Schlumberger

Company: Southern California Gas Company

Well: Porter 44

Field: Aliso Canyon

County: Los Angeles State: California

County: Los Angeles
Field: Aliso Canyon
Location: 1720.78' S & 2994.52' W
Well: Porter 44
Company: Southern California Gas Company

Ultrasonic Imager

Gamma Ray - CCL

7" 23#-26# casing

Location:			
1720.78' S & 2994.52' W From Station 84	Elev.:	K.B. 2206.00 ft G.L. 2195.00 ft D.F.	
Permanent Datum: Ground Level	Elev.:	2195.00 f	
Log Measured From: Kelly Bushing	11.00 ft	above Perm.Datum	
Drilling Measured From: Kelly Bushing			

API Serial No.	Section:	Township:	Range:
04-037-00731	28	3N	16W

Logging Date		29-Feb-2016	
Run Number		One	
Depth Driller		7639.00 ft	
Schlumberger Depth		7631.00 ft	
Bottom Log Interval		7631.00 ft	
Top Log Interval		35.00 ft	
Casing Fluid Type		Water	
Salinity			
Density		9 lbm/gal	
Fluid Level		100.00 ft	
BIT/CASING/TUBING STRING			
Bit Size		10.63 in	
From		530.00 ft	
To		7805.00 ft	
Casing/Tubing Size		7 in	
Weight		26 lbm/ft	
Grade		N80	
From		6800.00 ft	
To		7805.00 ft	
Max Recorded Temperatures			
Logger on Bottom	Time	29-Feb-2016 10:39:00	
Unit Number	Location:	3189 Ventura	
Recorded By		I. Kartawidjaja	
Witnessed By		Mr. Tom MacMahon	

Disclaimer

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11. One Corrosion 5 in = 100 ft
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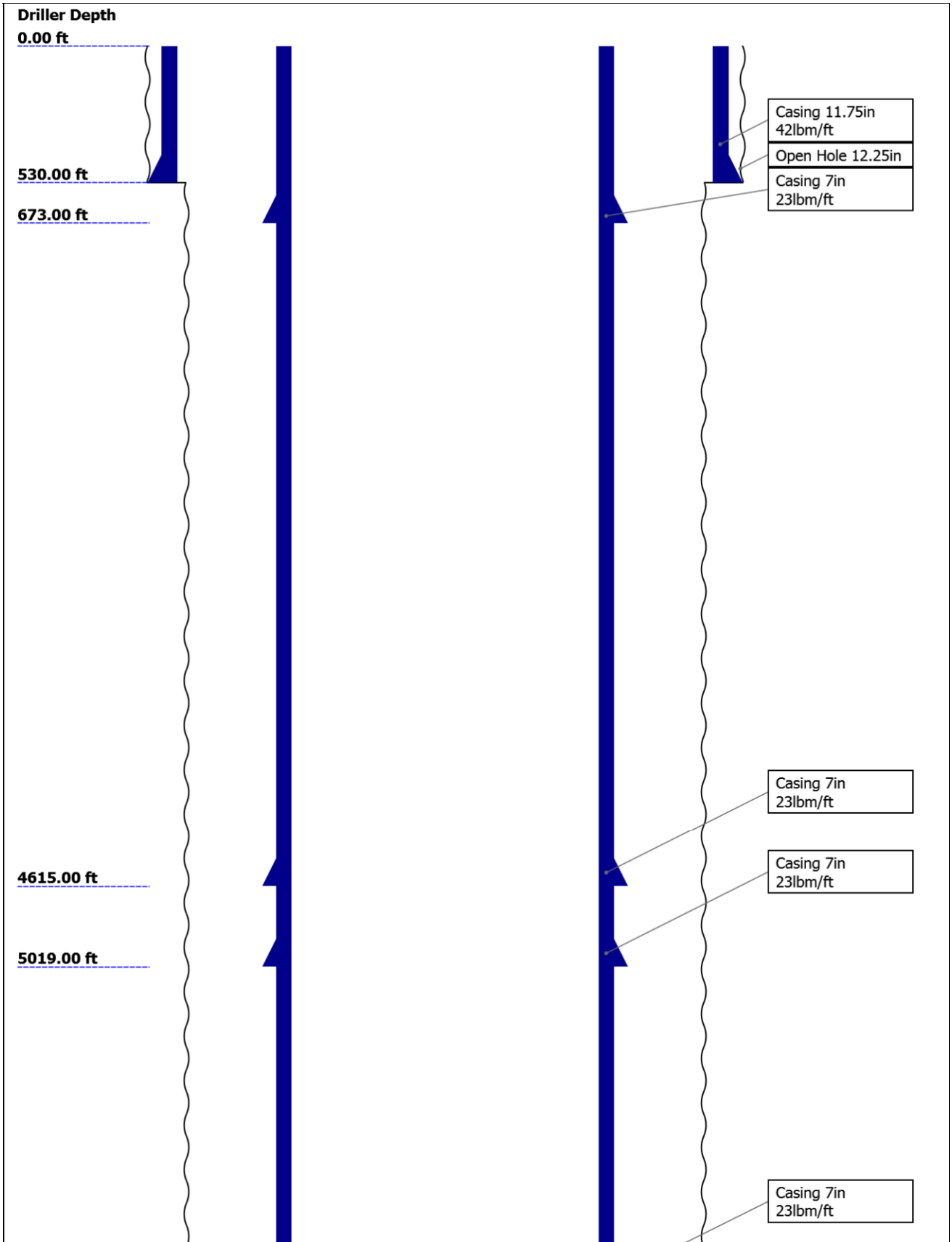
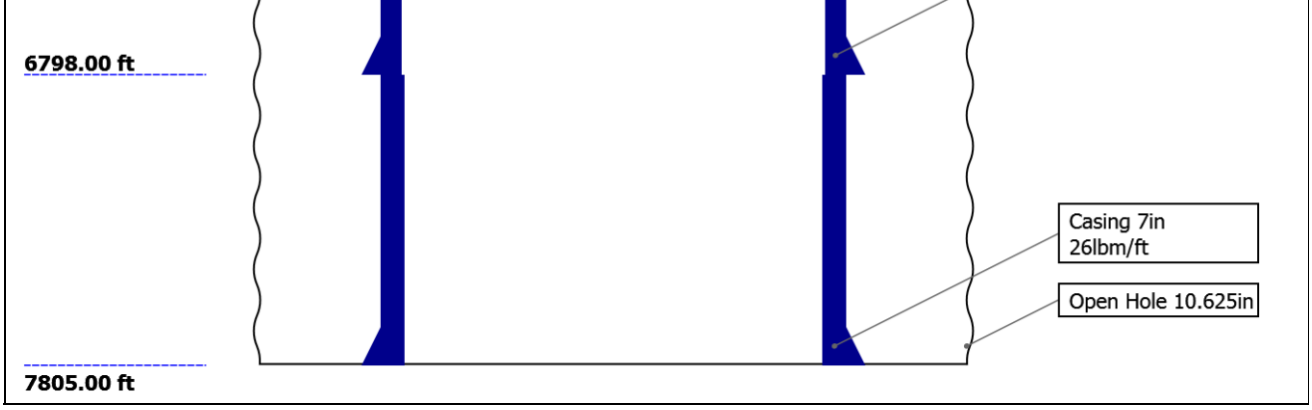
12. One USIT Goodwin Compressed
12.1 Integration Summary

Well Sketch





Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	12.25	10.625				
Top Driller (ft)	0	530				
Top Logger (ft)	0	530				
Bottom Driller (ft)	530	7805				
Bottom Logger (ft)	530	7805				
Casing						
Size (in)	11.75	7	7	7	7	7
Weight (lbm/ft)	42	23	23	23	23	26
Inner Diameter (in)	11.084	6.366	6.366	6.366	6.366	6.276
Grade	N/A	N80	J55	N/A	N80	N80
Top Driller (ft)	0	0	673	4615	5019	6798
Top Logger (ft)	0	0	673	4615	5019	6800
Bottom Driller (ft)	530	673	4615	5019	6798	7805
Bottom Logger (ft)	530	673	4615	5019	6800	7805

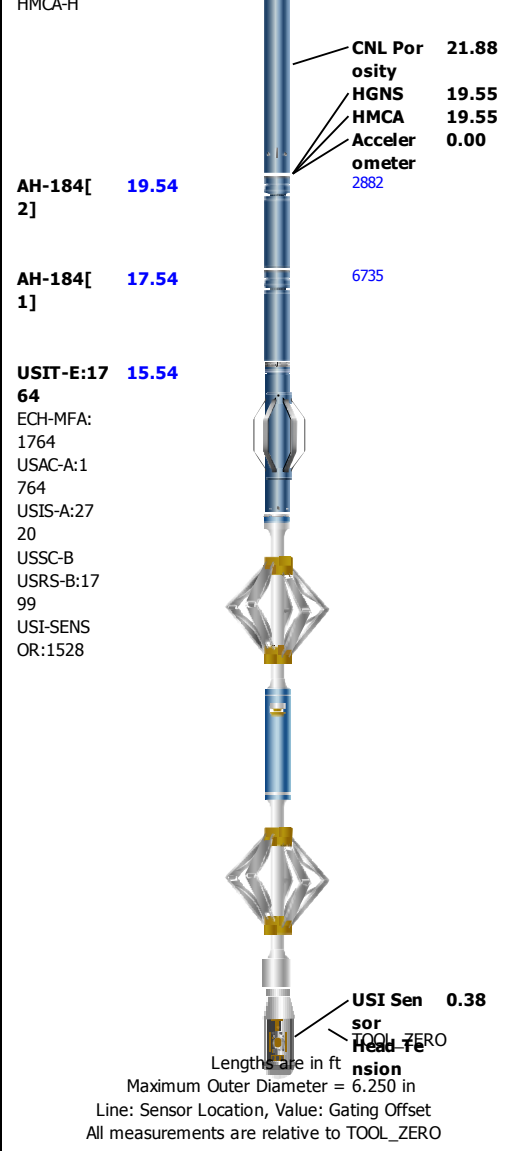
Remarks and Equipment Summary

One: Toolstring

Equip name	Length	MP name	Offset
LEH-QT LEH-QT	**38.87**		
DTC-H ECH-KC DTC-H	**35.95**	**CTEM**	**35.05**
		HV	**0.00**
		TelStatus	**32.95**
		ToolStatus	**32.95**
AH-184[4]	**32.95**	1801	
AH-184[3]	**30.95**	1802	
HGNS-H:3923 HGNH:4819 NPV-N NSR-F:1303 HACCZ-H:3923 HGNS-H:3923	**28.95**	**Temperature**	**28.93**
		GR	**28.21**

One: Remarks

Did not tag the top of 5" liner at 7639 ft. Logged from 7631 ft to surface.
Recorded logs under 0 psi surface pressure
ICE Processing used with FVEL Auto, ZMUD=FPA done at 450 ft assuming fresh water in the annulus (UDFSZ=1.5 Mrayl)
Rig: Ensign 342
Toolstring ran as per toolsketch.
Two centralizers on USIS and GEMCO used to centralize ultrasonic tool.
Thank you for choosing Schlumberger!



Job Event Summary

Event	Time	Duration	Interval	Remark
Log[6]:Down	Feb-29-2016 09:13	01:53:25	459.12 - 7619.92 ft	FPM
Log[10]:Up	Feb-29-2016 10:25	00:10:01	7625.92 - 7146.06 ft	Repeat Pass at Bottom
Log[11]:Up	Feb-29-2016 10:39	02:24:52	7631.62 - 88.79 ft	Main Pass
Log[12]:Up	Feb-29-2016 13:56	00:05:28	7216.55 - 7120.94 ft	Very Hi Res Repeat 7130-7200 ft
Log[13]:Up	Feb-29-2016 14:02	00:09:13	7078.53 - 6922.15 ft	Very Hi Res Repeat 6950-7080 ft
Log[14]:Up	Feb-29-2016 14:12	00:08:56	6762.7 - 6597.56 ft	Very Hi Res Repeat 6600-6750 ft
Log[15]:Up	Feb-29-2016 14:23	00:03:02	6324.37 - 6269.82 ft	Very Hi Res Repeat 6290-6325 ft
Log[16]:Up	Feb-29-2016 14:32	00:11:58	4803.03 - 4598.58 ft	Very Hi Res Repeat 4600 - 4800 ft
Log[20]:Up	Feb-29-2016 15:04	00:01:55	4021.52 - 3952.18 ft	Very Hi Res Repeat Hole at 3950-4010 ft
Log[22]:Up	Feb-29-2016 15:29	00:03:58	796.12 - 724.29 ft	Very Hi Res Repeat 725-796 ft

One

Main Pass 5 IN = 100 FT

Software Version

Acquisition System	Version
Maxwell 2016 SP1	6.1.58882.3100

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[11]:Up	Up	88.79 ft	7631.63 ft	29-Feb-2016 10:39:19 AM	29-Feb-2016 1:04:11 PM	ON	6.00 ft	Yes

All depths are referenced to toolstring zero

Log

Company:Southern California Gas Company Well:Porter 44

One: Log[11]:Up:S017

Description: USI Composite Format: Log (LBV1_USI Composite 9.625inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth

Creation Date: 29-Feb-2016 21:10:36

TIME_1900 - Time Marked every 60.00 (s)

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

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

2 - UFLG 2 Value within [1.5 - 2.5] - :

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

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

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

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

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

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

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

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

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

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

ERAV | IRAV | ERAV-IRAV

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

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

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

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

ERAV | IRAV | IRAV-ERAV

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

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

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

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

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

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

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

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

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

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)

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

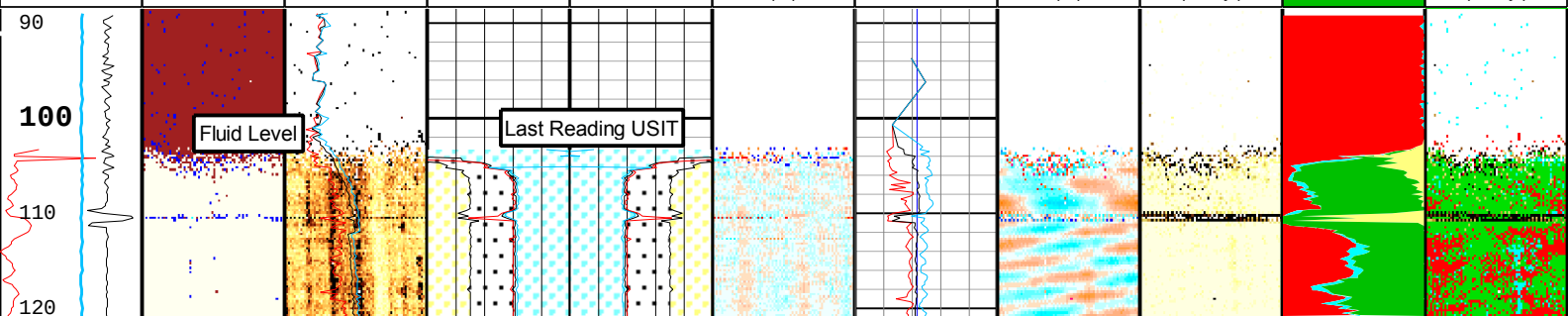
Micro-debonding Ratio (MDR) USIT-E
1 0

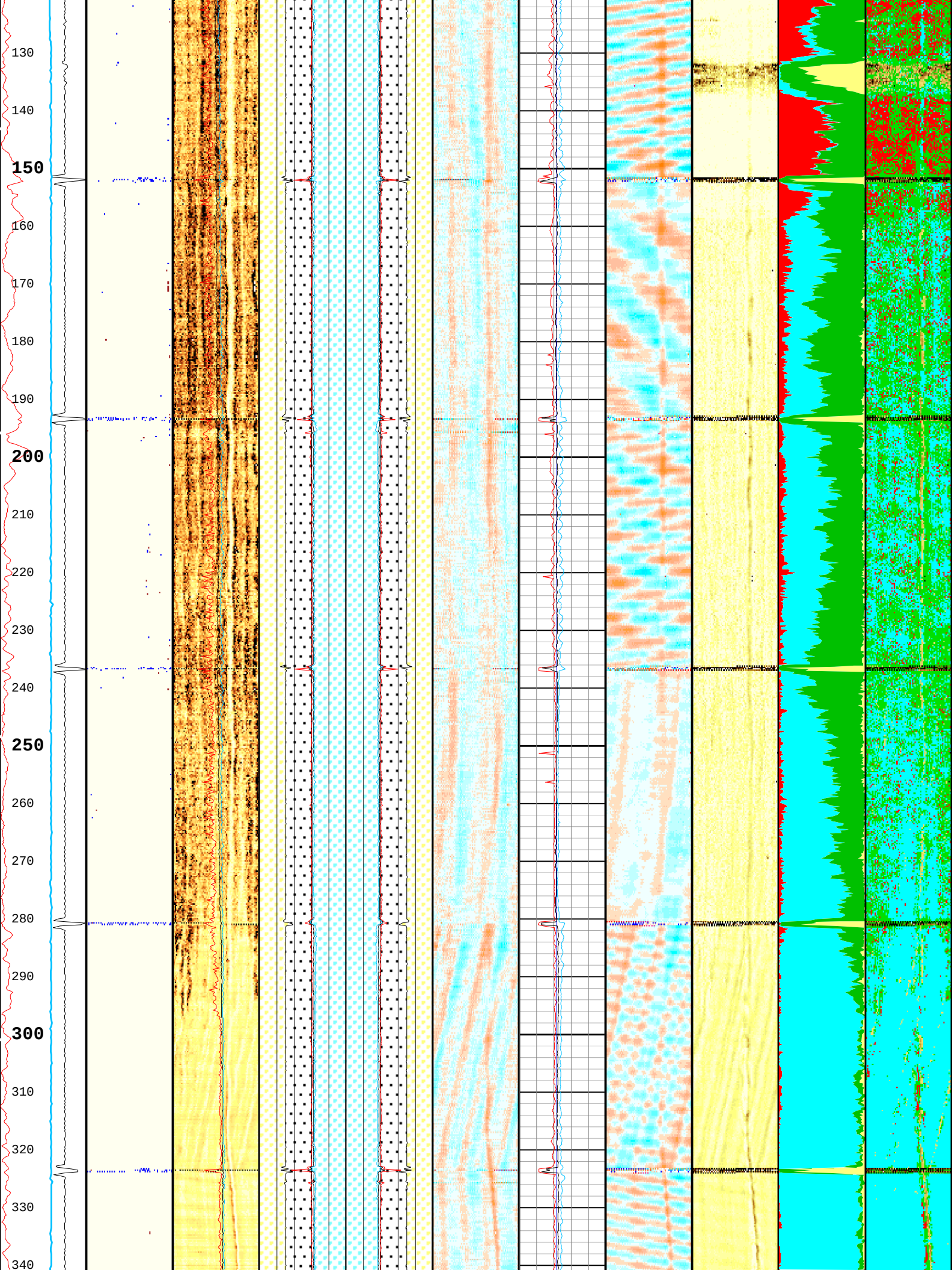
Ratio of Gas Measurements to Total (GASR) USIT-E
1 0

Bonded
Gas
Liquid
Micro-debonding

Absent 2.818 4.890 6.963
Custom Normalization
USIT - Acoustic Impedance (AIBK) USIT-E (Mrayl)

Absent 2.299 4.372 6.445
Custom Normalization
USIT - Acoustic Impedance With Micro-debonding Image (AI_MDEBOND_IMG) USIT-E (Mrayl)

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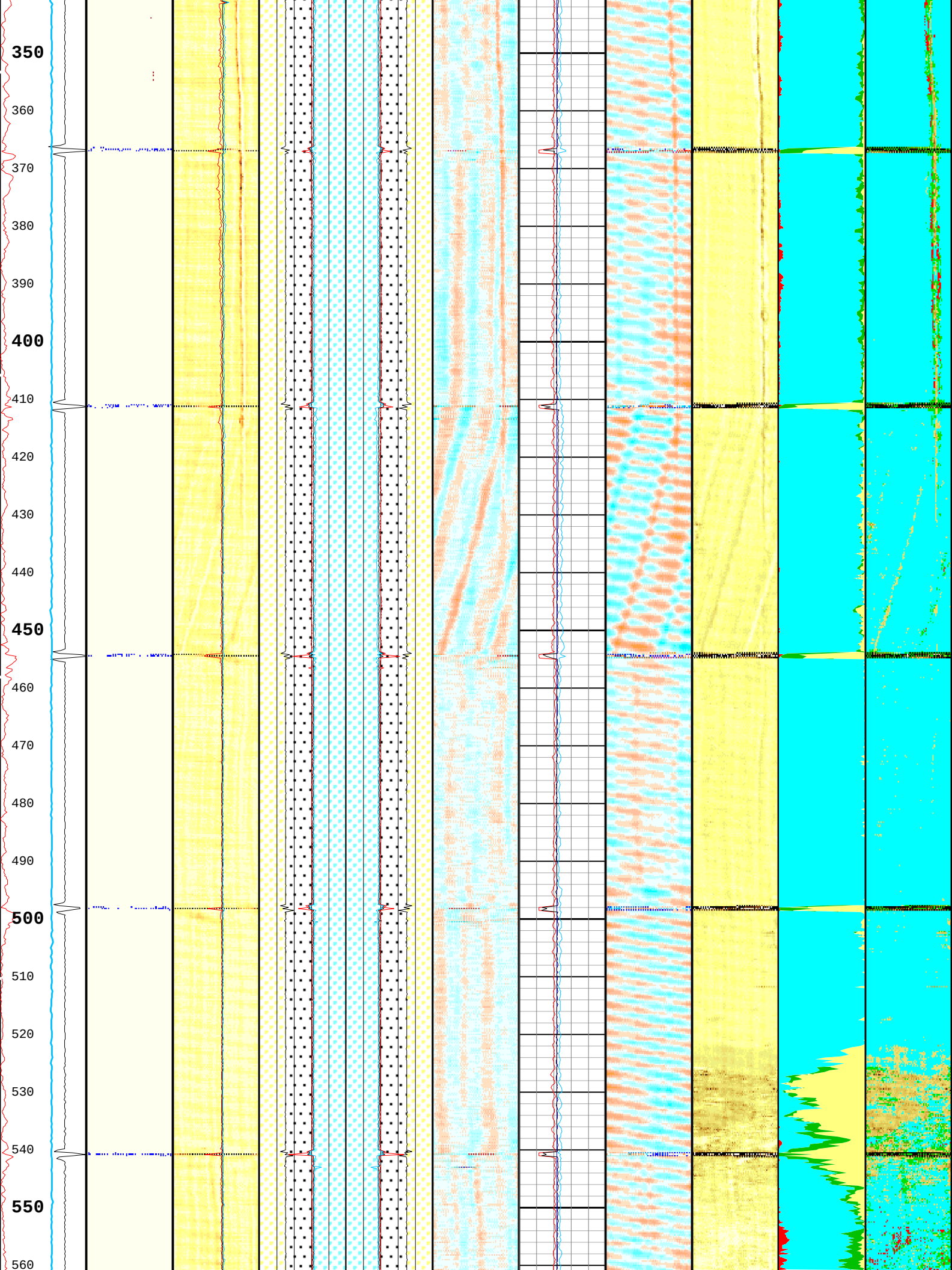
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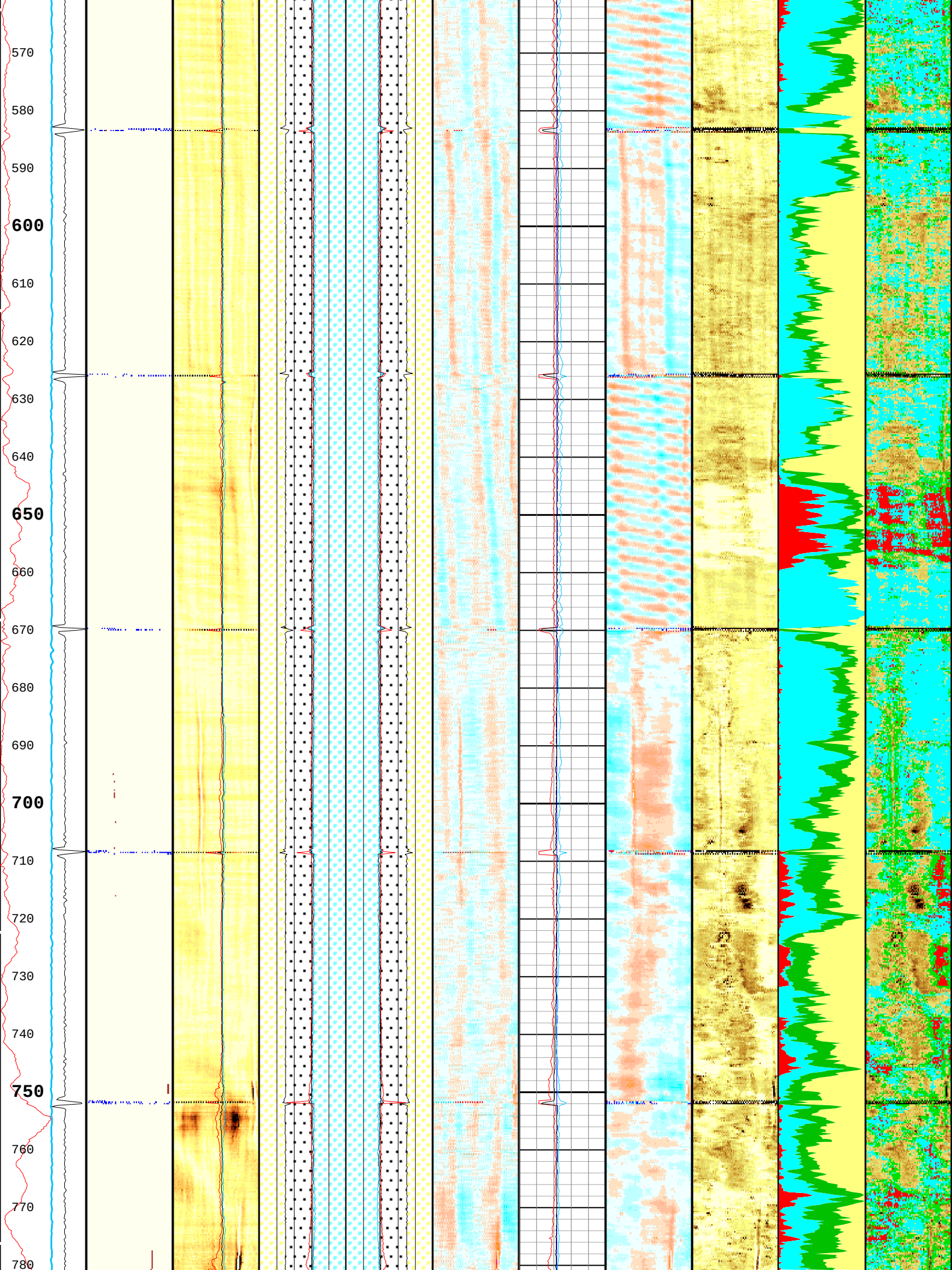
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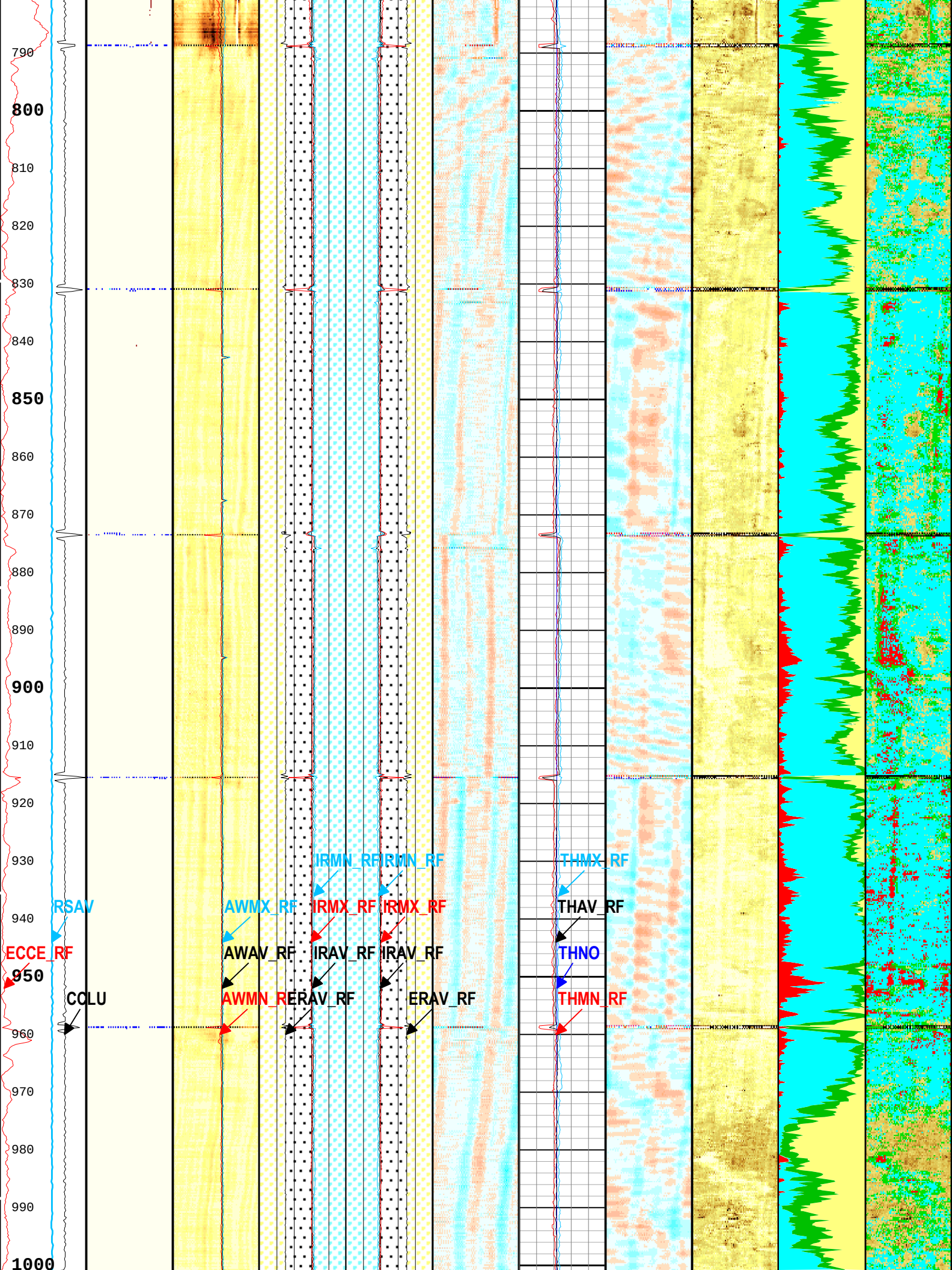
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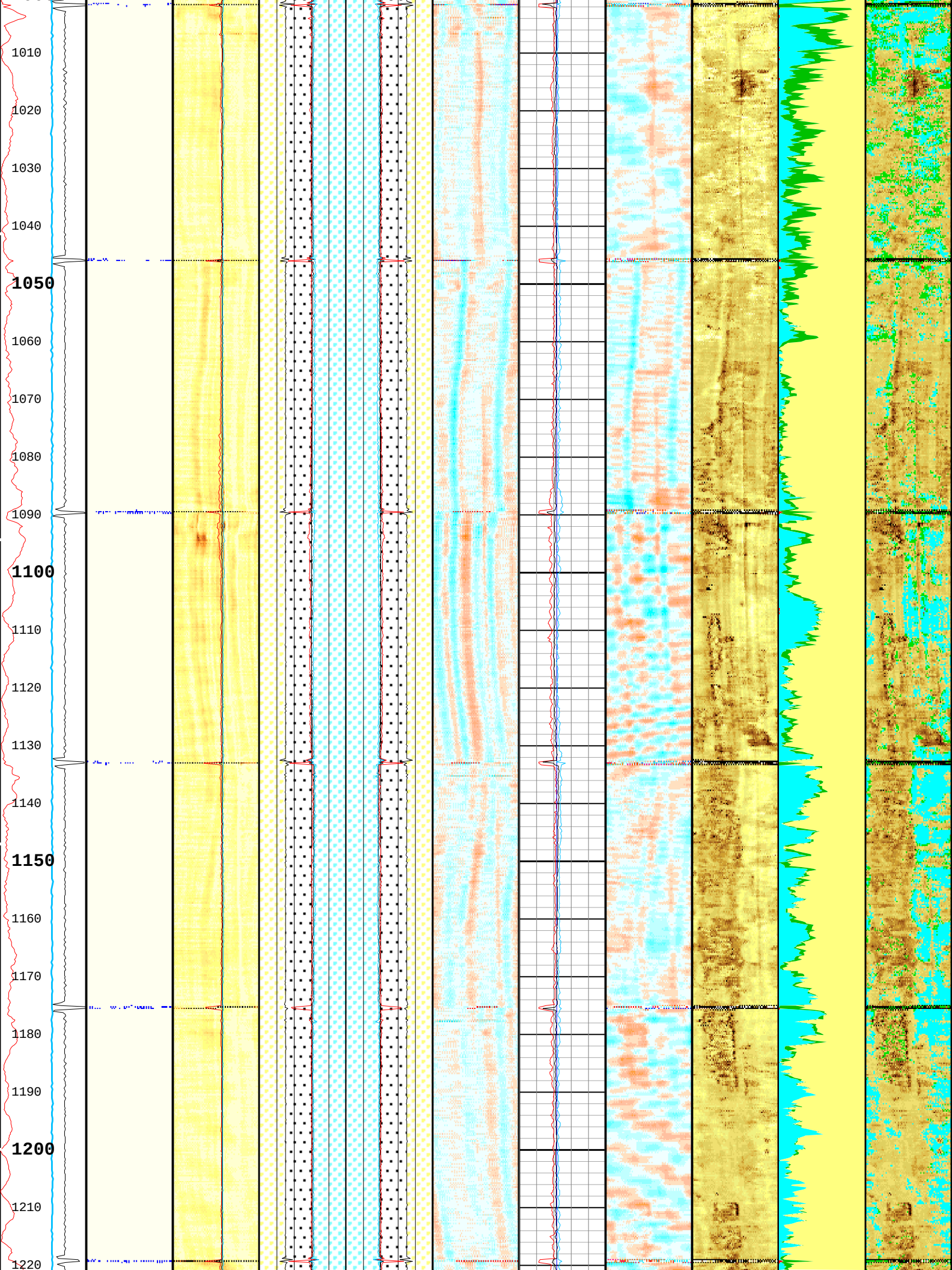
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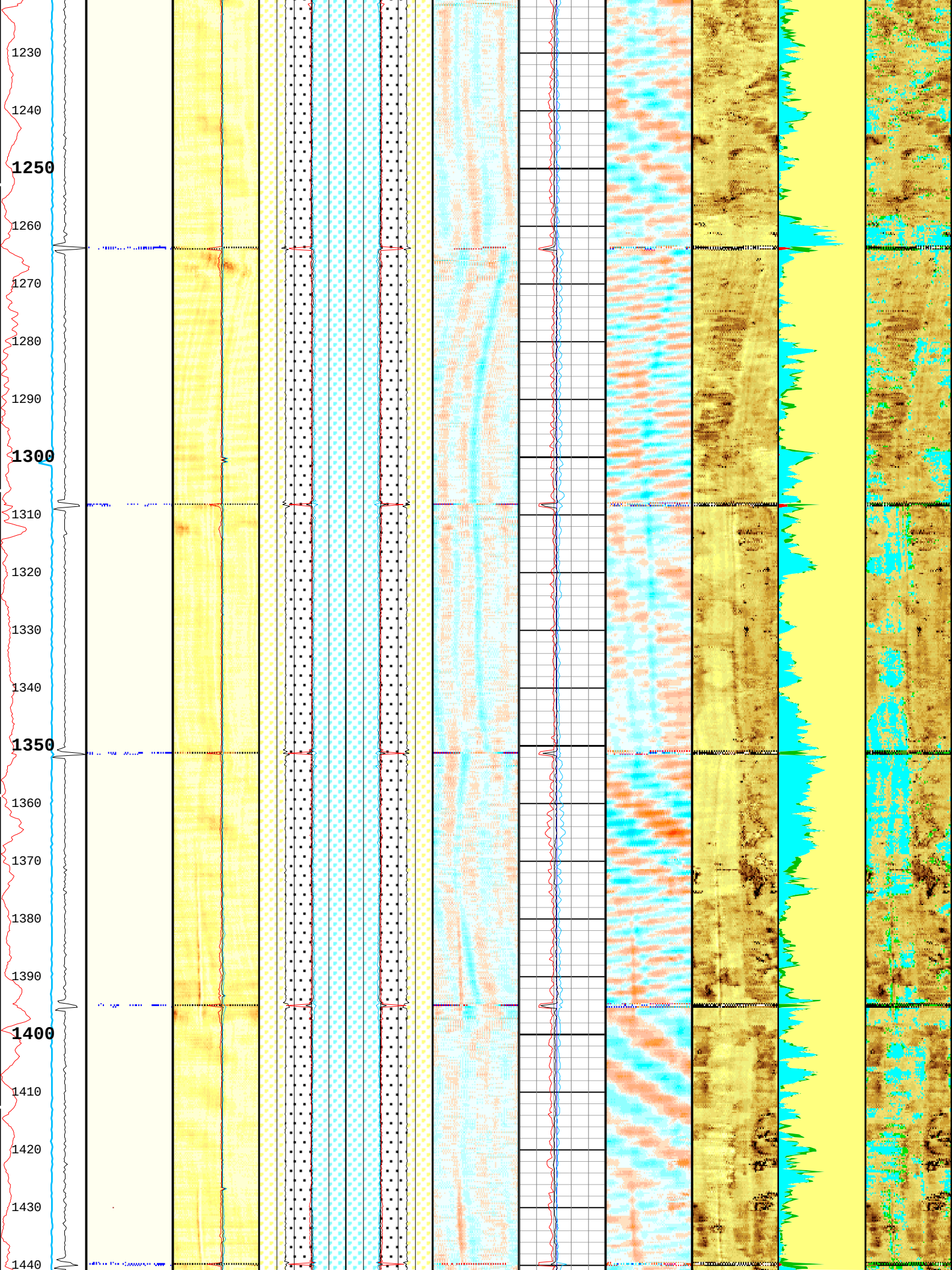
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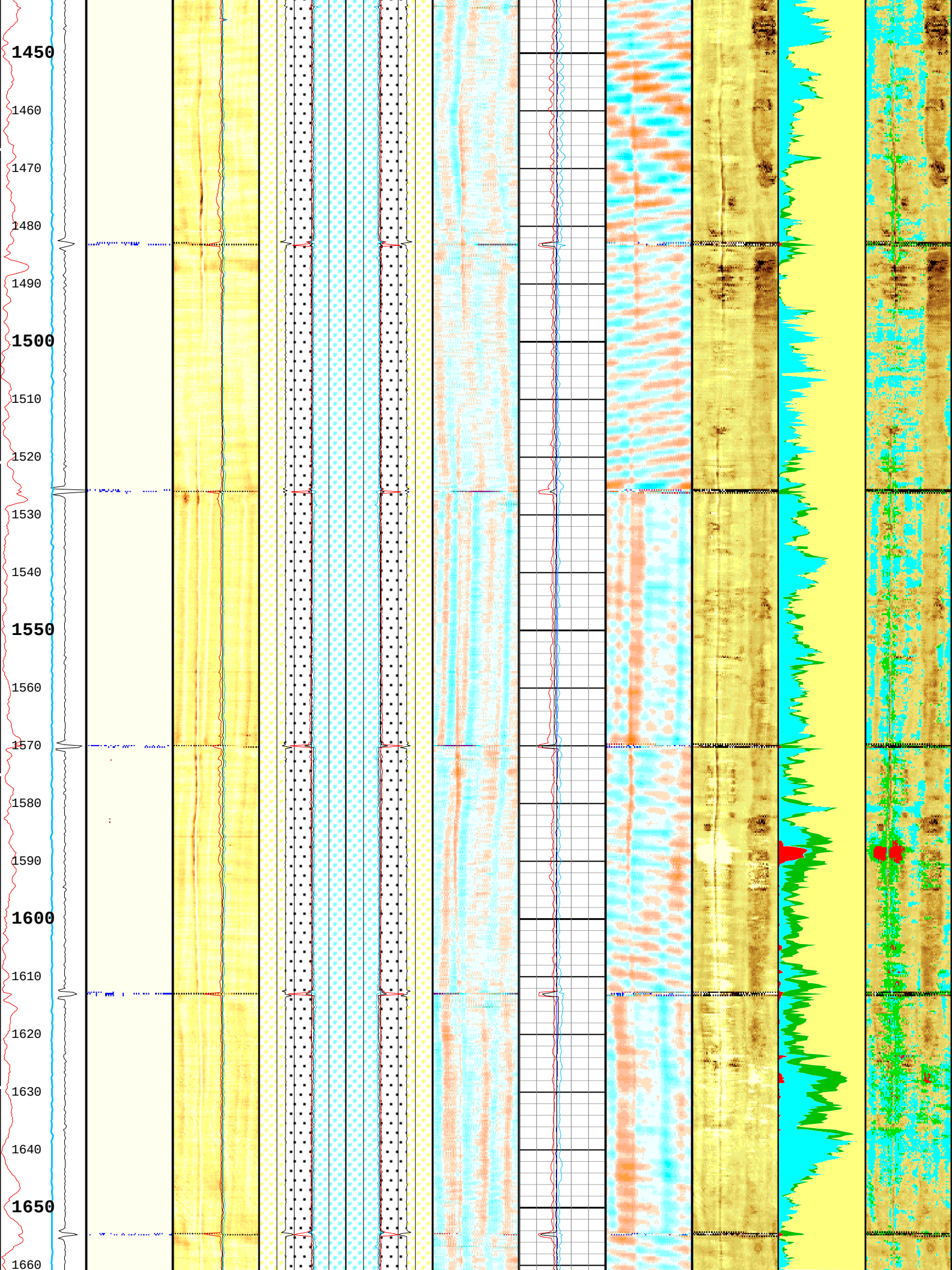
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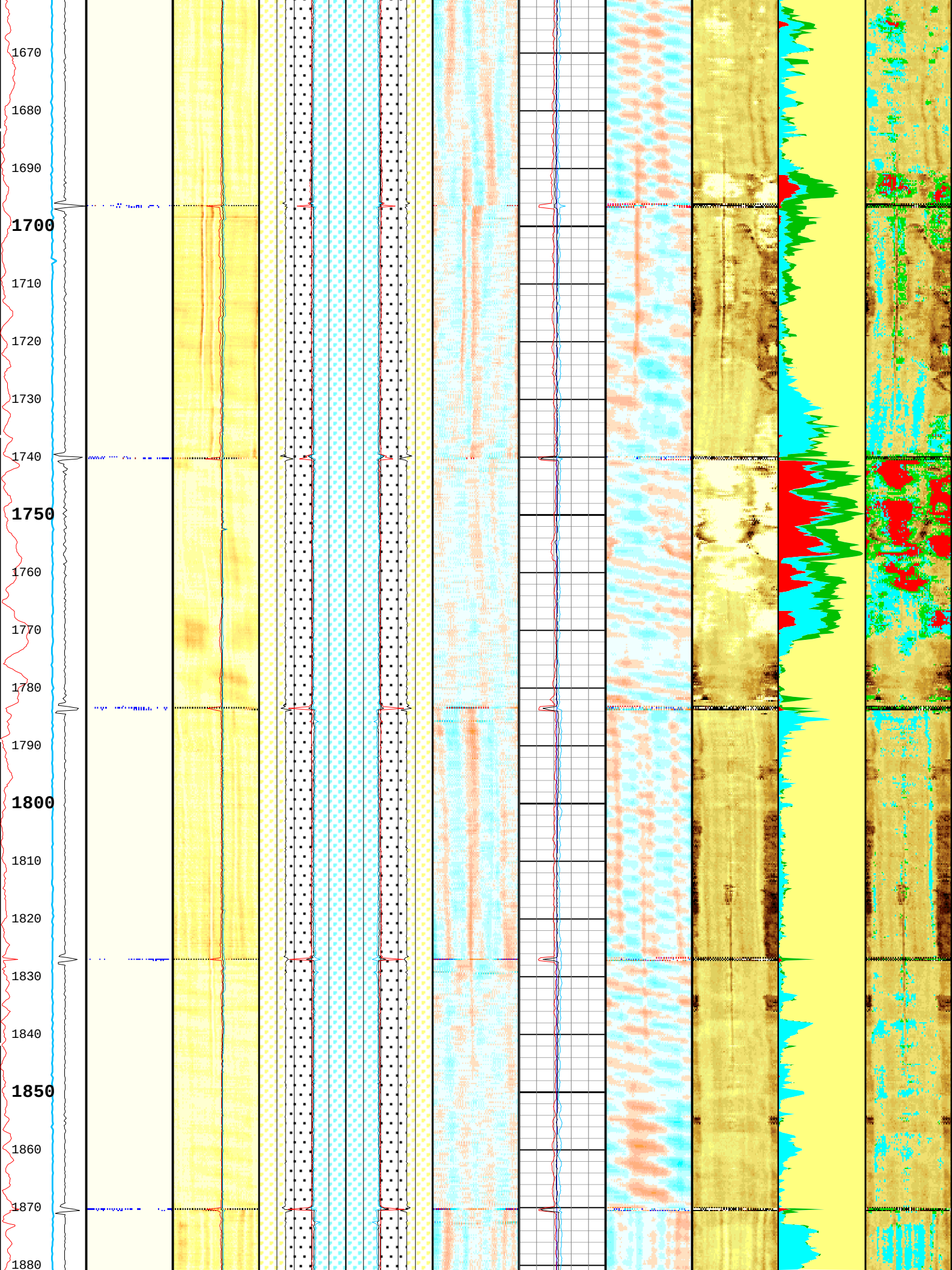
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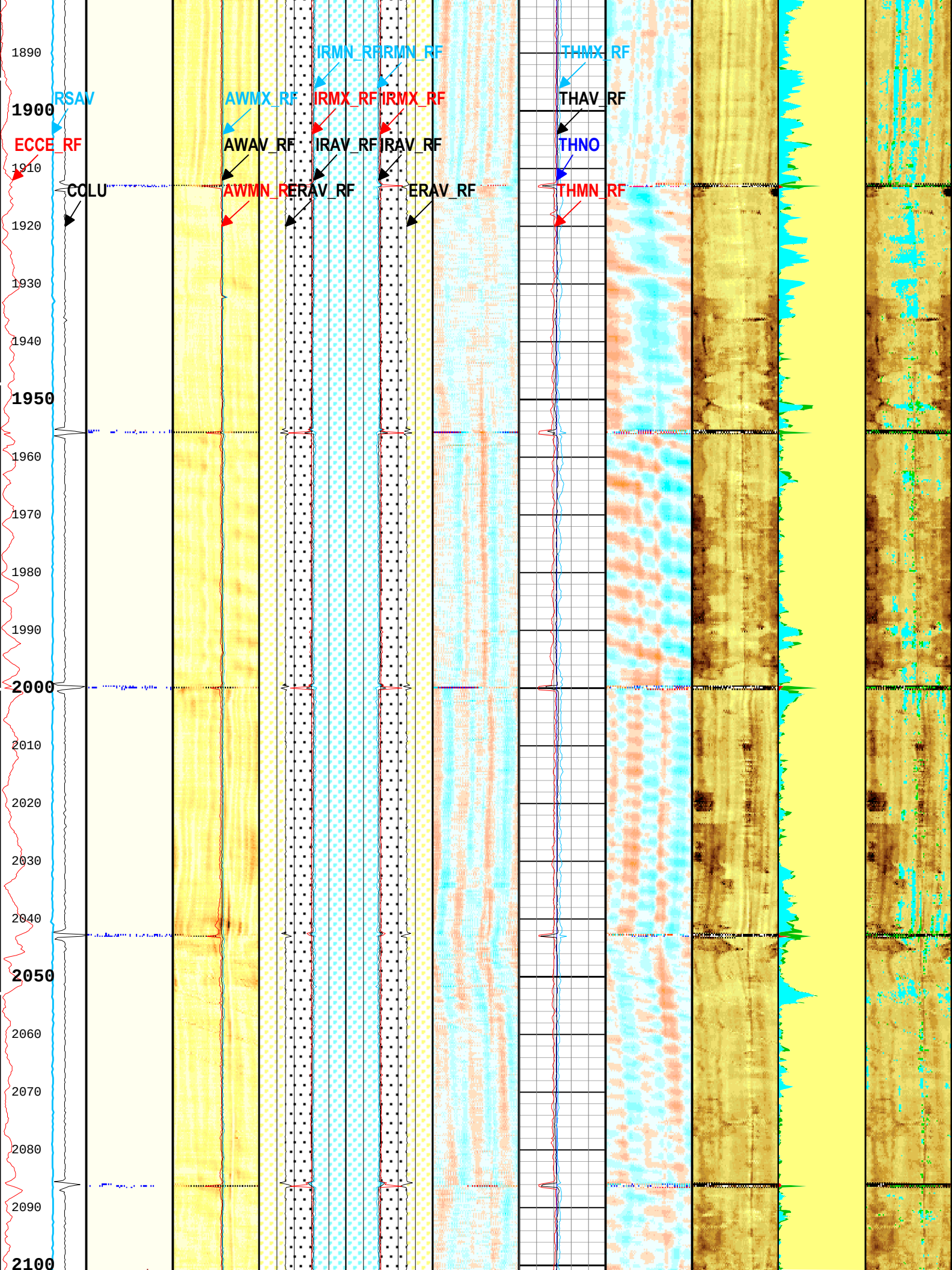
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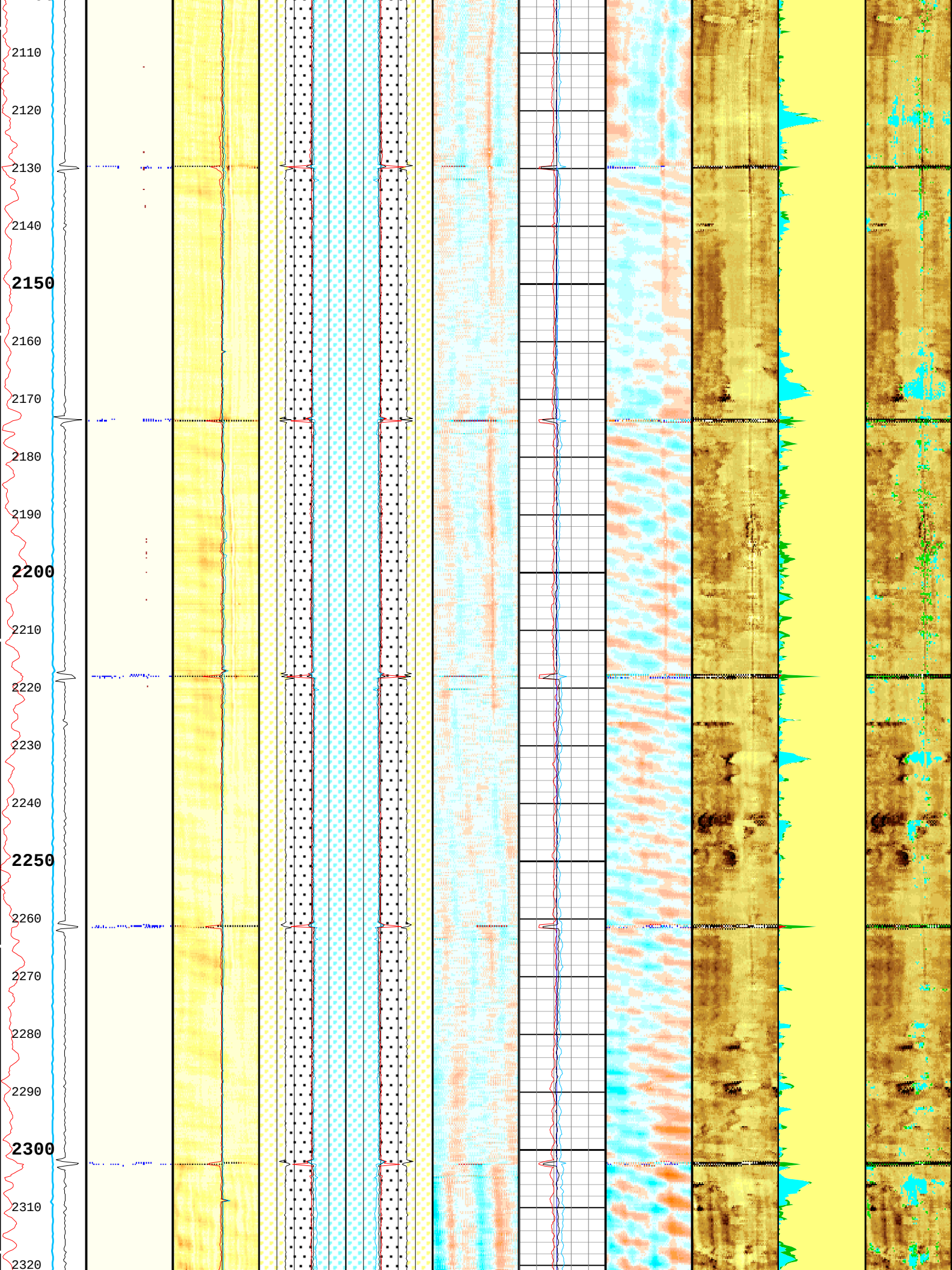
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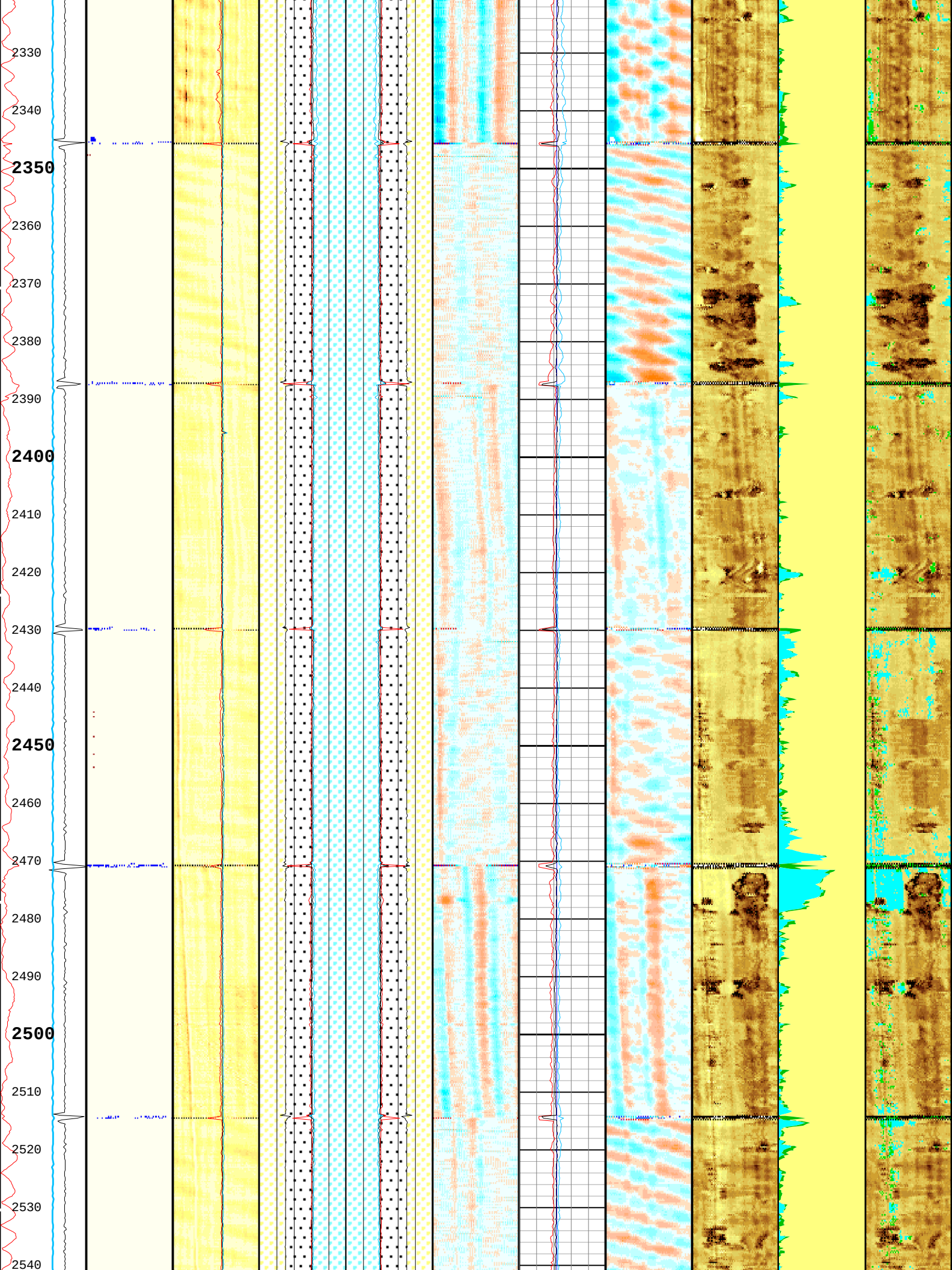
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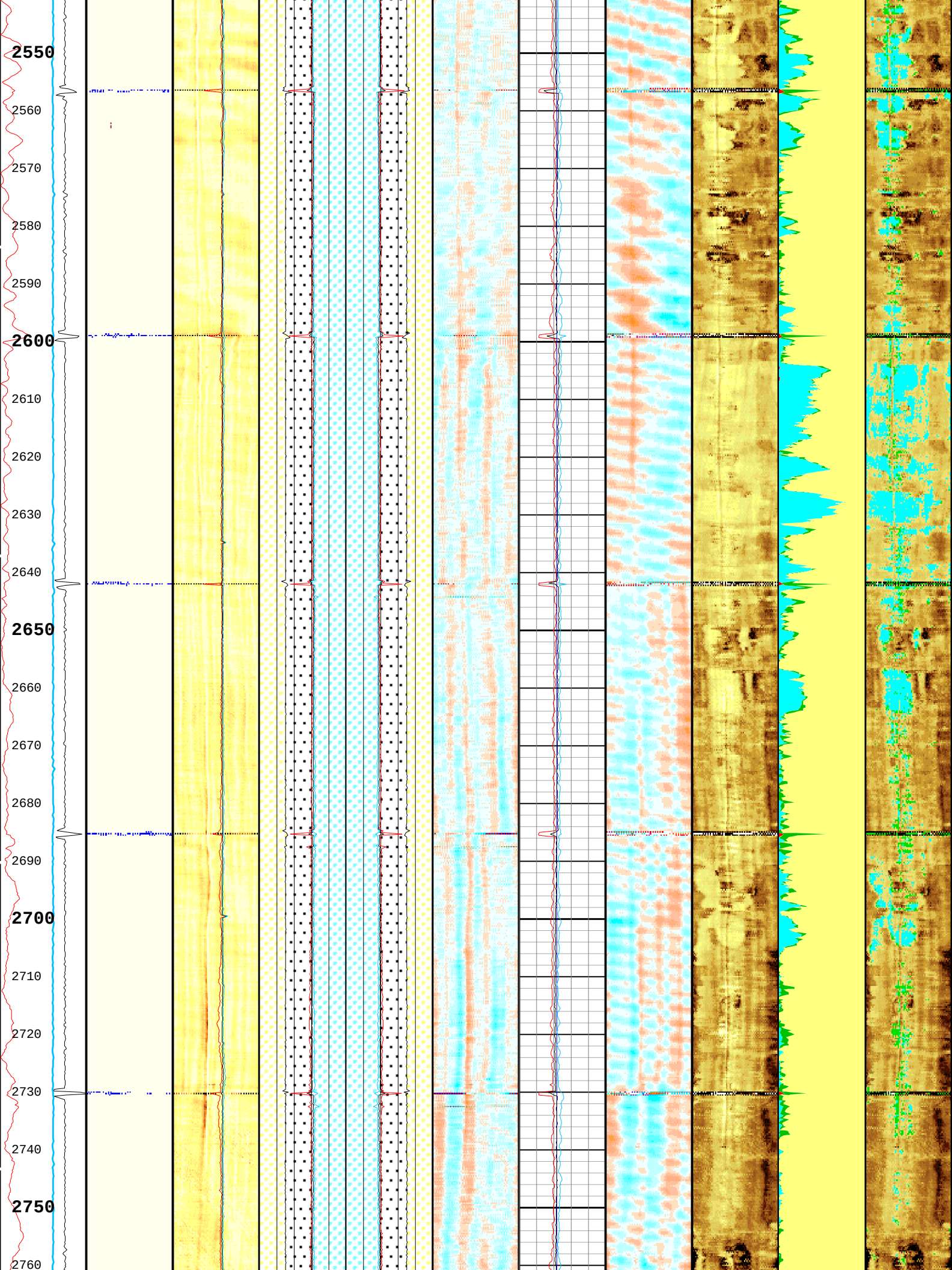
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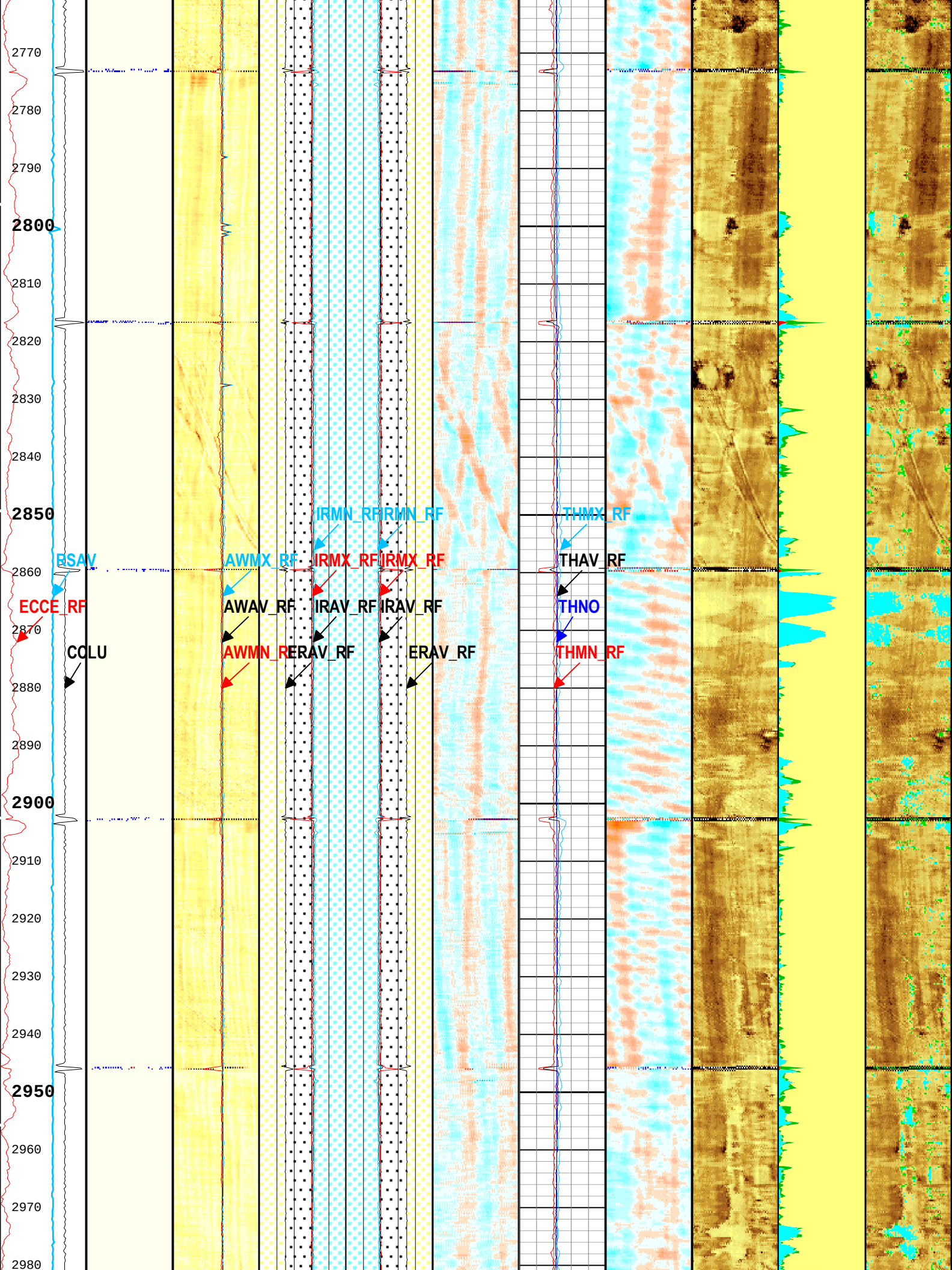
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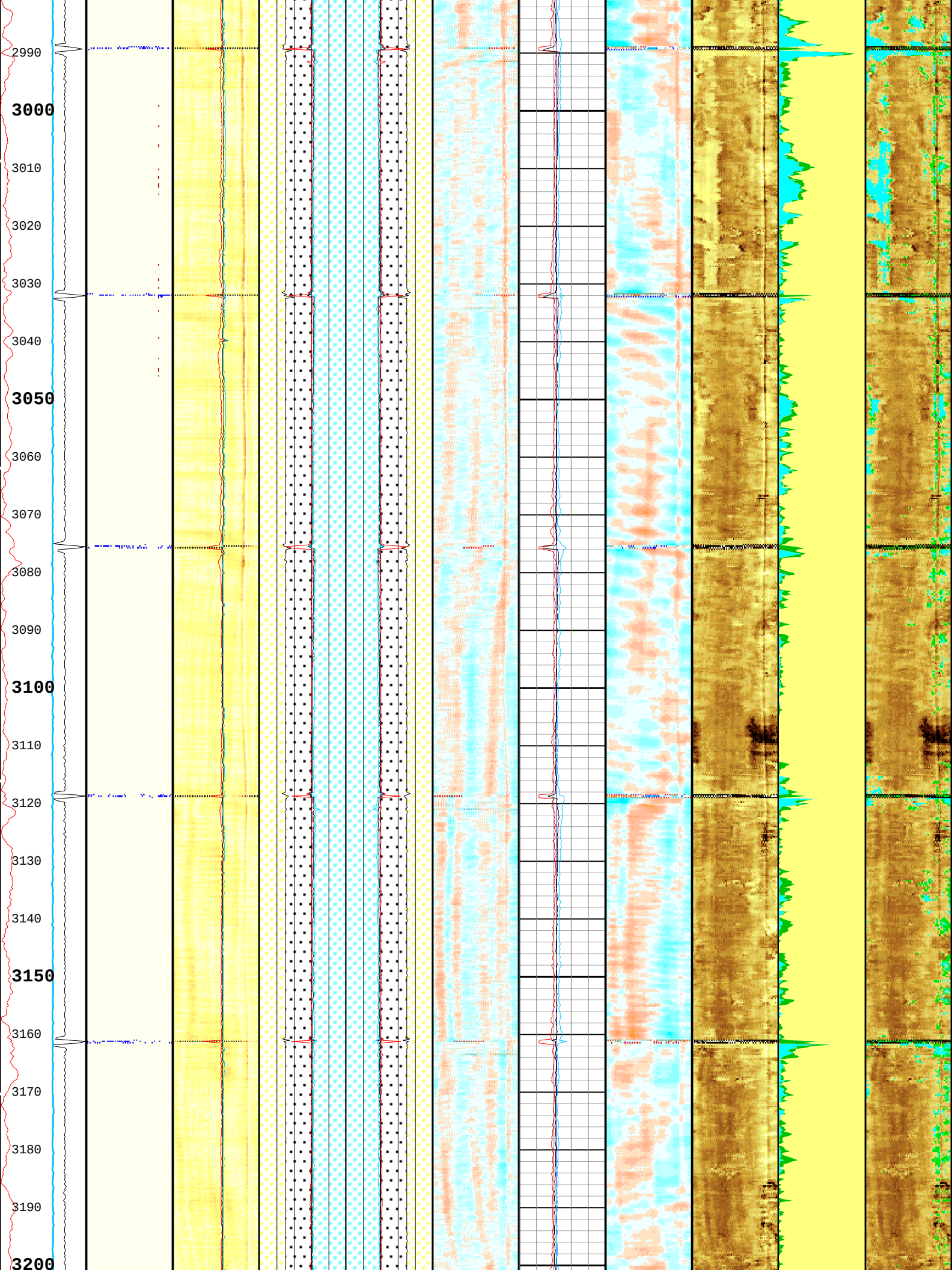
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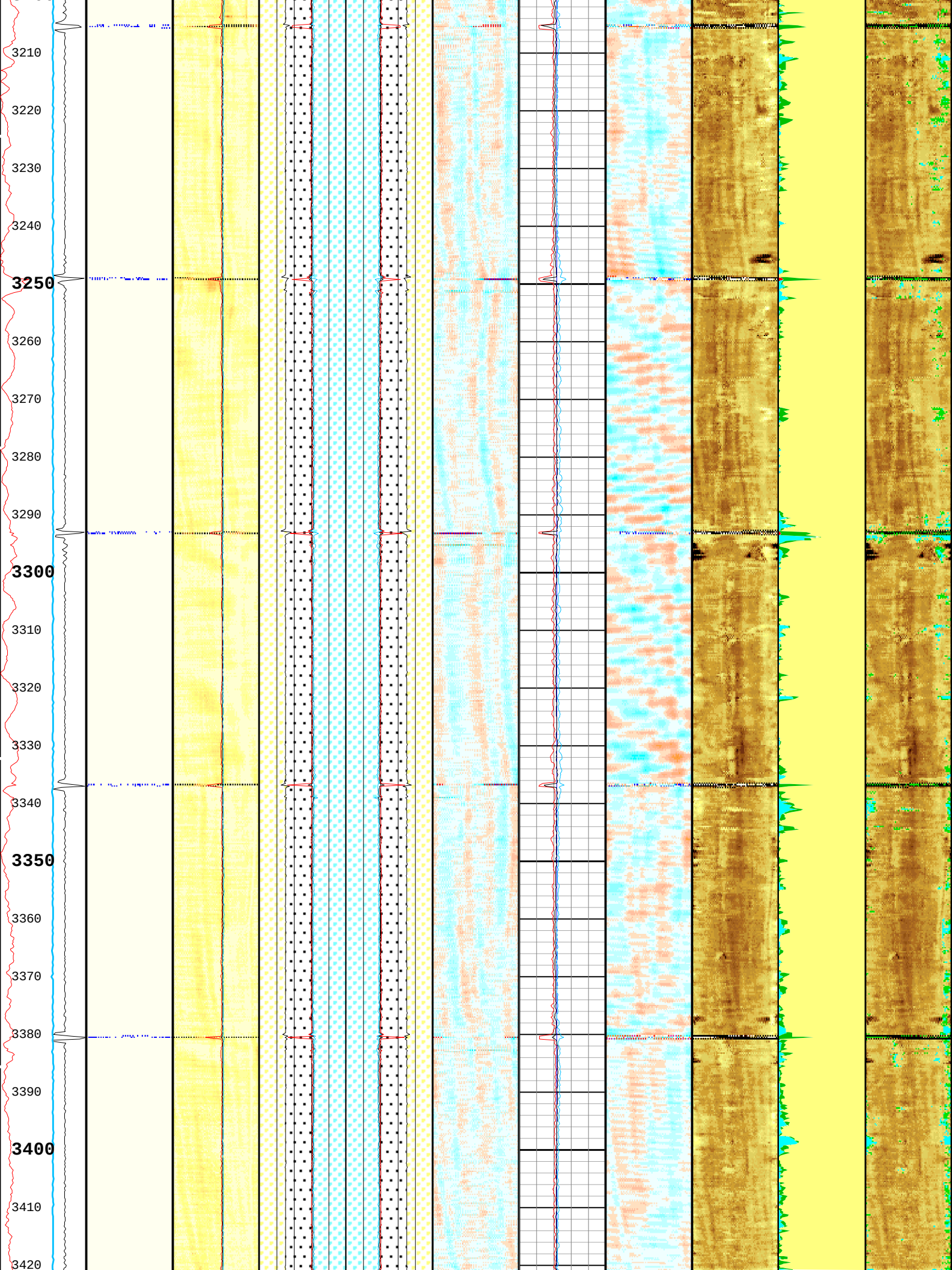
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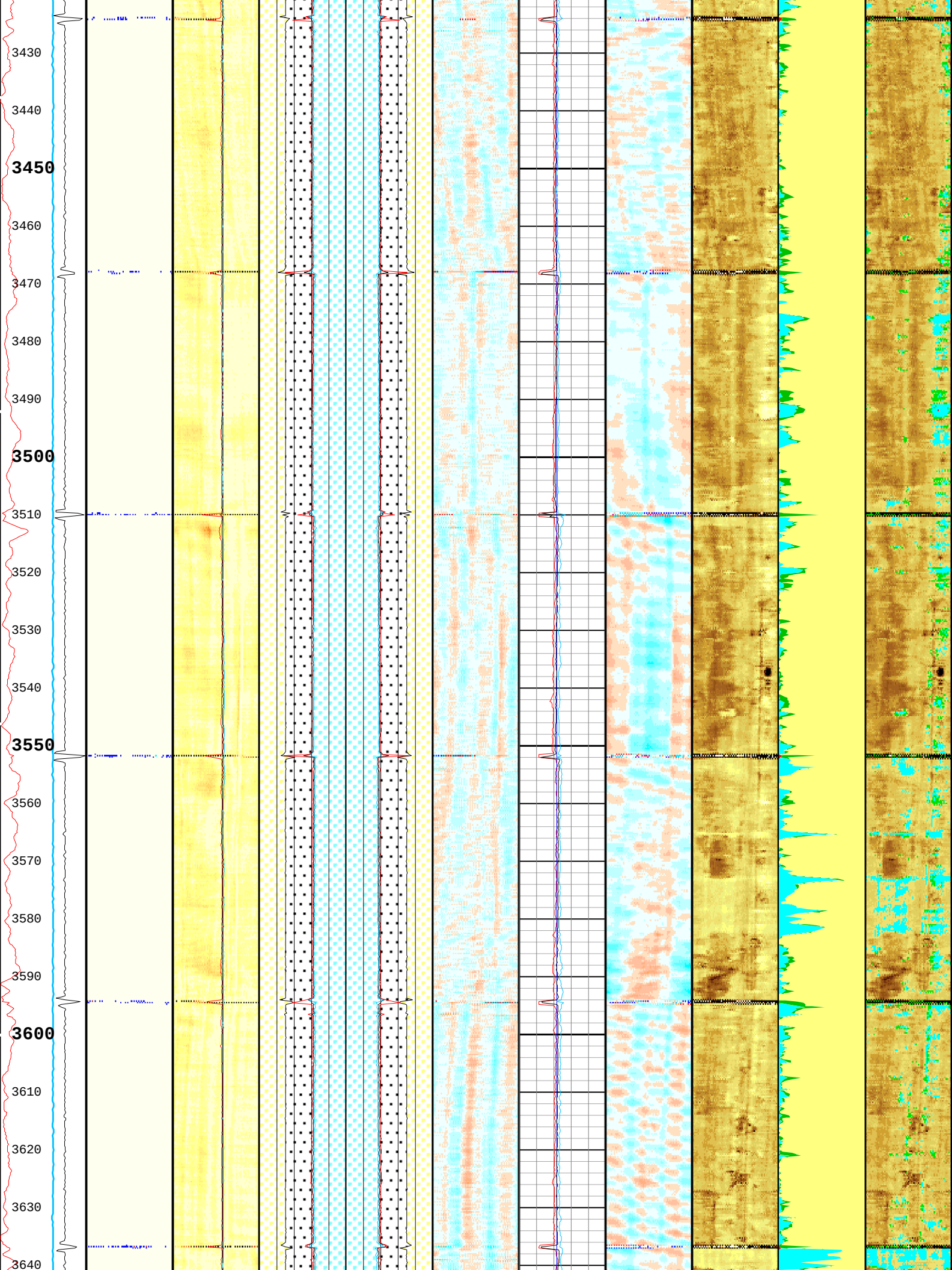
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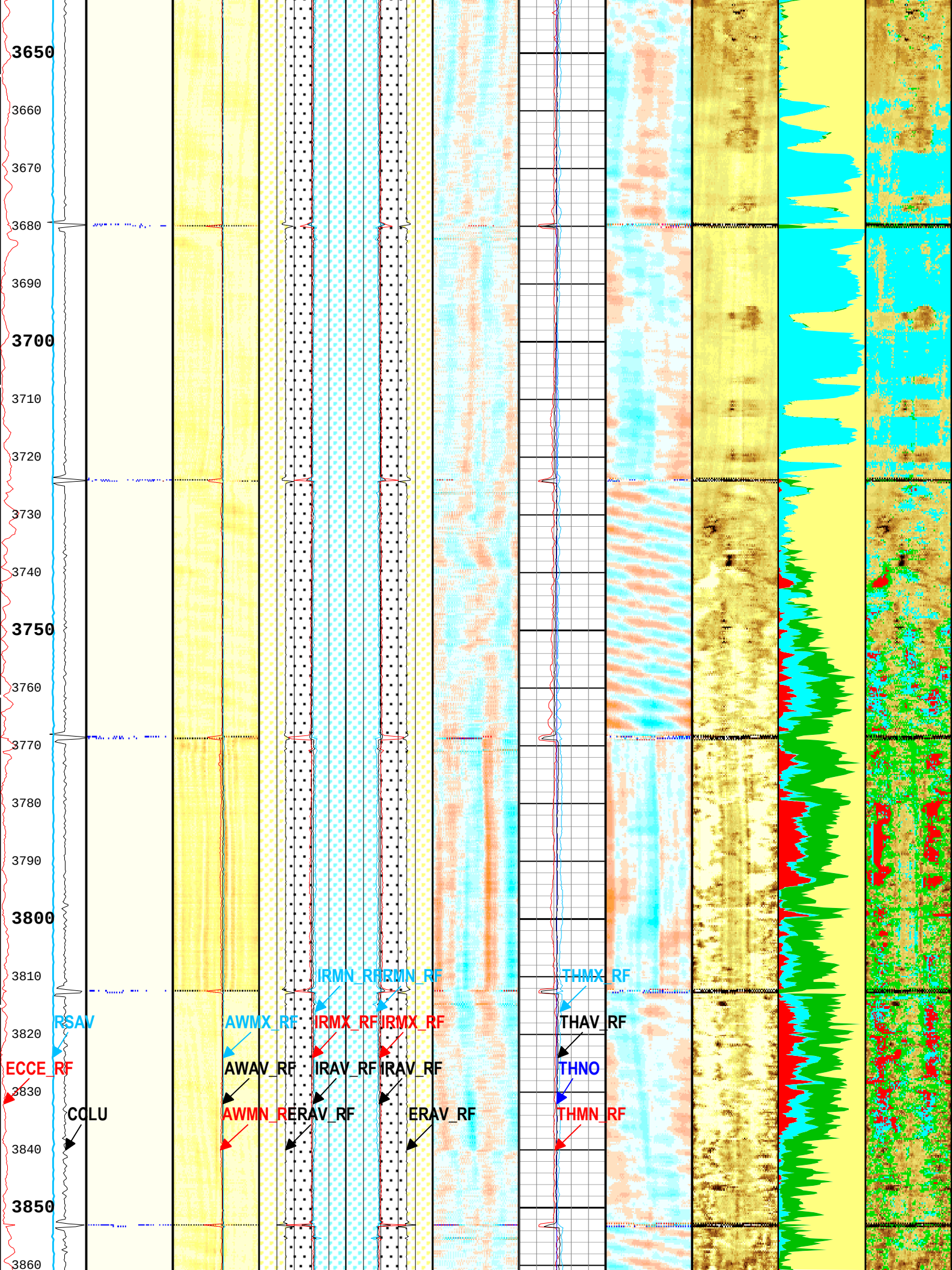
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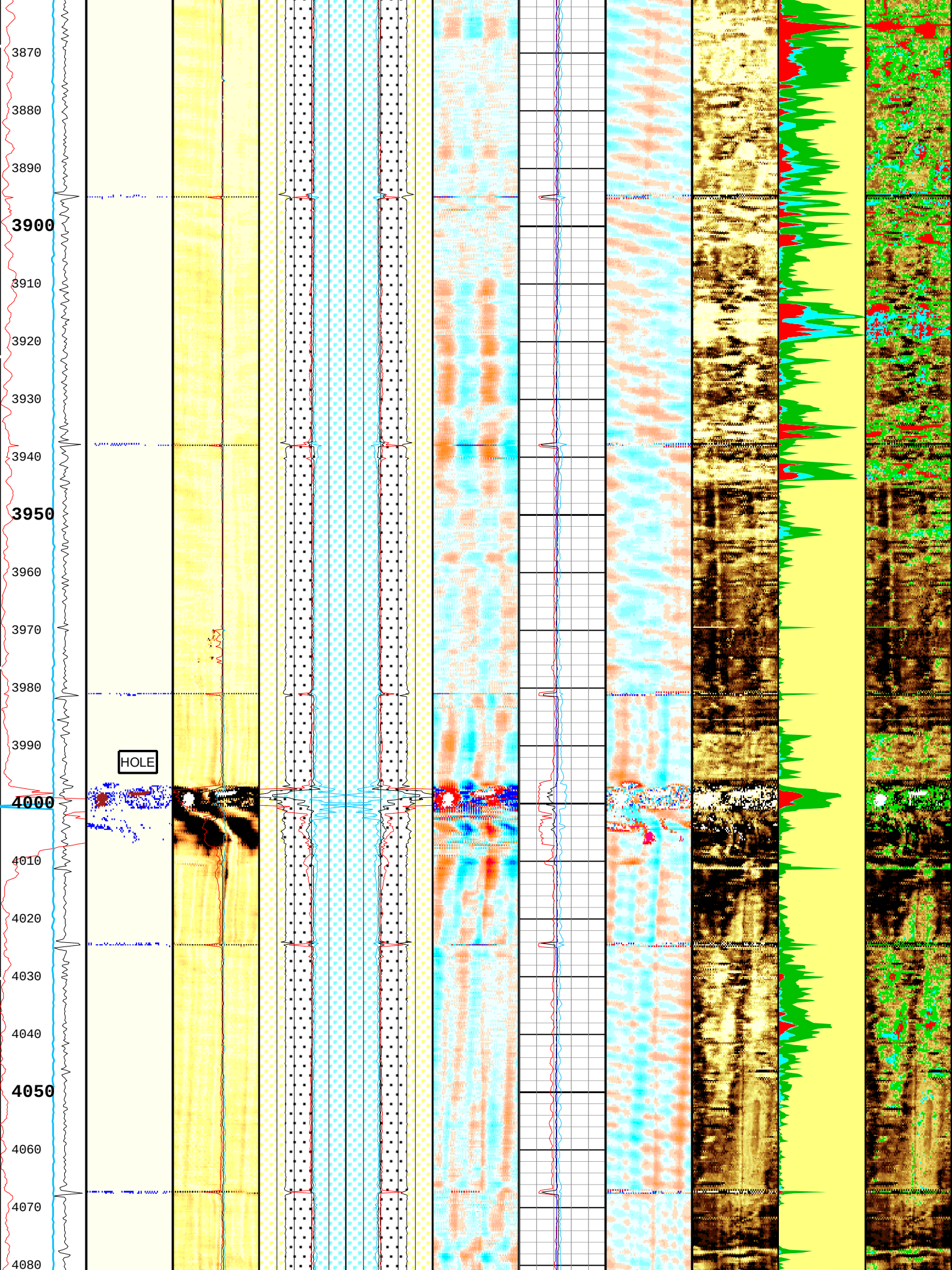
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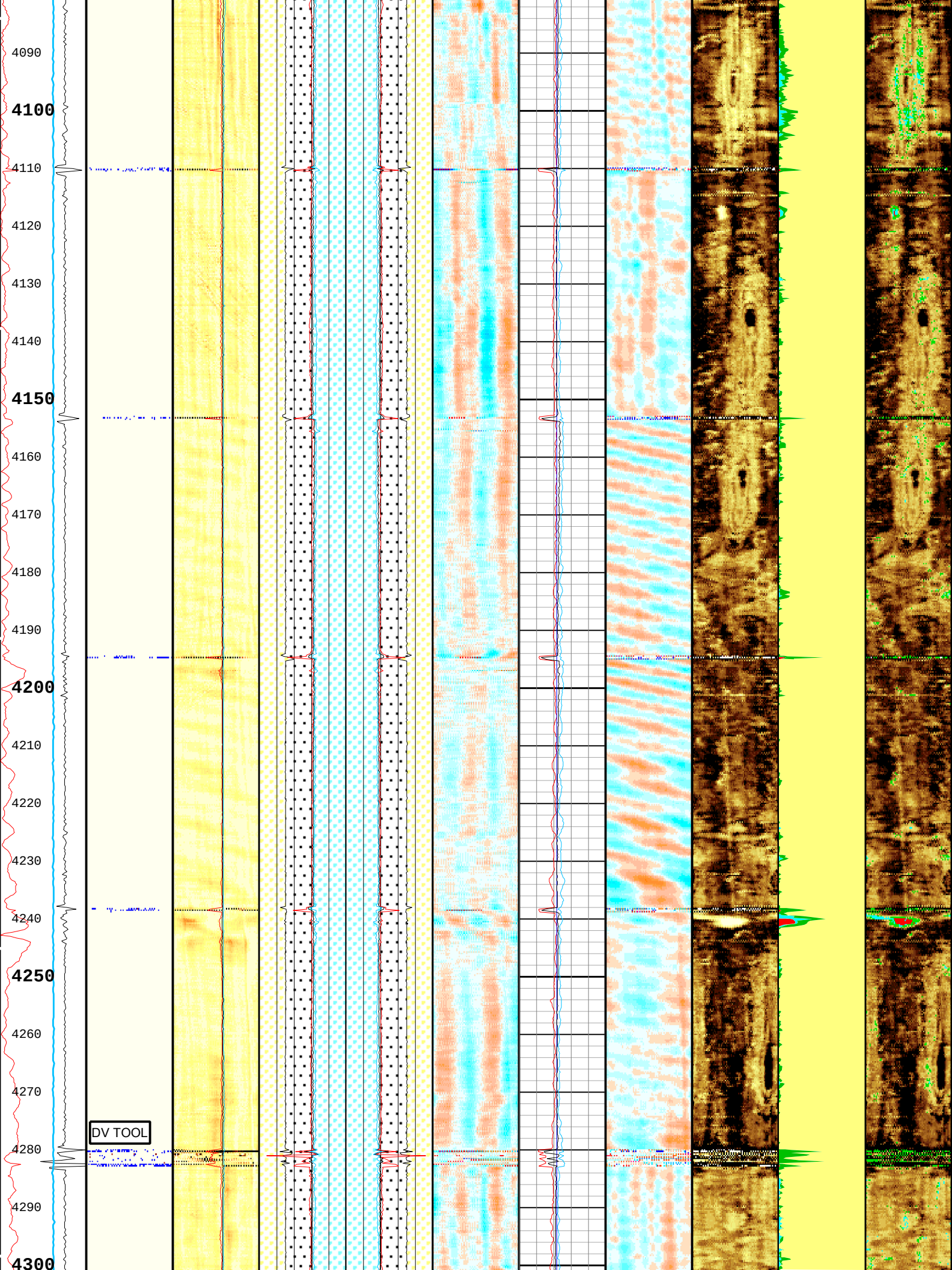
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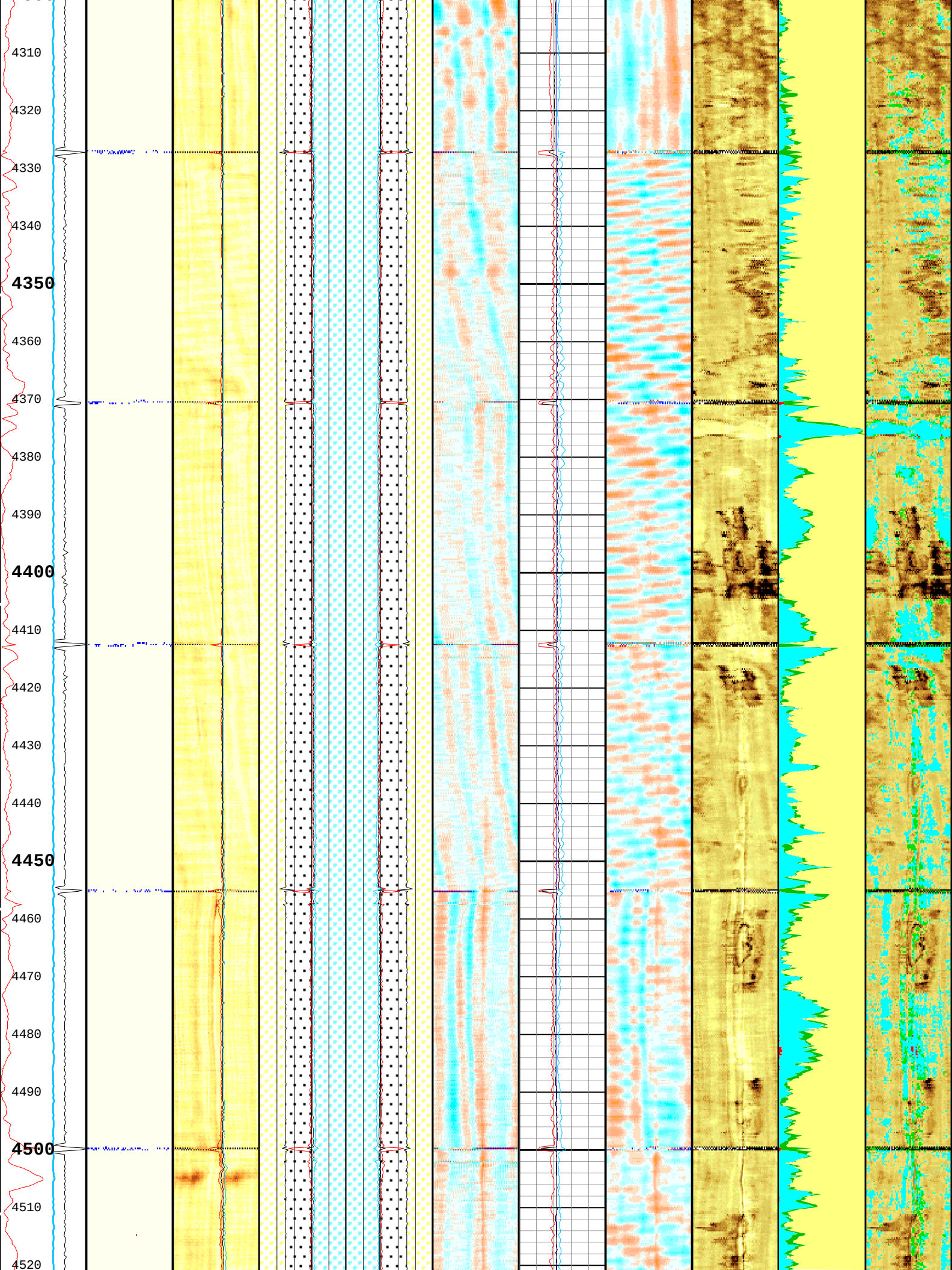
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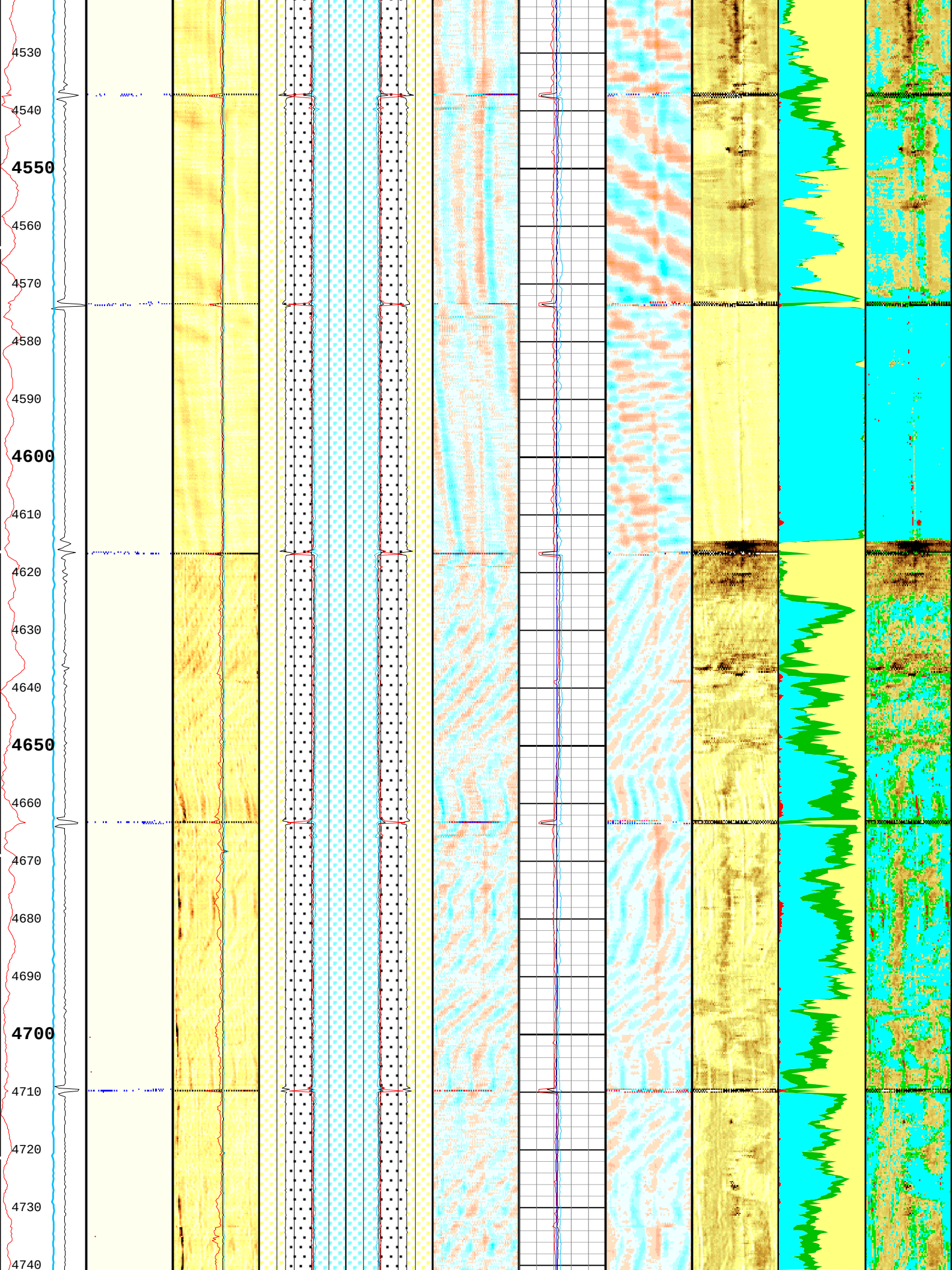
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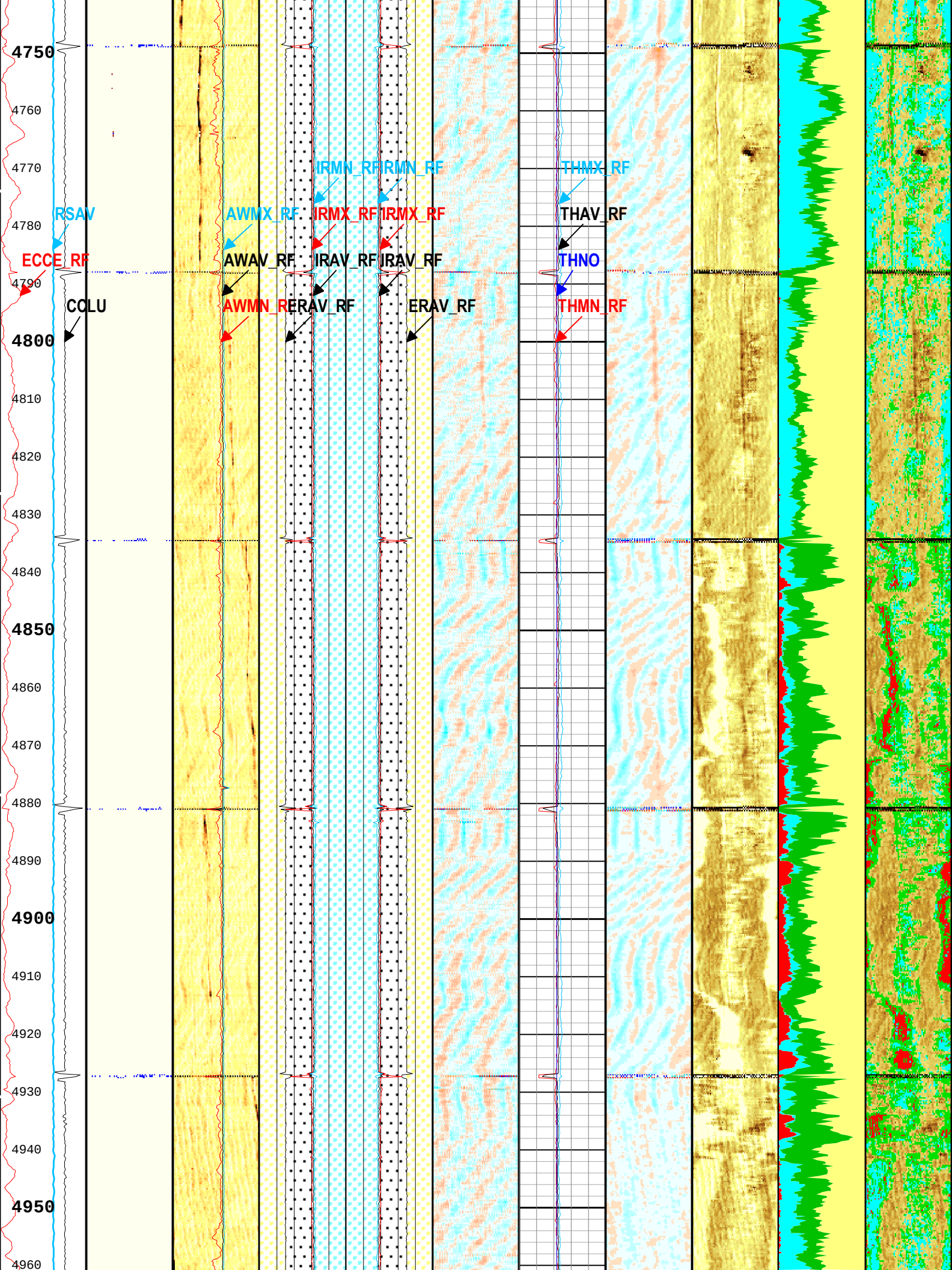
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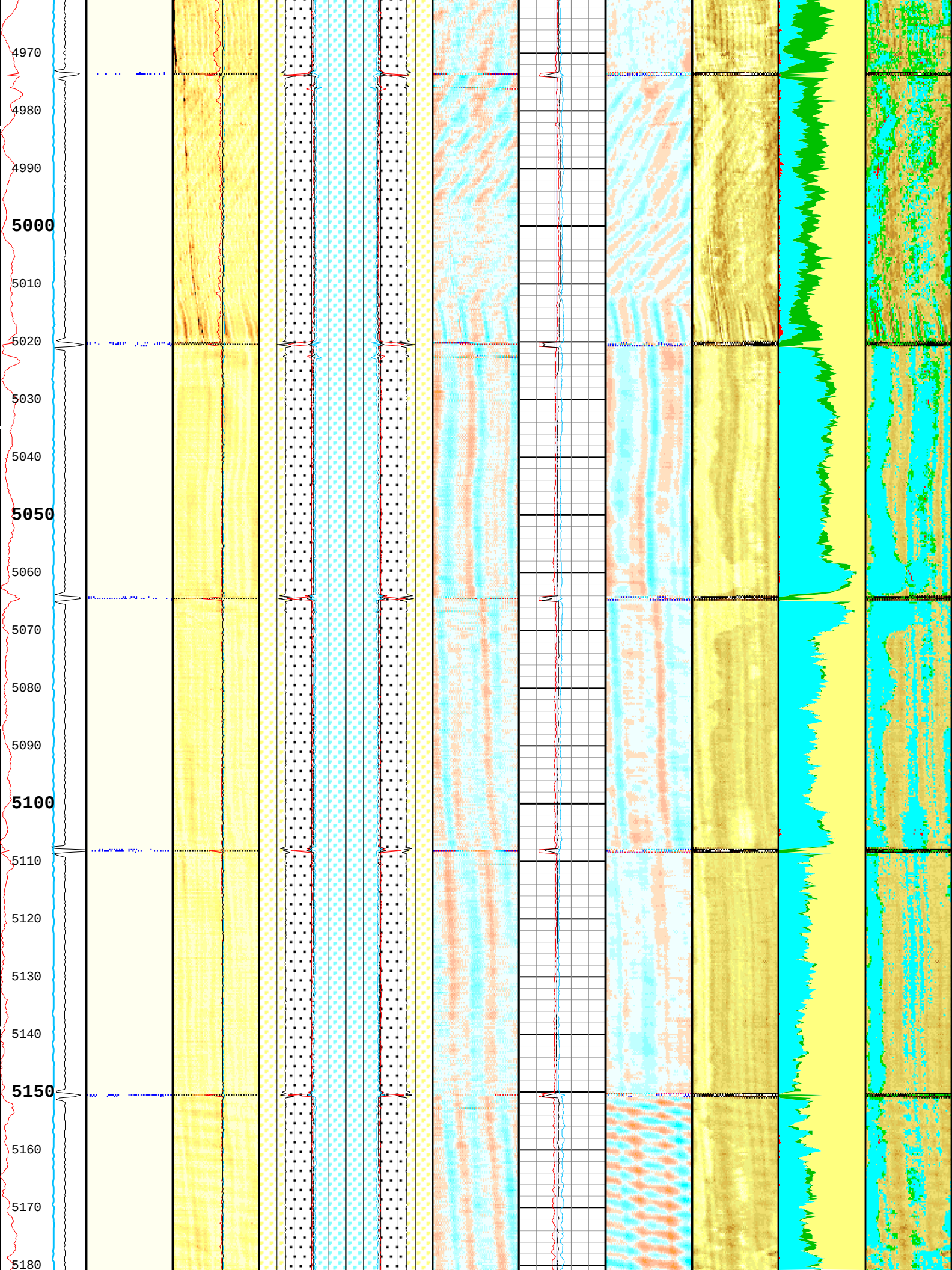
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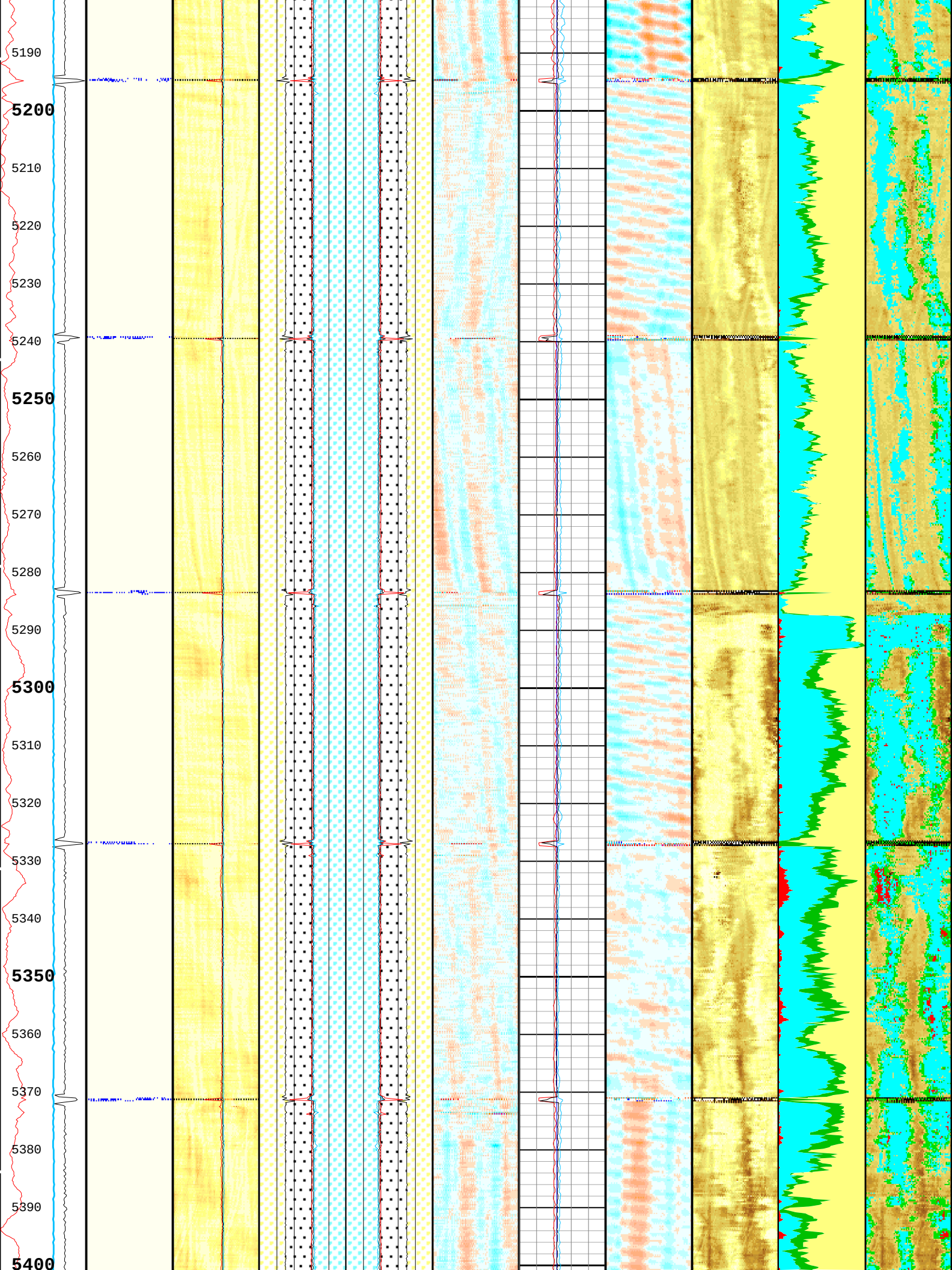
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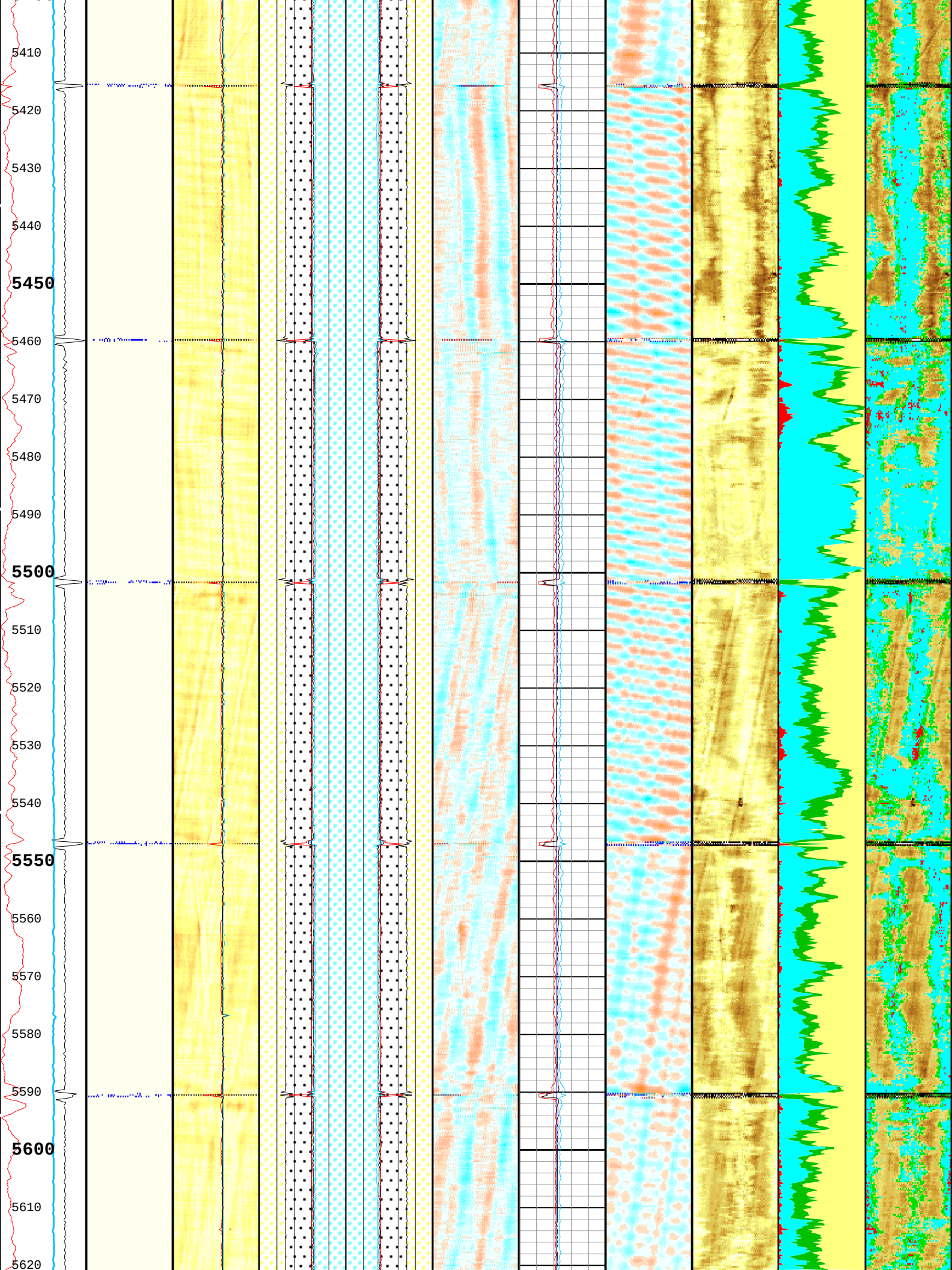
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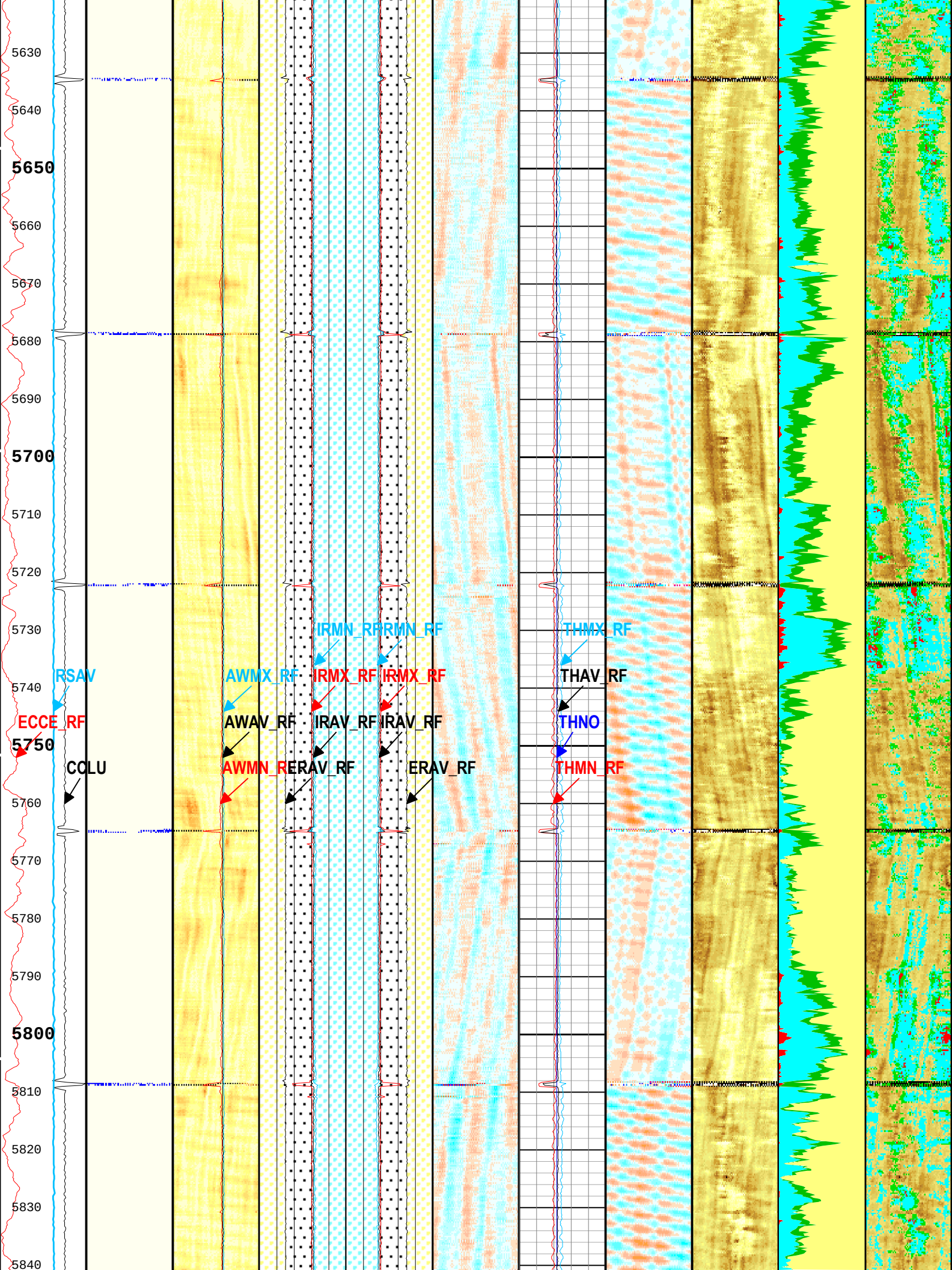
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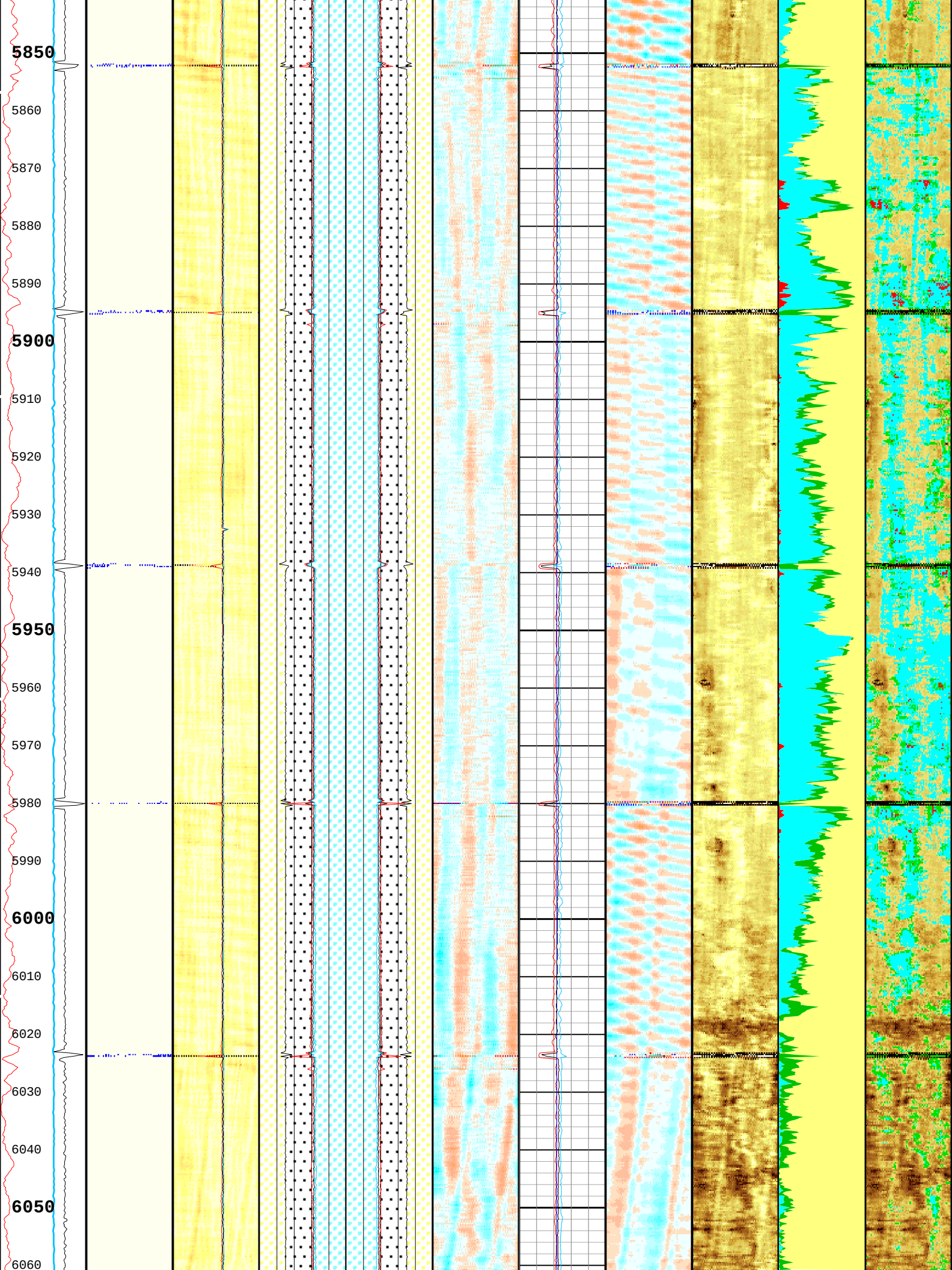
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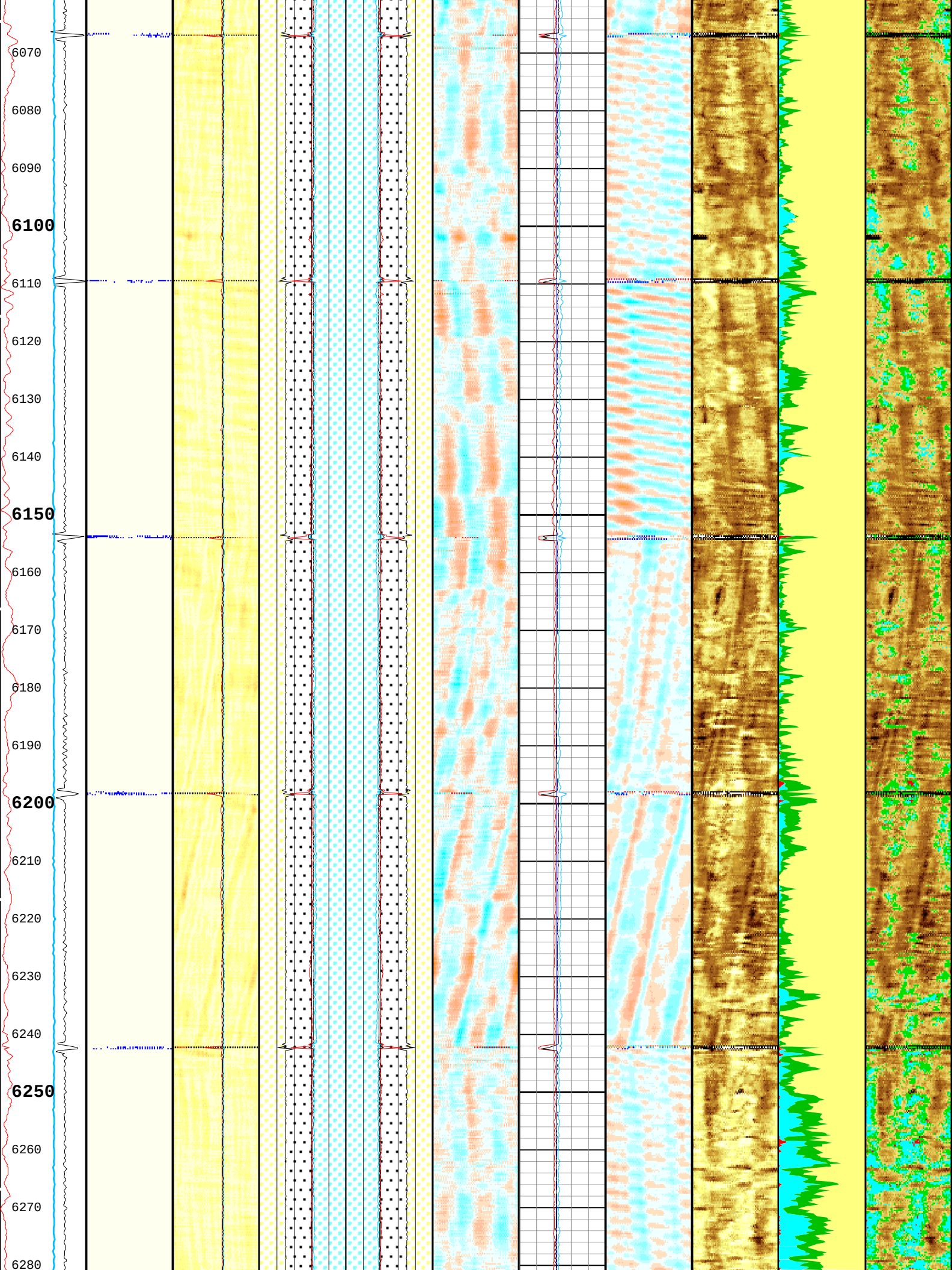
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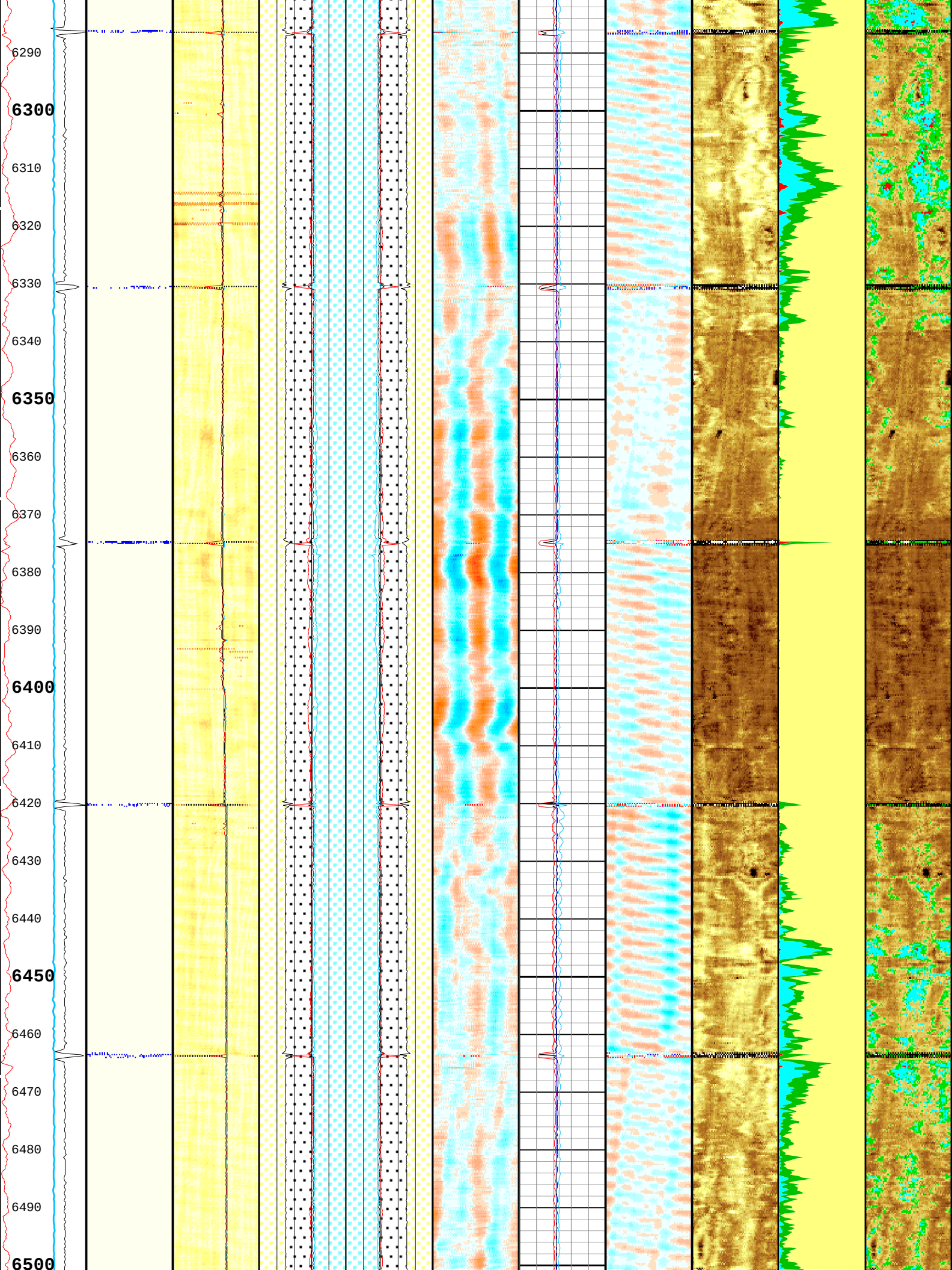
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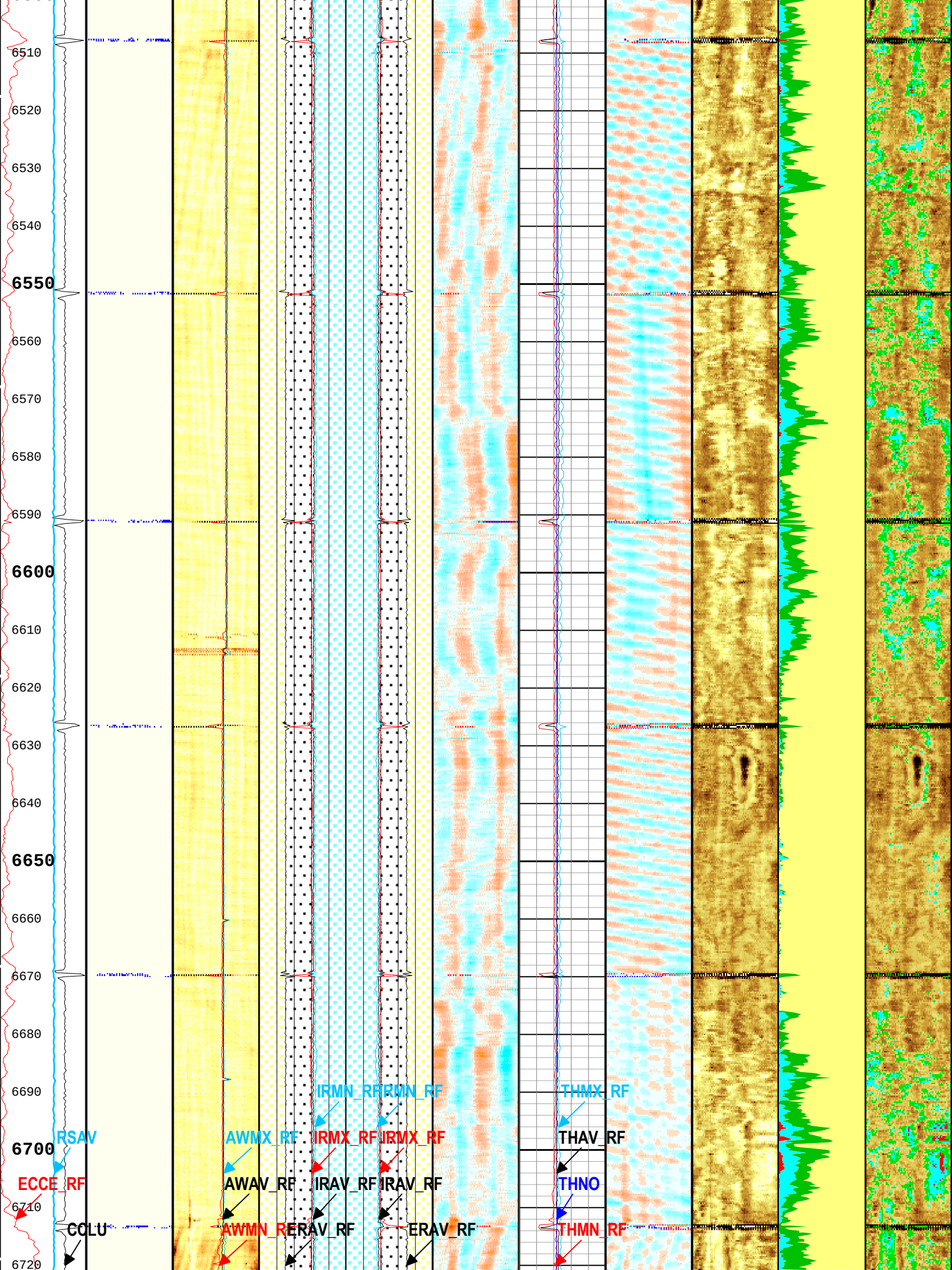
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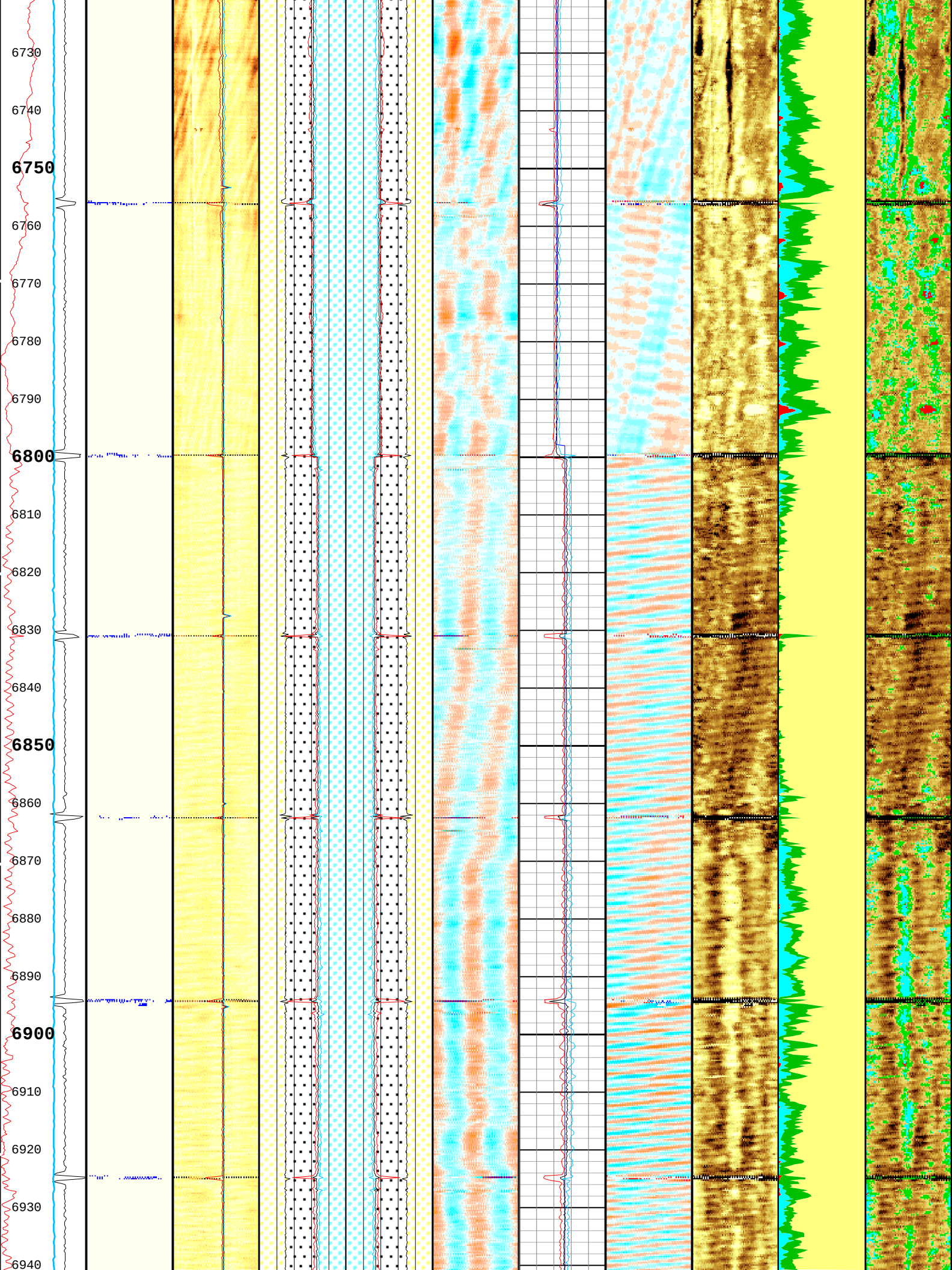
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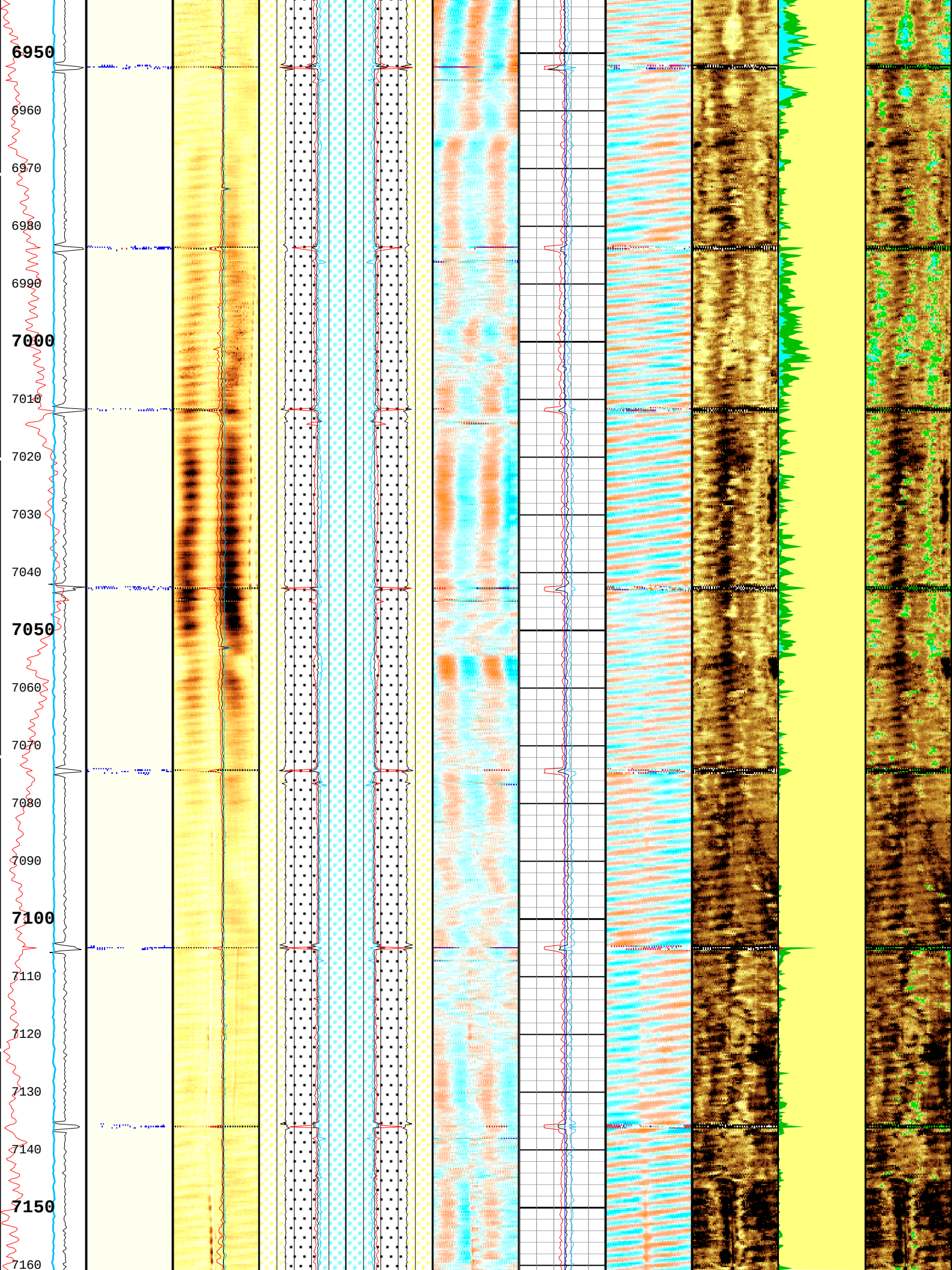
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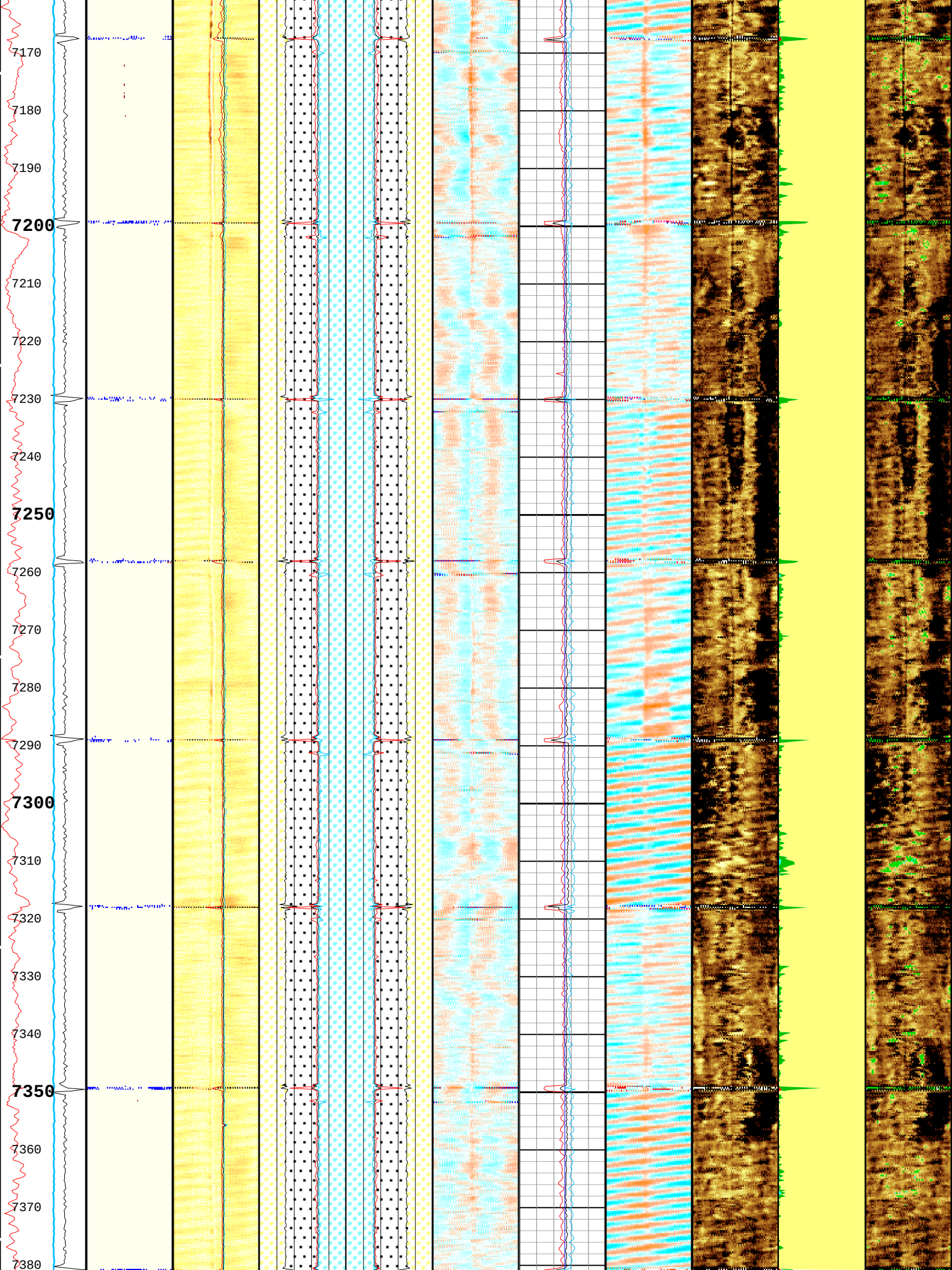
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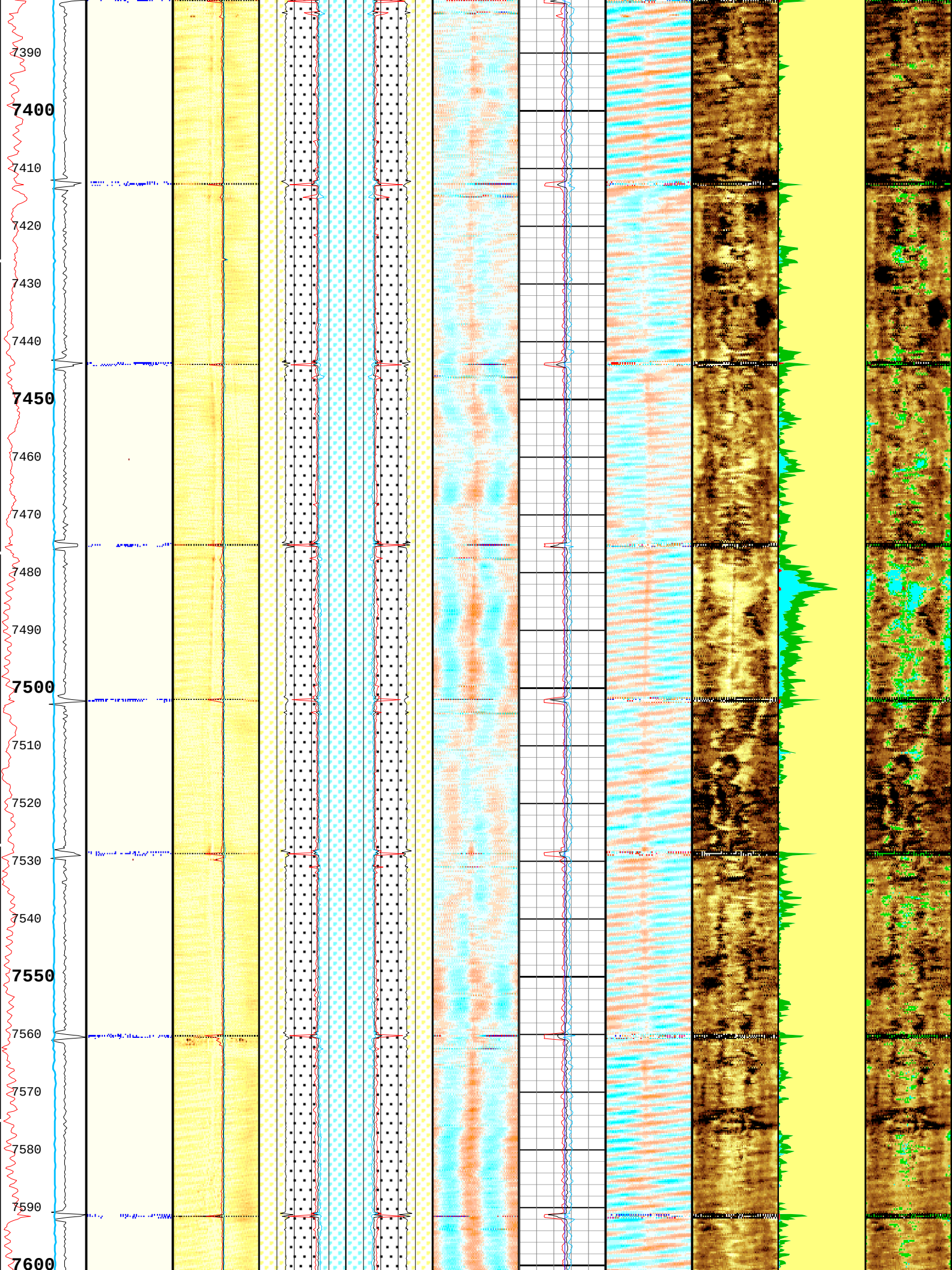
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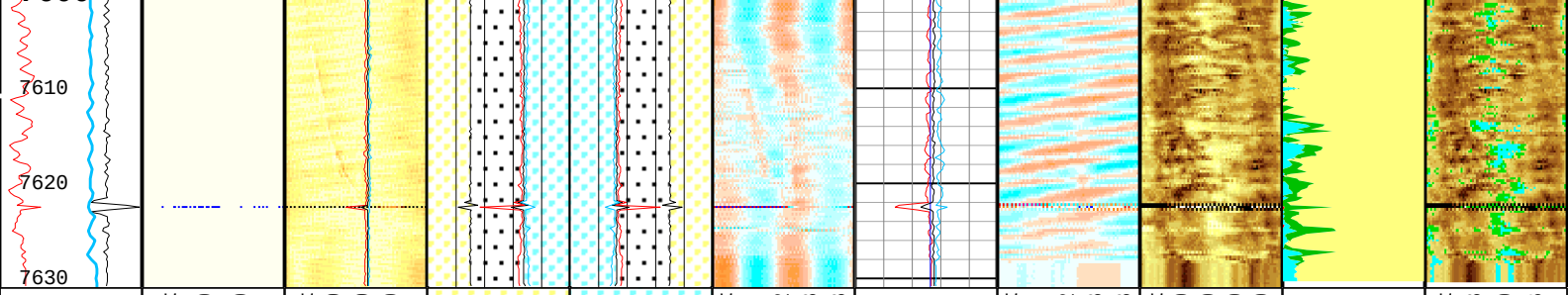


Casing Collar Locator Ultrasonic (CCLU) USIT-E
-30 in 10

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

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

Explicit Normalization
USIT - USIT Processing Flags (UFLG) USIT-E

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

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

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

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

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

ERAV-IRAV

IRAV

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

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

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

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

ERAV

IRAV-ERAV

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

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

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

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

Explicit Normalization
USIT - Unflagged Internal Radii minus Median Internal Radius (IRBKM_RF) USIT-E
(in)

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

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

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

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

Explicit Normalization
USIT - Unflagged Casing Thickness minus Median of Unflagged Casing Thickness (THBKM_RF) USIT-E
(in)

Custom Normalization
USIT - Acoustic Impedance (AIBK) USIT-E
(Mrayl)

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

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

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

Bonded
Gas
Liquid
Micro-debonding

Custom Normalization
USIT - Acoustic Impedance (AIBK) USIT-E
(Mrayl)

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

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

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

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

TIME_1900 - Time Marked every 60.00 (s)

Description: USI Composite Format: Log (LBV1_USI Composite 9.625inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth
Creation Date: 29-Feb-2016 21:10:36

Channel Processing Parameters

One: Parameters

Parameter	Description	Tool	Value	Unit

ISSBAR	Barite Mud Presence Flag	Borehole	No	
BERJ	Bad Echo Rejection	USIT-E	On	
BS	Bit Size	WLSESSION	Depth Zoned	in
CASING_PRATIO	Casing Poisson Ratio	USIT-E	Standard Poisson Ratio	
CMTY(U-USIT_CEMT)	Cement Type	USIT-E	Regular Cement	
THNO	Nominal Casing Thickness - Zoned along logger depths	WLSESSION	Depth Zoned	in
CYSTLGR	Casing Yield Strength - Zoned along logger depths	WLSESSION	Depth Zoned	psi
DFD	Drilling Fluid Density	Borehole	9	lbm/gal
DFT	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	183	us/ft
FDII	FPM Data Interpolation Interval	USIT-E	0	ft
HEMA	Hematite Presence Flag	Borehole	No	
ICE_PROCESS	ICE Processing	USIT-E	Yes	
IMAR	Image Rotation	USIT-E	Off	
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-E	19.62	us
MUD_N_FRP	Free Pipe Mud Normalization Factor	USIT-E	1.02	
MUD_N_THE	Theoretical Mud Normalization Factor	USIT-E	1	
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
TCUB	T^3 Processing Level	USIT-E	Loop	
THDH	Maximum Search Thickness (percentage of nominal)	USIT-E	120	%
THDL	Minimum Search Thickness (percentage of nominal)	USIT-E	65	%
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	1.5	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
ZCAS	Acoustic Impedance of Casing	USIT-E	46.25	Mrayl
ZINI	Initial Estimate of Cement Impedance	USIT-E	-1	Mrayl
ZMUD	Acoustic Impedance of Mud	Borehole	1.7	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-E	2.3	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

Depth Zone Parameters

Parameter	Value	Start (ft)	Stop (ft)
BS	12.25	88.5	530
BS	10.625	530	7631
THNO	0.317	88.5	6800
THNO	0.362	6800	7631
CYSTLGR	80000	88.5	673
CYSTLGR	55000	673	4015

CYSTLGR	55000	673	4615
CYSTLGR	0	4615	5019
CYSTLGR	80000	5019	7631

All depth are actual.

Tool Control Parameters

One: Parameters

Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	18	dB
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
EMXV	EMEX Voltage	USIT-E	Time Zoned	V
HRES	Horizontal Resolution	USIT-E	5 deg	
MOTOR_PROTECT	Motor Protection	USIT-E	On	
TMUC	Type of Mud	USIT-E	BRI	
UACLV_PERM	Ultrasonic ACLV Permanent	USIT-E	No	
ULOG	Logging Objective	USIT-E	MEASUREMENT	
UMFR	Modulation Frequency	USIT-E	333333	Hz
USFR	Ultrasonic Sampling Frequency	USIT-E	500000	Hz
UPAT	USIT Emission Pattern	USIT-E	Pattern 600 KHz	
UWKM	USIT Working Mode	USIT-E	Uncompressed 5 deg at 3.0 in LF	
USIT_DEPTHLOG	Starting Depth Log for Ultrasonics	USIT-E	7620	ft
USSP	Ultrasonic Service	USIT-E	USI	
VRES	Vertical Resolution	USIT-E	3.0 in	
WINB	Window Begin Time	USIT-E	Time Zoned	us
WINE	Window End Time	USIT-E	85.59	us

Time Zone Parameters

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
EMXV	70	29-Feb-2016 10:39:19	29-Feb-2016 11:03:55	7631.62	6421.12
EMXV	60	29-Feb-2016 11:03:55	29-Feb-2016 11:04:19	6421.12	6400.81
EMXV	50	29-Feb-2016 11:04:19	29-Feb-2016 13:03:34	6400.81	112.71
EMXV	80	29-Feb-2016 13:03:34	29-Feb-2016 13:04:11	112.71	88.79
WINB	31.1	29-Feb-2016 10:39:19	29-Feb-2016 10:47:52	7631.62	7230.75
WINB	25.52	29-Feb-2016 10:47:52	29-Feb-2016 13:04:11	7230.75	88.79

All depth are at tool zero.

One

Cement Log 2 IN = 100 FT

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[11]:Up	Up	88.79 ft	7631.63 ft	29-Feb-2016 10:39:19 AM	29-Feb-2016 1:04:11 PM	ON	6.00 ft	Yes

All depths are referenced to toolstring zero

Log

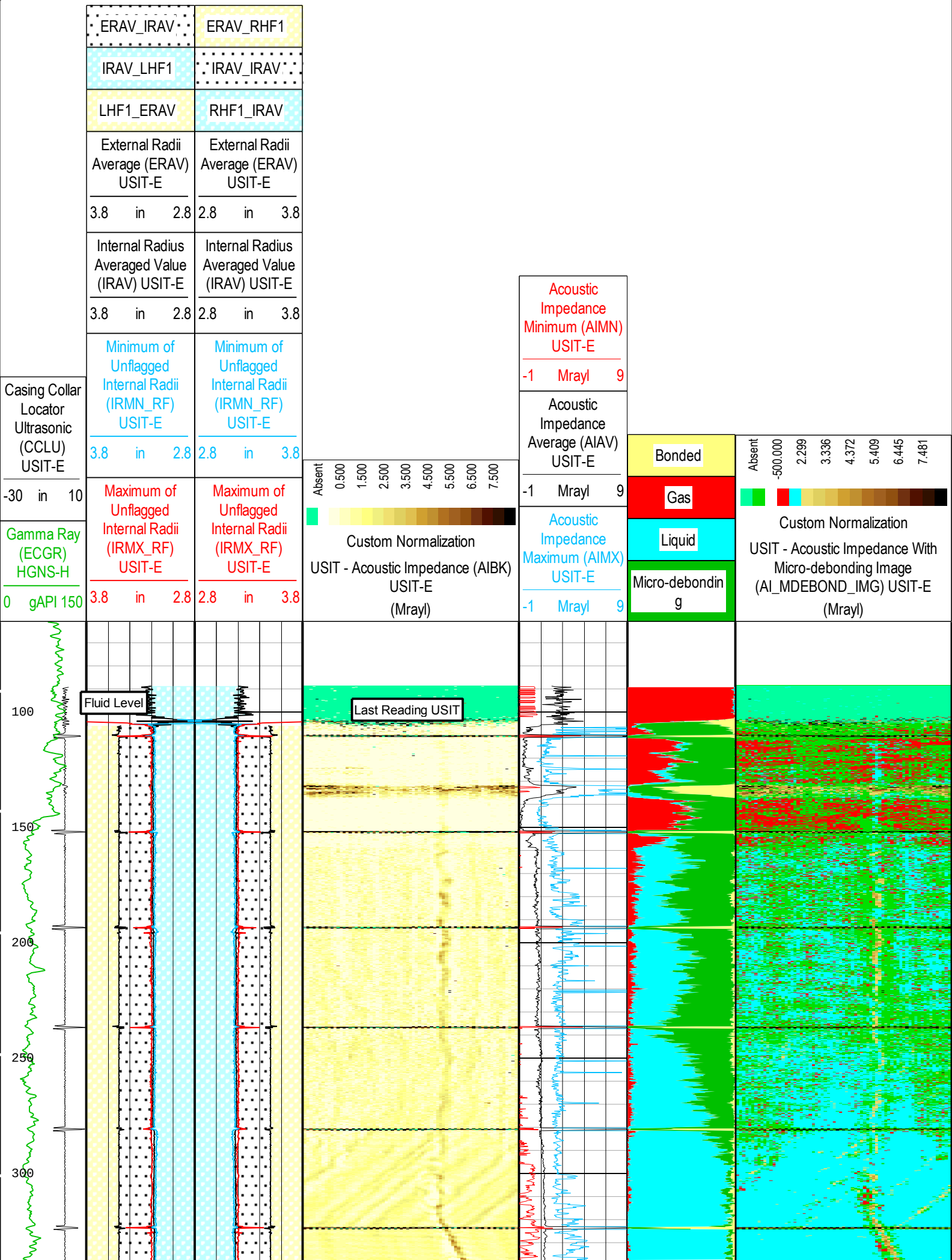
Company:Southern California Gas Company Well:Porter 44

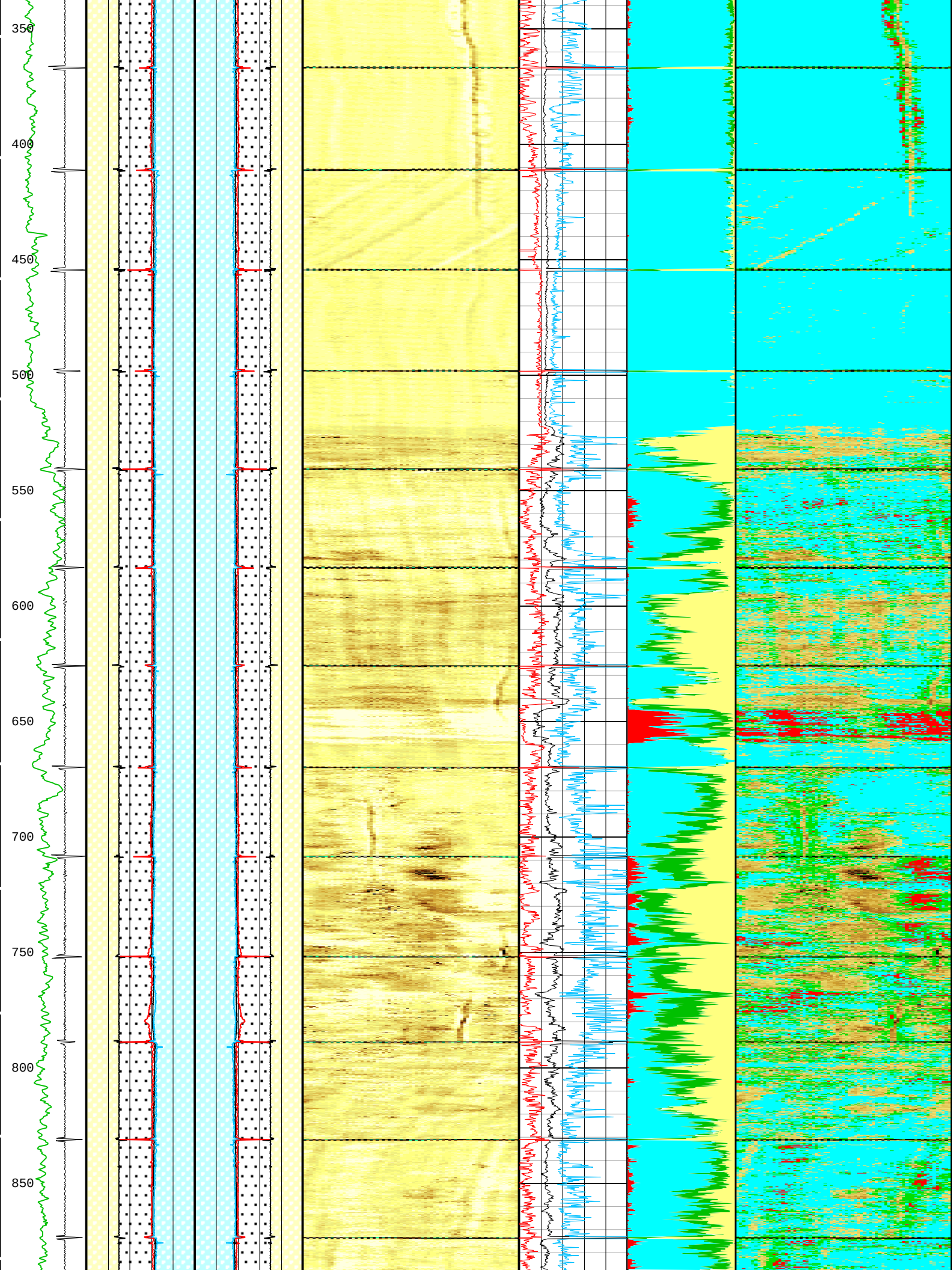
One: Log[11]:Up:S017

Description: USI Cement Format: Log (LBV1_USI Cement 9.625inch) Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 29-Feb-2016 21:11:12

TIME 1900 - Time Marked every 60.00 (s)

TIME_1500 - Time Marked every 00.00 (s)

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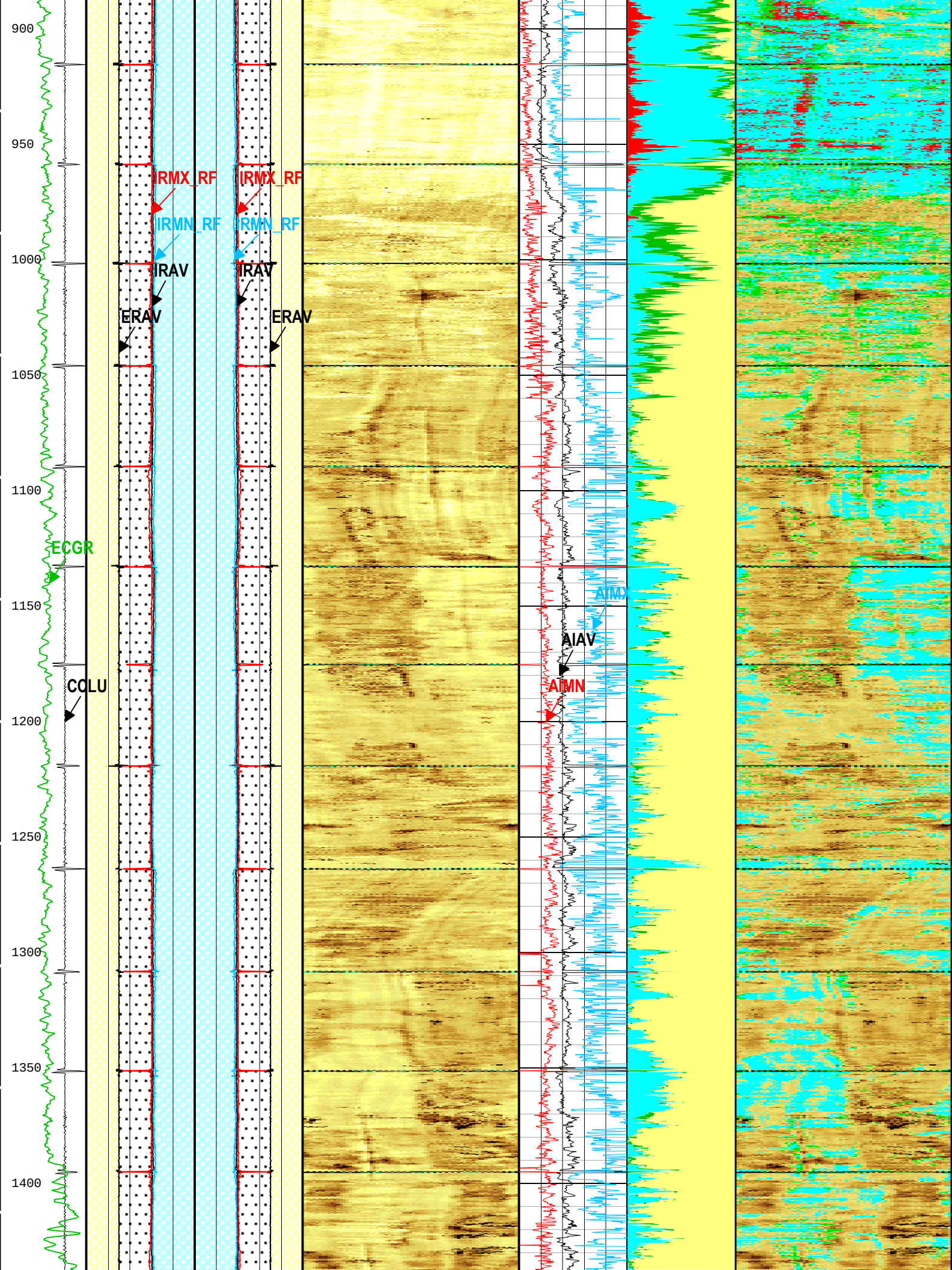
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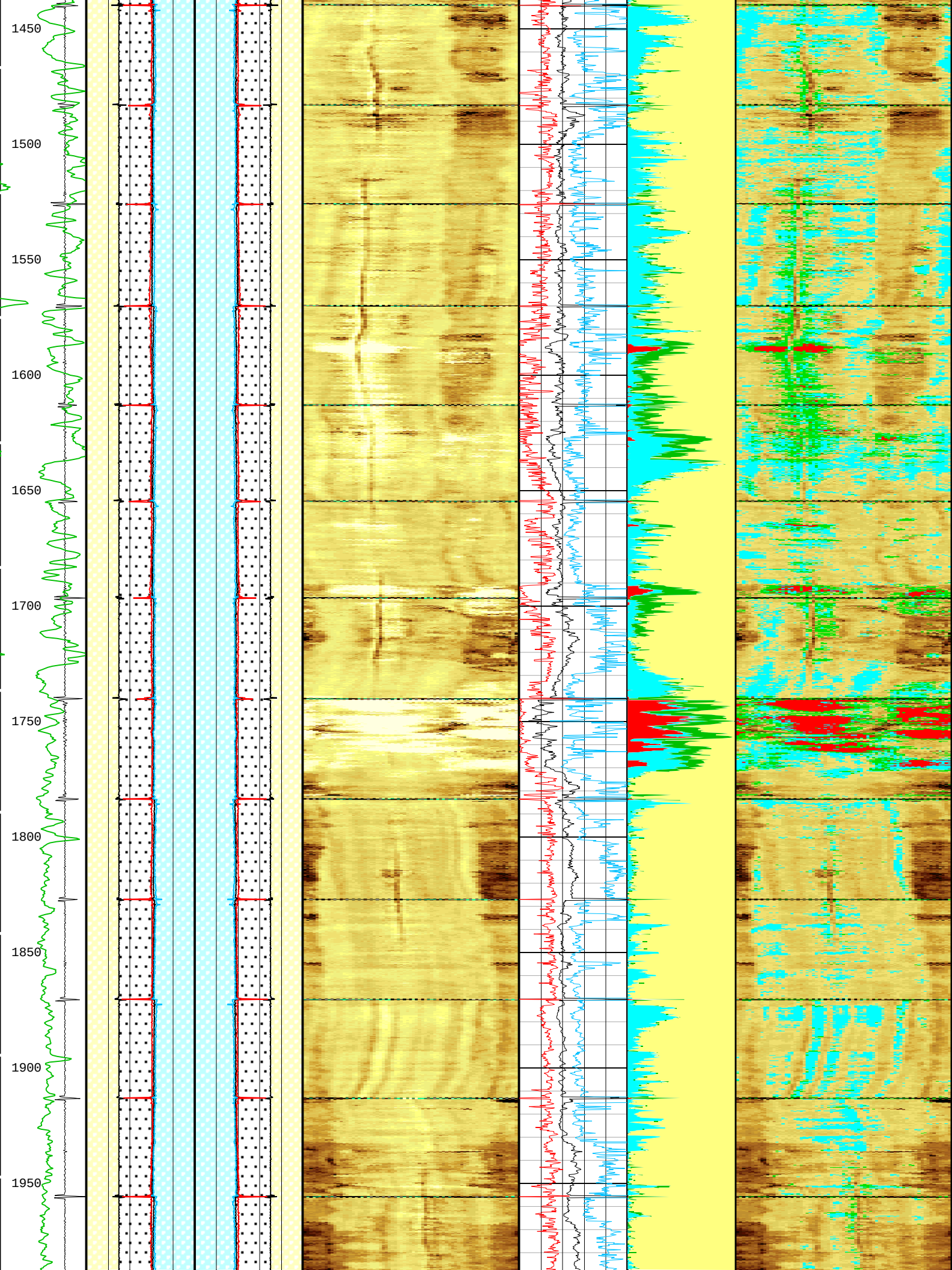
AIMN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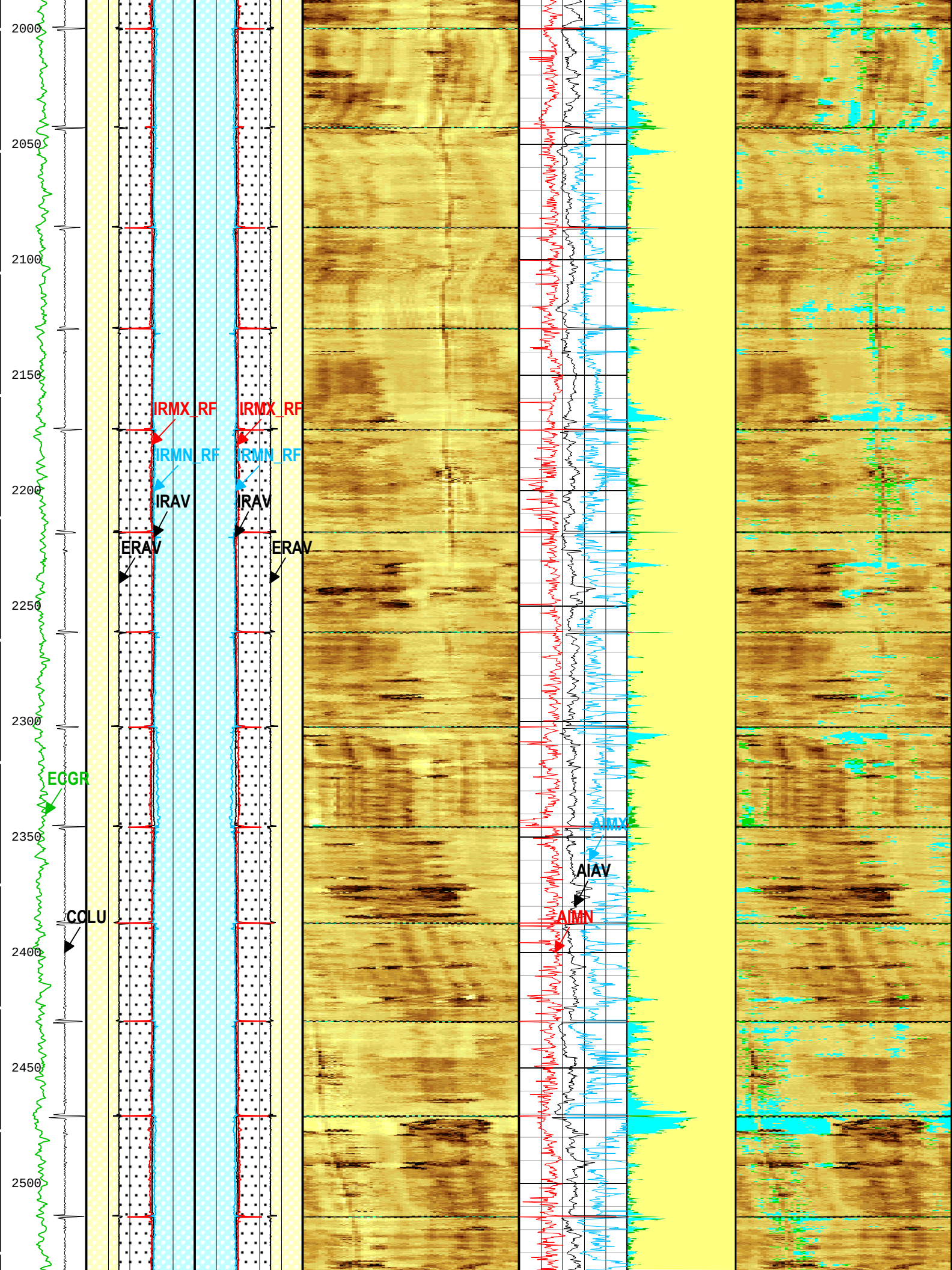
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ECGR
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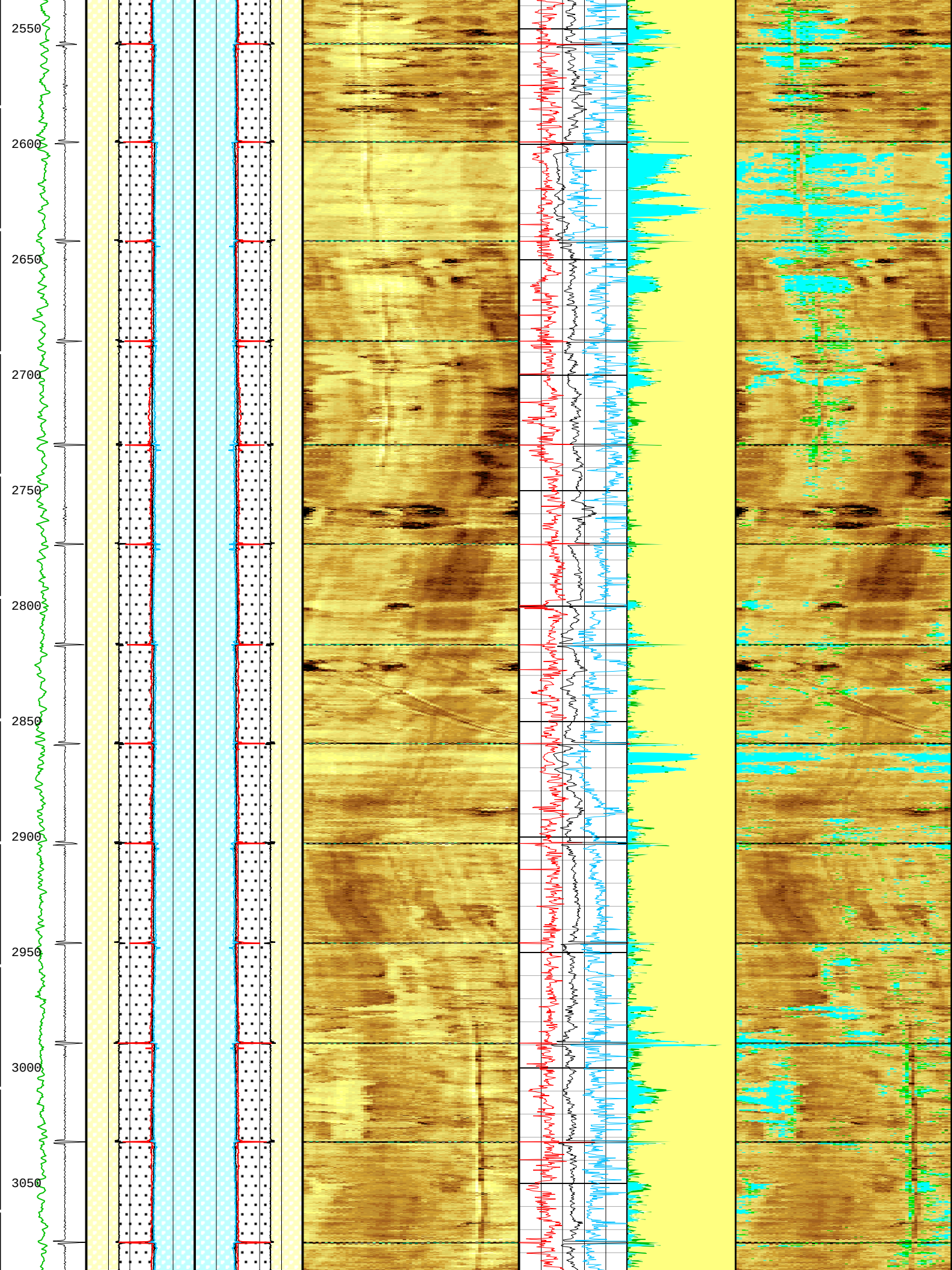
AIMN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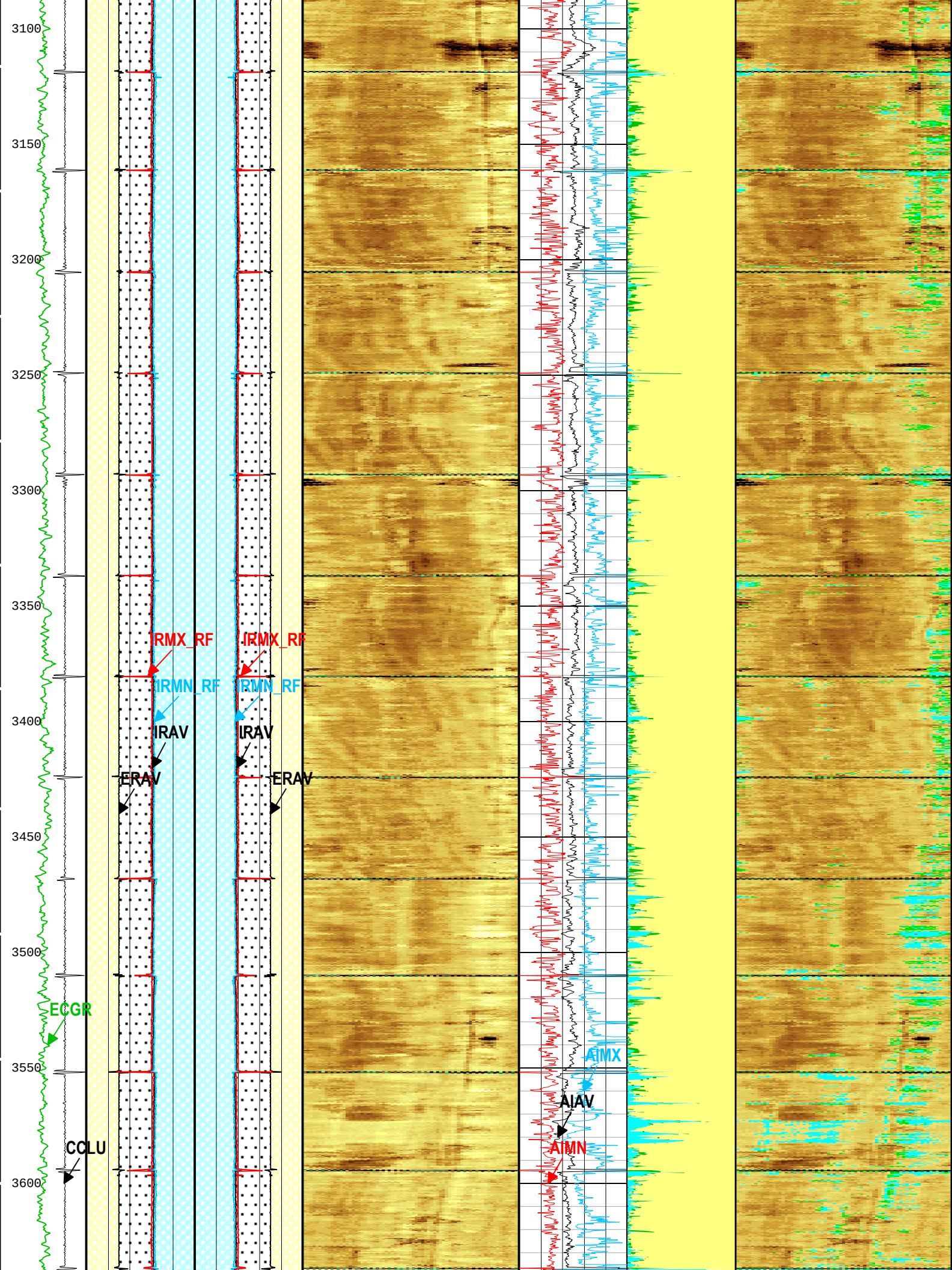
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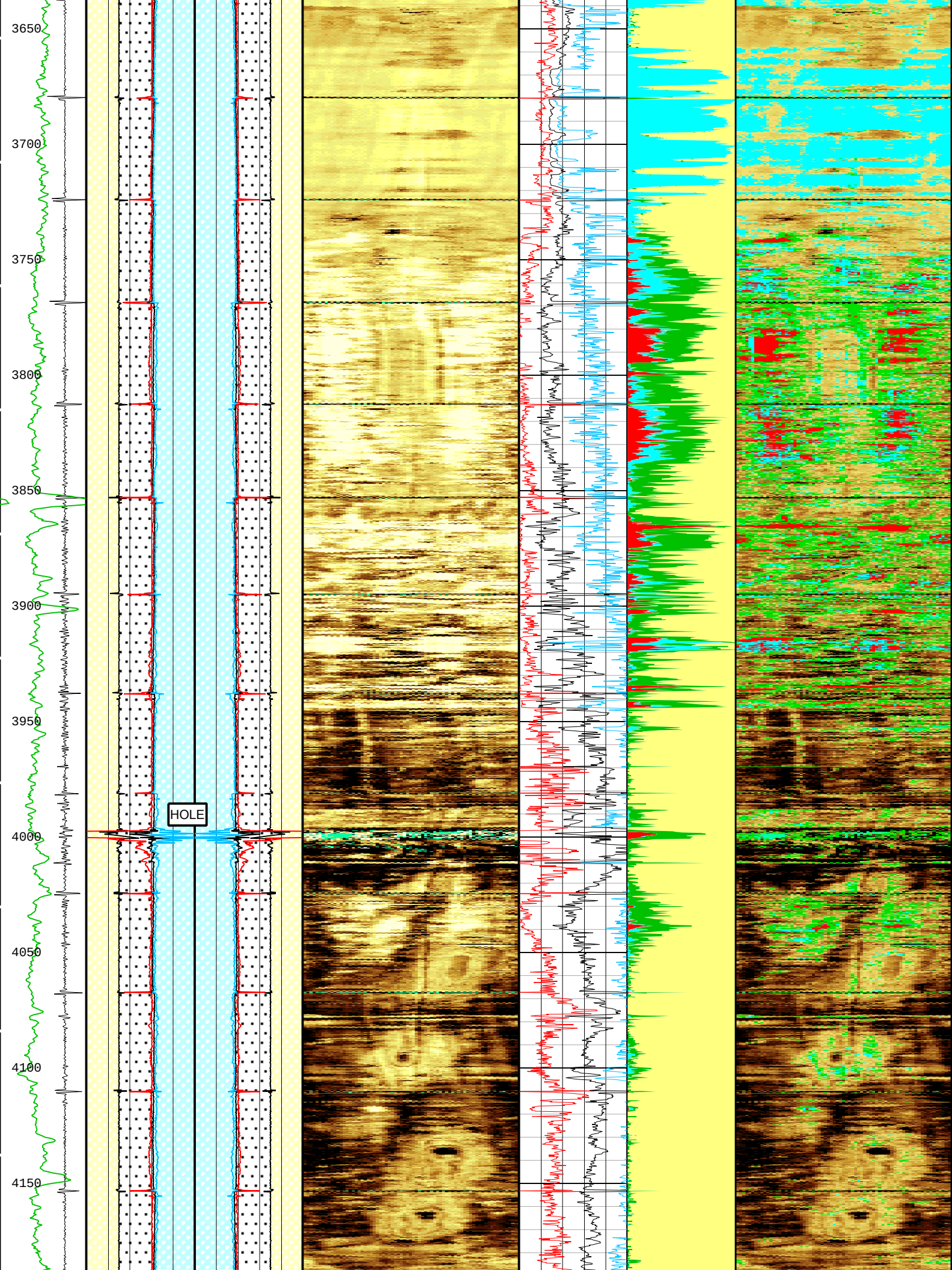
AIMN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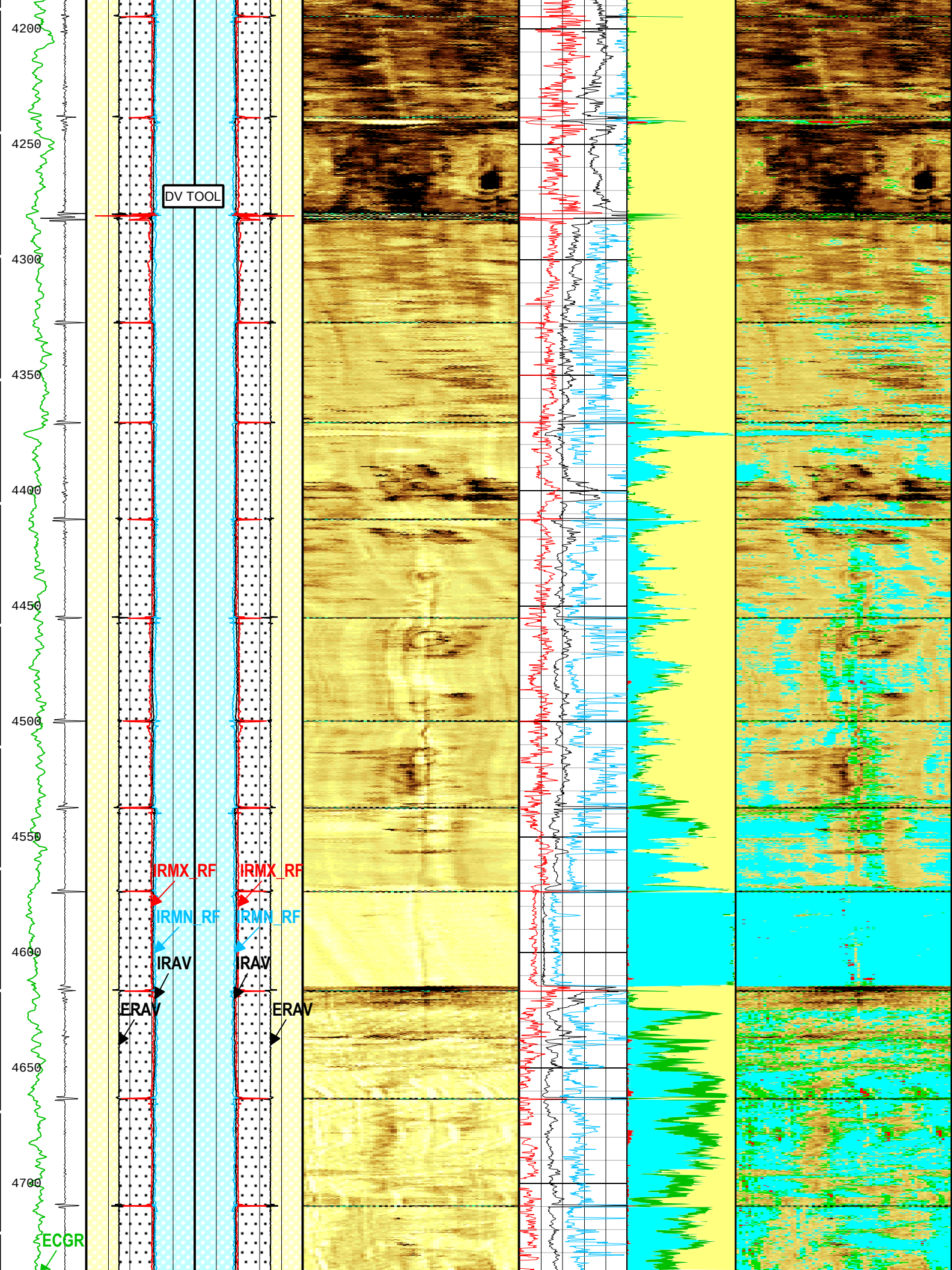
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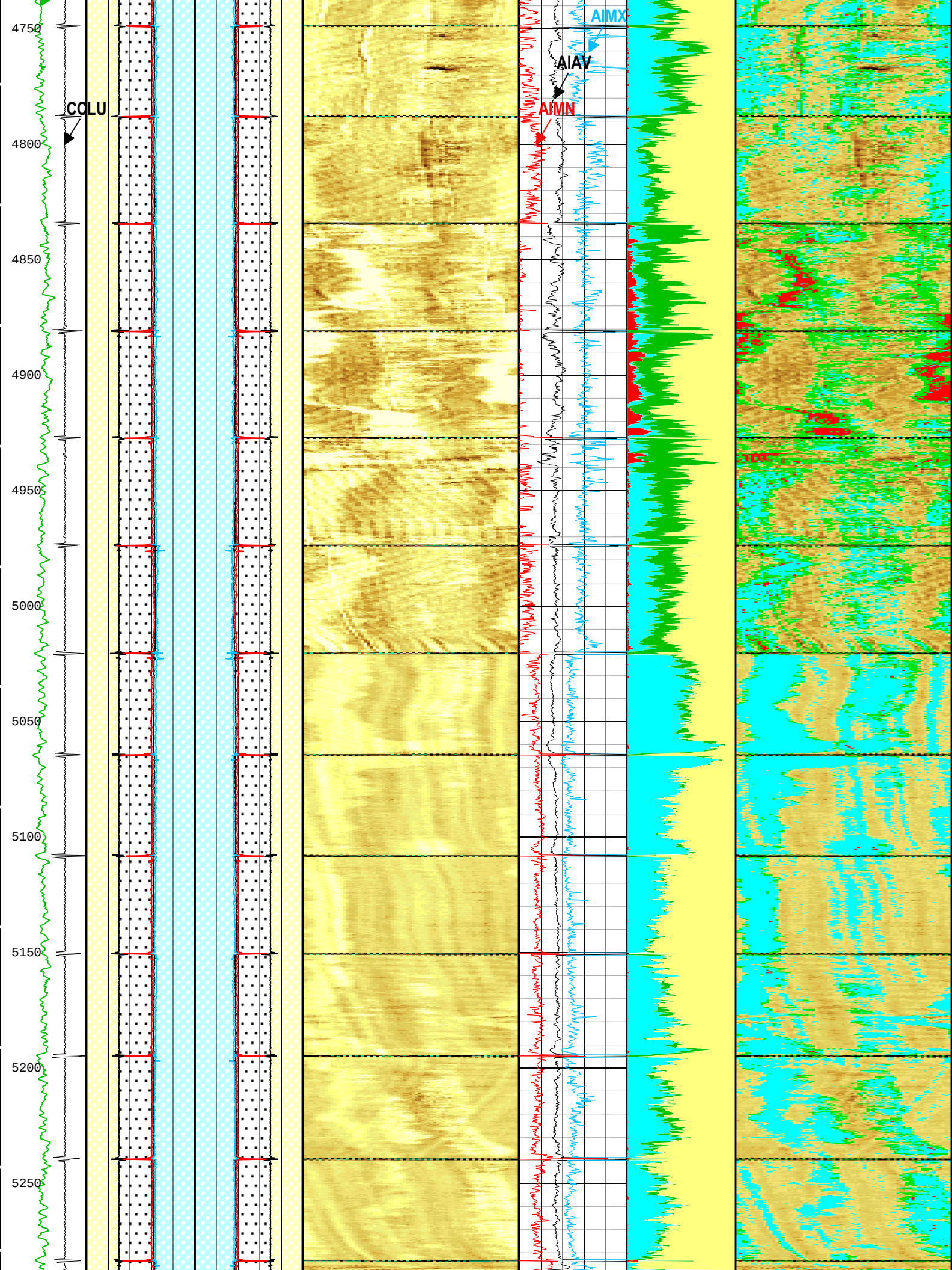
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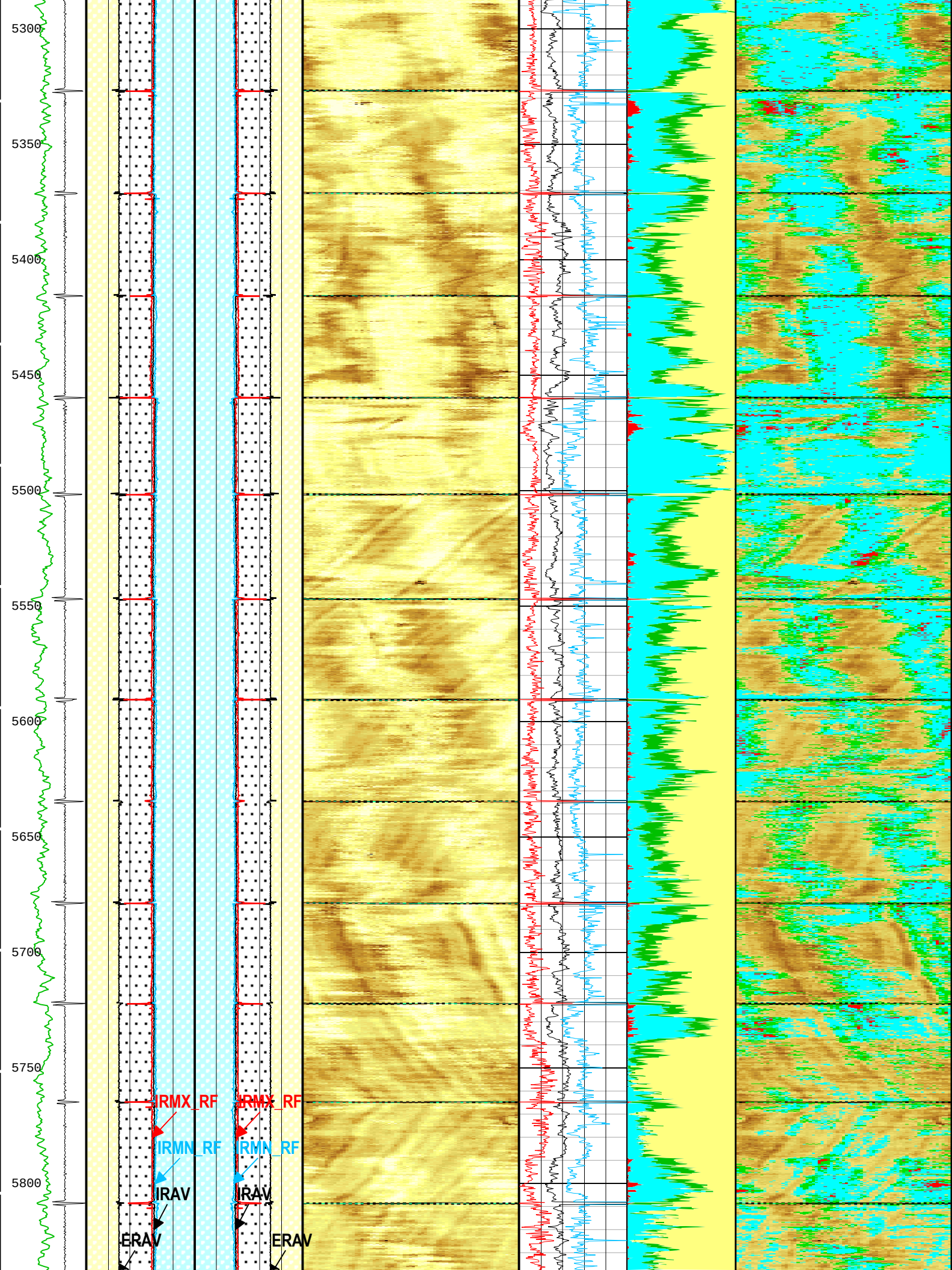
AIAV
AIMN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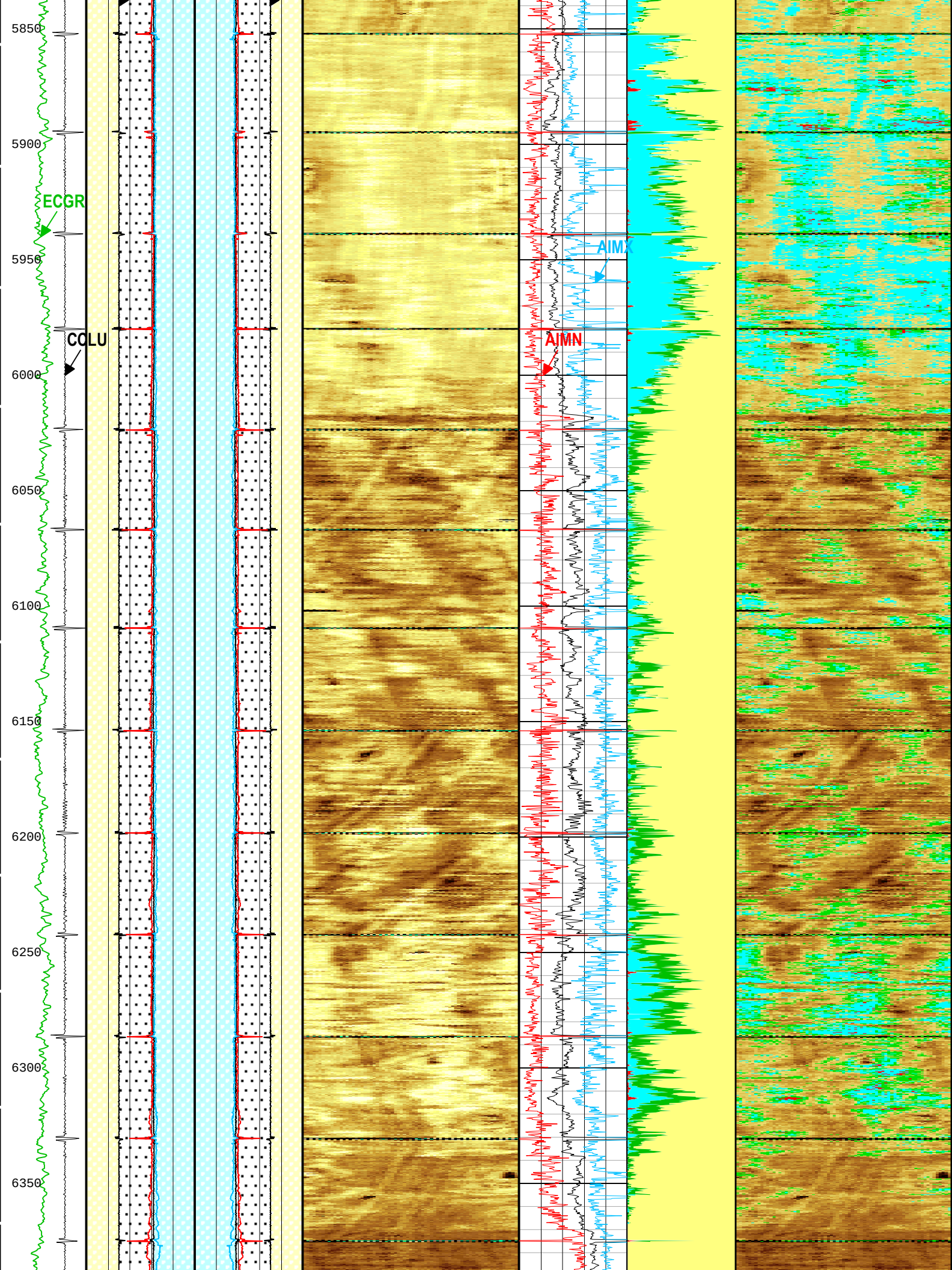
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COLU
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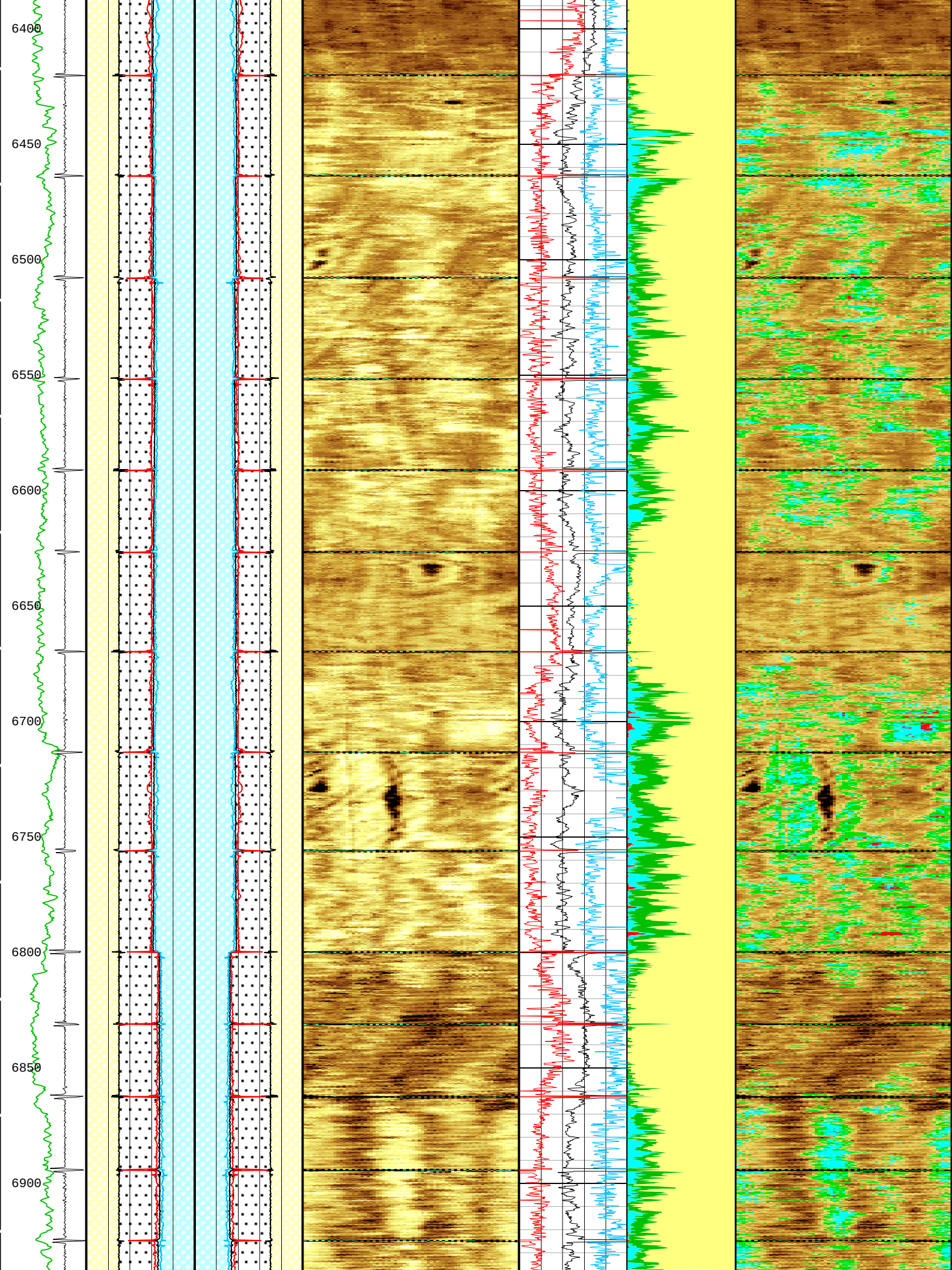
AIMN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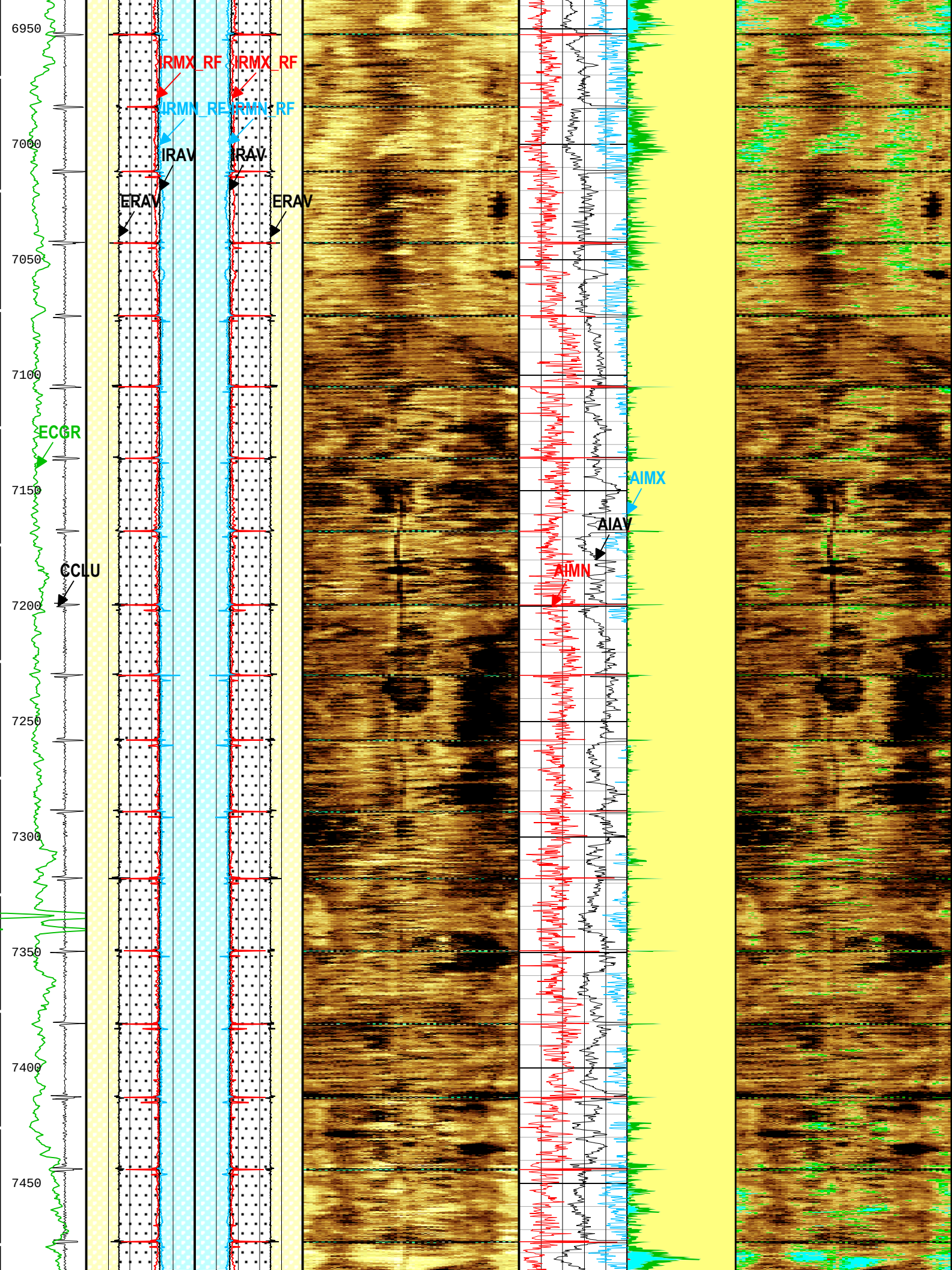
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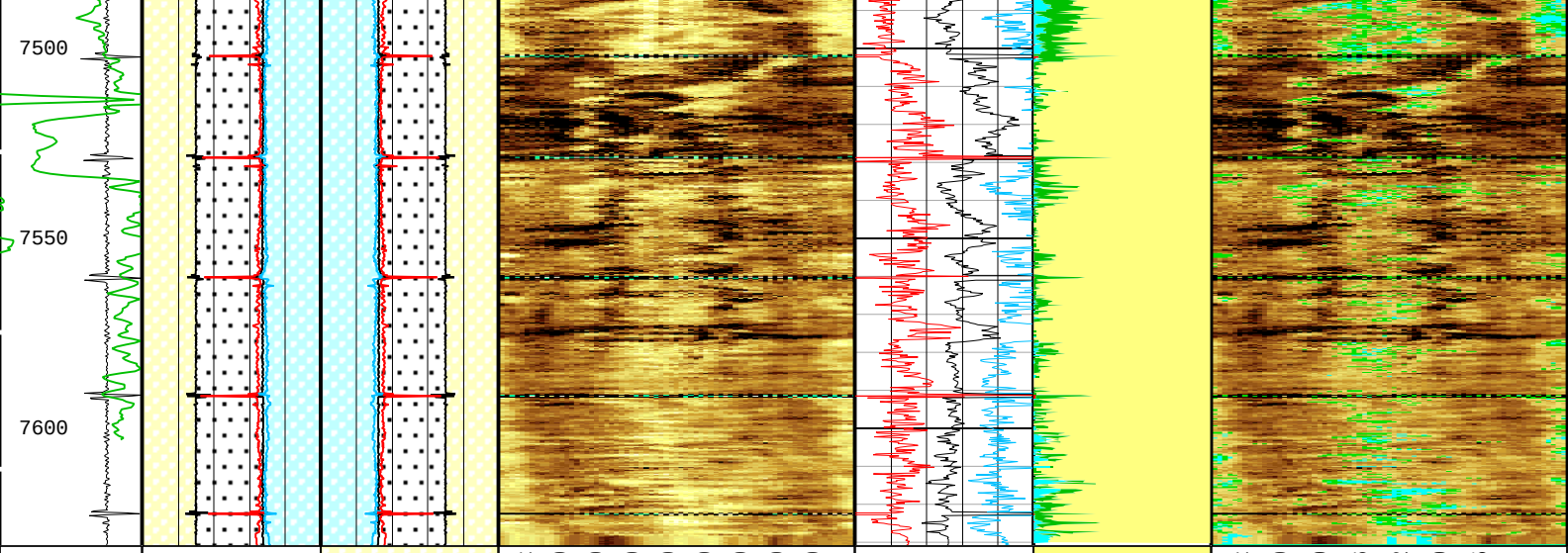


Casing Collar Locator Ultrasonic (CCLU) USIT-E
-30 in 10

Gamma Ray (ECGR) HGNS-H
0 gAPI 150

ERAV_IRAV	ERAV_RHF1
IRAV_LHF1	IRAV_IRAV
LHF1_ERAV	RHF1_IRAV
External Radii Average (ERAV) USIT-E 3.8 in 2.8	External Radii Average (ERAV) USIT-E 2.8 in 3.8
Internal Radius Averaged Value (IRAV) USIT-E 3.8 in 2.8	Internal Radius Averaged Value (IRAV) USIT-E 2.8 in 3.8
Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E 3.8 in 2.8	Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E 2.8 in 3.8
Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E 3.8 in 2.8	Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E 2.8 in 3.8

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

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

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

TIME_1900 - Time Marked every 60.00 (s)

Description: USI Cement Format: Log (LBV1_USI Cement 9.625inch) Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 29-Feb-2016 21:11:12

One

Corrosion 5 in = 100 ft

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[11]:Up	Up	88.79 ft	7631.63 ft	29-Feb-2016 10:39:19 AM	29-Feb-2016 1:04:11 PM	ON	6.00 ft	Yes

All depths are referenced to toolstring zero

Description: USI Composite Format: Log (LBV1_USI Corrosion 9.625inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth
Creation Date: 29-Feb-2016 21:11:33

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

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

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

Absent -5.200 -3.600 -2.000 -0.400
Explicit Normalization
USIT - Amplitude of Unflagged Wave (AWBK_RF) USIT-E (dB)

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

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

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

Absent -0.059 -0.028 0.004 0.035 0.068
Explicit Normalization
USIT - Unflagged Internal Radii minus Median Internal Radius (IRBKM_RF) USIT-E (in)

Internal Radius Averaged Value (IRAV) USIT-E
2.8 in 3.8

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

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

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

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

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

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

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

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

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

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

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

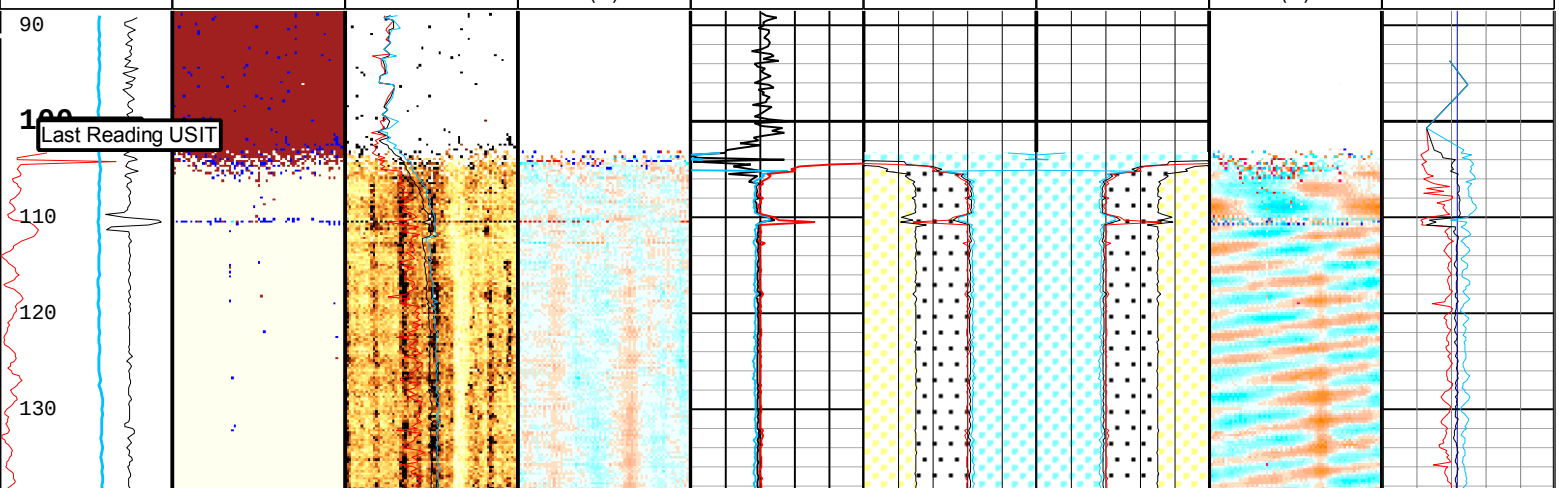
Absent -0.059 -0.028 0.004 0.035 0.068
Explicit Normalization
USIT - Unflagged Casing Thickness minus Median of Unflagged Casing Thickness (THBKM_RF) USIT-E (in)

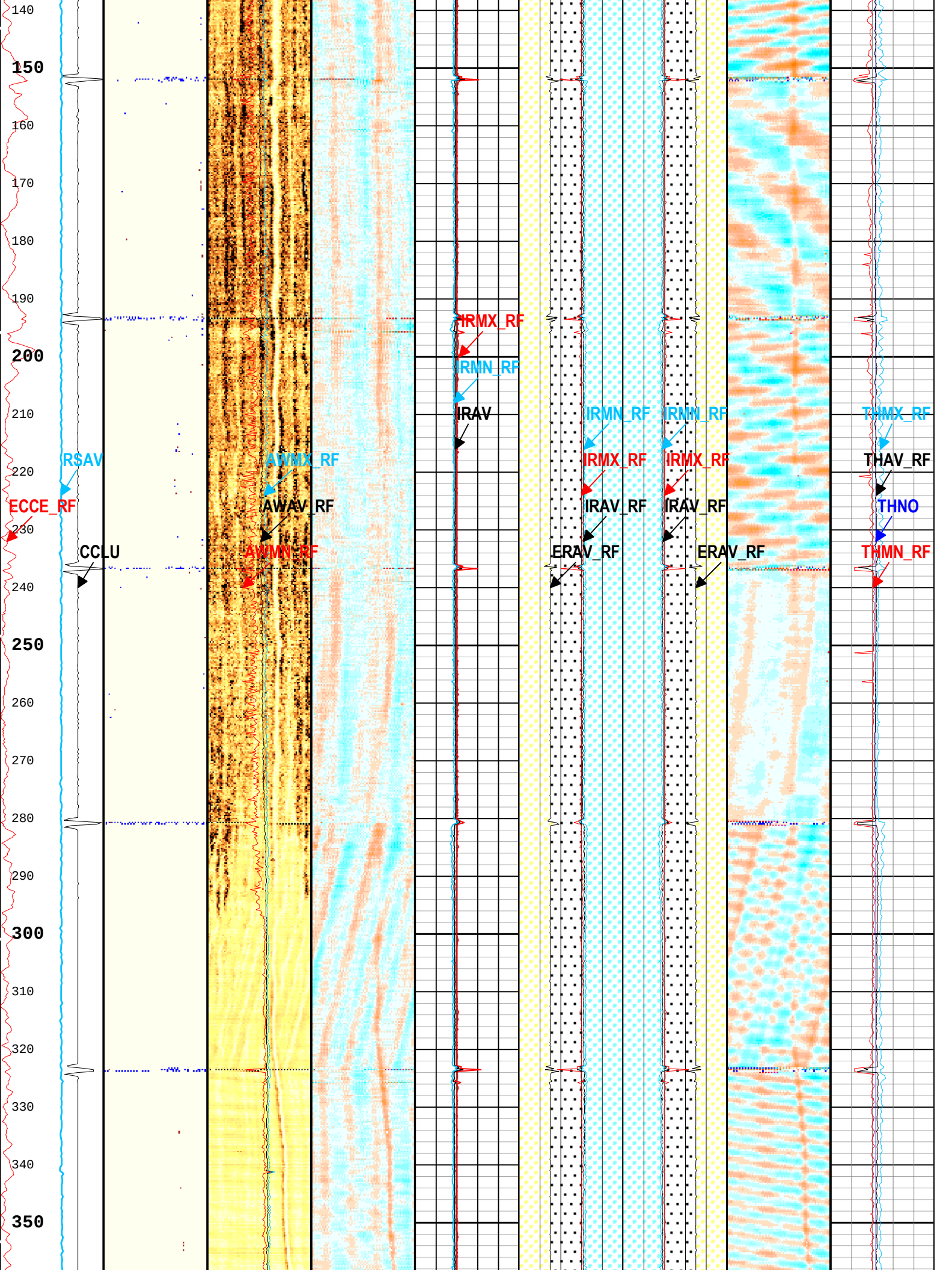
Minimum of Unflagged Casing Thickness (THMN_RF) USIT-E
0.1 in 0.6

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

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

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

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340
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RSAV
ECCE_RF
CCLU
AWMX_RF
AWAV_RF
AWMN_RF
IRMX_RF
IRMN_RF
IRAV
IRMN_RF
IRMX_RF
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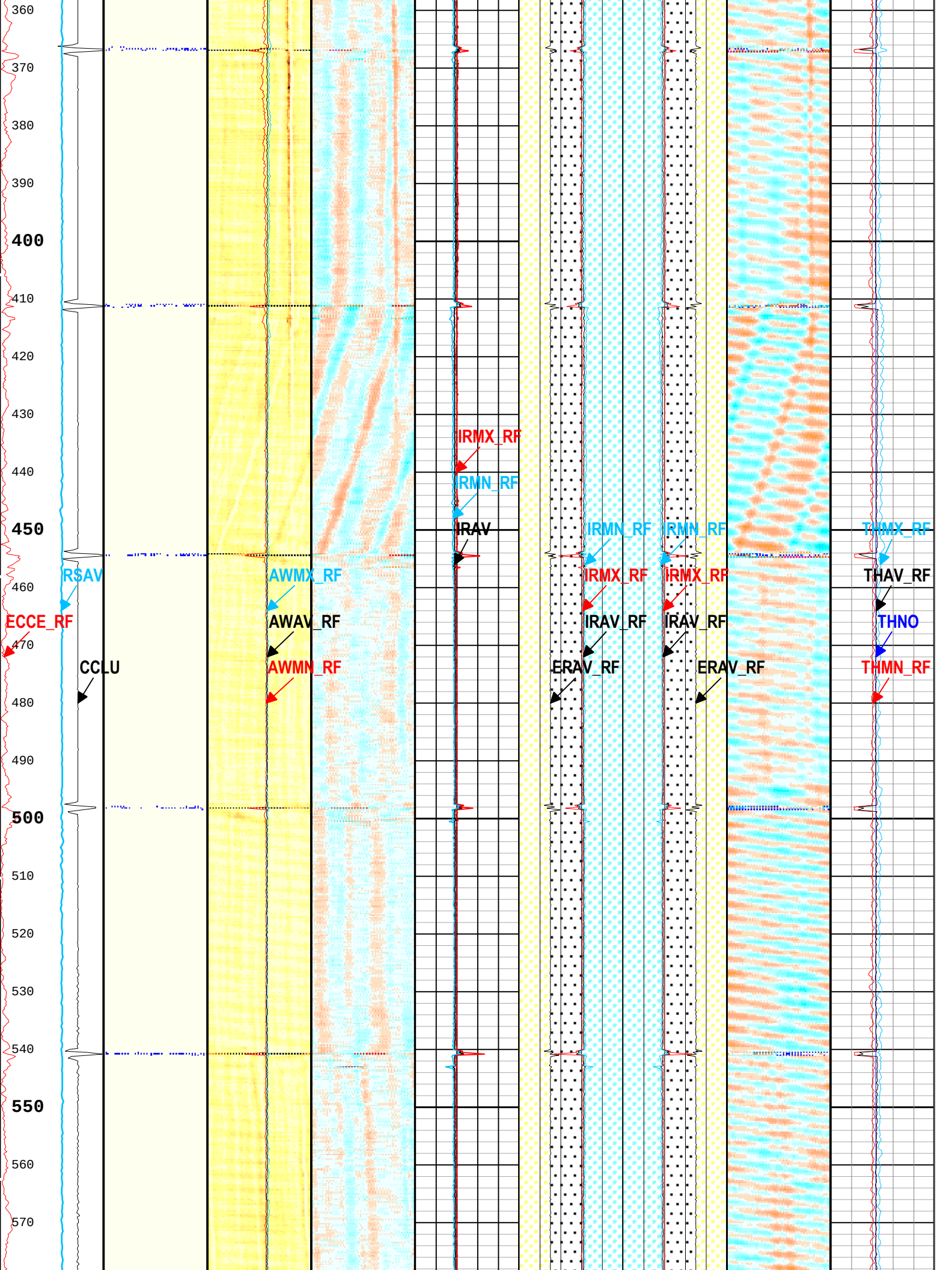
THMN_RF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550
560
570
RSAV
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CCLU
AWMX_RF
AWAV_RF
AWMN_RF
IRMX_RF
IRMN_RF
IRAV
IRMN_RF
IRMX_RF
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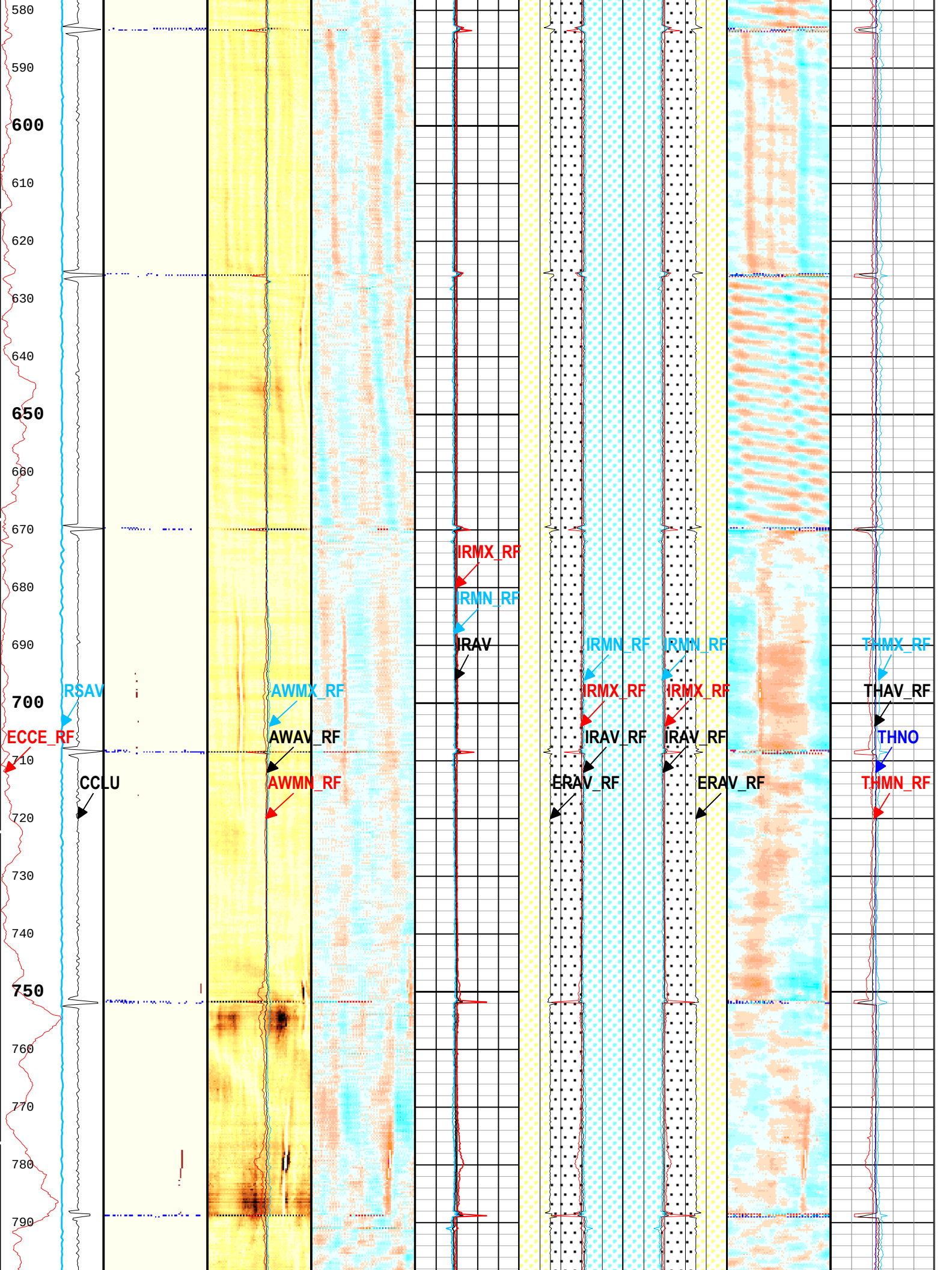
THNO
THMN_RF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790
RSAV
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CCLU
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AWAV_RF
AWMN_RF
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IRAV
IRMN_RF
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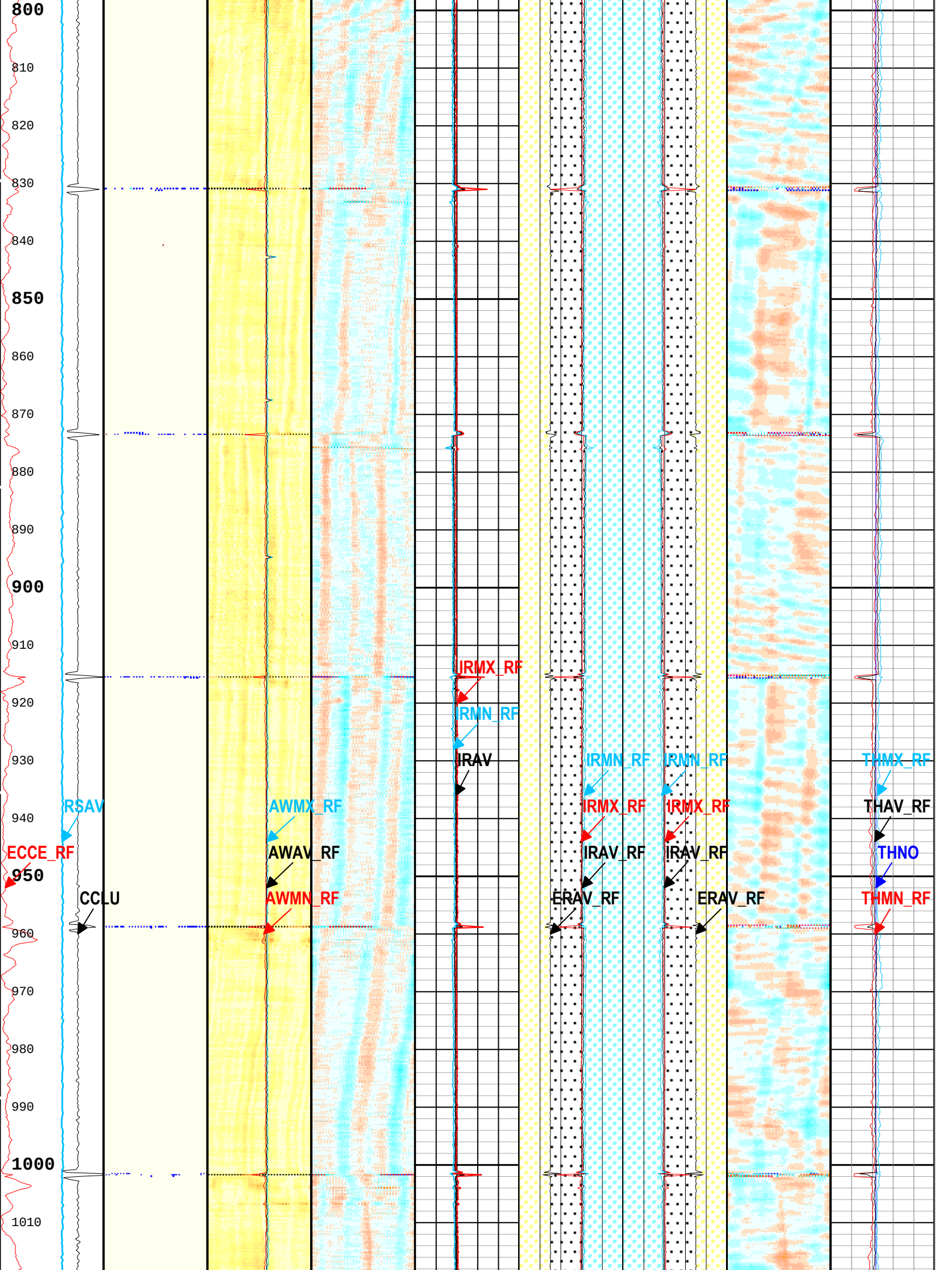
THNO
THMN_RF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AWAV_RF
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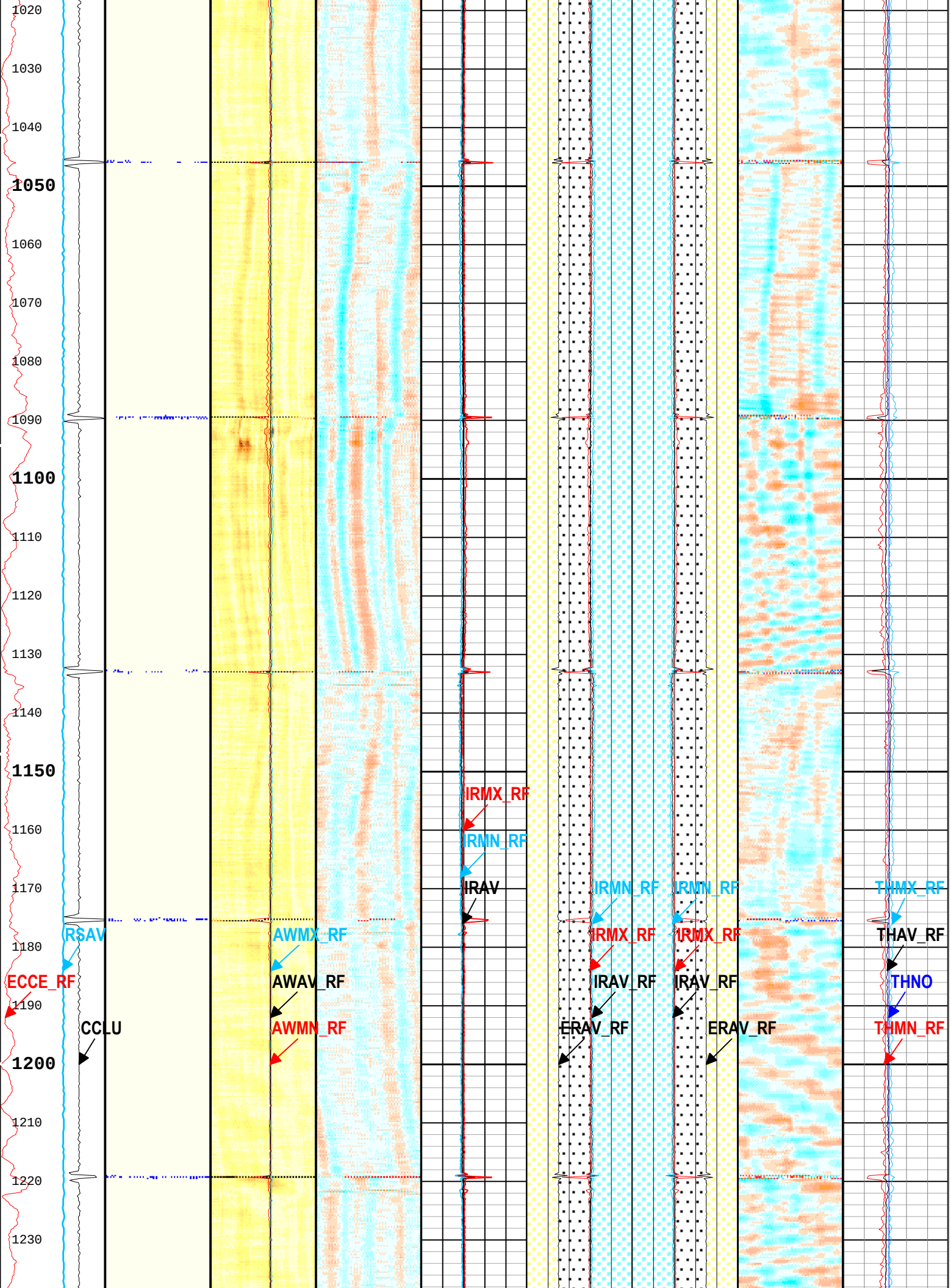
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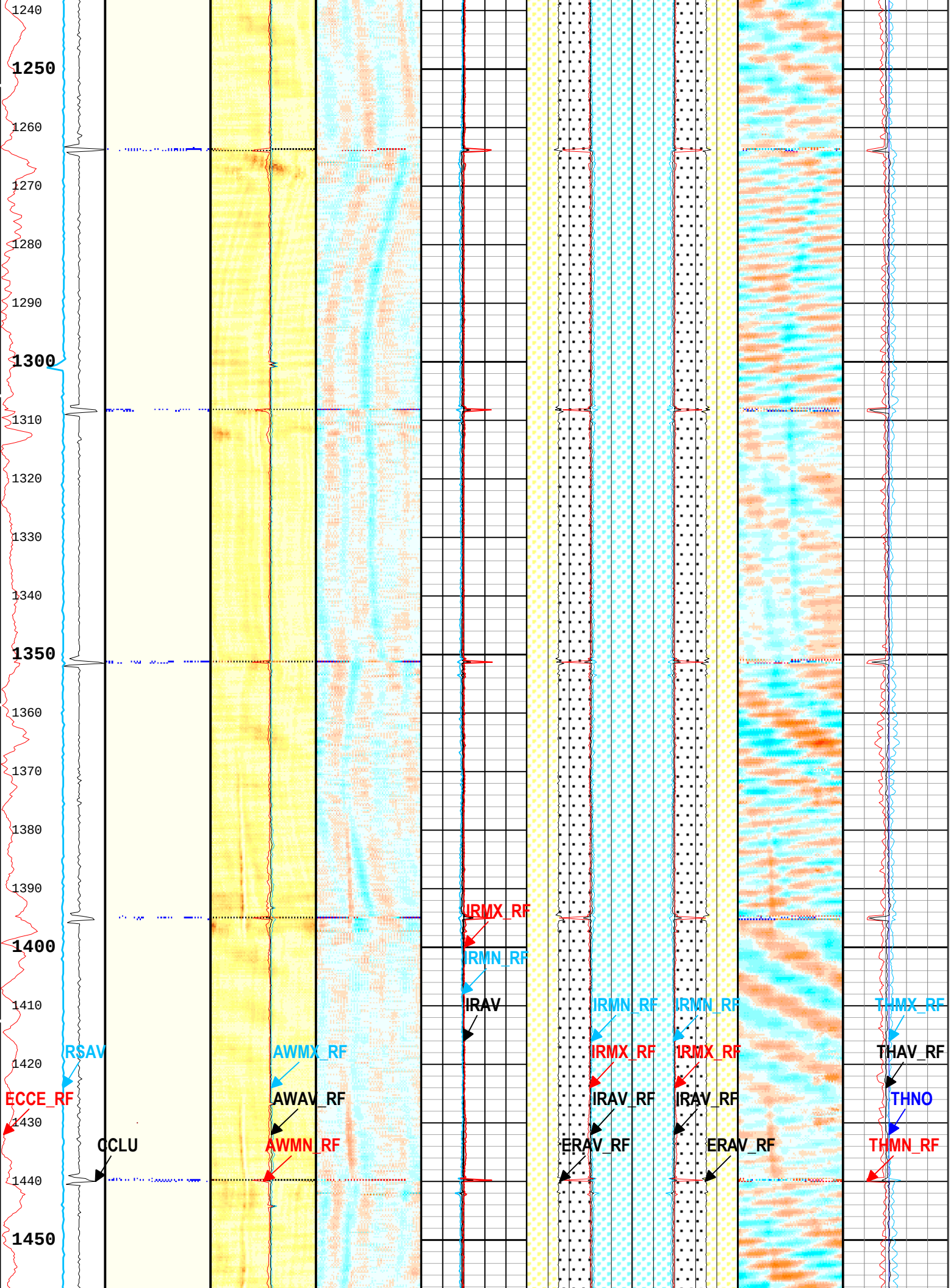
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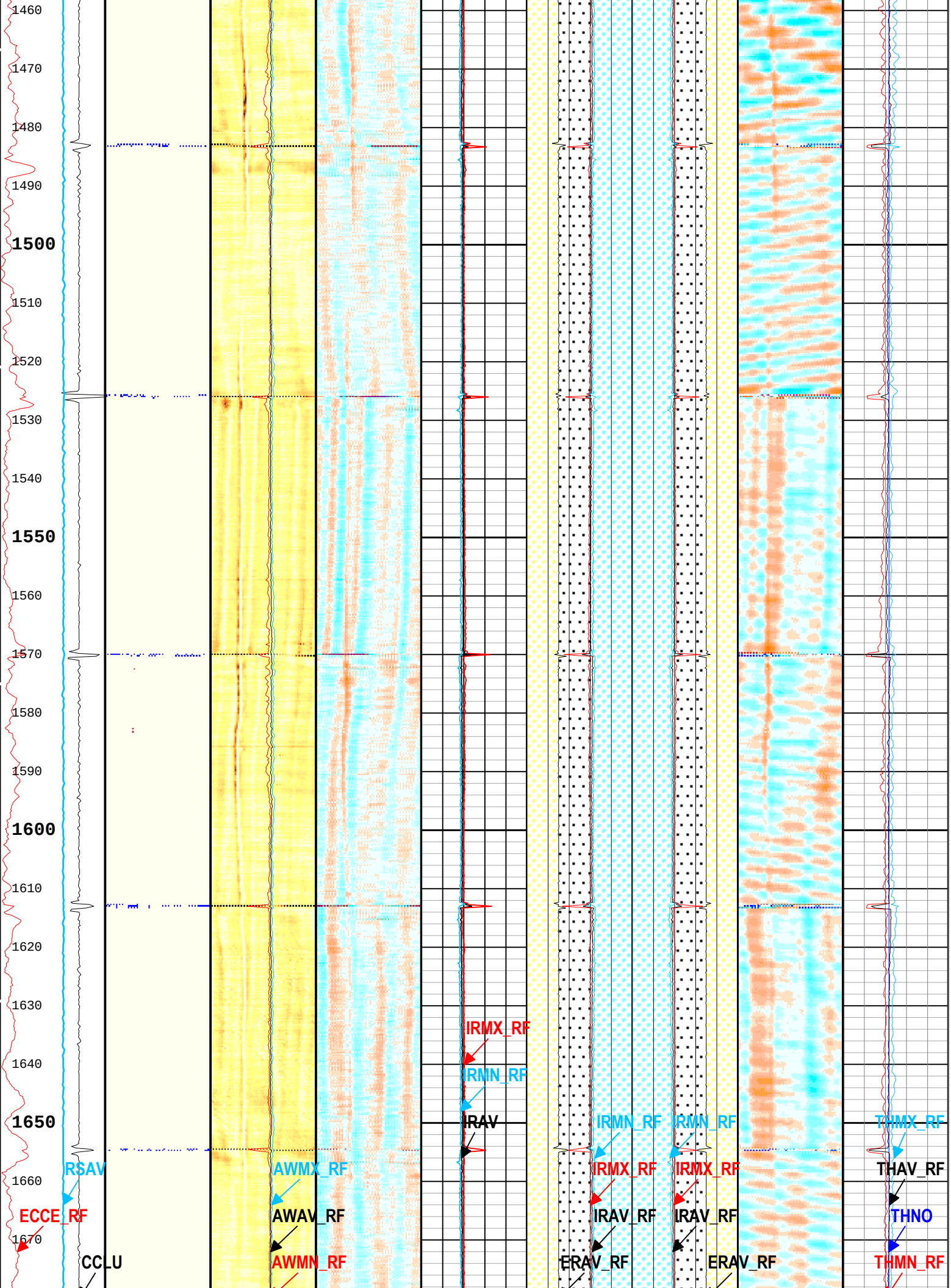
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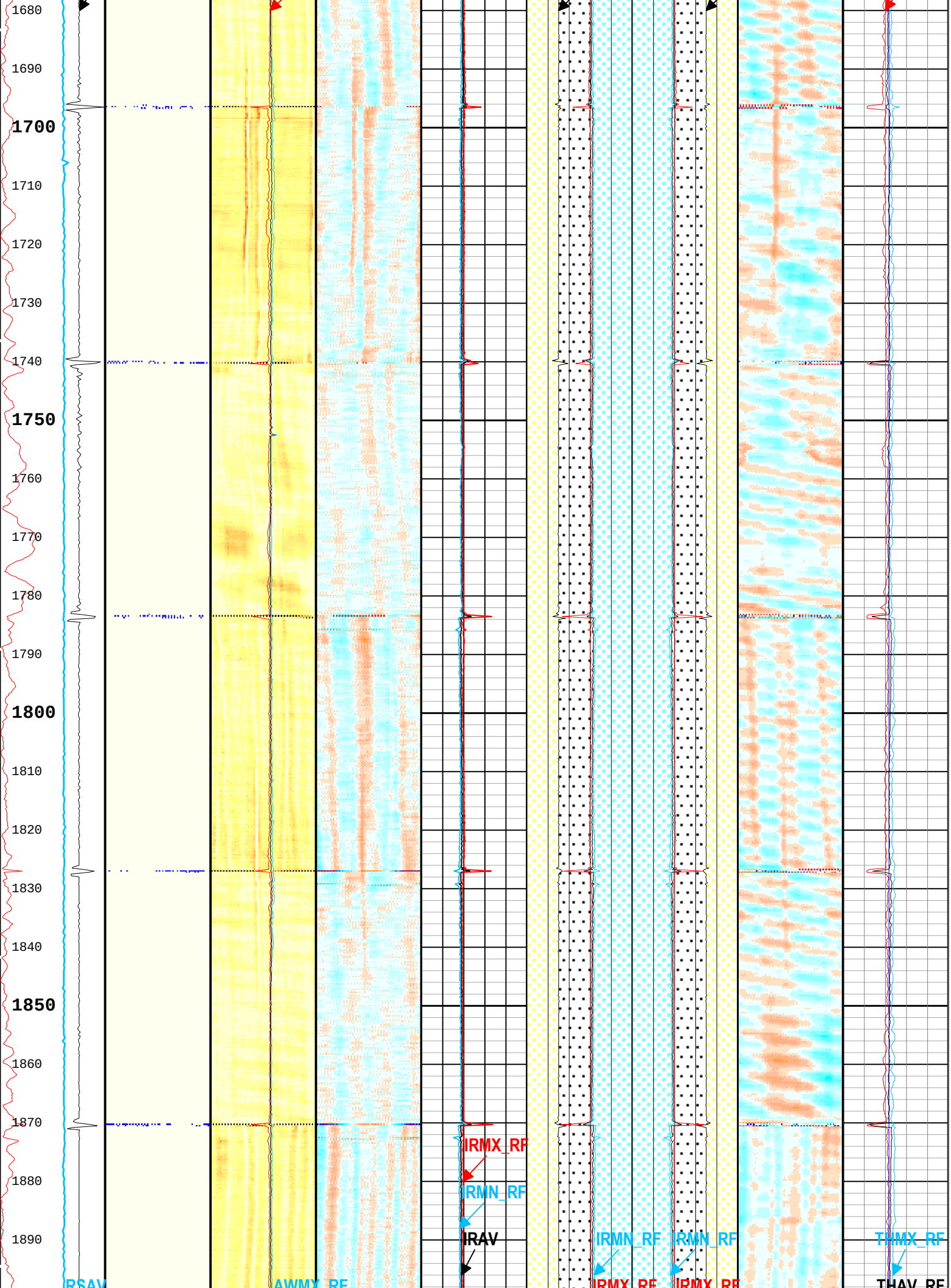
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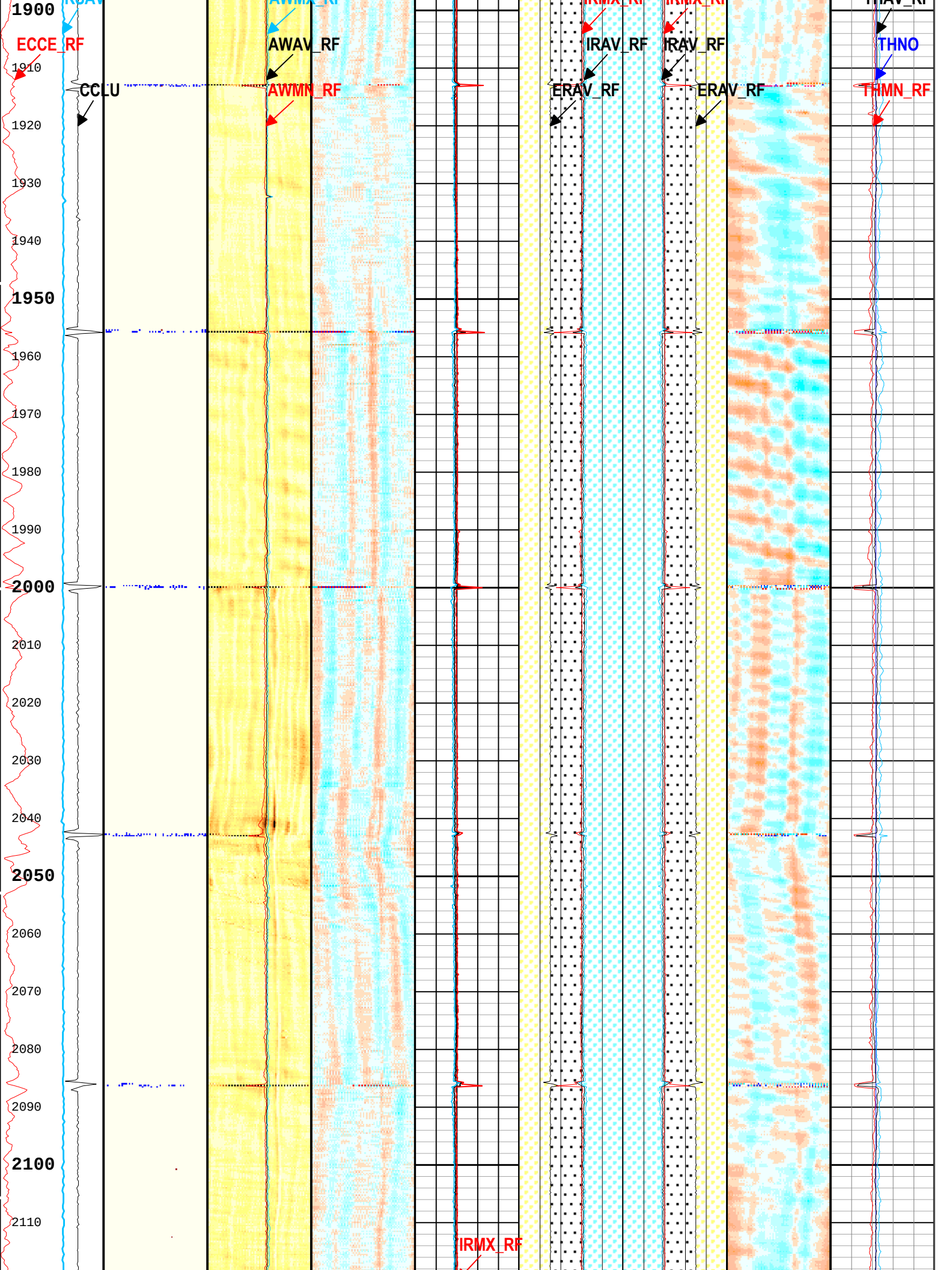
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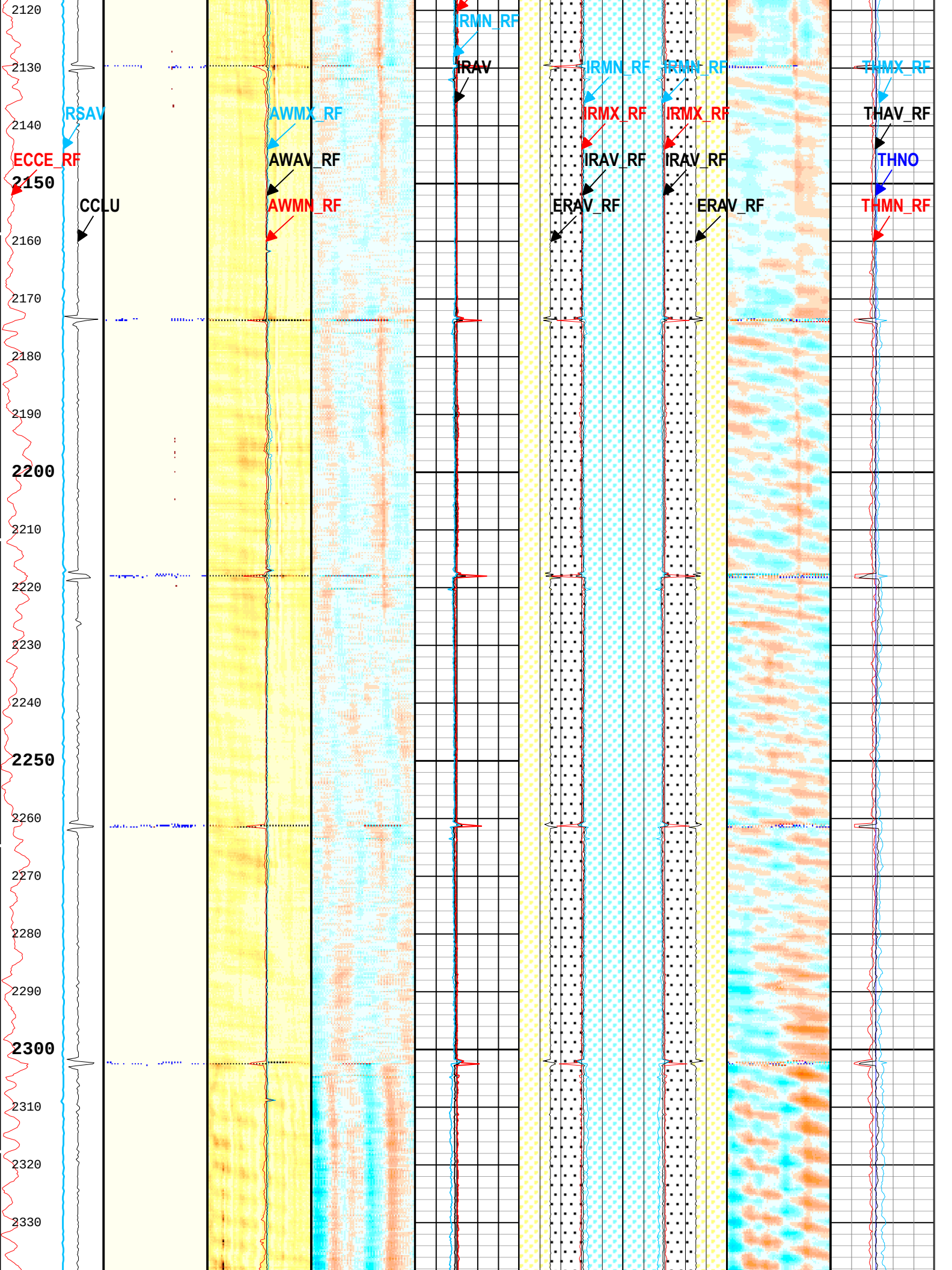
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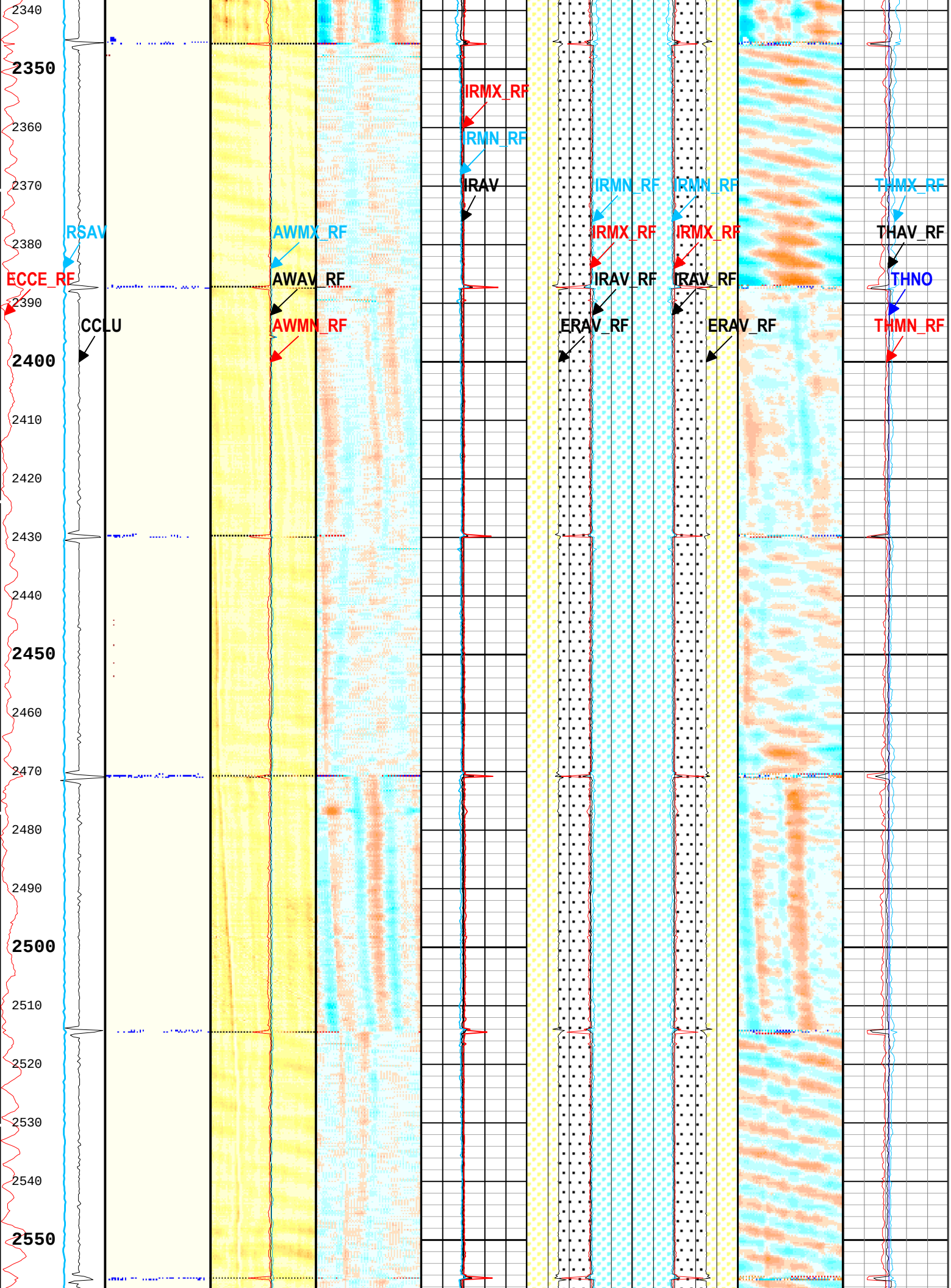
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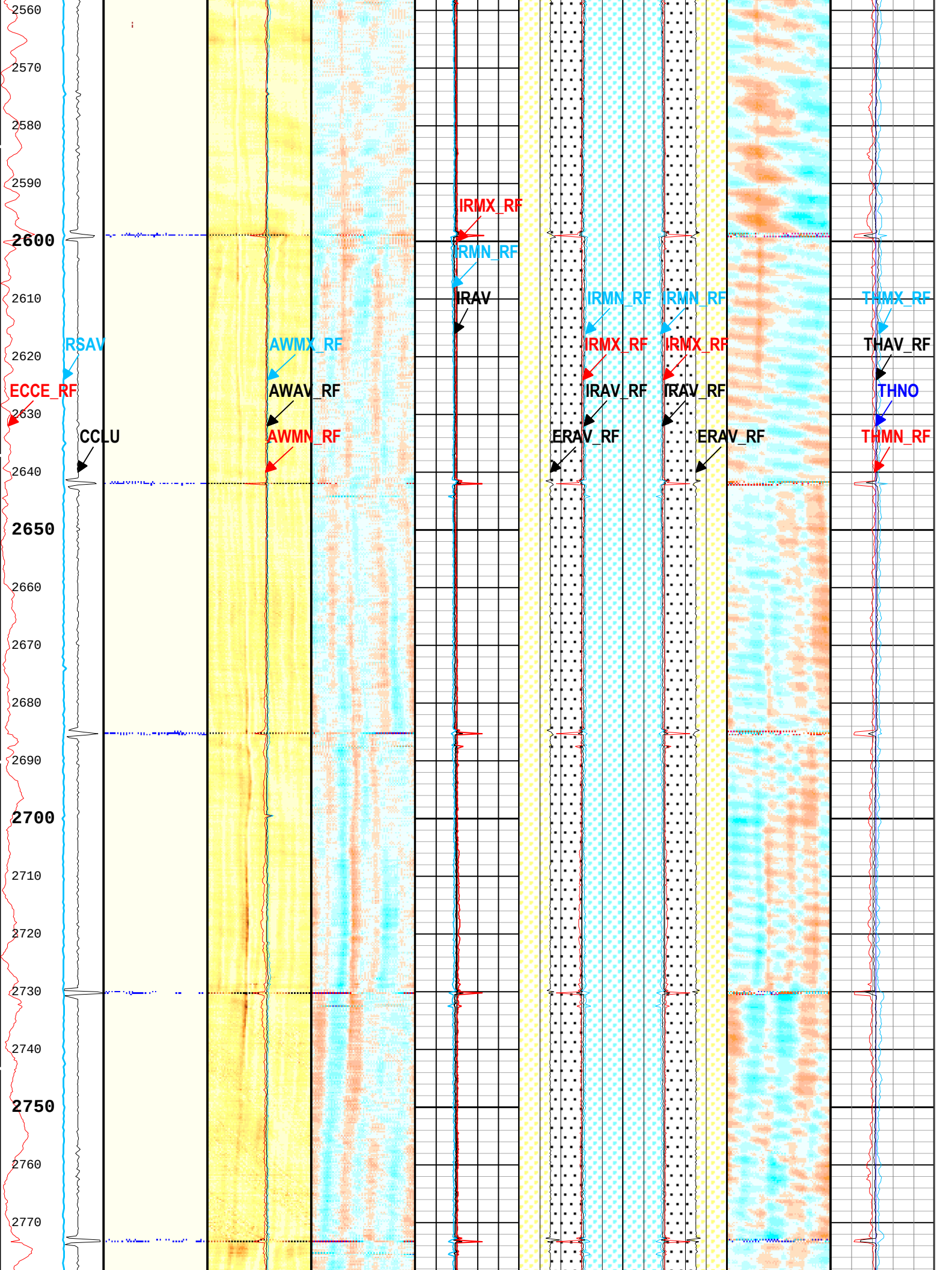
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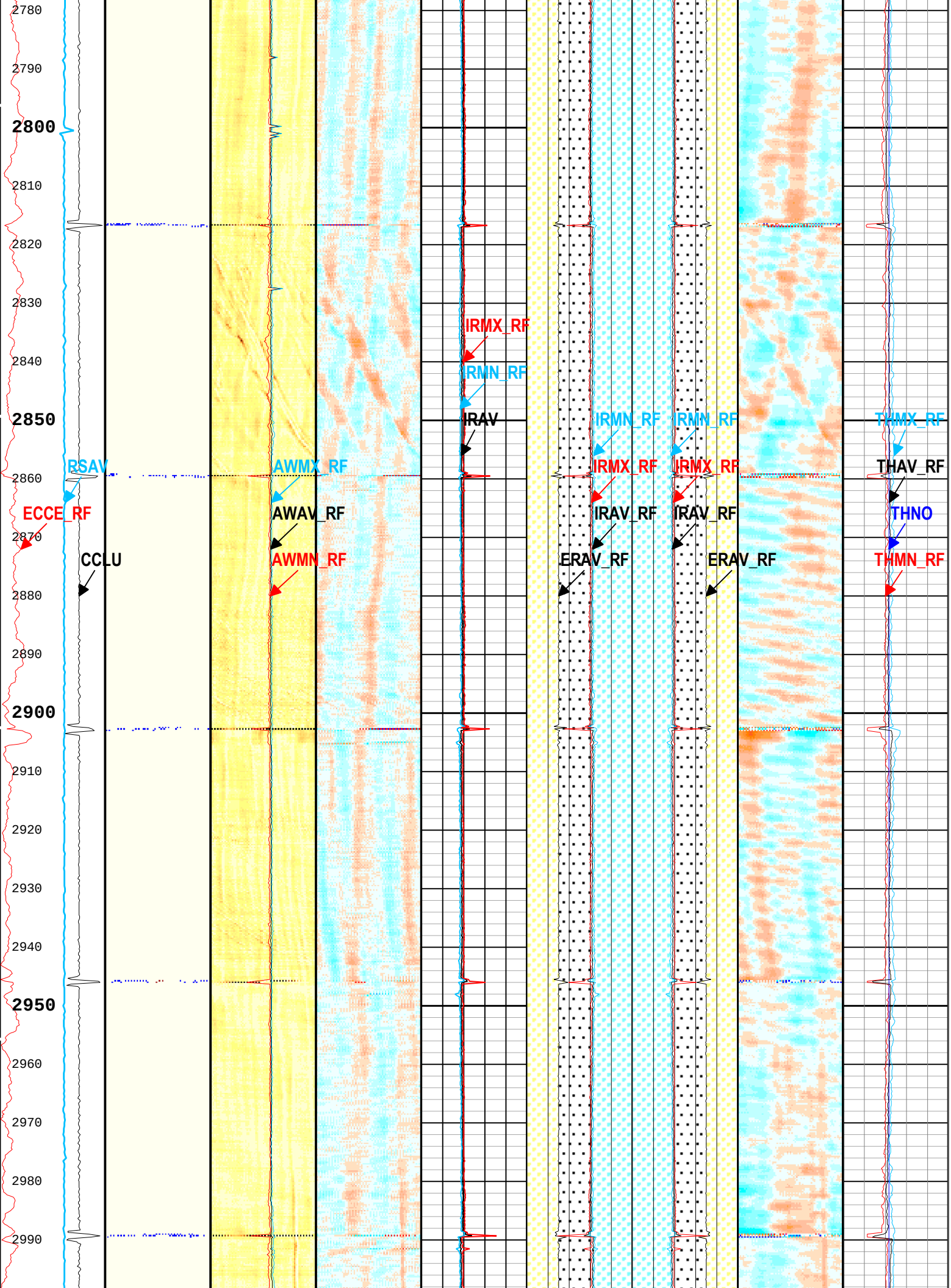
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CCLU
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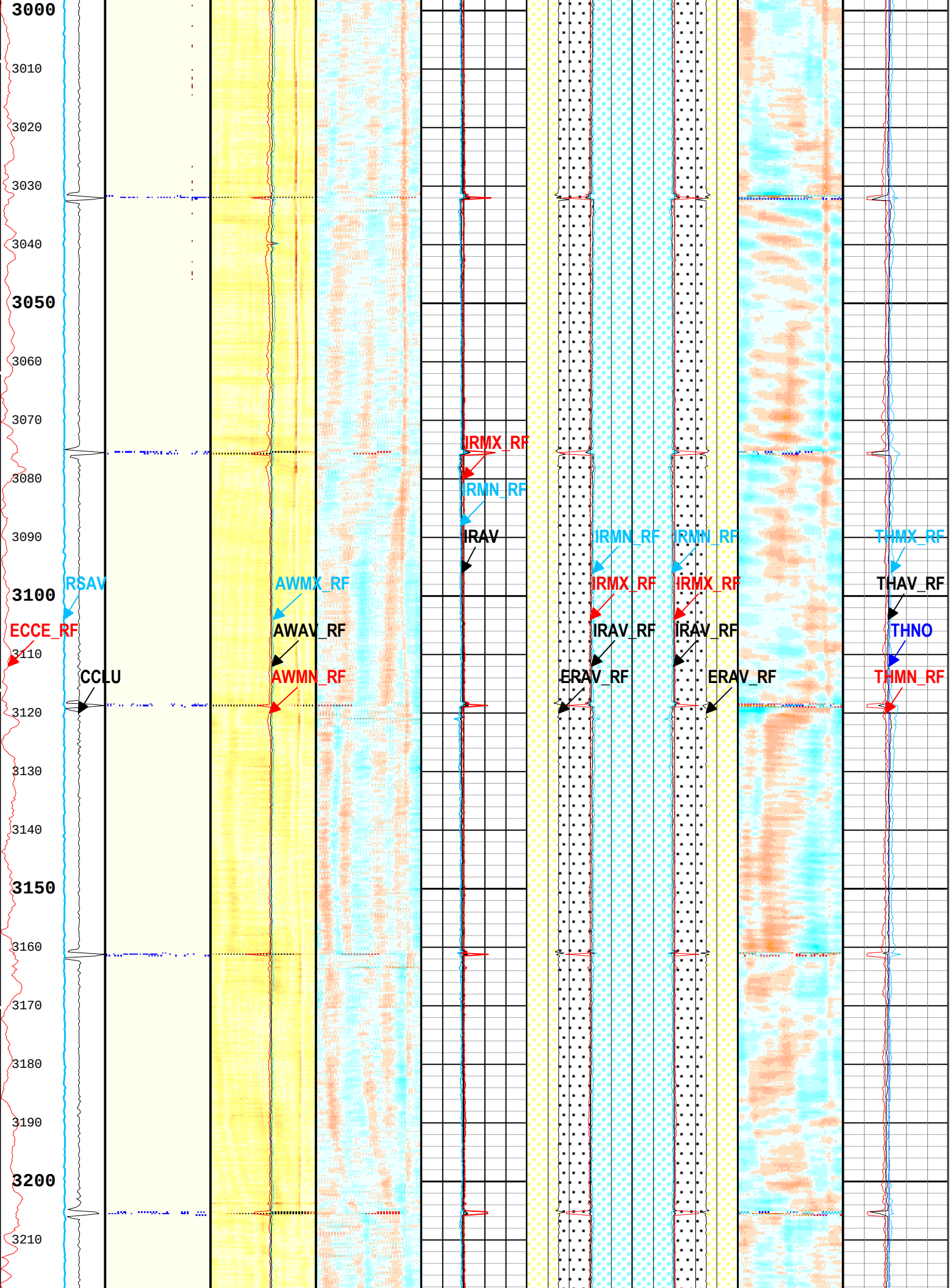
THMN_RF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CCLU
AWMX_RF
AWAV_RF
AWMN_RF
IRMX_RF
IRMN_RF
IRAV
IRMN_RF
IRMX_RF
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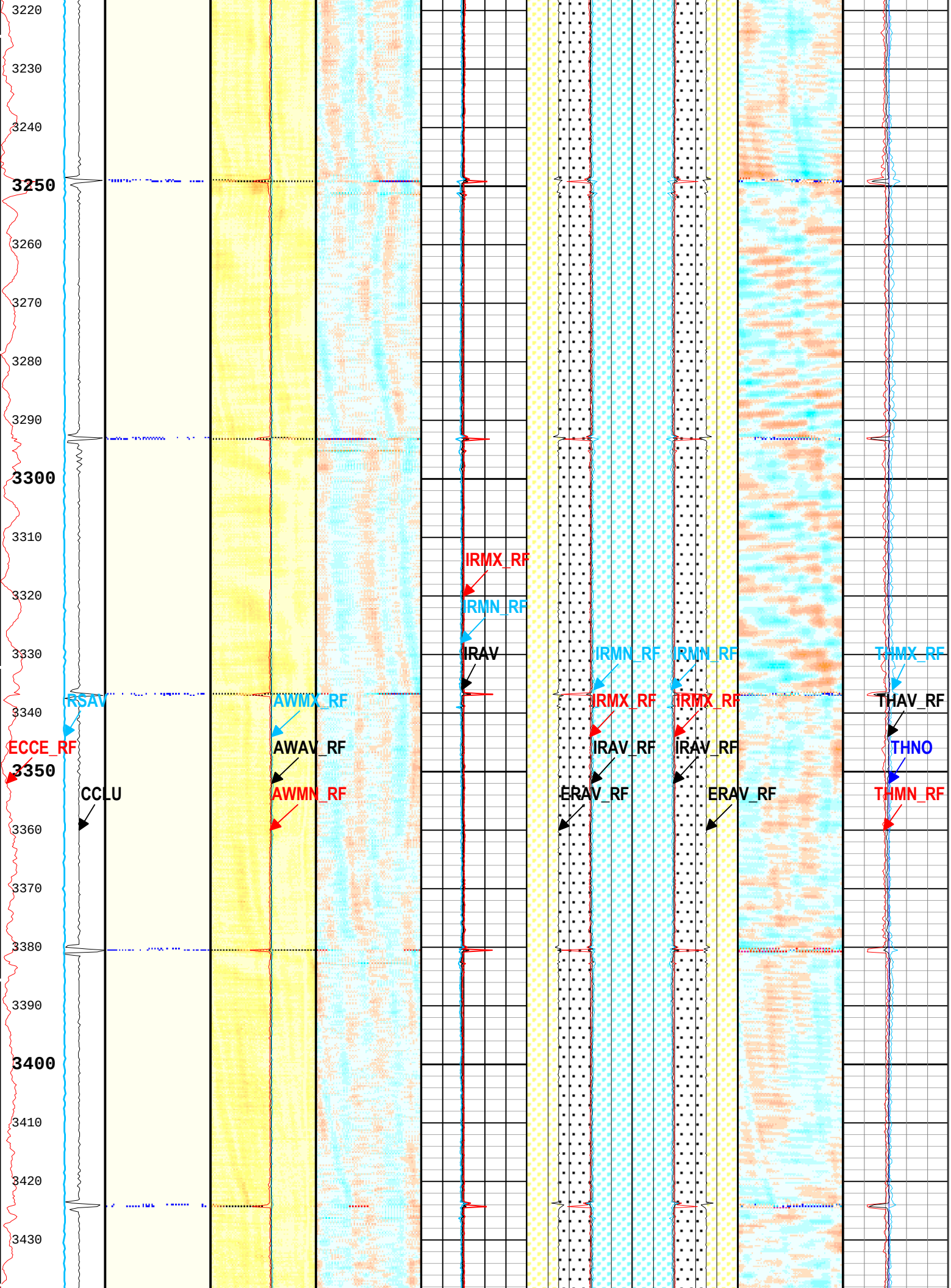
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CCLU
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AWAV_RF
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IRMX_RF
IRMN_RF
IRAV
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IRMX_RF
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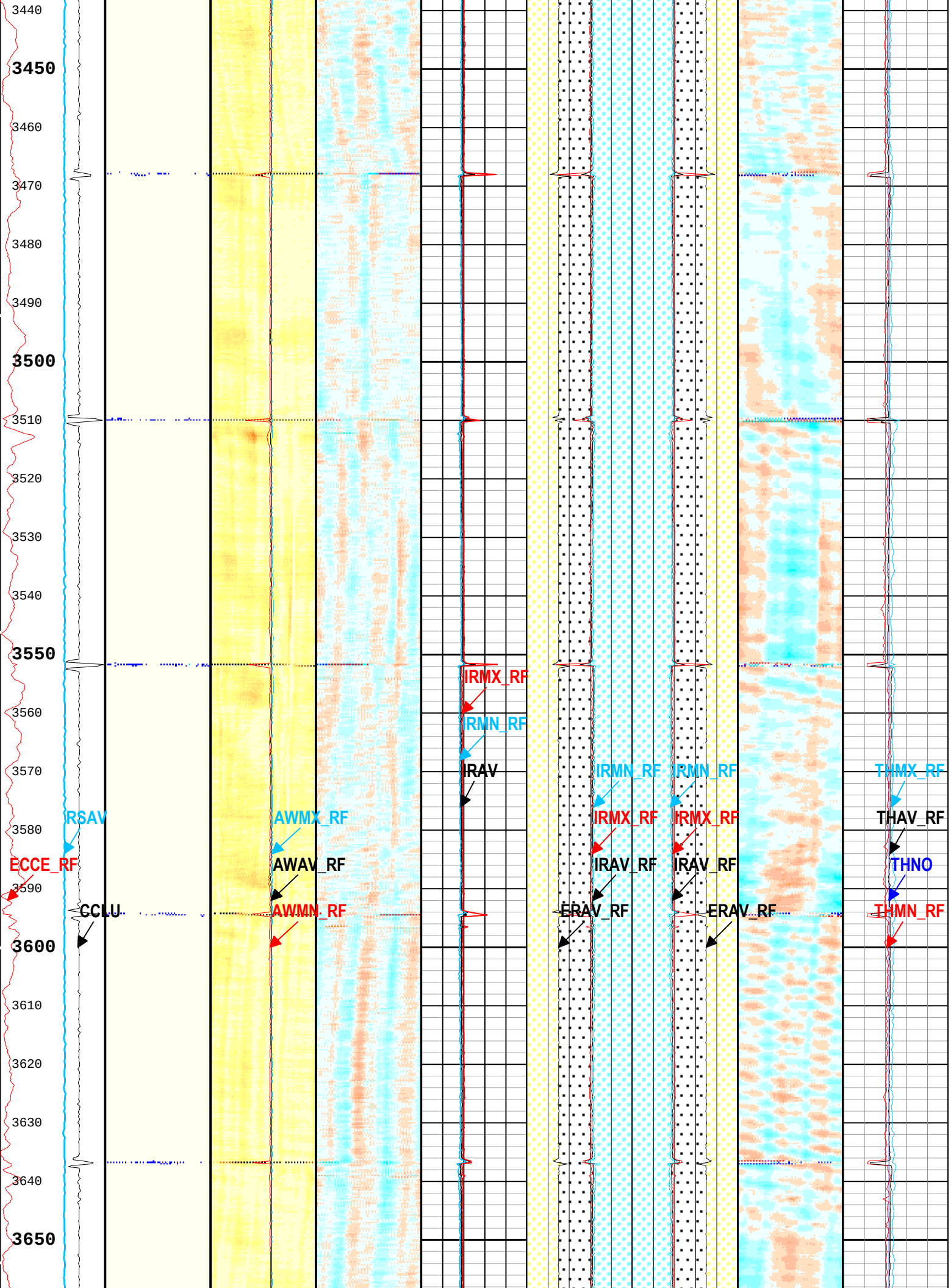
THMN_RF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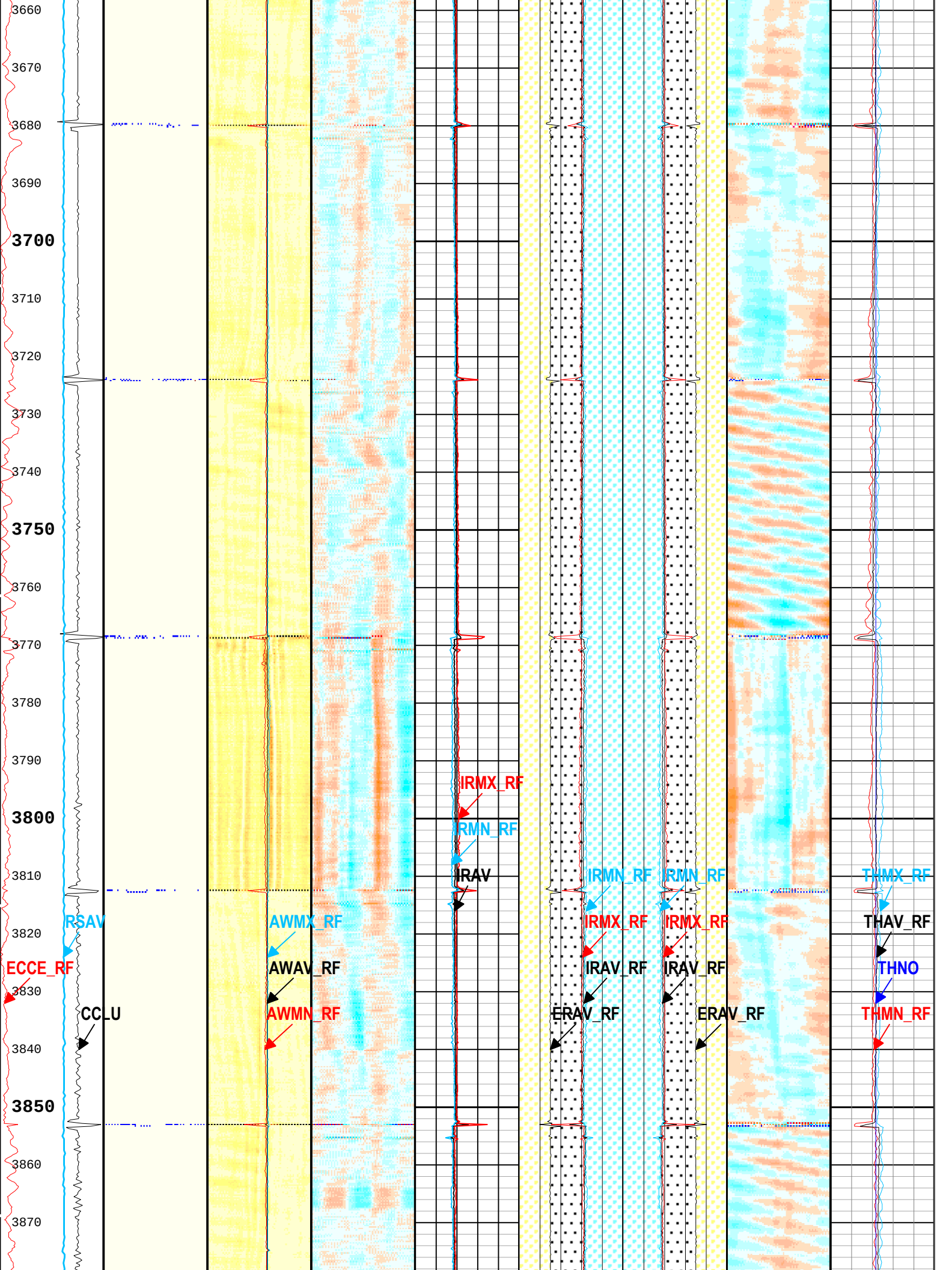
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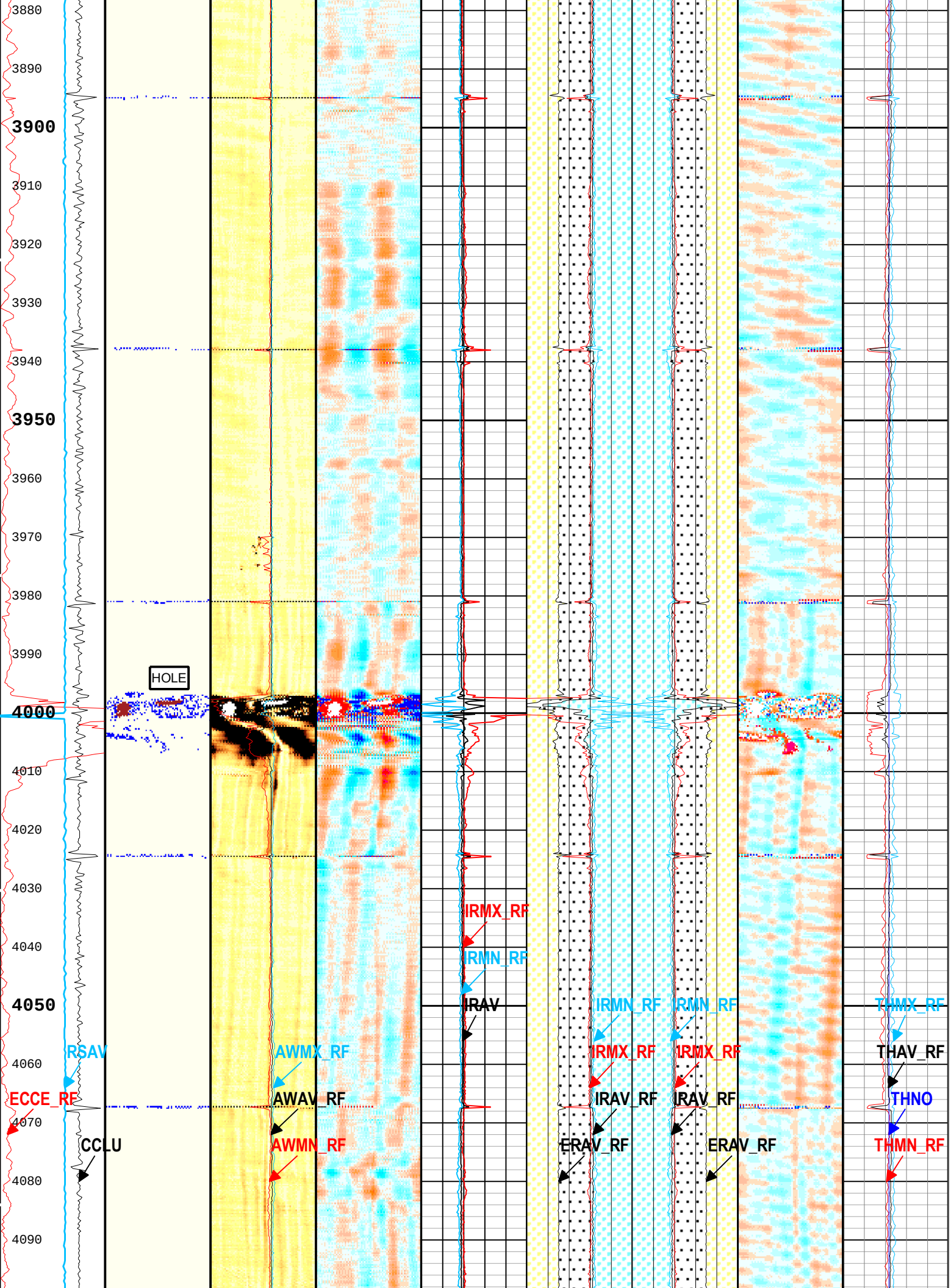
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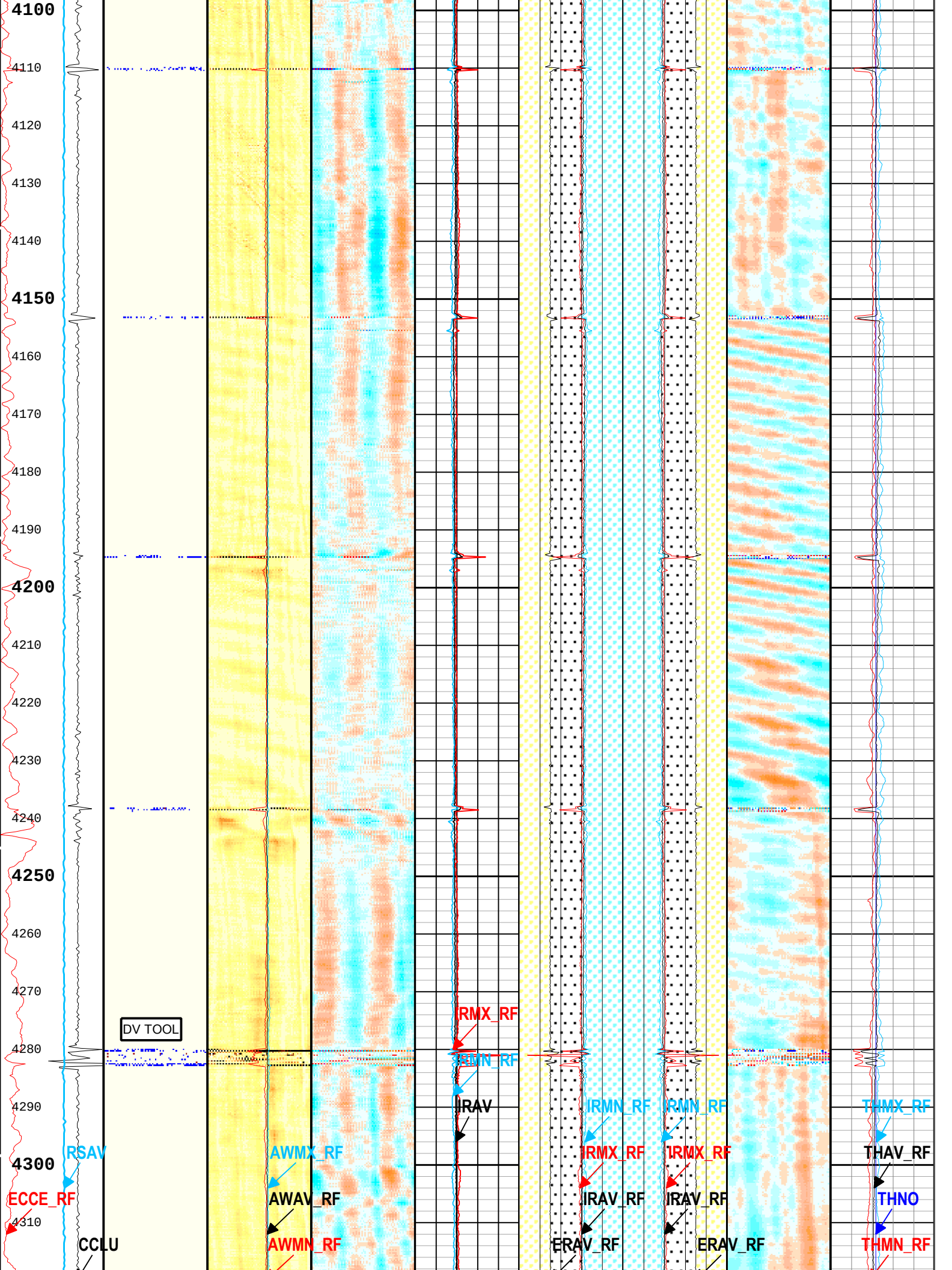
THMN_RF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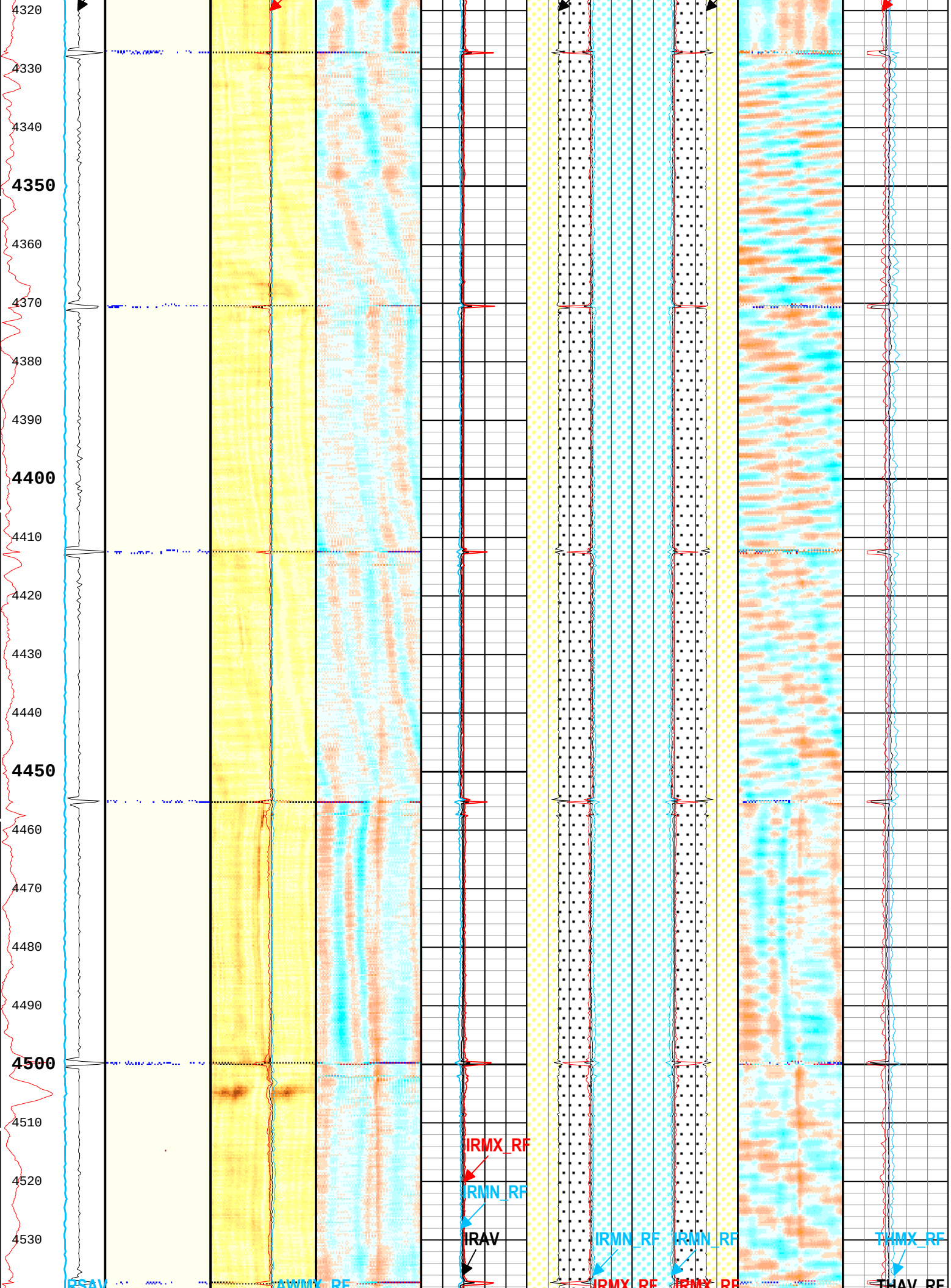
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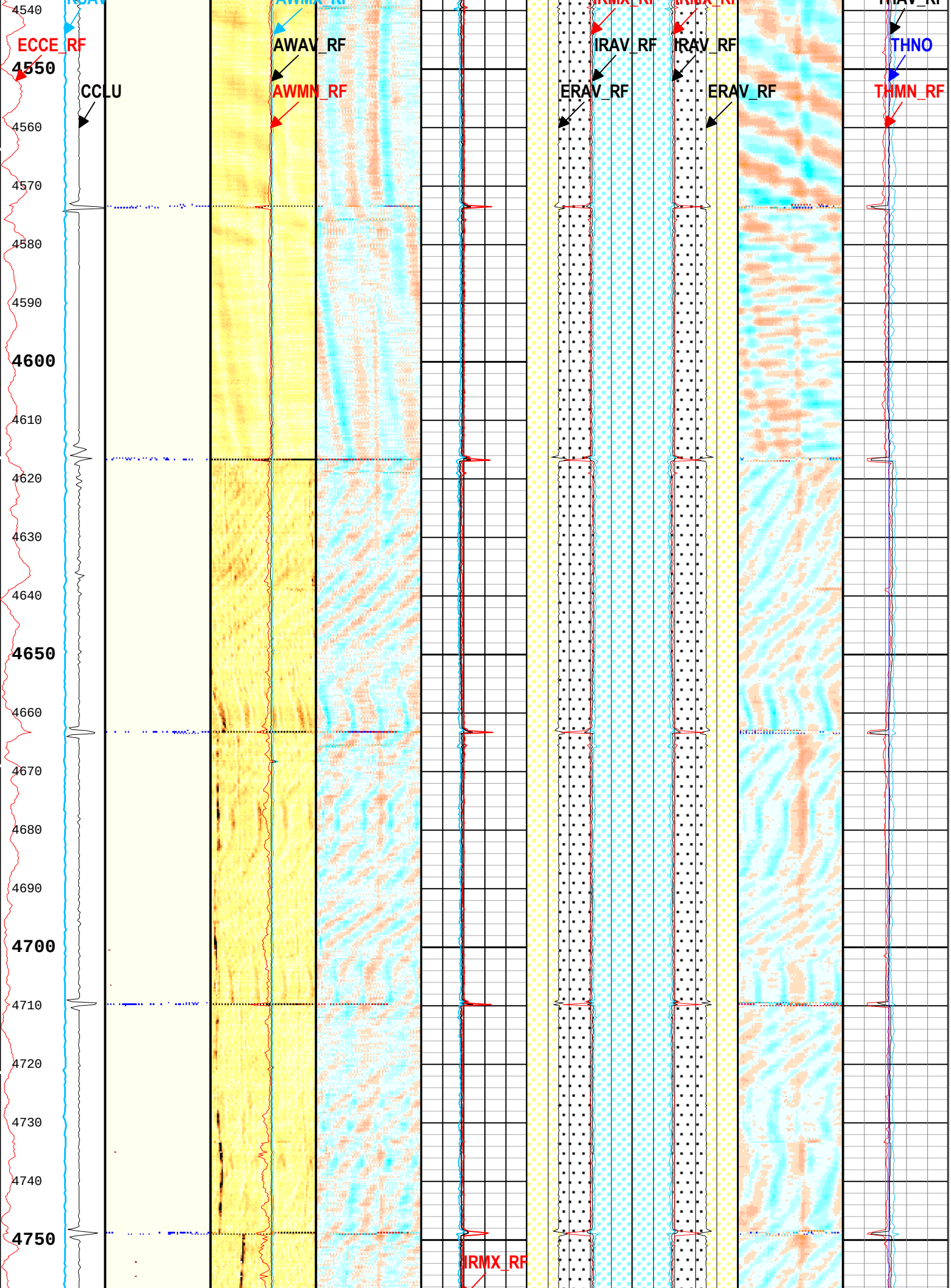
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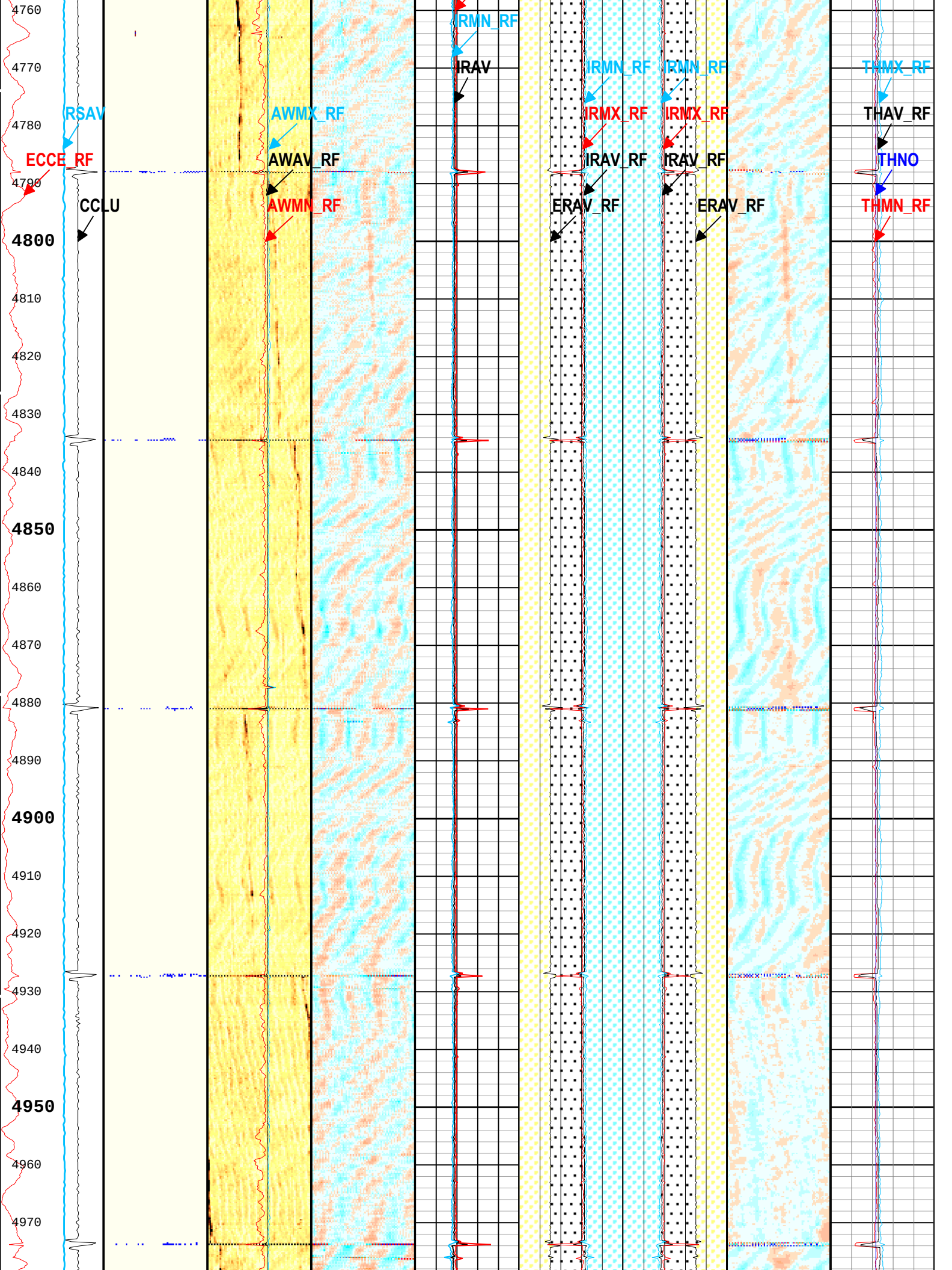
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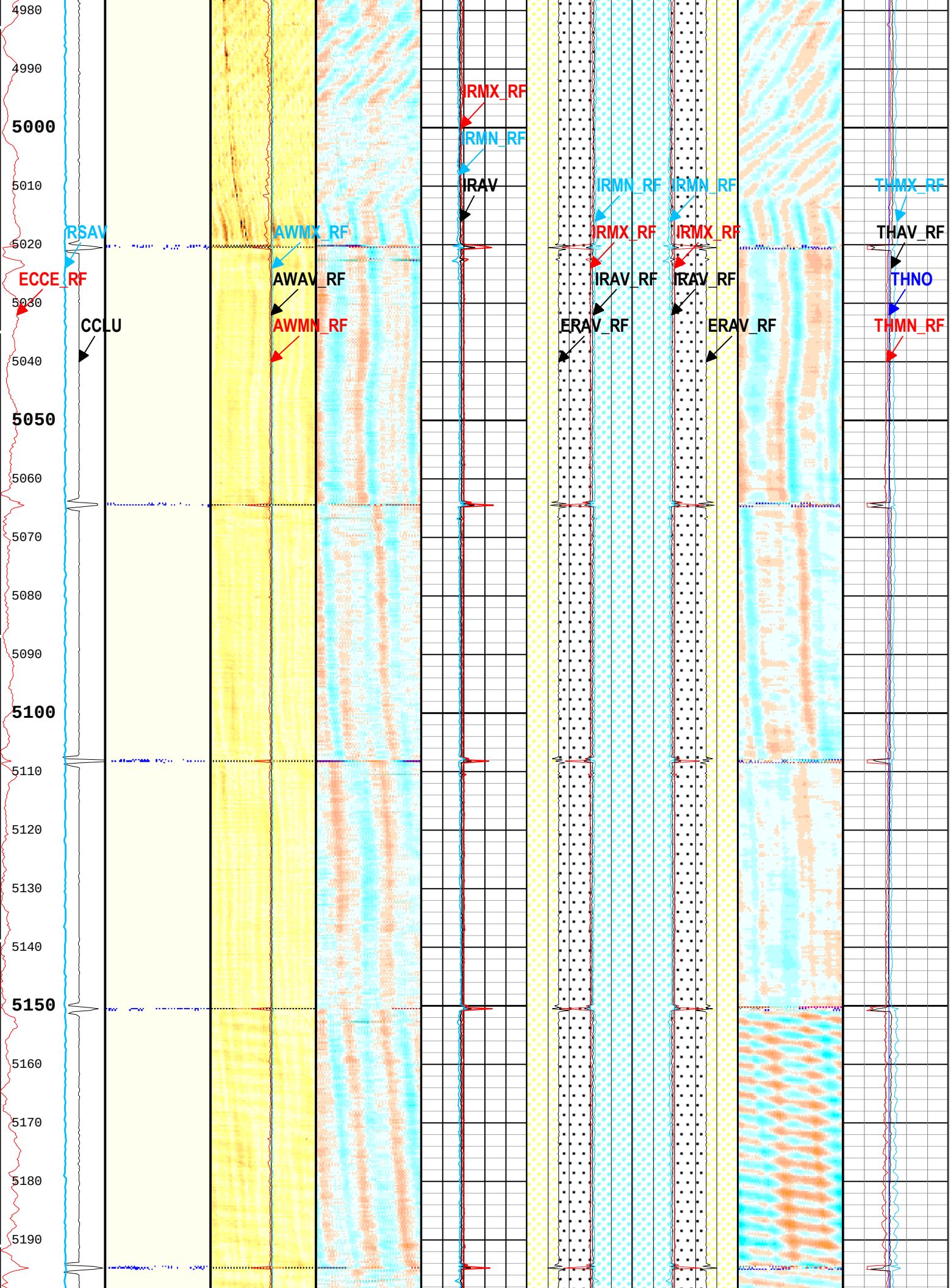
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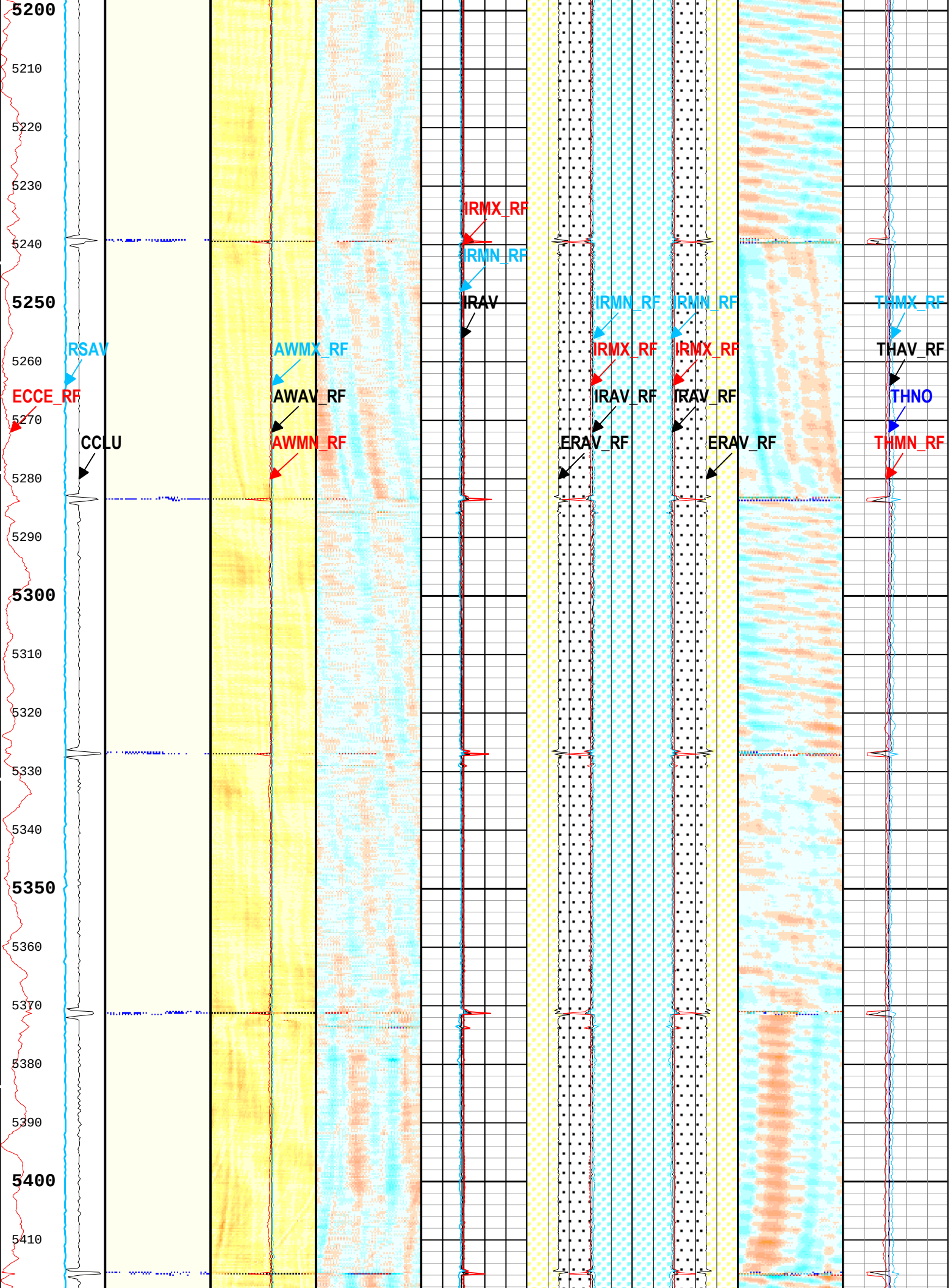
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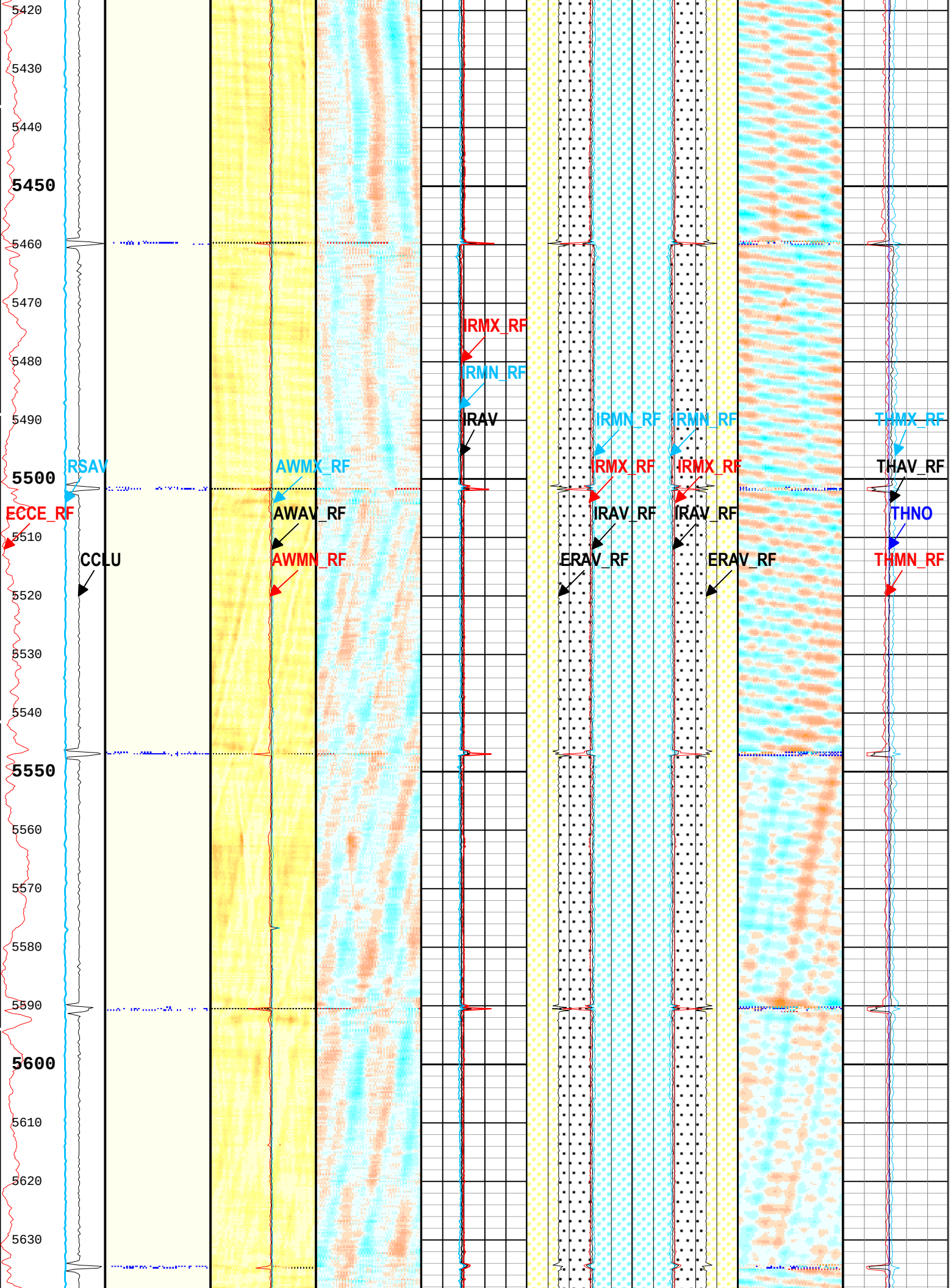
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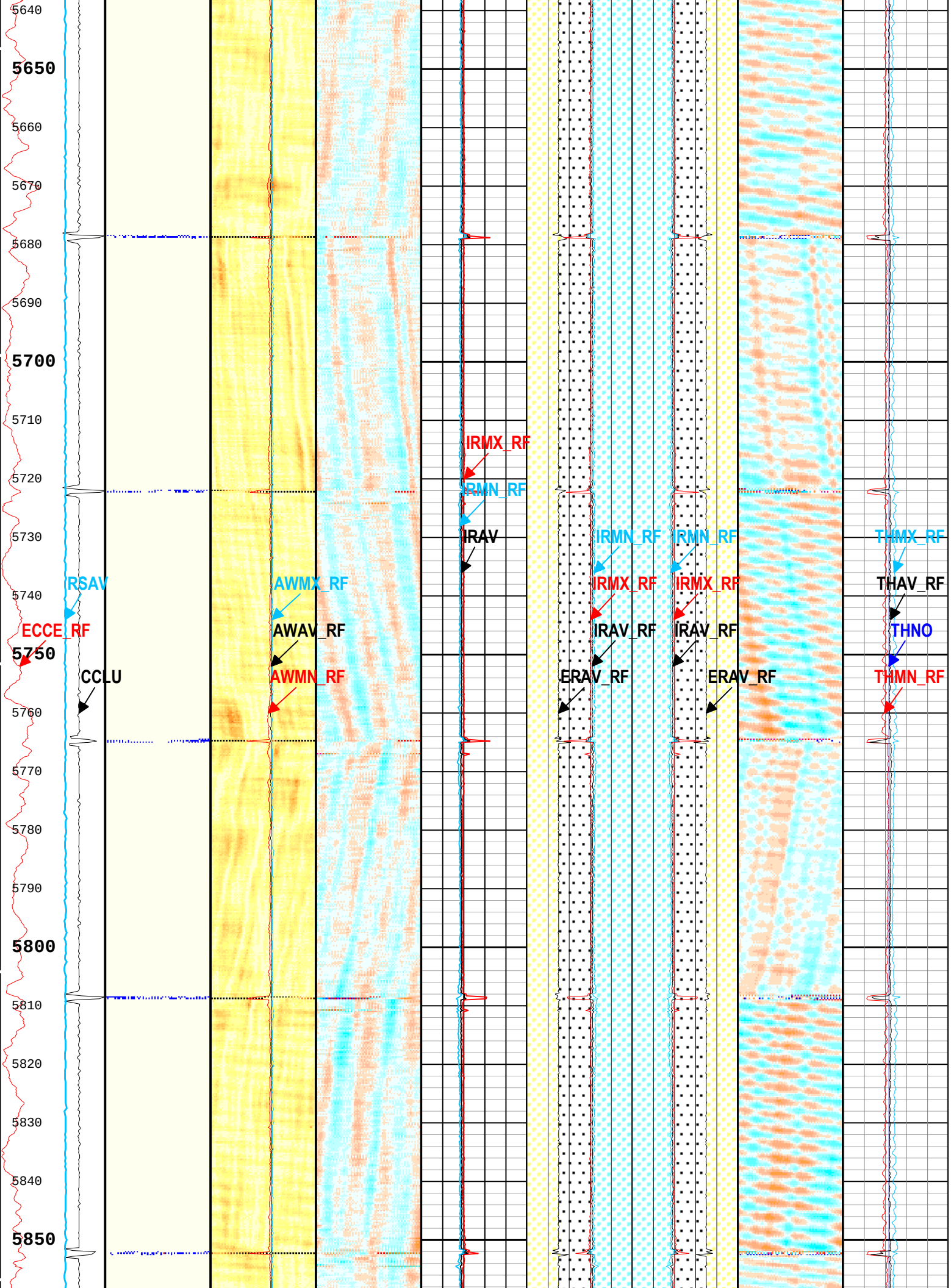
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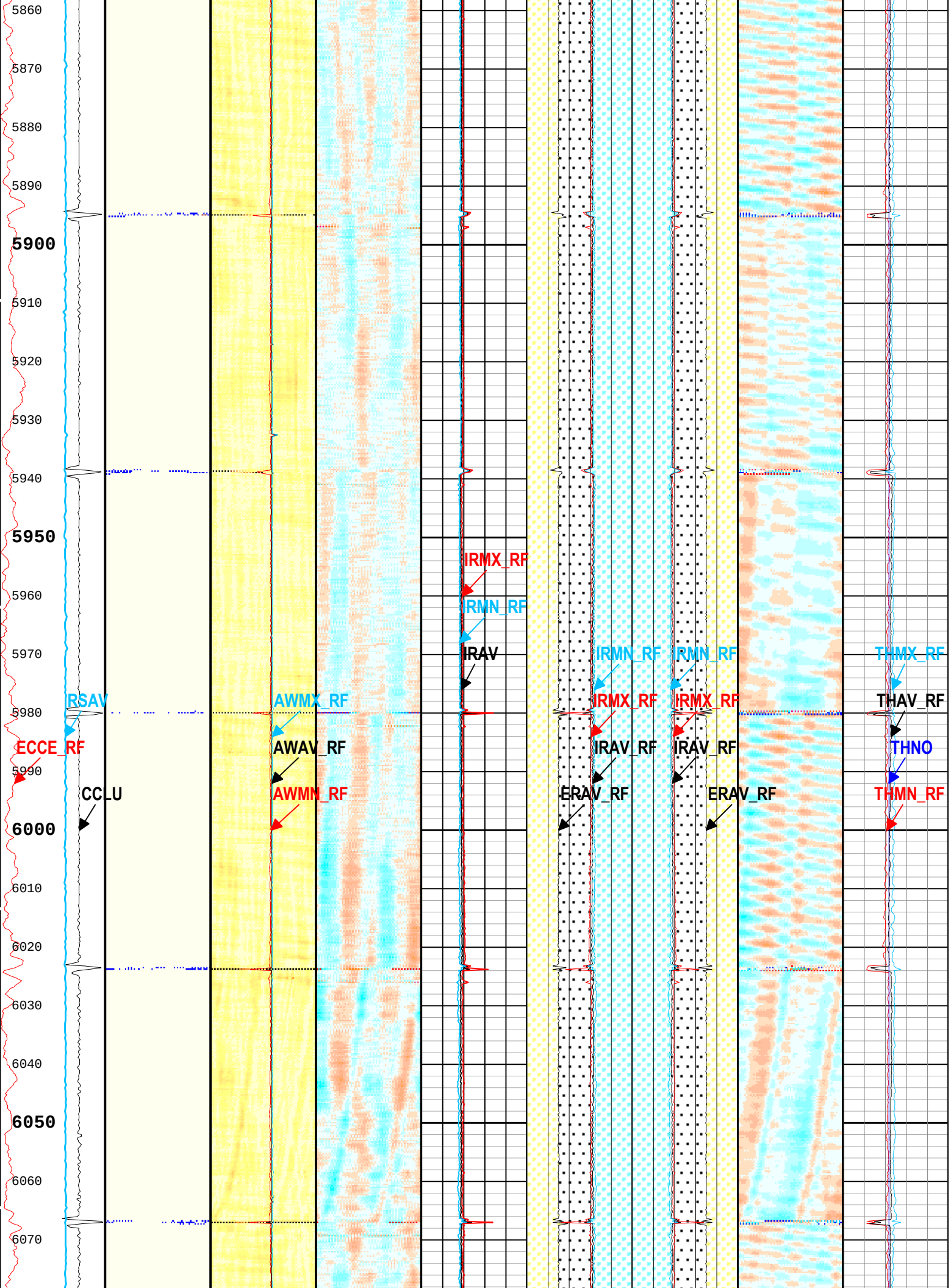
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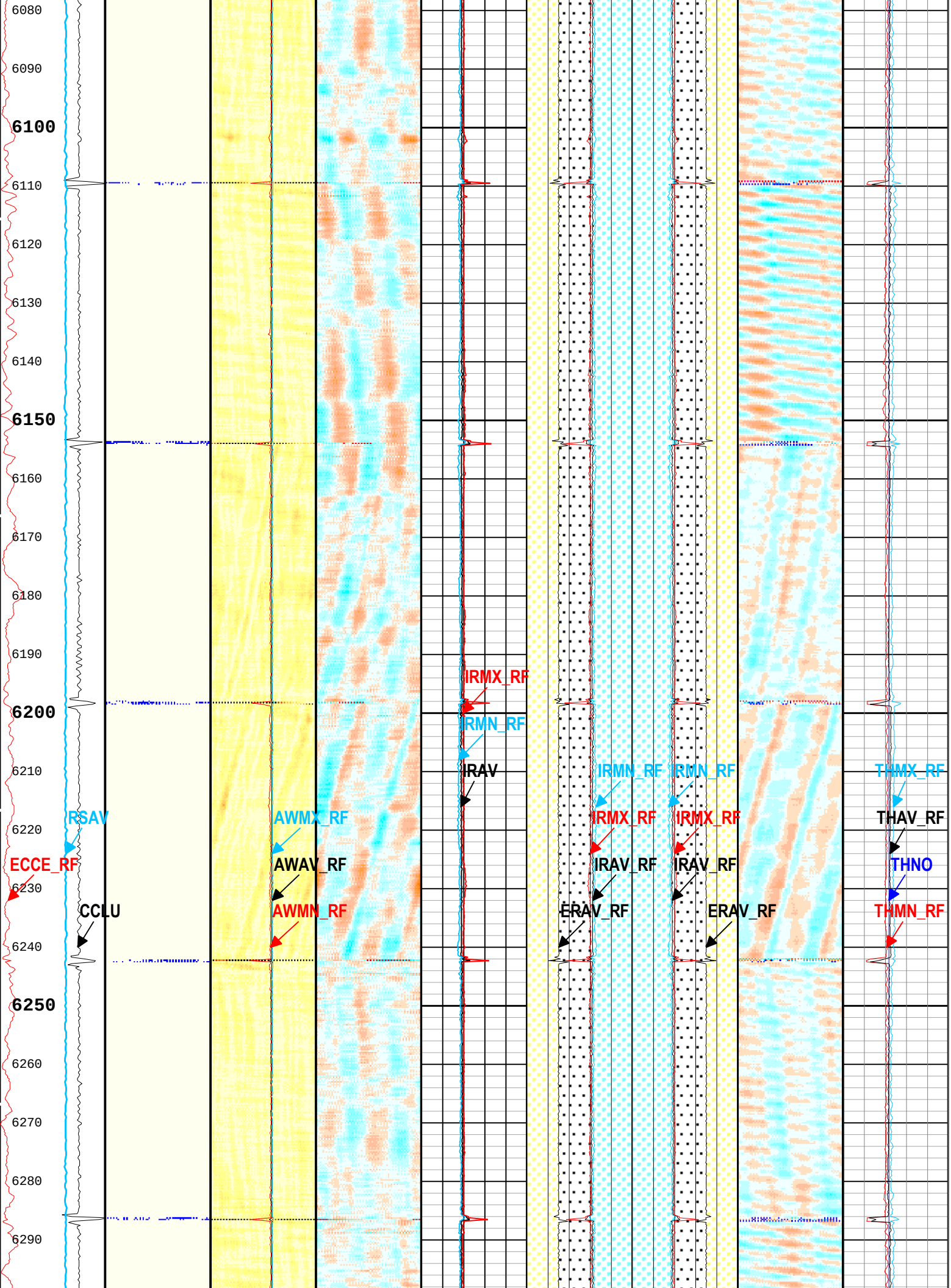
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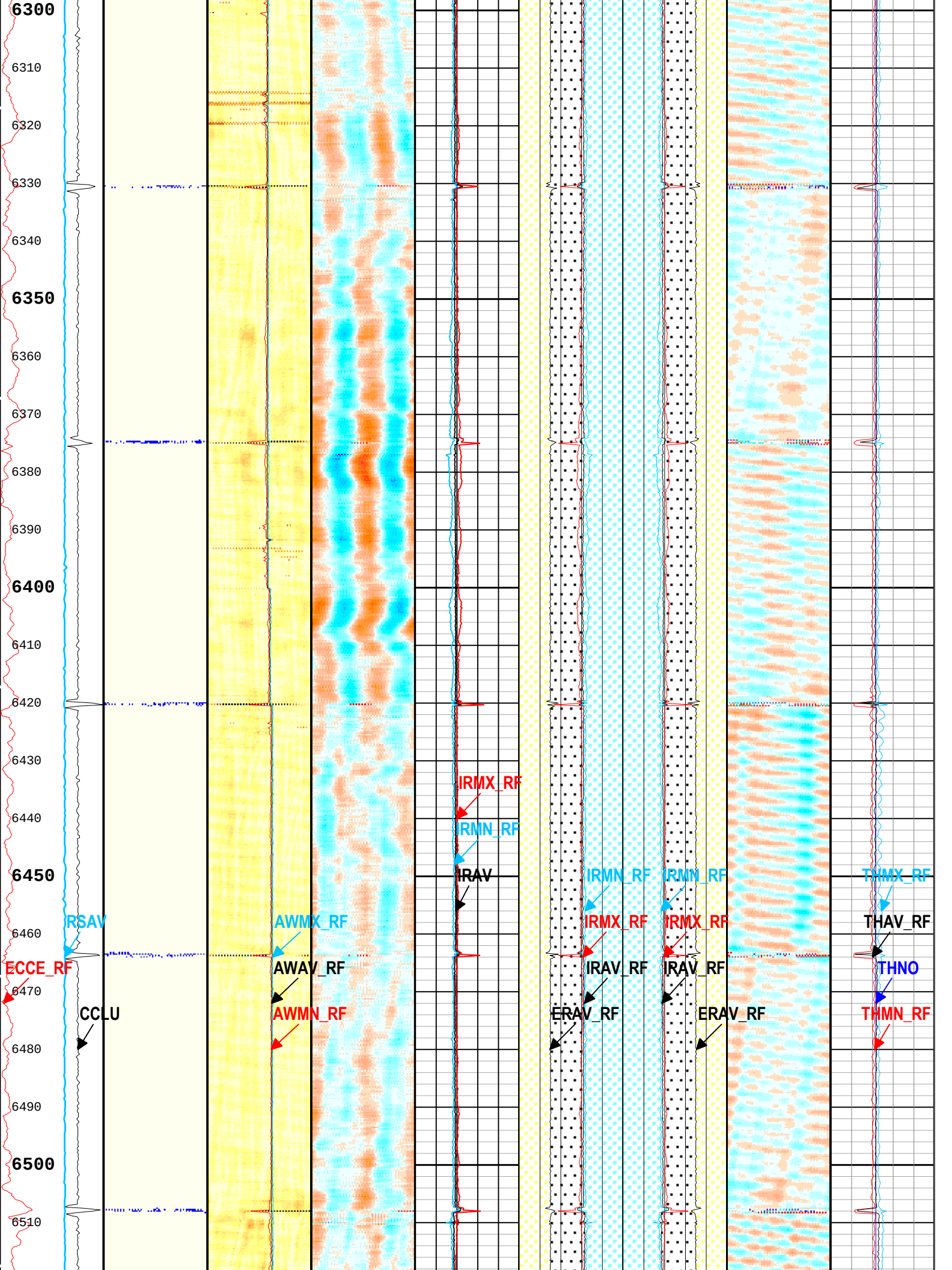
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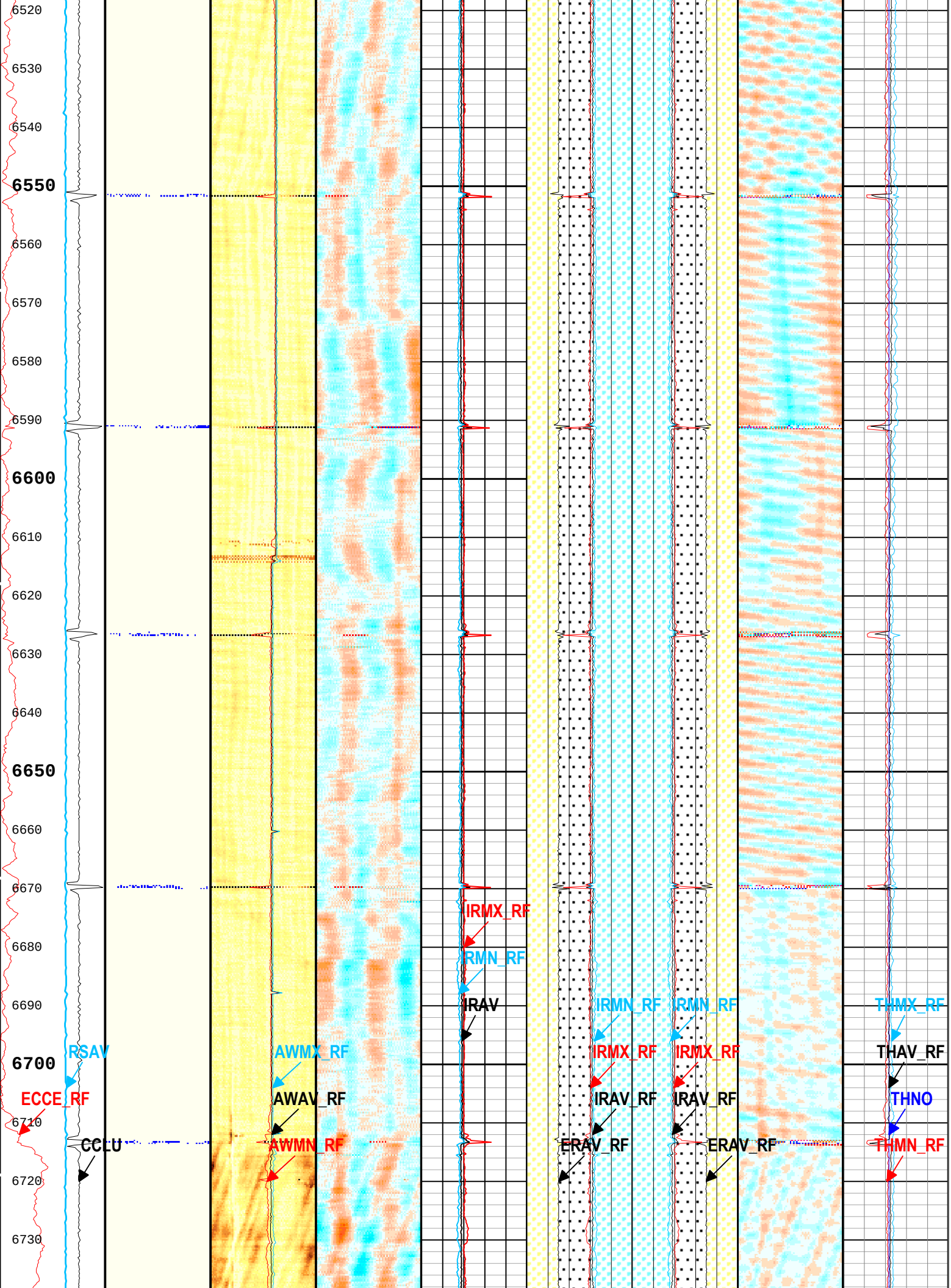
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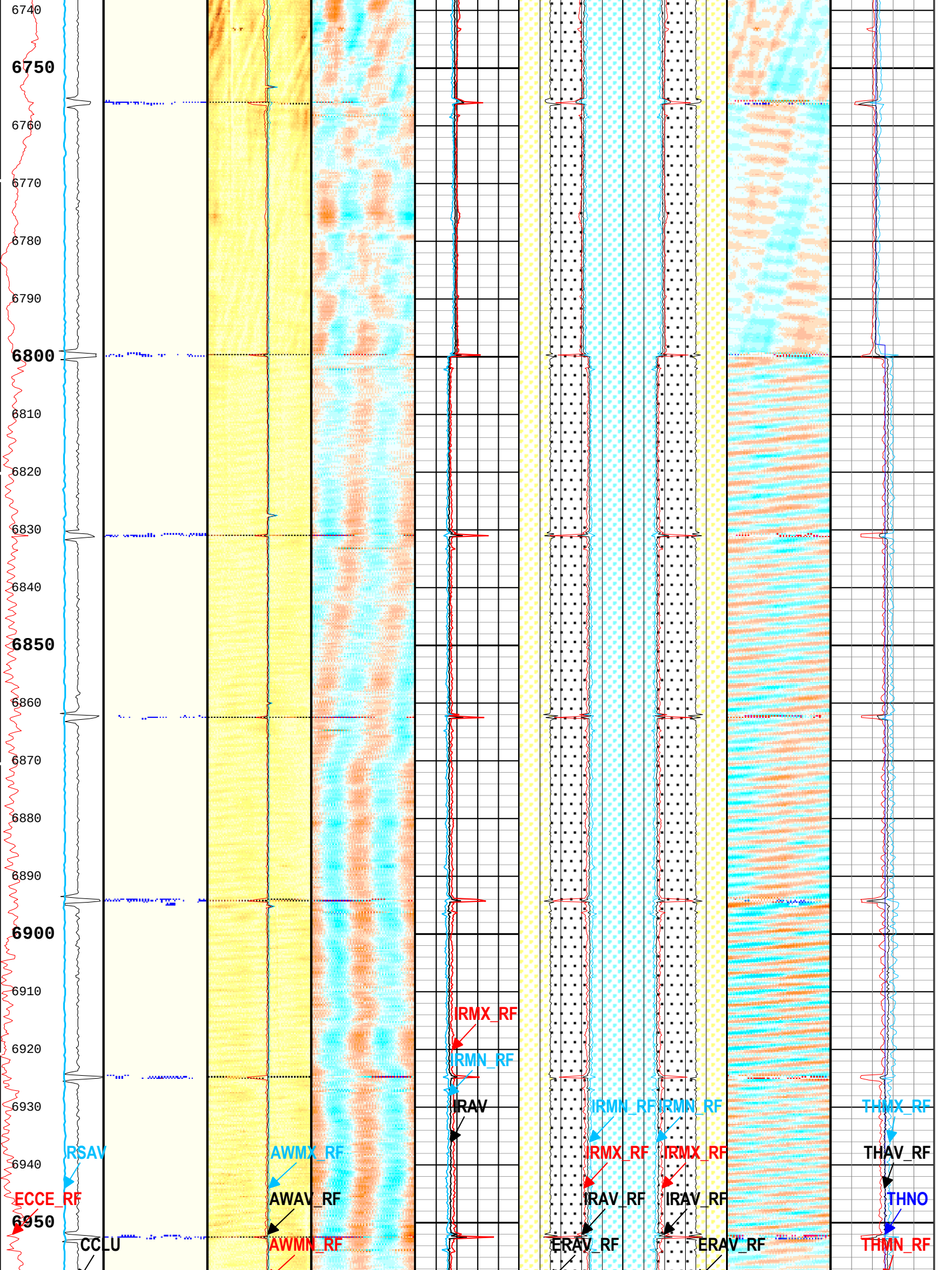
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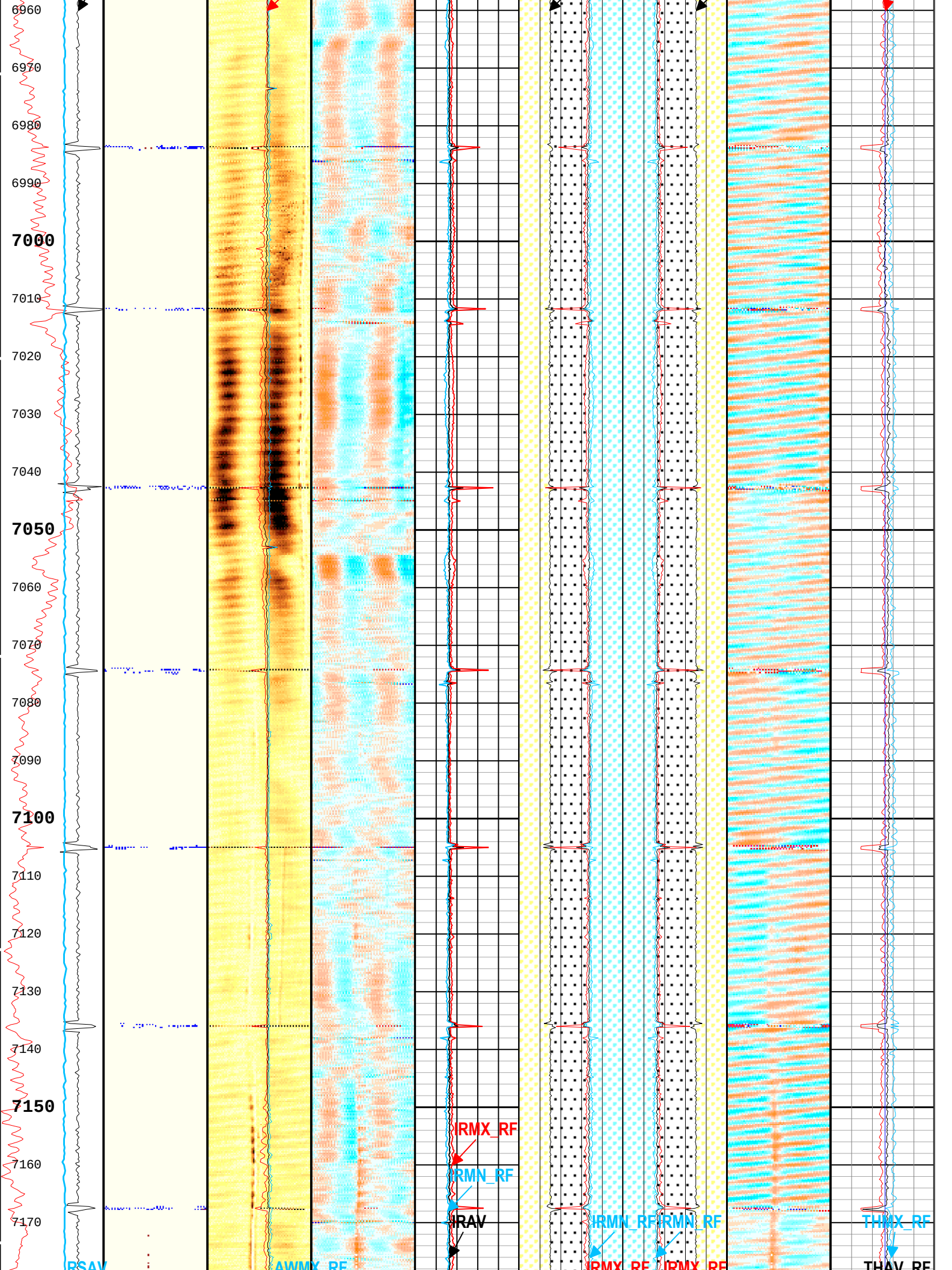
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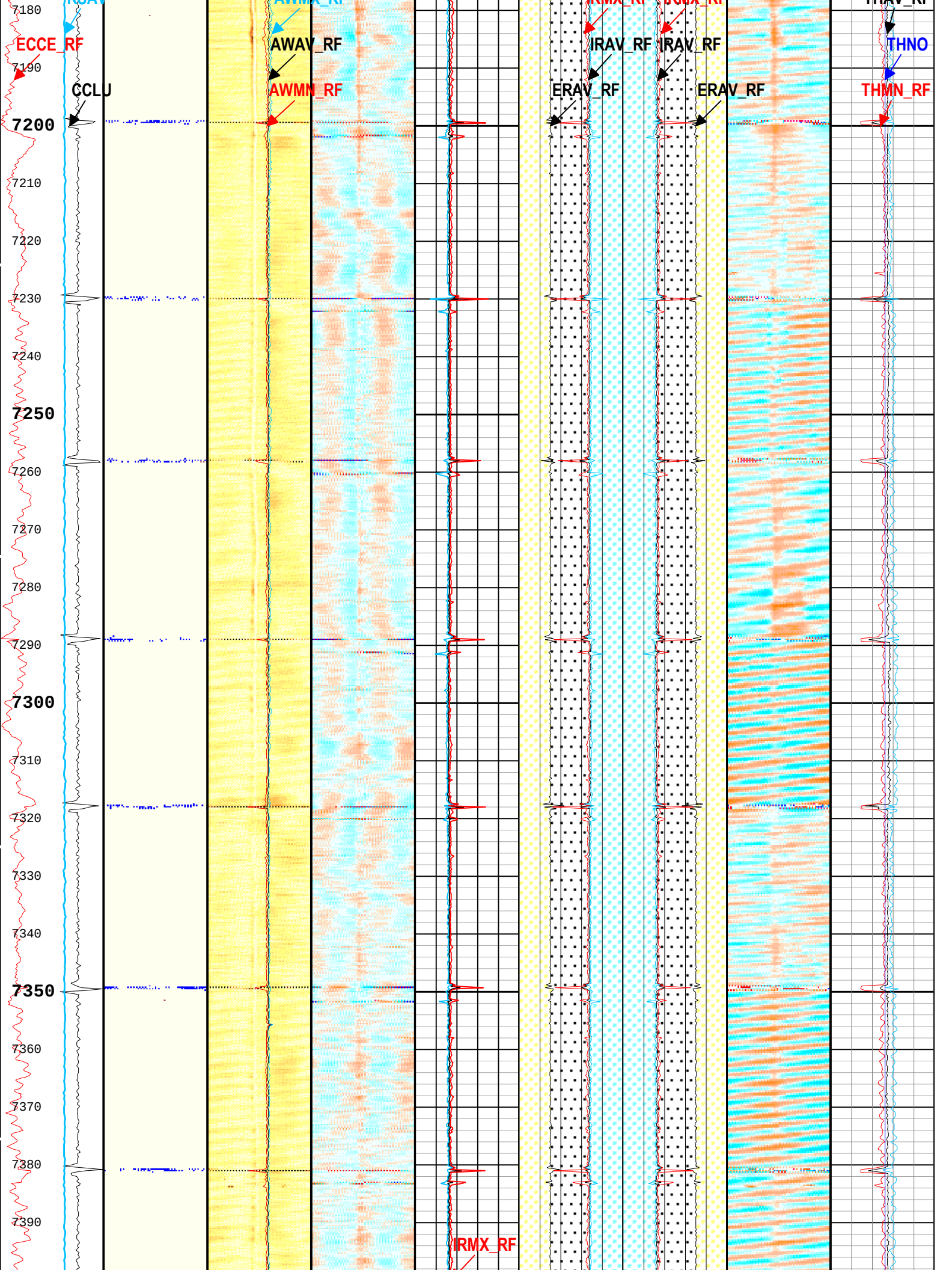
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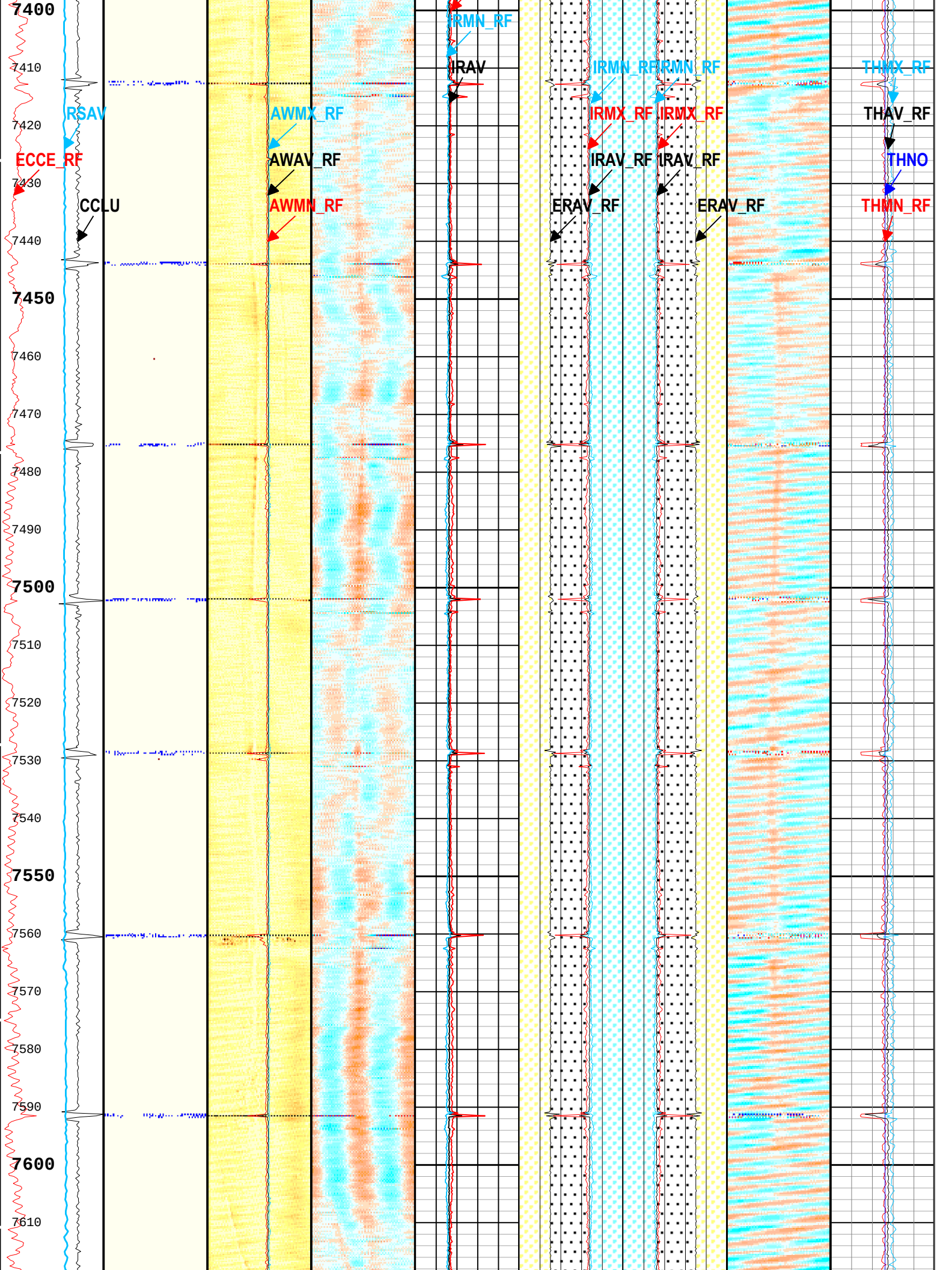
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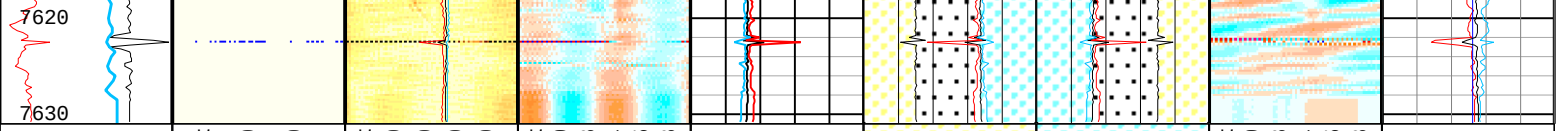


Casing Collar Locator Ultrasonic (CCLU) USIT-E
-30 in 10

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

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

Absent -5.200 -3.600 -2.000 -0.400
Explicit Normalization
USIT - Amplitude of Unflagged Wave (AWBK_RF) USIT-E
(dB)

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

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

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

Absent -0.059 -0.028 0.004 0.035 0.068
Explicit Normalization
USIT - Unflagged Internal Radii minus Median Internal Radius (IRBKM_RF) USIT-E
(in)

Internal Radius Averaged Value (IRAV) USIT-E
2.8 in 3.8

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

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

ERAV
ERAV-IRAV
IRAV

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

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

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

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

IRAV
ERAV
IRAV-ERAV

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

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

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

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

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

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 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 9.625inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth
Creation Date: 29-Feb-2016 21:11:33

One

USIT Goodwin Compressed

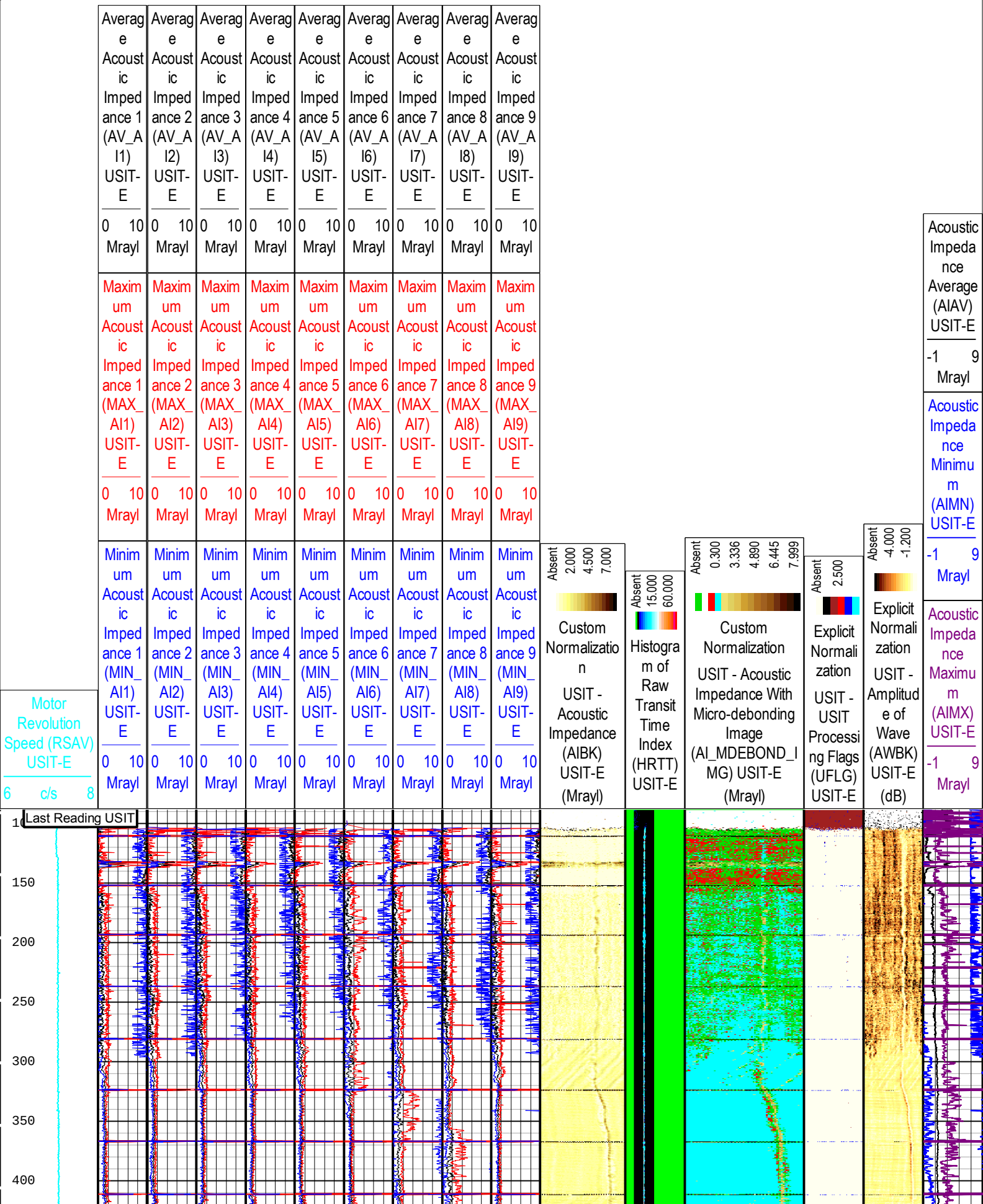
Pass Summary

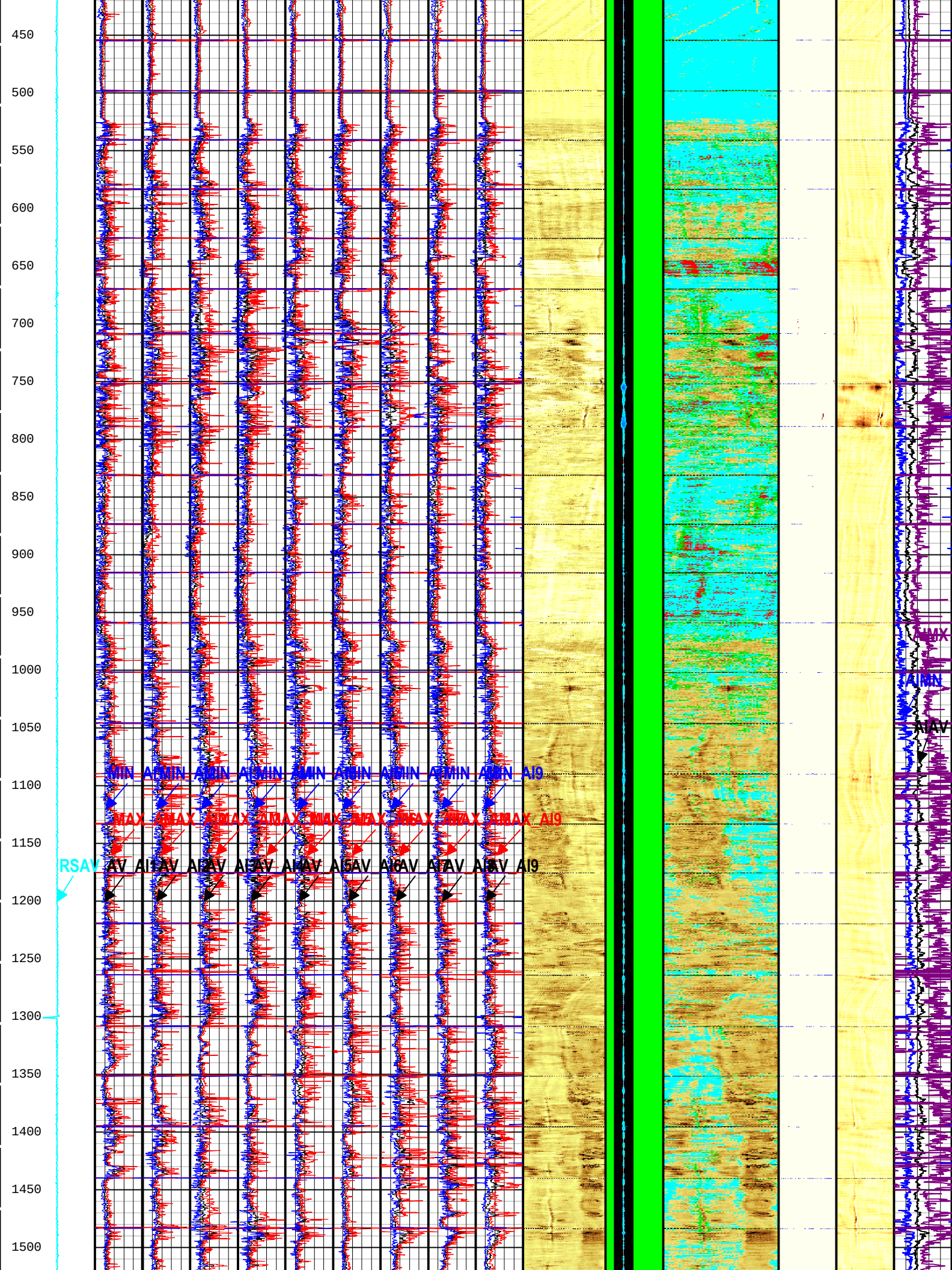
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[11]:Up	Up	88.79 ft	7631.63 ft	29-Feb-2016 10:39:19 AM	29-Feb-2016 1:04:11 PM	ON	6.00 ft	Yes

All depths are referenced to toolstring zero

Description: USI Goodwin Format: Log (LBV1_Long Beach Custom Goodwin) Index Scale: 1 in per 100 ft Index Unit: ft Index Type: Measured Depth
Creation Date: 29-Feb-2016 21:11:58

TIME_1900 - Time Marked every 60.00 (s)

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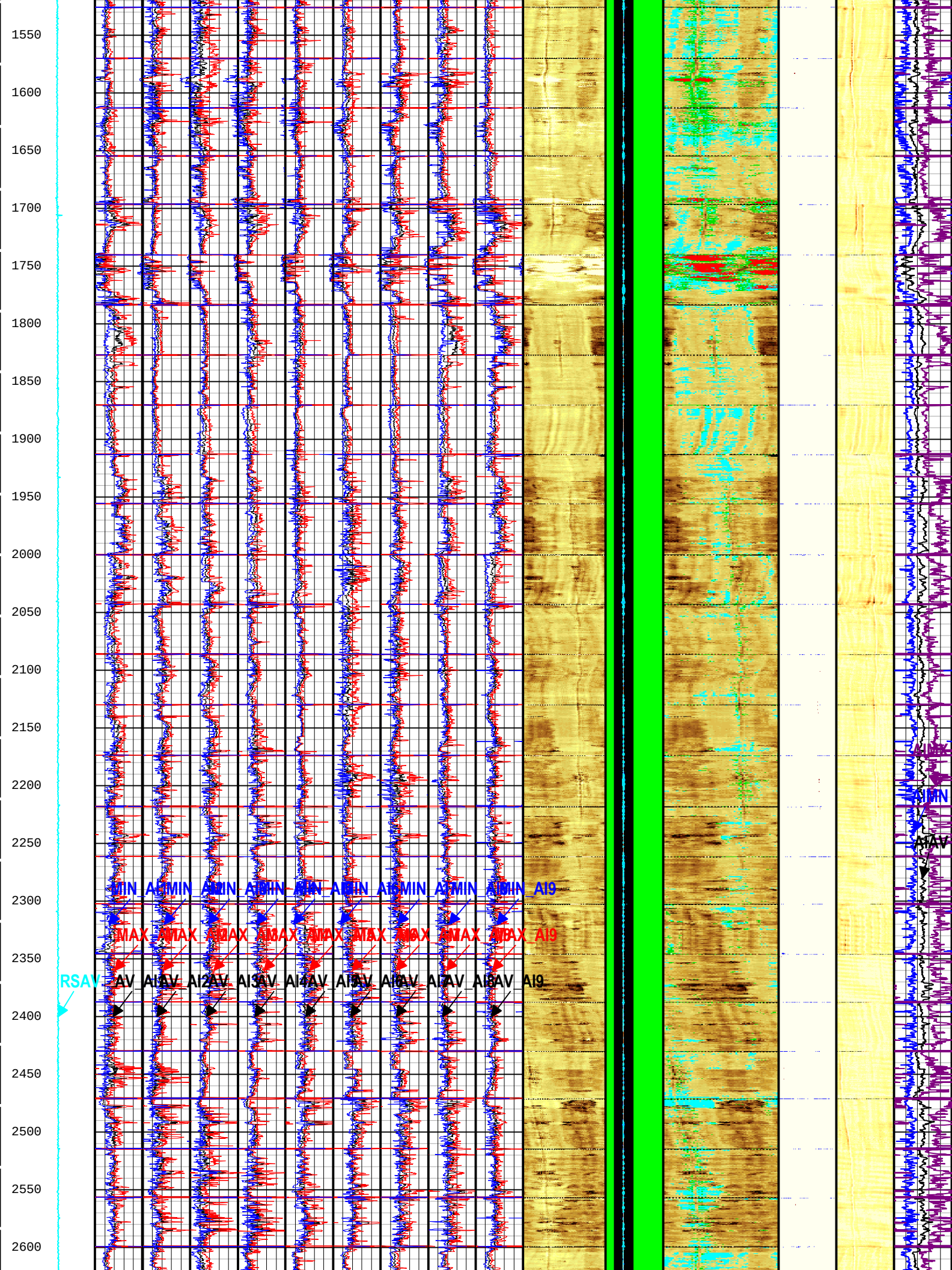
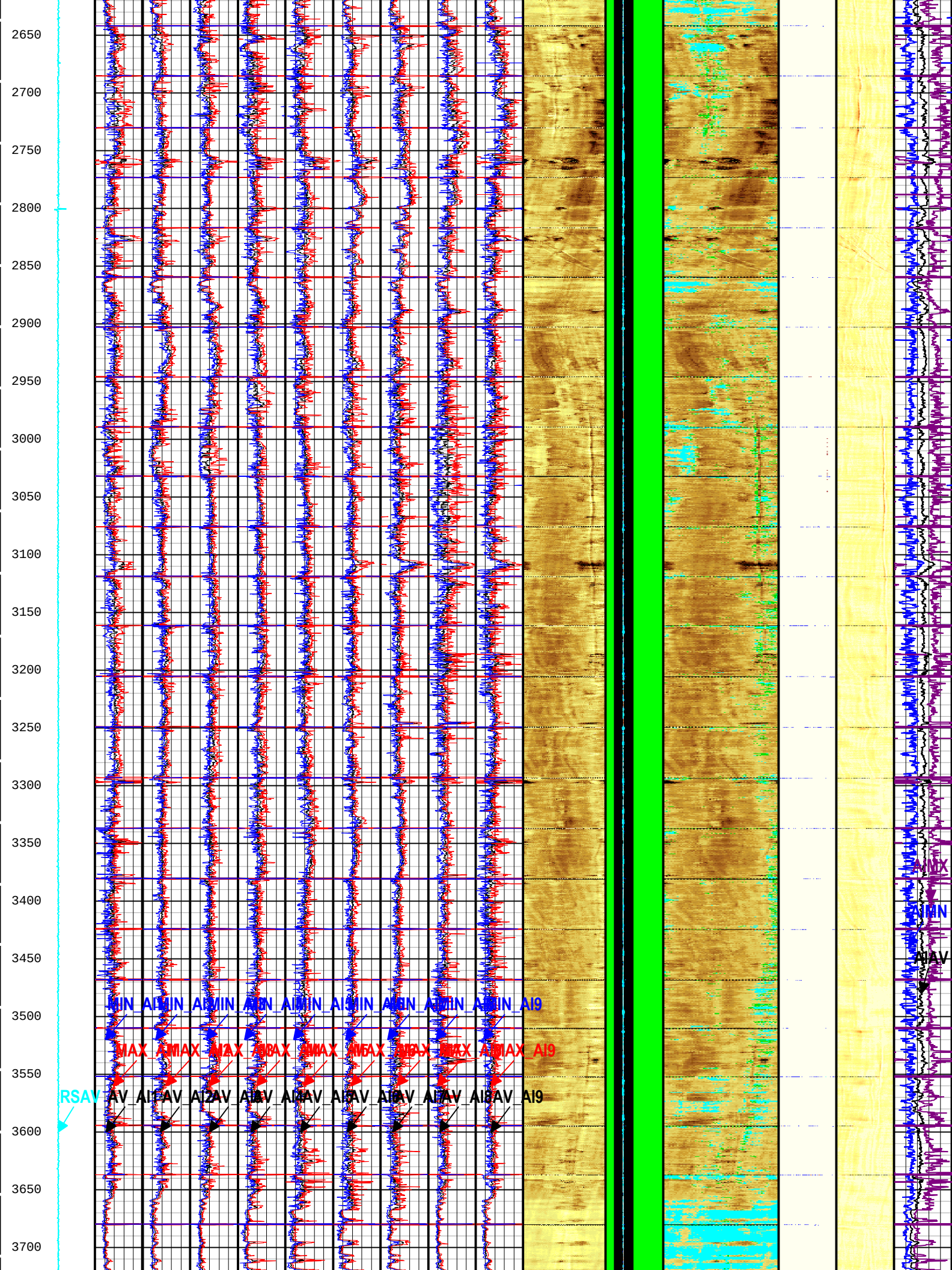
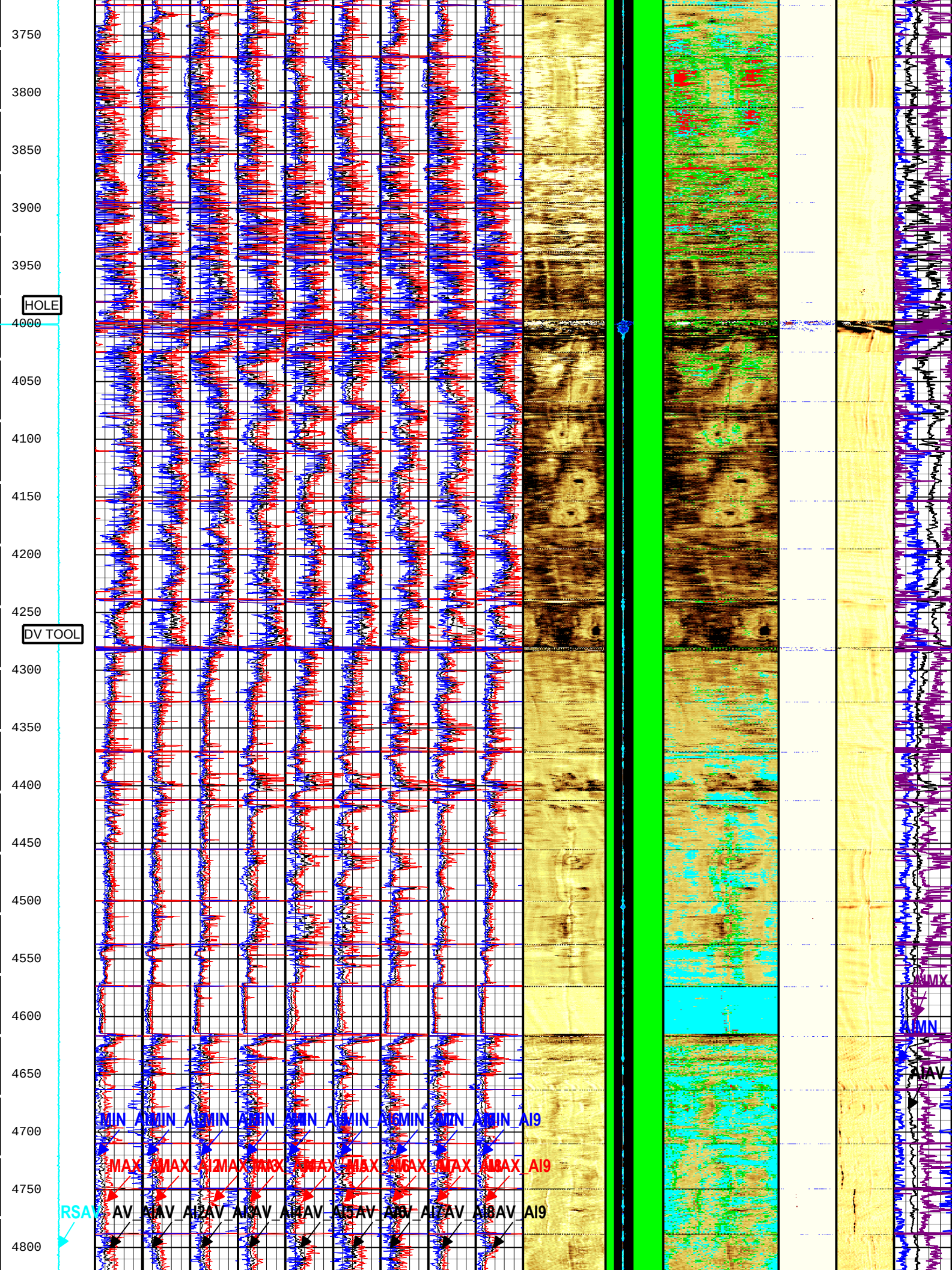
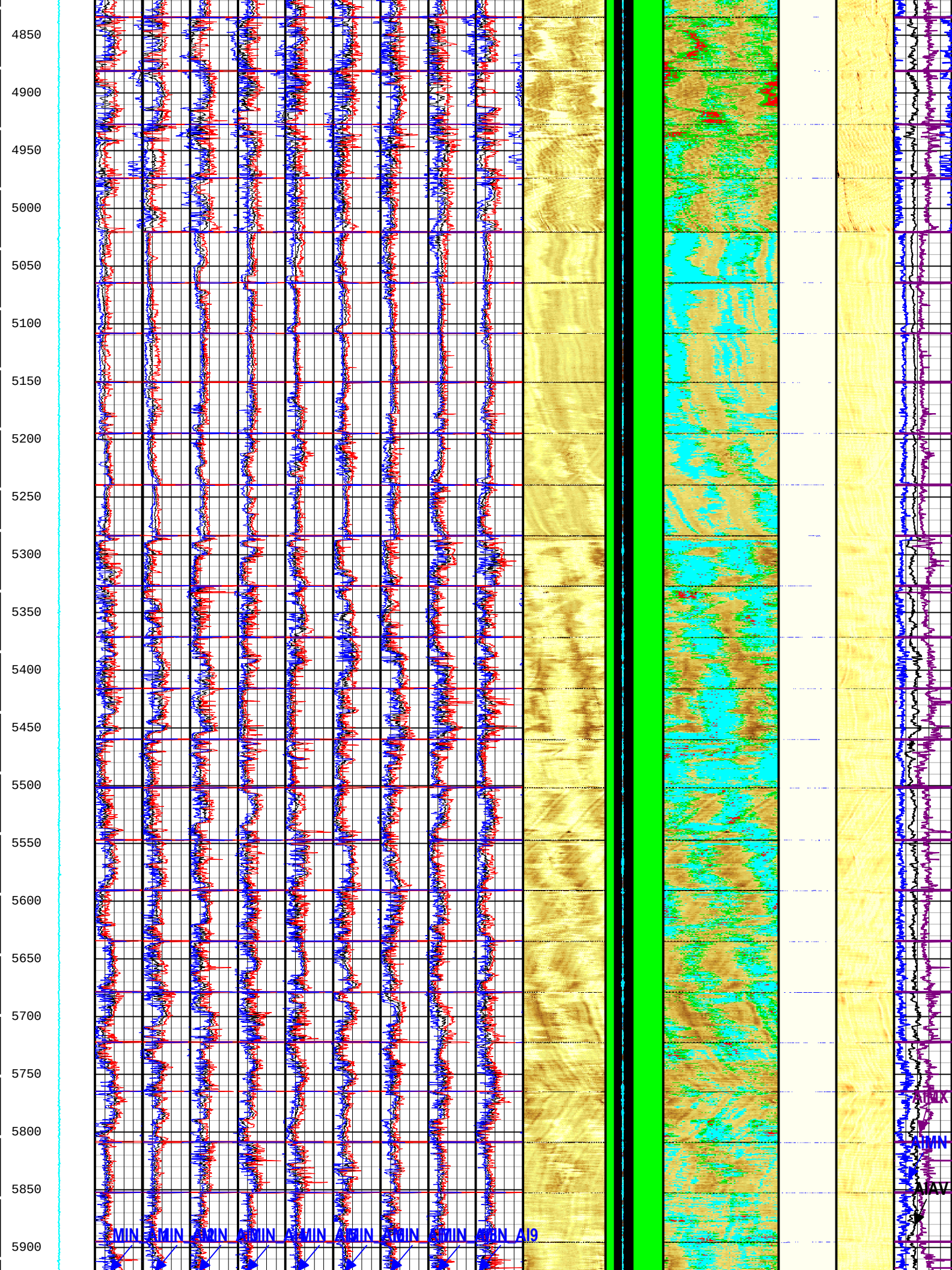
500
550
600
650
700
750
800
850
900
950
1000
1050
1100
1150
1200
1250
1300
1350
1400
1450
1500
RSAV
AI9
AIMX
AIMN
AIAV

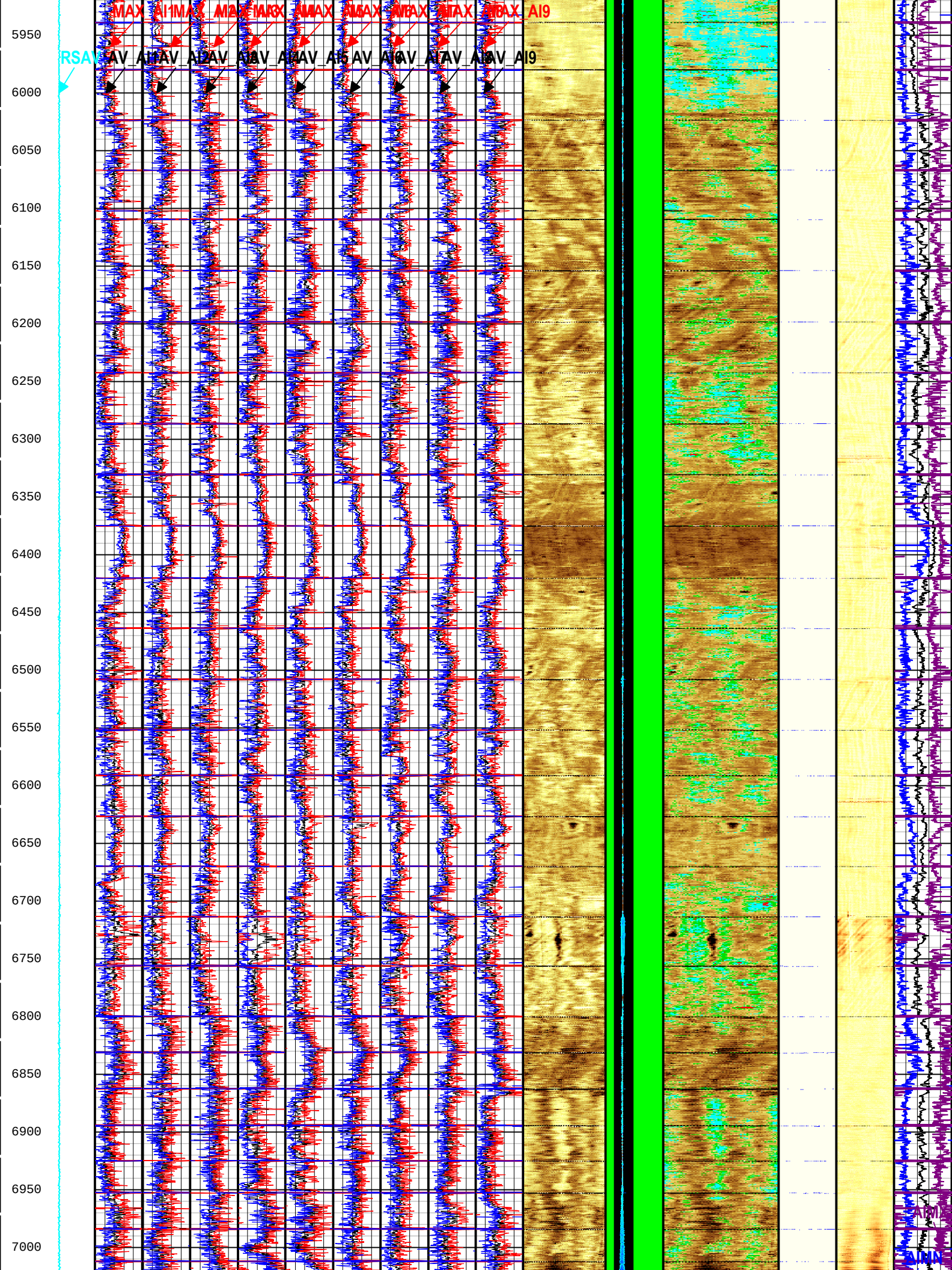

1550
1600
1650
1700
1750
1800
1850
1900
1950
2000
2050
2100
2150
2200
2250
2300
2350
2400
2450
2500
2550
2600
RSAV
AI9


2650
2700
2750
2800
2850
2900
2950
3000
3050
3100
3150
3200
3250
3300
3350
3400
3450
3500
3550
3600
3650
3700
RSAV
AIMX
AIMN
AIAV



3750
3800
3850
3900
3950
HOLE
4000
4050
4100
4150
4200
4250
DV TOOL
4300
4350
4400
4450
4500
4550
4600
4650
4700
4750
4800
AIMX
AIMN
AIAV
MIN AI1MIN AI2MIN AI3MIN AI4MIN AI5MIN AI6MIN AI7MIN AI8MIN AI9
MAX AI1MAX AI2MAX AI3MAX AI4MAX AI5MAX AI6MAX AI7MAX AI8MAX AI9
RSAV AV AI1AV AI2AV AI3AV AI4AV AI5AV AI6AV AI7AV AI8AV AI9


4850
4900
4950
5000
5050
5100
5150
5200
5250
5300
5350
5400
5450
5500
5550
5600
5650
5700
5750
5800
5850
5900
AIMAX
AIMIN
AIAV


MAX
AI1MAX
AI2MAX
AI3MAX
AI4MAX
AI5MAX
AI6MAX
AI7MAX
AI8MAX
AI9
RSAV
AV
AI1AV
AI2AV
AI3AV
AI4AV
AI5AV
AI6AV
AI7AV
AI8AV
AI9
5950
6000
6050
6100
6150
6200
6250
6300
6350
6400
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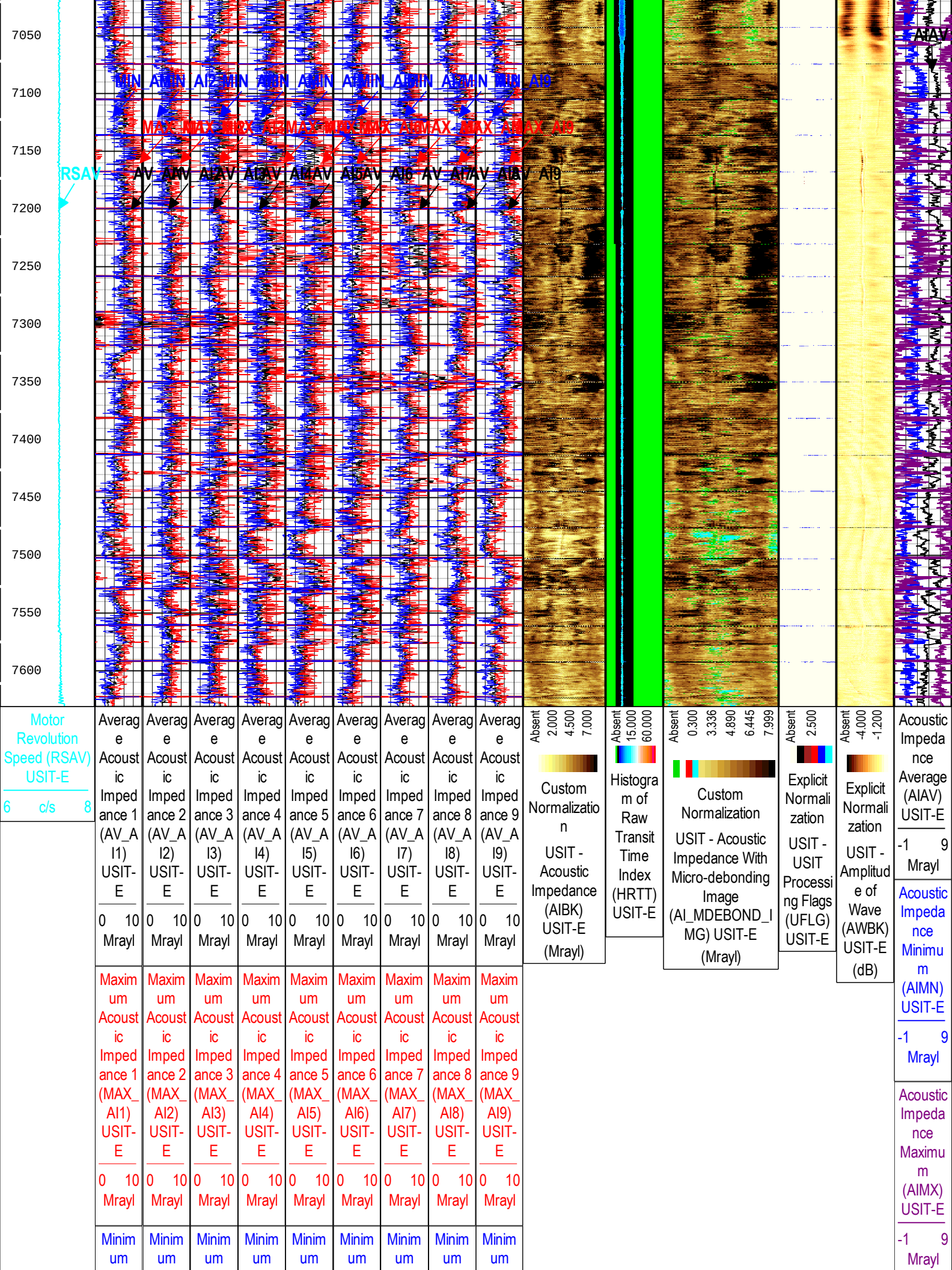
6500
6550
6600
6650
6700
6750
6800
6850
6900
6950
7000
AIMN


7050
7100
7150
7200
7250
7300
7350
7400
7450
7500
7550
7600
RSAV
AIAV
Motor Revolution Speed (RSAV) USIT-E
6 c/s 8
Average Acoustic Impedance 1 (AV_AI1) USIT-E
Average Acoustic Impedance 2 (AV_AI2) USIT-E
Average Acoustic Impedance 3 (AV_AI3) USIT-E
Average Acoustic Impedance 4 (AV_AI4) USIT-E
Average Acoustic Impedance 5 (AV_AI5) USIT-E
Average Acoustic Impedance 6 (AV_AI6) USIT-E
Average Acoustic Impedance 7 (AV_AI7) USIT-E
Average Acoustic Impedance 8 (AV_AI8) USIT-E
Average Acoustic Impedance 9 (AV_AI9) USIT-E
0 10 Mrayl
Maximum Acoustic Impedance 1 (MAX_AI1) USIT-E
Maximum Acoustic Impedance 2 (MAX_AI2) USIT-E
Maximum Acoustic Impedance 3 (MAX_AI3) USIT-E
Maximum Acoustic Impedance 4 (MAX_AI4) USIT-E
Maximum Acoustic Impedance 5 (MAX_AI5) USIT-E
Maximum Acoustic Impedance 6 (MAX_AI6) USIT-E
Maximum Acoustic Impedance 7 (MAX_AI7) USIT-E
Maximum Acoustic Impedance 8 (MAX_AI8) USIT-E
Maximum Acoustic Impedance 9 (MAX_AI9) USIT-E
Minimum
Absent 2.000 4.500 7.000
Custom Normalization USIT - Acoustic Impedance (AIBK) USIT-E (Mrayl)
Absent 15.000 60.000
Histogram of Raw Transit Time Index (HRTT) USIT-E
Absent 0.300 3.336 4.890 6.445 7.999
Custom Normalization USIT - Acoustic Impedance With Micro-debonding Image (AI_MDEBOND_IMG) USIT-E (Mrayl)
Absent 2.500
Explicit Normalization USIT - USIT Processing Flags (UFLG) USIT-E
Absent -4.000 -1.200
Explicit Normalization USIT - Amplitude of Wave (AWBK) USIT-E (dB)
Acoustic Impedance Average (AIAV) USIT-E
-1 9 Mrayl
Acoustic Impedance Minimum (AIMN) USIT-E
-1 9 Mrayl
Acoustic Impedance Maximum (AIMX) USIT-E
-1 9 Mrayl

Acoustic Impedance 1 (MIN_AI1) USIT-E	Acoustic Impedance 2 (MIN_AI2) USIT-E	Acoustic Impedance 3 (MIN_AI3) USIT-E	Acoustic Impedance 4 (MIN_AI4) USIT-E	Acoustic Impedance 5 (MIN_AI5) USIT-E	Acoustic Impedance 6 (MIN_AI6) USIT-E	Acoustic Impedance 7 (MIN_AI7) USIT-E	Acoustic Impedance 8 (MIN_AI8) USIT-E	Acoustic Impedance 9 (MIN_AI9) USIT-E
0 10 Mrayl	0 10 Mrayl	0 10 Mrayl	0 10 Mrayl	0 10 Mrayl	0 10 Mrayl	0 10 Mrayl	0 10 Mrayl	0 10 Mrayl

TIME_1900 - Time Marked every 60.00 (s)

Description: USI Goodwin Format: Log (LBV1_Long Beach Custom Goodwin) Index Scale: 1 in per 100 ft Index Unit: ft Index Type: Measured Depth
Creation Date: 29-Feb-2016 21:11:58

One

Repeat Pass 5 IN = 100 FT

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[10]:Up	Up	7151.53 ft	7631.38 ft	29-Feb-2016 10:25:47 AM	29-Feb-2016 10:35:49 AM	ON	5.48 ft	Yes

All depths are referenced to toolstring zero

Log

Company:Southern California Gas Company Well:Porter 44
One: Log[10]:Up:S017

Description: USI Composite Format: Log (LBV1_USI Composite 9.625inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth
Creation Date: 29-Feb-2016 21:12:19

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)

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

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

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

Absent 2.818 4.890 6.963
Custom Normalization
USIT - Acoustic Impedance (AIBK) USIT-E (Mrayl)

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

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

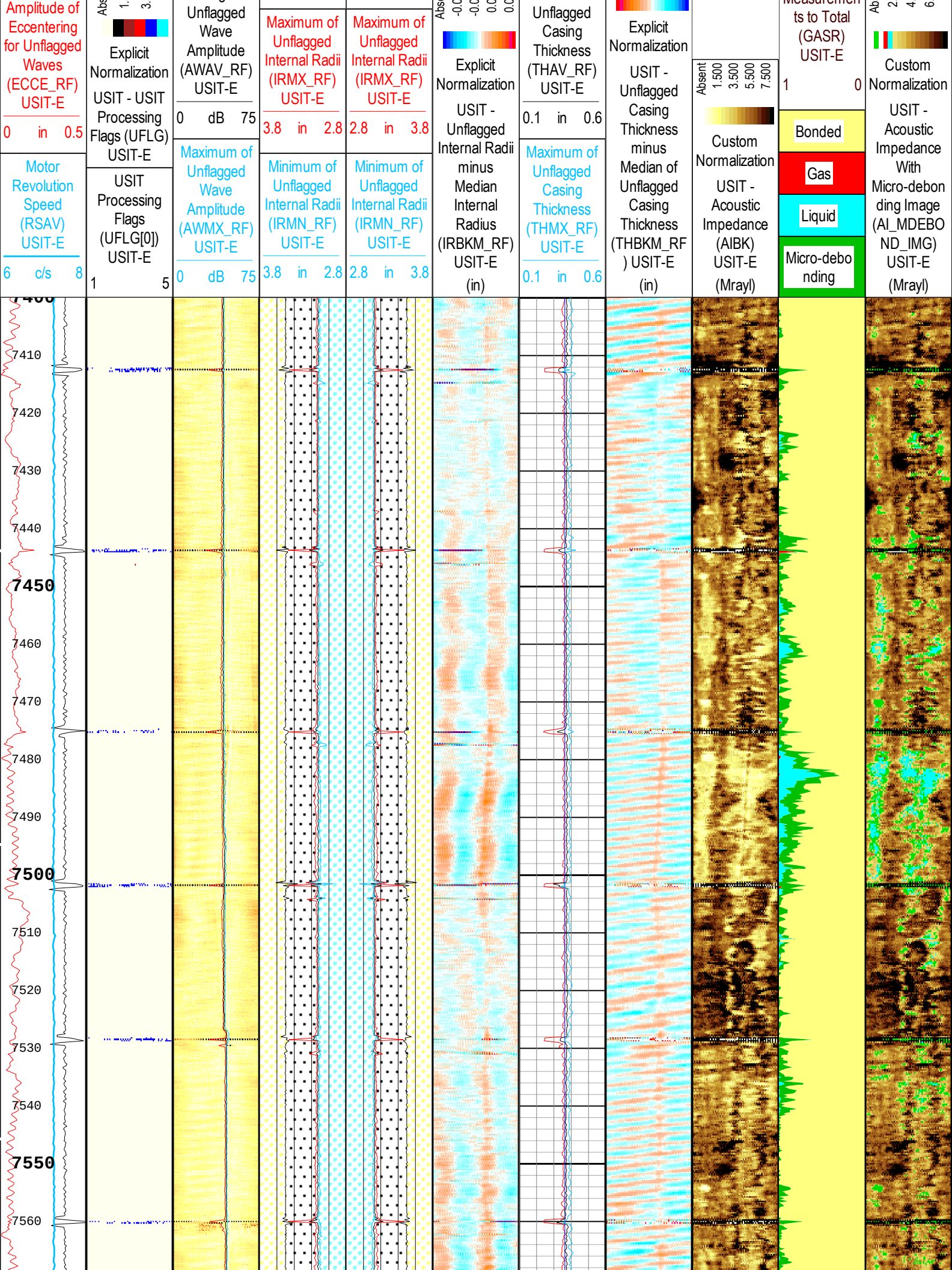
Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E: 3.8 in 2.8
Median Internal Radius of Casing Corrected for Eccentering (IRAV_RF) USIT-E: 2.8 in 3.8

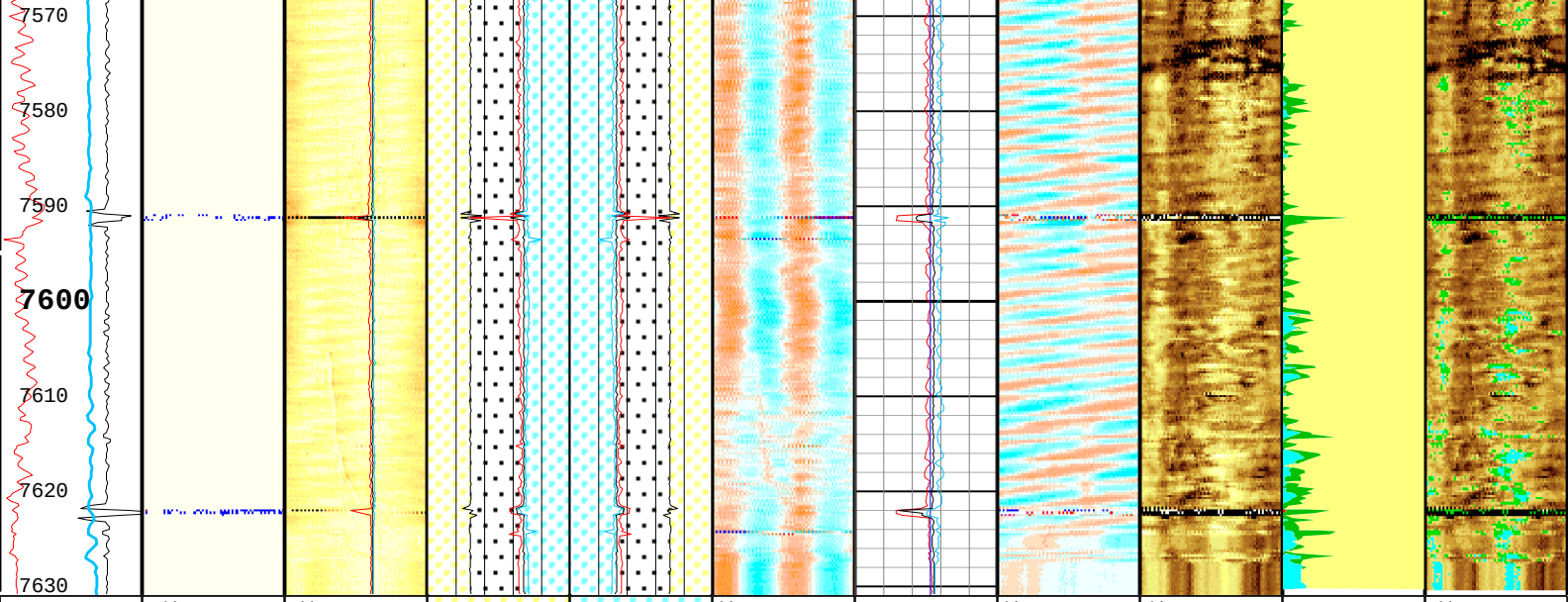
Nominal Casing Thickness (THNO) USIT-E: 0.1 in 0.6

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

Absent -0.051 -0.012 0.028 0.068

Ratio of Gas Measurements


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
Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
3.8 in 2.8
Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
3.8 in 2.8
Maximum of Unflagged Internal Radii (IRMX_RF) USIT-E
2.8 in 3.8
Minimum of Unflagged Internal Radii (IRMN_RF) USIT-E
2.8 in 3.8
Explicit Normalization
USIT - Unflagged Internal Radii minus Median Internal Radius (IRBKM_RF) USIT-E
(in)
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
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)
Measurements to Total (GASR) USIT-E
1 0
Bonded
Gas
Liquid
Micro-debonding
Custom Normalization
USIT - Acoustic Impedance With Micro-debonding Image (AI_MDEBOND_IMG) USIT-E
(Mrayl)
7410
7420
7430
7440
7450
7460
7470
7480
7490
7500
7510
7520
7530
7540
7550
7560



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

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

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

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

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

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

ERAV
ERAV-IRAV
IRAV

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

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

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

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

IRAV
ERAV
IRAV-ERAV

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

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

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

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

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

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

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

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

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

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)

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

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

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

Bonded
Gas
Liquid
Micro-debonding

Absent 2.818 4.890 6.963
Custom Normalization
USIT - Acoustic Impedance (AIBK) USIT-E (Mrayl)

Absent 2.299 4.372 6.445
Custom Normalization
USIT - Acoustic Impedance With Micro-debonding Image (AI_MDEBOND_IMG) USIT-E (Mrayl)

TIME_1900 - Time Marked every 60.00 (s)

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

1 - UFLG 1 Value within [0.0 - 1.5] - :
2 - UFLG 2 Value within [1.5 - 2.5] - :
3 - UFLG 3 Value within [2.5 - 3.5] - :

UTIM Error
Pulse Origin Not Detected
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

Description: USI Composite Format: Log (LBV1_USI Composite 9.625inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth
Creation Date: 29-Feb-2016 21:12:19

One

Repeat Pass Hole at ~4000 ft

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[20]:Up	Up	3963.48 ft	4032.78 ft	29-Feb-2016 3:04:43 PM	29-Feb-2016 3:06:38 PM	ON	11.29 ft	Yes

All depths are referenced to toolstring zero

Log

Company:Southern California Gas Company Well:Porter 44

One: Log[20]:Up:S017

Description: USI Composite Format: Log (LBV1_USI Composite 9.625inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth
Creation Date: 29-Feb-2016 21:12:21

TIME_1900 - Time Marked every 60.00 (s)

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

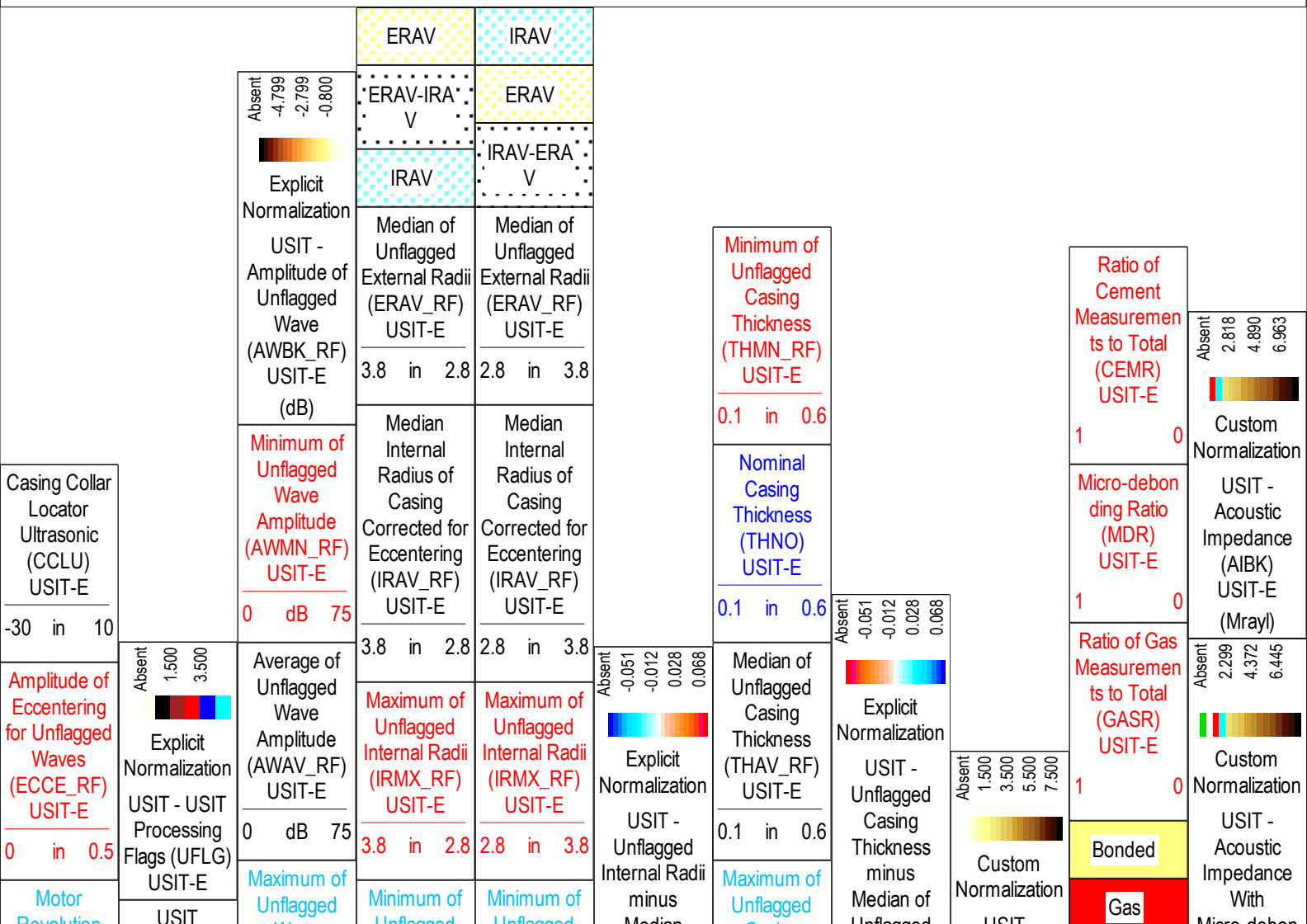
1 - UFLG 1 Value within [0.0 - 1.5] - : UTIM Error

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



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

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

Wave Amplitude (AWMX_RF) USIT-E
0 dB 75

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

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

Median Internal Radius (IRBKM_RF) USIT-E
(in)

Casing Thickness (THMX_RF) USIT-E
0.1 in 0.6

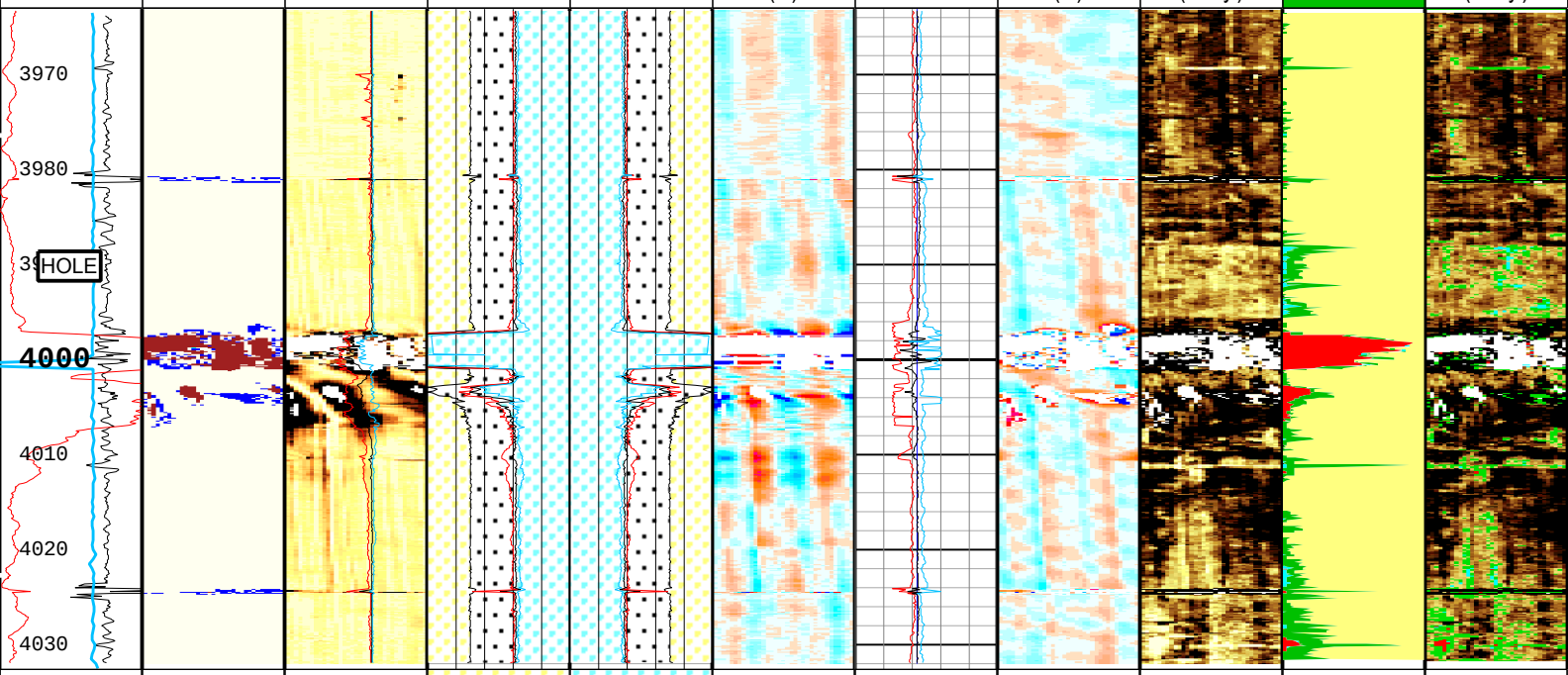
Unflagged Casing Thickness (THBKM_RF) USIT-E
(in)

USIT - Acoustic Impedance (AIBK) USIT-E
(Mrayl)

Liquid

Micro-debonding

Micro-debonding Image (AI_MDEBOND_IMG) USIT-E
(Mrayl)



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

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

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

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

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

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

ERAV

ERAV-IRAV

IRAV

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

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

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

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

IRAV

ERAV

IRAV-ERAV

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

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

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

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

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

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

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

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

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

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)

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

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

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

Bonded

Gas

Liquid

Micro-debonding

Absent 2.818 4.890 6.963
Custom Normalization
USIT - Acoustic Impedance (AIBK) USIT-E
(Mrayl)

Absent 2.299 4.372 6.445
Custom Normalization
USIT - Acoustic Impedance With Micro-debonding Image (AI_MDEBOND_IMG) USIT-E
(Mrayl)

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 Composite 9.625inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth
Creation Date: 29-Feb-2016 21:12:21

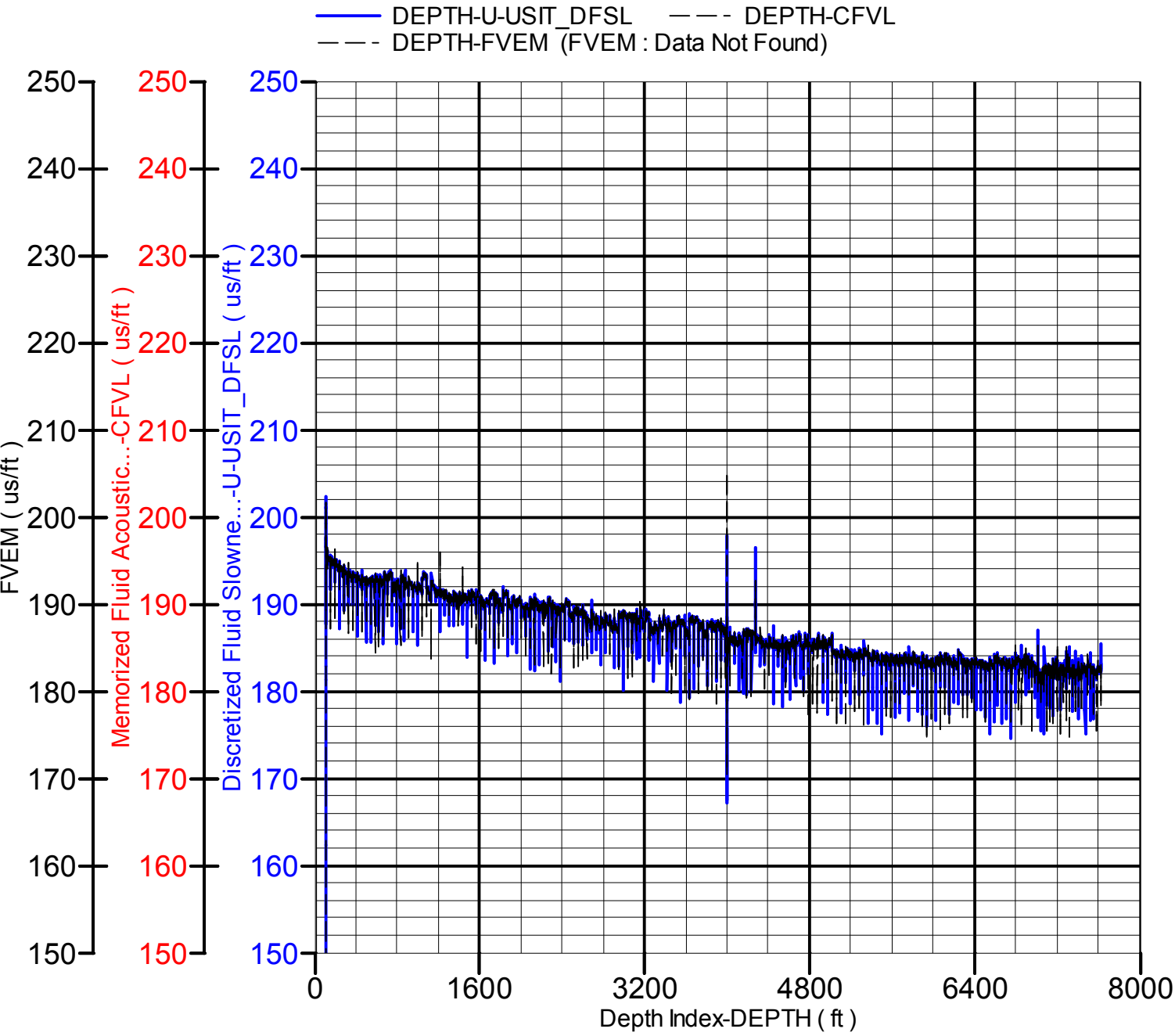
XYZ

Company:Southern California Gas Company Well:Porter 44
One: Log[11]:Up:S017

Fluid Acoustic Slowness vs Depth

2D Cross Plot

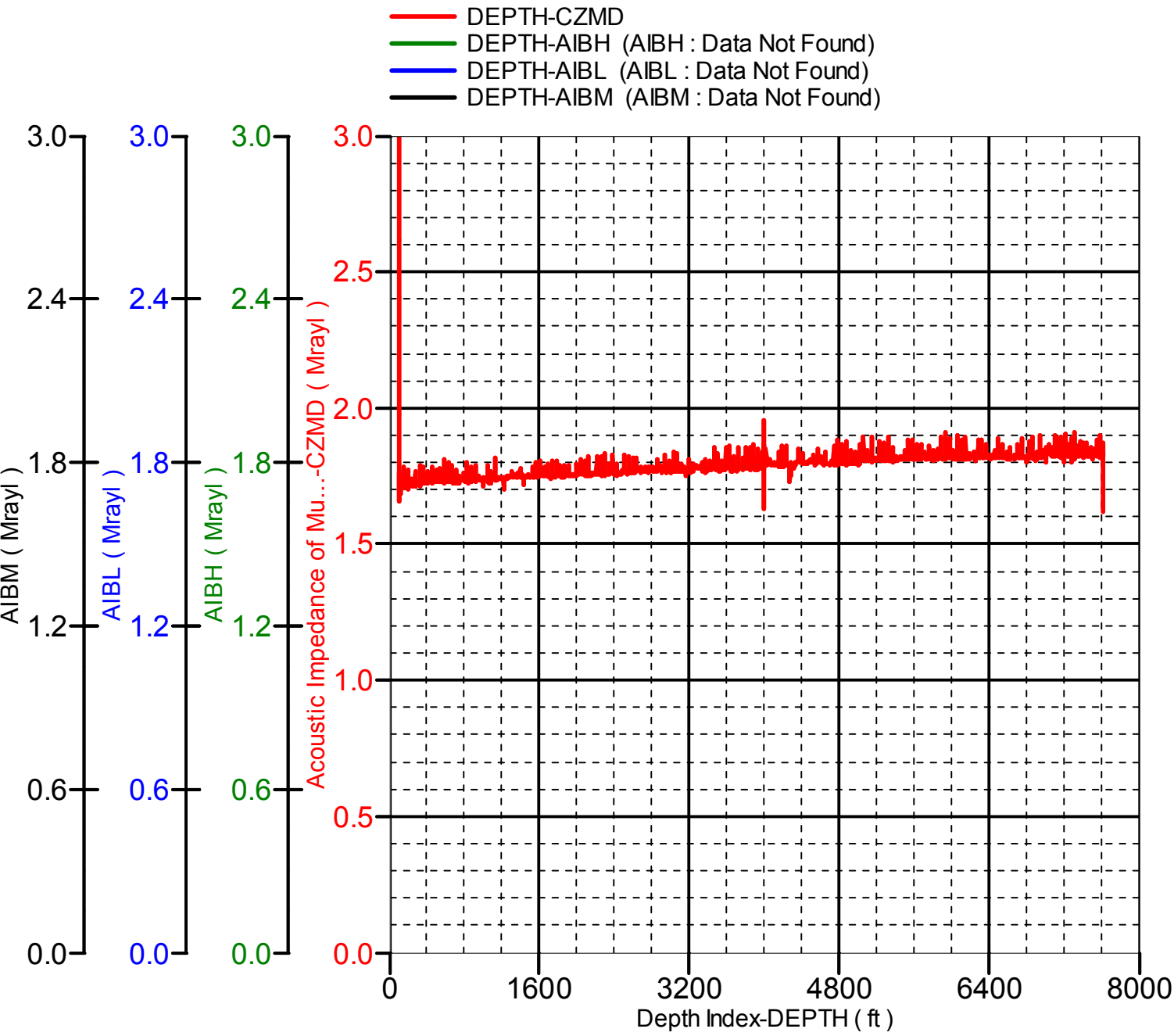
Index Range: From 7631.50 to 88.50 ft



Theoretical Acoustic Impedance of Mud vs Depth

2D Cross Plot

Index Range: From 7631.50 to 88.50 ft



Company:	Southern California Gas Company
Well:	Porter 44
Field:	Aliso Canyon
County:	Los Angeles
State:	California

Schlumberger

Ultrasonic Imager

Ultrasonic imager

Gamma Ray - CCL

7" 23#-26# casing