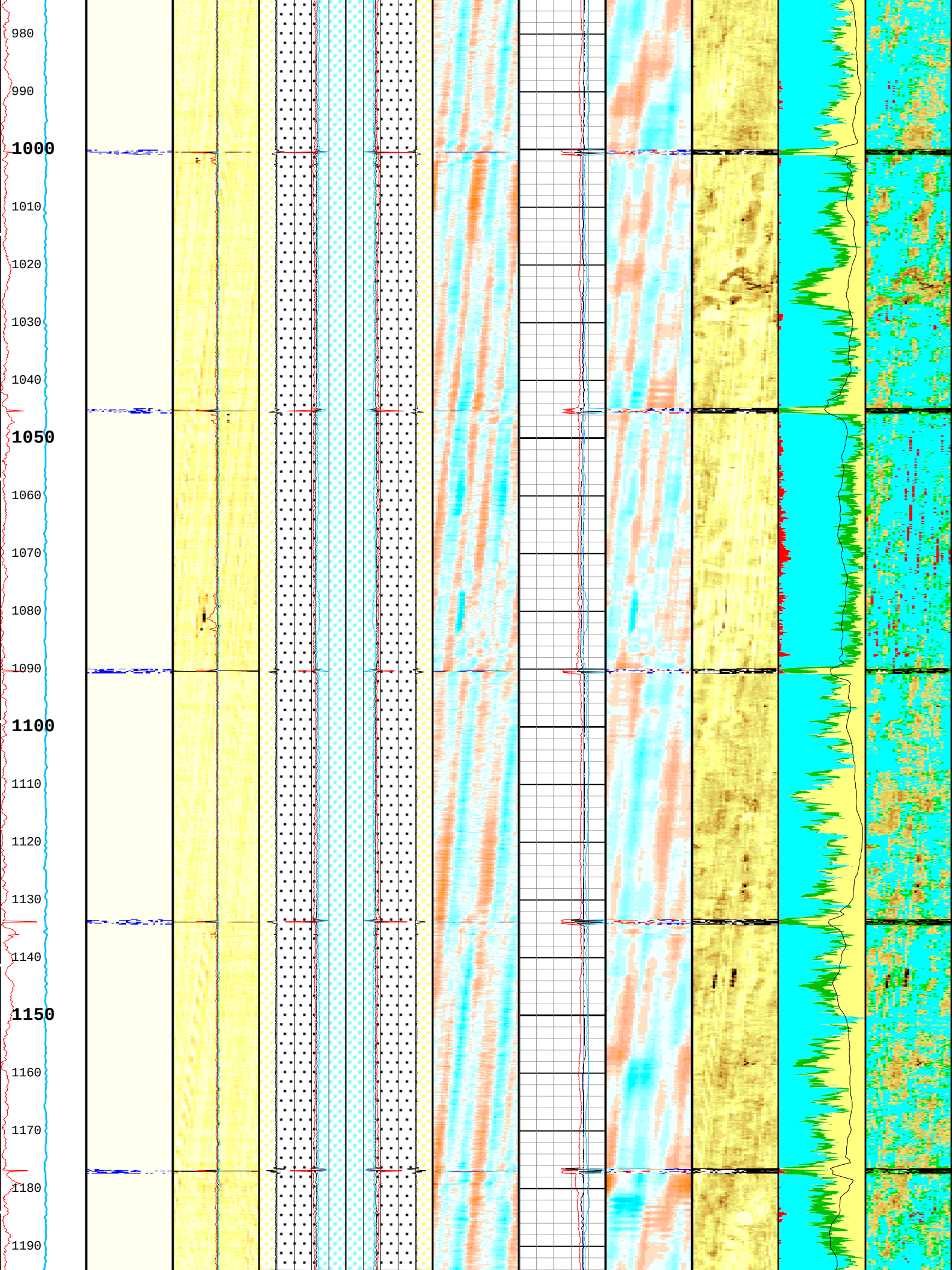
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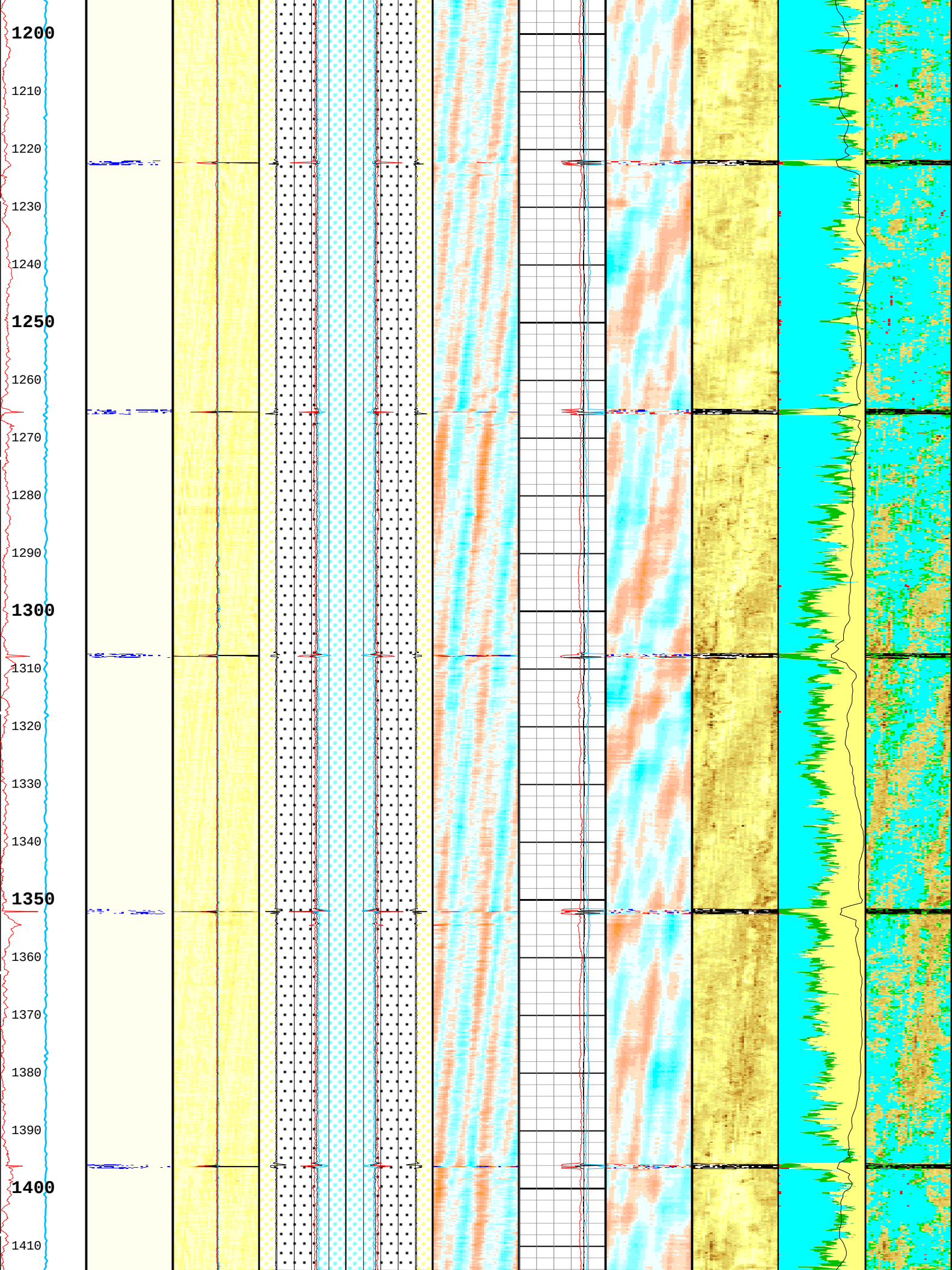
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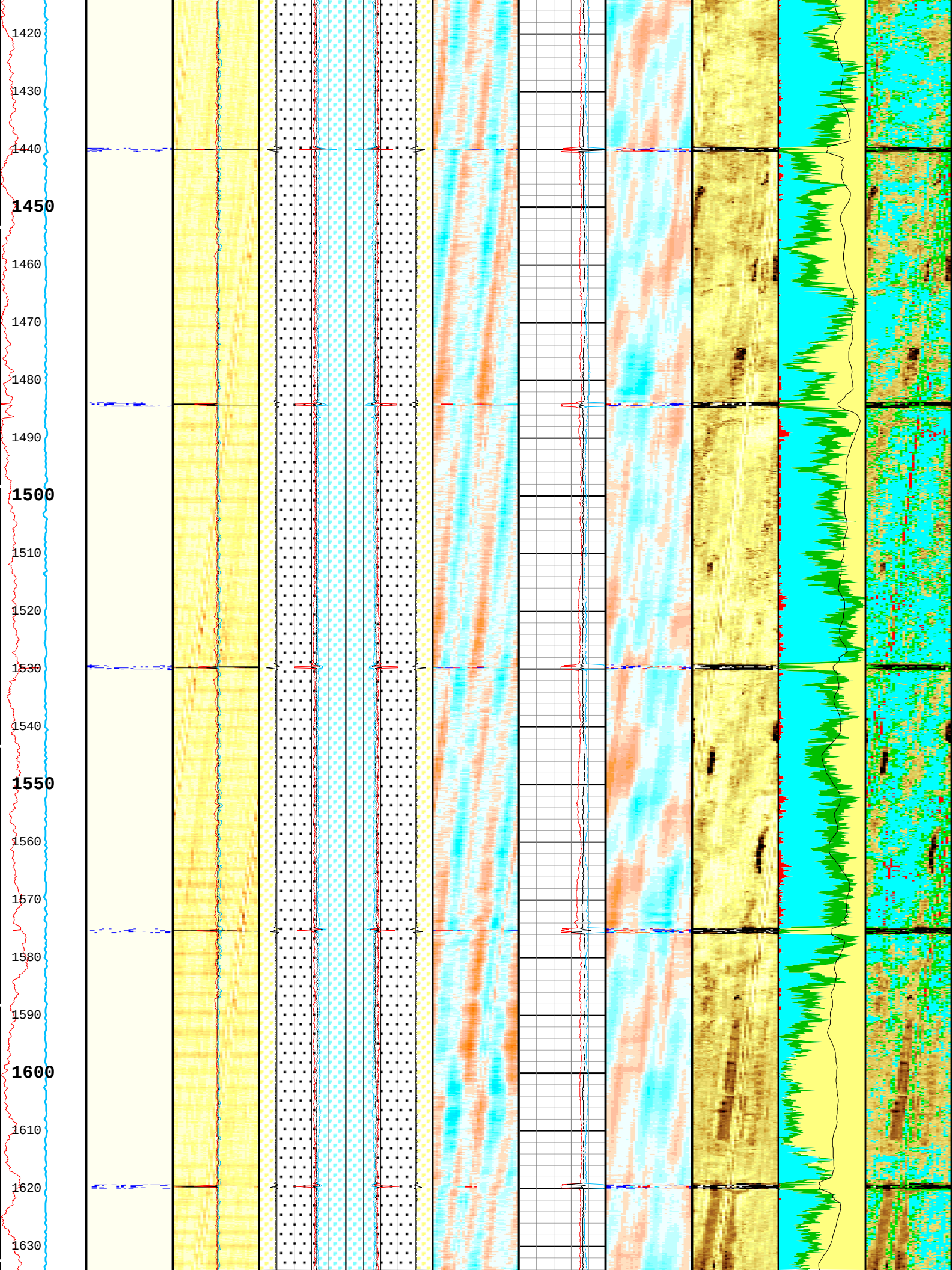
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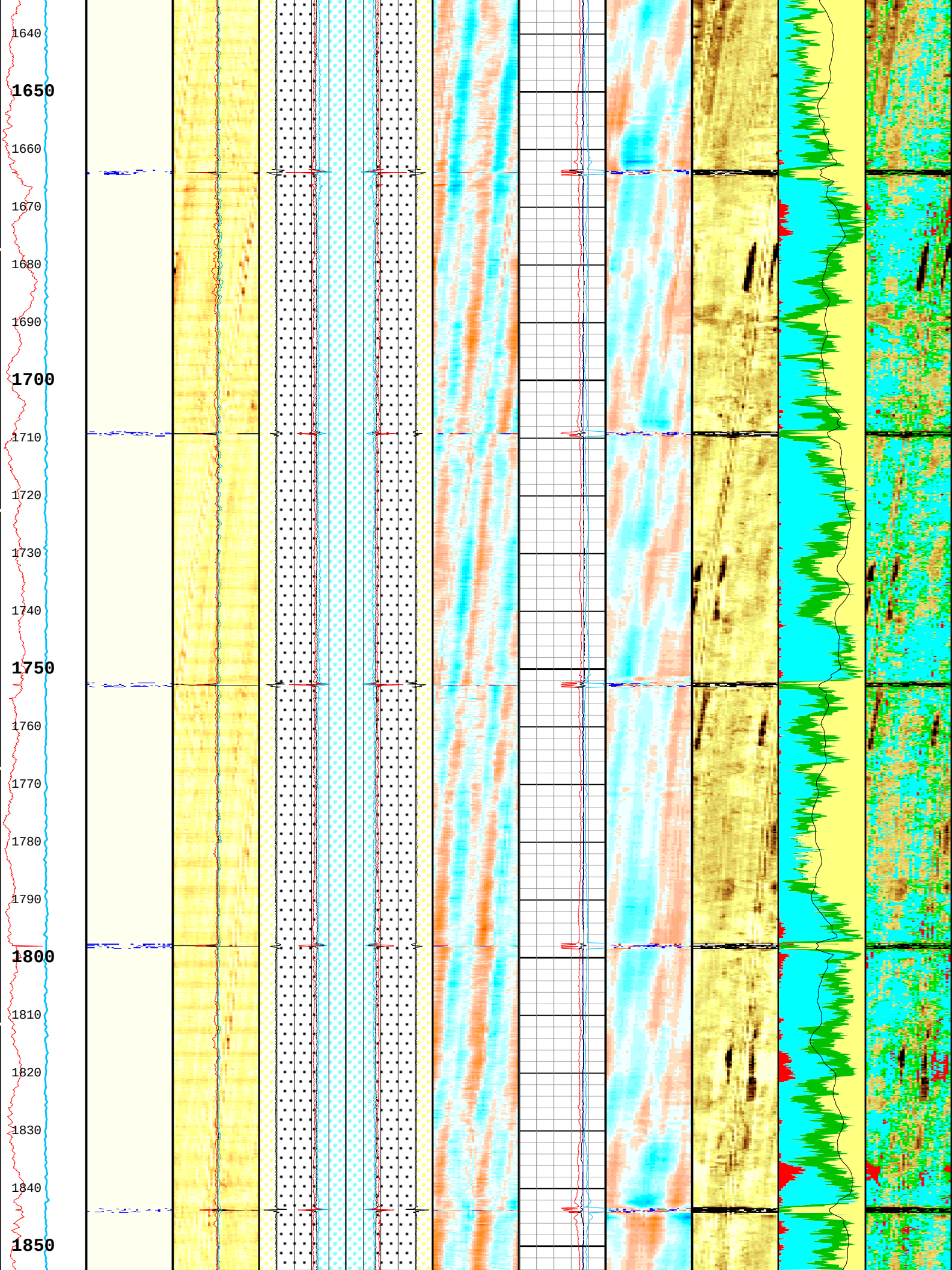
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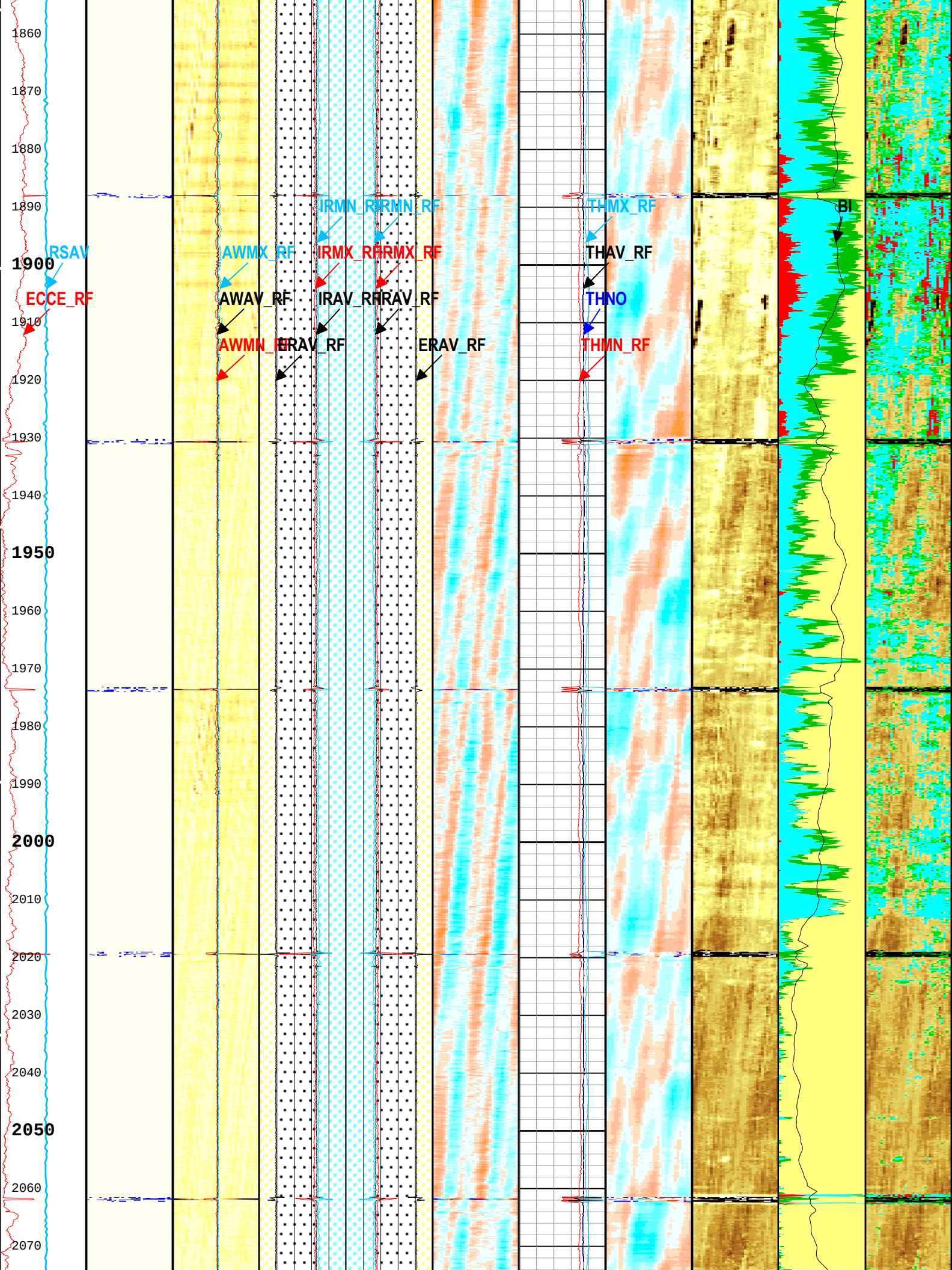
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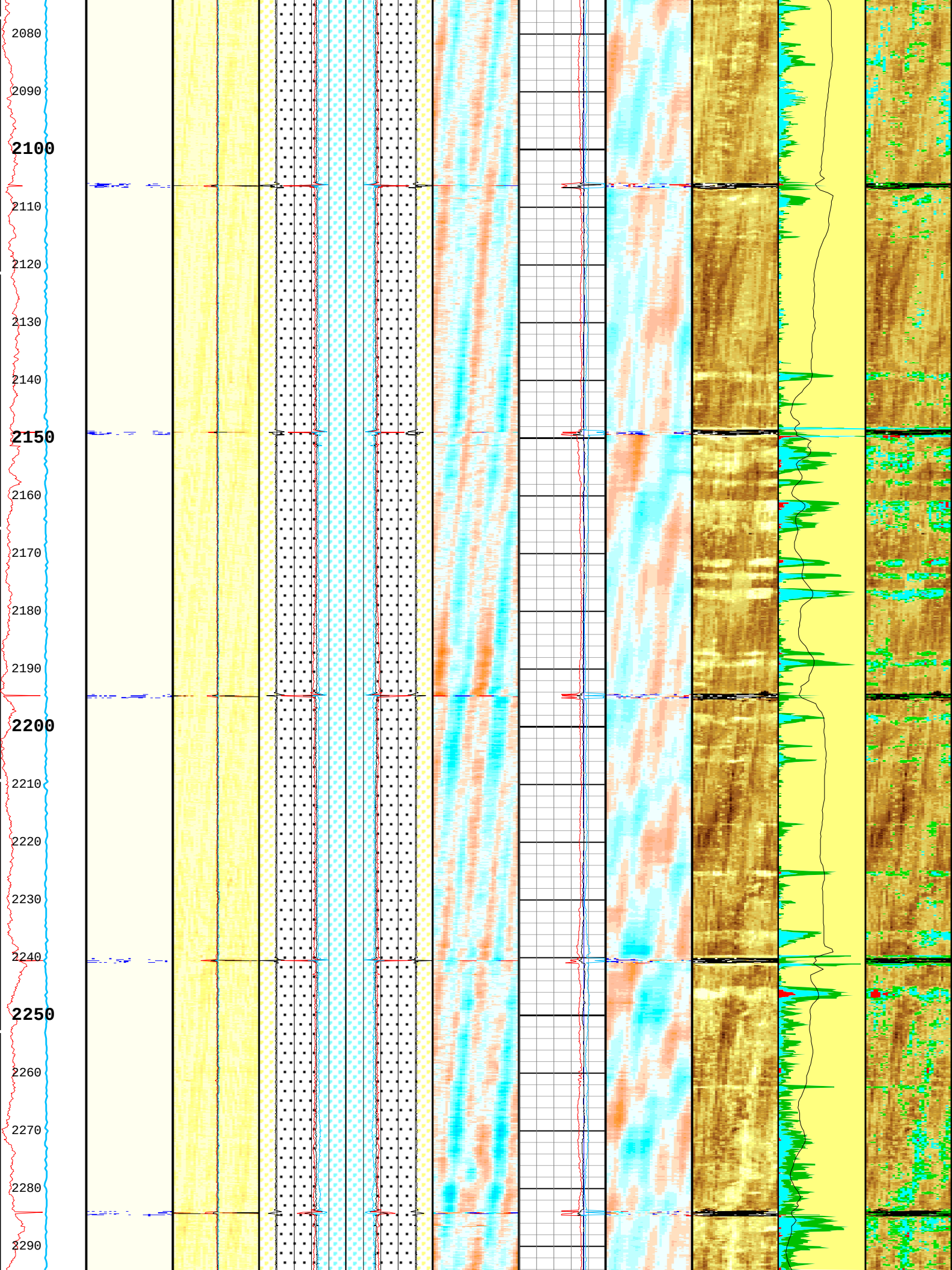
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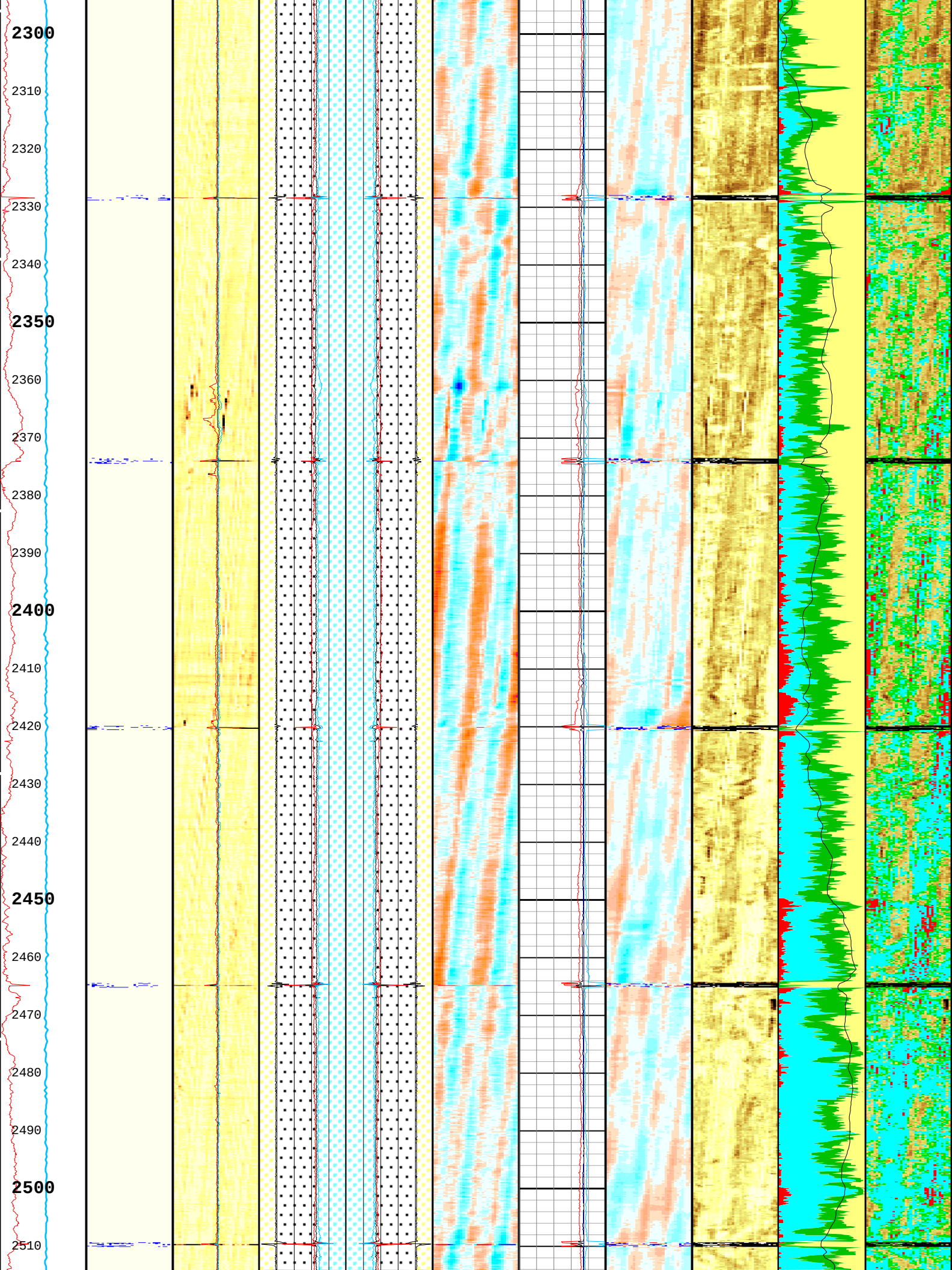
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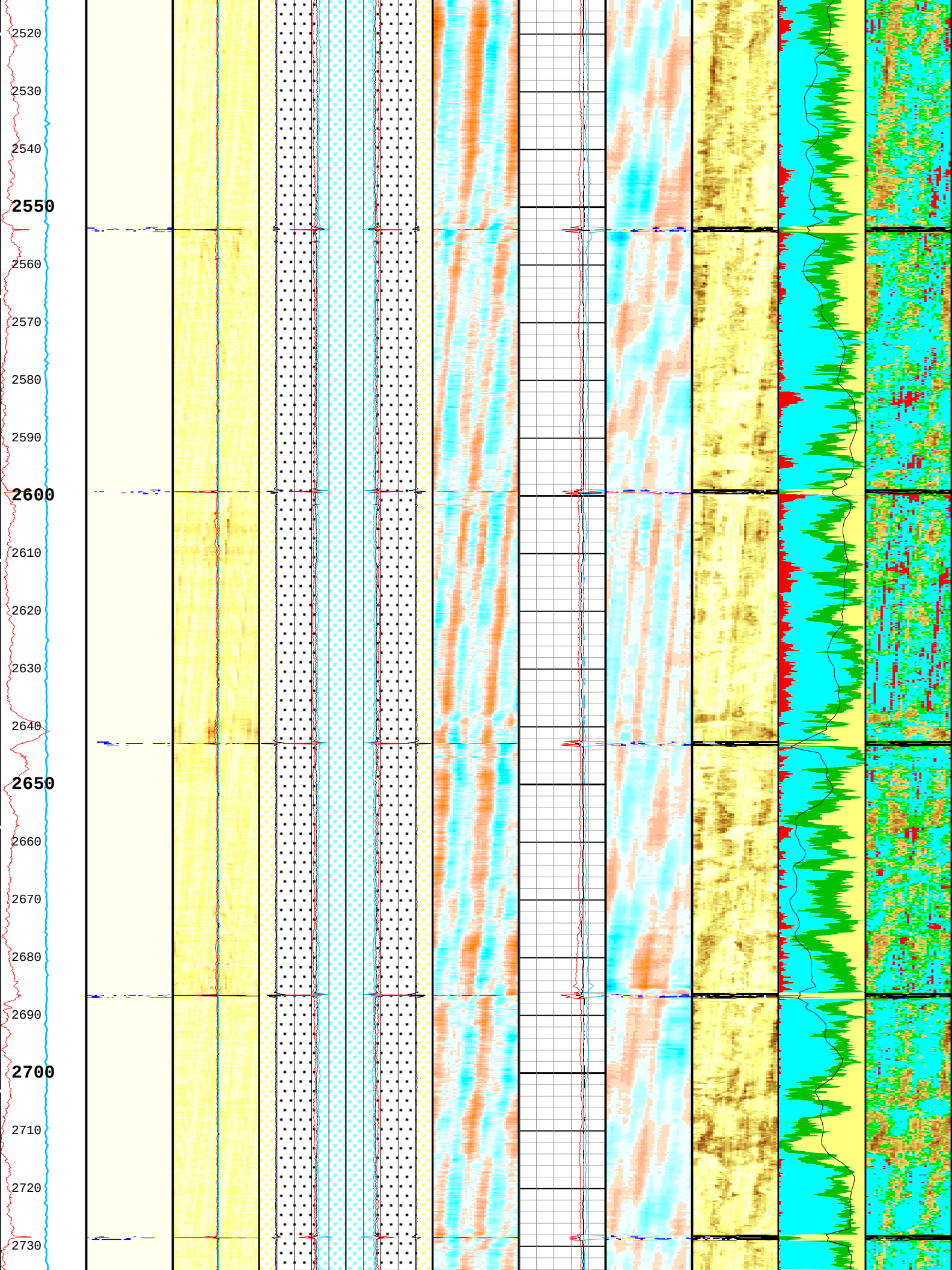
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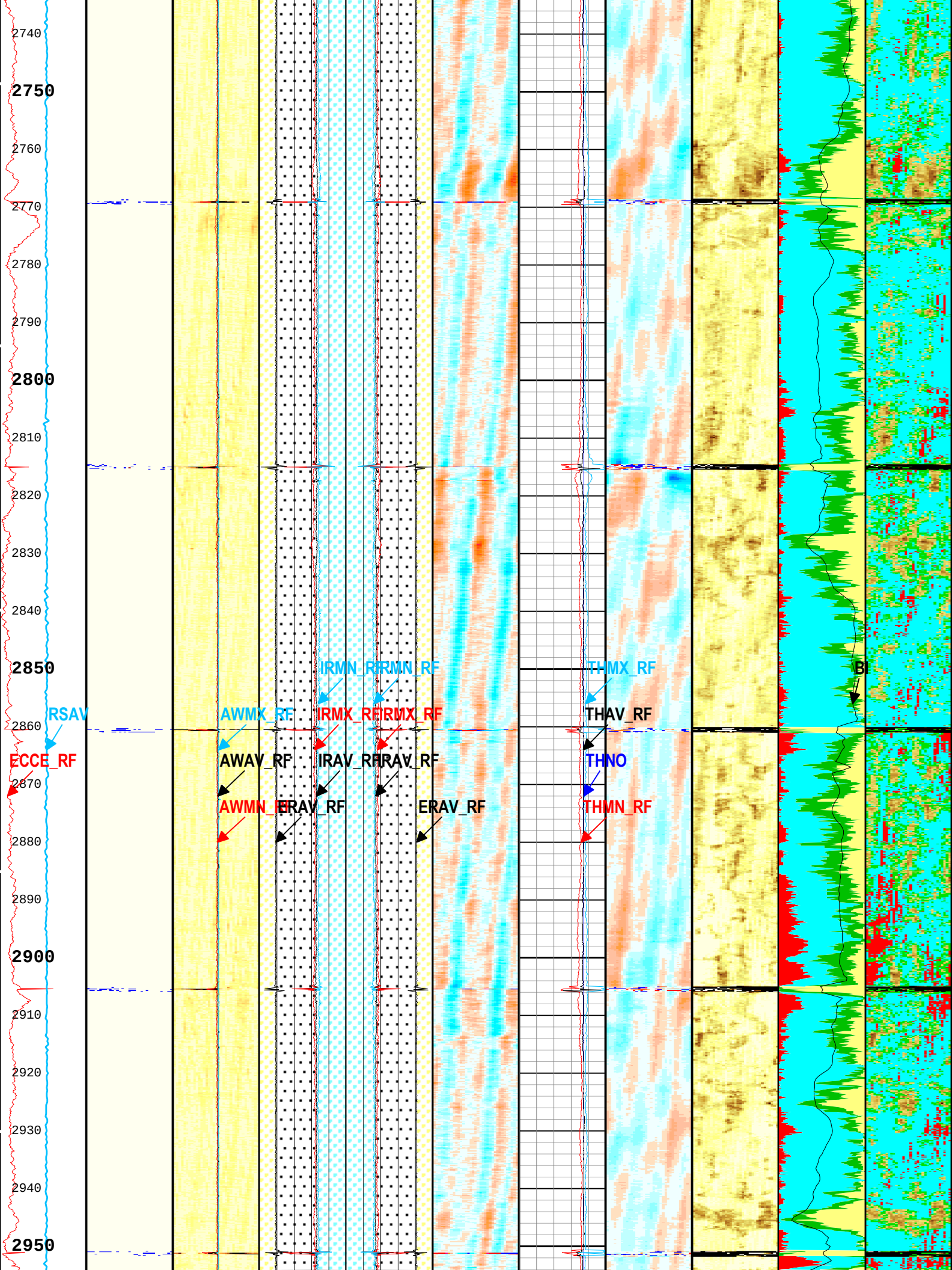
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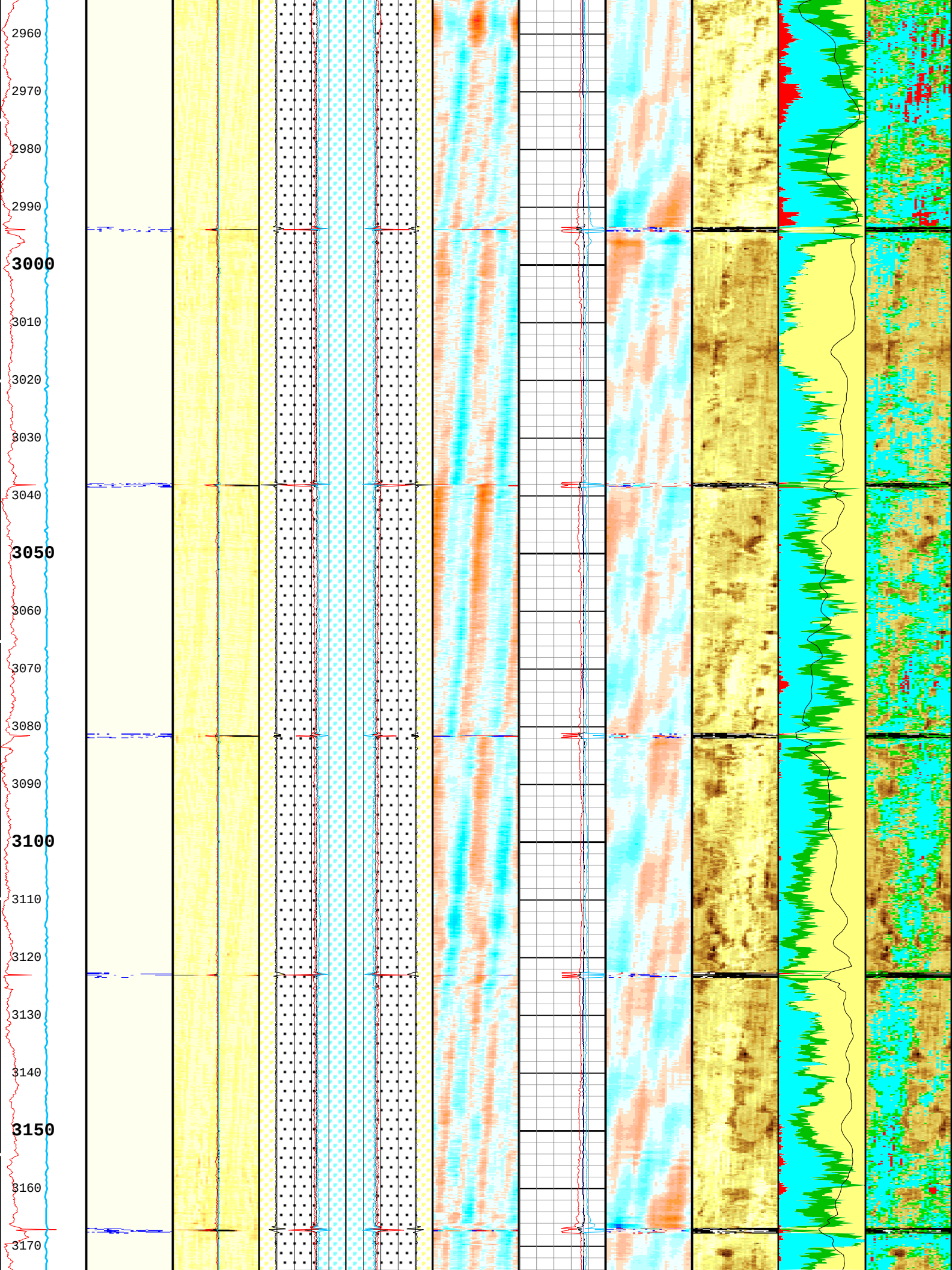
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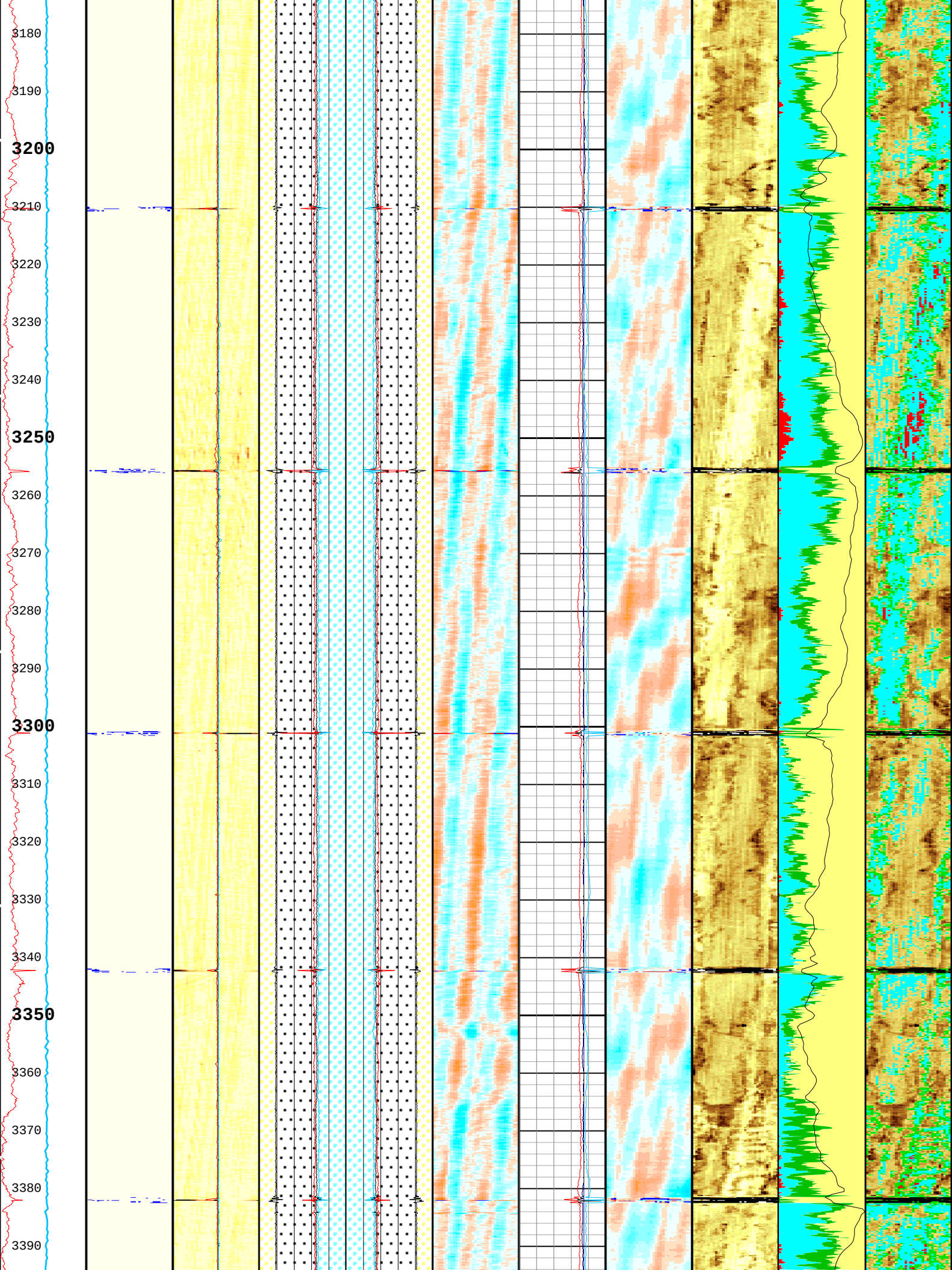
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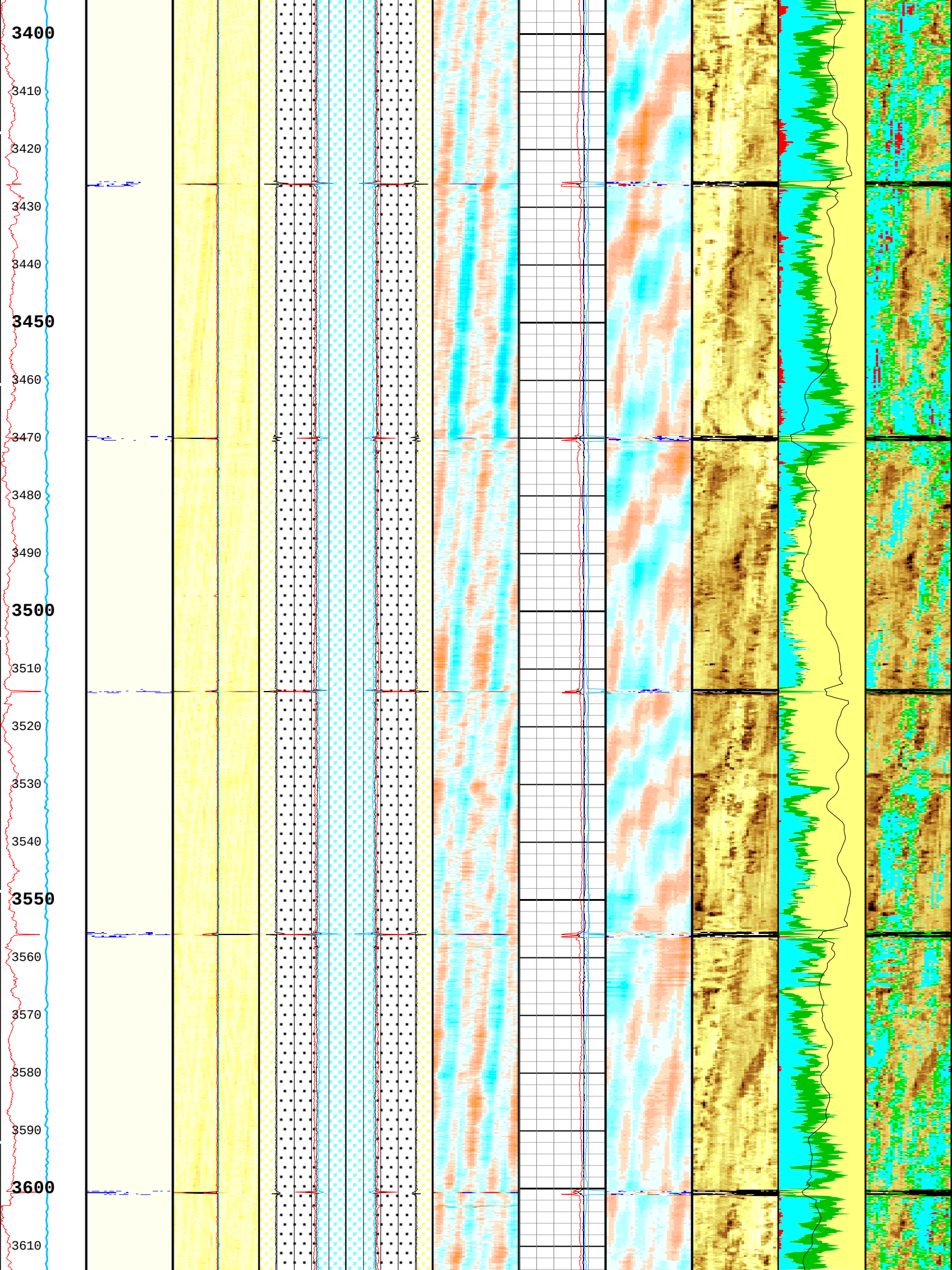
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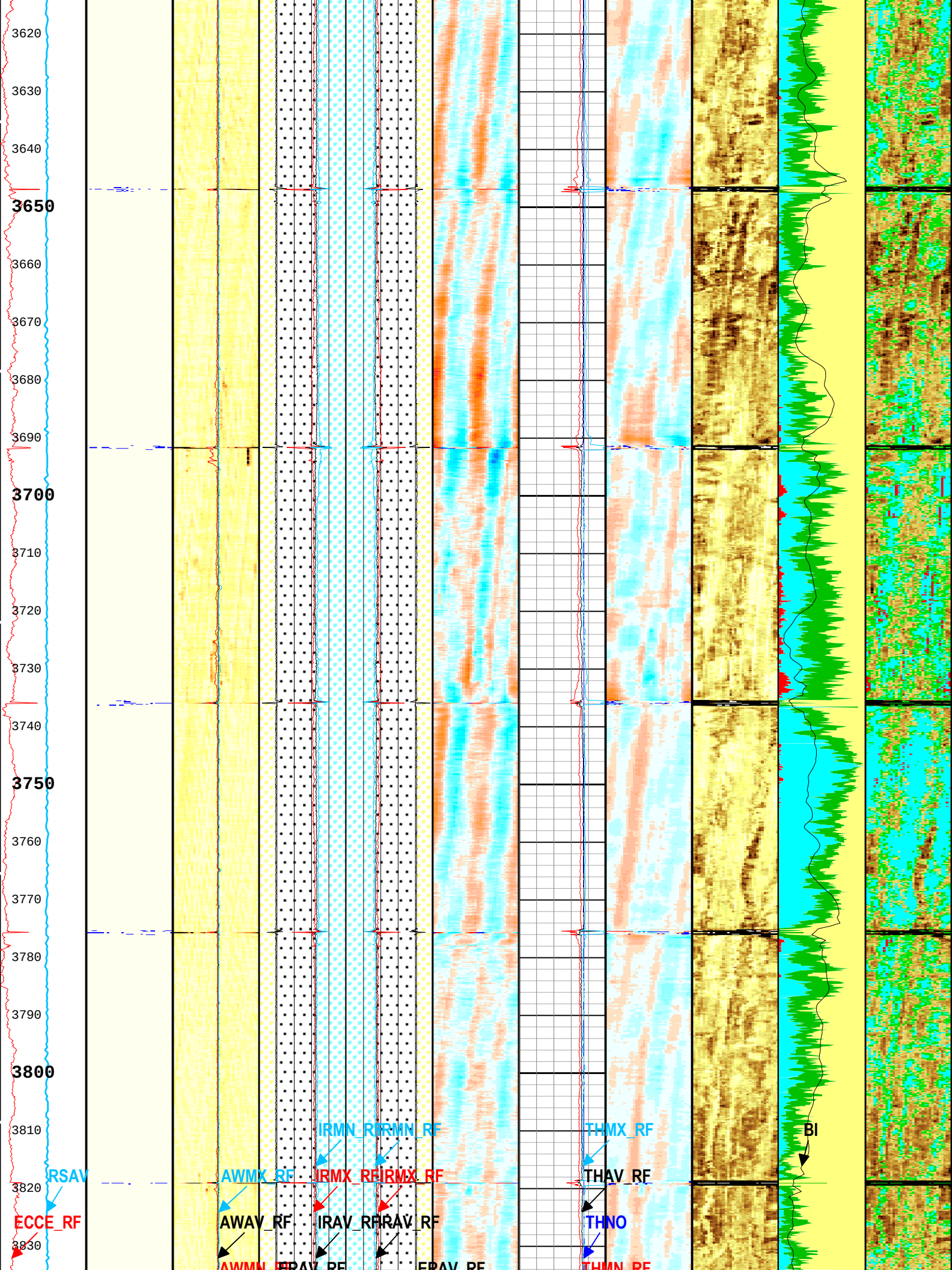
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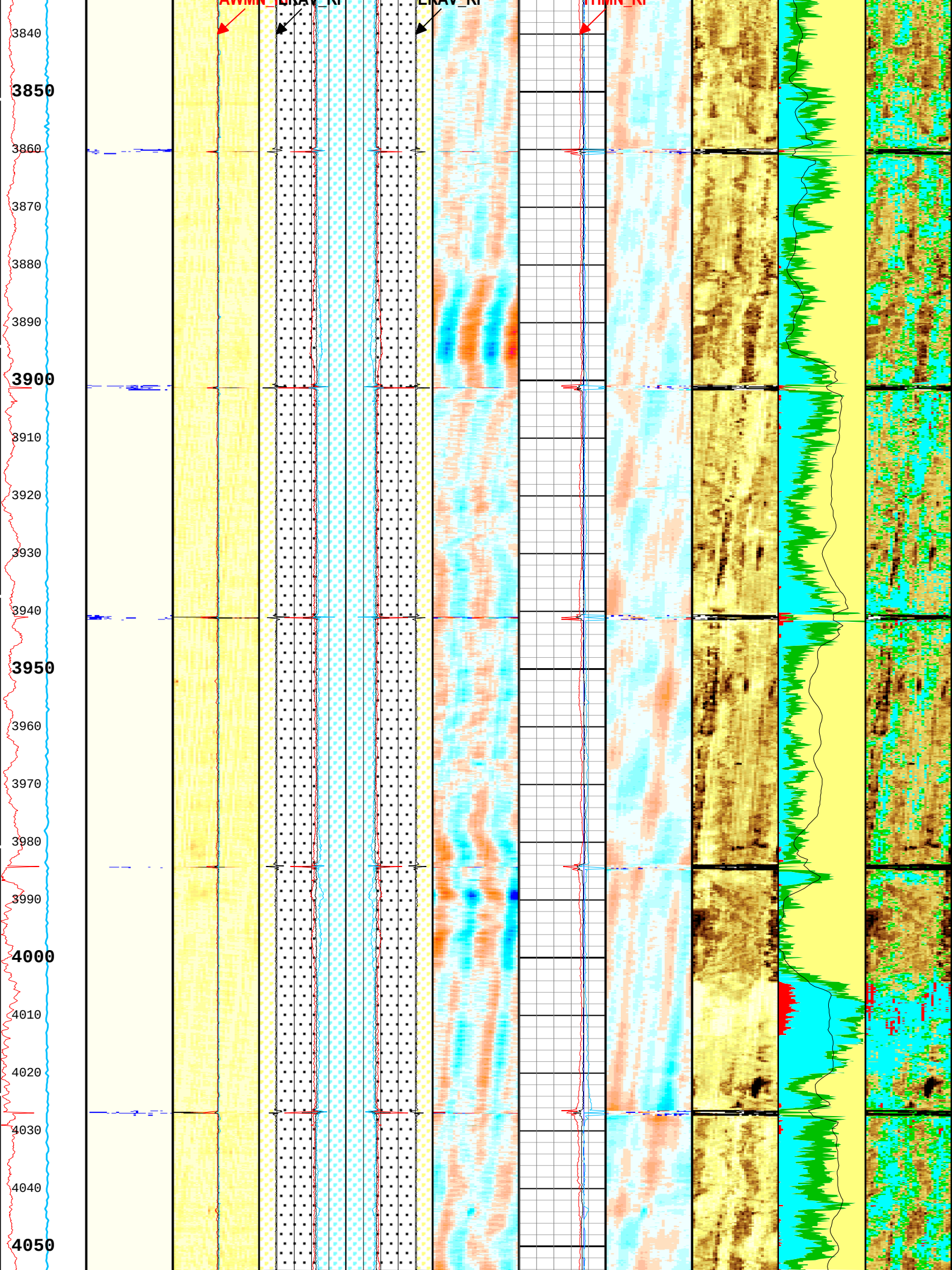
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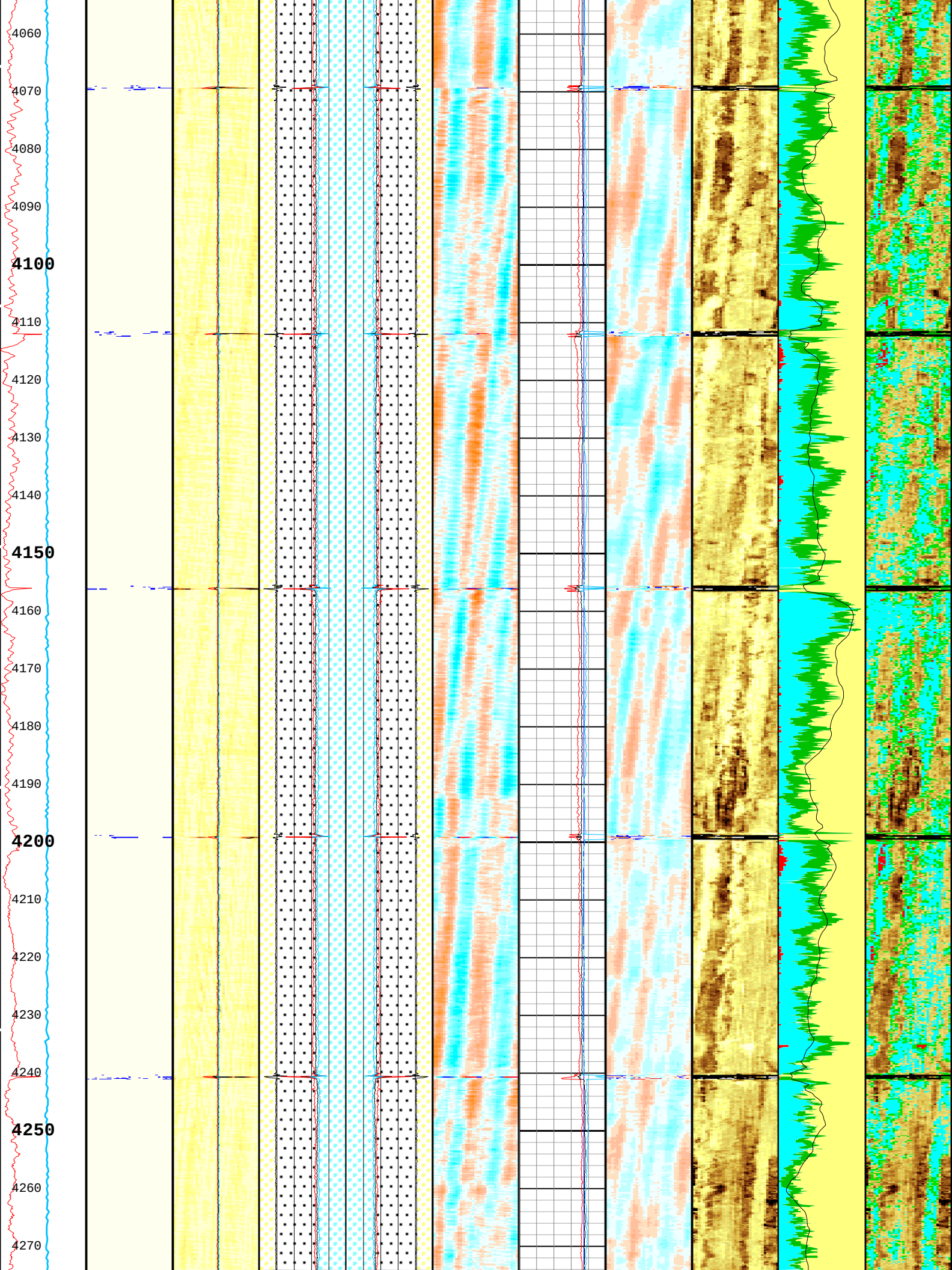
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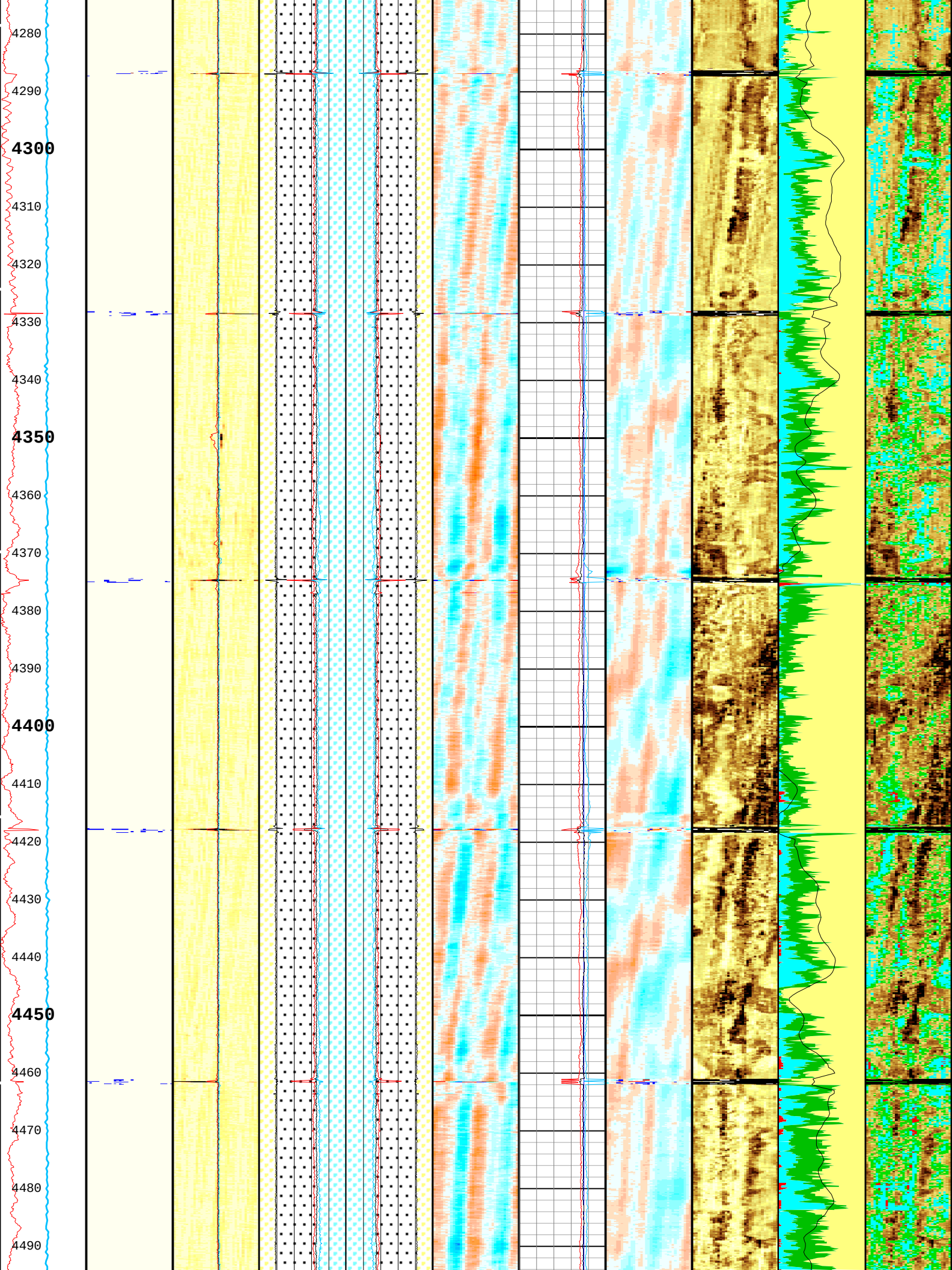
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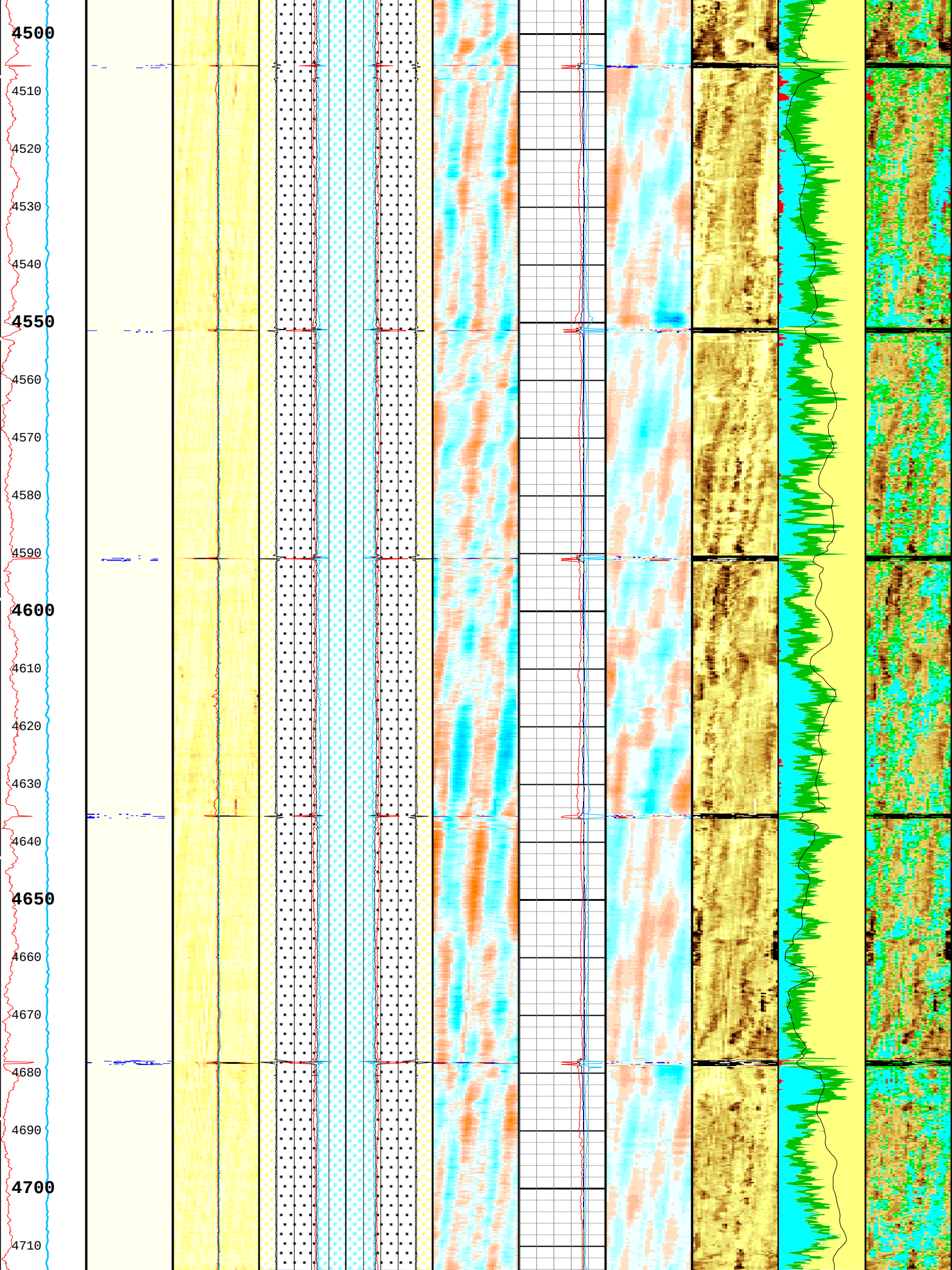
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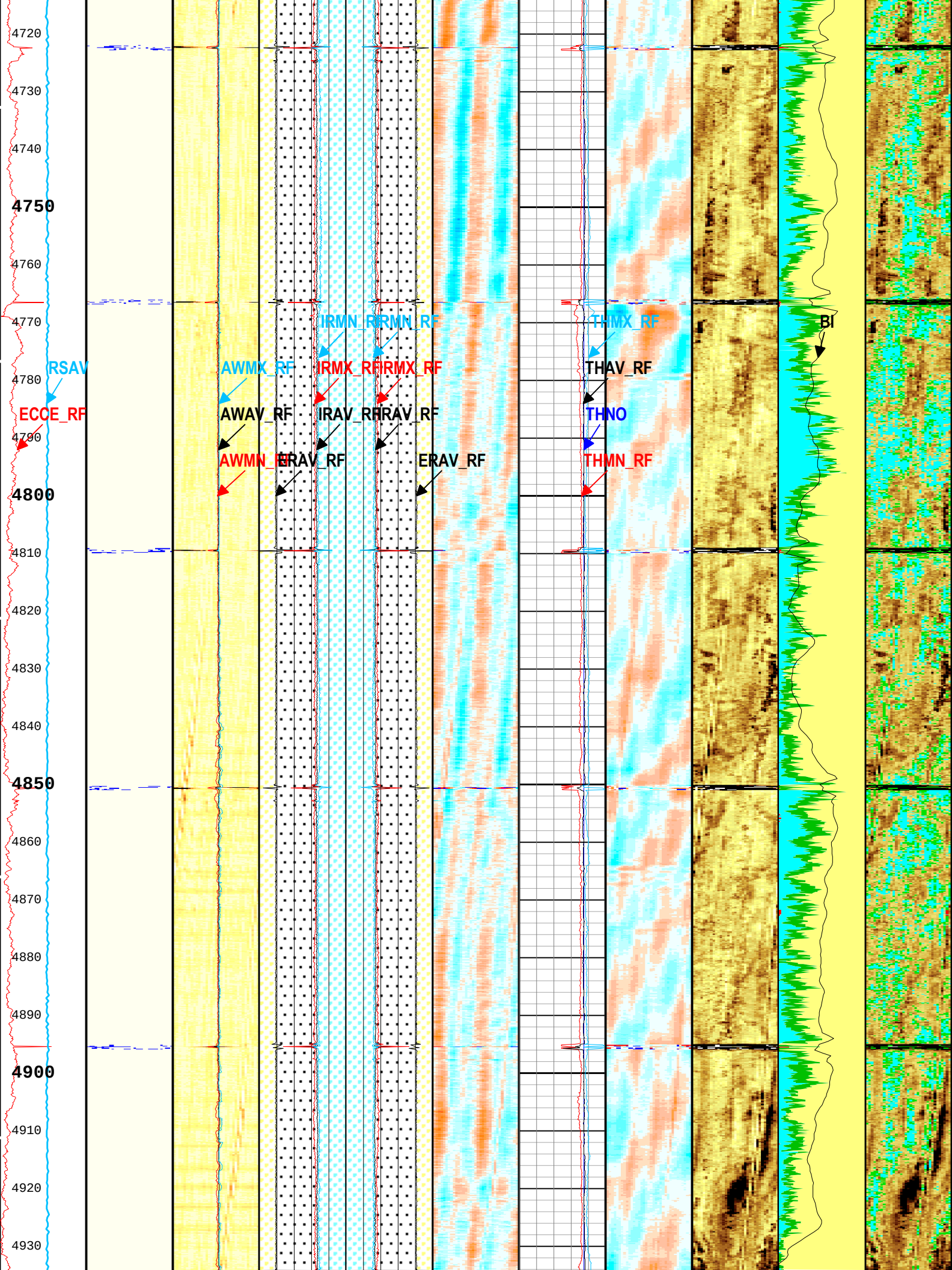
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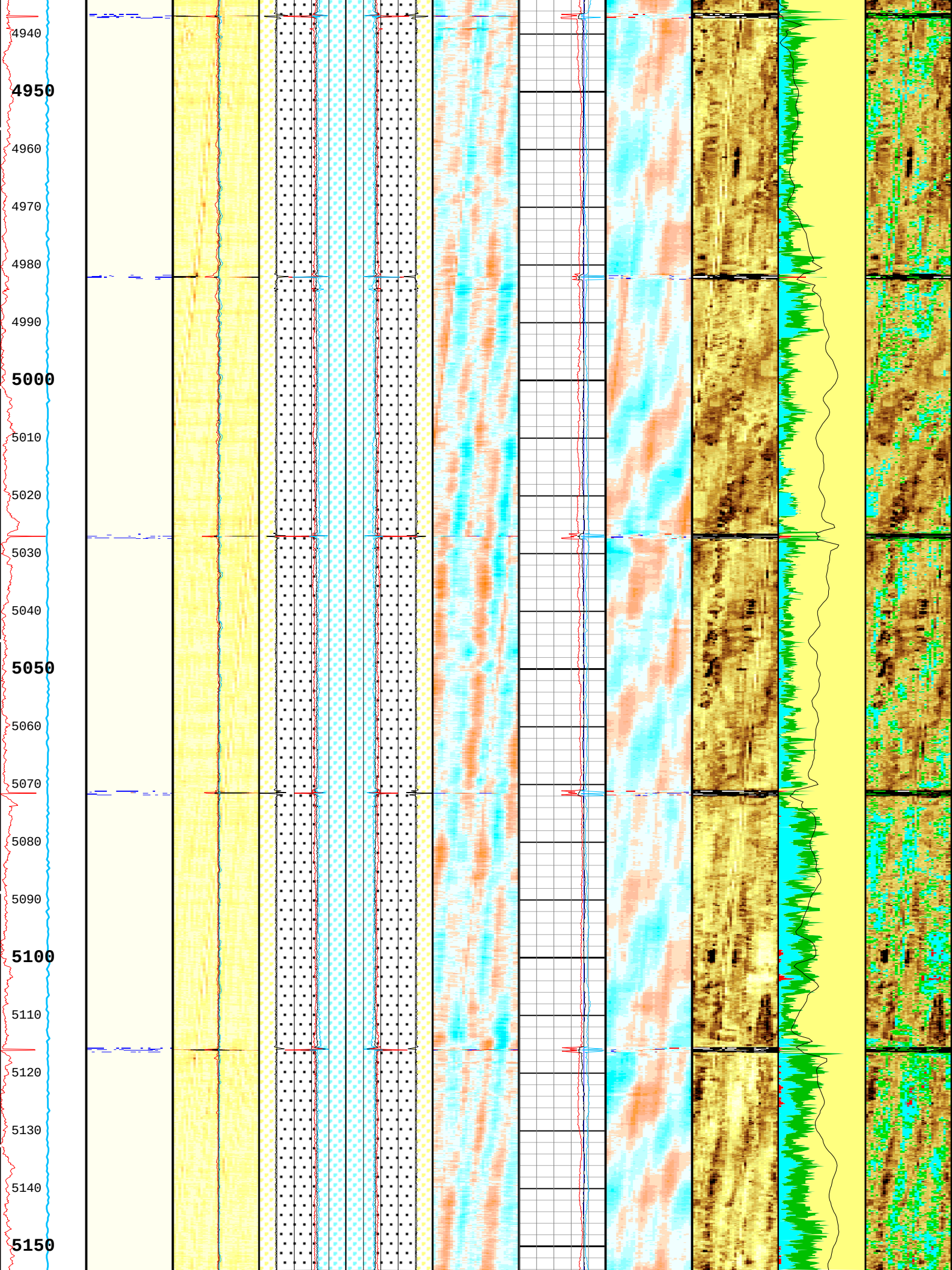
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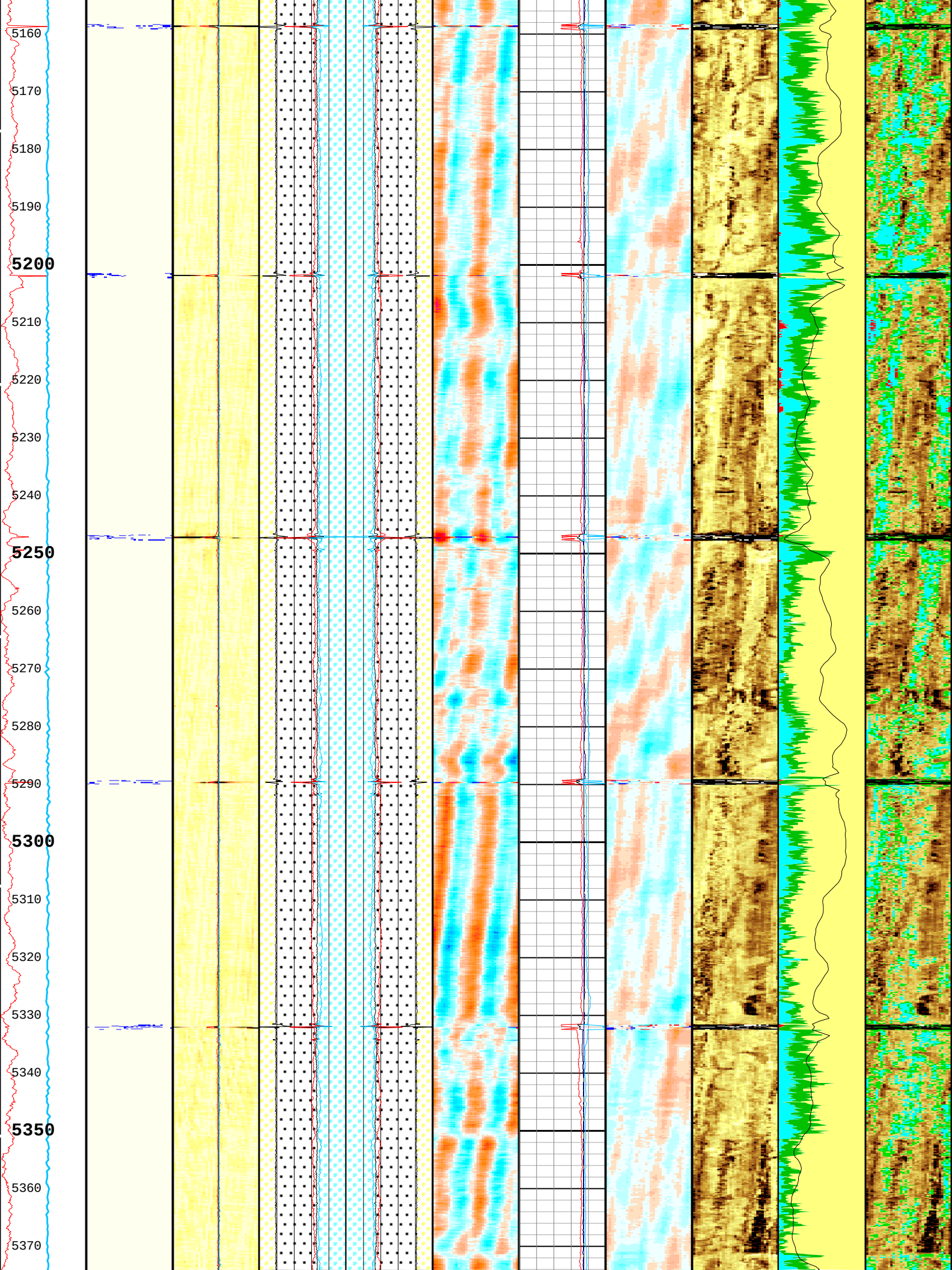
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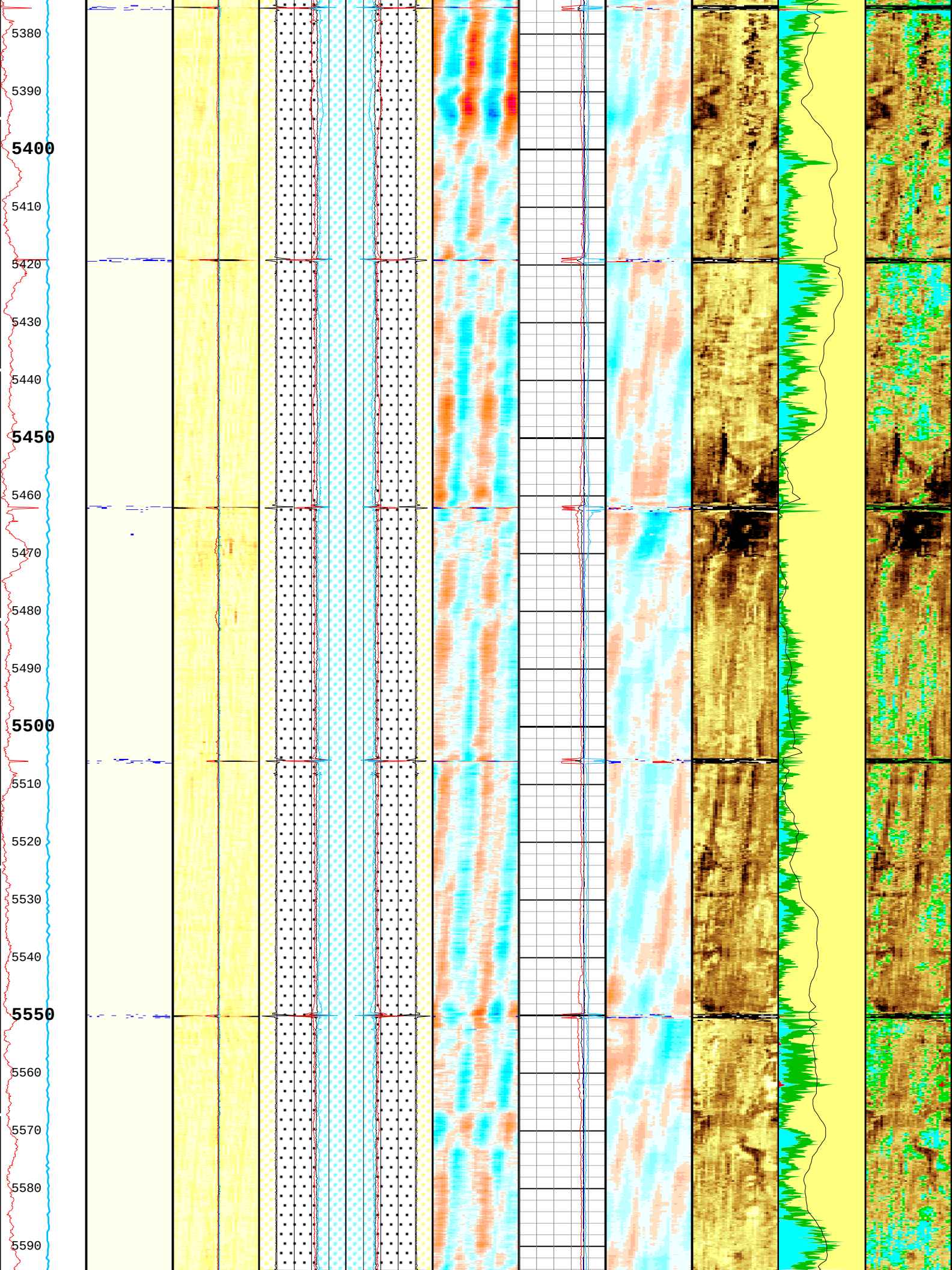
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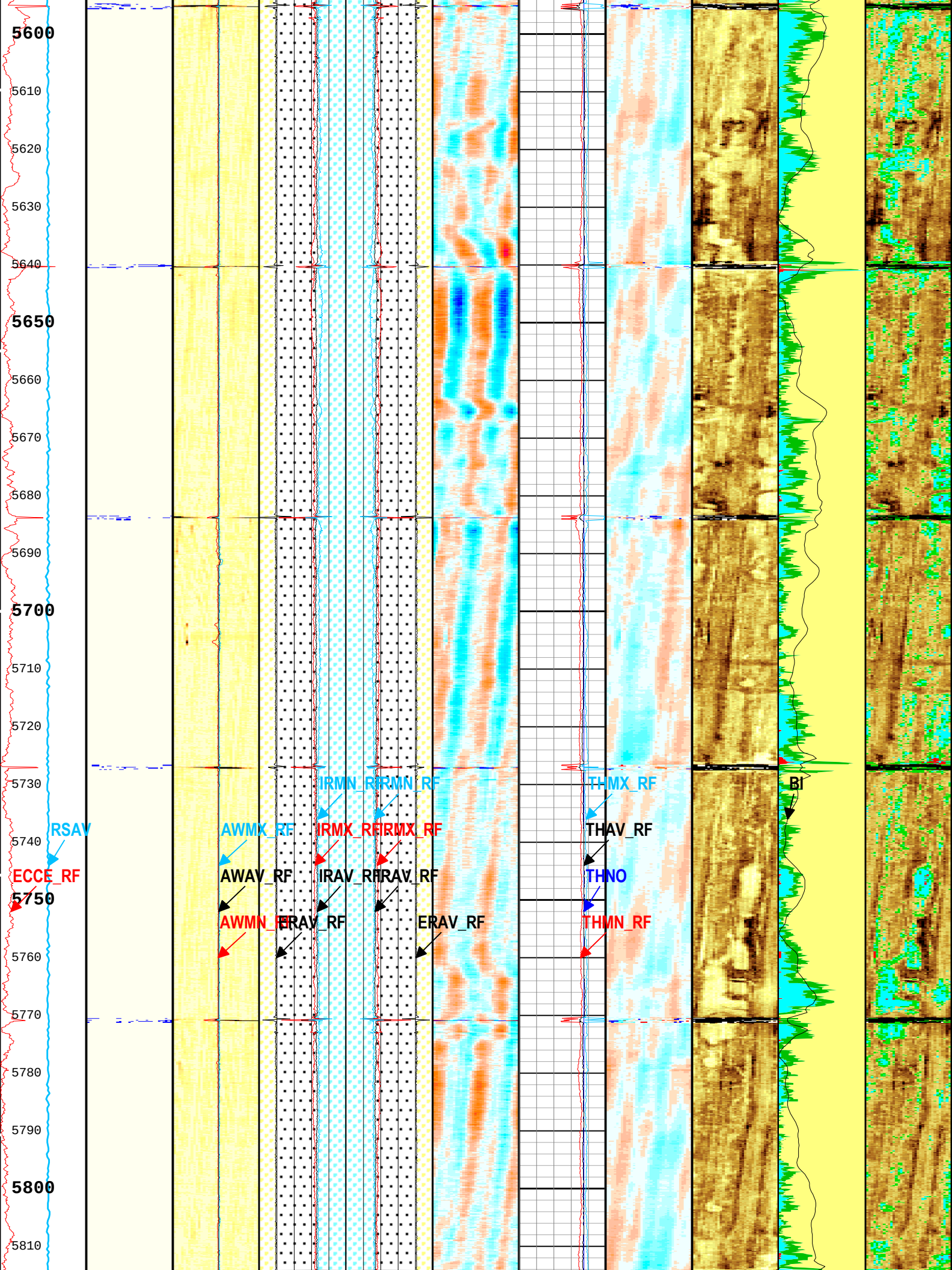
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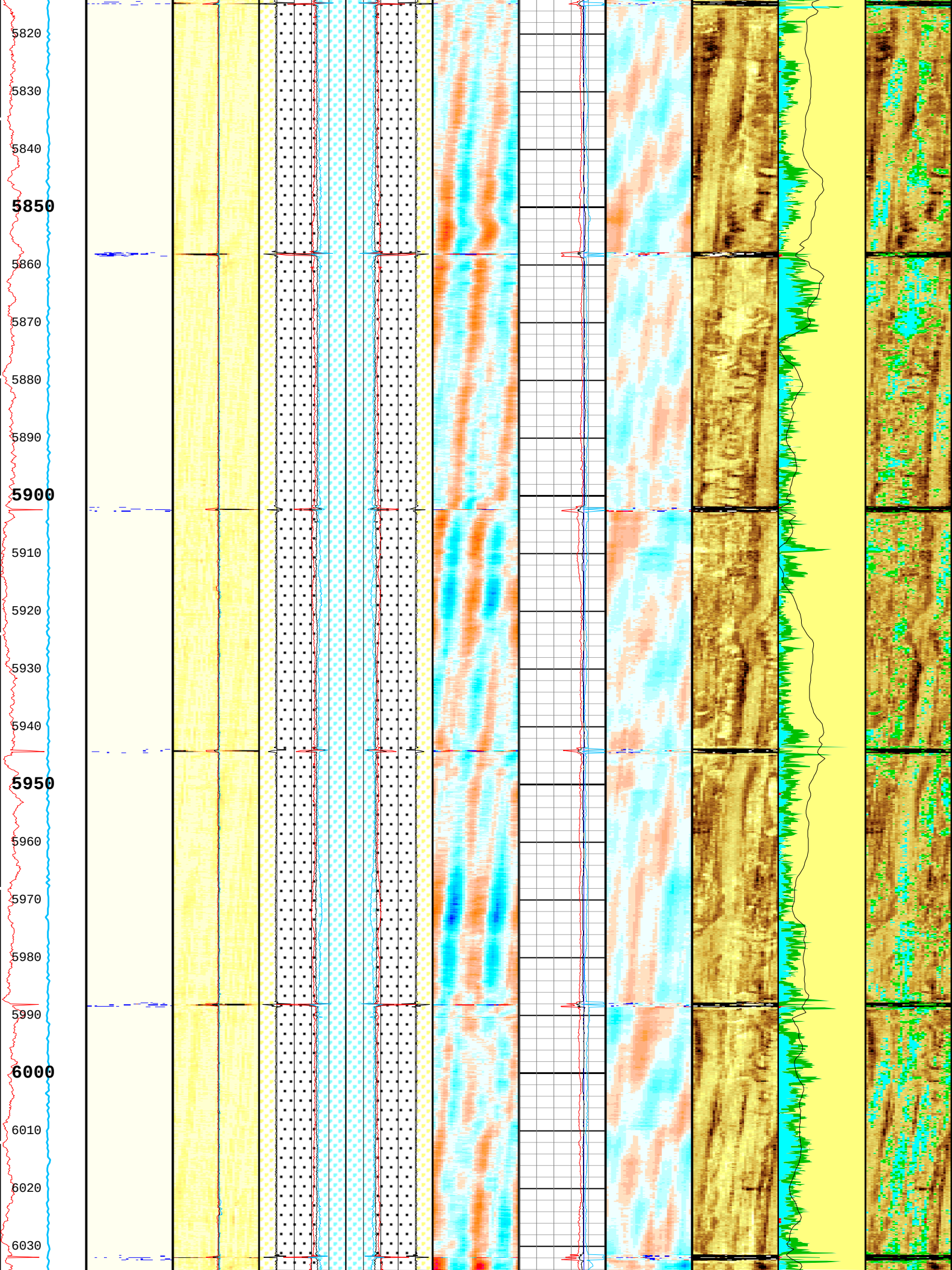
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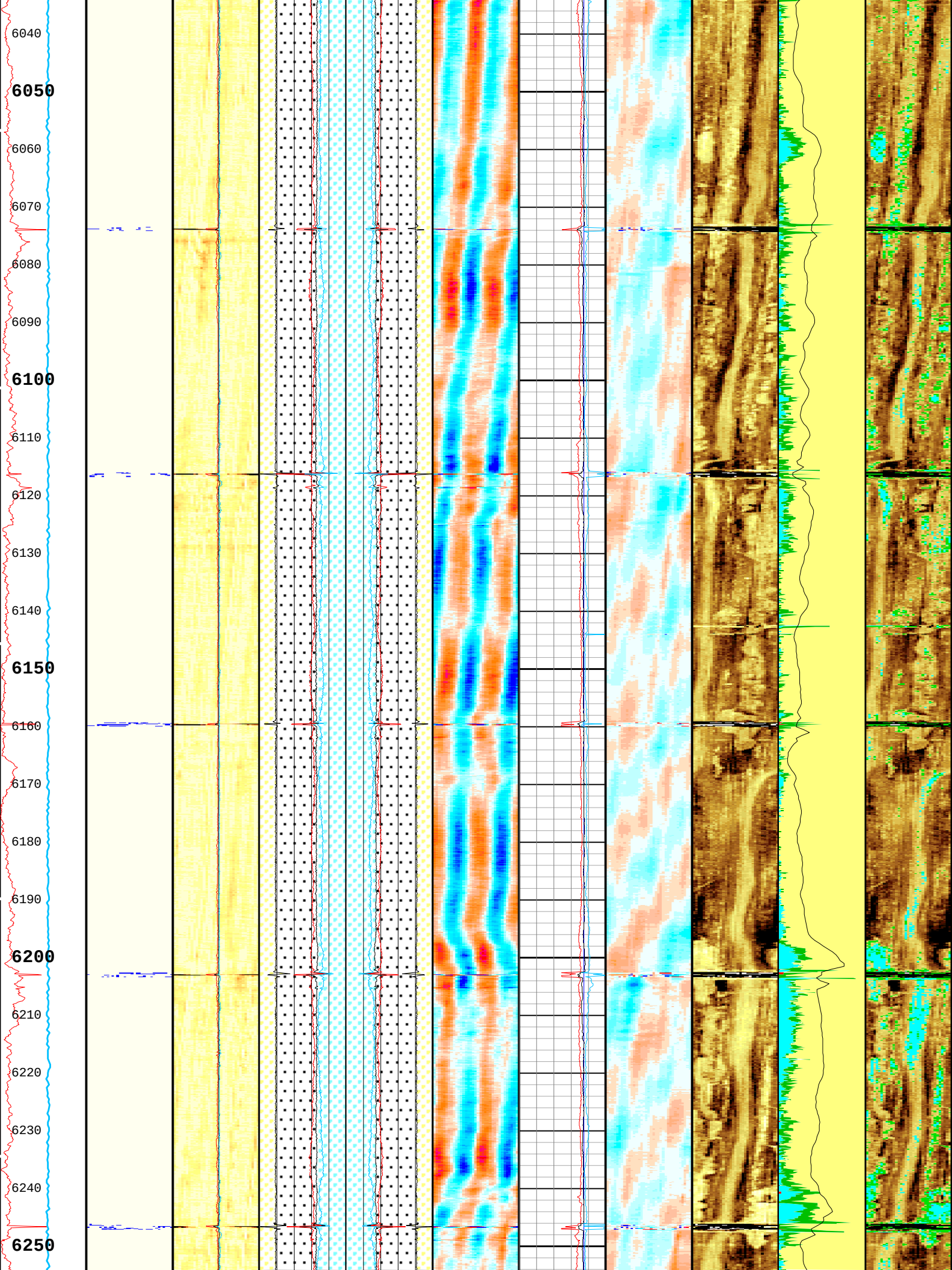
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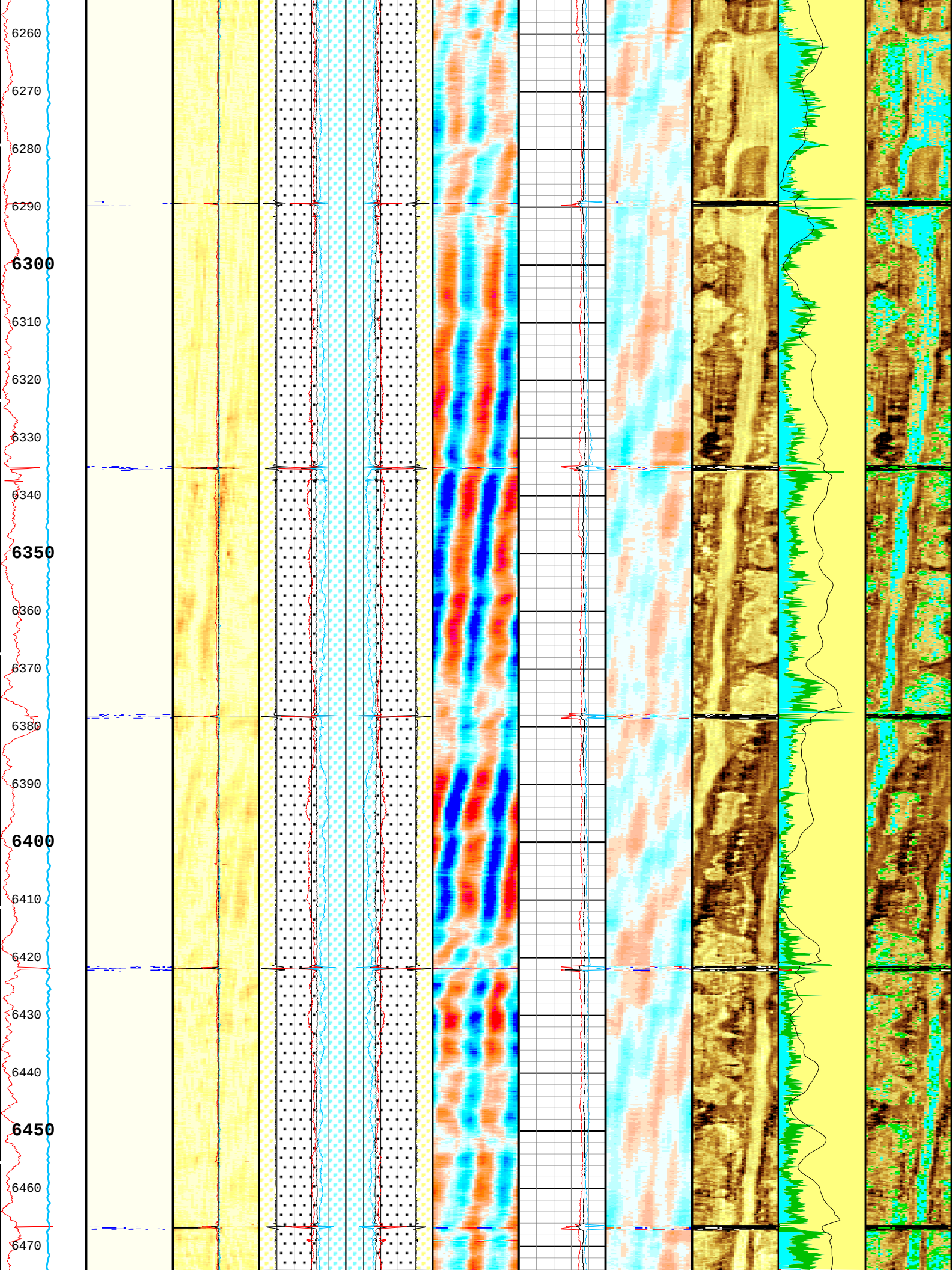
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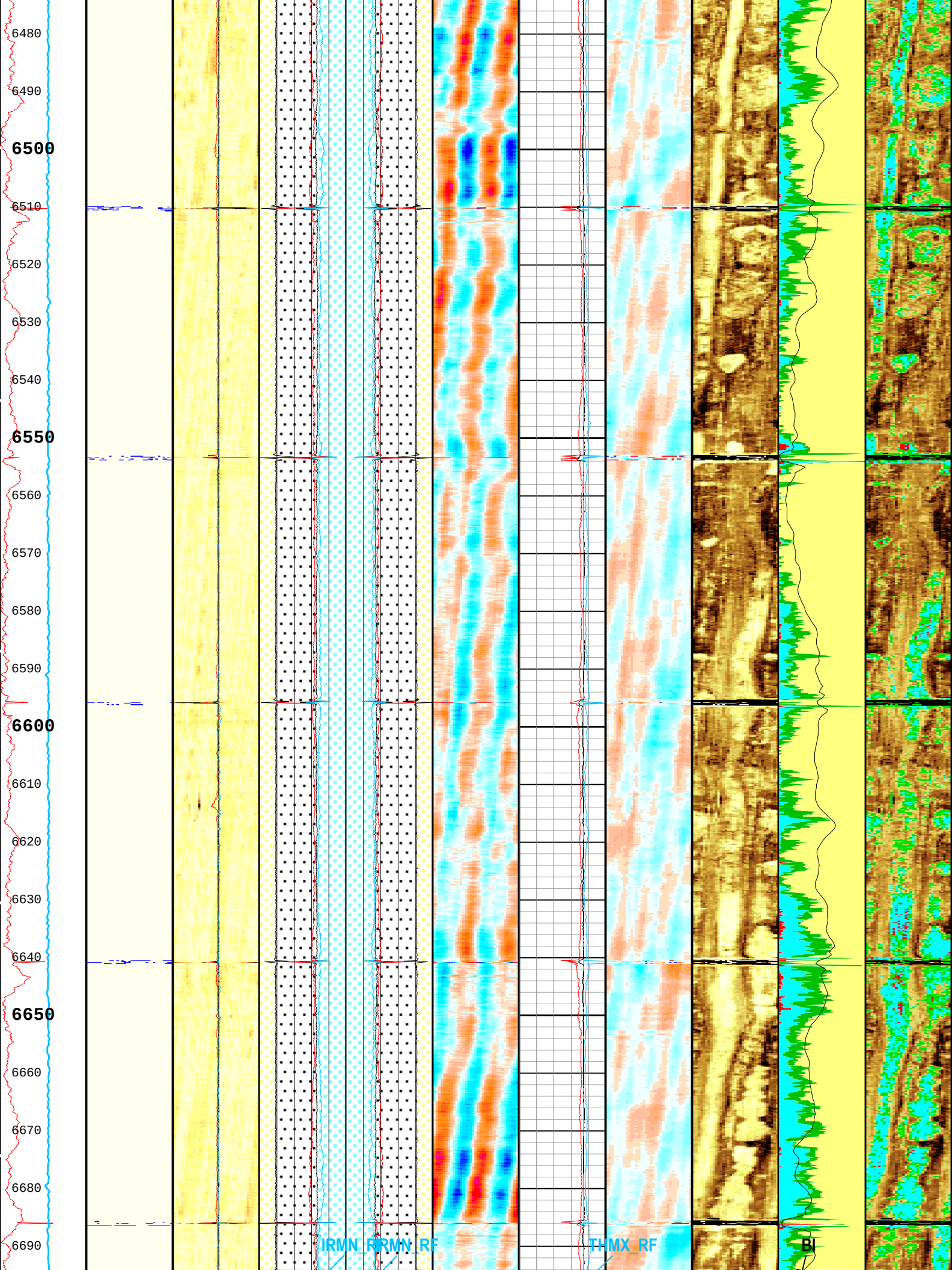
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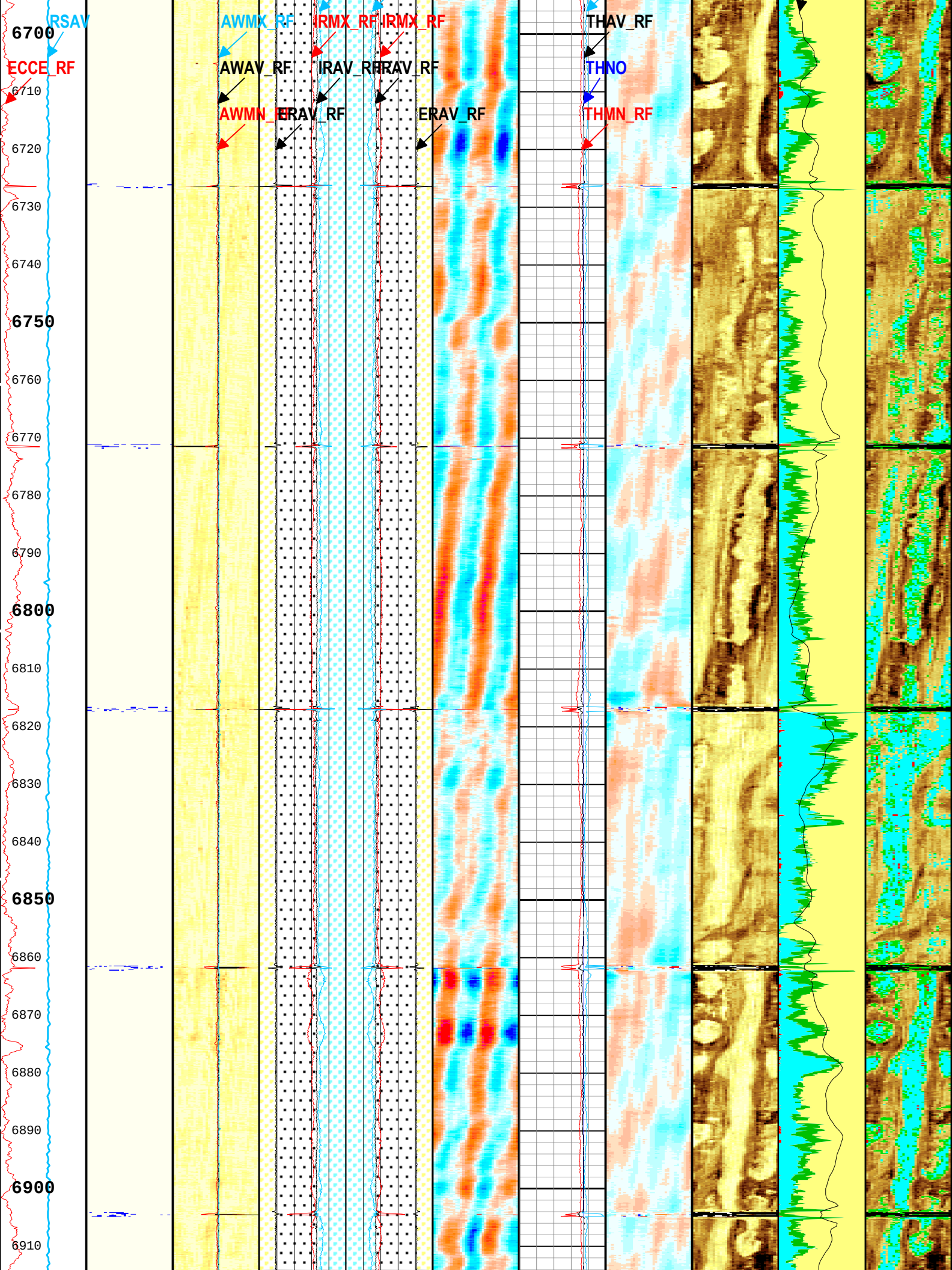
6690
IRMN_RF
RMN_RF
THMX_RF
BI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ECCE_RF
AWMX_RF
AWAV_RF
AWMN_RF
IRMX_RF
IRAV_RF
ERAV_RF
IRMX_RF
IRAV_RF
ERAV_RF
THAV_RF
THNO
THMN_RF
6700
6710
6720
6730
6740
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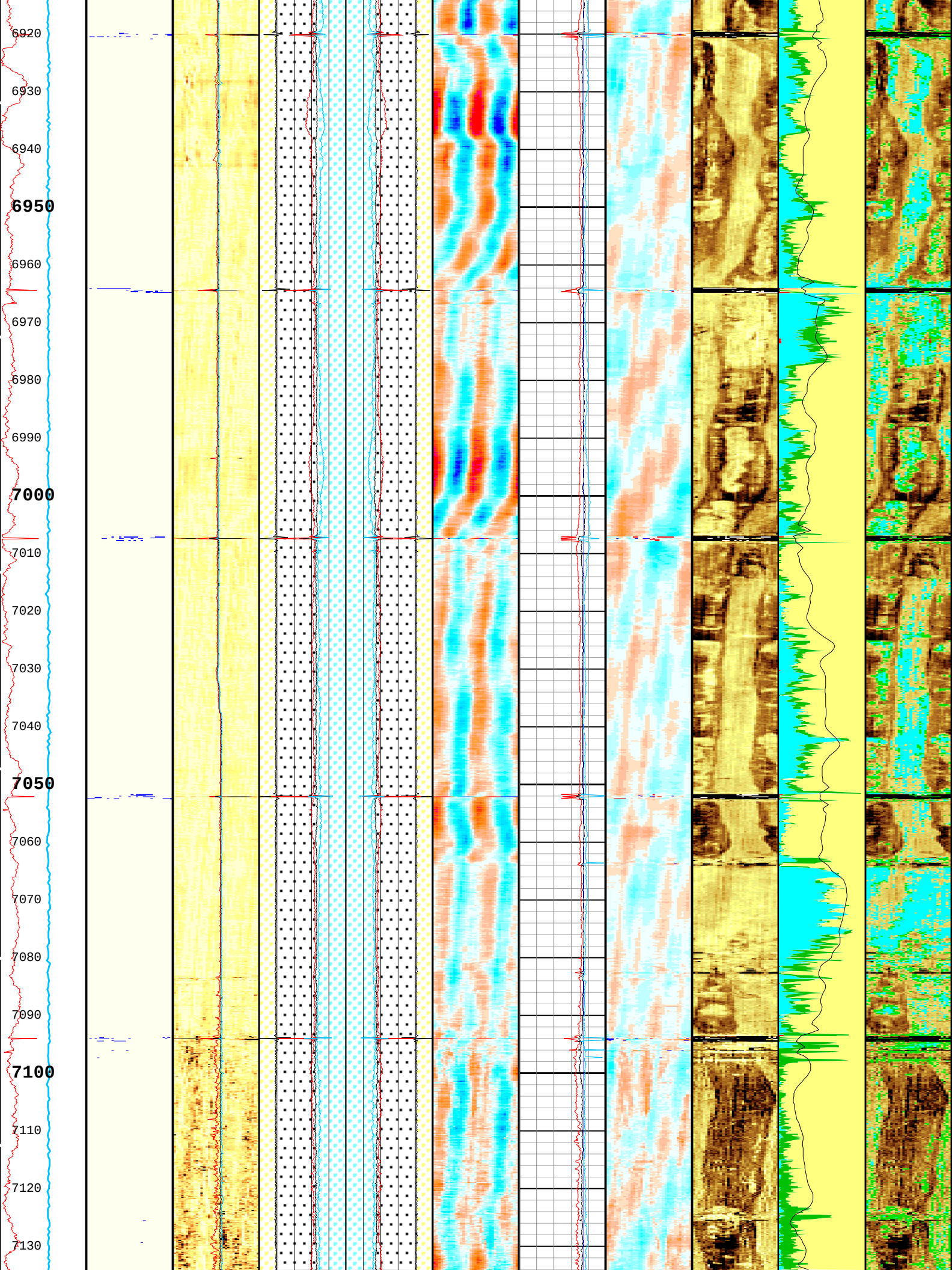
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7120
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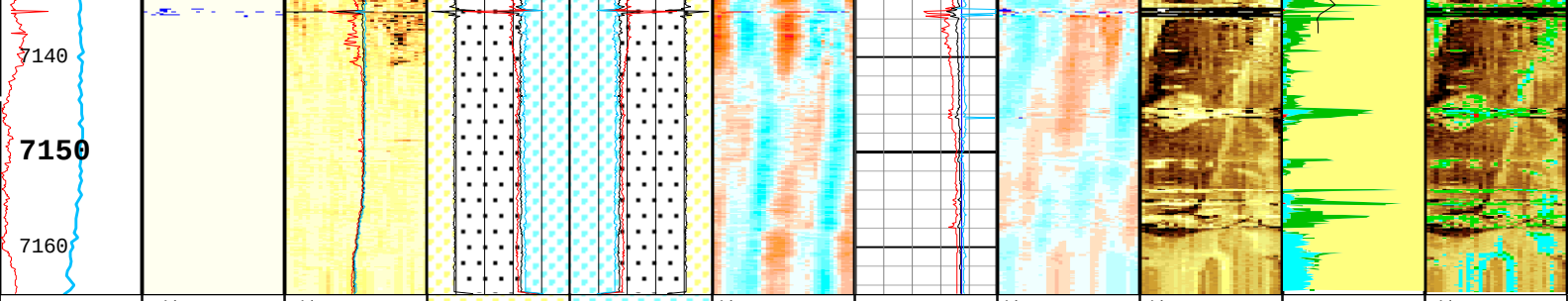


Amplitude of Eccentering for Unflagged Waves (ECCE_RF) USIT-E[1]
0 in 0.5

Motor Revolution Speed (RSAV) USIT-E[1]
6 c/s 8

Absent 1.500 3.500
Explicit Normalization
USIT - USIT Processing Flags (UFLG) USIT-E[1]

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

Absent -4.799 -2.799 -0.800
Explicit Normalization
USIT - Amplitude of Unflagged Wave (AWBK_RF) USIT-E[1] (dB)

Minimum of Unflagged Wave Amplitude (AWMN_RF) USIT-E[1]
0 dB 75

Average of Unflagged Wave Amplitude (AWAV_RF) USIT-E[1]
0 dB 75

Maximum of Unflagged Wave Amplitude (AWMX_RF) USIT-E[1]
0 dB 75

ERAV
ERAV-IRAV
IRAV

Median of Unflagged External Radii (ERAV_RF) USIT-E[1]
5 in 4

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

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

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

IRAV
ERAV
IRAV-ERAV

Median of Unflagged External Radii (ERAV_RF) USIT-E[1]
4 in 5

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

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

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

Absent -0.051 -0.012 0.028 0.068
Explicit Normalization
USIT - Unflagged Internal Radii minus Median Internal Radius (IRBKM_RF) USIT-E[1] (in)

Minimum of Unflagged Casing Thickness (THMN_RF) USIT-E[1]
0.1 in 0.6

Nominal Casing Thickness (THNO) USIT-E[1]
0.1 in 0.6

Median of Unflagged Casing Thickness (THAV_RF) USIT-E[1]
0.1 in 0.6

Maximum of Unflagged Casing Thickness (THMX_RF) USIT-E[1]
0.1 in 0.6

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[1] (in)

Absent 1.500 3.500 5.500 7.500
Custom Normalization
USIT - Acoustic Impedance (AIBK) USIT-E[1] (Mrayl)

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

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

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

Bonded
Gas
Liquid
Micro-debonding

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

Absent 3.090 5.054 7.018
Custom Normalization
USIT - Acoustic Impedance (AIBK) USIT-E[1] (Mrayl)

Absent 2.599 4.563 6.527
Custom Normalization
USIT - Acoustic Impedance With Micro-debonding Image (AI_MDEBOND_IMG) USIT-E[1] (Mrayl)

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

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

TIME_1900 - Time Marked every 60.00 (s)

Description: USI Composite Format: Log (LBV1_USI Composite 9.625inch_hires) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth
Creation Date: 08-Sep-2016 19:55:43

Composite 1

Cement Log 2 IN = 100 FT

Composite Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
8-Sep-2016	Log[6]:Up	Up	149.92 ft	7165.27 ft	08-Sep-2016 9:51:46 AM	08-Sep-2016 12:33:17 PM	ON	-8.00 ft	No
8-Sep-2016	Log[9]:Up	Up	10.60 ft	348.17 ft	08-Sep-2016 2:55:22 PM	08-Sep-2016 3:13:17 PM	ON	2.00 ft	No

All depths are referenced to toolstring zero

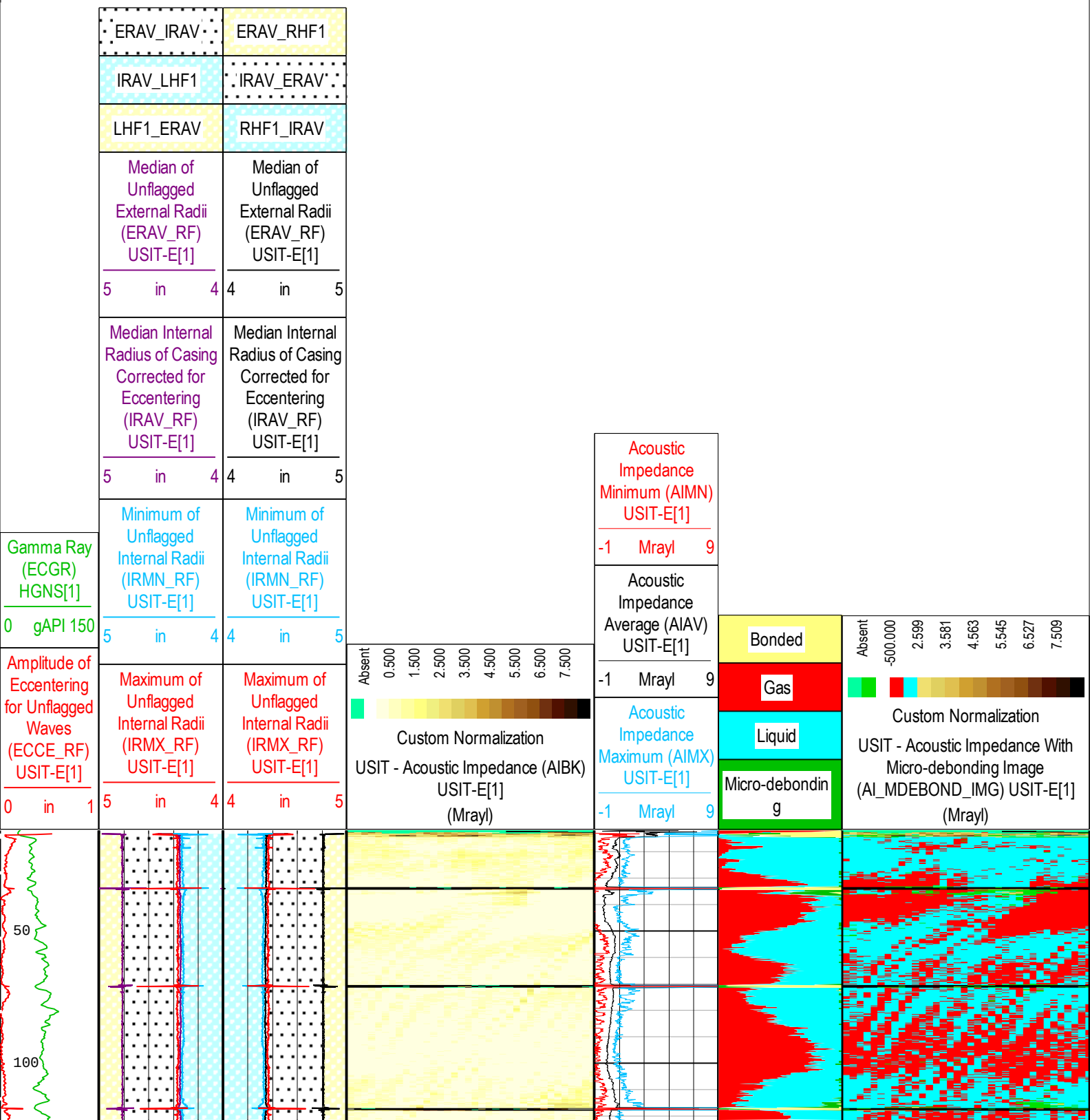
Log

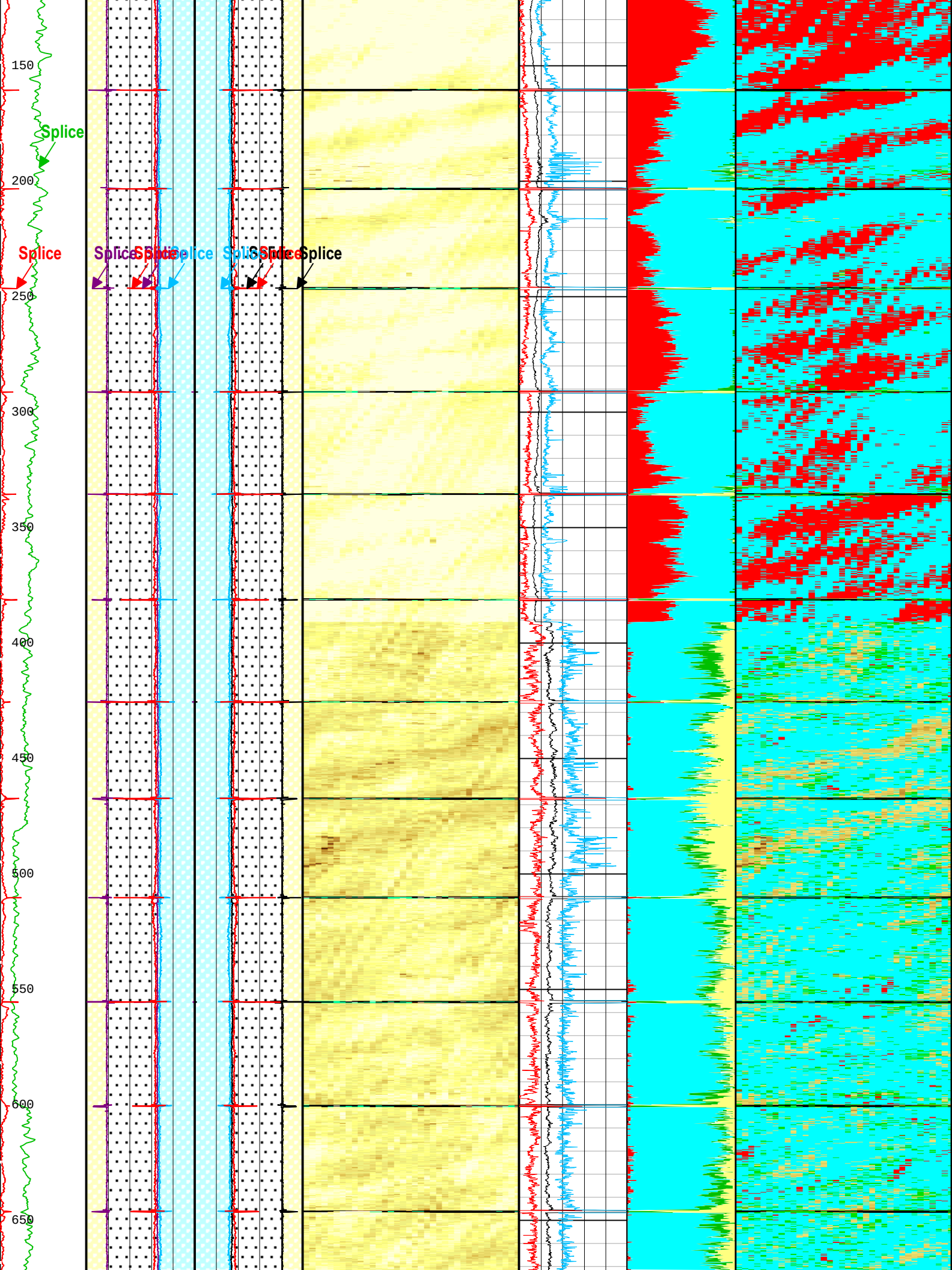
Company:Southern California Gas Company Well:Porter 69E

Composite 1:S002

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: 08-Sep-2016 19:56:35

TIME_1900 - Time Marked every 60.00 (s)

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Splice
200
Splice
Splice
Splice
Splice
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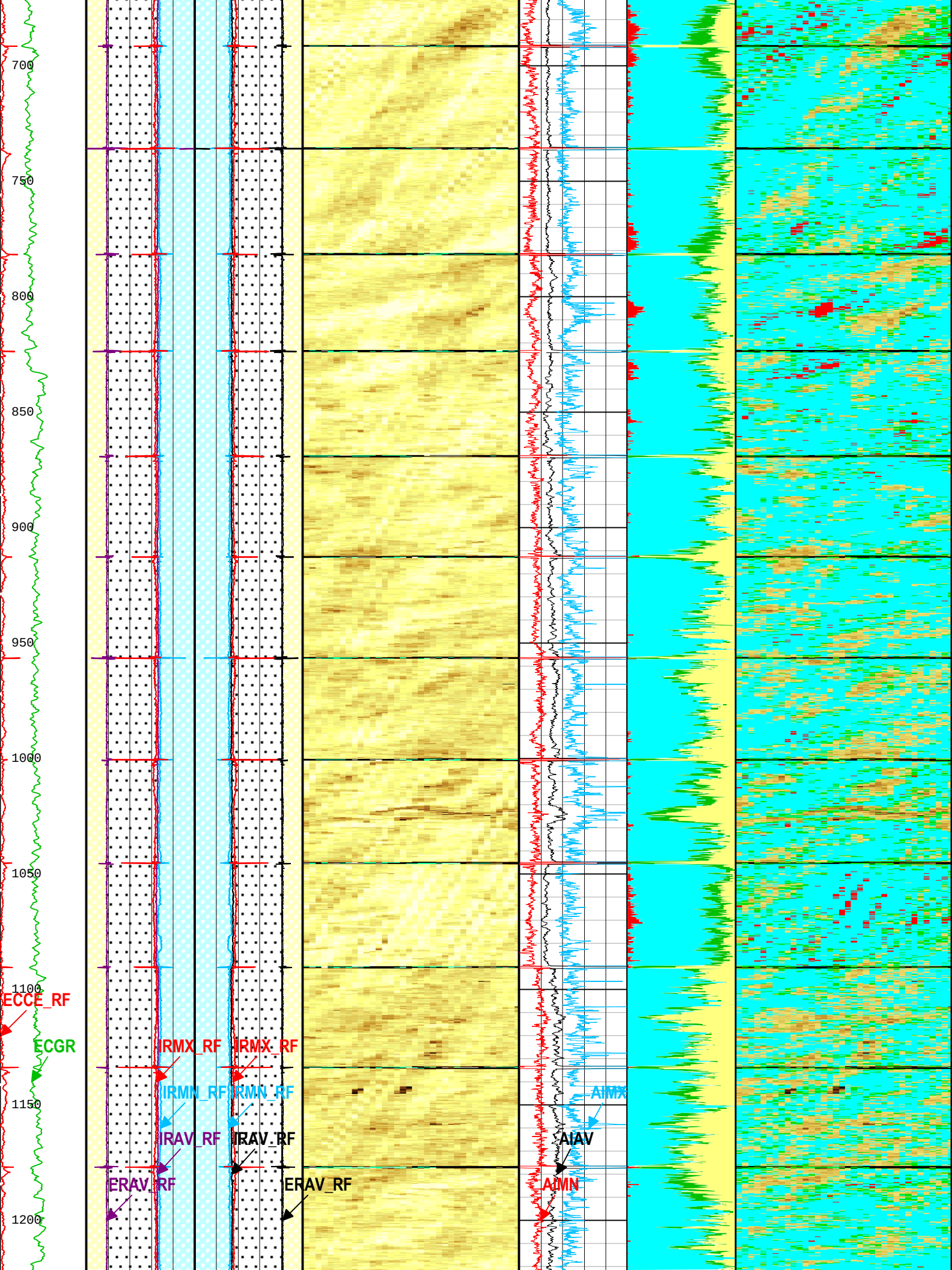
Splice
250
300
350
400
450
500
550
600
650


700
750
800
850
900
950
1000
1050
1100
1150
1200
ECCE_RF
ECGR
IRMX_RF
IRMX_RF
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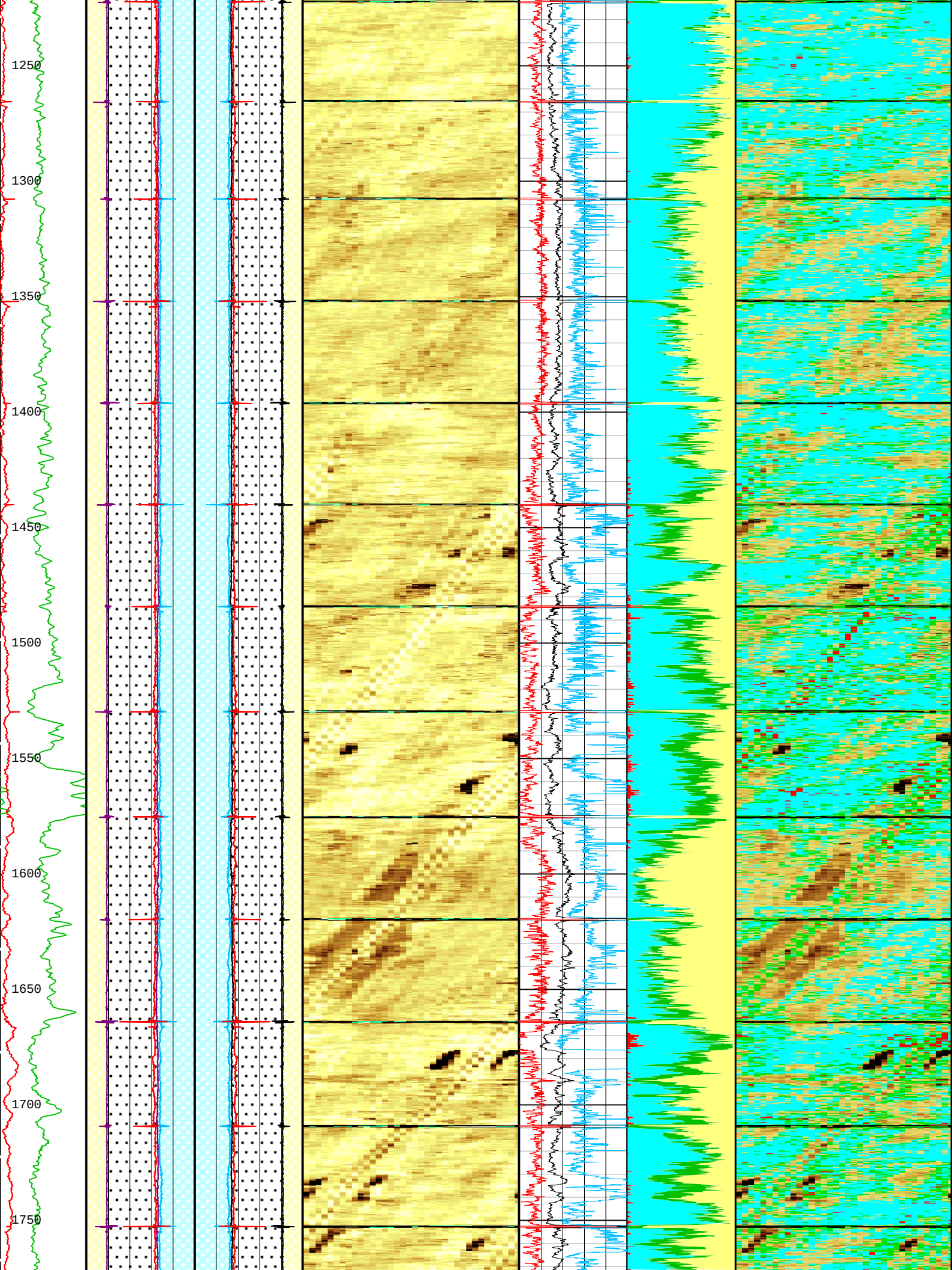
IRMN_RF
IRAV_RF
IRAV_RF
ERAV_RF
ERAV_RF
AIMX
AIAV
AIMN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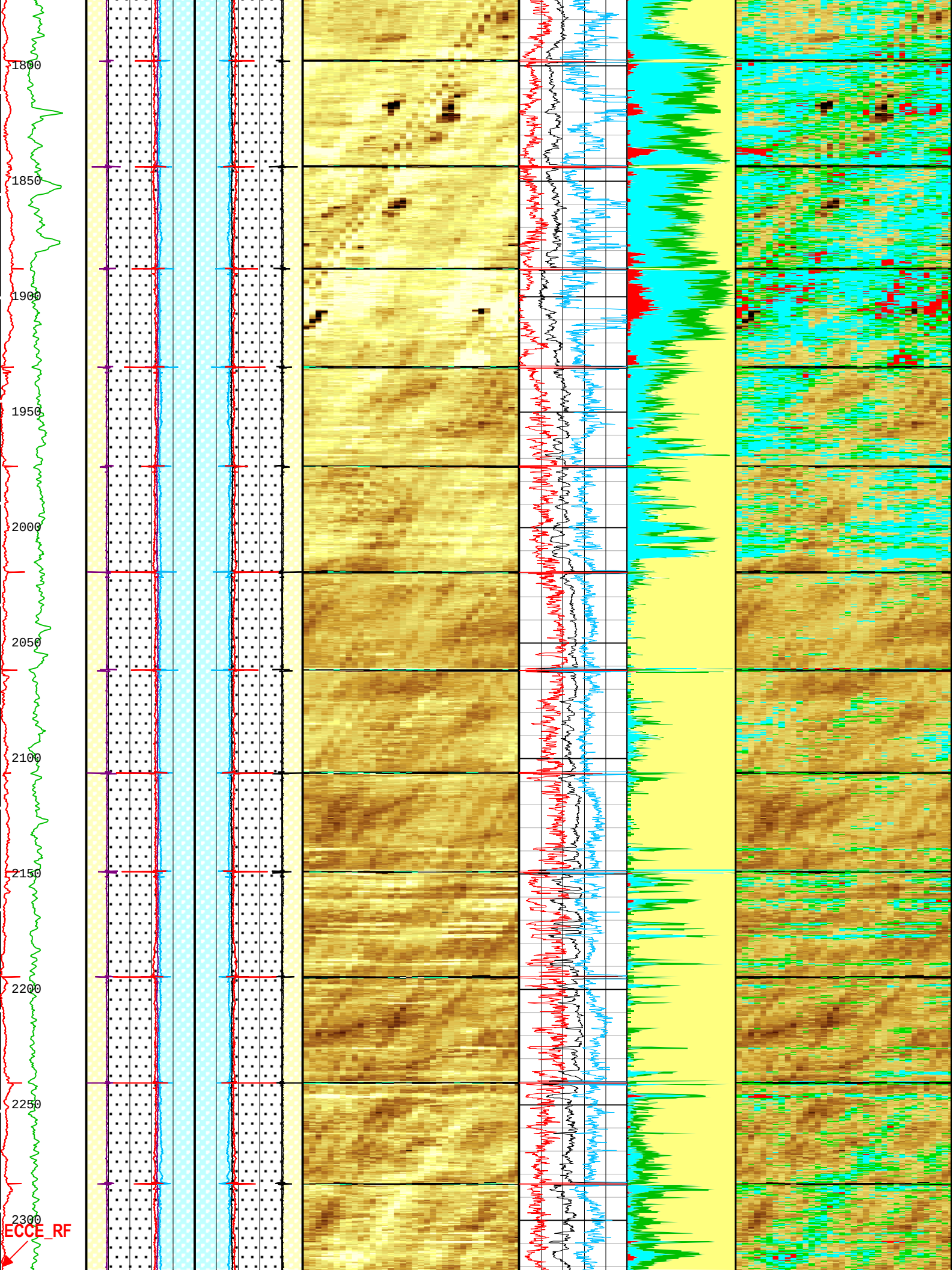
1300
1350
1400
1450
1500
1550
1600
1650
1700
1750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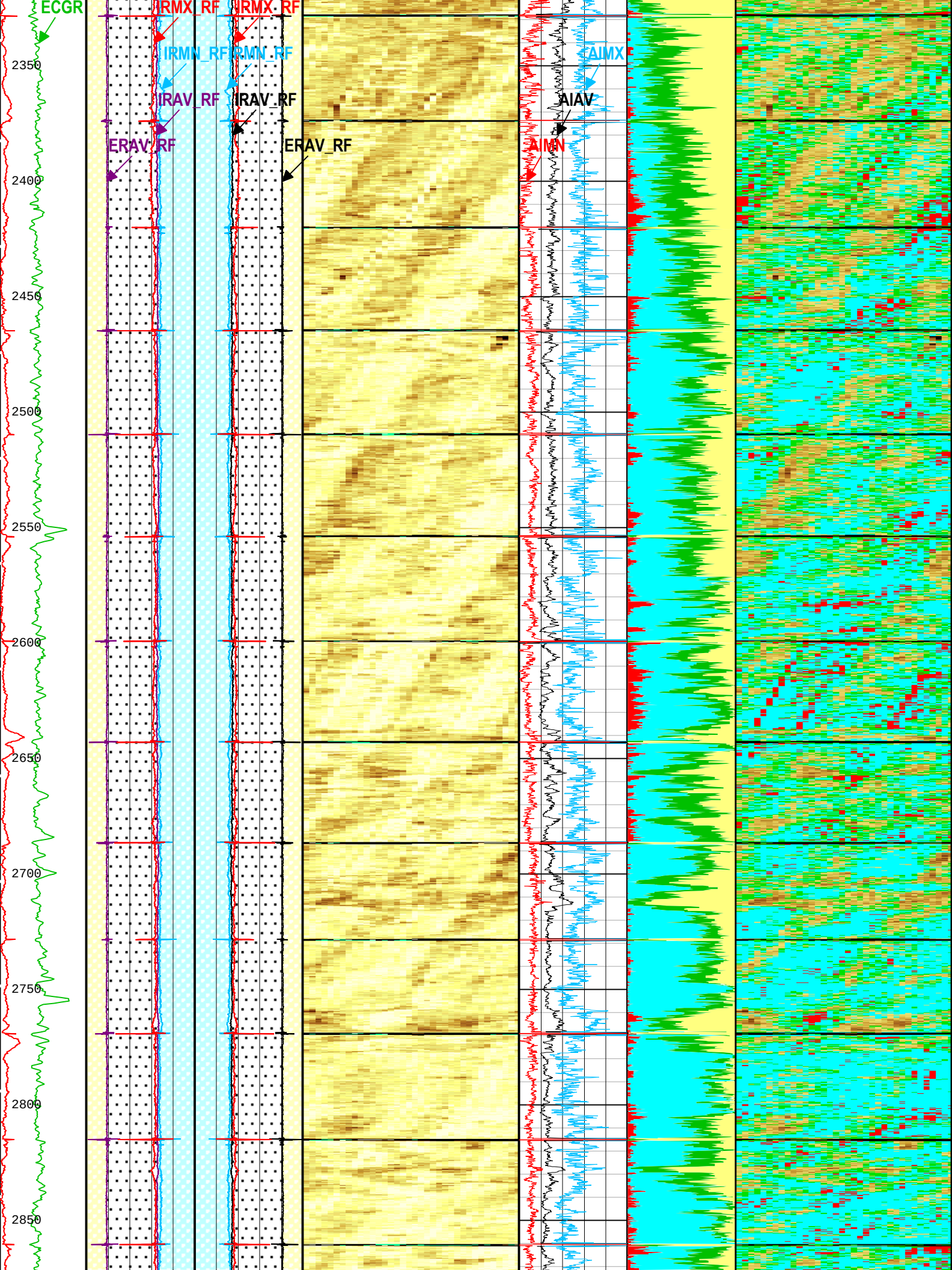
1850
1900
1950
2000
2050
2100
2150
2200
2250
2300
ECCE_RF


ECGR
IRMX_RF
IRMX_RF
IRMN_RF
IRMN_RF
IRAV_RF
IRAV_RF
ERAV_RF
ERAV_RF
AIMX
AIAV
AIMN
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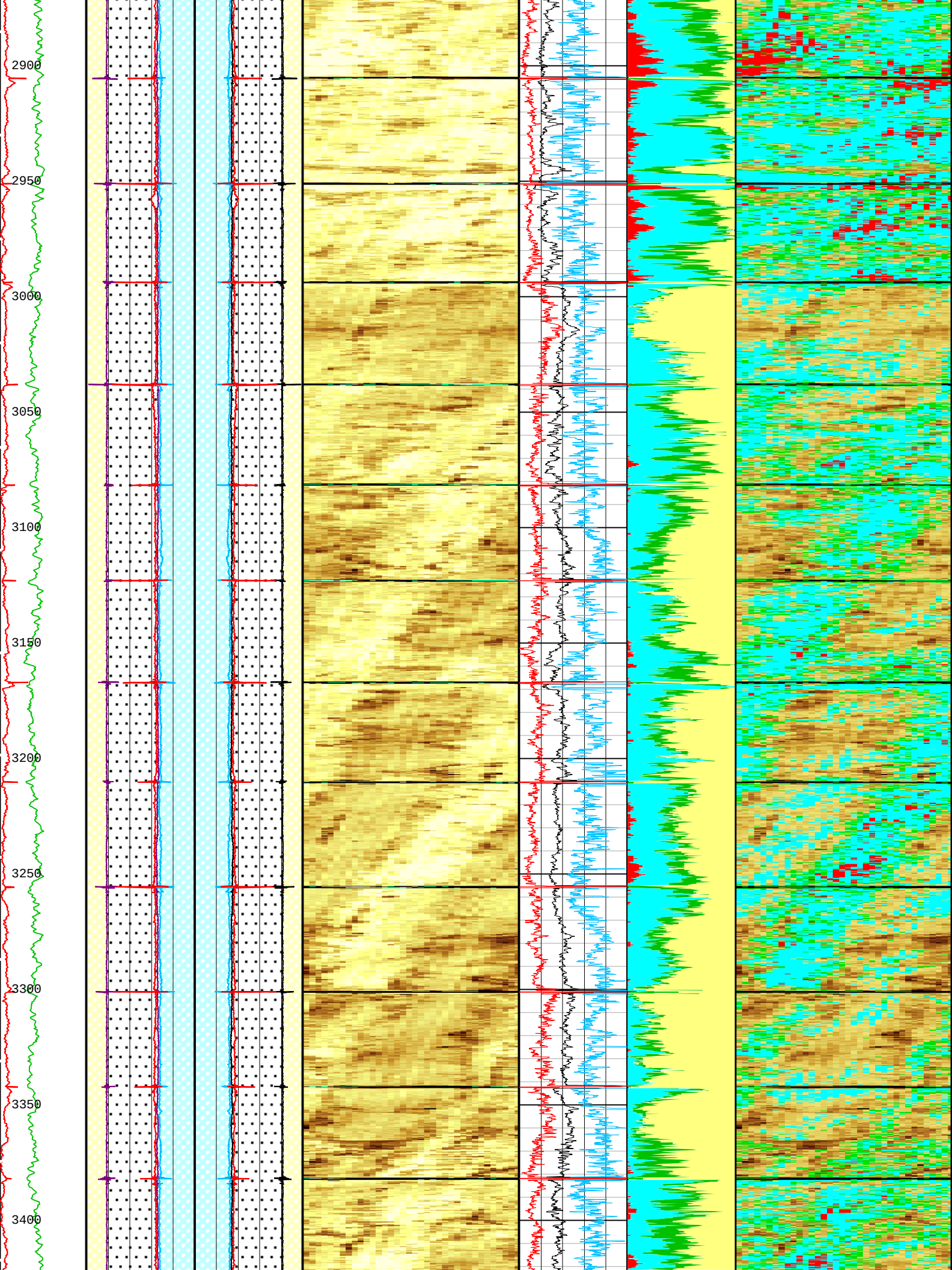
2400
2450
2500
2550
2600
2650
2700
2750
2800
2850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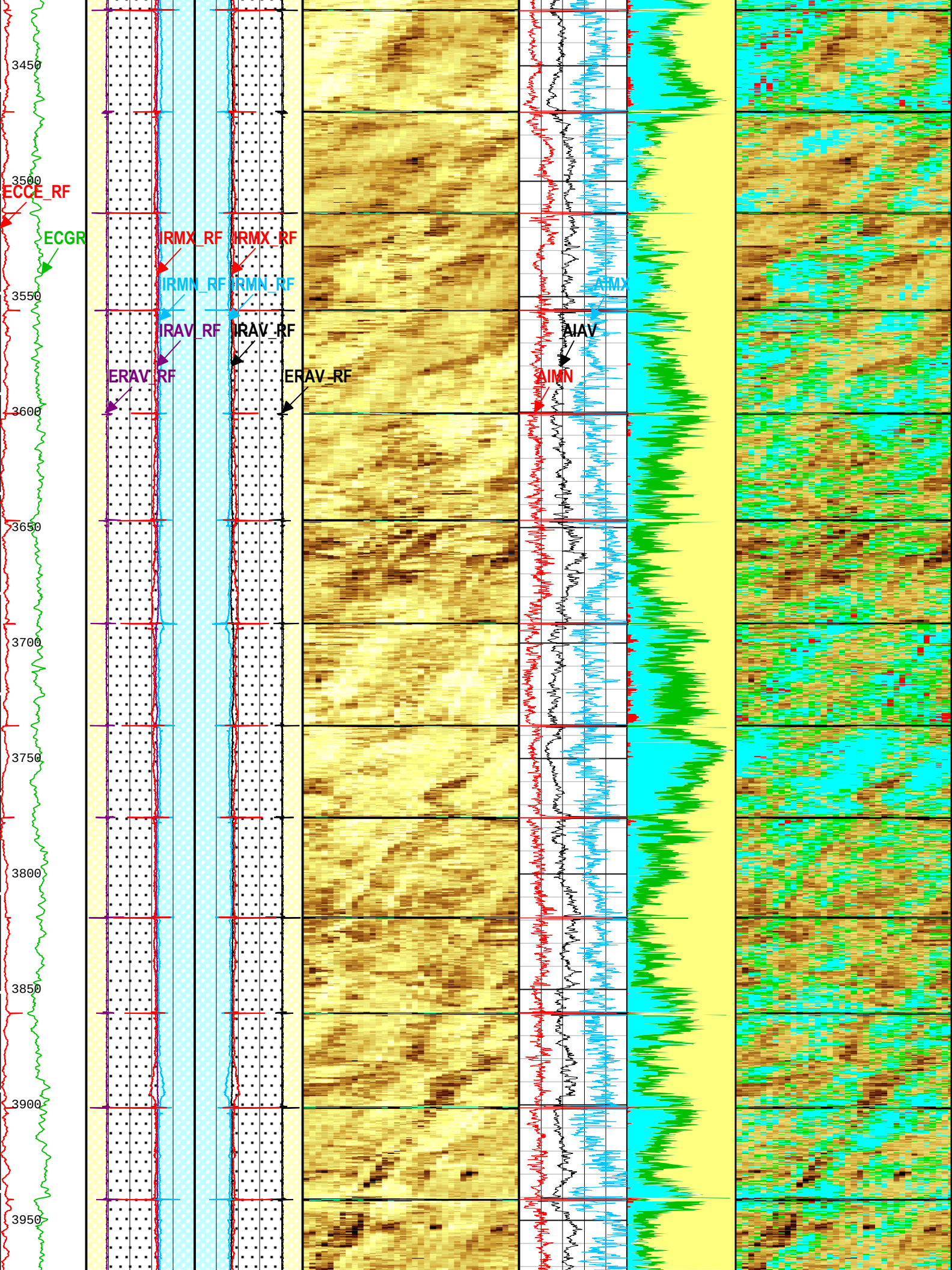
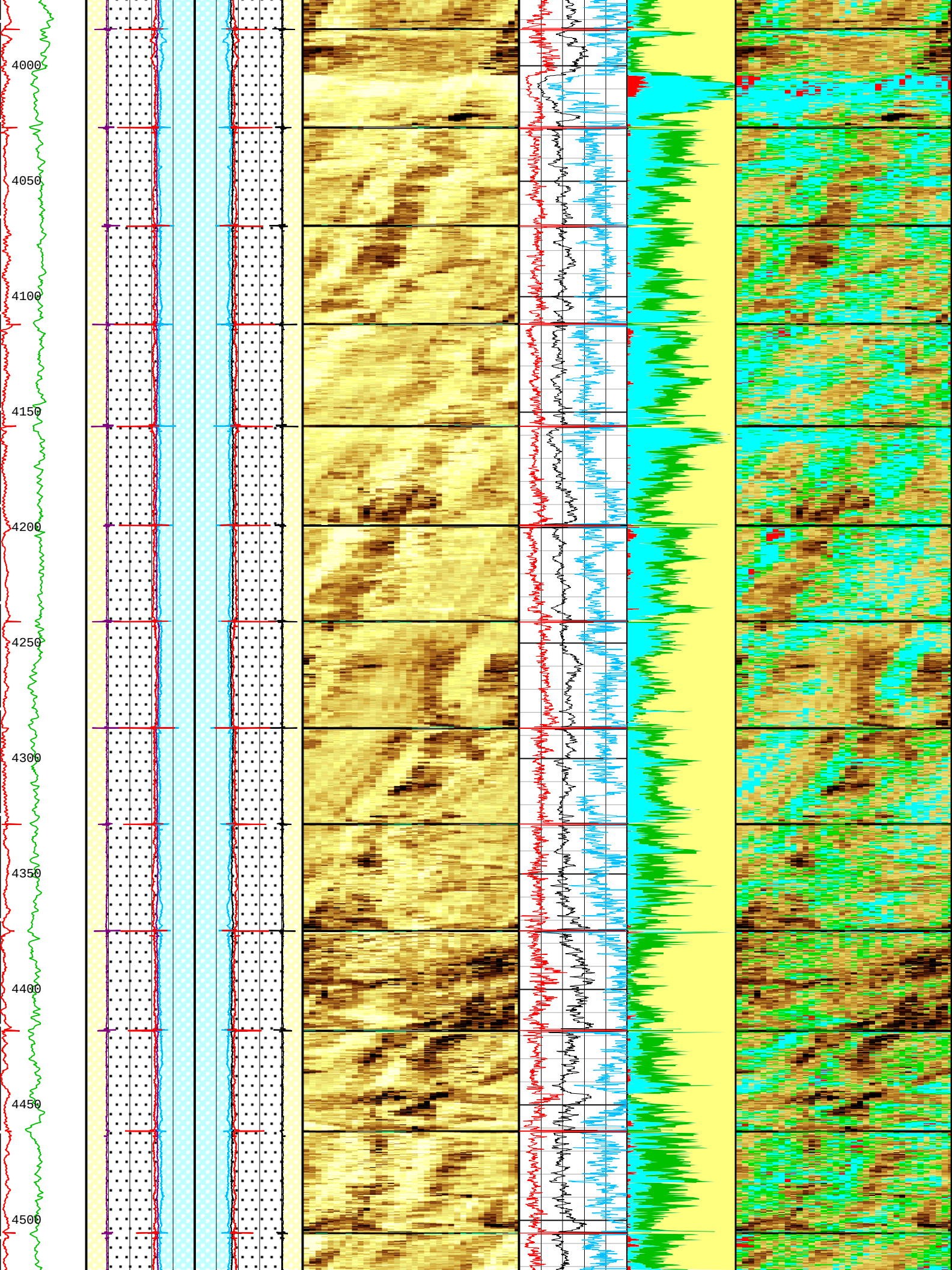
2950
3000
3050
3100
3150
3200
3250
3300
3350
3400


3450
3500
3550
3600
3650
3700
3750
3800
3850
3900
3950
ECCE_RF
ECGR
IRMX_RF
IRMX_RF
IRMN_RF
IRMN_RF
IRAV_RF
IRAV_RF
ERAV_RF
ERAV_RF
AIMX
AIAV
AIMN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4150
4200
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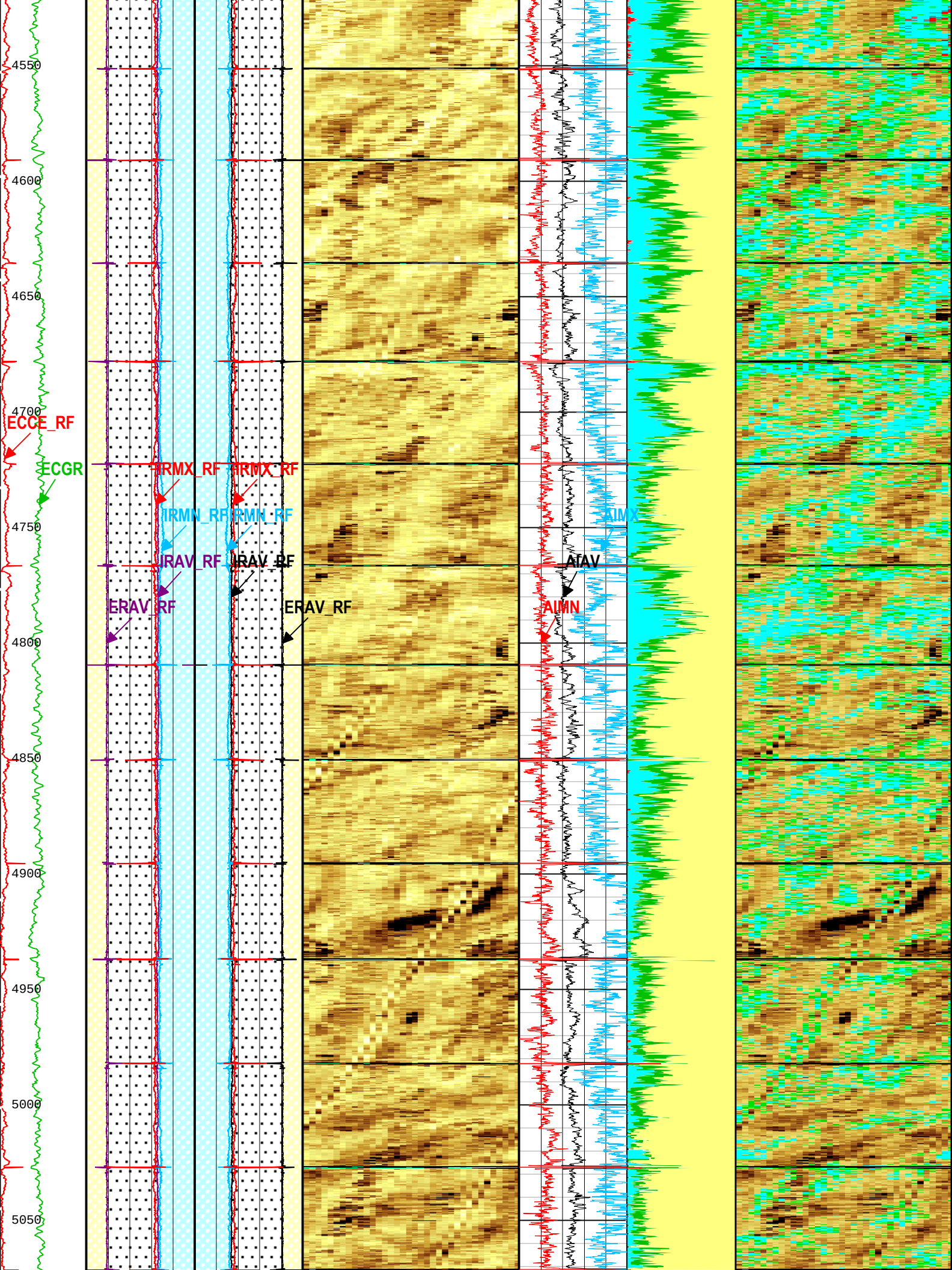
4300
4350
4400
4450
4500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4600
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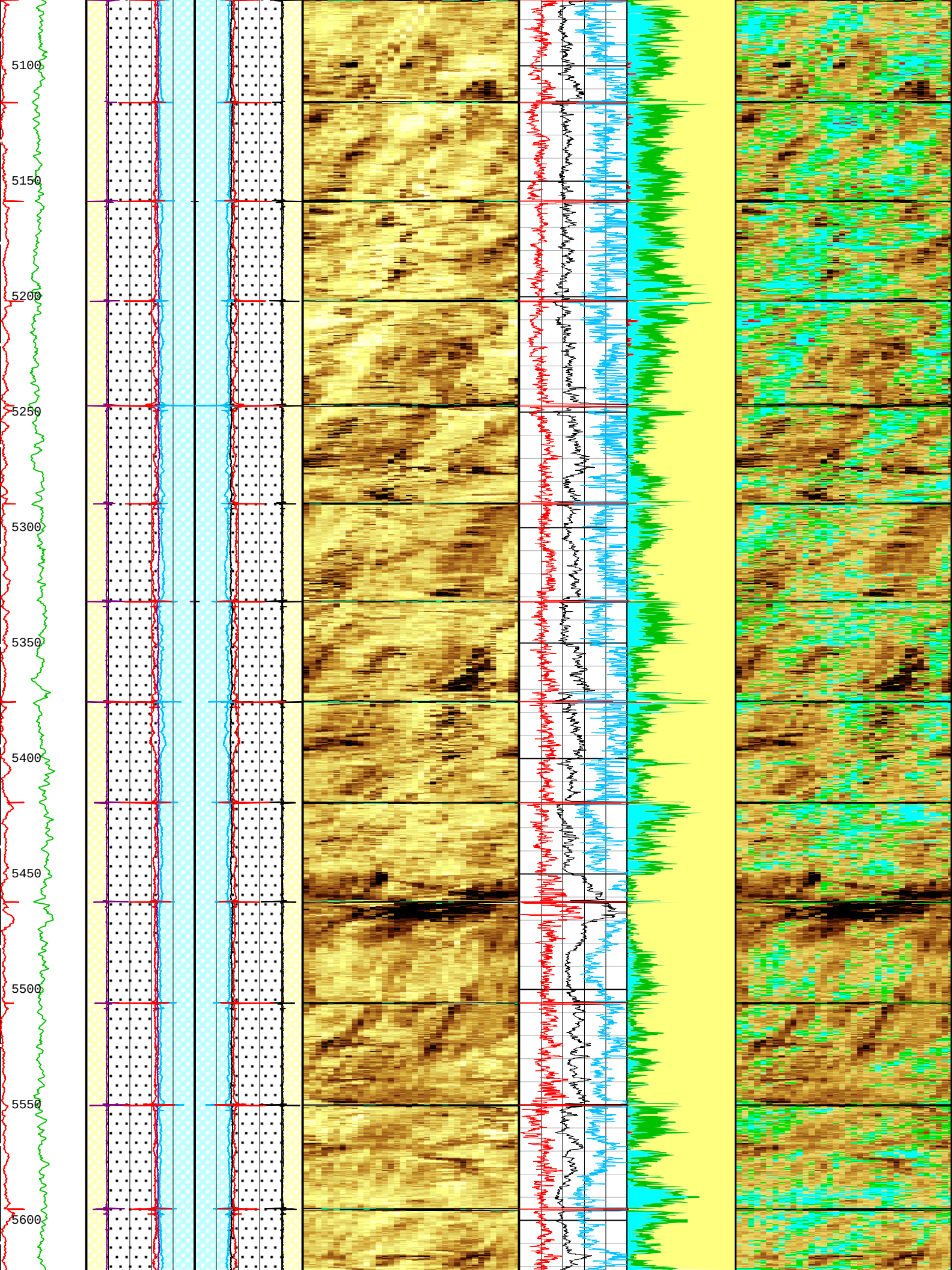
5000
5050
ECCE_RF
ECGR
IRMX_RF
IRMX_RF
IRMN_RF
IRMN_RF
IRAV_RF
IRAV_RF
ERAV_RF
ERAV_RF
AIMX
AIAV
AIMN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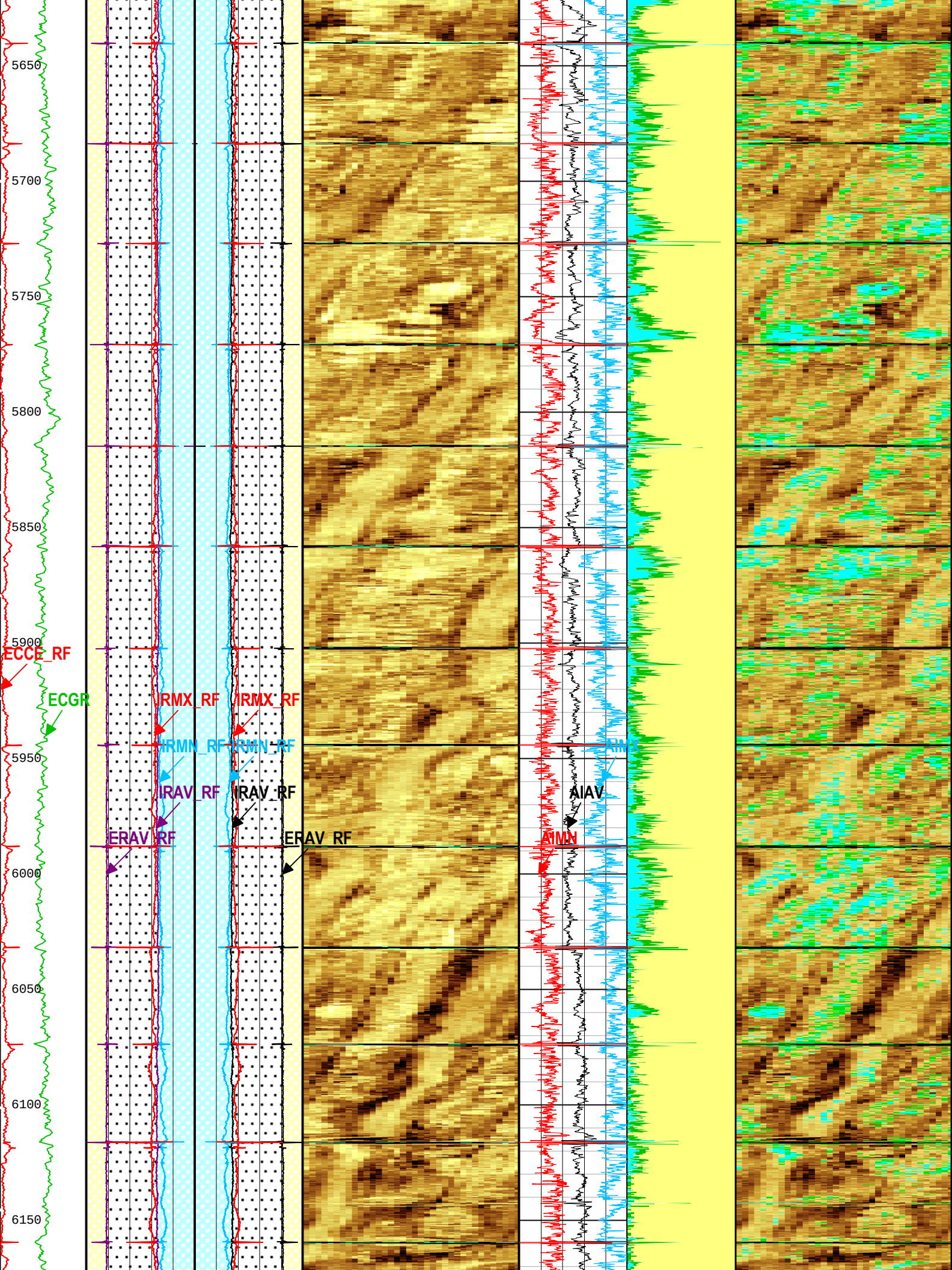
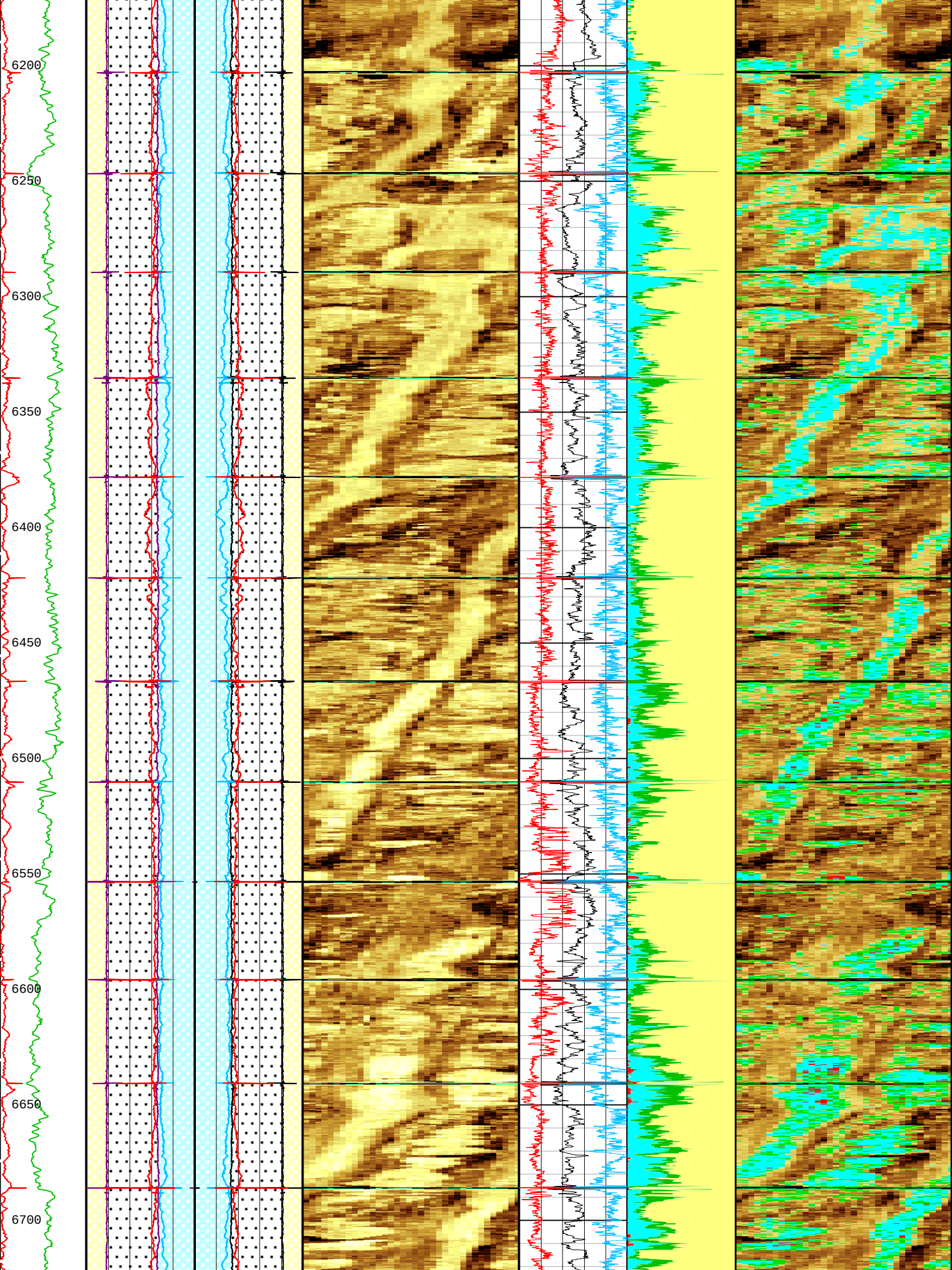
5600


5650
5700
5750
5800
5850
5900
5950
6000
6050
6100
6150
ECCE_RF
ECGR
IRMX_RF
IRMX_RF
IRMN_RF
IRMN_RF
IRAV_RF
IRAV_RF
ERAV_RF
ERAV_RF
AIAV
AIMN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6650
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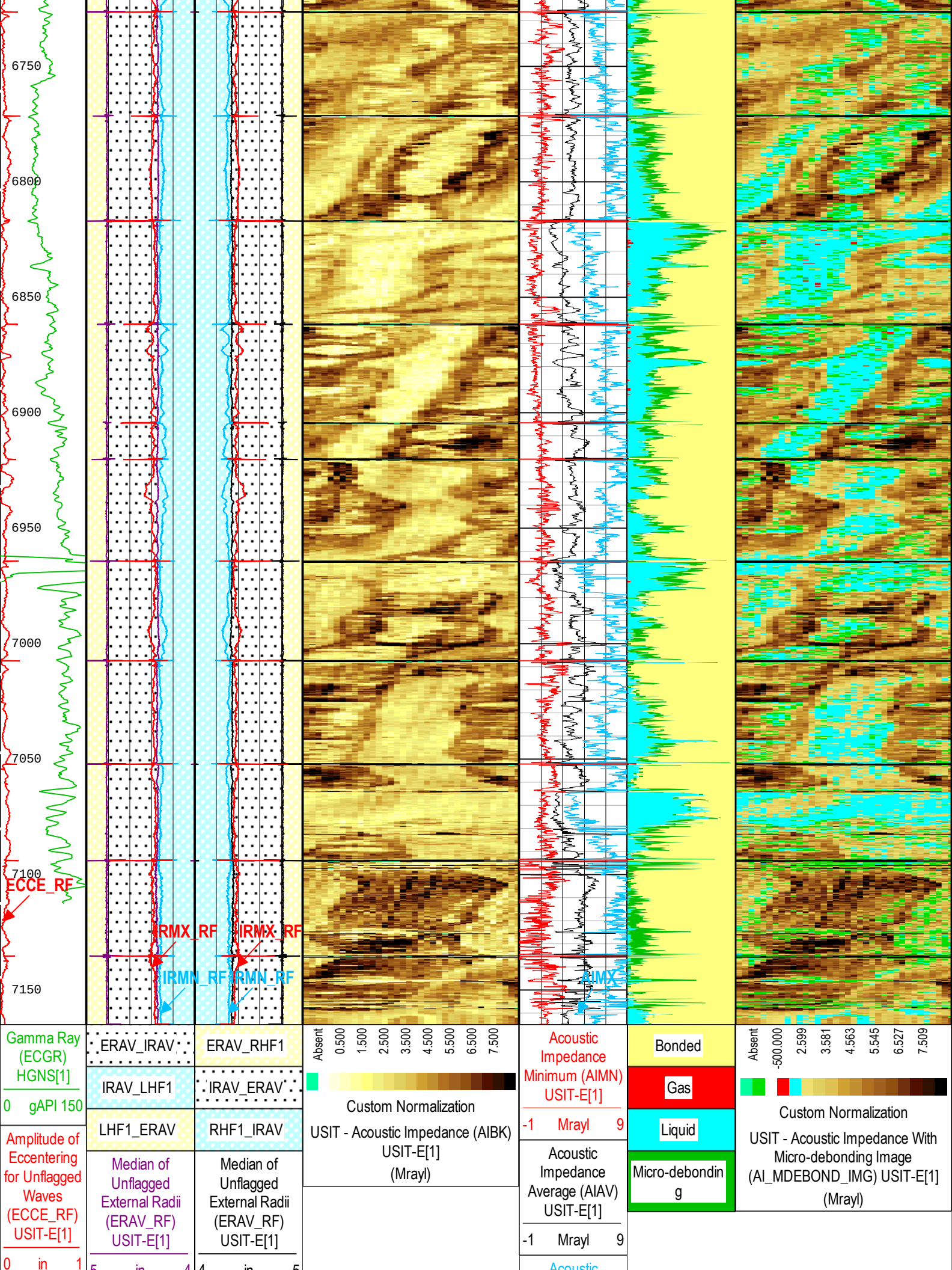
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7050
7100
7150
ECCE_RF
IRMX_RF
IRMN_RF
IRMX_RF
IRMN_RF
IRMX
Gamma Ray (ECGR) HGNS[1]
0 gAPI 150
Amplitude of Eccentering for Unflagged Waves (ECCE_RF) USIT-E[1]
0 in 1
ERAV_IRAV
IRAV_LHF1
LHF1_ERAV
Median of Unflagged External Radii (ERAV_RF) USIT-E[1]
5 in 4
ERAV_RHF1
IRAV_ERAV
RHF1_IRAV
Median of Unflagged External Radii (ERAV_RF) USIT-E[1]
4 in 5
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[1] (Mrayl)
Acoustic Impedance Minimum (AIMN) USIT-E[1]
-1 Mrayl 9
Acoustic Impedance Average (AIAV) USIT-E[1]
-1 Mrayl 9
Acoustic
Bonded
Gas
Liquid
Micro-debonding
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[1] (Mrayl)

5 in 4	4 in 5
Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E[1] 5 in 4	Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E[1] 4 in 5
Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E[1] 5 in 4	Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E[1] 4 in 5
Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E[1] 5 in 4	Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E[1] 4 in 5

Acoustic Impedance Maximum (AIMX) USIT-E[1]
-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: 08-Sep-2016 19:56:35

Composite 1

Software Version

Acquisition System	Version
Maxwell 2016 SP1	6.1.58882.3100

Composite Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
8-Sep-2016	Log[6]:Up	Up	149.92 ft	7165.27 ft	08-Sep-2016 9:51:46 AM	08-Sep-2016 12:33:17 PM	ON	-8.00 ft	No
8-Sep-2016	Log[9]:Up	Up	10.60 ft	348.17 ft	08-Sep-2016 2:55:22 PM	08-Sep-2016 3:13:17 PM	ON	2.00 ft	No

All depths are referenced to toolstring zero

Log

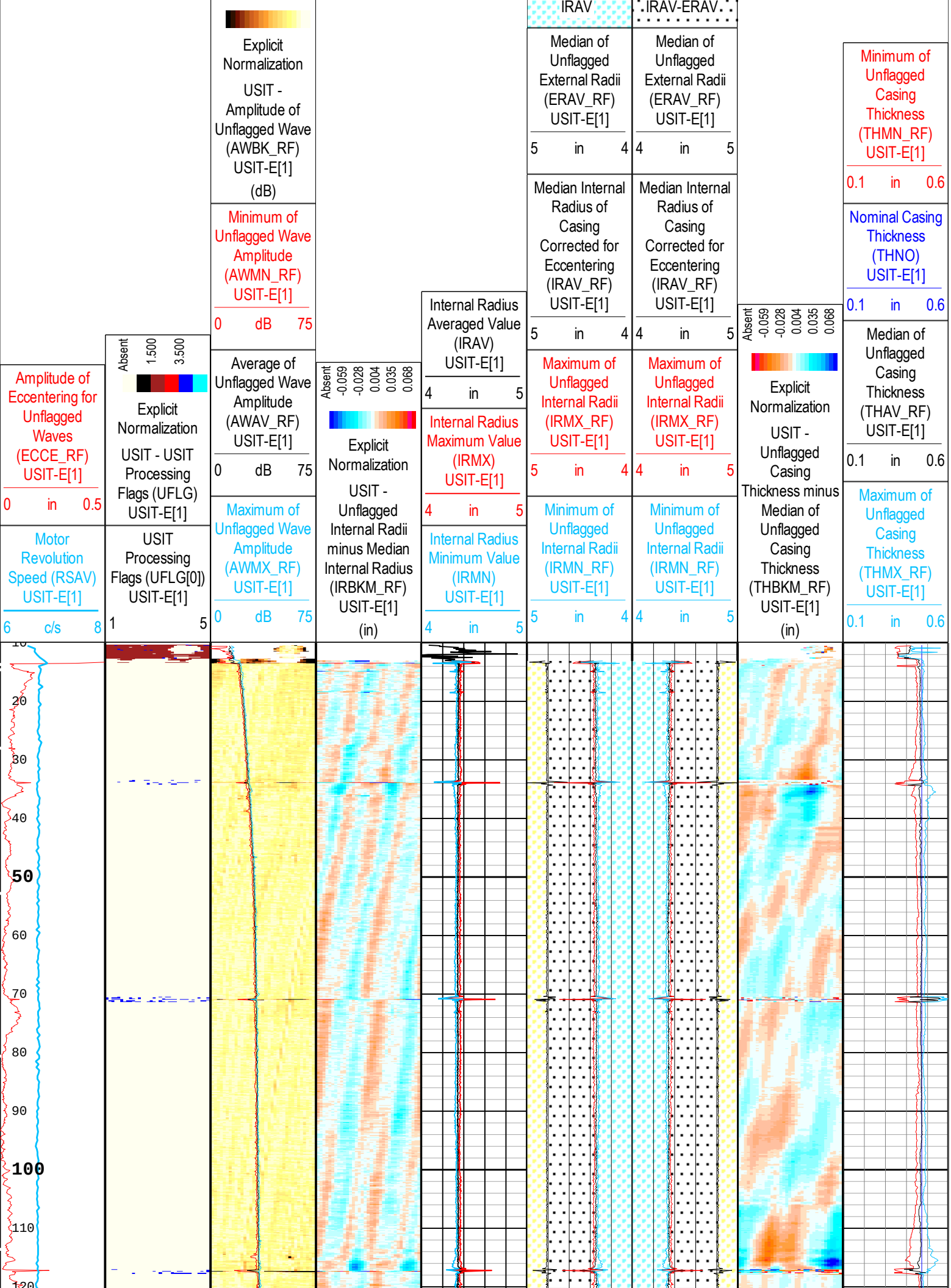
Company:Southern California Gas Company Well:Porter 69E
Composite 1:S002

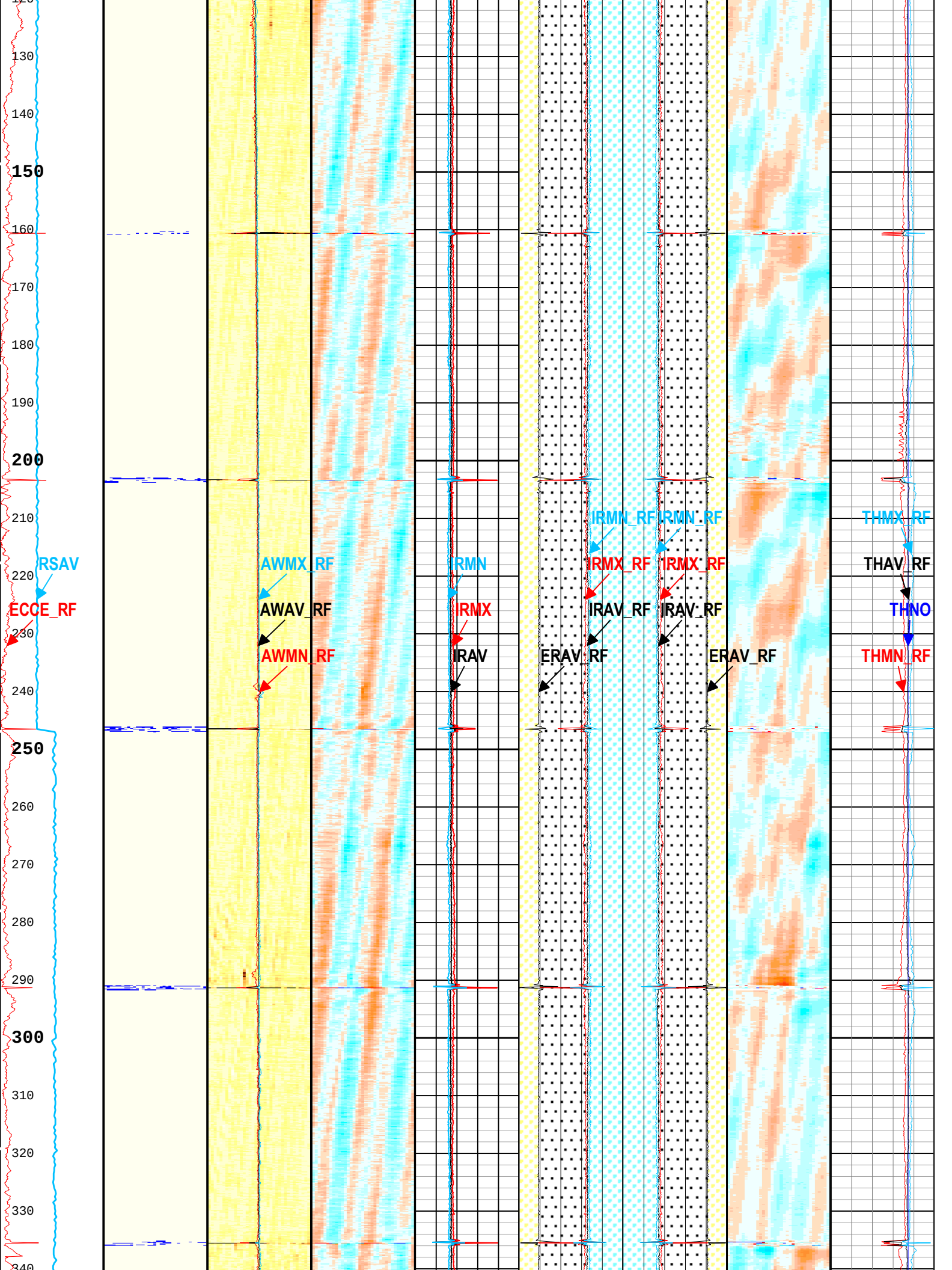
Description: USI Composite Format: Log (Copy of LBV1_USI Corrosion 9.625inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 08-Sep-2016 19:57:13

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

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

TIME_1900 - Time Marked every 60.00 (s)


Amplitude of Eccentering for Unflagged Waves (ECCE_RF) USIT-E[1]
0 in 0.5
Motor Revolution Speed (RSAV) USIT-E[1]
6 c/s 8
Absent 1.500 3.500
Explicit Normalization
USIT - USIT Processing Flags (UFLG) USIT-E[1]
USIT Processing Flags (UFLG[0]) USIT-E[1]
1 5
Explicit Normalization
USIT - Amplitude of Unflagged Wave (AWBK_RF) USIT-E[1] (dB)
Minimum of Unflagged Wave Amplitude (AWMN_RF) USIT-E[1]
0 dB 75
Average of Unflagged Wave Amplitude (AWAV_RF) USIT-E[1]
0 dB 75
Maximum of Unflagged Wave Amplitude (AWMX_RF) USIT-E[1]
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[1] (in)
Internal Radius Averaged Value (IRAV) USIT-E[1]
4 in 5
Internal Radius Maximum Value (IRMX) USIT-E[1]
4 in 5
Internal Radius Minimum Value (IRMN) USIT-E[1]
4 in 5
IRAV
Median of Unflagged External Radii (ERAV_RF) USIT-E[1]
5 in 4
Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E[1]
5 in 4
Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E[1]
5 in 4
Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E[1]
5 in 4
IRAV-ERAV
Median of Unflagged External Radii (ERAV_RF) USIT-E[1]
4 in 5
Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E[1]
4 in 5
Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E[1]
4 in 5
Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E[1]
4 in 5
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[1] (in)
Minimum of Unflagged Casing Thickness (THMN_RF) USIT-E[1]
0.1 in 0.6
Nominal Casing Thickness (THNO) USIT-E[1]
0.1 in 0.6
Median of Unflagged Casing Thickness (THAV_RF) USIT-E[1]
0.1 in 0.6
Maximum of Unflagged Casing Thickness (THMX_RF) USIT-E[1]
0.1 in 0.6
20
30
40
50
60
70
80
90
100
110
120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330
340
RSAV
ECCE_RF
AWMX_RF
AWAV_RF
AWMN_RF
IRMN
IRMX
IRAV
IRMN_RF
IRMX_RF
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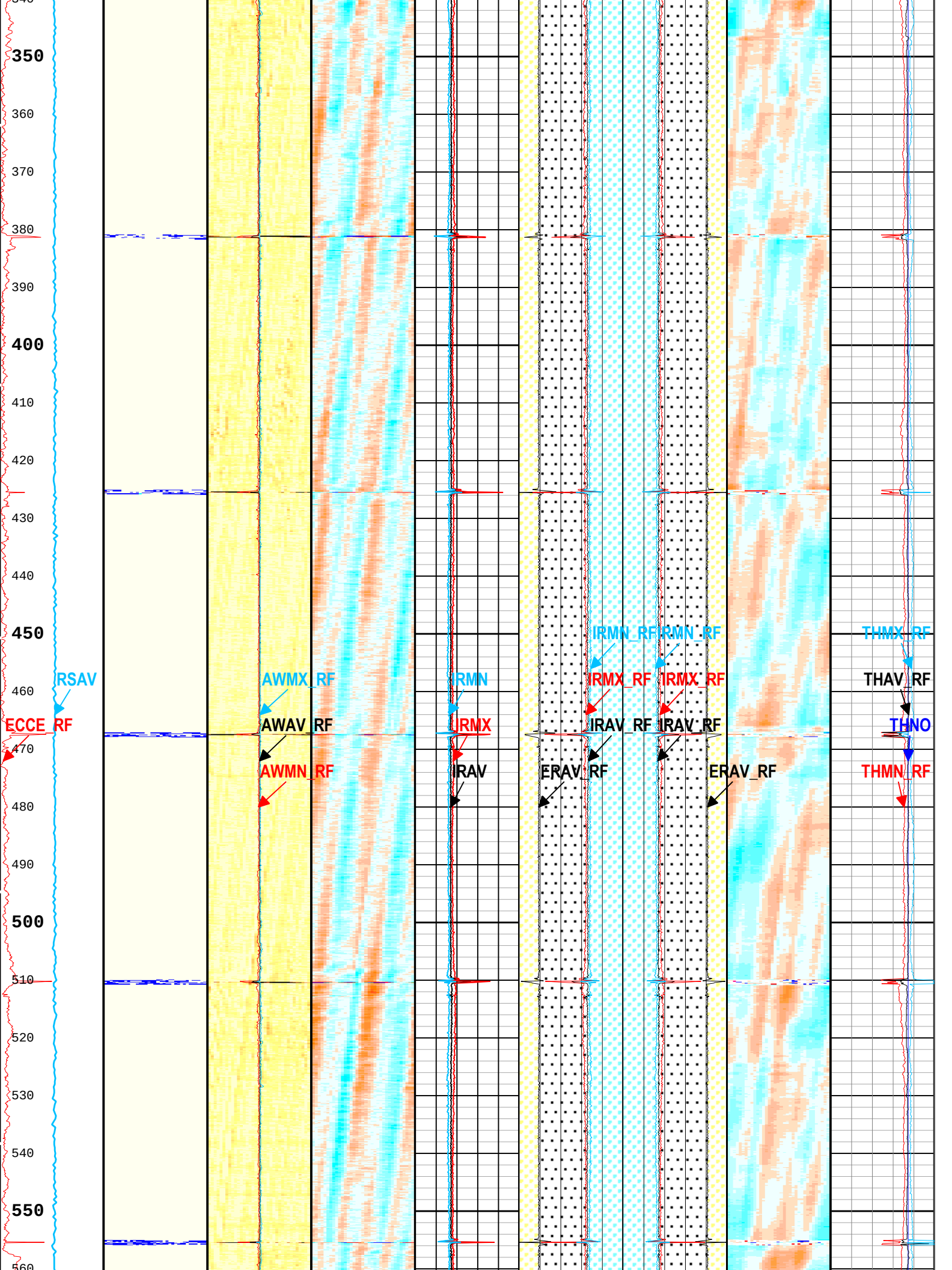
THMX_RF
THAV_RF
THNO
THMN_RF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560
RSAV
ECCE_RF
AWMX_RF
AWAV_RF
AWMN_RF
IRMN
IRMX
IRAV
IRMN_RF
IRMX_RF
IRAV_RF
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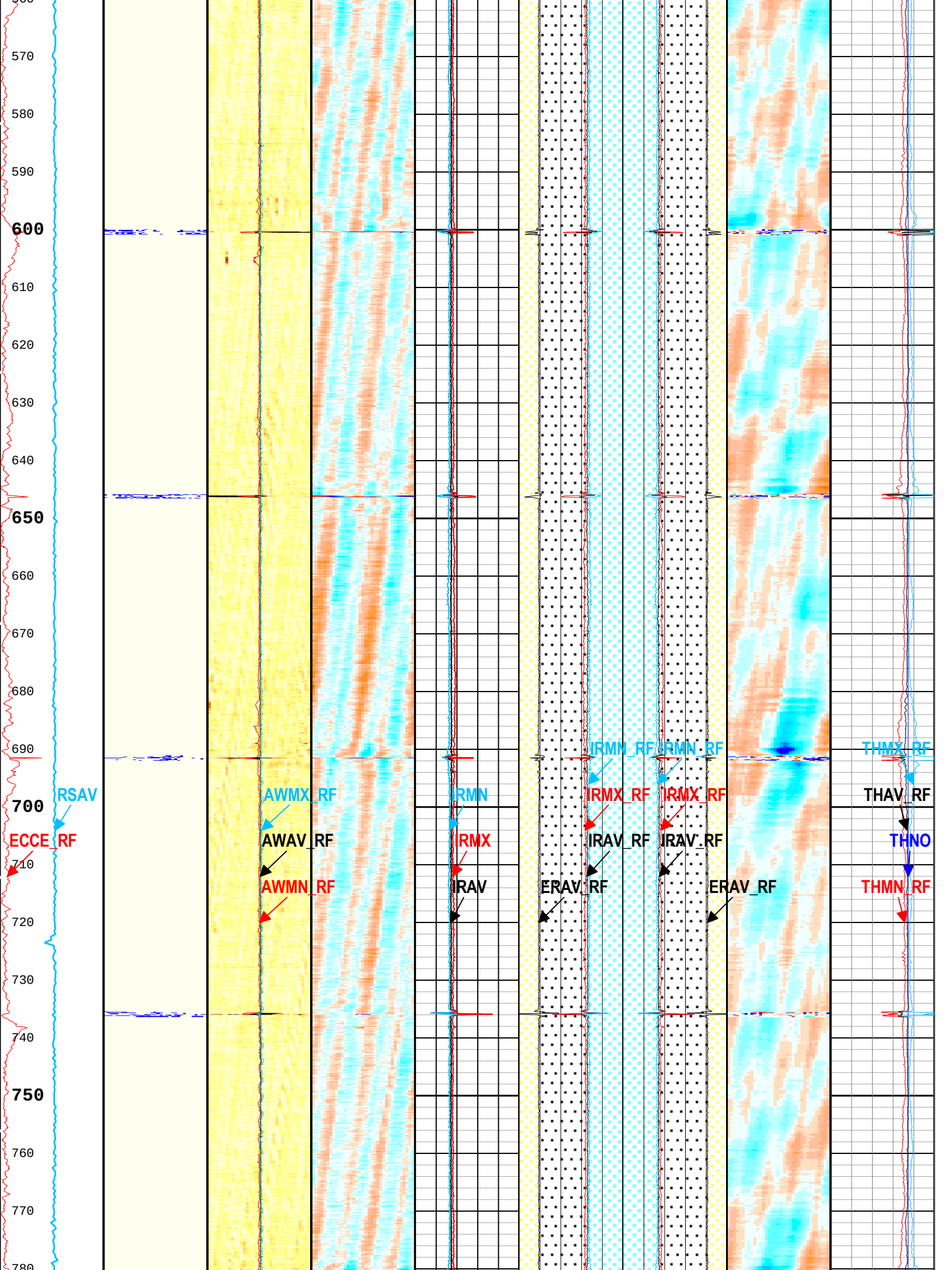
THMX_RF
THAV_RF
THNO
THMN_RF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760
770
780
RSAV
ECCE_RF
AWMX_RF
AWAV_RF
AWMN_RF
IRMN
IRMX
IRAV
IRMN_RF
IRMX_RF
IRAV_RF
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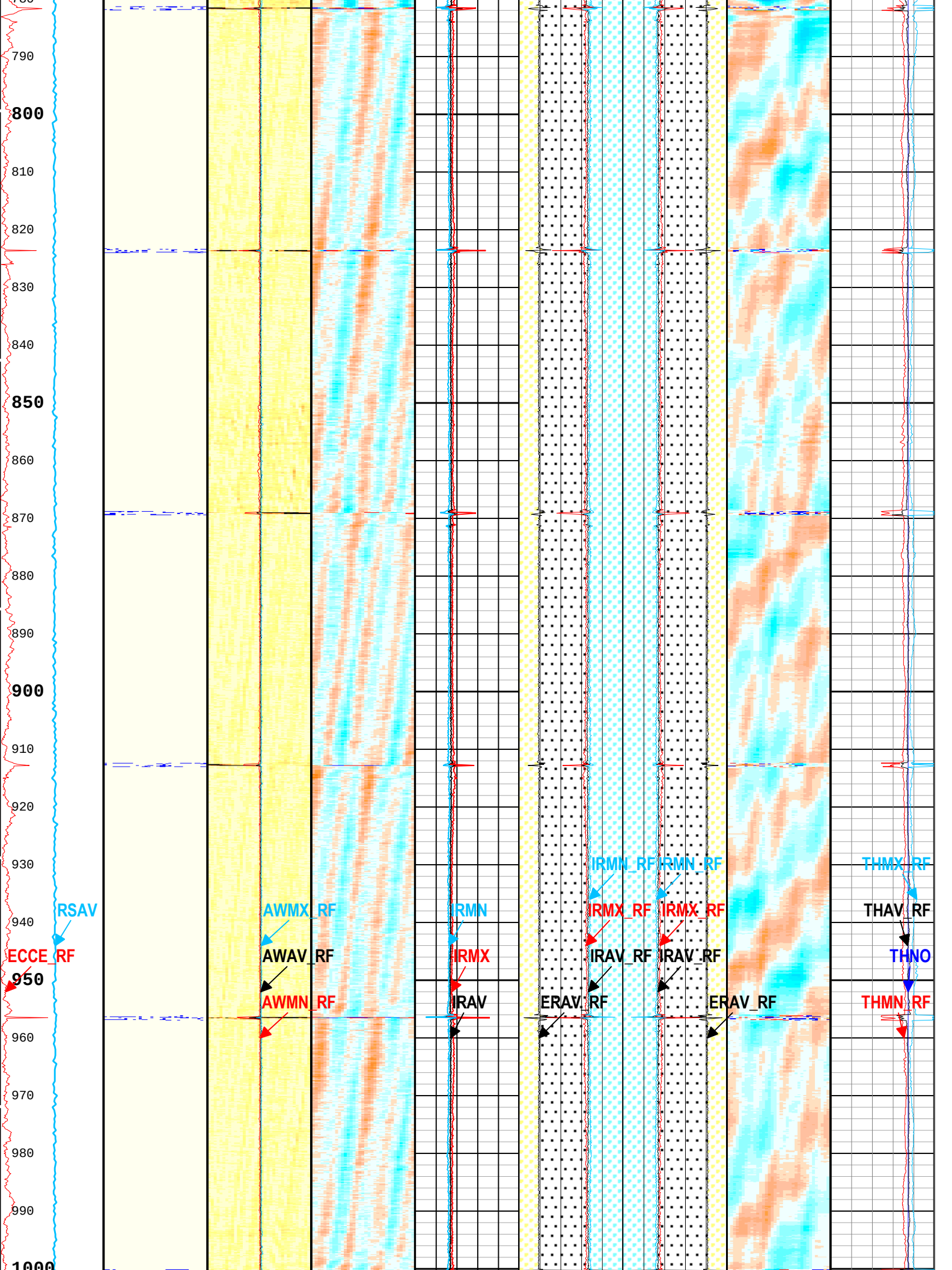
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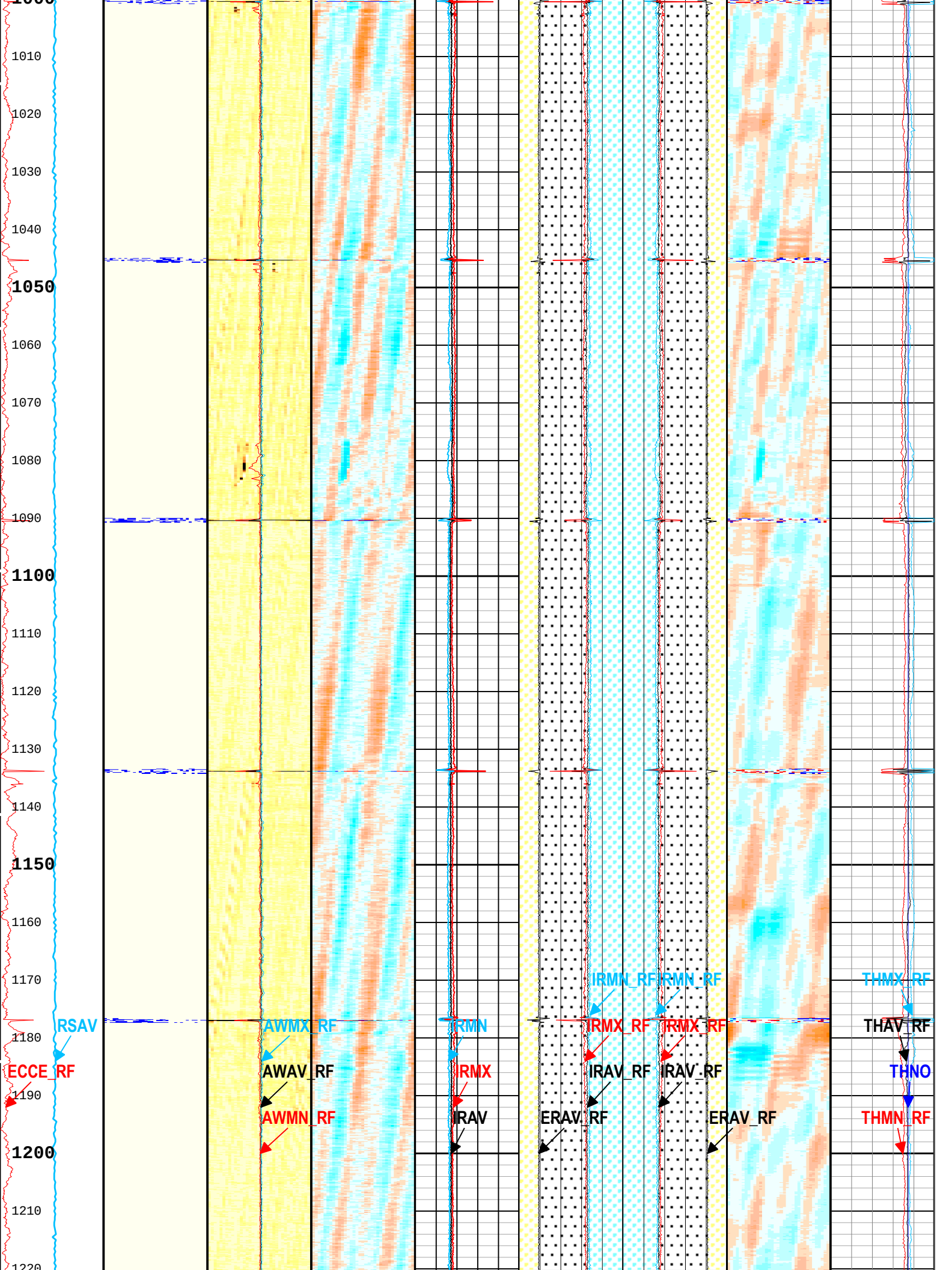
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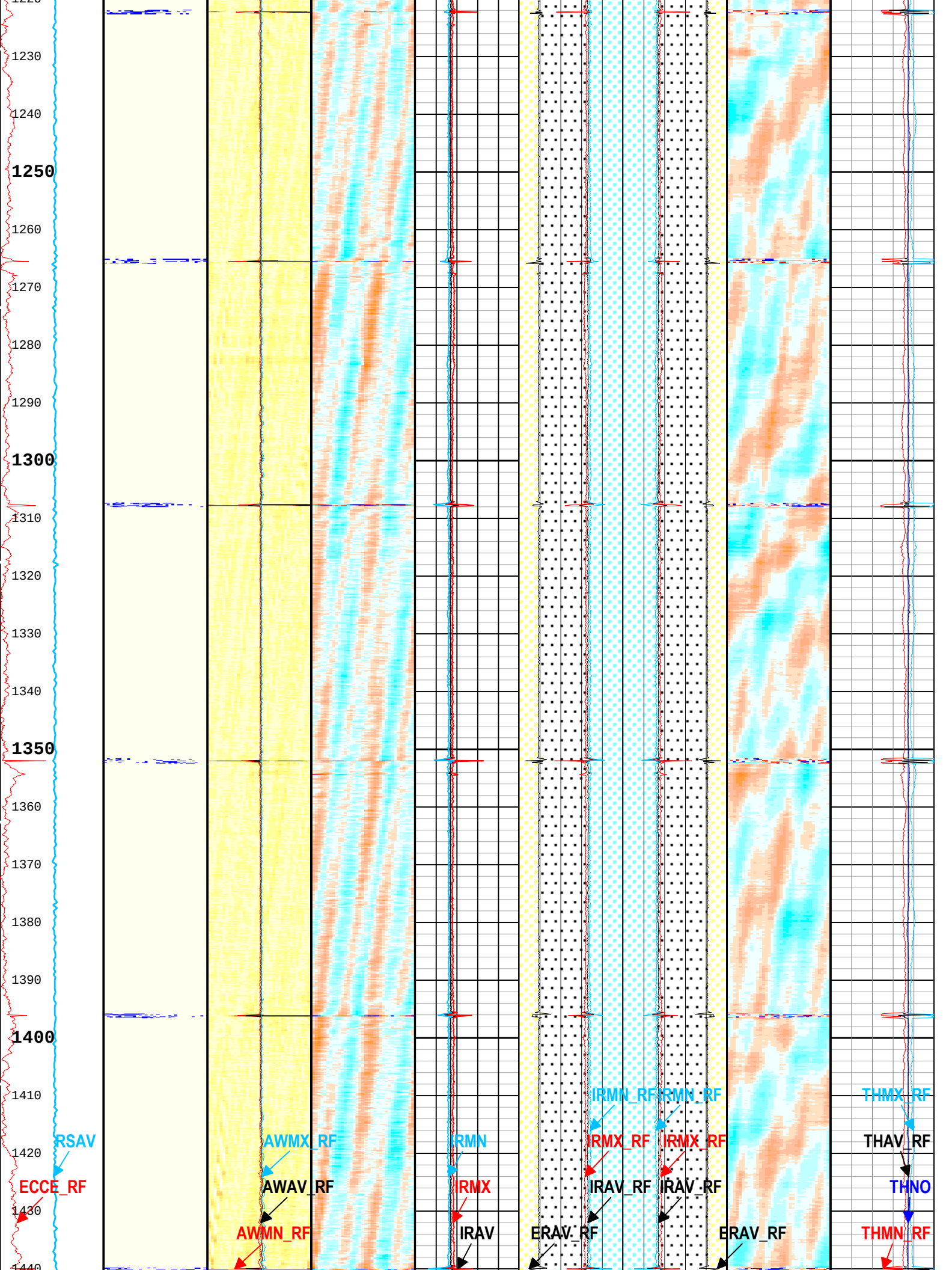
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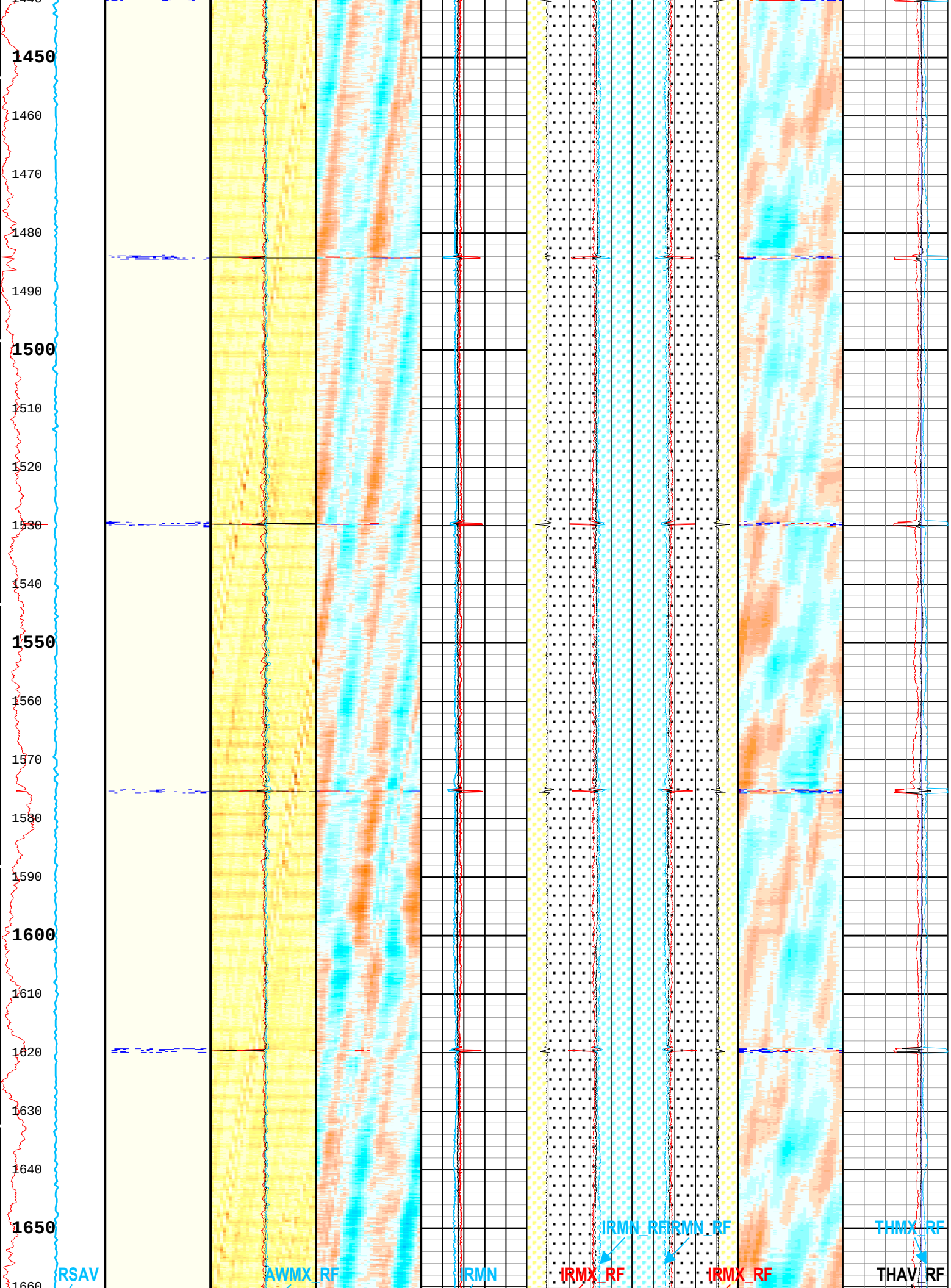
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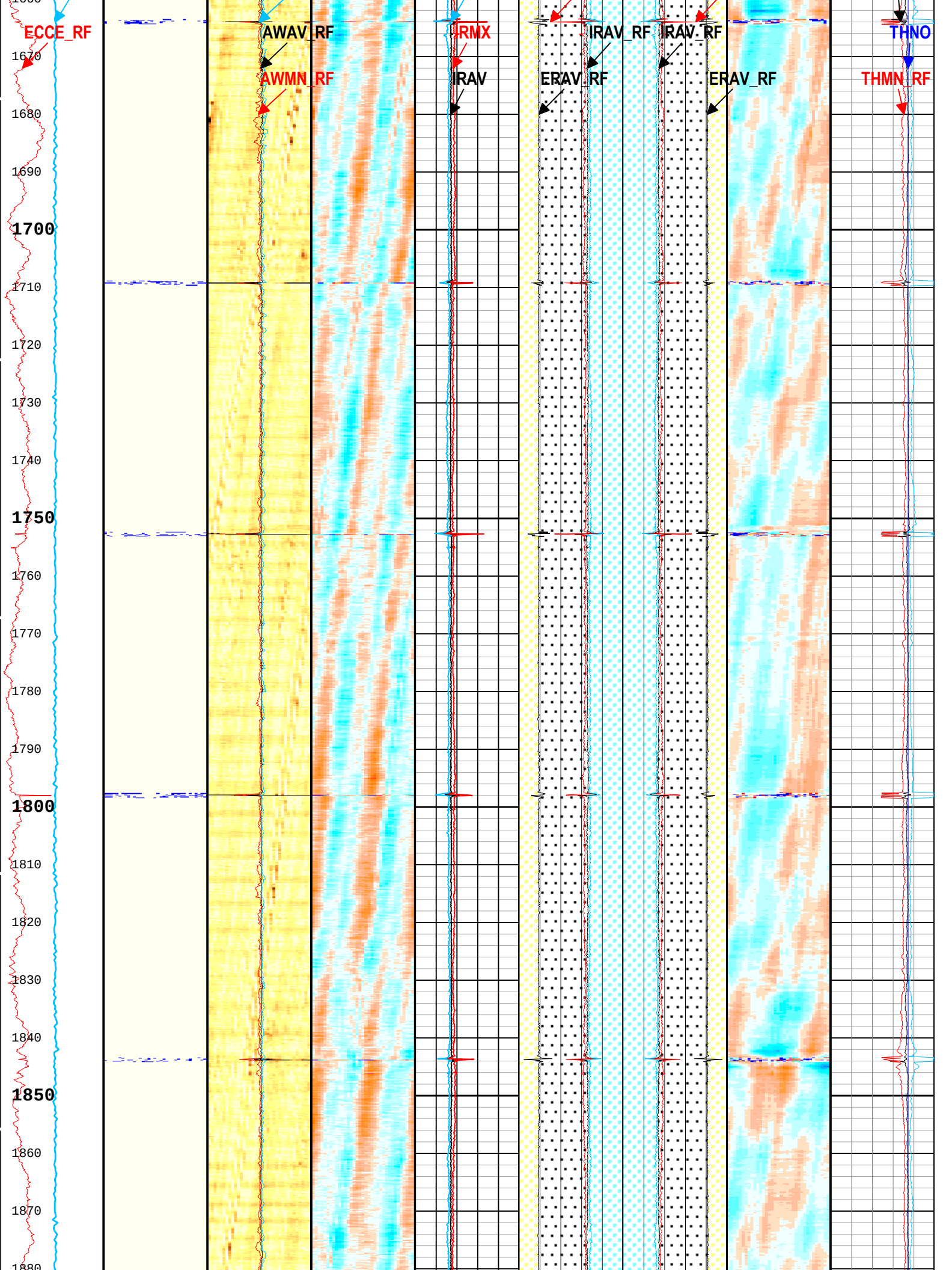
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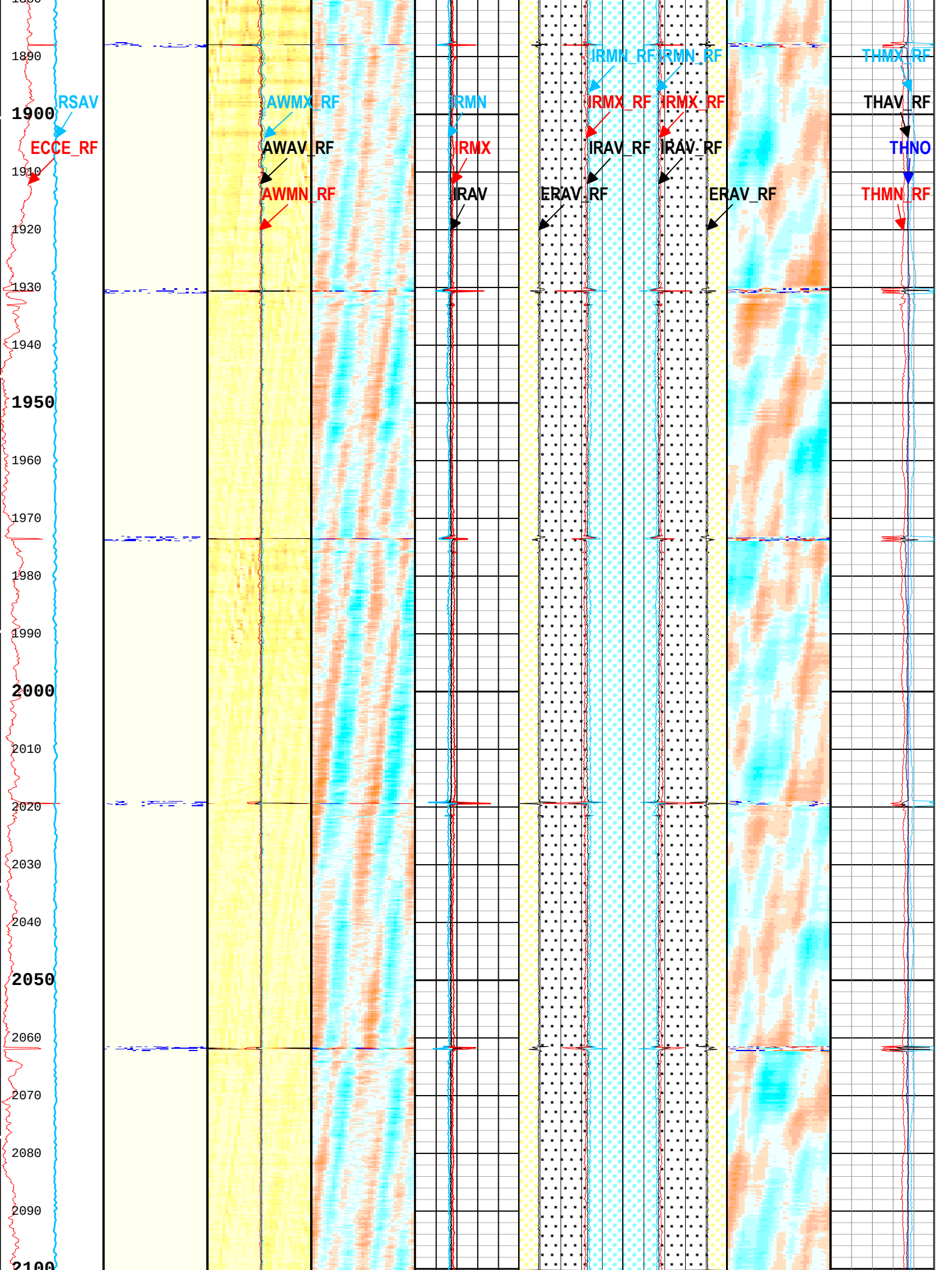
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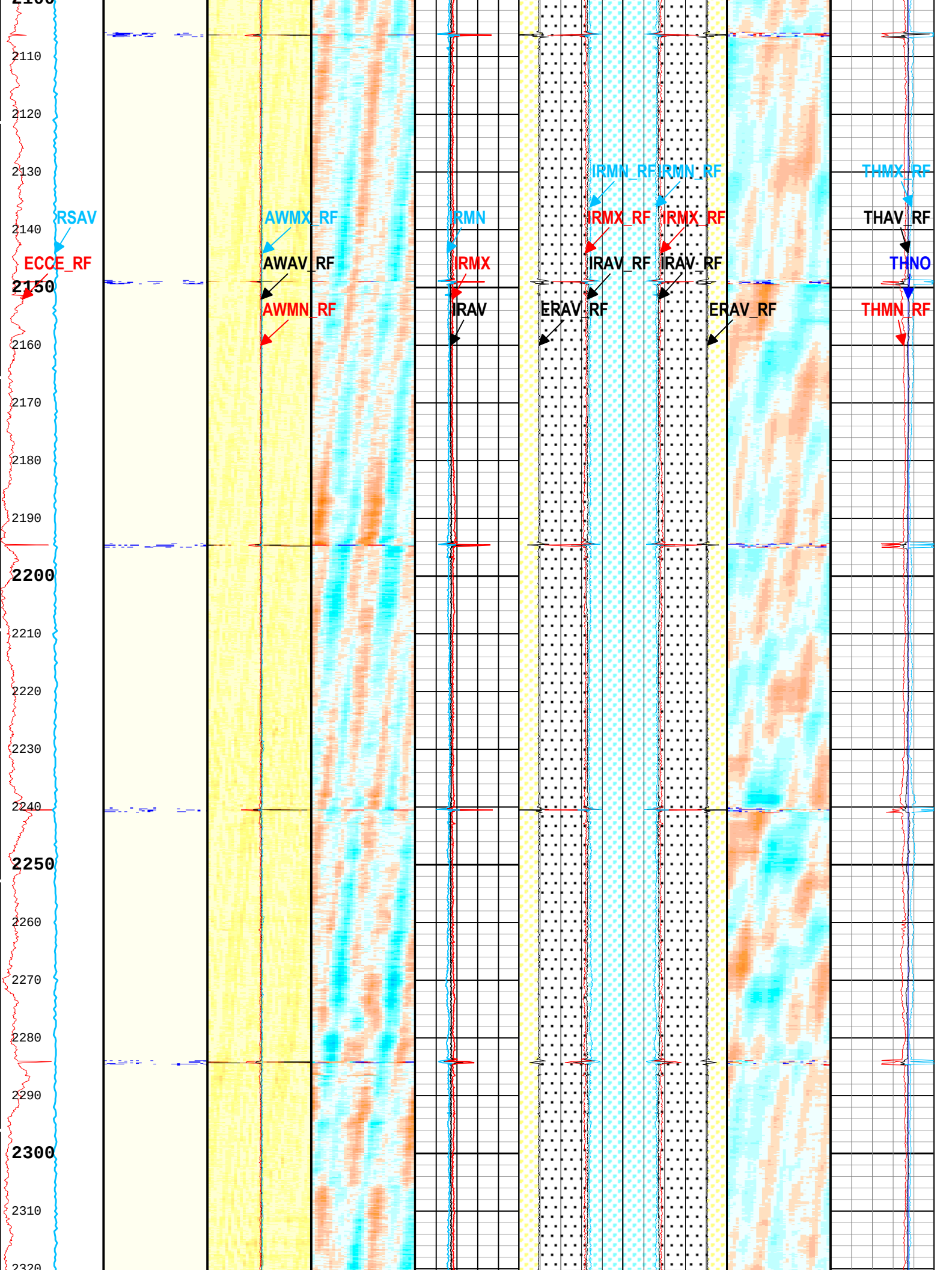
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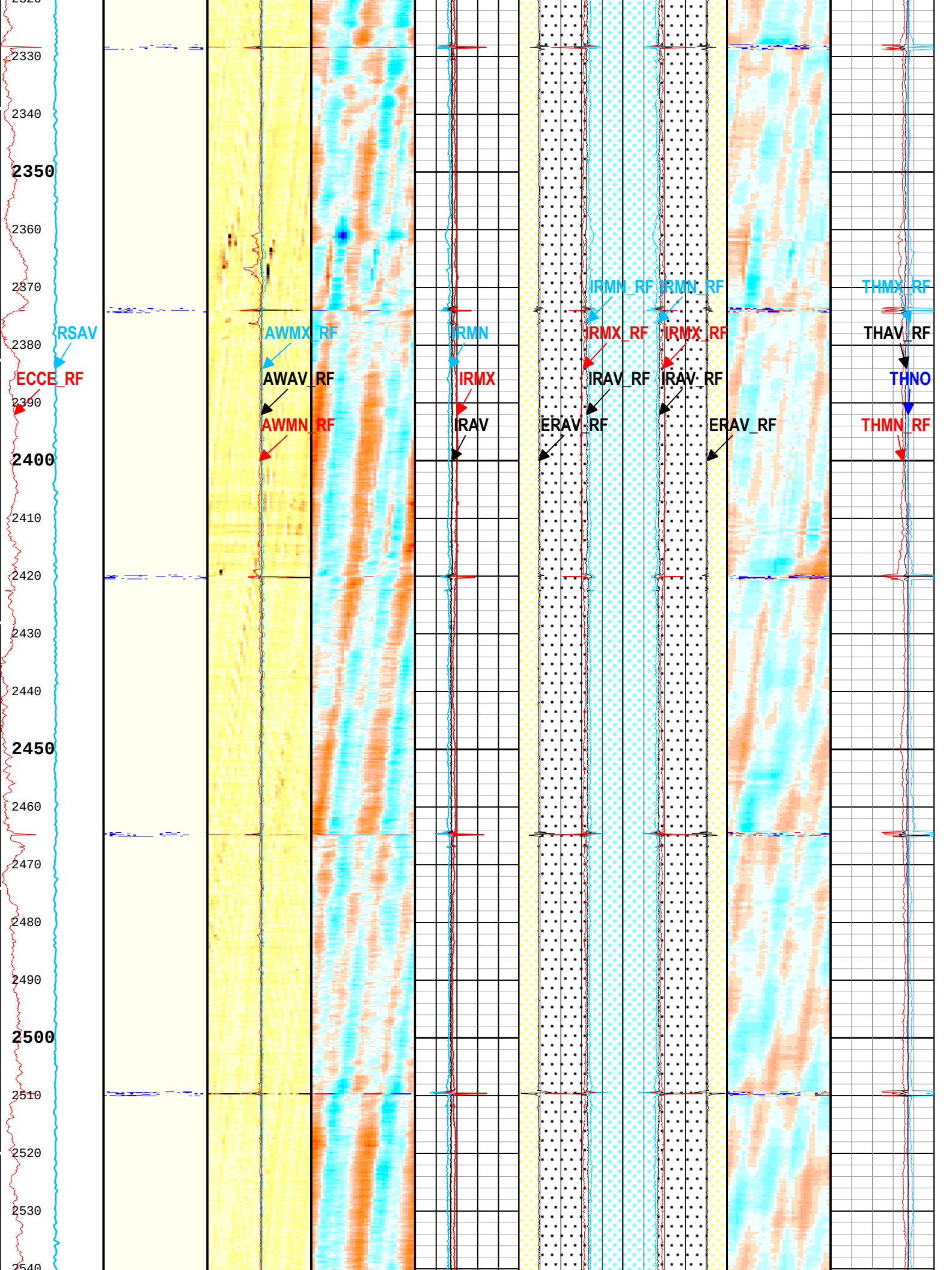
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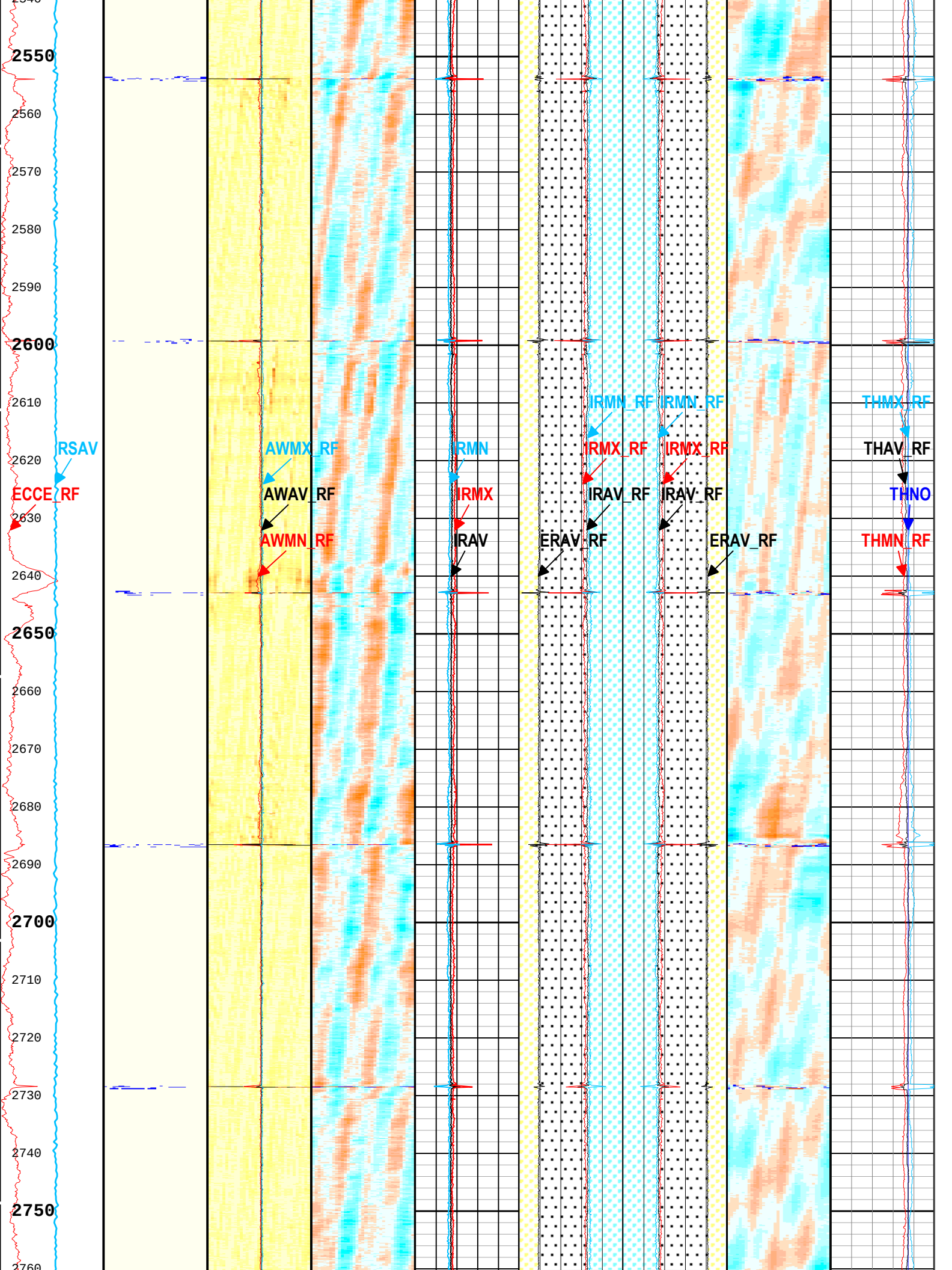
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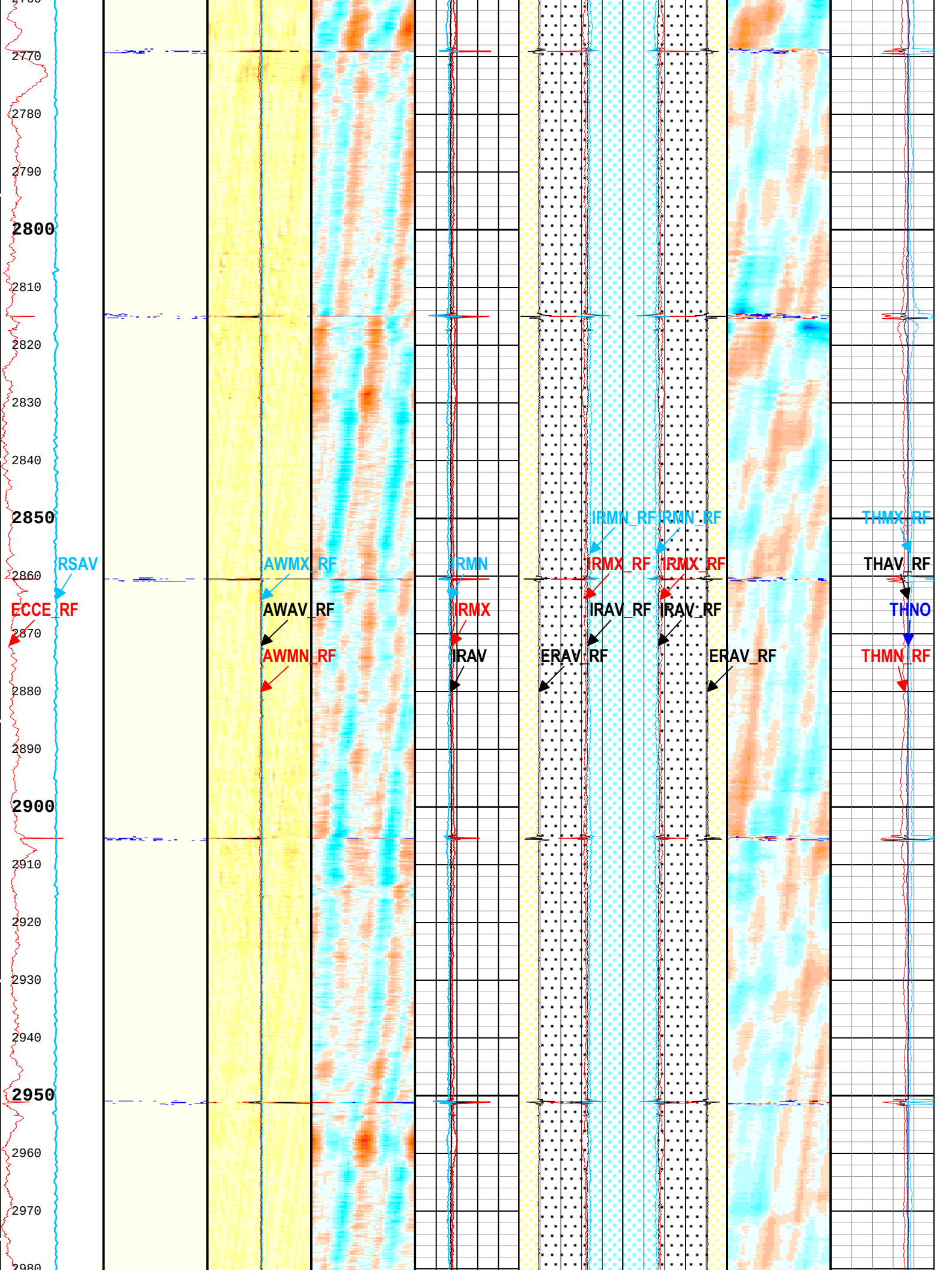
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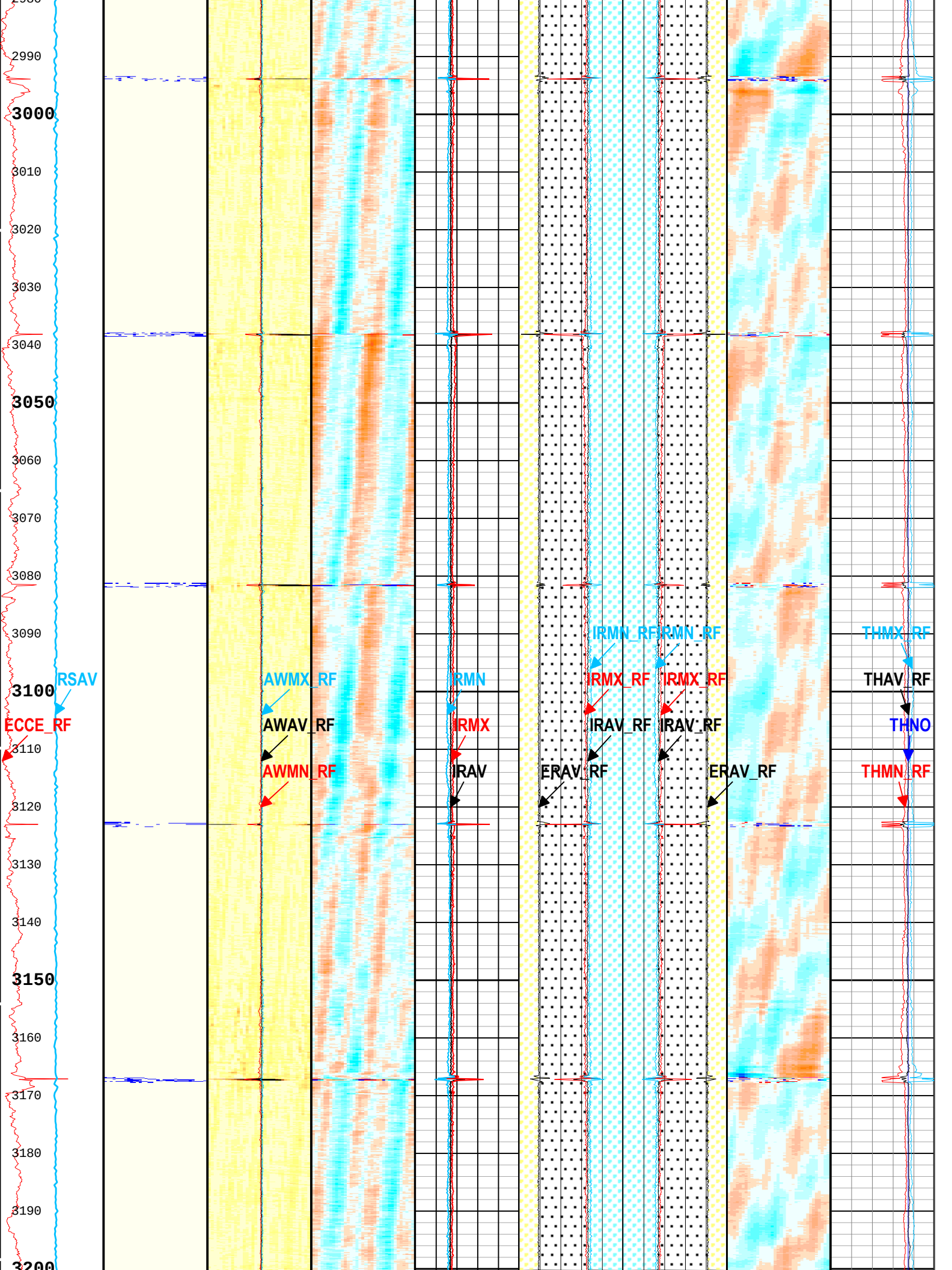
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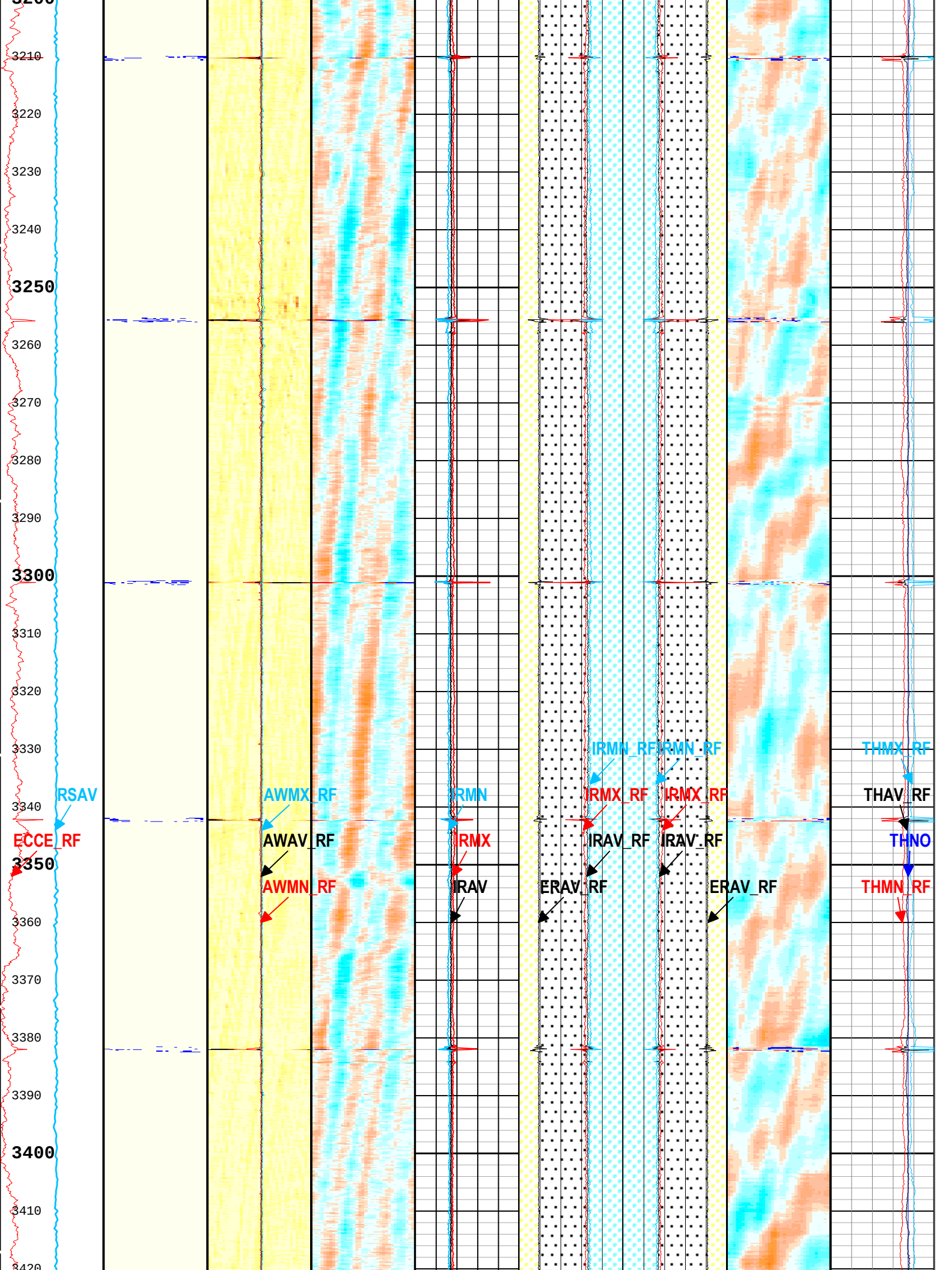
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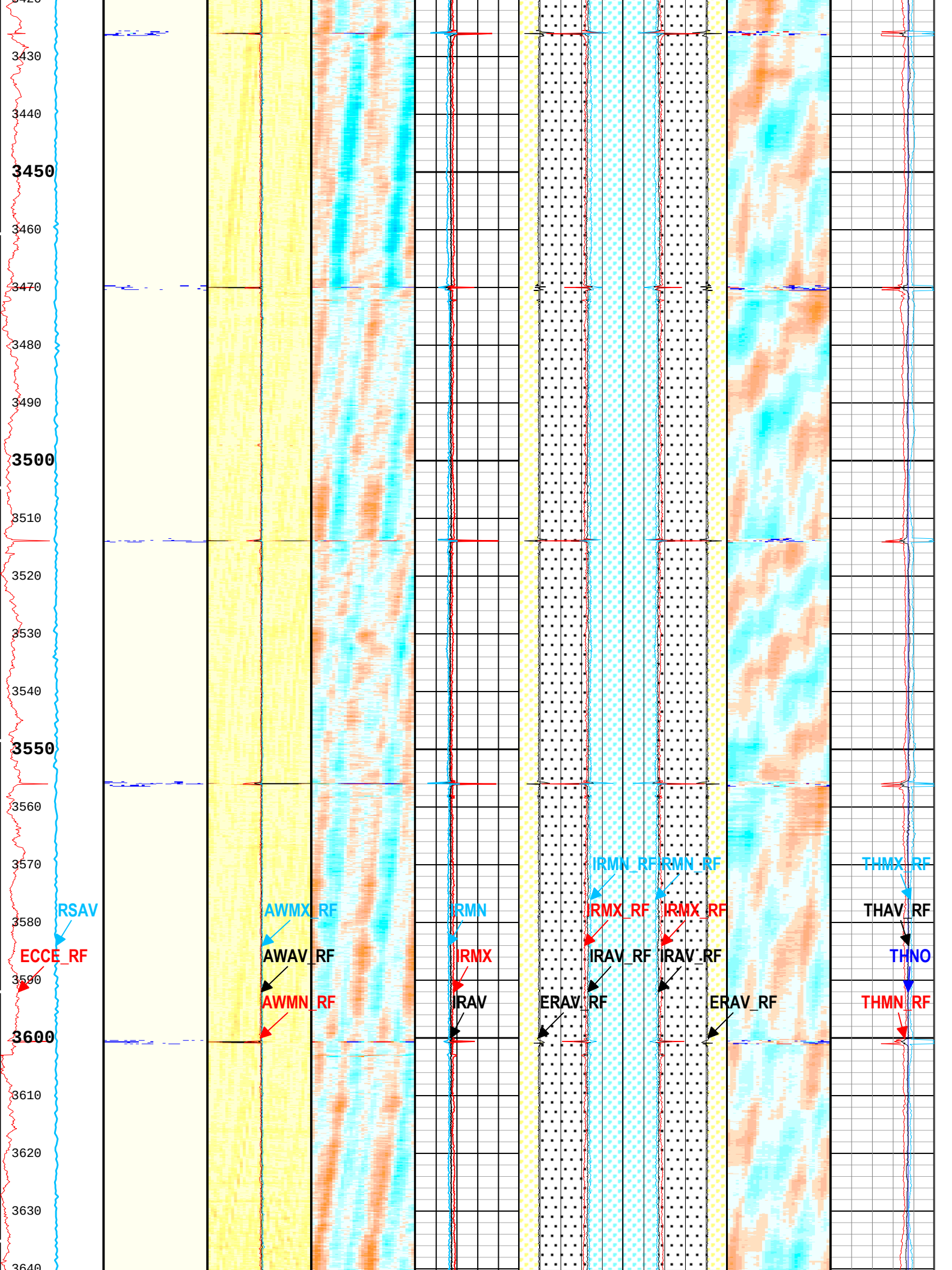
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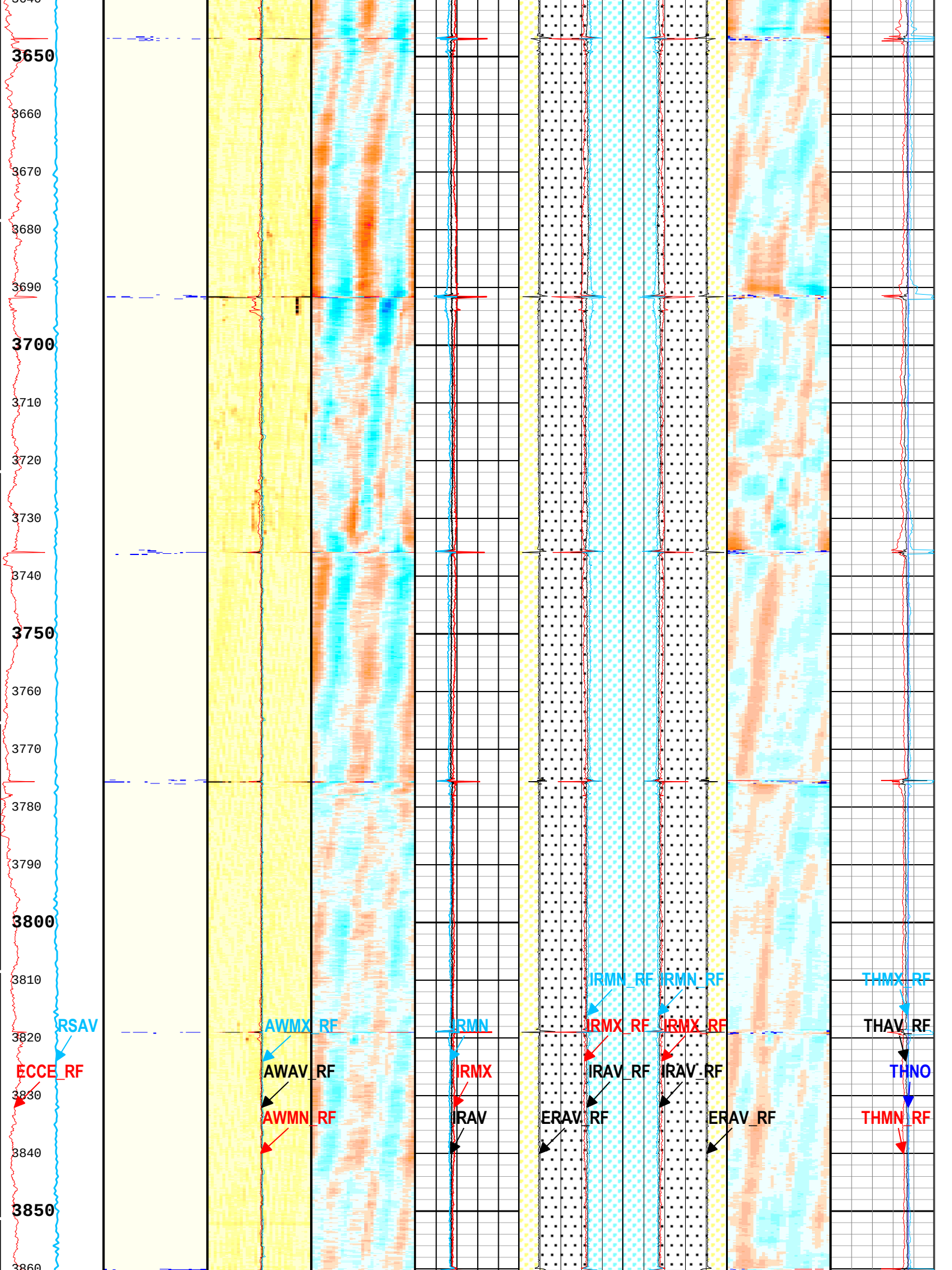
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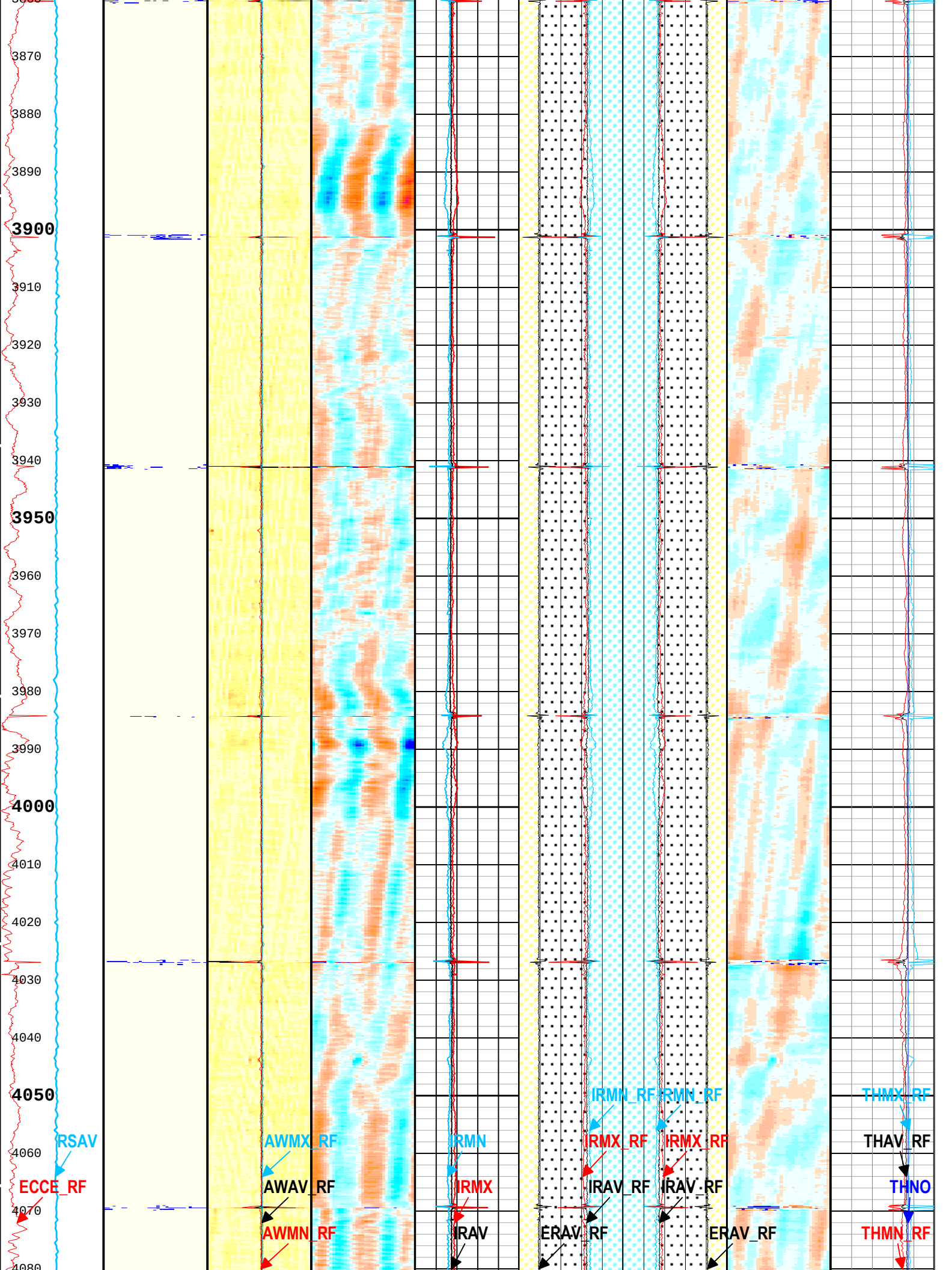
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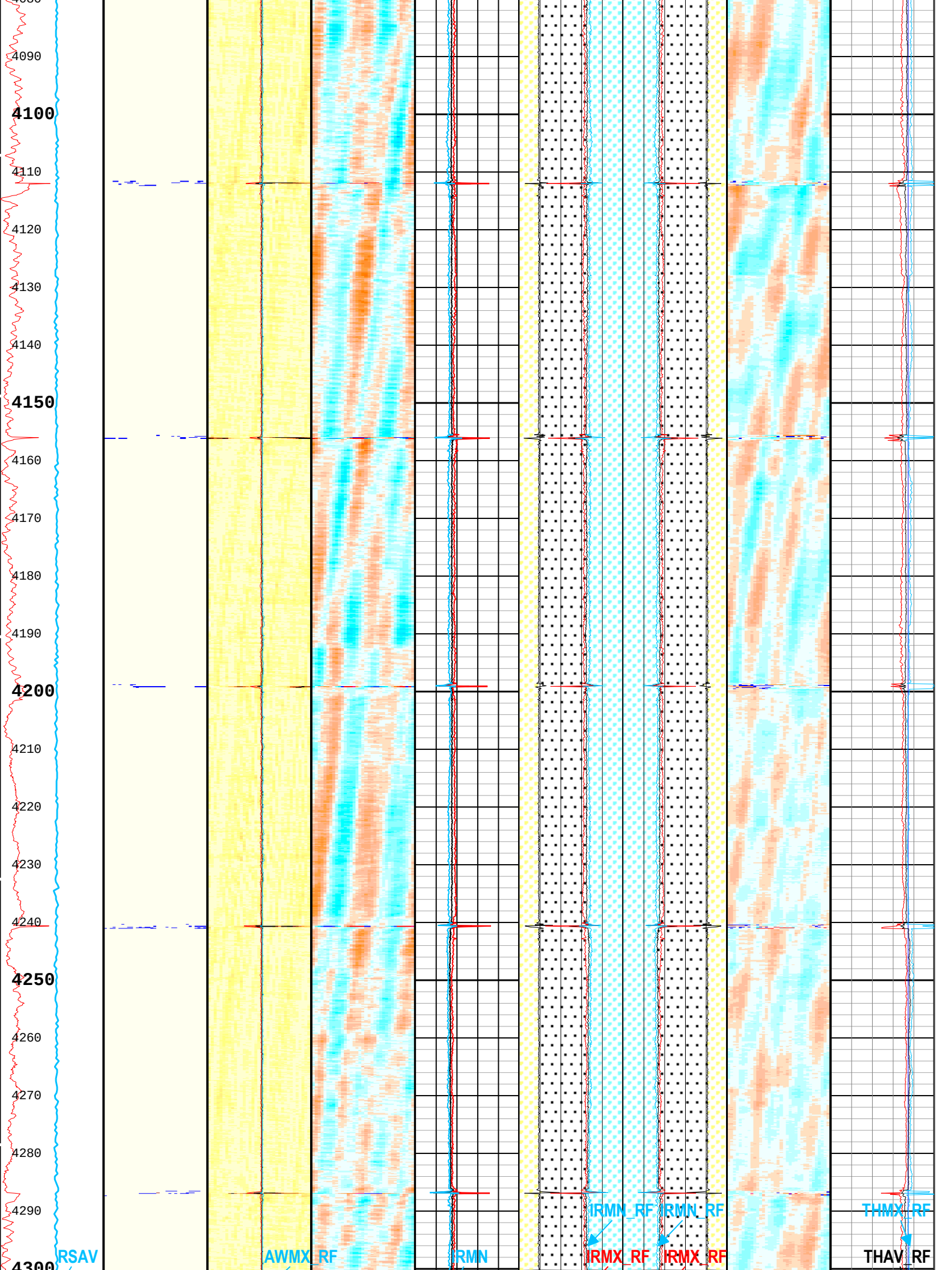
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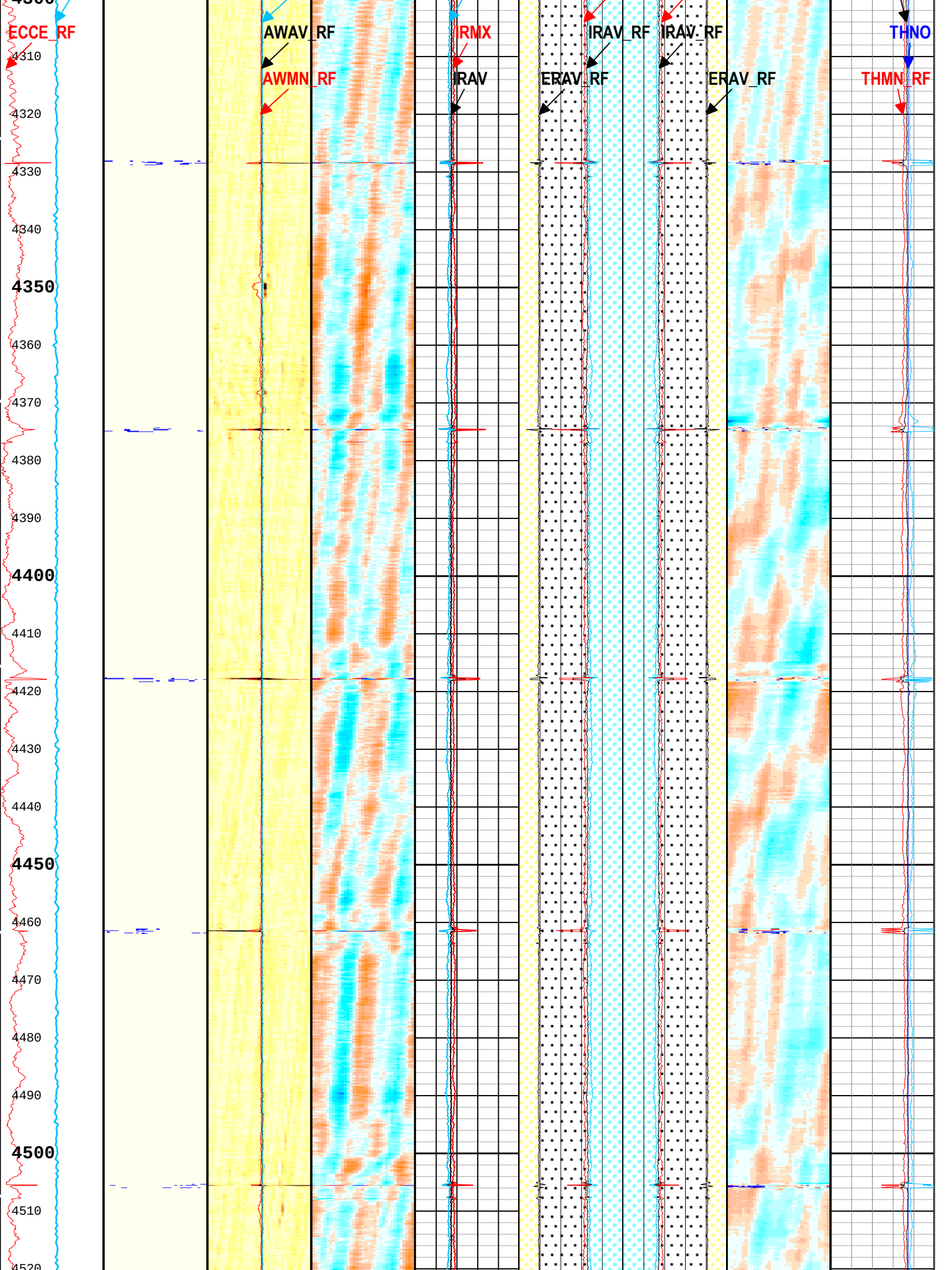
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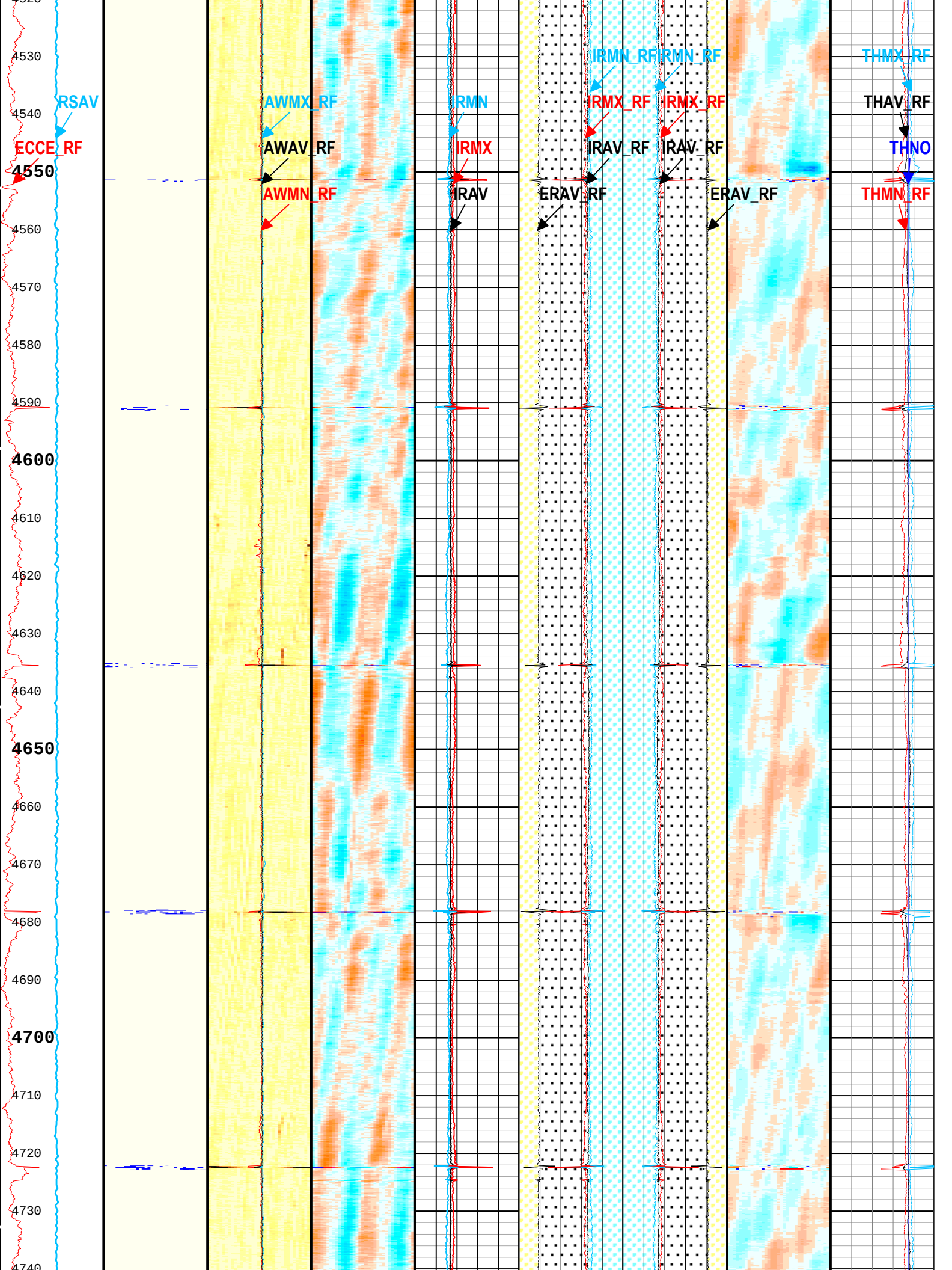
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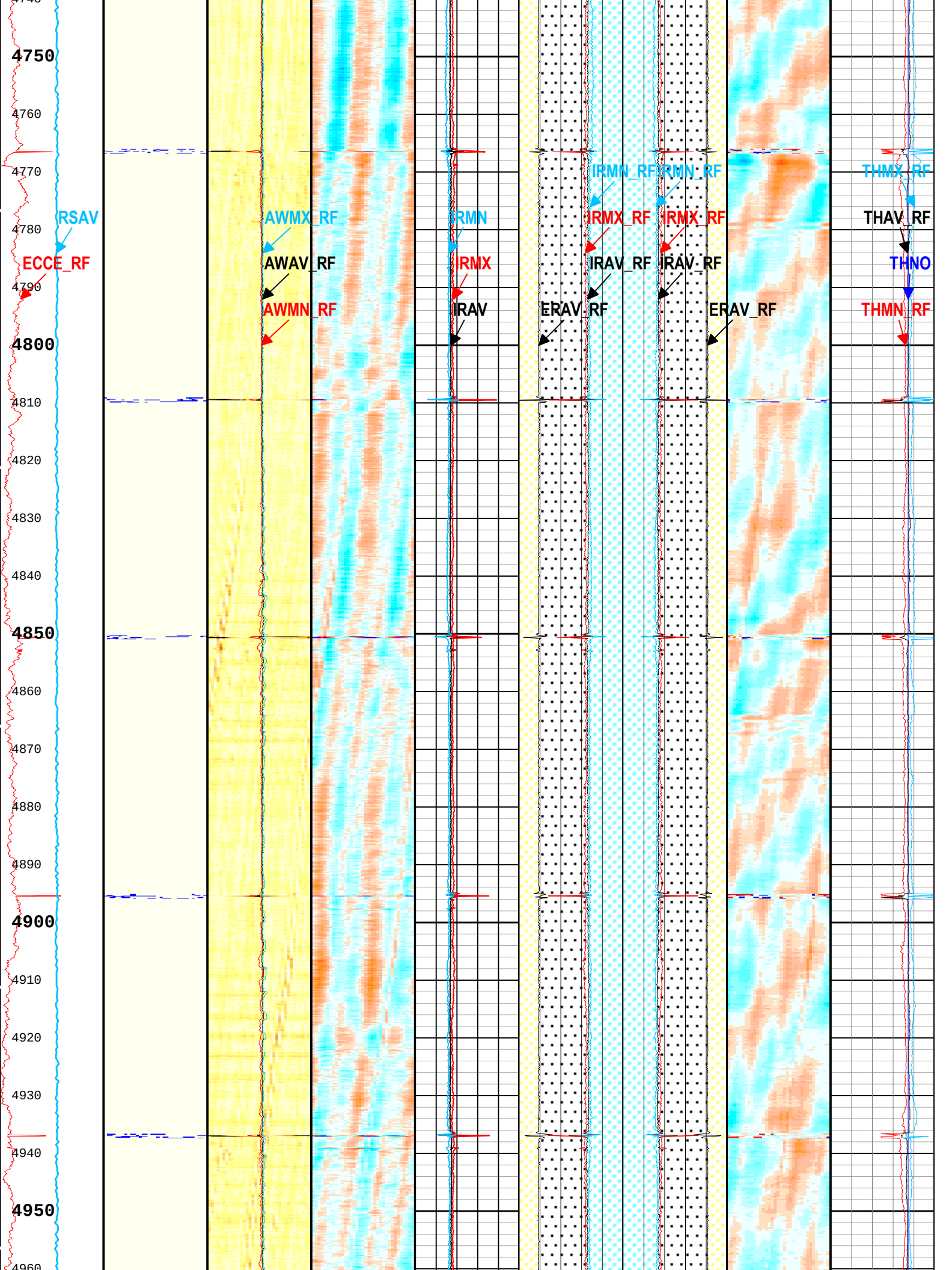
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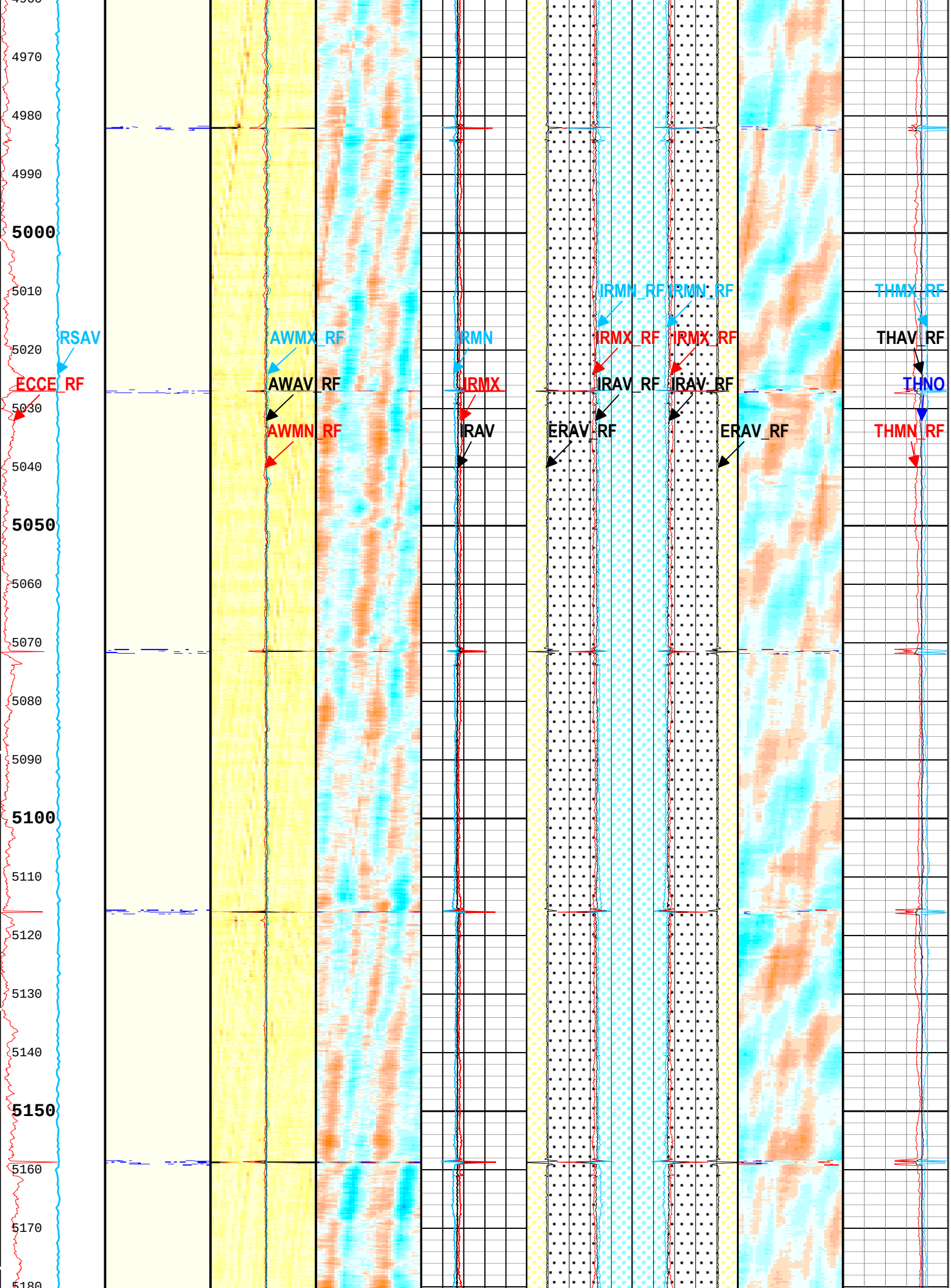
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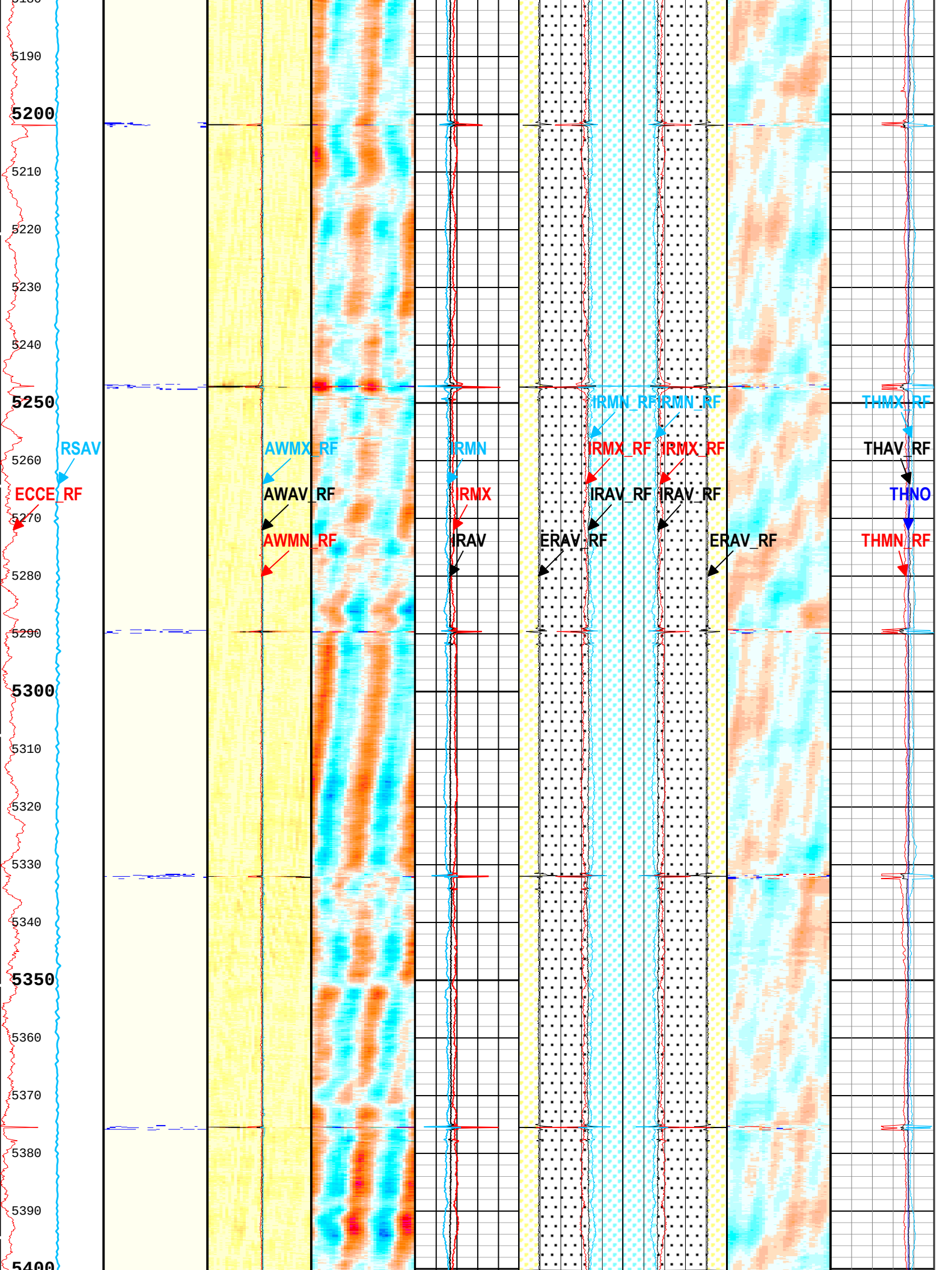
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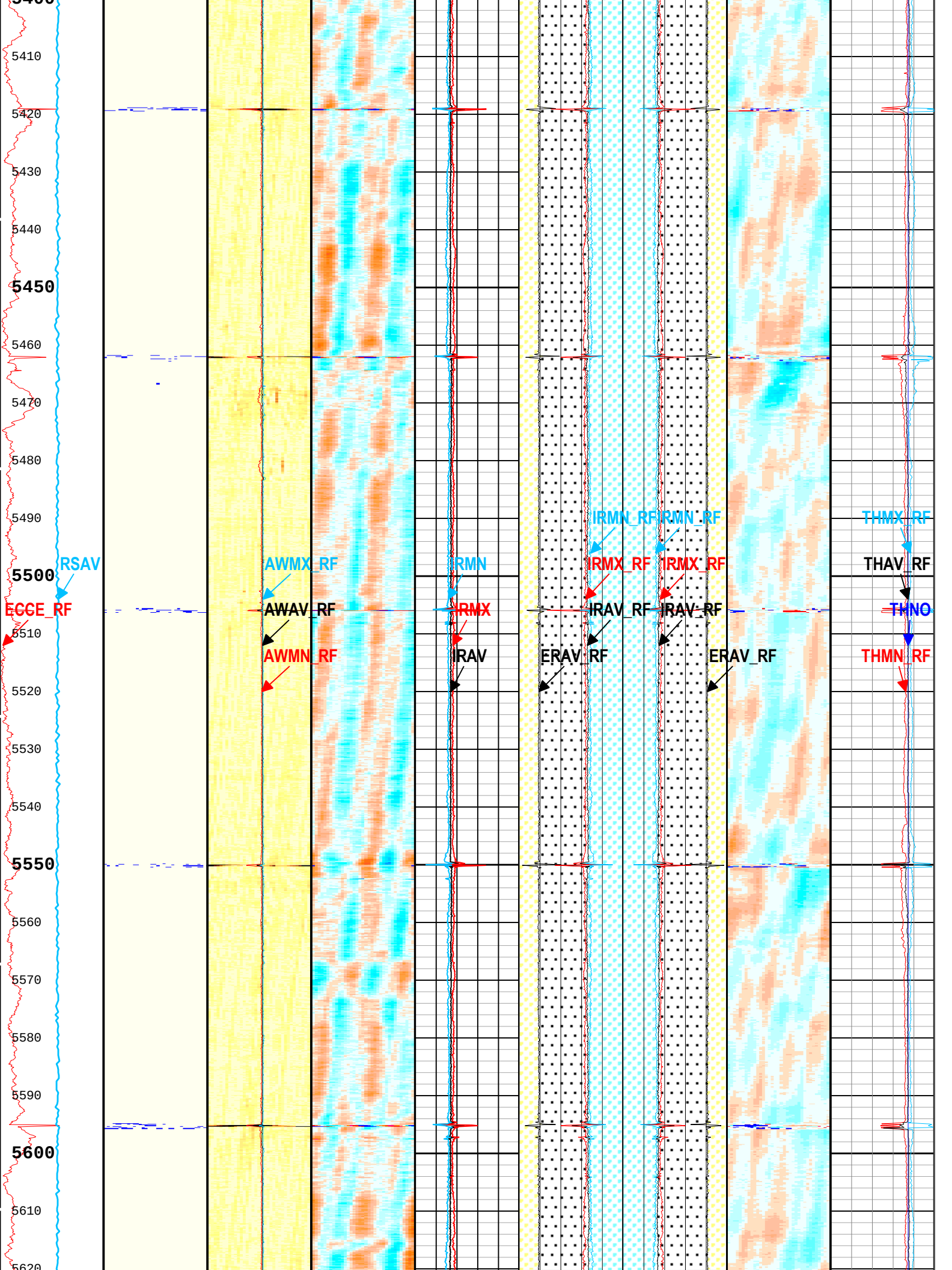
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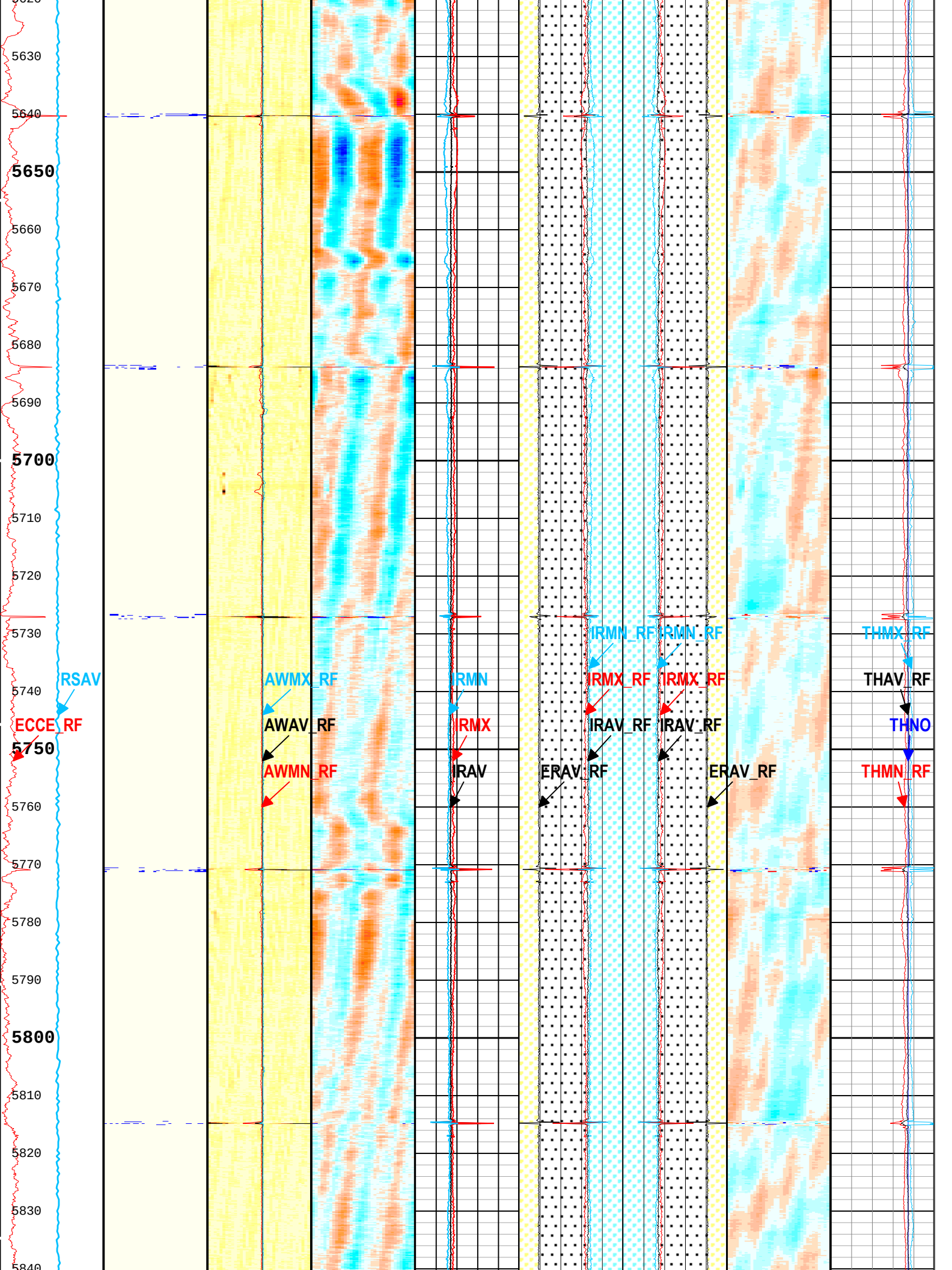
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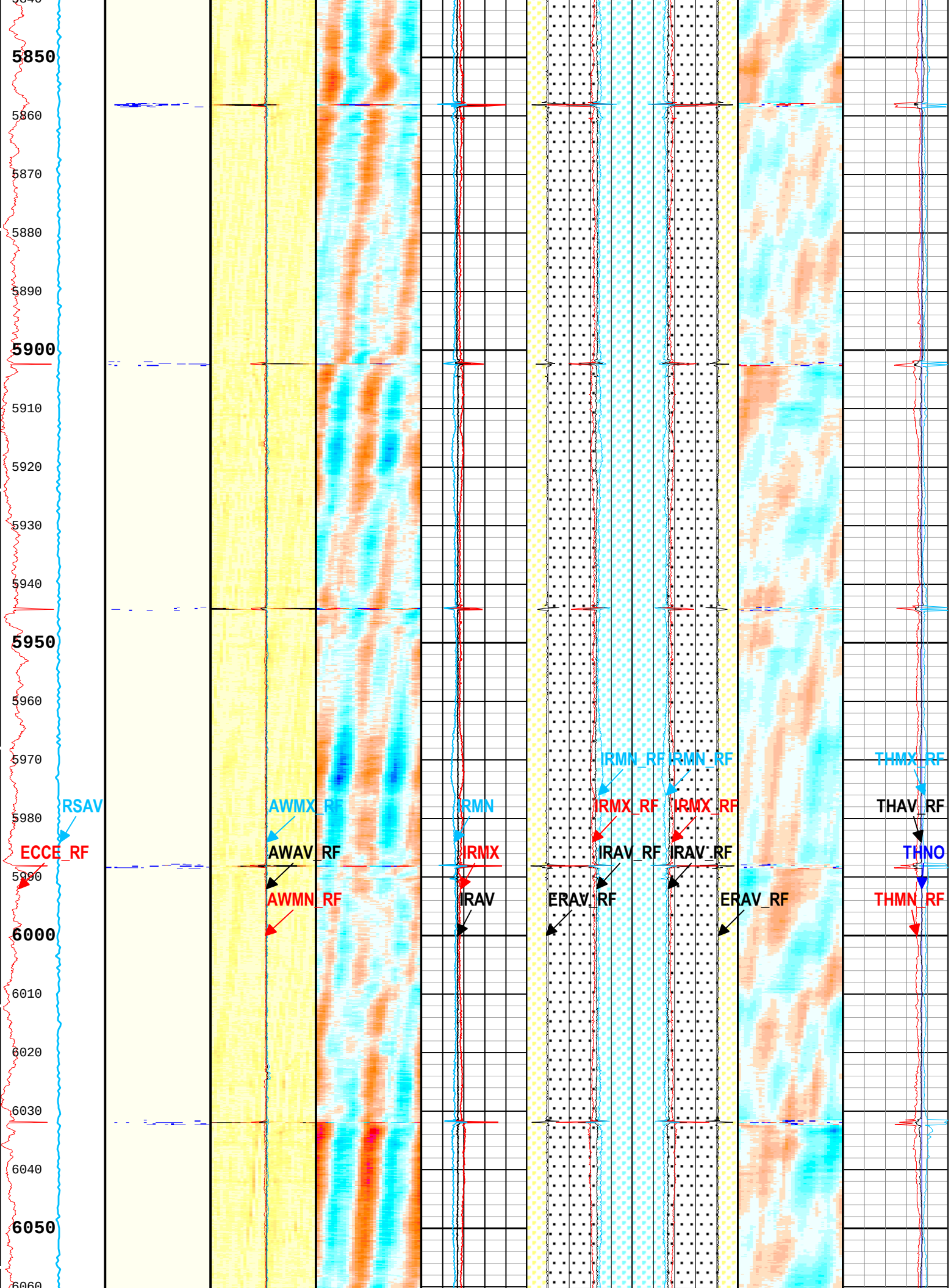
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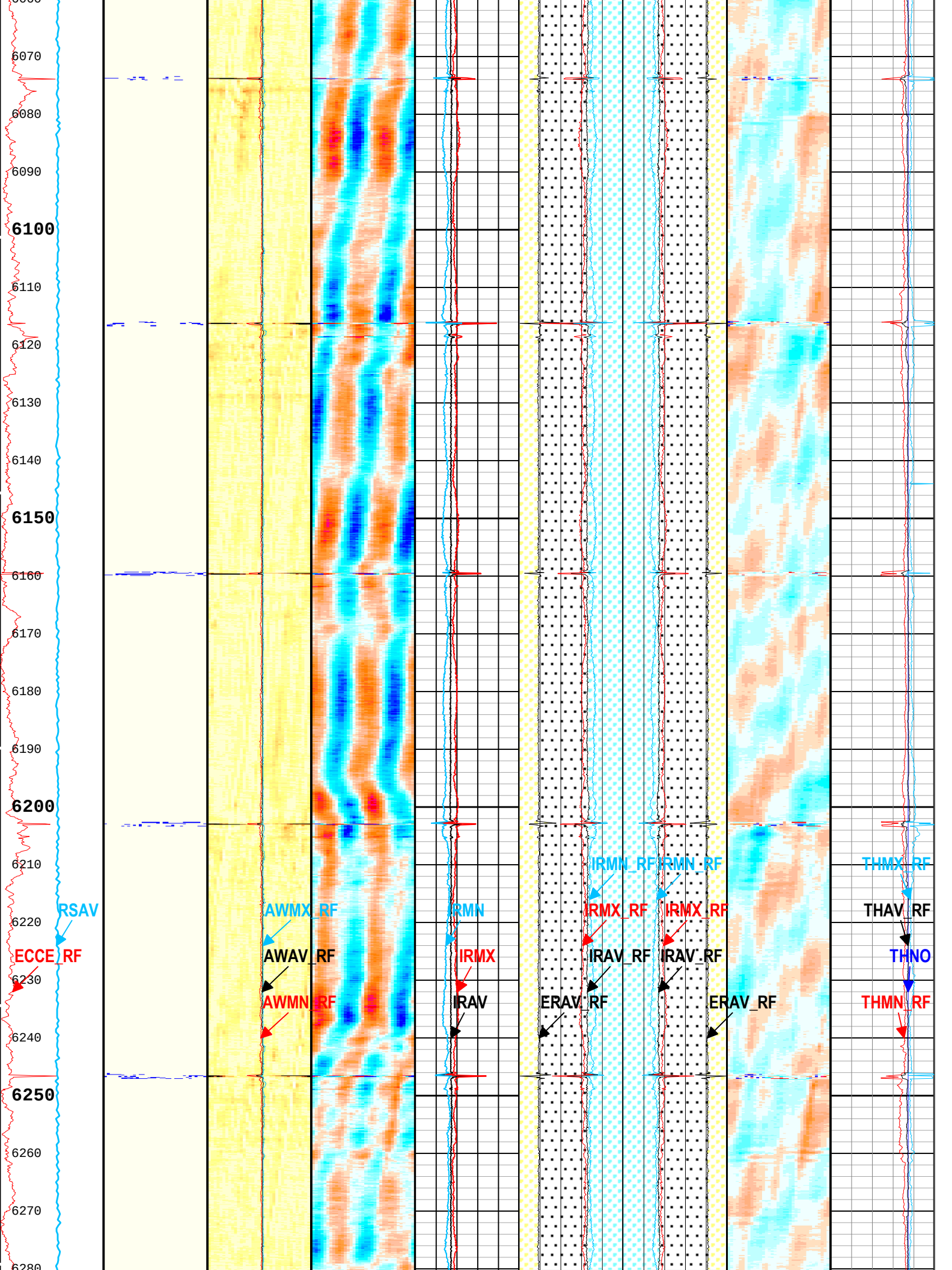
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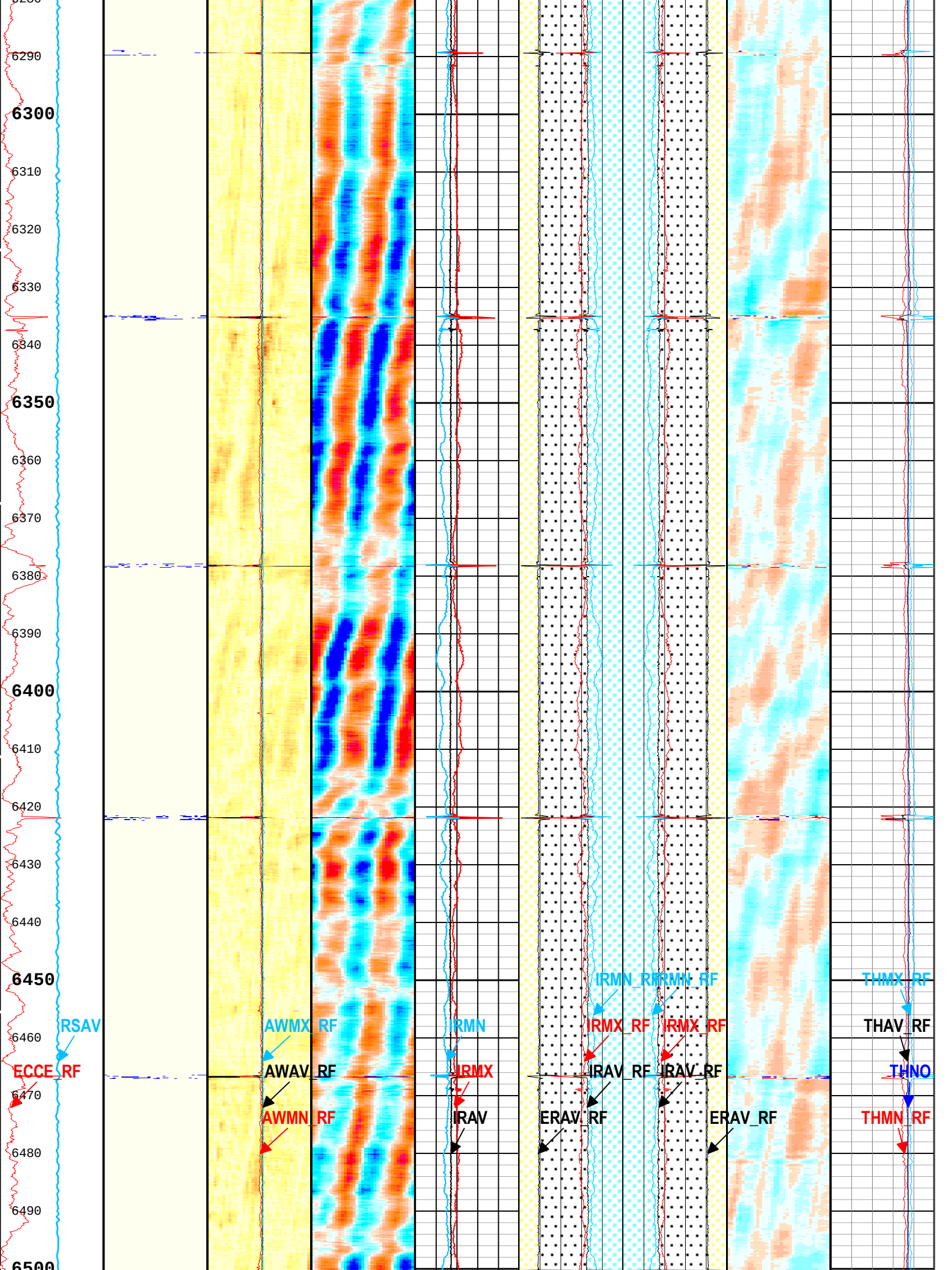
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6340
6350
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6370
6380
6390
6400
6410
6420
6430
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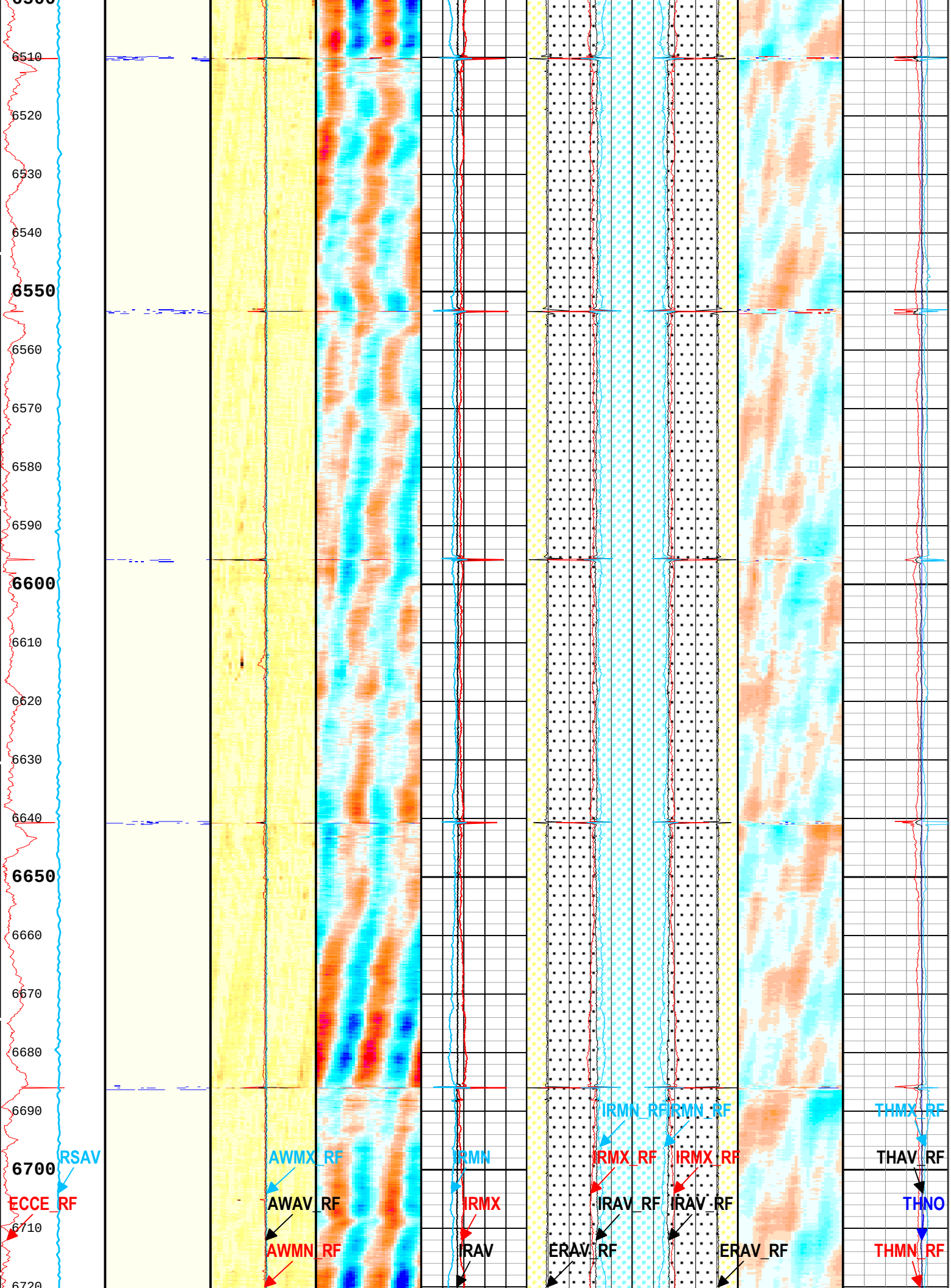
6450
6460
6470
6480
6490
6500
RSAV
ECCE_RF
AWMX_RF
AWAV_RF
AWMN_RF
IRMN
IRMX
IRAV
IRMN_RF
IRMX_RF
IRAV_RF
ERAV_RF
IRMN_RF
IRMX_RF
IRAV_RF
ERAV_RF
THMX_RF
THAV_RF
THNO
THMN_RF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6680
6690
6700
6710
6720
RSAV
ECCE_RF
AWMX_RF
AWAV_RF
AWMN_RF
IRMN
IRMX
IRAV
IRMN_RF
IRMN_RF
IRMX_RF
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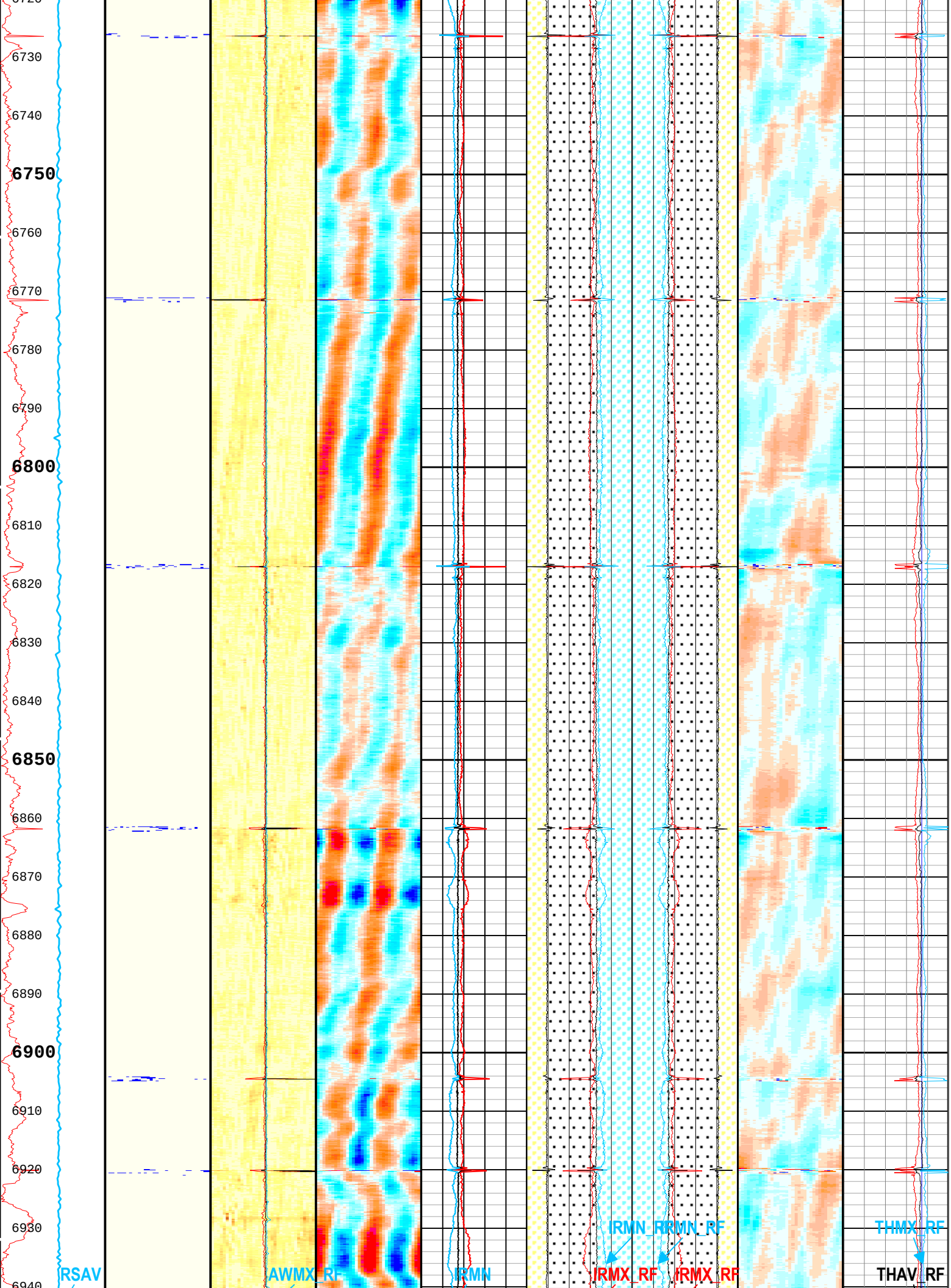
IRAV_RF
IRAV_RF
ERAV_RF
ERAV_RF
THMX_RF
THAV_RF
THNO
THMN_RF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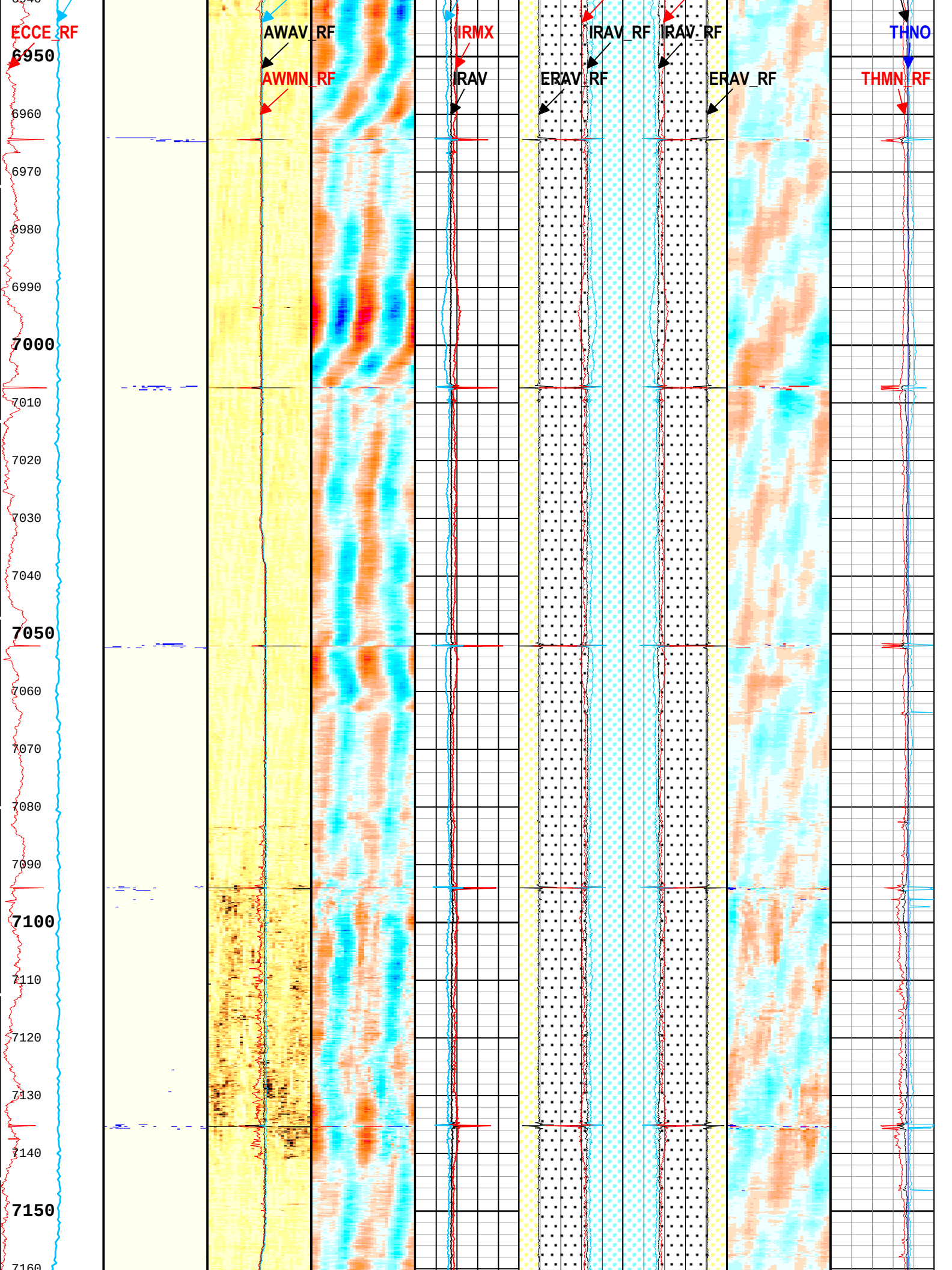
6880
6890
6900
6910
6920
6930
6940
RSAV
AWMX_RF
IRMN
IRMN_RF
IRMN_RF
IRMX_RF
IRMX_RF
THMX_RF
THAV_RF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AWAV_RF
AWMN_RF
IRMX
IRAV
IRAV_RF
ERAV_RF
IRAV_RF
ERAV_RF
THNO
THMN_RF
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6960
6970
6980
6990
7000
7010
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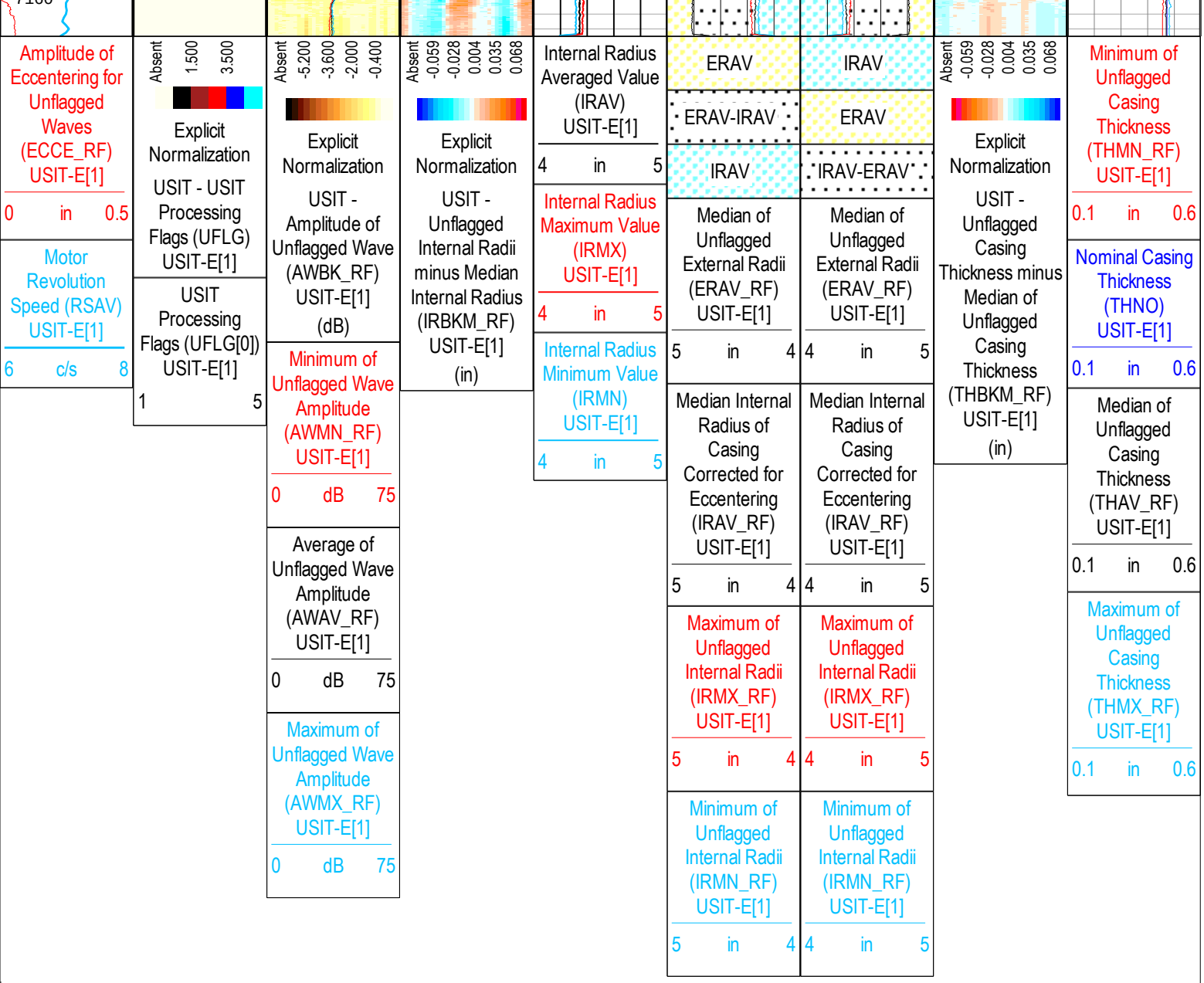


USIT Processing Flags (UFLG[0]) USIT-E[1]

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 (Copy of LBV1_USI Corrosion 9.625inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 08-Sep-2016 19:57:13

Channel Processing Parameters

8-Sep-2016: Parameters

Parameter	Description	Tool	Value	Unit
ISSBAR	Barite Mud Presence Flag	Borehole	No	
BS	Bit Size	WLSESSION	Depth Zoned	in
CMTY(U-USIT_CEMT)	Cement Type	USIT-E	Regular Cement	
THNO	Nominal Casing Thickness - Zoned along logger depths	WLSESSION	0.472	in
CYSTLGR	Casing Yield Strength - Zoned along logger depths	WLSESSION	80000	psi
DFD	Drilling Fluid Density	Borehole	9.2	lbm/gal
DFT	Drilling Fluid Type	Borehole	Water	

DTMD	Borehole Fluid Slowness	Borehole	206	us/ft
FDII	FPM Data Interpolation Interval	USIT-E	0	ft
HEMA	Hematite Presence Flag	Borehole	No	
ICE_PROCESS	ICE Processing	USIT-E	Yes	
IMAR	Image Rotation	USIT-E	Off	
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-E	29.67	us
MUD_N_FRP	Free Pipe Mud Normalization Factor	USIT-E	1.06	
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	0.1	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.	
ZMUD	Acoustic Impedance of Mud	Borehole	1.48	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-E	2.6	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

8-Sep-2016Depth Zoned Parameters

Parameter	Value	Start (ft)	Stop (ft)
BS	17.5	10	843
BS	12.25	843	7165

All depth are actual.

Tool Control Parameters

8-Sep-2016: Parameters

Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	18	dB
U-USIT_DDT5	USIC Downhole Decimation for T5 only	USIT-E	0_NONE	
EMXV	EMEX Voltage	USIT-E	Time Zoned	V
HRES	Horizontal Resolution	USIT-E	10 deg	
MOTOR_PROTECT	Motor Protection	USIT-E	Off	
TMUC	Type of Mud	USIT-E	BRI	
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 500 KHz	
UWKM	USIT Working Mode	USIT-E	Uncompressed 10 deg at 1.5 in LF	
USIT_DEPTHLOG	Starting Depth Log for Ultrasonics	USIT-E	7170	ft
VRES	Vertical Resolution	USIT-E	1.5 in	
WINB	Window Begin Time	USIT-E	Time Zoned	us
WINE	Window End Time	USIT-E	Time Zoned	us

8-Sep-2016Time Zoned Parameters

Pass Log[6]:Up

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
EMXV	42	08-Sep-2016 09:51:46	08-Sep-2016 09:56:16	7165.26	7038.28
EMXV	35	08-Sep-2016 09:56:16	08-Sep-2016 09:56:25	7038.28	7033.18
EMXV	30	08-Sep-2016 09:56:25	08-Sep-2016 09:56:30	7033.18	7030.36

EMXV	32	08-Sep-2016 09:56:30	08-Sep-2016 12:33:17	7030.36	247.09
WINB	38	08-Sep-2016 09:52:20	08-Sep-2016 12:33:17	7165.26	247.09
WINE	100	08-Sep-2016 09:52:20	08-Sep-2016 12:33:17	7165.26	247.09

Pass Log[9]:Up

EMXV	32	08-Sep-2016 15:04:09	08-Sep-2016 15:13:17	246.88	10.63
WINB	45.35	08-Sep-2016 15:04:09	08-Sep-2016 15:13:17	246.88	10.63
WINE	85.35	08-Sep-2016 15:04:09	08-Sep-2016 15:13:17	246.88	10.63

All depth are at tool zero.

Composite 1

USI Compressed Goodwin

Composite Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
8-Sep-2016	Log[6]:Up	Up	149.92 ft	7165.27 ft	08-Sep-2016 9:51:46 AM	08-Sep-2016 12:33:17 PM	ON	-8.00 ft	No
8-Sep-2016	Log[9]:Up	Up	10.60 ft	348.17 ft	08-Sep-2016 2:55:22 PM	08-Sep-2016 3:13:17 PM	ON	2.00 ft	No

All depths are referenced to toolstring zero

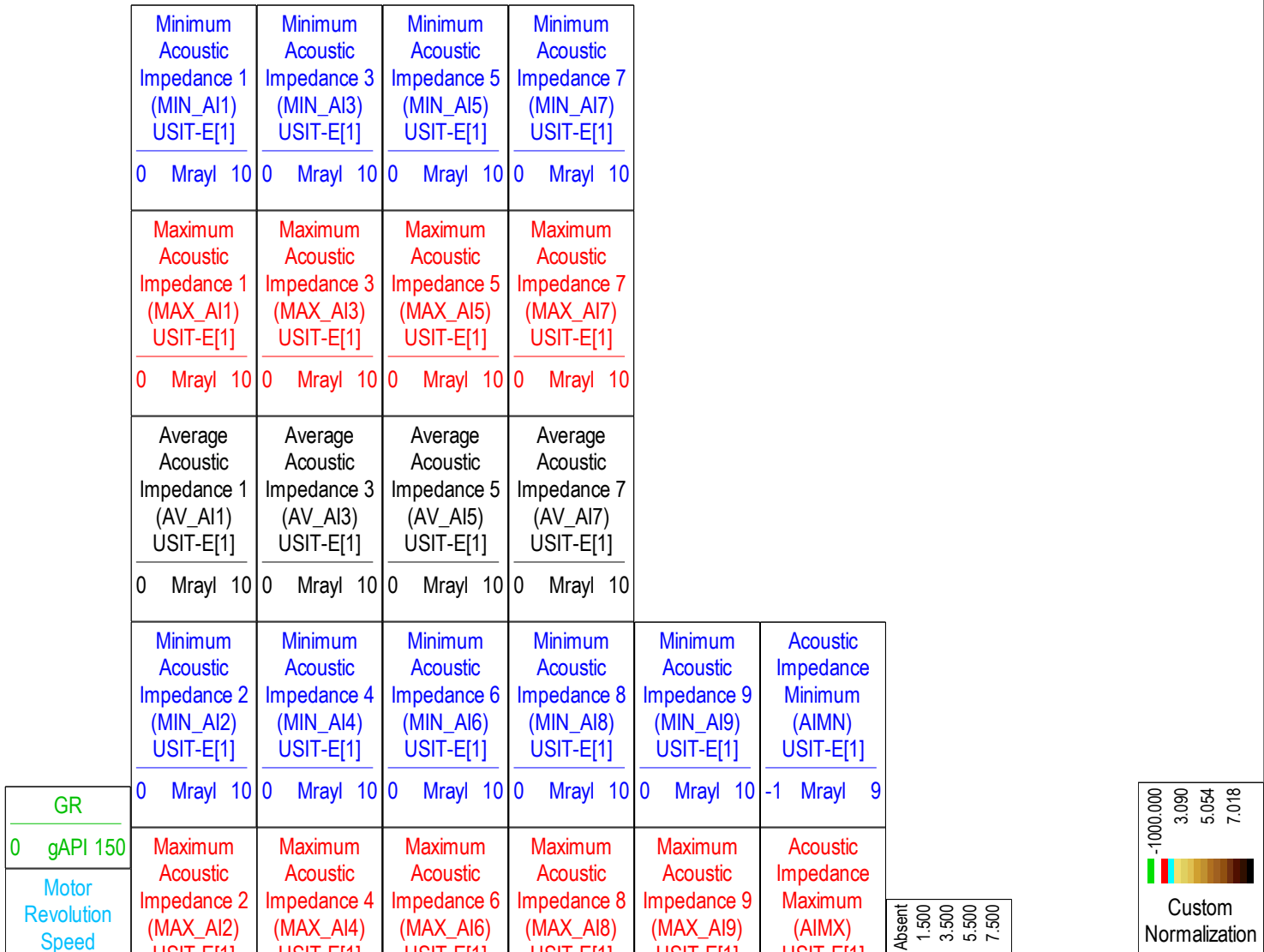
Log

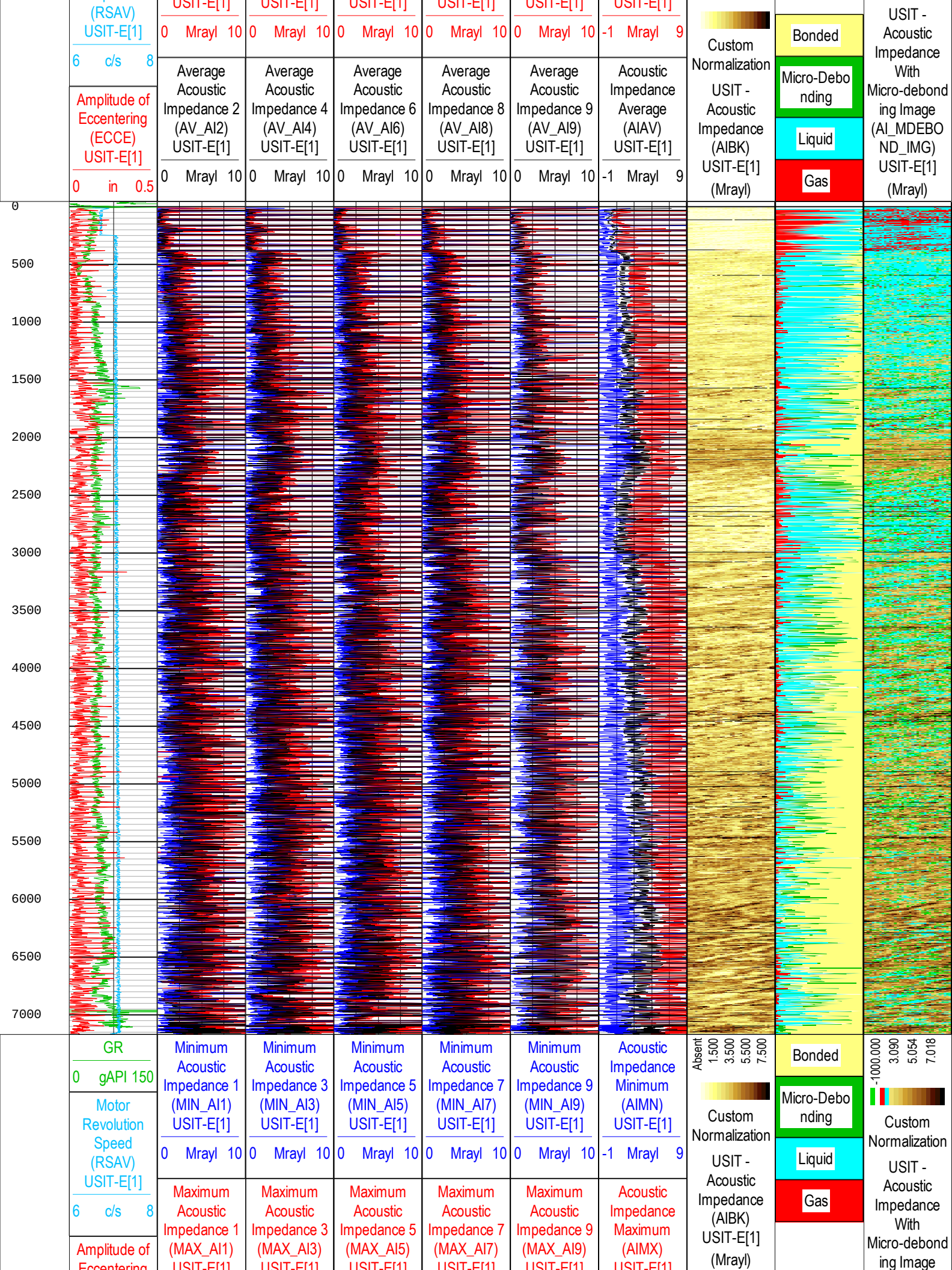
Company:Southern California Gas Company Well:Porter 69E

Composite 1:S002

Description: USI Goodwin Format: Log (Import of USI Goodwin) Index Scale: 0.1 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 08-Sep-2016 19:57:57

TIME_1900 - Time Marked every 60.00 (s)




(RSAV)
USIT-E[1]
6 c/s 8
Amplitude of Eccentering (ECCE) USIT-E[1]
0 in 0.5
USIT-E[1]
0 Mrayl 10
Average Acoustic Impedance 2 (AV_AI2) USIT-E[1]
Average Acoustic Impedance 4 (AV_AI4) USIT-E[1]
Average Acoustic Impedance 6 (AV_AI6) USIT-E[1]
Average Acoustic Impedance 8 (AV_AI8) USIT-E[1]
Average Acoustic Impedance 9 (AV_AI9) USIT-E[1]
-1 Mrayl 9
Acoustic Impedance Average (AIAV) USIT-E[1]
Custom Normalization
USIT - Acoustic Impedance (AIBK) USIT-E[1] (Mrayl)
Bonded
Micro-Debonding
Liquid
Gas
USIT - Acoustic Impedance With Micro-debonding Image (AI_MDEBOND_IMG) USIT-E[1] (Mrayl)
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
6500
7000
GR
0 gAPI 150
Motor Revolution Speed (RSAV) USIT-E[1]
6 c/s 8
Amplitude of Eccentering
Minimum Acoustic Impedance 1 (MIN_AI1) USIT-E[1]
Minimum Acoustic Impedance 3 (MIN_AI3) USIT-E[1]
Minimum Acoustic Impedance 5 (MIN_AI5) USIT-E[1]
Minimum Acoustic Impedance 7 (MIN_AI7) USIT-E[1]
Minimum Acoustic Impedance 9 (MIN_AI9) USIT-E[1]
Acoustic Impedance Minimum (AIMN) USIT-E[1]
Maximum Acoustic Impedance 1 (MAX_AI1) USIT-E[1]
Maximum Acoustic Impedance 3 (MAX_AI3) USIT-E[1]
Maximum Acoustic Impedance 5 (MAX_AI5) USIT-E[1]
Maximum Acoustic Impedance 7 (MAX_AI7) USIT-E[1]
Maximum Acoustic Impedance 9 (MAX_AI9) USIT-E[1]
Acoustic Impedance Maximum (AIMX) USIT-E[1]
Absent 1.500 3.500 5.500 7.500
-1000.000 3.090 5.054 7.018

Eccentering (ECCE) USIT-E[1]	USIT-E[1]	USIT-E[1]	USIT-E[1]	USIT-E[1]	USIT-E[1]	(AI_MDEBOND_IMG) USIT-E[1]
0 in 0.5	0 Mrayl 10	0 Mrayl 10	0 Mrayl 10	0 Mrayl 10	0 Mrayl 10	-1 Mrayl 9	(Mrayl)

Average Acoustic Impedance 1 (AV_AI1) USIT-E[1]	Average Acoustic Impedance 3 (AV_AI3) USIT-E[1]	Average Acoustic Impedance 5 (AV_AI5) USIT-E[1]	Average Acoustic Impedance 7 (AV_AI7) USIT-E[1]	Average Acoustic Impedance 9 (AV_AI9) USIT-E[1]	Acoustic Impedance Average (AIAV) USIT-E[1]
0 Mrayl 10	0 Mrayl 10	0 Mrayl 10	0 Mrayl 10	0 Mrayl 10	-1 Mrayl 9

Minimum Acoustic Impedance 2 (MIN_AI2) USIT-E[1]	Minimum Acoustic Impedance 4 (MIN_AI4) USIT-E[1]	Minimum Acoustic Impedance 6 (MIN_AI6) USIT-E[1]	Minimum Acoustic Impedance 8 (MIN_AI8) USIT-E[1]
0 Mrayl 10	0 Mrayl 10	0 Mrayl 10	0 Mrayl 10

Maximum Acoustic Impedance 2 (MAX_AI2) USIT-E[1]	Maximum Acoustic Impedance 4 (MAX_AI4) USIT-E[1]	Maximum Acoustic Impedance 6 (MAX_AI6) USIT-E[1]	Maximum Acoustic Impedance 8 (MAX_AI8) USIT-E[1]
0 Mrayl 10	0 Mrayl 10	0 Mrayl 10	0 Mrayl 10

Average Acoustic Impedance 2 (AV_AI2) USIT-E[1]	Average Acoustic Impedance 4 (AV_AI4) USIT-E[1]	Average Acoustic Impedance 6 (AV_AI6) USIT-E[1]	Average Acoustic Impedance 8 (AV_AI8) USIT-E[1]
0 Mrayl 10	0 Mrayl 10	0 Mrayl 10	0 Mrayl 10

TIME_1900 - Time Marked every 60.00 (s)

Description: USI Goodwin Format: Log (Import of USI Goodwin) Index Scale: 0.1 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 08-Sep-2016 19:57:57

8-Sep-2016

Very Hi-Res Repeat 10 In=100Ft

Software Version

Acquisition System	Version
Maxwell 2016 SP1	6.1.58882.3100

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
8-Sep-2016	Log[8]:Up	Up	3831.63 ft	4103.28 ft	08-Sep-2016 2:30:43 PM	08-Sep-2016 2:46:24 PM	ON	1.00 ft	No

All depths are referenced to toolstring zero

Log

Company:Southern California Gas Company Well:Porter 69E

8-Sep-2016: Log[8]:Up:S002

Description: USI Composite Format: Log (LBV1_USI Corrosion 9.625inch) Index Scale: 10 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 08-Sep-2016 19:58:03

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

TIME_1900 - Time Marked every 60.00 (s)

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

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

Gamma Ray (EHGR) HGNS-H
0 gAPI 150

Absent 1.500 3.500
Explicit Normalization
USIT - USIT Processing Flags (UFLG) USIT-E

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)

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)

Internal Radius Averaged Value (IRAV) USIT-E
4 in 5

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

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

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

Median of Unflagged External Radii (ERAV_RF) USIT-E
5 in 4

Median of Unflagged External Radii (ERAV_RF) USIT-E
4 in 5

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

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

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

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

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

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

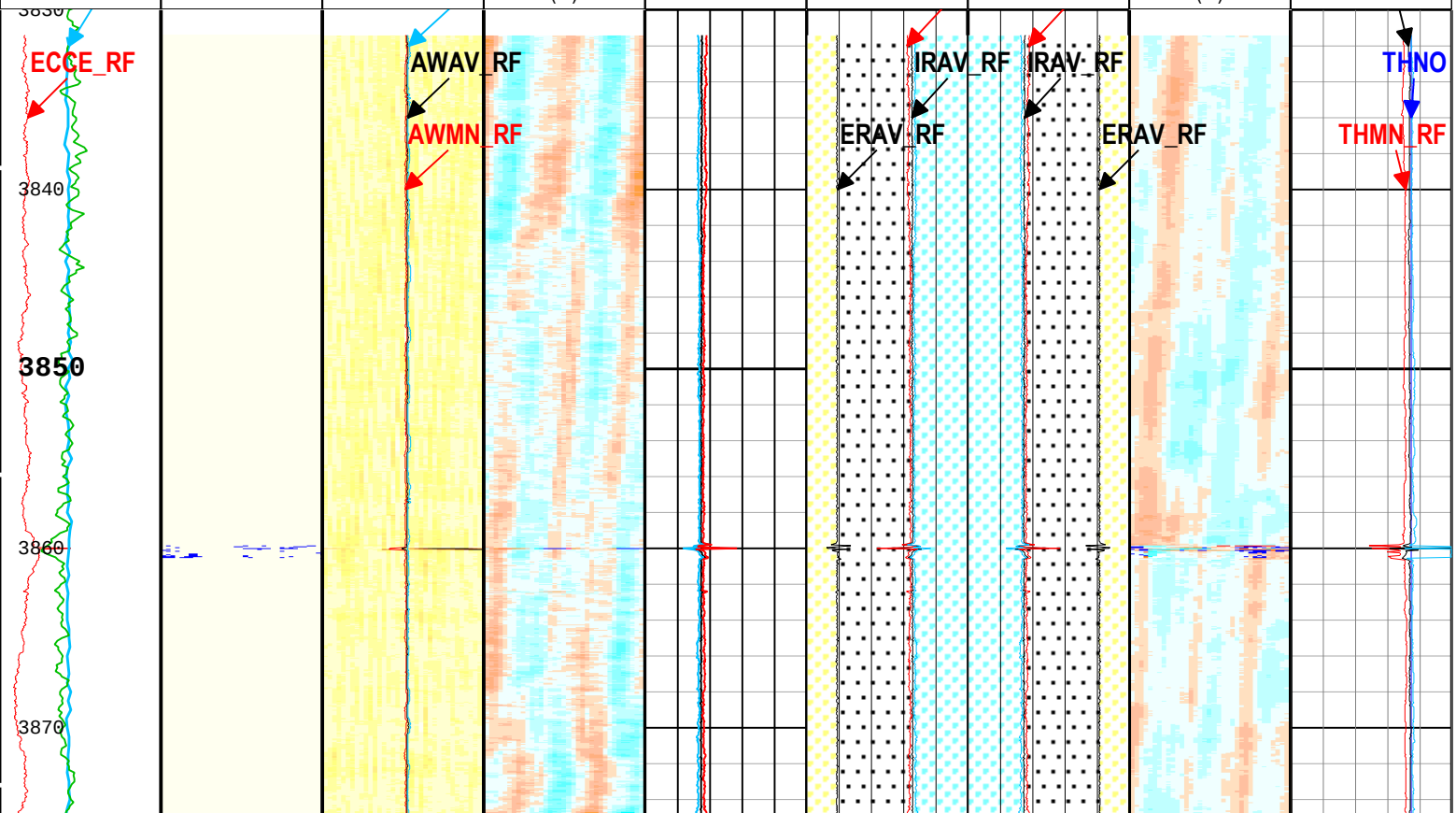
Absent -0.059 -0.028 0.004 0.035 0.068
Explicit Normalization
USIT - Unflagged Casing Thickness minus Median of Unflagged Casing Thickness (THBKM_RF) USIT-E (in)

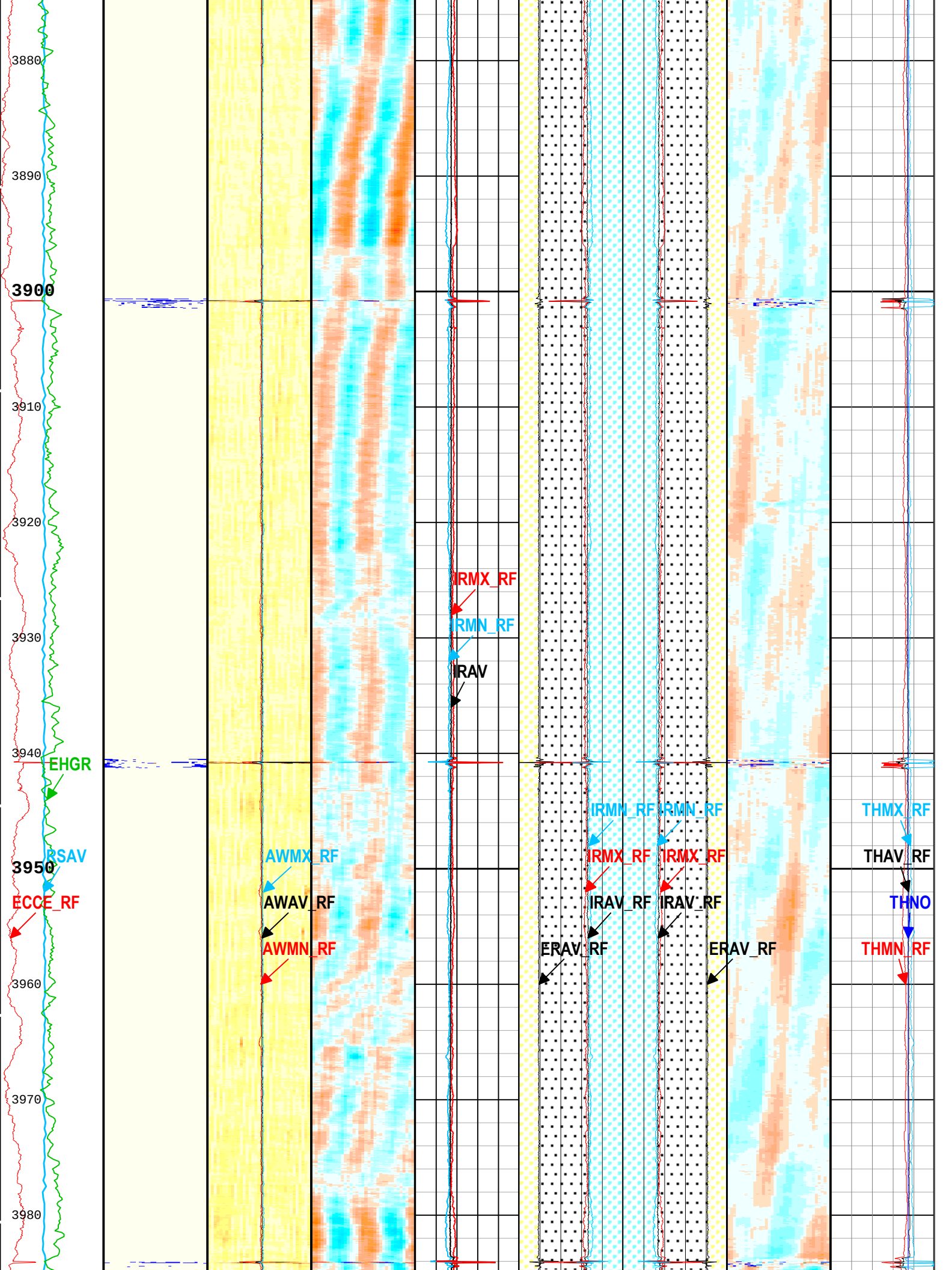
Minimum of Unflagged Casing Thickness (THMN_RF) USIT-E
0.1 in 0.6

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

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3970
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EHGR
RSAV
ECCE_RF
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AWAV_RF
AWMN_RF
IRMX_RF
IRMN_RF
IRAV
IRMN_RF
IRMN_RF
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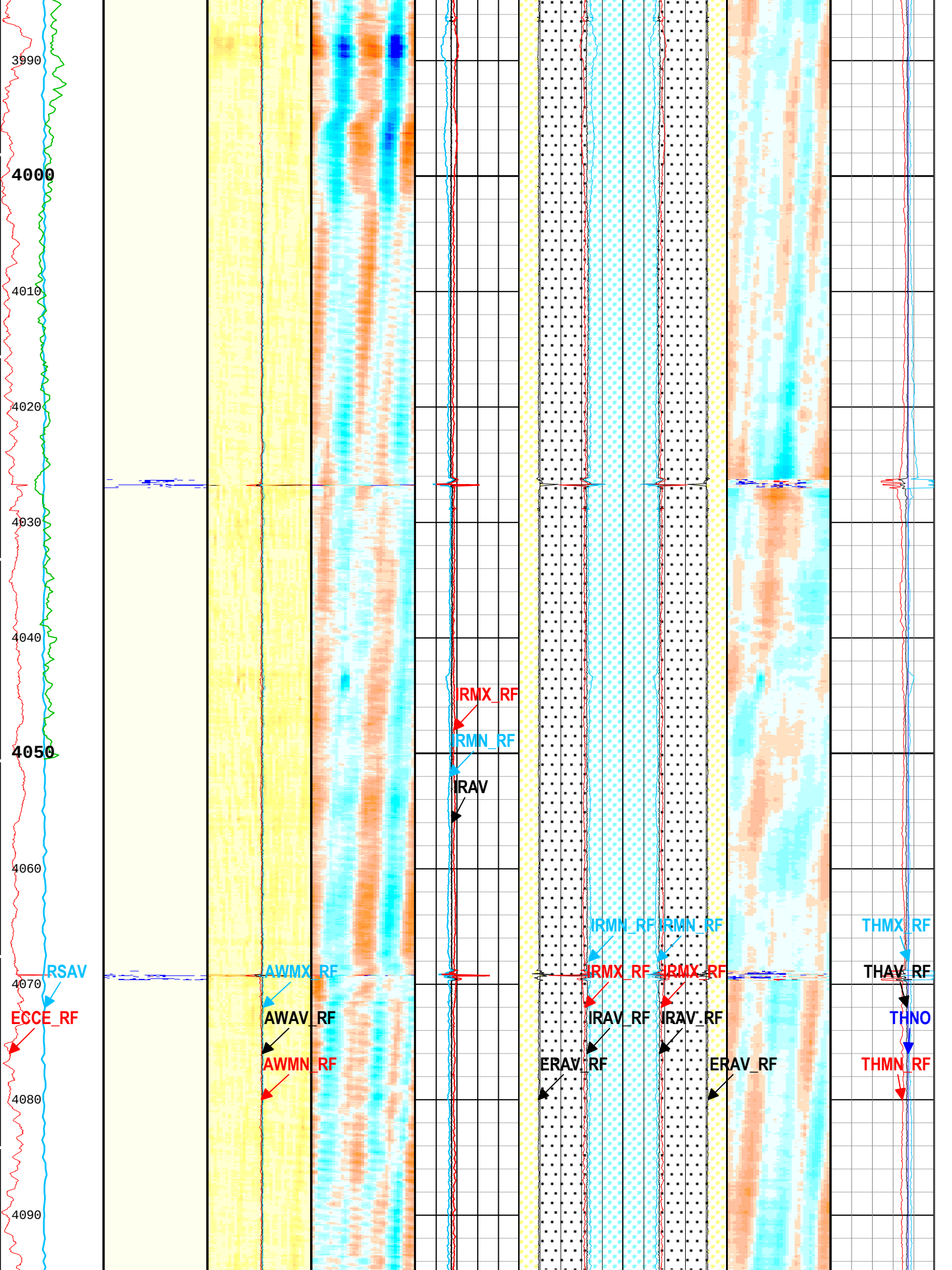
THMX_RF
THAV_RF
THNO
THMN_RF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4010
4020
4030
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4060
4070
4080
4090
IRMX_RF
IRMN_RF
IRAV
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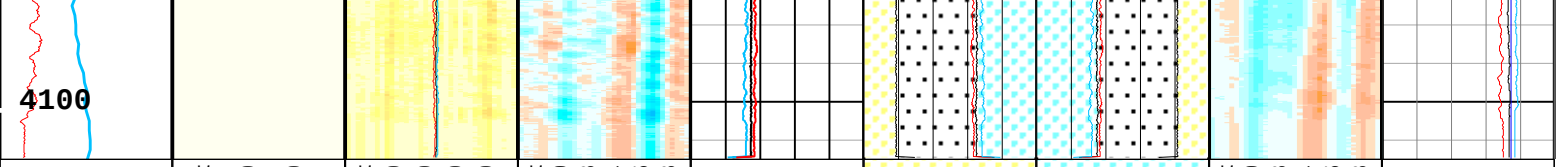
ECCE_RF
AWMX_RF
AWAV_RF
AWMN_RF
IRMN_RF
IRMN_RF
IRMX_RF
IRMX_RF
IRAV_RF
IRAV_RF
ERAV_RF
ERAV_RF
THMX_RF
THAV_RF
THNO
THMN_RF



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

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

Gamma Ray (EHGR) HGNS-H
0 gAPI 150

Absent 1.500 3.500
Explicit Normalization
USIT - USIT Processing Flags (UFLG) USIT-E

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)

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)

Internal Radius Averaged Value (IRAV) USIT-E
4 in 5

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

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

ERAV
ERAV-IRAV
IRAV

Median of Unflagged External Radii (ERAV_RF) USIT-E
5 in 4

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

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

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

IRAV
ERAV
IRAV-ERAV

Median of Unflagged External Radii (ERAV_RF) USIT-E
4 in 5

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

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

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

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)

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: 10 in per 100 ft Index Unit: ft Index Type: Measured Depth
Creation Date: 08-Sep-2016 19:58:03

Channel Processing Parameters

8-Sep-2016: Parameters

Parameter	Description	Tool	Value	Unit
ISSBAR	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BS	Bit Size	WLSESSION	12.25	in
CBLO	Casing Bottom (Logger)	WLSESSION	7289	ft
CDEN	Cement Density	HGNS-H	2	g/cm3

CDEN	Cement Density	HGNS-H	2	g/cm3
CMTY(U-USIT_CEMT)	Cement Type	USIT-E	Regular Cement	
THNO	Nominal Casing Thickness - Zoned along logger depths	WLSESSION	0.472	in
CYSTLGR	Casing Yield Strength - Zoned along logger depths	WLSESSION	80000	psi
DFD	Drilling Fluid Density	Borehole	9.2	lbm/gal
DFT	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	206	us/ft
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	
HEMA	Hematite Presence Flag	Borehole	No	
ICE_PROCESS	ICE Processing	USIT-E	Yes	
IMAR	Image Rotation	USIT-E	Off	
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-E	29.67	us
MUD_N_FRP	Free Pipe Mud Normalization Factor	USIT-E	1.06	
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	0.1	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.	
ZMUD	Acoustic Impedance of Mud	Borehole	1.48	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-E	2.6	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

Tool Control Parameters

8-Sep-2016: Parameters

Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	18	dB
U-USIT_DDT5	USIC Downhole Decimation for T5 only	USIT-E	0_NONE	
EMXV	EMEX Voltage	USIT-E	32	V
HRES	Horizontal Resolution	USIT-E	10 deg	
MOTOR_PROTECT	Motor Protection	USIT-E	Off	
TMUC	Type of Mud	USIT-E	BRI	
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 500 KHz	
UWKM	USIT Working Mode	USIT-E	Uncompressed 10 deg at 0.6 in LF	
USIT_DEPTHLOG	Starting Depth Log for Ultrasonics	USIT-E	7170	ft
VRES	Vertical Resolution	USIT-E	0.6 in	
WINB	Window Begin Time	USIT-E	45.35	us
WINE	Window End Time	USIT-E	85.35	us

8-Sep-2016

Very Hi-Res Repeat 10 In=100Ft

Software Version

Acquisition System	Version

Maxwell 2016 SP1	6.1.58882.3100

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
8-Sep-2016	Log[7]:Up	Up	5889.33 ft	7161.37 ft	08-Sep-2016 12:55:50 PM	08-Sep-2016 2:20:08 PM	ON	0.50 ft	No

All depths are referenced to toolstring zero

Log

Company:Southern California Gas Company Well:Porter 69E

8-Sep-2016: Log[7]:Up:S002

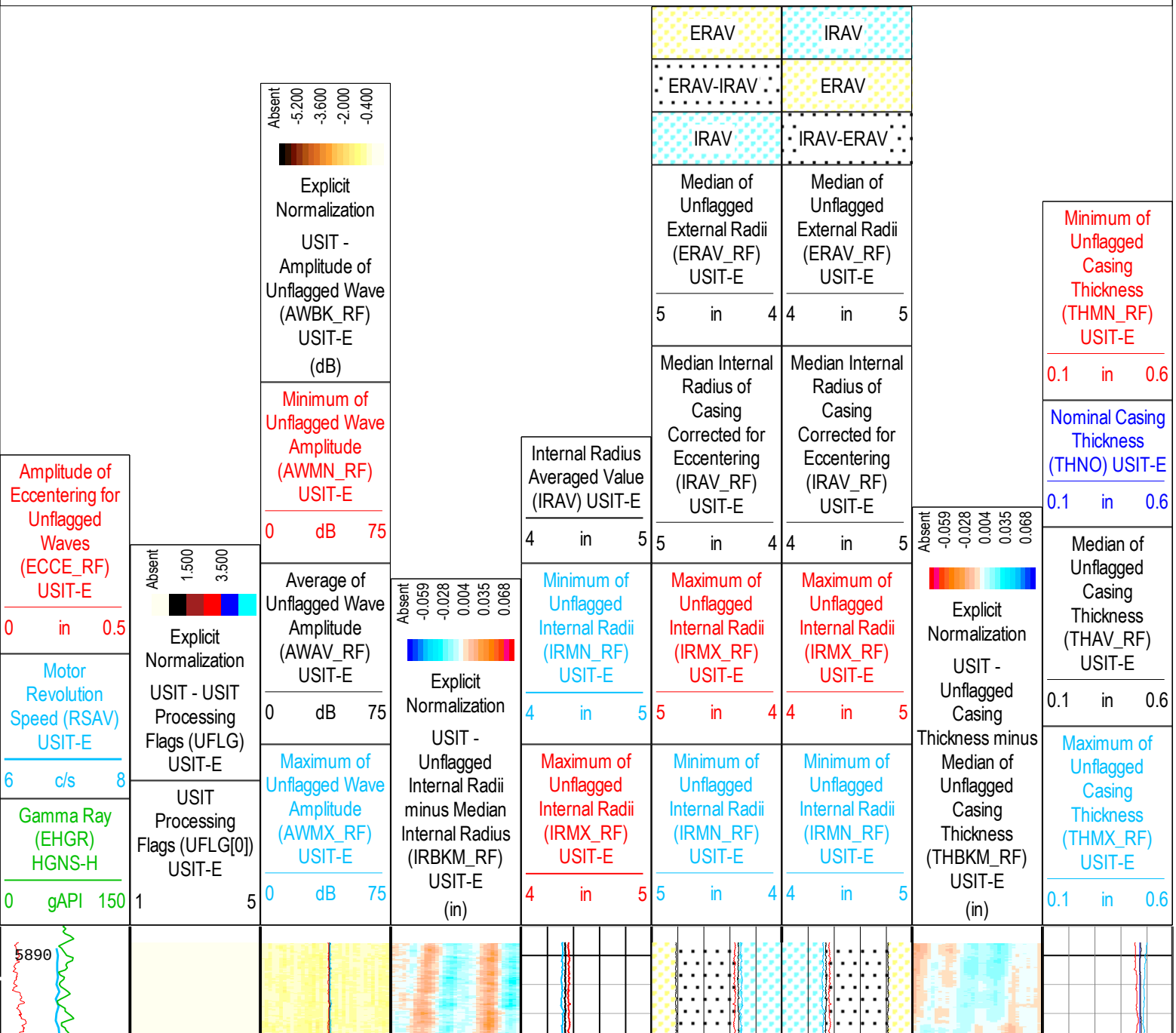
Description: USI Composite Format: Log (LBV1_USI Corrosion 9.625inch) Index Scale: 10 in per 100 ft Index Unit: ft Index Type: Measured Depth
Creation Date: 08-Sep-2016 19:58:11

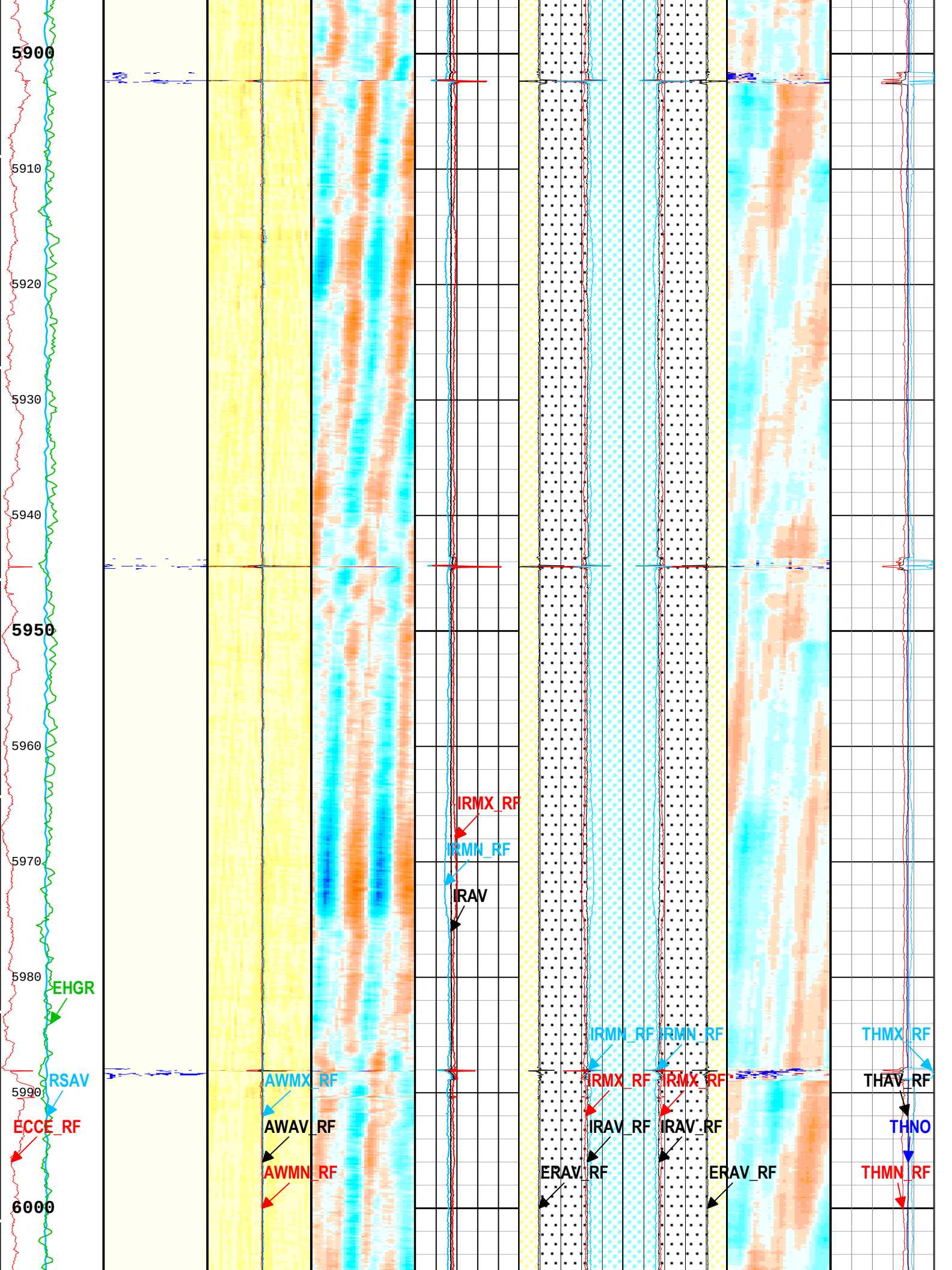
TIME_1900 - Time Marked every 60.00 (s)

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

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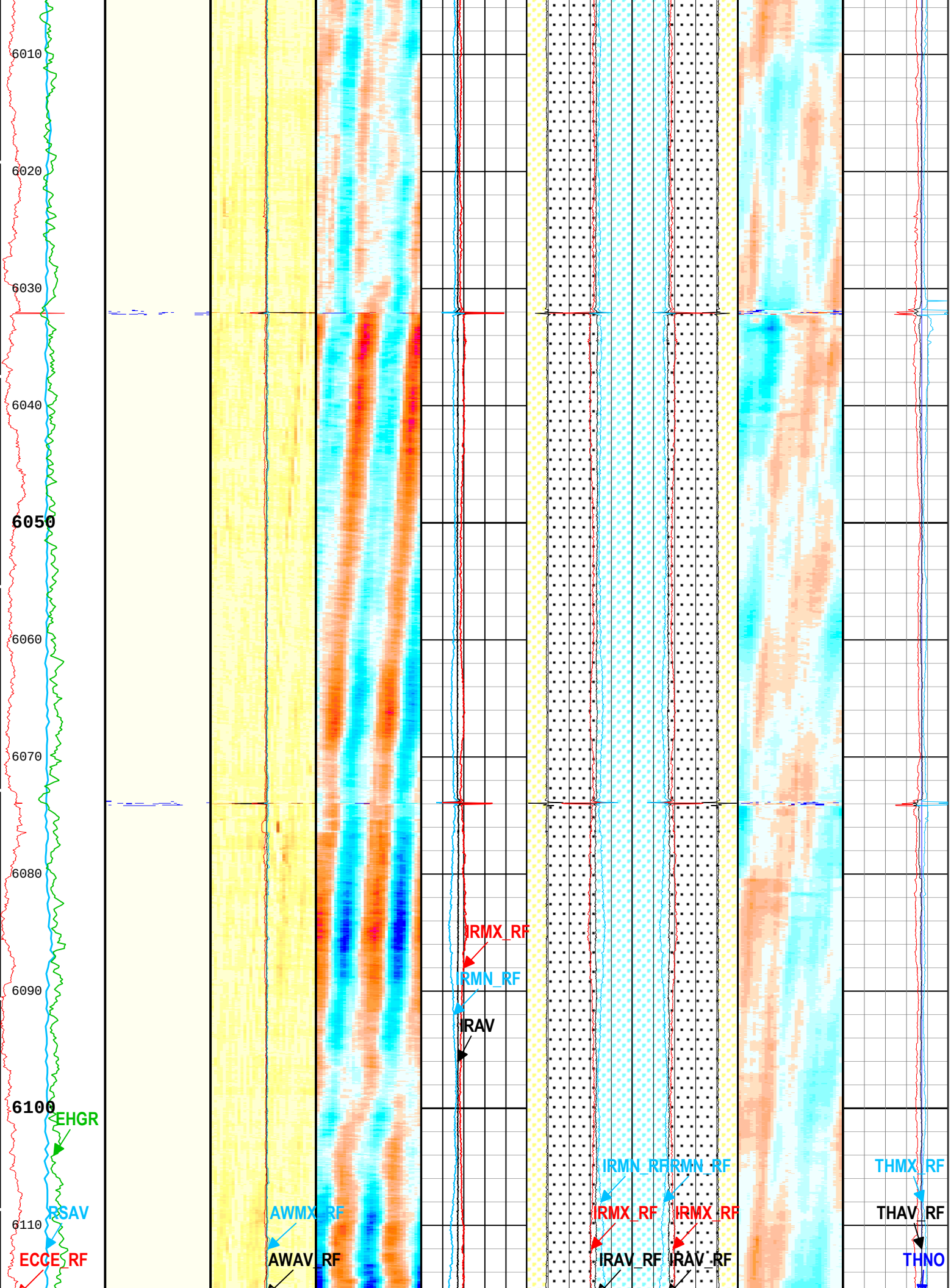
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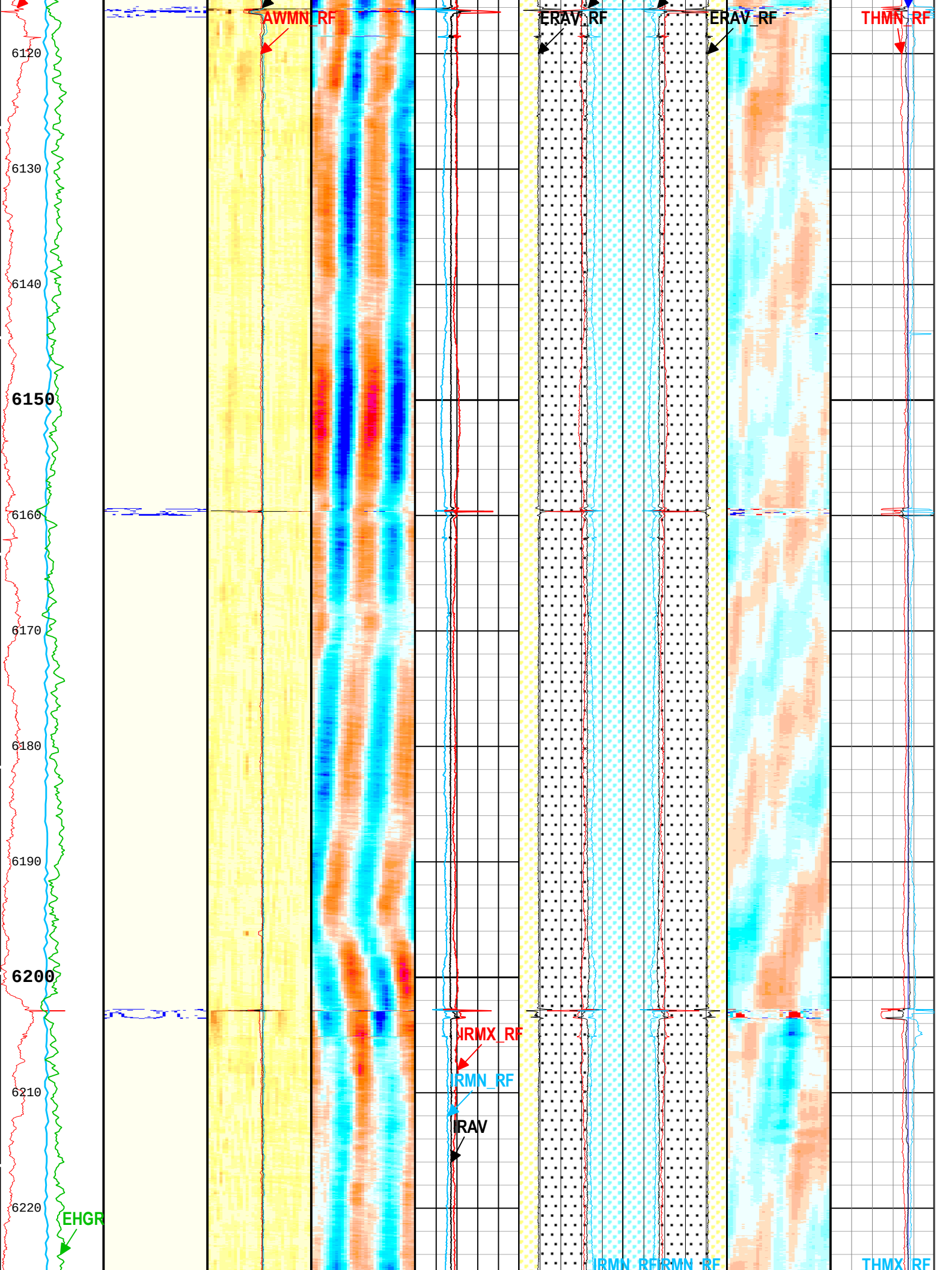
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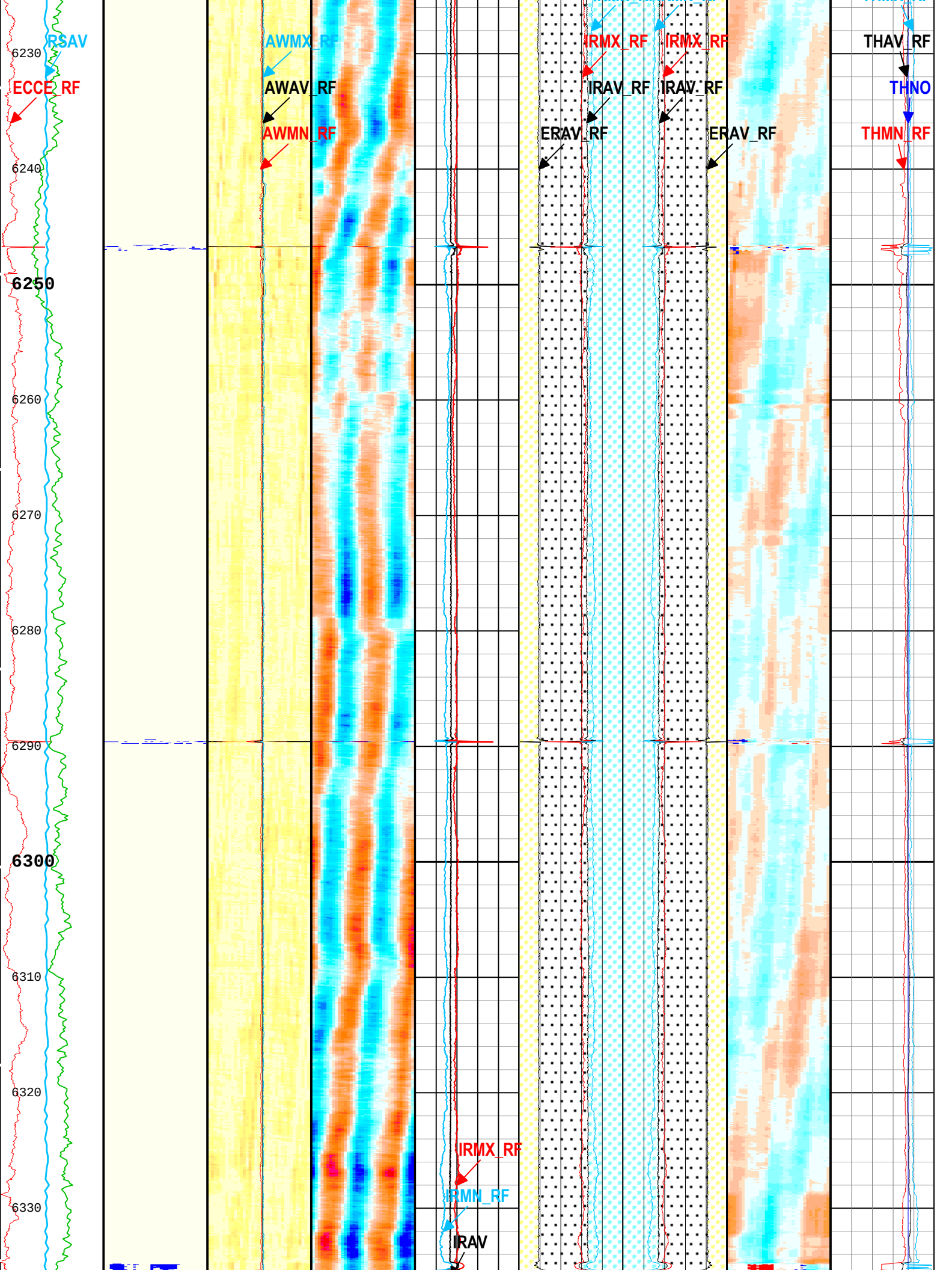
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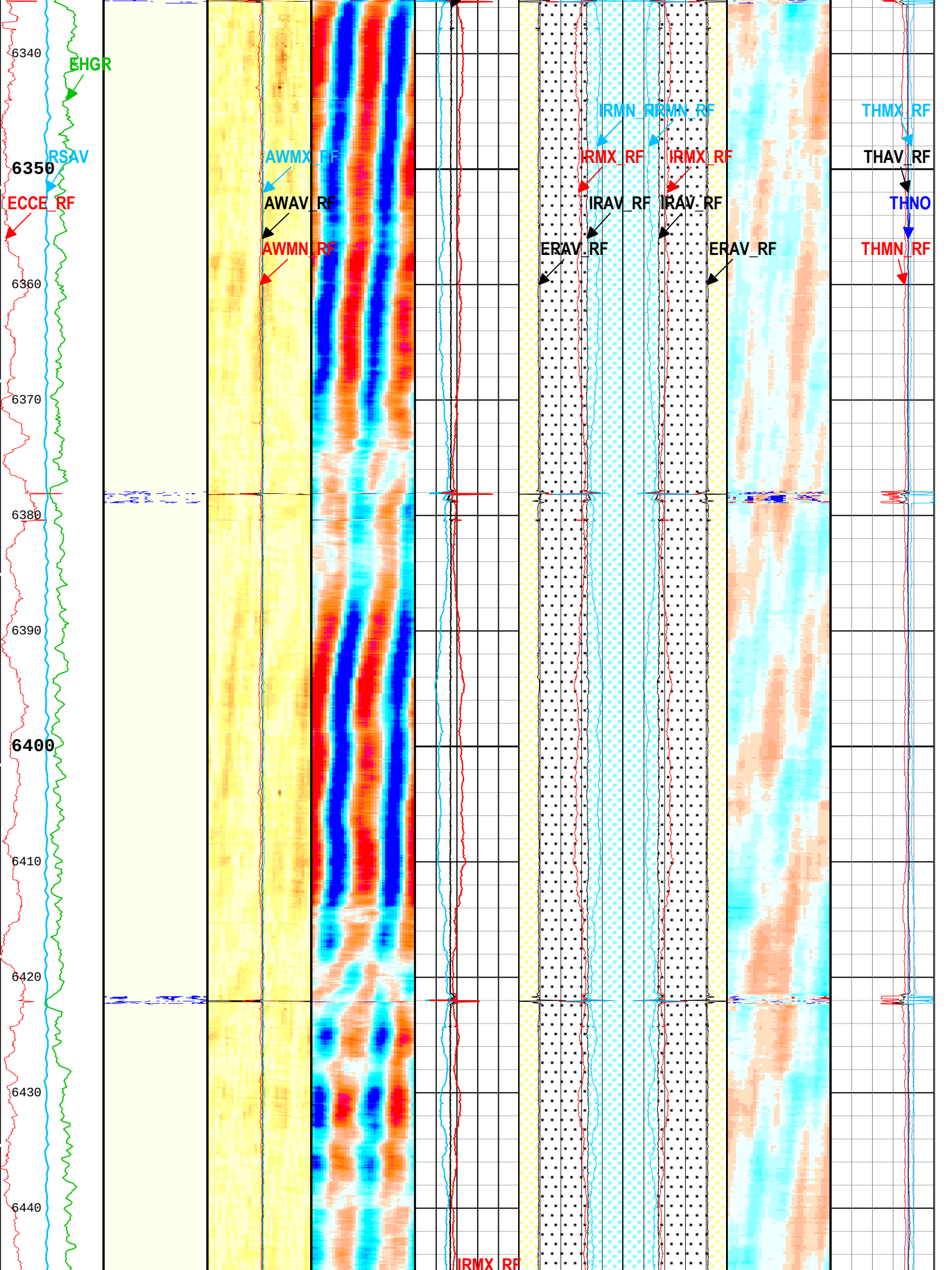
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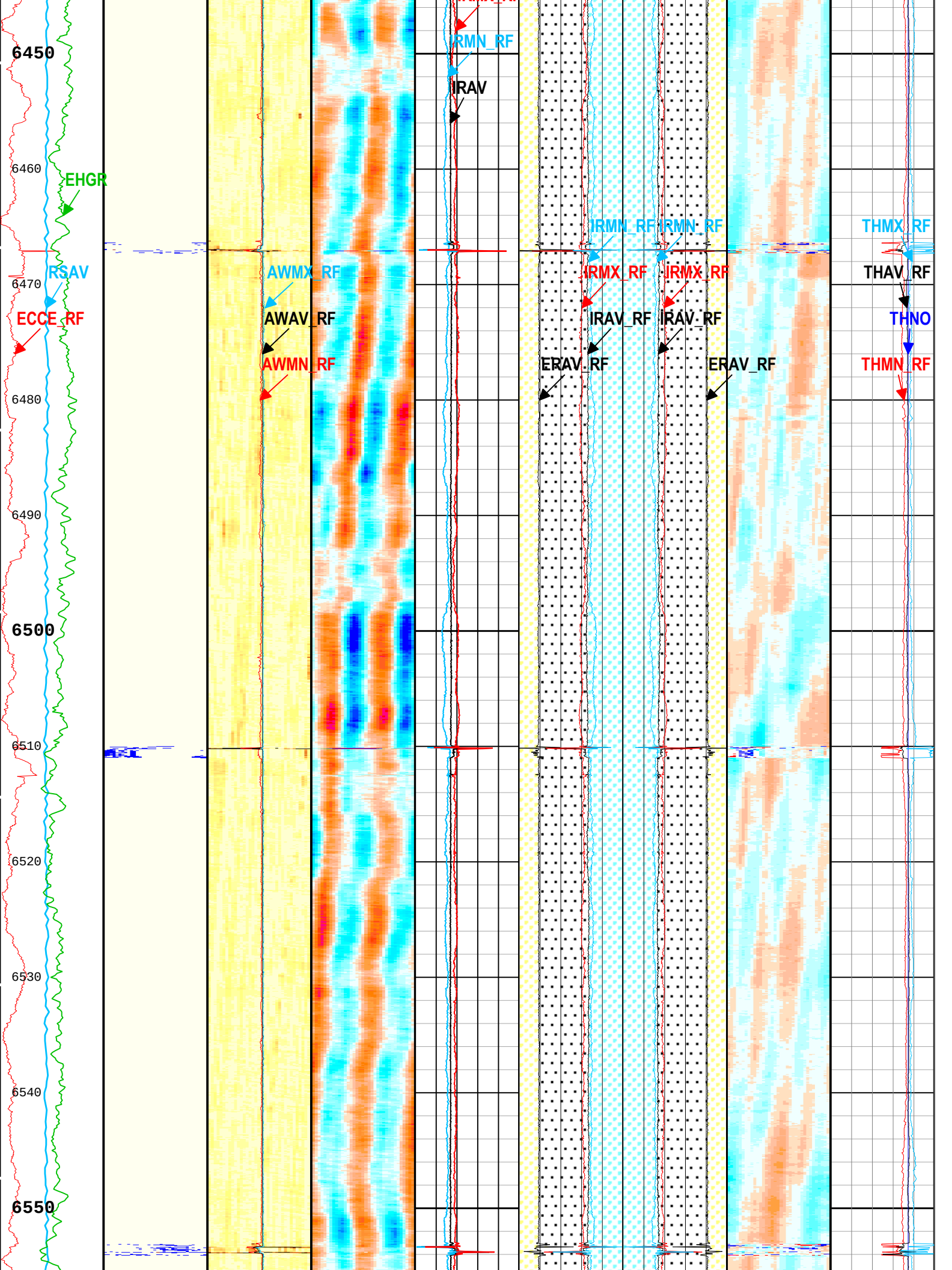
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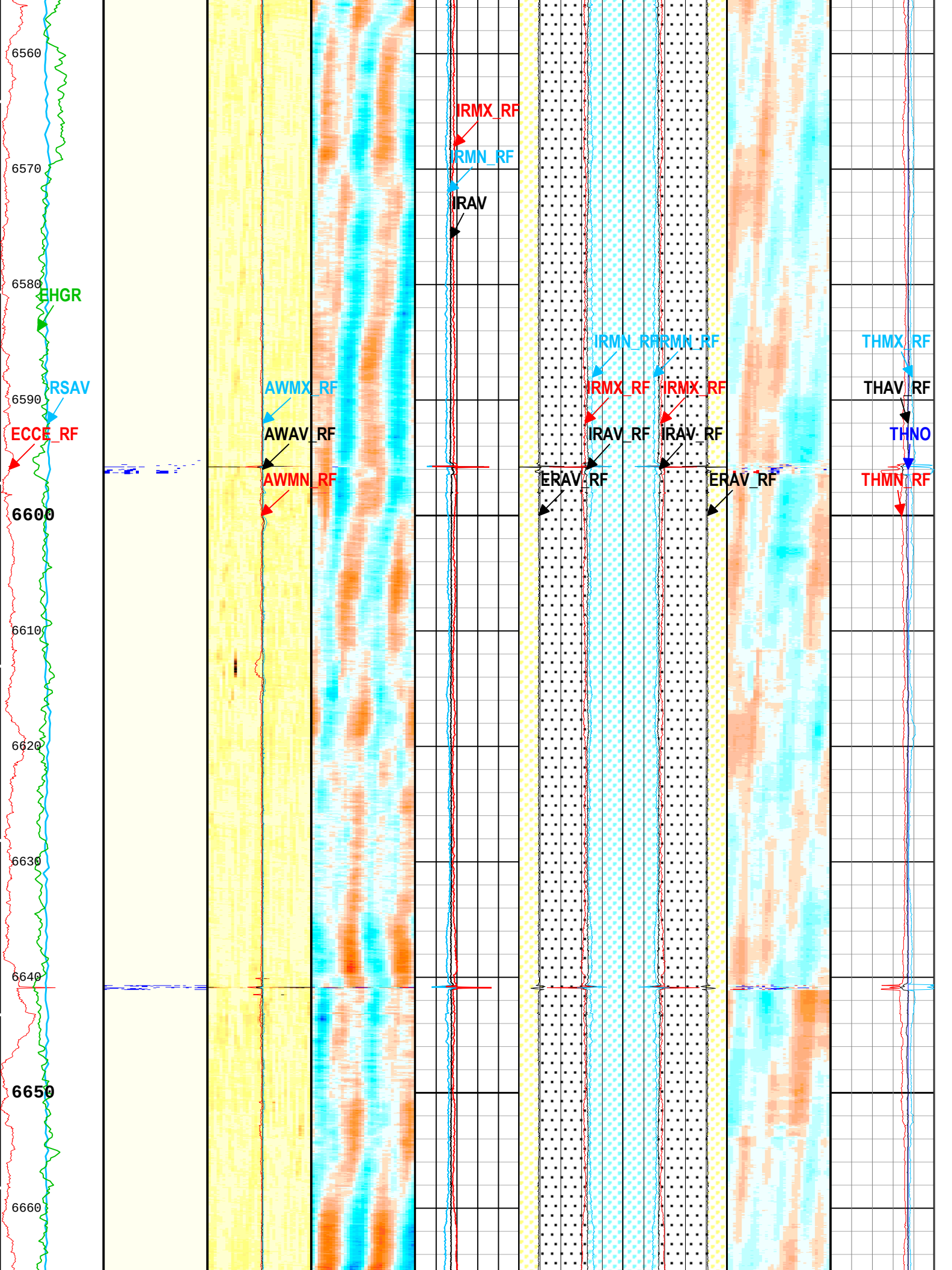
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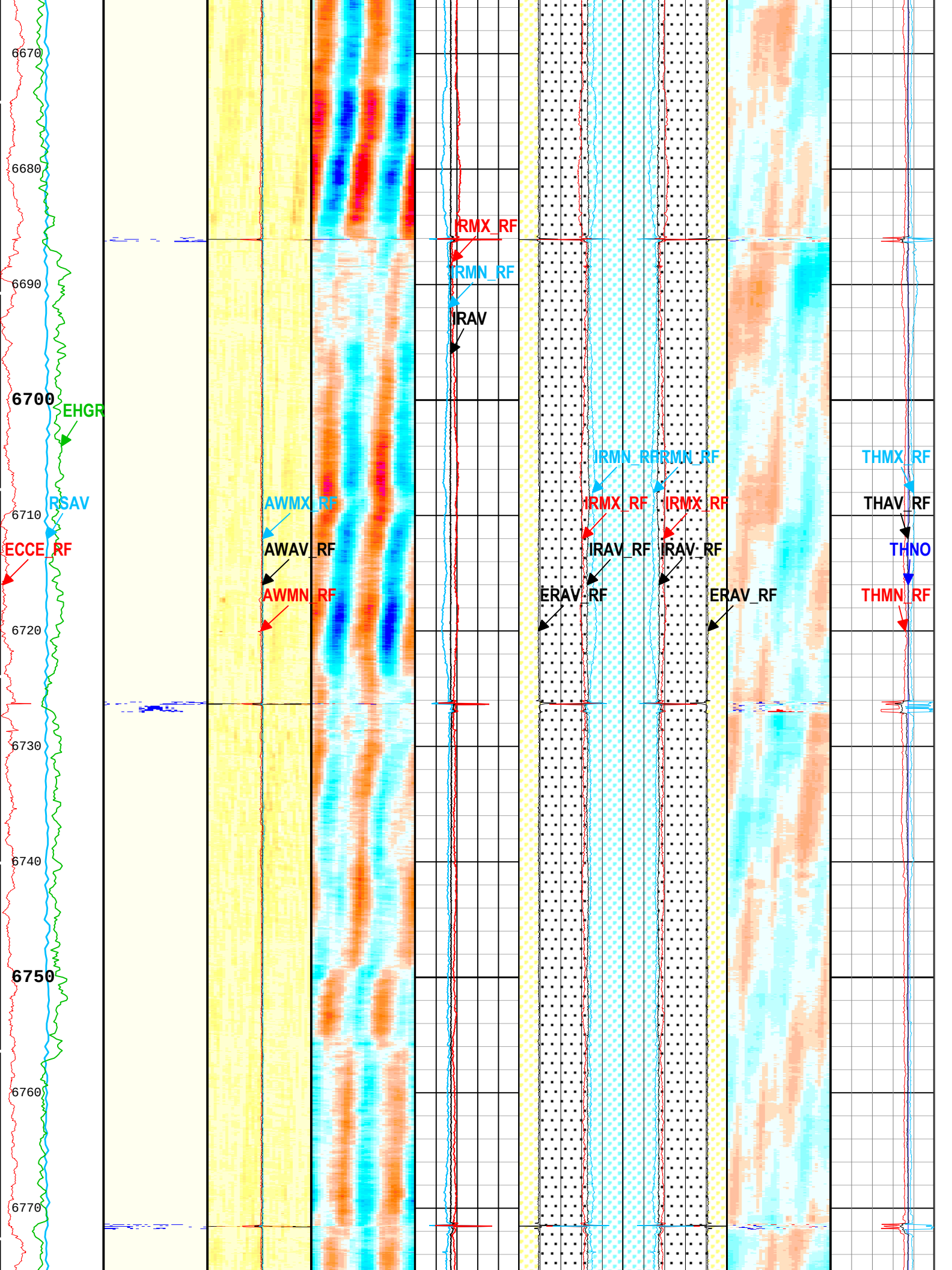
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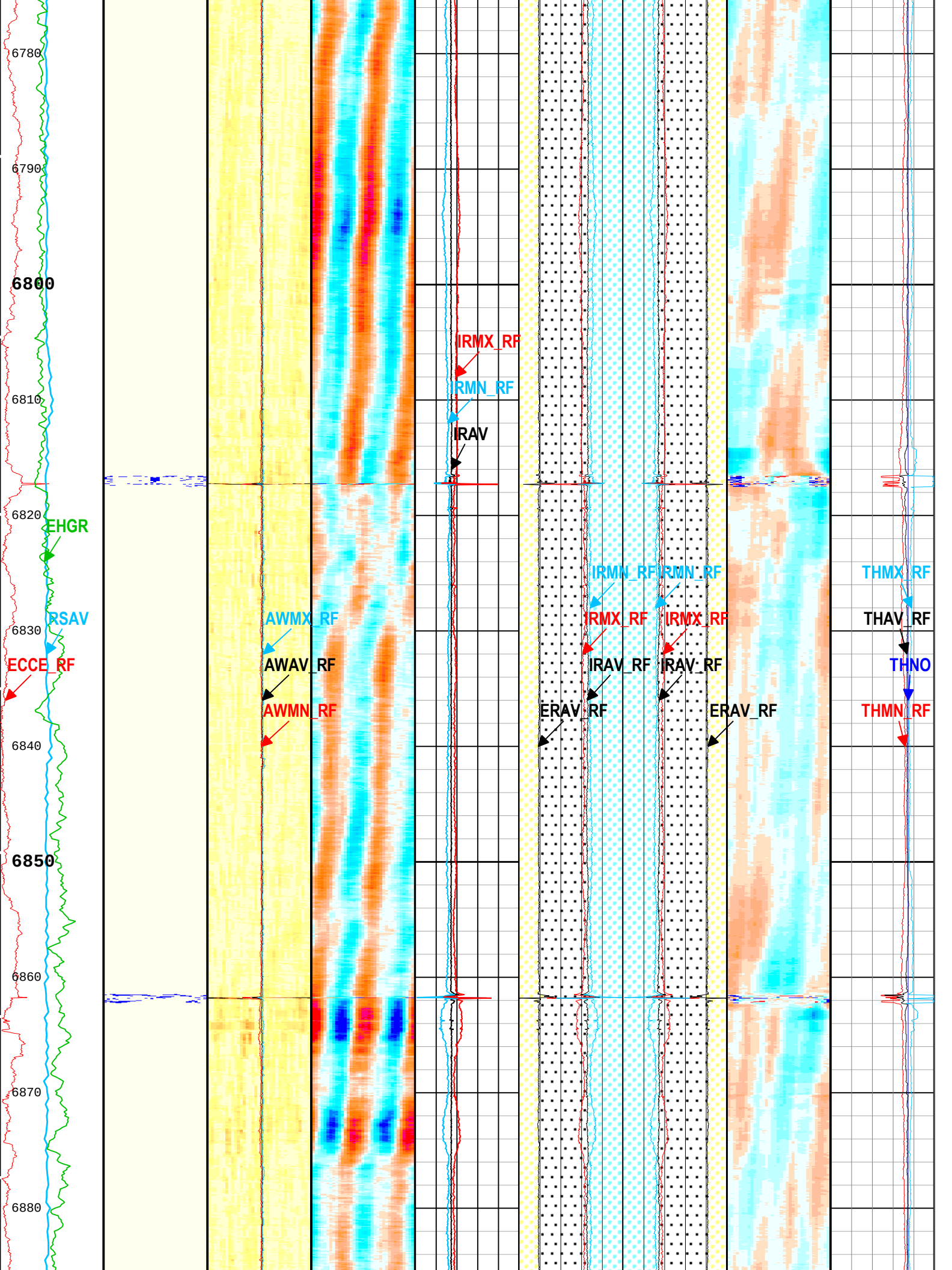
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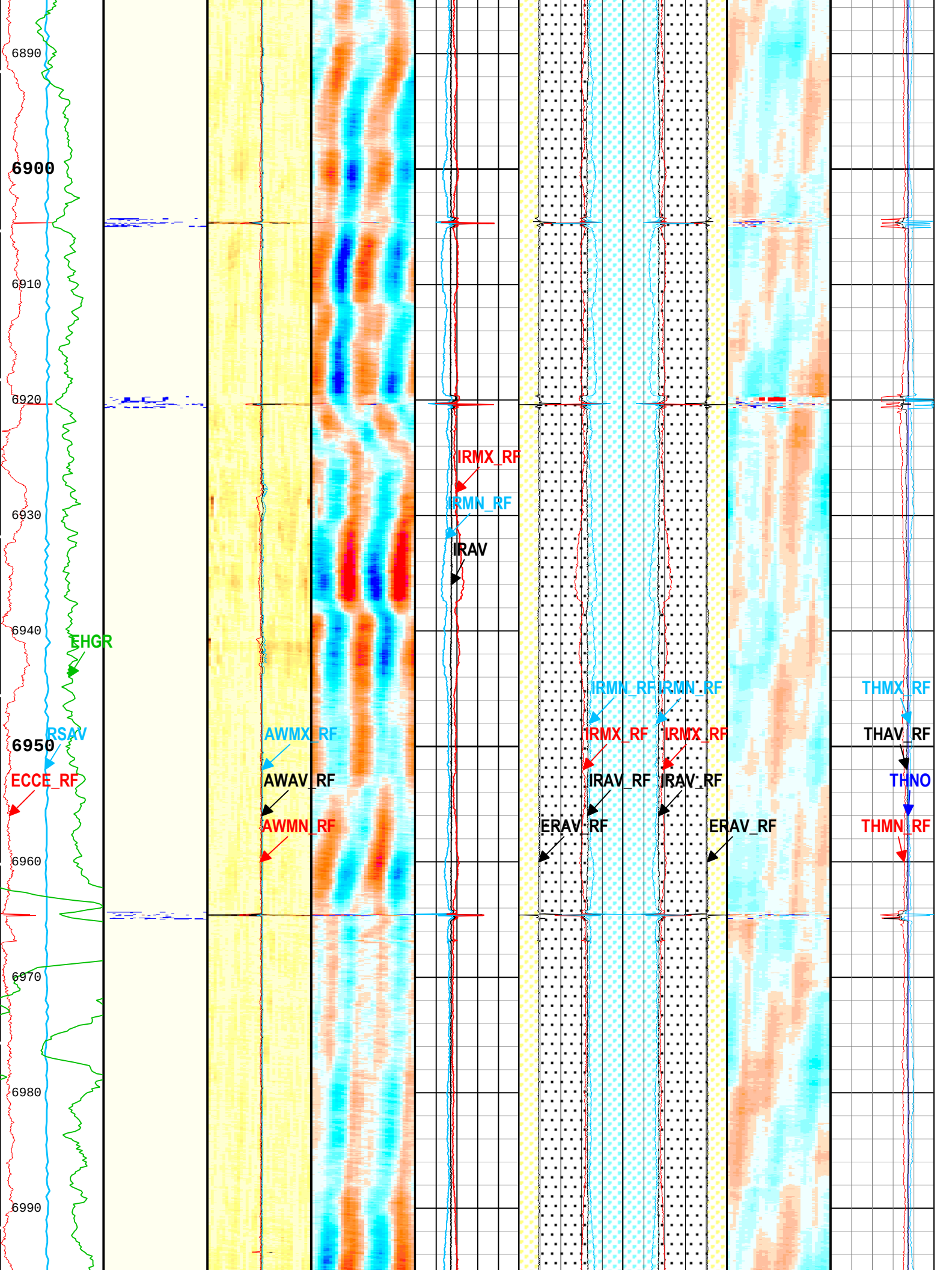
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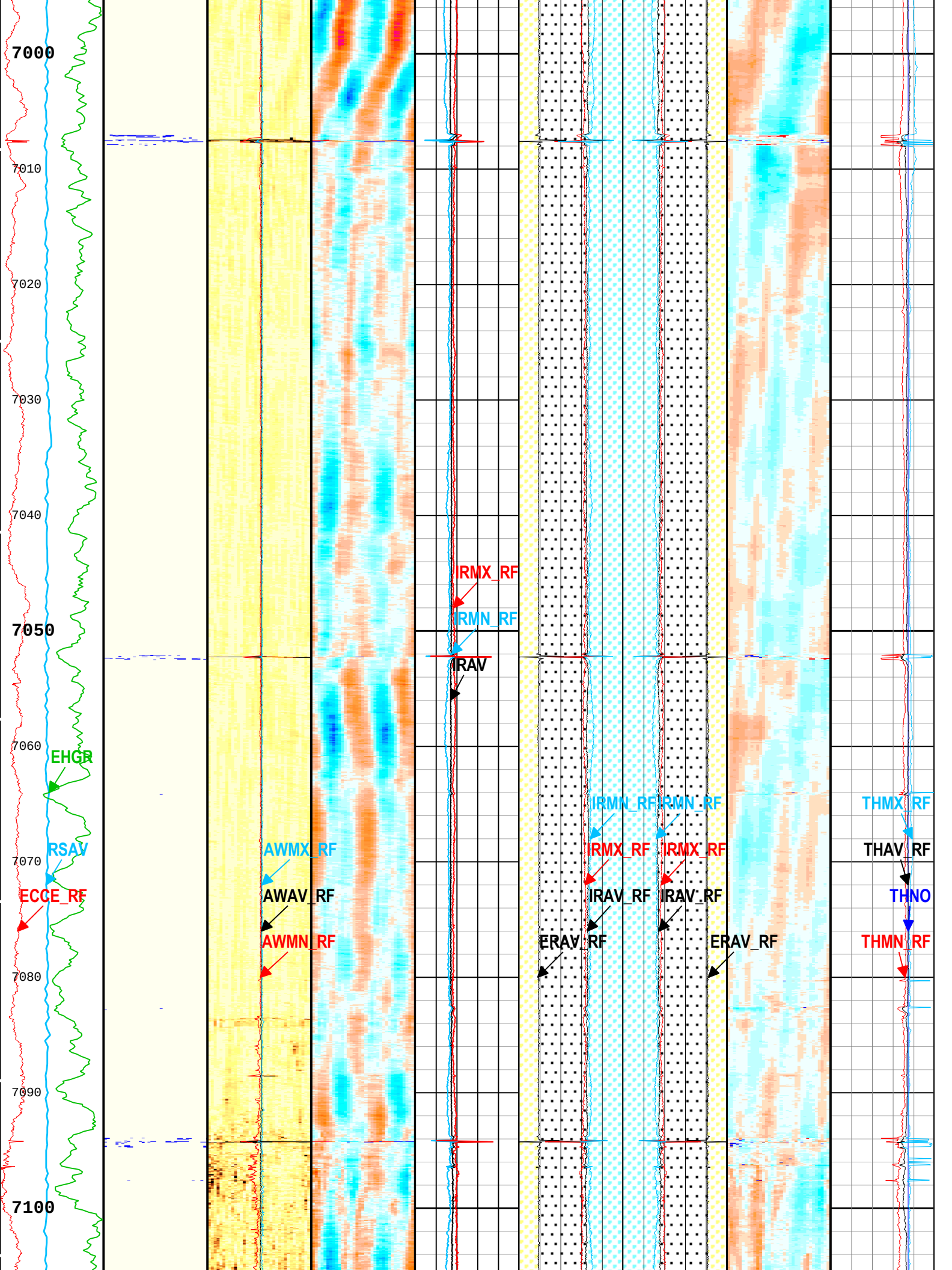
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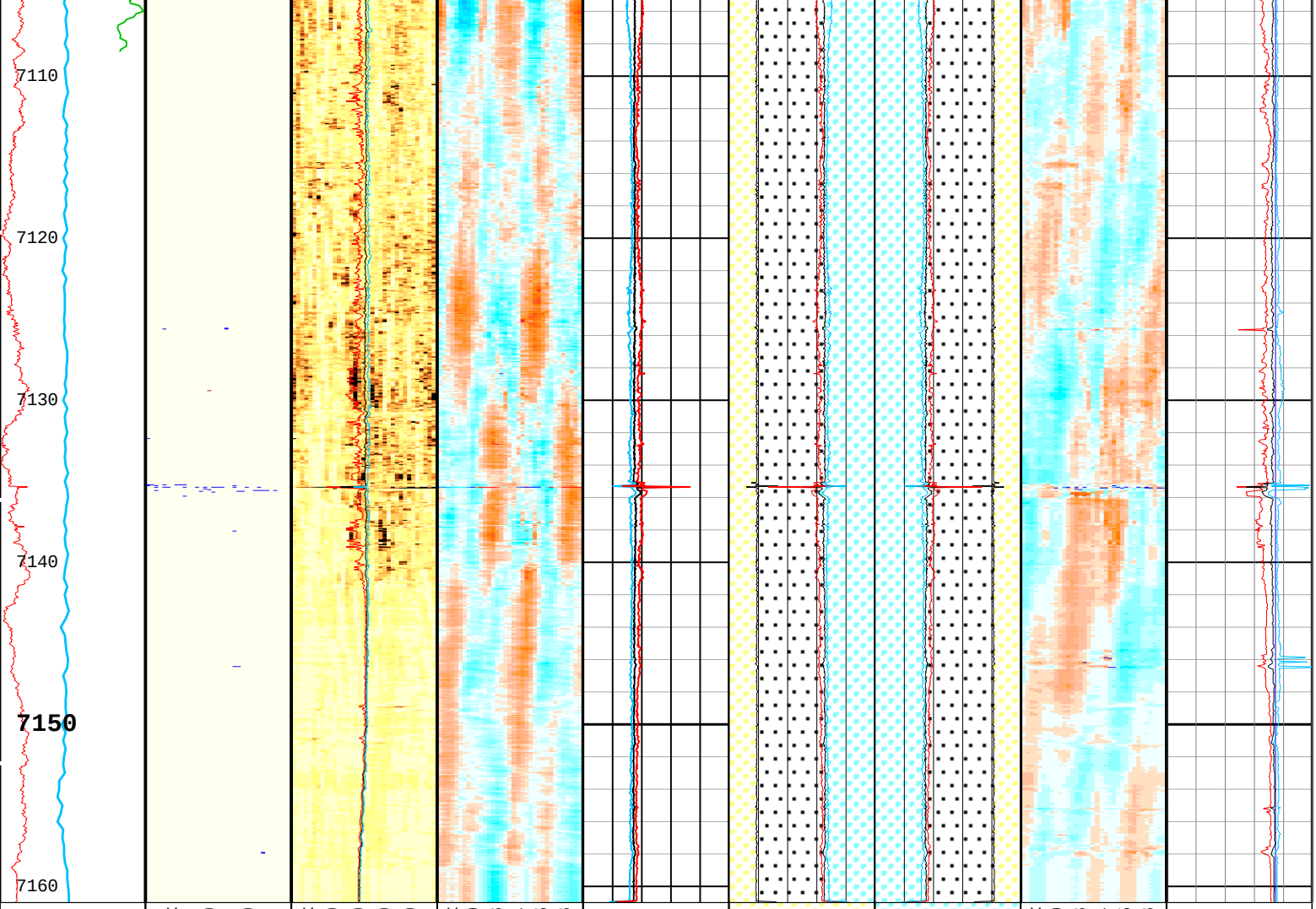


Amplitude of Eccentering for Unflagged Waves (ECCE_RF) USIT-E
0 in 0.5

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

Gamma Ray (EHGR) HGNS-H
0 gAPI 150

Absent 1.500 3.500
Explicit Normalization
USIT - USIT Processing Flags (UFLG) USIT-E

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)

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

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)

Internal Radius Averaged Value (IRAV) USIT-E
4 in 5

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

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

ERAV
ERAV-IRAV
IRAV

Median of Unflagged External Radii (ERAV_RF) USIT-E
5 in 4

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

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

Minimum of Unflagged

IRAV
ERAV
IRAV-ERAV

Median of Unflagged External Radii (ERAV_RF) USIT-E
4 in 5

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

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

Minimum of Unflagged

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)

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

0 dB 75

Internal Radii (IRMN_RF) USIT-E

5 in 4

Internal Radii (IRMN_RF) USIT-E

4 in 5

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

TIME_1900 - Time Marked every 60.00 (s)

Description: USI Composite Format: Log (LBV1_USI Corrosion 9.625inch) Index Scale: 10 in per 100 ft Index Unit: ft Index Type: Measured Depth
Creation Date: 08-Sep-2016 19:58:11

Channel Processing Parameters

8-Sep-2016: Parameters

Parameter	Description	Tool	Value	Unit
ISSBAR	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BS	Bit Size	WLSESSION	12.25	in
CBLO	Casing Bottom (Logger)	WLSESSION	7289	ft
CDEN	Cement Density	HGNS-H	2	g/cm3
CMTY(U-USIT_CEMT)	Cement Type	USIT-E	Regular Cement	
THNO	Nominal Casing Thickness - Zoned along logger depths	WLSESSION	0.472	in
CYSTLGR	Casing Yield Strength - Zoned along logger depths	WLSESSION	80000	psi
DFD	Drilling Fluid Density	Borehole	9.2	lbm/gal
DFT	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	206	us/ft
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	
HEMA	Hematite Presence Flag	Borehole	No	
ICE_PROCESS	ICE Processing	USIT-E	Yes	
IMAR	Image Rotation	USIT-E	Off	
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-E	29.67	us
MUD_N_FRP	Free Pipe Mud Normalization Factor	USIT-E	1.06	
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	0.1	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.	
ZMUD	Acoustic Impedance of Mud	Borehole	1.48	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-E	2.6	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

Tool Control Parameters

8-Sep-2016: Parameters

Parameter	Description	Tool	Value	Unit

AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	18	dB
U-USIT_DDT5	USIC Downhole Decimation for T5 only	USIT-E	0_NONE	
EMXV	EMEX Voltage	USIT-E	32	V
HRES	Horizontal Resolution	USIT-E	10 deg	
MOTOR_PROTECT	Motor Protection	USIT-E	Off	
TMUC	Type of Mud	USIT-E	BRI	
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 500 KHz	
UWKM	USIT Working Mode	USIT-E	Uncompressed 10 deg at 0.6 in LF	
USIT_DEPTHLOG	Starting Depth Log for Ultrasonics	USIT-E	7170	ft
VRES	Vertical Resolution	USIT-E	0.6 in	
WINB	Window Begin Time	USIT-E	45.35	us
WINE	Window End Time	USIT-E	85.35	us

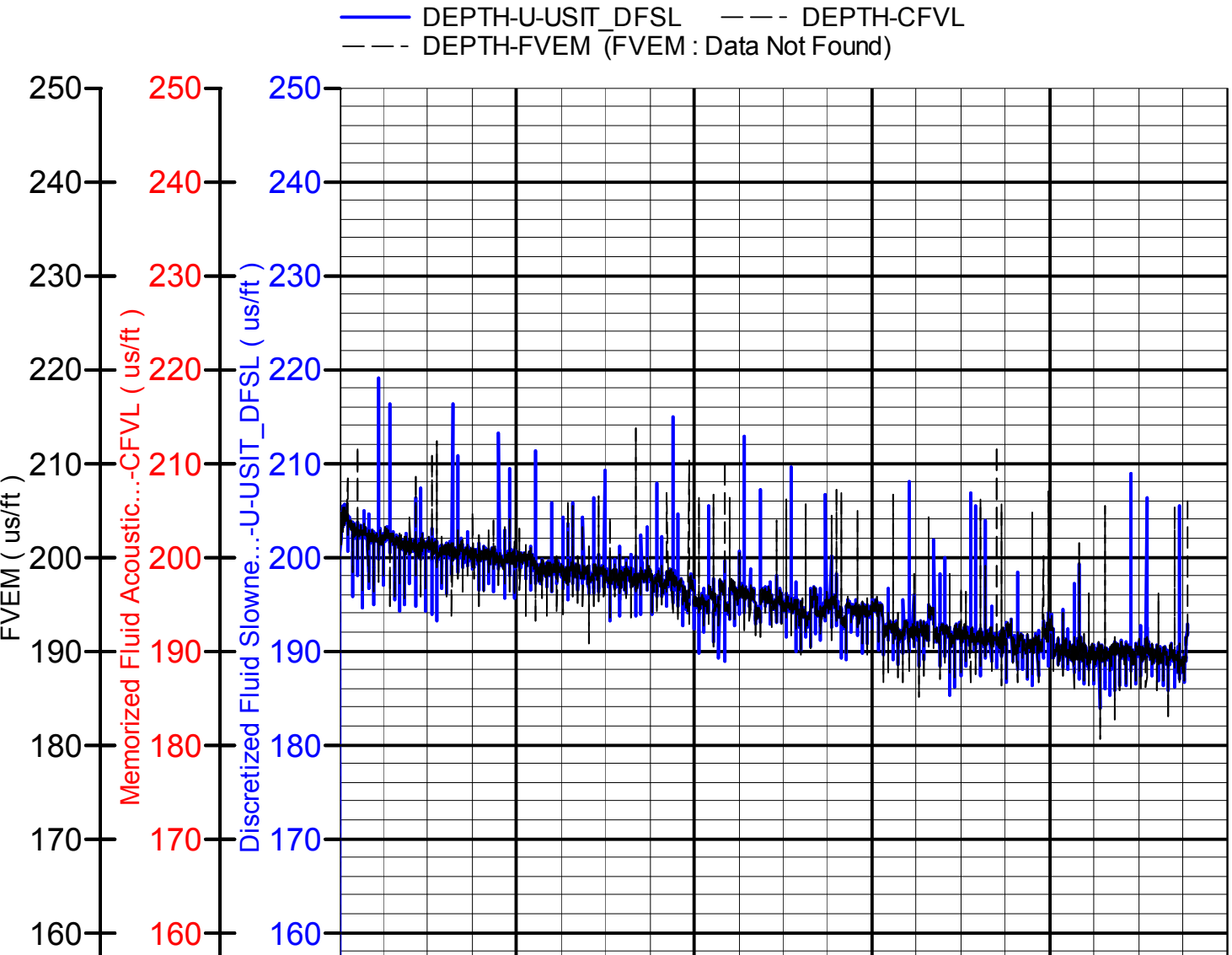
XYZ

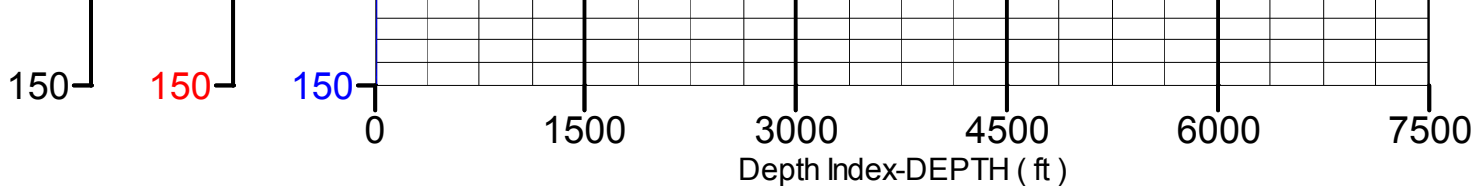
Company:Southern California Gas Company Well:Porter 69E
Composite 1:S002

Fluid Acoustic Slowness vs Depth

2D Cross Plot

Index Range: From 10.38 to 7165.50 ft





XYZ

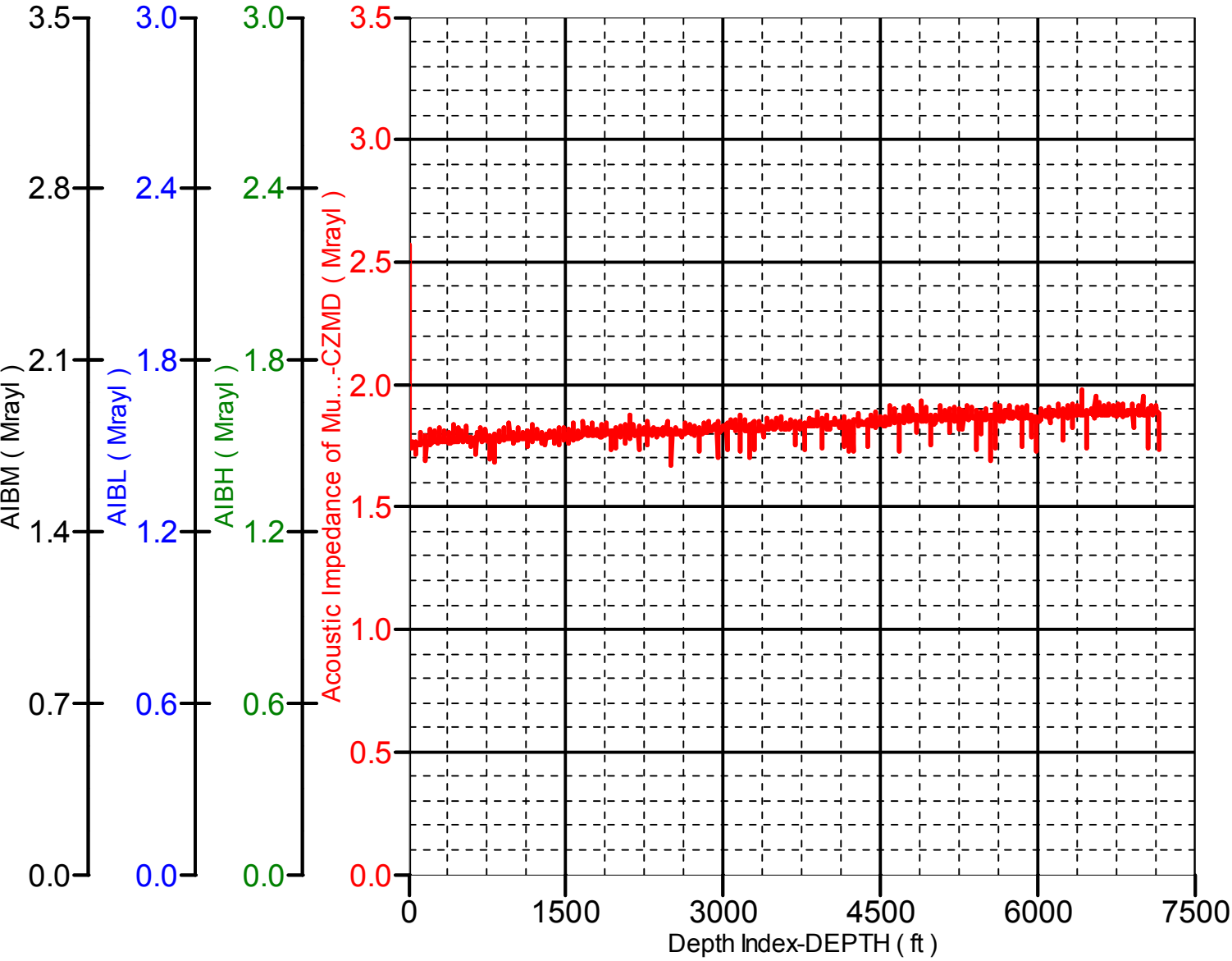
Company:Southern California Gas Company Well:Porter 69E
Composite 1:S002

Theoretical Acoustic Impedance of Mud vs Depth

2D Cross Plot

Index Range: From 10.38 to 7165.50 ft

DEPTH-CZMD
DEPTH-AIBH (AIBH : Data Not Found)
DEPTH-AIBL (AIBL : Data Not Found)
DEPTH-AIBM (AIBM : Data Not Found)



8-Sep-2016

Repeat Pass 5 in = 100 ft 1000 psi pressure applied

Software Version

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 8.10	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
HGNS-H	HILT Gamma-Ray and Neutron Sonde, 150 degC	6.1.58882.3100	2.0
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

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
8-Sep-2016	Log[7]:Up	Up	5889.33 ft	7161.37 ft	08-Sep-2016 12:55:50 PM	08-Sep-2016 2:20:08 PM	ON	0.50 ft	No

All depths are referenced to toolstring zero

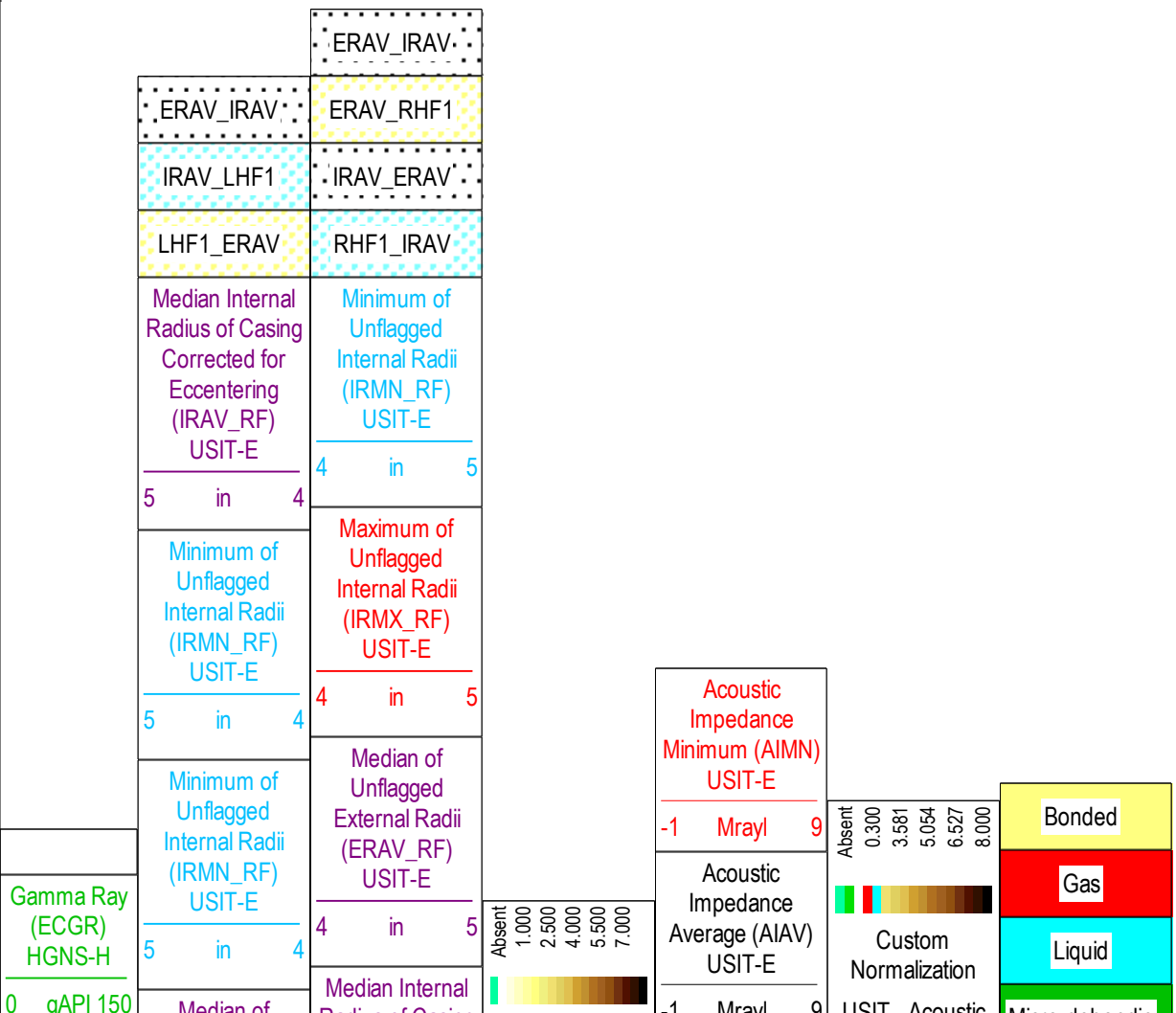
Log

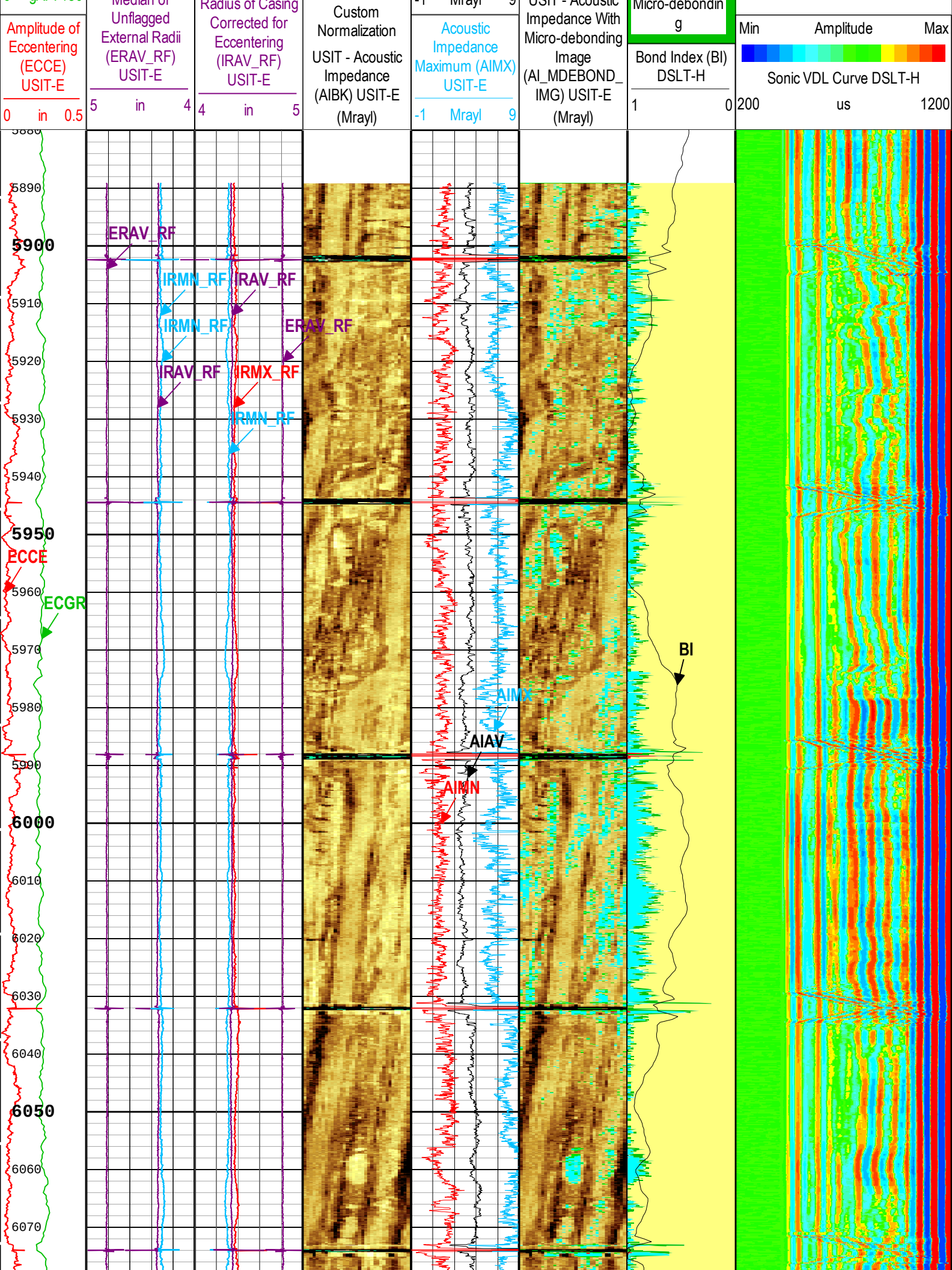
Company:Southern California Gas Company Well:Porter 69E

8-Sep-2016: Log[7]:Up:S002

Description: USI VDL Cement Format: Log (LBV1_USI-VDL (DSLT) Cement 9.625inch_hires) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 08-Sep-2016 19:58:33

TIME_1900 - Time Marked every 60.00 (s)




Amplitude of Eccentering (ECCE) USIT-E
0 in 0.5
Median of Unflagged External Radii (ERAV_RF) USIT-E
5 in 4
Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E
4 in 5
Custom Normalization USIT - Acoustic Impedance (AIBK) USIT-E (Mrayl)
Acoustic Impedance Maximum (AIMX) USIT-E
-1 Mrayl 9
USIT - Acoustic Impedance With Micro-debonding Image (AI_MDEBOND_IMG) USIT-E (Mrayl)
Micro-debonding
Bond Index (BI) DSLT-H
1 0
Min Amplitude Max
Sonic VDL Curve DSLT-H
200 us 1200
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ERAV_RF
IRMN_RF
IRAV_RF
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ERAV_RF
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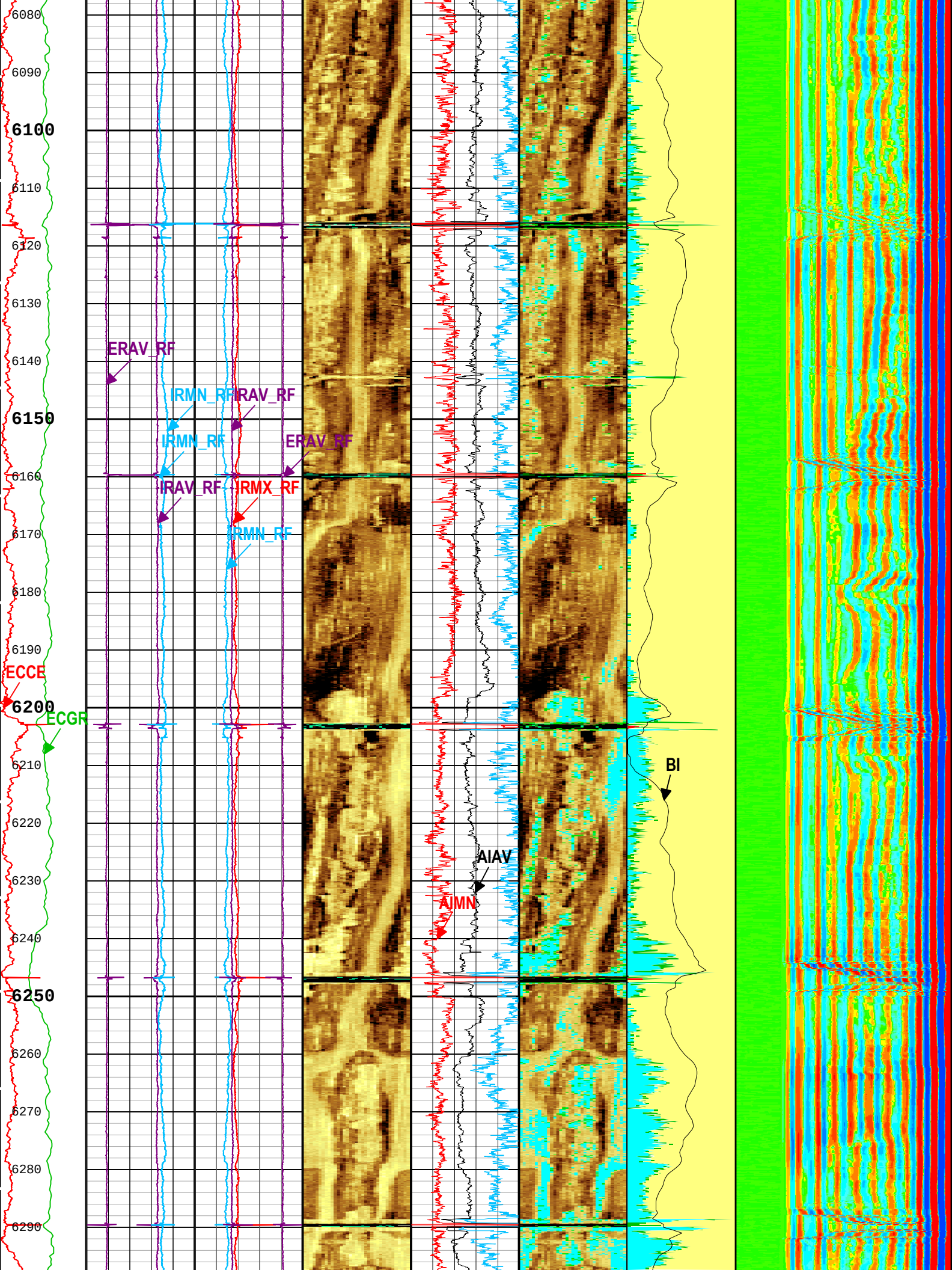
IRMX_RF
IRMN_RF
ECCE
ECGR
BI
AIMX
AIAV
AIMN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ERAV_RF
IRMN_RF
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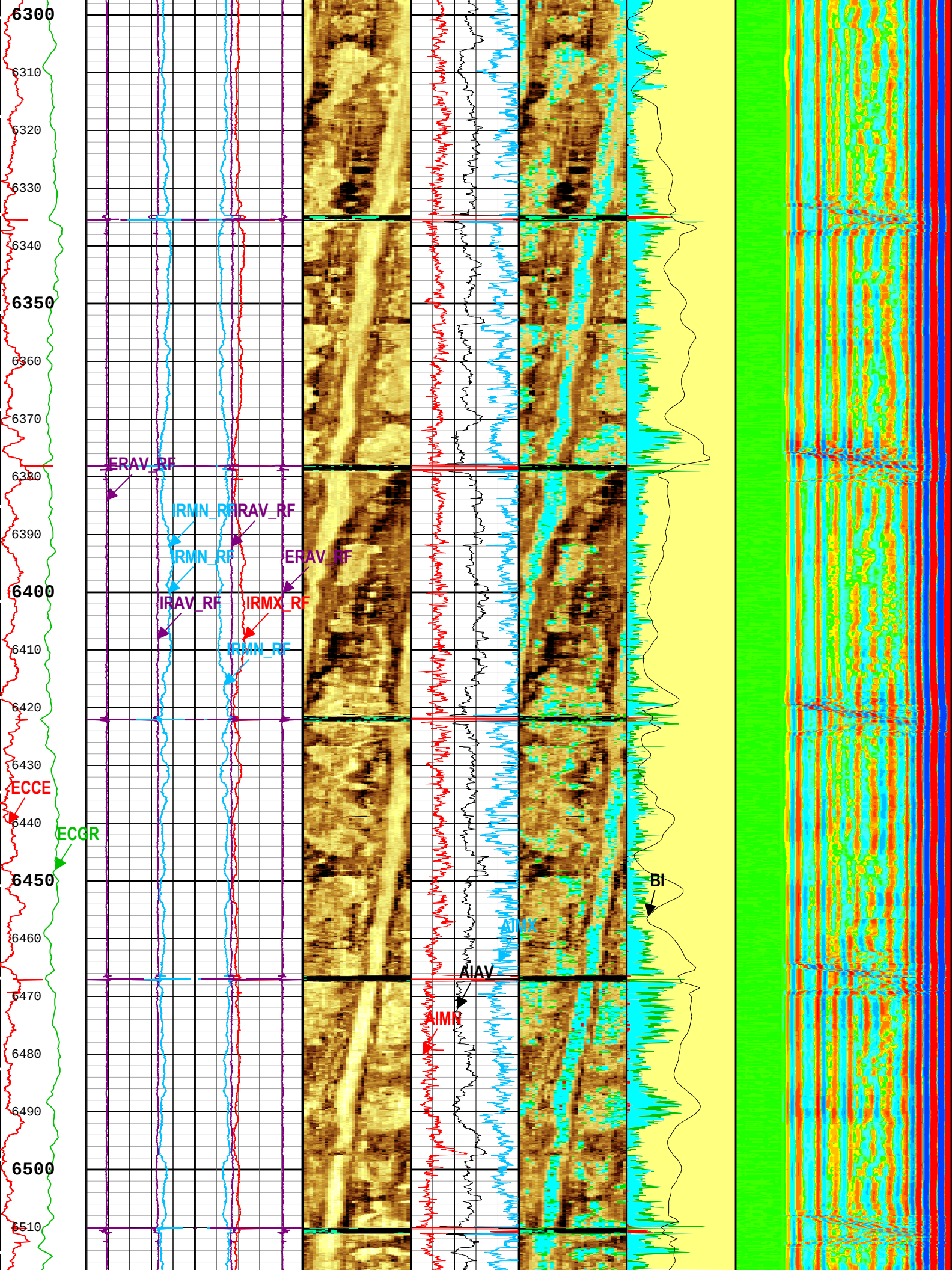
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ERAV_RF
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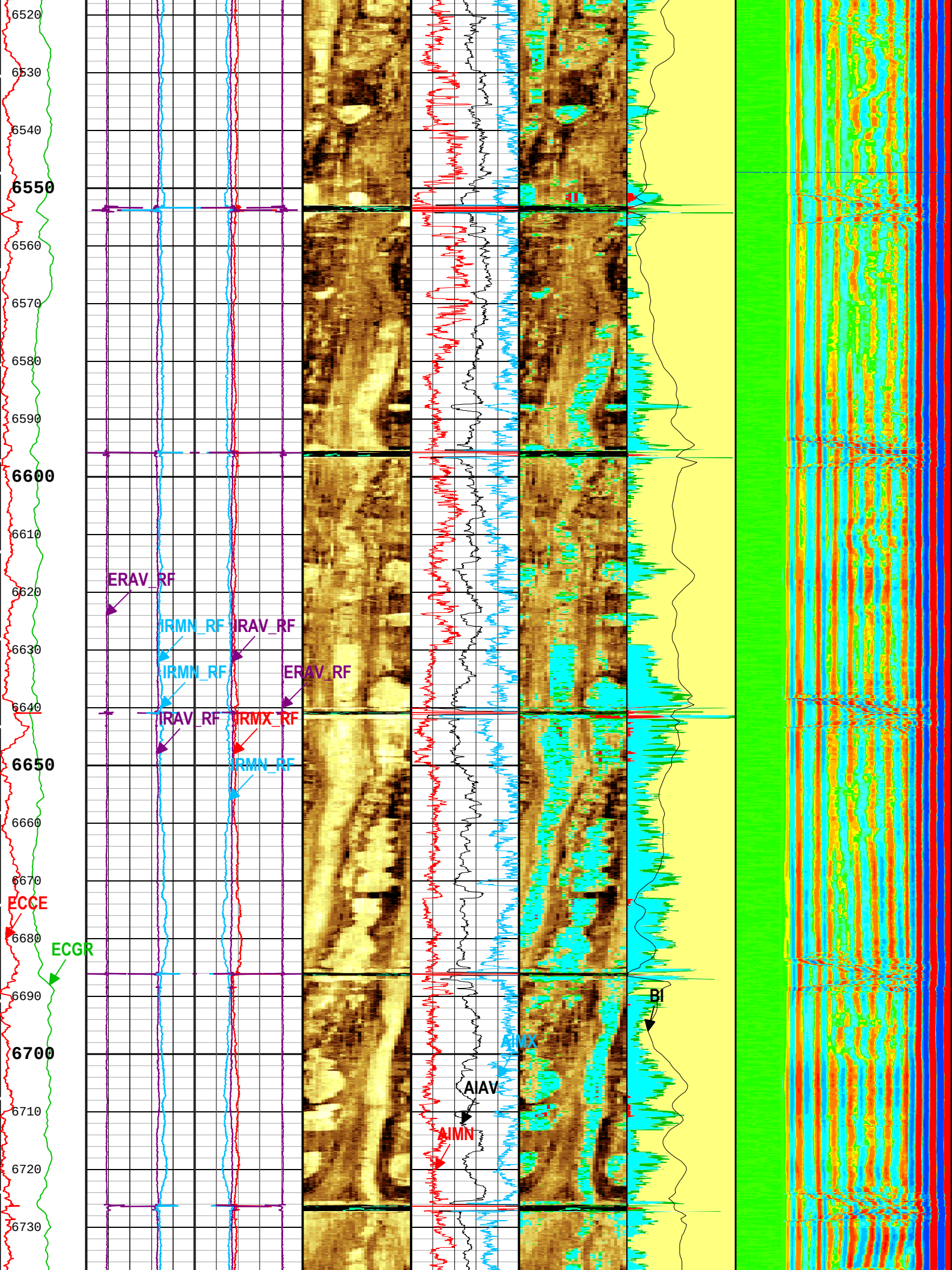
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6690
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6720
6730
ERAV_RF
IRMN_RF
IRAV_RF
IRMN_RF
ERAV_RF
IRAV_RF
IRMX_RF
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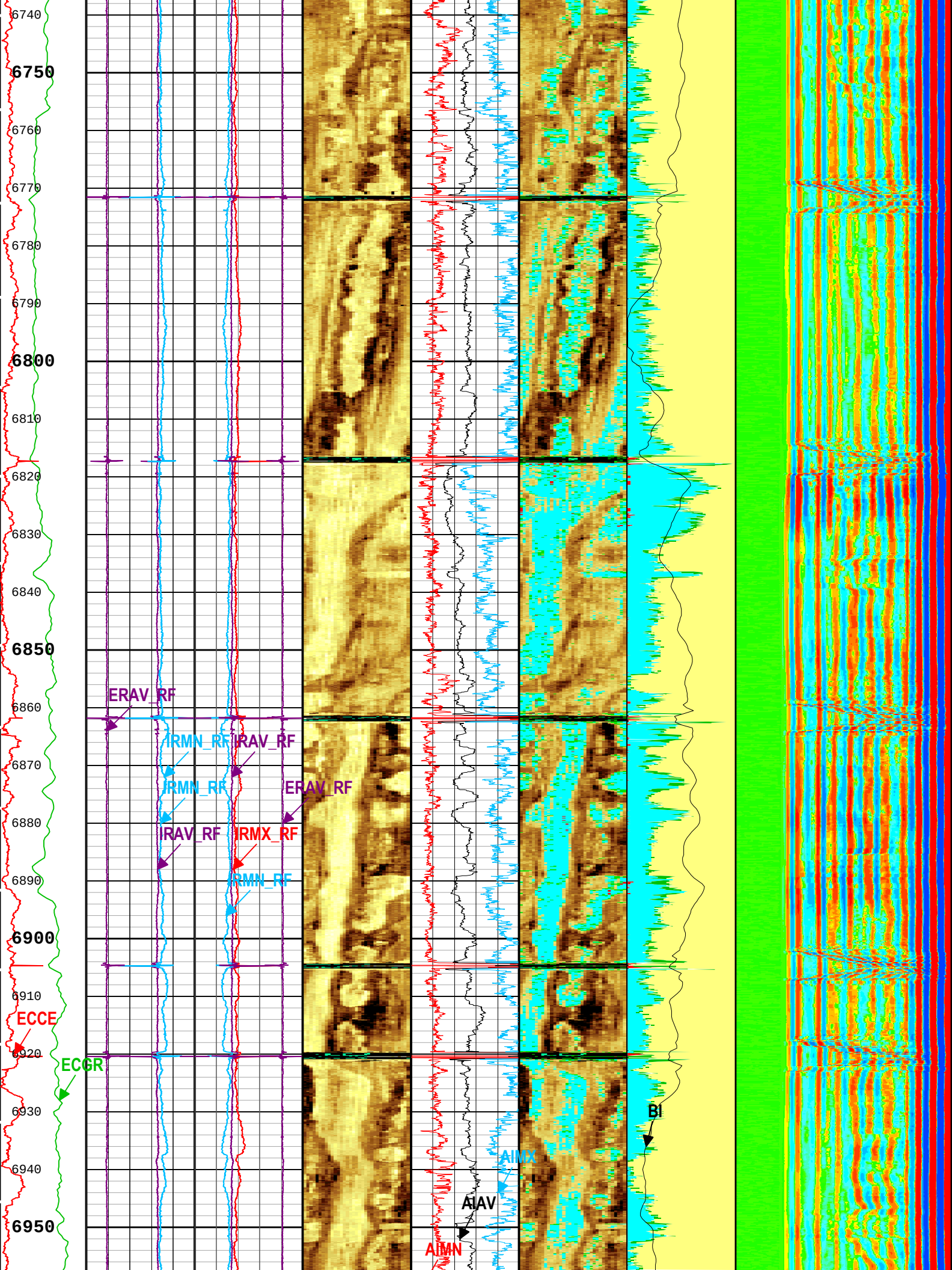
ECCE
ECGR
BI
AIMX
AIAV
AIMN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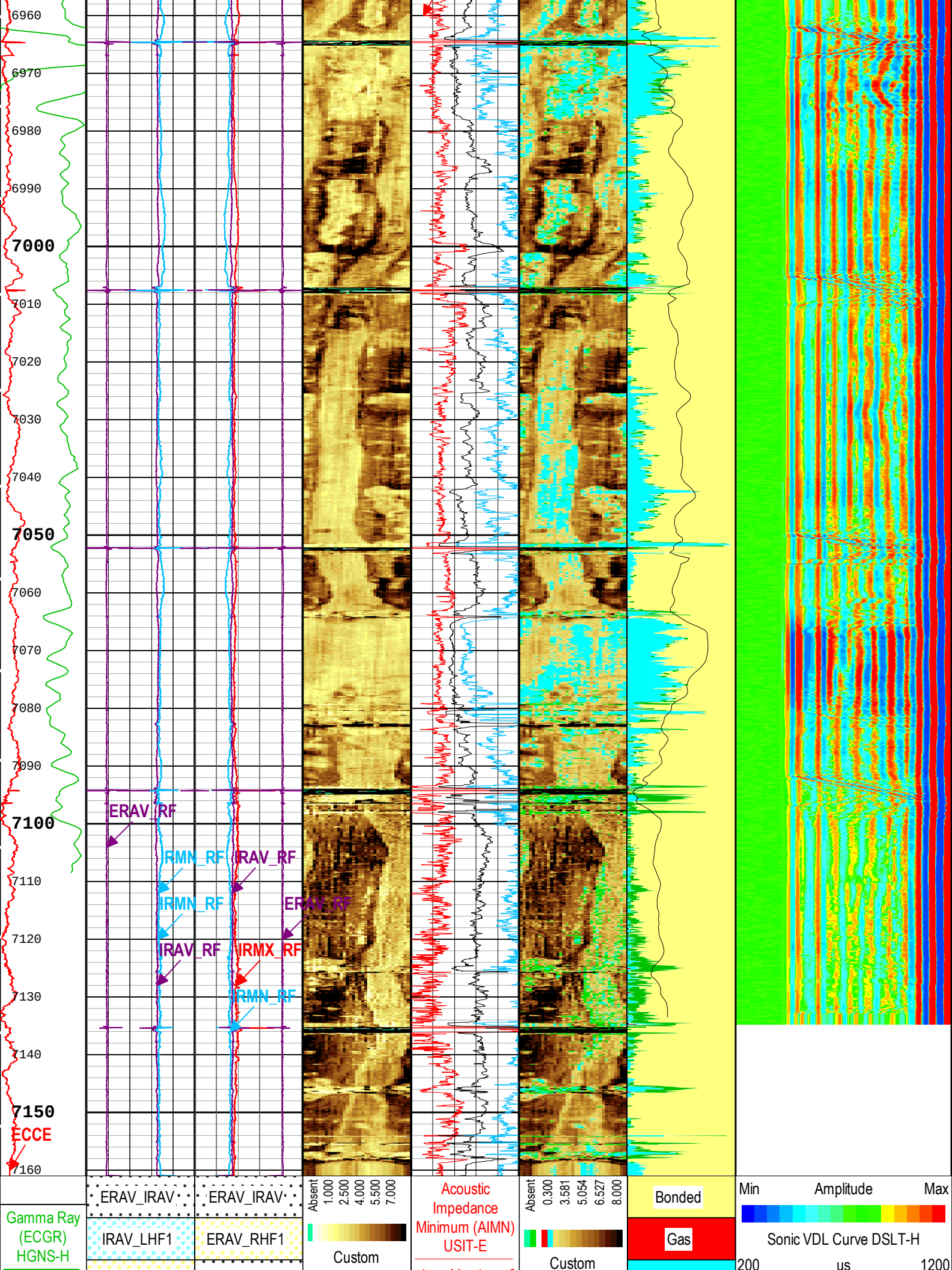
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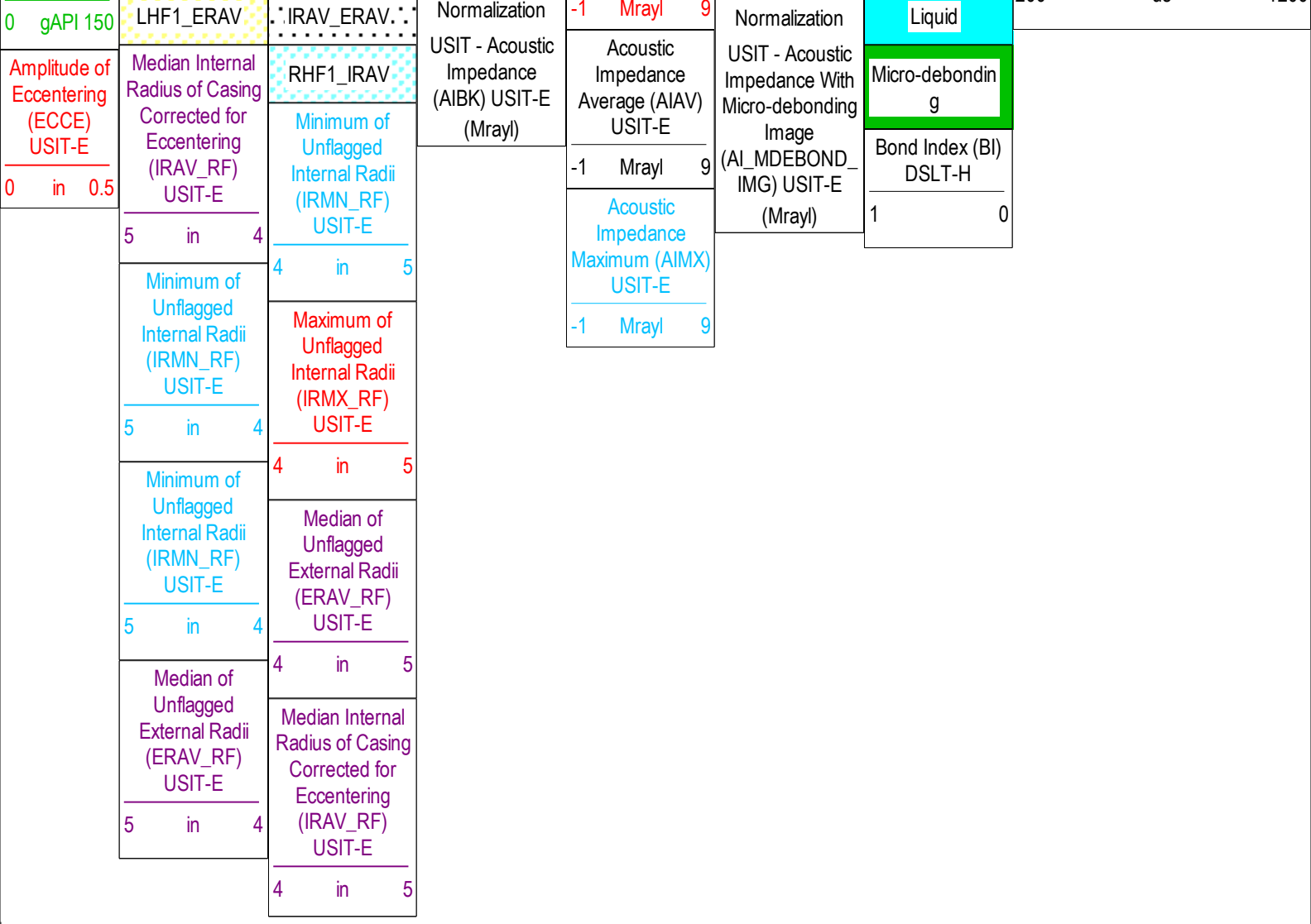
ECCE
ERAV_RF
IRMN_RF
IRAV_RF
IRMN_RF
ERAV_RF
IRAV_RF
IRMX_RF
IRMN_RF
ERAV_IRAV
ERAV_IRAV
IRAV_LHF1
ERAV_RHF1
Absent
1.000
2.500
4.000
5.500
7.000
Custom
Acoustic Impedance Minimum (AIMN) USIT-E
Absent
0.300
3.581
5.054
6.527
8.000
Custom
Bonded
Gas
Min
Amplitude
Max
Sonic VDL Curve DSLT-H
200
us
1200
Gamma Ray (ECGR) HGNS-H



Description: USI VDL Cement Format: Log (LBV1_USI-VDL (DSLT) Cement 9.625inch_hires) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 08-Sep-2016 19:58:33

Channel Processing Parameters

8-Sep-2016: 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	12.25	in
CASING_PRATIO	Casing Poisson Ratio	USIT-E	Standard Poisson Ratio	
CBLG	CBL Gate Width	DSLT-H	45	us
CBLO	Casing Bottom (Logger)	WLSESSION	7289	ft
CBRA	CBL LQC Reference Amplitude in Free Pipe	DSLT-H	52	mV
CDEN	Cement Density	HGNS-H	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	0.472	in
DETE	Delta-T Detection	DSLT-H	E1	
DFD	Drilling Fluid Density	Borehole	9.2	lbm/gal
DFT	Drilling Fluid Type	Borehole	Water	

DTMD	Borehole Fluid Slowness	Borehole	206	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	4.74	mV
GR_MULTIPLIER	Gamma Ray Multiplier	HGNS-H	1	
HEMA	Hematite Presence Flag	Borehole	No	
ICE_PROCESS	ICE Processing	USIT-E	Yes	
IMAR	Image Rotation	USIT-E	Off	
MAHTR	Manual High Threshold Reference for first arrival detection	DSLT-H	120	
MATT_CURR	Maximum Attenuation in Arbitrary Cement	DSLT-H	9.3	dB/ft
MCI	Minimum Cemented Interval for Isolation	DSLT-H	14.81	ft
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-E	29.67	us
MNHTR	Minimum High Threshold Reference for first arrival detection	DSLT-H	100	
MSA	Minimum Sonic Amplitude	DSLT-H	2.61	mV
MSA_CURR	Minimum Sonic Amplitude in Arbitrary Cement	DSLT-H	2.61	mV
MUD_N_FRP	Free Pipe Mud Normalization Factor	USIT-E	1.06	
MUD_N_THE	Theoretical Mud Normalization Factor	USIT-E	1	
NMSG	Near Minimum Sliding Gate	DSLT-H	315	us
NMXG	Near Maximum Sliding Gate	DSLT-H	950	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	1.378	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	HGNS-H	0.125	in
SOCO	Standoff Correction Option	HGNS-H	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	70	%
HISC	Tool Position: Centered or Eccentered	HGNS-H	Eccentered	
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	0.1	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	

THDI	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	1.48	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-E	2.6	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

Tool Control Parameters

8-Sep-2016: 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	4.874	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	32	V
HRES	Horizontal Resolution	USIT-E	10 deg	
MOTOR_PROTECT	Motor Protection	USIT-E	Off	
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 500 KHz	
UWKM	USIT Working Mode	USIT-E	Uncompressed 10 deg at 0.6 in LF	
USIT_DEPTHLOG	Starting Depth Log for Ultrasonics	USIT-E	7170	ft
USSP	Ultrasonic Service	USIT-E	USI	
VRES	Vertical Resolution	USIT-E	0.6 in	
WINB	Window Begin Time	USIT-E	45.35	us
WINE	Window End Time	USIT-E	85.35	us
WMOD	Waveform Firing Mode	DSLT-H	Full	

Field:	Aliso Canyon
County:	Los Angeles
State:	CALIFORNIA

Ultrasonic Imager

Gamma Ray - CCL

9-5/8" 47# casing