County:	Rio Blanco
Field:	Piceance Creek

Schlumberger

mpany: **ExxonMobil Production Corp**

ll: **PCU 297−11C6**

ld: **Piceance Creek**

unty: **Rio Blanco** State: **Colorado**

IMAGING BEHIND CASING
ULTRASONIC TOOL
CCL / GAMMA RAY

Location: NWNW 977' FNL 886' FWL
Well: PCU 297−11C6
Company: ExxonMobil Production Corp

LOCATION

NWNW 977' FNL 886' FWL

Elev.: K.B. 7023.40 ft
G.L. 6993.20 ft
D.F. 7022.40 ft

Permanent Datum: GROUND LEVEL Elev.: 6993.20 ft
Log Measured From: KELLY BUSHING 30.20 ft above Perm. Datum
Drilling Measured From: KELLY BUSHING

API Serial No.	Section	Township	Range
05−103−11472−0(	11	2S	97W

	Run 1	Run 2	Run 3
PVT DATA: Oil Density			
PVT DATA: Water Salinity			
PVT DATA: Gas Gravity			
PVT DATA: Bo			
PVT DATA: Bw			
PVT DATA: 1/Bg			
PVT DATA: Bubble Point Pressure			
PVT DATA: Bubble Point Temperature			
Solution GOR			
Maximum Deviation	30.58 deg		
CEMENTING DATA			
Primary/Squeeze	Primary		
Casing String No			
Lead Cement Type	TUNE LIGHT		
Volume			
Density	11 lbm/gal		
Water Loss			
Additives			
Tail Cement Type	TUNE LIGHT		
Volume			
Density	11 lbm/gal		
Water Loss			
Additives			
Expected Cement Top	3500 ft		

g Date		11−May−2010				Logging Date	
umber		1				Run Number	
Driller		8567 ft				Depth Driller	
mberger Depth		8234.1 ft				Schlumberger Depth	
n Log Interval		8234.1 ft				Bottom Log Interval	
og Interval		3334.1 ft				Top Log Interval	
g Fluid Type		WBM				Casing Fluid Type	
y						Salinity	
y		8.6 lbm/gal				Density	
Level		40 ft				Fluid Level	
CASING/TUBING STRING						BIT/CASING/TUBING STRING	
e		9.875 in				Bit Size	
		30.2 ft				From	
		8567 ft				To	
g/Tubing Size		7.000 in				Casing/Tubing Size	
t		26 lbm/ft				Weight	
						Grade	
		30.2 ft				From	
		8567 ft				To	
um Recorded Temperatures		206 degF				Maximum Recorded Temperatures	
r On Bottom	Time	11−May−2010	9:28			Logger On Bottom	Time
umber	Location	2276	Vernal			Unit Number	Location
ded By		Saurabh Dass / Yating Wang				Recorded By	
ssed By		Mike Sadler / Jonathon Jones				Witnessed By	

DEPTH SUMMARY LISTING

Date Created: 11−MAY−2010 12:52:54

Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW−B	Type:	CMTD−B/A	Type:	7−46A XS
Serial Number:	6195	Serial Number:	2527	Serial Number:	7232
Calibration Date:	22−Feb−2010	Calibration Date:	11−Apr−2010	Length:	20090 FT
Calibrator Serial Number:	33	Calibrator Serial Number:	100518		
Calibration Cable Type:	7−46P	Number of Calibration Points:	10	Conveyance Method:	Wireline
Wheel Correction 1:	−9	Calibration RMS:	18	Rig Type:	LAND
Wheel Correction 2:	−8	Calibration Peak Error:	27		

Depth Control Parameters

Log Sequence:	First Log In the Well
Rig Up Length At Surface:	173.90 FT
Rig Up Length At Bottom:	173.30 FT
Rig Up Length Correction:	0.60 FT
Stretch Correction:	5.00 FT
Tool Zero Check At Surface:	1.90 FT

Depth Control Remarks

1. All Schlumberger depth control policies followed
2. IDW used as primary depth reference, Z−chart used as secondary depth reference
3. Uplog correlated to downlog from 8000 ft to 6000 ft
4.
5.
6.

OTHER SERVICES1	OTHER SERVICES2
OS1: NONE	OS1:
OS2:	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:

REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
Tool ran as per tool sketch	
Tool centralized using 2 x In−Line−Centralizers and 2 x Gemco	
Neutron ran for GR only	
UFAO = 8	
Logged at 1700 ft/hr	
Expected casing Thickness: 0.362"	
Expected Casing ID = 6.276"	
Minor effects of eccentering seen on data.	
IBC resolution set to 5 deg 6 inch.	
IBC transducer angles set at 33 deg.	

Data spliced at 5655 ft due to lost acquisition.

Crew: James Gordon & Ken Miller

RUN 1		RUN 2	
SERVICE ORDER #:	BBIM−00028	SERVICE ORDER #:	
PROGRAM VERSION:	17C0−154	PROGRAM VERSION:	
FLUID LEVEL:	40 ft	FLUID LEVEL:	

LOGGED INTERVAL	START	STOP

LOGGED INTERVAL	START	STOP

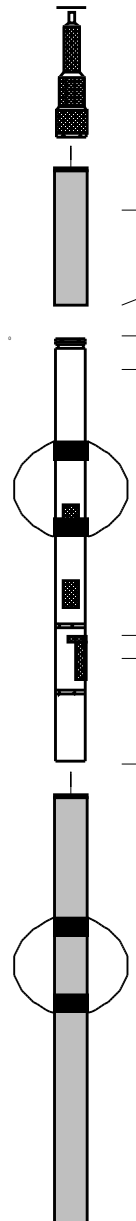
EQUIPMENT DESCRIPTION

RUN 1 RUN 2

SURFACE EQUIPMENT

GSR−U/Y
NCT−B
CNB−AB
WITM (DTS)−A

DOWNHOLE EQUIPMENT

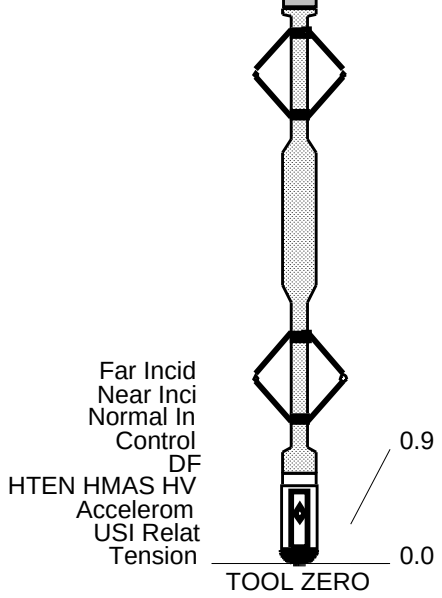


LEH−QT Blue Wk Pt — 37.0
LEH−QT 2379

DTC−H — 34.1
ECH−KC
DTCH0−A 8907
DTCH1−A

HILTH−FTB — 31.1
HGNSD−H 3920
HMCA−H
HGNH
HACCZ−H 2594
HCNT−H
HGR

USIT−D — 21.7
ECH−MRA
USIC−D 1846
USIS−A 704
USSC−B
IBCS_B−100158202 826
Top Transducer
Middle Top Transducer
Middle Bottom Transducer
Bottom Transducer



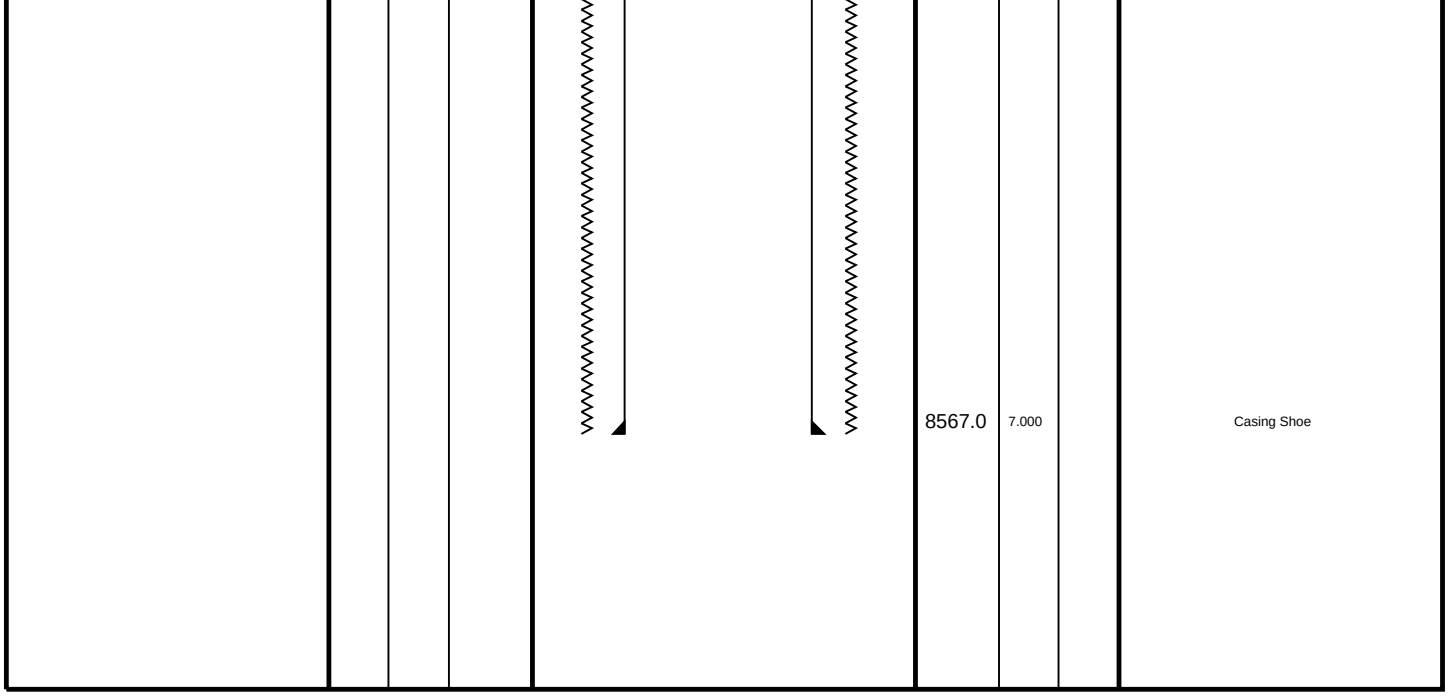
MAXIMUM STRING DIAMETER 7.50 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN FEET

Client: ExxonMobil Production Corp
Well: PCU 297−11C6
Field: Piceance Creek
State: Colorado
Country: USA

Rig Name: H&P 320
Reference Datum: Kelly Bushing
Elevation: 7023.4 ft

Drawing Date: 5/10/2010
API #: 05−103−11472−00

Production String	(in) OD	(in) ID	(ft) MD	Well Schematic	(ft) MD	(in) OD	(in) ID	Casing String
					30.2	9.875		Borehole Segment
						10.750		Casing String
						7.000		Casing String
					3808.0	10.750		Casing Shoe



All depths are referenced to driller's depths

Schlumberger

IBC SLG COMPOSITE

MAXIS Field Log

Company: ExxonMobil Production Corp **Well: PCU 297−11C6**

Input DLIS Files

DEFAULT	**Splice_USI_TLD_MCFL_021CUP**	**FN:1**	**PRODUCER**	**11−May−2010 14:37**	**8200.0 FT**	**199.6 FT**

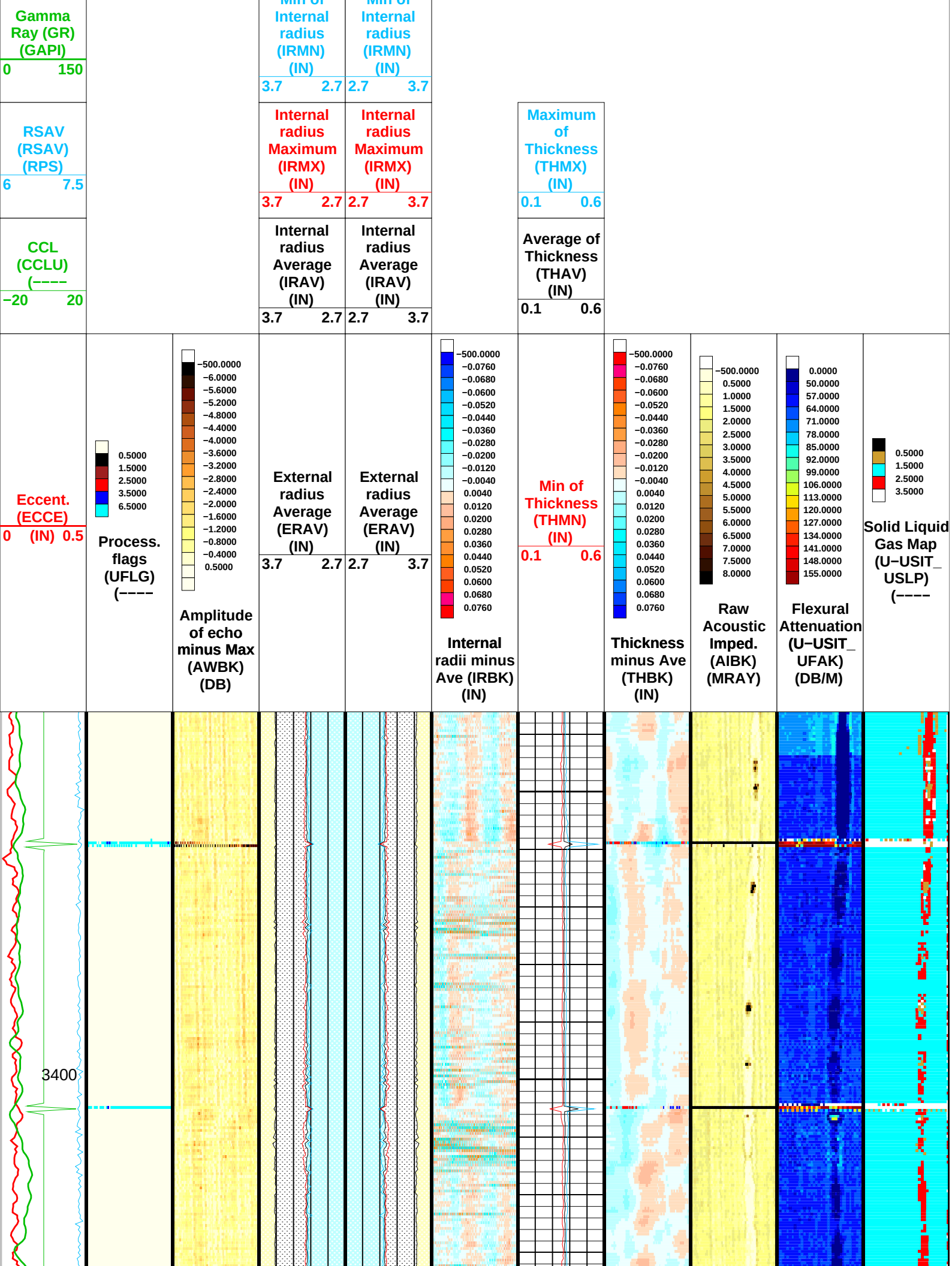
Output DLIS Files

DEFAULT	**USI_TLD_MCFL_CNL_025PUP**	**FN:22**	**PRODUCER**	**11−May−2010 14:50**

OP System Version: 17C0−154

USIT−D	**17C0−154**	**HILTH−FTB**	**17C0−154**
DTC−H	**17C0−154**		

Image rotation (UCAZ) (DEG)		Min of	Min of
0	360		


Gamma Ray (GR) (GAPI)
0
150
RSAV (RSAV) (RPS)
6
7.5
CCL (CCLU) (----
−20
20
Eccent. (ECCE)
0 (IN) 0.5
Min of Internal radius (IRMN) (IN)
3.7
2.7
Internal radius Maximum (IRMX) (IN)
Internal radius Average (IRAV) (IN)
Maximum of Thickness (THMX) (IN)
0.1
0.6
Average of Thickness (THAV) (IN)
Min of Thickness (THMN) (IN)
External radius Average (ERAV) (IN)
0.5000
1.5000
2.5000
3.5000
6.5000
Process. flags (UFLG) (----
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−5.2000
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−1.2000
−0.8000
−0.4000
0.5000
Amplitude of echo minus Max (AWBK) (DB)
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−0.0760
−0.0680
−0.0600
−0.0520
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0.0280
0.0360
0.0440
0.0520
0.0600
0.0680
0.0760
Internal radii minus Ave (IRBK) (IN)
Thickness minus Ave (THBK) (IN)
0.5000
1.5000
2.5000
3.5000
4.0000
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5.0000
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7.0000
7.5000
8.0000
Raw Acoustic Imped. (AIBK) (MRAY)
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85.0000
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120.0000
127.0000
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Solid Liquid Gas Map (U−USIT_ USLP) (----
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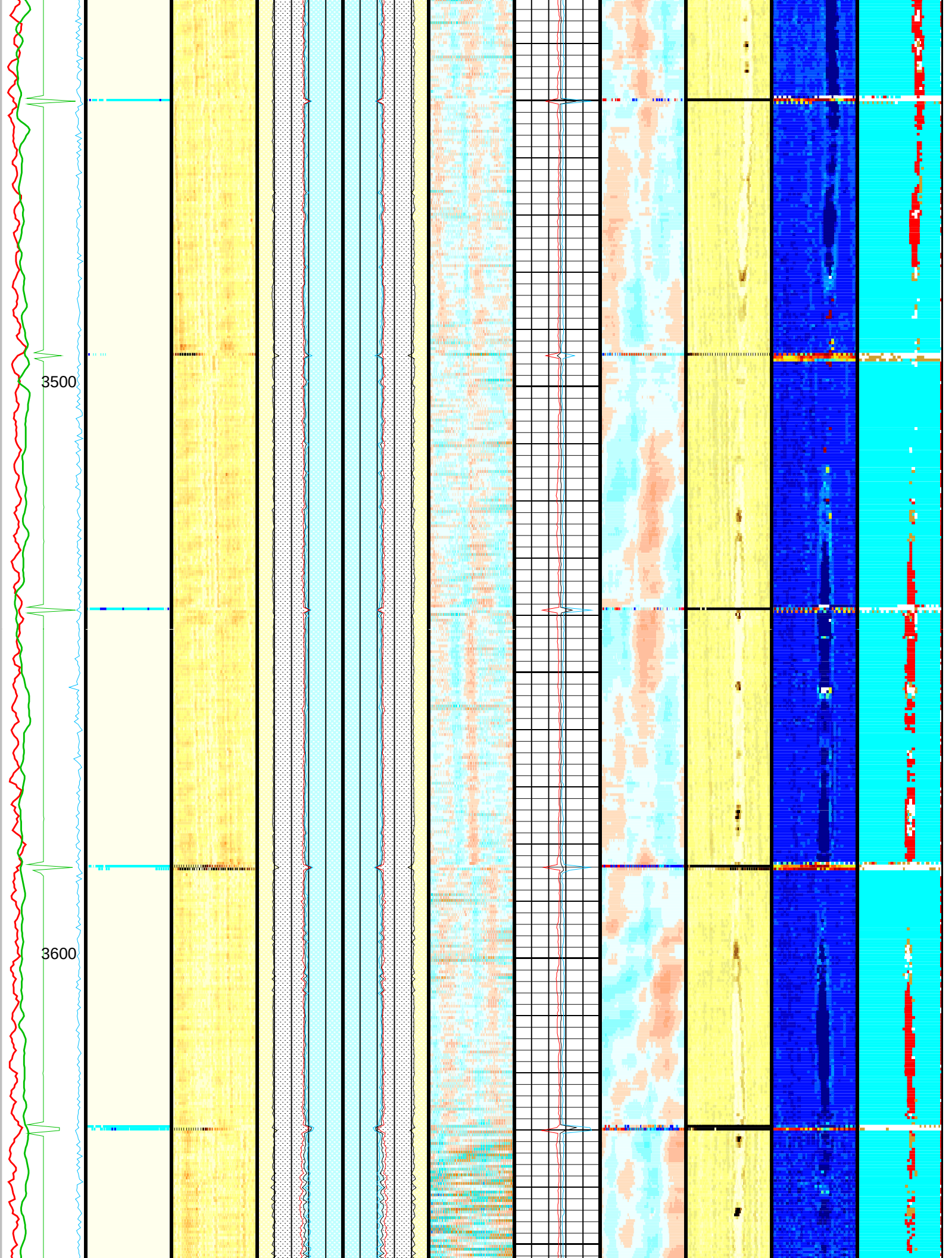
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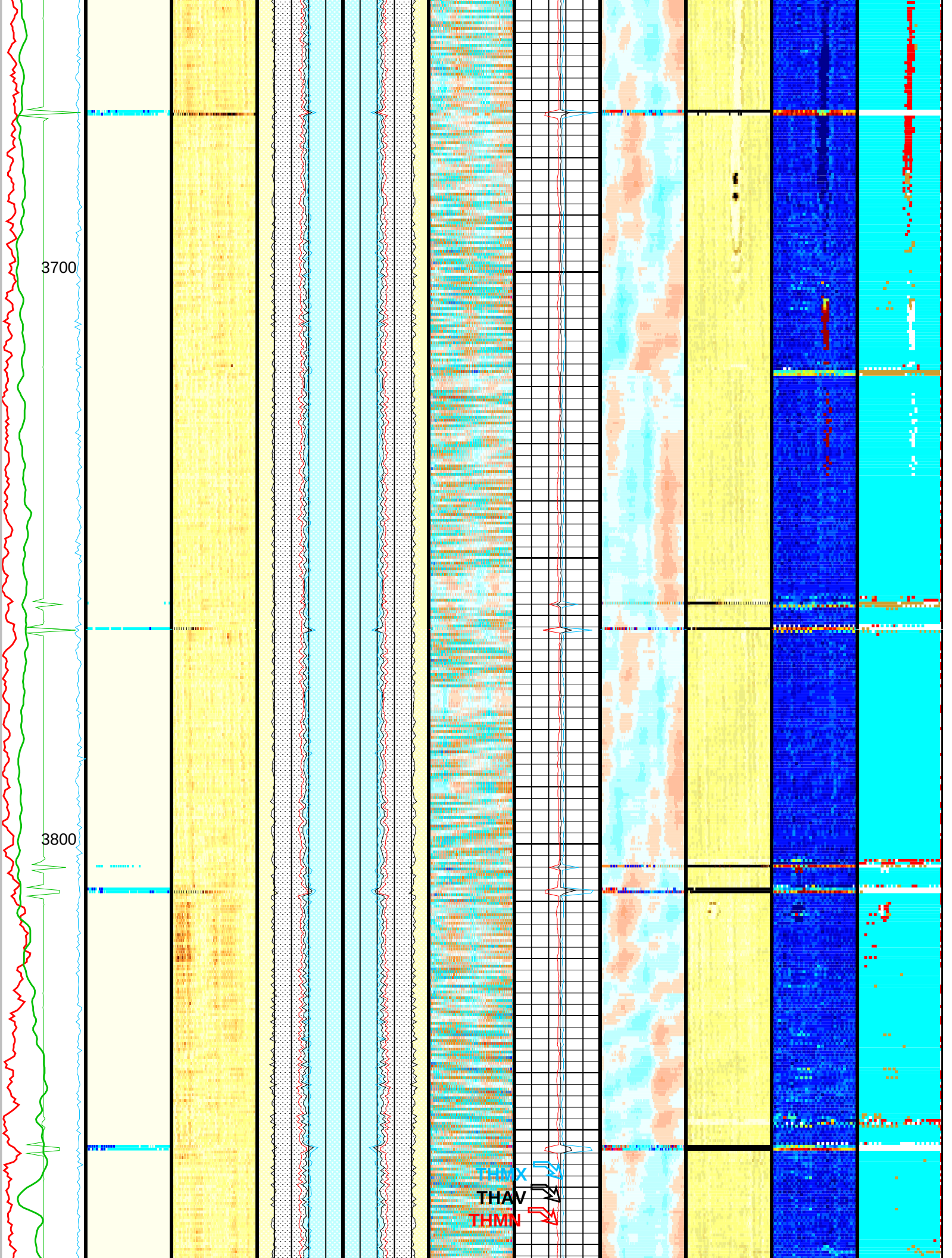
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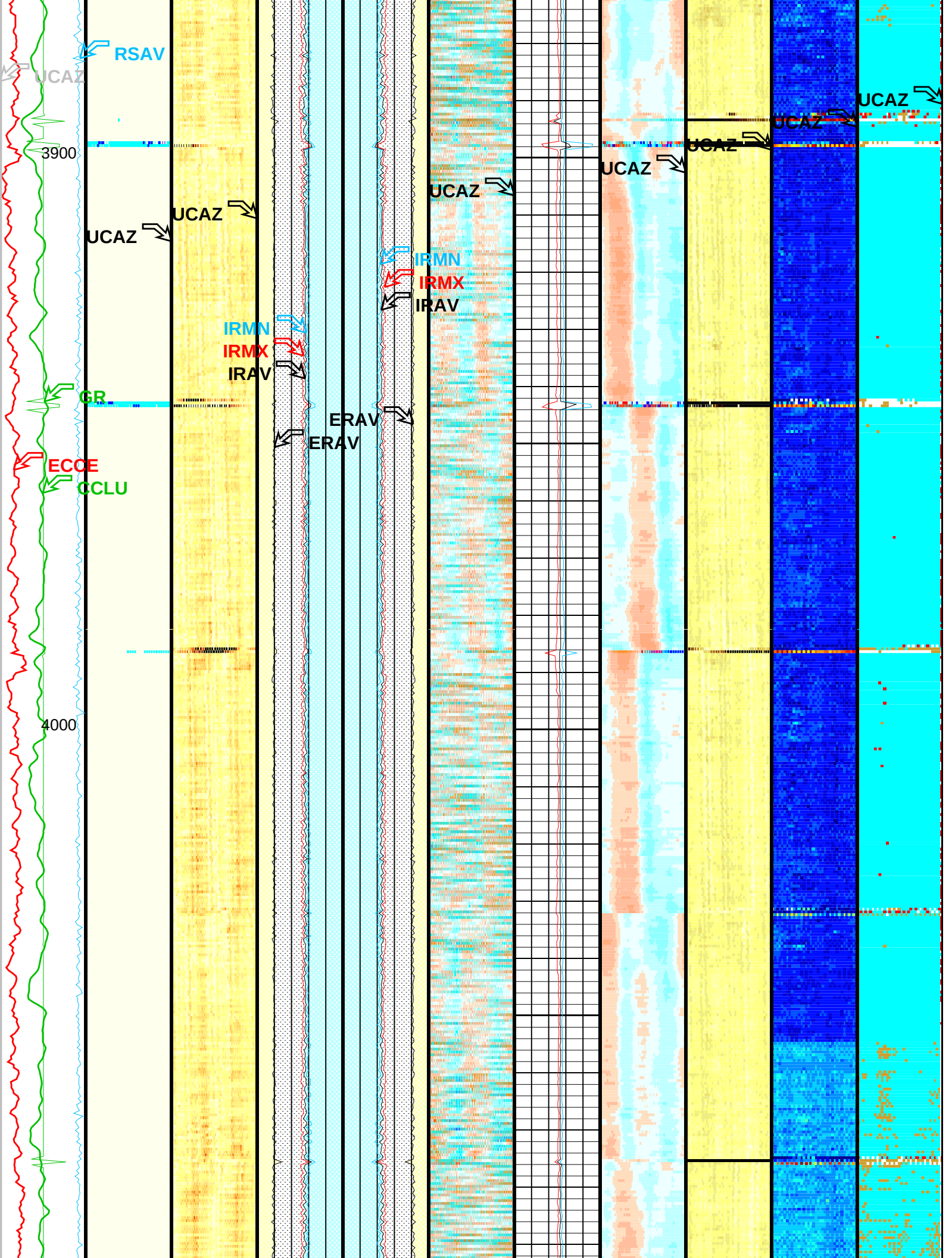
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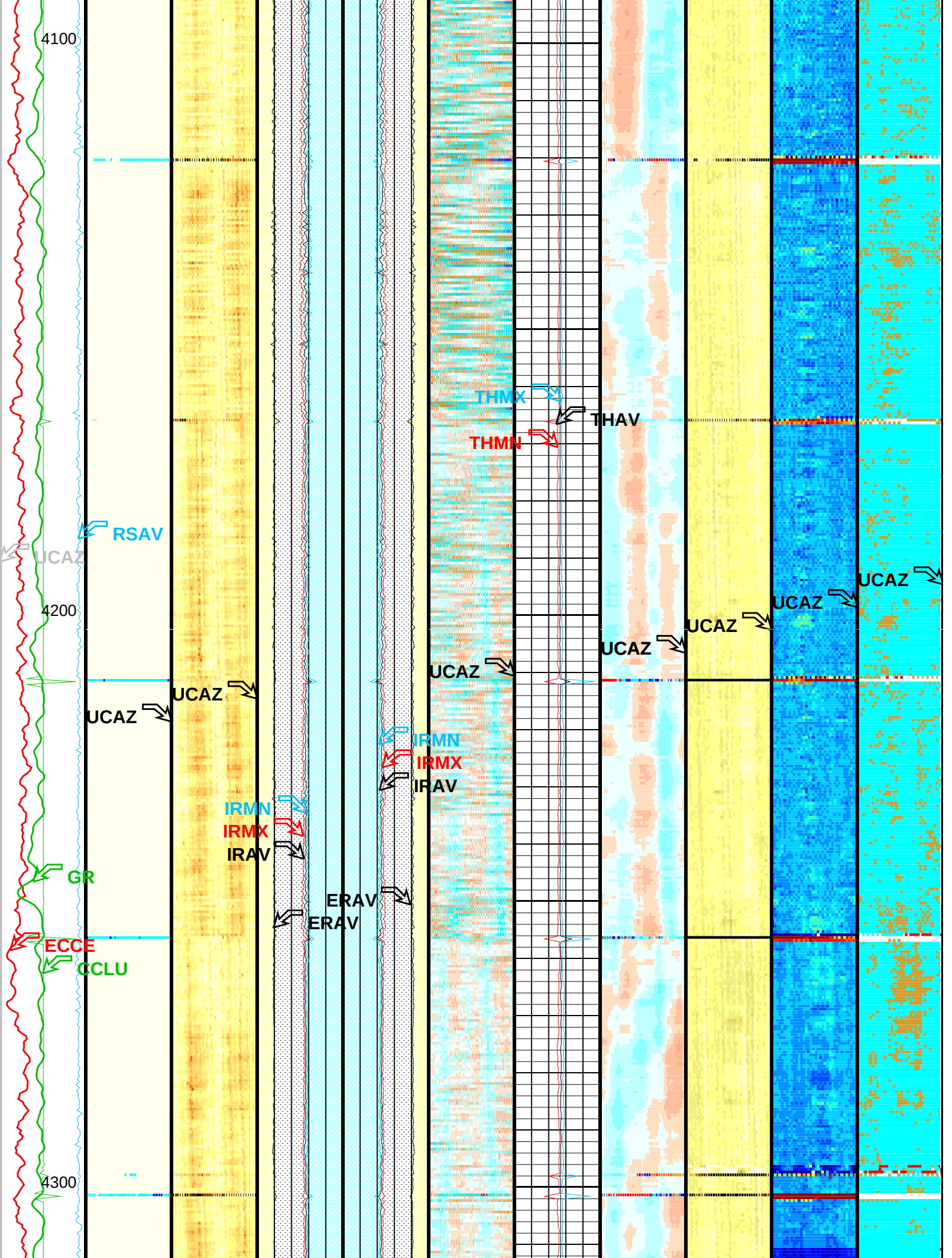
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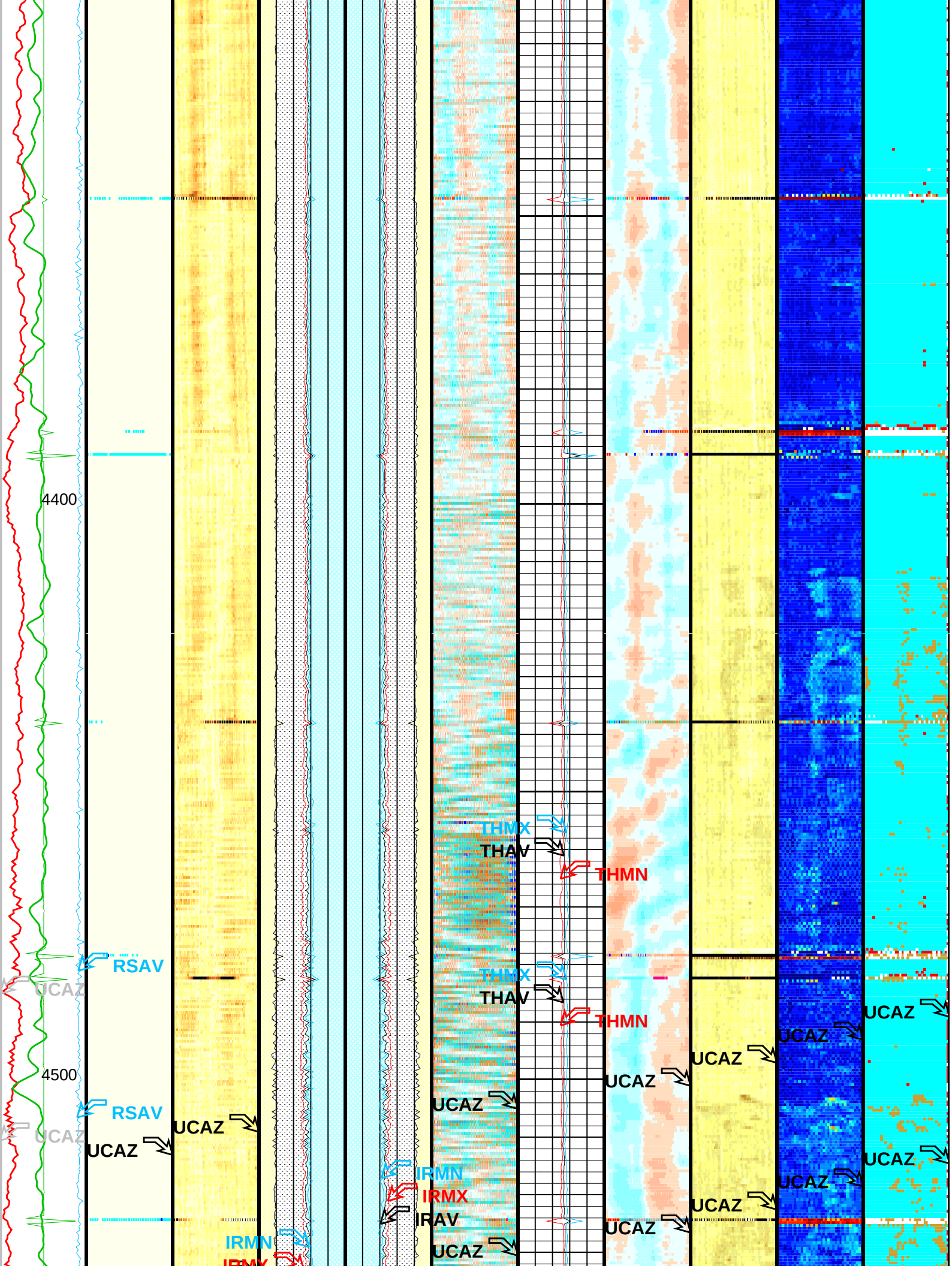
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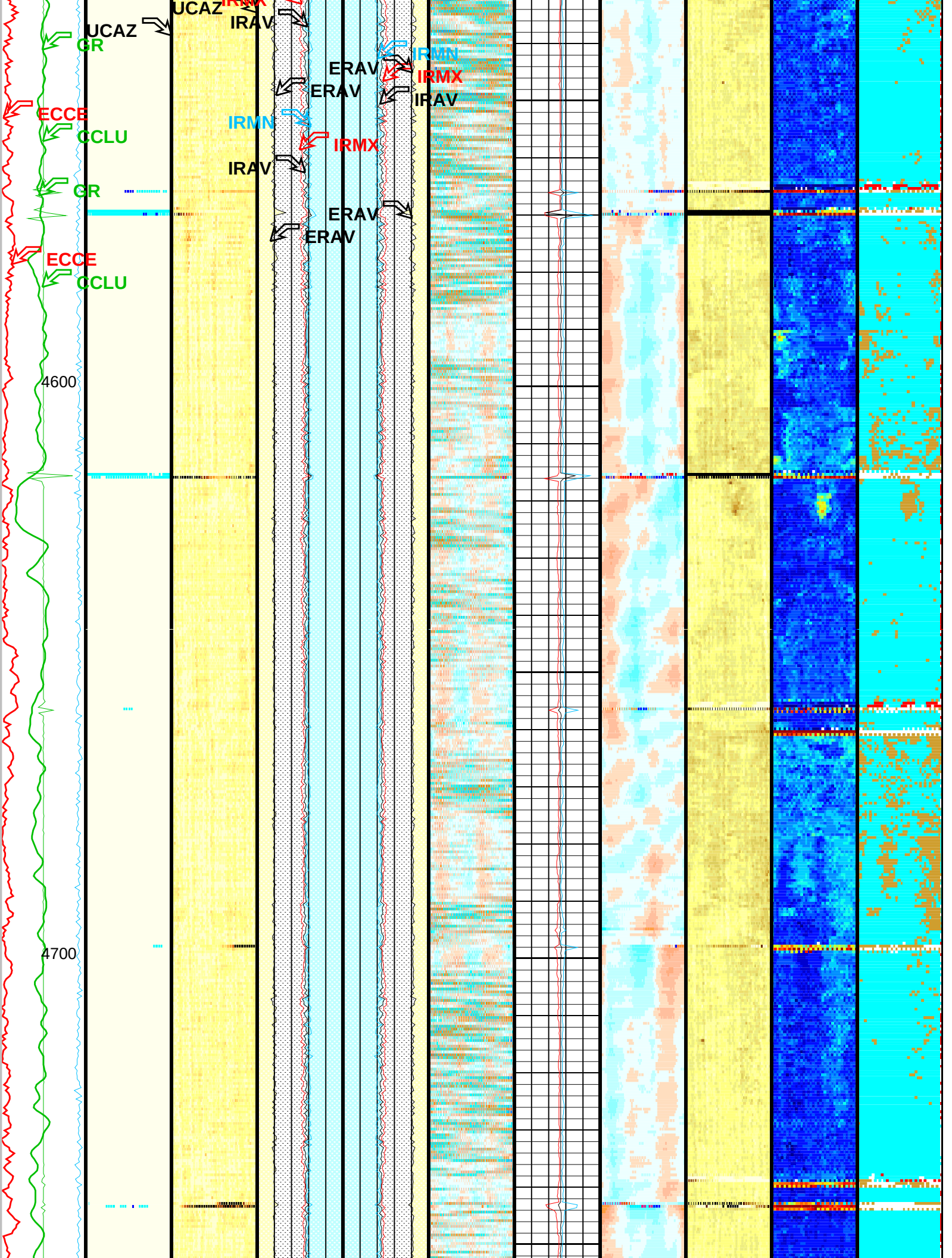
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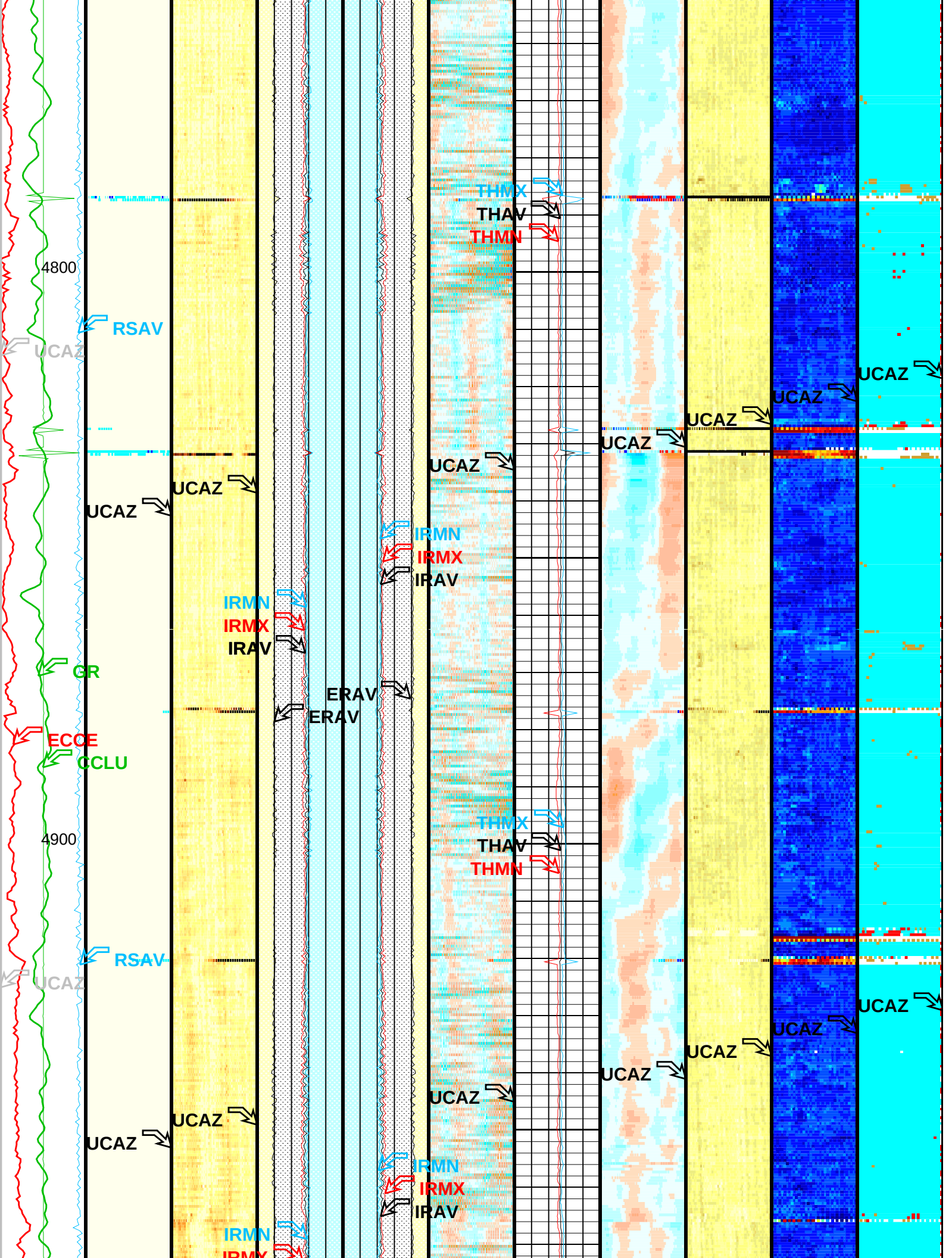
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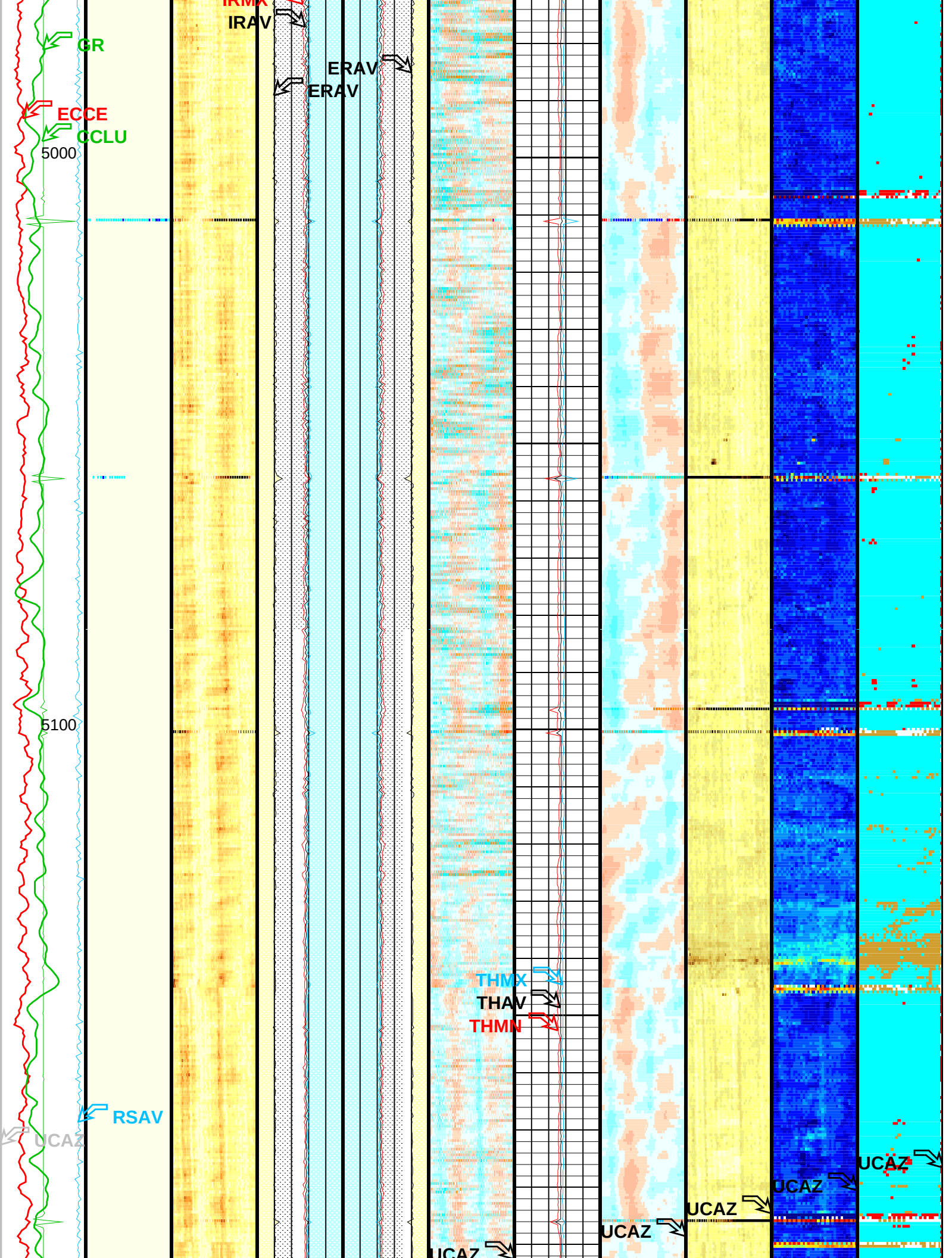
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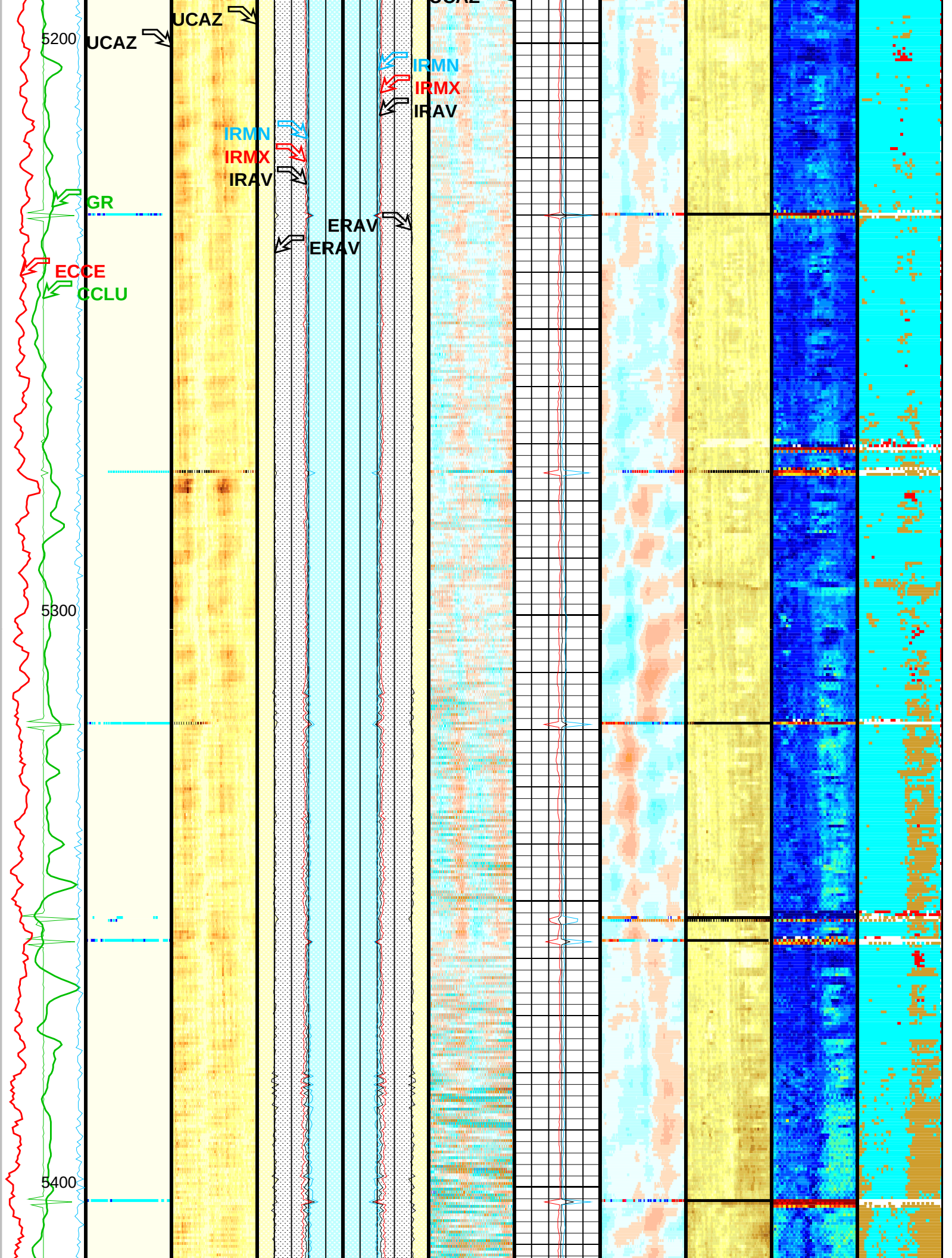
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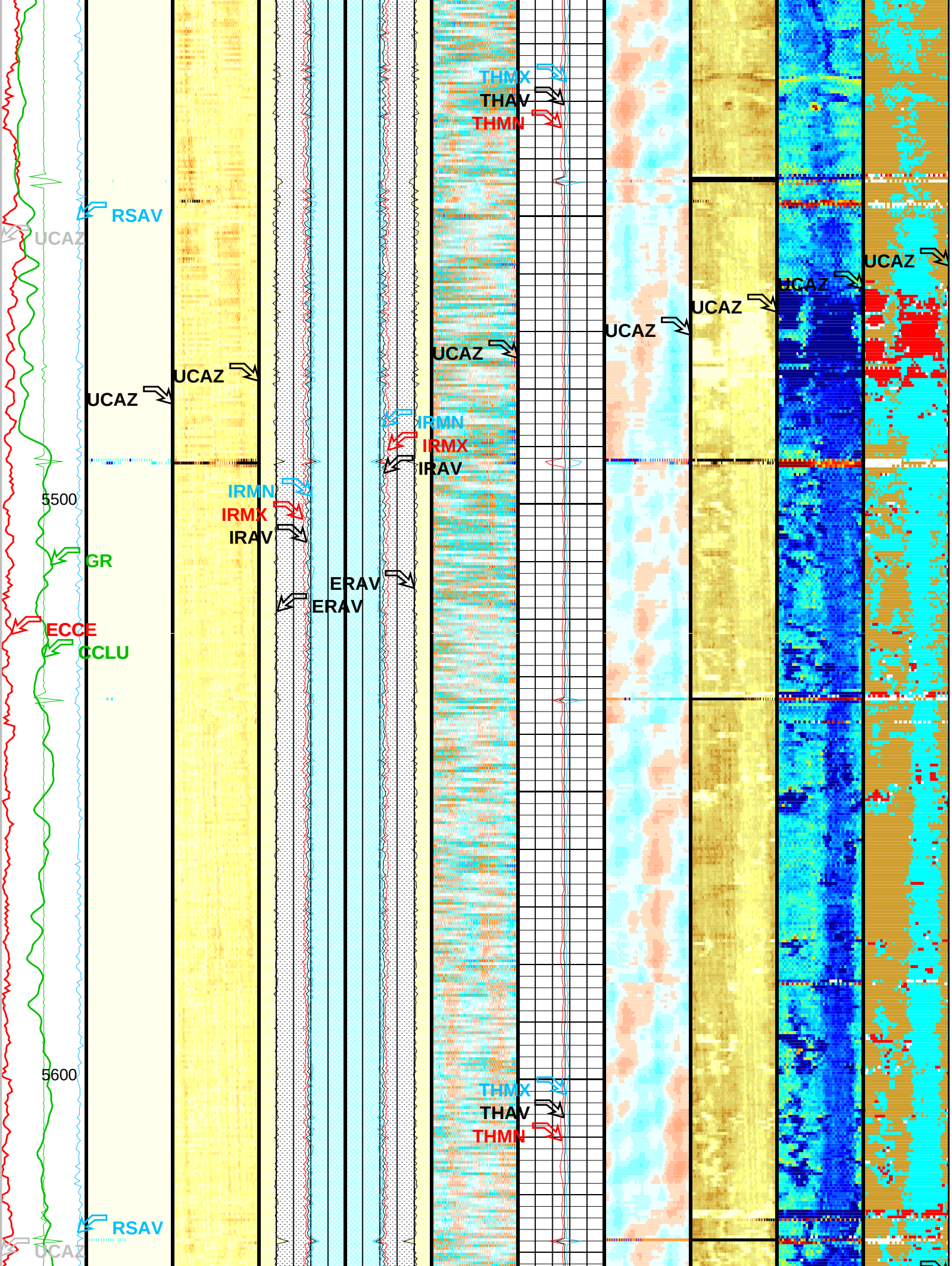
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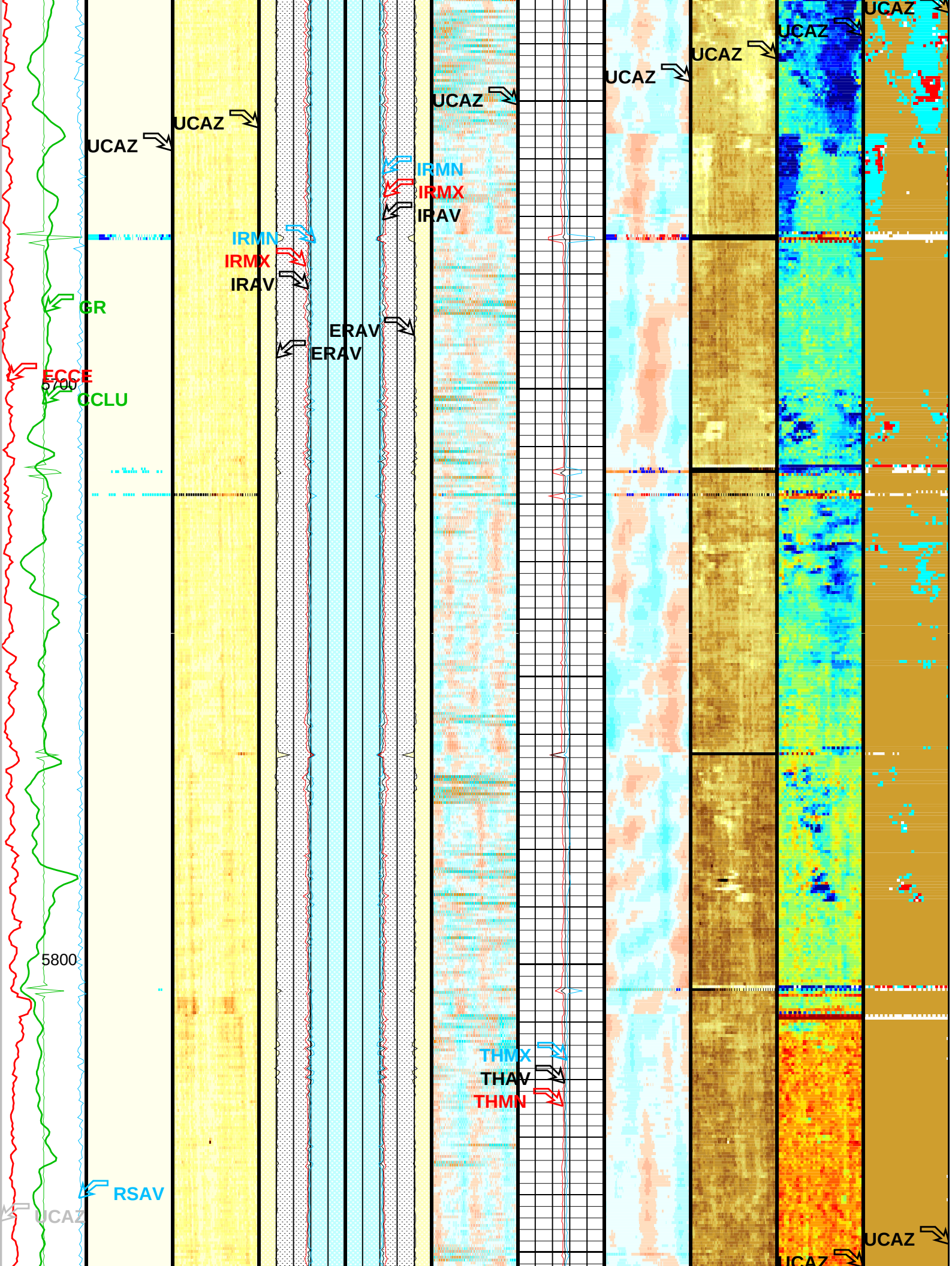
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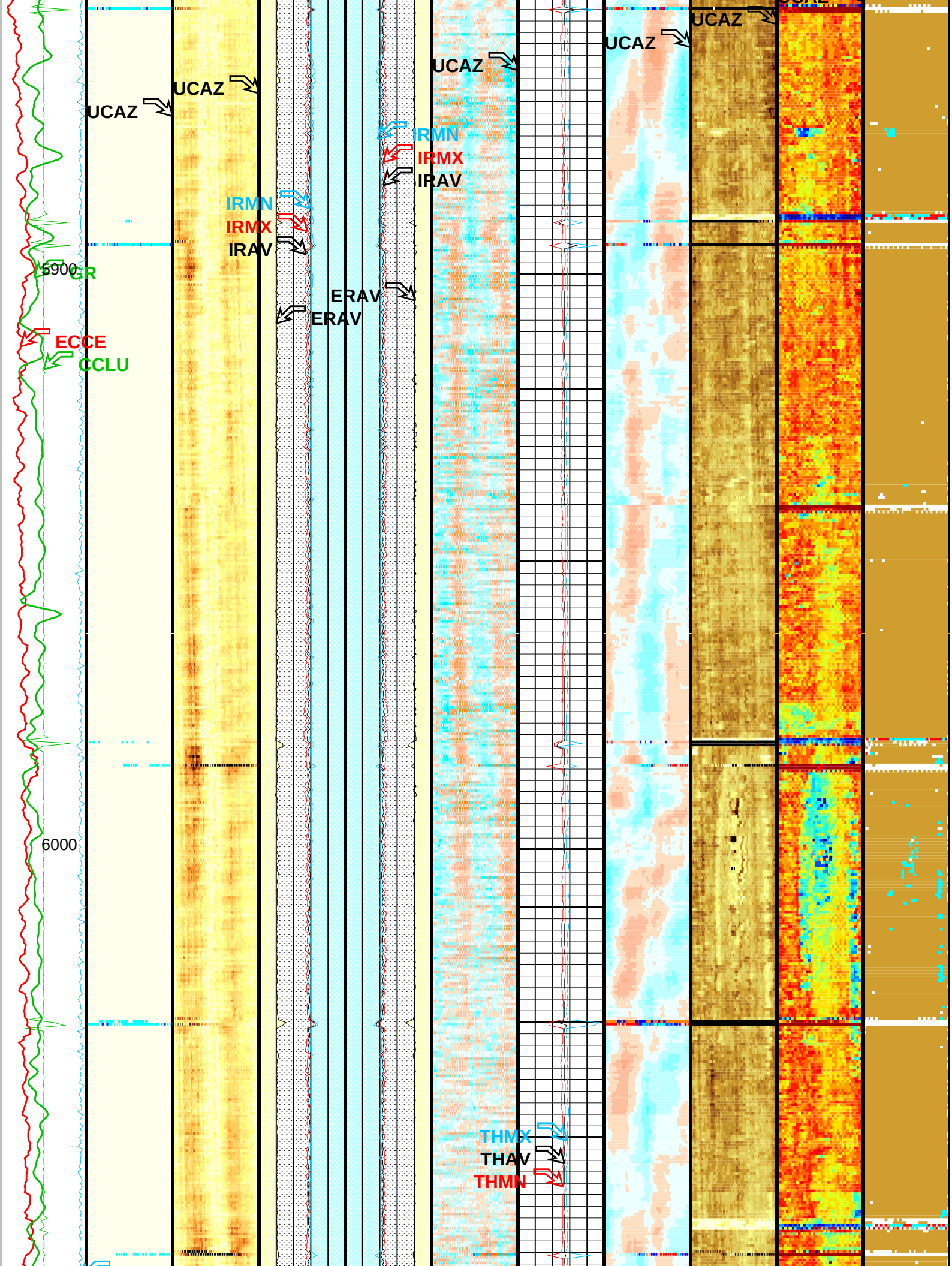
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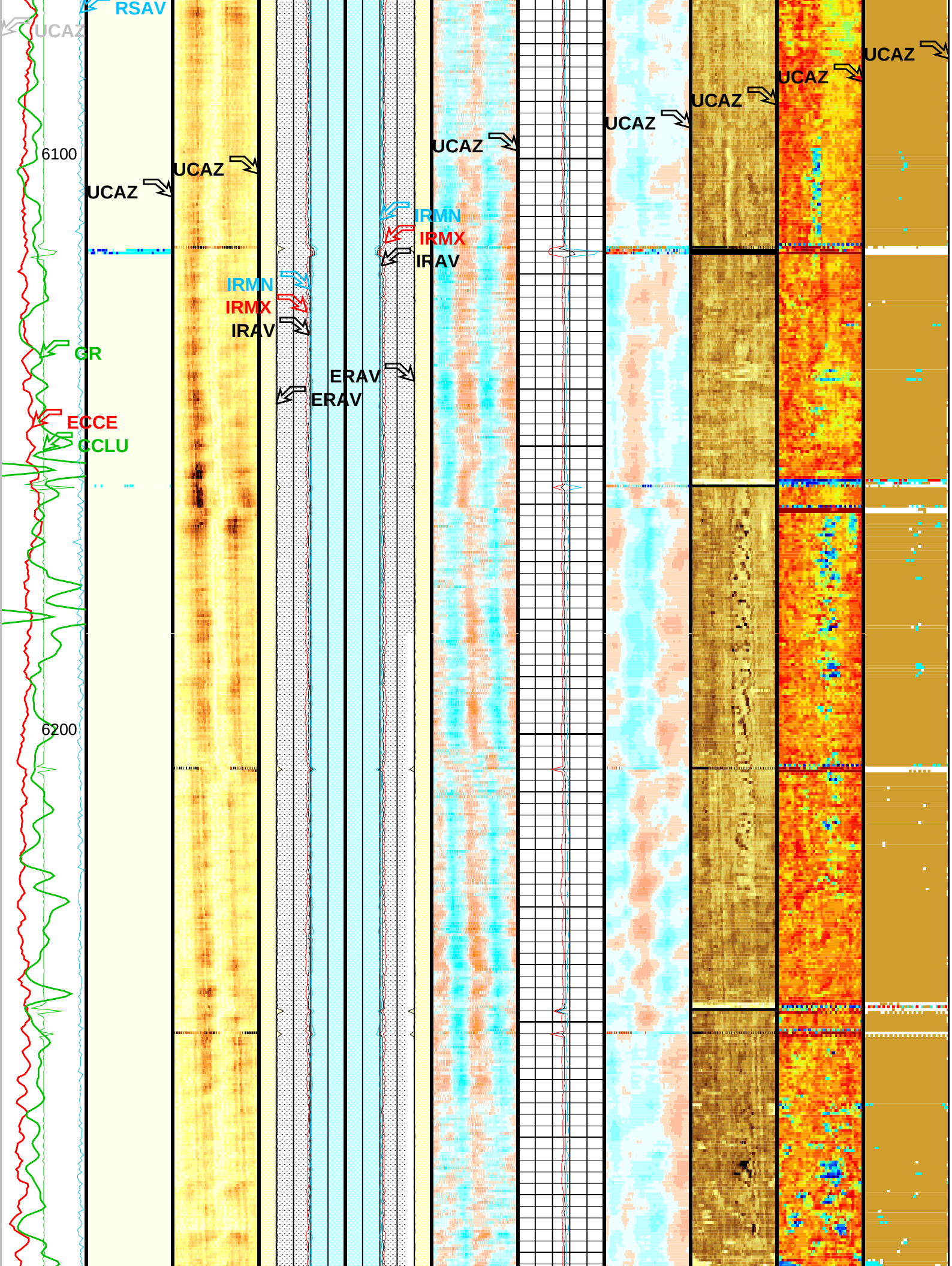
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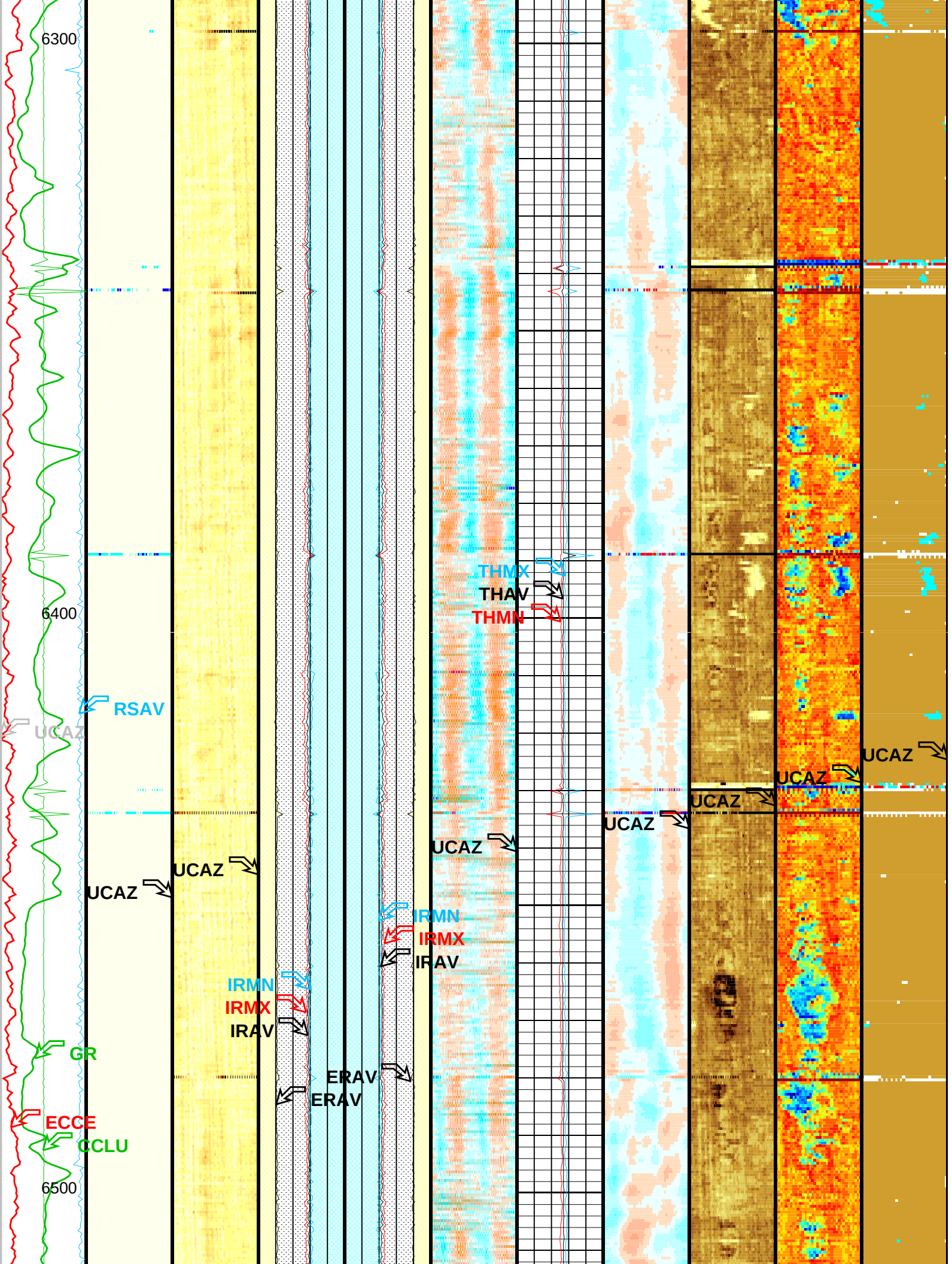
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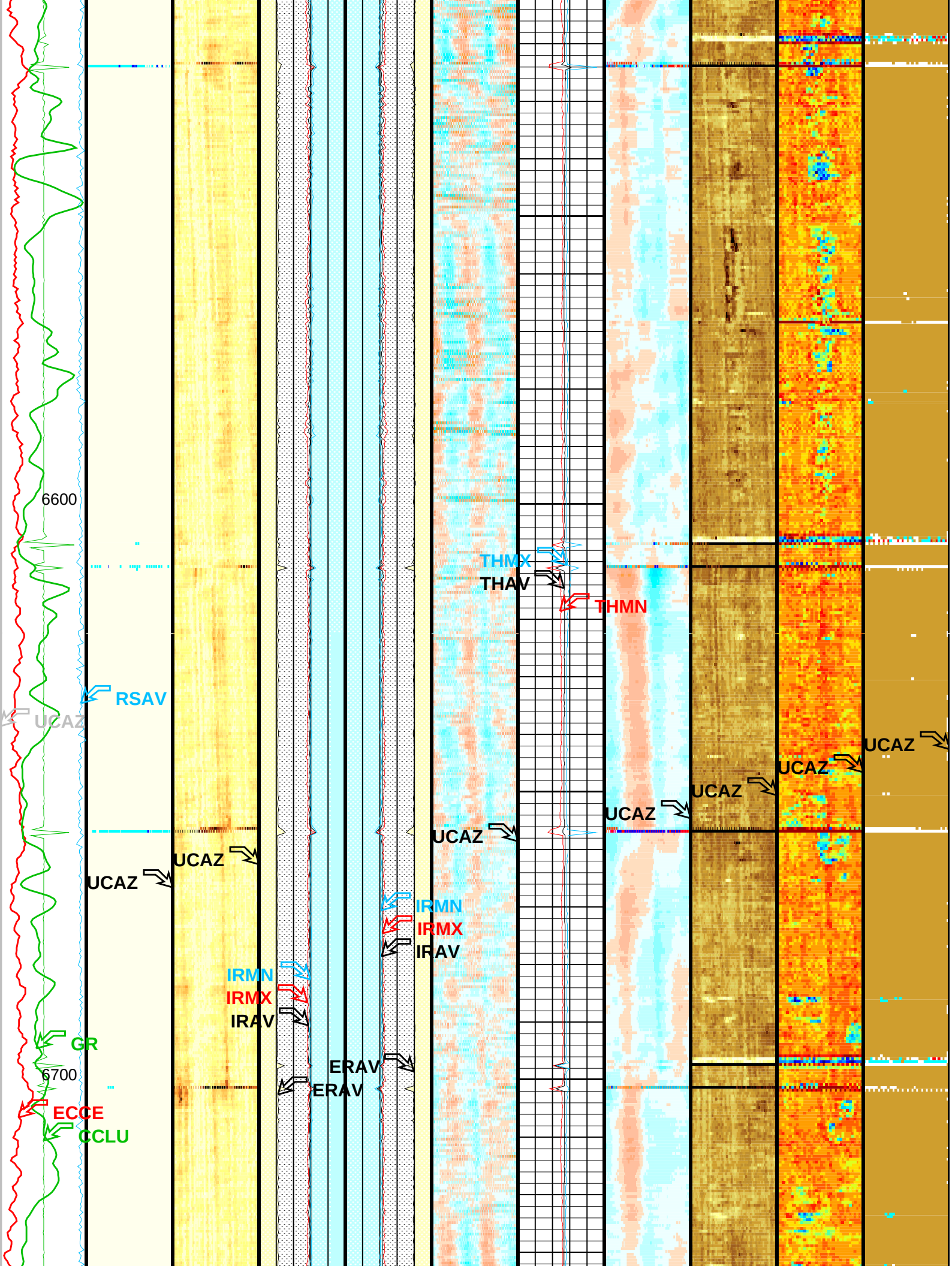
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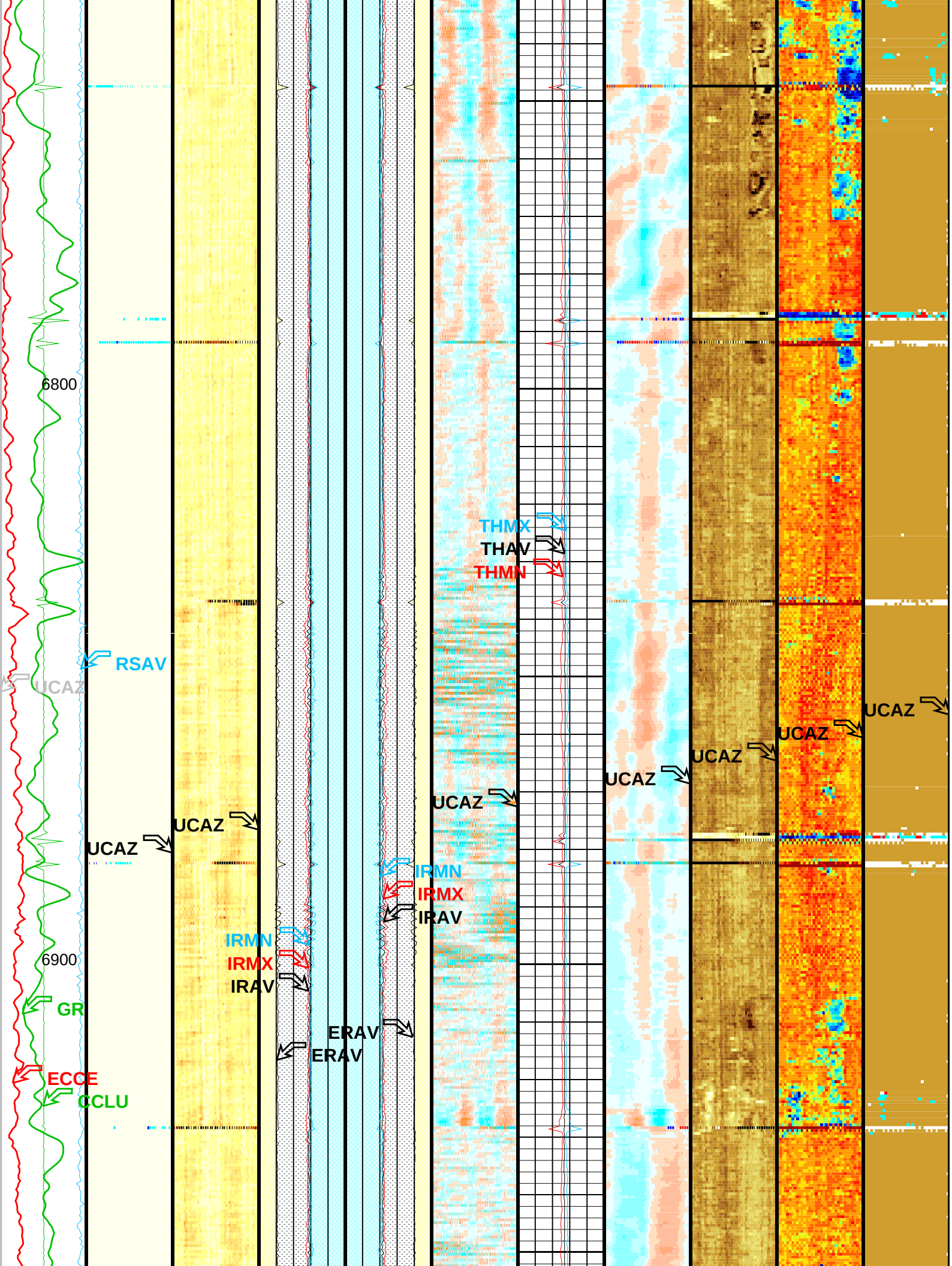
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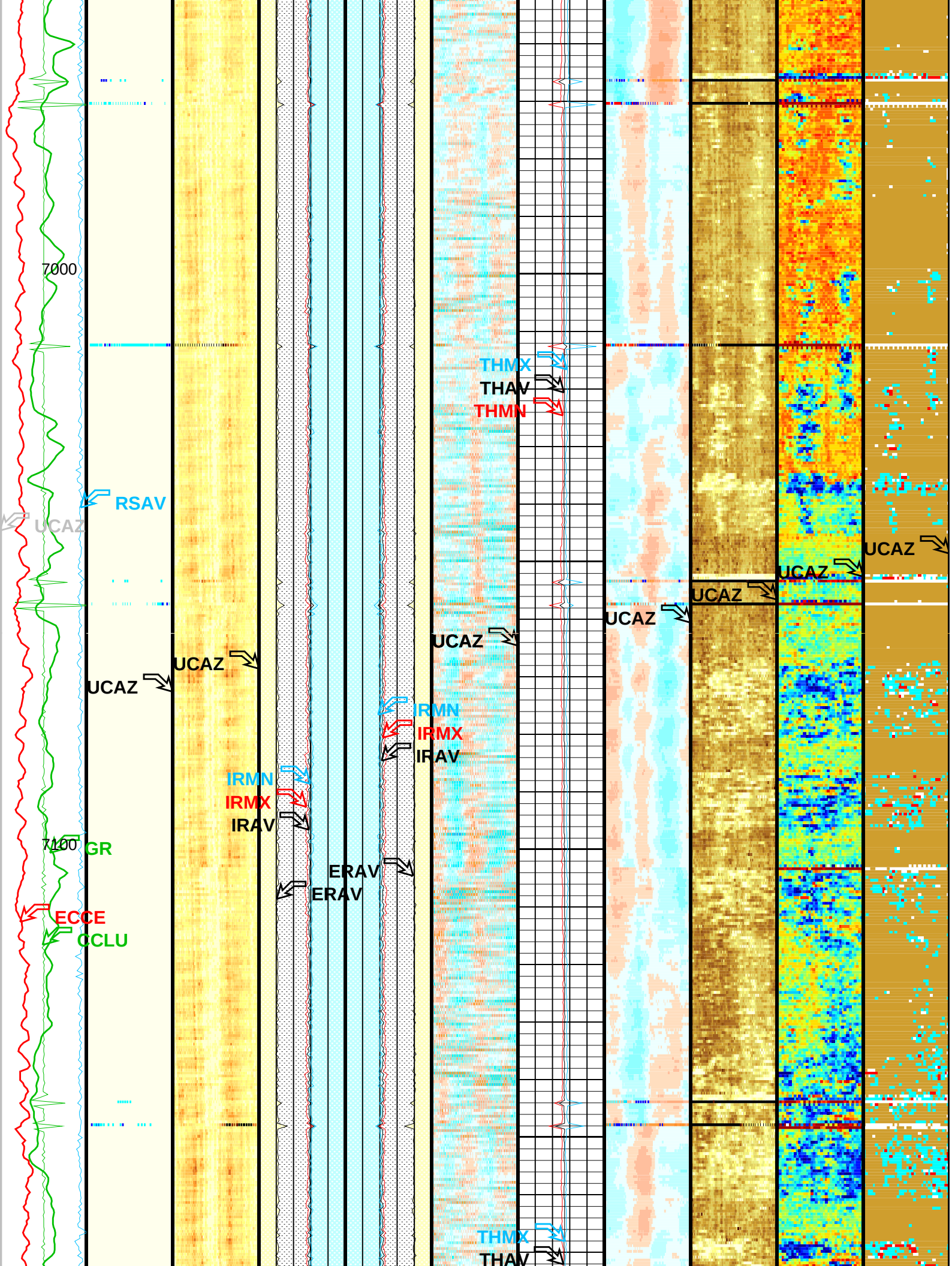
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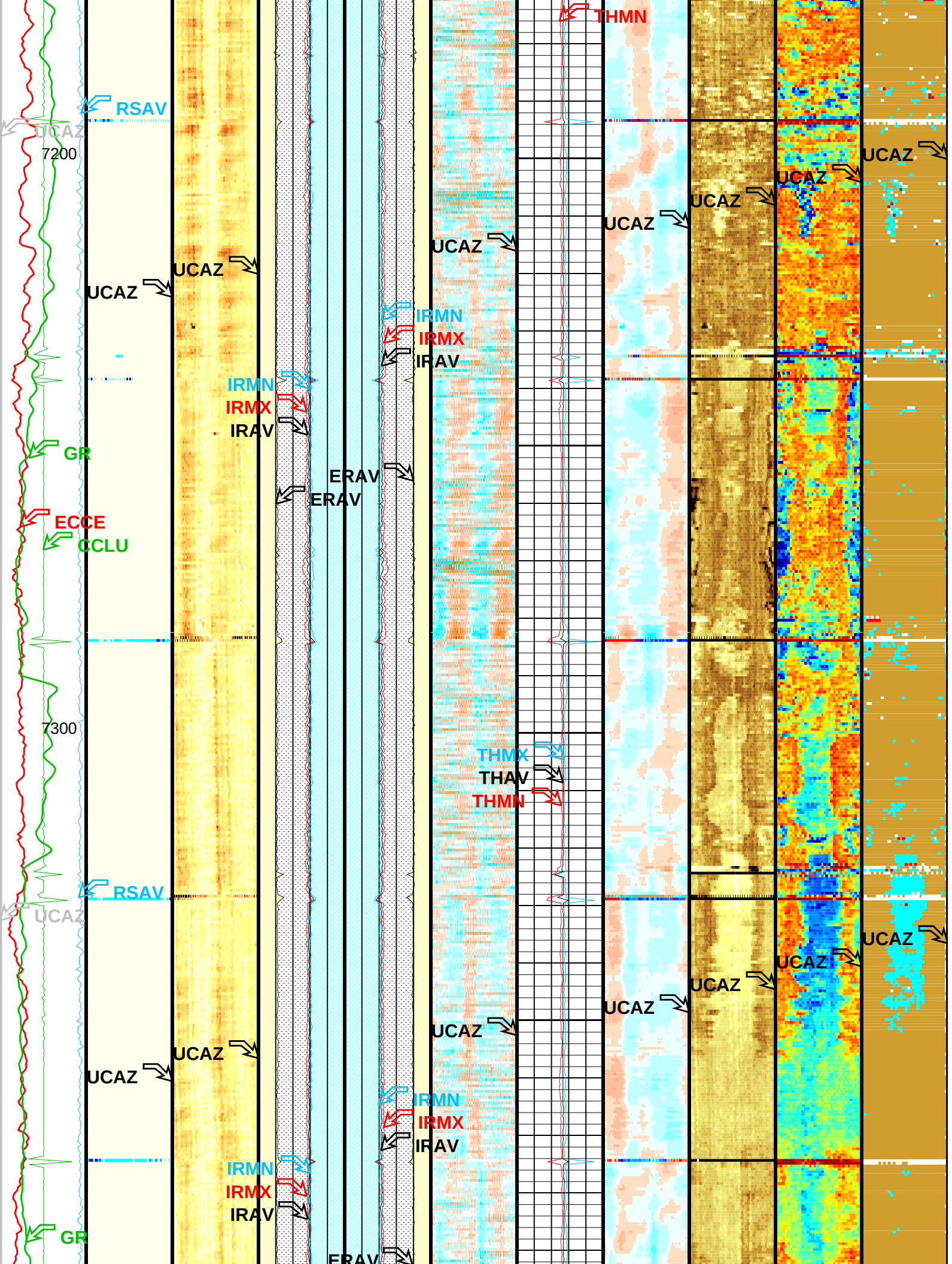
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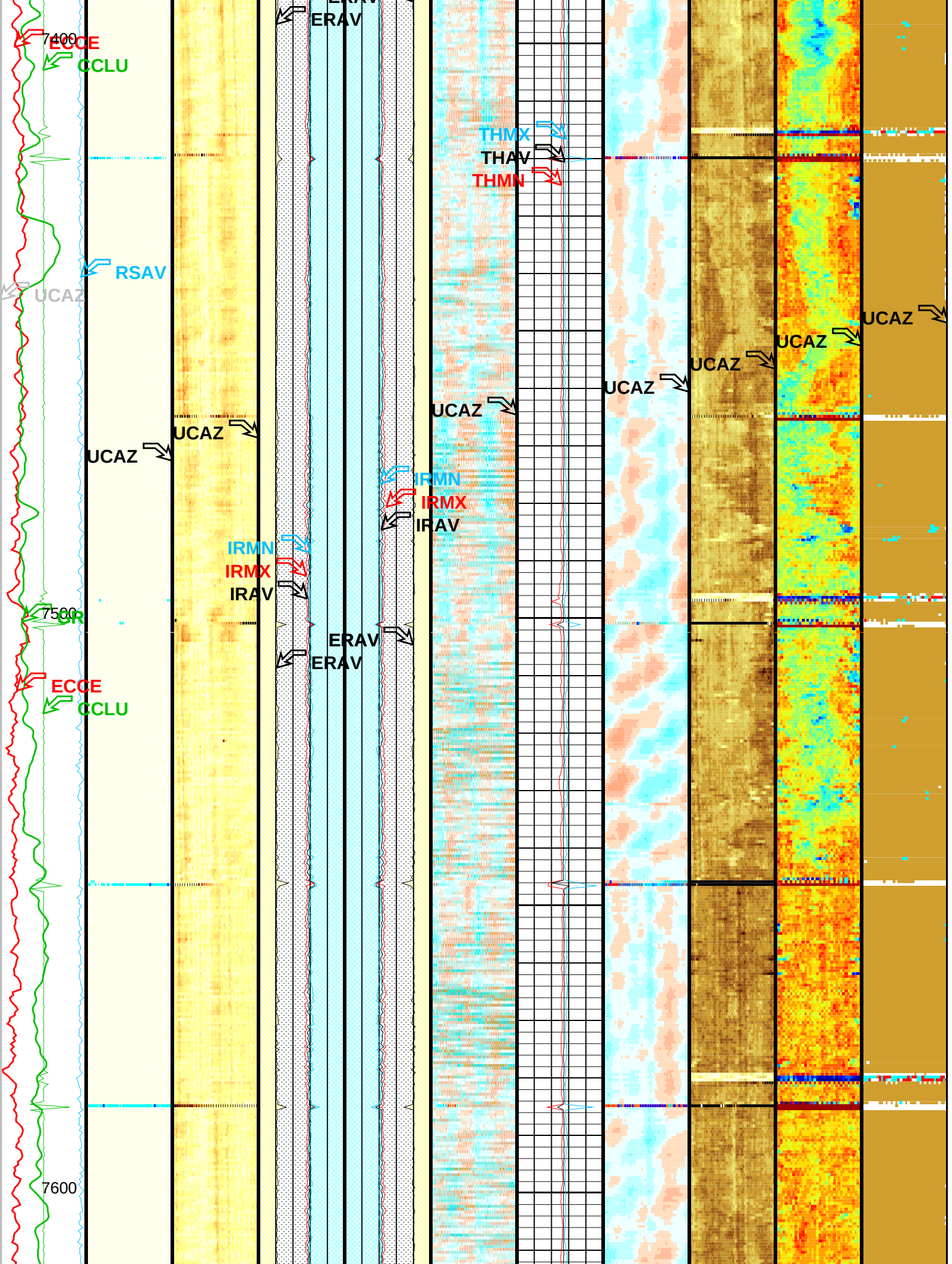
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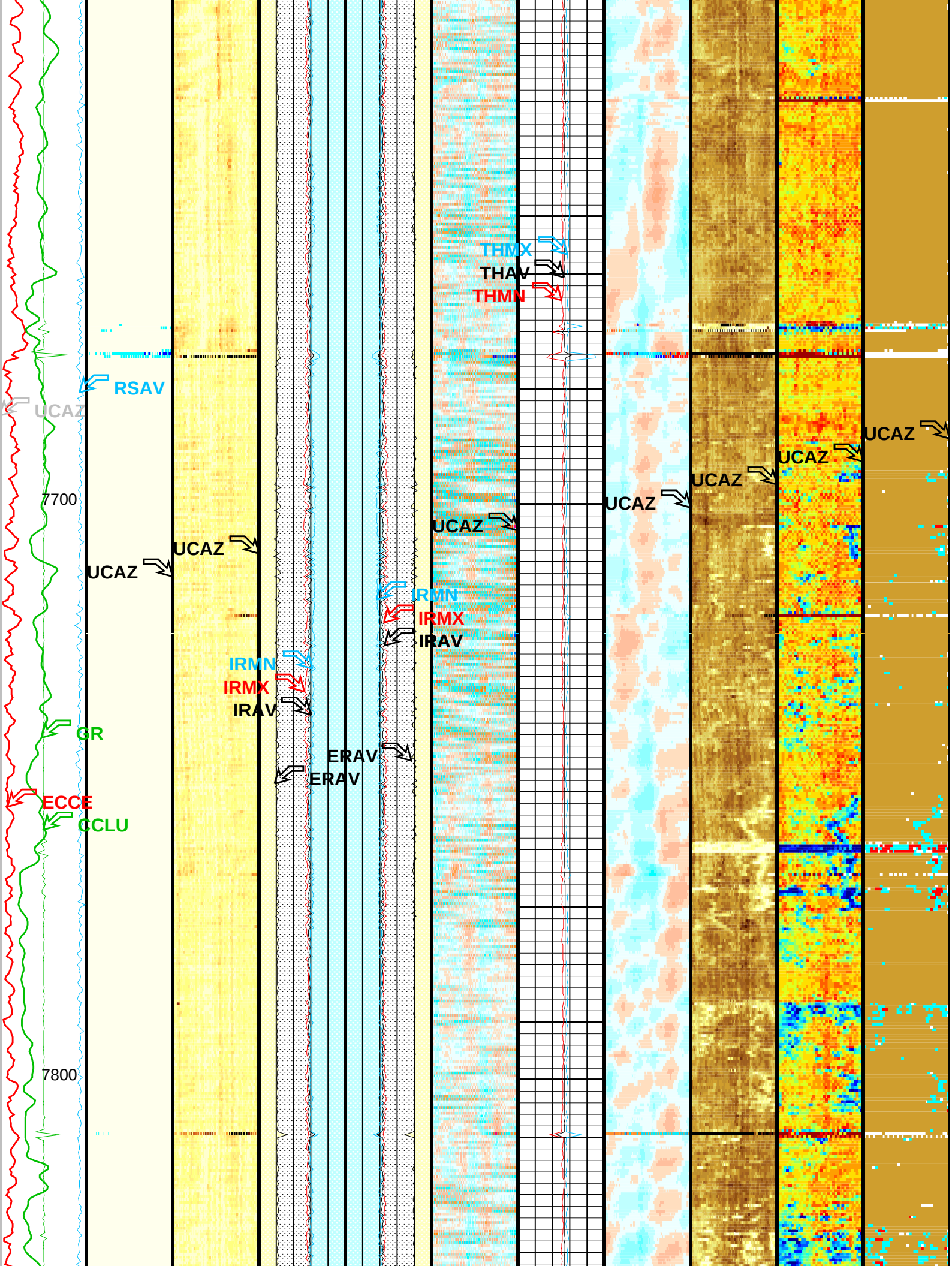
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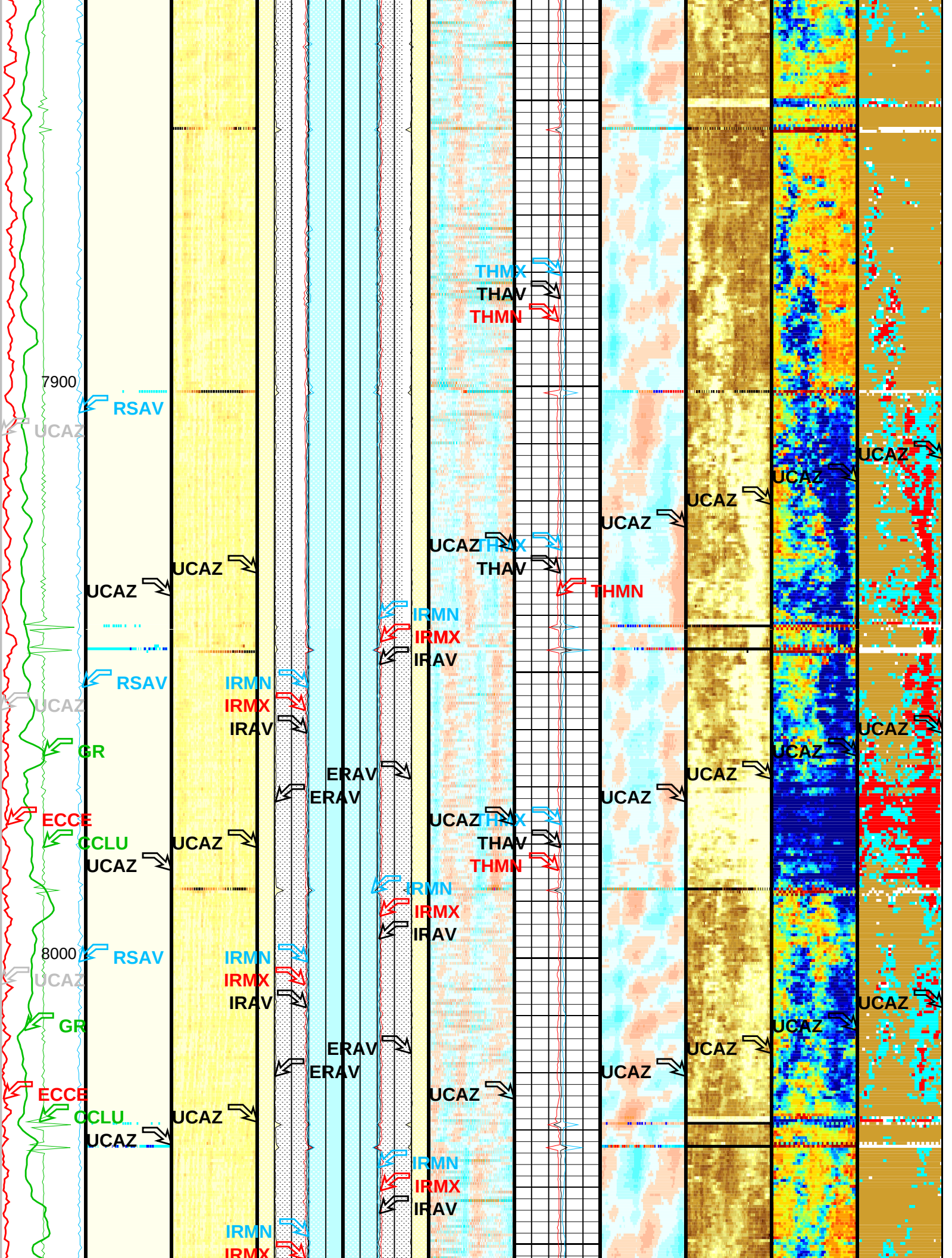
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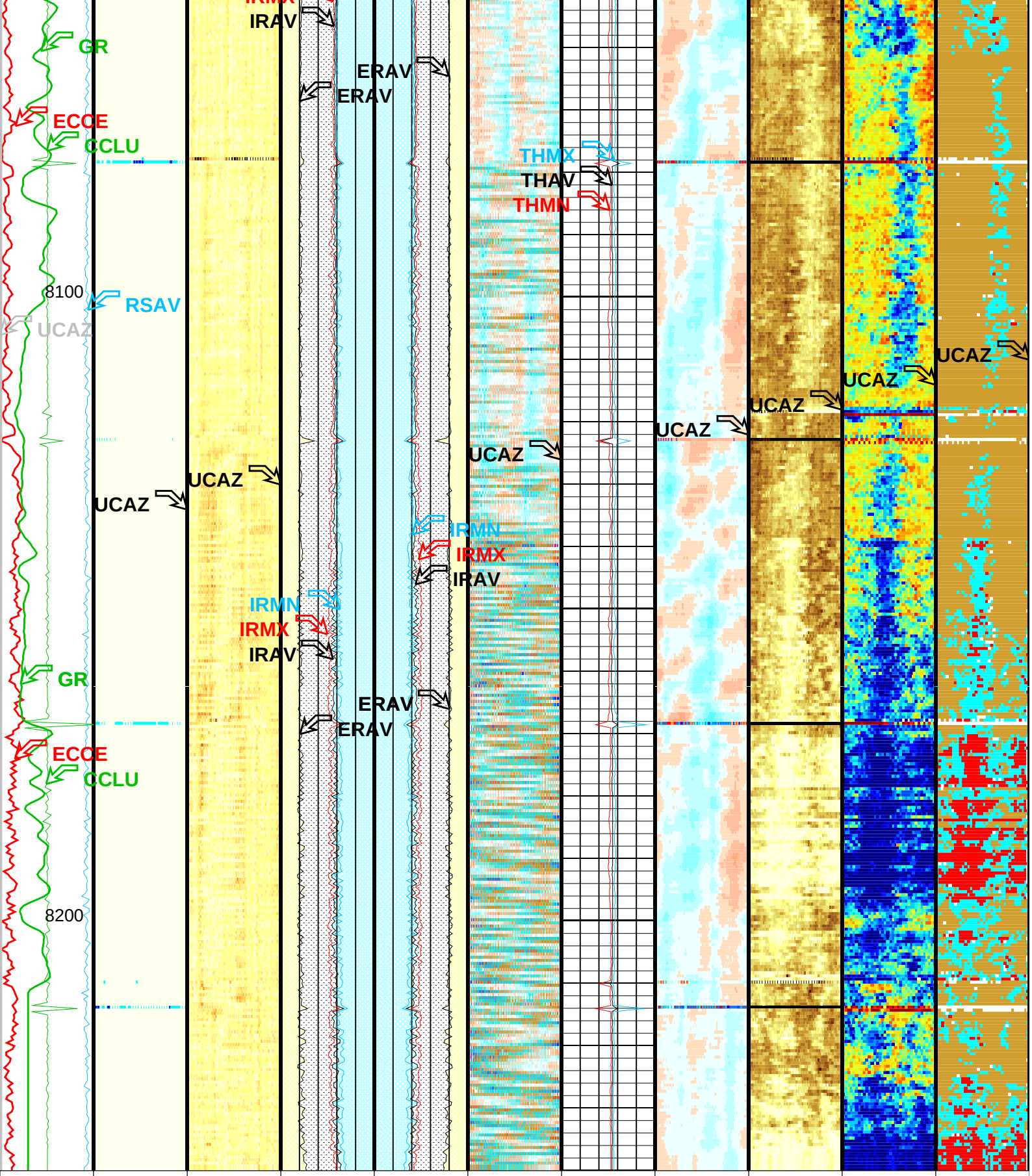
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UCAZ
IRMN
IRMX
IRAV
IRMN
IRMX
IRAV
GR
ERAV
ERAV
ECCE
CCLU
8200
Eccent. (ECCE)
0.5000
1.5000
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3.5000
6.5000
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−6.0000
−5.6000
−5.2000
−4.8000
−4.4000
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−2.4000
−2.0000
−1.6000
External radius Average
External radius Average
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−0.0680
−0.0600
−0.0520
−0.0440
−0.0360
−0.0280
−0.0200
−0.0120
−0.0040
0.0040
0.0120
0.0200
Min of Thickness (THMN)
−500.0000
−0.0760
−0.0680
−0.0600
−0.0520
−0.0440
−0.0360
−0.0280
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0.0120
0.0200
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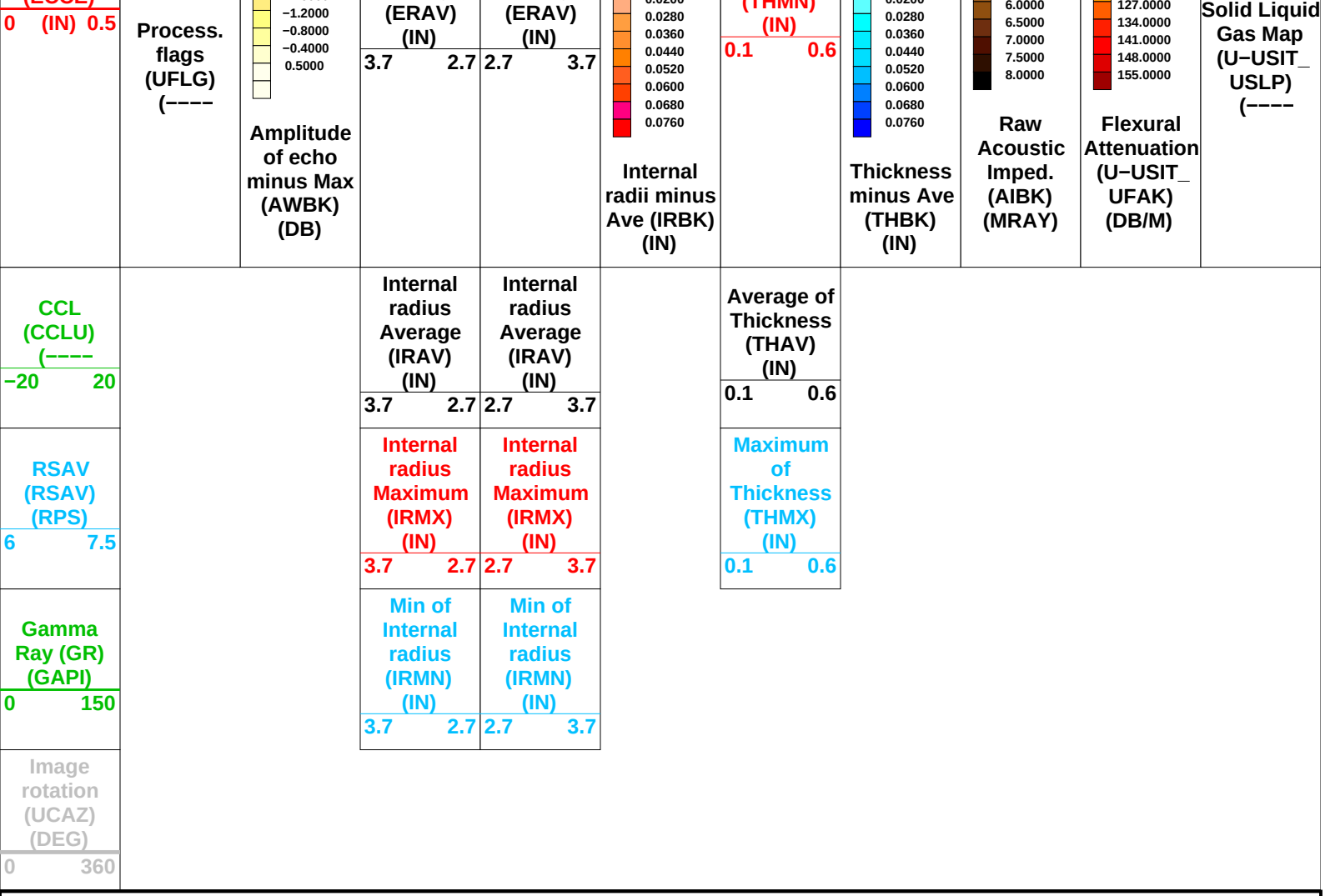


Format: USI_IBC_SLG_Composite **Vertical Scale: 5" per 100'** **Graphics File Created: 11−May−2010 14:50**

OP System Version: 17C0−154

USIT−D	17C0−154	HILTH−FTB	17C0−154
DTC−H	17C0−154		

All USI Images are outside views

USI : LOW Frequency Compression Mode Used For Logging.

Recommended casing thickness range for optimum cement impedance measurement : 0.27 to 0.6 IN.

Parameters

DLIS Name	Description	Value	
	USIT−D: Ultrasonic Imaging − D		
AGMN	Minimum Gain of Cartridge	−4	DB
AGMX	Maximum Gain of Cartridge	20	DB
BERJ	Bad Echo Rejection	ON	
CDIA	Casing Outer Diameter	7	IN
CSDE	Casing Density	486.94	LBCF
CSID	Casing Inner Diameter	6.276	IN
DFVL	Default Fluid Velocity	206	US/F
DOT	Diameter of Transducer Sensor	2.874	IN
EMXV	EMEX Voltage	80	V
FSOD	Fluid Slowness Fits Casing Outer Diameter	5_UFSL_N_ZMUD	
IMAR	Image Rotation	OFF	
MW	Mud Weight	8.6	LB/G
RCOD	Reference Calibrator Outer Diameter	7	IN

RCSO	Reference Calibrator Standoff	1.1811	IN
RCTH	Reference Calibrator Thickness	0.2952	IN
TCUB	T^3 Processing Level	Vax_Loop	
THDH	Maximum Search Thickness (percentage of nominal)	130	
THDL	Minimum Search Thickness (percentage of nominal)	70	
THDP	Thickness Detection Policy	Fundamental	
THNO	Nominal Thickness of Casing	0.362	IN
U−USIT_CEMT	USIT Cement Type	ULTRA_LIGHT	
U−USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	0	MRAY
U−USIT_IISR	USIT IBC Inverted Fluid Slowness Resolution	1.0_US_P_FT	
U−USIT_IIZR	USIT IBC Inverted ZMUD Resolution	0.050_MRAY	
U−USIT_OCDI	USIT Outer Casing Diameter	0	IN
U−USIT_OCSH	USIT Outer Casing Shoe	0	FT
U−USIT_OCWE	USIT Outer Casing Weight	0	LB/F
U−USIT_TIEB	IBC Third Interface Echo Bin Processing	YES	
U−USIT_TIEC	IBC Third Interface Echo Cleaning	NONE	
U−USIT_TIEM	IBC Third Interface Echo Multi Tracking	NO	
U−USIT_TIEP	IBC Third Interface Echo Policy	BFEP	
U−USIT_TIER	IBC Third Interface Echo Receivers	BOTH	
U−USIT_U3WE	Third Interface Echo Window End	110	US
U−USIT_UBTP	USIT Bottom Transducer Position	UNKNOWN	
U−USIT_UFAO	USIT Flexural Attenuation Offset	8	DB/M
U−USIT_UIAP	USIT IBC Answer Product Enabled	SolidLiquidGasMap	
U−USIT_UIST	Ultrasonic IBC Sonde Type	Sub_Ibcs_B	
U−USIT_UTAN	USIT Transducer Angles	33_DEG	
UMAO	USIT Measurement Angular Offset	−10	DEG
USTO	Ultrasonic Time Offset	−2	US
USUB	Ultrasonic Subassembly Identifier	Sub_7_inch	
UWKM	Ultrasonic Working Mode	5DEG_6IN_136UNF_LF	
VCAS	Ultrasonic Transversal Velocity in Casing	51.4	US/F
WLEN	T^3 Processing Length	21.7078	US
ZCAS	Acoustic Impedance of Casing	46.2537	MRAY
ZINI	Initial Estimate of Cement Impedance	−1	MRAY
ZMUD	Acoustic Impedance of Mud	1.75	MRAY
ZTCM	Acoustic Impedance Threshold for Cement	2.6	MRAY
ZTGS	Acoustic Impedance Threshold for Gas	0.3	MRAY
System and Miscellaneous			
BS	Bit Size	9.875	IN
CWEI	Casing Weight	26.00	LB/F
DO	Depth Offset for Playback	40.1	FT
DORL	Depth Offset for Repeat Analysis	0.0	FT
PP	Playback Processing	RECOMPUTE	

Input DLIS Files

DEFAULT	Splice_USI_TLD_MCFL_021CUP	FN:1	PRODUCER	11−May−2010 14:37	8200.0 FT	199.6 FT

Output DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_025PUP	FN:22	PRODUCER	11−May−2010 14:50

Schlumberger

VDL WIDE

MAXIS Field Log

Company: ExxonMobil Production Corp **Well: PCU 297−11C6**

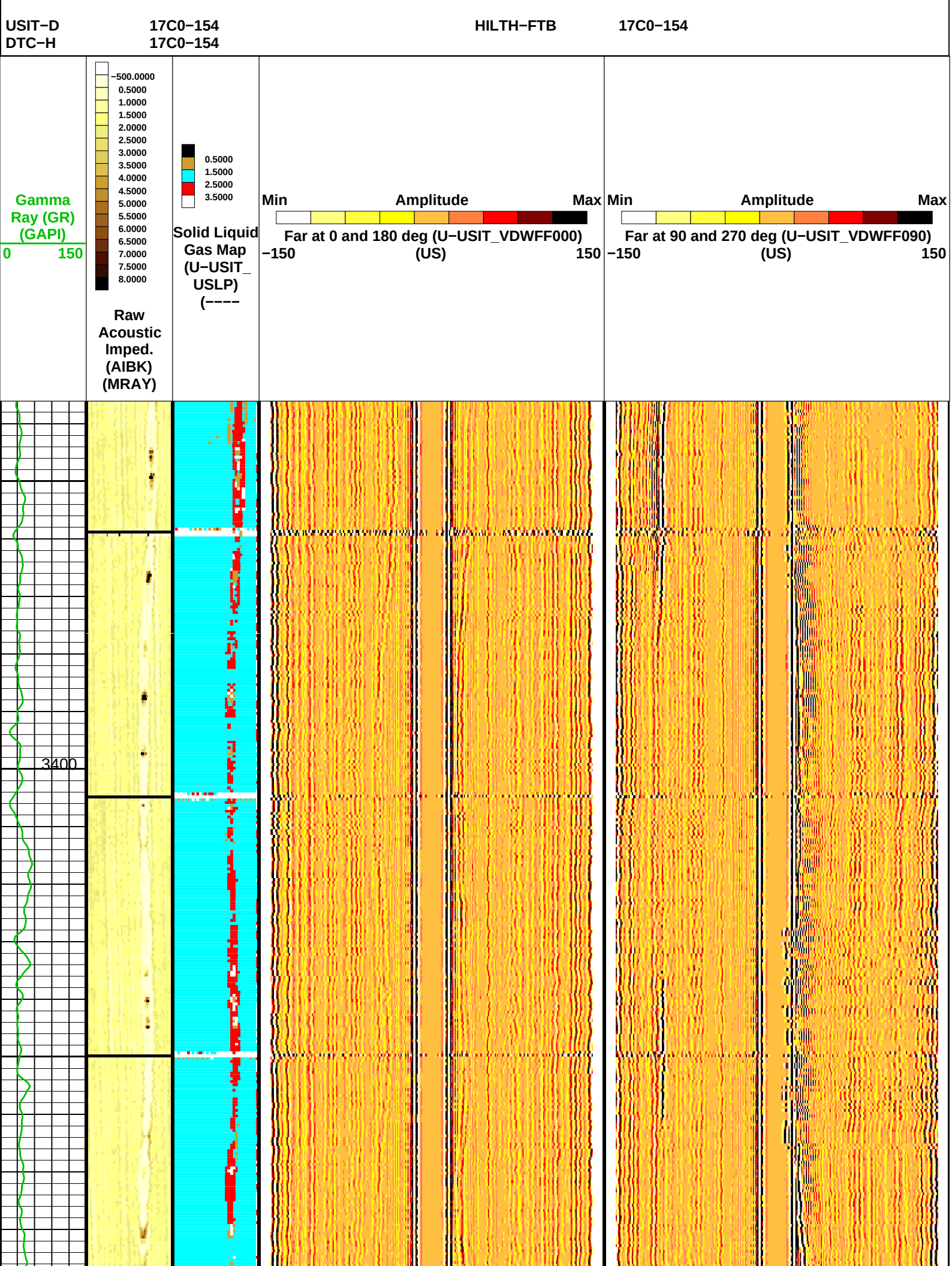
Input DLIS Files

DEFAULT	Splice_USI_TLD_MCFL_021CUP	FN:1	PRODUCER	11−May−2010 14:37	8200.0 FT	199.6 FT

Output DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_025PUP	FN:22	PRODUCER	11−May−2010 14:50

OP System Version: 17C0−154


USIT−D 17C0−154
DTC−H 17C0−154
HILTH−FTB 17C0−154
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1.0000
1.5000
2.0000
2.5000
3.0000
3.5000
4.0000
4.5000
5.0000
5.5000
6.0000
6.5000
7.0000
7.5000
8.0000
Raw Acoustic Imped. (AIBK) (MRAY)
0.5000
1.5000
2.5000
3.5000
Solid Liquid Gas Map (U−USIT_USLP) (−−−−
Min Amplitude Max
Far at 0 and 180 deg (U−USIT_VDWFF000)
−150 (US) 150
Min Amplitude Max
Far at 90 and 270 deg (U−USIT_VDWFF090)
−150 (US) 150
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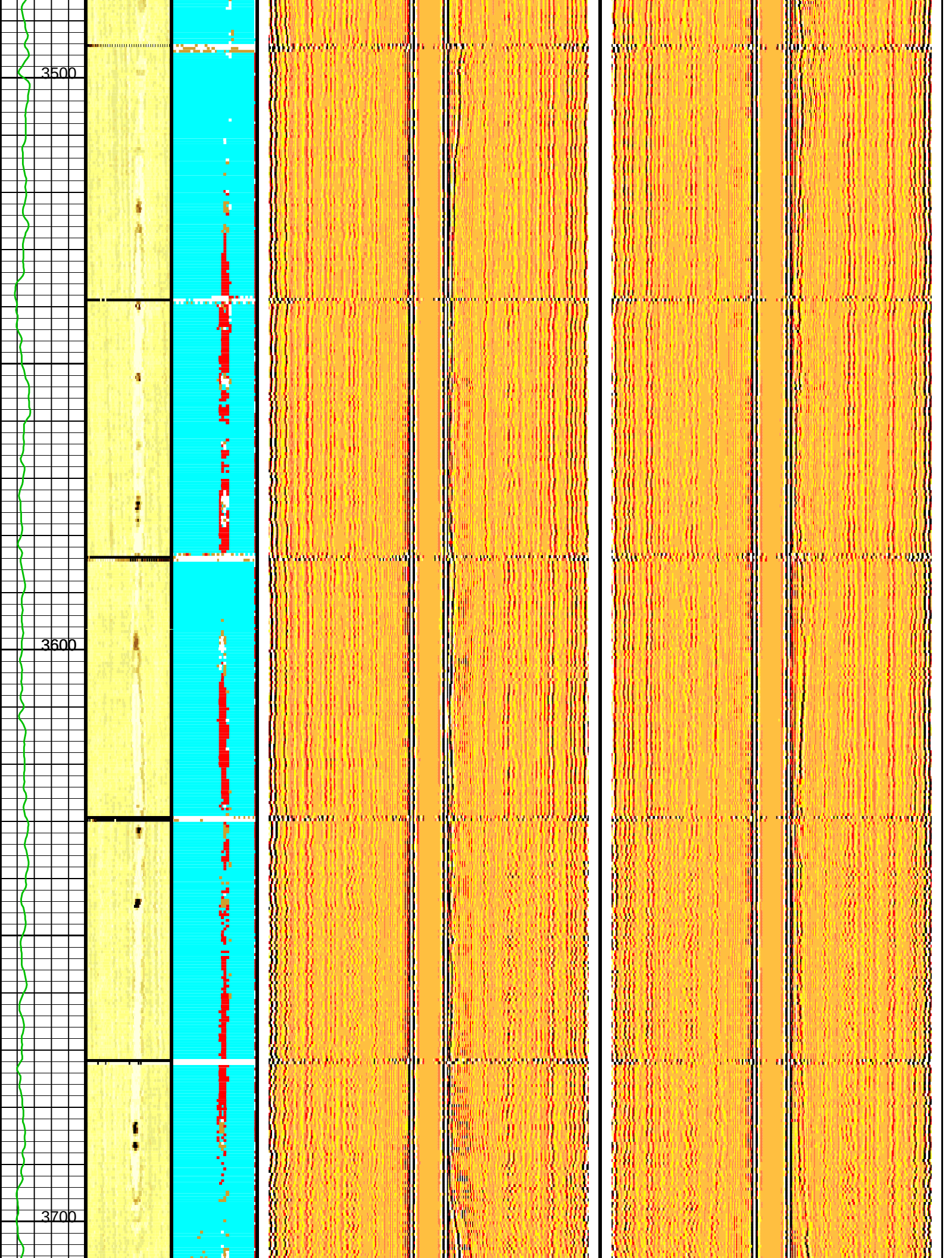
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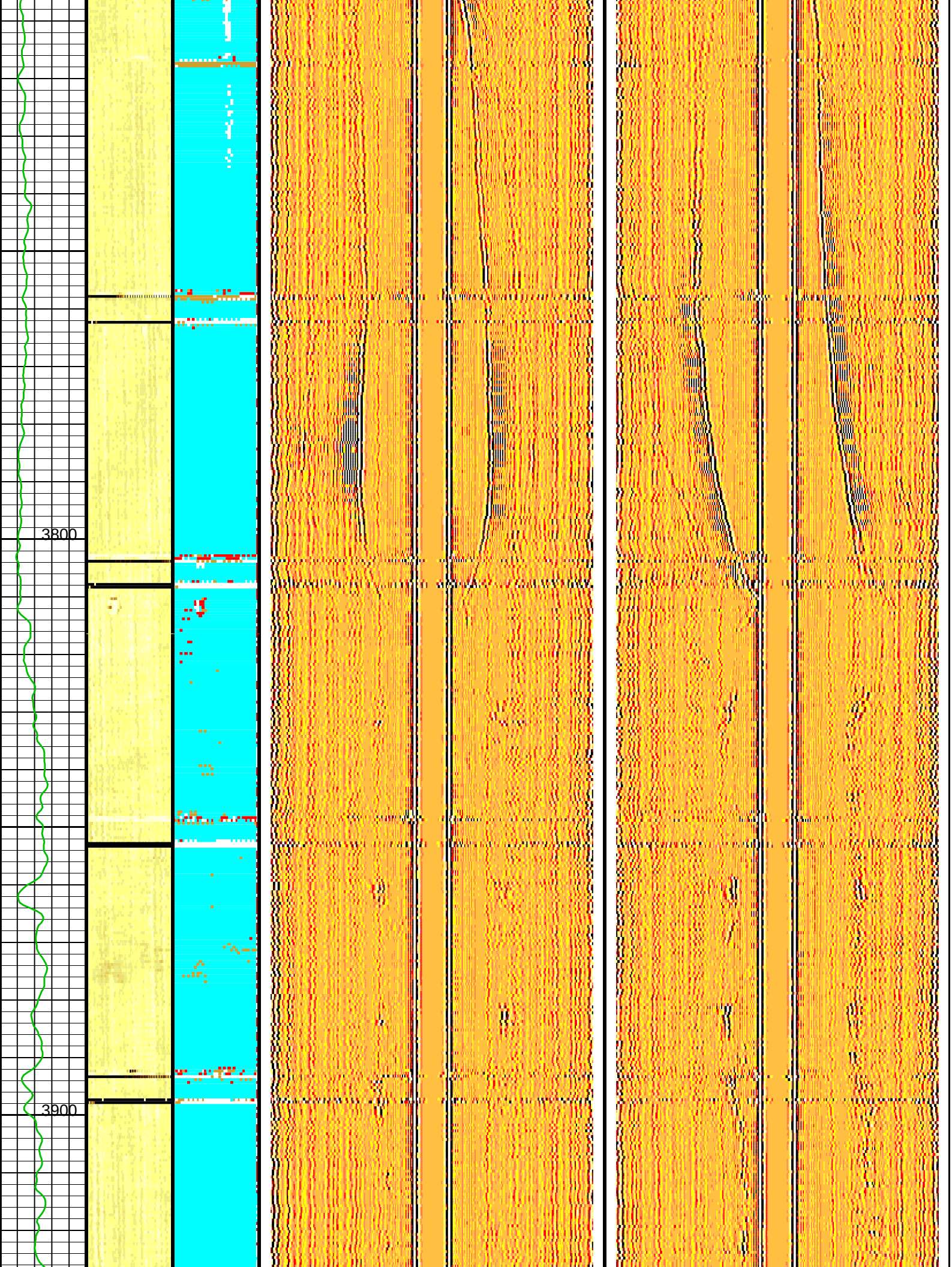
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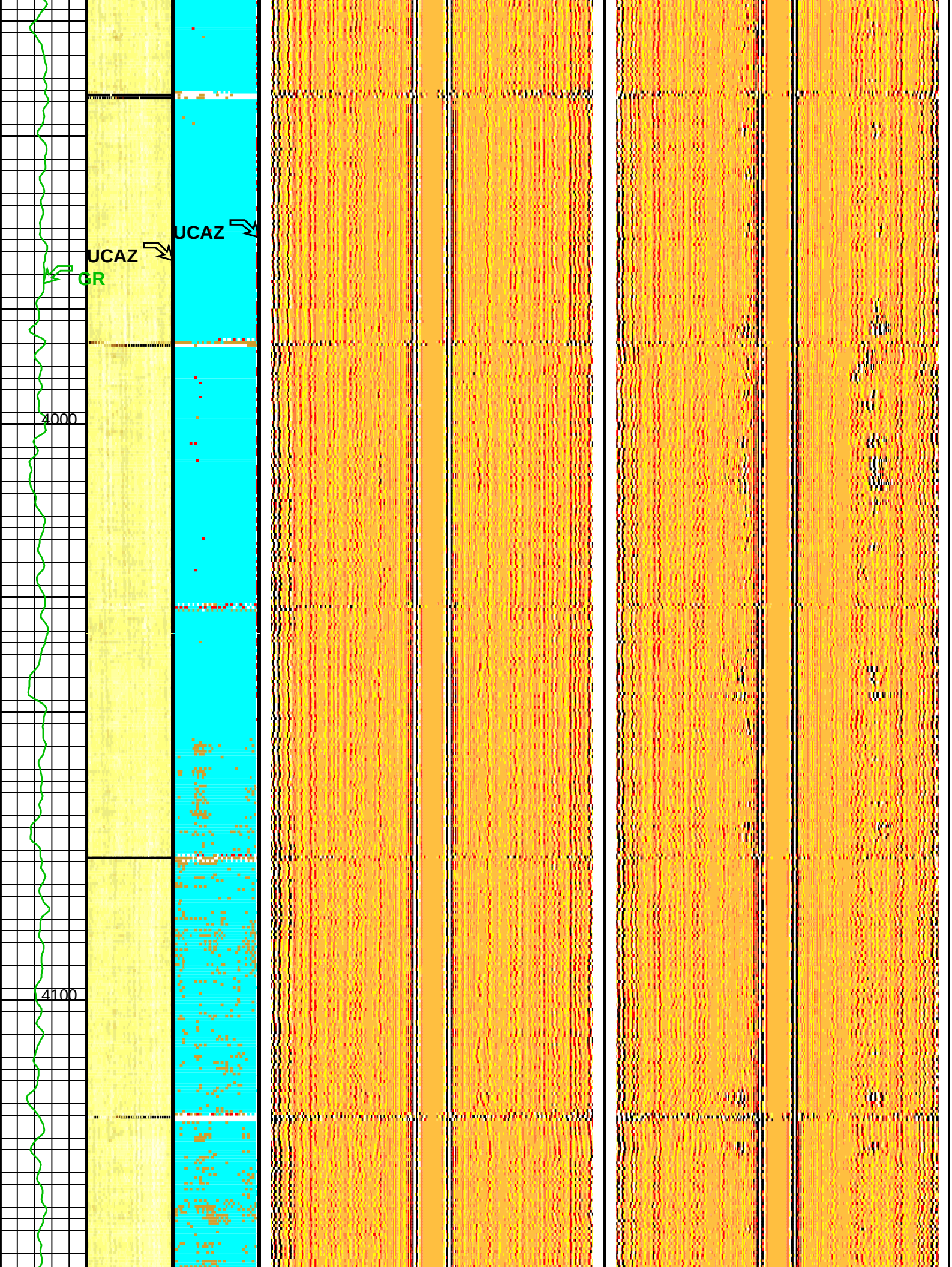
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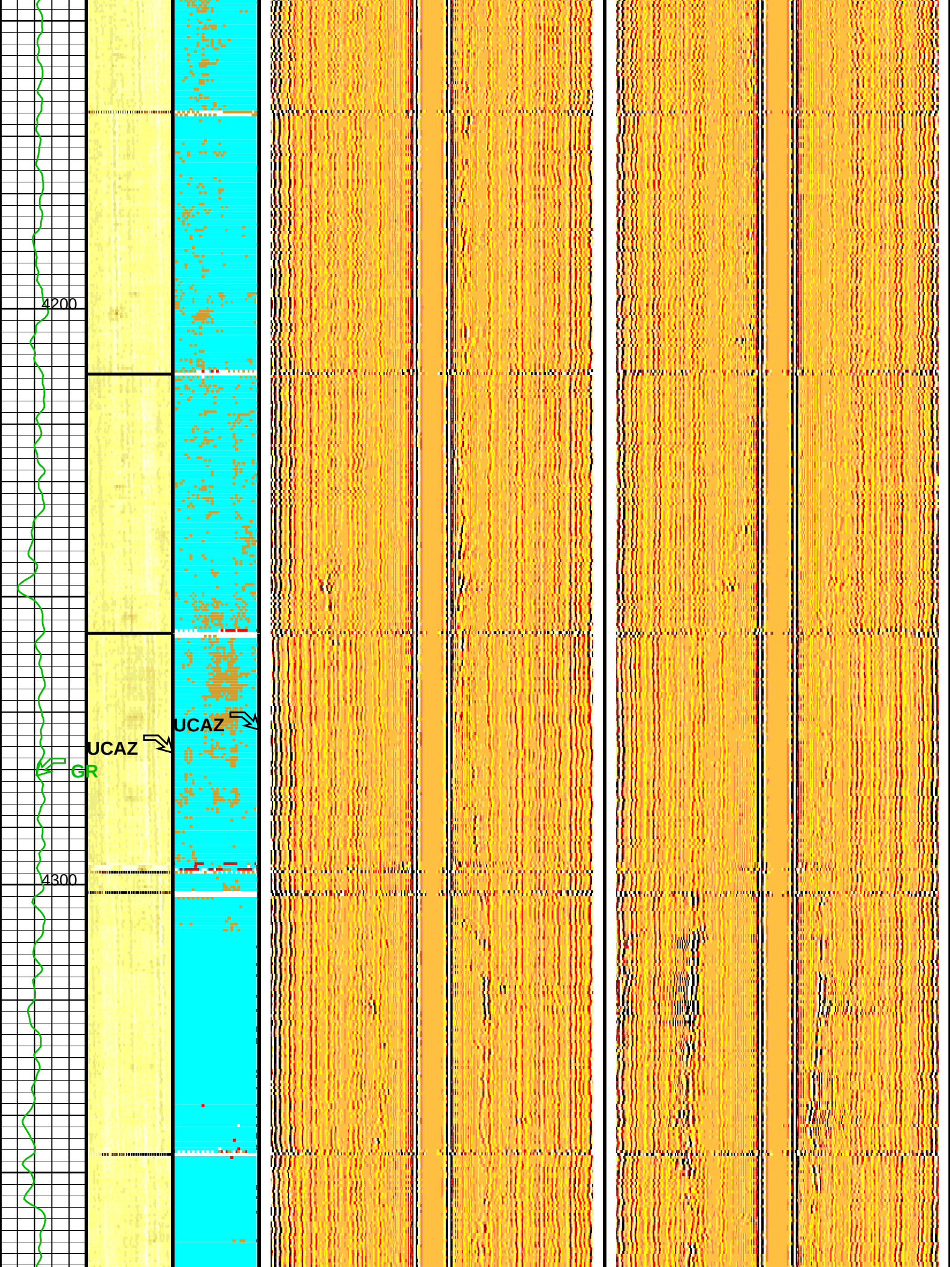
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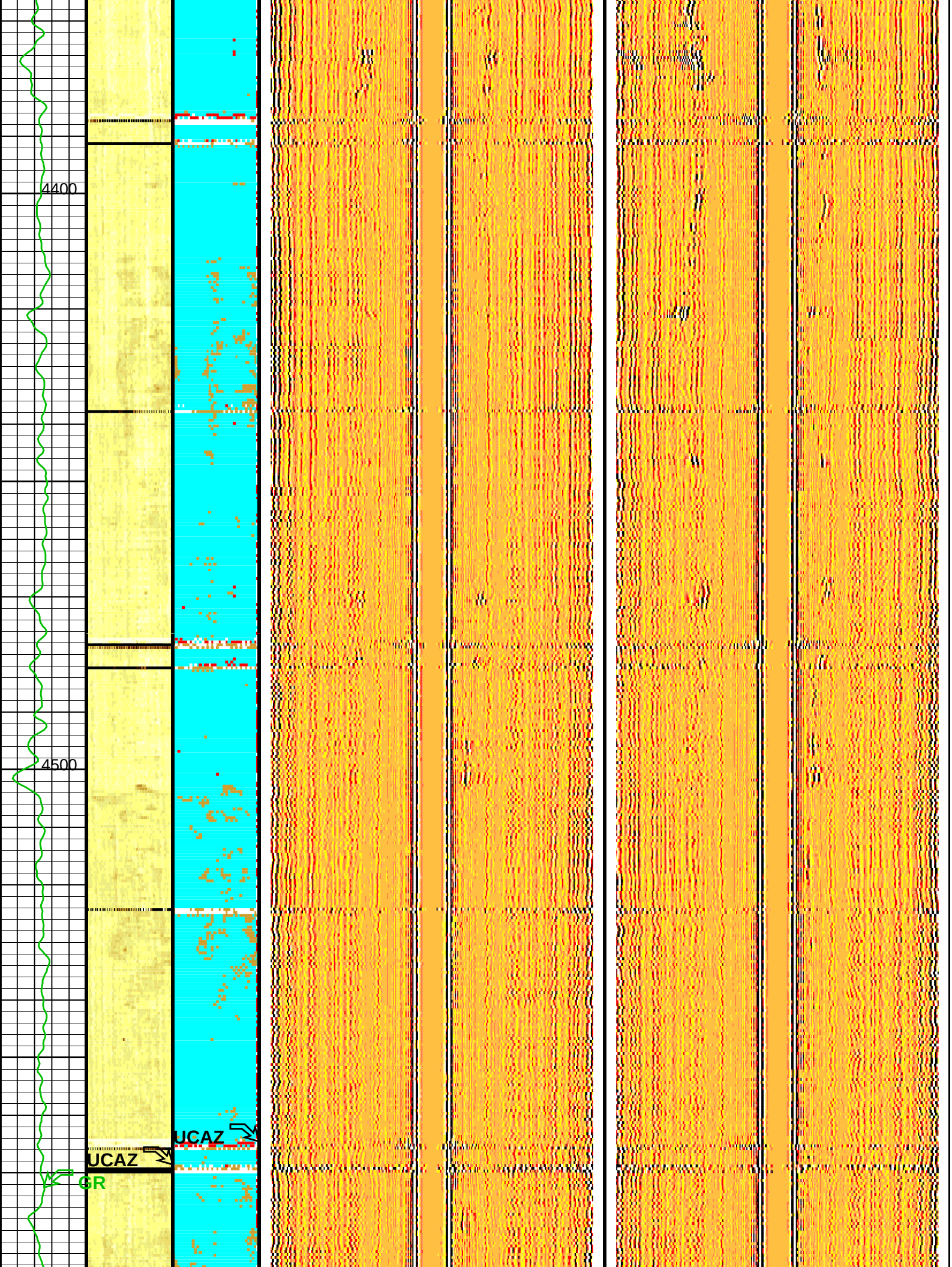
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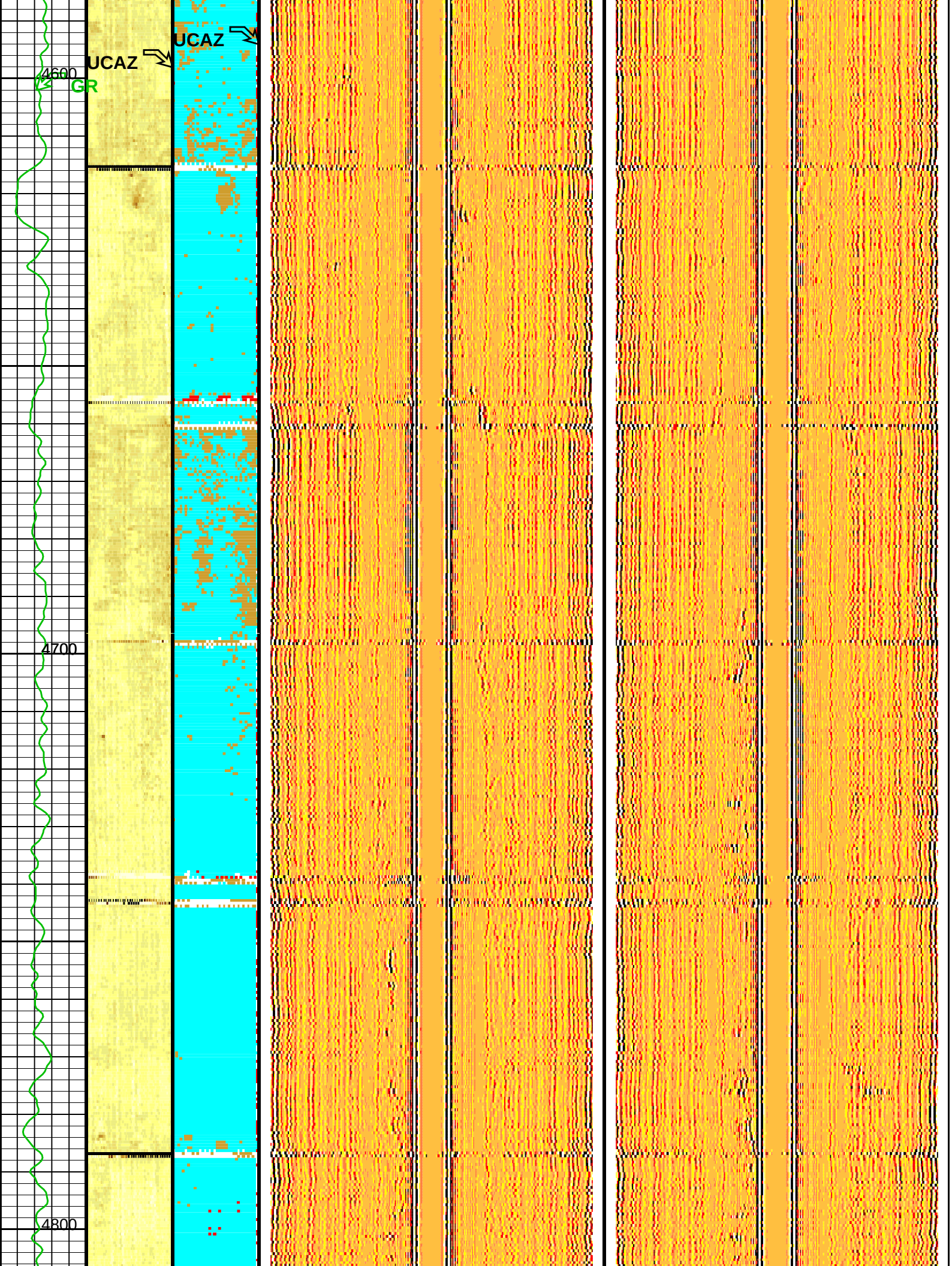
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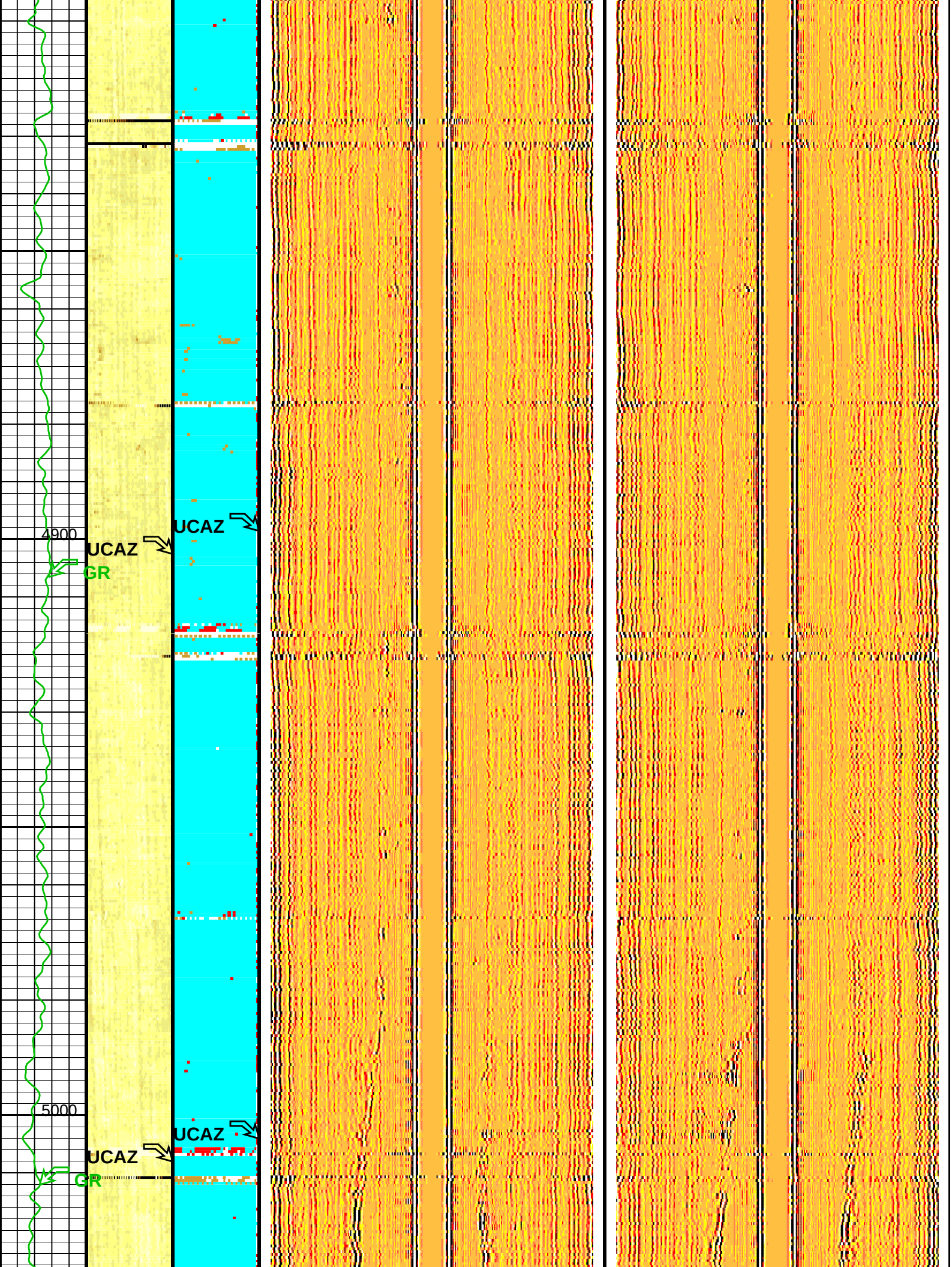
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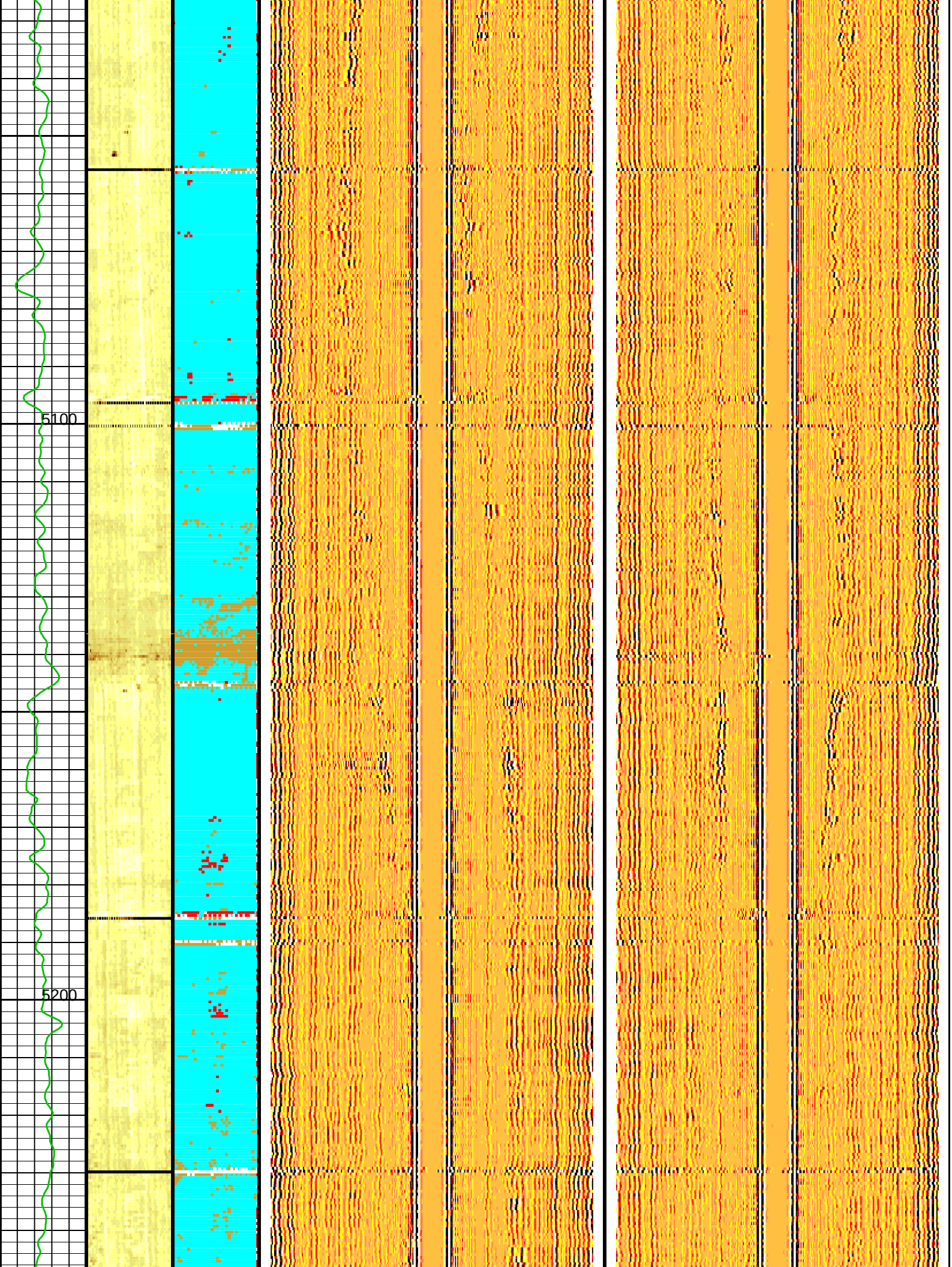
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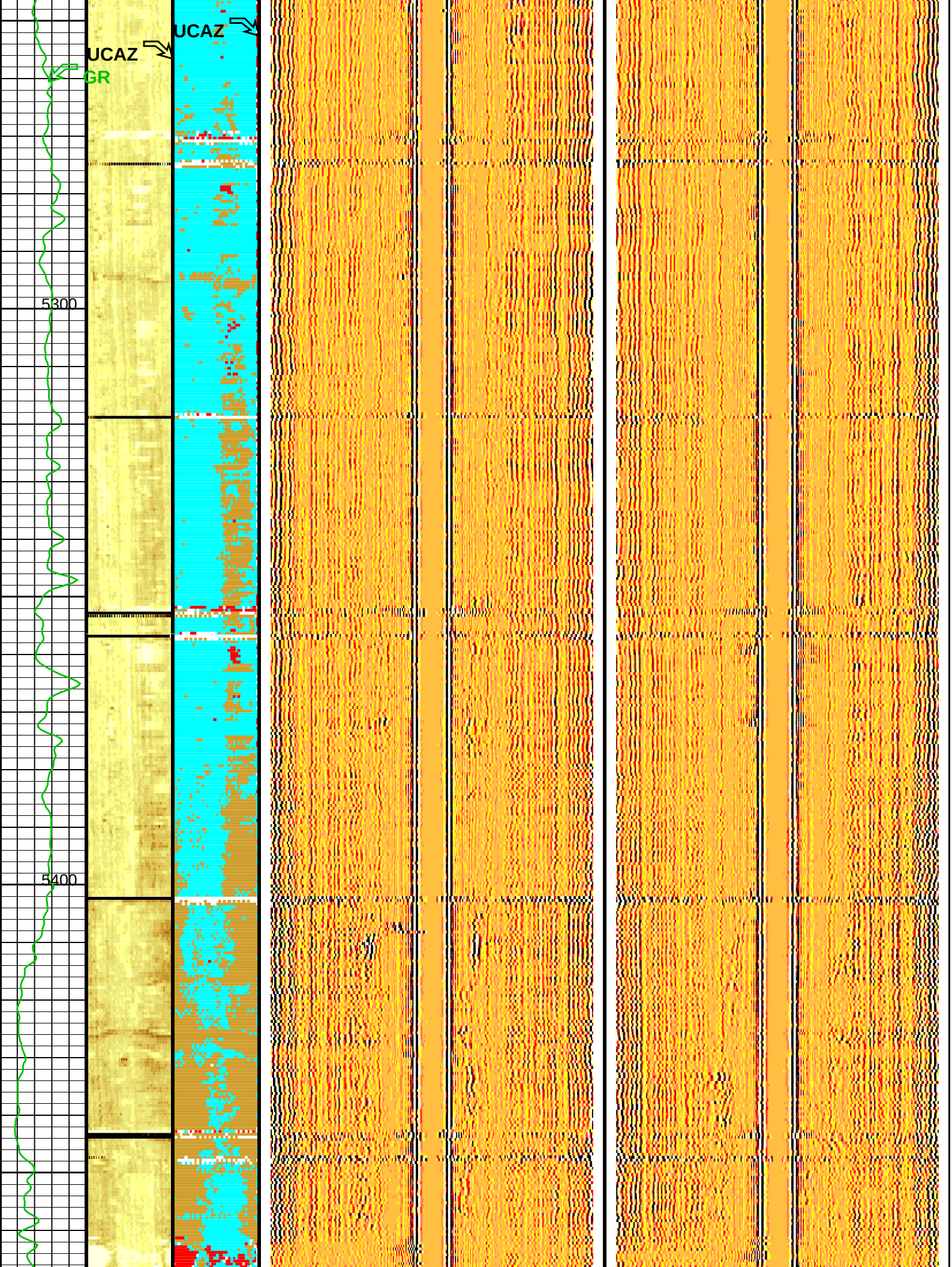
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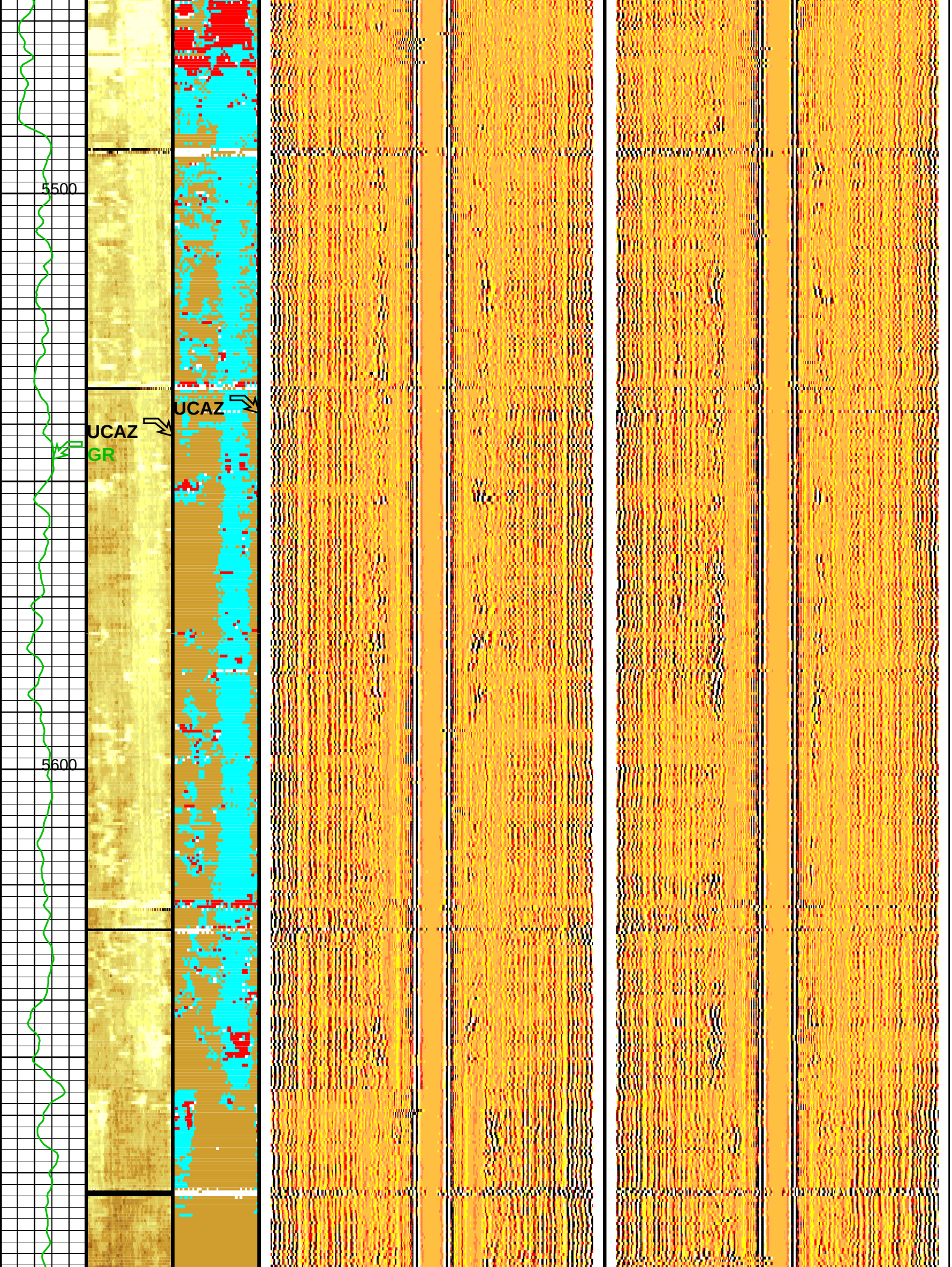
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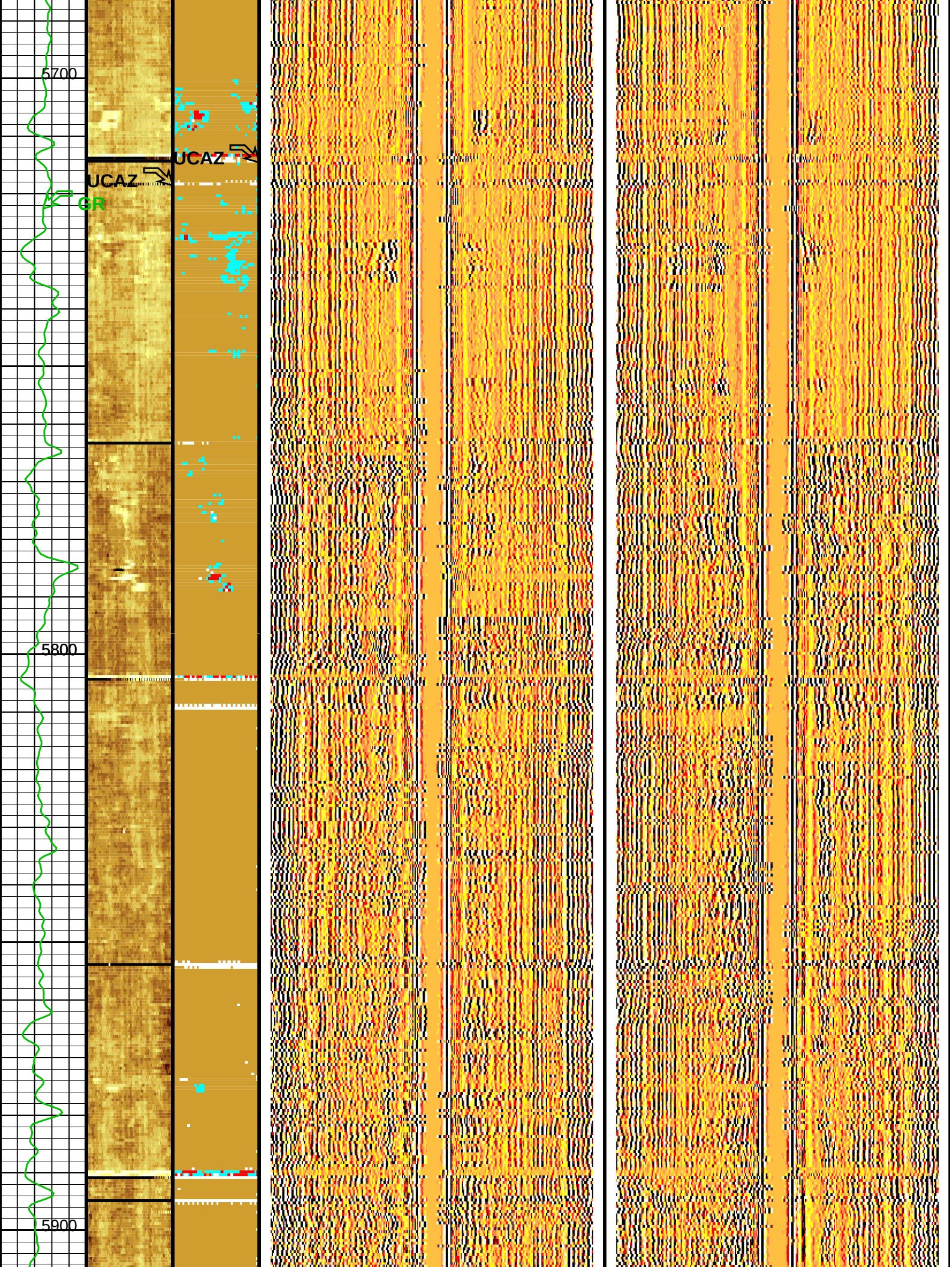
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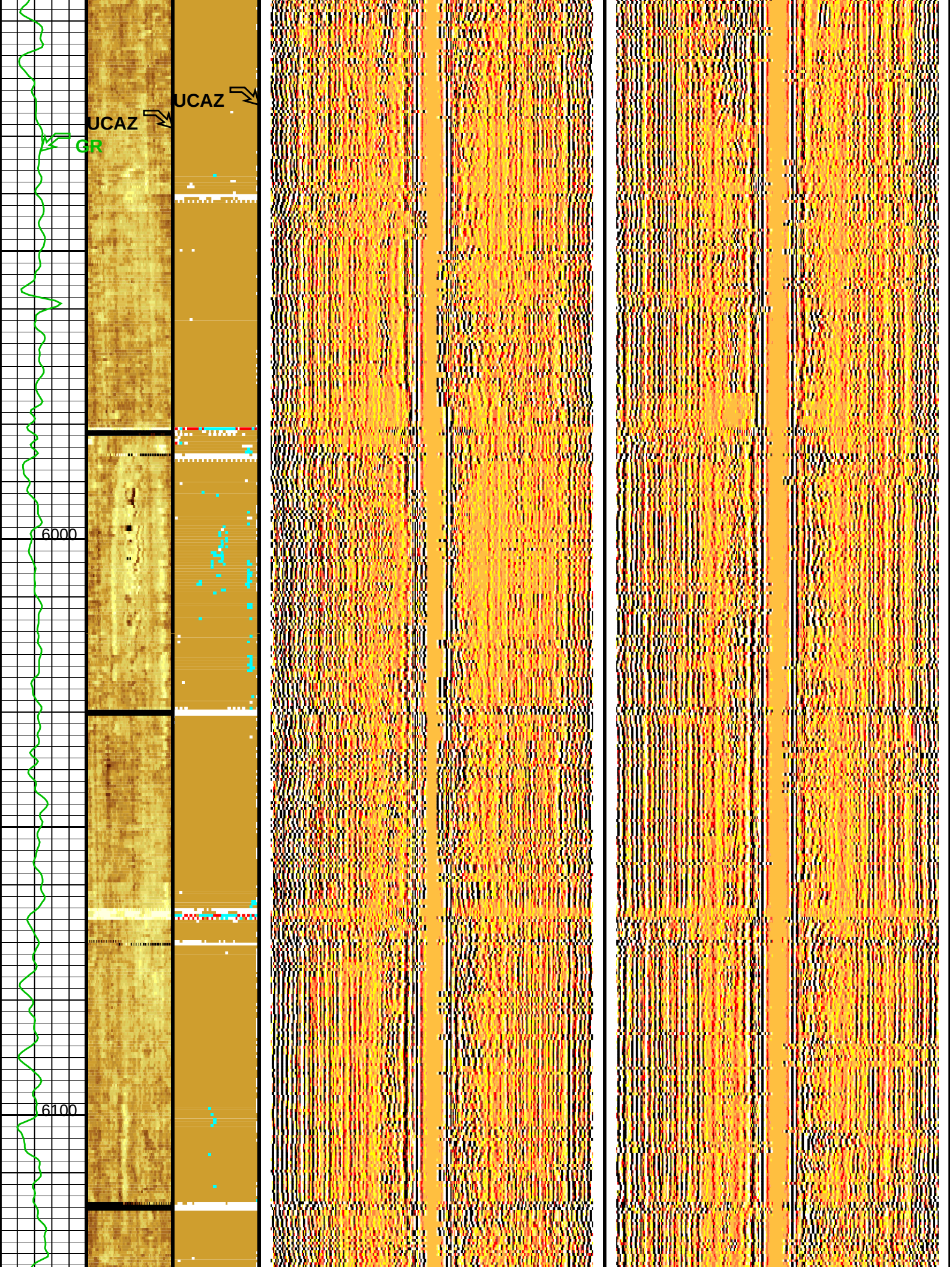
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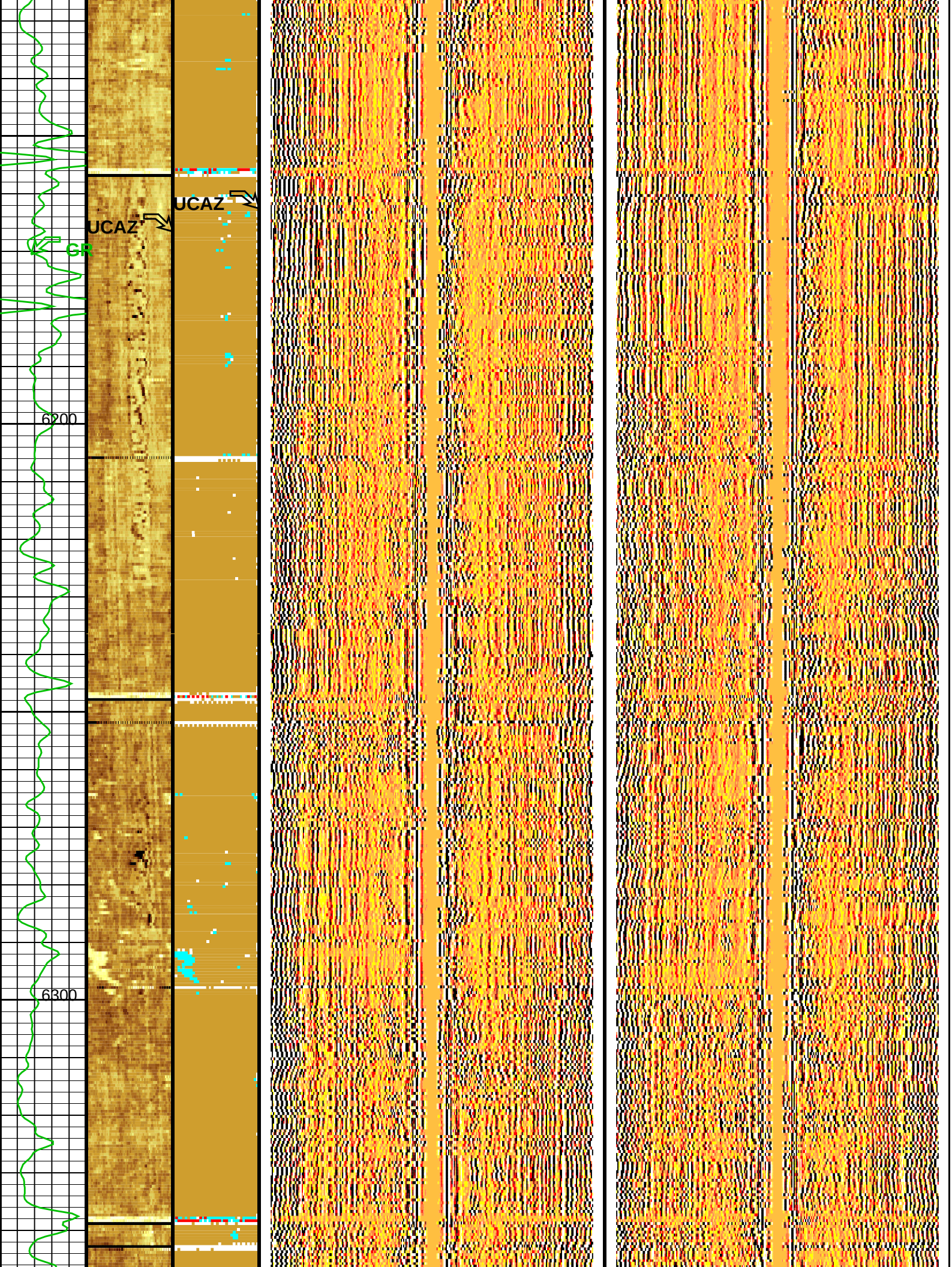
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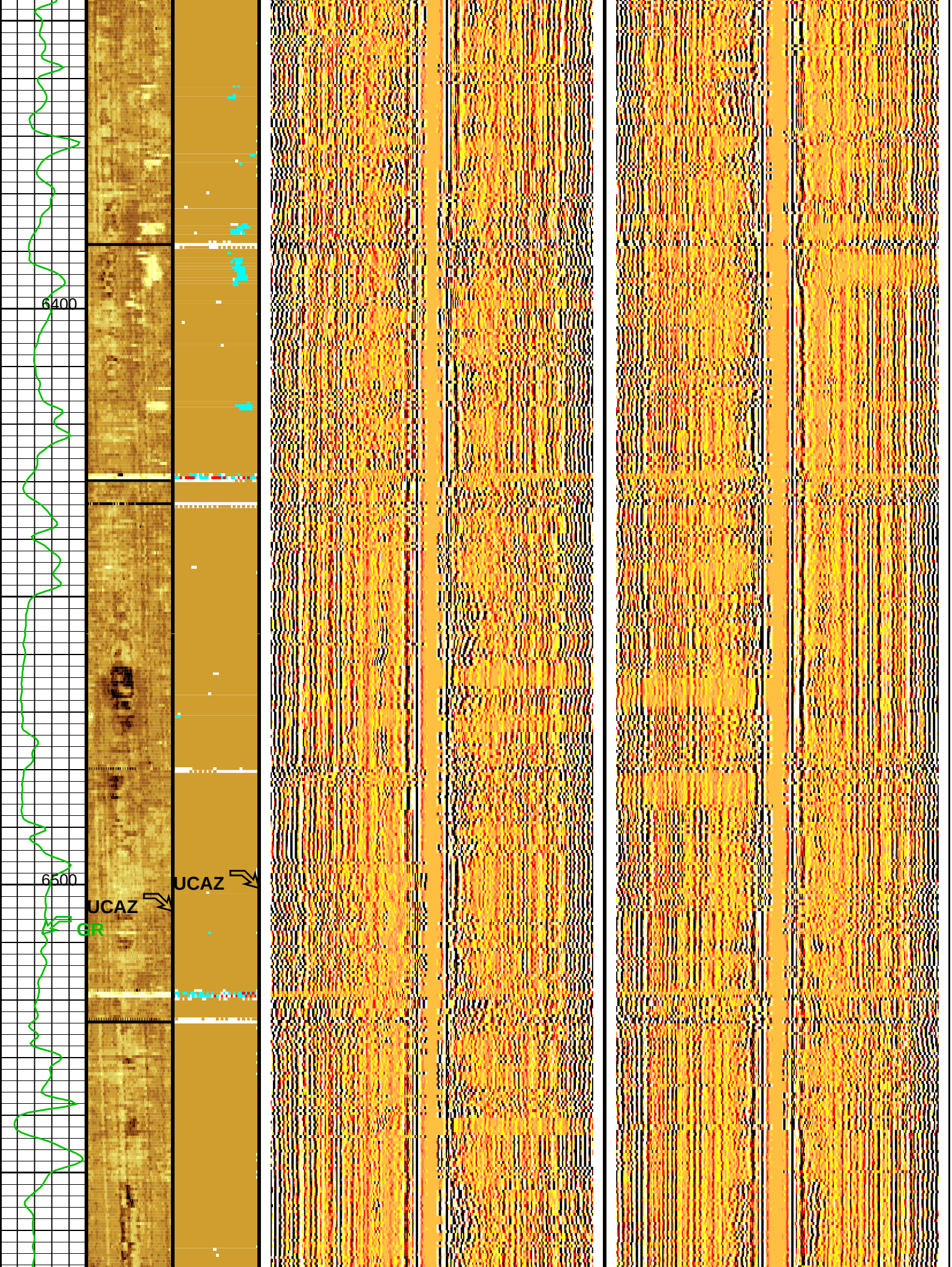
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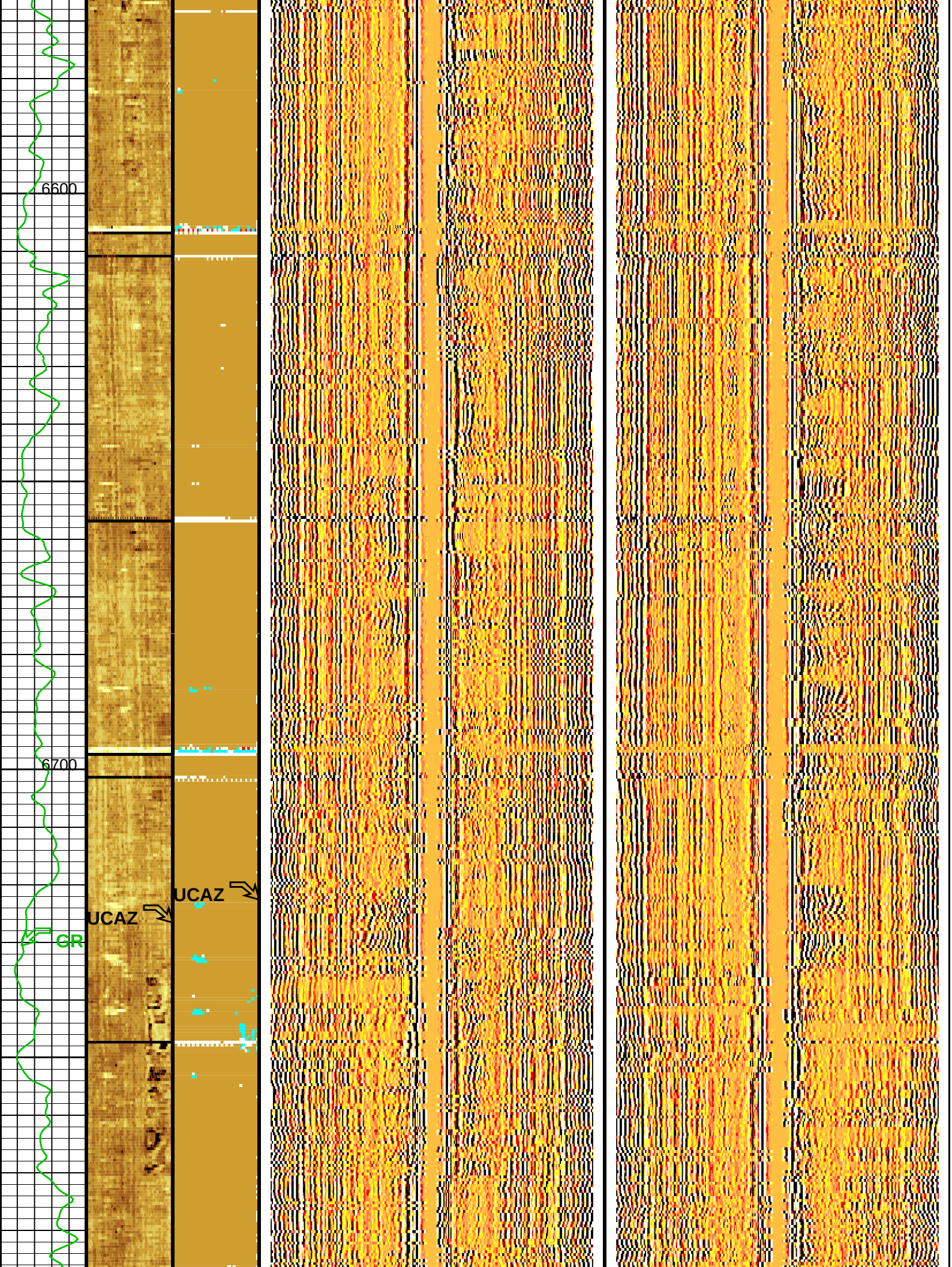
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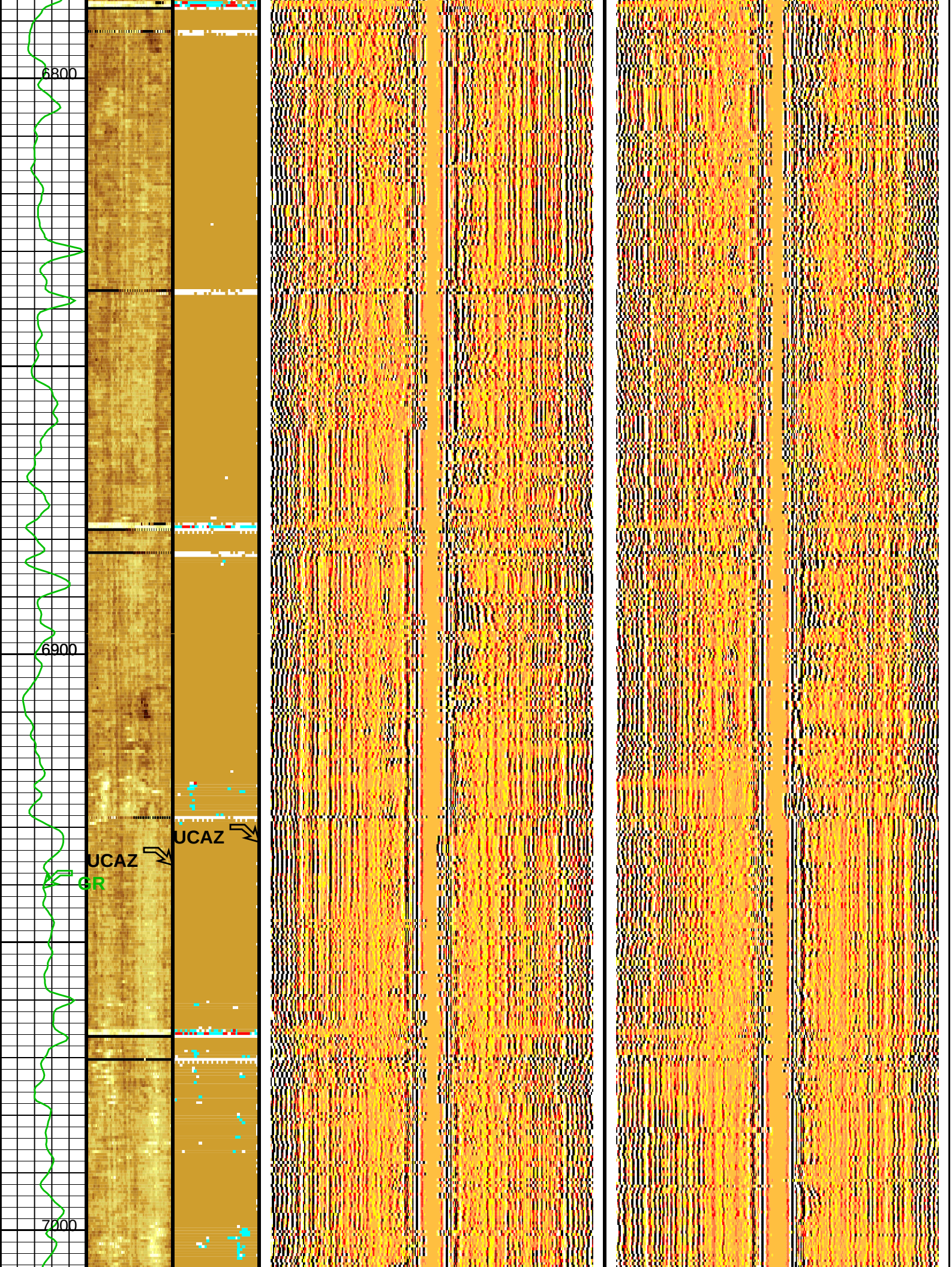
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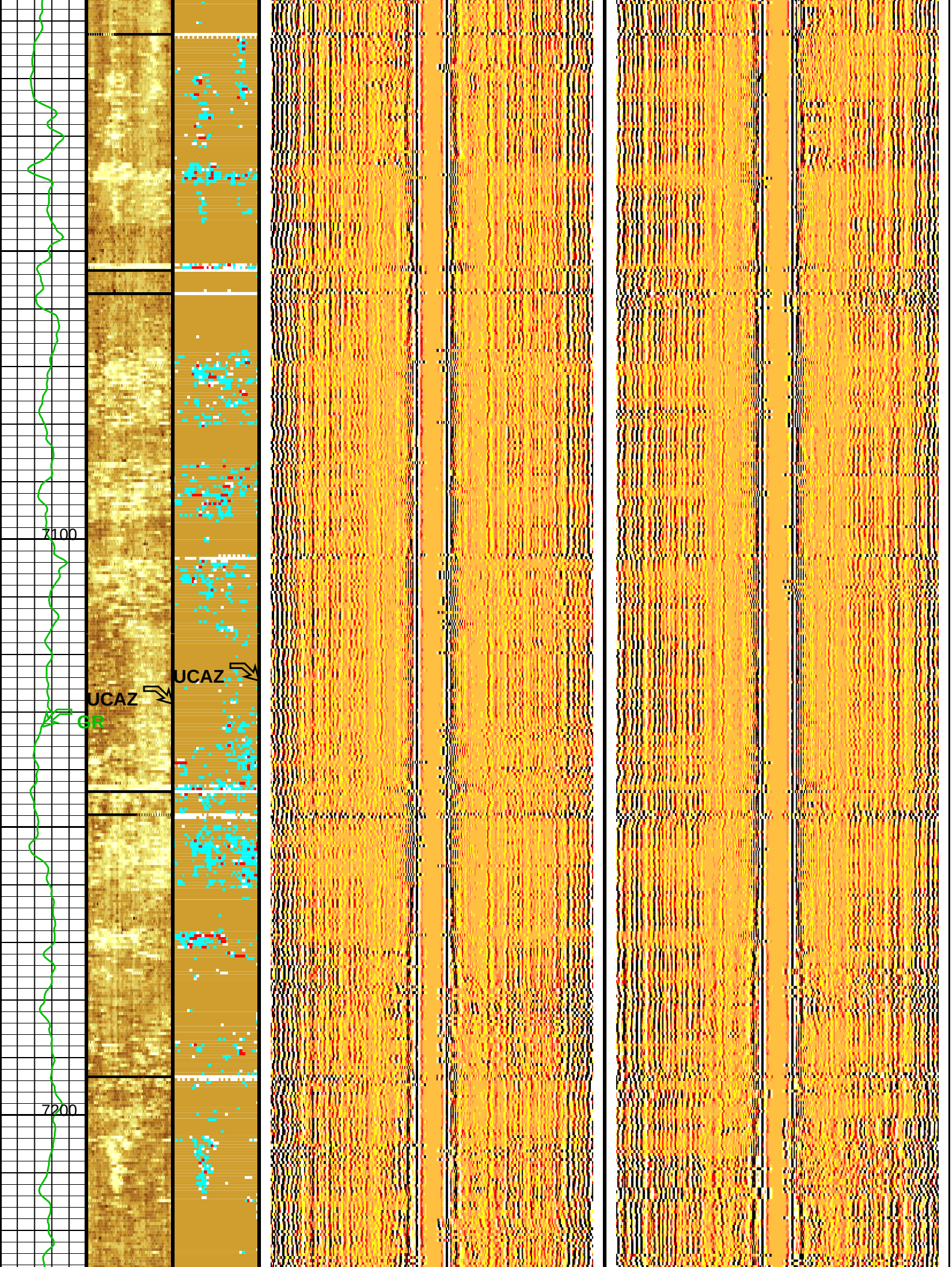
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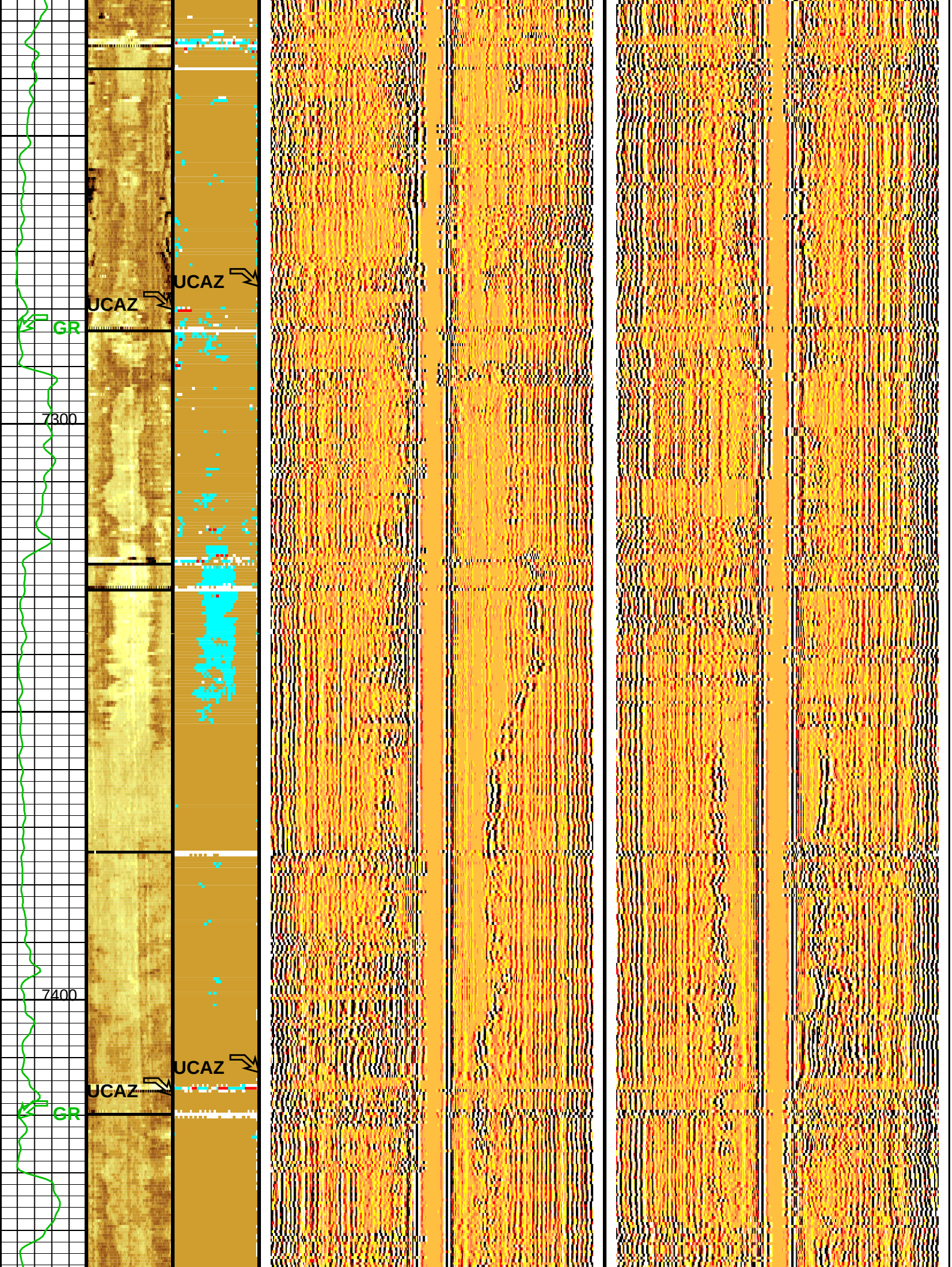
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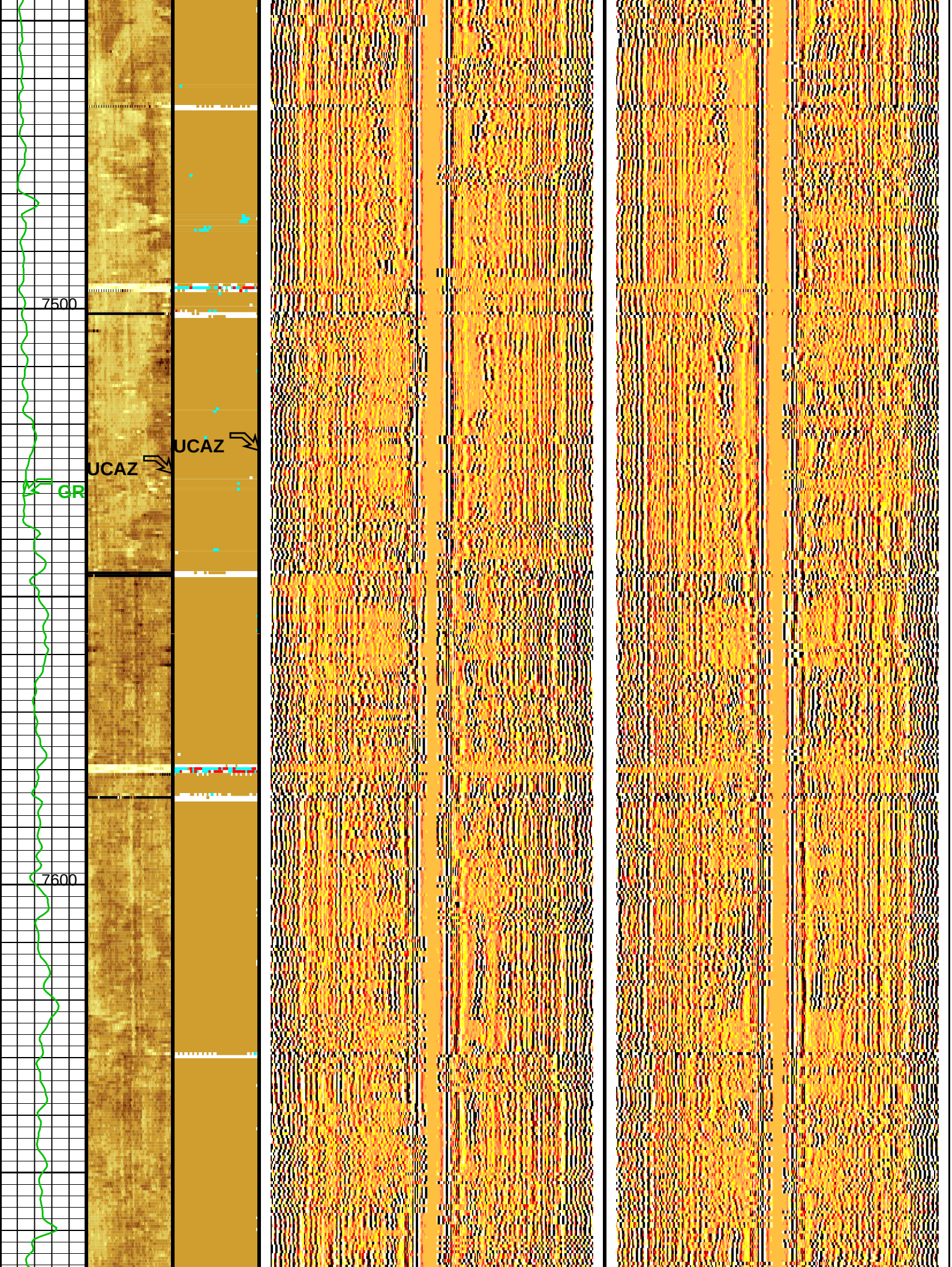
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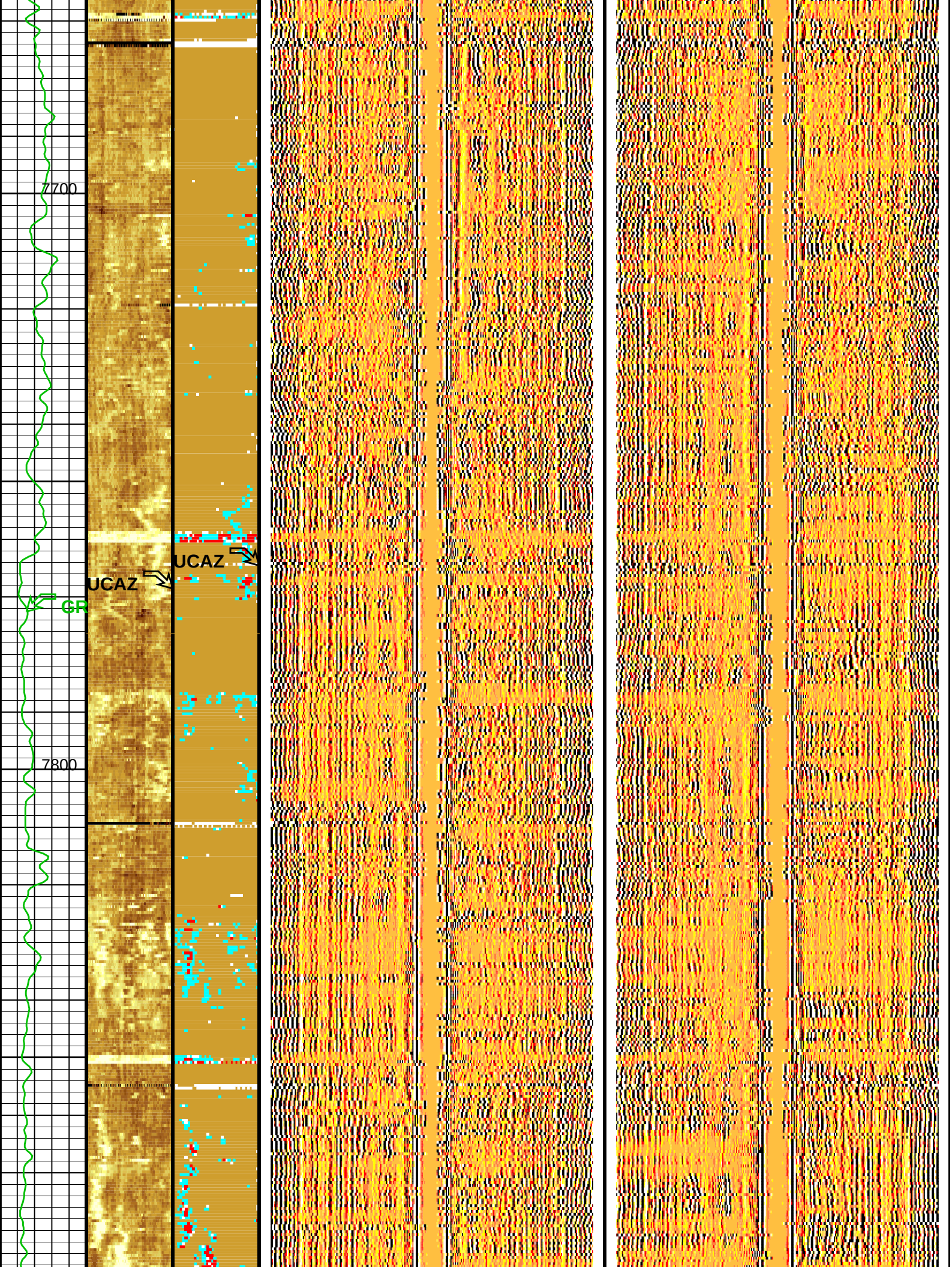
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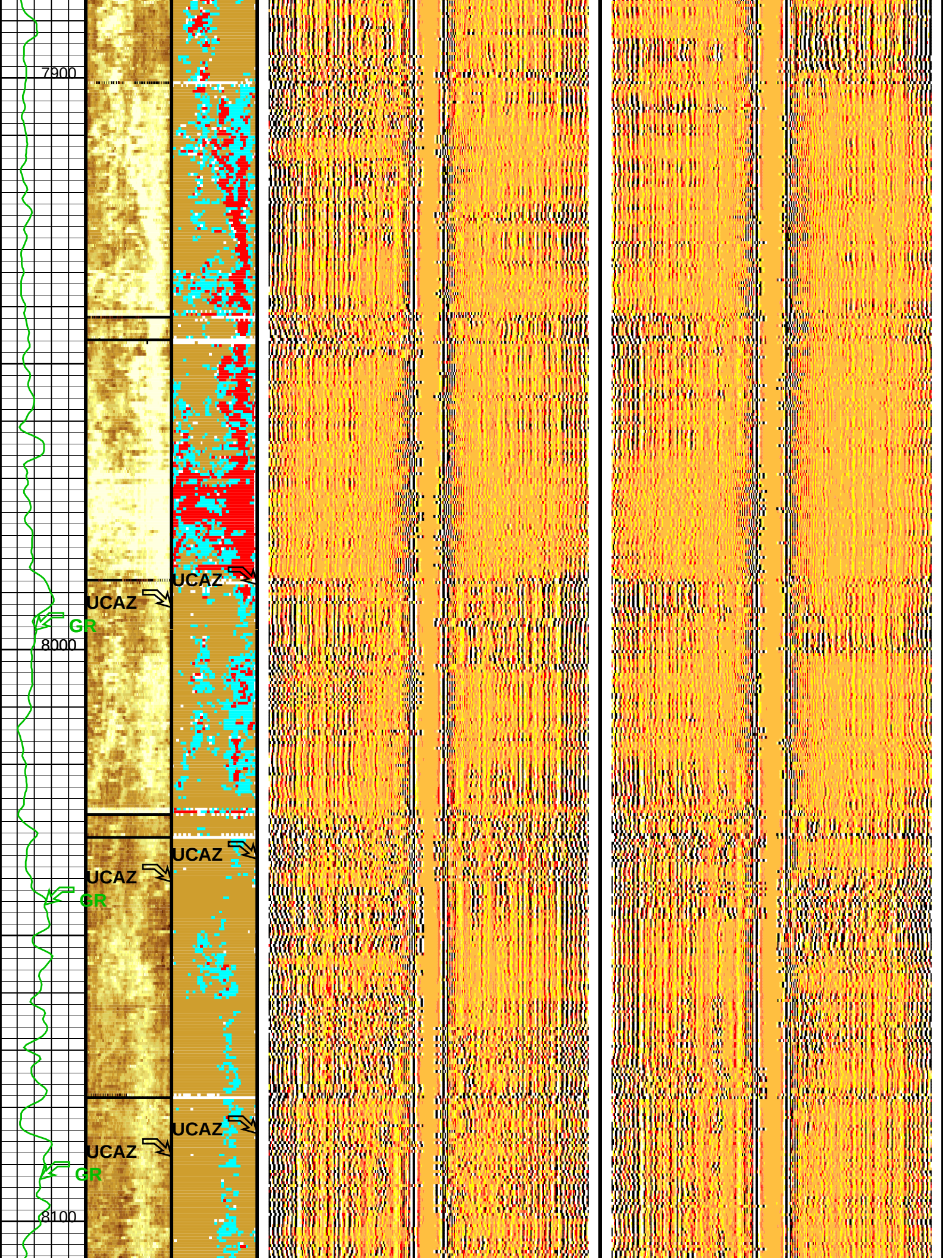
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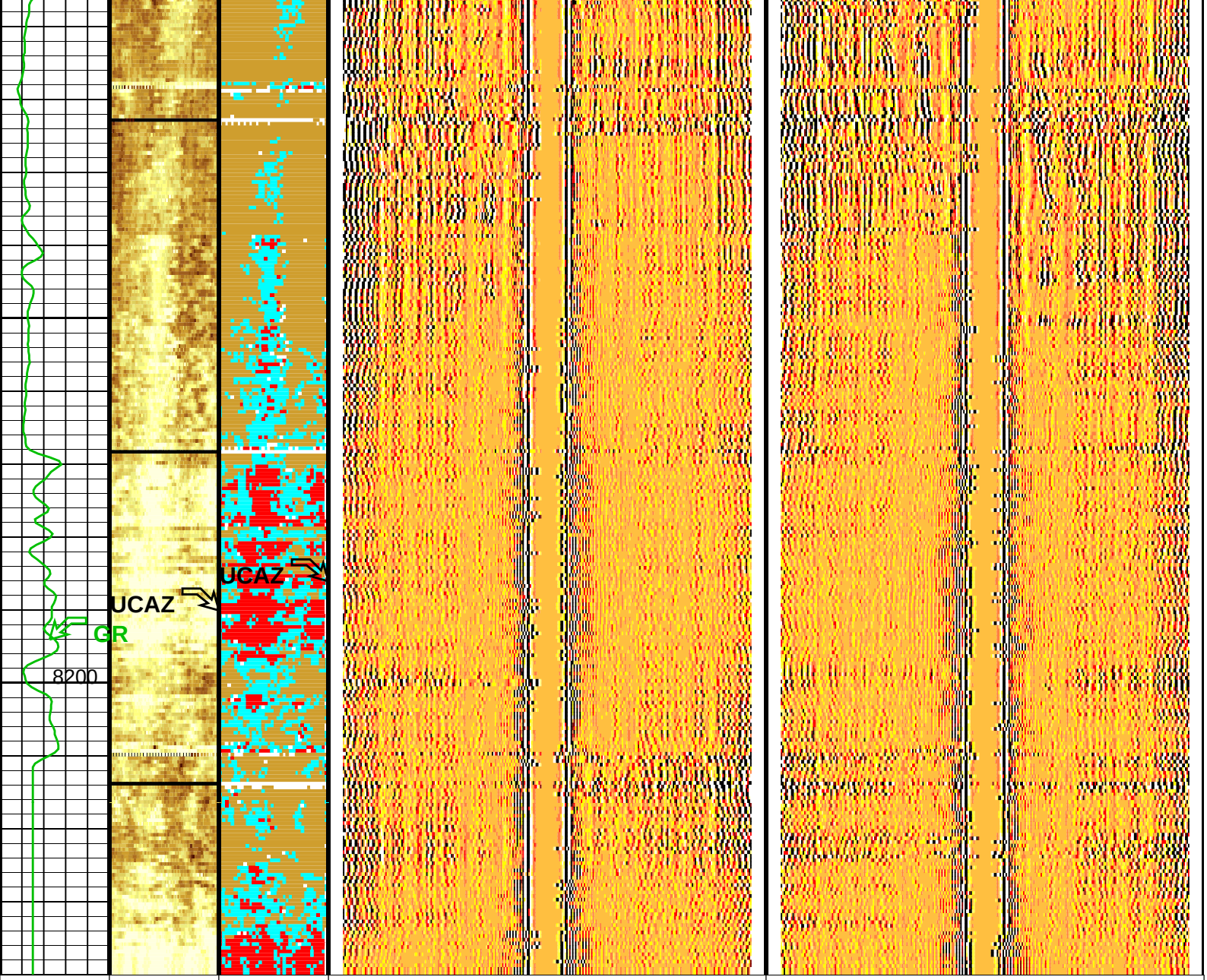

Gamma Ray (GR) (GAPI)
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2.0000
2.5000
3.0000
3.5000
4.0000
4.5000
5.0000
5.5000
6.0000
6.5000
7.0000
7.5000
8.0000

Raw Acoustic Imped. (AIBK) (MRAY)

0.5000
1.5000
2.5000
3.5000

Solid Liquid Gas Map (U−USIT_USLP) (−−−−

Min Amplitude Max
Far at 0 and 180 deg (U−USIT_VDWFF000)
−150 (US) 150

Min Amplitude Max
Far at 90 and 270 deg (U−USIT_VDWFF090)
−150 (US) 150

Parameters

DLIS Name	Description	Value	
	USIT−D: Ultrasonic Imaging − D		
AGMN	Minimum Gain of Cartridge	−4	DB
AGMX	Maximum Gain of Cartridge	20	DB
BERJ	Bad Echo Rejection	ON	
CDIA	Casing Outer Diameter	7	IN

CDIA	Casing Outer Diameter	7	IN
CSDE	Casing Density	486.94	LBCF
CSID	Casing Inner Diameter	6.276	IN
DFVL	Default Fluid Velocity	206	US/F
DOT	Diameter of Transducer Sensor	2.874	IN
EMXV	EMEX Voltage	80	V
FSOD	Fluid Slowness Fits Casing Outer Diameter	5_UFSL_N_ZMUD	
IMAR	Image Rotation	OFF	
MW	Mud Weight	8.6	LB/G
RCOD	Reference Calibrator Outer Diameter	7	IN
RCSO	Reference Calibrator Standoff	1.1811	IN
RCTH	Reference Calibrator Thickness	0.2952	IN
TCUB	T^3 Processing Level	Vax_Loop	
THDH	Maximum Search Thickness (percentage of nominal)	130	
THDL	Minimum Search Thickness (percentage of nominal)	70	
THDP	Thickness Detection Policy	Fundamental	
THNO	Nominal Thickness of Casing	0.362	IN
U−USIT_CEMT	USIT Cement Type	ULTRA_LIGHT	
U−USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	0	MRAY
U−USIT_IISR	USIT IBC Inverted Fluid Slowness Resolution	1.0_US_P_FT	
U−USIT_IIZR	USIT IBC Inverted ZMUD Resolution	0.050_MRAY	
U−USIT_OCDI	USIT Outer Casing Diameter	0	IN
U−USIT_OCSH	USIT Outer Casing Shoe	0	FT
U−USIT_OCWE	USIT Outer Casing Weight	0	LB/F
U−USIT_TIEB	IBC Third Interface Echo Bin Processing	YES	
U−USIT_TIEC	IBC Third Interface Echo Cleaning	NONE	
U−USIT_TIEM	IBC Third Interface Echo Multi Tracking	NO	
U−USIT_TIEP	IBC Third Interface Echo Policy	BFEP	
U−USIT_TIER	IBC Third Interface Echo Receivers	BOTH	
U−USIT_U3WE	Third Interface Echo Window End	110	US
U−USIT_UBTP	USIT Bottom Transducer Position	UNKNOWN	
U−USIT_UFAO	USIT Flexural Attenuation Offset	8	DB/M
U−USIT_UIAP	USIT IBC Answer Product Enabled	SolidLiquidGasMap	
U−USIT_UIST	Ultrasonic IBC Sonde Type	Sub_Ibcs_B	
U−USIT_UTAN	USIT Transducer Angles	33_DEG	
UMAO	USIT Measurement Angular Offset	−10	DEG
USTO	Ultrasonic Time Offset	−2	US
USUB	Ultrasonic Subassembly Identifier	Sub_7_inch	
UWKM	Ultrasonic Working Mode	5DEG_6IN_136UNF_LF	
VCAS	Ultrasonic Transversal Velocity in Casing	51.4	US/F
WLEN	T^3 Processing Length	21.7078	US
ZCAS	Acoustic Impedance of Casing	46.2537	MRAY
ZINI	Initial Estimate of Cement Impedance	−1	MRAY
ZMUD	Acoustic Impedance of Mud	1.75	MRAY
ZTCM	Acoustic Impedance Threshold for Cement	2.6	MRAY
ZTGS	Acoustic Impedance Threshold for Gas	0.3	MRAY
System and Miscellaneous			
BS	Bit Size	9.875	IN
CWEI	Casing Weight	26.00	LB/F
DO	Depth Offset for Playback	40.1	FT
DORL	Depth Offset for Repeat Analysis	0.0	FT
PP	Playback Processing	RECOMPUTE	

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OP System Version: 17C0−154

USIT−D	17C0−154	HILTH−FTB	17C0−154
DTC−H	17C0−154		

Input DLIS Files

DEFAULT	Splice_USI_TLD_MCFL_021CUP	FN:1	PRODUCER	11−May−2010 14:37	8200.0 FT	199.6 FT

Output DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_025PUP	FN:22	PRODUCER	11−May−2010 14:50

Schlumberger

GOODWIN 5 INCH

Company: ExxonMobil Production Corp | Well: PCU 297−11C6

Input DLIS Files

DEFAULT	Splice_USI_TLD_MCFL_021CUP	FN:1	PRODUCER	11−May−2010 14:37	8200.0 FT	199.6 FT

Output DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_025PUP	FN:22	PRODUCER	11−May−2010 14:50

OP System Version: 17C0−154

USIT−D	17C0−154	HILTH−FTB	17C0−154
DTC−H	17C0−154		

Minimum Acoustic Impedance #2 (MIN_AI2) (MRAY) −7.5 7.5

Minimum Acoustic Impedance #4 (MIN_AI4) (MRAY) −7.5 7.5

Minimum Acoustic Impedance #6 (MIN_AI6) (MRAY) −7.5 7.5

Minimum Acoustic Impedance #8 (MIN_AI8) (MRAY) −7.5 7.5

Minimum Acoustic Impedance #1 (MIN_AI1) (MRAY) 0 15

Minimum Acoustic Impedance #3 (MIN_AI3) (MRAY) 0 15

Minimum Acoustic Impedance #5 (MIN_AI5) (MRAY) 0 15

Minimum Acoustic Impedance #7 (MIN_AI7) (MRAY) 0 15

Maximum Acoustic Impedance #2 (MAX_AI2) (MRAY) −7.5 7.5

Maximum Acoustic Impedance #4 (MAX_AI4) (MRAY) −7.5 7.5

Maximum Acoustic Impedance #6 (MAX_AI6) (MRAY) −7.5 7.5

Maximum Acoustic Impedance #8 (MAX_AI8) (MRAY) −7.5 7.5

Maximum Acoustic Impedance #1 (MAX_AI1) (MRAY) 0 15

Maximum Acoustic Impedance #3 (MAX_AI3) (MRAY) 0 15

Maximum Acoustic Impedance #5 (MAX_AI5) (MRAY) 0 15

Maximum Acoustic Impedance #7 (MAX_AI7) (MRAY) 0 15

Minimum Acoustic Impedance #9 (MIN_AI9) (MRAY) 0 15

Maximum of AI (AIMX) (MRAY) 0 7.5

Maximum Flexural Attenuation (U−USIT_UFAX) (DB/M) 0 150

Gamma Ray (GR) (GAPI) 0 150

Average Acoustic Impedance #2 (AV_AI2) (MRAY) −7.5 7.5

Average Acoustic Impedance #4 (AV_AI4) (MRAY) −7.5 7.5

Average Acoustic Impedance #6 (AV_AI6) (MRAY) −7.5 7.5

Average Acoustic Impedance #8 (AV_AI8) (MRAY) −7.5 7.5

Maximum Acoustic Impedance #9 (MAX_AI9) (MRAY) 0 15

Minimum of AI (AIMN) (MRAY) 0 7.5

Average Flexural Attenuation (U−USIT_UFAV) (DB/M) 0 150

Eccent. (ECCE) 0 (IN) 0.5

Average Acoustic Impedance #1 (AV_AI1) (MRAY) 0 15

Average Acoustic Impedance #3 (AV_AI3) (MRAY) 0 15

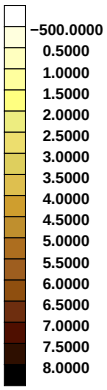
Average Acoustic Impedance #5 (AV_AI5) (MRAY) 0 15

Average Acoustic Impedance #7 (AV_AI7) (MRAY) 0 15

Average Acoustic Impedance #9 (AV_AI9) (MRAY) 0 15

Average of AI (AIAV) (MRAY) 0 7.5

Minimum Flexural Attenuation (U−USIT_UFAN) (DB/M) 0 150



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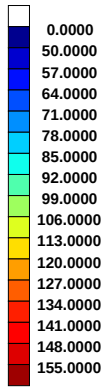

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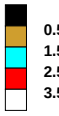
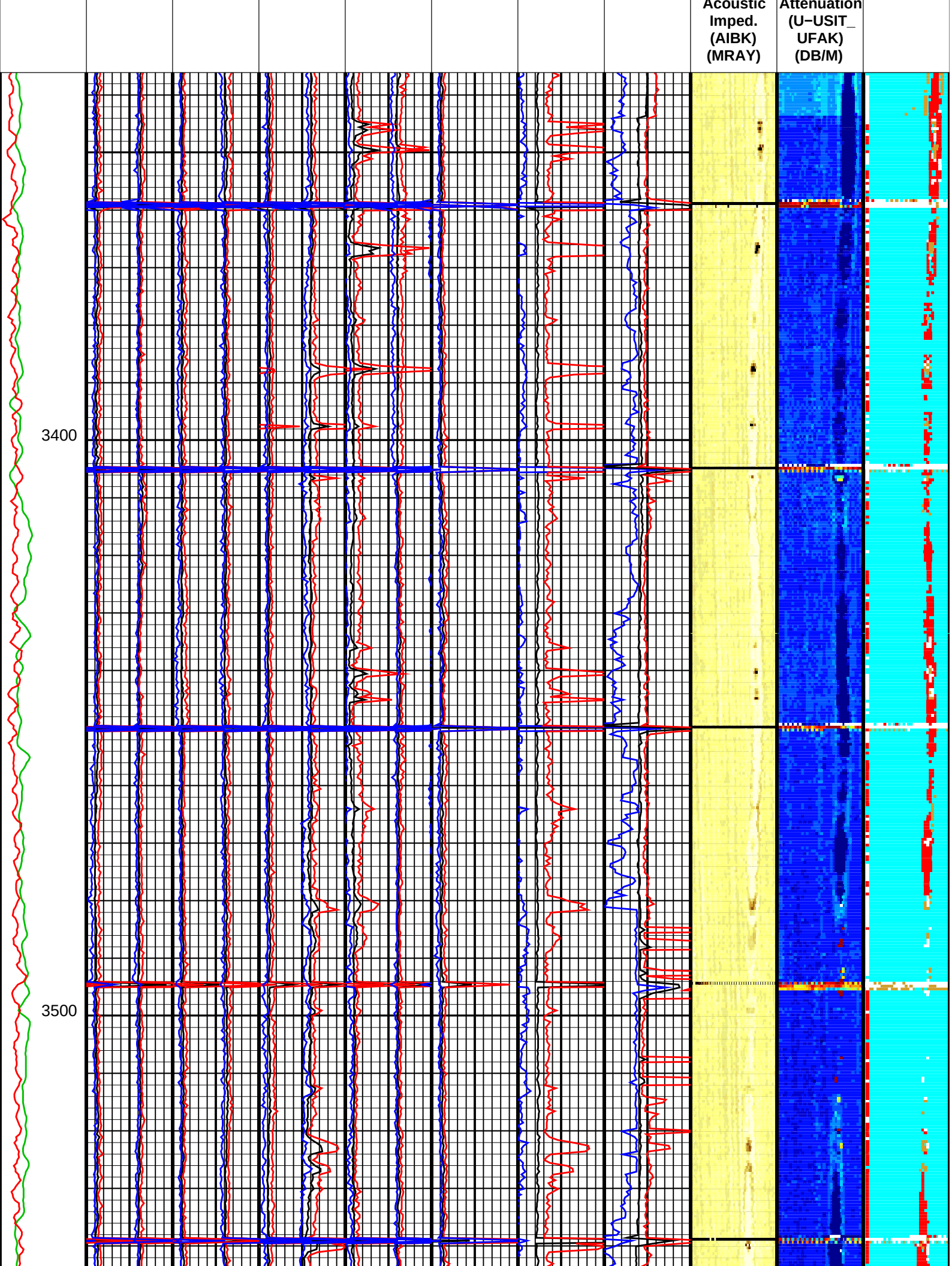


Solid Liquid Gas Map (U−USIT_USLP) (−−−−


Acoustic Imped. (AIBK) (MRAY)
Attenuation (U−USIT_ UFAK) (DB/M)
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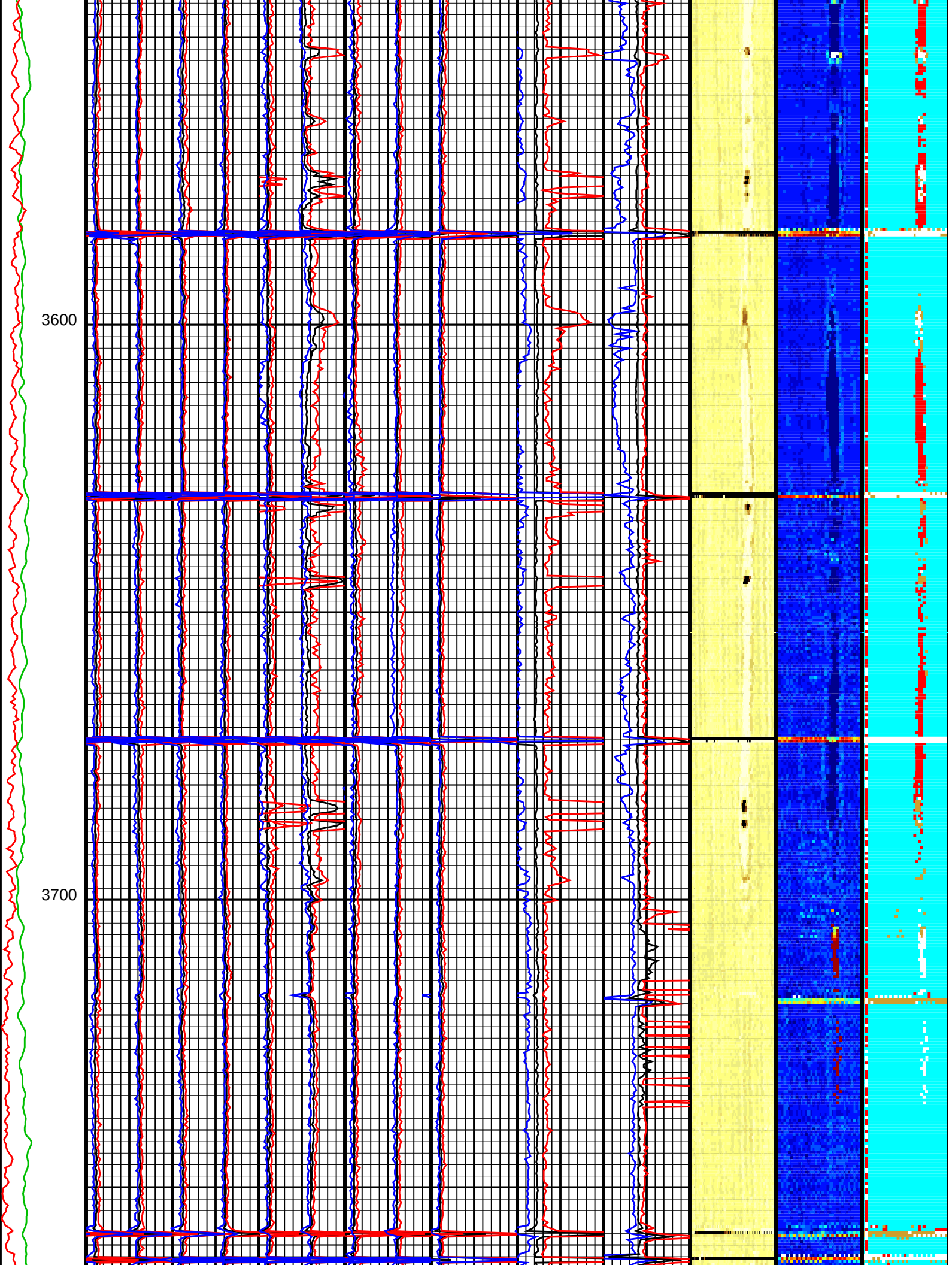
3500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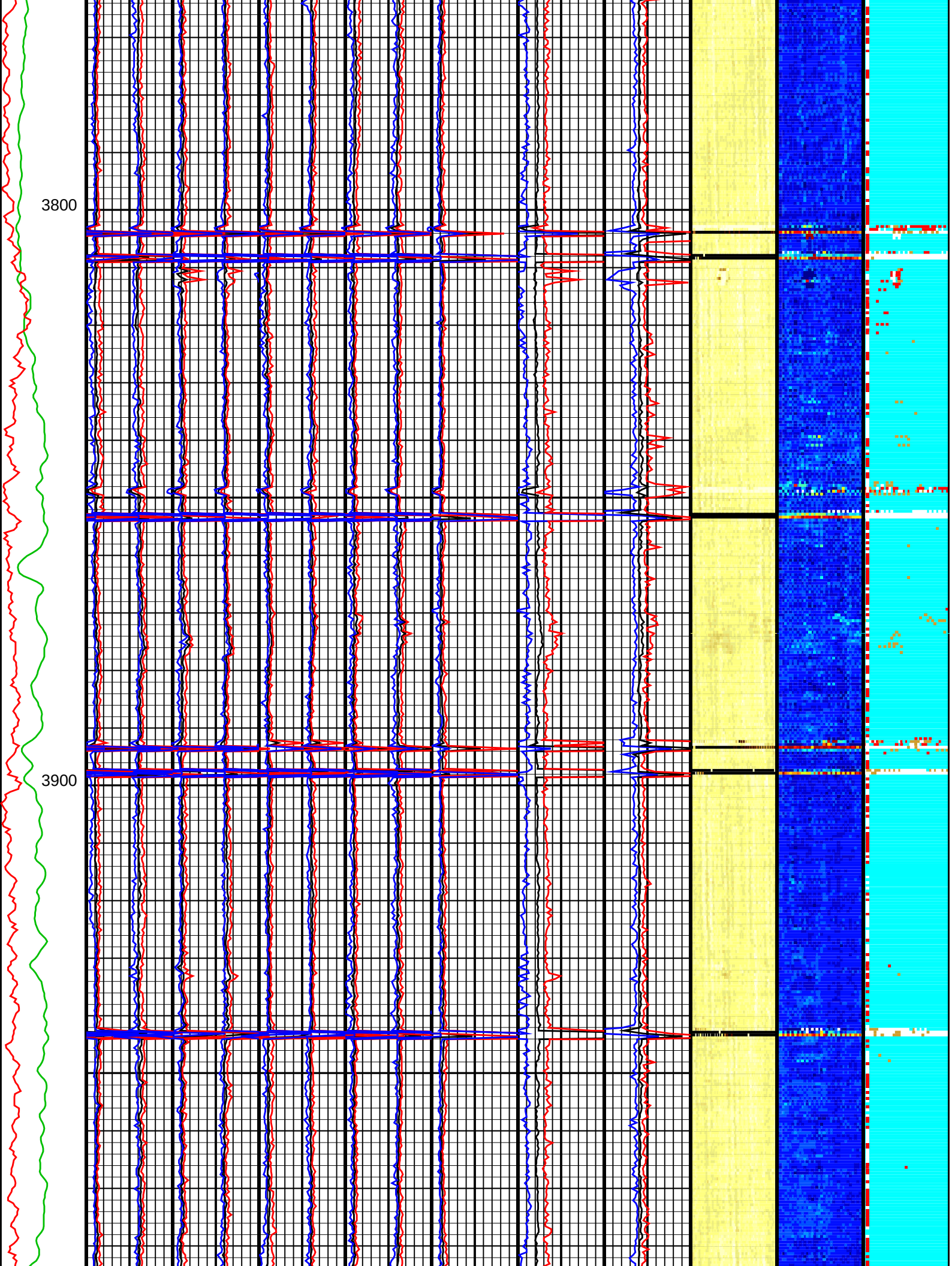
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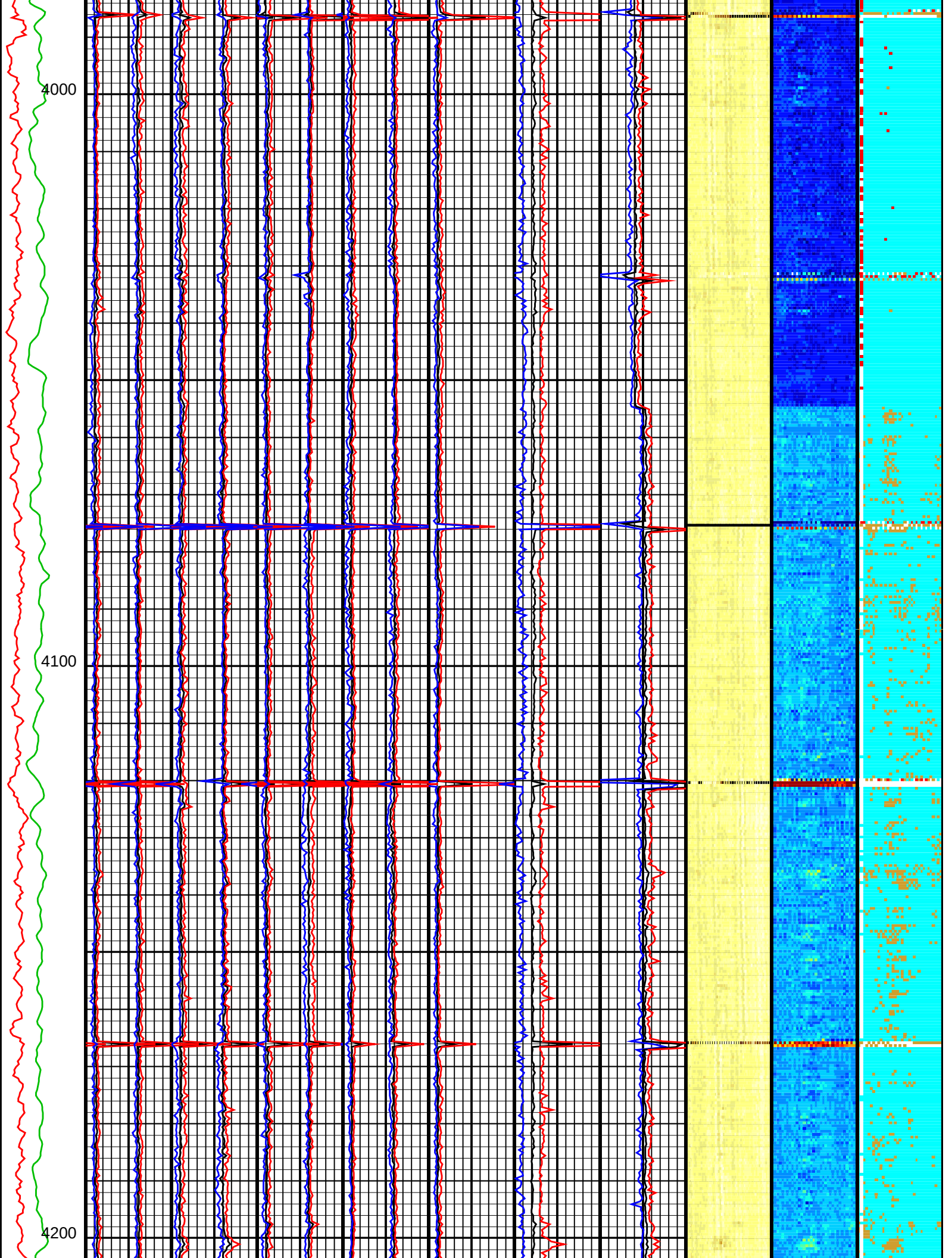
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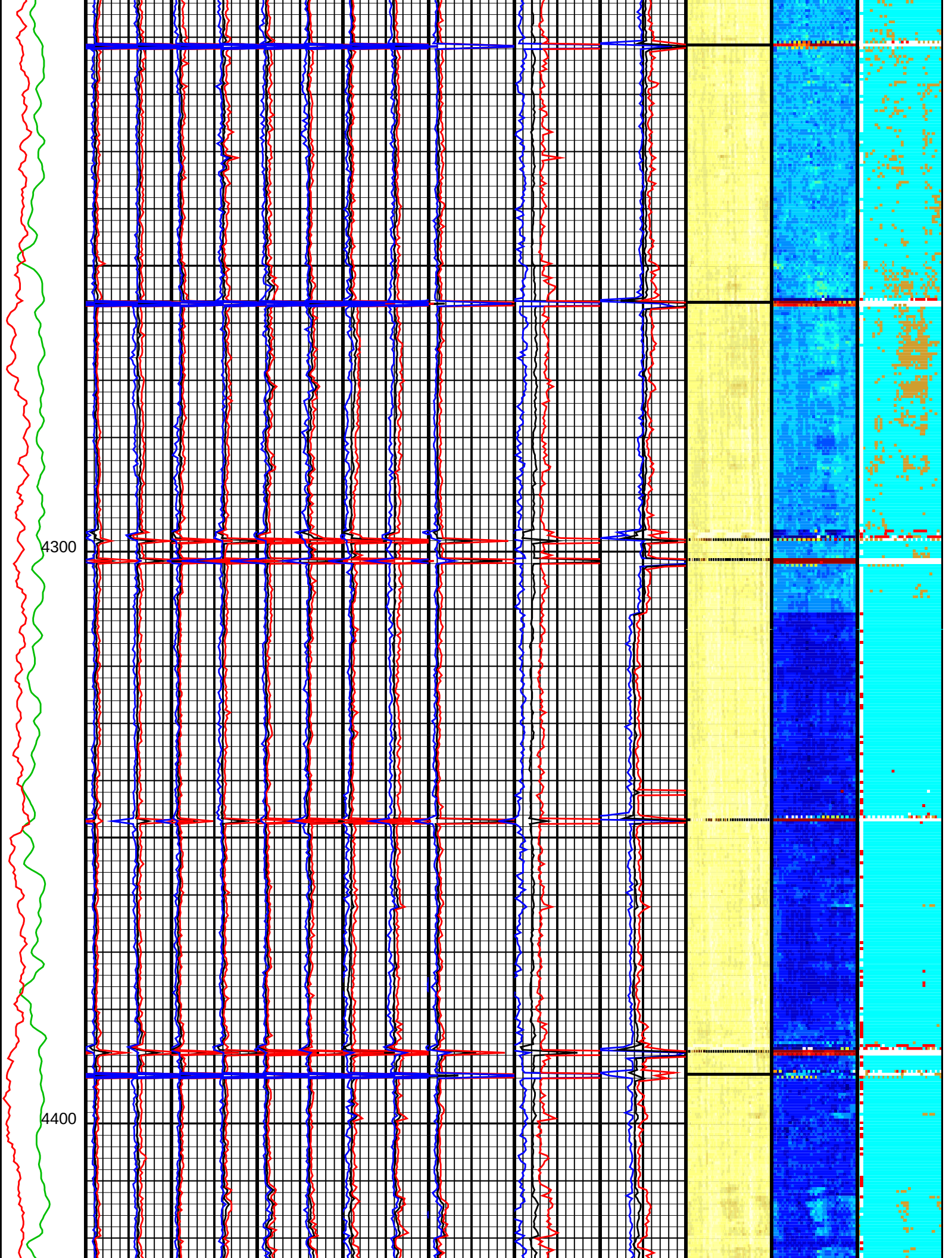
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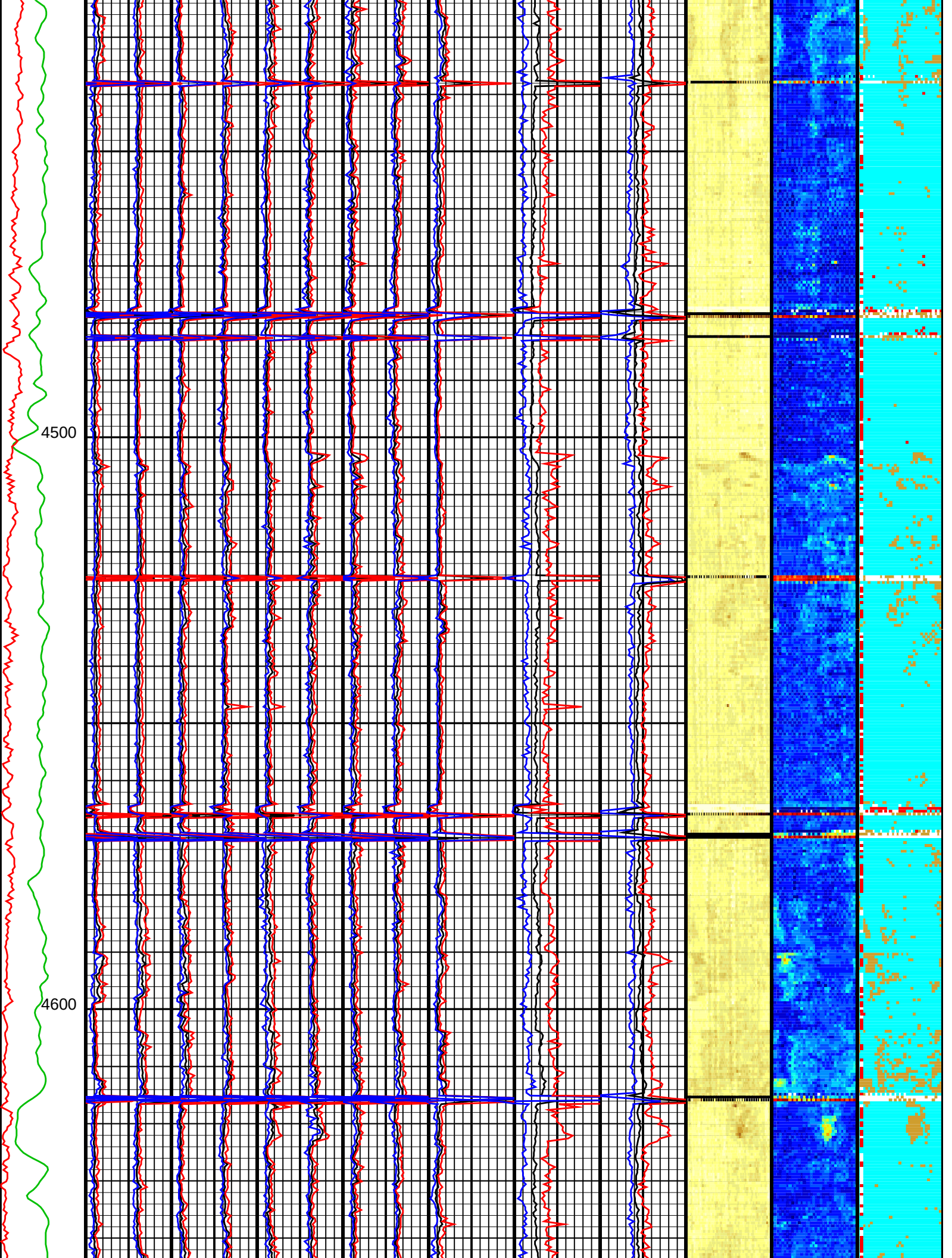
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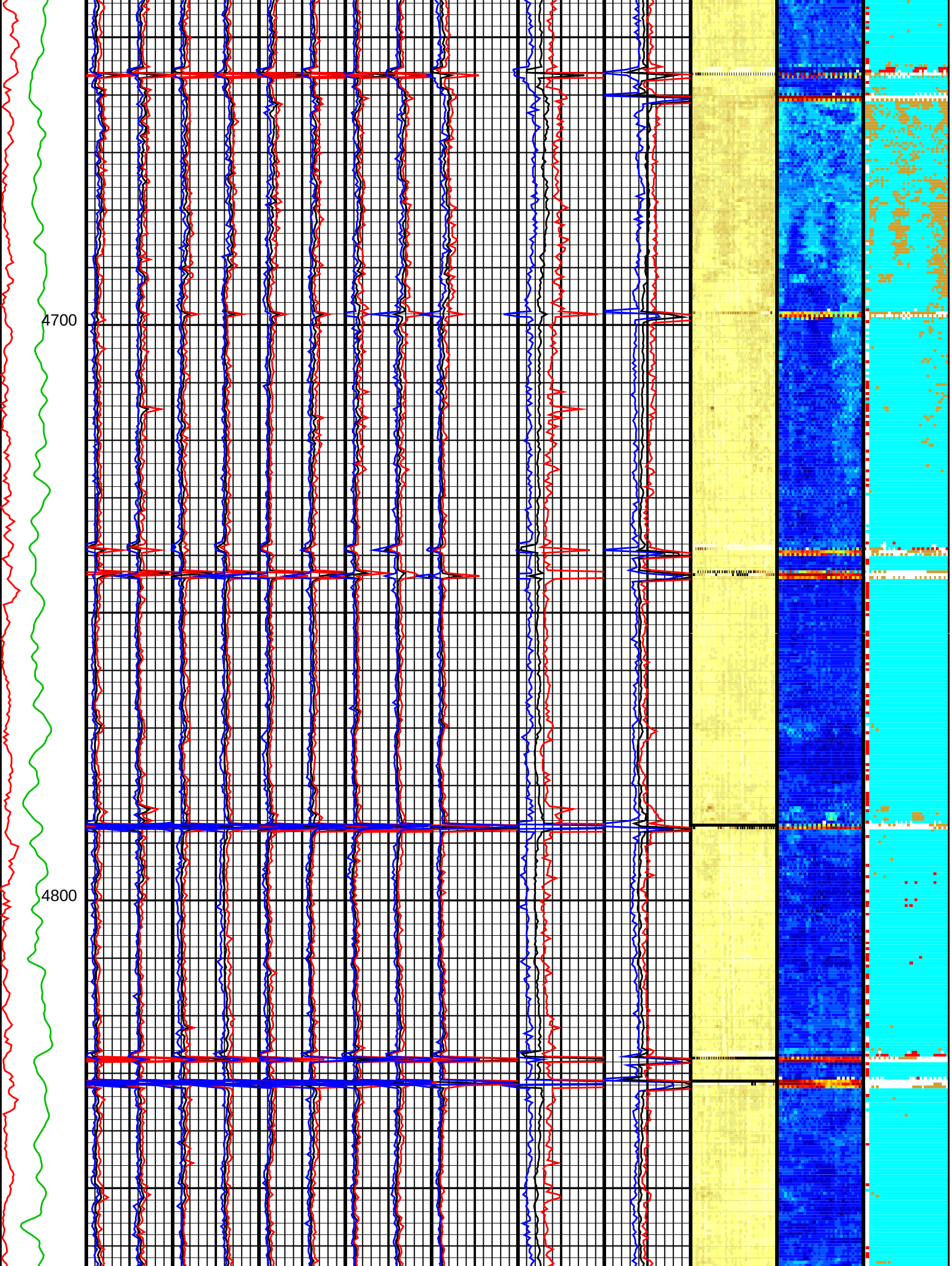
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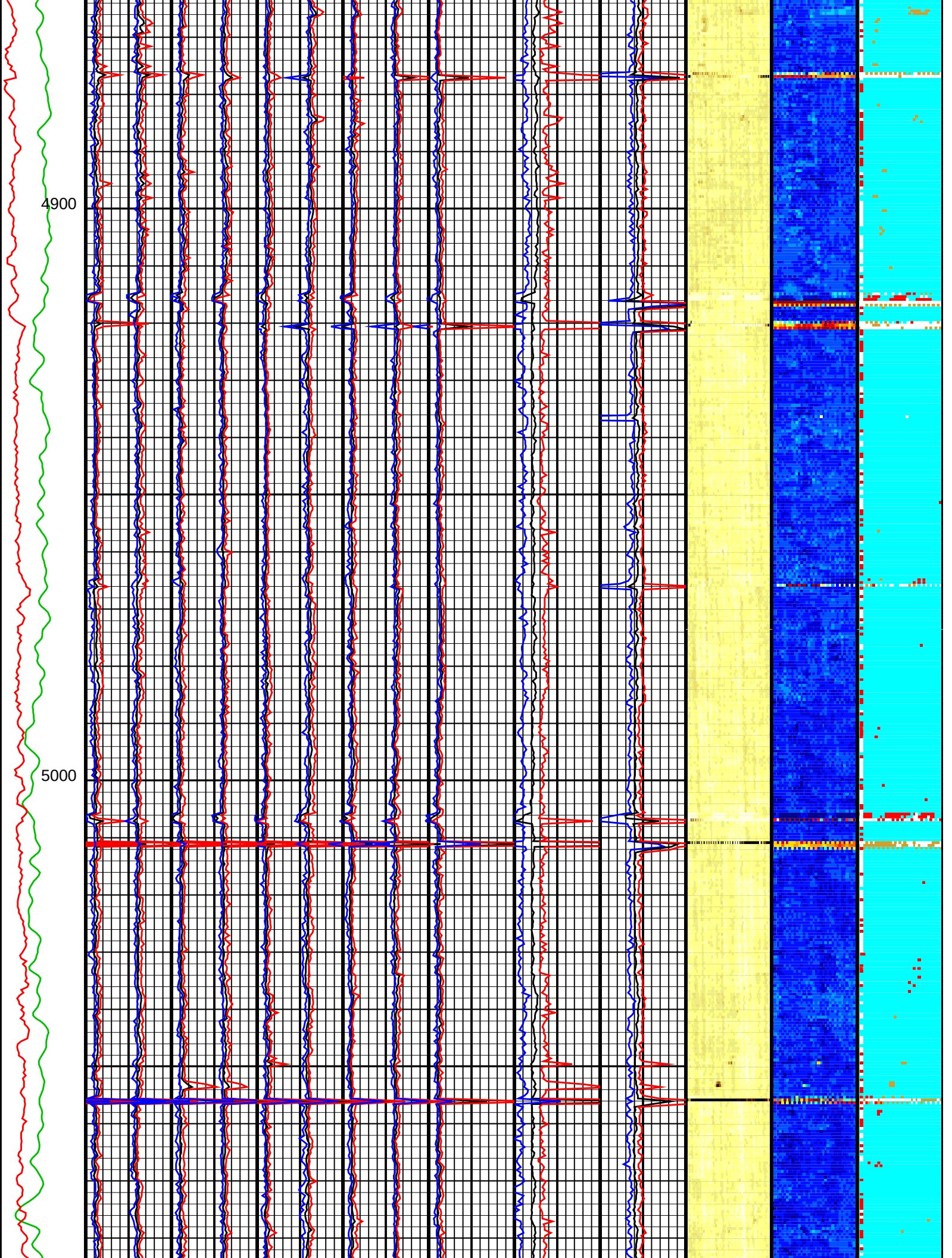
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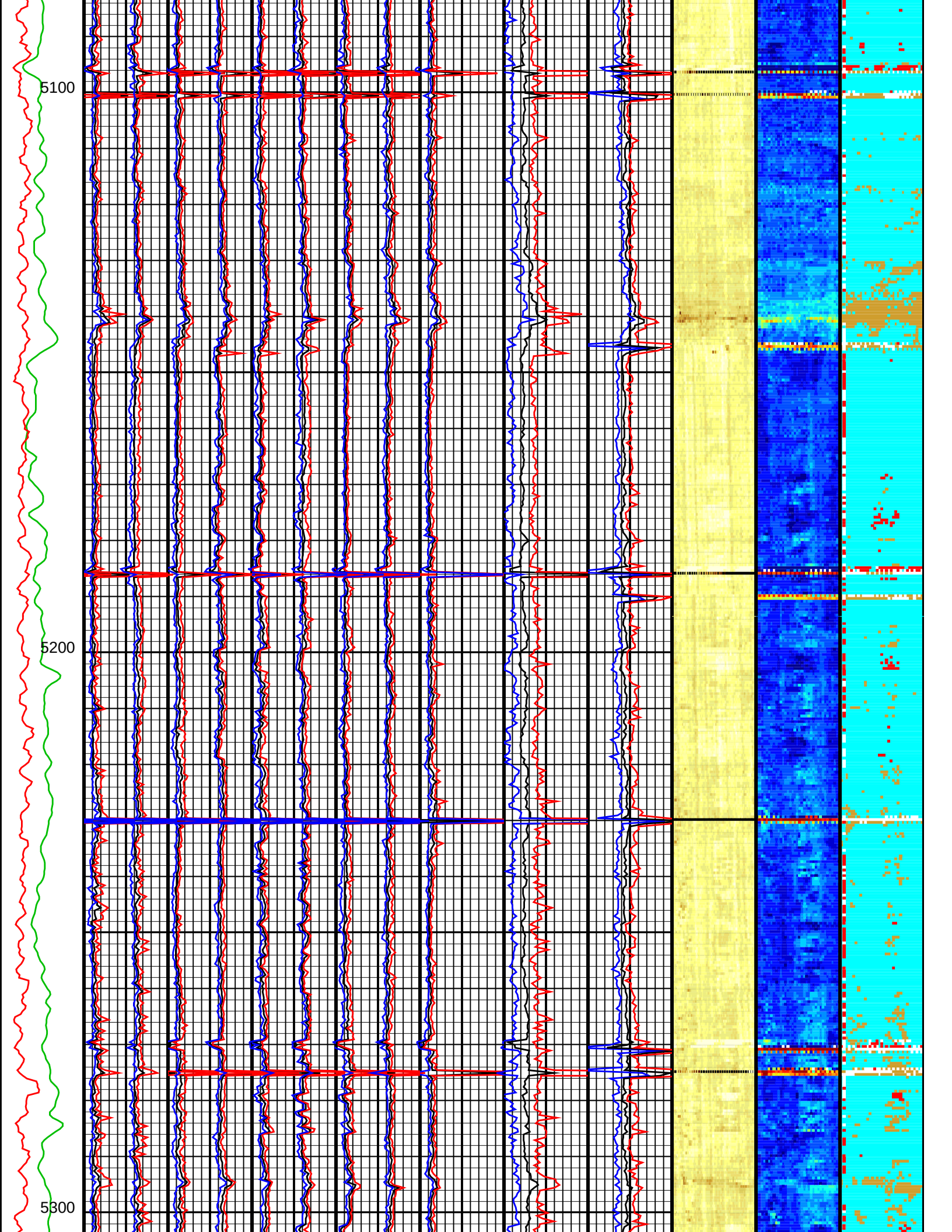
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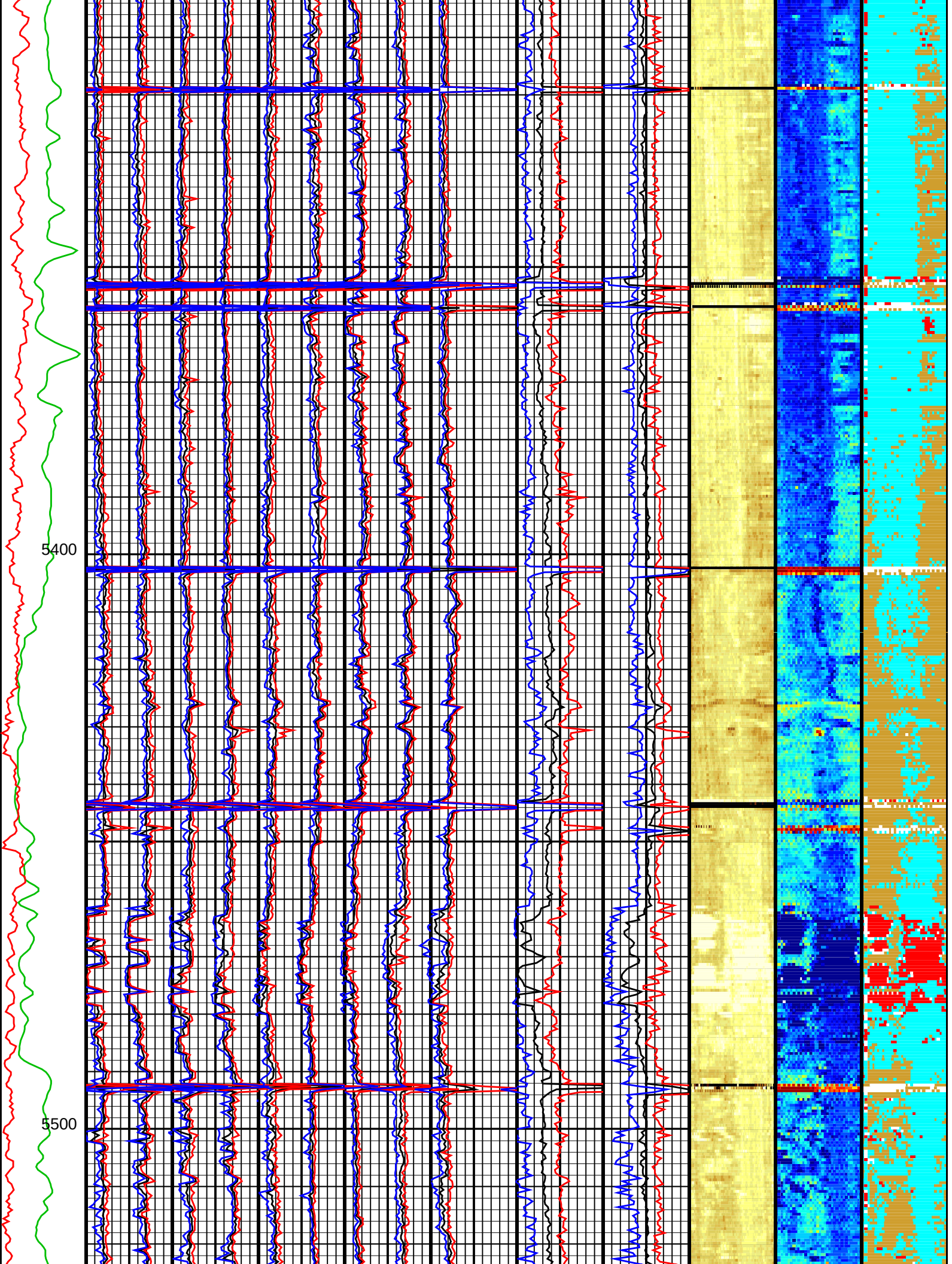
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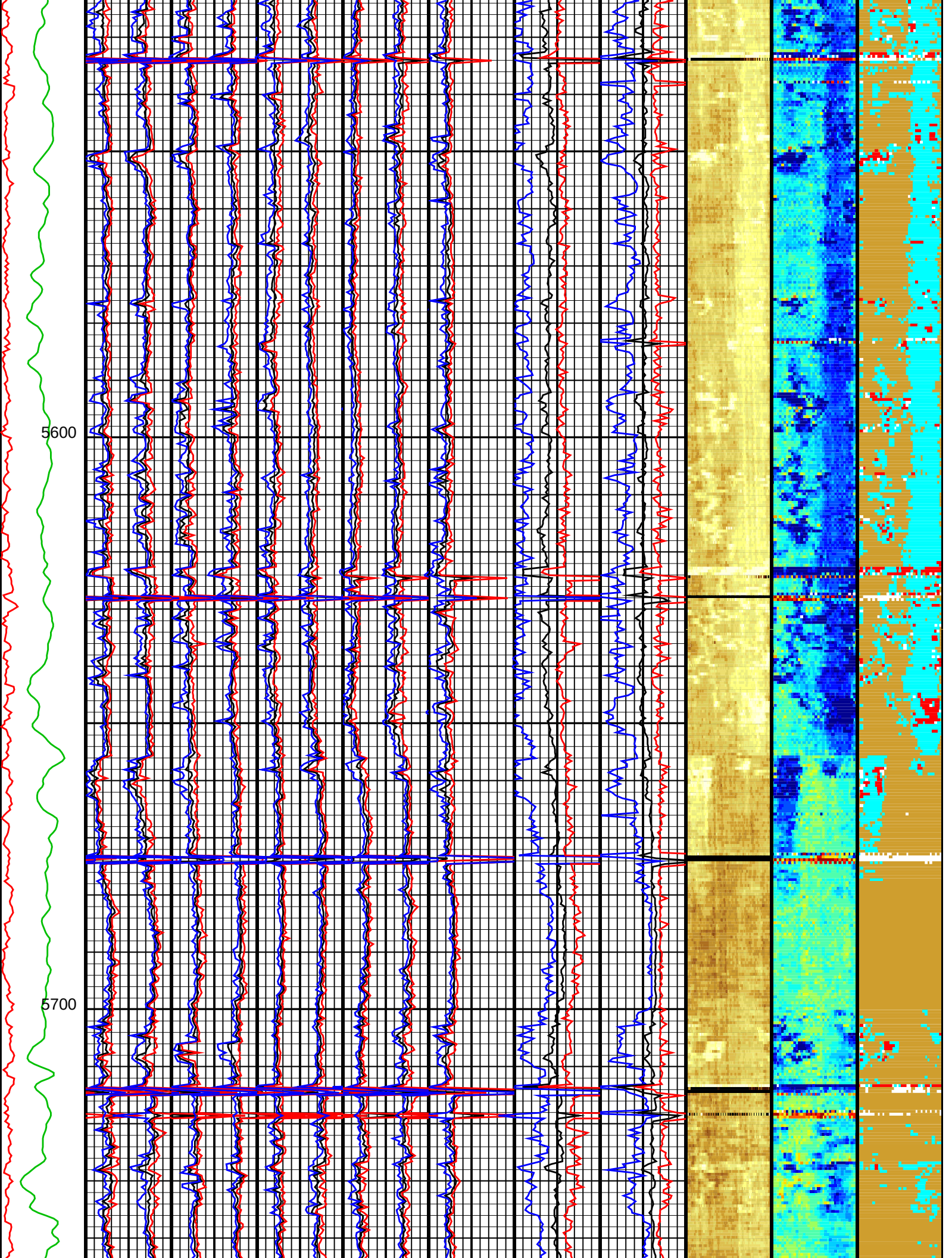
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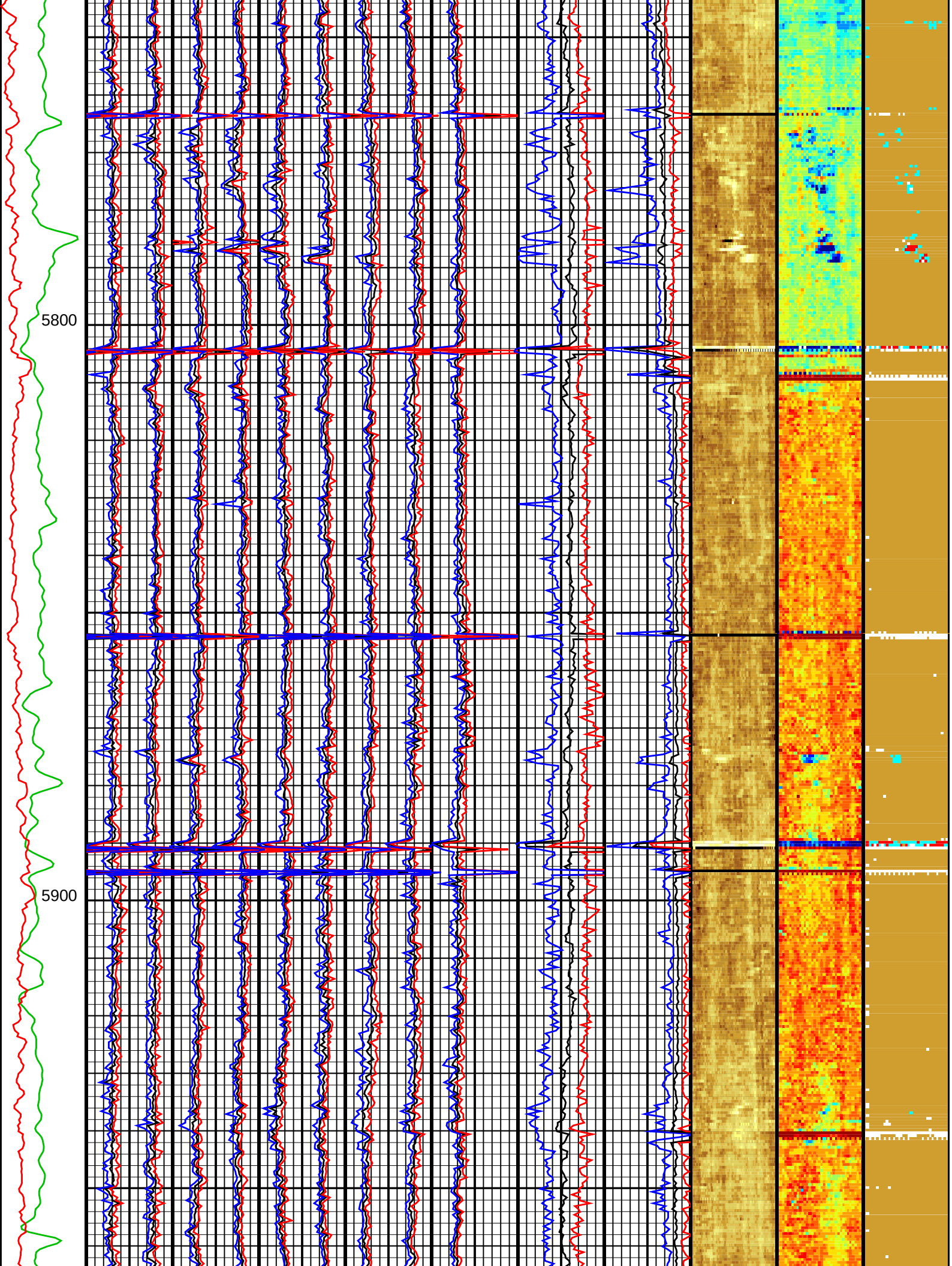
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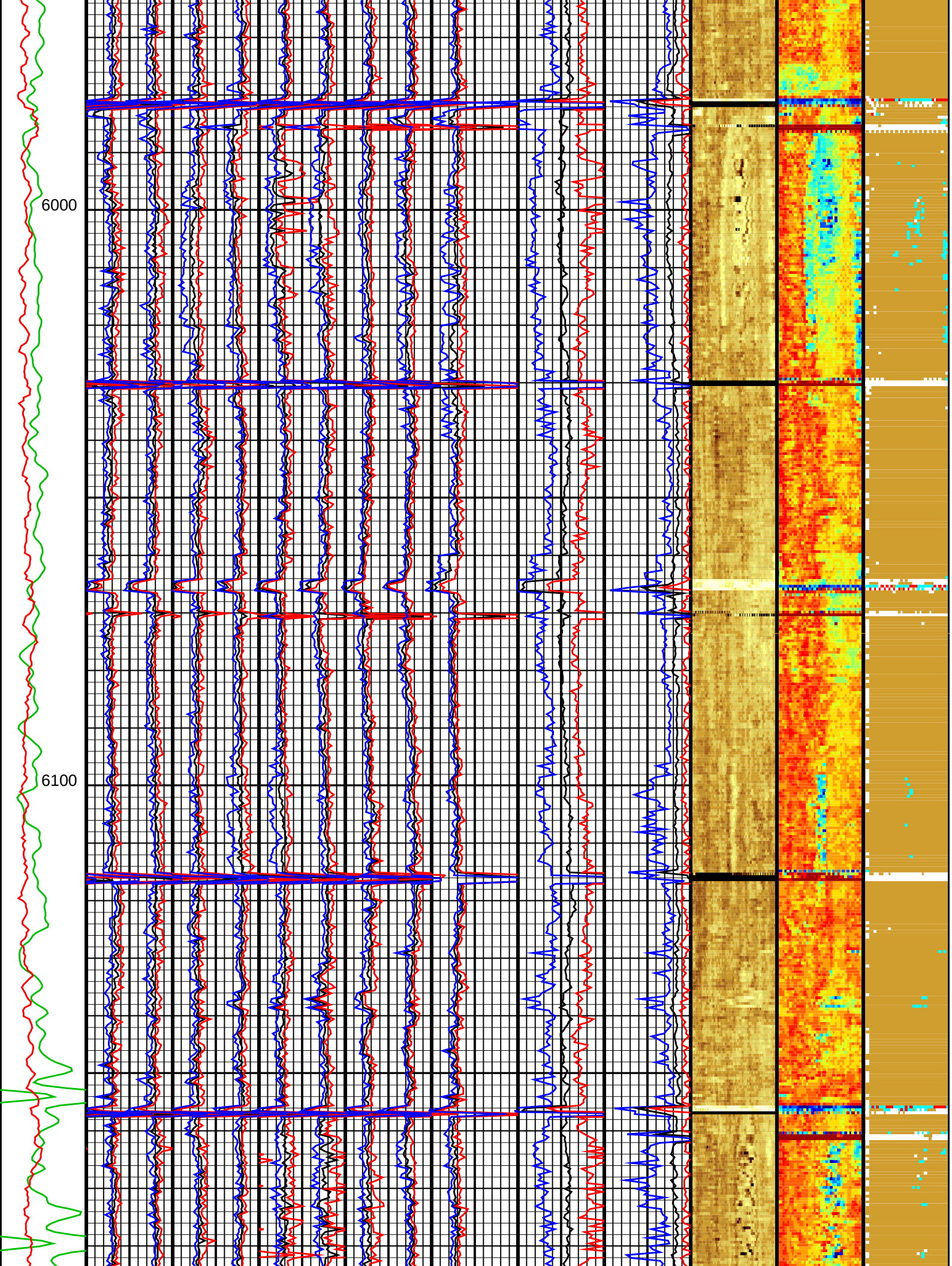
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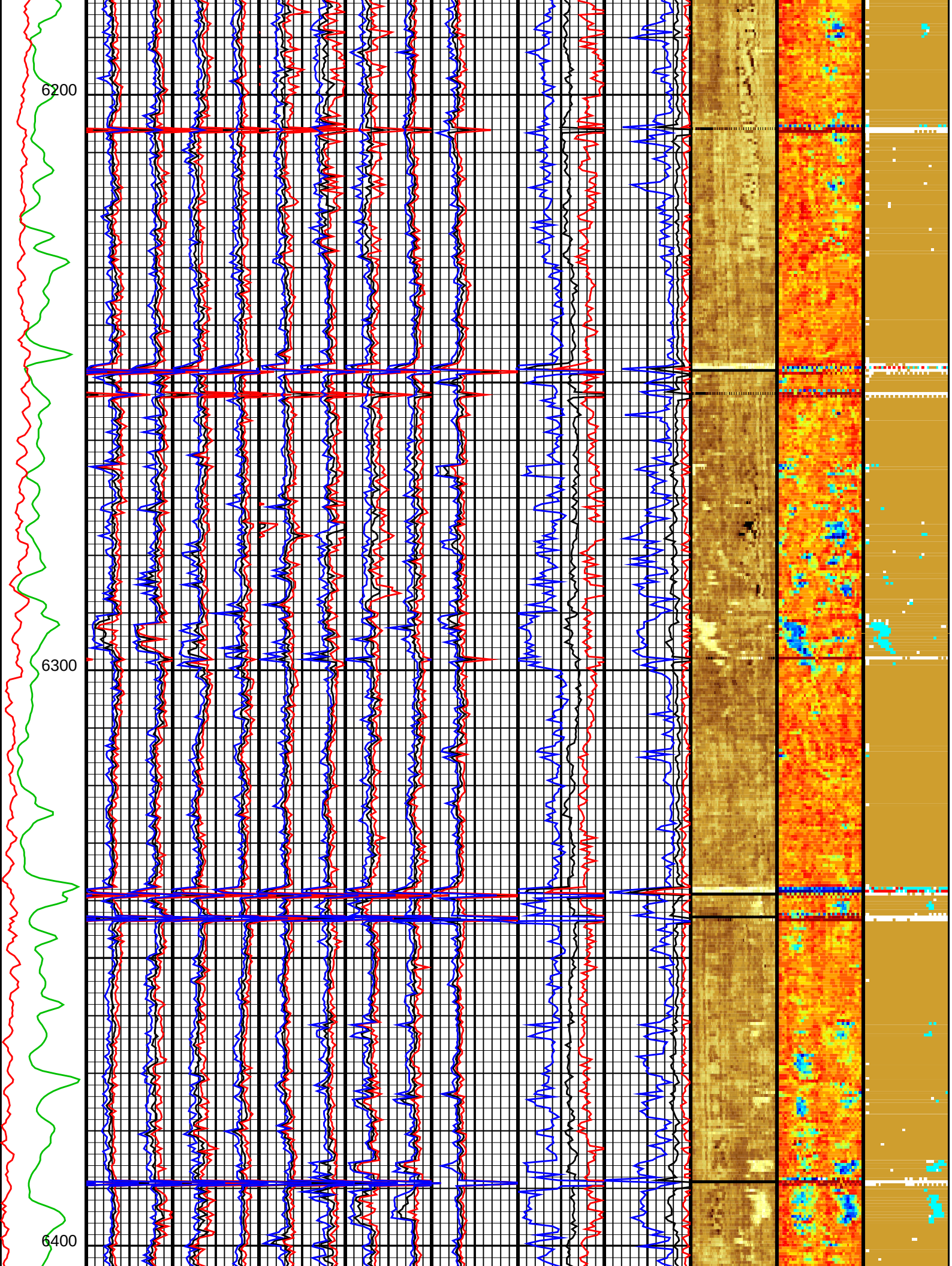
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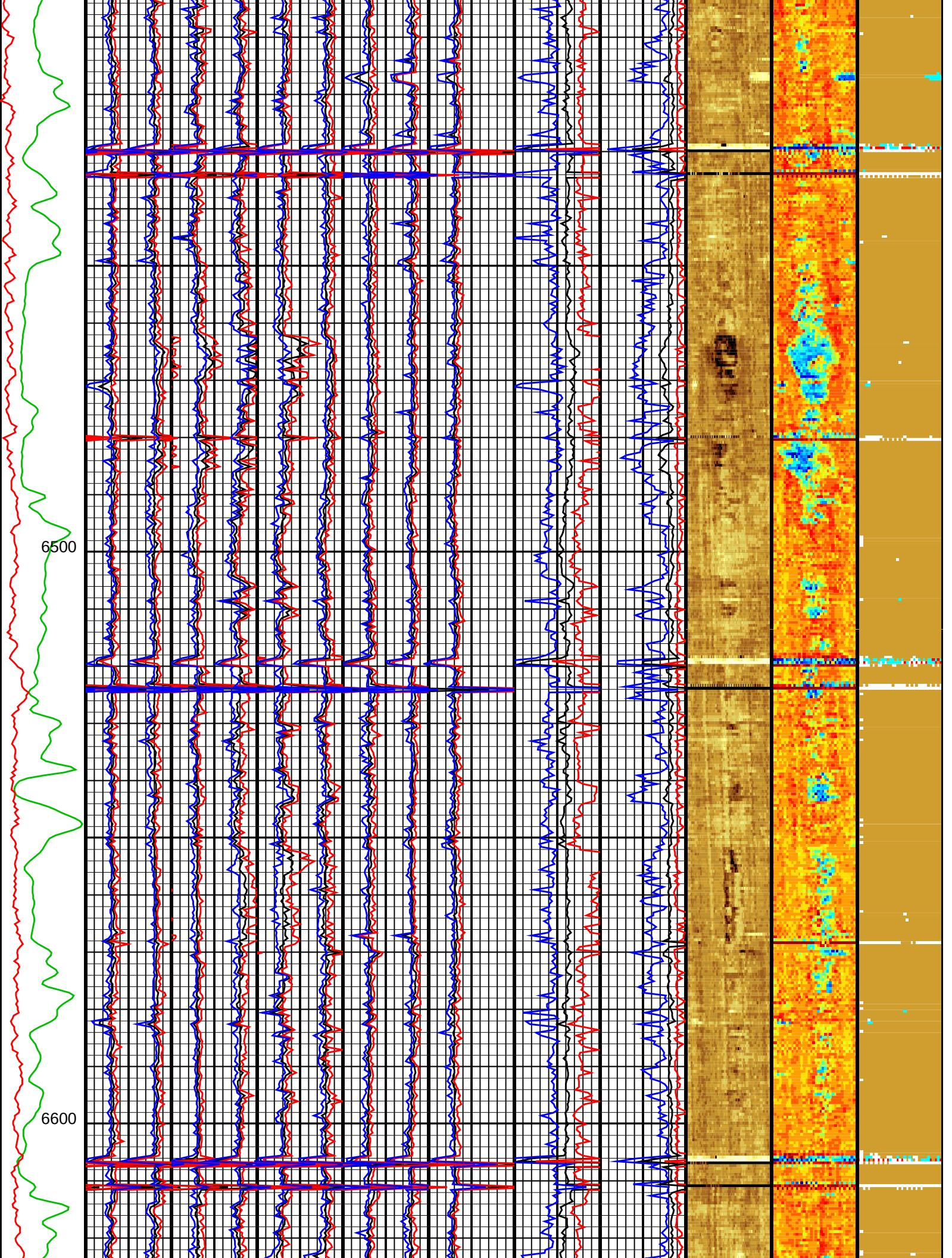
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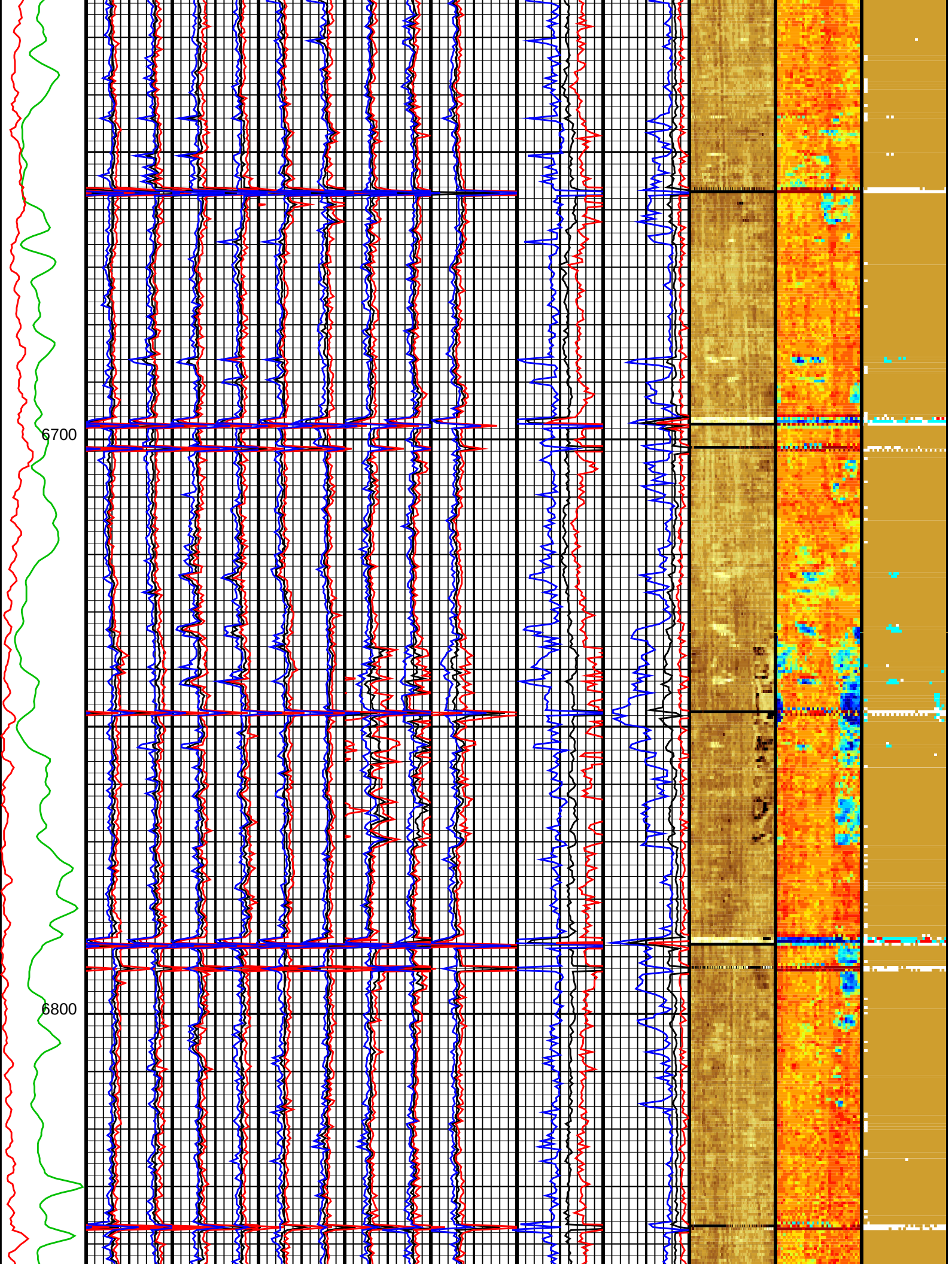
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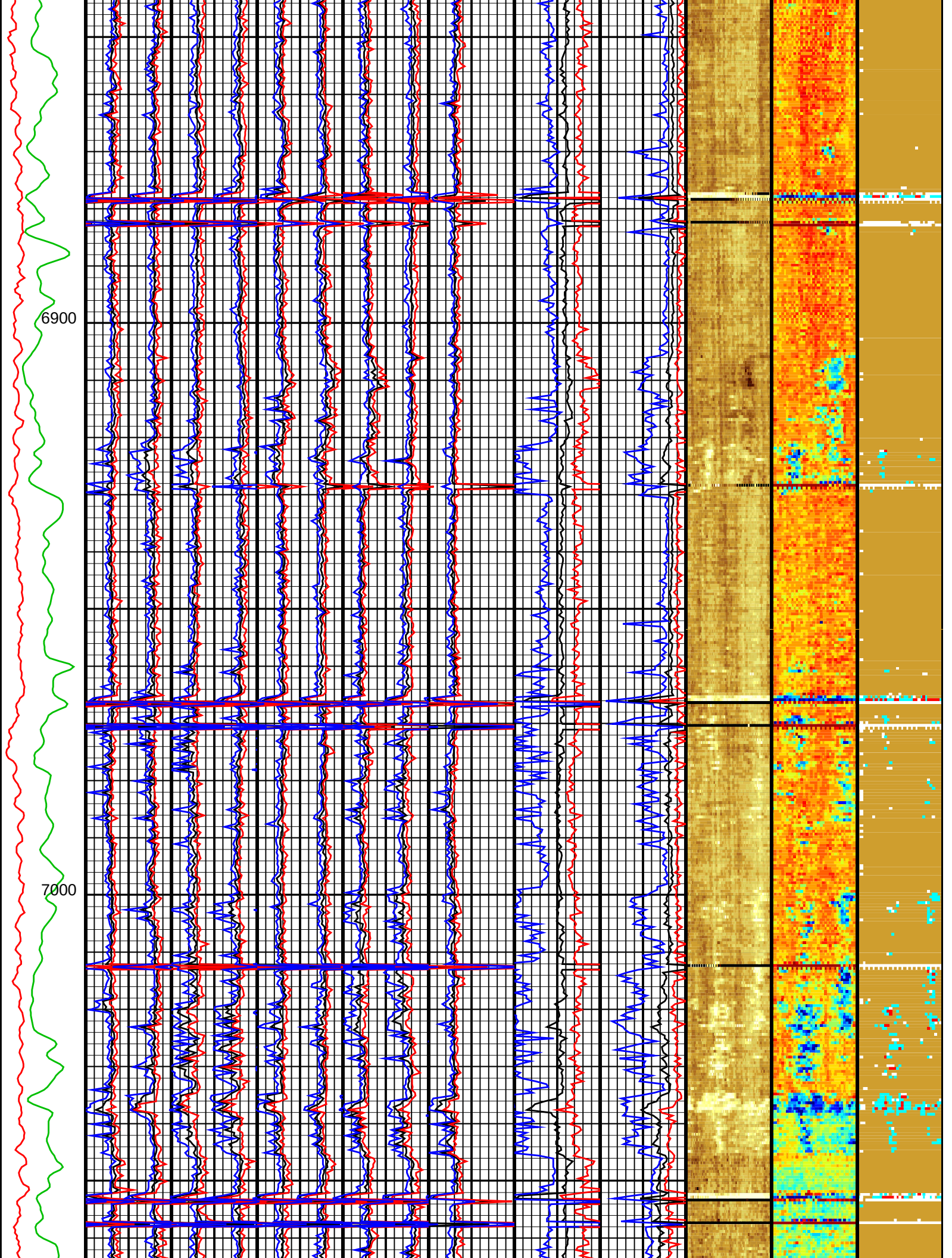
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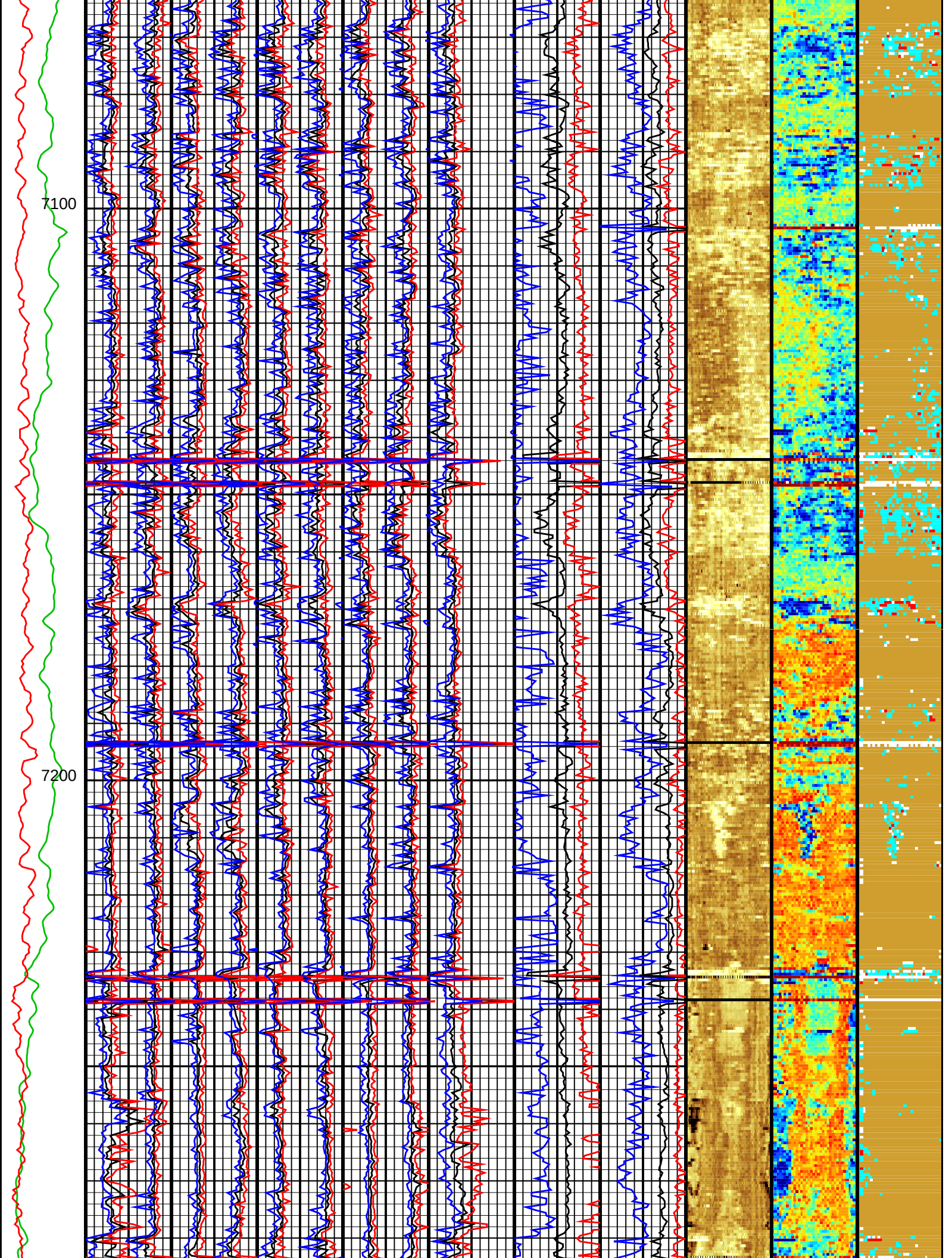
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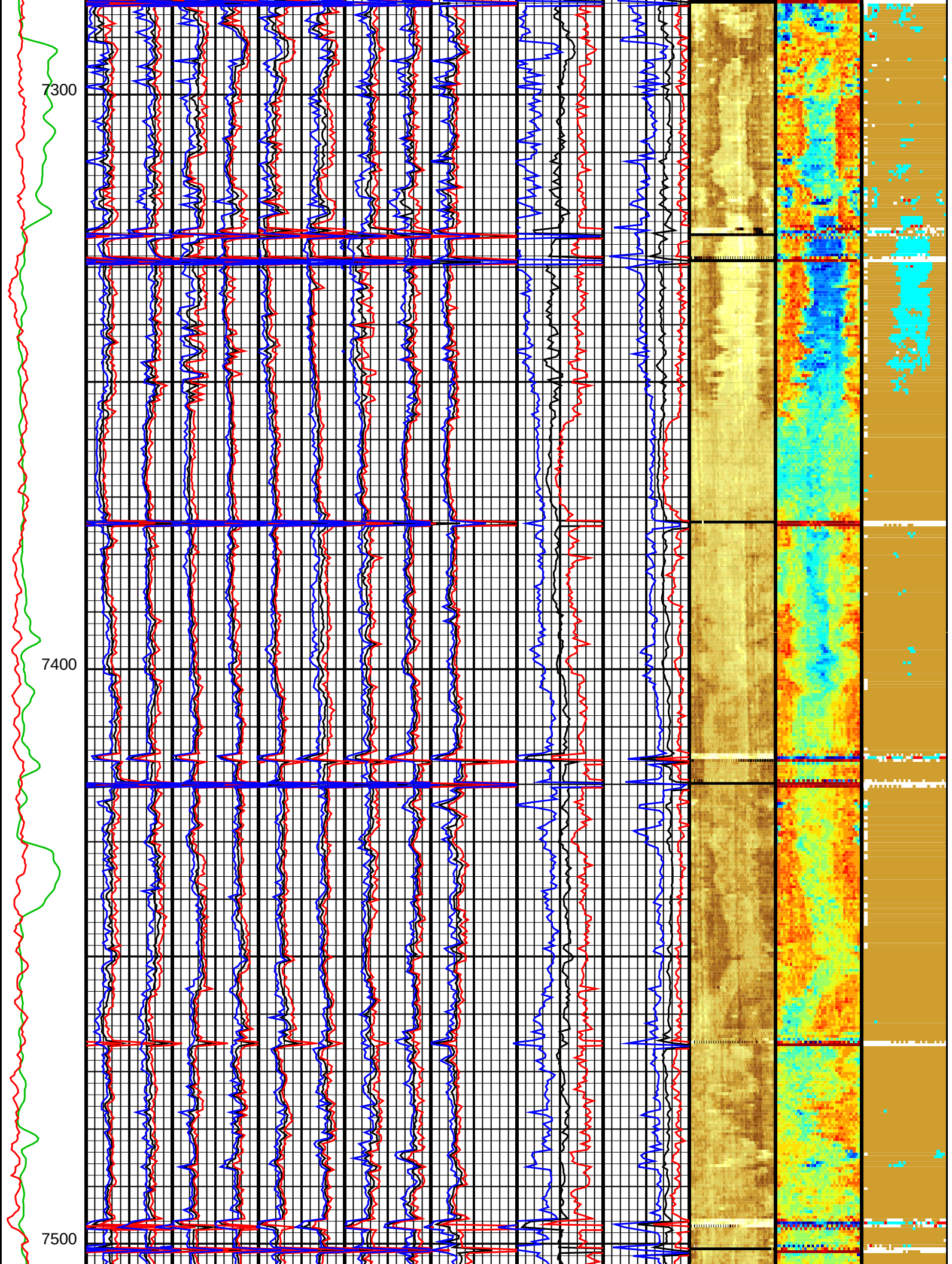
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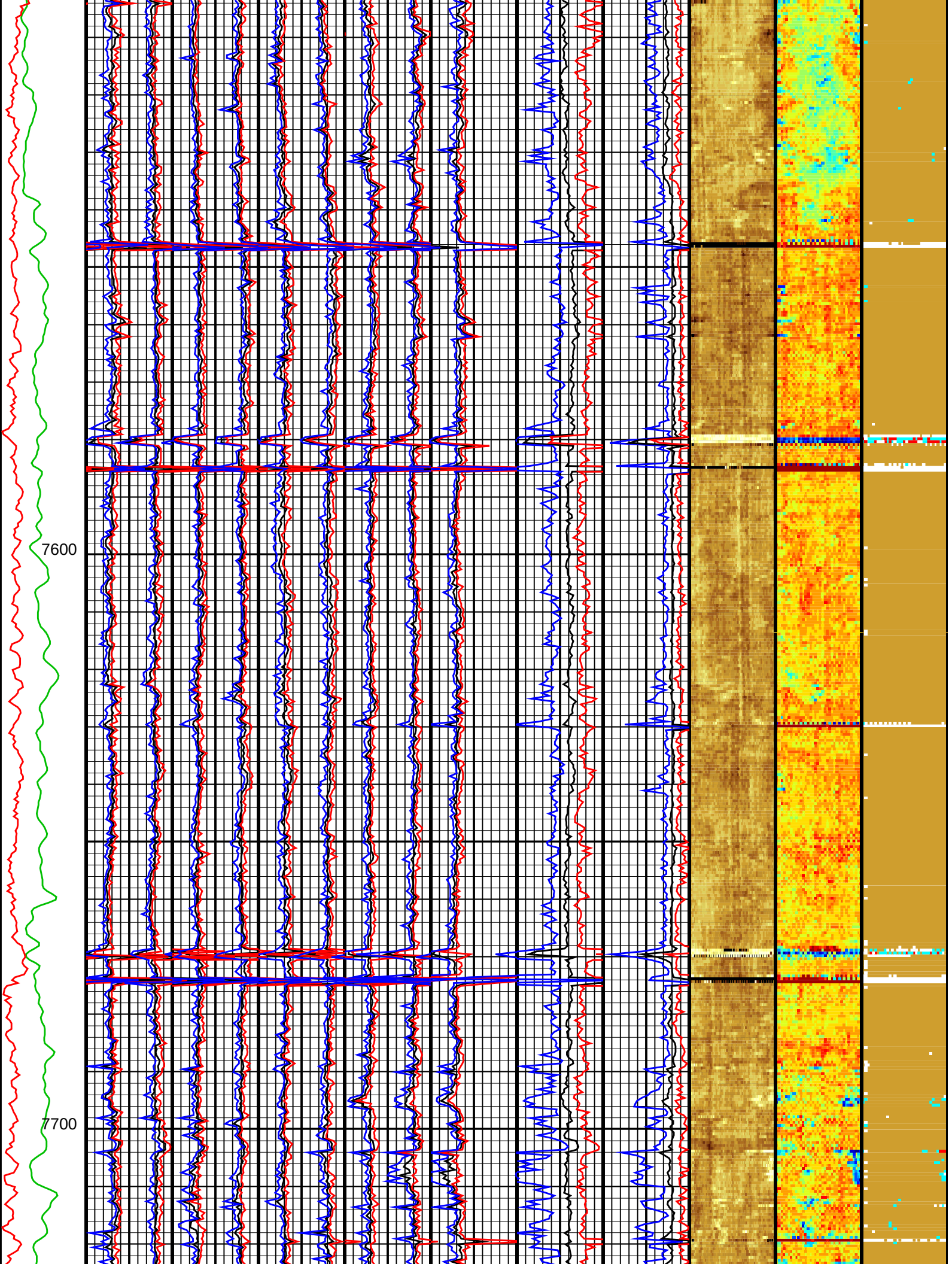
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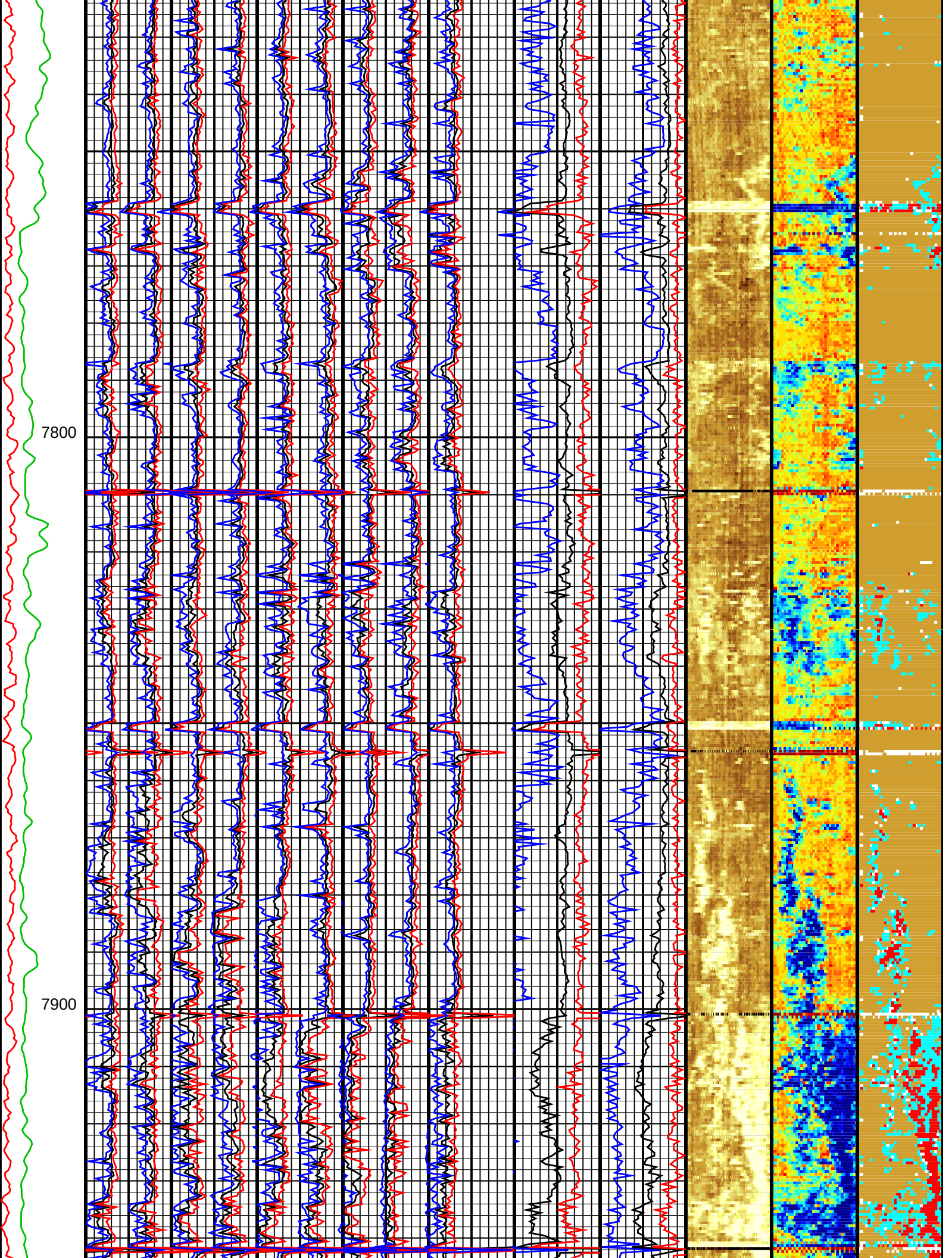
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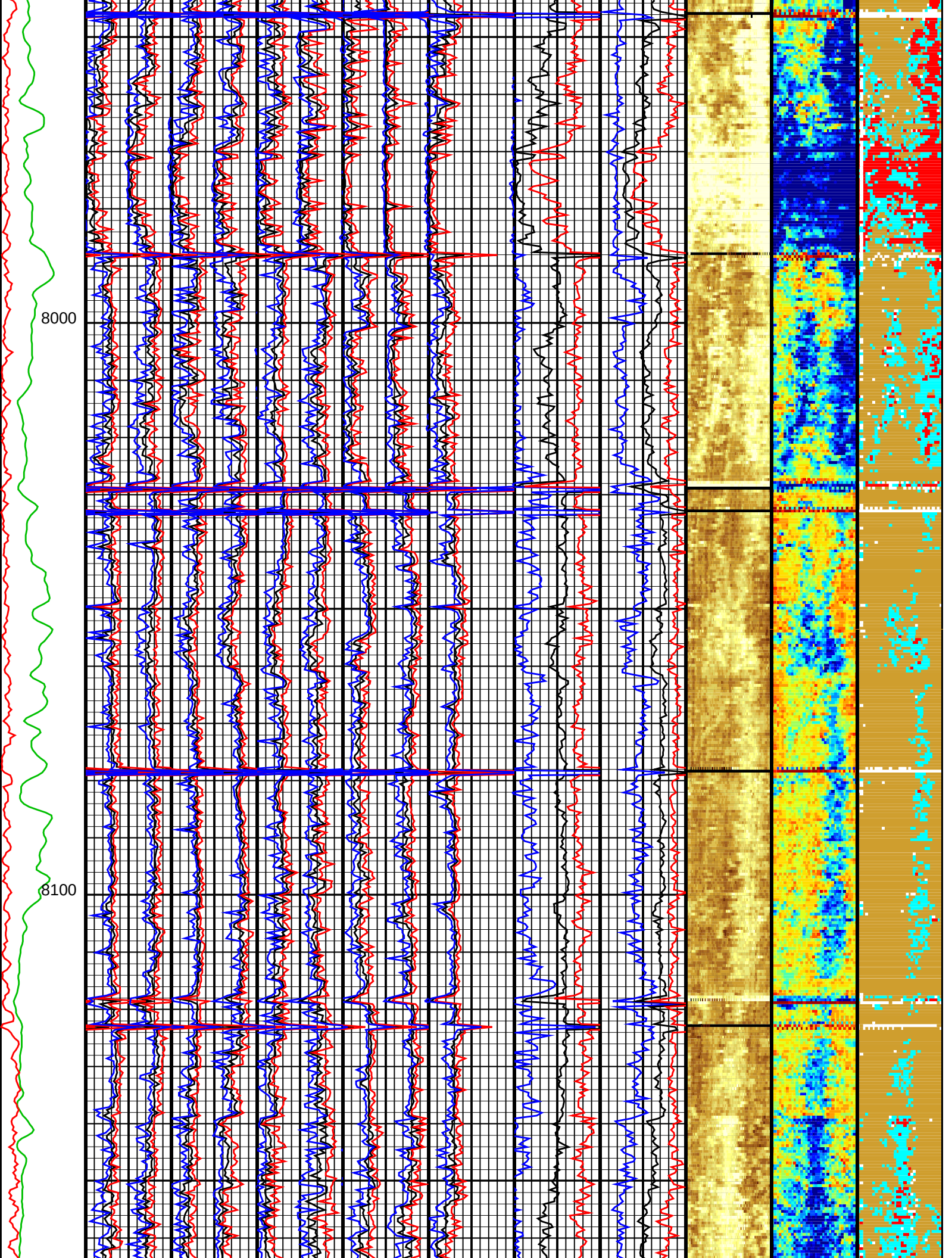
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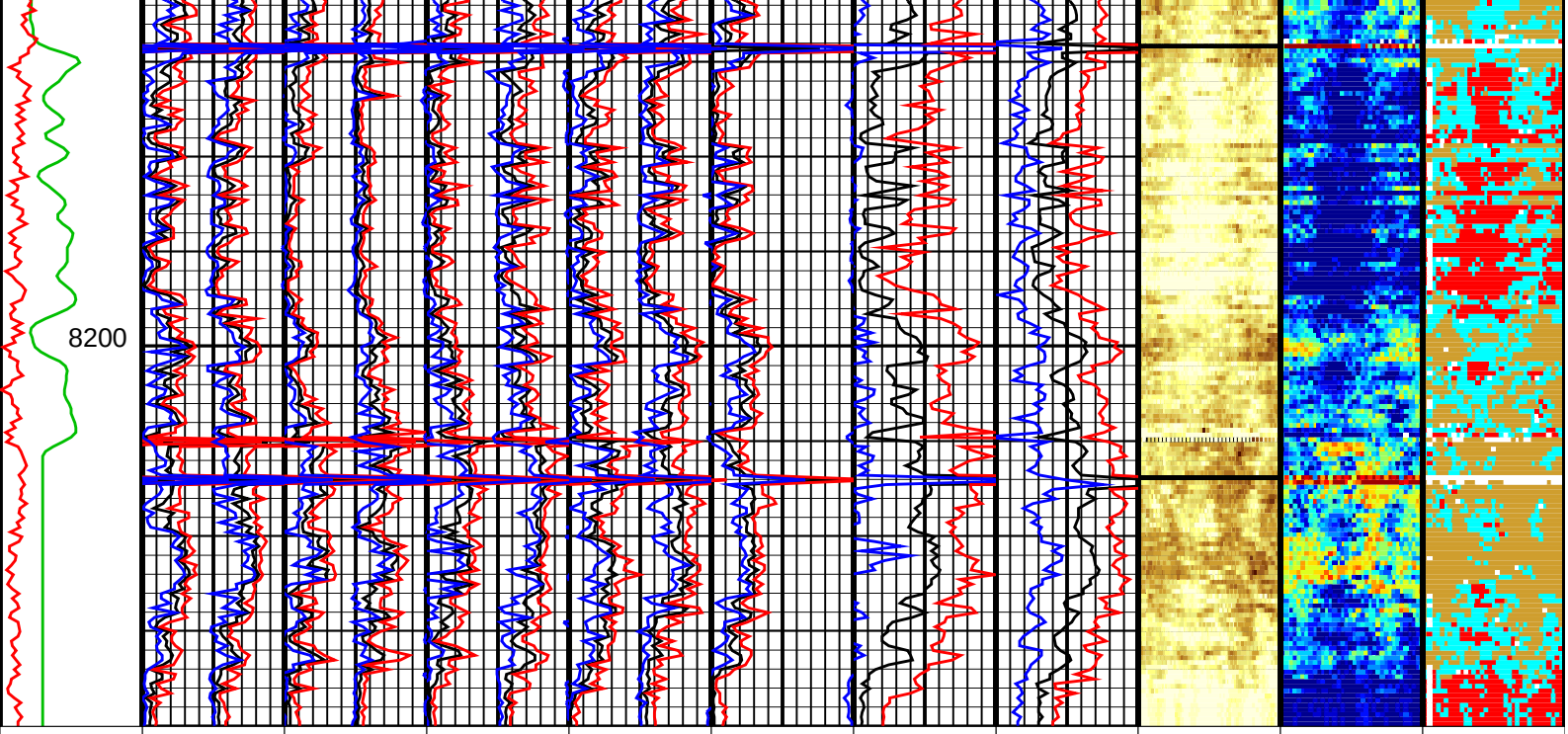


Eccent. (ECCE)
0 (IN) 0.5

Average Acoustic Impedance #1 (AV_AI1) (MRAY)
0 15

Average Acoustic Impedance #3 (AV_AI3) (MRAY)
0 15

Average Acoustic Impedance #5 (AV_AI5) (MRAY)
0 15

Average Acoustic Impedance #7 (AV_AI7) (MRAY)
0 15

Average Acoustic Impedance #9 (AV_AI9) (MRAY)
0 15

Average of AI (AIAV) (MRAY)
0 7.5

Minimum Flexural Attenuation (U−USIT_UFAN) (DB/M)
0 150

−500.0000
0.5000
1.0000
1.5000
2.0000
2.5000
3.0000
3.5000
4.0000
4.5000
5.0000
5.5000
6.0000
6.5000
7.0000
7.5000
8.0000

Raw Acoustic Imped. (AIBK) (MRAY)

0.0000
50.0000
57.0000
64.0000
71.0000
78.0000
85.0000
92.0000
99.0000
106.0000
113.0000
120.0000
127.0000
134.0000
141.0000
148.0000
155.0000

Flexural Attenuation (U−USIT_UFAK) (DB/M)

0.5000
1.5000
2.5000
3.5000

Solid Liquid Gas Map (U−USIT_USLP) (−−−−

Gamma Ray (GR) (GAPI)
0 150

Average Acoustic Impedance #2 (AV_AI2) (MRAY)
−7.5 7.5

Average Acoustic Impedance #4 (AV_AI4) (MRAY)
−7.5 7.5

Average Acoustic Impedance #6 (AV_AI6) (MRAY)
−7.5 7.5

Average Acoustic Impedance #8 (AV_AI8) (MRAY)
−7.5 7.5

Maximum Acoustic Impedance #9 (MAX_AI9) (MRAY)
0 15

Minimum of AI (AIMN) (MRAY)
0 7.5

Average Flexural Attenuation (U−USIT_UFAV) (DB/M)
0 150

Maximum Acoustic Impedance #1 (MAX_AI1) (MRAY)
0 15

Maximum Acoustic Impedance #3 (MAX_AI3) (MRAY)
0 15

Maximum Acoustic Impedance #5 (MAX_AI5) (MRAY)
0 15

Maximum Acoustic Impedance #7 (MAX_AI7) (MRAY)
0 15

Minimum Acoustic Impedance #9 (MIN_AI9) (MRAY)
0 15

Maximum of AI (AIMX) (MRAY)
0 7.5

Maximum Flexural Attenuation (U−USIT_UFAX) (DB/M)
0 150

Maximum Acoustic Impedance #2 (MAX_AI2) (MRAY)
−7.5 7.5

Maximum Acoustic Impedance #4 (MAX_AI4) (MRAY)
−7.5 7.5

Maximum Acoustic Impedance #6 (MAX_AI6) (MRAY)
−7.5 7.5

Maximum Acoustic Impedance #8 (MAX_AI8) (MRAY)
−7.5 7.5

Minimum Acoustic Impedance #1 (MIN_

Minimum Acoustic Impedance #3 (MIN_

Minimum Acoustic Impedance #5 (MIN_

Minimum Acoustic Impedance #7 (MIN_

AI1) (MRAY)	AI3) (MRAY)	AI5) (MRAY)	AI7) (MRAY)
0 15	0 15	0 15	0 15

Minimum Acoustic Impedance #2 (MIN_AI2) (MRAY)	Minimum Acoustic Impedance #4 (MIN_AI4) (MRAY)	Minimum Acoustic Impedance #6 (MIN_AI6) (MRAY)	Minimum Acoustic Impedance #8 (MIN_AI8) (MRAY)
−7.5 7.5	−7.5 7.5	−7.5 7.5	−7.5 7.5

Format: M_Goodwin **Vertical Scale: 5" per 100'** **Graphics File Created: 11−May−2010 14:50**

OP System Version: 17C0−154

USIT−D	17C0−154	HILTH−FTB	17C0−154
DTC−H	17C0−154		

All USI Images are outside views

USI : LOW Frequency Compression Mode Used For Logging.

Recommended casing thickness range for optimum cement impedance measurement : 0.27 to 0.6 IN.

Input DLIS Files

DEFAULT	Splice_USI_TLD_MCFL_021CUP	FN:1	PRODUCER	11−May−2010 14:37	8200.0 FT	199.6 FT

Output DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_025PUP	FN:22	PRODUCER	11−May−2010 14:50

Schlumberger

GOODWIN 0.1 INCH

MAXIS Field Log

Company: ExxonMobil Production Corp **Well: PCU 297−11C6**

Input DLIS Files

DEFAULT	Splice_USI_TLD_MCFL_021CUP	FN:1	PRODUCER	11−May−2010 14:37	8200.0 FT	199.6 FT

Output DLIS Files

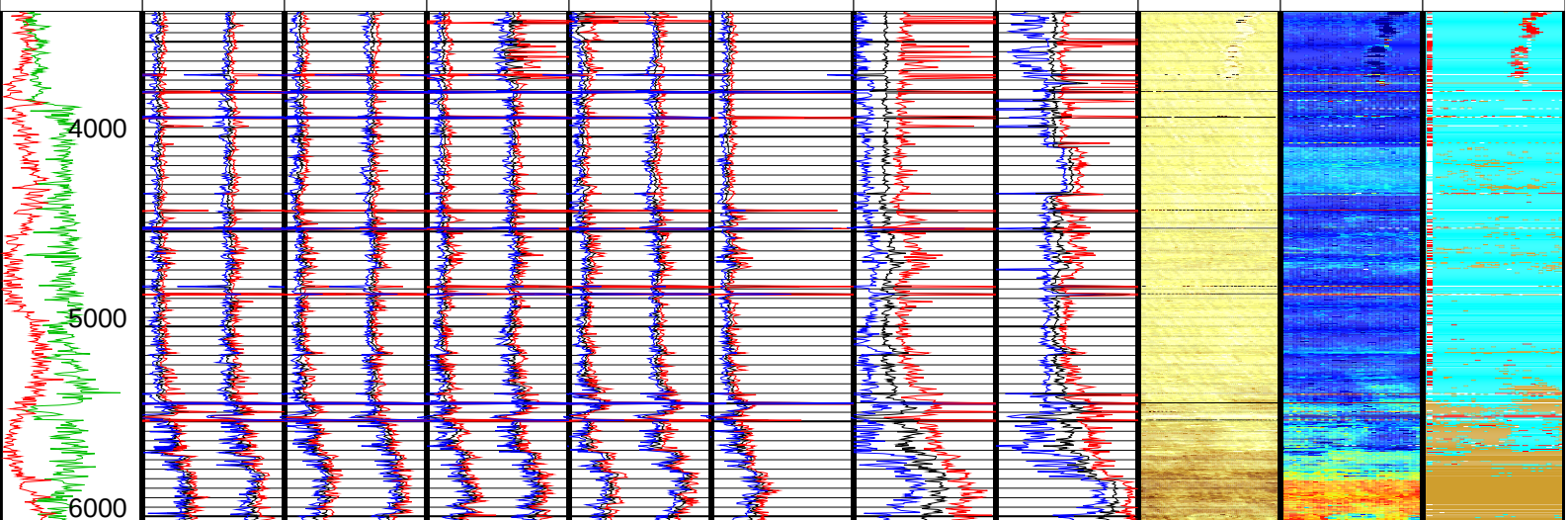
DEFAULT	USI_TLD_MCFL_CNL_025PUP	FN:22	PRODUCER	11−May−2010 14:50

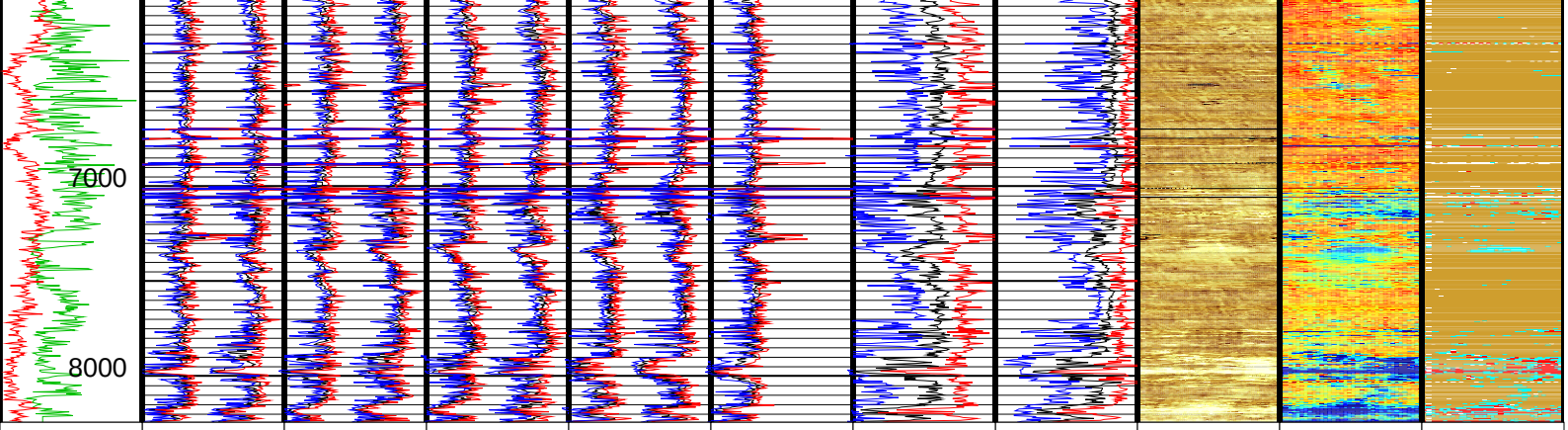
OP System Version: 17C0−154

USIT−D	17C0−154	HILTH−FTB	17C0−154
DTC−H	17C0−154		

Minimum Acoustic Impedance	Minimum Acoustic Impedance	Minimum Acoustic Impedance	Minimum Acoustic Impedance

	#2 (MIN_ AI2) (MRAY) −7.5 7.5	#4 (MIN_ AI4) (MRAY) −7.5 7.5	#6 (MIN_ AI6) (MRAY) −7.5 7.5	#8 (MIN_ AI8) (MRAY) −7.5 7.5						
	Minimum Acoustic Impedance #1 (MIN_ AI1) (MRAY) 0 15	Minimum Acoustic Impedance #3 (MIN_ AI3) (MRAY) 0 15	Minimum Acoustic Impedance #5 (MIN_ AI5) (MRAY) 0 15	Minimum Acoustic Impedance #7 (MIN_ AI7) (MRAY) 0 15						
	Maximum Acoustic Impedance #2 (MAX_ AI2) (MRAY) −7.5 7.5	Maximum Acoustic Impedance #4 (MAX_ AI4) (MRAY) −7.5 7.5	Maximum Acoustic Impedance #6 (MAX_ AI6) (MRAY) −7.5 7.5	Maximum Acoustic Impedance #8 (MAX_ AI8) (MRAY) −7.5 7.5						
	Maximum Acoustic Impedance #1 (MAX_ AI1) (MRAY) 0 15	Maximum Acoustic Impedance #3 (MAX_ AI3) (MRAY) 0 15	Maximum Acoustic Impedance #5 (MAX_ AI5) (MRAY) 0 15	Maximum Acoustic Impedance #7 (MAX_ AI7) (MRAY) 0 15	Minimum Acoustic Impedance #9 (MIN_ AI9) (MRAY) 0 15	Maximum of AI (AIMX) (MRAY) 0 7.5	Maximum Flexural Attenuation (U−USIT_ UFAX) (DB/M) 0 150			
Gamma Ray (GR) (GAPI) 0 150	Average Acoustic Impedance #2 (AV_ AI2) (MRAY) −7.5 7.5	Average Acoustic Impedance #4 (AV_ AI4) (MRAY) −7.5 7.5	Average Acoustic Impedance #6 (AV_ AI6) (MRAY) −7.5 7.5	Average Acoustic Impedance #8 (AV_ AI8) (MRAY) −7.5 7.5	Maximum Acoustic Impedance #9 (MAX_ AI9) (MRAY) 0 15	Minimum of AI (AIMN) (MRAY) 0 7.5	Average Flexural Attenuation (U−USIT_ UFAV) (DB/M) 0 150			
Eccent. (ECCE) 0 (IN) 0.5	Average Acoustic Impedance #1 (AV_ AI1) (MRAY) 0 15	Average Acoustic Impedance #3 (AV_ AI3) (MRAY) 0 15	Average Acoustic Impedance #5 (AV_ AI5) (MRAY) 0 15	Average Acoustic Impedance #7 (AV_ AI7) (MRAY) 0 15	Average Acoustic Impedance #9 (AV_ AI9) (MRAY) 0 15	Average of AI (AIAV) (MRAY) 0 7.5	Minimum Flexural Attenuation (U−USIT_ UFAN) (DB/M) 0 150	−500.0000 0.5000 1.0000 1.5000 2.0000 2.5000 3.0000 3.5000 4.0000 4.5000 5.0000 5.5000 6.0000 6.5000 7.0000 7.5000 8.0000 Raw Acoustic Imped. (AIBK) (MRAY)	0.0000 50.0000 57.0000 64.0000 71.0000 78.0000 85.0000 92.0000 99.0000 106.0000 113.0000 120.0000 127.0000 134.0000 141.0000 148.0000 155.0000 Flexural Attenuation (U−USIT_ UFAK) (DB/M)	0.5000 1.5000 2.5000 3.5000 Solid Liquid Gas Map (U−USIT_ USLP) (−−−−





Eccent. (ECCE) 0 (IN) 0.5	Average Acoustic Impedance #1 (AV_AI1) (MRAY) 0 15	Average Acoustic Impedance #3 (AV_AI3) (MRAY) 0 15	Average Acoustic Impedance #5 (AV_AI5) (MRAY) 0 15	Average Acoustic Impedance #7 (AV_AI7) (MRAY) 0 15	Average Acoustic Impedance #9 (AV_AI9) (MRAY) 0 15	Average of AI (AIAV) (MRAY) 0 7.5	Minimum Flexural Attenuation (U−USIT_UFAN) (DB/M) 0 150	−500.0000 0.5000 1.0000 1.5000 2.0000 2.5000 3.0000 3.5000 4.0000 4.5000 5.0000 5.5000 6.0000 6.5000 7.0000 7.5000 8.0000 Raw Acoustic Imped. (AIBK) (MRAY)	0.0000 50.0000 57.0000 64.0000 71.0000 78.0000 85.0000 92.0000 99.0000 106.0000 113.0000 120.0000 127.0000 134.0000 141.0000 148.0000 155.0000 Flexural Attenuation (U−USIT_UFAK) (DB/M)	0.5000 1.5000 2.5000 3.5000 Solid Liquid Gas Map (U−USIT_USLP) (−−−−
Gamma Ray (GR) (GAPI) 0 150	Average Acoustic Impedance #2 (AV_AI2) (MRAY) −7.5 7.5	Average Acoustic Impedance #4 (AV_AI4) (MRAY) −7.5 7.5	Average Acoustic Impedance #6 (AV_AI6) (MRAY) −7.5 7.5	Average Acoustic Impedance #8 (AV_AI8) (MRAY) −7.5 7.5	Maximum Acoustic Impedance #9 (MAX_AI9) (MRAY) 0 15	Minimum of AI (AIMN) (MRAY) 0 7.5	Average Flexural Attenuation (U−USIT_UFAV) (DB/M) 0 150			
	Maximum Acoustic Impedance #1 (MAX_AI1) (MRAY) 0 15	Maximum Acoustic Impedance #3 (MAX_AI3) (MRAY) 0 15	Maximum Acoustic Impedance #5 (MAX_AI5) (MRAY) 0 15	Maximum Acoustic Impedance #7 (MAX_AI7) (MRAY) 0 15	Minimum Acoustic Impedance #9 (MIN_AI9) (MRAY) 0 15	Maximum of AI (AIMX) (MRAY) 0 7.5	Maximum Flexural Attenuation (U−USIT_UFAX) (DB/M) 0 150			
	Maximum Acoustic Impedance #2 (MAX_AI2) (MRAY) −7.5 7.5	Maximum Acoustic Impedance #4 (MAX_AI4) (MRAY) −7.5 7.5	Maximum Acoustic Impedance #6 (MAX_AI6) (MRAY) −7.5 7.5	Maximum Acoustic Impedance #8 (MAX_AI8) (MRAY) −7.5 7.5						
	Minimum Acoustic Impedance #1 (MIN_AI1) (MRAY) 0 15	Minimum Acoustic Impedance #3 (MIN_AI3) (MRAY) 0 15	Minimum Acoustic Impedance #5 (MIN_AI5) (MRAY) 0 15	Minimum Acoustic Impedance #7 (MIN_AI7) (MRAY) 0 15						
	Minimum Acoustic Impedance #2 (MIN_AI2) (MRAY) −7.5 7.5	Minimum Acoustic Impedance #4 (MIN_AI4) (MRAY) −7.5 7.5	Minimum Acoustic Impedance #6 (MIN_AI6) (MRAY) −7.5 7.5	Minimum Acoustic Impedance #8 (MIN_AI8) (MRAY) −7.5 7.5						

Format: M_Goodwin_Compressed Vertical Scale: 0.1" per 100' Graphics File Created: 11−May−2010 14:50

OP System Version: 17C0−154

USIT−D	17C0−154	HILTH−FTB	17C0−154
DTC−H	17C0−154		

All USI Images are outside views

USI : LOW Frequency Compression Mode Used For Logging.

Recommended casing thickness range for optimum cement impedance measurement : 0.27 to 0.6 IN.

Input DLIS Files

DEFAULT	Splice_USI_TLD_MCFL_021CUP	FN:1	PRODUCER	11−May−2010 14:37	8200.0 FT	199.6 FT

Output DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_025PUP	FN:22	PRODUCER	11−May−2010 14:50		

Schlumberger

REPEAT PASS

MAXIS Field Log

Company: ExxonMobil Production Corp Well: PCU 297−11C6

Input DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_008LUP	FN:7	PRODUCER	11−May−2010 08:19	8251.5 FT	7931.5 FT

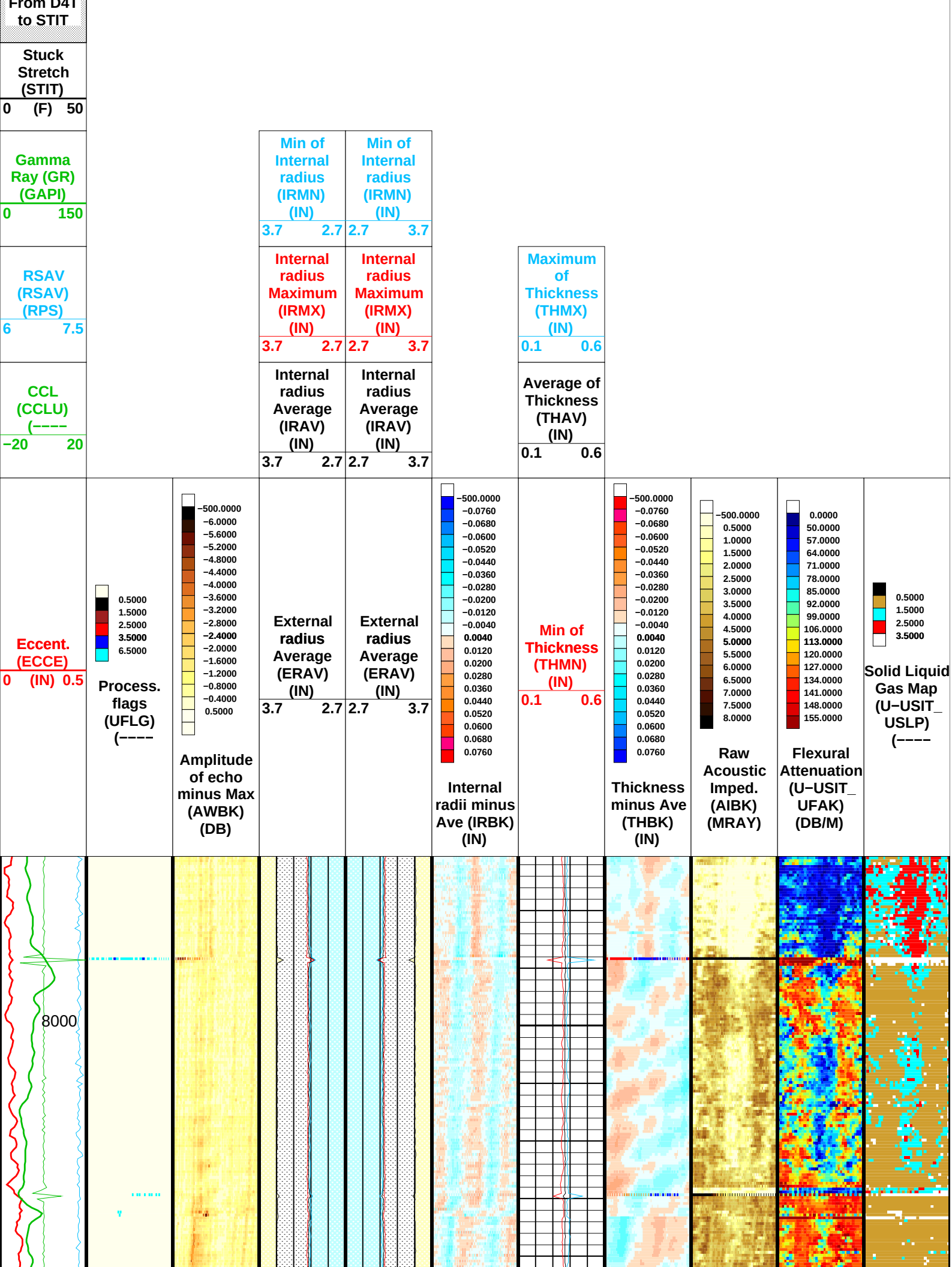
Output DLIS Files

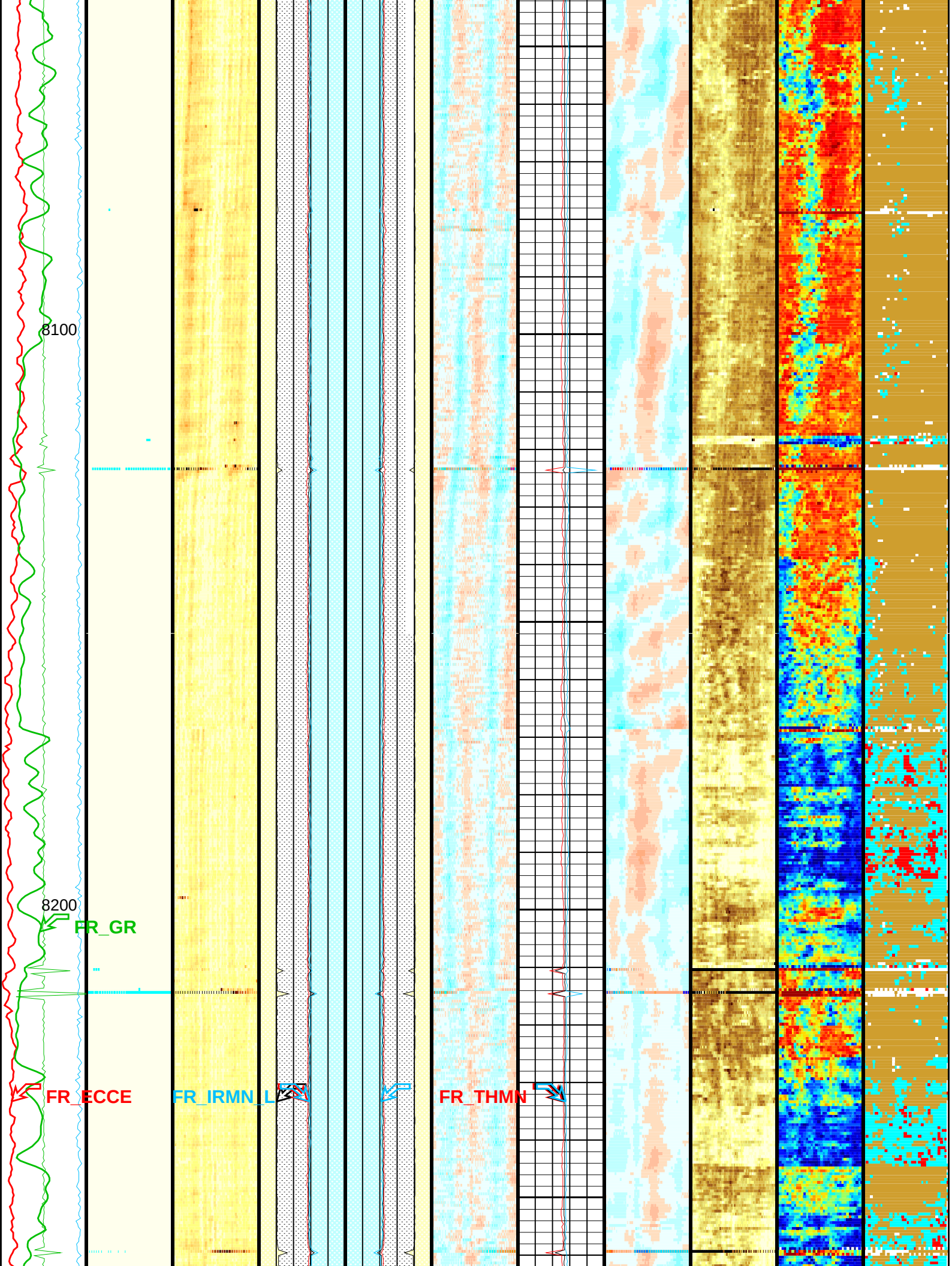
DEFAULT	USI_TLD_MCFL_CNL_022PUP	FN:19	PRODUCER	11−May−2010 14:45	8290.5 FT	7970.5 FT

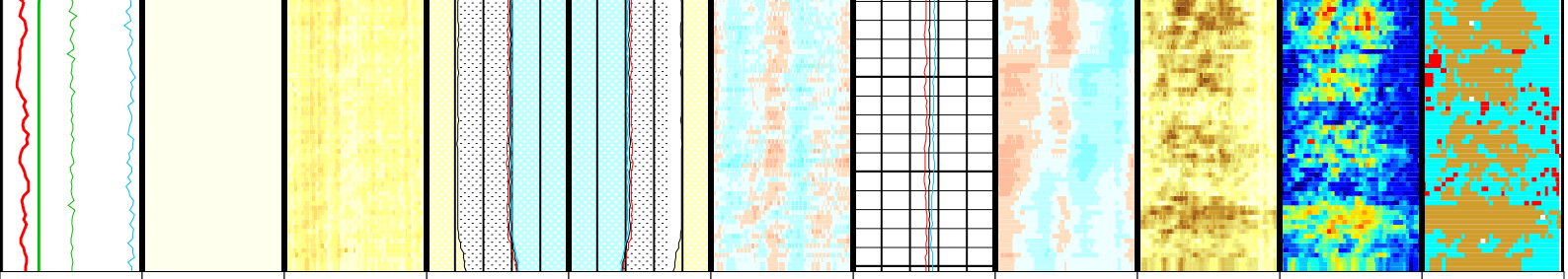
OP System Version: 17C0−154

USIT−D	17C0−154	HILTH−FTB	17C0−154
DTC−H	17C0−154		

Image rotation (UCAZ) (DEG)
0 360
Tool/Tot. Drag From D4T to STIA
Cable Drag


From D4T to STIT
Stuck Stretch (STIT)
0 (F) 50
Gamma Ray (GR) (GAPI)
0 150
RSAV (RSAV) (RPS)
6 7.5
CCL (CCLU) (----
−20 20
Min of Internal radius (IRMN) (IN)
3.7 2.7
Min of Internal radius (IRMN) (IN)
2.7 3.7
Internal radius Maximum (IRMX) (IN)
3.7 2.7
Internal radius Maximum (IRMX) (IN)
2.7 3.7
Internal radius Average (IRAV) (IN)
3.7 2.7
Internal radius Average (IRAV) (IN)
2.7 3.7
Maximum of Thickness (THMX) (IN)
0.1 0.6
Average of Thickness (THAV) (IN)
0.1 0.6
Eccent. (ECCE)
0 (IN) 0.5
0.5000
1.5000
2.5000
3.5000
6.5000
Process. flags (UFLG) (----
−500.0000
−6.0000
−5.6000
−5.2000
−4.8000
−4.4000
−4.0000
−3.6000
−3.2000
−2.8000
−2.4000
−2.0000
−1.6000
−1.2000
−0.8000
−0.4000
0.5000
Amplitude of echo minus Max (AWBK) (DB)
External radius Average (ERAV) (IN)
3.7 2.7
External radius Average (ERAV) (IN)
2.7 3.7
−500.0000
−0.0760
−0.0680
−0.0600
−0.0520
−0.0440
−0.0360
−0.0280
−0.0200
−0.0120
−0.0040
0.0040
0.0120
0.0200
0.0280
0.0360
0.0440
0.0520
0.0600
0.0680
0.0760
Internal radii minus Ave (IRBK) (IN)
Min of Thickness (THMN) (IN)
0.1 0.6
−500.0000
−0.0760
−0.0680
−0.0600
−0.0520
−0.0440
−0.0360
−0.0280
−0.0200
−0.0120
−0.0040
0.0040
0.0120
0.0200
0.0280
0.0360
0.0440
0.0520
0.0600
0.0680
0.0760
Thickness minus Ave (THBK) (IN)
−500.0000
0.5000
1.0000
1.5000
2.0000
2.5000
3.0000
3.5000
4.0000
4.5000
5.0000
5.5000
6.0000
6.5000
7.0000
7.5000
8.0000
Raw Acoustic Imped. (AIBK) (MRAY)
0.0000
50.0000
57.0000
64.0000
71.0000
78.0000
85.0000
92.0000
99.0000
106.0000
113.0000
120.0000
127.0000
134.0000
141.0000
148.0000
155.0000
Flexural Attenuation (U−USIT_ UFAK) (DB/M)
0.5000
1.5000
2.5000
3.5000
Solid Liquid Gas Map (U−USIT_ USLP) (----
8000


8100
8200
FR_GR
FR_ECCE
FR_IRMN_L
FR_THMN



Eccent. (ECCE) 0 (IN) 0.5	Process. flags (UFLG) (---- 0.5000 1.5000 2.5000 3.5000 6.5000	Amplitude of echo minus Max (AWBK) (DB) −500.0000 −6.0000 −5.6000 −5.2000 −4.8000 −4.4000 −4.0000 −3.6000 −3.2000 −2.8000 −2.4000 −2.0000 −1.6000 −1.2000 −0.8000 −0.4000 0.5000	External radius Average (ERAV) (IN) 3.7 2.7	External radius Average (ERAV) (IN) 2.7 3.7	Internal radii minus Ave (IRBK) (IN) −500.0000 −0.0760 −0.0680 −0.0600 −0.0520 −0.0440 −0.0360 −0.0280 −0.0200 −0.0120 −0.0040 0.0040 0.0120 0.0200 0.0280 0.0360 0.0440 0.0520 0.0600 0.0680 0.0760	Min of Thickness (THMN) (IN) 0.1 0.6	Thickness minus Ave (THBK) (IN) −500.0000 −0.0760 −0.0680 −0.0600 −0.0520 −0.0440 −0.0360 −0.0280 −0.0200 −0.0120 −0.0040 0.0040 0.0120 0.0200 0.0280 0.0360 0.0440 0.0520 0.0600 0.0680 0.0760	Raw Acoustic Imped. (AIBK) (MRAY) −500.0000 0.5000 1.0000 1.5000 2.0000 2.5000 3.0000 3.5000 4.0000 4.5000 5.0000 5.5000 6.0000 6.5000 7.0000 7.5000 8.0000	Flexural Attenuation (U−USIT_UFAK) (DB/M) 0.0000 50.0000 57.0000 64.0000 71.0000 78.0000 85.0000 92.0000 99.0000 106.0000 113.0000 120.0000 127.0000 134.0000 141.0000 148.0000 155.0000	Solid Liquid Gas Map (U−USIT_USLP) (---- 0.5000 1.5000 2.5000 3.5000
CCL (CCLU) (---- −20 20			Internal radius Average (IRAV) (IN) 3.7 2.7	Internal radius Average (IRAV) (IN) 2.7 3.7		Average of Thickness (THAV) (IN) 0.1 0.6				
RSAV (RSAV) (RPS) 6 7.5			Internal radius Maximum (IRMX) (IN) 3.7 2.7	Internal radius Maximum (IRMX) (IN) 2.7 3.7		Maximum of Thickness (THMX) (IN) 0.1 0.6				
Gamma Ray (GR) (GAPI) 0 150			Min of Internal radius (IRMN) (IN) 3.7 2.7	Min of Internal radius (IRMN) (IN) 2.7 3.7						
Stuck Stretch (STIT) 0 (F) 50										
Cable Drag From D4T to STIT										
Tool/Tot. Drag From D4T to STIA										
Image rotation (UCAZ) (DEG) 0 360										

OP System Version: 17C0−154

USIT−D	17C0−154	HILTH−FTB	17C0−154
DTC−H	17C0−154		

All USI Images are outside views

USI : LOW Frequency Compression Mode Used For Logging.

Recommended casing thickness range for optimum cement impedance measurement : 0.27 to 0.6 IN.

Parameters

DLIS Name	Description	Value	
	USIT−D: Ultrasonic Imaging − D		
AGMN	Minimum Gain of Cartridge	−4	DB
AGMX	Maximum Gain of Cartridge	20	DB
BERJ	Bad Echo Rejection	ON	
CDIA	Casing Outer Diameter	7	IN
CSDE	Casing Density	486.94	LBCF
CSID	Casing Inner Diameter	6.276	IN
DFVL	Default Fluid Velocity	206	US/F
DOT	Diameter of Transducer Sensor	2.874	IN
EMXV	EMEX Voltage	80	V
FSOD	Fluid Slowness Fits Casing Outer Diameter	5_UFSL_N_ZMUD	
IMAR	Image Rotation	OFF	
MW	Mud Weight	8.6	LB/G
RCOD	Reference Calibrator Outer Diameter	7	IN
RCSO	Reference Calibrator Standoff	1.1811	IN
RCTH	Reference Calibrator Thickness	0.2952	IN
TCUB	T^3 Processing Level	Vax_Loop	
THDH	Maximum Search Thickness (percentage of nominal)	130	
THDL	Minimum Search Thickness (percentage of nominal)	70	
THDP	Thickness Detection Policy	Fundamental	
THNO	Nominal Thickness of Casing	0.362	IN
U−USIT_CEMT	USIT Cement Type	ULTRA_LIGHT	
U−USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	0	MRAY
U−USIT_IISR	USIT IBC Inverted Fluid Slowness Resolution	1.0_US_P_FT	
U−USIT_IIZR	USIT IBC Inverted ZMUD Resolution	0.050_MRAY	
U−USIT_OCDI	USIT Outer Casing Diameter	0	IN
U−USIT_OCSH	USIT Outer Casing Shoe	0	FT
U−USIT_OCWE	USIT Outer Casing Weight	0	LB/F
U−USIT_TIEB	IBC Third Interface Echo Bin Processing	YES	
U−USIT_TIEC	IBC Third Interface Echo Cleaning	NONE	
U−USIT_TIEM	IBC Third Interface Echo Multi Tracking	NO	
U−USIT_TIEP	IBC Third Interface Echo Policy	BFEP	
U−USIT_TIER	IBC Third Interface Echo Receivers	BOTH	
U−USIT_U3WE	Third Interface Echo Window End	110	US
U−USIT_UBTP	USIT Bottom Transducer Position	UNKNOWN	
U−USIT_UFAO	USIT Flexural Attenuation Offset	8	DB/M
U−USIT_UIAP	USIT IBC Answer Product Enabled	SolidLiquidGasMap	
U−USIT_UIST	Ultrasonic IBC Sonde Type	Sub_Ibcs_B	
U−USIT_UTAN	USIT Transducer Angles	33_DEG	
UMAO	USIT Measurement Angular Offset	−10	DEG
USTO	Ultrasonic Time Offset	−2	US
USUB	Ultrasonic Subassembly Identifier	Sub_7_inch	
UWKM	Ultrasonic Working Mode	5DEG_6IN_136UNF_LF	
VCAS	Ultrasonic Transversal Velocity in Casing	51.4	US/F
WLEN	T^3 Processing Length	21.7078	US
ZCAS	Acoustic Impedance of Casing	46.2537	MRAY
ZINI	Initial Estimate of Cement Impedance	−1	MRAY
ZMUD	Acoustic Impedance of Mud	1.75	MRAY
ZTCM	Acoustic Impedance Threshold for Cement	2.6	MRAY
ZTGS	Acoustic Impedance Threshold for Gas	0.3	MRAY
	STI: Stuck Tool Indicator		
LBFR	Trigger for MAXIS First Reading Label	TDL	
STKT	STI Stuck Threshold	2.5	FT
TDD	Total Depth − Driller	8567.00	FT
TDL	Total Depth − Logger	8234.10	FT
	System and Miscellaneous		
BS	Bit Size	9.875	IN

BS	Bit Size	9.875	IN
CWEI	Casing Weight	26.00	LB/F
DO	Depth Offset for Playback	39.1	FT
PP	Playback Processing	RECOMPUTE	

Input DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_008LUP	FN:7	PRODUCER	11−May−2010 08:19	8251.5 FT	7931.5 FT

Output DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_022PUP	FN:19	PRODUCER	11−May−2010 14:45

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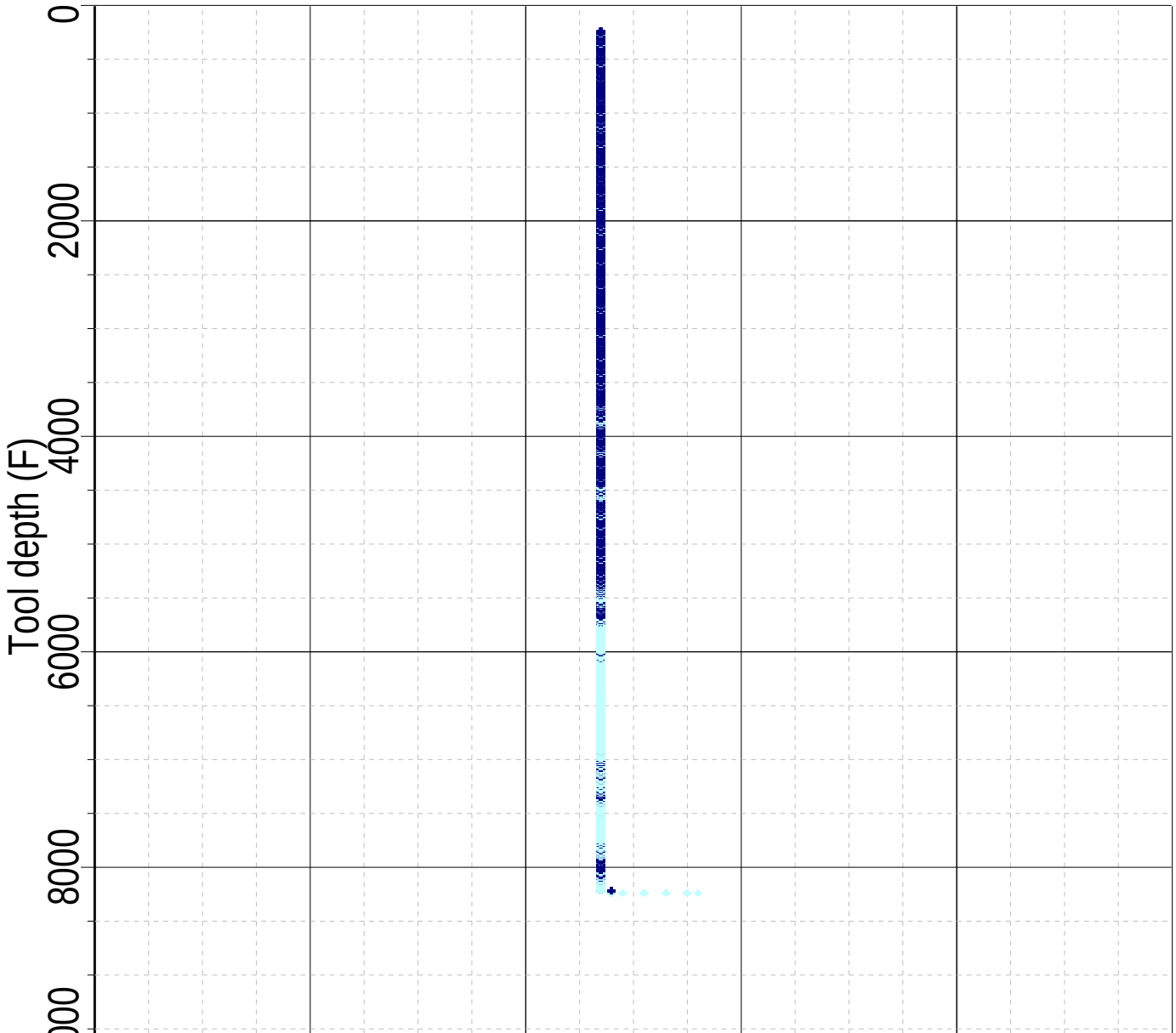
FLUID PROPERTIES

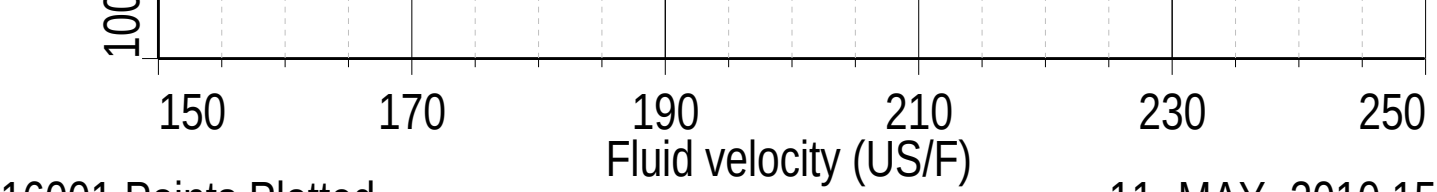
MAXIS Field Log

IBC Inv. Fluid Z QC (−−−−

Index: 8240.0 − 240.0 FT

0. 0.5





16001 Points Plotted

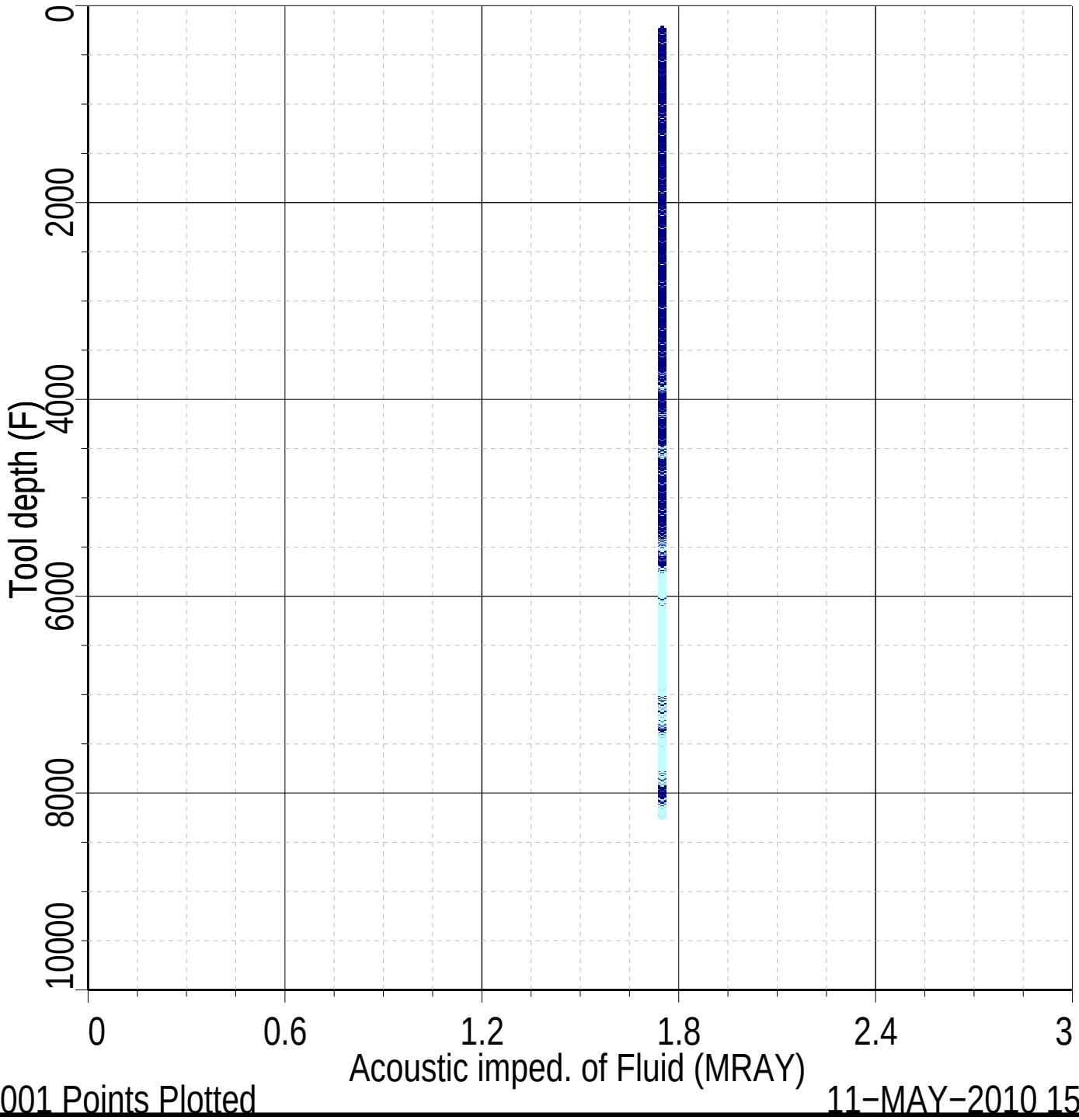
11−MAY−2010 15:04

IBC Inv. Fluid Z QC (−−−−

Index: 8240.0 − 240.0 FT

0.

0.5



16001 Points Plotted

11−MAY−2010 15:04

Schlumberger

CALIBRATIONS

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
High resolution Integrated Logging Tool−DTS Wellsite Calibration − Detector Calibration							
Before: 9−May−2010 18:56							
Gamma Ray Background	30.00	N/A	31.45	N/A	N/A	N/A	GAPI
Gamma Ray (Jig − Bkg)	180.0	N/A	180.0	N/A	N/A	16.37	GAPI
Gamma Ray (Calibrated)	165.0	N/A	165.0	N/A	N/A	15.00	GAPI
High resolution Integrated Logging Tool−DTS Wellsite Calibration − Zero Measurement							
Master: 28−Feb−2010 14:11 Before: 9−May−2010 18:57							
CNTC Background	27.81	27.81	26.60	N/A	N/A	4.172	CPS
CFTC Background	28.32	28.32	29.94	N/A	N/A	4.248	CPS
High resolution Integrated Logging Tool−DTS Wellsite Calibration − Ratio Measurement							
Master: 28−Feb−2010 14:11							
Thermal Near Corr. (Tank)	5800	5615	N/A	N/A	N/A	N/A	CPS
Thermal Far Corr. (Tank)	2400	2289	N/A	N/A	N/A	N/A	CPS
CNTC/CFTC (Tank)	2.159	2.453	N/A	N/A	N/A	N/A	
High resolution Integrated Logging Tool−DTS Wellsite Calibration − Accelerometer Calibration							
Before: 10−May−2010 20:41							
Z−Axis Acceleration	32.19	N/A	32.08	N/A	N/A	N/A	F/S2

The HGNS Neutron Master Calibration was done with the following parameters :

NCT−B Water Temperature 66.0 DEGF.
Thermal Housing Size 3.362 IN.
NSR−F serial number 0

High resolution Integrated Logging Tool−DTS / Equipment Identification

Primary Equipment:		
HILT Gamma−Ray Neutron Sonde−DTS	HGNS − H	3920
HGNS Gamma−Ray Device	HGR −	
HGNS Neutron Detector with Alpha Source	HCNT − H	
Z−Axis Accelerometer	HACC − H	2594
Compensated Neutron Box	CNB − AB	
HTBC Communication Assembly DTS Mode	HMCA − H	
Auxiliary Equipment:		
Neutron Calibration Tank	NCT − B	
Gamma Source Radioactive	GSR − U/Y	
HGNS Housing	HGNH −	

High resolution Integrated Logging Tool−DTS Wellsite Calibration
Detector Calibration

Phase	Gamma Ray Background GAPI	Value	Phase	Gamma Ray (Jig − Bkg) GAPI	Value	Phase	Gamma Ray (Calibrated) GAPI	Value
Before		31.45	Before		180.0	Before		165.0
0 (Minimum) 30.00 (Nominal) 120.0 (Maximum)			163.7 (Minimum) 180.0 (Nominal) 196.4 (Maximum)			150.0 (Minimum) 165.0 (Nominal) 180.0 (Maximum)		

Before: 9−May−2010 18:56

High resolution Integrated Logging Tool−DTS Wellsite Calibration
Zero Measurement

Phase	CNTC Background CPS	Value	Phase	CFTC Background CPS	Value
Master		27.81	Master		28.32
Before		26.60	Before		29.94
5.000 (Minimum) 27.81 (Nominal) 40.00 (Maximum)			5.000 (Minimum) 28.32 (Nominal) 40.00 (Maximum)		

Master: 28−Feb−2010 14:11 Before: 9−May−2010 18:57

High resolution Integrated Logging Tool−DTS Wellsite Calibration

Ratio Measurement

Phase	Thermal Near Corr. (Tank) CPS	Value	Phase	Thermal Far Corr. (Tank) CPS	Value	Phase	CNTC/CFTC (Tank)	Value
Master		5615	Master		2289	Master		2.453
	4700 (Minimum) 5800 (Nominal) 6900 (Maximum)			1900 (Minimum) 2400 (Nominal) 2900 (Maximum)			2.120 (Minimum) 2.159 (Nominal) 2.540 (Maximum)	

Master: 28−Feb−2010 14:11

High resolution Integrated Logging Tool−DTS
Wellsite Calibration

Accelerometer Calibration

Phase	Z−Axis Acceleration F/S2	Value
Before		32.08
	31.53 (Minimum) 32.19 (Nominal) 32.84 (Maximum)	

Before: 10−May−2010 20:41

High resolution Integrated Logging Tool−DTS Master Calibration

Zero Measurement

Phase	CNTC Background CPS	Value	Phase	CFTC Background CPS	Value
Master		27.81	Master		28.32
	5.000 (Minimum) 27.81 (Nominal) 40.00 (Maximum)			5.000 (Minimum) 28.32 (Nominal) 40.00 (Maximum)	

Master: 28−Feb−2010 14:11

High resolution Integrated Logging Tool−DTS Master Calibration

Tank Measurement

Phase	Thermal Near Corr. (Tank) CPS	Value	Phase	Thermal Far Corr. (Tank) CPS	Value	Phase	CNTC/CFTC (Tank)	Value
Master		5615	Master		2289	Master		2.453
	4700 (Minimum) 5800 (Nominal) 6900 (Maximum)			1900 (Minimum) 2400 (Nominal) 2900 (Maximum)			2.120 (Minimum) 2.159 (Nominal) 2.540 (Maximum)	

Master: 28−Feb−2010 14:11

DTS Telemetry Tool / Equipment Identification

Primary Equipment:		
DTC−H Auxiliary Cartridge	DTCH − A	
DTC−H Telemetry Cartridge	DTCH − A	8907
Auxiliary Equipment:		
DTCH Telemetry Cartridge Housing	ECH − KC	

Company: **ExxonMobil Production Corp**

Schlumberger

Well: **PCU 297−11C6**
Field: **Piceance Creek**
County: **Rio Blanco**
State: **Colorado**

IMAGING BEHIND CASING
ULTRASONIC TOOL
CCL / GAMMA RAY