Schlumberger

Company: **EXXONMOBIL PRODUCTION CO**

Well: **PCU 197−34B8**
Field: **PICEANCE CREEK**
County: **RIO BLANCO** State: **COLORADO**

IMAGING BEHIND CASING
ULTRASONIC TOOL
GAMMA RAY / CCL

County: RIO BLANCO
Field: PICEANCE CREEK
Location: SESE, 817' FSL & 955' FEL
Well: PCU 197−34B8
Company: EXXONMOBIL PRODUCTION CO

LOCATION

SESE, 817' FSL & 955' FEL

Elev.: K.B. 6679.30 ft
G.L. 6649.10 ft
D.F. 6678.30 ft

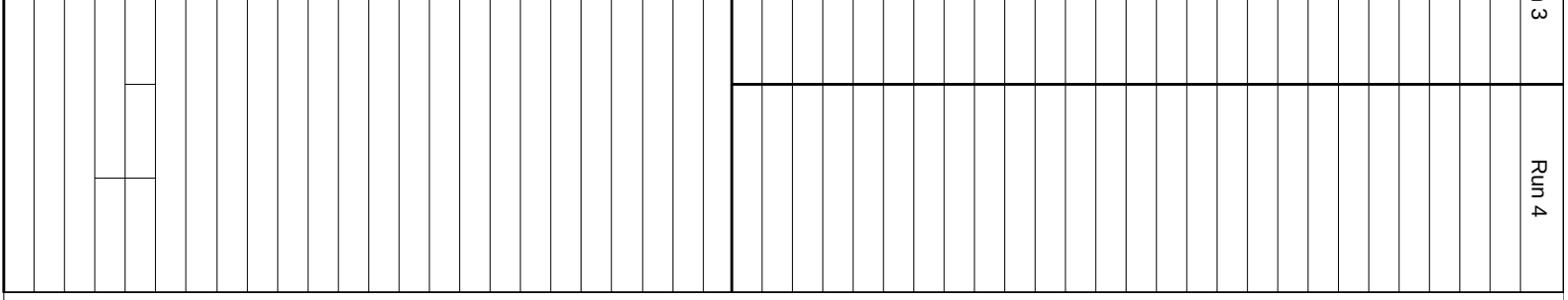
Permanent Datum: GROUND LEVEL Elev.: 6649.10 ft
Log Measured From: KELLY BUSHING 30.20 ft above Perm. Datum
Drilling Measured From: KELLY BUSHING

API Serial No.	Section	Township	Range
05−103−11082−00	34	1S	97W

		Run 1	Run 2	Run
PVT DATA	Oil Density			
	Water Salinity	400 ppm		
	Gas Gravity			
	Bo			
	Bw			
	1/Bg			
	Bubble Point Pressure			
	Bubble Point Temperature			
	Solution GOR			
	Maximum Deviation	10 deg		
	CEMENTING DATA			
	Primary/Squeeze	Primary		
	Casing String No			
	Lead Cement Type			
	Volume			
	Density	10.5 lbm/gal		
	Water Loss			
	Additives			
	Tail Cement Type			
	Volume			
	Density	12 lbm/gal		
	Water Loss			
	Additives			
	Expected Cement Top	4000 ft		

Logging Date		3−Nov−2009						
Run Number		1						
Depth Driller		8806 ft						
Schlumberger Depth		8590 ft						
Bottom Log Interval		8590 ft						
Top Log Interval		3500 ft						
Casing Fluid Type		WBM						
Salinity		400 ppm						
Density		9.7 lbm/gal						
Fluid Level		10 ft						
BIT/CASING/TUBING STRING								
Bit Size		9.875 in						
From		3900 ft						
To		8806 ft						
Casing/Tubing Size		7.000 in						
Weight		26 lbm/ft						
Grade								
From		30.2 ft						
To		8806 ft						
Maximum Recorded Temperatures		203 degF						
Logger On Bottom	Time	3−Nov−2009	19:30					
Unit Number	Location	2379	VERNAL					
Recorded By		Ryan Stewart						
Witnessed By		Stacy Guyote						

		Run 1			Run 2			Run		
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: 4−NOV−2009 2:08:52

Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW−B	Type:	CMTD−B/A	Type:	7−46V XS
Serial Number:	6195	Serial Number:	8093	Serial Number:	709025
Calibration Date:	22−OCT−2009	Calibration Date:	17−OCT−2009	Length:	30100 FT
Calibrator Serial Number:	33	Calibrator Serial Number:	1		
Calibration Cable Type:	7−46P	Number of Calibration Points:	9	Conveyance Method:	Wireline
Wheel Correction 1:	−13	Calibration RMS:	23	Rig Type:	LAND
Wheel Correction 2:	−11	Calibration Peak Error:	41		

Depth Control Parameters

Log Sequence:	First Log In the Well
Rig Up Length At Surface:	209.30 FT
Rig Up Length At Bottom:	208.60 FT
Rig Up Length Correction:	0.70 FT
Stretch Correction:	8.50 FT
Tool Zero Check At Surface:	0.40 FT

Depth Control Remarks

1. All Schlumberger depth control policies followed
2. IDW used as primary depth reference, z−chart used as secondary reference
3.
4.
5.
6.

OTHER SERVICES1	OTHER SERVICES2
OS1: IBC/USIT	OS1:
OS2:	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
Tool run as per tool sketch	
Tool run with 2 x gemcos and 2 x in−line centralizers	
Neutron run for gamma ray purpose only	
Transducer angle = 33 degrees	
Logs monitored real−time by remote service quaklity coach	
Vertical resolution = 6 inch	
Horizontal resolution = 5 degree	

Horizontal resolution = 5 degree	
Max temp = 209 degF	
UFAO = −14	
IBC log stopped at 3500 ft as directed by client	

RUN 1			RUN 2		
SERVICE ORDER #:			SERVICE ORDER #:		
PROGRAM VERSION:		17C0−154	PROGRAM VERSION:		
FLUID LEVEL:		10 ft	FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

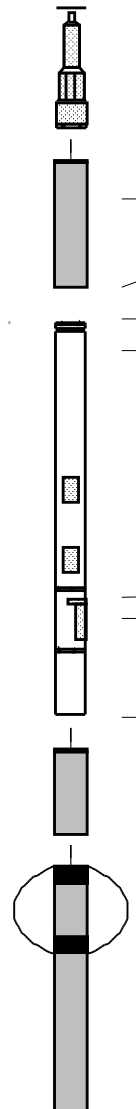
EQUIPMENT DESCRIPTION

RUN 1 RUN 2

SURFACE EQUIPMENT

GSR−U/Y
NCT−B
CNB−AB
WITM (DTS)−A

DOWNHOLE EQUIPMENT



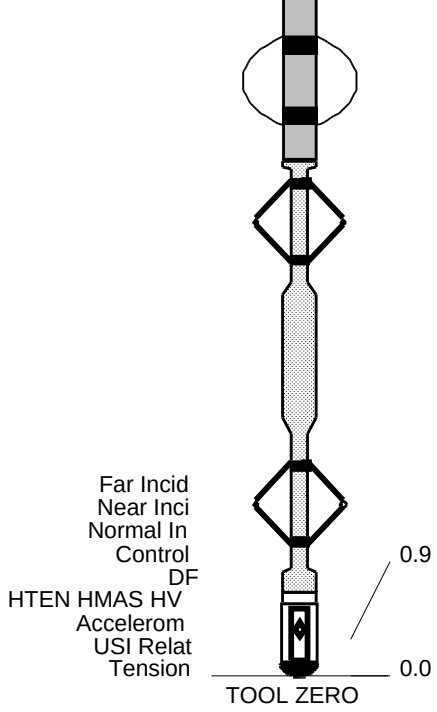
LEH−QT 39.0
LEH−QT

DTC−H 36.1
ECH−KC
DTCH0−A
DTCH1−A

HILTH−FTB 33.1
HGNSD−H
HMCA−H
HGNH
HACCZ−H 3577
HCNT−H
HGR

AH−107 23.7
AH−107

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

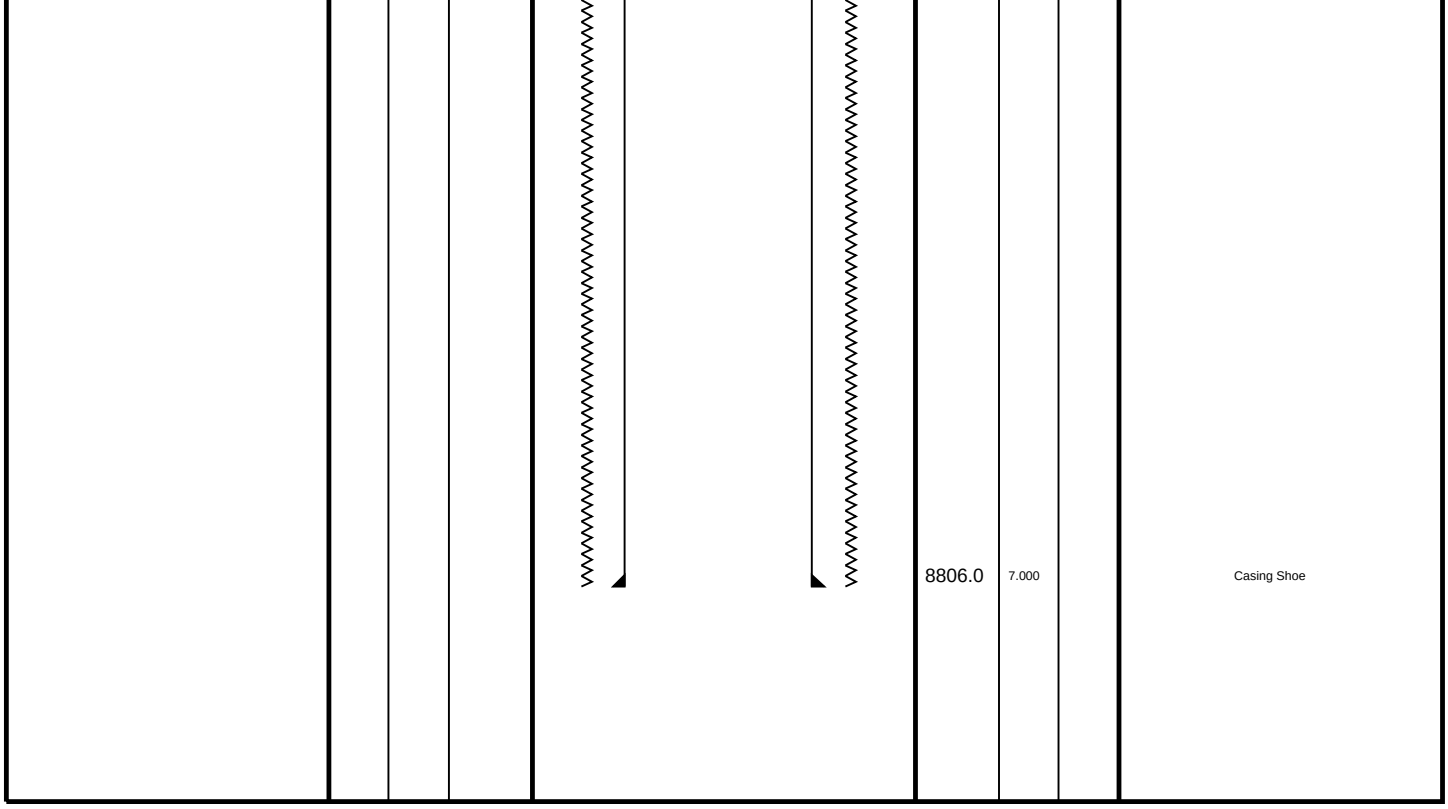


MAXIMUM STRING DIAMETER 7.50 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN FEET

Client: EXXONMOBIL PRODUCTION CO
Well: PCU 197−34B8
Field: PICEANCE CREEK
State: COLORADO
Country: USA

Drawing Date: 11/4/2009
API #: 05−103−11082−00
Rig Name: Mast
Reference Datum: Kelly Bushing
Elevation: 6649.1 ft

Production String	(in) OD	(in) ID	(ft) MD	Well Schematic	(ft) MD	(in) OD	(in) ID	Casing String
					30.2	10.750		Casing String
					3900.0	10.750		Casing Shoe
					3900.0	9.875		Borehole Segment



Schlumberger

IBC SLG COMPOSITE

MAXIS Field Log

Company: EXXONMOBIL PRODUCTION CO **Well: PCU 197−34B8**

Input DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_005LUP	FN:4	PRODUCER	03−Nov−2009 20:55	8590.5 FT	200.0 FT

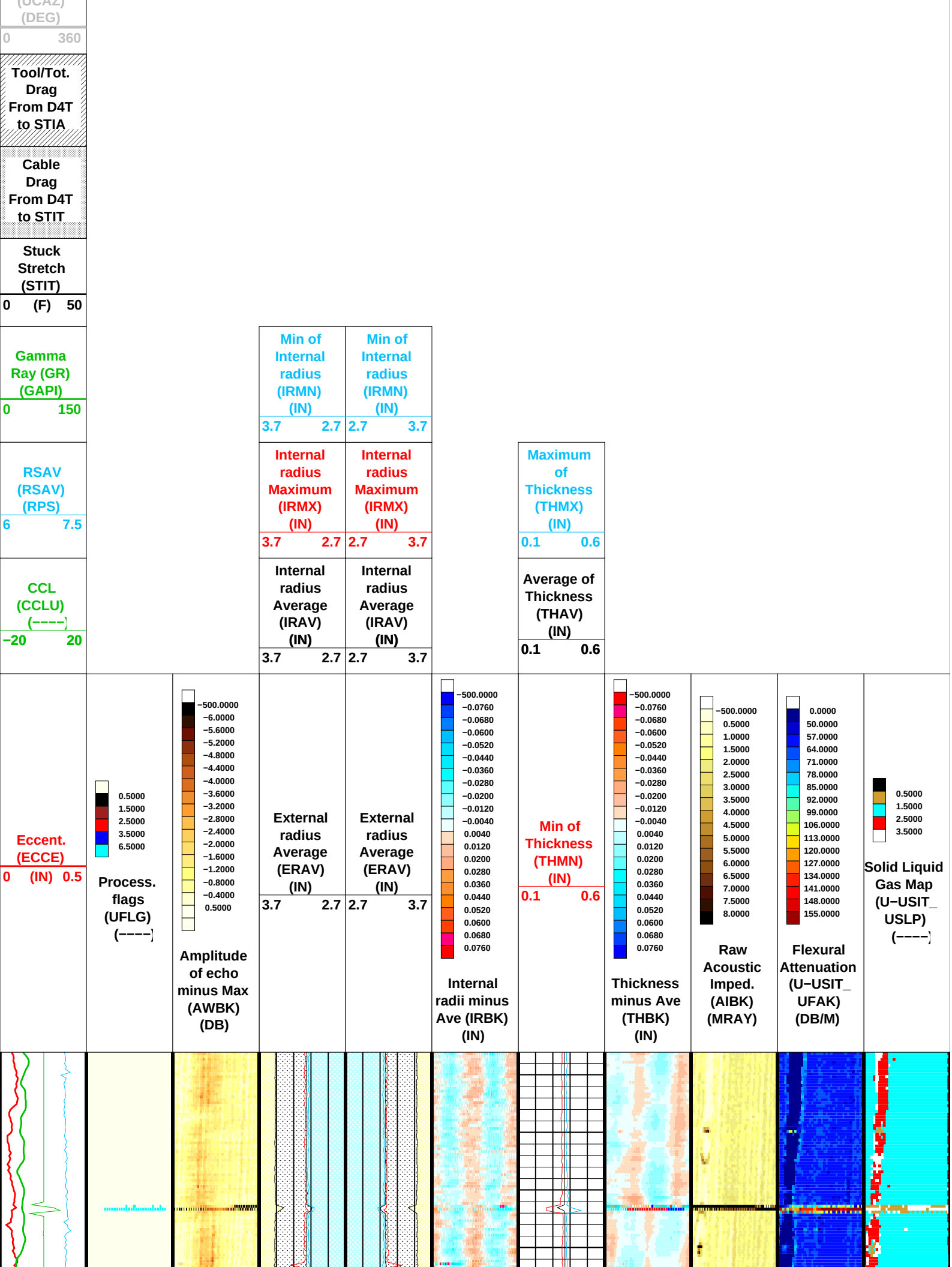
Output DLIS Files

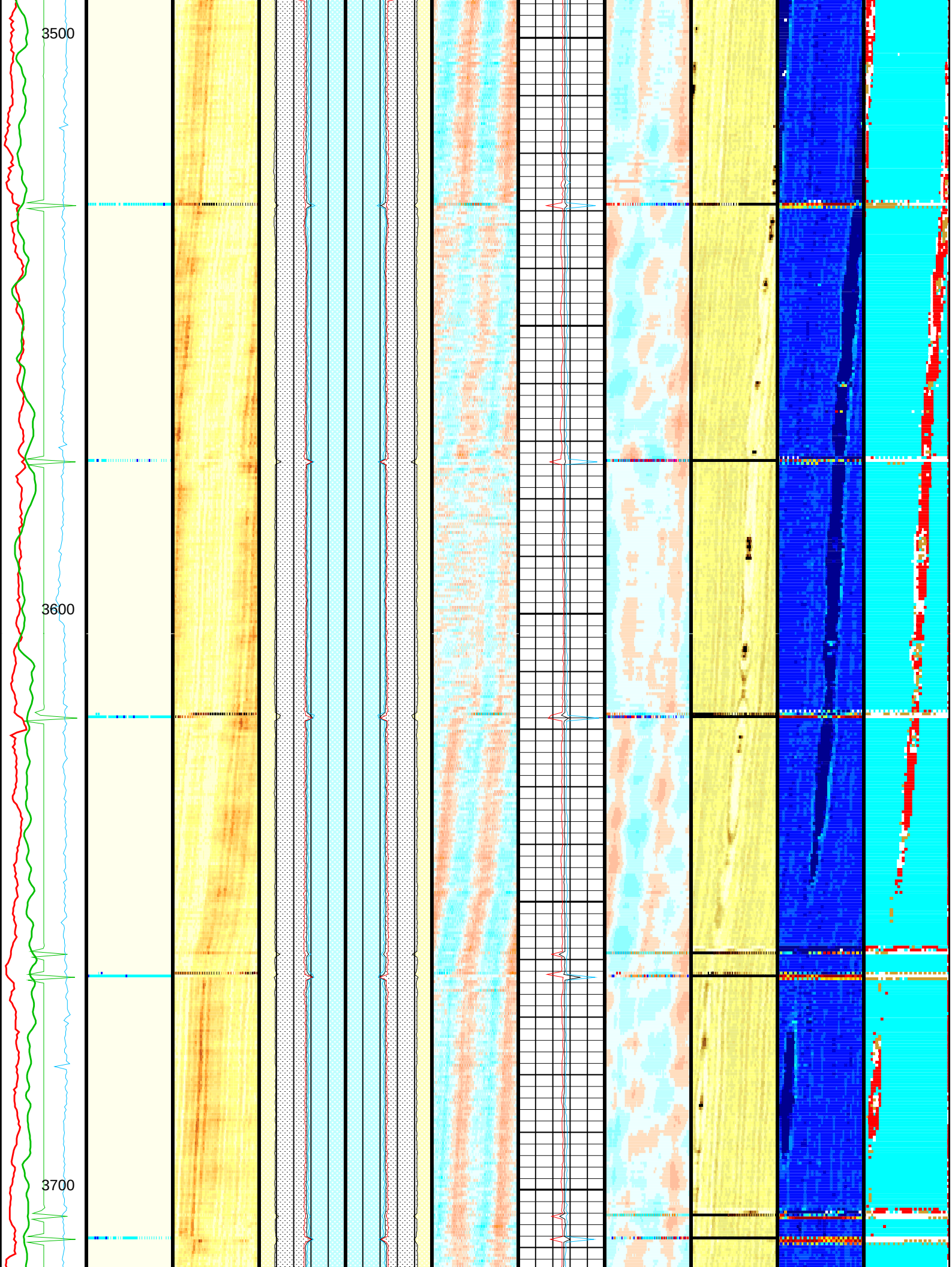
DEFAULT	USI_TLD_MCFL_CNL_009PUP	FN:8	PRODUCER	04−Nov−2009 02:02

OP System Version: 17C0−154

USIT−D	SRPC−3779−Q1_2009_OP17_b	HILTH−FTB	SRPC−3779−Q1_2009_OP17_b
DTC−H	17C0−154		

Image rotation (HCAZ)


(UCAZ) (DEG)
0 360
Tool/Tot. Drag From D4T to STIA
Cable Drag From D4T to STIT
Stuck Stretch (STIT)
0 (F) 50
Gamma Ray (GR) (GAPI)
0 150
RSAV (RSAV) (RPS)
6 7.5
CCL (CCLU) (----)
−20 20
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
Min of Internal radius (IRMN) (IN)
3.7 2.7
Internal radius Maximum (IRMX) (IN)
3.7 2.7
Internal radius Average (IRAV) (IN)
3.7 2.7
External radius Average (ERAV) (IN)
3.7 2.7
Min of Internal radius (IRMN) (IN)
2.7 3.7
Internal radius Maximum (IRMX) (IN)
2.7 3.7
Internal radius Average (IRAV) (IN)
2.7 3.7
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
Maximum of Thickness (THMX) (IN)
0.1 0.6
Average of Thickness (THAV) (IN)
0.1 0.6
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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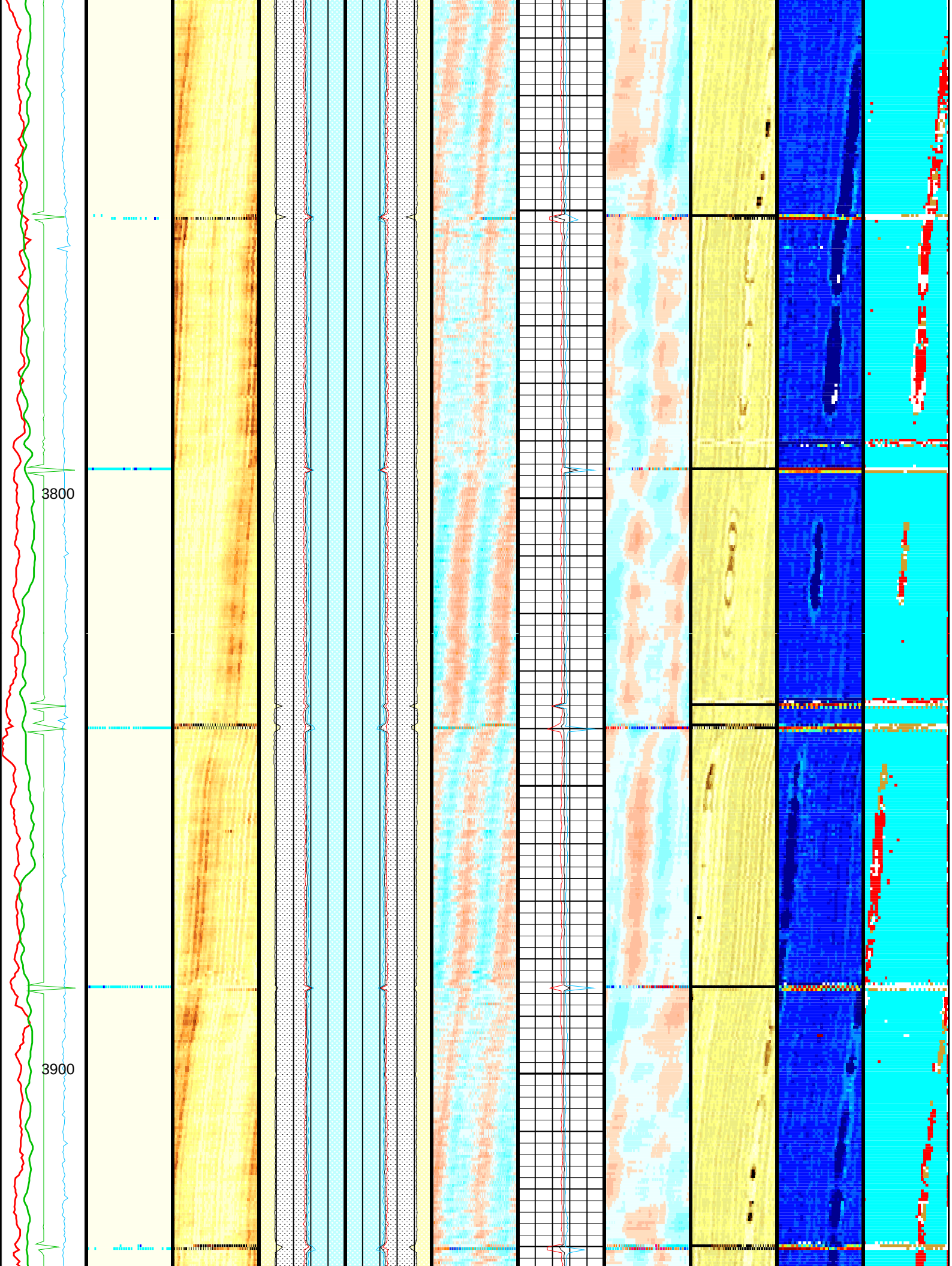
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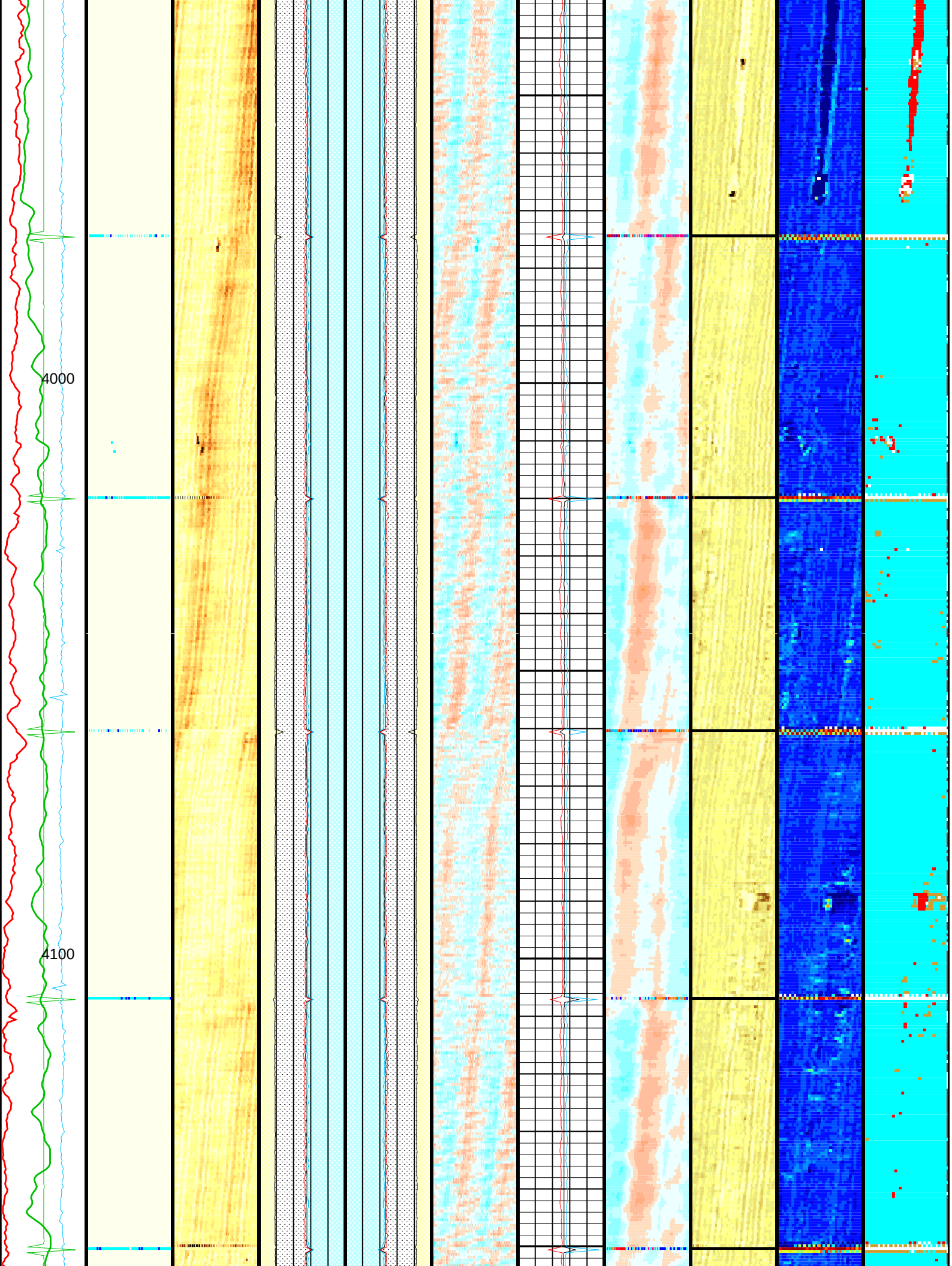
4000
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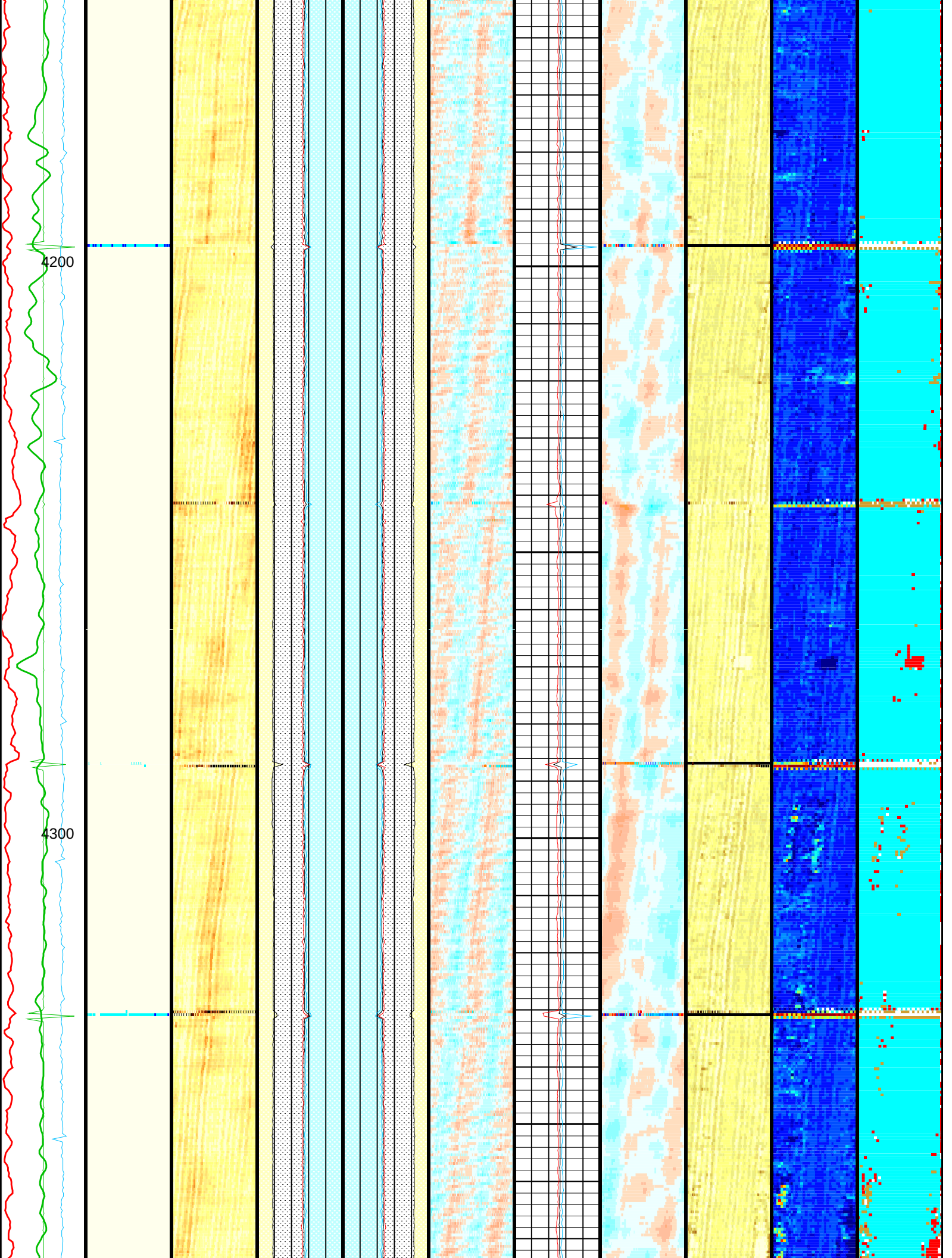
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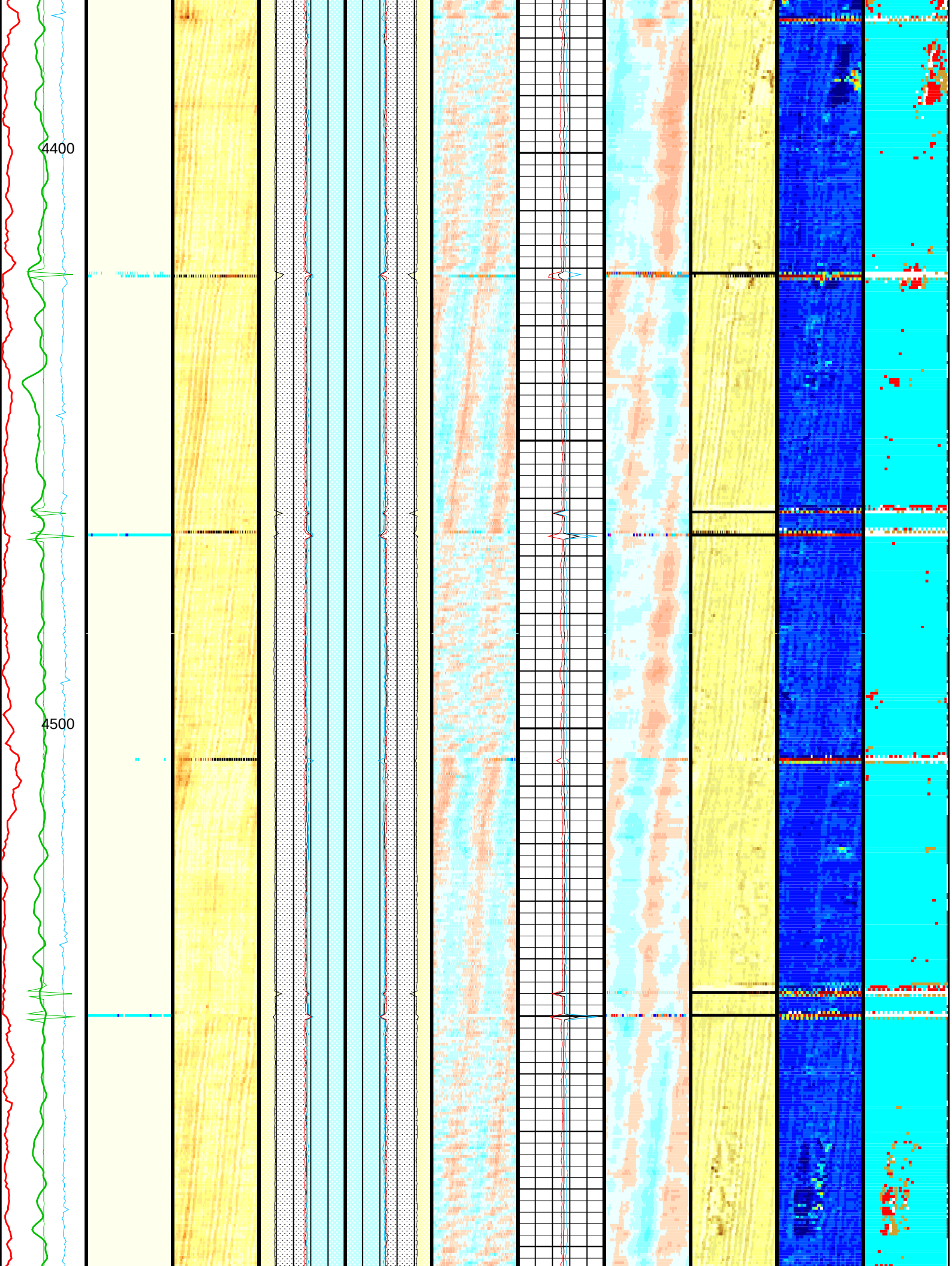
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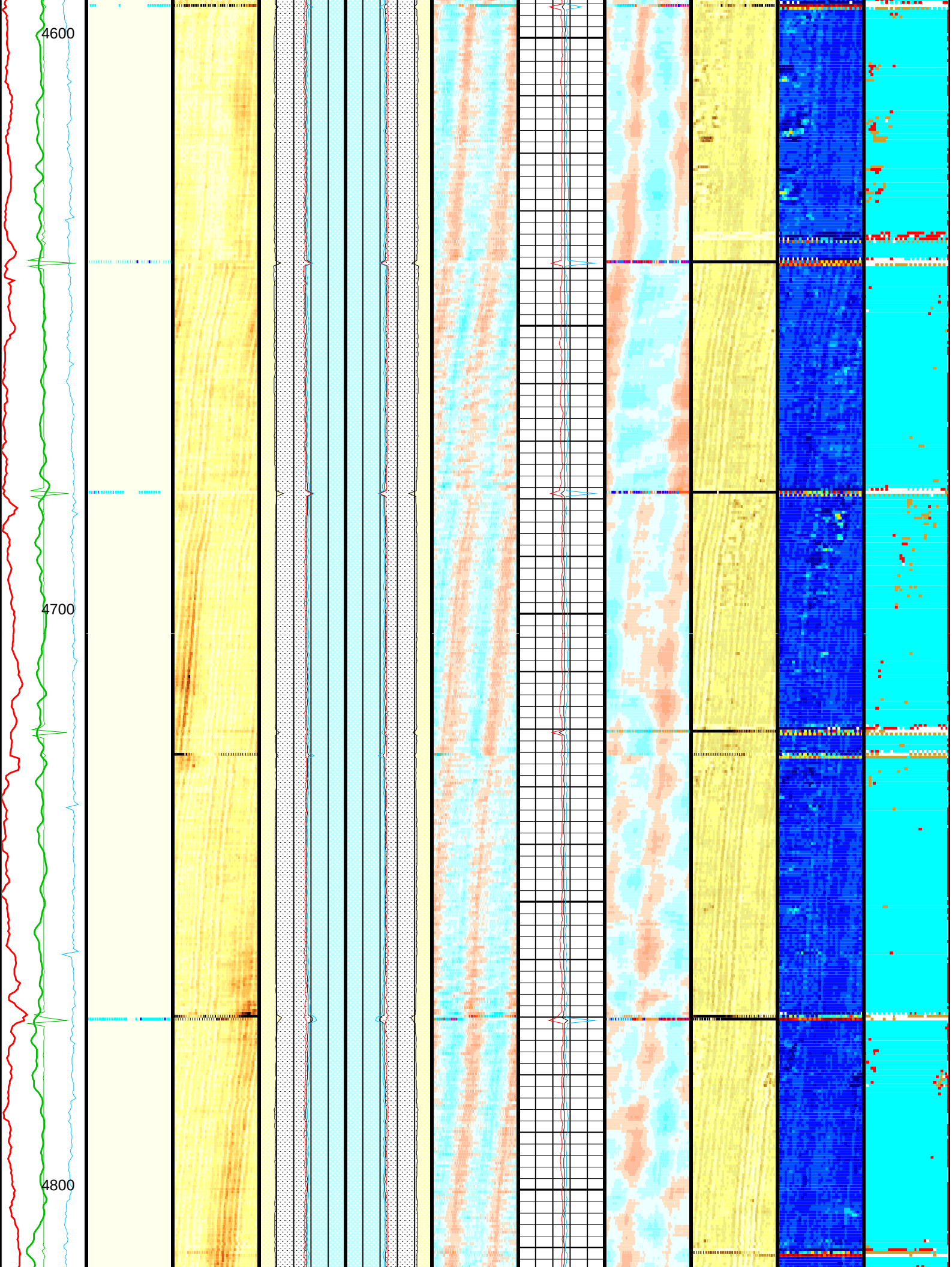
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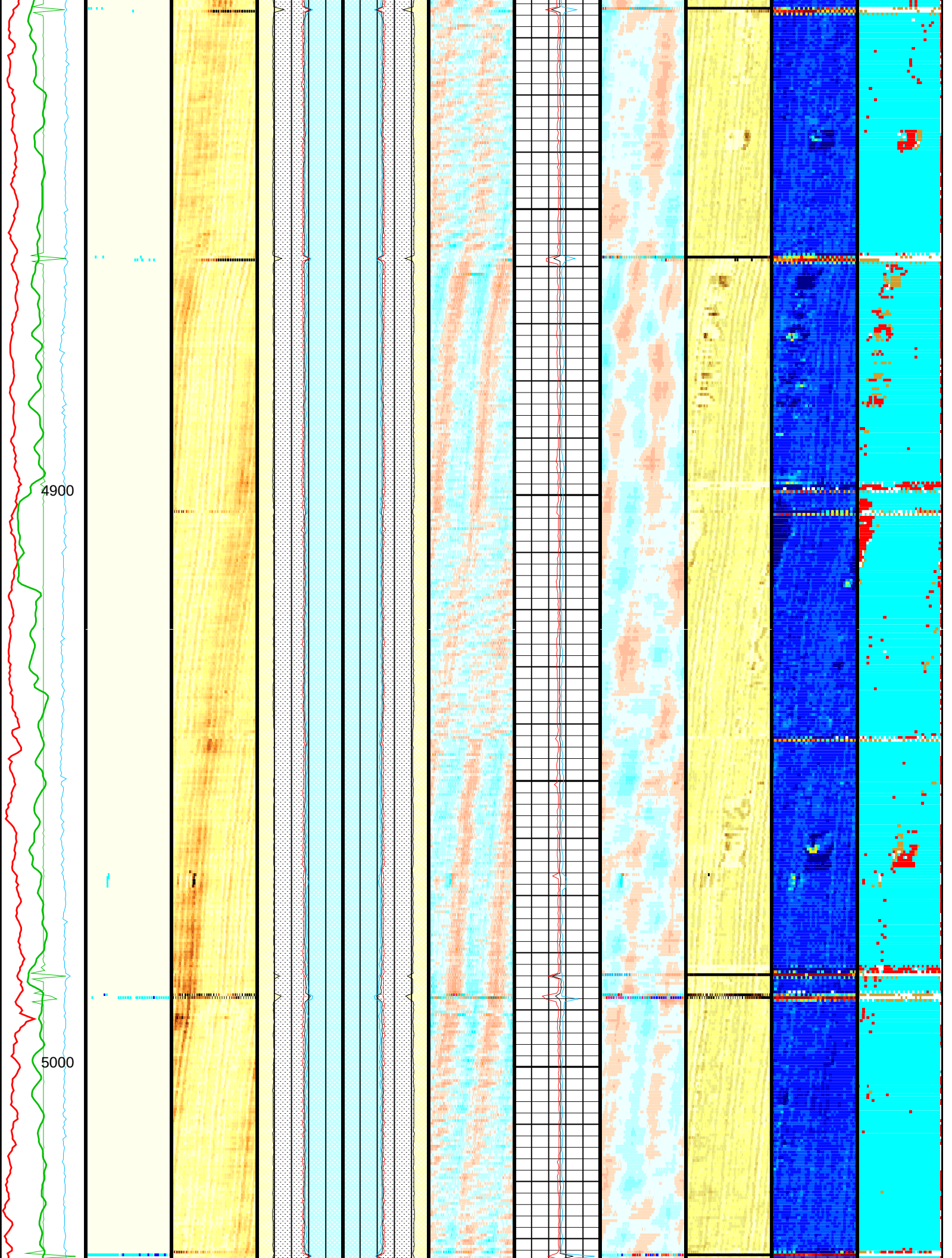
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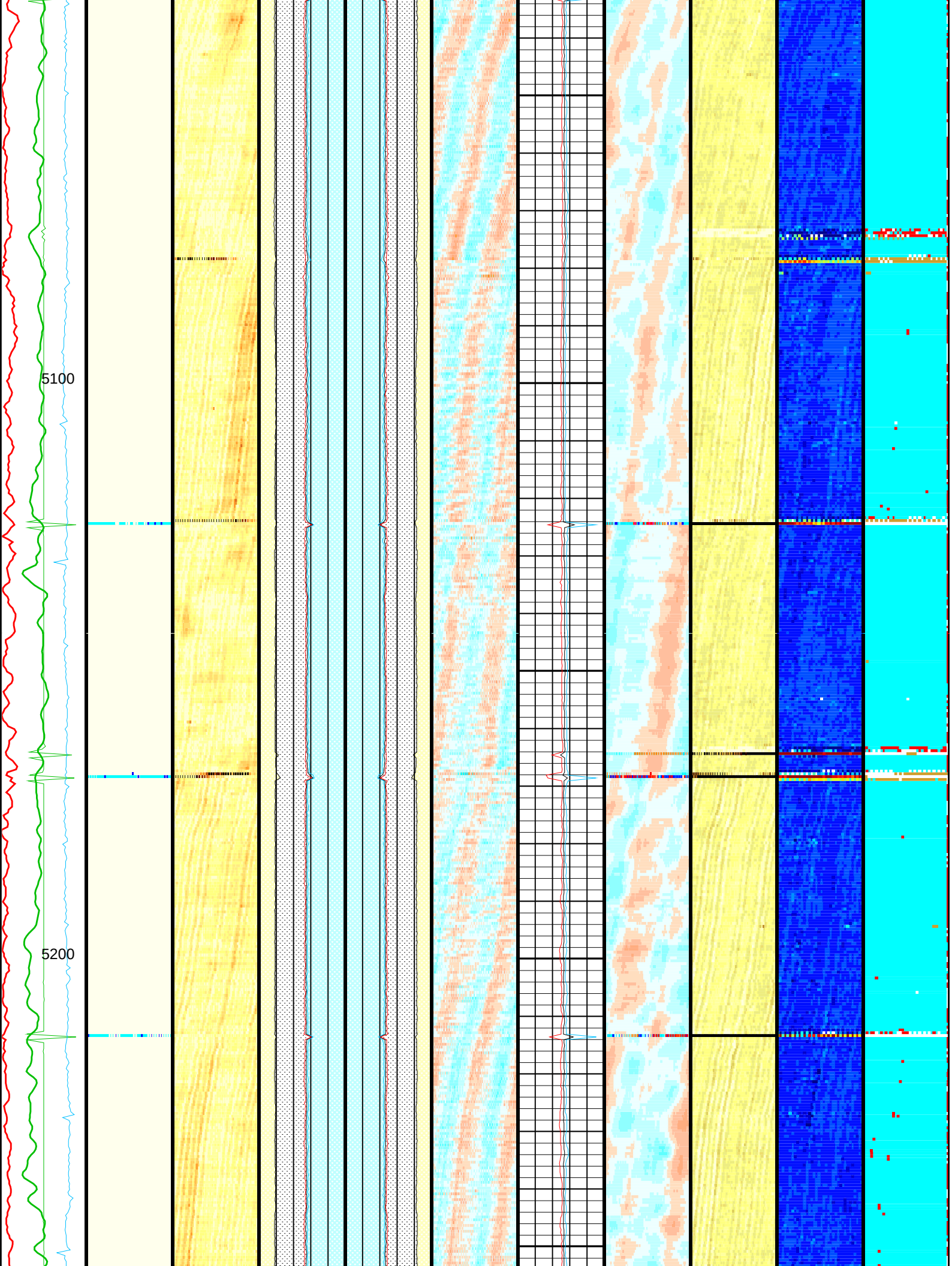
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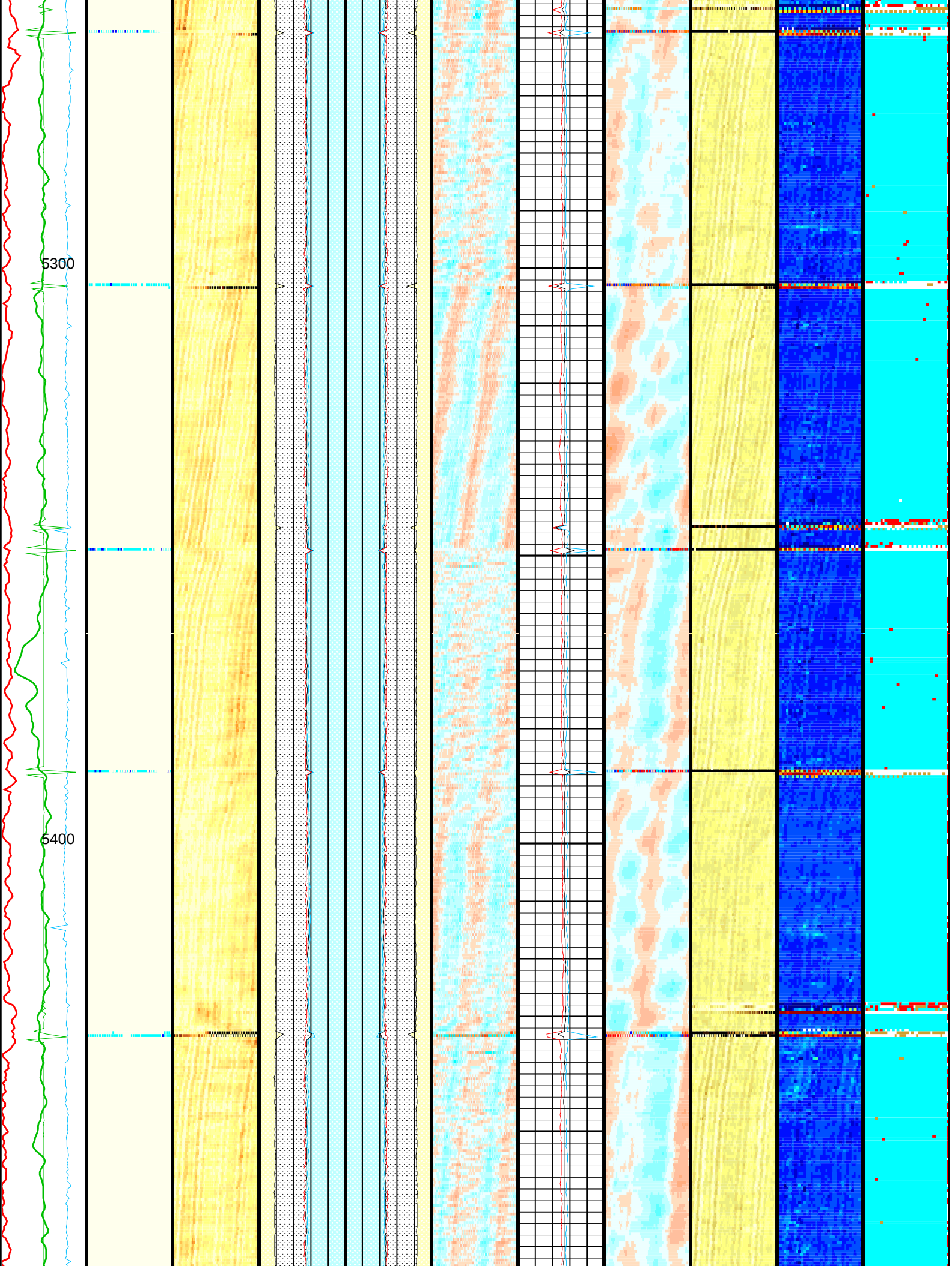
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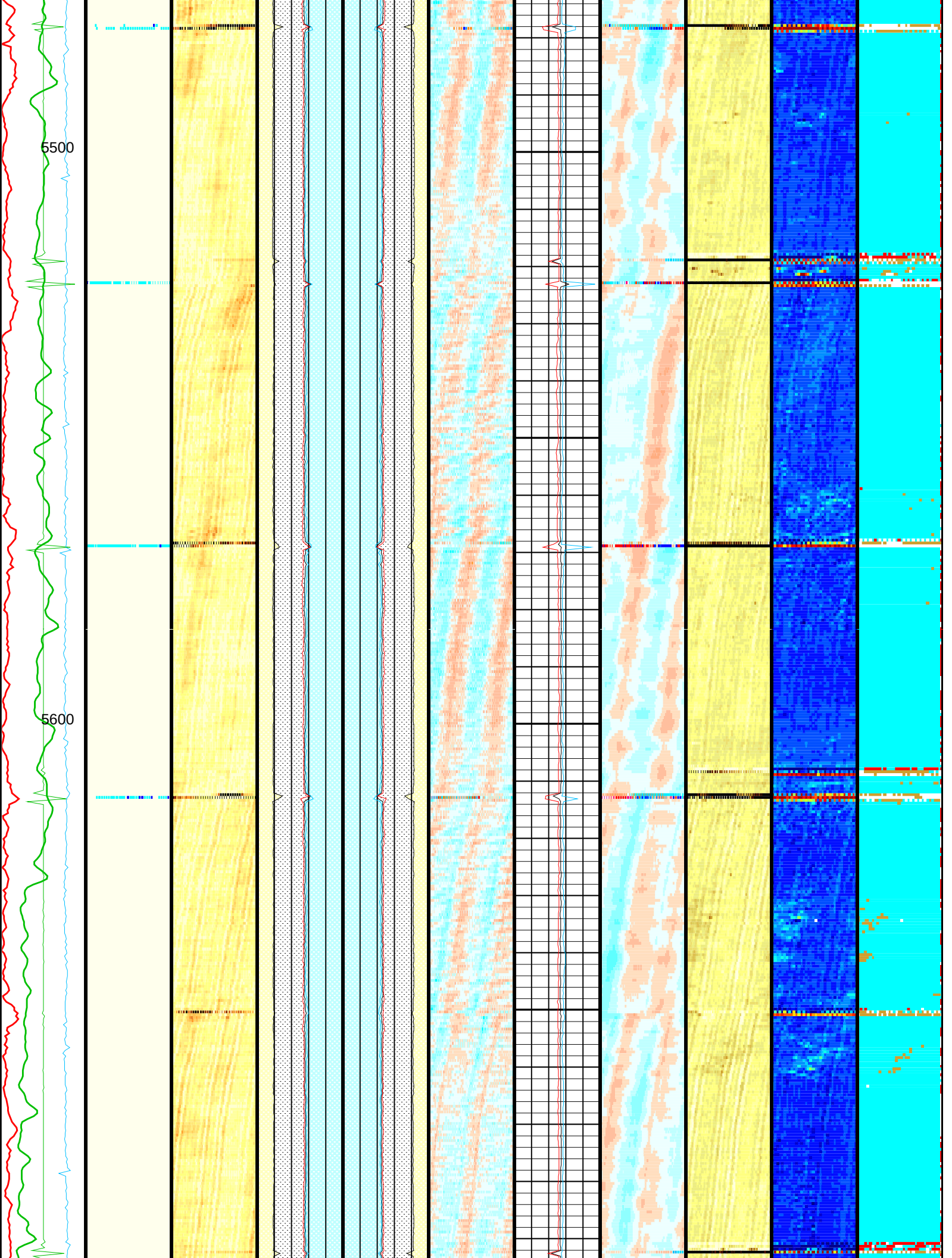
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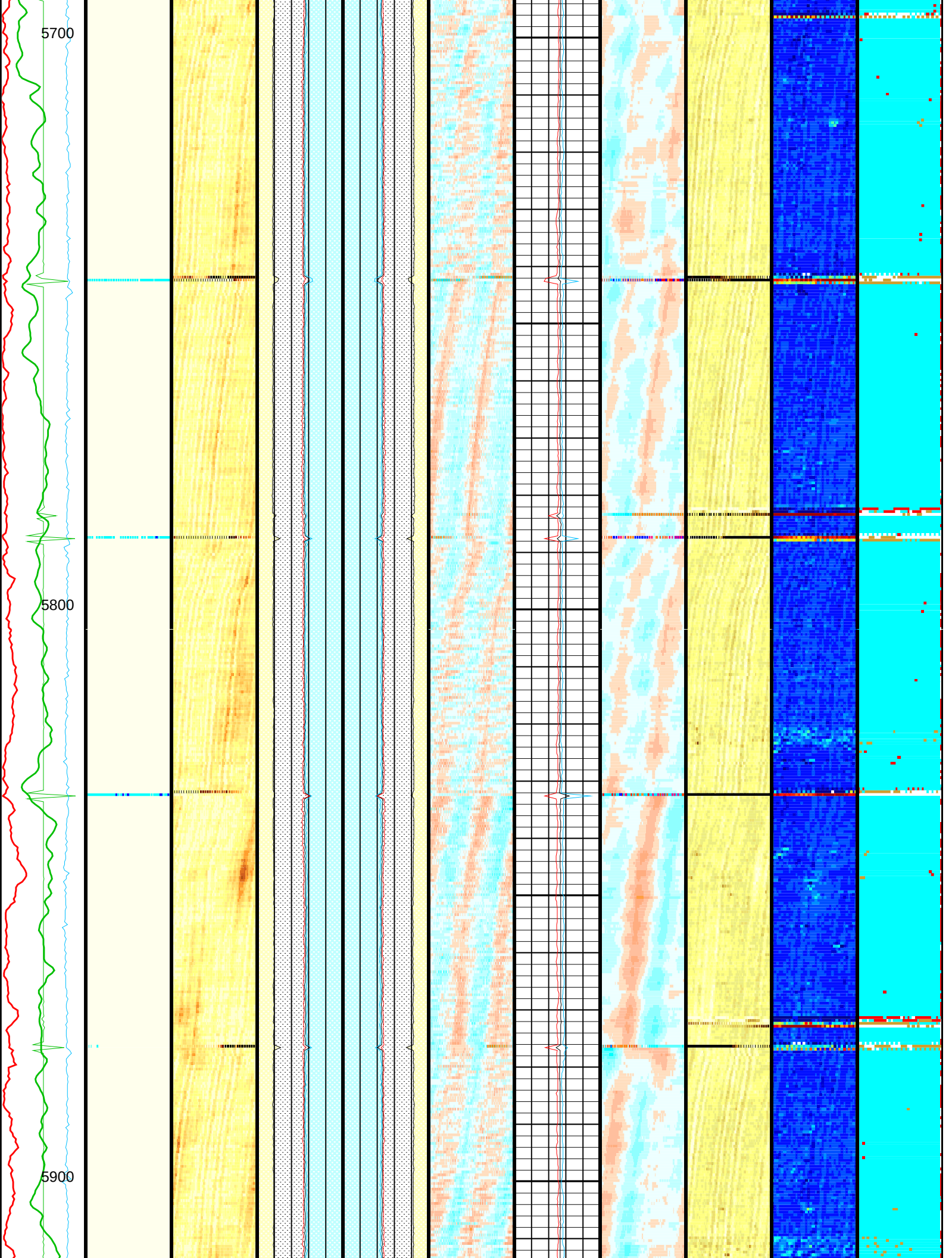
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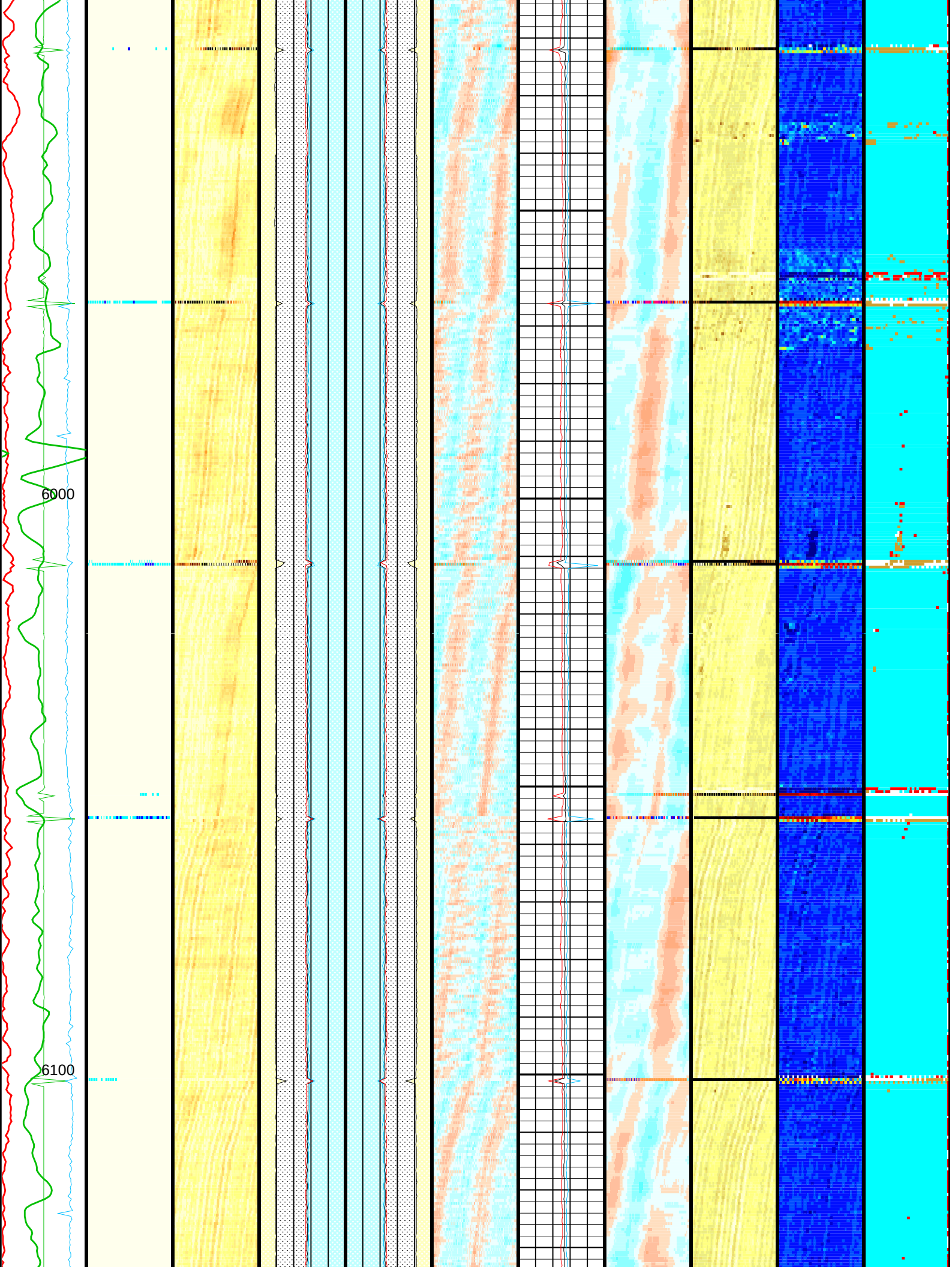
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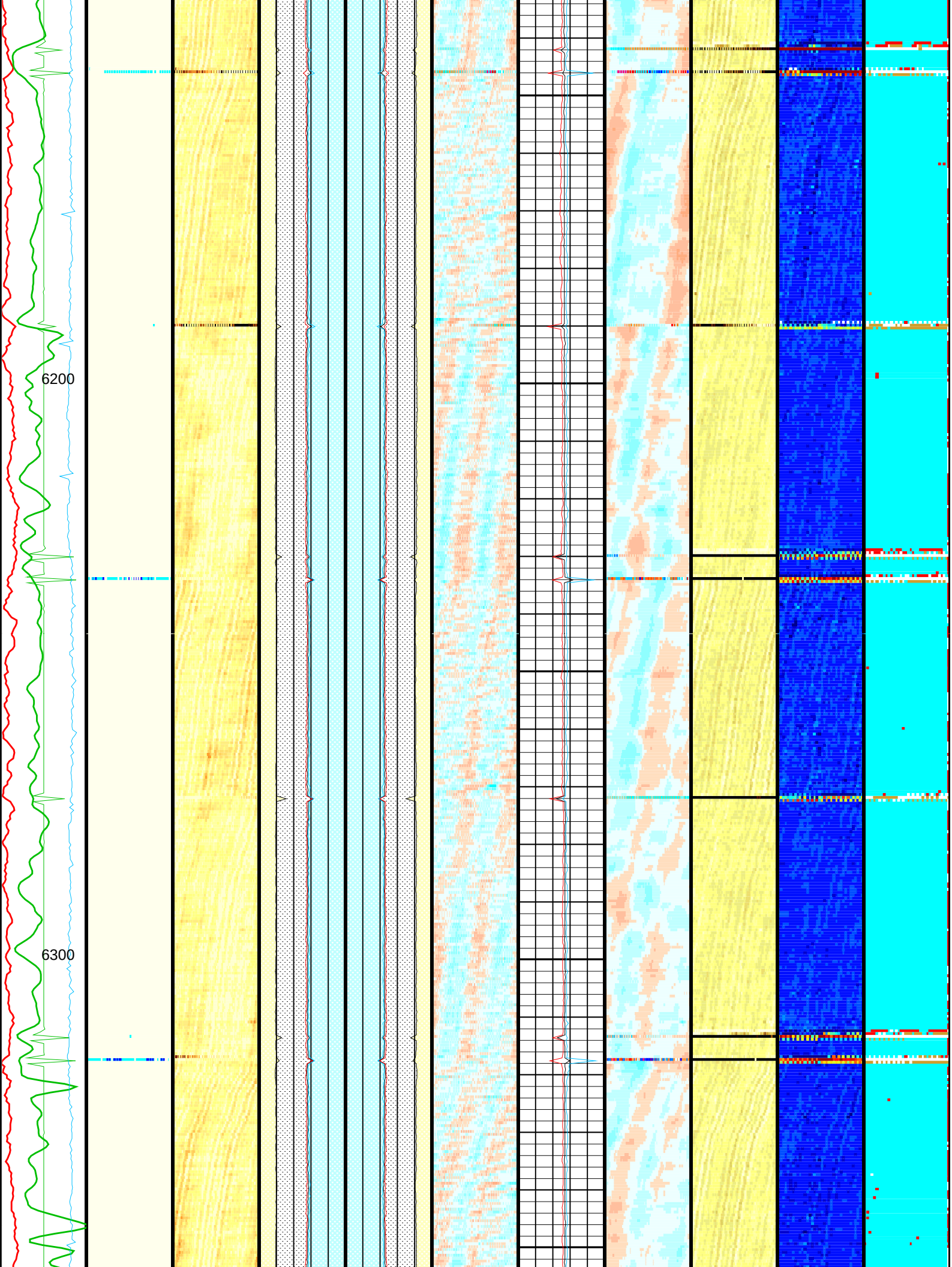
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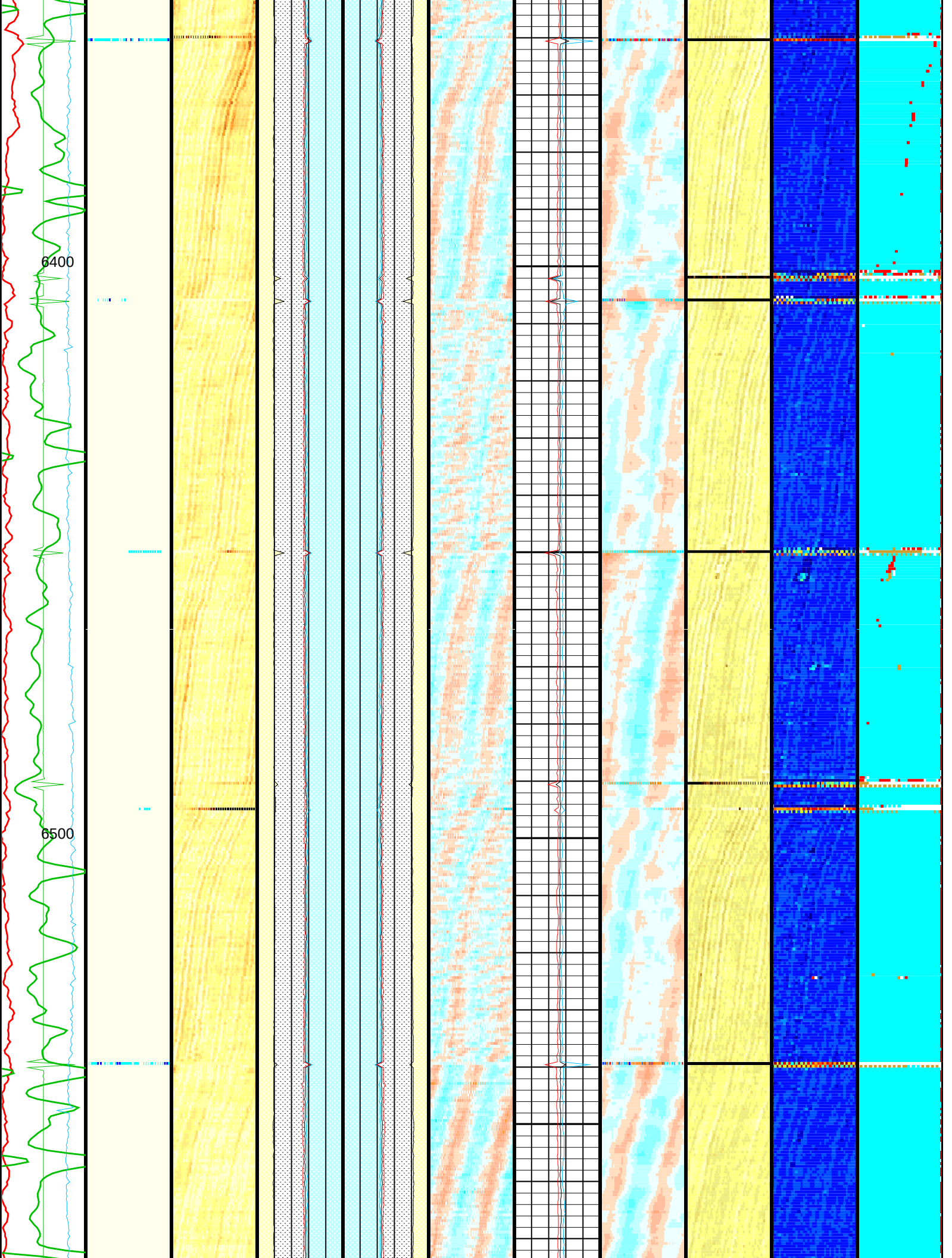
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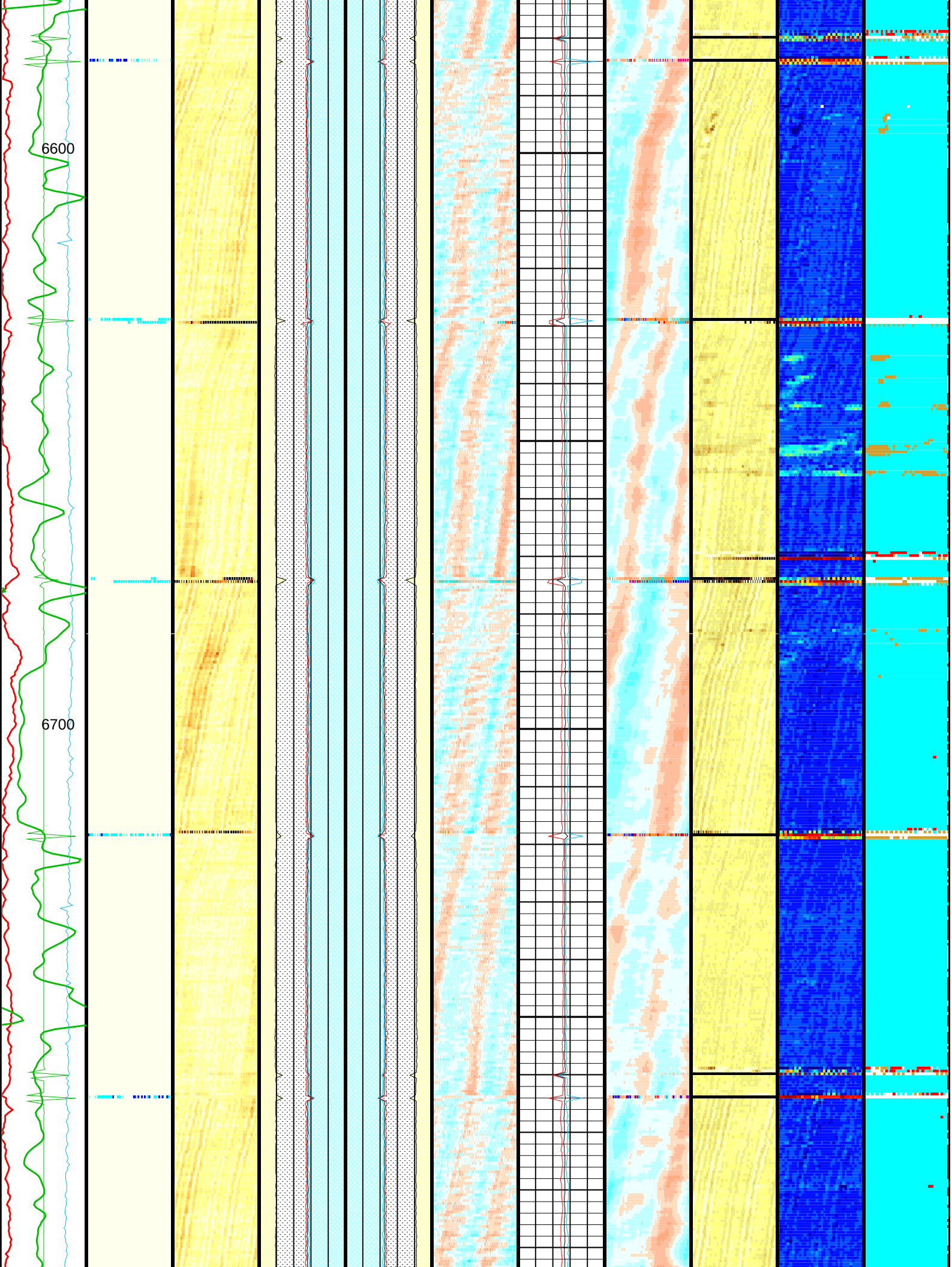
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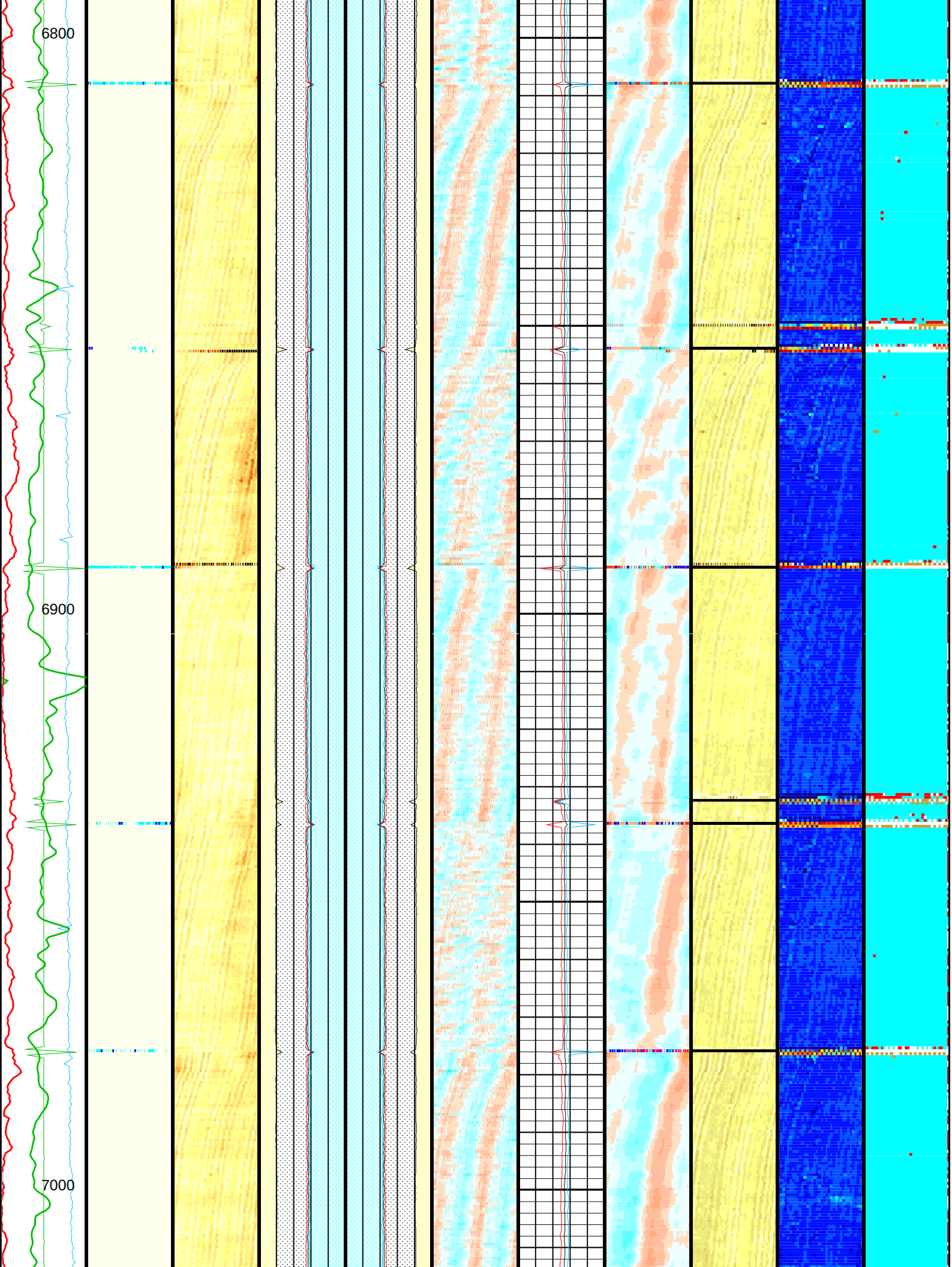
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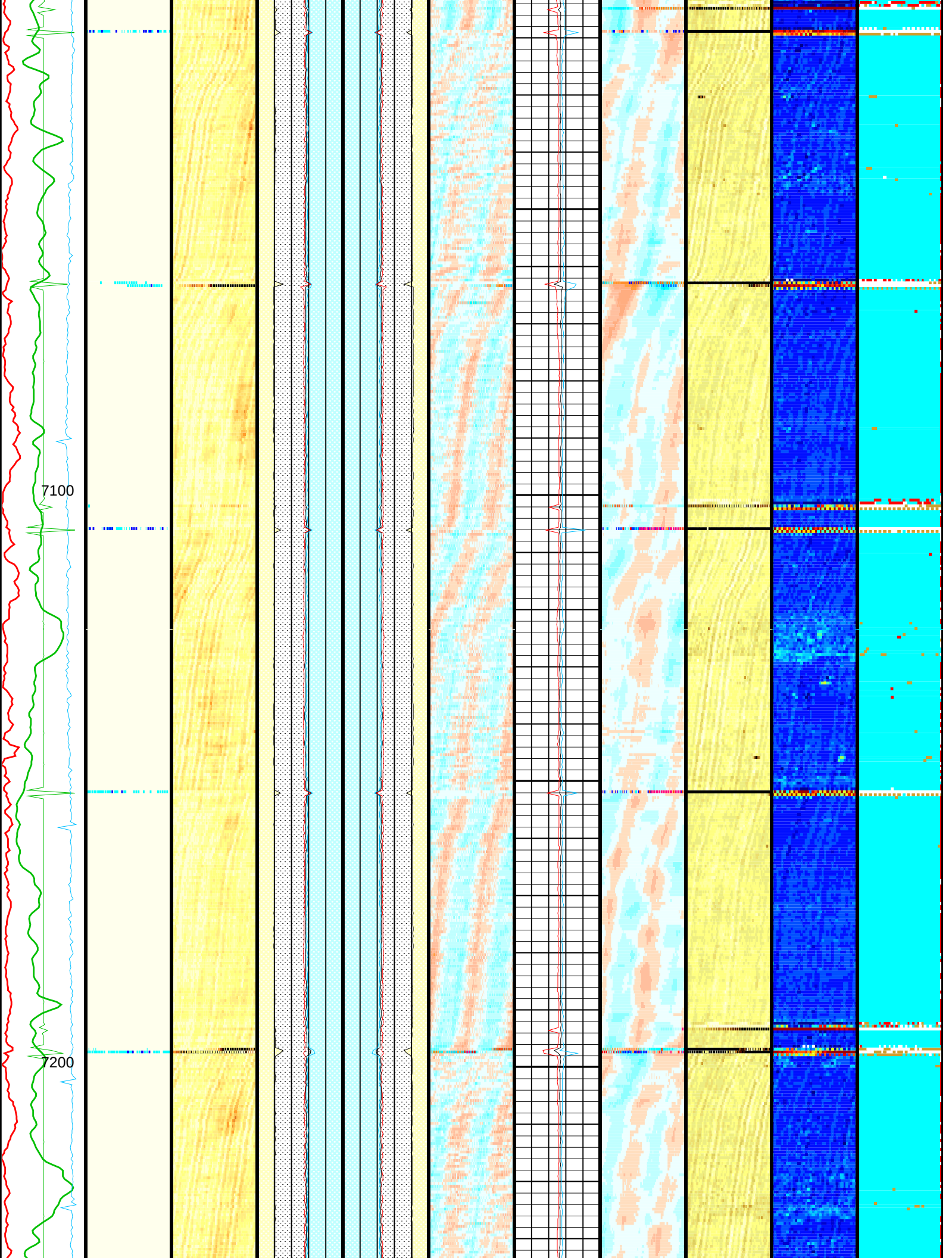
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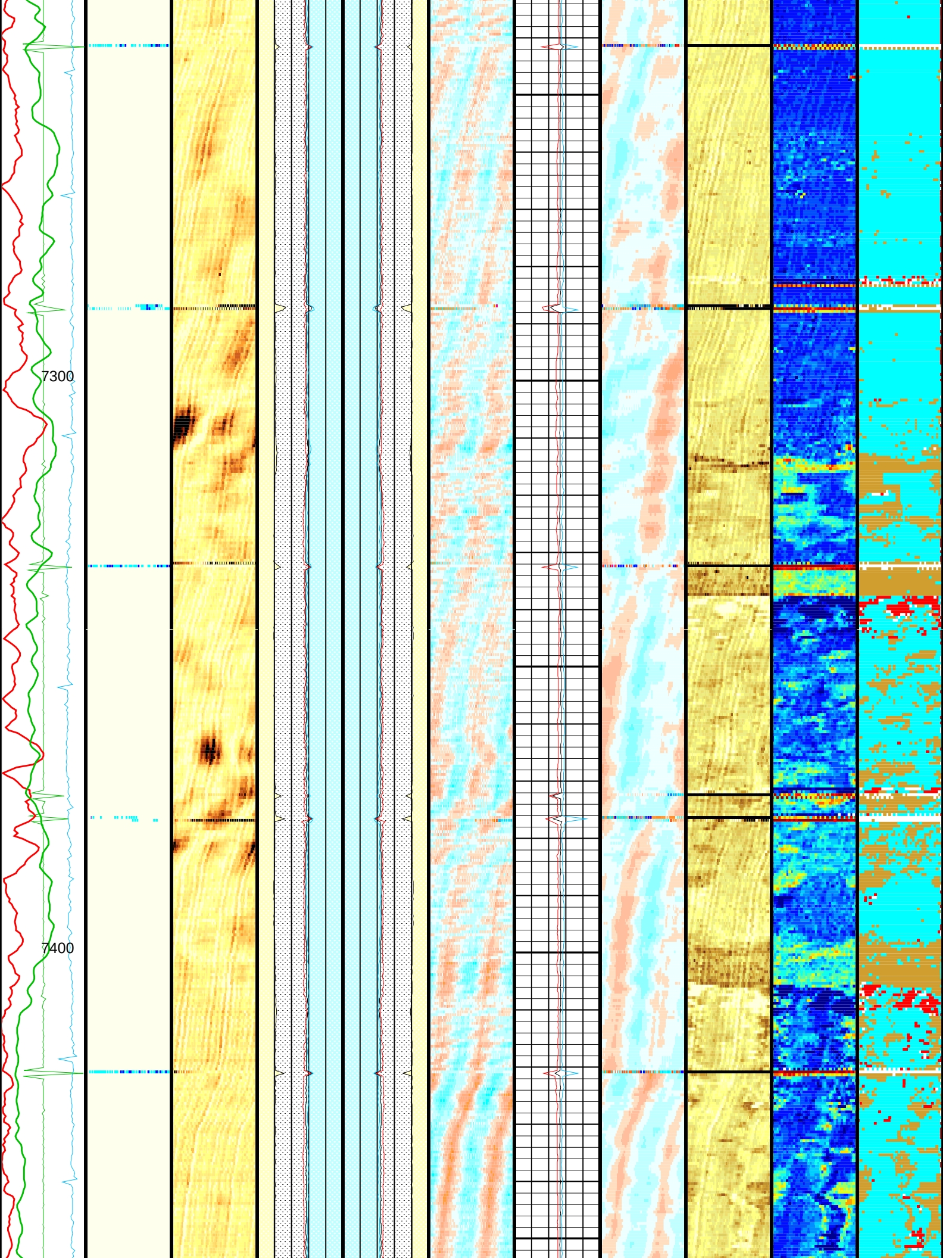
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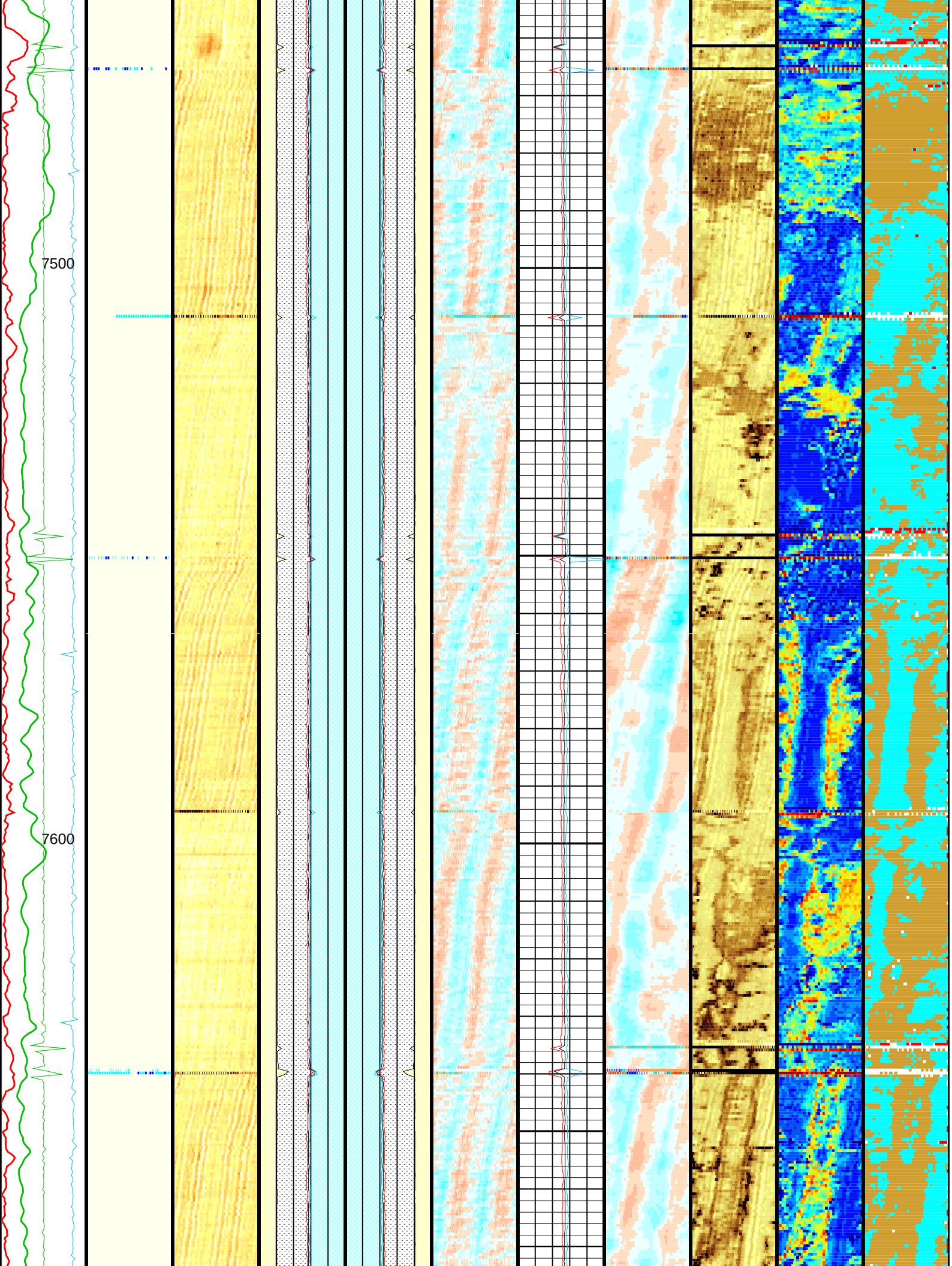
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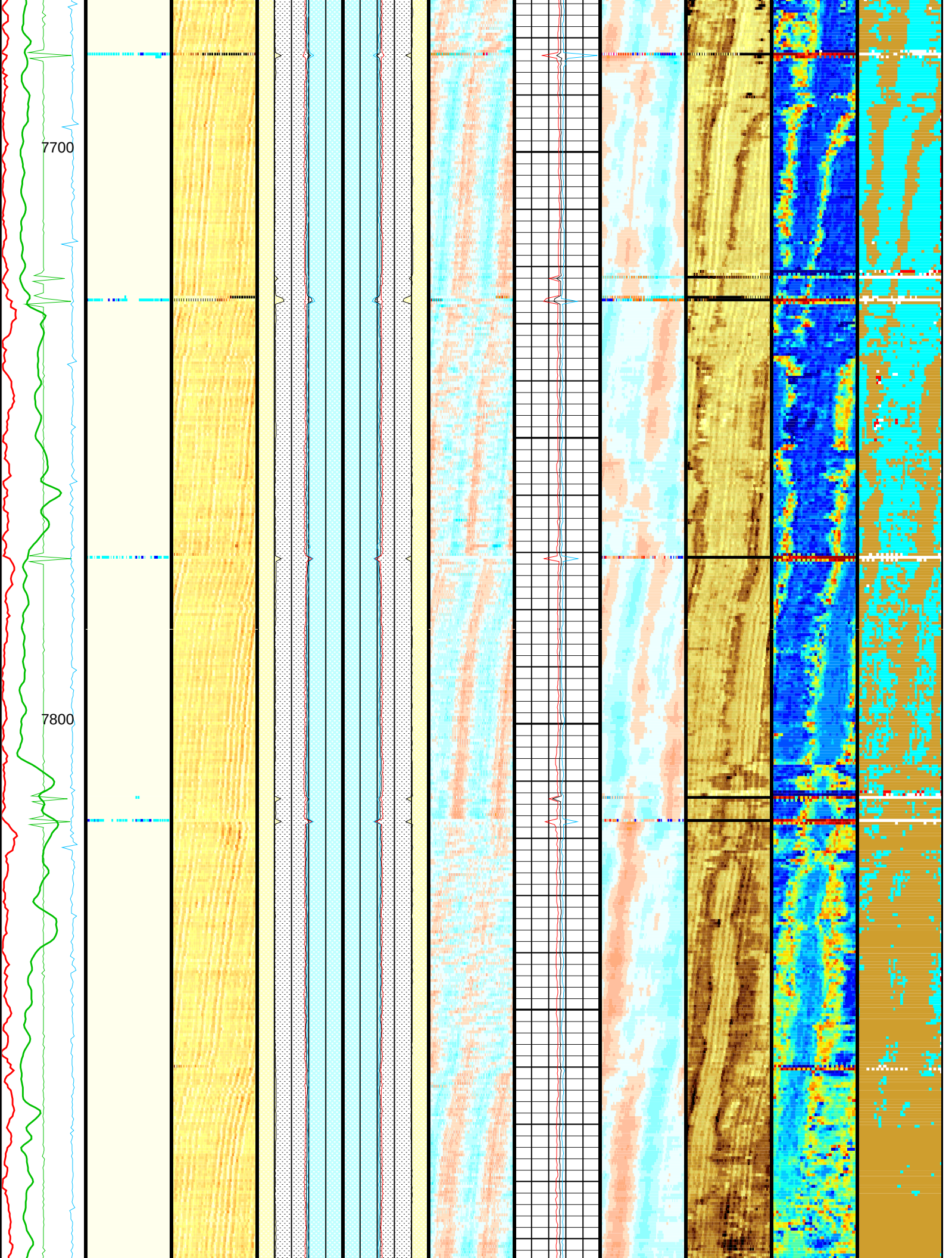
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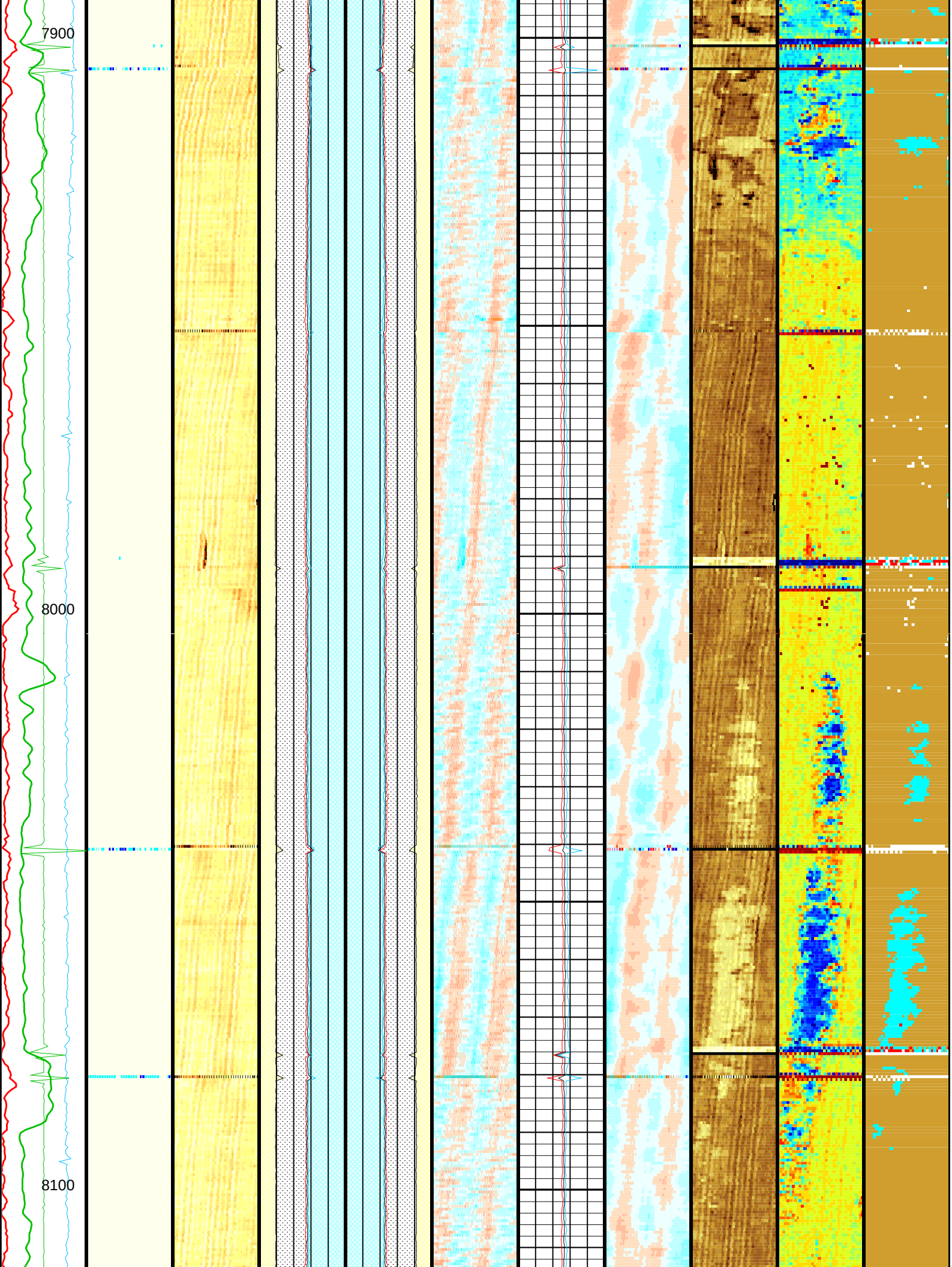
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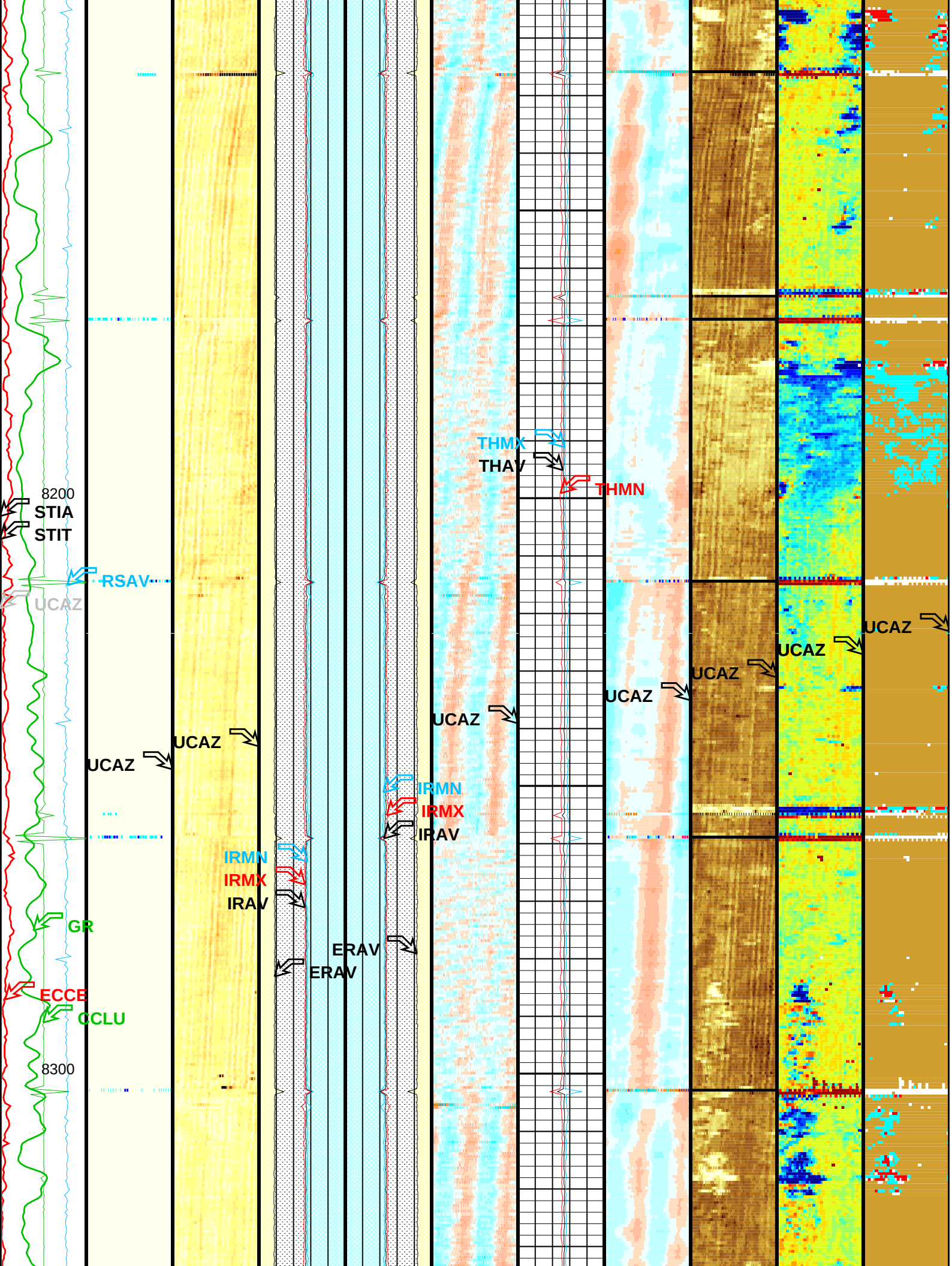
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GR
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ECCE
CCLU
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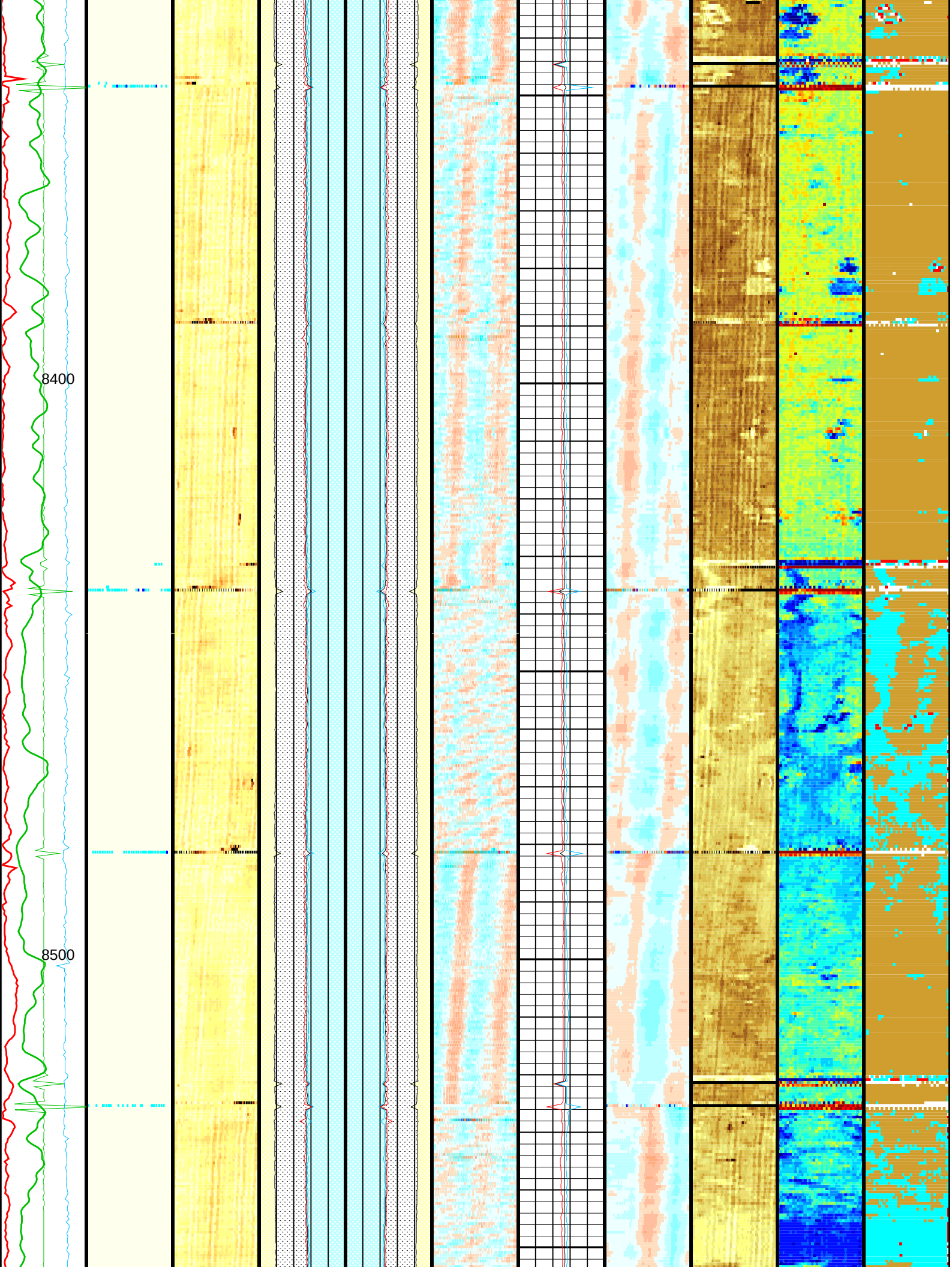
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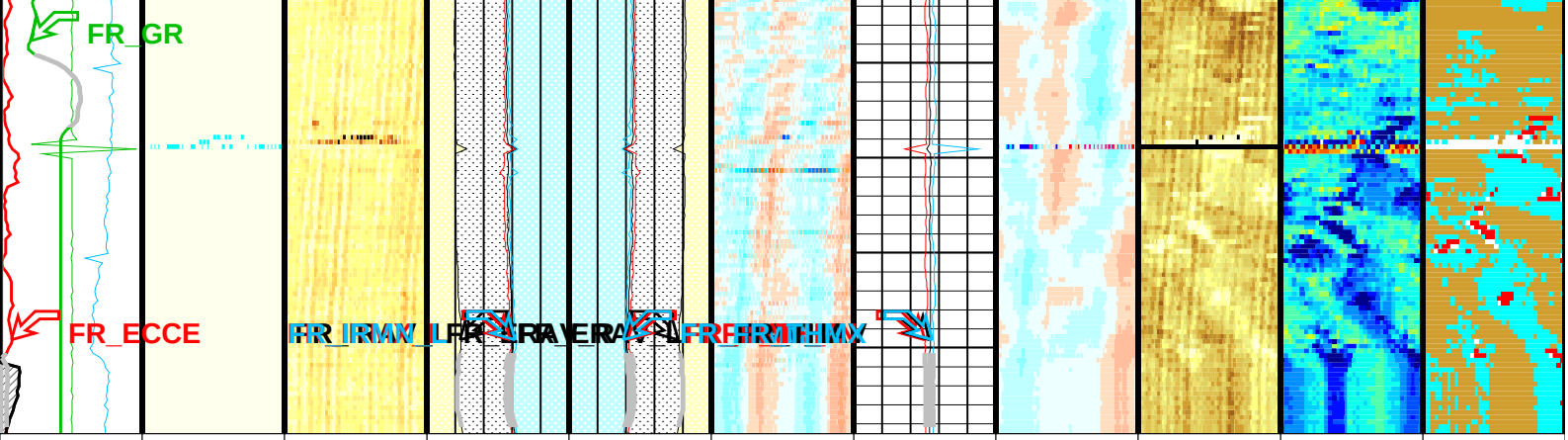


Eccent. (ECCE)	Process. flags (UFLG)	Amplitude of echo minus Max (AWBK) (DB)	External radius Average (ERAV) (IN)	External radius Average (ERAV) (IN)	Internal radii minus Ave (IRBK) (IN)	Min of Thickness (THMN) (IN)	Thickness minus Ave (THBK) (IN)	Raw Acoustic Imped. (AIBK) (MRAY)	Flexural Attenuation (U−USIT_UFAK) (DB/M)	Solid Liquid Gas Map (U−USIT_USLP) (−−−−)
0 (IN) 0.5	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	3.7 2.7	2.7 3.7	−500.0000 −0.0760 −0.0680 −0.0600 −0.0520 −0.0440 −0.0360 −0.0280 −0.0200 −0.0120 −0.0040 0.0040 0.0120 0.0200 0.0280 0.0360 0.0440 0.0520 0.0600 0.0680 0.0760	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 0.5000 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) (−−−−)	Internal radius Average (IRAV) (IN)	Internal radius Average (IRAV) (IN)	Average of Thickness (THAV) (IN)
−20 20	3.7 2.7	2.7 3.7	0.1 0.6
RSAV (RSAV) (RPS)	**Internal radius Maximum (IRMX) (IN)**	**Internal radius Maximum (IRMX) (IN)**	**Maximum of Thickness (THMX) (IN)**
6 7.5	3.7 2.7	2.7 3.7	0.1 0.6
Gamma Ray (GR) (GAPI)	**Min of Internal radius (IRMN) (IN)**	**Min of Internal radius (IRMN) (IN)**	
0 150	3.7 2.7	2.7 3.7	
Stuck Stretch (STIT)			
0 (F) 50			
Cable Drag From D4T to STIT			
Tool/Tot. Drag From D4T to STIA			

Image rotation (UCAZ) (DEG)

0 360

Format: USI_IBC_SLG_Composite Vertical Scale: 5" per 100' Graphics File Created: 04−Nov−2009 02:02

OP System Version: 17C0−154

USIT−D	SRPC−3779−Q1_2009_OP17_b	HILTH−FTB	SRPC−3779−Q1_2009_OP17_b
DTC−H	17C0−154		

All USI Images are outside views

USI : LOW Frequency Compression Mode Used For Logging.

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

Parameters

DLIS Name	Description	Value	
	USIT−D: Ultrasonic Imaging − D		
AGMN	Minimum Gain of Cartridge	−4	DB
AGMX	Maximum Gain of Cartridge	20	DB
BERJ	Bad Echo Rejection	ON	
CDIA	Casing Outer Diameter	7	IN
CSDE	Casing Density	486.94	LBCF
CSID	Casing Inner Diameter	6.276	IN
DFVL	Default Fluid Velocity	203	US/F
DOT	Diameter of Transducer Sensor	2.874	IN
EMXV	EMEX Voltage	100	V
FSOD	Fluid Slowness Fits Casing Outer Diameter	2_UFSL_N_UFAI	
IMAR	Image Rotation	OFF	
MW	Mud Weight	9.7	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	10.75	IN
U−USIT_OCSH	USIT Outer Casing Shoe	4318	FT
U−USIT_OCWE	USIT Outer Casing Weight	45	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	−14	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	2	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	5	FT
TDD	Total Depth − Driller	8806.00	FT
TDL	Total Depth − Logger	8590.00	FT
System and Miscellaneous			
BS	Bit Size	9.875	IN
CWEI	Casing Weight	26.00	LB/F
DO	Depth Offset for Playback	8.5	FT
DORL	Depth Offset for Repeat Analysis	0.0	FT
PP	Playback Processing	NORMAL	

Input DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_005LUP	FN:4	PRODUCER	03−Nov−2009 20:55	8590.5 FT	200.0 FT

Output DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_009PUP	FN:8	PRODUCER	04−Nov−2009 02:02

Schlumberger

VDL WIDE

MAXIS Field Log

Company: EXXONMOBIL PRODUCTION CO **Well: PCU 197−34B8**

Input DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_005LUP	FN:4	PRODUCER	03−Nov−2009 20:55	8590.5 FT	200.0 FT

Output DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_009PUP	FN:8	PRODUCER	04−Nov−2009 02:02

OP System Version: 17C0−154

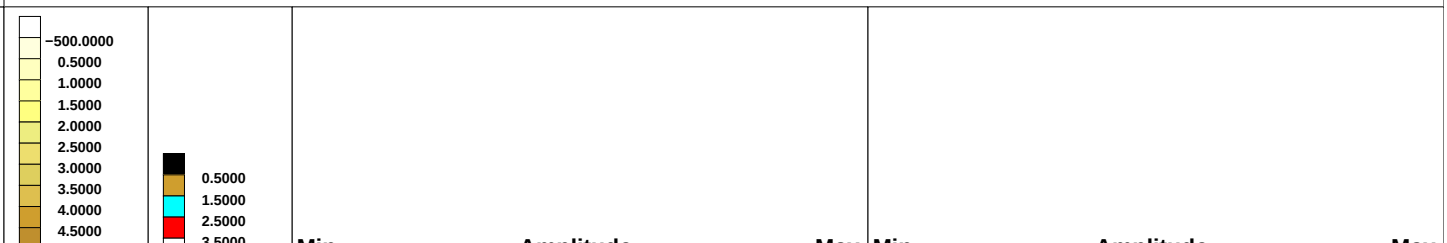
USIT−D	SRPC−3779−Q1_2009_OP17_b	HILTH−FTB	SRPC−3779−Q1_2009_OP17_b
DTC−H	17C0−154		

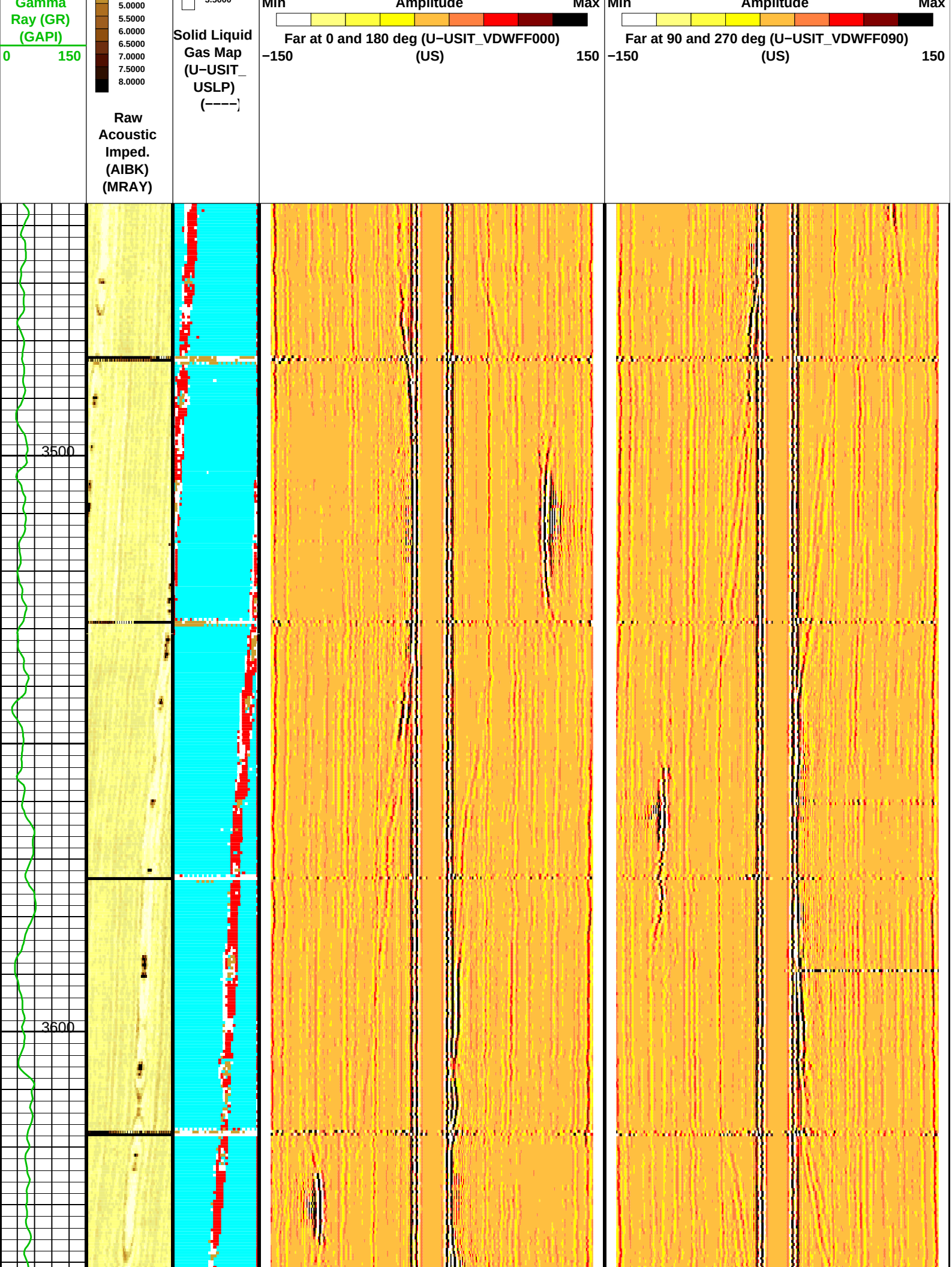
Tool/Tot. Drag From D4T to STIA

Cable Drag From D4T to STIT

Stuck Stretch (STIT)

0 (F) 50

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8.0000
Raw Acoustic Imped. (AIBK) (MRAY)
Solid Liquid Gas Map (U−USIT_USLP) (−−−−)
Min
Amplitude
Max
Far at 0 and 180 deg (U−USIT_VDWFF000)
−150
(US)
150
Min
Amplitude
Max
Far at 90 and 270 deg (U−USIT_VDWFF090)
−150
(US)
150
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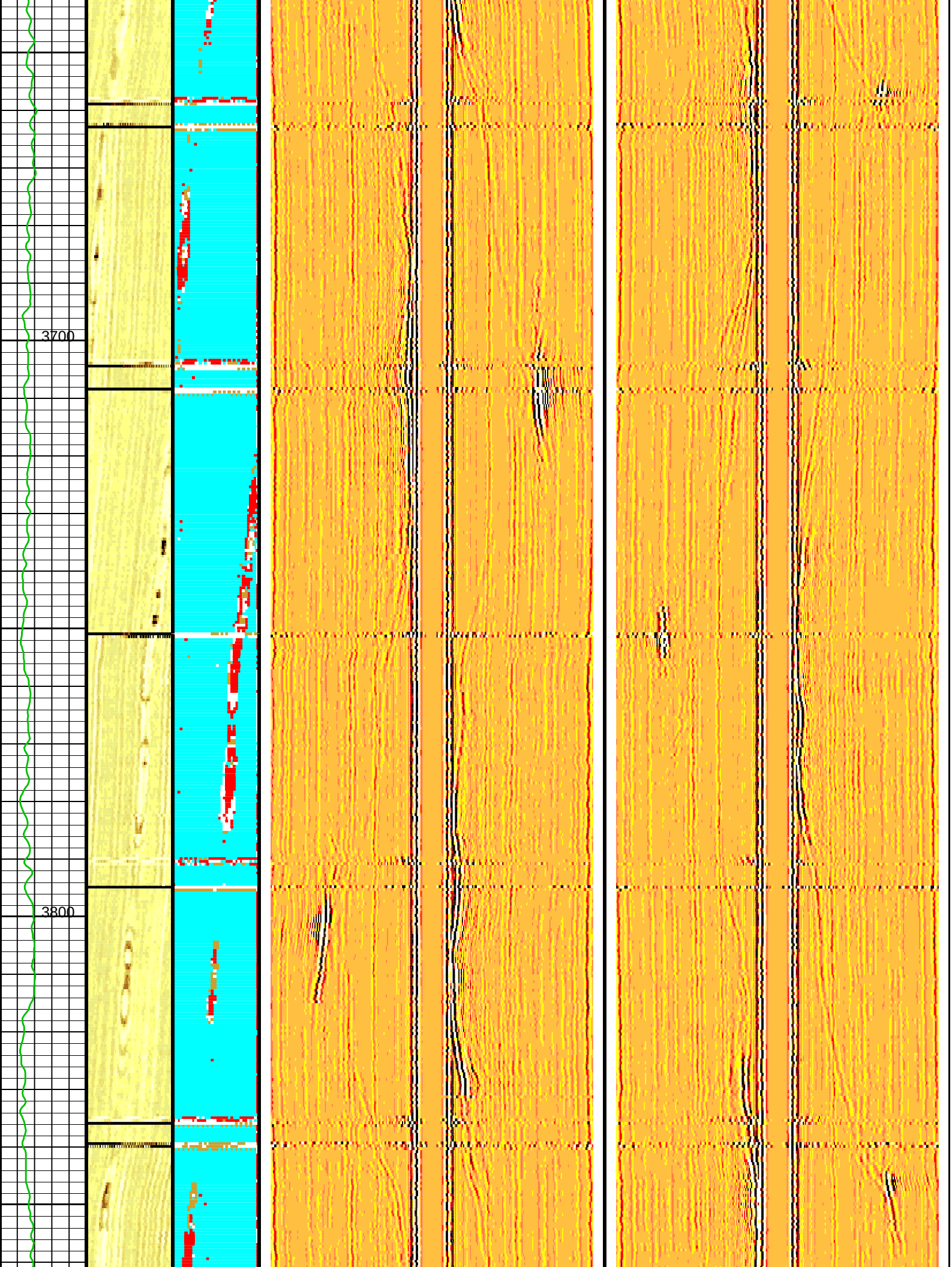
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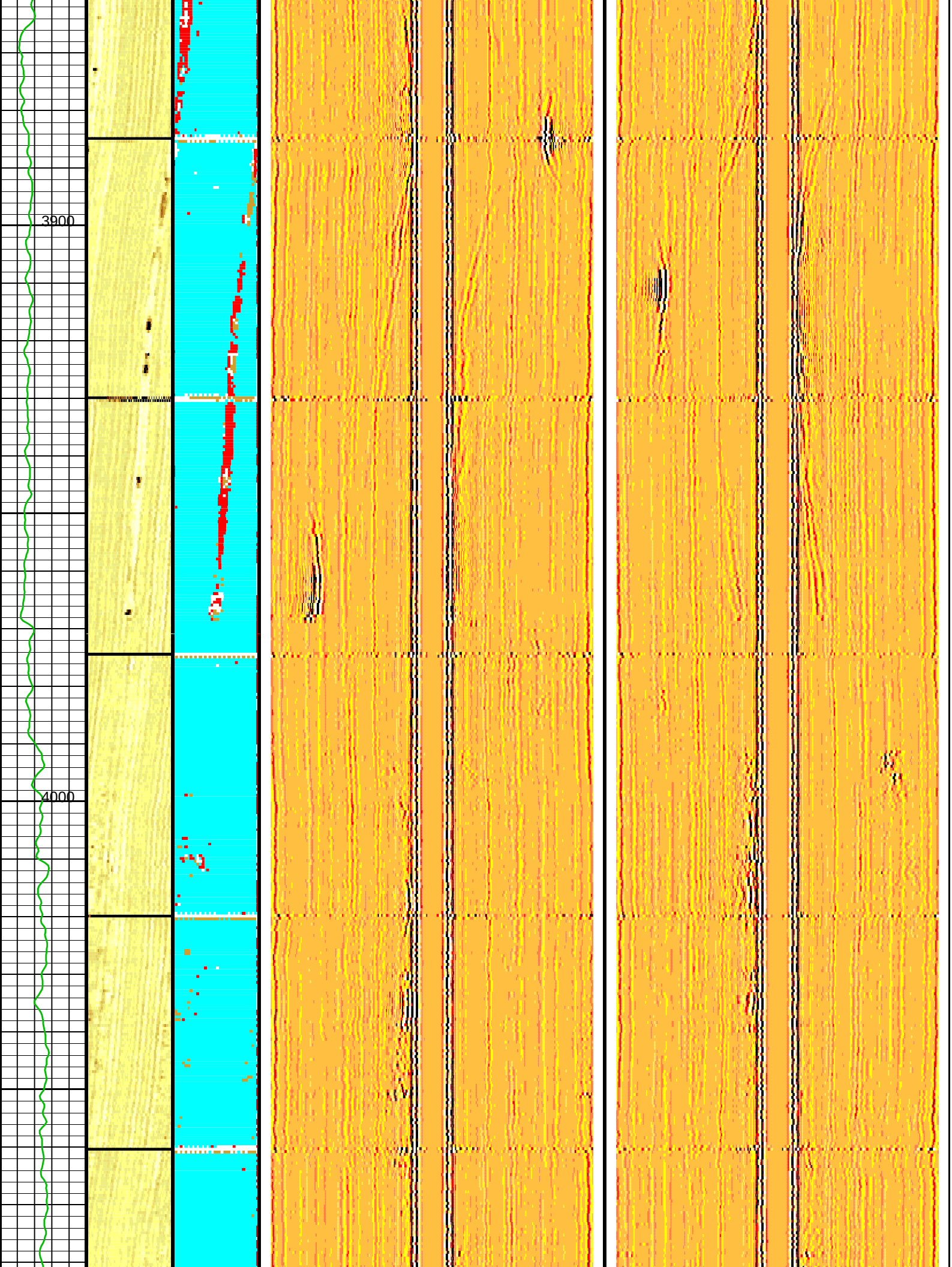
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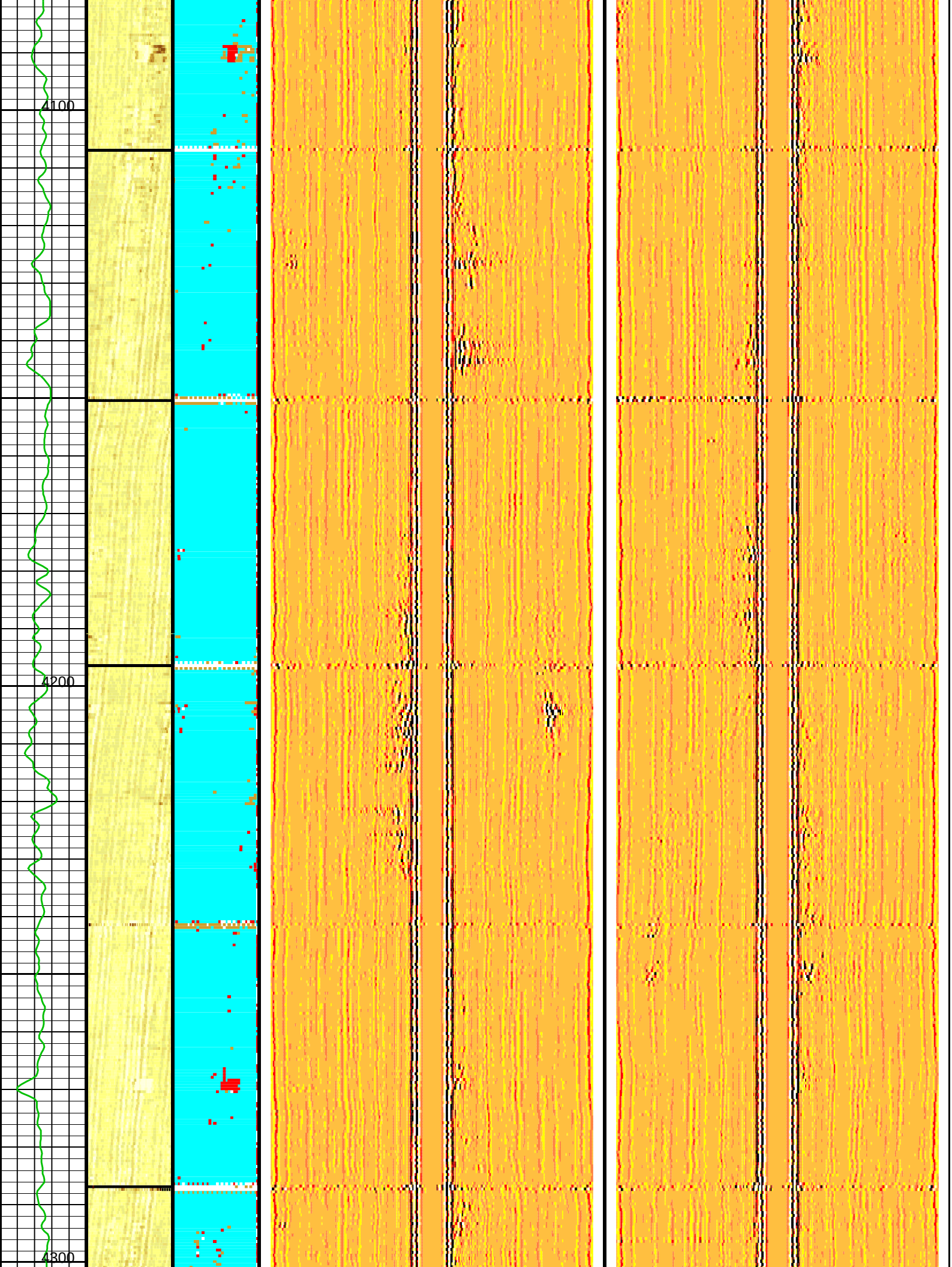
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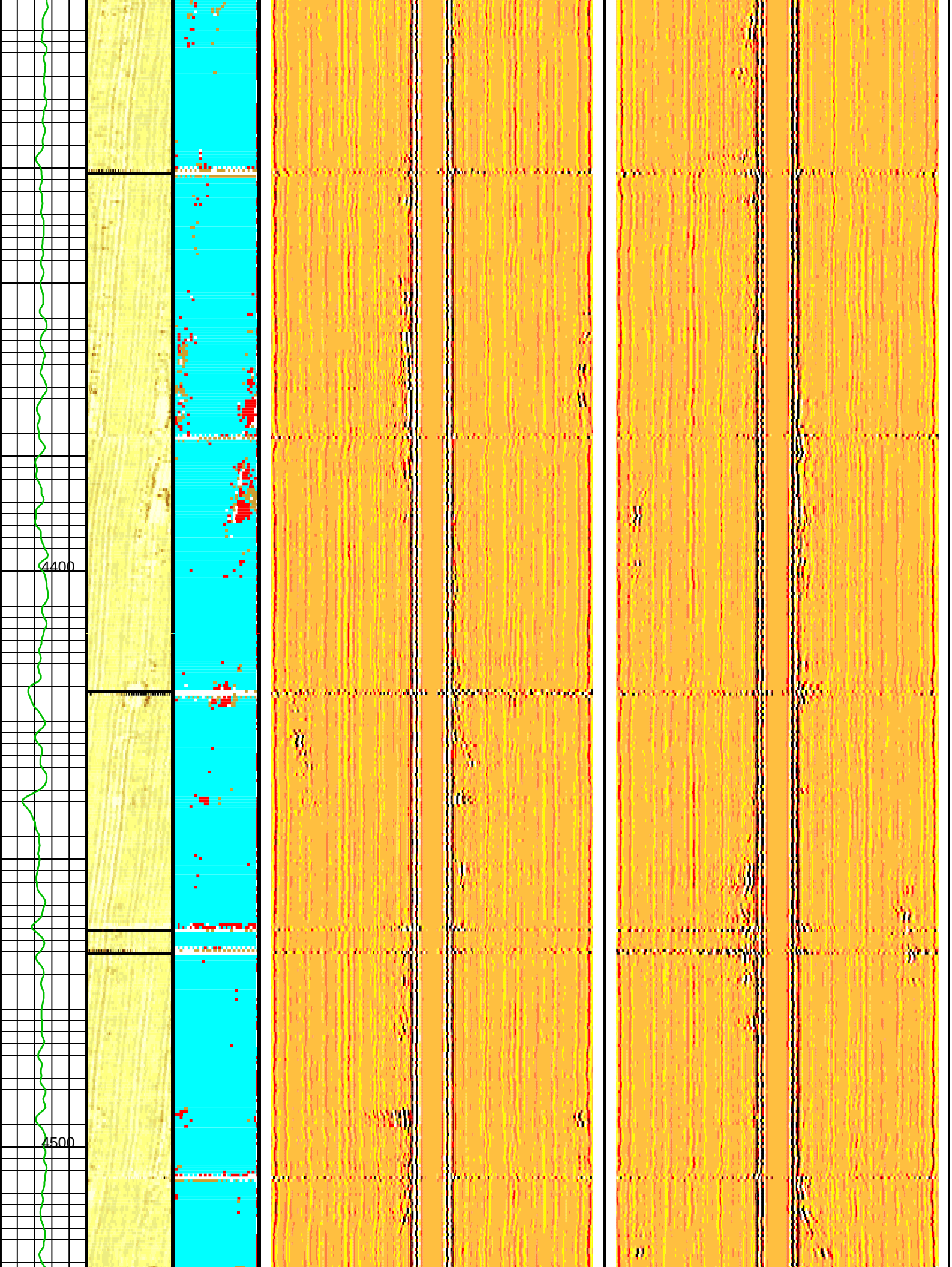
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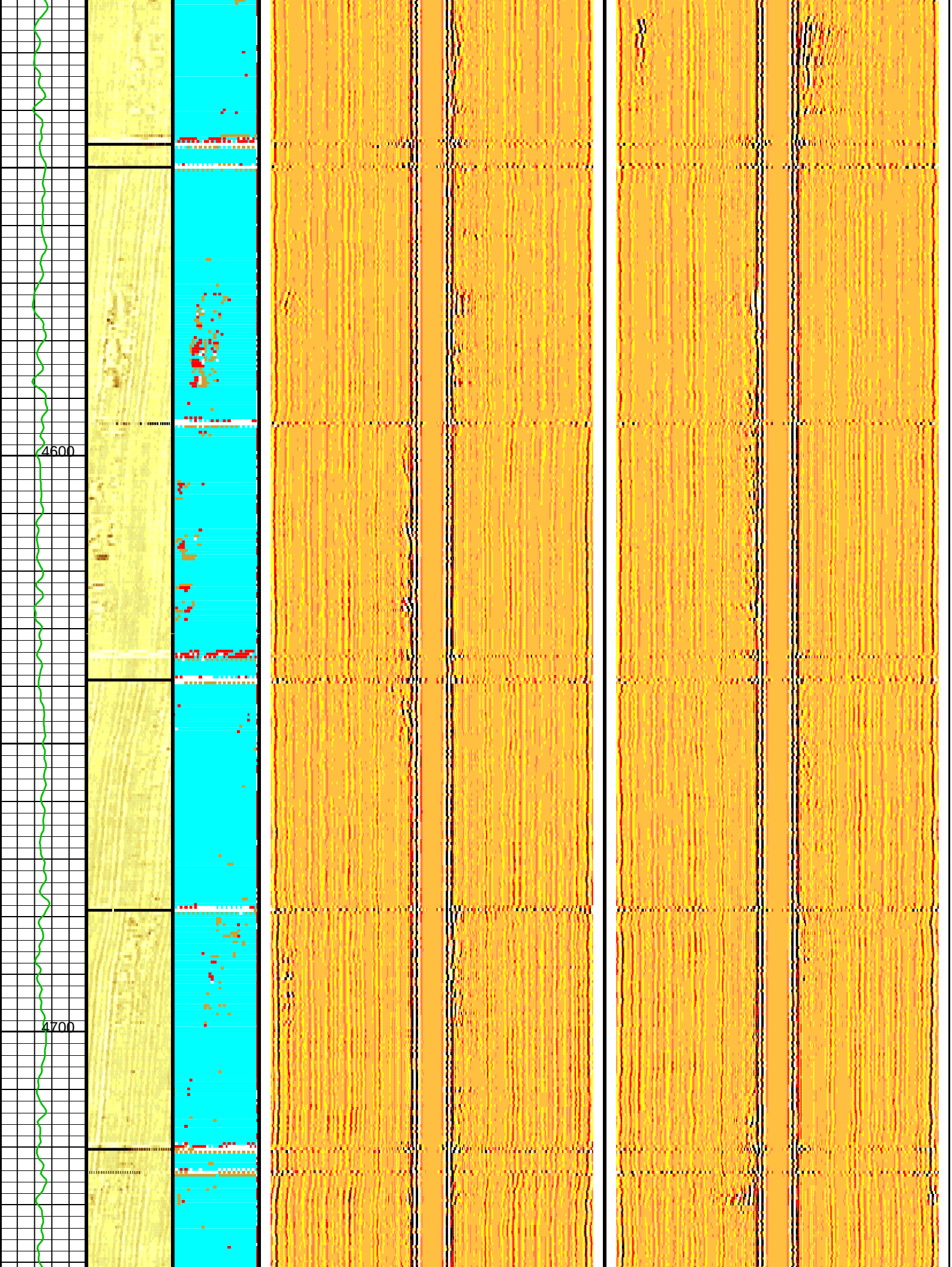
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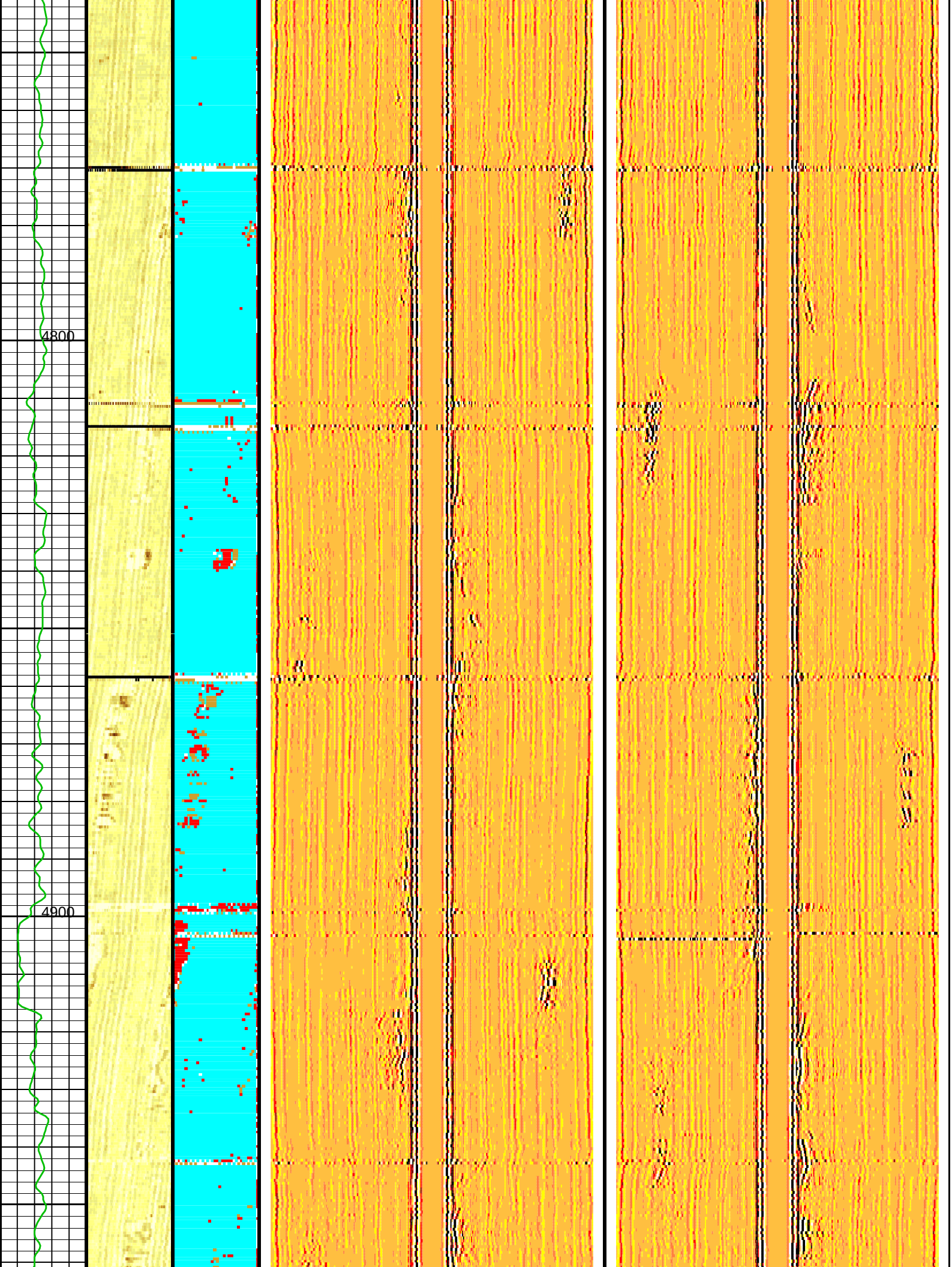
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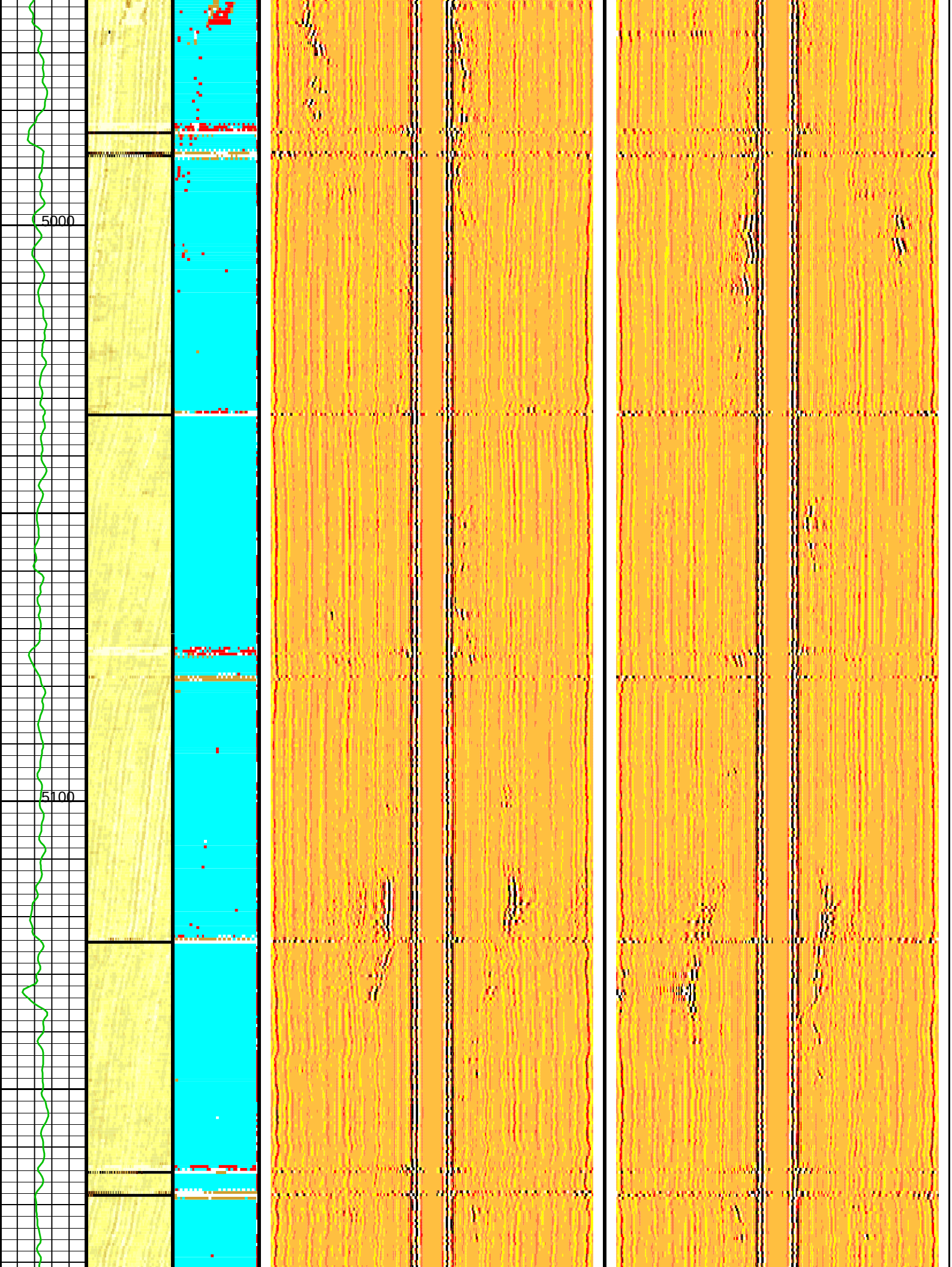
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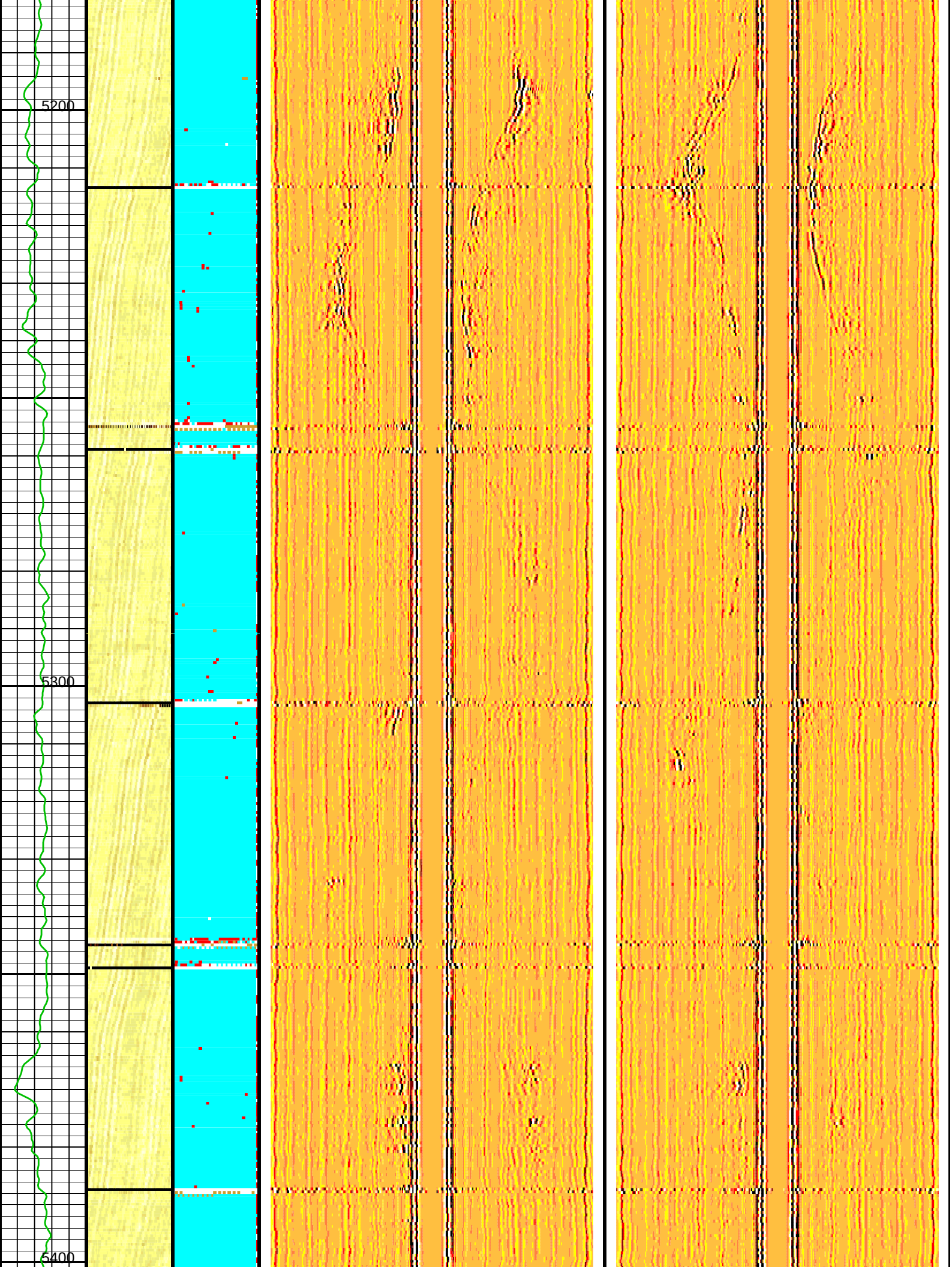
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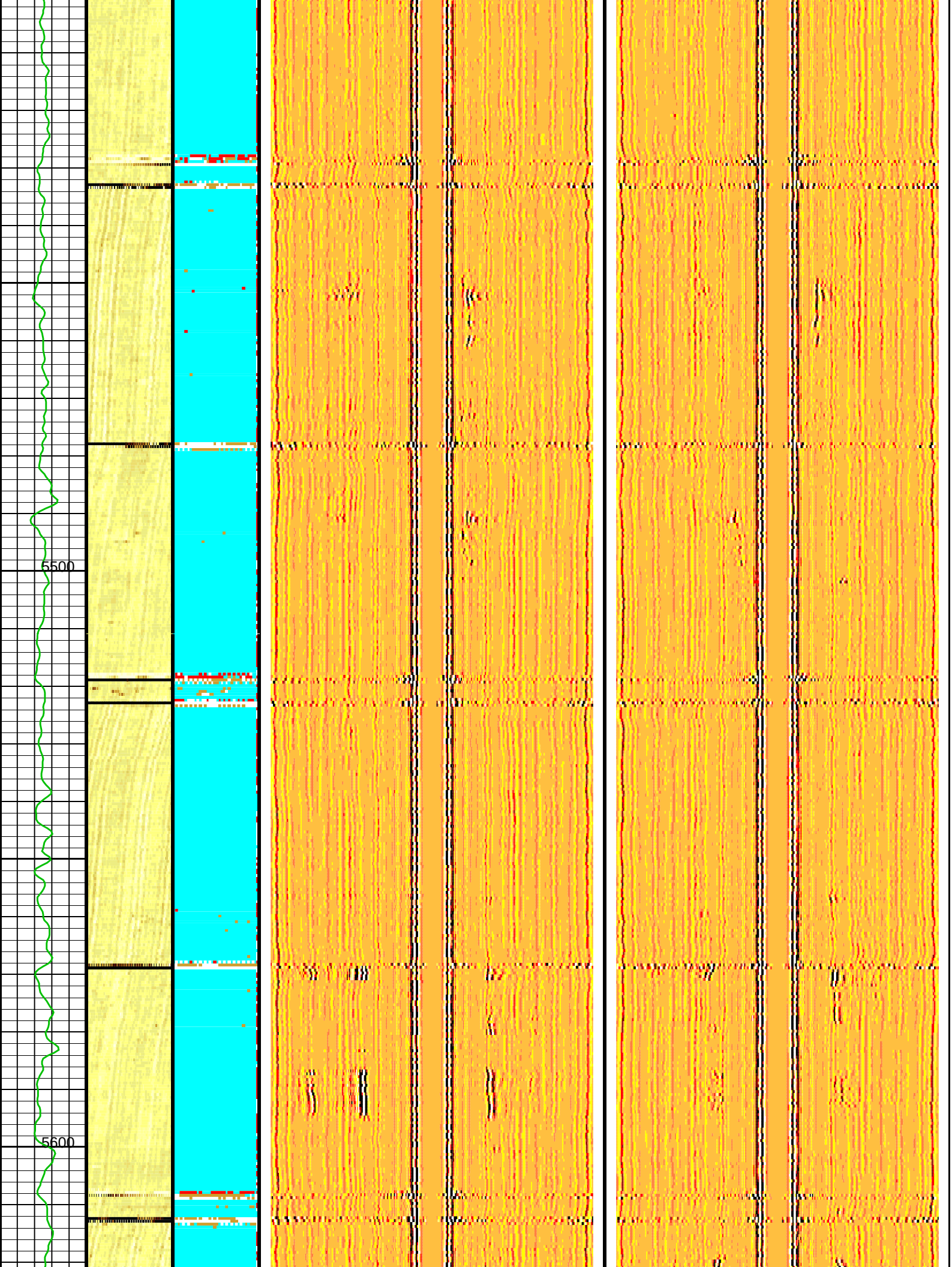
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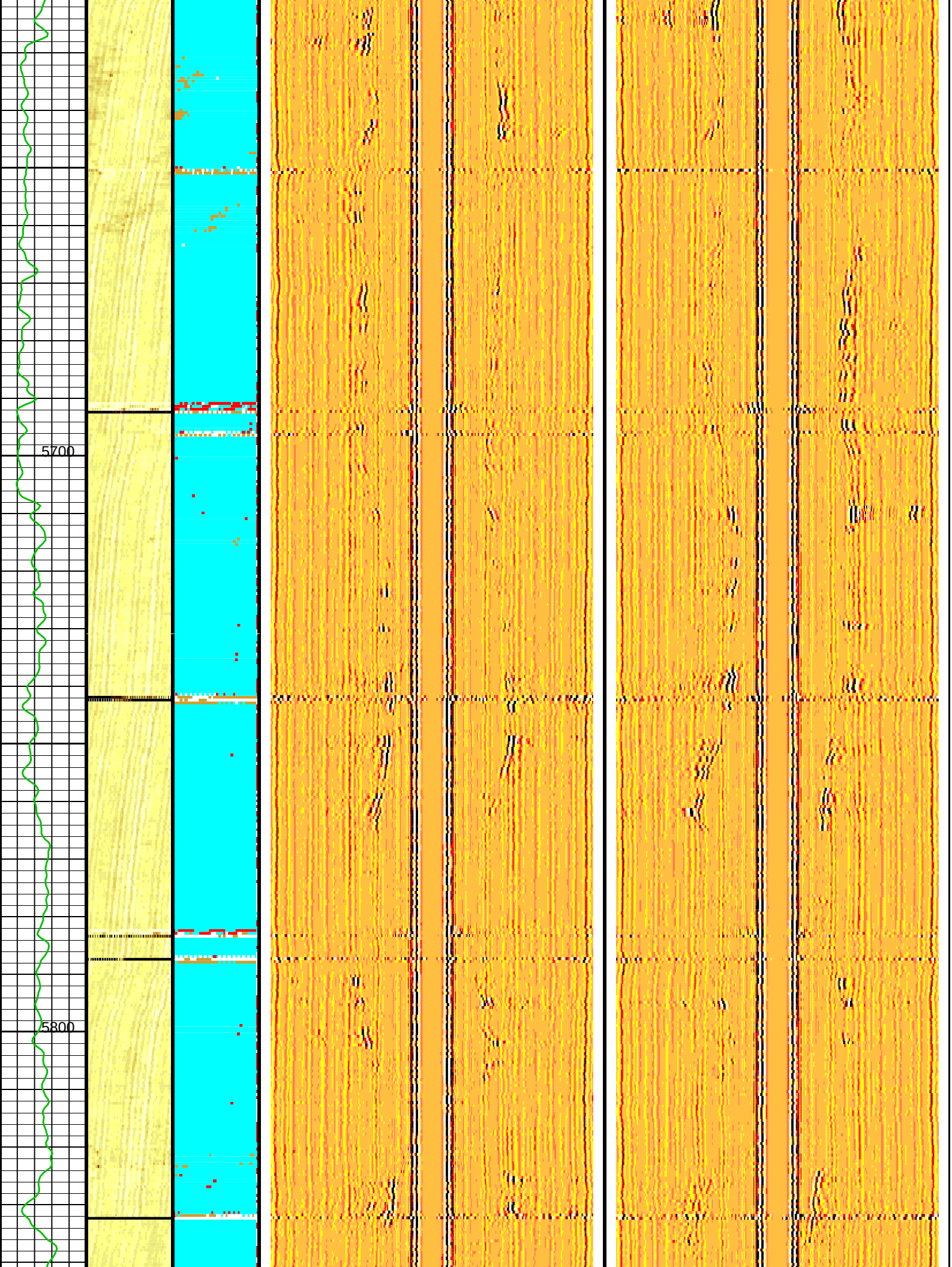
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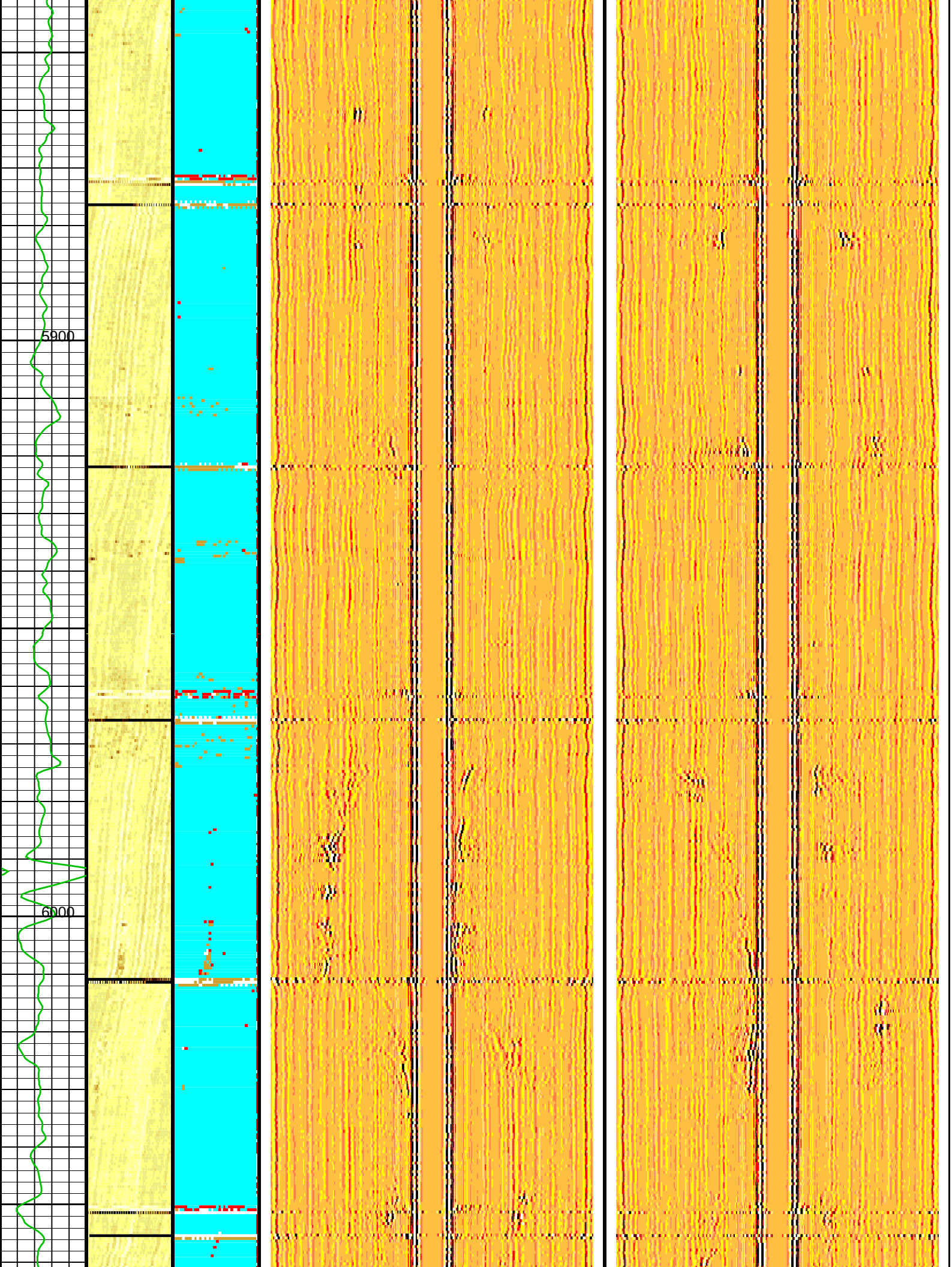
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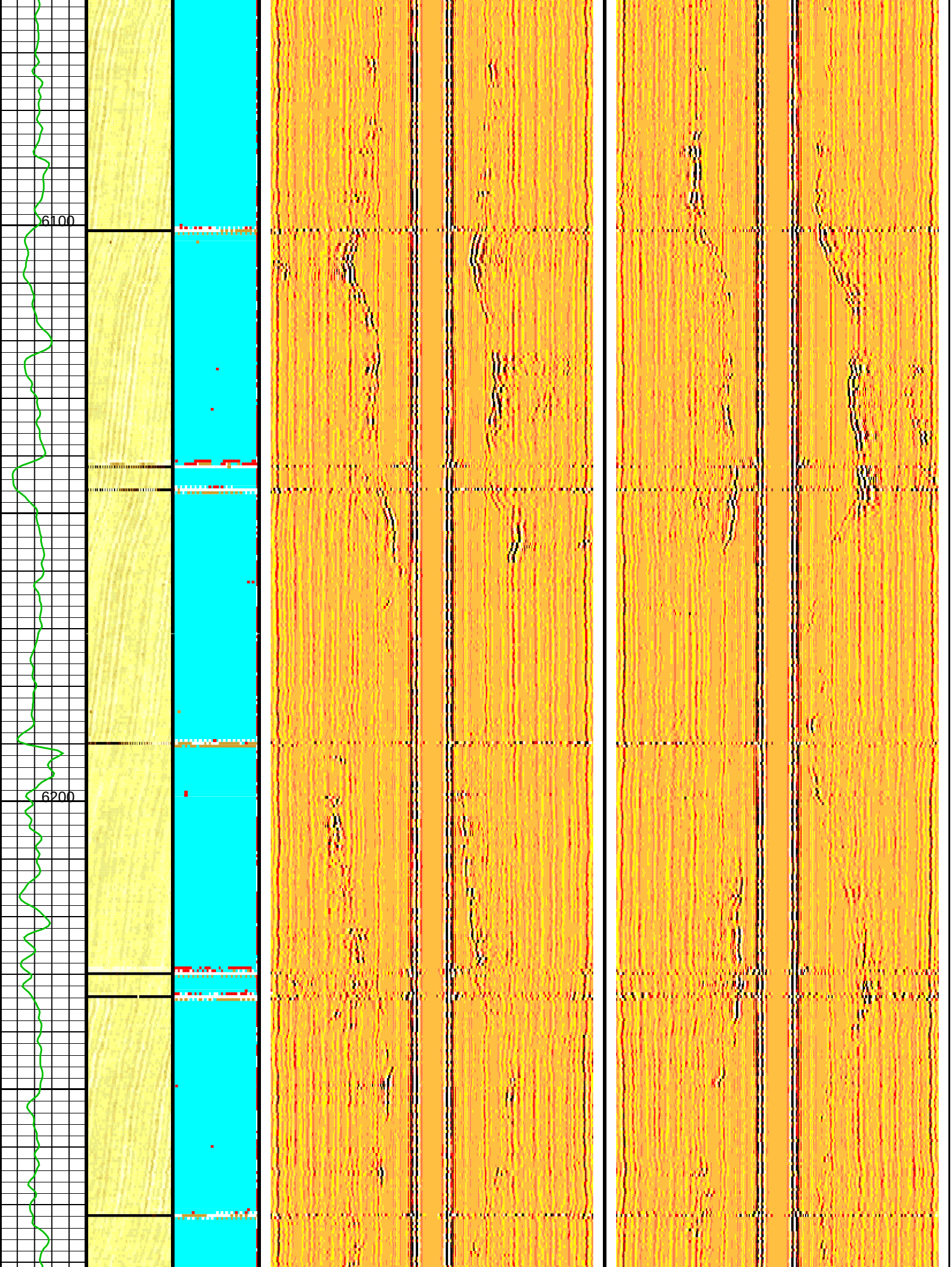
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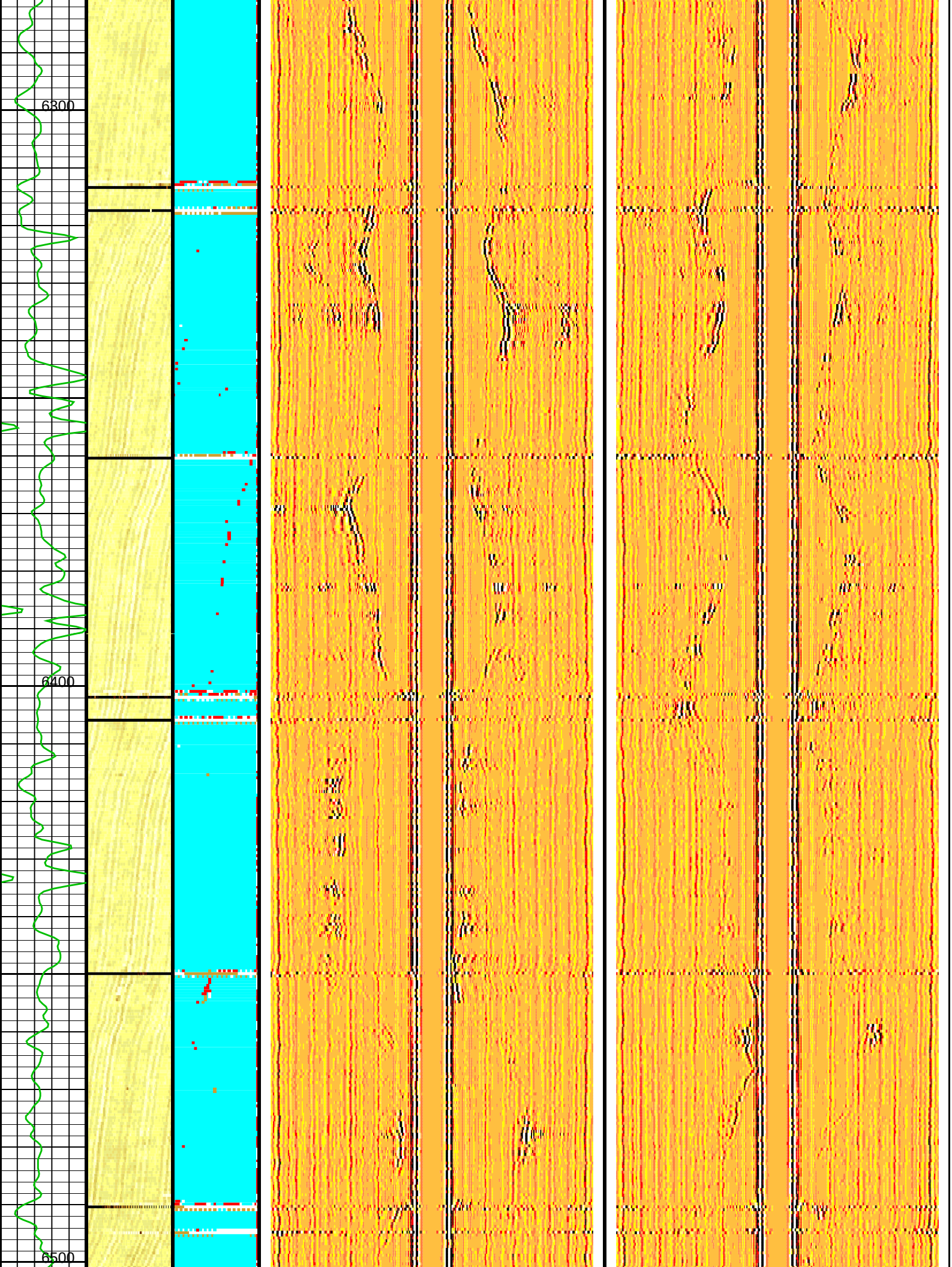
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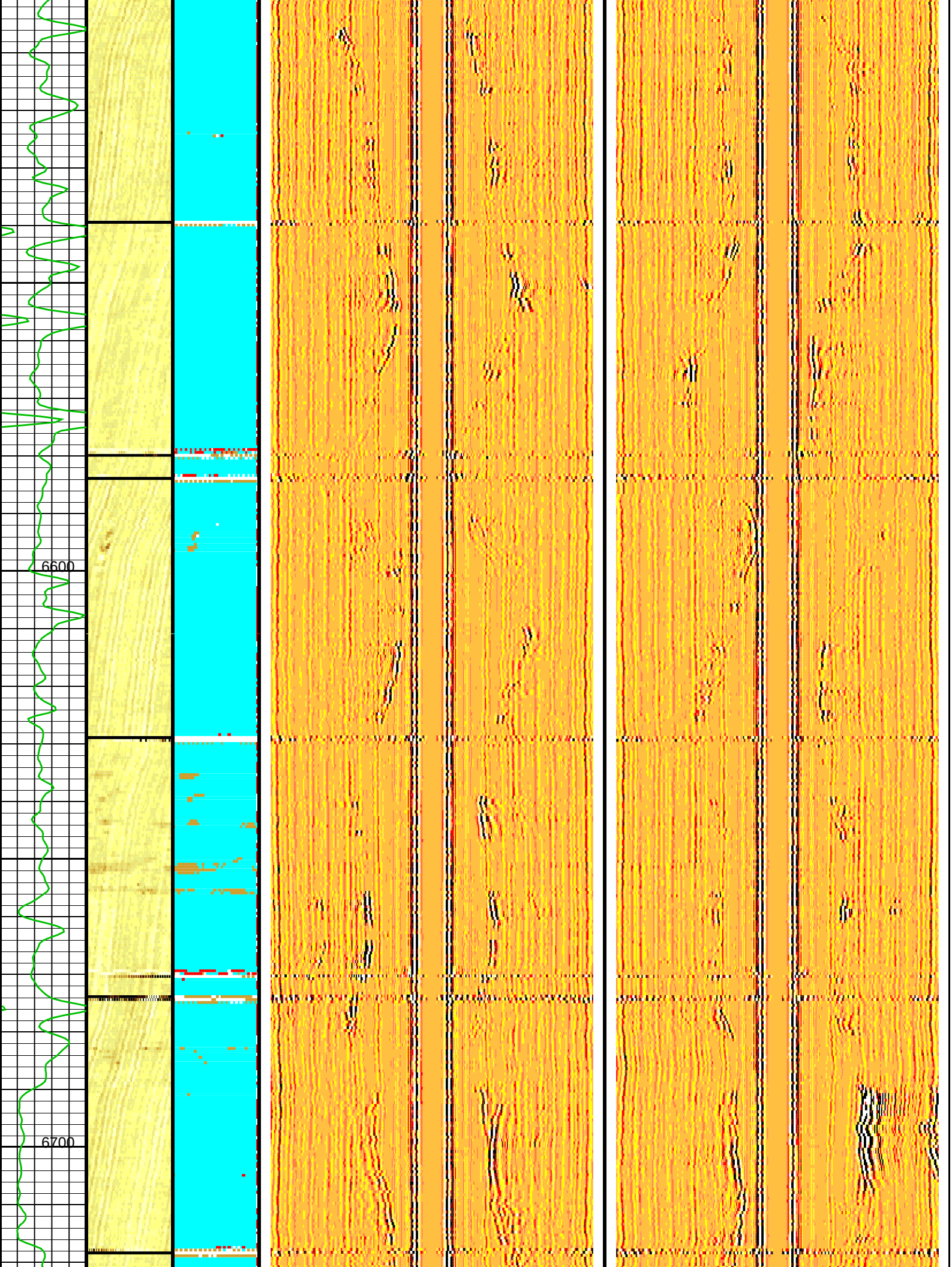
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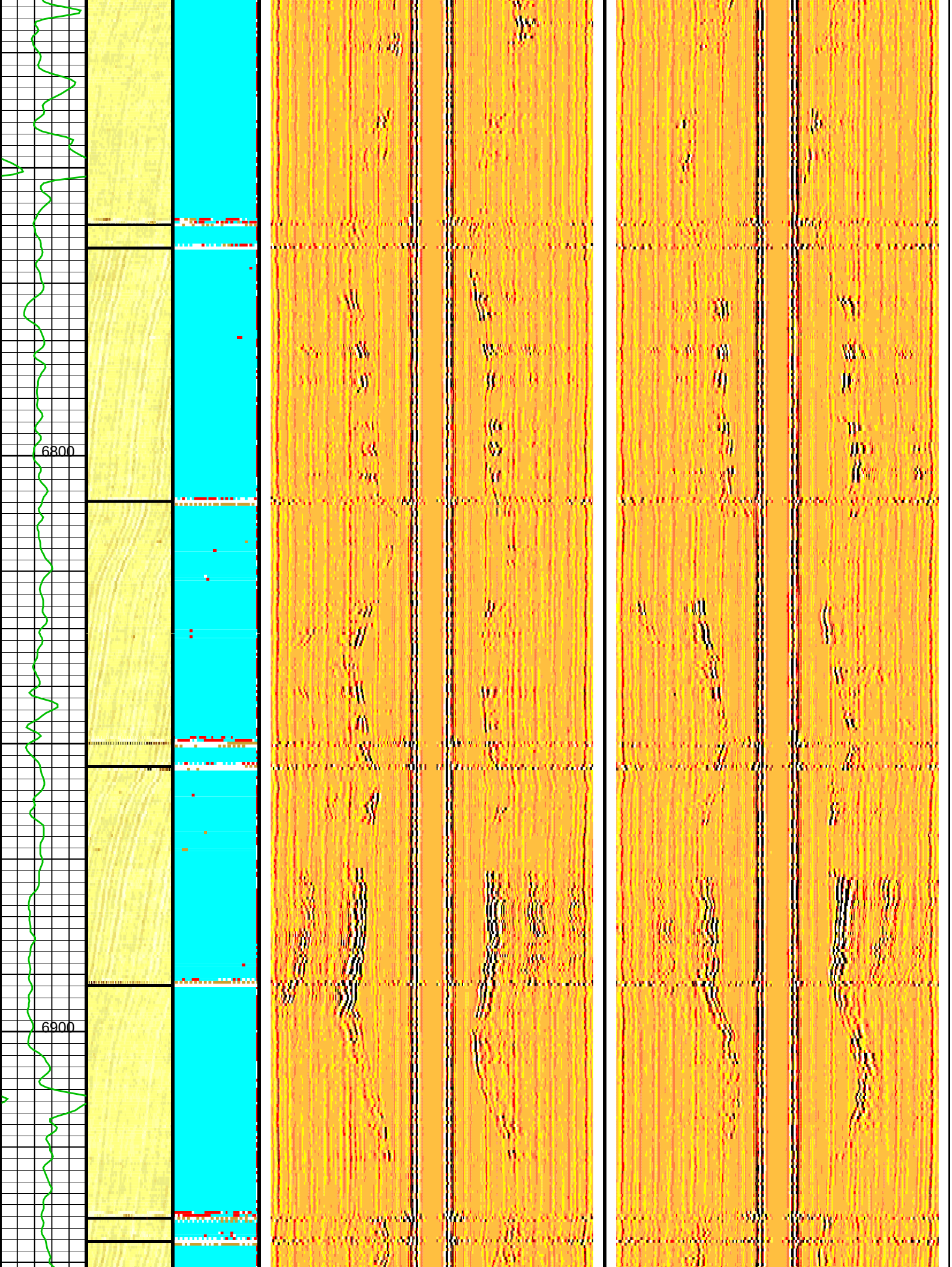
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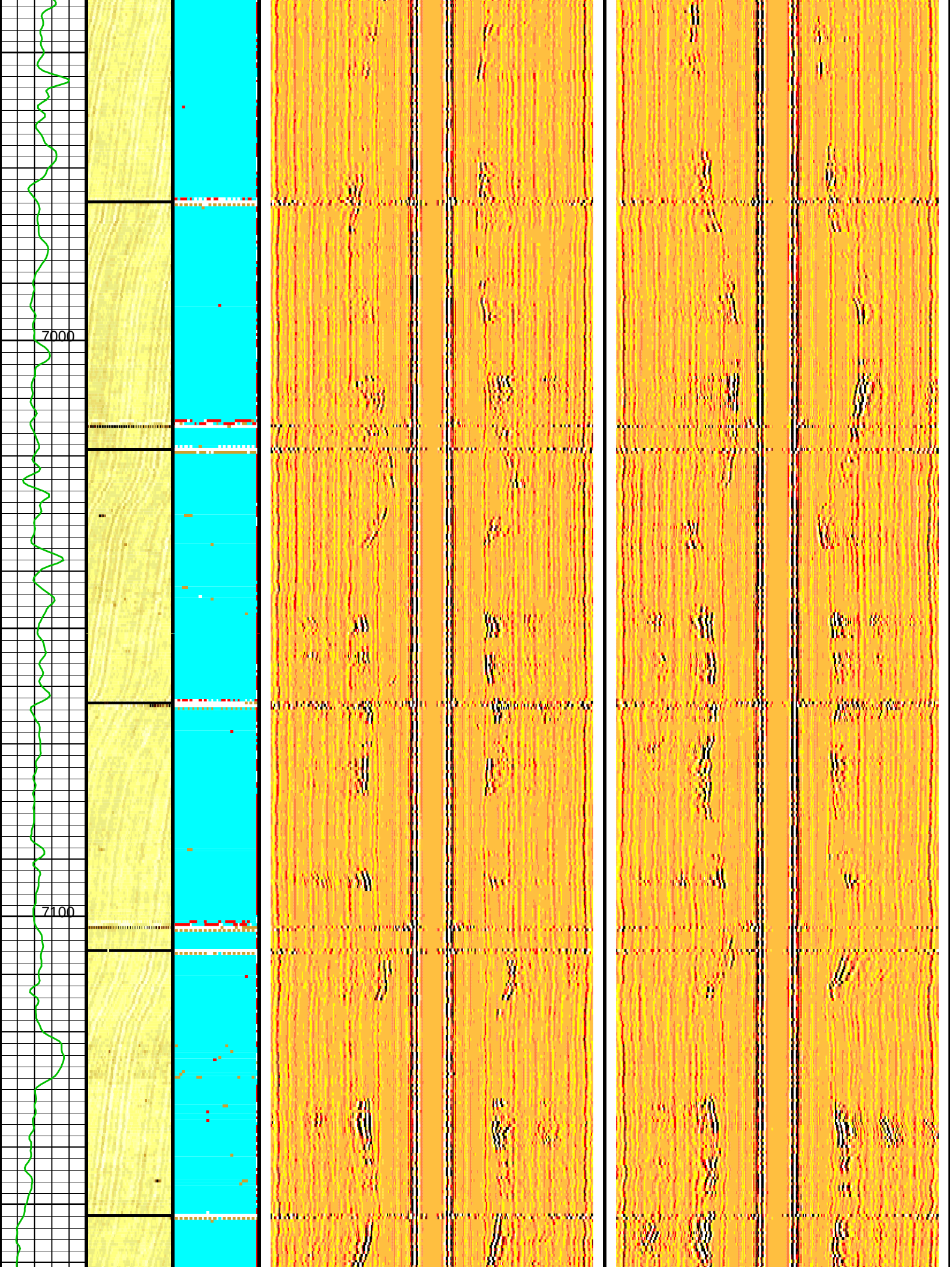
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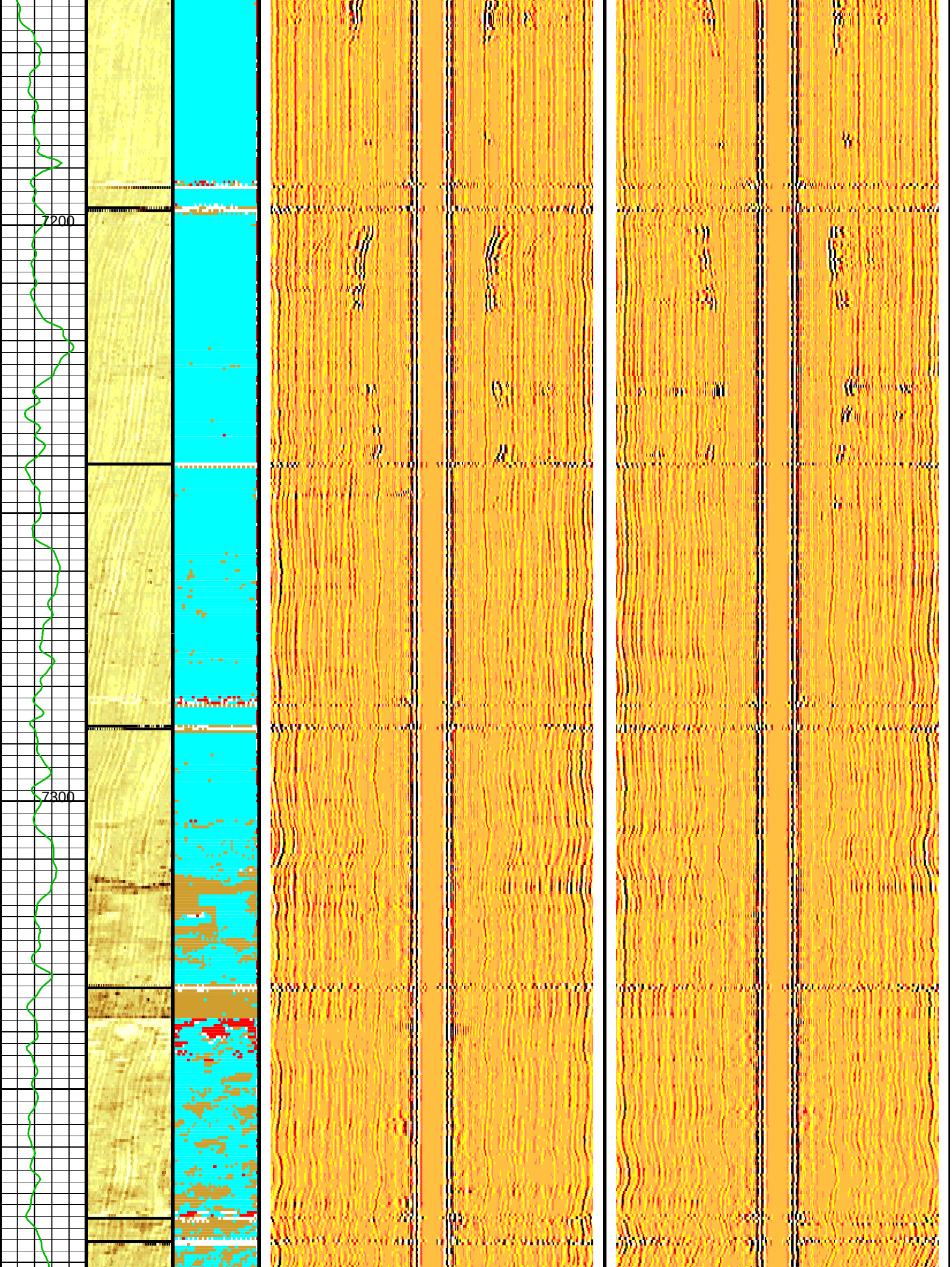
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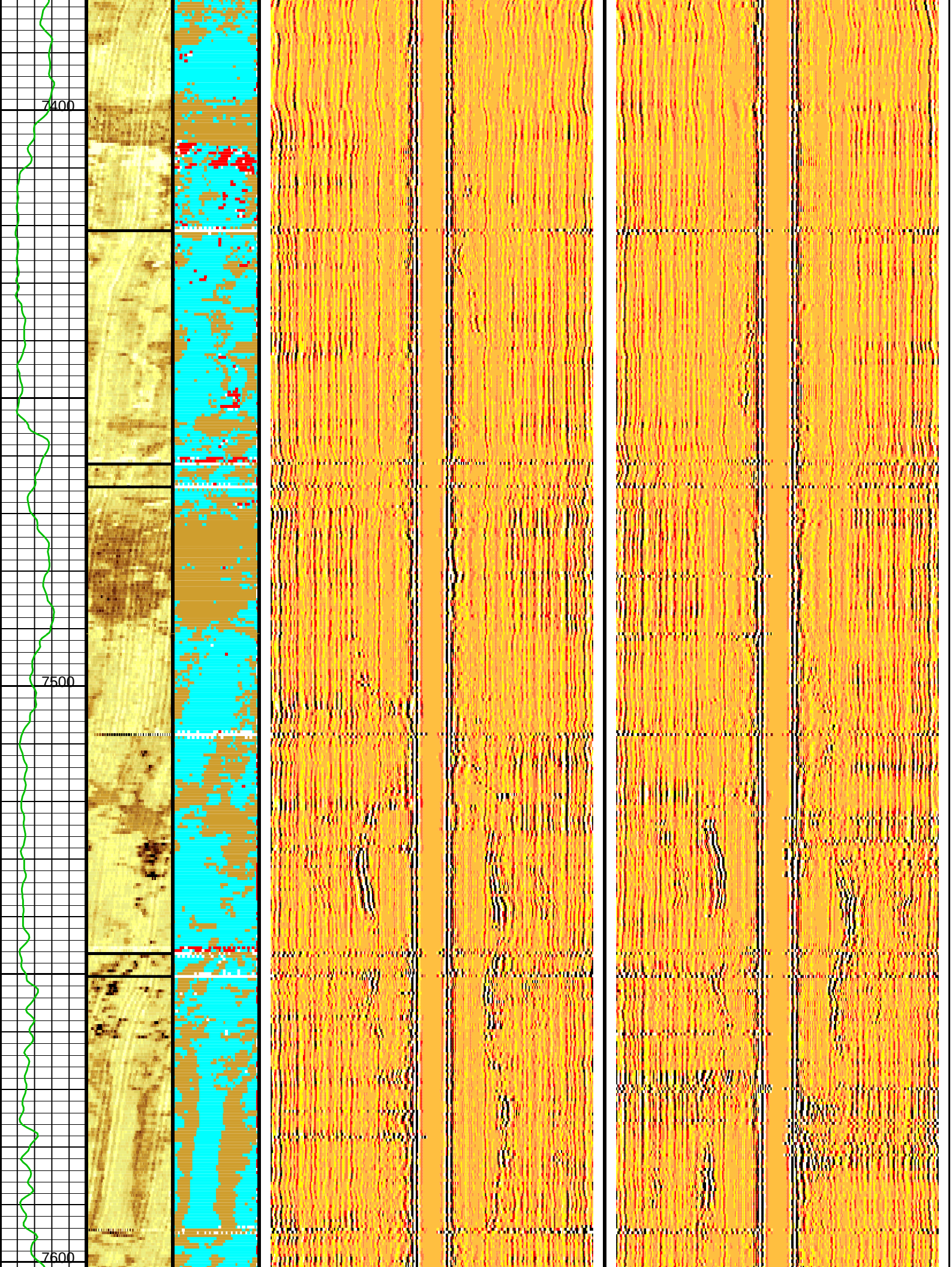
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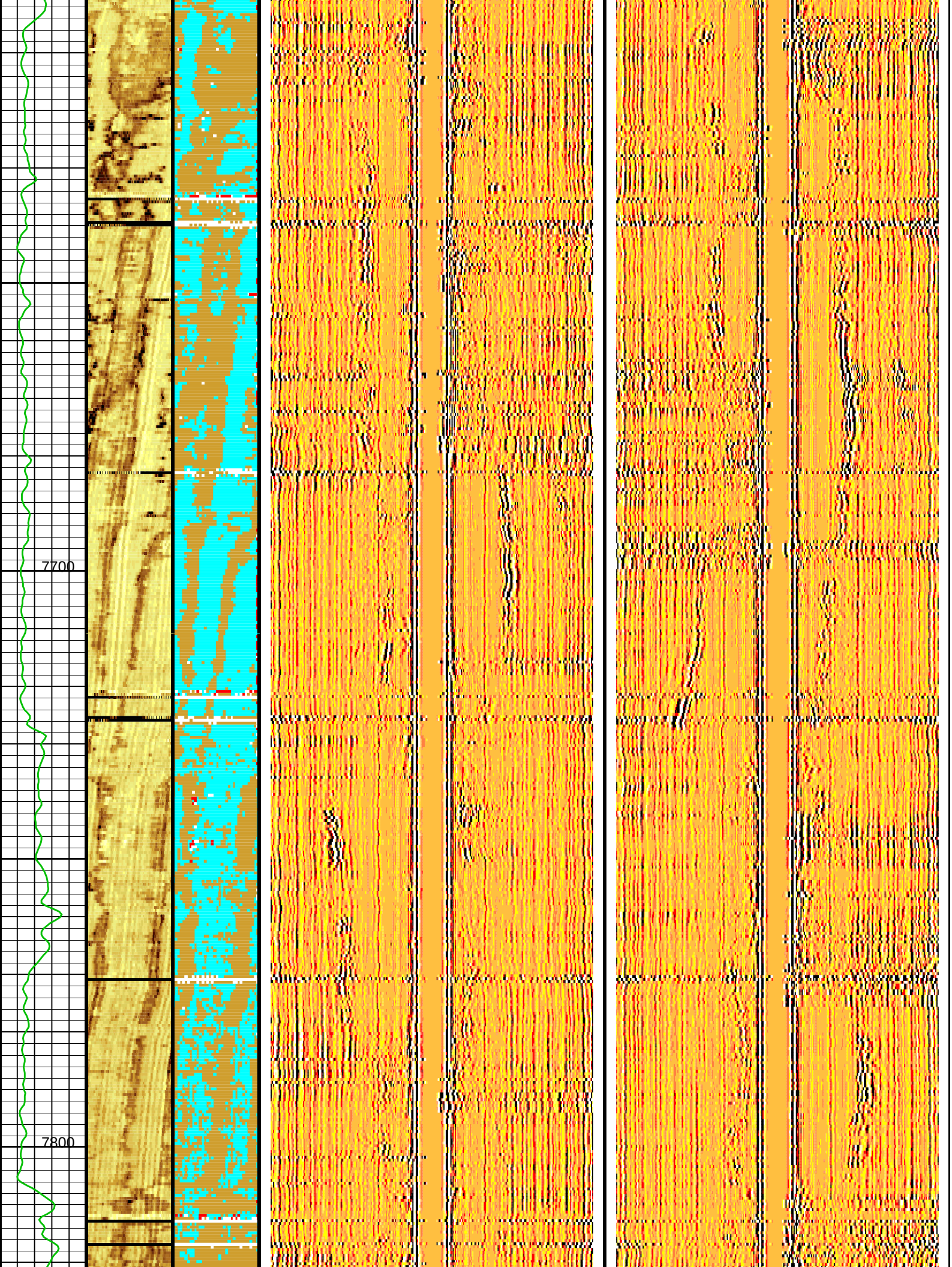
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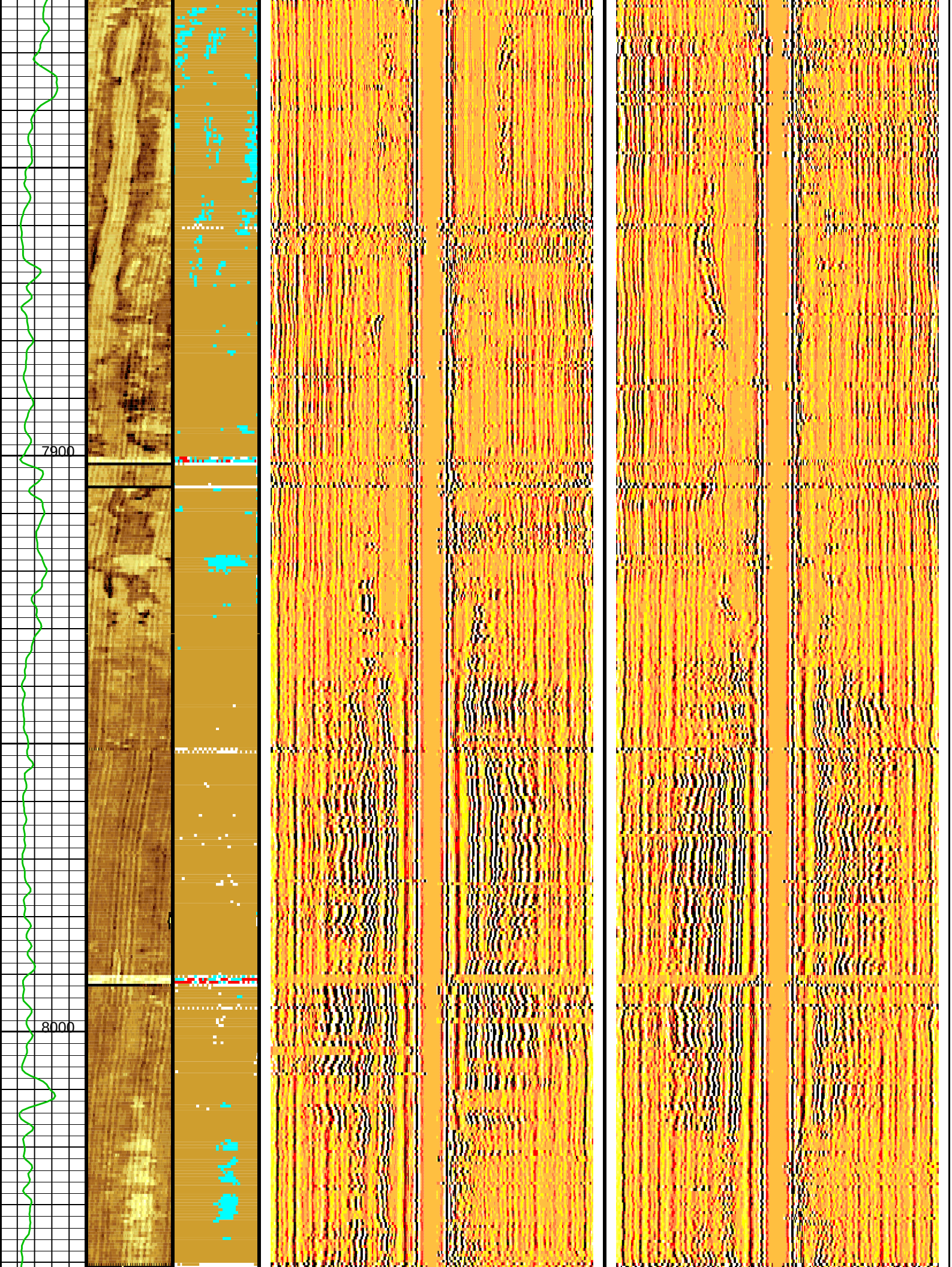
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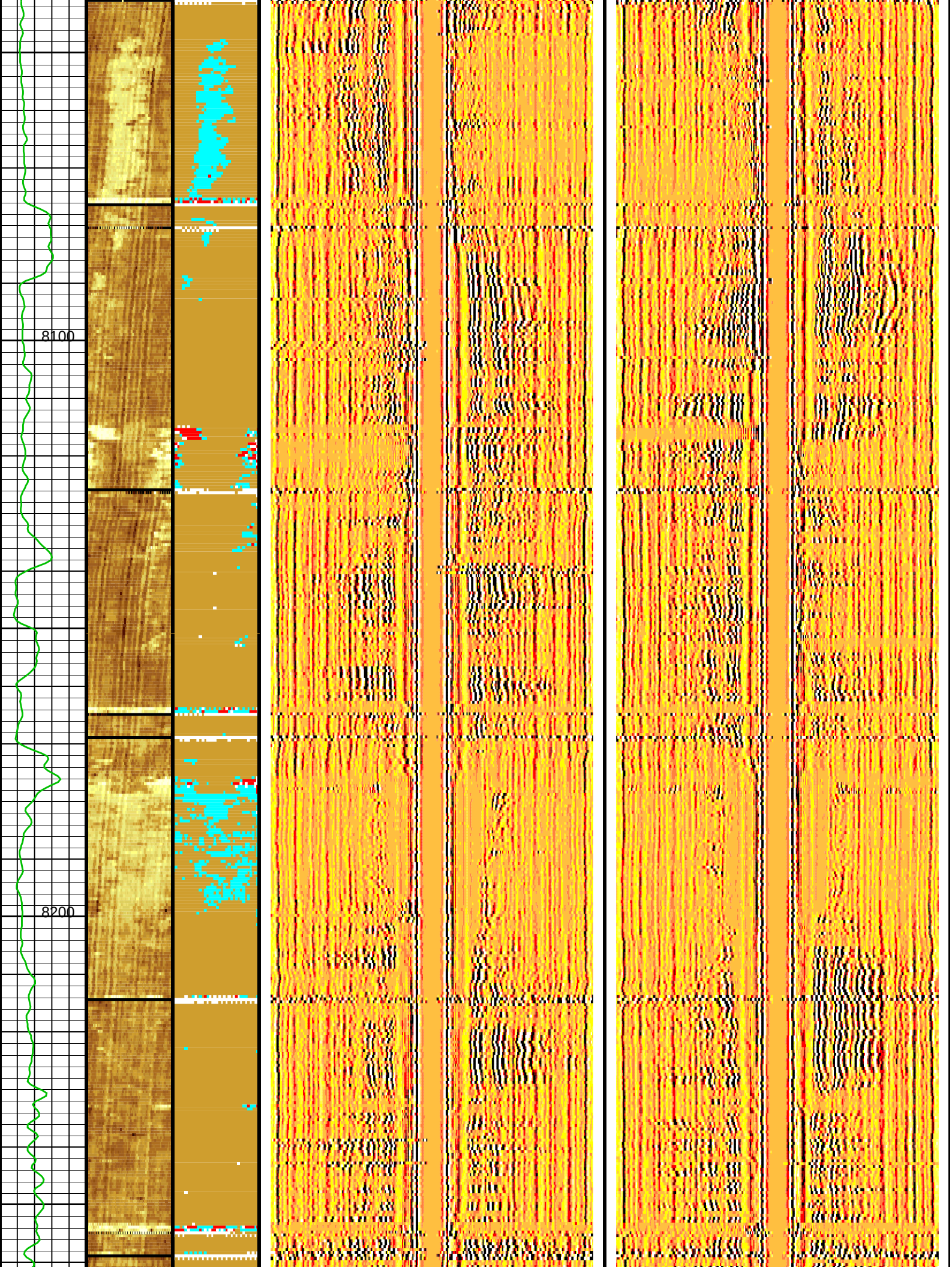
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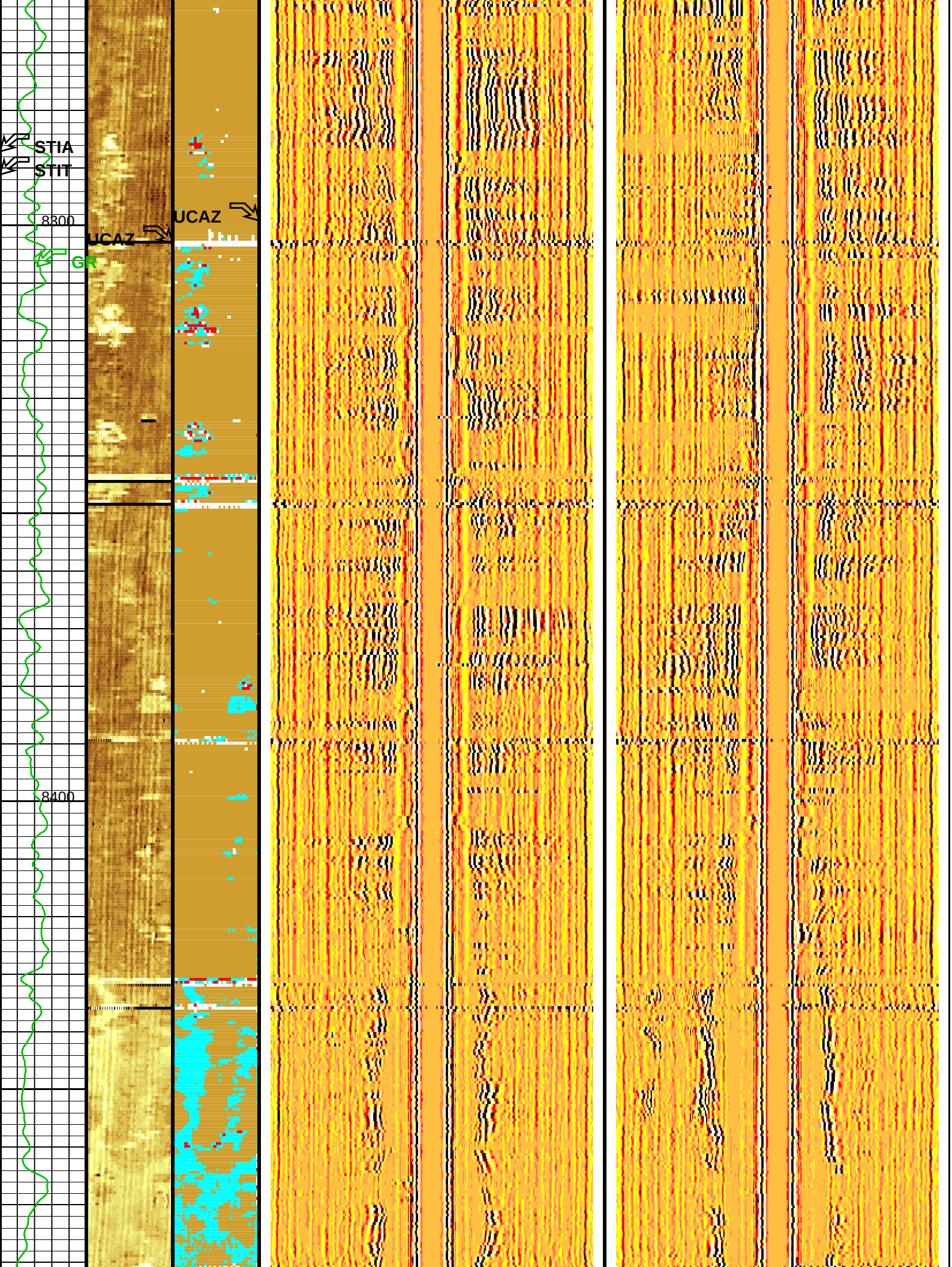
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STIT
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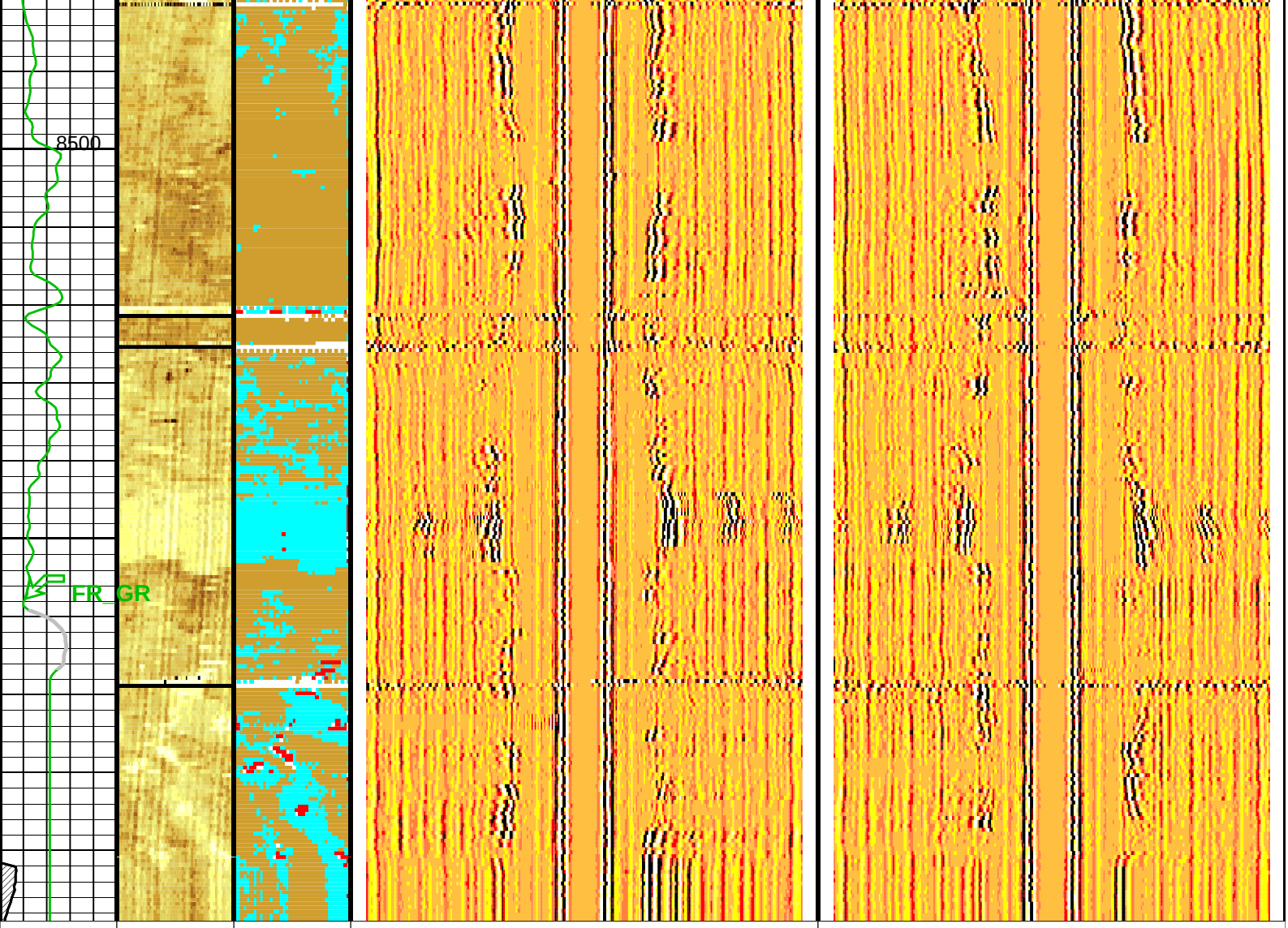

Gamma Ray (GR) (GAPI)

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)

0.5000
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

Stuck Stretch (STIT)

0 (F) 50

Cable Drag From D4T to STIT

Tool/Tot. Drag From D4T

Parameters

DLIS Name	Description	Value	
	USIT−D: Ultrasonic Imaging − D		
AGMN	Minimum Gain of Cartridge	−4	DB
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THNO	Nominal Thickness of Casing	0.362	IN
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U−USIT_IISR	USIT IBC Inverted Fluid Slowness Resolution	1.0_US_P_FT	
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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	−14	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	
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ZINI	Initial Estimate of Cement Impedance	−1	MRAY
ZMUD	Acoustic Impedance of Mud	2	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	5	FT
TDD	Total Depth − Driller	8806.00	FT
TDL	Total Depth − Logger	8590.00	FT
	System and Miscellaneous		
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CWEI	Casing Weight	26.00	LB/F
DO	Depth Offset for Playback	8.5	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: 04−Nov−2009 02:02**

OP System Version: 17C0−154

USIT−D	SRPC−3779−Q1_2009_OP17_b	HILTH−FTB	SRPC−3779−Q1_2009_OP17_b
DTC−H	17C0−154		

Input DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_005LUP	FN:4	PRODUCER	03−Nov−2009 20:55	8590.5 FT	200.0 FT

Output DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_009PUP	FN:8	PRODUCER	04−Nov−2009 02:02		

Schlumberger

GOODWIN 5 INCH

MAXIS Field Log

Company: EXXONMOBIL PRODUCTION CO

Well: PCU 197−34B8

Input DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_005LUP	FN:4	PRODUCER	03−Nov−2009 20:55	8590.5 FT	200.0 FT

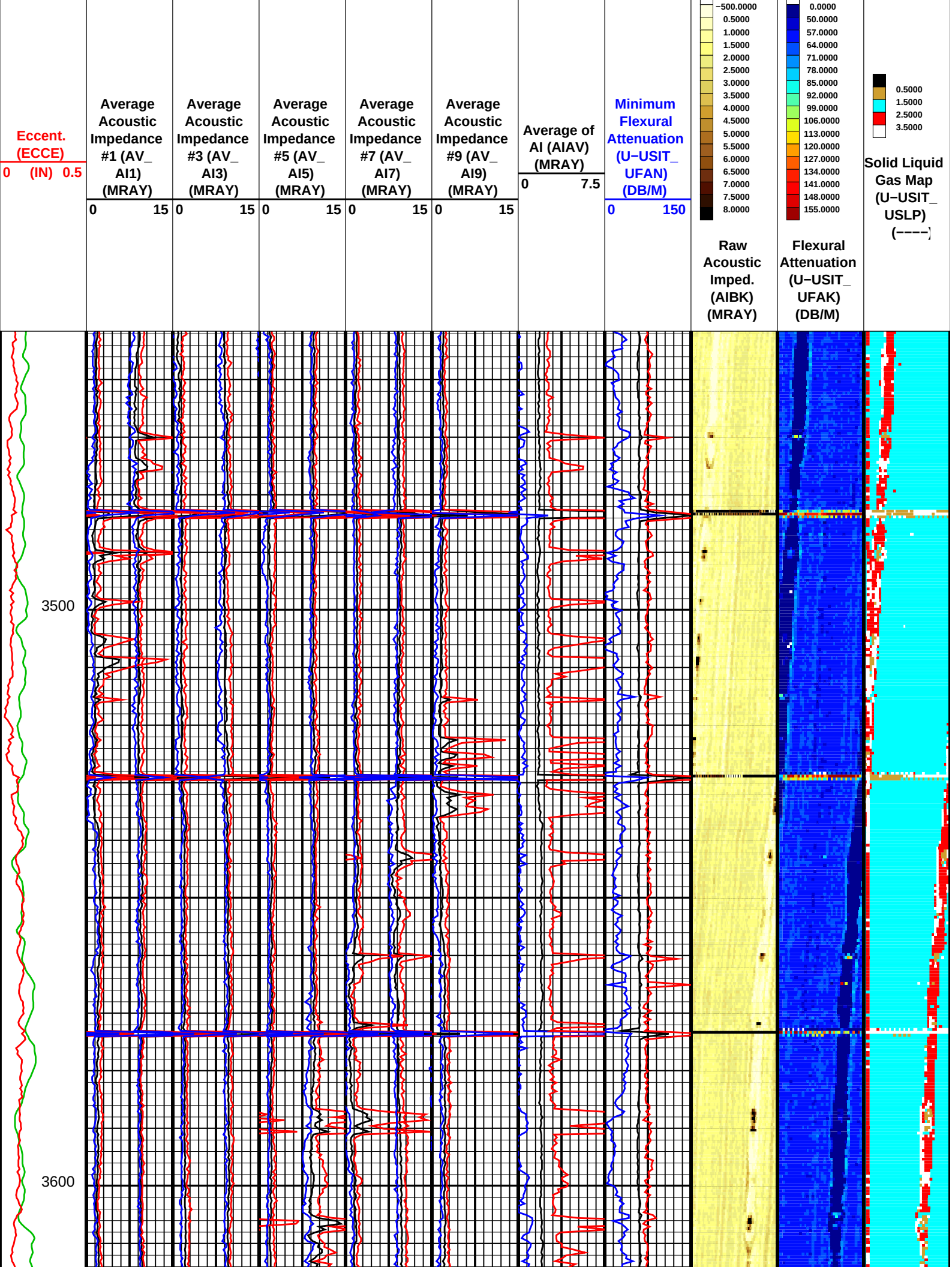
Output DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_009PUP	FN:8	PRODUCER	04−Nov−2009 02:02		

OP System Version: 17C0−154

USIT−D	SRPC−3779−Q1_2009_OP17_b	HILTH−FTB	SRPC−3779−Q1_2009_OP17_b
DTC−H	17C0−154		

	Minimum Acoustic Impedance #2 (MIN_AI2) (MRAY) −7.5 7.5	Minimum Acoustic Impedance #4 (MIN_AI4) (MRAY) −7.5 7.5	Minimum Acoustic Impedance #6 (MIN_AI6) (MRAY) −7.5 7.5	Minimum Acoustic Impedance #8 (MIN_AI8) (MRAY) −7.5 7.5			
	Minimum Acoustic Impedance #1 (MIN_AI1) (MRAY) 0 15	Minimum Acoustic Impedance #3 (MIN_AI3) (MRAY) 0 15	Minimum Acoustic Impedance #5 (MIN_AI5) (MRAY) 0 15	Minimum Acoustic Impedance #7 (MIN_AI7) (MRAY) 0 15			
	Maximum Acoustic Impedance #2 (MAX_AI2) (MRAY) −7.5 7.5	Maximum Acoustic Impedance #4 (MAX_AI4) (MRAY) −7.5 7.5	Maximum Acoustic Impedance #6 (MAX_AI6) (MRAY) −7.5 7.5	Maximum Acoustic Impedance #8 (MAX_AI8) (MRAY) −7.5 7.5			
	Maximum Acoustic Impedance #1 (MAX_AI1) (MRAY) 0 15	Maximum Acoustic Impedance #3 (MAX_AI3) (MRAY) 0 15	Maximum Acoustic Impedance #5 (MAX_AI5) (MRAY) 0 15	Maximum Acoustic Impedance #7 (MAX_AI7) (MRAY) 0 15	Minimum Acoustic Impedance #9 (MIN_AI9) (MRAY) 0 15	Maximum of AI (AIMX) (MRAY) 0 7.5	Maximum Flexural Attenuation (U−USIT_UFAX) (DB/M) 0 150
Gamma Ray (GR) (GAPI) 0 150	Average Acoustic Impedance #2 (AV_AI2) (MRAY) −7.5 7.5	Average Acoustic Impedance #4 (AV_AI4) (MRAY) −7.5 7.5	Average Acoustic Impedance #6 (AV_AI6) (MRAY) −7.5 7.5	Average Acoustic Impedance #8 (AV_AI8) (MRAY) −7.5 7.5	Maximum Acoustic Impedance #9 (MAX_AI9) (MRAY) 0 15	Minimum of AI (AIMN) (MRAY) 0 7.5	Average Flexural Attenuation (U−USIT_UFAV) (DB/M) 0 150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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)
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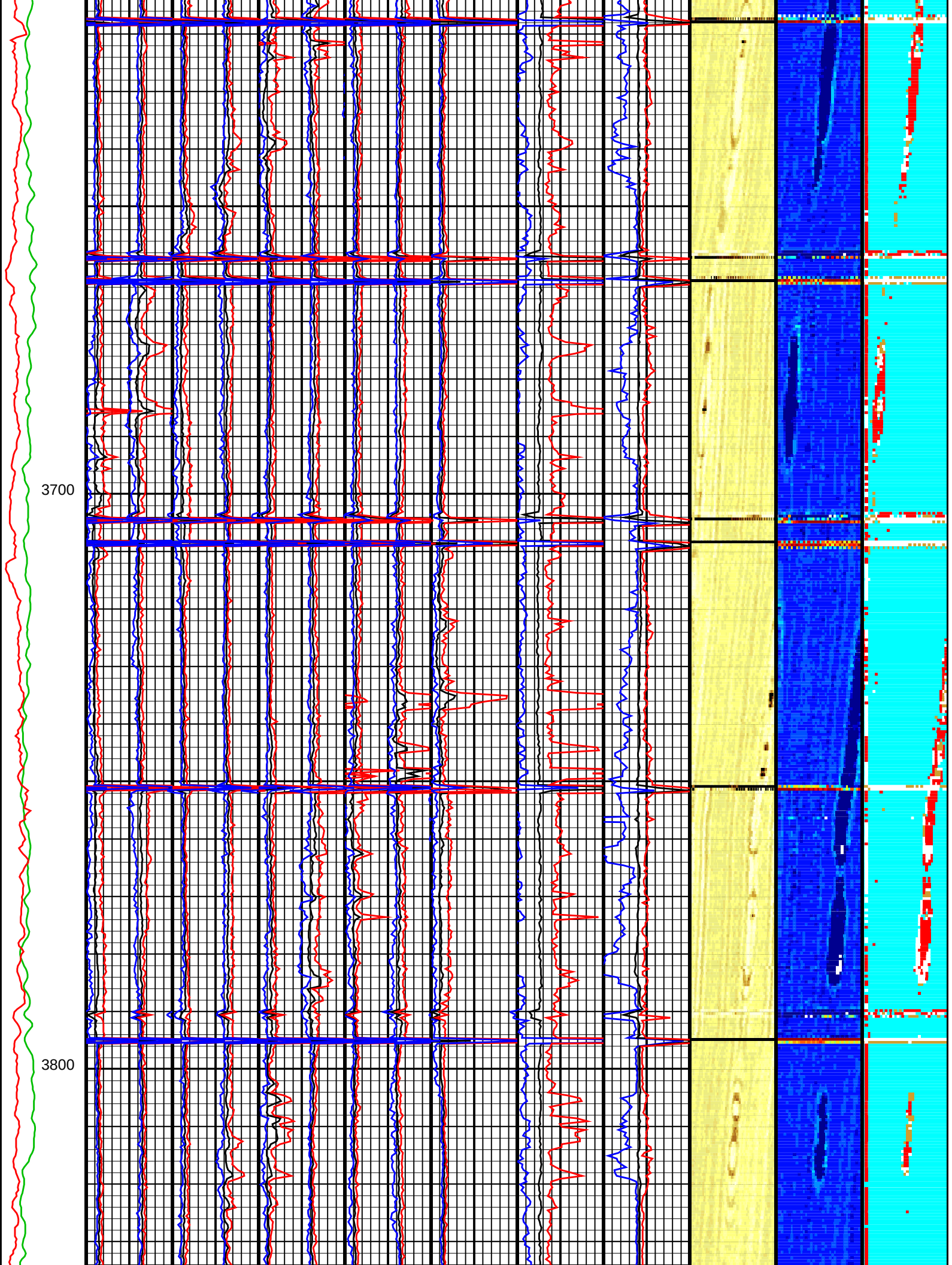
Average of AI (AIAV) (MRAY)
0 7.5
Minimum Flexural Attenuation (U−USIT_ UFAN) (DB/M)
0 150
−500.0000
0.5000
1.0000
1.5000
2.0000
2.5000
3.0000
3.5000
4.0000
4.5000
5.0000
5.5000
6.0000
6.5000
7.0000
7.5000
8.0000
Raw Acoustic Imped. (AIBK) (MRAY)
0.0000
50.0000
57.0000
64.0000
71.0000
78.0000
85.0000
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) (−−−−)
3500
3600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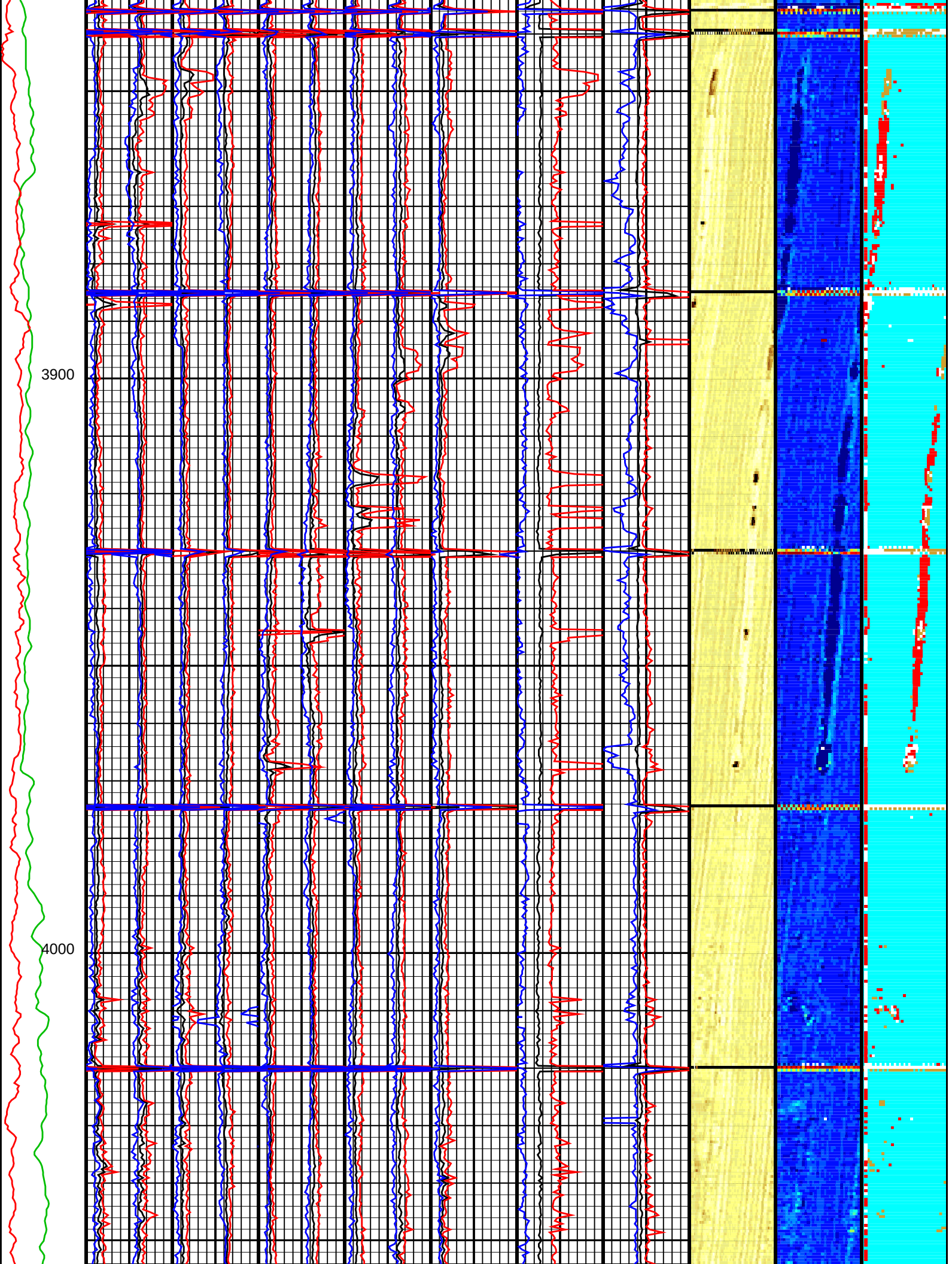
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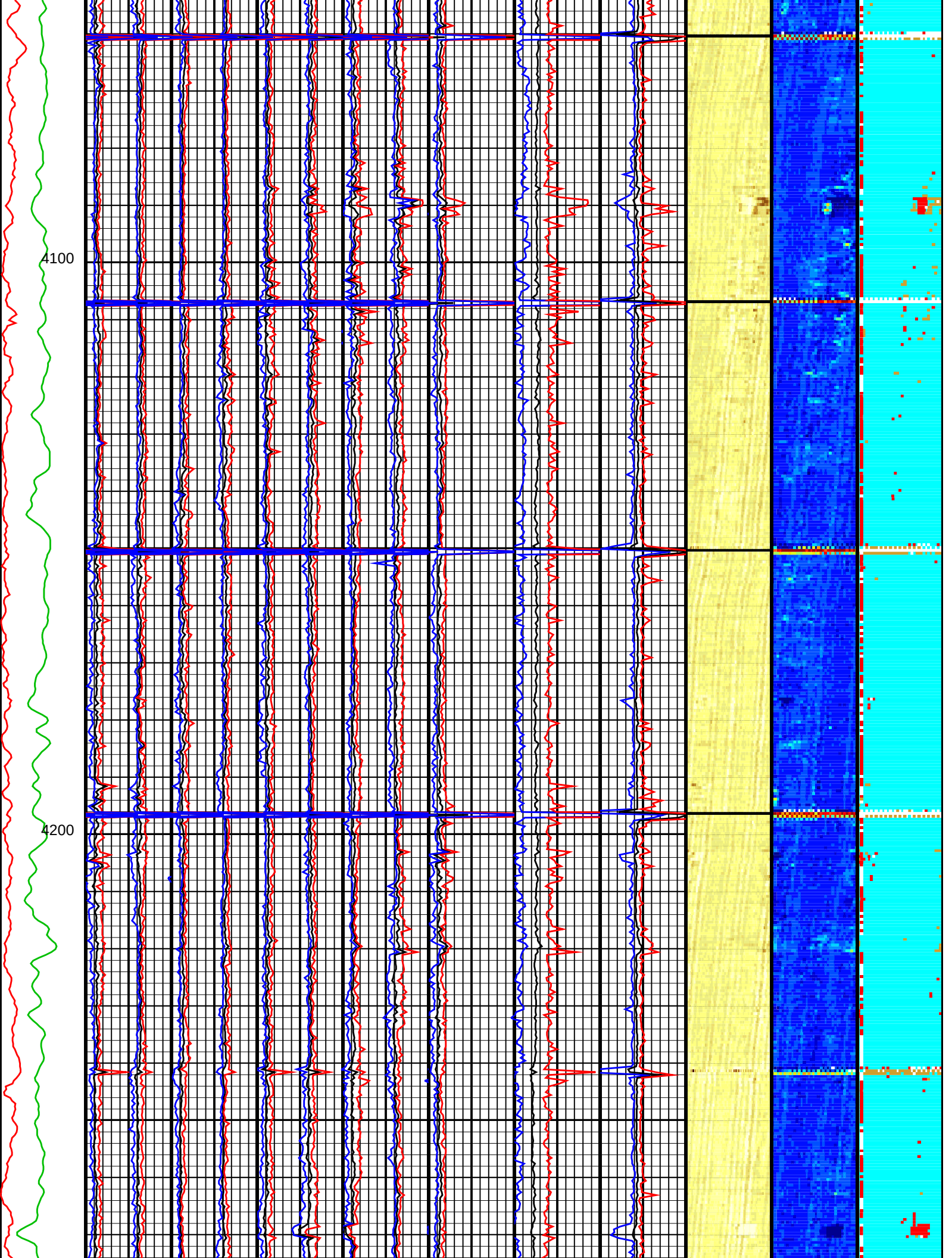
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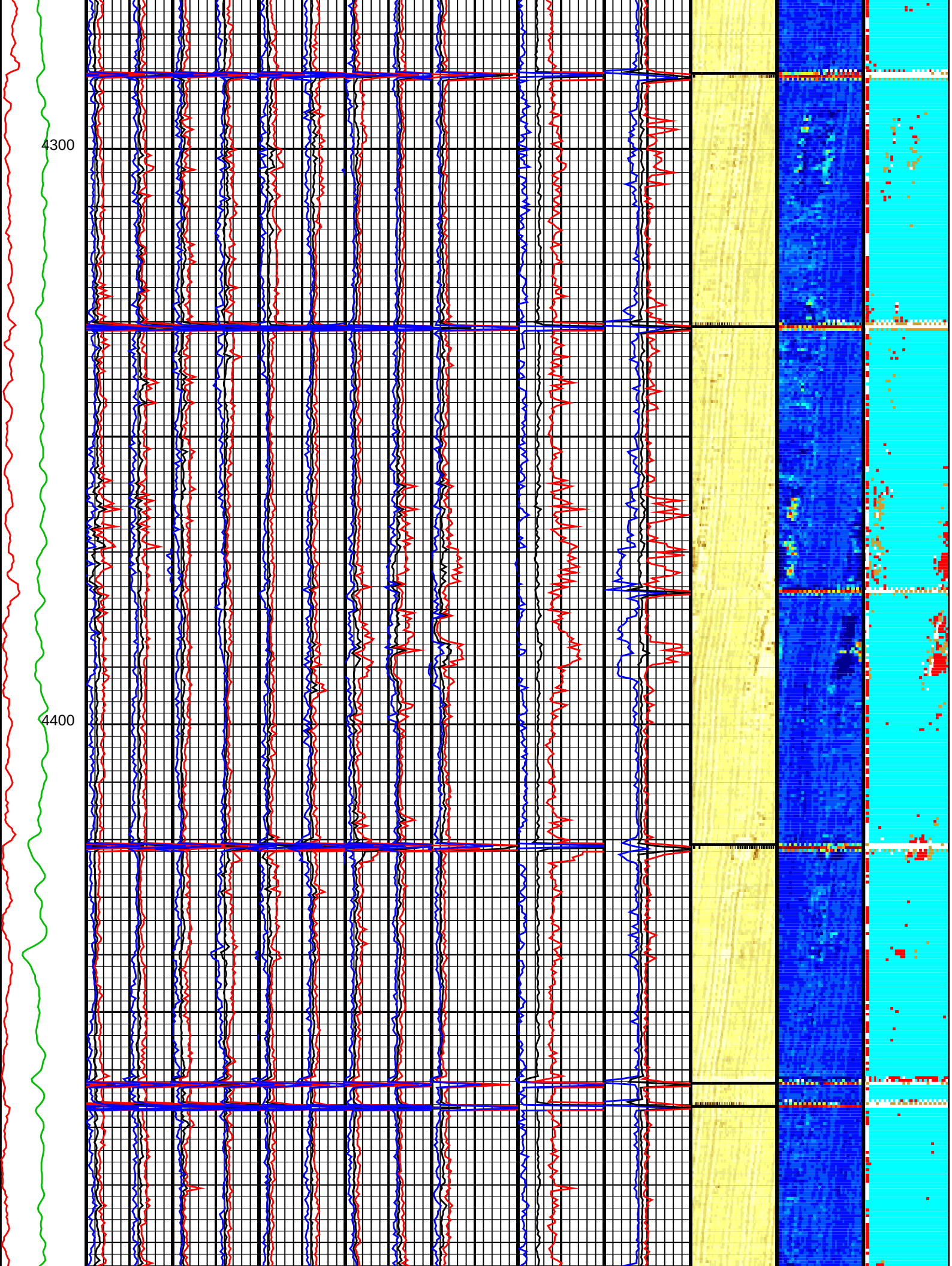
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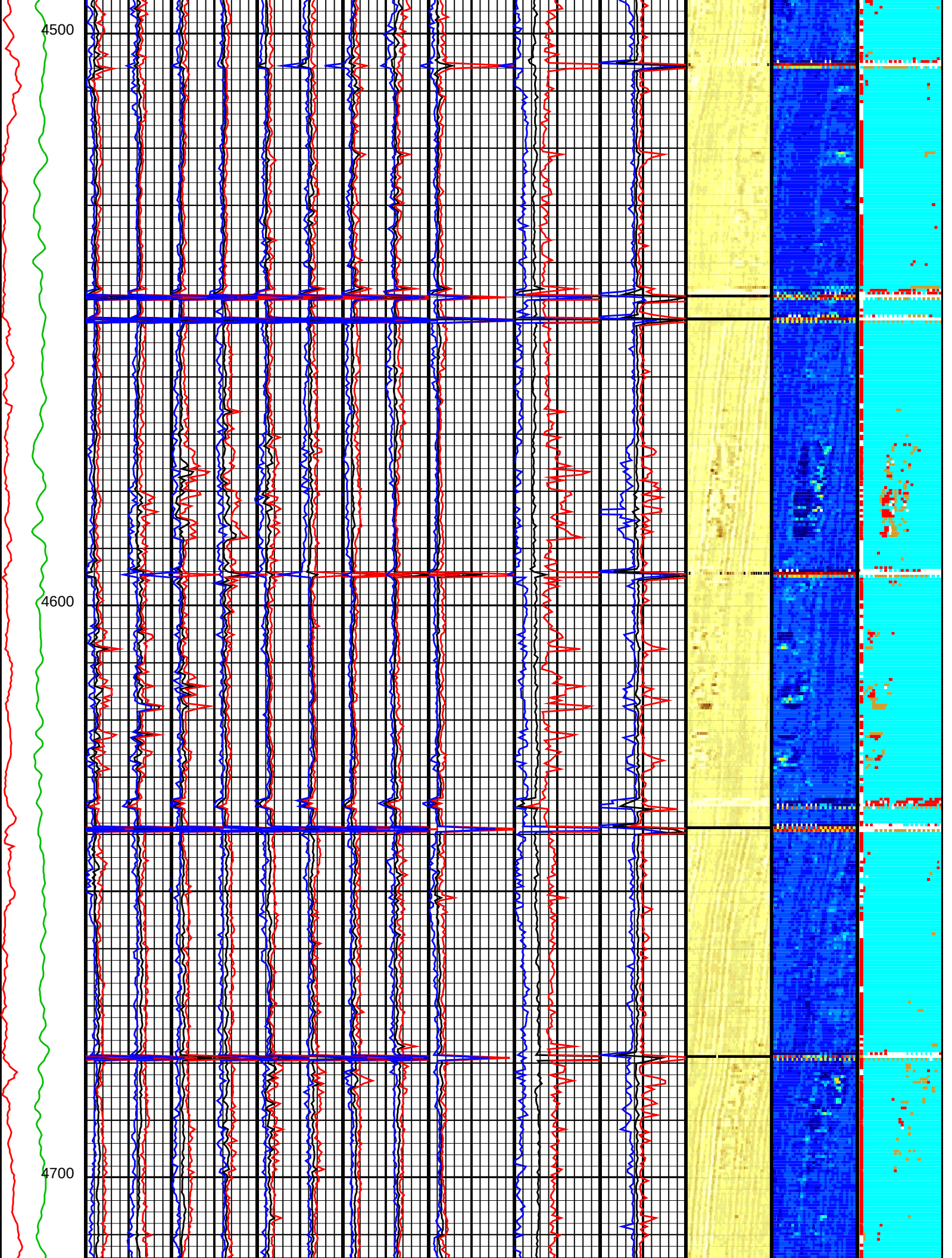
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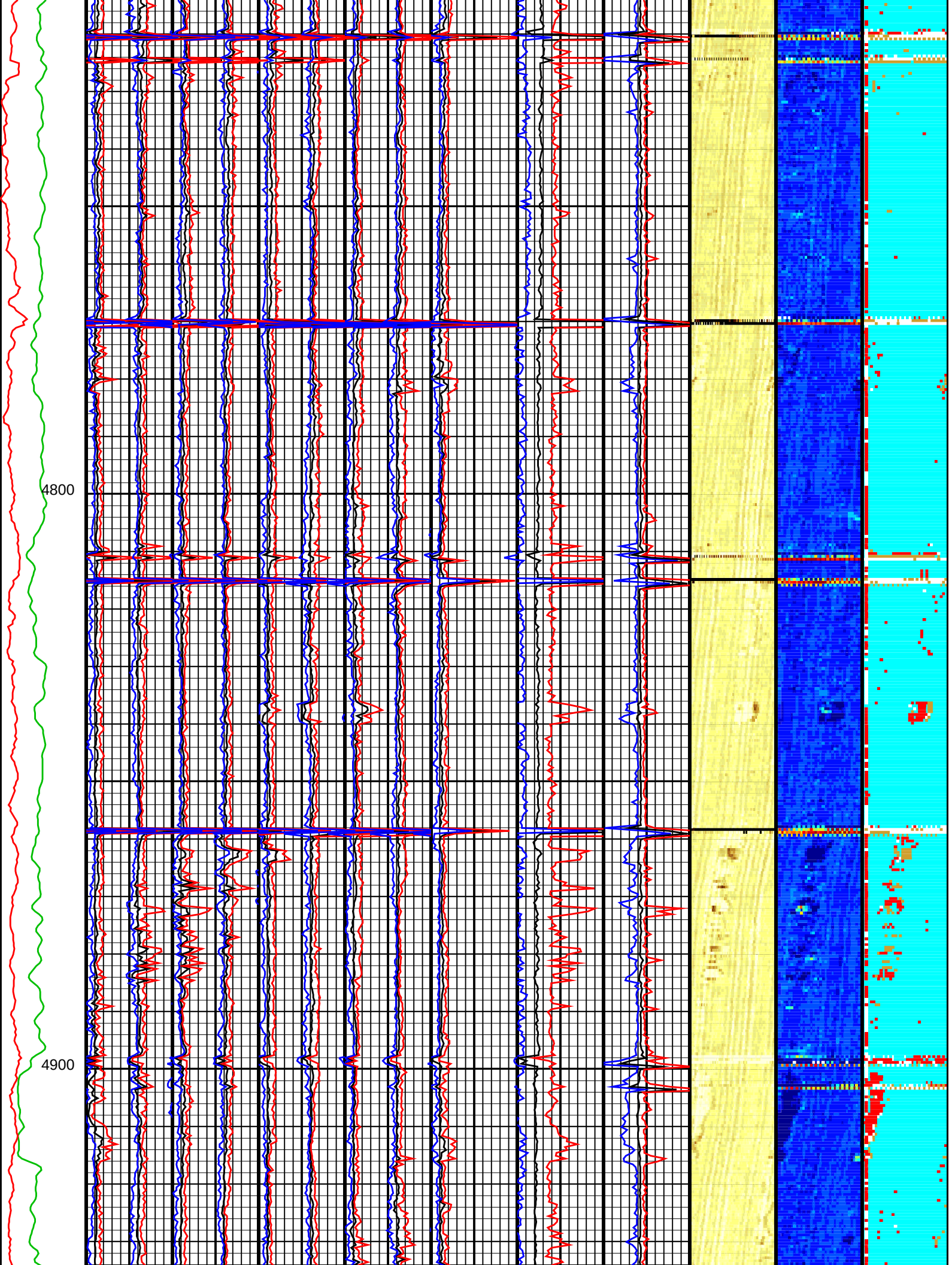
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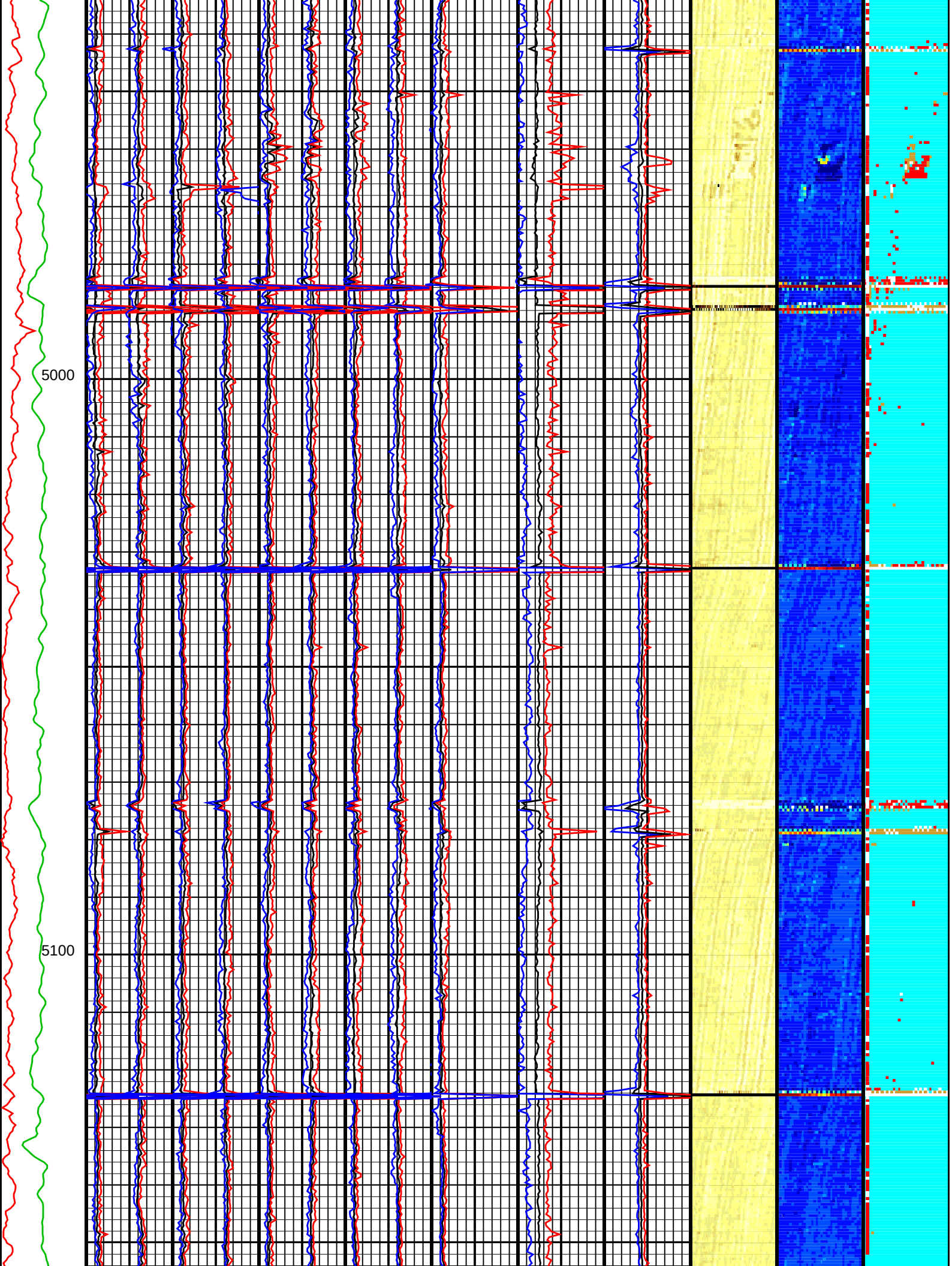
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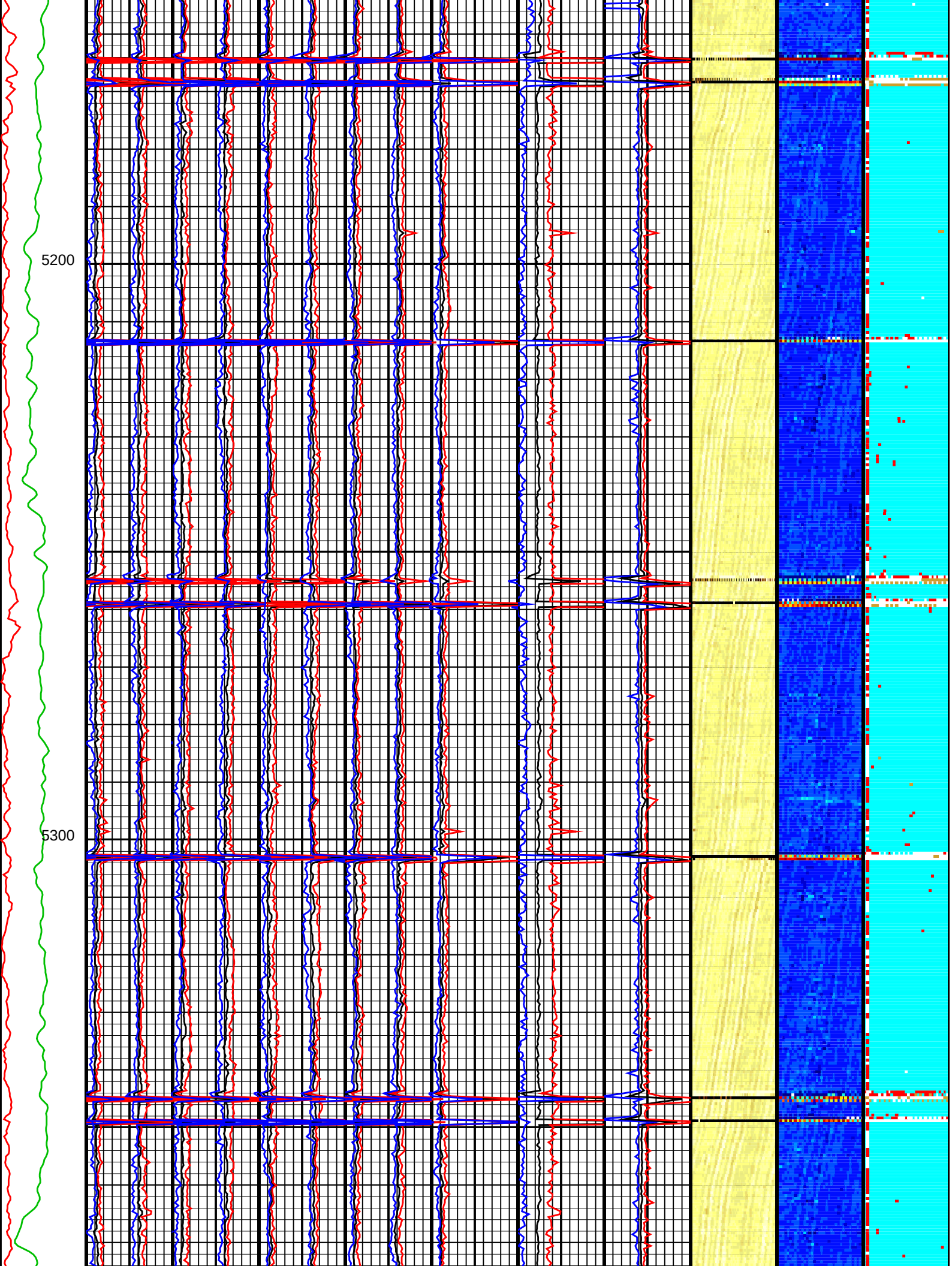
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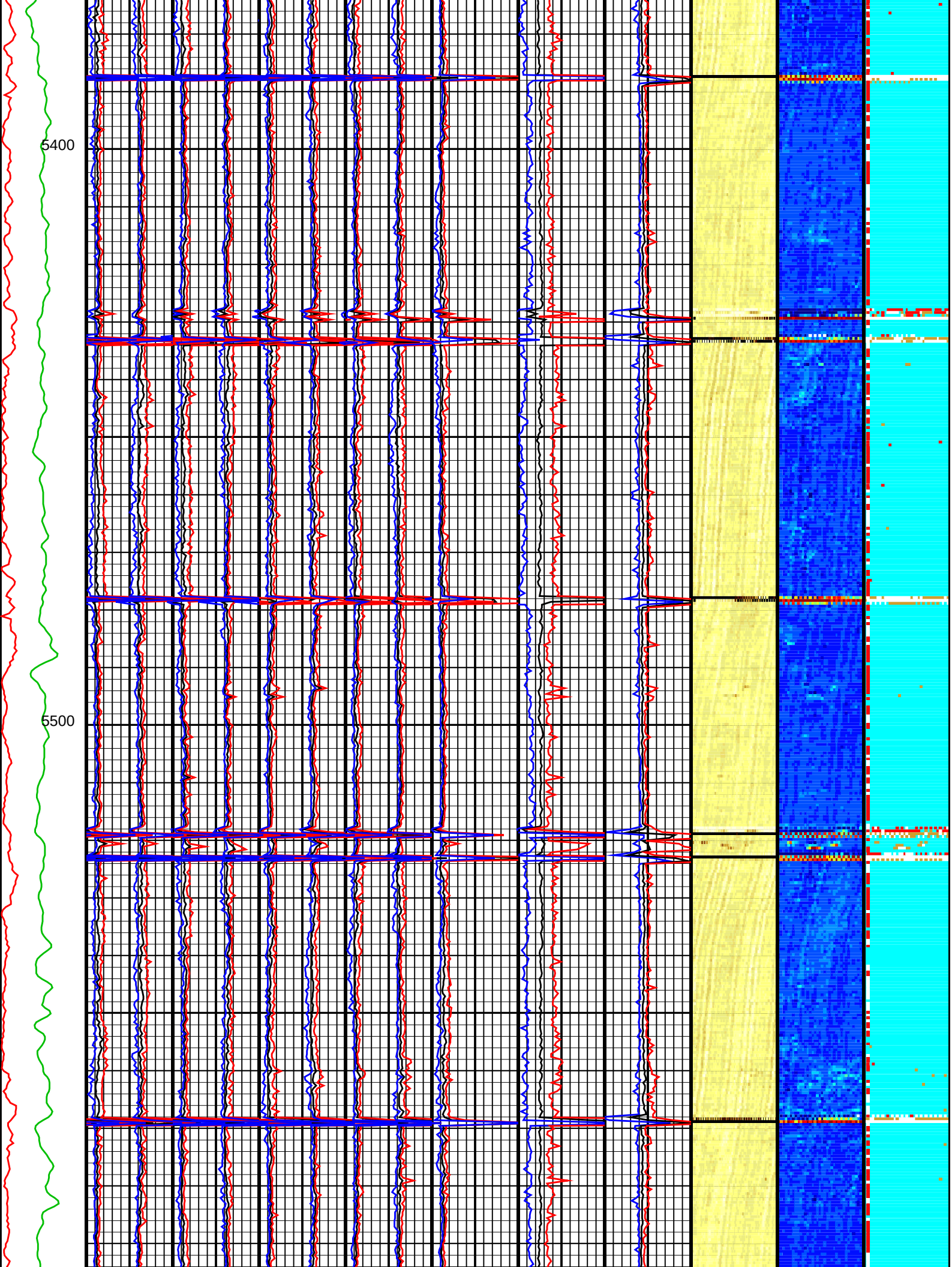
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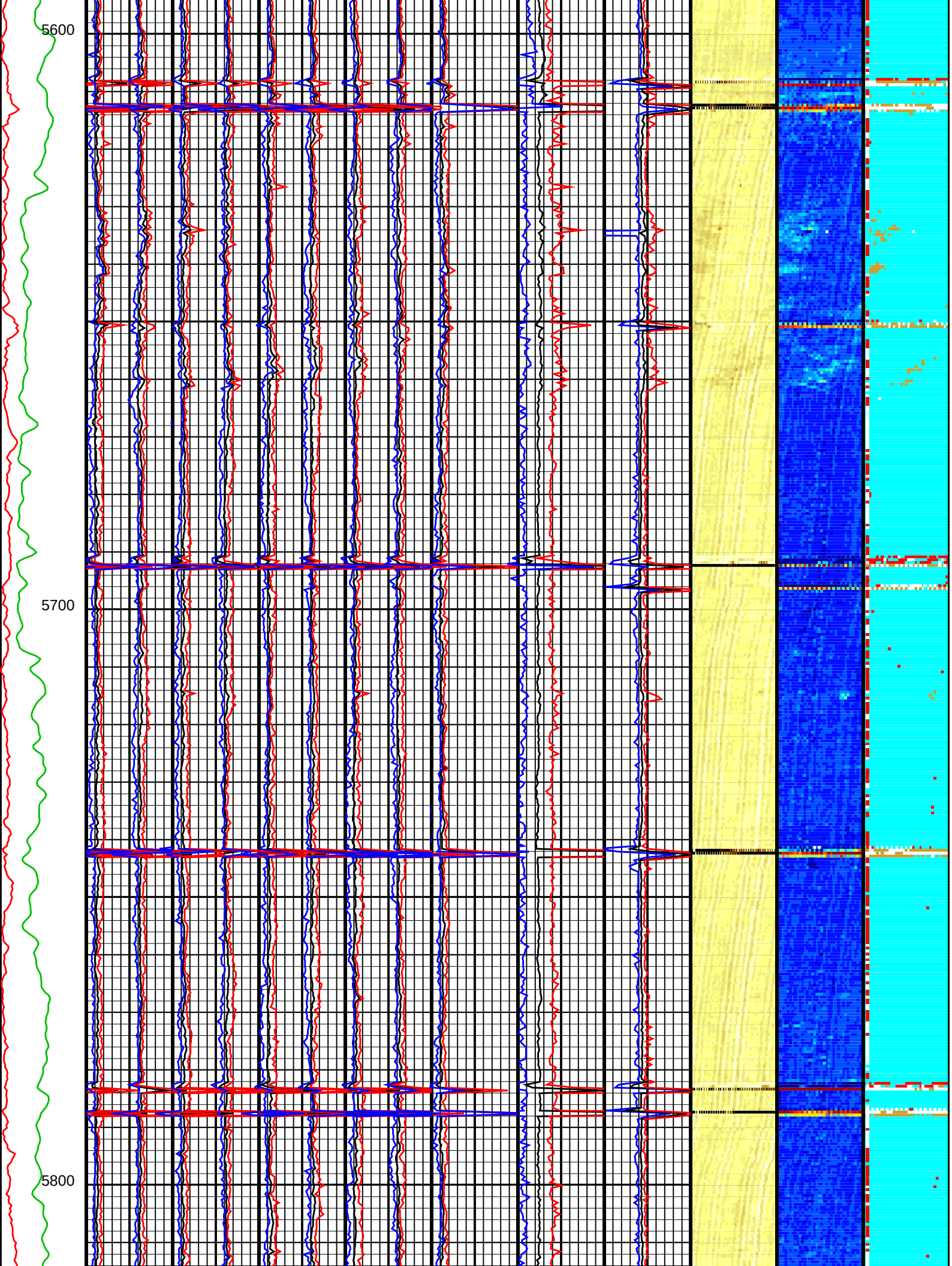
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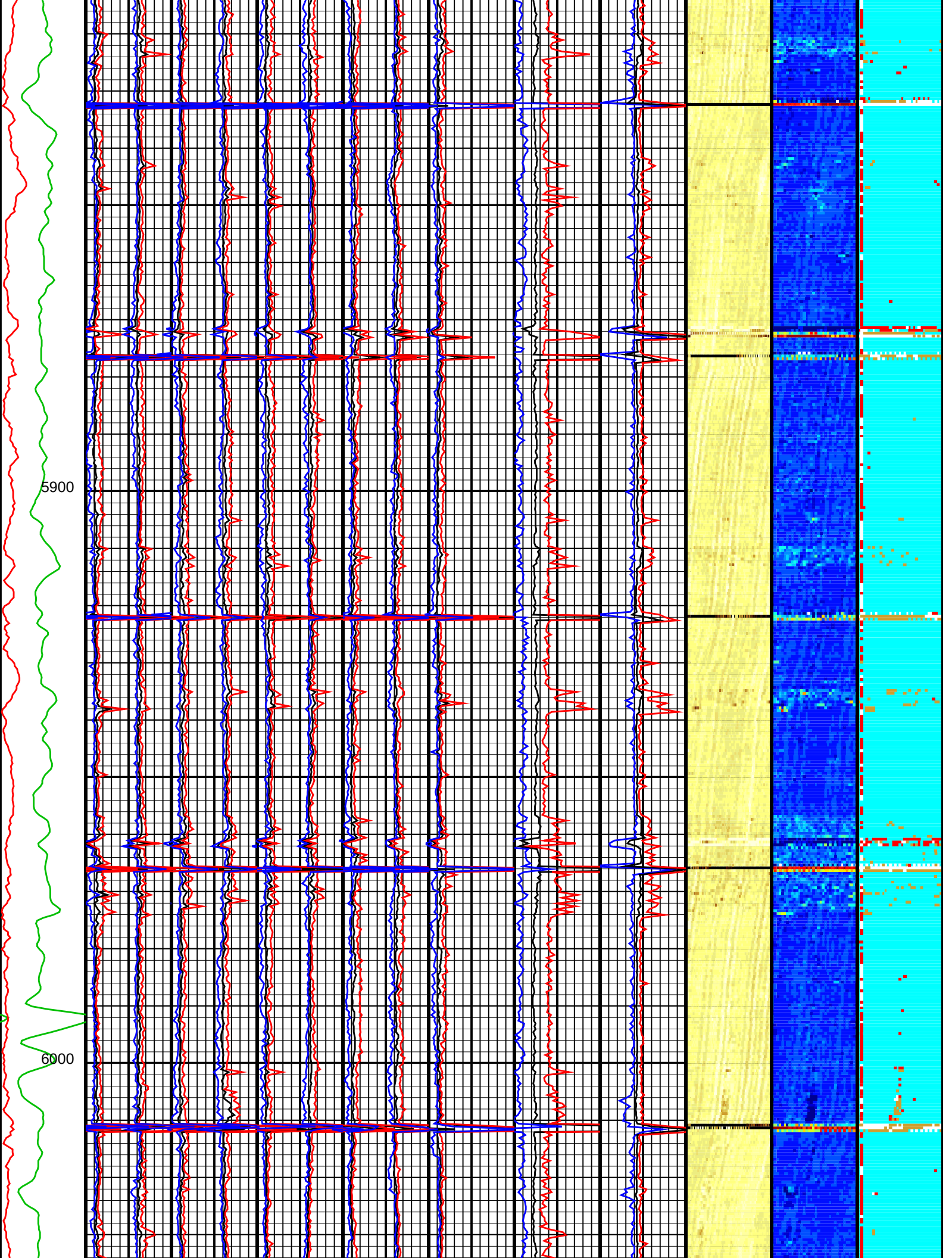
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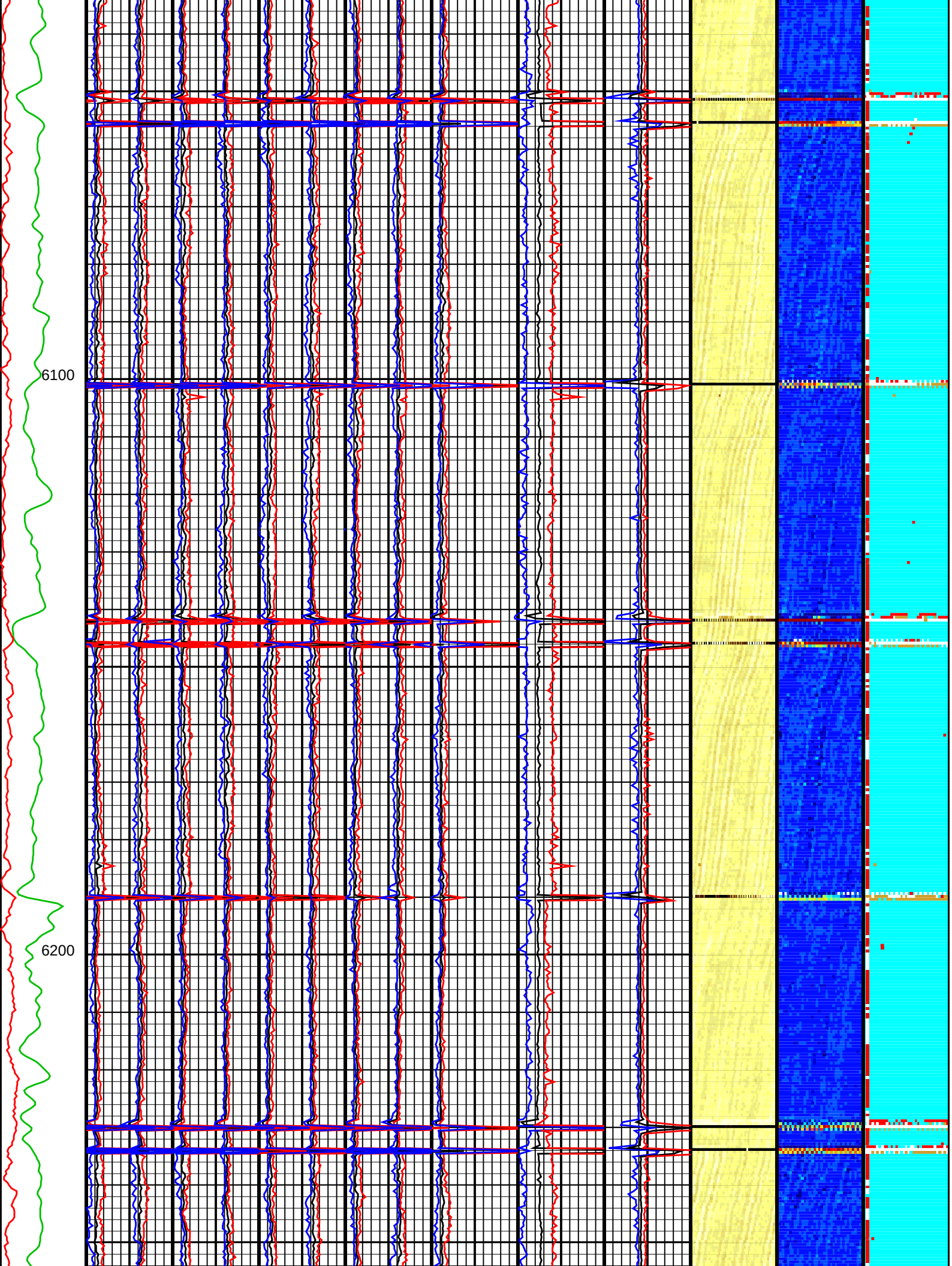
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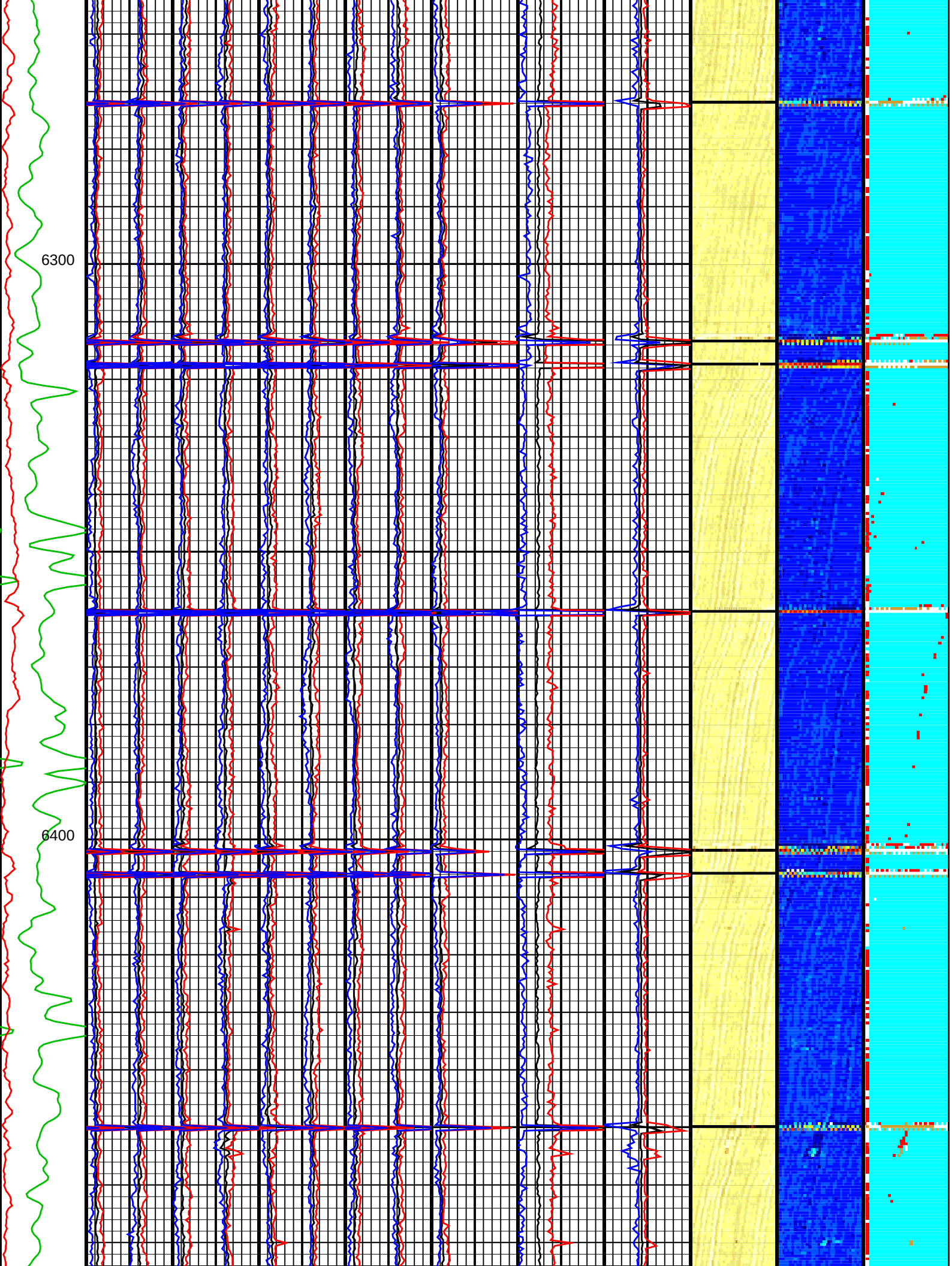
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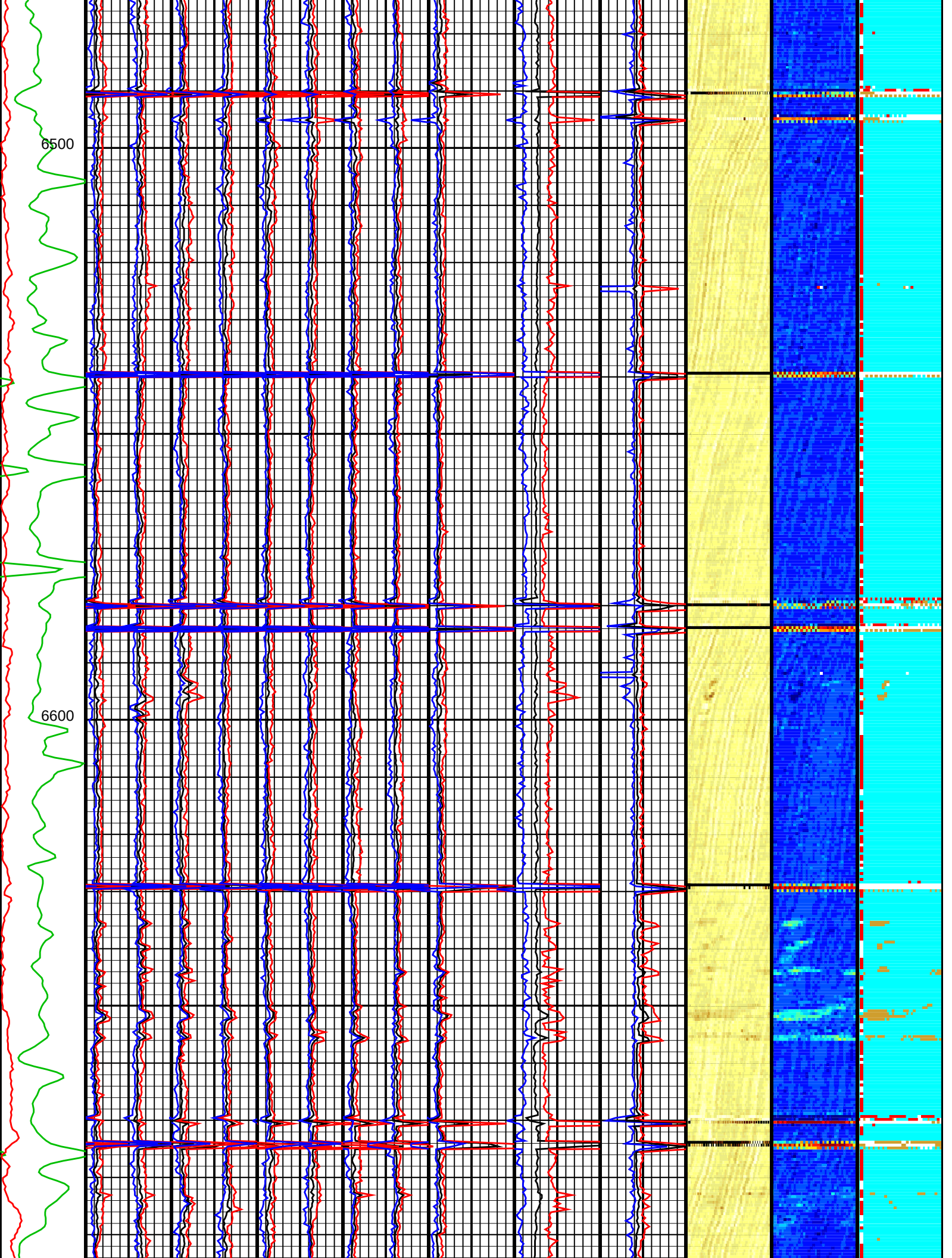
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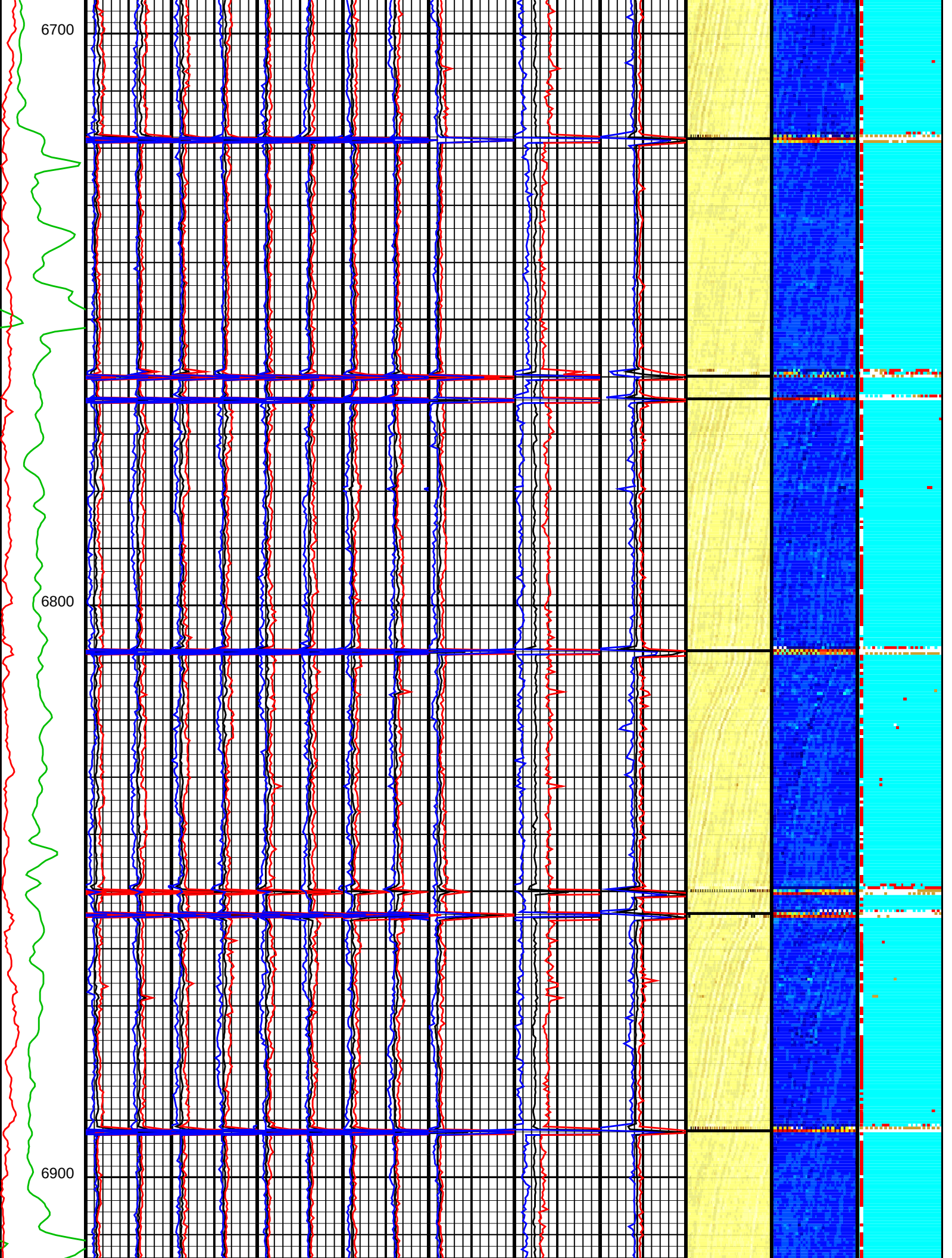
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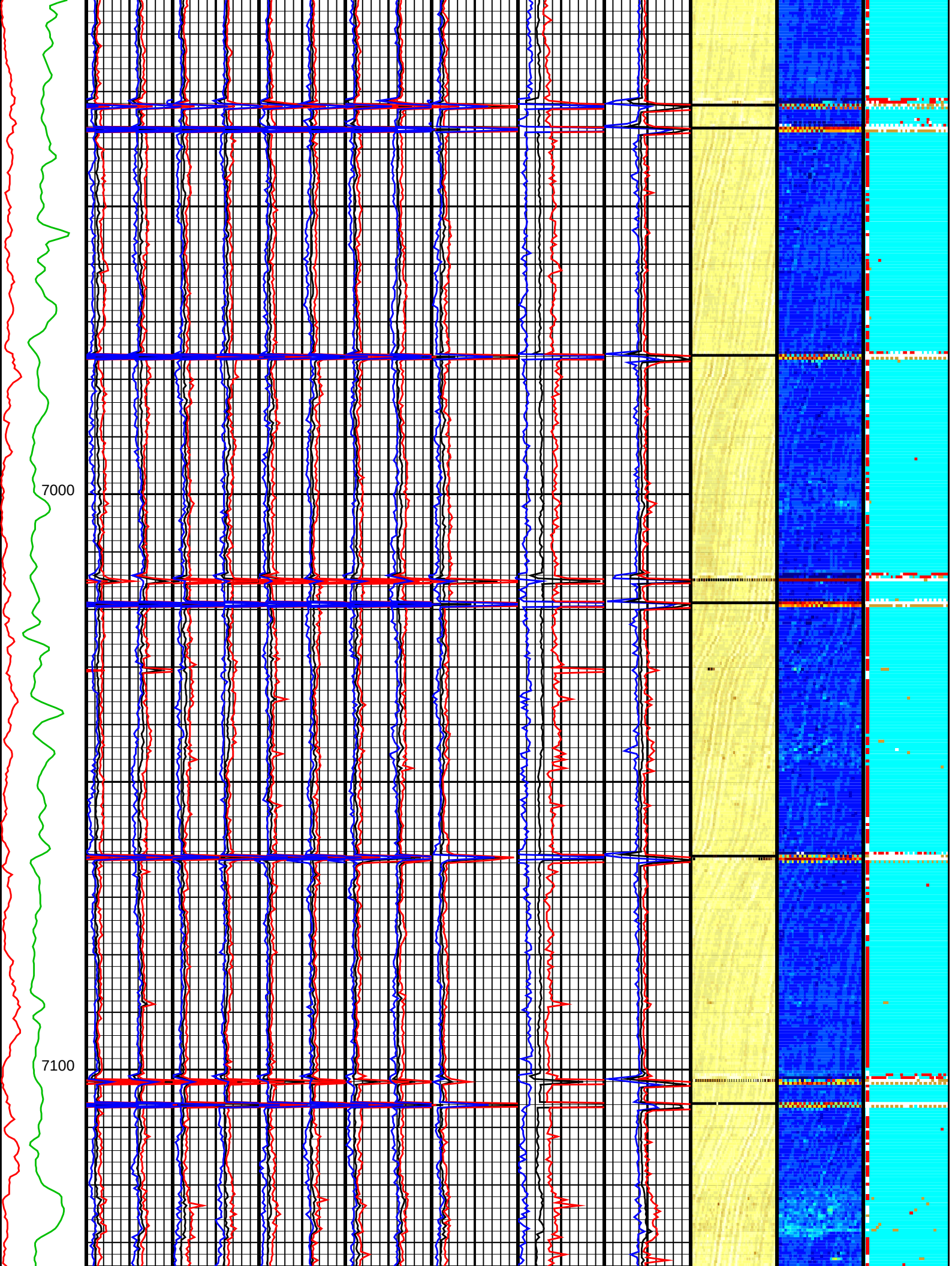
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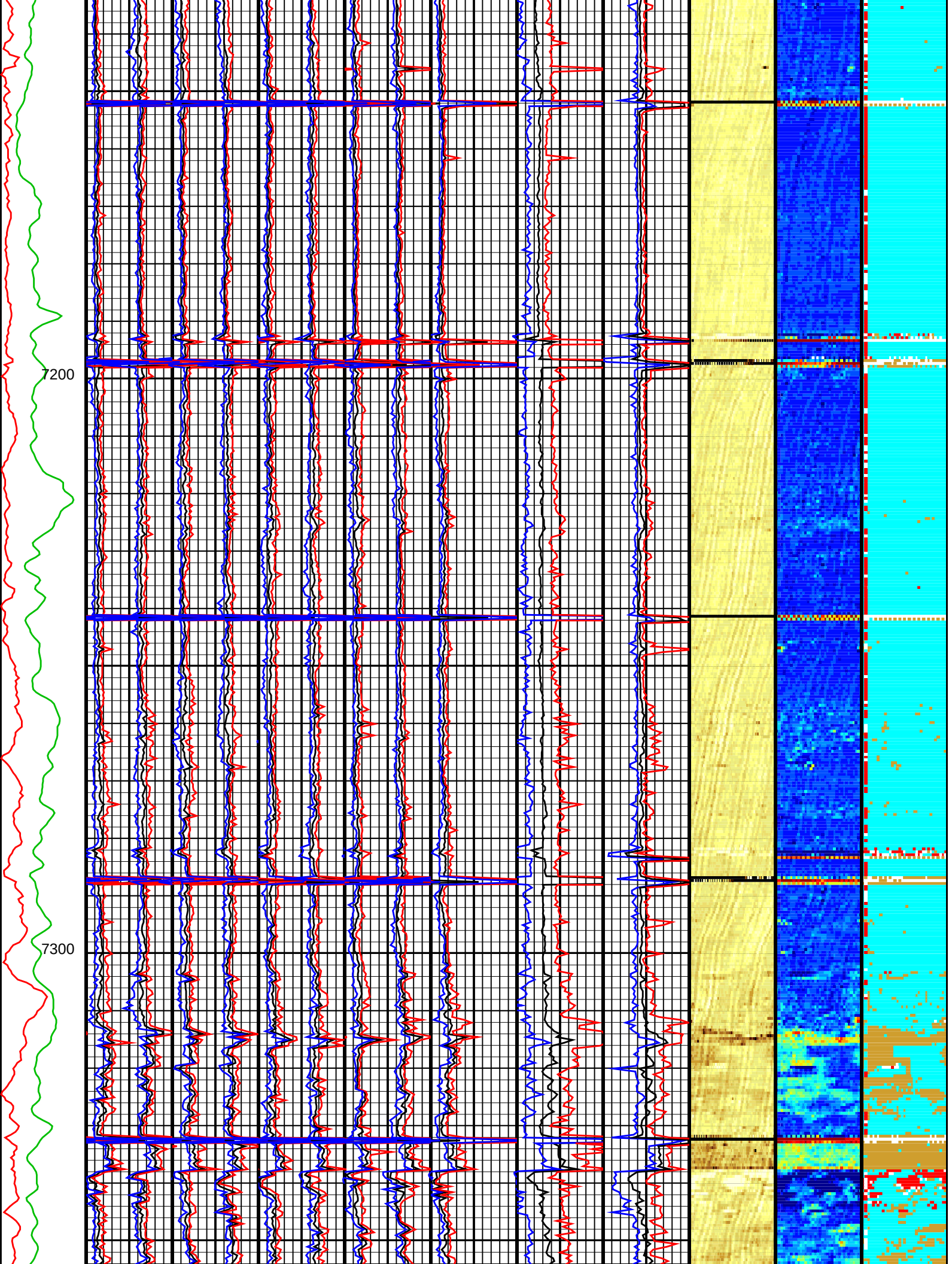
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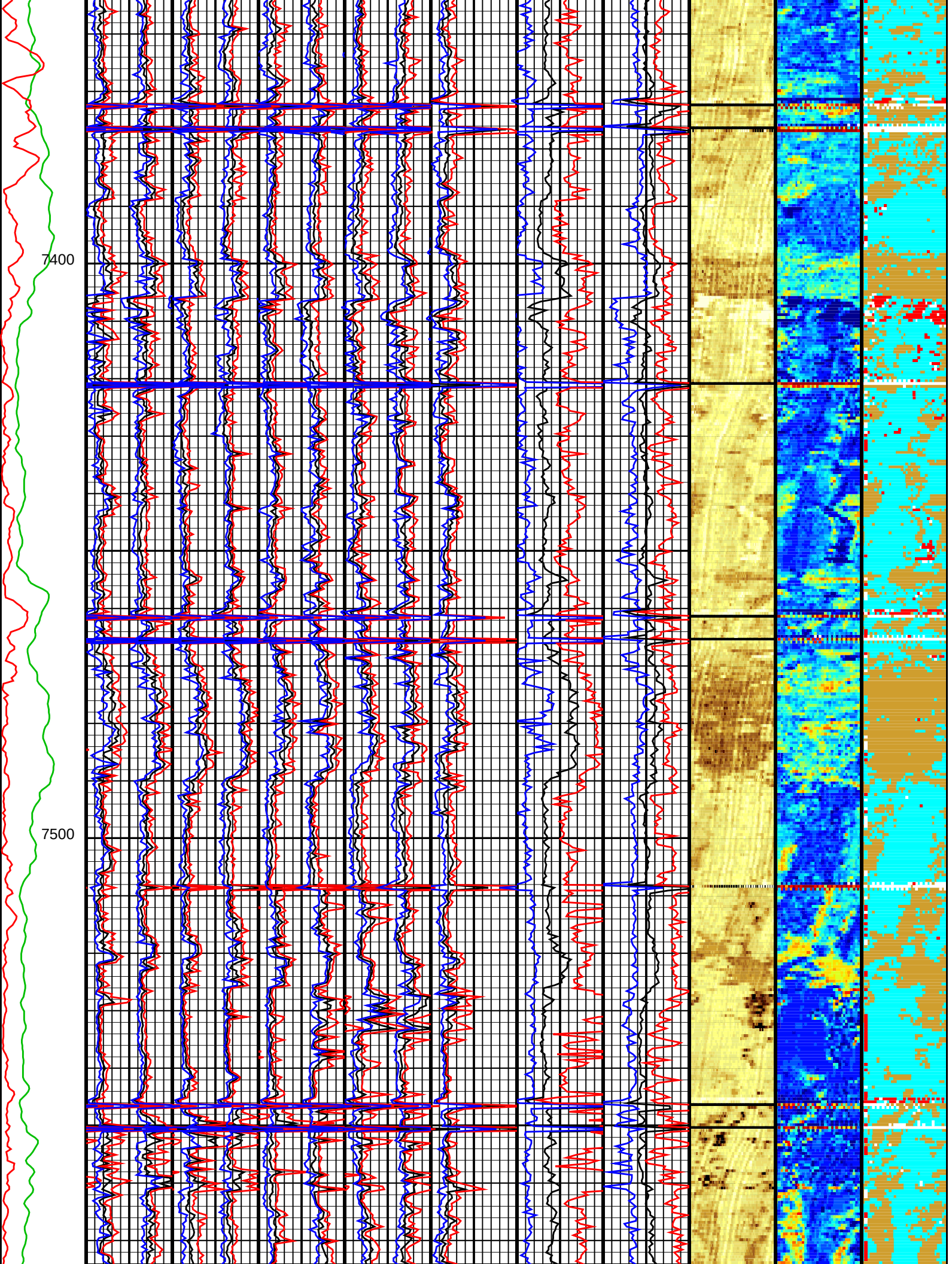
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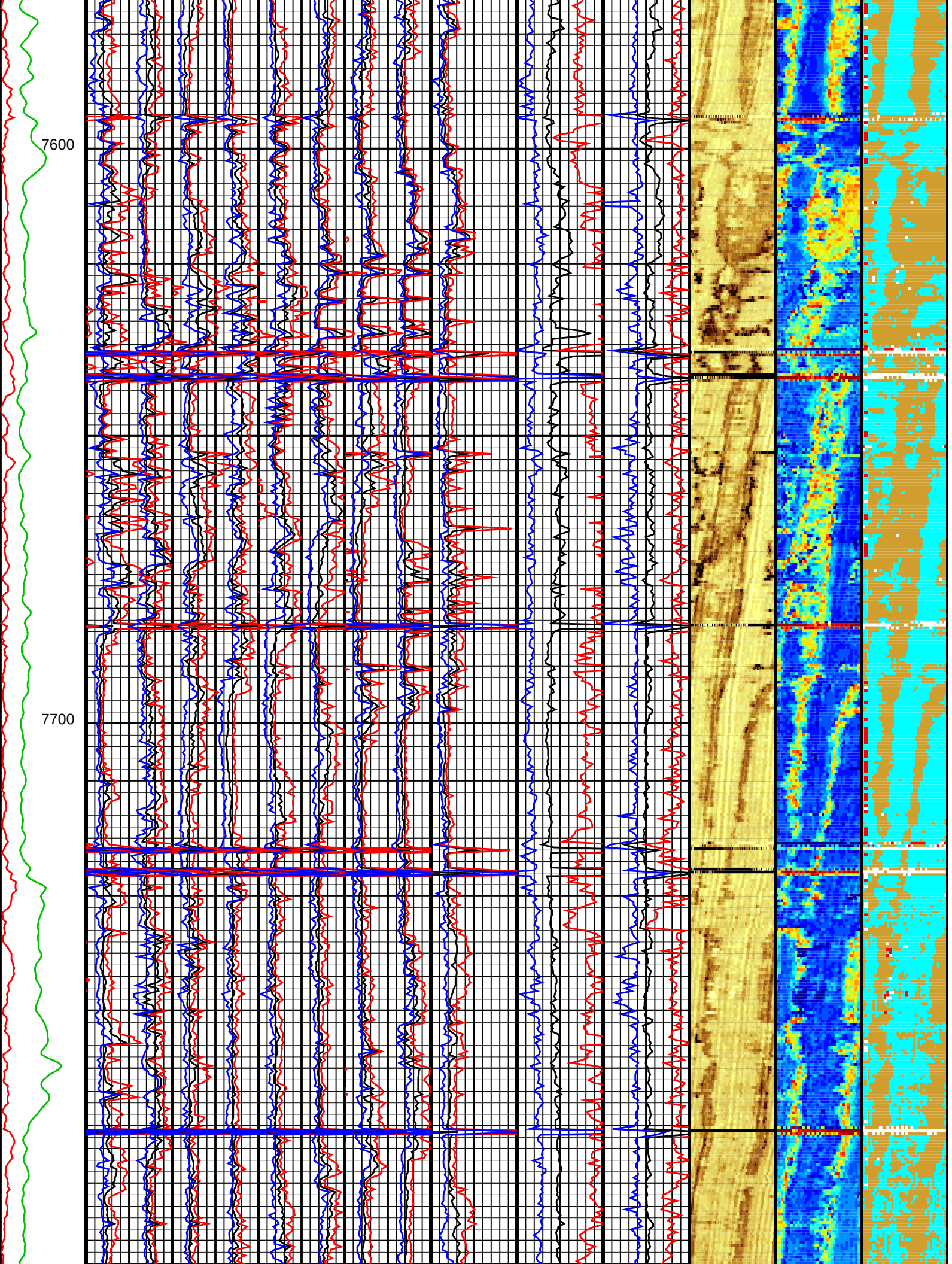
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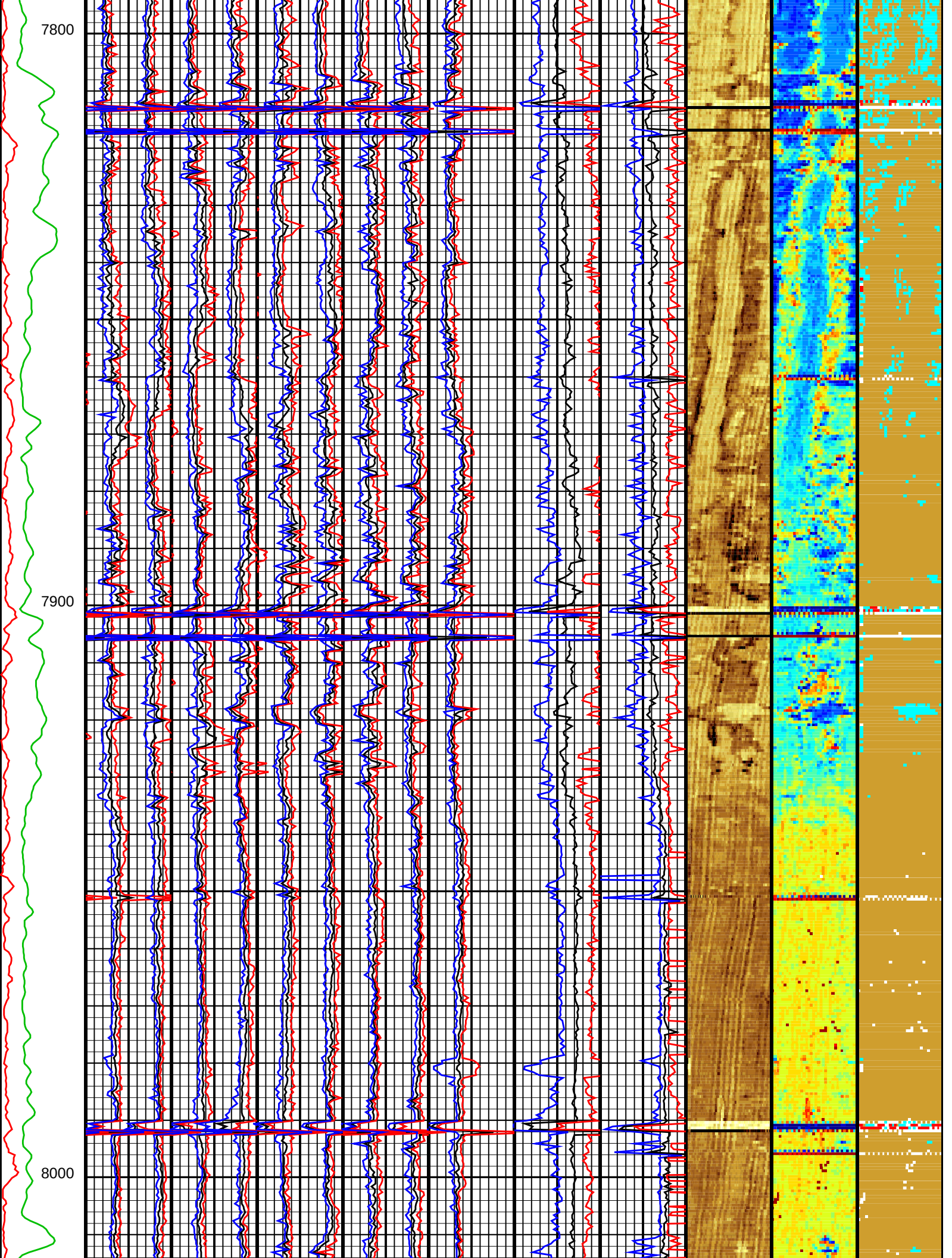
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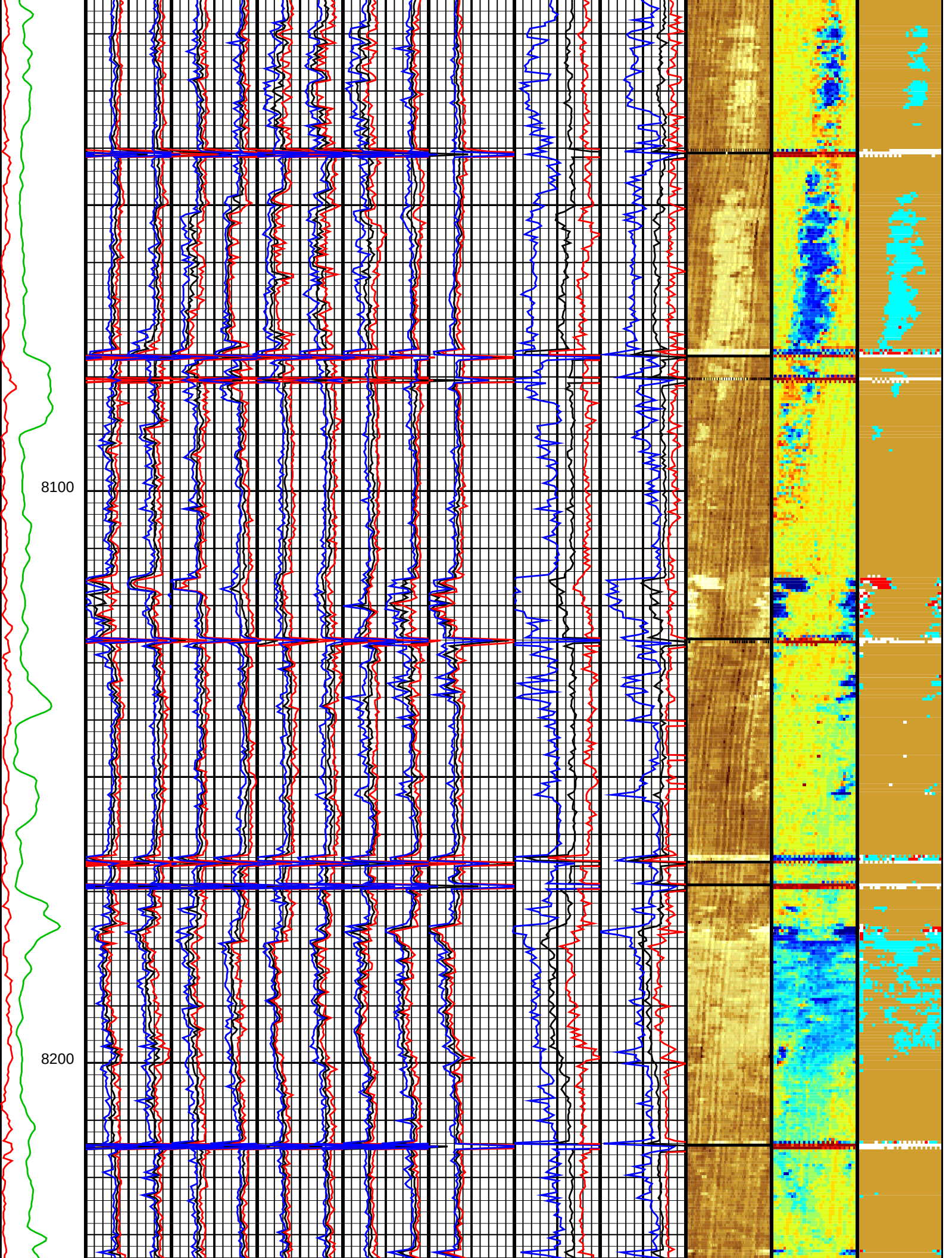
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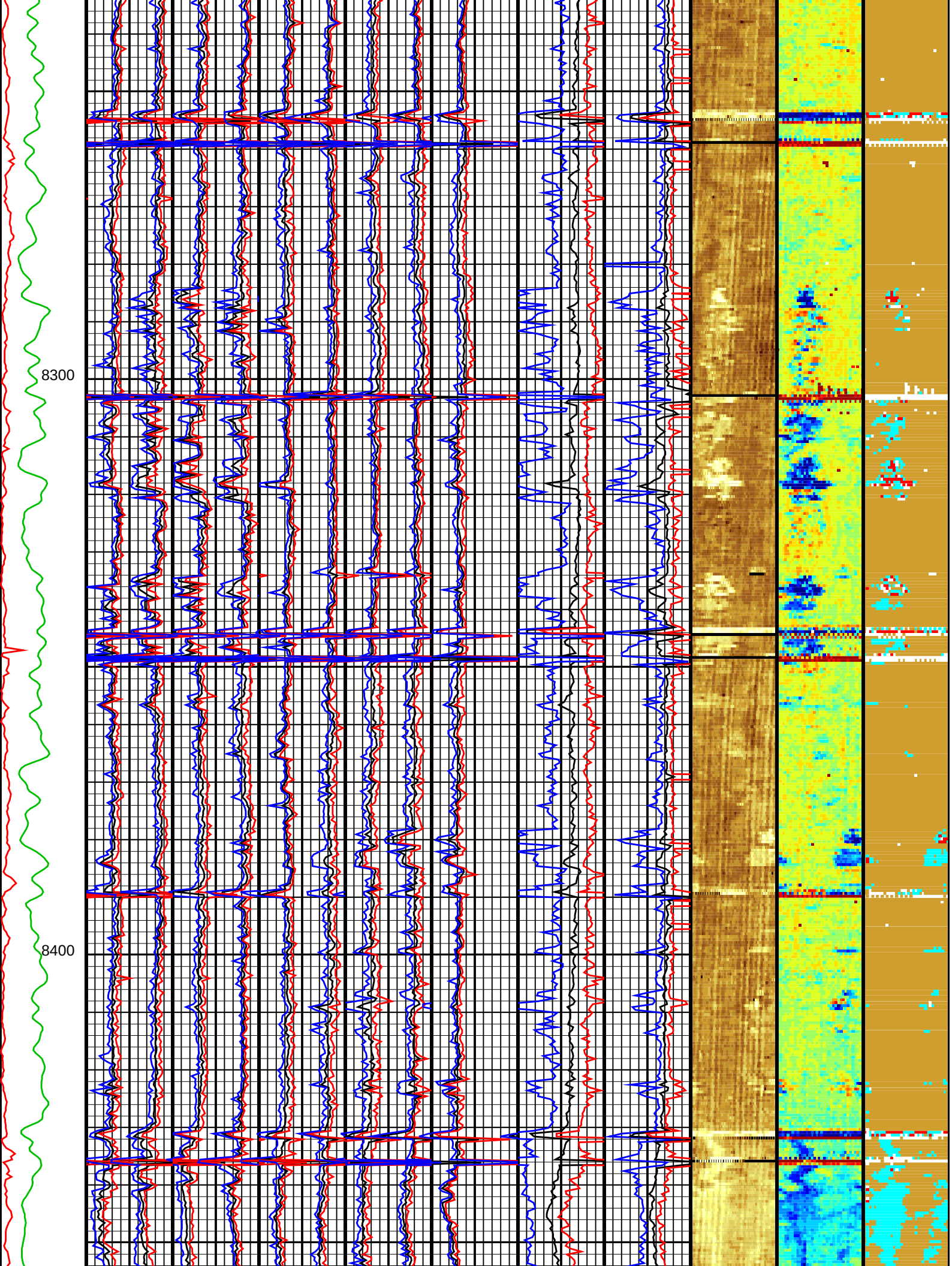
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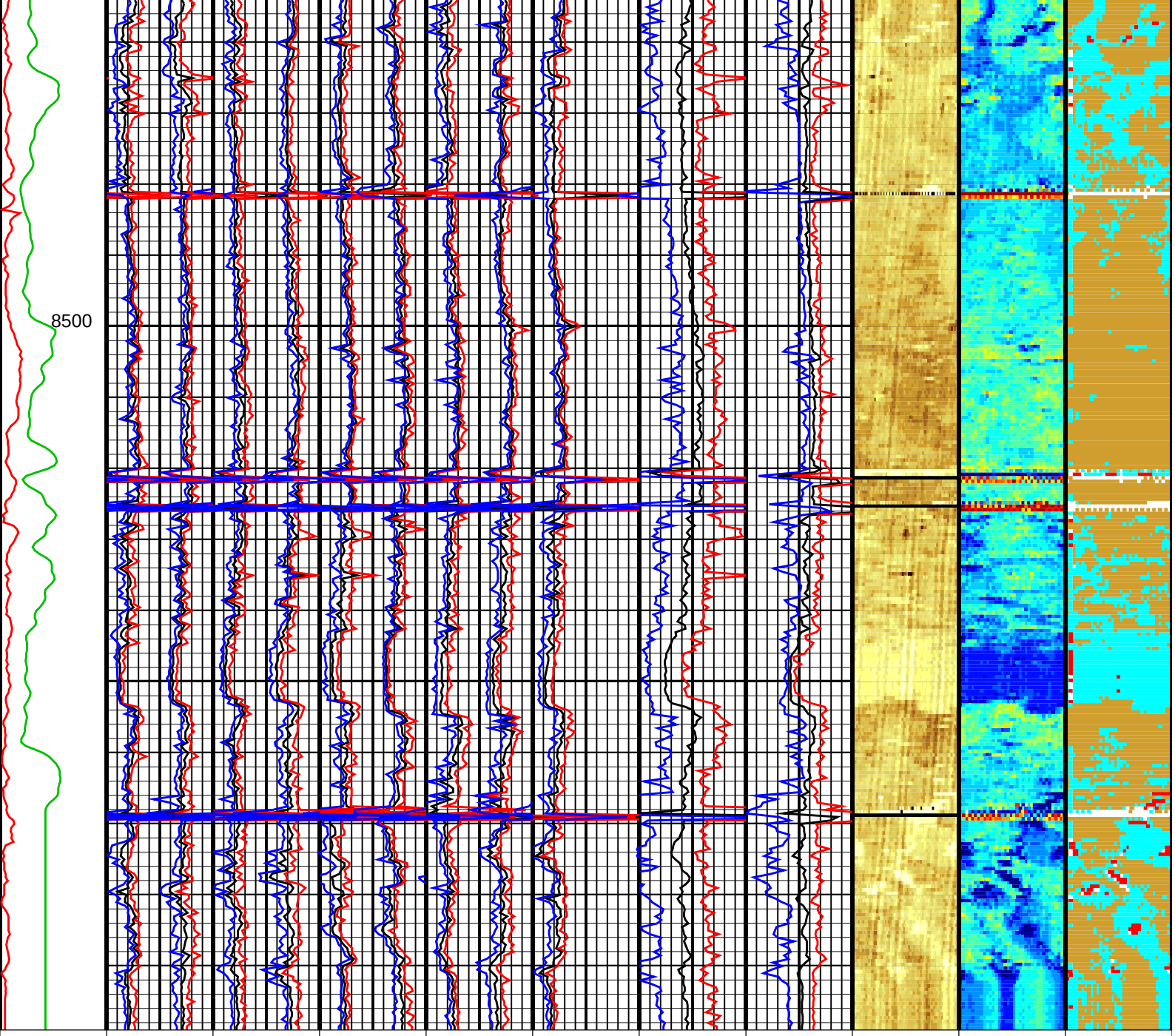


Eccent. (ECCE) 0 (IN) 0.5	Average Acoustic Impedance #1 (AV_AI1) (MRAY) 0 15	Average Acoustic Impedance #3 (AV_AI3) (MRAY) 0 15	Average Acoustic Impedance #5 (AV_AI5) (MRAY) 0 15	Average Acoustic Impedance #7 (AV_AI7) (MRAY) 0 15	Average Acoustic Impedance #9 (AV_AI9) (MRAY) 0 15	Average of AI (AIAV) (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)	Average Acoustic Impedance #2 (AV_AI2)	Average Acoustic Impedance #4 (AV_AI4)	Average Acoustic Impedance #6 (AV_AI6)	Average Acoustic Impedance #8 (AV_AI8)	Maximum Acoustic Impedance #9 (MAX_AI9)	Minimum of AI (AIMN) (MRAY)	Average Flexural Attenuation (U−USIT_UFAV)			

0 150	(MRAY)	(MRAY)	(MRAY)	(MRAY)	(MRAY)	(DB/M)
	−7.5 7.5	−7.5 7.5	−7.5 7.5	−7.5 7.5	0 15	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 **Vertical Scale: 5" per 100'** **Graphics File Created: 04−Nov−2009 02:02**

OP System Version: 17C0−154

USIT−D	SRPC−3779−Q1_2009_OP17_b	HILTH−FTB	SRPC−3779−Q1_2009_OP17_b
DTC−H	17C0−154		

All USI Images are outside views

USI : LOW Frequency Compression Mode Used For Logging.

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

Input DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_005LUP	FN:4	PRODUCER	03−Nov−2009 20:55	8590.5 FT	200.0 FT

Output DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_009PUP	FN:8	PRODUCER	04−Nov−2009 02:02

Schlumberger

GOODWIN 0.1 INCH

Company: EXXONMOBIL PRODUCTION CO	Well: PCU 197−34B8

Input DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_005LUP	FN:4	PRODUCER	03−Nov−2009 20:55	8590.5 FT	200.0 FT

Output DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_009PUP	FN:8	PRODUCER	04−Nov−2009 02:02

OP System Version: 17C0−154

USIT−D	SRPC−3779−Q1_2009_OP17_b	HILTH−FTB	SRPC−3779−Q1_2009_OP17_b
DTC−H	17C0−154		

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Maximum of AI (AIMX) (MRAY) 0 7.5

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

Gamma Ray (GR) (GAPI) 0 150

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

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

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

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

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

Minimum of AI (AIMN) (MRAY) 0 7.5

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

Eccent. (ECCE) 0 (IN) 0.5

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

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

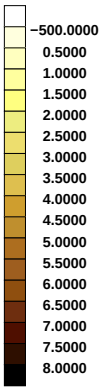
Average Acoustic Impedance #5 (AV_AI5) (MRAY) 0 15

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

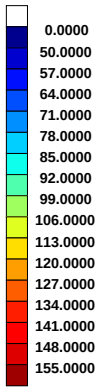
Average Acoustic Impedance #9 (AV_AI9) (MRAY) 0 15

Average of AI (AIAV) (MRAY) 0 7.5

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

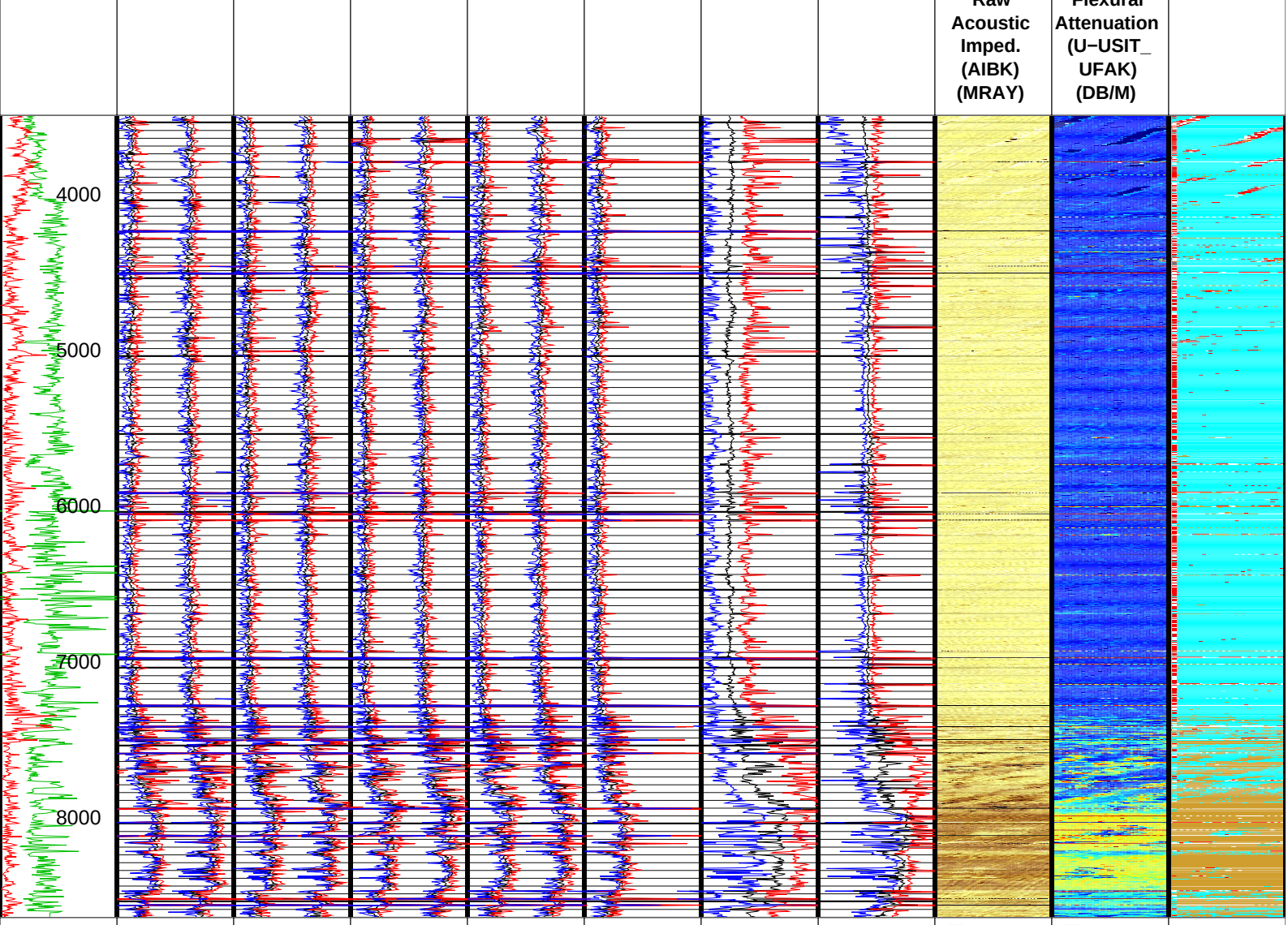


Raw



Flexural

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)

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)
0 7.5

Maximum Flexural Attenuation (U−USIT_ UFAX) (DB/M)

0 15	0 15	0 15	0 15	0 15		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: 04−Nov−2009 02:02**

OP System Version: 17C0−154

USIT−D	SRPC−3779−Q1_2009_OP17_b	HILTH−FTB	SRPC−3779−Q1_2009_OP17_b
DTC−H	17C0−154		

All USI Images are outside views

USI : LOW Frequency Compression Mode Used For Logging.

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

Input DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_005LUP	FN:4	PRODUCER	03−Nov−2009 20:55	8590.5 FT	200.0 FT

Output DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_009PUP	FN:8	PRODUCER	04−Nov−2009 02:02

Schlumberger

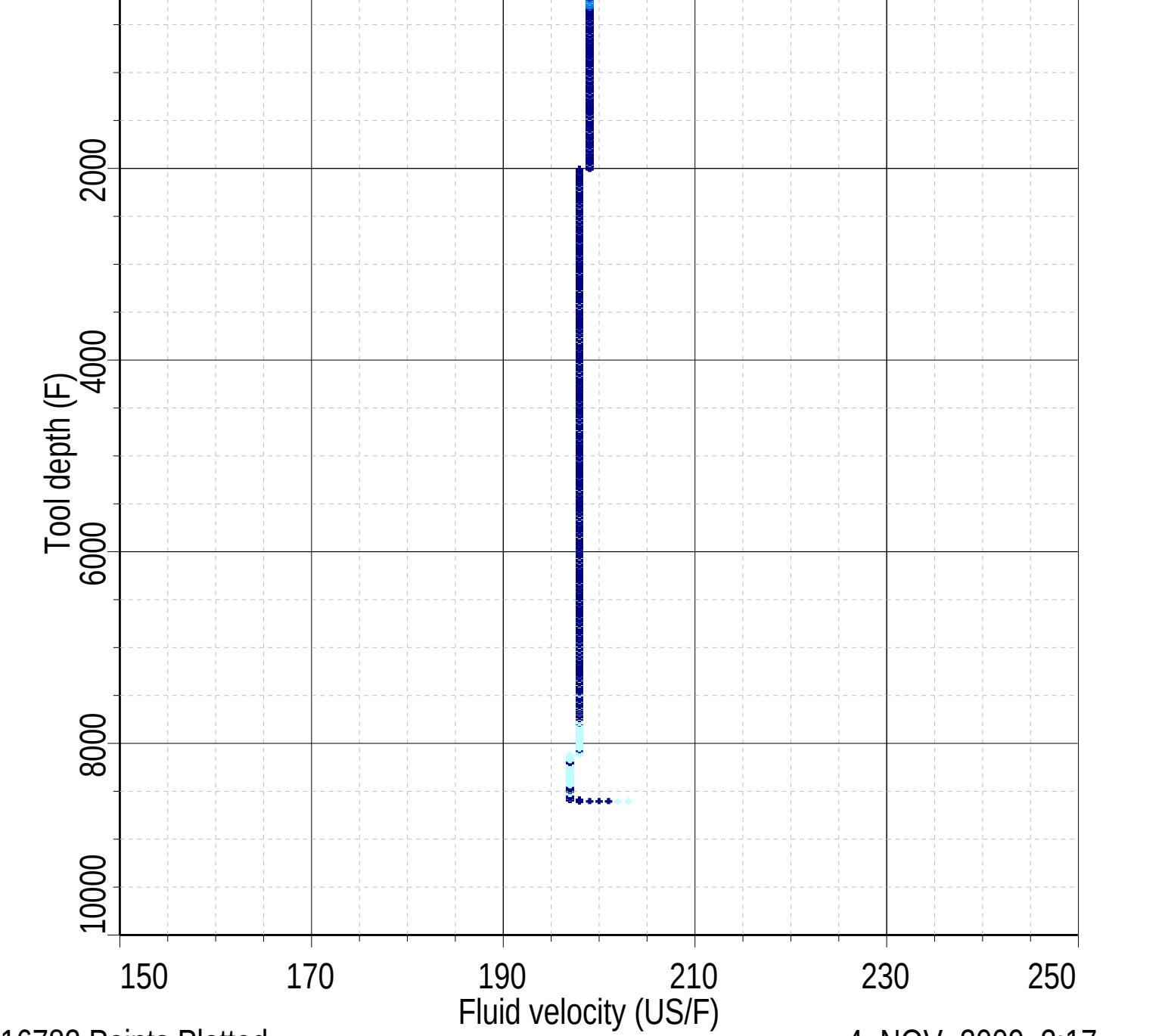
FLUID PROPERTIES

MAXIS Field Log

Index: 8599.0 − 208.5 FT

IBC Inv. Fluid Z QC (−−−−)

0. 0.5



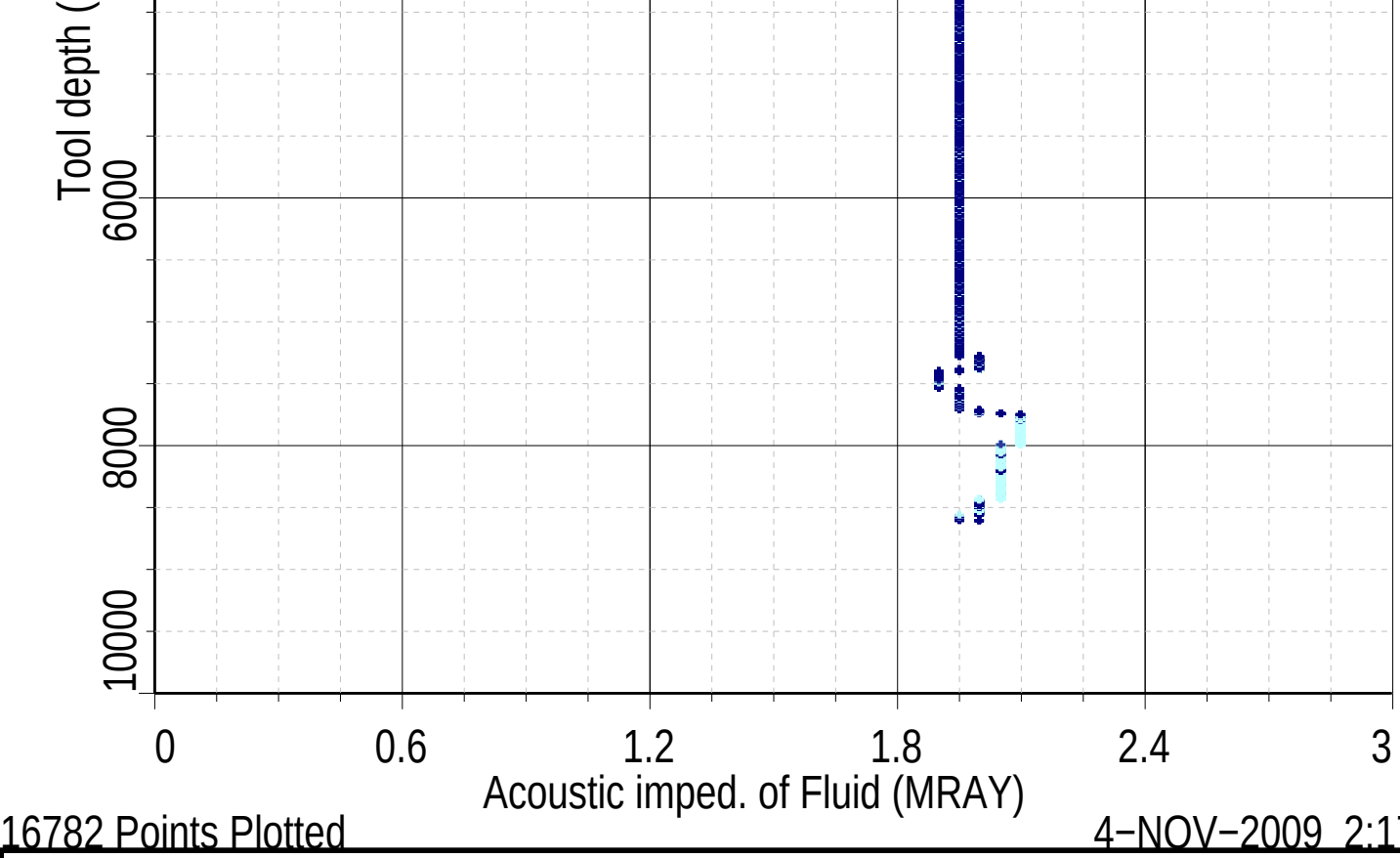
16782 Points Plotted

4−NOV−2009 2:17

IBC Inv. Fluid Z QC (−−−−)

0. 0.5

Index: 8599.0 − 208.5 FT



16782 Points Plotted

4−NOV−2009 2:17

Schlumberger

REPEAT PASS

MAXIS Field Log

Company: EXXONMOBIL PRODUCTION CO **Well: PCU 197−34B8**

Input DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_004LUP	FN:3	PRODUCER	03−Nov−2009 20:40	8590.0 FT	8281.0 FT

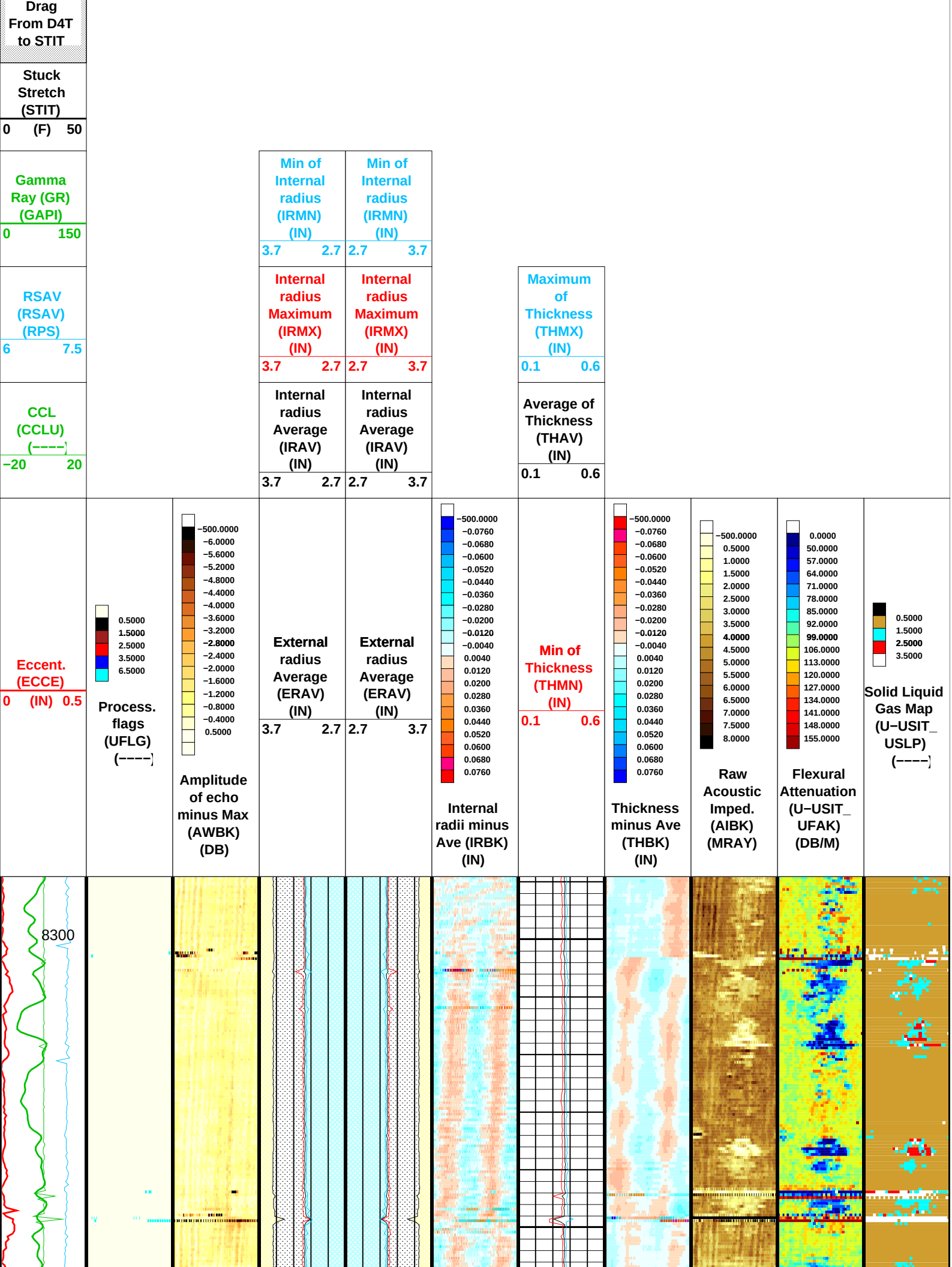
Output DLIS Files

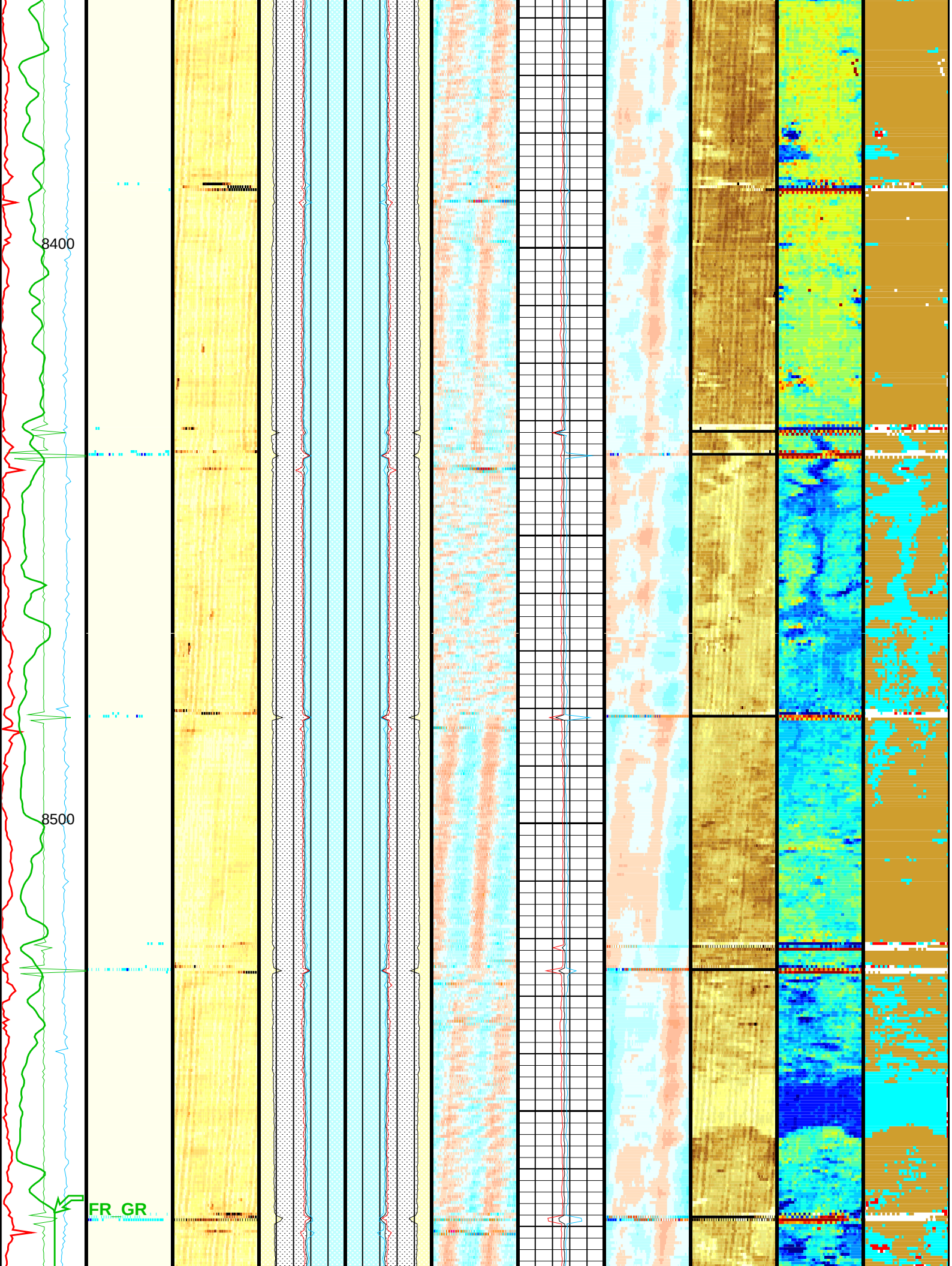
DEFAULT	USI_TLD_MCFL_CNL_007PUP	FN:6	PRODUCER	04−Nov−2009 01:53	8598.0 FT	8289.0 FT

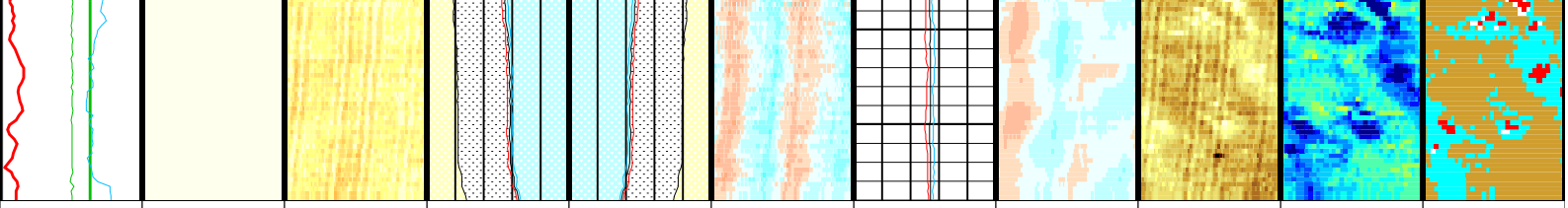
OP System Version: 17C0−154

USIT−D DTC−H	SRPC−3779−Q1_2009_OP17_b 17C0−154	HILTH−FTB	SRPC−3779−Q1_2009_OP17_b

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


Drag From D4T to STIT
Stuck Stretch (STIT)
0 (F) 50
Gamma Ray (GR) (GAPI)
0 150
RSAV (RSAV) (RPS)
6 7.5
CCL (CCLU) (----)
−20 20
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
Min of Internal radius (IRMN) (IN)
3.7 2.7
Internal radius Maximum (IRMX) (IN)
3.7 2.7
Internal radius Average (IRAV) (IN)
3.7 2.7
External radius Average (ERAV) (IN)
3.7 2.7
Min of Internal radius (IRMN) (IN)
2.7 3.7
Internal radius Maximum (IRMX) (IN)
2.7 3.7
Internal radius Average (IRAV) (IN)
2.7 3.7
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
Maximum of Thickness (THMX) (IN)
0.1 0.6
Average of Thickness (THAV) (IN)
0.1 0.6
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
8300


8400
8500
FR_GR



Eccent. (ECCE)	Process. flags (UFLG)	Amplitude of echo minus Max (AWBK) (DB)	External radius Average (ERAV) (IN)	External radius Average (ERAV) (IN)	Internal radii minus Ave (IRBK) (IN)	Min of Thickness (THMN) (IN)	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 (IN) 0.5	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	3.7 2.7	2.7 3.7	−500.0000 −0.0760 −0.0680 −0.0600 −0.0520 −0.0440 −0.0360 −0.0280 −0.0200 −0.0120 −0.0040 0.0040 0.0120 0.0200 0.0280 0.0360 0.0440 0.0520 0.0600 0.0680 0.0760	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 0.5000 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) (−−−−)	Internal radius Average (IRAV) (IN)	Internal radius Average (IRAV) (IN)	Average of Thickness (THAV) (IN)
−20 20	3.7 2.7	2.7 3.7	0.1 0.6

RSAV (RSAV) (RPS)	Internal radius Maximum (IRMX) (IN)	Internal radius Maximum (IRMX) (IN)	Maximum of Thickness (THMX) (IN)
6 7.5	3.7 2.7	2.7 3.7	0.1 0.6

Gamma Ray (GR) (GAPI)	Min of Internal radius (IRMN) (IN)	Min of Internal radius (IRMN) (IN)
0 150	3.7 2.7	2.7 3.7

Stuck Stretch (STIT)
0 (F) 50

Cable Drag From D4T to STIT

Tool/Tot. Drag From D4T to STIA

Image rotation (UCAZ) (DEG)
0 360

Format: USI_IBC_SLG_Composite Vertical Scale: 5" per 100' Graphics File Created: 04−Nov−2009 01:53

OP System Version: 17C0−154

USIT−D	SRPC−3779−Q1_2009_OP17_b	HILTH−FTB	SRPC−3779−Q1_2009_OP17_b
DTC−H	17C0−154		

All USI Images are outside views

USI : LOW Frequency Compression Mode Used For Logging.

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

Parameters

DLIS Name	Description	Value	
	USIT−D: Ultrasonic Imaging − D		
AGMN	Minimum Gain of Cartridge	−4	DB
AGMX	Maximum Gain of Cartridge	20	DB
BERJ	Bad Echo Rejection	ON	
CDIA	Casing Outer Diameter	7	IN
CSDE	Casing Density	486.94	LBCF
CSID	Casing Inner Diameter	6.276	IN
DFVL	Default Fluid Velocity	203	US/F
DOT	Diameter of Transducer Sensor	2.874	IN
EMXV	EMEX Voltage	100	V
FSOD	Fluid Slowness Fits Casing Outer Diameter	2_UFSL_N_UFAI	
IMAR	Image Rotation	OFF	
MW	Mud Weight	9.7	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	10.75	IN
U−USIT_OCSH	USIT Outer Casing Shoe	4318	FT
U−USIT_OCWE	USIT Outer Casing Weight	45	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	−14	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	2	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	5	FT
TDD	Total Depth − Driller	8806.00	FT
TDL	Total Depth − Logger	8600.00	FT
	System and Miscellaneous		
BS	Bit Size	9.875	IN
CWEI	Casing Weight	26.00	LB/F
DO	Depth Offset for Playback	8.0	FT
PB	Playback Processing	NORMAL	

PP	Playback Processing	NORMAL

Input DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_004LUP	FN:3	PRODUCER	03−Nov−2009 20:40	8590.0 FT	8281.0 FT

Output DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_007PUP	FN:6	PRODUCER	04−Nov−2009 01:53

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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: 31−Oct−2009 13:26							
Gamma Ray Background	30.00	N/A	15.63	N/A	N/A	N/A	GAPI
Gamma Ray (Jig − Bkgd)	165.0	N/A	168.9	N/A	N/A	15.00	GAPI
High resolution Integrated Logging Tool−DTS Wellsite Calibration − Zero Measurement							
Master: 14−Aug−2009 10:31 Before: 1−Nov−2009 17:29							
CNTC Background	27.70	27.70	27.61	N/A	N/A	4.155	CPS
CFTC Background	32.32	32.32	36.17	N/A	N/A	4.848	CPS
High resolution Integrated Logging Tool−DTS Wellsite Calibration − Ratio Measurement							
Master: 14−Aug−2009 10:31							
Thermal Near Corr. (Tank)	5800	5240	N/A	N/A	N/A	N/A	CPS
Thermal Far Corr. (Tank)	2400	2150	N/A	N/A	N/A	N/A	CPS
CNTC/CFTC (Tank)	2.159	2.437	N/A	N/A	N/A	N/A	
High resolution Integrated Logging Tool−DTS Wellsite Calibration − Accelerometer Calibration							
Before: 31−Oct−2009 13:25							
Z−Axis Acceleration	32.19	N/A	32.14	N/A	N/A	N/A	F/S2

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

NCT−B Water Temperature	67.8	DEGF.
Thermal Housing Size	3.374	IN.
NSR−F serial number	0	

High resolution Integrated Logging Tool−DTS / Equipment Identification

Primary Equipment:		
HILT Gamma−Ray Neutron Sonde−DTS	HGNS − H	
HGNS Gamma−Ray Device	HGR −	
HGNS Neutron Detector with Alpha Source	HCNT − H	
Z−Axis Accelerometer	HACC − H	3577
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		15.63	Before		168.9
	0 (Minimum) 30.00 (Nominal) 120.0 (Maximum)			157.1 (Minimum) 165.0 (Nominal) 206.3 (Maximum)	

Before: 31−Oct−2009 13:26

High resolution Integrated Logging Tool−DTS Wellsite Calibration

Zero Measurement

Phase	CNTC Background CPS	Value	Phase	CFTC Background CPS	Value
Master		27.70	Master		32.32
Before		27.61	Before		36.17
	5.000 (Minimum) 27.70 (Nominal) 40.00 (Maximum)			5.000 (Minimum) 32.32 (Nominal) 40.00 (Maximum)	

Master: 14−Aug−2009 10:31 Before: 1−Nov−2009 17:29

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		5240	Master		2150	Master		2.437
	4700 (Minimum) 5800 (Nominal) 6900 (Maximum)			1900 (Minimum) 2400 (Nominal) 2900 (Maximum)			2.120 (Minimum) 2.159 (Nominal) 2.540 (Maximum)	

Master: 14−Aug−2009 10:31

High resolution Integrated Logging Tool−DTS Wellsite Calibration

Accelerometer Calibration

Phase	Z−Axis Acceleration F/S2	Value
Before		32.14
	31.53 (Minimum) 32.19 (Nominal) 32.84 (Maximum)	

Before: 31−Oct−2009 13:25

High resolution Integrated Logging Tool−DTS Master Calibration

Zero Measurement

Phase	CNTC Background CPS	Value	Phase	CFTC Background CPS	Value
Master		27.70	Master		32.32
	5.000 (Minimum) 27.70 (Nominal) 40.00 (Maximum)			5.000 (Minimum) 32.32 (Nominal) 40.00 (Maximum)	

Master: 14−Aug−2009 10:31

High resolution Integrated Logging Tool−DTS Master Calibration

Tank Measurement

Phase	Thermal Near Corr. (Tank) CPS	Value	Phase	Thermal Far Corr. (Tank) CPS	Value	Phase	CNTC/CFTC (Tank)	Value
Master		5240	Master		2150	Master		2.437
	4700 (Minimum) 5800 (Nominal) 6900 (Maximum)			1900 (Minimum) 2400 (Nominal) 2900 (Maximum)			2.120 (Minimum) 2.159 (Nominal) 2.540 (Maximum)	

Master: 14−Aug−2009 10:31

DTS Telemetry Tool / Equipment Identification

Primary Equipment:

DTC−H Auxiliary Cartridge	DTCH − A
DTC−H Telemetry Cartridge	DTCH − A

Auxiliary Equipment:

DTCH Telemetry Cartridge Housing	ECH − KC

Company:	**EXXONMOBIL PRODUCTION CO**
Well:	**PCU 197−34B8**
Field:	**PICEANCE CREEK**
County:	**RIO BLANCO**
State:	**COLORADO**

Schlumberger

IMAGING BEHIND CASING
ULTRASONIC TOOL
GAMMA RAY / CCL