Schlumberger

IBC SLG COMPOSITE

MAXIS Field Log

Company: ExxonMobil Production Corp. **Well: PCU 197−34A7**

Input DLIS Files

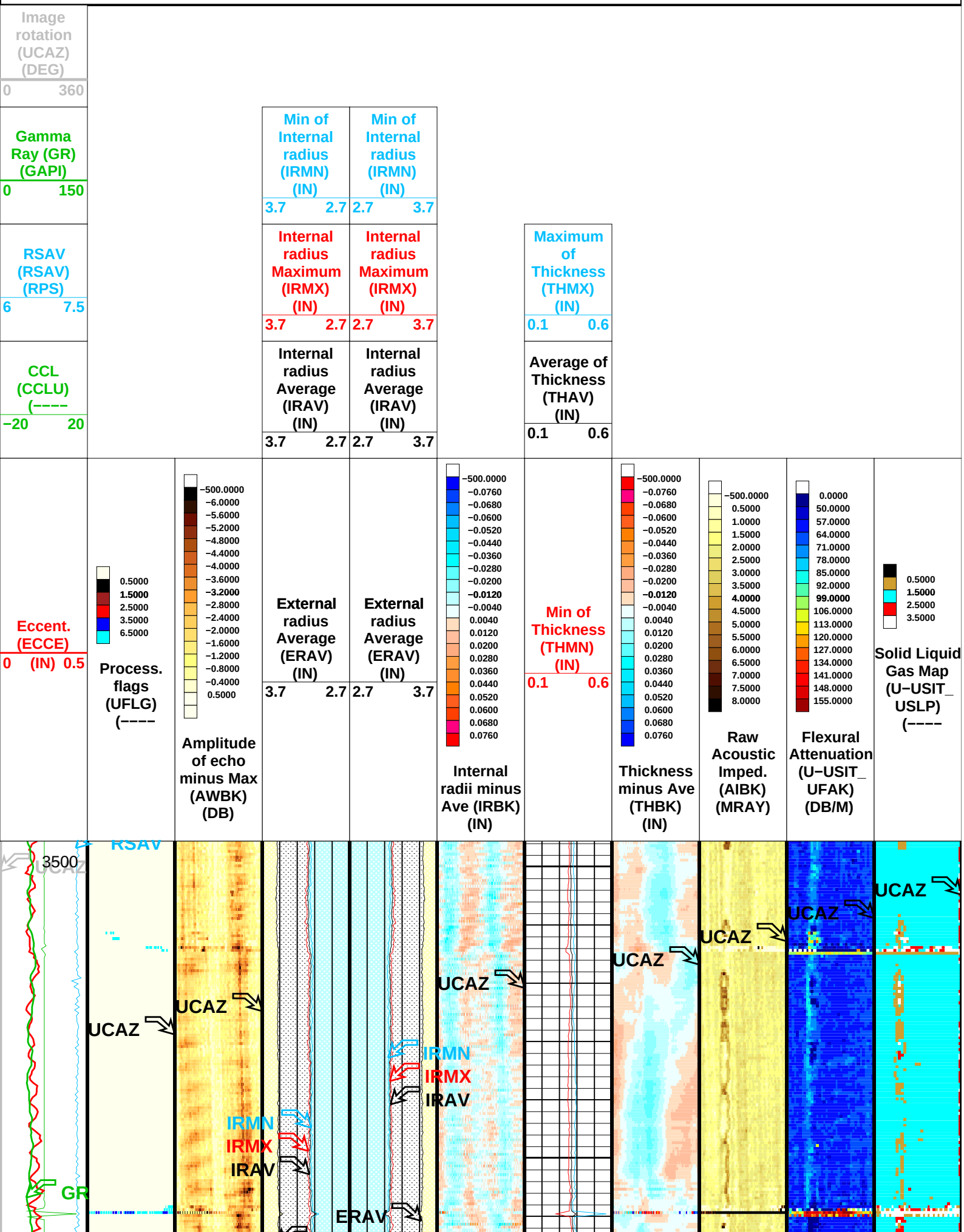
	USI_TLD_MCFL_CNL_003PUP	FN:2		19−Aug−2010 15:14	8250.5 FT	3495.5 FT

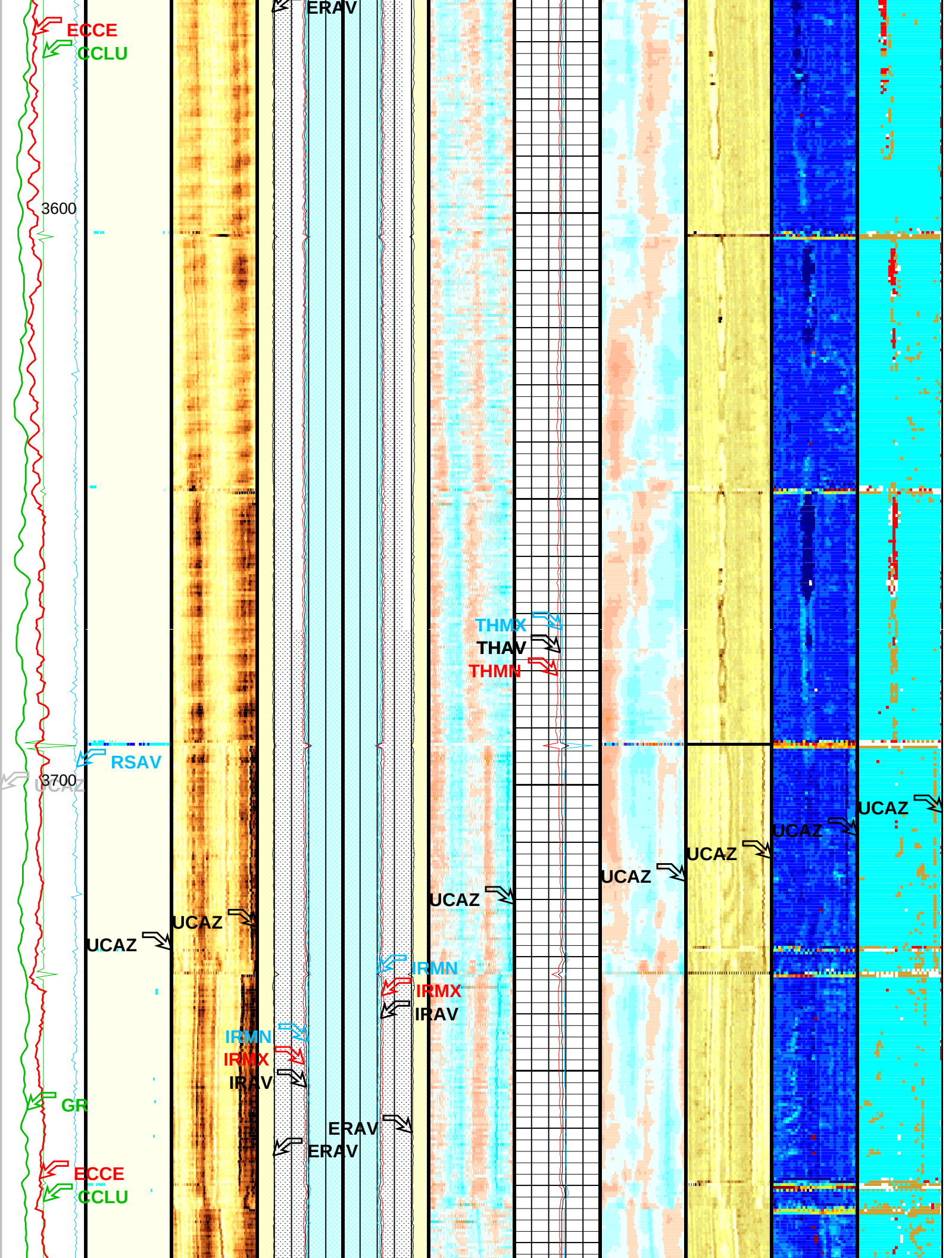
Output DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_006PUP	FN:4	PRODUCER	19−Aug−2010 16:32	8250.5 FT	3495.5 FT

OP System Version: 18C0−147

USIT−D	18C0−147	HILTH−FTB	18C0−147
DTC−H	18C0−147		

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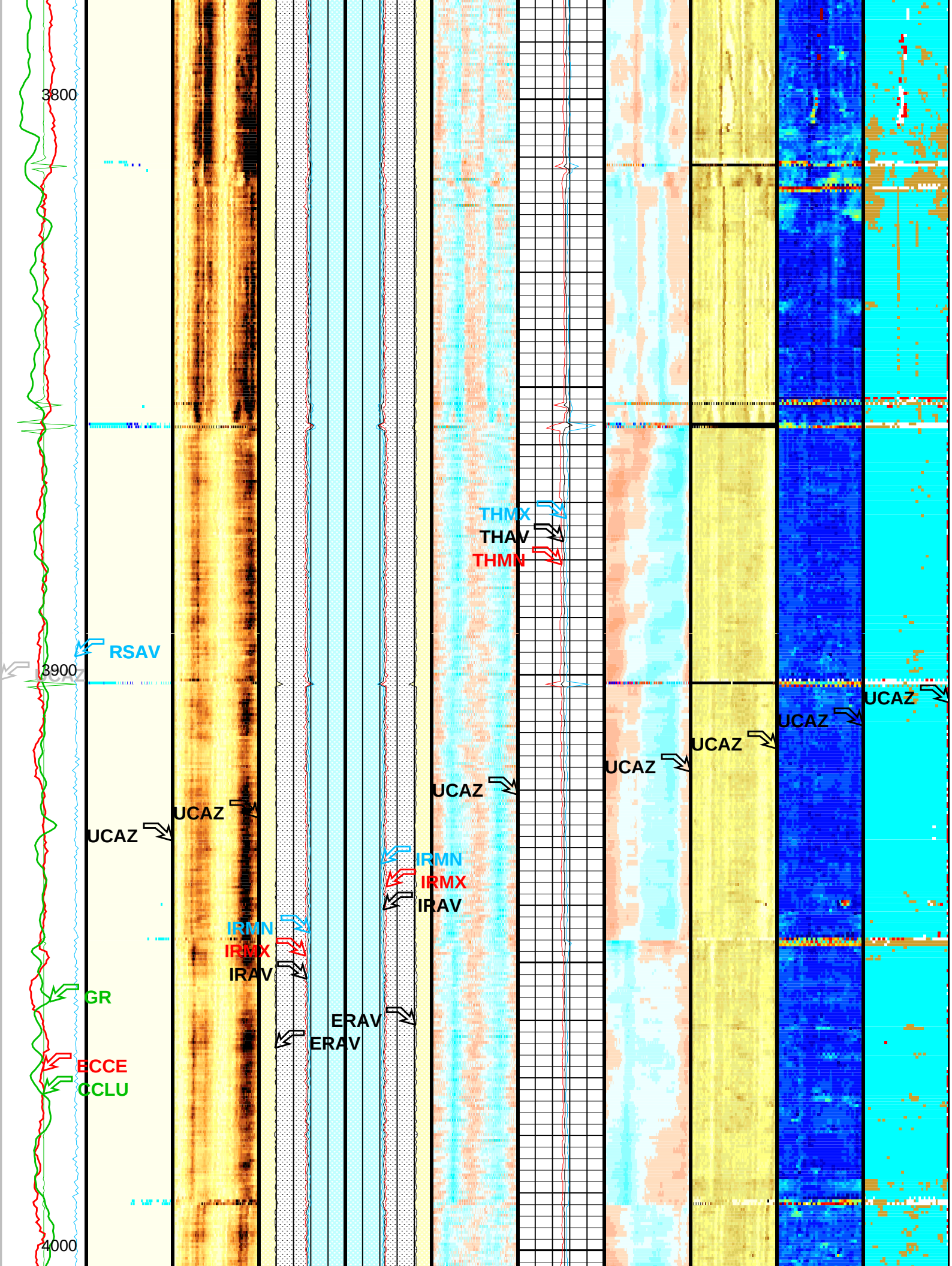
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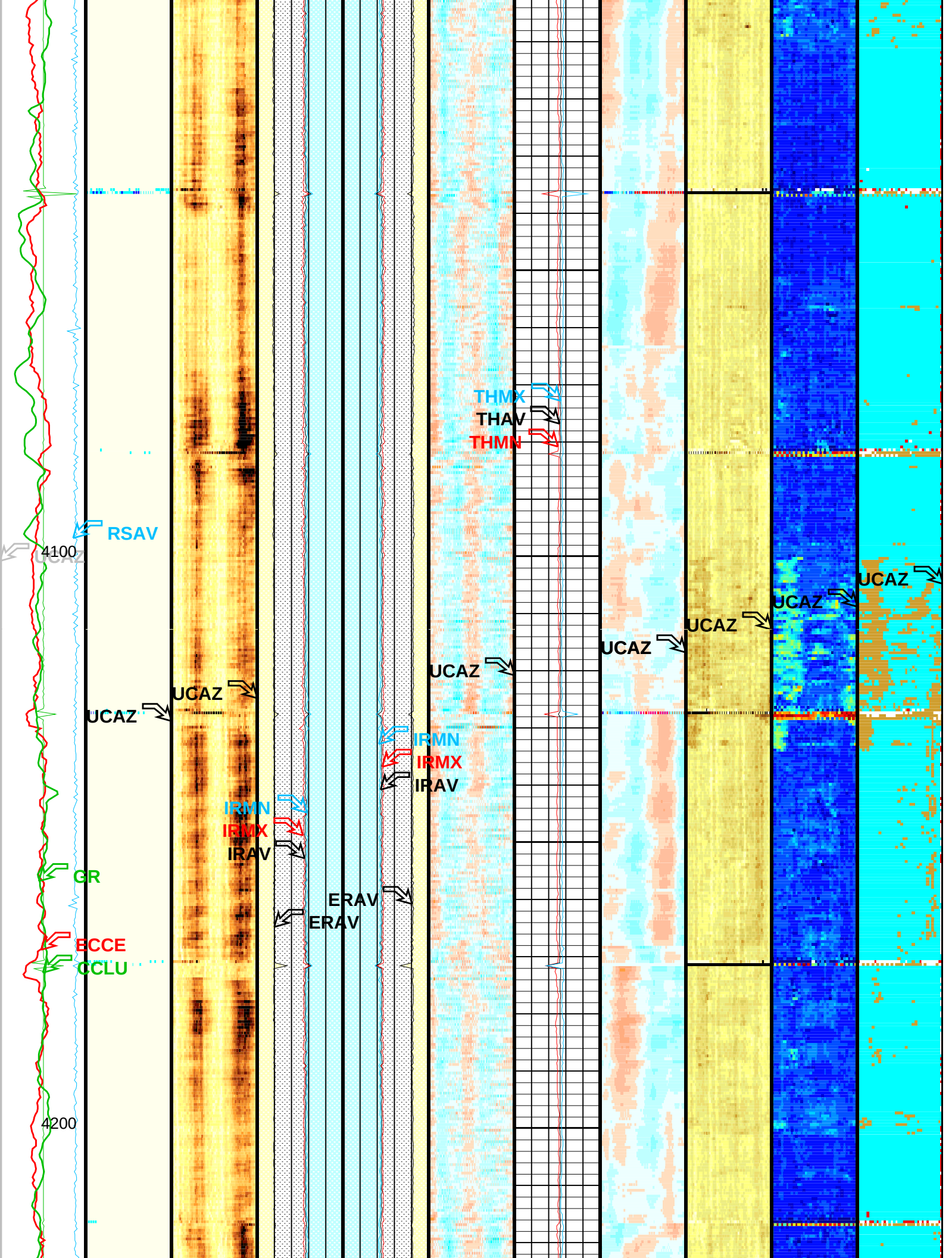
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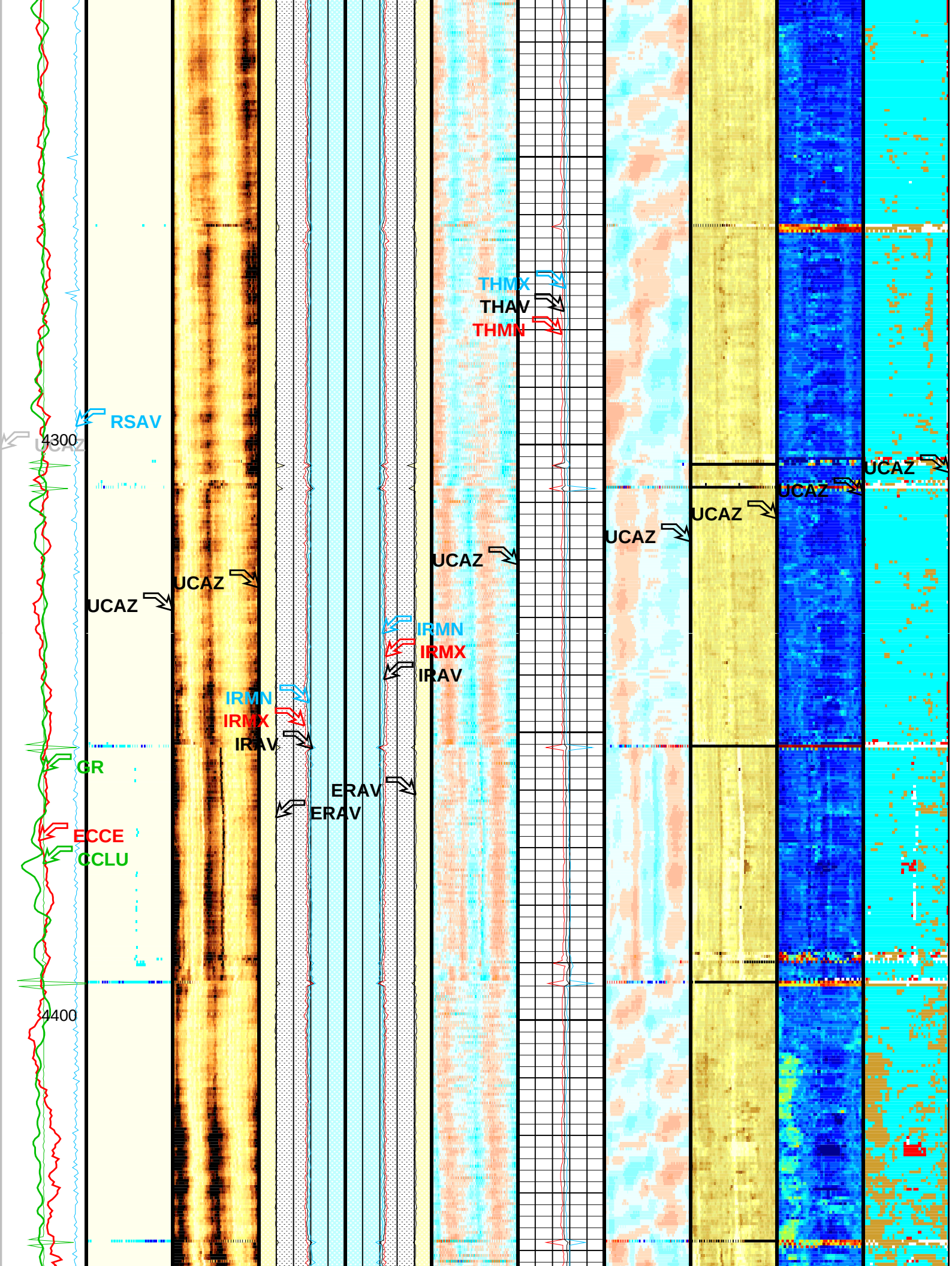
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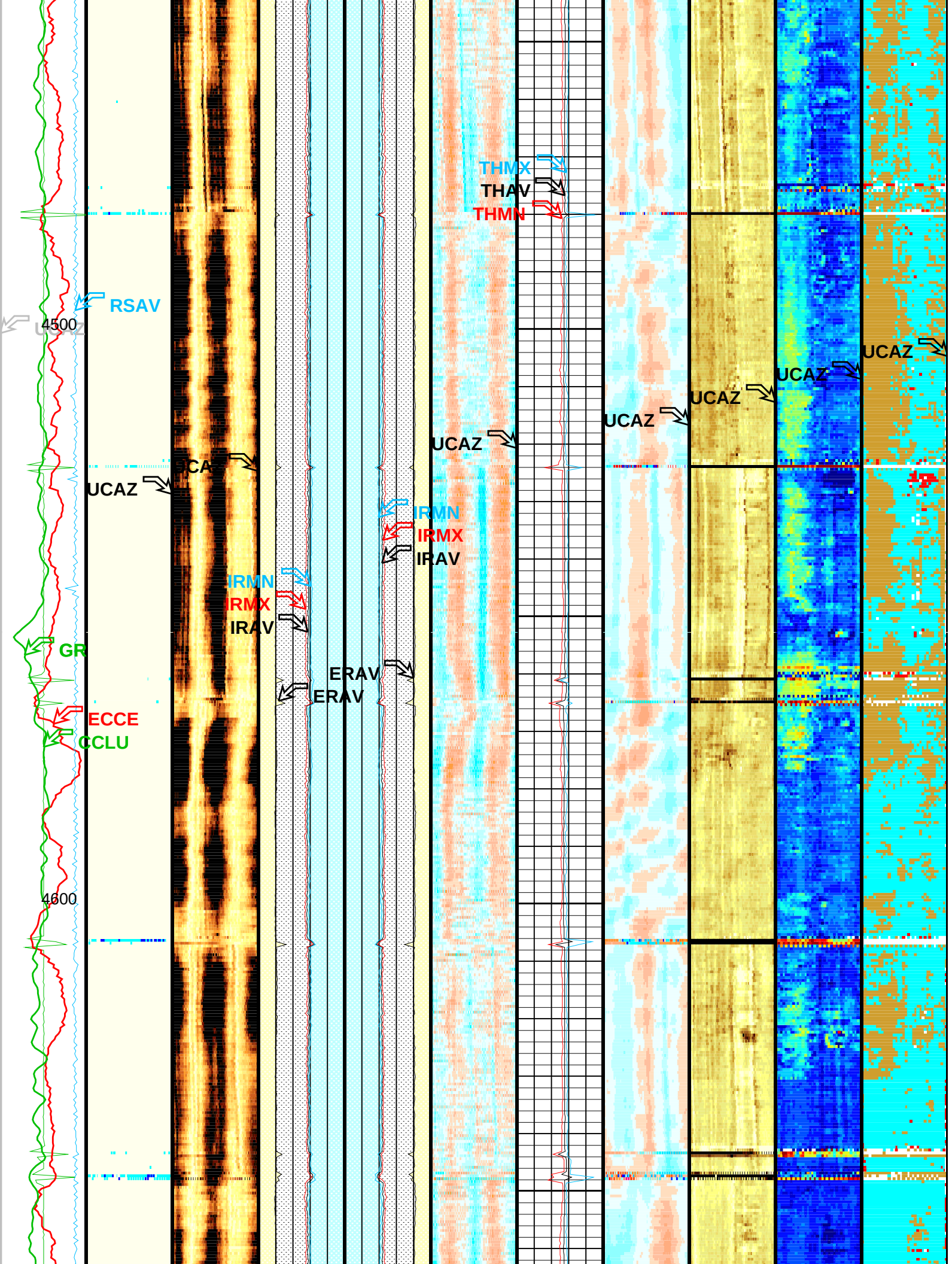
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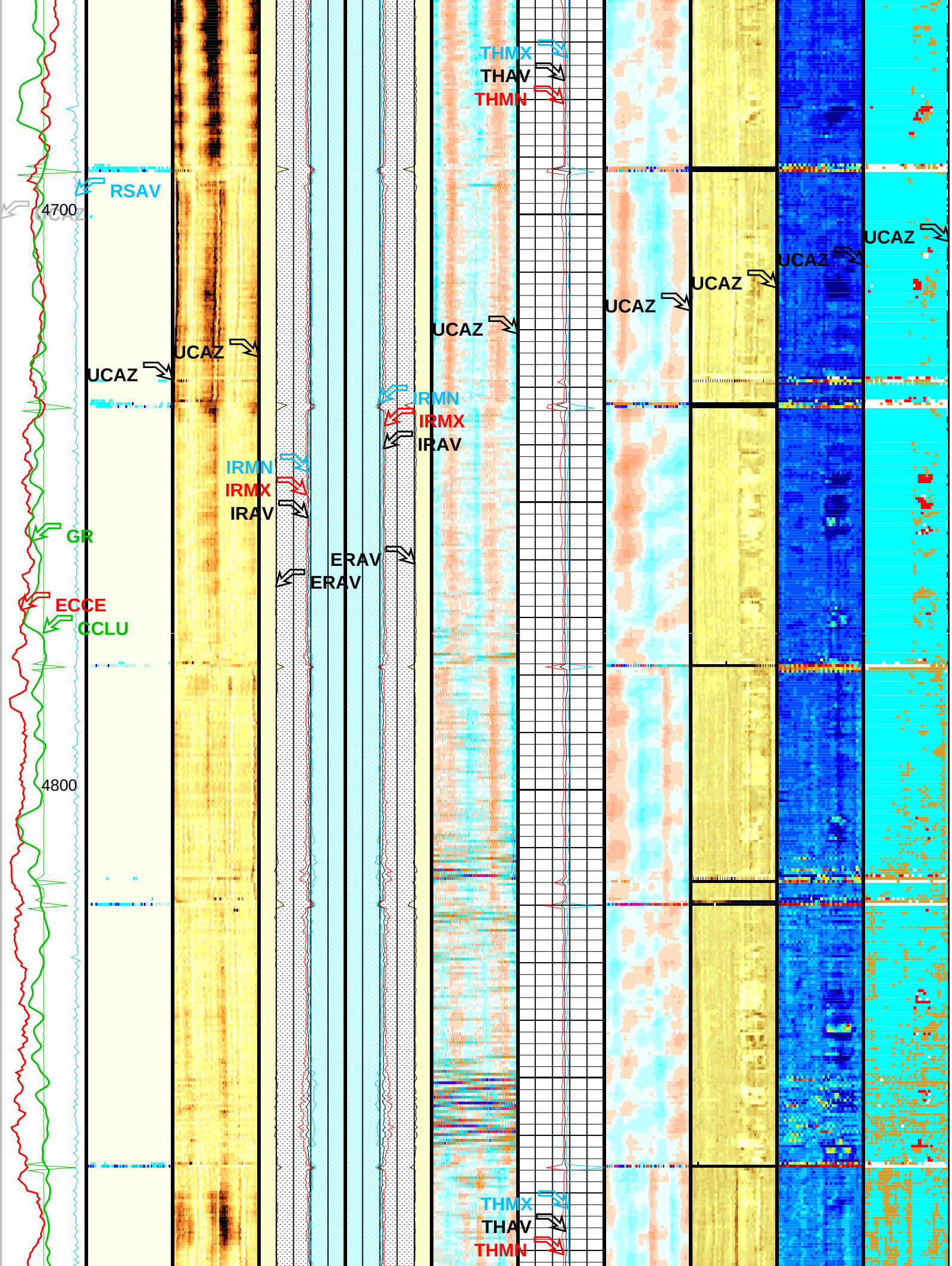
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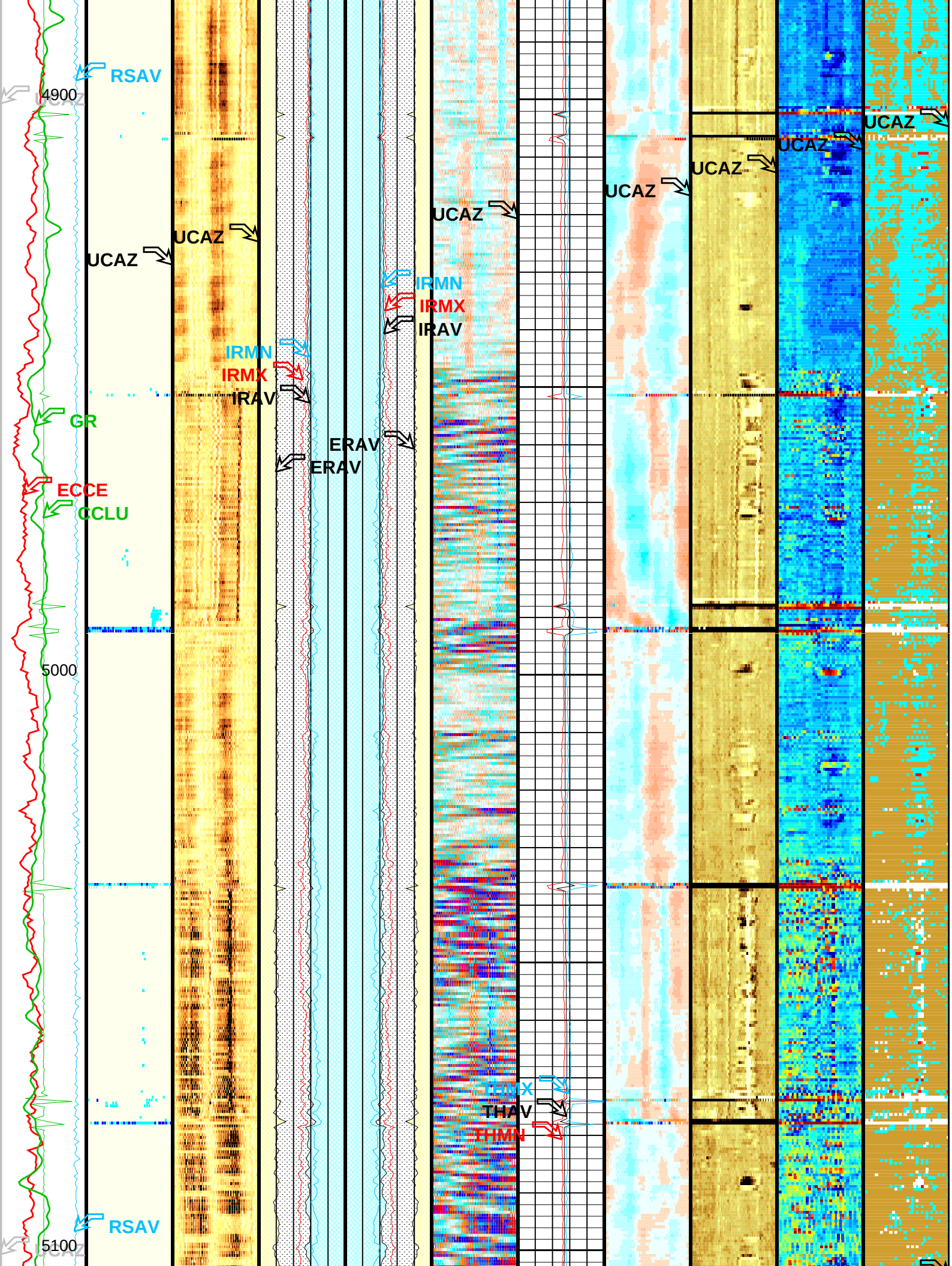
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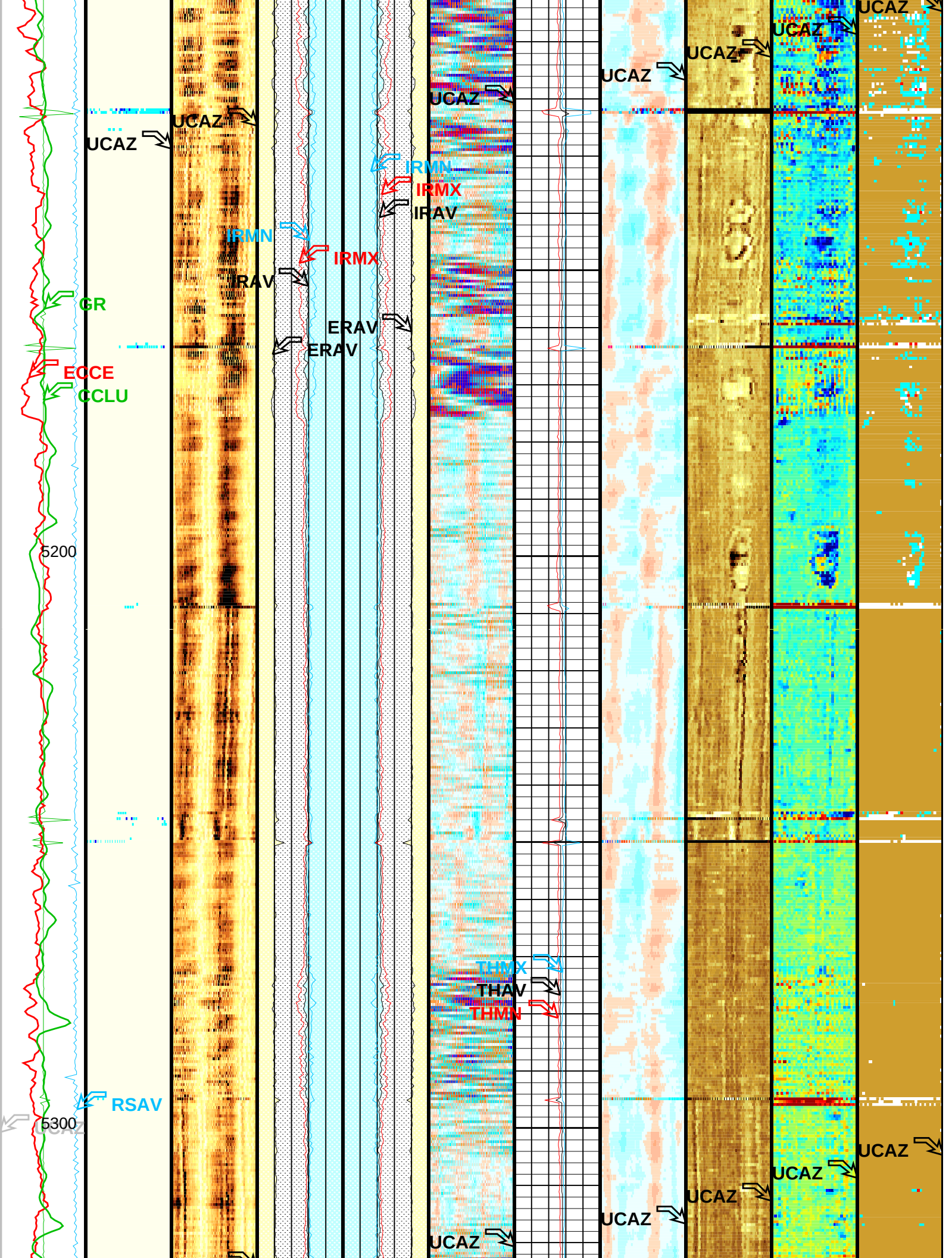
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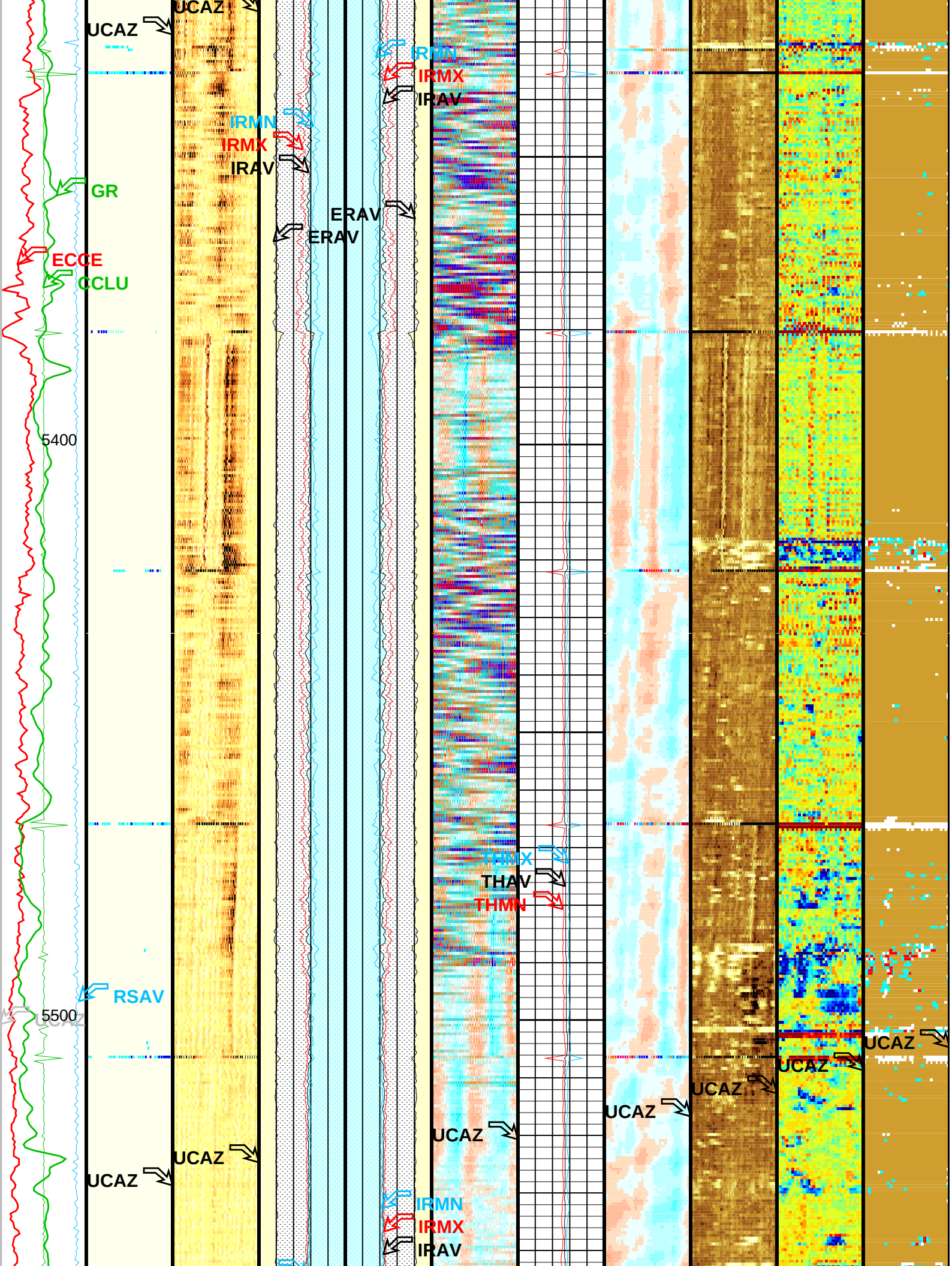
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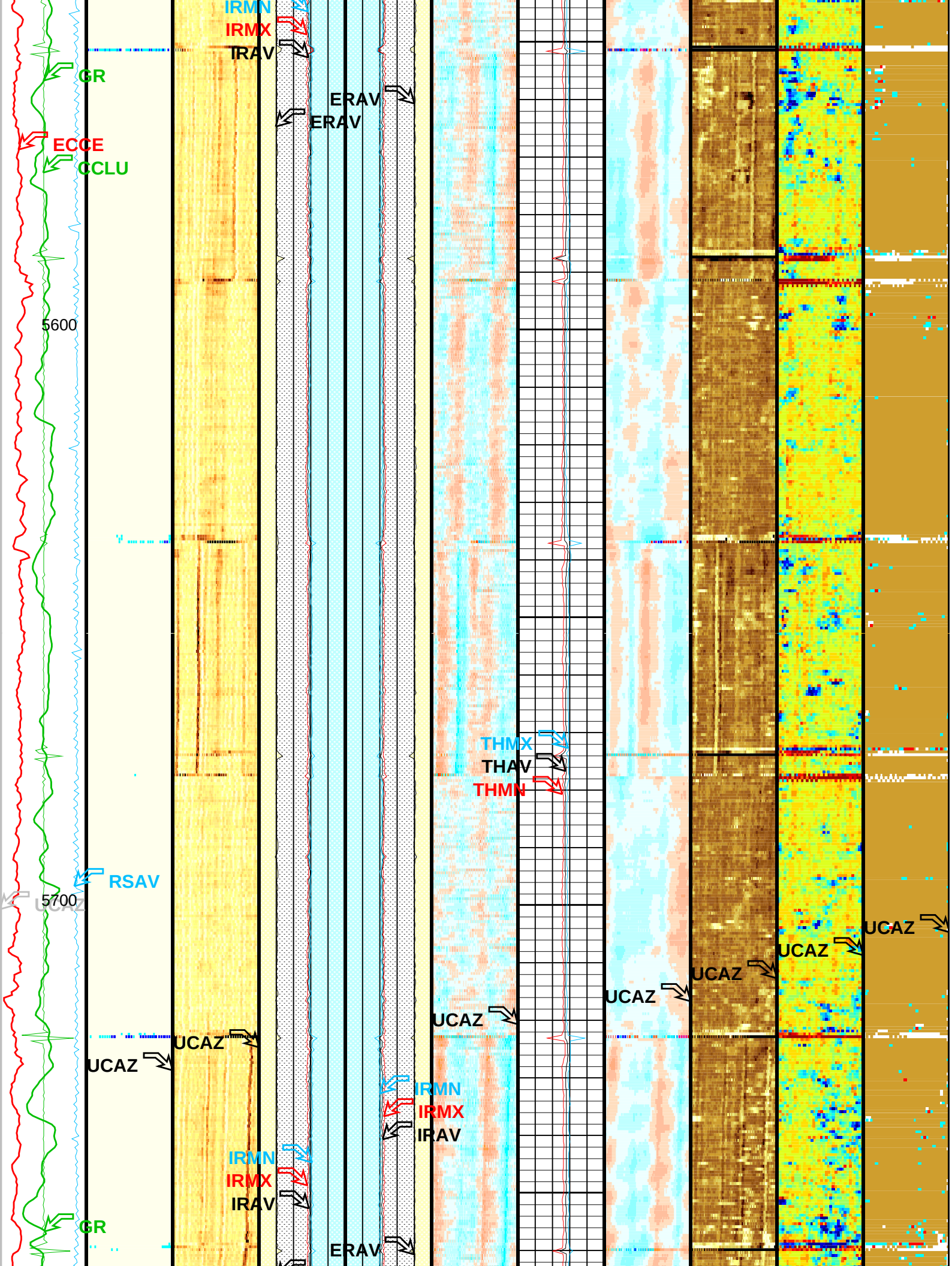
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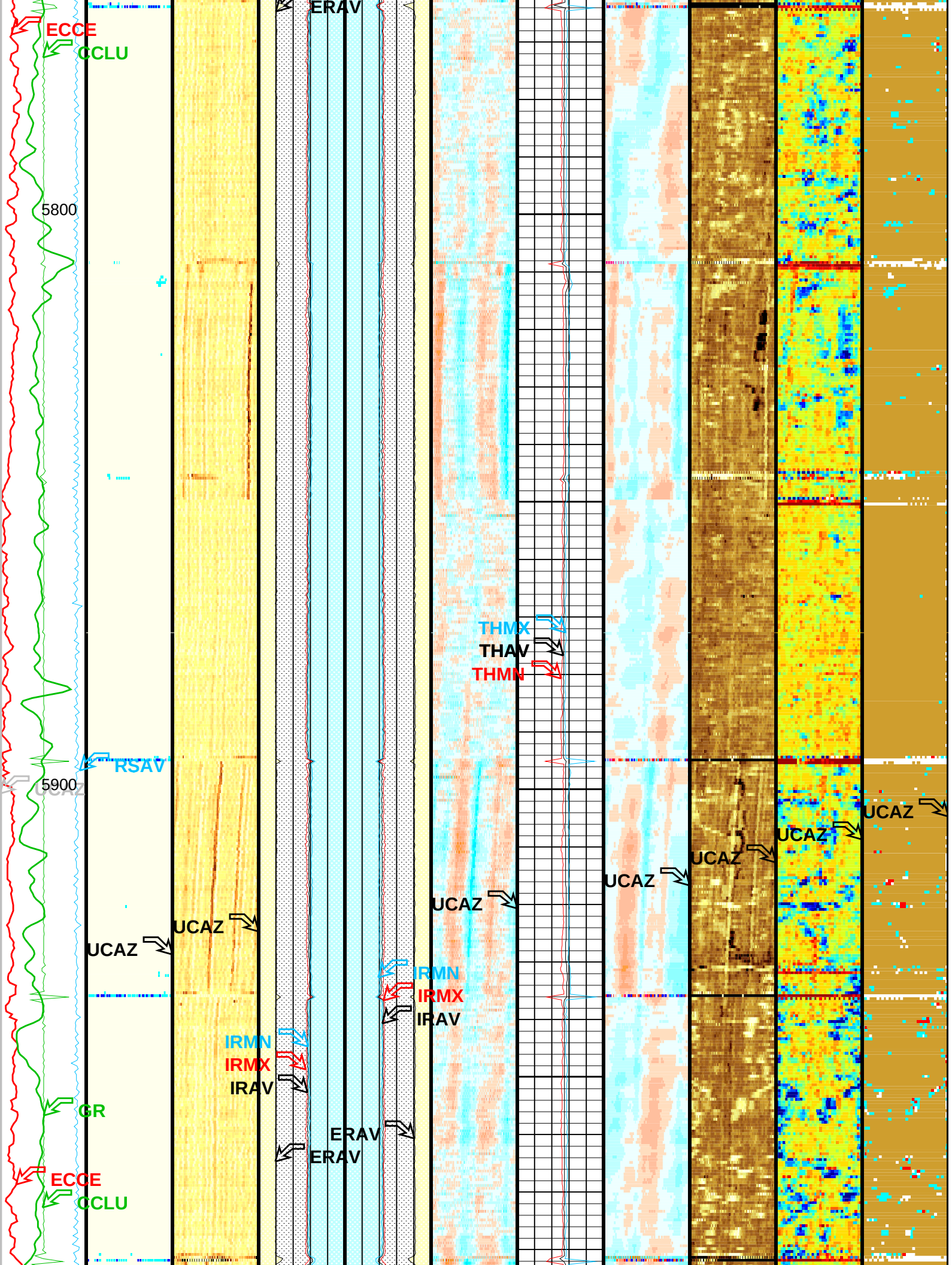
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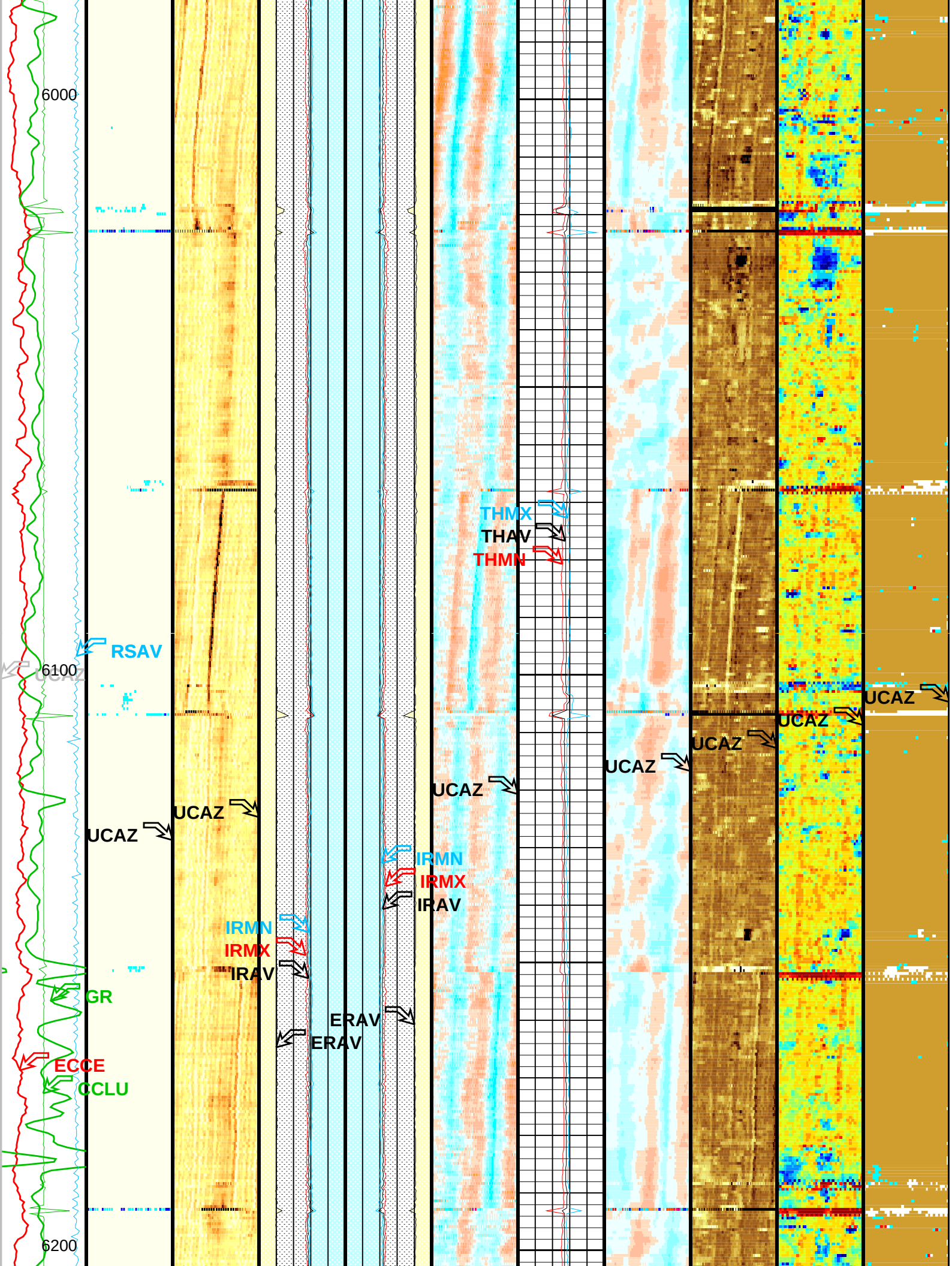
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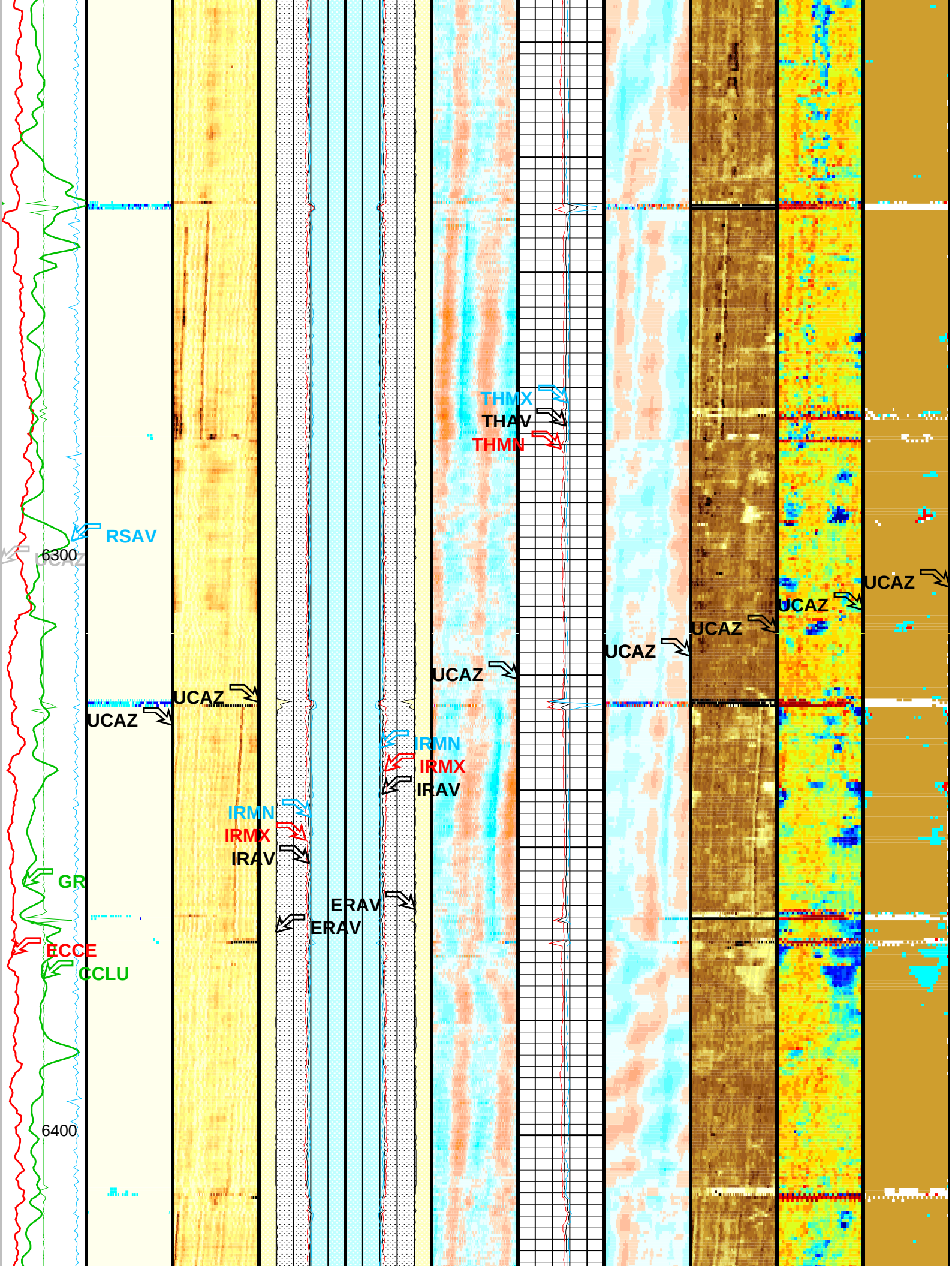
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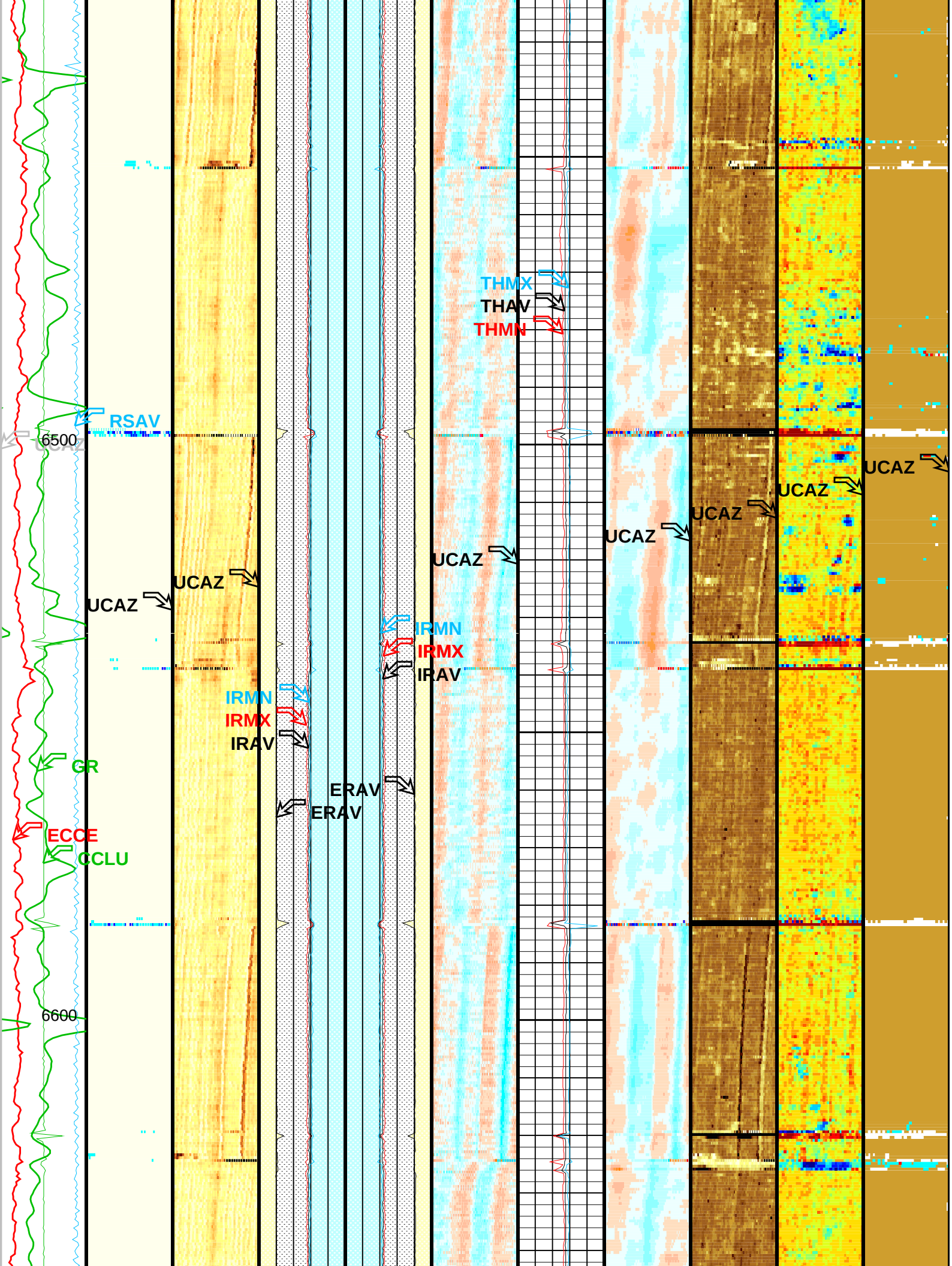
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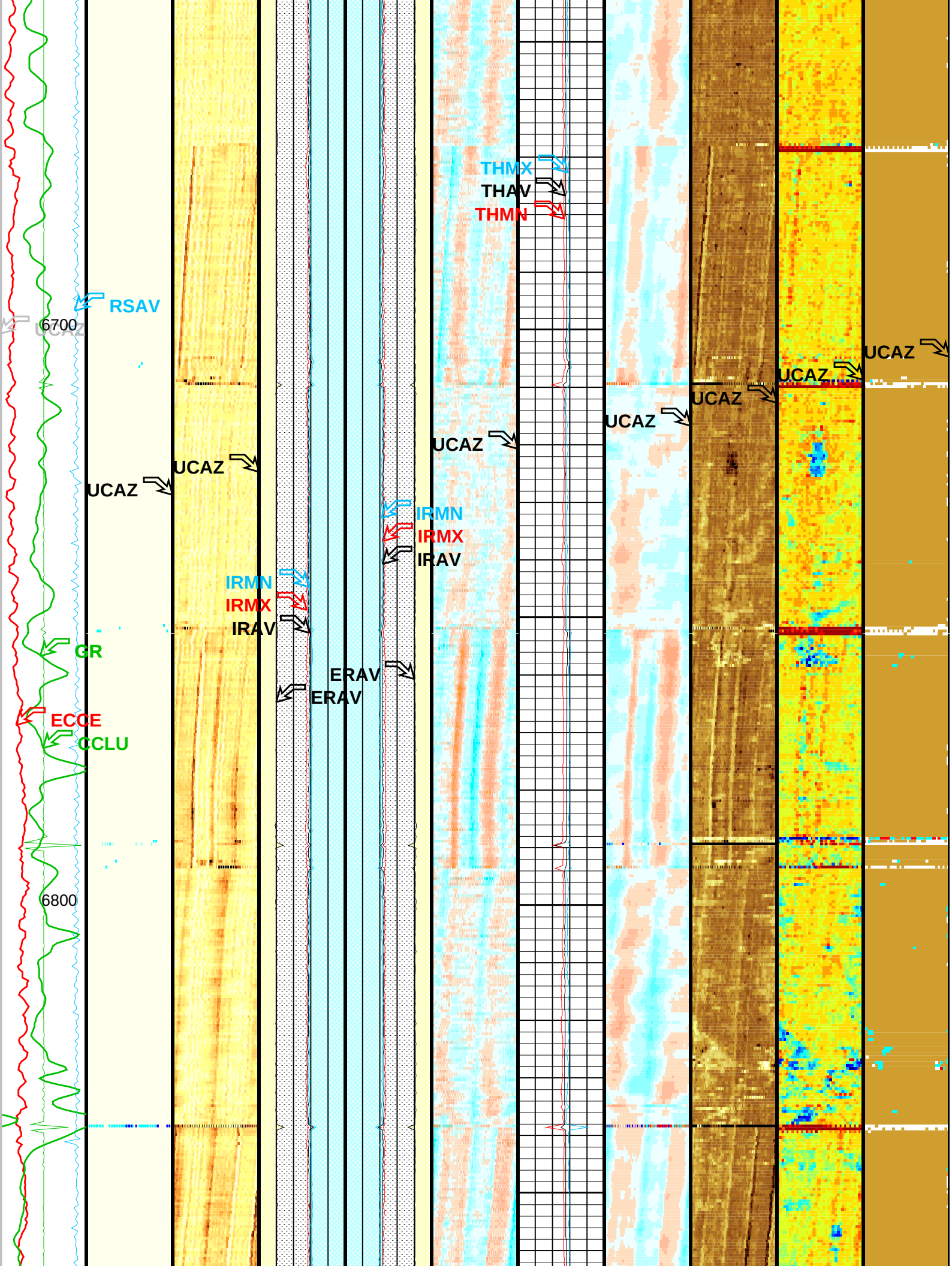
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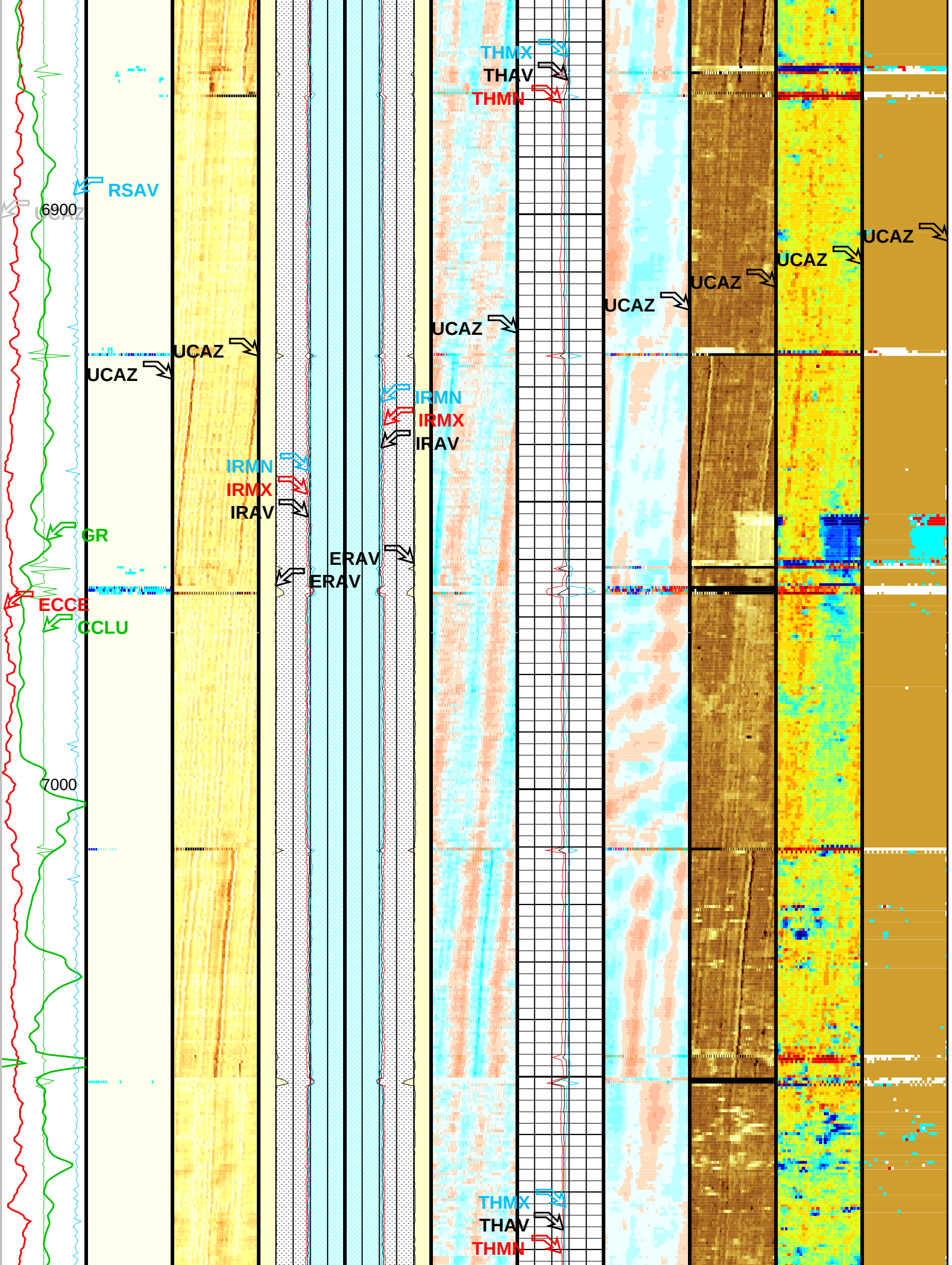
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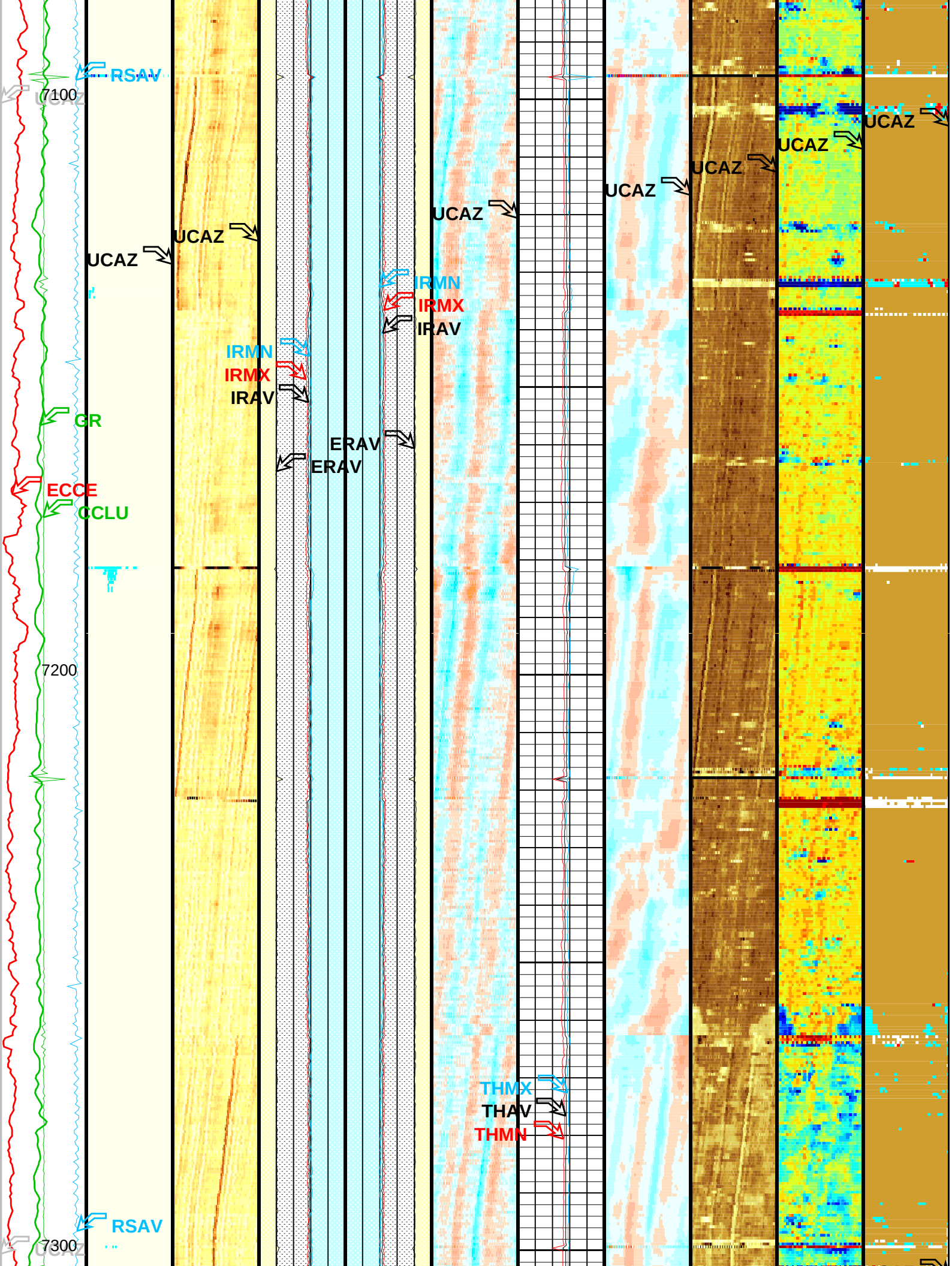
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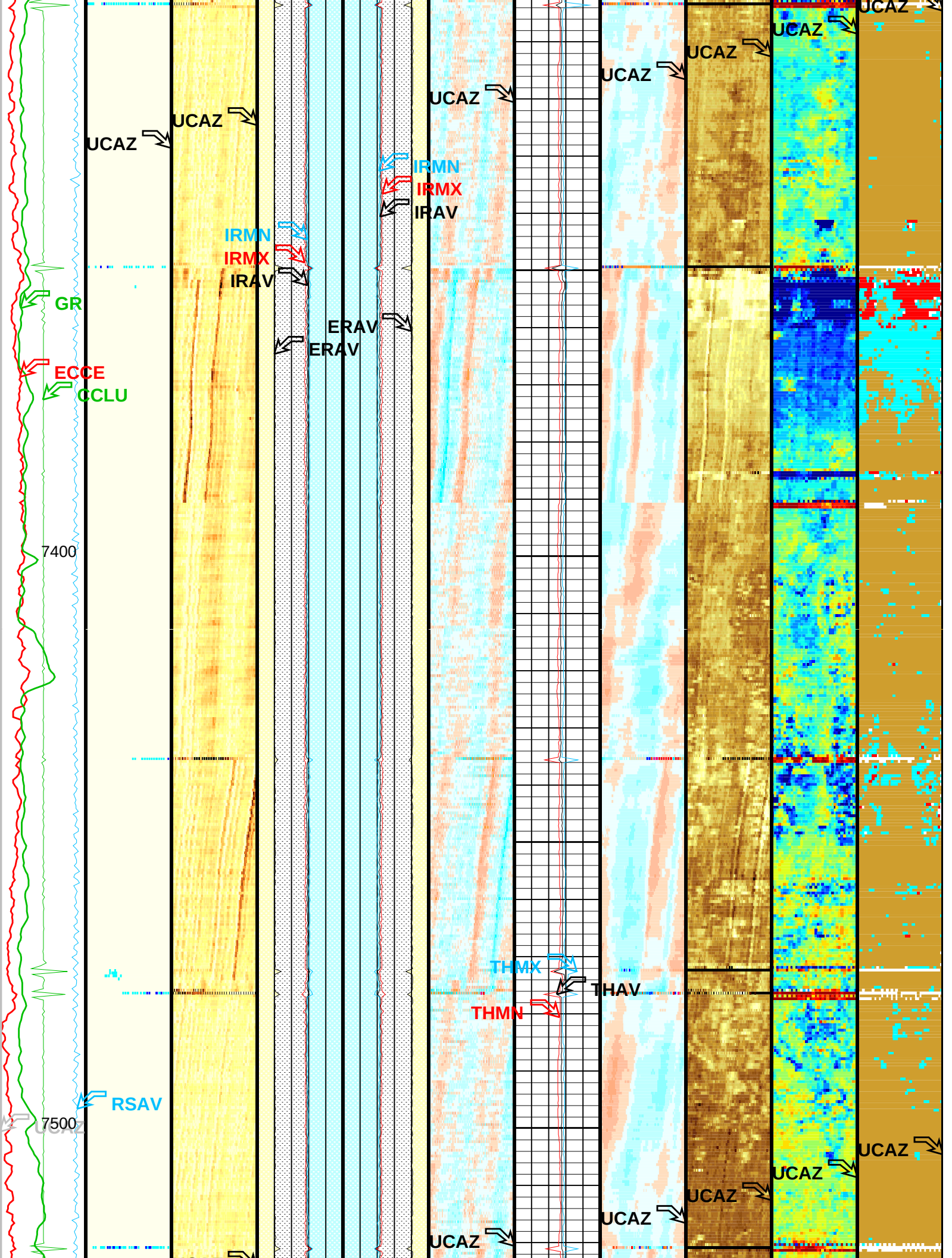
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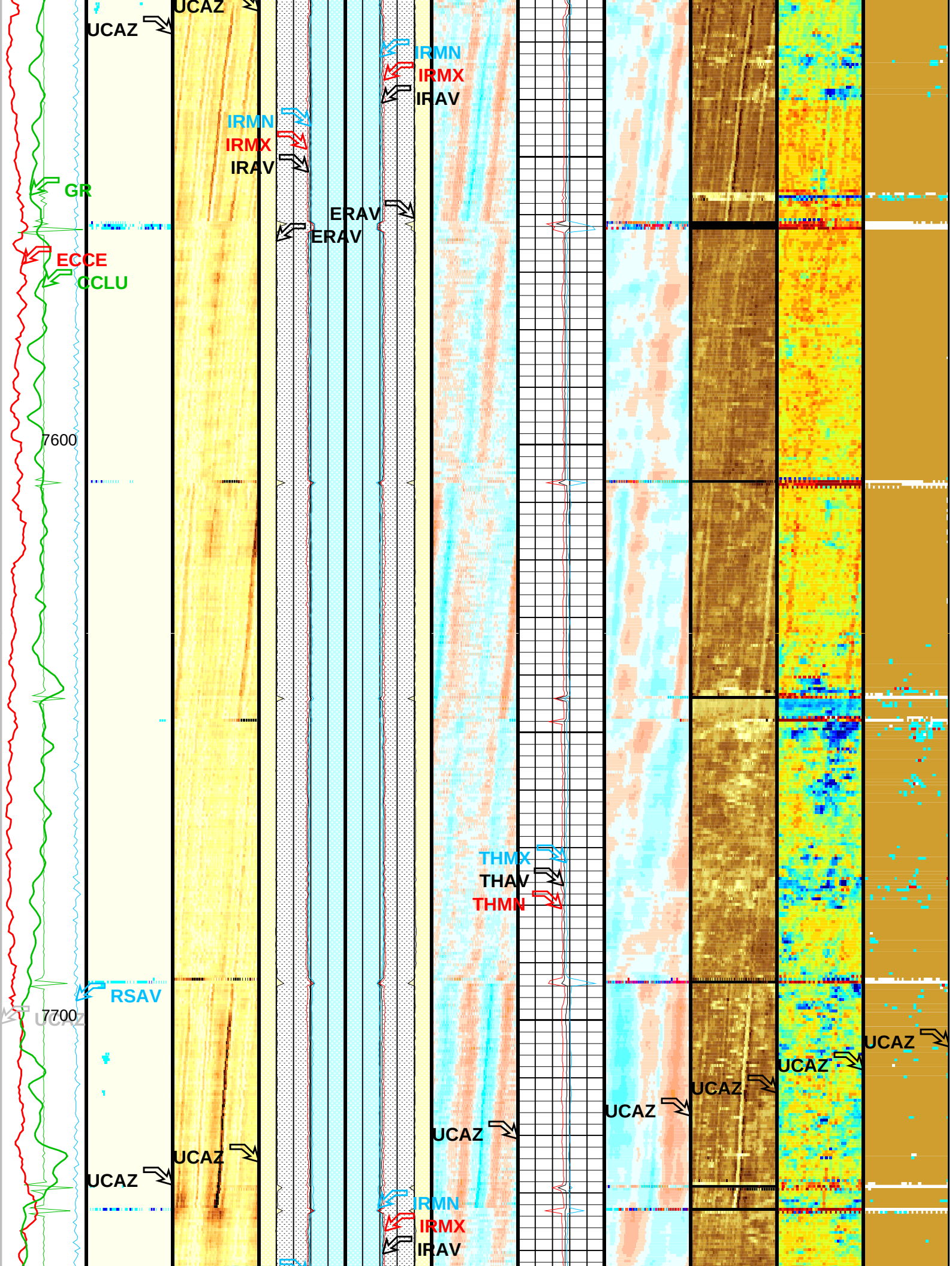
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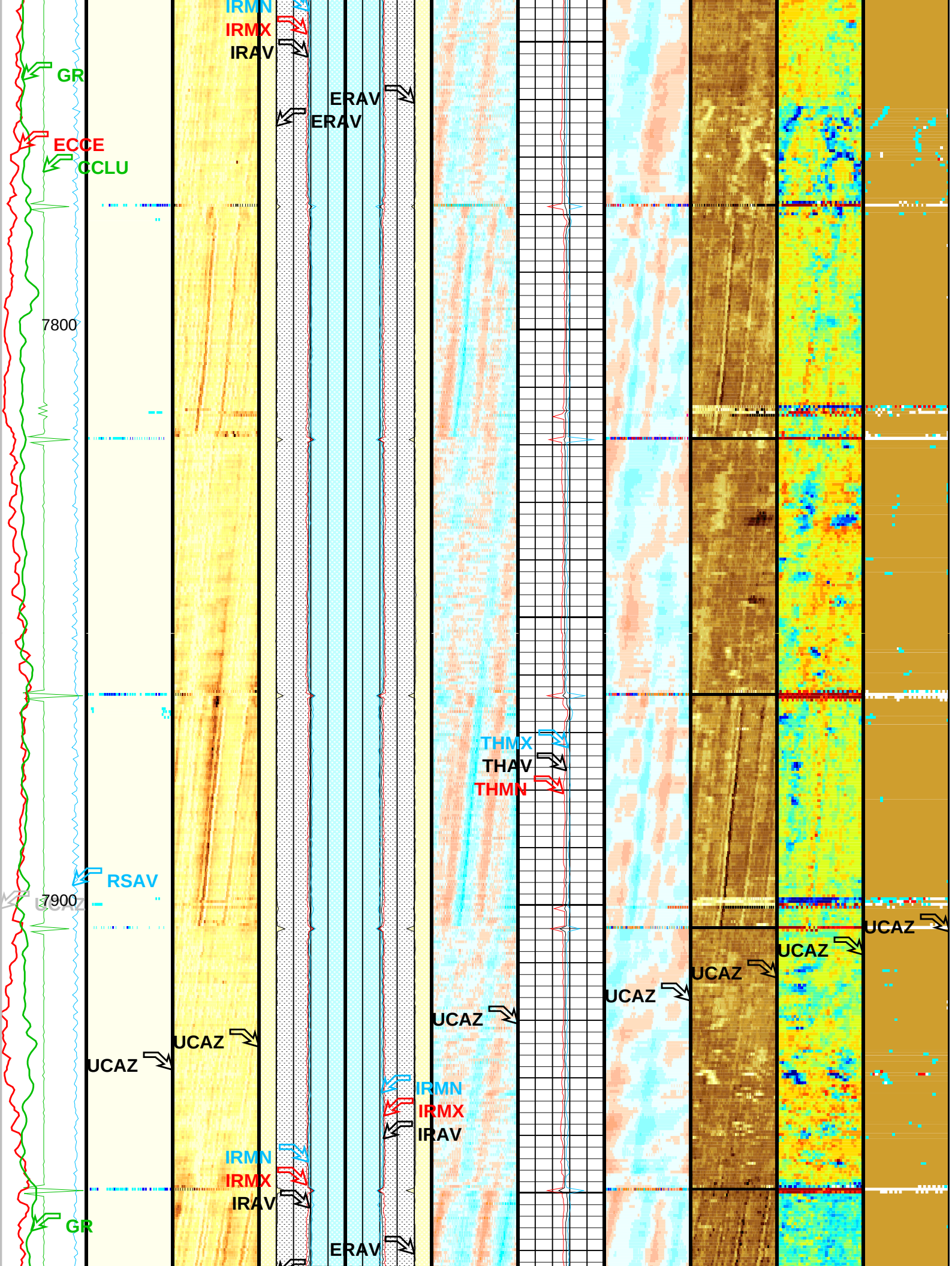
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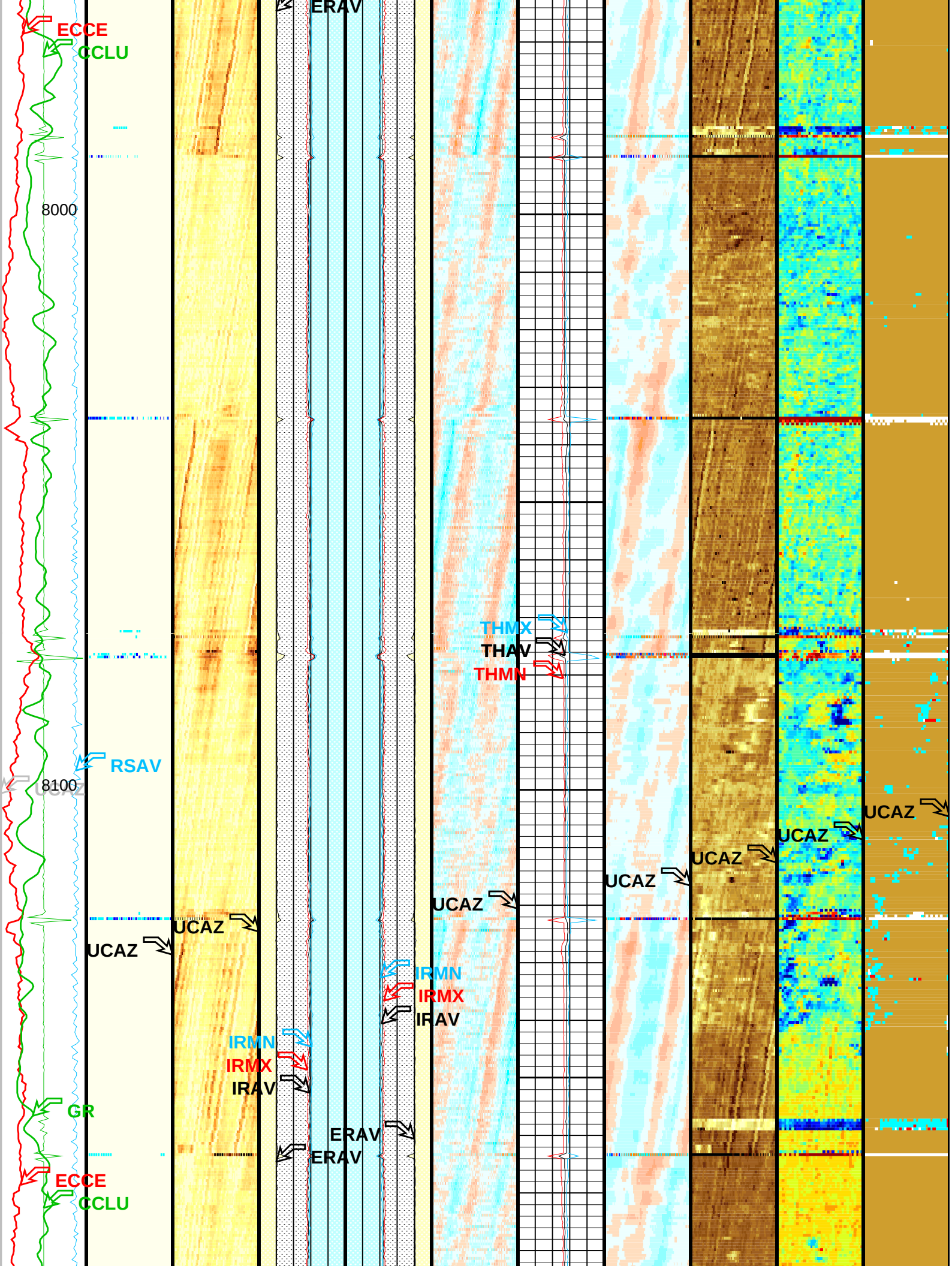
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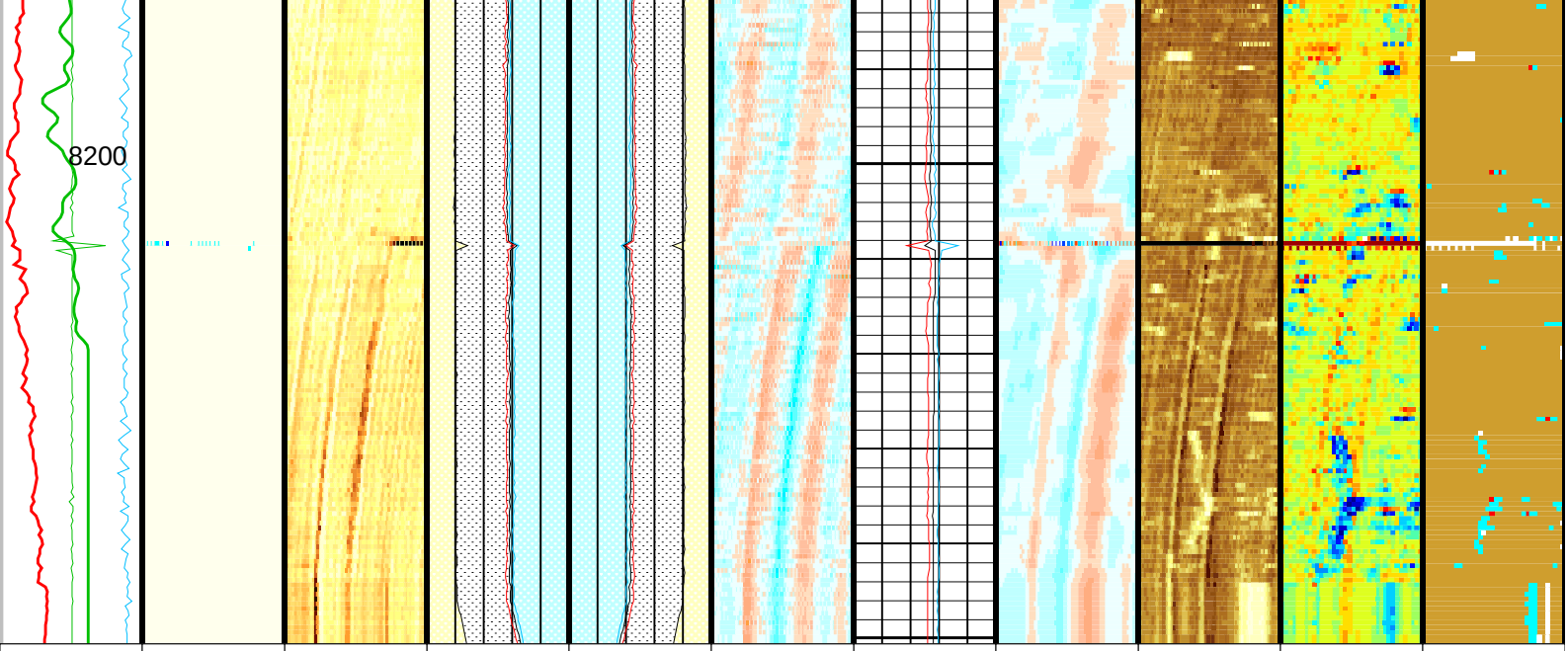

Eccent. (ECCE) 0 (IN) 0.5	Process. flags (UFLG) (---- 0.5000 1.5000 2.5000 3.5000 6.5000	Amplitude of echo minus Max (AWBK) (DB) −500.0000 −6.0000 −5.6000 −5.2000 −4.8000 −4.4000 −4.0000 −3.6000 −3.2000 −2.8000 −2.4000 −2.0000 −1.6000 −1.2000 −0.8000 −0.4000 0.5000	External radius Average (ERAV) (IN) 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					
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Format: USI_IBC_SLG_Composite Vertical Scale: 5" per 100' Graphics File Created: 19−Aug−2010 16:32

QP System Version: 18C0−147

OP System Version: 18C0−147

USIT−D	18C0−147	HILTH−FTB	18C0−147
DTC−H	18C0−147		

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	110	V
FSOD	Fluid Slowness Fits Casing Outer Diameter	5_UFSL_N_ZMUD	
IMAR	Image Rotation	OFF	
MW	Mud Weight	8.4	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	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	46.25	MRAY
ZINI	Initial Estimate of Cement Impedance	−1	MRAY
ZMUD	Acoustic Impedance of Mud	1.85	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	0.0	FT
DORL	Depth Offset for Repeat Analysis	0.0	FT
PP	Playback Processing	NORMAL	

Input DLIS Files

USI_TLD_MCFL_CNL_003PUP FN:2 19−Aug−2010 15:14 8250.5 FT 3495.5 FT

Output DLIS Files

DEFAULT USI_TLD_MCFL_CNL_006PUP FN:4 PRODUCER 19−Aug−2010 16:32

Schlumberger

VDL WIDE

MAXIS Field Log

Company: ExxonMobil Production Corp. **Well: PCU 197−34A7**

Input DLIS Files

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Output DLIS Files

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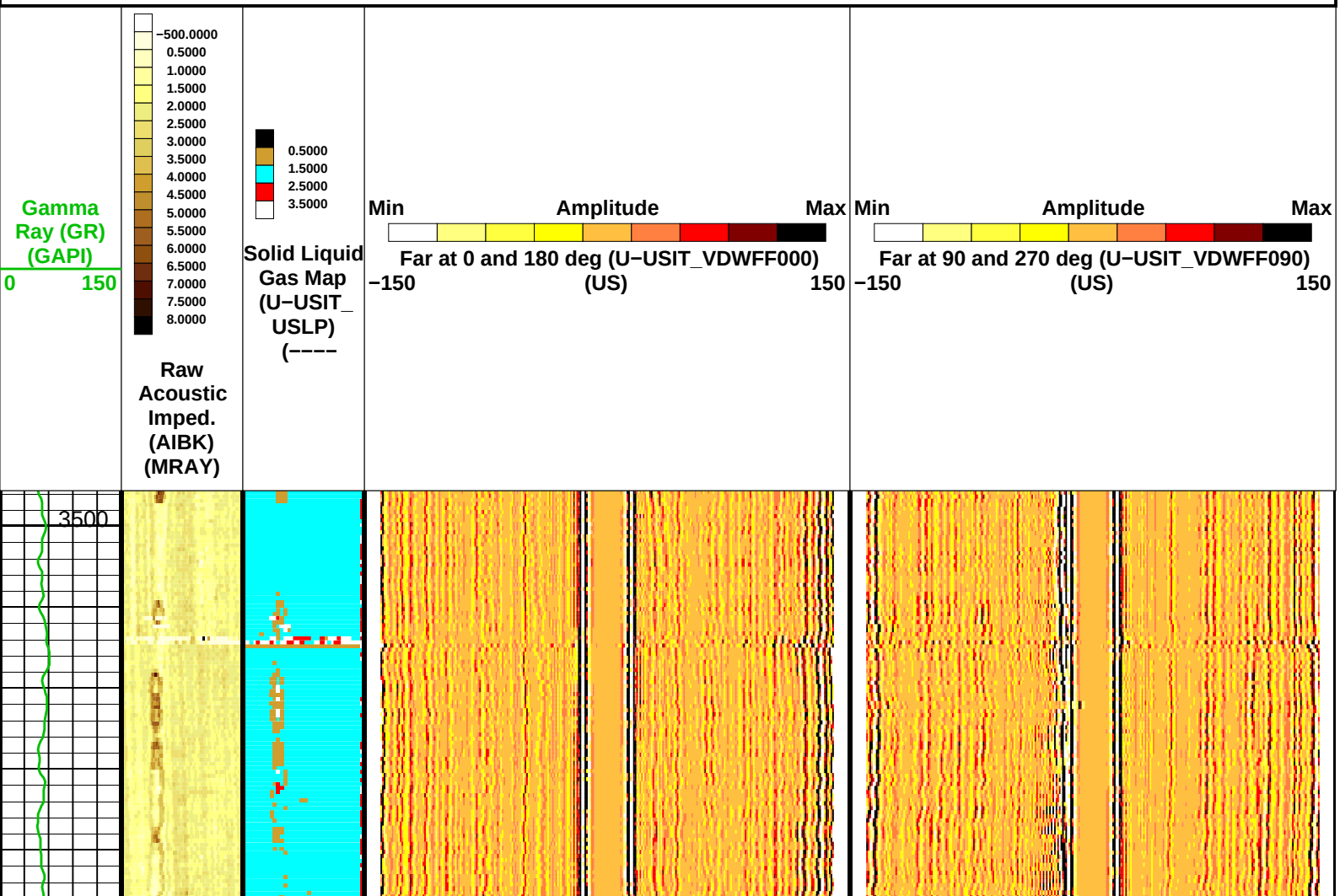
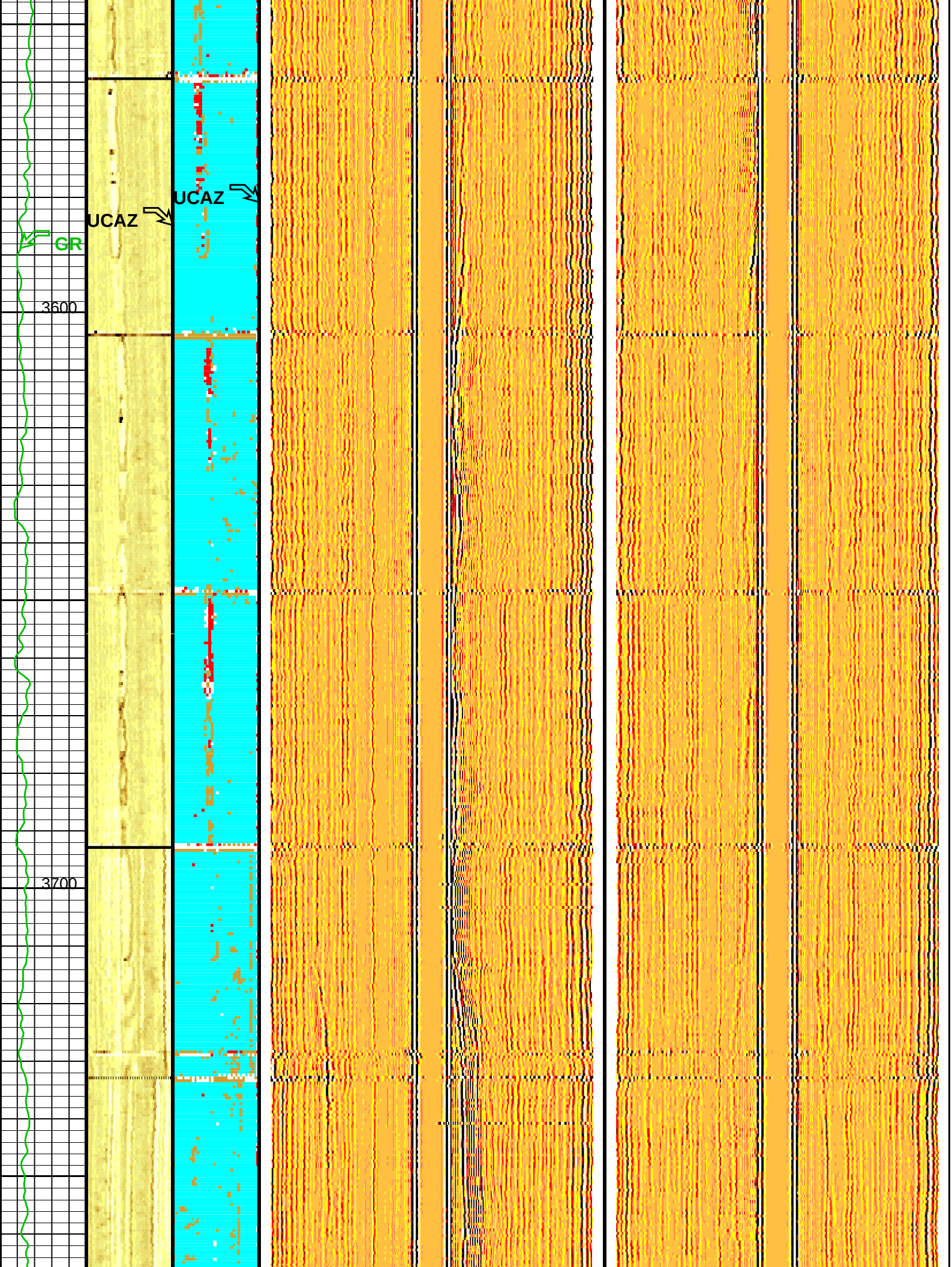
OP System Version: 18C0−147

USIT−D 18C0−147 HILTH−FTB 18C0−147
DTC−H 18C0−147

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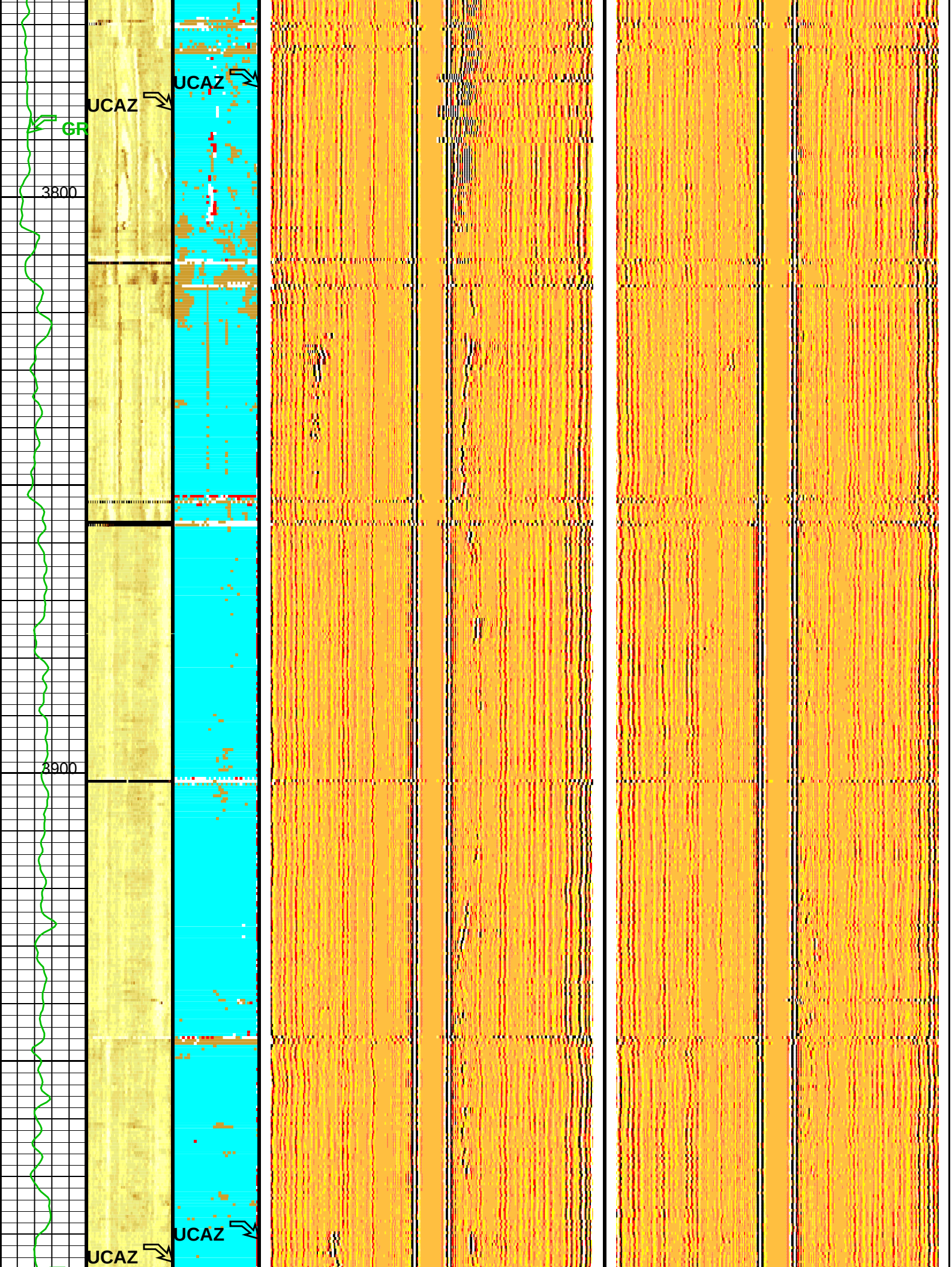
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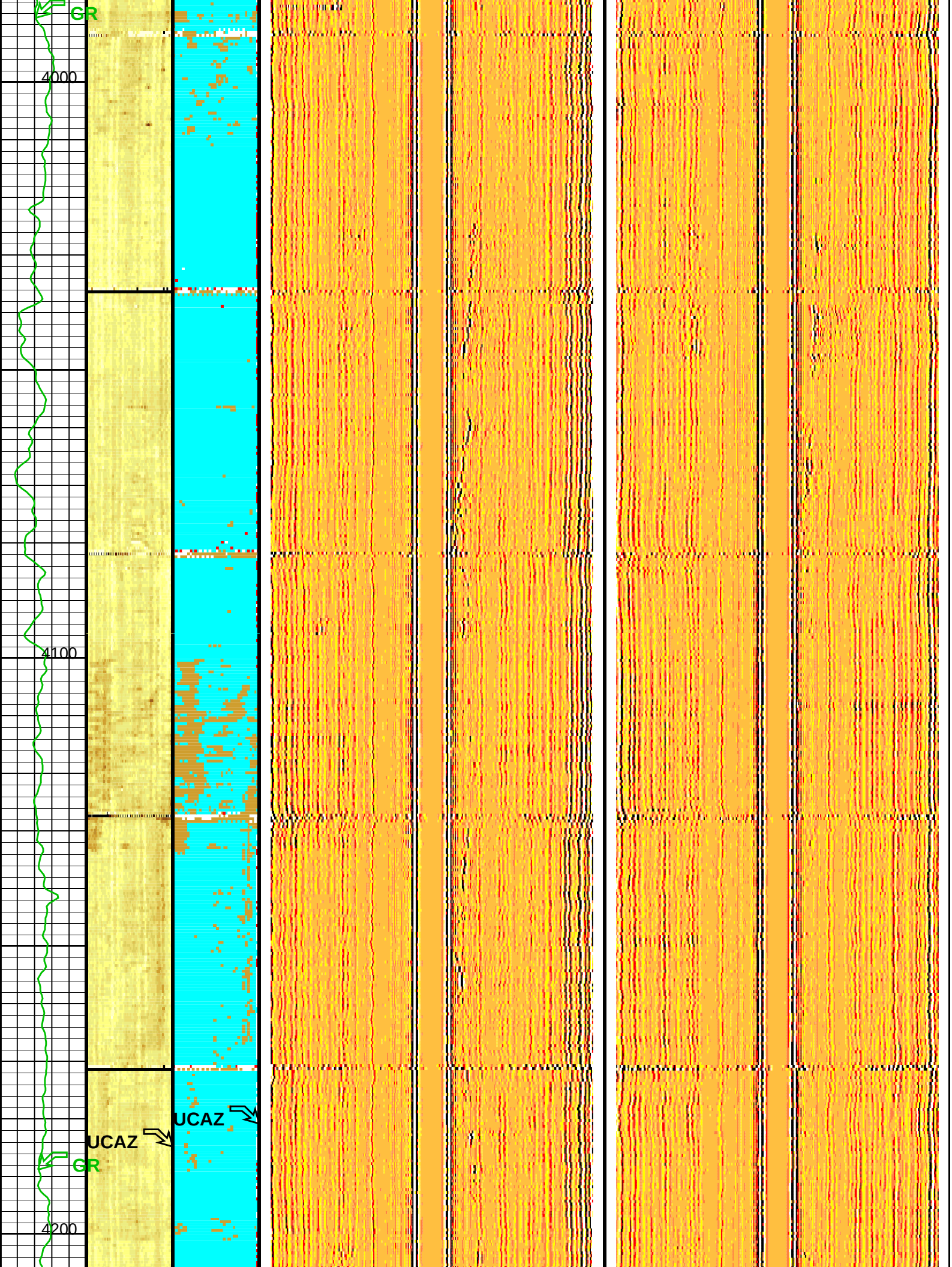
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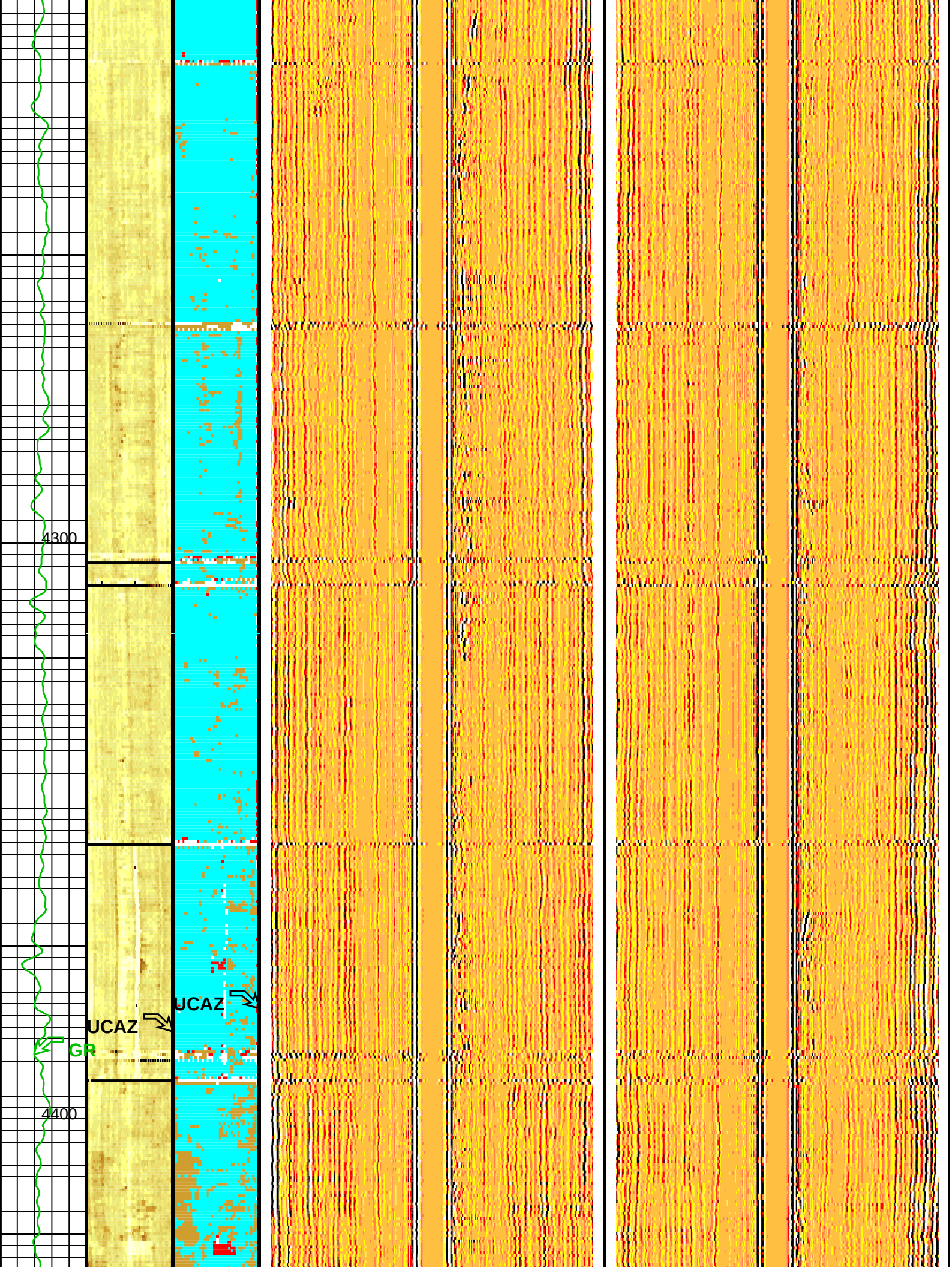
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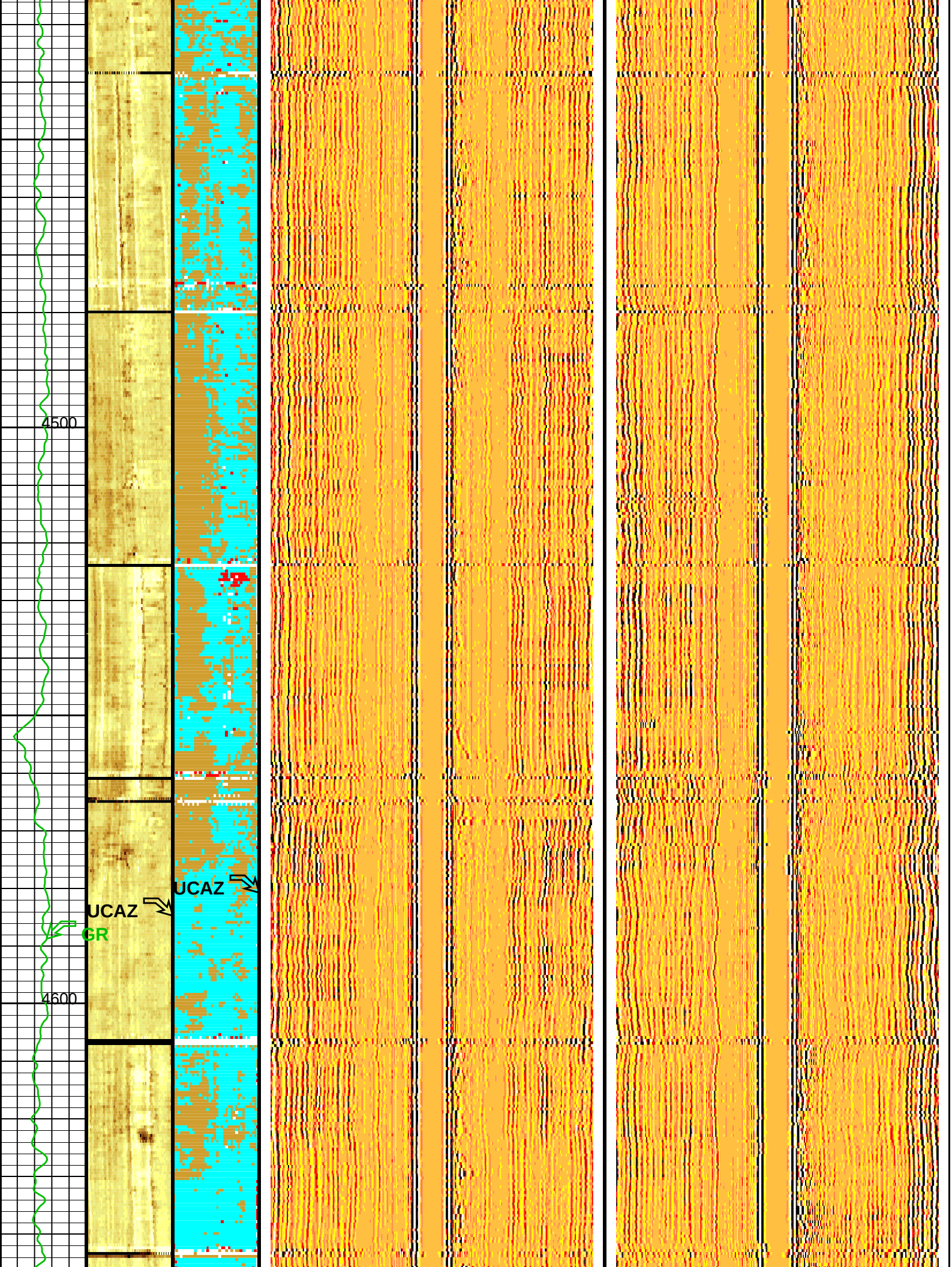
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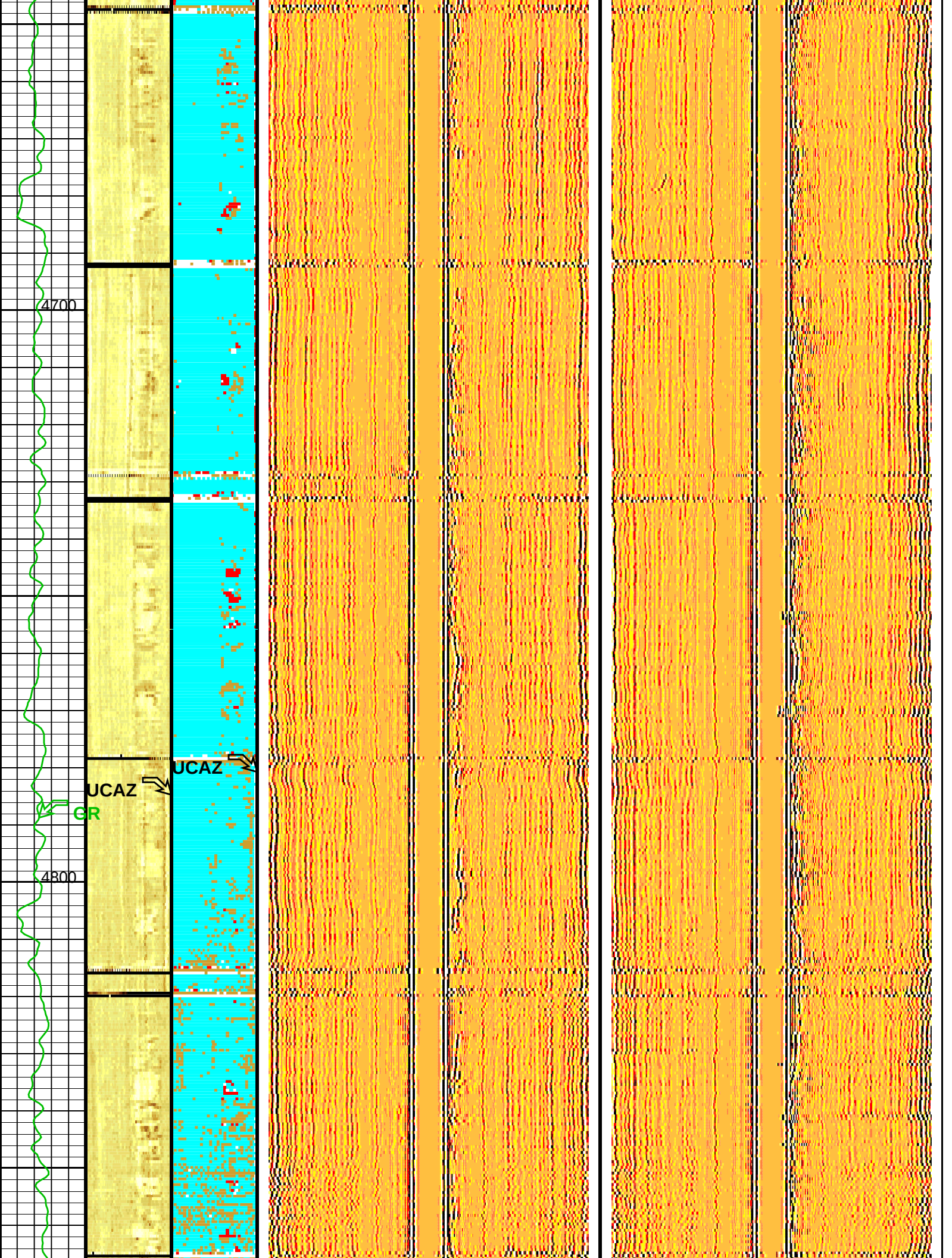
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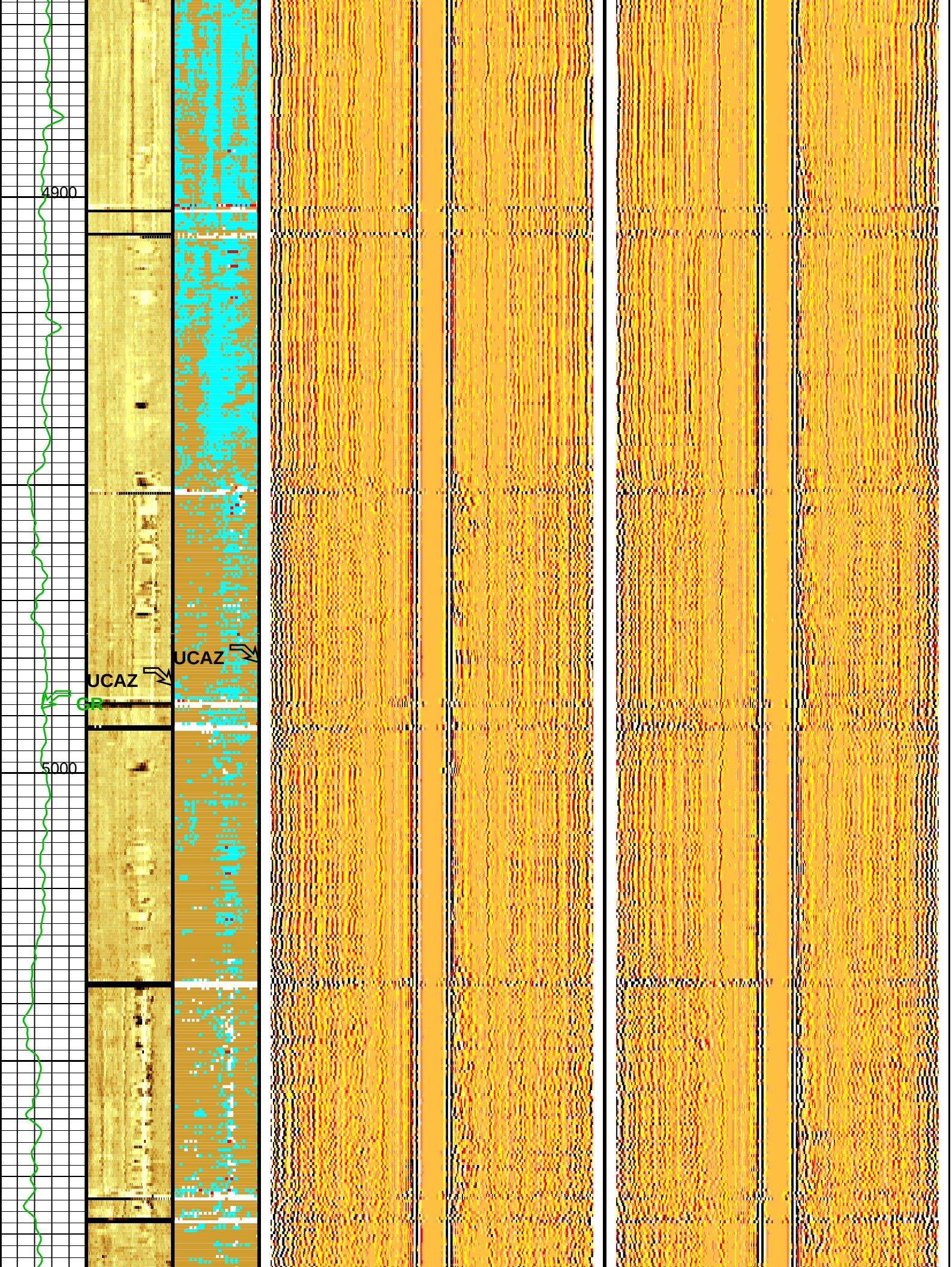
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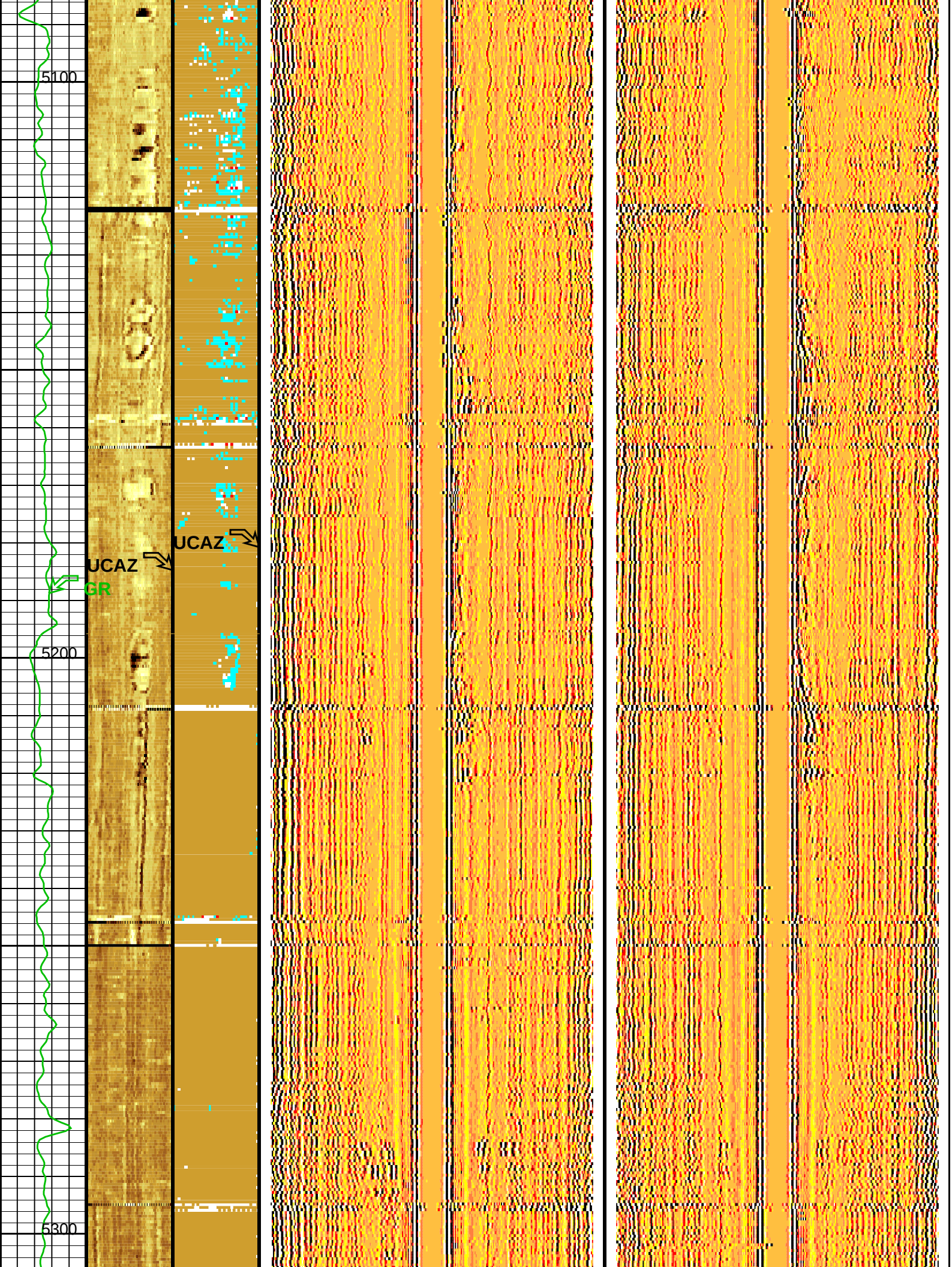
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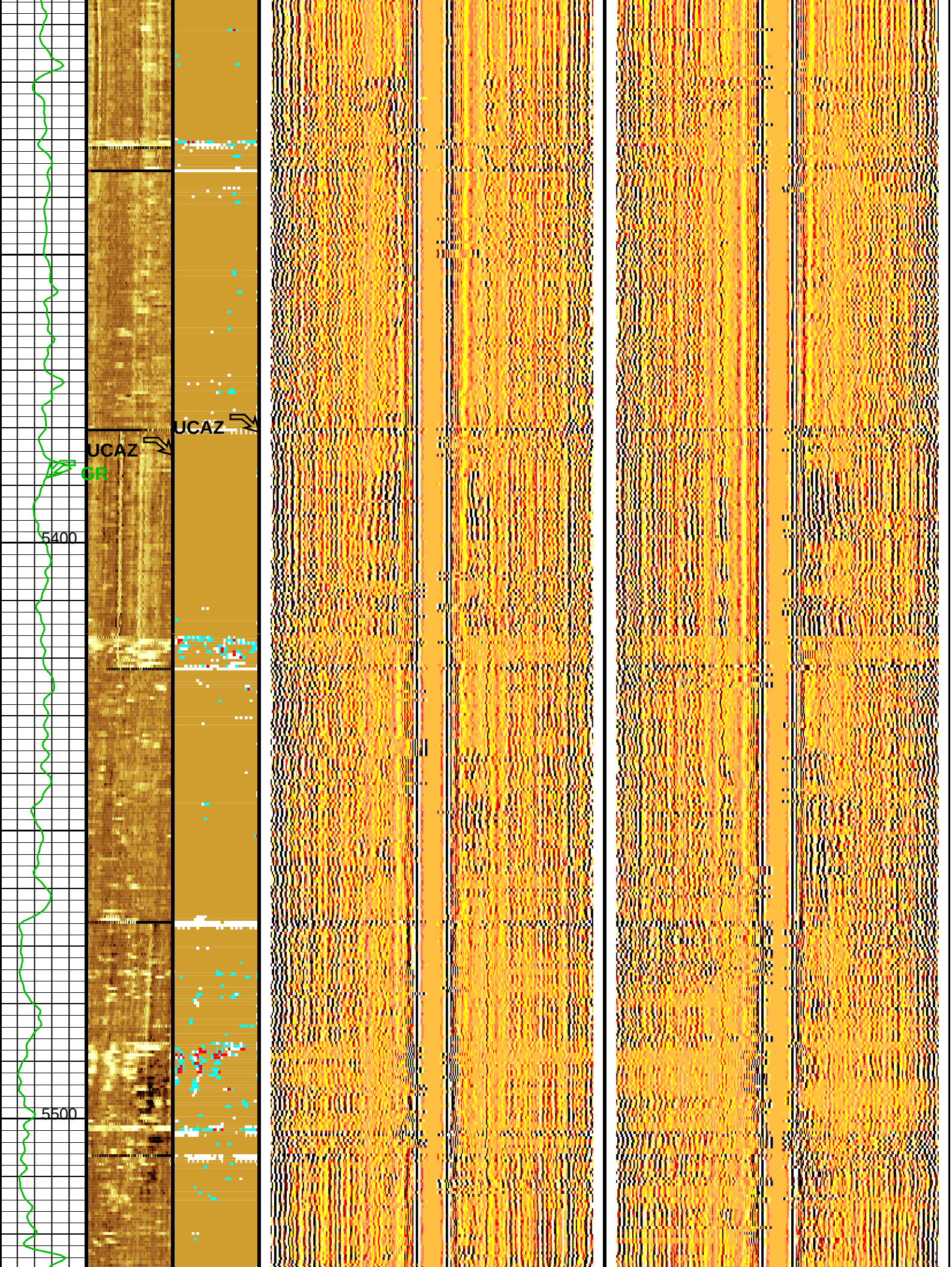
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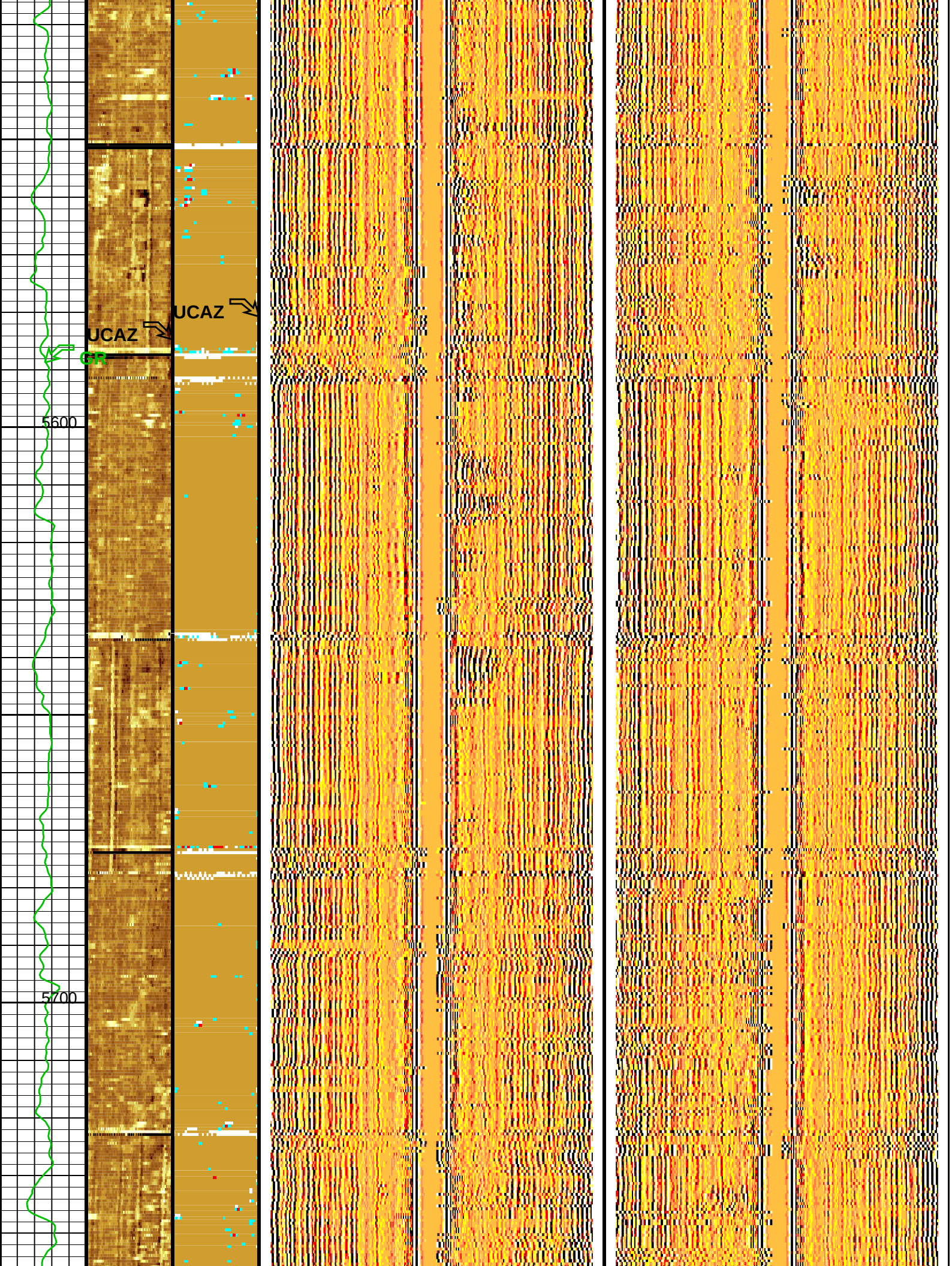
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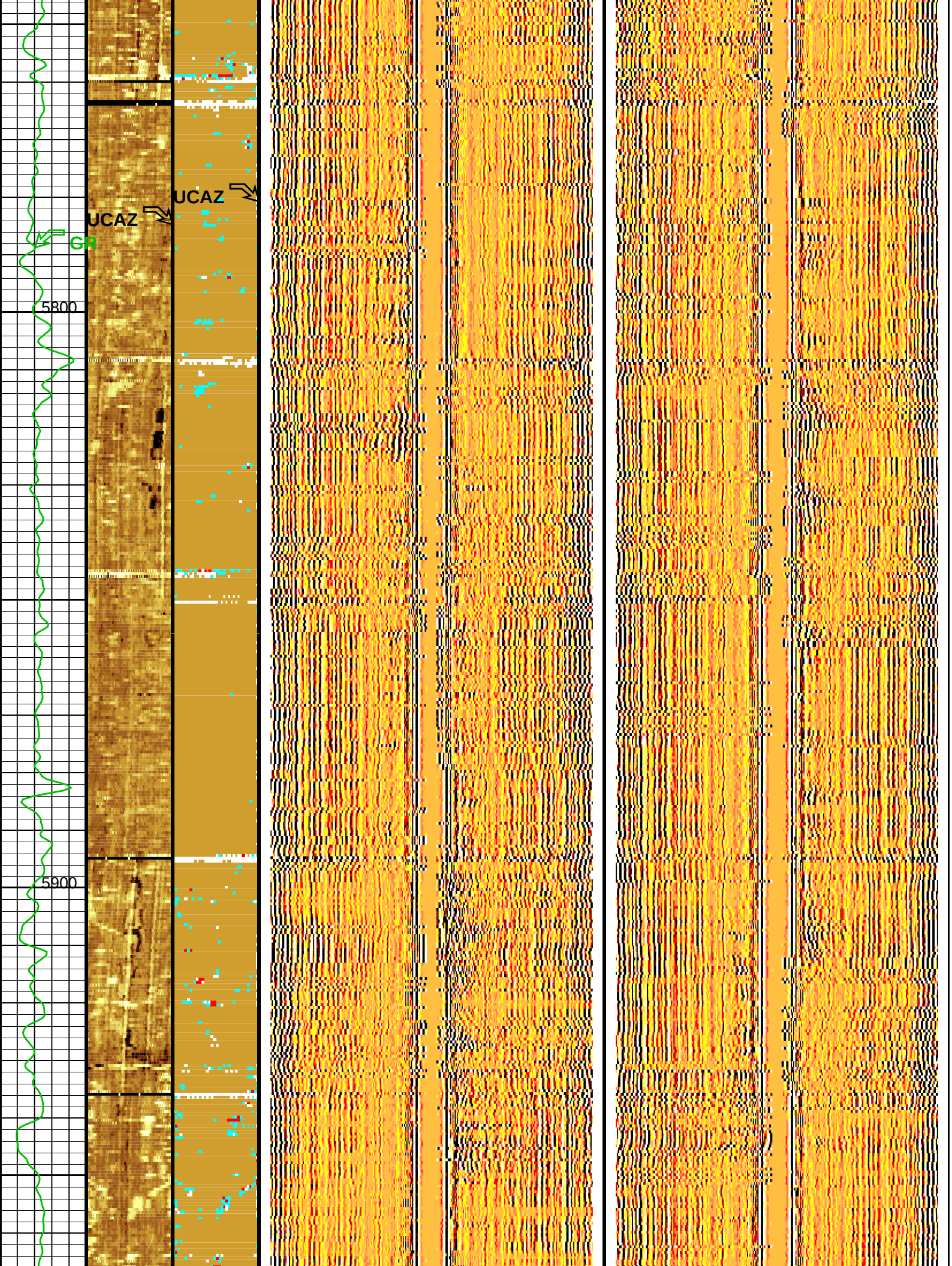
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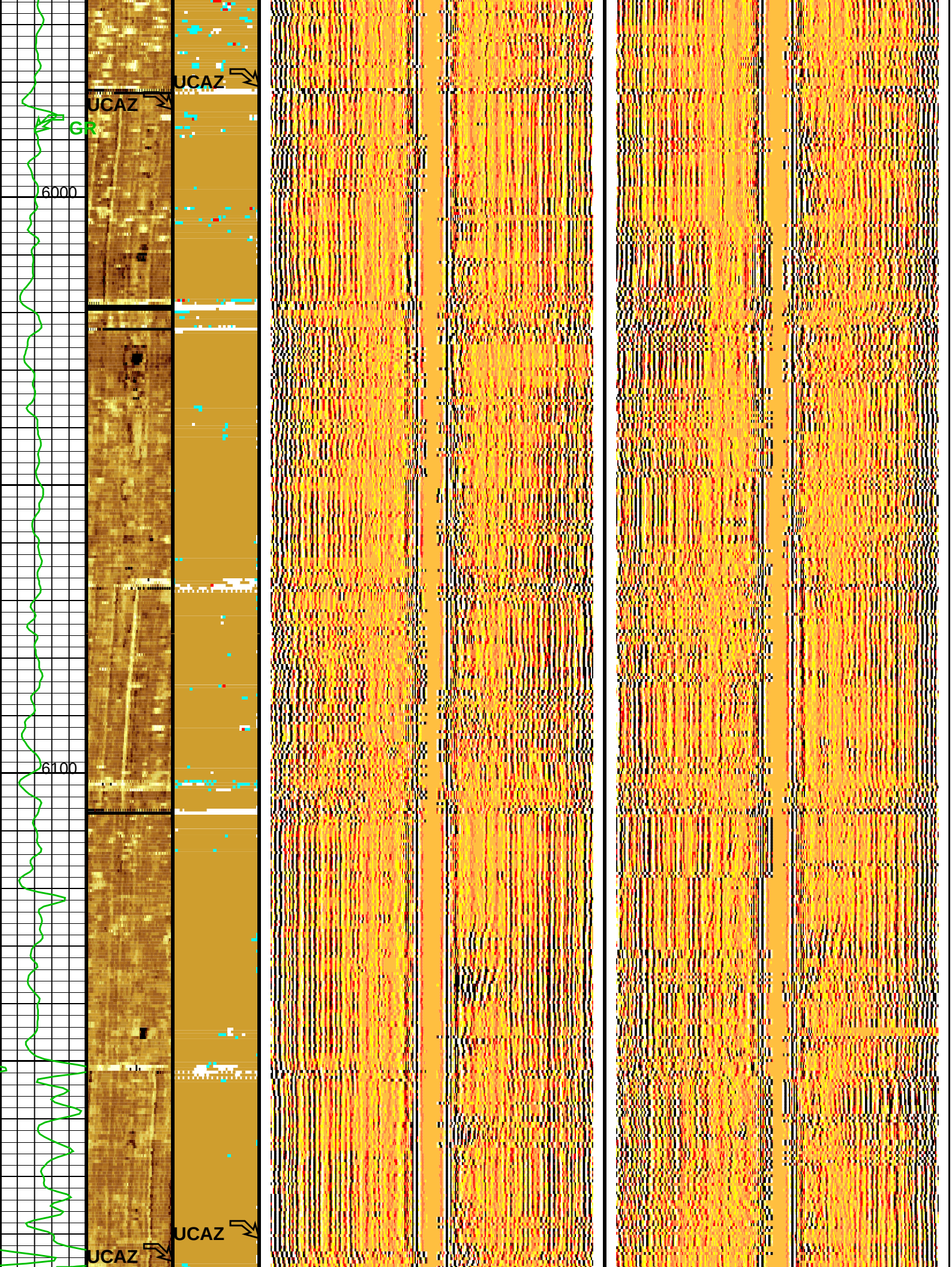
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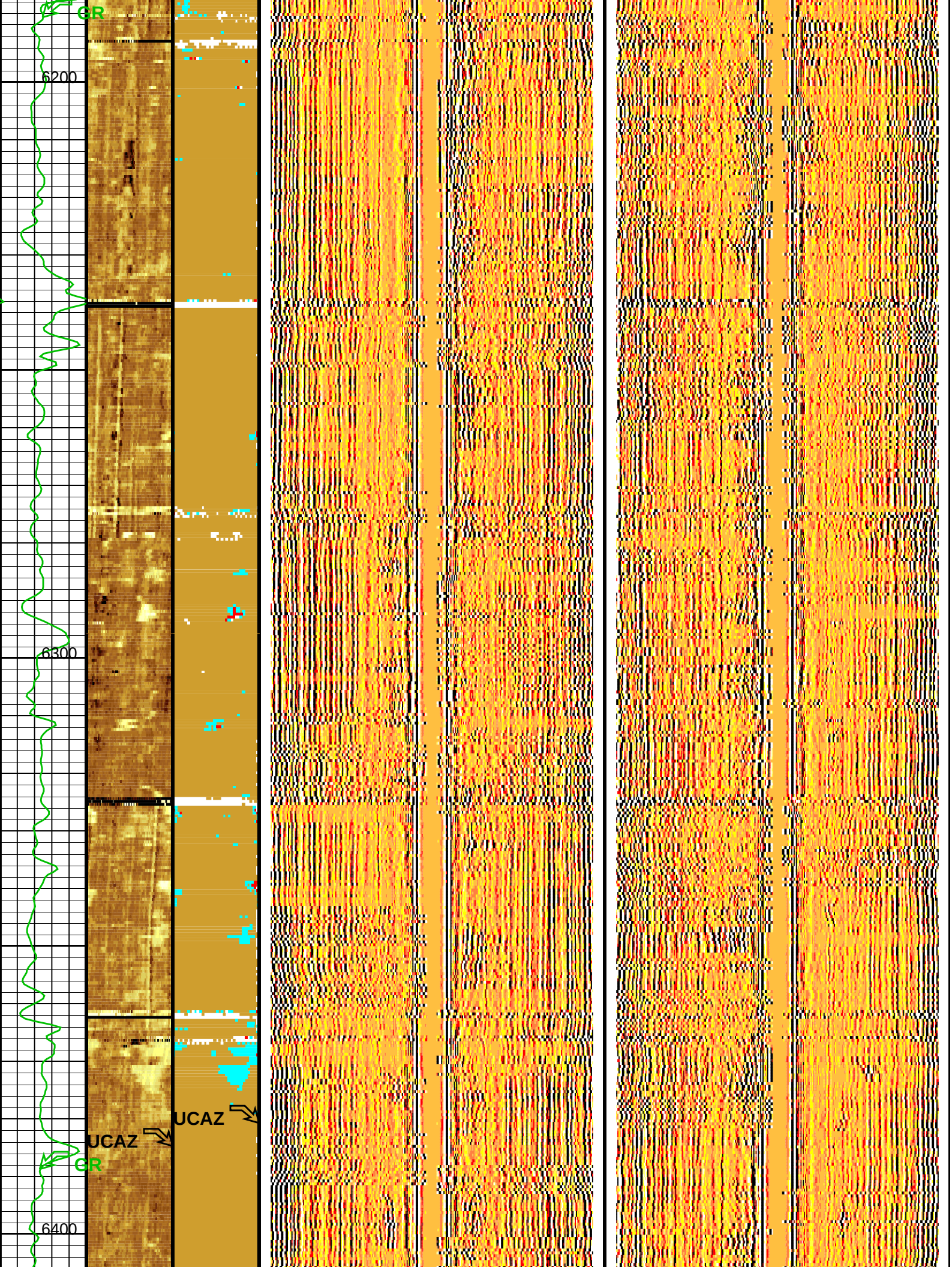
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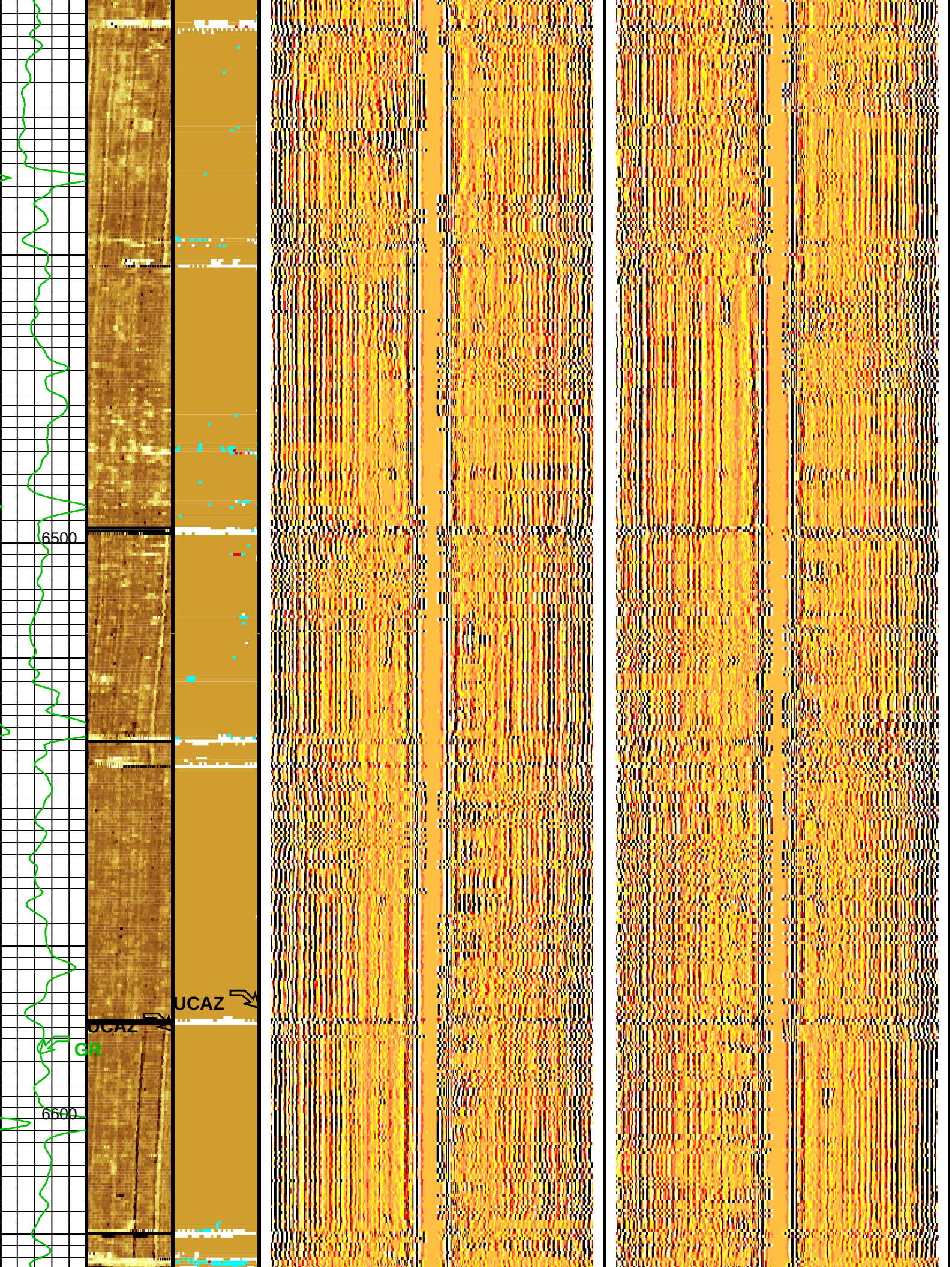
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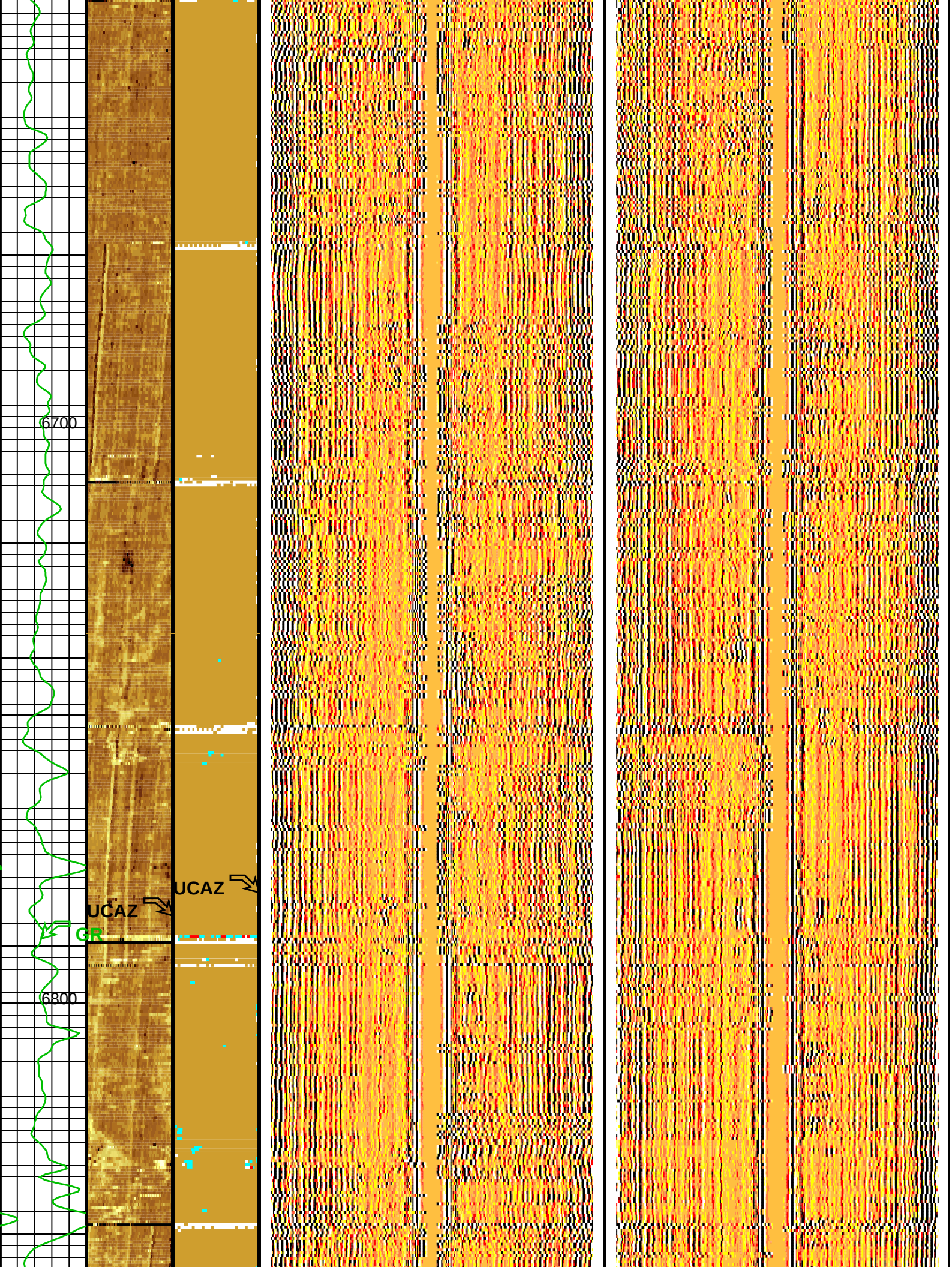
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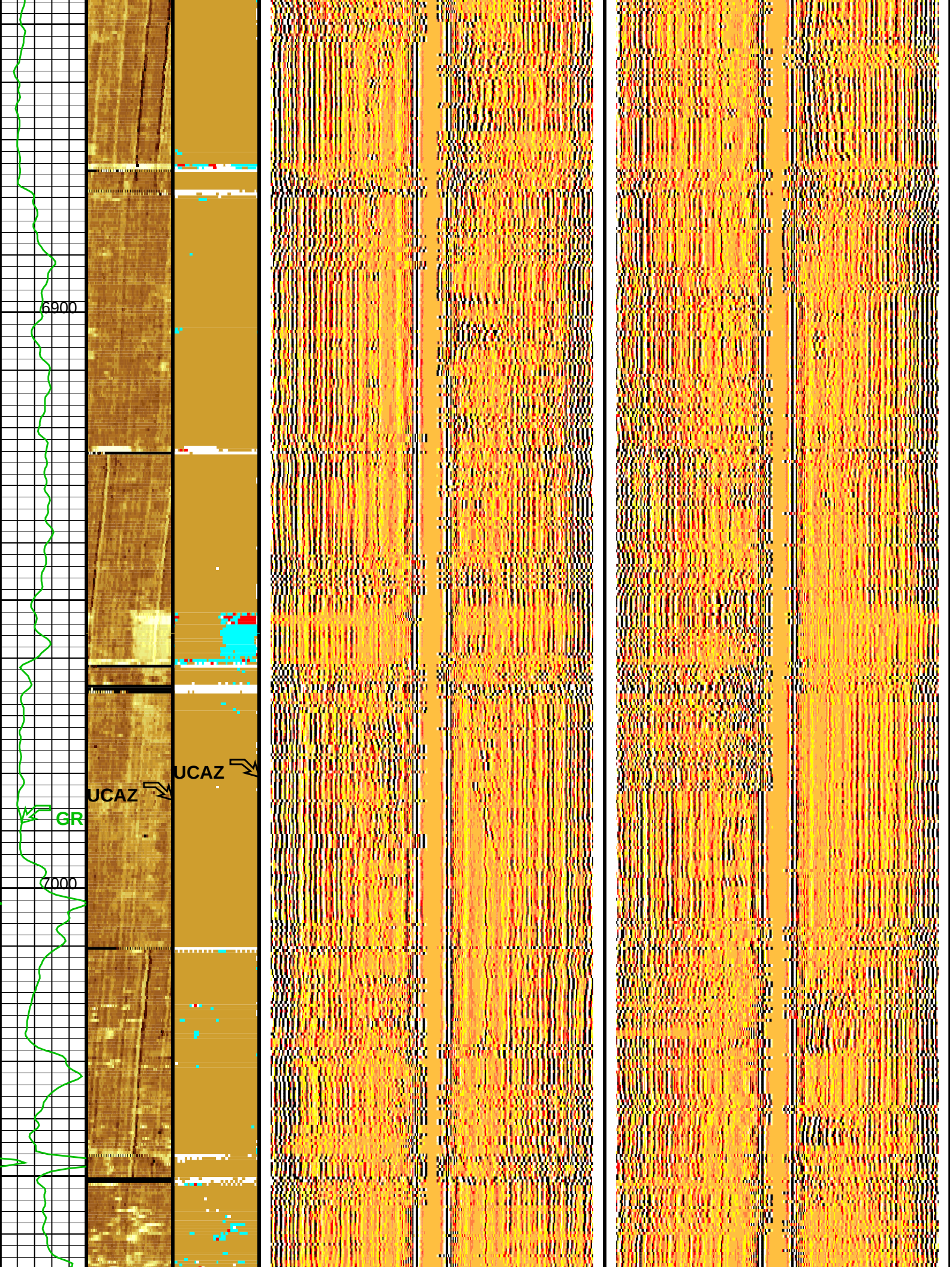
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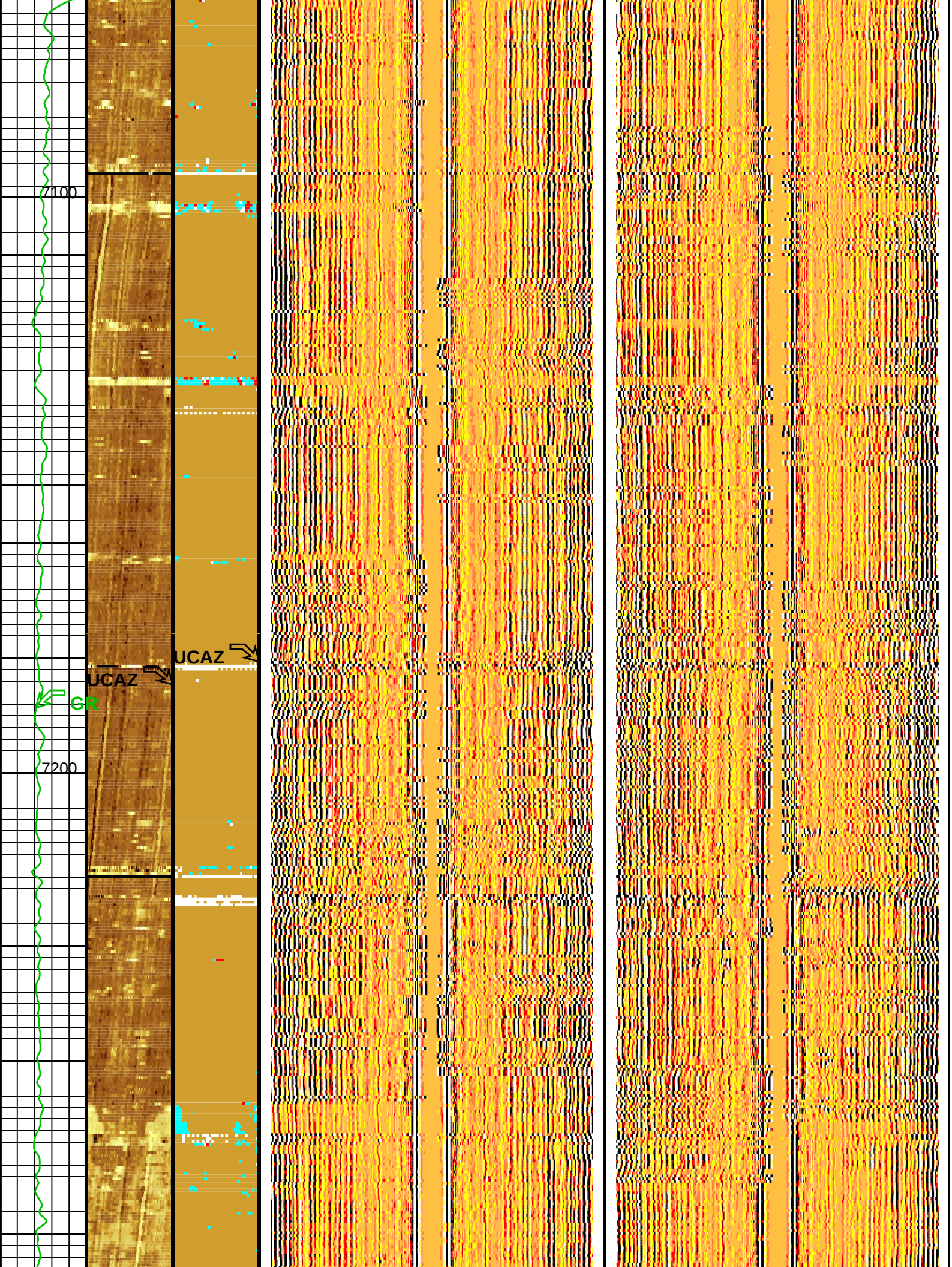
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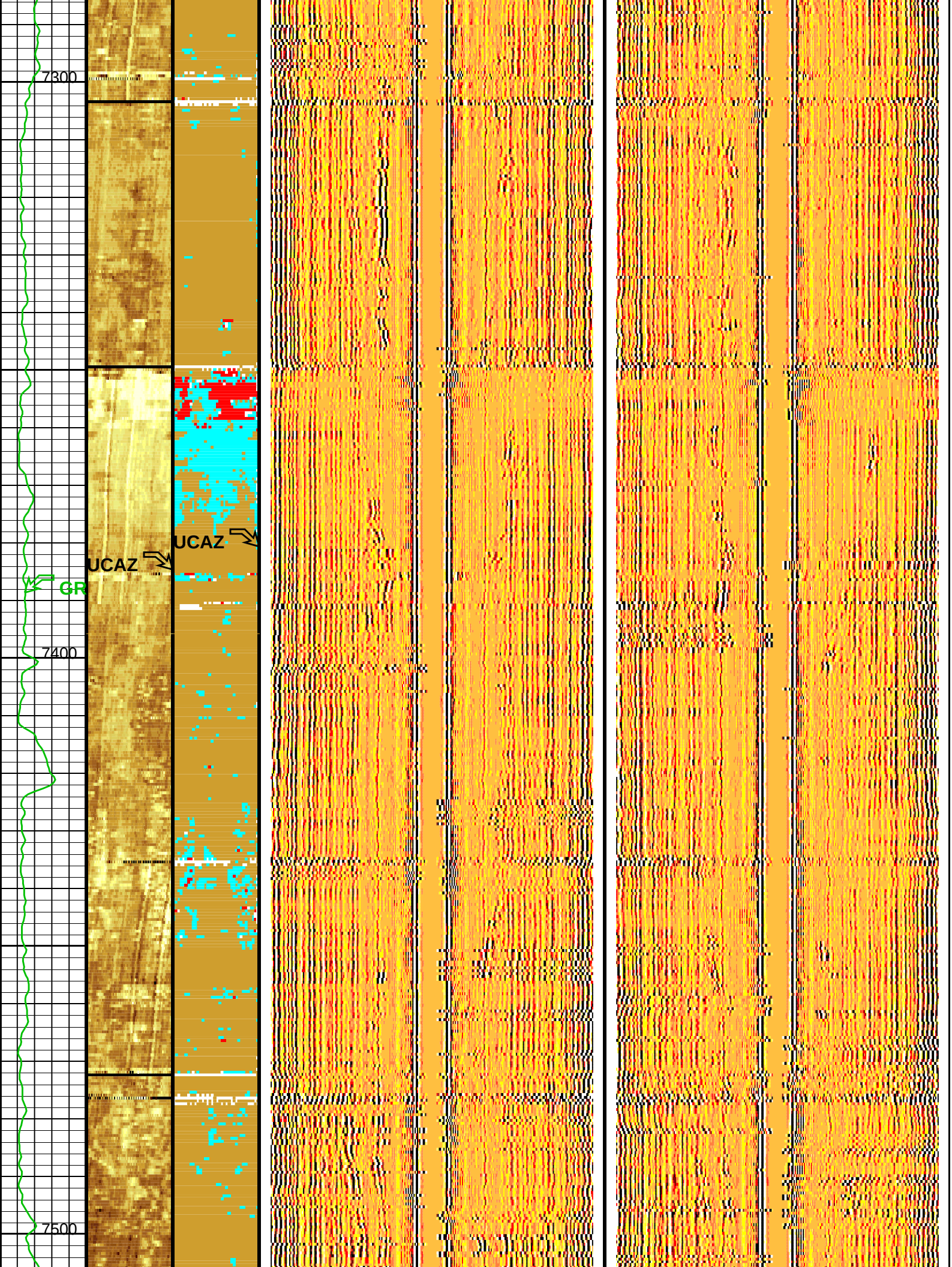
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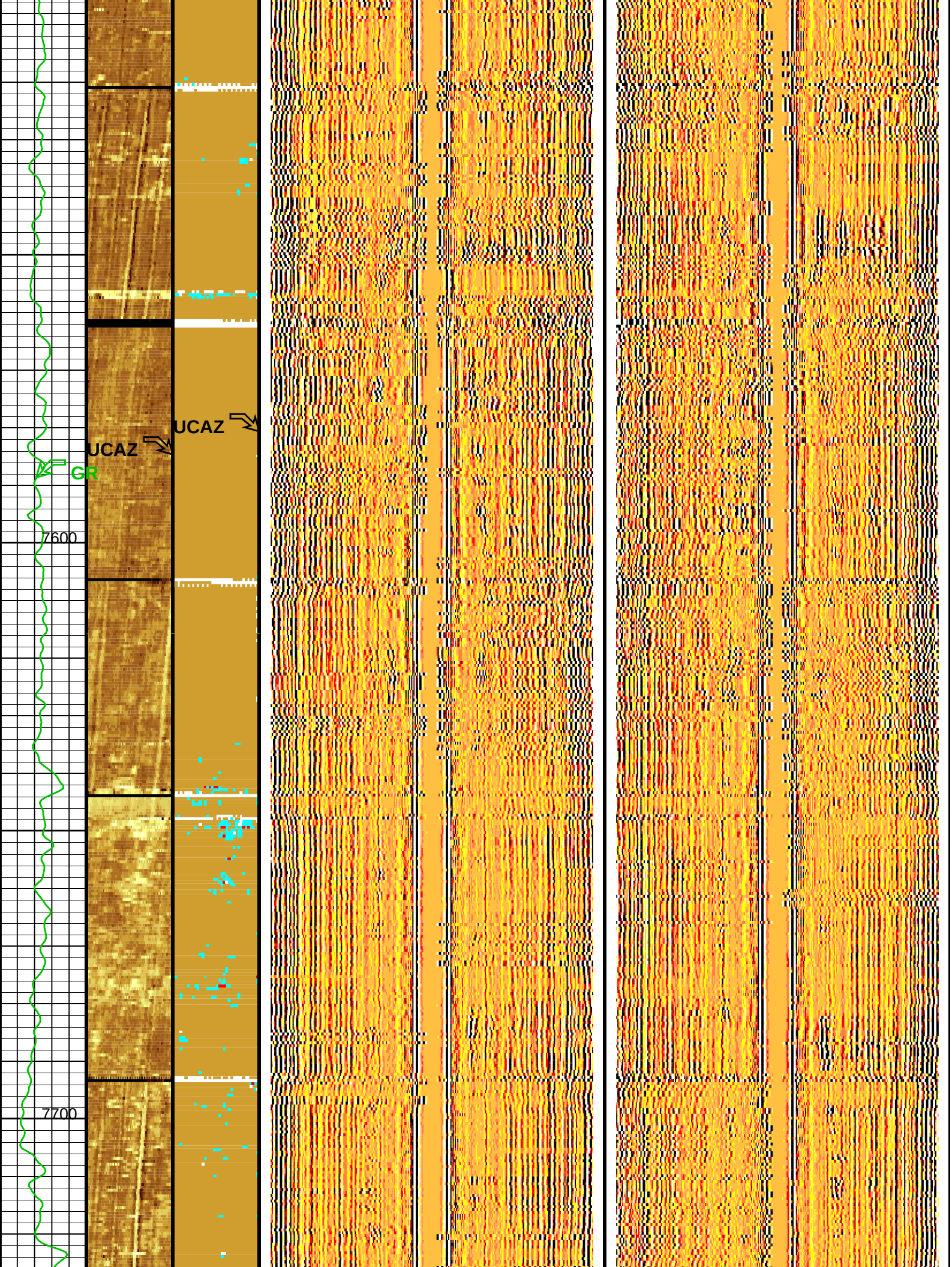
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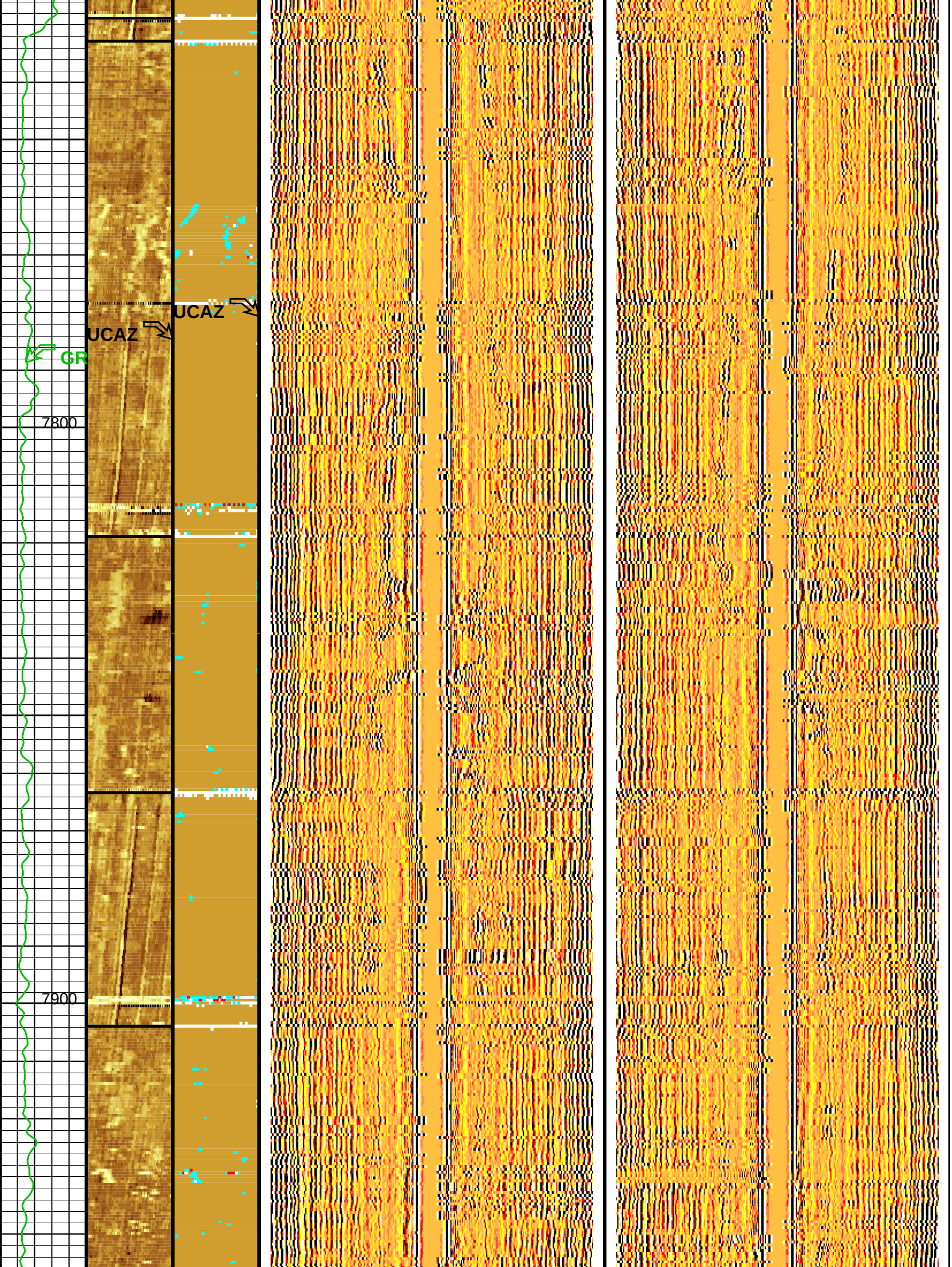
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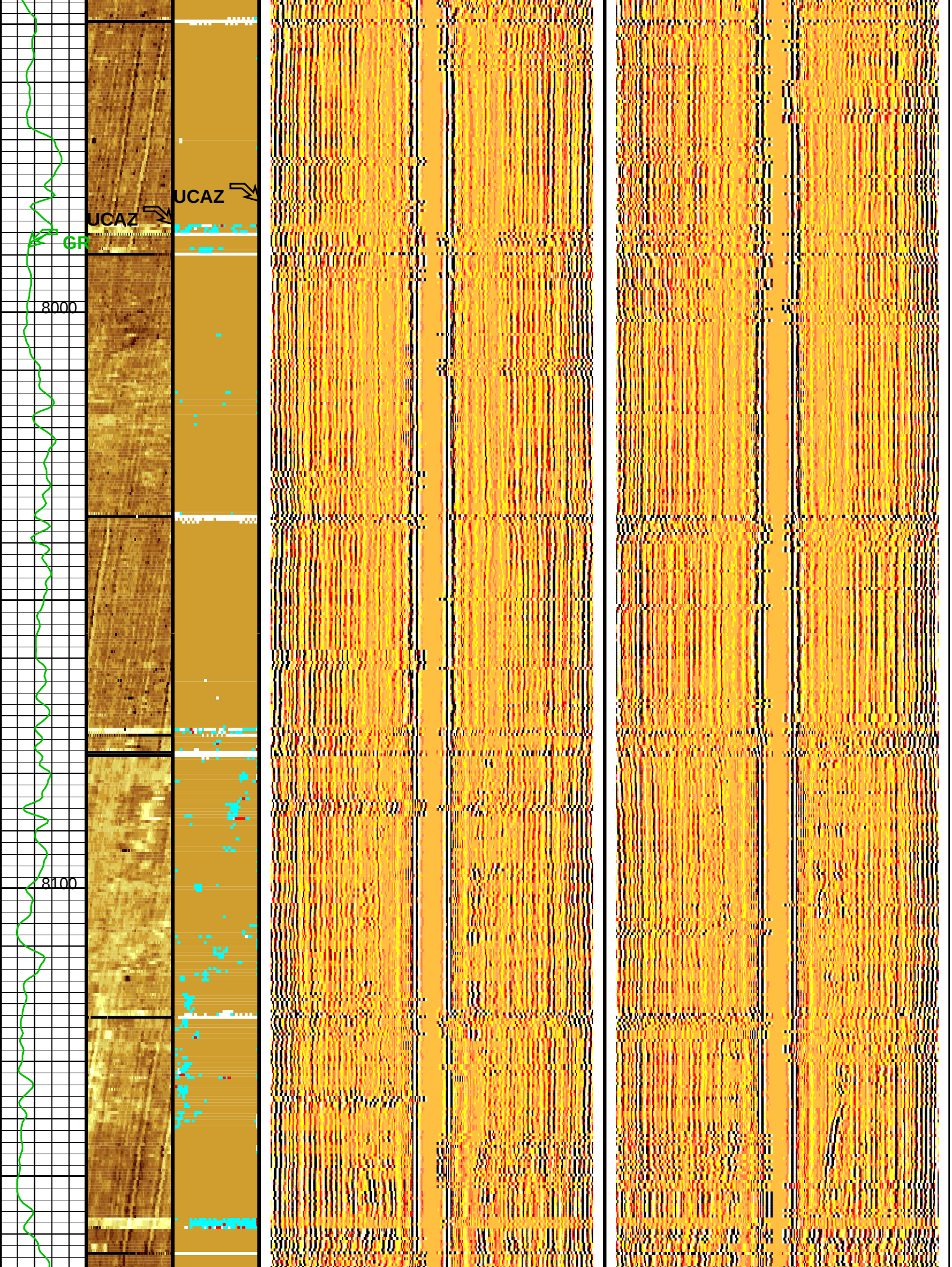
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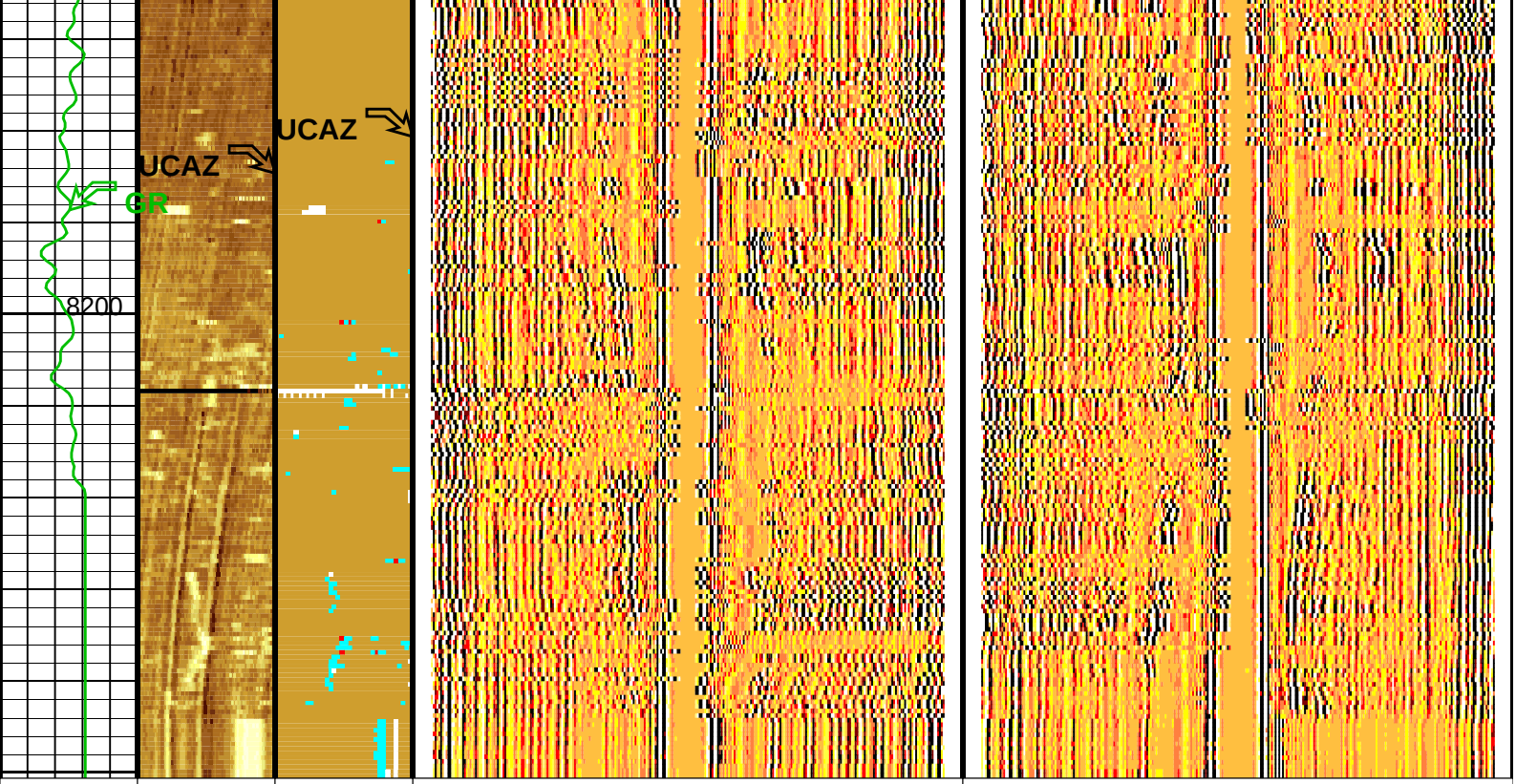

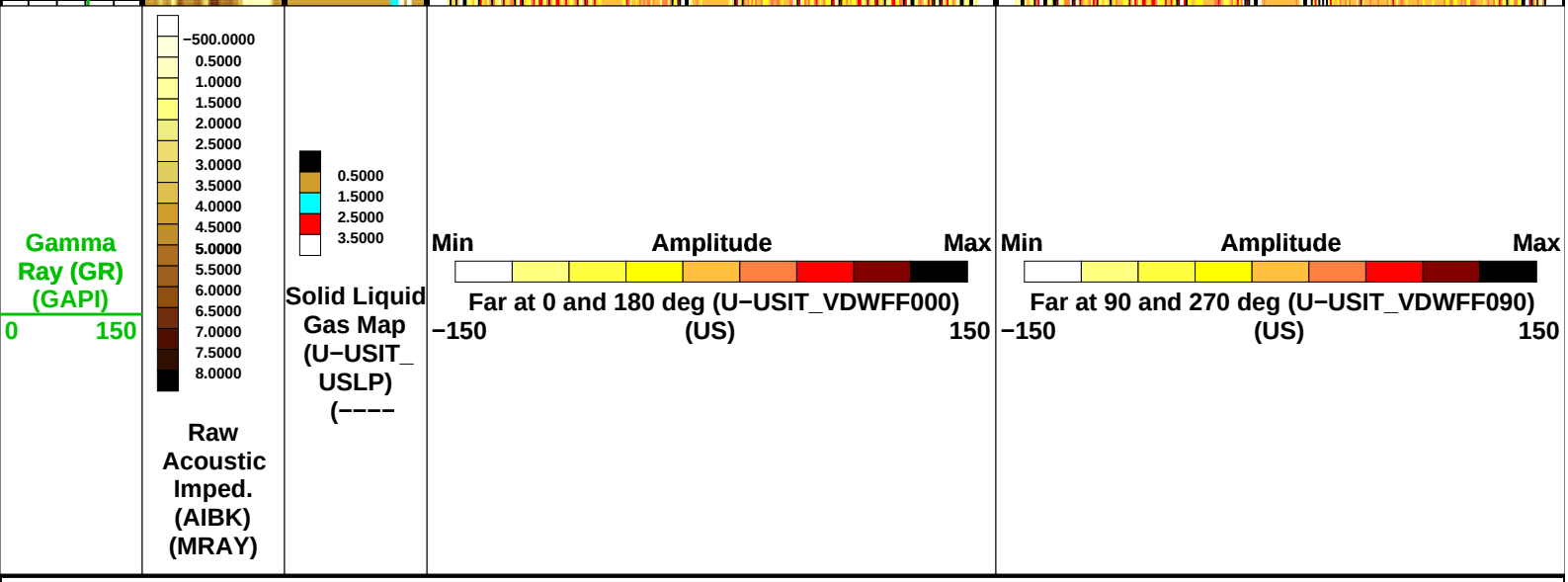

Parameters

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	110	V
FSOD	Fluid Slowness Fits Casing Outer Diameter	5_UFSL_N_ZMUD	
IMAR	Image Rotation	OFF	
MW	Mud Weight	8.4	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	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	46.25	MRAY
ZINI	Initial Estimate of Cement Impedance	−1	MRAY
ZMUD	Acoustic Impedance of Mud	1.85	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	0.0	FT
DORL	Depth Offset for Repeat Analysis	0.0	FT
PP	Playback Processing	NORMAL	

Format: USI_IBC_VDL_WIDE Vertical Scale: 5" per 100' Graphics File Created: 19−Aug−2010 16:32

OP System Version: 18C0−147

USIT−D	18C0−147	HILTH−FTB	18C0−147
DTC−H	18C0−147		

Input DLIS Files

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Output DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_006PUP	FN:4	PRODUCER	19−Aug−2010 16:32	

Schlumberger

GOODWIN 5 INCH

MAXIS Field Log

Company: ExxonMobil Production Corp. Well: PCU 197−34A7

Input DLIS Files

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Output DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_006PUP	FN:4	PRODUCER	19−Aug−2010 16:32	8250.5 FT	3495.5 FT

OP System Version: 18C0−147

USIT−D	18C0−147	HILTH−FTB	18C0−147
DTC−H	18C0−147		

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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)
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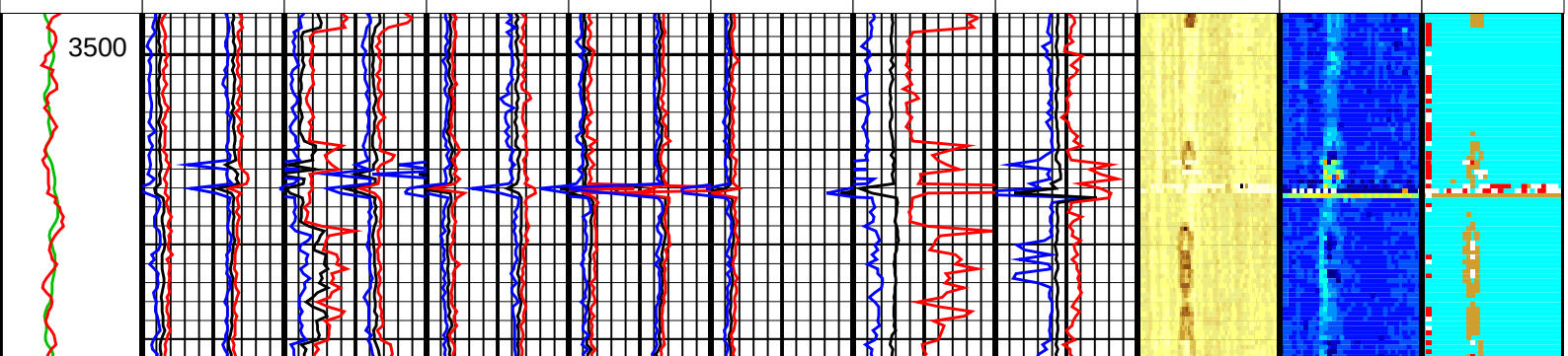

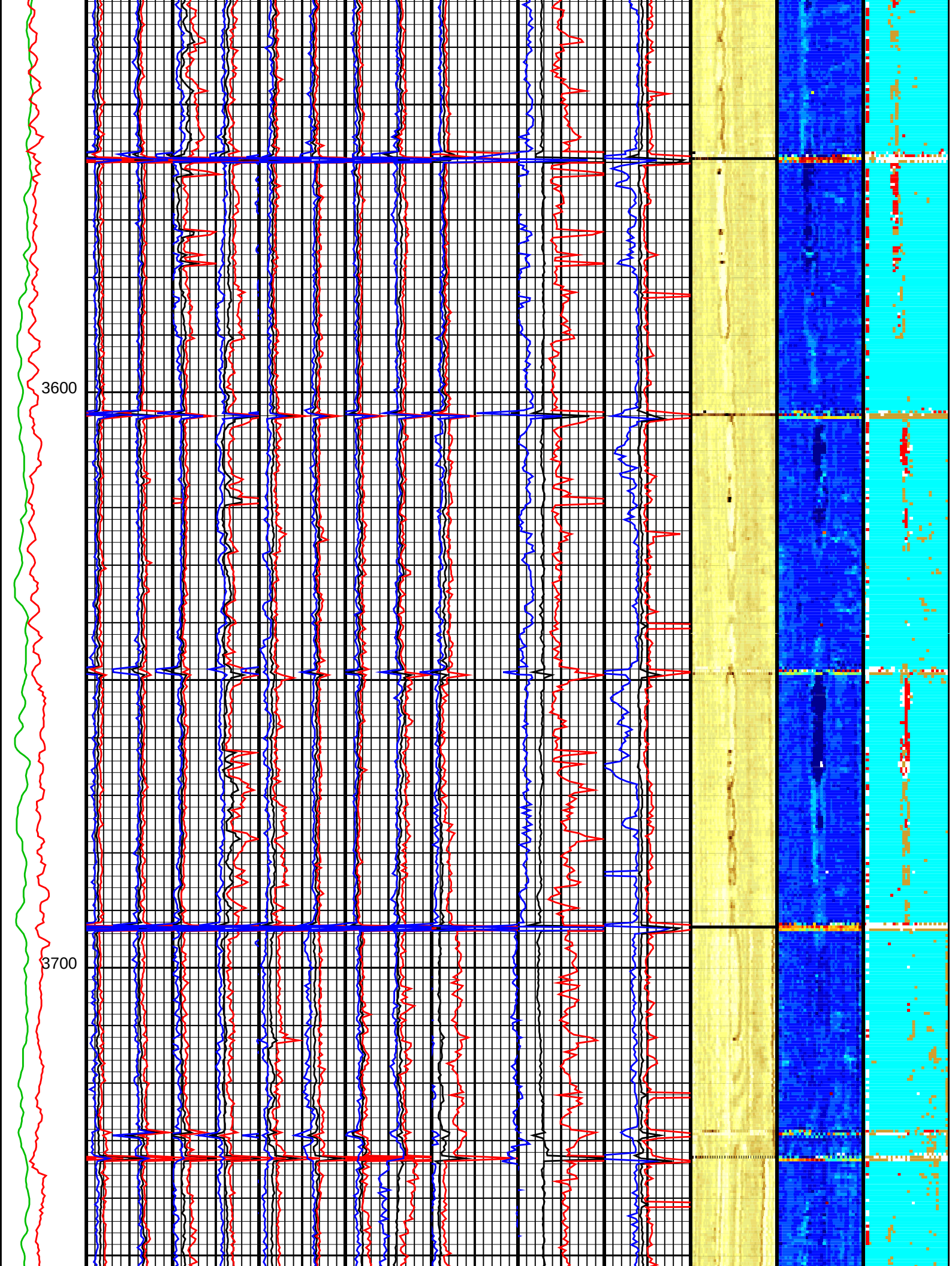
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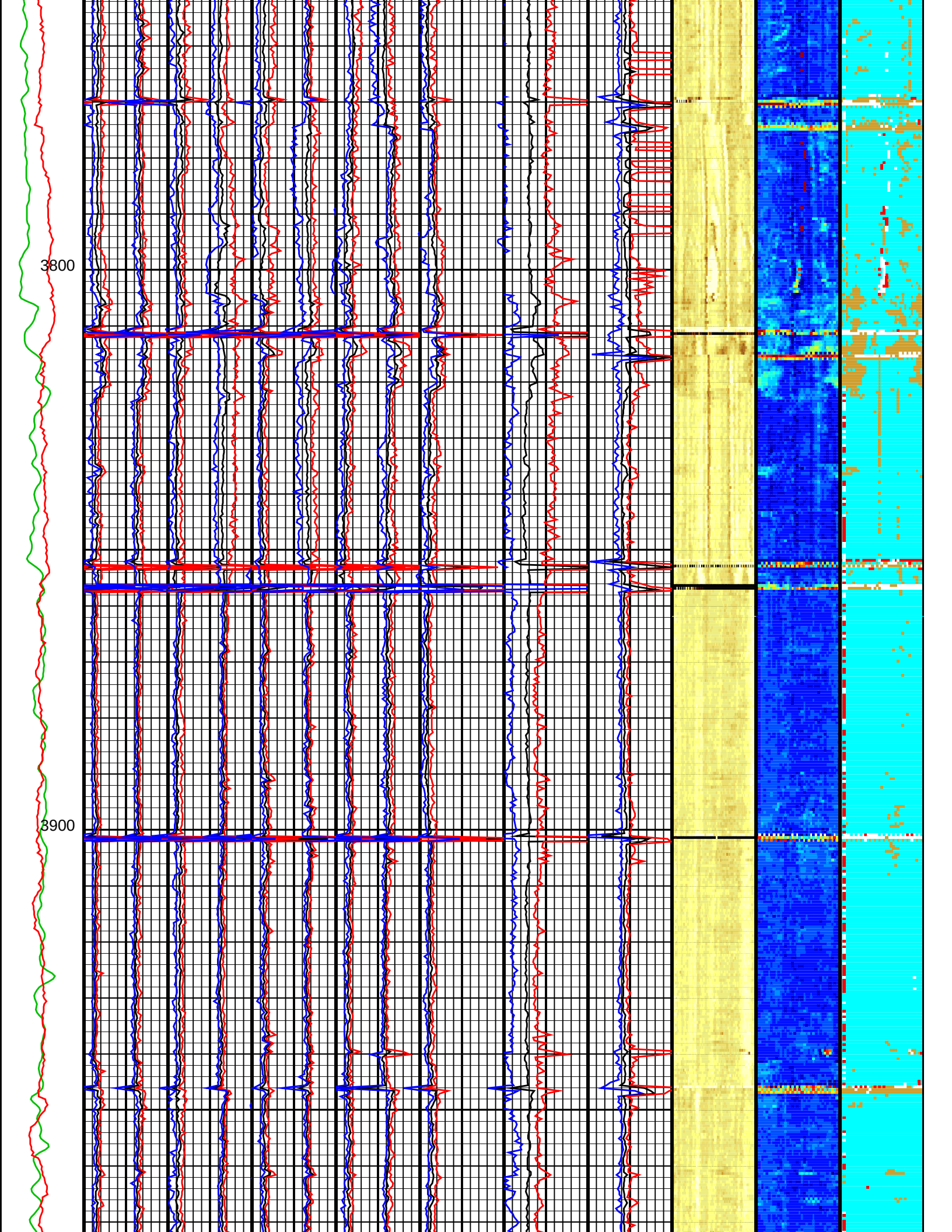
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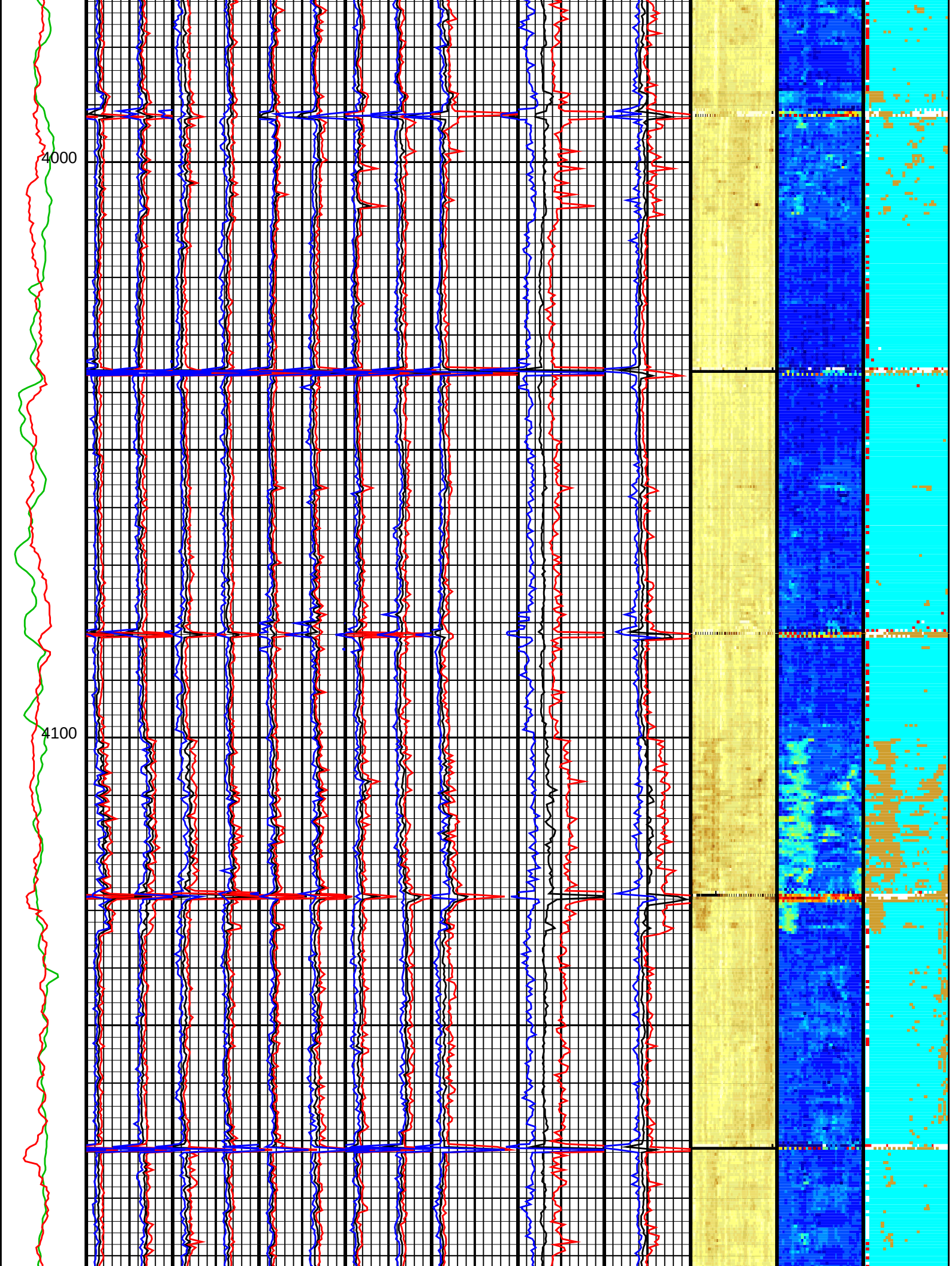
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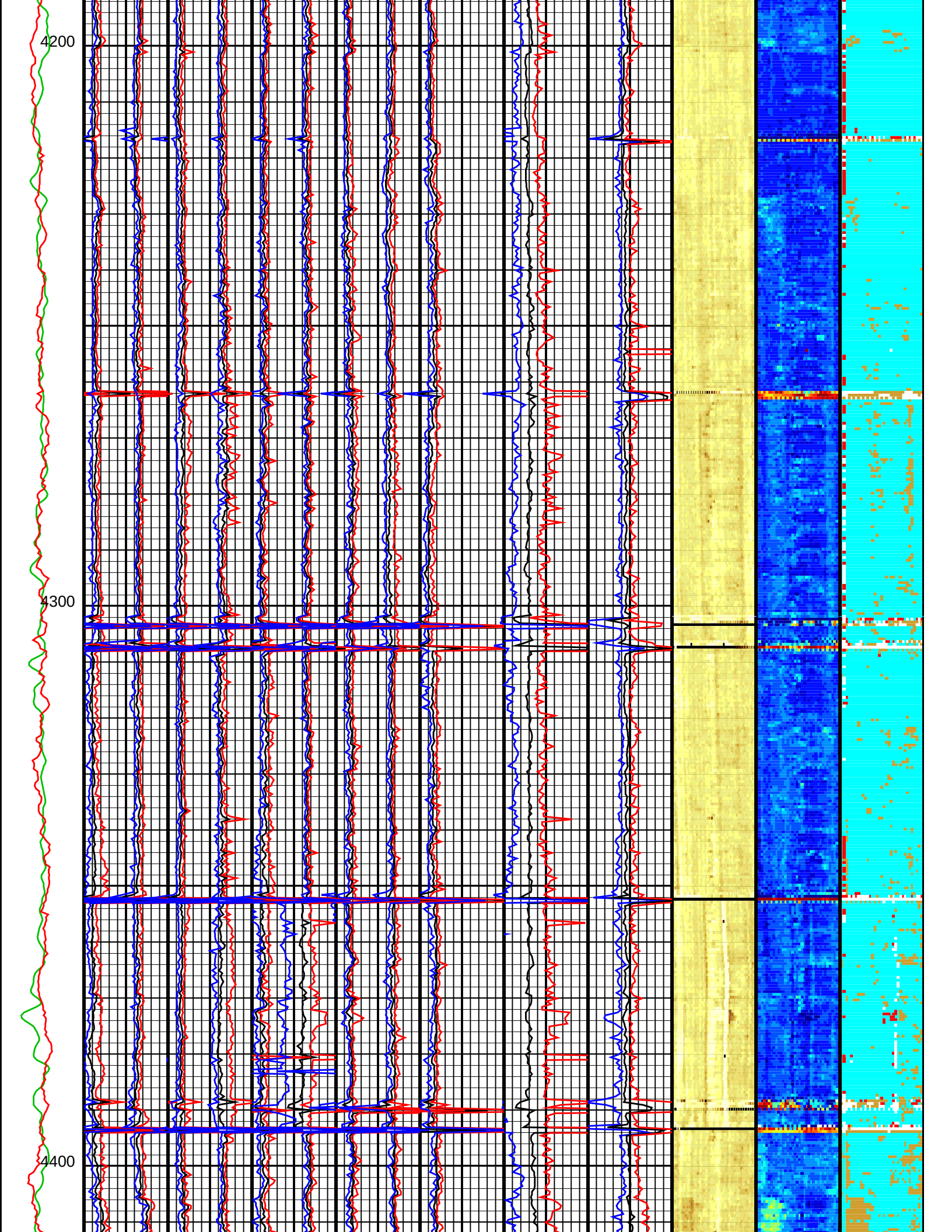
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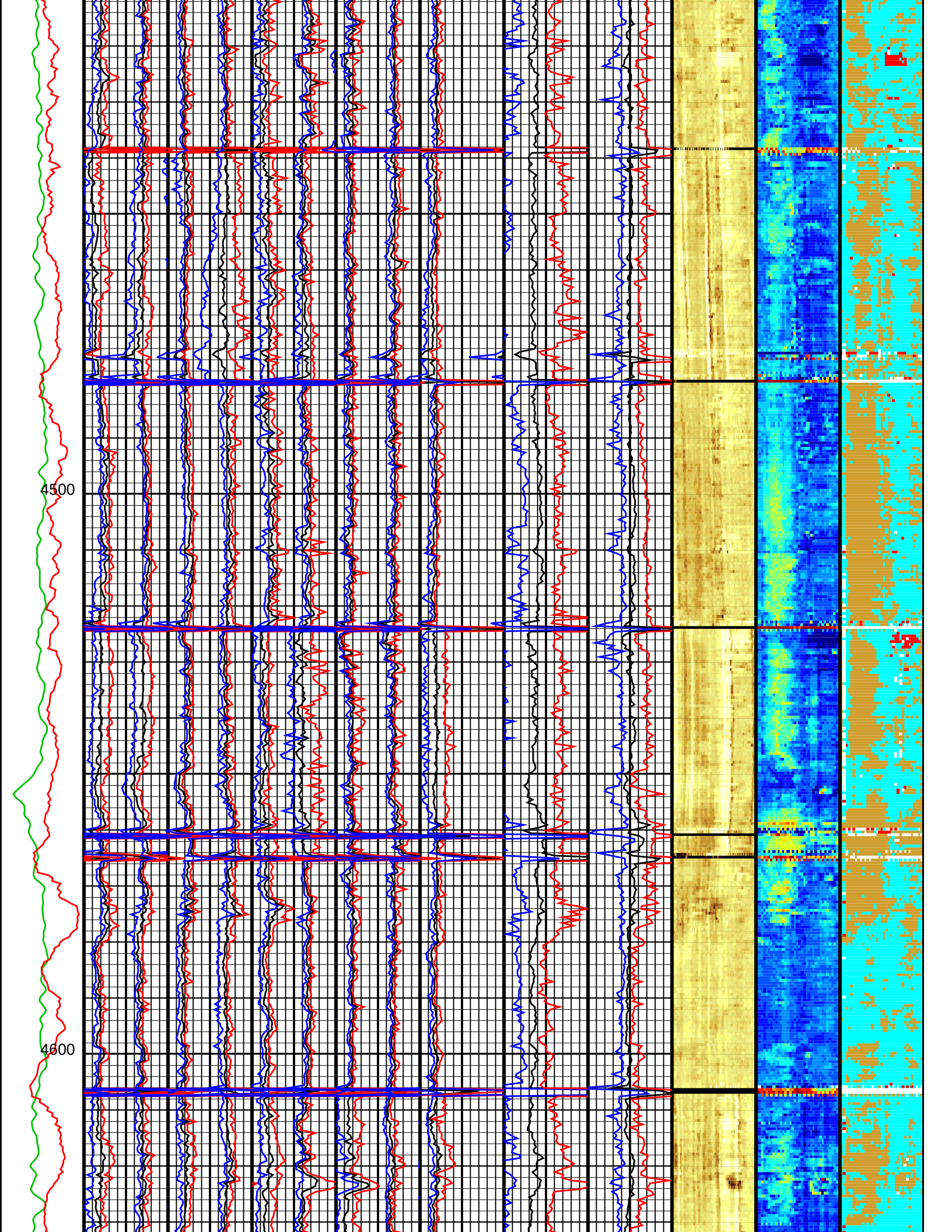
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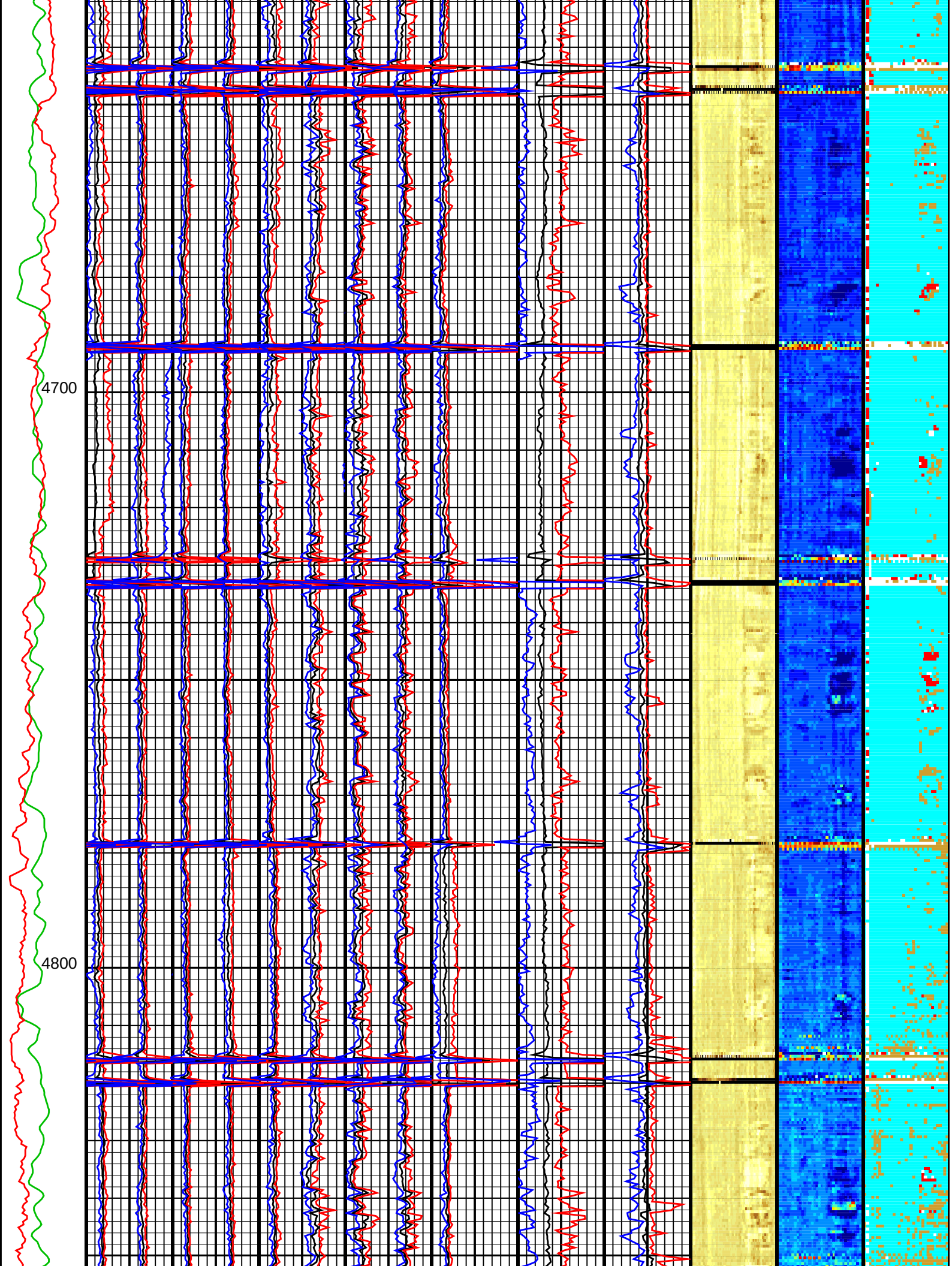
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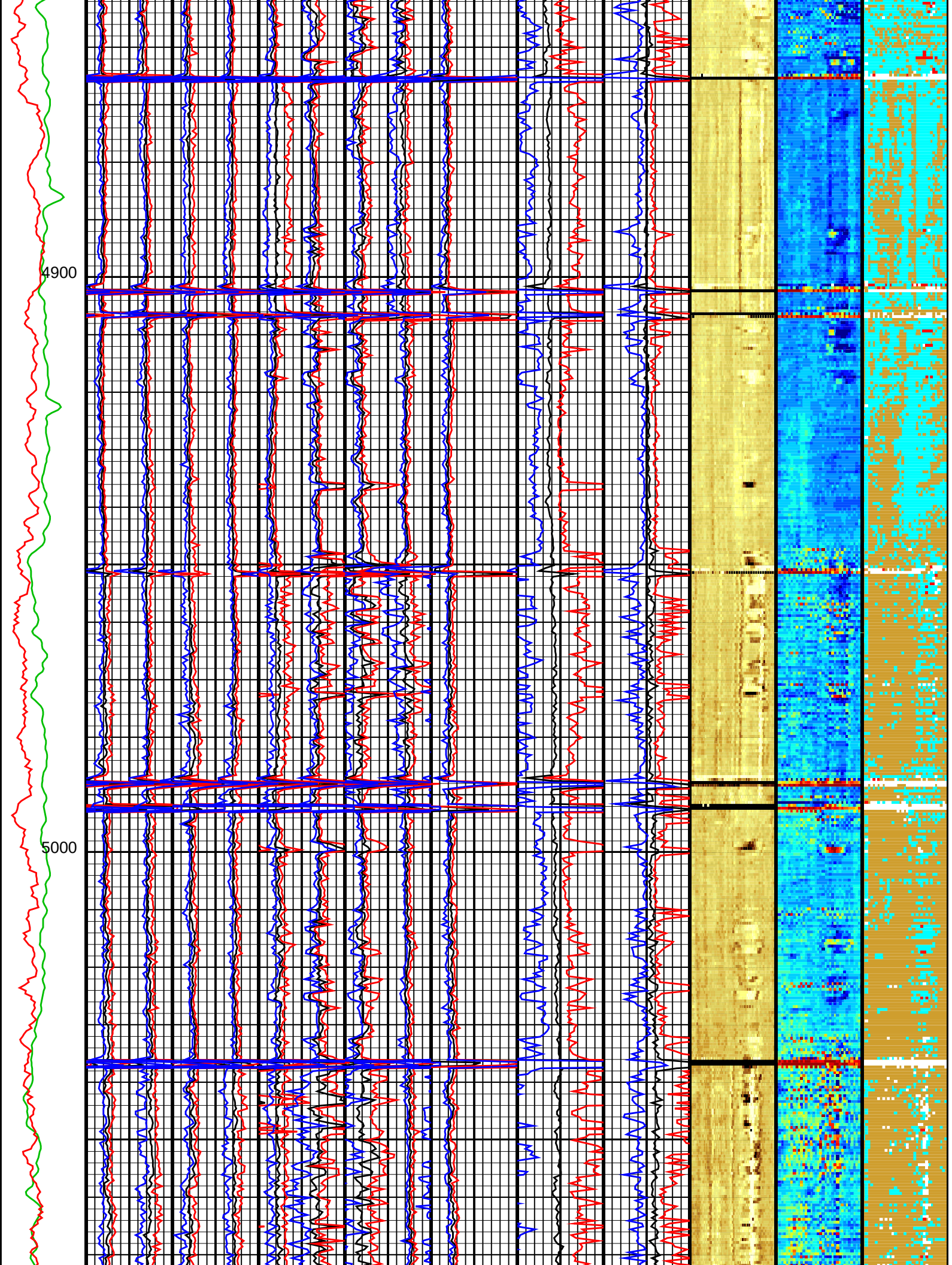
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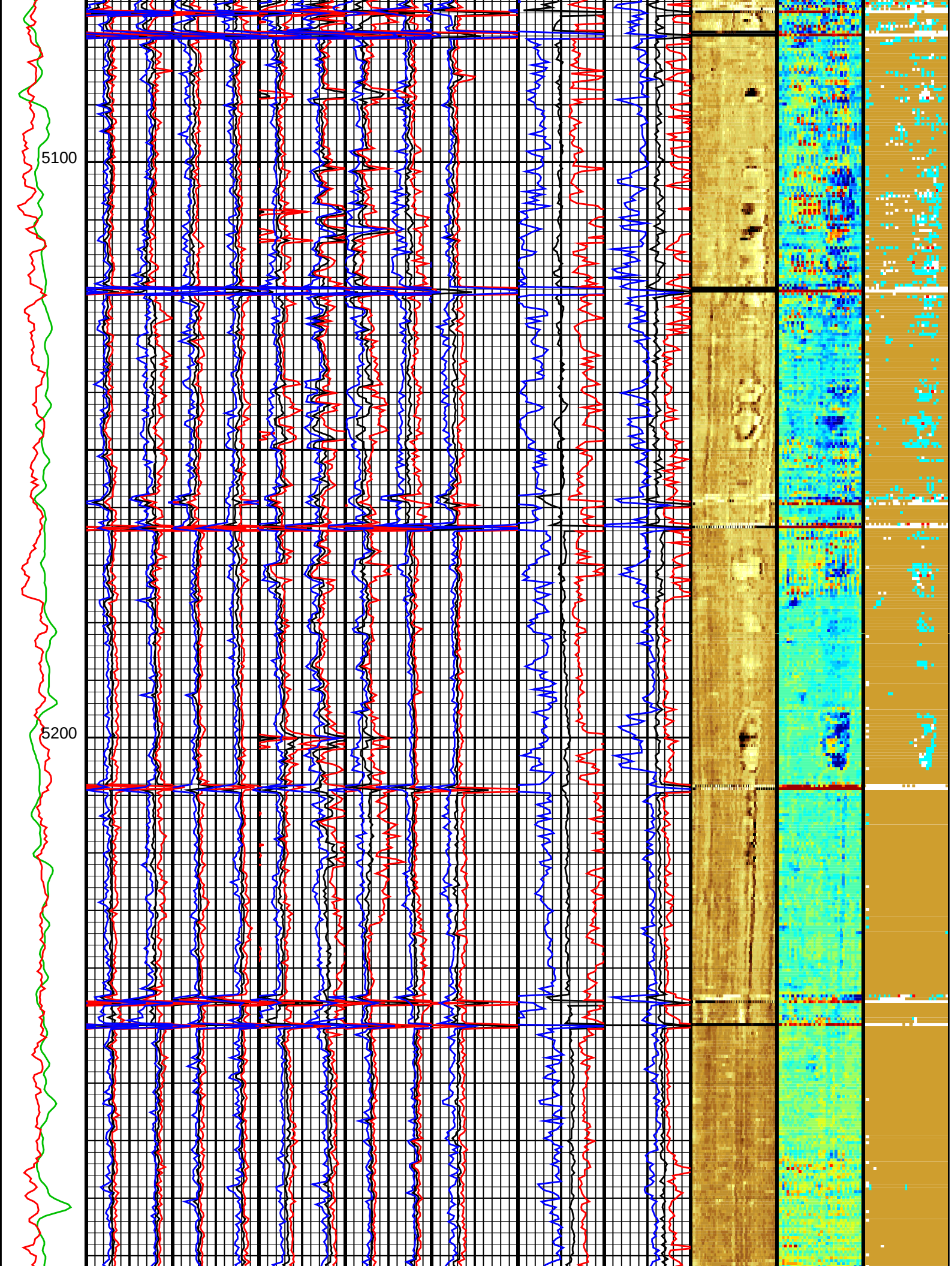
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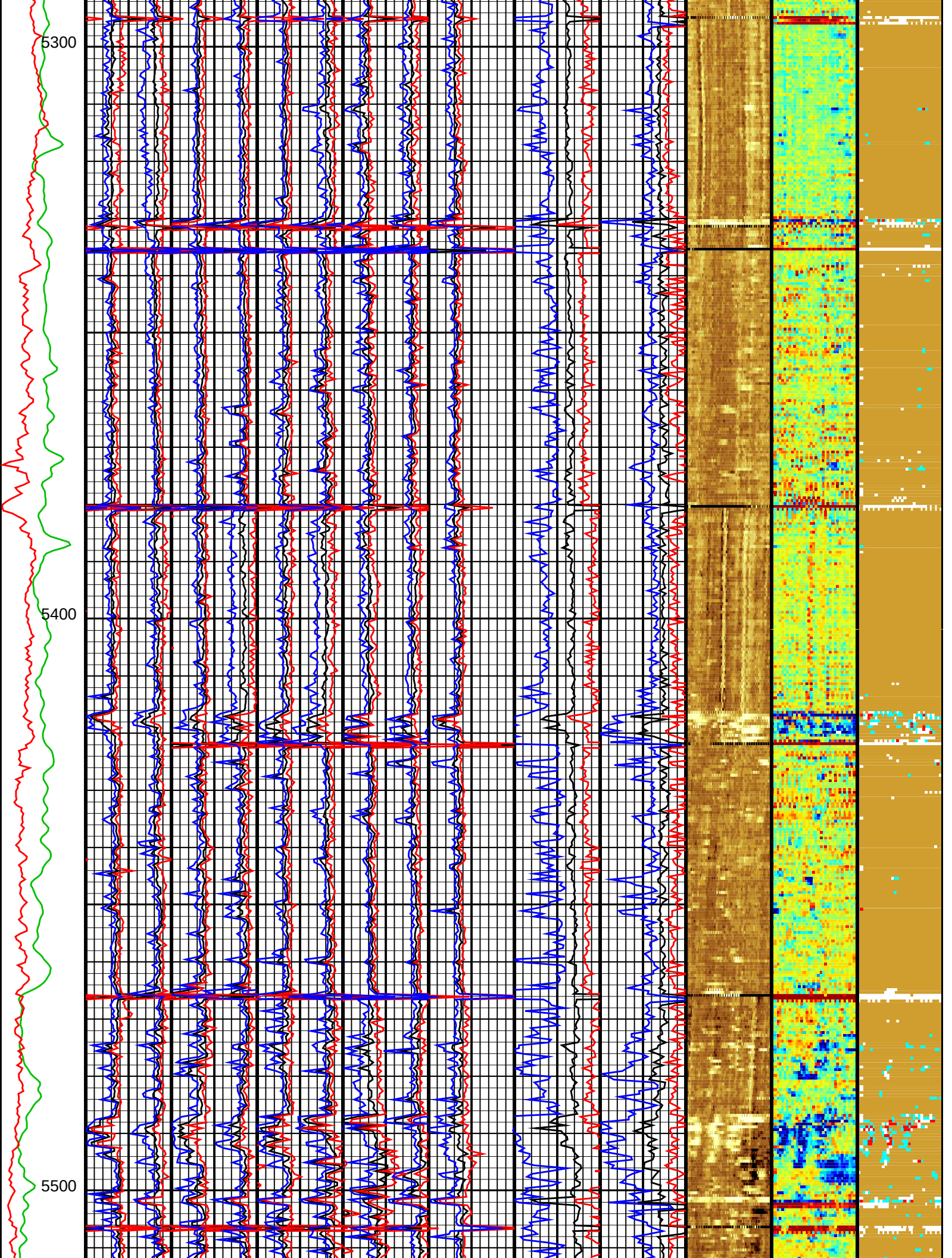
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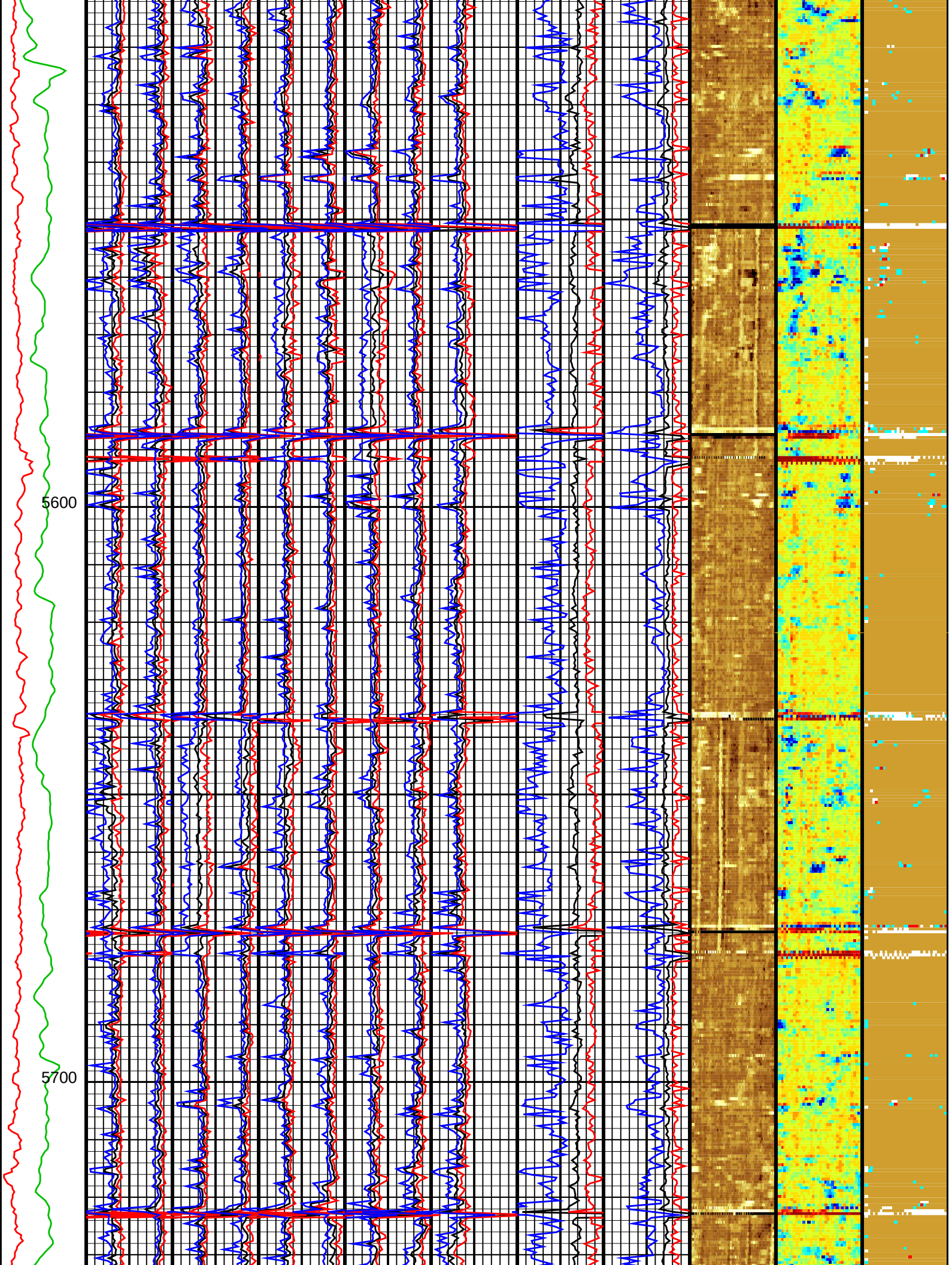
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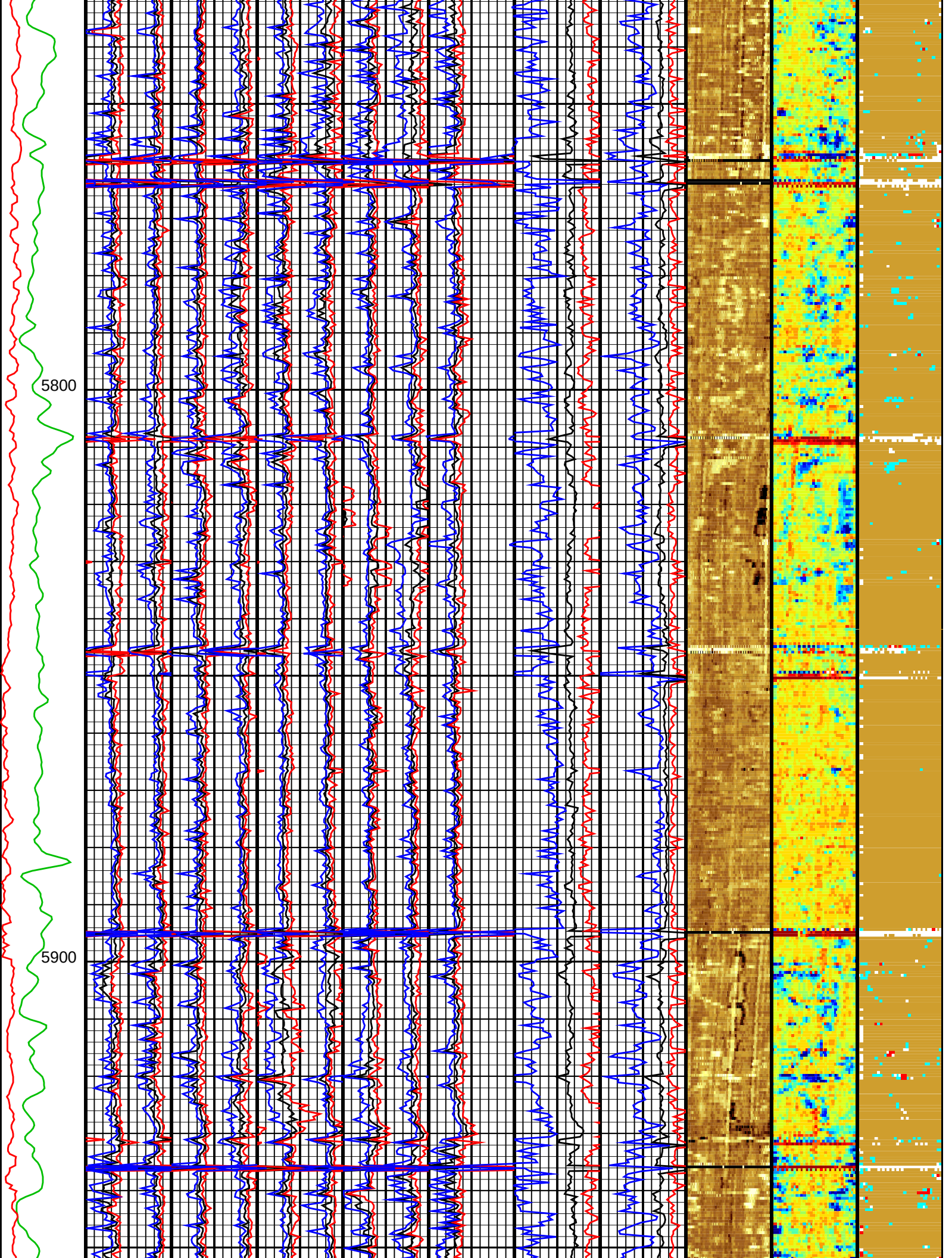
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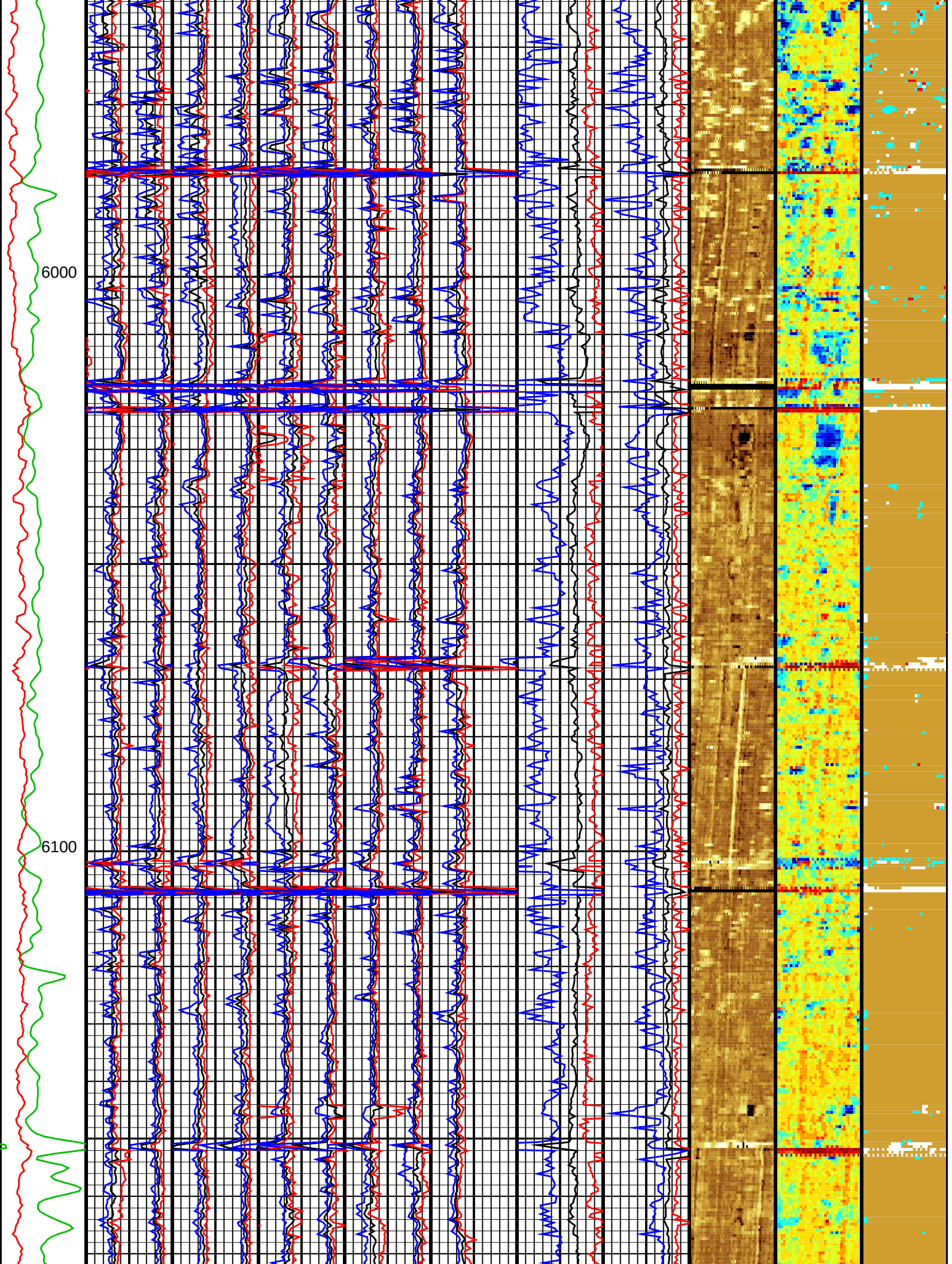
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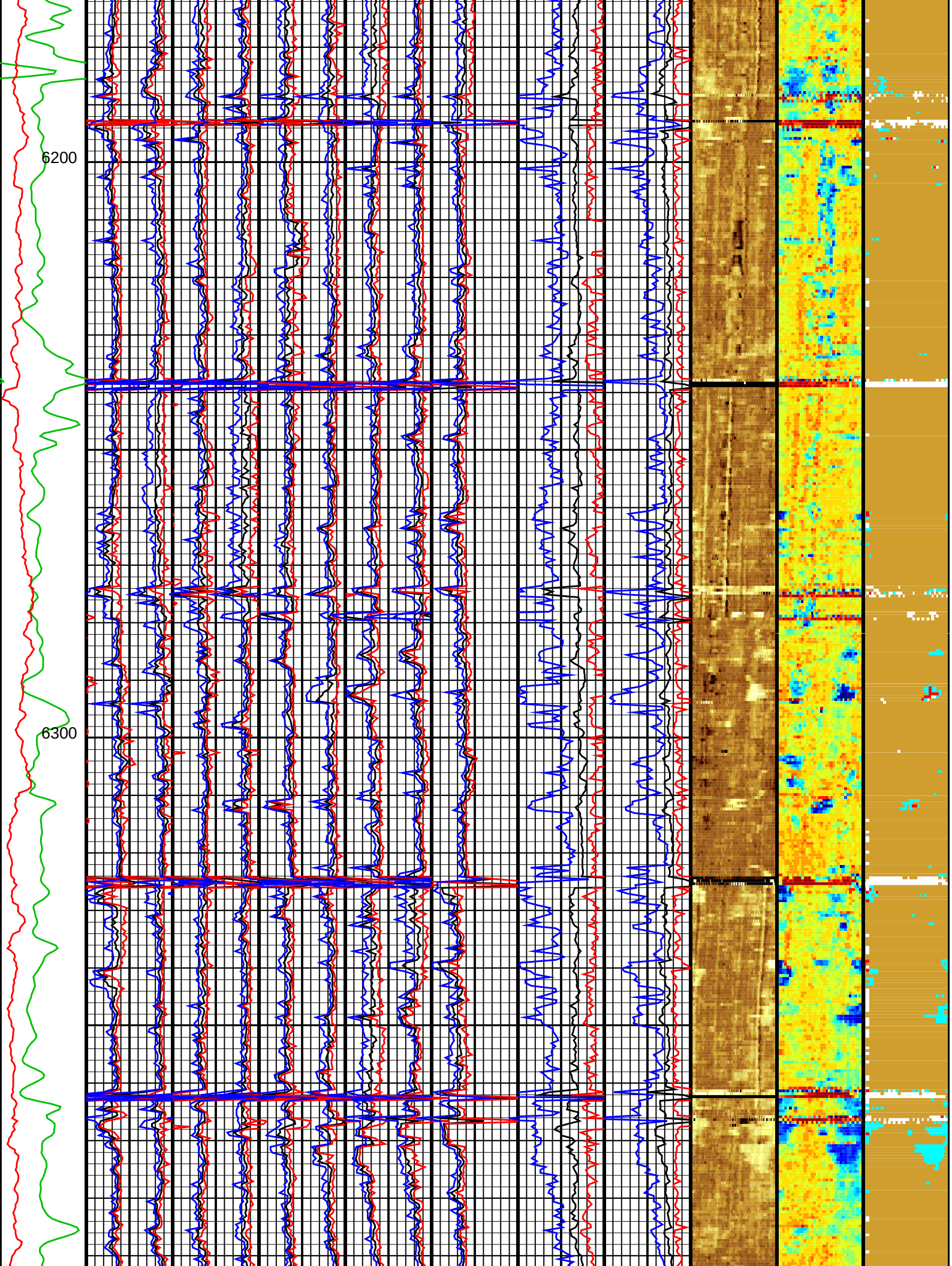
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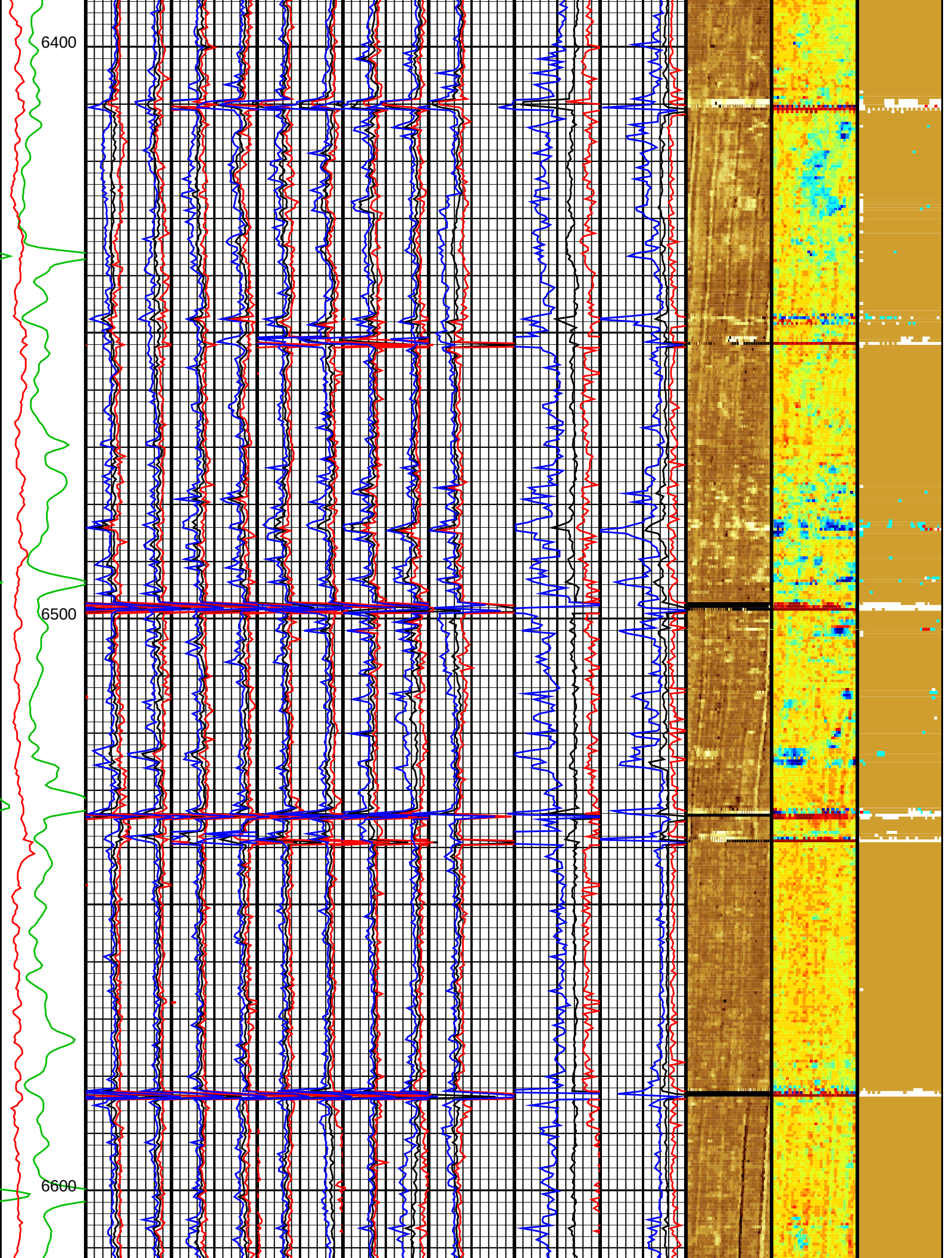
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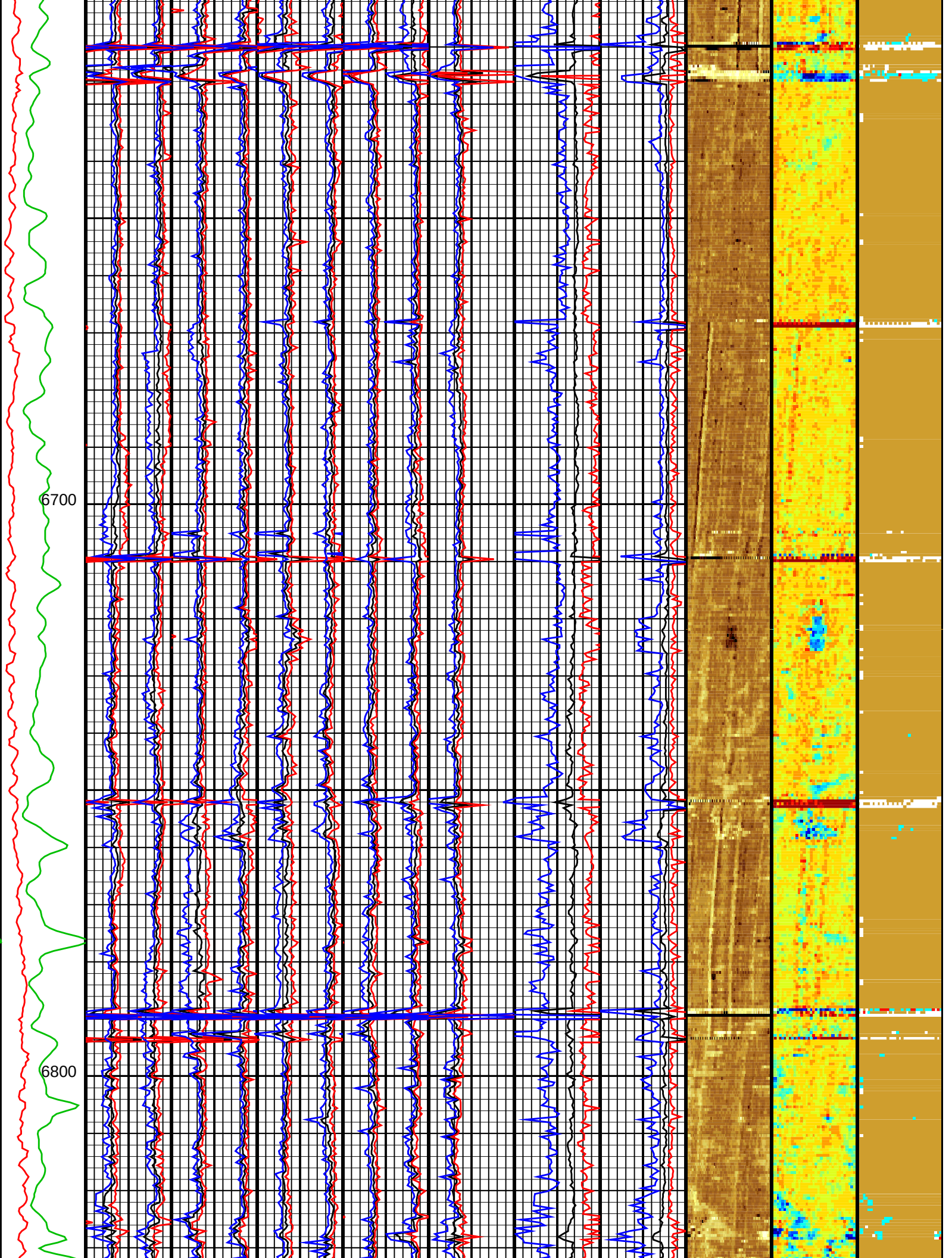
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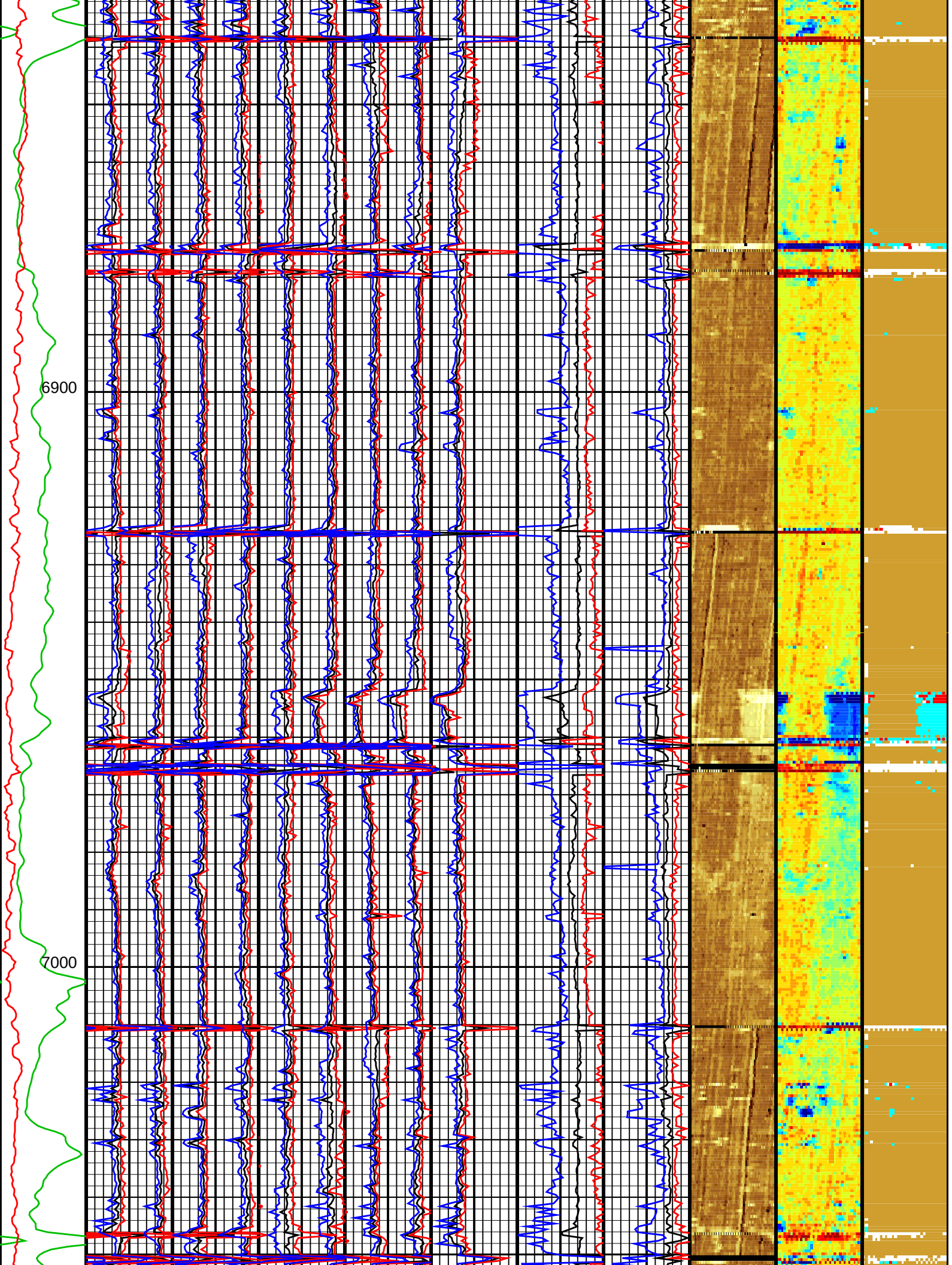
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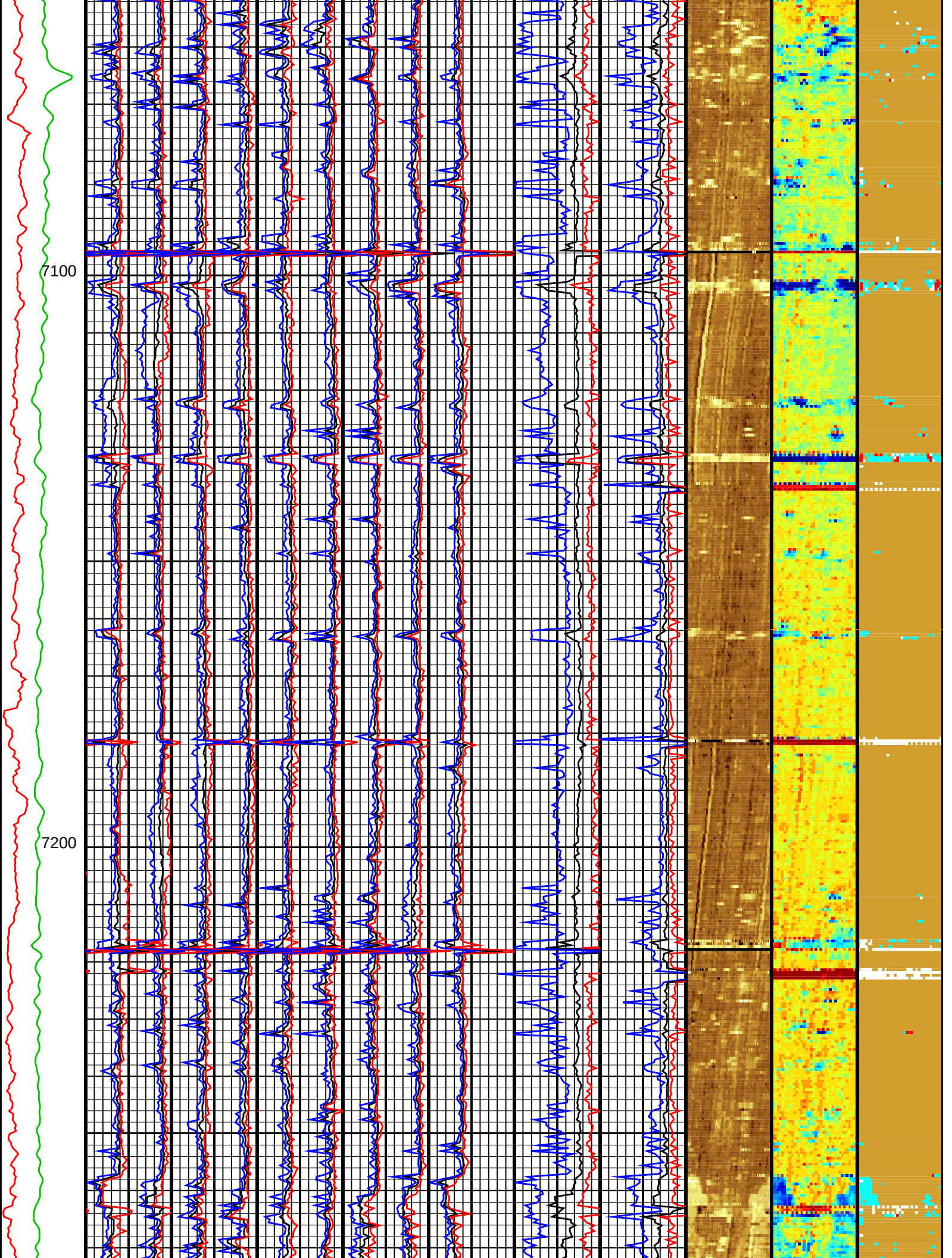
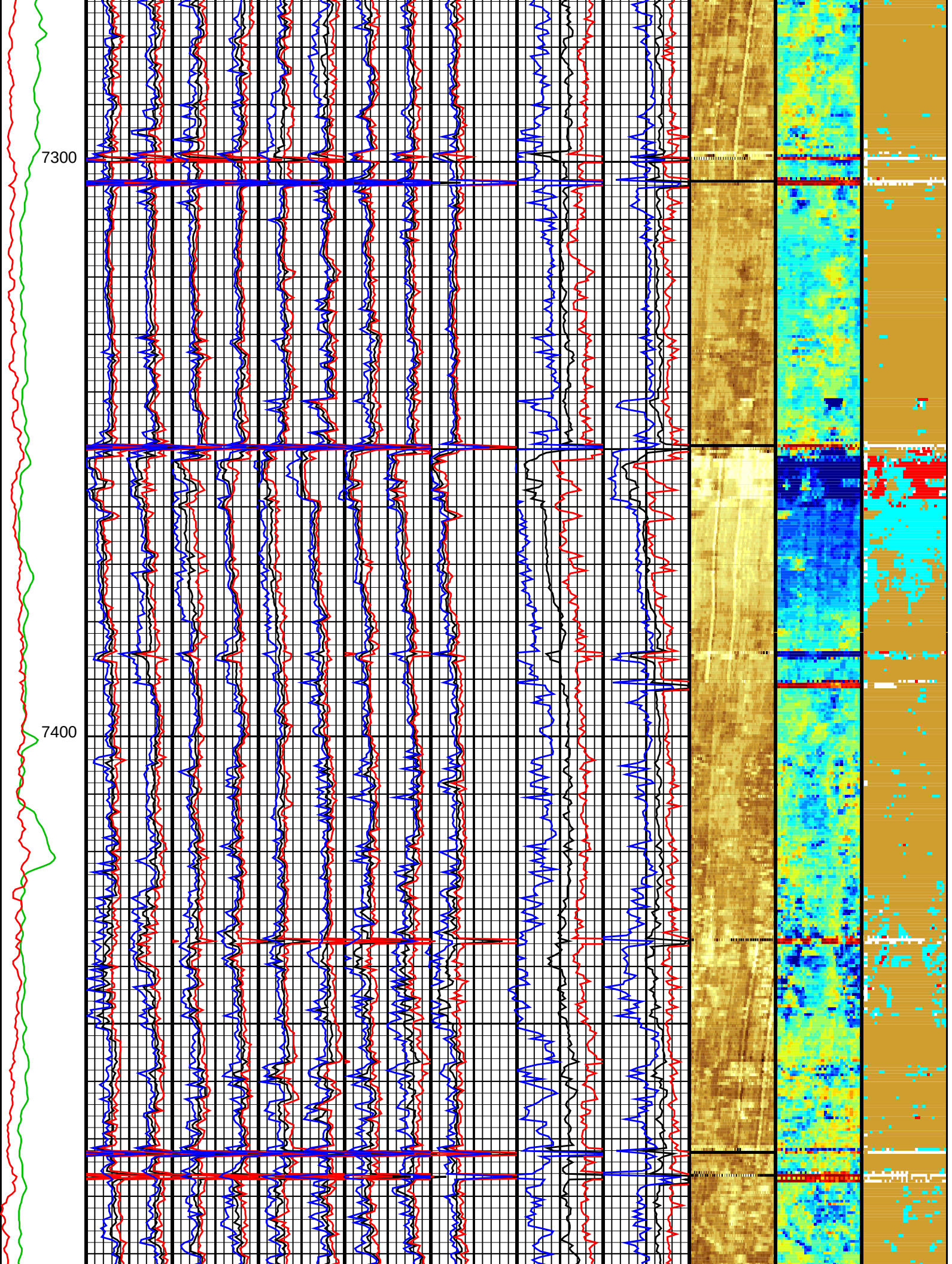

7100
7200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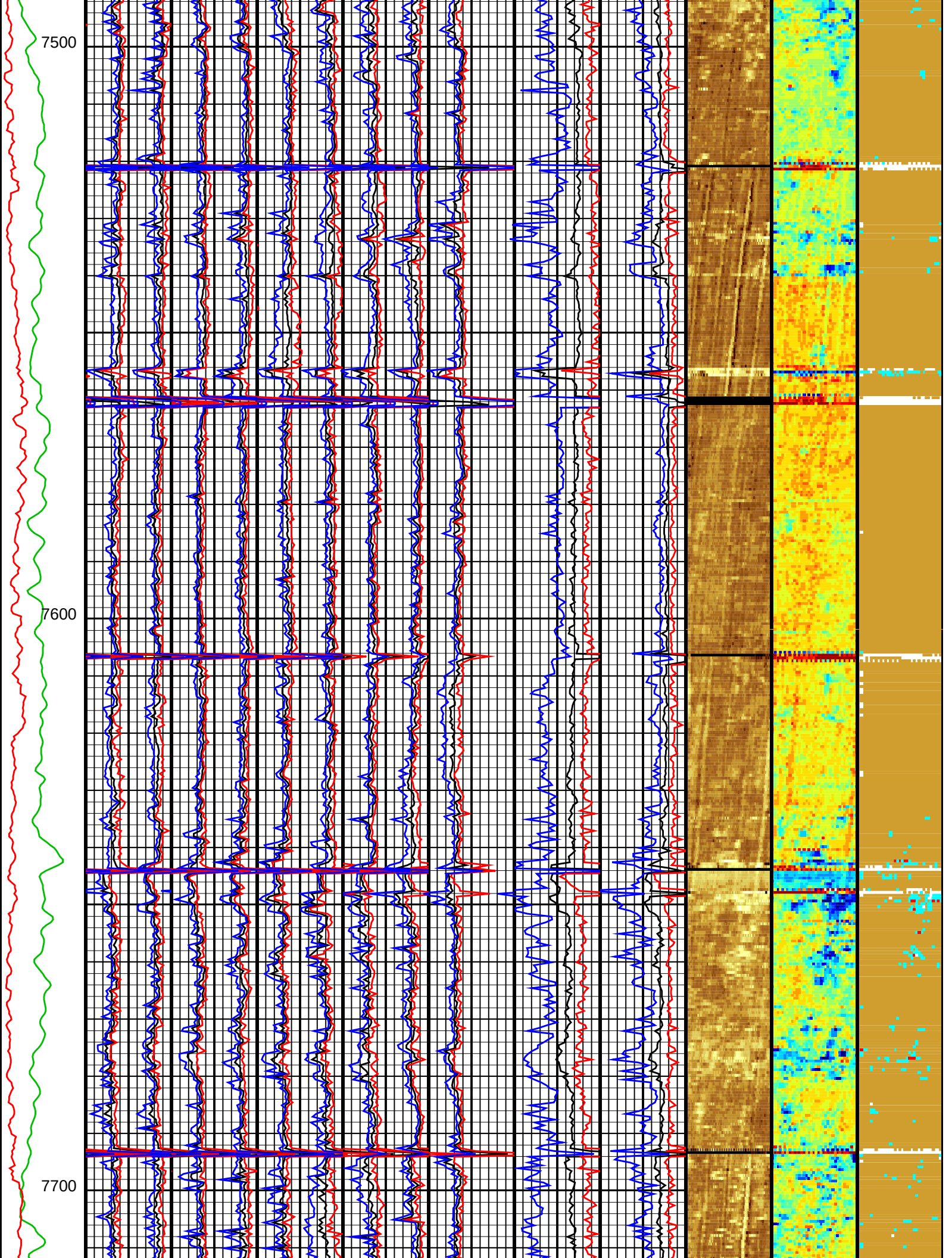
7400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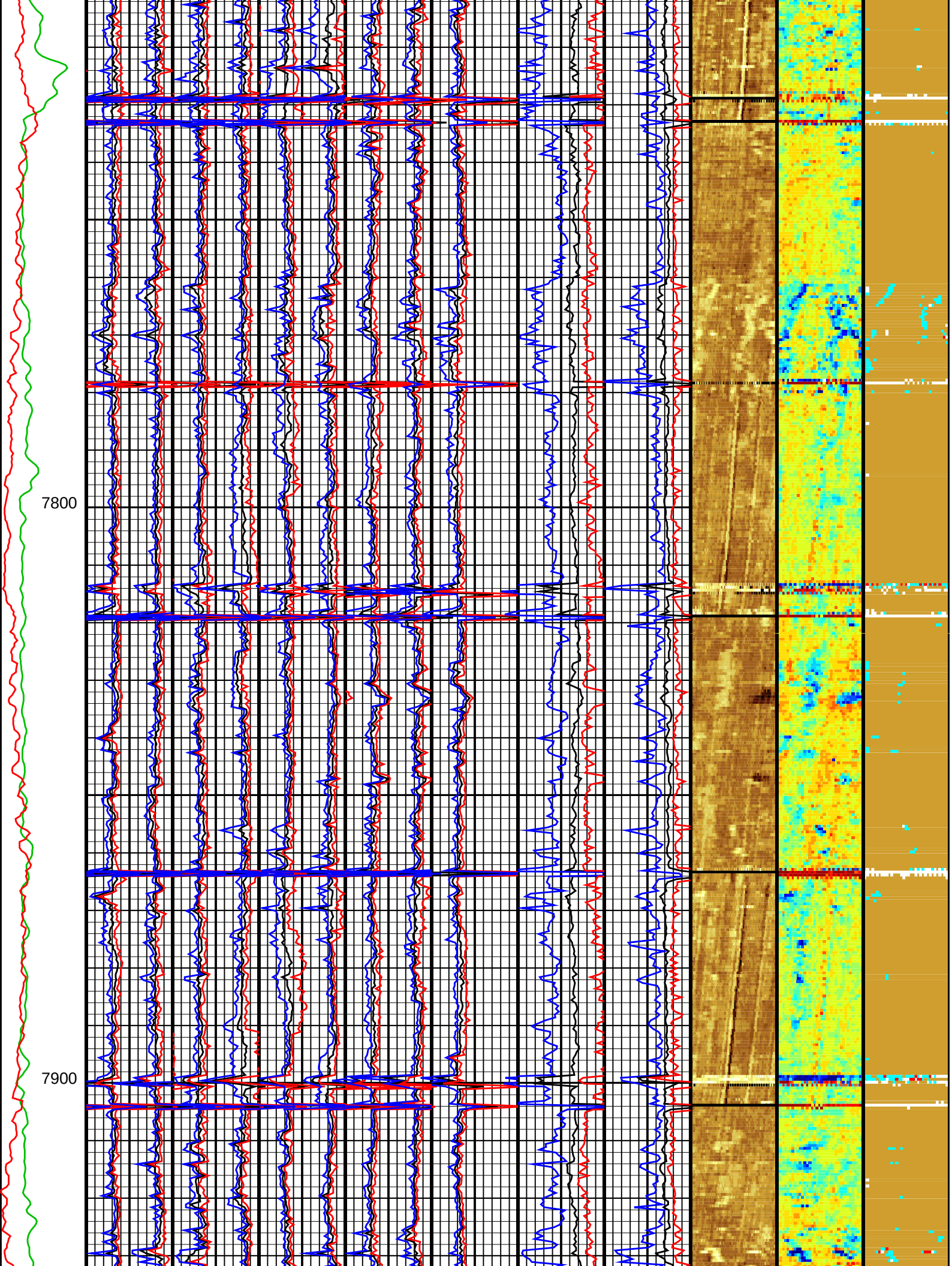
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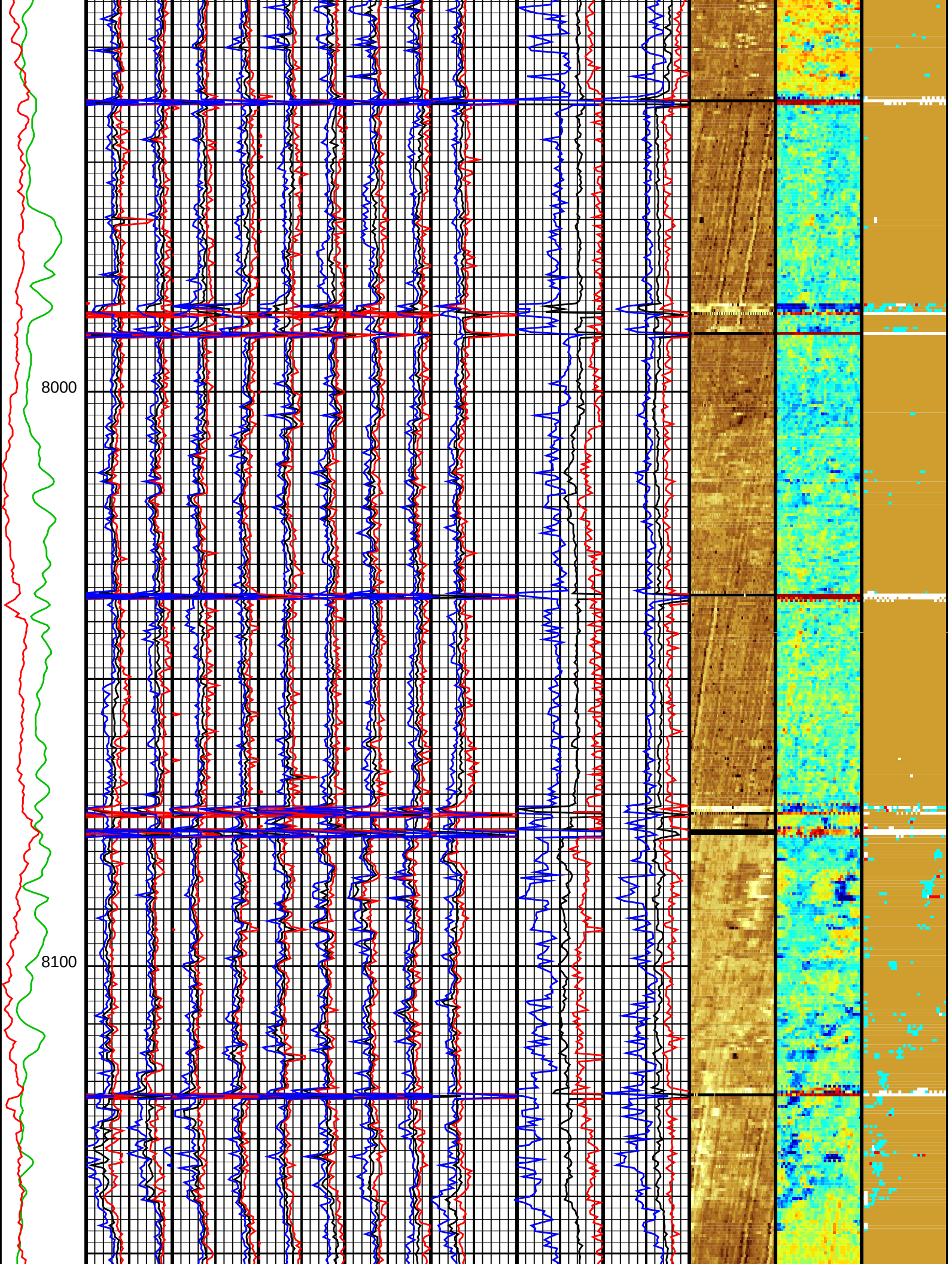
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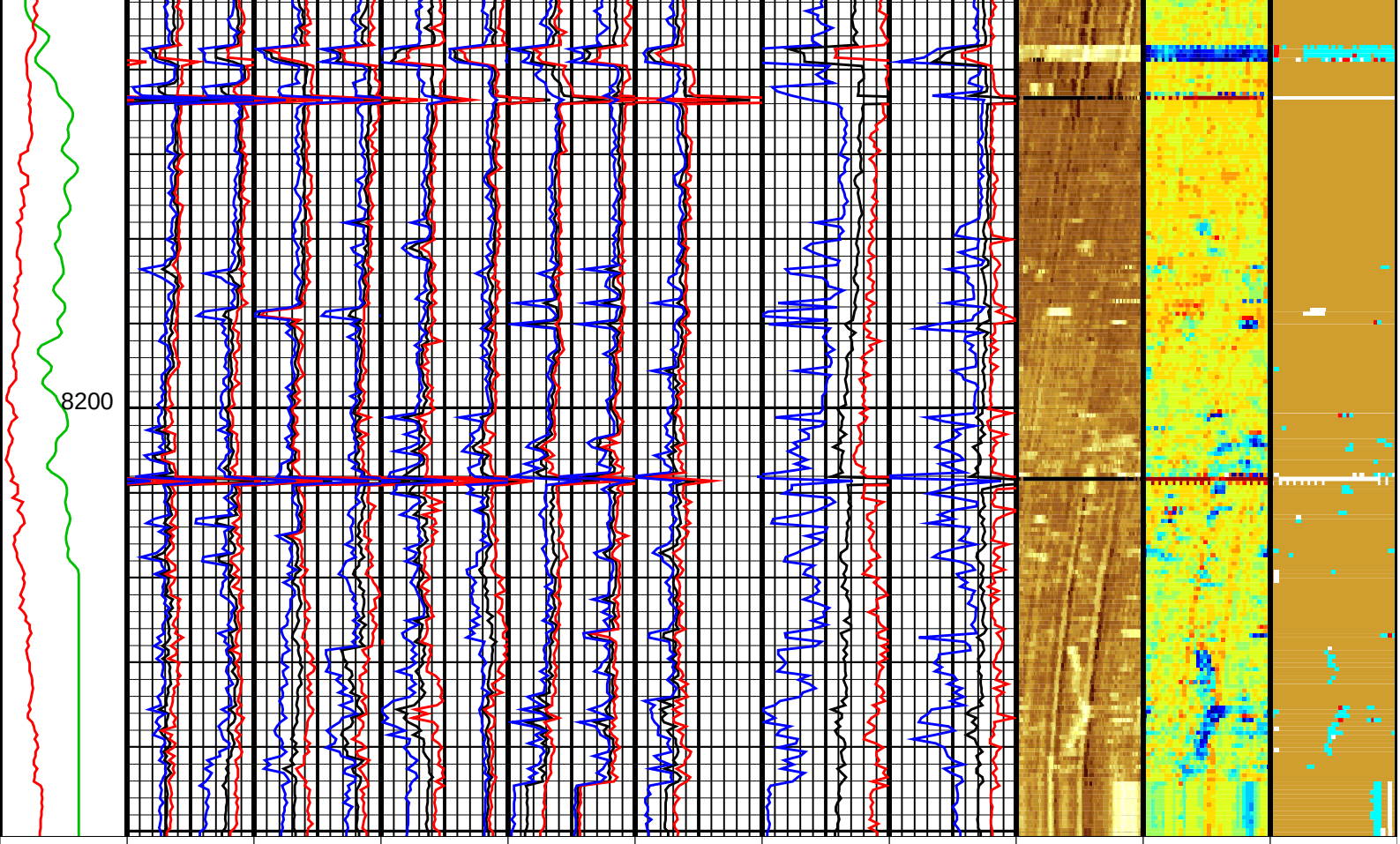
8100



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	Raw Acoustic Imped. (AIBK) (MRAY)	Flexural Attenuation (U−USIT_UFAK) (DB/M)	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)	Maximum Acoustic Impedance #4 (MAX_AI4)	Maximum Acoustic Impedance #6 (MAX_AI6)	Maximum Acoustic Impedance #8 (MAX_AI8)						

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

(MRAY)	(MRAY)	(MRAY)	(MRAY)
−7.5 7.5	−7.5 7.5	−7.5 7.5	−7.5 7.5
Minimum Acoustic Impedance #1 (MIN_AI1) (MRAY)	Minimum Acoustic Impedance #3 (MIN_AI3) (MRAY)	Minimum Acoustic Impedance #5 (MIN_AI5) (MRAY)	Minimum Acoustic Impedance #7 (MIN_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: 19−Aug−2010 16:32**

OP System Version: 18C0−147

USIT−D	18C0−147	HILTH−FTB	18C0−147
DTC−H	18C0−147		

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

	USI_TLD_MCFL_CNL_003PUP	FN:2	19−Aug−2010 15:14	8250.5 FT	3495.5 FT

Output DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_006PUP	FN:4	PRODUCER	19−Aug−2010 16:32	

Schlumberger

GOODWIN 0.1 INCH

MAXIS Field Log

Company: ExxonMobil Production Corp. **Well: PCU 197−34A7**

Input DLIS Files

	USI_TLD_MCFL_CNL_003PUP	FN:2	19−Aug−2010 15:14	8250.5 FT	3495.5 FT

Output DLIS Files

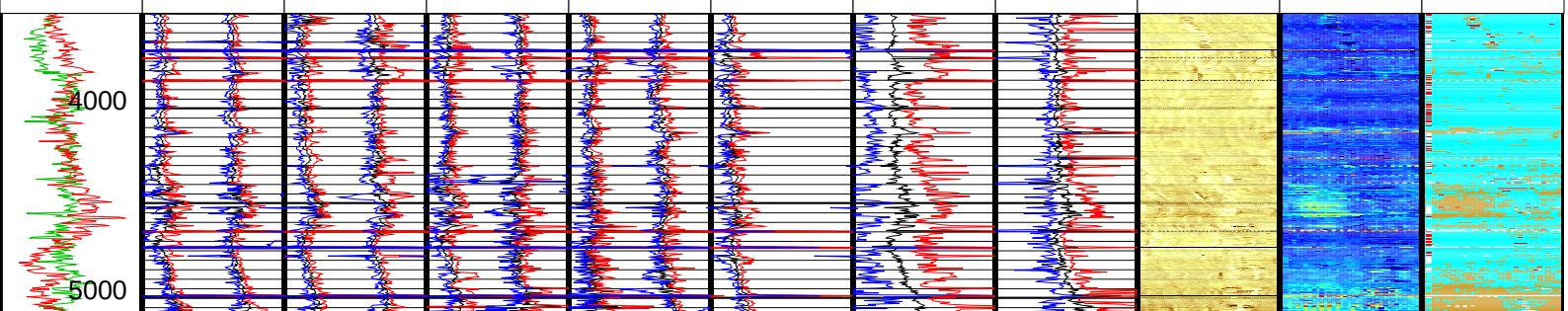
DEFAULT	USI_TLD_MCFL_CNL_006PUP	FN:4	PRODUCER	19−Aug−2010 16:32	8250.5 FT	3495.5 FT

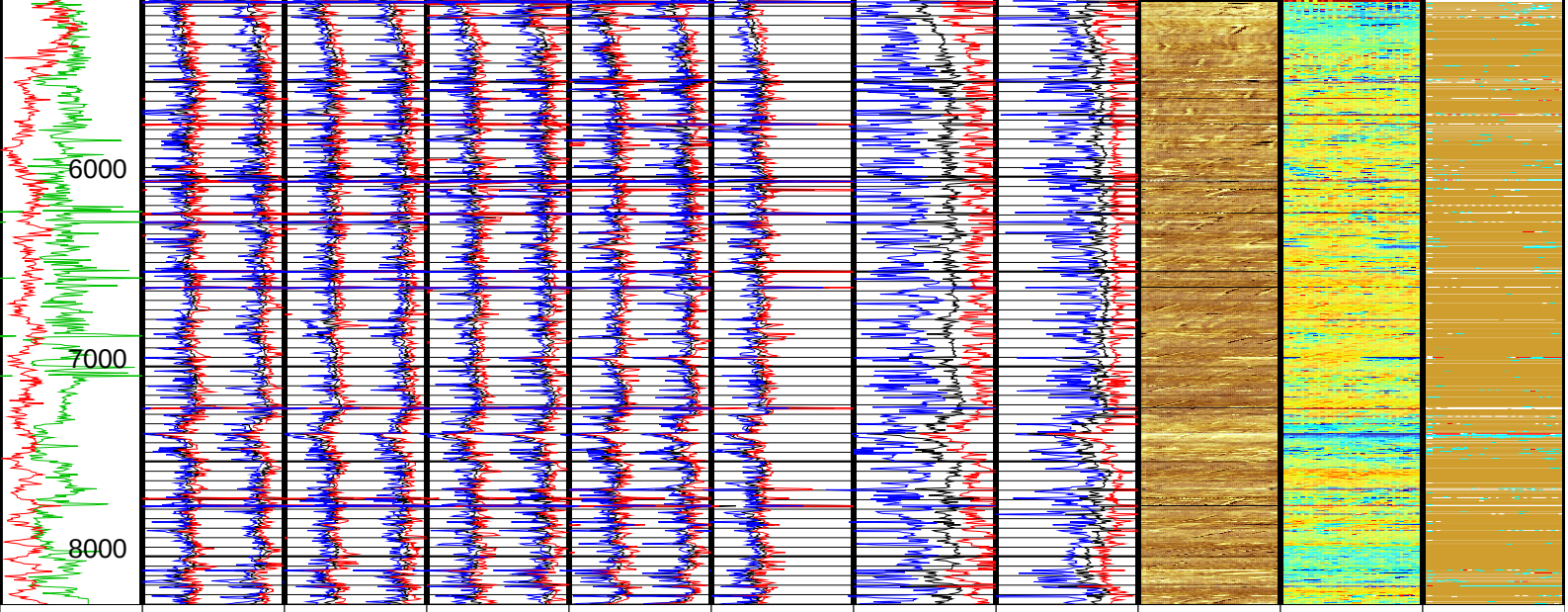
OP System Version: 18C0−147

CP System version: 18C0-147

USIT-D 18C0-147 HILTH-FTB 18C0-147
DTC-H 18C0-147

	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	−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	Minimum	Minimum	Minimum						

Acoustic Impedance #2 (MIN_AI2) (MRAY)		Acoustic Impedance #4 (MIN_AI4) (MRAY)		Acoustic Impedance #6 (MIN_AI6) (MRAY)		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_Compressed **Vertical Scale: 0.1" per 100'** **Graphics File Created: 19−Aug−2010 16:32**

OP System Version: 18C0−147

USIT−D	**18C0−147**	**HILTH−FTB**	**18C0−147**
DTC−H	**18C0−147**		

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

	USI_TLD_MCFL_CNL_003PUP	**FN:2**	**19−Aug−2010 15:14**	**8250.5 FT**	**3495.5 FT**

Output DLIS Files

DEFAULT	**USI_TLD_MCFL_CNL_006PUP**	**FN:4**	**PRODUCER**	**19−Aug−2010 16:32**	

Schlumberger

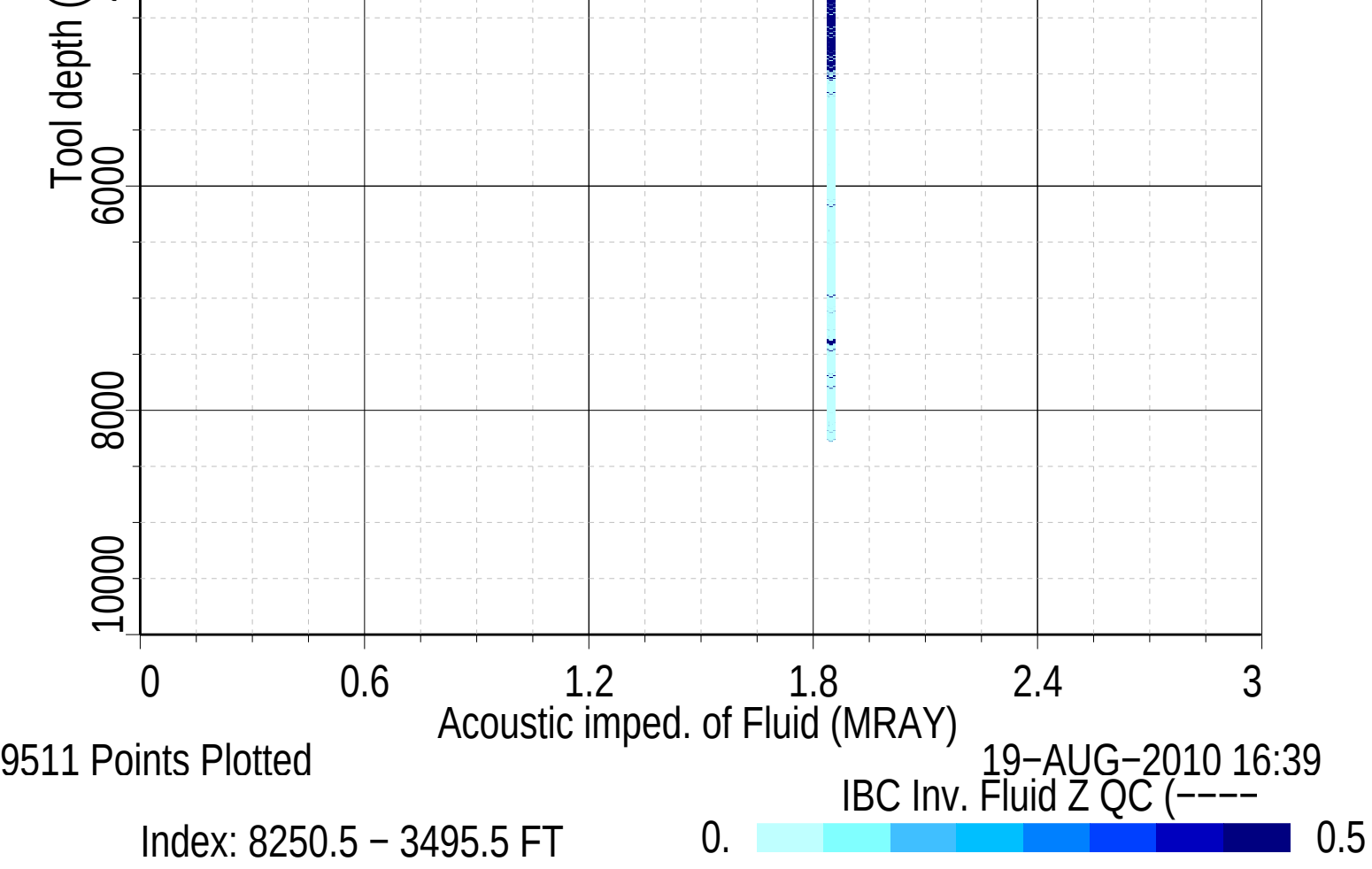
FLUID PROPERTIES

MAXIS Field Log

Index: 8250.5 − 3495.5 FT

IBC Inv. Fluid Z QC (−−−−

0. 0.5



9511 Points Plotted

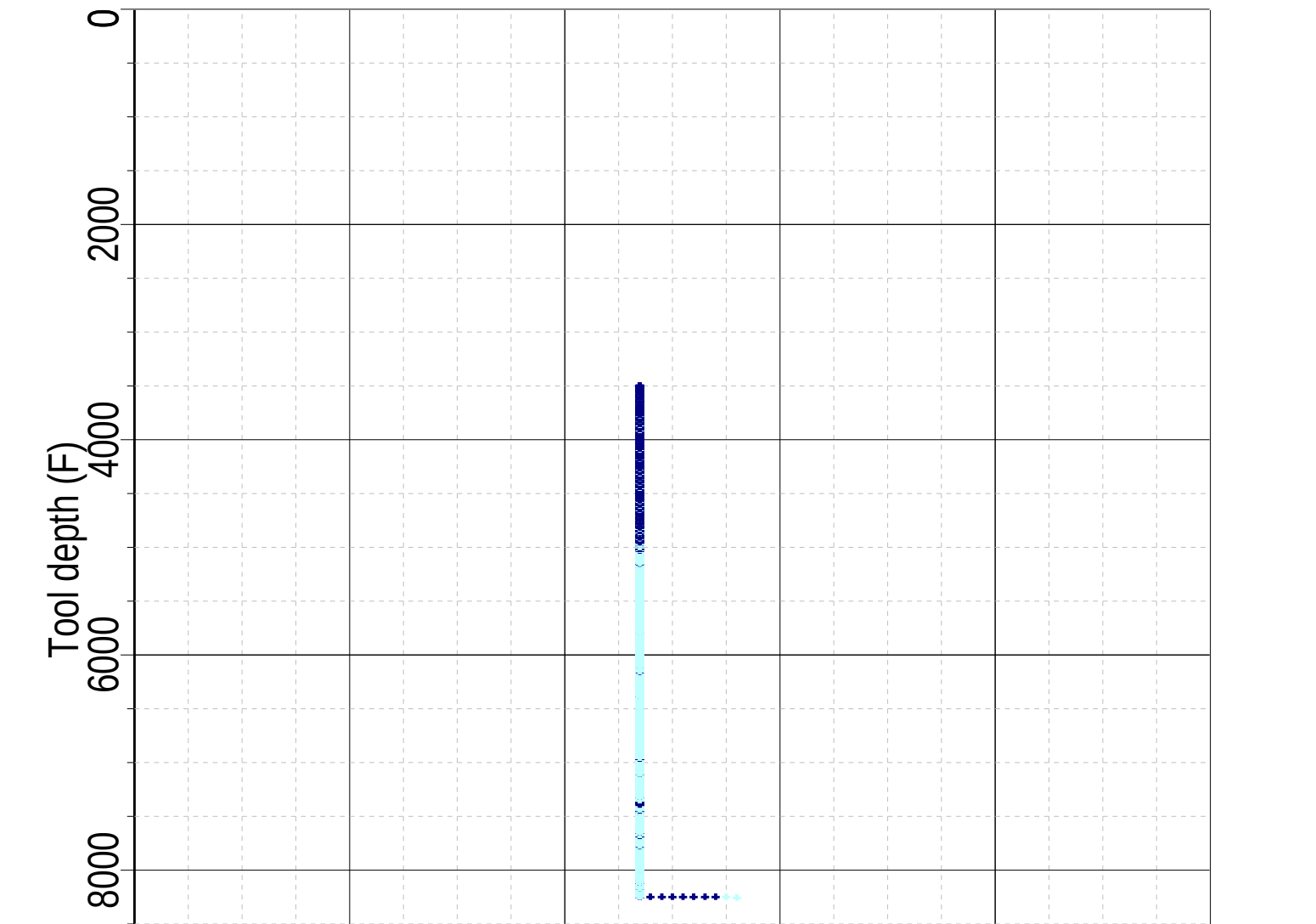
19−AUG−2010 16:39

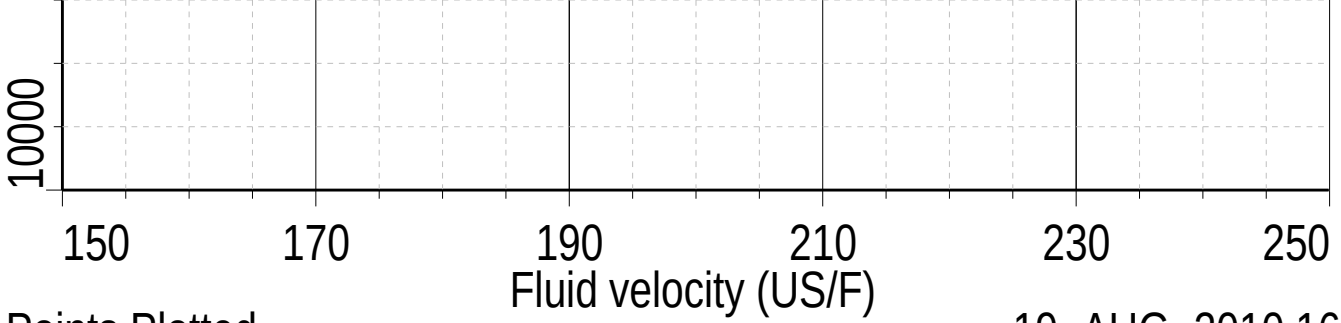
IBC Inv. Fluid Z QC (−−−−

Index: 8250.5 − 3495.5 FT

0.

0.5





9511 Points Plotted 19−AUG−2010 16:39

Schlumberger

REPEAT PASS

MAXIS Field Log

Company: ExxonMobil Production Corp. **Well: PCU 197−34A7**

Input DLIS Files

	USI_TLD_MCFL_CNL_002PUP	FN:1		19−Aug−2010 15:14	8256.5 FT	8007.0 FT

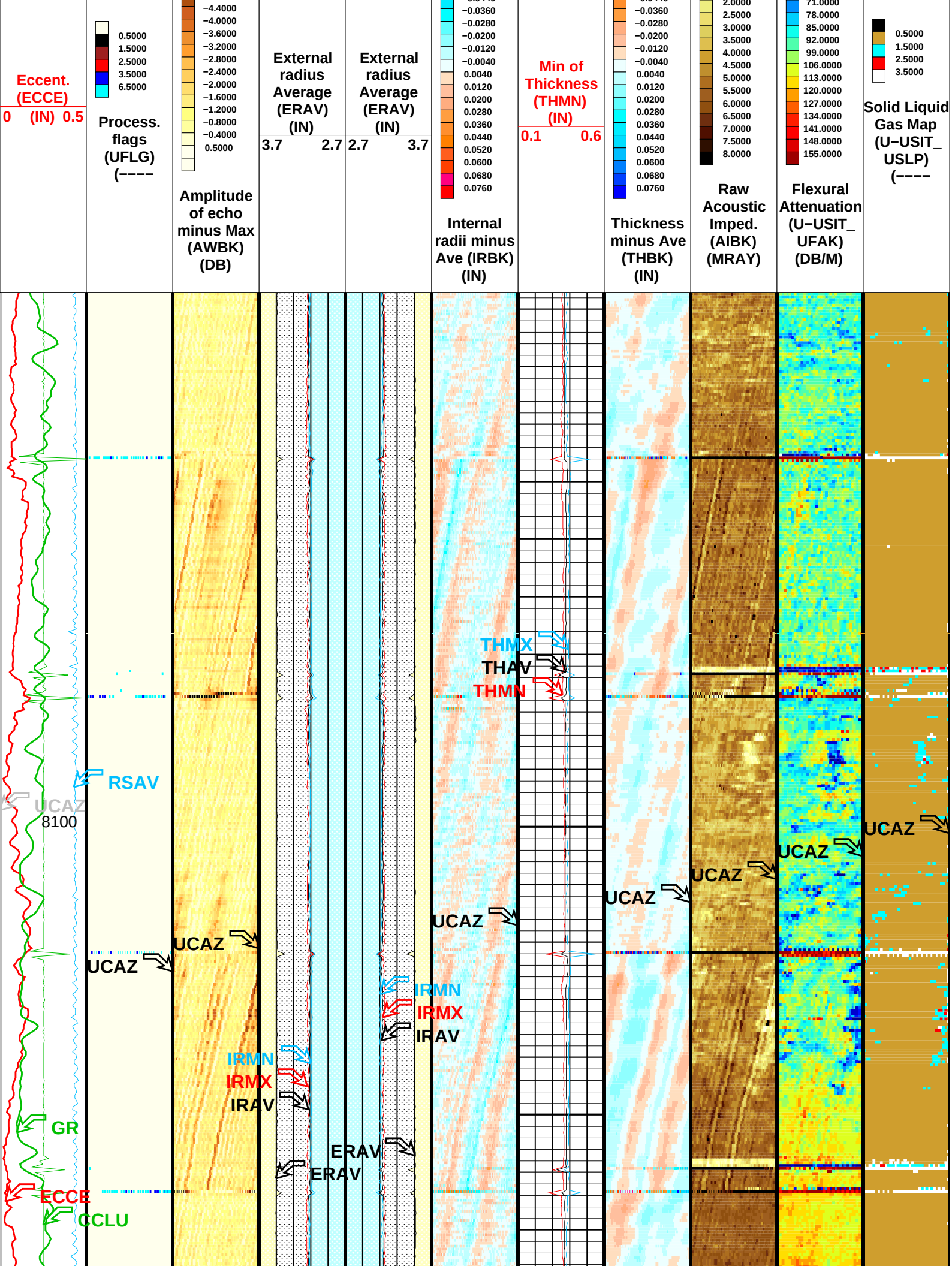
Output DLIS Files

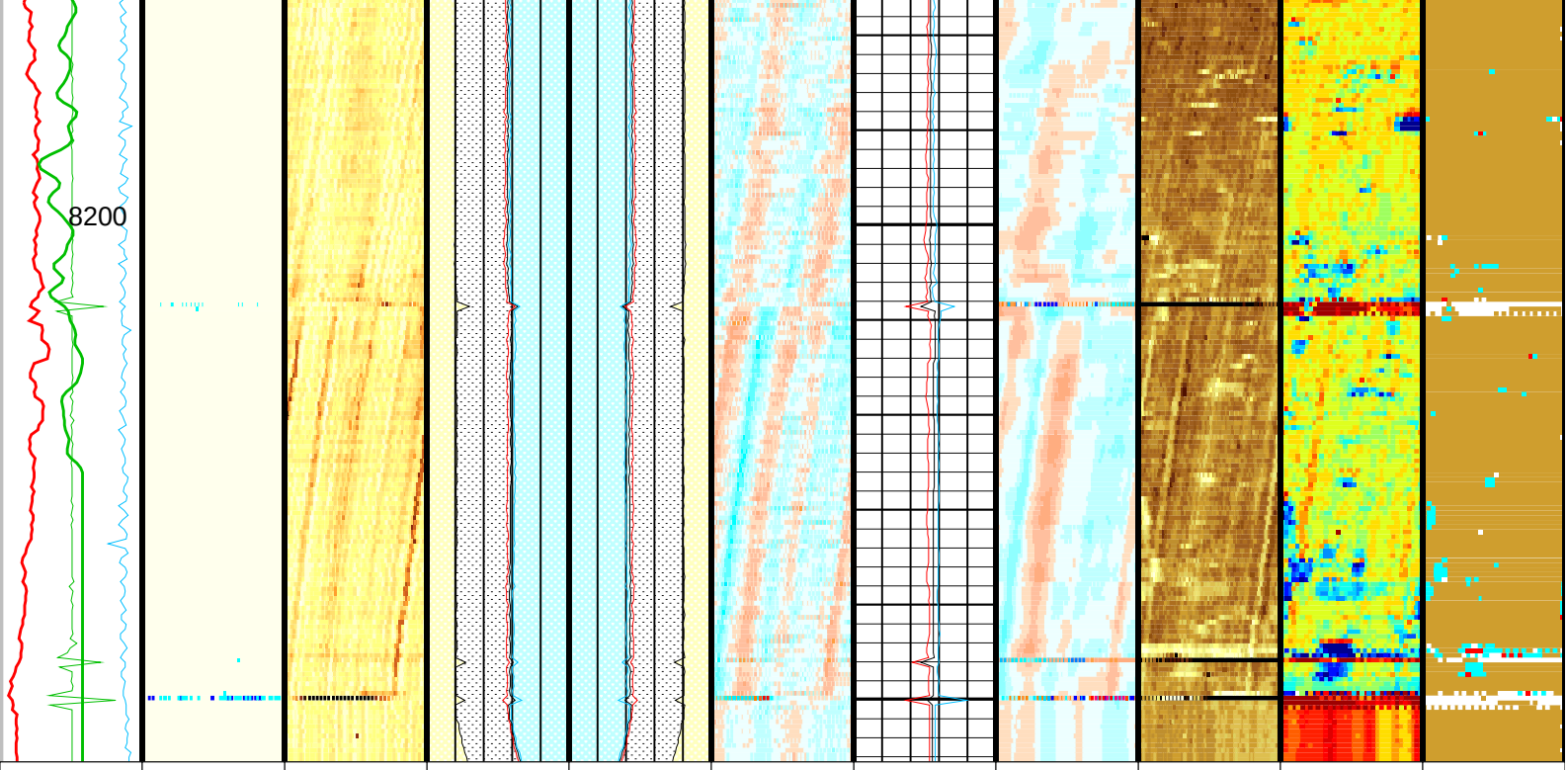
DEFAULT	USI_TLD_MCFL_CNL_002PUP	FN:1	PRODUCER	19−Aug−2010 16:09	8256.5 FT	8007.0 FT

OP System Version: 18C0−147

USIT−D	18C0−147	HILTH−FTB	18C0−147
DTC−H	18C0−147		

Image rotation (UCAZ) (DEG) 0 360									
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					
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			
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			
	−500.0000 −6.0000 −5.6000 −5.2000 −4.8000				−500.0000 −0.0760 −0.0680 −0.0600 −0.0520 −0.0440		−500.0000 −0.0760 −0.0680 −0.0600 −0.0520 −0.0440	−500.0000 0.5000 1.0000 1.5000	0.0000 50.0000 57.0000 64.0000


Eccent. (ECCE)
0 (IN) 0.5
0.5000
1.5000
2.5000
3.5000
6.5000
Process. flags (UFLG) (----
−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
−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
Thickness minus Ave (THBK) (IN)
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)
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) (----
THMX
THAV
THMN
RSAV
UCAZ
8100
UCAZ
UCAZ
UCAZ
UCAZ
UCAZ
UCAZ
UCAZ
IRMN
IRMX
IRAV
IRMN
IRMX
IRAV
GR
ERAV
ERAV
ECCE
CCLU



Eccent. (ECCE) 0 (IN) 0.5	Process. flags (UFLG) (-----	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	Internal radii minus Ave (IRBK) (IN)	Min of Thickness (THMN) (IN) 0.1 0.6	Thickness minus Ave (THBK) (IN)	Raw Acoustic Imped. (AIBK) (MRAY)	Flexural Attenuation (U-USIT_ UFAK) (DB/M)	Solid Liquid Gas Map (U-USIT_ USLP) (----
	0.5000 1.5000 2.5000 3.5000 6.5000	−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			−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		−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	−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	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	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						
Image rotation (UCAZ) (DEG)										

0 360

Format: USI_IBC_SLG_Composite Vertical Scale: 5" per 100' Graphics File Created: 19−Aug−2010 16:09

OP System Version: 18C0−147

USIT−D	18C0−147	HILTH−FTB	18C0−147
DTC−H	18C0−147		

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	110	V
FSOD	Fluid Slowness Fits Casing Outer Diameter	5_UFSL_N_ZMUD	
IMAR	Image Rotation	OFF	
MW	Mud Weight	8.4	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	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	46.25	MRAY
ZINI	Initial Estimate of Cement Impedance	−1	MRAY
ZMUD	Acoustic Impedance of Mud	1.85	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	0.0	FT
PP	Playback Processing	NORMAL	

Input DLIS Files

	USI_TLD_MCFL_CNL_002PUP	FN:1	19−Aug−2010 15:14	8256.5 FT	8007.0 FT

Output DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_002PUP	FN:1	PRODUCER	19−Aug−2010 16:09

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CALIBRATIONS

MAXIS Field Log

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
High resolution Integrated Logging Tool−DTS Wellsite Calibration − Detector Calibration							
Before: 17−Aug−2010 11:34							
Gamma Ray Background	30.00	N/A	44.19	N/A	N/A	N/A	GAPI
Gamma Ray (Jig − Bkgd)	165.0	N/A	165.5	N/A	N/A	15.00	GAPI
High resolution Integrated Logging Tool−DTS Wellsite Calibration − Zero Measurement							
Master: 28−Jul−2010 14:05 Before: Calibration not done							
CNTC Background	32.64	32.64	N/A	N/A	N/A	4.896	CPS
CFTC Background	33.74	33.74	N/A	N/A	N/A	5.061	CPS
High resolution Integrated Logging Tool−DTS Wellsite Calibration − Ratio Measurement							
Master: 28−Jul−2010 14:05							
Thermal Near Corr. (Tank)	5800	5292	N/A	N/A	N/A	N/A	CPS
Thermal Far Corr. (Tank)	2400	2168	N/A	N/A	N/A	N/A	CPS
CNTC/CFTC (Tank)	2.159	2.441	N/A	N/A	N/A	N/A	
High resolution Integrated Logging Tool−DTS Wellsite Calibration − Accelerometer Calibration							
Before: Calibration not done							
Z−Axis Acceleration	32.19	N/A	32.19	N/A	N/A	N/A	F/S2

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

NCT−B Water Temperature	66.7	DEGF.
Thermal Housing Size	3.371	IN.
NSR−F serial number	0	

High resolution Integrated Logging Tool−DTS / Equipment Identification

Primary Equipment:		
HILT Gamma−Ray Neutron Sonde−DTS	HGNS − H	2986
HGNS Gamma−Ray Device	HGR −	
HGNS Neutron Detector with Alpha Source	HCNT − H	
Z−Axis Accelerometer	HACC − H	
Neutron Logging Source	NLS − KL	
Neutron Source Radioactive	NSR − F	
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 − Bkgd) GAPI	Value
Before		44.19	Before		165.5
0 (Minimum)	30.00 (Nominal) 120.0 (Maximum)		157.1 (Minimum)	165.0 (Nominal) 206.3 (Maximum)	
Before: 17−Aug−2010 11:34					

High resolution Integrated Logging Tool−DTS Wellsite Calibration					
Zero Measurement					
Phase	CNTC Background CPS	Value	Phase	CFTC Background CPS	Value
Master		32.64	Master		33.74
Before	NOT DONE	N/A	Before	NOT DONE	N/A
5.000 (Minimum)	32.64 (Nominal) 40.00 (Maximum)		5.000 (Minimum)	33.74 (Nominal) 40.00 (Maximum)	
Master: 28−Jul−2010 14:05			Before: Calibration not done		

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		5292	Master		2168	Master		2.441
4700 (Minimum)	5800 (Nominal) 6900 (Maximum)		1900 (Minimum)	2400 (Nominal) 2900 (Maximum)		2.120 (Minimum)	2.159 (Nominal) 2.540 (Maximum)	
Master: 28−Jul−2010 14:05								

High resolution Integrated Logging Tool−DTS Wellsite Calibration		
Accelerometer Calibration		
Phase	Z−Axis Acceleration F/S2	Value
Before		32.19
31.53 (Minimum)	32.19 (Nominal) 32.84 (Maximum)	
Before: Calibration not done		

DTS Telemetry Tool / Equipment Identification

Company: **ExxonMobil Production Corp.**

Schlumberger

Well: **PCU 197−34A7**
Field: **Piceance Creek**
County: **Rio Blanco**
State: **Colorado**

IMAGING BEHIND CASING
ULTRASONIC TOOL
CCL − GAMMA RAY