Schlumberger

Company: Crestone Peak Resources Operating, LLC

Well: Kugel 1M-18H-H267

Field: Wattenberg

County: Weld State: Colorado

ISOLATION SCANNER

CEMENT EVALUATION

GAMMA RAY - COLLAR LOCATOR LOG

County: Weld
Field: Wattenberg
Location: 2238' FNL & 680' FEL
Well: Kugel 1M-18H-H267
Company: Crestone Peak Resources Operating, LLC

Location:				
2238' FNL & 680' FEL		Elev.:	K.B.	4976.00 ft
			G.L.	4953.00 ft
			D.F.	4953.00 ft
Permanent Datum:	Ground Level	Elev.:		4953.00 f
Log Measured From:	Kelly Bushing	23.00 ft		above Perm.Datum
Drilling Measured From:	Kelly Bushing			

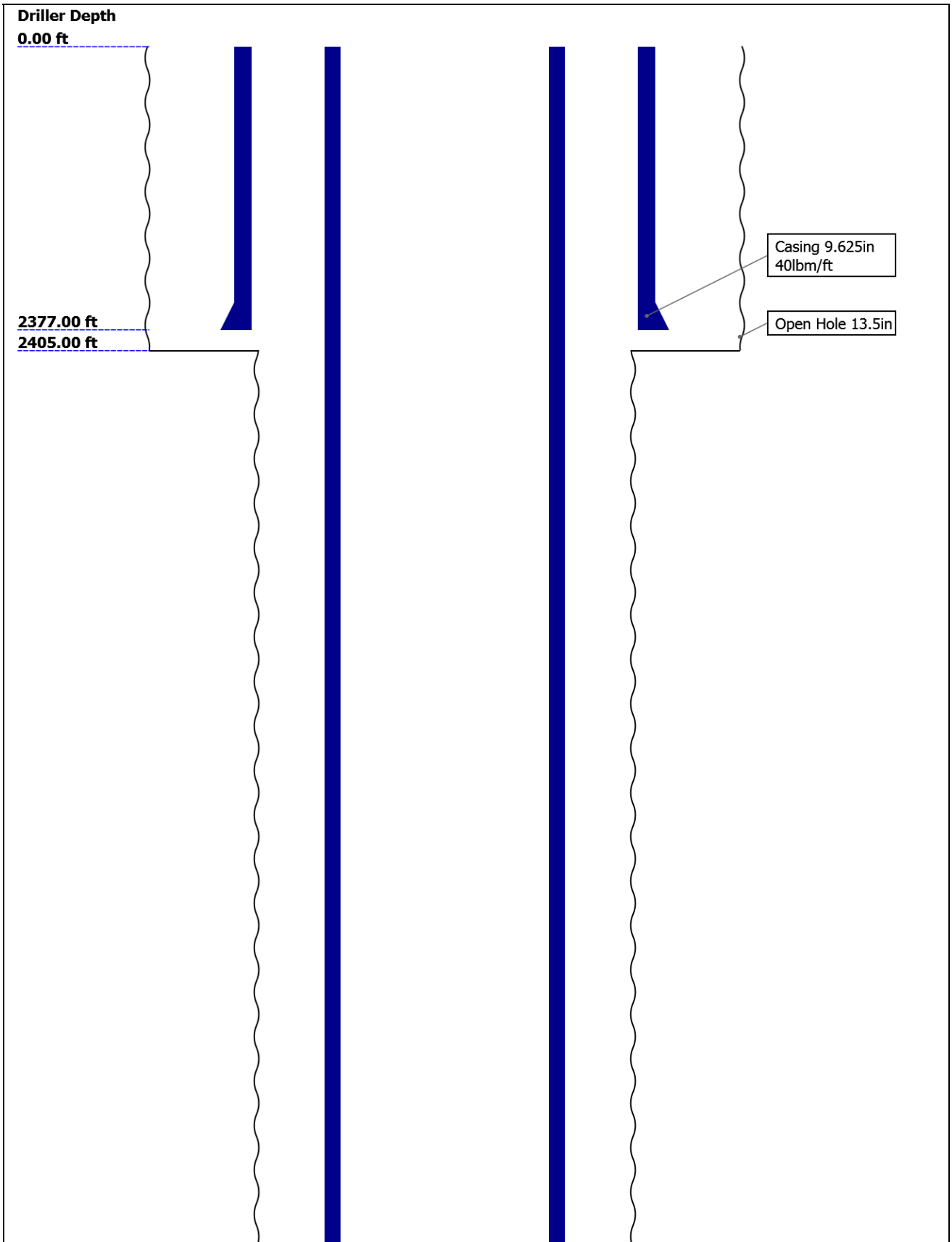
API Serial No.	Section:	Township:	Range:
05-123-49481	18	2 N	67 W

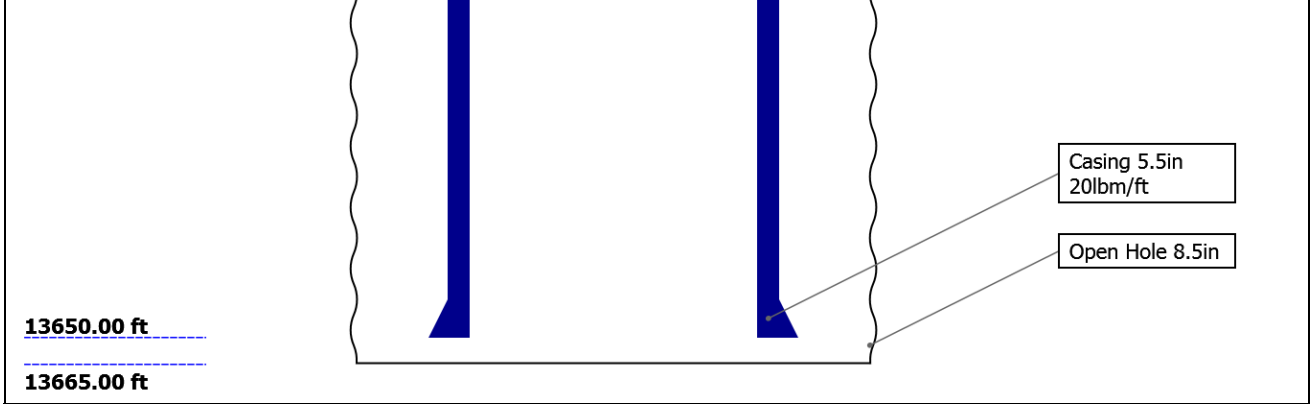
Logging Date	29-Sep-2019		
Run Number	1A		
Depth Driller	13665.00 ft		
Schlumberger Depth	13665.00 ft		
Bottom Log Interval			
Top Log Interval			
Casing Fluid Type	Water		
Salinity			
Density	9 lbm/gal		
Fluid Level	8.00 ft		
BIT/CASING/TUBING STRING			
Bit Size	8.50 in		
From	2405.00 ft		
To	13665.00 ft		
Casing/Tubing Size	5.5 in		
Weight	20 lbm/ft		
Grade	N/A		
From	0.00 ft		
To	13650.00 ft		
Max Recorded Temperatures			
Logger on Bottom Time			
Unit Number Location:	2157	Fort Morgan	
Recorded By			
Witnessed By			

Disclaimer

Contents

Well Sketch





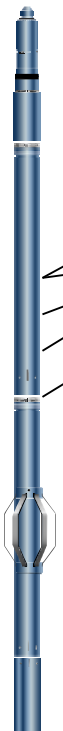
Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	13.5	8.5				
Top Driller (ft)	0	2405				
Top Logger (ft)	0	2405				
Bottom Driller (ft)	2405	13665				
Bottom Logger (ft)	2405	13665				
Casing						
Size (in)	9.625	5.5				
Weight (lbm/ft)	40	20				
Inner Diameter (in)	8.835	4.778				
Grade	N/A	N/A				
Top Driller (ft)	0	0				
Top Logger (ft)	0	0				
Bottom Driller (ft)	2377	13650				
Bottom Logger (ft)	2377	13650				

Remarks and Equipment Summary

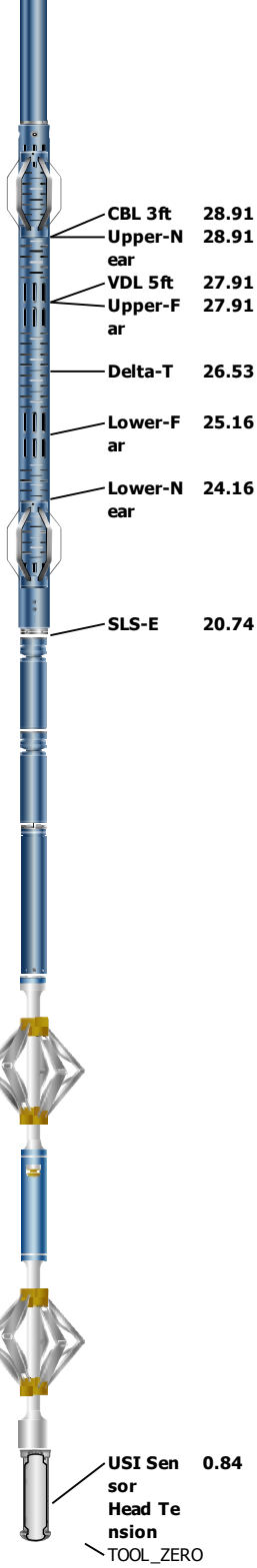
1A: Toolstring

Equip name	Length
LEH-QT	**51.36**
LEH-QT	
EDTC-B:8324	**47.88**
EDTH-B:8101	
EDTG-A:77301	
EDTC-B:8324	
DSLT-H	**41.38**
ECH-KH:8401	
DSLC-H	
SLS-E:1229	



MP name	Offset
CTEM	**44.38**
ACCZ	**0.00**
HV	**0.00**
Gamma Ray	**42.51**
TelStatus	**41.38**

1A: Remarks



Lengths are in ft
Maximum Outer Diameter = 6.250 in
Line: Sensor Location, Value: Gating Offset
All measurements are relative to TOOL_ZERO

Depth Summary

	1A		
Depth Measuring Device			
Type	IDW-B		
Serial Number			
Calibration Date			
Calibrator Serial Number			
Calibration Cable Type			
Wheel Correction 1	0		

Wheel Correction 2	0		

Tension Device

Type	CMTD-B/A		
Serial Number			
Calibration Date			
Calibrator Serial Number			
Number of Calibration Points	0		

Logging Cable

Type	7-46NT-XS		
Serial Number			
Length	24000.00 ft		
Conveyance Type	Wireline		
Rig Type			

1A:Depth Control Parameters		Depth Control Remarks
Log Sequence	First Log In the Well	
Rig Up Length At Surface		
Rig Up Length At Bottom		
Rig Up Length Correction		
Stretch Correction		
Tool Zero Check At Surface		

USIT - Fluid Properties Measurement

Run Name	Pass Name	Start Depth(ft)	Stop Depth(ft)
Run 1	Log[4]:Up	7781.58	54.44

Fluid Velocity = "Automatic".
CFVL equals DFSL channel

Start Depth(ft)	Stop Depth(ft)	Start Value(us/ft)	End Value(us/ft)

Mud Impedance = "Theoretical".
CZMD uses theoretical results.
MUD_N_THE=1.10
DFD=1.08g/cm3(9.00lbm/gal)

Start Depth(ft)	Stop Depth(ft)	Start Value(Mrayl)	End Value(Mrayl)

1A

IBC SLG MAIN PASS @10DEG X 6IN @0PSI [5:100]

Software Version

Acquisition System	Version
Maxwell 2018 SP1	8.1.99839.3100

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
1A	Log[4]:Up	Up	54.44 ft	7781.58 ft	29-Sep-2019 6:56:43 PM	29-Sep-2019 8:49:46 PM	ON	0.00 ft	Yes

All depths are referenced to toolstring zero

Log

Company:Crestone Peak Resources Operating, LLC Well:Kugel 1M-18H-H267

1A: Log[4]:Up:S008

Description: USI IBC SLG Format: Log (Import (2) of IBC SLG) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 08-Oct-2019 17:28:46

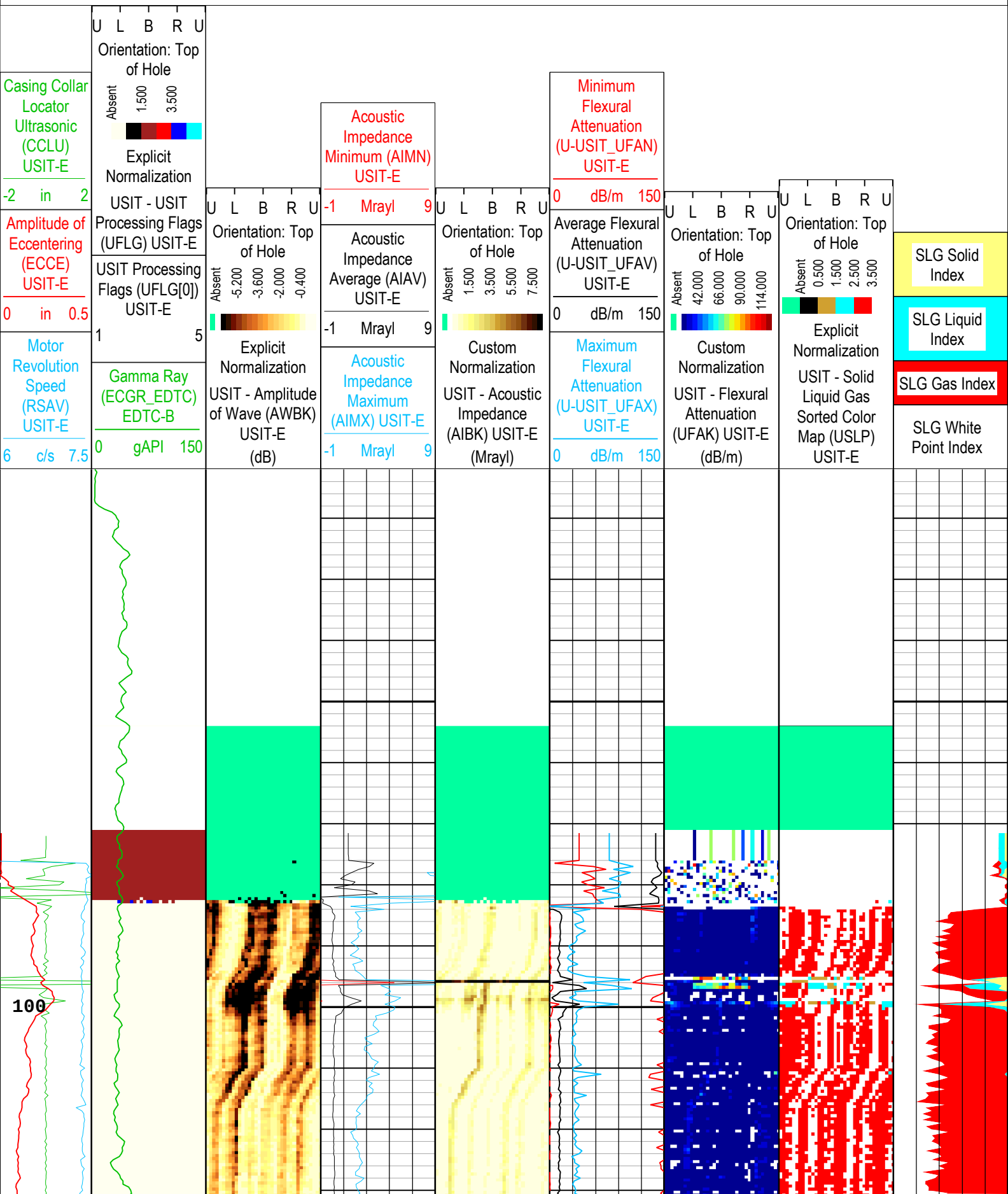
TIME_1900 - Time Marked every 60.00 (s)

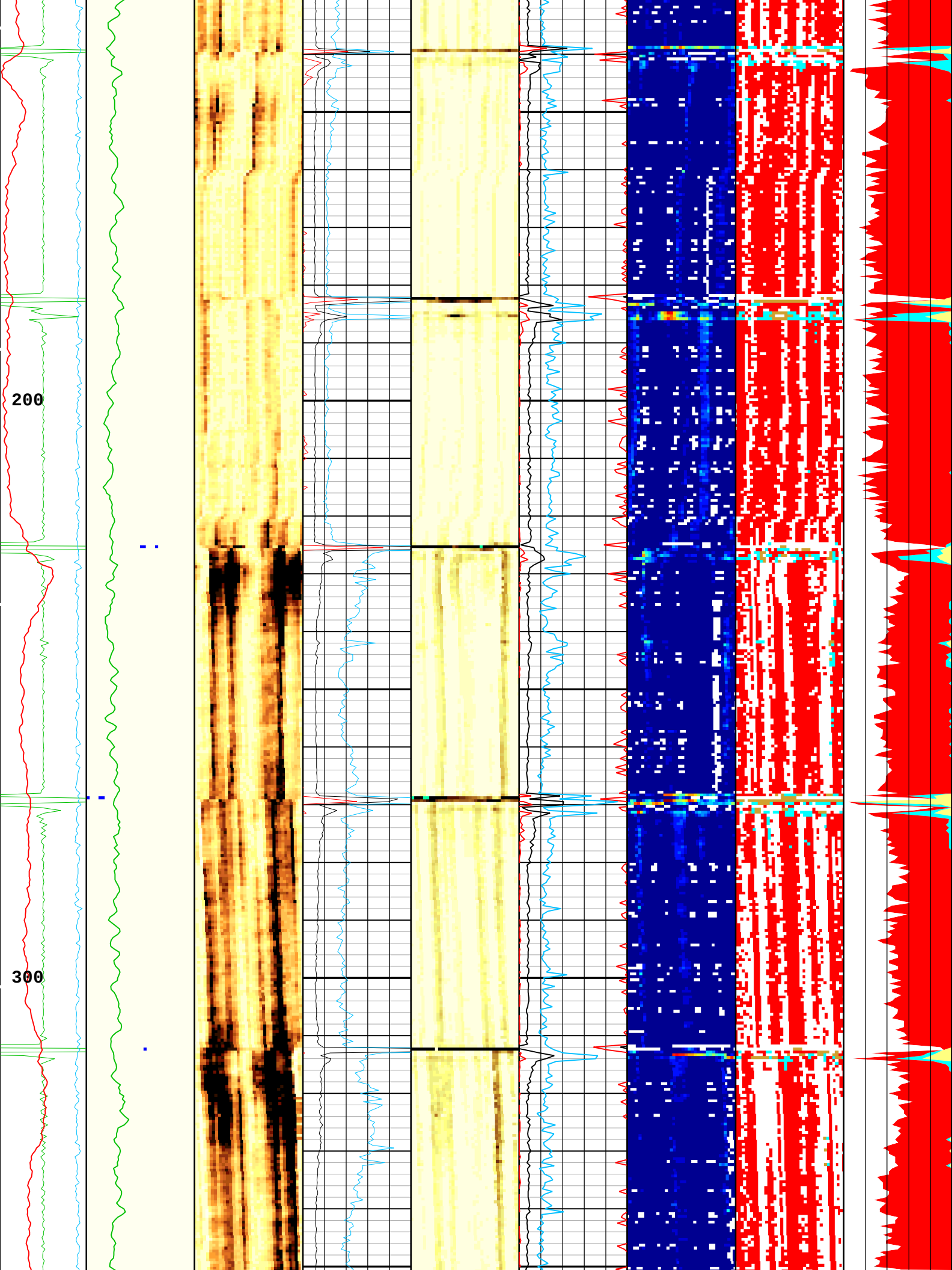
USIT Processing Flags (UFLG[0]) USIT F

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

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

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

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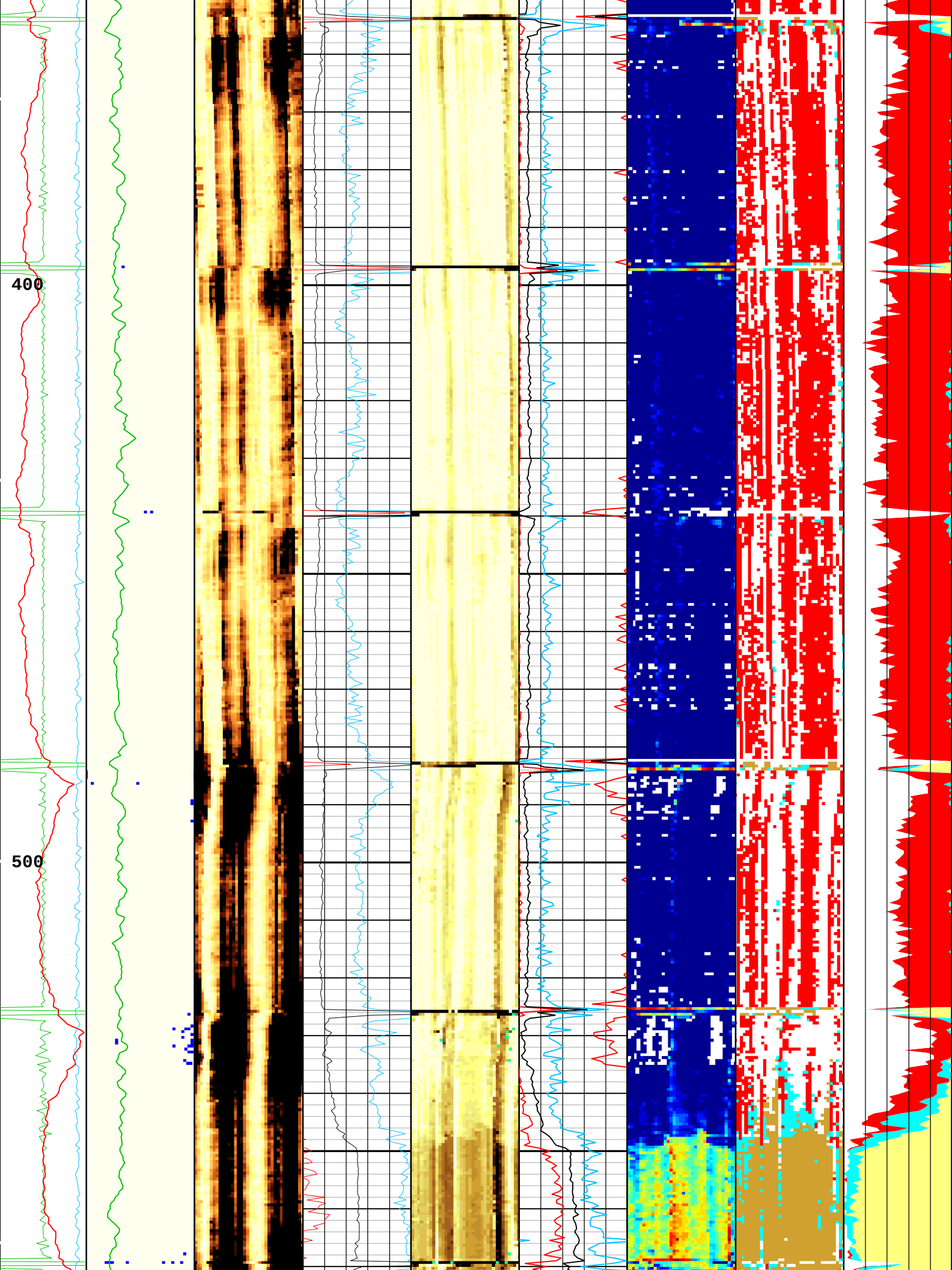
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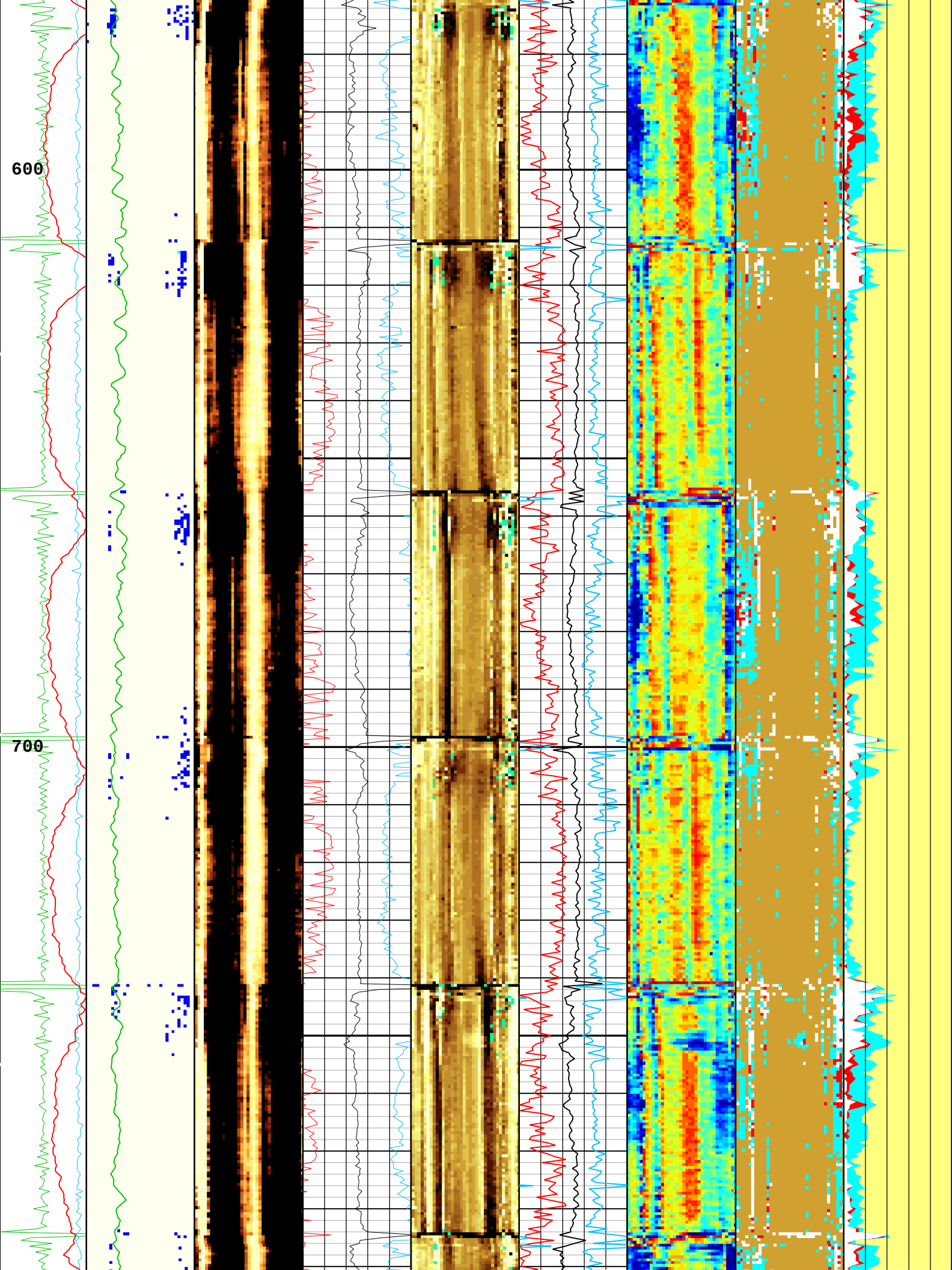
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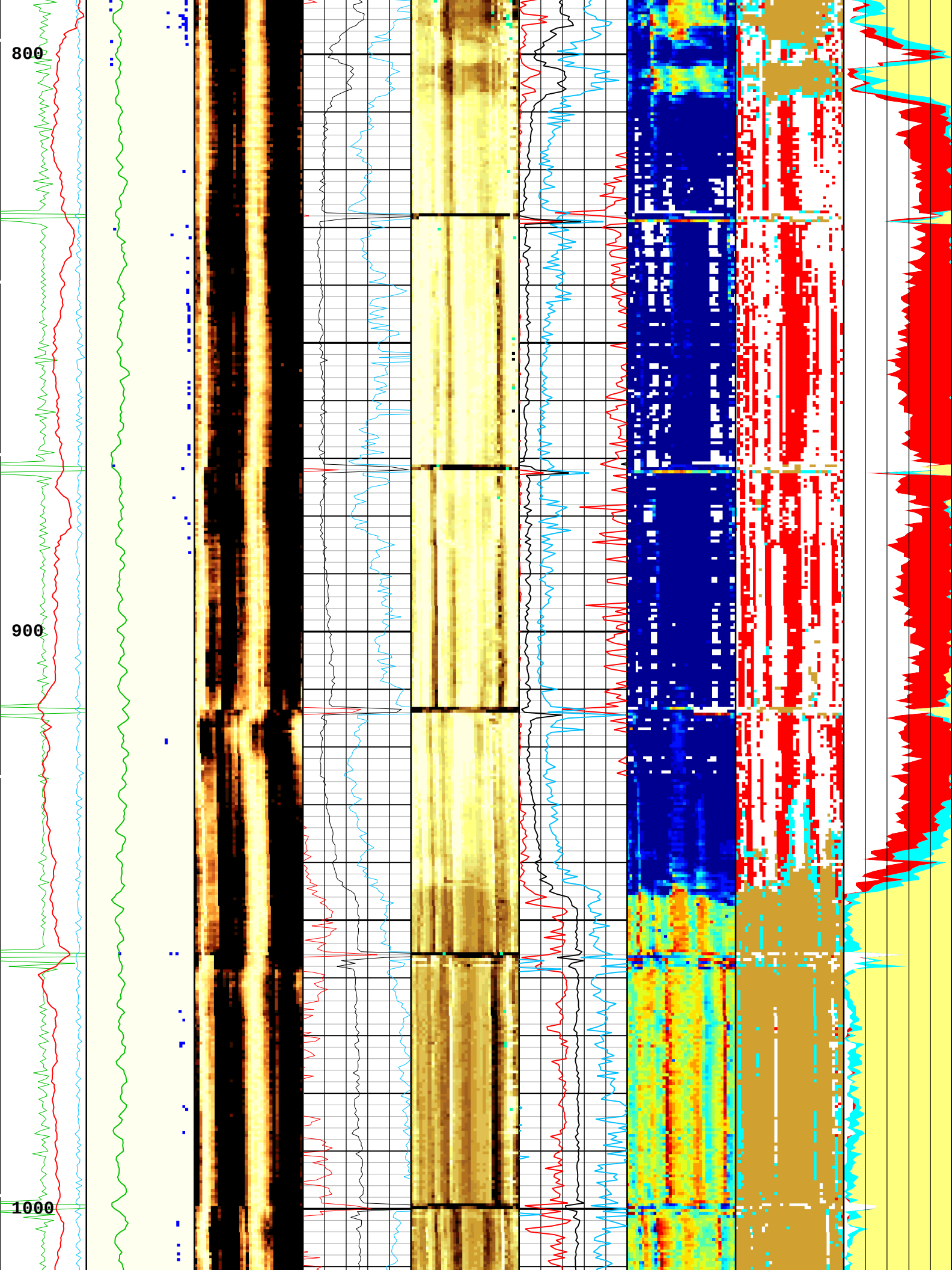
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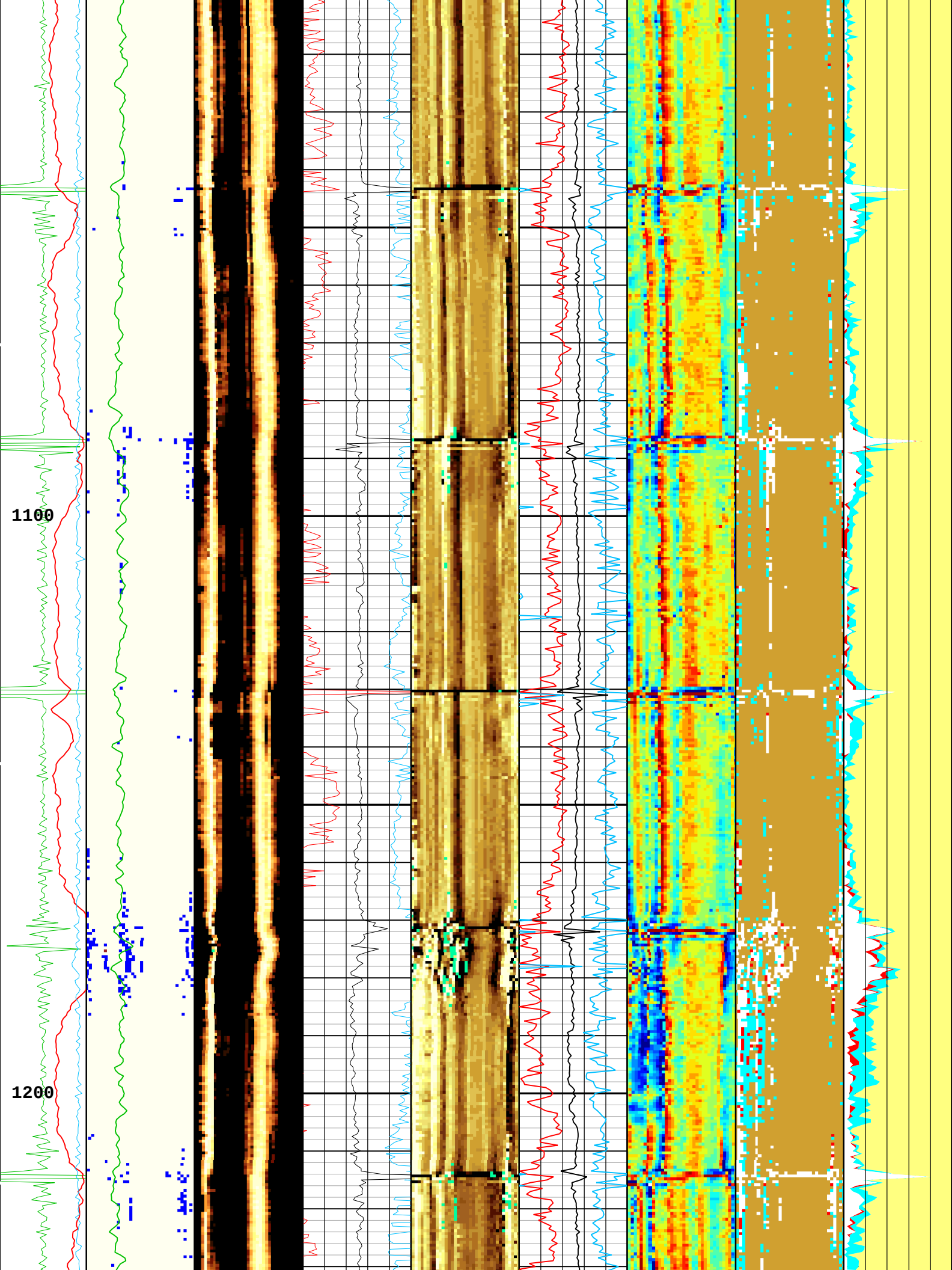
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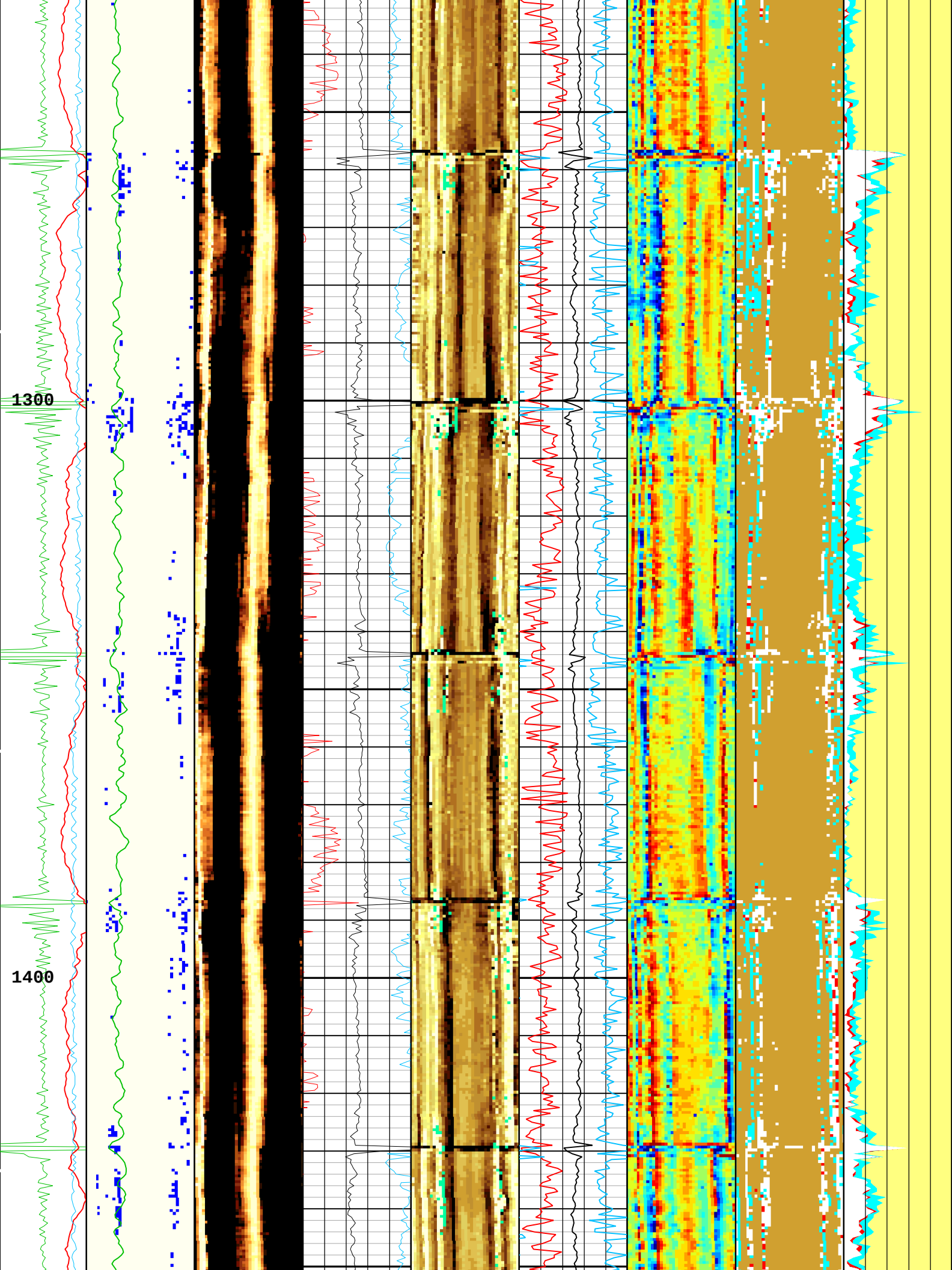
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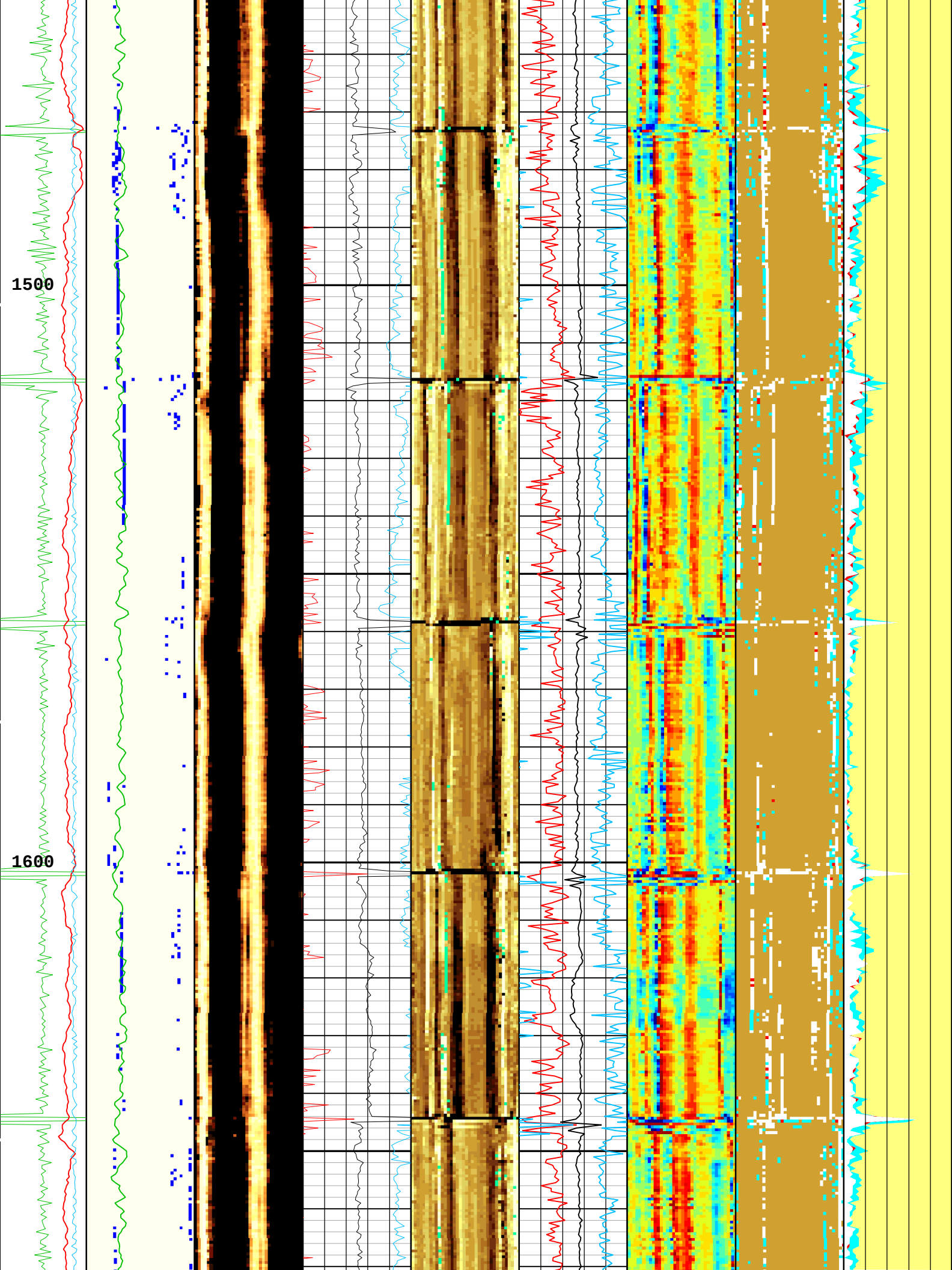
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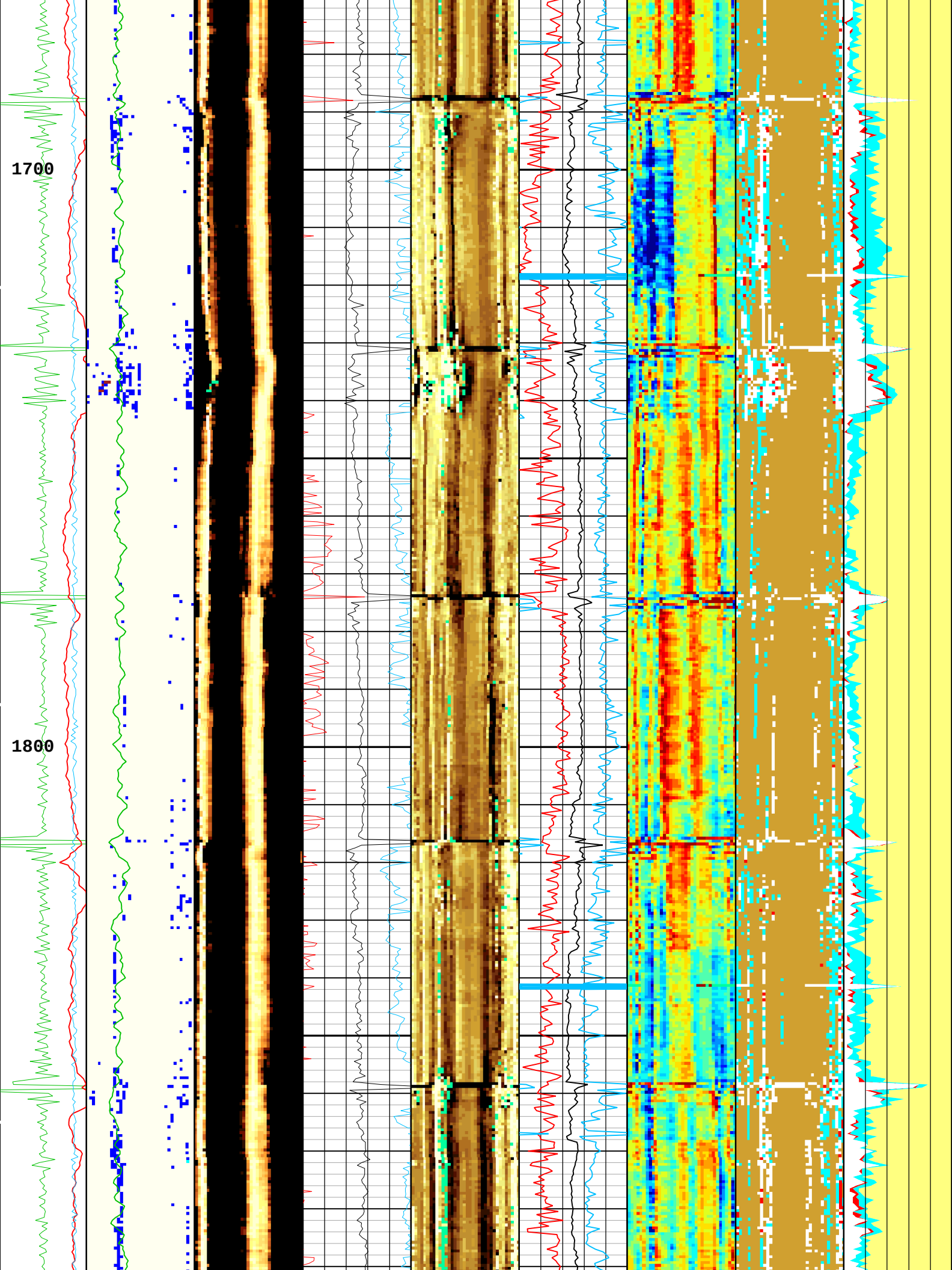
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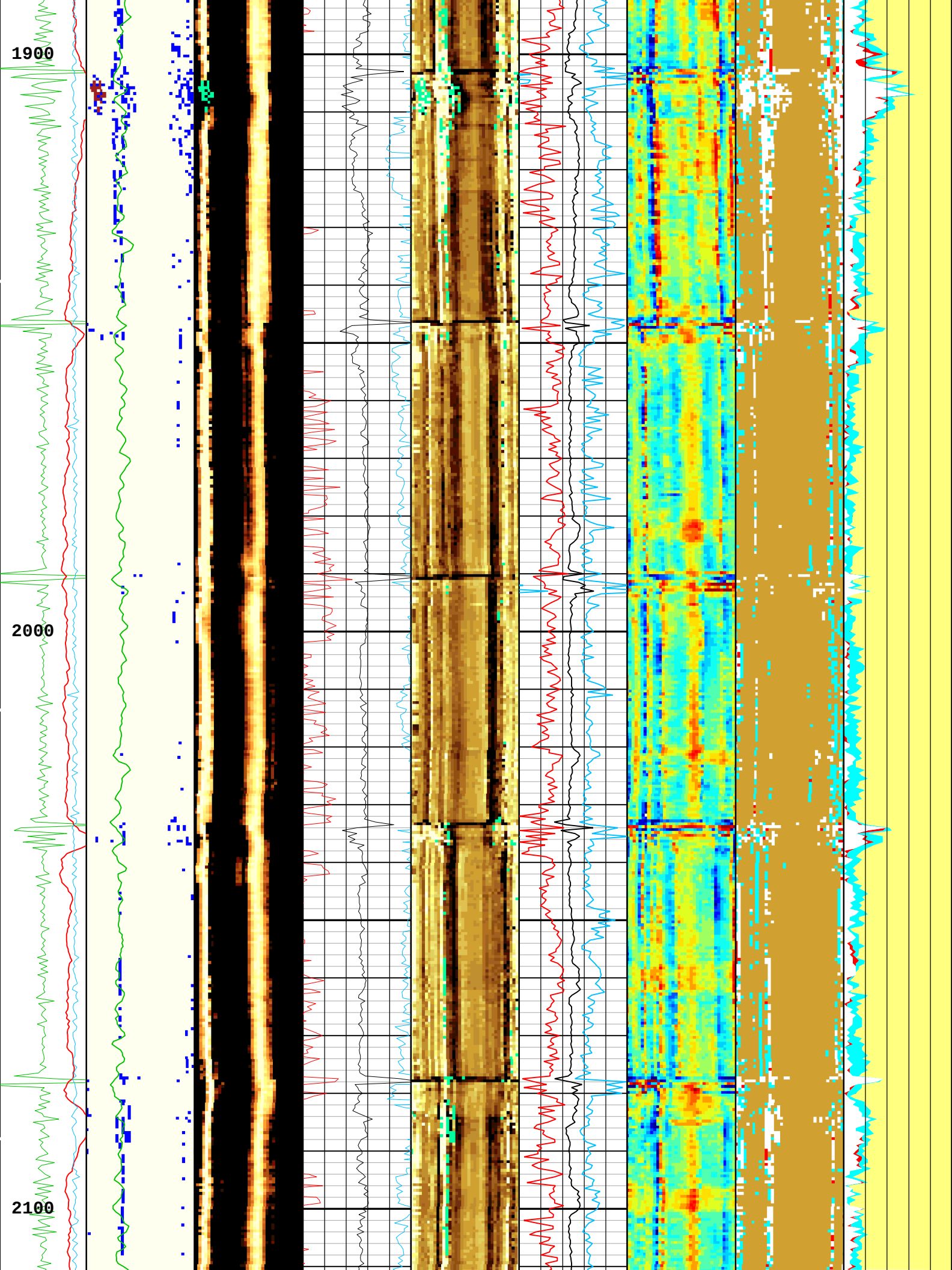
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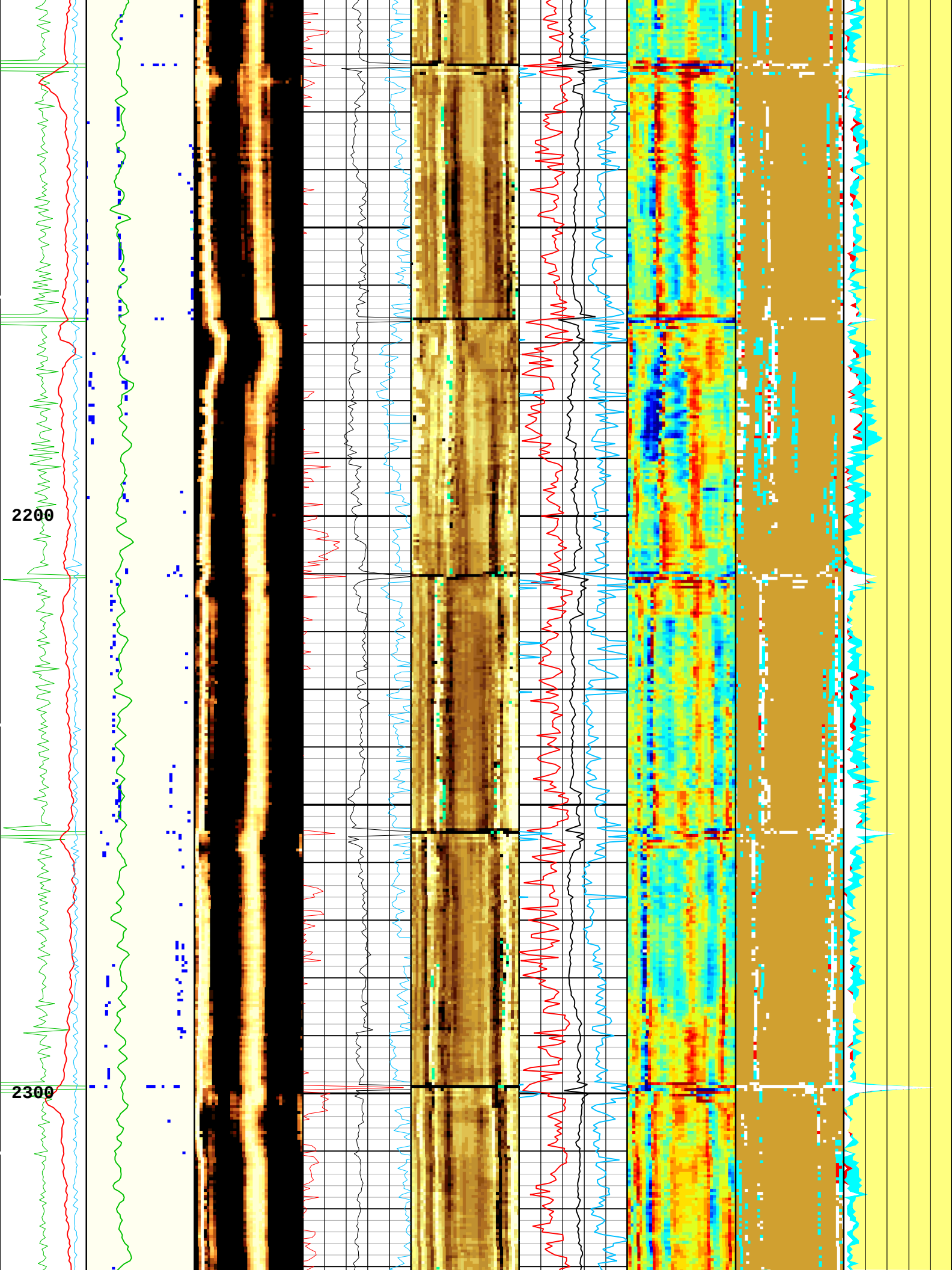
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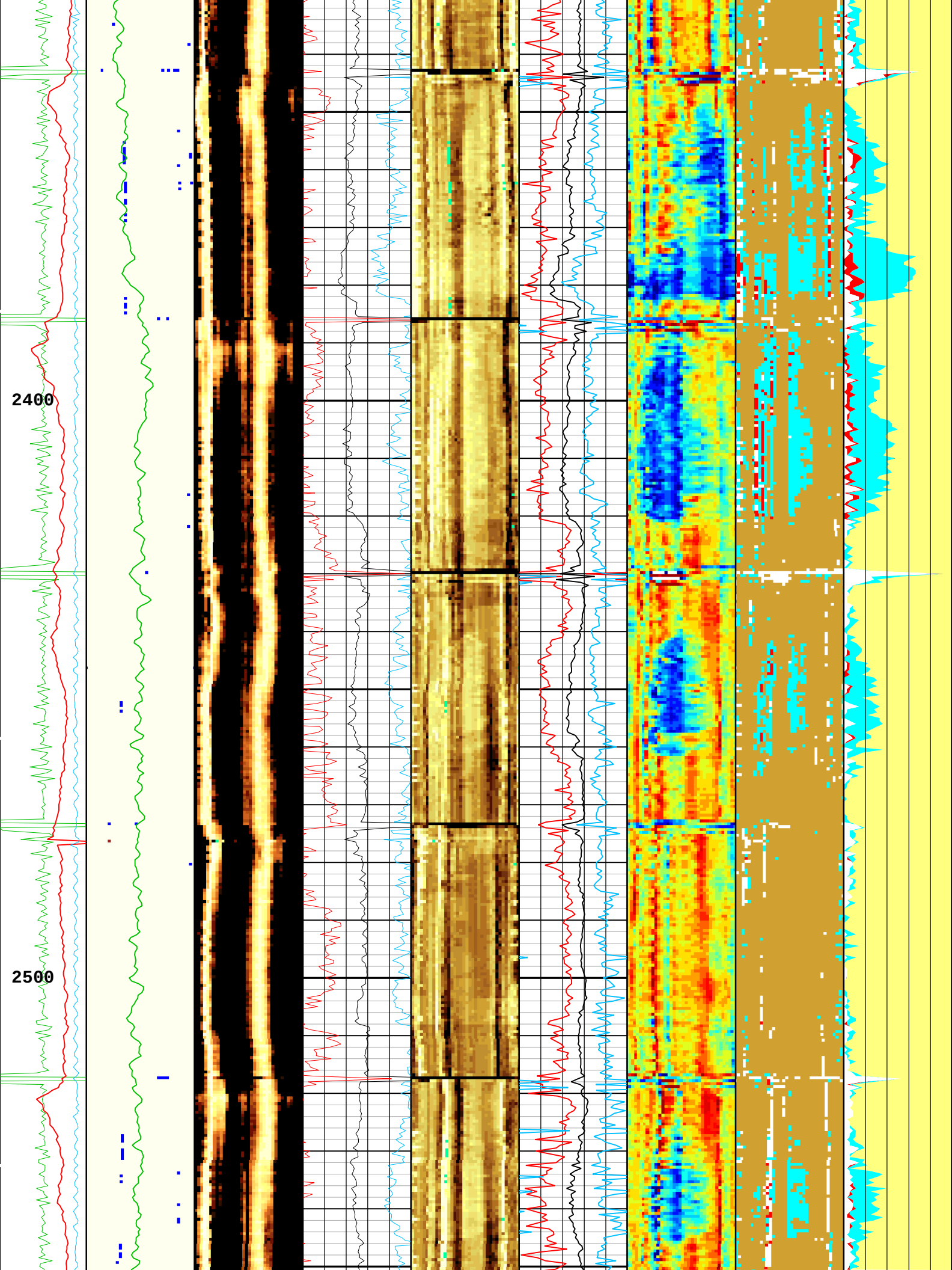
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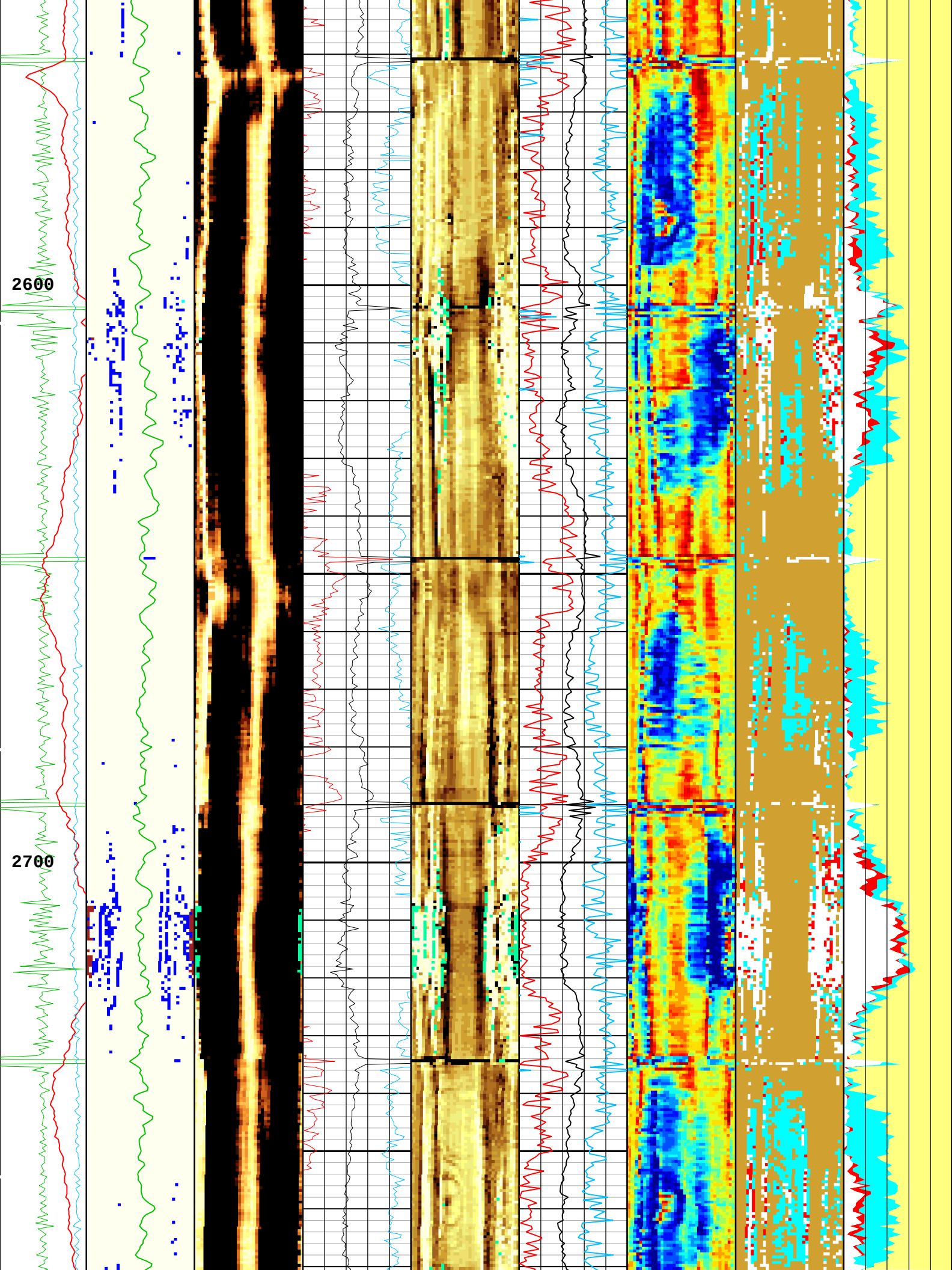
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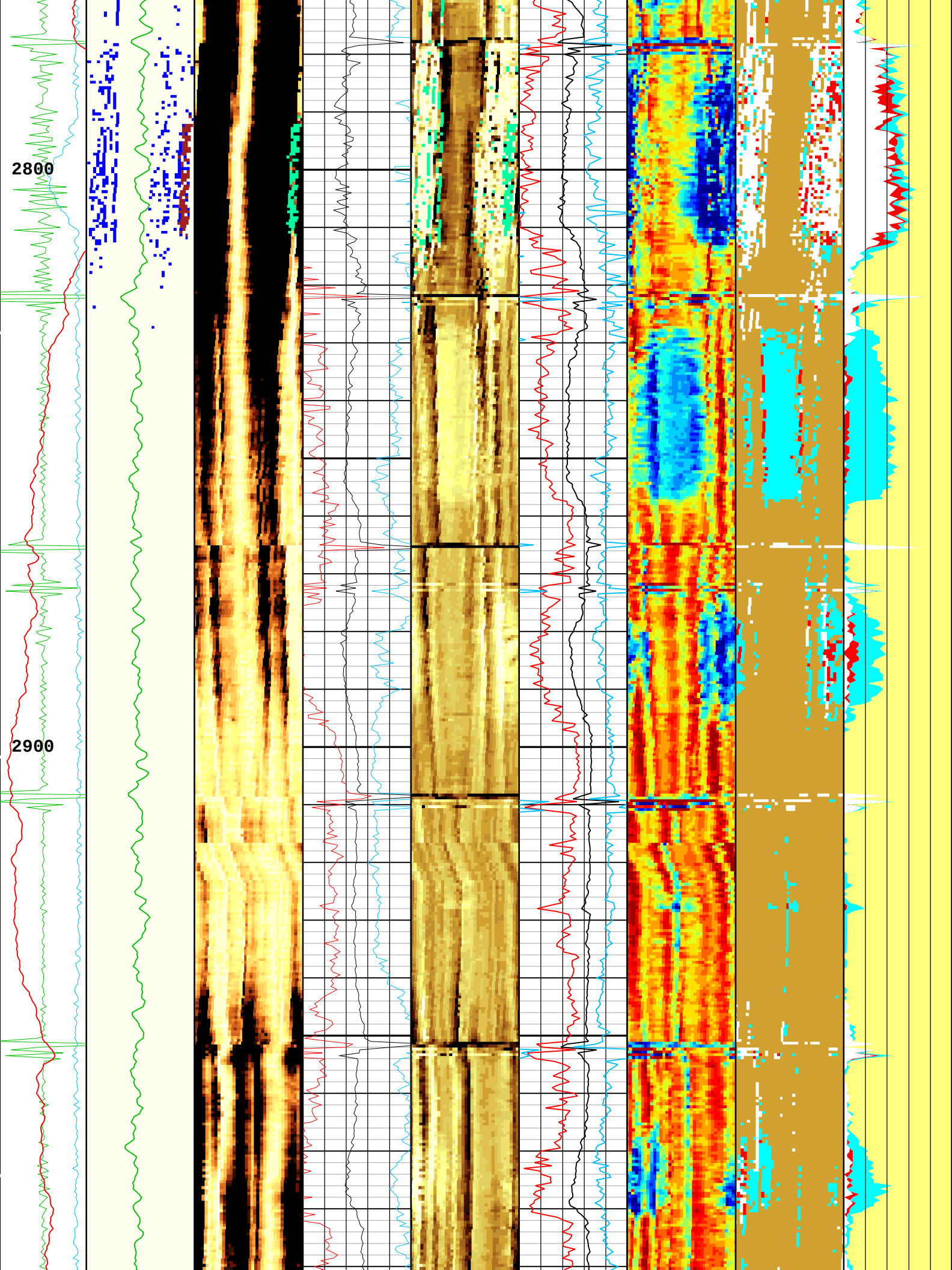
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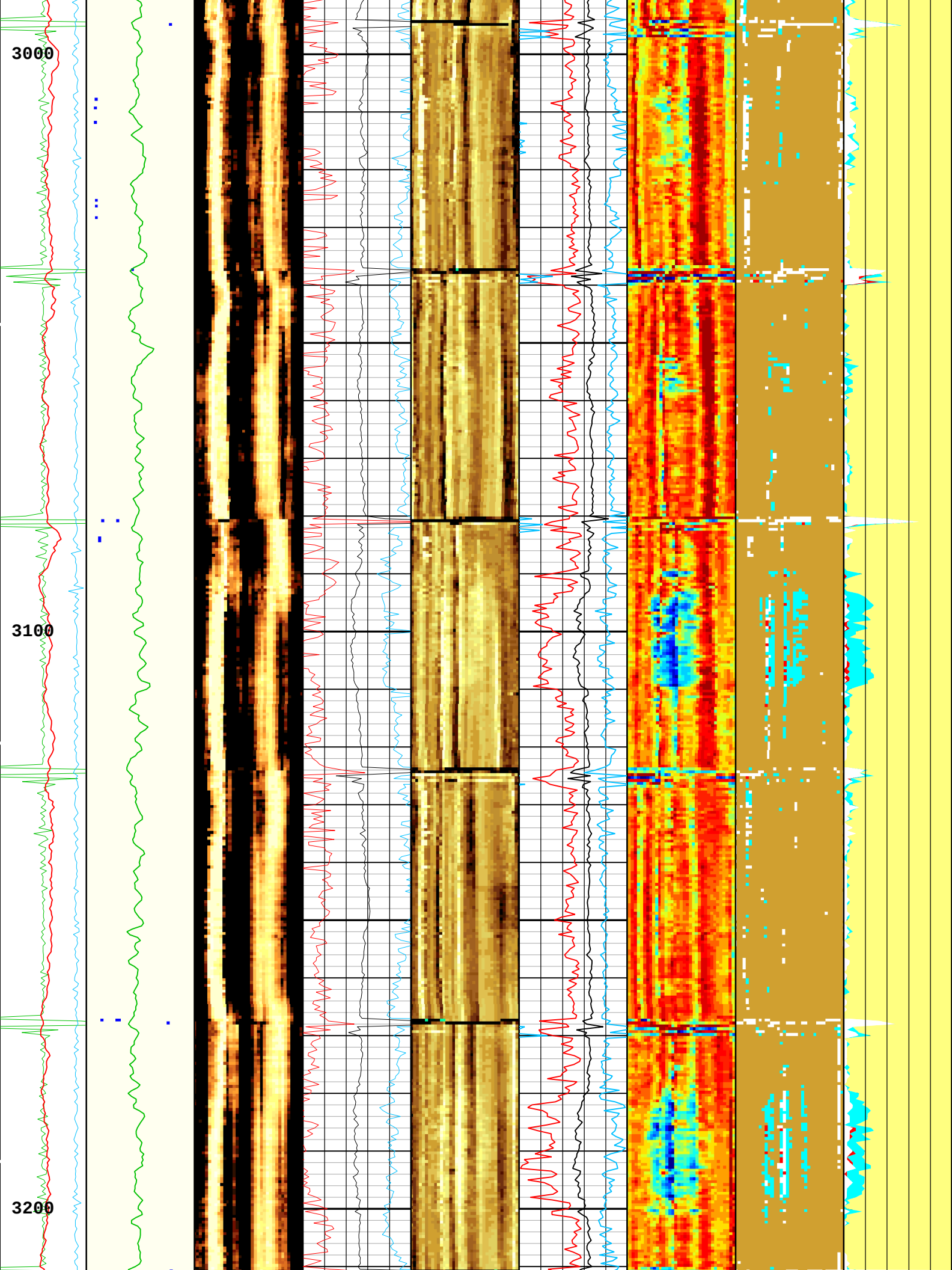
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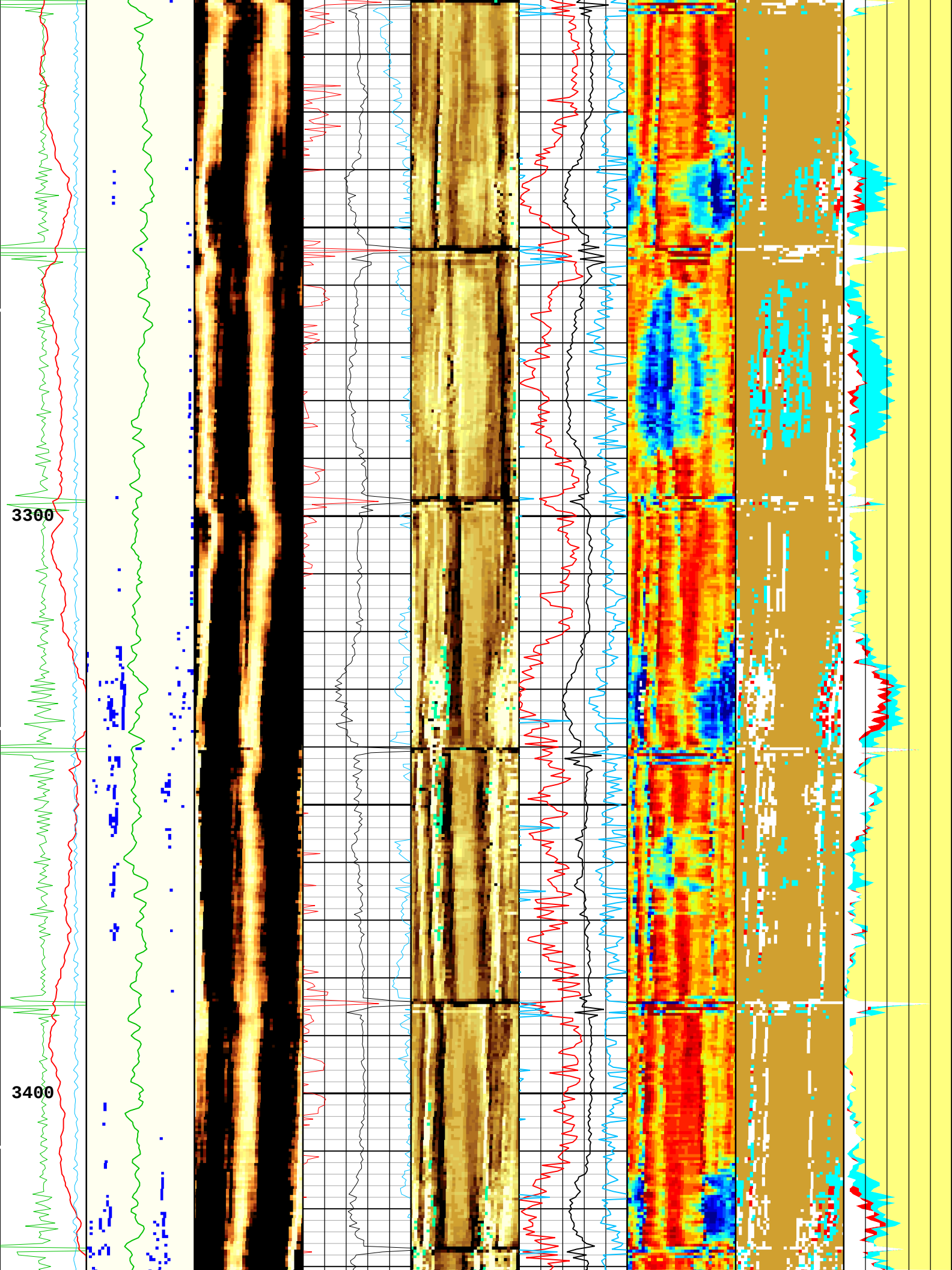
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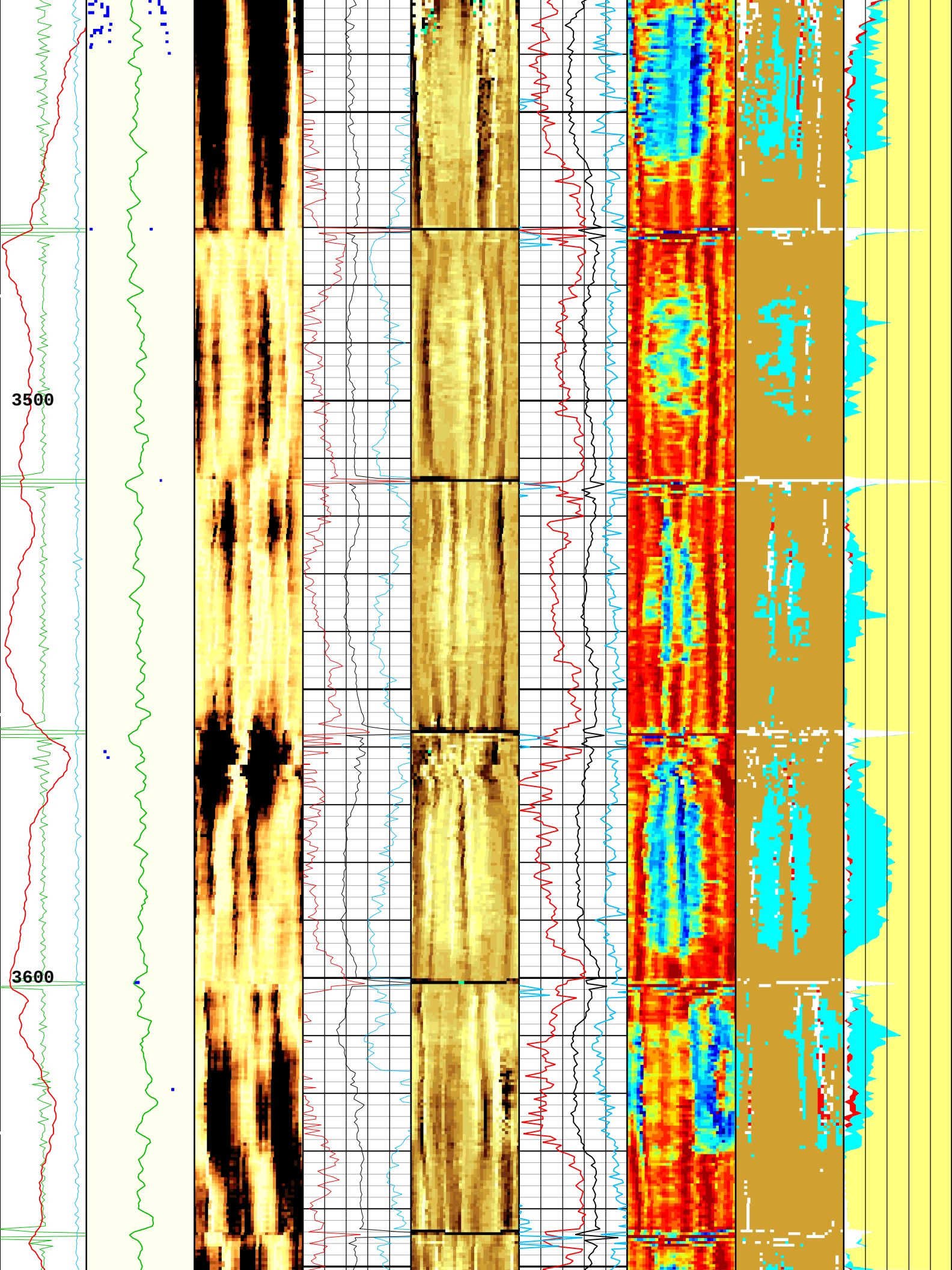
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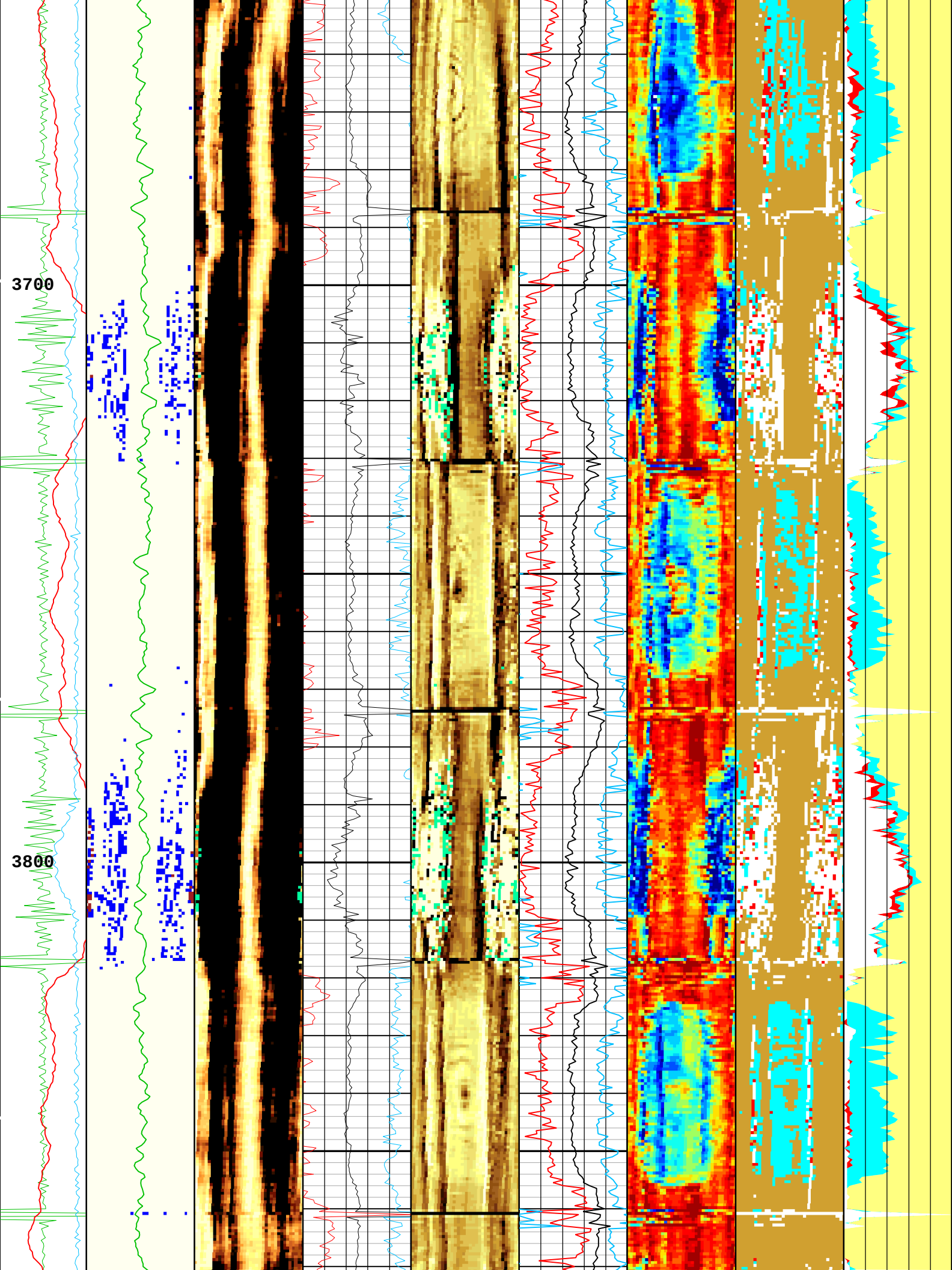
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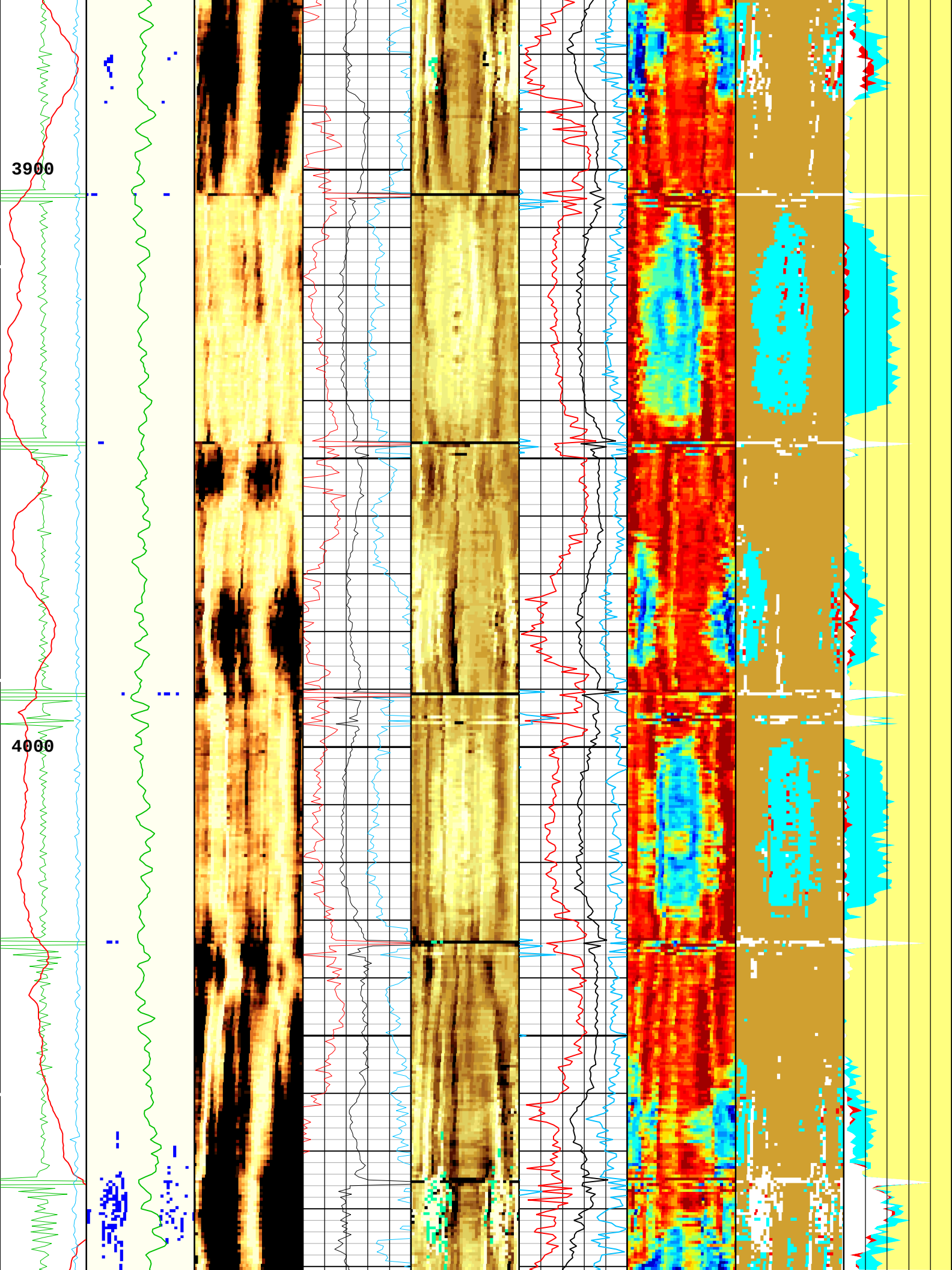
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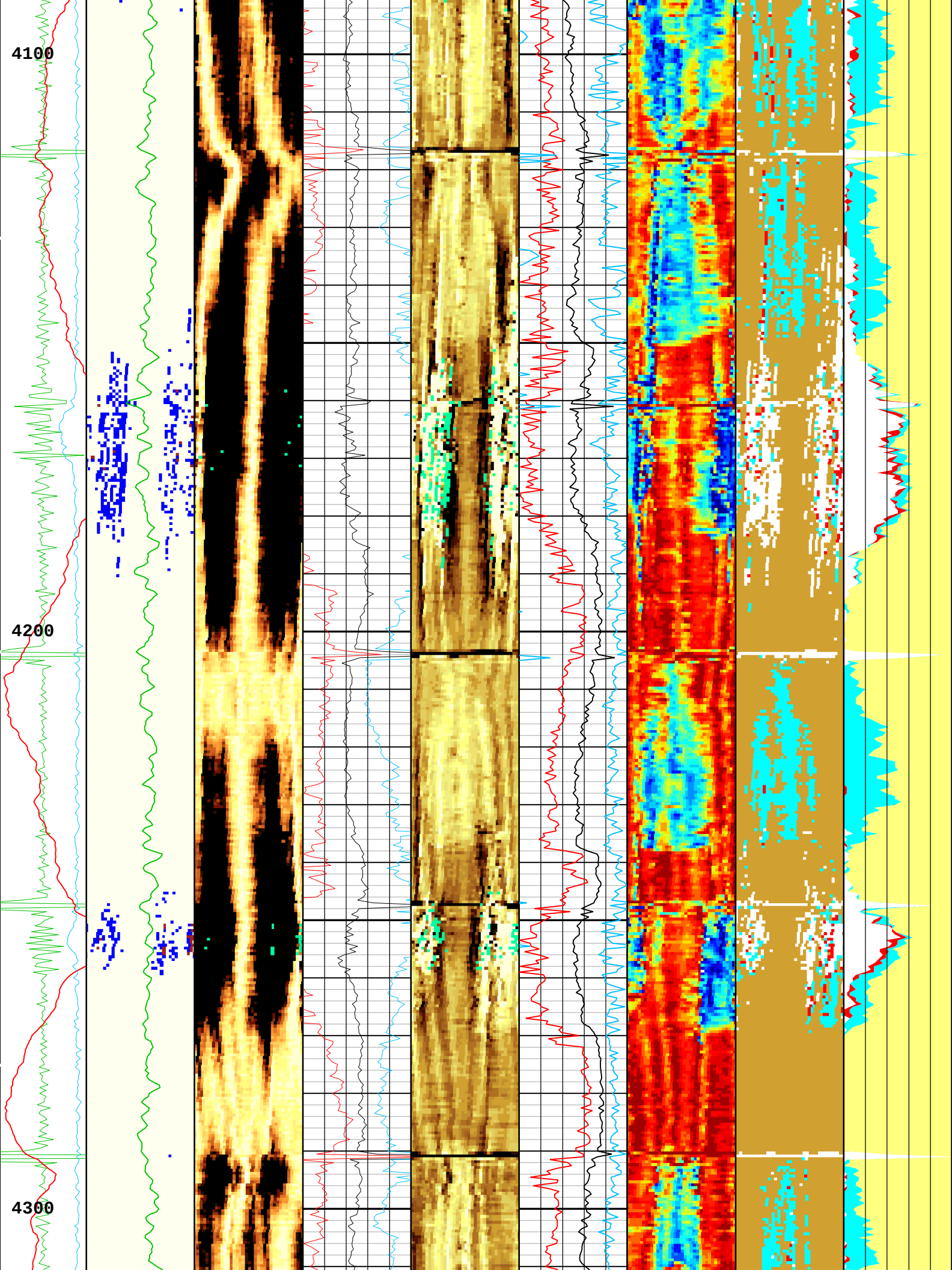
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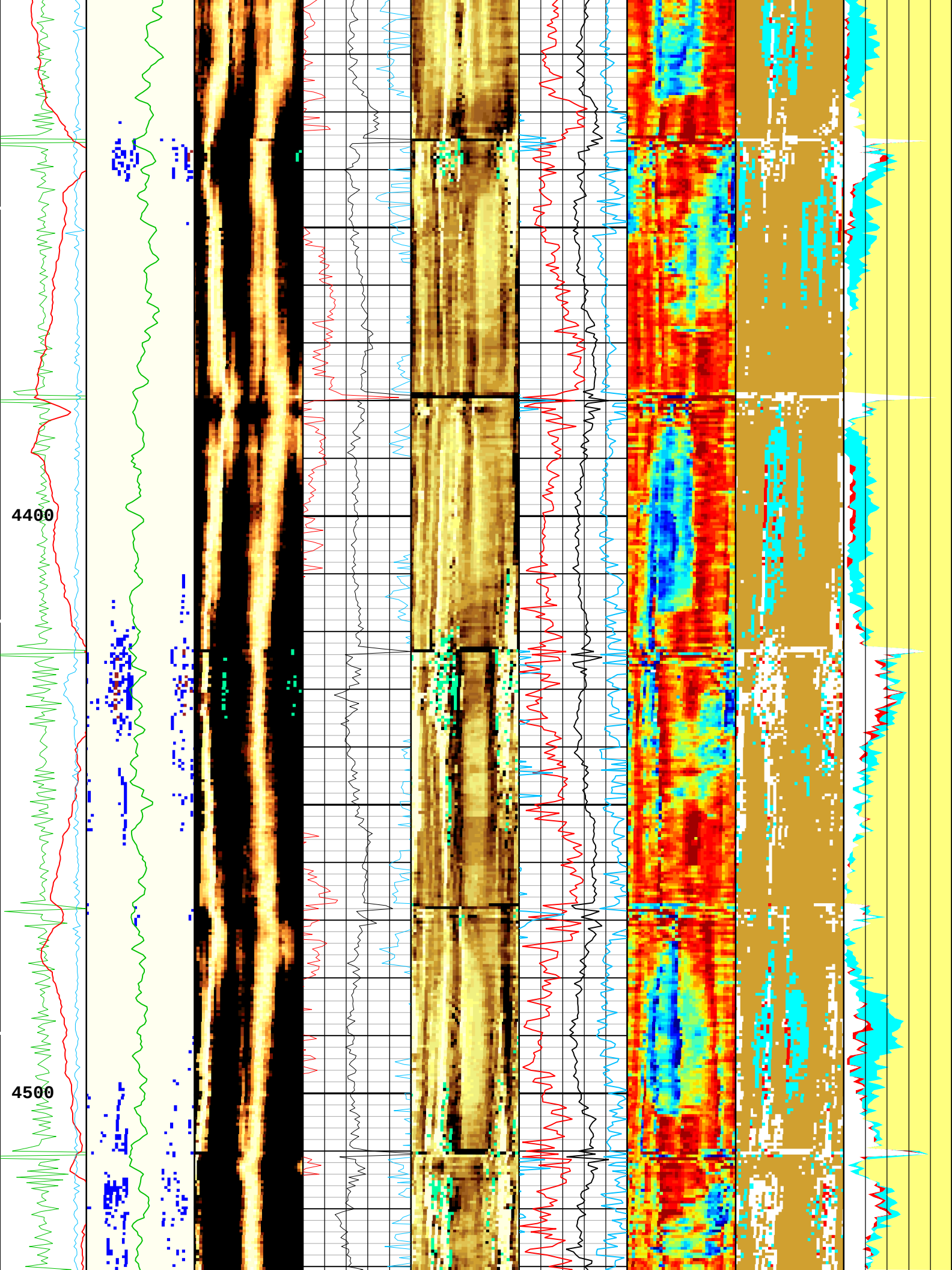
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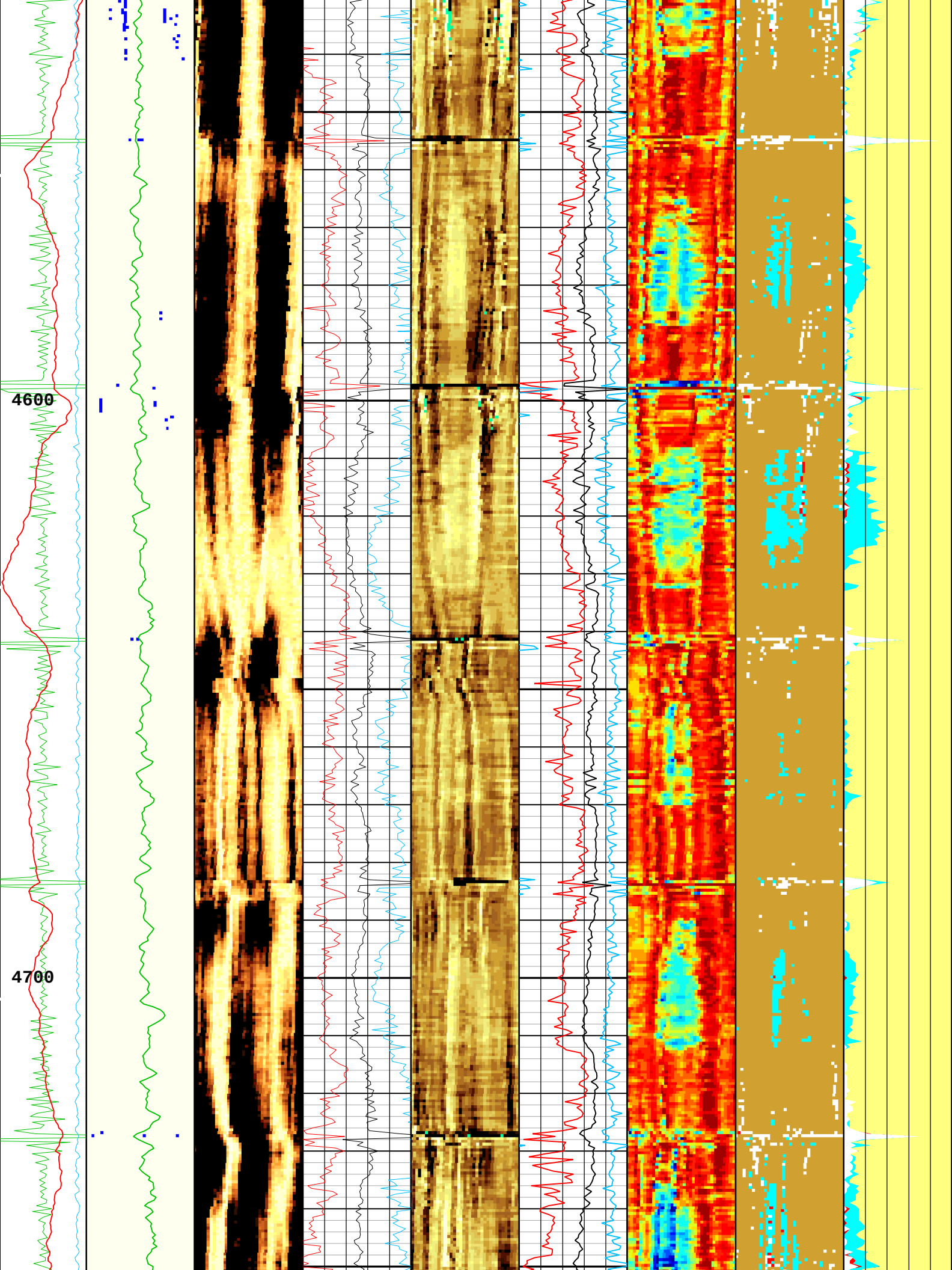
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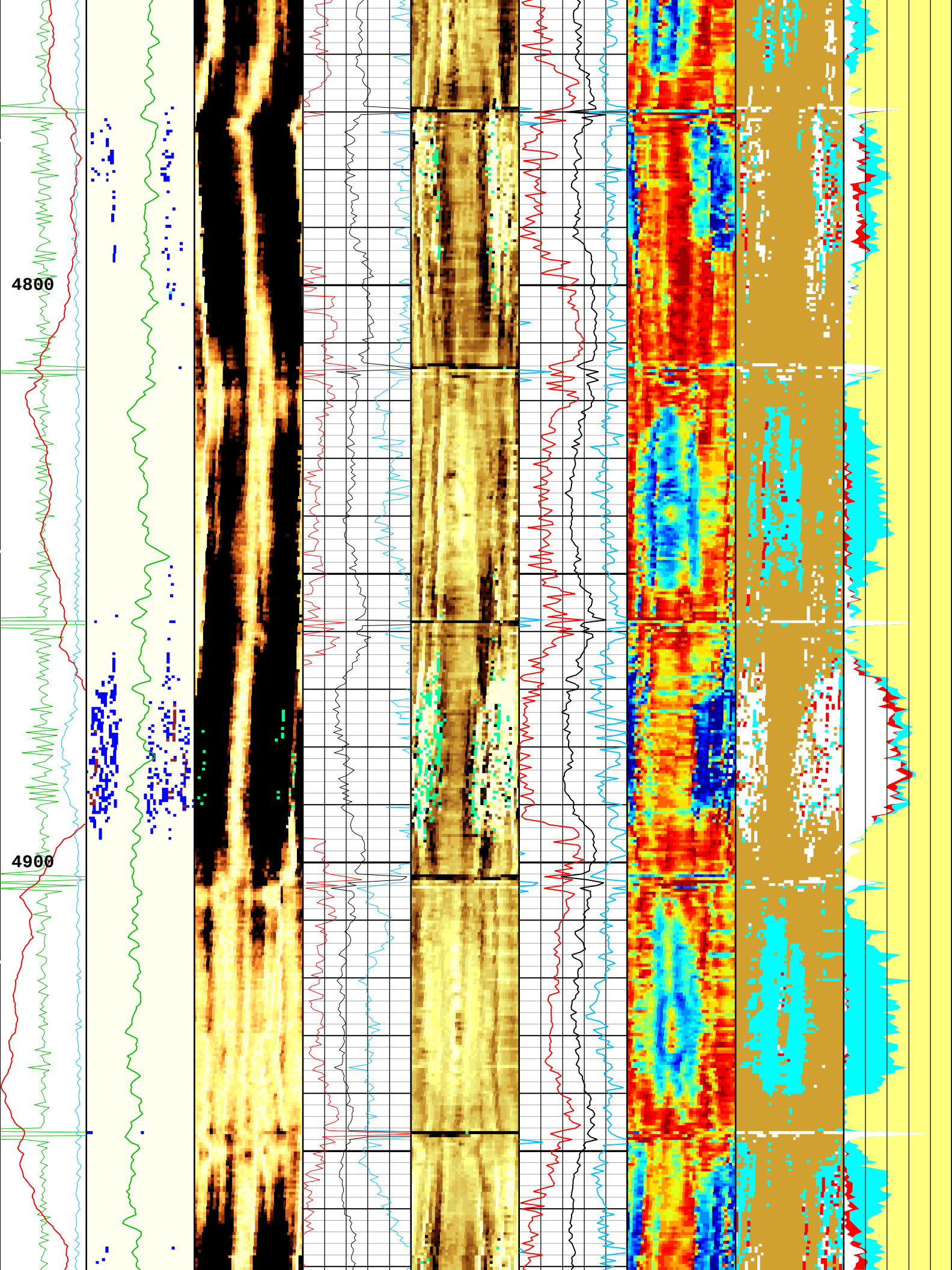
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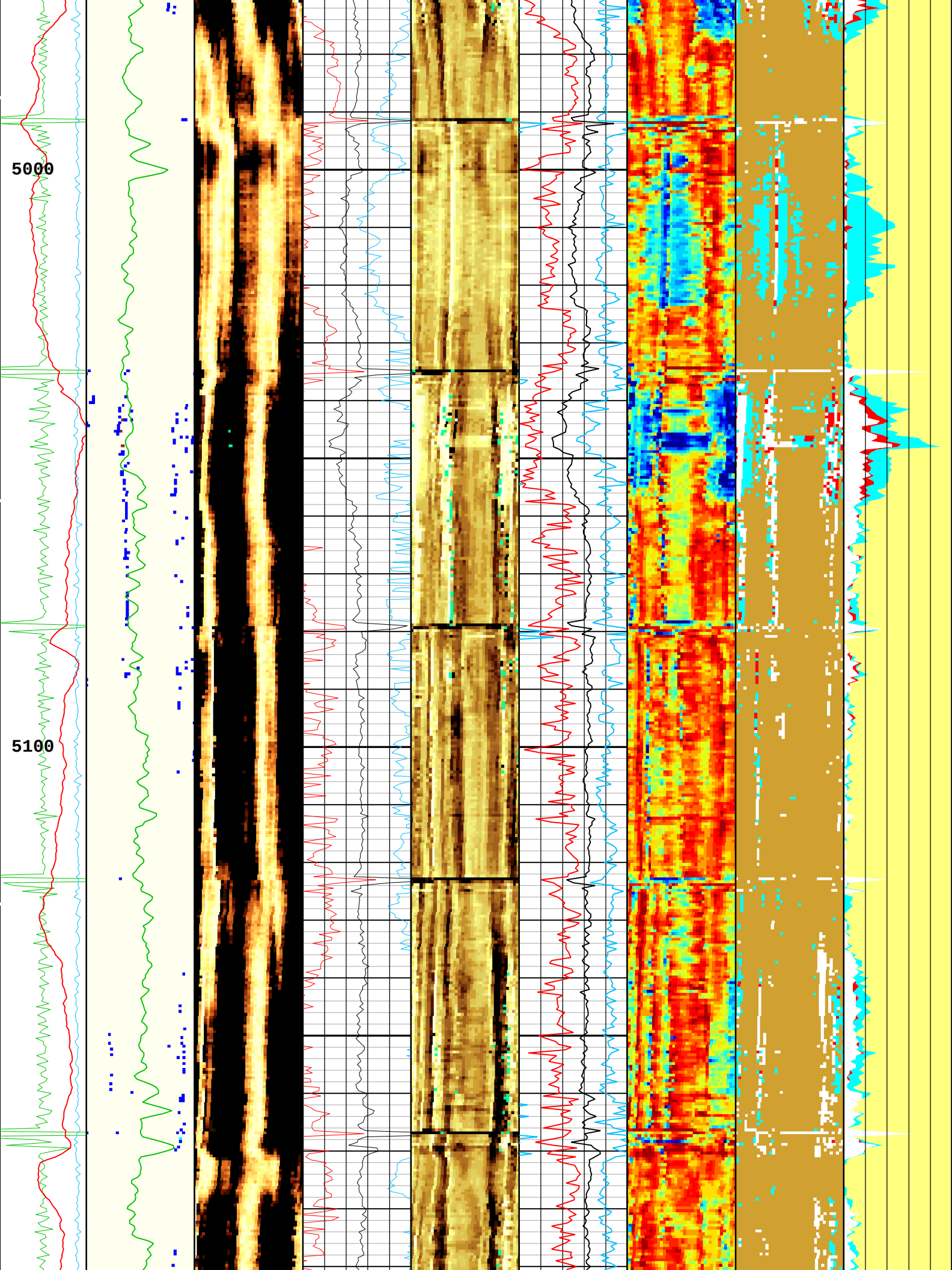
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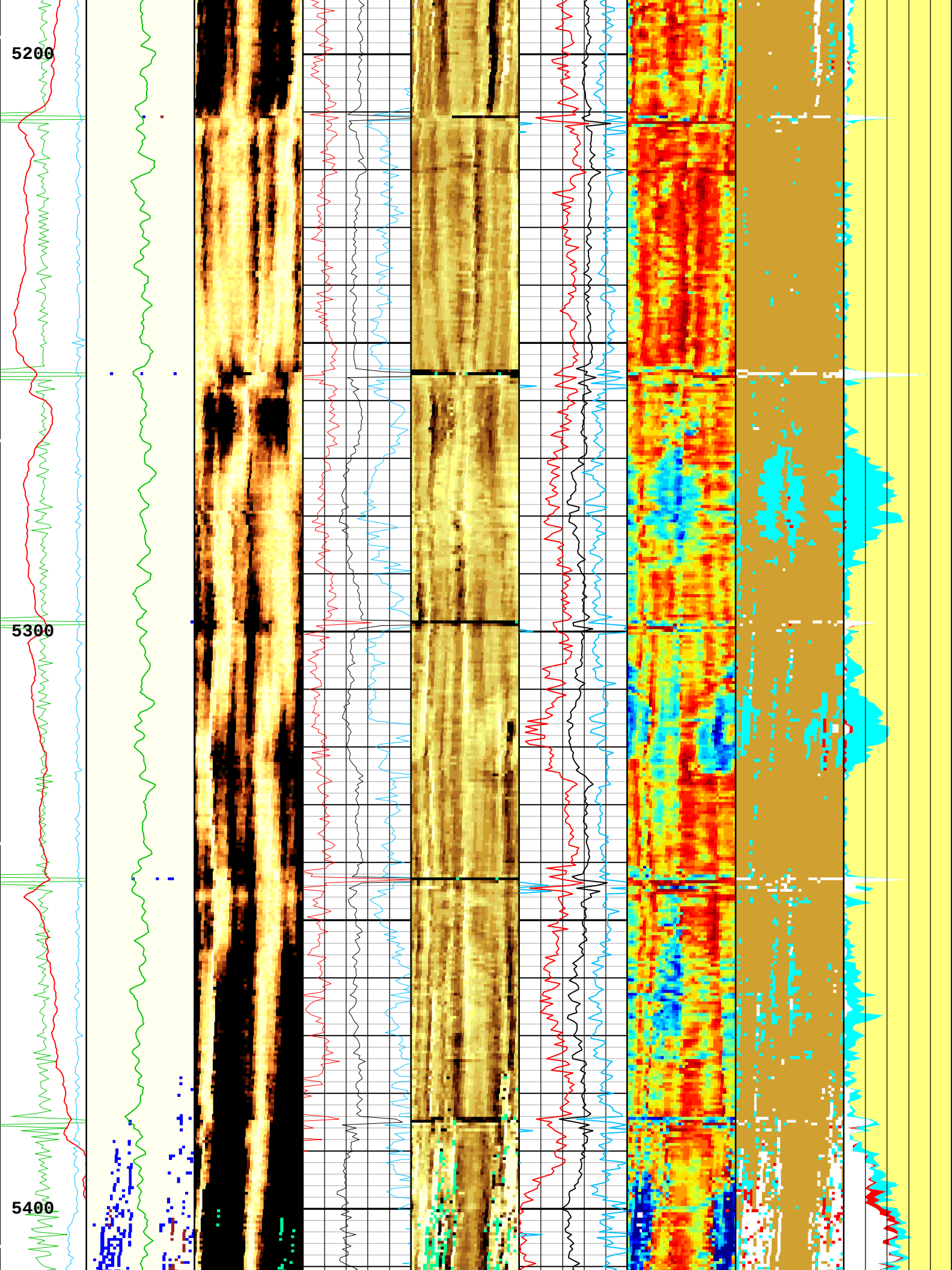
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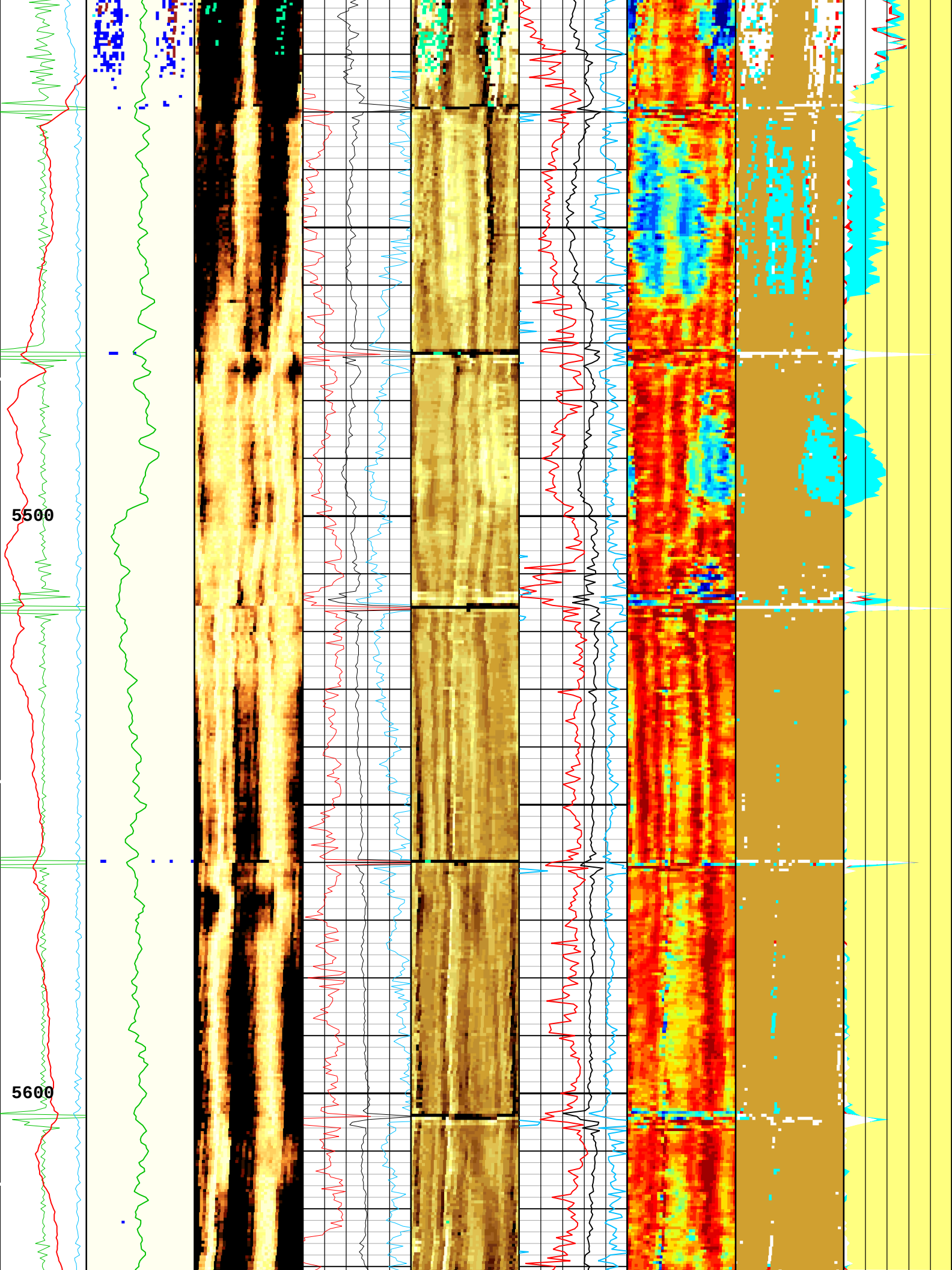
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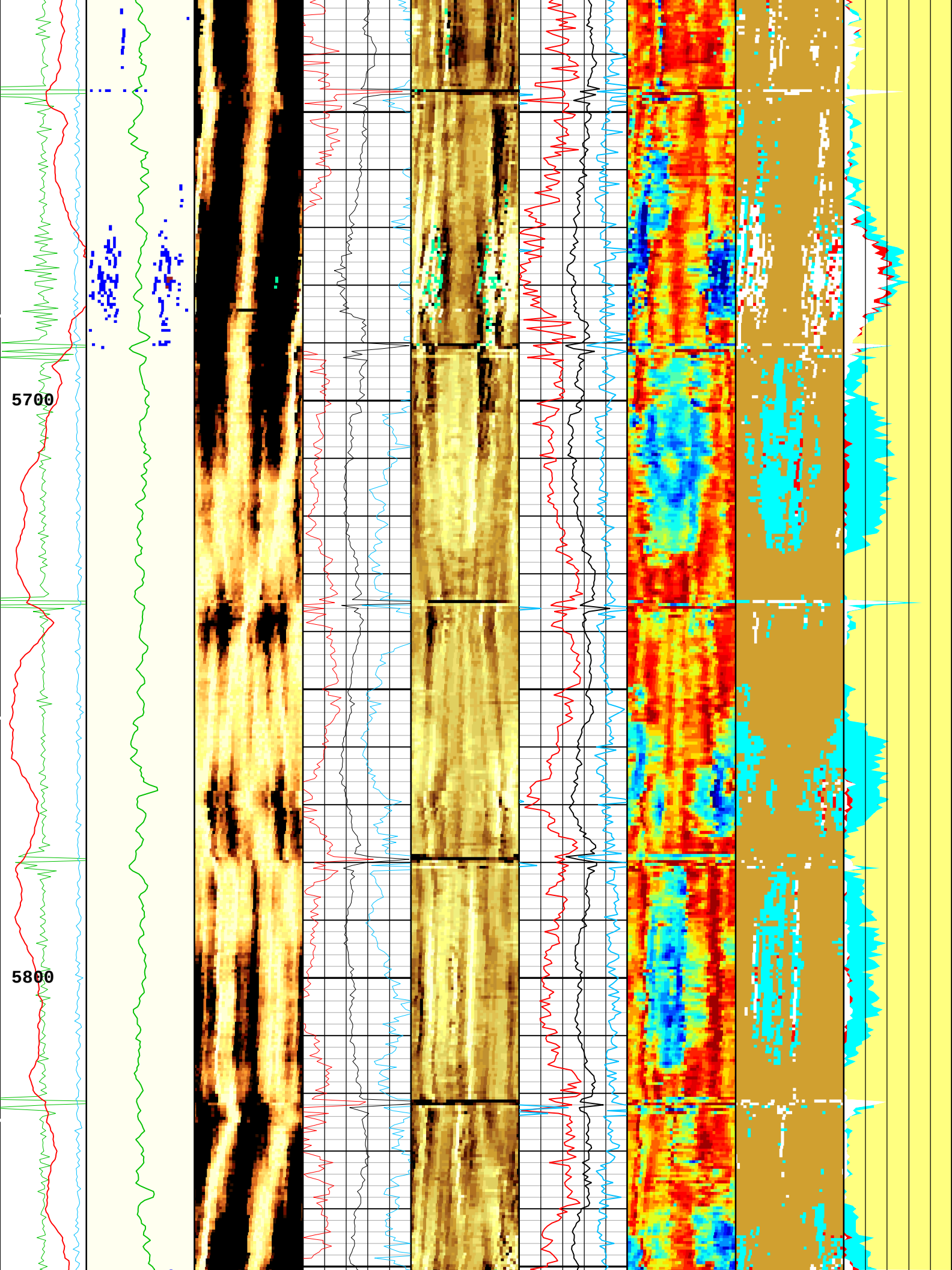
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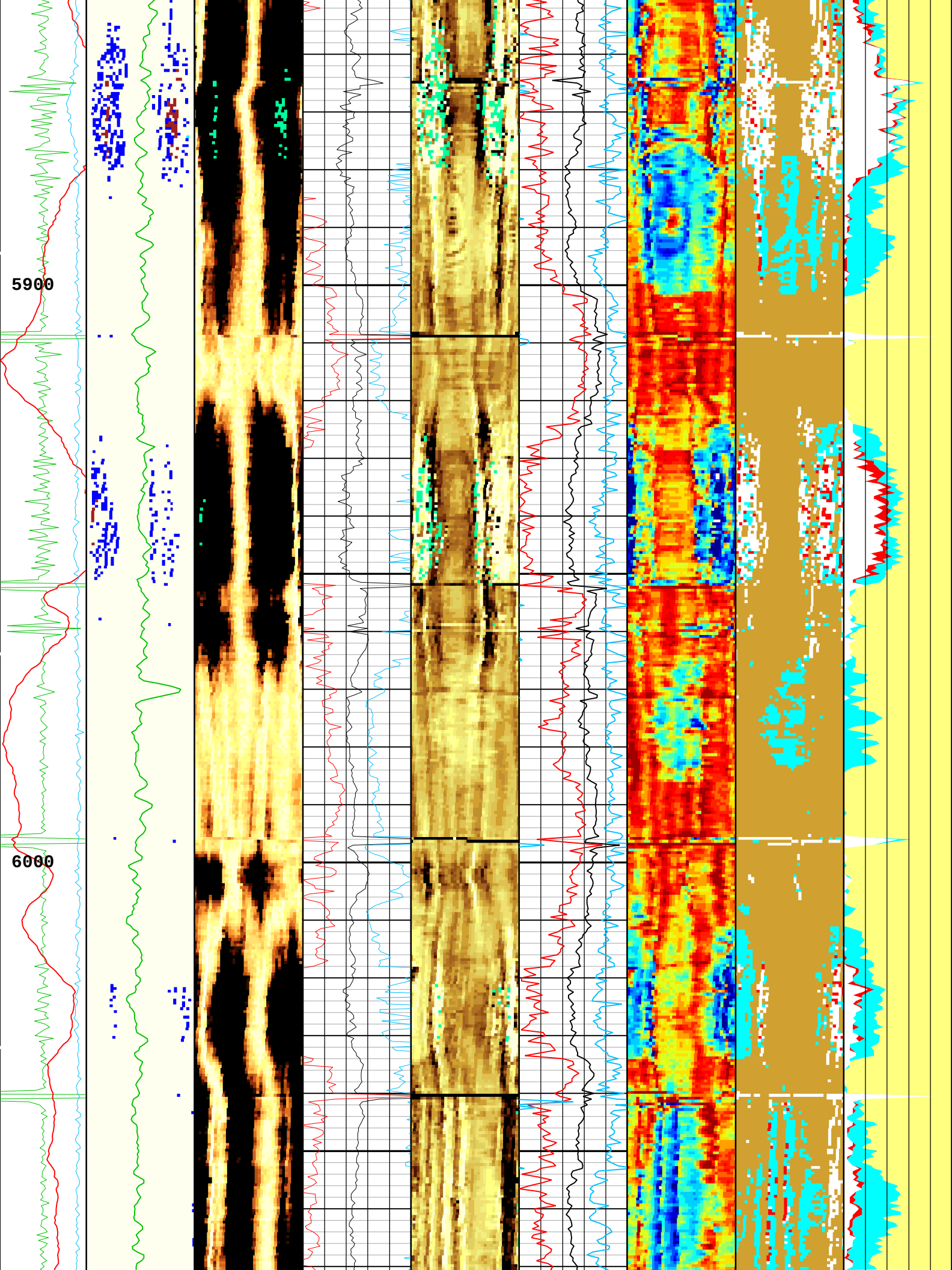
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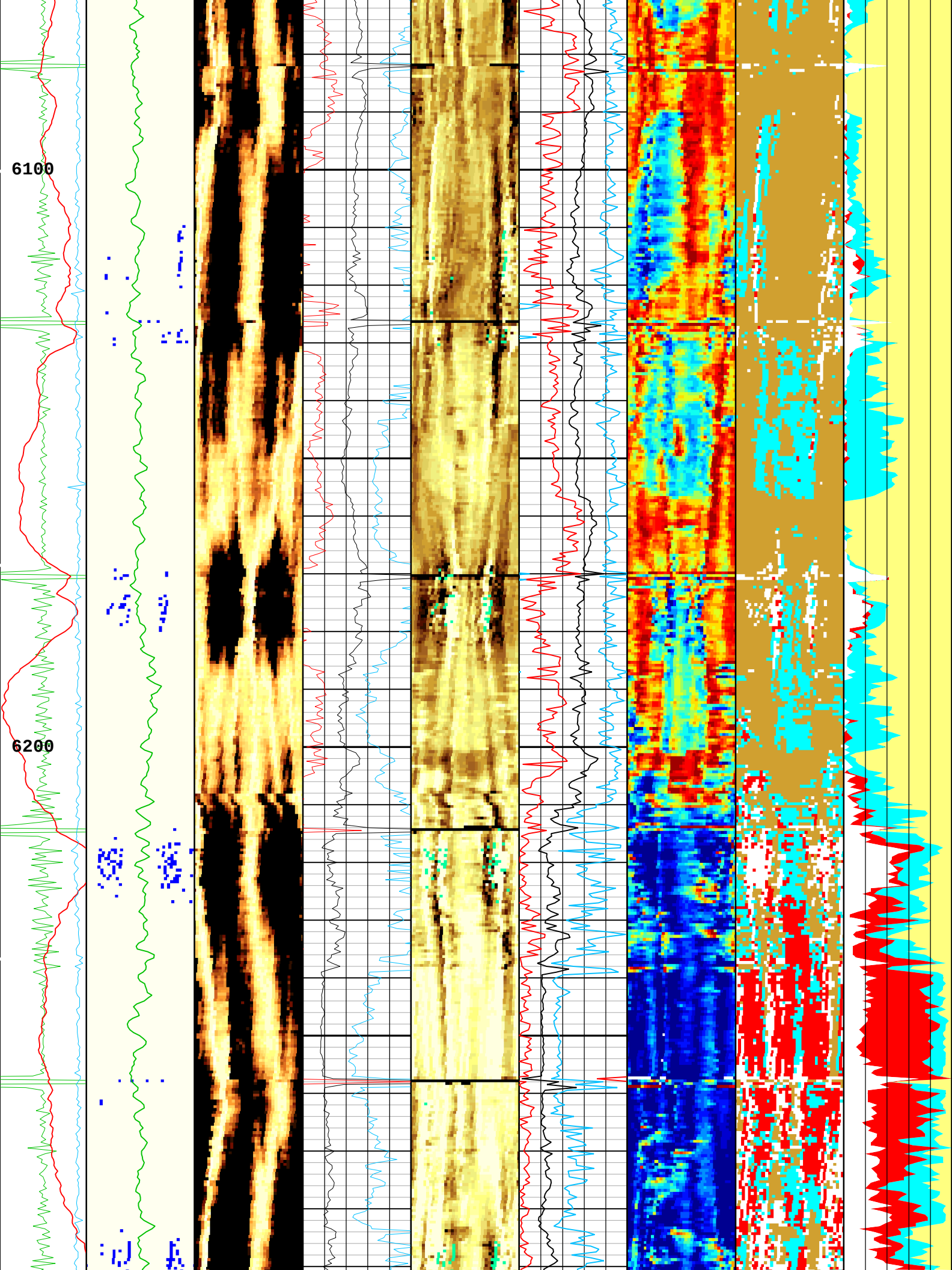
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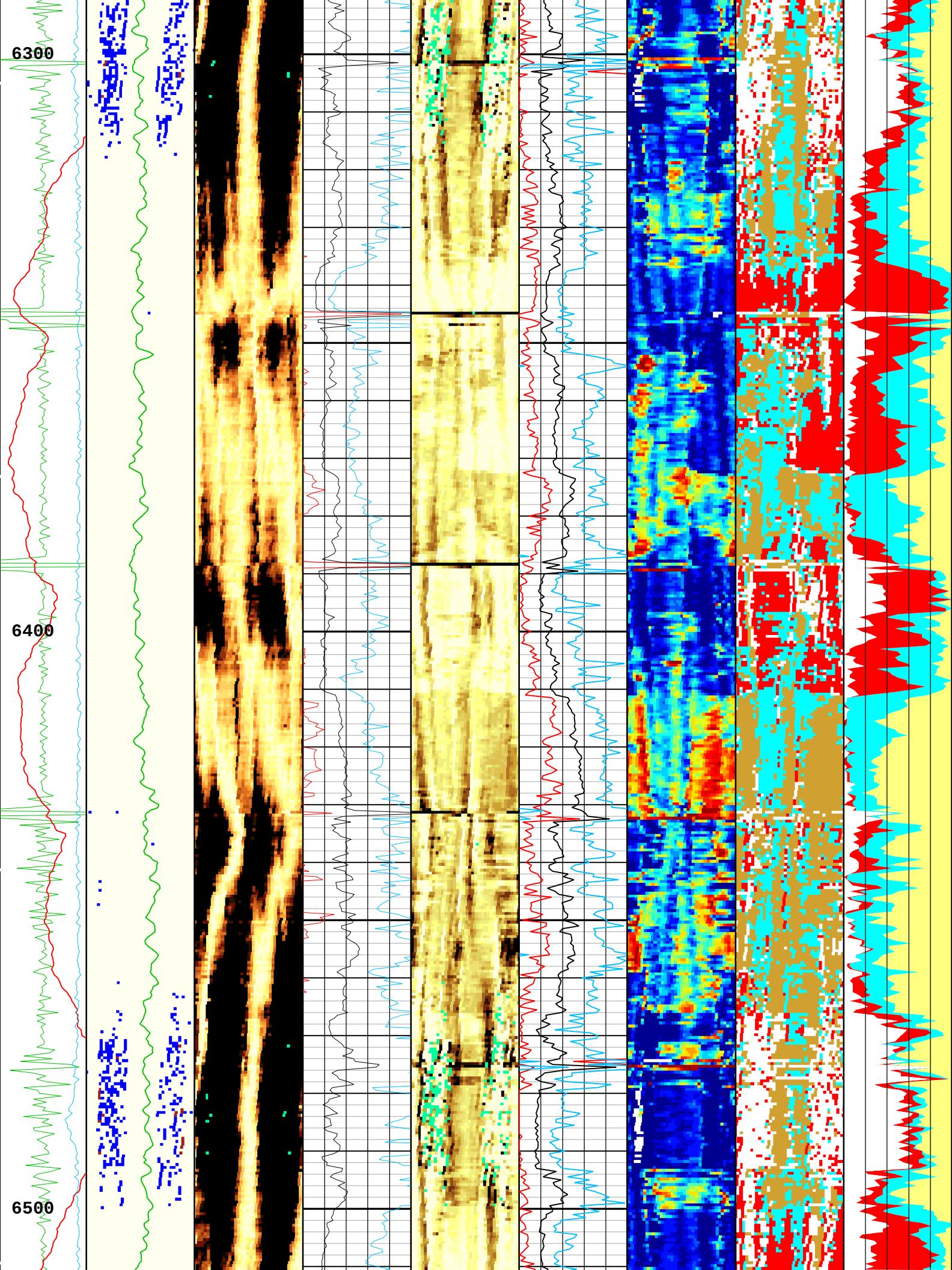
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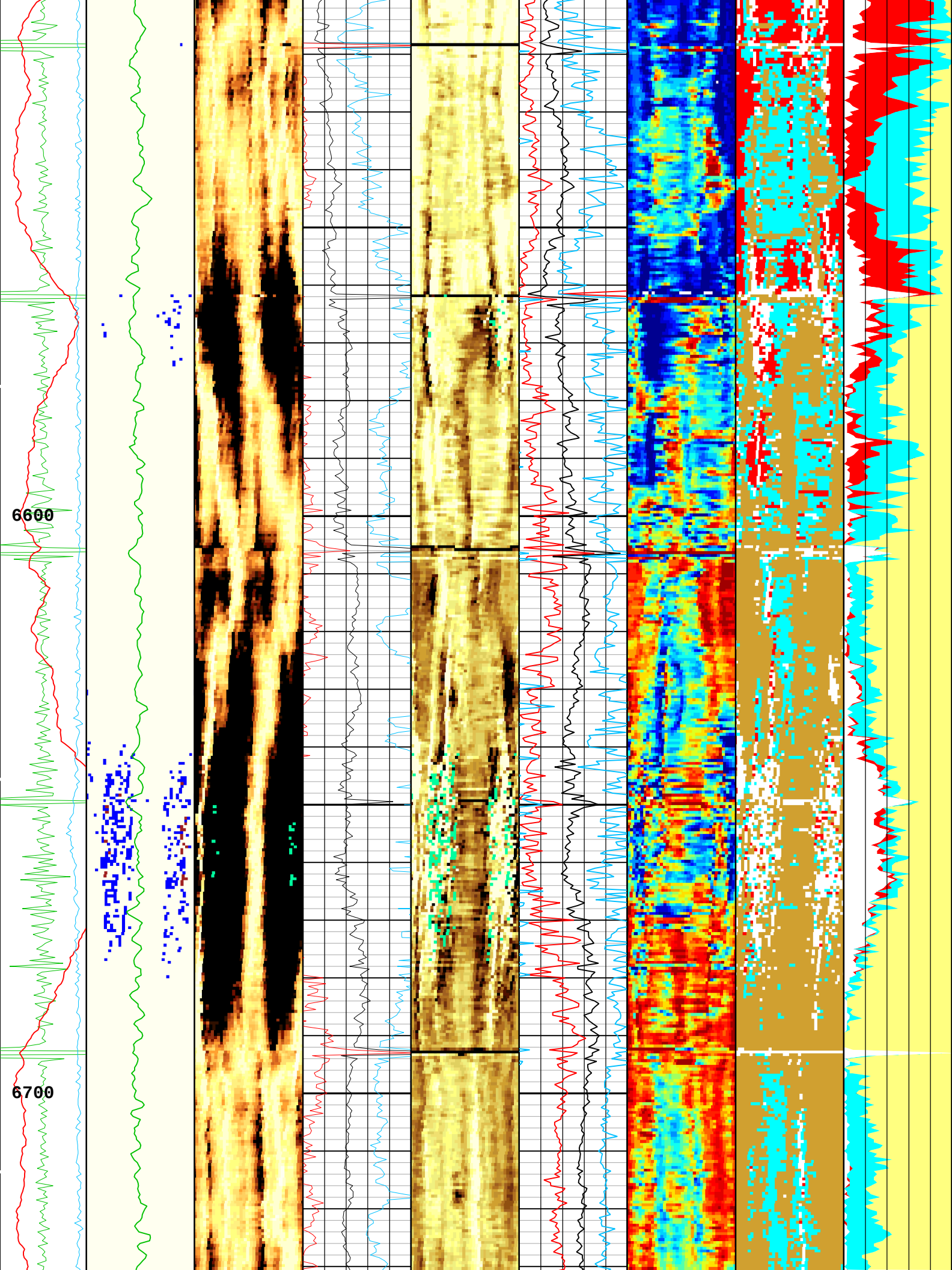
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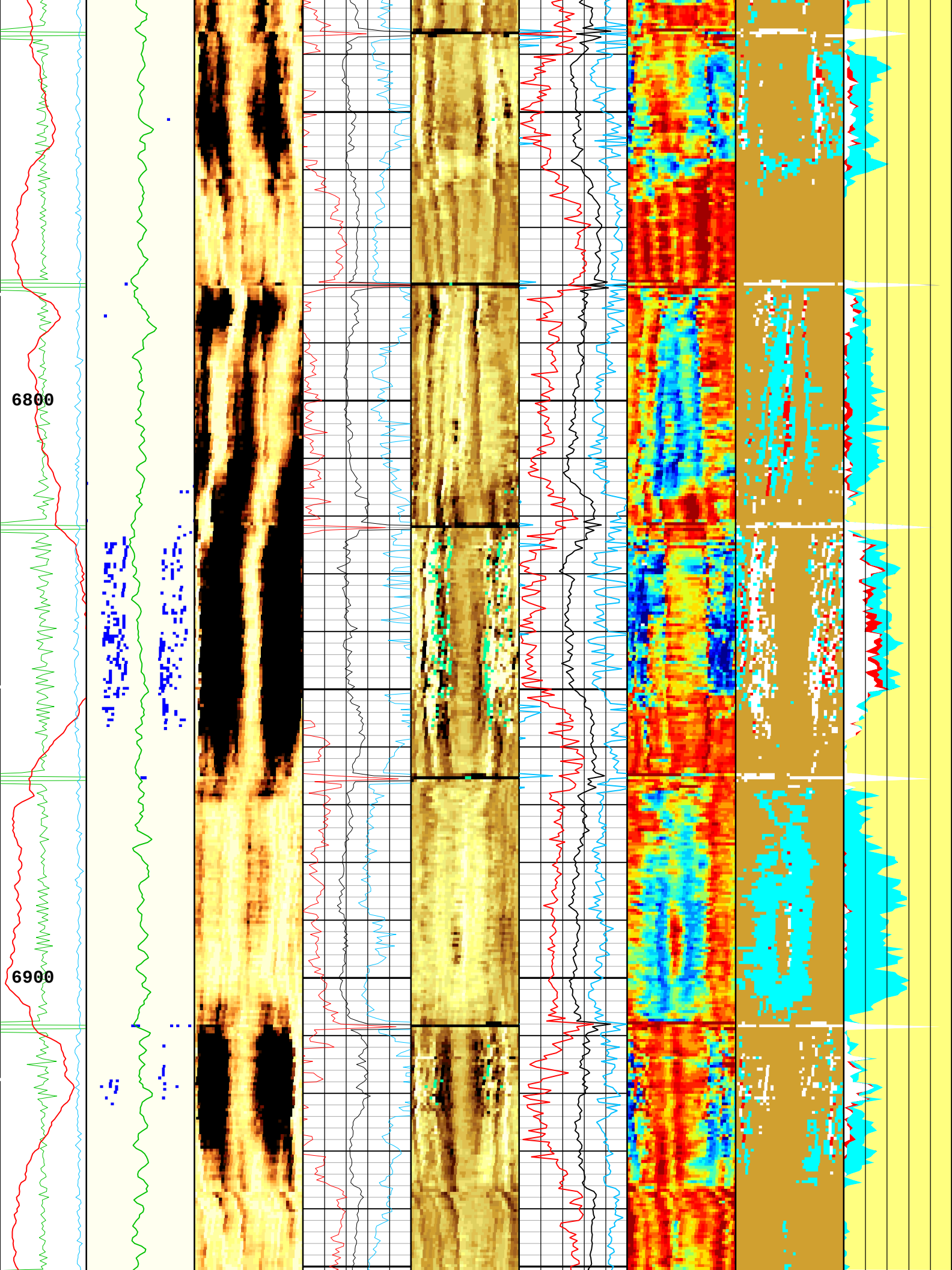
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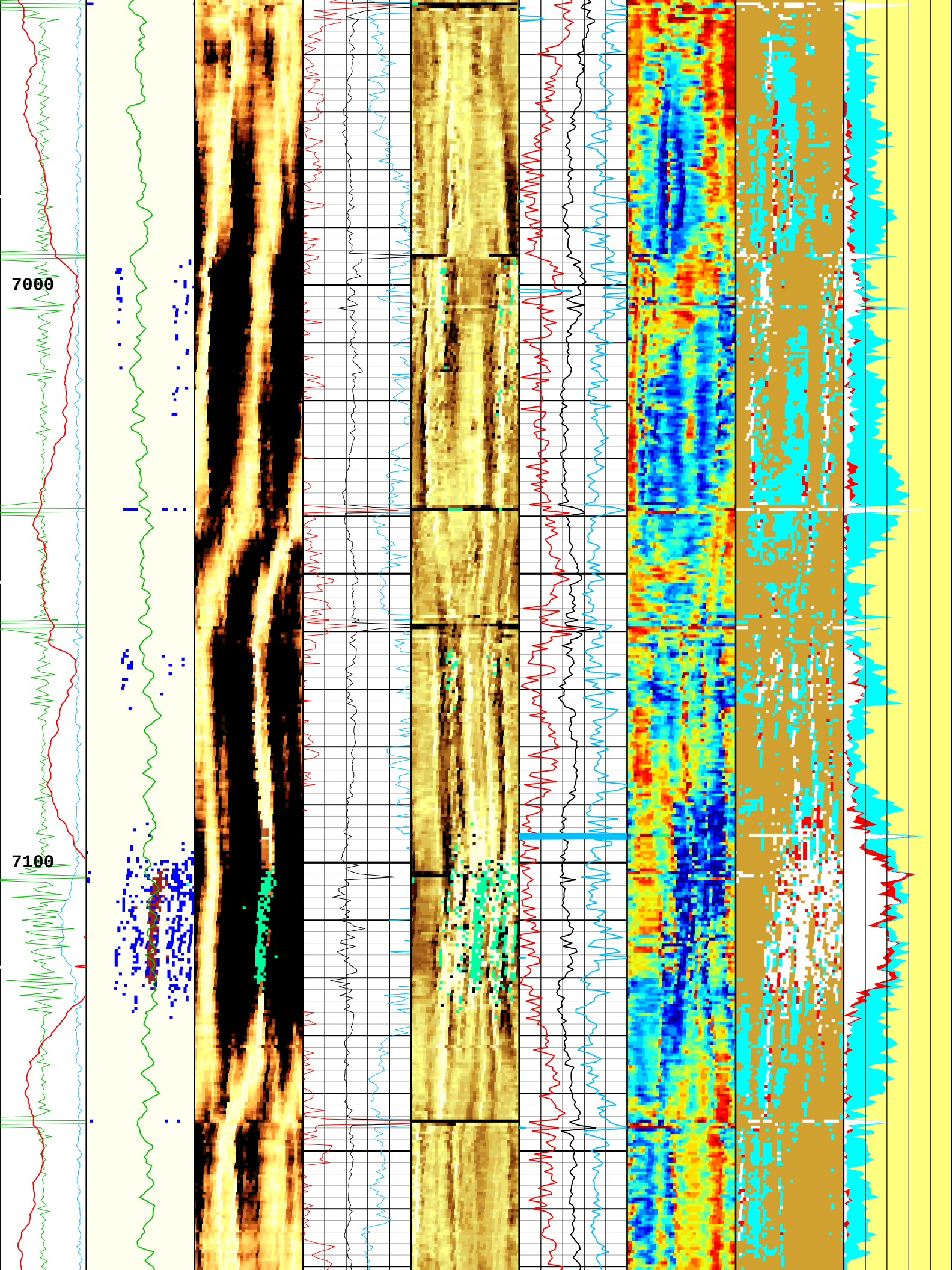
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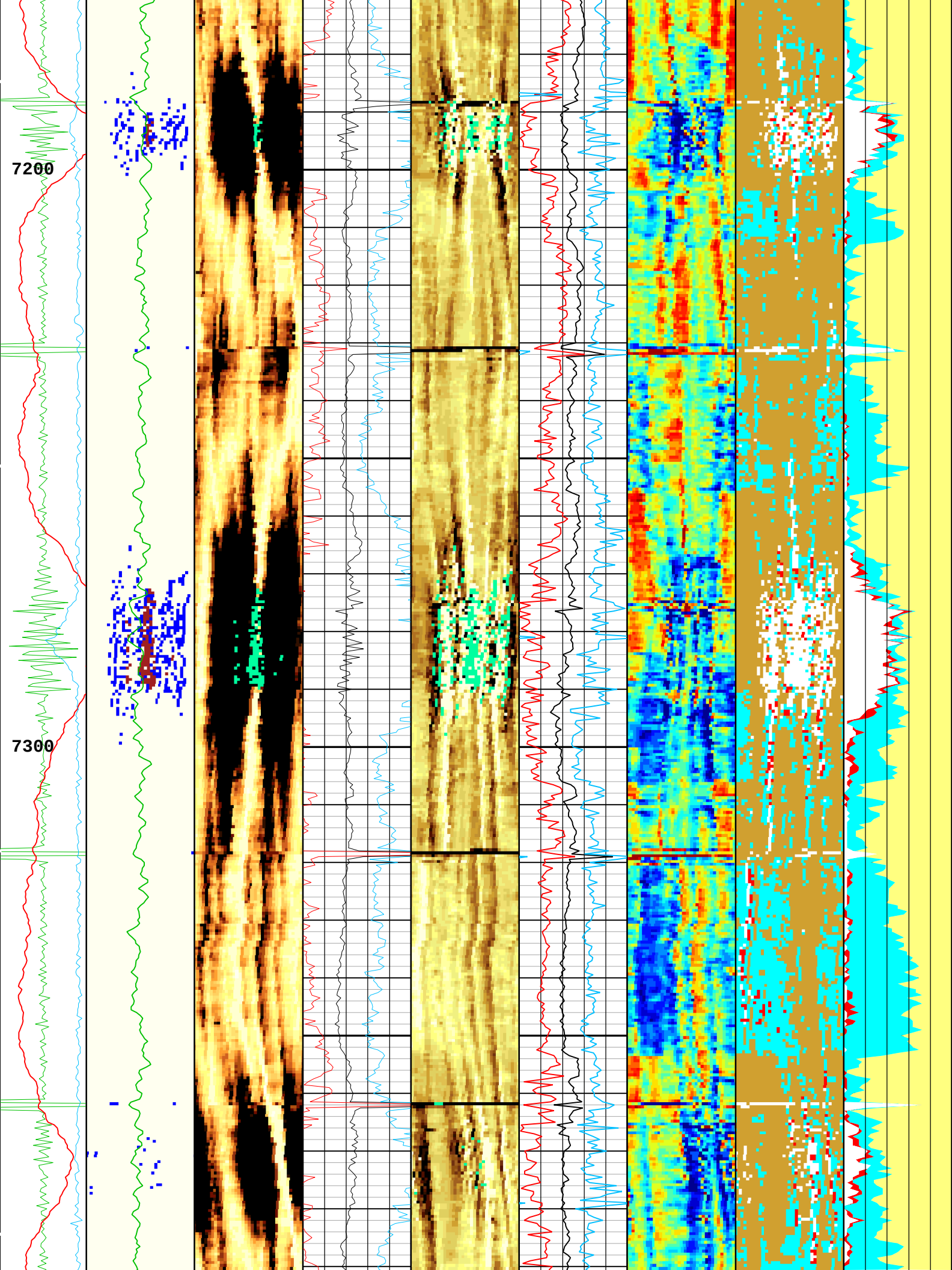
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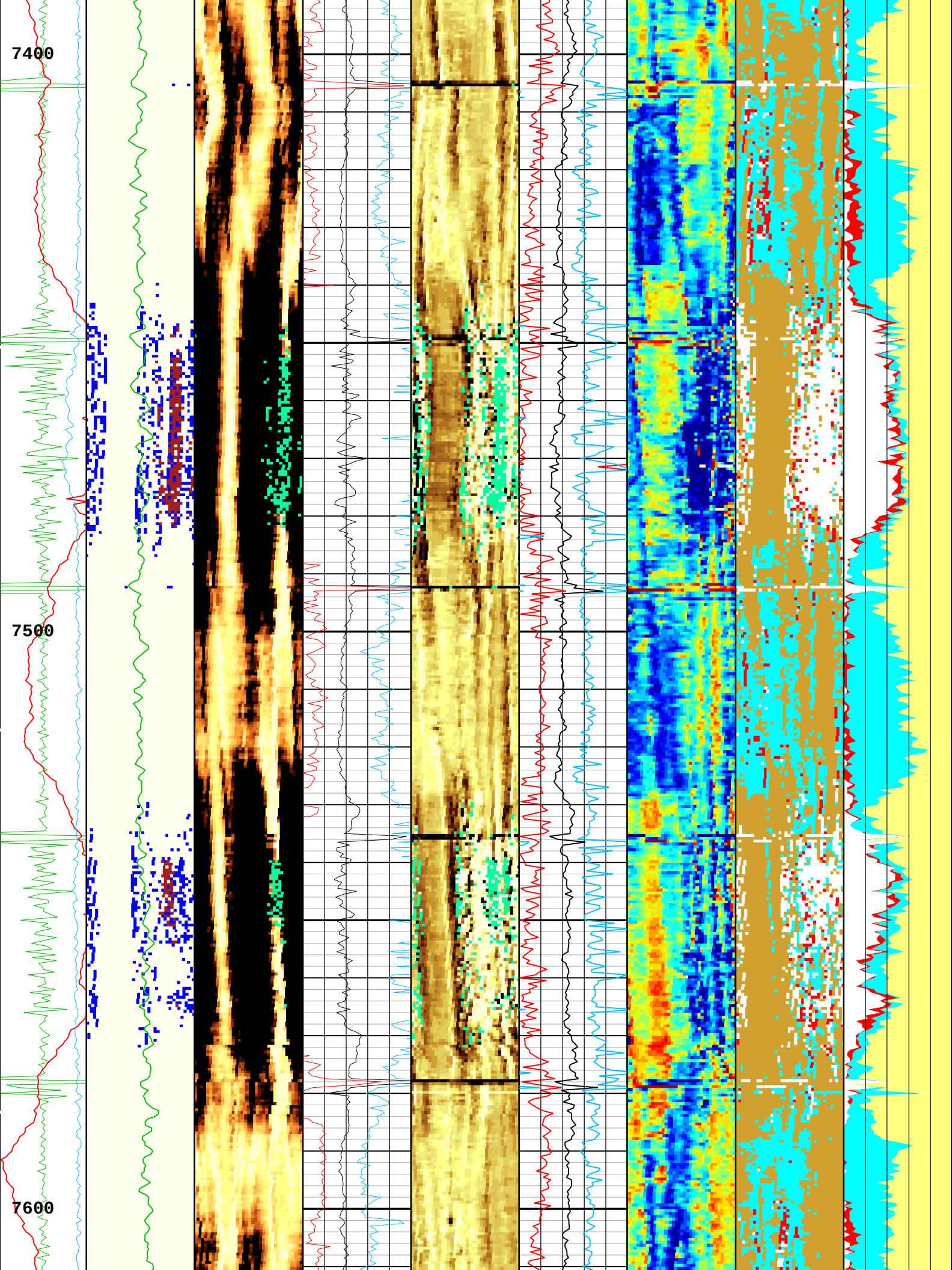
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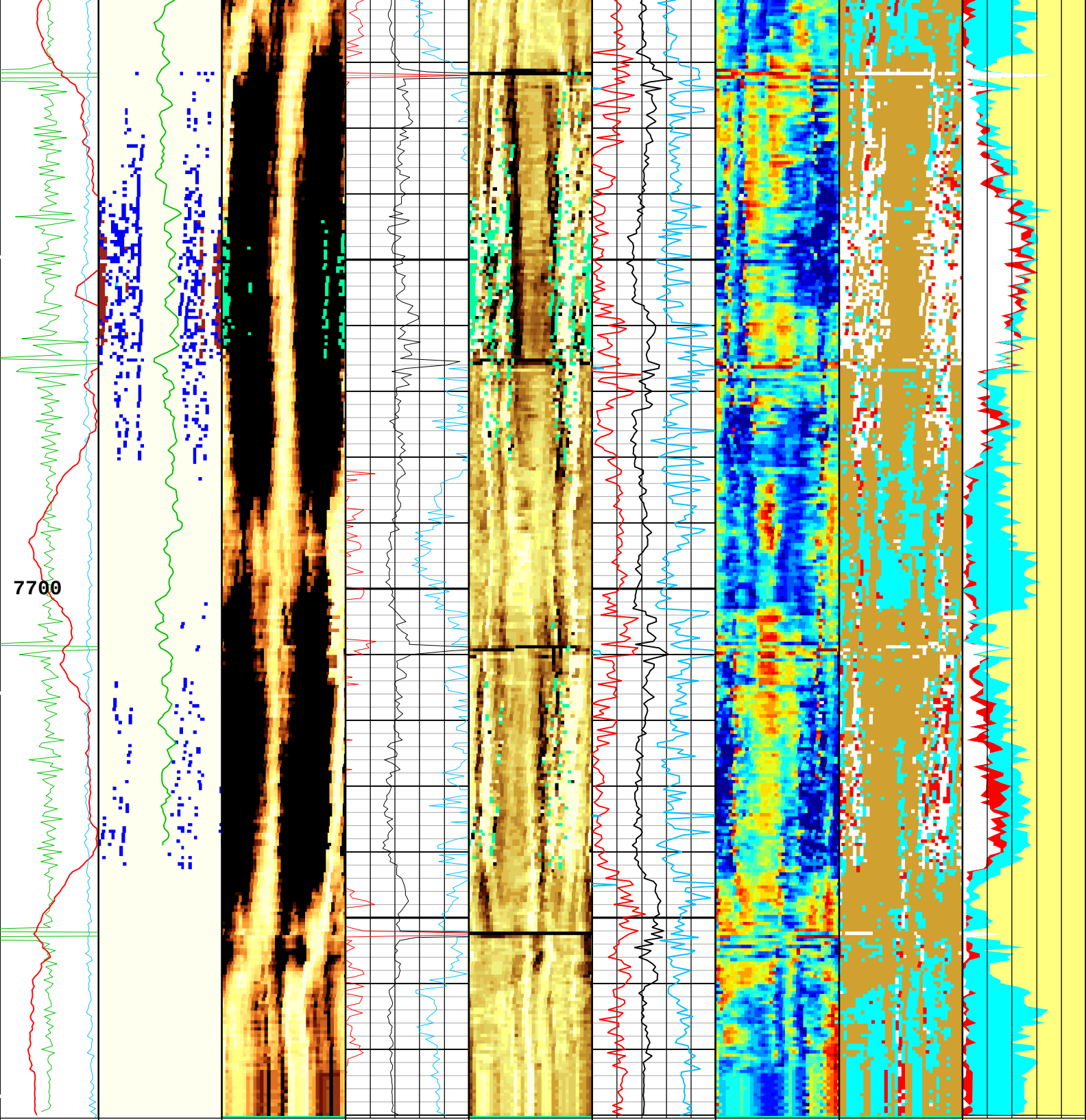


Casing Collar Locator Ultrasonic (CCLU) USIT-E

-2 in 2

Amplitude of Eccentering (ECCE) USIT-E

0 in 0.5

Motor Revolution

Absent 1.500 3.500

Explicit Normalization

USIT - USIT Processing Flags (UFLG) USIT-E

Orientation: Top of Hole

U L B R U

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

Absent -5.200 -3.600 -2.000 -0.400

Explicit Normalization

USIT - Amplitude of Wave (AWBK) USIT-E (dB)

Orientation: Top of Hole

U L B R U

Acoustic Impedance Minimum (AIMN) USIT-E

-1 Mrayl 9

Acoustic Impedance Average (AIAV) USIT-E

-1 Mrayl 9

Acoustic Impedance Maximum

Absent 1.500 3.500 5.500 7.500

Custom Normalization

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

Orientation: Top of Hole

U L B R U

Minimum Flexural Attenuation (U-USIT_UFAN) USIT-E

0 dB/m 150

Average Flexural Attenuation (U-USIT_UFAV) USIT-E

0 dB/m 150

Maximum Flexural

Absent 42.000 66.000 90.000 114.000

Custom Normalization

USIT - Flexural Attenuation (UFAK) USIT-E (dB/m)

Orientation: Top of Hole

U L B R U

Absent 0.500 1.500 2.500 3.500

Explicit Normalization

USIT - Solid Liquid Gas Sorted Color Map (USLP) USIT-E

Orientation: Top of Hole

U L B R U

SLG Solid Index

SLG Liquid Index

SLG Gas Index

SLG White Point Index

Speed (RSAV) USIT-E

6 c/s 7.5

1 5

Gamma Ray (ECGR_EDTC) EDTC-B

0 gAPI 150

(AIMX) USIT-E

-1 Mrayl 9

Attenuation (U-USIT_UFAX) USIT-E

0 dB/m 150

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

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

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

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

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

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

UTIM Error

Pulse Origin Not Detected

WINLEN Error

Casing Thickness Error

Loop Processing Error

TIME_1900 - Time Marked every 60.00 (s)

Description: USI IBC SLG Format: Log (Import (2) of IBC SLG) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 08-Oct-2019 17:28:46

Channel Processing Parameters

1A: Parameters

Parameter	Description	Tool	Value	Unit
ISSBAR	Barite Mud Presence Flag	Borehole	No	
BERJ	Bad Echo Rejection	USIT-E	On	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BS	Bit Size	WLSESSION	Depth Zoned	in
CASING_PRATIO	Casing Poisson Ratio	USIT-E	Standard Poisson Ratio	
CBLO	Casing Bottom (Logger)	WLSESSION	13650	ft
CDEN	Cement Density	USIT-E	12.5	lbm/gal
CDEN	Cement Density	EDTC-B	16.69	lbm/gal
CMTY(U-USIT_CEMT)	Cement Type	USIT-E	Regular Cement	
DFD	Drilling Fluid Density	Borehole	9	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	192	us/ft
FD	Fluid Density	USIT-E	10.5	lbm/gal
FDII	FPM Data Interpolation Interval	USIT-E	0	ft
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS(RT)	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	BS(RT)	
GR_MULTIPLIER	Gamma Ray Multiplier	EDTC-B	1	
HEMA	Hematite Presence Flag	Borehole	No	
IBC_FRP_OFFSET	IBC Flexural Offset from Free Pipe	USIT-E	0	dB/m
IBC_FVEL_SEL	IBC Fluid Velocity Selection	USIT-E	Automatic	
IBC_OFFSET_SEL	IBC Flexural Offset Selector	USIT-E	UFAO	
IBC_ZMUD_SEL	IBC Mud Impedance Selection	USIT-E	Theoretical	
ICE_PROCESS	ICE Processing	USIT-E	Yes	
IMAR	Image Rotation	USIT-E	RB	
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-E	22.44	us
MUD_N_THE	Theoretical Mud Normalization Factor	USIT-E	1.1	
RCOD	Reference Calibrator Outer Diameter	USIT-E	4.5	in
RCSO	Reference Calibrator Standoff	USIT-E	0.842	in
RCTH	Reference Calibrator Thickness	USIT-E	0.216	in
SOCN	Standoff Distance	EDTC-B	0.125	in
SOCO	Standoff Correction Option	EDTC-B	No	

THDH	Maximum Search Thickness (percentage of nominal)	USIT-E	130	%
THDL	Minimum Search Thickness (percentage of nominal)	USIT-E	70	%
TPOS_EDTC	Tool Position: Centered or Eccentered	EDTC-B	Eccentered	
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	1.6	Mrayl
U-USIT_UFAO	SIT Flexural Attenuation Offset	USIT-E	-46.82	dB/m
U-USIT_UIAP	IBC Answer Product Enabled	USIT-E	SolidLiquidGasMap	
USI_RPLUS	Ultrasonic R+ Processing	USIT-E	No	
THDP	Thickness Detection Policy	USIT-E	Fundamental	
VCAS	Ultrasonic Transversal Velocity in Casing	USIT-E	51.4	us/ft
ZCAS	Acoustic Impedance of Casing	USIT-E	46.25	Mrayl
ZINI	Initial Estimate of Cement Impedance	USIT-E	-1	Mrayl
ZMUD	Acoustic Impedance of Mud	Borehole	1.71	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-E	2.6	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

Depth Zone Parameters

Parameter	Value	Start (ft)	Stop (ft)
BS	13.5	12	2405
BS	8.5	2405	7780.5

All depth are actual.

Tool Control Parameters

1A: Parameters

Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	18	dB
U-USIT_DDT5	USIC Downhole Decimation for T5 only	USIT-E	0_NONE	
DOT(DOS)	Distance between Opposite Transducer Faces	USIT-E	1.756	in
EMXV	EMEX Voltage	USIT-E	Time Zoned	V
HRES	Horizontal Resolution	USIT-E	10 deg	
IBC_ACQTYPE	IBC Acquisition type	USIT-E	1 MHz	
IBC_FLEXDBP	IBC Flex Duration Before Peak	USIT-E	30	us
ICE2_ACQ	Ultrasonic ICE2 Acquisition	USIT-E	Yes	
MOTOR_PROTECT	Motor Protection	USIT-E	On	
UACLV_PERM	Ultrasonic ACLV Permanent	USIT-E	Yes	
U-USIT_UFWB	Far Receiver Window Begin Time	USIT-E	133	us
U-USIT_UFWE	Far Receiver Window End Time	USIT-E	173	us
U-USIT_UNWB	Near Receiver Window Begin Time	USIT-E	102	us
U-USIT_UNWE	Near Receiver Window End Time	USIT-E	142	us
USFR	Ultrasonic Sampling Frequency	USIT-E	666667	Hz
UPAT	USIT Emission Pattern	USIT-E	Pattern 375 KHz	
UWKM	USIT Working Mode	USIT-E	10 deg at 6.0 in	
USSP	Ultrasonic Service	USIT-E	IBC	
U-USIT_UTAN	Transducer Angles	USIT-E	38_DEG	
VRES	Vertical Resolution	USIT-E	6.0 in	
WINB	Window Begin Time	USIT-E	28.35	us
WINE	Window End Time	USIT-E	Time Zoned	us

Time Zone Parameters

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
EMXV	80	29-Sep-2019 18:56:43	29-Sep-2019 18:57:52	7781.58	7723.84

EMXV	95	29-Sep-2019 18:57:52	29-Sep-2019 18:58:09	7723.84	7705.88	
EMXV	100	29-Sep-2019 18:58:09	29-Sep-2019 19:01:52	7705.88	7459.14	
EMXV	115	29-Sep-2019 19:01:52	29-Sep-2019 19:08:33	7459.14	7013.74	
EMXV	120	29-Sep-2019 19:08:33	29-Sep-2019 19:11:26	7013.74	6819.9	
EMXV	125	29-Sep-2019 19:11:26	29-Sep-2019 20:00:19	6819.9	3385.84	
EMXV	115	29-Sep-2019 20:00:19	29-Sep-2019 20:00:25	3385.84	3378.43	
EMXV	125	29-Sep-2019 20:00:25	29-Sep-2019 20:49:46	3378.43	54.44	
WINE	68.35	29-Sep-2019 18:56:43	29-Sep-2019 19:07:19	7781.58	7096.72	
WINE	72.69	29-Sep-2019 19:07:19	29-Sep-2019 19:07:22	7096.72	7092.86	
WINE	74.13	29-Sep-2019 19:07:22	29-Sep-2019 19:32:16	7092.86	5387.39	
WINE	71.54	29-Sep-2019 19:32:16	29-Sep-2019 20:21:17	5387.39	1842.98	
WINE	72.69	29-Sep-2019 20:21:17	29-Sep-2019 20:23:00	1842.98	1719.91	
WINE	74.71	29-Sep-2019 20:23:00	29-Sep-2019 20:49:46	1719.91	54.44	

All depth are at tool zero.

1A

IBC SLG COMPOSITE MAIN PASS @10DEG X 6IN @0PSI [2:100]

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
1A	Log[4]:Up	Up	54.44 ft	7781.58 ft	29-Sep-2019 6:56:43 PM	29-Sep-2019 8:49:46 PM	ON	0.00 ft	Yes

All depths are referenced to toolstring zero

Log

Company:Crestone Peak Resources Operating, LLC Well:Kugel 1M-18H-H267

1A: Log[4]:Up:S008

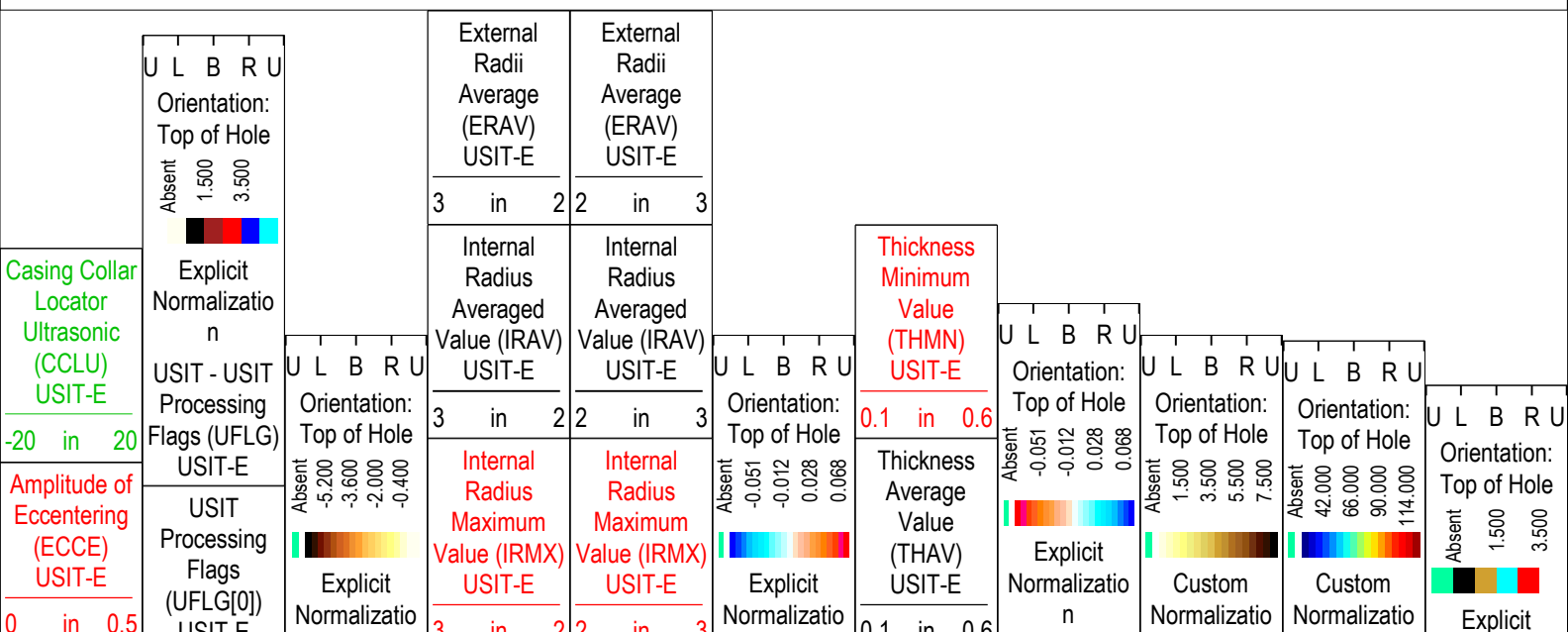
Description: USI IBC SLG Composite Format: Log (Import (2) of IBC SLG Composite) Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 08-Oct-2019 17:29:57

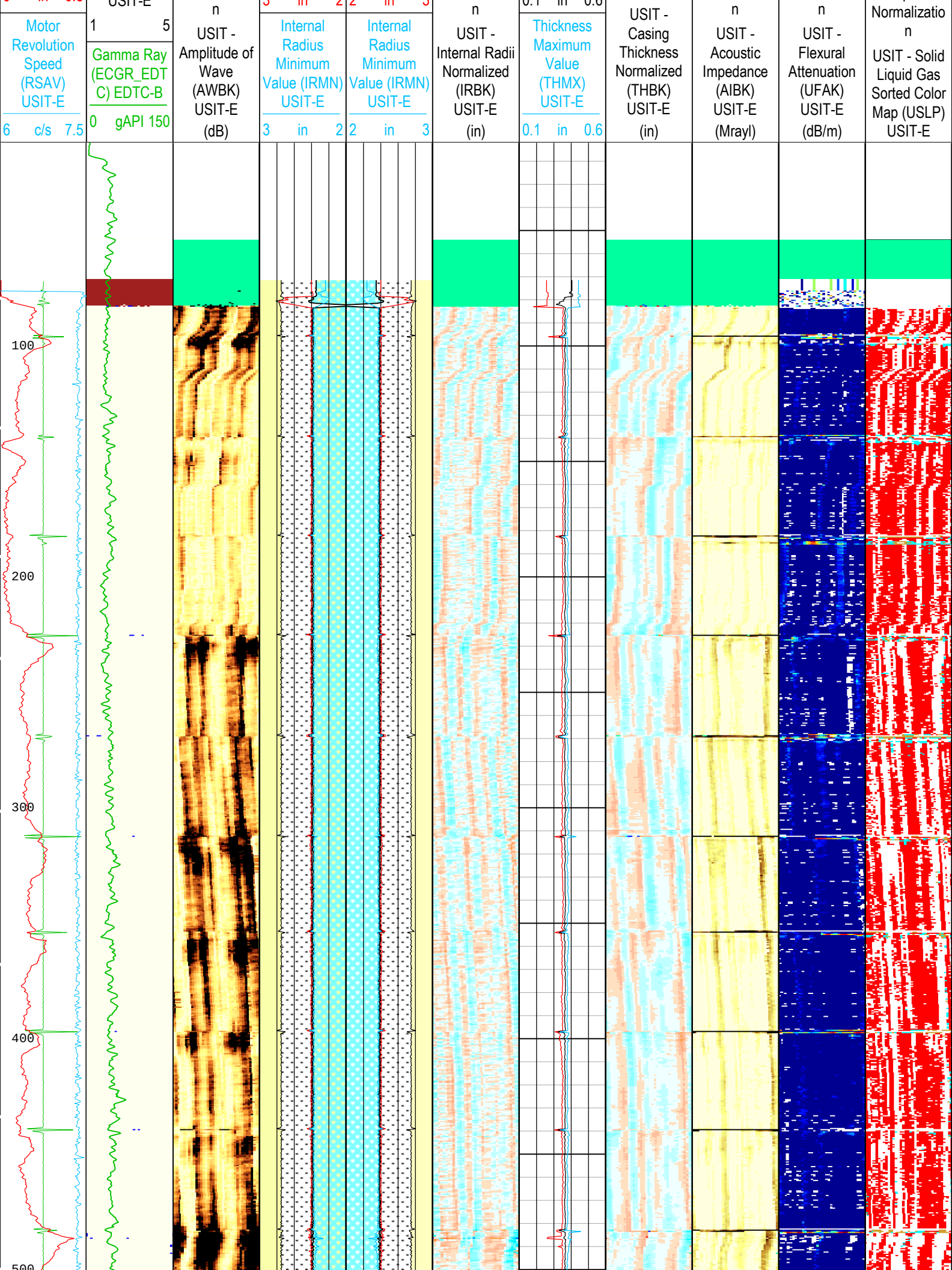
TIME_1900 - Time Marked every 60.00 (s)

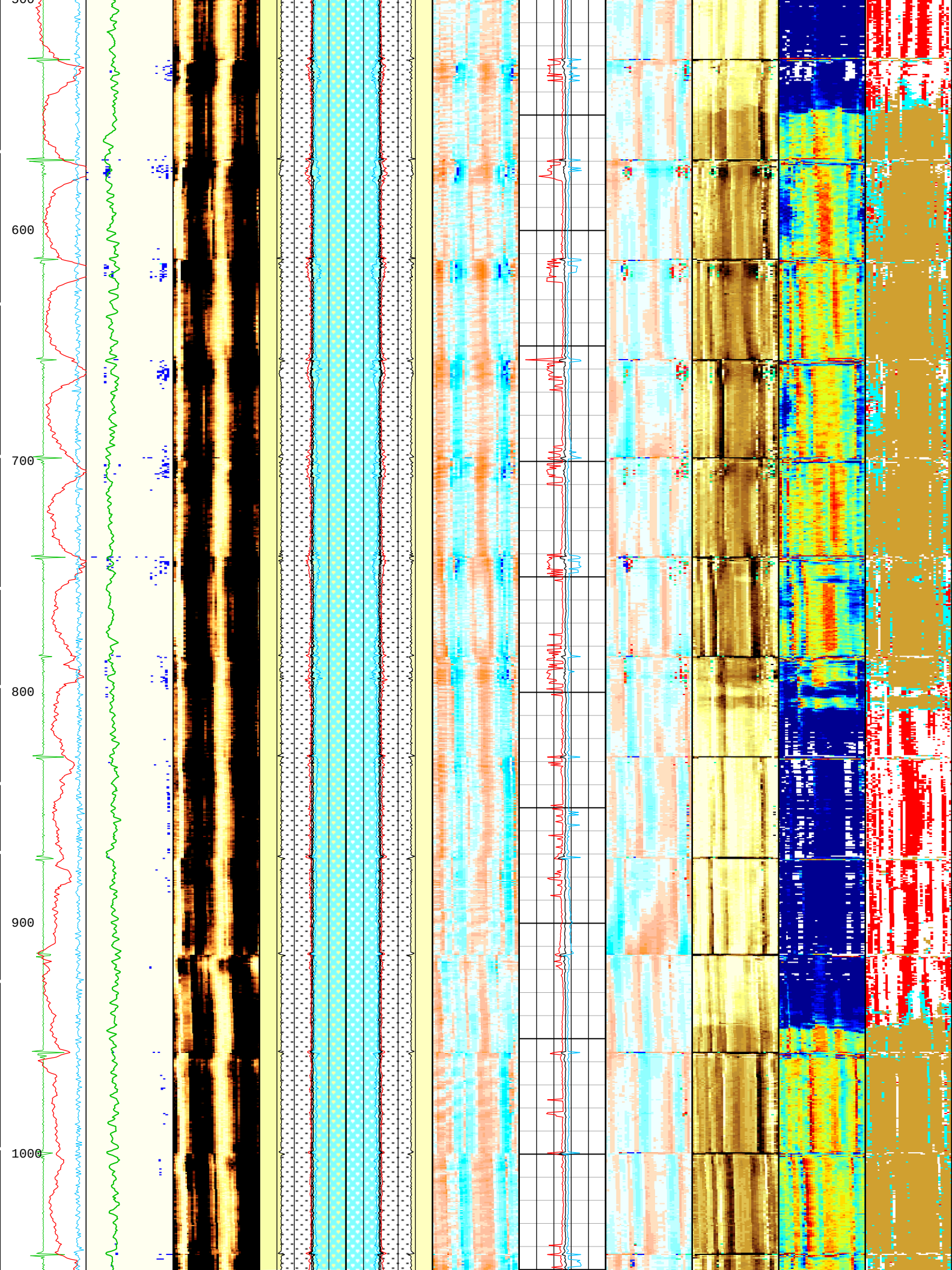
USIT Processing Flags (UFLG[0]) USIT-E

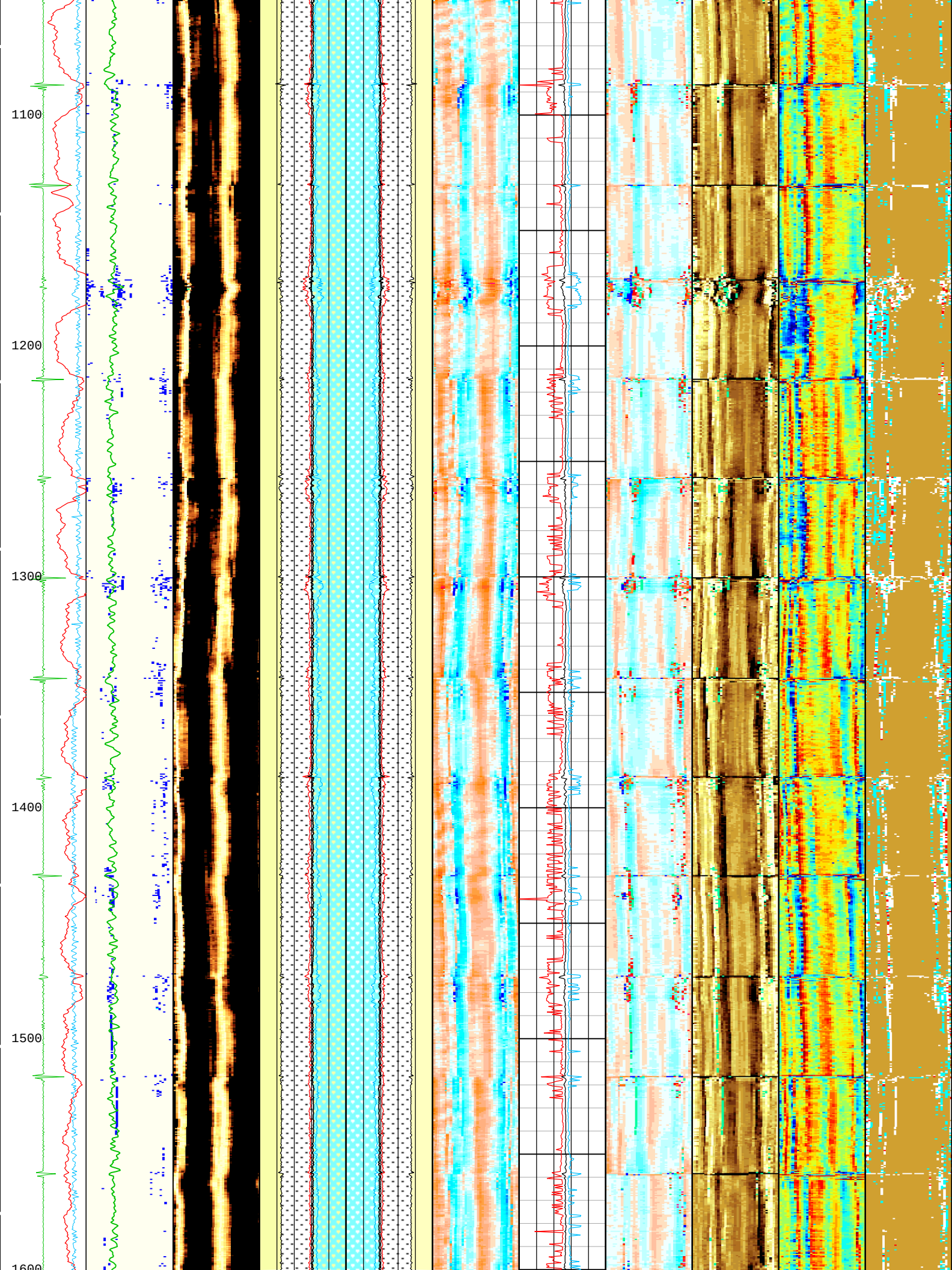
1 - UFLG 1 Value within [0.0 - 1.5] - :
2 - UFLG 2 Value within [1.5 - 2.5] - :
3 - UFLG 3 Value within [2.5 - 3.5] - :
4 - UFLG 4 UFLG 5 UFLG 6 Value within [3.5 - 6.5] - :
5 - UFLG 7 UFLG 8 UFLG 9 Value within [6.5 - 10] - :

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




Motor Revolution Speed (RSAV) USIT-E
6 c/s 7.5
USIT-E
1 5
Gamma Ray (ECGR_EDTC) EDTC-B
0 gAPI 150
n
USIT - Amplitude of Wave (AWBK) USIT-E
(dB)
Internal Radius Minimum Value (IRMN) USIT-E
3 in 2
Internal Radius Minimum Value (IRMN) USIT-E
2 in 3
n
USIT - Internal Radii Normalized (IRBK) USIT-E
(in)
Thickness Maximum Value (THMX) USIT-E
0.1 in 0.6
USIT - Casing Thickness Normalized (THBK) USIT-E
(in)
n
USIT - Acoustic Impedance (AIBK) USIT-E
(Mrayl)
n
USIT - Flexural Attenuation (UFAK) USIT-E
(dB/m)
Normalizatio n
USIT - Solid Liquid Gas Sorted Color Map (USLP) USIT-E
100
200
300
400
500


600
700
800
900
1000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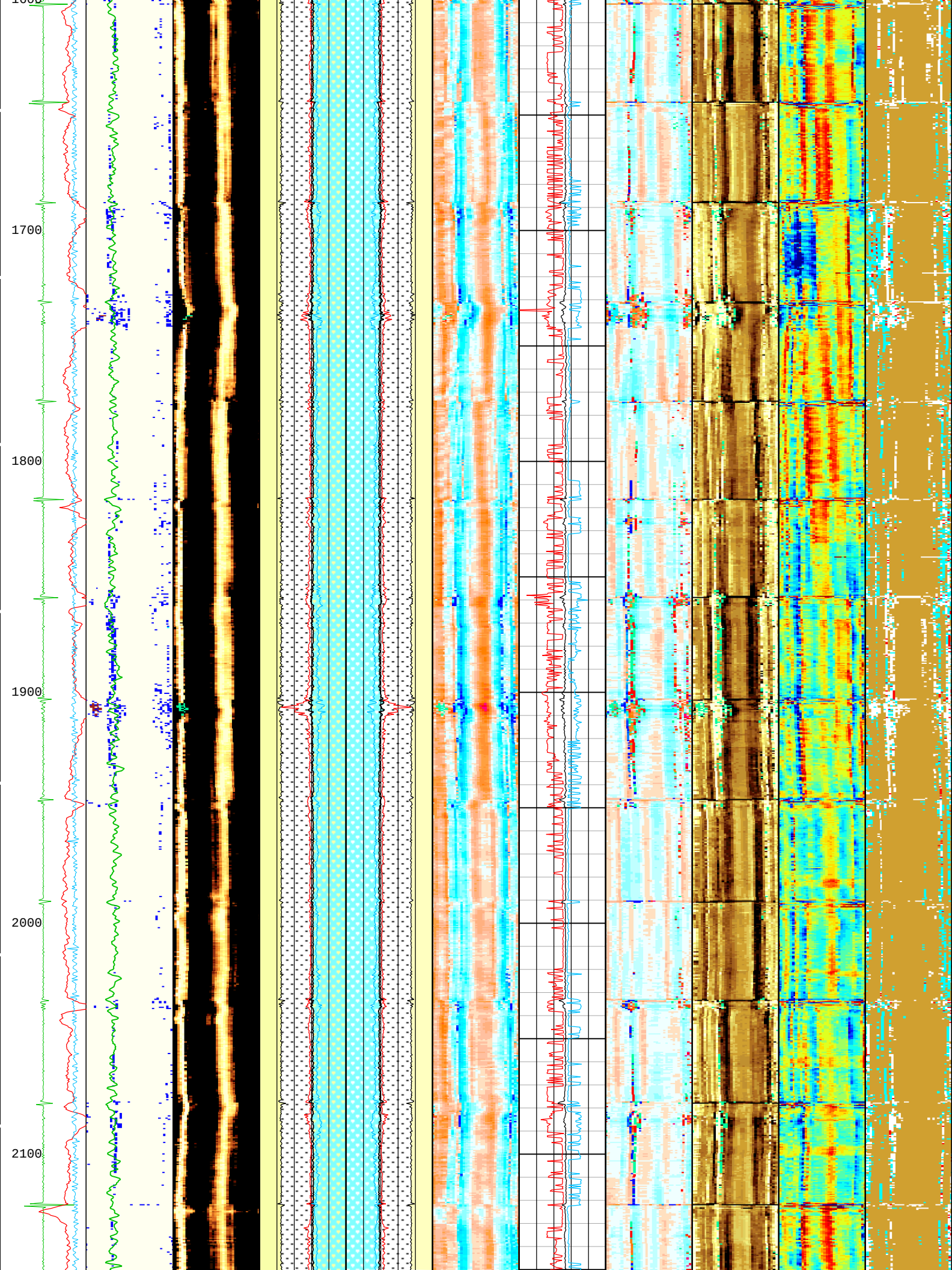
1300
1400
1500
1600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1800
1900
2000
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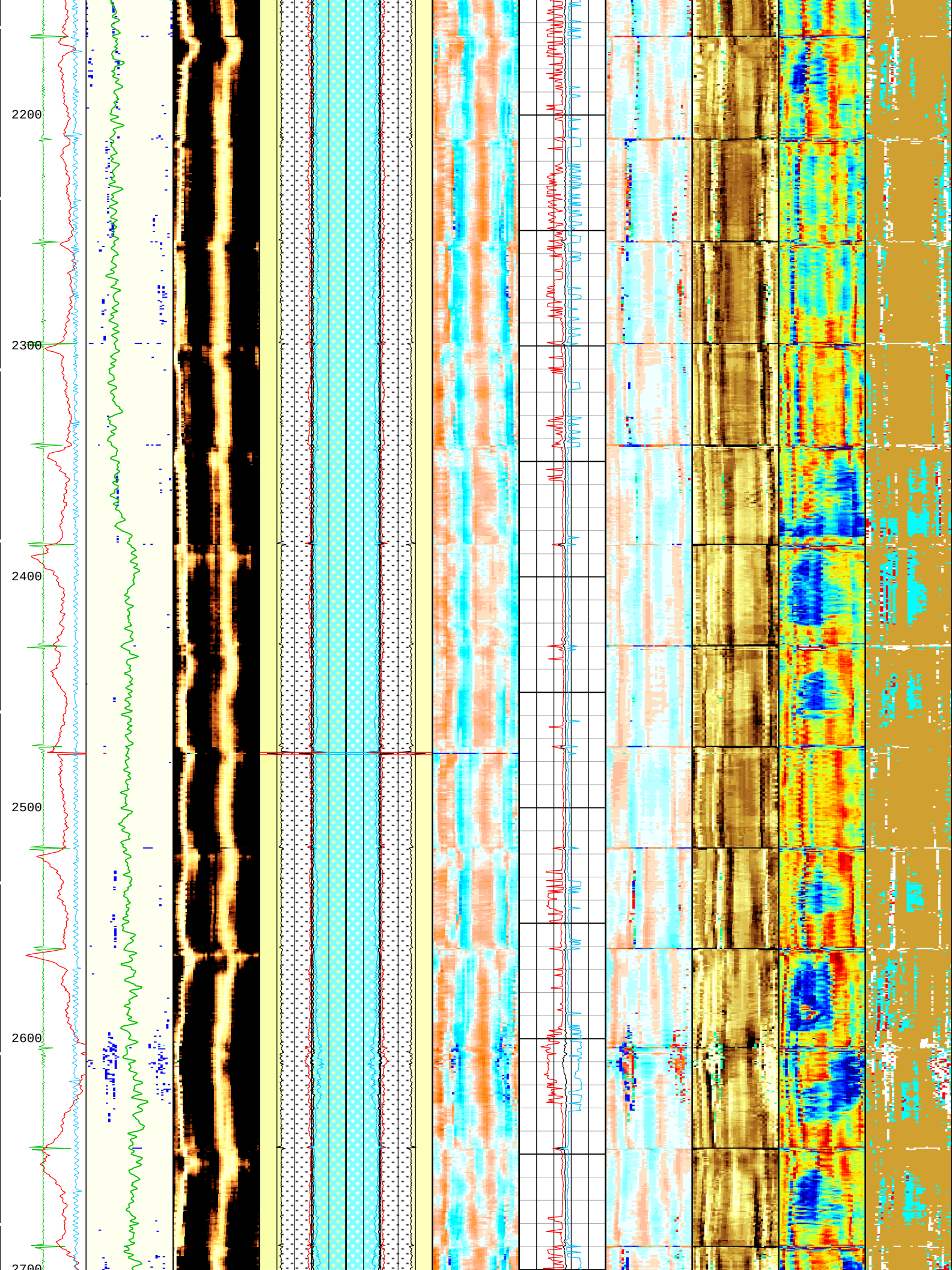
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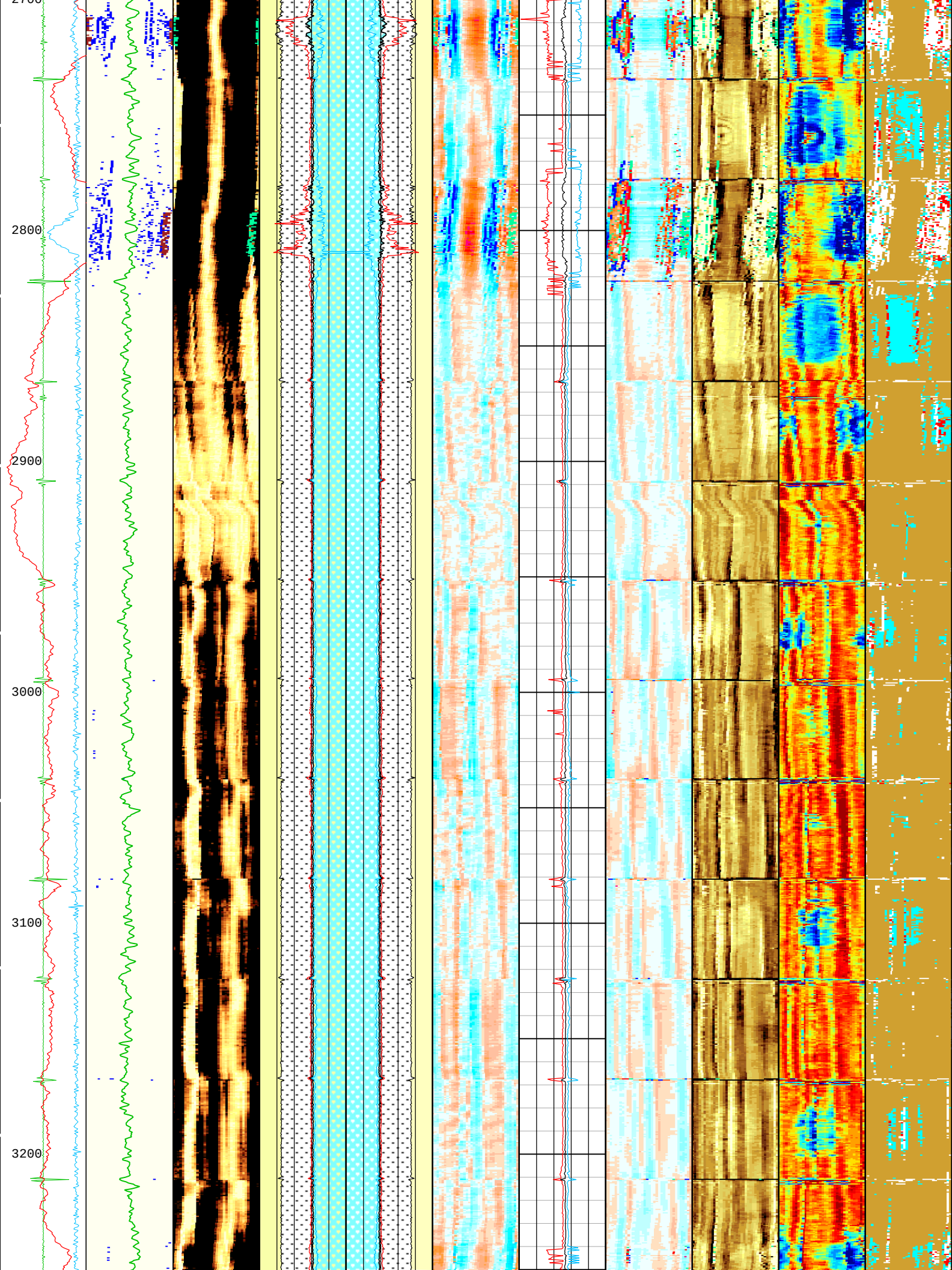
2500
2600
2700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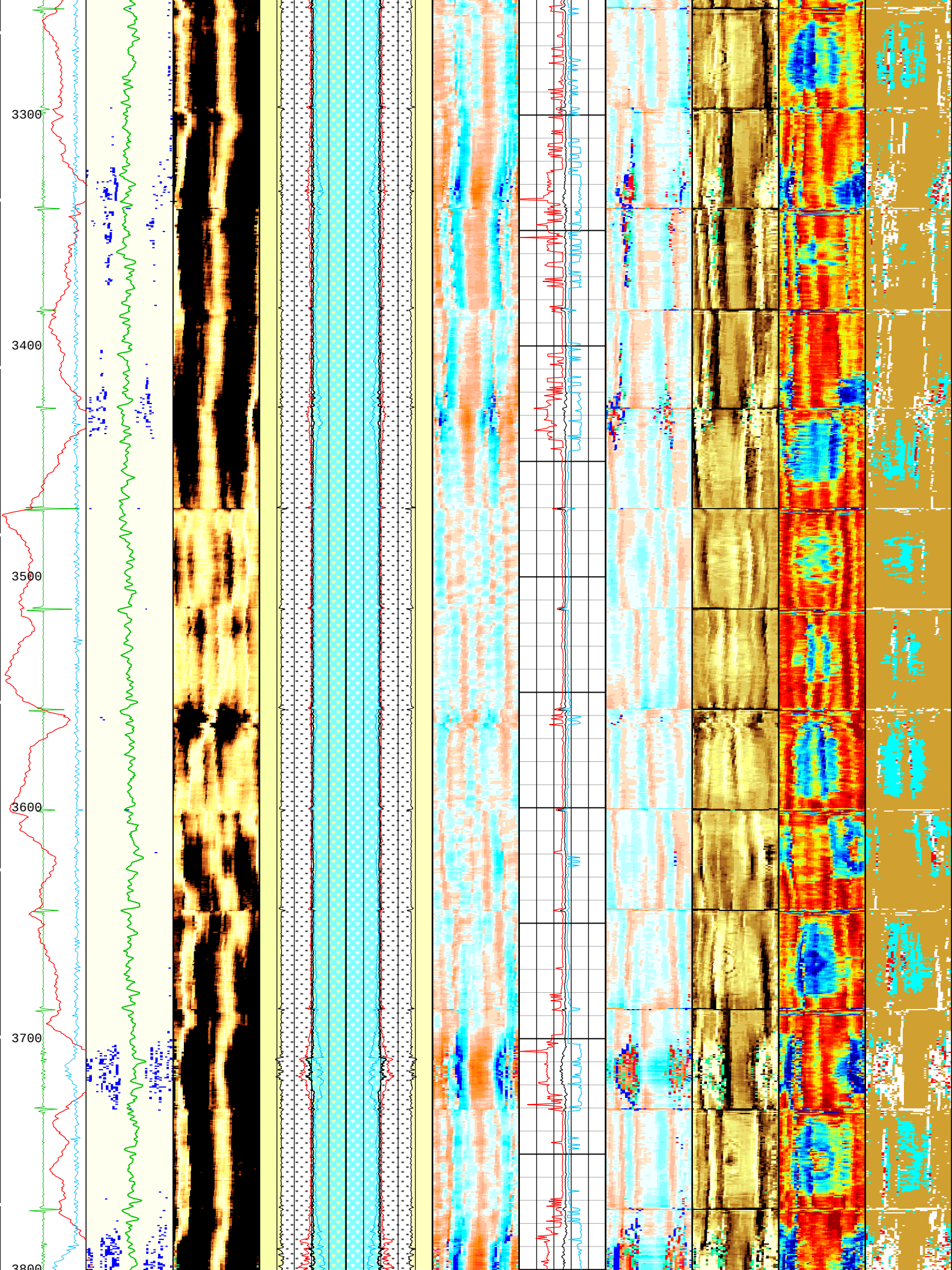
2900
3000
3100
3200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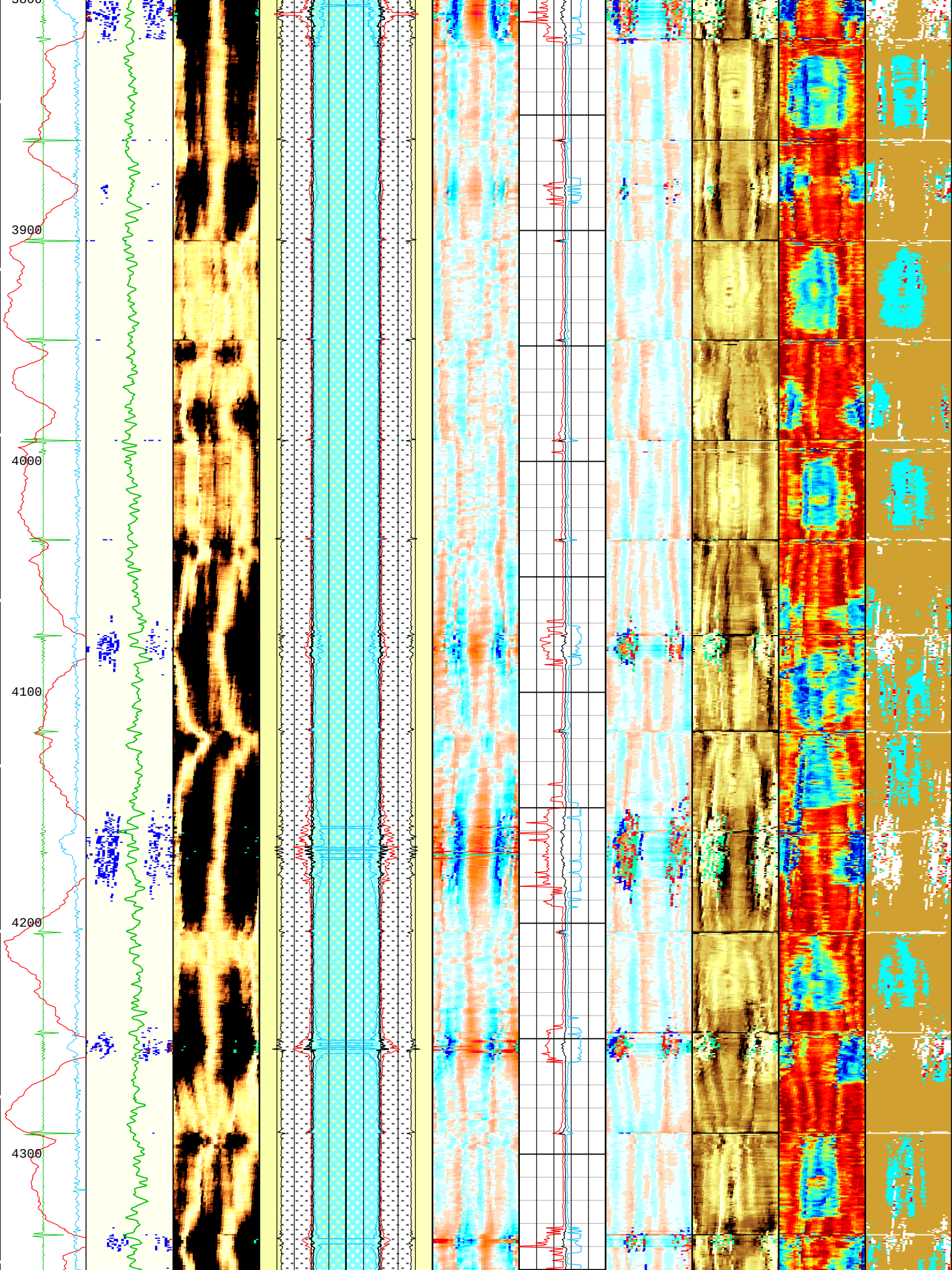
3400
3500
3600
3700
3800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4200
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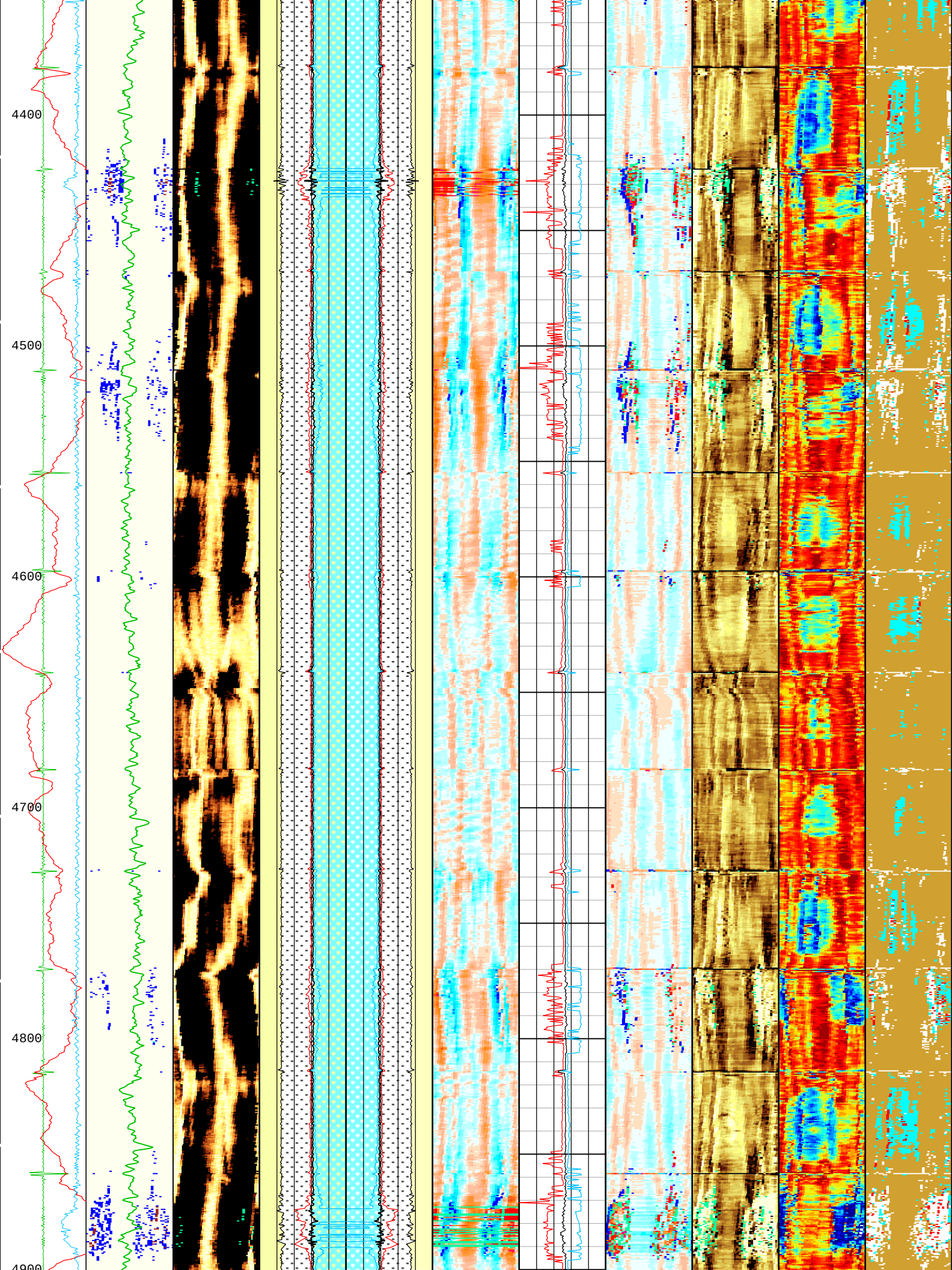
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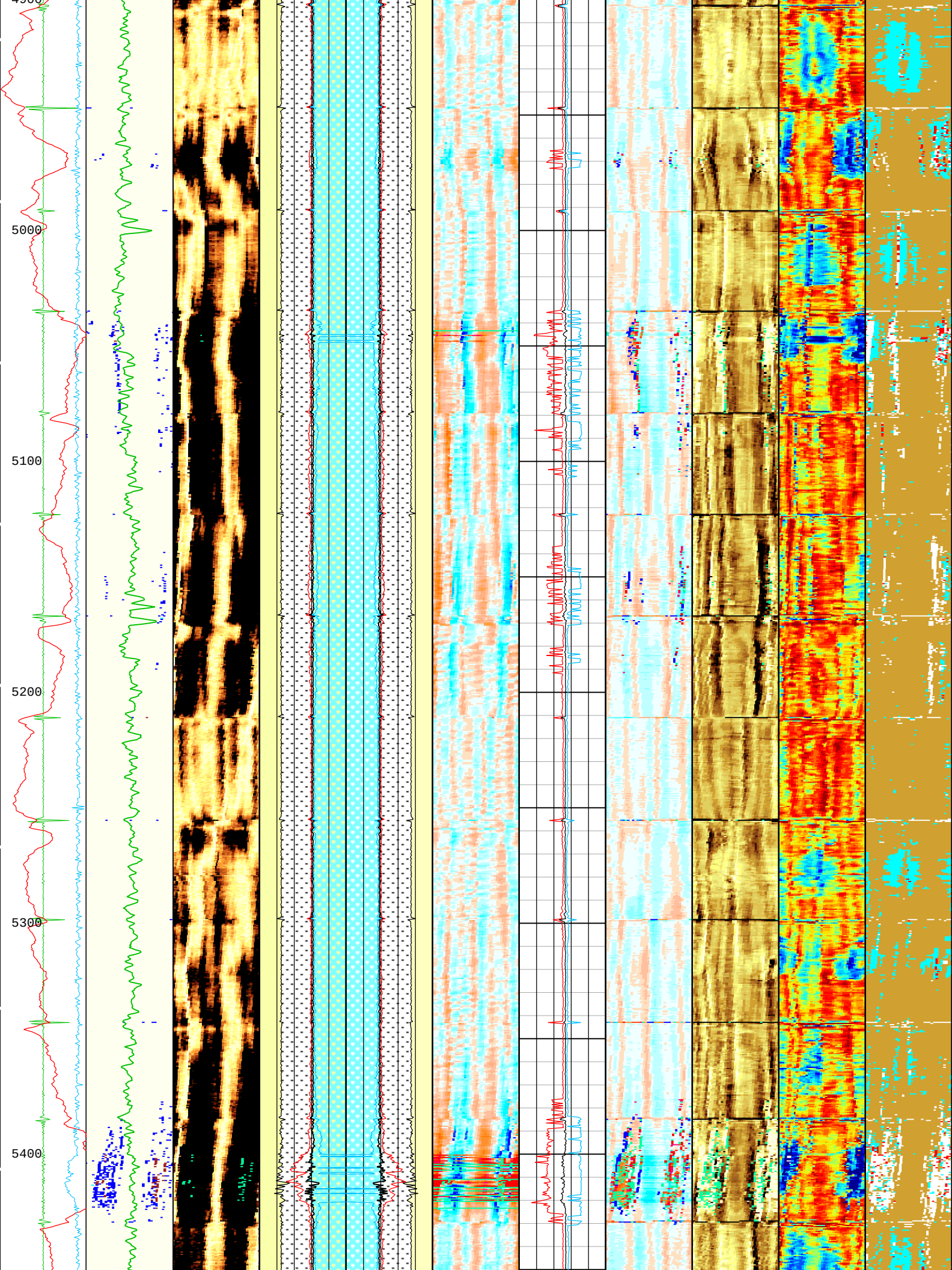
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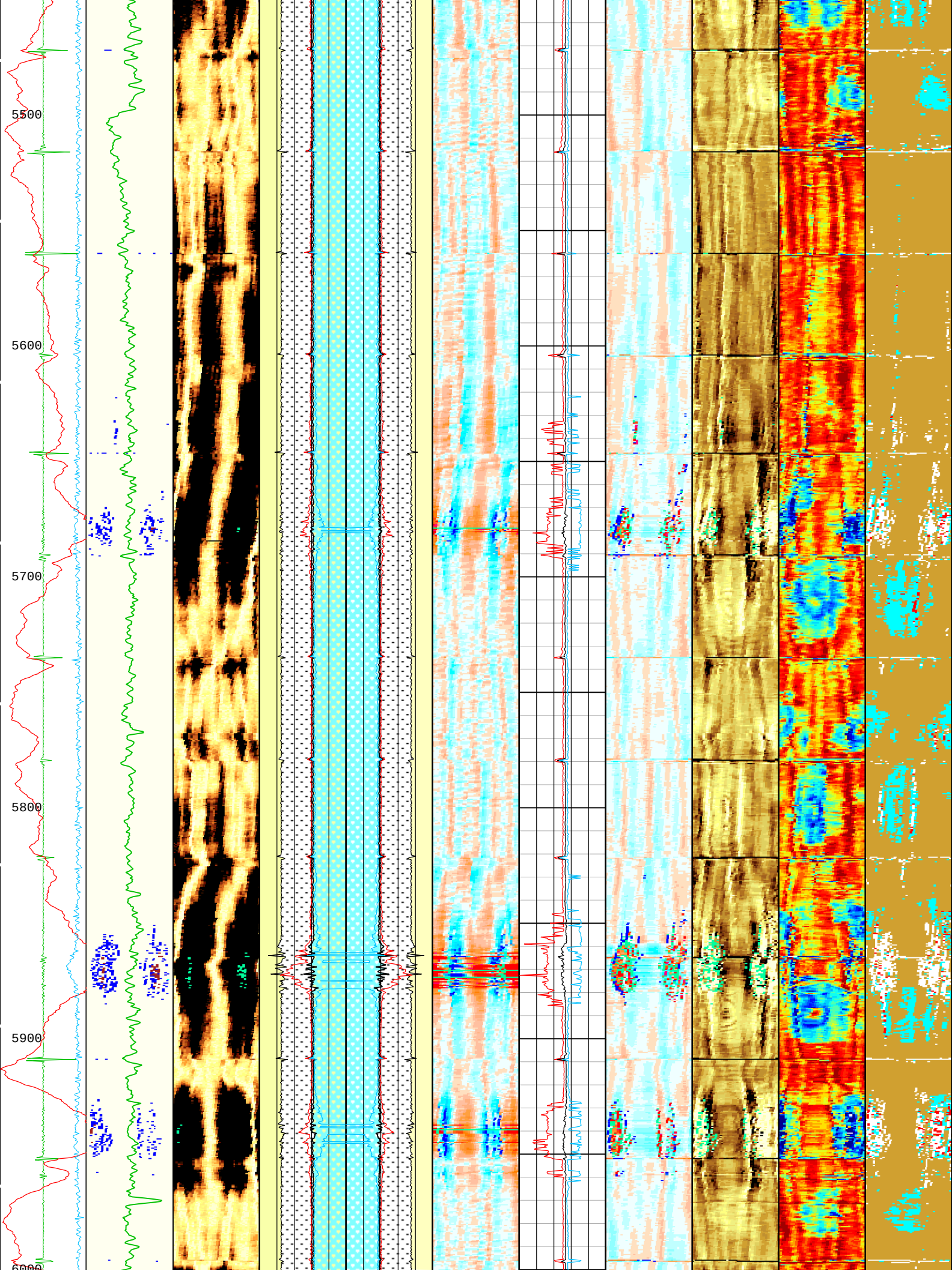
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5800
5900
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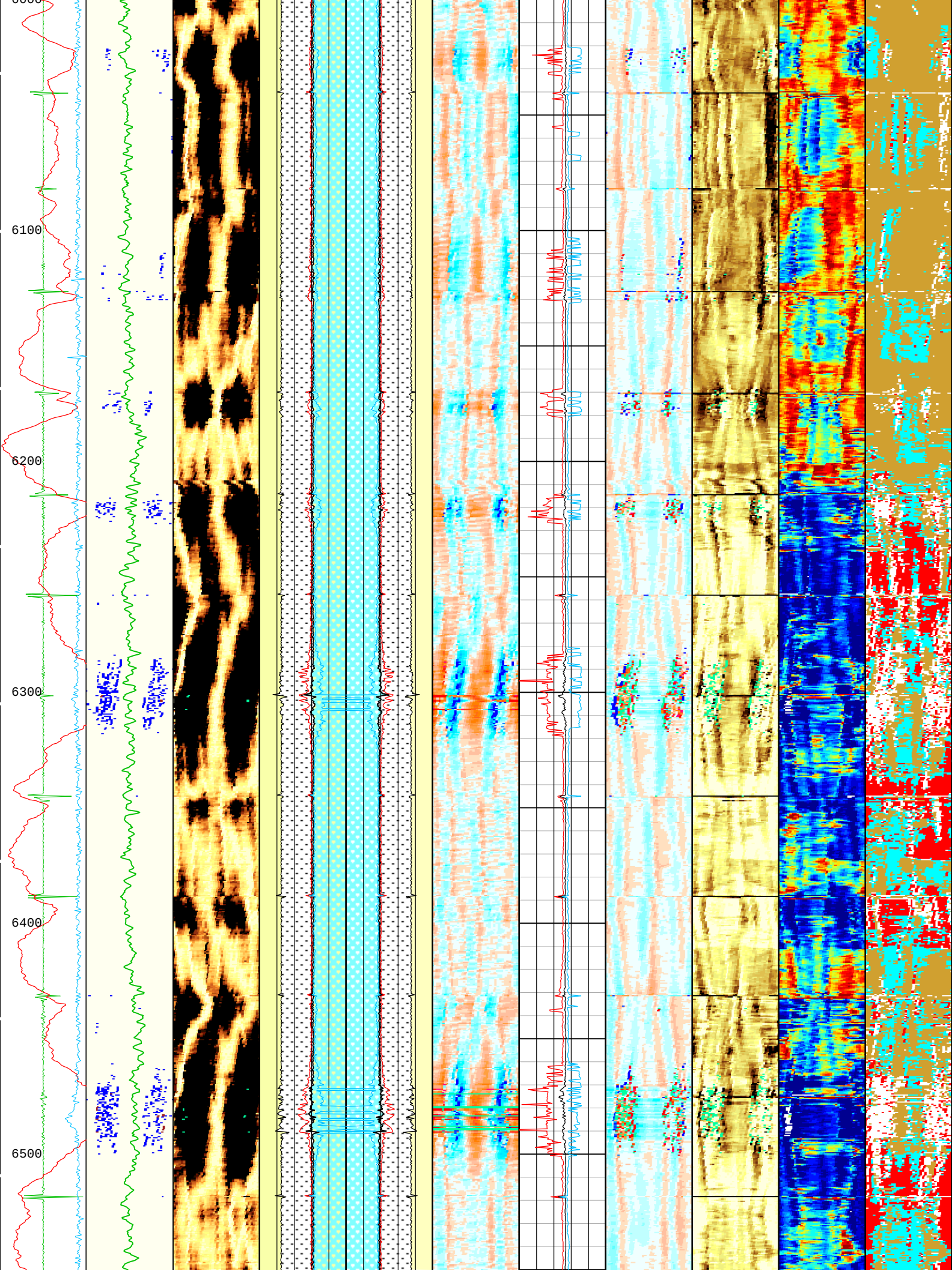
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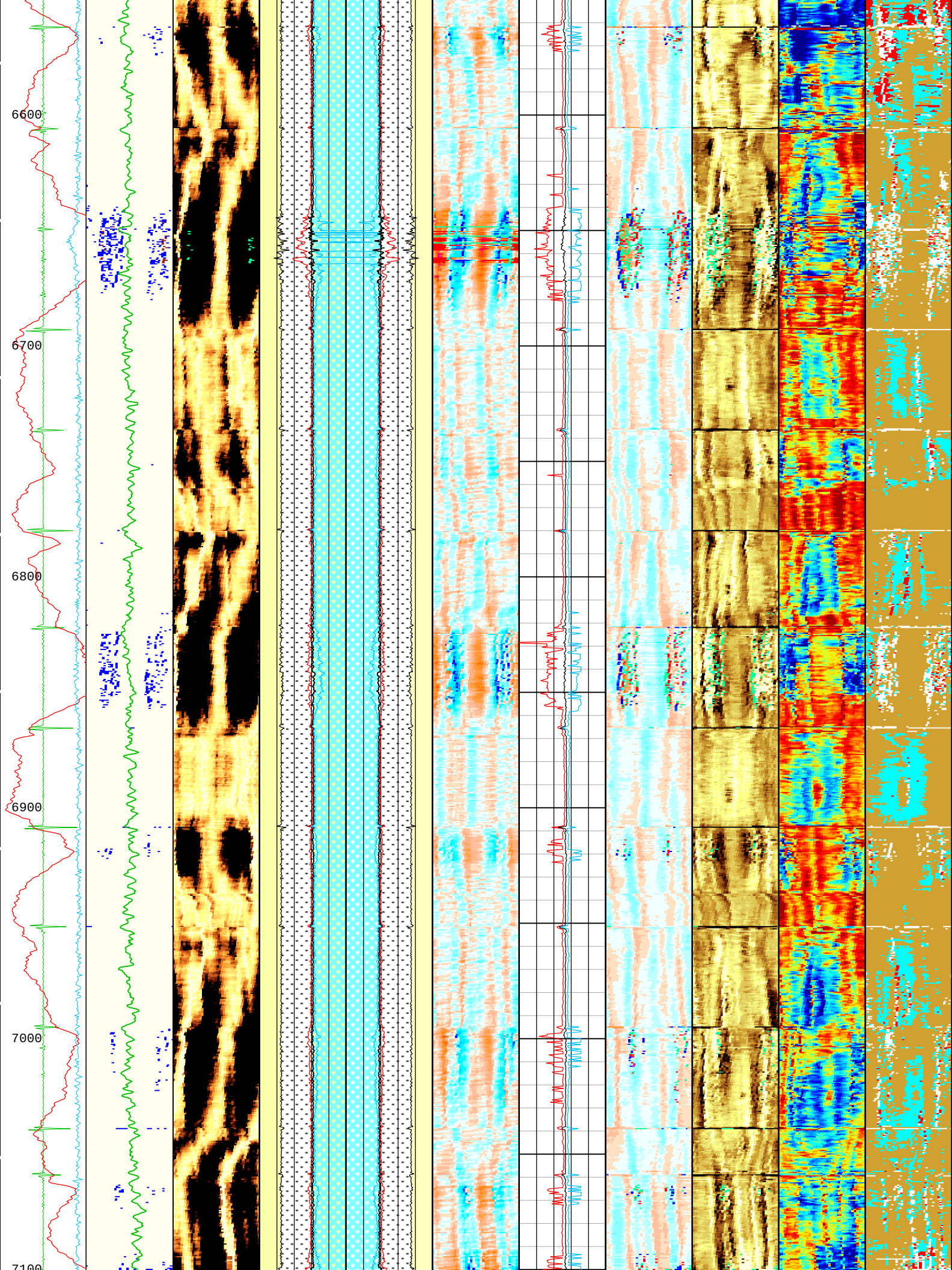
6200
6300
6400
6500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6700
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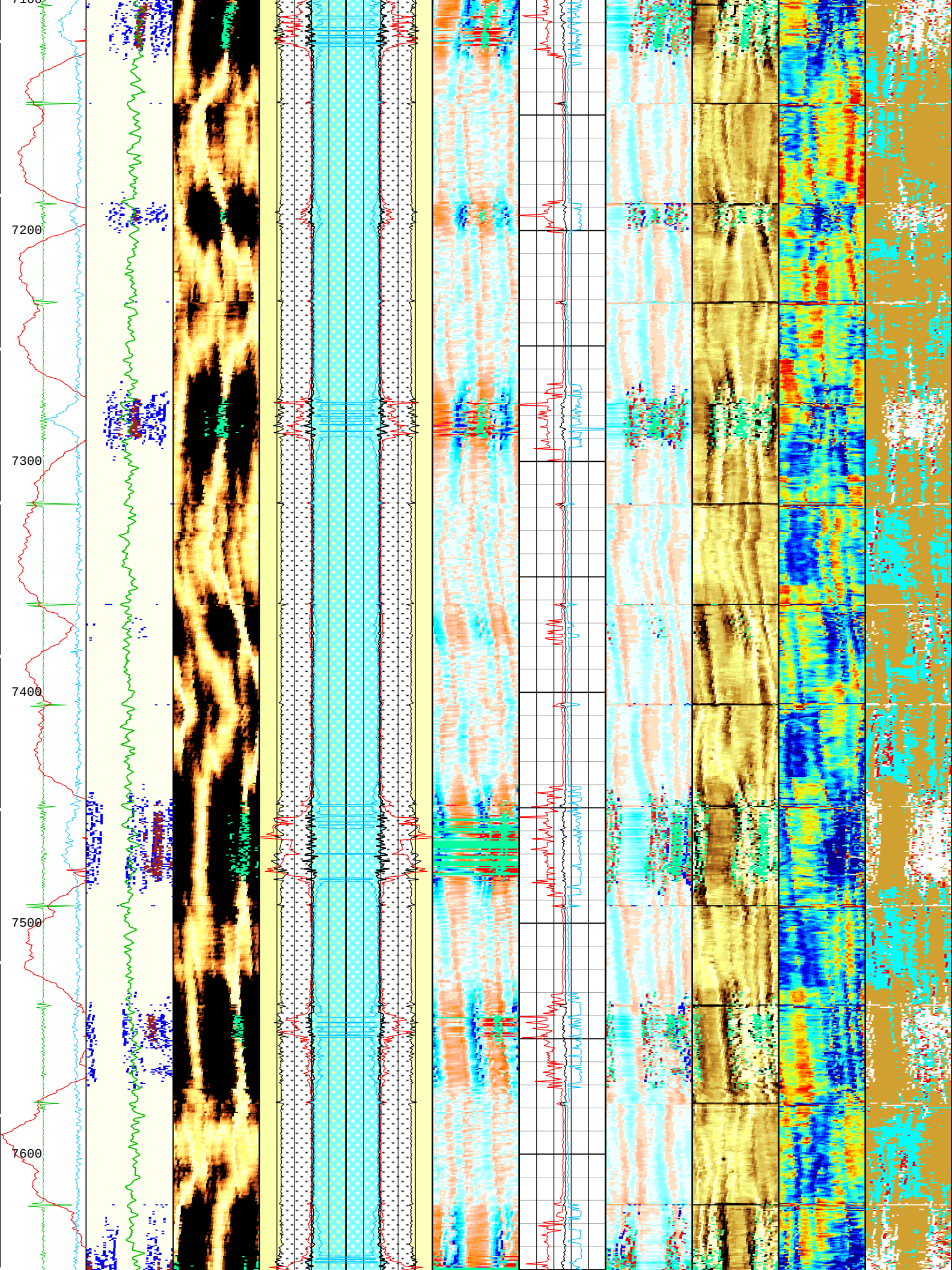
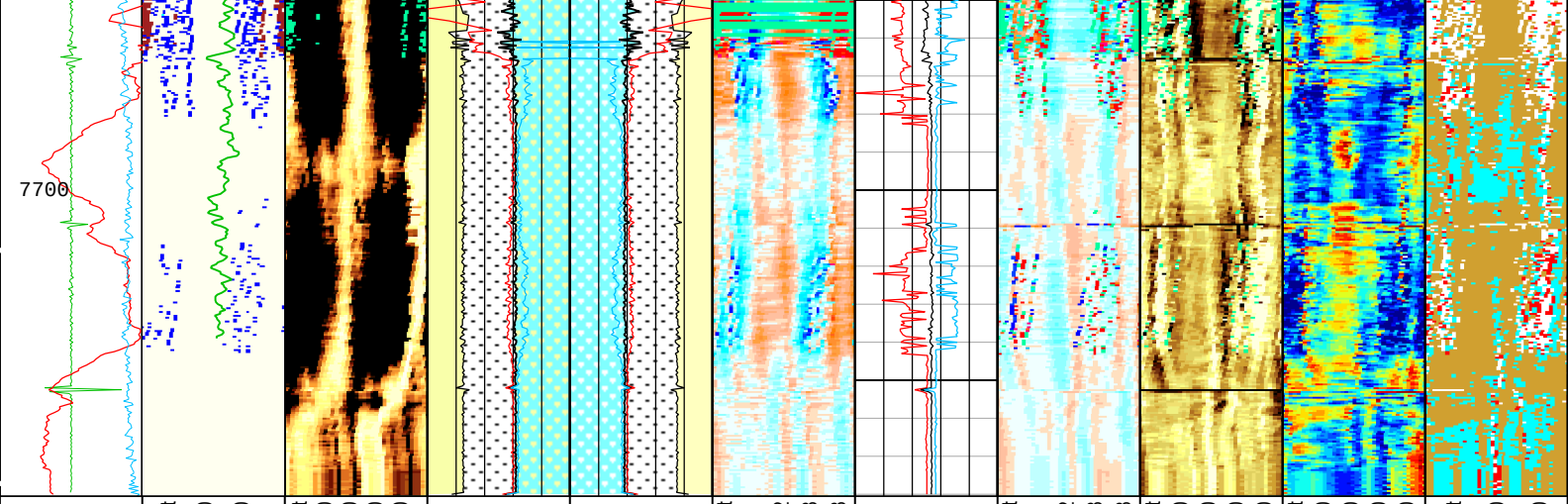
7000
7100


7200
7300
7400
7500
7600



Casing Collar Locator Ultrasonic (CCLU) USIT-E
-20 in 20

Amplitude of Eccentering (ECCE) USIT-E
0 in 0.5

Motor Revolution Speed (RSAV) USIT-E
6 c/s 7.5

Absent 1.500 3.500
Explicit Normalization
USIT - USIT Processing Flags (UFLG) USIT-E
Orientation: Top of Hole
U L B R U

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

Gamma Ray (ECGR_EDTC) EDTC-B
0 gAPI 150

Absent -5.200 -3.600 -2.000 -0.400
Explicit Normalization
USIT - Amplitude of Wave (AWBK) USIT-E
(dB)
Orientation: Top of Hole
U L B R U

External Radii Average (ERAV) USIT-E
3 in 2

Internal Radius Averaged Value (IRAV) USIT-E
3 in 2

Internal Radius Maximum Value (IRMX) USIT-E
3 in 2

Internal Radius Minimum Value (IRMN) USIT-E
3 in 2

External Radii Average (ERAV) USIT-E
2 in 3

Internal Radius Averaged Value (IRAV) USIT-E
2 in 3

Internal Radius Maximum Value (IRMX) USIT-E
2 in 3

Internal Radius Minimum Value (IRMN) USIT-E
2 in 3

Absent -0.051 -0.012 0.028 0.068
Explicit Normalization
USIT - Internal Radii Normalized (IRBK) USIT-E
(in)
Orientation: Top of Hole
U L B R U

Thickness Minimum Value (THMN) USIT-E
0.1 in 0.6

Thickness Average Value (THAV) USIT-E
0.1 in 0.6

Thickness Maximum Value (THMX) USIT-E
0.1 in 0.6

Absent -0.051 -0.012 0.028 0.068
Explicit Normalization
USIT - Casing Thickness Normalized (THBK) USIT-E
(in)
Orientation: Top of Hole
U L B R U

Absent 1.500 3.500 5.500 7.500
Custom Normalization
USIT - Acoustic Impedance (AIBK) USIT-E
(Mrayl)
Orientation: Top of Hole
U L B R U

Absent 42.000 66.000 90.000 114.000
Custom Normalization
USIT - Flexural Attenuation (UFAK) USIT-E
(dB/m)
Orientation: Top of Hole
U L B R U

Absent 1.500 3.500
Explicit Normalization
USIT - Solid Liquid Gas Sorted Color Map (USLP) USIT-E
Orientation: Top of Hole
U L B R U

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

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

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

TIME_1900 - Time Marked every 60.00 (s)

Description: USI IBC SLG Composite Format: Log (Import (2) of IBC SLG Composite) Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 08-Oct-2019 17:29:57

Channel Processing Parameters

1A: Parameters

Parameter	Description	Tool	Value	Unit
ISSBAR	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BS	Bit Size	WLSESSION	Depth Zoned	in
CBLO	Casing Bottom (Logger)	WLSESSION	13650	ft
CDEN	Cement Density	USIT-E	12.5	lbm/gal

CDEN	Cement Density	EDTC-B	16.69	lbm/gal
CMTY(U-USIT_CEMT)	Cement Type	USIT-E	Regular Cement	
DFD	Drilling Fluid Density	Borehole	9	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	192	us/ft
FD	Fluid Density	USIT-E	10.5	lbm/gal
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS(RT)	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	BS(RT)	
HEMA	Hematite Presence Flag	Borehole	No	
IBC_FVEL_SEL	IBC Fluid Velocity Selection	USIT-E	Automatic	
IBC_OFFSET_SEL	IBC Flexural Offset Selector	USIT-E	UFAO	
IBC_ZMUD_SEL	IBC Mud Impedance Selection	USIT-E	Theoretical	
ICE_PROCESS	ICE Processing	USIT-E	Yes	
IMAR	Image Rotation	USIT-E	RB	
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-E	22.44	us
MUD_N_THE	Theoretical Mud Normalization Factor	USIT-E	1.1	
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	1.6	Mrayl
U-USIT_UFAO	SIT Flexural Attenuation Offset	USIT-E	-46.82	dB/m
U-USIT_UIAP	IBC Answer Product Enabled	USIT-E	SolidLiquidGasMap	
ZMUD	Acoustic Impedance of Mud	Borehole	1.71	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-E	2.6	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

Depth Zone Parameters

Parameter	Value	Start (ft)	Stop (ft)
BS	13.5	12	2405
BS	8.5	2405	7780.5

All depth are actual.

Tool Control Parameters

1A: Parameters

Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	18	dB
EMXV	EMEX Voltage	USIT-E	Time Zoned	V
IBC_ACQTYPE	IBC Acquisition type	USIT-E	1 MHz	
IBC_FLEXDBP	IBC Flex Duration Before Peak	USIT-E	30	us
ICE2_ACQ	Ultrasonic ICE2 Acquisition	USIT-E	Yes	
U-USIT_UFWB	Far Receiver Window Begin Time	USIT-E	133	us
U-USIT_UFWE	Far Receiver Window End Time	USIT-E	173	us
U-USIT_UNWB	Near Receiver Window Begin Time	USIT-E	102	us
U-USIT_UNWE	Near Receiver Window End Time	USIT-E	142	us
UPAT	USIT Emission Pattern	USIT-E	Pattern 375 KHz	
UWKM	USIT Working Mode	USIT-E	10 deg at 6.0 in	
U-USIT_UTAN	Transducer Angles	USIT-E	38_DEG	
VRES	Vertical Resolution	USIT-E	6.0 in	
WINB	Window Begin Time	USIT-E	28.35	us
WINE	Window End Time	USIT-E	Time Zoned	us

Time Zone Parameters

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)

EMXV	80	29-Sep-2019 18:56:43	29-Sep-2019 18:57:52	7781.58	7723.84
EMXV	95	29-Sep-2019 18:57:52	29-Sep-2019 18:58:09	7723.84	7705.88
EMXV	100	29-Sep-2019 18:58:09	29-Sep-2019 19:01:52	7705.88	7459.14
EMXV	115	29-Sep-2019 19:01:52	29-Sep-2019 19:08:33	7459.14	7013.74
EMXV	120	29-Sep-2019 19:08:33	29-Sep-2019 19:11:26	7013.74	6819.9
EMXV	125	29-Sep-2019 19:11:26	29-Sep-2019 20:00:19	6819.9	3385.84
EMXV	115	29-Sep-2019 20:00:19	29-Sep-2019 20:00:25	3385.84	3378.43
EMXV	125	29-Sep-2019 20:00:25	29-Sep-2019 20:49:46	3378.43	54.44
WINE	68.35	29-Sep-2019 18:56:43	29-Sep-2019 19:07:19	7781.58	7096.72
WINE	72.69	29-Sep-2019 19:07:19	29-Sep-2019 19:07:22	7096.72	7092.86
WINE	74.13	29-Sep-2019 19:07:22	29-Sep-2019 19:32:16	7092.86	5387.39
WINE	71.54	29-Sep-2019 19:32:16	29-Sep-2019 20:21:17	5387.39	1842.98
WINE	72.69	29-Sep-2019 20:21:17	29-Sep-2019 20:23:00	1842.98	1719.91
WINE	74.71	29-Sep-2019 20:23:00	29-Sep-2019 20:49:46	1719.91	54.44

All depth are at tool zero.

1A

IBC GOODWIN MAIN PASS @10DEG X 6IN @0PSI [0.1:100]

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
1A	Log[4]:Up	Up	54.44 ft	7781.58 ft	29-Sep-2019 6:56:43 PM	29-Sep-2019 8:49:46 PM	ON	0.00 ft	Yes

All depths are referenced to toolstring zero

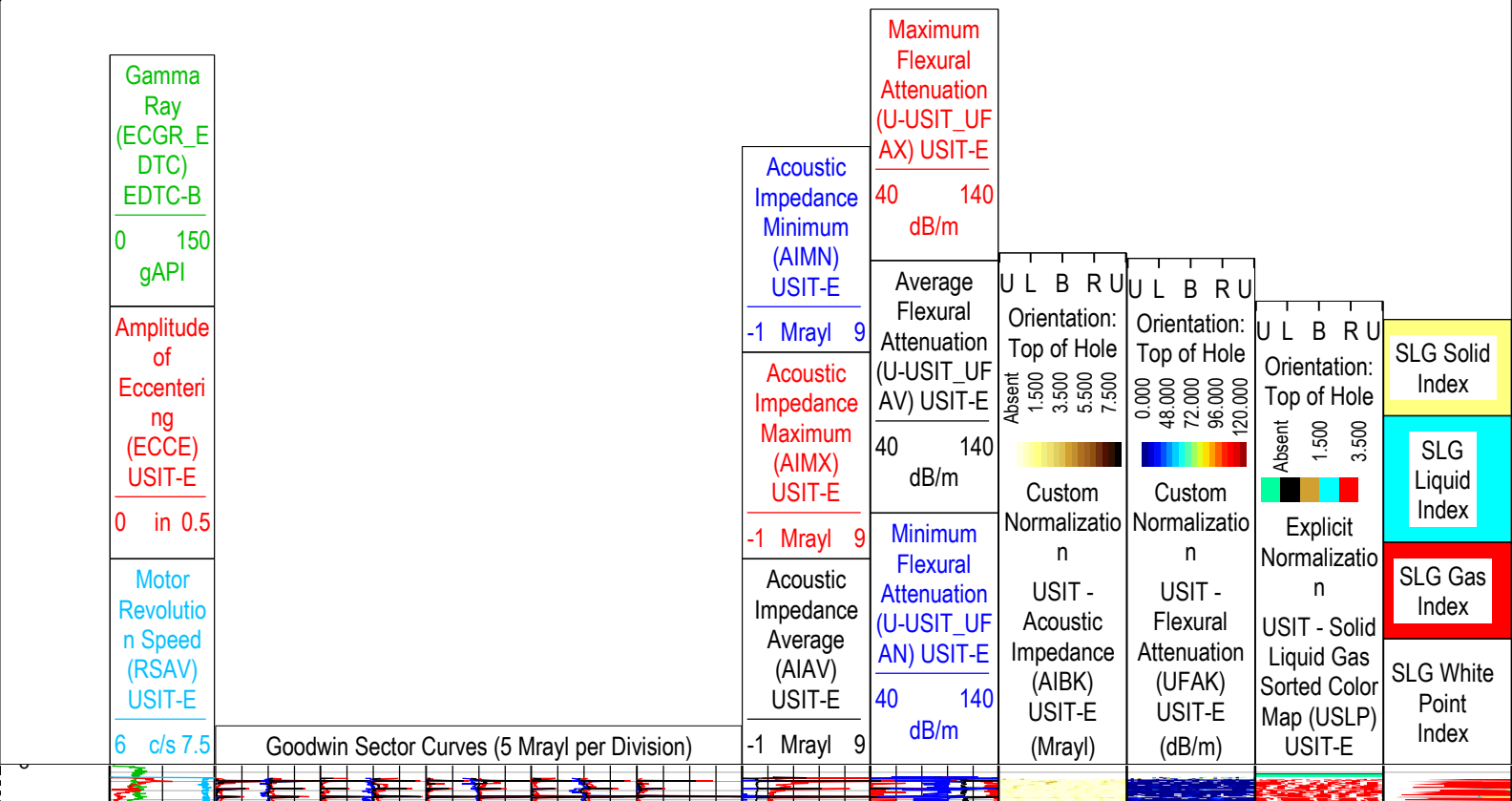
Log

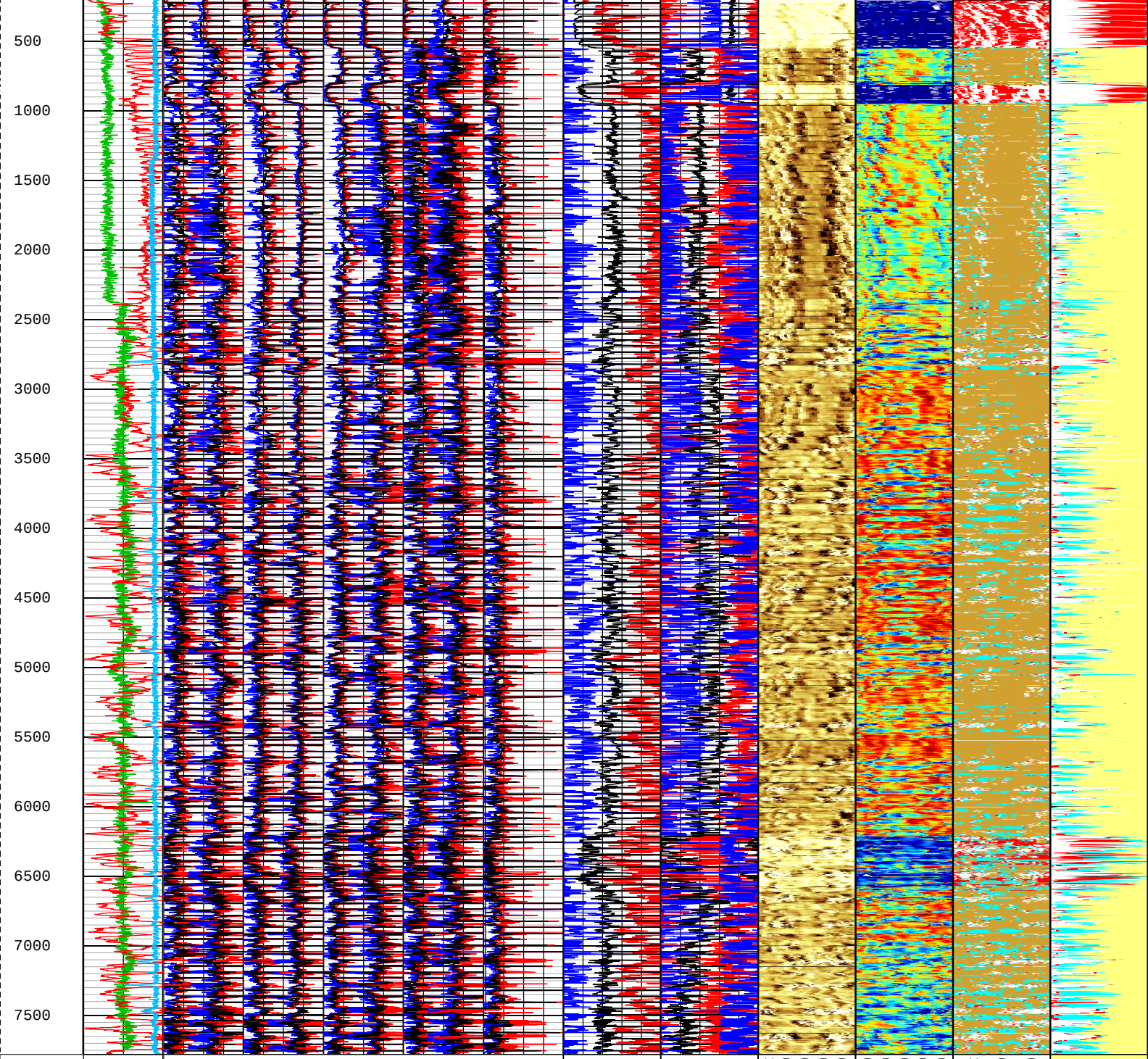
Company:Crestone Peak Resources Operating, LLC Well:Kugel 1M-18H-H267

1A: Log[4]:Up:S008

Description: USI Goodwin Format: Log (Import (2) of IBC Goodwin) Index Scale: 0.1 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 08-Oct-2019 17:30:43

TIME_1900 - Time Marked every 60.00 (s)





Gamma Ray (ECGR_EDTC) EDTC-B
0 150 gAPI

Amplitude of Eccentering (ECCE) USIT-E
0 in 0.5

Motor Revolution Speed (RSAV)

Goodwin Sector Curves (5 Mrayl per Division)

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

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

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

Maximum Flexural Attenuation (U-USIT_UFAX) USIT-E
40 140 dB/m

Average Flexural Attenuation (U-USIT_UFAV) USIT-E
40 140 dB/m

Minimum Flexural Attenuation (U-USIT_UF

Absent 1.500 3.500 5.500 7.500
Custom Normalization
USIT - Acoustic Impedance (AIBK) USIT-E (Mrayl)
Orientation: Top of Hole
U L B R U

0.000 48.000 72.000 96.000 120.000
Custom Normalization
USIT - Flexural Attenuation (UFAK) USIT-E (dB/m)
Orientation: Top of Hole
U L B R U

Absent 1.500 3.500
Explicit Normalization
USIT - Solid Liquid Gas Sorted Color Map (USLP) USIT-E
Orientation: Top of Hole
U L B R U

SLG Solid Index
SLG Liquid Index
SLG Gas Index
SLG White Point Index

USIT-E
6 c/s 7.5

AN) USIT-E
40 140
dB/m

TIME_1900 - Time Marked every 60.00 (s)

Description: USI Goodwin Format: Log (Import (2) of IBC Goodwin) Index Scale: 0.1 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 08-Oct-2019 17:30:43

1A

IBC SLG REPEAT PASS 1 @10DEG X 6IN @0PSI [5:100]

Software Version

Acquisition System	Version
Maxwell 2018 SP1	8.1.99839.3100

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
1A	Log[3]:Up	Up	7247.66 ft	7796.84 ft	29-Sep-2019 6:40:11 PM	29-Sep-2019 6:49:18 PM	ON	0.00 ft	Yes

All depths are referenced to toolstring zero

Log

Company:Crestone Peak Resources Operating, LLC Well:Kugel 1M-18H-H267

1A: Log[3]:Up:S008

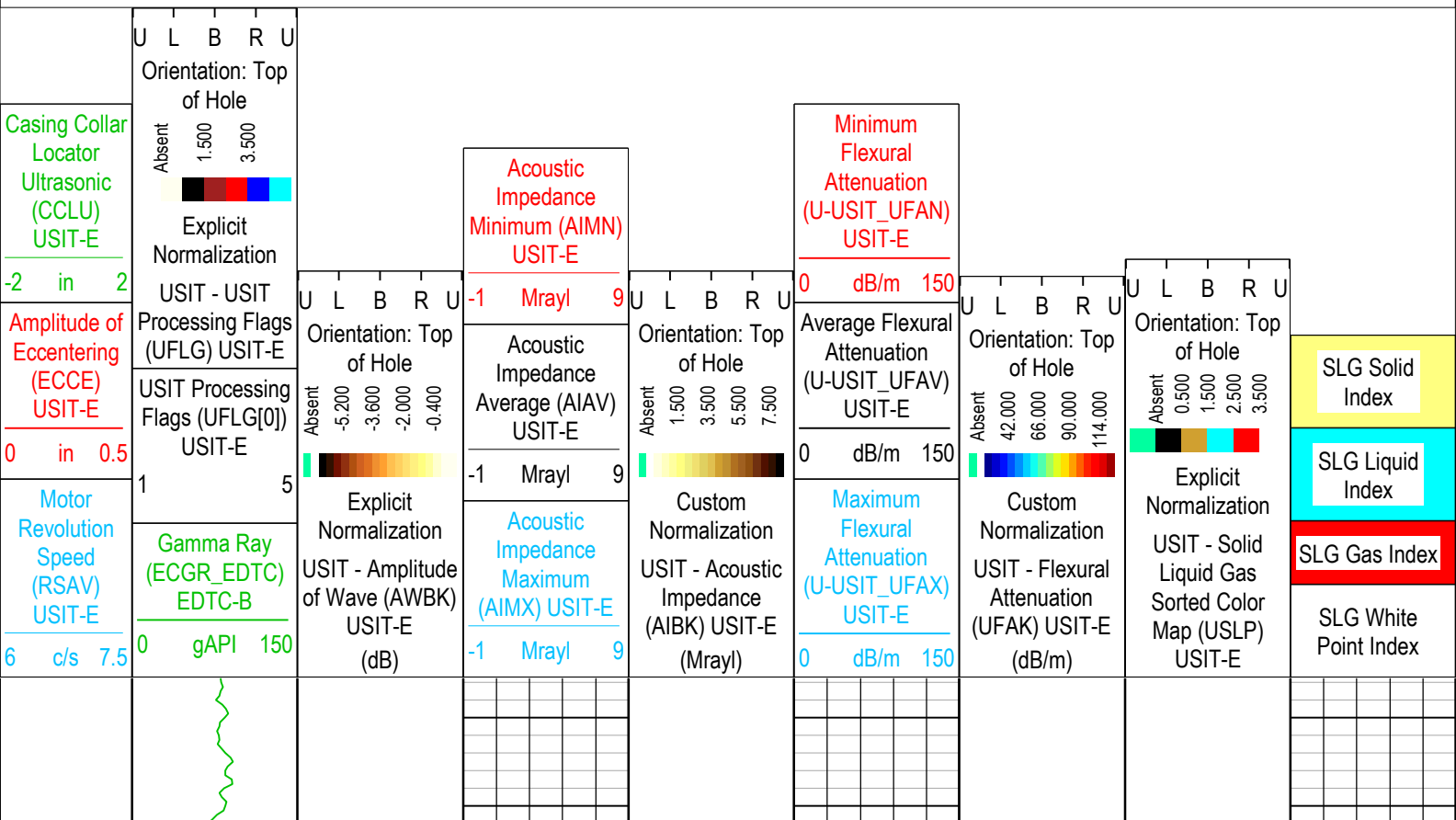
Description: USI IBC SLG Format: Log (Import (2) of IBC SLG) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 08-Oct-2019 17:30:59

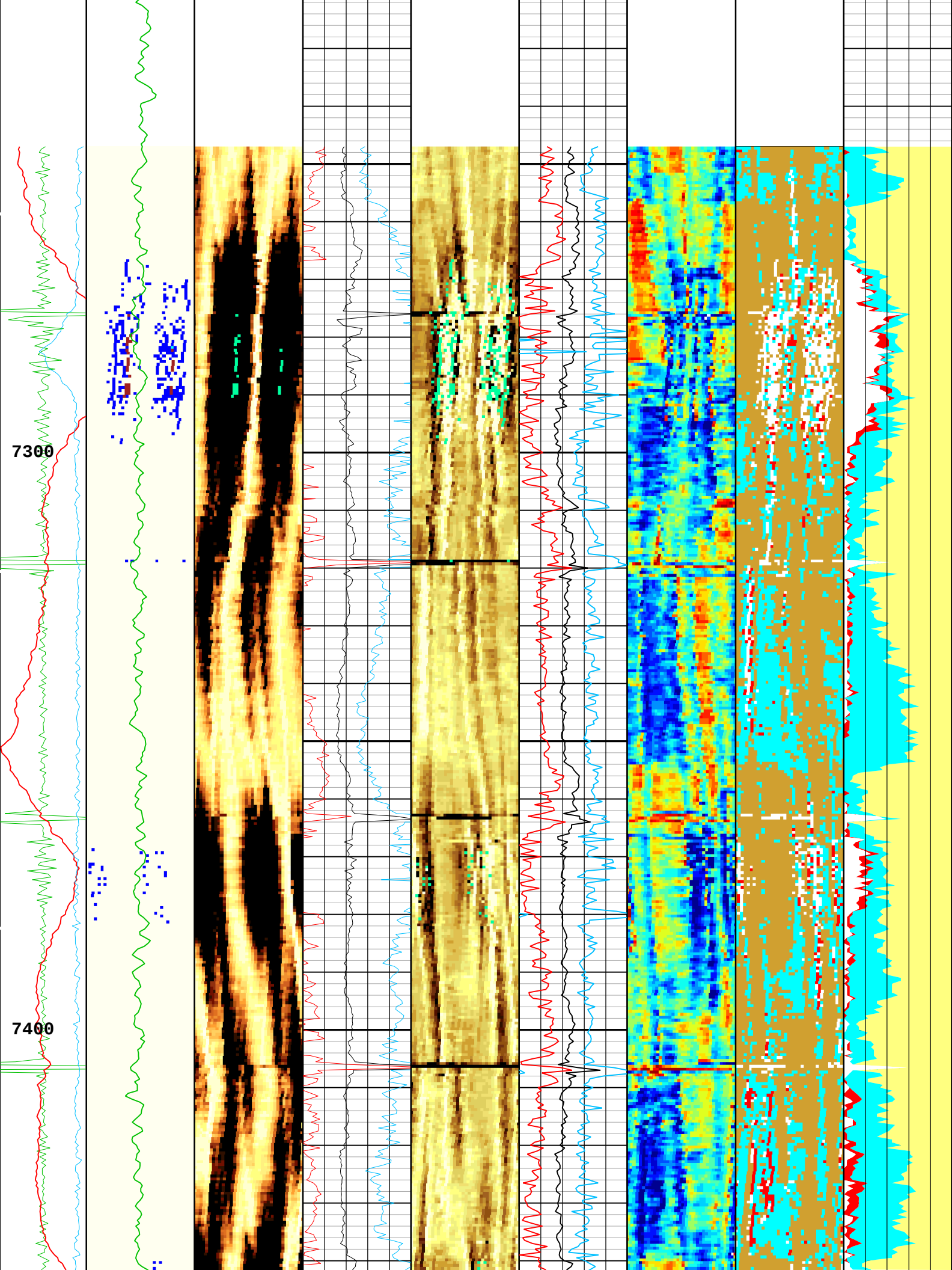
TIME_1900 - Time Marked every 60.00 (s)

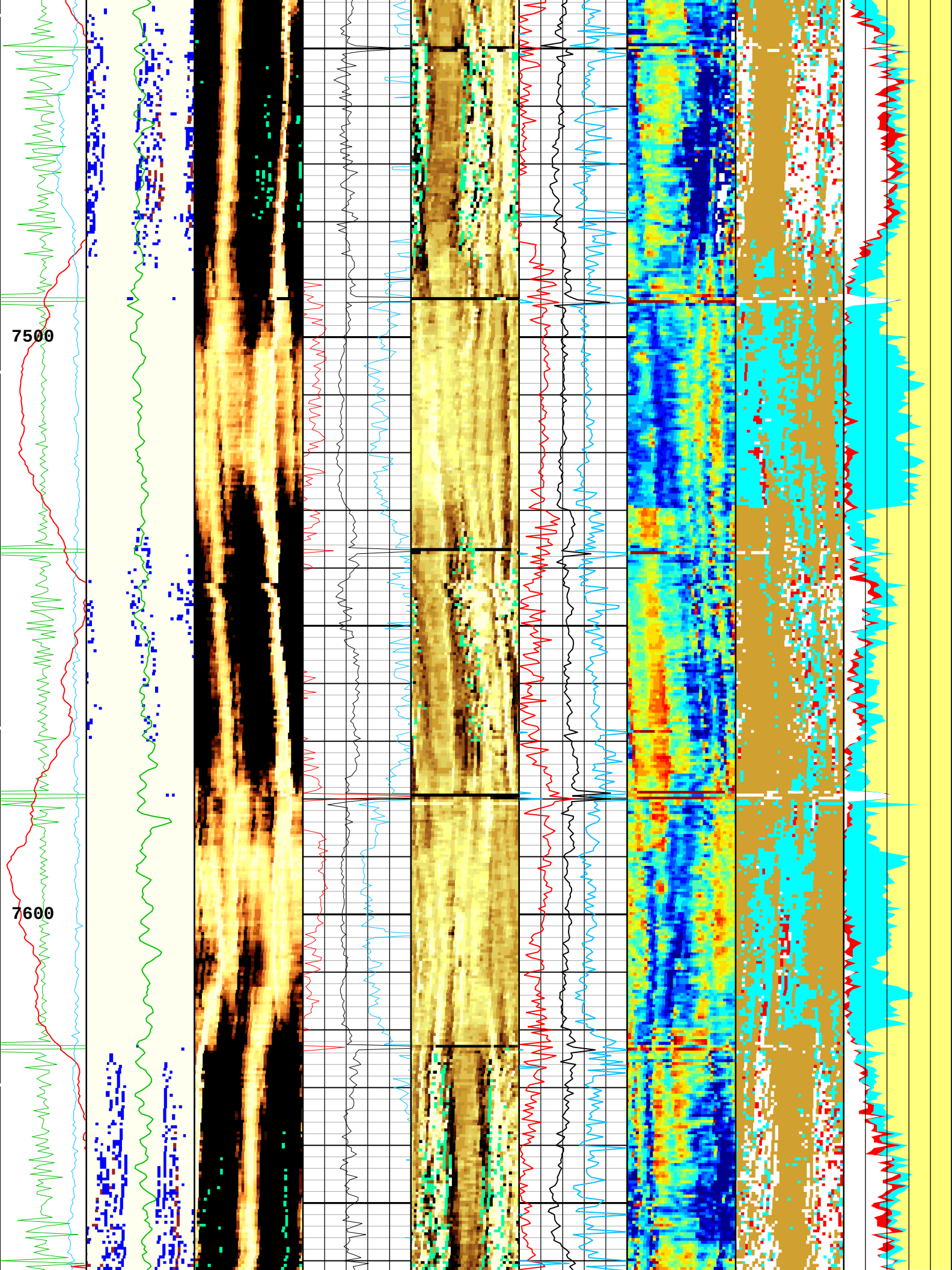
USIT Processing Flags (UFLG[0]) USIT-E

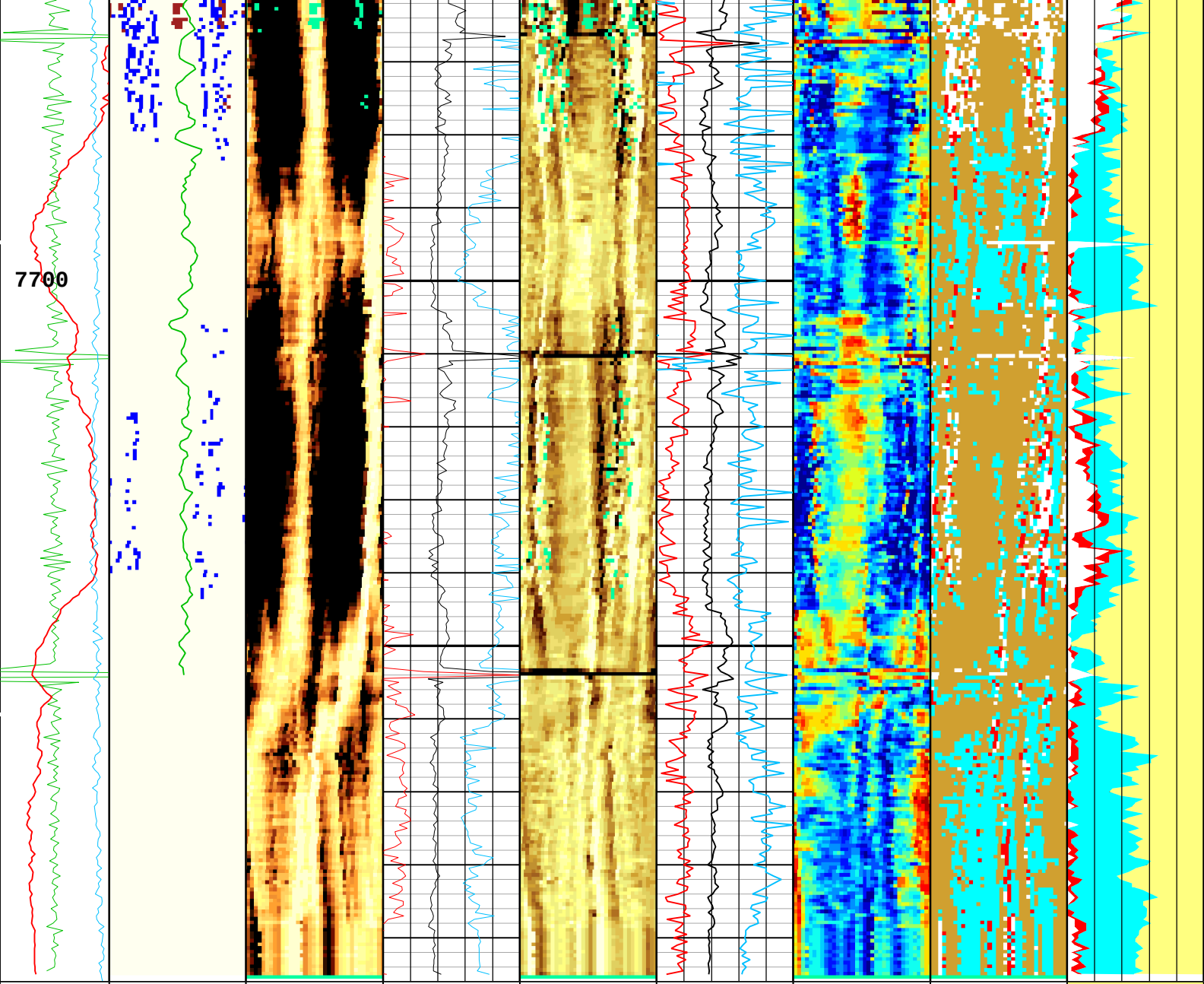
1 - UFLG 1 Value within [0.0 - 1.5] - :
2 - UFLG 2 Value within [1.5 - 2.5] - :
3 - UFLG 3 Value within [2.5 - 3.5] - :
4 - UFLG 4 UFLG 5 UFLG 6 Value within [3.5 - 6.5] - :
5 - UFLG 7 UFLG 8 UFLG 9 Value within [6.5 - 10] - :

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




7300
7400


7500
7600



Casing Collar Locator Ultrasonic (CCLU) USIT-E
-2 in 2

Amplitude of Eccentering (ECCE) USIT-E
0 in 0.5

Motor Revolution Speed (RSAV) USIT-E
6 c/s 7.5

Absent 1.500 3.500
Explicit Normalization
USIT - USIT Processing Flags (UFLG) USIT-E
Orientation: Top of Hole
U L B R U

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

Gamma Ray (ECGR_EDTC) EDTC-B
0 gAPI 150

Absent -5.200 -3.600 -2.000 -0.400
Explicit Normalization
USIT - Amplitude of Wave (AWBK) USIT-E (dB)
Orientation: Top of Hole
U L B R U

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

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

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

Absent 1.500 3.500 5.500 7.500
Custom Normalization
USIT - Acoustic Impedance (AIBK) USIT-E (Mrayl)
Orientation: Top of Hole
U L B R U

Minimum Flexural Attenuation (U-USIT_UFAN) USIT-E
0 dB/m 150

Average Flexural Attenuation (U-USIT_UFAV) USIT-E
0 dB/m 150

Maximum Flexural Attenuation (U-USIT_UFAX) USIT-E
0 dB/m 150

Absent 42.000 66.000 90.000 114.000
Custom Normalization
USIT - Flexural Attenuation (UFAK) USIT-E (dB/m)
Orientation: Top of Hole
U L B R U

Absent 0.500 1.500 2.500 3.500
Explicit Normalization
USIT - Solid Liquid Gas Sorted Color Map (USLP) USIT-E
Orientation: Top of Hole
U L B R U

SLG Solid Index
SLG Liquid Index
SLG Gas Index
SLG White Point Index

USIT Processing Flags (UFLG[0]) USIT-E
1 - UFLG 1 Value within [0.0 - 1.5] - :
UTIM Error

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

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

TIME_1900 - Time Marked every 60.00 (s)

Description: USI IBC SLG Format: Log (Import (2) of IBC SLG) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 08-Oct-2019 17:30:59

Channel Processing Parameters

1A: Parameters

Parameter	Description	Tool	Value	Unit
ISSBAR	Barite Mud Presence Flag	Borehole	No	
BERJ	Bad Echo Rejection	USIT-E	On	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BS	Bit Size	WLSESSION	8.5	in
CASING_PRATIO	Casing Poisson Ratio	USIT-E	Standard Poisson Ratio	
CBLO	Casing Bottom (Logger)	WLSESSION	13650	ft
CDEN	Cement Density	USIT-E	12.5	lbm/gal
CDEN	Cement Density	EDTC-B	16.69	lbm/gal
CMTY(U-USIT_CEMT)	Cement Type	USIT-E	Regular Cement	
DFD	Drilling Fluid Density	Borehole	9	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	192	us/ft
FD	Fluid Density	USIT-E	10.5	lbm/gal
FDII	FPM Data Interpolation Interval	USIT-E	0	ft
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS(RT)	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	BS(RT)	
GR_MULTIPLIER	Gamma Ray Multiplier	EDTC-B	1	
HEMA	Hematite Presence Flag	Borehole	No	
IBC_FRP_OFFSET	IBC Flexural Offset from Free Pipe	USIT-E	0	dB/m
IBC_FVEL_SEL	IBC Fluid Velocity Selection	USIT-E	Automatic	
IBC_OFFSET_SEL	IBC Flexural Offset Selector	USIT-E	UFAO	
IBC_ZMUD_SEL	IBC Mud Impedance Selection	USIT-E	Theoretical	
ICE_PROCESS	ICE Processing	USIT-E	Yes	
IMAR	Image Rotation	USIT-E	RB	
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-E	22.44	us
MUD_N_THE	Theoretical Mud Normalization Factor	USIT-E	1.1	
RCOD	Reference Calibrator Outer Diameter	USIT-E	4.5	in
RCSO	Reference Calibrator Standoff	USIT-E	0.842	in
RCTH	Reference Calibrator Thickness	USIT-E	0.216	in
SOCN	Standoff Distance	EDTC-B	0.125	in
SOCO	Standoff Correction Option	EDTC-B	No	
THDH	Maximum Search Thickness (percentage of nominal)	USIT-E	130	%
THDL	Minimum Search Thickness (percentage of nominal)	USIT-E	70	%
TPOS_EDTC	Tool Position: Centered or Eccentered	EDTC-B	Eccentered	
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	1.6	Mrayl
U-USIT_UFAO	SIT Flexural Attenuation Offset	USIT-E	-46.82	dB/m
U-USIT_UIAP	IBC Answer Product Enabled	USIT-E	SolidLiquidGasMap	
USI_RPLUS	Ultrasonic R+ Processing	USIT-E	No	
THDP	Thickness Detection Policy	USIT-E	Fundamental	
VCAS	Ultrasonic Transversal Velocity in Casing	USIT-E	51.4	us/ft

VCAS	Ultrasonic Transversal Velocity in Casing	USIT-E	51.4	us/ft
ZCAS	Acoustic Impedance of Casing	USIT-E	46.25	Mrayl
ZINI	Initial Estimate of Cement Impedance	USIT-E	-1	Mrayl
ZMUD	Acoustic Impedance of Mud	Borehole	1.71	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-E	2.6	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

Tool Control Parameters

1A: Parameters

Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	18	dB
U-USIT_DDT5	USIC Downhole Decimation for T5 only	USIT-E	0_NONE	
DOT(DOS)	Distance between Opposite Transducer Faces	USIT-E	1.756	in
EMXV	EMEX Voltage	USIT-E	Time Zoned	V
HRES	Horizontal Resolution	USIT-E	10 deg	
IBC_ACQTYPE	IBC Acquisition type	USIT-E	1 MHz	
IBC_FLEXDBP	IBC Flex Duration Before Peak	USIT-E	30	us
ICE2_ACQ	Ultrasonic ICE2 Acquisition	USIT-E	Yes	
MOTOR_PROTECT	Motor Protection	USIT-E	On	
UACLV_PERM	Ultrasonic ACLV Permanent	USIT-E	Yes	
U-USIT_UFWB	Far Receiver Window Begin Time	USIT-E	133	us
U-USIT_UFWE	Far Receiver Window End Time	USIT-E	173	us
U-USIT_UNWB	Near Receiver Window Begin Time	USIT-E	102	us
U-USIT_UNWE	Near Receiver Window End Time	USIT-E	142	us
USFR	Ultrasonic Sampling Frequency	USIT-E	666667	Hz
UPAT	USIT Emission Pattern	USIT-E	Pattern 375 KHz	
UWKM	USIT Working Mode	USIT-E	10 deg at 6.0 in	
USSP	Ultrasonic Service	USIT-E	IBC	
U-USIT_UTAN	Transducer Angles	USIT-E	38_DEG	
VRES	Vertical Resolution	USIT-E	6.0 in	
WINB	Window Begin Time	USIT-E	Time Zoned	us
WINE	Window End Time	USIT-E	Time Zoned	us

Time Zone Parameters

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
EMXV	60	29-Sep-2019 18:40:11	29-Sep-2019 18:42:43	7796.84	7647.33
EMXV	75	29-Sep-2019 18:42:43	29-Sep-2019 18:42:55	7647.33	7634.71
EMXV	80	29-Sep-2019 18:42:55	29-Sep-2019 18:43:04	7634.71	7624.81
EMXV	90	29-Sep-2019 18:43:04	29-Sep-2019 18:44:31	7624.81	7535.89
EMXV	85	29-Sep-2019 18:44:31	29-Sep-2019 18:44:34	7535.89	7532.28
EMXV	95	29-Sep-2019 18:44:34	29-Sep-2019 18:45:21	7532.28	7483.75
EMXV	100	29-Sep-2019 18:45:21	29-Sep-2019 18:46:01	7483.75	7442.88
EMXV	110	29-Sep-2019 18:46:01	29-Sep-2019 18:48:28	7442.88	7291.31
EMXV	115	29-Sep-2019 18:48:28	29-Sep-2019 18:48:49	7291.31	7269.15
EMXV	120	29-Sep-2019 18:48:49	29-Sep-2019 18:49:18	7269.15	7247.66
WINB	28.35	29-Sep-2019 18:40:11	29-Sep-2019 18:42:03	7796.84	7691.38
WINB	30.4	29-Sep-2019 18:42:03	29-Sep-2019 18:42:28	7691.38	7664.85
WINB	29.82	29-Sep-2019 18:42:28	29-Sep-2019 18:42:29	7664.85	7663.05

WINB	27.52	29-Sep-2019 18:42:29	29-Sep-2019 18:49:18	7663.05	7247.66	
WINE	68.35	29-Sep-2019 18:40:11	29-Sep-2019 18:41:58	7796.84	7696.24	
WINE	71.25	29-Sep-2019 18:41:58	29-Sep-2019 18:43:58	7696.24	7569.74	
WINE	72.69	29-Sep-2019 18:43:58	29-Sep-2019 18:49:18	7569.74	7247.66	

All depth are at tool zero.

1A

IBC SLG COMPOSITE REPEAT PASS 1 @10DEG X 6IN @0PSI [2:100]

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
1A	Log[3]:Up	Up	7247.66 ft	7796.84 ft	29-Sep-2019 6:40:11 PM	29-Sep-2019 6:49:18 PM	ON	0.00 ft	Yes

All depths are referenced to toolstring zero

Log

Company:Crestone Peak Resources Operating, LLC Well:Kugel 1M-18H-H267

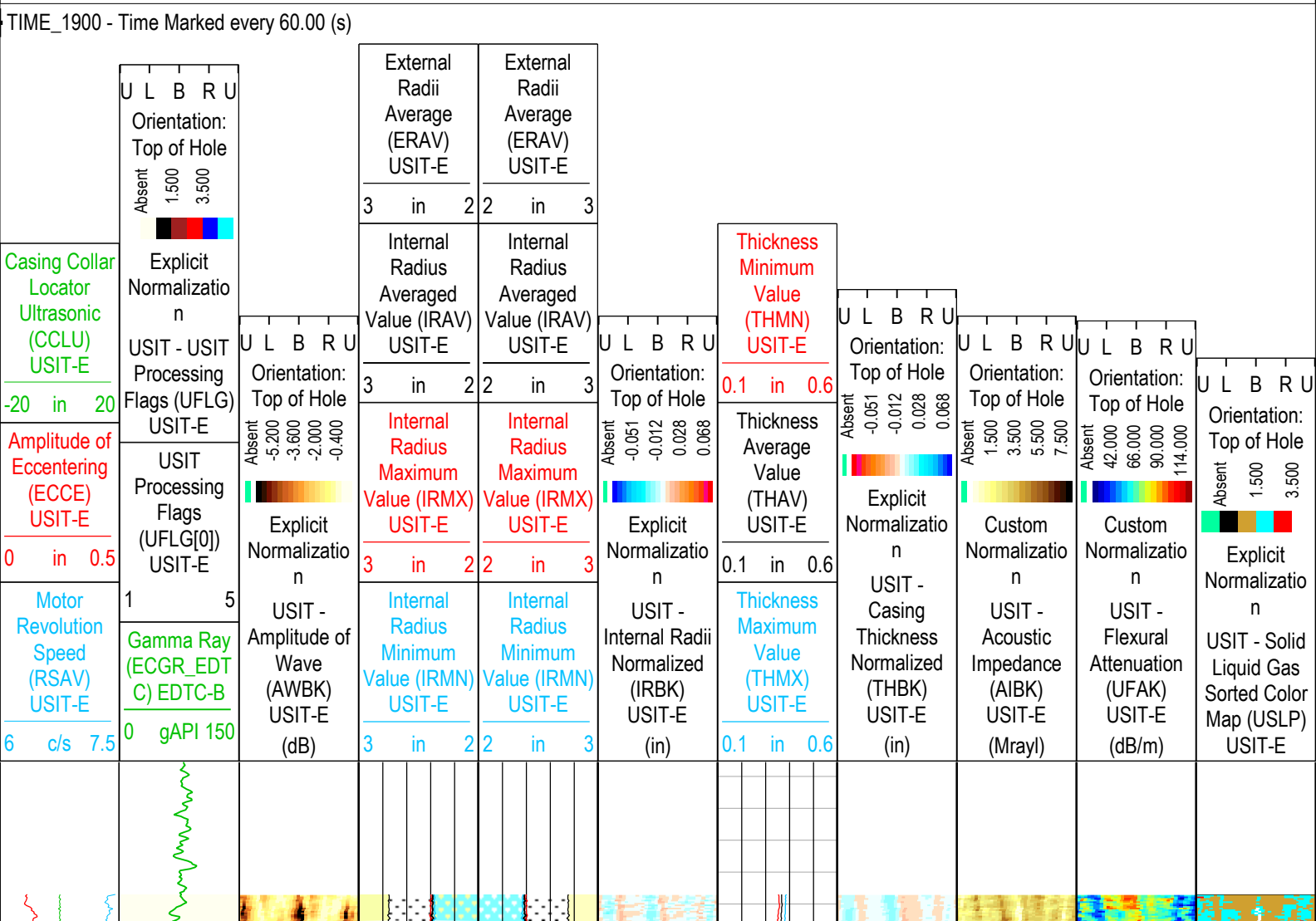
1A: Log[3]:Up:S008

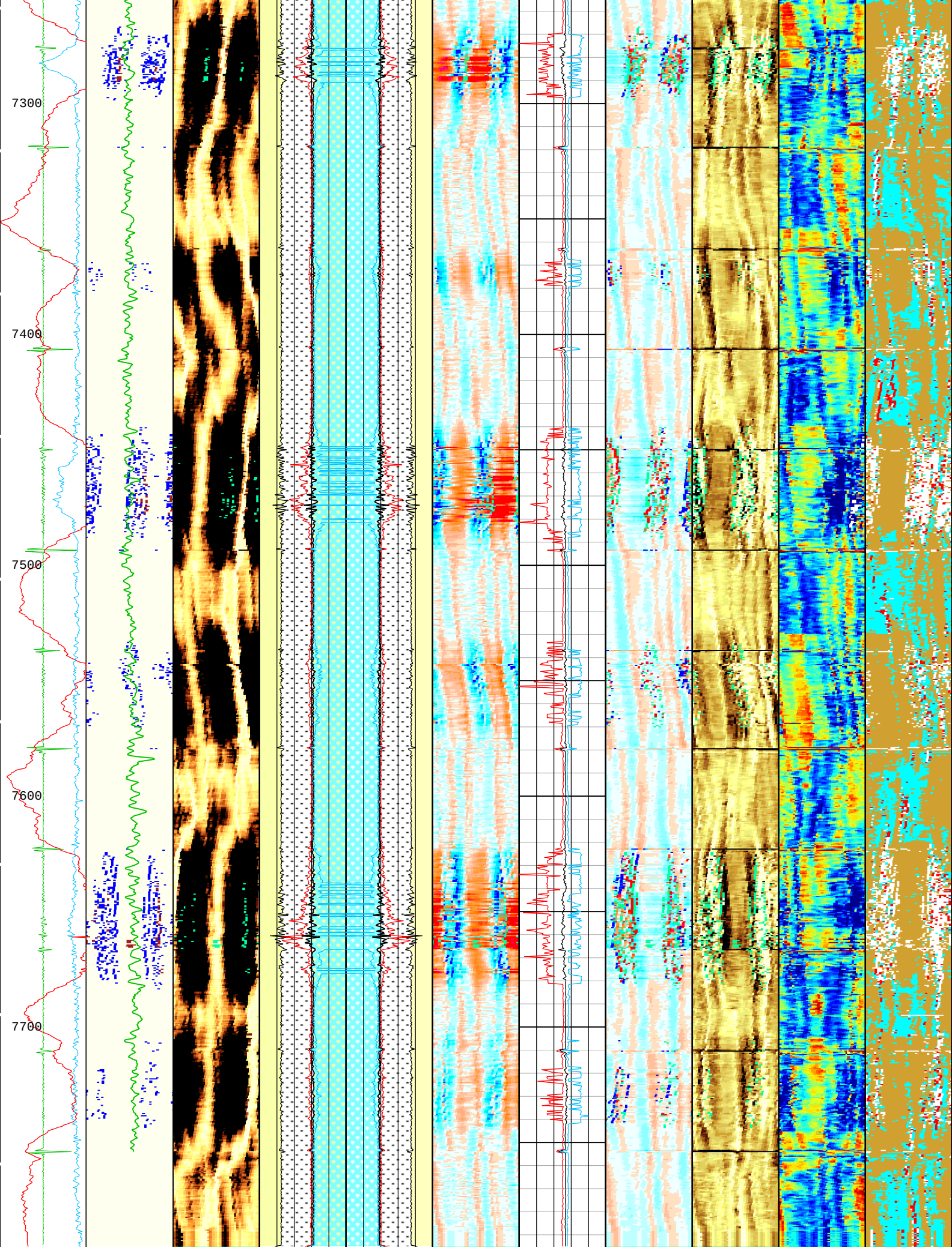
Description: USI IBC SLG Composite Format: Log (Import (2) of IBC SLG Composite) Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 08-Oct-2019 17:31:20

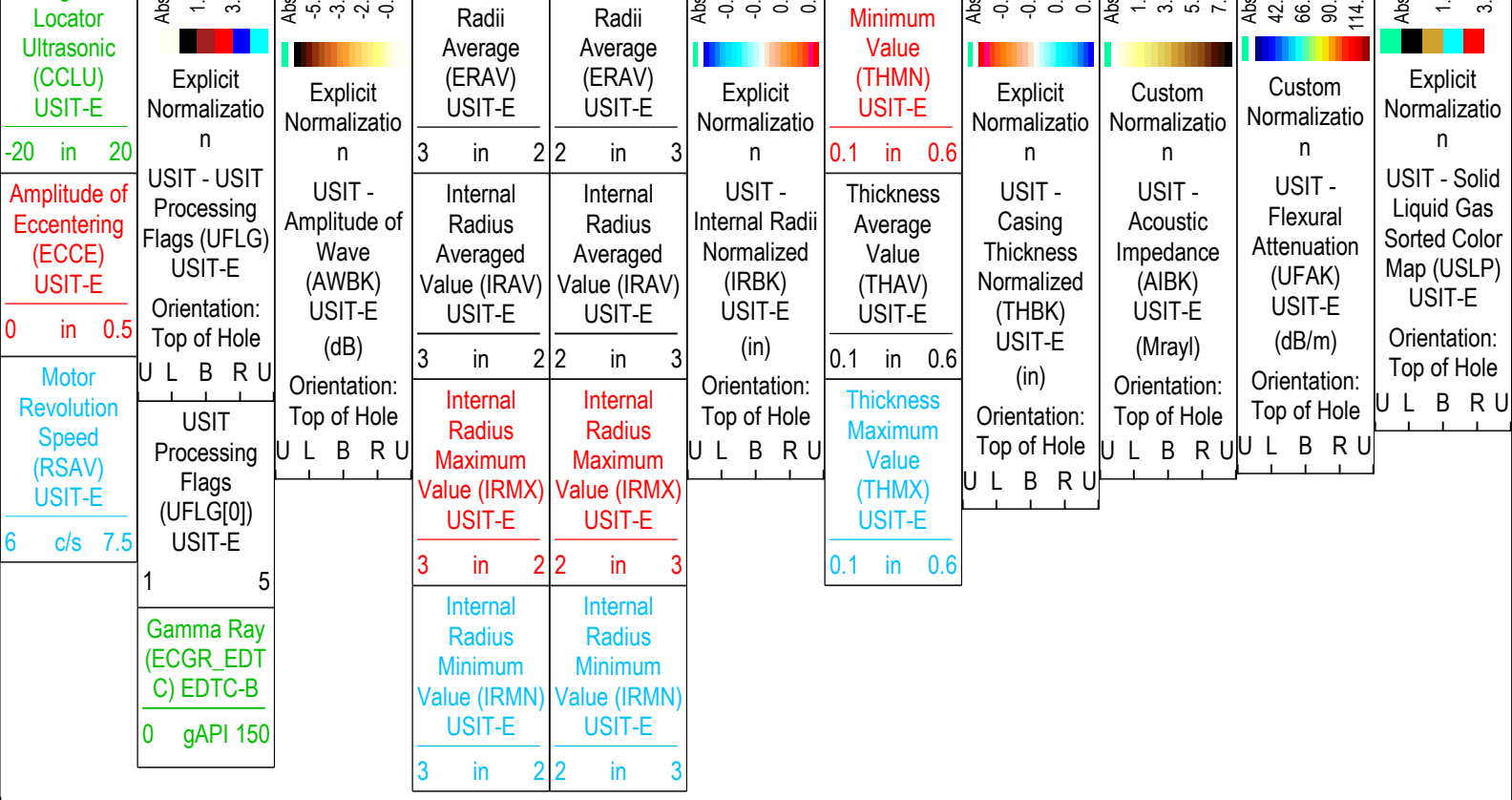
USIT Processing Flags (UFLG[0]) USIT-E

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

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




7300
7400
7500
7600
7700
Casing Collar
External
External
Thickness



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

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

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

Description: USI IBC SLG Composite Format: Log (Import (2) of IBC SLG Composite) Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 08-Oct-2019 17:31:20

Channel Processing Parameters

1A: Parameters

Parameter	Description	Tool	Value	Unit
ISSBAR	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BS	Bit Size	WLSESSION	8.5	in
CBLO	Casing Bottom (Logger)	WLSESSION	13650	ft
CDEN	Cement Density	USIT-E	12.5	lbm/gal
CDEN	Cement Density	EDTC-B	16.69	lbm/gal
CMTY(U-USIT_CEMT)	Cement Type	USIT-E	Regular Cement	
DFD	Drilling Fluid Density	Borehole	9	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	192	us/ft
FD	Fluid Density	USIT-E	10.5	lbm/gal
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS(RT)	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	BS(RT)	
HEMA	Hematite Presence Flag	Borehole	No	
IBC_FVEL_SEL	IBC Fluid Velocity Selection	USIT-E	Automatic	
IBC_OFFSET_SEL	IBC Flexural Offset Selector	USIT-E	UFAO	
IBC_ZMUD_SEL	IBC Mud Impedance Selection	USIT-E	Theoretical	
ICE_PROCESS	ICE Processing	USIT-E	Yes	

IMAR	Image Rotation	USIT-E	RB	
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-E	22.44	us
MUD_N_THE	Theoretical Mud Normalization Factor	USIT-E	1.1	
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	1.6	Mrayl
U-USIT_UFAO	SIT Flexural Attenuation Offset	USIT-E	-46.82	dB/m
U-USIT_UIAP	IBC Answer Product Enabled	USIT-E	SolidLiquidGasMap	
ZMUD	Acoustic Impedance of Mud	Borehole	1.71	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-E	2.6	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

Tool Control Parameters

1A: Parameters

Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	18	dB
EMXV	EMEX Voltage	USIT-E	Time Zoned	V
IBC_ACQTYPE	IBC Acquisition type	USIT-E	1 MHz	
IBC_FLEXDBP	IBC Flex Duration Before Peak	USIT-E	30	us
ICE2_ACQ	Ultrasonic ICE2 Acquisition	USIT-E	Yes	
U-USIT_UFWB	Far Receiver Window Begin Time	USIT-E	133	us
U-USIT_UFWE	Far Receiver Window End Time	USIT-E	173	us
U-USIT_UNWB	Near Receiver Window Begin Time	USIT-E	102	us
U-USIT_UNWE	Near Receiver Window End Time	USIT-E	142	us
UPAT	USIT Emission Pattern	USIT-E	Pattern 375 KHz	
UWKM	USIT Working Mode	USIT-E	10 deg at 6.0 in	
U-USIT_UTAN	Transducer Angles	USIT-E	38_DEG	
VRES	Vertical Resolution	USIT-E	6.0 in	
WINB	Window Begin Time	USIT-E	Time Zoned	us
WINE	Window End Time	USIT-E	Time Zoned	us

Time Zone Parameters

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
EMXV	60	29-Sep-2019 18:40:11	29-Sep-2019 18:42:43	7796.84	7647.33
EMXV	75	29-Sep-2019 18:42:43	29-Sep-2019 18:42:55	7647.33	7634.71
EMXV	80	29-Sep-2019 18:42:55	29-Sep-2019 18:43:04	7634.71	7624.81
EMXV	90	29-Sep-2019 18:43:04	29-Sep-2019 18:44:31	7624.81	7535.89
EMXV	85	29-Sep-2019 18:44:31	29-Sep-2019 18:44:34	7535.89	7532.28
EMXV	95	29-Sep-2019 18:44:34	29-Sep-2019 18:45:21	7532.28	7483.75
EMXV	100	29-Sep-2019 18:45:21	29-Sep-2019 18:46:01	7483.75	7442.88
EMXV	110	29-Sep-2019 18:46:01	29-Sep-2019 18:48:28	7442.88	7291.31
EMXV	115	29-Sep-2019 18:48:28	29-Sep-2019 18:48:49	7291.31	7269.15
EMXV	120	29-Sep-2019 18:48:49	29-Sep-2019 18:49:18	7269.15	7247.66
WINB	28.35	29-Sep-2019 18:40:11	29-Sep-2019 18:42:03	7796.84	7691.38
WINB	30.4	29-Sep-2019 18:42:03	29-Sep-2019 18:42:28	7691.38	7664.85
WINB	29.82	29-Sep-2019 18:42:28	29-Sep-2019 18:42:29	7664.85	7663.05
WINB	27.52	29-Sep-2019 18:42:29	29-Sep-2019 18:49:18	7663.05	7247.66
WINE	68.35	29-Sep-2019 18:40:11	29-Sep-2019 18:41:58	7796.84	7696.24
WINE	71.25	29-Sep-2019 18:41:58	29-Sep-2019 18:43:58	7696.24	7569.74

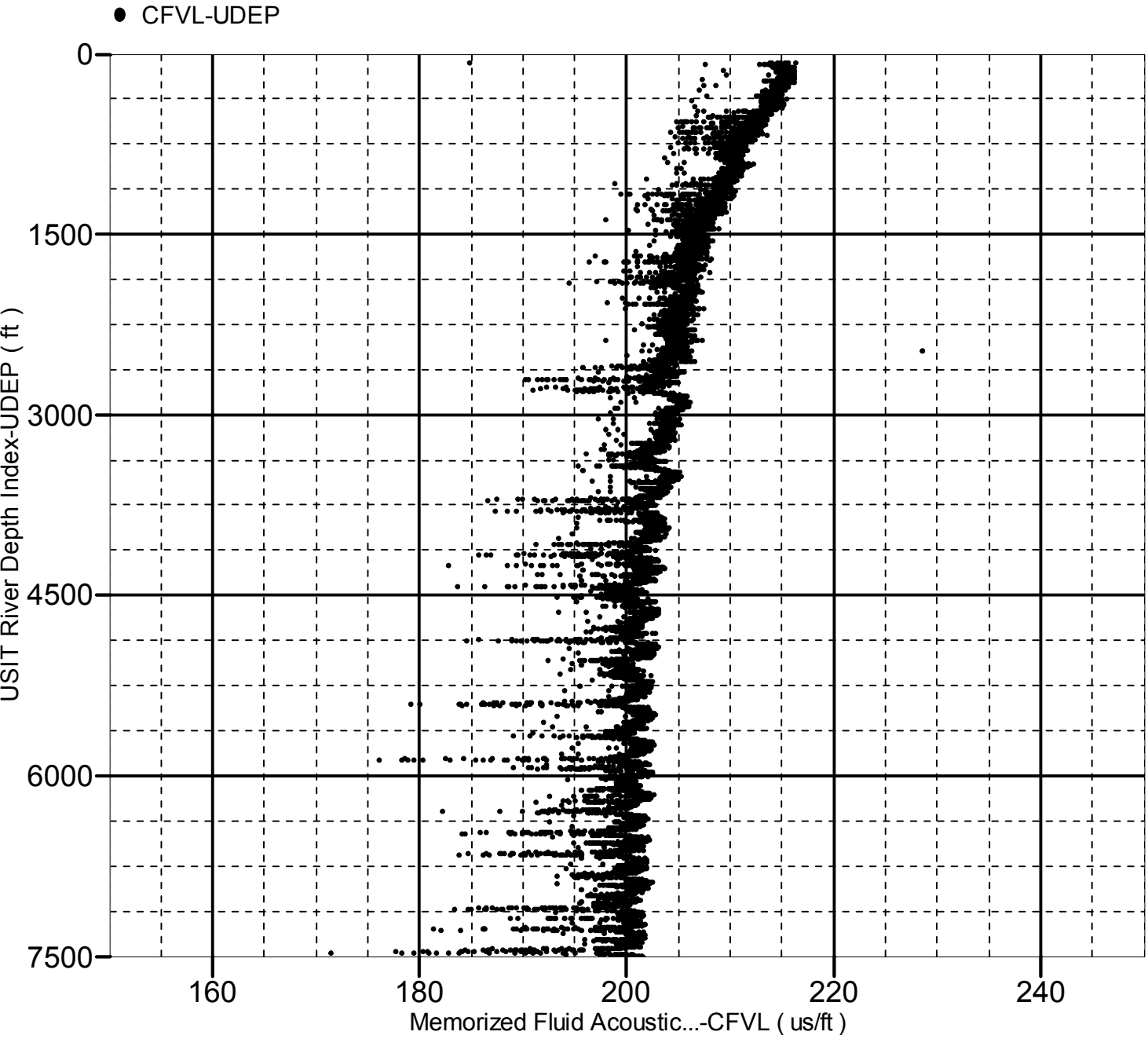
WINE	72.69	29-Sep-2019 18:43:58	29-Sep-2019 18:49:18	7569.74	7247.66

All depth are at tool zero.

Fluid Acoustic Slowness vs Depth

2D Cross Plot

Index Range: From 7780.50 to 54.00 ft



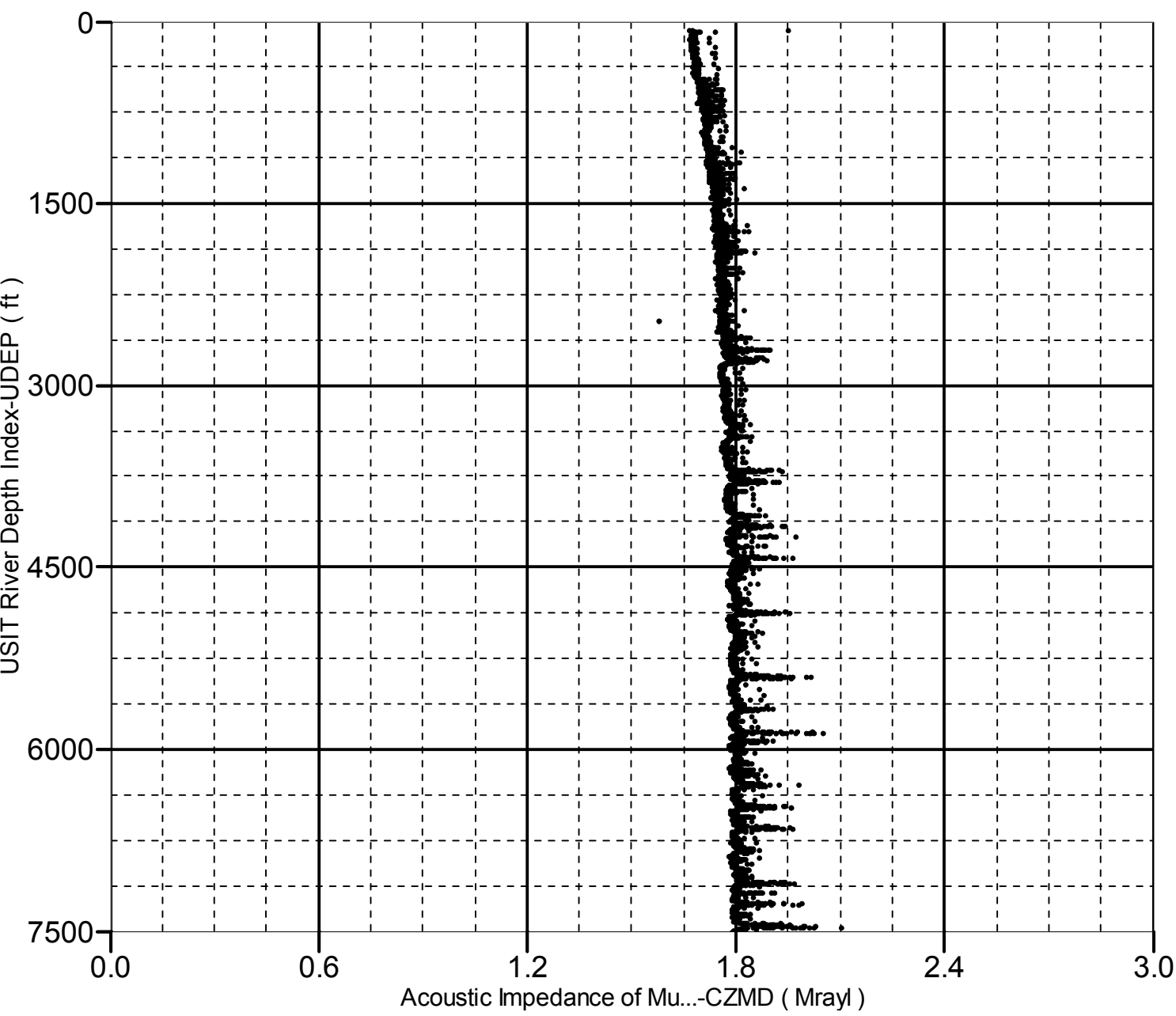
XYZ
Company:Crestone Peak Resources Operating, LLC Well:Kugel 1M-18H-H267
1A: Log[4]:Up:S008

Acoustic Impedance of Mud vs Depth

2D Cross Plot

Index Range: From 7780.50 to 54.00 ft

CZMD-UDEP



Calibration Report

DSLT-H (Digitizing Sonic Logging Tool - H) Calibration - Run 1A

Primary Equipment :

Sonic Logging Sonde E supports 3'-5'BHC DT and CBL/VDL SLS-E 1229

CBL Normalization - CBL Accumulations

Master (Measured): 06:37:25 21-Jan-2019

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
Upper Far Amplitude		Master	4200.0	3200.0	3281.4	
Upper Near Raw Amplitude	mV	Master	33.000	27.000	27.878	43.000
Lower Far Amplitude		Master	4200.0	3200.0	3618.5	
Lower Near Raw Amplitude	mV	Master	46.000	27.000	35.332	68.000

CBL Normalization - CBL/VDL Coefficients

Master (Measured): 06:37:25 21-Jan-2019

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
CBL Correction Factor for UT		Master	3.500	2.700	4.161	4.300
CBL Correction Factor for LT		Master	2.500	1.700	3.283	4.300
VDL Ratio between UT and LT for CBLB Mode		Master	1.000		1.103	

CBL Free Pipe Adjustment - Free Pipe Measurement

Before (Manual Entry): 21:04:14 30-Sep-2019

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
CBL Amplitude - 0	mV	Before	-----	-----	-----	-----
CBL Reference Amplitude (CBRA) - 0	mV	Before	-----	-----	-----	-----
Measurement Depth - 0	ft	Before	-----	-----	-----	-----

CBL Free Pipe Adjustment - CBL Amplitude Coefficient

Before (Manual Entry): 21:04:14 30-Sep-2019

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
CBL Adjustment Factor		Before	1.000	0.200	0.800	5.000
Depth of Before Calibration	ft	Before			4970.44	

EDTC-B (Enhanced Digital Telemetry Cartridge - Version B) Calibration - Run 1A

Primary Equipment :

EDTC-B	EDTC-B	8324

Calibration Parameter :

Plus Reference (Jig minus background reference)	150

EDTC-B Accelerometer Calibration - EDTC-B Accelerometer Calibration

Before (Measured): 17:35:46 29-Sep-2019

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
AZ Vertical Measurement	ft/s2	Before	32.19	31.53	32.04	32.84

EDTC-B Memory Data - EDTC-B Memory Data

Master (EEPROM): 17:42:10 29-Sep-2019

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
Initial PMT HV	V	Master			1596.000	
Accelerometer Serial Number		Master			387	
Accelerometer Coefficients - 0		Master	-----	-----	2.907E+000	-----
Accelerometer Coefficients - 1		Master	-----	-----	2.788E-004	-----
Accelerometer Coefficients - 2		Master	-----	-----	-1.992E-007	-----
Accelerometer Coefficients - 3		Master	-----	-----	-7.767E-008	-----
Accelerometer Coefficients - 4		Master	-----	-----	1.895E-009	-----
Accelerometer Coefficients - 5		Master	-----	-----	-1.446E-011	-----
Accelerometer Coefficients - 6		Master	-----	-----	3.720E-014	-----
Accelerometer Coefficients - 7		Master	-----	-----	-9.651E-003	-----
Accelerometer Coefficients - 8		Master	-----	-----	7.185E-005	-----
Accelerometer Coefficients - 9		Master	-----	-----	1.783E-008	-----
Accelerometer Coefficients - 10		Master	-----	-----	-8.140E-010	-----
Accelerometer Coefficients - 11		Master	-----	-----	5.627E-013	-----
Gamma-Ray Detector Serial Number		Master			77301	

EDTC-B Gamma-Ray Calibration - Gamma Ray Coefficients

Before (Measured): 19:54:07 28-Sep-2019 After:

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
Gamma Ray Gain		Before	1.000	0.900	1.061	1.100
		After	-----	-----	-----	-----
		After-Before	-----	-----	-----	-----

EDTC-B Gamma-Ray Calibration - Gamma Ray Accumulations

Before (Measured): 19:54:07 28-Sep-2019 After:

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
RGR Zero Measurement	gAPI	Before		0	78.144	120.000
		After	-----	-----	-----	-----
		After-Before	-----	-----	-----	-----
RGR Plus Measurement	gAPI	Before	150.000	135.000	141.312	165.000
		After			NOT DONE	
		After-Before	-----	-----	-----	-----

Company:	Crestone Peak Resources Operating, LLC
Well:	Kugel 1M-18H-H267
Field:	Wattenberg
County:	Weld

Schlumberger

State:	Colorado

ISOLATION SCANNER

CEMENT EVALUATION

GAMMA RAY - COLLAR LOCATOR LOG