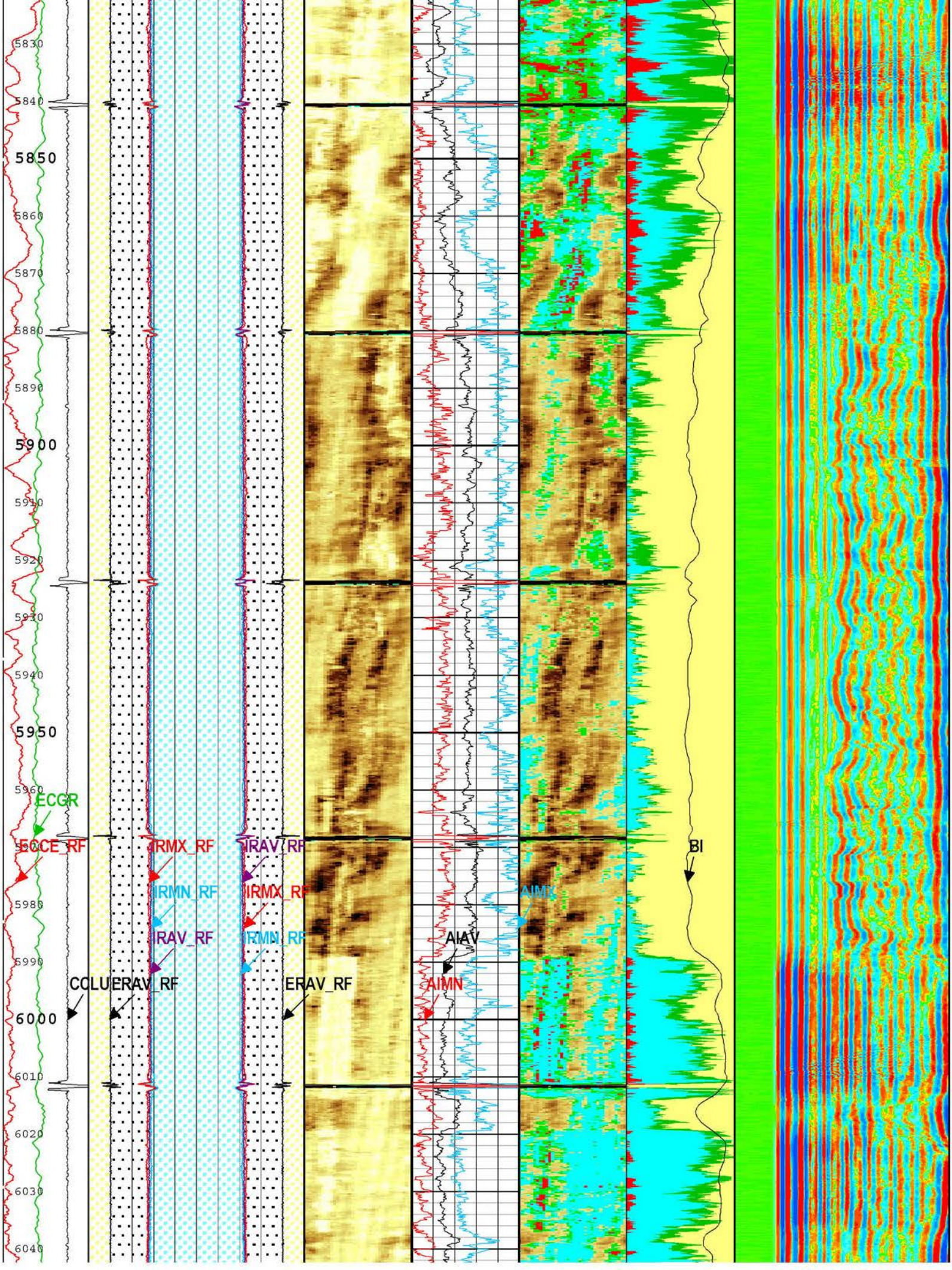
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ECGR
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IRMX_RF
IRAV_RF
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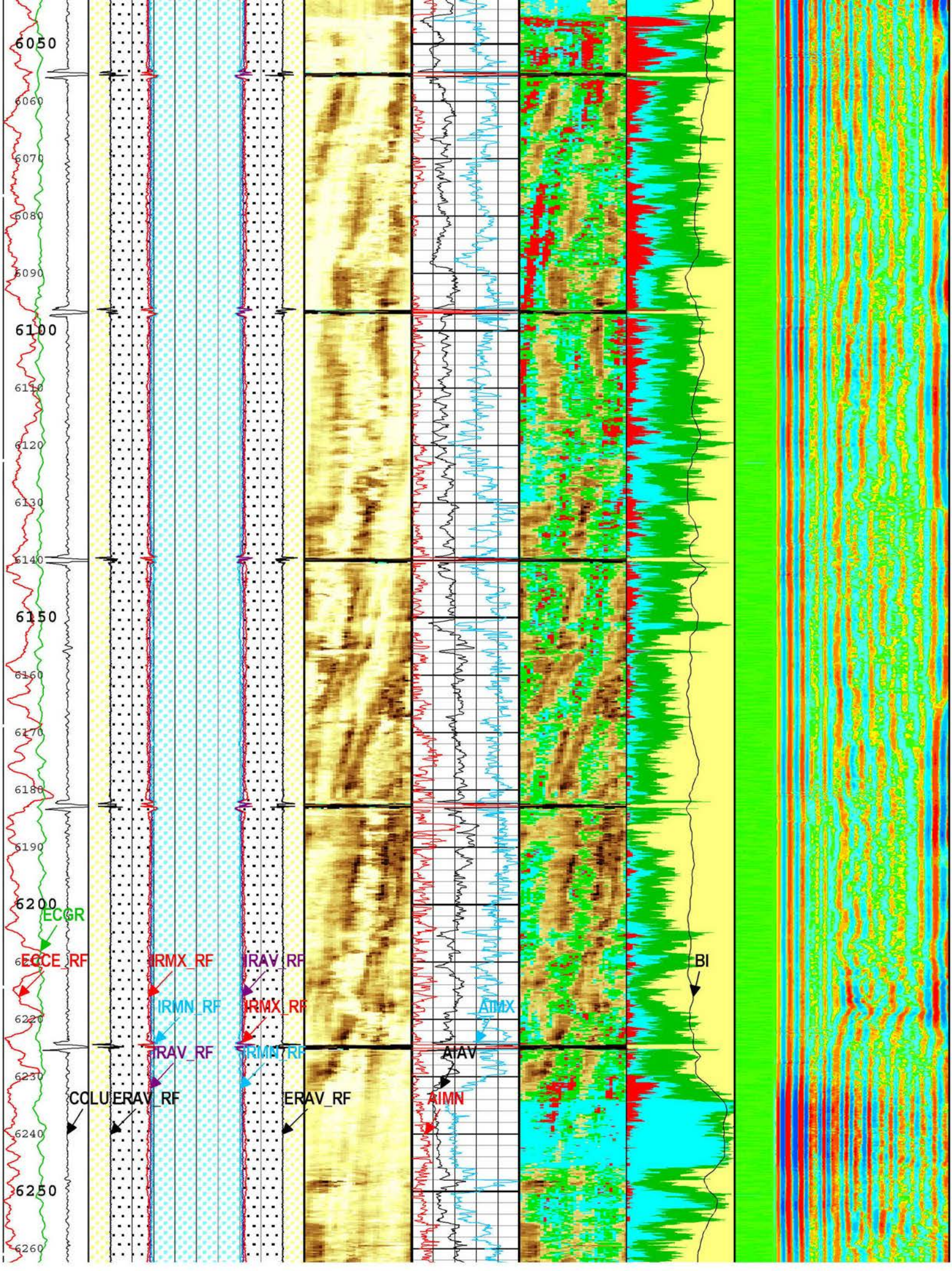
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IRAV_RF
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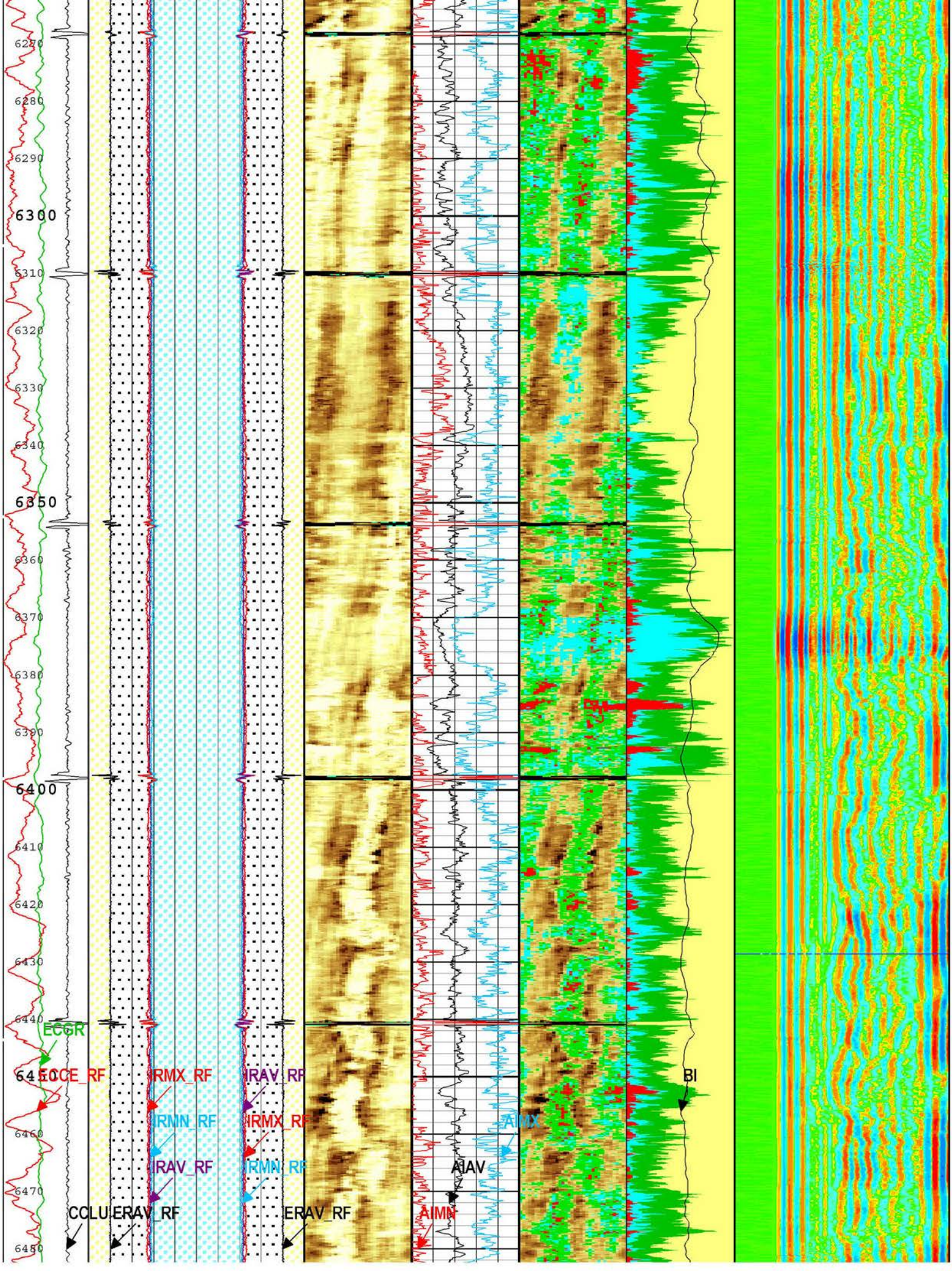
BI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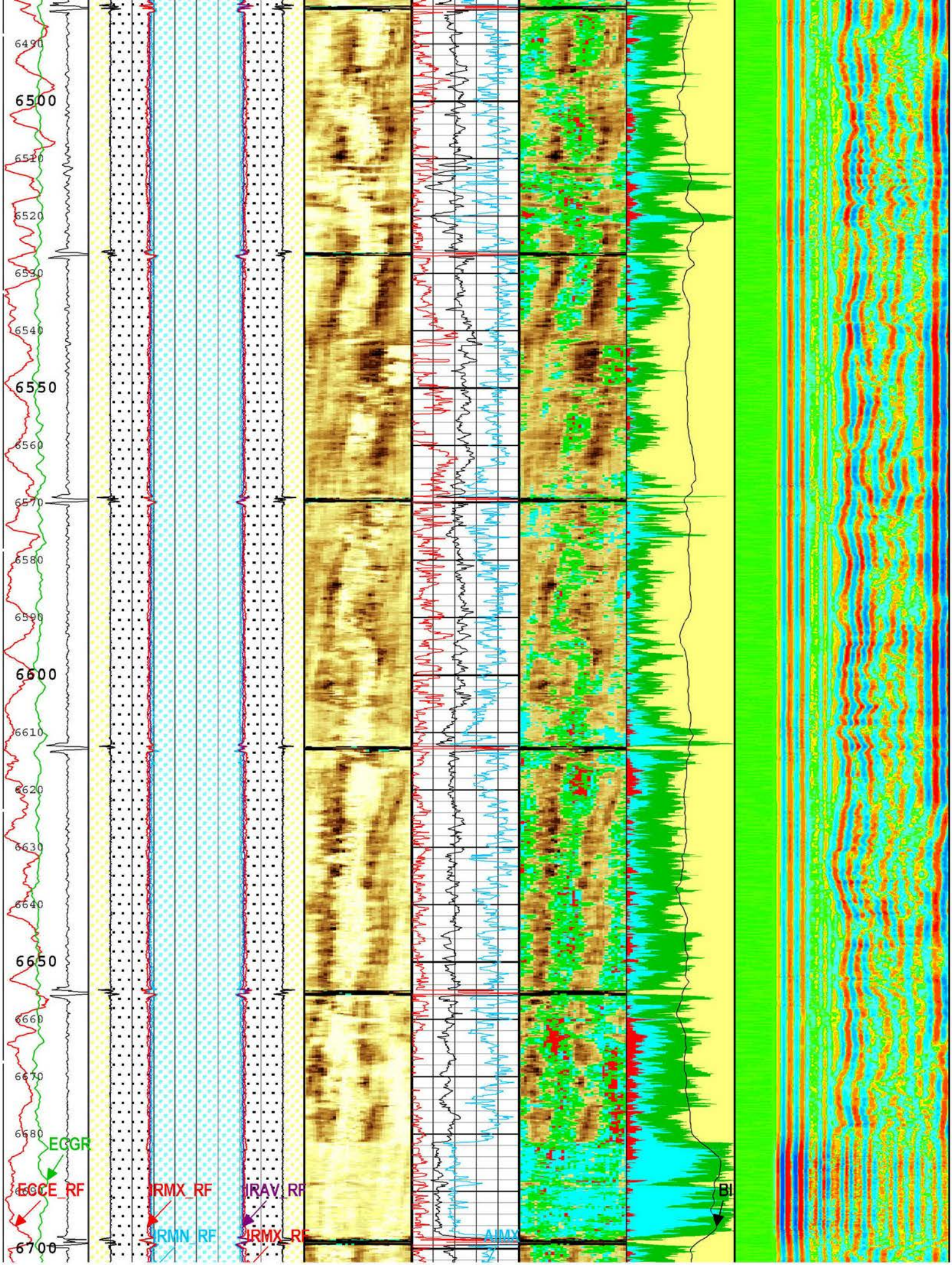
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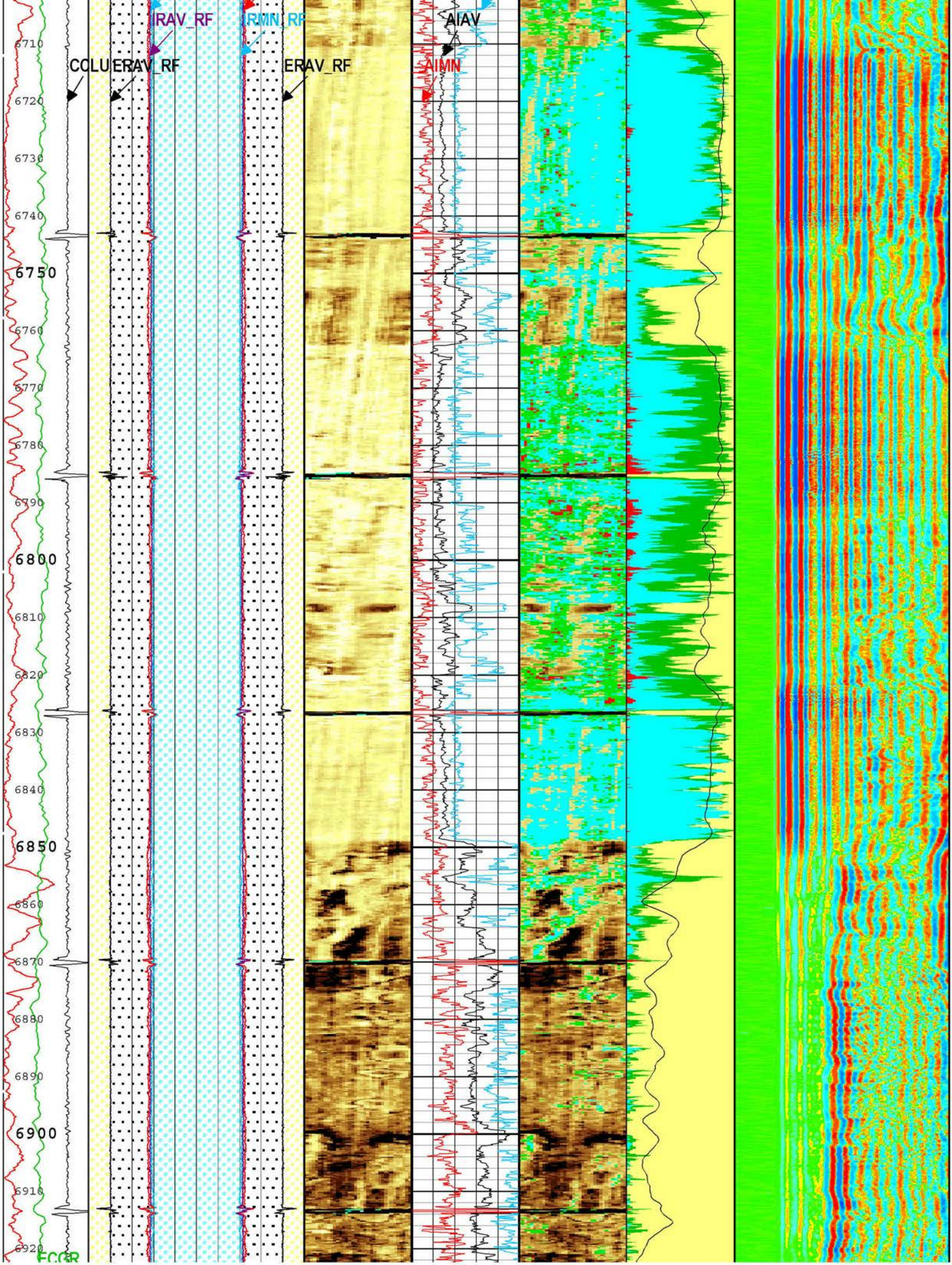
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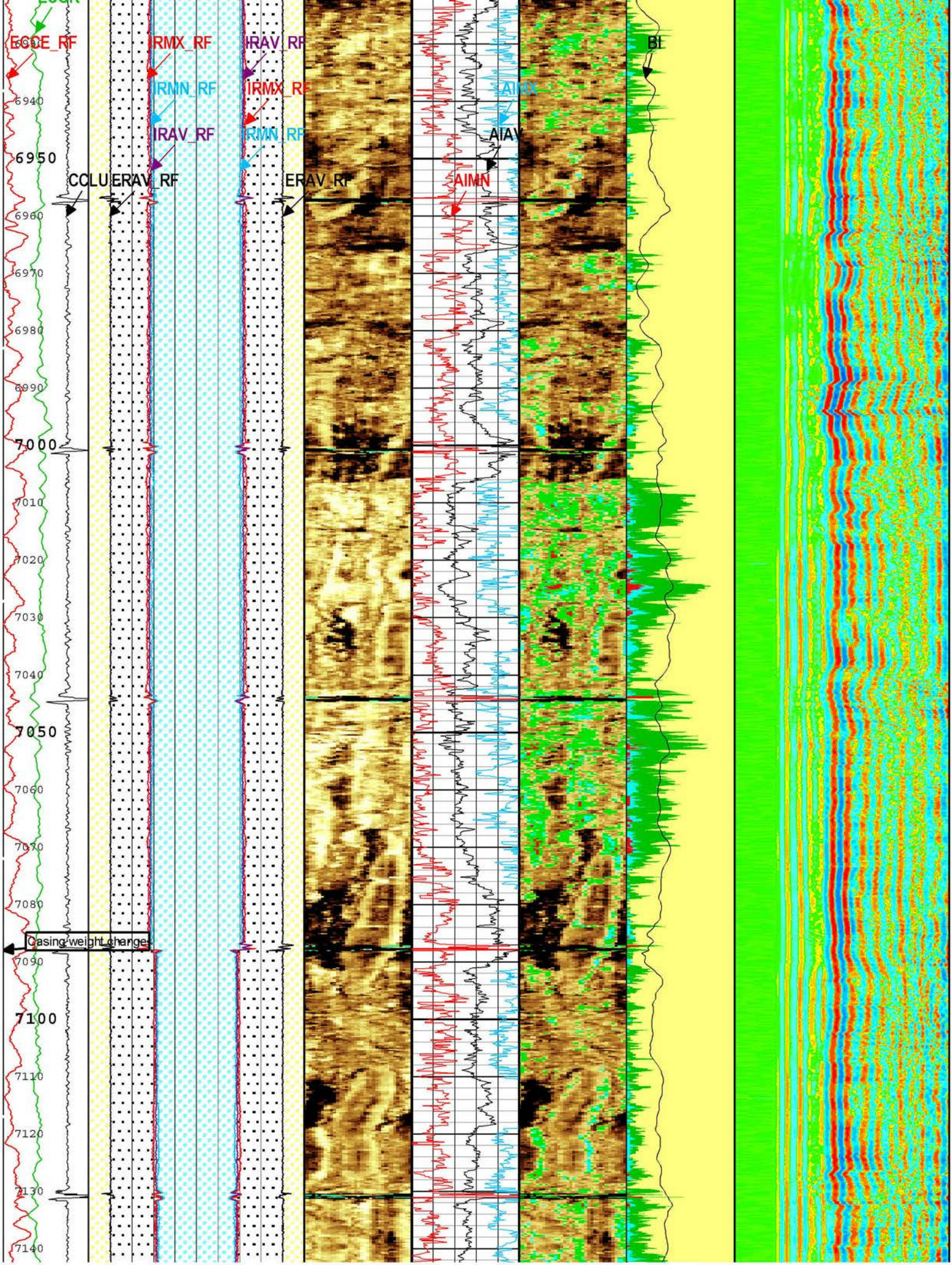
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AIMX
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CCLU
ERAV_RF
ERAV_RF
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6970
6980
6990
7000
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Casing weight change
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7120
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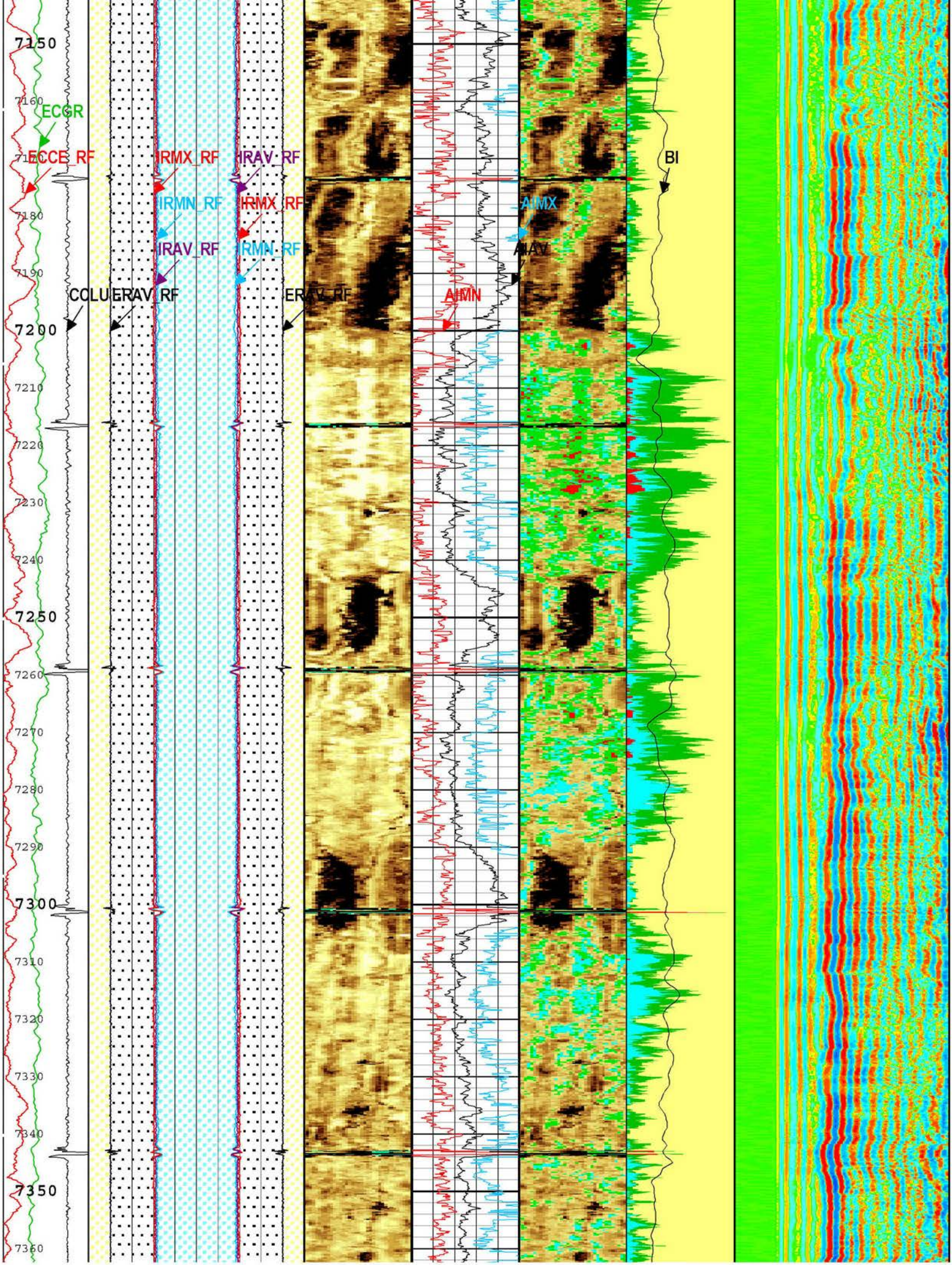
7140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ERAV_RF
AIMX
AIAV
AIMN
BI
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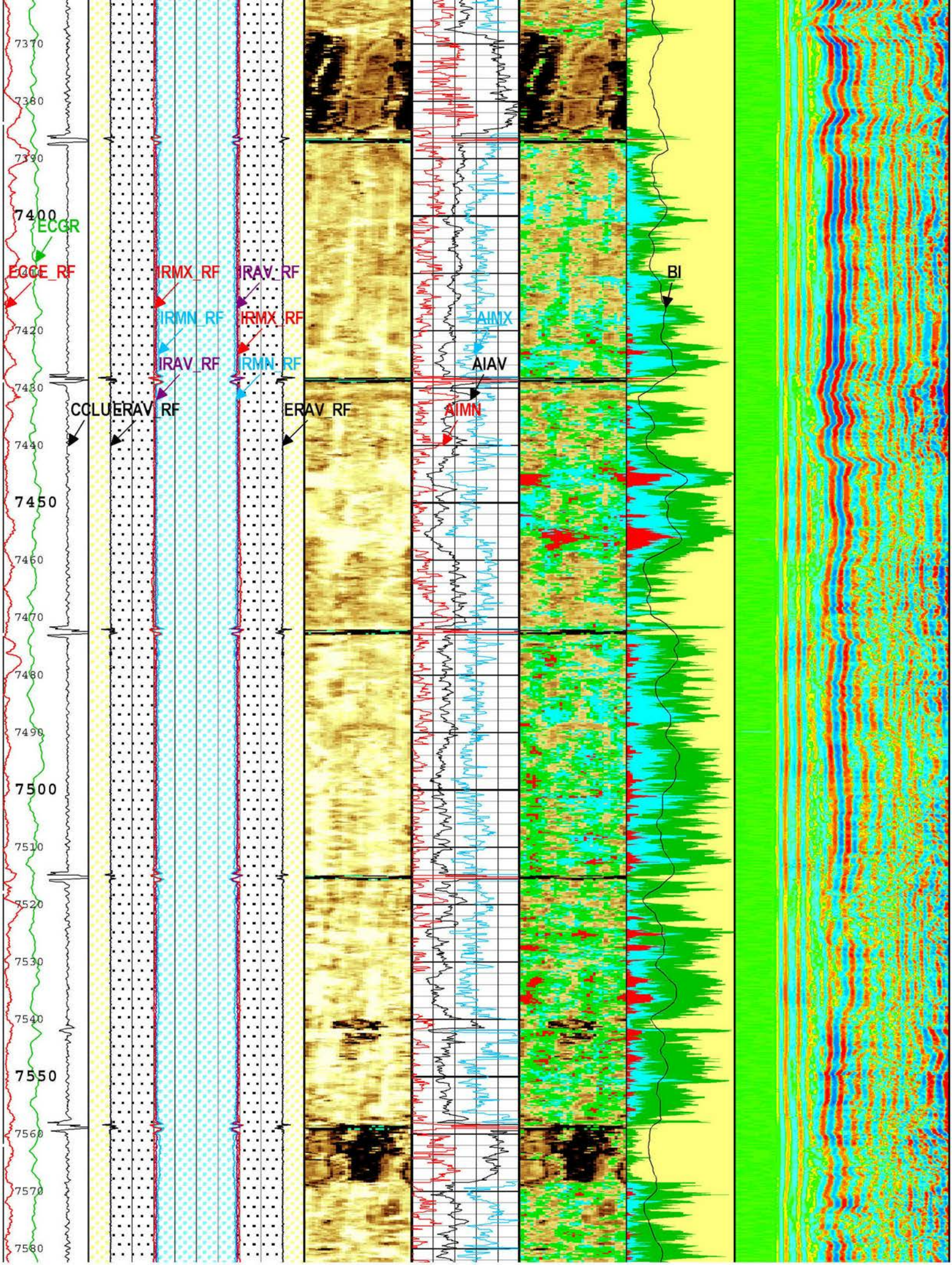
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AIMN
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CCLU
ERAV_RF
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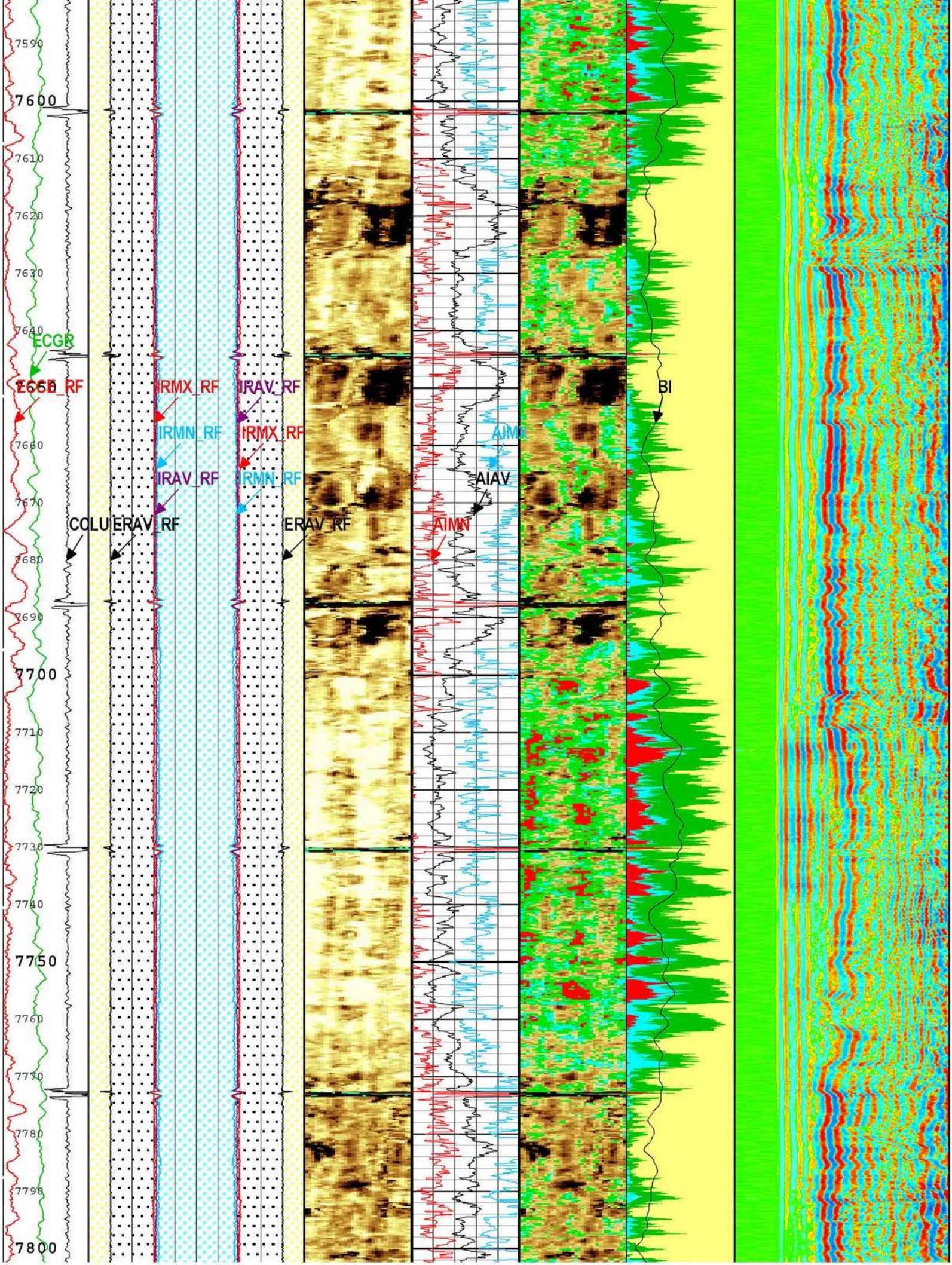
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IRMX_RF
IRAV_RF
IRMN_RF
IRMX_RF
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IRMN_RF
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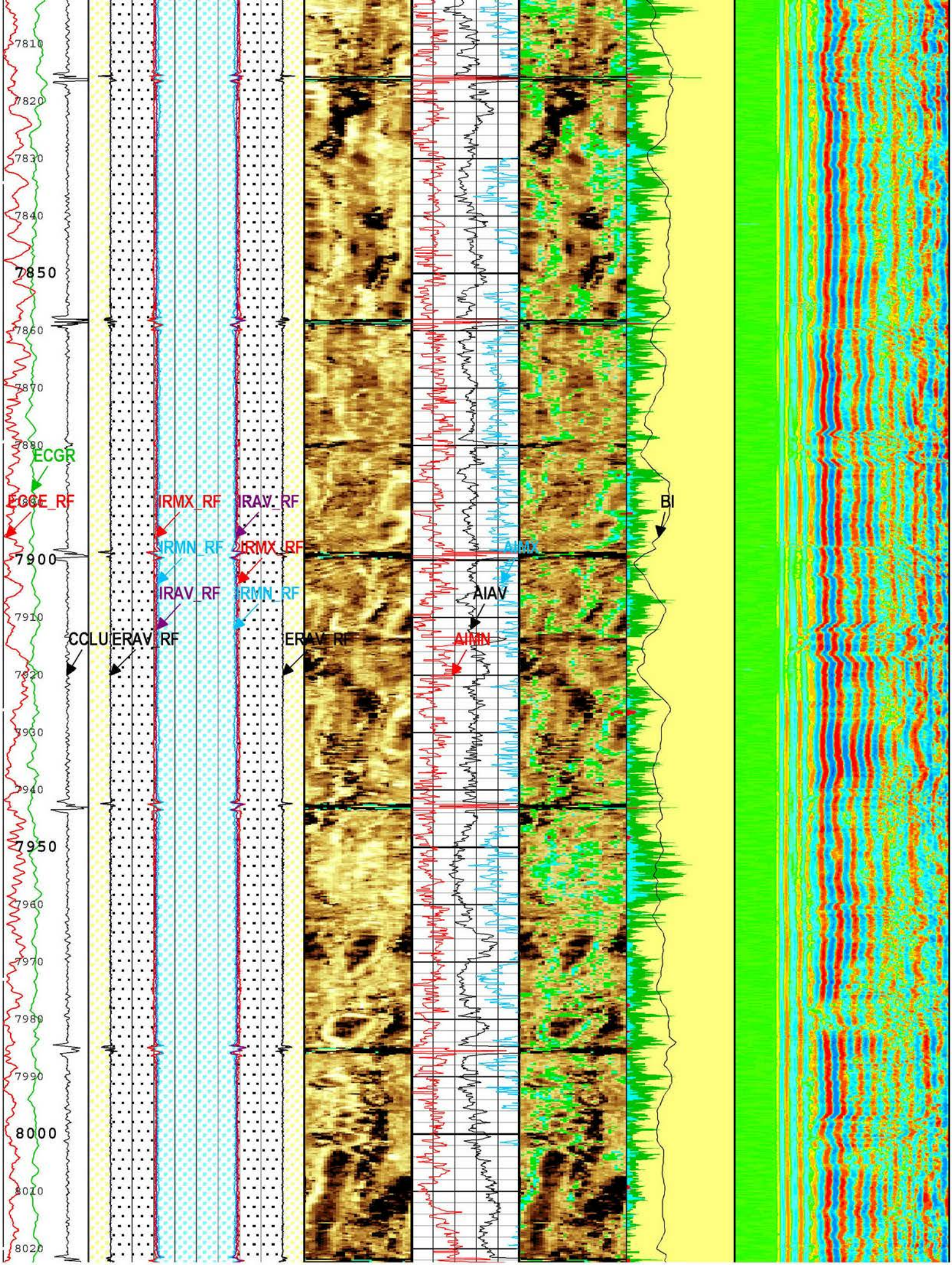
ERAV_RF
ERAV_RF
AIMX
AIAV
AIMN
BI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IRAV_RF
IRMN_RF
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CCLU
ERAV_RF
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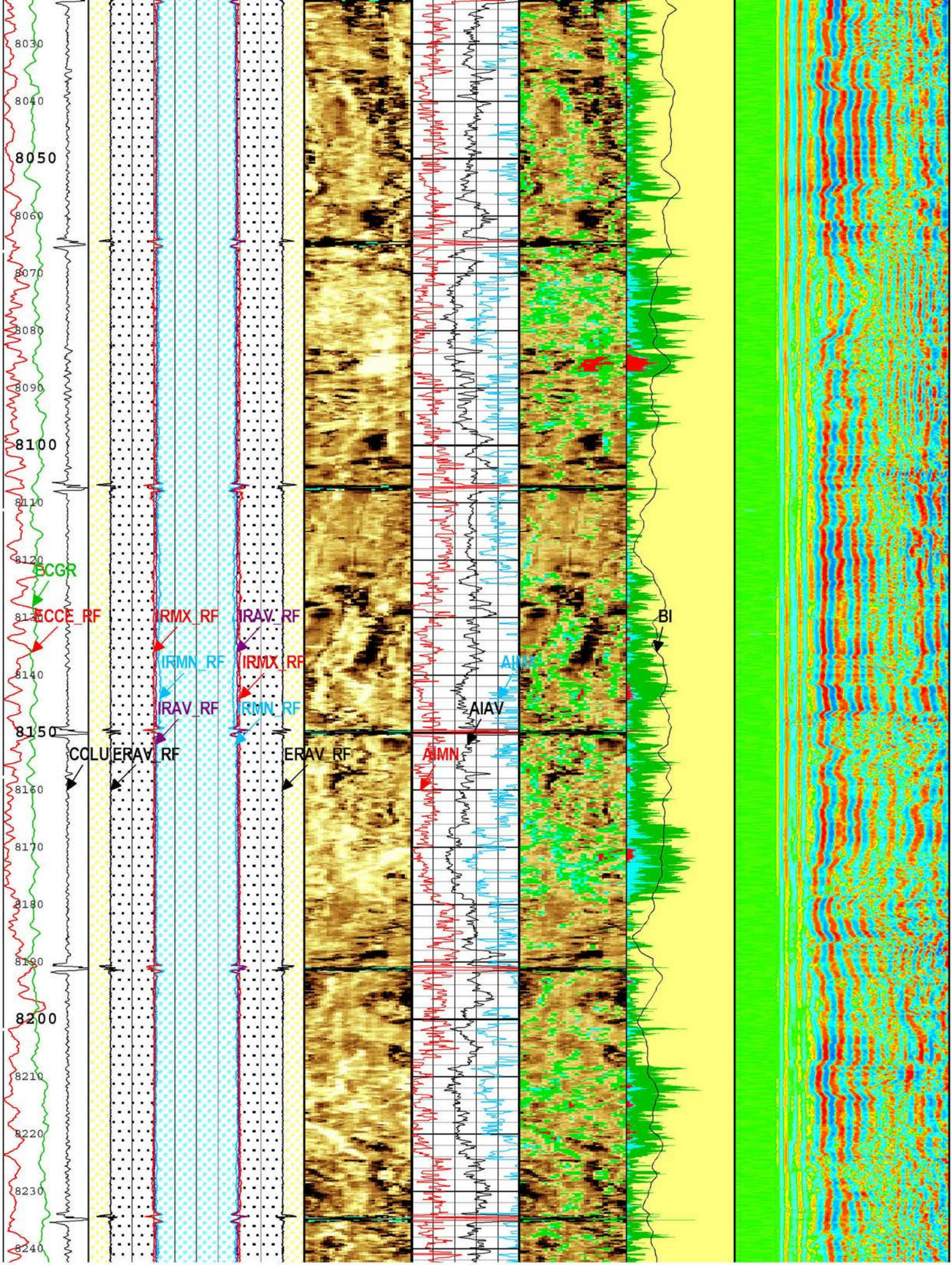
AIMN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IRMX_RF
IRAV_RF
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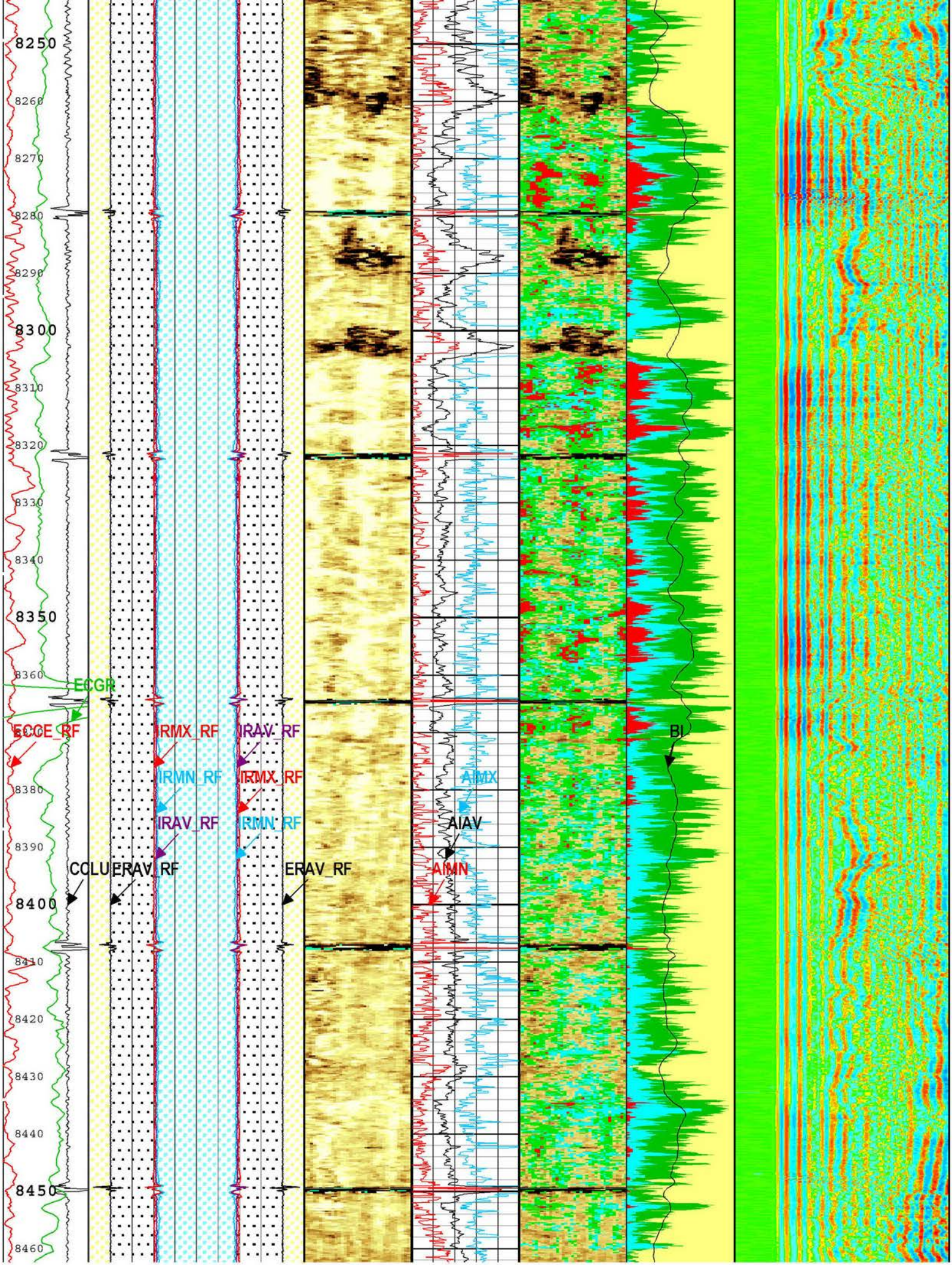
AIAV
AIMN
BI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ERAV_RF
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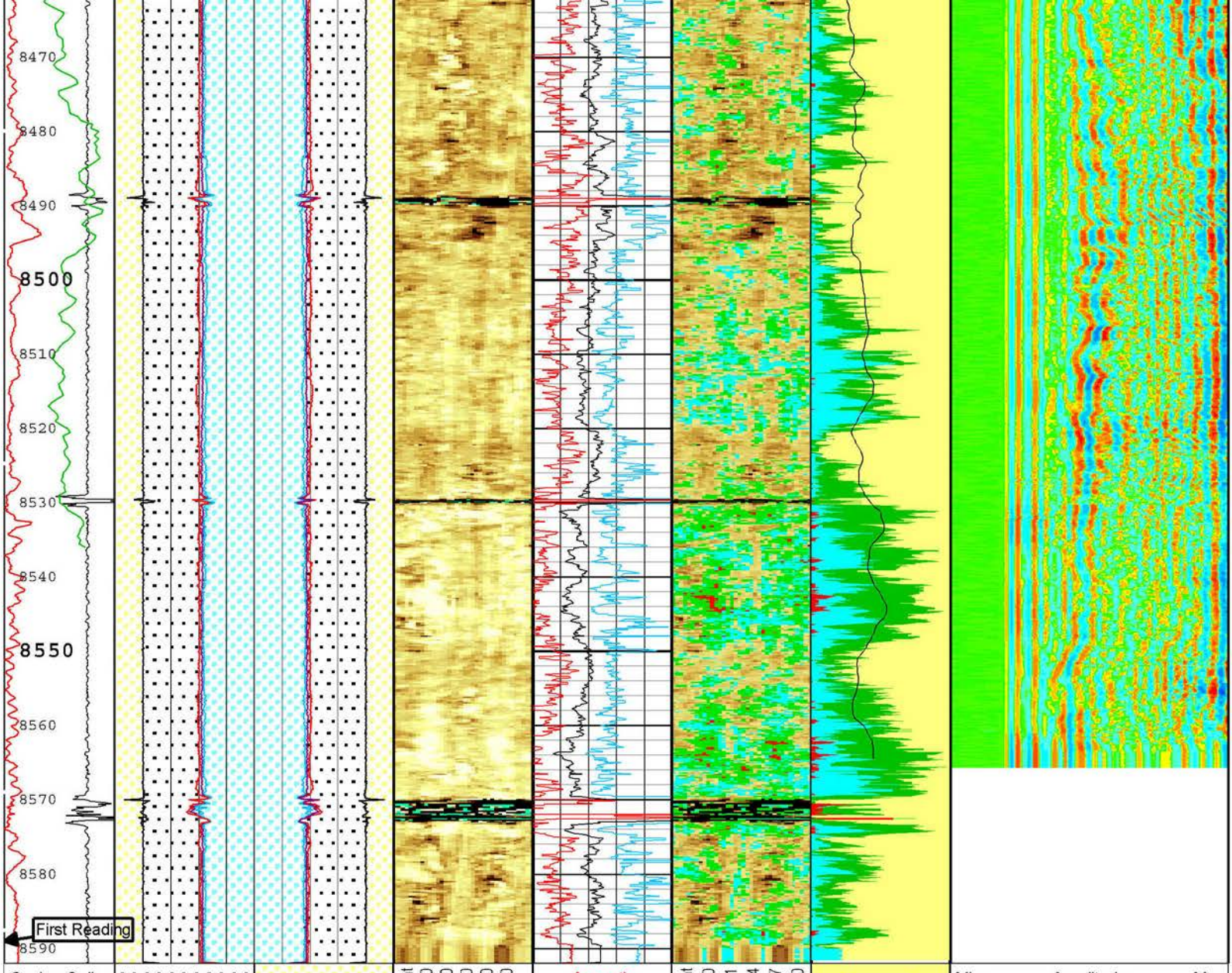
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First Reading
Casing Collar Locator Ultrasonic (CCLU) USIT-E[1]
-30 in 10
Amplitude of Eccentering for Unflagged Waves (ECCE_RF) USIT-E[1]
0 in 0.5
Gamma Ray (ECGR) HGNS[1]
0 gAPI 200
ERAV_IRAV
IRAV_LHF1
LHF1_ERAV
Median of Unflagged External Radii (ERAV_RF) USIT-E[1]
3.7 in 2.7
Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E[1]
3.7 in 2.7
Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E[1]
ERAV_RHF1
IRAV_ERAV
RHF1_IRAV
Median of Unflagged External Radii (ERAV_RF) USIT-E[1]
2.7 in 3.7
Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E[1]
2.7 in 3.7
Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E[1]
Absent 1.000 2.500 4.000 5.500 7.000
Custom Normalization
USIT - Acoustic Impedance (AIBK) USIT-E[1] (Mrayl)
Orientation: Top of Hole
U L B R U
Acoustic Impedance Minimum (AIMN) USIT-E[1]
-1 Mrayl 9
Acoustic Impedance Average (AIAV) USIT-E[1]
-1 Mrayl 9
Acoustic Impedance Maximum (AIMX) USIT-E[1]
-1 Mrayl 9
Absent 0.300 3.581 5.054 6.527 8.000
Custom Normalization
USIT - Acoustic Impedance With Micro-debonding Image (AI_MDEBOND_IMG) USIT-E[1] (Mrayl)
Orientation: Top of Hole
U L B R U
Bonded
Gas
Liquid
Micro-debonding
Bond Index (BI) DSLT-H[1]
1 0
Min Amplitude Max
Sonic VDL Curve DSLT-H[1]
200 us 1200

USIT-E[1]

3.7 in 2.7

2.7 in 3.7

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

3.7 in 2.7

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

2.7 in 3.7

TIME_1900 - Time Marked every 60.00 (s)

Description: USI VDL Cement Format: Log (LBV1_USI-VDL (DSLT) Cement 7inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth
Creation Date: 07-Sep-2018 22:55:36

Channel Processing Parameters

One: Parameters

Parameter	Description	Tool	Value	Unit
AMSG	Auxiliary Minimum Sliding Gate	DSLT-H	140	us
ISSBAR	Barite Mud Presence Flag	Borehole	No	
BERJ	Bad Echo Rejection	USIT-E	On	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BILI	Bond Index Level for Zone Isolation	DSLT-H	0.8	
BS	Bit Size	WLSESSION	Depth Zoned	in
CASING_PRATIO	Casing Poisson Ratio	USIT-E	Standard Poisson Ratio	
CBLG	CBL Gate Width	DSLT-H	45	us
CBLO	Casing Bottom (Logger)	WLSESSION	8625	ft
CBRA	CBL LQC Reference Amplitude in Free Pipe	DSLT-H	Depth Zoned	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	Depth Zoned	in
DETE	Delta-T Detection	DSLT-H	E1	
DFD	Drilling Fluid Density	Borehole	8.5	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	206	us/ft
FCF	CBL Fluid Compensation Factor	DSLT-H	1	
FDII	FPM Data Interpolation Interval	USIT-E	0	ft
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS(RT)	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	BS(RT)	
GOBO_CURR	Good Bond in Arbitrary Cement	DSLT-H	Depth Zoned	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	RB	
MAHTR	Manual High Threshold Reference for first arrival detection	DSLT-H	120	
MATT_CURR	Maximum Attenuation in Arbitrary Cement	DSLT-H	Depth Zoned	dB/ft
MCI	Minimum Cemented Interval for Isolation	DSLT-H	Depth Zoned	ft
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-E	Depth Zoned	us
MNHTR	Minimum High Threshold Reference for first arrival detection	DSLT-H	100	
MSA	Minimum Sonic Amplitude	DSLT-H	Depth Zoned	mV
MSA_CURR	Minimum Sonic Amplitude in Arbitrary Cement	DSLT-H	Depth Zoned	mV
MUD_N_THE	Theoretical Mud Normalization Factor	USIT-E	1	
NMSG	Near Minimum Sliding Gate	DSLT-H	280	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	1.181	in
RCTH	Reference Calibrator Thickness	USIT-E	0.295	in
SDNV	Number of Vertical Samples used for Micro-debonding Computation	USIT-E	5	
SDTHOR	Acoustic Impedance STD Horizontal Threshold for Micro-debonding	USIT-E	0.5	Mrayl
SDTVER	Acoustic Impedance STD Vertical Threshold for Micro-debonding	USIT-E	0.3	Mrayl
SFAF	Sonic Formation Attenuation Factor	DSLT-H	3.25	dB/ft
SGAD	Sliding Gate Status	DSLT-H	Off	
SGCL	Sliding Gate Closing Delta-T	DSLT-H	130	us/ft
SGCW	Sliding Gate Closing Width	DSLT-H	25	us
SGDT	Sliding Gate Delta-T	DSLT-H	57	us/ft
SGW	Sliding Gate Width	DSLT-H	110	us
SLEV	Signal Level for AGC	DSLT-H	5000	mV
SOCN	Standoff Distance	HGNS-H	0.125	in
SOCO	Standoff Correction Option	HGNS-H	No	
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
USI_FVEL_SEL	USI Fluid Velocity Selection	USIT-E	Automatic	
USI_RPLUS	Ultrasonic R+ Processing	USIT-E	No	
USI_ZMUD_SEL	USI Mud Impedance Selection	USIT-E	Theoretical	
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

OneDepth Zoned Parameters

Parameter	Value	Start (ft)	Stop (ft)
BS	17.25	5	598
BS	12.25	598	1147
BS	11	1147	8592
CBRA	62	5	7088
CBRA	63	7088	8592
THNO	0.317	5	5456
THNO	0.362	5456	7088
THNO	0.408	7088	8592
GOBO_CURR	1.87	5	5456
GOBO_CURR	2.87	5456	7088
GOBO_CURR	4.08	7088	8592
MATT_CURR	13.39	5	5456

MATT_CURR	13.59	5	5456
MATT_CURR	11.82	5456	7088
MATT_CURR	10.59	7088	8592
MCI	21.68	5	598
MCI	10	598	8592
MEAS_WLEN	19.62	5	5456
MEAS_WLEN	22.5	5456	7088
MEAS_WLEN	25.48	7088	8592
MSA	0.78	5	5456
MSA	1.33	5456	7088
MSA	2.06	7088	8592
MSA_CURR	0.78	5	5456
MSA_CURR	1.33	5456	7088
MSA_CURR	2.06	7088	8592

All depth are actual.

Tool Control Parameters

One: Parameters

Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	Time Zoned	dB
DDEL	Digitizing Delay	DSLT-H	0	us
U-USIT_DDT5	USIC Downhole Decimation for T5 only	USIT-E	0_NONE	
DOT(DOS)	Distance between Opposite Transducer Faces	USIT-E	2.874	in
MODE	DSLT Acquisition Mode	DSLT-H	CBL	
RATE	DSLT Firing Rate	DSLT-H	15 Hz	
DTFS	DSLT Telemetry Frame Size	DSLT-H	536	
DWCO	Digitizer Word Count	DSLT-H	250	
EMXV	EMEX Voltage	USIT-E	Time Zoned	V
HRES	Horizontal Resolution	USIT-E	10 deg	
ICE2_ACQ	Ultrasonic ICE2 Acquisition	USIT-E	No	
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	
UACLV_PERM	Ultrasonic ACLV Permanent	USIT-E	Yes	
ULOG	Logging Objective	USIT-E	MEASUREMENT	
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	
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	

OneTime Zoned Parameters

Pass Log[6]:Up

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
AGMX	18	07-Sep-2018 09:51:23	07-Sep-2018 13:15:19	8592.38	1601.14
AGMX	25	[illegible]	[illegible]	1601.14	[illegible]

AGMX	25	07-Sep-2018 13:15:19	07-Sep-2018 13:52:30	1601.14	160.38
EMXV	45	07-Sep-2018 09:51:23	07-Sep-2018 13:15:38	8592.38	1587.43
EMXV	55	07-Sep-2018 13:15:38	07-Sep-2018 13:52:30	1587.43	160.38
WINB	32.8	07-Sep-2018 09:51:29	07-Sep-2018 13:52:30	8592.38	160.38
WINE	80.19	07-Sep-2018 09:51:23	07-Sep-2018 12:58:06	8592.38	2390.05
WINE	83.19	07-Sep-2018 12:58:06	07-Sep-2018 13:52:30	2390.05	160.38

Pass Log[9]:Up

AGMX	25	07-Sep-2018 14:53:13	07-Sep-2018 15:00:05	160.38	11.51
EMXV	55	07-Sep-2018 14:53:13	07-Sep-2018 15:00:05	160.38	11.51
WINB	36.82	07-Sep-2018 14:53:13	07-Sep-2018 15:00:05	160.38	11.51
WINE	76.82	07-Sep-2018 14:53:13	07-Sep-2018 15:00:05	160.38	11.51

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
One	Log[6]:Up	Up	93.36 ft	8592.71 ft	07-Sep-2018 9:51:23 AM	07-Sep-2018 1:52:30 PM	ON	8.00 ft	No
One	Log[9]:Up	Up	11.43 ft	318.32 ft	07-Sep-2018 2:46:40 PM	07-Sep-2018 3:00:05 PM	ON	9.00 ft	No

All depths are referenced to toolstring zero

Log

Company:Southern California Gas Company Well:Standard Sesnon 9

Composite 1:S003

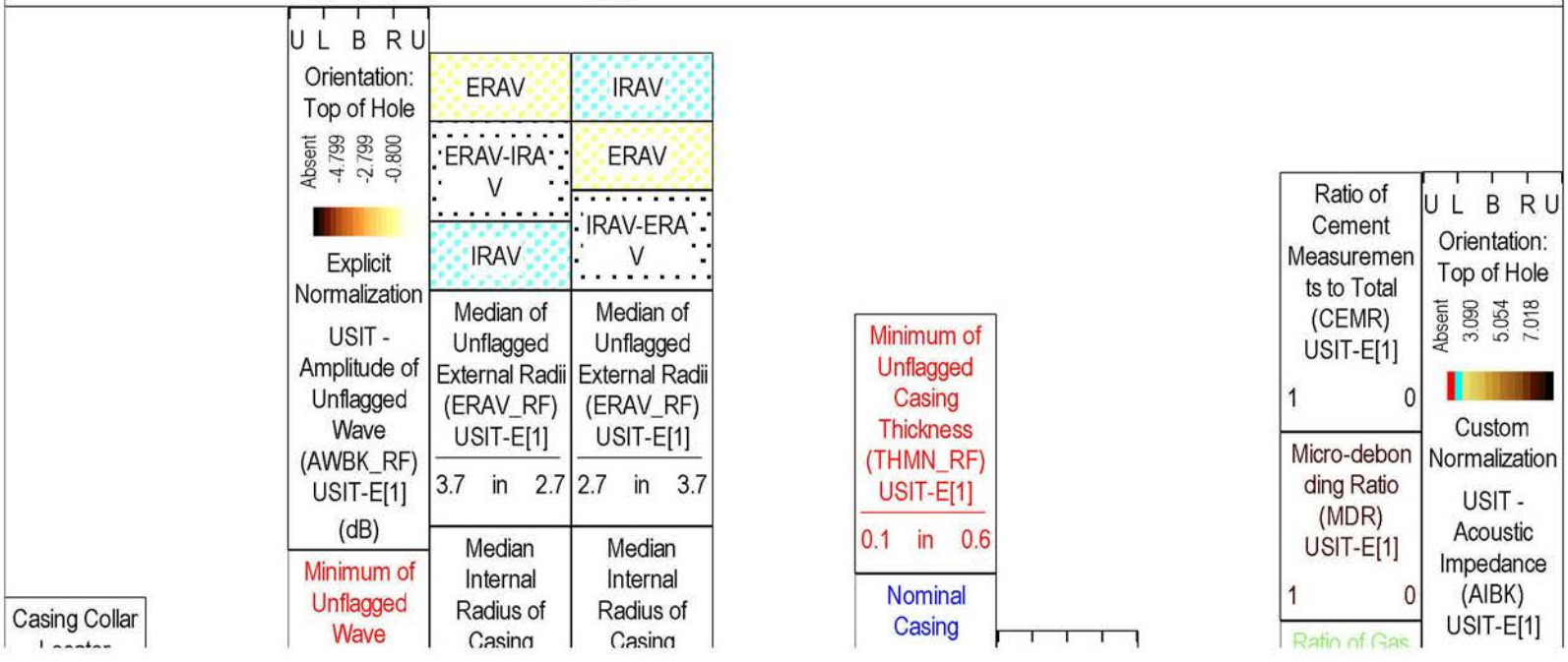
Description: USI Composite Format: Log (LBV1_USI Composite 7inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 07-Sep-2018 22:55:55

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] - :
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



Locator Ultrasonic (CCLU) USIT-E[1]
-30 in 10

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

U L B R U
Orientation: Top of Hole
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

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

Corrected for Eccentering (IRAV_RF) USIT-E[1]
3.7 in 2.7

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E[1]
3.7 in 2.7

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E[1]
3.7 in 2.7

Corrected for Eccentering (IRAV_RF) USIT-E[1]
2.7 in 3.7

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E[1]
2.7 in 3.7

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E[1]
2.7 in 3.7

U L B R U
Orientation: Top of Hole
Absent -0.051 -0.012 0.028 0.068
Explicit Normalization
USIT - Unflagged Internal Radii minus Median Internal Radius (IRBKM_RF) USIT-E[1] (in)

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

U L B R U
Orientation: Top of Hole
Absent -0.051 -0.012 0.028 0.068
Explicit Normalization
USIT - Unflagged Casing Thickness minus Median of Unflagged Casing Thickness (THBKM_RF) USIT-E[1] (in)

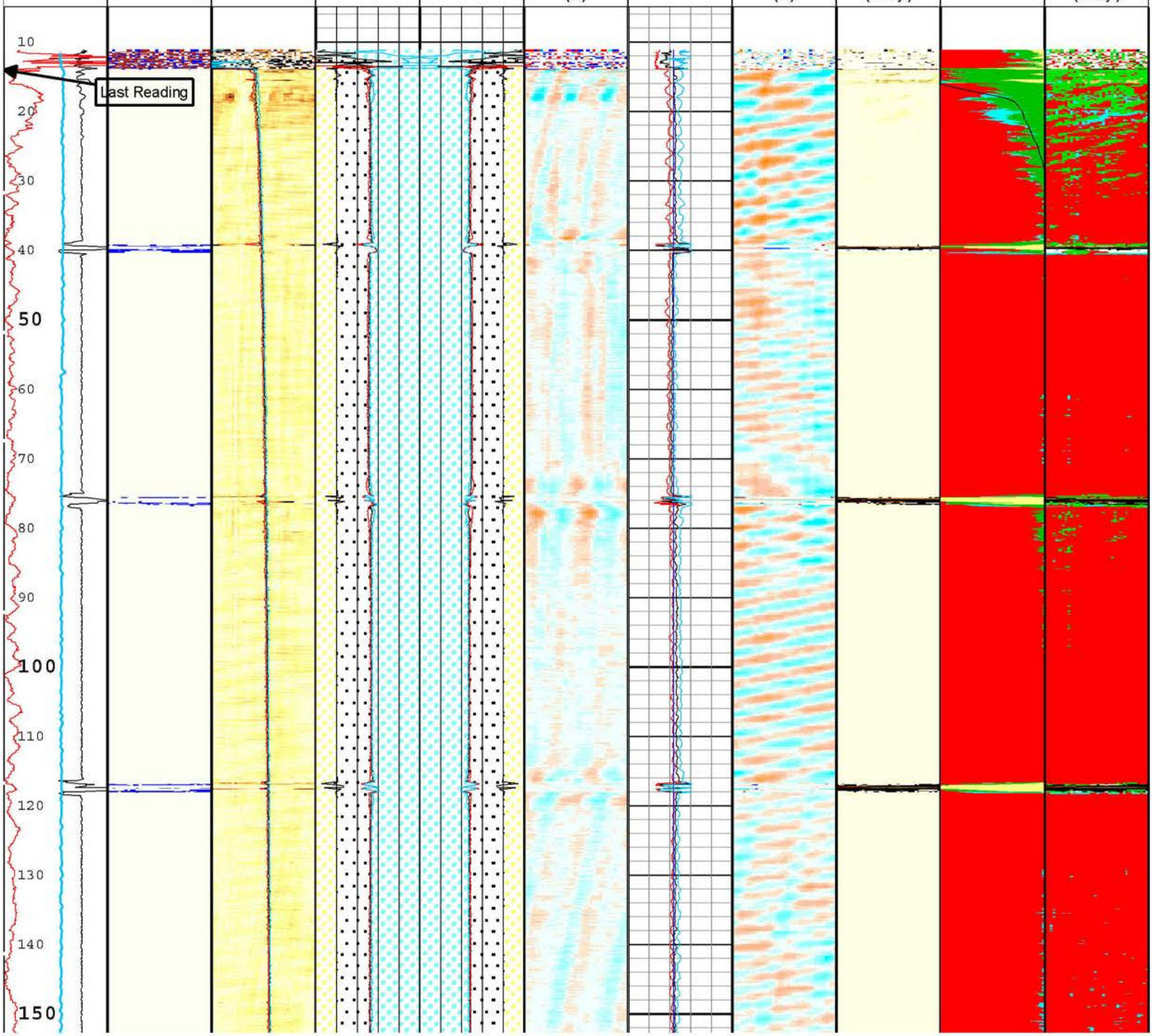
U L B R U
Orientation: Top of Hole
Absent 1.500 3.500 5.500 7.500
Custom Normalization
USIT - Acoustic Impedance (AIBK) USIT-E[1] (Mrayl)

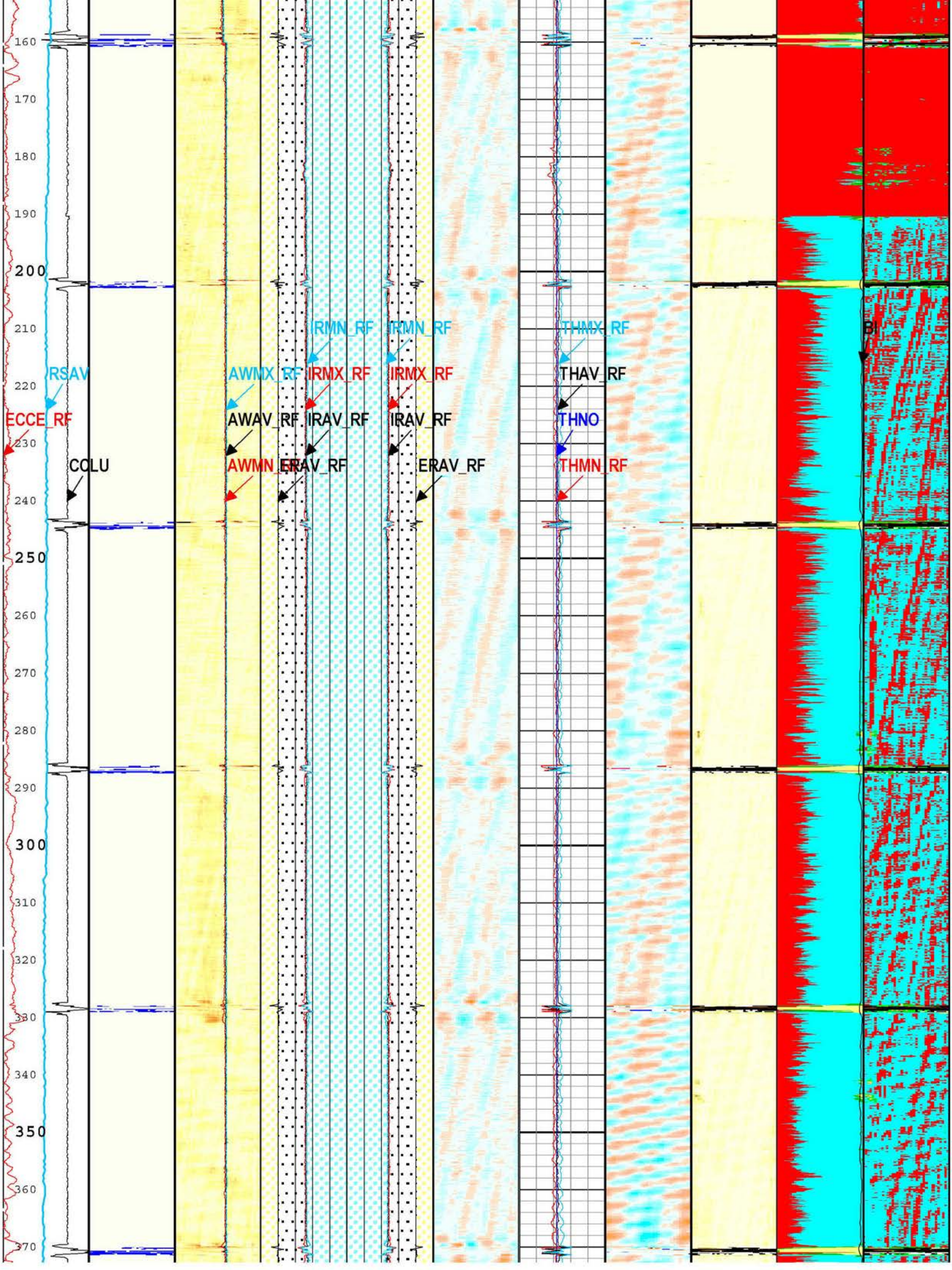
Rate of Gas Measurements to Total (GASR) USIT-E[1]
1 0

Bonded
Gas
Liquid
Micro-debonding

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

(Mrayl)
U L B R U
Orientation: Top of Hole
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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RSAV
ECCE_RF
COLU
AWMX_RF
AWAV_RF
AWMN_RF
IRMN_RF
IRMX_RF
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THNO
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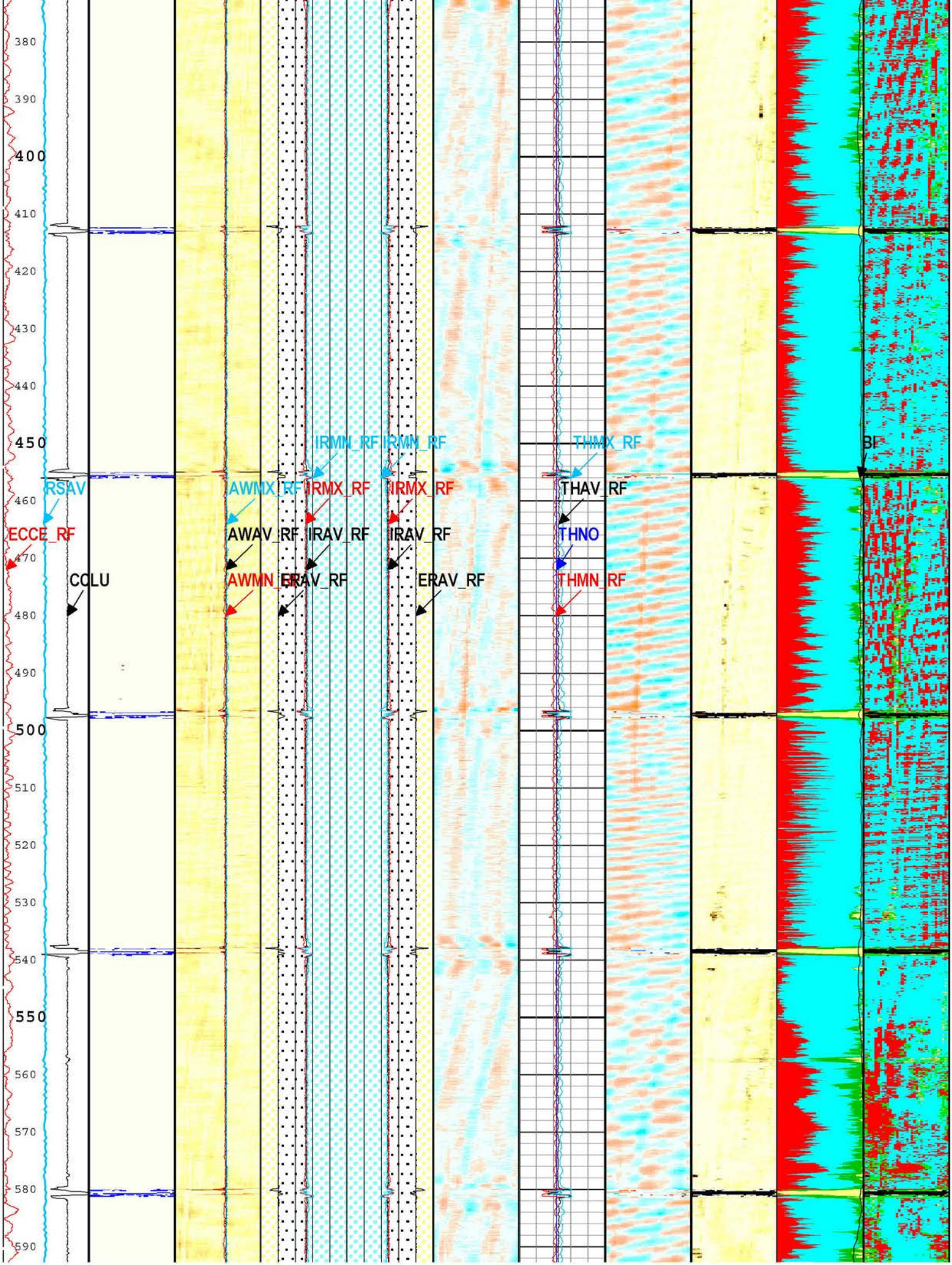
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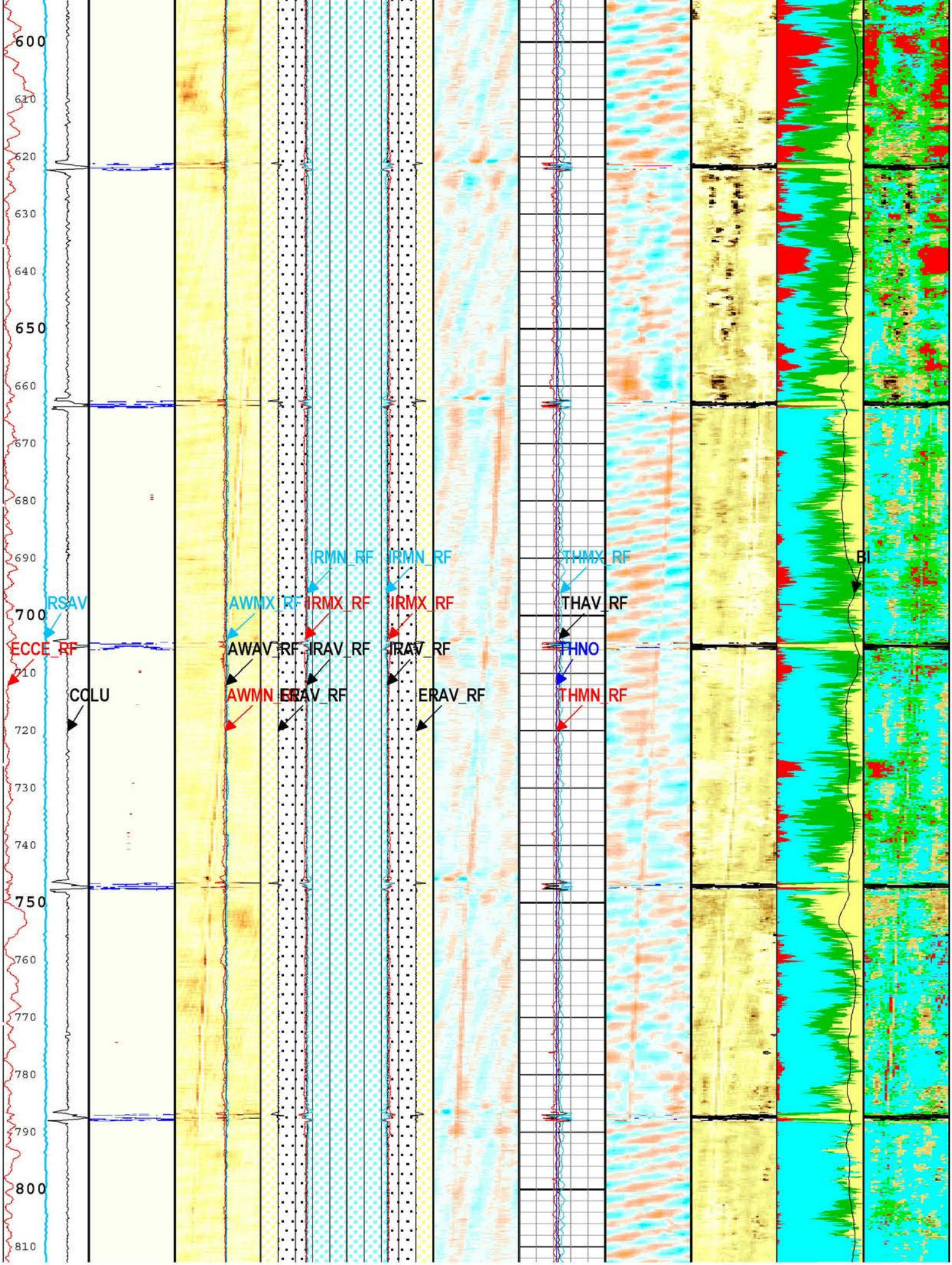
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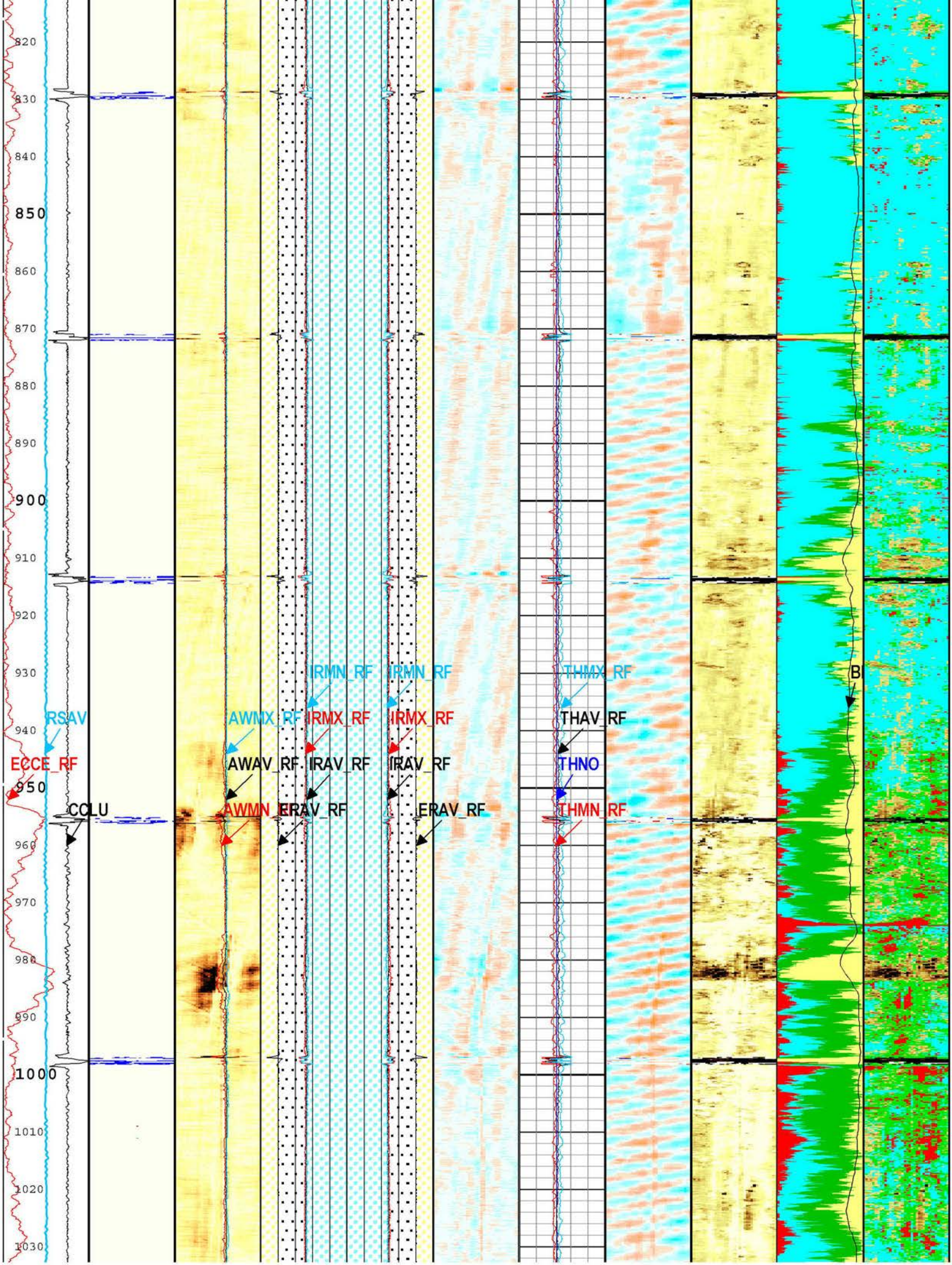
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1030
RSAV
ECCE_RF
CCLU
AWMX_RF
AWAV_RF
AWMN_RF
IRMN_RF
IRMX_RF
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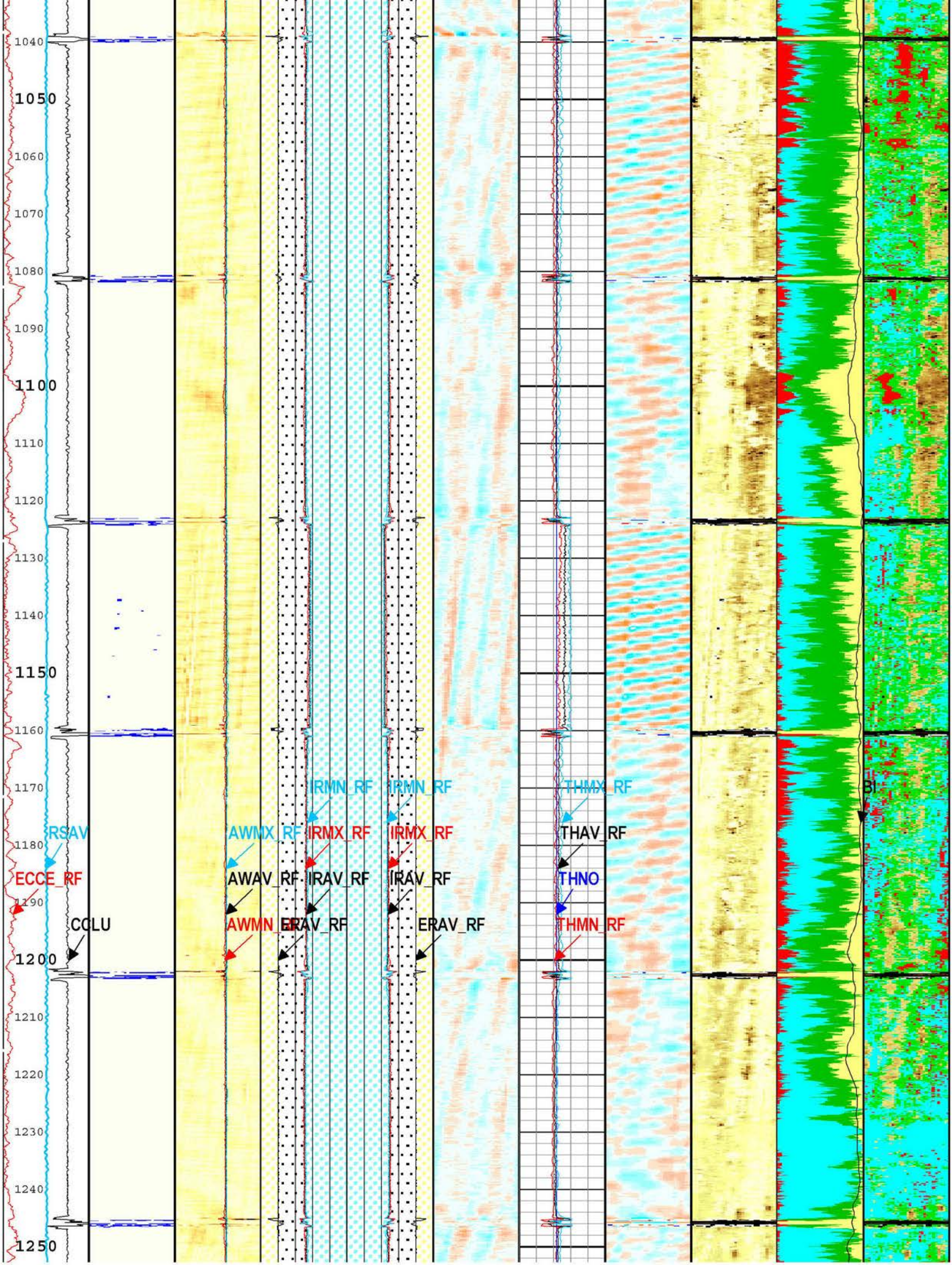
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1250
RSAV
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CCLU
AWMX_RF
AWAV_RF
AWMN_RF
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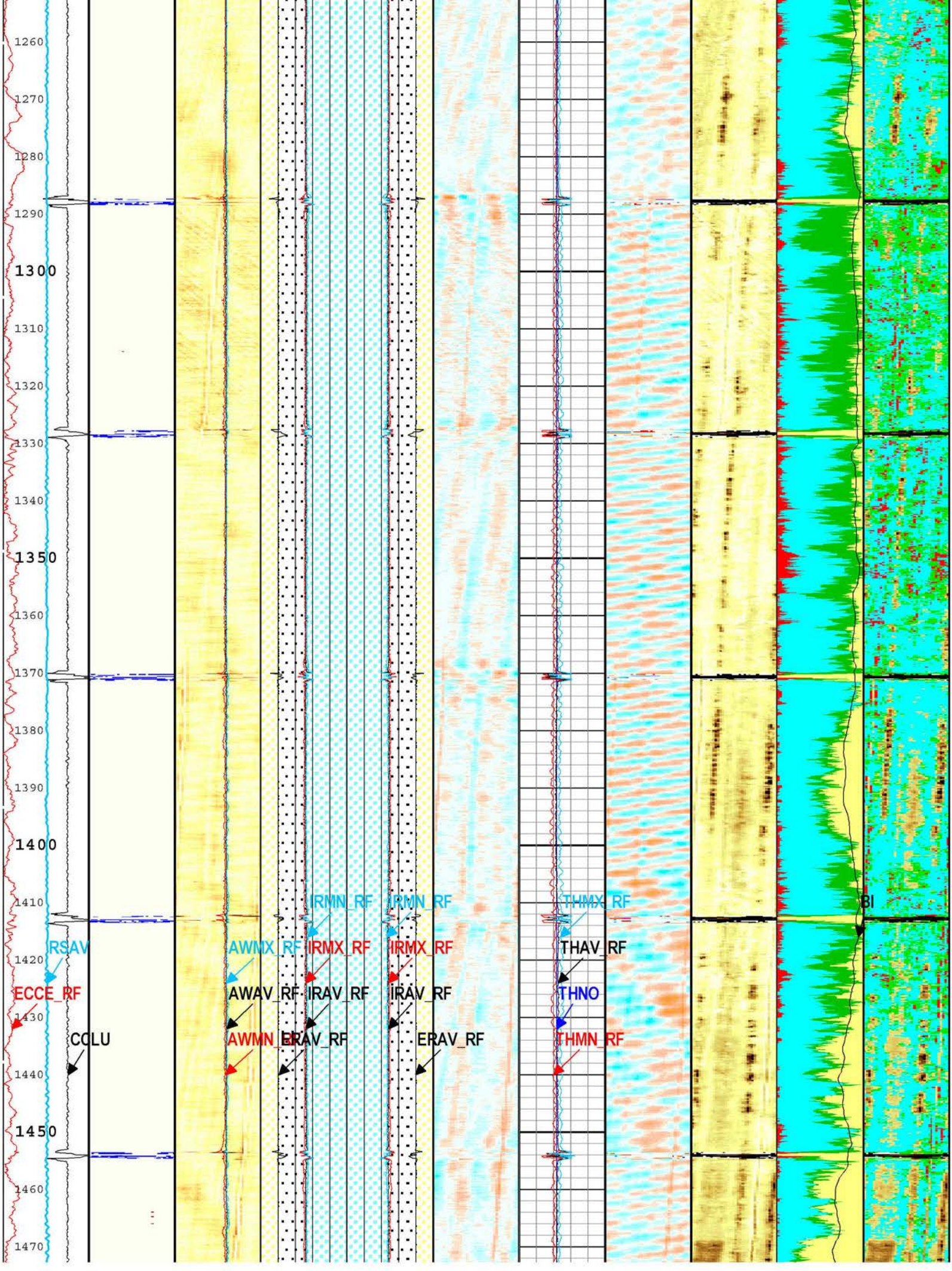
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CCLU
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AWAV_RF
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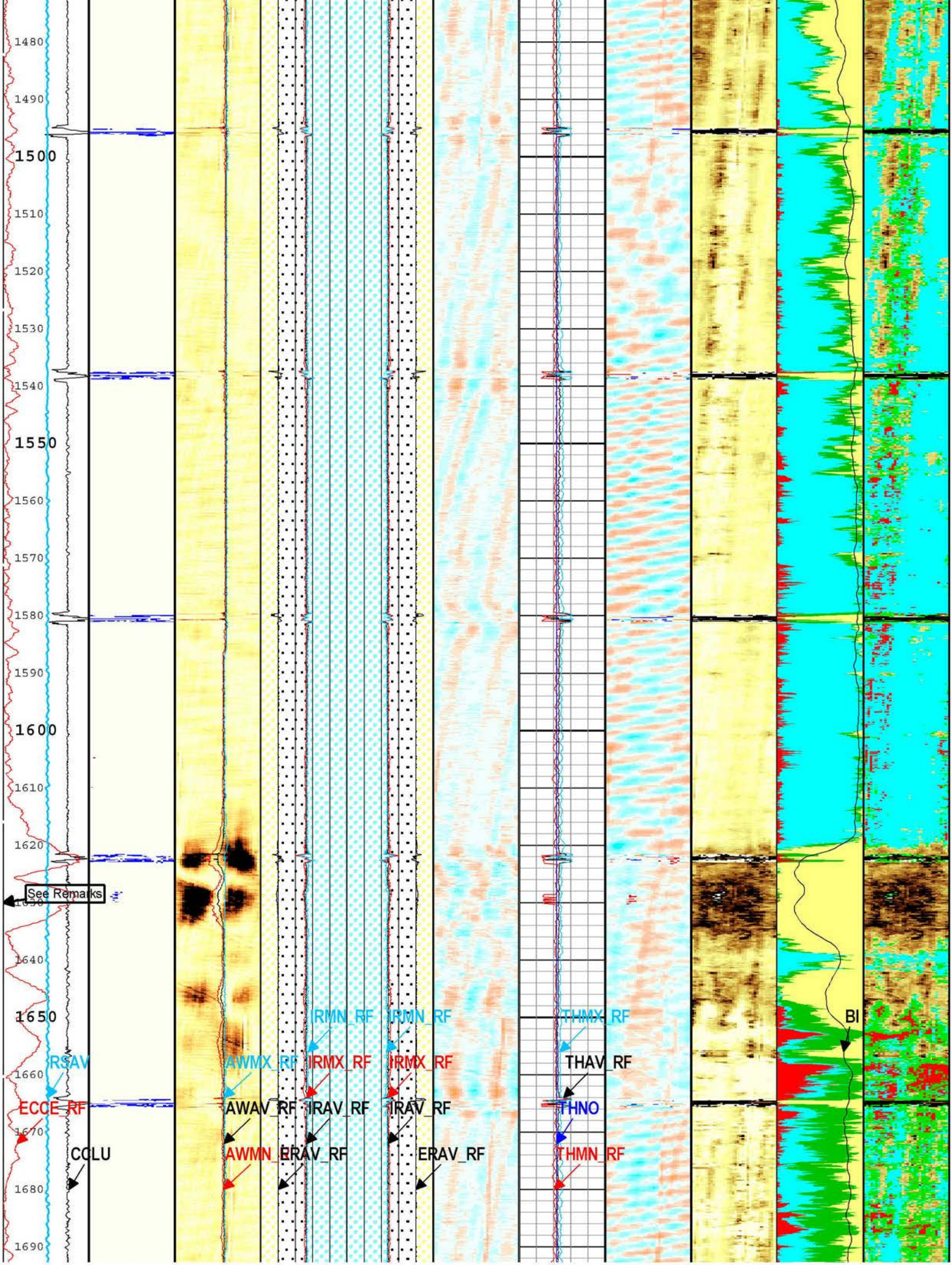
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1620
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CCLU
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AWAV_RF
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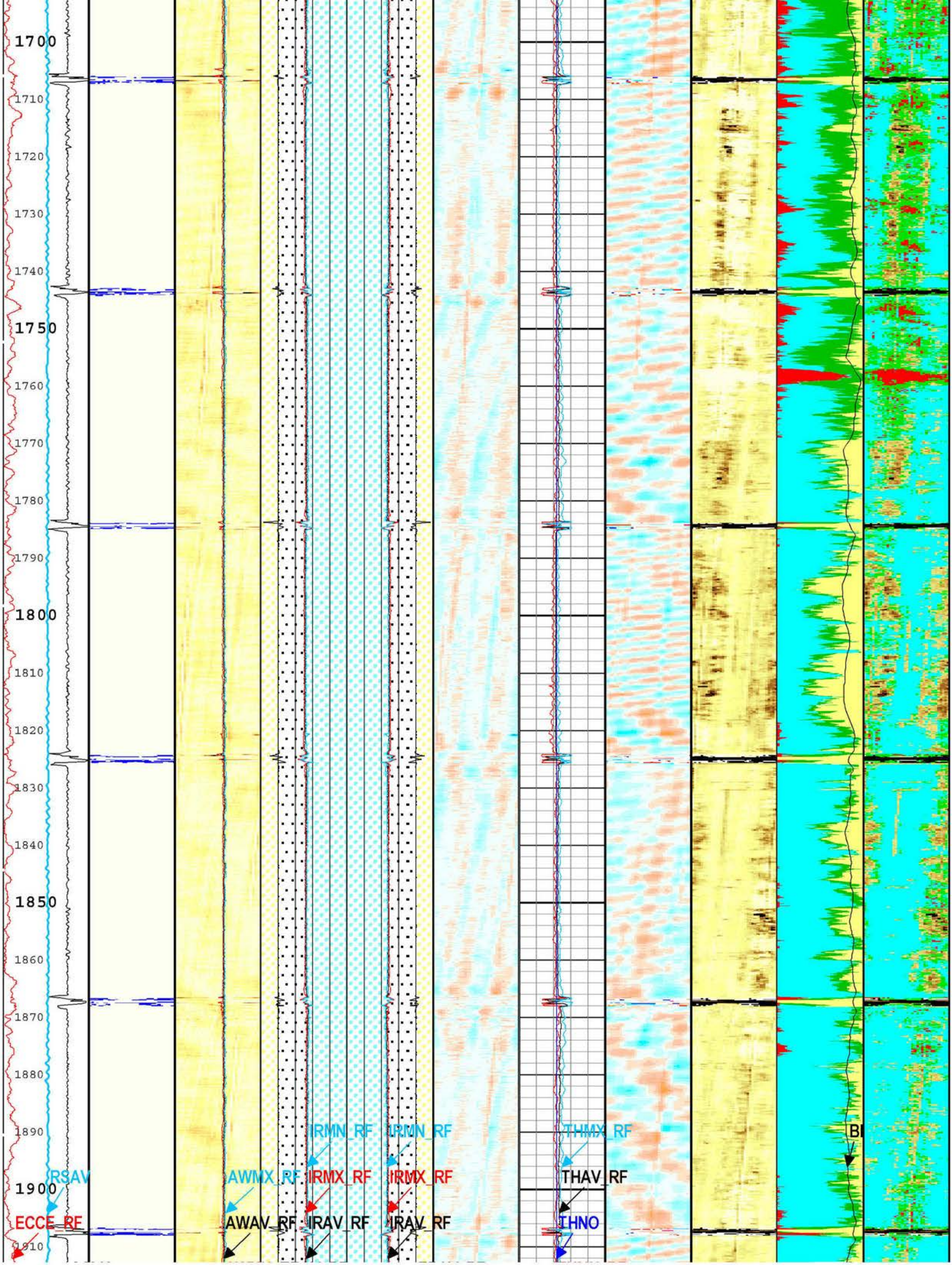
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1900
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RSAV
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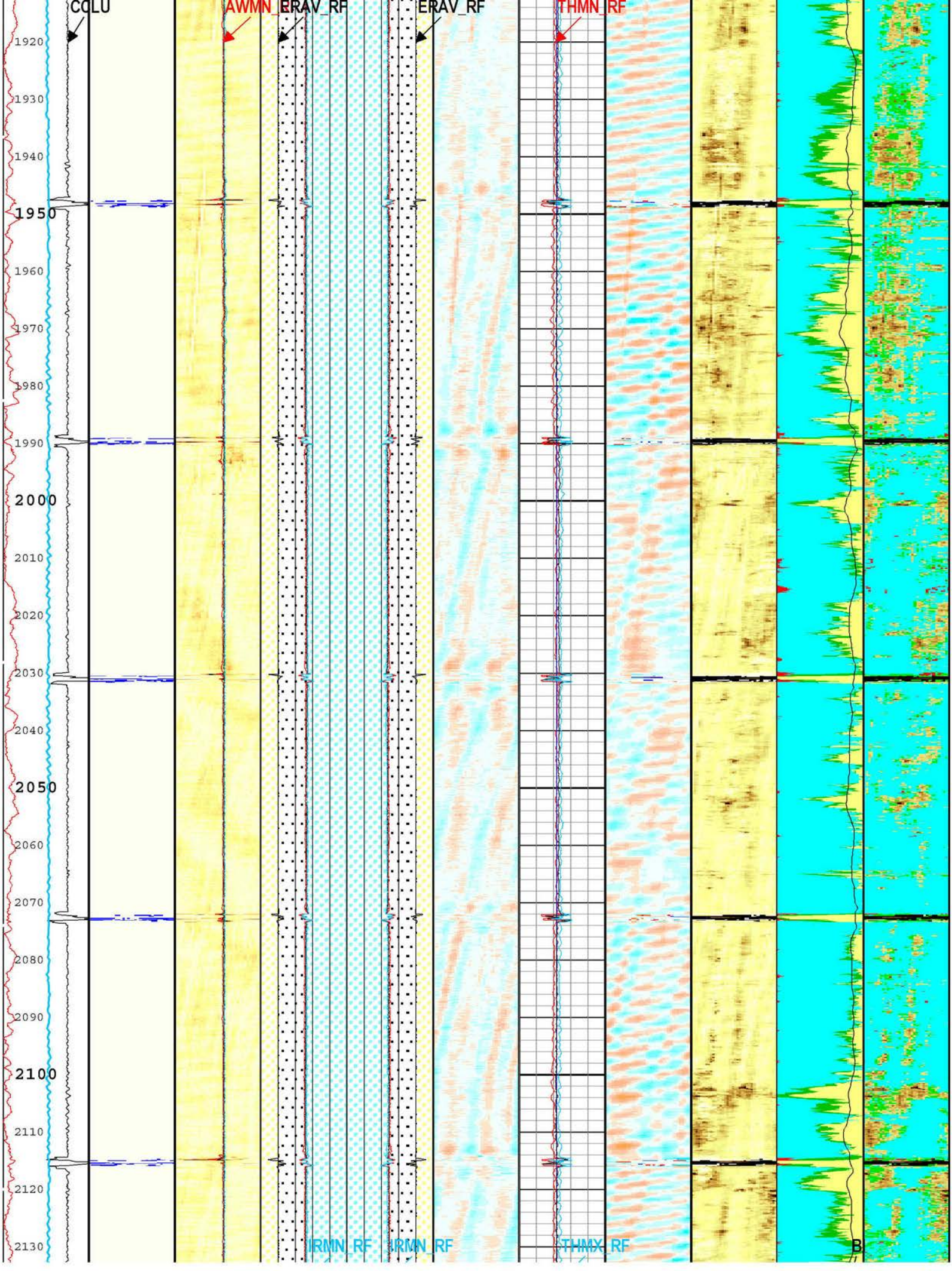
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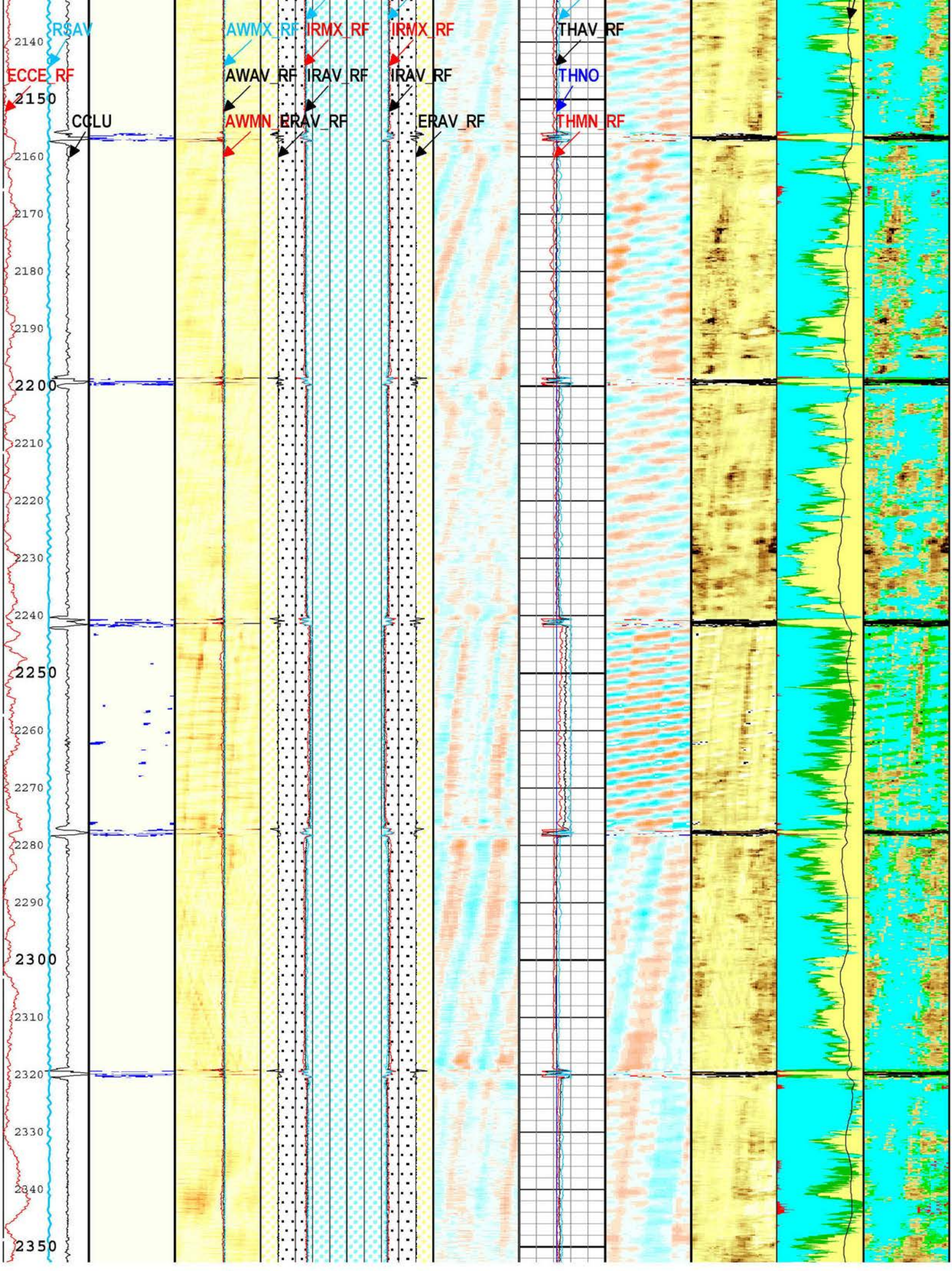
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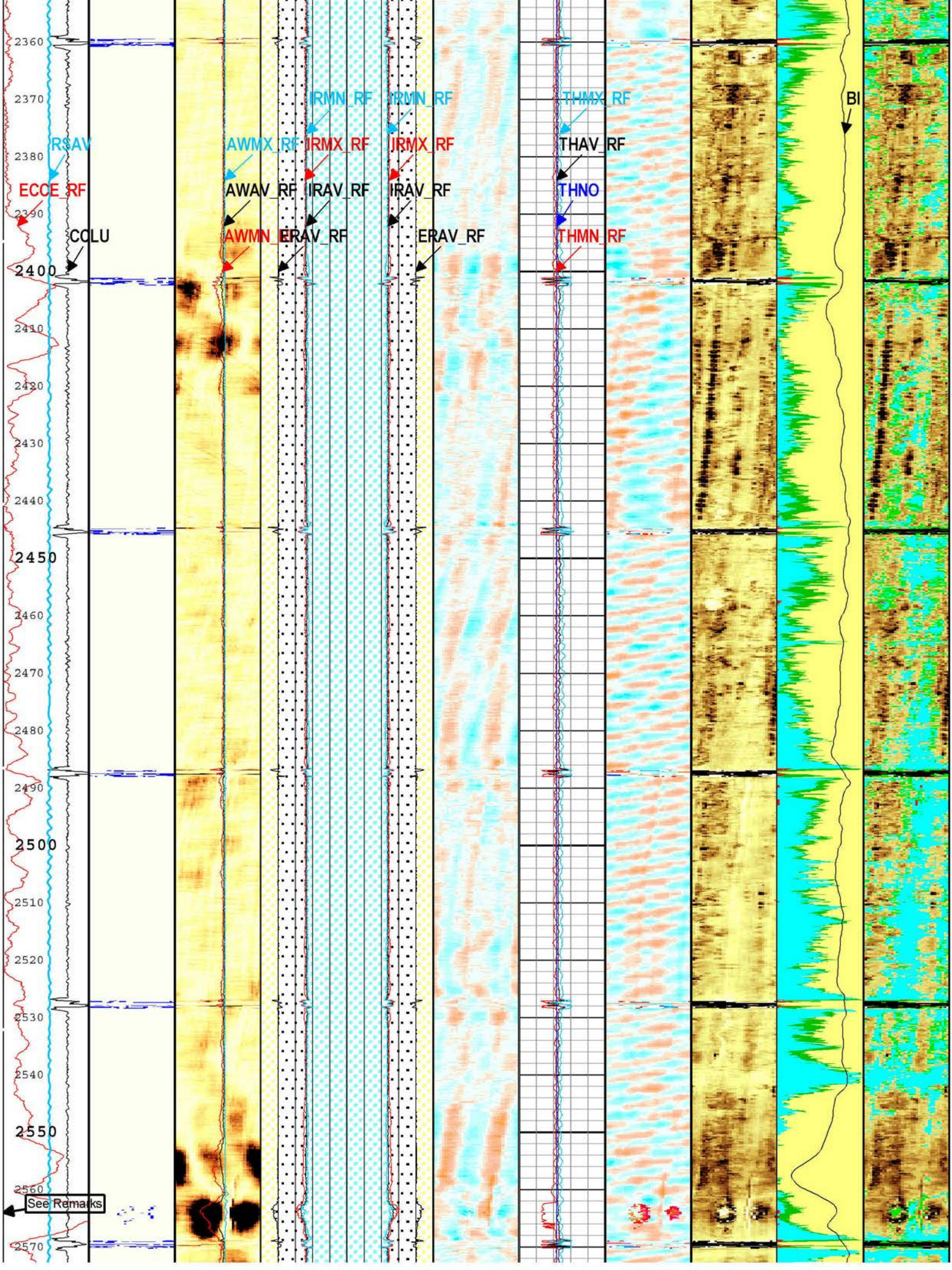
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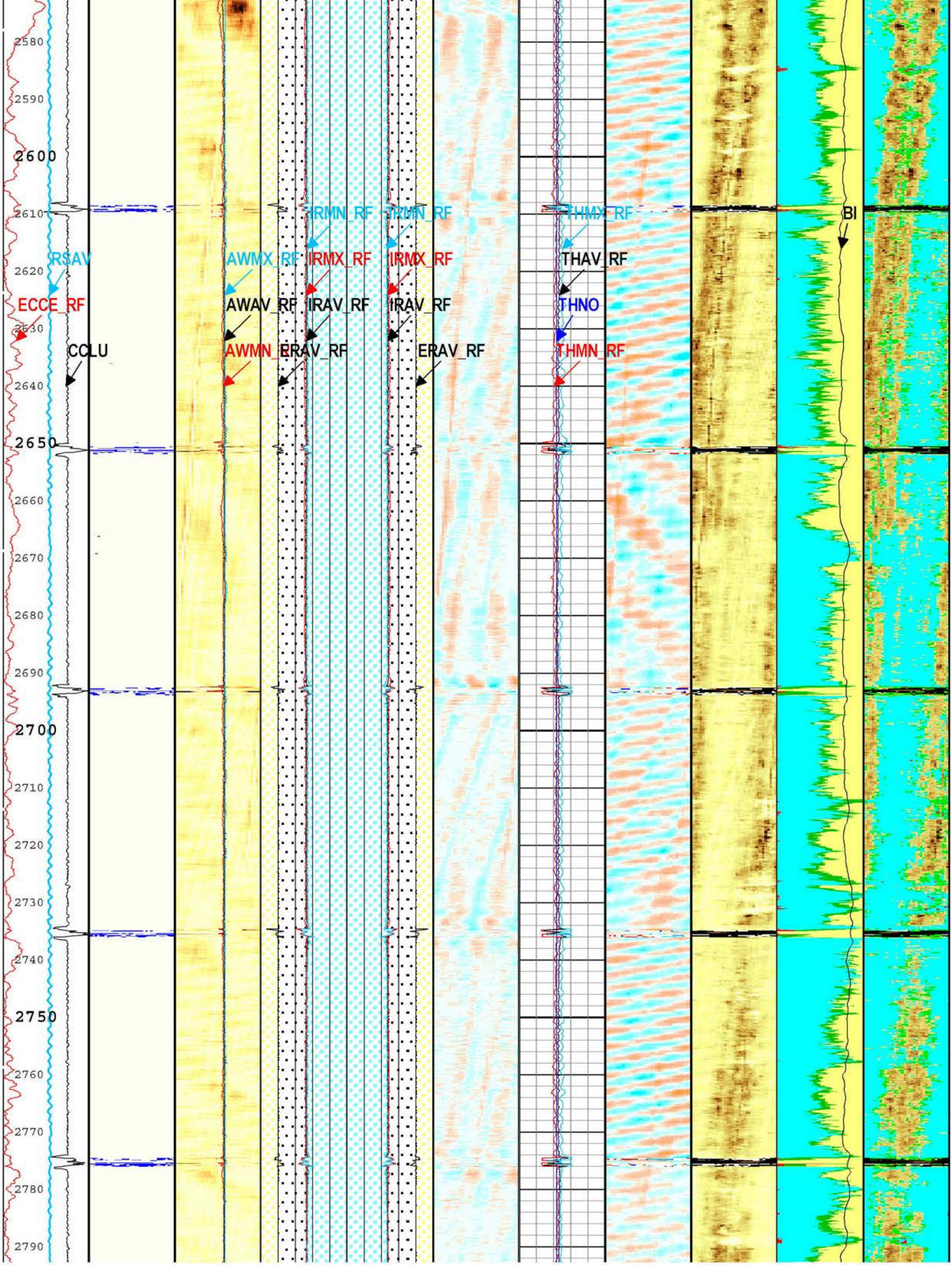
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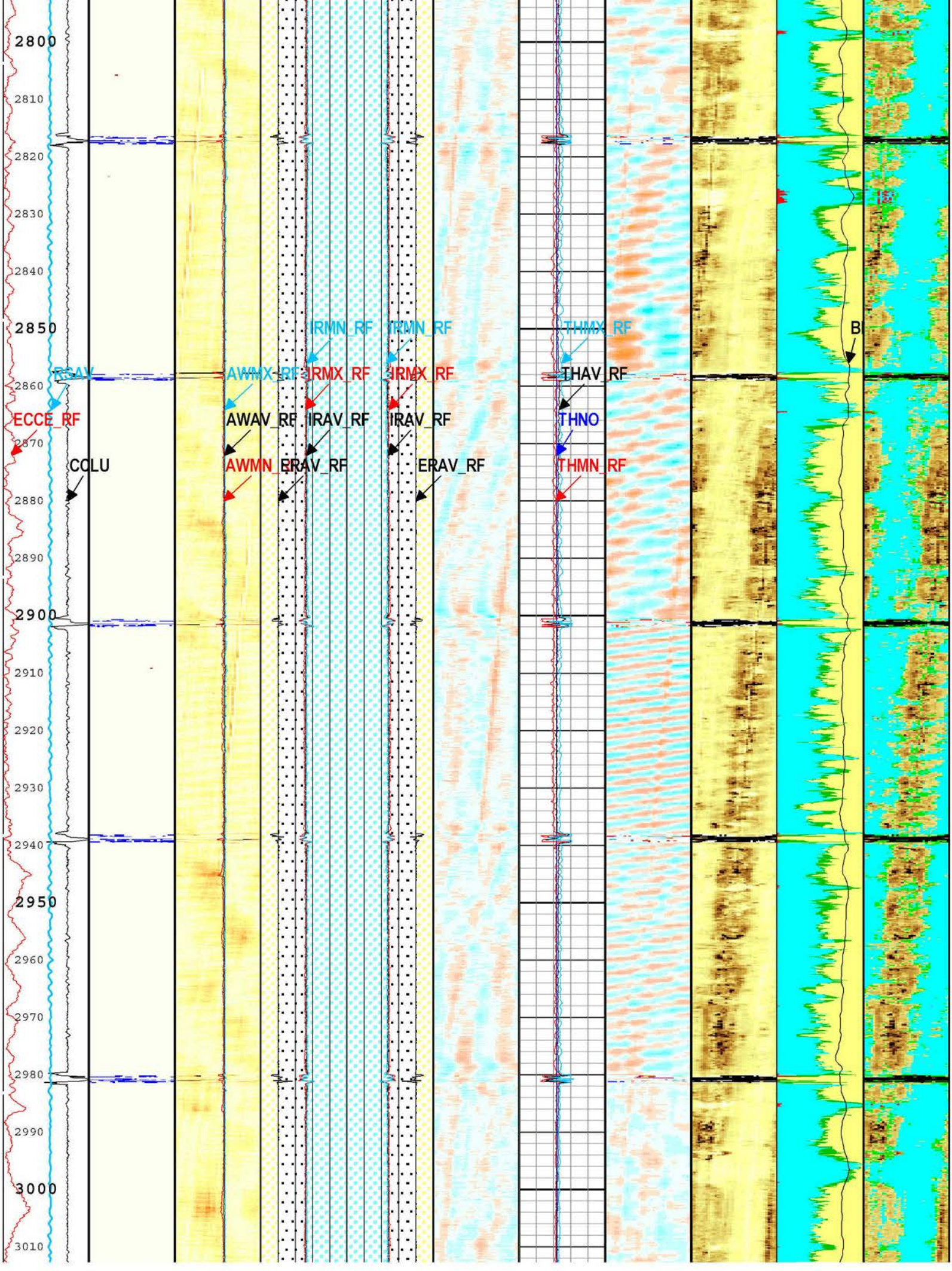
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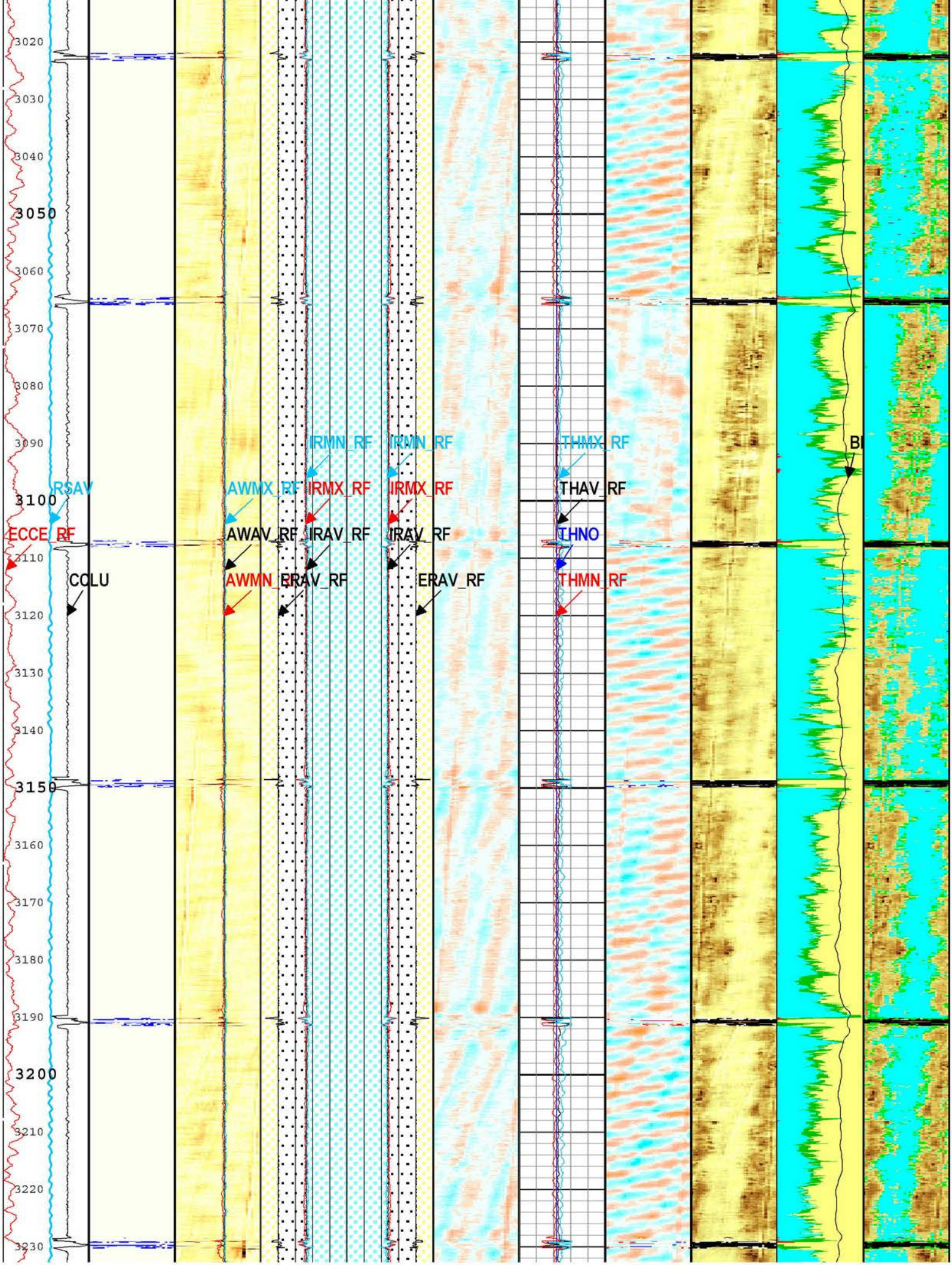
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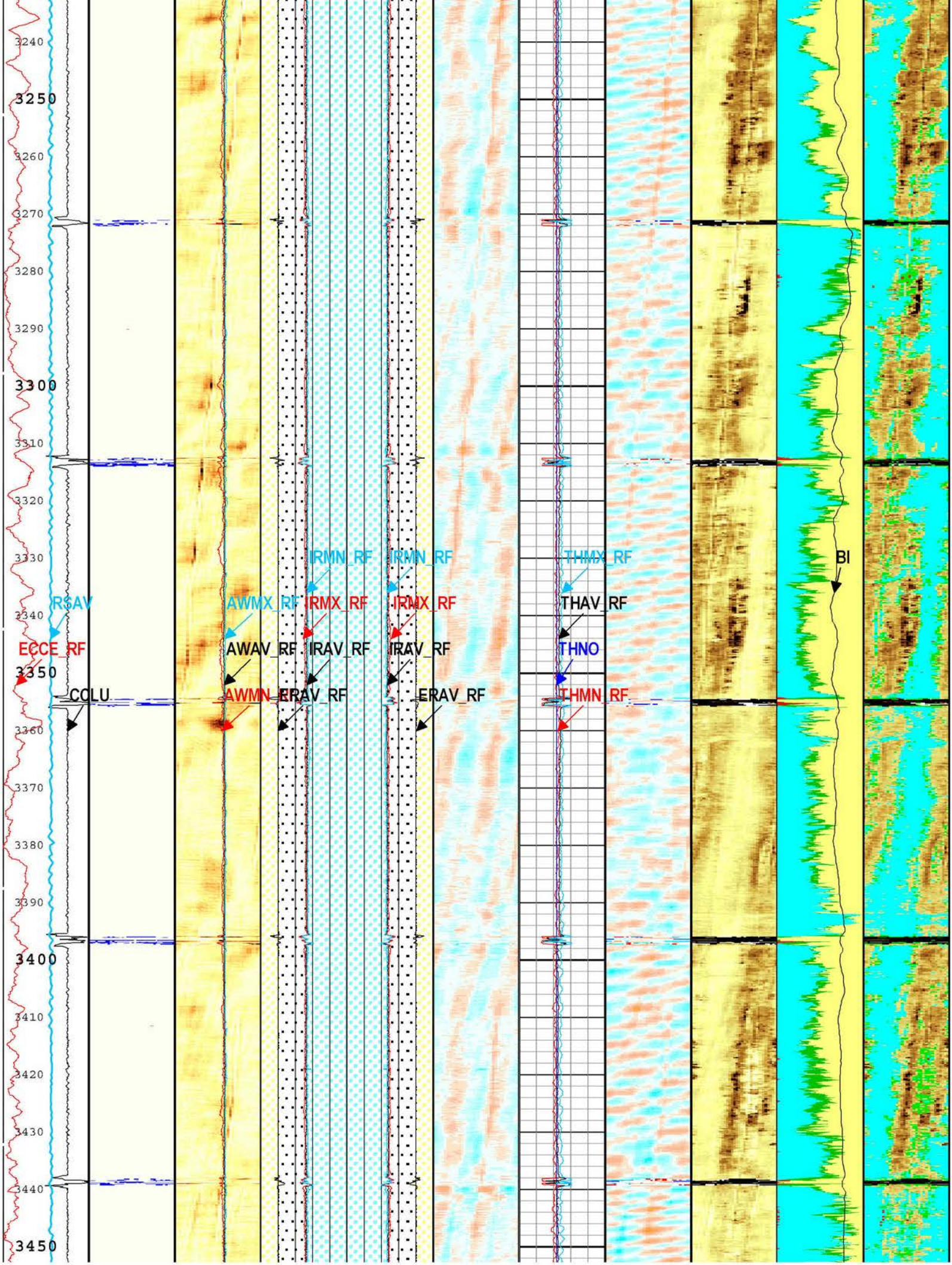
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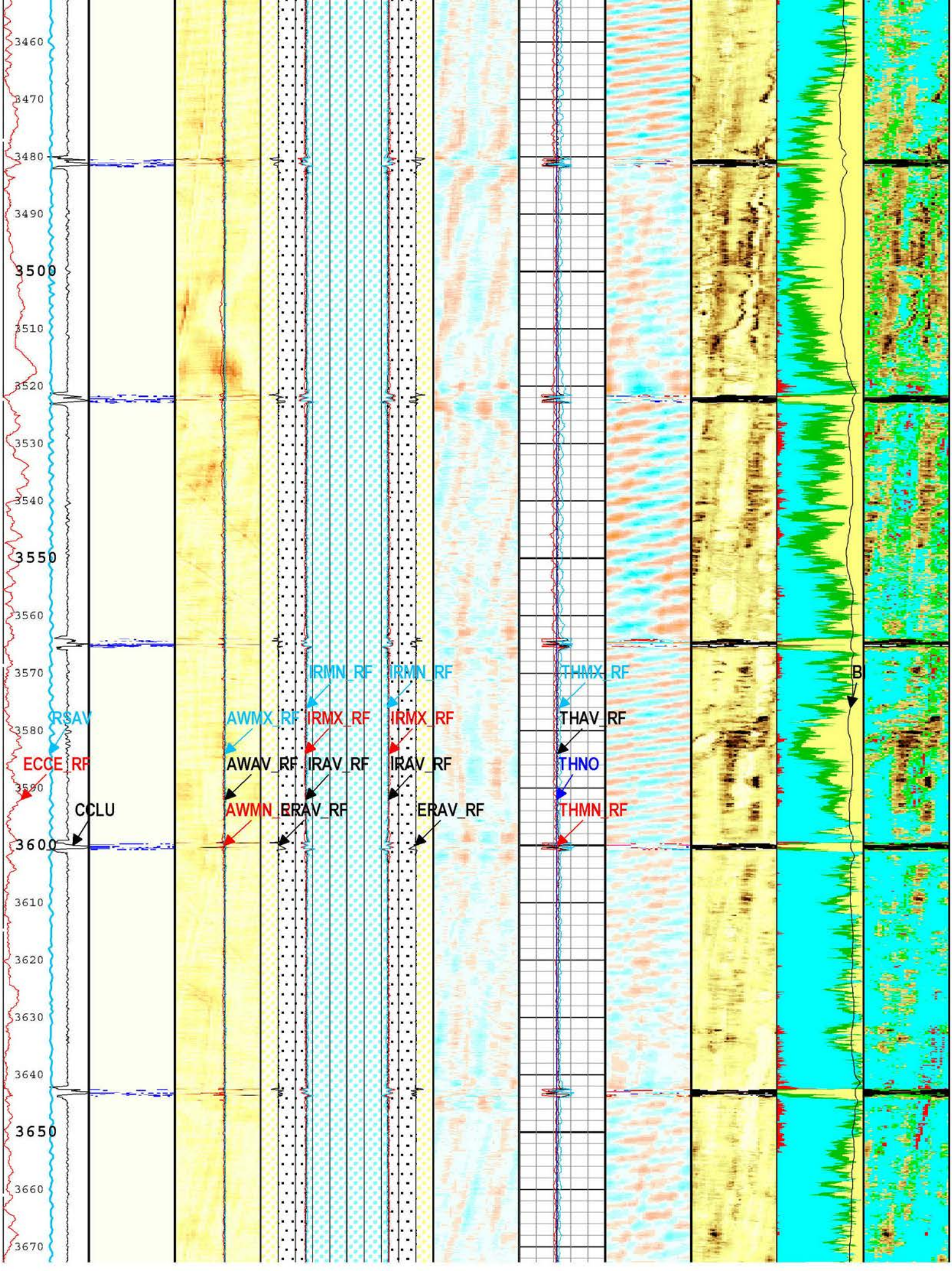
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CCLU
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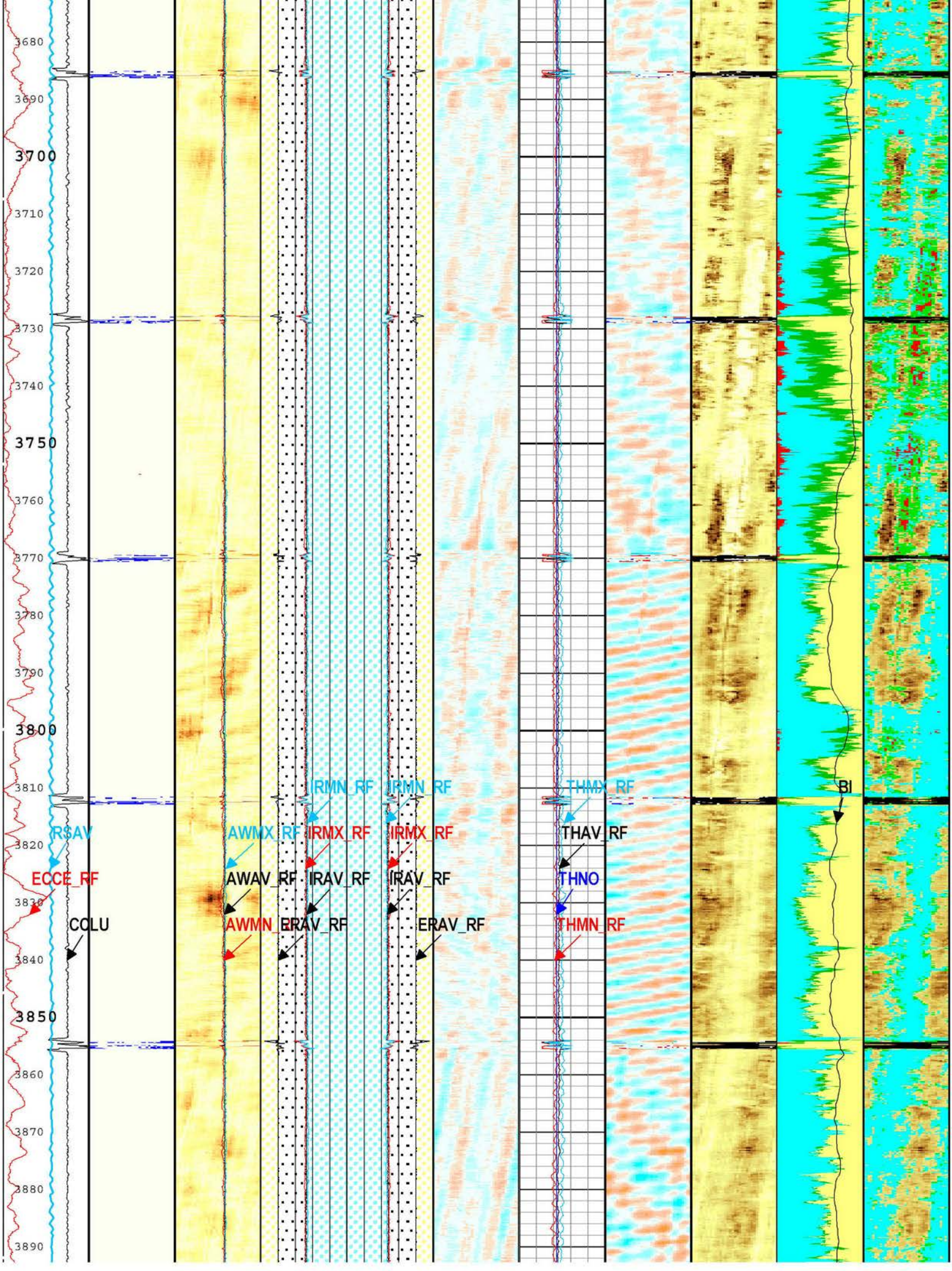
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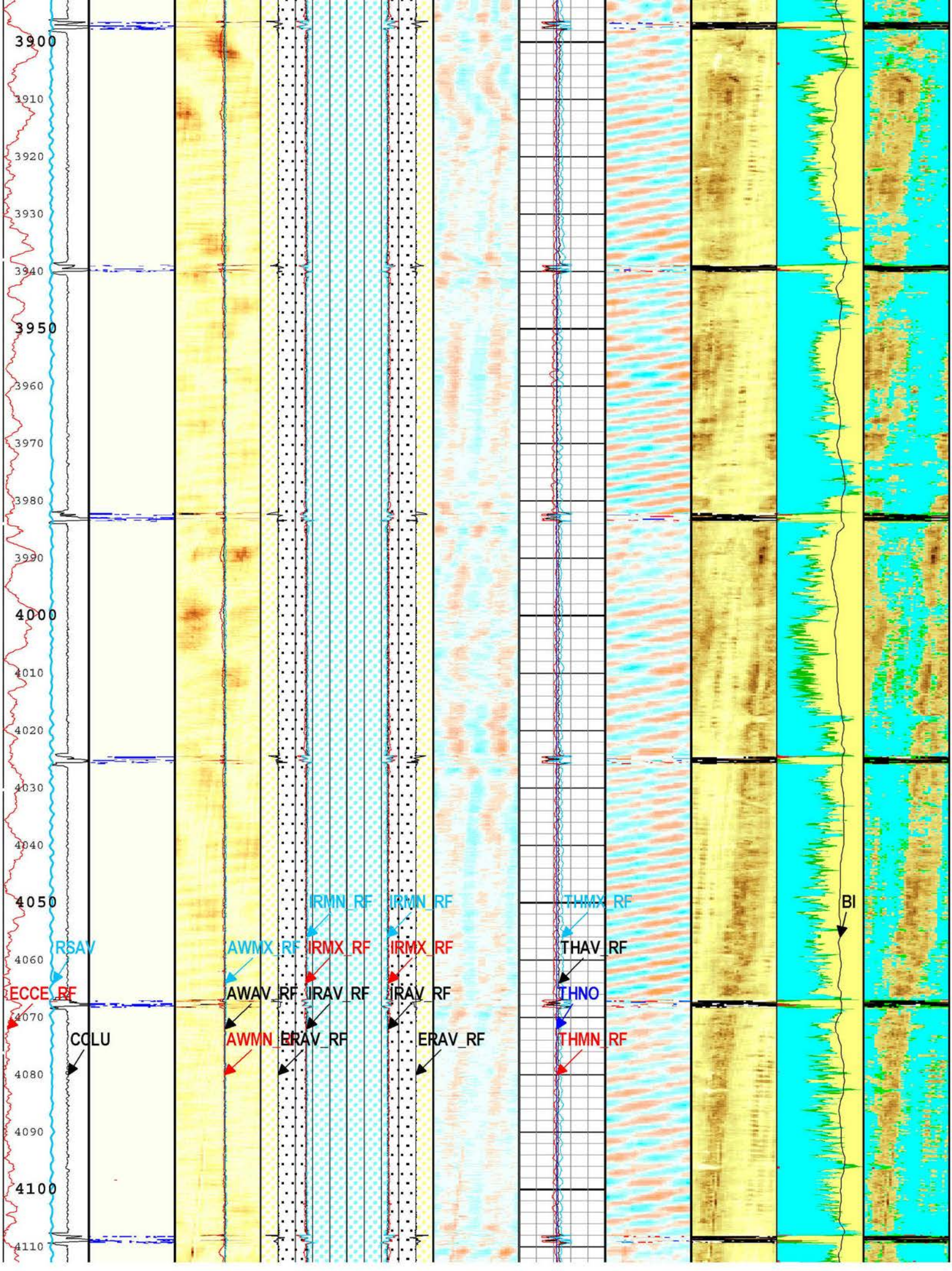
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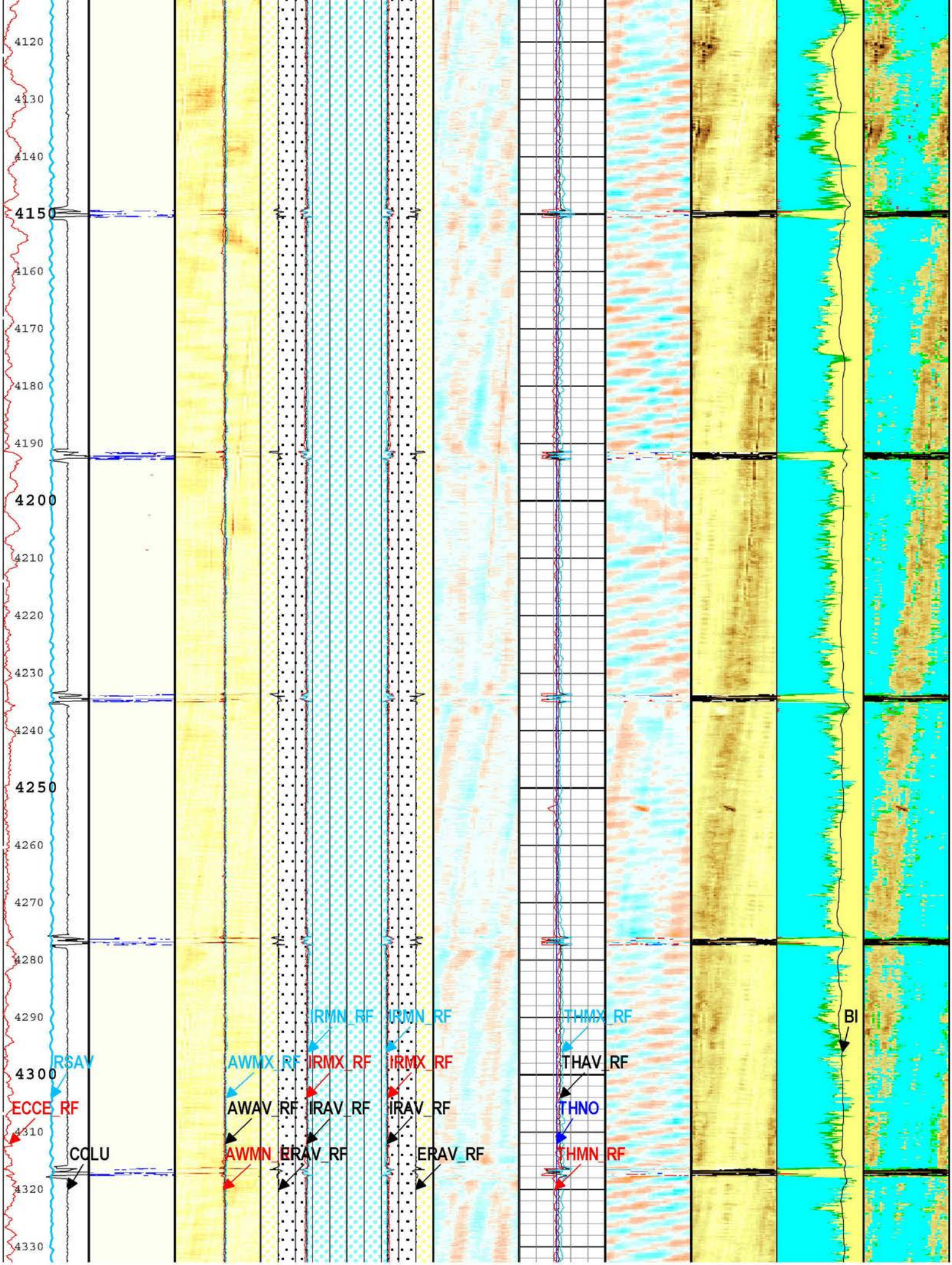
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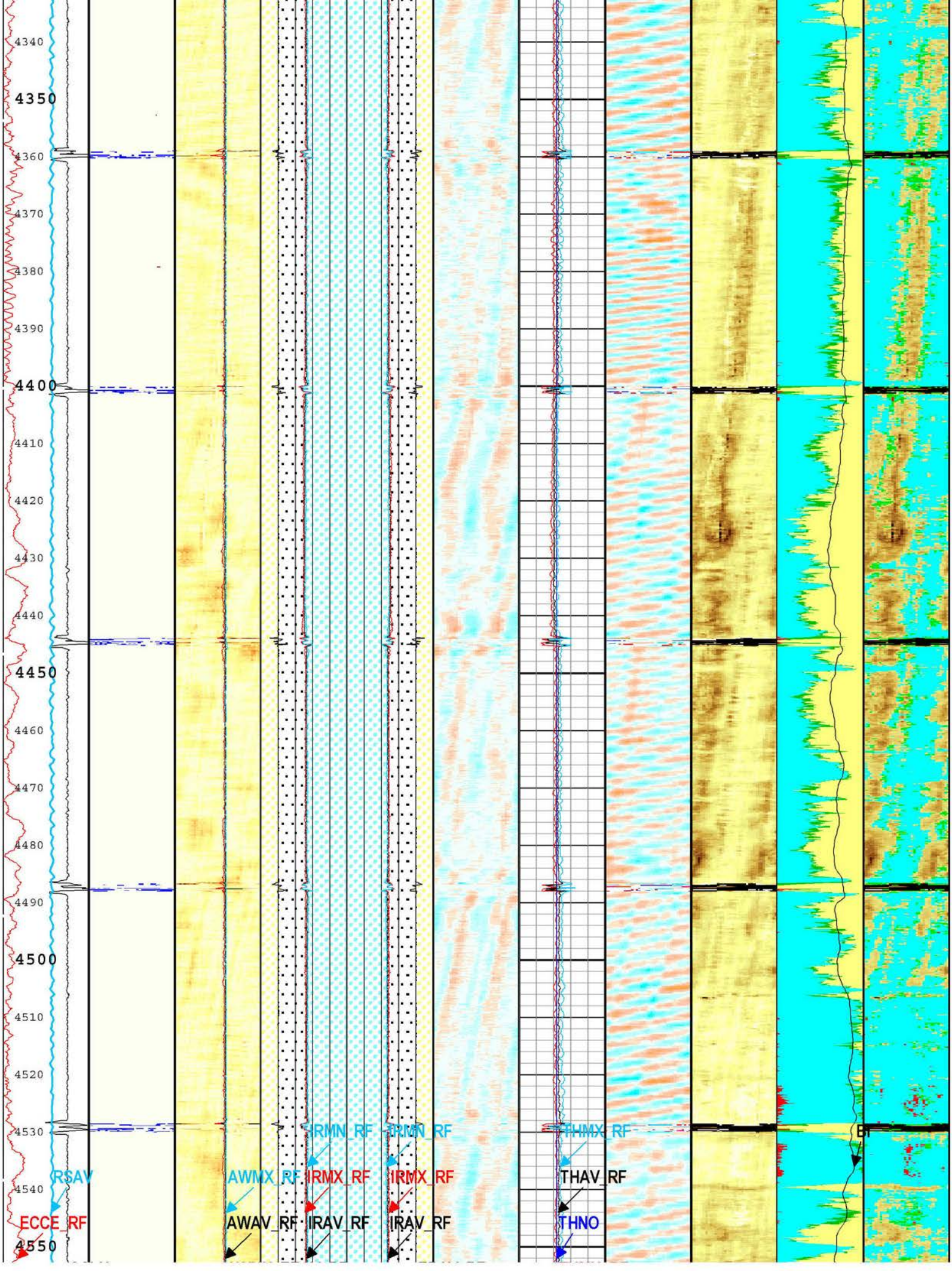
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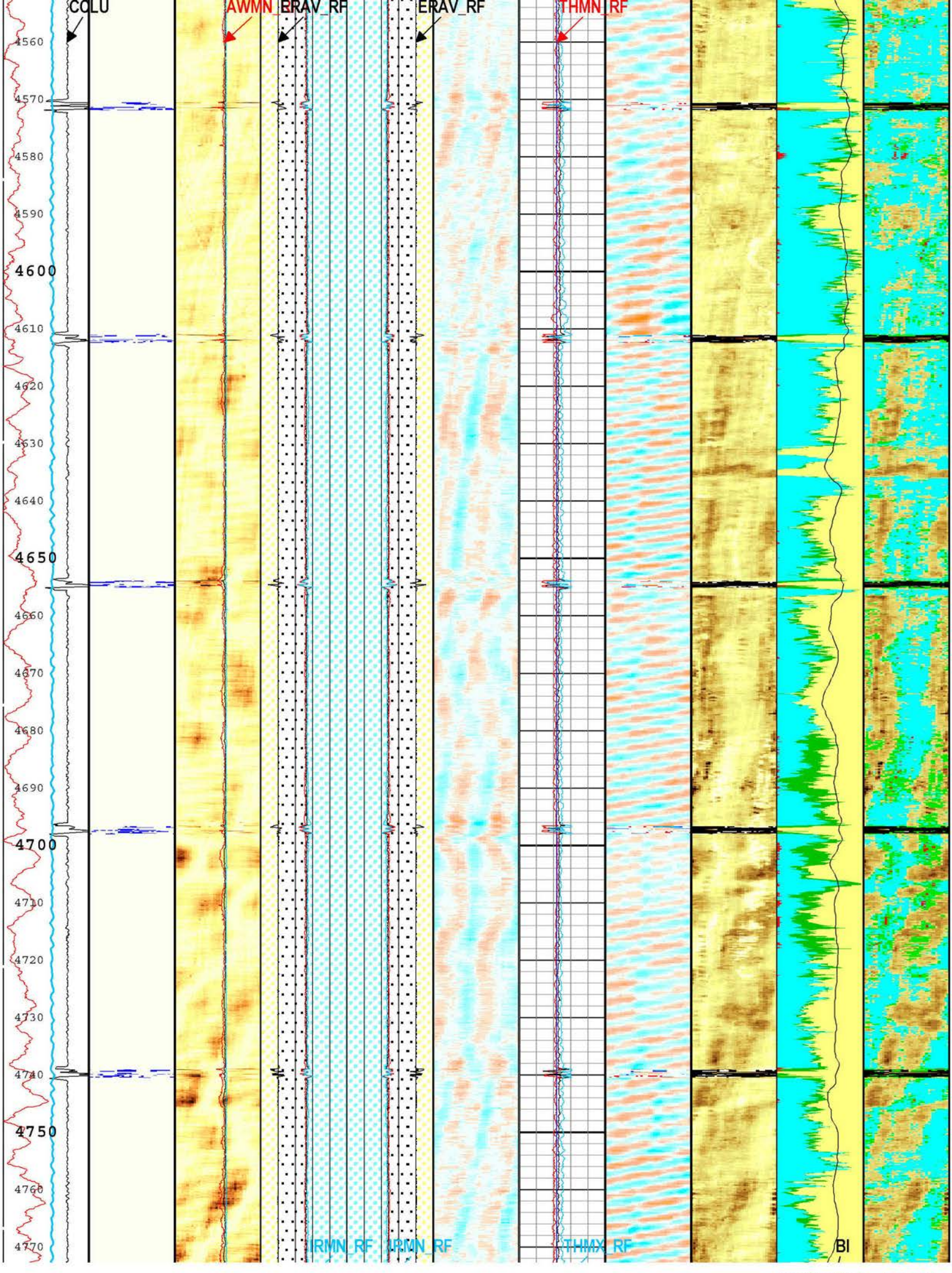
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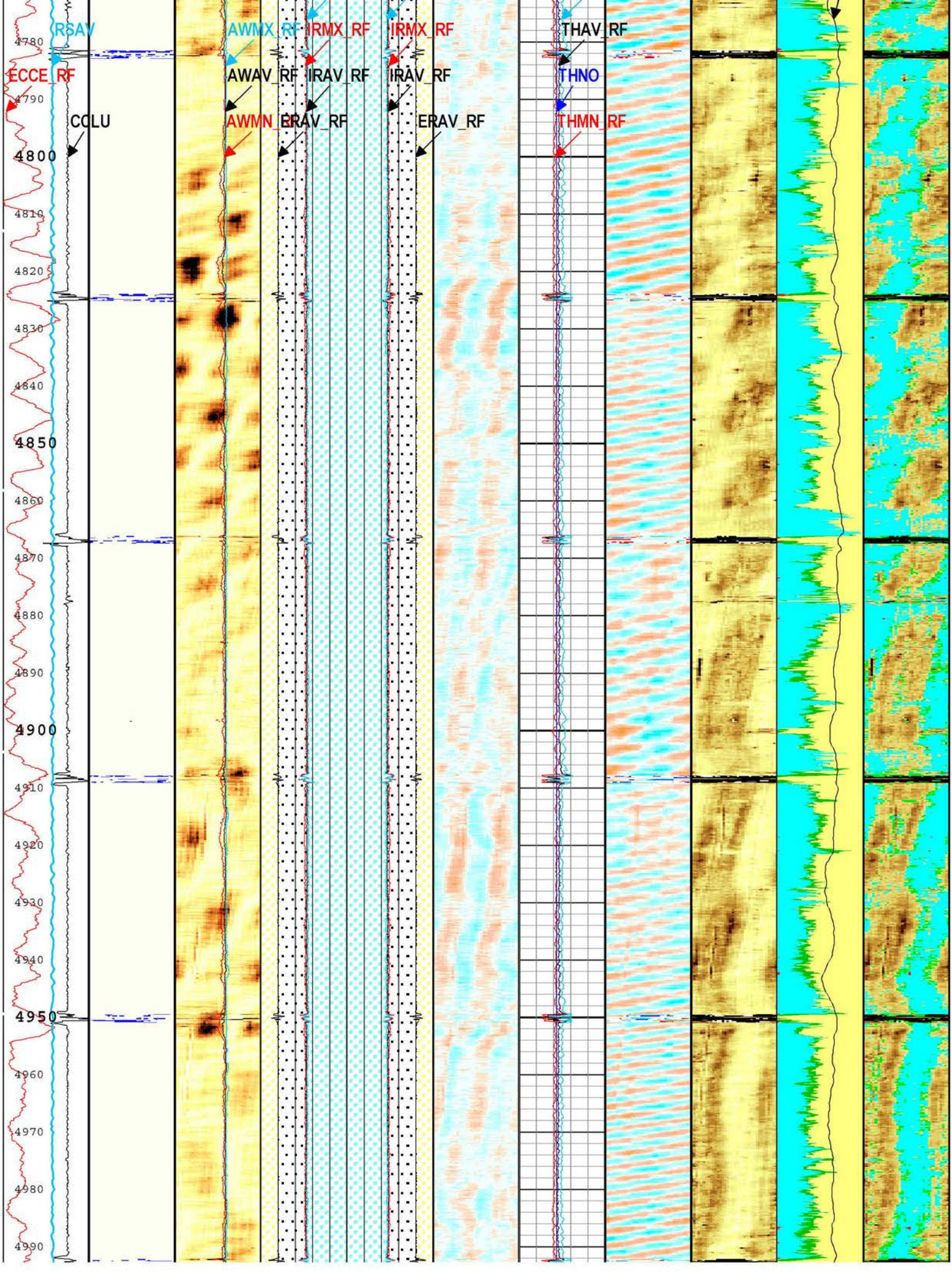
IRMN_RF
THMX_RF
BI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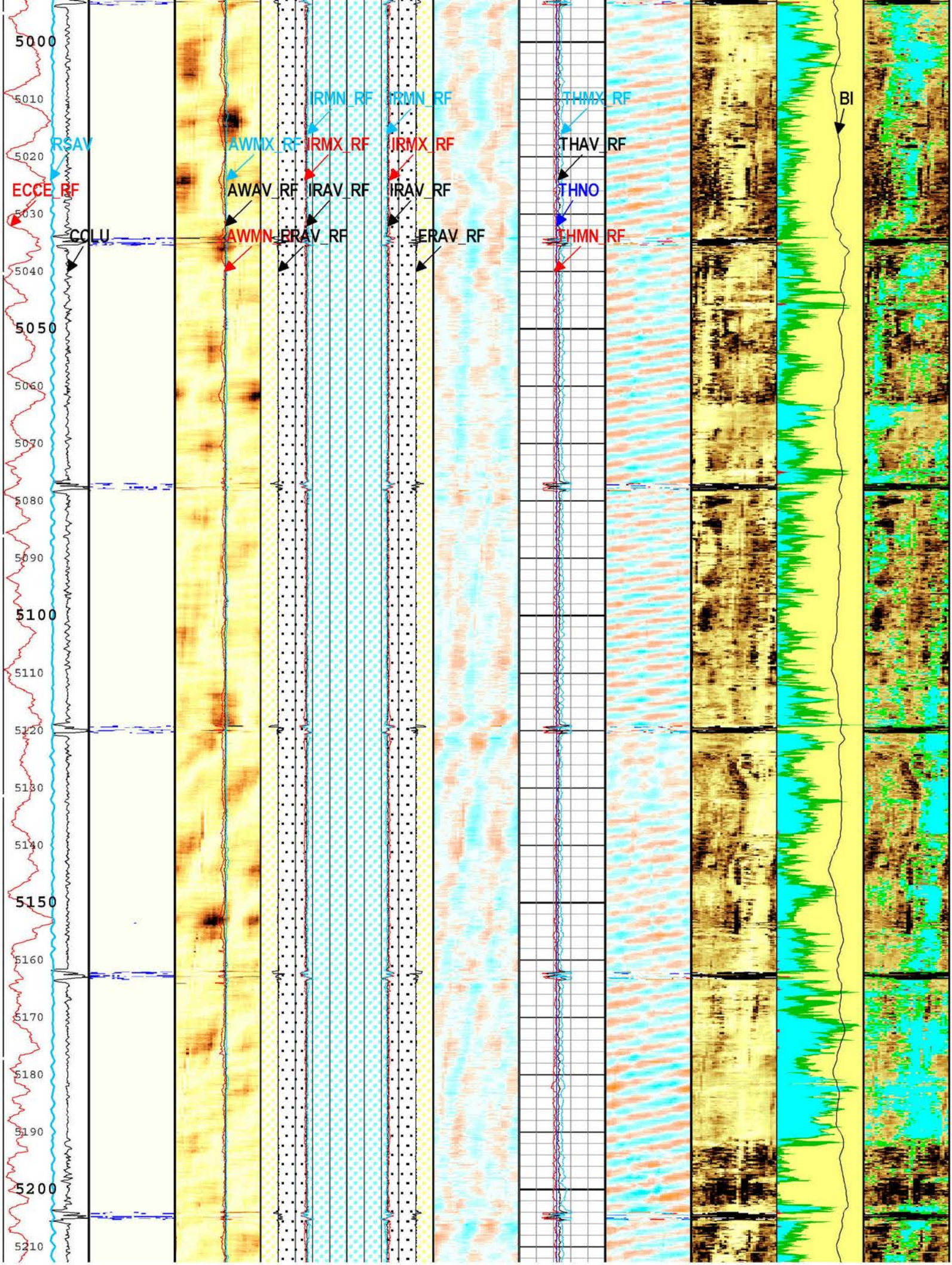
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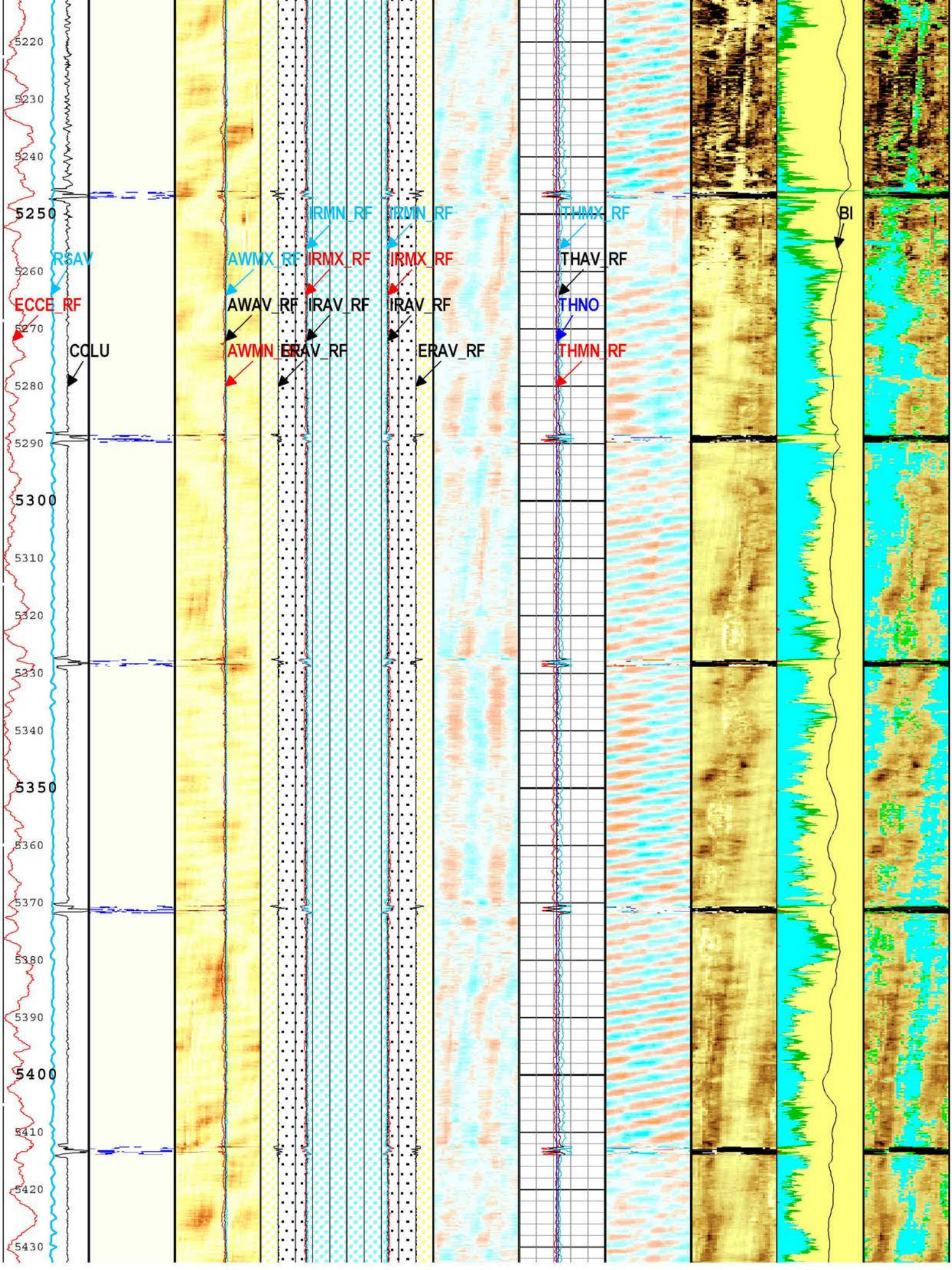
THNO
THMN_RF
BI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5390
5400
5410
5420
5430
RSAV
ECCE_RF
COLU
AWMX_RF
AWAV_RF
AWMN_RF
IRMN_RF
IRMX_RF
IRAV_RF
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THMX_RF
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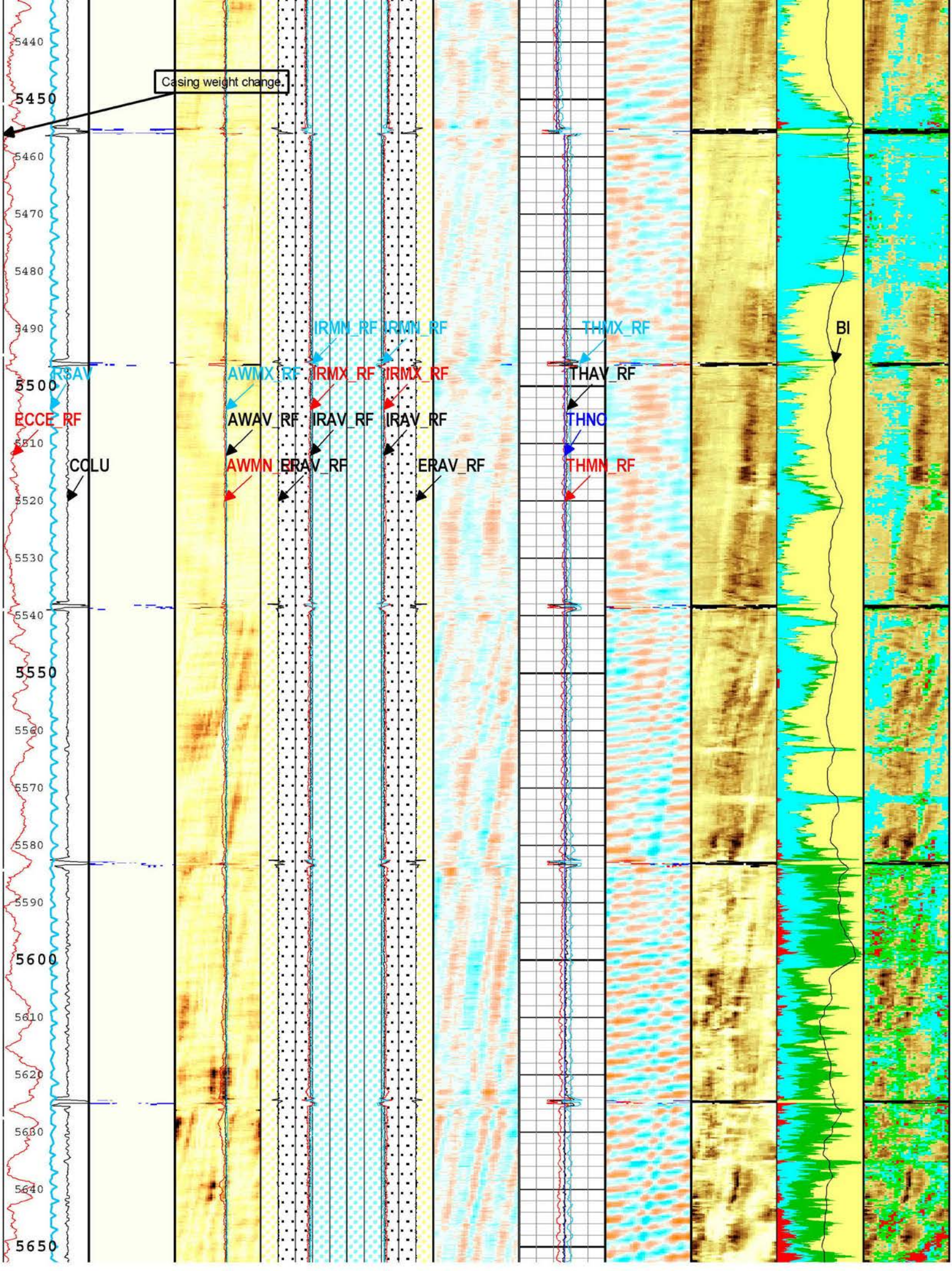
THNO
THMN_RF
BI


Casing weight change.
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5640
5650
RSAV
ECCE_RF
COLU
IRMN_RF
IRMN_RF
AWMX_RF
IRMX_RF
IRMX_RF
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THAV_RF
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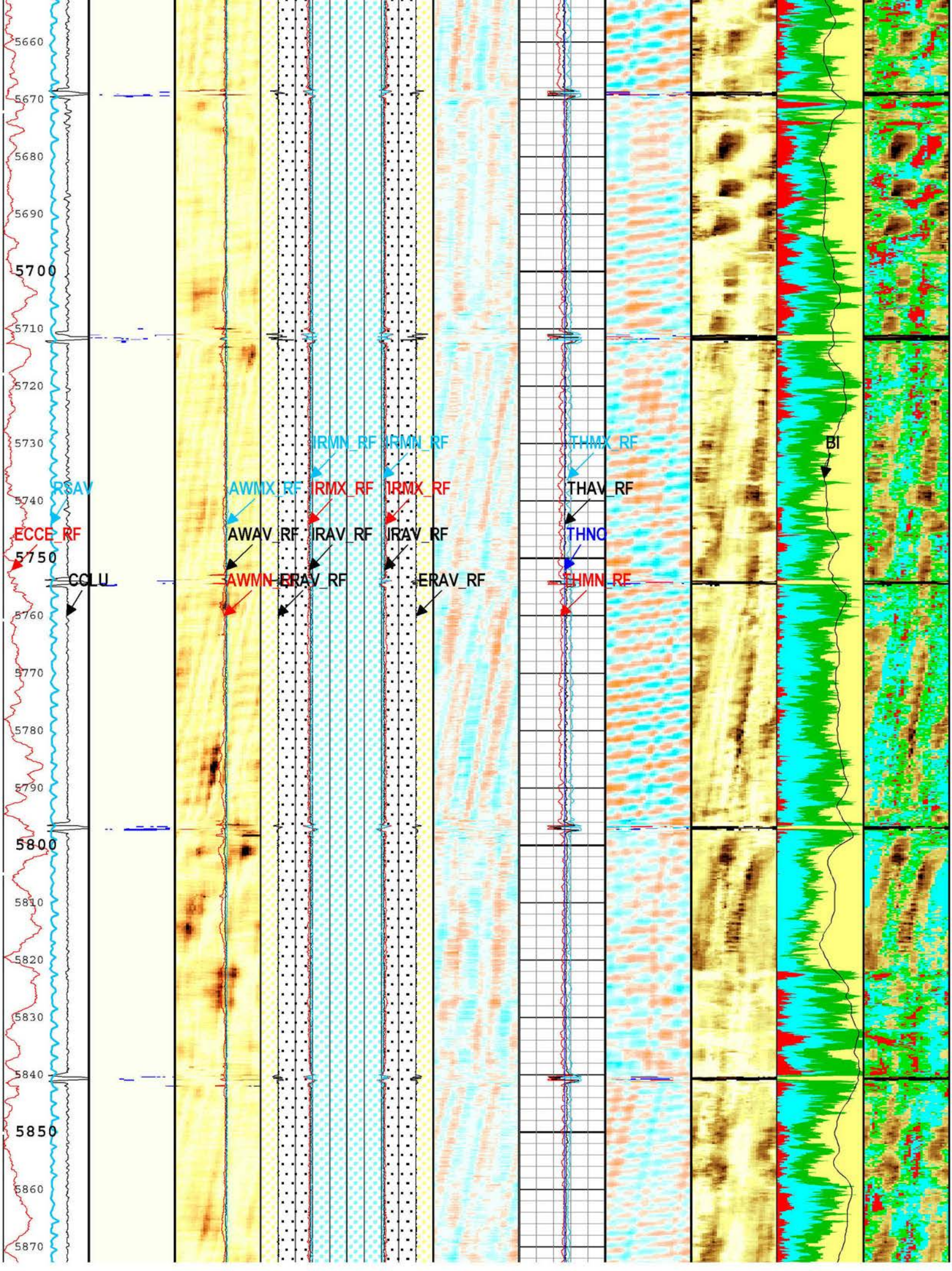
THMN_RF
BI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RSAV
ECCE_RF
CCLU
AWMX_RF
AWAV_RF
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IRMN_RF
IRMX_RF
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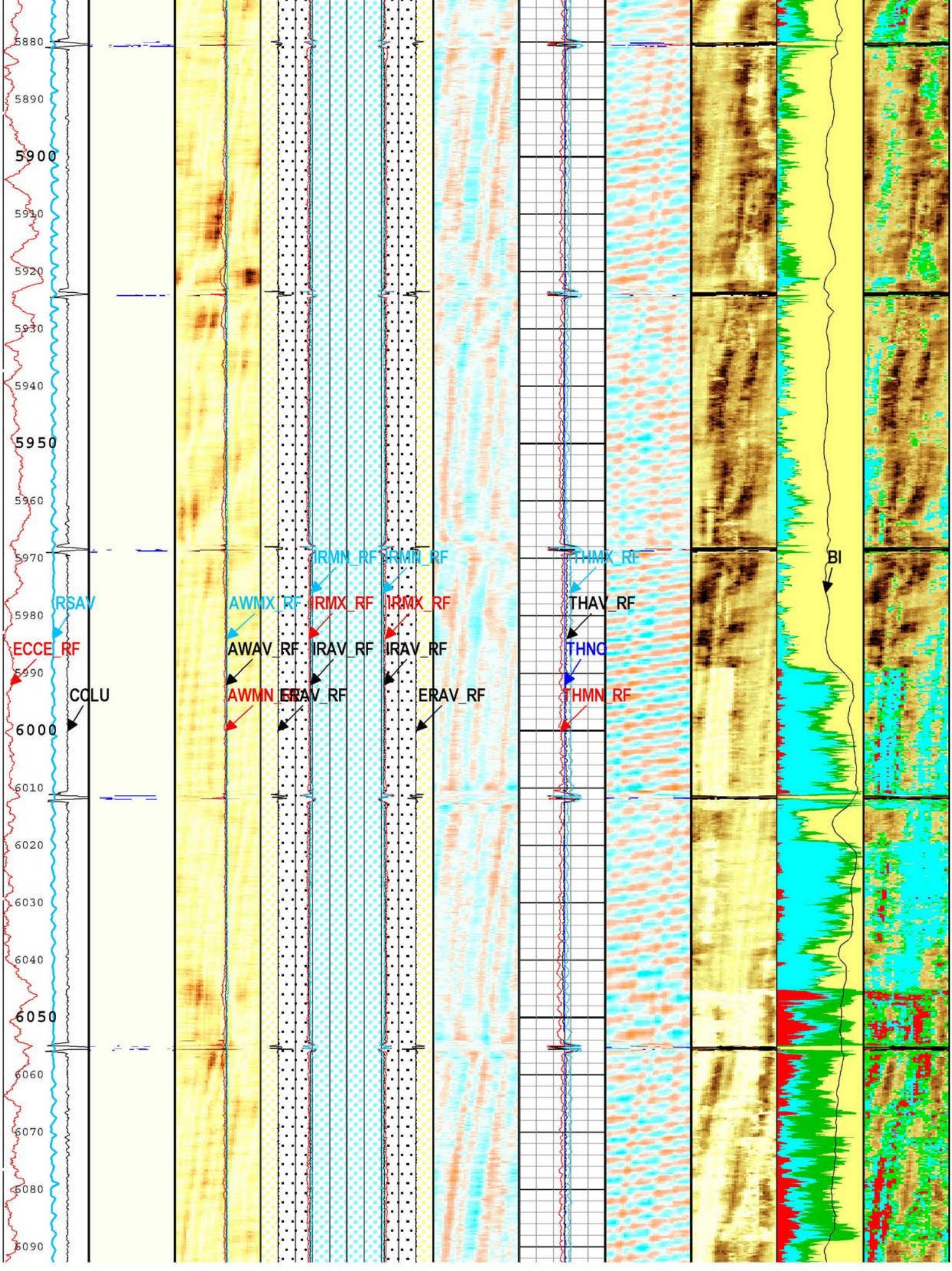
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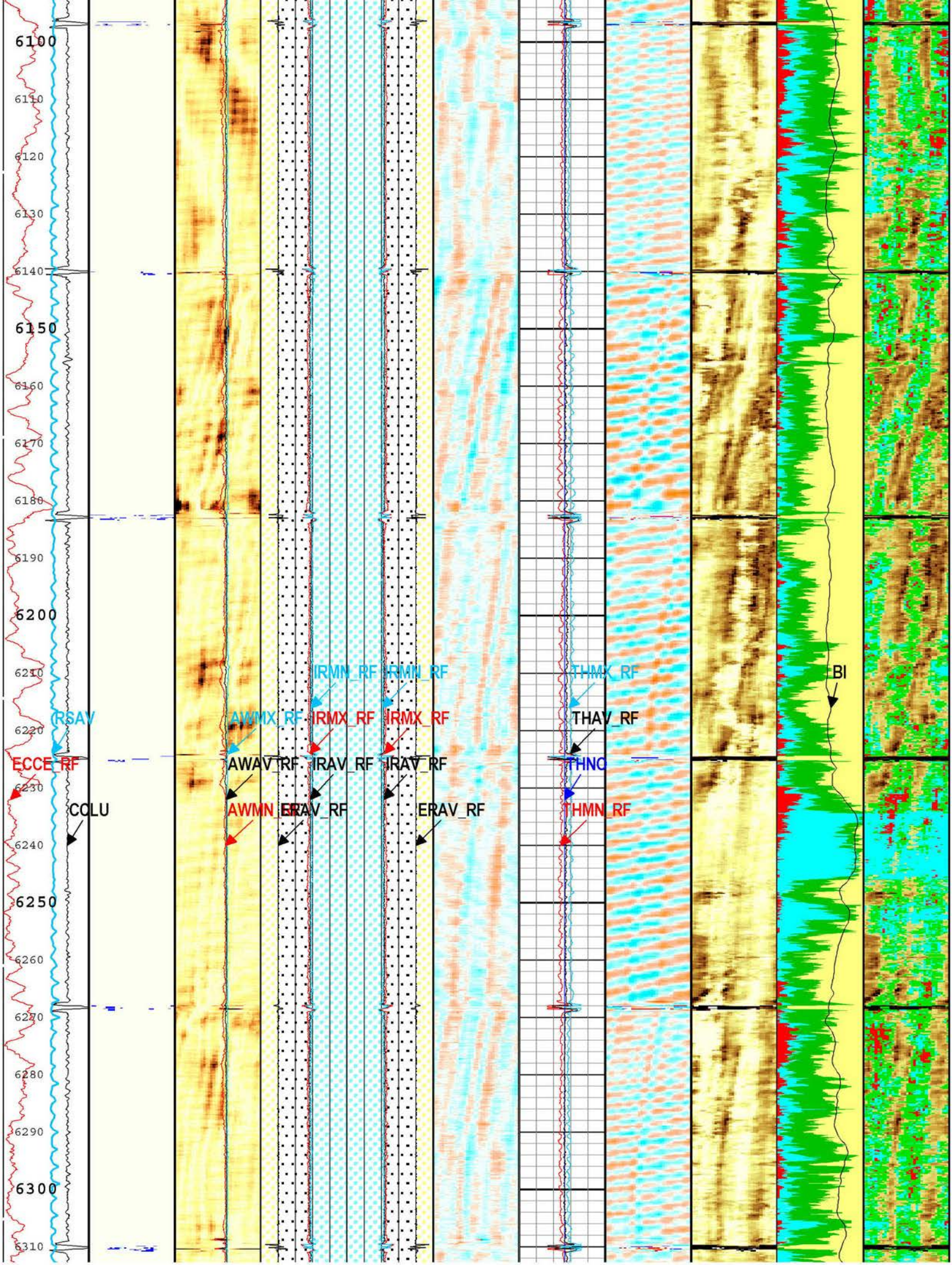
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RSAV
ECCE_RF
COLU
AWMX_RF
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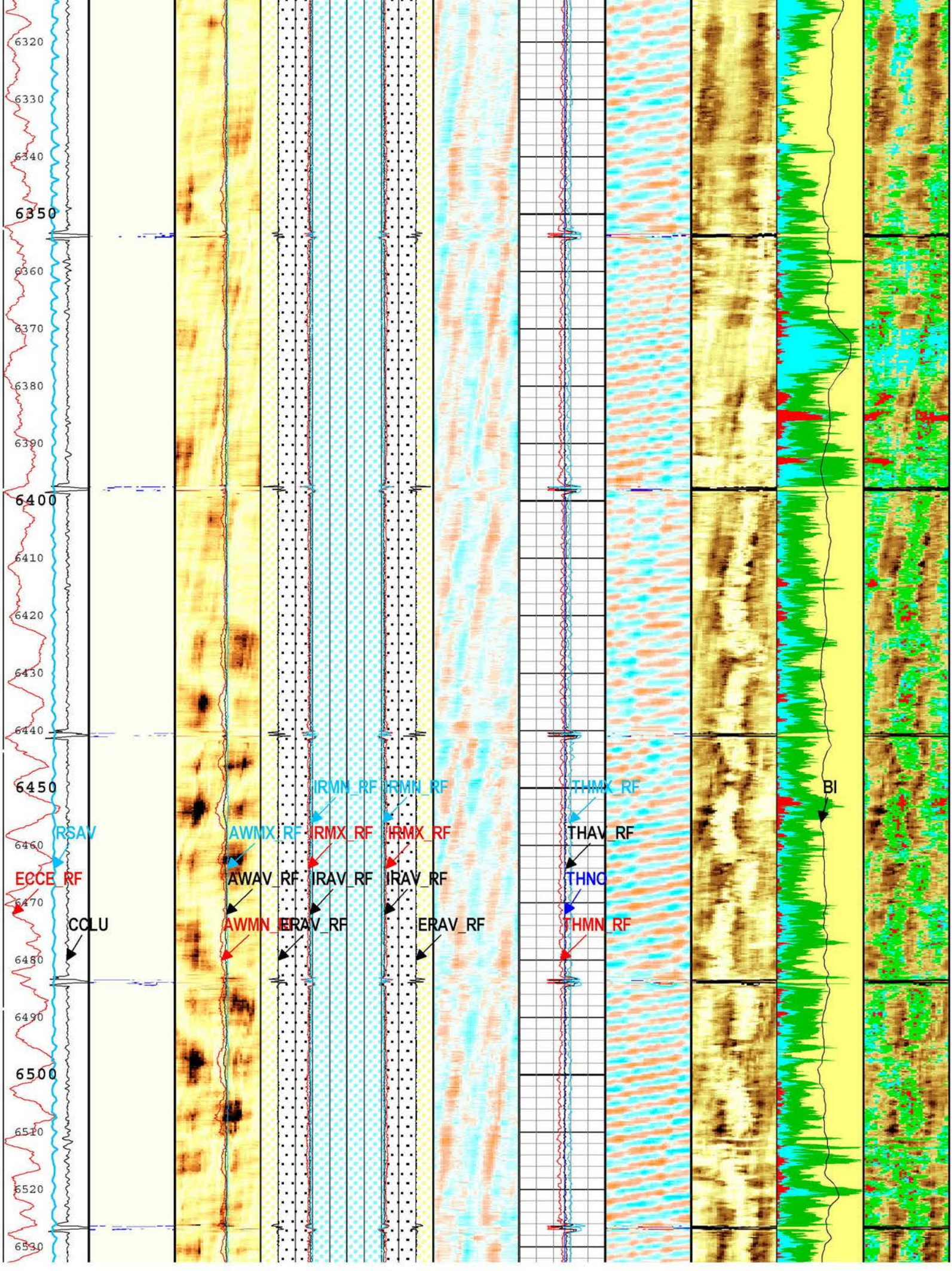
BI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6490
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6520
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RSAV
ECCE_RF
CCLU
AWMX_RF
AWAV_RF
AWMN_RF
IRMN_RF
IRMX_RF
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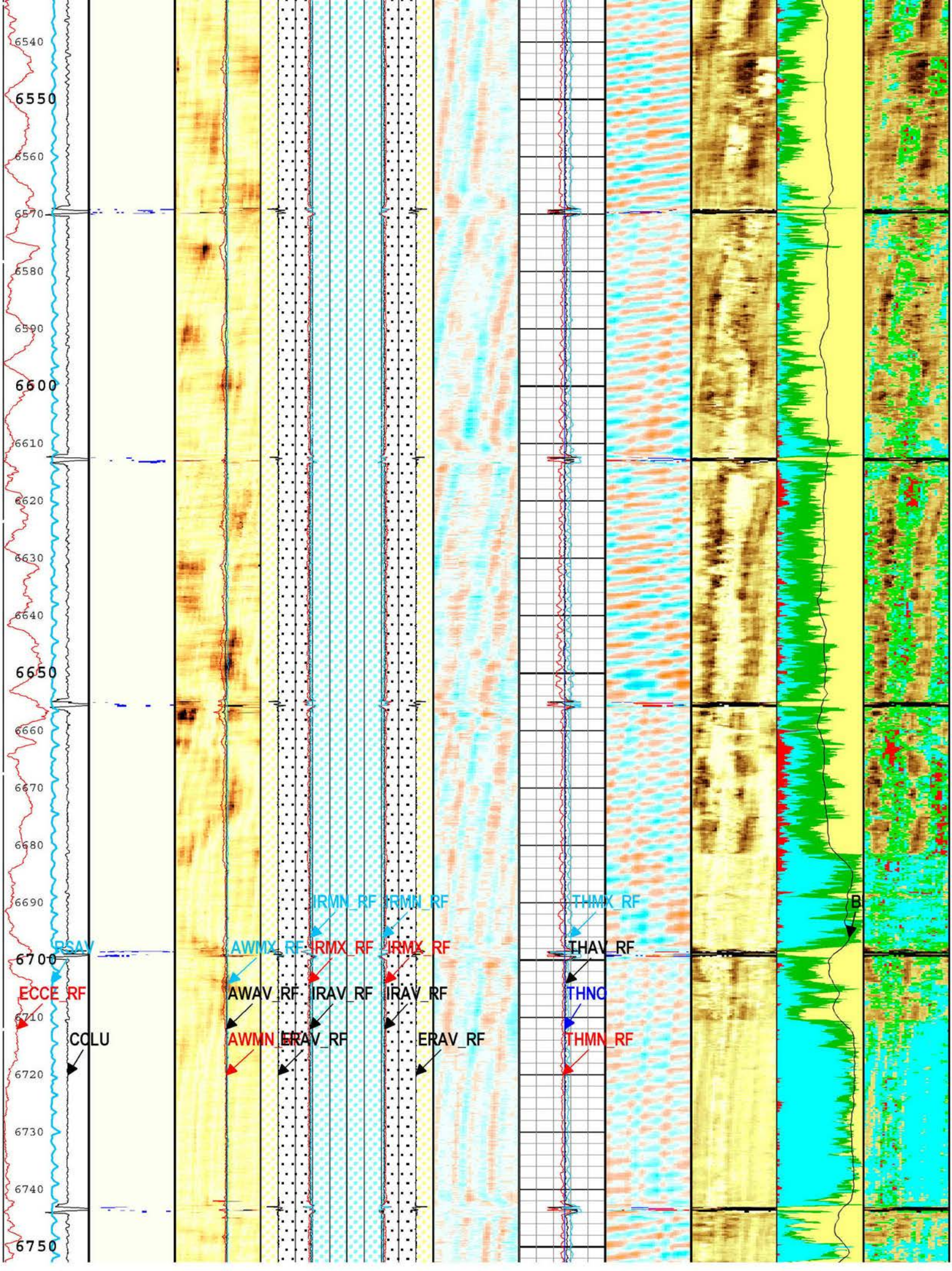
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6690
6700
6710
6720
6730
6740
6750
IRMN_RF
IRMN_RF
THMX_RF
B
RSAV
AWMX_RF
IRMX_RF
IRMX_RF
THAV_RF
ECCE_RF
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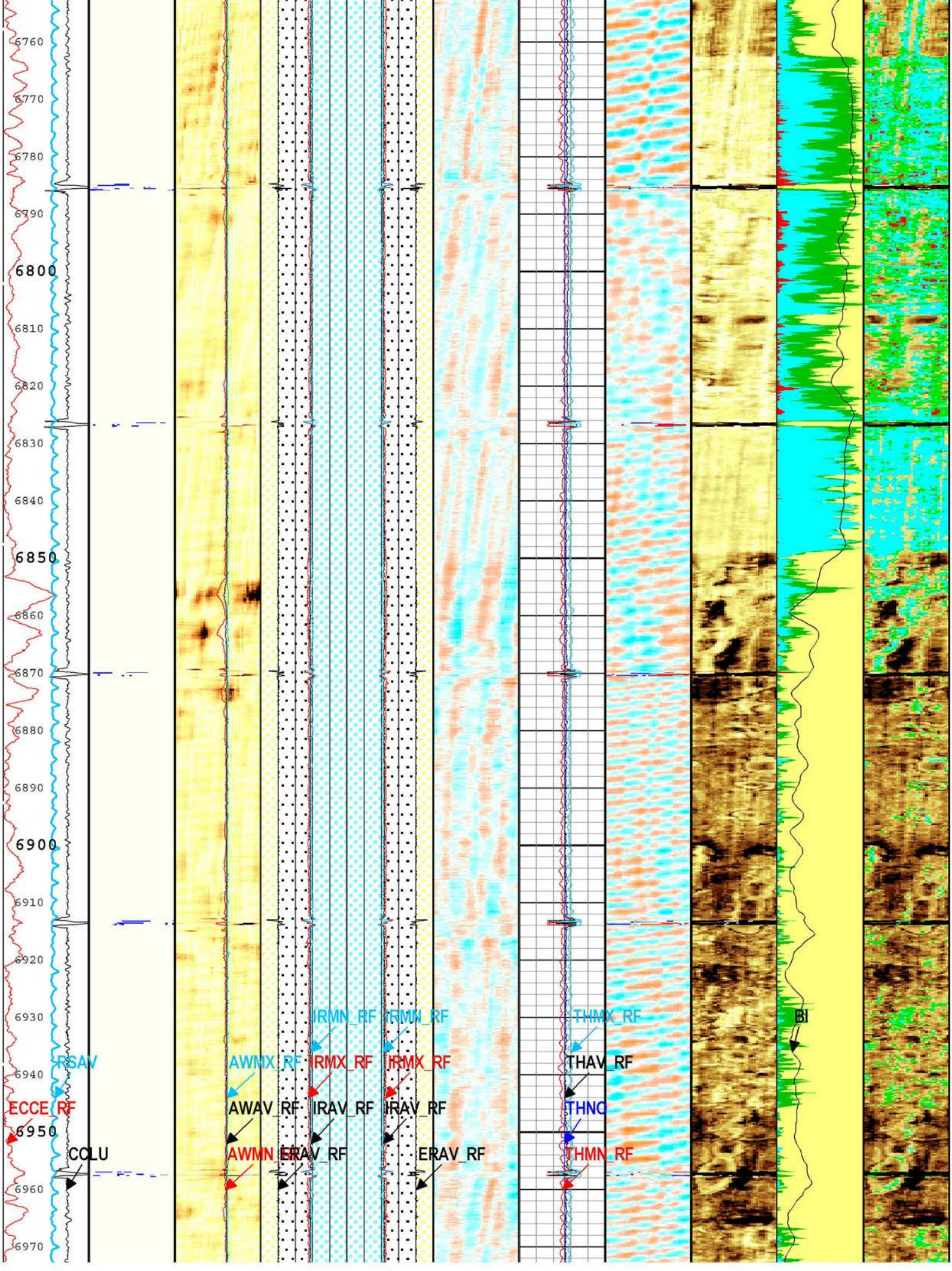
AWMN_RF
ERAV_RF
ERAV_RF
THMN_RF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6960
6970
RSAV
ECCE_RF
CCLU
AWMX_RF
AWAV_RF
AWMN_RF
IRMN_RF
IRMX_RF
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IRMX_RF
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ERAV_RF
THMX_RF
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THNO
THMN_RF
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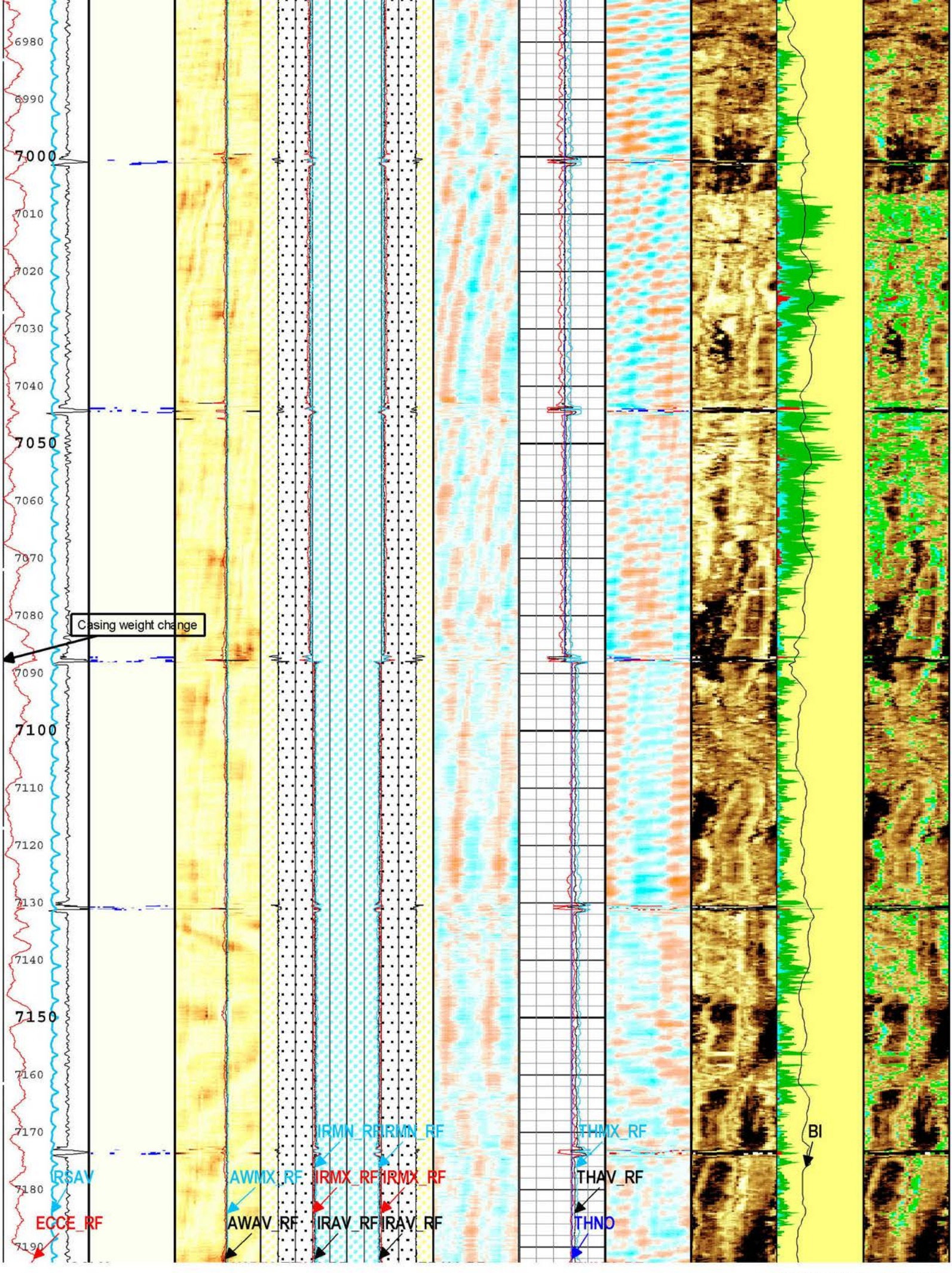
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Casing weight change
7090
7100
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7120
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7140
7150
7160
7170
7180
7190
RSAV
ECCE_RF
AWMX_RF
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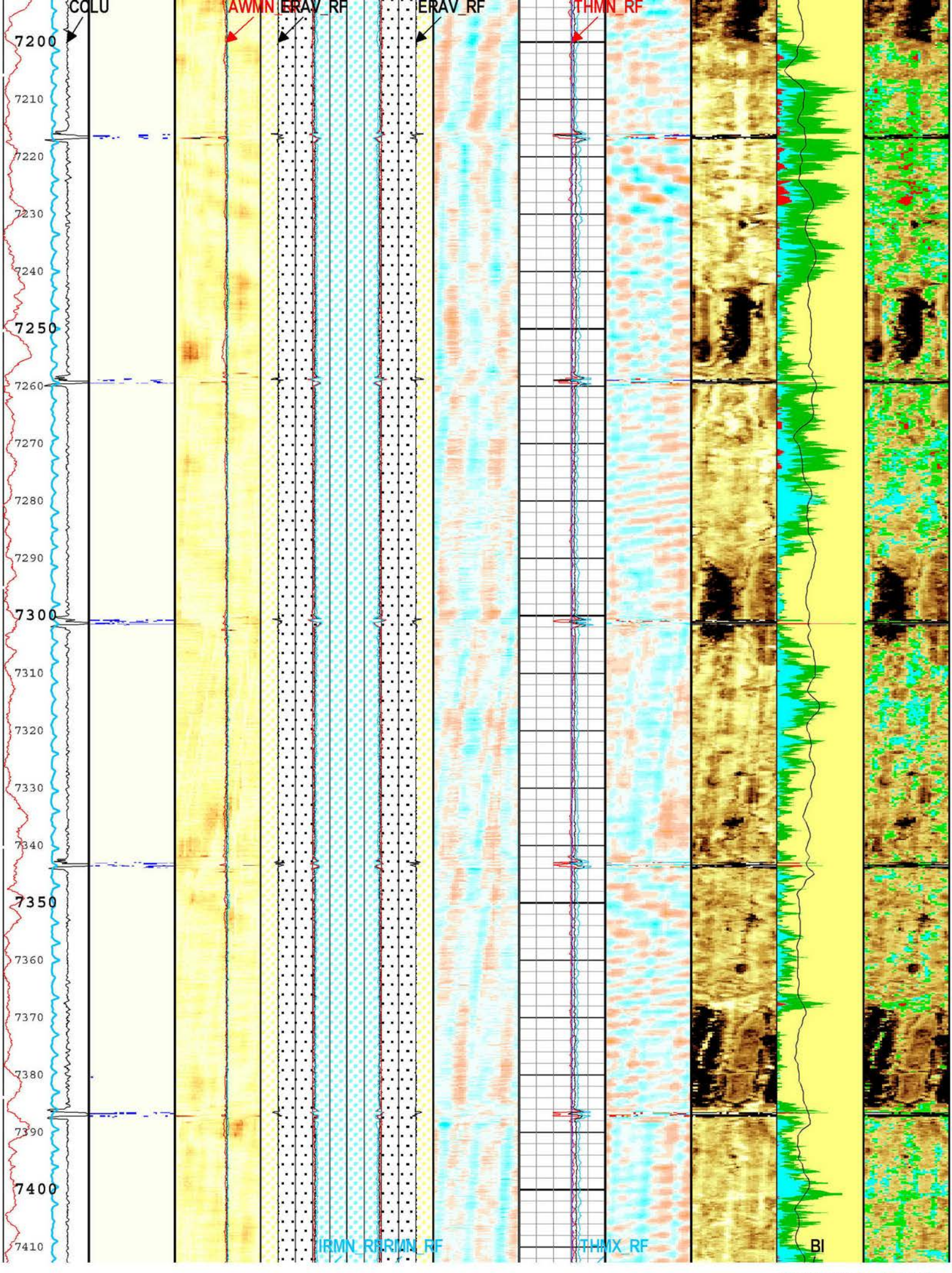
IRAV_RF
THMX_RF
THAV_RF
THND
BI


COLU
AWMN_ERAV_RF
ERAV_RF
THMN_RF
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7270
7280
7290
7300
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7360
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7380
7390
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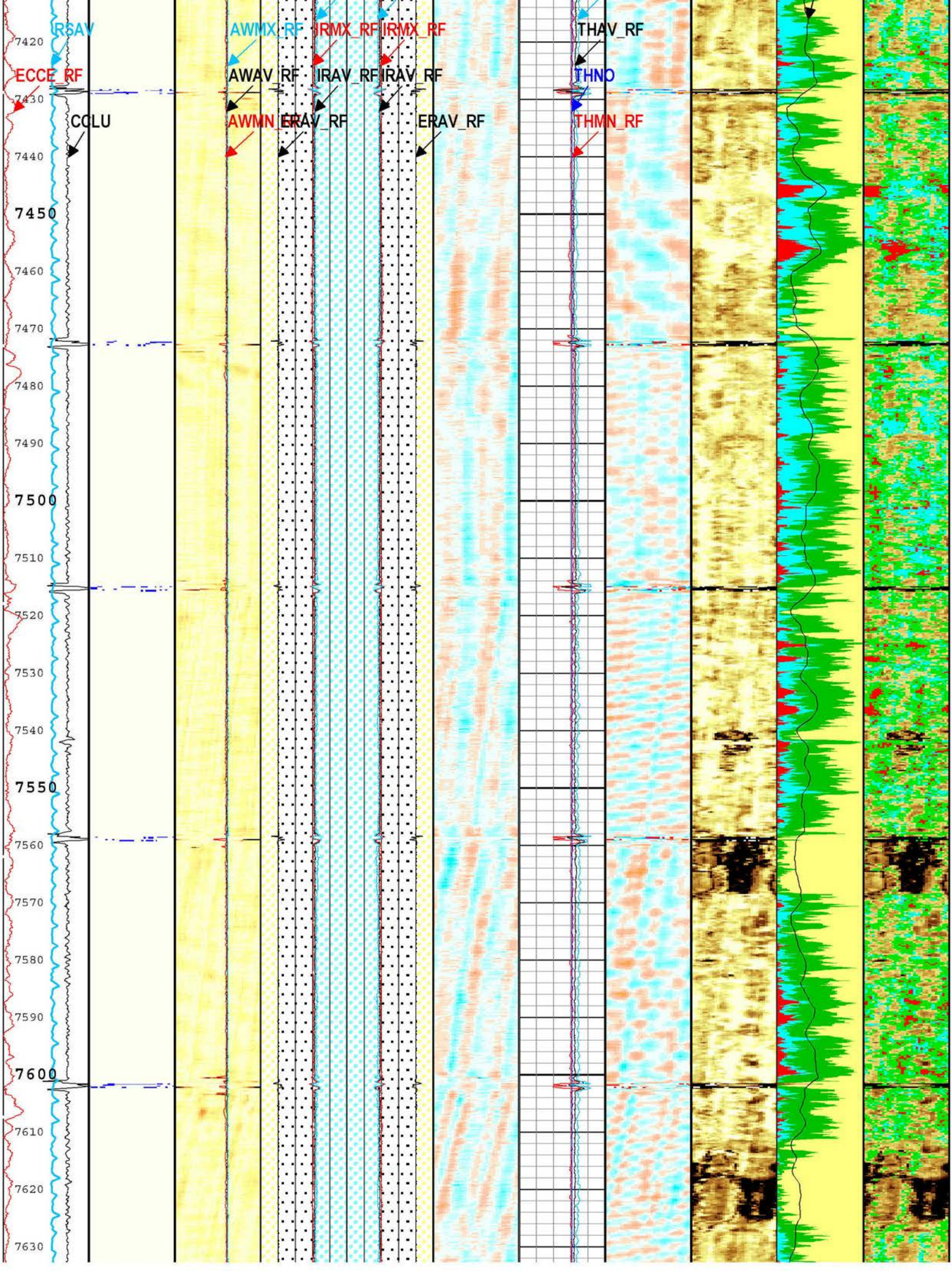
7410
IRMN_RFRMN_RF
THMX_RF
BI


RSAV
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CCLU
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THAV_RF
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THMN_RF
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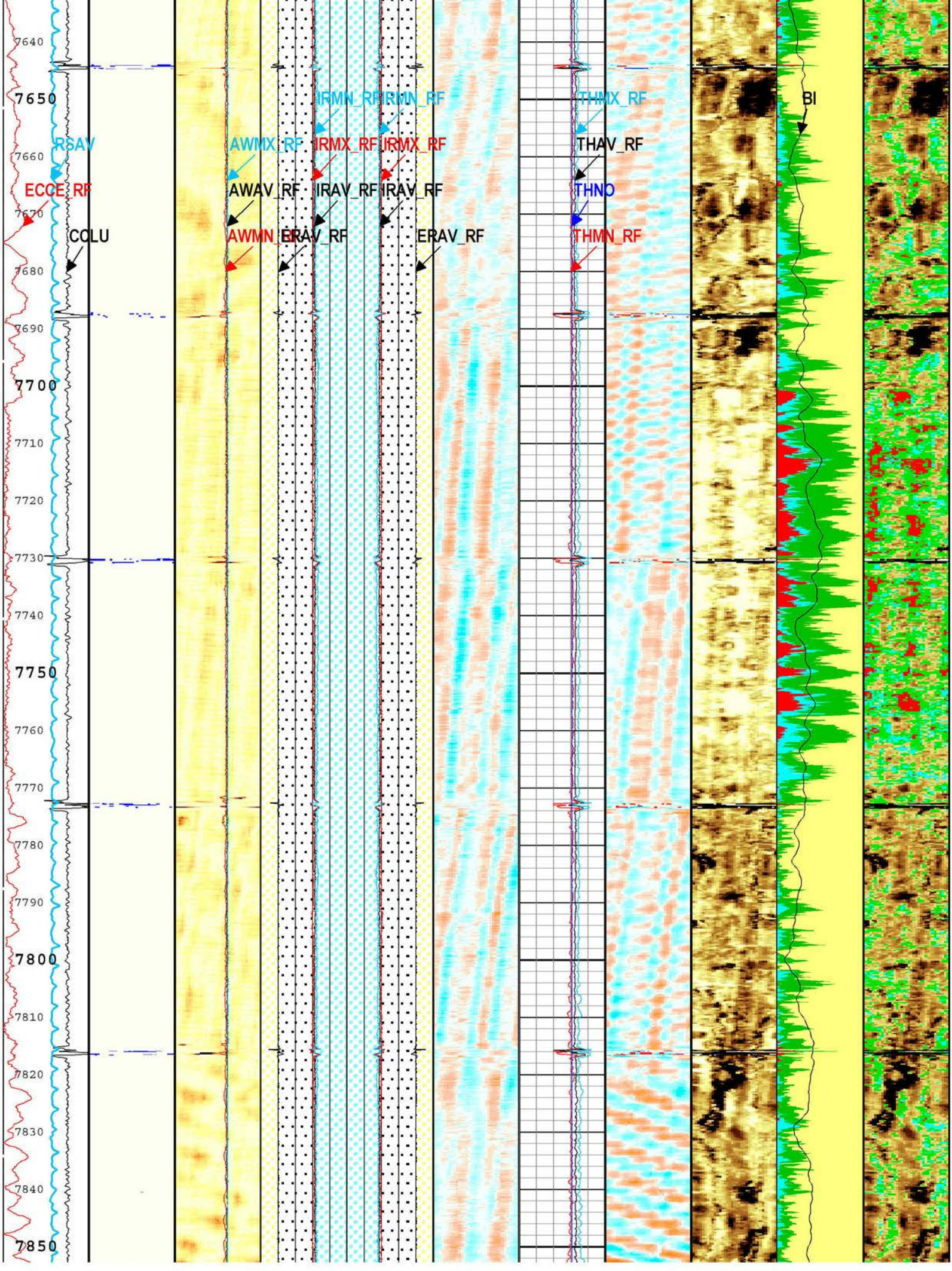
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7840
7850
RSAV
ECCE_RF
COLU
AWMX_RF
AWAV_RF
AWMN_RF
IRMN_RF
IRMX_RF
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THMX_RF
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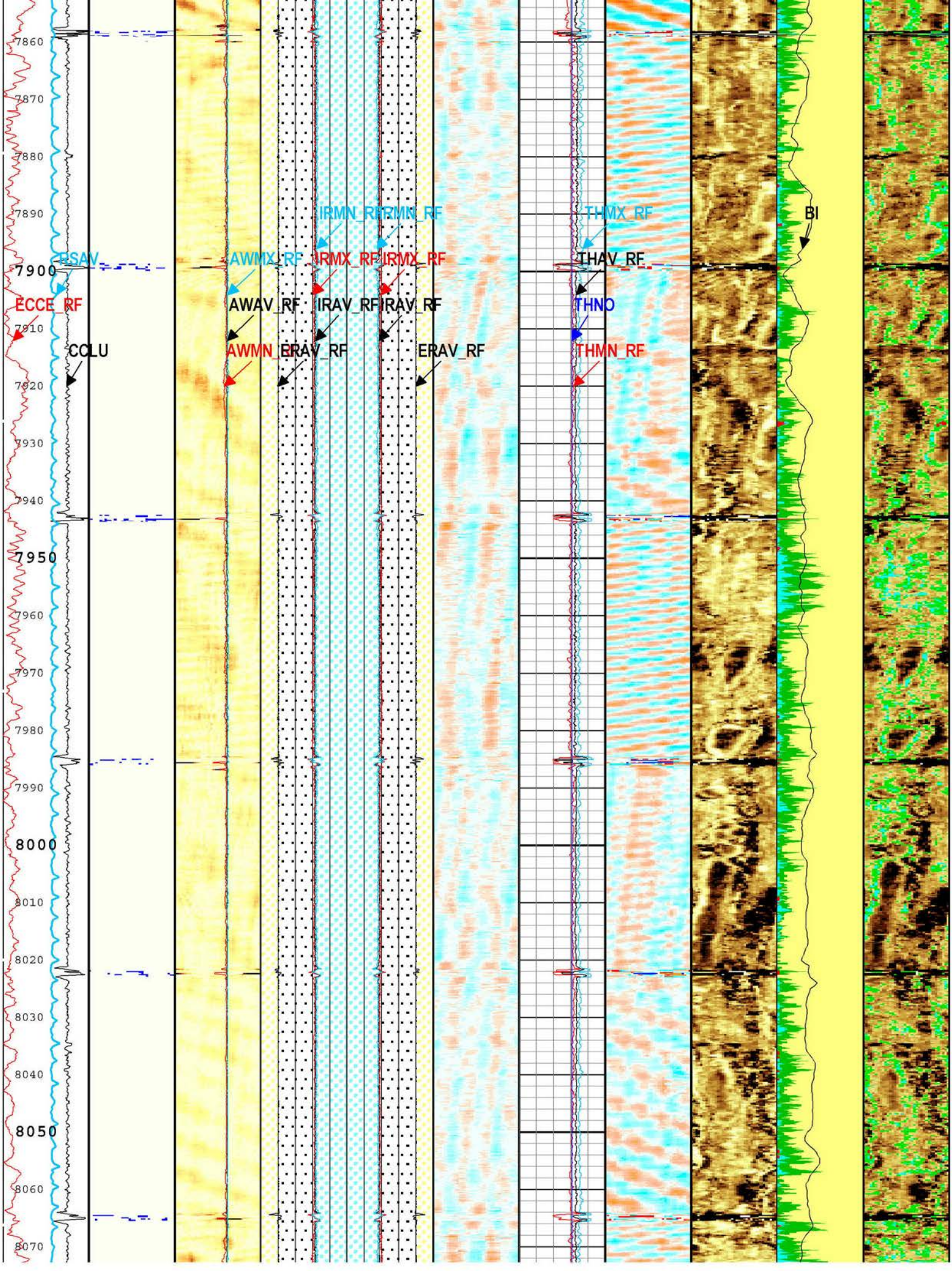
THNO
THMN_RF
BI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RSAV
ECCE_RF
CCLU
AWMX_RF
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THMN_RF
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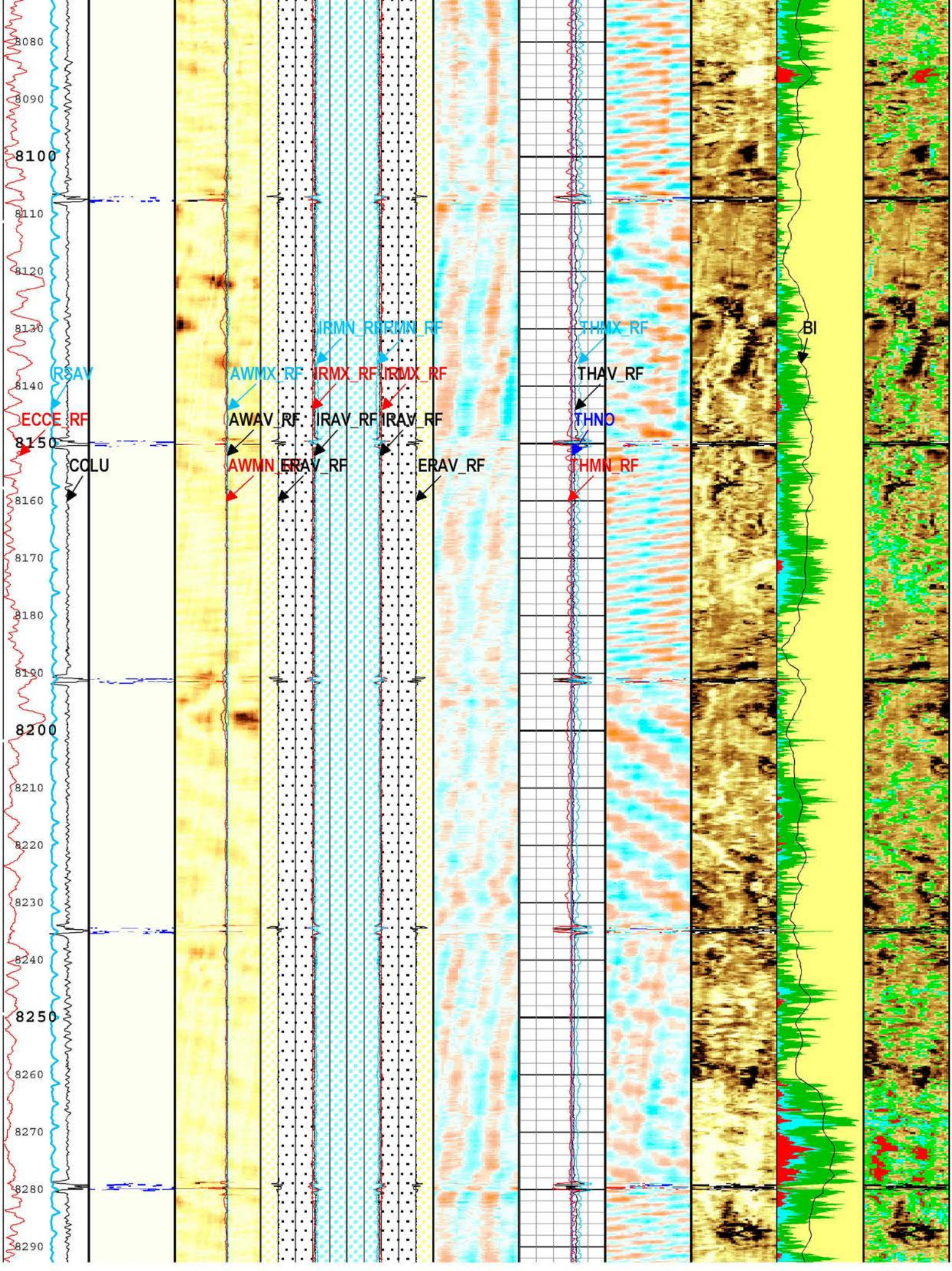
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RSAV
ECCE_RF
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IRMN_RF
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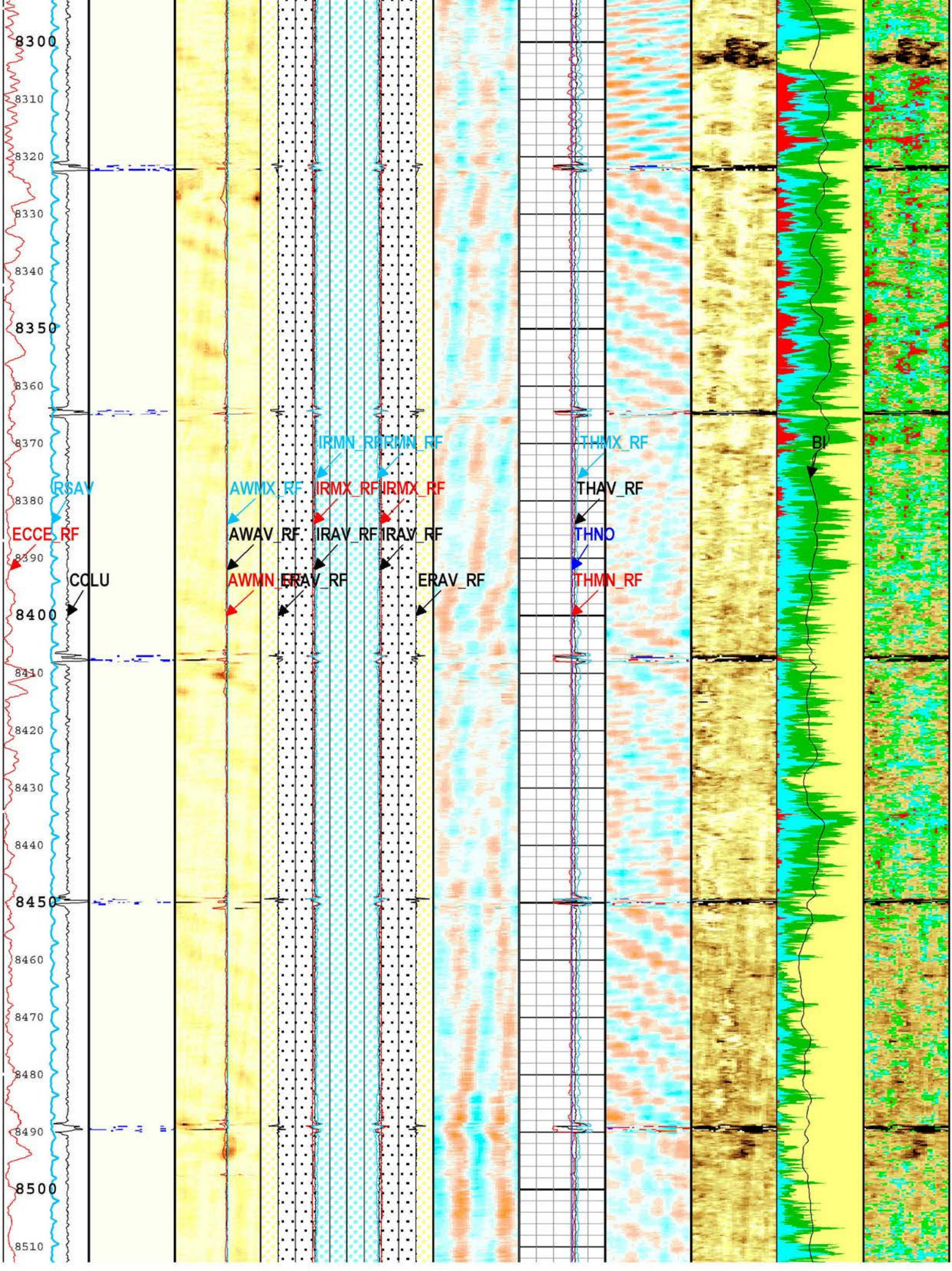
THMN_RF
BI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RSAV
ECCE_RF
COLU
AWMX_RF
AWAV_RF
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IRMN_RF
IRMX_RF
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THMX_RF
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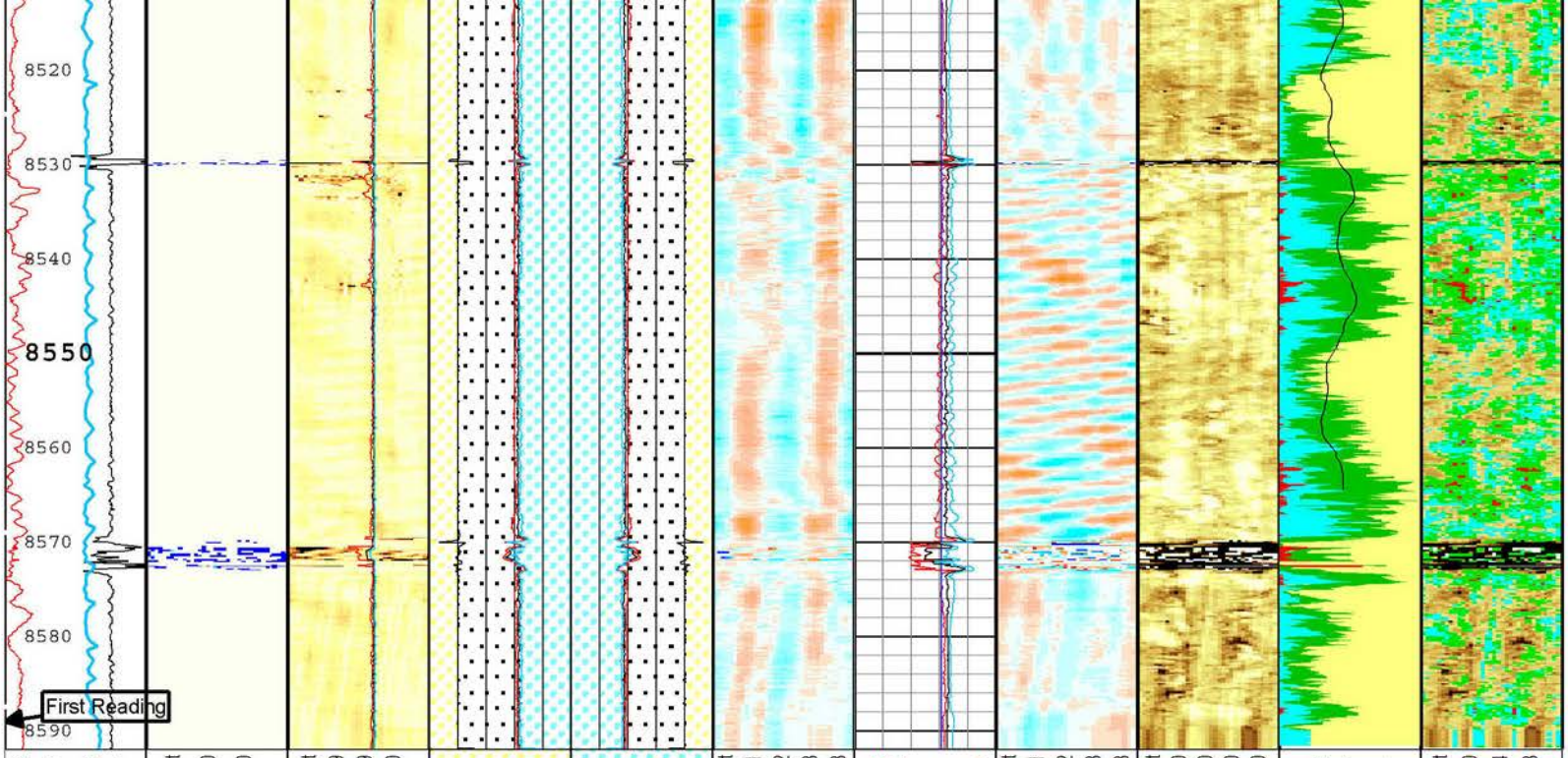
BI



Casing Collar Locator Ultrasonic (CCLU) USIT-E[1]
-30 in 10

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]
Orientation: Top of Hole
U L B R U

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)
Orientation: Top of Hole
U L B R U

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]
3.7 in 2.7

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E[1]
3.7 in 2.7

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E[1]
3.7 in 2.7

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E[1]
3.7 in 2.7

IRAV
ERAV
IRAV-ERAV

Median of Unflagged External Radii (ERAV_RF) USIT-E[1]
2.7 in 3.7

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E[1]
2.7 in 3.7

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E[1]
2.7 in 3.7

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E[1]
2.7 in 3.7

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)
Orientation: Top of Hole
U L B R U

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)
Orientation: Top of Hole
U L B R U

Absent 1.500 3.500 5.500 7.500
Custom Normalization
USIT - Acoustic Impedance (AIBK) USIT-E[1]
(Mrayl)
Orientation: Top of Hole
U L B R U

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)
Orientation: Top of Hole
U L B R U

Absent 2.599 4.563 6.527
Custom Normalization
USIT - Acoustic Impedance With Micro-debonding Image (AI_MDEBOND_IMG) USIT-E[1]
(Mrayl)
Orientation: Top of Hole
U L B R U

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 7inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 07-Sep-2018 22:55:55

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
One	Log[6]:Up	Up	93.36 ft	8592.71 ft	07-Sep-2018 9:51:23 AM	07-Sep-2018 1:52:30 PM	ON	8.00 ft	No
One	Log[9]:Up	Up	11.43 ft	318.32 ft	07-Sep-2018 2:46:40 PM	07-Sep-2018 3:00:05 PM	ON	9.00 ft	No

All depths are referenced to toolstring zero

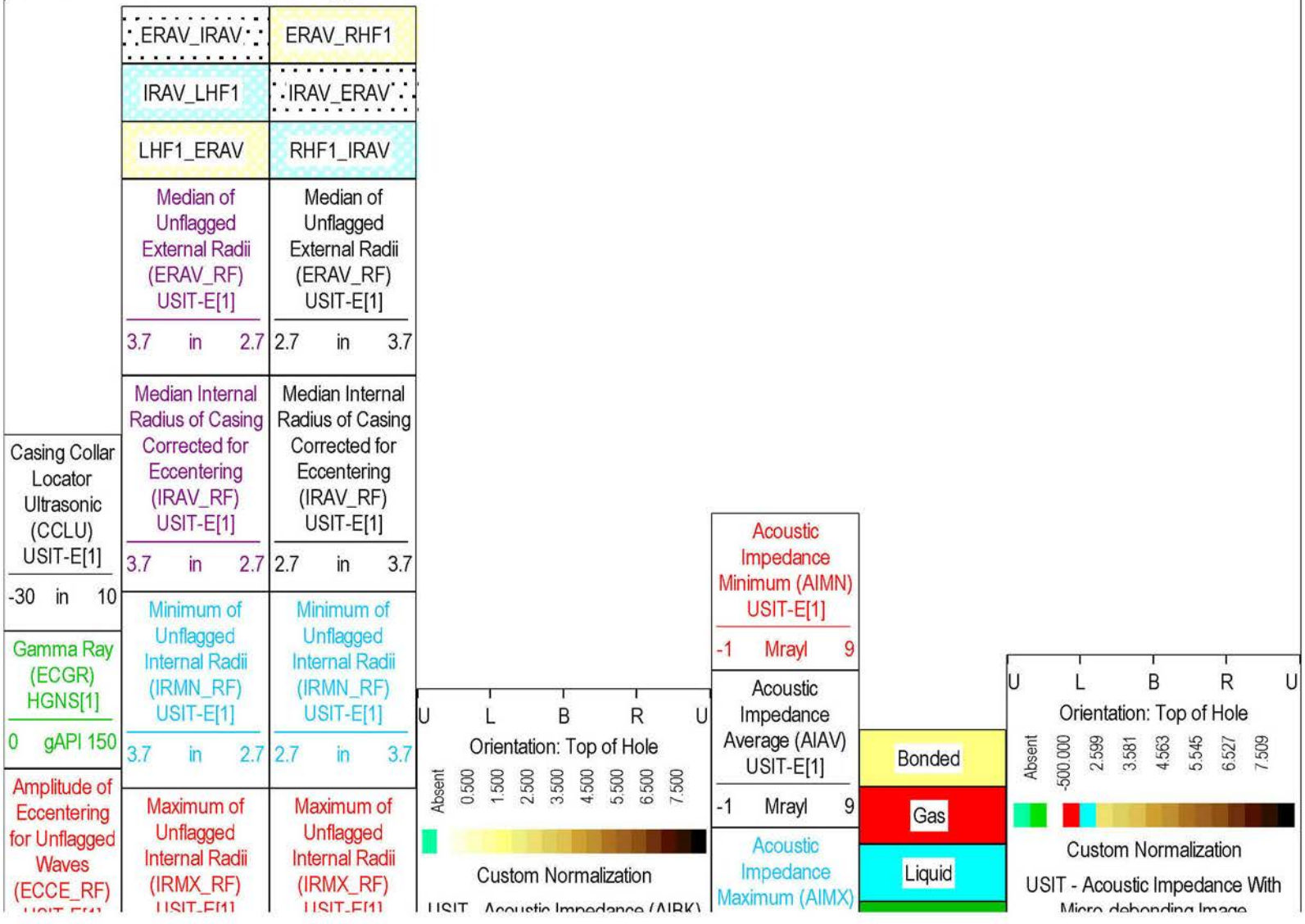
Log

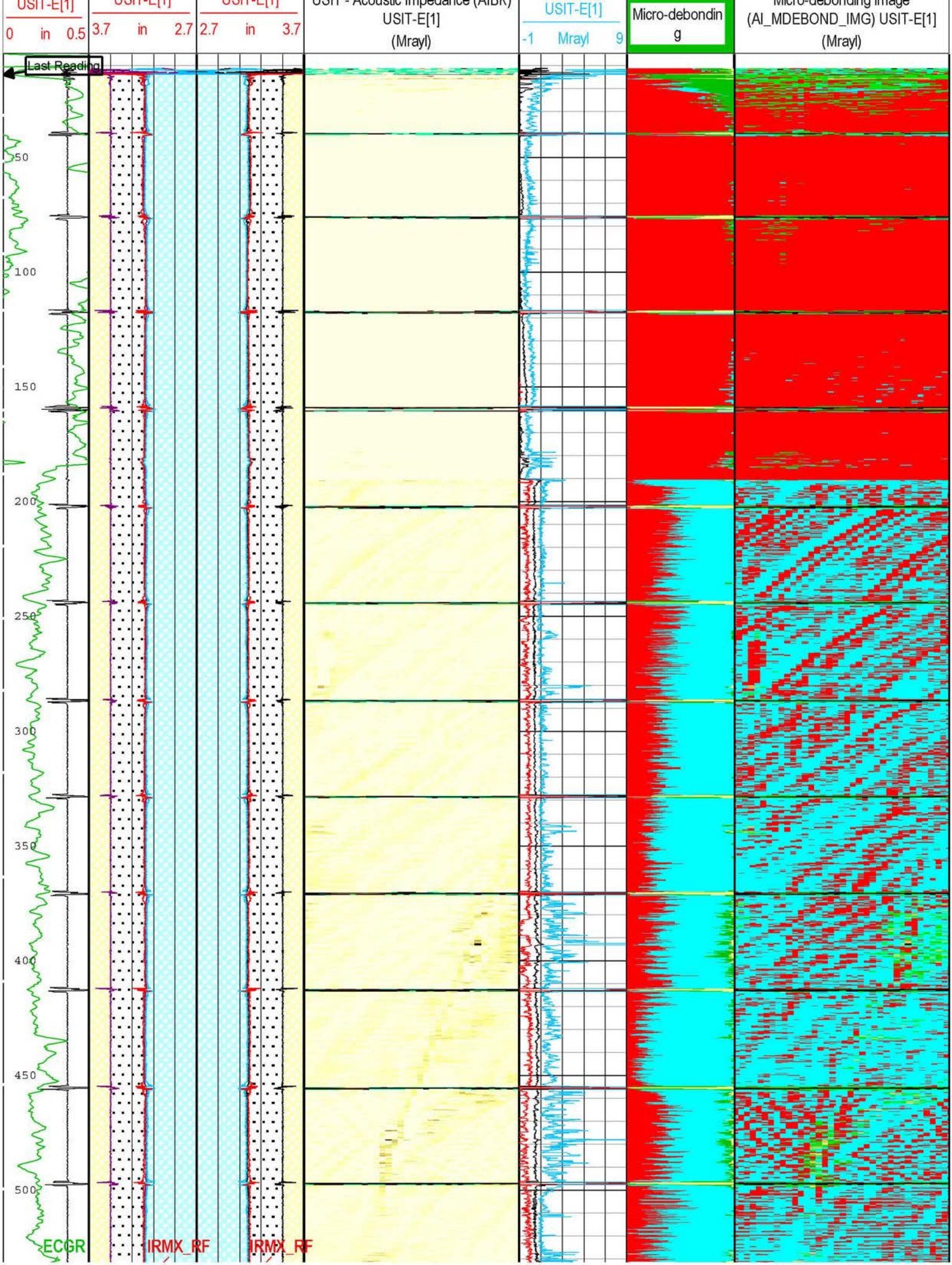
Company:Southern California Gas Company Well:Standard Sesnon 9

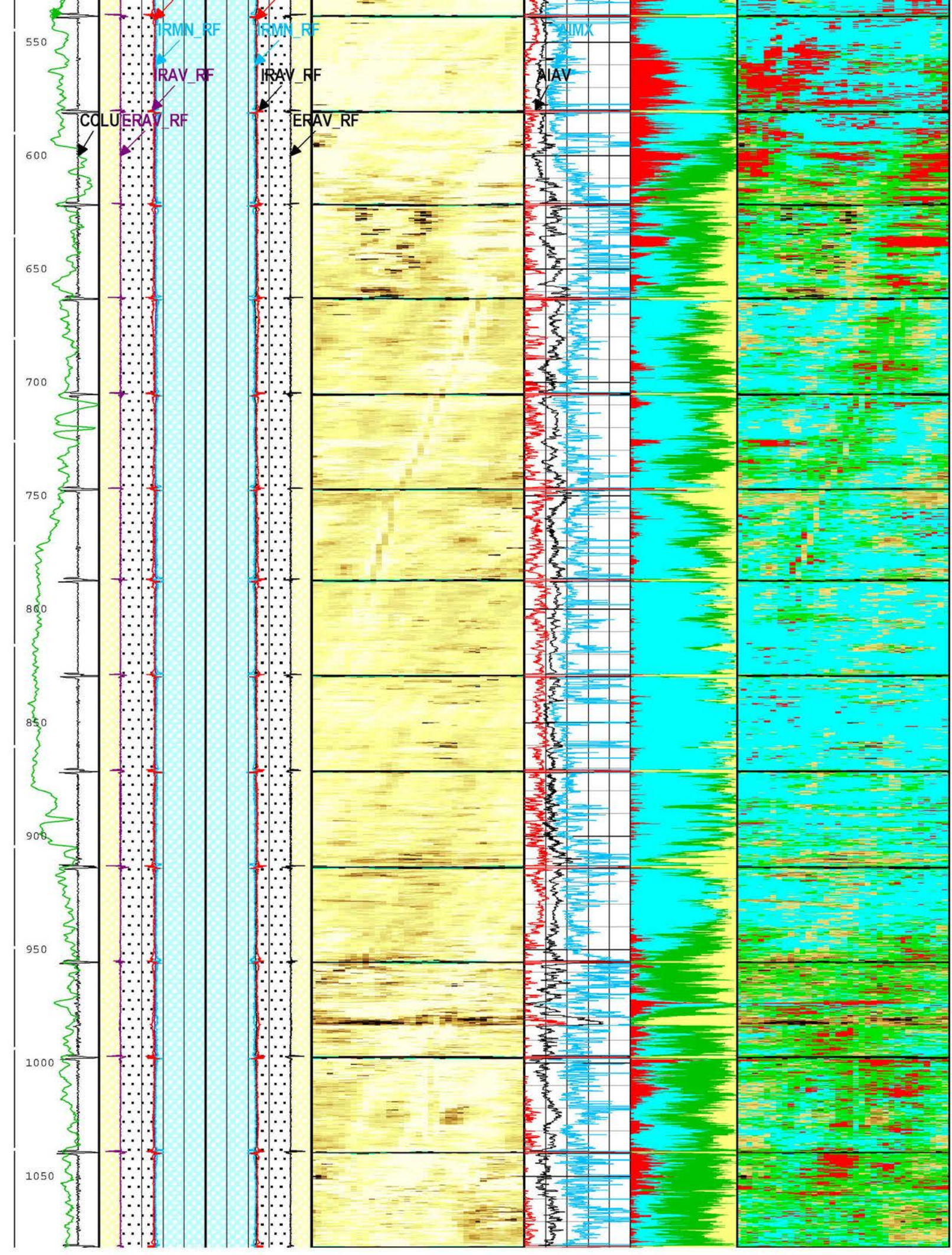
Composite 1:S003

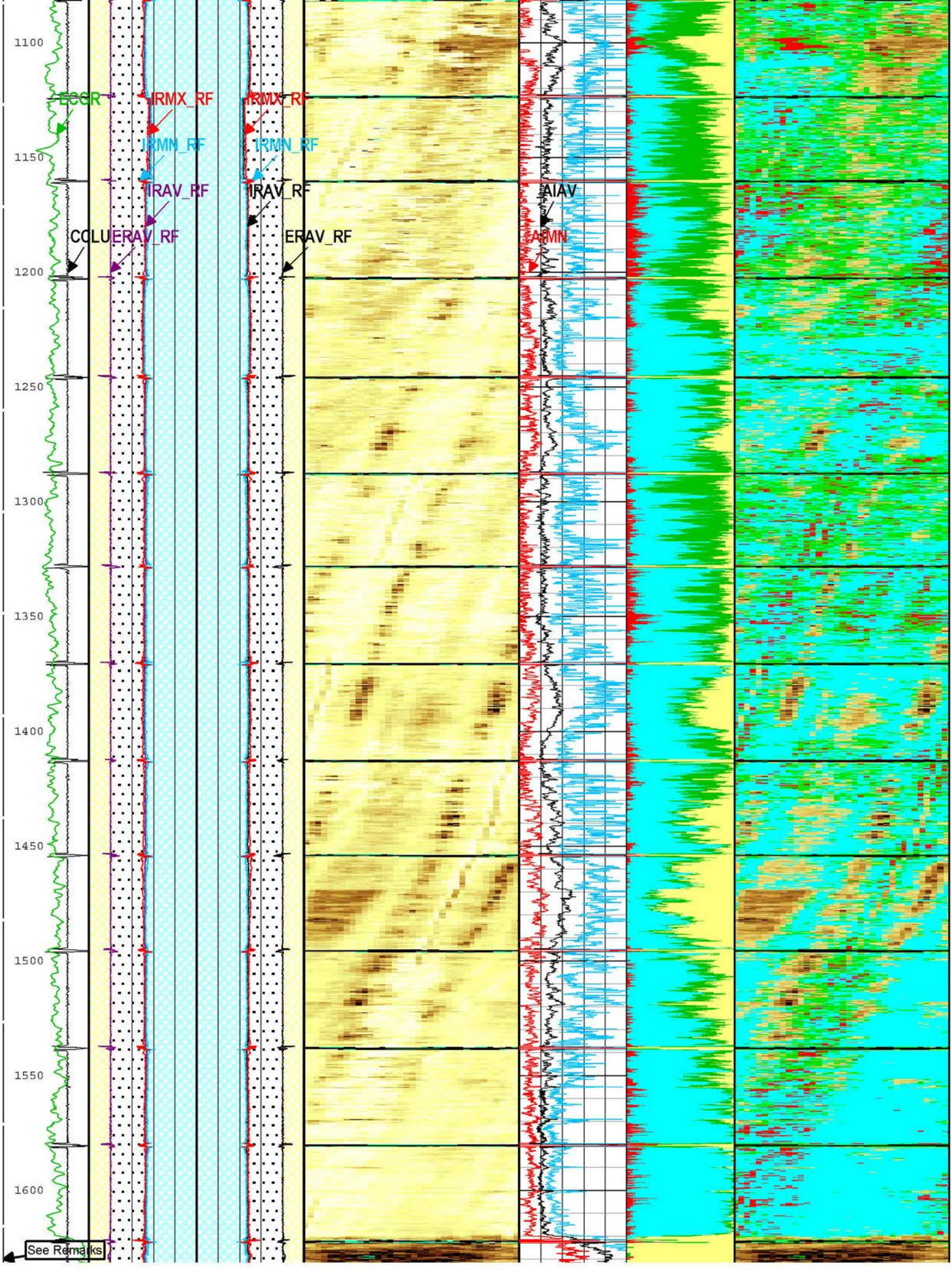
Description: USI Cement Format: Log (LBV1_USI Cement 7inch) Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 07-Sep-2018 22:56:20

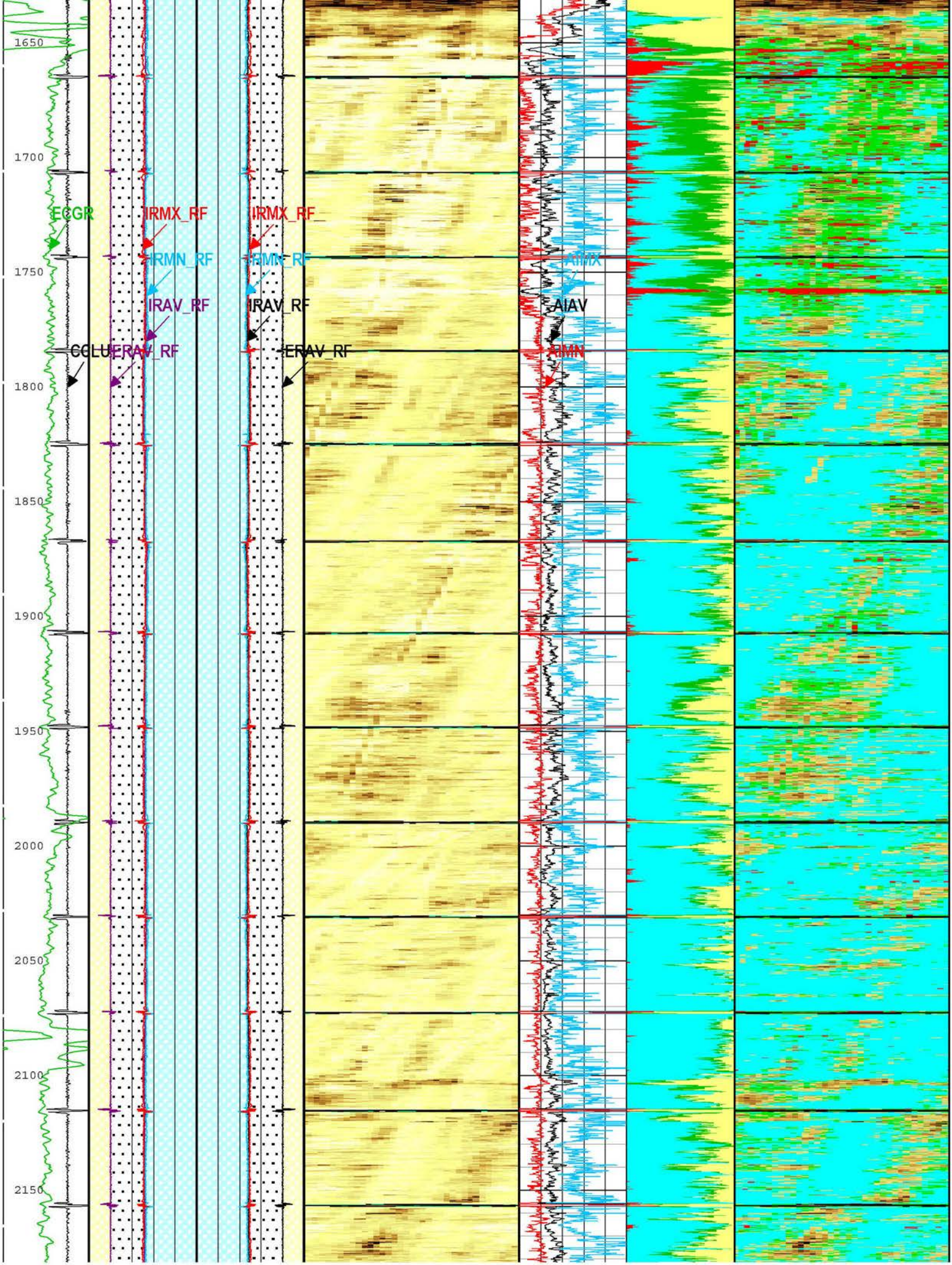
TIME_1900 - Time Marked every 60.00 (s)

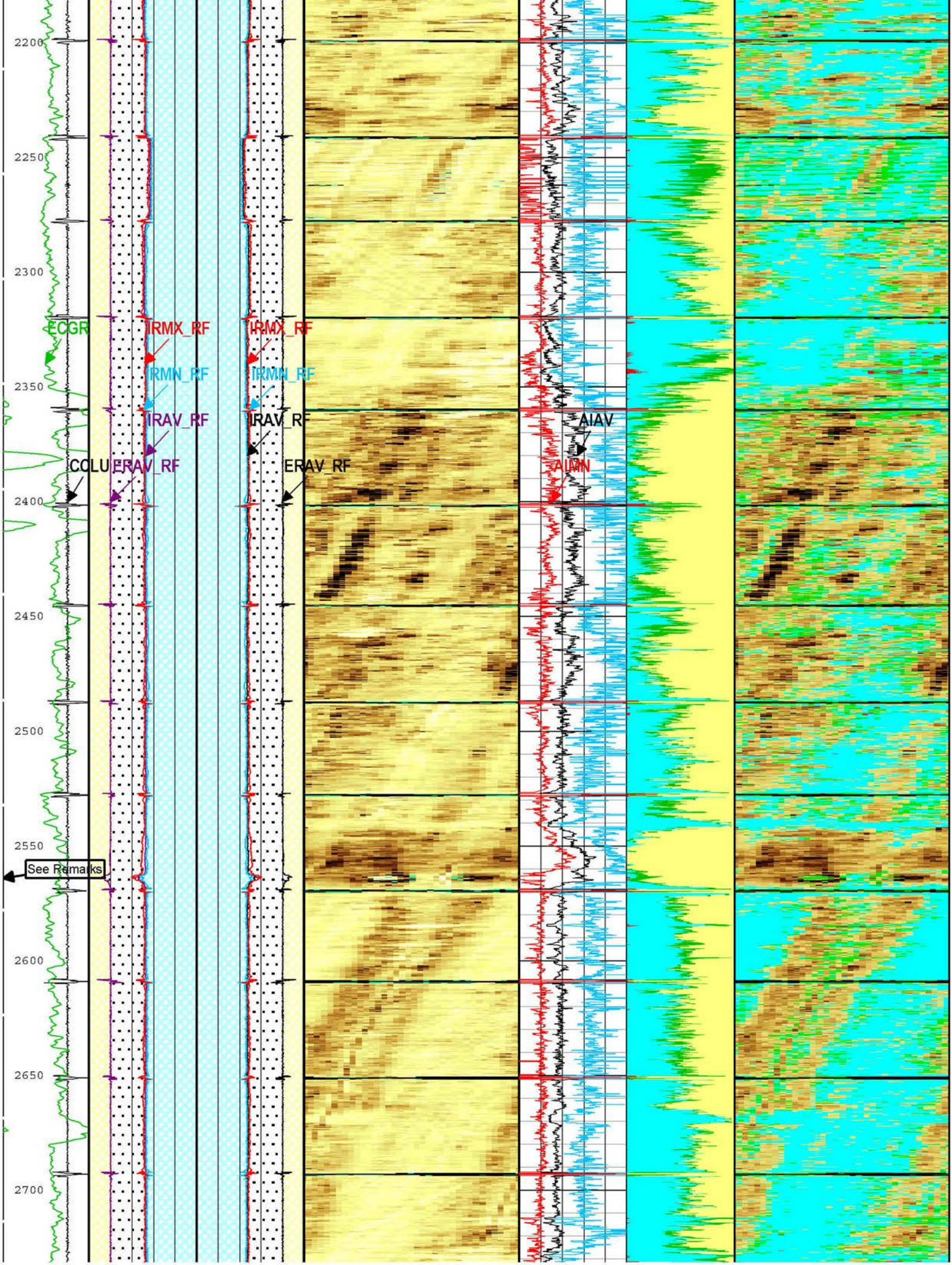



USIT-E[1]
0 in 0.5
USIT-E[1]
3.7 in 2.7
USIT-E[1]
2.7 in 3.7
USIT - Acoustic Impedance (AIBK) USIT-E[1] (Mrayl)
USIT-E[1]
-1 Mrayl 9
Micro-debonding
Micro-debonding Image (AI_MDEBOND_IMG) USIT-E[1] (Mrayl)
Last Reading
50
100
150
200
250
300
350
400
450
500
ECGR
IRMX_RF
IRMX_RF


IRMN_RF
IRMN_RF
IMX
IRAV_RF
IRAV_RF
AIAV
COLU
ERAV_RF
ERAV_RF
550
600
650
700
750
800
850
900
950
1000
1050


1100
1150
1200
1250
1300
1350
1400
1450
1500
1550
1600
ECGR
IRMX_RF
IRMX_RF
IRMN_RF
IRMN_RF
IRAV_RF
IRAV_RF
AIAV
COLU
ERAV_RF
ERAV_RF
AIMN
See Remarks


1650
1700
1750
1800
1850
1900
1950
2000
2050
2100
2150
ECGR
IRMX_RF
IRMX_RF
IRMN_RF
IRMN_RF
IRAV_RF
IRAV_RF
CCLU
ERAV_RF
ERAV_RF
AIMX
AIAV
AIMN


2200
2250
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2400
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2500
2550
2600
2650
2700
ECGR
IRMX_RF
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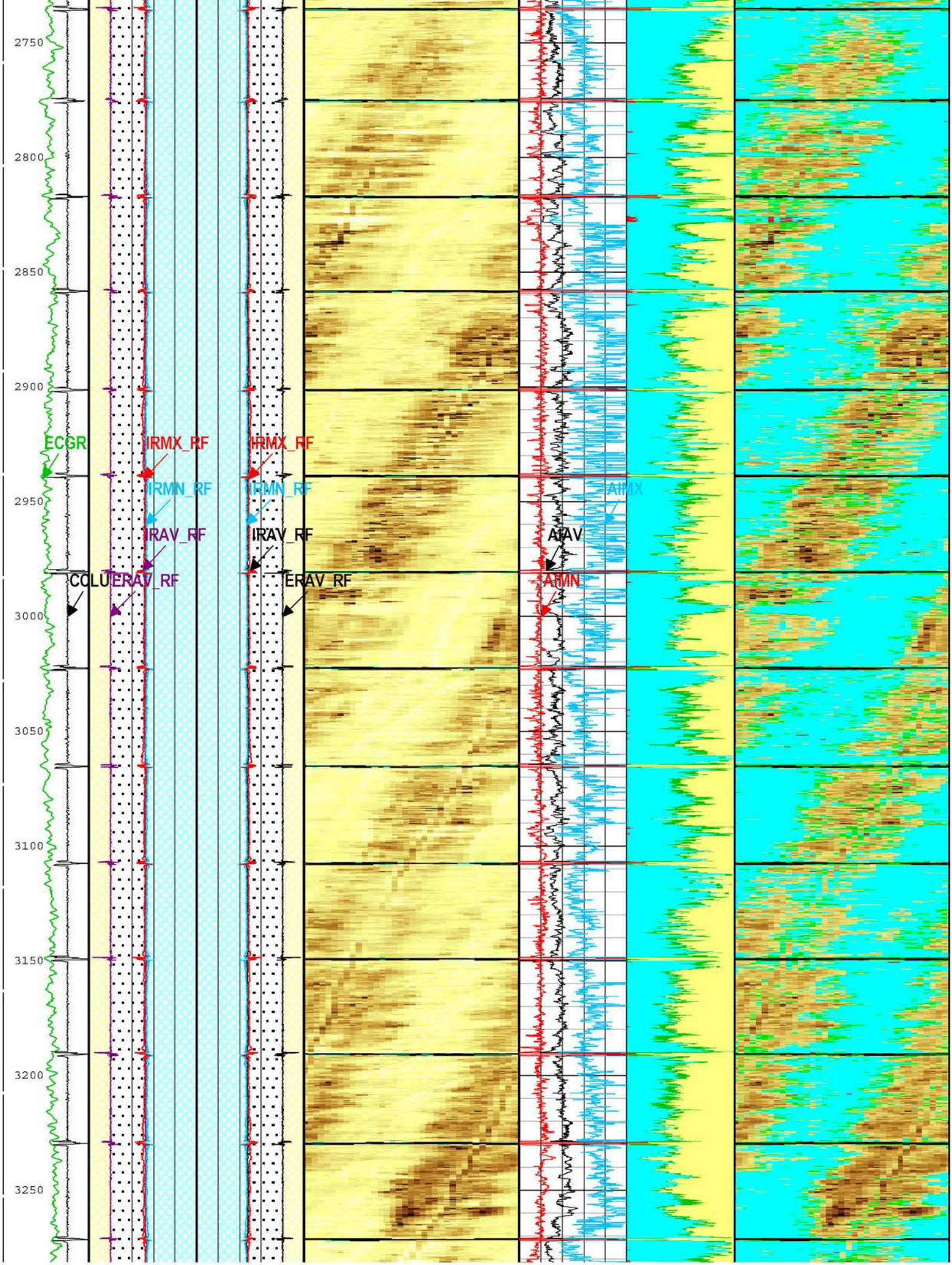
IRAV_RF
ERAV_RF
COLU
IRMX_RF
IRMN_RF
IRAV_RF
ERAV_RF
AIAV
AIMN
See Remarks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3200
3250
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IRMX_RF
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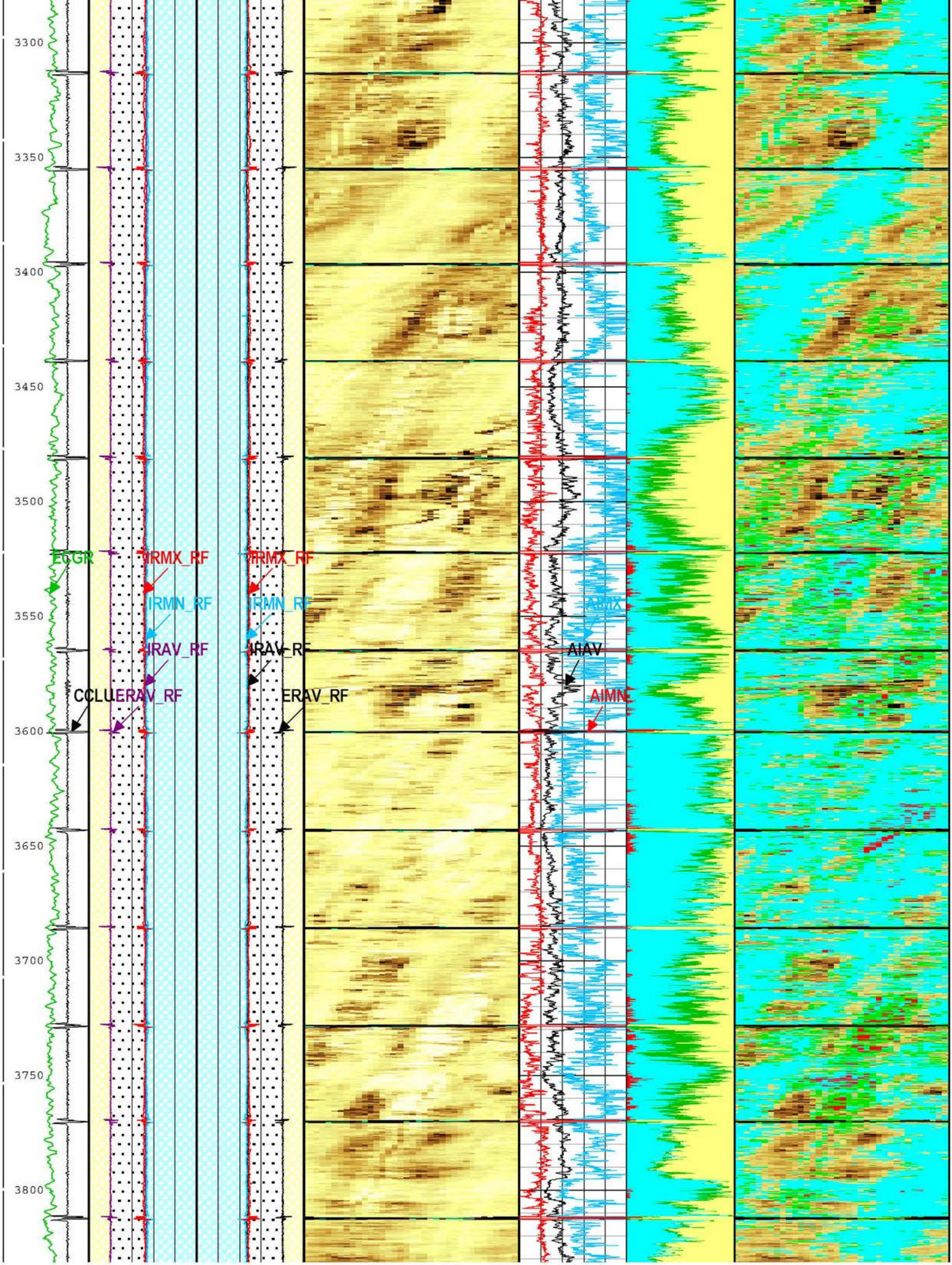
IRAV_RF
IRAV_RF
COLU
ERAV_RF
ERAV_RF
AIMX
AIAV
AIMN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ERAV_RF
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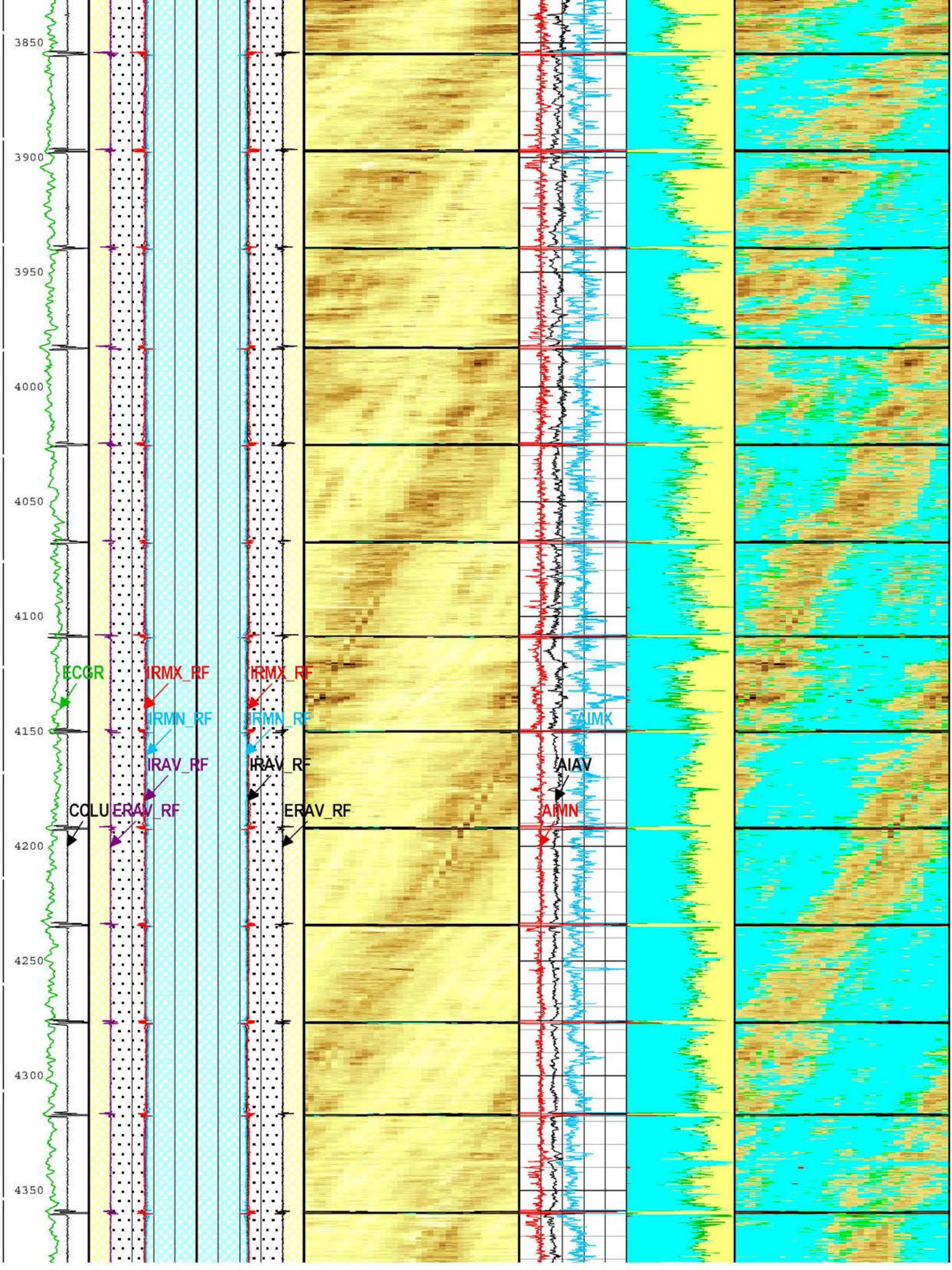
AIMN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COLU
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ERAV_RF
AIMX
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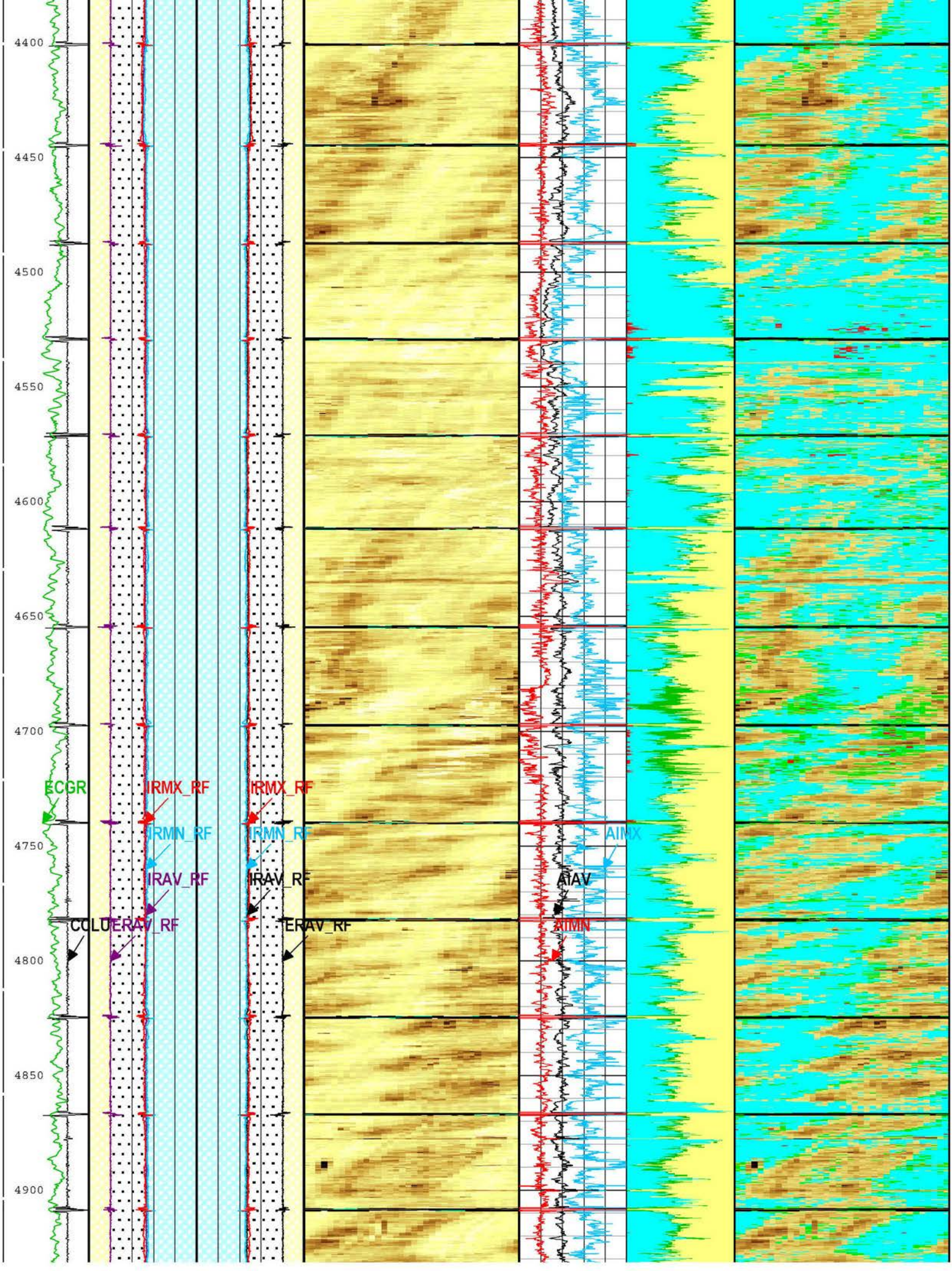
AIMN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4600
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4750
4800
4850
4900
ECGR
IRMX_RF
IRMN_RF
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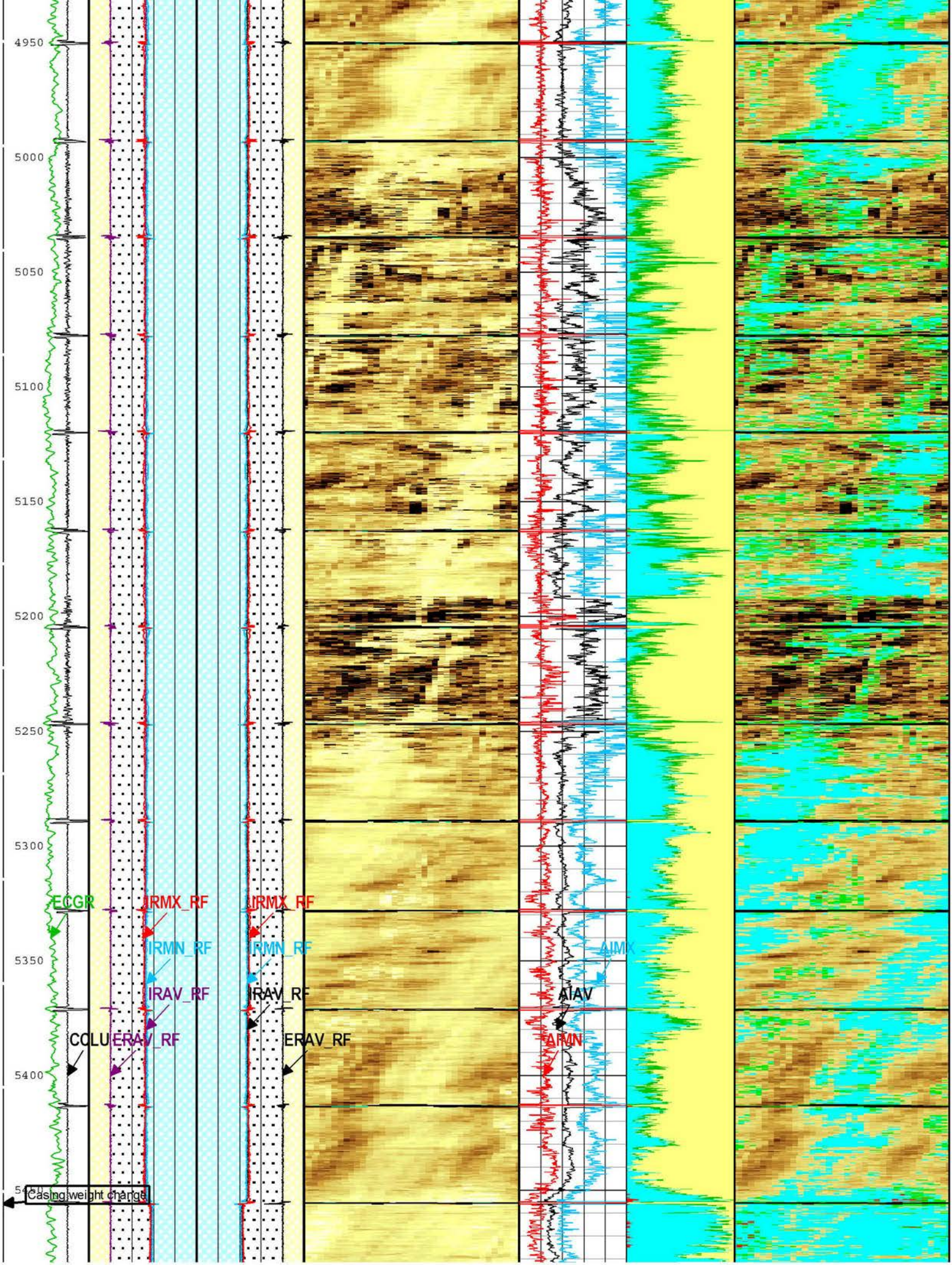
ERAV_RF
COLU
IRMX_RF
IRMN_RF
IRAV_RF
ERAV_RF
AIMX
AIAV
AIMN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5400
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IRMN_RF
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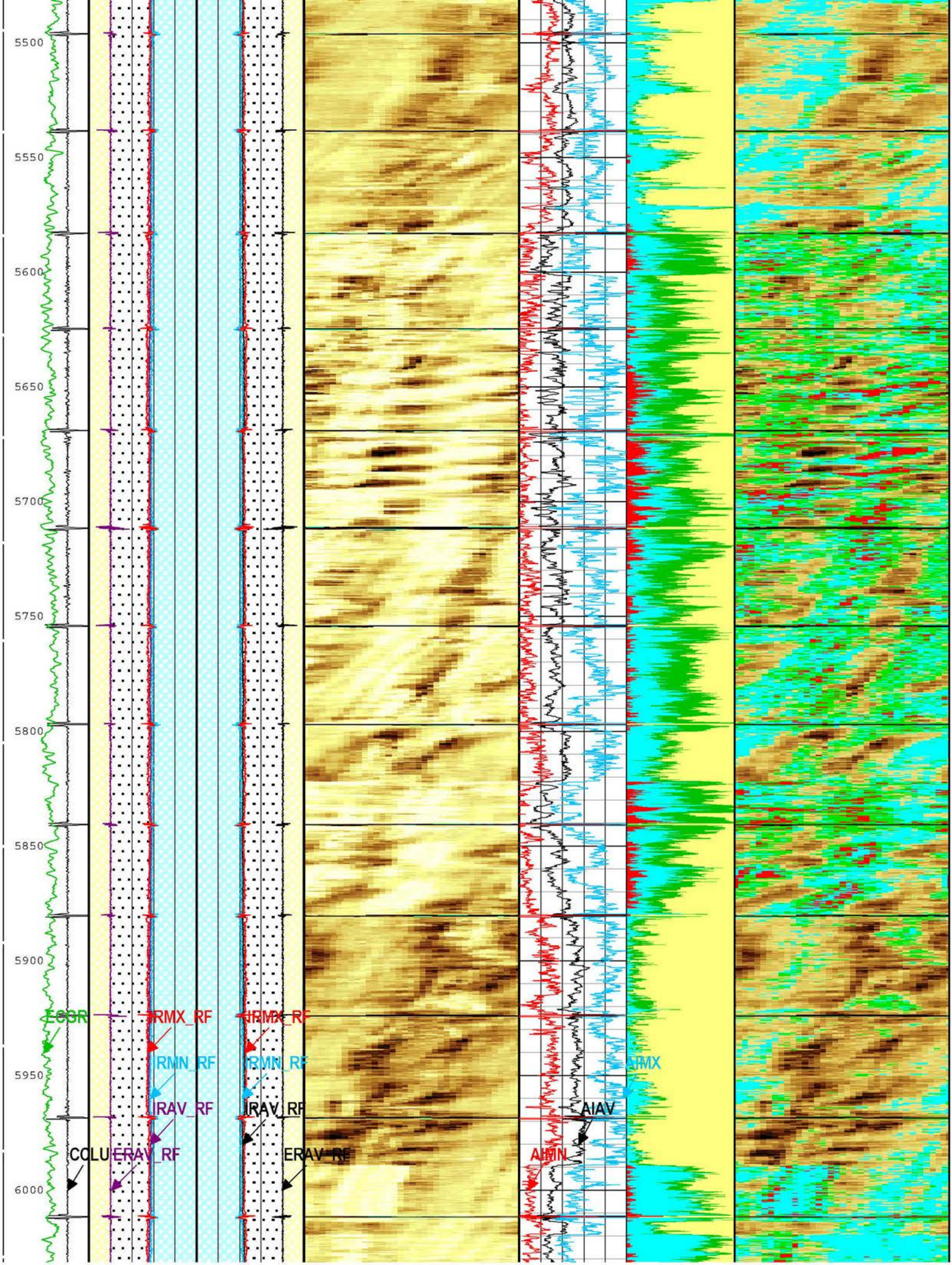
COLU
ERAV_RF
IRMX_RF
IRMN_RF
IRAV_RF
ERAV_RF
AIMX
AIAV
AIMN
Casing weight change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ECGR
IRMX_RF
IRMX_RF
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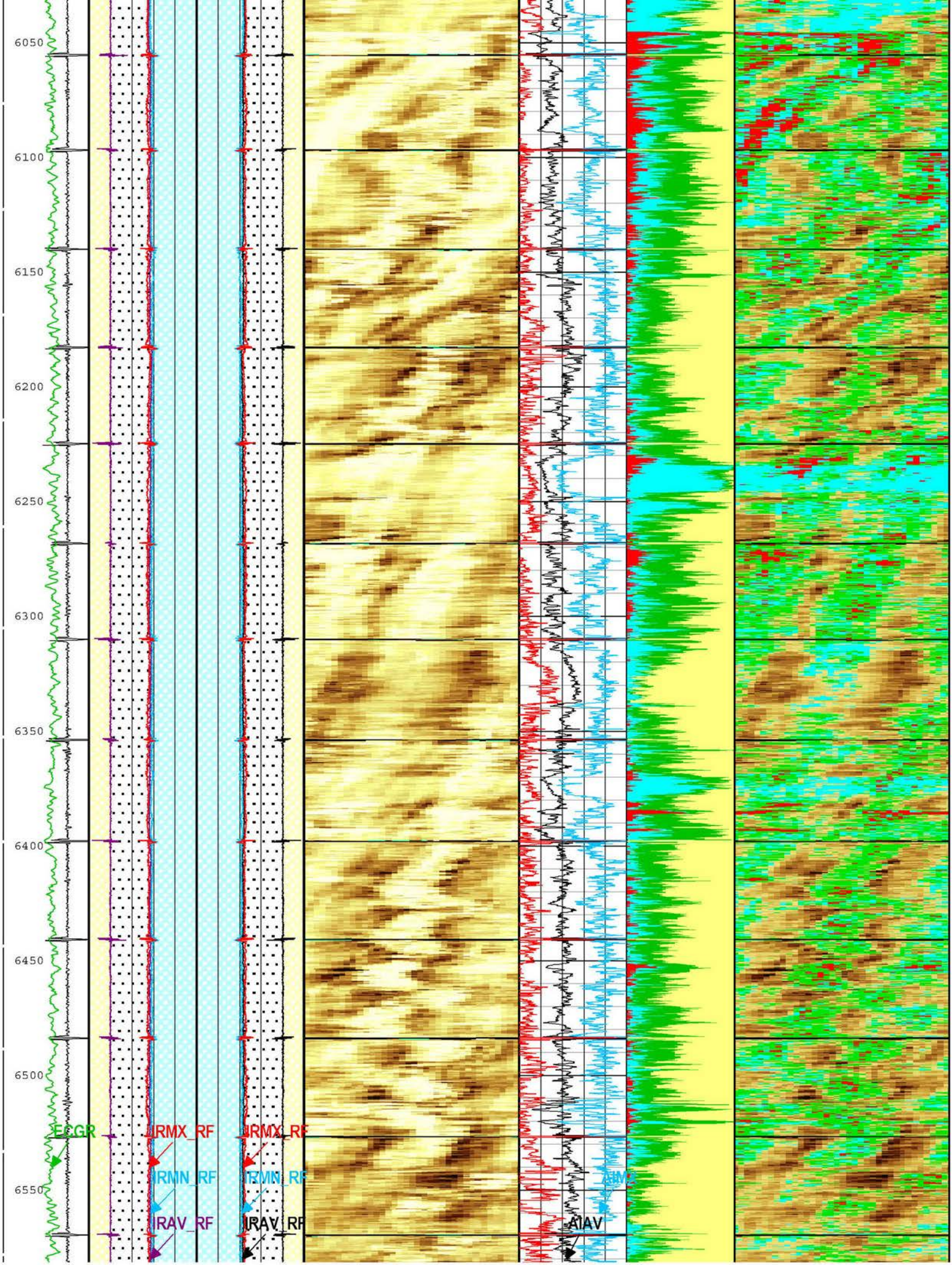
COLU
ERAV_RF
ERAV_RF
IMX
AIAV
AIMN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ECGR
IRMX_RF
IRMX_RF
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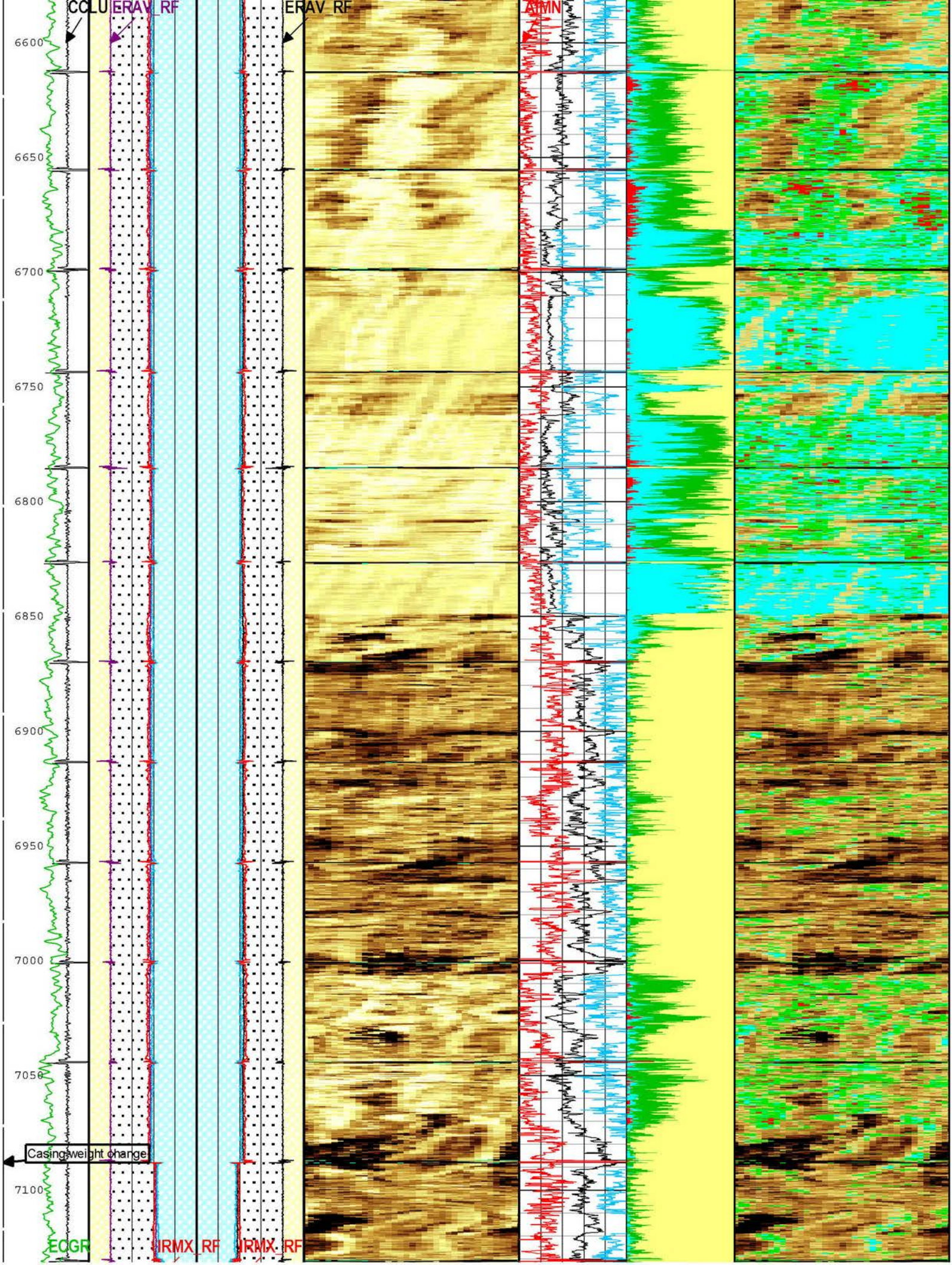
IRMN_RF
IRAV_RF
IRAV_RF
AIAV


CCLU
ERAV_RF
ERAV_RF
AIMN
6600
6650
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6800
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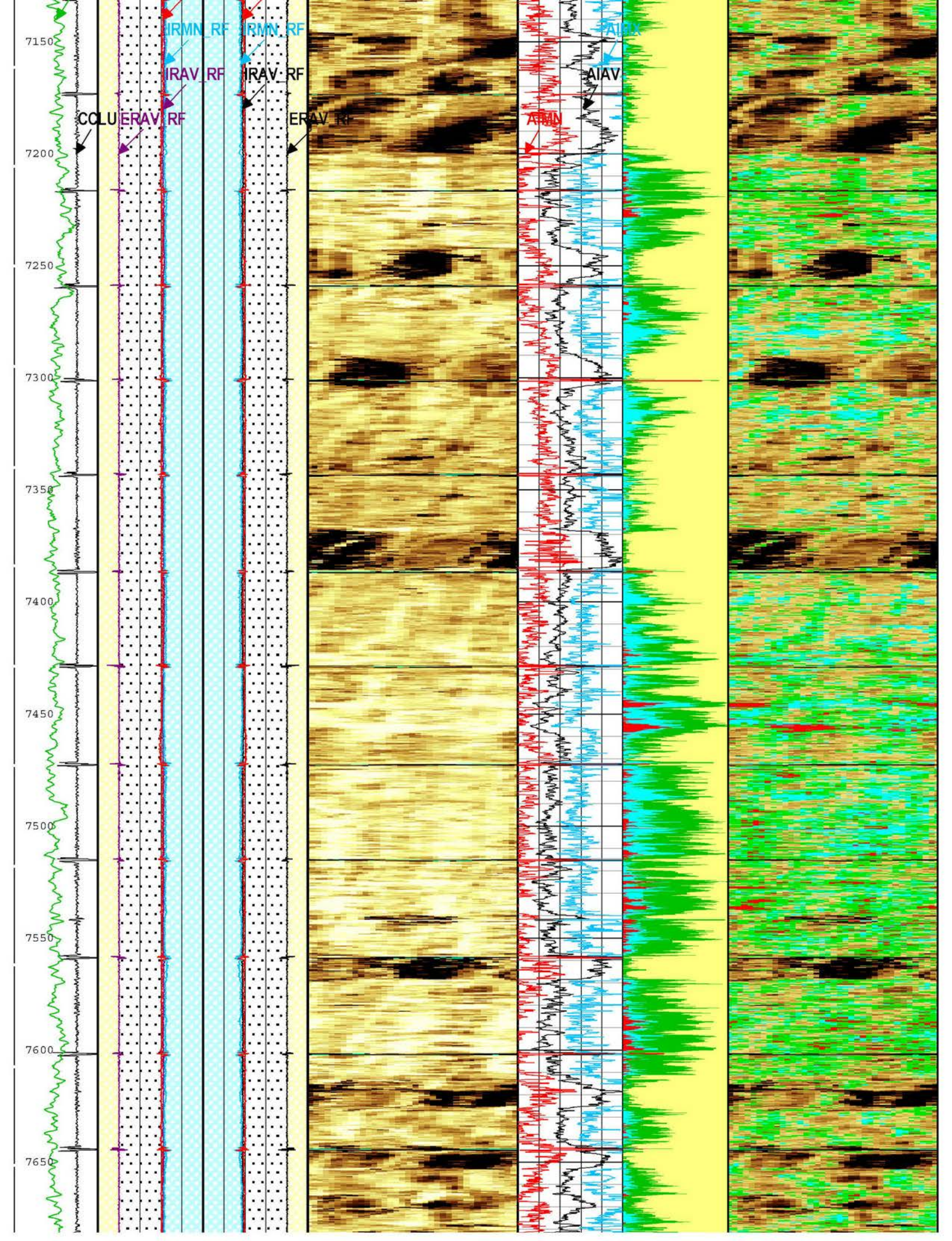
6900
6950
7000
7050
Casing weight change
7100
ECGR
IRMX_RF
IRMX_RF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7200
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ERAV_RF
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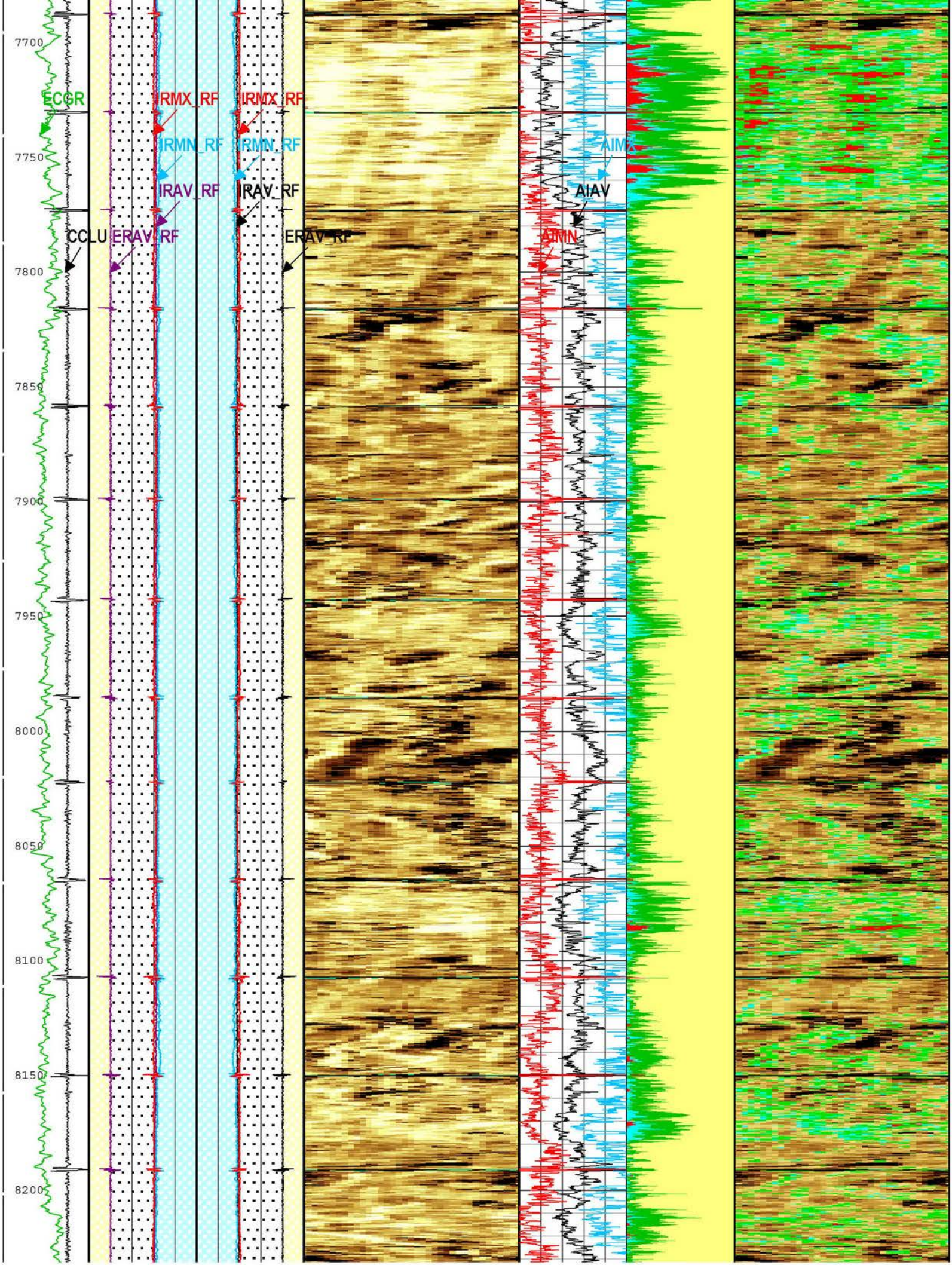
AIMN
AIAV
AIMN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8150
8200
ECGR
IRMX_RF
IRMX_RF
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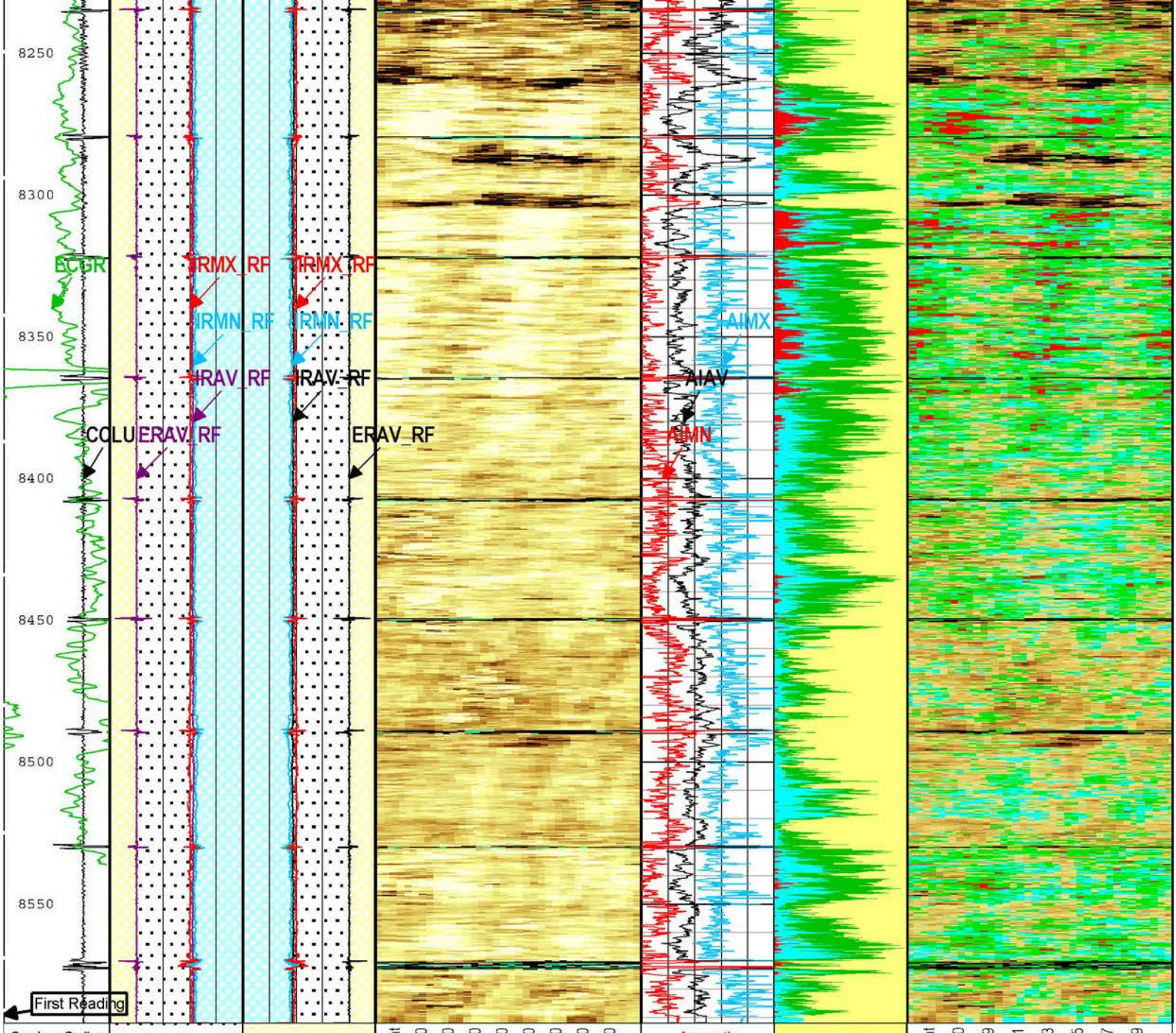
IRAV_RF
IRAV_RF
CCLU
ERAV_RF
ERAV_RF
AIMX
AIAV
AIMN



Casing Collar Locator Ultrasonic (CCLU) USIT-E[1]
-30 in 10

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

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

ERAV_IRAV

IRAV_LHF1

LHF1_ERAV

Median of Unflagged External Radii (ERAV_RF) USIT-E[1]
3.7 in 2.7

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E[1]
3.7 in 2.7

ERAV_RHF1

IRAV_ERAV

RHF1_IRAV

Median of Unflagged External Radii (ERAV_RF) USIT-E[1]
2.7 in 3.7

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E[1]
2.7 in 3.7

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)
Orientation: Top of Hole
U L B R U

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

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

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

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)
Orientation: Top of Hole
U L B R U

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E[1]	Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E[1]
3.7 in 2.7	2.7 in 3.7
Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E[1]	Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E[1]
3.7 in 2.7	2.7 in 3.7

TIME_1900 - Time Marked every 60.00 (s)

Description: USI Cement Format: Log (LBV1_USI Cement 7inch) Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 07-Sep-2018 22:56:20

Composite 1

Corrosion 5 in = 100 ft

Composite Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[6]:Up	Up	93.36 ft	8592.71 ft	07-Sep-2018 9:51:23 AM	07-Sep-2018 1:52:30 PM	ON	8.00 ft	No
One	Log[9]:Up	Up	11.43 ft	318.32 ft	07-Sep-2018 2:46:40 PM	07-Sep-2018 3:00:05 PM	ON	9.00 ft	No

All depths are referenced to toolstring zero

Log

Company:Southern California Gas Company Well:Standard Sesnon 9 Composite 1:S003

Description: USI Composite Format: Log (LBV1_USI Corrosion 5inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 07-Sep-2018 22:56:36

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] - :
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

U L B R U
Orientation: Top of Hole

Absent -5.200 -3.600 -2.000 -0.400

Explicit Normalization

USIT - Amplitude of Unflagged Wave (AWBK_RF) USIT-E[1] (dB)

ERAV	IRAV
ERAV-IRAV	ERAV
IRAV	IRAV-ERAV
Median of Unflagged External Radii (ERAV_RF) USIT-E[1]	Median of Unflagged External Radii (ERAV_RF) USIT-E[1]
3.7 in 2.7	2.7 in 3.7
Median Internal Radius of Casing Corrected for Eccentering	Median Internal Radius of Casing Corrected for Eccentering

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

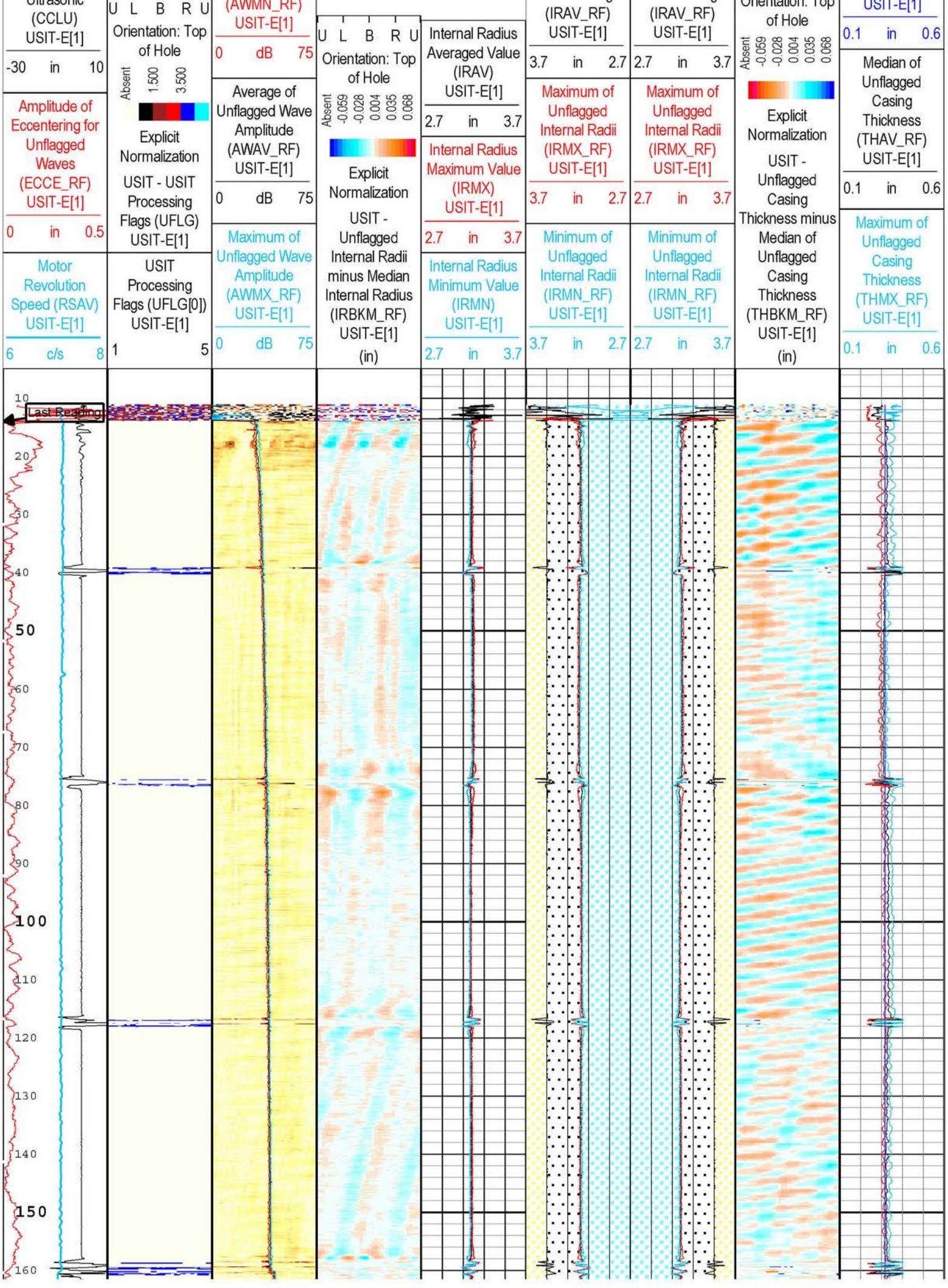
0.1 in 0.6

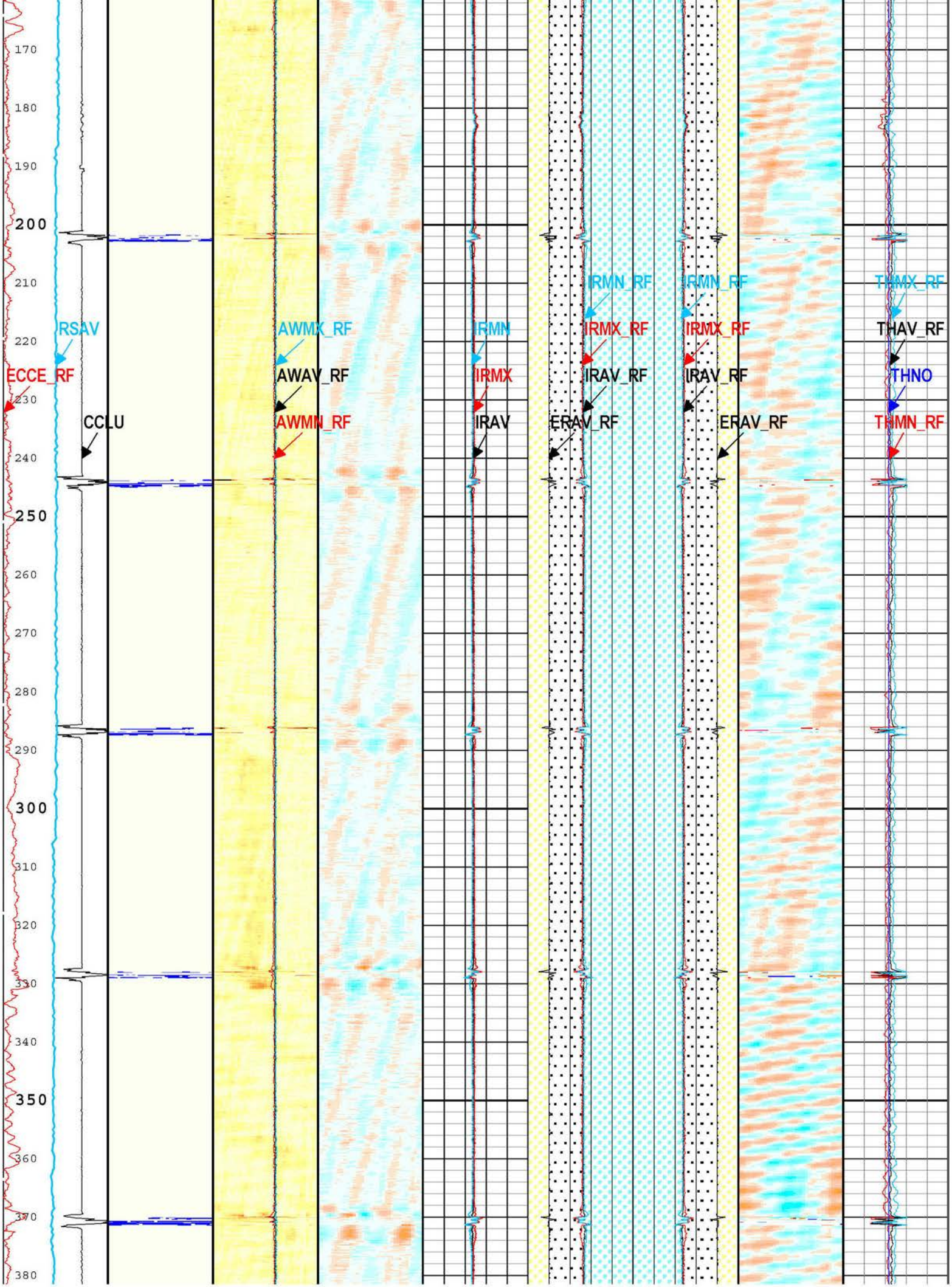
Nominal Casing Thickness (THNO)

Casing Collar Locator

Minimum of Unflagged Wave Amplitude

U L B R U


Ultrasonic (CCLU) USIT-E[1]
-30 in 10
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
U L B R U
Orientation: Top of Hole
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
(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
U L B R U
Orientation: Top of Hole
Absent -0.059 -0.028 0.004 0.035 0.068
Explicit Normalization
USIT - Unflagged Internal Radii minus Median Internal Radius (IRBKM_RF) USIT-E[1]
(in)
Internal Radius Averaged Value (IRAV) USIT-E[1]
2.7 in 3.7
Internal Radius Maximum Value (IRMX) USIT-E[1]
2.7 in 3.7
Internal Radius Minimum Value (IRMN) USIT-E[1]
2.7 in 3.7
(IRAV_RF) USIT-E[1]
3.7 in 2.7
Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E[1]
3.7 in 2.7
Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E[1]
3.7 in 2.7
(IRAV_RF) USIT-E[1]
2.7 in 3.7
Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E[1]
2.7 in 3.7
Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E[1]
2.7 in 3.7
Orientation: Top of Hole
Absent -0.059 -0.028 0.004 0.035 0.068
Explicit Normalization
USIT - Unflagged Casing Thickness minus Median of Unflagged Casing Thickness (THBKM_RF) USIT-E[1]
(in)
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
Last Reading
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160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290
300
310
320
330
340
350
360
370
380
RSAV
ECCE_RF
CCLU
AWMX_RF
AWAV_RF
AWMN_RF
IRMN
IRMX
IRAV
IRMN_RF
IRMX_RF
IRAV_RF
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IRAV_RF
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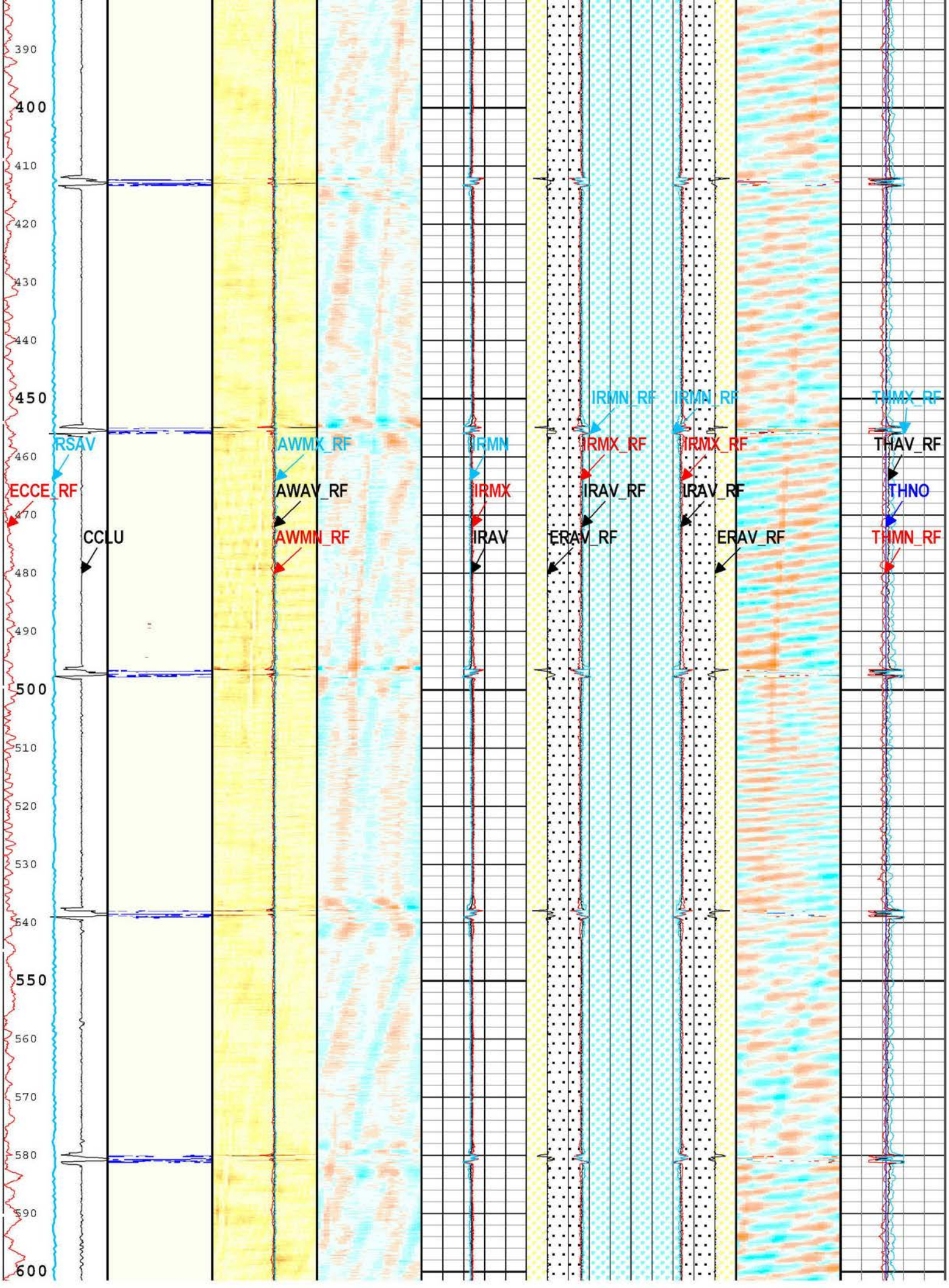
THMX_RF
THAV_RF
THNO
THMN_RF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590
600
RSAV
ECCE_RF
CCLU
AWMX_RF
AWAV_RF
AWMN_RF
IRMN
IRMX
IRAV
IRMN_RF
IRMX_RF
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IRMX_RF
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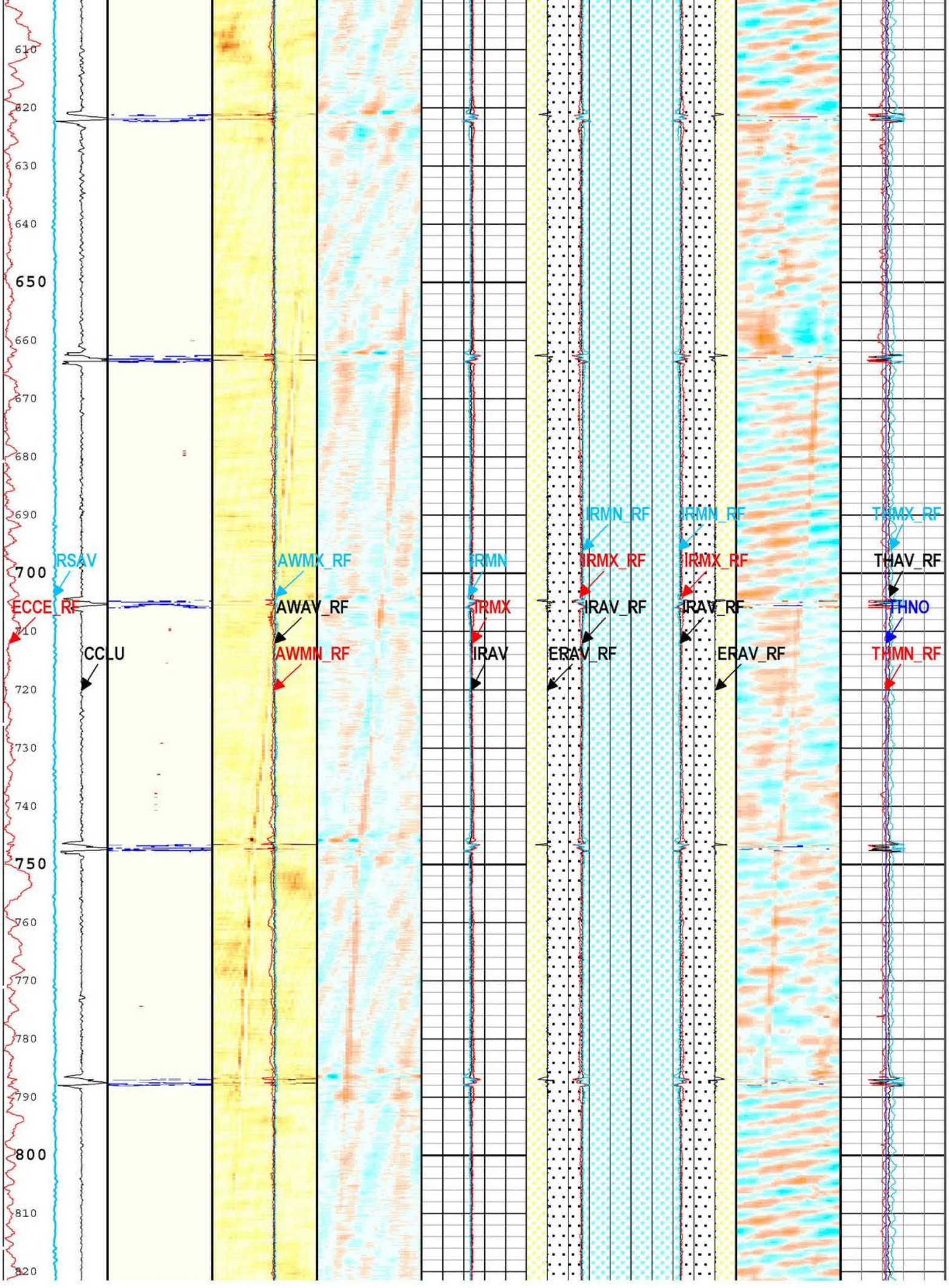
THMX_RF
THAV_RF
THNO
THMN_RF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810
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RSAV
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CCLU
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IRAV
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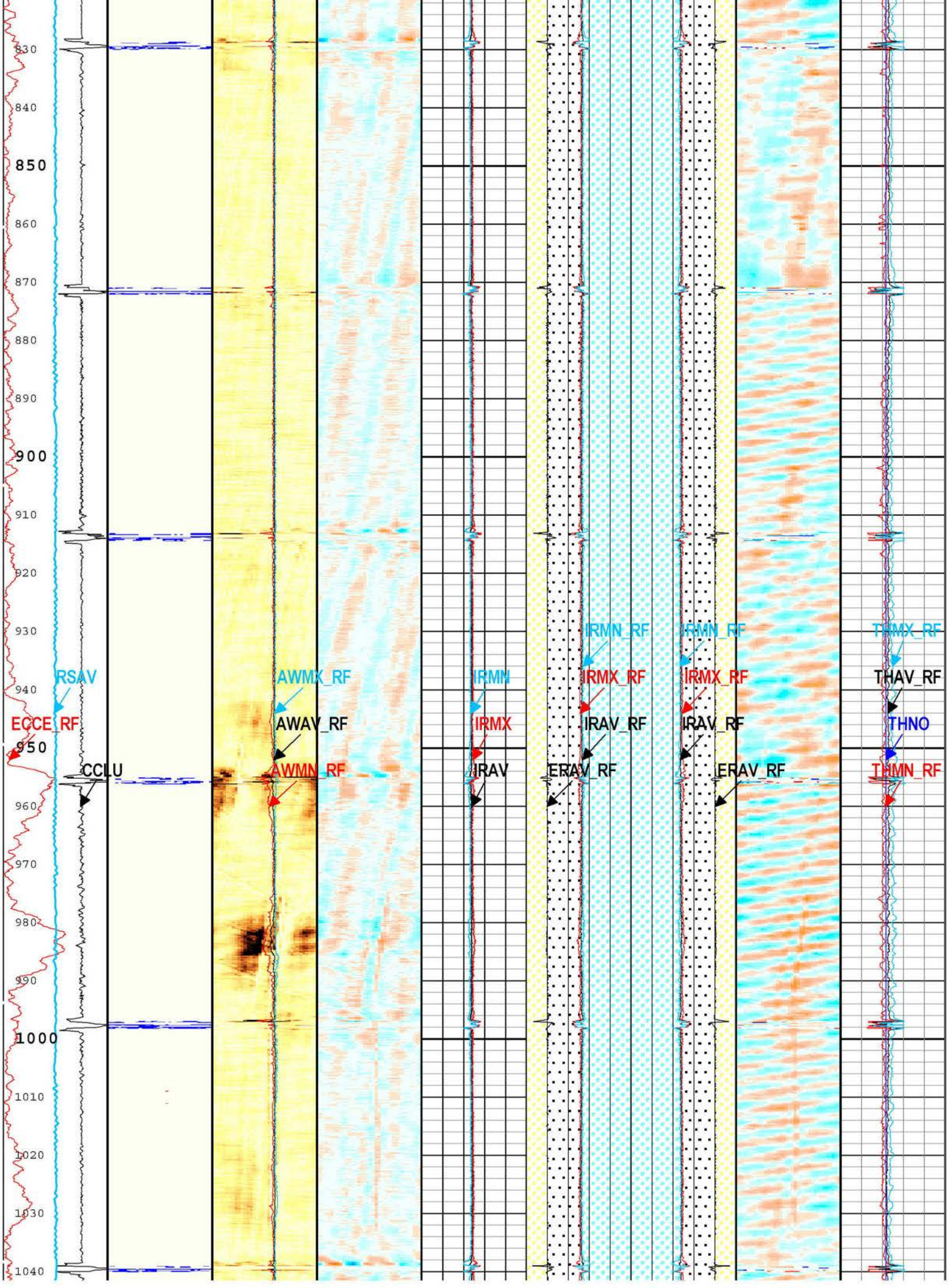
THNO
THMN_RF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1040
RSAV
ECCE_RF
CCLU
AWMX_RF
AWAV_RF
AWMN_RF
IRMN
IRMX
IRAV
IRMN_RF
IRMX_RF
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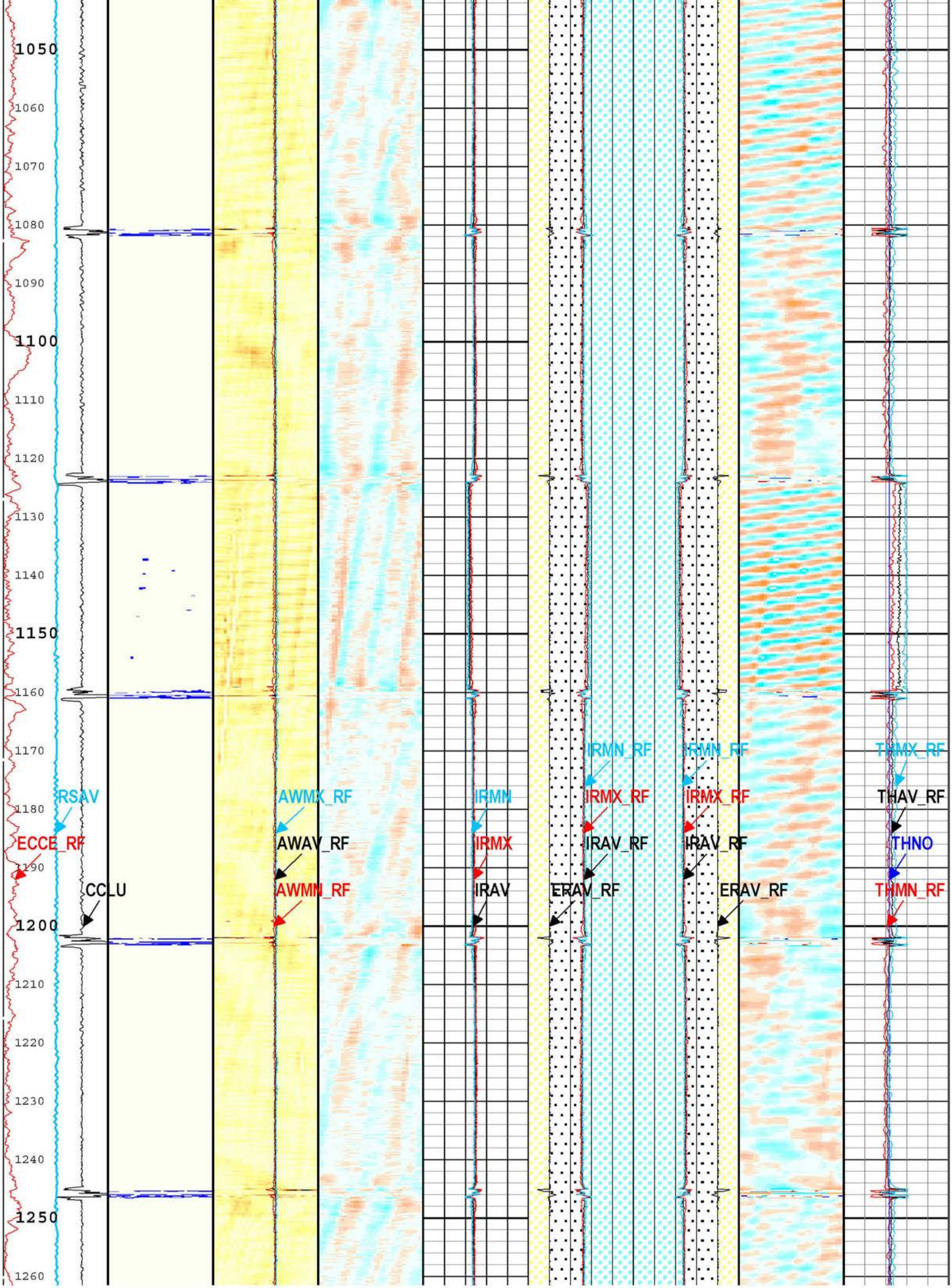
ERAV_RF
THMX_RF
THAV_RF
THNO
THMN_RF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1200
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1230
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1250
1260
RSAV
ECCE_RF
CCLU
AWMX_RF
AWAV_RF
AWMN_RF
IRMN
IRMX
IRAV
IRMN_RF
IRMX_RF
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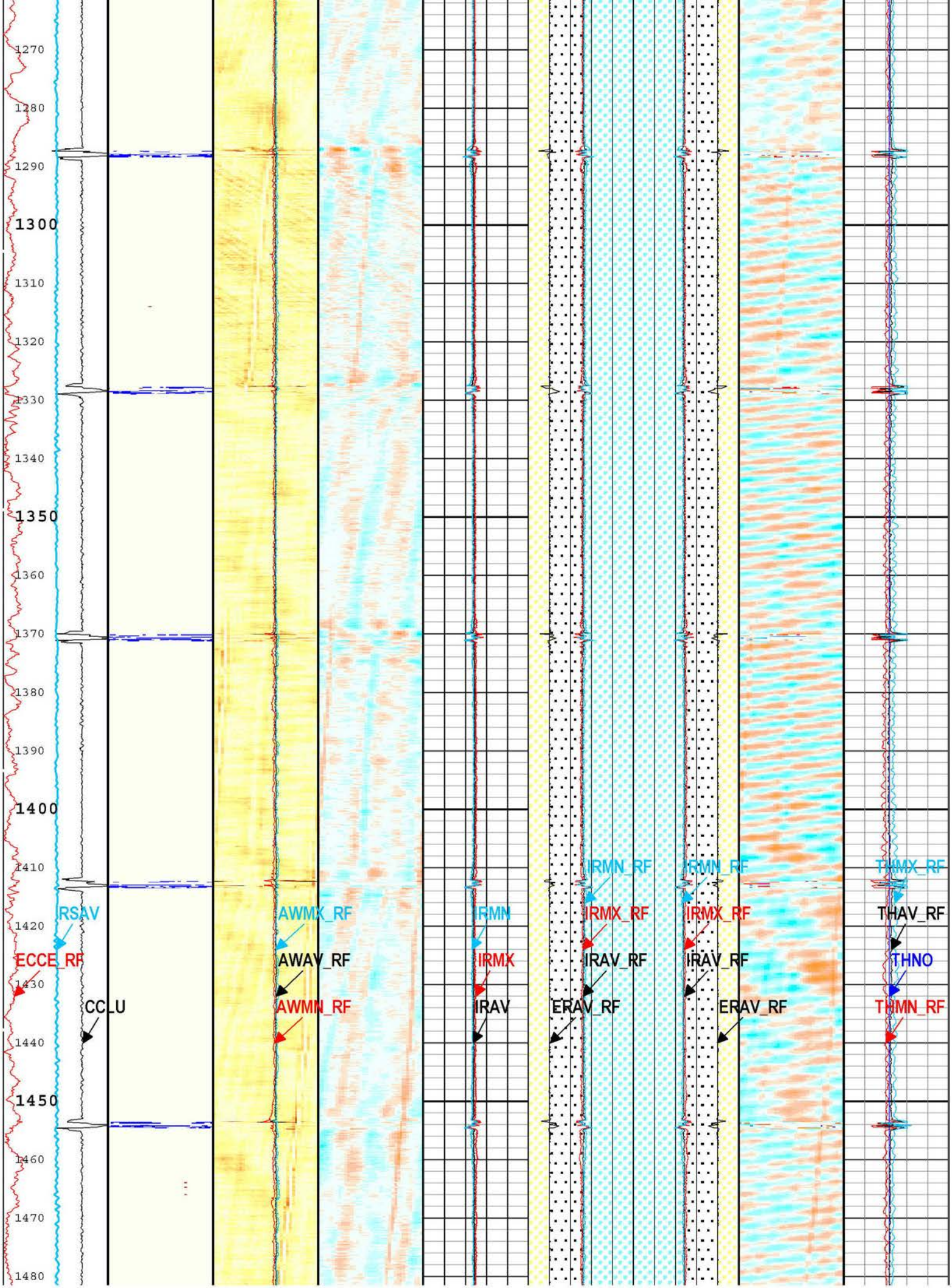
THNO
THMN_RF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1440
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1470
1480
RSAV
ECCE_RF
CC_U
AWMX_RF
AWAV_RF
AWMN_RF
IRMN
IRMX
IRAV
IRMN_RF
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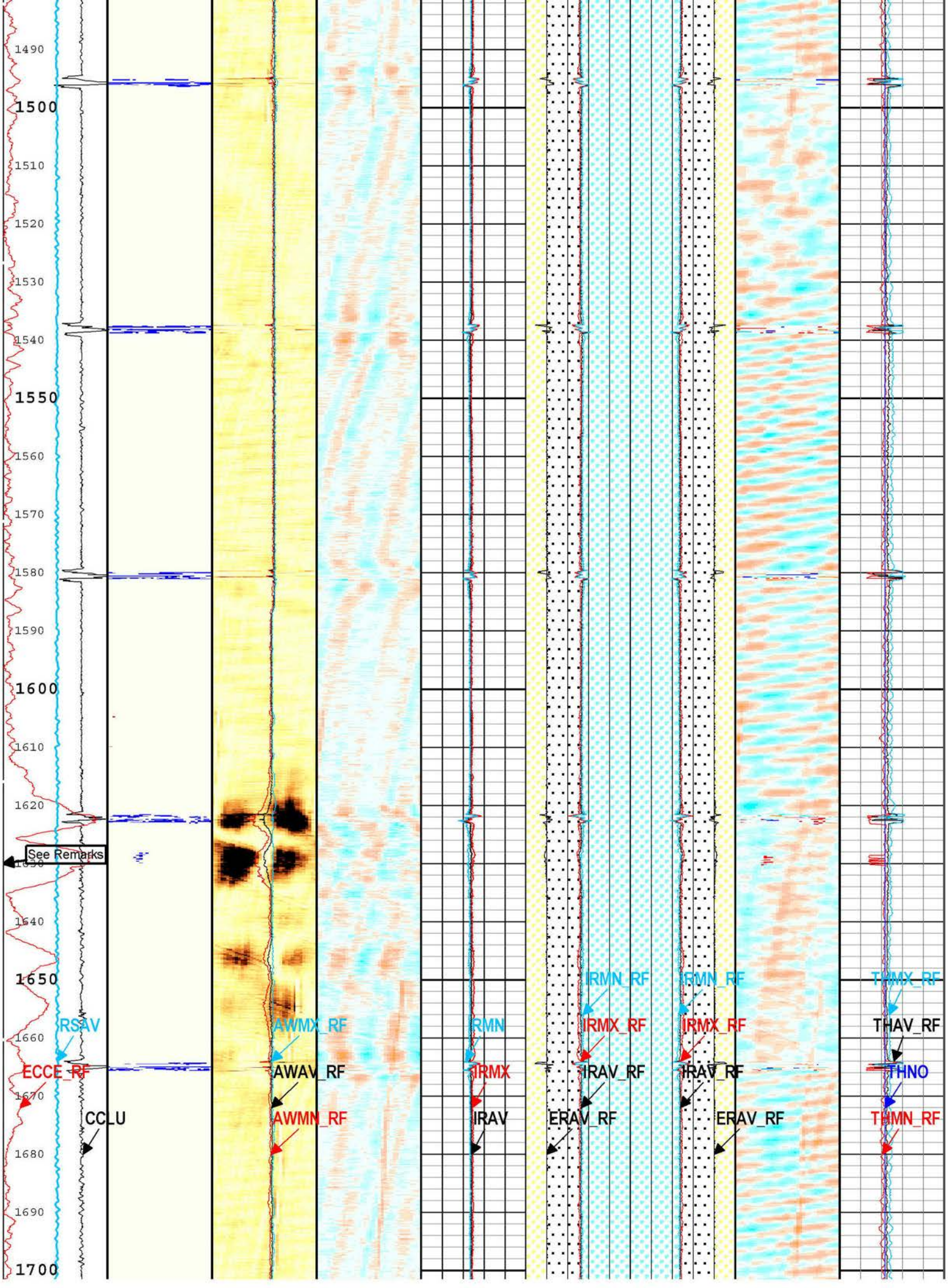
THNO
THMN_RF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1580
1590
1600
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1620
See Remarks
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1650
1660
1670
1680
1690
1700
RSAV
ECCE_RF
CCLU
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AWAV_RF
AWMN_RF
IRMN
IRMX
IRAV
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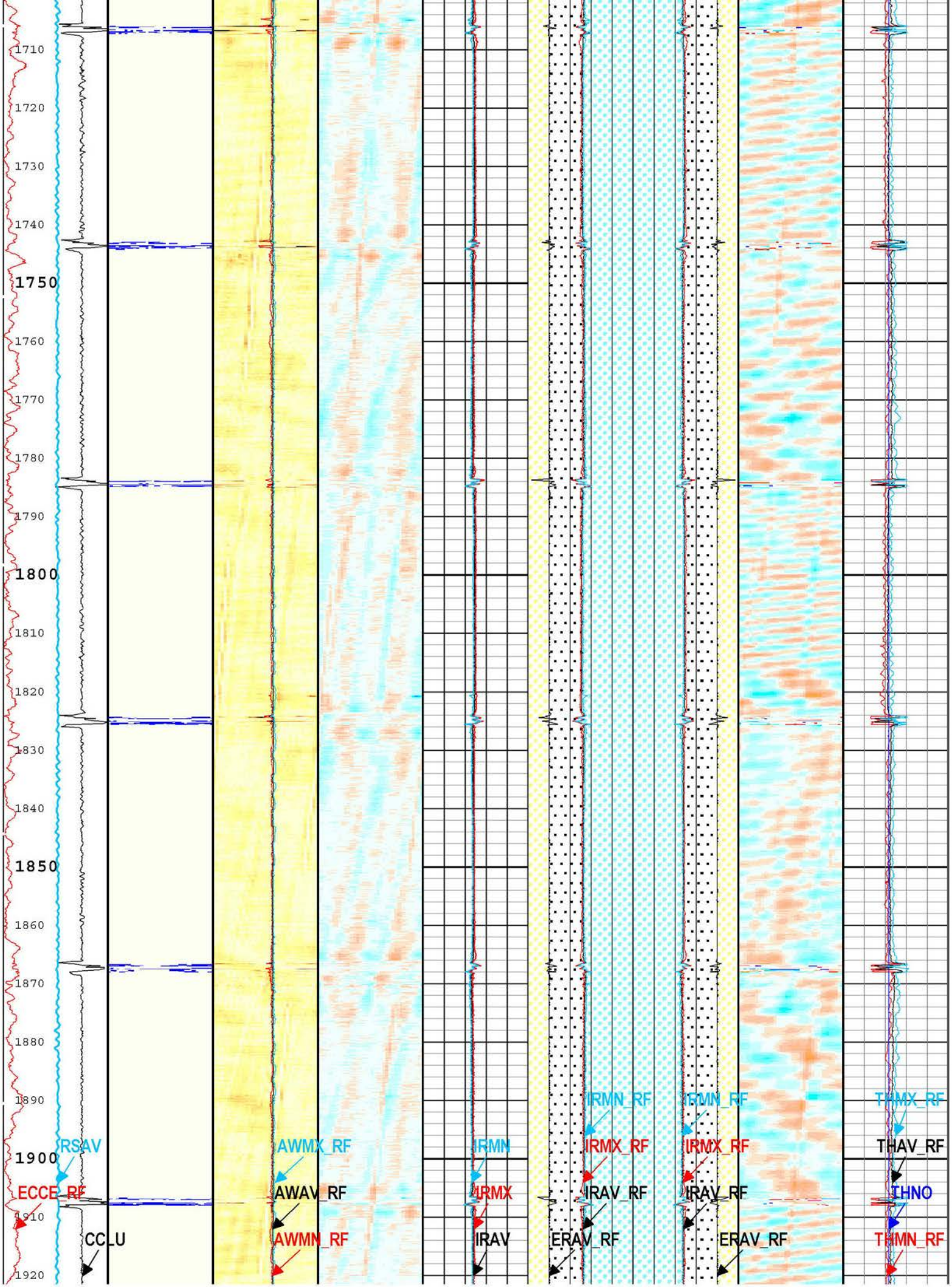
THMN_RF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1890
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1910
1920
RSAV
ECCE_RF
CCLU
AWMX_RF
AWAV_RF
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IRMX
IRAV
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IRMX_RF
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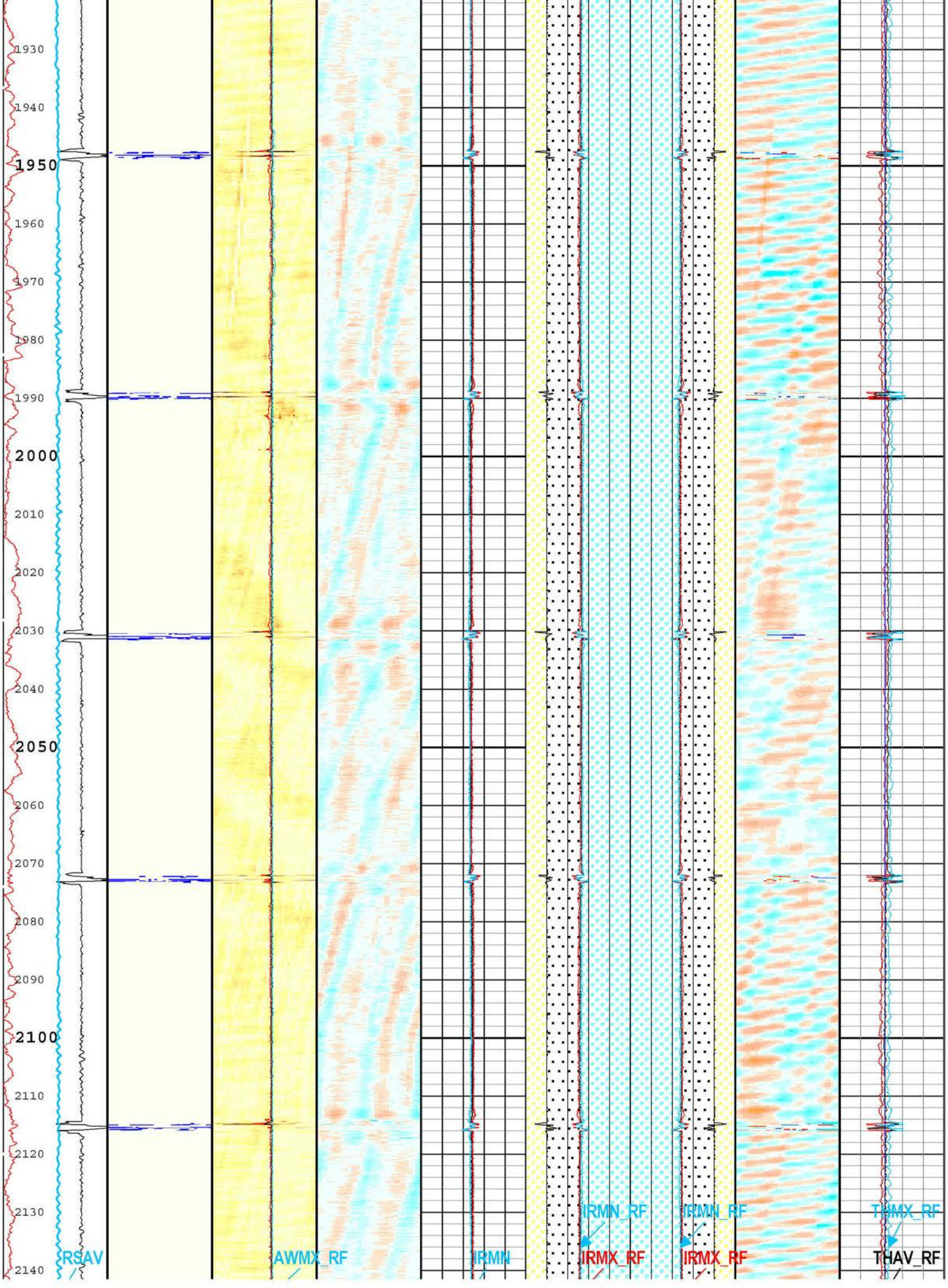
THMN_RF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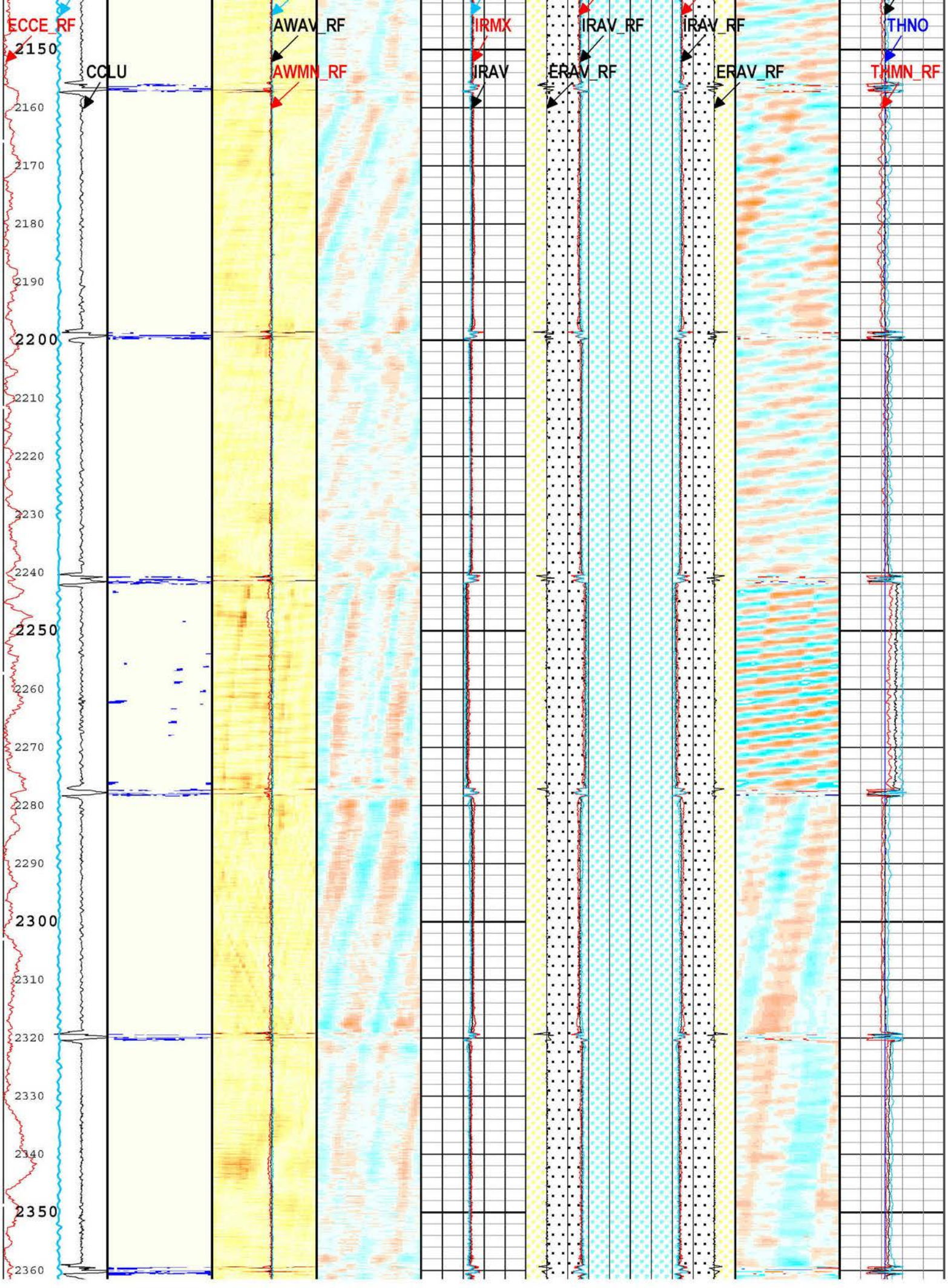
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THMN_RF
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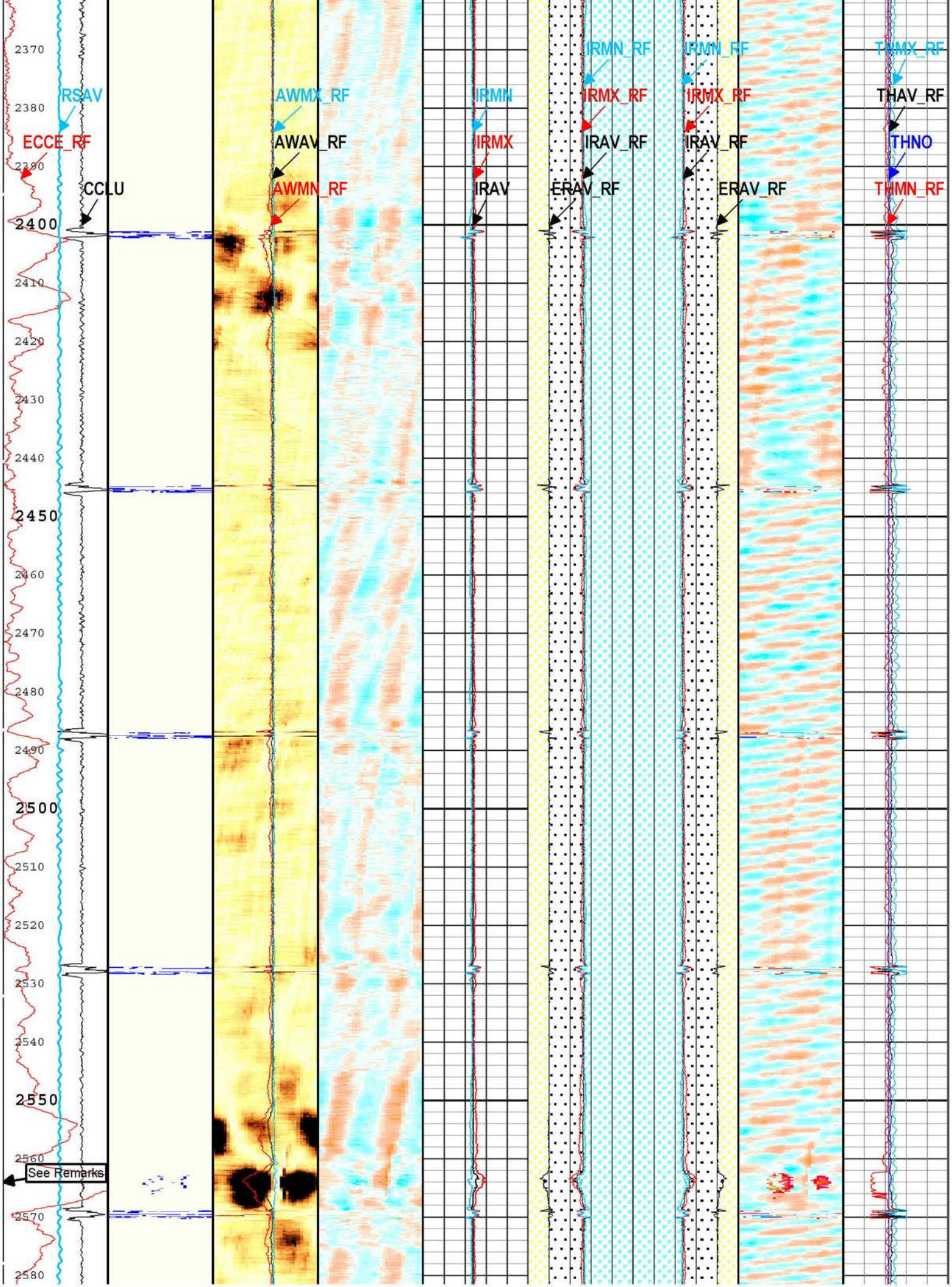
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CCLU
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AWMN_RF
IRMN
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2370
2380
2390
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2410
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2430
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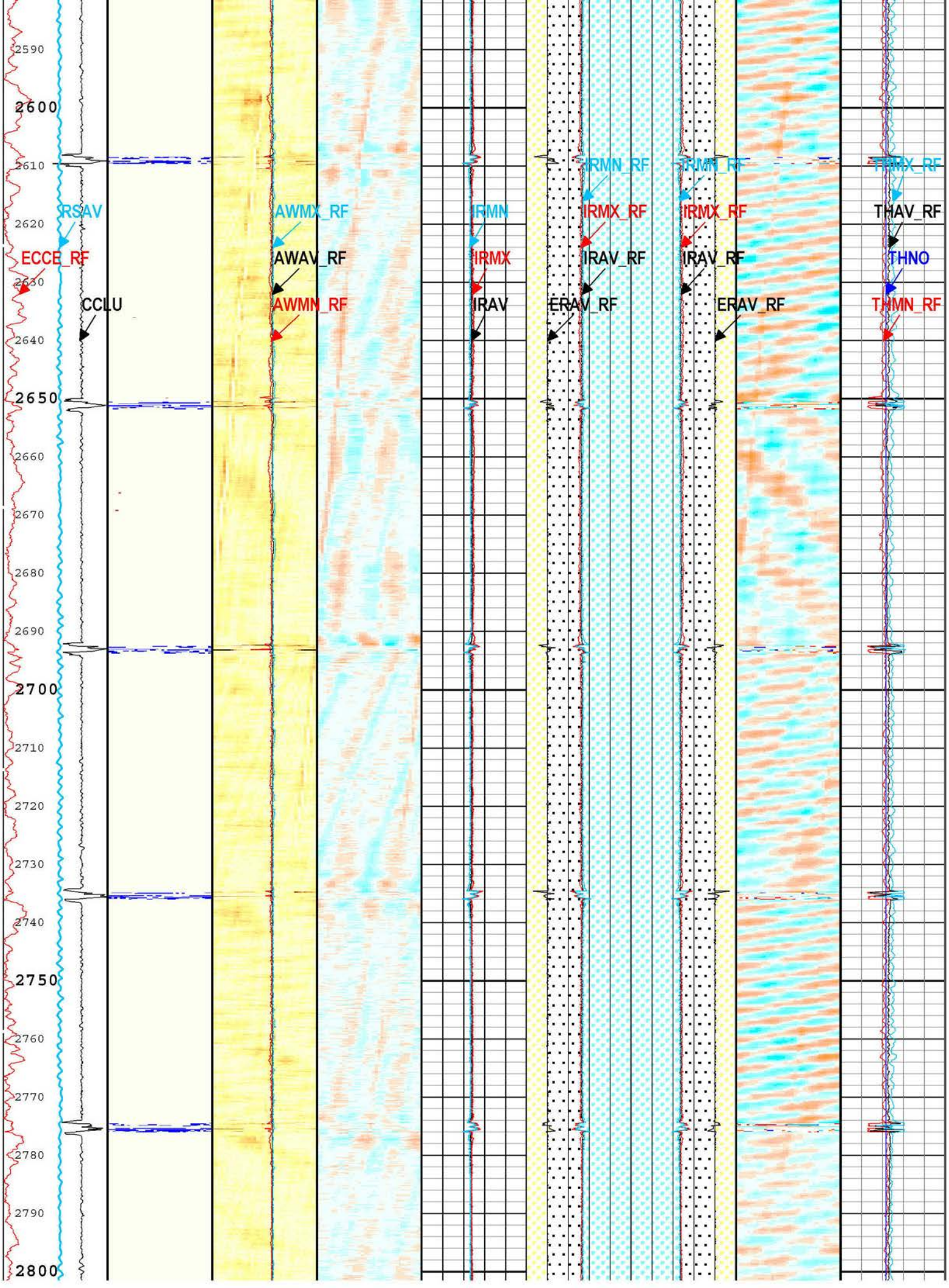
2580
See Remarks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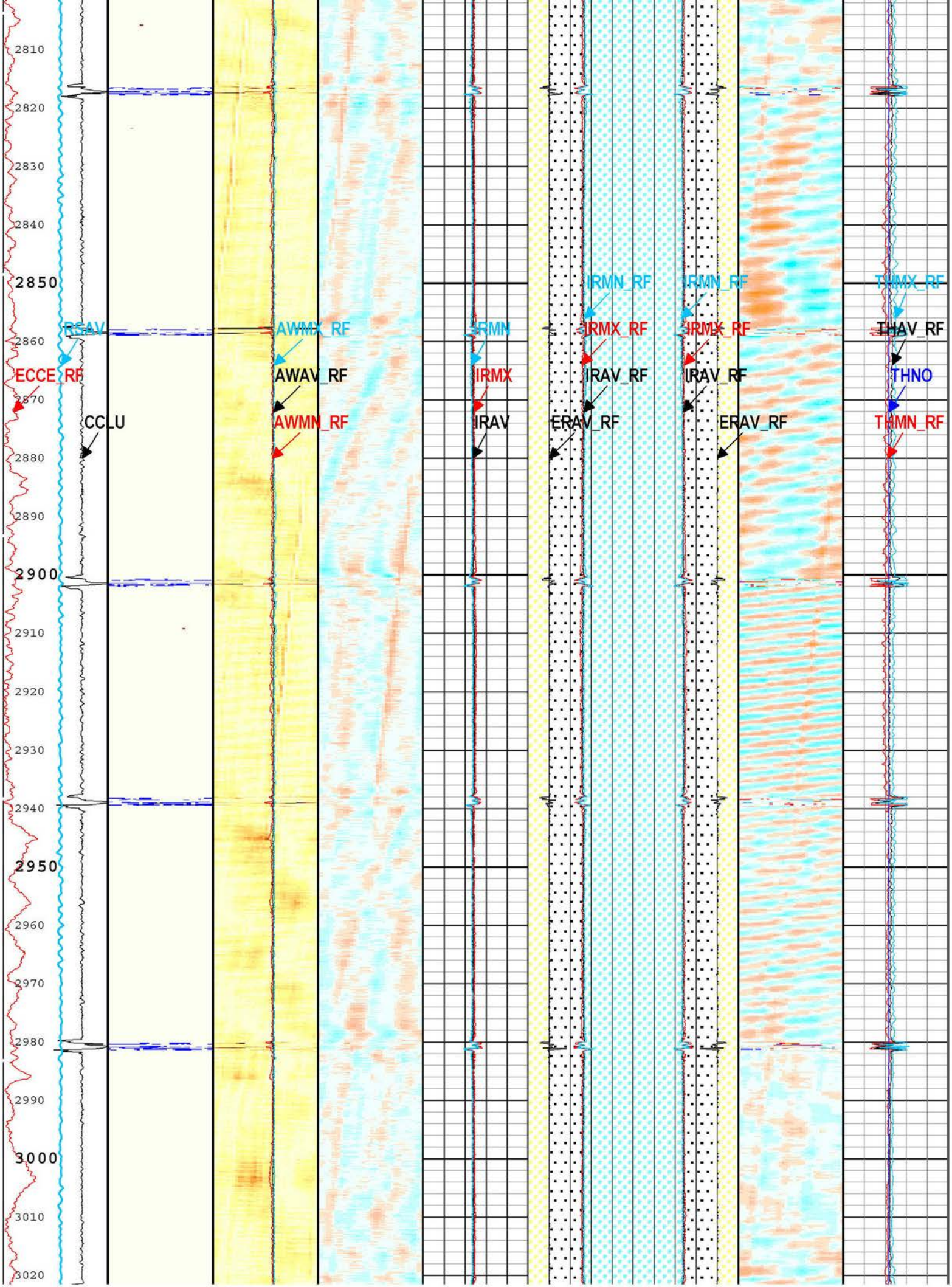
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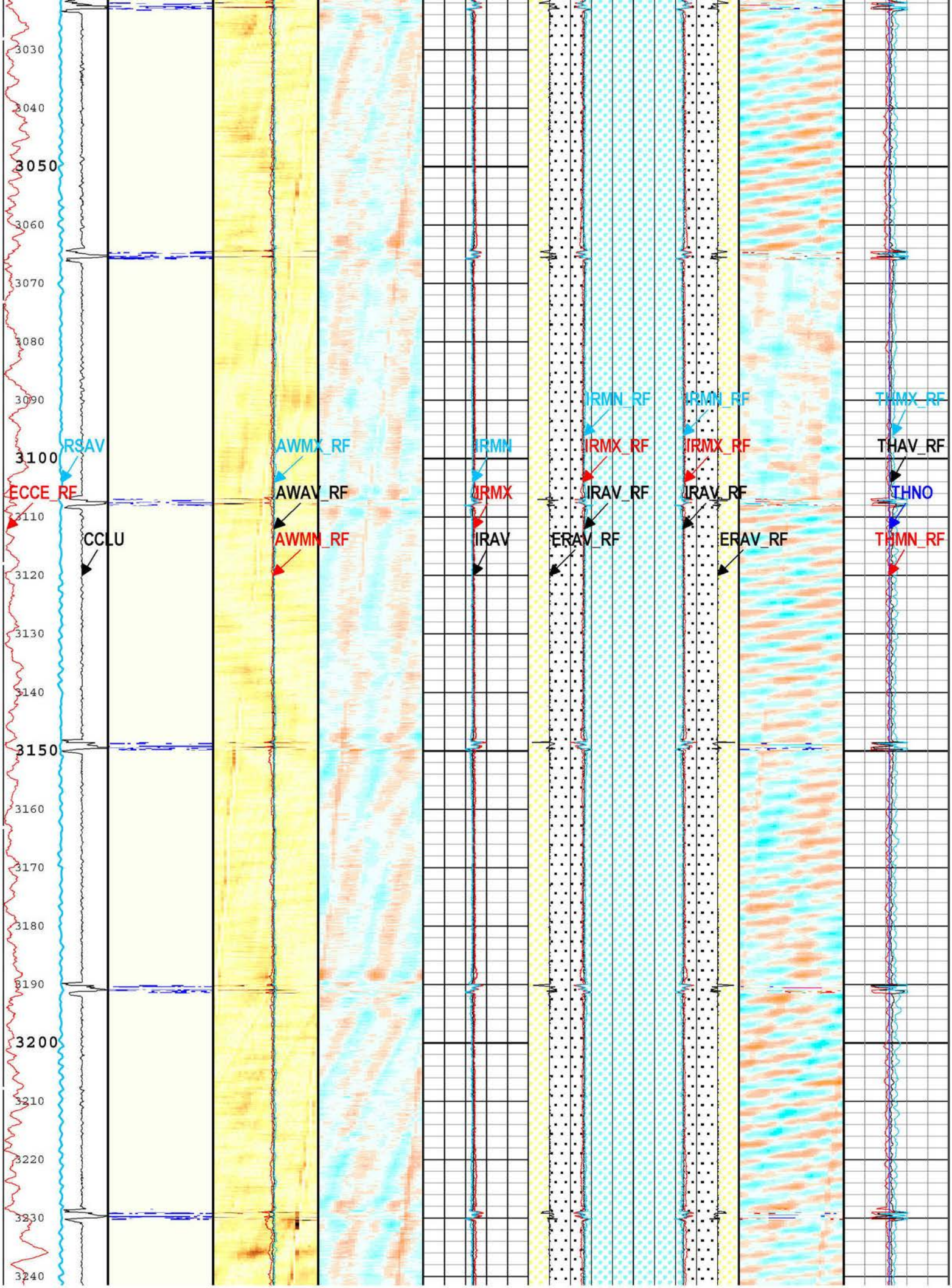
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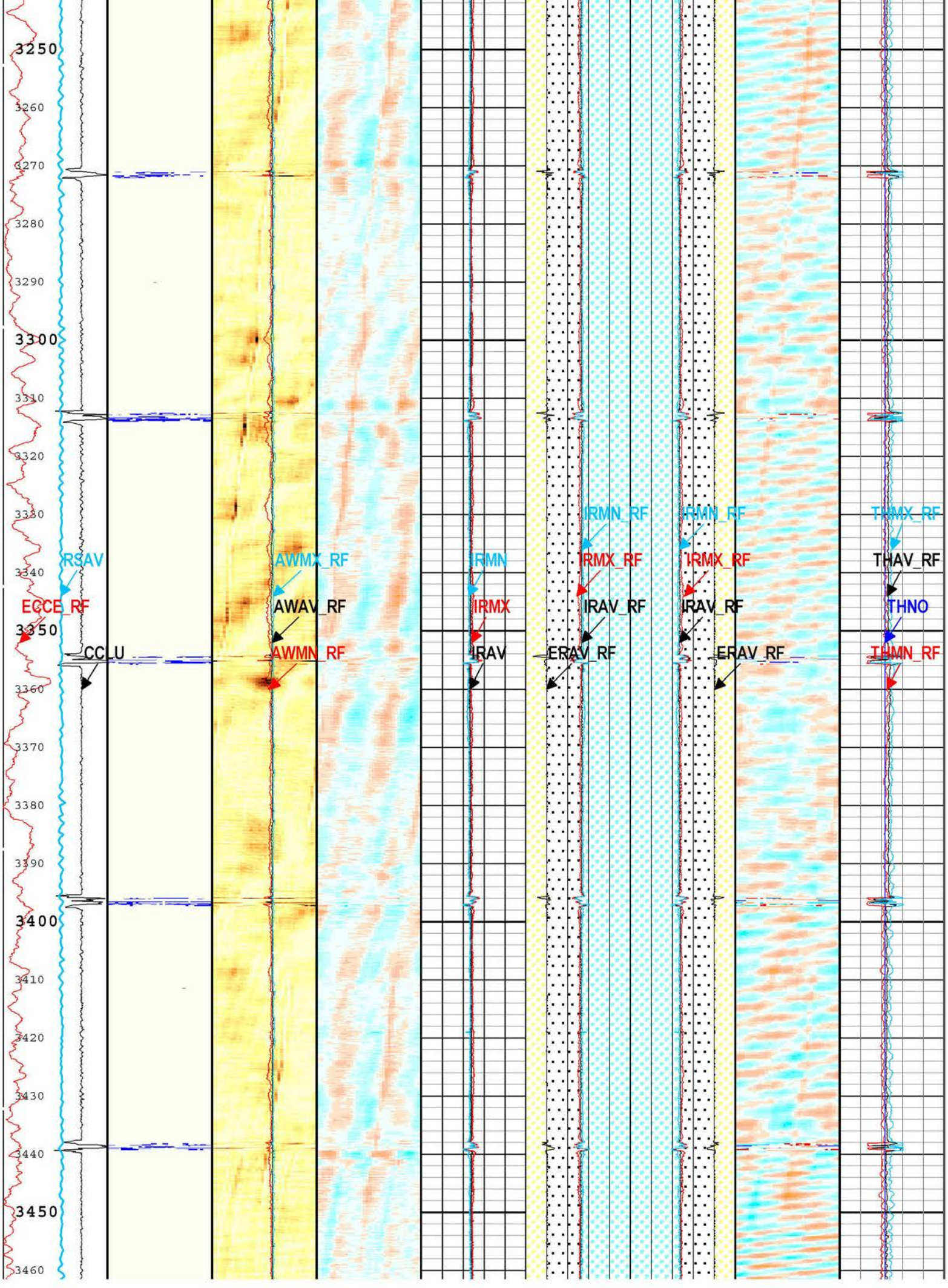
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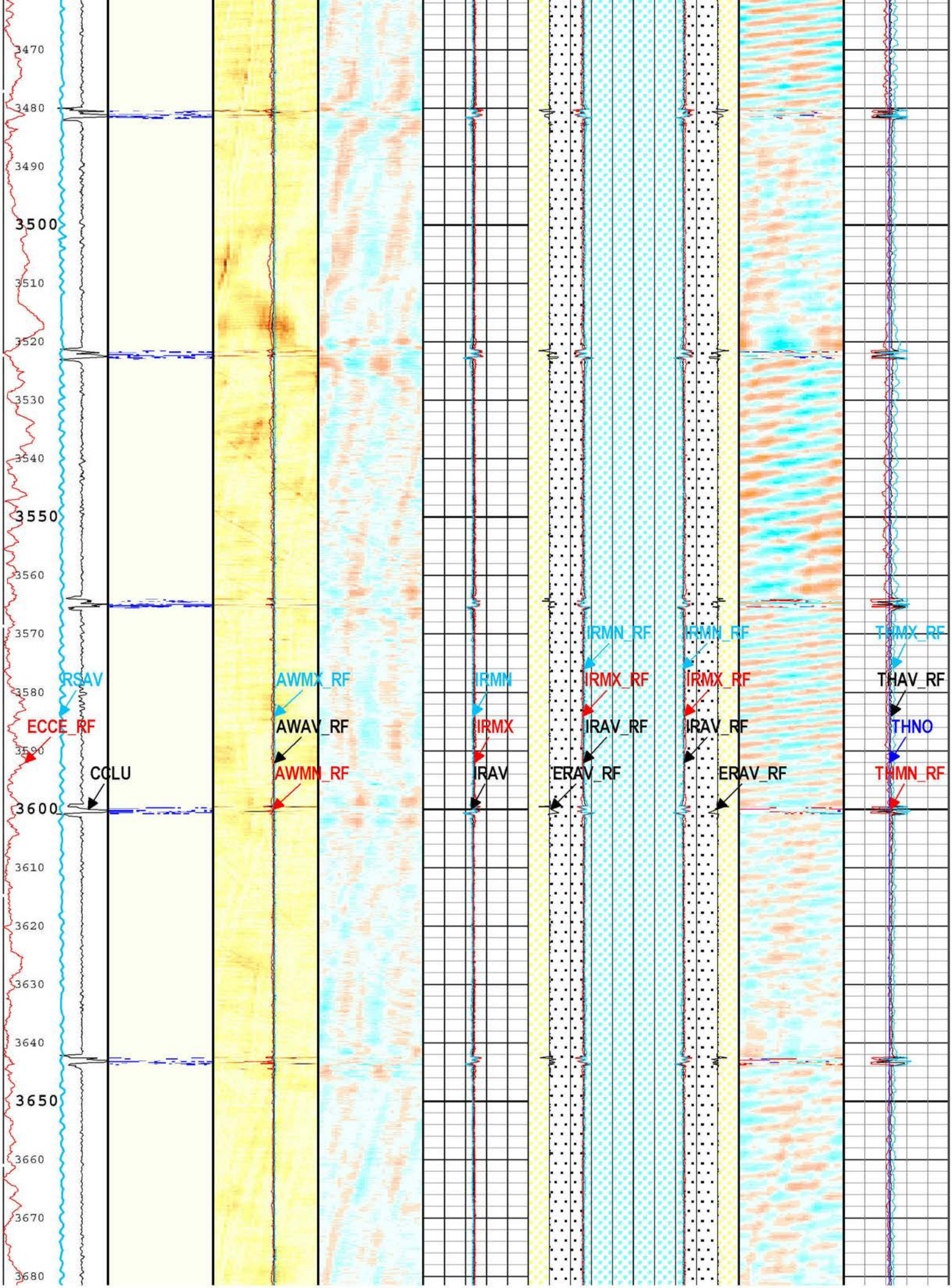
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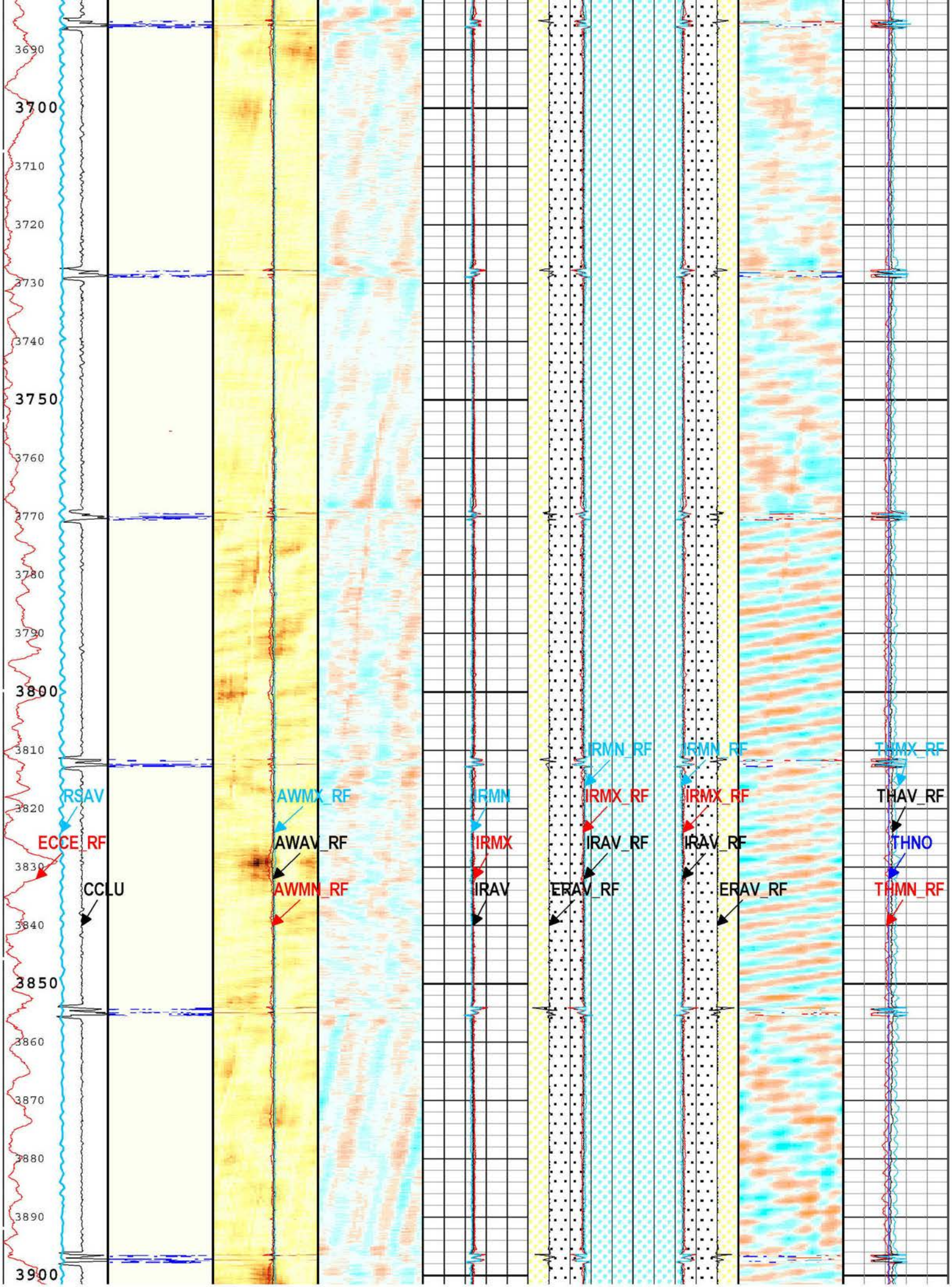
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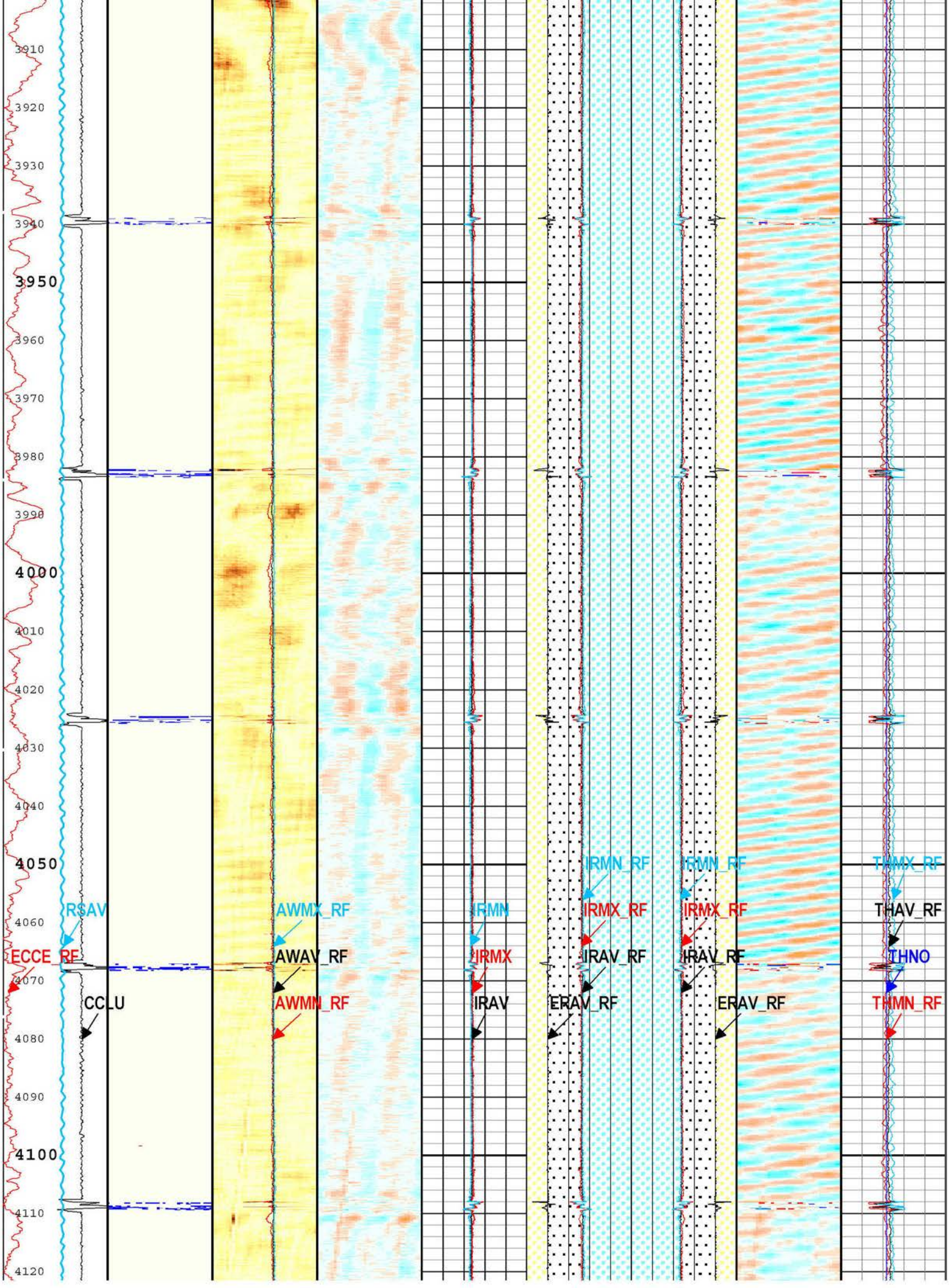
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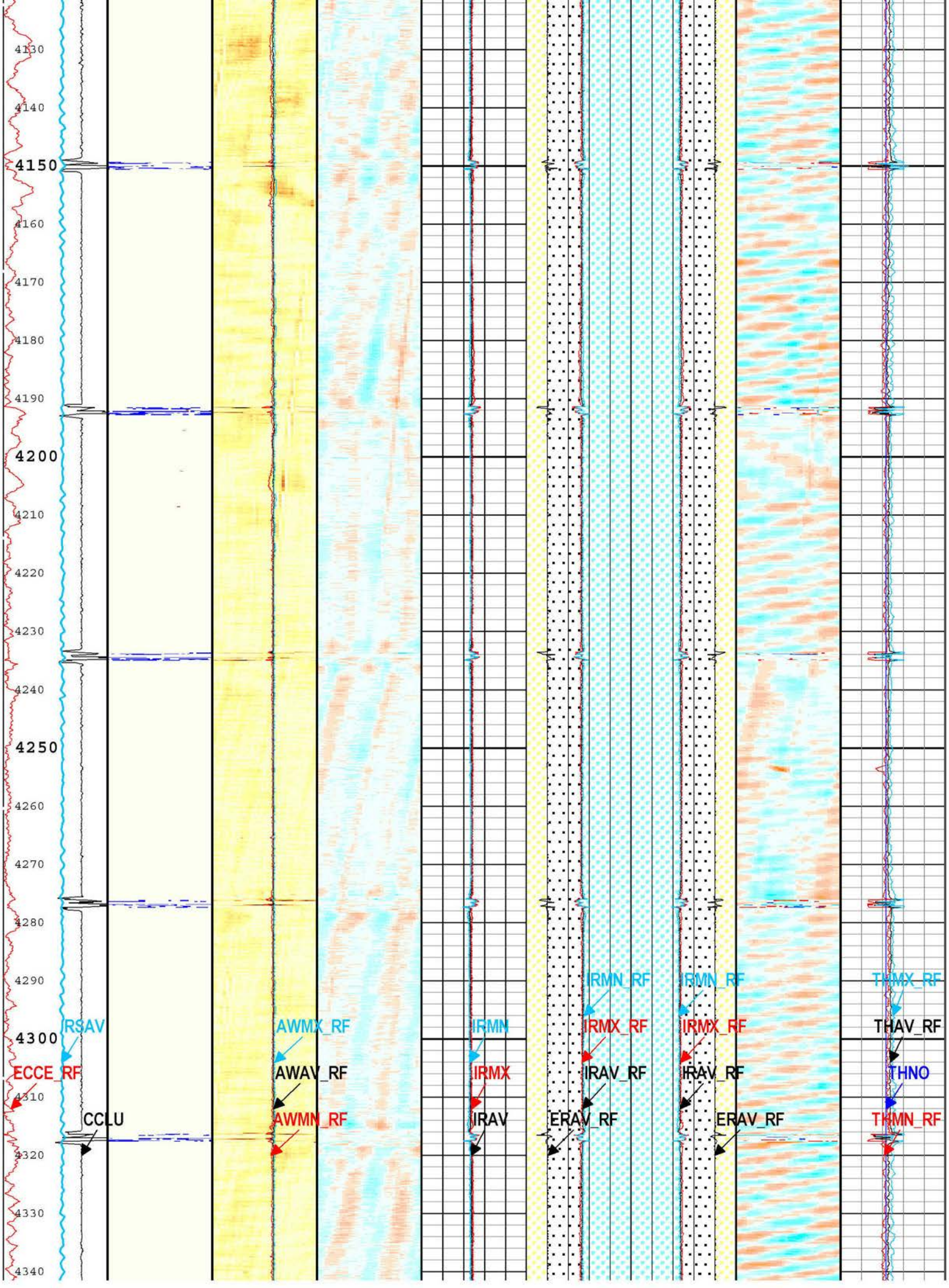
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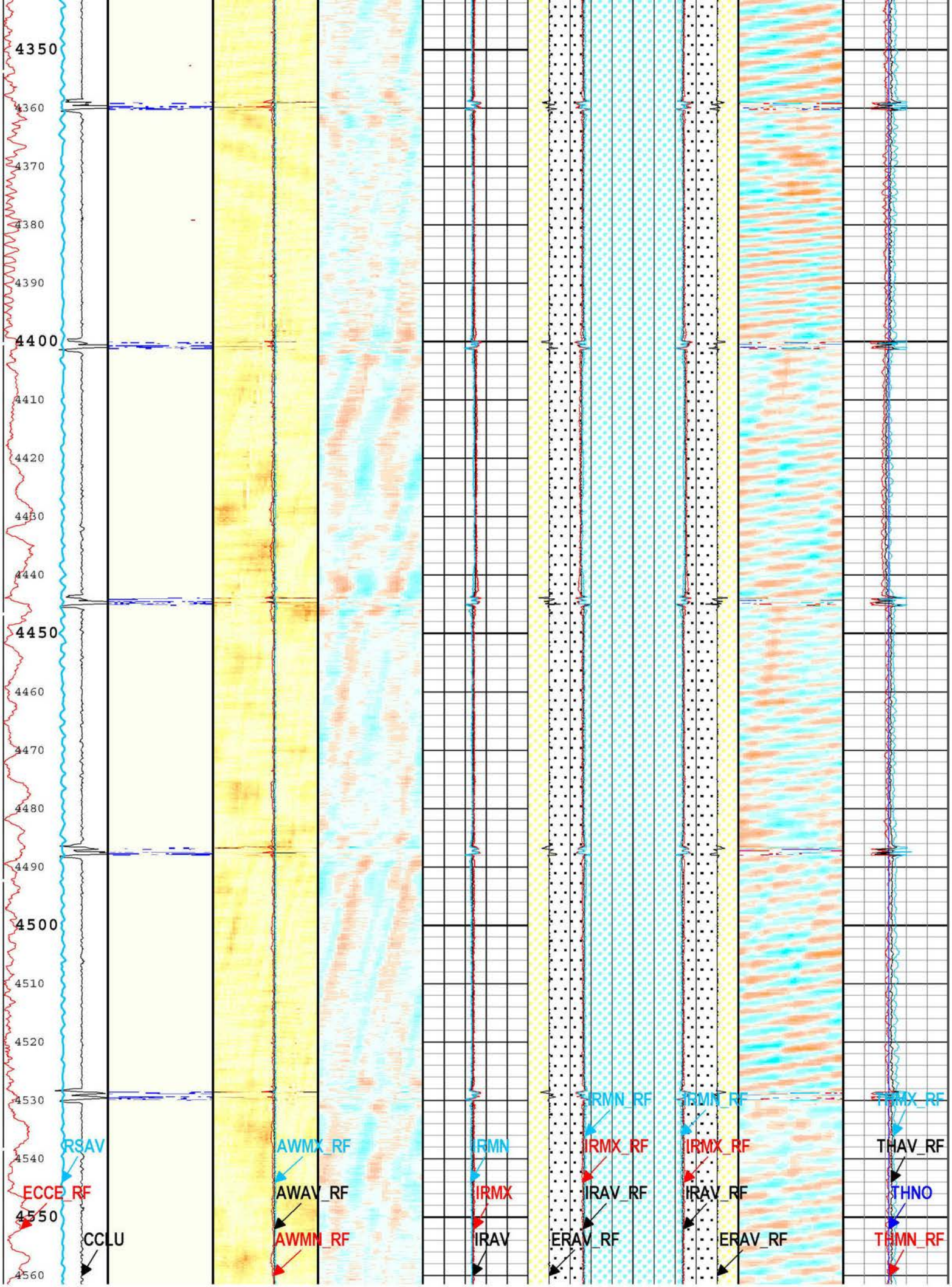
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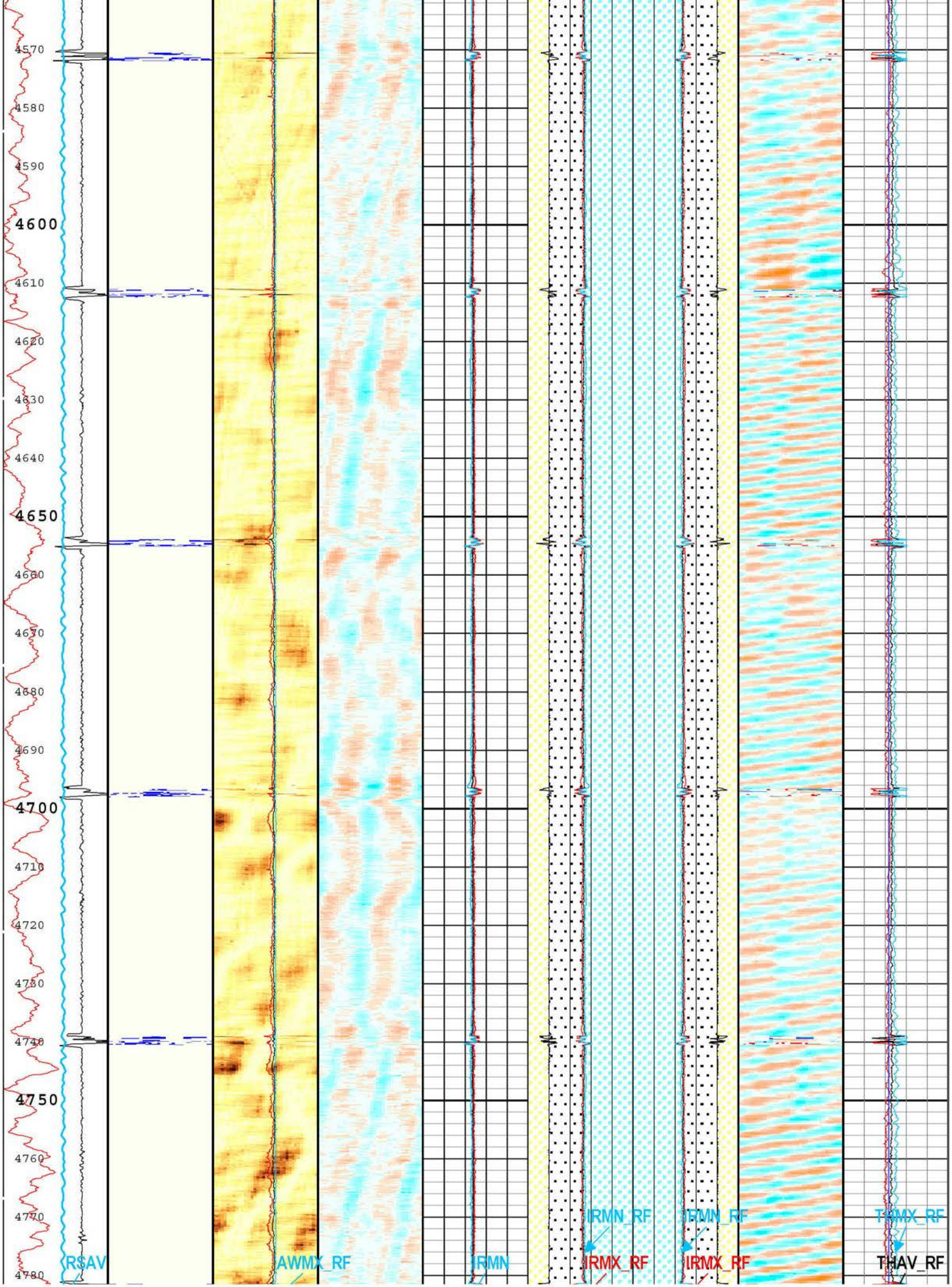
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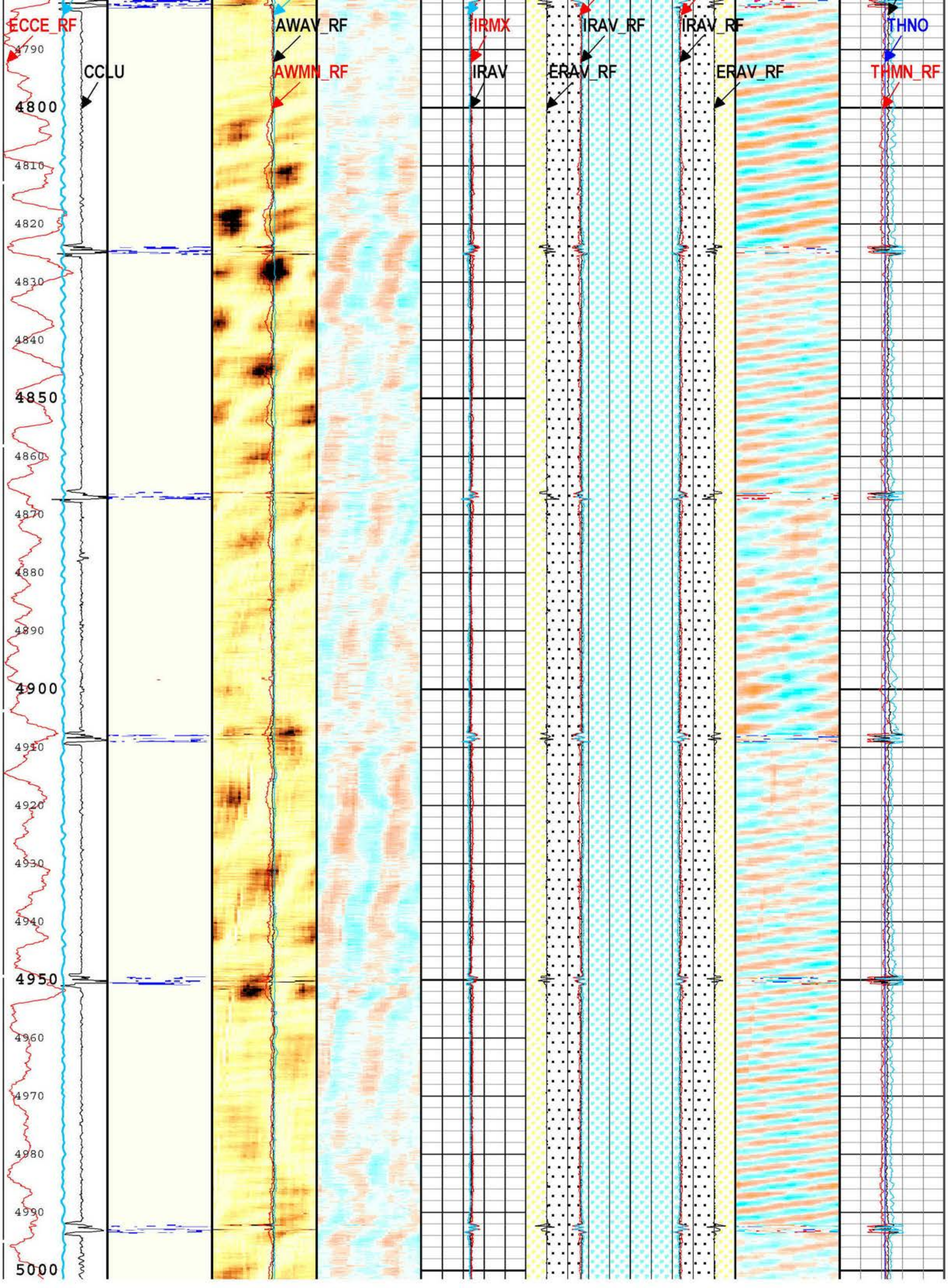
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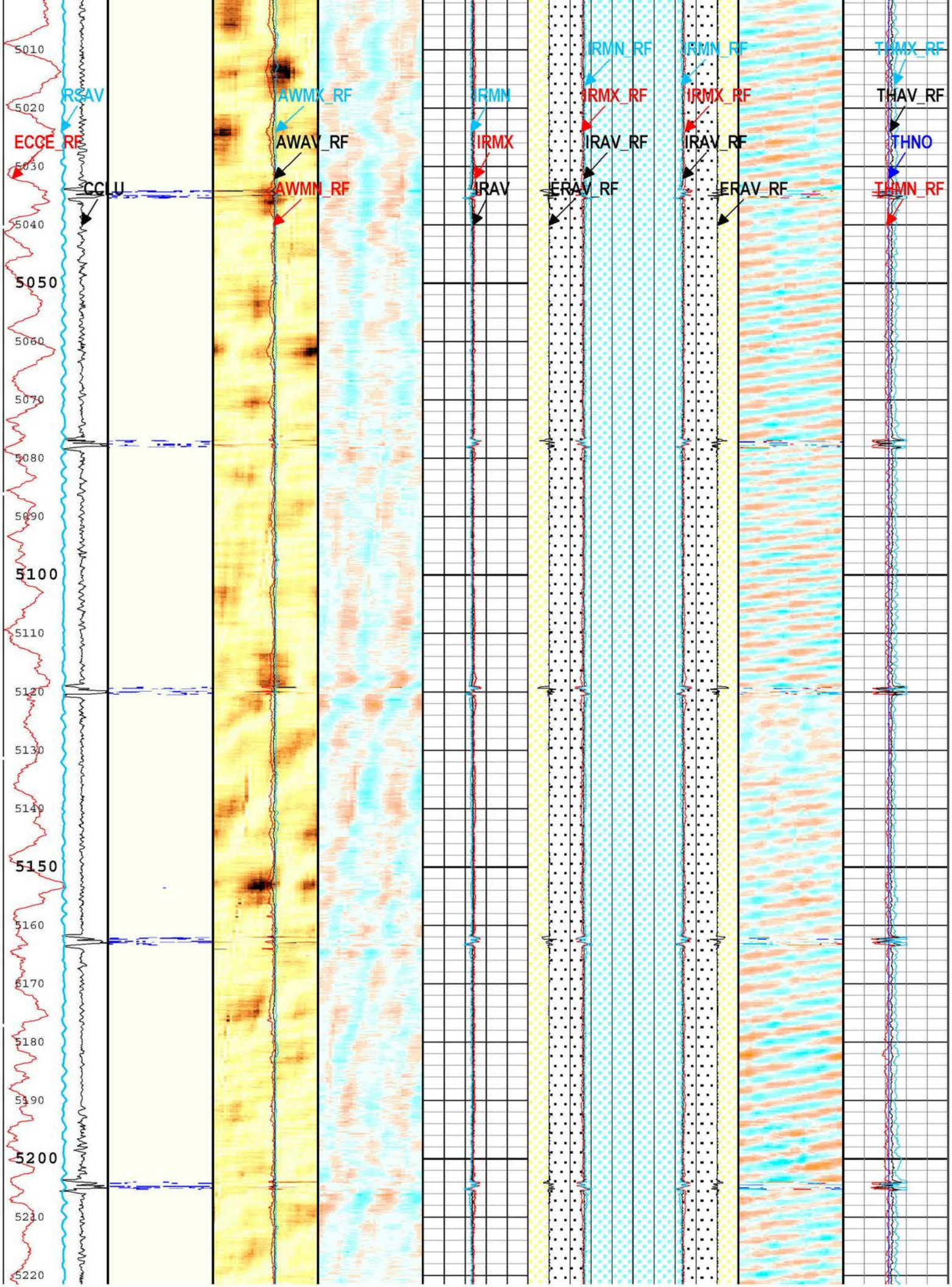
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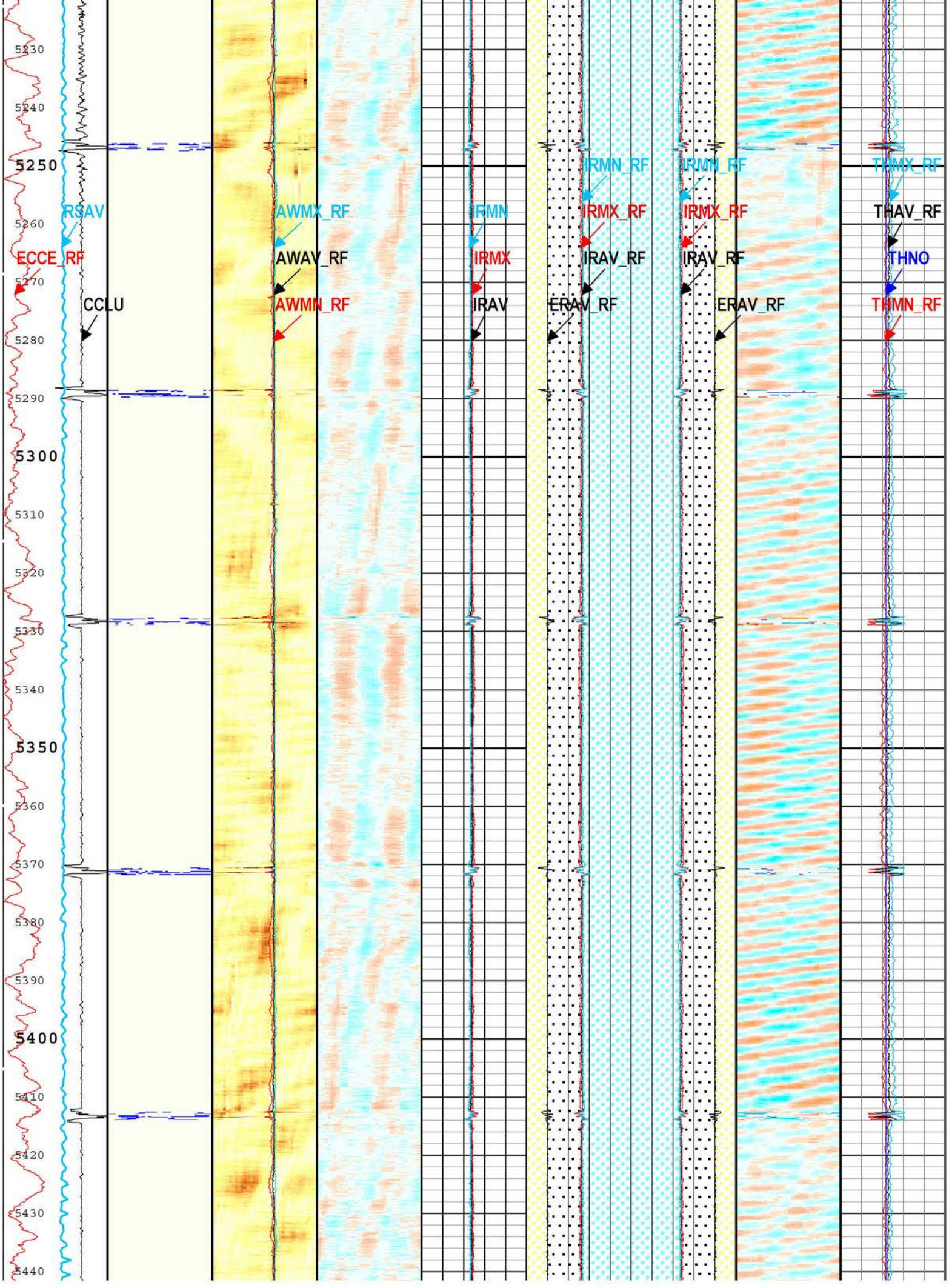
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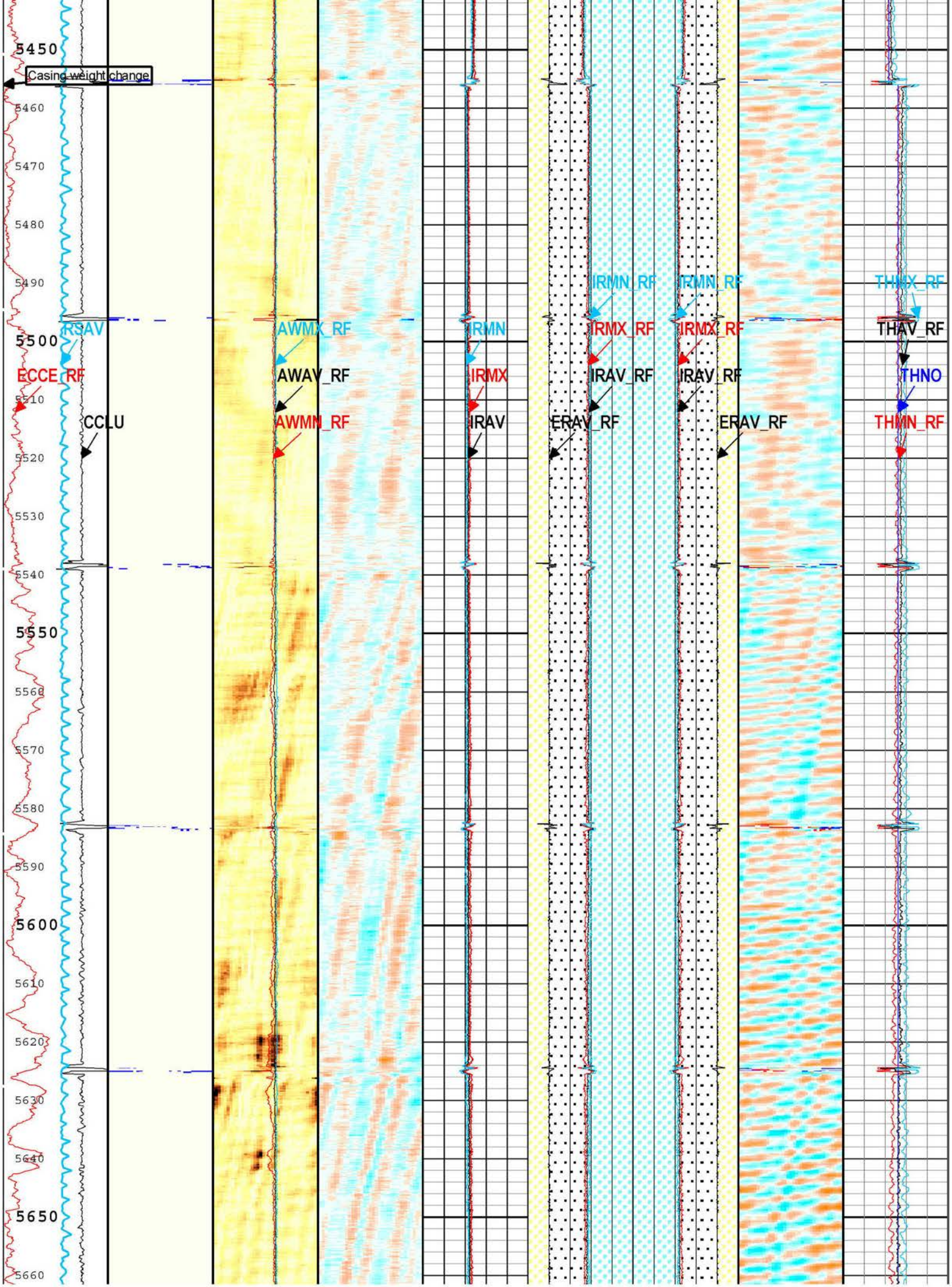
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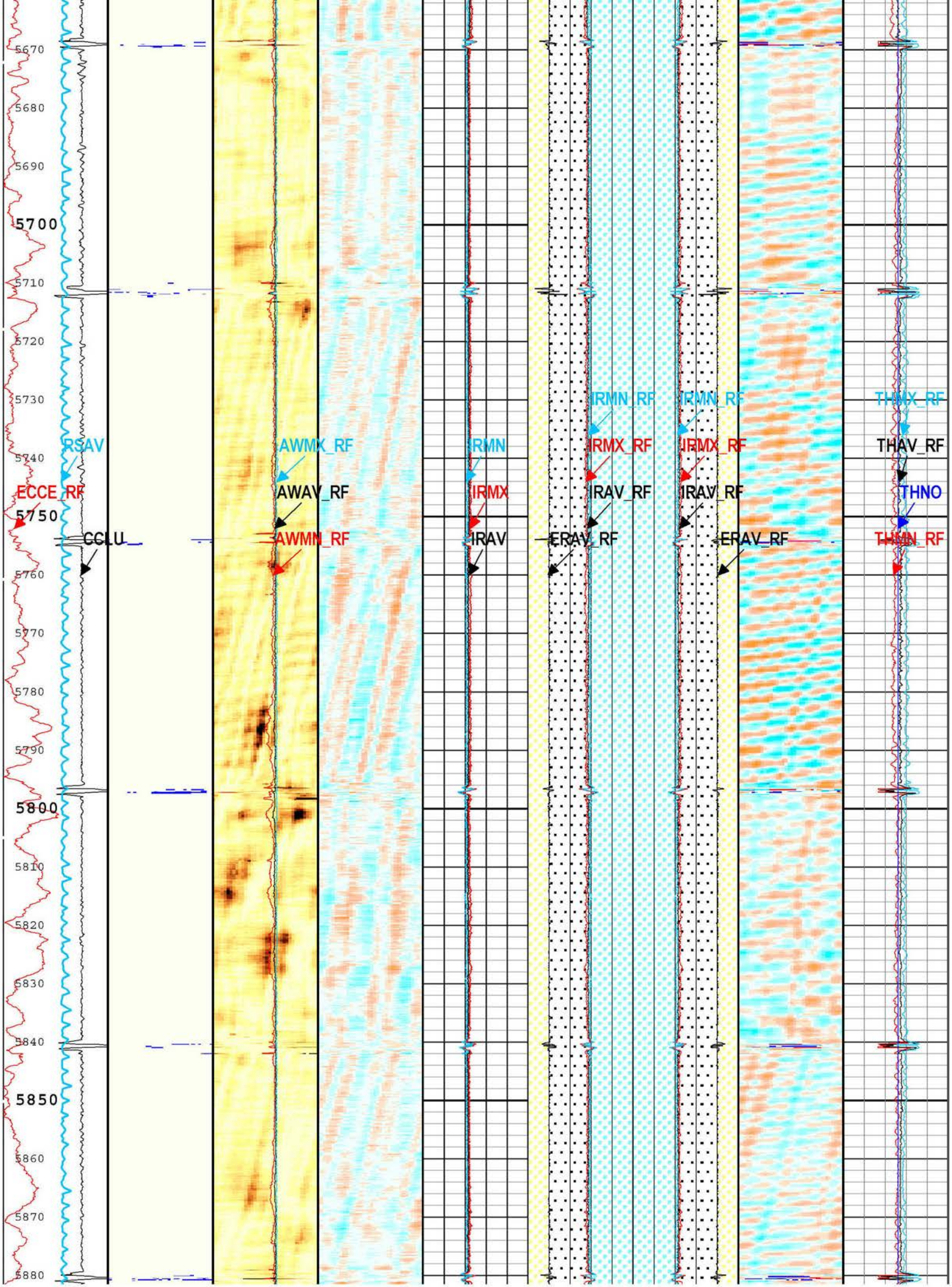
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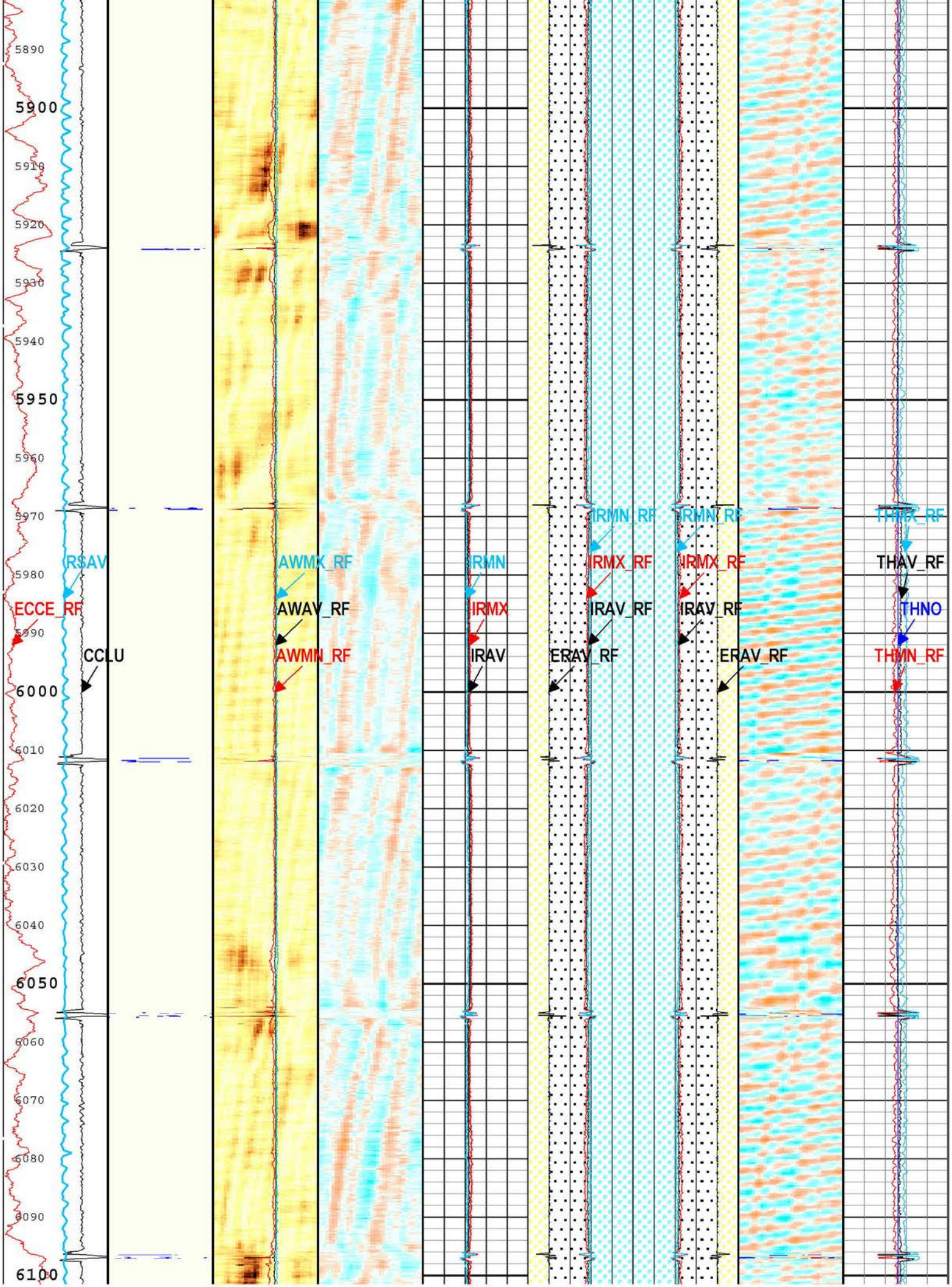
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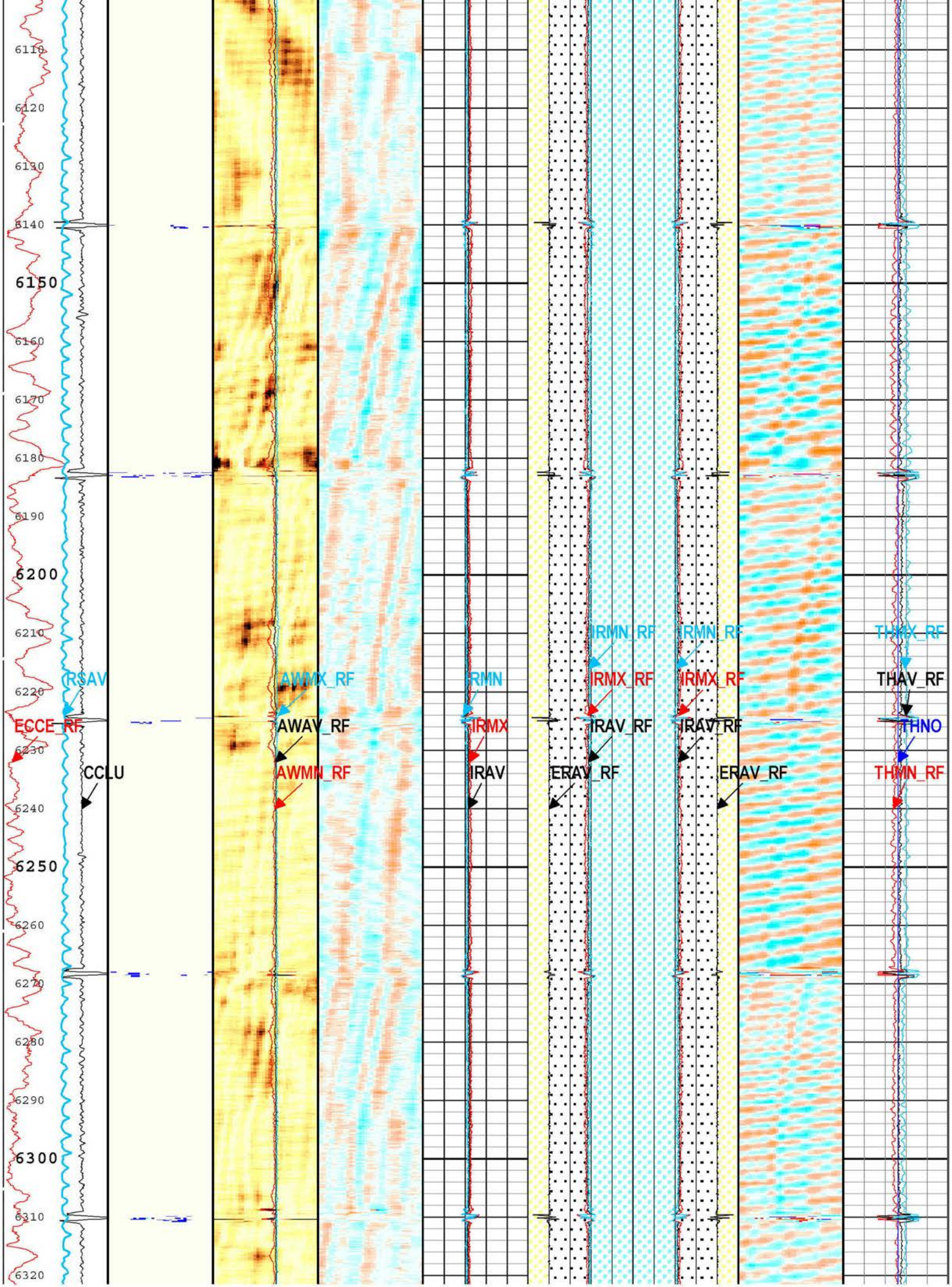
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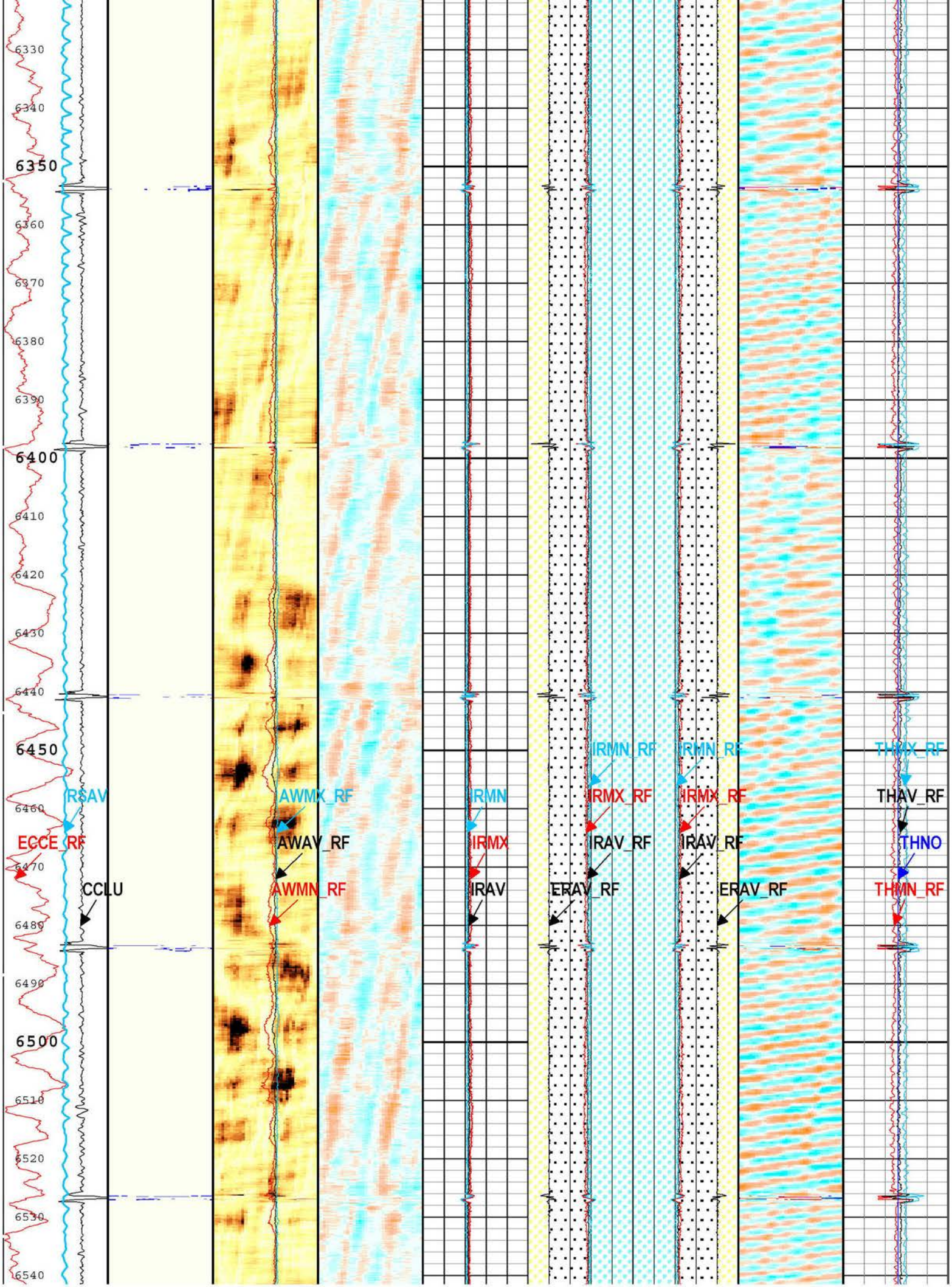
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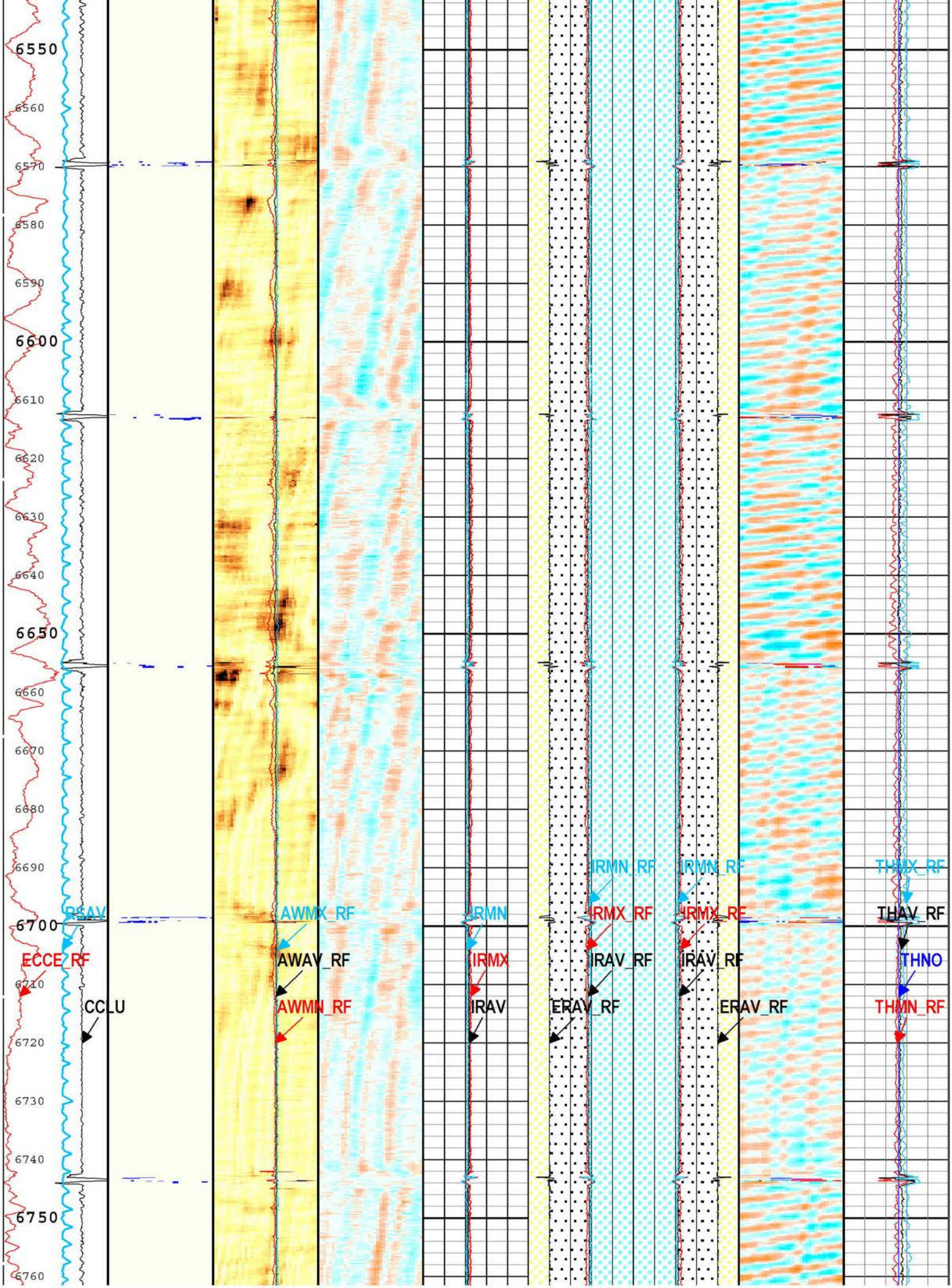
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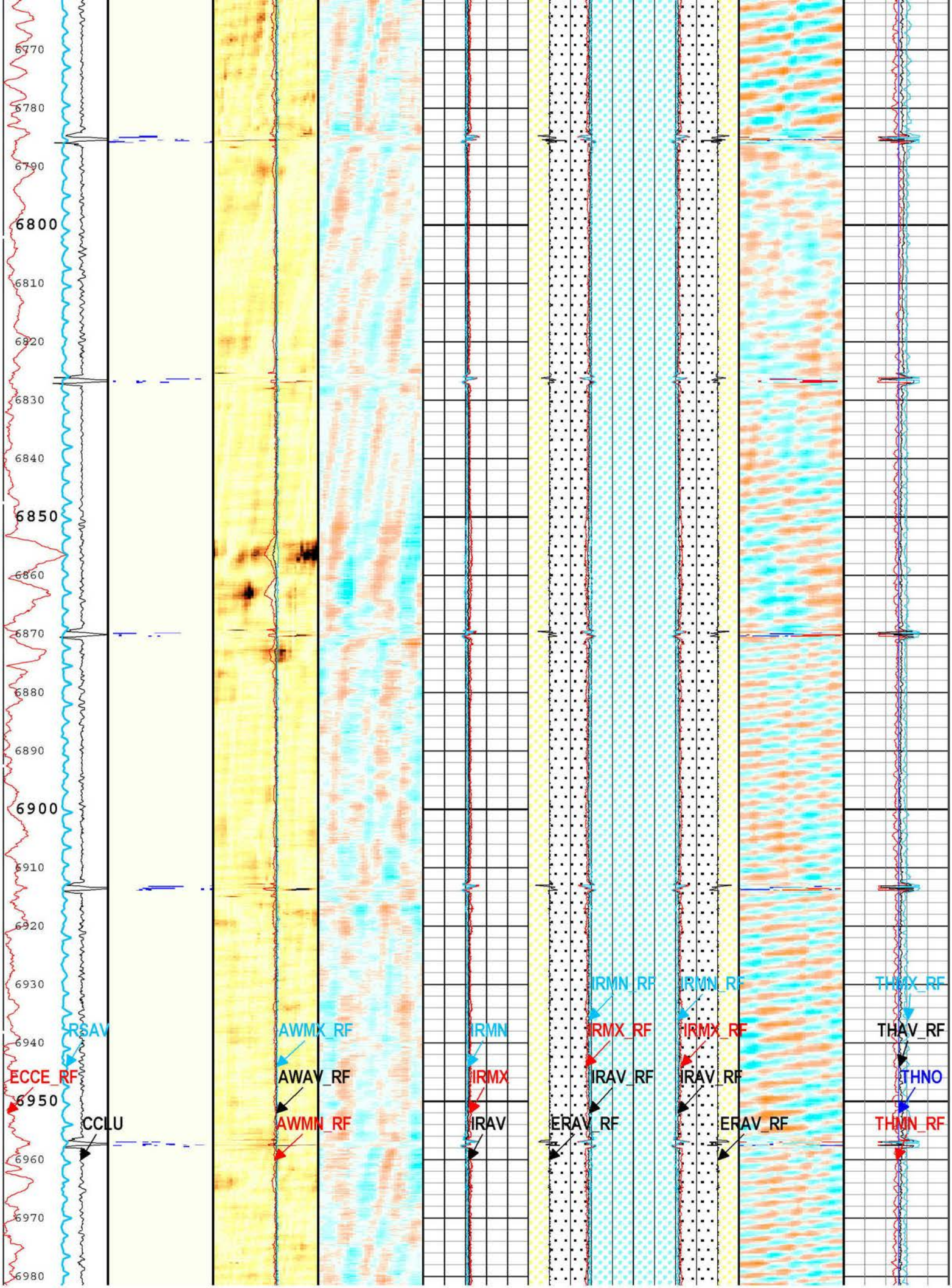
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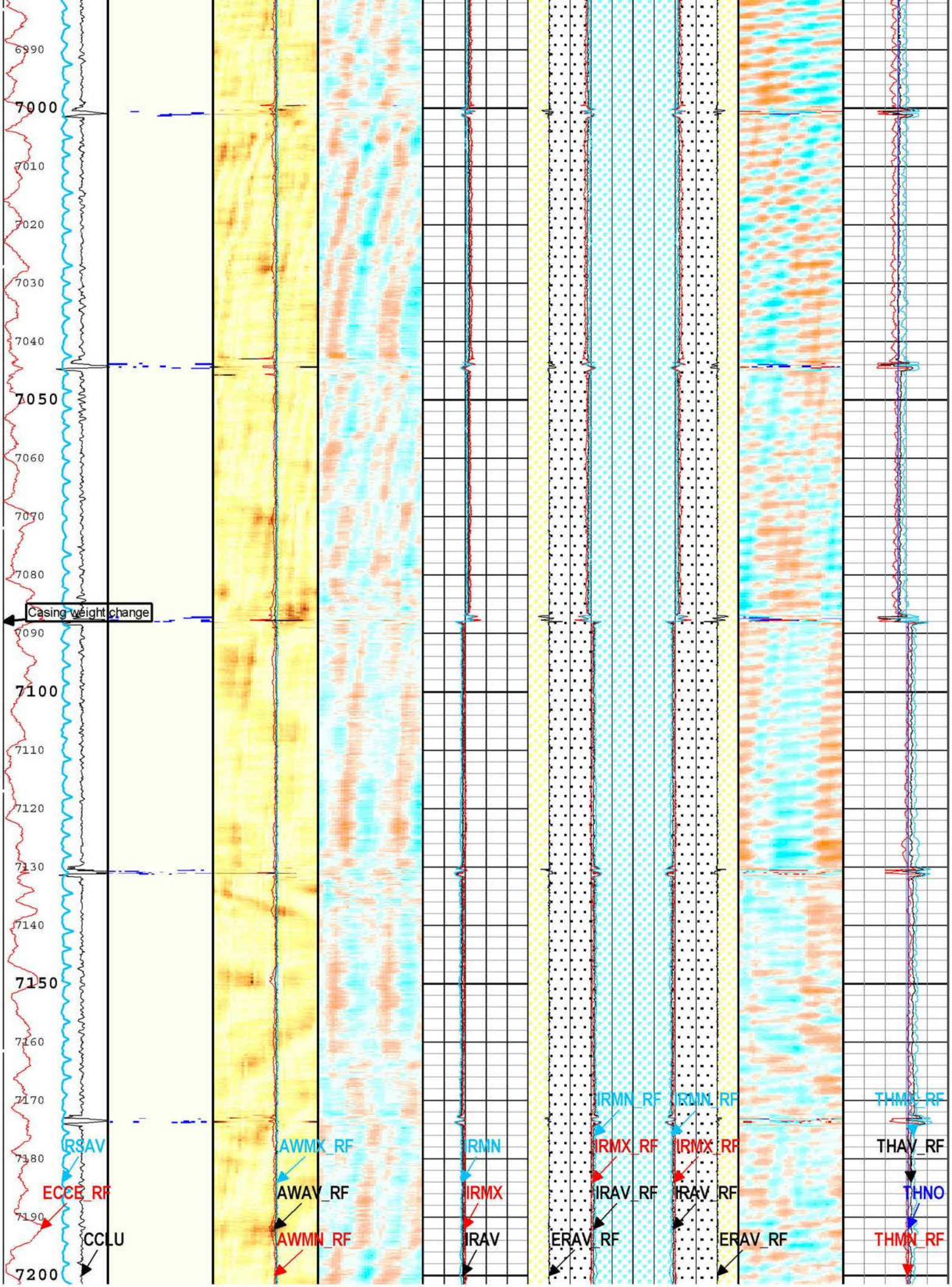
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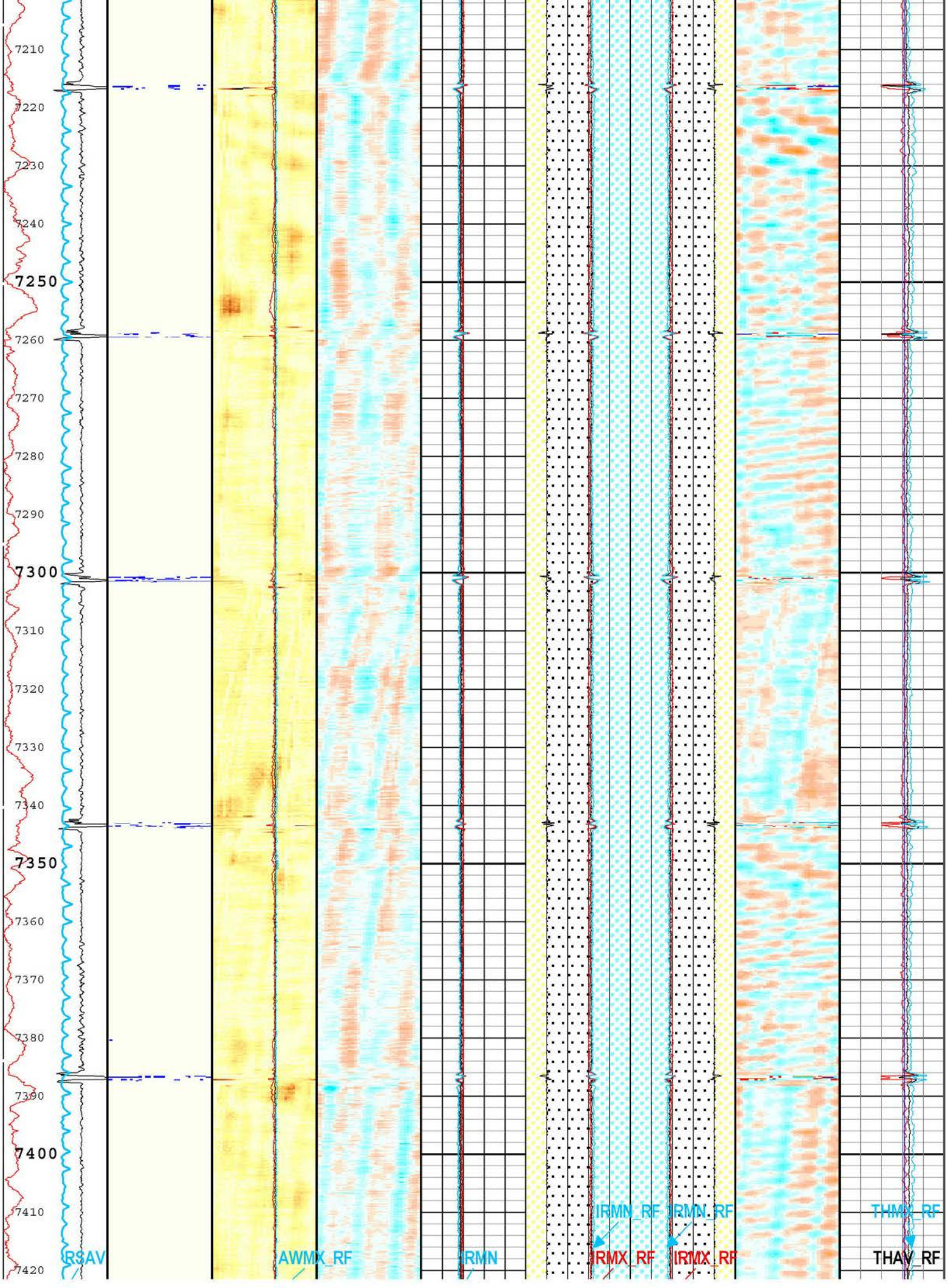
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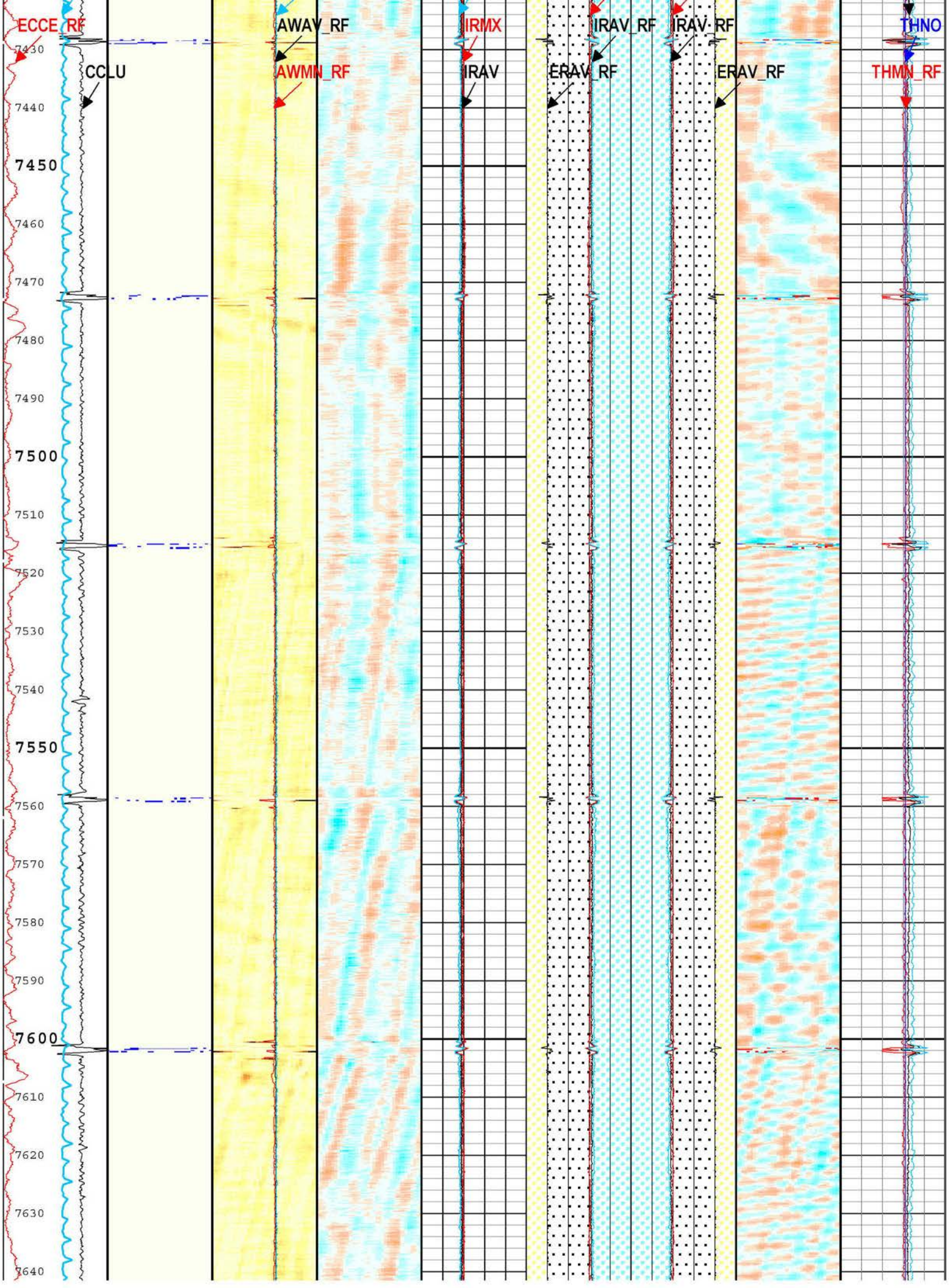
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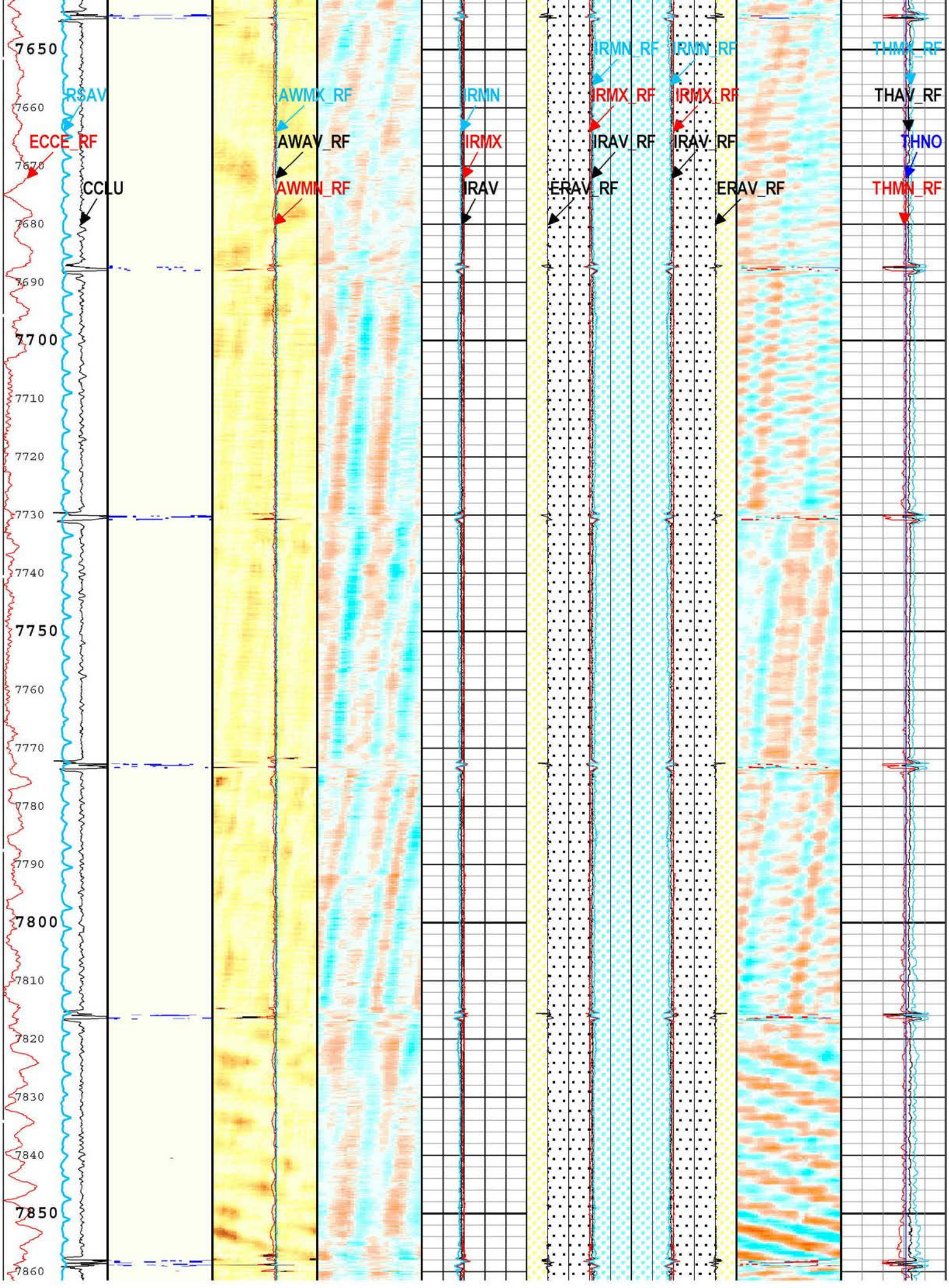
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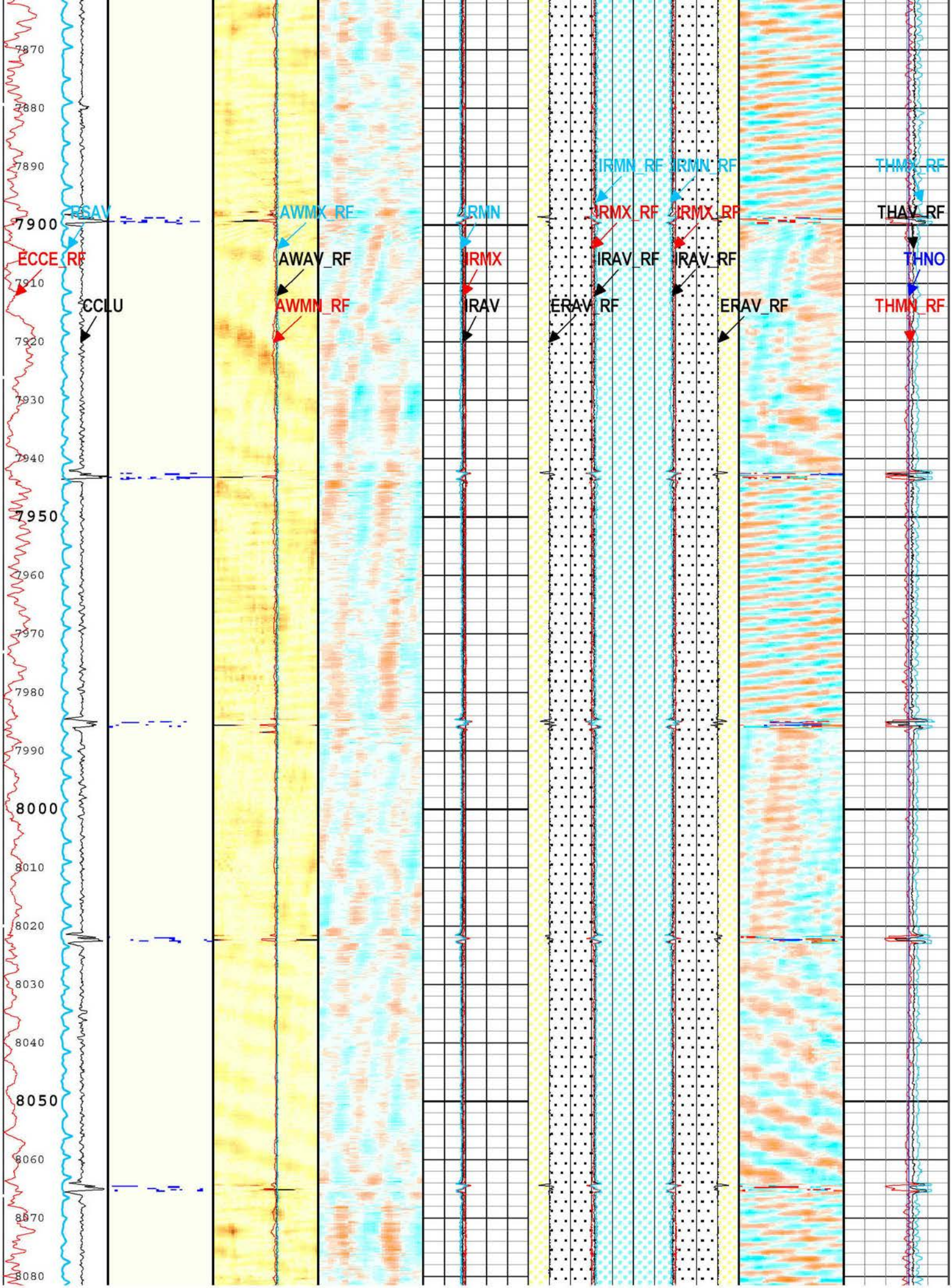
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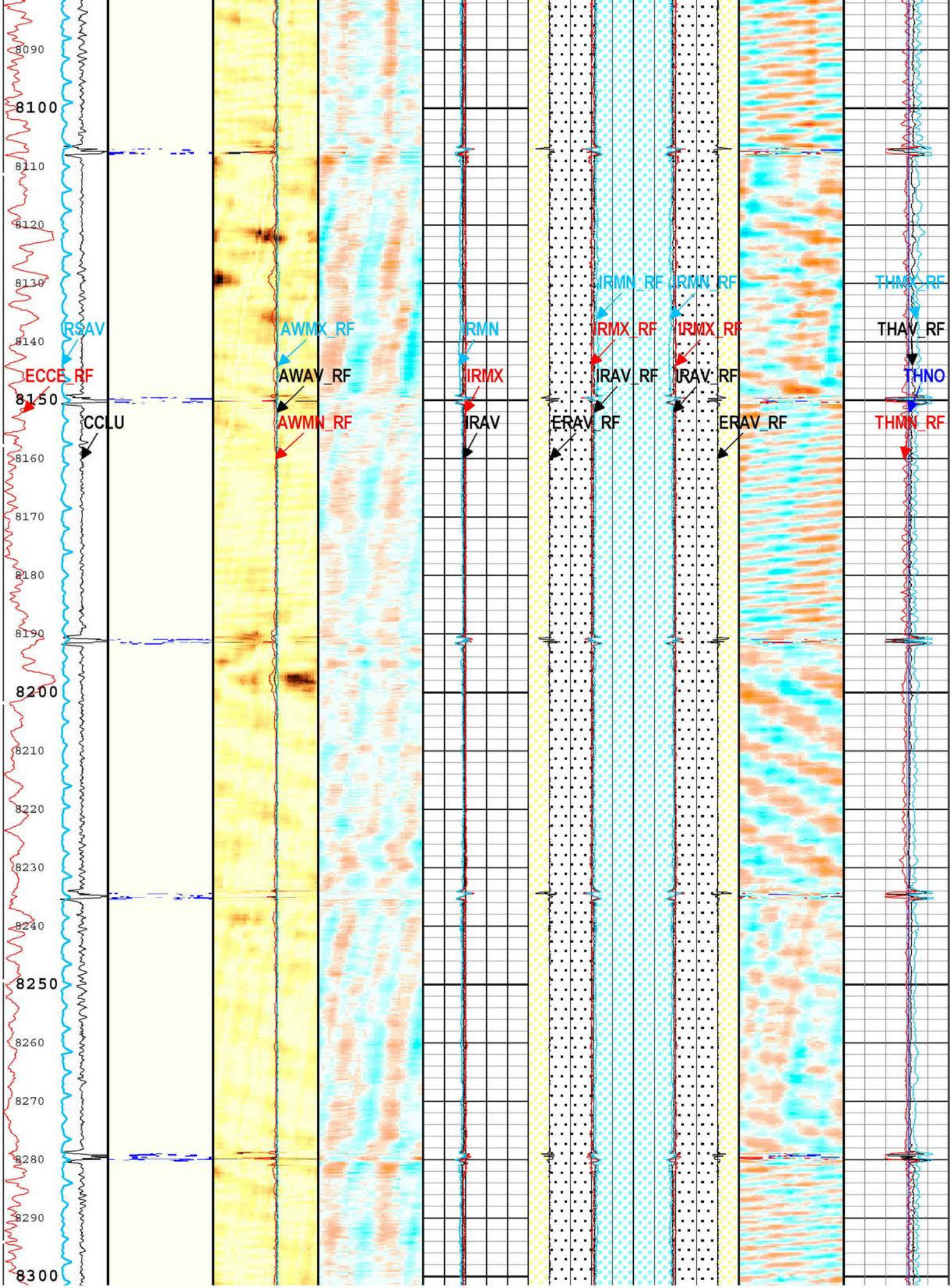
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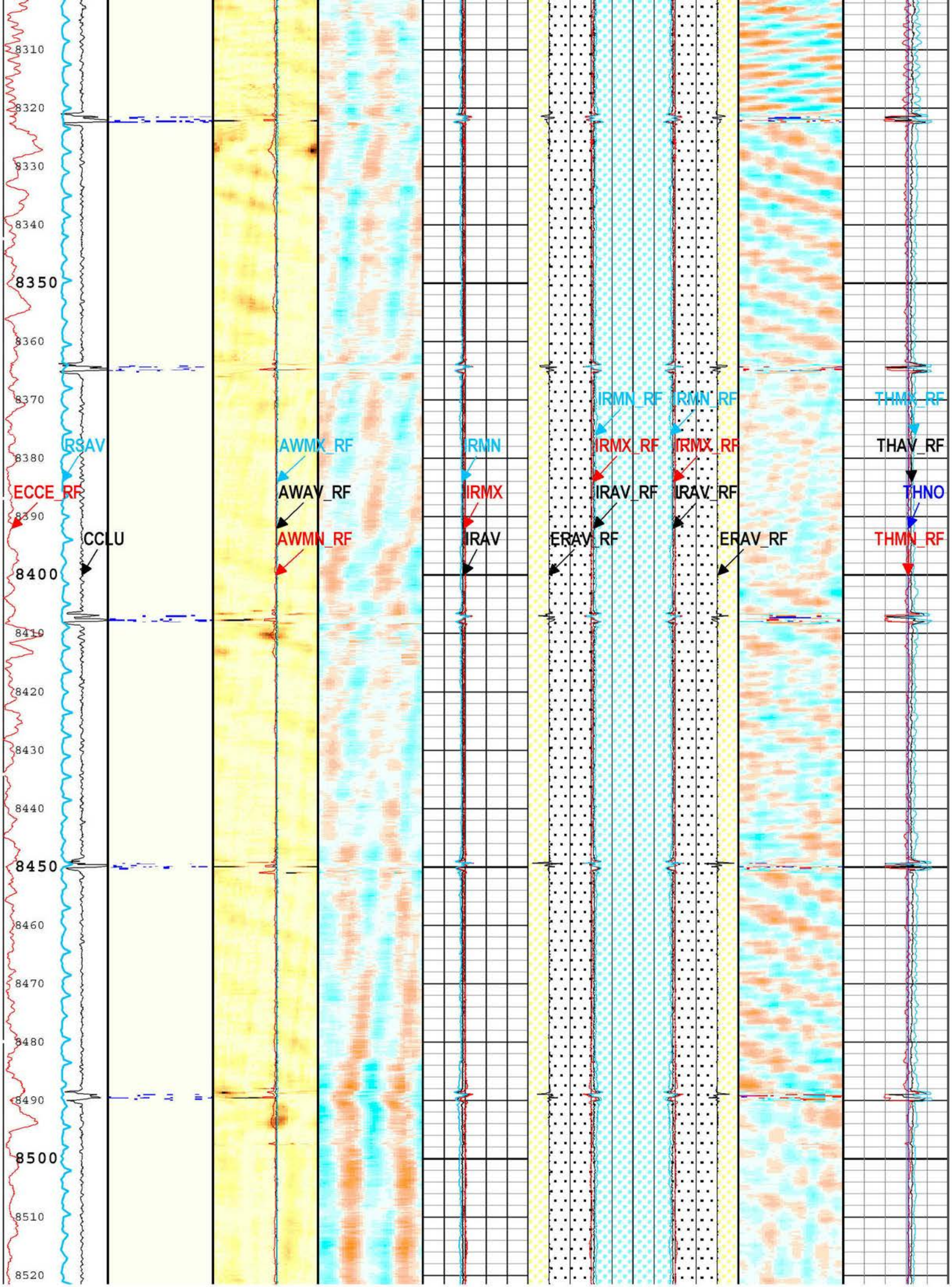
ECCE_RF
CCLU
AWMX_RF
AWAV_RF
AWMN_RF
IRMN
IRMX
IRAV
IRMN_RF
IRMX_RF
IRAV_RF
ERAV_RF
IRMN_RF
IRMX_RF
IRAV_RF
ERAV_RF
THMX_RF
THAV_RF
THNO
THMN_RF


8310
8320
8330
8340
8350
8360
8370
8380
8390
8400
8410
8420
8430
8440
8450
8460
8470
8480
8490
8500
8510
8520
RSAV
ECCE_RF
CCLU
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
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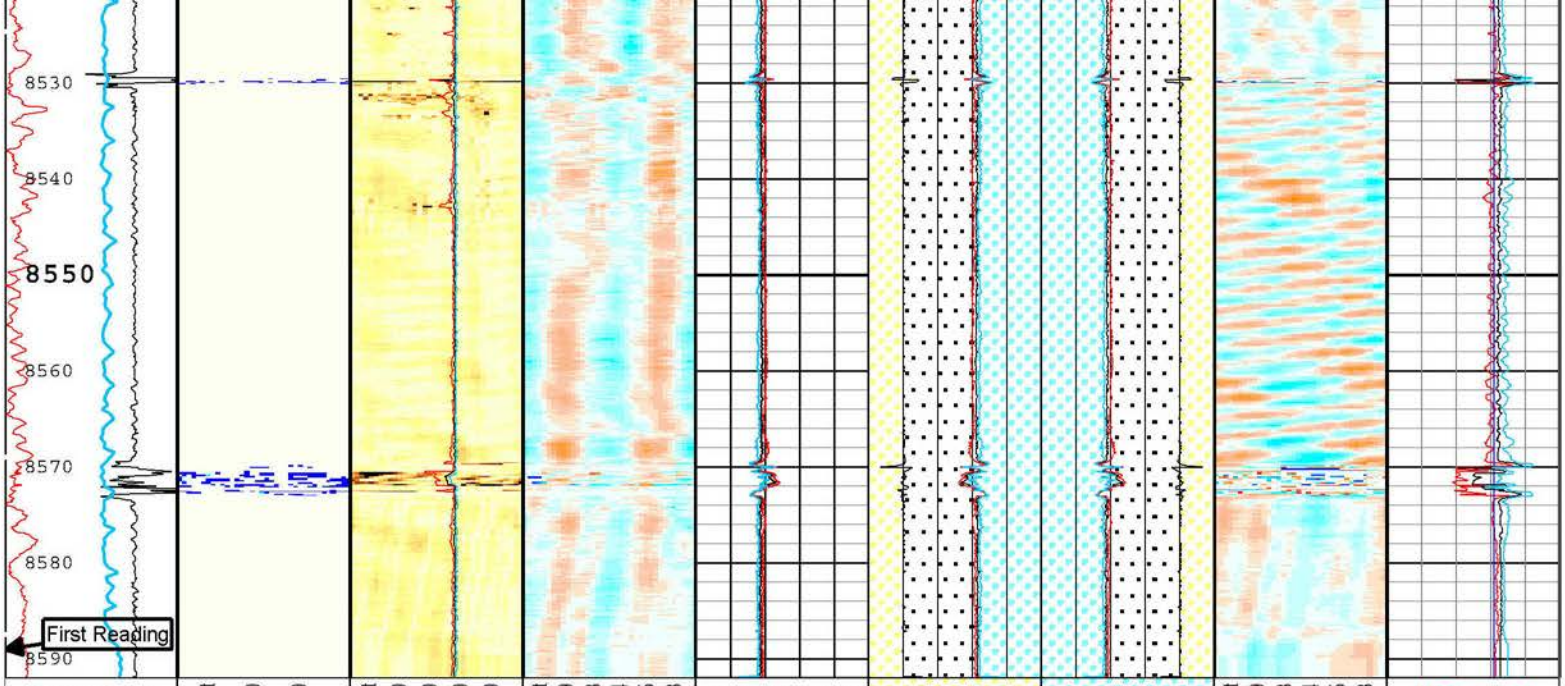
THAV_RF
THNO
THMN_RF



Casing Collar Locator Ultrasonic (CCLU) USIT-E[1]
-30 in 10

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]
Orientation: Top of Hole
U L B R U

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

Absent -5.200 -3.600 -2.000 -0.400
Explicit Normalization
USIT - Amplitude of Unflagged Wave (AWBK_RF) USIT-E[1]
(dB)
Orientation: Top of Hole
U L B R U

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)
Orientation: Top of Hole
U L B R U

Internal Radius Averaged Value (IRAV) USIT-E[1]
2.7 in 3.7

Internal Radius Maximum Value (IRMX) USIT-E[1]
2.7 in 3.7

Internal Radius Minimum Value (IRMN) USIT-E[1]
2.7 in 3.7

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

Median of Unflagged External Radii (ERAV_RF) USIT-E[1]
3.7 in 2.7 | 2.7 in 3.7

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E[1]
3.7 in 2.7 | 2.7 in 3.7

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E[1]
3.7 in 2.7 | 2.7 in 3.7

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E[1]
3.7 in 2.7 | 2.7 in 3.7

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)
Orientation: Top of Hole
U L B R U

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

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] - :

UTIM Error
Pulse Origin Not Detected
WINLEN Error
Casing Thickness 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 5inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 07-Sep-2018 22:56:36

Composite 1

USI Compressed Goodwin

Composite Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[6]:Up	Up	93.36 ft	8592.71 ft	07-Sep-2018 9:51:23 AM	07-Sep-2018 1:52:30 PM	ON	8.00 ft	No
One	Log[9]:Up	Up	11.43 ft	318.32 ft	07-Sep-2018 2:46:40 PM	07-Sep-2018 3:00:05 PM	ON	9.00 ft	No

All depths are referenced to toolstring zero

Log

Company:Southern California Gas Company Well:Standard Sesnon 9 Composite 1:S003

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: 07-Sep-2018 22:56:58

TIME_1900 - Time Marked every 60.00 (s)

Minimum Acoustic Impedance 1 (MIN_AI1) USIT-E[1] 0 Mrayl 10	Minimum Acoustic Impedance 3 (MIN_AI3) USIT-E[1] 0 Mrayl 10	Minimum Acoustic Impedance 5 (MIN_AI5) USIT-E[1] 0 Mrayl 10	Minimum Acoustic Impedance 7 (MIN_AI7) USIT-E[1] 0 Mrayl 10		
Maximum Acoustic Impedance 1 (MAX_AI1) USIT-E[1] 0 Mrayl 10	Maximum Acoustic Impedance 3 (MAX_AI3) USIT-E[1] 0 Mrayl 10	Maximum Acoustic Impedance 5 (MAX_AI5) USIT-E[1] 0 Mrayl 10	Maximum Acoustic Impedance 7 (MAX_AI7) USIT-E[1] 0 Mrayl 10		
Average Acoustic Impedance 1 (AV_AI1) USIT-E[1] 0 Mrayl 10	Average Acoustic Impedance 3 (AV_AI3) USIT-E[1] 0 Mrayl 10	Average Acoustic Impedance 5 (AV_AI5) USIT-E[1] 0 Mrayl 10	Average Acoustic Impedance 7 (AV_AI7) USIT-E[1] 0 Mrayl 10		
Minimum Acoustic Impedance 2 (MIN_AI2) USIT-E[1] 0 Mrayl 10	Minimum Acoustic Impedance 4 (MIN_AI4) USIT-E[1] 0 Mrayl 10	Minimum Acoustic Impedance 6 (MIN_AI6) USIT-E[1] 0 Mrayl 10	Minimum Acoustic Impedance 8 (MIN_AI8) USIT-E[1] 0 Mrayl 10	Minimum Acoustic Impedance 9 (MIN_AI9) USIT-E[1] 0 Mrayl 10	Acoustic Impedance Minimum (AIMN) USIT-E[1] -1 Mrayl 9
Maximum Acoustic Impedance 2 (MAX_AI2) USIT-E[1] 0 Mrayl 10	Maximum Acoustic Impedance 4 (MAX_AI4) USIT-E[1] 0 Mrayl 10	Maximum Acoustic Impedance 6 (MAX_AI6) USIT-E[1] 0 Mrayl 10	Maximum Acoustic Impedance 8 (MAX_AI8) USIT-E[1] 0 Mrayl 10	Maximum Acoustic Impedance 9 (MAX_AI9) USIT-E[1] 0 Mrayl 10	Acoustic Impedance Maximum (AIMX) USIT-E[1] -1 Mrayl 9
Average Acoustic Impedance 2	Average Acoustic Impedance 4	Average Acoustic Impedance 6	Average Acoustic Impedance 8	Average Acoustic Impedance 9	Acoustic Impedance Average

GR 0 gAPI 150

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

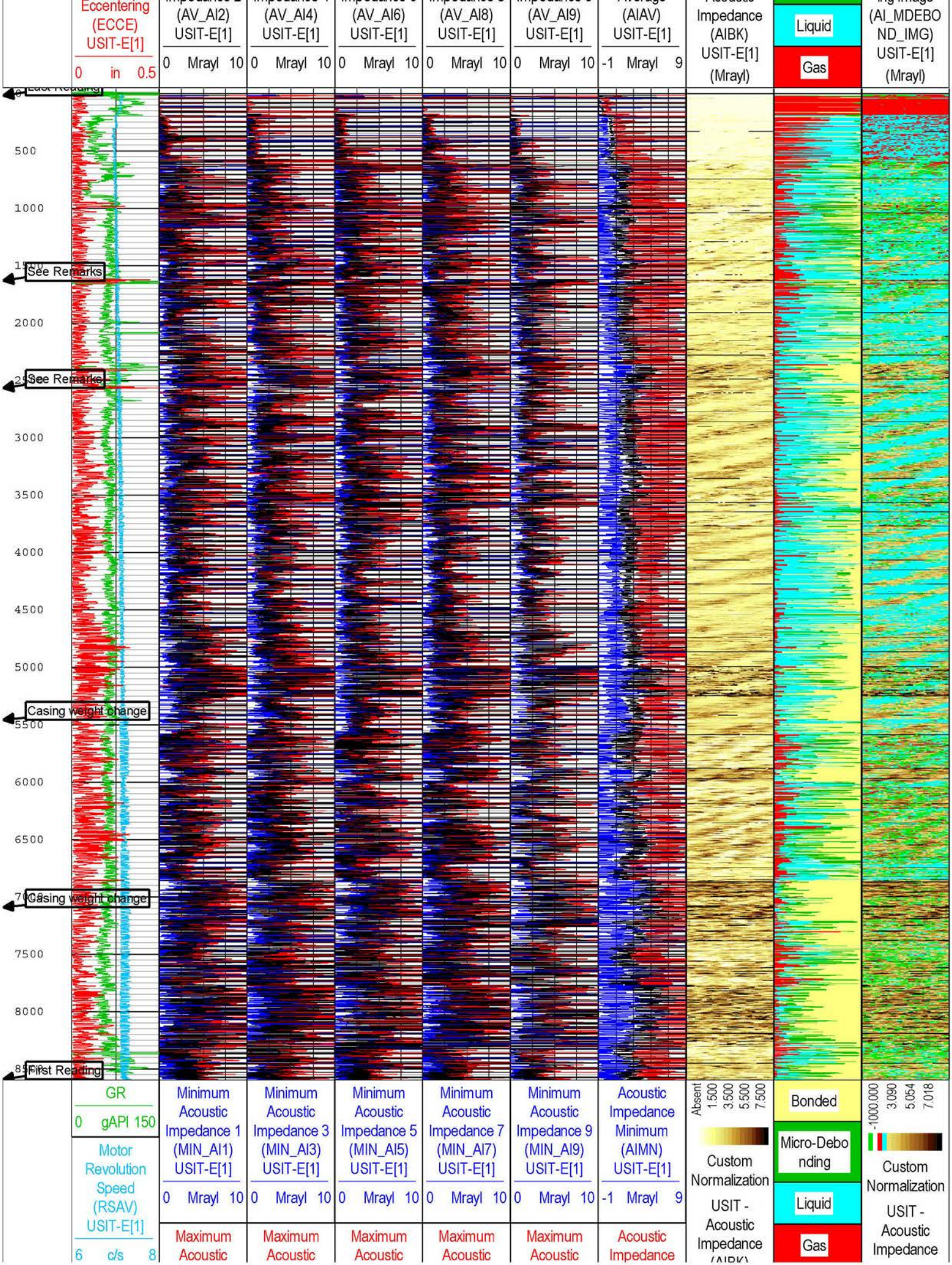
Amplitude of

U L B R U Orientation: Top of Hole Absent 1.500 3.500 5.500 7.500 Custom Normalization USIT - Acoustic

Bonded

Micro-Debonding

U L B R U Orientation: Top of Hole -1000.000 3.090 5.054 7.018 Custom Normalization USIT - Acoustic Impedance With Micro-debonding Image


Eccentering (ECCE) USIT-E[1]
0 in 0.5
Impedance 2 (AV_AI2) USIT-E[1]
0 Mrayl 10
Impedance 4 (AV_AI4) USIT-E[1]
0 Mrayl 10
Impedance 6 (AV_AI6) USIT-E[1]
0 Mrayl 10
Impedance 8 (AV_AI8) USIT-E[1]
0 Mrayl 10
Impedance 9 (AV_AI9) USIT-E[1]
0 Mrayl 10
Average (AIAV) USIT-E[1]
-1 Mrayl 9
Acoustic Impedance (AIBK) USIT-E[1] (Mrayl)
Liquid
Gas
Image (AI_MDEBOND_IMG) USIT-E[1] (Mrayl)
Last Reading
See Remarks
See Remarks
Casing weight change
Casing weight change
First Reading
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
6500
7000
7500
8000
8500
GR
0 gAPI 150
Motor Revolution Speed (RSAV) USIT-E[1]
6 c/s 8
Minimum Acoustic Impedance 1 (MIN_AI1) USIT-E[1]
0 Mrayl 10
Minimum Acoustic Impedance 3 (MIN_AI3) USIT-E[1]
0 Mrayl 10
Minimum Acoustic Impedance 5 (MIN_AI5) USIT-E[1]
0 Mrayl 10
Minimum Acoustic Impedance 7 (MIN_AI7) USIT-E[1]
0 Mrayl 10
Minimum Acoustic Impedance 9 (MIN_AI9) USIT-E[1]
0 Mrayl 10
Acoustic Impedance Minimum (AIMN) USIT-E[1]
-1 Mrayl 9
Maximum Acoustic
Maximum Acoustic
Maximum Acoustic
Maximum Acoustic
Maximum Acoustic
Acoustic Impedance
Absent
1.500
3.500
5.500
7.500
Custom Normalization
USIT - Acoustic Impedance (AIBK)
Bonded
Micro-Debonding
Liquid
Gas
-1000.000
3.090
5.054
7.018
Custom Normalization
USIT - Acoustic Impedance

Amplitude of Eccentering (ECCE) USIT-E[1]	Impedance 1 (MAX_AI1) USIT-E[1]	Impedance 3 (MAX_AI3) USIT-E[1]	Impedance 5 (MAX_AI5) USIT-E[1]	Impedance 7 (MAX_AI7) USIT-E[1]	Impedance 9 (MAX_AI9) USIT-E[1]	Maximum (AIMX) USIT-E[1]	(AIBK) USIT-E[1] (Mrayl) Orientation: Top of Hole	With Micro-debonding Image (AI_MDEBOND_IMG) USIT-E[1] (Mrayl) Orientation: Top of Hole
0 in 0.5	0 Mrayl 10	0 Mrayl 10	0 Mrayl 10	0 Mrayl 10	0 Mrayl 10	-1 Mrayl 9	U L B R U	U L B R U
	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: 07-Sep-2018 22:56:58

One

Hi res Corrosion 10 in = 100 ft

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[8]:Up	Up	1551.52 ft	1758.38 ft	07-Sep-2018 2:26:31 PM	07-Sep-2018 2:40:35 PM	ON	9.00 ft	No

All depths are referenced to toolstring zero

Log

Company:Southern California Gas Company Well:Standard Sesnon 9

One: Log[8]:Up:S003

Description: USI Composite Format: Log (LBV1_USI Corrosion 5inch) Index Scale: 10 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 07-Sep-2018 22:57:01

TIME_1900 - Time Marked every 60.00 (s)

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

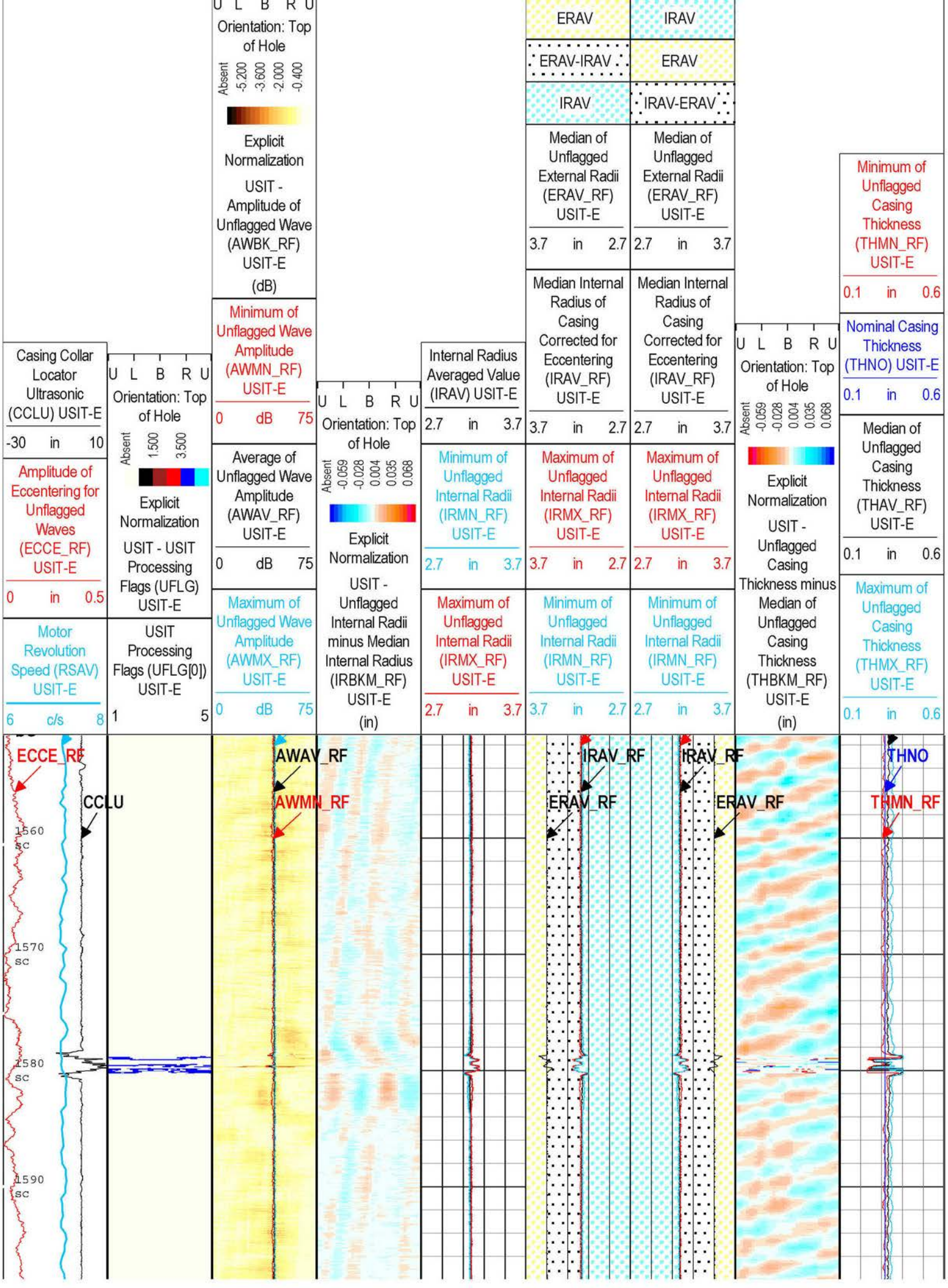
1 - UFLG 1 Value within [0.0 - 1.5] - : UTIM Error

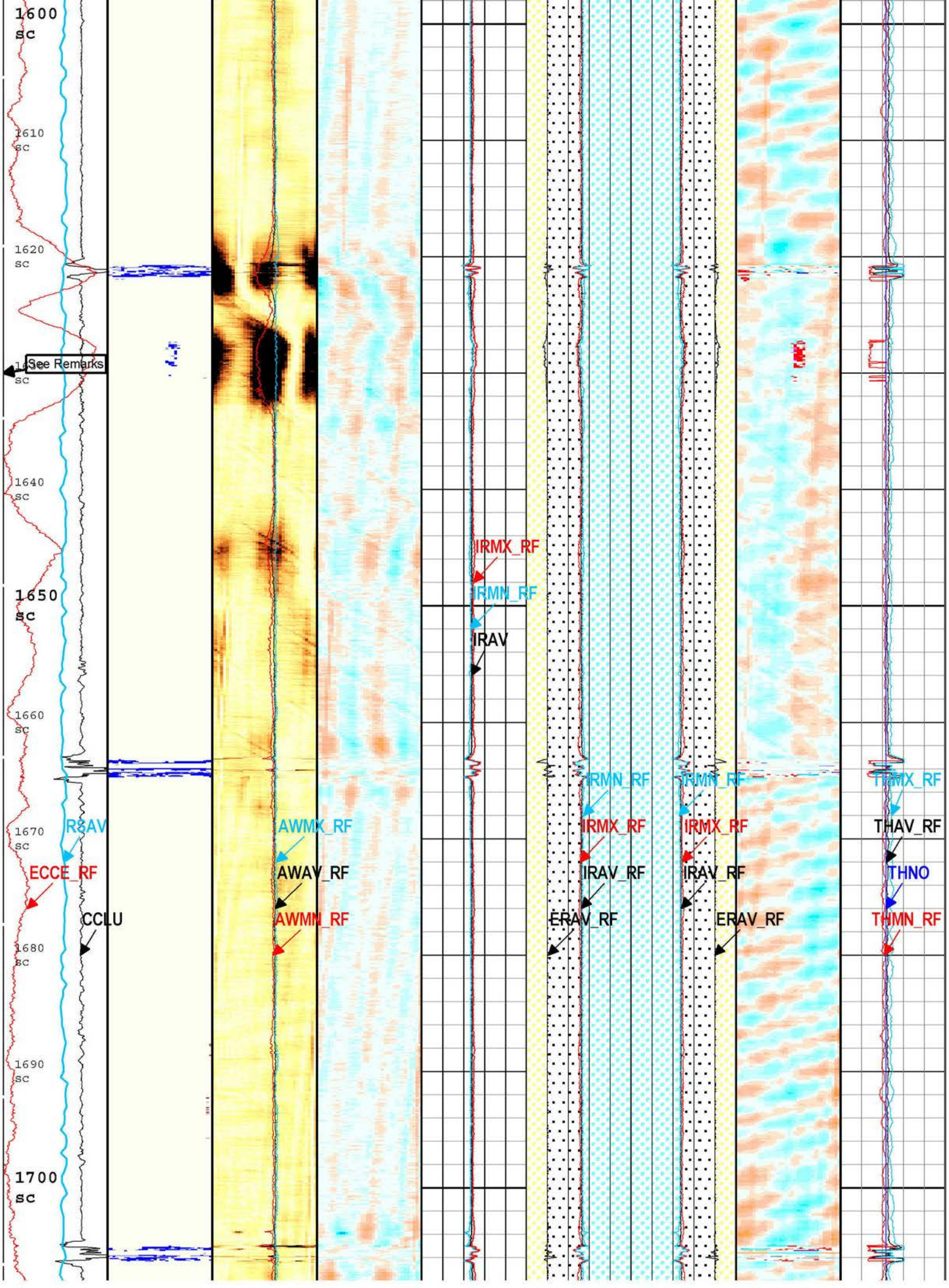
2 - UFLG 2 Value within [1.5 - 2.5] - : Pulse Origin Not Detected

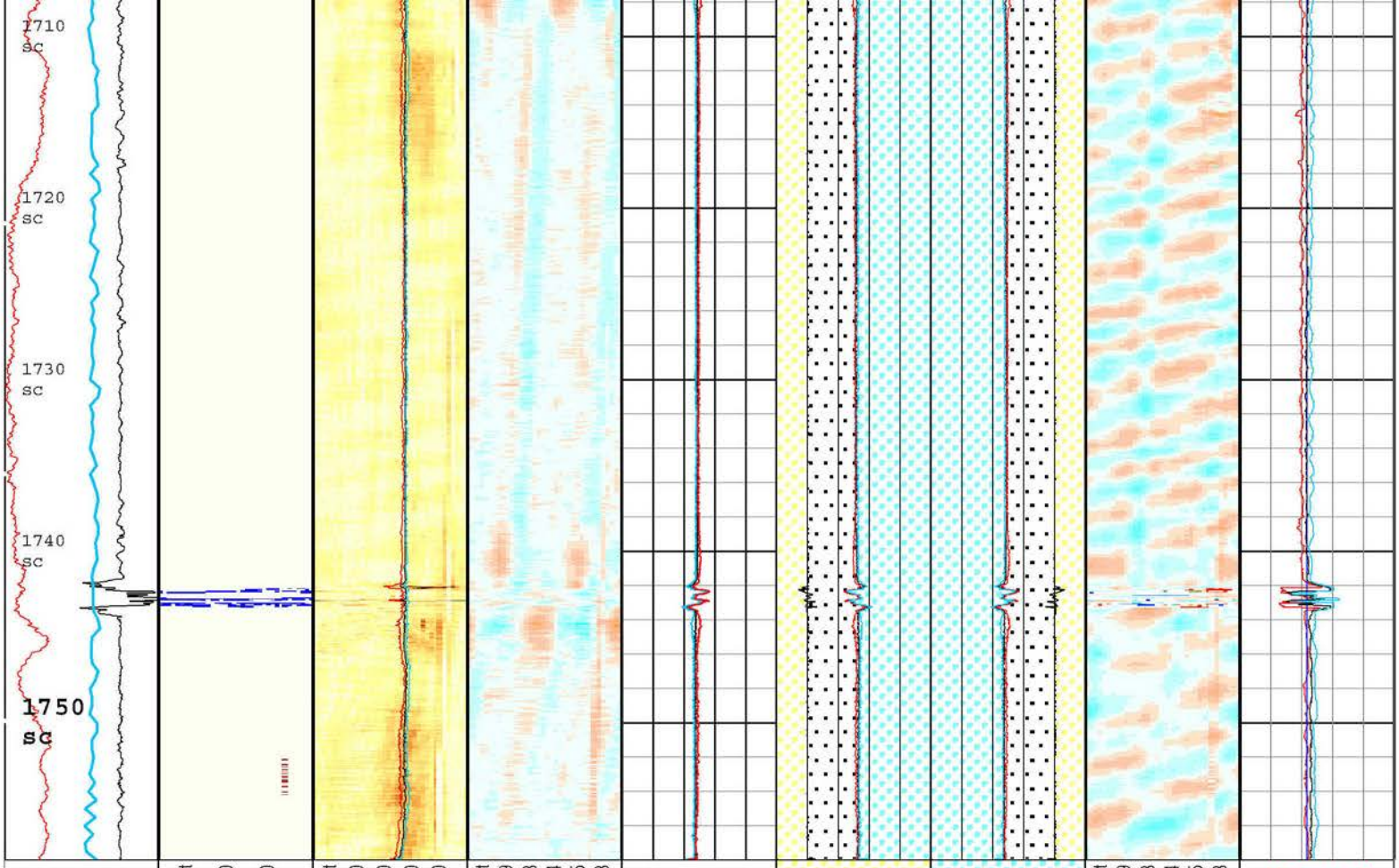
3 - UFLG 3 Value within [2.5 - 3.5] - : WINLEN Error

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

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


Casing Collar Locator Ultrasonic (CCLU) USIT-E
-30 in 10
Amplitude of Eccentering for Unflagged Waves (ECCE_RF) USIT-E
0 in 0.5
Motor Revolution Speed (RSAV) USIT-E
6 c/s 8
U L B R U
Orientation: Top of Hole
Absent 1.500 3.500
Explicit Normalization
USIT - USIT Processing Flags (UFLG) USIT-E
USIT Processing Flags (UFLG[0]) USIT-E
1 5
U L B R U
Orientation: Top of Hole
Absent -5.200 -3.600 -2.000 -0.400
Explicit Normalization
USIT - Amplitude of Unflagged Wave (AWBK_RF) USIT-E
(dB)
Minimum of Unflagged Wave Amplitude (AWMN_RF) USIT-E
0 dB 75
Average of Unflagged Wave Amplitude (AWAV_RF) USIT-E
0 dB 75
Maximum of Unflagged Wave Amplitude (AWMX_RF) USIT-E
0 dB 75
U L B R U
Orientation: Top of Hole
Absent -0.059 -0.028 0.004 0.035 0.068
Explicit Normalization
USIT - Unflagged Internal Radii minus Median Internal Radius (IRBKM_RF) USIT-E
(in)
Internal Radius Averaged Value (IRAV) USIT-E
2.7 in 3.7
Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
2.7 in 3.7
Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
2.7 in 3.7
ERAV
ERAV-IRAV
IRAV
Median of Unflagged External Radii (ERAV_RF) USIT-E
3.7 in 2.7
Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E
3.7 in 2.7
Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
3.7 in 2.7
Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
3.7 in 2.7
IRAV
ERAV
IRAV-ERAV
Median of Unflagged External Radii (ERAV_RF) USIT-E
2.7 in 3.7
Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E
2.7 in 3.7
Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
2.7 in 3.7
Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
2.7 in 3.7
U L B R U
Orientation: Top of Hole
Absent -0.059 -0.028 0.004 0.035 0.068
Explicit Normalization
USIT - Unflagged Casing Thickness minus Median of Unflagged Casing Thickness (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
ECCE_RF
CCLU
AWAV_RF
AWMN_RF
IRAV_RF
ERAV_RF
IRAV_RF
ERAV_RF
THNO
THMN_RF
1560 sc
1570 sc
1580 sc
1590 sc


1600 sc
1610 sc
1620 sc
See Remarks
1640 sc
1650 sc
1660 sc
1670 sc
1680 sc
1690 sc
1700 sc
R8AV
ECCE_RF
CCLU
AWMX_RF
AWAV_RF
AWMN_RF
IRMX_RF
IRMN_RF
IRAV
IRMN_RF
IRMX_RF
IRAV_RF
ERAV_RF
IRMN_RF
IRMX_RF
IRAV_RF
ERAV_RF
THMX_RF
THAV_RF
THNO
THMN_RF



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

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

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

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

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

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

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

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

Maximum of Unflagged Wave Amplitude (AWMX_RF) USIT-E

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

Internal Radius Averaged Value (IRAV) USIT-E
2.7 in 3.7

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
2.7 in 3.7

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
2.7 in 3.7

ERAV
ERAV-IRAV
IRAV

Median of Unflagged External Radii (ERAV_RF) USIT-E
3.7 in 2.7

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E
3.7 in 2.7

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
3.7 in 2.7

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E

IRAV
ERAV
IRAV-ERAV

Median of Unflagged External Radii (ERAV_RF) USIT-E
2.7 in 3.7

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E
2.7 in 3.7

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
2.7 in 3.7

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E

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

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

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

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

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

USIT-E

0 dB 75

3.7 in 2.7 | 2.7 in 3.7

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 5inch) Index Scale: 10 in per 100 ft Index Unit: ft Index Type: Measured Depth
Creation Date: 07-Sep-2018 22:57:01

One

Hi res Corrosion 10 in = 100 ft

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[7]:Up	Up	2491.49 ft	2659.49 ft	07-Sep-2018 2:11:27 PM	07-Sep-2018 2:22:46 PM	ON	9.00 ft	No

All depths are referenced to toolstring zero

Log

Company:Southern California Gas Company Well:Standard Sesnon 9

One: Log[7]:Up:S003

Description: USI Composite Format: Log (LBV1_USI Corrosion 5inch) Index Scale: 10 in per 100 ft Index Unit: ft Index Type: Measured Depth
Creation Date: 07-Sep-2018 22:57:05

TIME_1900 - Time Marked every 60.00 (s)

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

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

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

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

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

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

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

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

Median of Unflagged External Radii (ERAV_RF) USIT-E
3.7 in 2.7

Median of Unflagged External Radii (ERAV_RF) USIT-E
2.7 in 3.7

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

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

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E
3.7 in 2.7

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E
2.7 in 3.7

U L B R U
Orientation: Top of Hole
Absent -0.059 -0.028 0.004 0.035 0.068

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

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

U L B R U
Orientation: Top of Hole
Absent 1.500 3.500

U L B R U
Orientation: Top of Hole

Internal Radius Averaged Value (IRAV) USIT-E
2.7 in 3.7

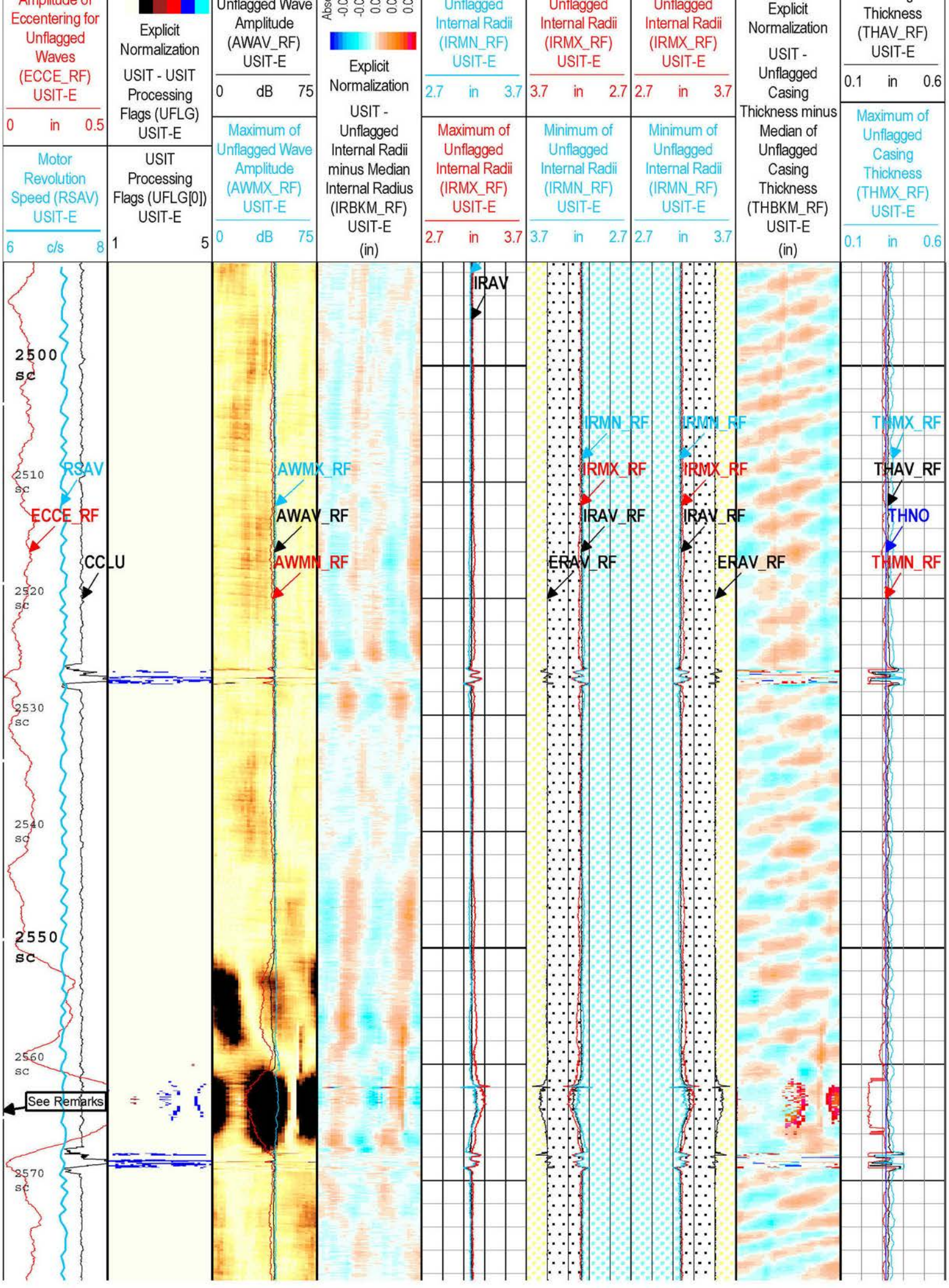
Average of

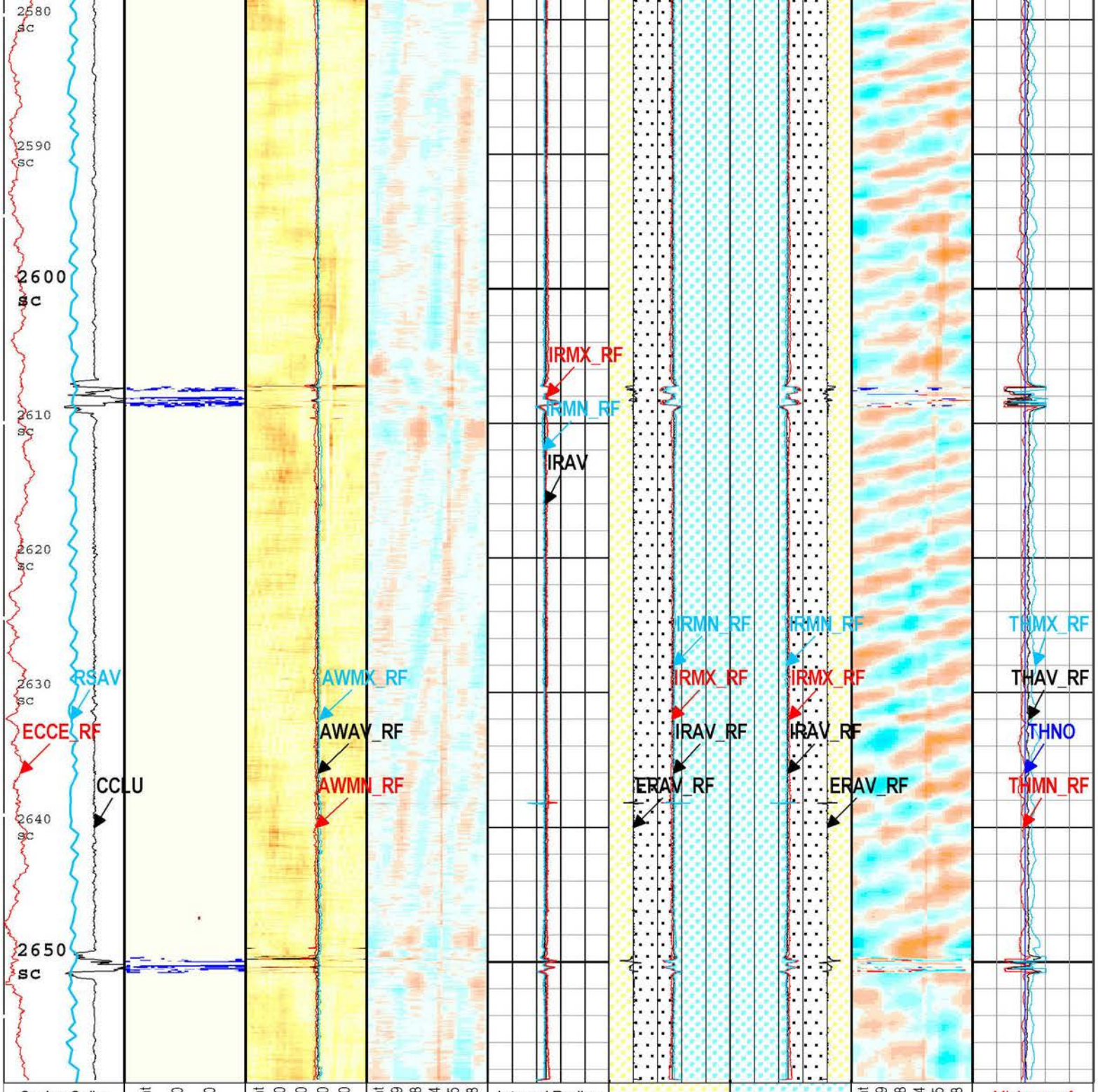
Minimum of

Maximum of

Maximum of

Median of Unflagged Casing


Amplitude of Eccentering for Unflagged Waves (ECCE_RF) USIT-E
0 in 0.5
Motor Revolution Speed (RSAV) USIT-E
6 c/s 8
Explicit Normalization
USIT - USIT Processing Flags (UFLG) USIT-E
USIT Processing Flags (UFLG[0]) USIT-E
1 5
Unflagged Wave Amplitude (AWAV_RF) USIT-E
0 dB 75
Maximum of Unflagged Wave Amplitude (AWMX_RF) USIT-E
0 dB 75
Explicit Normalization
USIT - Unflagged Internal Radii minus Median Internal Radius (IRBKM_RF) USIT-E
(in)
Unflagged Internal Radii (IRMN_RF) USIT-E
2.7 in 3.7
Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
2.7 in 3.7
Unflagged Internal Radii (IRMX_RF) USIT-E
3.7 in 2.7
Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
3.7 in 2.7
Unflagged Internal Radii (IRMX_RF) USIT-E
2.7 in 3.7
Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
2.7 in 3.7
Explicit Normalization
USIT - Unflagged Casing Thickness minus Median of Unflagged Casing Thickness (THBKM_RF) USIT-E
(in)
Thickness (THAV_RF) USIT-E
0.1 in 0.6
Maximum of Unflagged Casing Thickness (THMX_RF) USIT-E
0.1 in 0.6
2500 sc
2510 sc
2520 sc
2530 sc
2540 sc
2550 sc
2560 sc
2570 sc
RSAV
ECCE_RF
CCLU
AWMX_RF
AWAV_RF
AWMN_RF
IRAV
IRMN_RF
IRMX_RF
IRAV_RF
ERAV_RF
IRMN_RF
IRMX_RF
IRAV_RF
ERAV_RF
THMX_RF
THAV_RF
THNO
THMN_RF
See Remarks



Casing Collar Locator Ultrasonic (CCLU) USIT-E -30 in 10	Absent 1.500 3.500 Explicit Normalization USIT - USIT Processing Flags (UFLG) USIT-E Orientation: Top of Hole U L B R U	Absent -5.200 -3.600 -2.000 -0.400 Explicit Normalization USIT - Amplitude of Unflagged Wave (AWBK_RF) USIT-E (dB) Orientation: Top of Hole U L B R U	Absent -0.059 -0.028 0.004 0.035 0.068 Explicit Normalization USIT - Unflagged Internal Radii minus Median Internal Radius (IRBKM_RF) USIT-E (in) Orientation: Top of Hole U L B R U	Internal Radius Averaged Value (IRAV) USIT-E 2.7 in 3.7	ERAV ERAV-IRAV IRAV	IRAV ERAV IRAV-ERAV	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	
Amplitude of Eccentering for Unflagged Waves (ECCE_RF) USIT-E 0 in 0.5				Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E 2.7 in 3.7	Median of Unflagged External Radii (ERAV_RF) USIT-E 3.7 in 2.7	Median of Unflagged External Radii (ERAV_RF) USIT-E 2.7 in 3.7		Nominal Casing Thickness (THNO) USIT-E 0.1 in 0.6	
Motor Revolution Speed (RSAV)	USIT Processing Flags (UFLG[0]) USIT-E	Minimum of		Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E	Median Internal Radius of Casing Corrected for	Median Internal Radius of Casing Corrected for		Median of Unflagged Casing Thickness	

USIT-E
6 c/s 8

1 5

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

2.7 in 3.7

Corrected for Eccentering (IRAV_RF) USIT-E
3.7 in 2.7

Corrected for Eccentering (IRAV_RF) USIT-E
2.7 in 3.7

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
3.7 in 2.7

Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
2.7 in 3.7

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
3.7 in 2.7

Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
2.7 in 3.7

Orientation: Top of Hole
U L B R U

(THAV_RF) USIT-E
0.1 in 0.6

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

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

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

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

TIME_1900 - Time Marked every 60.00 (s)

Description: USI Composite Format: Log (LBV1_USI Corrosion 5inch) Index Scale: 10 in per 100 ft Index Unit: ft Index Type: Measured Depth
Creation Date: 07-Sep-2018 22:57:05

XYZ

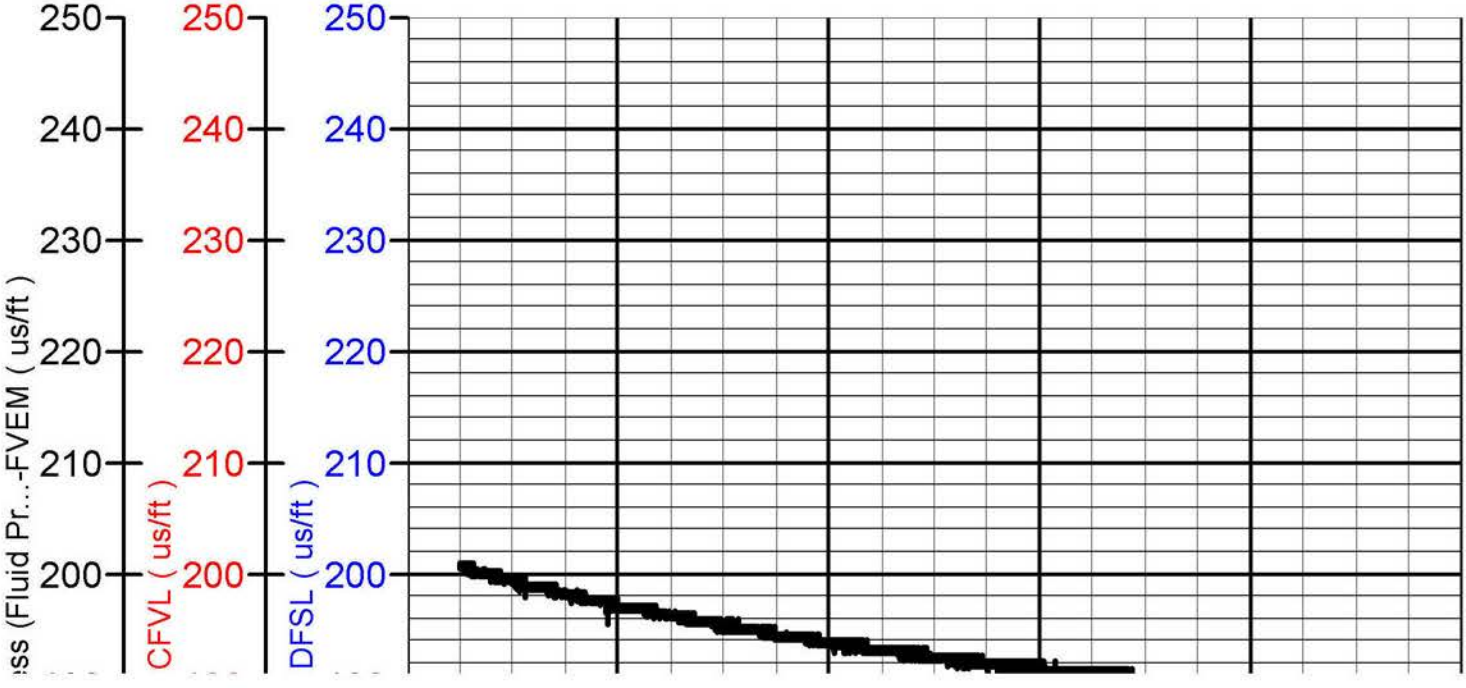
Company:Southern California Gas Company Well:Standard Sesnon 9
One: Log[2]:Down:S003

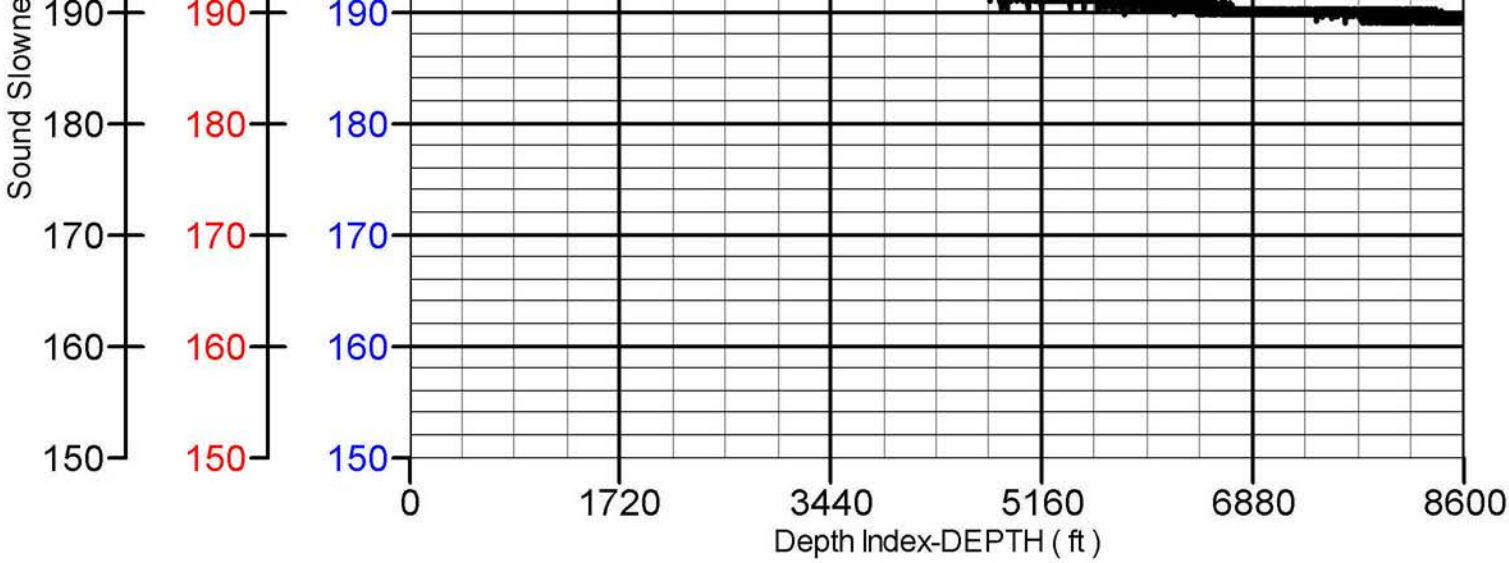
Fluid Acoustic Slowness vs Depth

2D Cross Plot

Index Range: From 436.00 to 8597.50 ft

DEPTH-DFSL (DFSL : Data Not Found)
DEPTH-CFVL (CFVL : Data Not Found)
DEPTH-FVEM





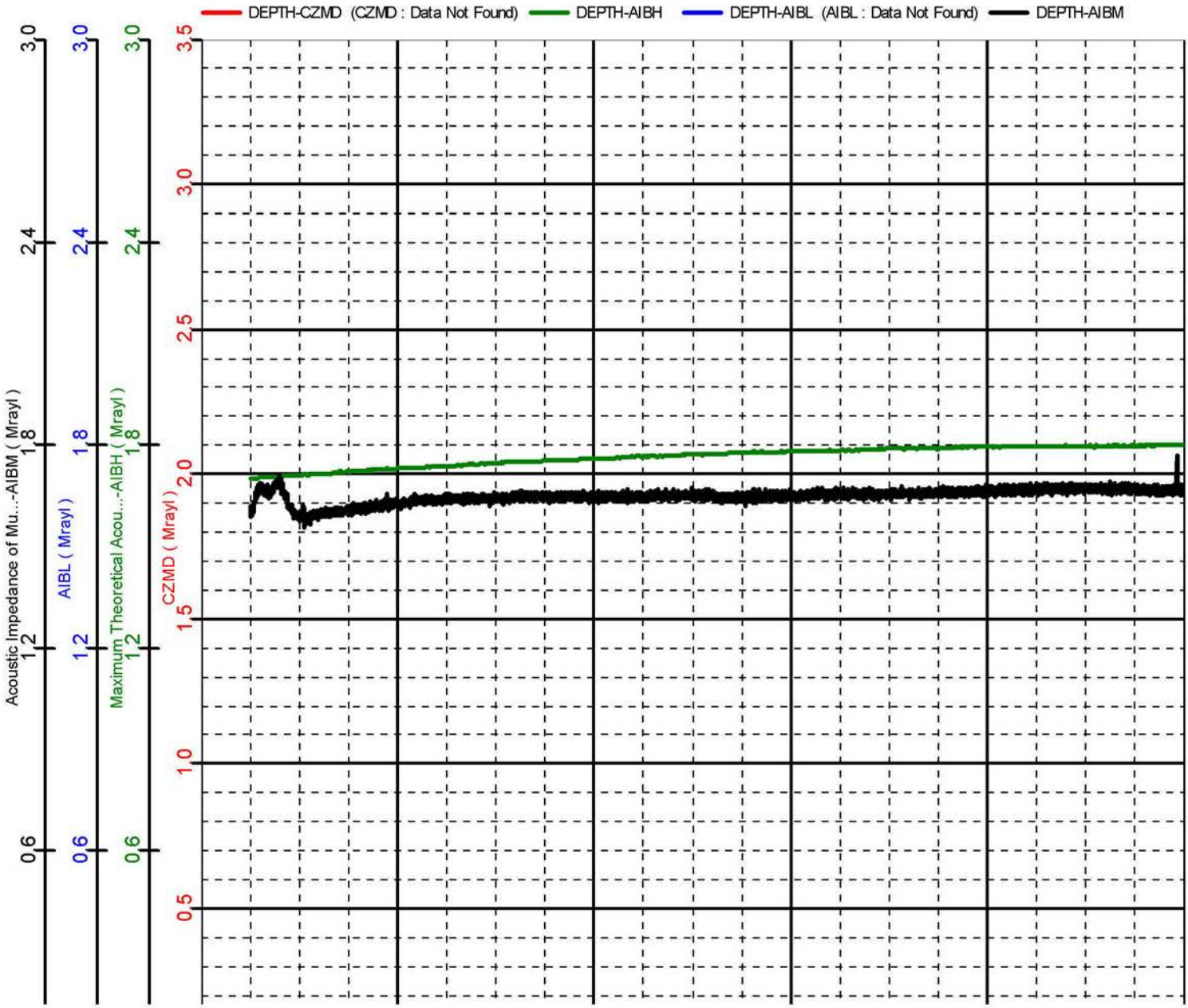
XYZ

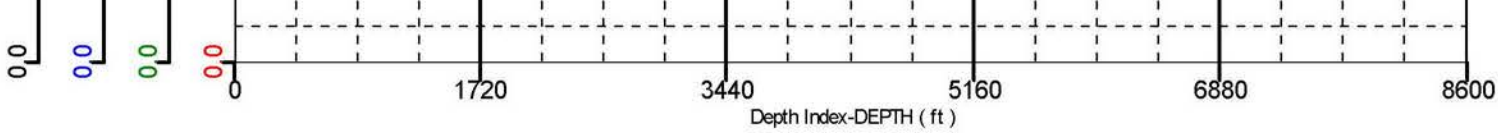
Company:Southern California Gas Company Well:Standard Sesnon 9
One: Log[2]:Down:S003

Theoretical Acoustic Impedance of Mud vs Depth

2D Cross Plot

Index Range: From 436.00 to 8597.50 ft





USIT - Fluid Properties Measurement

Run Name	Pass Name	Start Depth(ft)	Stop Depth(ft)
Run 1	Log[2]:Down	436.1	8598.16

Fluid Velocity = "Automatic".
CFVL equals DFSL channel

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

Mud Impedance = "Theoretical".
CZMD uses theoretical results.
MUD_N_THE=1.00
DFD=1.02g/cm3(8.50lbm/gal)

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

Company: Southern California Gas Company

Schlumberger

Well: Standard Sesnon 9

Field: Aliso Canyon

County: Los Angeles

State: California

Ultrasonic Imager

Ultrasonic Imager

Gamma Ray - CCL

7" 23, 26, 29# casing

Ex. II - 16

Ex. II - 16

Ex. II - 17

HR Vertilog

Magnetic Flux Leakage Inspection

Advanced Analysis

Company	Southern California Gas Company
Well	Porter 46
Field	Aliso Canyon
County	Los Angeles
State	California

Location:
1425'S And 3225'W From Station 84

Section 28	Township 3N	Range 16W	

Date	Aug. 17, 2017
Service Order	126679
Recorded by	J Burge
Witnessed by	G Ross
API Serial No.	04-037-00733-00

Permanent Datum:	GL	Elevation: 2254.850 ft.	Depth	7918.000
Log Measured From:	DF	6.920 ft. above Perm. Datum	Btm. Log Interval	7590.000
Drilling Measured From:	DF	6.920 ft. above Perm. Datum	Top Log Interval	0.000
			Fluid Type	KCL

Casing Data

Size	Weight	Grade	From	To	Length
7 inch	23.0 lb/ft	J-55	0	3381'	3381.0
7 inch	23.0 lb/ft	N-80	3381'	5166'	1785.0
7 inch	26.0 lb/ft	N-80	5166'	6717'	1551.0
7 inch	29.0 lb/ft	N-80	6717'	7710'	993.0
13.375 inch	54.5 lb/ft	J-55	0	533'	533.0

Software Version 7.4.0.1

Equipment Data

Run	Trip	Tool Type	Tool Series	Serial Number	Position
1	1	HRVRT MFL	4997	PB11988737	LOWER
1	1	HRVRT MFL	4997	QB11988736	UPPER
1	1	HRVRT TELEM	4993	10360727	

Calibration Data

Calibration File Name	4997-7-001-PB11988737-U.CAL

Date of Calibration	03/31/2017 15:36
Calibration Identifier	9CC09EF0-FC22-4FC5-BC58-63EBD50C7056
Tool Number	4997-00
Calibrator Number	4997-7-001
Calibrator Size	(7 In - 178 mm)
Calibration Source File	20170331_150812_MEM.MVL
Calibration Software Rev	Microvision 32-bit 7.3.4.0
Comment	RMA1529

Calibration Data

Calibration File Name	4997-7-001-QB11988736-L.CAL
Date of Calibration	03/31/2017 15:36
Calibration Identifier	9CC09EF0-FC22-4FC5-BC58-63EBD50C7056
Tool Number	4997-00
Calibrator Number	4997-7-001
Calibrator Size	(7 In - 178 mm)
Calibration Source File	20170331_150812_MEM.MVL
Calibration Software Rev	Microvision 32-bit 7.3.4.0
Comment	RMA1529

Interpretation

HRVRT analysis was depth correlated to SLB GR-CCL logged 16 August 2017.

19.16 ft	Hardware - Possible Girth Weld
19.57 ft	Hardware - External casing head response.
538.35 ft	Hardware - Bottom of 13.375" external casing
1540.48 ft	Anomaly - Mechanical/Manufacturing Artifacts, Possible Dent or hard spot
2634.29 ft	Anomaly - Mechanical/Manufacturing Artifacts, possible Dent or hard spot
3375.55 ft	Anomaly - Mechanical/Manufacturing Artifacts, Possible Dent or hard spot

The collar identified as anomalous has an apparent metal loss feature at the edges of the makeup region and accurate metal loss cannot be qualified. It is recommended that this anomalous connection is continued to be monitored in future surveys.

Reviewing the data stick and pull of the tool in the up pass and down pass was observed throughout the surveyed interval, more prominent over the bottom . This misalignment was normalized as best as possible to correct for the acceleration changes of the tool and the analysis over this interval was done by analyzing the feature with the best alignment as well as we could.

Internal circumferential features with metal loss signature can be seen in some joints. These features appear to be mechanical

be seen in some joints. These features appear to be mechanical or manufacturing in nature and fall below the 15 % threshold value for classification. These features were also evident in the MAC survey. See examples Joint # 16 at 687' and 691' and joint # 24 at 1002'.

Joint Interpretation Summary

Joint	From	To	Length	Class	Max Depth	Position	ID/OD
1	18.16	58.96	40.80	Class 1	-	-	-
2	58.96	103.09	44.13	Class 1	-	-	-
3	103.09	147.10	44.01	Class 1	-	-	-
4	147.10	188.45	41.35	Class 1	-	-	-
5	188.45	232.31	43.86	Class 1	-	-	-
6	232.31	275.52	43.21	Class 1	-	-	-
7	275.52	318.11	42.59	Class 1	-	-	-
8	318.11	362.00	43.89	Class 1	-	-	-
9	362.00	405.07	43.07	Class 1	-	-	-
10	405.07	447.32	42.25	Class 1	-	-	-
11	447.32	488.33	41.01	Class 1	-	-	-
12	488.33	530.72	42.39	Class 1	-	-	-
13	530.72	573.43	42.71	Class 1	-	-	-
14	573.43	614.91	41.48	Class 1	-	-	-
15	614.91	657.65	42.74	Class 1	-	-	-
16	657.65	701.31	43.66	Class 1	-	-	-
17	701.31	743.52	42.21	Class 1	-	-	-
18	743.52	785.87	42.35	Class 1	-	-	-
19	785.87	827.85	41.98	Class 1	-	-	-
20	827.85	868.62	40.77	Class 1	-	-	-
21	868.62	910.76	42.14	Class 1	-	-	-
22	910.76	953.75	42.99	Class 1	-	-	-
23	953.75	995.71	41.96	Class 1	-	-	-
24	995.71	1039.14	43.43	Class 1	16.0%	999.61	OD
25	1039.14	1082.27	43.13	Class 1	-	-	-
26	1082.27	1124.04	41.77	Class 1	-	-	-
27	1124.04	1166.93	42.89	Class 1	-	-	-
28	1166.93	1209.82	42.89	Class 1	-	-	-
29	1209.82	1252.44	42.62	Class 1	-	-	-
30	1252.44	1295.36	42.92	Class 1	-	-	-
31	1295.36	1339.49	44.13	Class 1	-	-	-
32	1339.49	1382.58	43.09	Class 1	-	-	-
33	1382.58	1426.36	43.78	Class 1	-	-	-
34	1426.36	1470.54	44.18	Class 1	-	-	-
35	1470.54	1511.98	41.44	Class 1	-	-	-
36	1511.98	1555.07	43.09	Class 1	-	-	-
37	1555.07	1598.21	43.14	Class 1	-	-	-
38	1598.21	1640.49	42.28	Class 1	-	-	-
39	1640.49	1683.76	43.27	Class 1	-	-	-
40	1683.76	1726.06	42.30	Class 1	-	-	-
41	1726.06	1767.63	41.57	Class 1	-	-	-
42	1767.63	1810.55	42.92	Class 1	-	-	-
43	1810.55	1853.57	43.02	Class 1	-	-	-
44	1853.57	1895.92	42.35	Class 1	-	-	-
45	1895.92	1938.04	42.12	Class 1	-	-	-
46	1938.04	1980.44	42.40	Class 1	-	-	-
47	1980.44	2021.38	40.94	Class 1	-	-	-
48	2021.38	2063.99	42.61	Class 1	-	-	-

49	2063.99	2106.47	42.48	Class 1	-	-	-
50	2106.47	2149.38	42.91	Class 1	-	-	-
51	2149.38	2192.63	43.25	Class 1	-	-	-
52	2192.63	2235.81	43.18	Class 1	-	-	-
53	2235.81	2279.22	43.41	Class 1	-	-	-
54	2279.22	2321.22	42.00	Class 1	-	-	-
55	2321.22	2363.70	42.48	Class 1	-	-	-
56	2363.70	2406.27	42.57	Class 1	-	-	-
57	2406.27	2448.57	42.30	Class 1	-	-	-
58	2448.57	2491.17	42.60	Class 1	-	-	-
59	2491.17	2534.55	43.38	Class 1	-	-	-
60	2534.55	2576.91	42.36	Class 1	-	-	-
61	2576.91	2619.31	42.40	Class 1	-	-	-
62	2619.31	2662.08	42.77	Class 1	-	-	-
63	2662.08	2703.14	41.06	Class 1	-	-	-
64	2703.14	2746.81	43.67	Class 1	-	-	-
65	2746.81	2790.59	43.78	Class 1	-	-	-
66	2790.59	2833.45	42.86	Class 1	-	-	-
67	2833.45	2876.02	42.57	Class 1	-	-	-
68	2876.02	2919.28	43.26	Class 1	-	-	-
69	2919.28	2962.11	42.83	Class 1	-	-	-
70	2962.11	3004.41	42.30	Class 1	-	-	-
71	3004.41	3046.20	41.79	Class 1	-	-	-
72	3046.20	3088.68	42.48	Class 1	-	-	-
73	3088.68	3130.79	42.11	Class 1	-	-	-
74	3130.79	3174.09	43.30	Class 1	-	-	-
75	3174.09	3216.76	42.67	Class 1	-	-	-
76	3216.76	3260.23	43.47	Class 1	16.0%	3236.75	OD
77	3260.23	3303.70	43.47	Class 1	-	-	-
78	3303.70	3345.28	41.58	Class 1	-	-	-
79	3345.28	3388.38	43.10	Class 1	-	-	-
80	3388.38	3426.07	37.69	Class 1	-	-	-
81	3426.07	3469.60	43.53	Class 1	-	-	-
82	3469.60	3512.63	43.03	Class 1	-	-	-
83	3512.63	3551.44	38.81	Class 1	-	-	-
84	3551.44	3594.09	42.65	Class 1	-	-	-
85	3594.09	3636.63	42.54	Class 1	-	-	-
86	3636.63	3679.92	43.29	Class 1	-	-	-
87	3679.92	3724.03	44.11	Class 1	-	-	-
88	3724.03	3767.16	43.13	Class 1	-	-	-
89	3767.16	3808.89	41.73	Class 1	-	-	-
90	3808.89	3851.70	42.81	Class 1	-	-	-
91	3851.70	3895.43	43.73	Class 1	-	-	-
92	3895.43	3937.93	42.50	Class 1	-	-	-
93	3937.93	3981.08	43.15	Class 1	-	-	-
94	3981.08	4023.77	42.69	Class 1	-	-	-
95	4023.77	4067.72	43.95	Class 1	-	-	-
96	4067.72	4107.51	39.79	Class 1	-	-	-
97	4107.51	4150.92	43.41	Class 1	-	-	-
98	4150.92	4194.12	43.20	Class 1	-	-	-
99	4194.12	4237.62	43.50	Class 1	-	-	-
100	4237.62	4280.10	42.48	Class 1	-	-	-
101	4280.10	4322.96	42.86	Class 1	-	-	-
102	4322.96	4365.35	42.39	Class 1	-	-	-
103	4365.35	4405.10	39.75	Class 1	-	-	-
104	4405.10	4448.27	43.17	Class 1	-	-	-
105	4448.27	4490.65	42.38	Class 1	-	-	-
106	4490.65	4532.30	41.65	Class 1	-	-	-
107	4532.30	4576.49	44.19	Class 1	-	-	-
108	4576.49	4620.10	43.61	Class 1	-	-	-
109	4620.10	4662.07	41.97	Class 1	-	-	-
110	4662.07	4705.49	43.42	Class 1	-	-	-
111	4705.49	4747.17	41.68	Class 1			

111	4705.49	4747.17	41.68	Class 1	-	-	-
112	4747.17	4787.60	40.43	Class 1	-	-	-
113	4787.60	4831.10	43.50	Class 1	-	-	-
114	4831.10	4873.87	42.77	Class 1	-	-	-
115	4873.87	4915.58	41.71	Class 1	-	-	-
116	4915.58	4958.47	42.89	Class 1	-	-	-
117	4958.47	5002.13	43.66	Class 1	-	-	-
118	5002.13	5044.79	42.66	Class 1	-	-	-
119	5044.79	5087.29	42.50	Class 1	-	-	-
120	5087.29	5130.78	43.49	Class 1	-	-	-
121	5130.78	5173.22	42.44	Class 1	-	-	-
122	5173.22	5216.59	43.37	Class 1	-	-	-
123	5216.59	5259.87	43.28	Class 1	-	-	-
124	5259.87	5302.71	42.84	Class 1	-	-	-
125	5302.71	5345.89	43.18	Class 1	-	-	-
126	5345.89	5389.34	43.45	Class 1	-	-	-
127	5389.34	5432.22	42.88	Class 1	-	-	-
128	5432.22	5469.94	37.72	Class 1	18.0%	5468.43	ID
129	5469.94	5513.20	43.26	Class 1	-	-	-
130	5513.20	5555.33	42.13	Class 1	-	-	-
131	5555.33	5599.60	44.27	Class 1	-	-	-
132	5599.60	5642.30	42.70	Class 1	-	-	-
133	5642.30	5686.44	44.14	Class 1	-	-	-
134	5686.44	5730.13	43.69	Class 1	-	-	-
135	5730.13	5773.64	43.51	Class 1	-	-	-
136	5773.64	5816.41	42.77	Class 1	-	-	-
137	5816.41	5860.91	44.50	Class 1	-	-	-
138	5860.91	5903.37	42.46	Class 1	-	-	-
139	5903.37	5946.54	43.17	Class 1	-	-	-
140	5946.54	5990.14	43.60	Class 1	-	-	-
141	5990.14	6034.21	44.07	Class 1	-	-	-
142	6034.21	6074.82	40.61	Class 1	-	-	-
143	6074.82	6118.34	43.52	Class 1	-	-	-
144	6118.34	6160.38	42.04	Class 1	-	-	-
145	6160.38	6202.84	42.46	Class 1	-	-	-
146	6202.84	6245.38	42.54	Class 1	-	-	-
147	6245.38	6287.77	42.39	Class 1	-	-	-
148	6287.77	6330.87	43.10	Class 1	-	-	-
149	6330.87	6374.72	43.85	Class 1	-	-	-
150	6374.72	6418.54	43.82	Class 1	-	-	-
151	6418.54	6462.42	43.88	Class 1	-	-	-
152	6462.42	6505.98	43.56	Class 1	-	-	-
153	6505.98	6549.54	43.56	Class 1	-	-	-
154	6549.54	6593.07	43.53	Class 1	-	-	-
155	6593.07	6635.22	42.15	Class 1	-	-	-
156	6635.22	6679.34	44.12	Class 1	-	-	-
157	6679.34	6721.57	42.23	Class 1	-	-	-
158	6721.57	6765.35	43.78	Class 1	-	-	-
159	6765.35	6809.04	43.69	Class 1	-	-	-
160	6809.04	6852.56	43.52	Class 1	-	-	-
161	6852.56	6895.10	42.54	Class 1	-	-	-
162	6895.10	6936.56	41.46	Class 1	-	-	-
163	6936.56	6980.78	44.22	Class 1	-	-	-
164	6980.78	7022.56	41.78	Class 1	-	-	-
165	7022.56	7066.04	43.48	Class 1	-	-	-
166	7066.04	7109.98	43.94	Class 1	-	-	-
167	7109.98	7152.84	42.86	Class 1	-	-	-
168	7152.84	7196.85	44.01	Class 1	-	-	-
169	7196.85	7239.50	42.65	Class 1	-	-	-
170	7239.50	7283.50	44.00	Class 1	-	-	-
171	7283.50	7327.65	44.15	Class 1	-	-	-
172	7327.65	7364.94	37.29	Class 1	-	-	-
173	7364.94	7407.87	42.93	Class 1	-	-	-

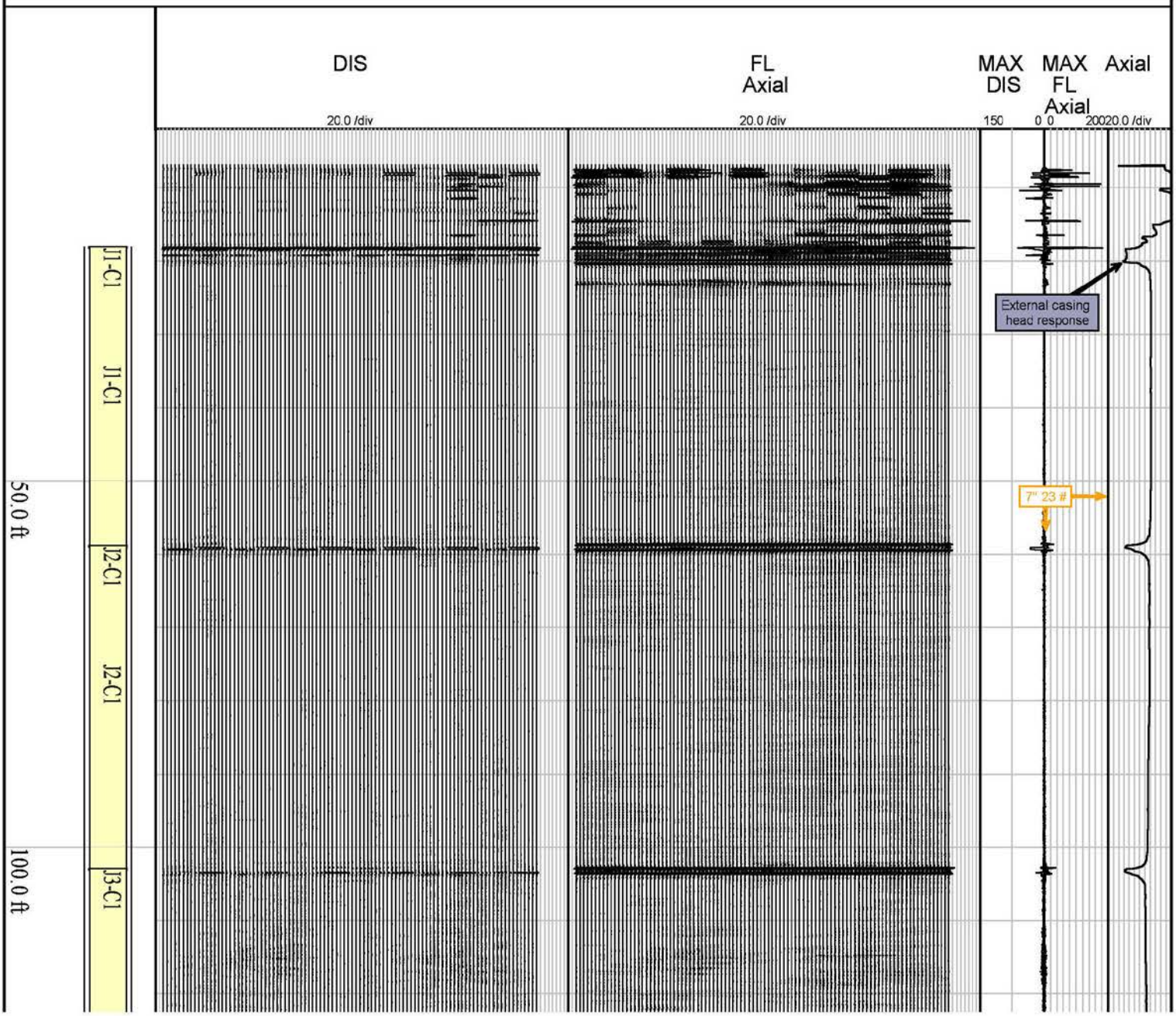
174	7407.87	7449.54	41.67	Class 1	-	-	-
175	7449.54	7493.24	43.70	Class 1	-	-	-
176	7493.24	7536.44	43.20	Class 1	-	-	-
177	7536.44	7579.91	43.47	Class 1	-	-	-
178	7579.91	7584.18	4.27	Class 1	-	-	-

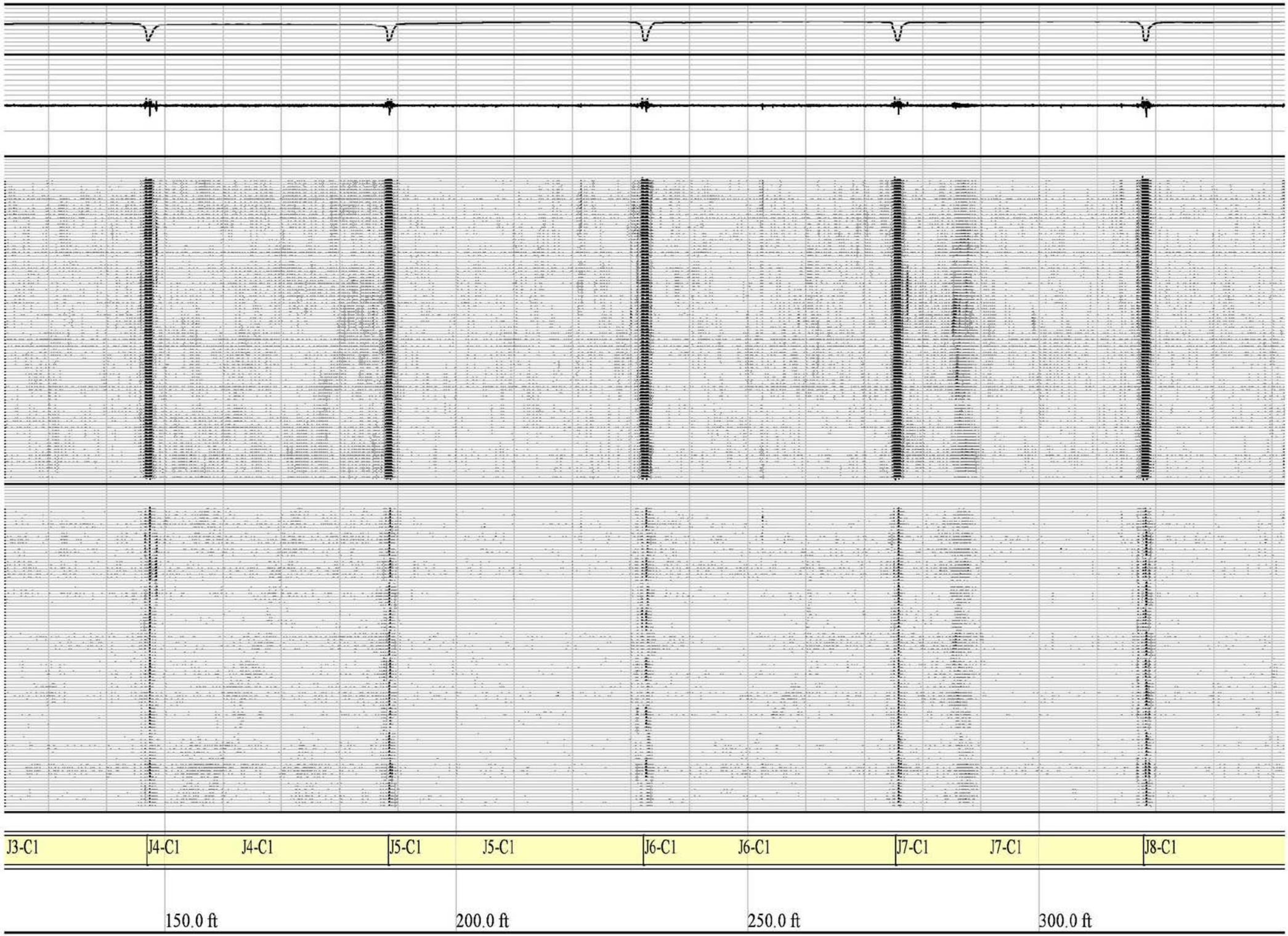
Southern California Gas Company Porter 46

File 20170817_16334B_RSP_0_0_0_0_0_0.mvl

MAIN LOG
5" / 100'

Class 1	Class 2	Class 3	Class 4
0 - 20%	20 - 40%	40 - 60%	60 - 100%





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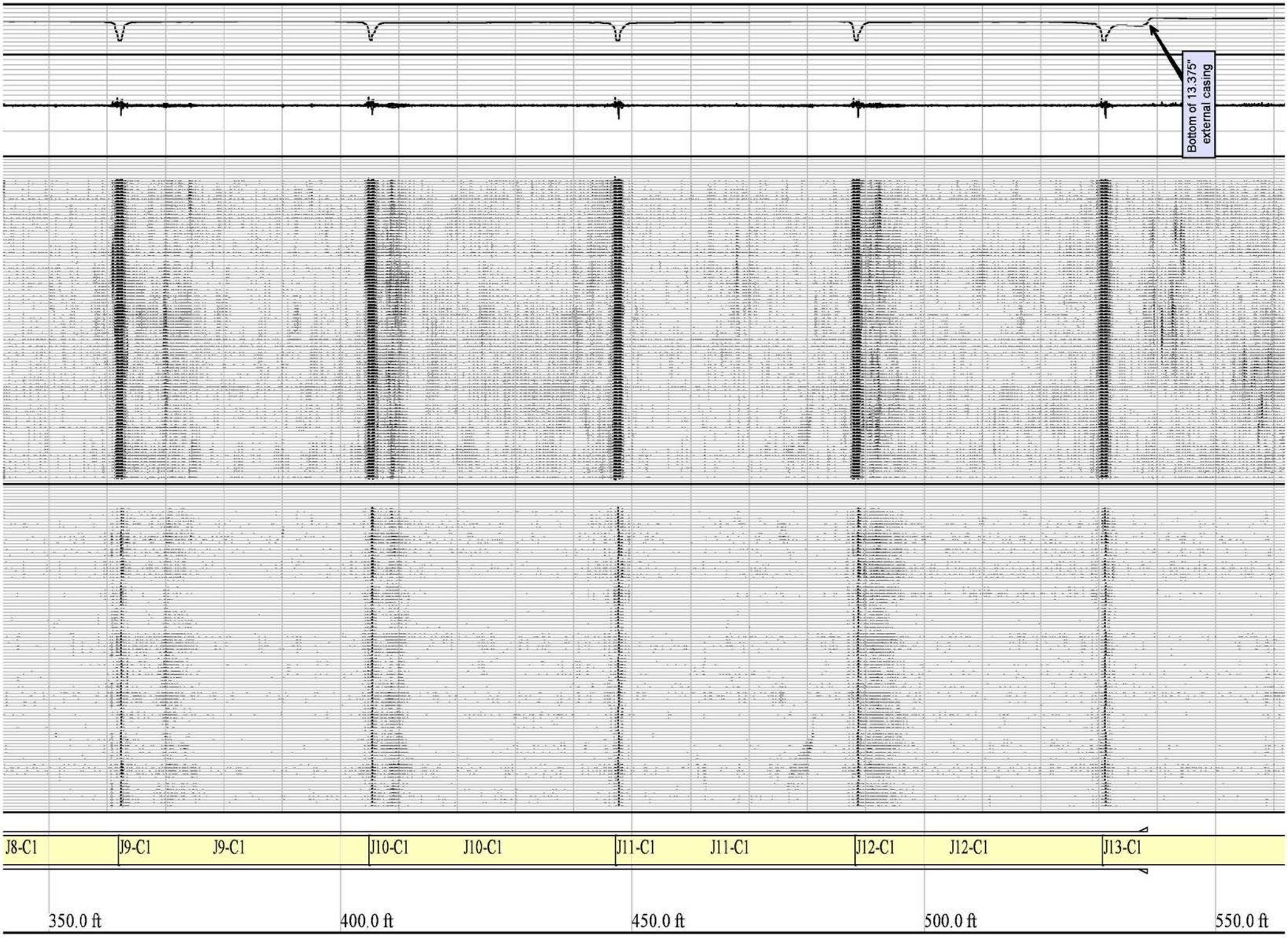

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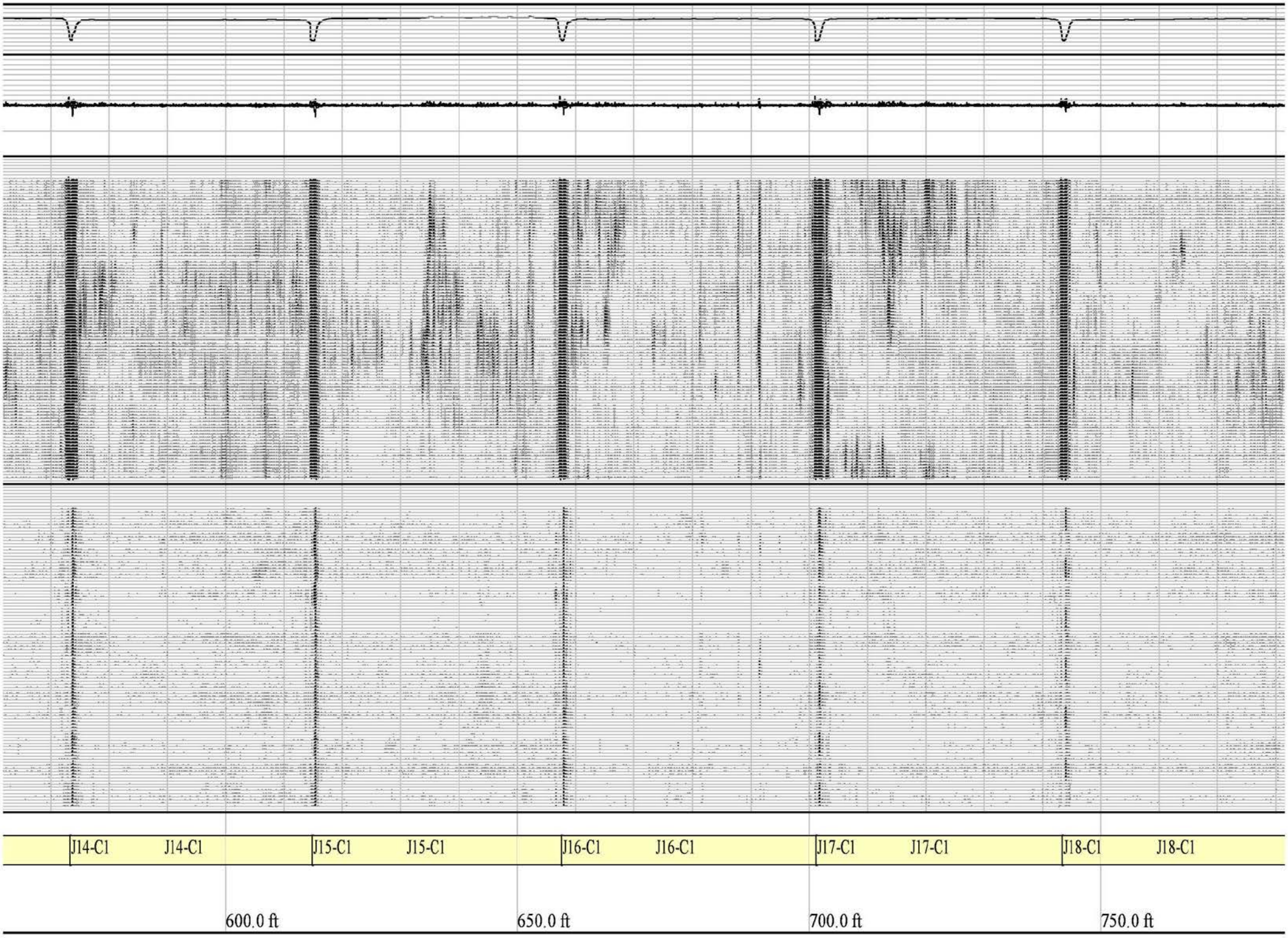

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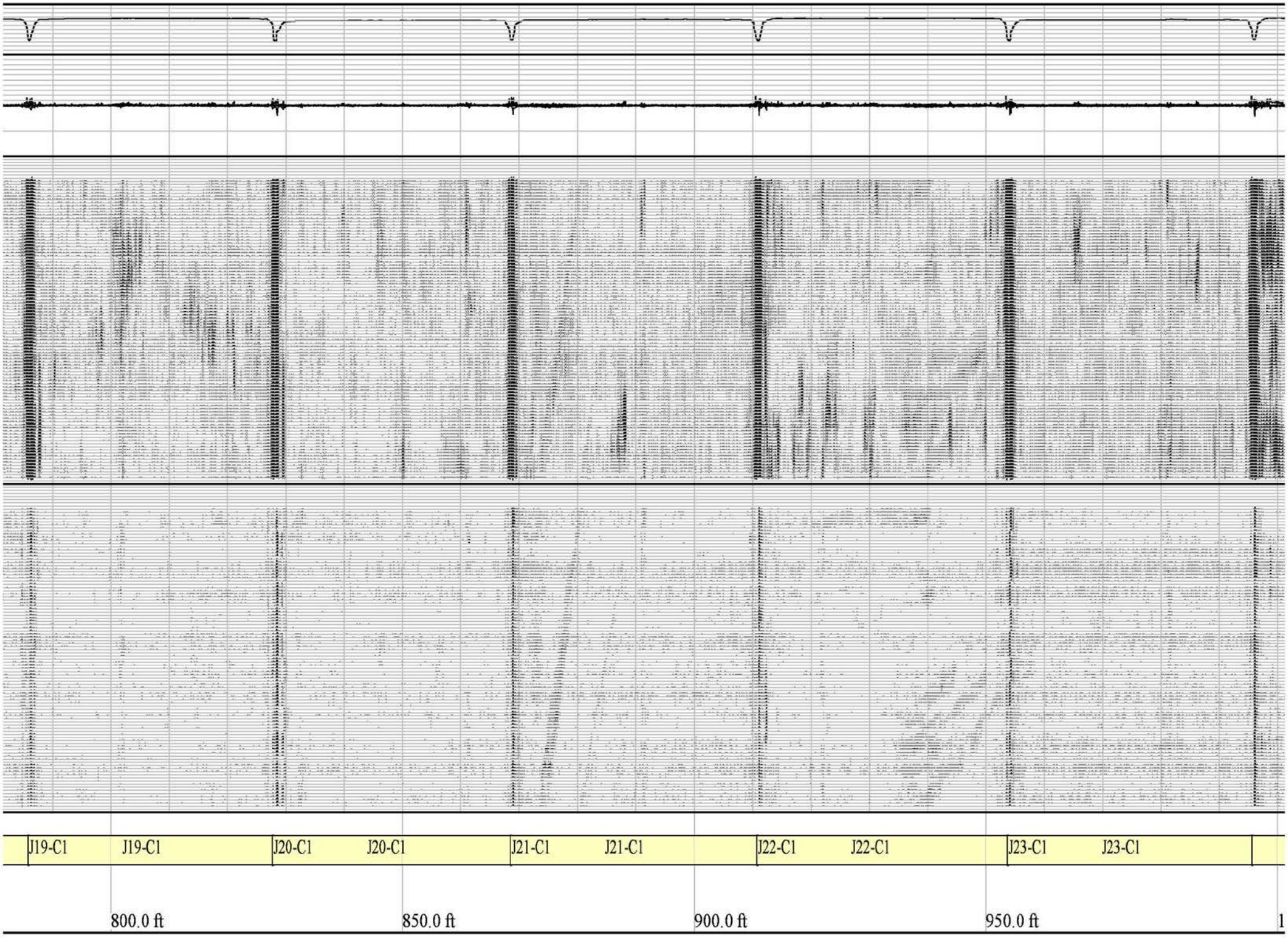

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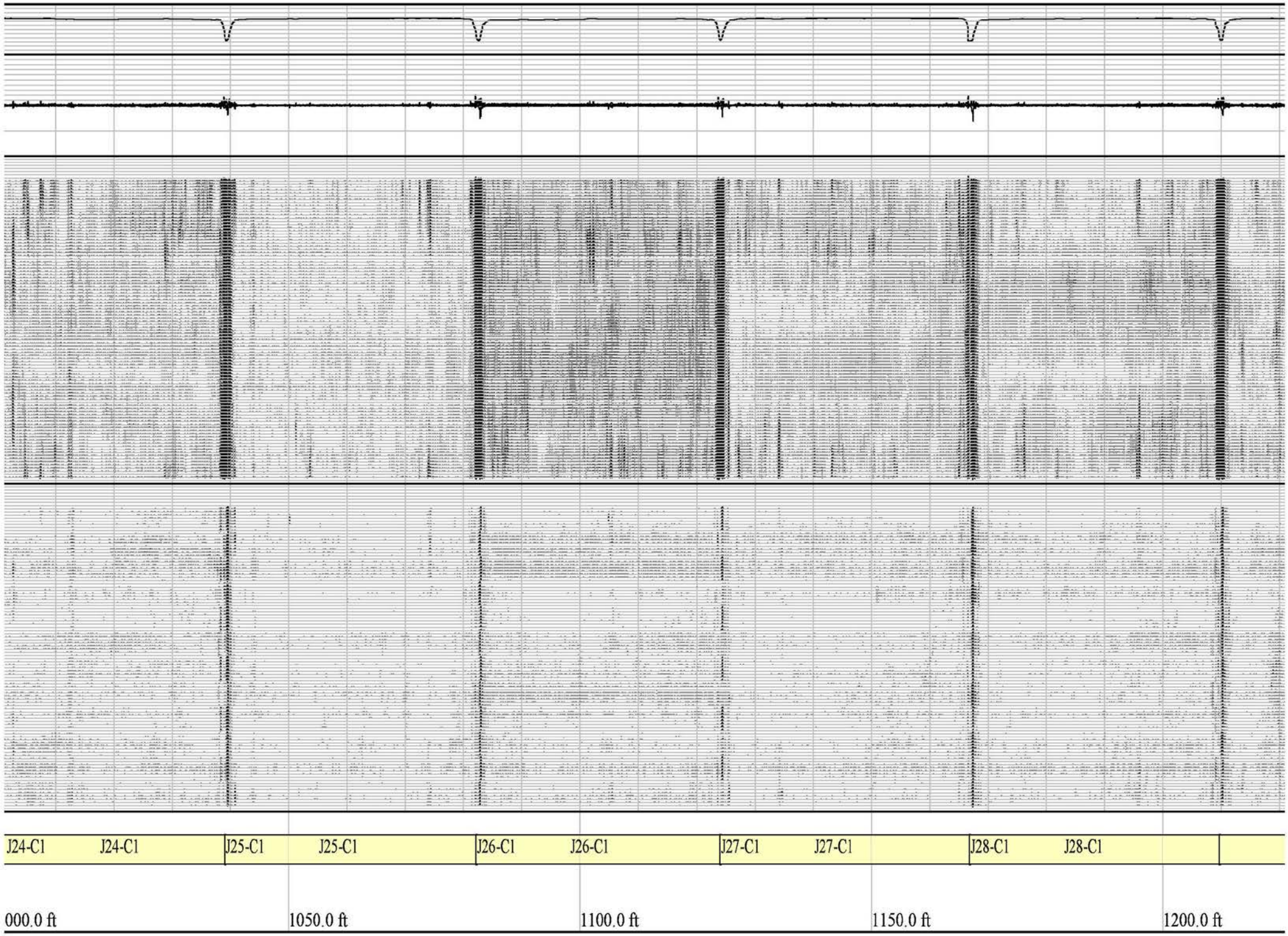

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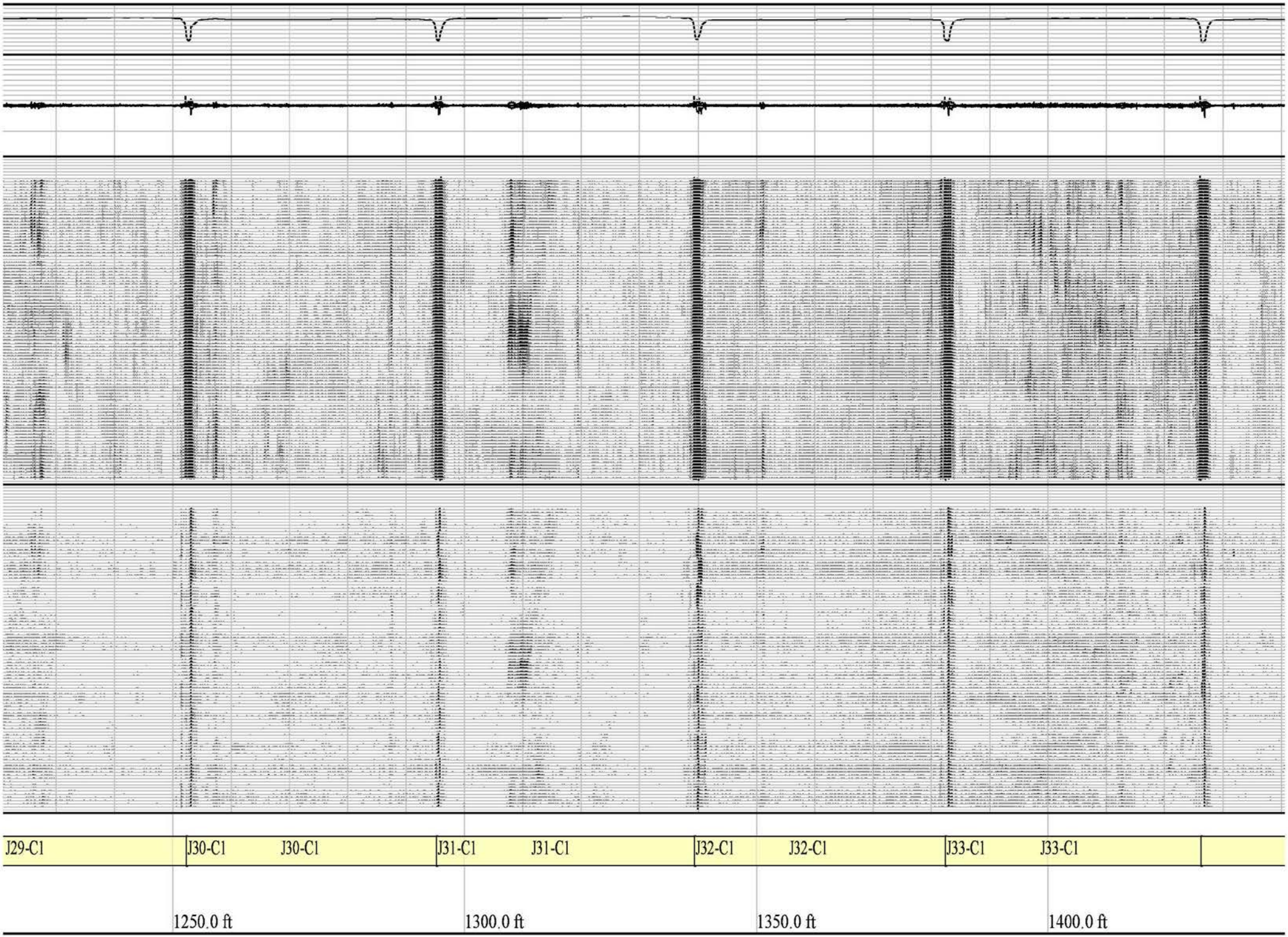

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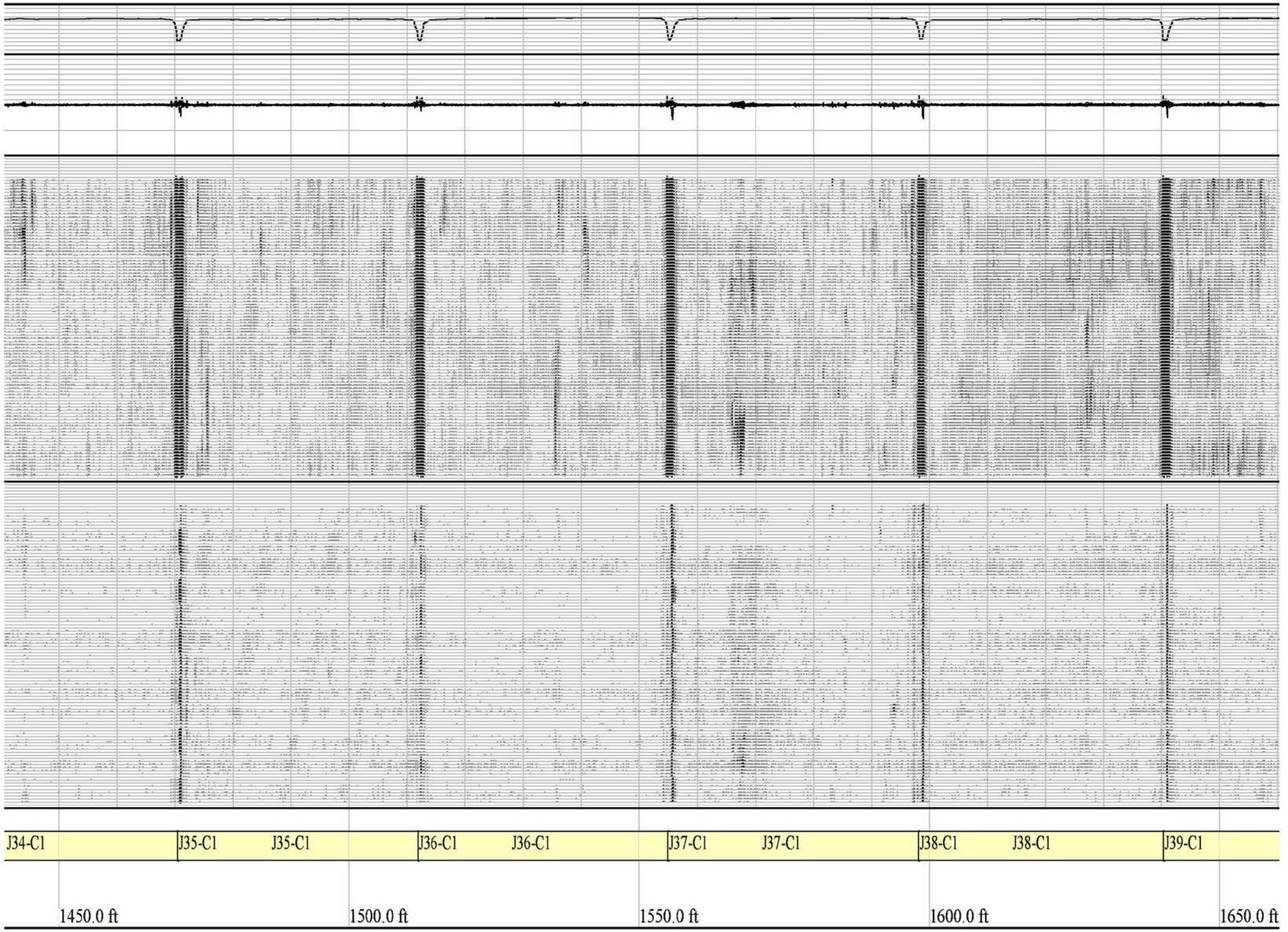

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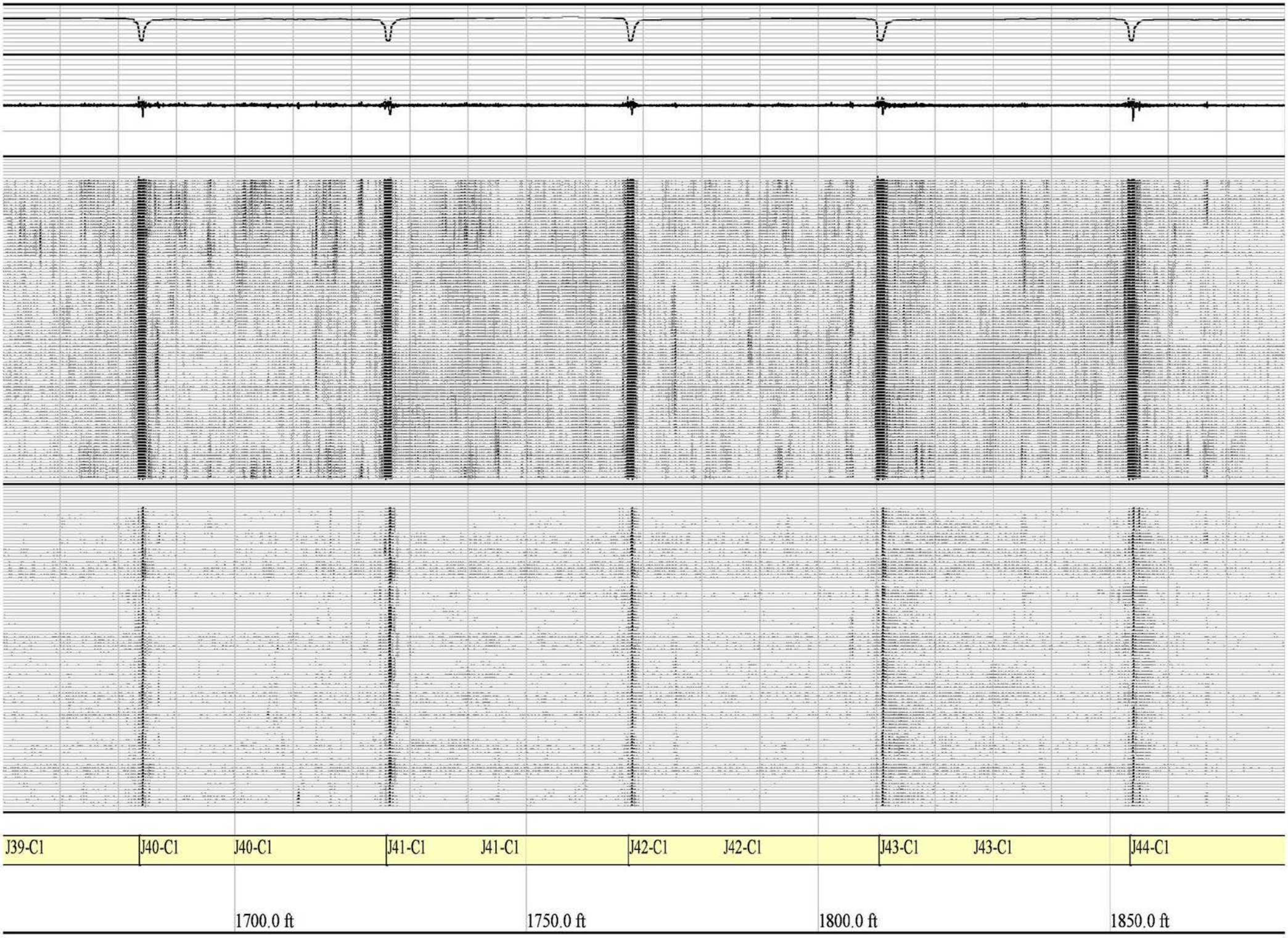

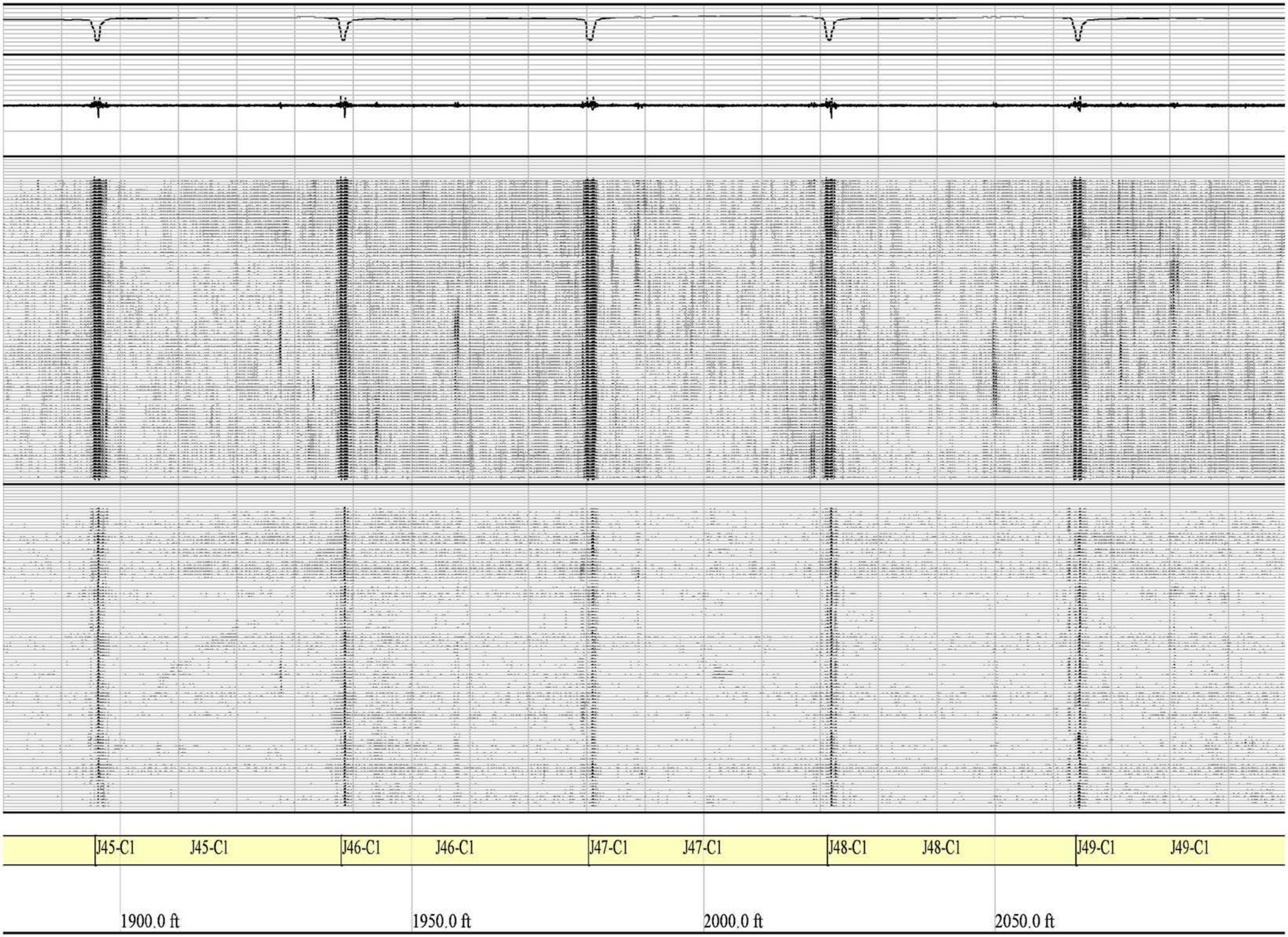

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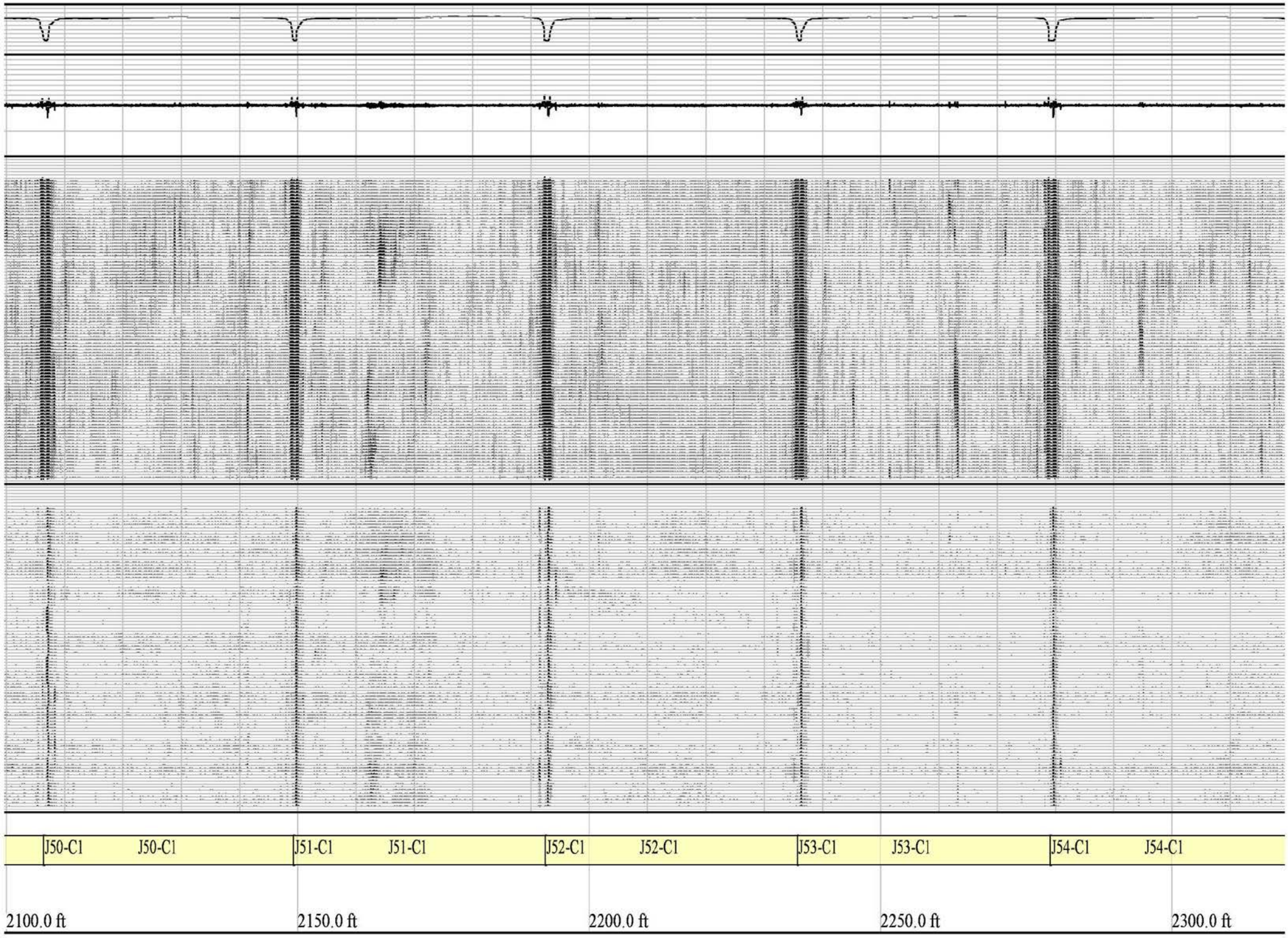

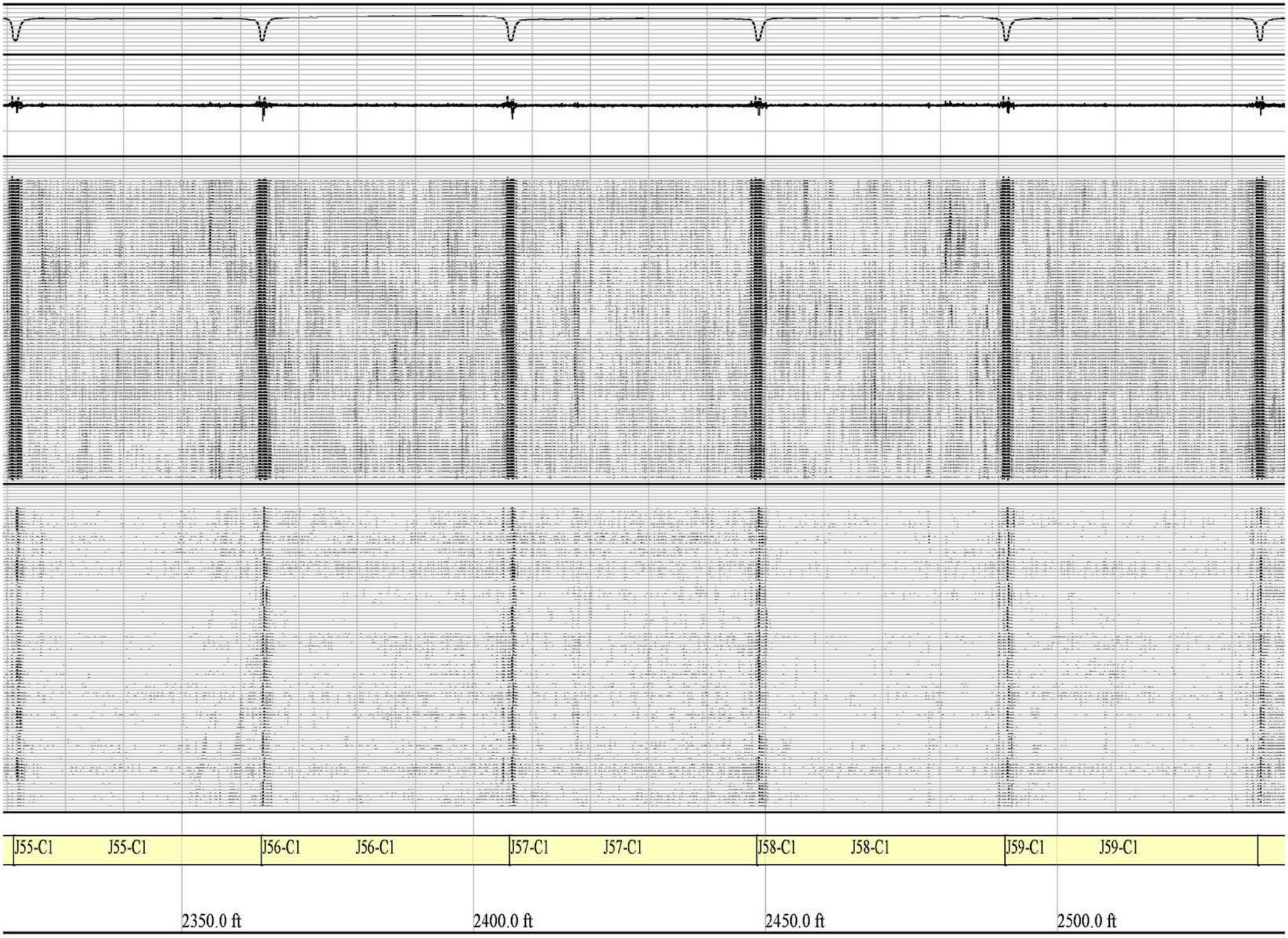

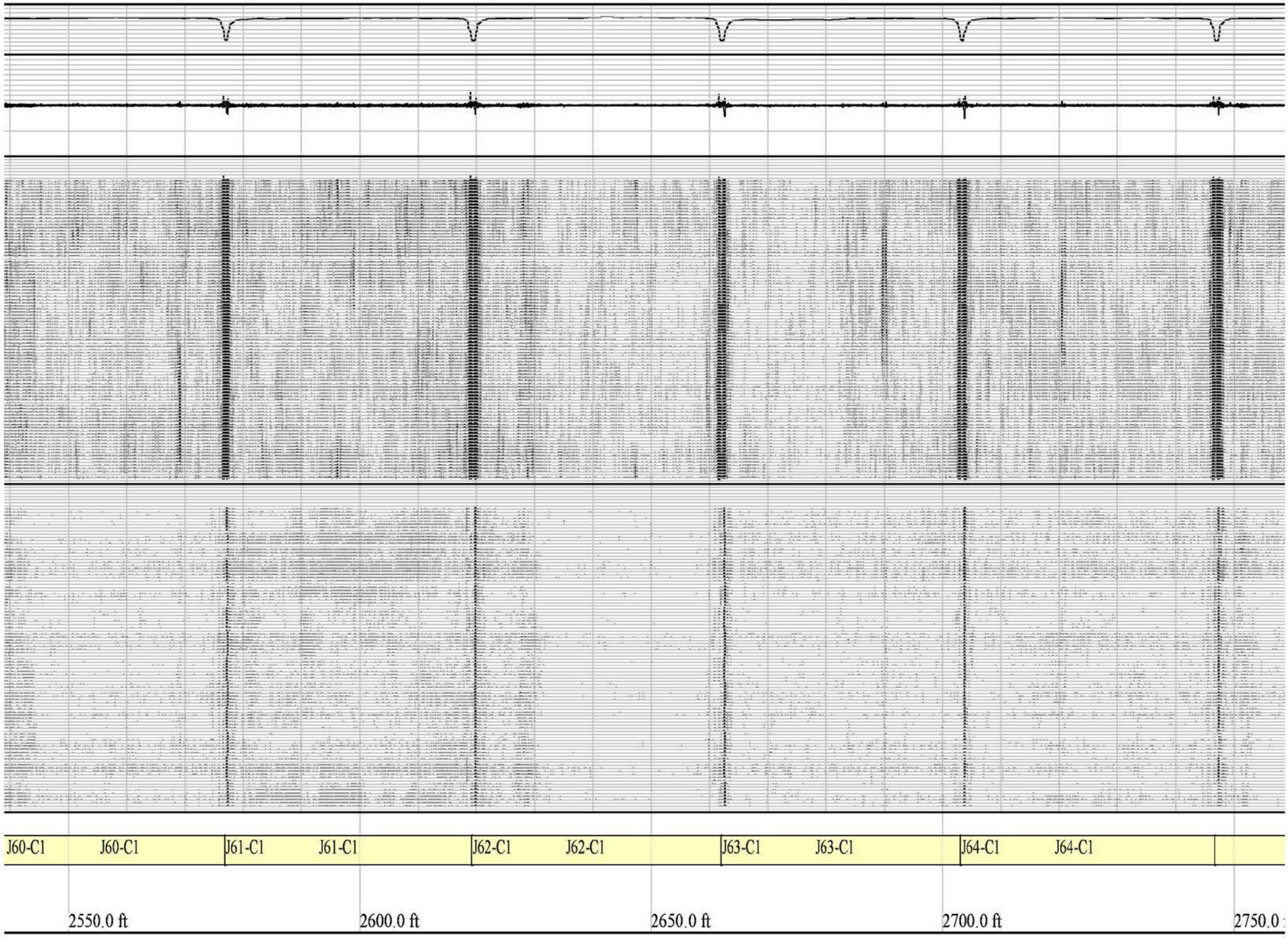

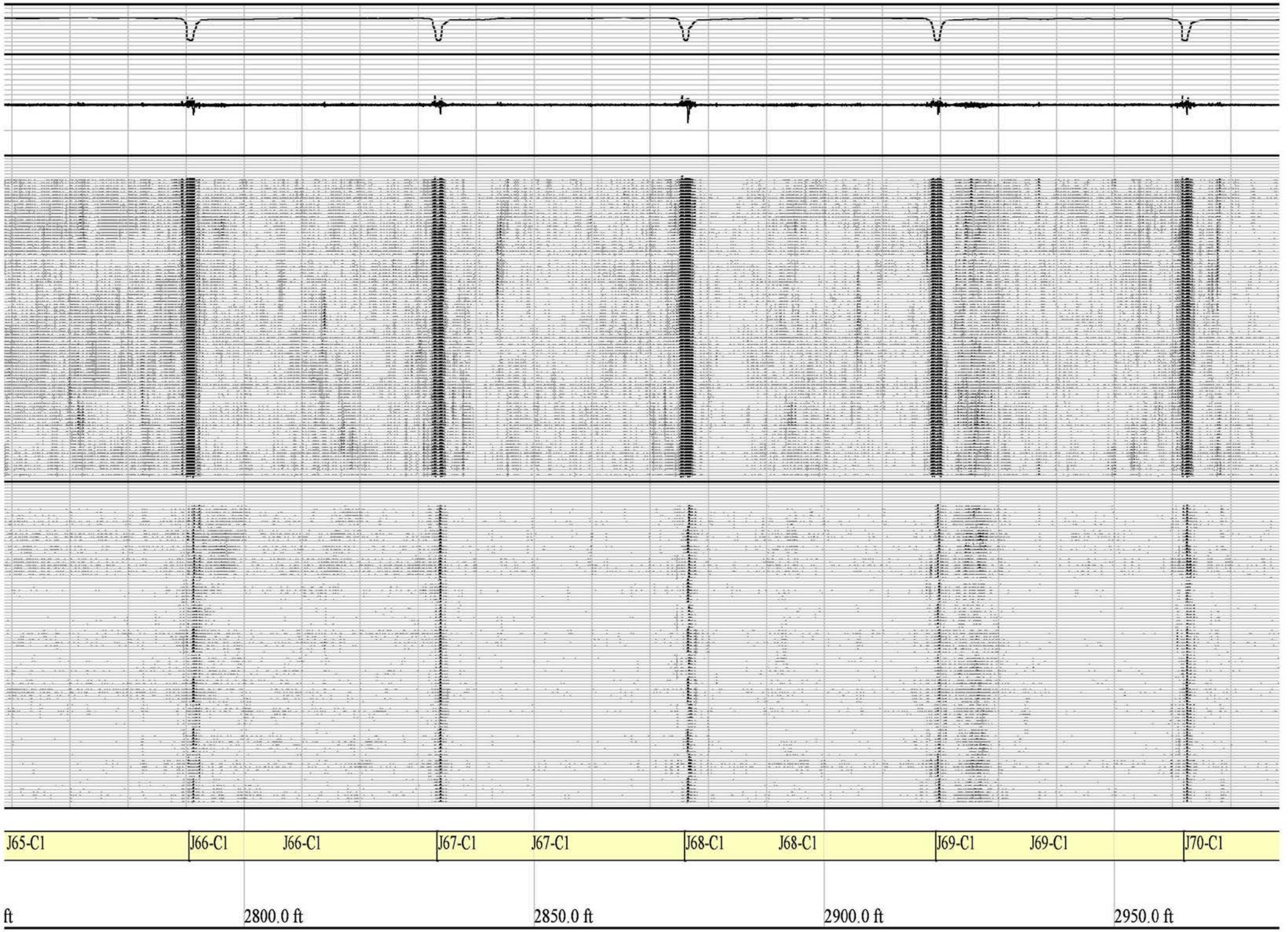

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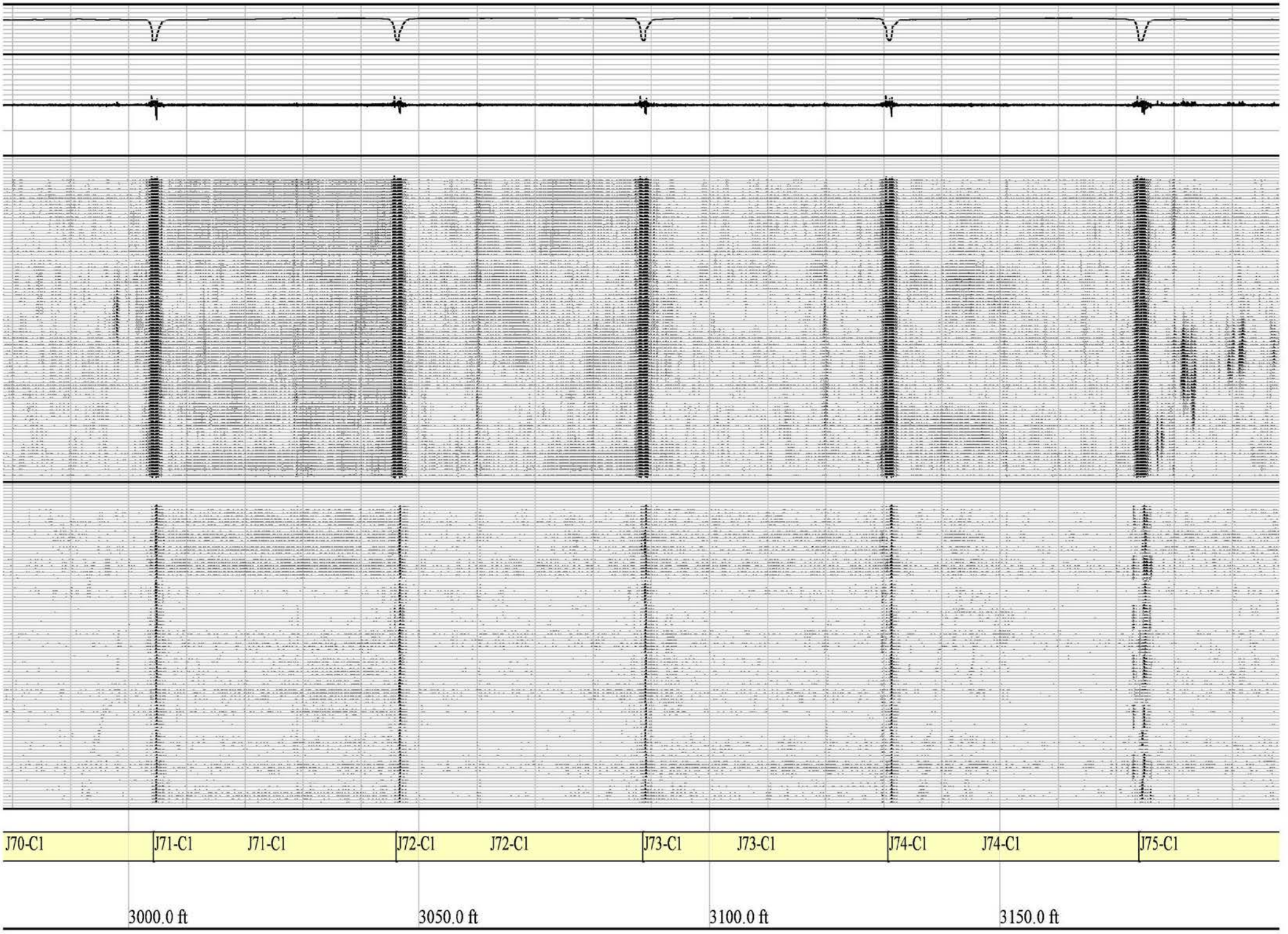

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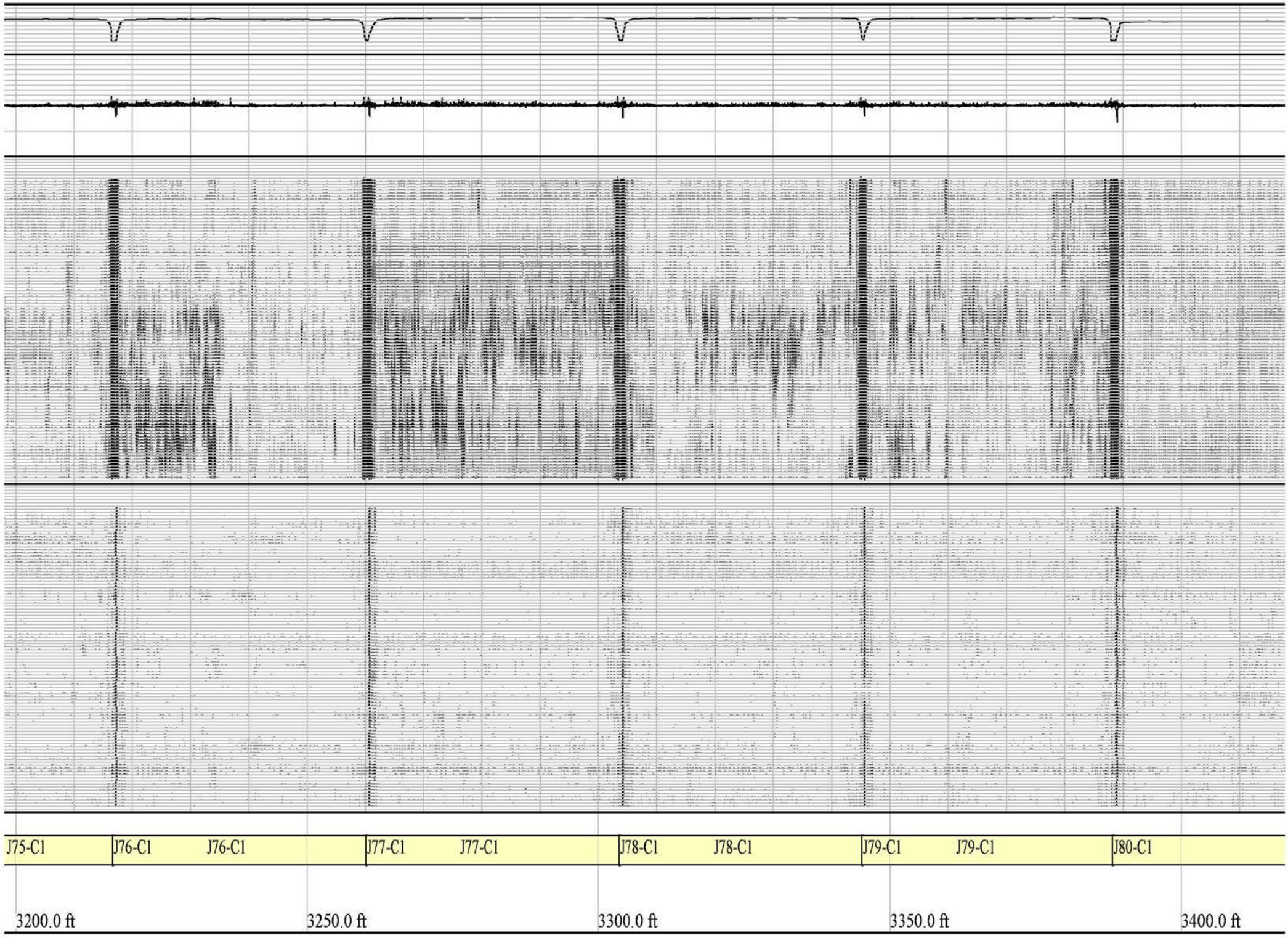

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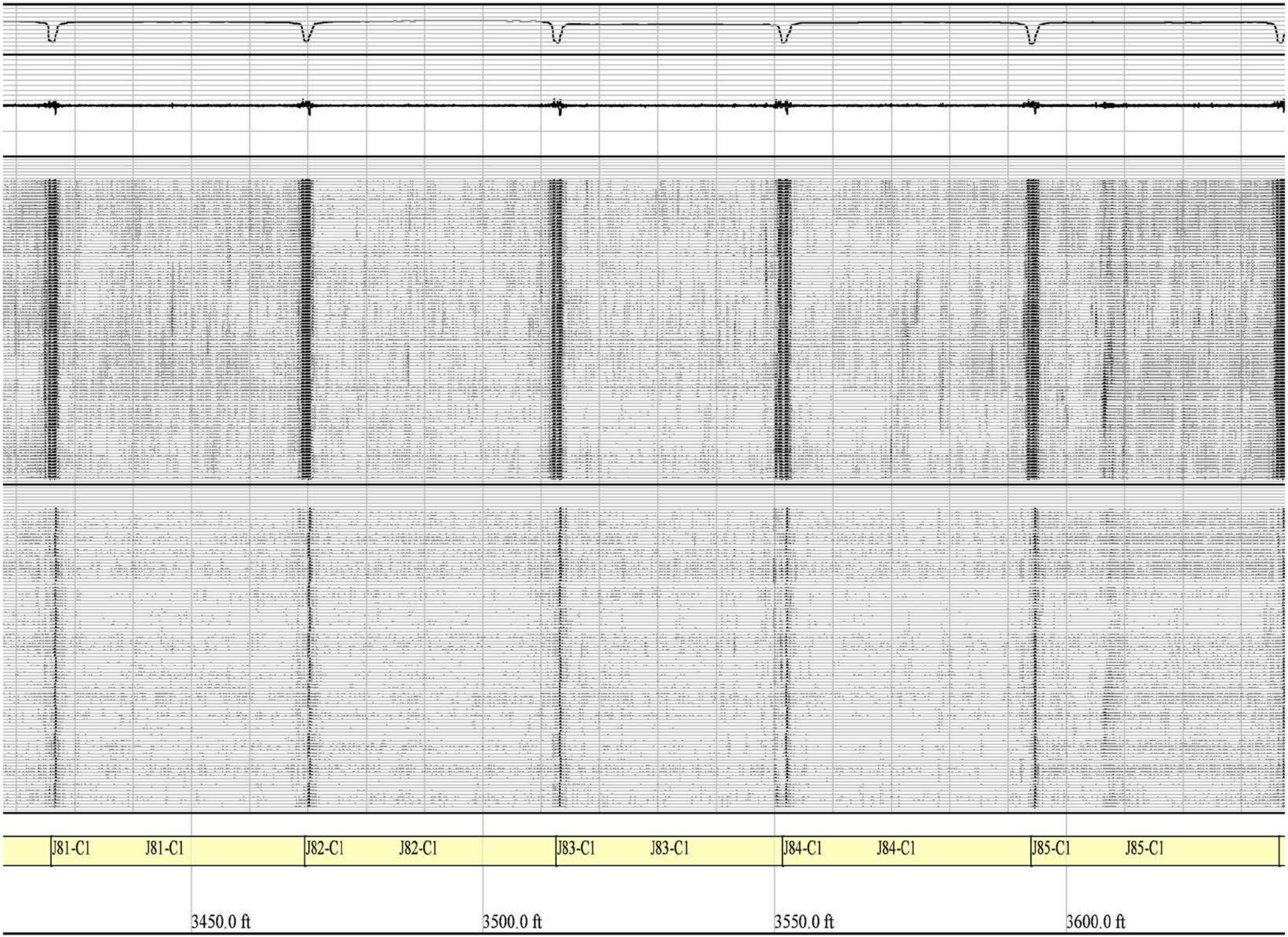

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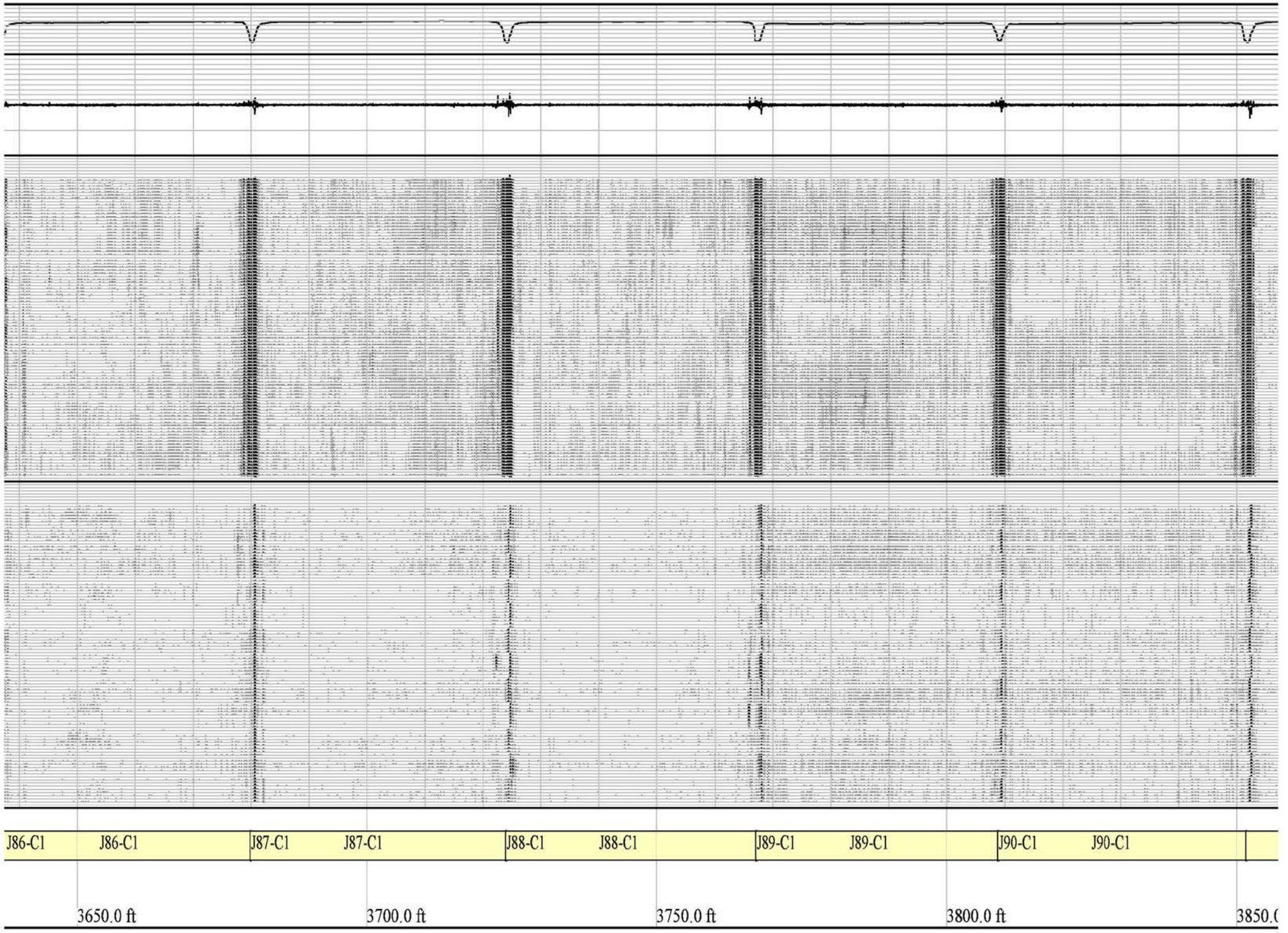

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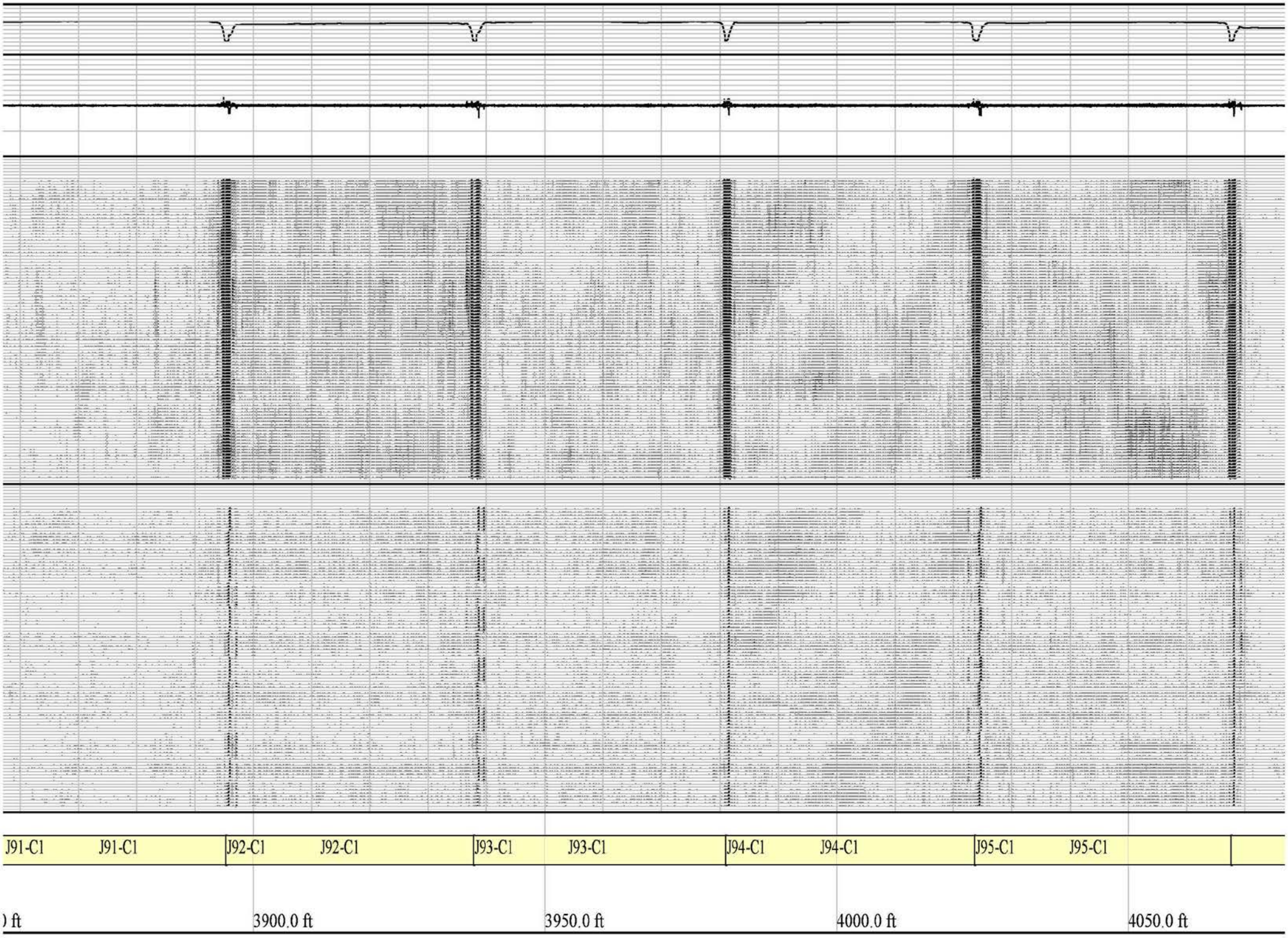

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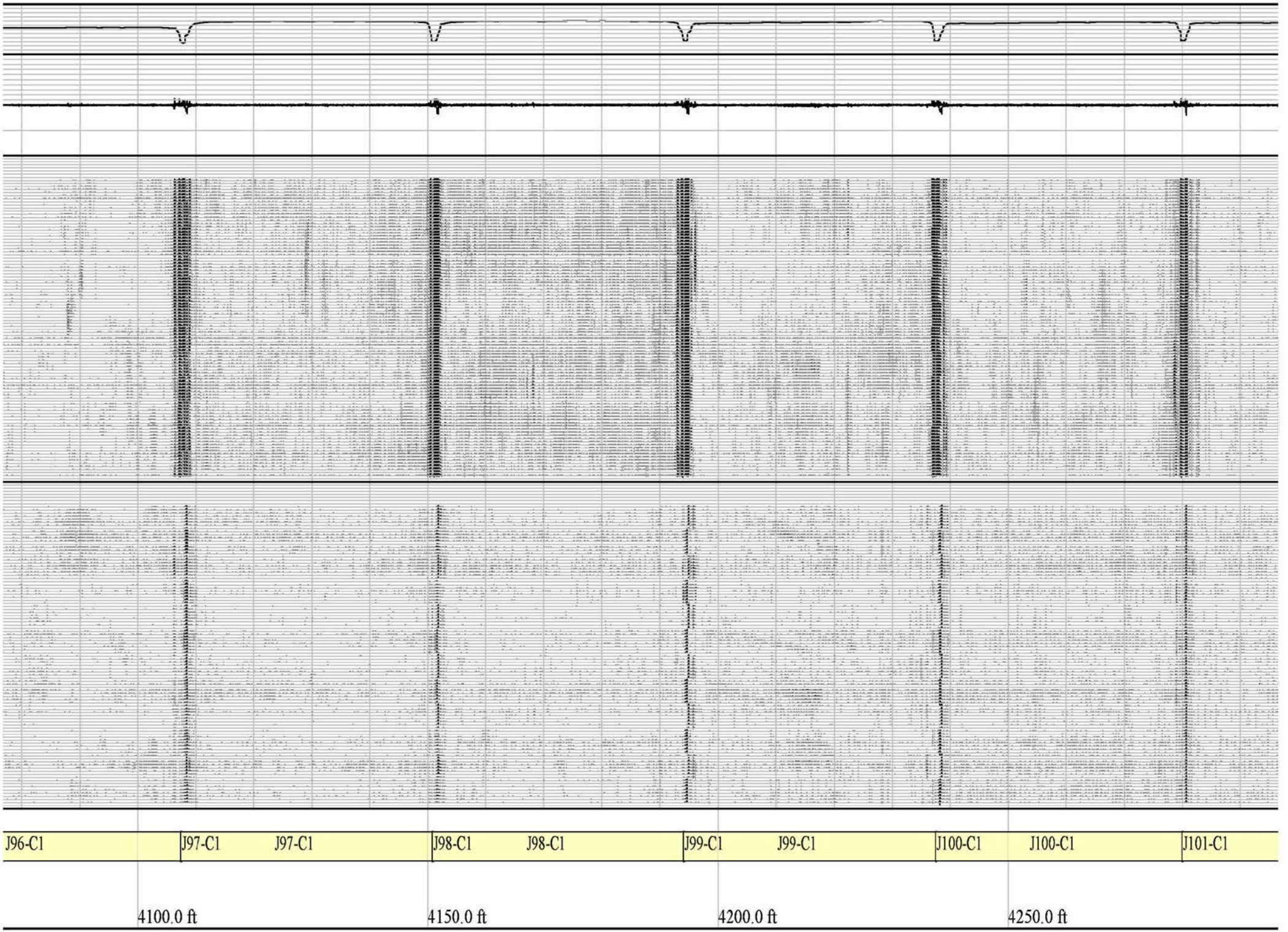

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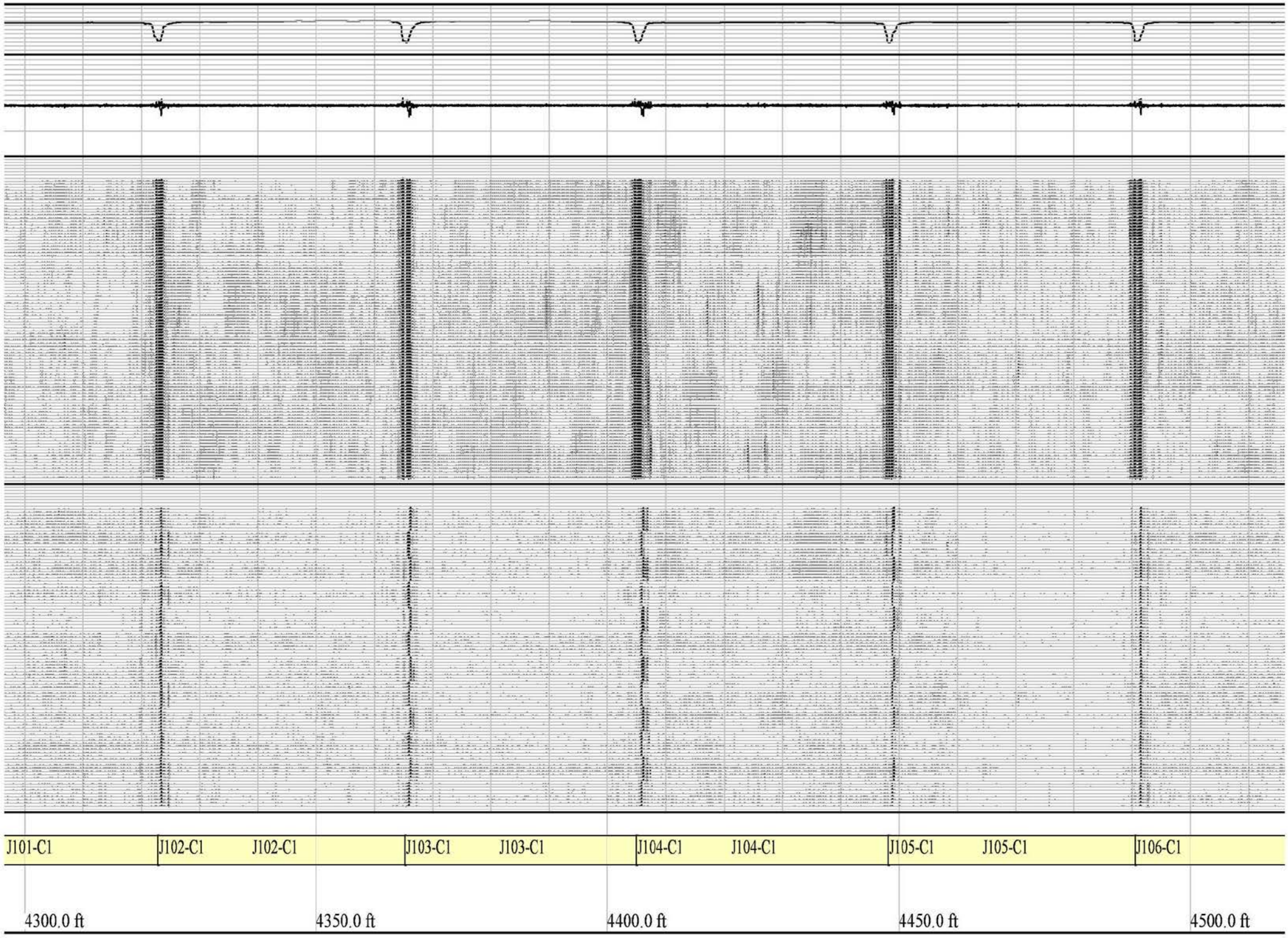

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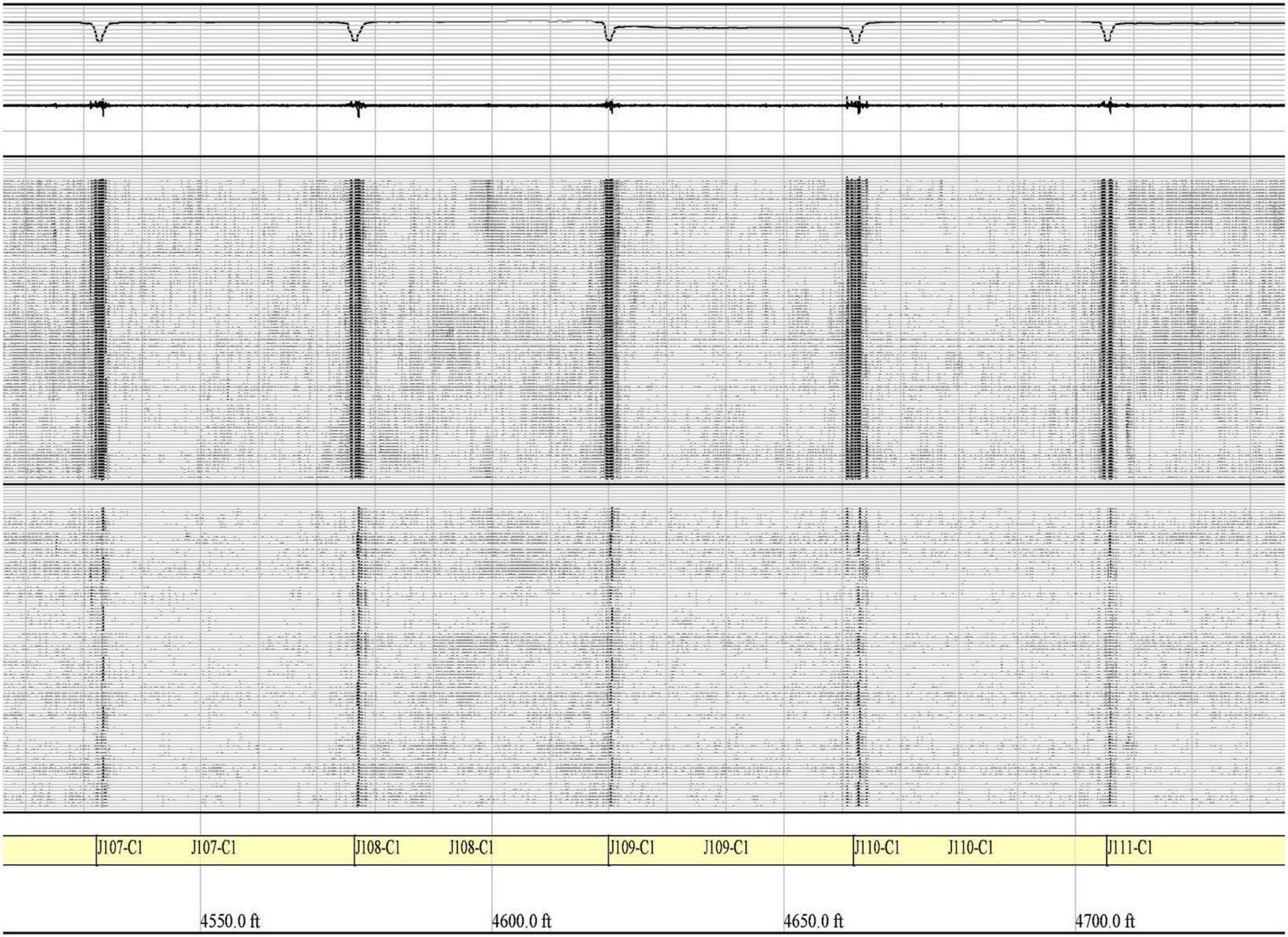

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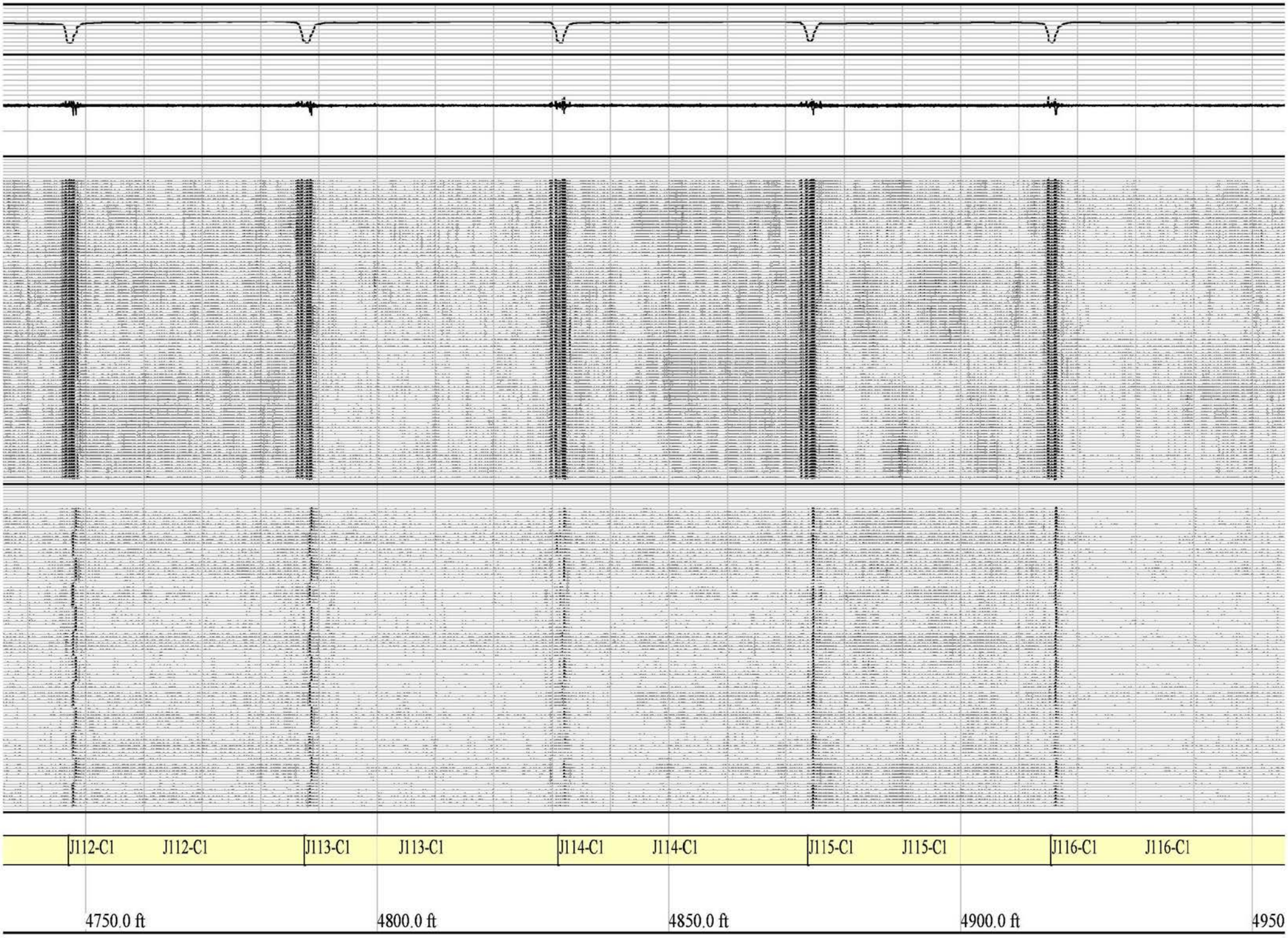

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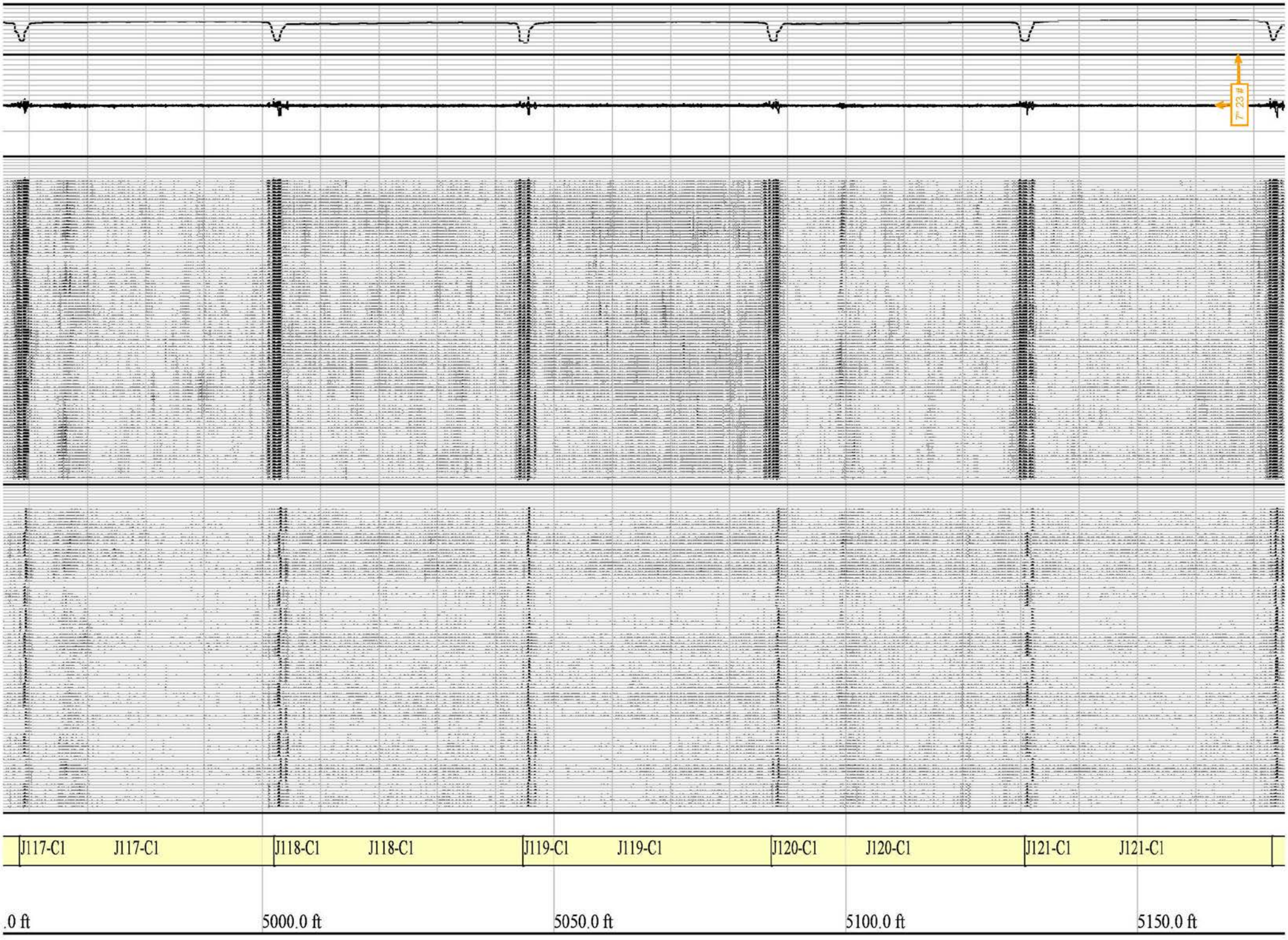

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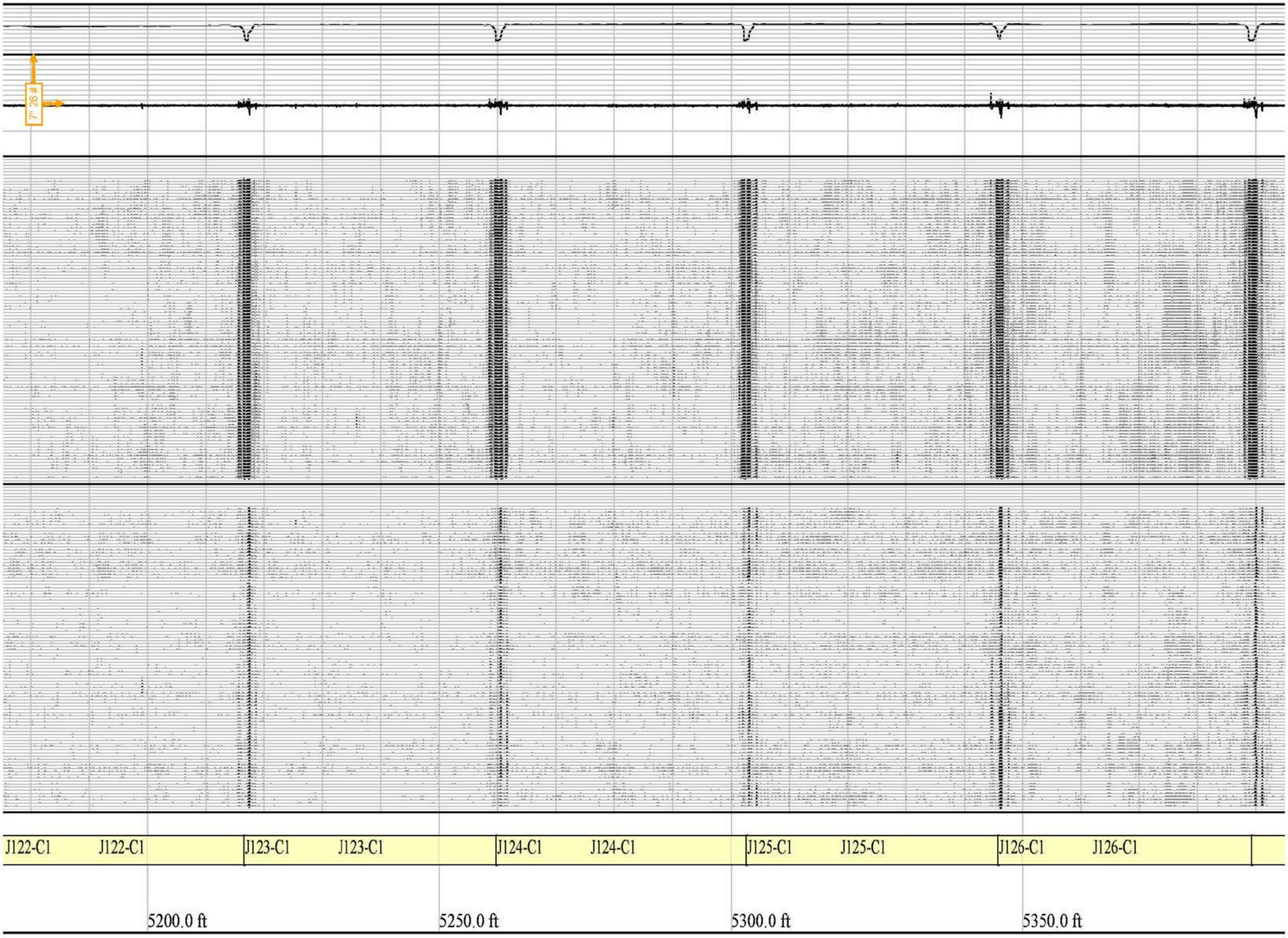

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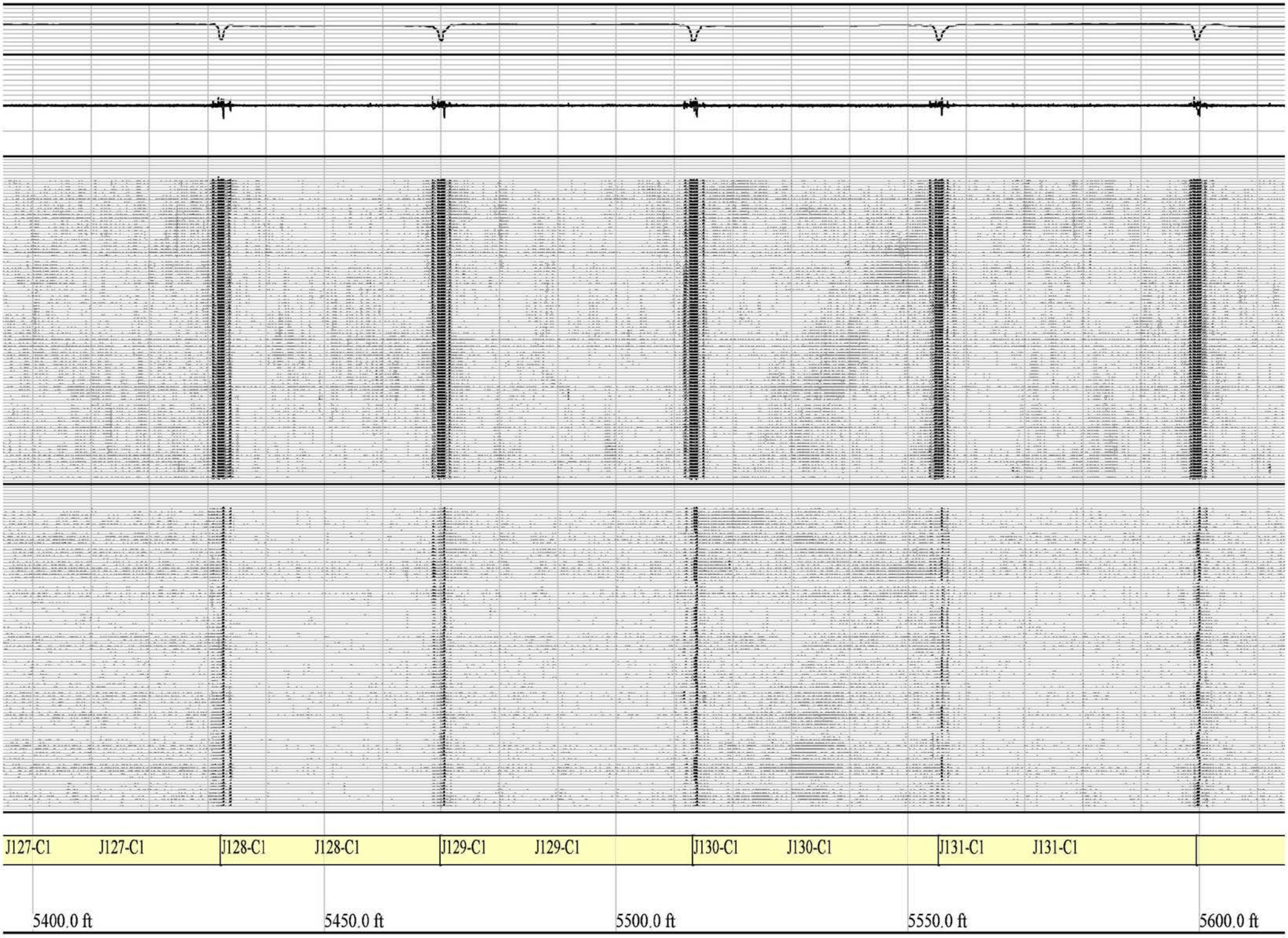

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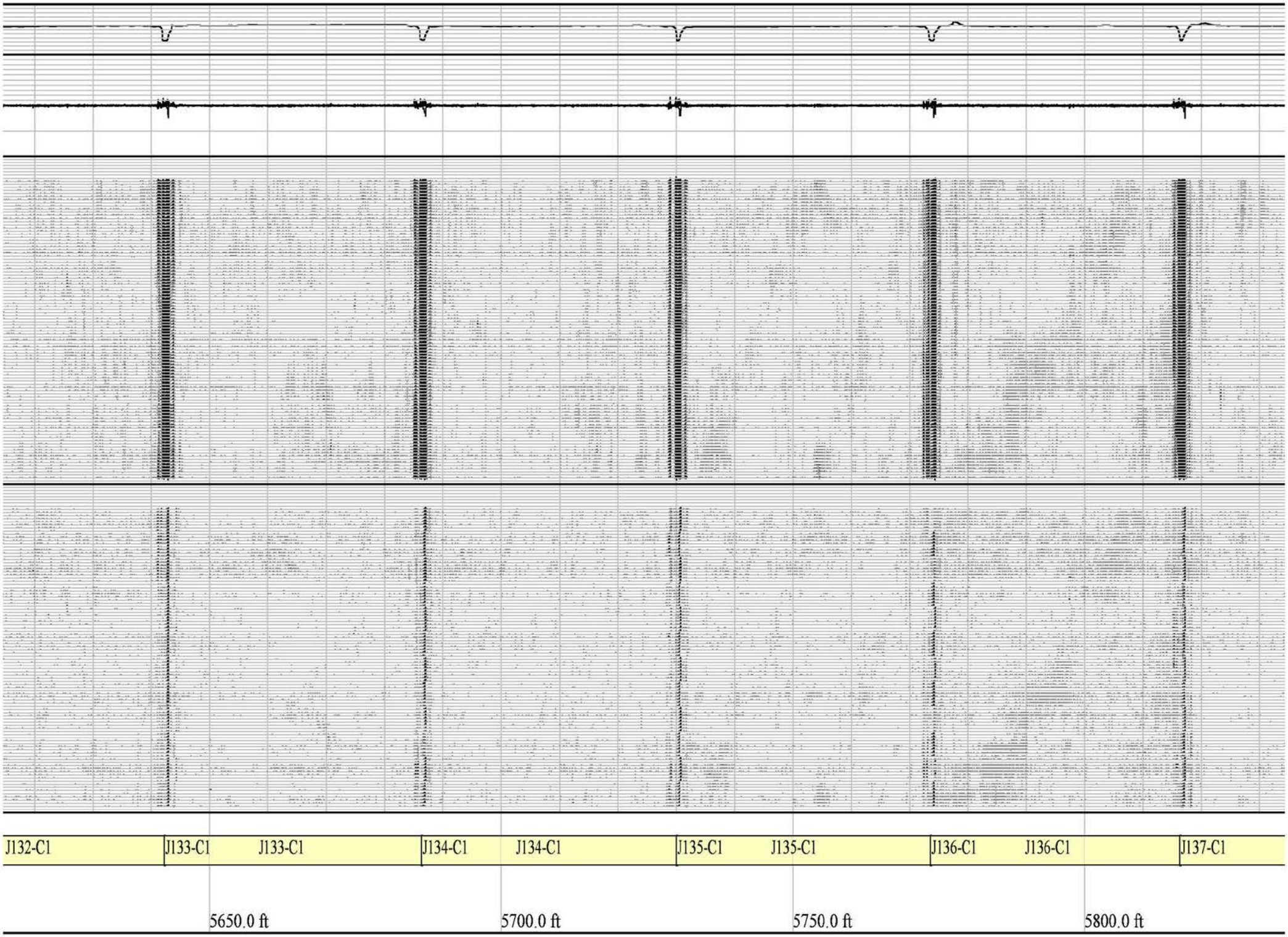

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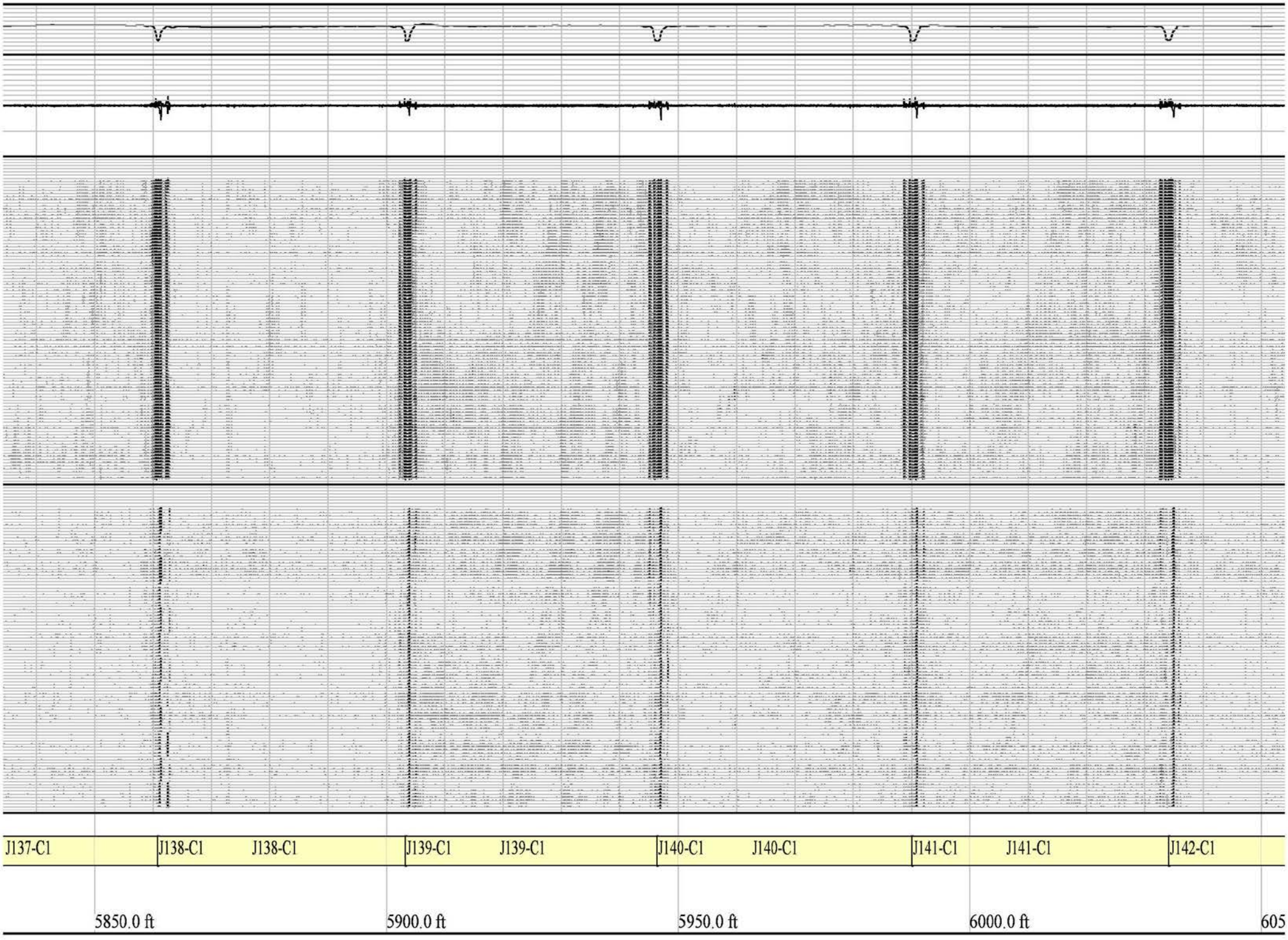

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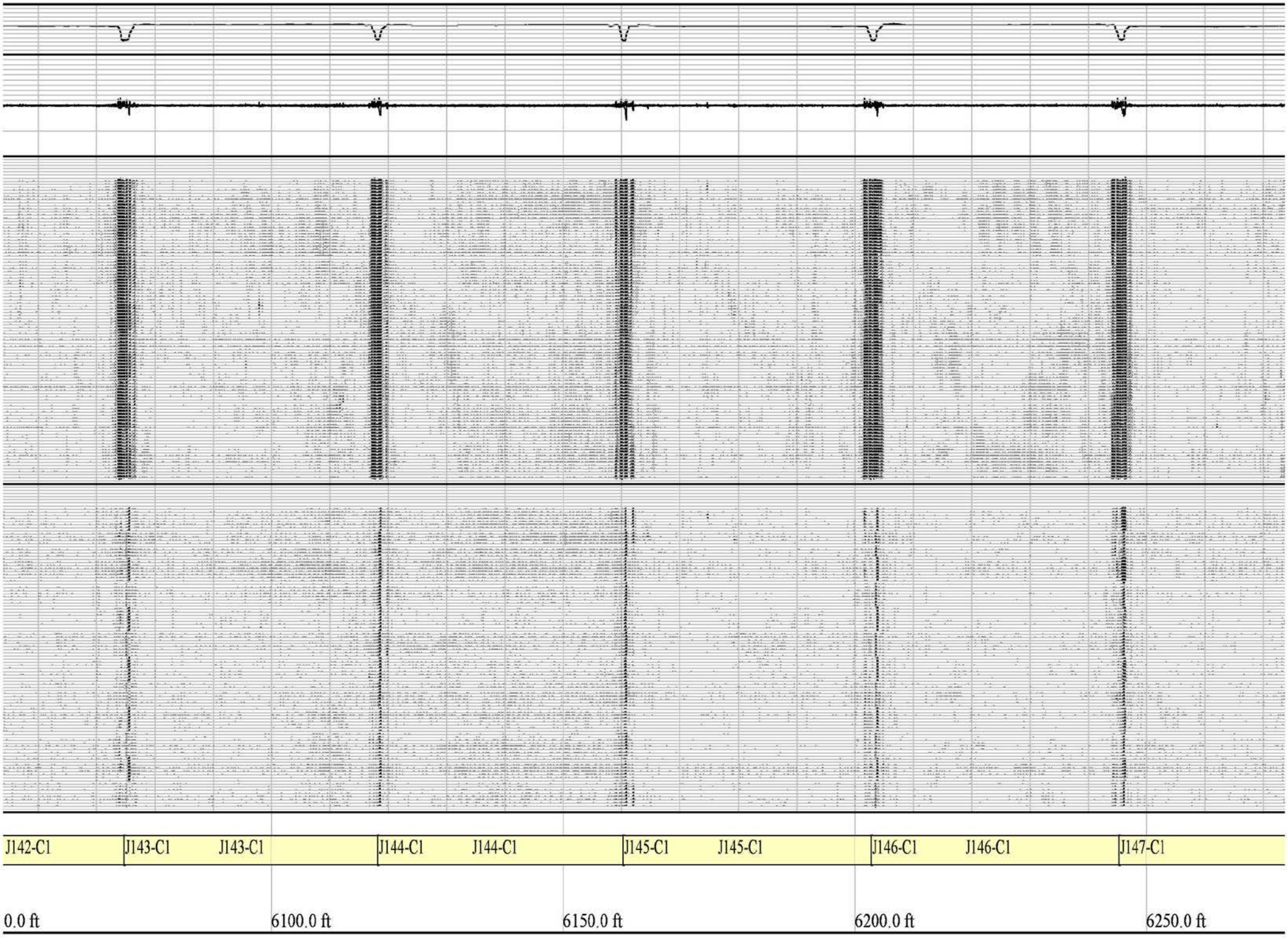

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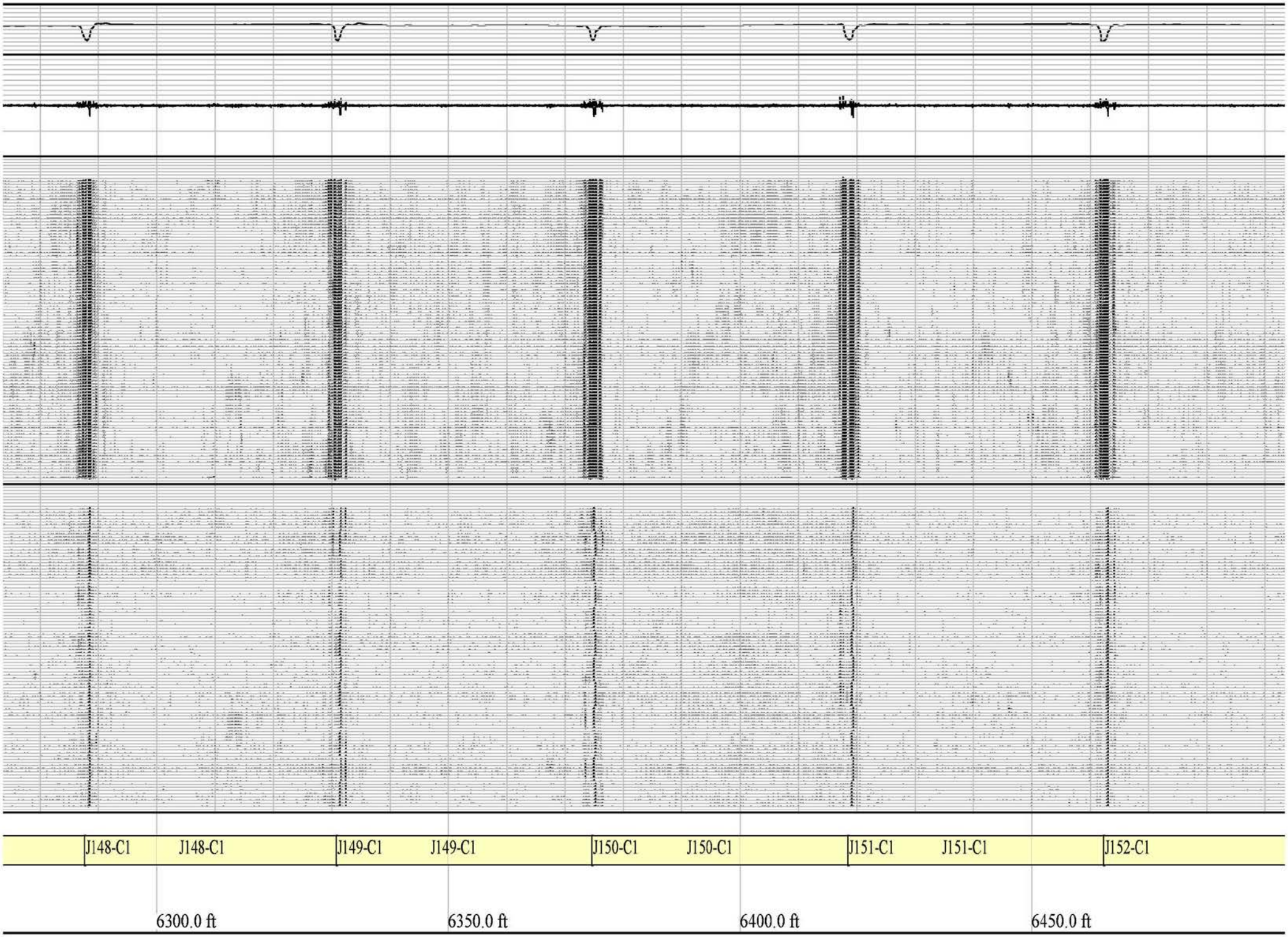

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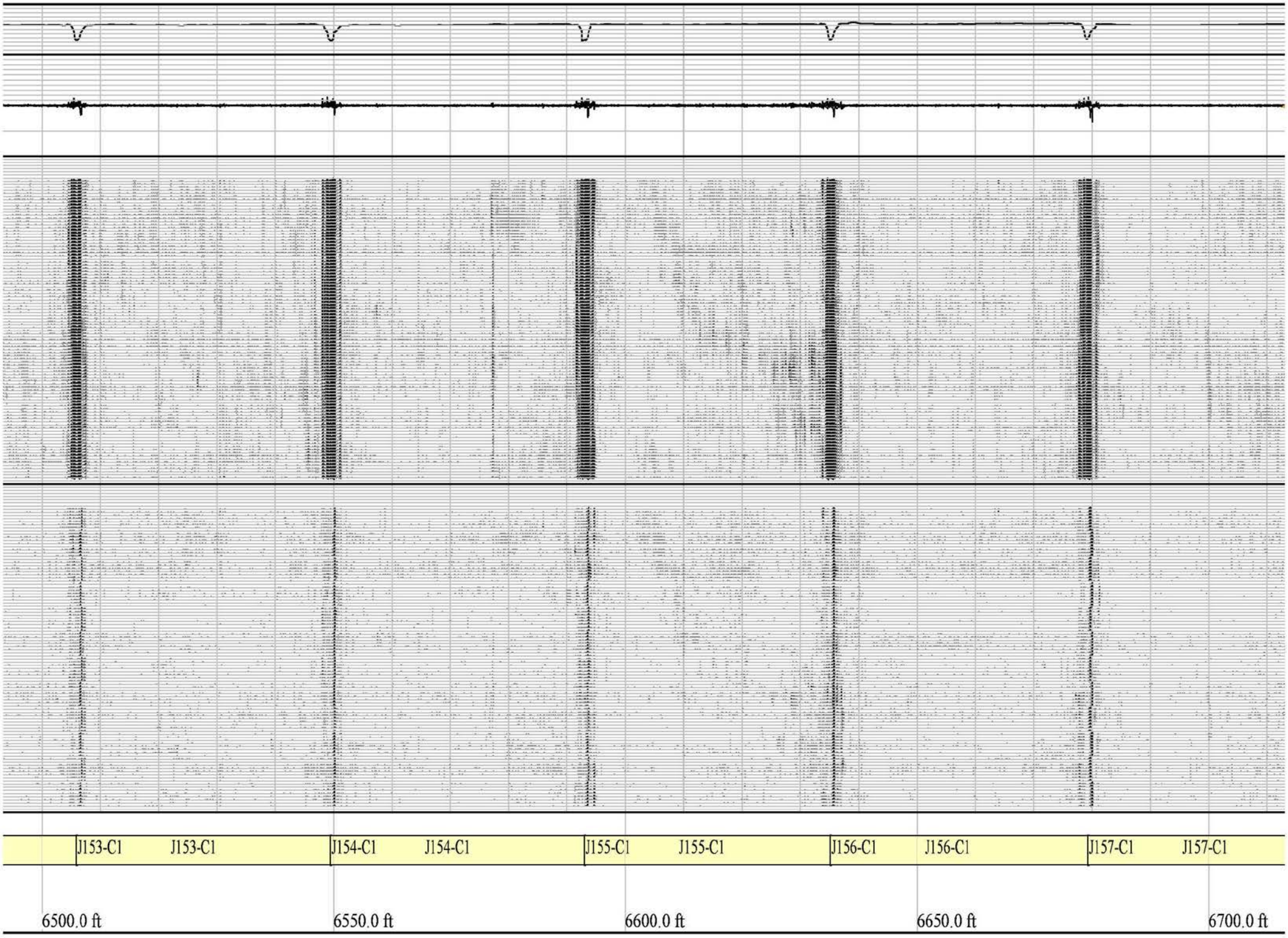

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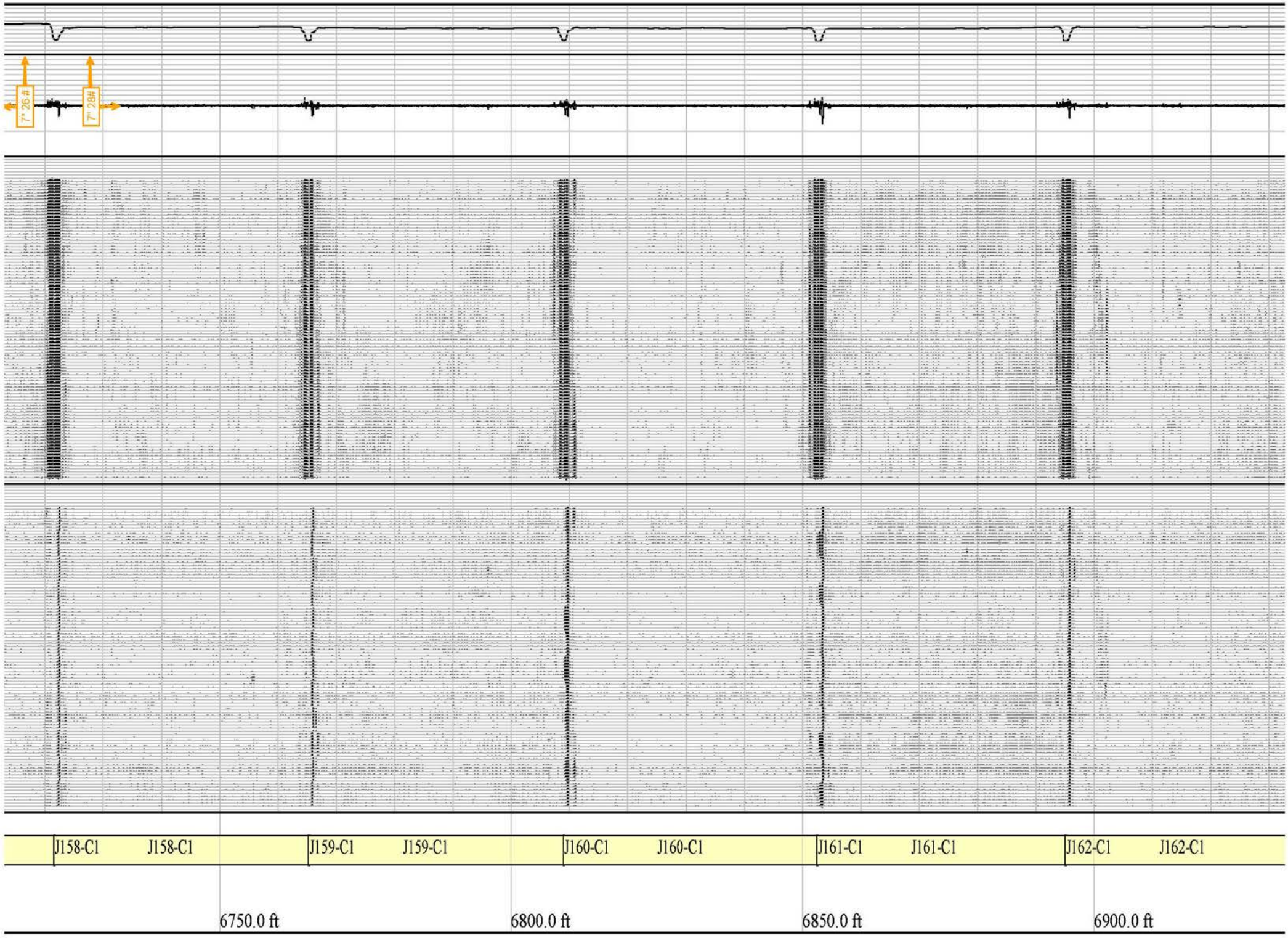

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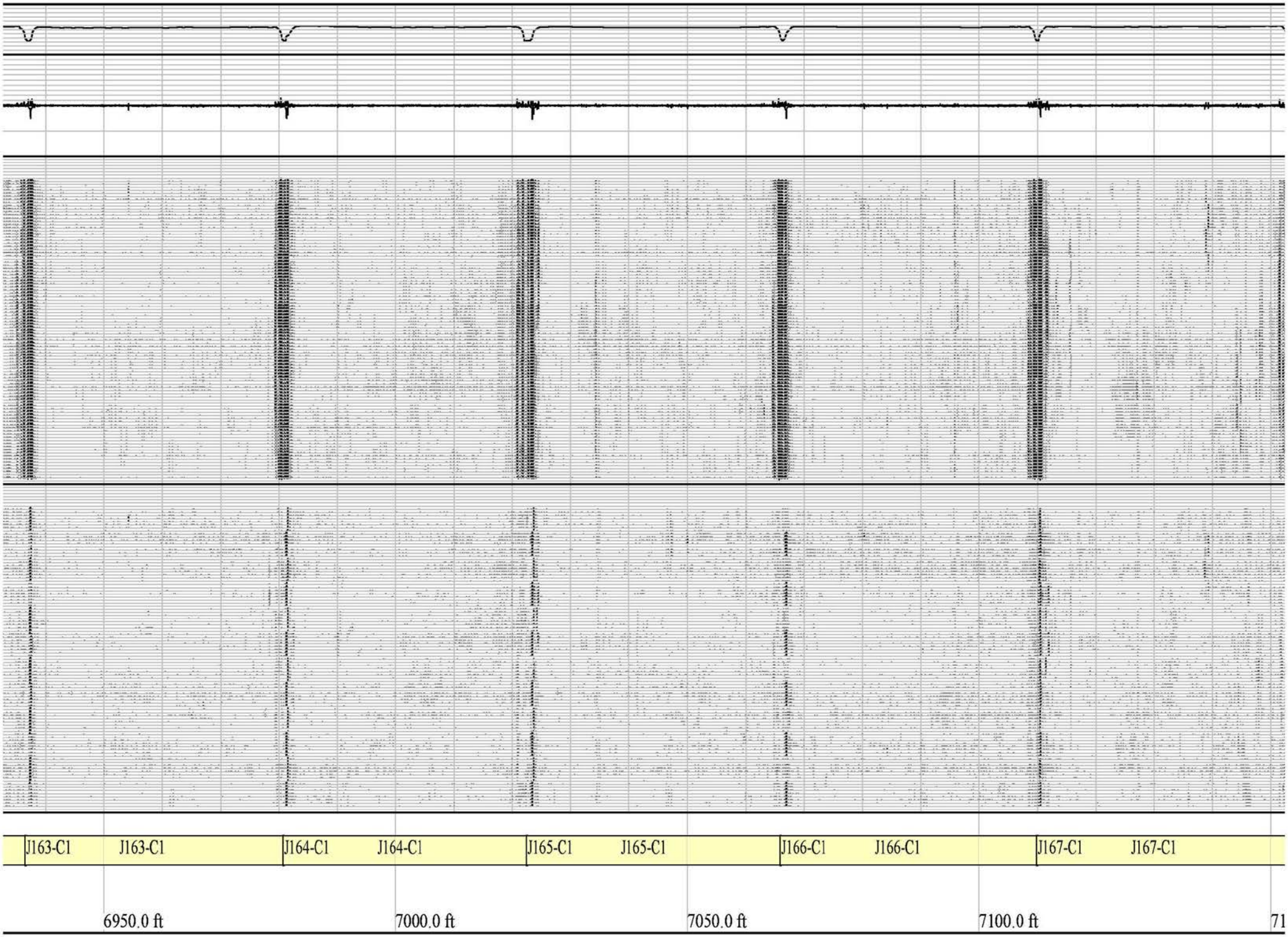

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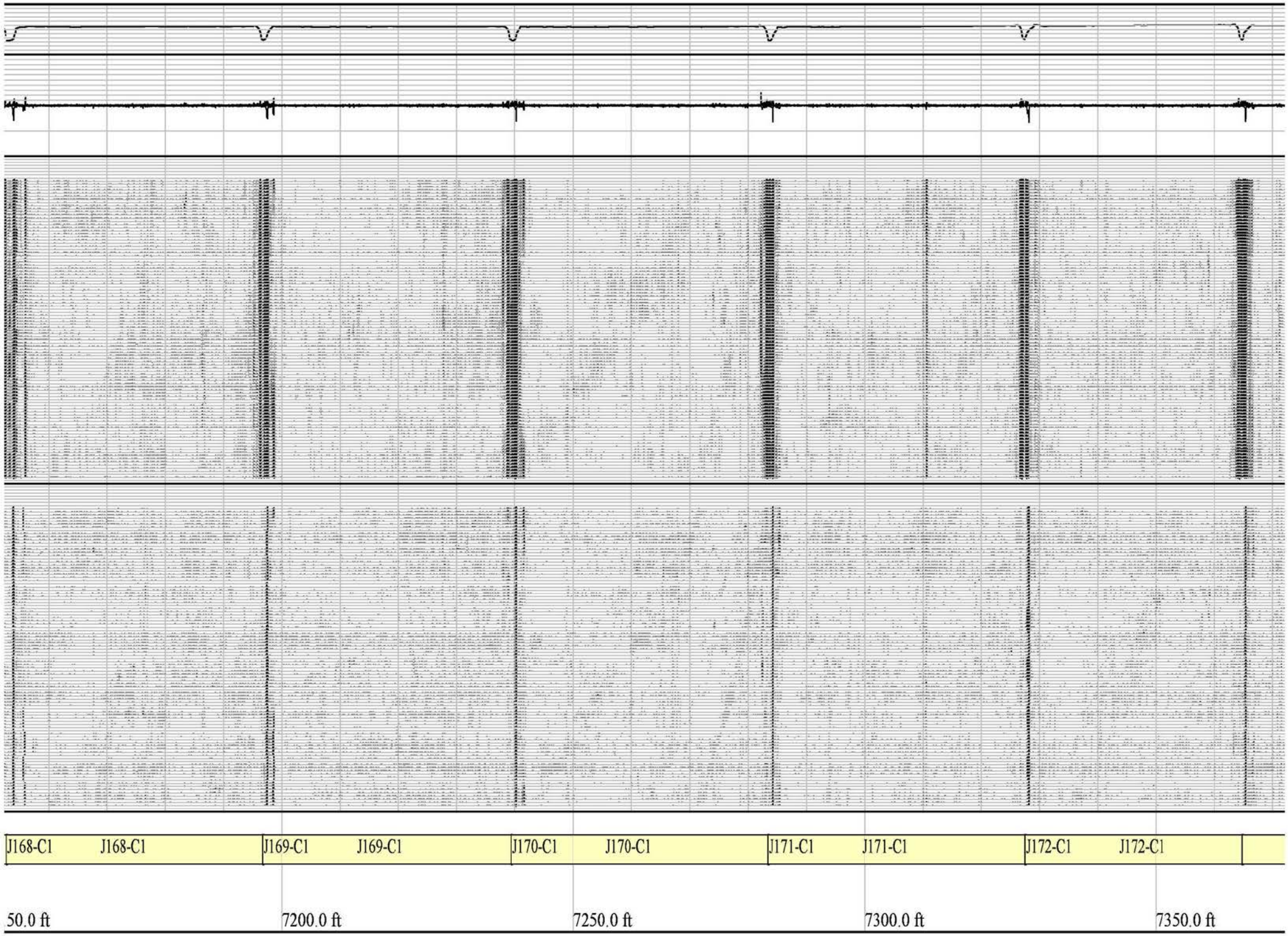

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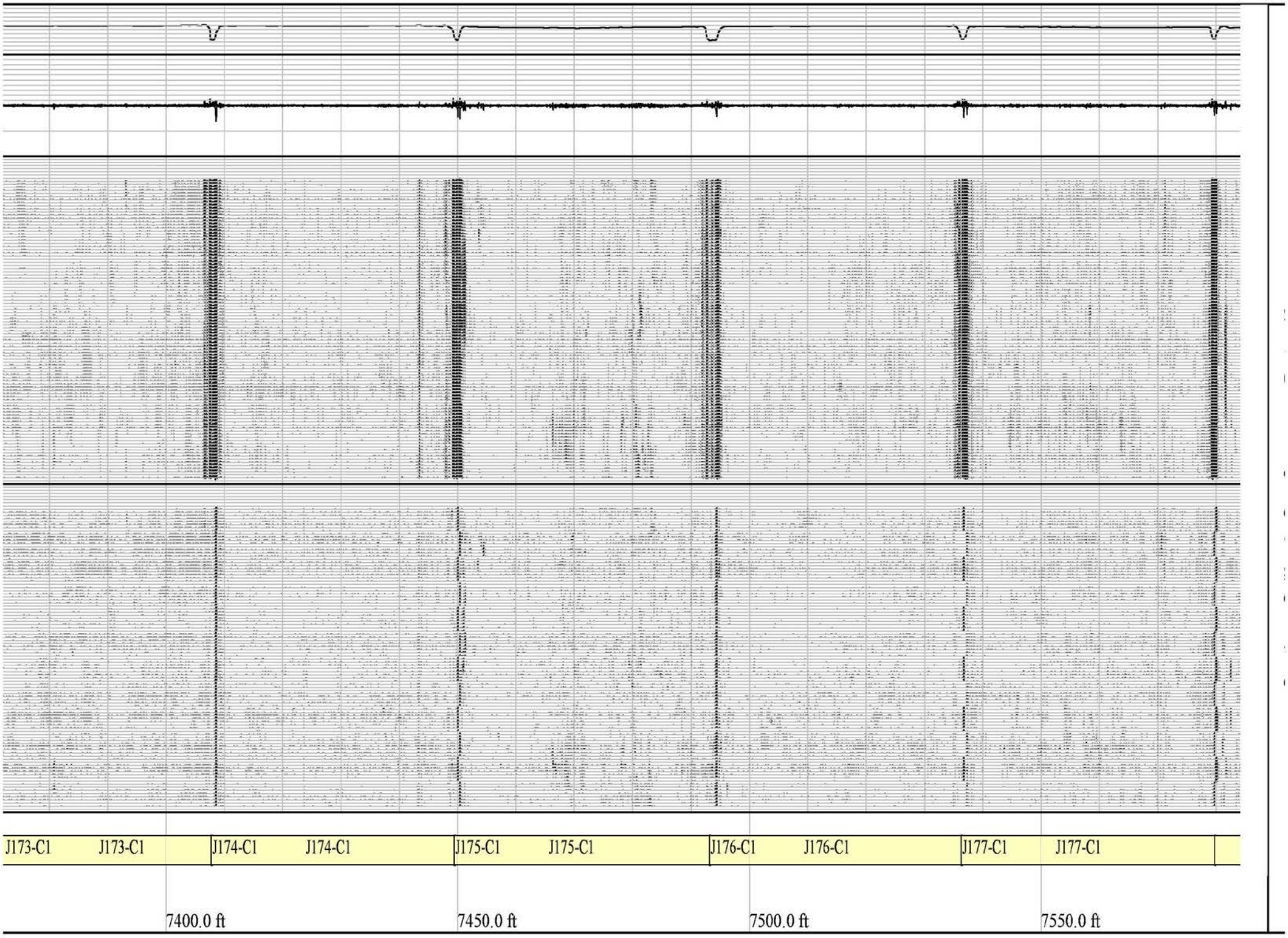


SoCalGas-7.0421

Joint Summary

Southern California Gas Company
Aliso Canyon
Porter 46

Identifier	Start Log Depth	Joint Length	Diameter	Wall Thickness	Weight	Max ML Depth	Max ML Position	Min Burst Pressure	Joint Depth Class
	ft	ft	in	in	lb/ft	%	ft	psi	
JT-1	18.16	40.80	7.000	0.317	23	0			1
JT-2	58.96	44.13	7.000	0.317	23	0			1
JT-3	103.09	44.02	7.000	0.317	23	0			1
JT-4	147.10	41.35	7.000	0.317	23	0			1
JT-5	188.45	43.86	7.000	0.317	23	0			1
JT-6	232.31	43.22	7.000	0.317	23	0			1
JT-7	275.52	42.58	7.000	0.317	23	0			1
JT-8	318.11	43.89	7.000	0.317	23	0			1
JT-9	362.00	43.07	7.000	0.317	23	0			1
JT-10	405.07	42.25	7.000	0.317	23	0			1
JT-11	447.32	41.01	7.000	0.317	23	0			1
JT-12	488.33	42.39	7.000	0.317	23	0			1
JT-13	530.72	42.70	7.000	0.317	23	0			1
JT-14	573.43	41.48	7.000	0.317	23	0			1
JT-15	614.91	42.74	7.000	0.317	23	0			1
JT-16	657.65	43.66	7.000	0.317	23	0			1
JT-17	701.31	42.21	7.000	0.317	23	0			1
JT-18	743.52	42.35	7.000	0.317	23	0			1
JT-19	785.87	41.99	7.000	0.317	23	0			1
JT-20	827.85	40.77	7.000	0.317	23	0			1
JT-21	868.62	42.14	7.000	0.317	23	0			1
JT-22	910.76	42.99	7.000	0.317	23	0			1
JT-23	953.75	41.95	7.000	0.317	23	0			1
JT-24	995.71	43.44	7.000	0.317	23	16	999.61	5705	1
JT-25	1039.14	43.13	7.000	0.317	23	0			1
JT-26	1082.27	41.77	7.000	0.317	23	0			1
JT-27	1124.04	42.88	7.000	0.317	23	0			1
JT-28	1166.93	42.89	7.000	0.317	23	0			1
JT-29	1209.82	42.63	7.000	0.317	23	0			1
JT-30	1252.44	42.91	7.000	0.317	23	0			1
JT-31	1295.36	44.13	7.000	0.317	23	0			1
JT-32	1339.49	43.09	7.000	0.317	23	0			1
JT-33	1382.58	43.78	7.000	0.317	23	0			1
JT-34	1426.36	44.18	7.000	0.317	23	0			1
JT-35	1470.54	41.44	7.000	0.317	23	0			1
JT-36	1511.98	43.10	7.000	0.317	23	0			1
JT-37	1555.07	43.14	7.000	0.317	23	0			1
JT-38	1598.21	42.28	7.000	0.317	23	0			1
JT-39	1640.49	43.27	7.000	0.317	23	0			1
JT-40	1683.76	42.31	7.000	0.317	23	0			1
JT-41	1726.06	41.56	7.000	0.317	23	0			1
JT-42	1767.63	42.92	7.000	0.317	23	0			1
JT-43	1810.55	43.02	7.000	0.317	23	0			1
JT-44	1853.57	42.35	7.000	0.317	23	0			1
JT-45	1895.92	42.12	7.000	0.317	23	0			1
JT-46	1938.04	42.40	7.000	0.317	23	0			1
JT-47	1980.44	40.94	7.000	0.317	23	0			1
JT-48	2021.38	42.62	7.000	0.317	23	0			1
JT-49	2063.99	42.47	7.000	0.317	23	0			1
JT-50	2106.47	42.91	7.000	0.317	23	0			1
JT-51	2149.38	43.25	7.000	0.317	23	0			1
JT-52	2192.63	43.18	7.000	0.317	23	0			1
JT-53	2235.81	43.40	7.000	0.317	23	0			1
JT-54	2279.22	42.00	7.000	0.317	23	0			1
JT-55	2321.22	42.48	7.000	0.317	23	0			1
JT-56	2363.70	42.57	7.000	0.317	23	0			1
JT-57	2406.27	42.30	7.000	0.317	23	0			1
JT-58	2448.57	42.59	7.000	0.317	23	0			1
JT-59	2491.17	43.38	7.000	0.317	23	0			1
JT-60	2534.55	42.36	7.000	0.317	23	0			1
JT-61	2576.91	42.40	7.000	0.317	23	0			1
JT-62	2619.31	42.77	7.000	0.317	23	0			1
JT-63	2662.08	41.07	7.000	0.317	23	0			1

JT-64	2703.14	43.66	7.000	0.317	23	0			1
JT-65	2746.81	43.79	7.000	0.317	23	0			1
JT-66	2790.59	42.85	7.000	0.317	23	0			1
JT-67	2833.45	42.57	7.000	0.317	23	0			1
JT-68	2876.02	43.26	7.000	0.317	23	0			1
JT-69	2919.28	42.83	7.000	0.317	23	0			1
JT-70	2962.11	42.30	7.000	0.317	23	0			1
JT-71	3004.41	41.79	7.000	0.317	23	0			1
JT-72	3046.20	42.48	7.000	0.317	23	0			1
JT-73	3088.68	42.11	7.000	0.317	23	0			1
JT-74	3130.79	43.30	7.000	0.317	23	0			1
JT-75	3174.09	42.66	7.000	0.317	23	0			1
JT-76	3216.76	43.47	7.000	0.317	23	16	3236.75	5722	1
JT-77	3260.23	43.47	7.000	0.317	23	0			1
JT-78	3303.70	41.58	7.000	0.317	23	0			1
JT-79	3345.28	43.11	7.000	0.317	23	0			1
JT-80	3388.38	37.68	7.000	0.317	23	0			1
JT-81	3426.07	43.54	7.000	0.317	23	0			1
JT-82	3469.60	43.02	7.000	0.317	23	0			1
JT-83	3512.63	38.81	7.000	0.317	23	0			1
JT-84	3551.44	42.65	7.000	0.317	23	0			1
JT-85	3594.09	42.54	7.000	0.317	23	0			1
JT-86	3636.63	43.29	7.000	0.317	23	0			1
JT-87	3679.92	44.10	7.000	0.317	23	0			1
JT-88	3724.03	43.13	7.000	0.317	23	0			1
JT-89	3767.16	41.73	7.000	0.317	23	0			1
JT-90	3808.89	42.80	7.000	0.317	23	0			1
JT-91	3851.70	43.73	7.000	0.317	23	0			1
JT-92	3895.43	42.51	7.000	0.317	23	0			1
JT-93	3937.93	43.15	7.000	0.317	23	0			1
JT-94	3981.08	42.69	7.000	0.317	23	0			1
JT-95	4023.77	43.95	7.000	0.317	23	0			1
JT-96	4067.72	39.78	7.000	0.317	23	0			1
JT-97	4107.51	43.41	7.000	0.317	23	0			1
JT-98	4150.92	43.20	7.000	0.317	23	0			1
JT-99	4194.12	43.50	7.000	0.317	23	0			1
JT-100	4237.62	42.48	7.000	0.317	23	0			1
JT-101	4280.10	42.86	7.000	0.317	23	0			1
JT-102	4322.96	42.39	7.000	0.317	23	0			1
JT-103	4365.35	39.74	7.000	0.317	23	0			1
JT-104	4405.10	43.17	7.000	0.317	23	0			1
JT-105	4448.27	42.38	7.000	0.317	23	0			1
JT-106	4490.65	41.66	7.000	0.317	23	0			1
JT-107	4532.30	44.19	7.000	0.317	23	0			1
JT-108	4576.49	43.60	7.000	0.317	23	0			1
JT-109	4620.10	41.97	7.000	0.317	23	0			1
JT-110	4662.07	43.42	7.000	0.317	23	0			1
JT-111	4705.49	41.68	7.000	0.317	23	0			1
JT-112	4747.17	40.43	7.000	0.317	23	0			1
JT-113	4787.60	43.49	7.000	0.317	23	0			1
JT-114	4831.10	42.77	7.000	0.317	23	0			1
JT-115	4873.87	41.71	7.000	0.317	23	0			1
JT-116	4915.58	42.89	7.000	0.317	23	0			1
JT-117	4958.47	43.66	7.000	0.317	23	0			1
JT-118	5002.13	42.66	7.000	0.317	23	0			1
JT-119	5044.79	42.51	7.000	0.317	23	0			1
JT-120	5087.29	43.49	7.000	0.317	23	0			1
JT-121	5130.78	42.43	7.000	0.317	23	0			1
JT-122	5173.22	43.37	7.000	0.362	26	0			1
JT-123	5216.59	43.28	7.000	0.362	26	0			1
JT-124	5259.87	42.84	7.000	0.362	26	0			1
JT-125	5302.71	43.18	7.000	0.362	26	0			1
JT-126	5345.89	43.45	7.000	0.362	26	0			1
JT-127	5389.34	42.88	7.000	0.362	26	0			1
JT-128	5432.22	37.72	7.000	0.362	26	18	5468.43	9047	1
JT-129	5469.94	43.27	7.000	0.362	26	0			1
JT-130	5513.20	42.13	7.000	0.362	26	0			1
JT-131	5555.33	44.27	7.000	0.362	26	0			1
JT-132	5599.60	42.69	7.000	0.362	26	0			1
JT-133	5642.30	44.14	7.000	0.362	26	0			1
JT-134	5686.44	43.69	7.000	0.362	26	0			1
JT-135	5730.13	43.51	7.000	0.362	26	0			1
JT-136	5773.64	42.77	7.000	0.362	26	0			1
JT-137	5816.41	44.50	7.000	0.362	26	0			1
JT-138	5860.91	42.46	7.000	0.362	26	0			1
JT-139	5903.37	43.17	7.000	0.362	26	0			1
JT-140	5946.54	43.61	7.000	0.362	26	0			1
JT-141	5990.14	44.07	7.000	0.362	26	0			1
JT-142	6034.21	40.61	7.000	0.362	26	0			1

JT-143	6074.82	43.52	7.000	0.362	26	0	1
JT-144	6118.34	42.04	7.000	0.362	26	0	1
JT-145	6160.38	42.47	7.000	0.362	26	0	1
JT-146	6202.84	42.53	7.000	0.362	26	0	1
JT-147	6245.38	42.39	7.000	0.362	26	0	1
JT-148	6287.77	43.10	7.000	0.362	26	0	1
JT-149	6330.87	43.85	7.000	0.362	26	0	1
JT-150	6374.72	43.83	7.000	0.362	26	0	1
JT-151	6418.54	43.88	7.000	0.362	26	0	1
JT-152	6462.42	43.55	7.000	0.362	26	0	1
JT-153	6505.98	43.56	7.000	0.362	26	0	1
JT-154	6549.54	43.53	7.000	0.362	26	0	1
JT-155	6593.07	42.16	7.000	0.362	26	0	1
JT-156	6635.22	44.12	7.000	0.362	26	0	1
JT-157	6679.34	42.23	7.000	0.362	26	0	1
JT-158	6721.57	43.78	7.000	0.408	29	0	1
JT-159	6765.35	43.69	7.000	0.408	29	0	1
JT-160	6809.04	43.52	7.000	0.408	29	0	1
JT-161	6852.56	42.54	7.000	0.408	29	0	1
JT-162	6895.10	41.46	7.000	0.408	29	0	1
JT-163	6936.56	44.21	7.000	0.408	29	0	1
JT-164	6980.78	41.79	7.000	0.408	29	0	1
JT-165	7022.56	43.47	7.000	0.408	29	0	1
JT-166	7066.04	43.95	7.000	0.408	29	0	1
JT-167	7109.98	42.86	7.000	0.408	29	0	1
JT-168	7152.84	44.01	7.000	0.408	29	0	1
JT-169	7196.85	42.65	7.000	0.408	29	0	1
JT-170	7239.50	43.99	7.000	0.408	29	0	1
JT-171	7283.50	44.15	7.000	0.408	29	0	1
JT-172	7327.65	37.29	7.000	0.408	29	0	1
JT-173	7364.94	42.94	7.000	0.408	29	0	1
JT-174	7407.87	41.67	7.000	0.408	29	0	1
JT-175	7449.54	43.70	7.000	0.408	29	0	1
JT-176	7493.24	43.20	7.000	0.408	29	0	1
JT-177	7536.44	43.47	7.000	0.408	29	0	1
JT-178	7579.91	4.28	7.000	0.408	29	0	1

Inspection Date: 08-17-2017
Report Date: 08-19-2017

Ex. II - 18

Hello Jovy,

I talked to Bruce about your email. Please submit the critical elements that will be in your Supplement NOI, especial the details on where the shoe of the 5 ½" inner string. The Supplement notice should be submitted ASAP.

Dave

From: Kroh, Jovy E [mailto:JKroh@semprautilities.com]
Sent: Friday, August 25, 2017 9:08 AM
To: Ortiz, David@DOC <David.Ortiz@conservation.ca.gov>
Cc: McMahon, Thomas D. <TMcMahon@semprautilities.com>; Iguaz, Jose <JIguaz@semprautilities.com>; Charleston, Anthony <ACharleston@semprautilities.com>
Subject: Porter 46 Proposed squeeze plan
Importance: High

Hello David,
After reviewing the P46 log results at length, we have elected to run a 5.5" inner string and cement it to 2706'.
The rig is currently pulling the test packer and will be ready to begin perf and squeezing on Monday morning.
Below is our squeeze plan to abandon critical zones behind the 7" casing. Please let me know if you approve.
I will follow up with a Supplementary notice shortly.

MP @ 7446': Squeeze
LDA @ 6895': Squeeze
MDA @ 6718': Squeeze
UDA1 @ 5955': Squeeze
UP @ 5220': Squeeze
A1 @ 3974': Squeeze
PGS @ 2906': Squeeze

Thanks,
Jovy

Jovy Kroh
Southern California Gas Company
Sr. Gas Storage Field Engineer
Direct: 818-725-1119
Cell: 937-239-0279

Ex. II - 19

VERTILOG®

Dresser Atlas DRESSER

CUSTOMER	SOUTHERN CALIFORNIA GAS COMPANY	DATE	10-19-88
WELL	PORTER No. 46	SERVICE ORDER NO.	124301
FIELD	ALISO CANYON	COUNTY LOS ANGELES STATE	CALIFORNIA
CASING SIZE	7" WEIGHT(S) 23#, 26# & 29# GRADE J-55, N-80	NOMINAL WALL THICKNESS	
TOTAL FOOTAGE INSPECTED	7660' FROM SURFACE TO 7660'		DEPTH

SJ

SUBSURFACE CASING INSPECTION REPORT

SUMMARY

169	LENGTHS WERE FOUND TO SHOW NO EVIDENCE OF CORROSION EXCEEDING PERCENT OF THE NOMINAL BODY WALL.	20 CLASS 1
10	LENGTHS WERE FOUND TO SHOW EVIDENCE OF CORROSION EXCEEDING PERCENT BUT LESS THAN 41 PERCENT OF THE NOMINAL BODY WALL.	20 CLASS 2
0	LENGTHS WERE FOUND TO SHOW EVIDENCE OF CORROSION EXCEEDING PERCENT BUT LESS THAN 61 PERCENT OF THE NOMINAL BODY WALL.	40 CLASS 3
0	LENGTHS WERE FOUND TO SHOW EVIDENCE OF CORROSION EXCEEDING PERCENT OF THE NOMINAL BODY WALL.	60 CLASS 4
179	TOTAL LENGTHS	
7660'	TOTAL FOOTAGE	

REFERENCE FOR FOOTAGE MEASURE: GROUND LEVEL + 11'

LENGTHS ARE NUMBERED FROM: SURFACE

COMMENTS: NOISE ON FL 12 BETWEEN 6150' - 6200' IS DUE TO ELECTRONICS NOT CORROSION, FL 1 AND FL 2 WERE OBSERVED DURING LOG AND NOISE WAS IDENTIFIED.

CHART 7J6F
CHART 7N1E

SERVICED BY

DA-1363-C (08/82)

VERTILOG®

Western Atlas International
A Litton/Dresser Company

CUSTOMER SOUTHERN CALIFORNIA GAS CO.	WORK ORDER NO. 124301	DATE 10-19-88	
LEASE/WELL NO. PORTER No. 46	CUSTOMER ORDER NO.		
FIELD ALISO CANYON	COUNTY LOS ANGELES	STATE CALIFORNIA	
CASING O.D. 7"	WEIGHT(S) 23, 26, 29#	NOMINAL WALL THICKNESS	GRADE J-55, N-80
TOTAL FOOTAGE INSPECTED 7660'	FROM SURFACE	TO 7660'	DEPTH

SUBSURFACE CASING DEFECT REPORT

LENGTH NO.	TYPE DEFECT	PENETRATION	LENGTH NO.	TYPE DEFECT	PENETRATION
INSIDE 13-3/8" SURFACE CASING					
1	OD IP	21 - 40			
2	OD IP	21 - 40			
3	OD IP	21 - 40			
5	OD IP	21 - 40			
6	OD IP	21 - 40			
7	OD IP	21 - 40			
8	OD IP	21 - 40			
9	OD IP	21 - 40			
12	OD IP	21 - 40			
OUTSIDE 13-3/8" SURFACE CASING					
178	OD IP	21 - 40			

ABBREVIATIONS:

O.D. – OUTSIDE DIAMETER
I.D. – INSIDE DIAMETER
I.S. – INSIDE SURFACE PIPE
T.L. – THROUGHOUT LENGTH
I.P. – ISOLATED PITTING
C.C. – CIRCUMFERENTIAL CORROSION

WA-1364-C (10/87)

Ex. II - 20

Due to the large file sizes, please view documents DOGGR_03700733_Vertilog_10-19-1988 and DOGGR_03700733_USIT-GR-CCL_8-16-2017 at the below publicly available websites. The native files of these documents are available upon request.

(https://secure.conservation.ca.gov/WellRecord/037/03700733/tifs/03700733_Vertilog_10-19-1988.tif) (accessed March 20, 2020)

(https://secure.conservation.ca.gov/WellRecord/037/03700733/03700733_USIT-GR-CCL_8-16-2017.tif) (accessed March 20, 2020)

Ex. II - 21

Schlumberger

Company: Southern California Gas Company

Well: Fernando Fee 35B

Field: Aliso Canyon

County: Los Angeles State: California

County: Los Angeles
Field: Aliso Canyon
Location:
Well: Fernando Fee 35B
Company: Southern California Gas Company

Ultrasonic Imager

Gamma Ray - CCL

8 5/8" 36# casing

Location:		Elev.: K.B.	1689.00 ft
		G.L.	1674.00 ft
		D.F.	
Permanent Datum:	Ground Level	Elev.:	1674.00 f
Log Measured From:	Kelly Bushing	15.00 ft	above Perm.Datum
Drilling Measured From:	Kelly Bushing		

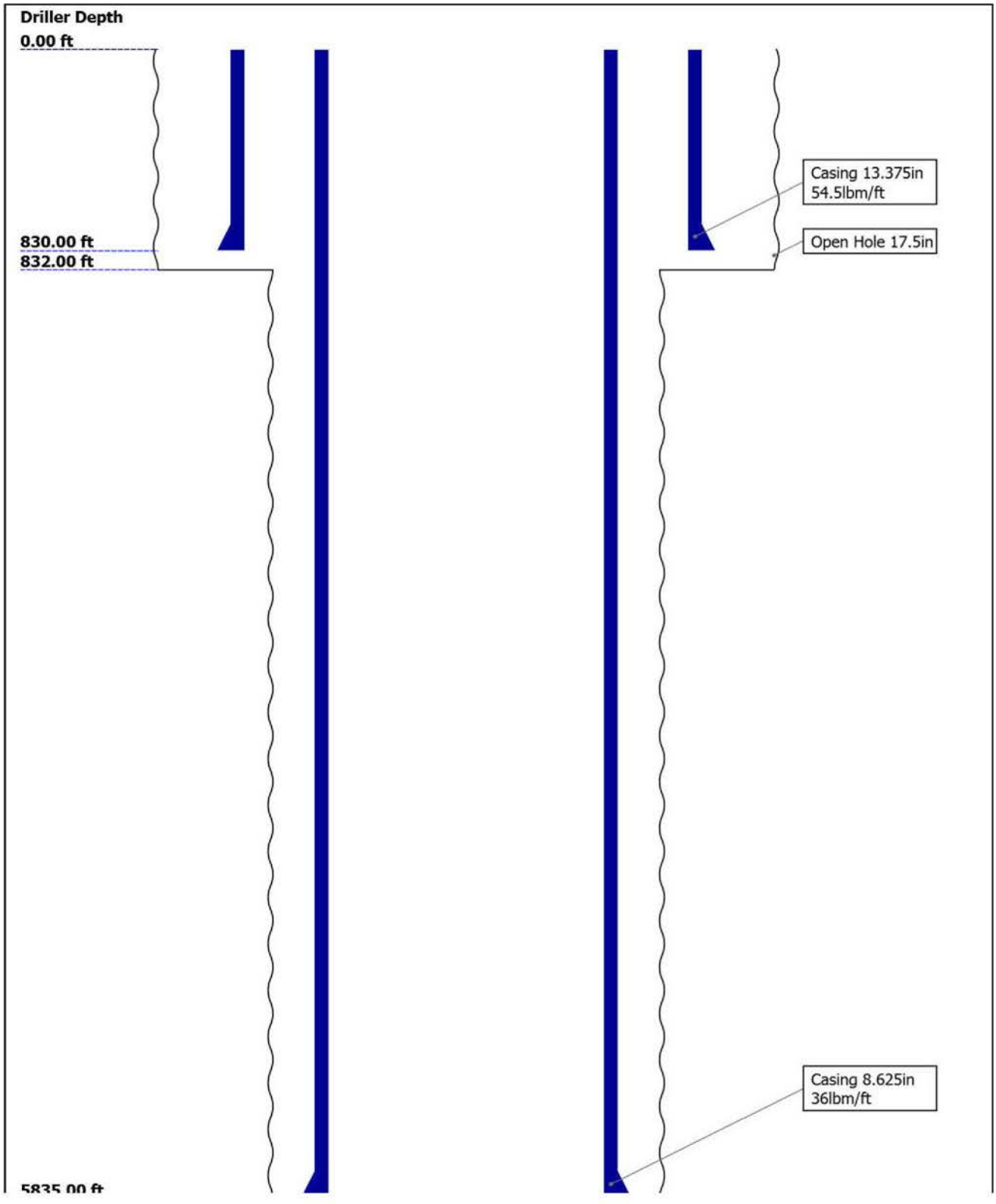
API Serial No.	Section:	Township:	Range:
040372145800	34	3N	16W

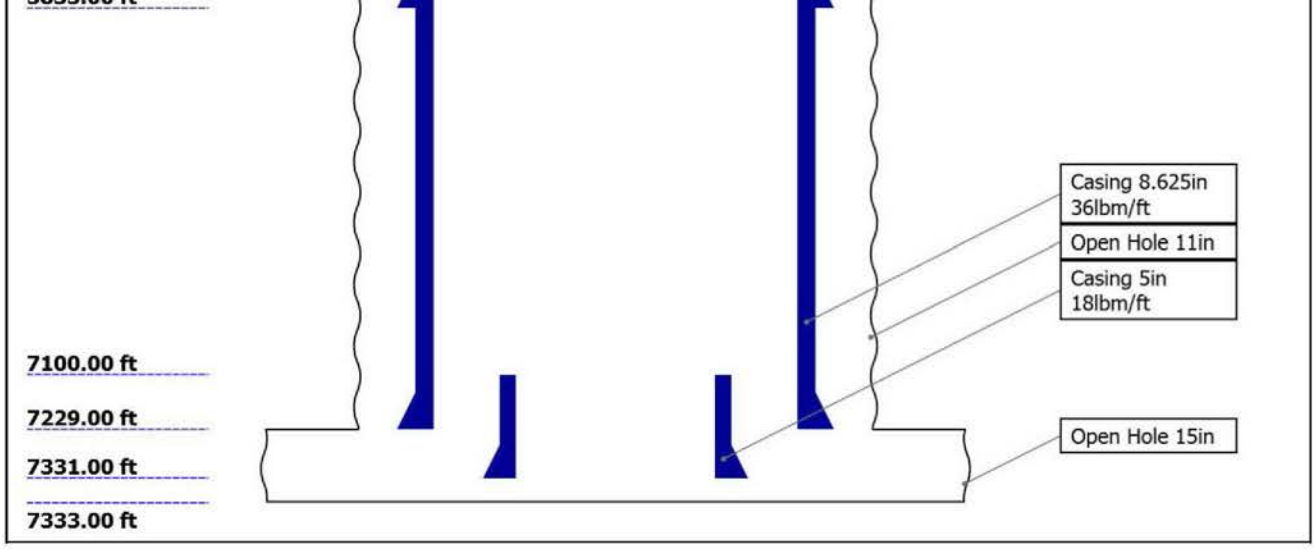
Logging Date	01-Jun-2017		
Run Number	One		
Depth Driller	7333.00 ft		
Schlumberger Depth	7044.00 ft		
Bottom Log Interval	7044.00 ft		
Top Log Interval	15.00 ft		
Casing Fluid Type	Water		
Salinity			
Density	8.9 lbm/gal		
Fluid Level	15.00 ft		
BIT/CASING/TUBING STRING			
Bit Size	15.00 in		
From	7229.00 ft		
To	7335.00 ft		
Casing/Tubing Size	5 in		
Weight	18 lbm/ft		
Grade	N80		
From	7100.00 ft		
To	7331.00 ft		
Max Recorded Temperatures	173 degF		
Logger on Bottom Time	01-Jun-2017	13:27:00	
Unit Number Location:	3080	Ventura	
Recorded By	Omar Reid		
Witnessed By	Jeff Sandoval		

Disclaimer

Contents

Well Sketch





Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	17.5	11	15			
Top Driller (ft)	0	832	7229			
Top Logger (ft)	0	832	7229			
Bottom Driller (ft)	832	7229	7333			
Bottom Logger (ft)	832	7229	7335			
Casing						
Size (in)	13.375	8.625	8.625	5		
Weight (lbm/ft)	54.5	36	36	18		
Inner Diameter (in)	12.615	7.825	7.825	4.276		
Grade	K55	K55	N80	N80		
Top Driller (ft)	0	0	5835	7100		
Top Logger (ft)	0	0	5835	7100		
Bottom Driller (ft)	830	5835	7229	7331		
Bottom Logger (ft)	830	5835	7229	7331		

Remarks and Equipment Summary

One: Toolstring

Equip name	Length	MP name	Offset
LEH-QT:2867 LEH-QT:2867	57.51	Red	
DTC-H ECH-KC DTC-H	54.59	**CTEM**	53.69
		HV	0.00
		TelStatus	51.59
		ToolStatus	51.59
HGNS-H:4177 HGNH:4819 NPV-N NSR-F:1546 HGNS-H:4177 HACCZ-H:7642 HMCA-H	51.59	**Temperature**	51.57
		GR	50.85
		CNL Por	44.52

One: Remarks

Correlated to Schlumberger Induction Electrical log
Dated: 9-17-1974
USIT logged at 10 deg 1.5" resolution at 2800 ft/hr High Res passes logged at 10deg .6" at 1200 ft/hr
USIT ran for cement and corrosion
Top of sand on the plug 7072
Rig Ensign 341
Free pipe = 55 mv
Crew: J.Marinez / M.Salazar
Thank you for using Schlumberger!


osity 44.32
HMCA 42.18
HGNS 42.18
Acceler ometer 0.00
AH-184[3]:2985 42.18
DSLT-H:8236 40.18
ECH-KH:8678
DSLC-H:8236
SLS-E:1206
CBL 3ft 27.71
Upper-Near 27.71
VDL 5ft 26.71
Upper-Far 26.71
Delta-T 25.34
Lower-Far 23.96
Lower-Near 22.96
SLS-E 19.55
AH-184[2]:2882 19.54
AH-184[1]:6735 17.54
USIT-E:1764 15.54
ECH-MFA:1764
USAC-A:1764
USIS-A:2720
USSC-B
USRS-B
USI-SENSOR:3349
USI Sensor 0.38
TOOL ZERO
Head Tension
Lengths are in ft
Maximum Outer Diameter = 6.500 in

Line: Sensor Location, Value: Gating Offset
All measurements are relative to TOOL_ZERO

One

USIT VDL Main Pass 5 in = 100 ft

Software Version

Acquisition System	Version
Maxwell 2017 SP1	7.1.82245.3100

Computation	Description	Version
CEVAL	Sonic Cement Evaluation Computation Ensemble provides common Parameters and Channels	7.1.82245.3100
Cementation	Cementation Computation Application	7.1.82245.3100

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

Tool Elements	Description	Software Version	Firmware Version
HGNS-H	HILT Gamma-Ray and Neutron Sonde, 150 degC	7.1.82245.3100	2.0
SLS-E	Sonic Logging Sonde E supports 3'-5'BHC DT and CBL/VDL	7.1.82245.3100	
USI-SENSOR	USIT Transducer Element	7.1.82245.3100	DSP: v1.82

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[4]:Up	Up	4.12 ft	7044.38 ft	02-Jun-2017 1:27:12 AM	02-Jun-2017 4:20:07 AM	ON	4.20 ft	Yes

All depths are referenced to toolstring zero

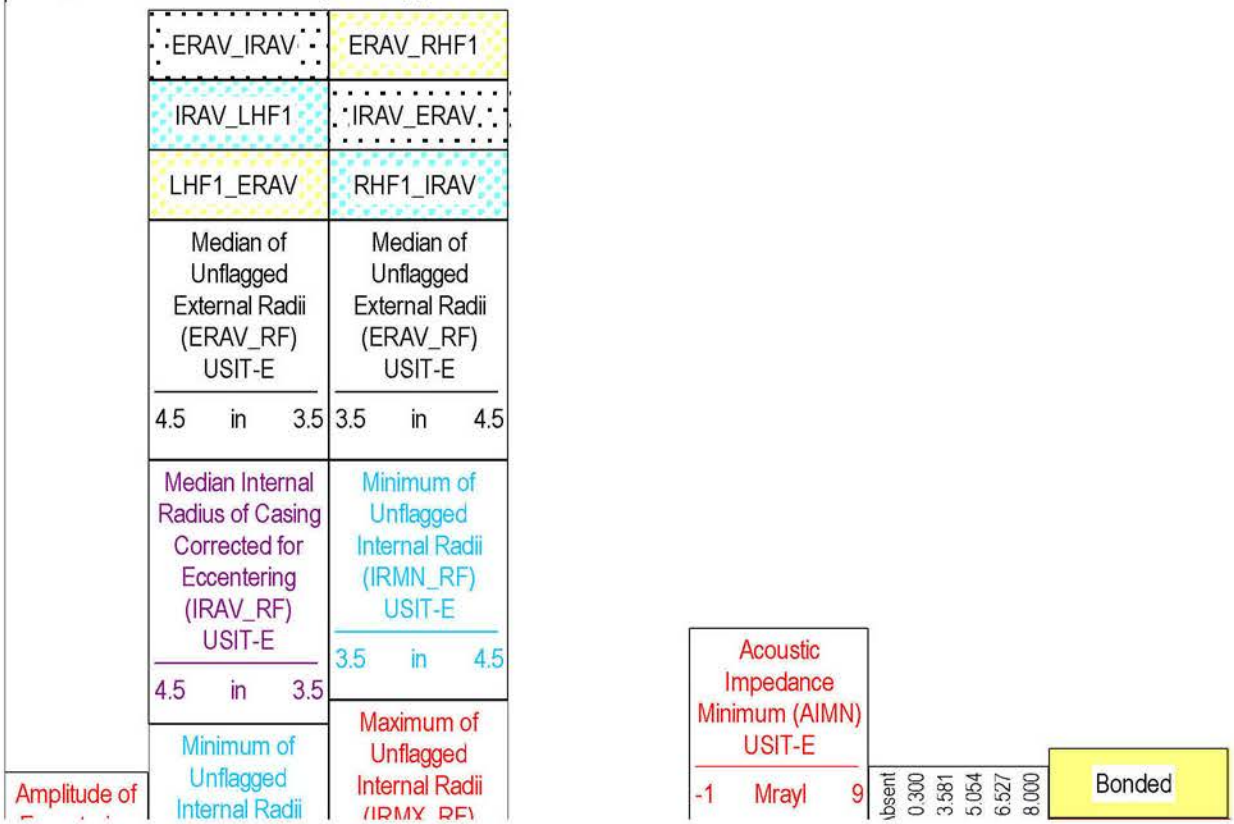
Log

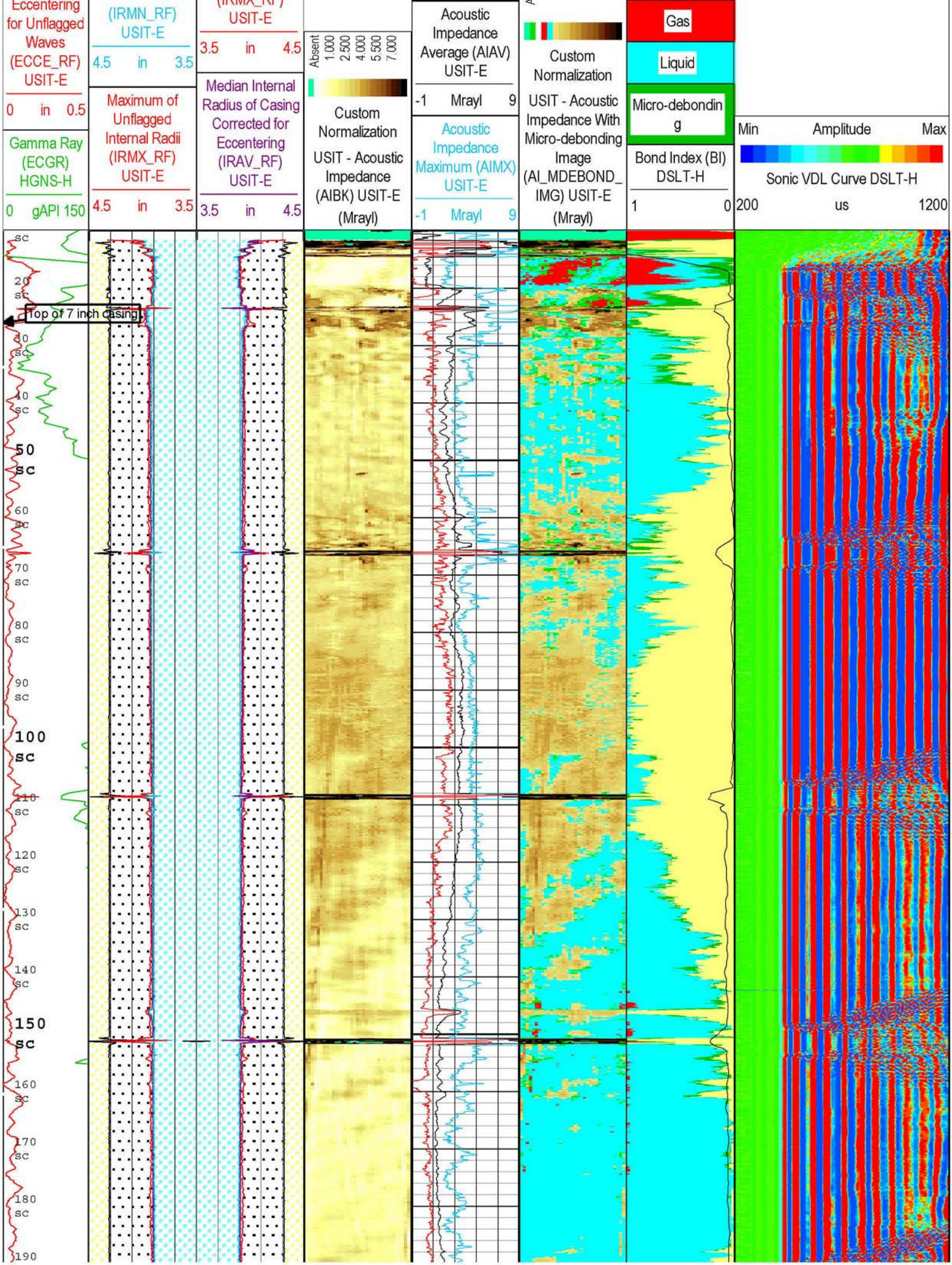
Company:Southern California Gas Company Well:Fernando Fee 35B

One: Log[4]:Up:S011

Description: USI VDL Cement Format: Log (LBV1_USI-VDL (DSLT) Cement 7inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth
Creation Date: 17-Jul-2017 14:11:00

TIME_1900 - Time Marked every 60.00 (s)




Eccentering for Unflagged Waves (ECCE_RF) USIT-E
0 in 0.5
Gamma Ray (ECGR) HGNS-H
0 gAPI 150
(IRMN_RF) USIT-E
4.5 in 3.5
Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
4.5 in 3.5
(IRMX_RF) USIT-E
3.5 in 4.5
Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E
3.5 in 4.5
Absent
1.000
2.500
4.000
5.500
7.000
Custom Normalization
USIT - Acoustic Impedance (AIBK) USIT-E (Mrayl)
Acoustic Impedance Average (AIAV) USIT-E
-1 Mrayl 9
Acoustic Impedance Maximum (AIMX) USIT-E
-1 Mrayl 9
Custom Normalization
USIT - Acoustic Impedance With Micro-debonding Image (AI_MDEBOND_IMG) USIT-E (Mrayl)
Gas
Liquid
Micro-debonding
Bond Index (BI) DSLT-H
1 0
Min Amplitude Max
Sonic VDL Curve DSLT-H
200 us 1200
Top of 7 inch casing
20 sc
30 sc
40 sc
50 sc
60 sc
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80 sc
90 sc
100 sc
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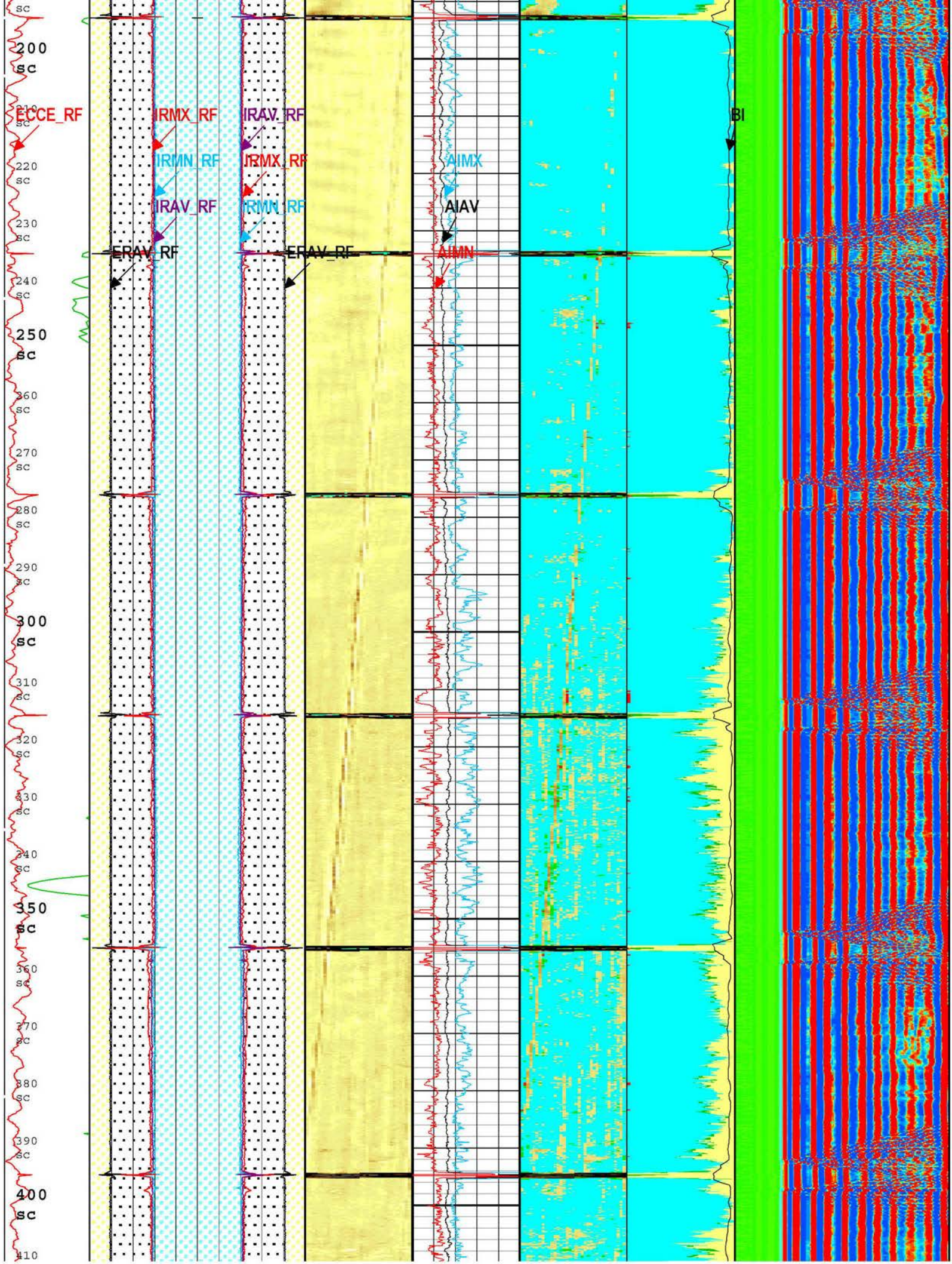
130 sc
140 sc
150 sc
160 sc
170 sc
180 sc
190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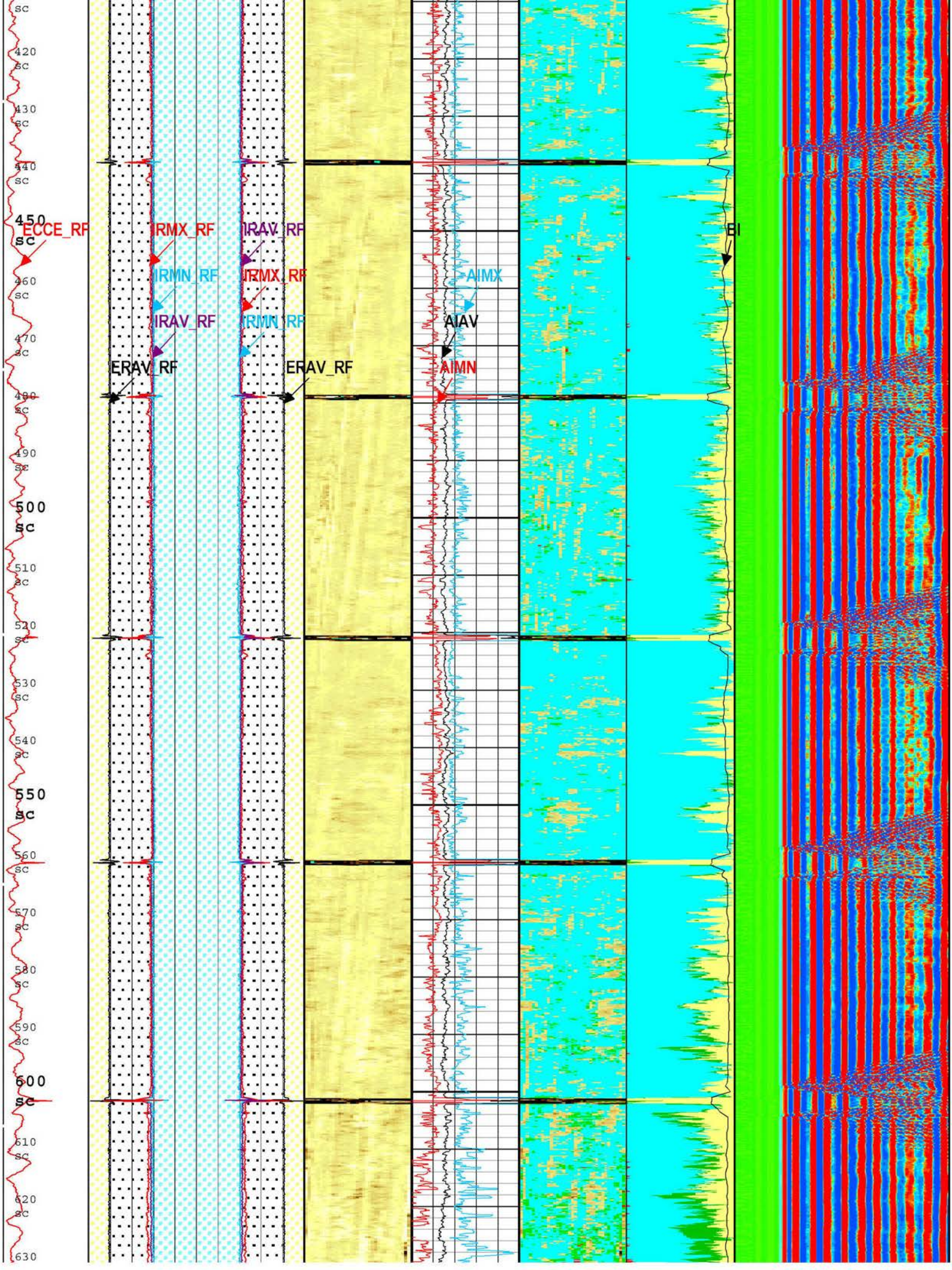
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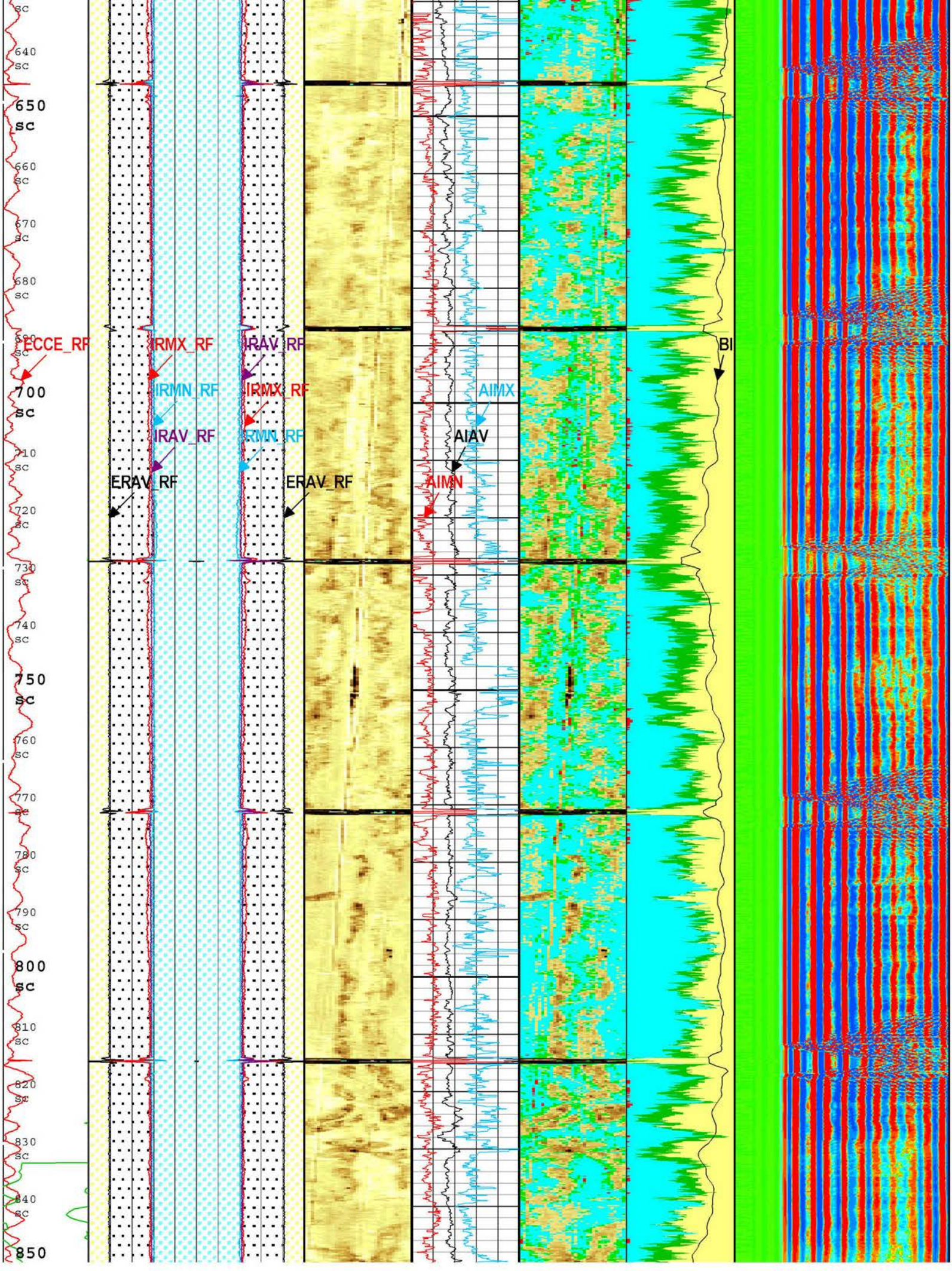
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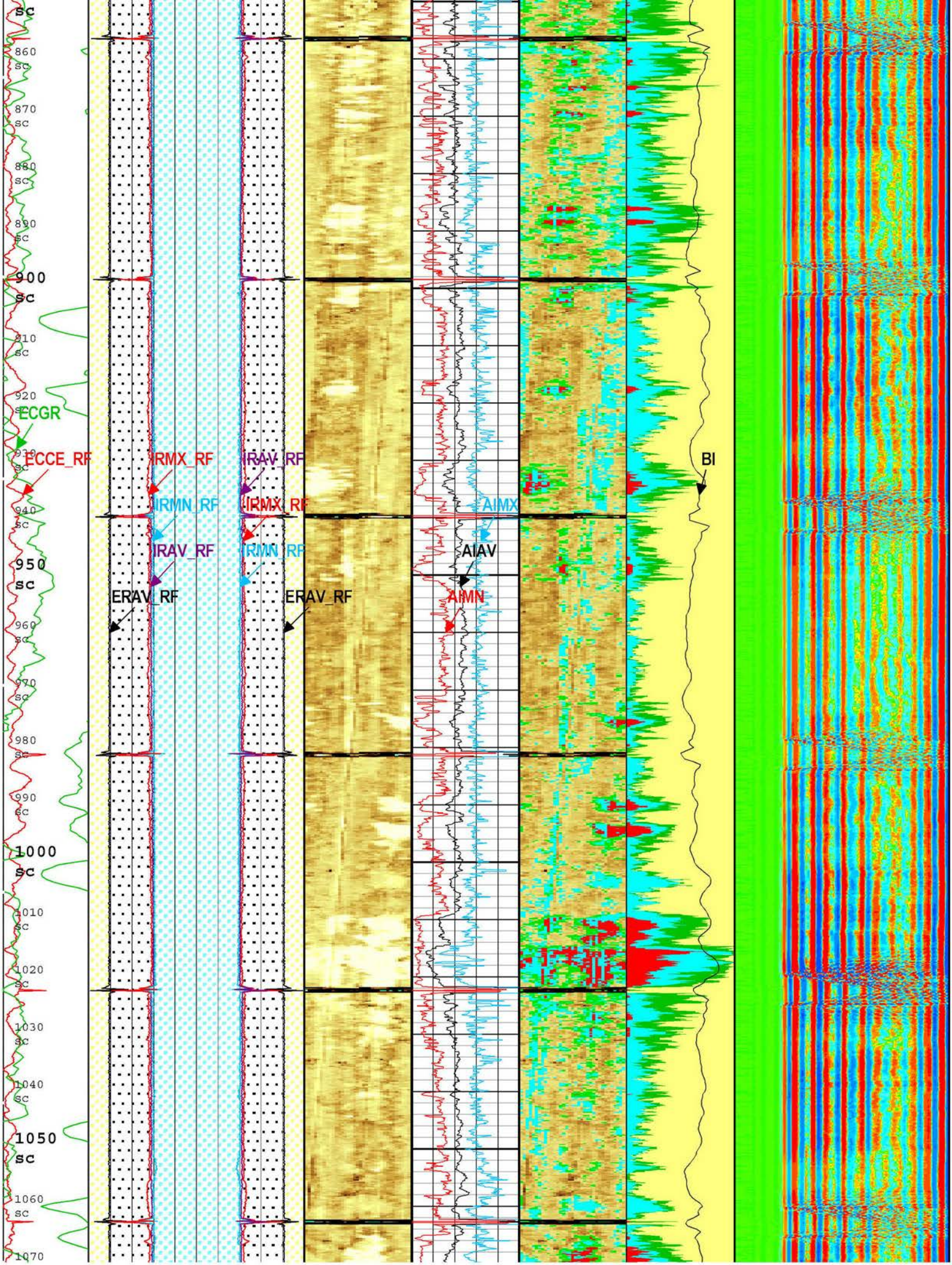
ECCE_RF
IRMX_RF
IRAV_RF
IRMN_RF
IRMX_RF
IRAV_RF
IRMN_RF
ERAV_RF
ERAV_RF
AIMX
AIAV
AIMN
BI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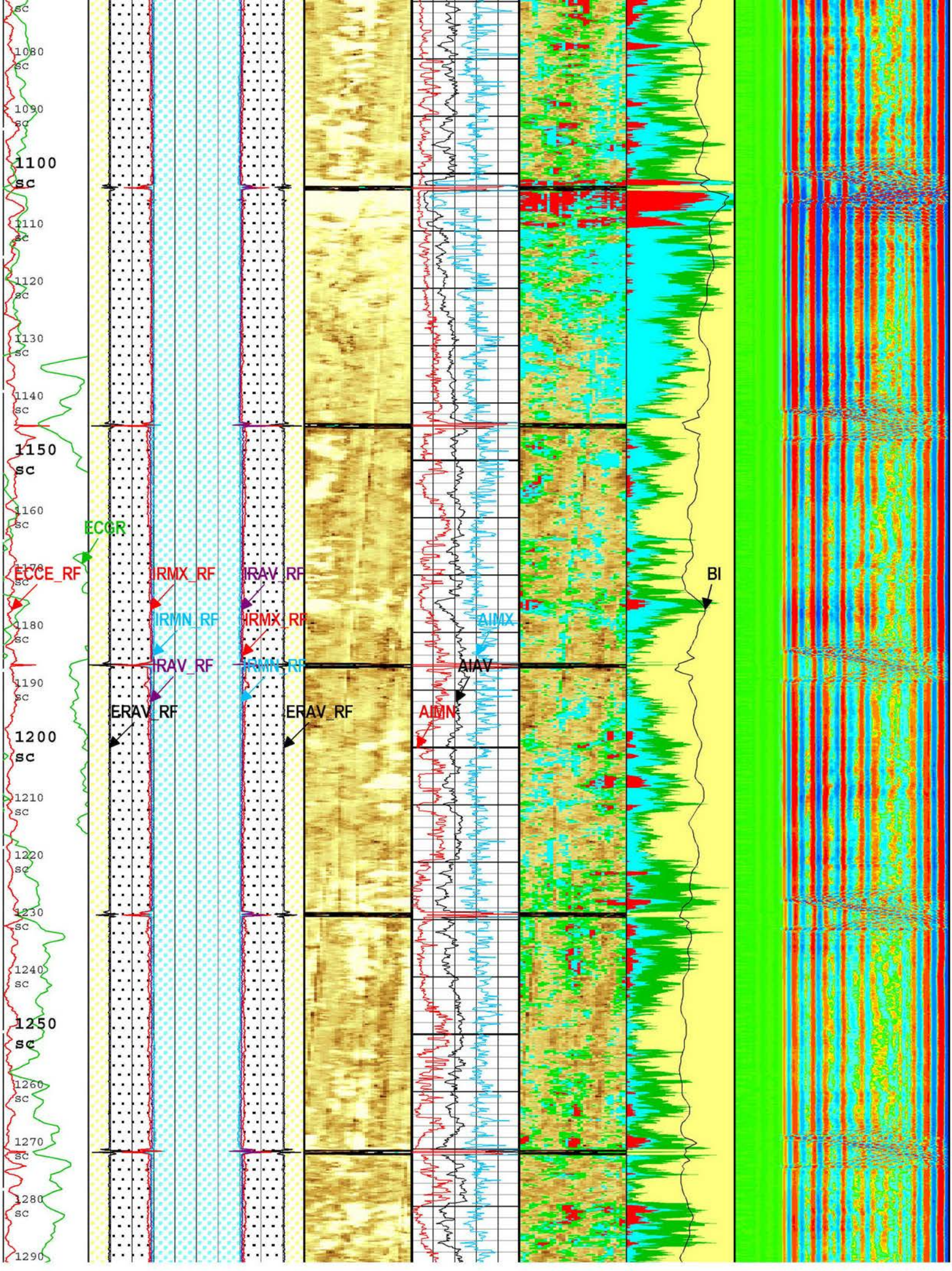
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IRMN_RF
IRMX_RF
AIMX
BI
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IRMN_RF
AIAV
1190 sc
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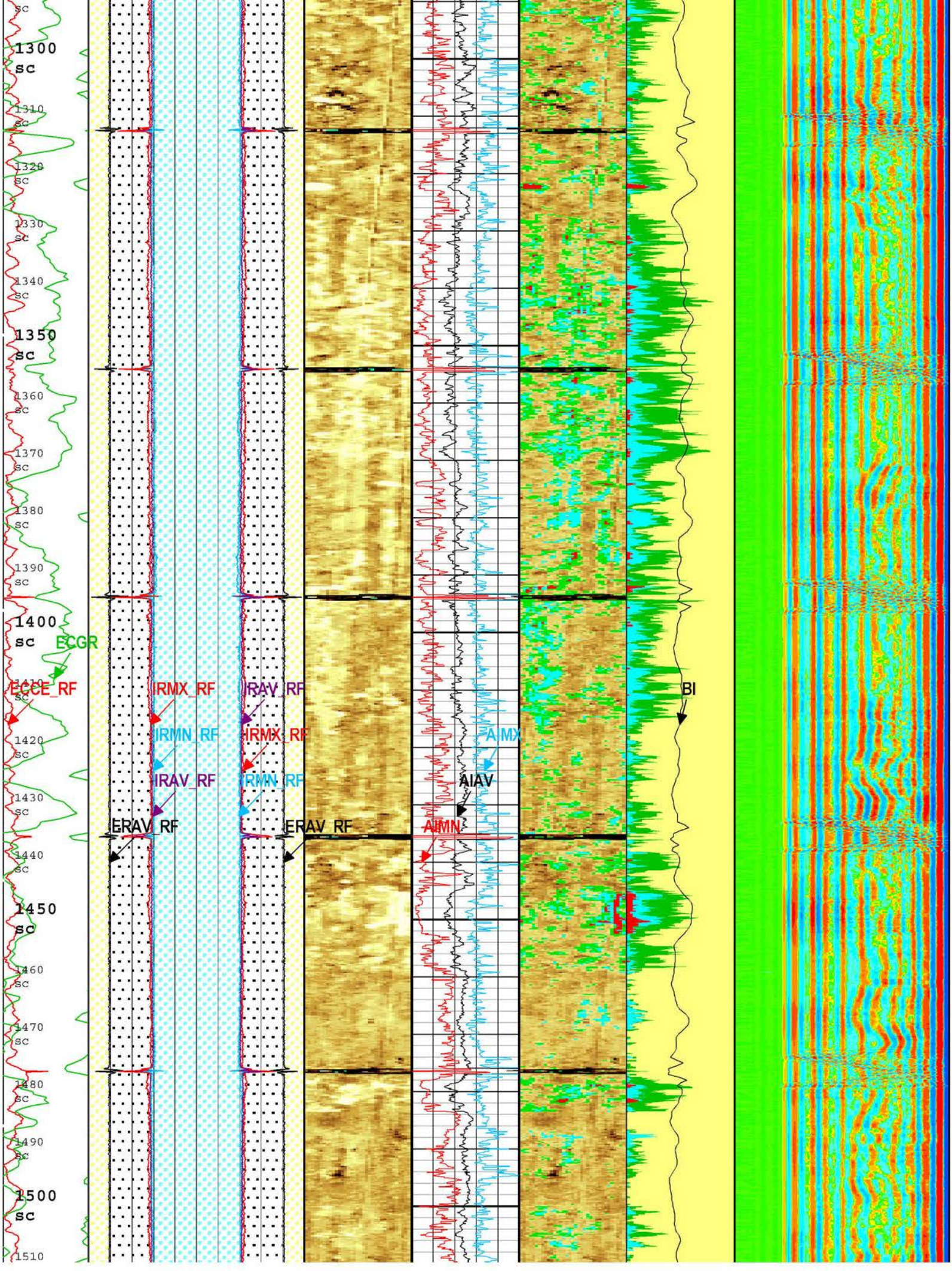
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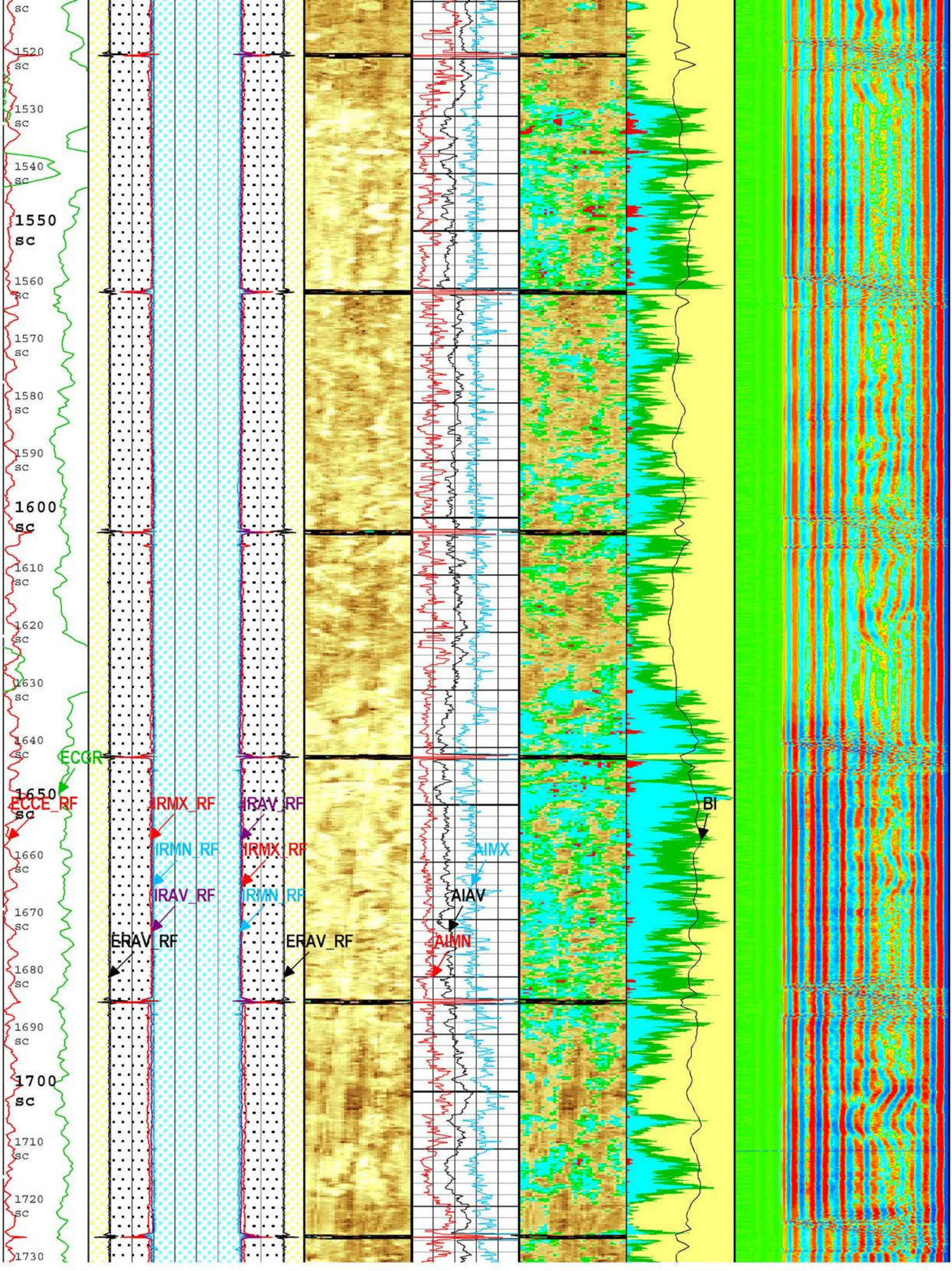
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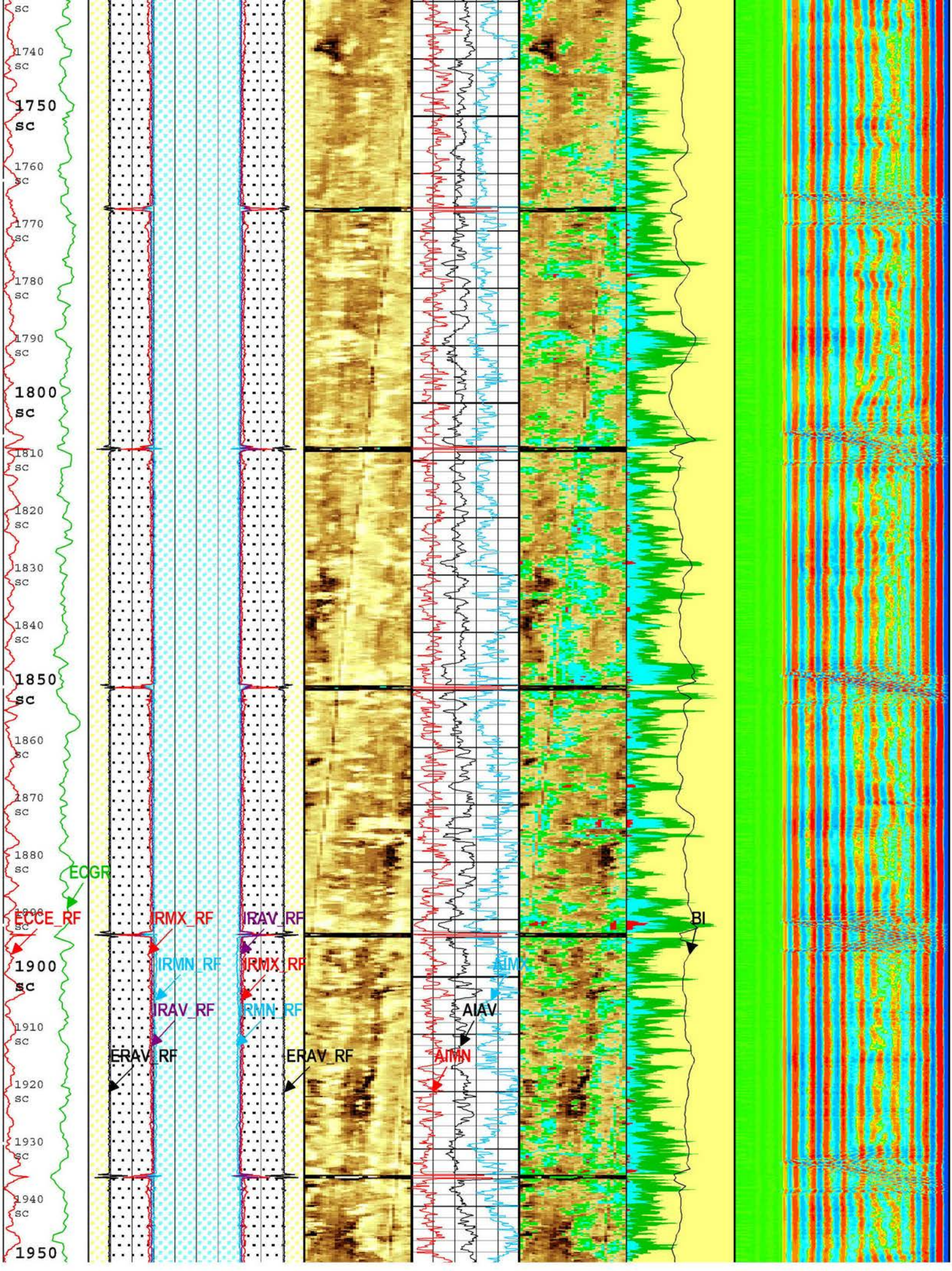
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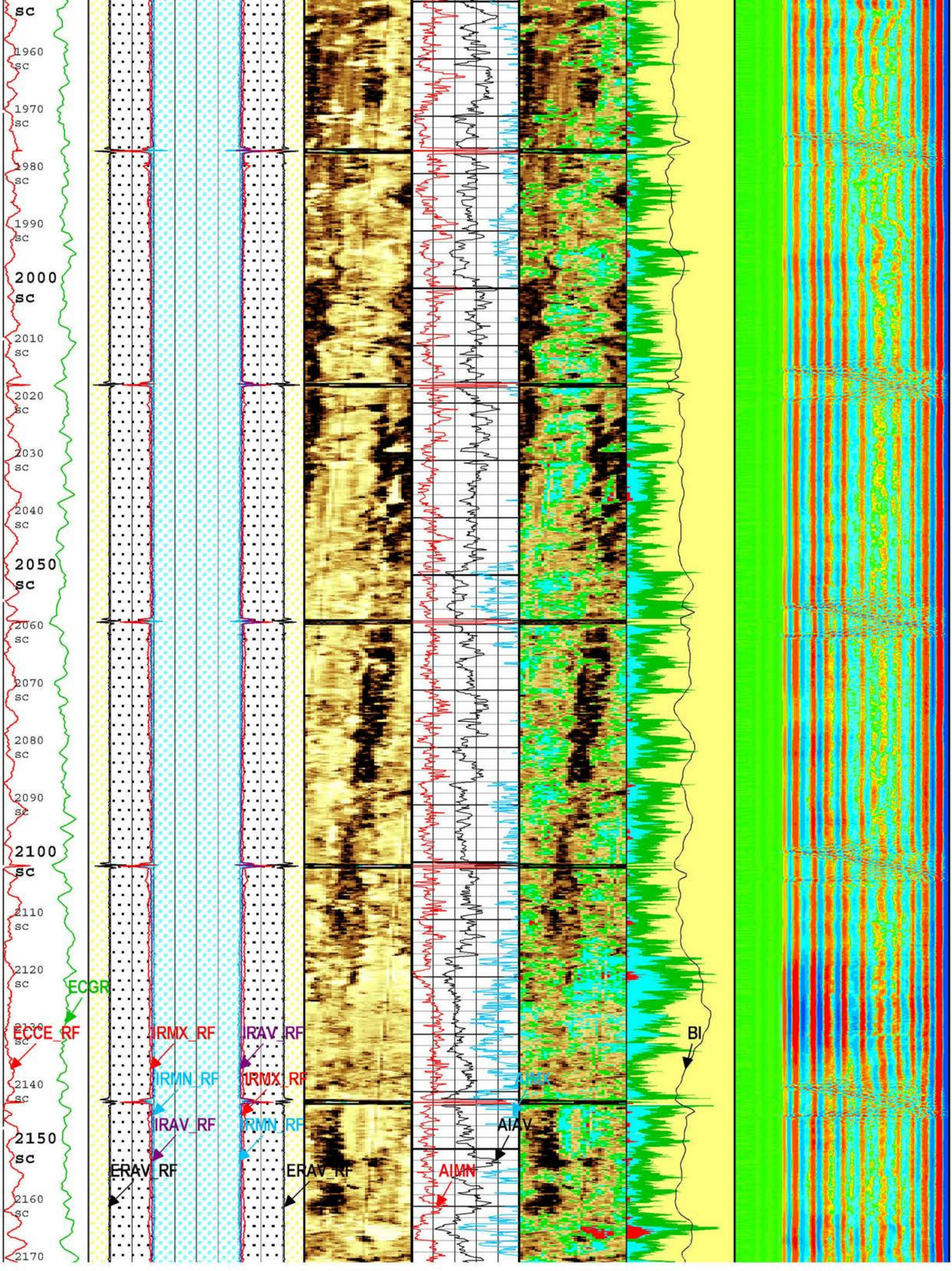
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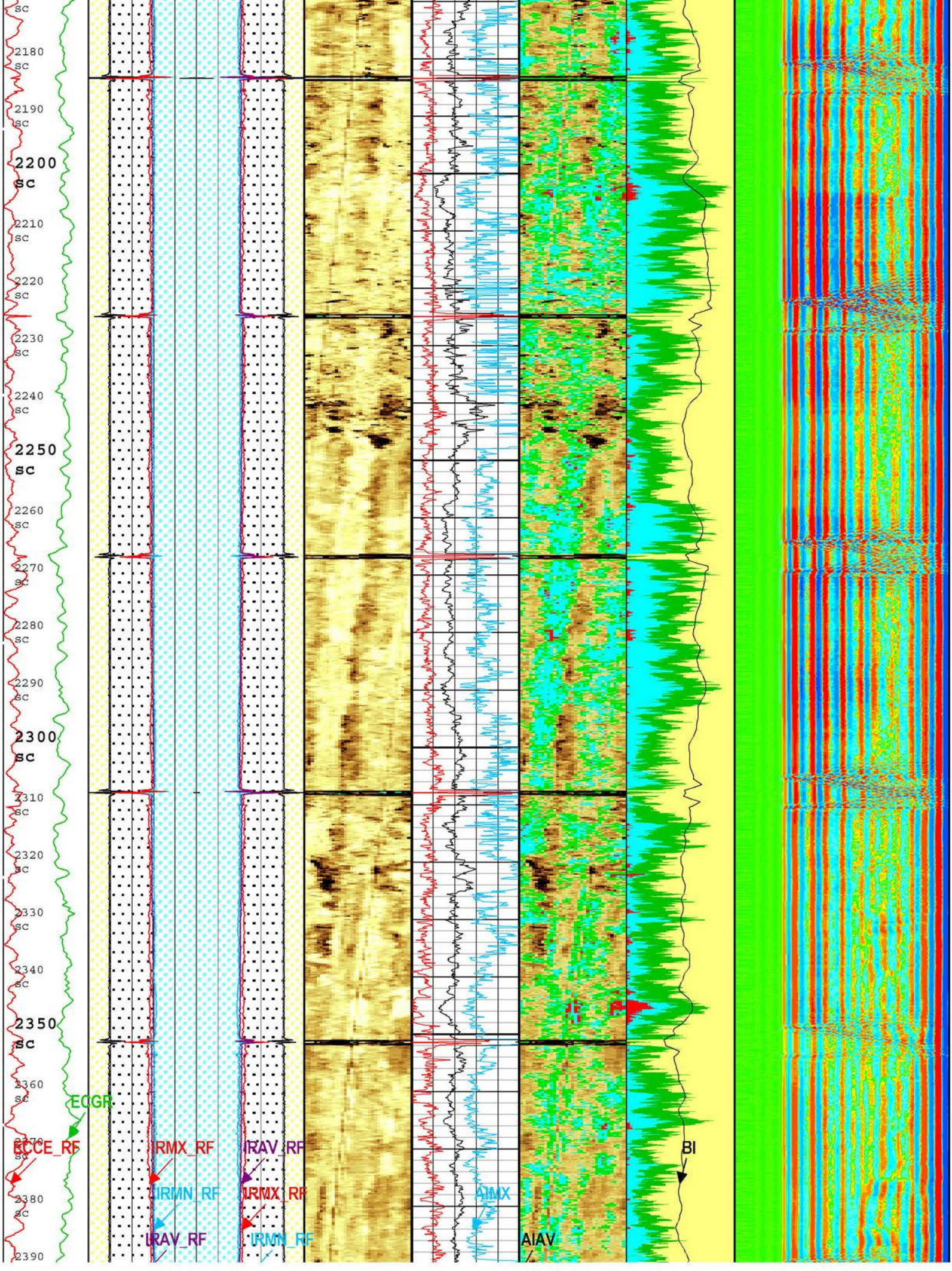
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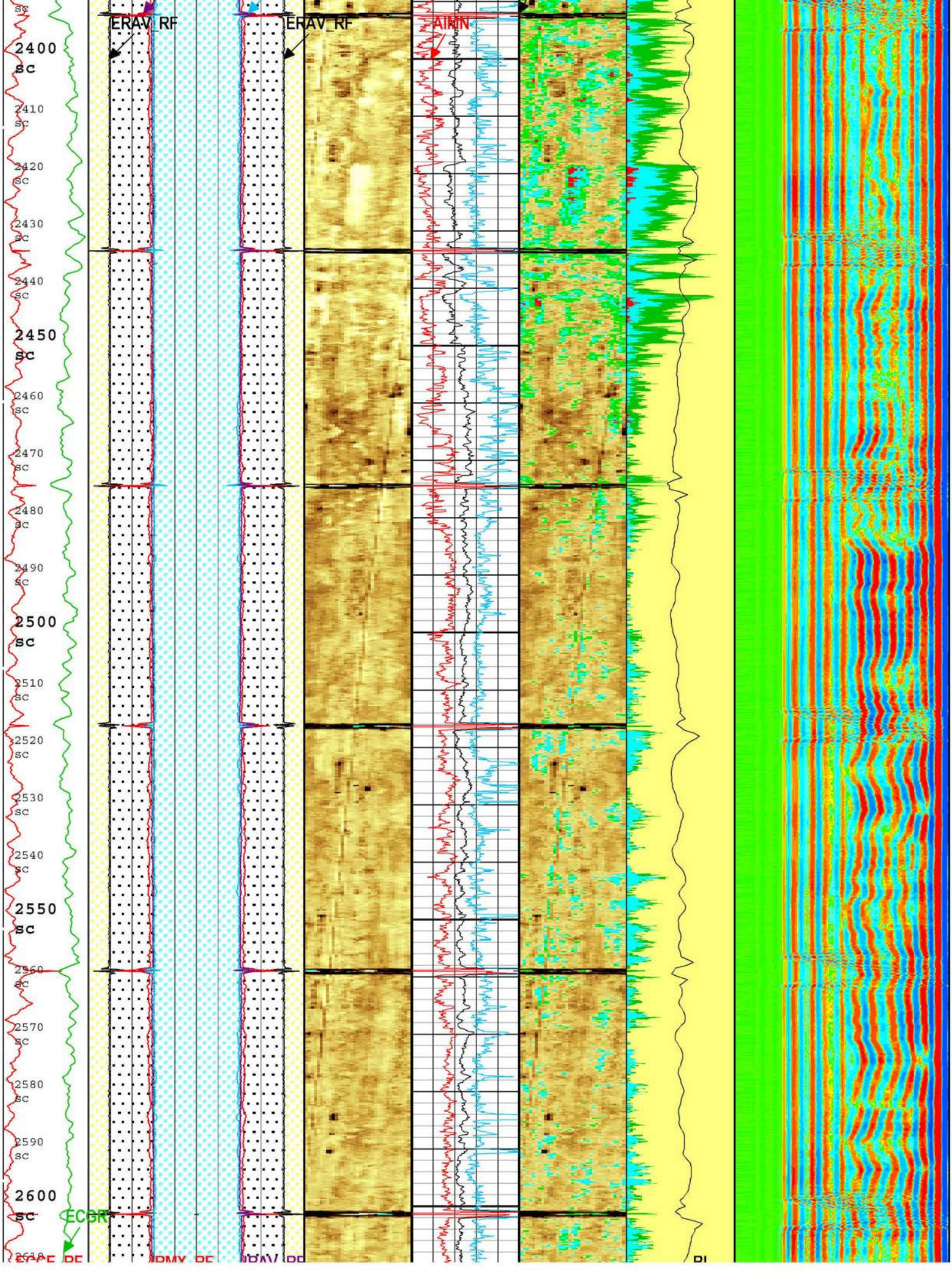
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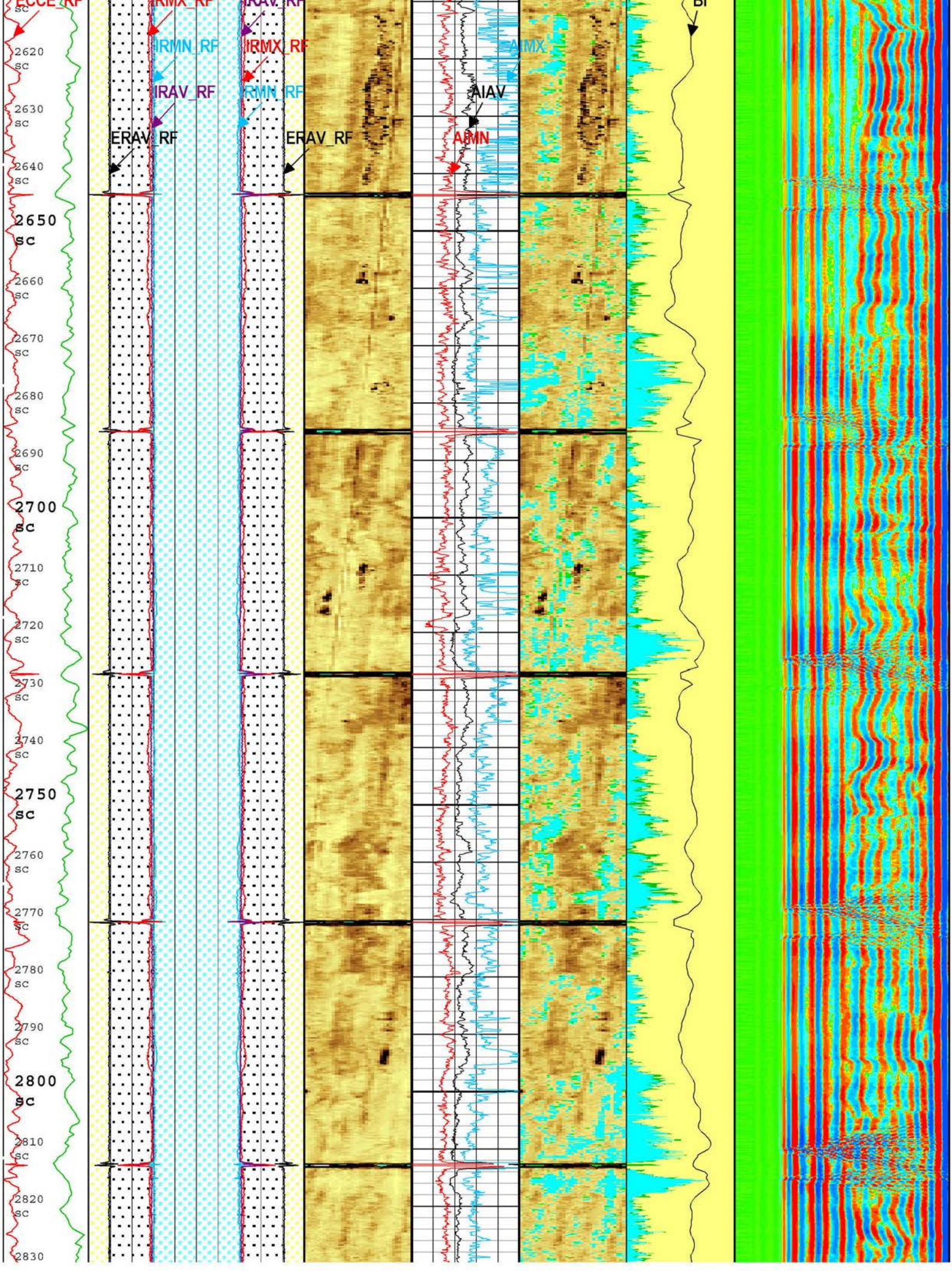
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2660 sc
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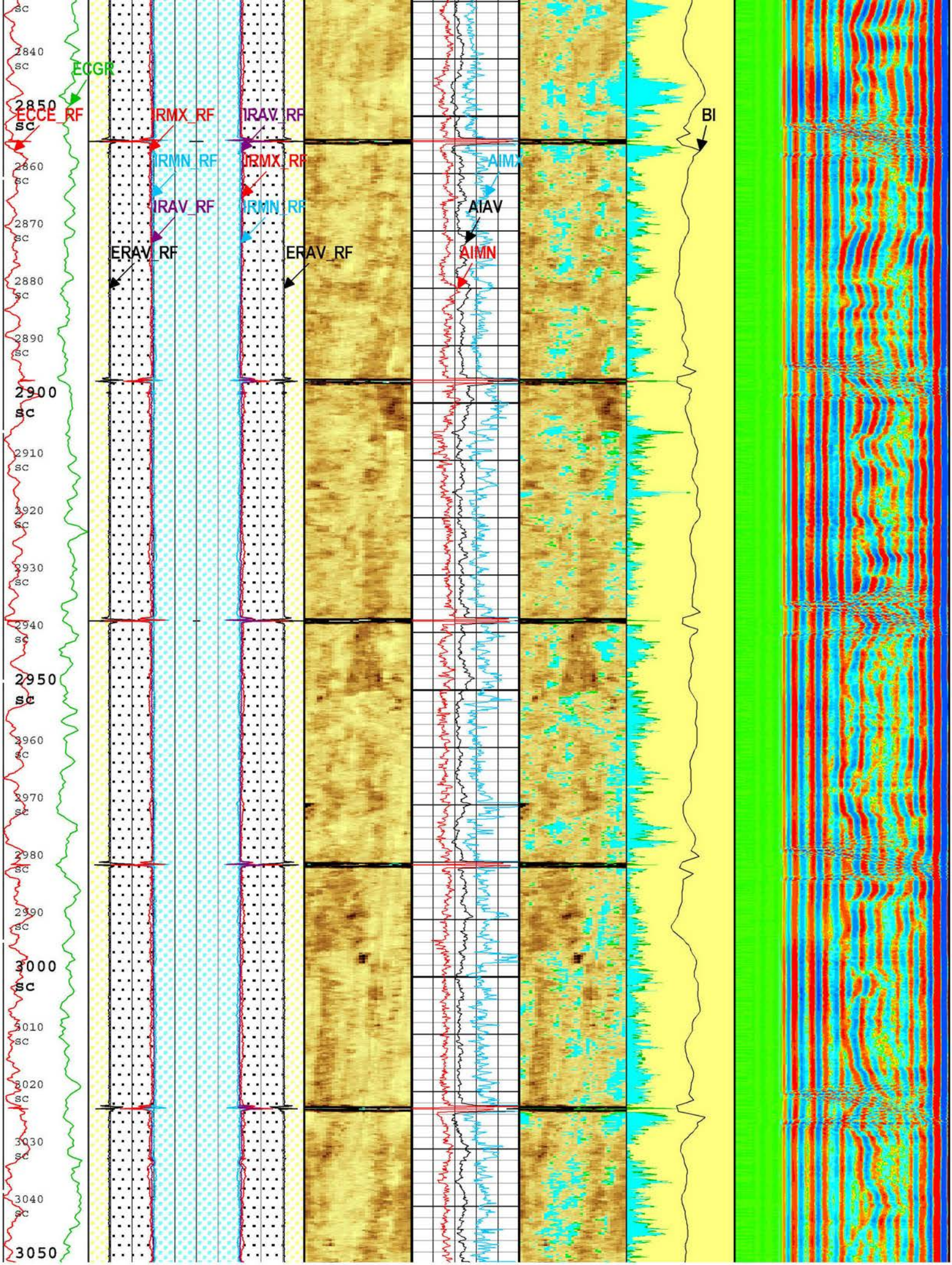
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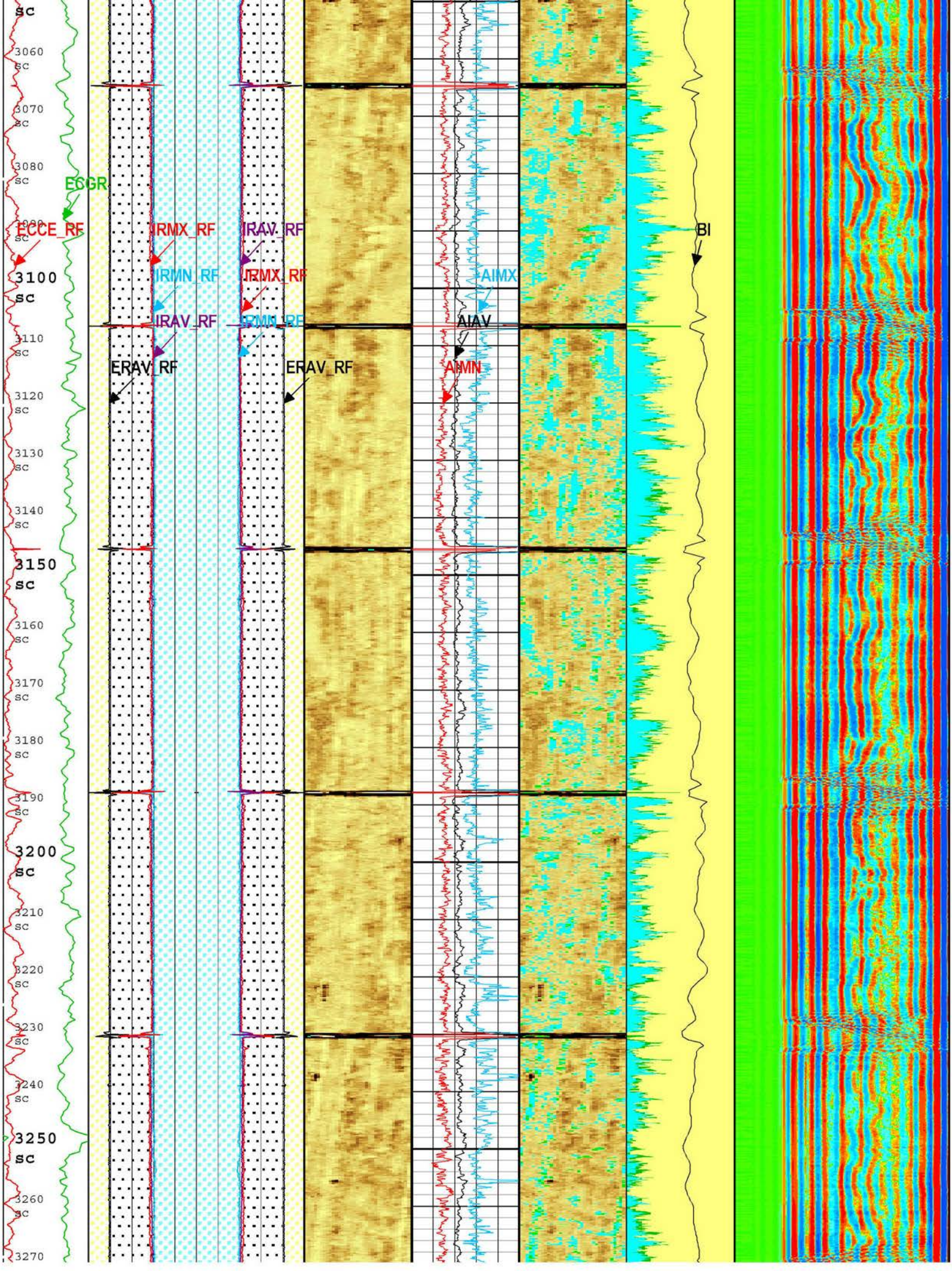
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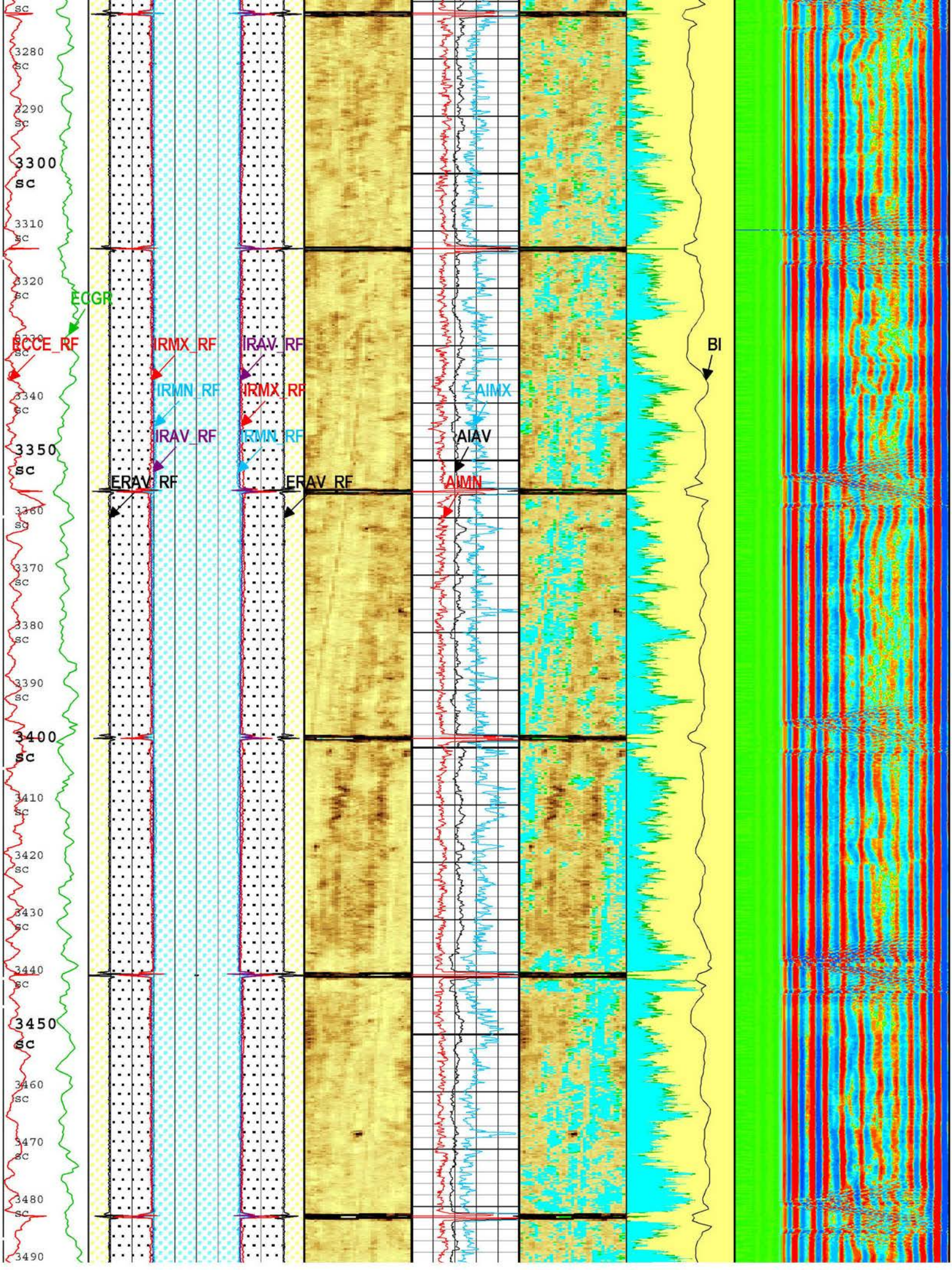
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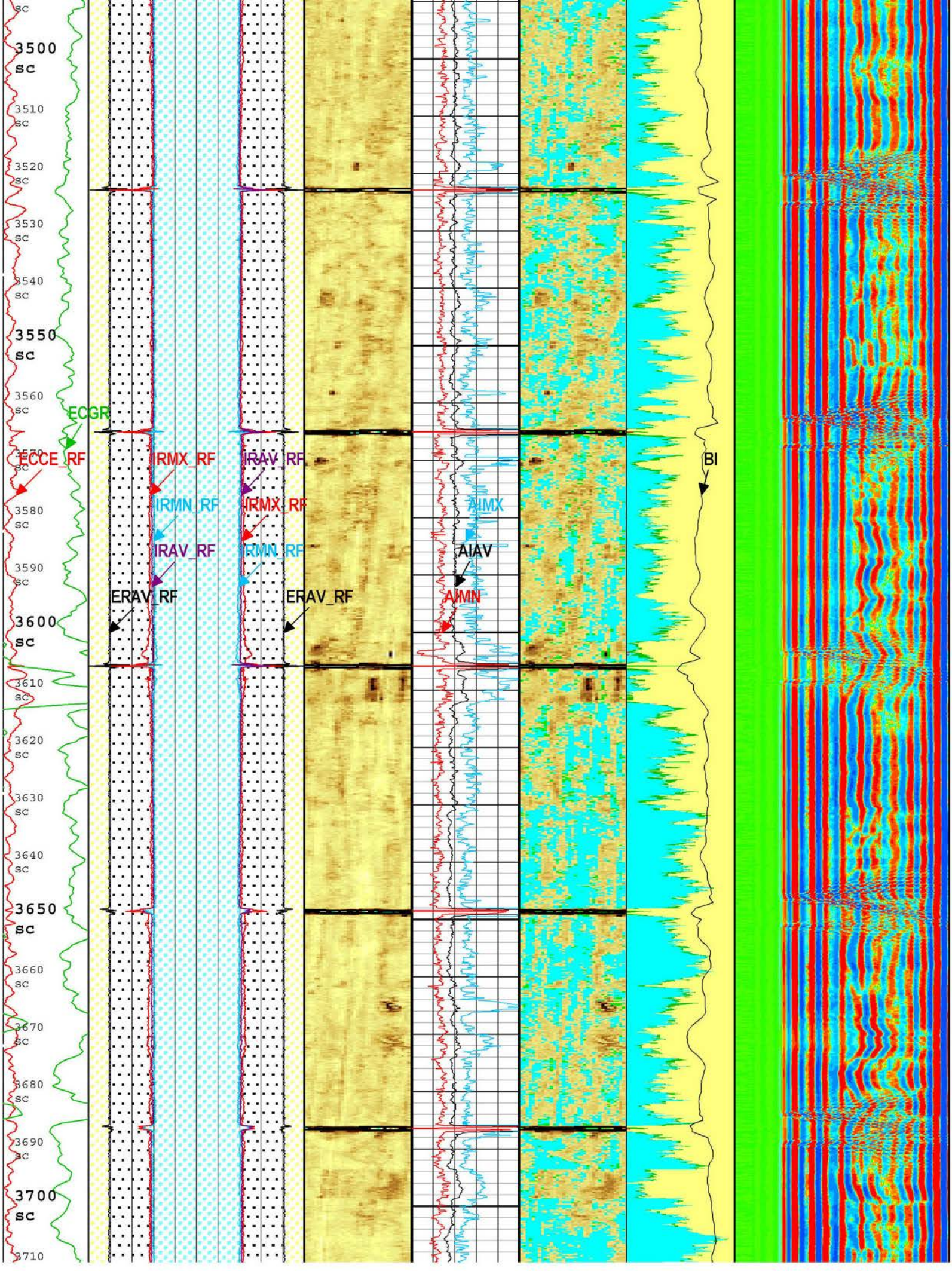
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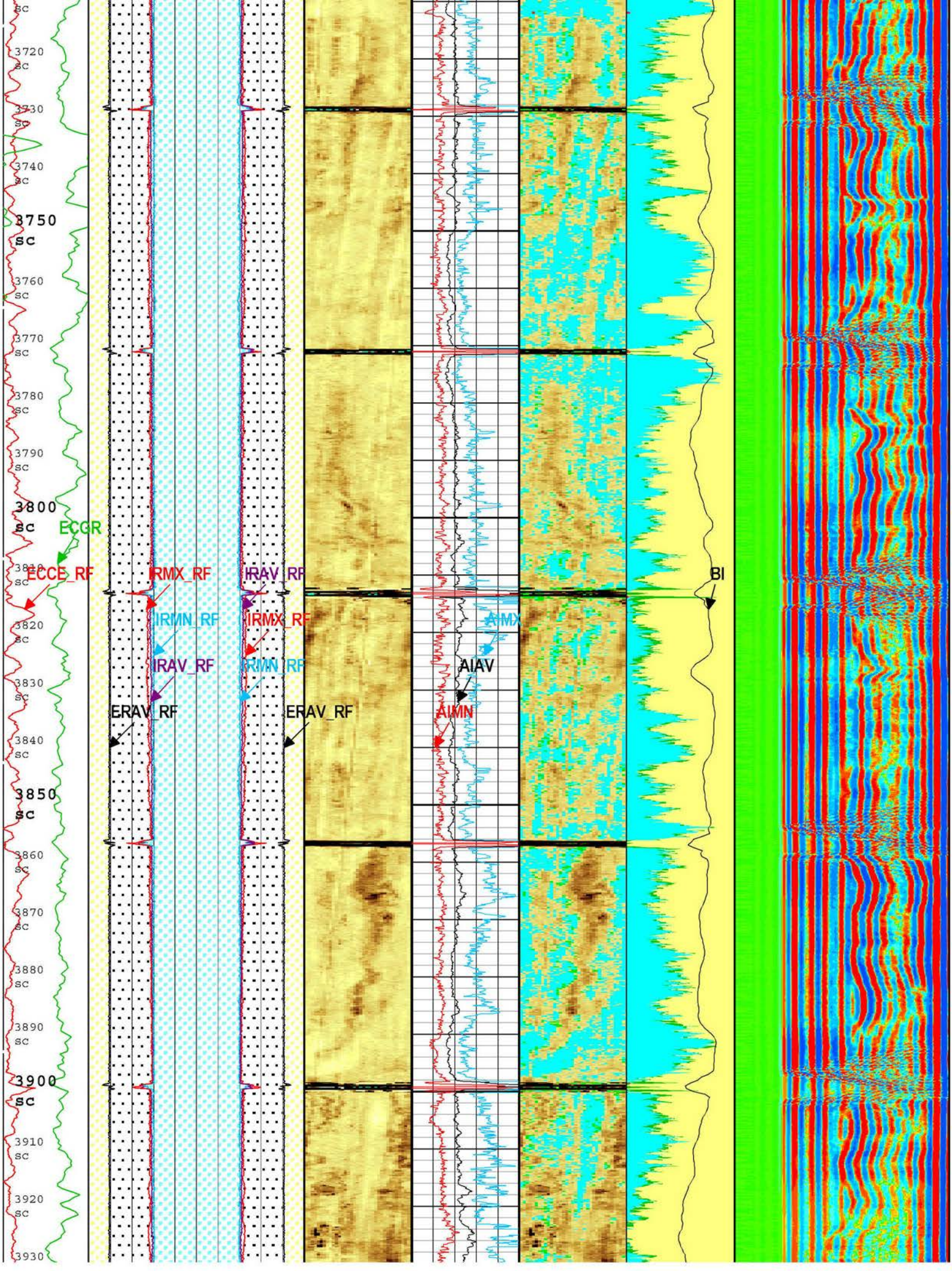
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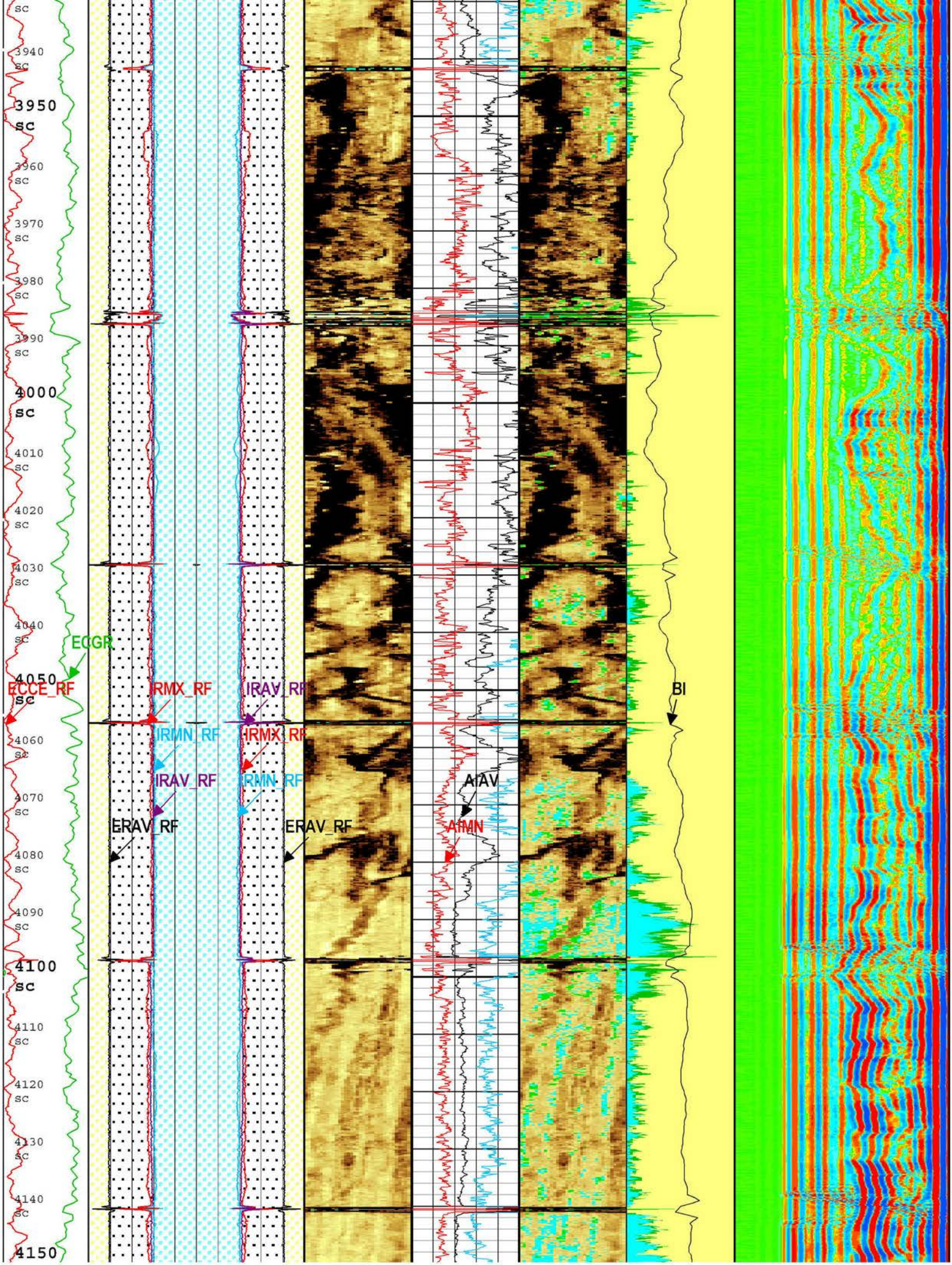
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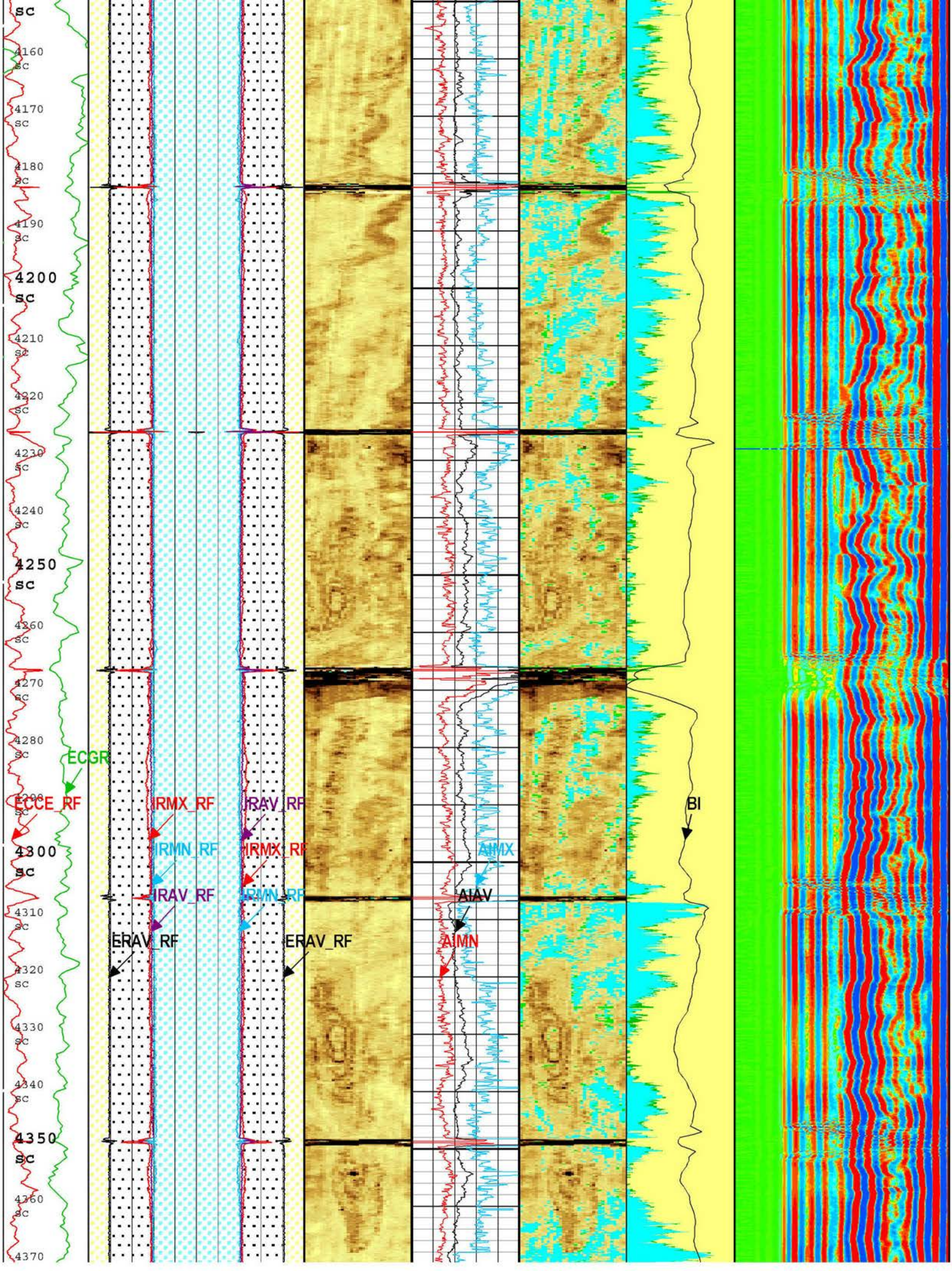
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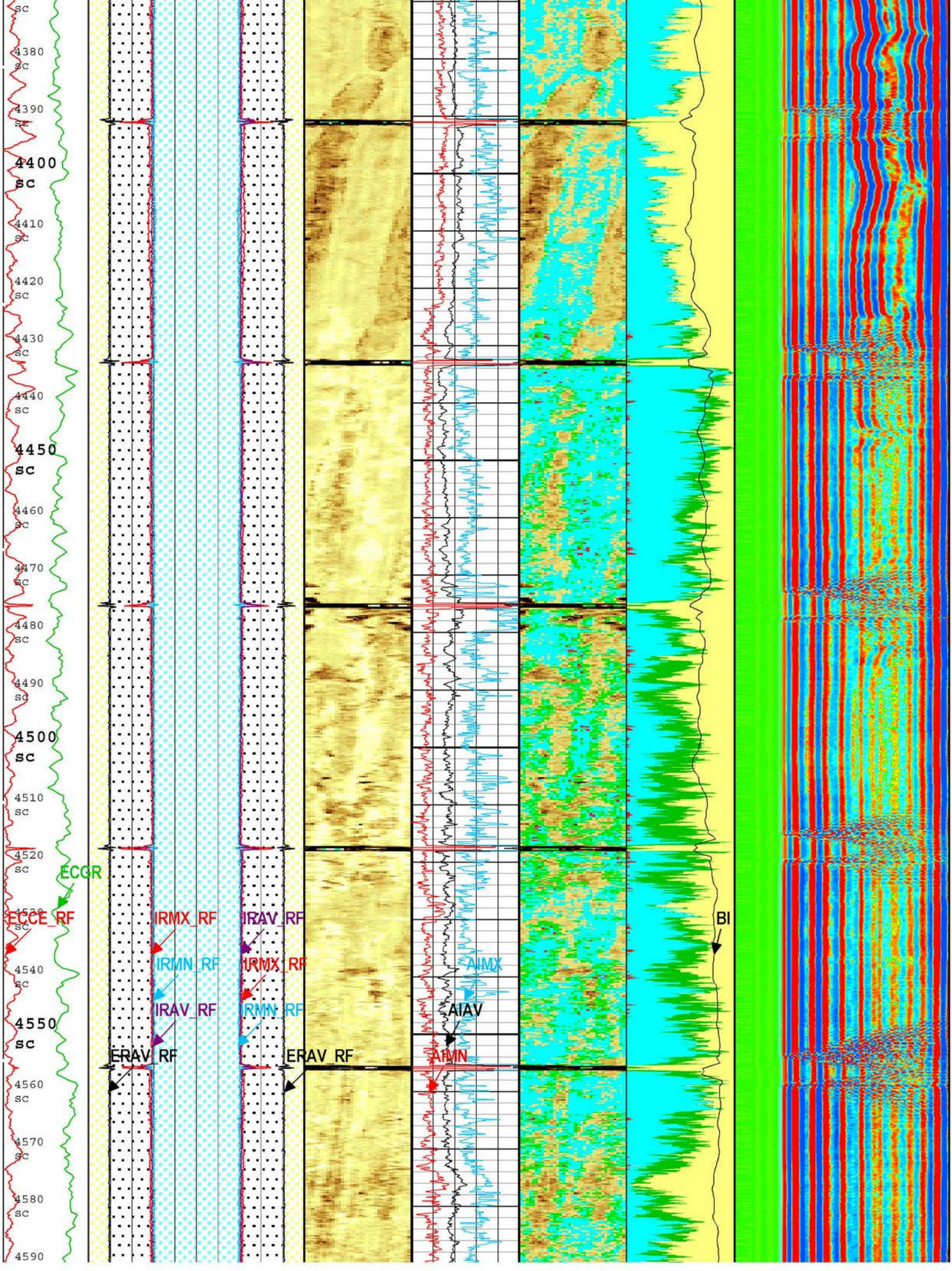
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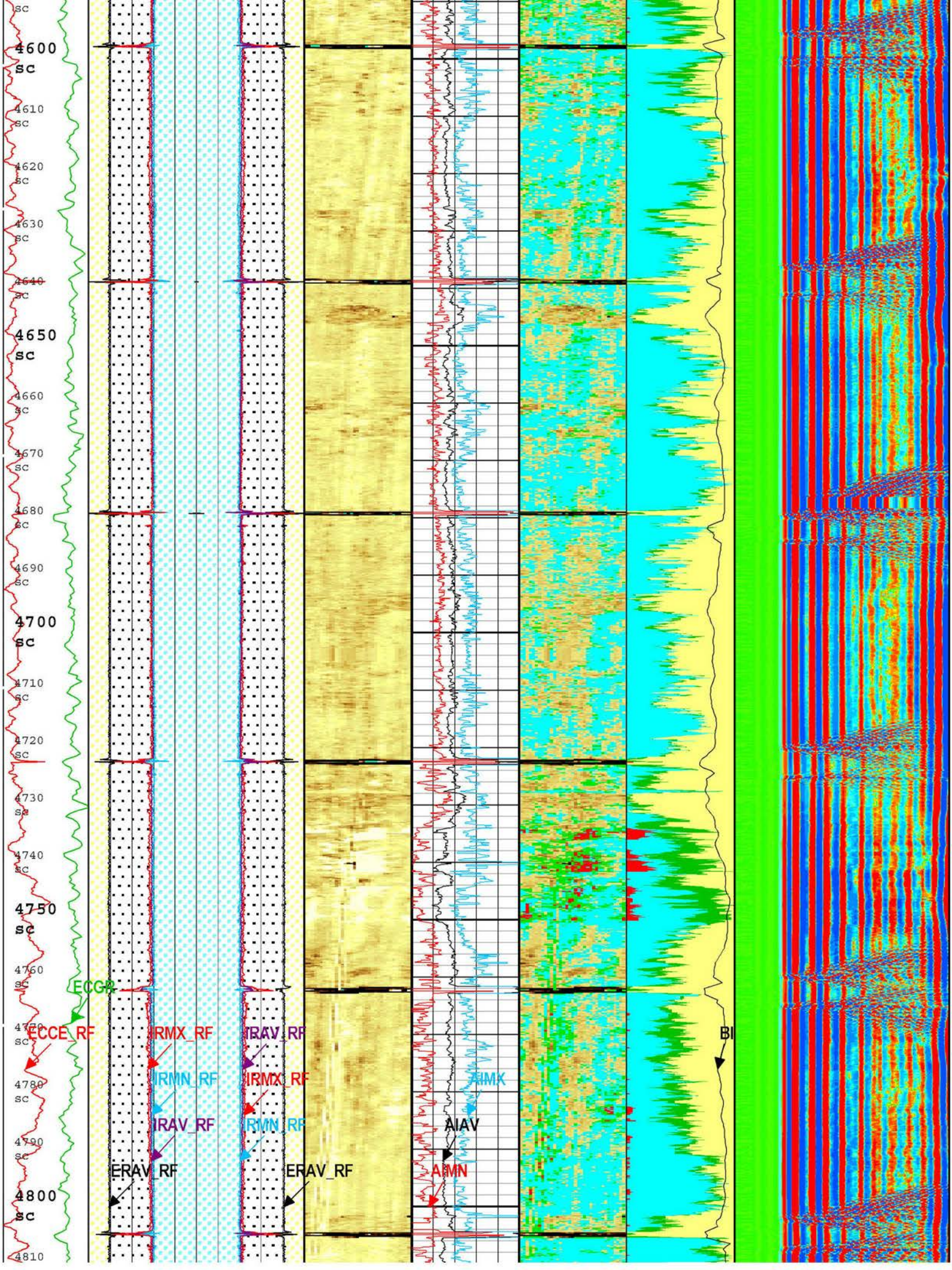
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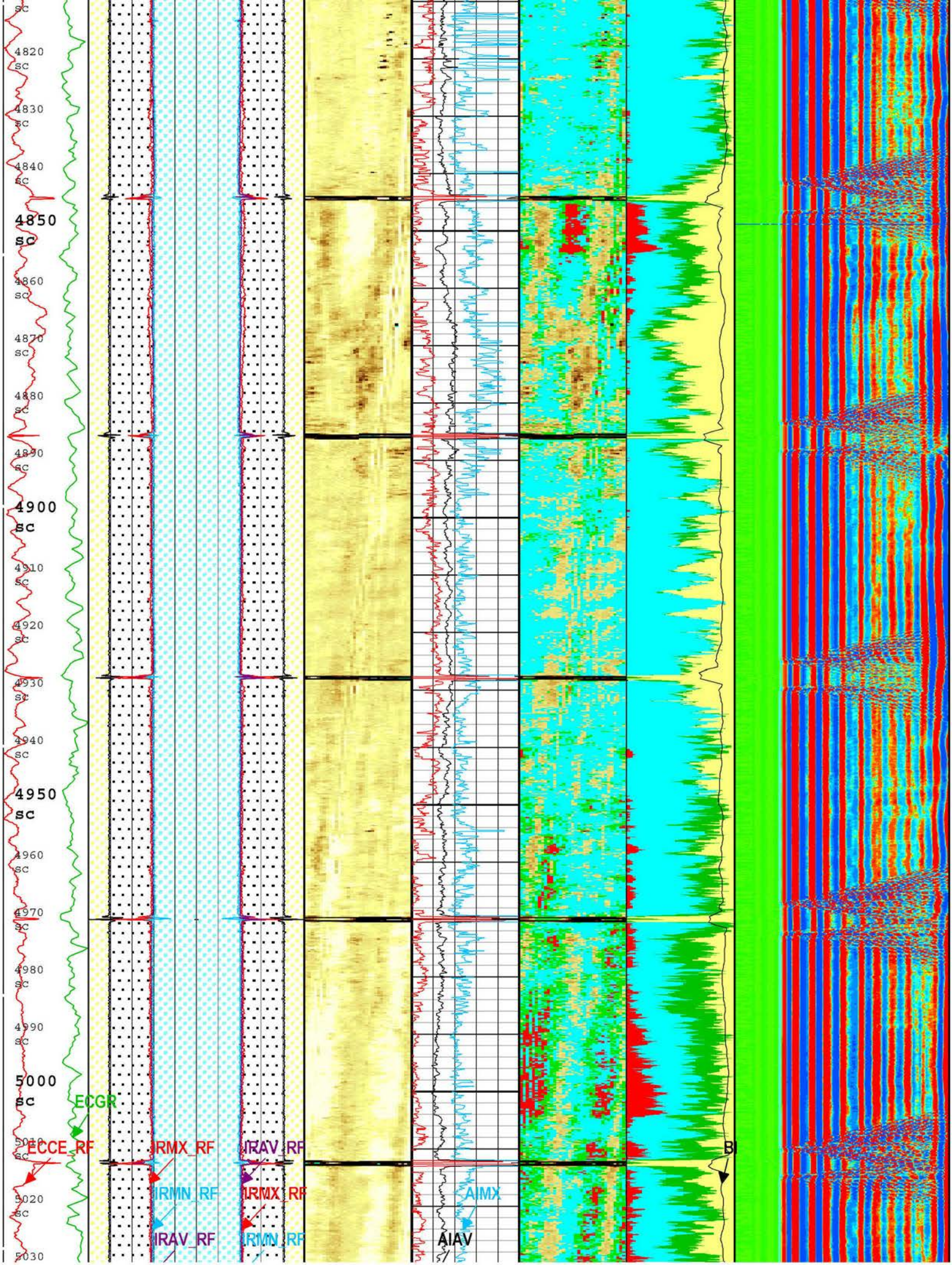
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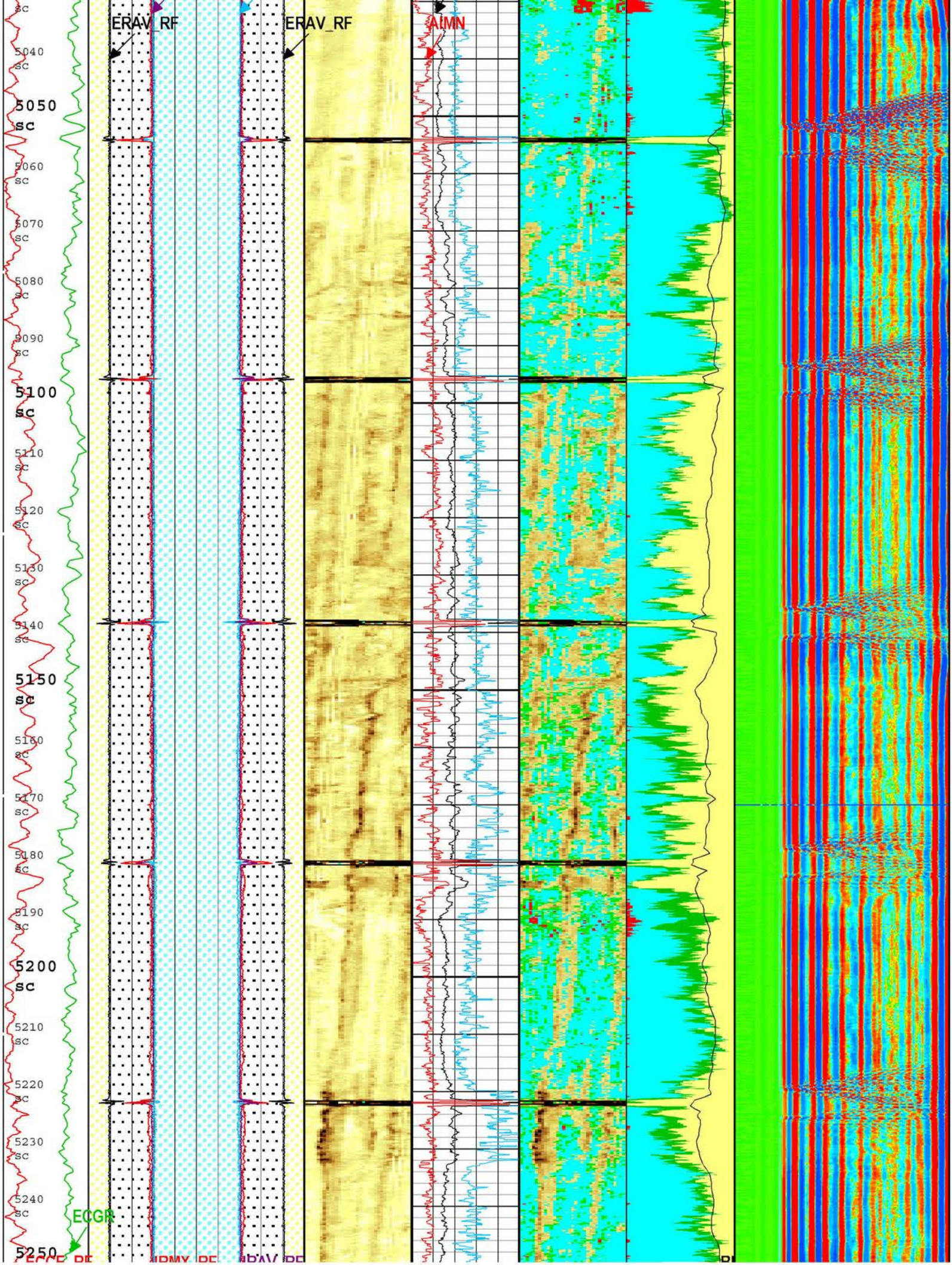
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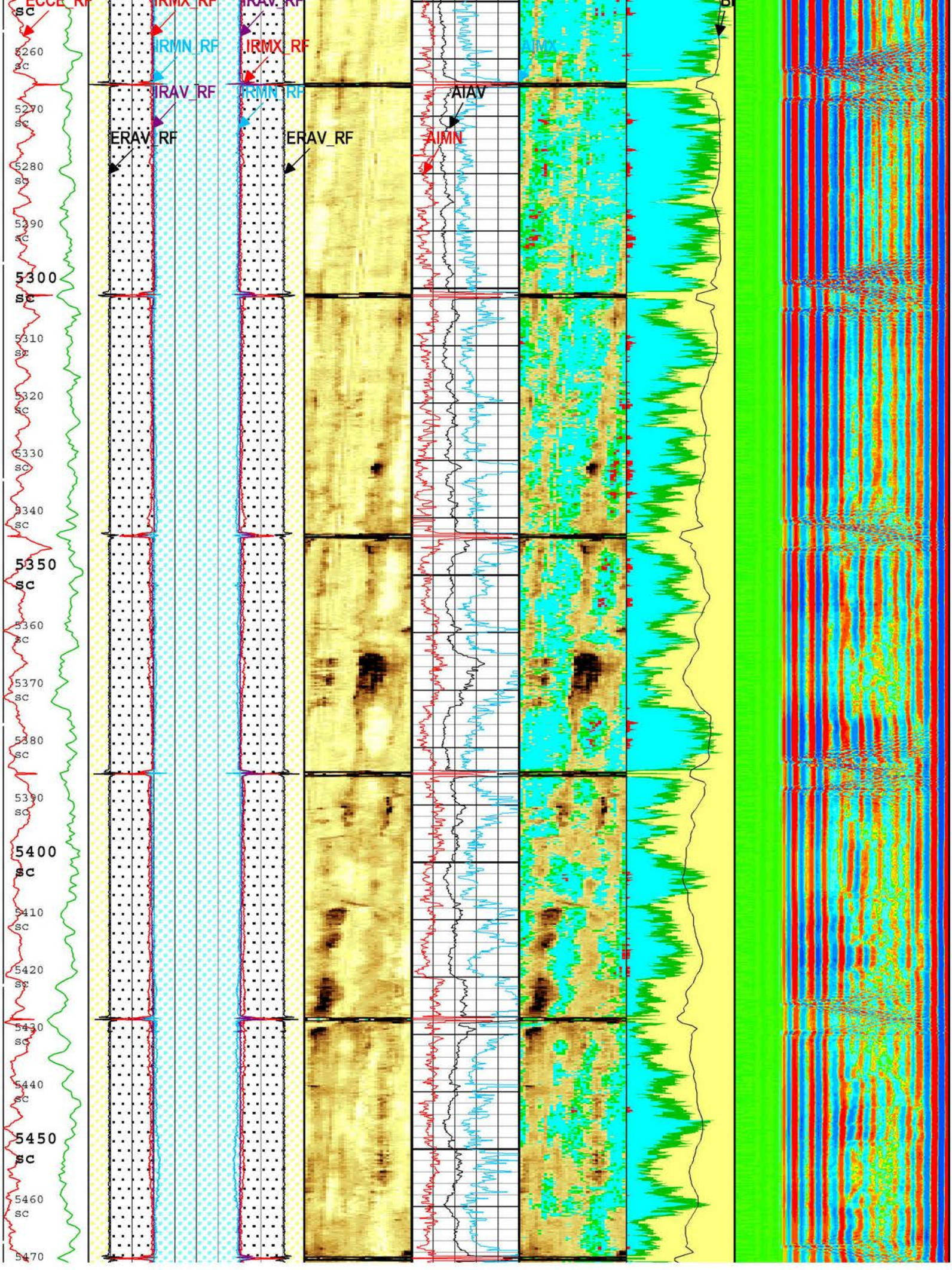
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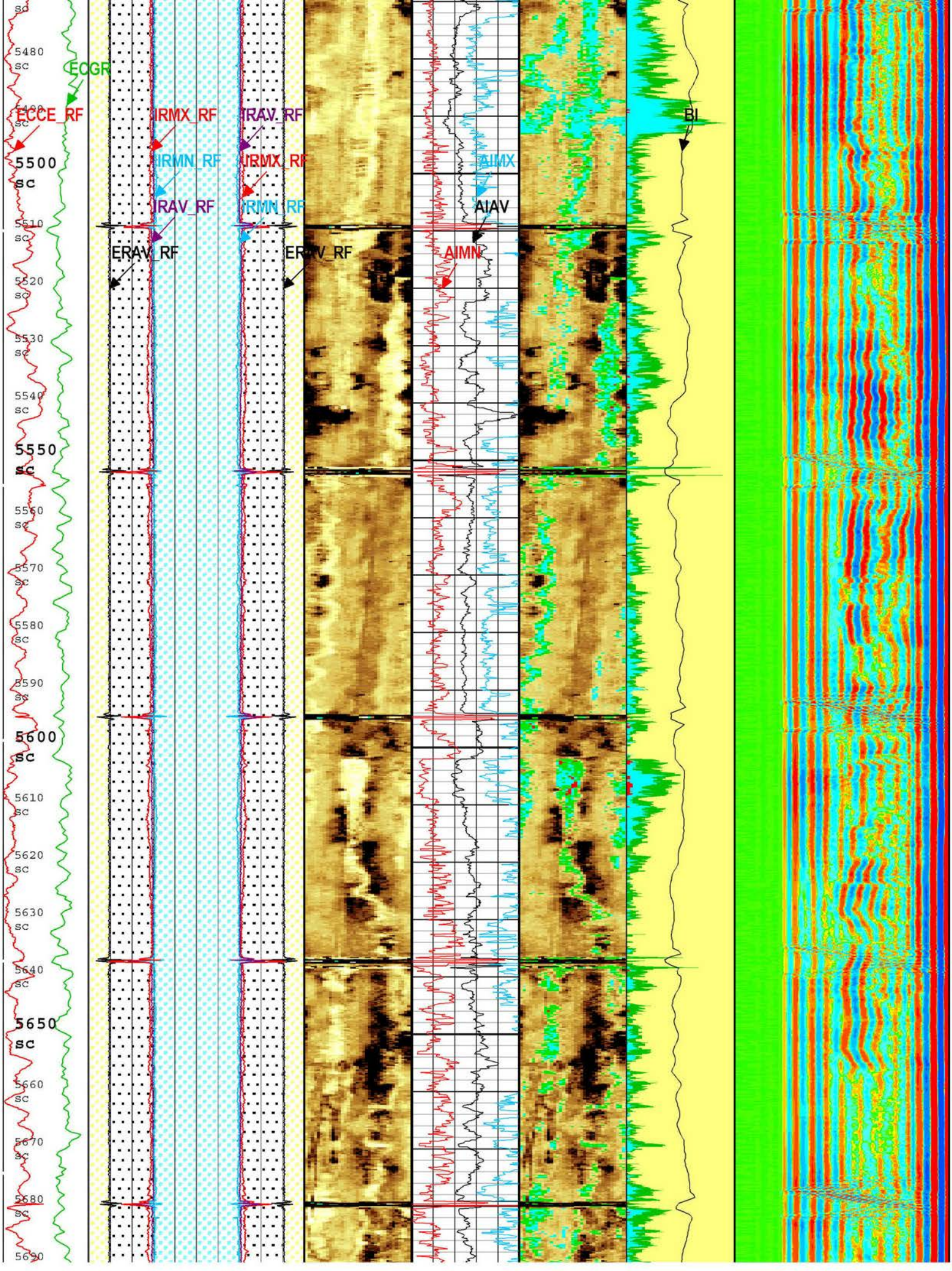
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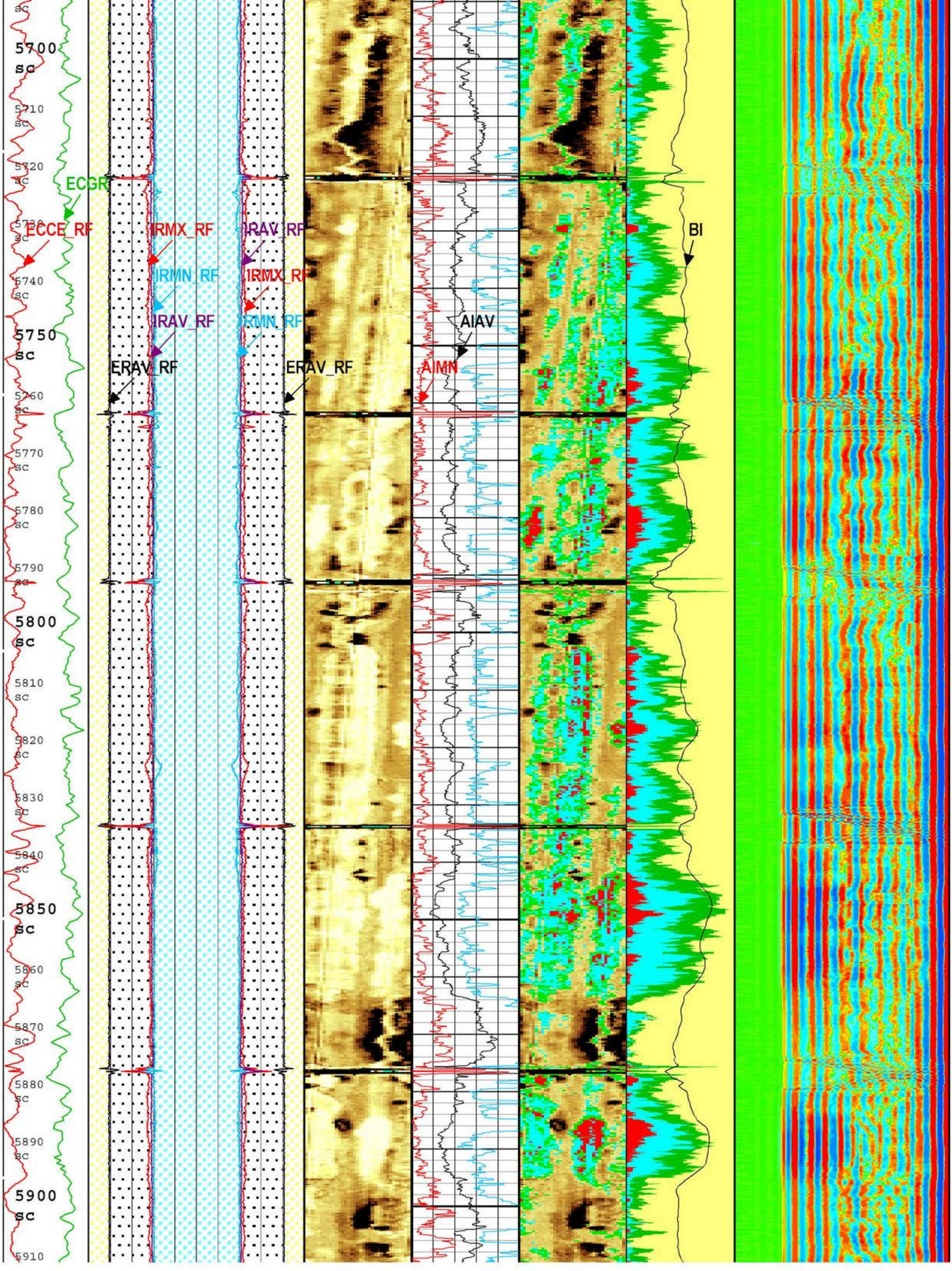
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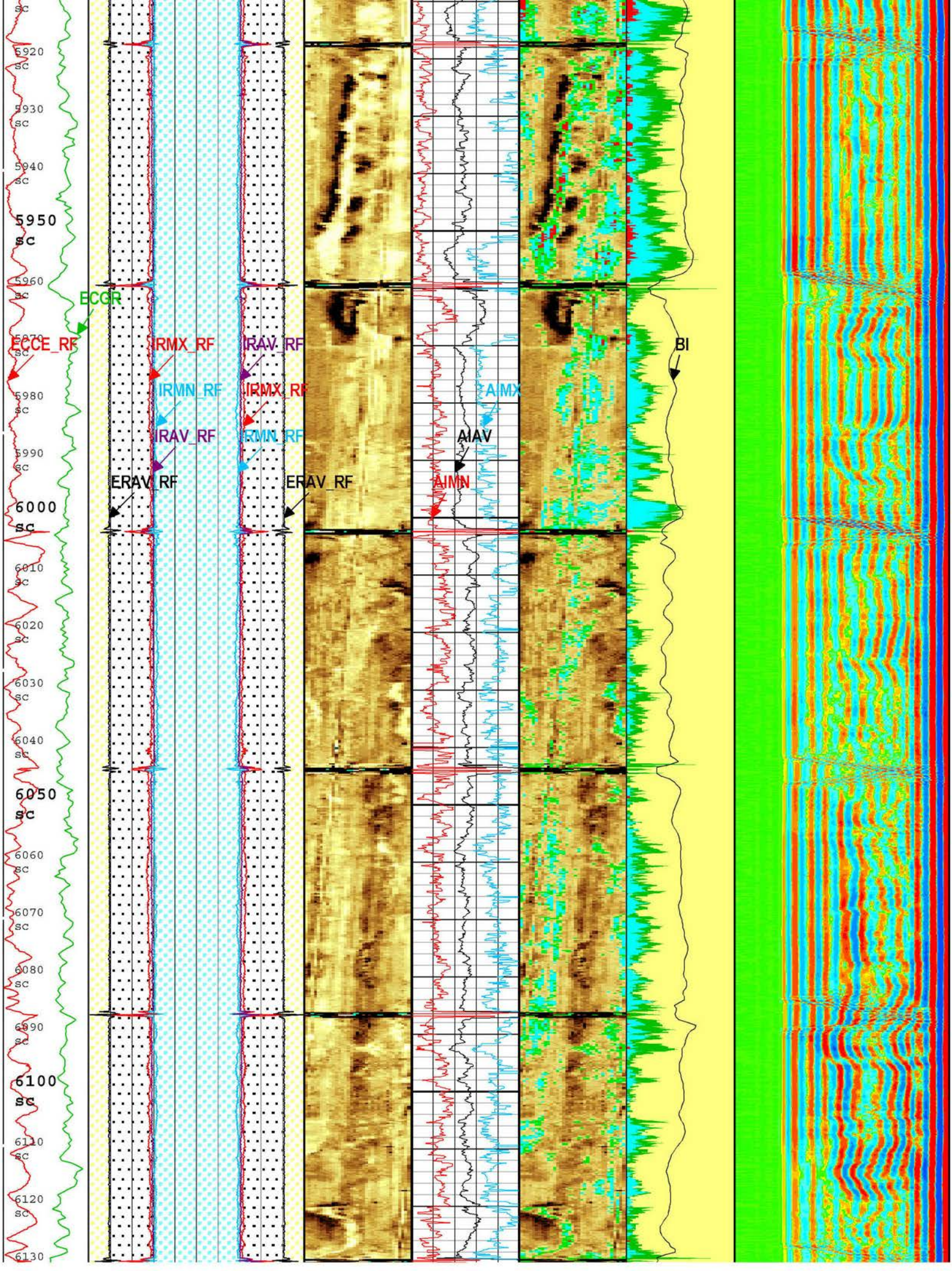
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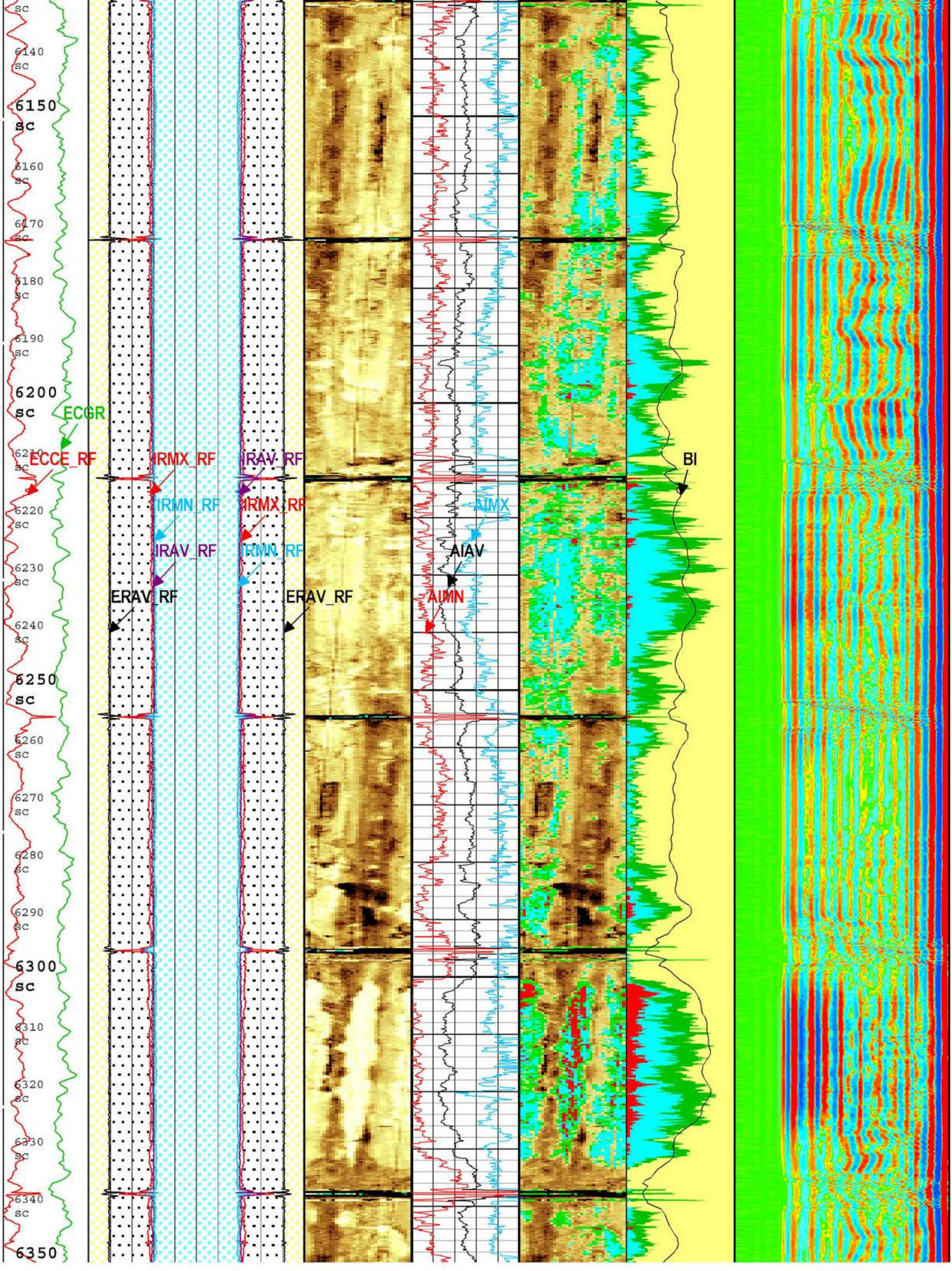
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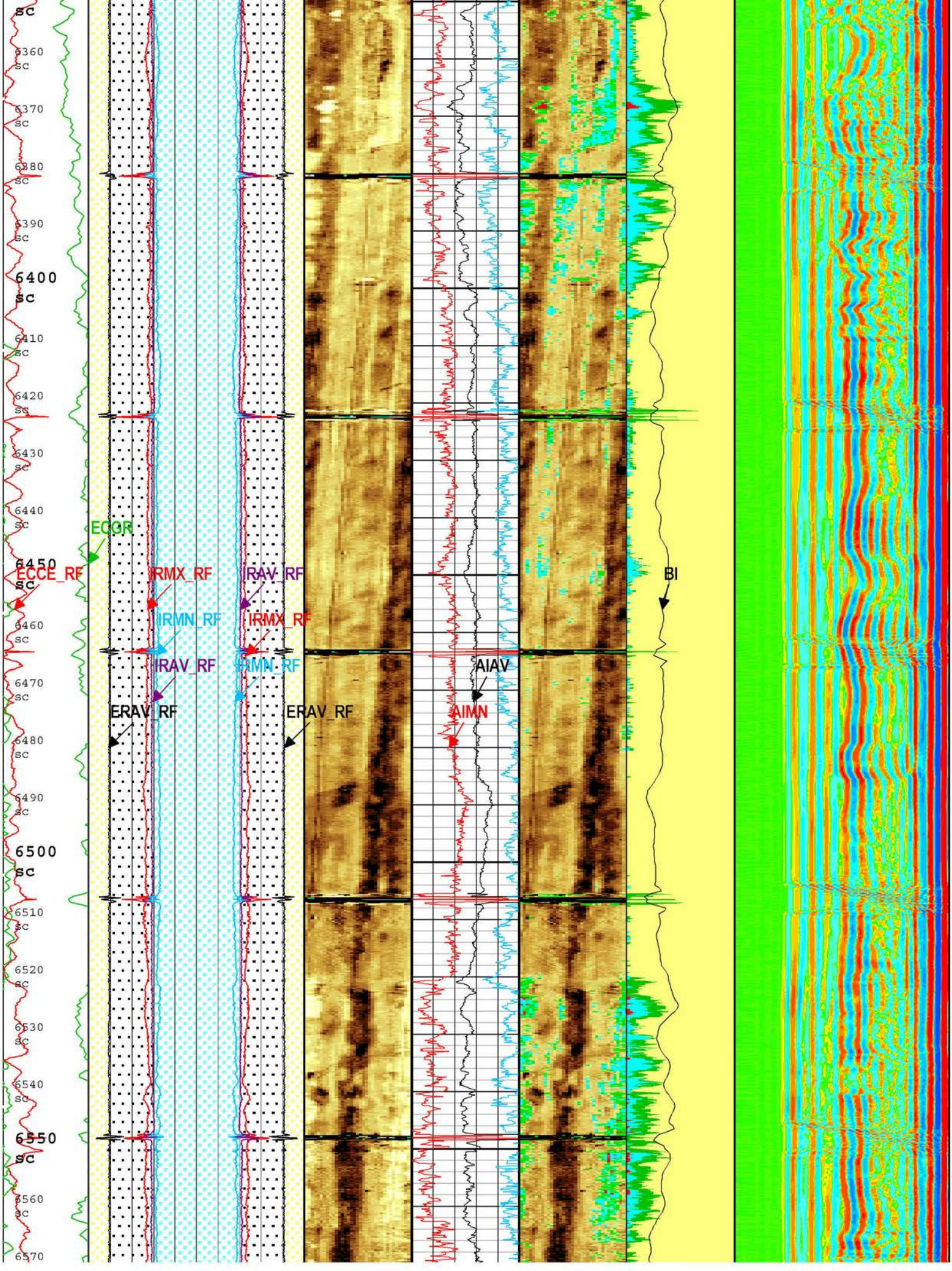
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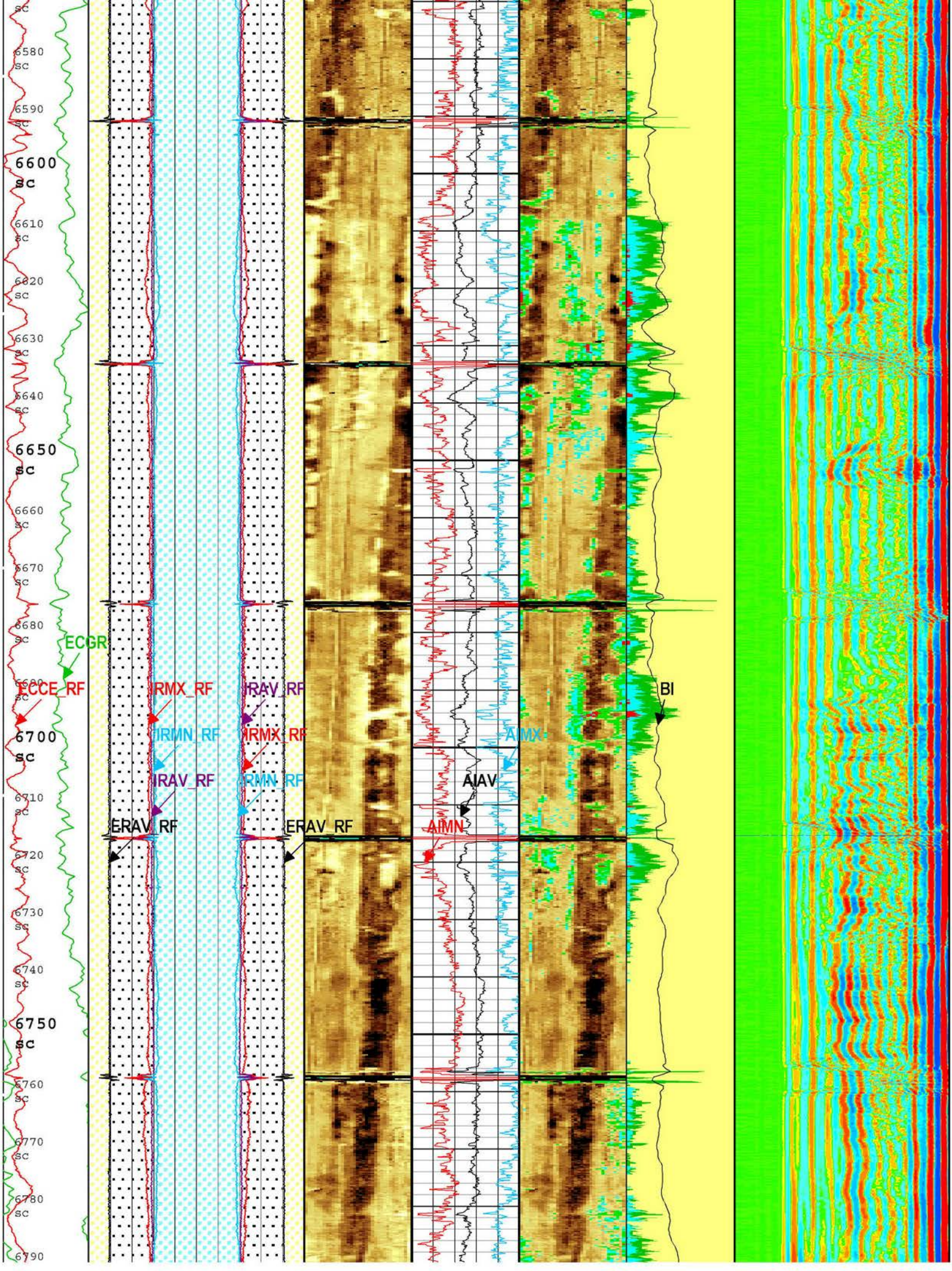
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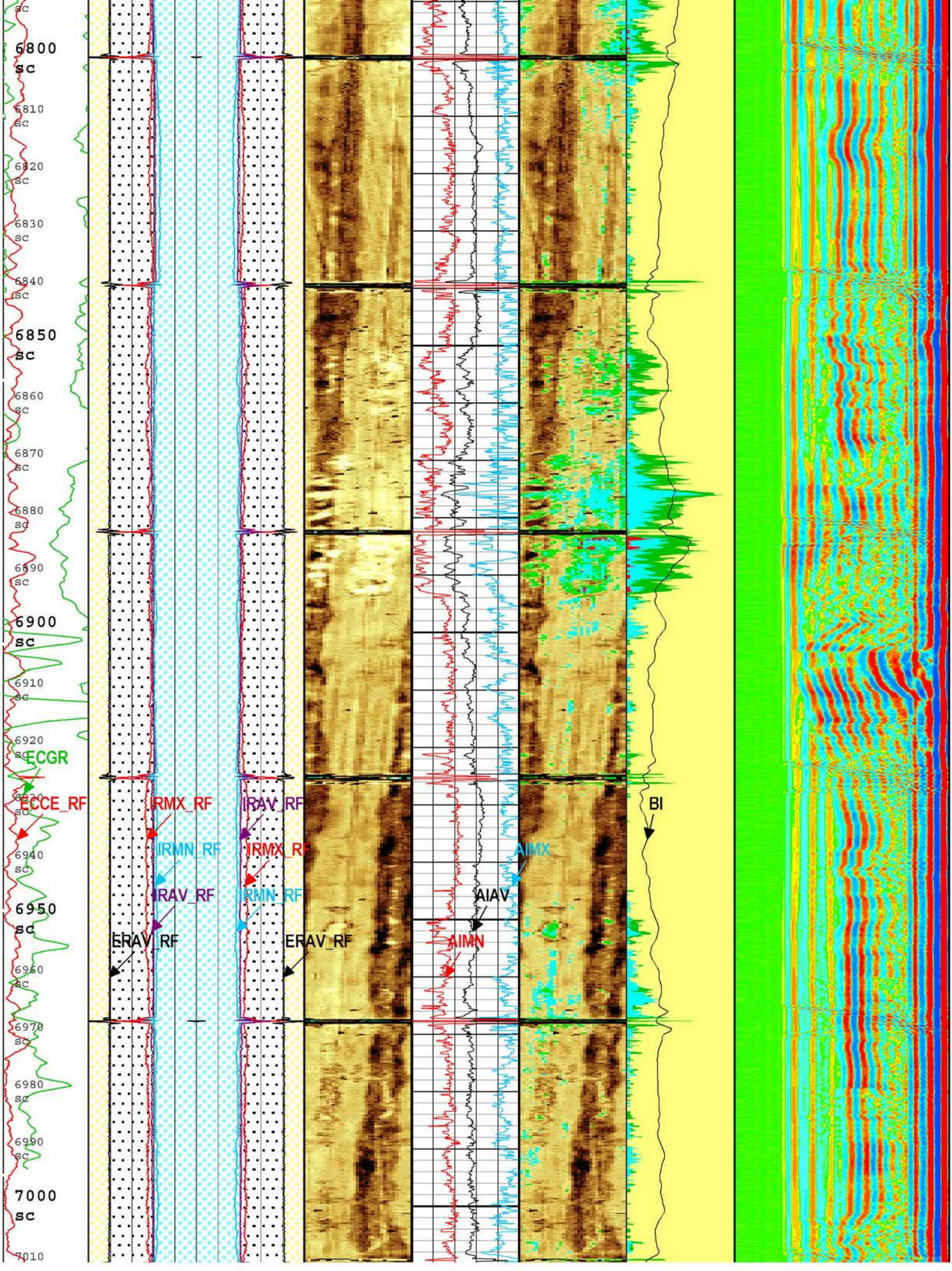
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IRMN_RF
IRMX_RF
IRAV_RF
IRMN_RF
ERAV_RF
ERAV_RF
AIMX
AIAV
AIMN
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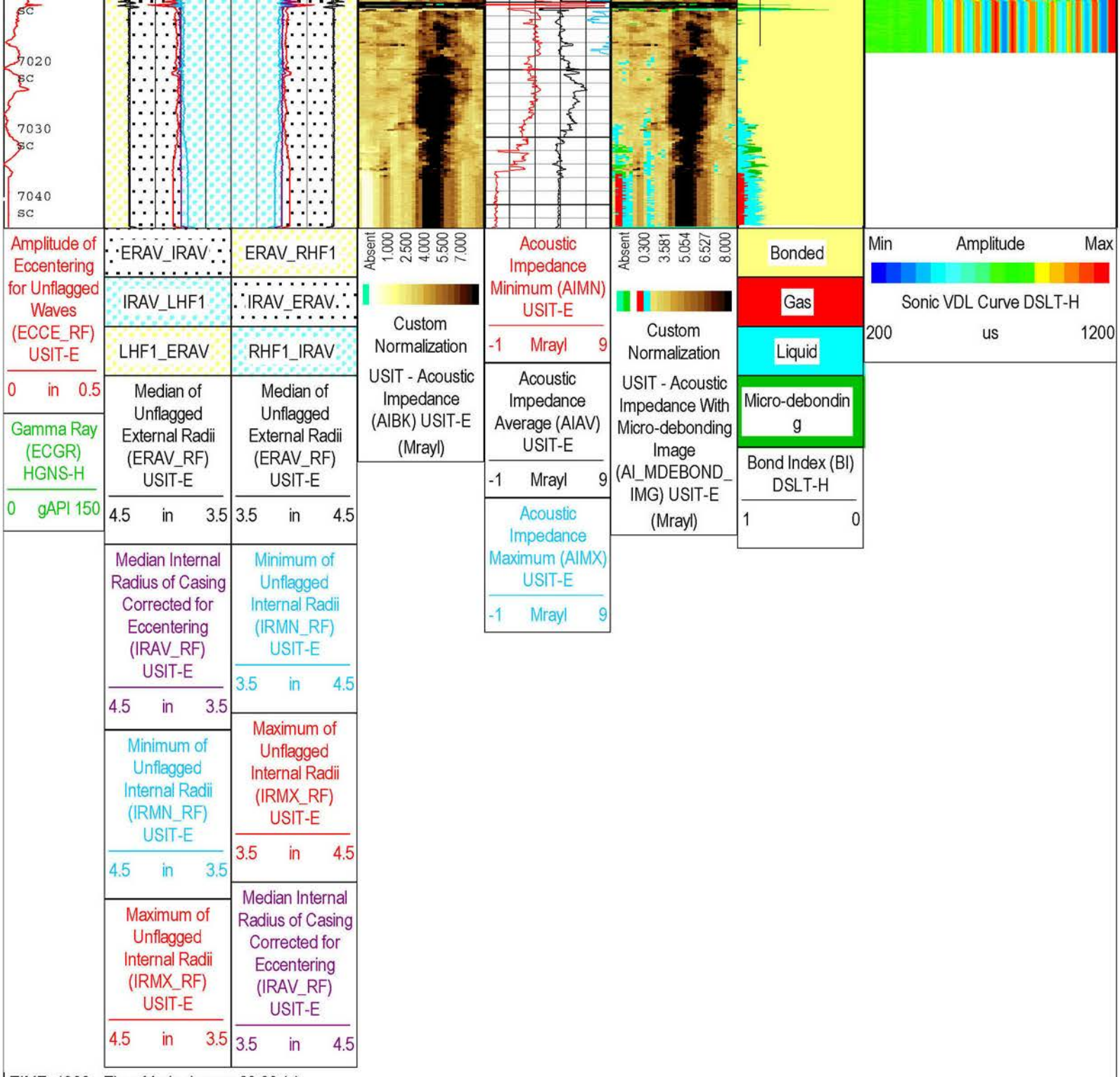


TIME_1900 - Time Marked every 60.00 (s)

Description: USI VDL Cement Format: Log (LBV1_USI-VDL (DSLT) Cement 7inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth
Creation Date: 17-Jul-2017 14:11:00

Channel Processing Parameters

One: Parameters

Parameter	Description	Tool	Value	Unit
AMSG	Auxiliary Minimum Sliding Gate	DSLT-H	140	us
ISSBAR	Barite Mud Presence Flag	Borehole	No	
BERJ	Bad Echo Rejection	USIT-E	On	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BILI	Bond Index Level for Zone Isolation	DSLT-H	0.8	
BS	Bit Size	WLSESSION	Depth Zoned	in
CASING_PRATIO	Casing Poisson Ratio	USIT-E	Standard Poisson Ratio	
CBLG	CBL Gate Width	DSLT-H	45	us

CBLG	CBL Gate Width	DSLT-H	45	us
CBLO	Casing Bottom (Logger)	WLSESSION	7331	ft
CBRA	CBL LQC Reference Amplitude in Free Pipe	DSLT-H	55	mV
CDEN	Cement Density	HGNS-H	2.65	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	0.4	in
DETE	Delta-T Detection	DSLT-H	E1	
DFD	Drilling Fluid Density	Borehole	8.9	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	193	us/ft
FCF	CBL Fluid Compensation Factor	DSLT-H	0.89	
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	3.39	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	10.78	dB/ft
MCI	Minimum Cemented Interval for Isolation	DSLT-H	Depth Zoned	ft
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-E	24.96	us
MNHTR	Minimum High Threshold Reference for first arrival detection	DSLT-H	100	
MSA	Minimum Sonic Amplitude	DSLT-H	1.69	mV
MSA_CURR	Minimum Sonic Amplitude in Arbitrary Cement	DSLT-H	1.69	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	310	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	1.181	in
RCTH	Reference Calibrator Thickness	USIT-E	0.295	in
SDNV	Number of Vertical Samples used for Micro-debonding Computation	USIT-E	5	
SDTHOR	Acoustic Impedance STD Horizontal Threshold for Micro-debonding	USIT-E	0.5	Mrayl
SDTVER	Acoustic Impedance STD Vertical Threshold for Micro-debonding	USIT-E	0.3	Mrayl
SFAF	Sonic Formation Attenuation Factor	DSLT-H	3.25	dB/ft
SGAD	Sliding Gate Status	DSLT-H	Off	
SGCL	Sliding Gate Closing Delta-T	DSLT-H	130	us/ft
SGCW	Sliding Gate Closing Width	DSLT-H	25	us
SGDT	Sliding Gate Delta-T	DSLT-H	57	us/ft
SGW	Sliding Gate Width	DSLT-H	110	us
SLEV	Signal Level for AGC	DSLT-H	5000	mV
SOCN	Standoff Distance	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	65	%
HISC	Tool Position: Centered or Eccentered	HGNS-H	Centered	
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	0	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	1.68	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-E	2.6	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

Depth Zone Parameters

Parameter	Value	Start (ft)	Stop (ft)
BS	17.5	10	832
BS	11	832	7043.5
MCI	21.68	10	830
MCI	12.98	830	7043.5

All depth are actual.

Tool Control Parameters

One: Parameters

Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	48	dB
DDEL	Digitizing Delay	DSLT-H	0	us
U-USIT_DDT5	USIC Downhole Decimation for T5 only	USIT-E	0_NONE	
DOT(DOS)	Distance between Opposite Transducer Faces	USIT-E	2.874	in
MODE	DSLT Acquisition Mode	DSLT-H	CBL	
RATE	DSLT Firing Rate	DSLT-H	15 Hz	
DTFS	DSLT Telemetry Frame Size	DSLT-H	536	
DWCO	Digitizer Word Count	DSLT-H	250	
EMXV	EMEX Voltage	USIT-E	80	V
HRES	Horizontal Resolution	USIT-E	10 deg	
MOTOR_PROTECT	Motor Protection	USIT-E	On	
SDTH	Switch Down Threshold	DSLT-H	20000	
SGAI	Selectable Acquisition Gain	DSLT-H	x1	
SUTH	Switch Up Threshold	DSLT-H	1000	
TMUC	Type of Mud	USIT-E	BRI	
UACLV_PERM	Ultrasonic ACLV Permanent	USIT-E	No	
ULOG	Logging Objective	USIT-E	MEASUREMENT	
UMFR	Modulation Frequency	USIT-E	333333	Hz
USFR	Ultrasonic Sampling Frequency	USIT-E	500000	Hz

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	7030	ft
USSP	Ultrasonic Service	USIT-E	USI	
VRES	Vertical Resolution	USIT-E	1.5 in	
WINB	Window Begin Time	USIT-E	59.63	us
WINE	Window End Time	USIT-E	99.63	us
WMOD	Waveform Firing Mode	DSLT-H	Full	

One

USIT Composite 5" = 100'

Software Version

Acquisition System	Version
Maxwell 2017 SP1	7.1.82245.3100

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[4]:Up	Up	4.12 ft	7044.38 ft	02-Jun-2017 1:27:12 AM	02-Jun-2017 4:20:07 AM	ON	4.20 ft	Yes

All depths are referenced to toolstring zero

Log

Company:Southern California Gas Company Well:Fernando Fee 35B

One: Log[4]:Up:S011

Description: USI Composite Format: Log (USI Composite_7inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 17-Jul-2017 14:11:12

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 - 2.44] - : Pulse Origin Not Detected

3 - UFLG 2 Value within [2.44 - 2.5] - : Spiky Waveform

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

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

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

TIME_1900 - Time Marked every 60.00 (s)

ERAV | IRAV

ERAV-IRAV | ERAV

IRAV | IRAV-ERAV

Absent -4.799 -2.799 -0.800

Explicit Normalization

USIT - Amplitude of Unflagged Wave (AWBK_RF) USIT-E (dB)

Median of Unflagged External Radii (ERAV_RF) USIT-E 4.5 in 3.5

Median of Unflagged External Radii (ERAV_RF) USIT-E 3.5 in 4.5

Minimum of Unflagged Wave Amplitude (AWMN_RF) USIT-E

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF)

Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF)

Amplitude of Eccentering for Unflagged

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

Nominal Casing Thickness (THNO) USIT-E

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

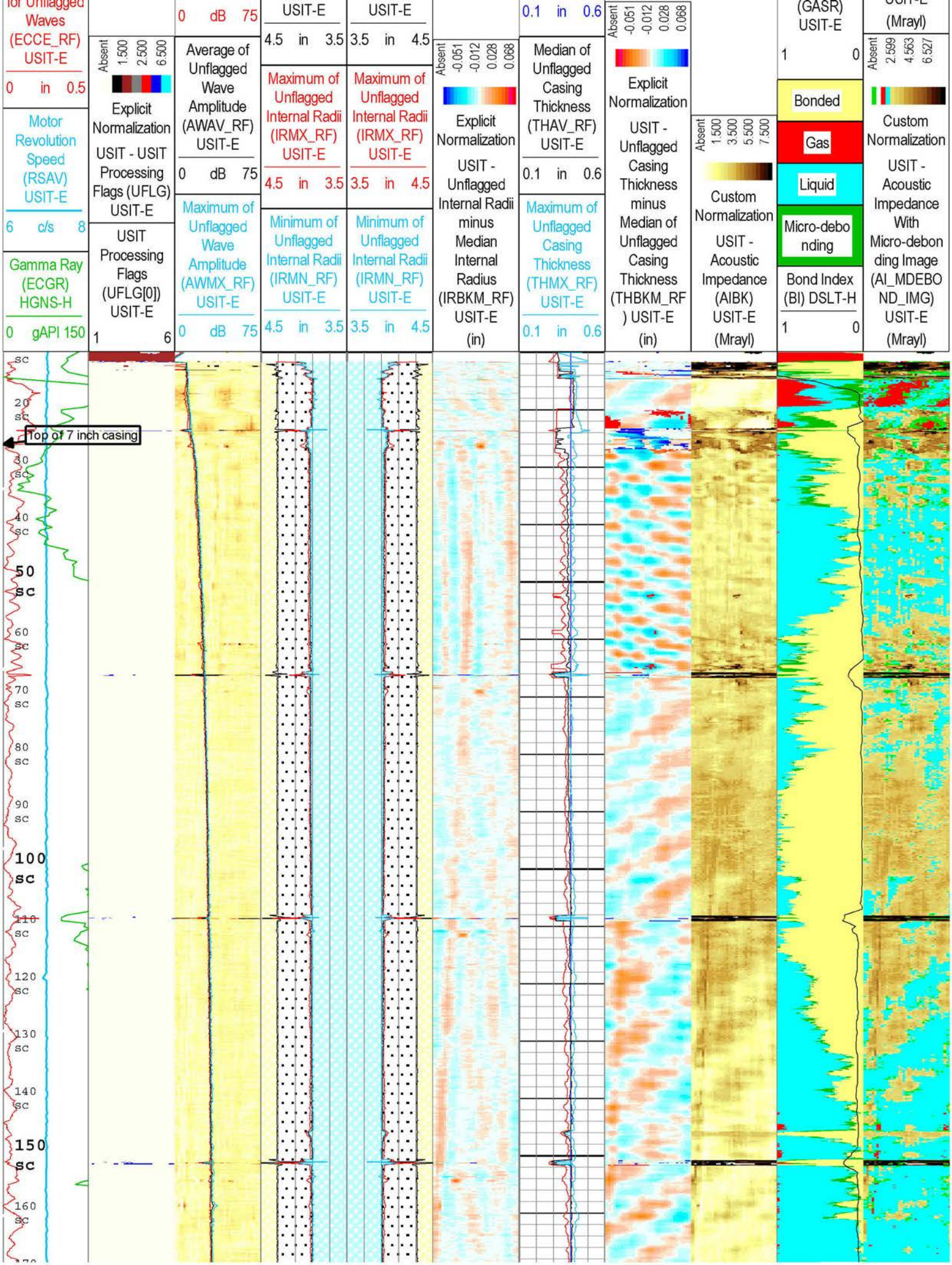
Micro-debonding Ratio (MDR) USIT-E 1 0

Ratio of Gas Measurements to Total

Absent 3.090 5.054 7.018

Custom Normalization

USIT - Acoustic Impedance (AIBK) USIT-E


for Unflagged Waves (ECCE_RF) USIT-E
0 in 0.5
Motor Revolution Speed (RSAV) USIT-E
6 c/s 8
Gamma Ray (ECGR) HGNS-H
0 gAPI 150
Absent 1.500 2.500 6.500
Explicit Normalization
USIT - USIT Processing Flags (UFLG) USIT-E
USIT Processing Flags (UFLG[0]) USIT-E
1 6
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
USIT-E
4.5 in 3.5
Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
4.5 in 3.5
Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
4.5 in 3.5
USIT-E
3.5 in 4.5
Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
3.5 in 4.5
Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
3.5 in 4.5
Absent -0.051 -0.012 0.028 0.068
Explicit Normalization
USIT - Unflagged Internal Radii minus Median Internal Radius (IRBKM_RF) USIT-E (in)
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
Absent -0.051 -0.012 0.028 0.068
Explicit Normalization
USIT - Unflagged Casing Thickness minus Median of Unflagged Casing Thickness (THBKM_RF) USIT-E (in)
Absent 1.500 3.500 5.500 7.500
Custom Normalization
USIT - Acoustic Impedance (AIBK) USIT-E (Mrayl)
(GASR) USIT-E
1 0
Bonded
Gas
Liquid
Micro-debonding
Bond Index (BI) DSLT-H
1 0
USIT-E (Mrayl)
Absent 2.599 4.563 6.527
Custom Normalization
USIT - Acoustic Impedance With Micro-debonding Image (AI_MDEBOND_IMG) USIT-E (Mrayl)
Top of 7 inch casing
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50 sc
60 sc
70 sc
80 sc
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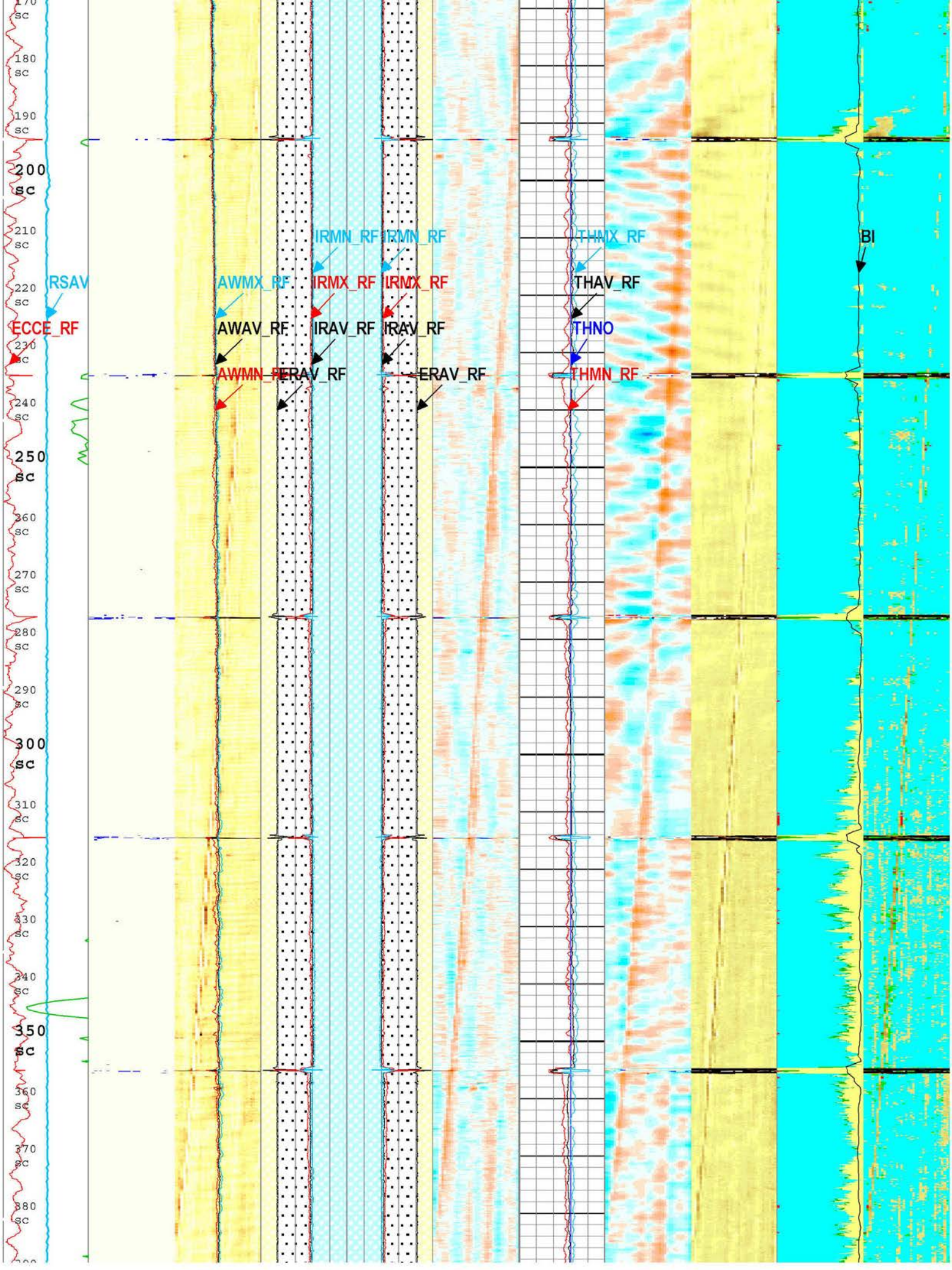
100 sc
110 sc
120 sc
130 sc
140 sc
150 sc
160 sc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330 sc
340 sc
350 sc
360 sc
370 sc
380 sc
RSAV
ECCE_RF
IRMN_RF
IRMN_RF
AWMX_RF
IRMX_RF
IRMX_RF
AWAV_RF
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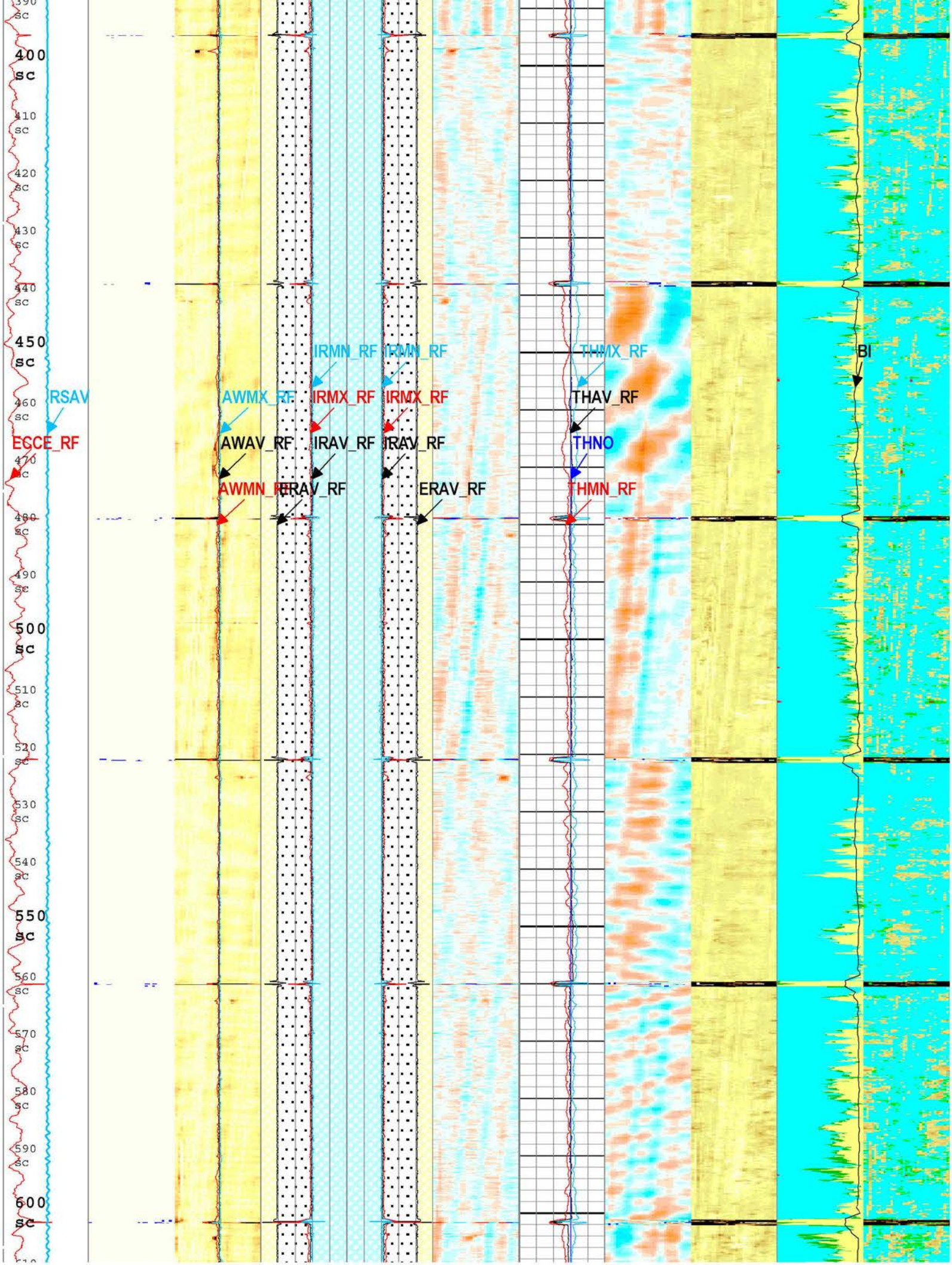
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560 sc
570 sc
580 sc
590 sc
600 sc
RSAV
ECCE_RF
AWMX_RF
AWAV_RF
AWMN_RF
IRMN_RF
IRMX_RF
IRAV_RF
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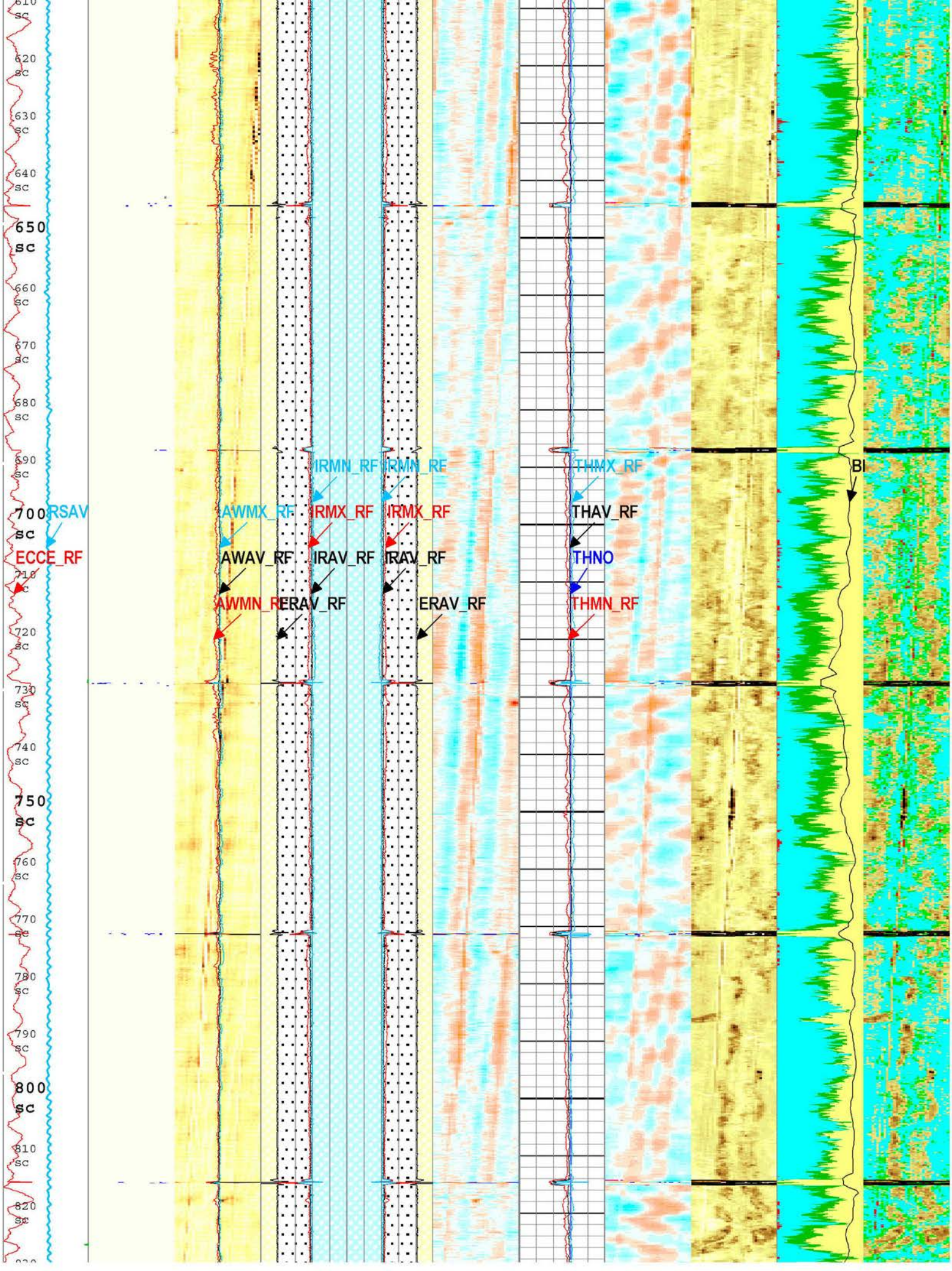
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770 sc
780 sc
790 sc
800 sc
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820 sc
RSAV
ECCE_RF
AWMX_RF
AWAV_RF
AWMN_RF
IRMN_RF
IRMX_RF
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THMX_RF
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THMN_RF
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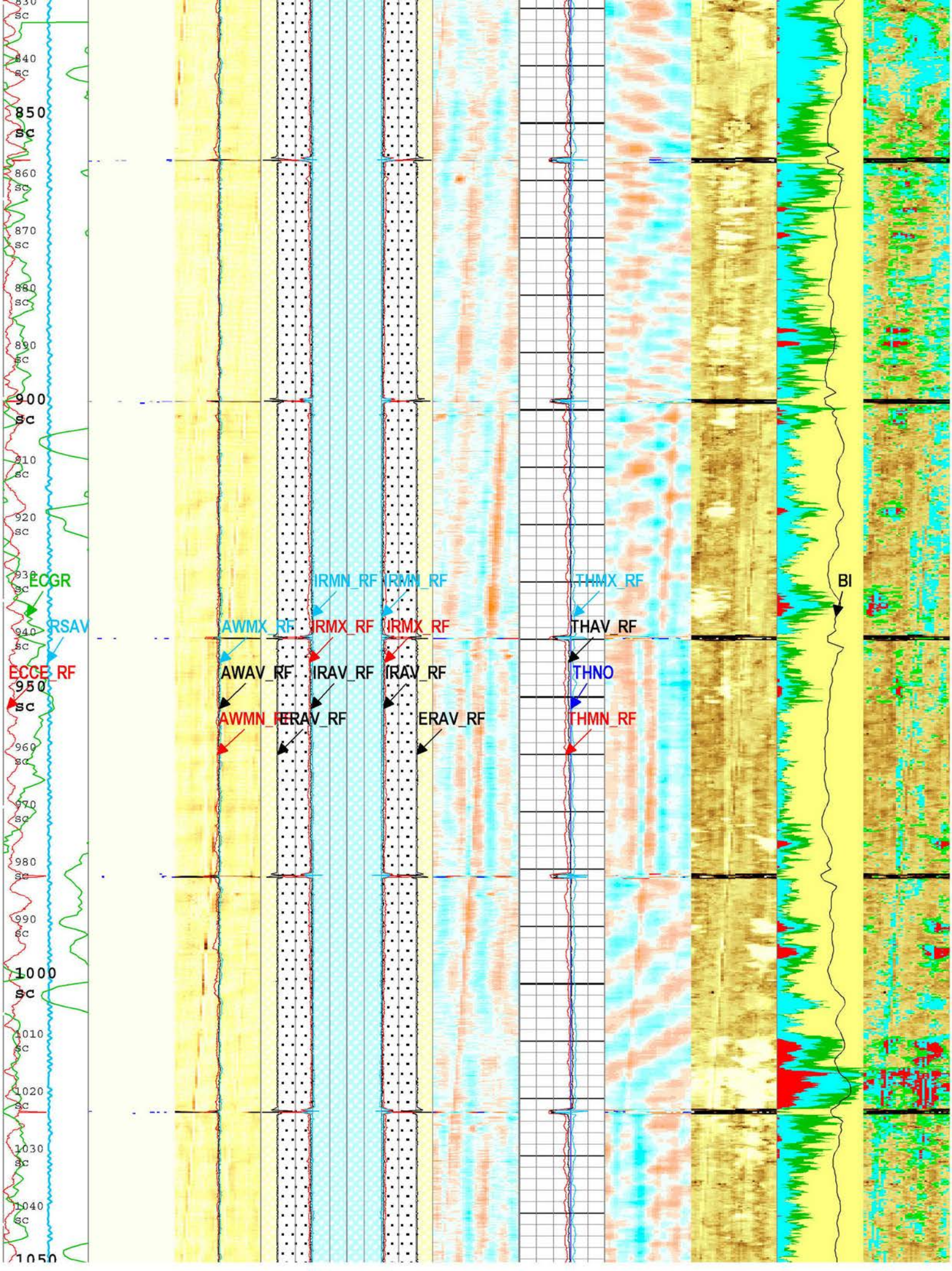
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THMN_RF
BI
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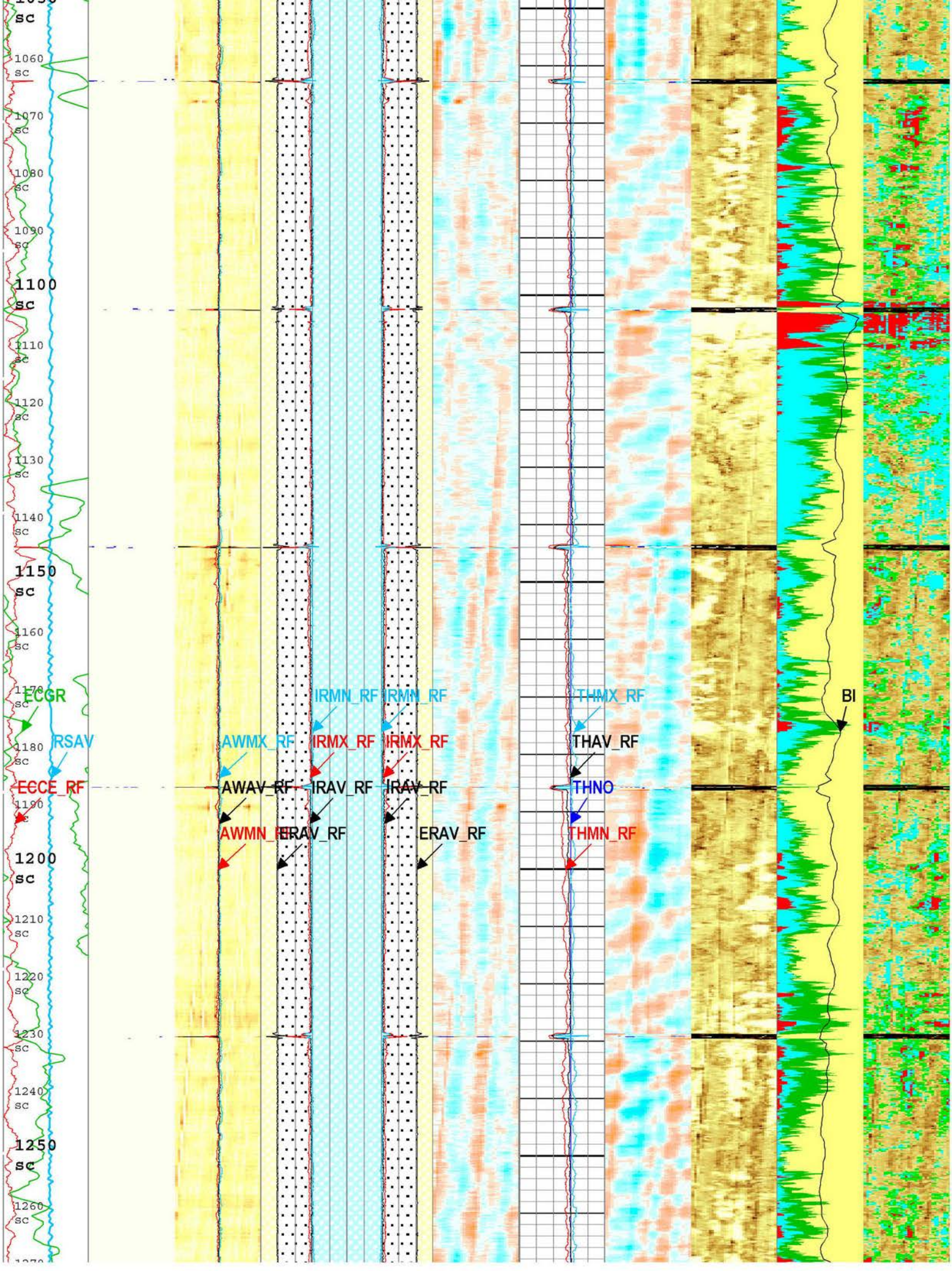
950 sc
1000 sc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1190 sc
1200 sc
1210 sc
1220 sc
1230 sc
1240 sc
1250 sc
1260 sc
ECGR
RSAV
ECCE_RF
IRMN_RF
IRMN_RF
AWMX_RF
IRMX_RF
IRMX_RF
AWAV_RF
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THMN_RF
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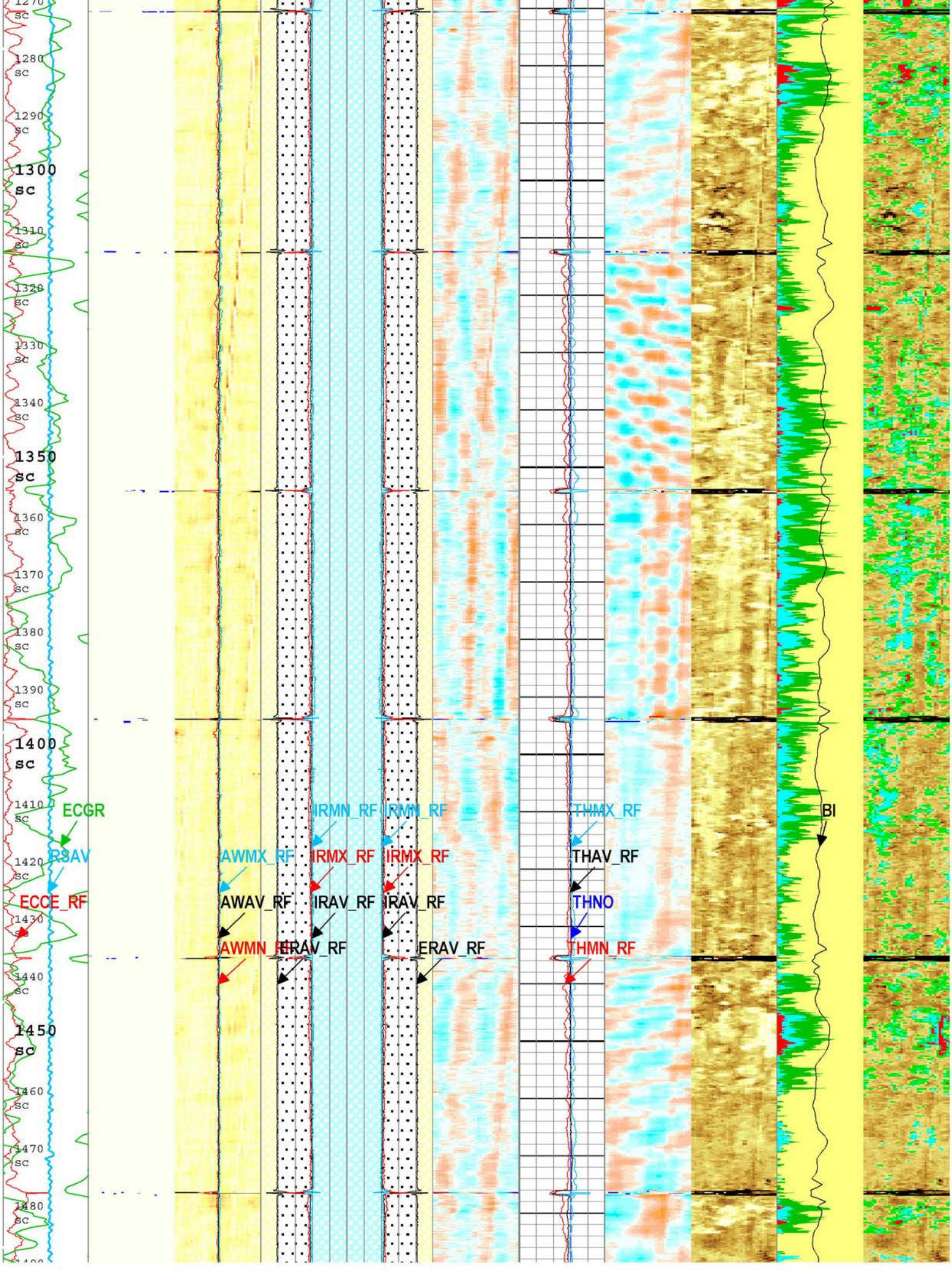
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IRMX_RF
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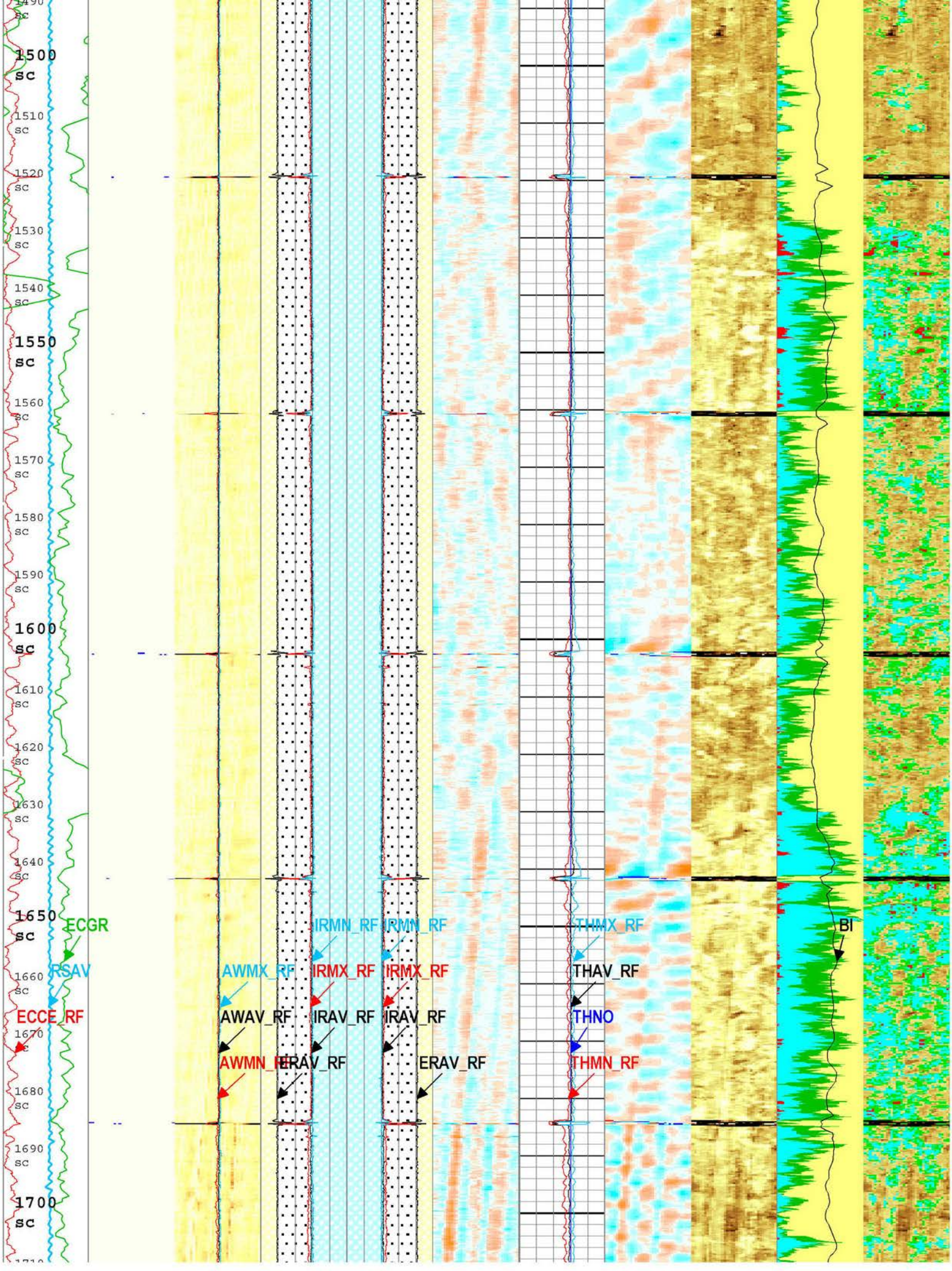
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IRMN_RF
IRMN_RF
AWMX_RF
IRMX_RF
IRMX_RF
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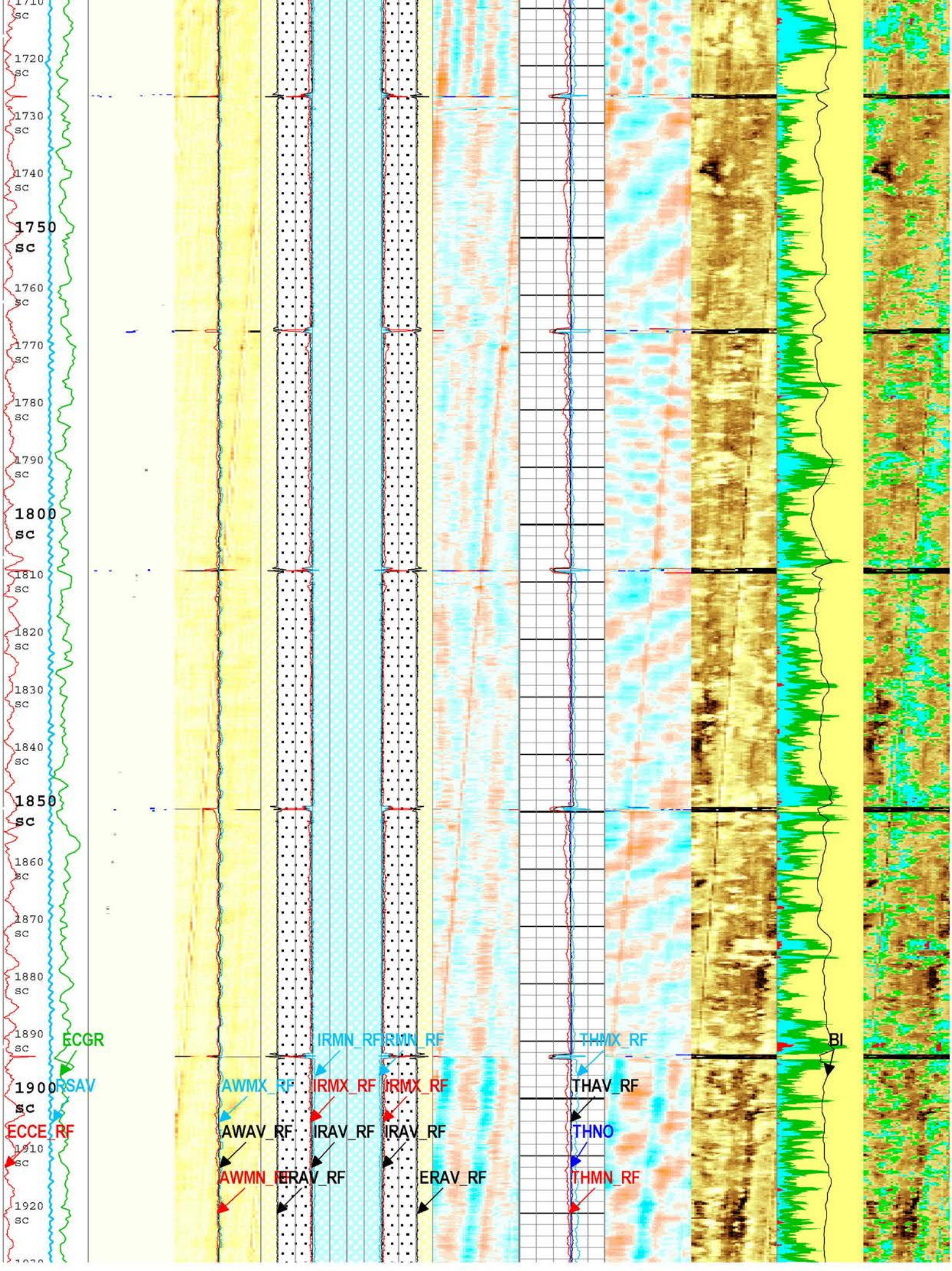
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ECCE_RF
IRMN_RF
RMN_RF
AWMX_RF
IRMX_RF
IRMX_RF
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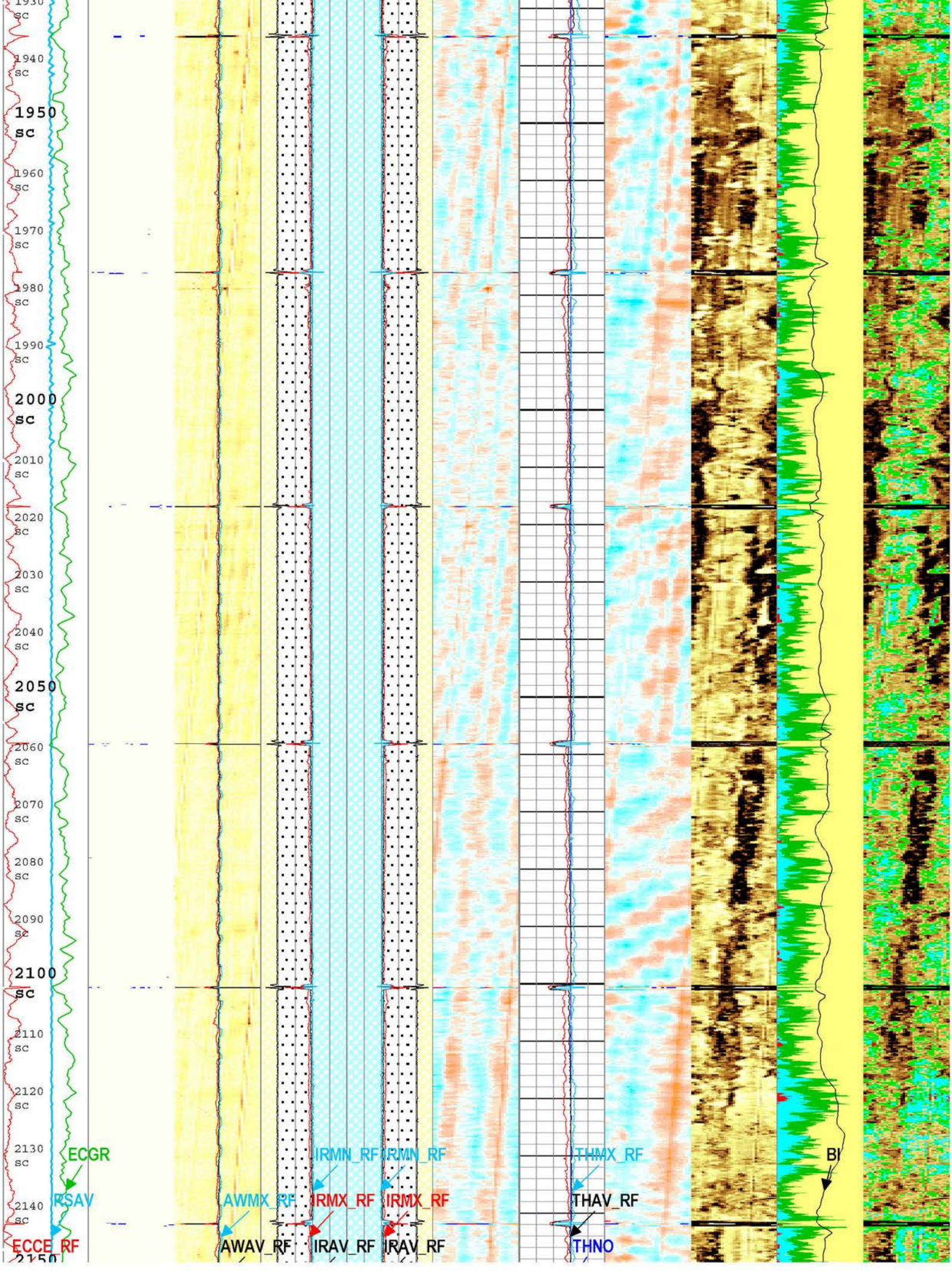
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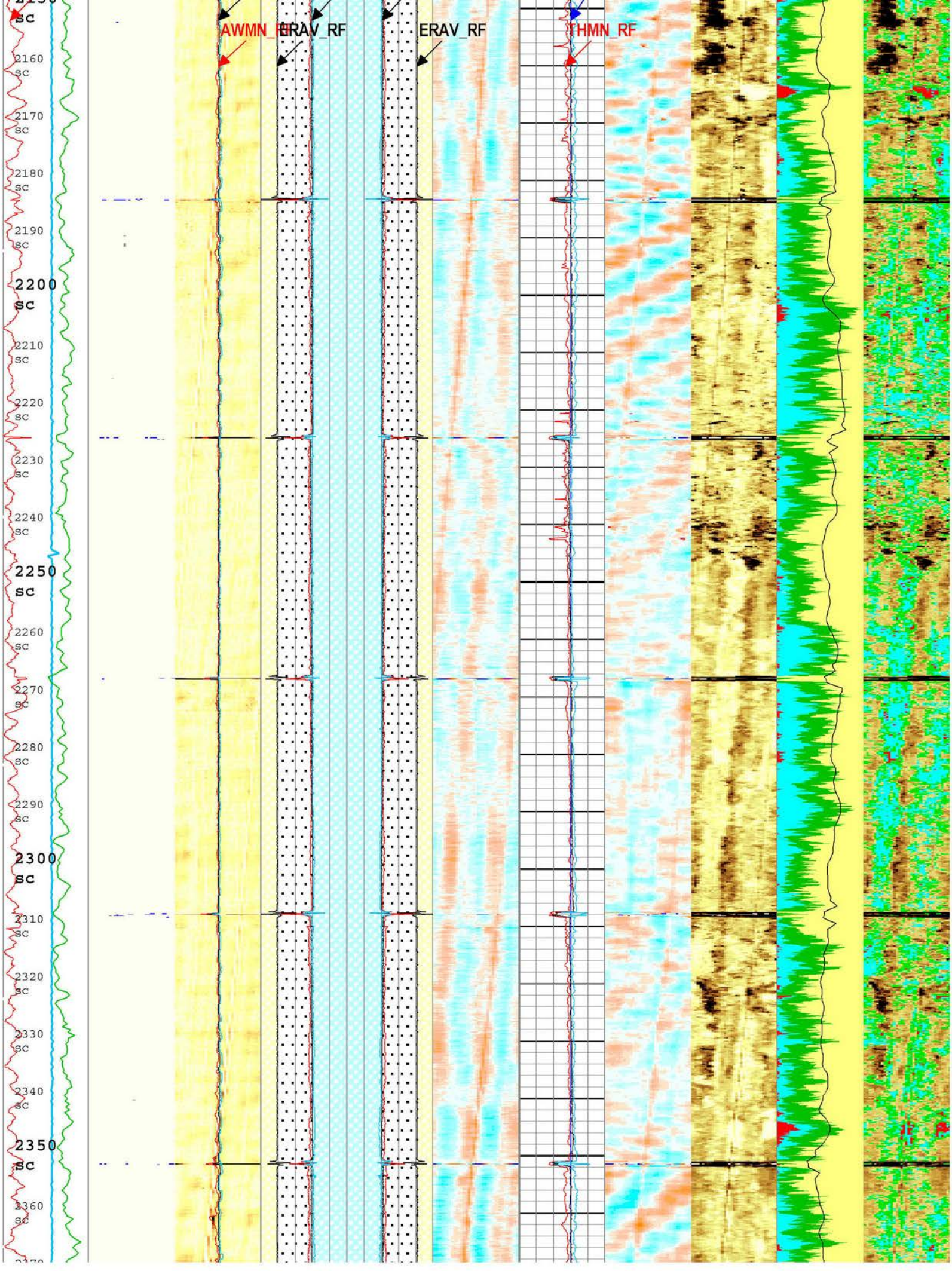
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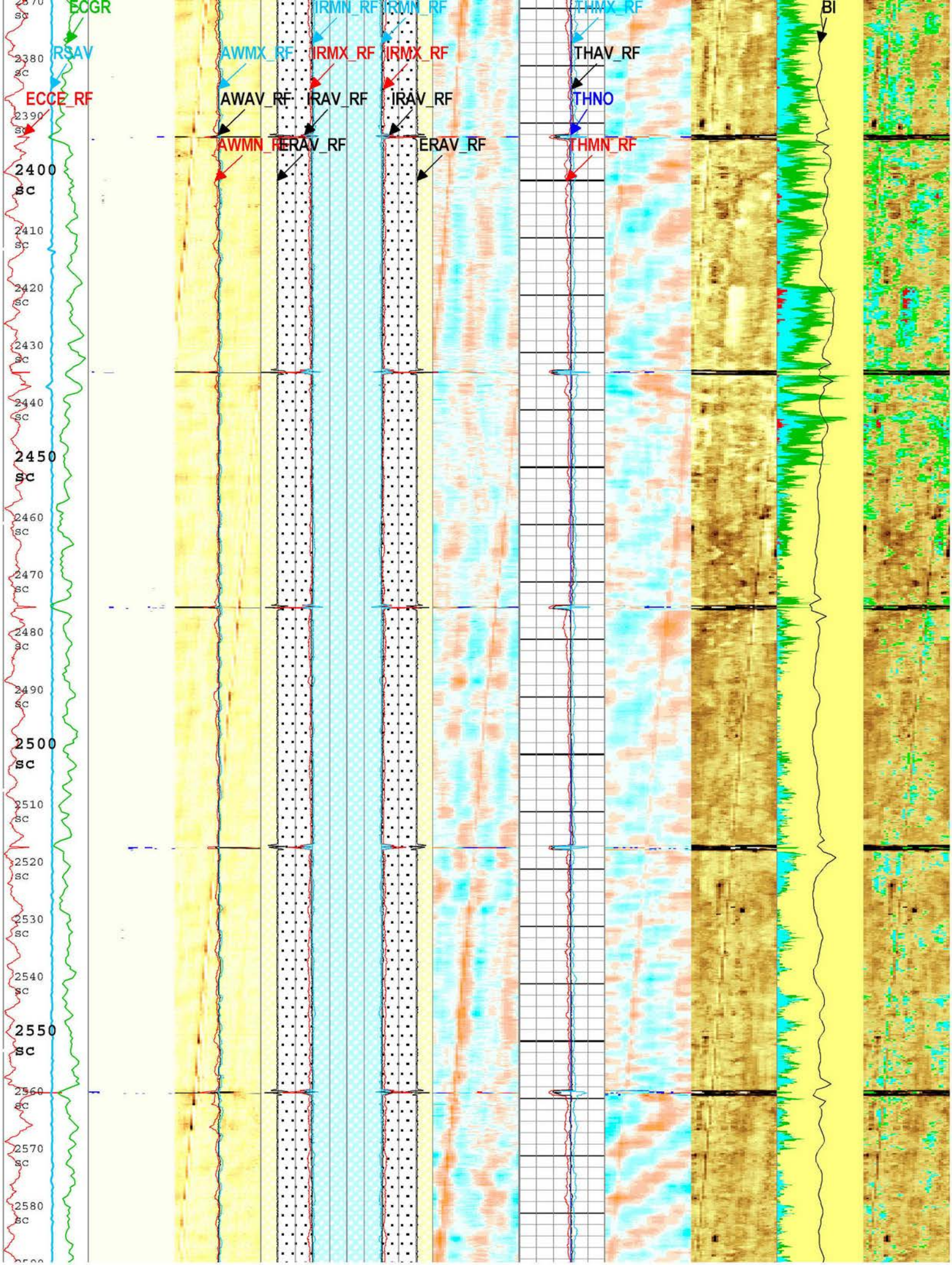
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BI
2380 sc
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2440 sc
2450 sc
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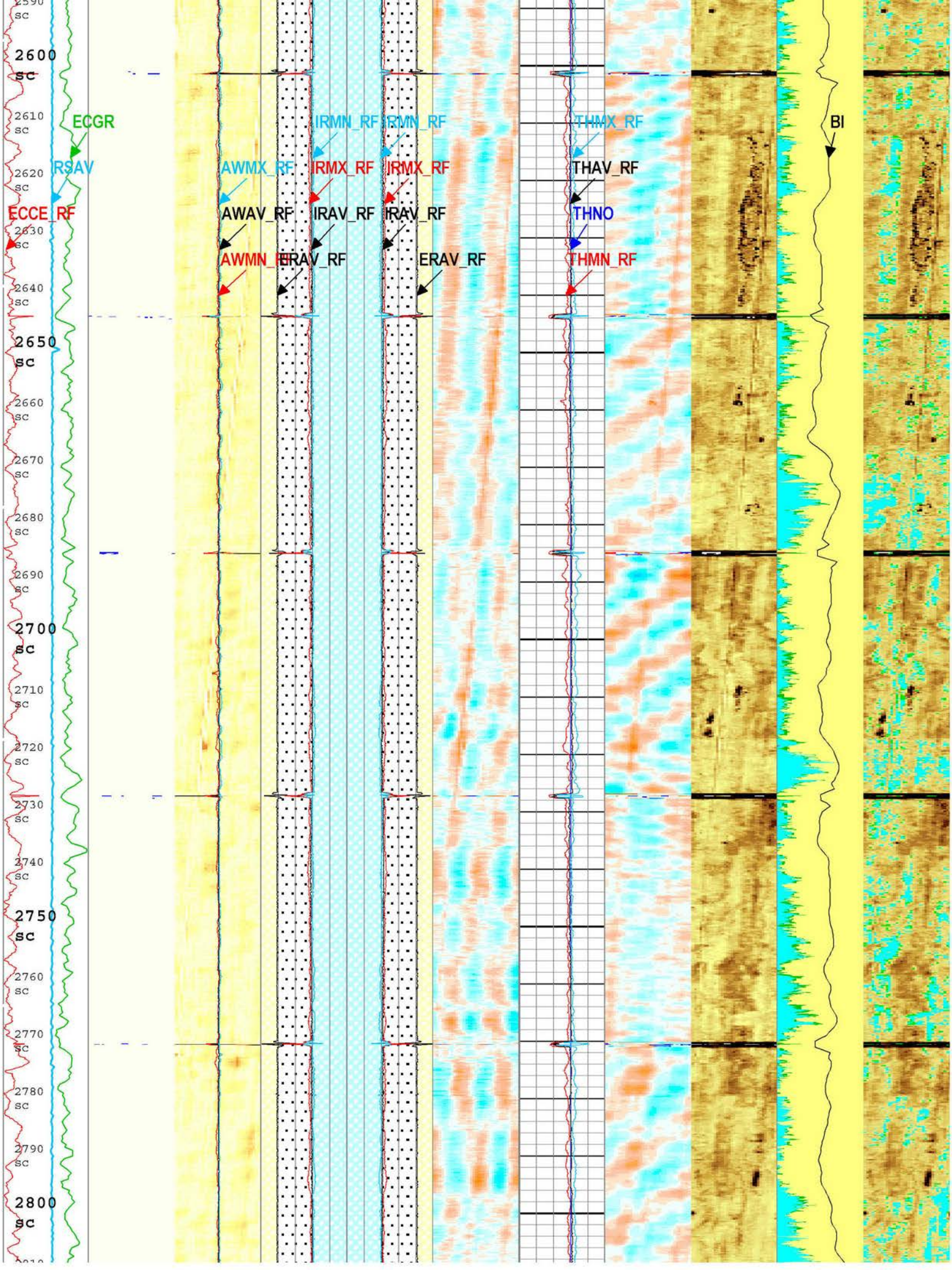
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AWMN_RF
ERAV_RF
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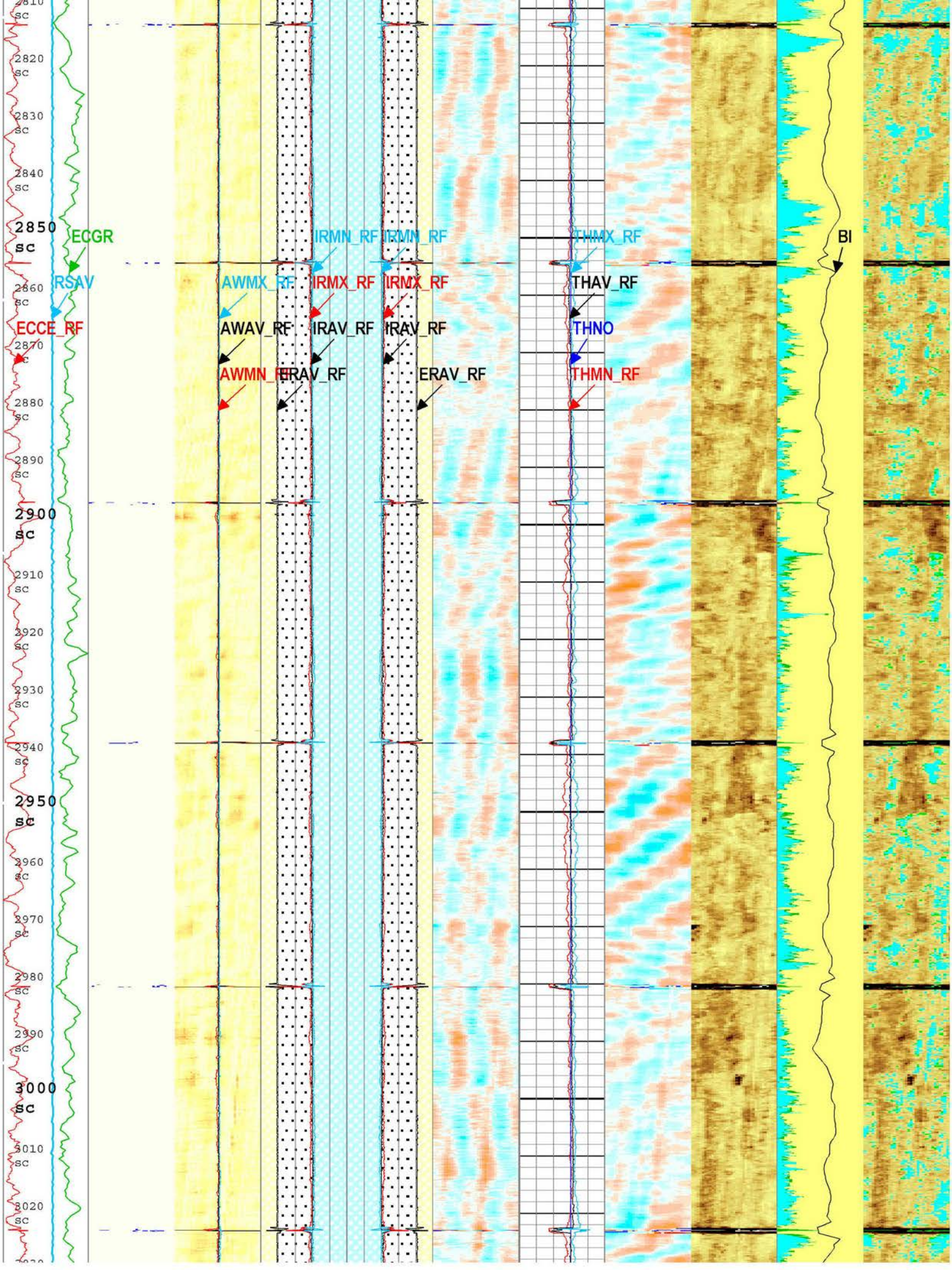
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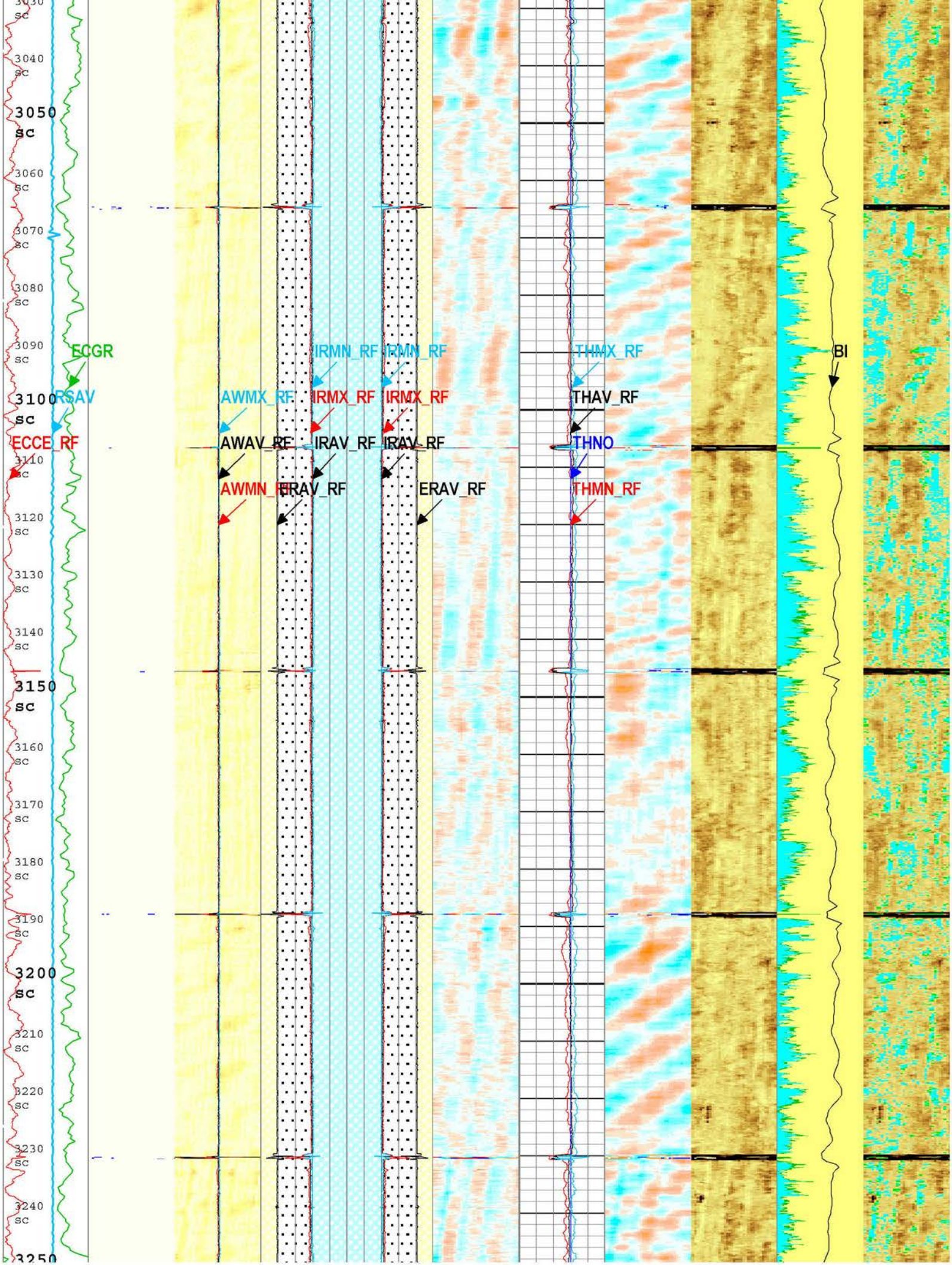
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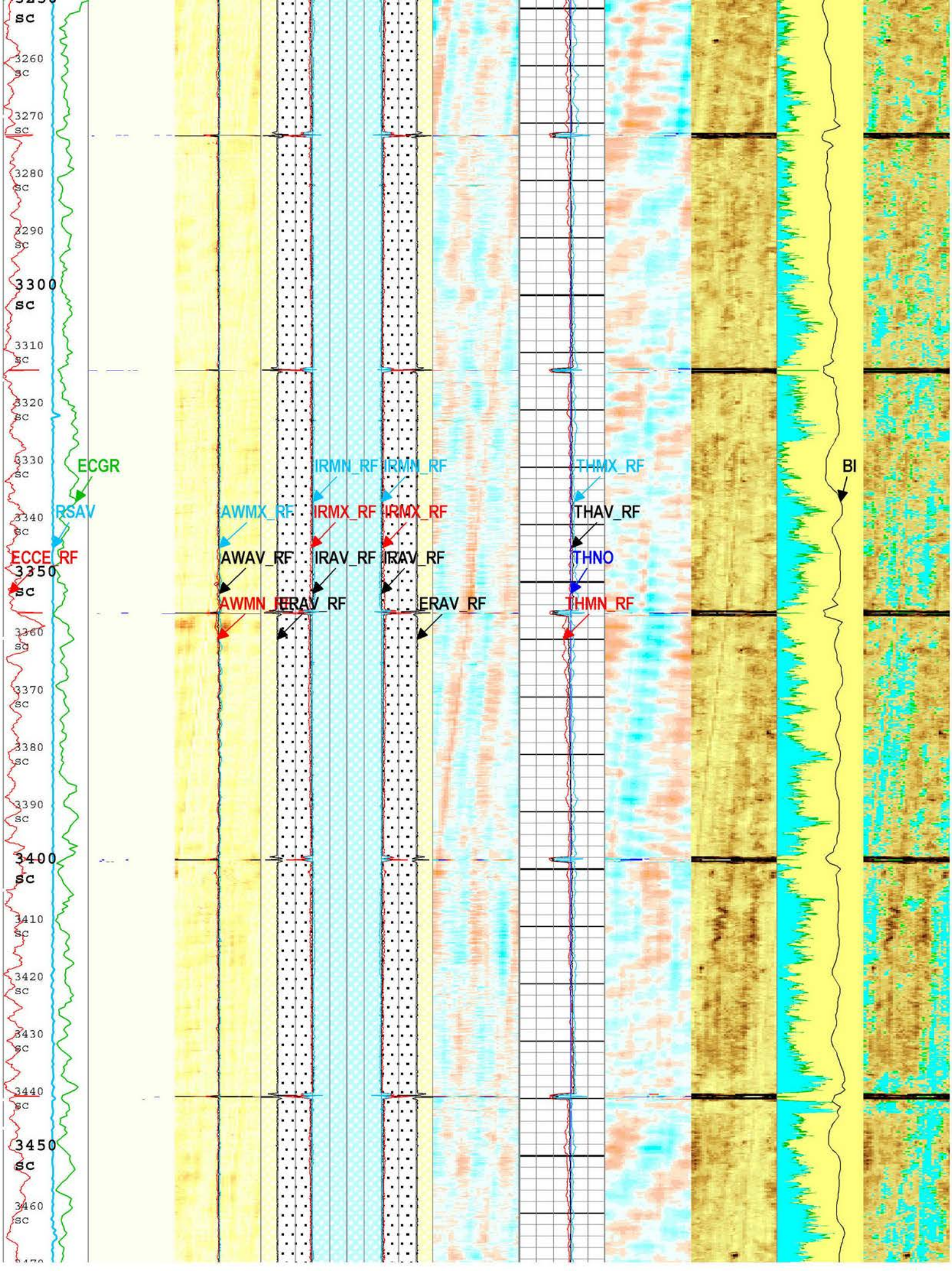
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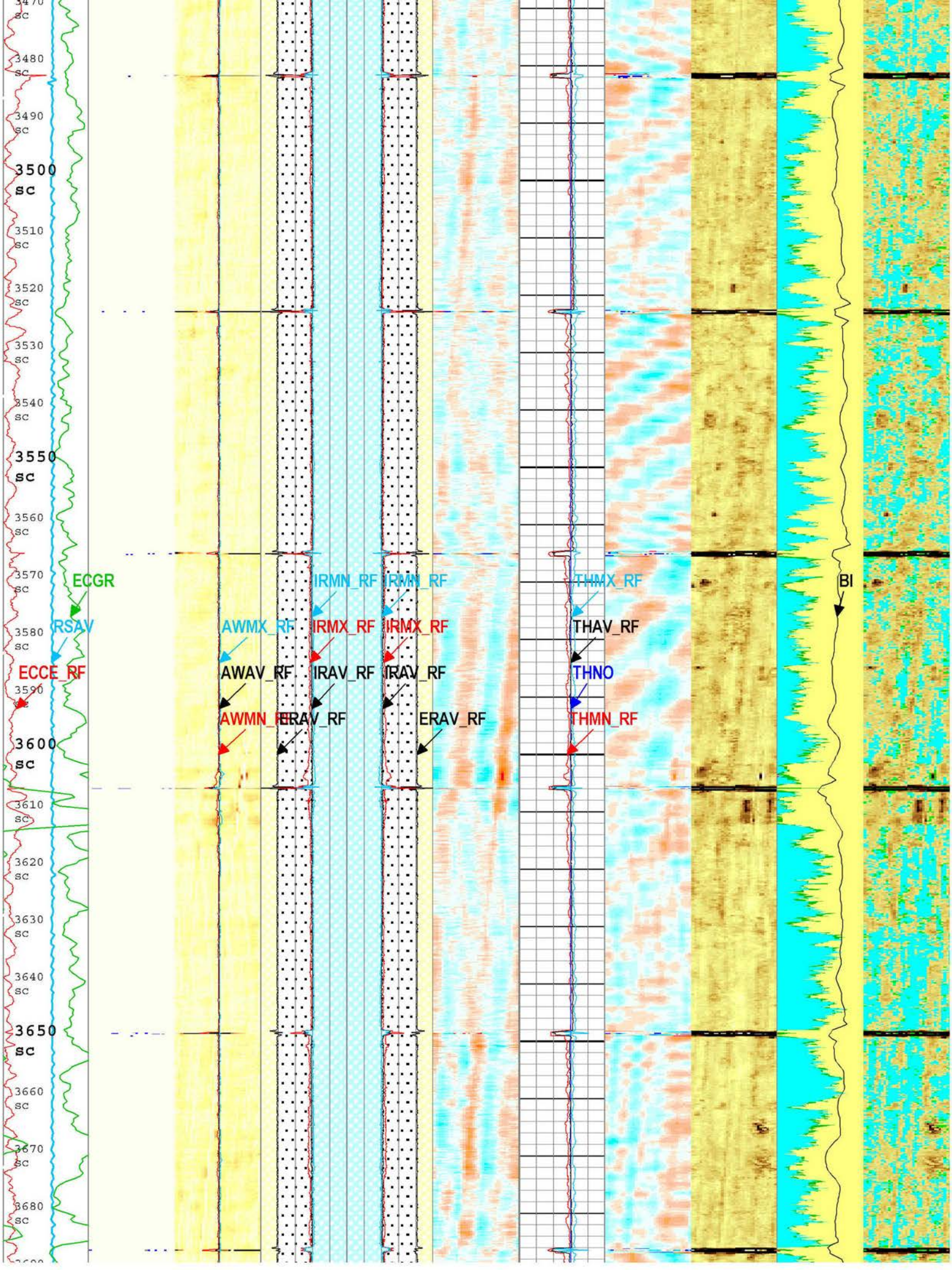
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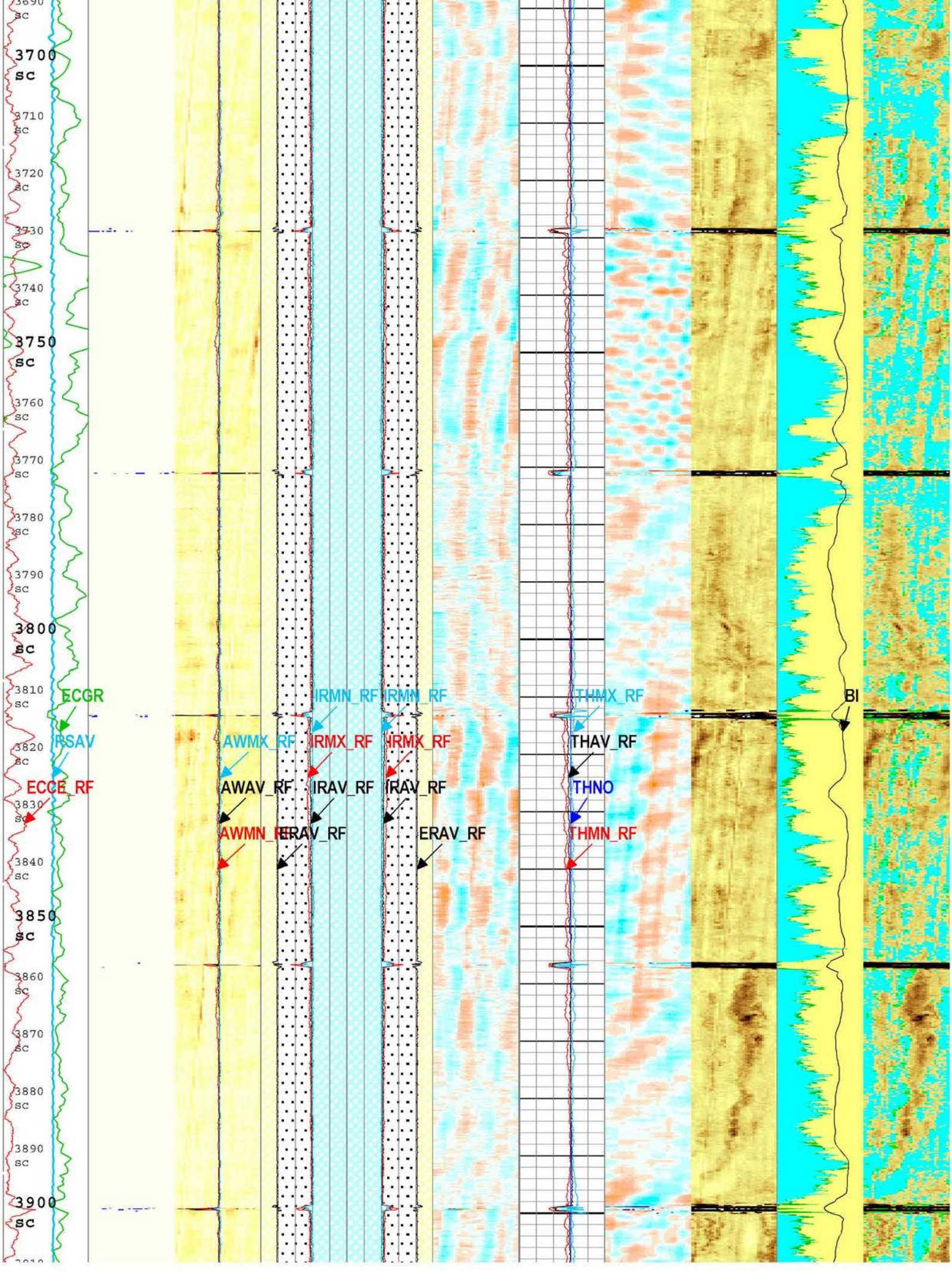
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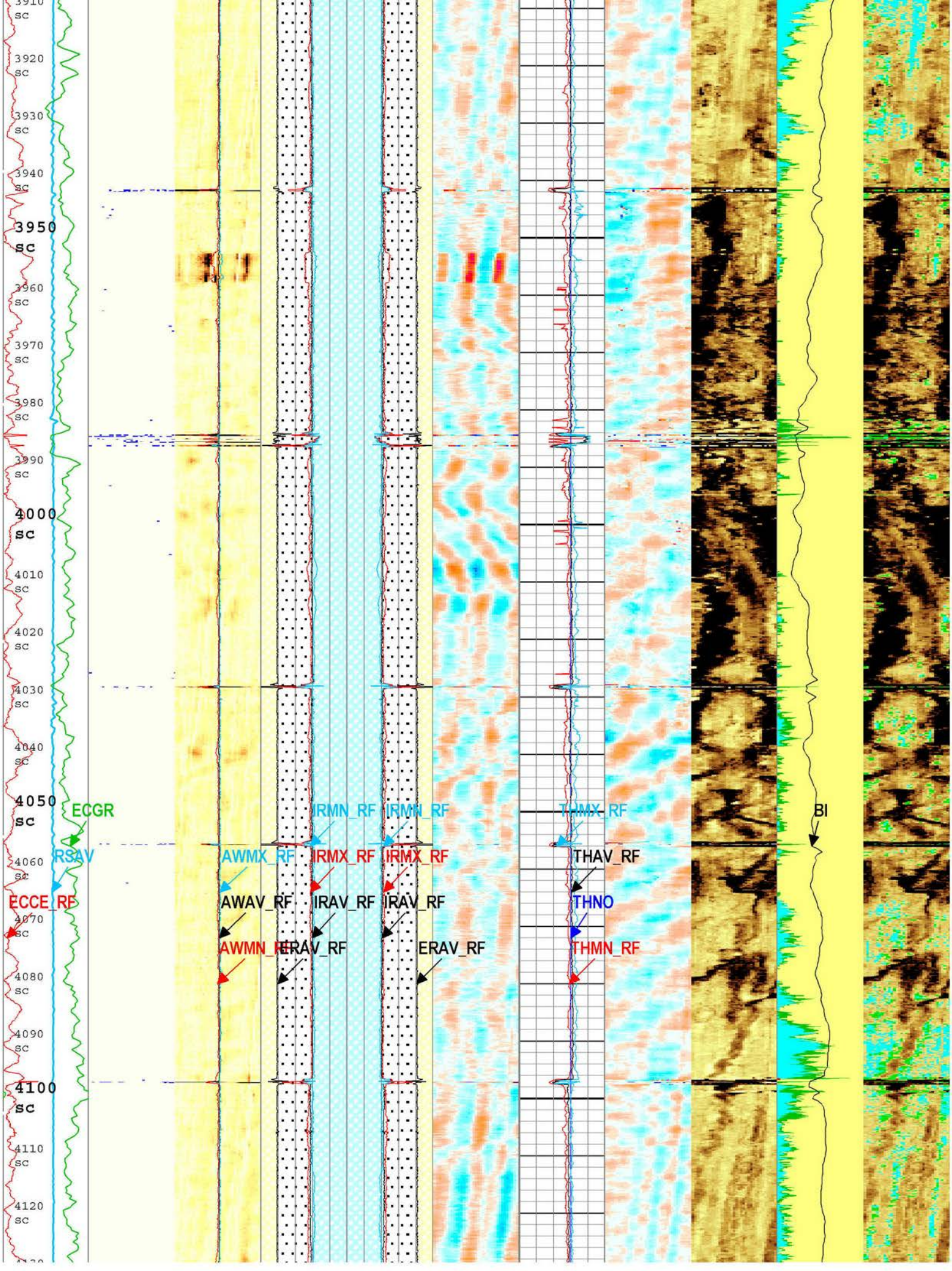
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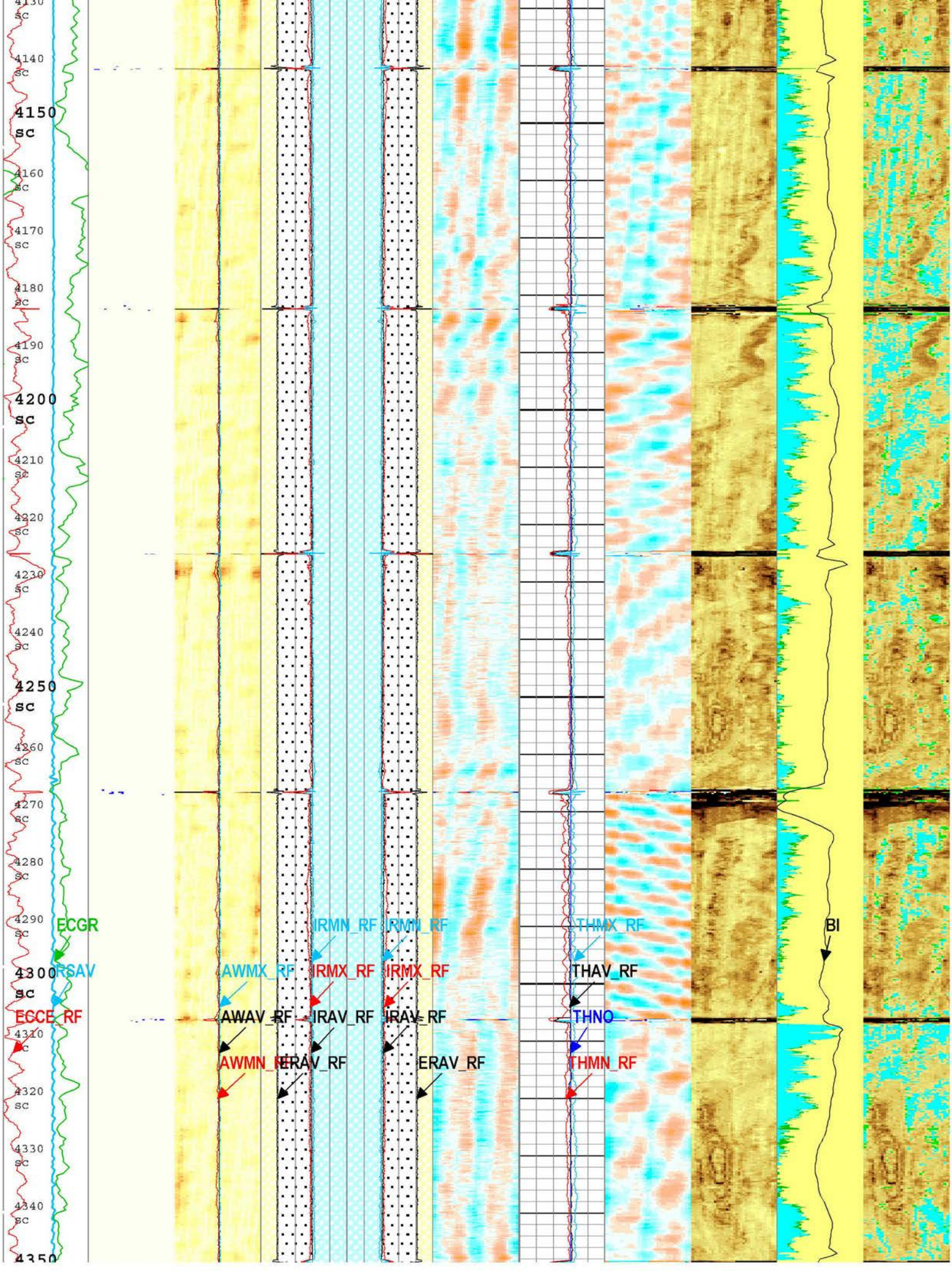
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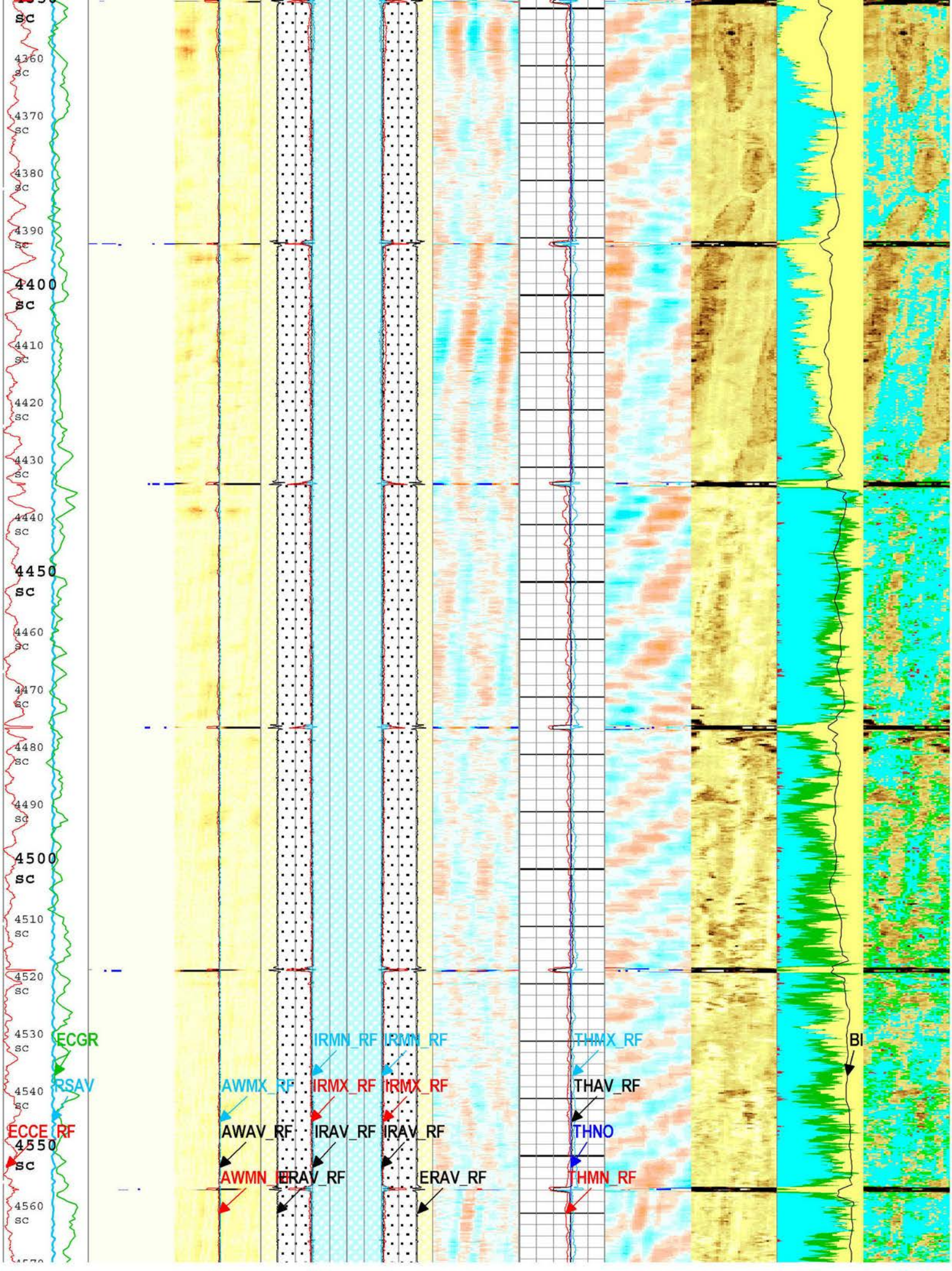
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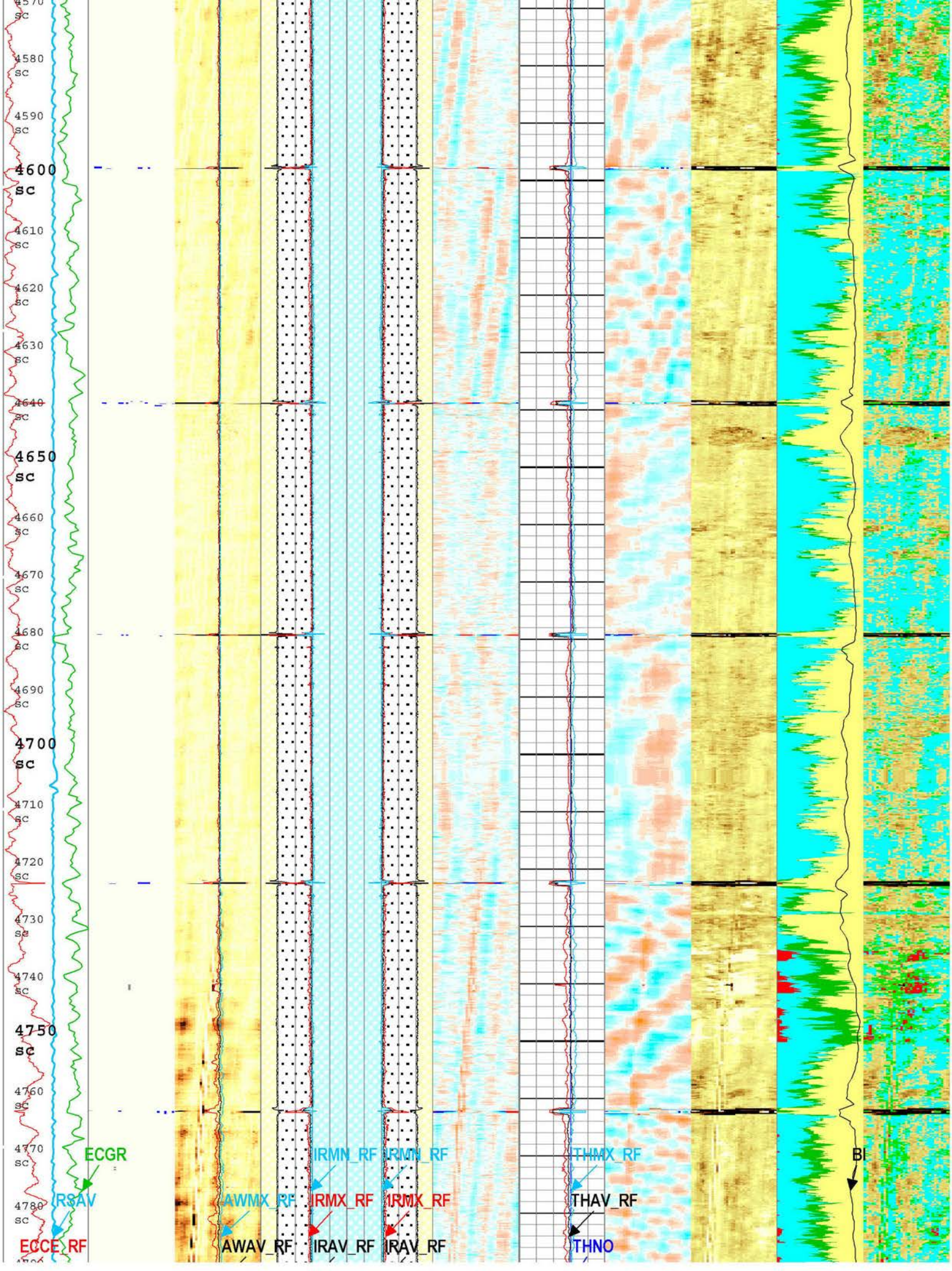
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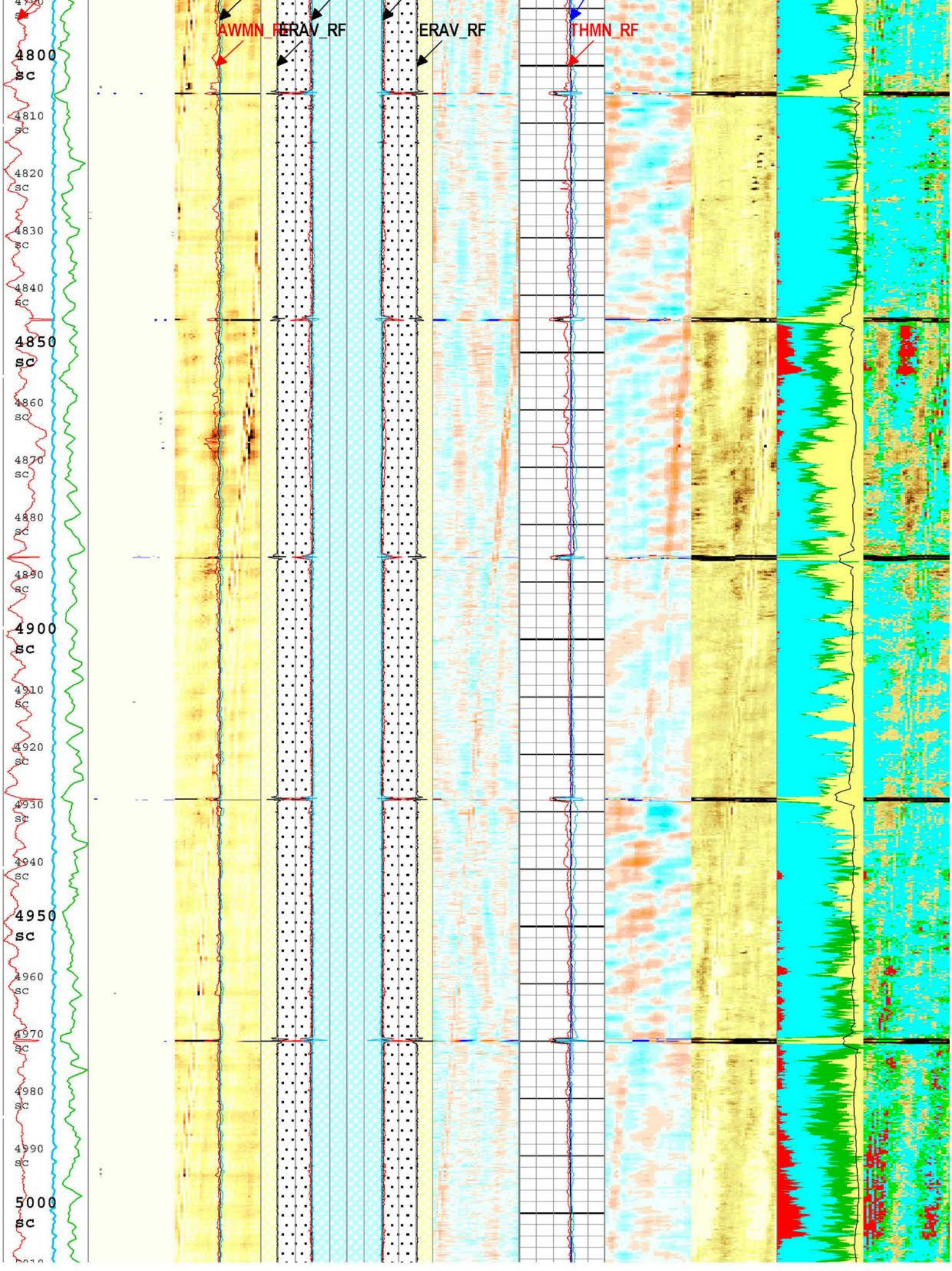
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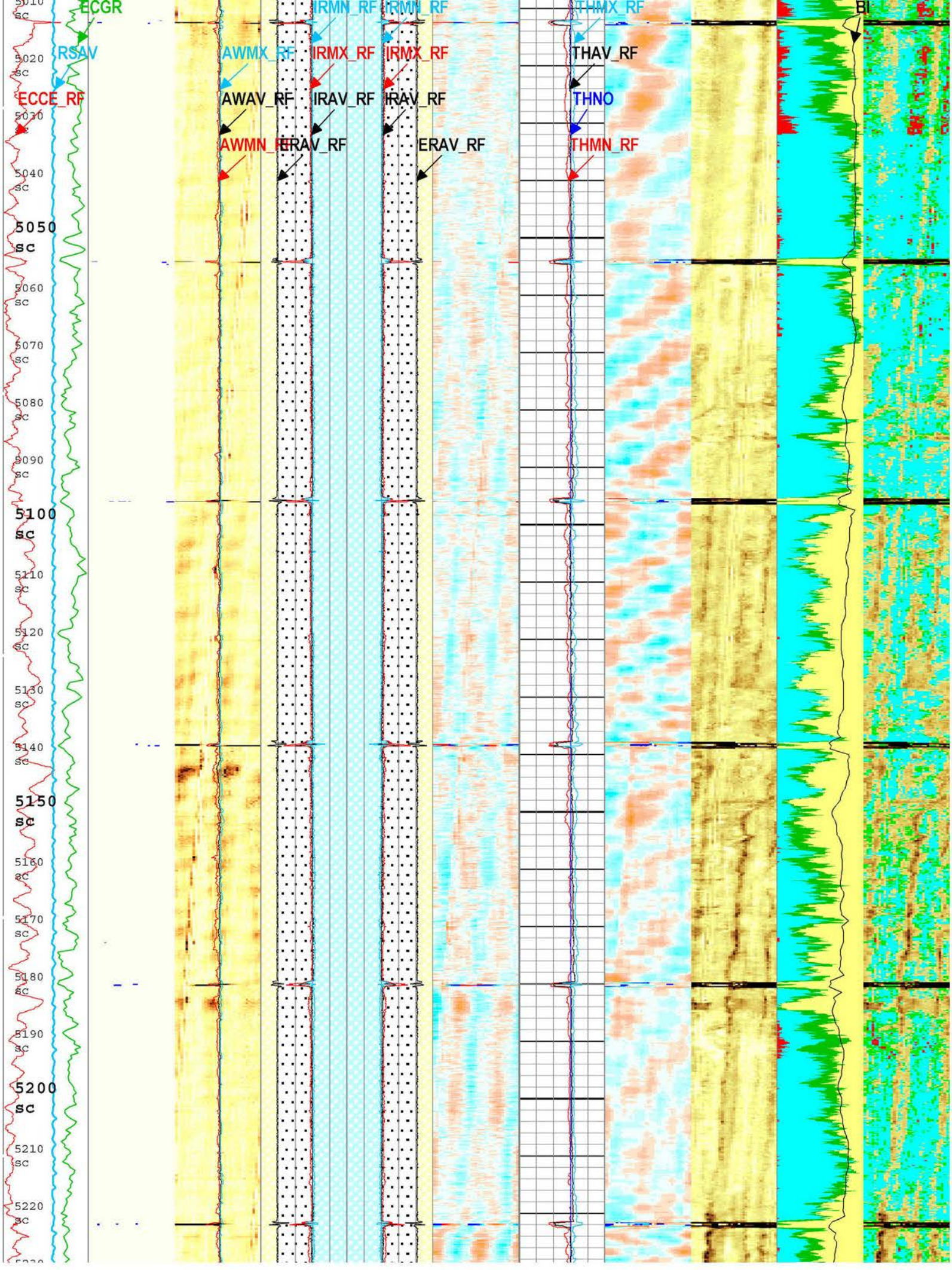
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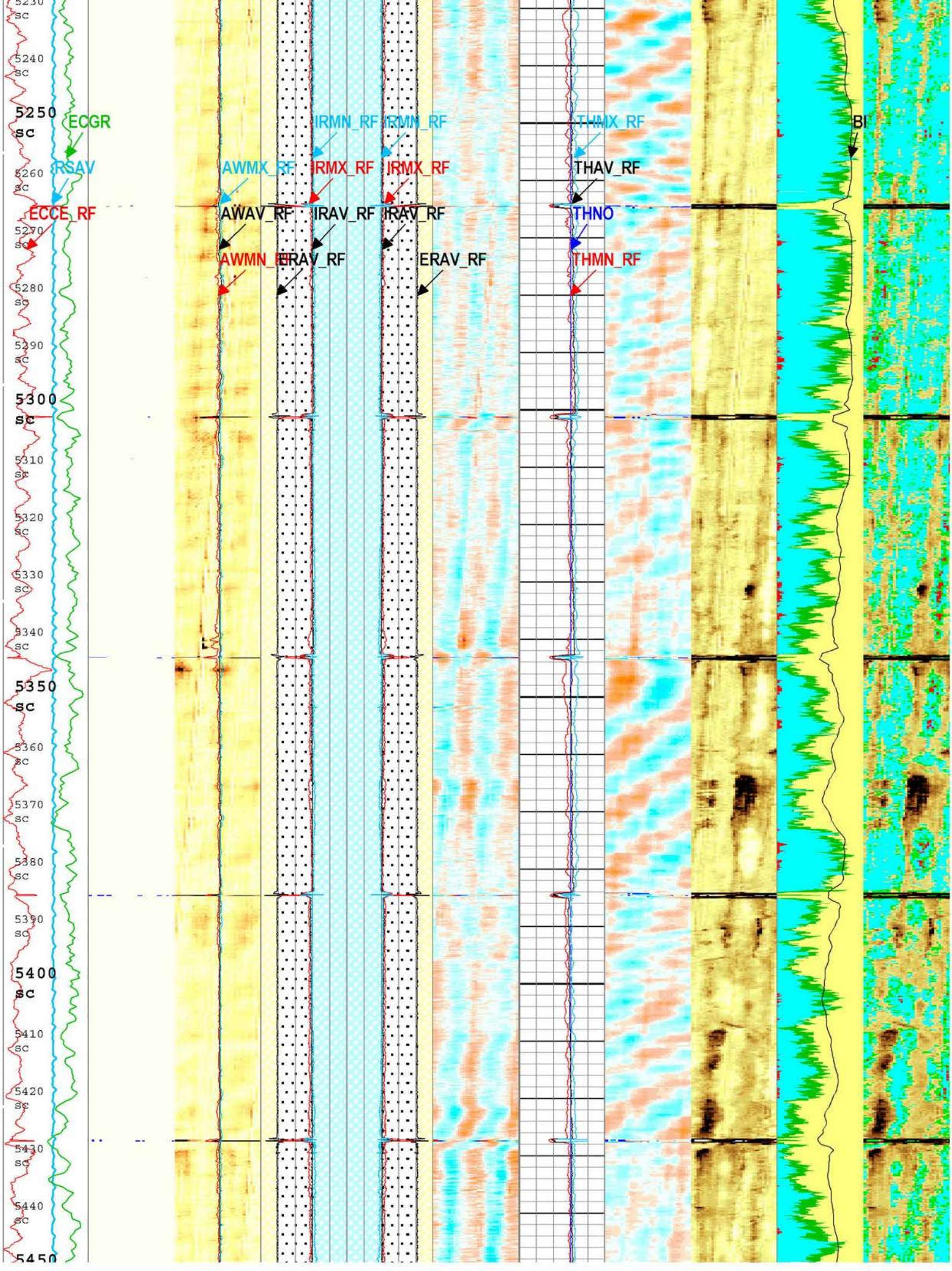
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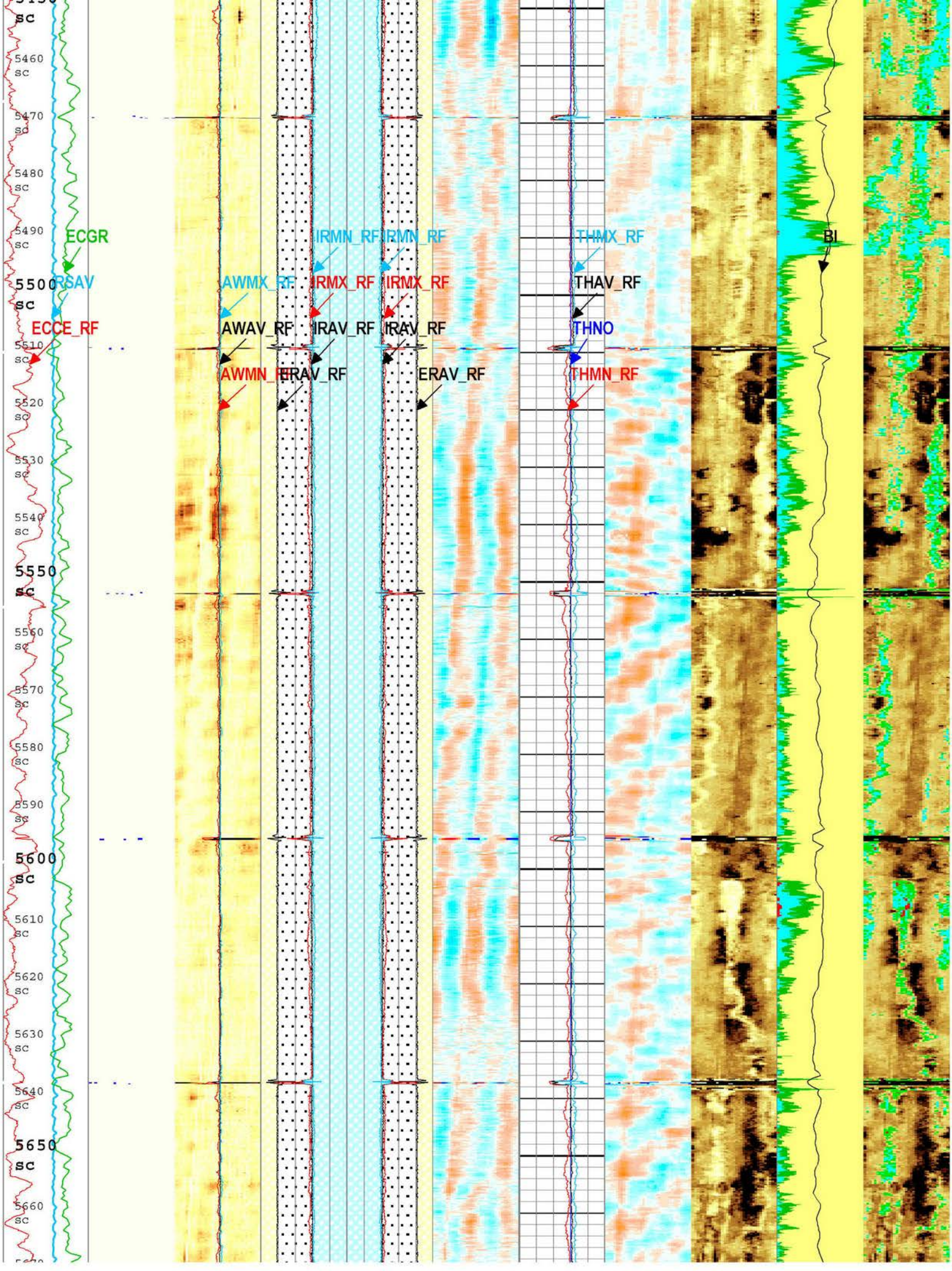
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