Schlumberger

Company: **SG INTERESTS I. LTD>**

Well: **FEDERAL 11−90−24 #2 WDW**

Field: **BULL MOUNTAIN**

County: **GUNNISON** State: **COLORADO**

IMAGING BEHIND CASING
ULTRASONIC TOOL
CCL / GAMMA RAY

County: GUNNISON
Field: BULL MOUNTAIN
Location: SW & SW
Well: FEDERAL 11−90−24 #2 WDW
Company: SG INTERESTS I. LTD>

LOCATION

SW & SW

Elev.: K.B. 7370.00 ft
G.L. 7351.00 ft
D.F. 7369.00 ft

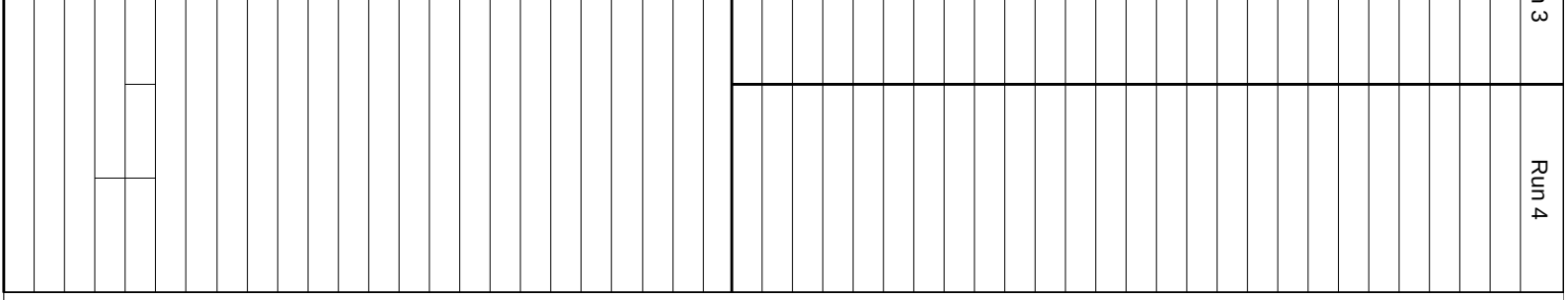
Permanent Datum: GROUND LEVEL Elev.: 7351.00 ft
Log Measured From: 19.00 ft above Perm. Datum
Drilling Measured From:

API Serial No.	Section	Township	Range
05−051−06084−0(	24	11S	90W

Logging Date	11−Jul−2009		
Run Number	1		
Depth Driller	5015 ft		
Schlumberger Depth	5010 ft		
Bottom Log Interval	5010 ft		
Top Log Interval	386 ft		
Casing Fluid Type	WATER BASED MUD		
Salinity	1500 ppm		
Density	9.9 lbm/gal		
Fluid Level	22 ft		
BIT/CASING/TUBING STRING			
Bit Size	12.250 in		
From	5015 ft		
To	386 ft		
Casing/Tubing Size	9.625 in		
Weight	40 lbm/ft		
Grade			
From	5015 ft		
To	386 ft		
Maximum Recorded Temperatures			
Logger On Bottom / Time	11−Jul−2009 / 6:11		
Unit Number / Location	2276 / VERNAL		
Recorded By	CHESTER CLARK		
Witnessed By	ED WEST		

		Run 1	Run 2	Run
PVT DATA	Oil Density			
	Water Salinity	1500 ppm		
	Gas Gravity			
	Bo			
	Bw			
	1/Bg			
	Bubble Point Pressure			
	Bubble Point Temperature			
	Solution GOR			
	Maximum Deviation	0.69 deg		
	CEMENTING DATA			
	Primary/Squeeze	Primary		
	Casing String No			
	Lead Cement Type	LITECRETE		
	Volume			
	Density	10.5 lbm/gal		
	Water Loss			
	Additives			
	Tail Cement Type			
	Volume			
	Density			
	Water Loss			
	Additives			
	Expected Cement Top			

Logging Date			
Run Number			
Depth Driller			
Schlumberger Depth			
Bottom Log Interval			
Top Log Interval			
Casing Fluid Type			
Salinity			
Density			
Fluid Level			
BIT/CASING/TUBING STRING			
Bit Size			
From			
To			
Casing/Tubing Size			
Weight			
Grade			
From			
To			
Maximum Recorded Temperatures			
Logger On Bottom / Time			
Unit Number / Location			
Recorded By			
Witnessed By			



DEPTH SUMMARY LISTING

Date Created: 12−JUL−2009 12:44:02

Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW−B	Type:	CMTD−B/A	Type:	7−46P
Serial Number:	6197	Serial Number:	2276	Serial Number:	7232
Calibration Date:	31−JAN−2009	Calibration Date:	12−JUNE−20	Length:	24000 FT
Calibrator Serial Number:	1	Calibrator Serial Number:	1		
Calibration Cable Type:	7−46P	Calibration Gain:	0.94	Conveyance Method:	Wireline
Wheel Correction 1:	−8	Calibration Offset:	315.00	Rig Type:	LAND
Wheel Correction 2:	−7				

Depth Control Parameters

Log Sequence: Subsequent Log In the Well

Reference Log Name: SLB DIGITIZING SONIC LOGGING TOOL, CEMENT BOND LOG
Reference Log Run Number: 23
Reference Log Date: 14−JUN−2009

Depth Control Remarks

1. FULL SCHLUMBERGER DEPTH POLICIES FOLLOWED
2. IDW USED AS PRIMARY DEPTH REFERENCE
3. Z−CHART USED AS SECONDARY DEPTH REFERENCE
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 INLINE CENTRALIZERS AND 2 GEMCO'S	
HORIZONTAL RESOLUTION = 5 DEG	
VERTICAL RESOLUTION = 6 INCH	
TD NOT TAGGED	
LOG CORRELATED TO SCHLUMBERGER DIGITIZING SONIC LOGGING TOOL LOG	
UFAO = 30	

CEMENT = LITECRETE	
OPEN HOLE UNDER CASING SHOE AT 5015	

RUN 1		RUN 2	
SERVICE ORDER #:	AXAL−00032	SERVICE ORDER #:	
PROGRAM VERSION:	17C0−154	PROGRAM VERSION:	
FLUID LEVEL:	22 ft	FLUID LEVEL:	

LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION

RUN 1 RUN 2

SURFACE EQUIPMENT

WITM (EDTS)−A

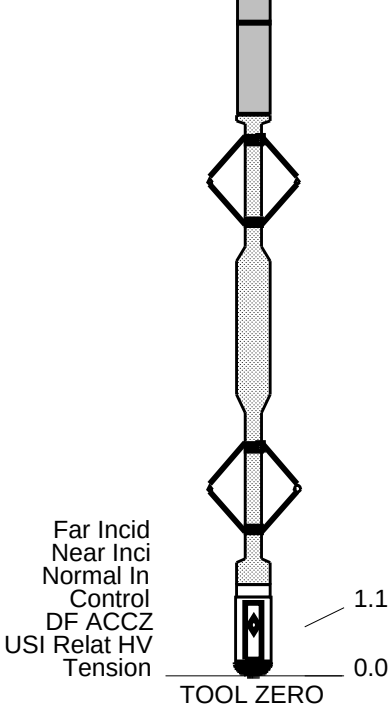
DOWNHOLE EQUIPMENT

LEH−QT
LEH−QT

CAL−Y
CAL−Y

EDTC−B
EDTH−B
EDTC−B 8127
EDTG−A/B

USIT−D
ECH−MRA
USIC−D 1846
AH−107 3908
USIS−A 704
USSC−B
IBCS_C−100158203 757
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

Schlumberger

IBC SLG Composite

MAXIS Field Log

Company: SG INTERESTS I. LTD> **Well: FEDERAL 11−90−24 #2 WDW**

Input DLIS Files

DEFAULT	**USI_022PUP**	**FN:21**	**PRODUCER**	**11−Jul−2009 08:10**	**5010.0 FT**	**66.0 FT**

Output DLIS Files

DEFAULT	**USI_024PUP**	**FN:23**	**PRODUCER**	**11−Jul−2009 09:03**	**5010.0 FT**	**74.0 FT**

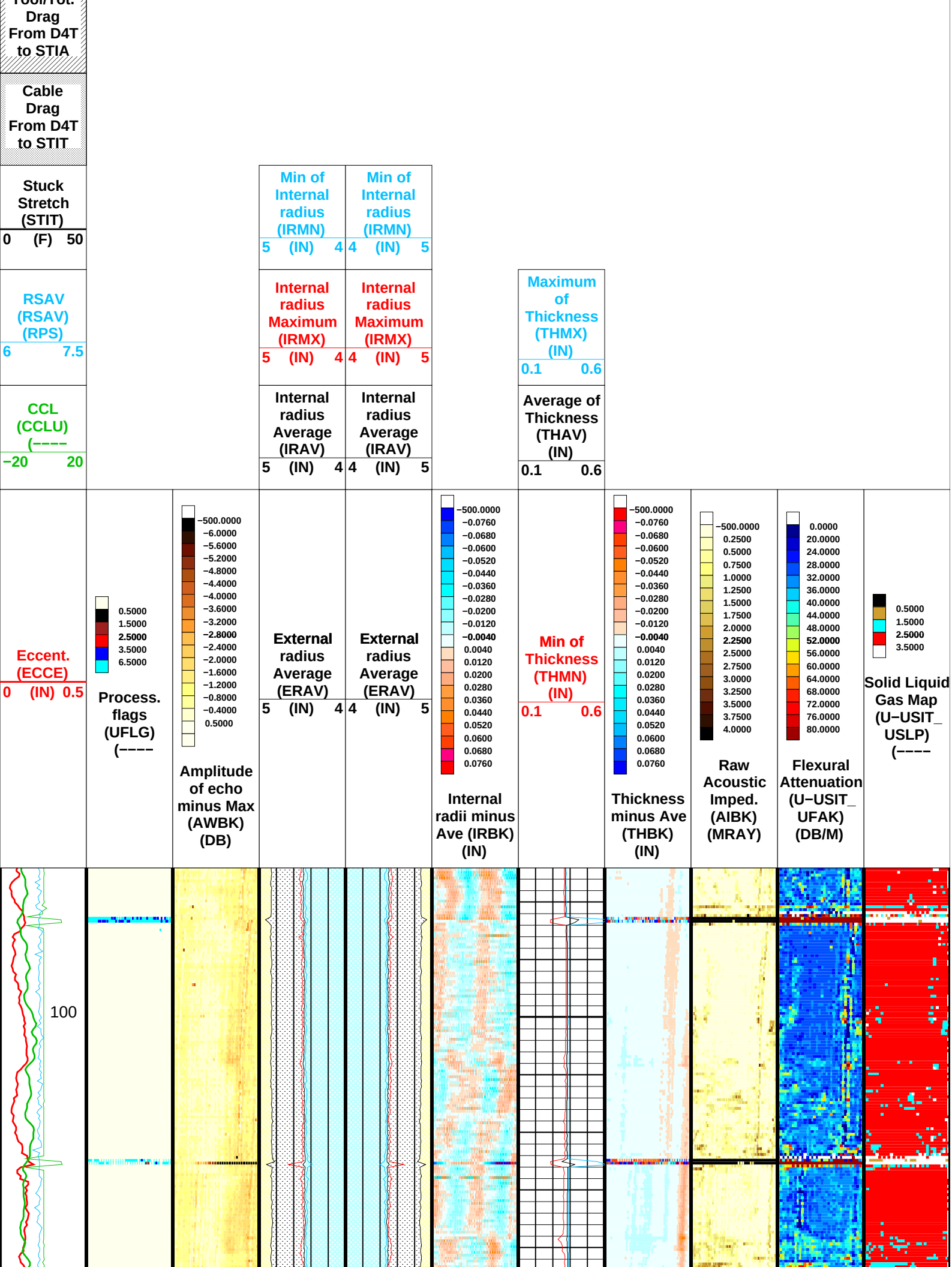
OP System Version: 17C0−154

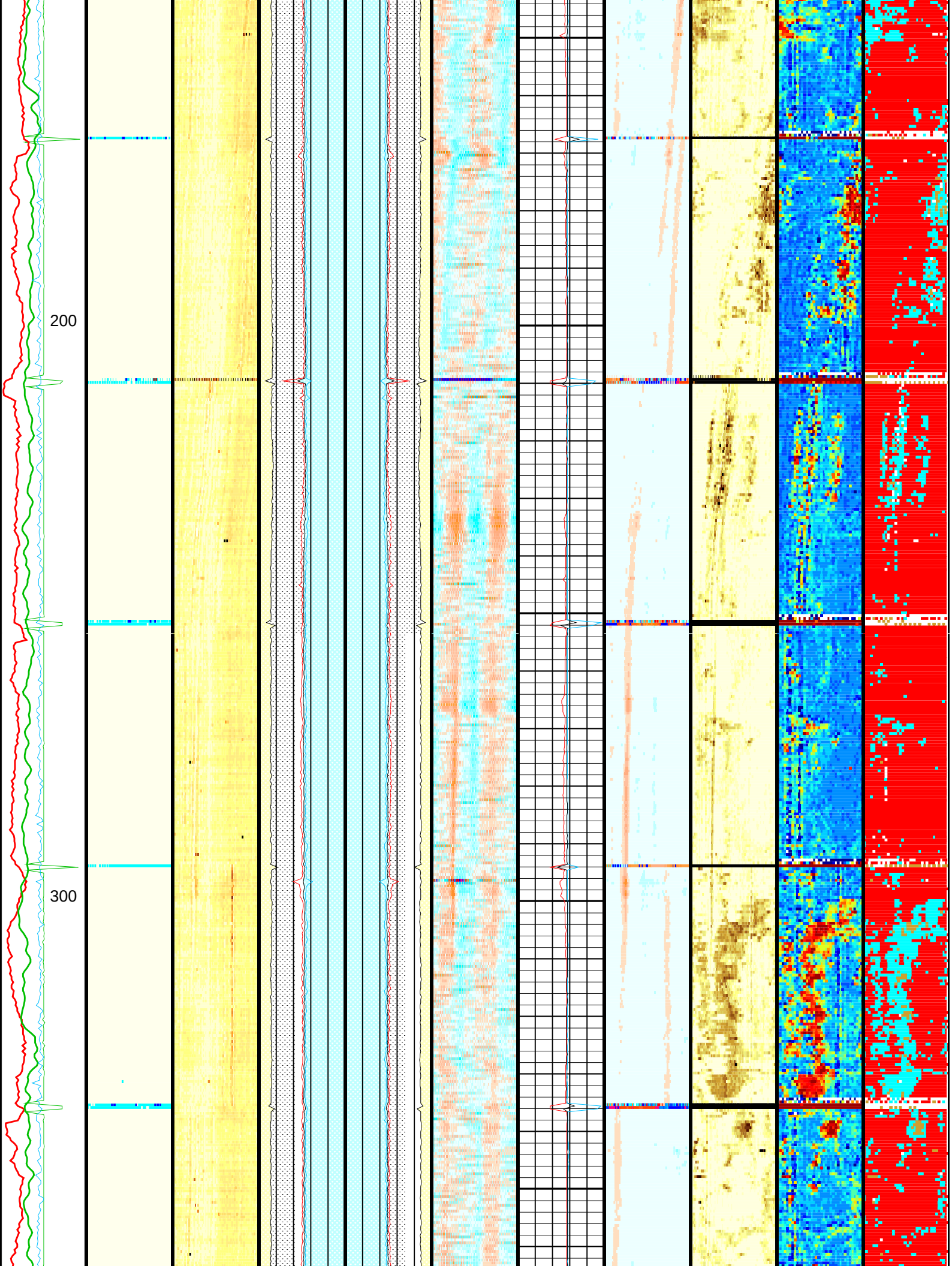
USIT−D	**17C0−154**	**EDTC−B**	**17C0−154**
CAL−Y	**17C0−154**		

Image rotation (UCAZ) (DEG)
0 360

Gamma Ray (GR_EDTC) (GAPI)
0 150

Tool/Tot


Tool/Tot. Drag From D4T to STIA
Cable Drag From D4T to STIT
Stuck Stretch (STIT)
0 (F) 50
RSAV (RSAV) (RPS)
6 7.5
CCL (CCLU) (----
−20 20
Min of Internal radius (IRMN)
5 (IN) 4
Internal radius Maximum (IRMX)
5 (IN) 4
Internal radius Average (IRAV)
5 (IN) 4
Min of Internal radius (IRMN)
4 (IN) 5
Internal radius Maximum (IRMX)
4 (IN) 5
Internal radius Average (IRAV)
4 (IN) 5
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)
5 (IN) 4
External radius Average (ERAV)
4 (IN) 5
−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
0.2500
0.5000
0.7500
1.0000
1.2500
1.5000
1.7500
2.0000
2.2500
2.5000
2.7500
3.0000
3.2500
3.5000
3.7500
4.0000
Raw Acoustic Imped. (AIBK) (MRAY)
0.0000
20.0000
24.0000
28.0000
32.0000
36.0000
40.0000
44.0000
48.0000
52.0000
56.0000
60.0000
64.0000
68.0000
72.0000
76.0000
80.0000
Flexural Attenuation (U−USIT_ UFAK) (DB/M)
0.5000
1.5000
2.5000
3.5000
Solid Liquid Gas Map (U−USIT_ USLP) (----
100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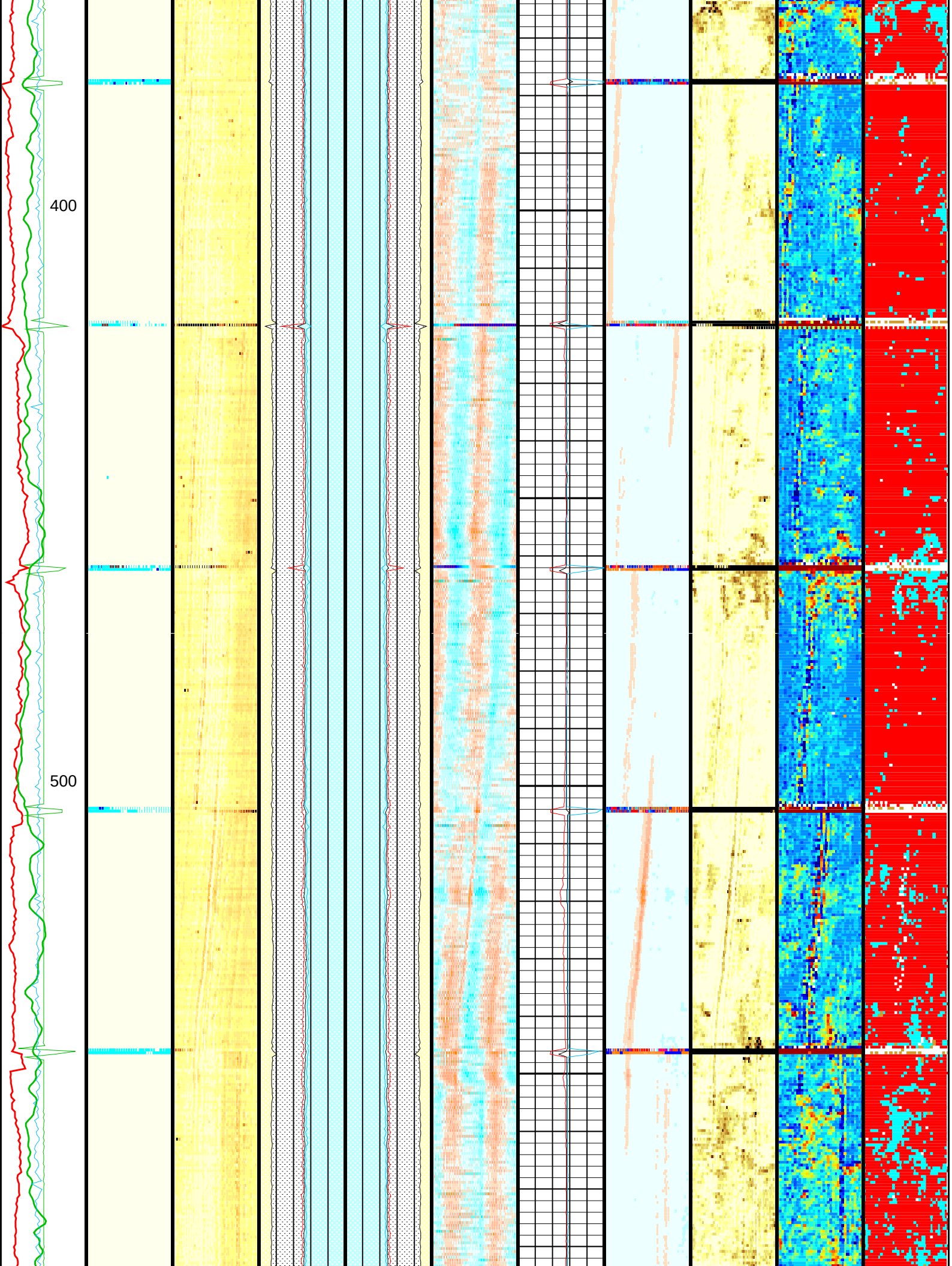
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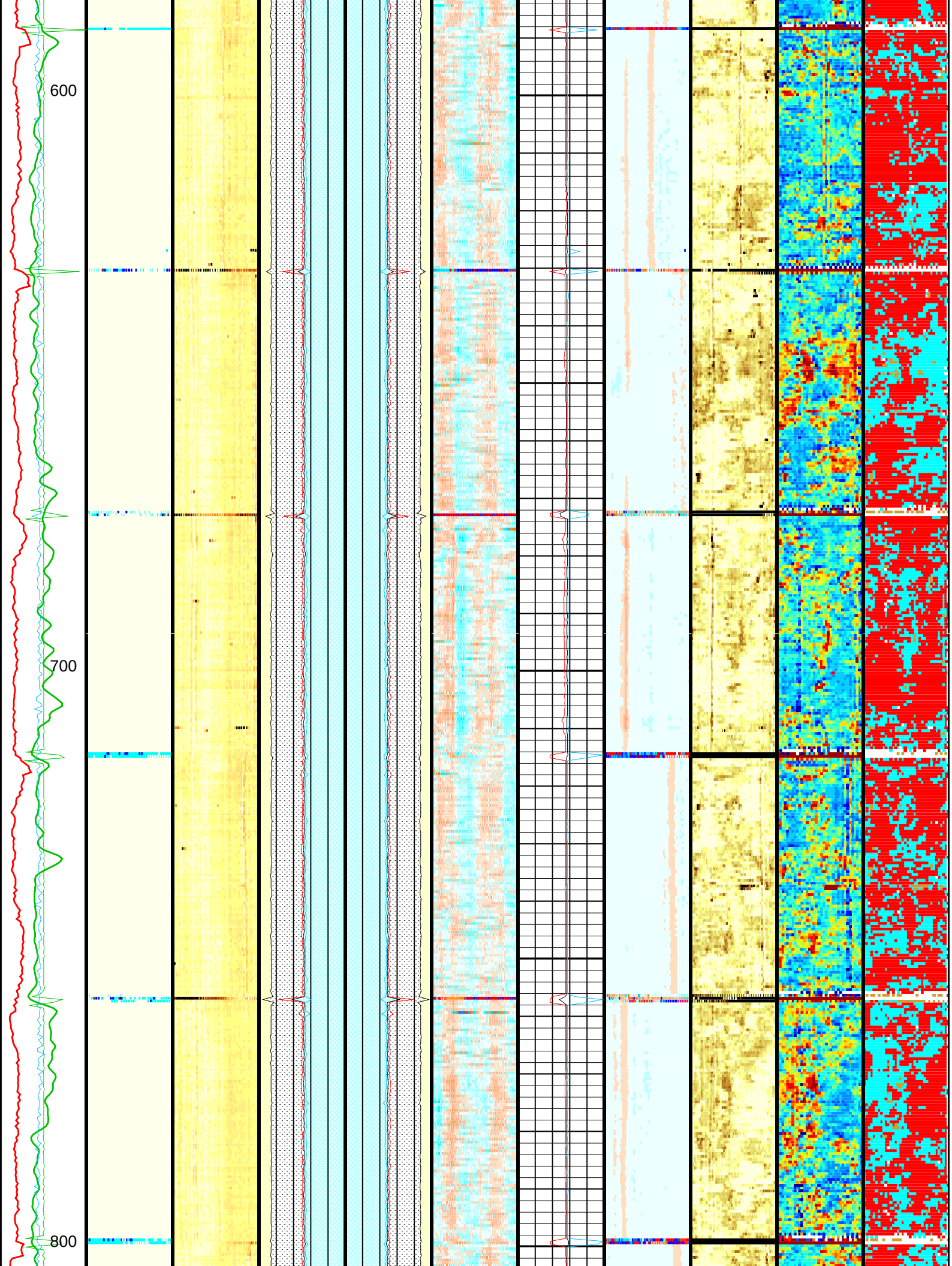
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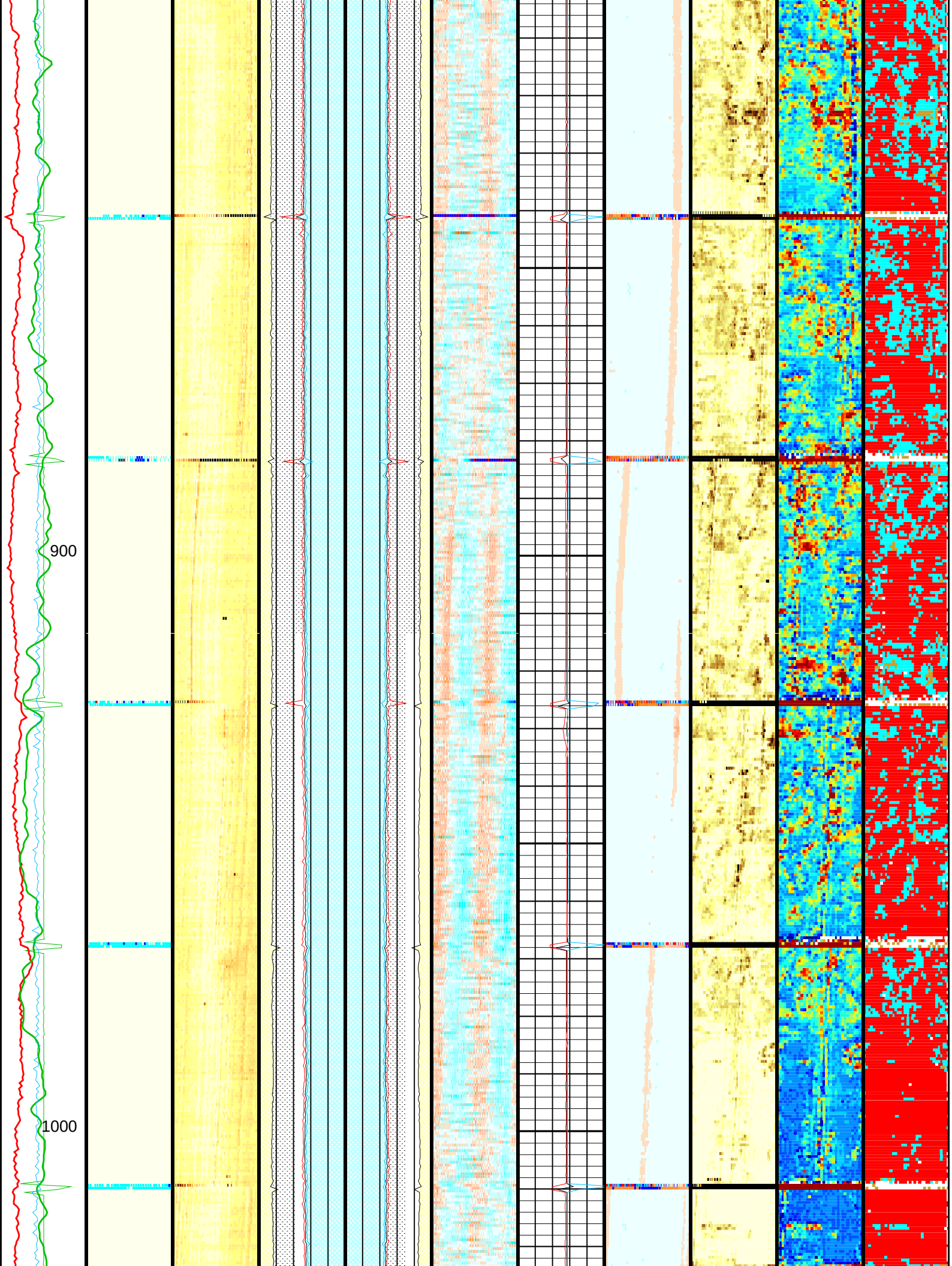
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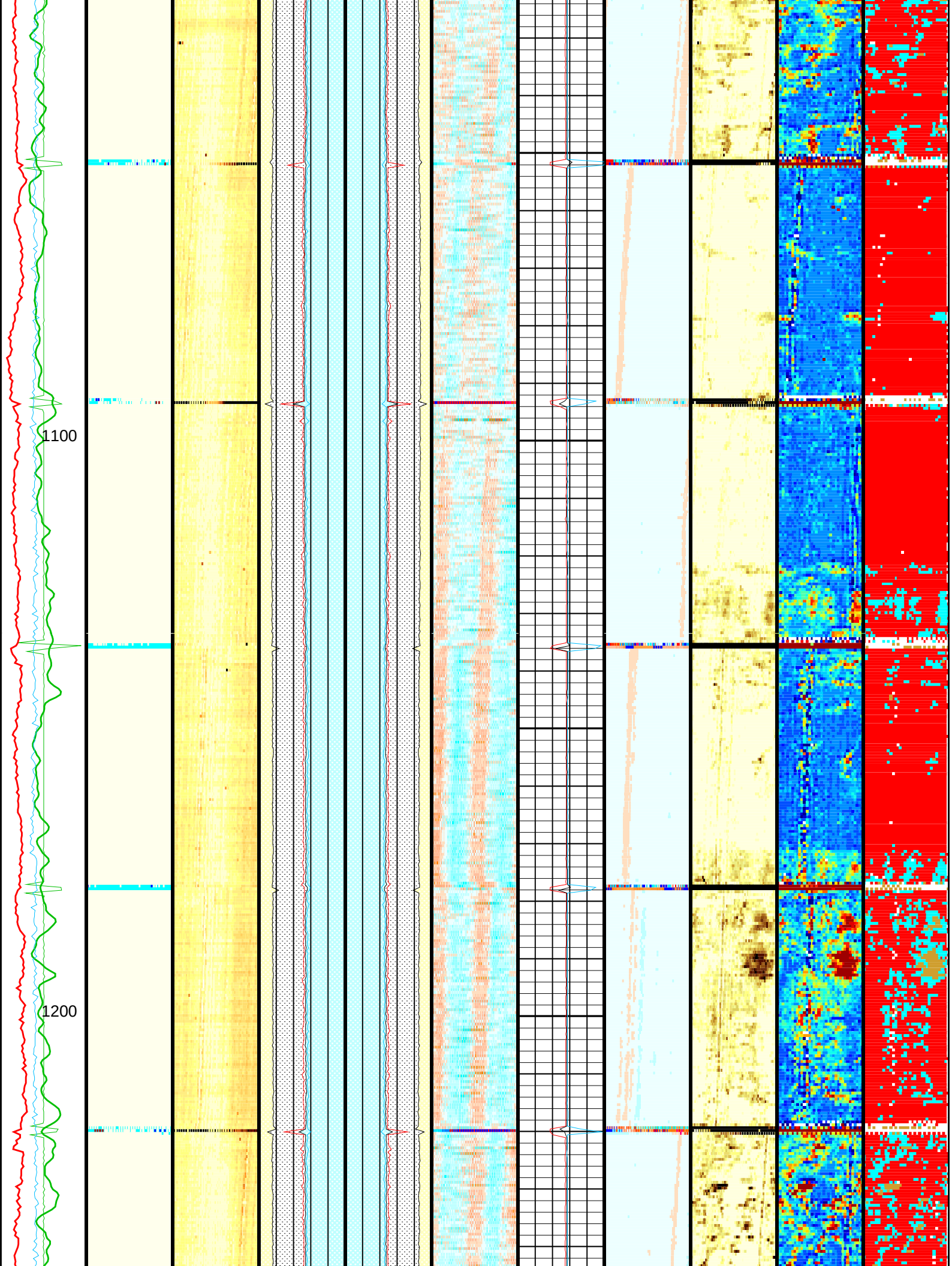
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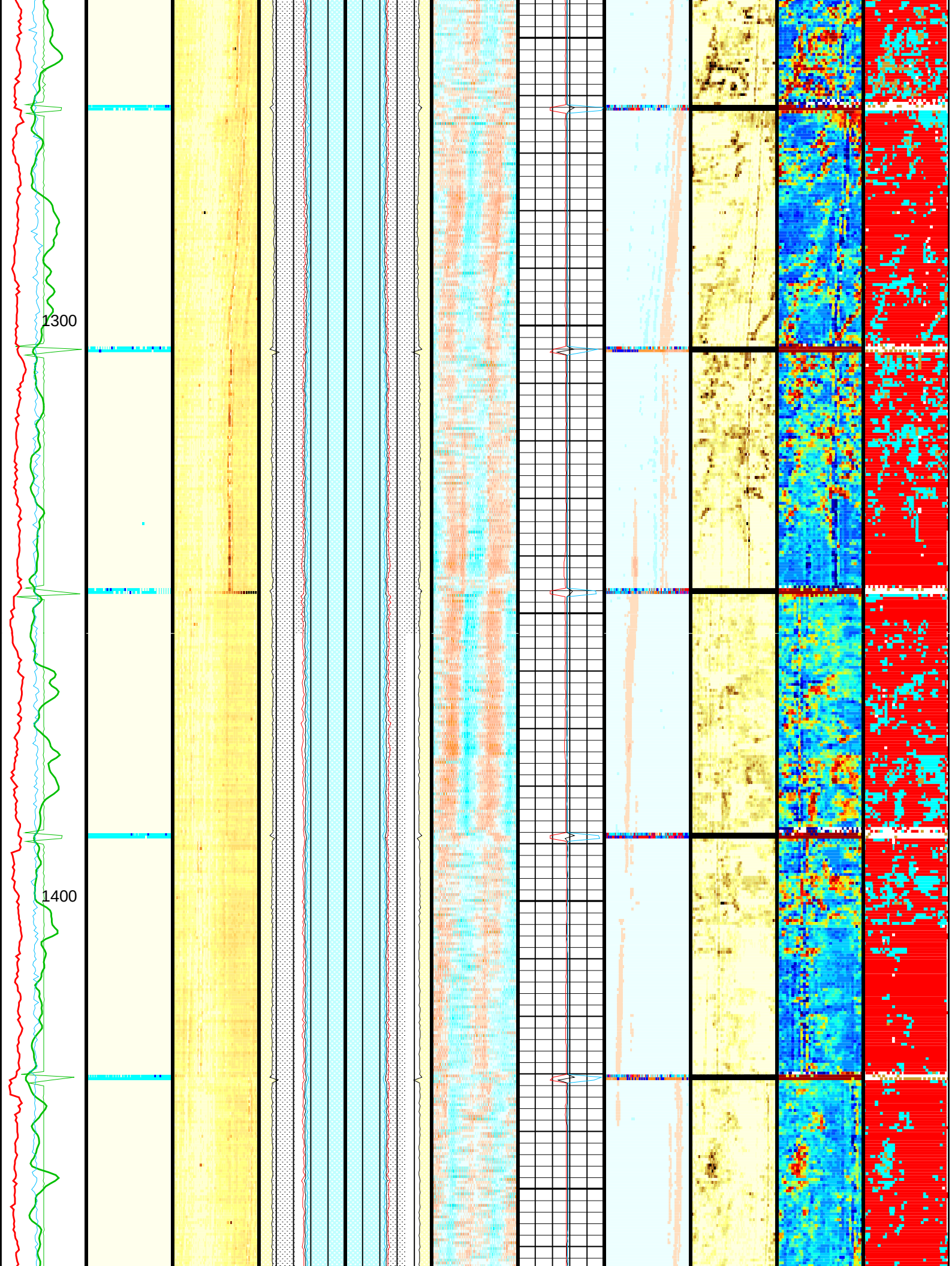
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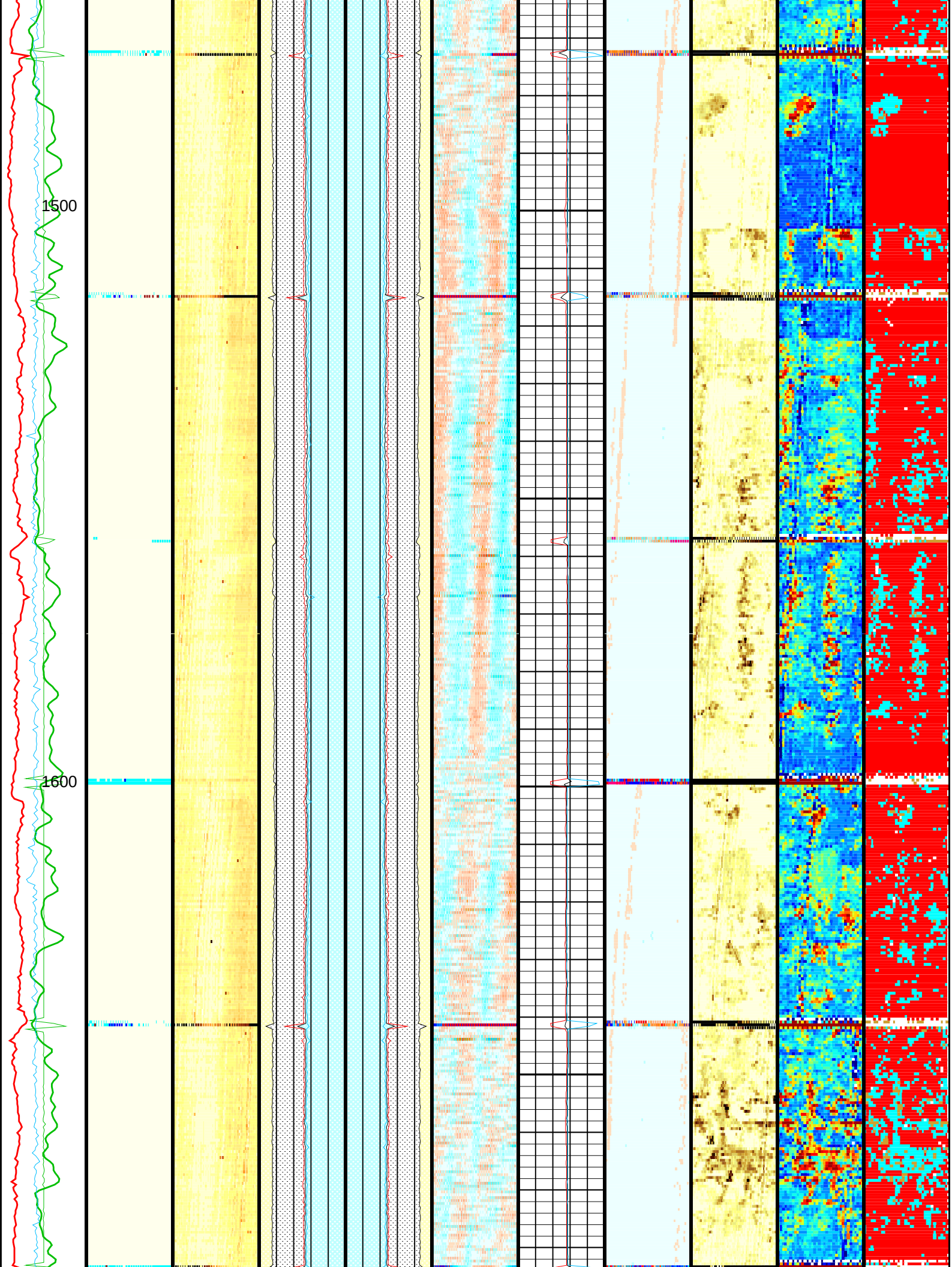
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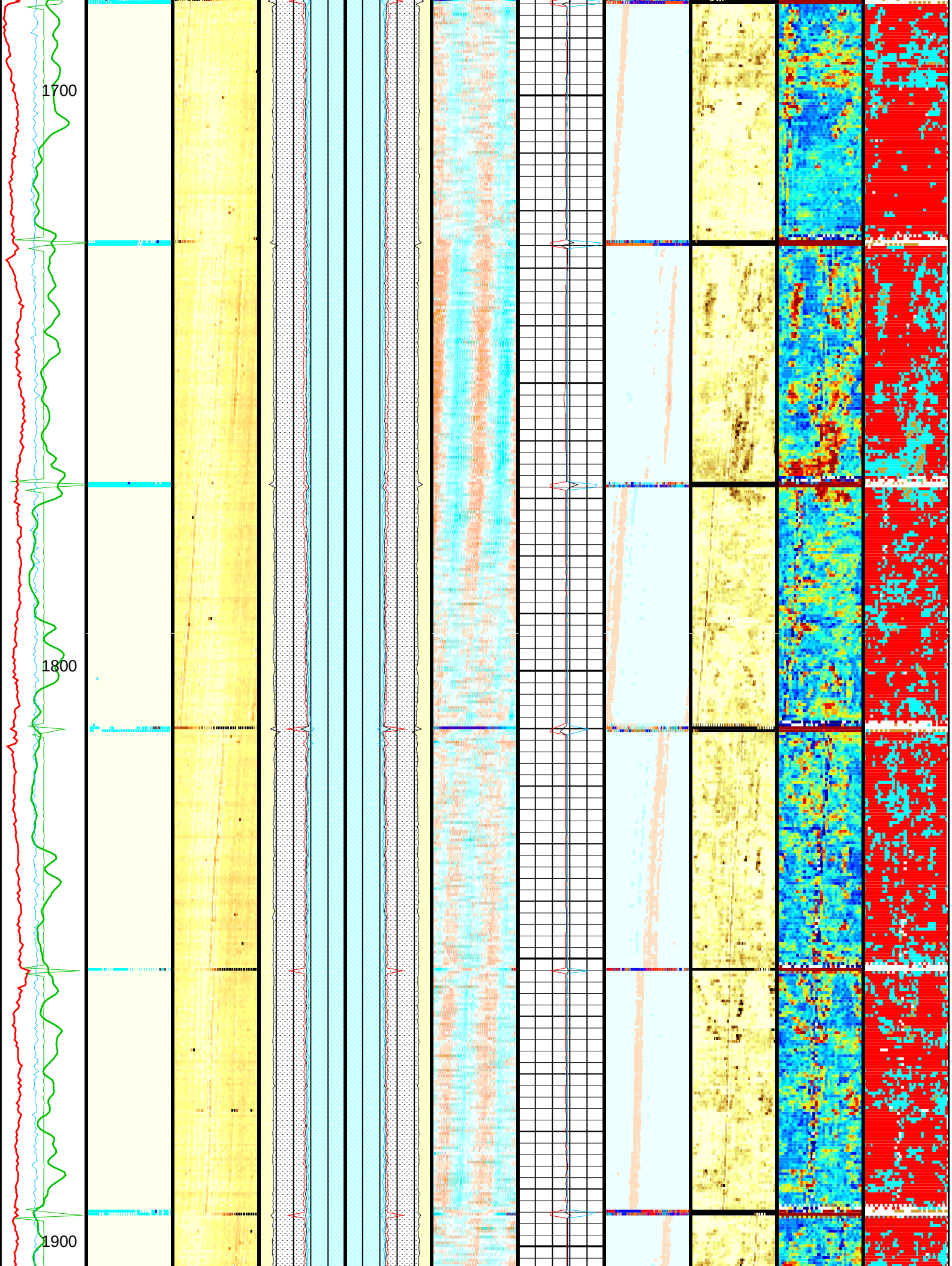
1600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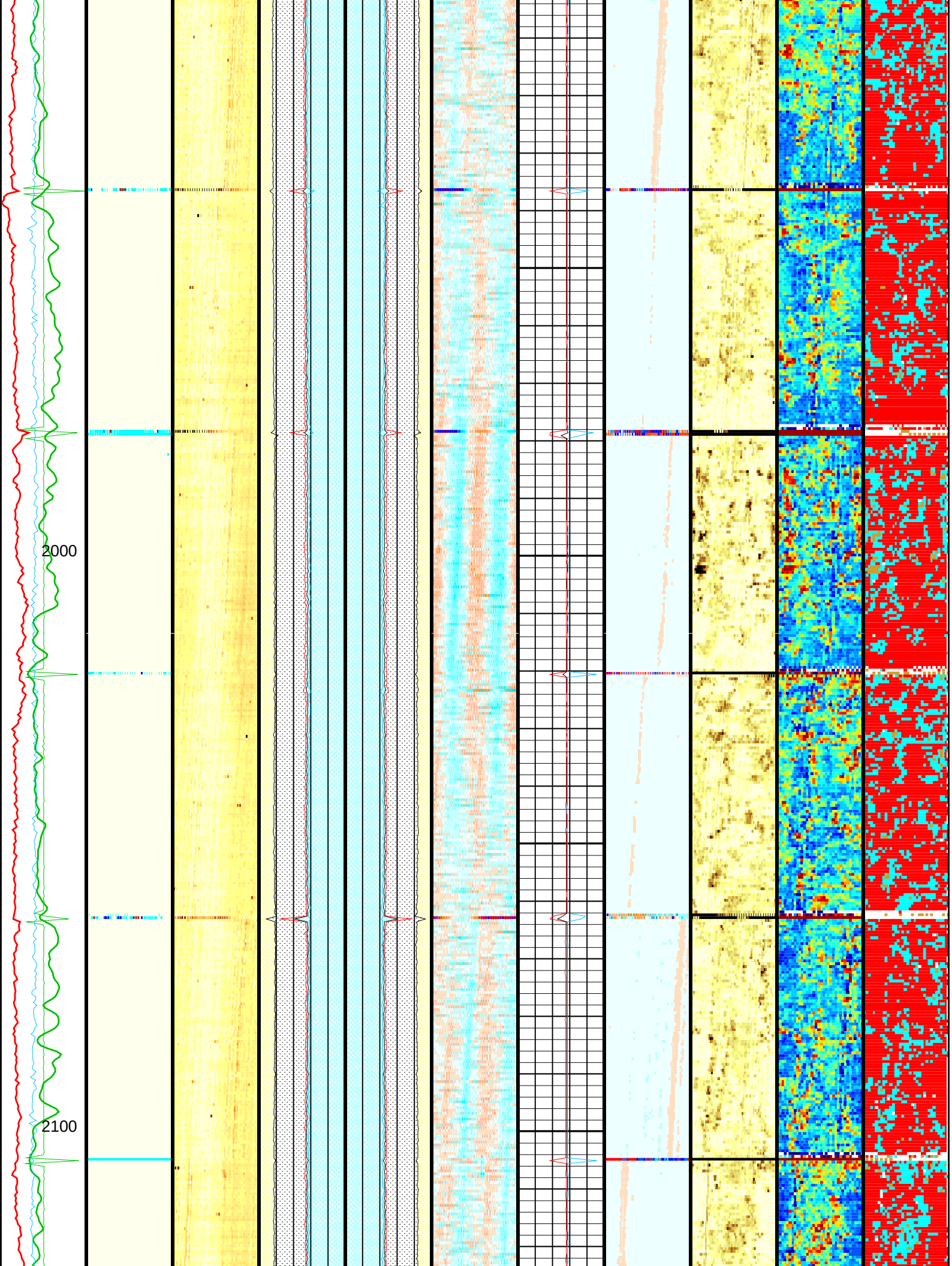
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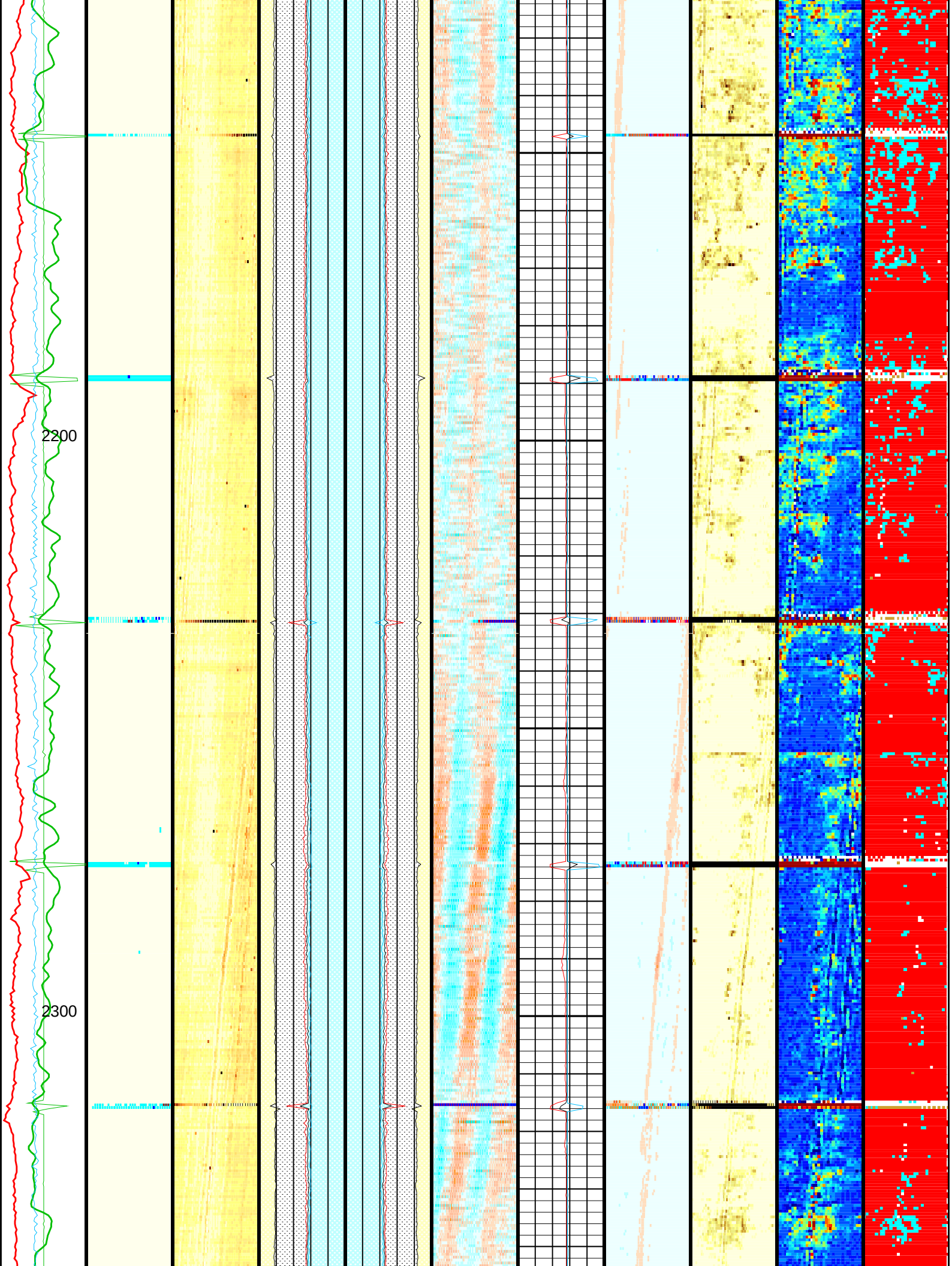
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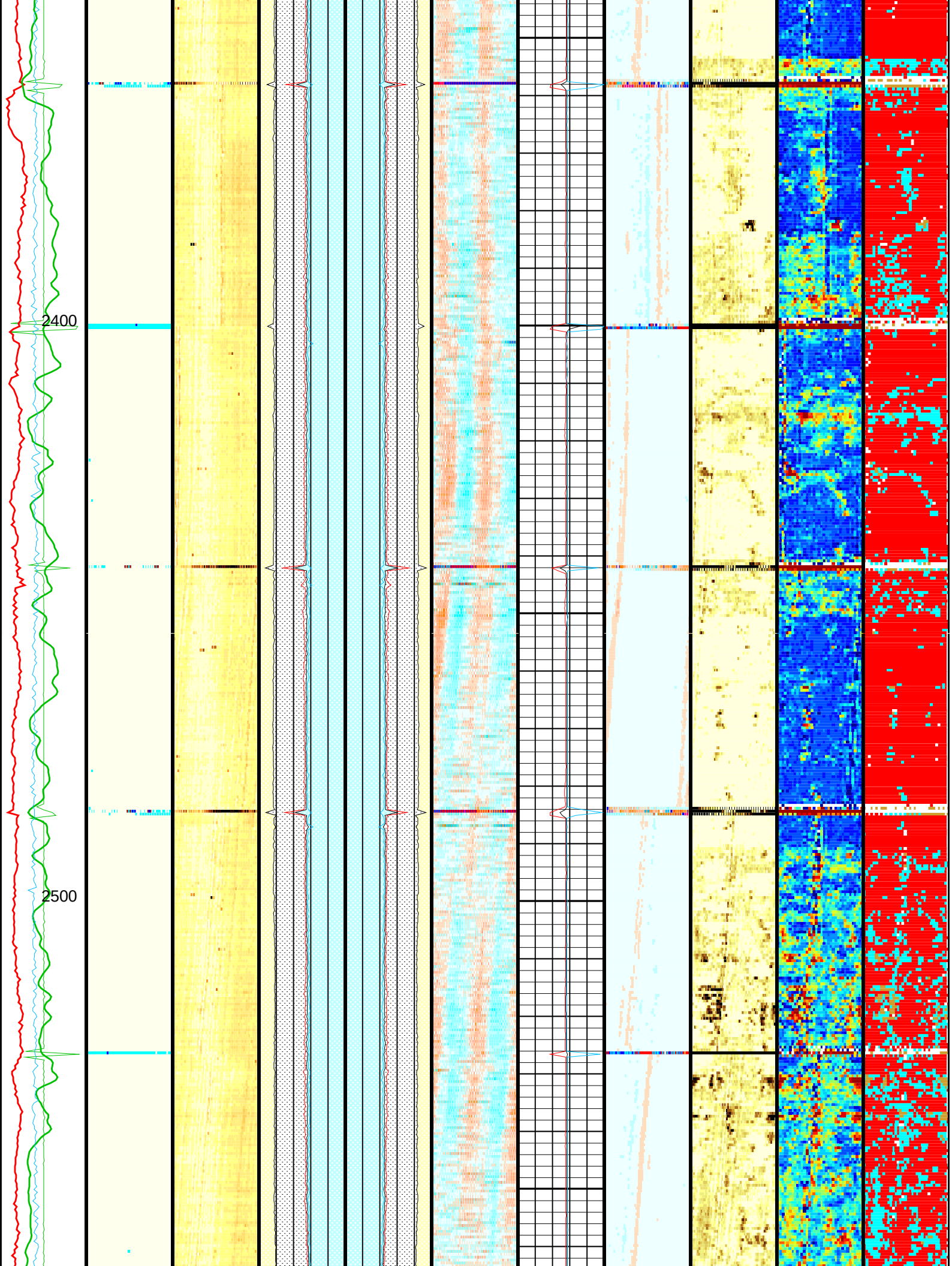
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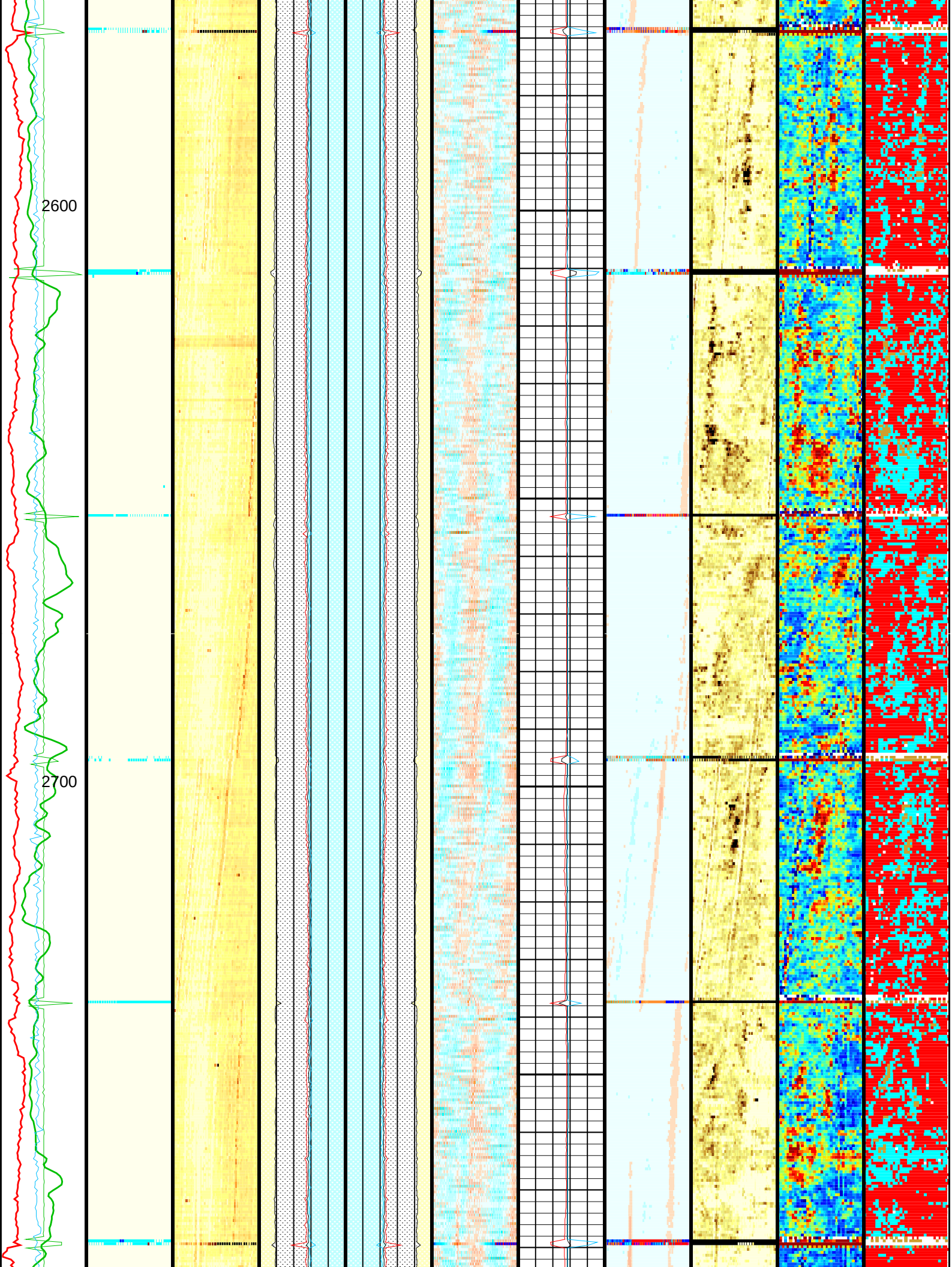
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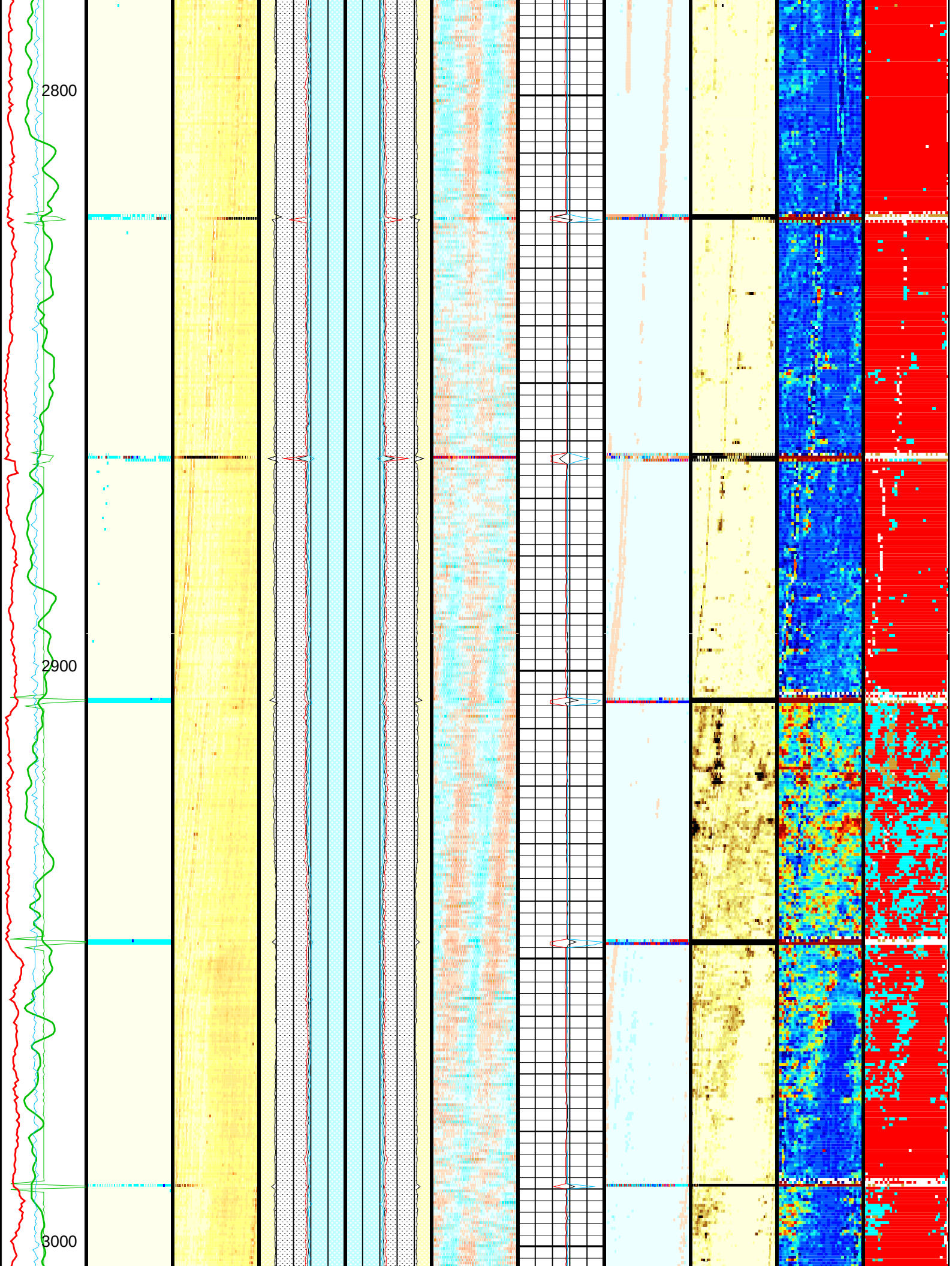
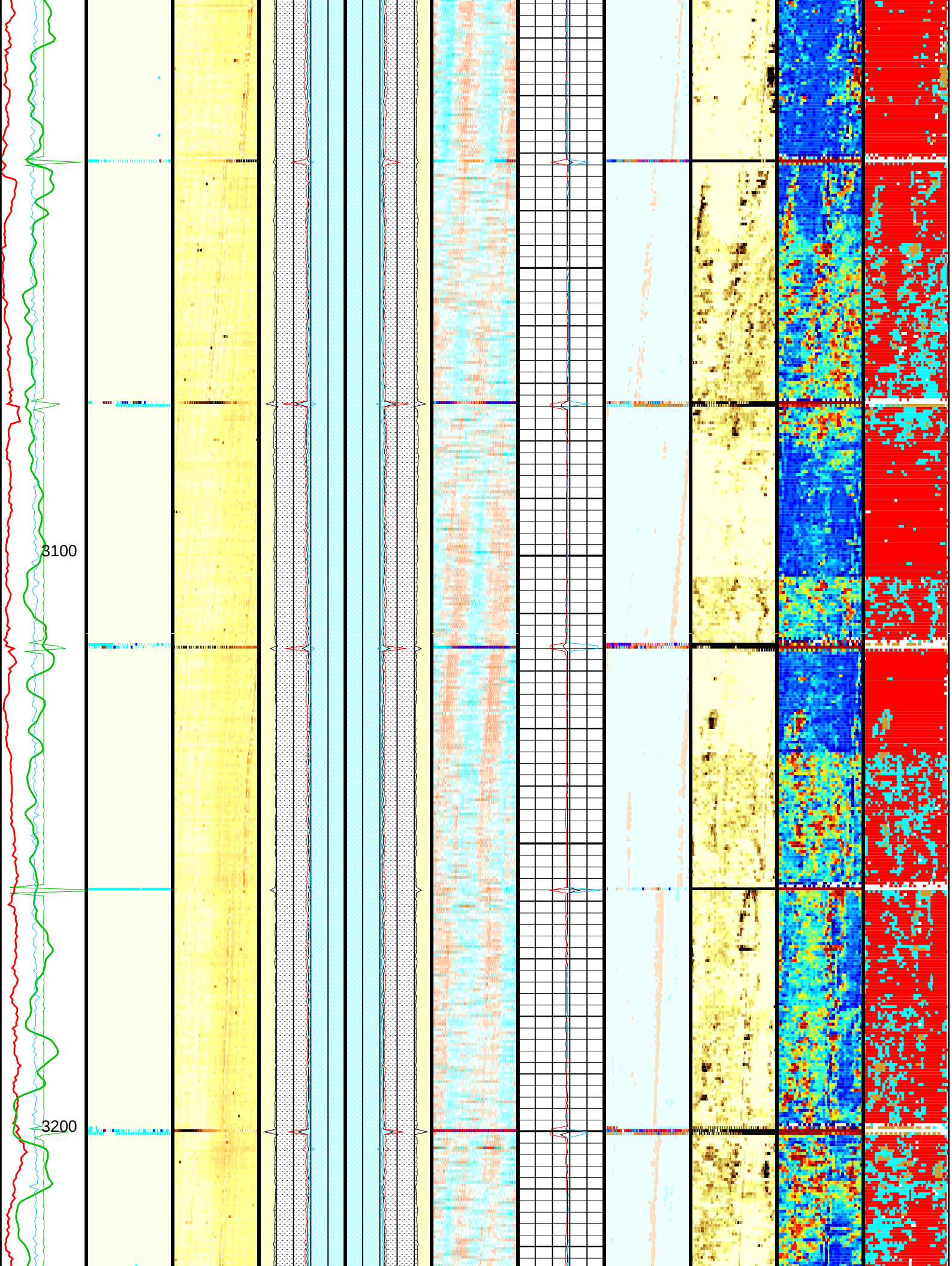

2800
2900
3000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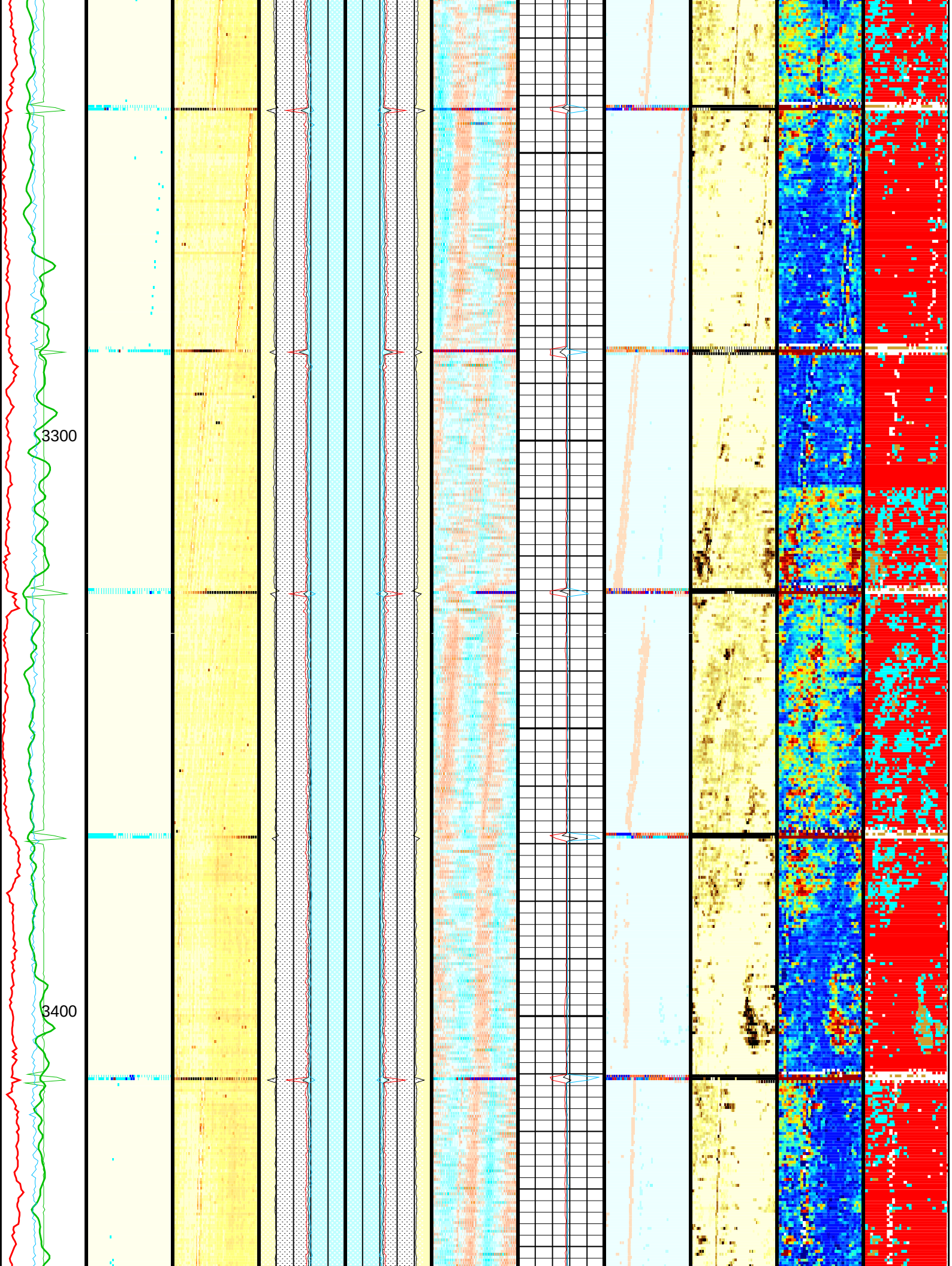
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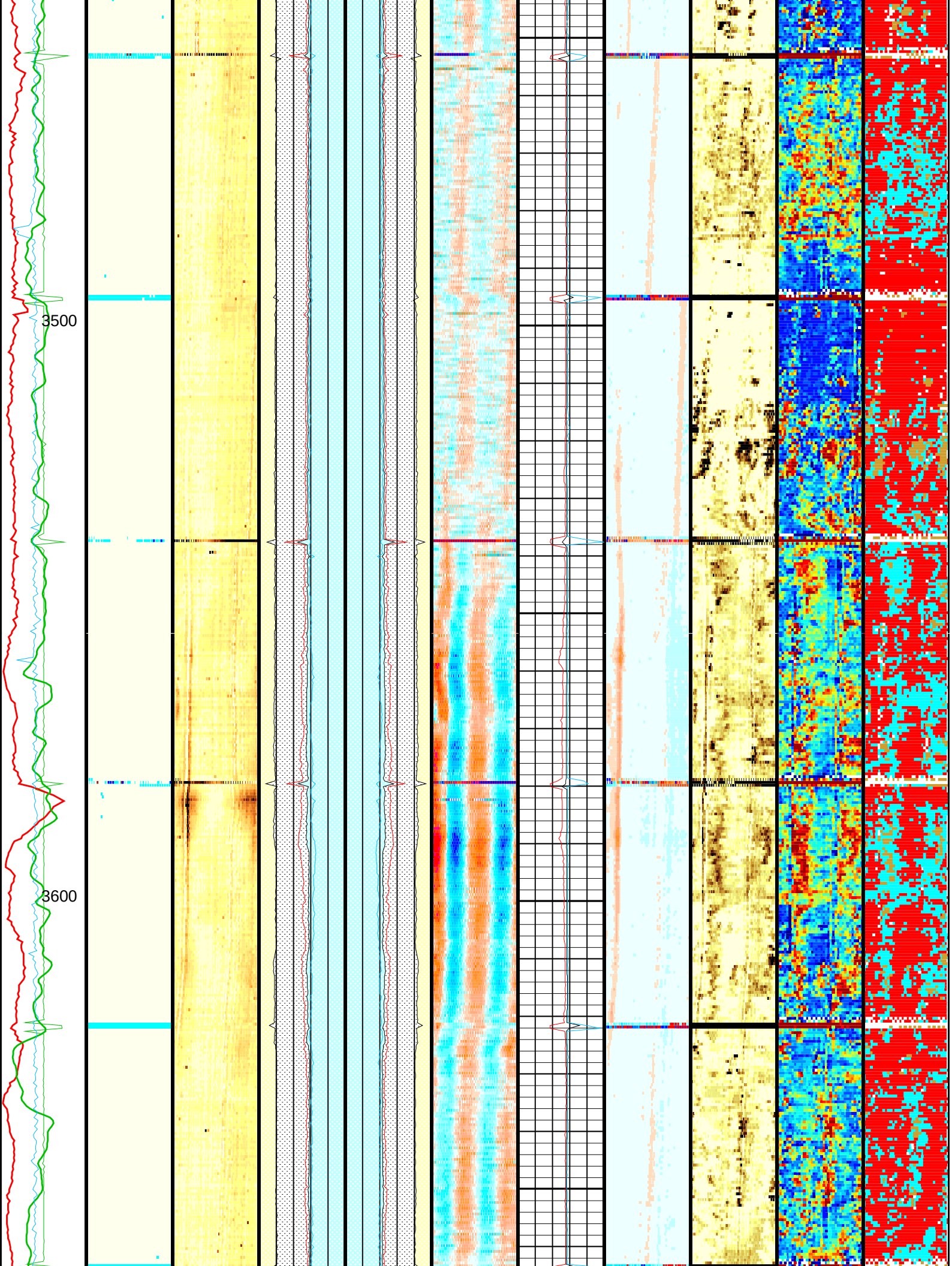
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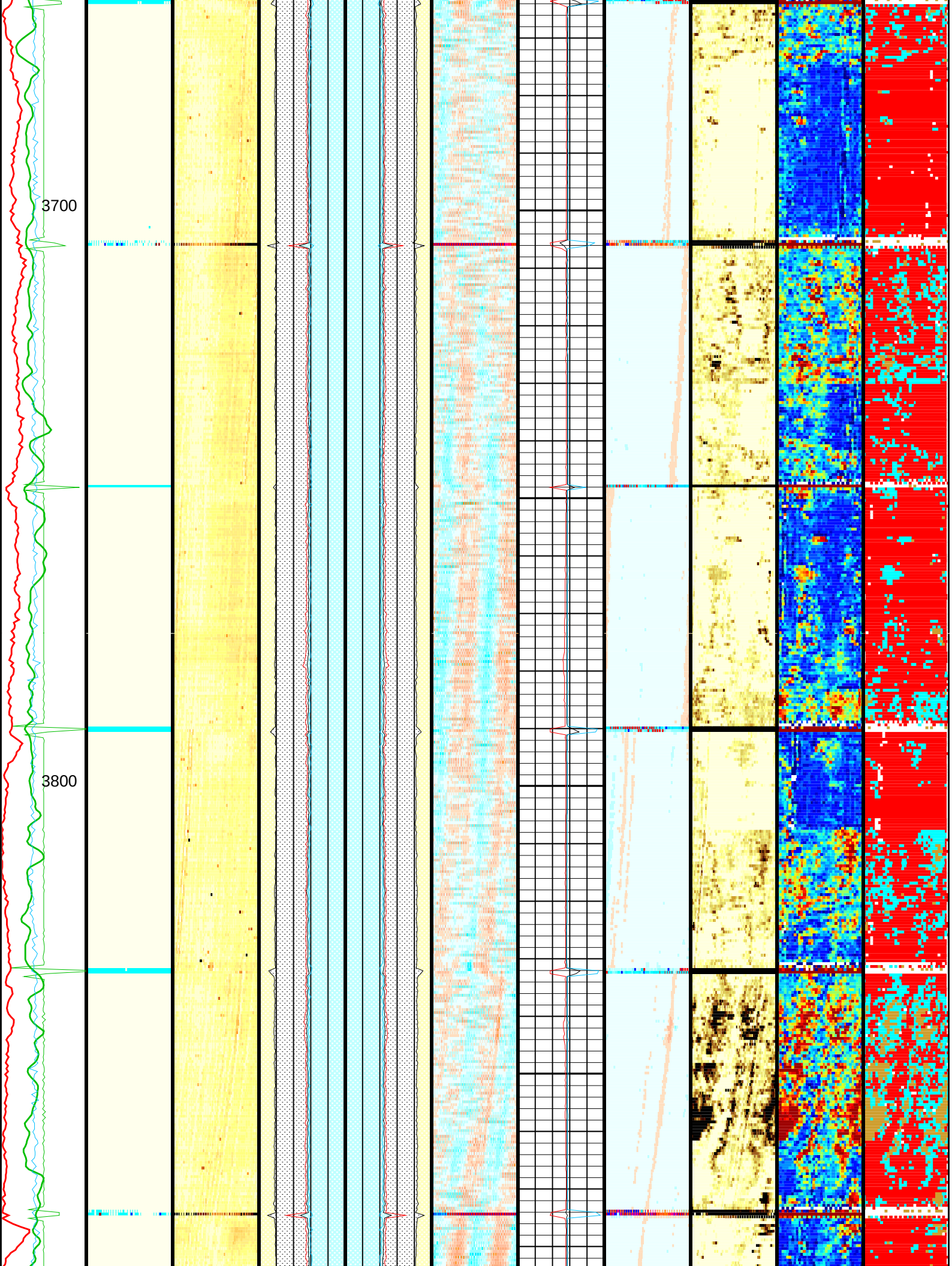
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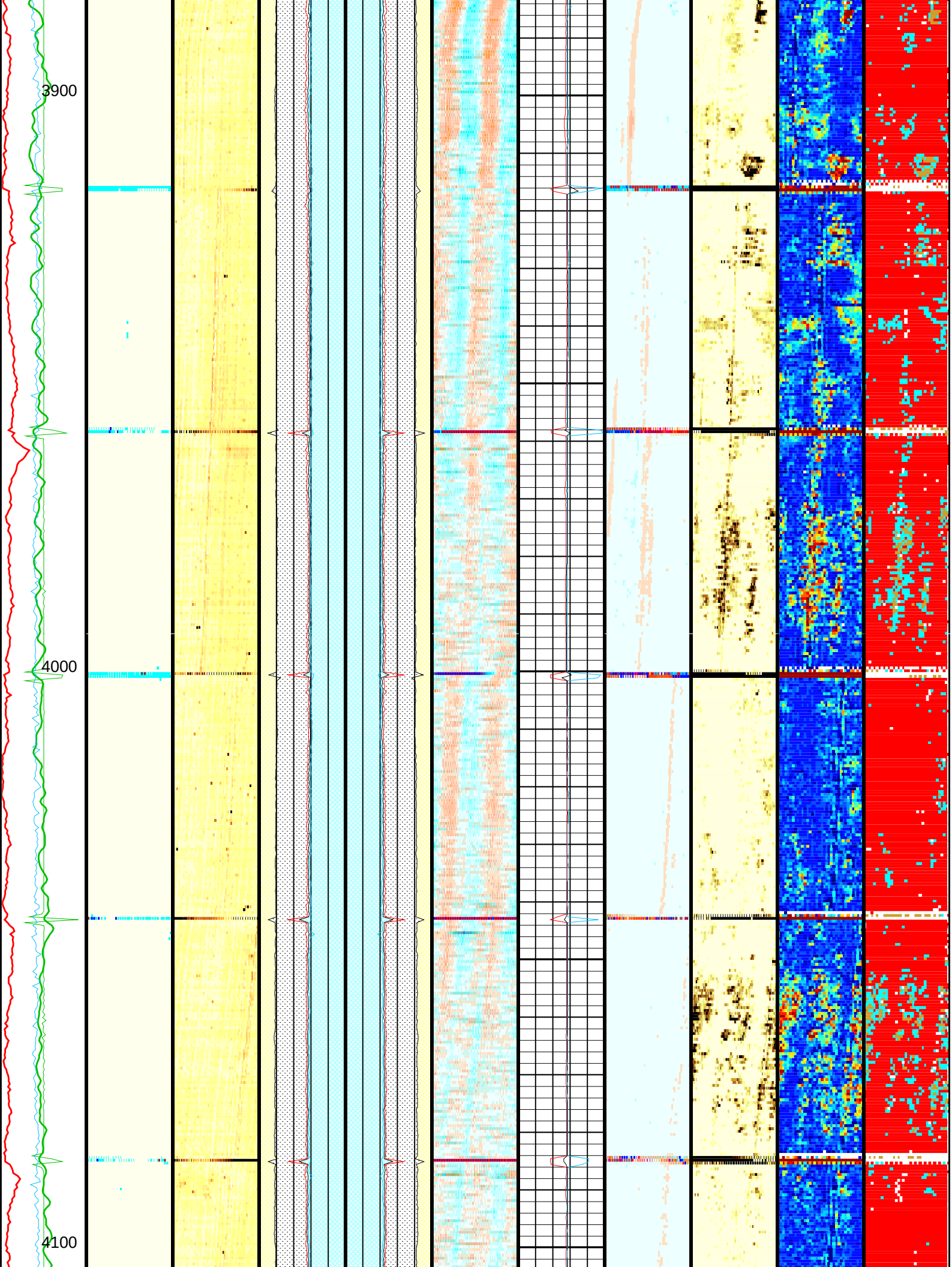
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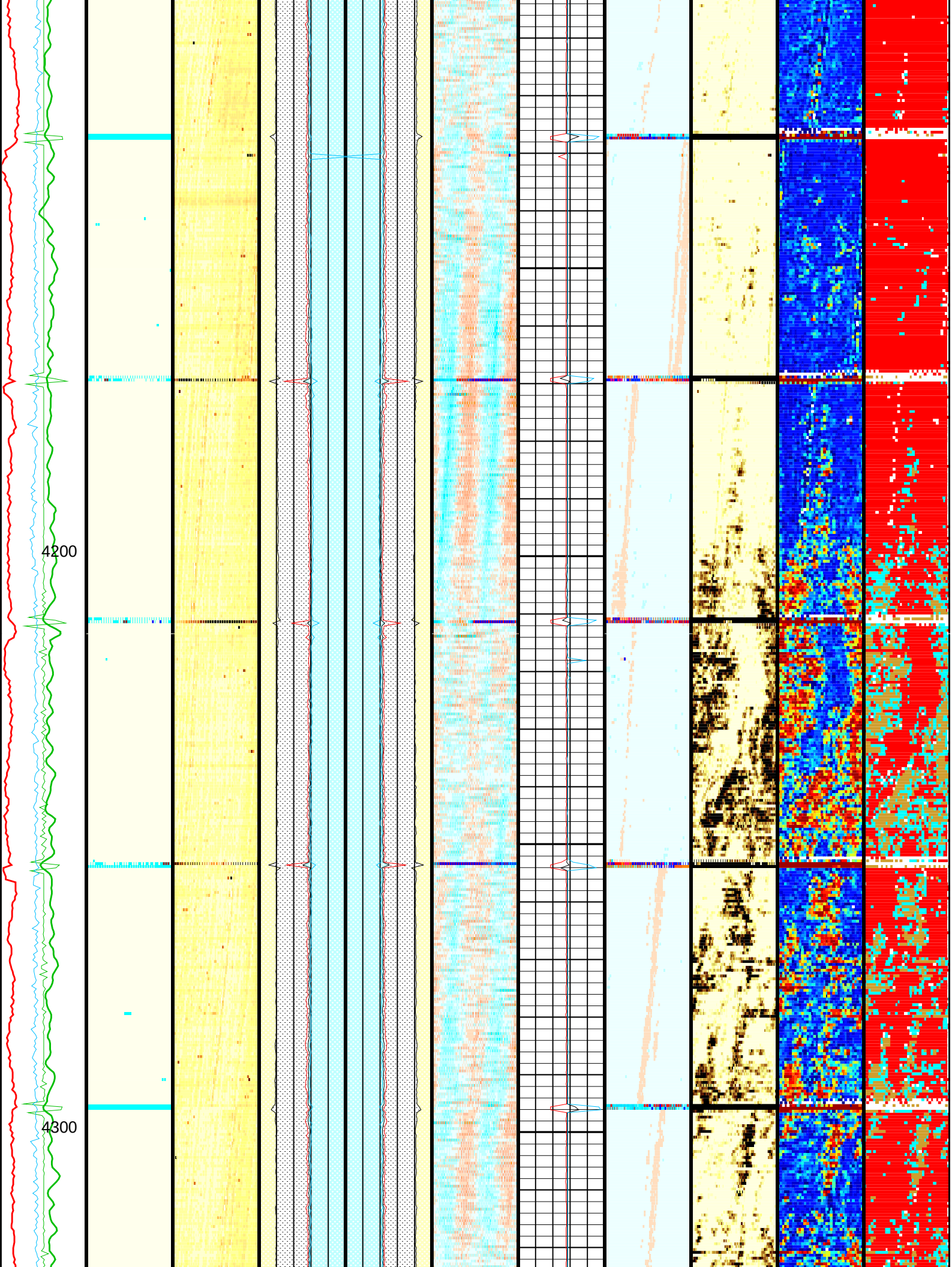
4000
4100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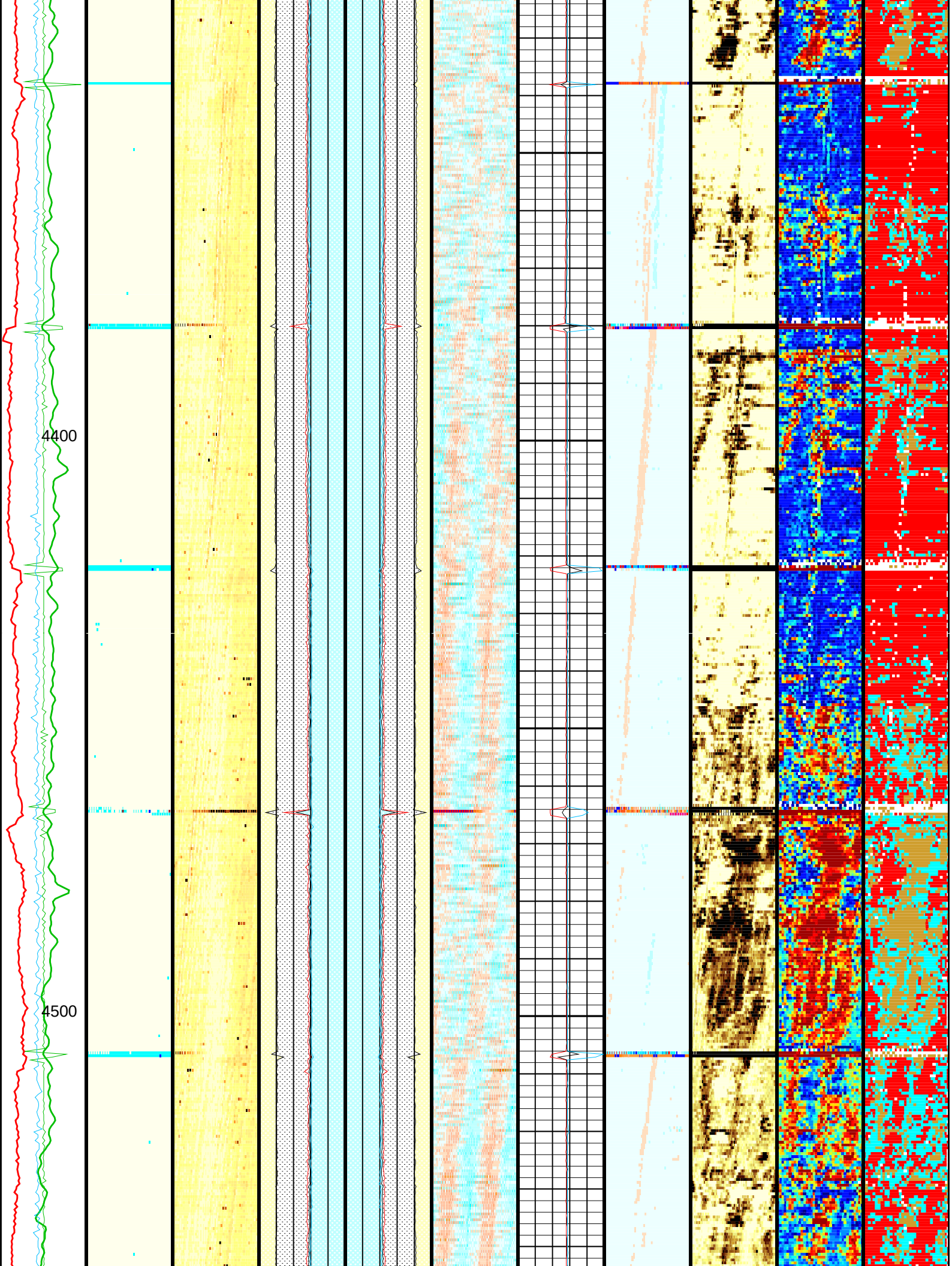
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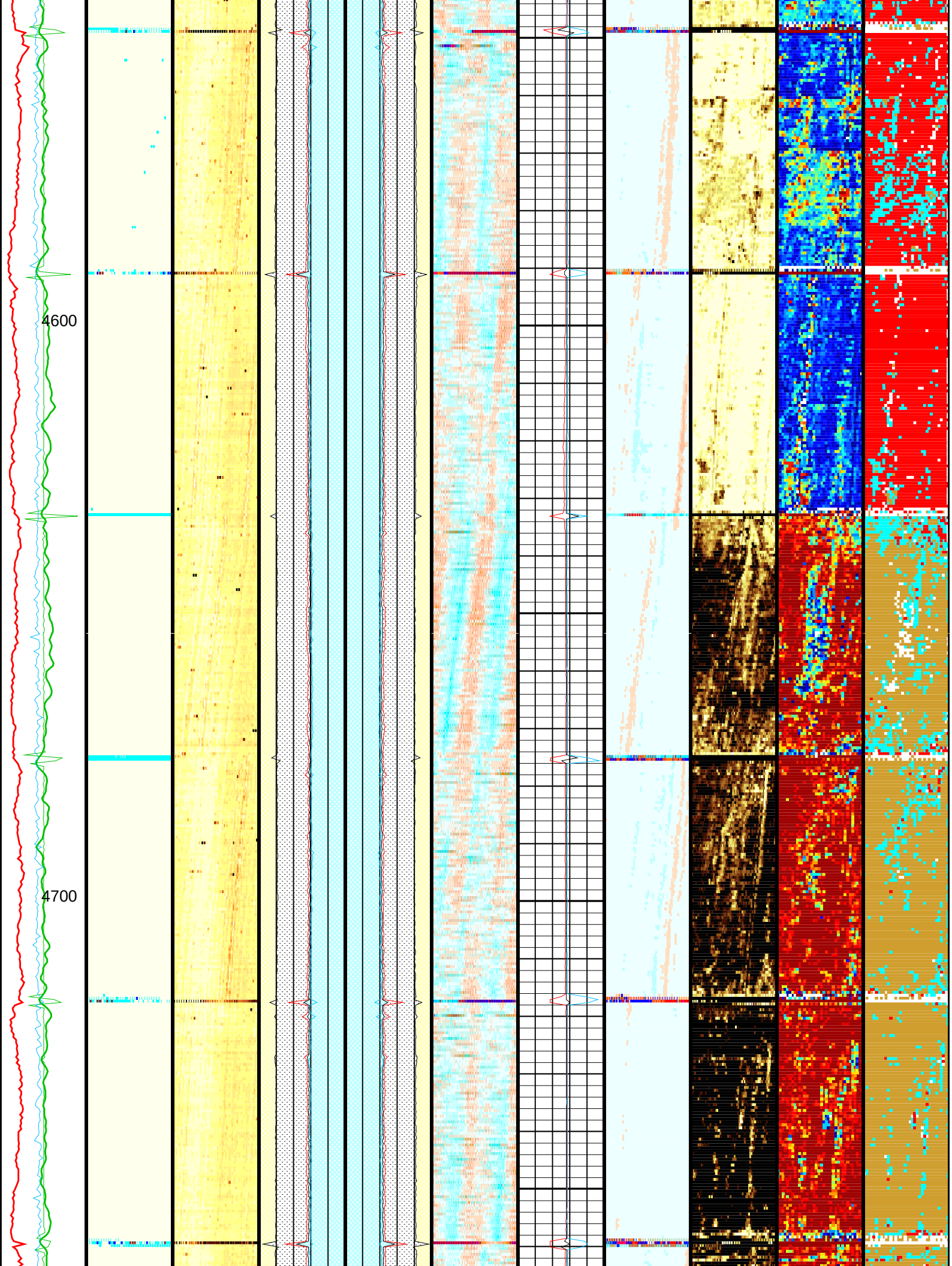
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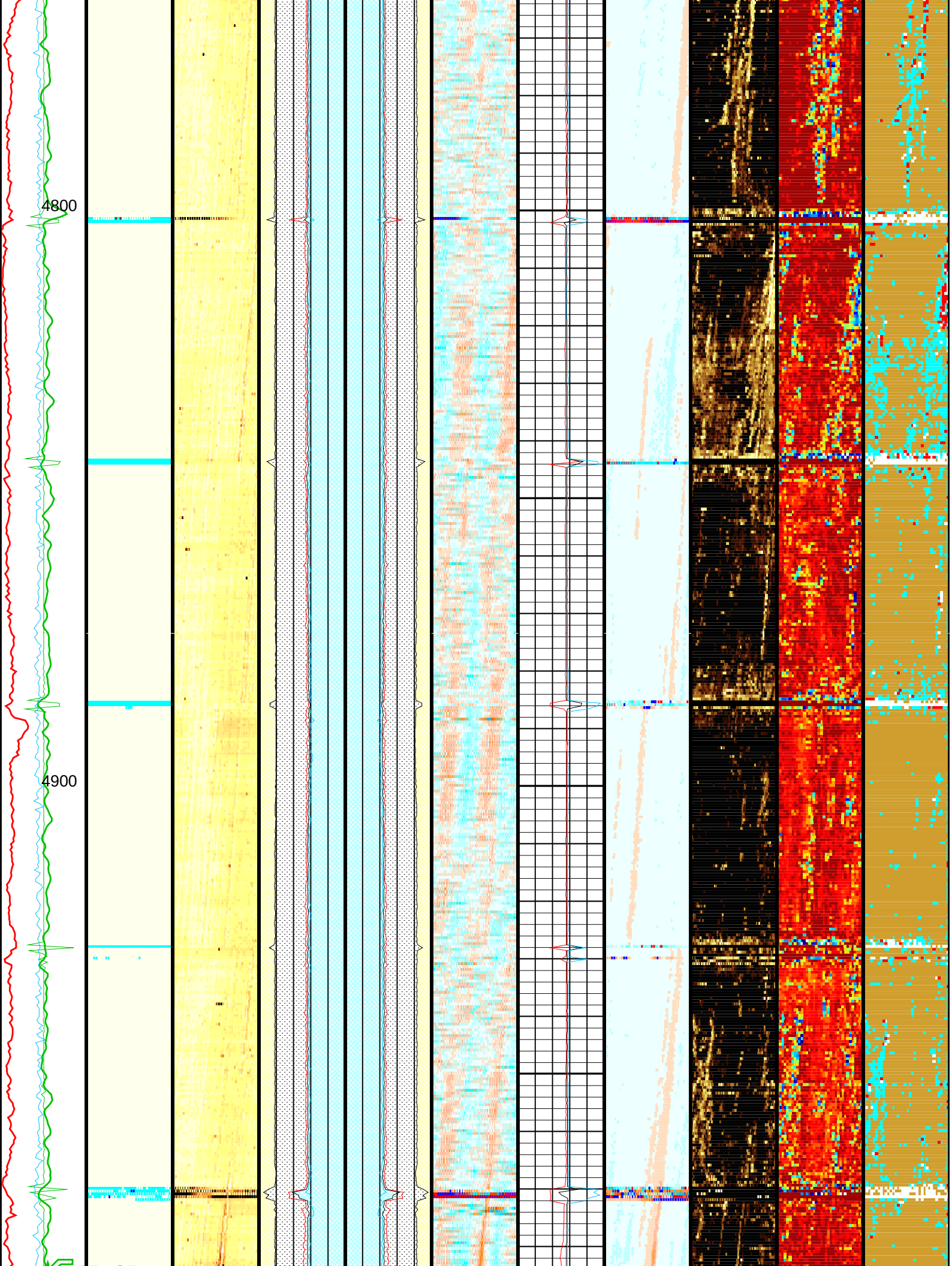
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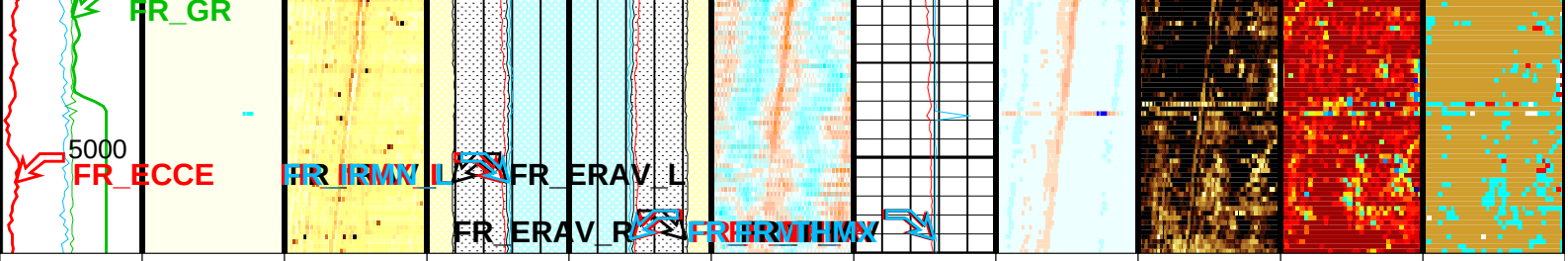


Eccent. (ECCE) 0 (IN) 0.5	Process. flags (UFLG) (----	Amplitude of echo minus Max (AWBK) (DB)	External radius Average (ERAV) 5 (IN) 4	External radius Average (ERAV) 4 (IN) 5	Internal radii minus Ave (IRBK) (IN)	Min of Thickness (THMN) (IN) 0.1 0.6	Thickness minus Ave (THBK) (IN)	Raw Acoustic Imped. (AIBK) (MRAY)	Flexural Attenuation (U-USIT_ UFAK) (DB/M)	Solid Liquid Gas Map (U-USIT_ USLP) (----
CCL (CCLU) (---- −20 20			Internal radius Average (IRAV) 5 (IN) 4	Internal radius Average (IRAV) 4 (IN) 5		Average of Thickness (THAV) (IN) 0.1 0.6				
RSAV (RSAV) (RPS) 6 7.5			Internal radius Maximum (IRMX) 5 (IN) 4	Internal radius Maximum (IRMX) 4 (IN) 5		Maximum of Thickness (THMX) (IN) 0.1 0.6				
Stuck Stretch (STIT) 0 (F) 50			Min of Internal radius (IRMN) 5 (IN) 4	Min of Internal radius (IRMN) 4 (IN) 5						
Cable Drag From D4T to STIT										
Tool/Tot. Drag From D4T to STIA										
Gamma Ray (GR_ EDTC) (GAPI) 0 150										
Image rotation (UCAZ) (DEG) 0 360										

Format: USI_IBC_SLG_Composite Vertical Scale: 5" per 100' Graphics File Created: 11-Jul-2009 09:03

OP System Version: 17C0−154

USIT−D	17C0−154	EDTC−B	17C0−154
CAL−Y	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	9.625	IN
CSDE	Casing Density	486.94	LBCF
CSID	Casing Inner Diameter	8.835	IN
DFVL	Default Fluid Velocity	199	US/F
DOT	Diameter of Transducer Sensor	4.874	IN
EMXV	EMEX Voltage	70	V
FSOD	Fluid Slowness Fits Casing Outer Diameter	2_UFSL_N_UFAI	
IMAR	Image Rotation	OFF	
MW	Mud Weight	9.9	LB/G
RCOD	Reference Calibrator Outer Diameter	7	IN
RCSO	Reference Calibrator Standoff	1.37795	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	0.395	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	30	DB/M
U−USIT_UIAP	USIT IBC Answer Product Enabled	SolidLiquidGasMap	
U−USIT_UIST	Ultrasonic IBC Sonde Type	Sub_Ibcs_C	
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_9_58_inch	
UWKM	Ultrasonic Working Mode	5DEG_6IN_136UNF_LF	
VCAS	Ultrasonic Transversal Velocity in Casing	51.4	US/F
WLEN	T^3 Processing Length	23.6867	US
ZCAS	Acoustic Impedance of Casing	46.25	MRAY
ZINI	Initial Estimate of Cement Impedance	−1	MRAY
ZMUD	Acoustic Impedance of Mud	1.87	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	5015.00	FT
TDL	Total Depth − Logger	5010.00	FT
	System and Miscellaneous		
BS	Bit Size	12.250	IN
CWEI	Casing Weight	40.00	LB/F

DO	Depth Offset for Playback	8.0	FT
PP	Playback Processing	RECOMPUTE	

Input DLIS Files

DEFAULT	USI_022PUP	FN:21	PRODUCER	11−Jul−2009 08:10	5010.0 FT	66.0 FT

Output DLIS Files

DEFAULT	USI_024PUP	FN:23	PRODUCER	11−Jul−2009 09:03		

Schlumberger

USI Cement

MAXIS Field Log

Company: SG INTERESTS I. LTD> **Well: FEDERAL 11−90−24 #2 WDW**

Input DLIS Files

DEFAULT	USI_022PUP	FN:21	PRODUCER	11−Jul−2009 08:10	5010.0 FT	66.0 FT

Output DLIS Files

DEFAULT	USI_024PUP	FN:23	PRODUCER	11−Jul−2009 09:03	5010.0 FT	74.0 FT

OP System Version: 17C0−154

USIT−D	17C0−154	EDTC−B	17C0−154
CAL−Y	17C0−154		

Image rotation (UCAZ) (DEG)
0 360

Gamma Ray (GR_EDTC) (GAPI)
0 150

Tool/Tot. Drag From D4T to STIA

Cable Drag From D4T to STIT

Min of Internal radius (IRMN)
5 (IN) 4

Min of Internal radius (IRMN)
4 (IN) 5

Stuck Stretch (STIT)
0 (F) 50

External radius Average (ERAV)
5 (IN) 4

Internal radius Maximum (IRMX)
4 (IN) 5

Cable Speed (CS) (F/HR)

Internal radius Maximum (IRMX)

Internal radius Average (IRAV)

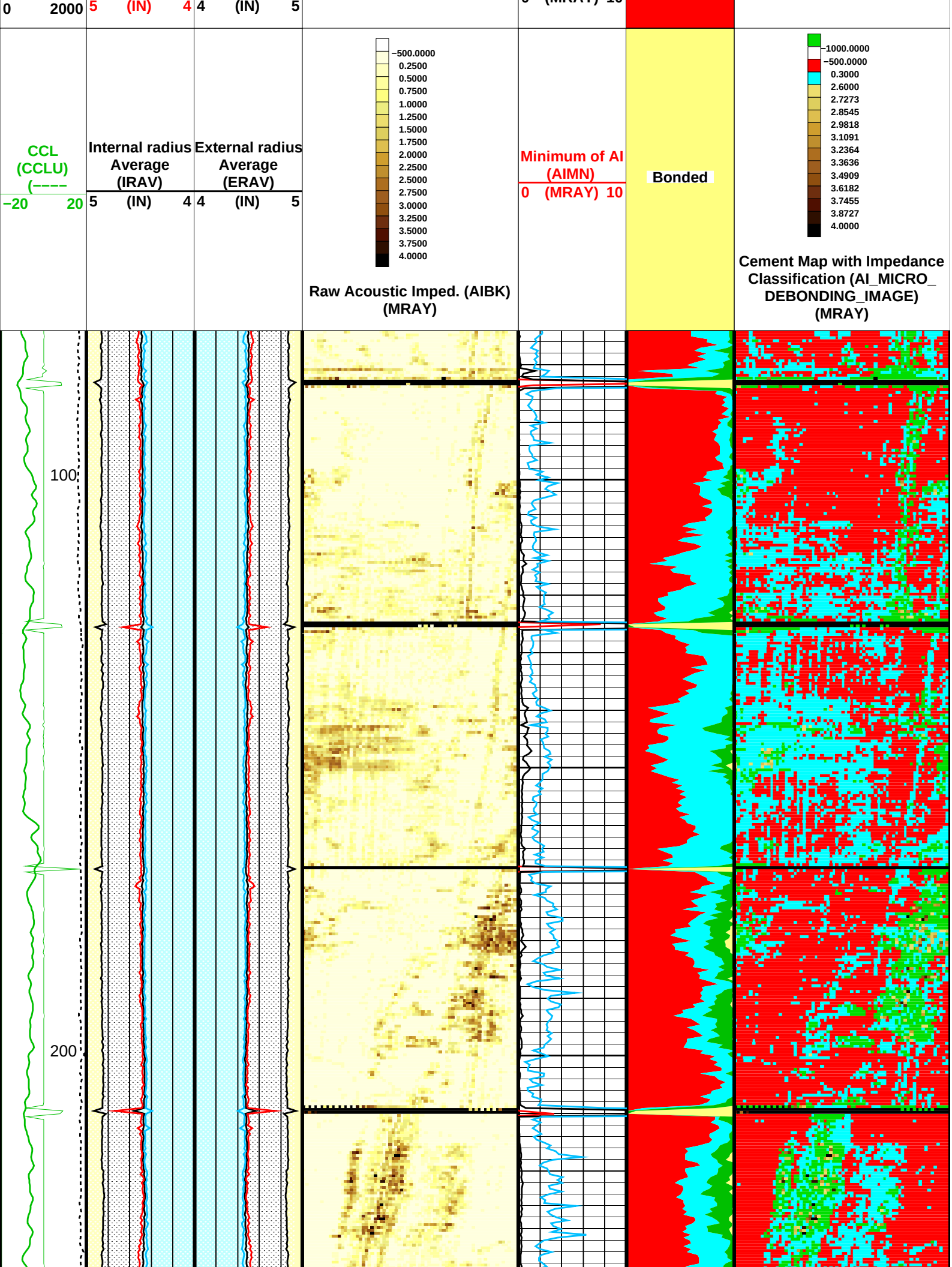
Micro−debonding

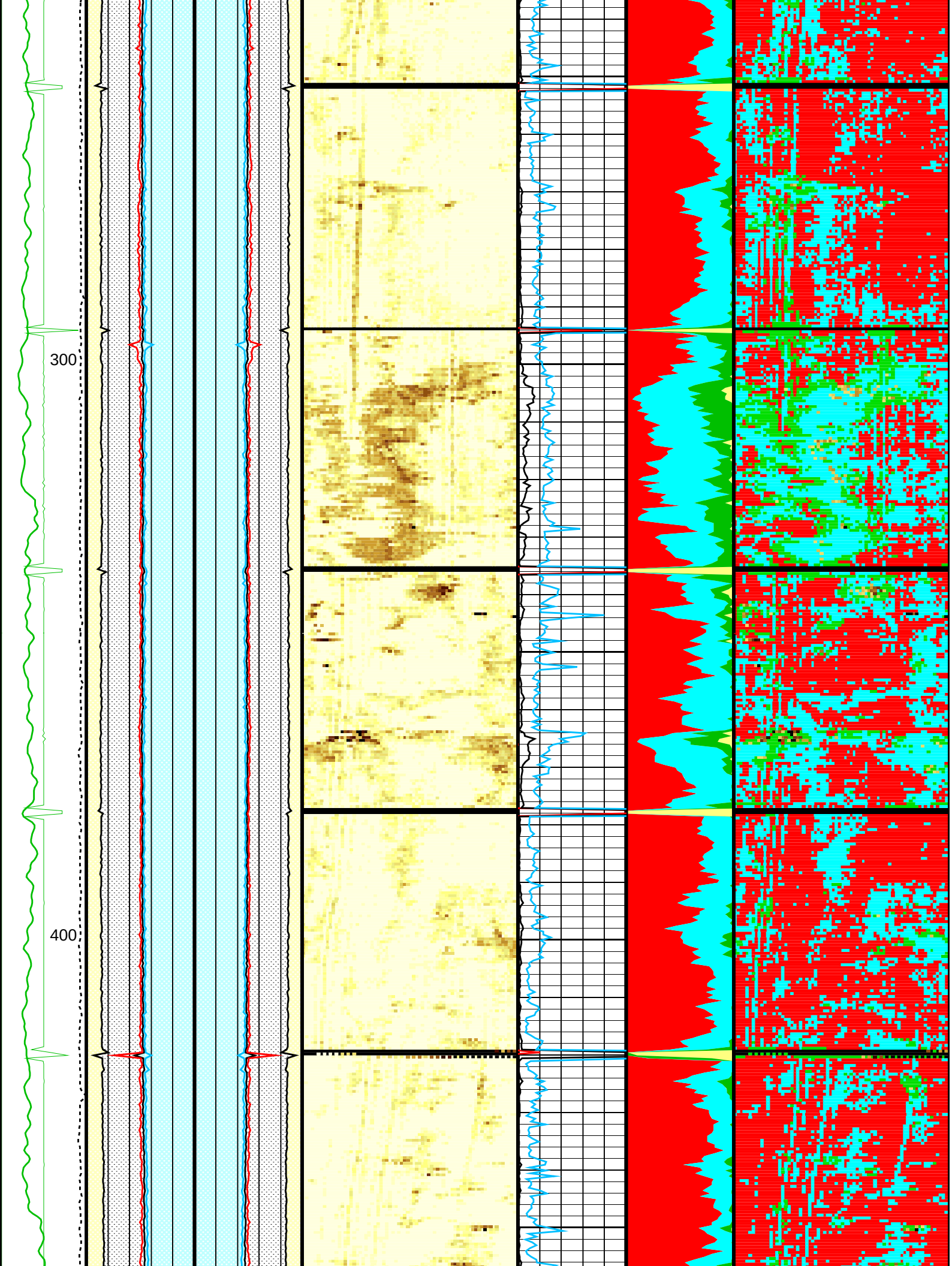
Maximum of AI (AIMX)
0 (MRAY) 10

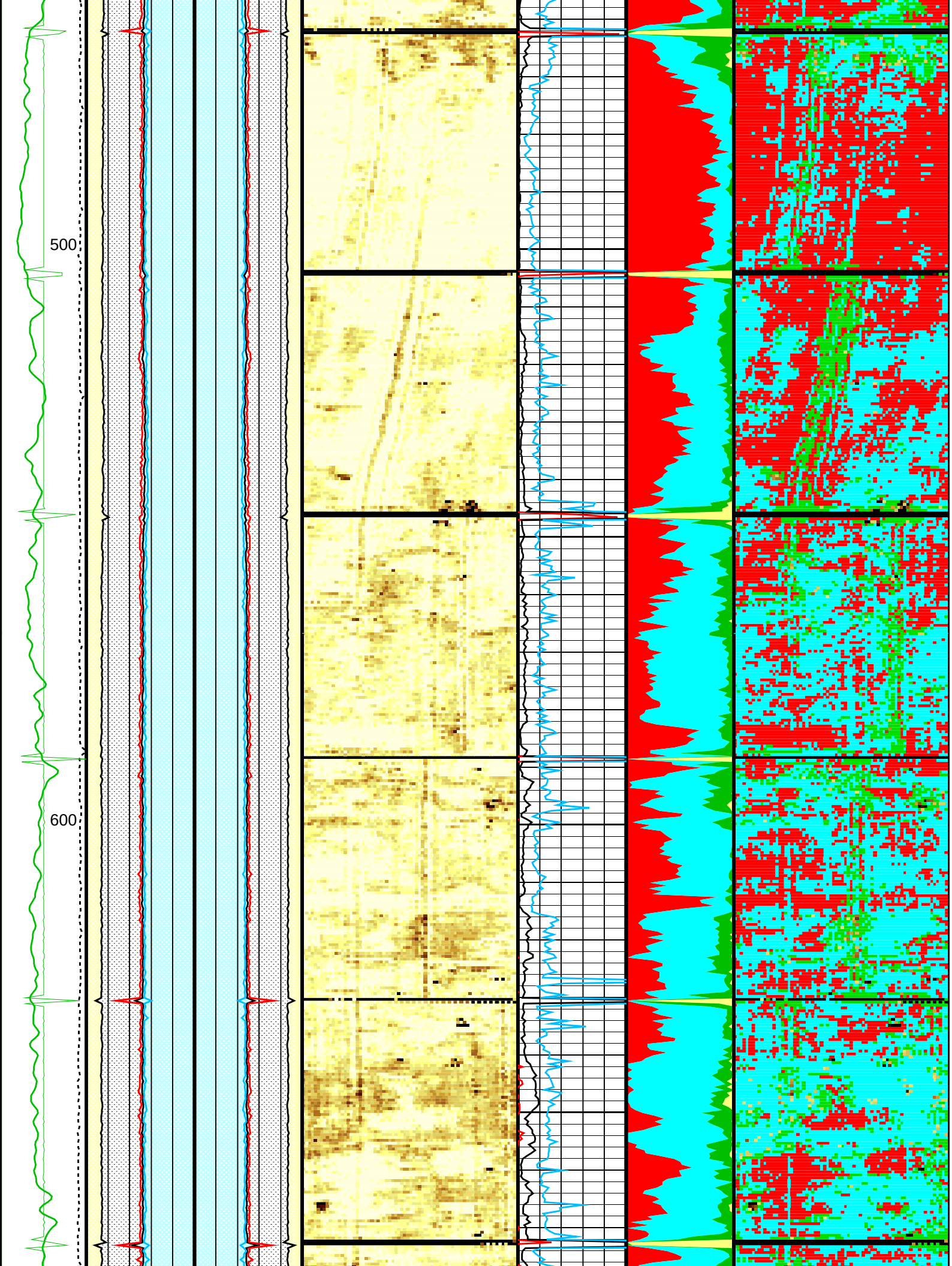
Liquid

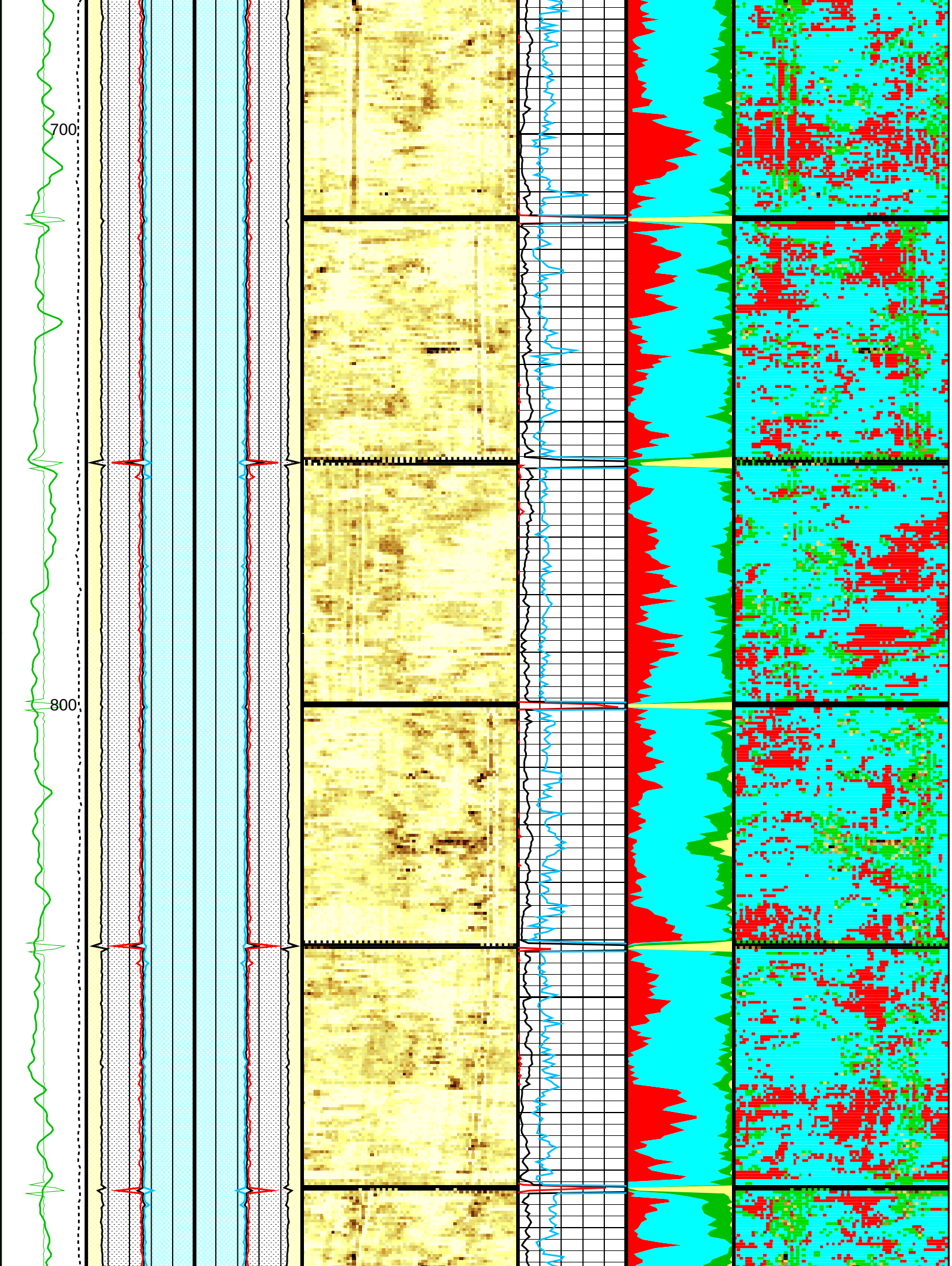
Average of AI (AIAV)
0 (MRAY) 10

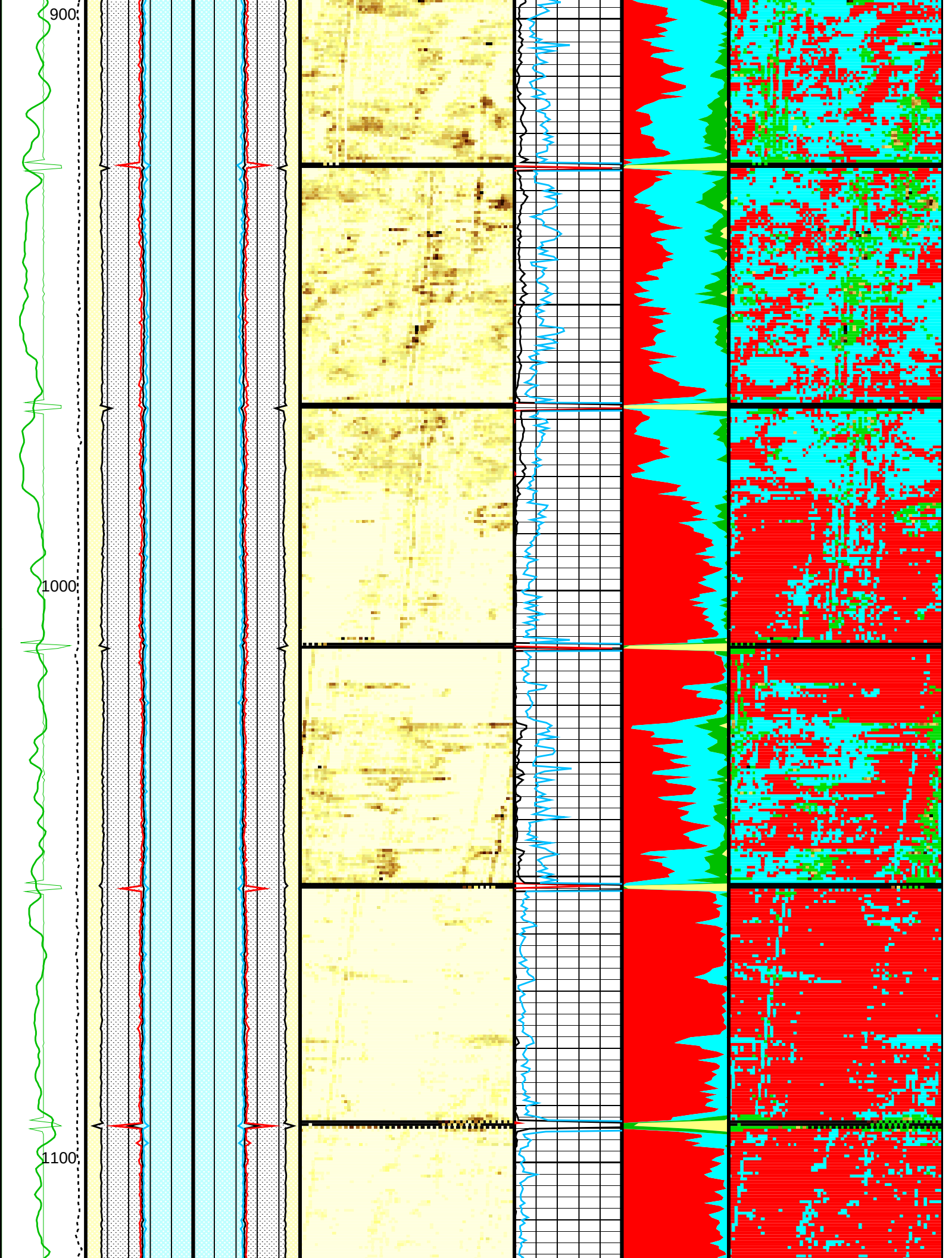
Gas or Dry MicroA

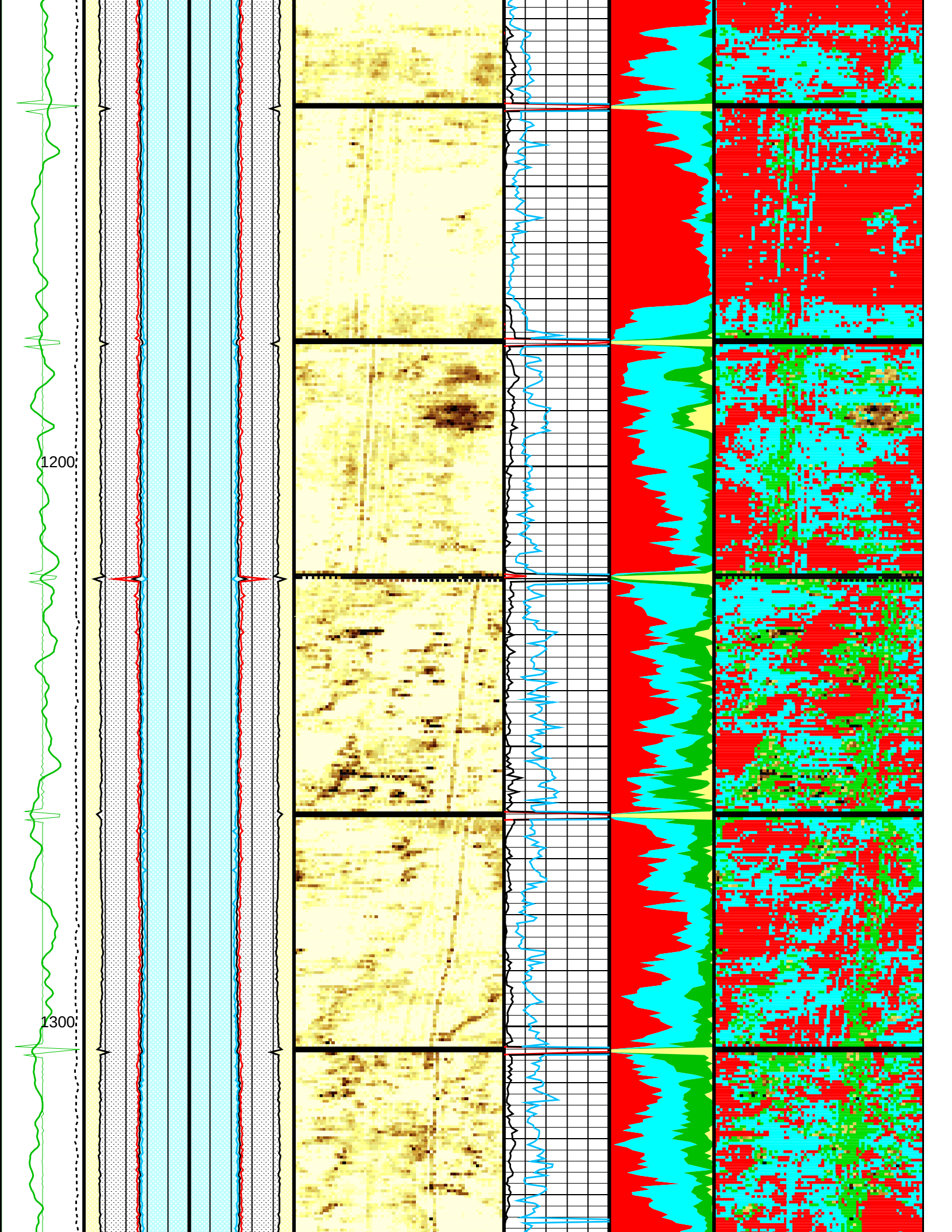

0 2000
5 (IN) 4
4 (IN) 5
0 (MRAY) 10
CCL (CCLU) (----
−20 20
Internal radius Average (IRAV)
5 (IN) 4
External radius Average (ERAV)
4 (IN) 5
−500.0000
0.2500
0.5000
0.7500
1.0000
1.2500
1.5000
1.7500
2.0000
2.2500
2.5000
2.7500
3.0000
3.2500
3.5000
3.7500
4.0000
Raw Acoustic Imped. (AIBK) (MRAY)
Minimum of AI (AIMN)
0 (MRAY) 10
Bonded
−1000.0000
−500.0000
0.3000
2.6000
2.7273
2.8545
2.9818
3.1091
3.2364
3.3636
3.4909
3.6182
3.7455
3.8727
4.0000
Cement Map with Impedance Classification (AI_MICRO_DEBONDING_IMAGE) (MRAY)
100
200

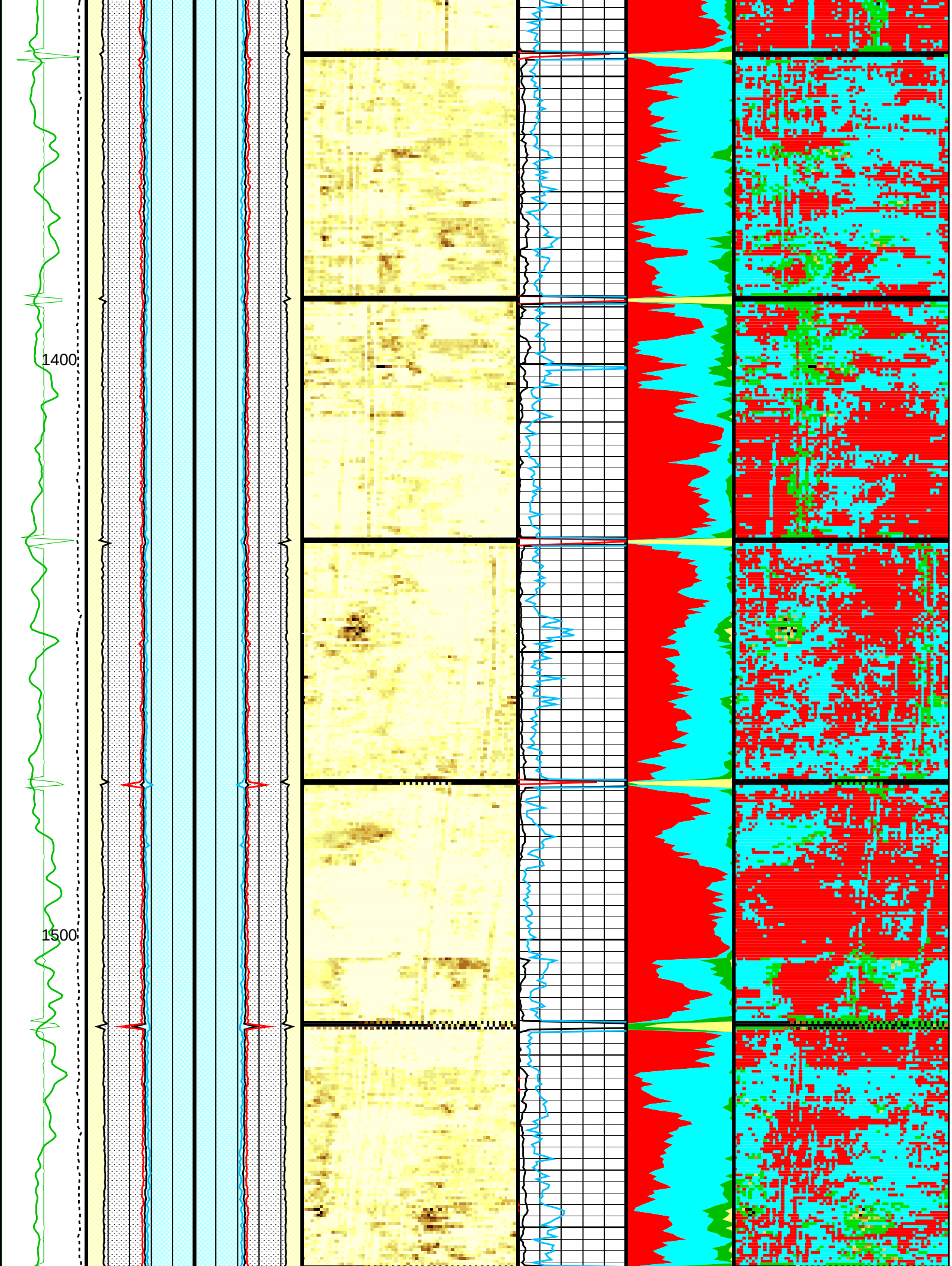

300
400

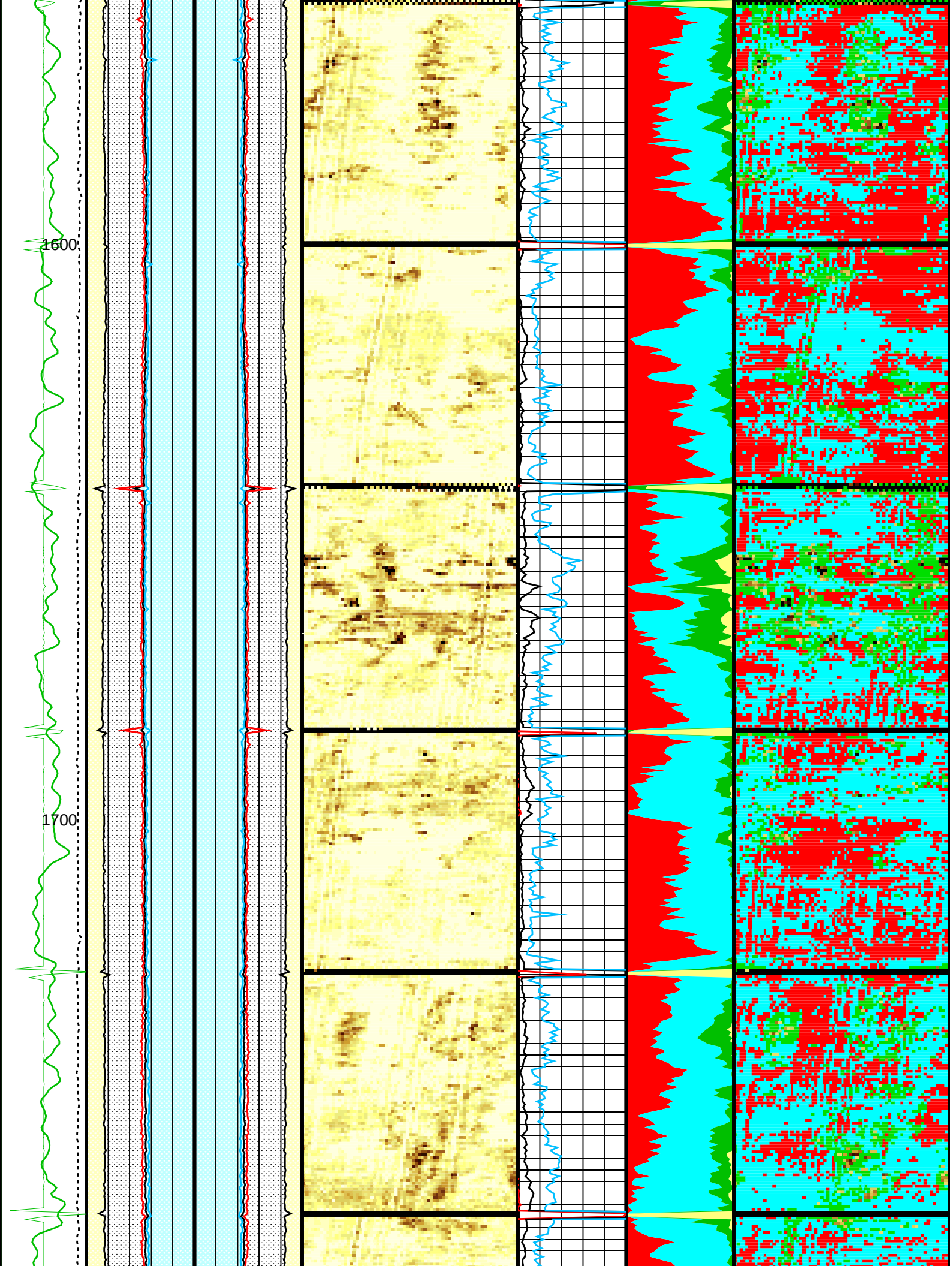

500
600

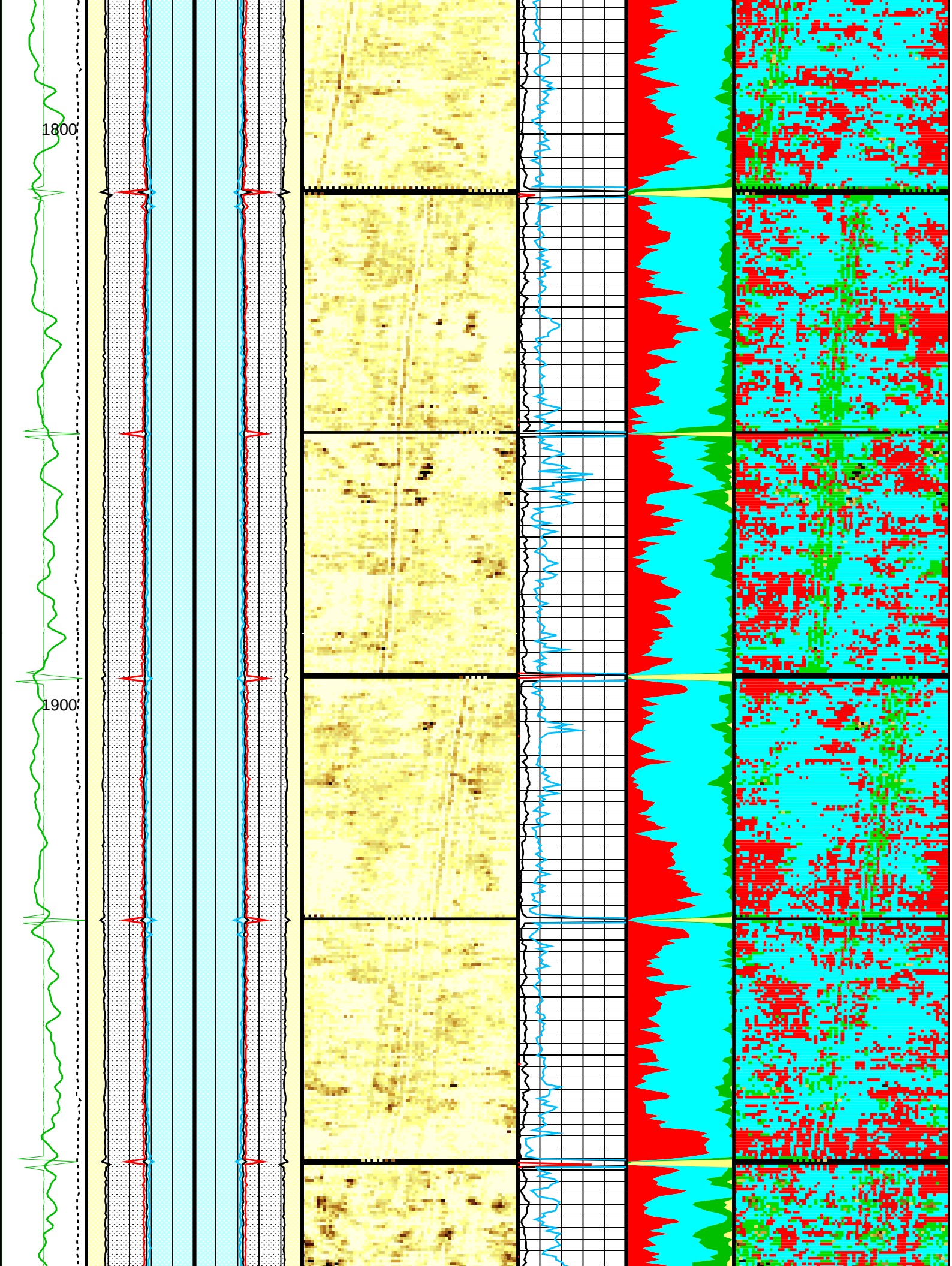

700
800


900
1000
1100


1200
1300


1400
1500


1600
1700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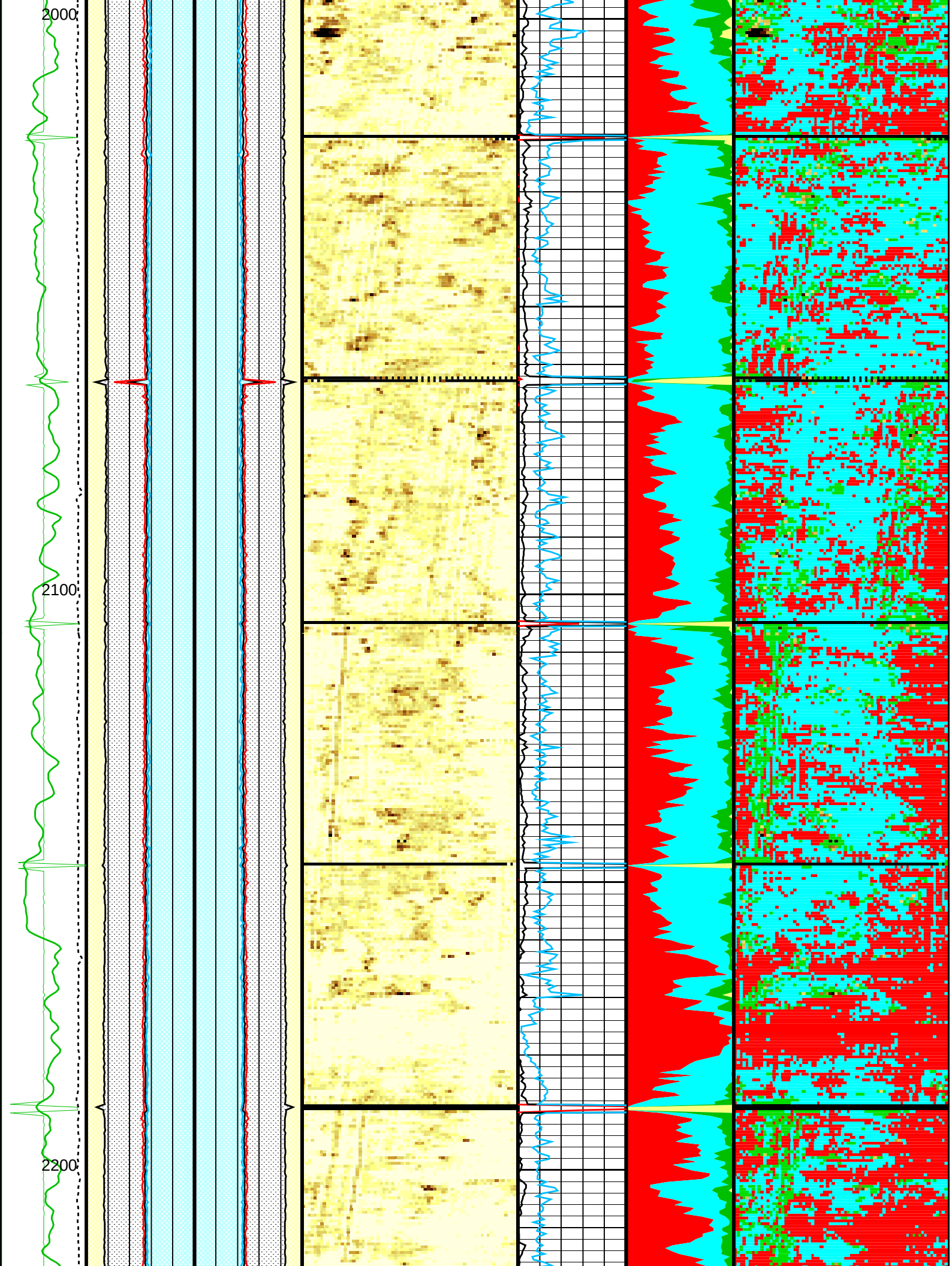
2000
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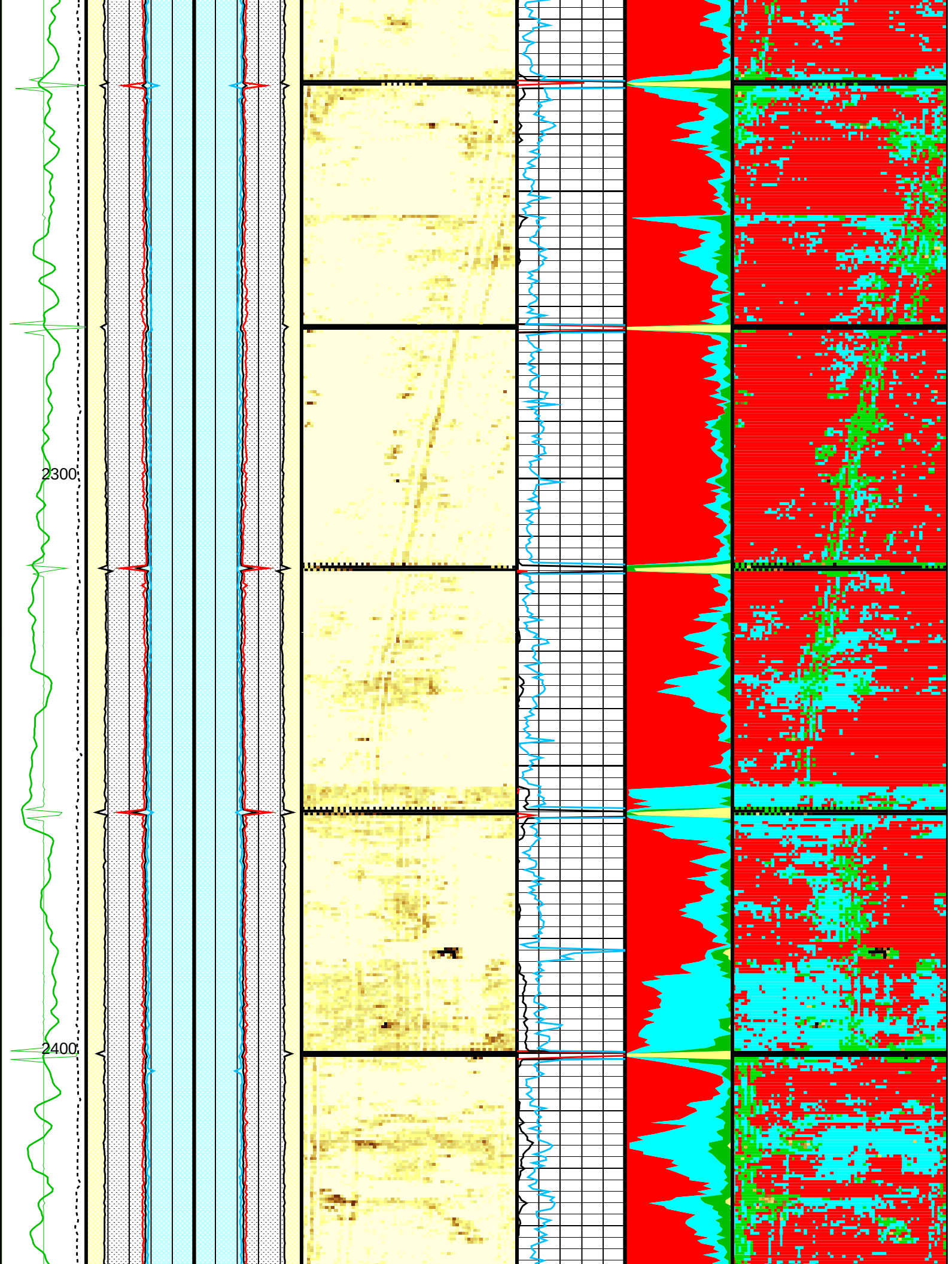
2200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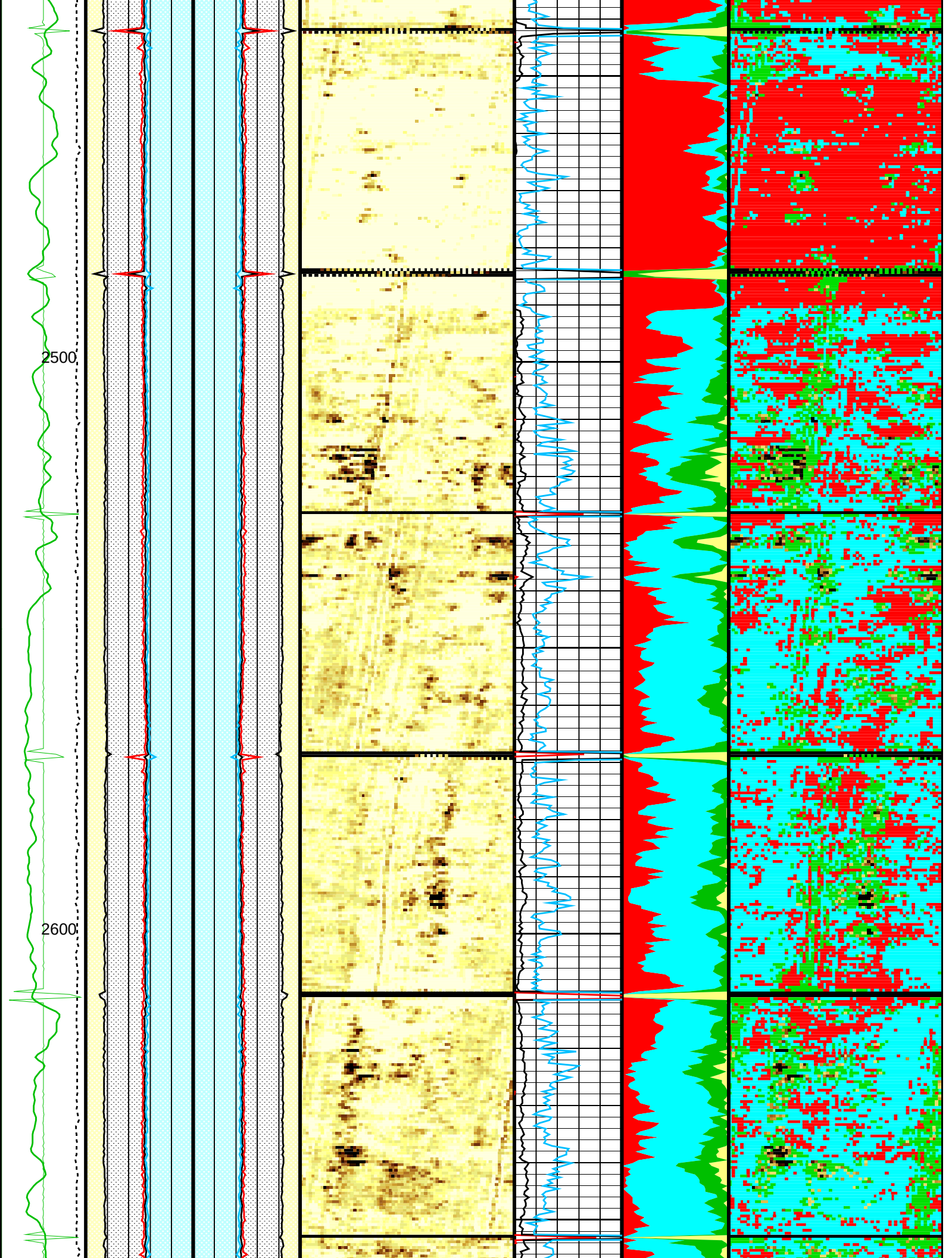
2400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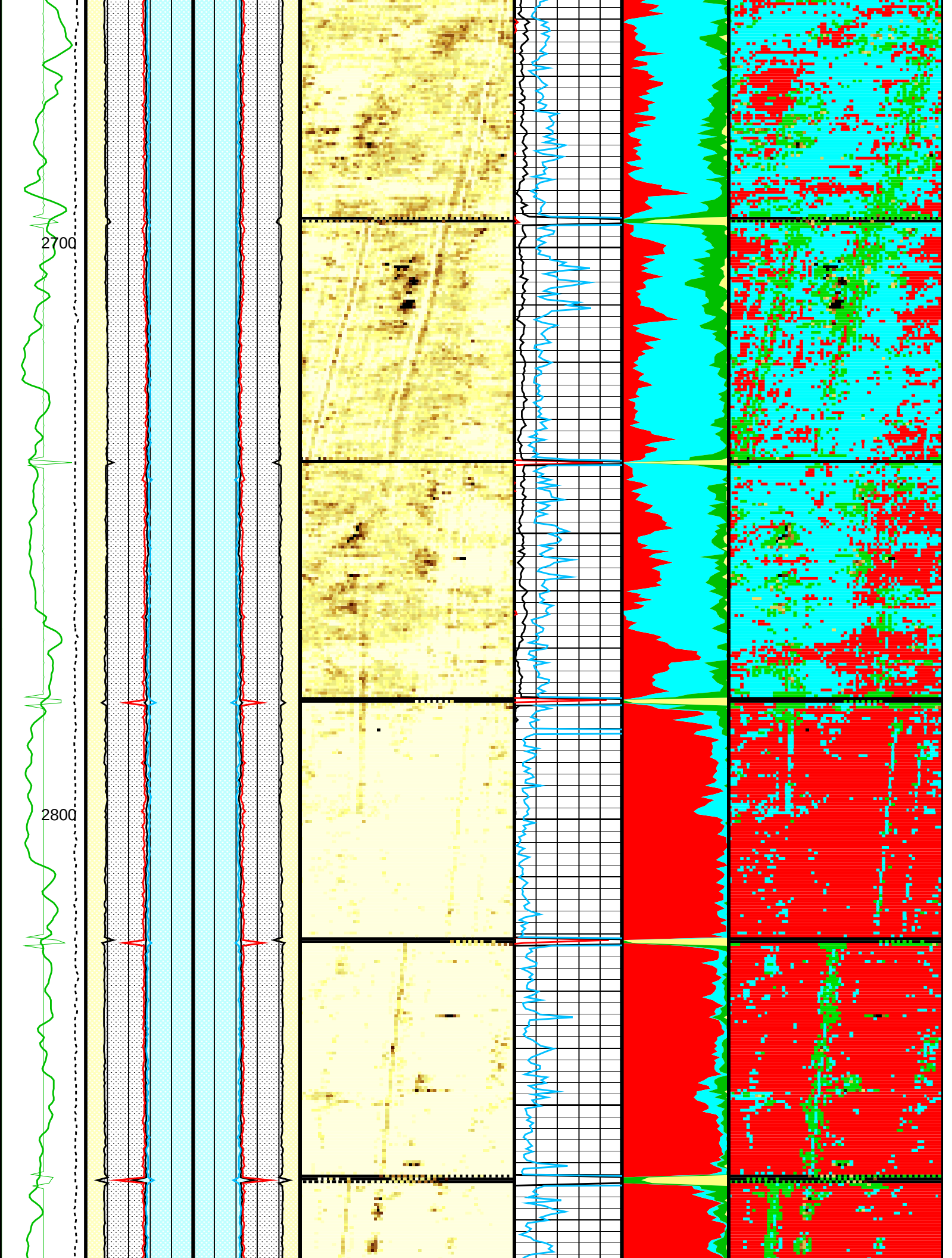
2600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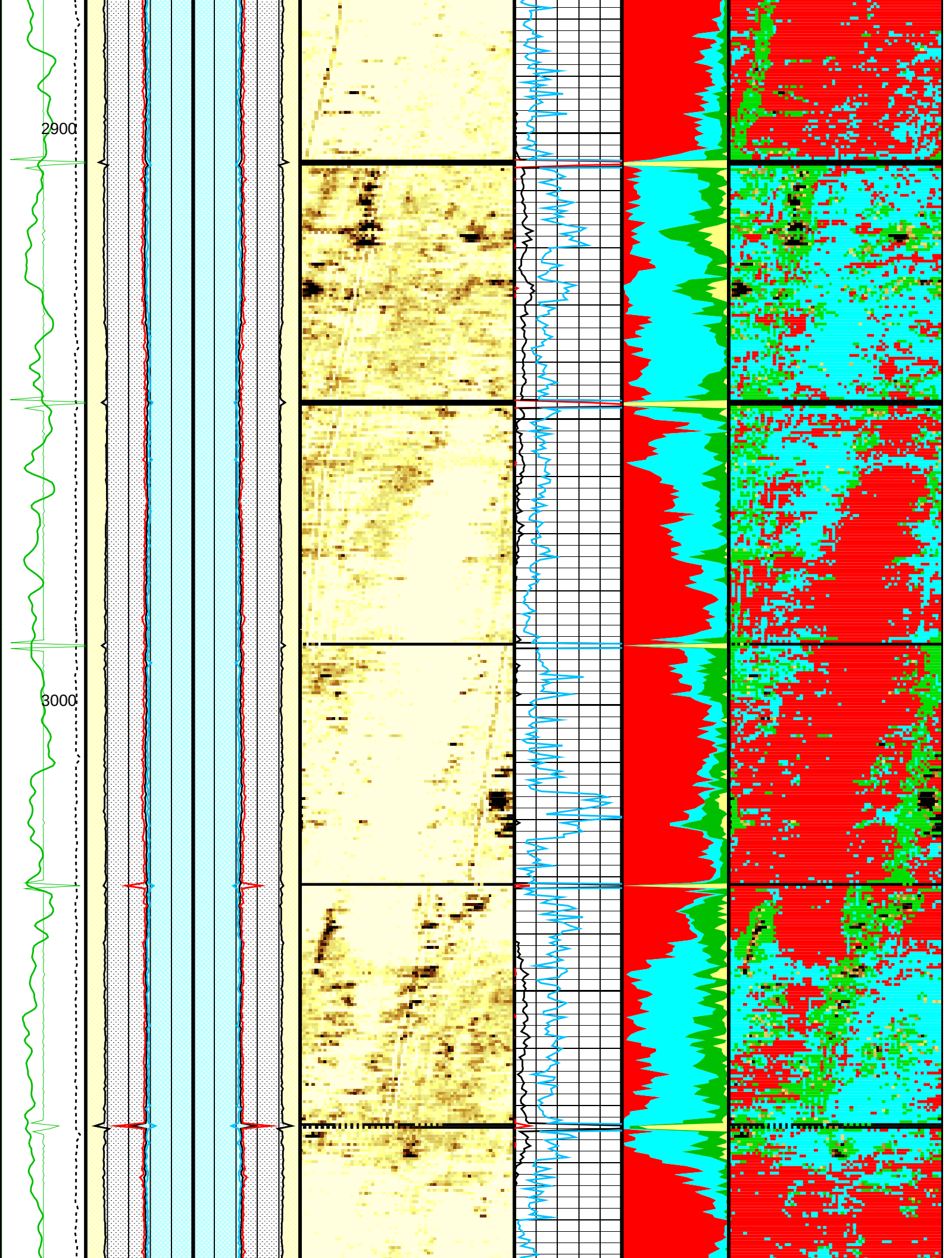
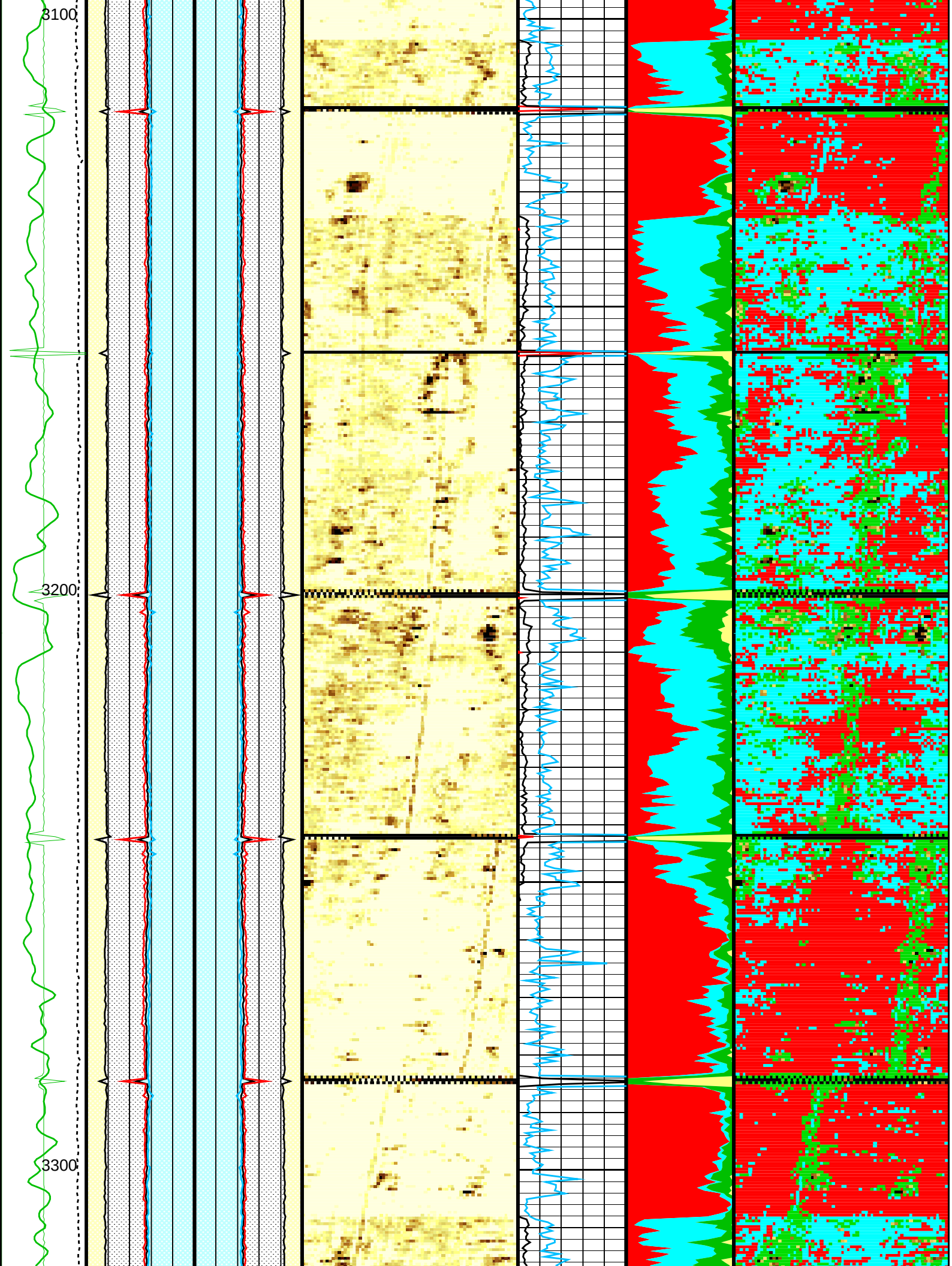
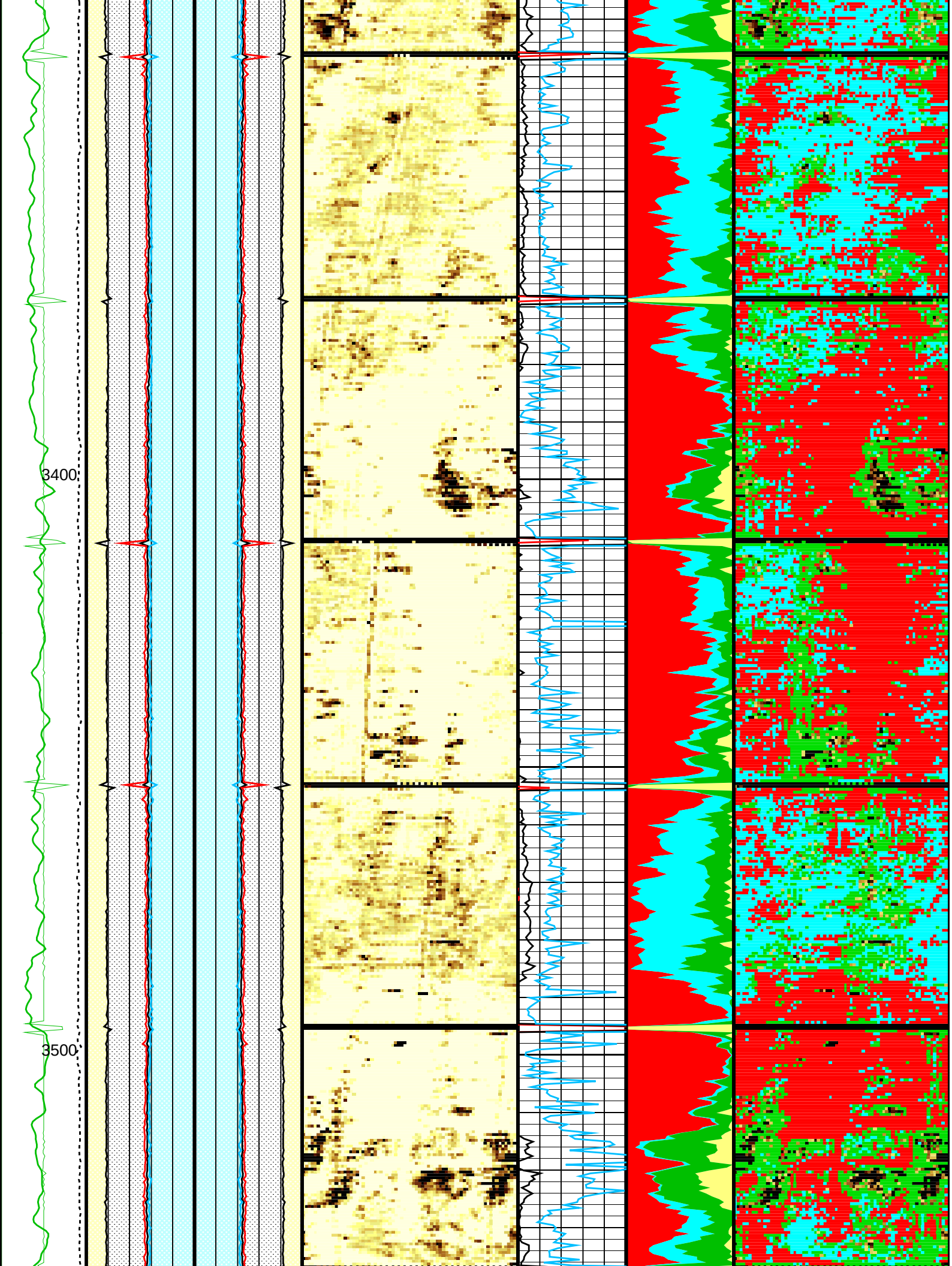
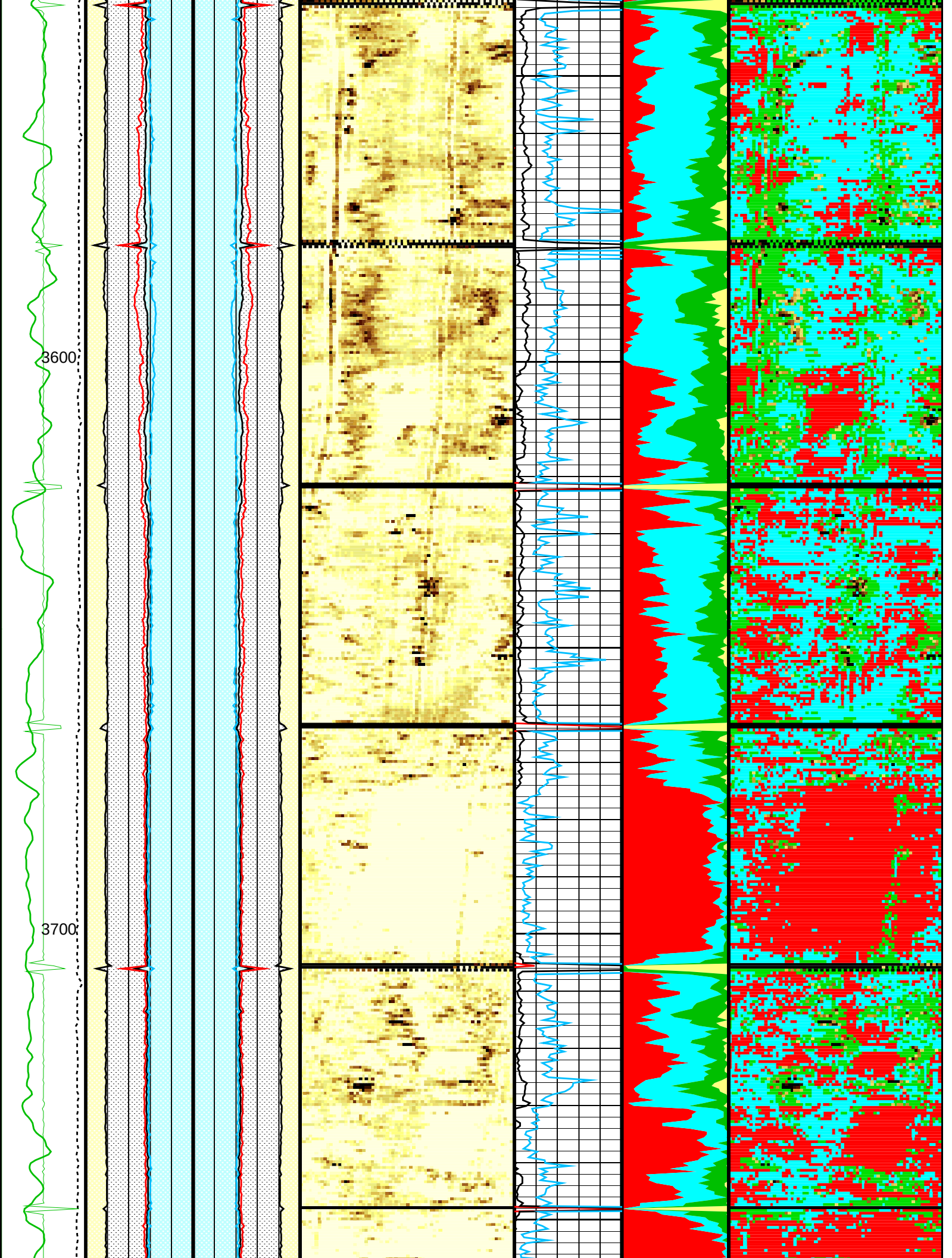
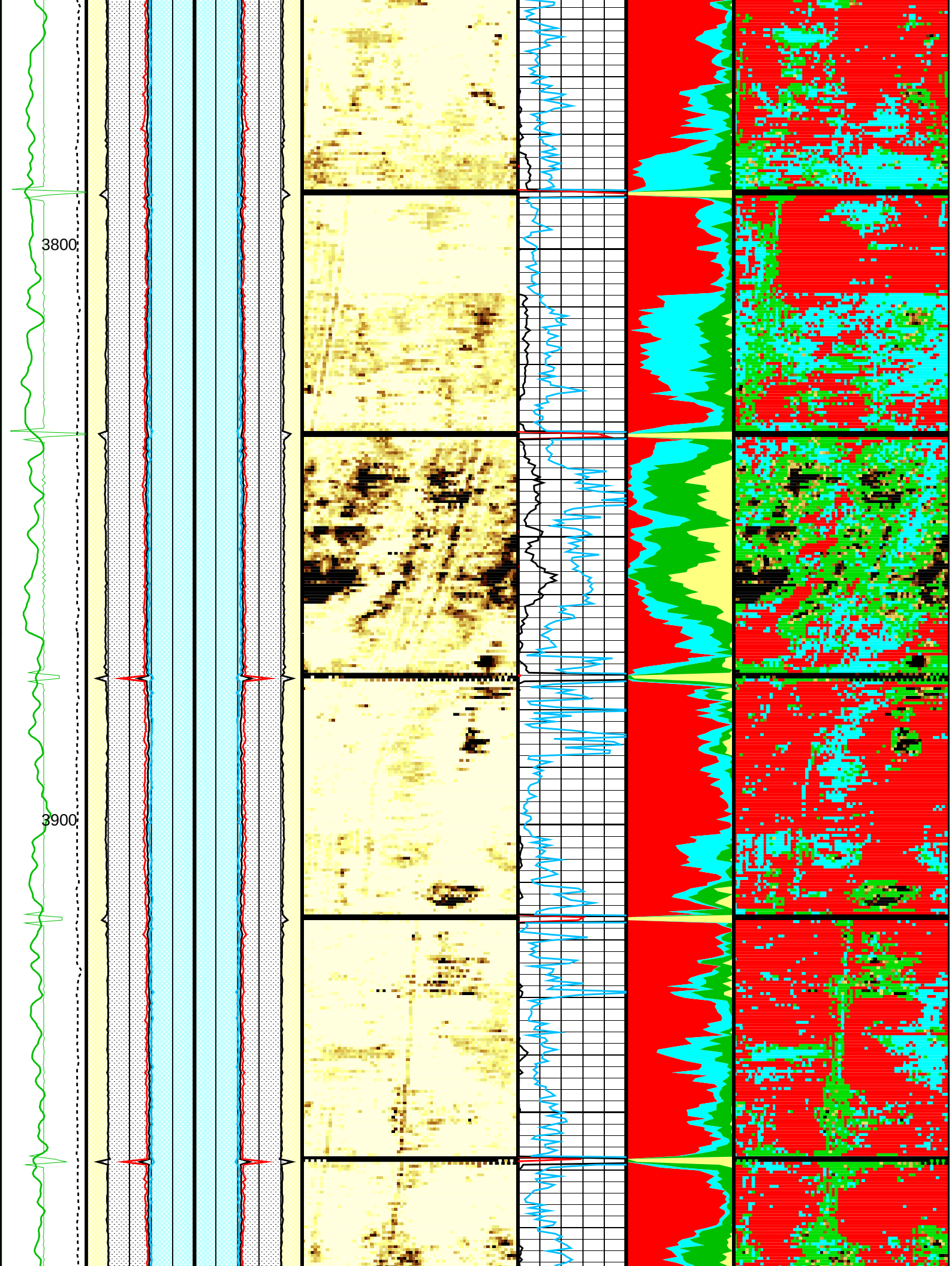

2900
3000


3100
3200
3300


3400
3500


3600
3700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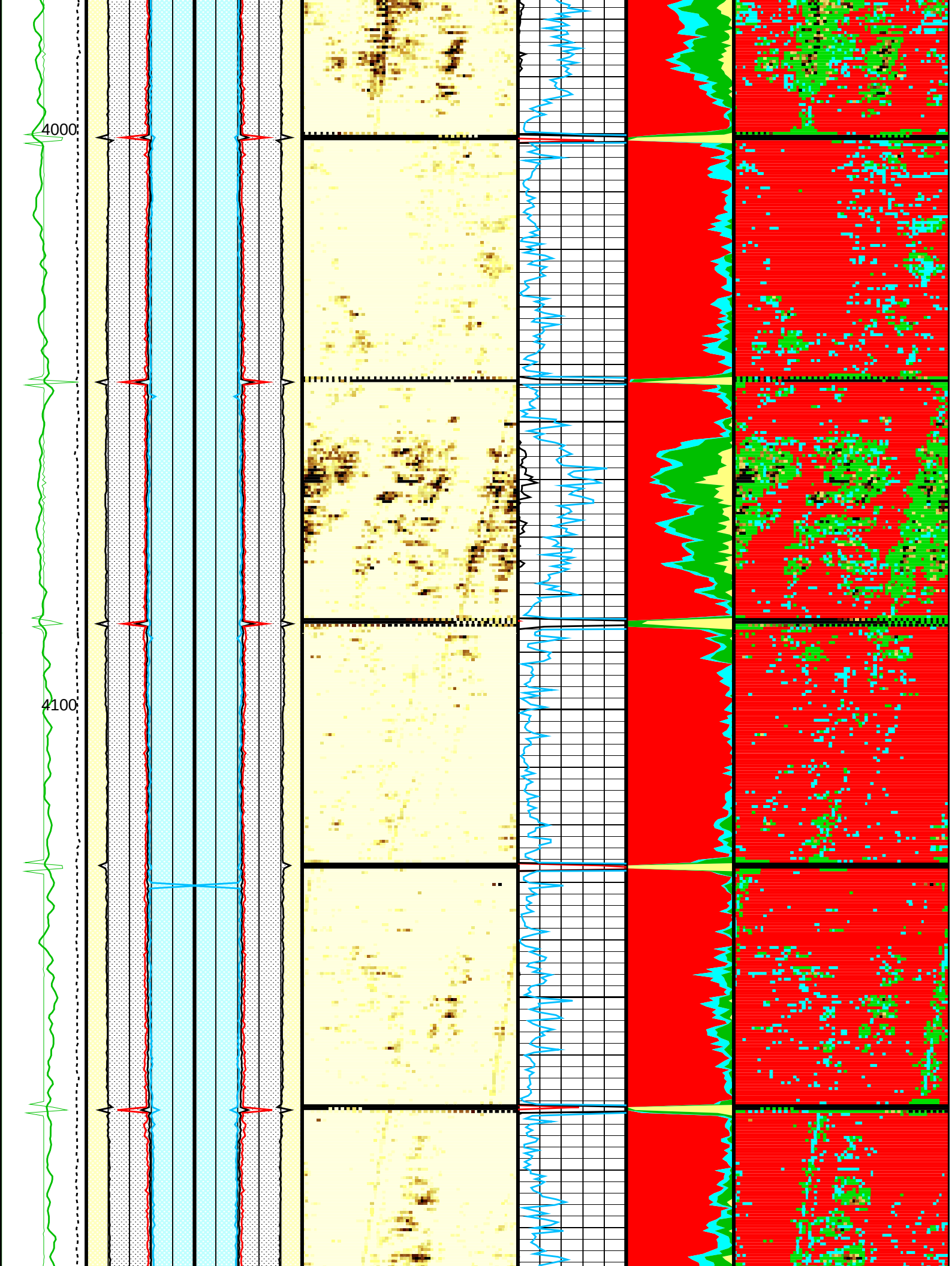
3900


4000
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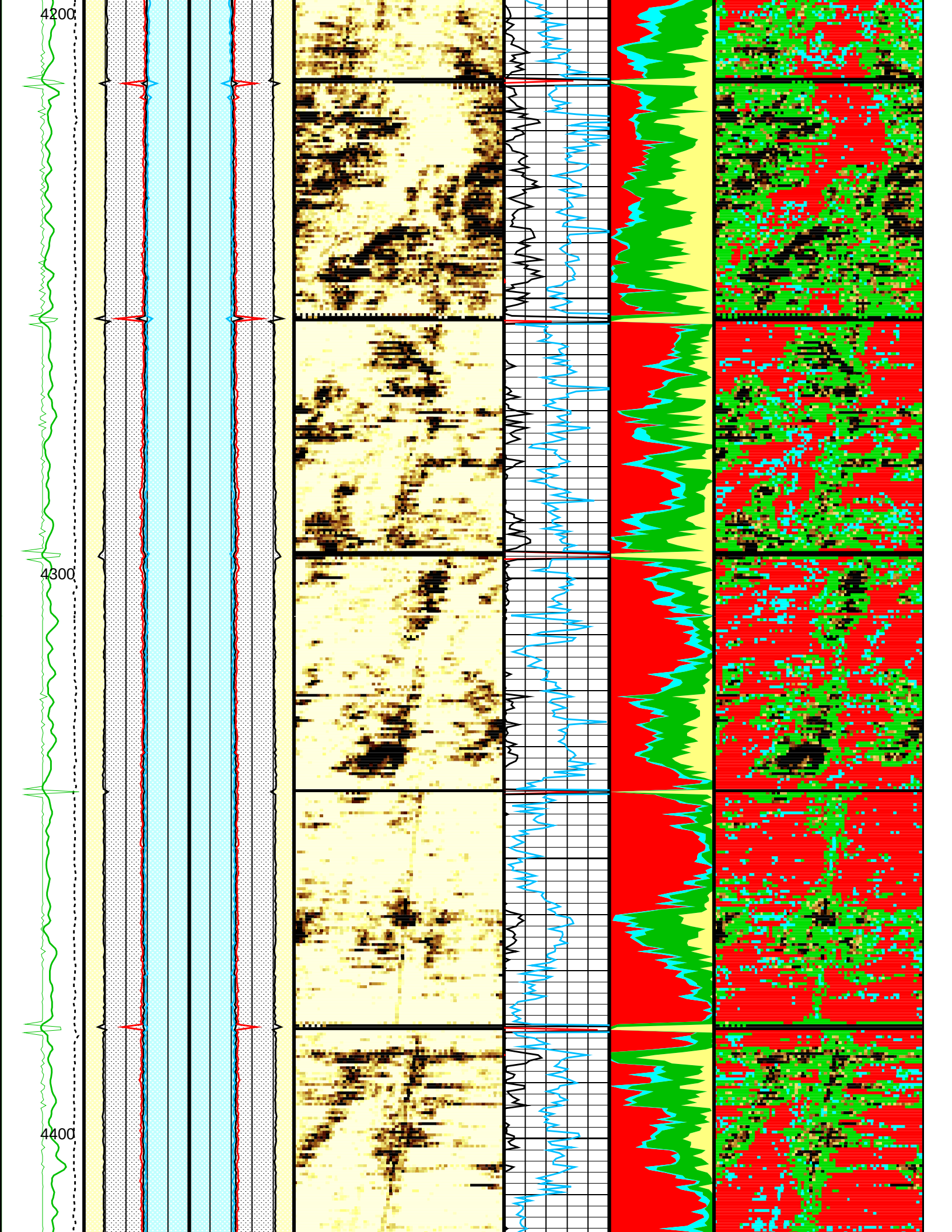
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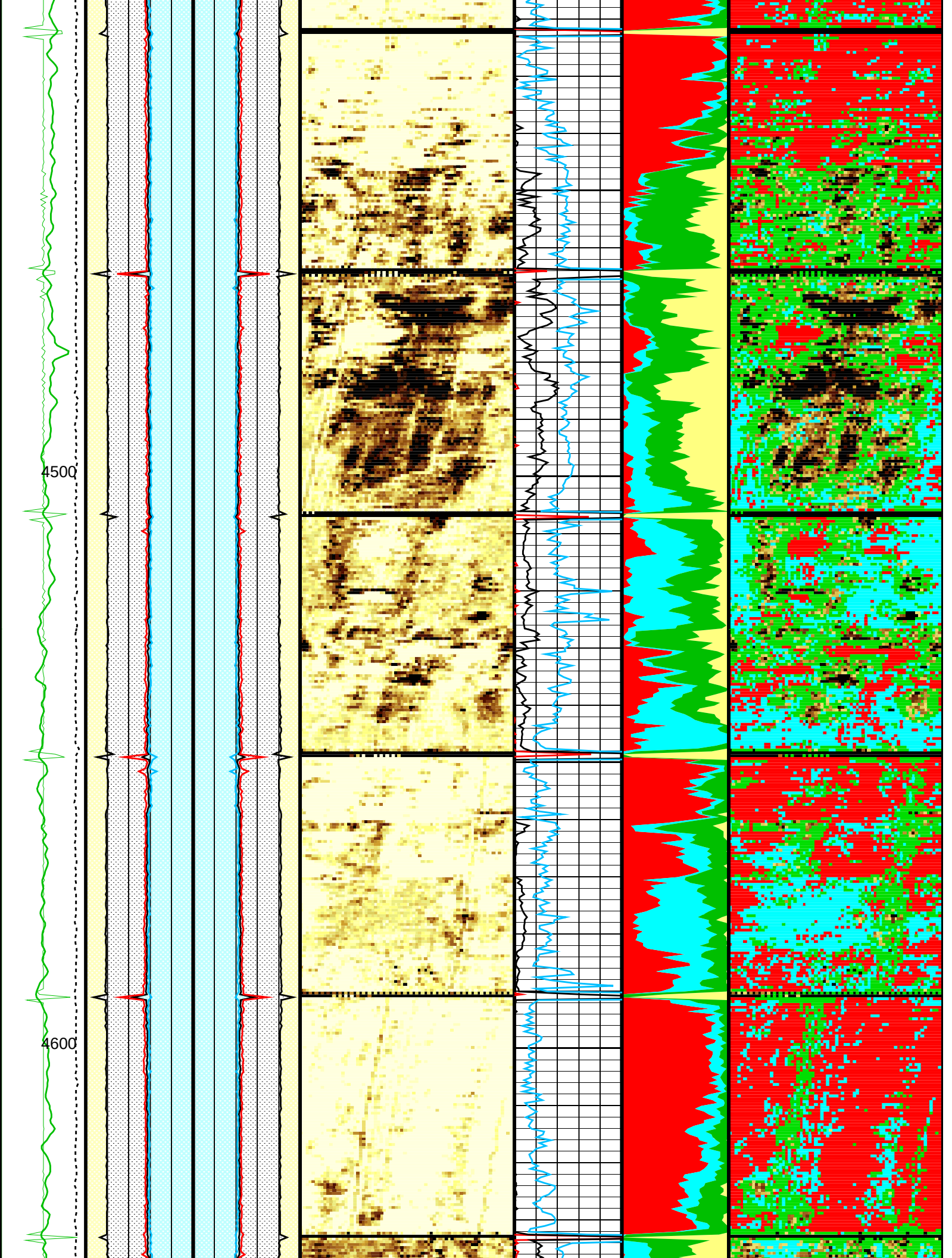
4300
4400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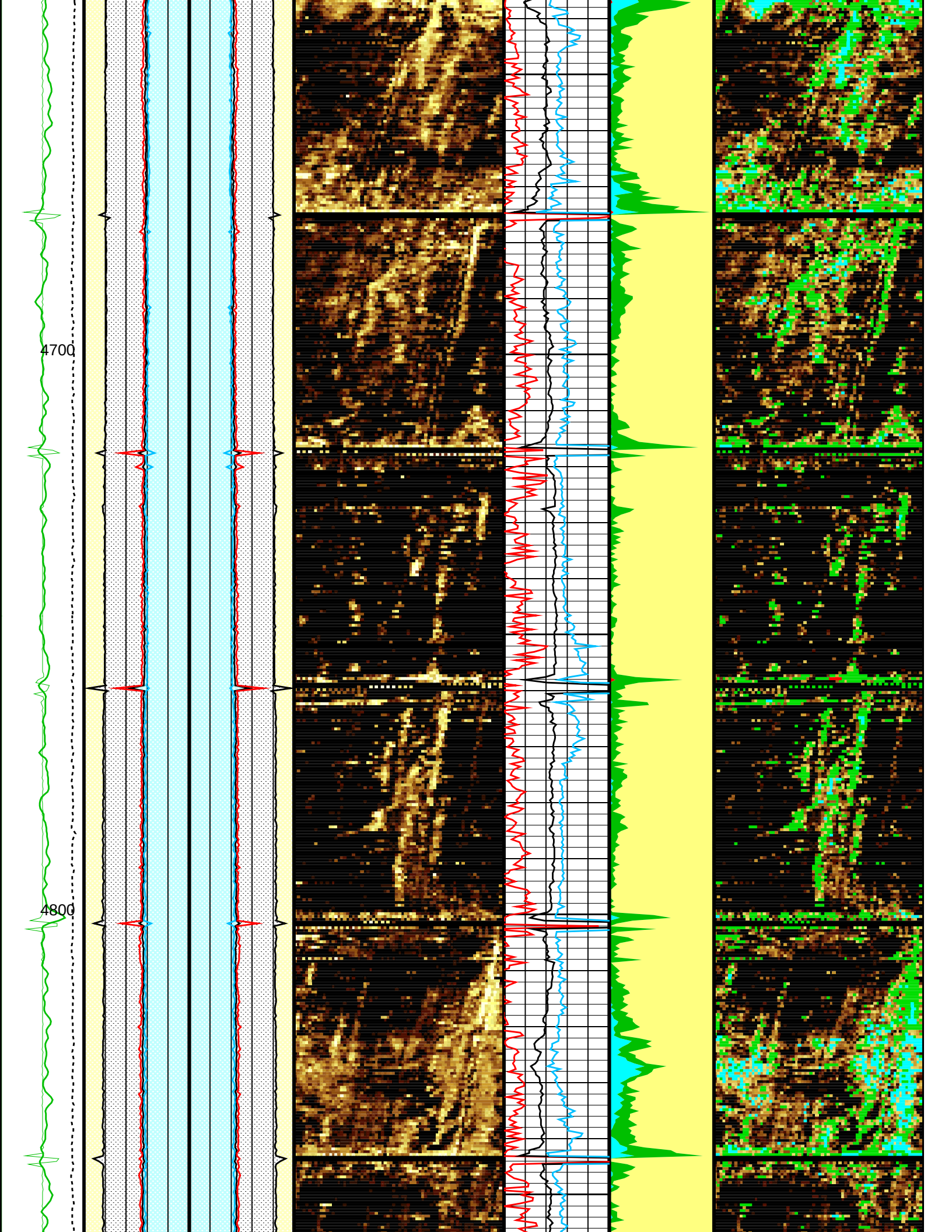
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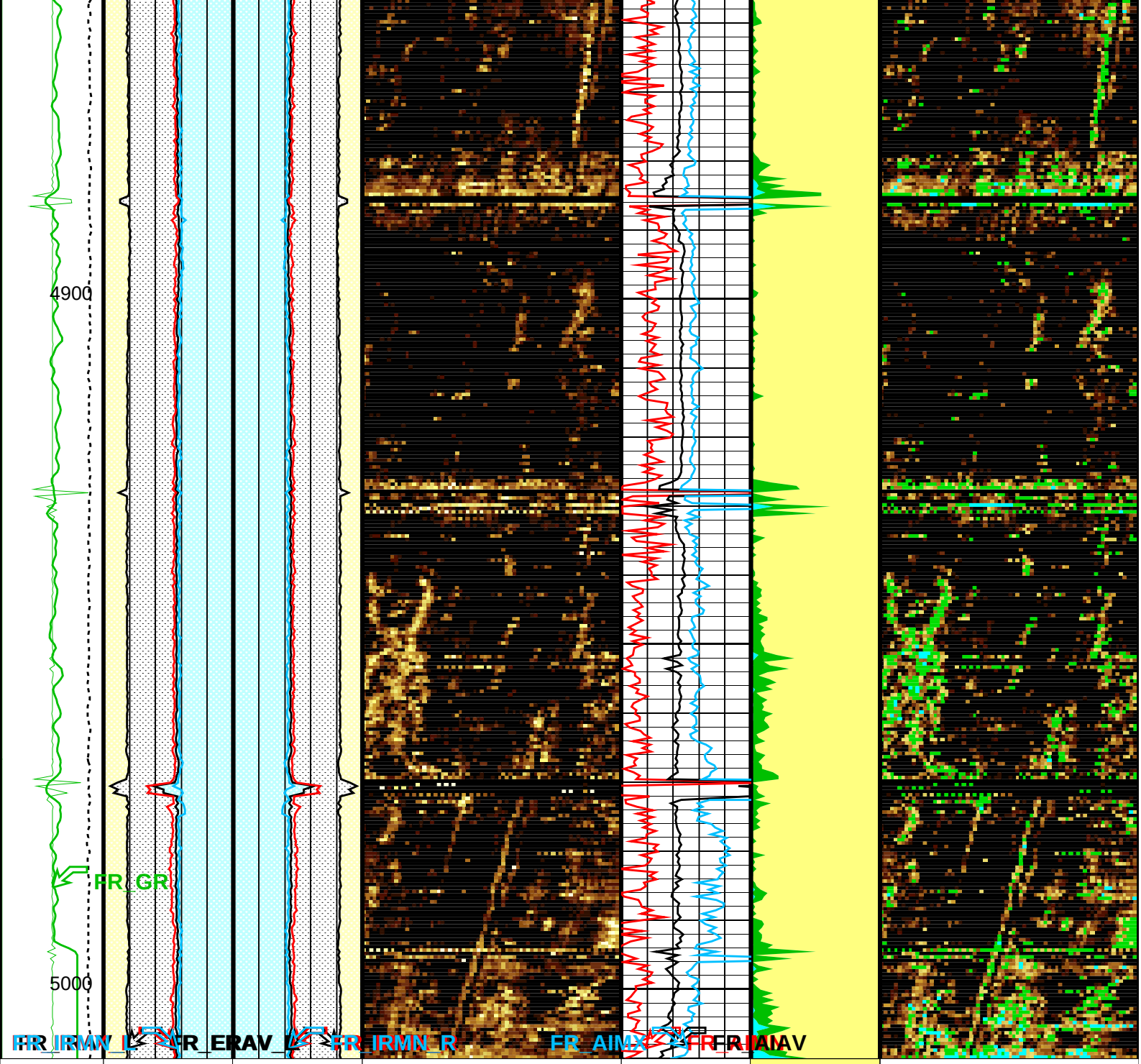
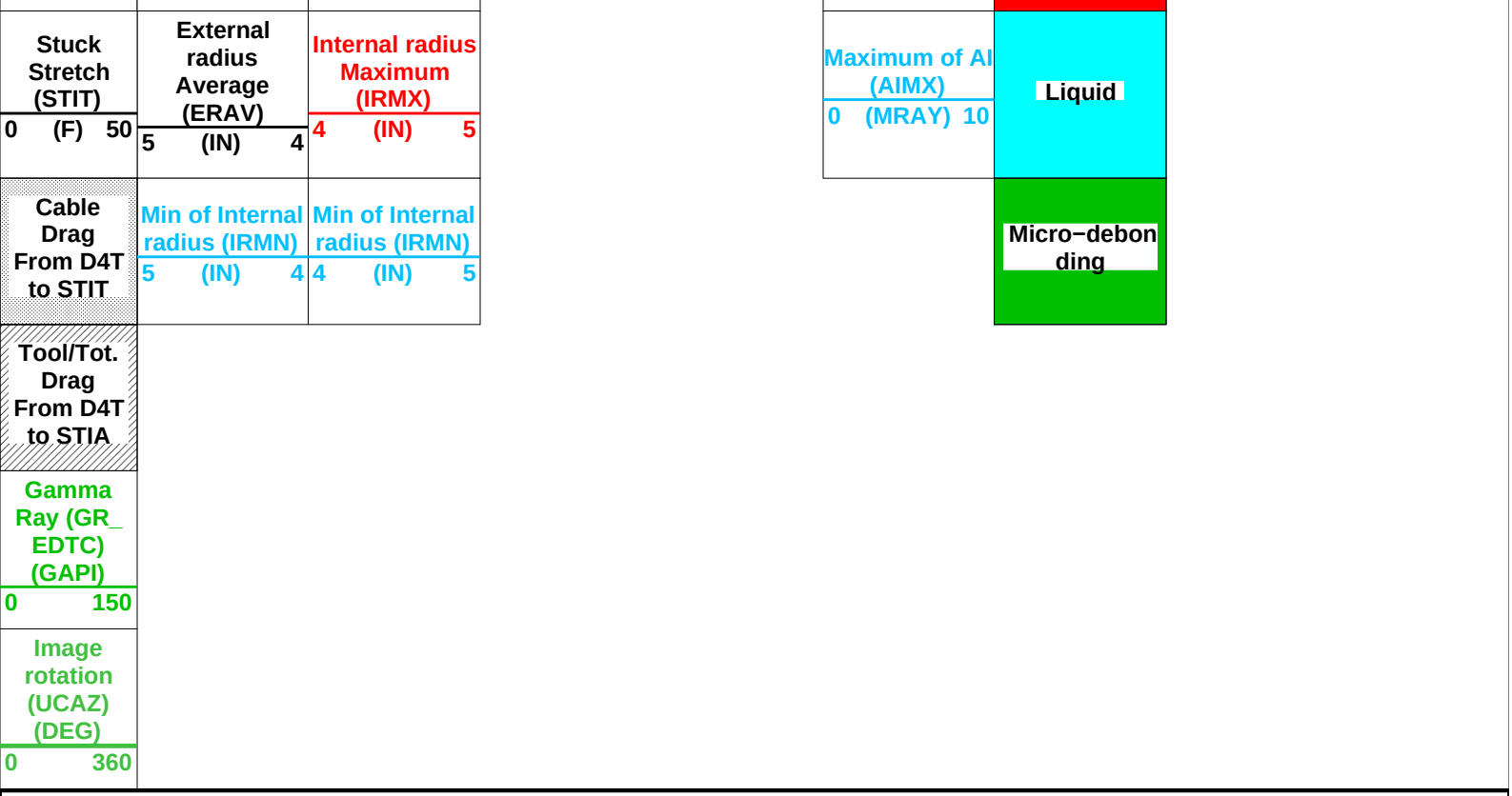


CCL (CCLU) (-----	Internal radius Average (IRAV)	External radius Average (ERAV)	Raw Acoustic Imped. (AIBK) (MRAY)	Minimum of AI (AIMN)	Bonded	Cement Map with Impedance Classification (AI_MICRO_DEBONDING_IMAGE) (MRAY)
−20 20	5 (IN) 4	4 (IN) 5	−500.0000 0.2500 0.5000 0.7500 1.0000 1.2500 1.5000 1.7500 2.0000 2.2500 2.5000 2.7500 3.0000 3.2500 3.5000 3.7500 4.0000	0 (MRAY) 10		−1000.0000 −500.0000 0.3000 2.6000 2.7273 2.8545 2.9818 3.1091 3.2364 3.3636 3.4909 3.6182 3.7455 3.8727 4.0000
Cable Speed (CS) (F/HR)	**Internal radius Maximum (IRMX)**	**Internal radius Average (IRAV)**		**Average of AI (AIAV)**	**Gas or Dry MicroA**	
0 2000	5 (IN) 4	4 (IN) 5		0 (MRAY) 10		



Format: USI_Cement **Vertical Scale: 5" per 100'** **Graphics File Created: 11−Jul−2009 09:03**

OP System Version: 17C0−154

USIT−D	17C0−154	EDTC−B	17C0−154
CAL−Y	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	9.625	IN
CSDE	Casing Density	486.94	LBCF
CSID	Casing Inner Diameter	8.835	IN
DFVL	Default Fluid Velocity	199	US/F
DOT	Diameter of Transducer Sensor	4.874	IN
EMXV	EMEX Voltage	70	V
FSOD	Fluid Slowness Fits Casing Outer Diameter	2_UFSL_N_UFAI	
IMAR	Image Rotation	OFF	
MW	Mud Weight	9.9	LB/G
RCOD	Reference Calibrator Outer Diameter	7	IN
RCSO	Reference Calibrator Standoff	1.37795	IN
RCTH	Reference Calibrator Thickness	0.2952	IN
SDNV	Number of Vertical Samples used for Micro−debonding Computation	5	
SDTHOR	Acoustic Impedance STD Horizontal Threshold for Micro−debonding	0.5	
SDTVER	Acoustic Impedance STD Vertical Threshold for Micro−debonding	0.3	
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	0.395	IN
UMAO	USIT Measurement Angular Offset	−10	DEG
USTO	Ultrasonic Time Offset	−2	US
USUB	Ultrasonic Subassembly Identifier	Sub_9_58_inch	
UWKM	Ultrasonic Working Mode	5DEG_6IN_136UNF_LF	
VCAS	Ultrasonic Transversal Velocity in Casing	51.4	US/F
WLEN	T^3 Processing Length	23.6867	US
ZCAS	Acoustic Impedance of Casing	46.25	MRAY
ZINI	Initial Estimate of Cement Impedance	−1	MRAY
ZMUD	Acoustic Impedance of Mud	1.87	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	5015.00	FT
TDL	Total Depth − Logger	5010.00	FT
System and Miscellaneous			
CWEI	Casing Weight	40.00	LB/F
DO	Depth Offset for Playback	8.0	FT
PP	Playback Processing	RECOMPUTE	

Input DLIS Files

DEFAULT	USI_022PUP	FN:21	PRODUCER	11−Jul−2009 08:10	5010.0 FT	66.0 FT

Output DLIS Files

DEFAULT	USI_024PUP	FN:23	PRODUCER	11−Jul−2009 09:03		

Schlumberger

VDL Wide

MAXIS Field Log

Company: SG INTERESTS I. LTD>

Well: FEDERAL 11−90−24 #2 WDW

Input DLIS Files

DEFAULT	USI_022PUP	FN:21	PRODUCER	11−Jul−2009 08:10	5010.0 FT	66.0 FT

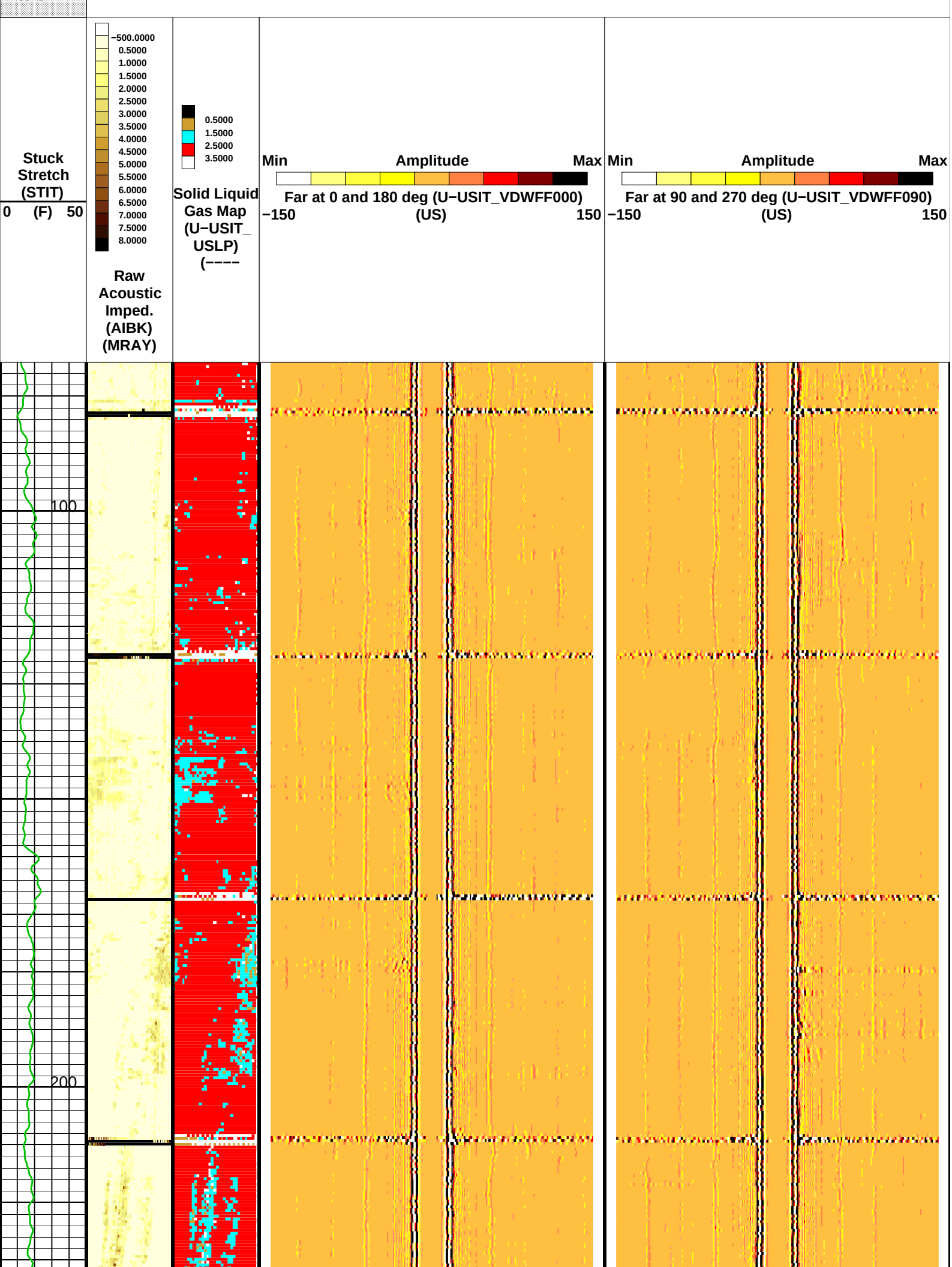
Output DLIS Files

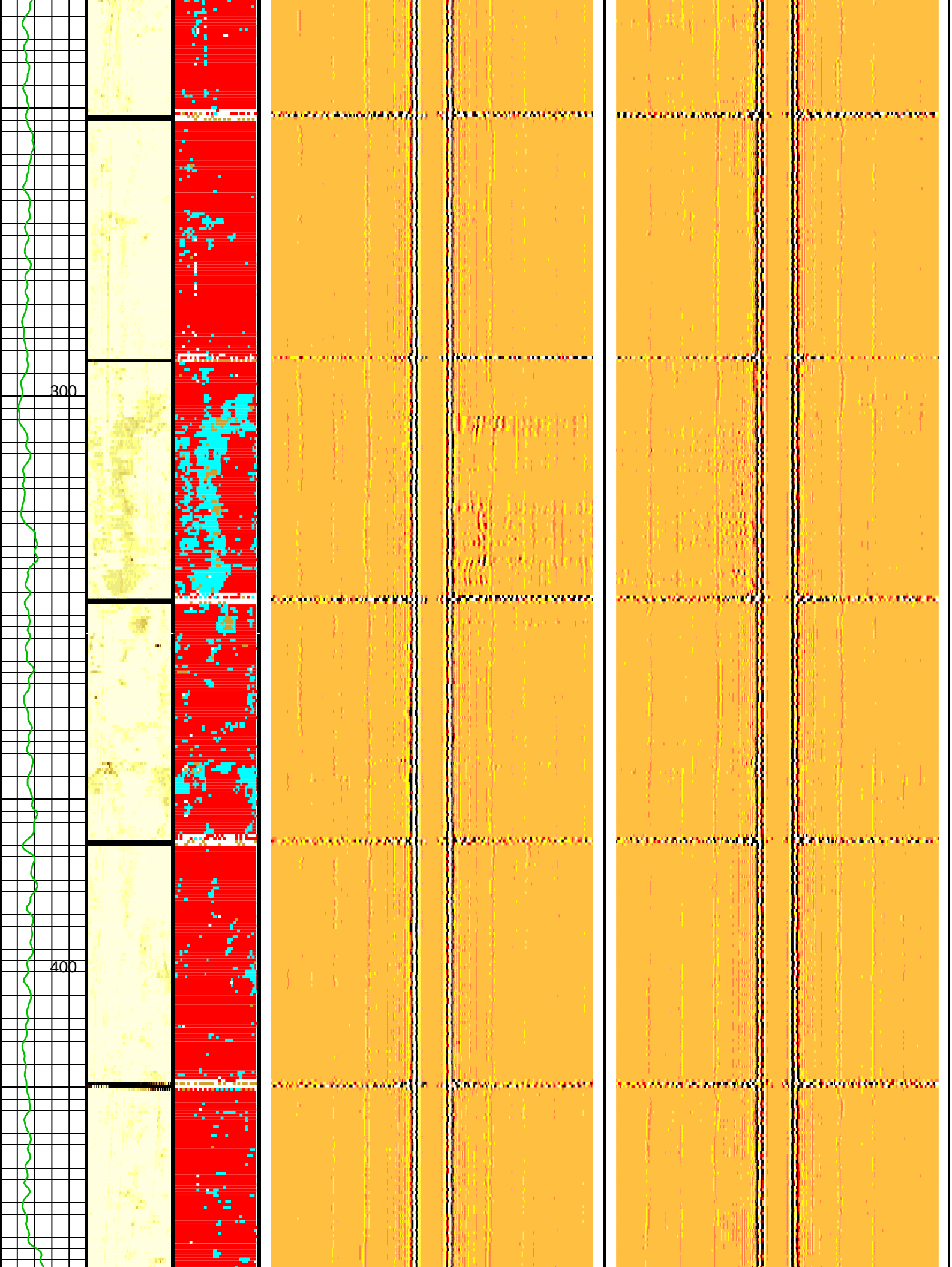
DEFAULT	USI_024PUP	FN:23	PRODUCER	11−Jul−2009 09:03	5010.0 FT	74.0 FT

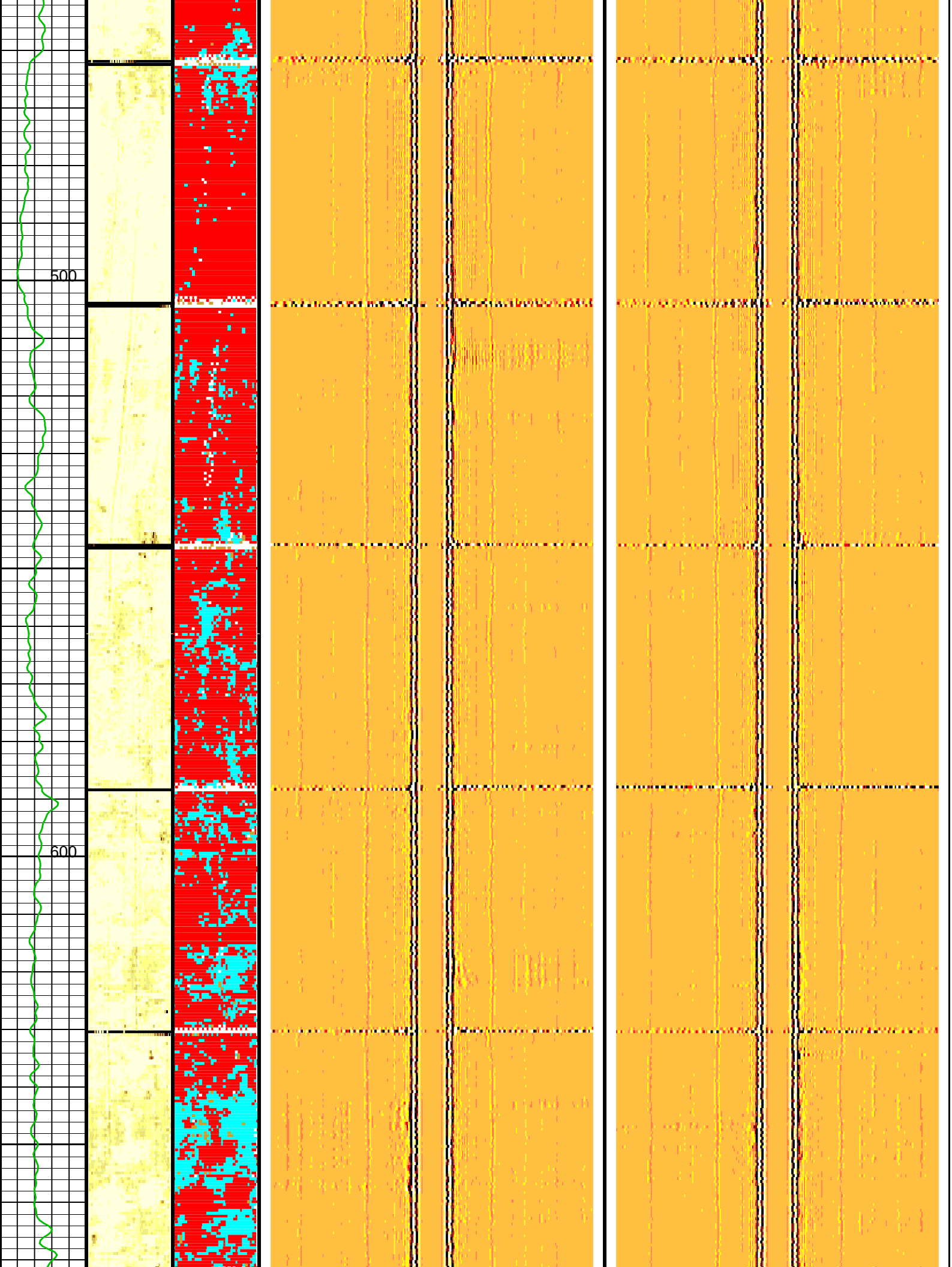
OP System Version: 17C0−154

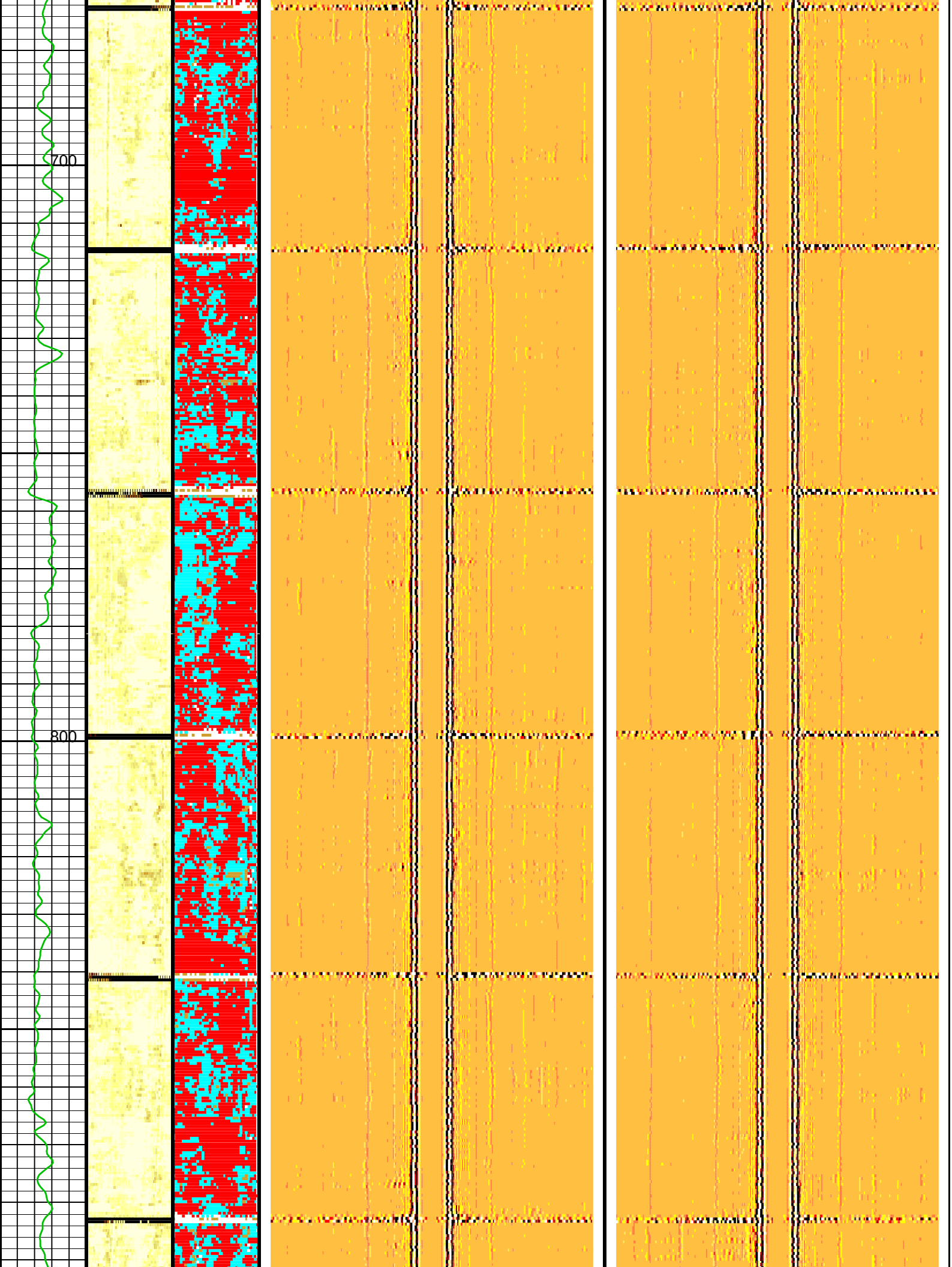
USIT−D	17C0−154	EDTC−B	17C0−154
CAL−Y	17C0−154		

Gamma Ray (GR_EDTC) (GAPI)
0 150
Tool/Tot. Drag From D4T to STIA
Cable Drag From D4T to STIT


Stuck Stretch (STIT)
0 (F) 50
100
200
−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)
0.5000
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


300
400


500
600


700
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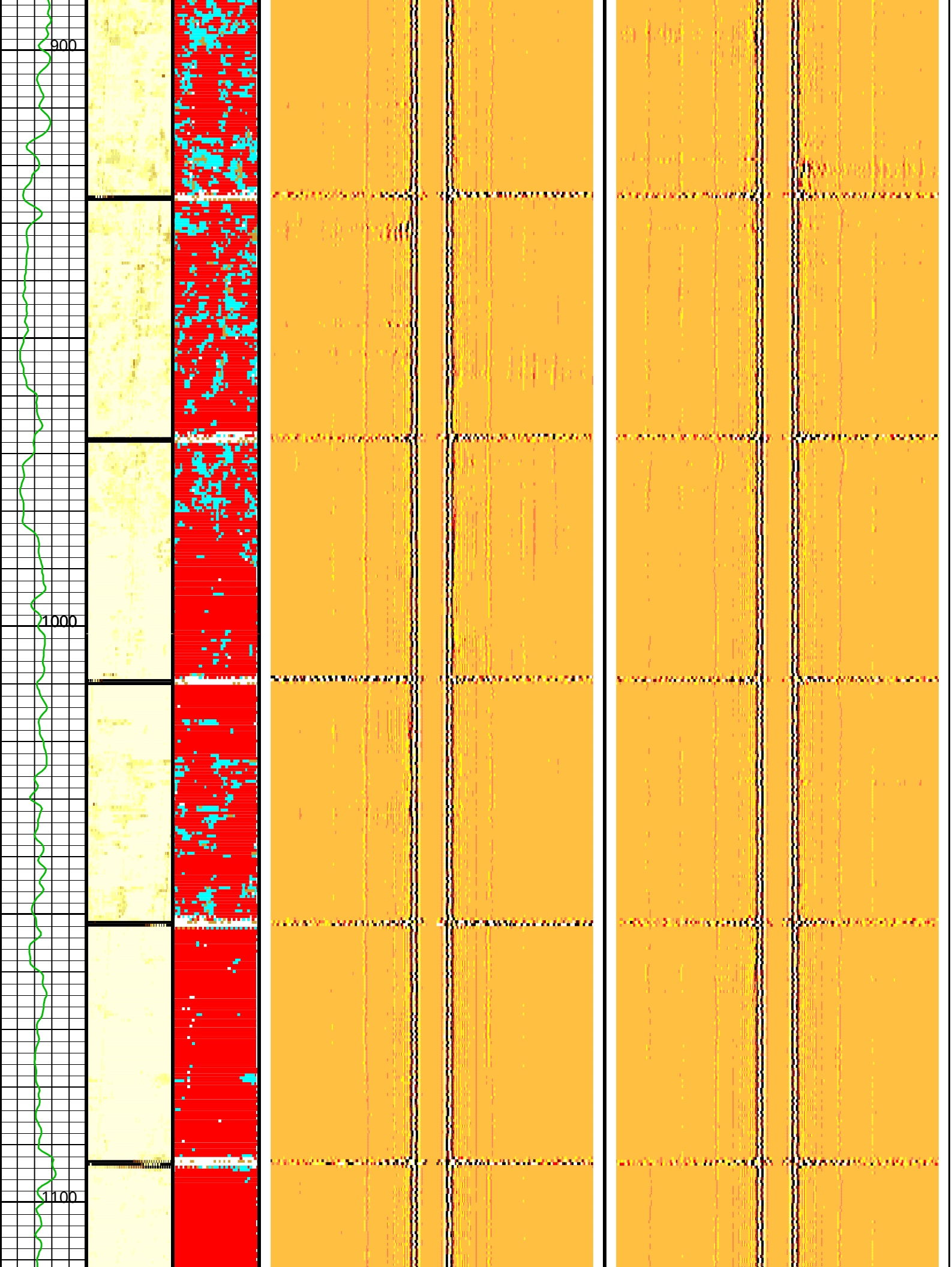
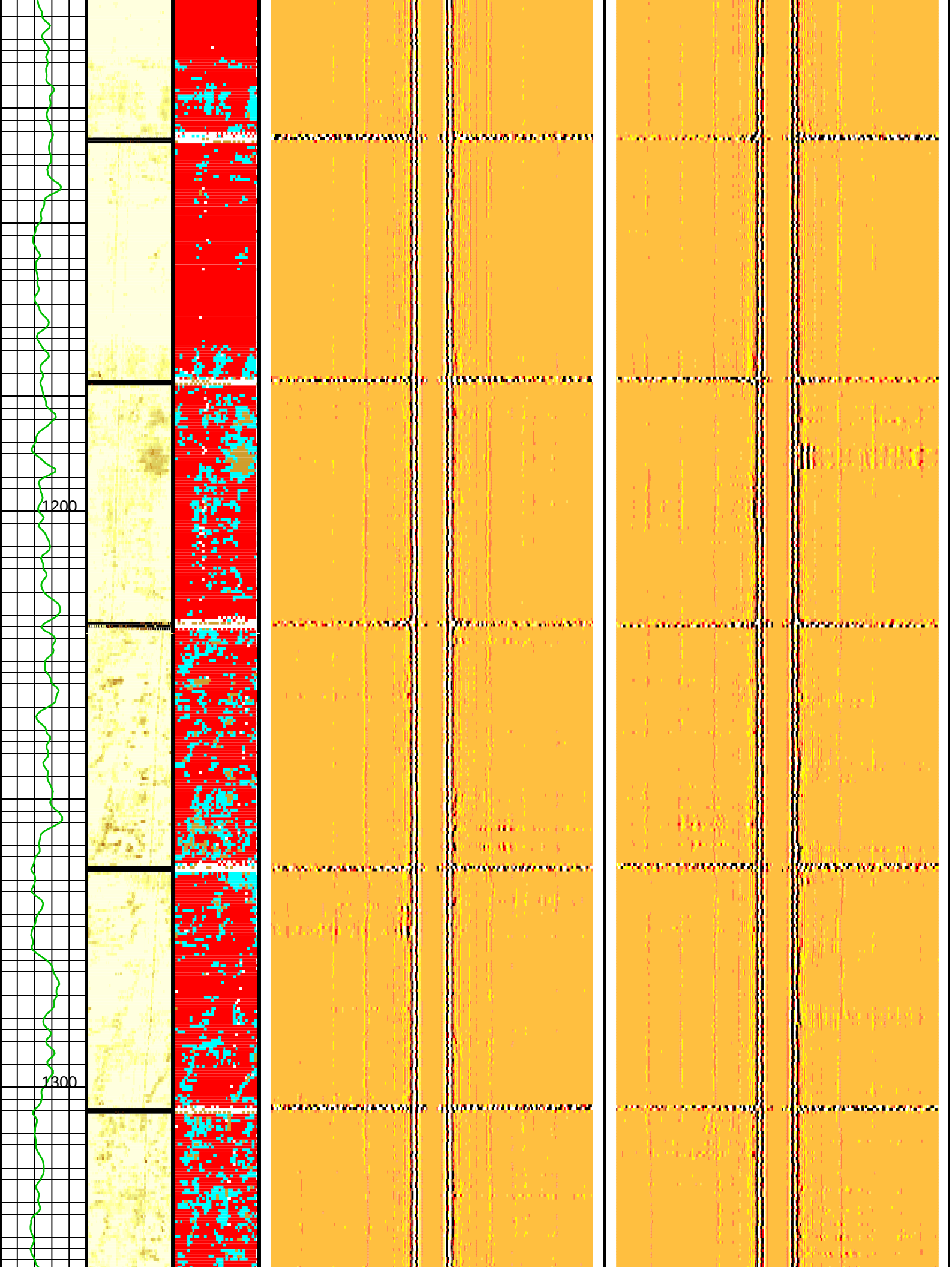

900
1000
1100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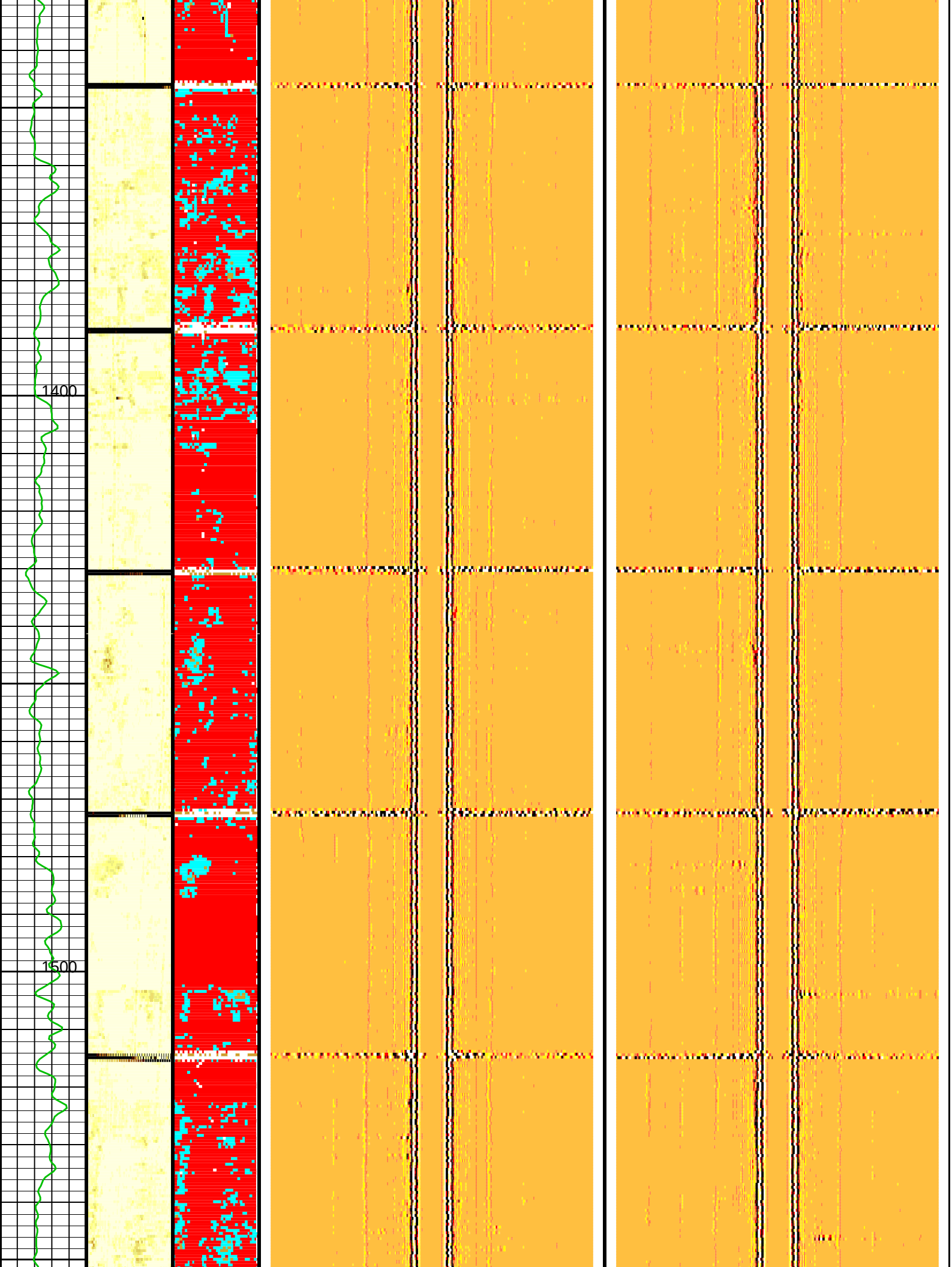
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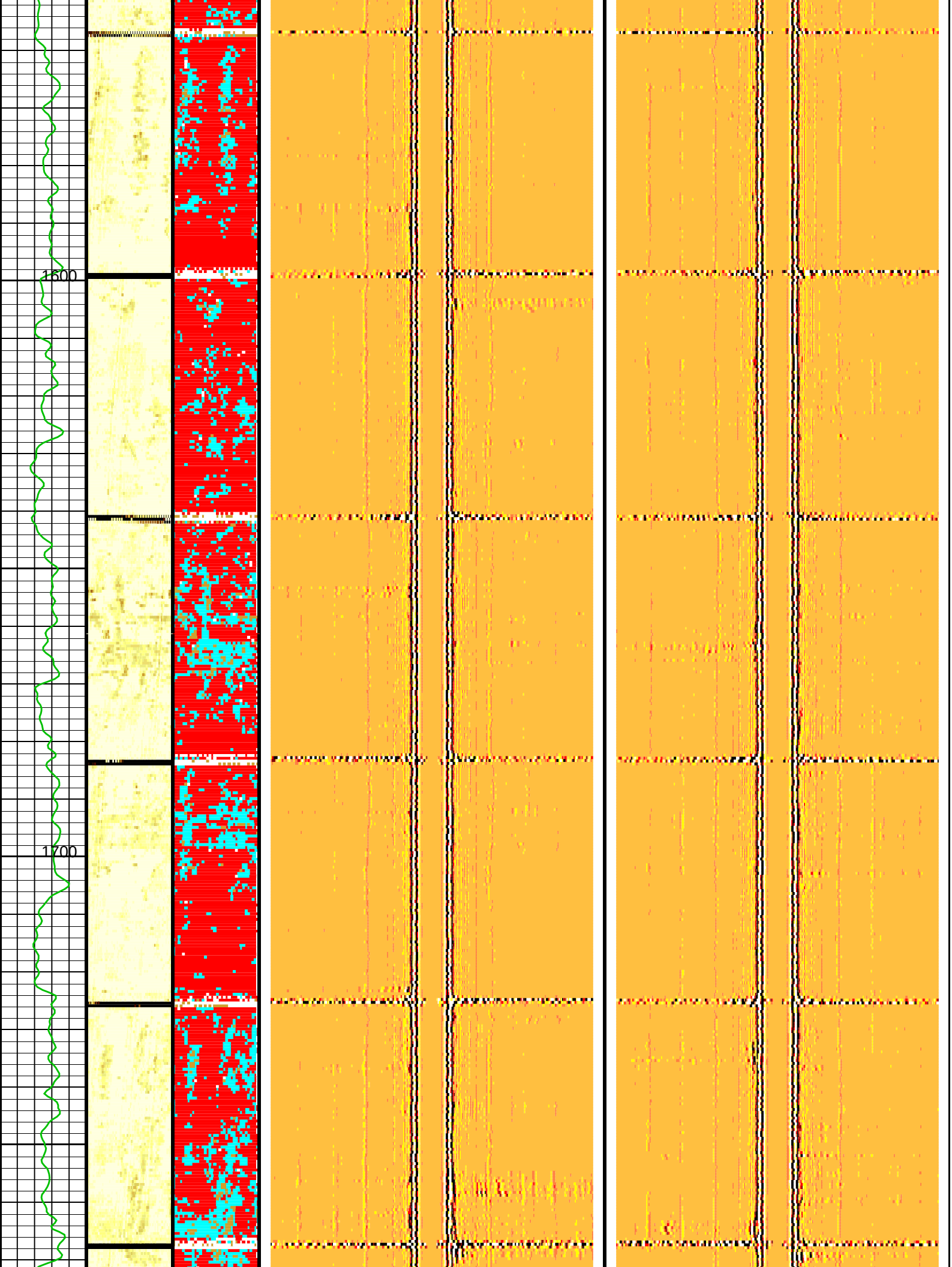
1600
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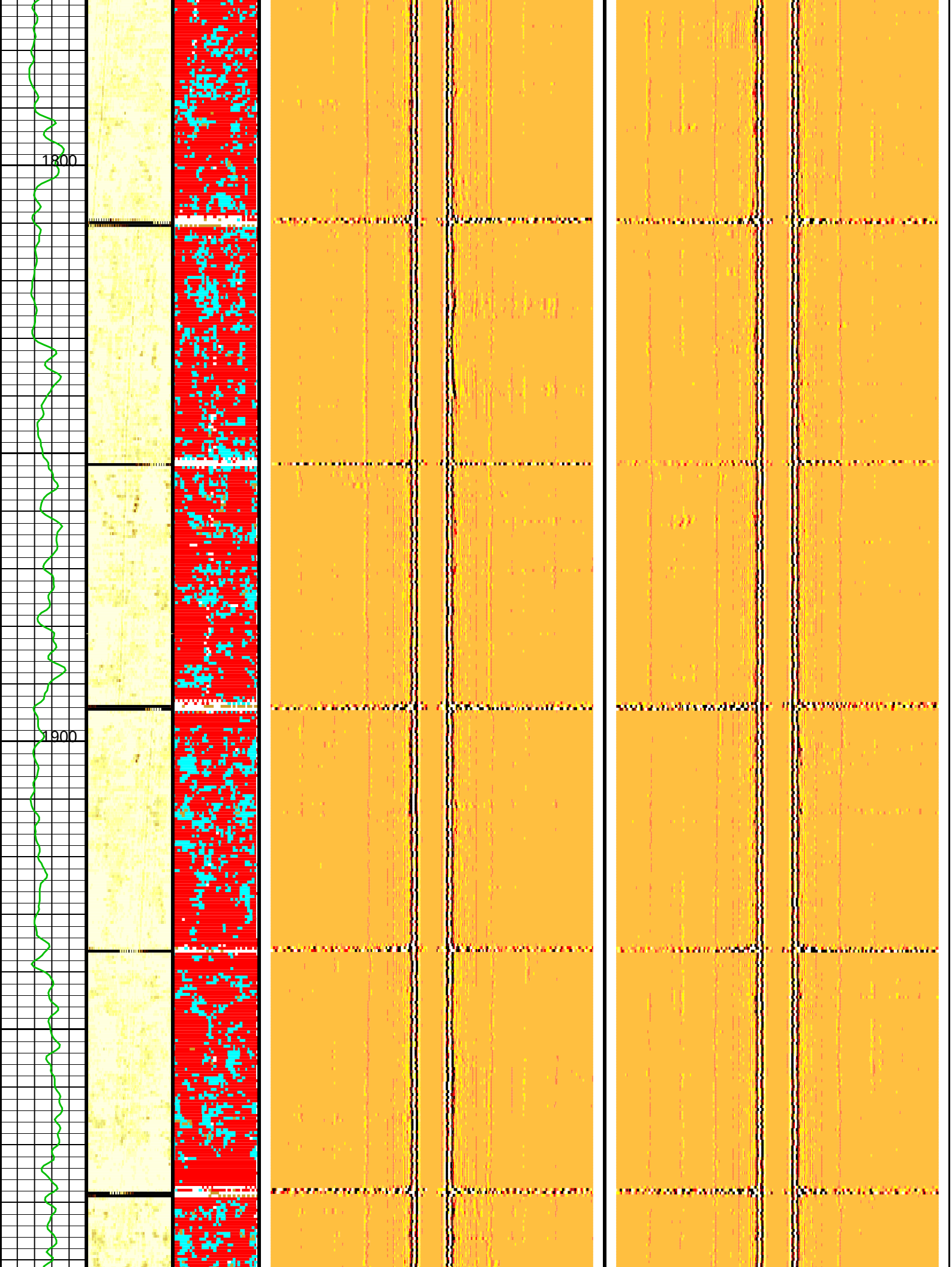
1800
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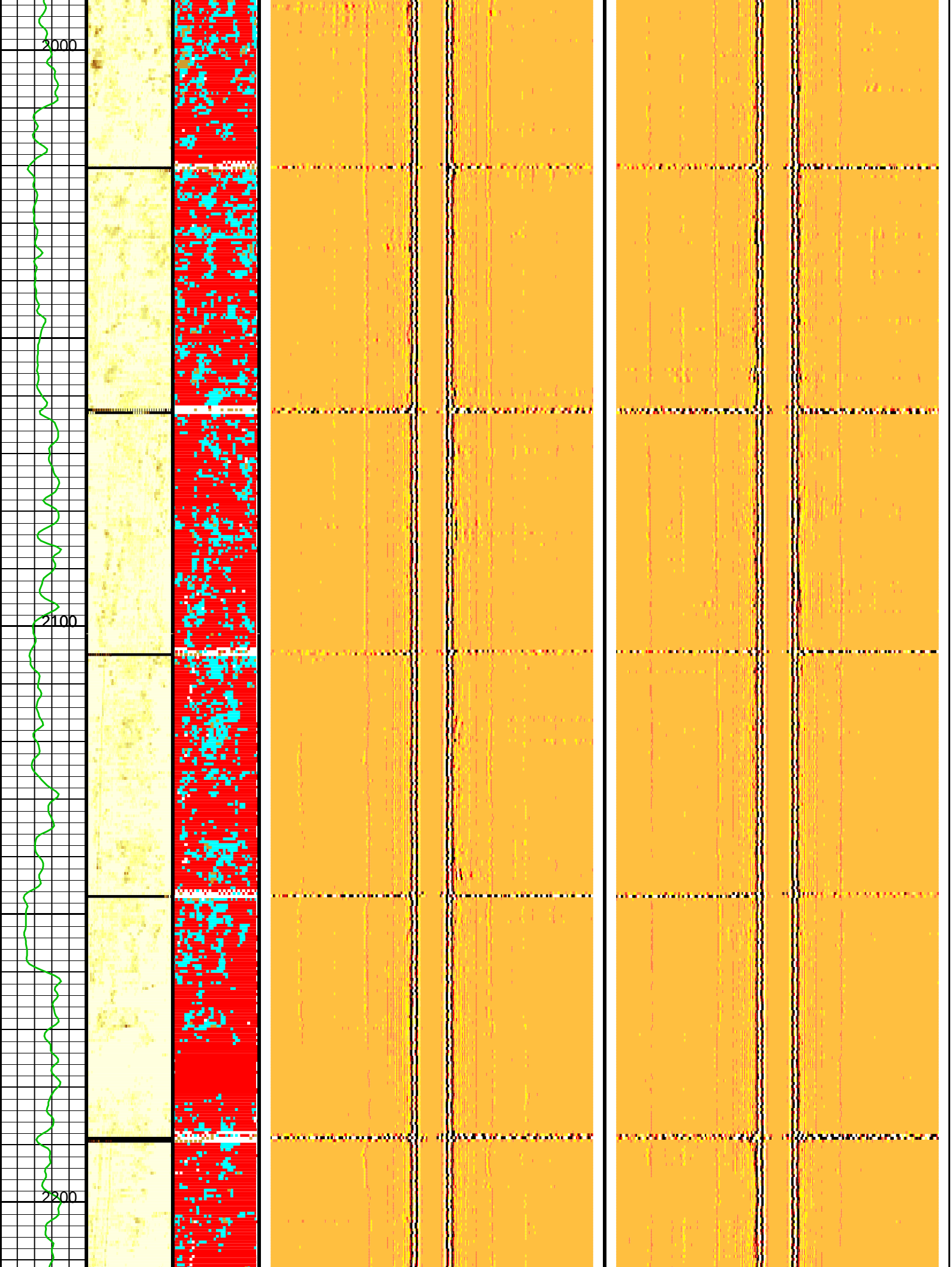
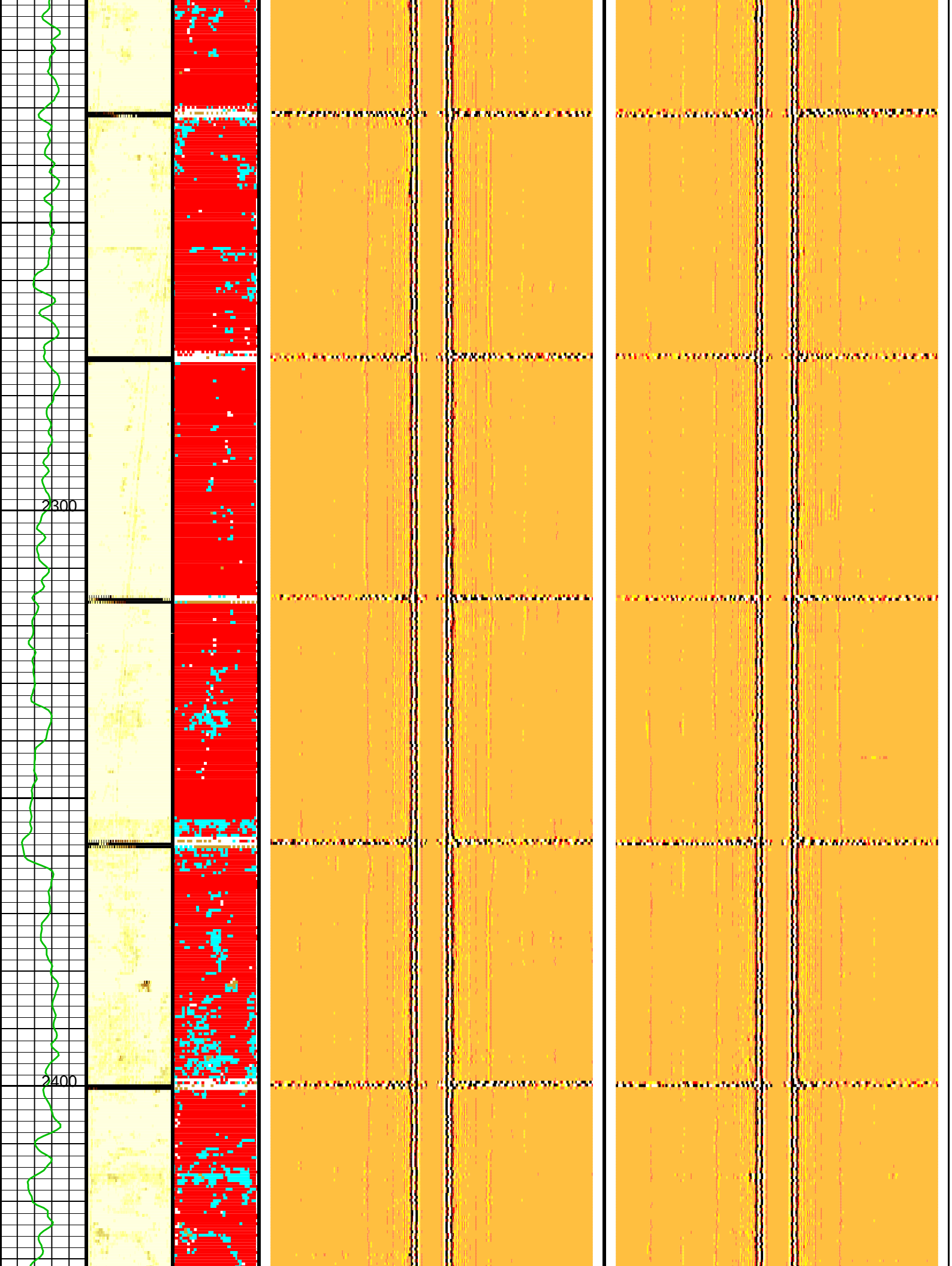

2000
2100
2200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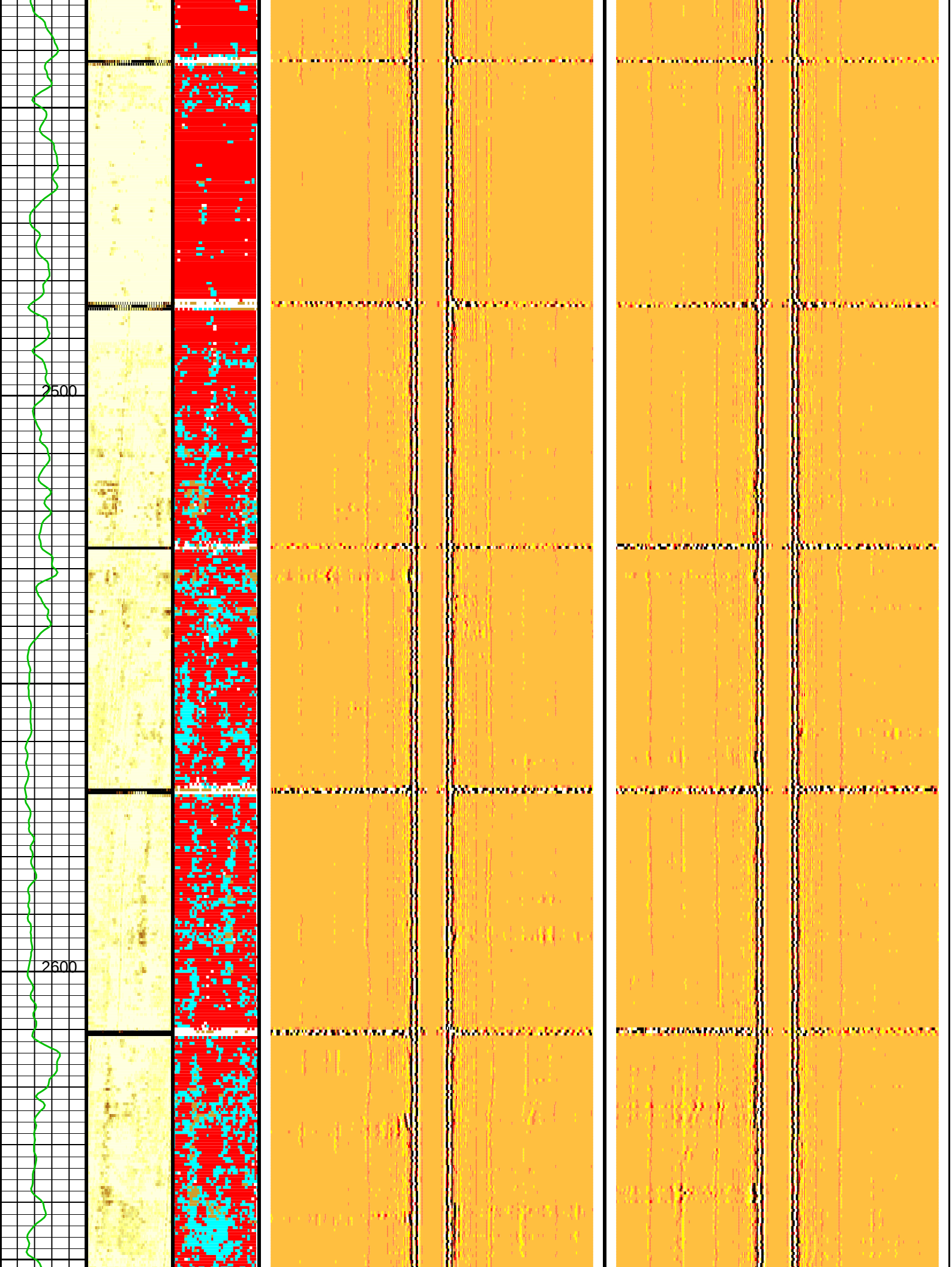
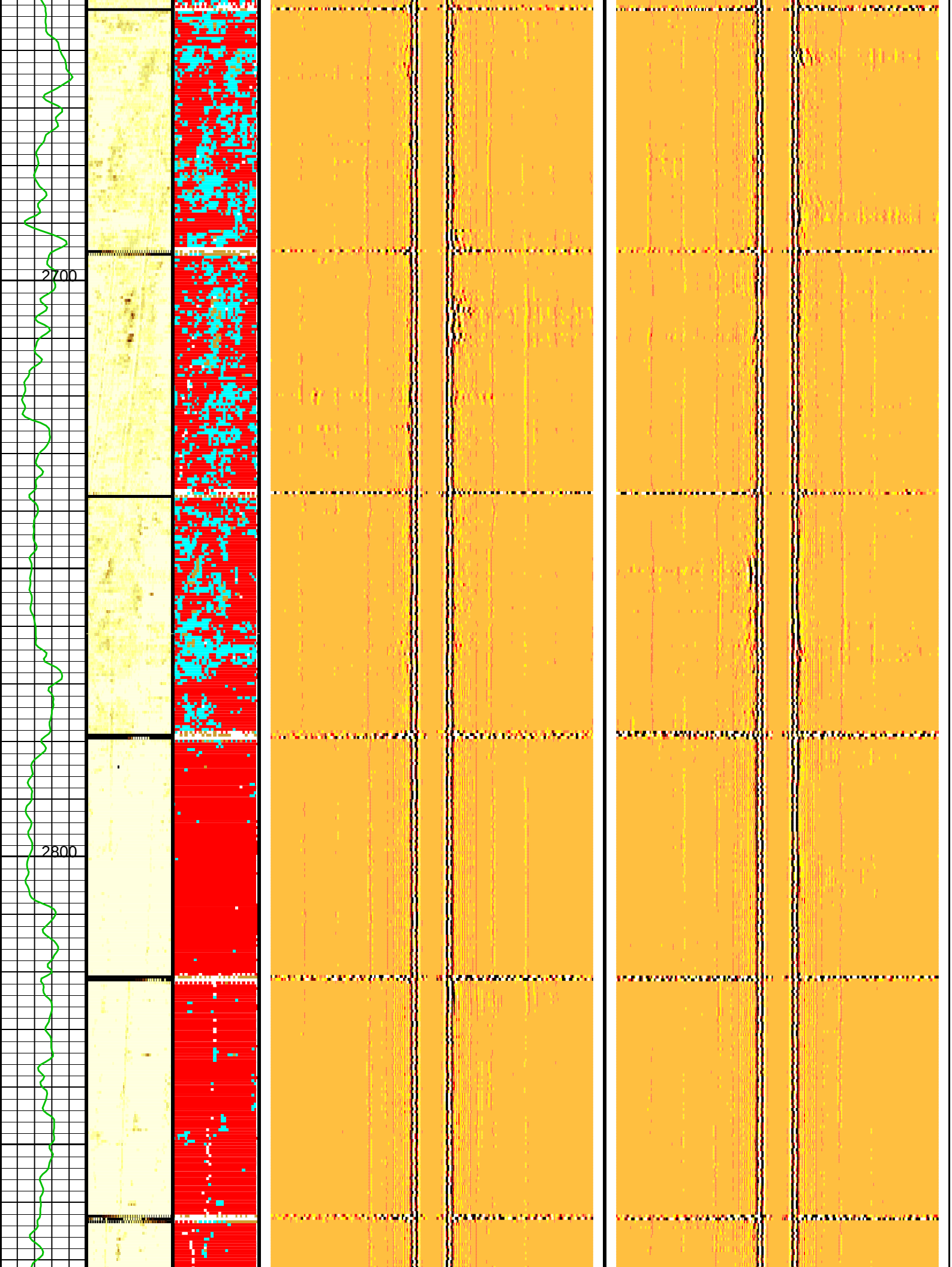
2400


2500
2600


2700
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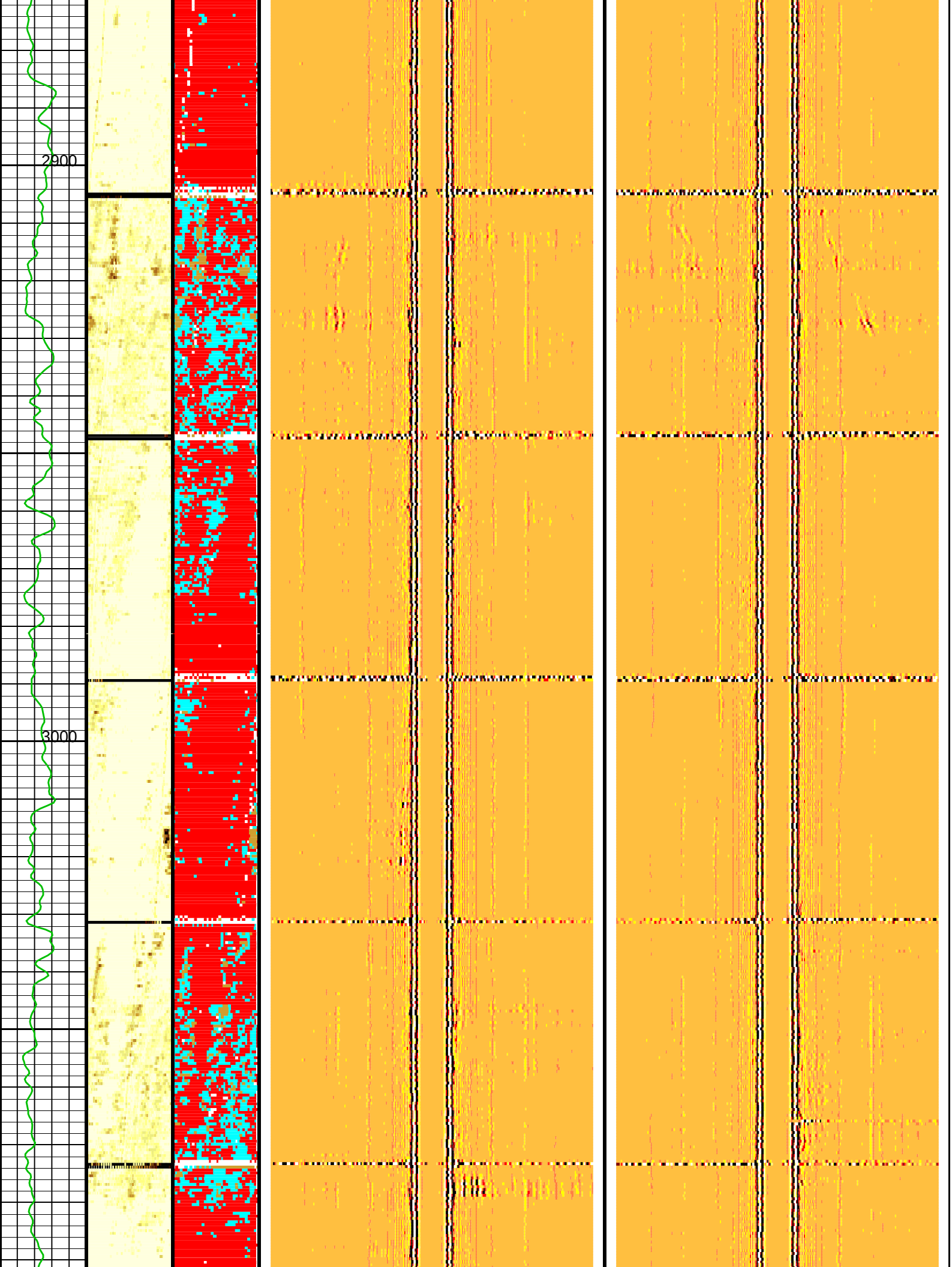
2900
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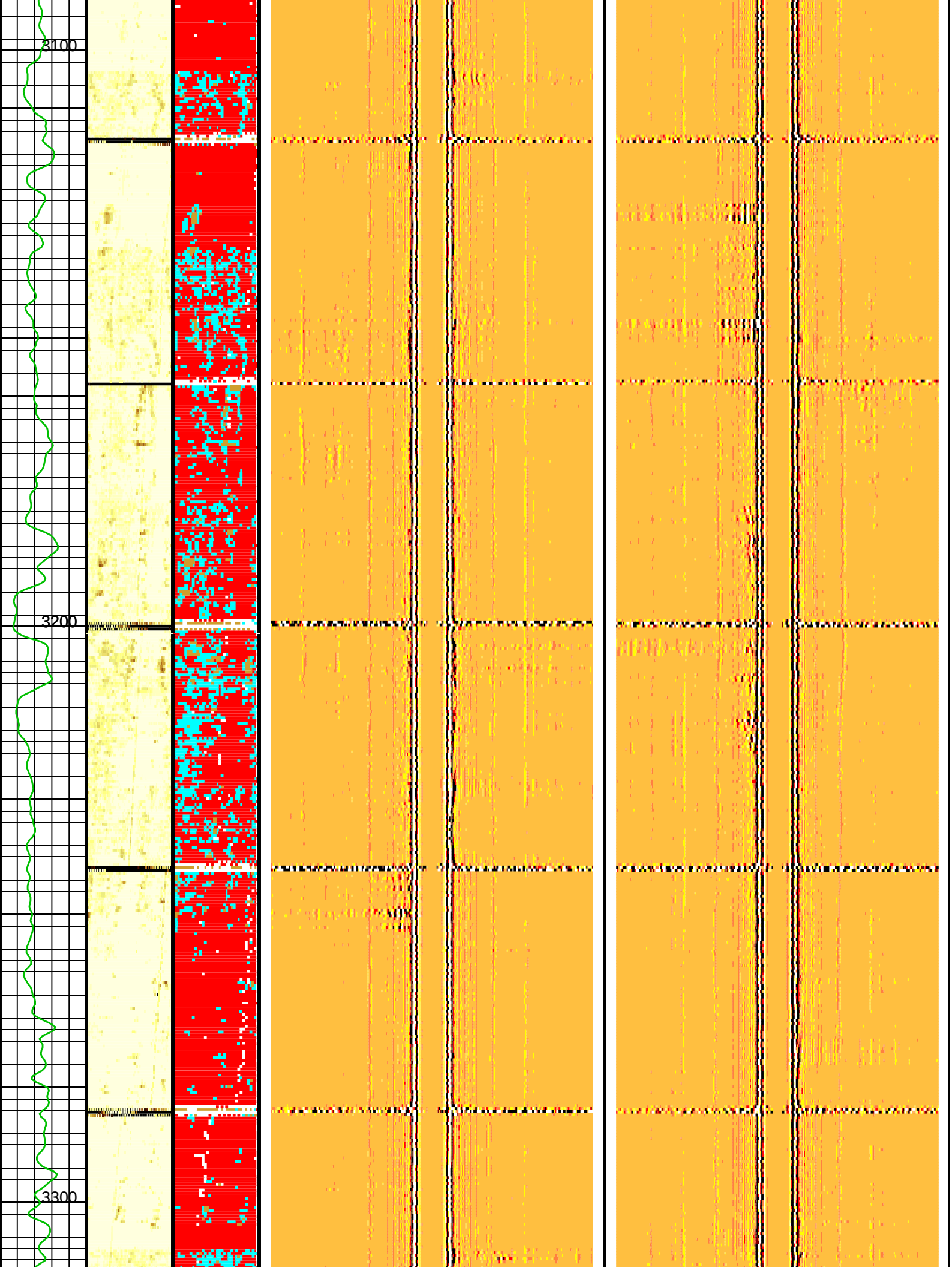
3100
3200
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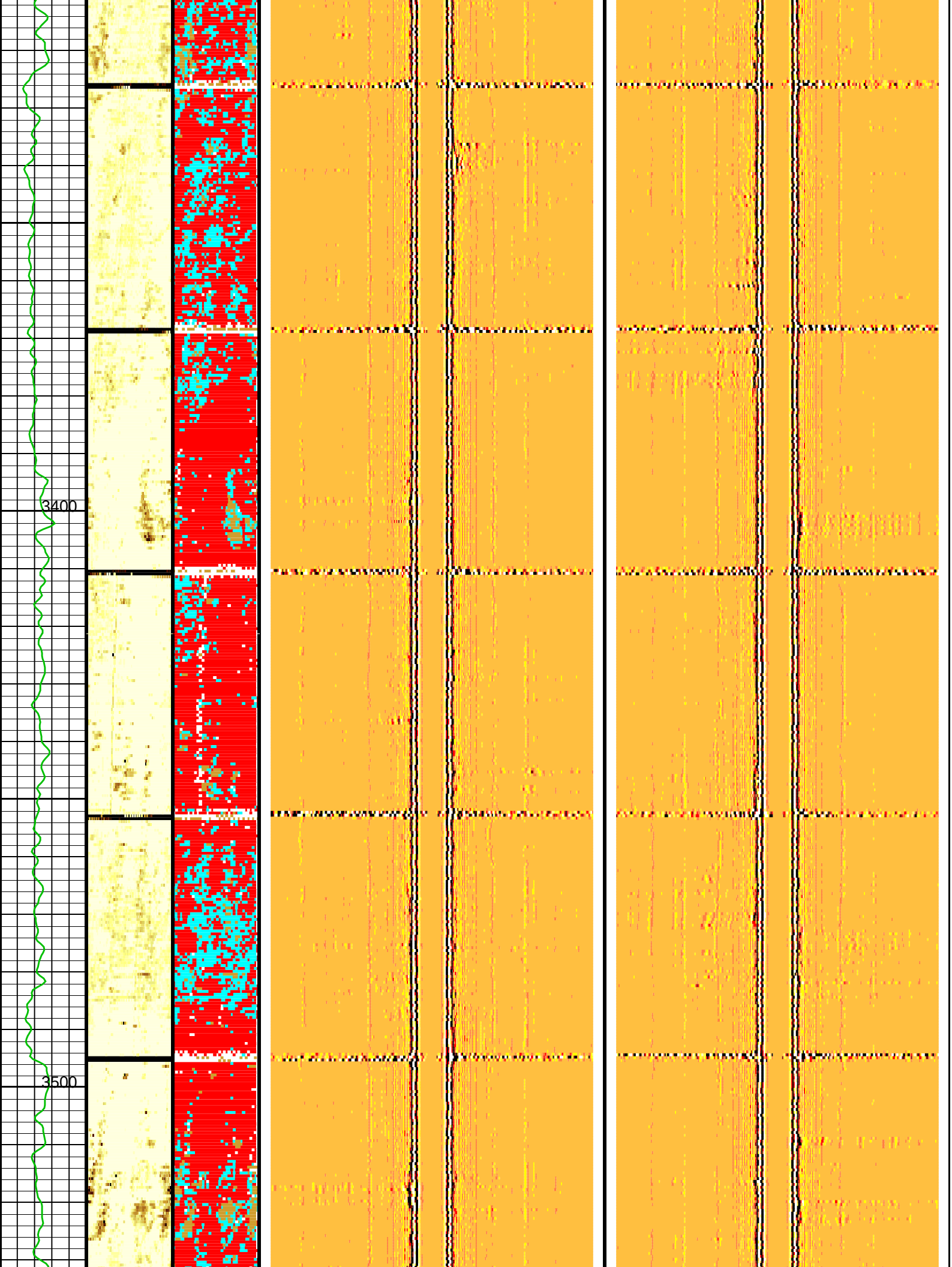
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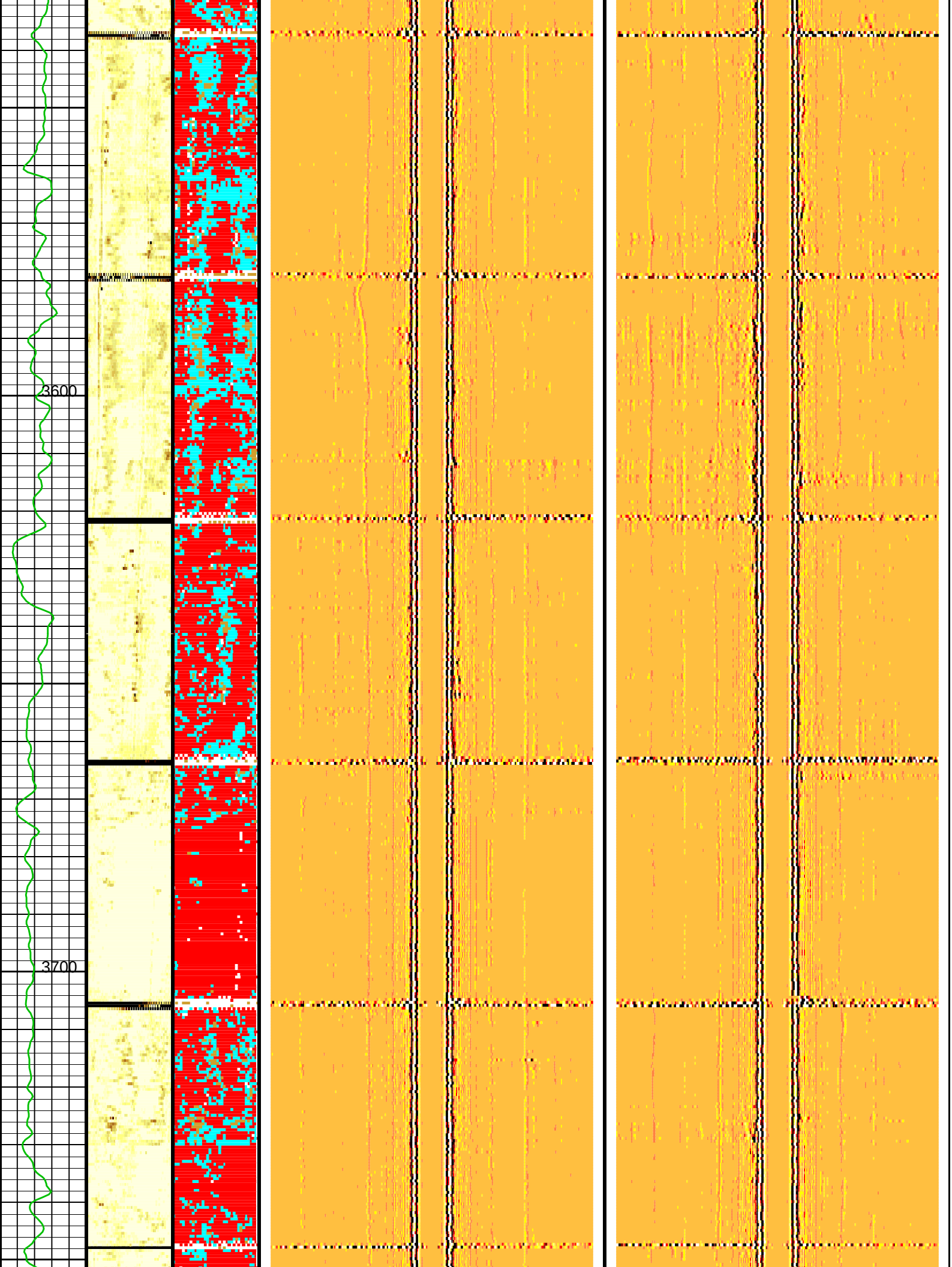
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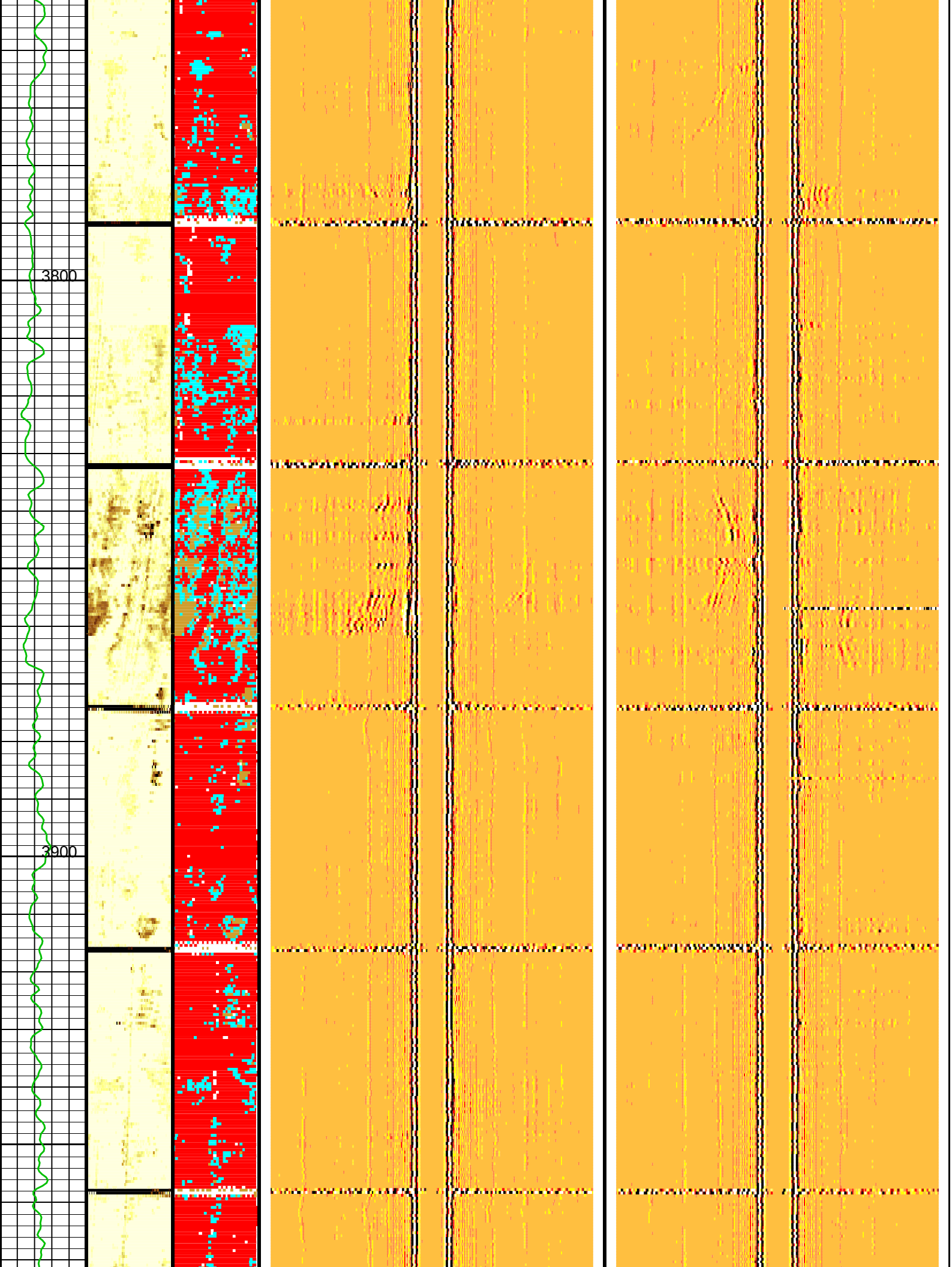
3700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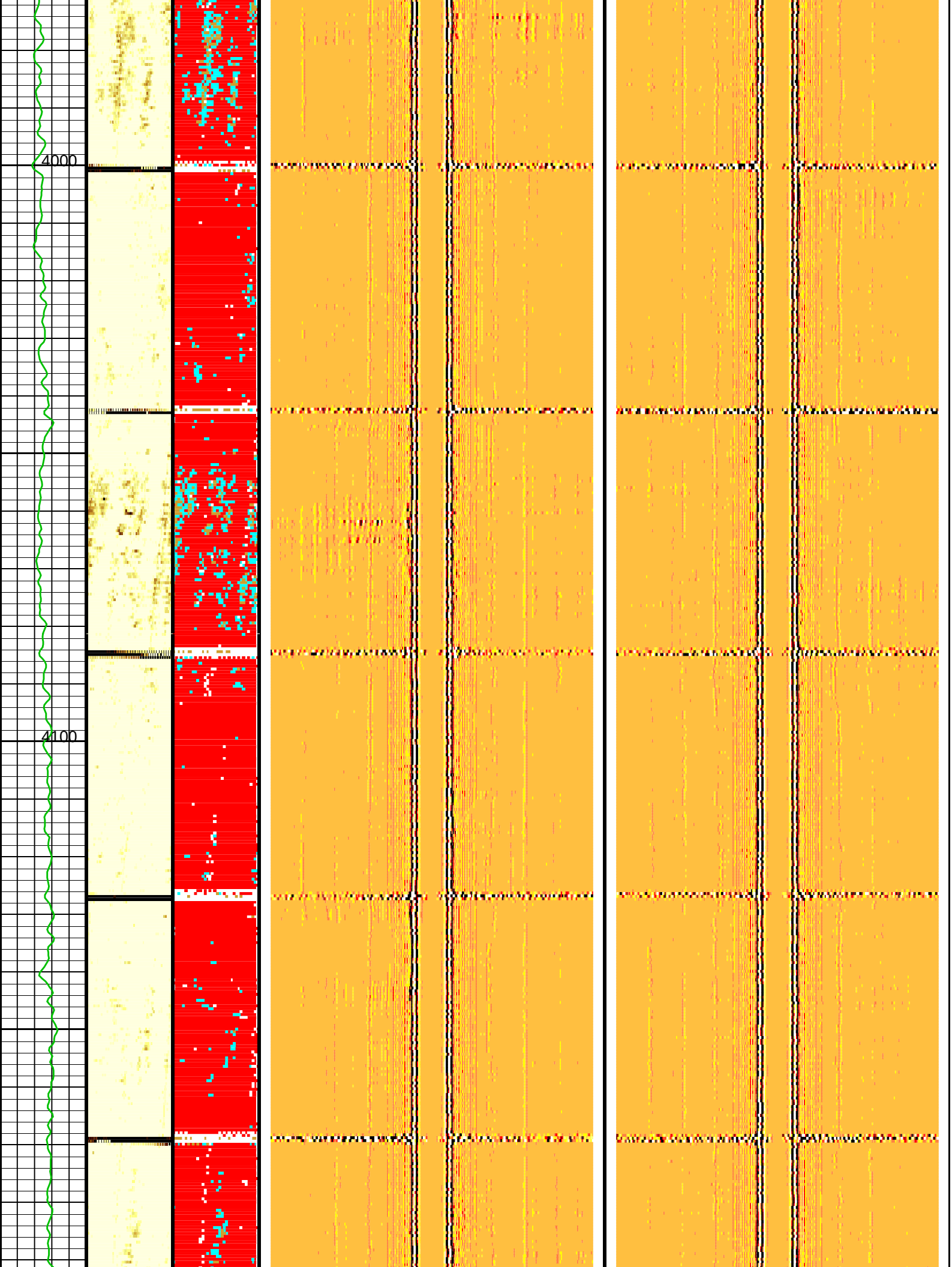
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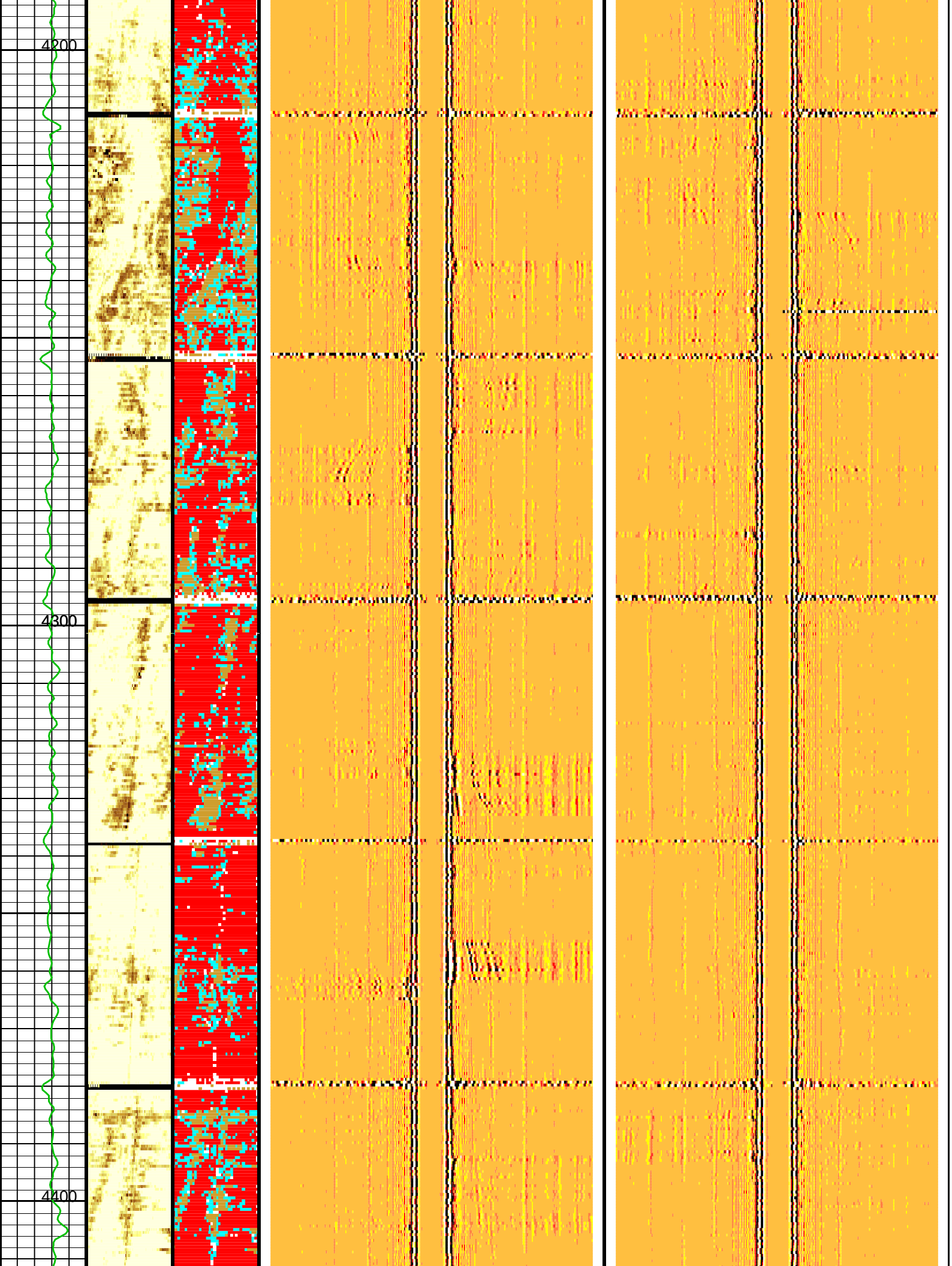
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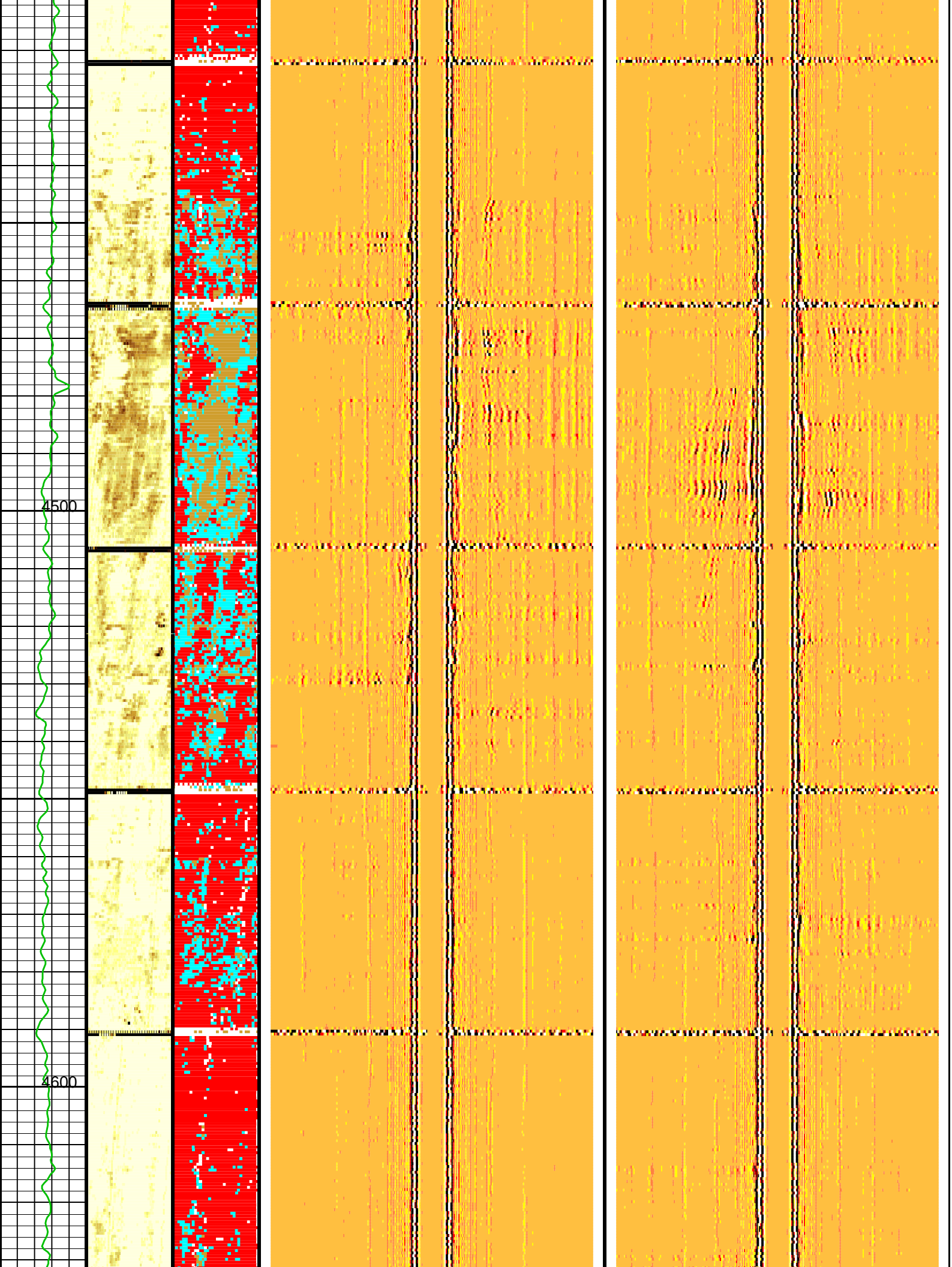
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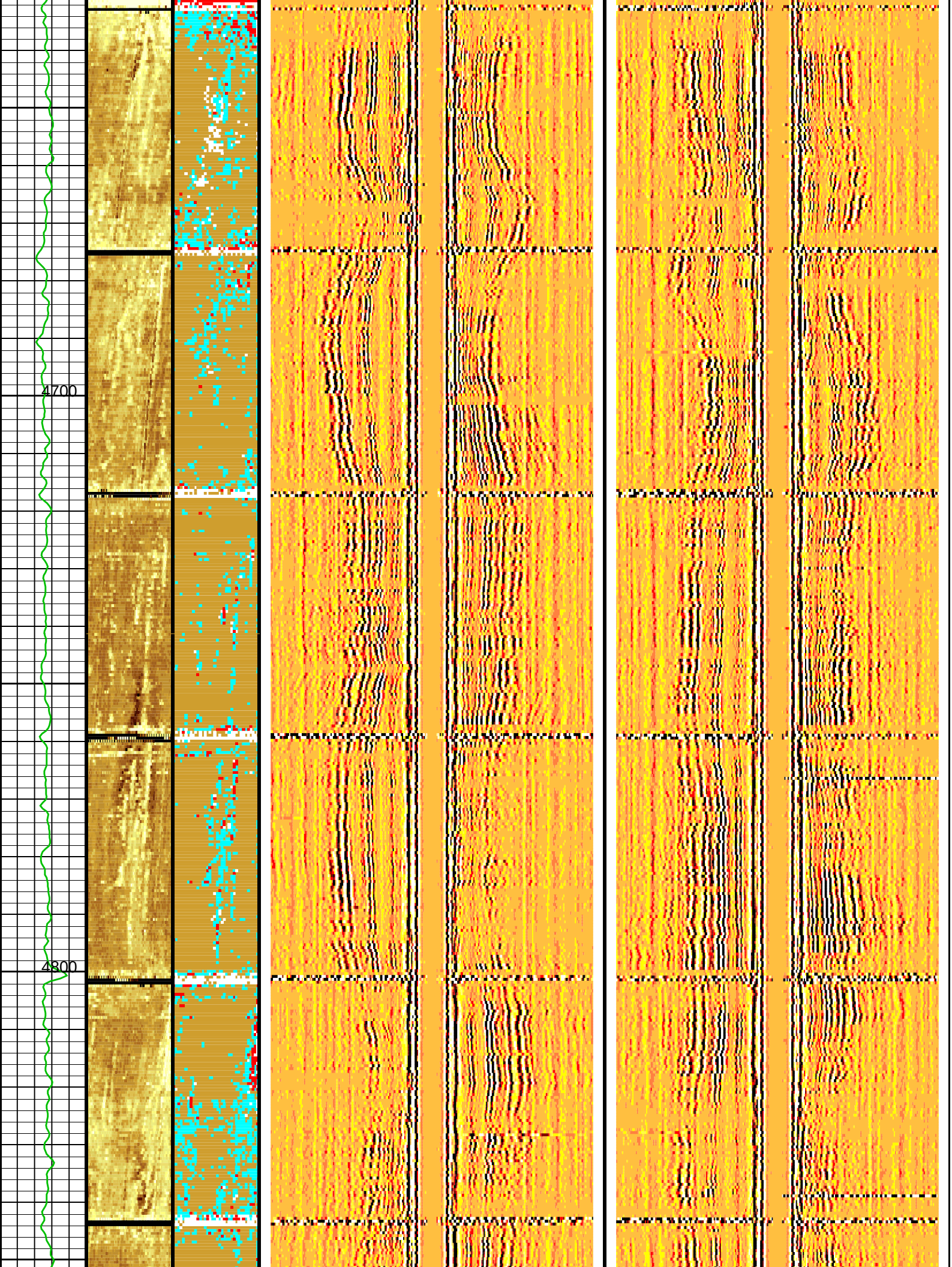
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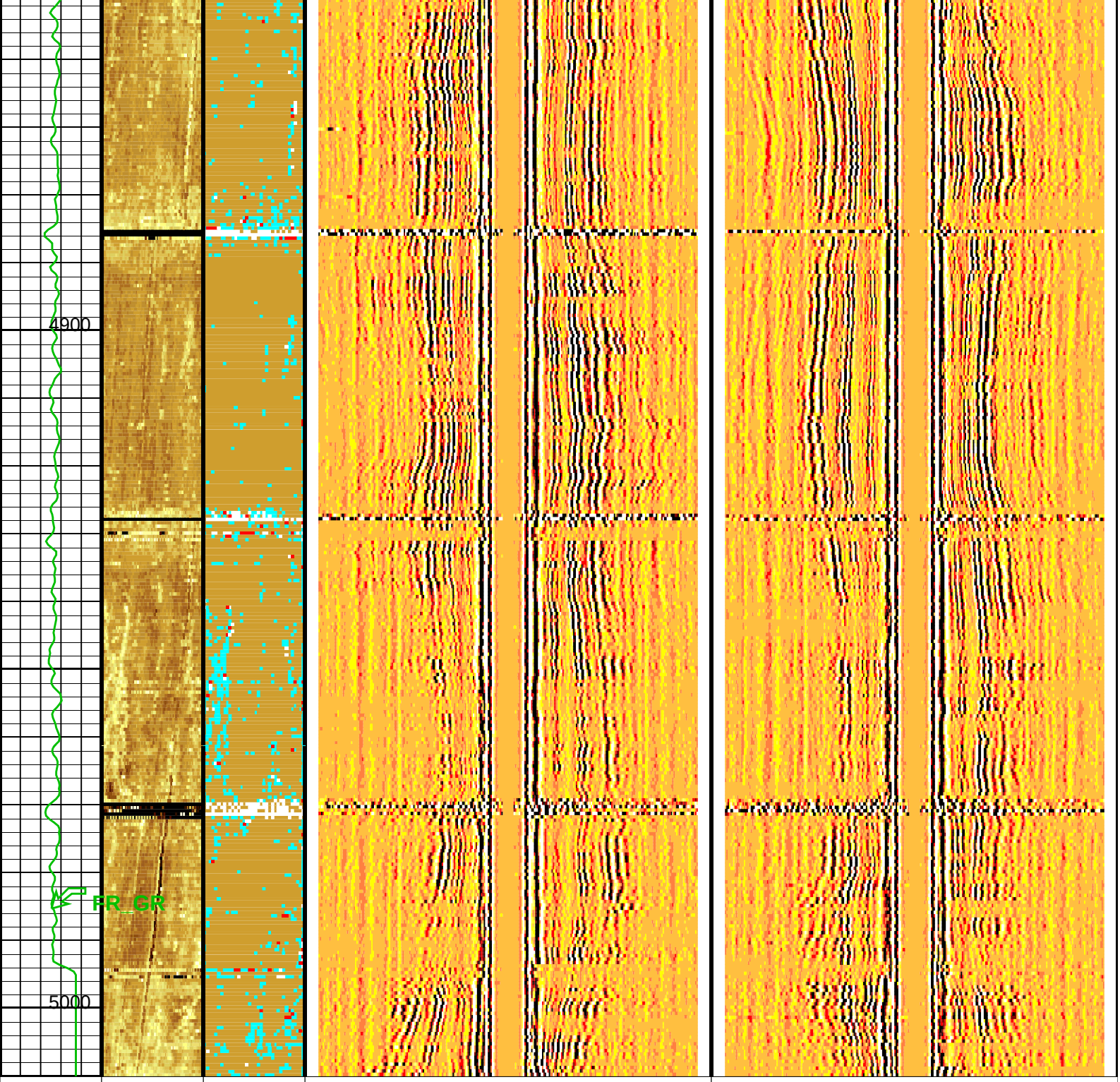


Stuck Stretch (STIT)

0 (F) 50

−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)

0.5000
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

Cable Drag From D4T to STIT

Tool/Tot. Drag From D4T to STIA

Gamma Ray (GR_EDTC) (GAPI)

0 150

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	9.625	IN
CSDE	Casing Density	486.94	LBCF
CSID	Casing Inner Diameter	8.835	IN
DFVL	Default Fluid Velocity	199	US/F
DOT	Diameter of Transducer Sensor	4.874	IN
EMXV	EMEX Voltage	70	V
FSOD	Fluid Slowness Fits Casing Outer Diameter	2_UFSL_N_UFAI	
IMAR	Image Rotation	OFF	
MW	Mud Weight	9.9	LB/G
RCOD	Reference Calibrator Outer Diameter	7	IN
RCSO	Reference Calibrator Standoff	1.37795	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	0.395	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	30	DB/M
U−USIT_UIAP	USIT IBC Answer Product Enabled	SolidLiquidGasMap	
U−USIT_UIST	Ultrasonic IBC Sonde Type	Sub_Ibcs_C	
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_9_58_inch	
UWKM	Ultrasonic Working Mode	5DEG_6IN_136UNF_LF	
VCAS	Ultrasonic Transversal Velocity in Casing	51.4	US/F
WLEN	T^3 Processing Length	23.6867	US
ZCAS	Acoustic Impedance of Casing	46.25	MRAY
ZINI	Initial Estimate of Cement Impedance	−1	MRAY
ZMUD	Acoustic Impedance of Mud	1.87	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	5015.00	FT
TDL	Total Depth − Logger	5010.00	FT
	System and Miscellaneous		
BS	Bit Size	12.250	IN
CWEI	Casing Weight	40.00	LB/F
DO	Depth Offset for Playback	8.0	FT
PP	Playback Processing	RECOMPUTE	

OP System Version: 17C0-154

USIT-D	17C0-154	EDTC-B	17C0-154
CAL-Y	17C0-154		

Input DLIS Files

DEFAULT	USI_022PUP	FN:21	PRODUCER	11-Jul-2009 08:10	5010.0 FT	66.0 FT

Output DLIS Files

DEFAULT	USI_024PUP	FN:23	PRODUCER	11-Jul-2009 09:03		

Schlumberger

Goodwin

MAXIS Field Log

Input DLIS Files

DEFAULT	USI_022PUP	FN:21	PRODUCER	11-Jul-2009 08:10	5010.0 FT	66.0 FT

Output DLIS Files

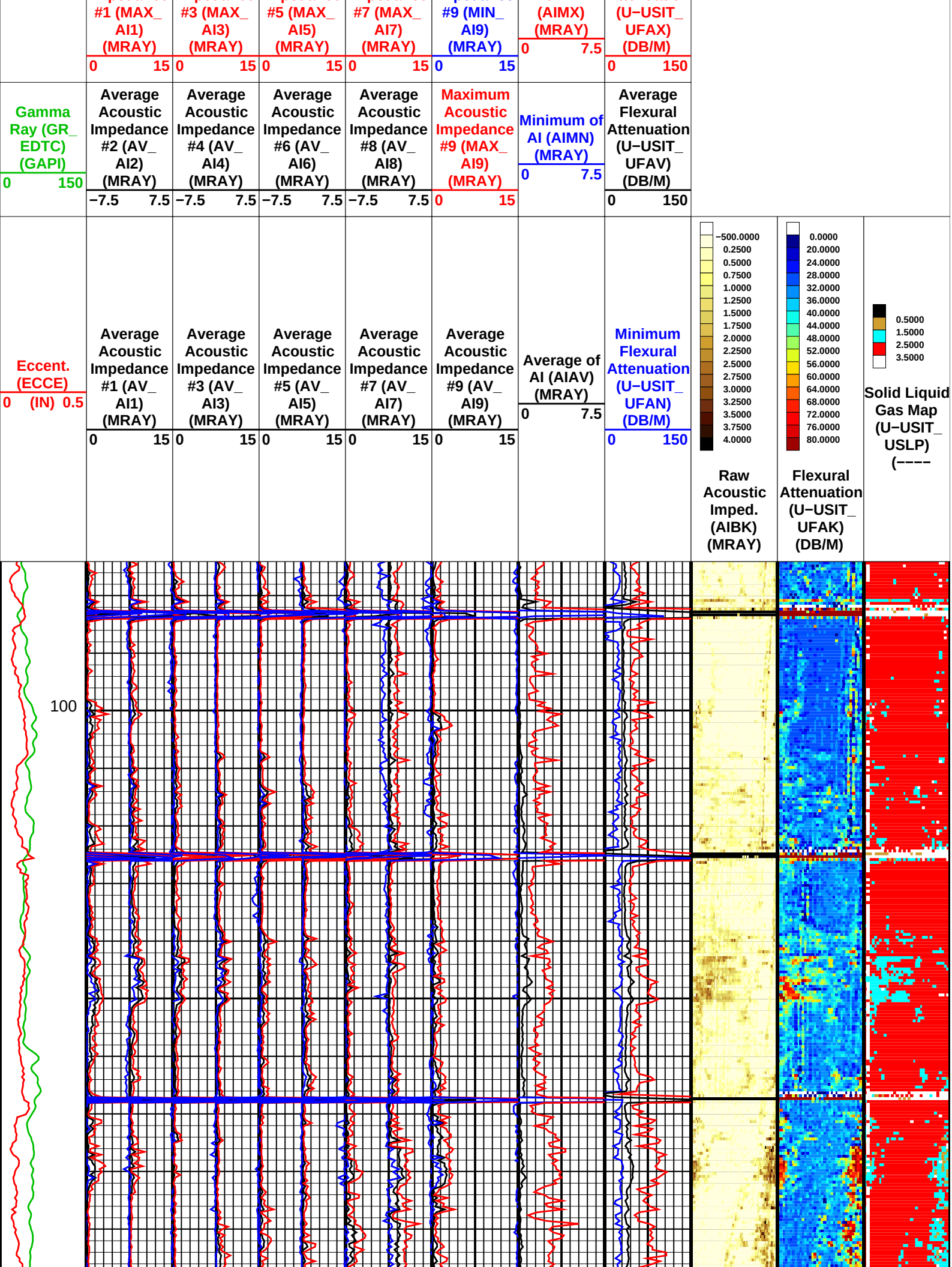
DEFAULT	USI_024PUP	FN:23	PRODUCER	11-Jul-2009 09:03	5010.0 FT	74.0 FT

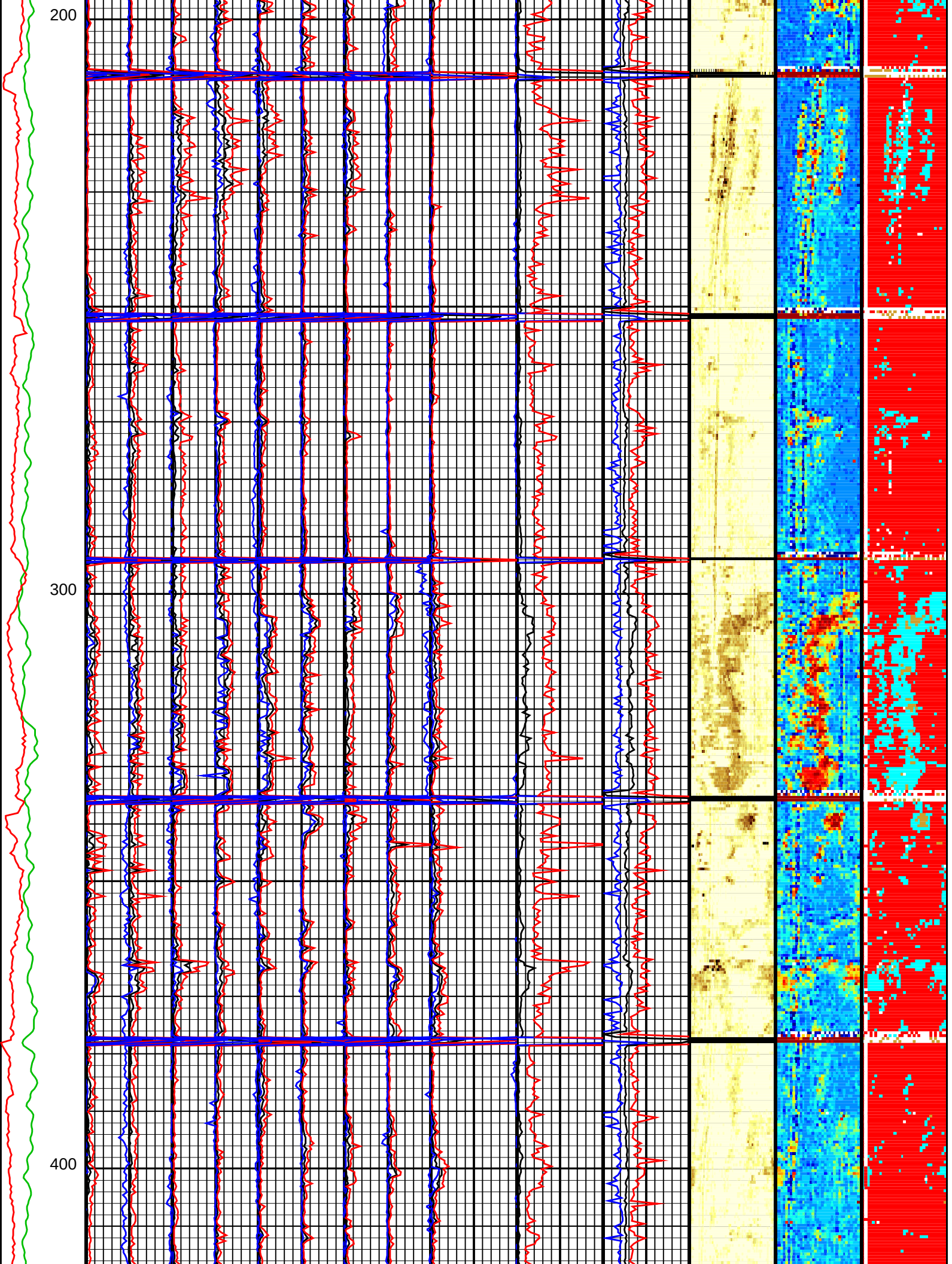
OP System Version: 17C0-154

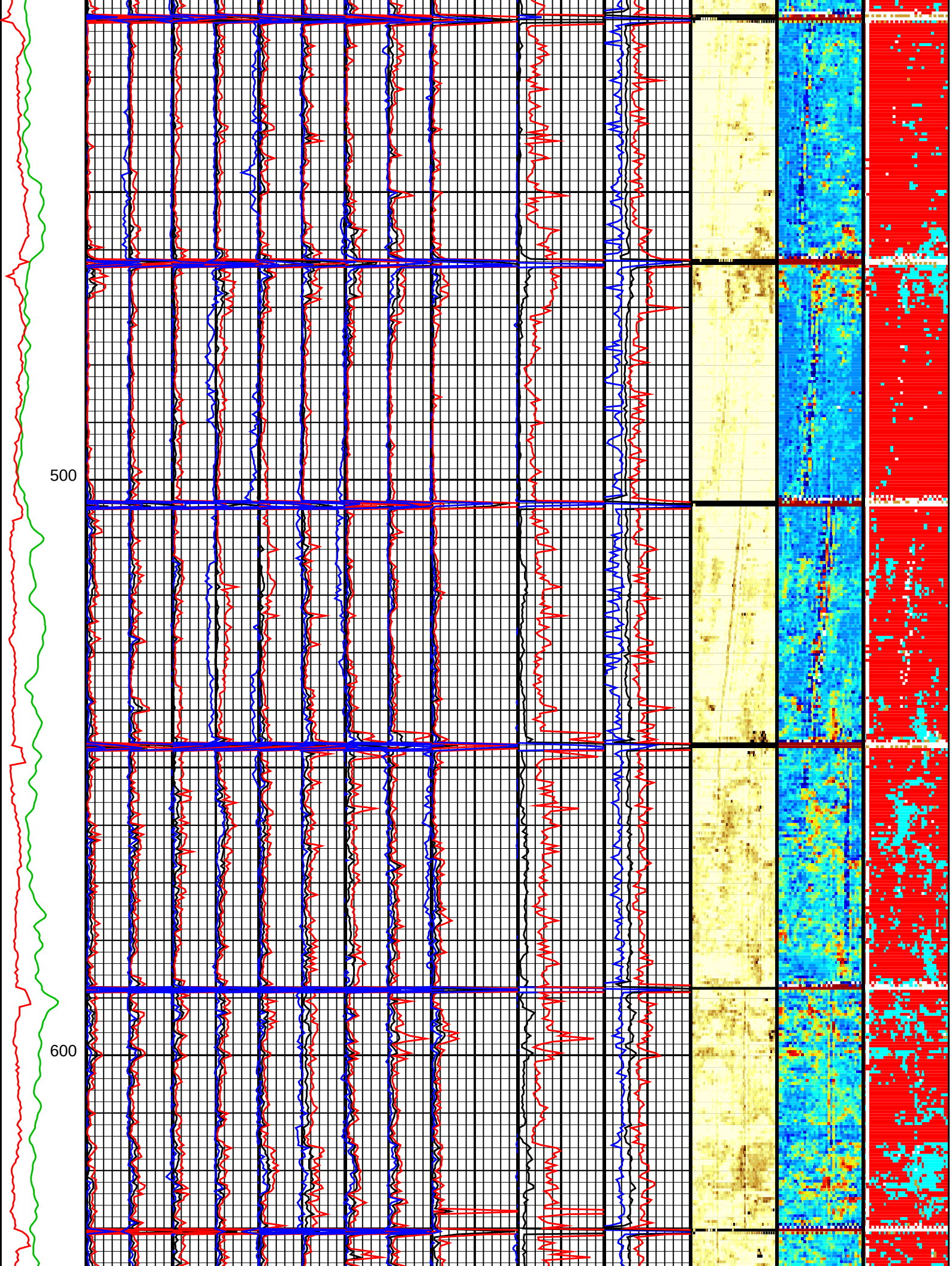
USIT-D	17C0-154	EDTC-B	17C0-154
CAL-Y	17C0-154		

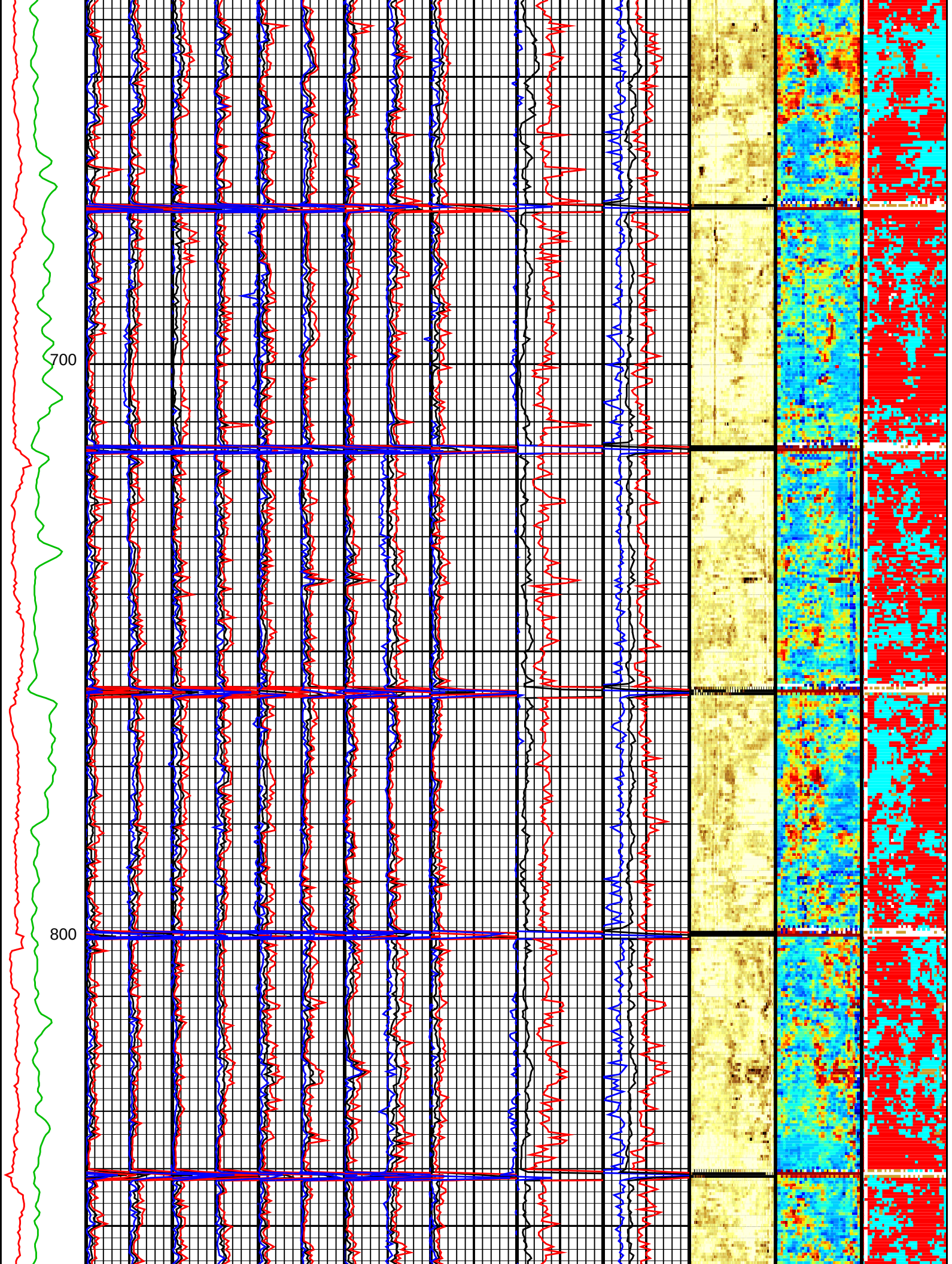
Minimum Acoustic Impedance #2 (MIN_AI2) (MRAY)		Minimum Acoustic Impedance #4 (MIN_AI4) (MRAY)		Minimum Acoustic Impedance #6 (MIN_AI6) (MRAY)		Minimum Acoustic Impedance #8 (MIN_AI8) (MRAY)	
-7.5	7.5	-7.5	7.5	-7.5	7.5	-7.5	7.5
Minimum Acoustic Impedance #1 (MIN_AI1) (MRAY)		**Minimum Acoustic Impedance #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
Maximum Acoustic Impedance #2 (MAX_AI2) (MRAY)		**Maximum Acoustic Impedance #4 (MAX_AI4) (MRAY)**		**Maximum Acoustic Impedance #6 (MAX_AI6) (MRAY)**		**Maximum Acoustic Impedance #8 (MAX_AI8) (MRAY)**	
-7.5	7.5	-7.5	7.5	-7.5	7.5	-7.5	7.5

Maximum Acoustic Impedance	Maximum Acoustic Impedance	Maximum Acoustic Impedance	Maximum Acoustic Impedance	Minimum Acoustic Impedance	Maximum of AI	Maximum Flexural Attenuation


#1 (MAX_ AI1) (MRAY)
0 15
#3 (MAX_ AI3) (MRAY)
0 15
#5 (MAX_ AI5) (MRAY)
0 15
#7 (MAX_ AI7) (MRAY)
0 15
#9 (MIN_ AI9) (MRAY)
0 15
(AIMX) (MRAY)
0 7.5
(U−USIT_ UFAX) (DB/M)
0 150
Gamma Ray (GR_ EDTC) (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
0.2500
0.5000
0.7500
1.0000
1.2500
1.5000
1.7500
2.0000
2.2500
2.5000
2.7500
3.0000
3.2500
3.5000
3.7500
4.0000
Raw Acoustic Imped. (AIBK) (MRAY)
0.0000
20.0000
24.0000
28.0000
32.0000
36.0000
40.0000
44.0000
48.0000
52.0000
56.0000
60.0000
64.0000
68.0000
72.0000
76.0000
80.0000
Flexural Attenuation (U−USIT_ UFAK) (DB/M)
0.5000
1.5000
2.5000
3.5000
Solid Liquid Gas Map (U−USIT_ USLP) (−−−−
100


200
300
400


500
600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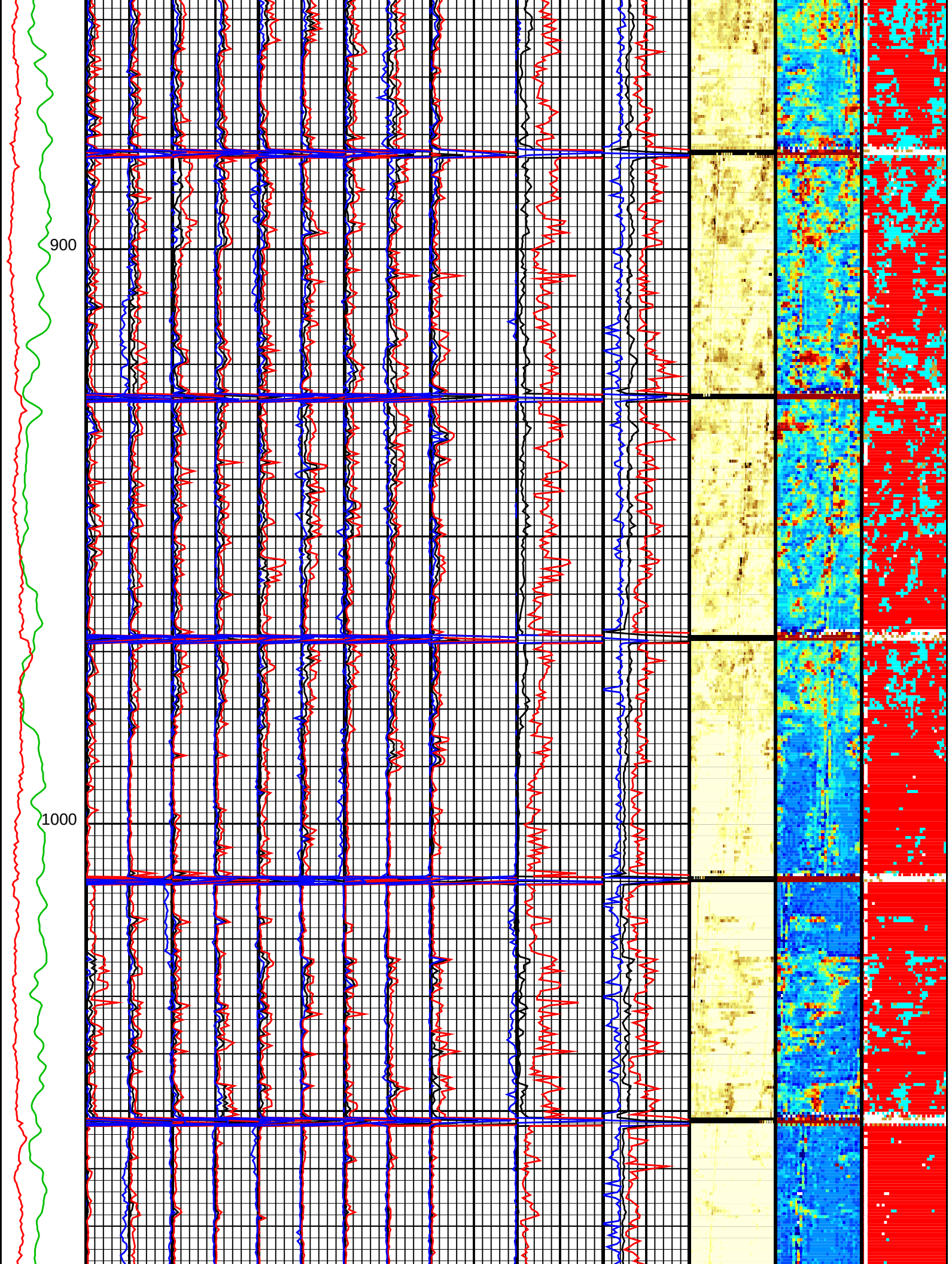
800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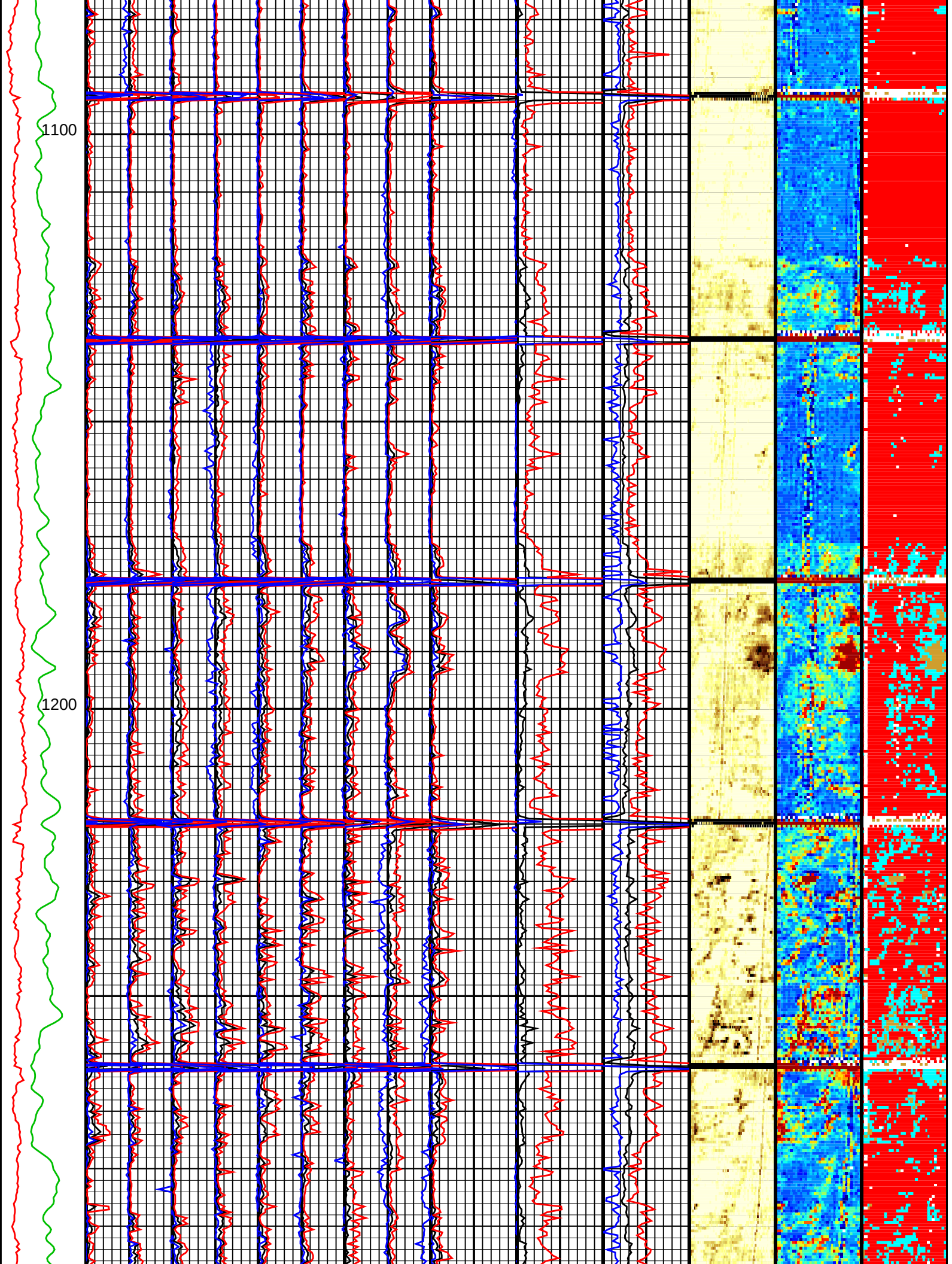
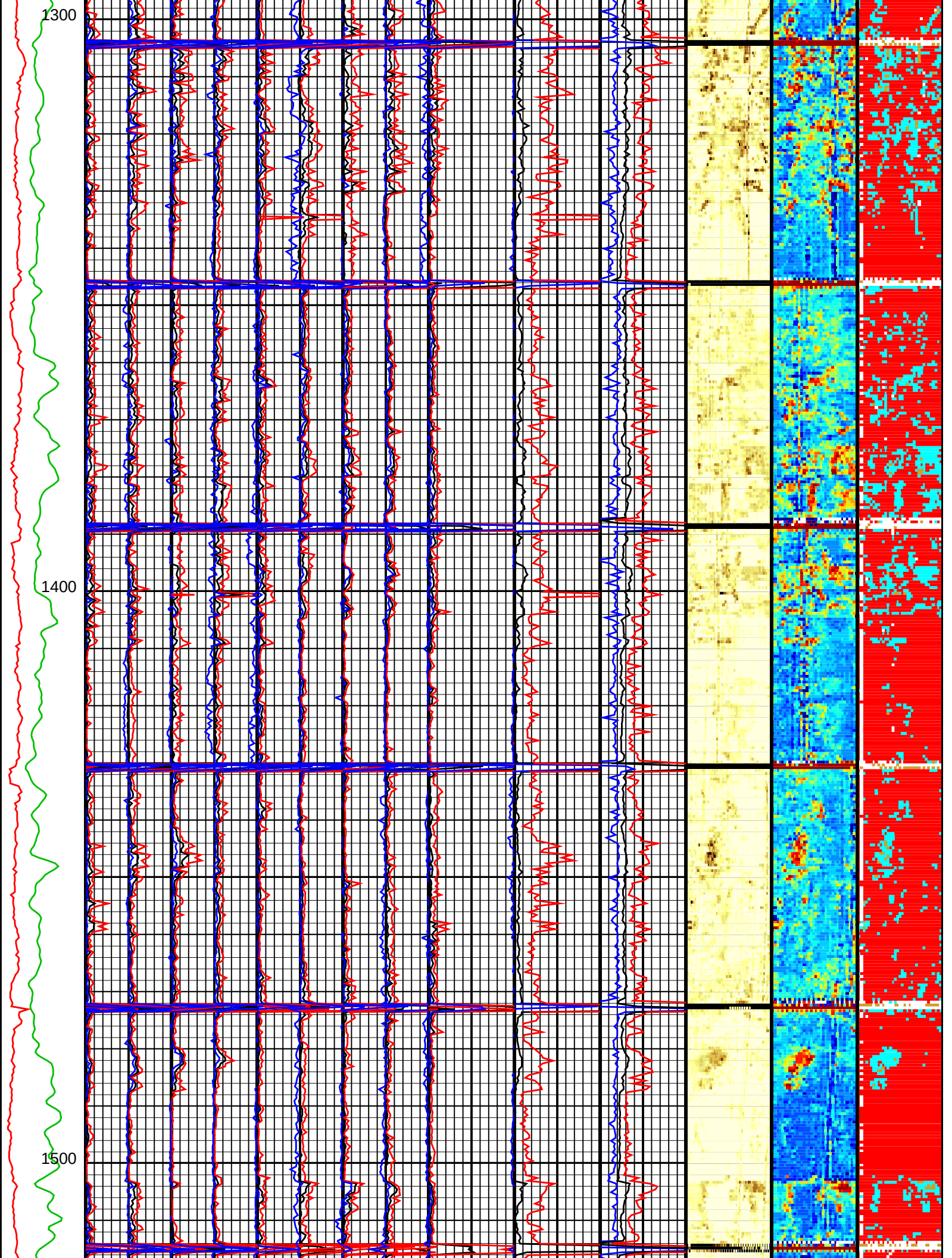
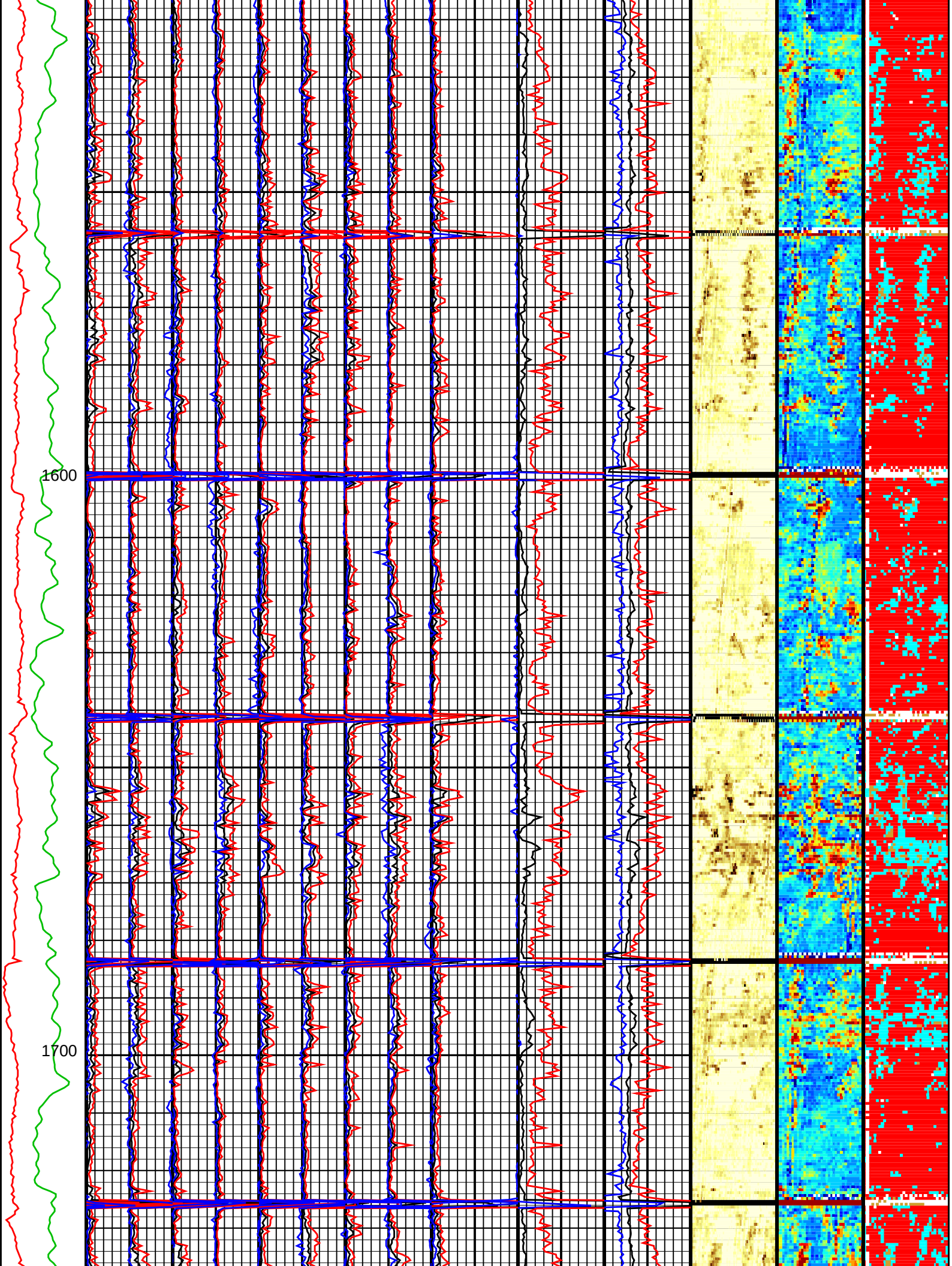
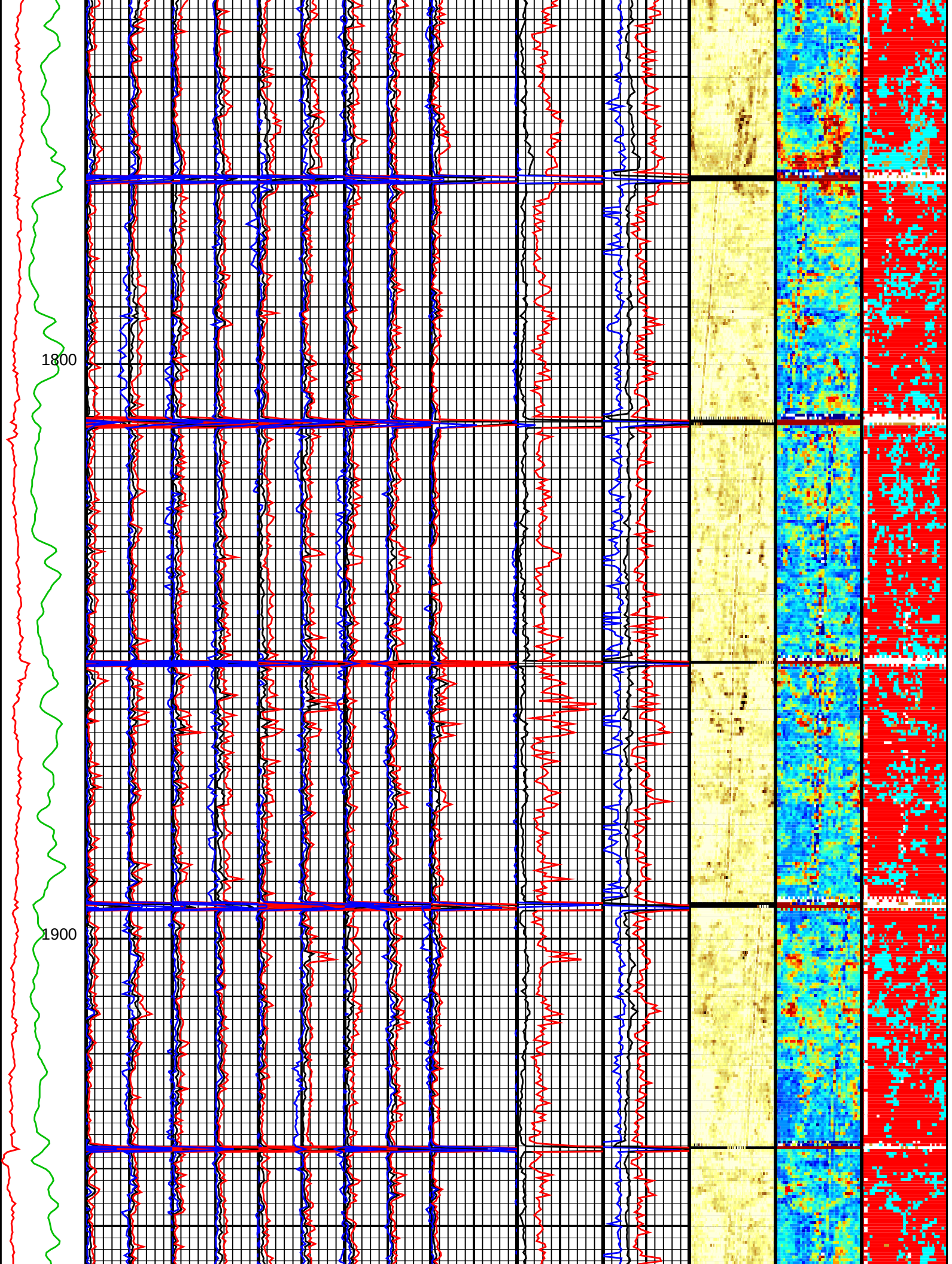
1000


1100
1200


1300
1400
1500


1600
1700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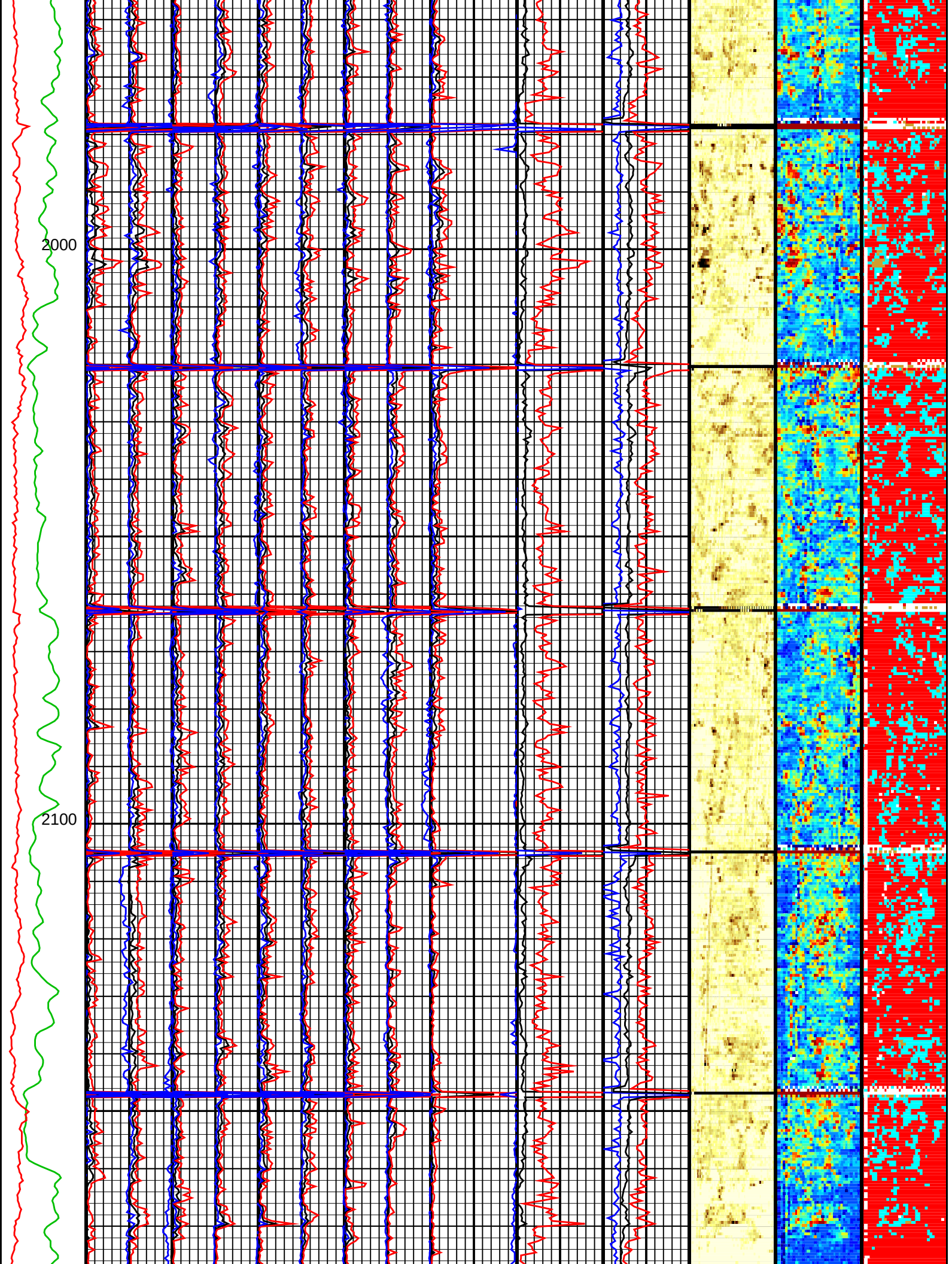
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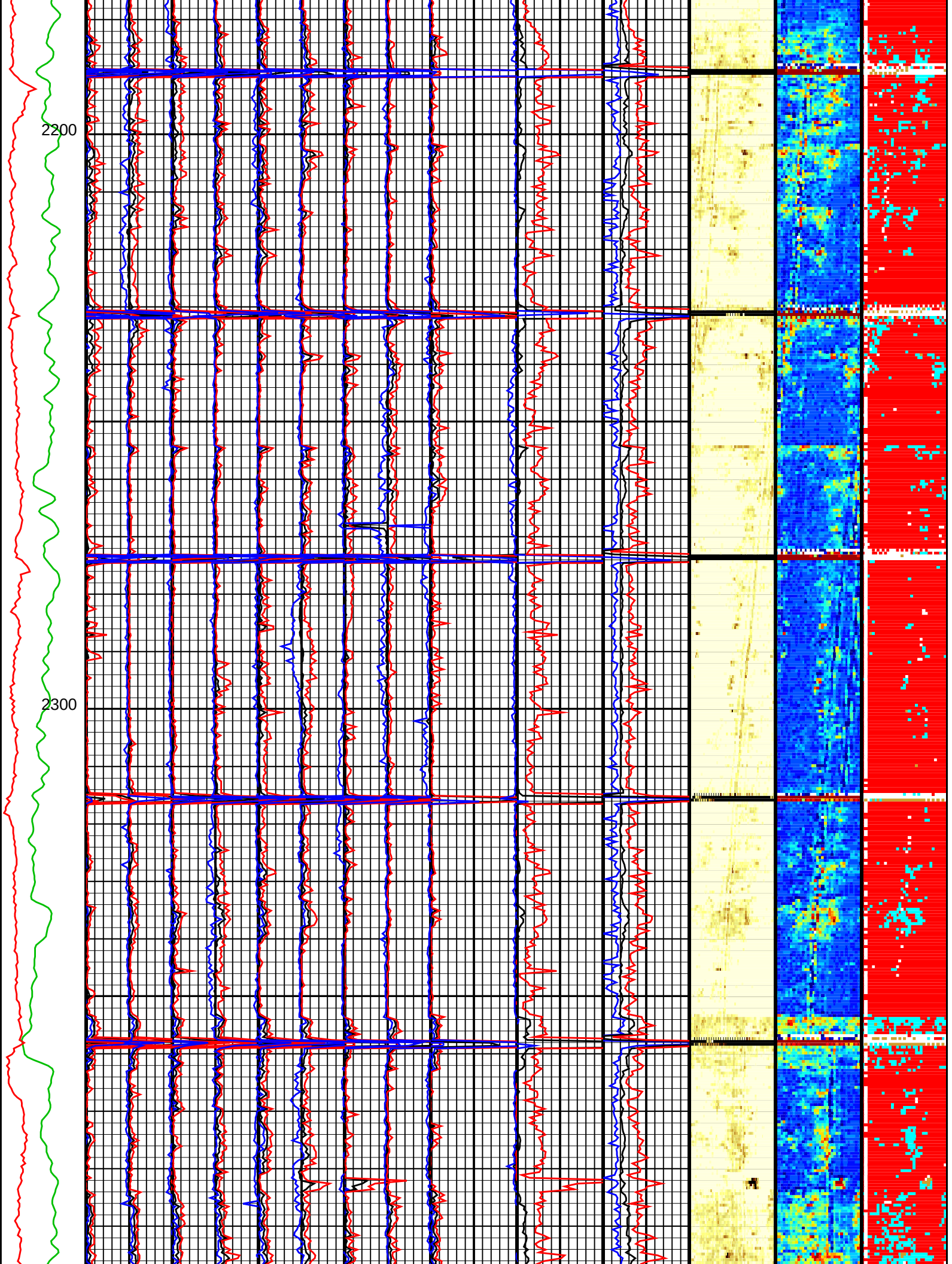
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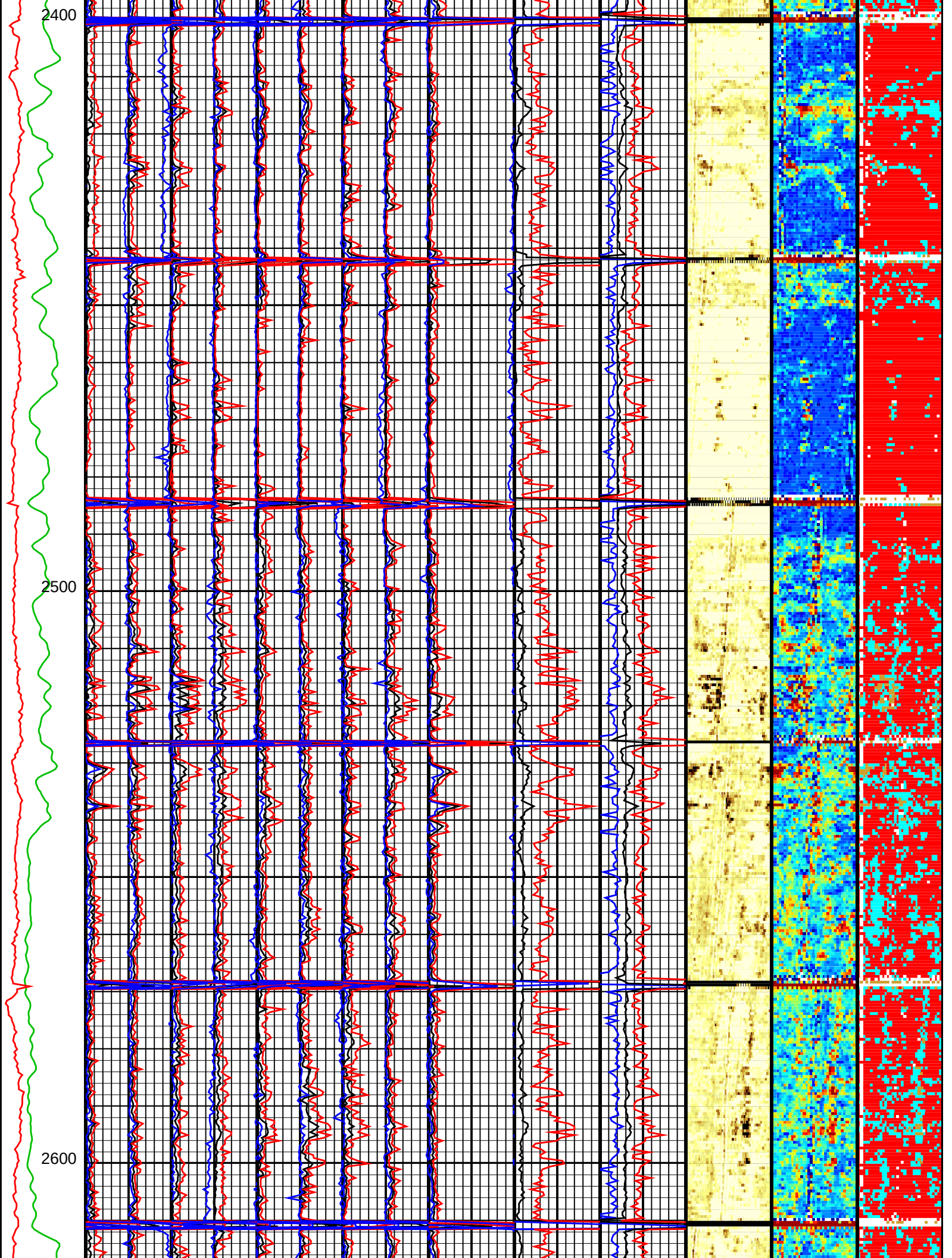
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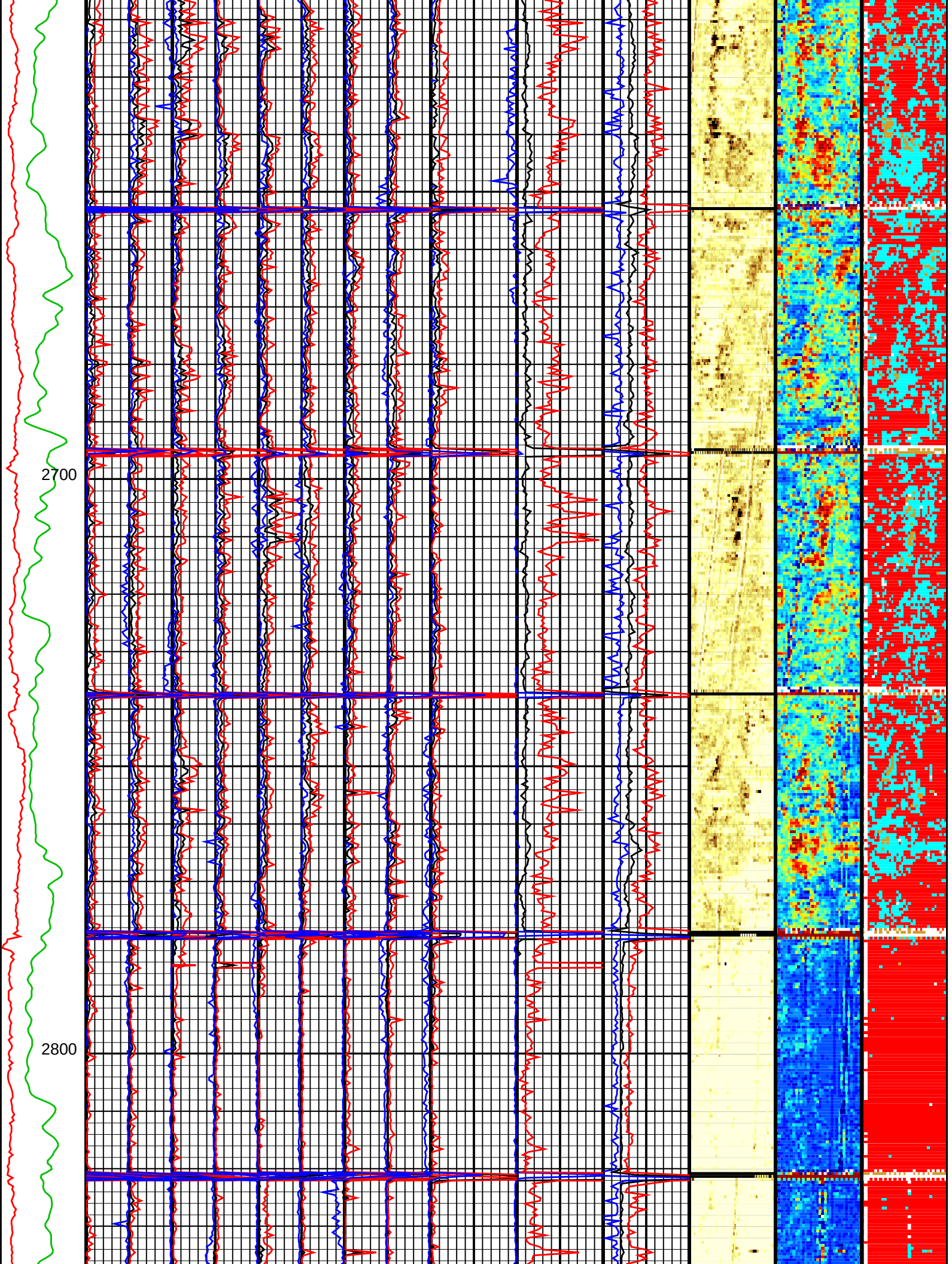
2500
2600


2700
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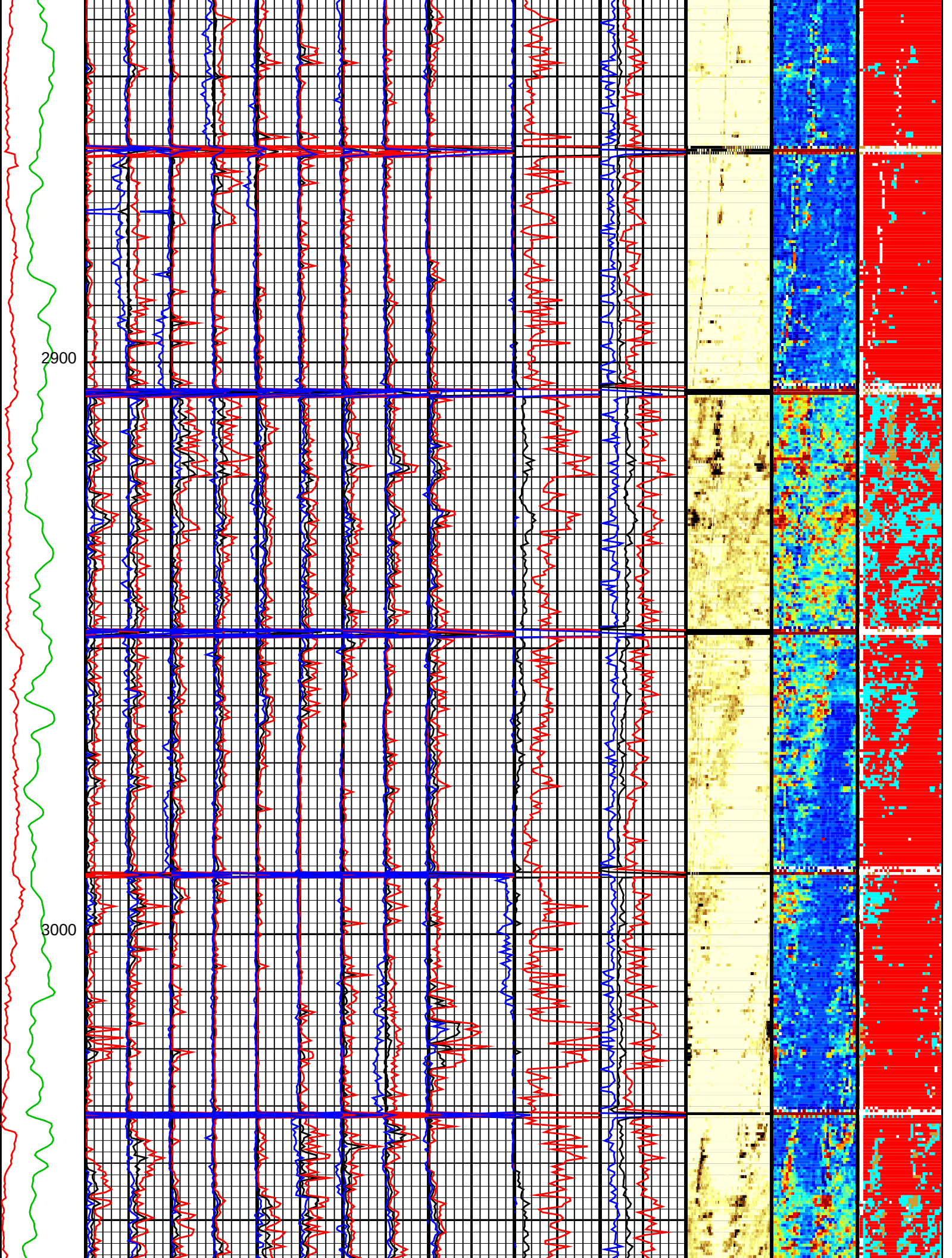
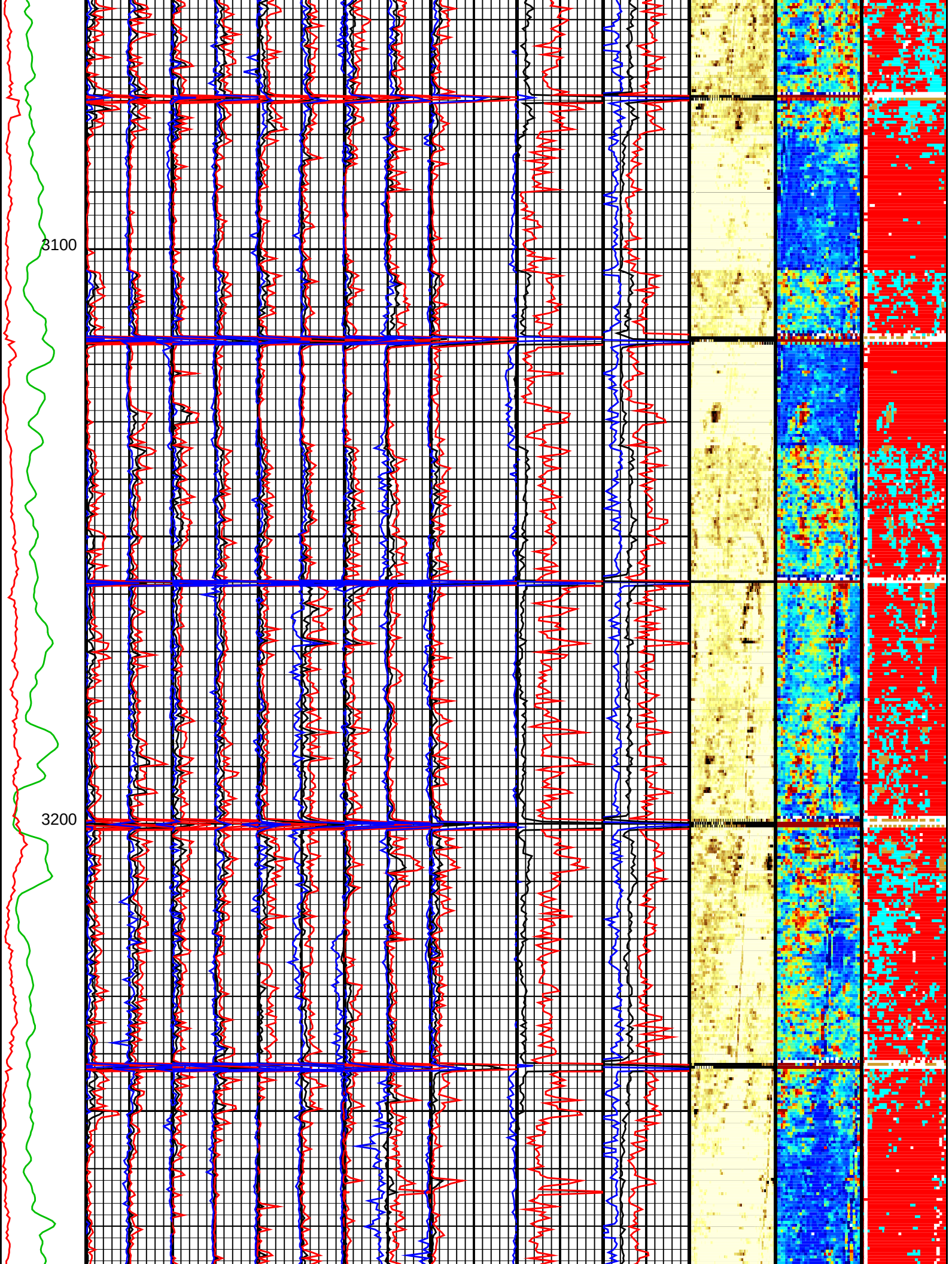

2900
3000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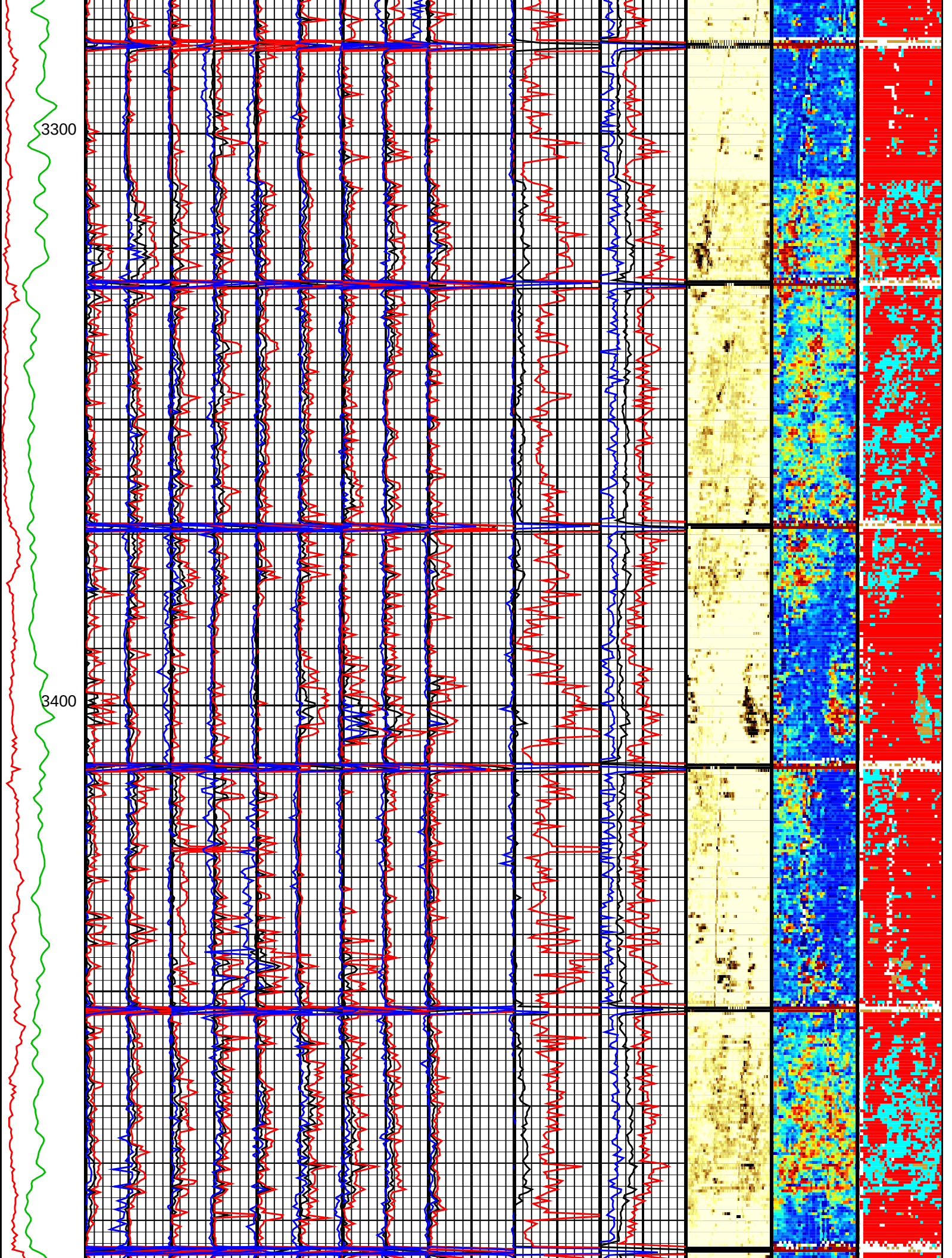
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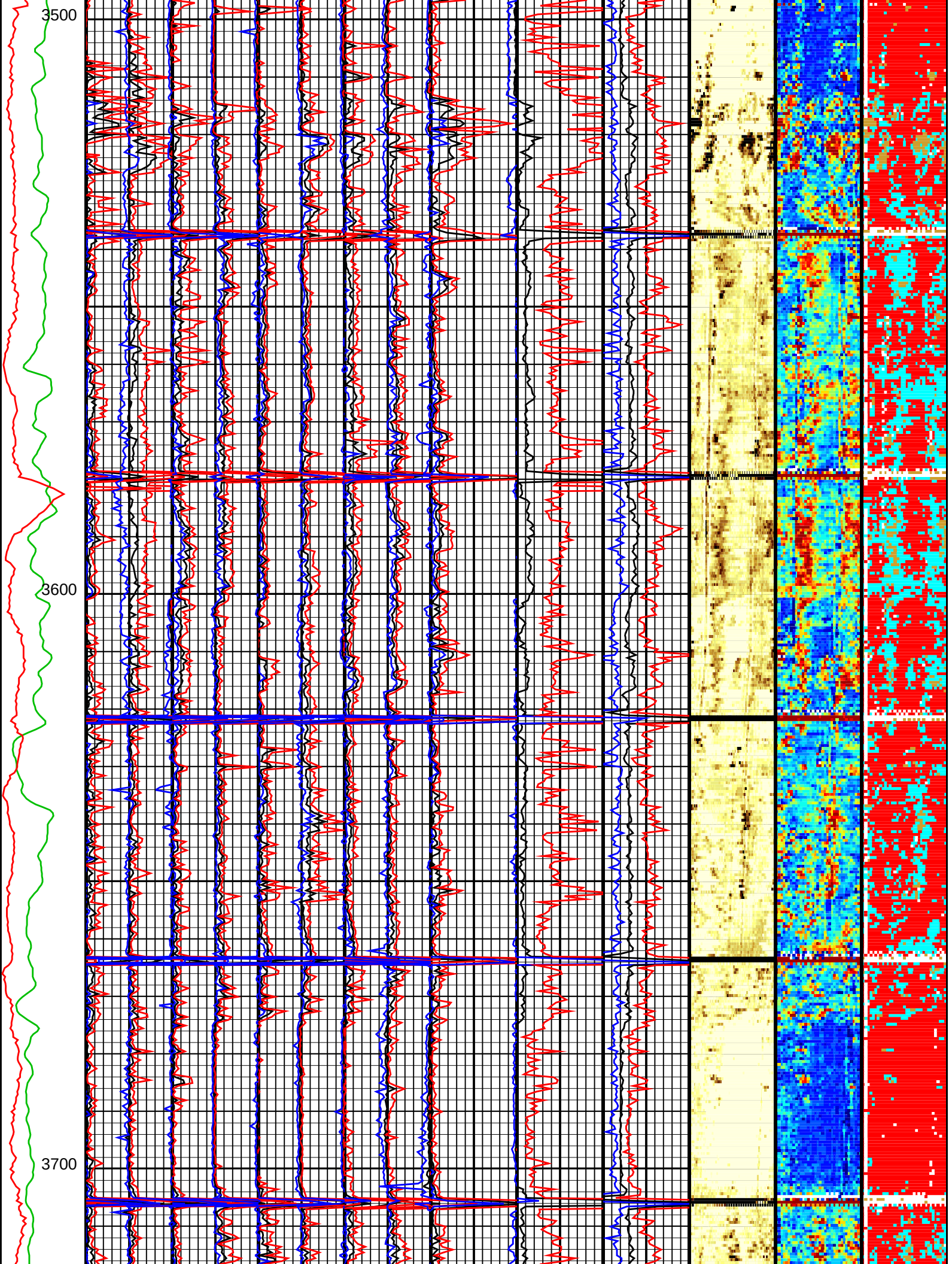
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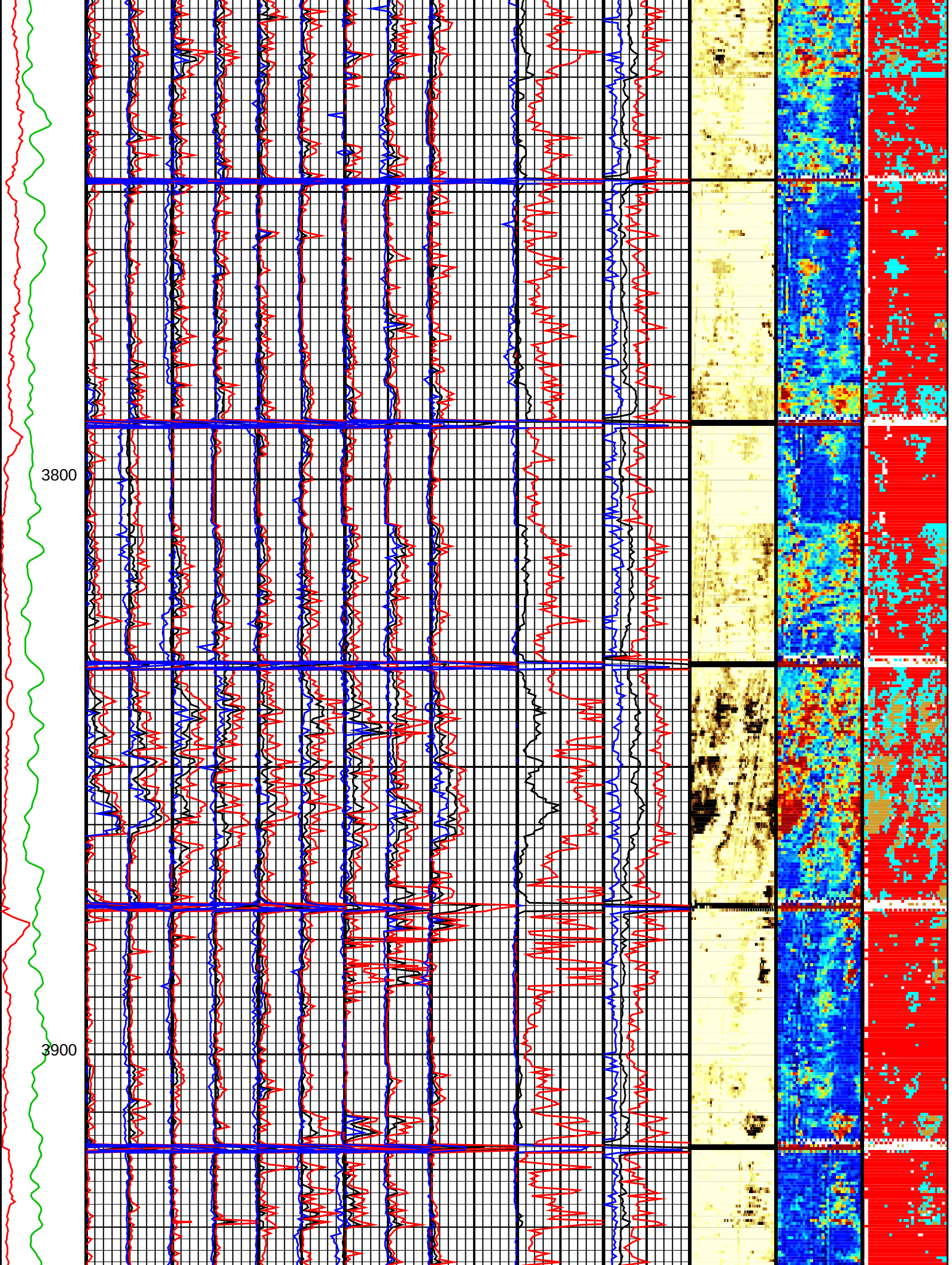
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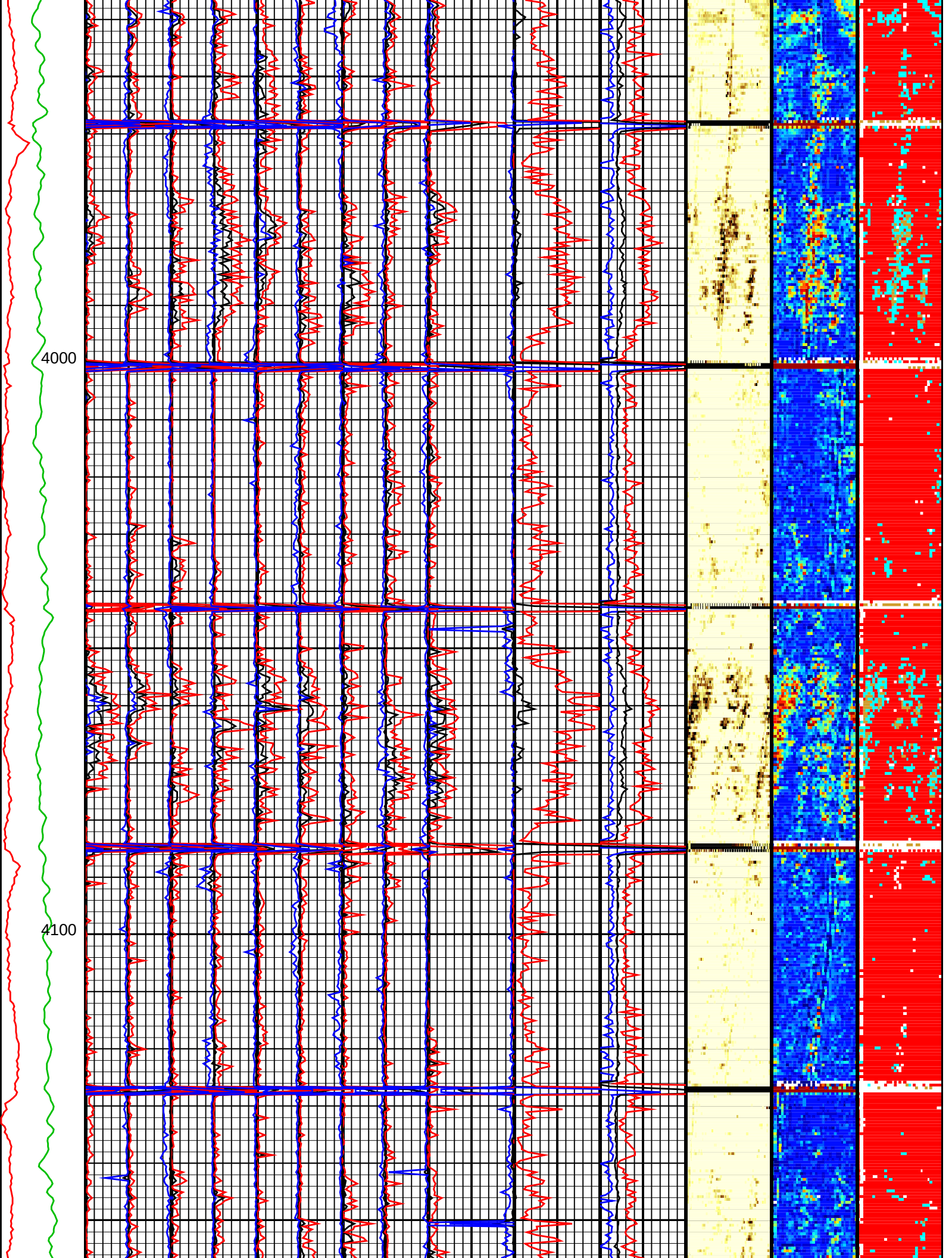
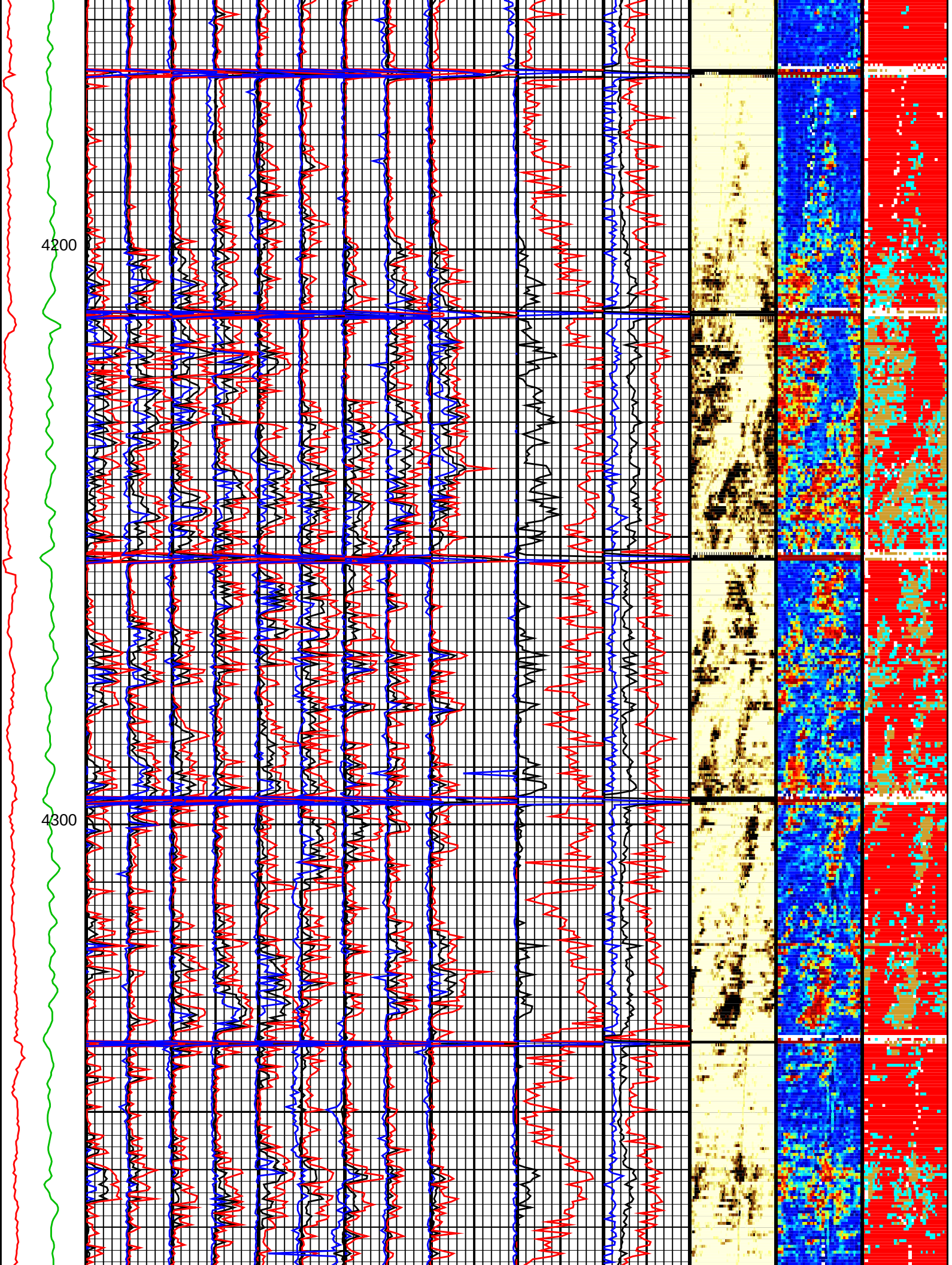
3900


4000
4100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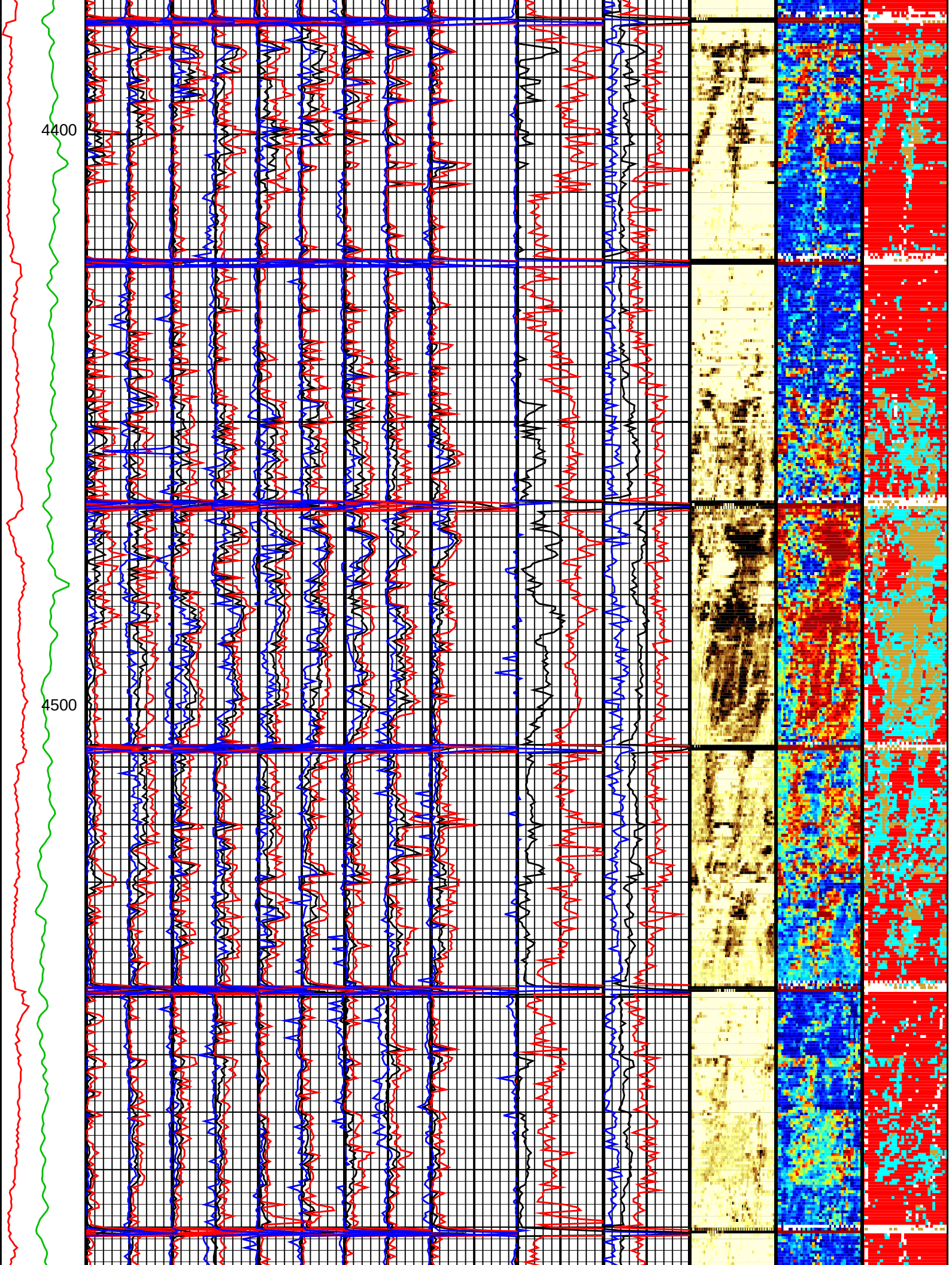
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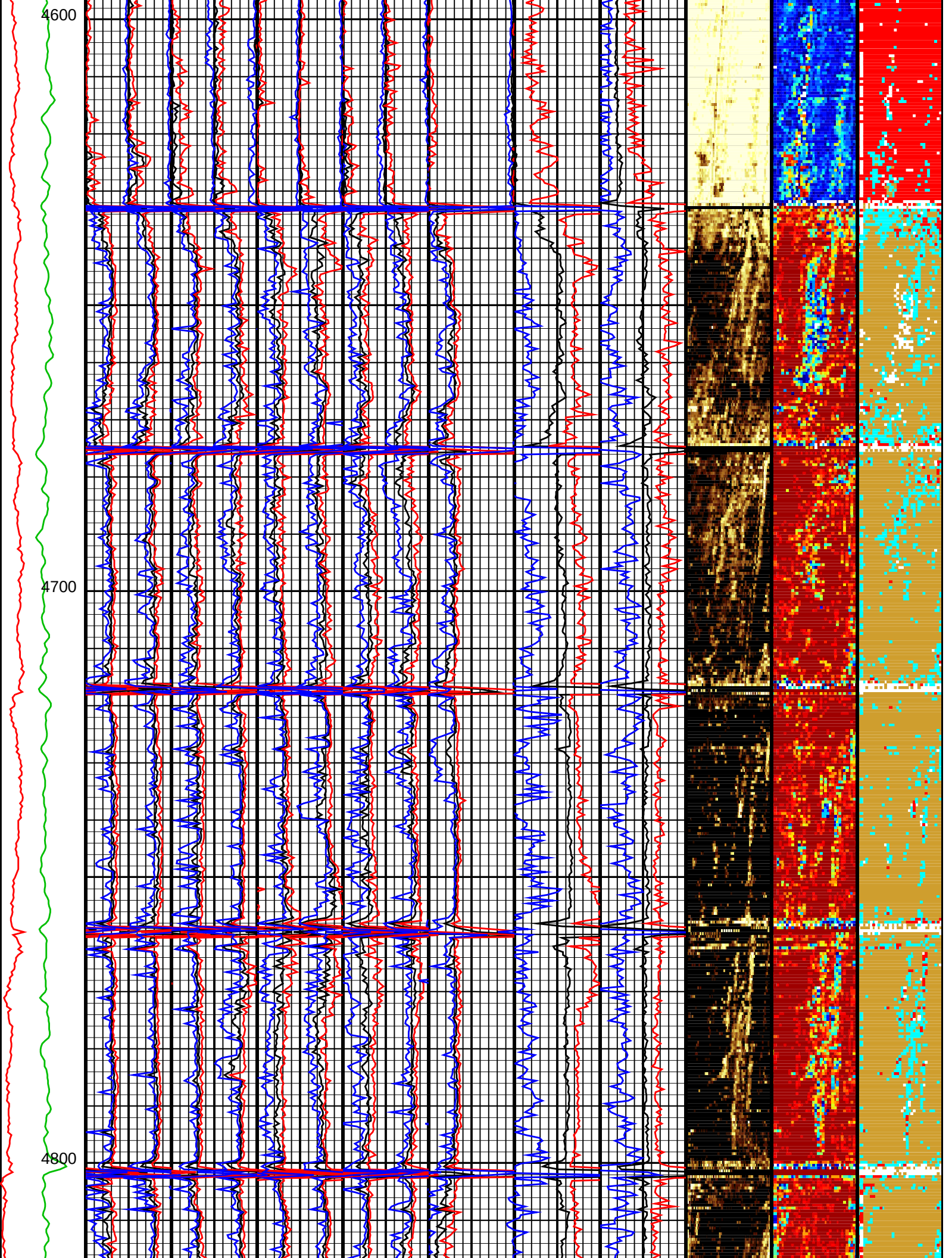
4500


4600
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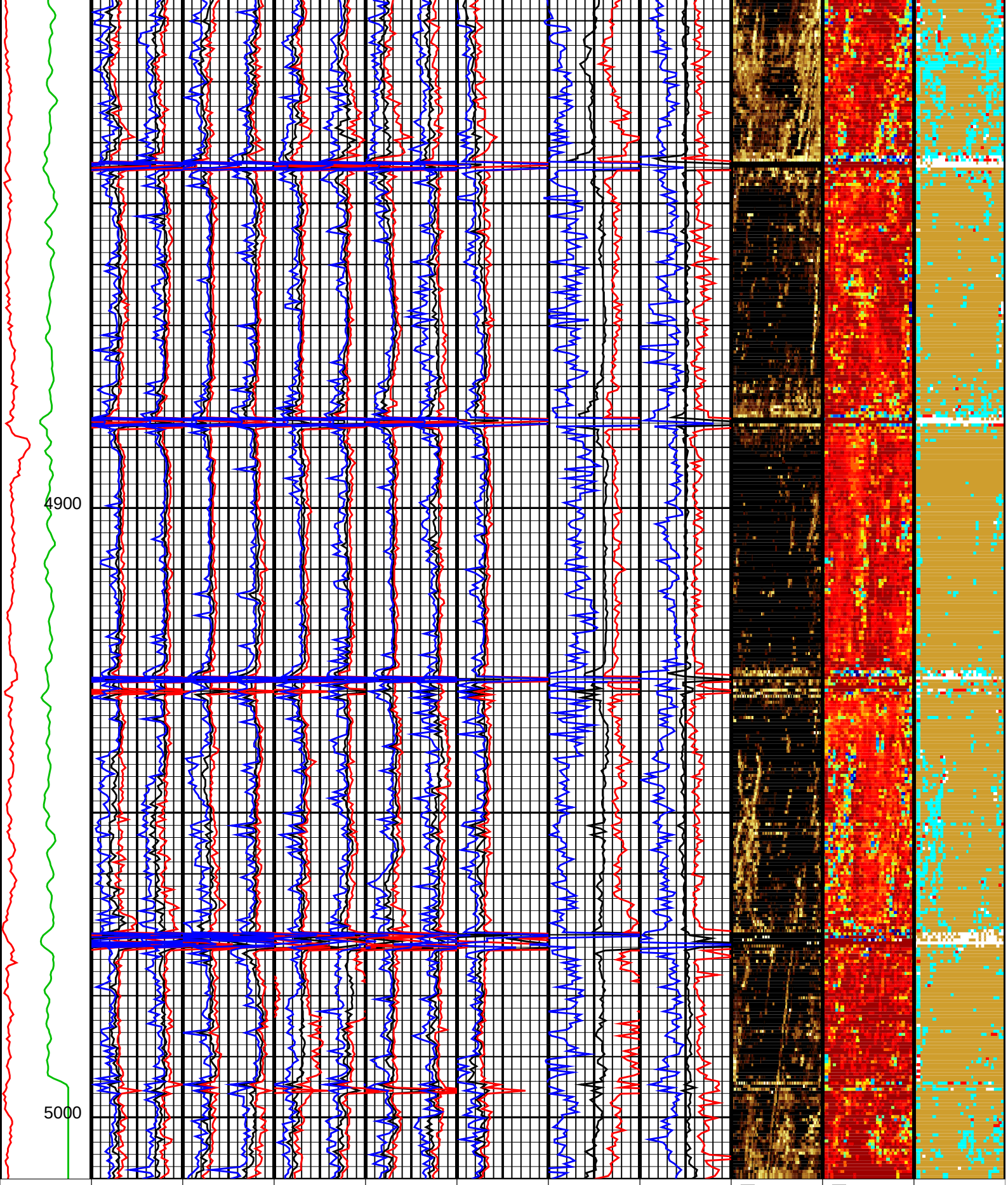


Eccent.	Average Acoustic Impedance	Average Acoustic Impedance	Average Acoustic Impedance	Average Acoustic Impedance	Average Acoustic Impedance	Average of	Minimum Flexural Attenuation	−500.0000 0.2500 0.5000 0.7500 1.0000 1.2500 1.5000 1.7500 2.0000 2.2500 2.5000	0.0000 20.0000 24.0000 28.0000 32.0000 36.0000 40.0000 44.0000 48.0000 52.0000 56.0000	0.5000 1.5000 2.5000 3.5000

(ECCE) 0 (IN) 0.5	Impedance #1 (AV_ AI1) (MRAY) 0 15	Impedance #3 (AV_ AI3) (MRAY) 0 15	Impedance #5 (AV_ AI5) (MRAY) 0 15	Impedance #7 (AV_ AI7) (MRAY) 0 15	Impedance #9 (AV_ AI9) (MRAY) 0 15	AI (AIAV) (MRAY) 0 7.5	Attenuation (U−USIT_ UFAN) (DB/M) 0 150	2.7500 3.0000 3.2500 3.5000 3.7500 4.0000 Raw Acoustic Imped. (AIBK) (MRAY)	60.0000 64.0000 68.0000 72.0000 76.0000 80.0000 Flexural Attenuation (U−USIT_ UFAK) (DB/M)	Solid Liquid Gas Map (U−USIT_ USLP) (−−−−
Gamma Ray (GR_ EDTC) (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 **Vertical Scale: 5" per 100'** **Graphics File Created: 11−Jul−2009 09:03**

OP System Version: 17C0−154

USIT−D	17C0−154	EDTC−B	17C0−154
CAL−Y	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	USI_022PUP	FN:21	PRODUCER	11−Jul−2009 08:10	5010.0 FT	66.0 FT

Output DLIS Files

DEFAULT	USI_024PUP		FN:23	PRODUCER	11−Jul−2009 09:03	

Schlumberger

Goodwin Compressed

MAXIS Field Log

Company: SG INTERESTS I. LTD> **Well: FEDERAL 11−90−24 #2 WDW**

Input DLIS Files

DEFAULT	USI_022PUP		FN:21	PRODUCER	11−Jul−2009 08:10	5010.0 FT 66.0 FT

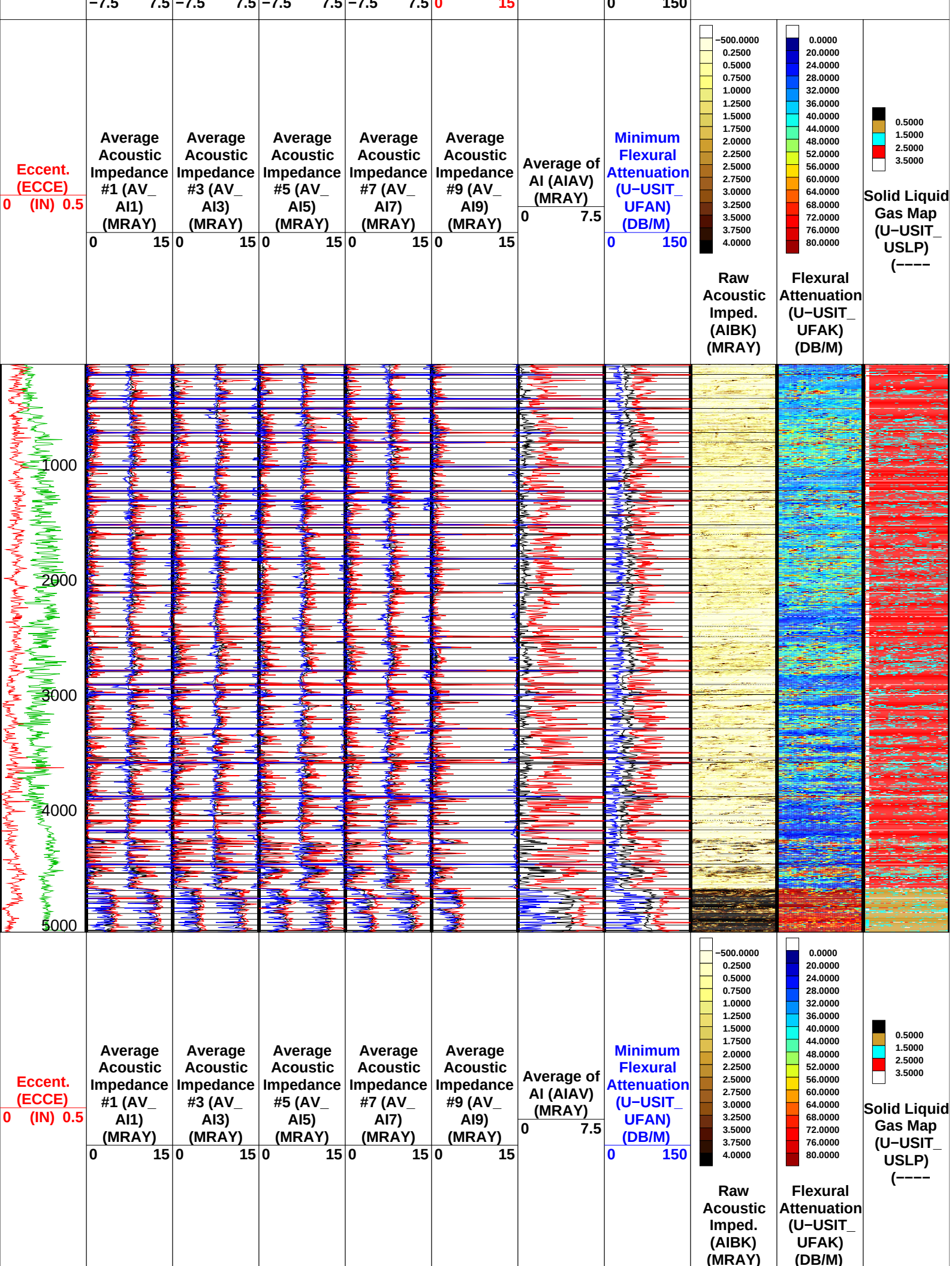
Output DLIS Files

DEFAULT	USI_024PUP		FN:23	PRODUCER	11−Jul−2009 09:03	5010.0 FT 74.0 FT

OP System Version: 17C0−154

USIT−D	17C0−154	EDTC−B	17C0−154
CAL−Y	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_EDTC) (GAPI) 0 150	Average Acoustic Impedance #2 (AV_AI2) (MRAY)	Average Acoustic Impedance #4 (AV_AI4) (MRAY)	Average Acoustic Impedance #6 (AV_AI6) (MRAY)	Average Acoustic Impedance #8 (AV_AI8) (MRAY)	Maximum Acoustic Impedance #9 (MAX_AI9) (MRAY)	Minimum of AI (AIMN) (MRAY) 0 7.5	Average Flexural Attenuation (U−USIT_UFAV) (DB/M)


−7.5 7.5
−7.5 7.5
−7.5 7.5
−7.5 7.5
0 15
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
0.2500
0.5000
0.7500
1.0000
1.2500
1.5000
1.7500
2.0000
2.2500
2.5000
2.7500
3.0000
3.2500
3.5000
3.7500
4.0000
Raw Acoustic Imped. (AIBK) (MRAY)
0.0000
20.0000
24.0000
28.0000
32.0000
36.0000
40.0000
44.0000
48.0000
52.0000
56.0000
60.0000
64.0000
68.0000
72.0000
76.0000
80.0000
Flexural Attenuation (U−USIT_ UFAK) (DB/M)
0.5000
1.5000
2.5000
3.5000
Solid Liquid Gas Map (U−USIT_ USLP) (−−−−
1000
2000
3000
4000
5000
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
0.2500
0.5000
0.7500
1.0000
1.2500
1.5000
1.7500
2.0000
2.2500
2.5000
2.7500
3.0000
3.2500
3.5000
3.7500
4.0000
Raw Acoustic Imped. (AIBK) (MRAY)
0.0000
20.0000
24.0000
28.0000
32.0000
36.0000
40.0000
44.0000
48.0000
52.0000
56.0000
60.0000
64.0000
68.0000
72.0000
76.0000
80.0000
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_EDTC) (GAPI)	Average Acoustic Impedance #2 (AV_AI2) (MRAY)	Average Acoustic Impedance #4 (AV_AI4) (MRAY)	Average Acoustic Impedance #6 (AV_AI6) (MRAY)	Average Acoustic Impedance #8 (AV_AI8) (MRAY)	Maximum Acoustic Impedance #9 (MAX_AI9) (MRAY)	Minimum of AI (AIMN) (MRAY)	Average Flexural Attenuation (U−USIT_UFAV) (DB/M)
0 150	−7.5 7.5	−7.5 7.5	−7.5 7.5	−7.5 7.5	0 15	0 7.5	0 150

Maximum Acoustic Impedance #1 (MAX_AI1) (MRAY)	Maximum Acoustic Impedance #3 (MAX_AI3) (MRAY)	Maximum Acoustic Impedance #5 (MAX_AI5) (MRAY)	Maximum Acoustic Impedance #7 (MAX_AI7) (MRAY)	Minimum Acoustic Impedance #9 (MIN_AI9) (MRAY)	Maximum of AI (AIMX) (MRAY)	Maximum Flexural Attenuation (U−USIT_UFAX) (DB/M)
0 15	0 15	0 15	0 15	0 15	0 7.5	0 150

Maximum Acoustic Impedance #2 (MAX_AI2) (MRAY)	Maximum Acoustic Impedance #4 (MAX_AI4) (MRAY)	Maximum Acoustic Impedance #6 (MAX_AI6) (MRAY)	Maximum Acoustic Impedance #8 (MAX_AI8) (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_Compressed **Vertical Scale: 0.1" per 100'** **Graphics File Created: 11−Jul−2009 09:03**

OP System Version: 17C0−154

USIT−D	17C0−154	EDTC−B	17C0−154
CAL−Y	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

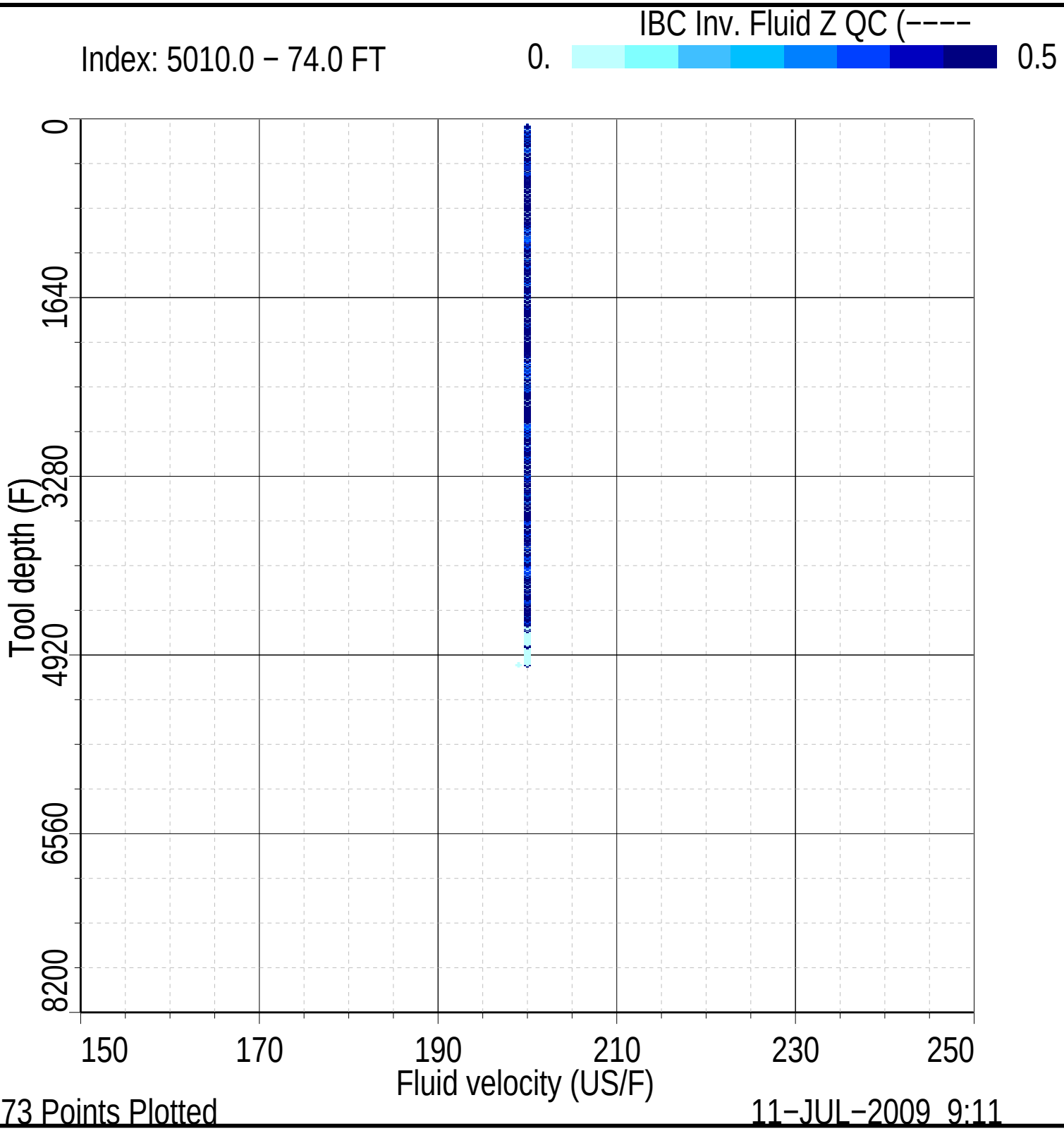
DEFAULT	USI_022PUP	FN:21	PRODUCER	11−Jul−2009 08:10	5010.0 FT	66.0 FT

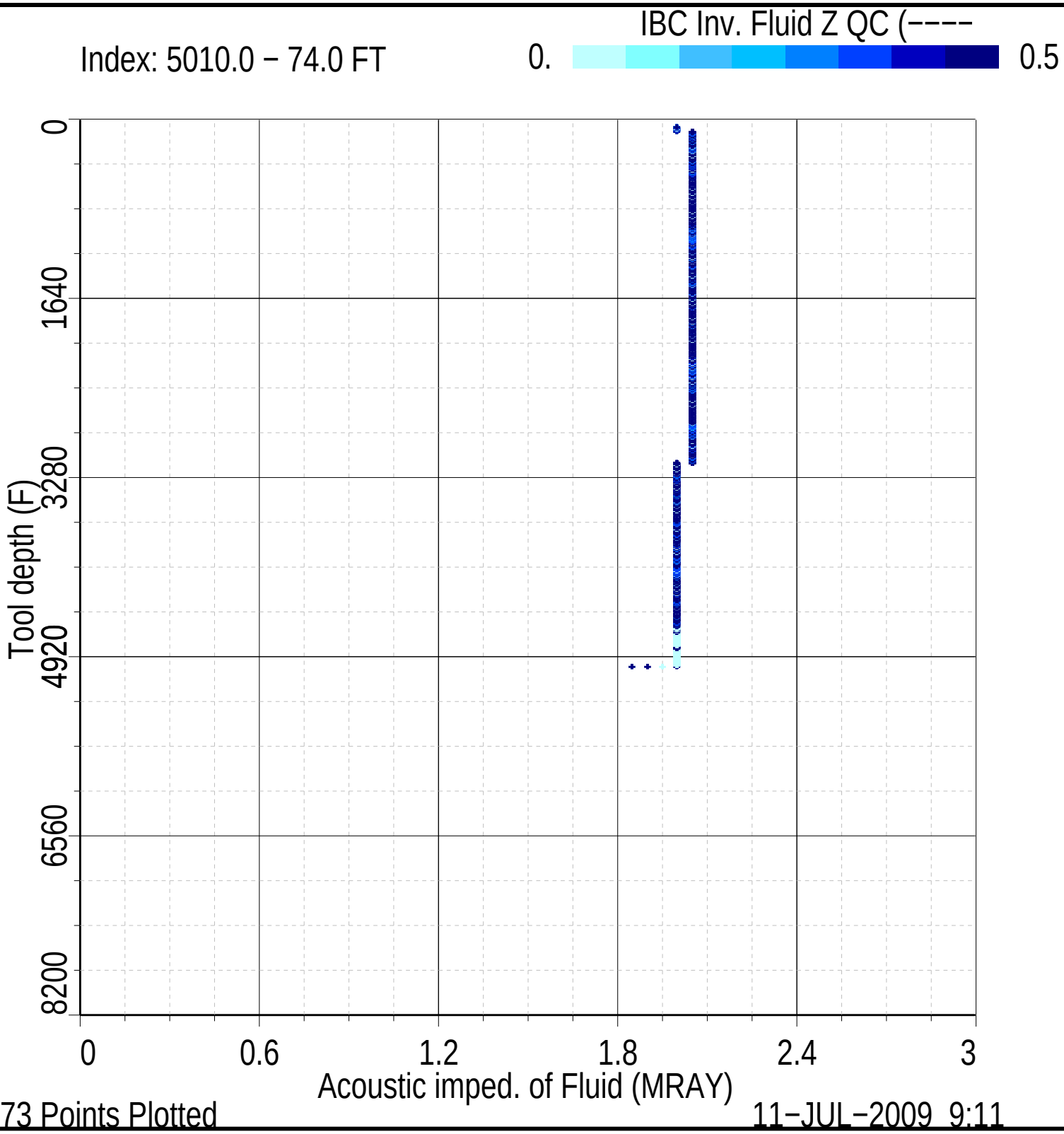
Output DLIS Files

DEFAULT	USI_024PUP	FN:23	PRODUCER	11−Jul−2009 09:03

Schlumberger

DEVL


IBC Inv. Fluid Z QC (----
Index: 5010.0 - 74.0 FT
0.
0.5
Tool depth (F)
0
1640
3280
4920
6560
8200
150
170
190
210
230
250
Fluid velocity (US/F)
9873 Points Plotted
11-JUL-2009 9:11



Schlumberger

Repeat Analysis

Input DLIS Files

DEFAULT	USI_030LUP	FN:29	PRODUCER	11−Jul−2009 09:20	5010.0 FT	4749.0 FT

Output DLIS Files

DEFAULT	USI_025PUP	FN:24	PRODUCER	11−Jul−2009 09:21	5010.0 FT	4757.0 FT

OP System Version: 17C0−154

USIT−D	17C0−154	EDTC−B	17C0−154
CAL−Y	17C0−154		

Image rotation (UCAZ) (DEG)
0 360

Gamma Ray (GR_EDTC) (GAPI)
0 150

Tool/Tot. Drag From D4T to STIA

Cable Drag From D4T to STIT

Stuck Stretch (STIT)
0 (F) 50

RSAV (RSAV) (RPS)
6 7.5

CCL (CCLU) (−−−−
−20 20

Min of Internal radius (IRMN)
5 (IN) 4

Internal radius Maximum (IRMX)
5 (IN) 4

Internal radius Average (IRAV)
5 (IN) 4

Min of Internal radius (IRMN)
4 (IN) 5

Internal radius Maximum (IRMX)
4 (IN) 5

Internal radius Average (IRAV)
4 (IN) 5

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

External radius Average (ERAV)
5 (IN) 4

External radius Average (ERAV)
4 (IN) 5

−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

−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
0.2500
0.5000
0.7500
1.0000
1.2500
1.5000
1.7500
2.0000
2.2500
2.5000
2.7500
3.0000
3.2500
3.5000
3.7500
4.0000

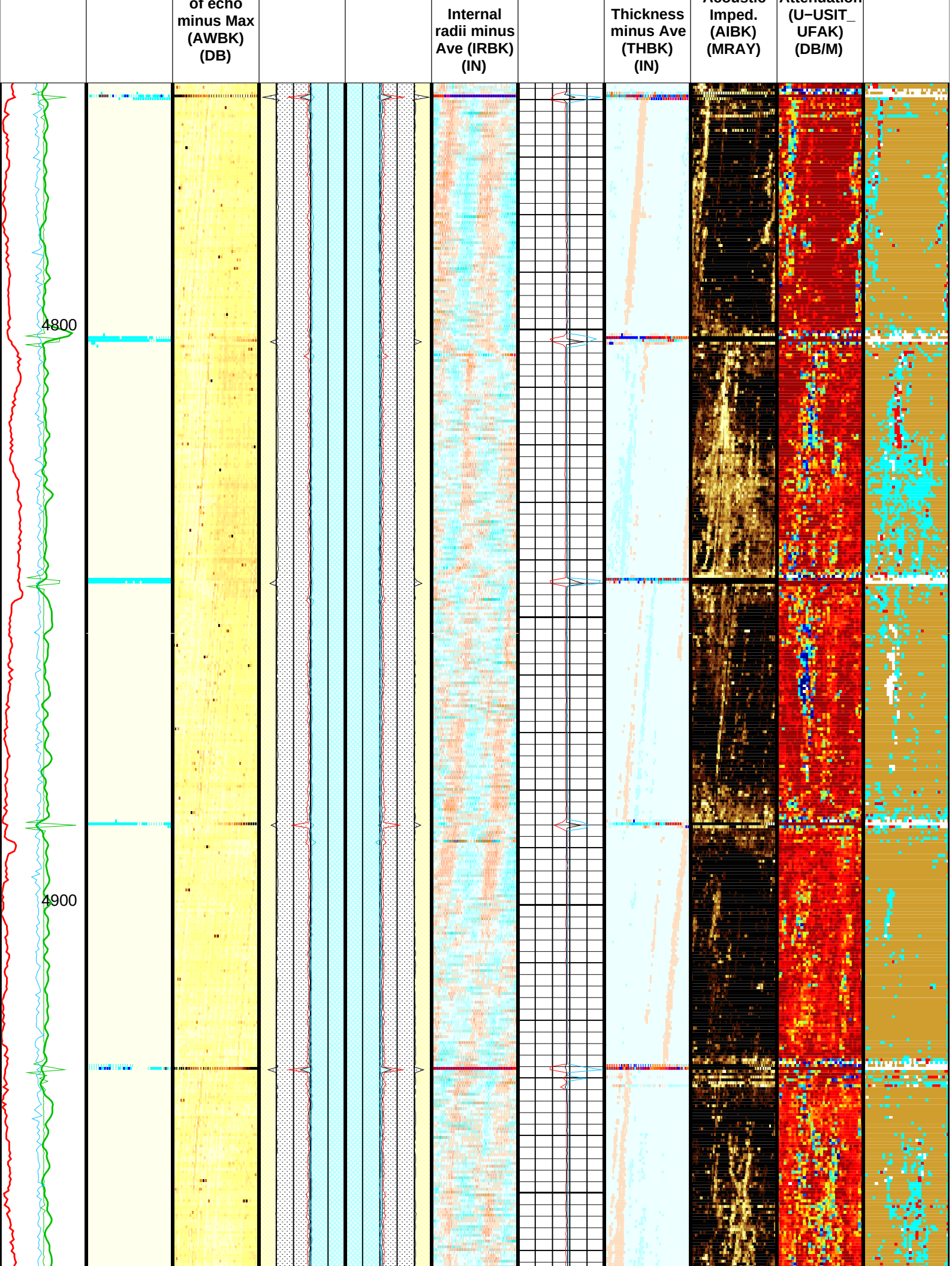
Raw Acoustic

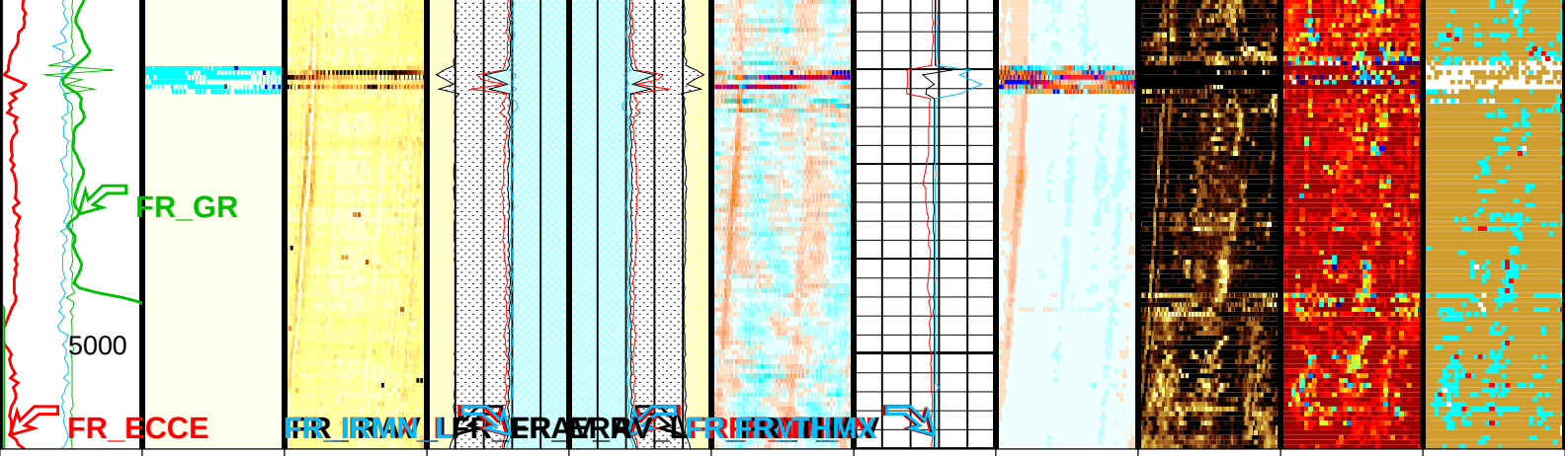
0.0000
20.0000
24.0000
28.0000
32.0000
36.0000
40.0000
44.0000
48.0000
52.0000
56.0000
60.0000
64.0000
68.0000
72.0000
76.0000
80.0000

Flexural Attenuation

0.5000
1.5000
2.5000
3.5000

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


of echo minus Max (AWBK) (DB)
Internal radii minus Ave (IRBK) (IN)
Thickness minus Ave (THBK) (IN)
Acoustic Imped. (AIBK) (MRAY)
Attenuation (U−USIT_ UFAK) (DB/M)
4800
4900



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) 5 (IN) 4	External radius Average (ERAV) 4 (IN) 5	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 0.2500 0.5000 0.7500 1.0000 1.2500 1.5000 1.7500 2.0000 2.2500 2.5000 2.7500 3.0000 3.2500 3.5000 3.7500 4.0000	Flexural Attenuation (U−USIT_ UFAK) (DB/M) 0.0000 20.0000 24.0000 28.0000 32.0000 36.0000 40.0000 44.0000 48.0000 52.0000 56.0000 60.0000 64.0000 68.0000 72.0000 76.0000 80.0000	Solid Liquid Gas Map (U−USIT_ USLP) (---- 0.5000 1.5000 2.5000 3.5000
CCL (CCLU) (---- −20 20			Internal radius Average (IRAV) 5 (IN) 4	Internal radius Average (IRAV) 4 (IN) 5		Average of Thickness (THAV) (IN) 0.1 0.6				
RSAV (RSAV) (RPS) 6 7.5			Internal radius Maximum (IRMX) 5 (IN) 4	Internal radius Maximum (IRMX) 4 (IN) 5		Maximum of Thickness (THMX) (IN) 0.1 0.6				
Stuck Stretch (STIT) 0 (F) 50			Min of Internal radius (IRMN) 5 (IN) 4	Min of Internal radius (IRMN) 4 (IN) 5						
Cable Drag From D4T to STIT										
Tool/Tot. Drag From D4T to STIA										
Gamma Ray (GR_ EDTC) (GAPI) 0 150										

Image rotation (UCAZ) (DEG)

0 360

Format: USI_IBC_SLG_Composite Vertical Scale: 5" per 100' Graphics File Created: 11−Jul−2009 09:21

OP System Version: 17C0−154

USIT−D	17C0−154	EDTC−B	17C0−154
CAL−Y	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	9.625	IN
CSDE	Casing Density	486.94	LBCF
CSID	Casing Inner Diameter	8.835	IN
DFVL	Default Fluid Velocity	199	US/F
DOT	Diameter of Transducer Sensor	4.874	IN
EMXV	EMEX Voltage	70	V
FSOD	Fluid Slowness Fits Casing Outer Diameter	2_UFSL_N_UFAI	
IMAR	Image Rotation	OFF	
MW	Mud Weight	9.9	LB/G
RCOD	Reference Calibrator Outer Diameter	7	IN
RCSO	Reference Calibrator Standoff	1.37795	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	0.395	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	30	DB/M
U−USIT_UIAP	USIT IBC Answer Product Enabled	SolidLiquidGasMap	
U−USIT_UIST	Ultrasonic IBC Sonde Type	Sub_Ibcs_C	
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_9_58_inch	
UWKM	Ultrasonic Working Mode	5DEG_6IN_136UNF_LF	
VCAS	Ultrasonic Transversal Velocity in Casing	51.4	US/F
WLEN	T^3 Processing Length	23.6867	US
ZCAS	Acoustic Impedance of Casing	46.25	MRAY
ZINI	Initial Estimate of Cement Impedance	−1	MRAY
ZMUD	Acoustic Impedance of Mud	1.87	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**	**5015.00**	**FT**
TDL	**Total Depth − Logger**	**5010.00**	**FT**
	System and Miscellaneous		
BS	**Bit Size**	**12.250**	**IN**
CWEI	**Casing Weight**	**40.00**	**LB/F**
DO	**Depth Offset for Playback**	**8.0**	**FT**
PP	**Playback Processing**	**RECOMPUTE**	

Input DLIS Files

DEFAULT	**USI_030LUP**	**FN:29**	**PRODUCER**	**11−Jul−2009 09:20**	**5010.0 FT**	**4749.0 FT**

Output DLIS Files

DEFAULT	**USI_025PUP**	**FN:24**	**PRODUCER**	**11−Jul−2009 09:21**

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Calibrations

MAXIS Field Log

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Enhanced DTS Cartridge Wellsite Calibration − EDTC Accelerometer Calibration							
Before: 11−Jul−2009 2:42							
EDTC Z−Axis Acceleration	32.19	N/A	32.15	N/A	N/A	N/A	F/S2
Enhanced DTS Cartridge Wellsite Calibration − Detector Calibration							
Before: 10−Jul−2009 15:43							
Gamma Ray (Jig − Bkg)	151.0	N/A	151.0	N/A	N/A	13.73	GAPI
Gamma Ray (Calibrated)	165.0	N/A	165.0	N/A	N/A	15.00	GAPI

Enhanced DTS Cartridge / Equipment Identification

Primary Equipment:		
EDTC Gamma Ray Detector	EDTG − A/B	
Enhanced DTS Cartridge	EDTC − B	8127
Auxiliary Equipment:		
EDTC Housing	EDTH − B	

Enhanced DTS Cartridge Wellsite Calibration

EDTC Accelerometer Calibration

Phase	EDTC Z−Axis Acceleration F/S2	Value
Before		32.15

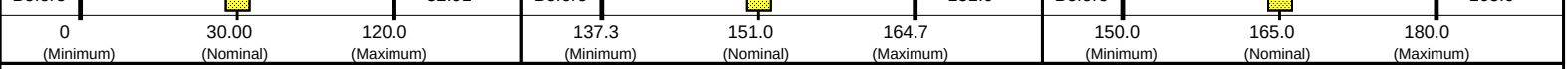
31.53 (Minimum) 32.19 (Nominal) 32.84 (Maximum)

Before: 11−Jul−2009 2:42

Enhanced DTS Cartridge Wellsite Calibration

Detector Calibration

Phase	Gamma Ray Background GAPI	Value	Phase	Gamma Ray (Jig − Bkg) GAPI	Value	Phase	Gamma Ray (Calibrated) GAPI	Value
Before		32.91	Before		151.0	Before		165.0



0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)	137.3 (Minimum)	151.0 (Nominal)	164.7 (Maximum)	150.0 (Minimum)	165.0 (Nominal)	180.0 (Maximum)

Before: 10−Jul−2009 15:43

Company: **SG INTERESTS I. LTD>**

Schlumberger

Well: **FEDERAL 11−90−24 #2 WDW**
Field: **BULL MOUNTAIN**
County: **GUNNISON**
State: **COLORADO**

IMAGING BEHIND CASING
ULTRASONIC TOOL
CCL / GAMMA RAY