Schlumberger

Company: CRESTONE PEAK RESOURCES OPERATING LLC

Well: HINGLEY 1E-18H-A167

Field: WATTENBERG

County: WELD State: COLORADO

ISOLATION SCANNER

VDL-IBC COMBINED PRINT

GAMMA RAY - COLLAR LOCTOR LOG

County: WELD
Field: WATTENBERG
Location: SEC. 18. T1N R67W
Well: HINGLEY 1E-18H-A167
Company: CRESTONE PEAK RESOURCES OPERATING LLC

Location:
SEC. 18. T1N R67W
NENE 514 FNL 577 FEL
Latitud: 40.057007 / Longitude: -104.926029

Elev.: K.B. 5080.00 ft
G.L. 5057.00 ft
D.F. 5080.00 ft

Permanent Datum: Ground Level Elev.: 5057.00 f
Log Measured From: Kelly Bushing 23.00 ft above Perm.Datum
Drilling Measured From: Kelly Bushing

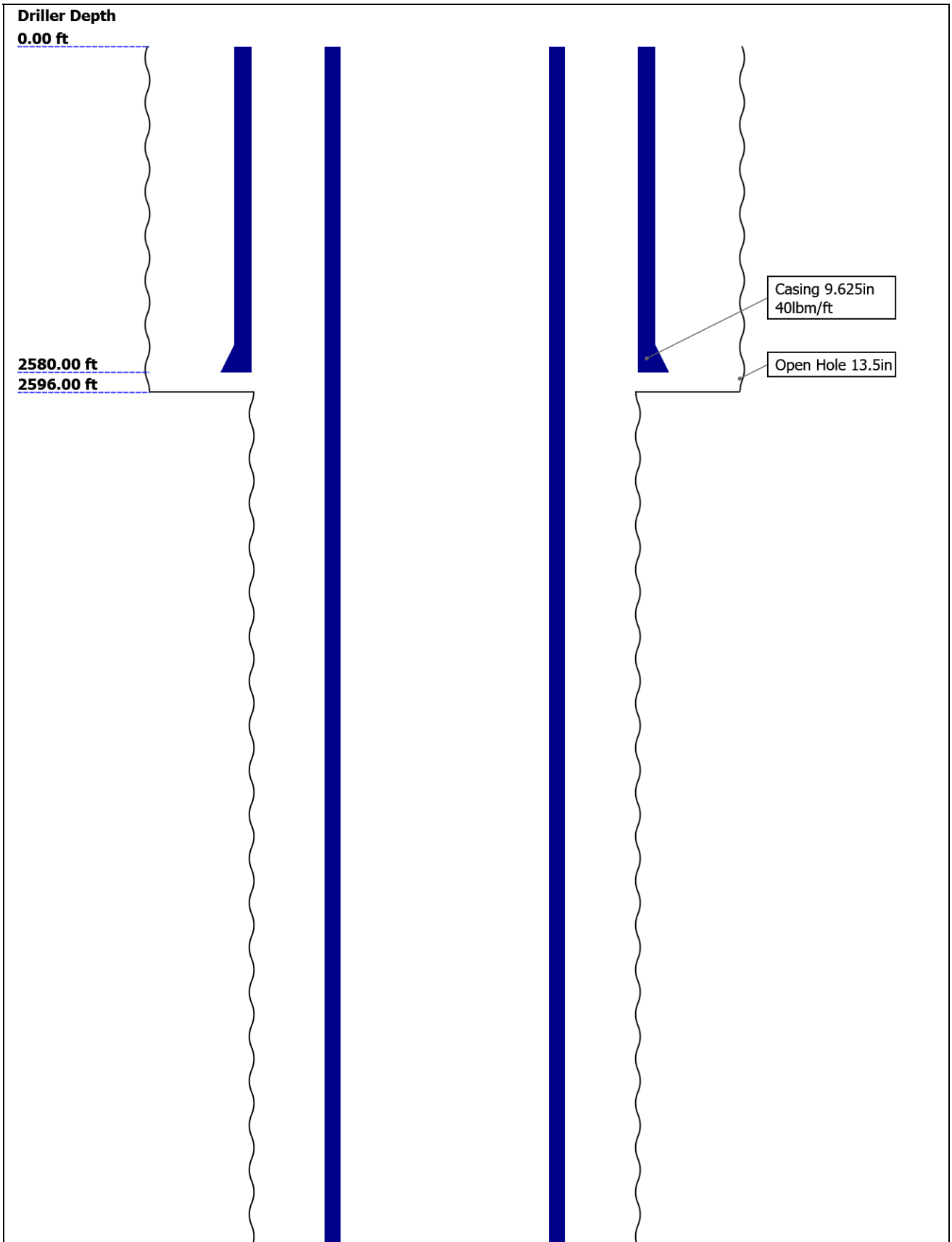
API Serial No.	Section:	Township:	Range:
05-123-47162-0000	18	1N	67W

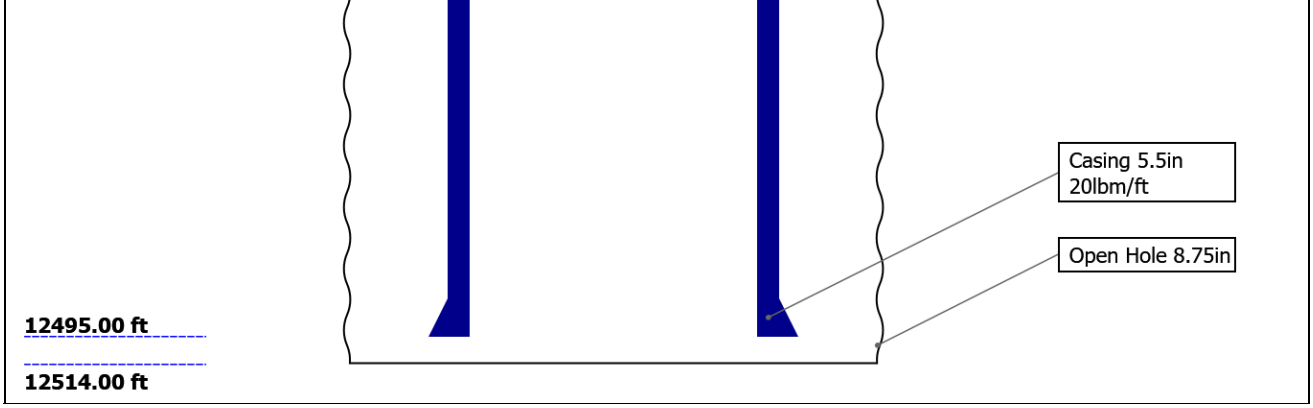
Logging Date		15-Nov-2019			
Run Number		ONE			
Depth Driller		12514.00 ft			
Schlumberger Depth		7400.00 ft			
Bottom Log Interval		7400.00 ft			
Top Log Interval		81.00 ft			
Casing Fluid Type		Water			
Salinity					
Density		9.5 lbm/gal			
Fluid Level		8.00 ft			
BIT/CASING/TUBING STRING					
Bit Size		8.75 in			
From		2596.00 ft			
To		12514.00 ft			
Casing/Tubing Size		5.5 in			
Weight		20 lbm/ft			
Grade		P110			
From		0.00 ft			
To		12495.00 ft			
Max Recorded Temperatures		205.08 degF			
Logger on Bottom	Time	15-Nov-2019	09:38:00		
Unit Number	Location:	2216	Fort Morgan		
Recorded By		Beatriz Guaita			
Witnessed By		Garet Wood			

Disclaimer

Contents

Well Sketch





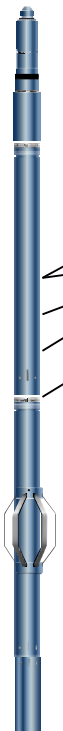
Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	13.5	8.75				
Top Driller (ft)	0	2596				
Top Logger (ft)	0	2596				
Bottom Driller (ft)	2596	12514				
Bottom Logger (ft)	2596	12514				
Casing						
Size (in)	9.625	5.5				
Weight (lbm/ft)	40	20				
Inner Diameter (in)	8.835	4.778				
Grade	J55	P110				
Top Driller (ft)	0	0				
Top Logger (ft)	0	0				
Bottom Driller (ft)	2580	12495				
Bottom Logger (ft)	2580	12495				

Remarks and Equipment Summary

ONE: Toolstring

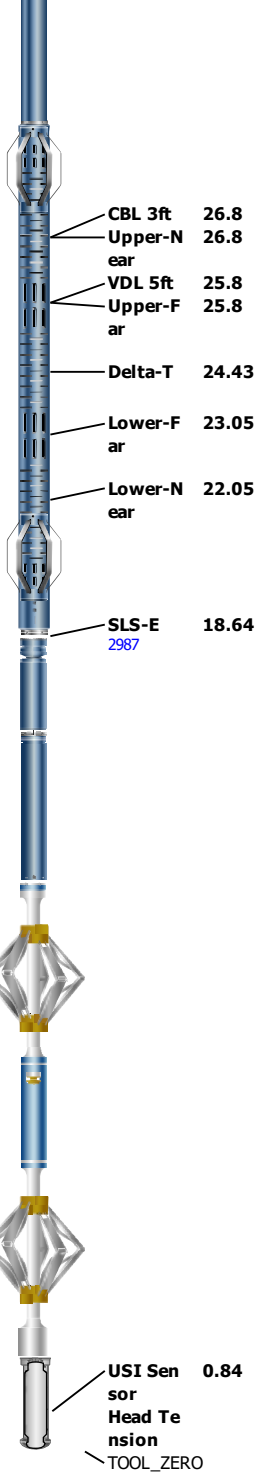
Equip name	Length
LEH-QT	**49.27**
LEH-QT	
EDTC-B:8324	**45.78**
EDTH-B:8101	
EDTG-A:77301	
EDTC-B:8324	
DSLT-H:8154	**39.28**
ECH-KH:8401	
DSLC-H:8154	
SLS-E:1229	



MP name	Offset
CTEM	**42.28**
ACCZ	**0.00**
HV	**0.00**
Gamma Ray	**40.41**
TelStatus	**39.28**

ONE: Remarks

ONE: Remarks
Thank you for choosing Schlumberger!
Tool string run as per tool sketch and client logging program.
All passes run under 0 PSI.
Toolstring run with 4 5" gemcos, in-lines with small hole kit and booster kit for centralization
Logging Resolution: 10 deg 6 in.
Annular Fluid: 10.5 ppg OBM Lead Cement: 12.5 ppg



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

	ONE		
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	7-39AI-XXS		
Serial Number			
Length	18400.00 ft		
Conveyance Type	Wireline		
Rig Type	Crane USA		

ONE:Depth Control Parameters		Depth Control Remarks
Log Sequence	First Log In the Well	All Schlumberger depth control procedures followed.
Rig Up Length At Surface		IDW used as primary depth control device.
Rig Up Length At Bottom		Z chart used as secondary depth control device.
Rig Up Length Correction		Log Correlated to down Log.
Stretch Correction		
Tool Zero Check At Surface		

USIT - Fluid Properties Measurement

Run Name	Pass Name	Start Depth(ft)	Stop Depth(ft)
Run 1	Log[6]:Up	7408.22	72.95

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=1.07
DFD=1.14g/cm3(9.50lbm/gal)

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

ONE

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

Software Version

Acquisition System	Version
Maxwell 2019.2	9.2.113335.3100

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
ONE	Log[6]:Up	Up	72.95 ft	7408.22 ft	15-Nov-2019 9:38:59 AM	15-Nov-2019 11:21:58 AM	ON	7.83 ft	Yes

All depths are referenced to toolstring zero

Log

Company:CRESTONE PEAK RESOURCES OPERATING LLC Well:HINGLEY 1E-18H-A167 ONE: Log[6]:Up:S018

Description: USI IBC SLG Format: Log (IBC SLG DSLT VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 15-Nov-2019 14:14:48

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] - :

UTIM Error

Pulse Origin Not Detected

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

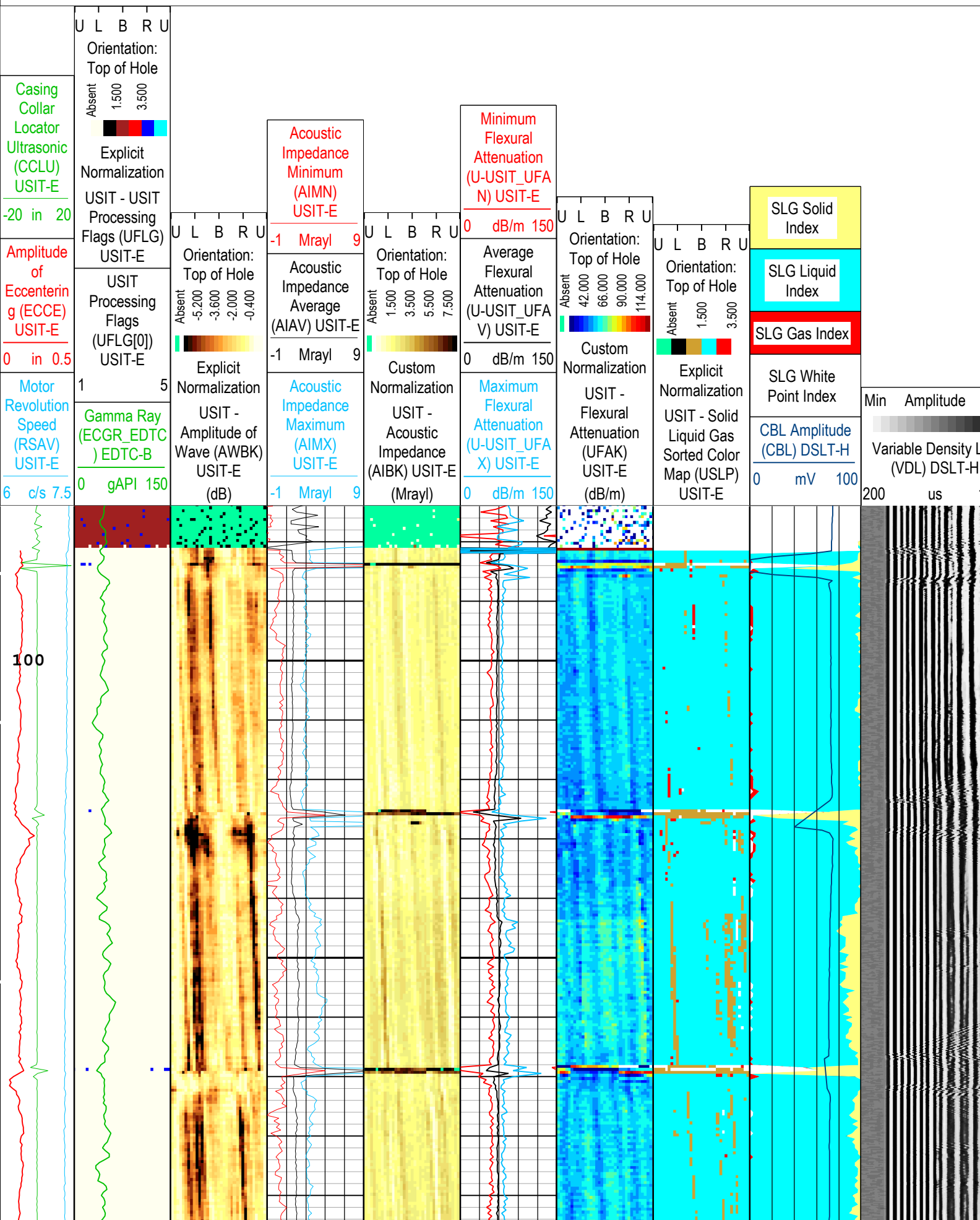
4 - UFLG 4 UFLG 5 UFLG 6 Value within [3.5 - 6.5] - :

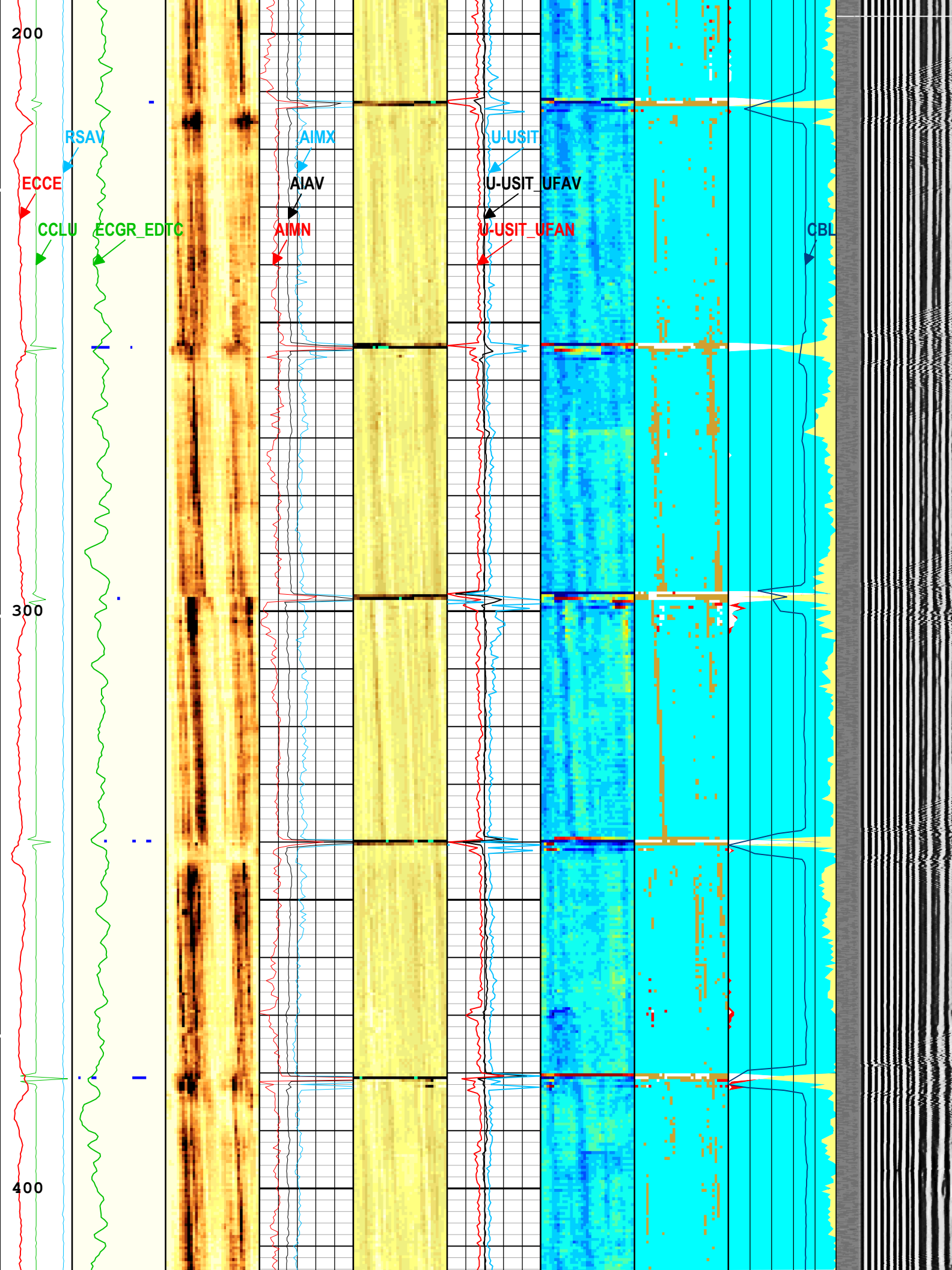
5 - UFLG 7 UFLG 8 UFLG 9 Value within [6.5 - 10] - :

WINLEN Error

Casing Thickness Error

Loop Processing Error

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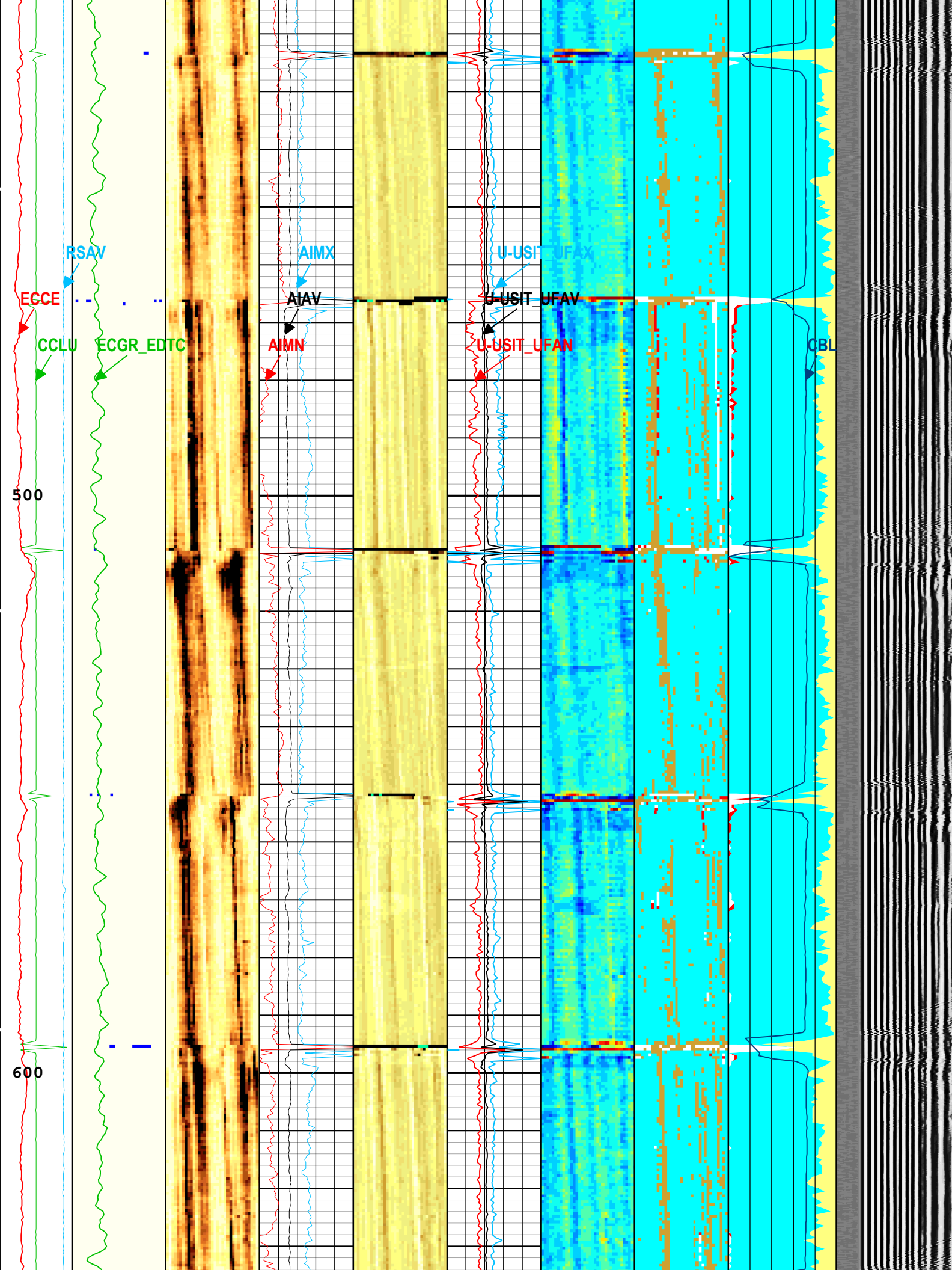
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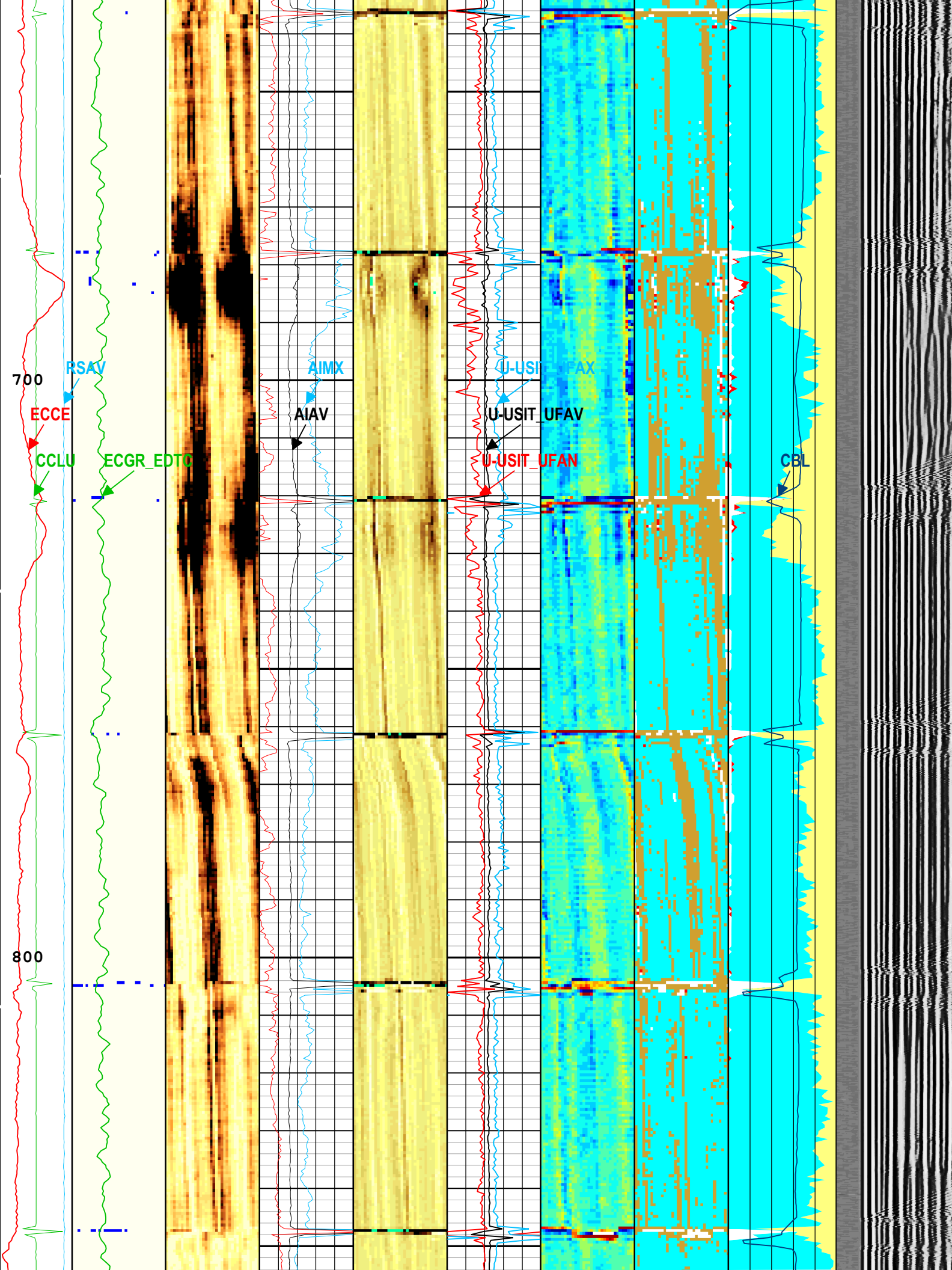
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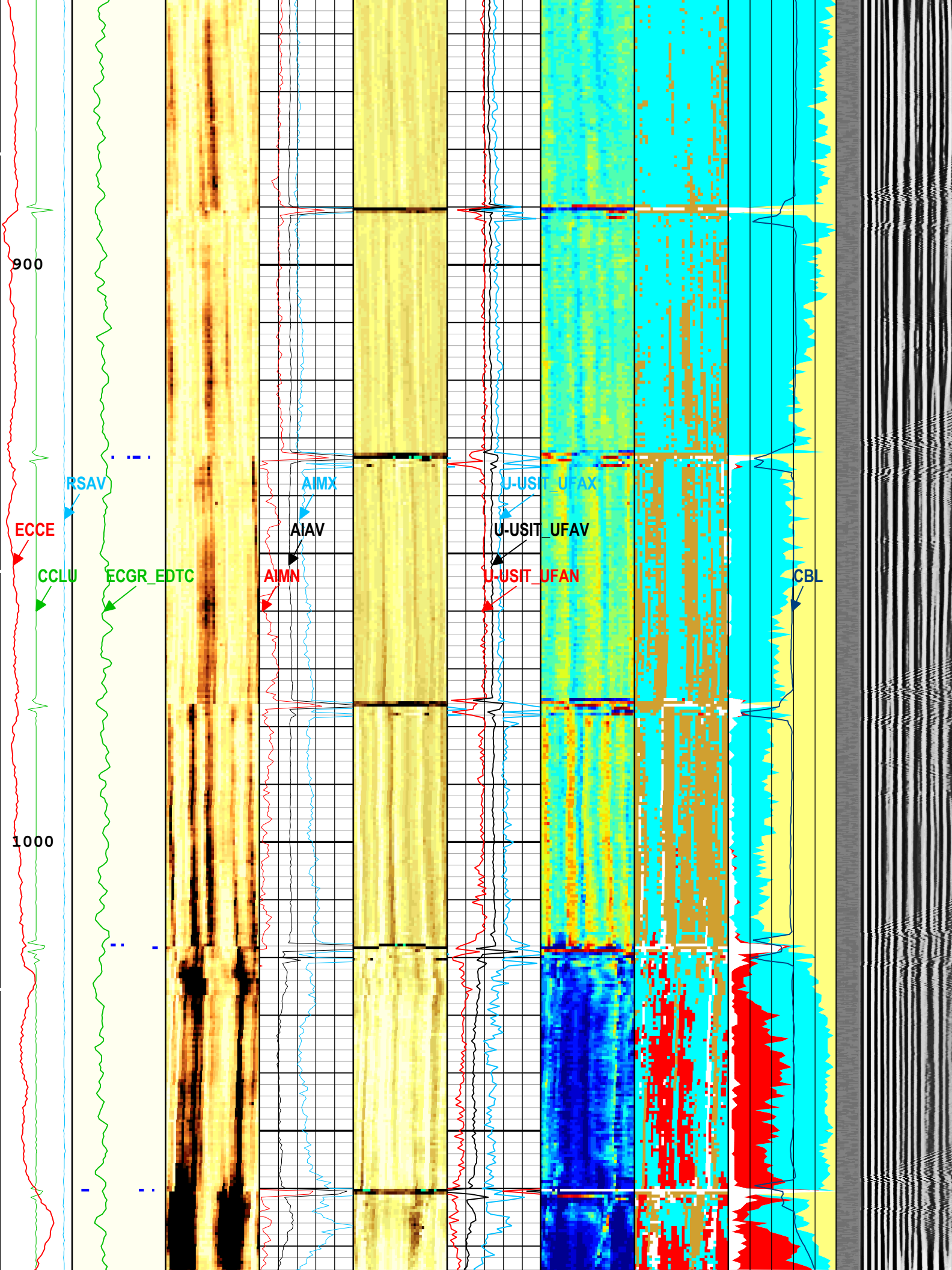
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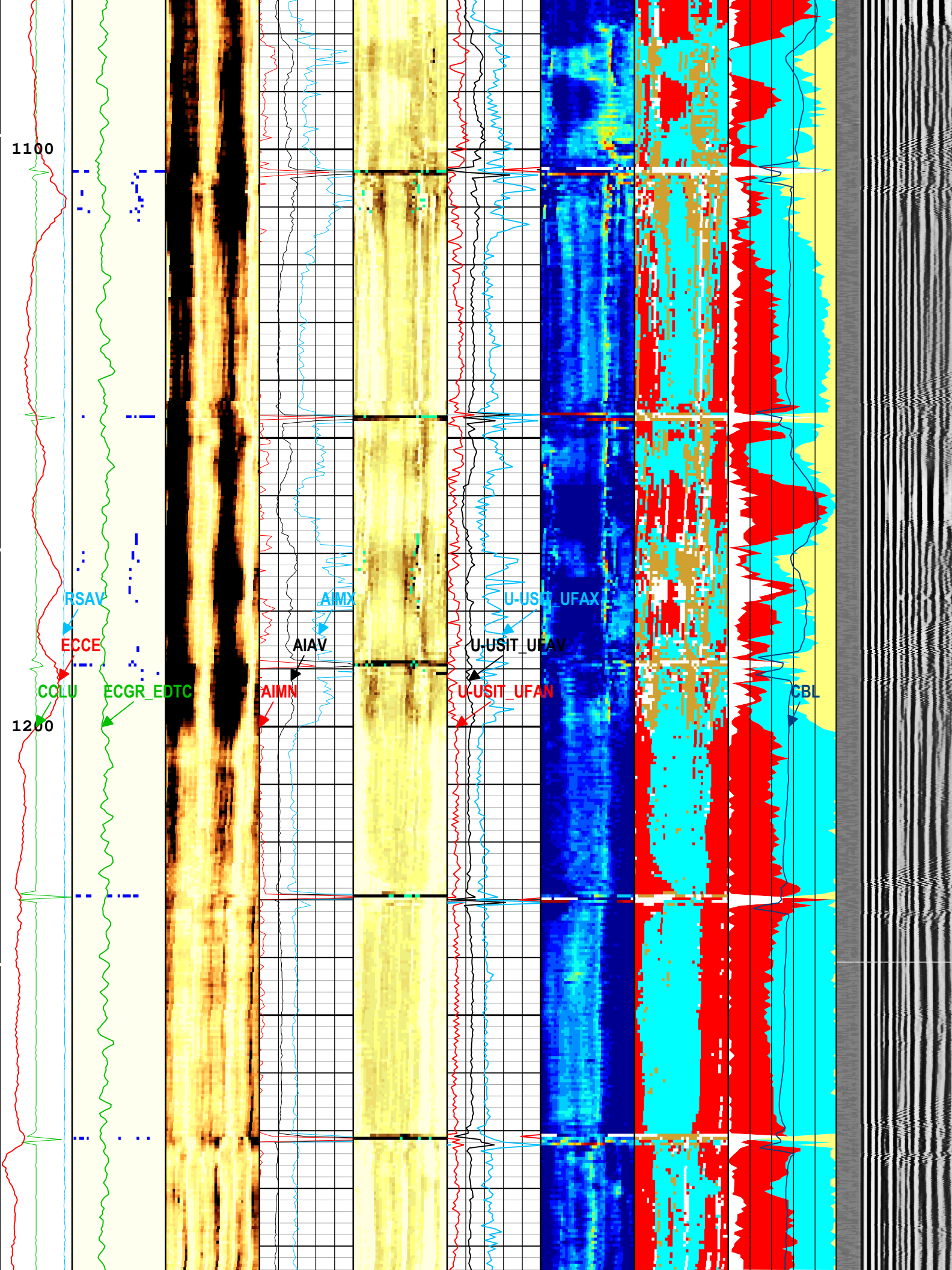
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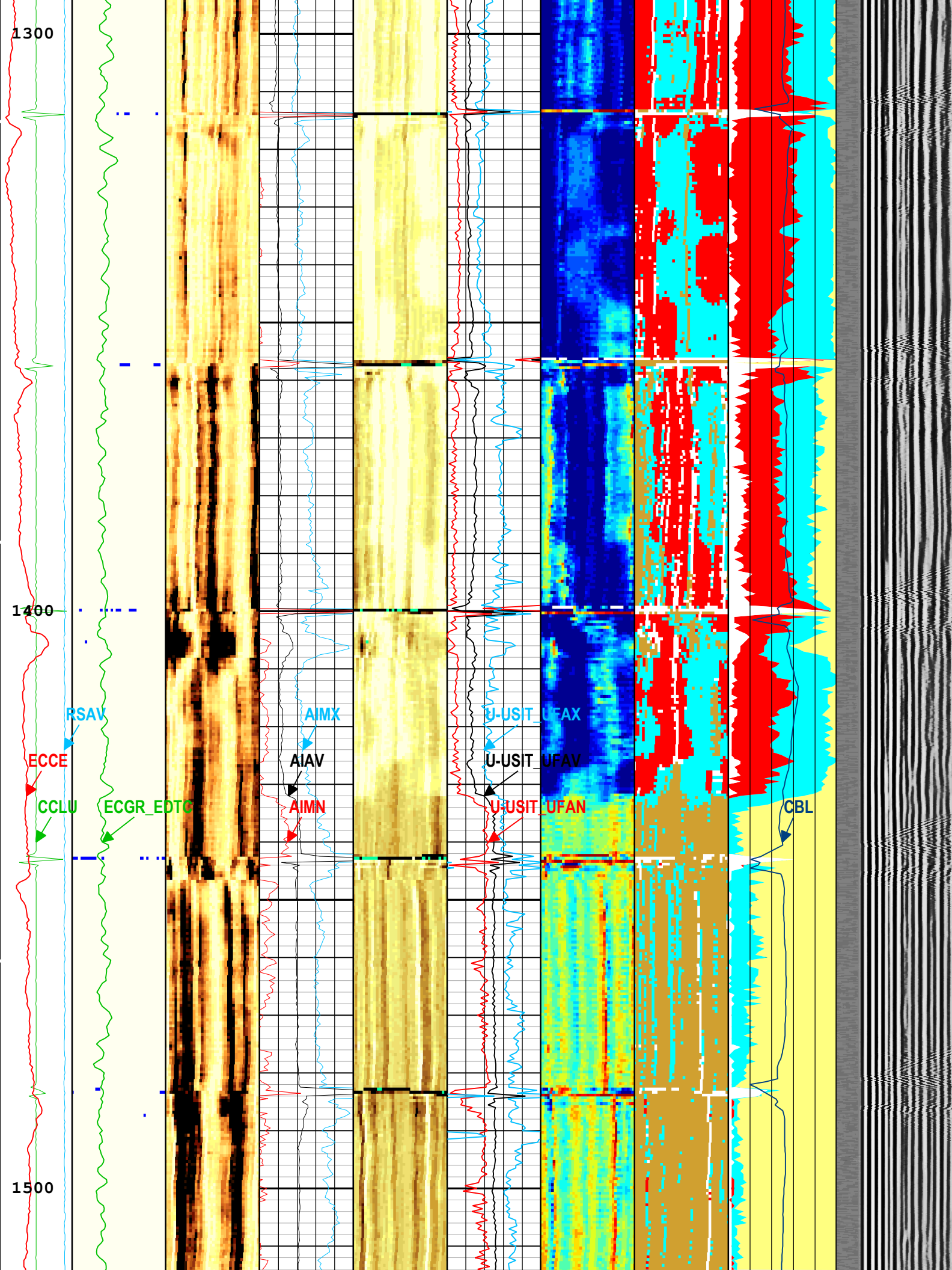
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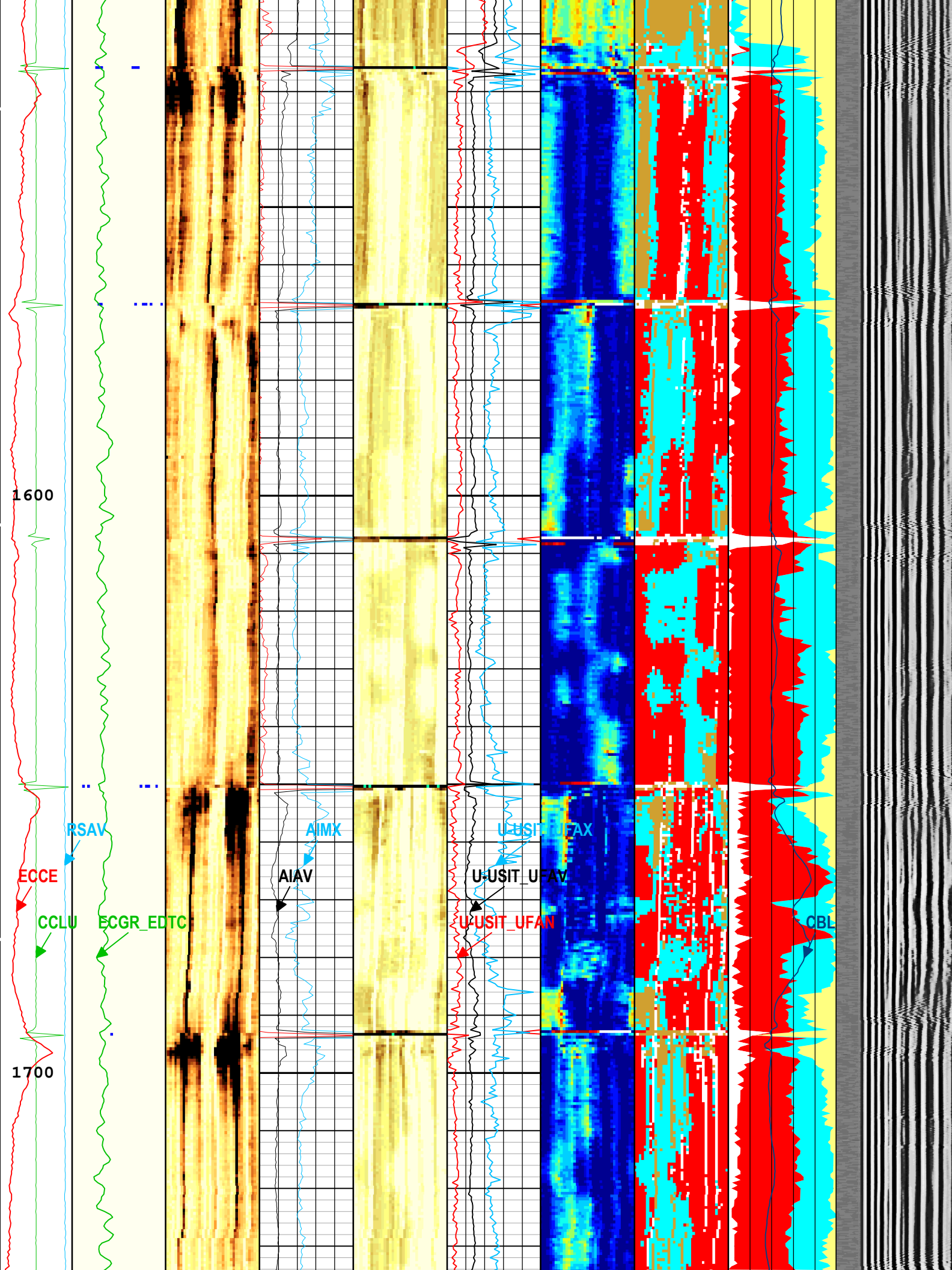
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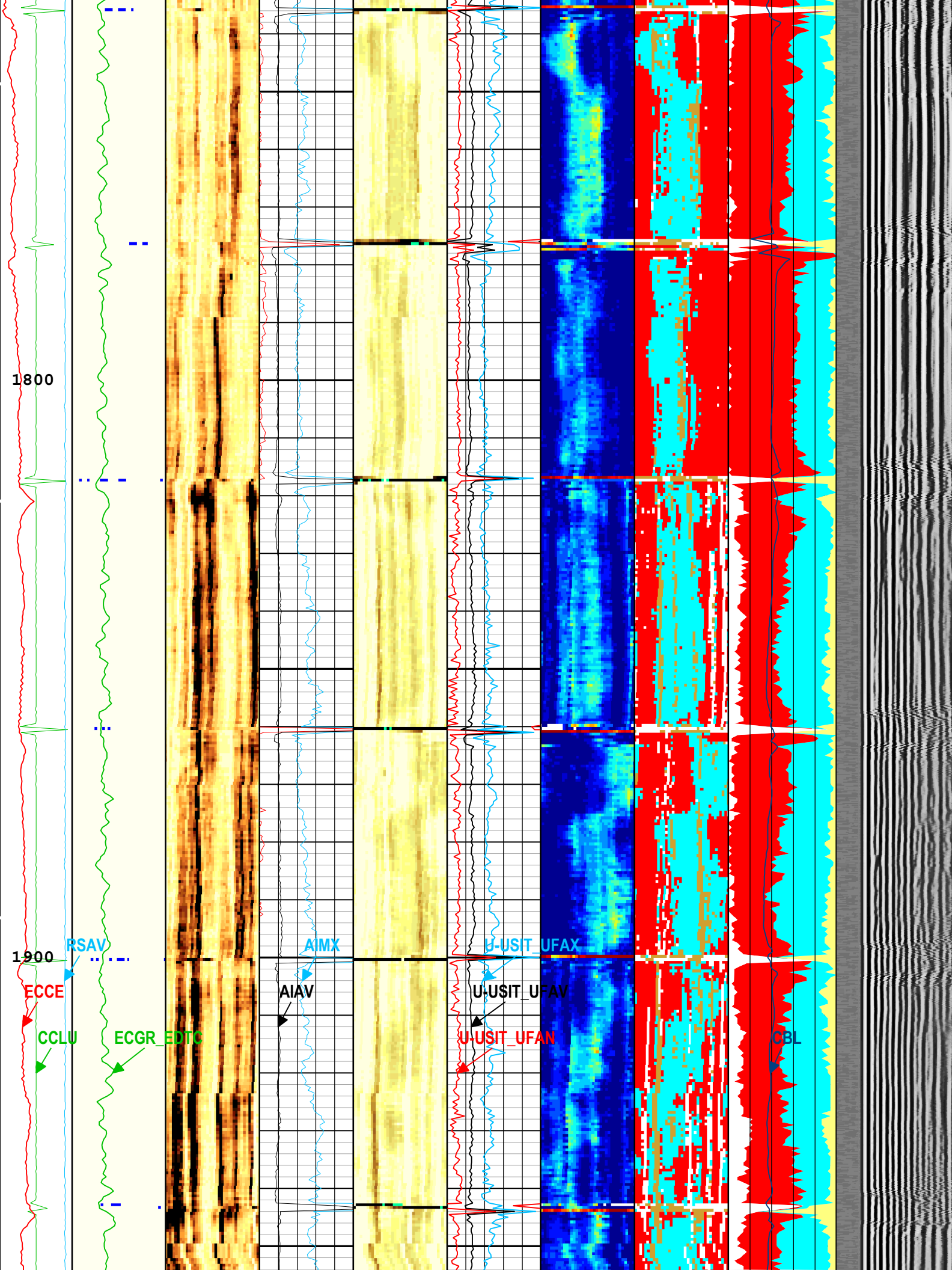
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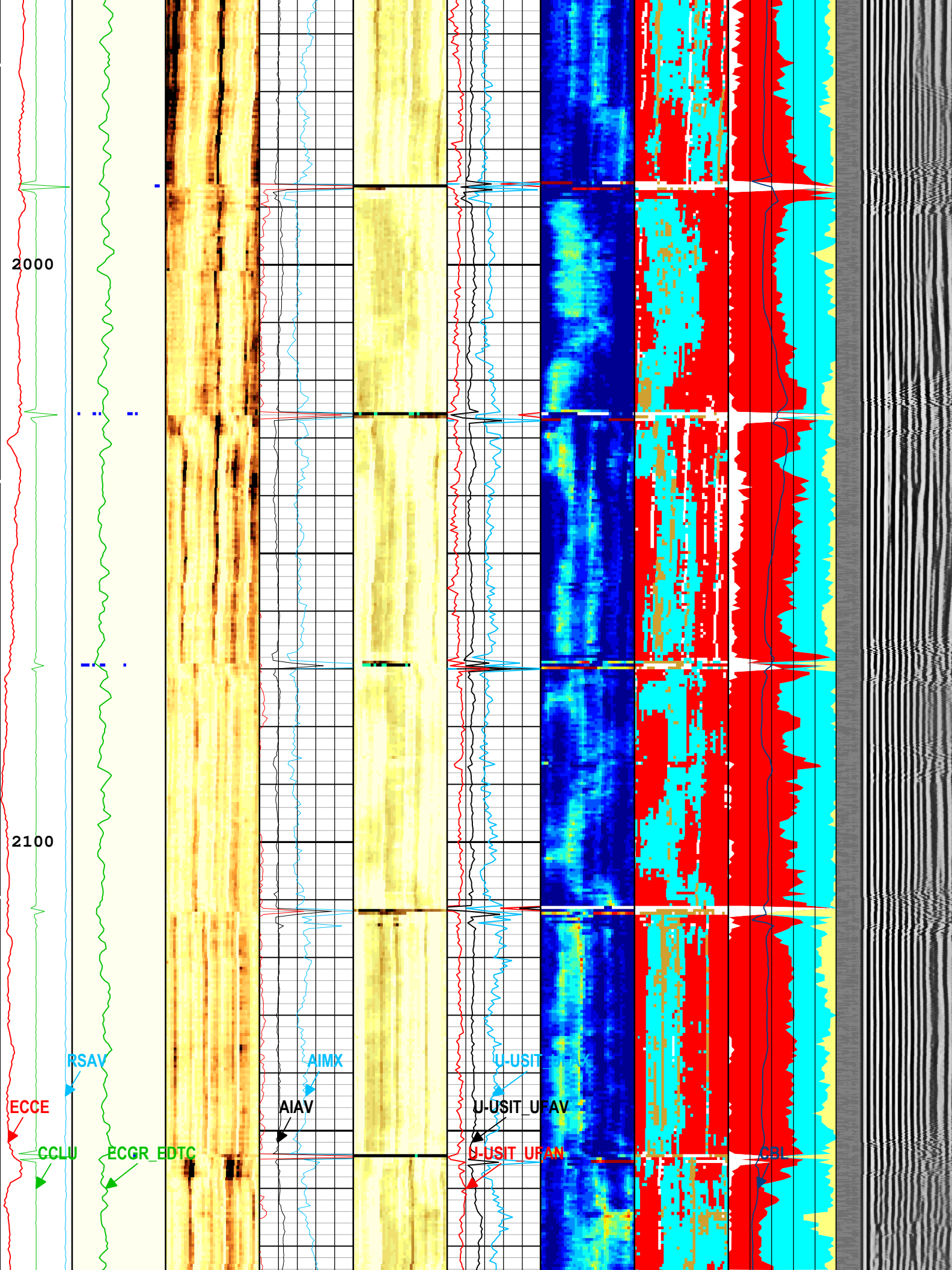
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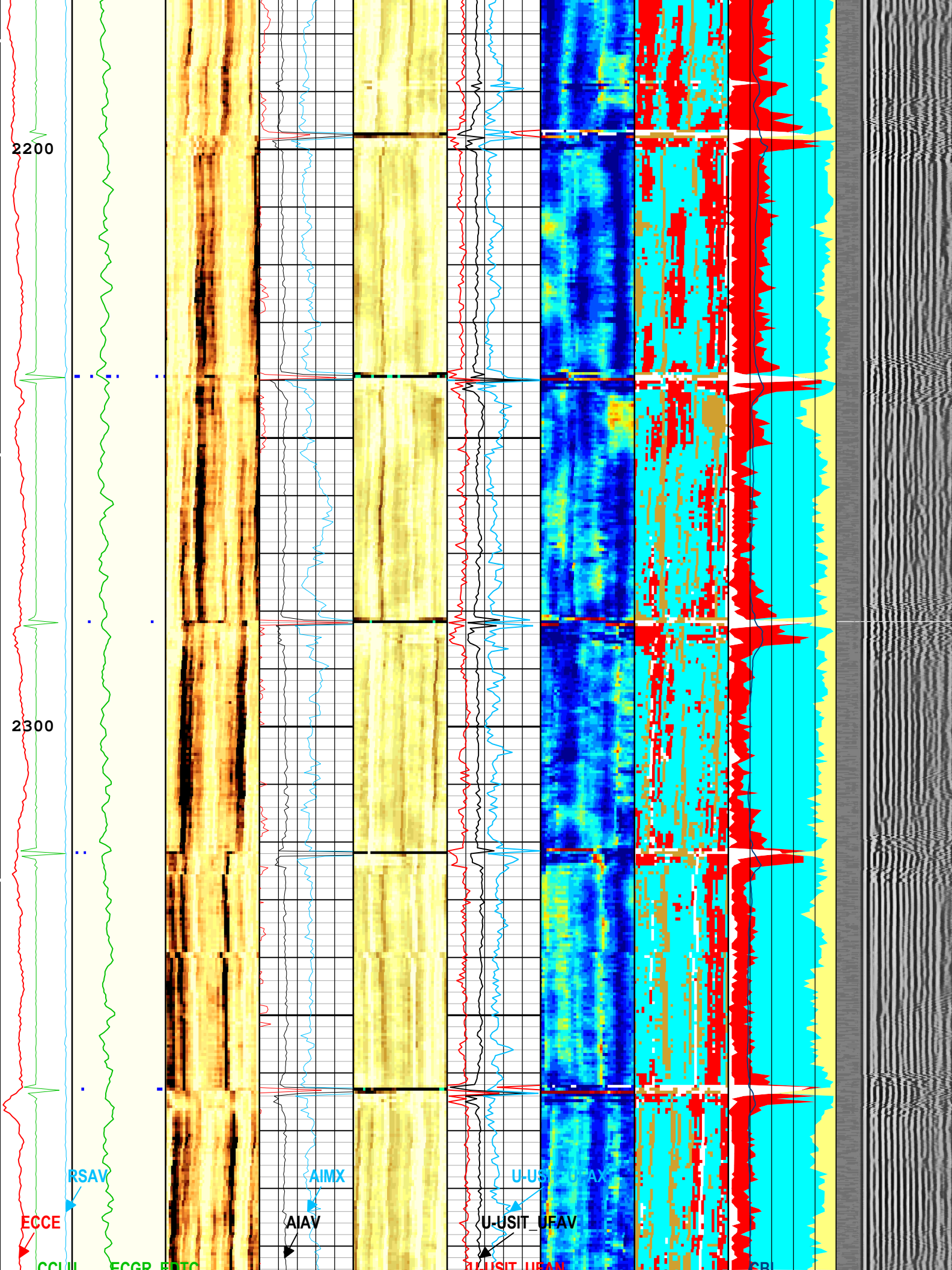
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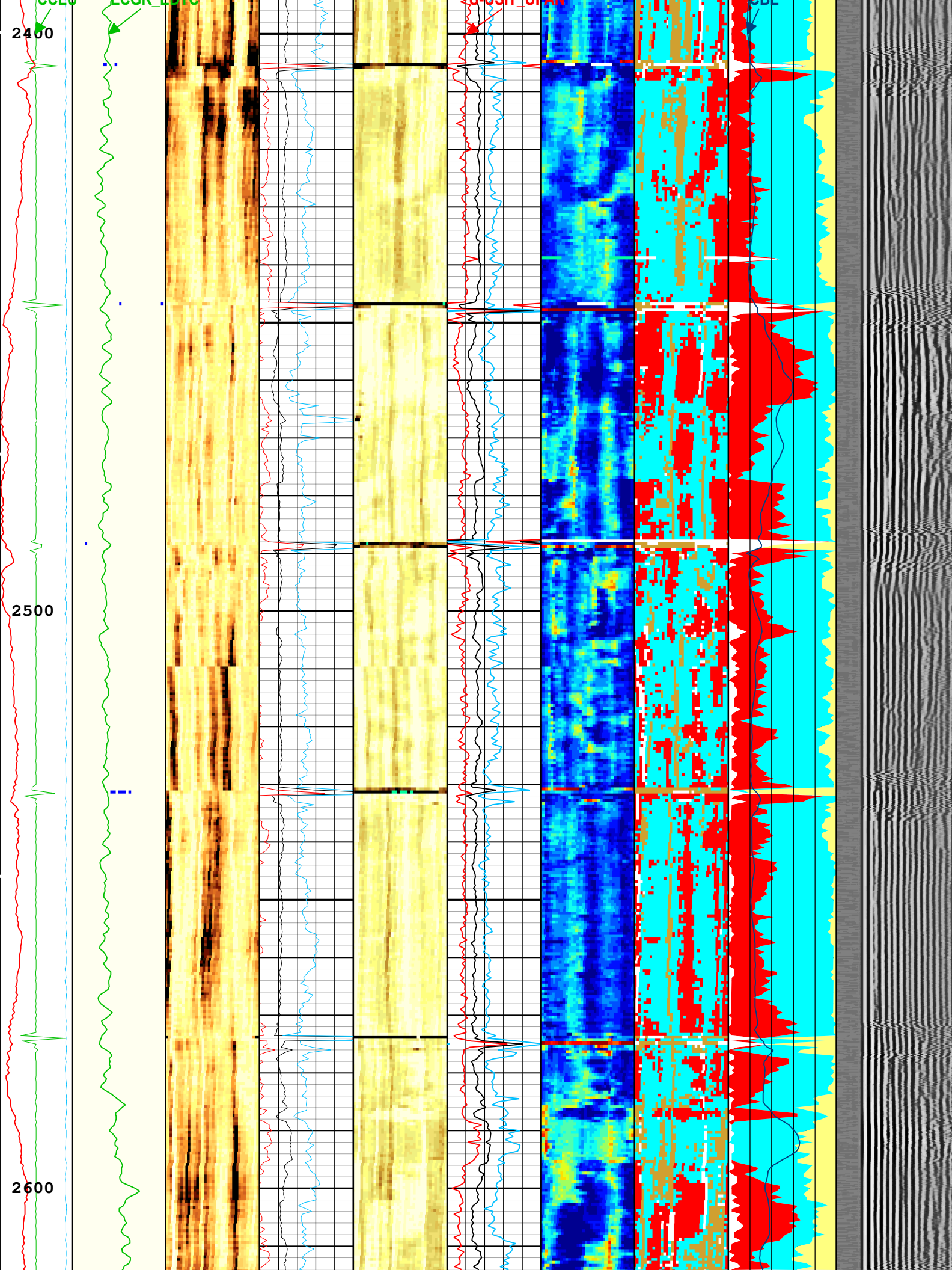
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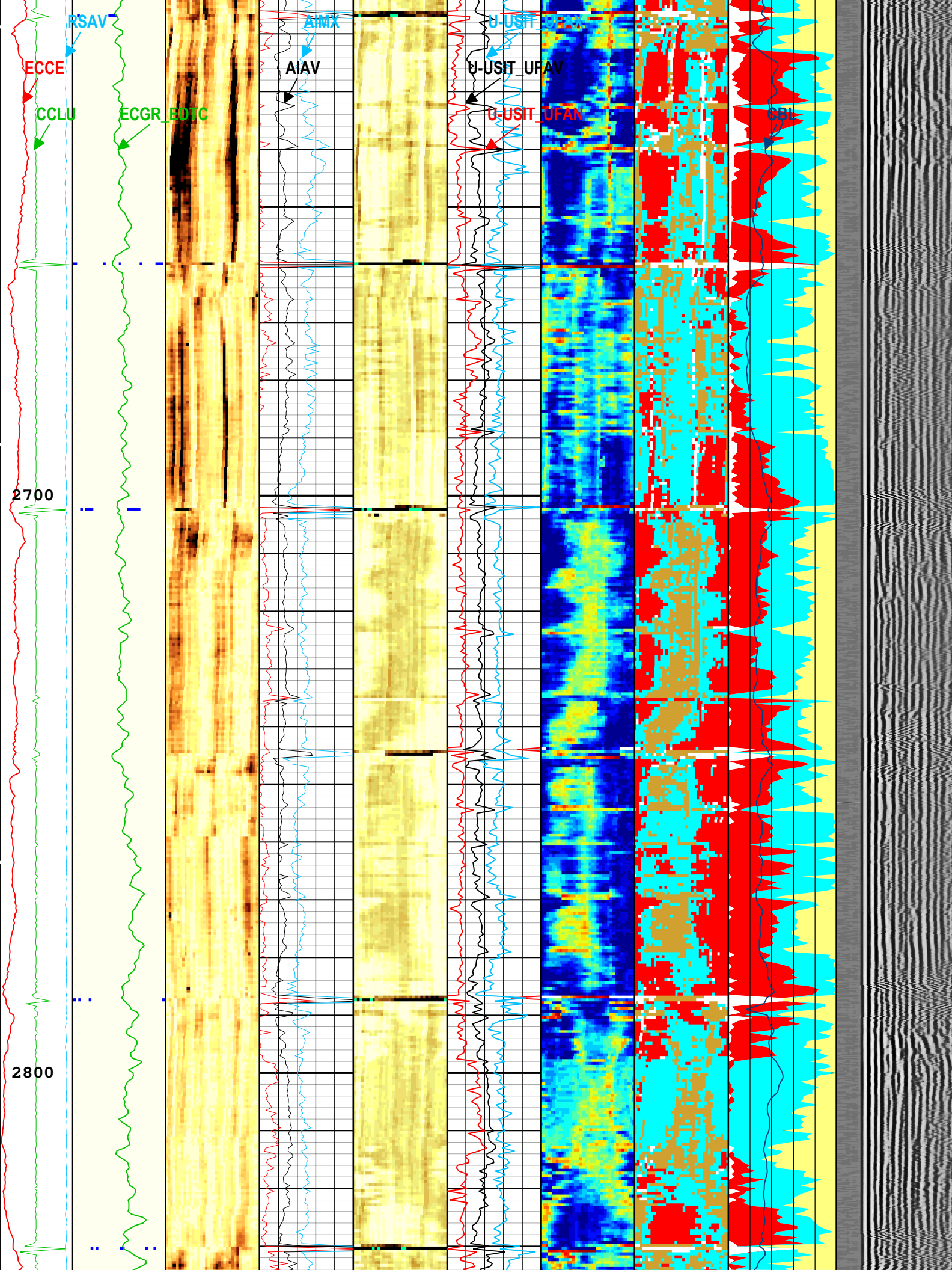
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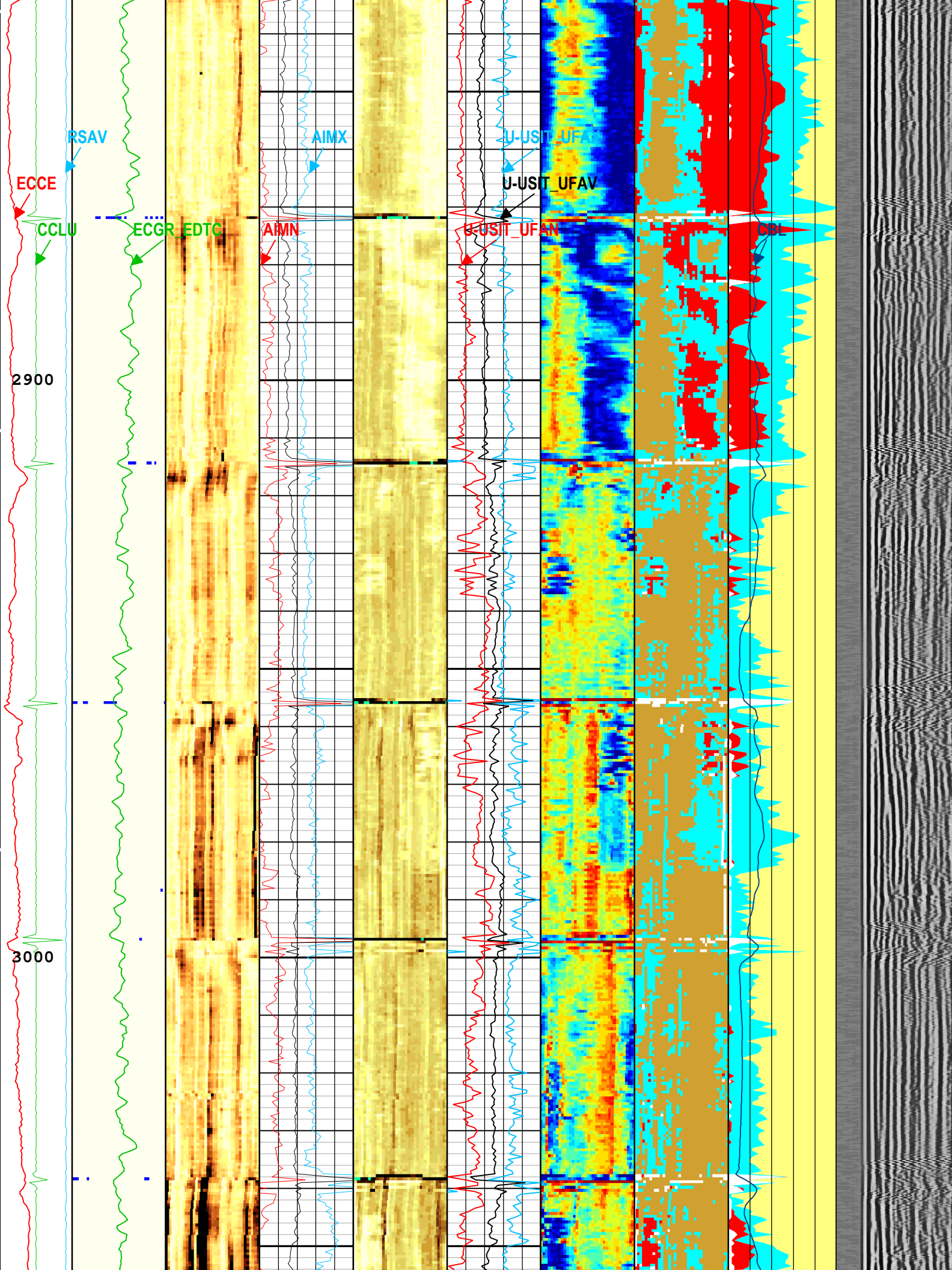
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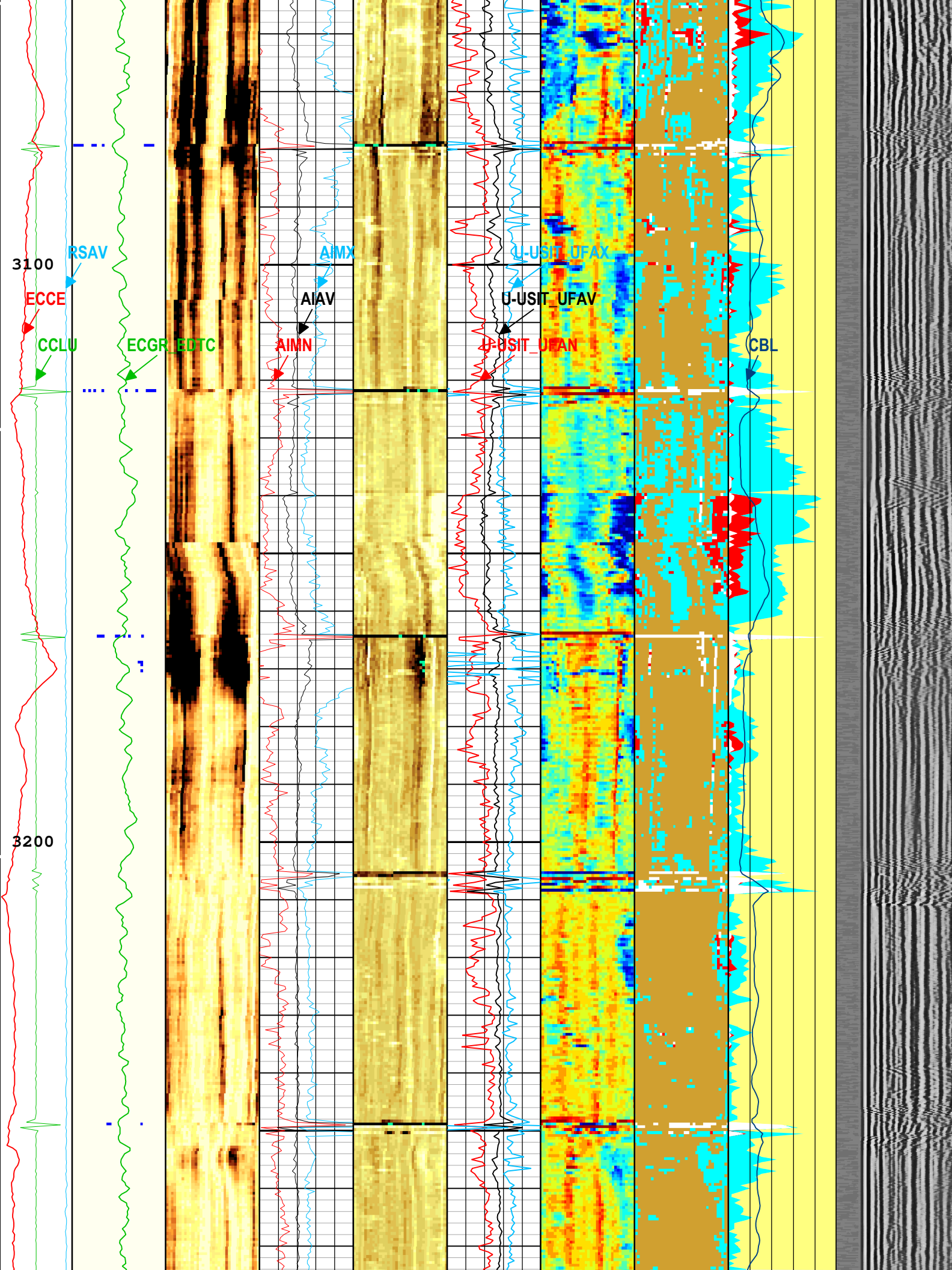
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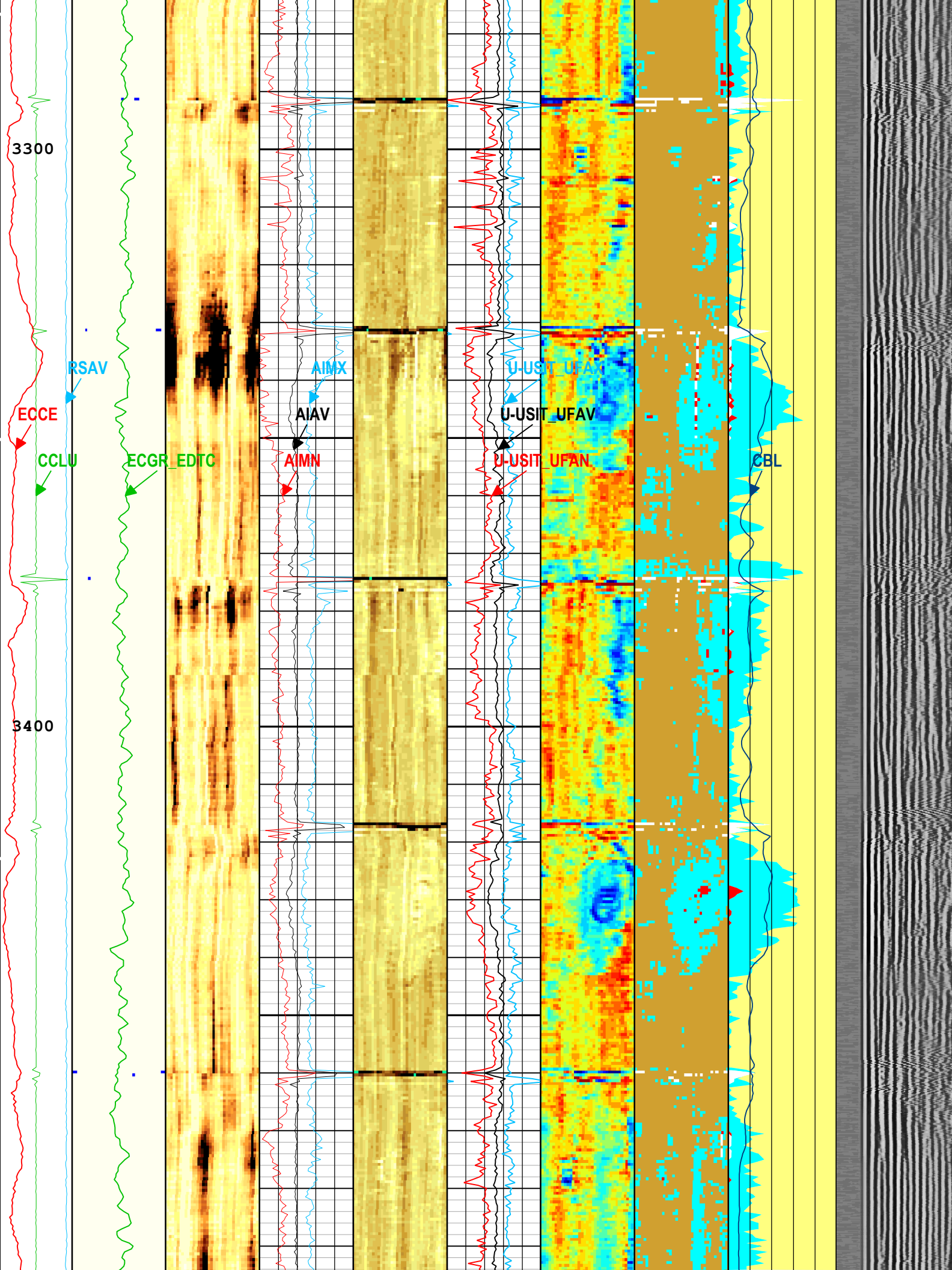
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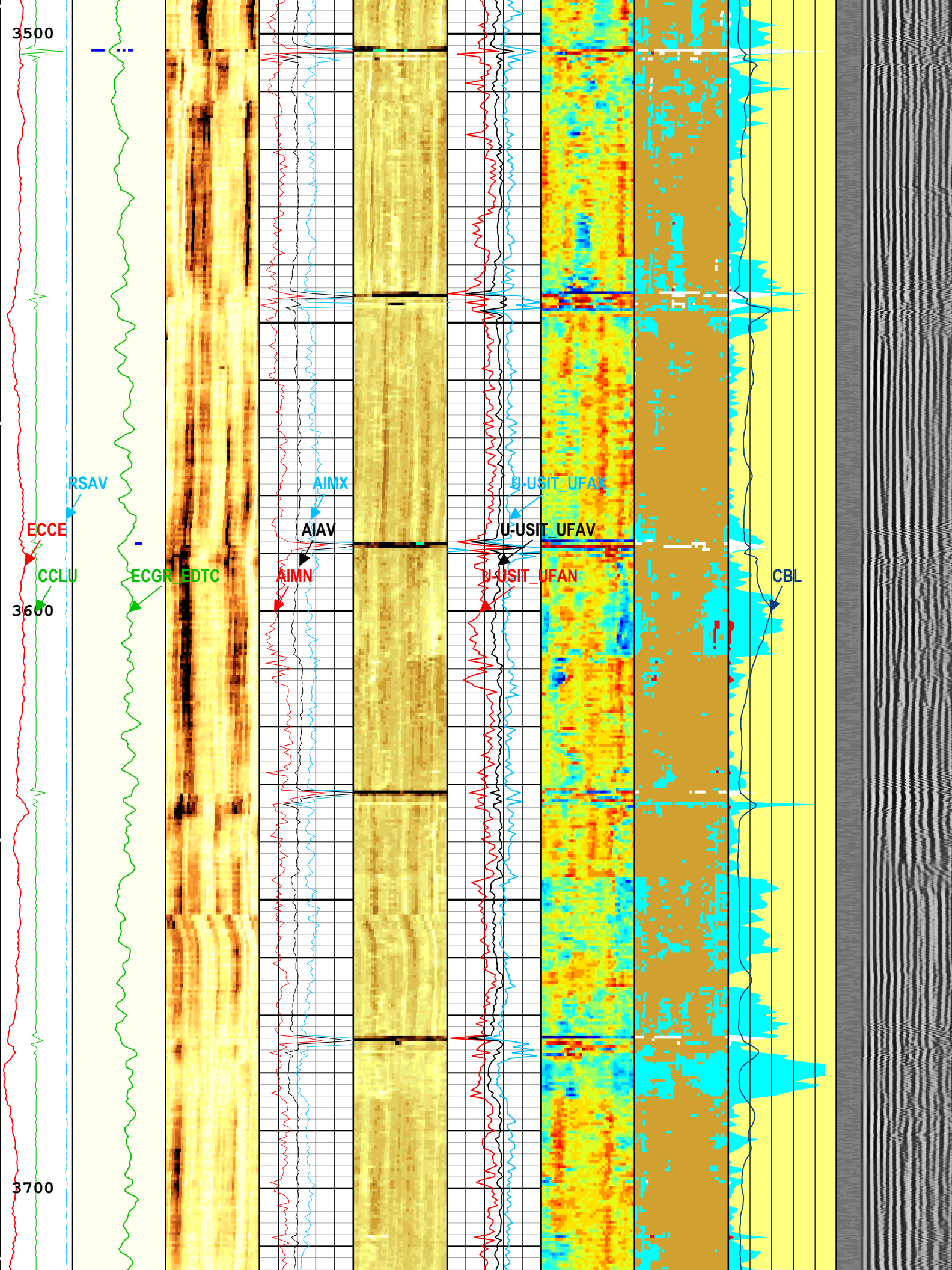
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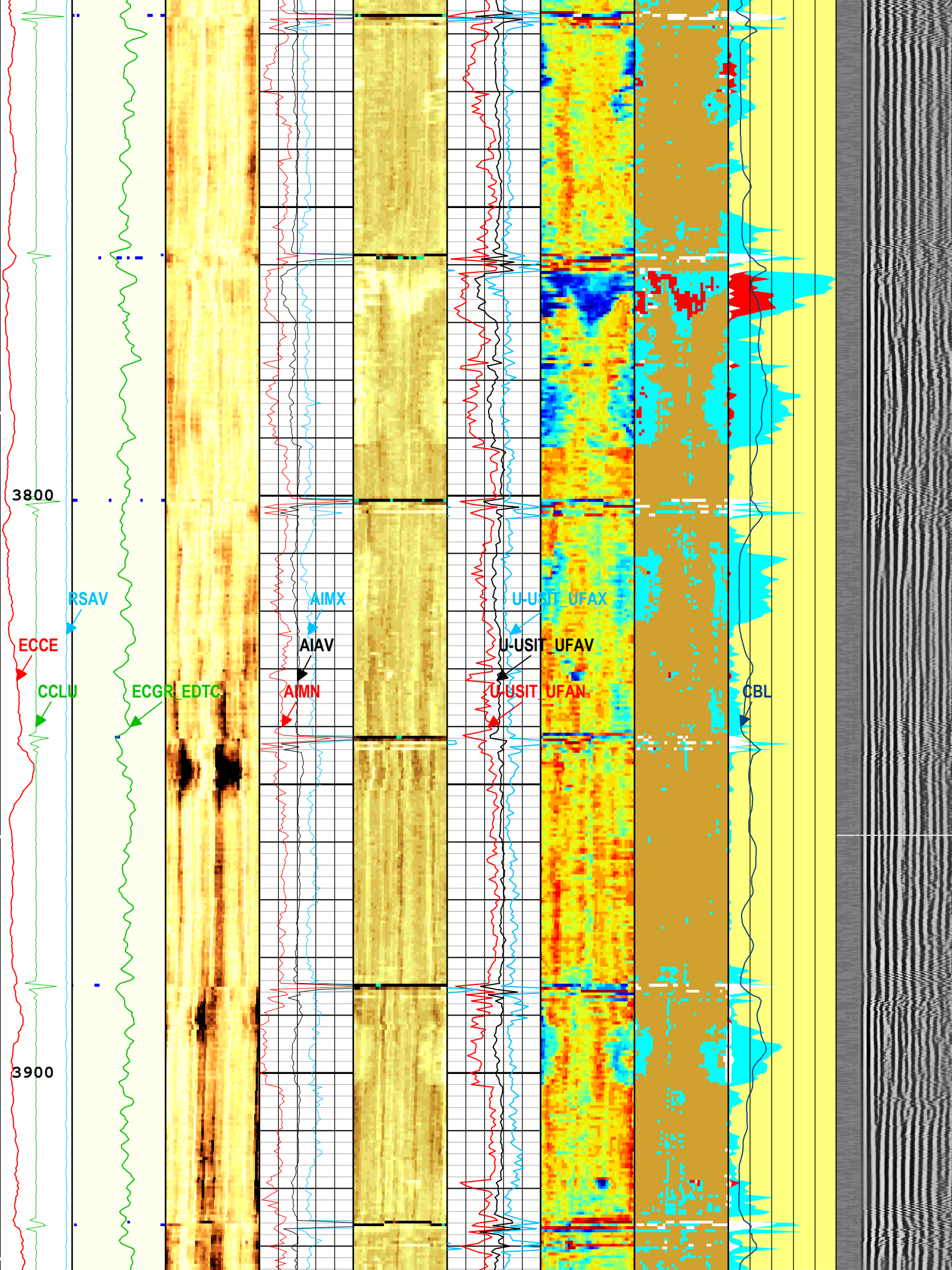
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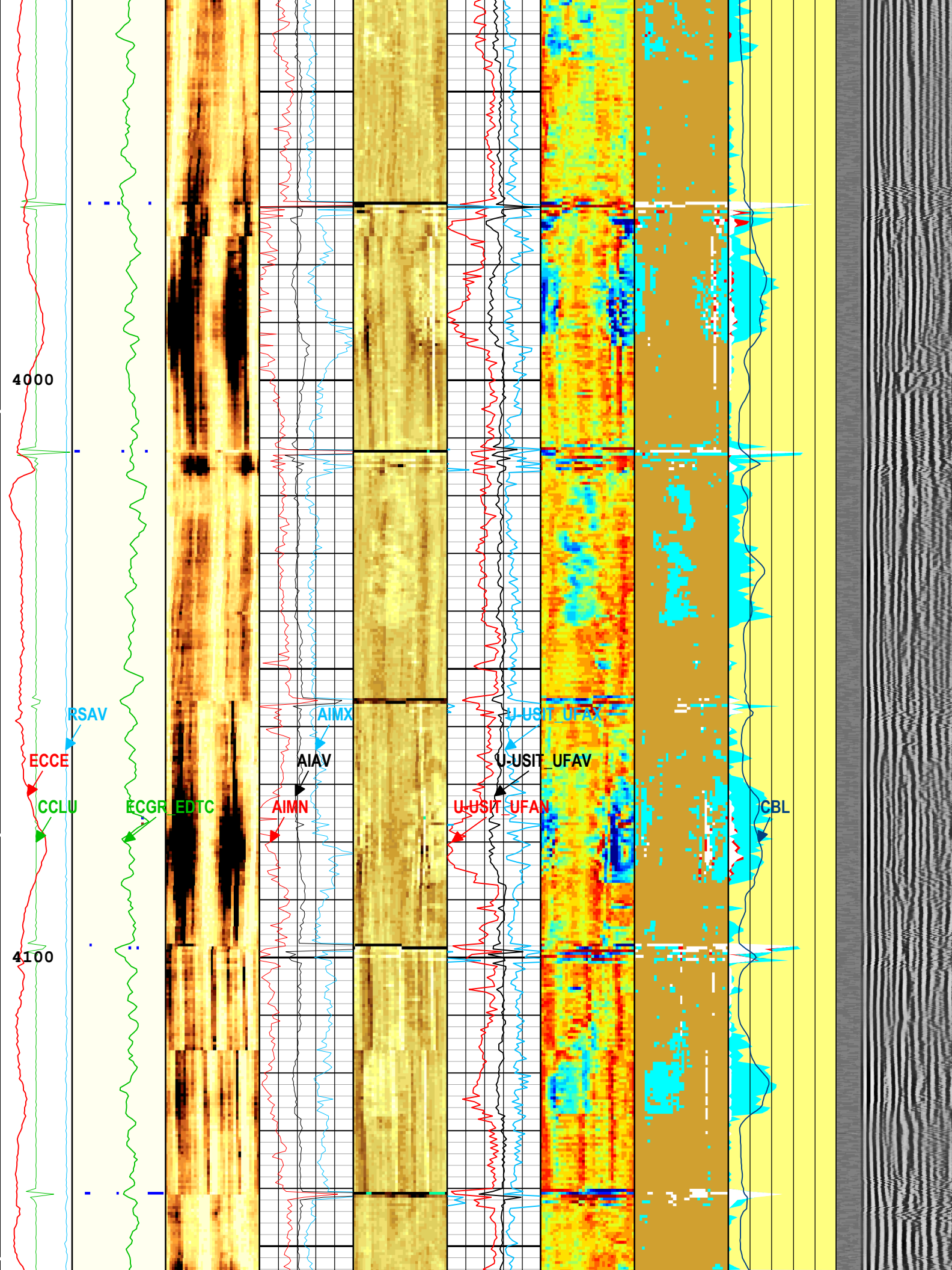
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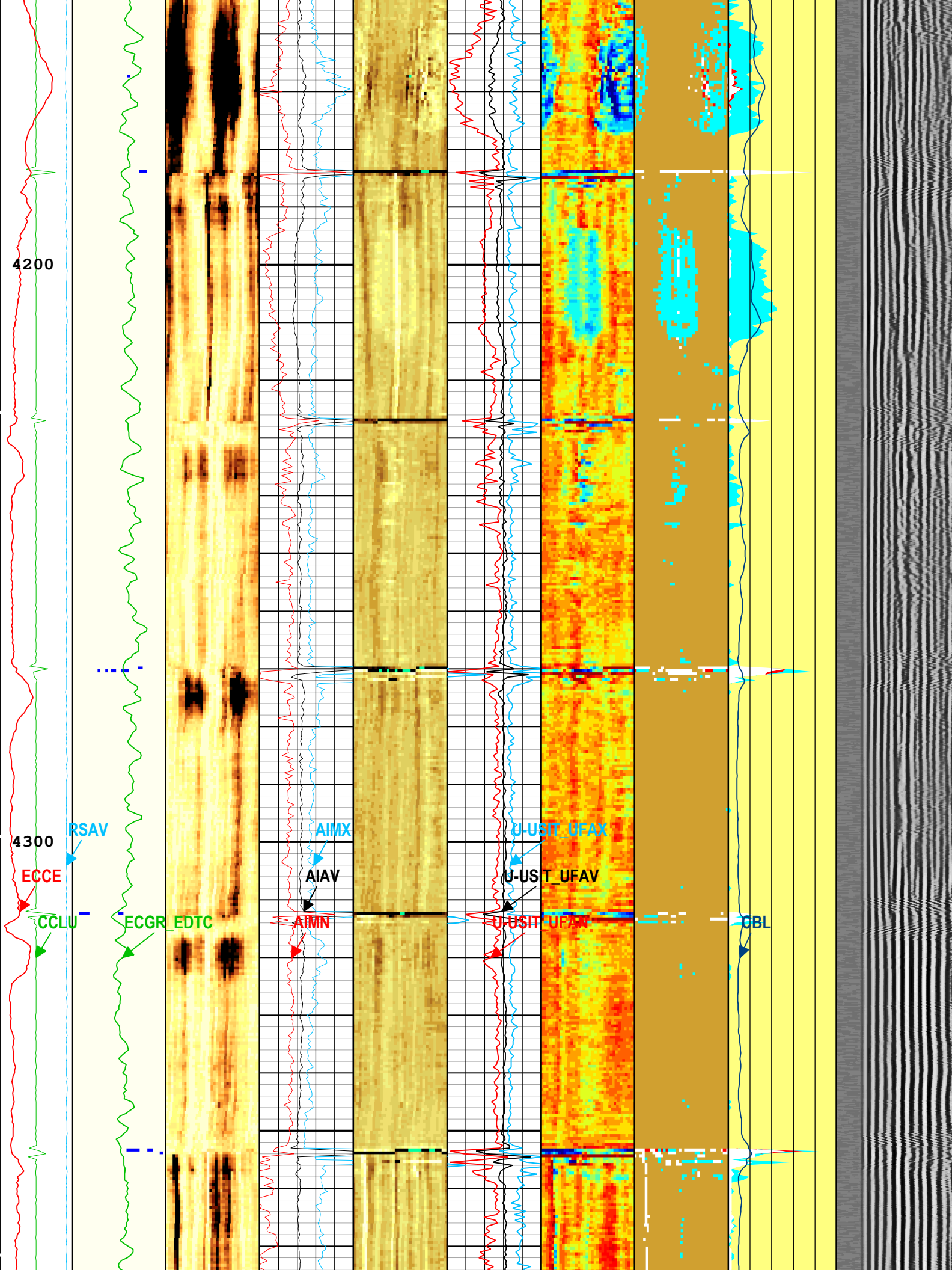
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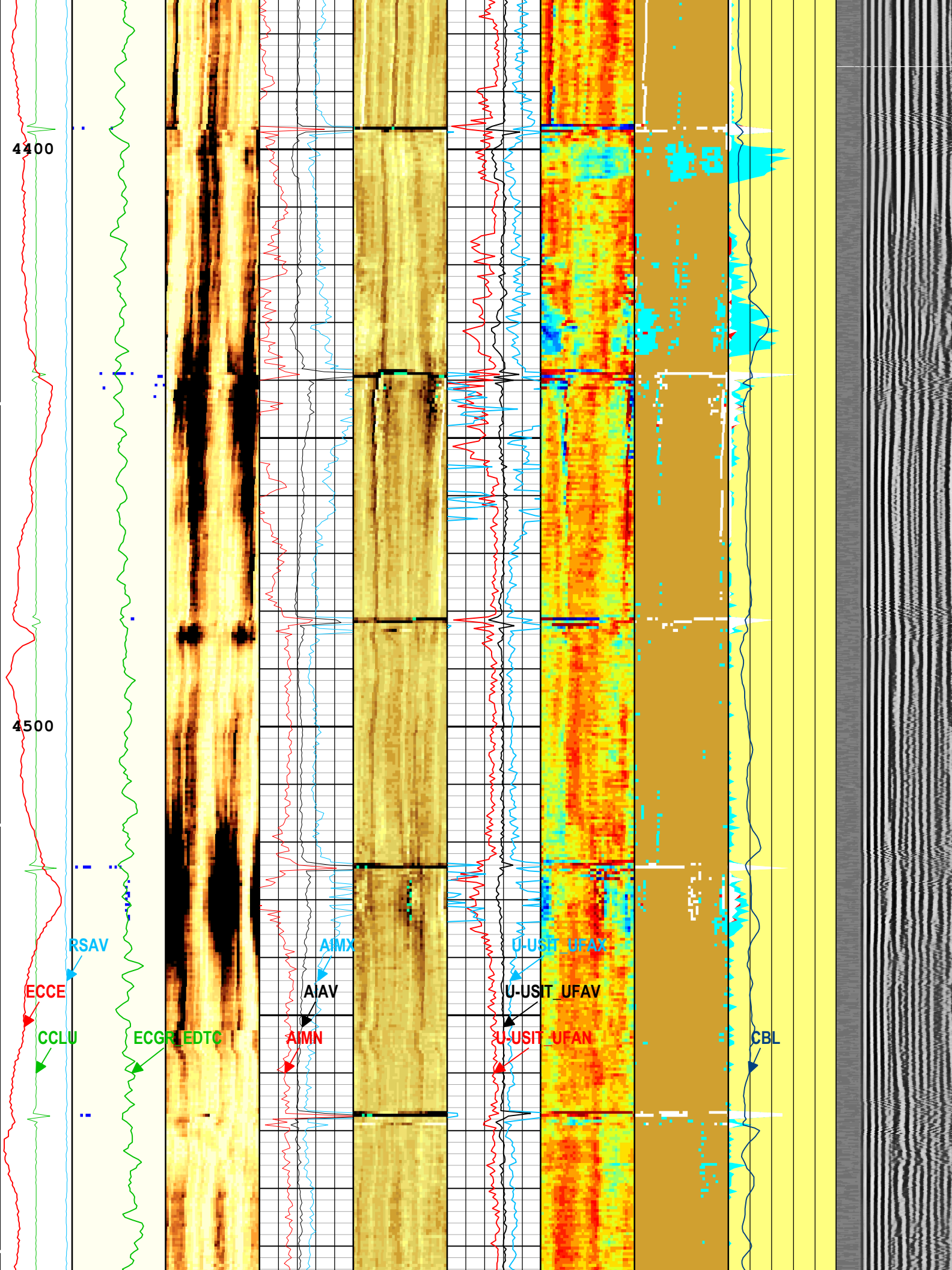
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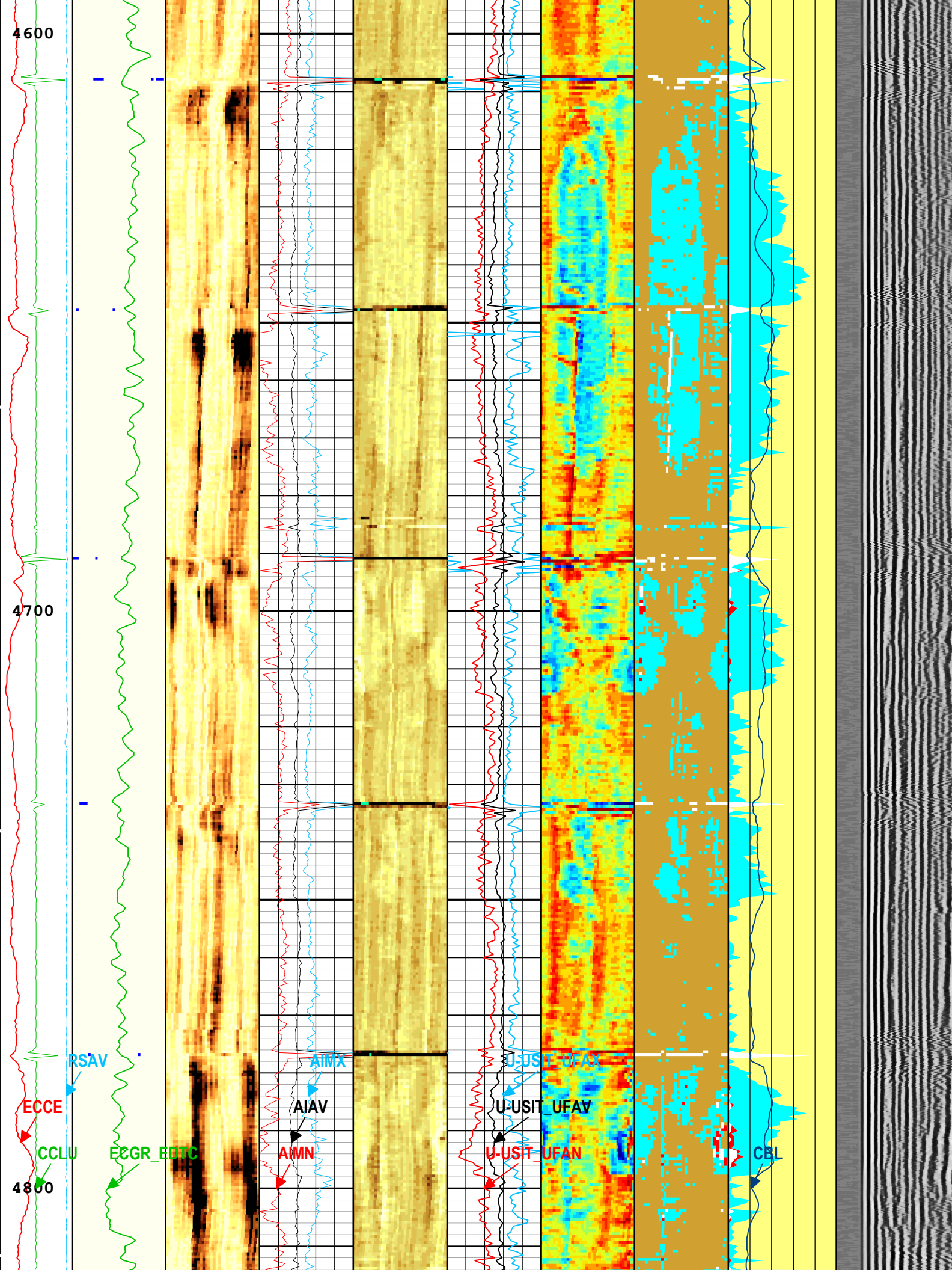
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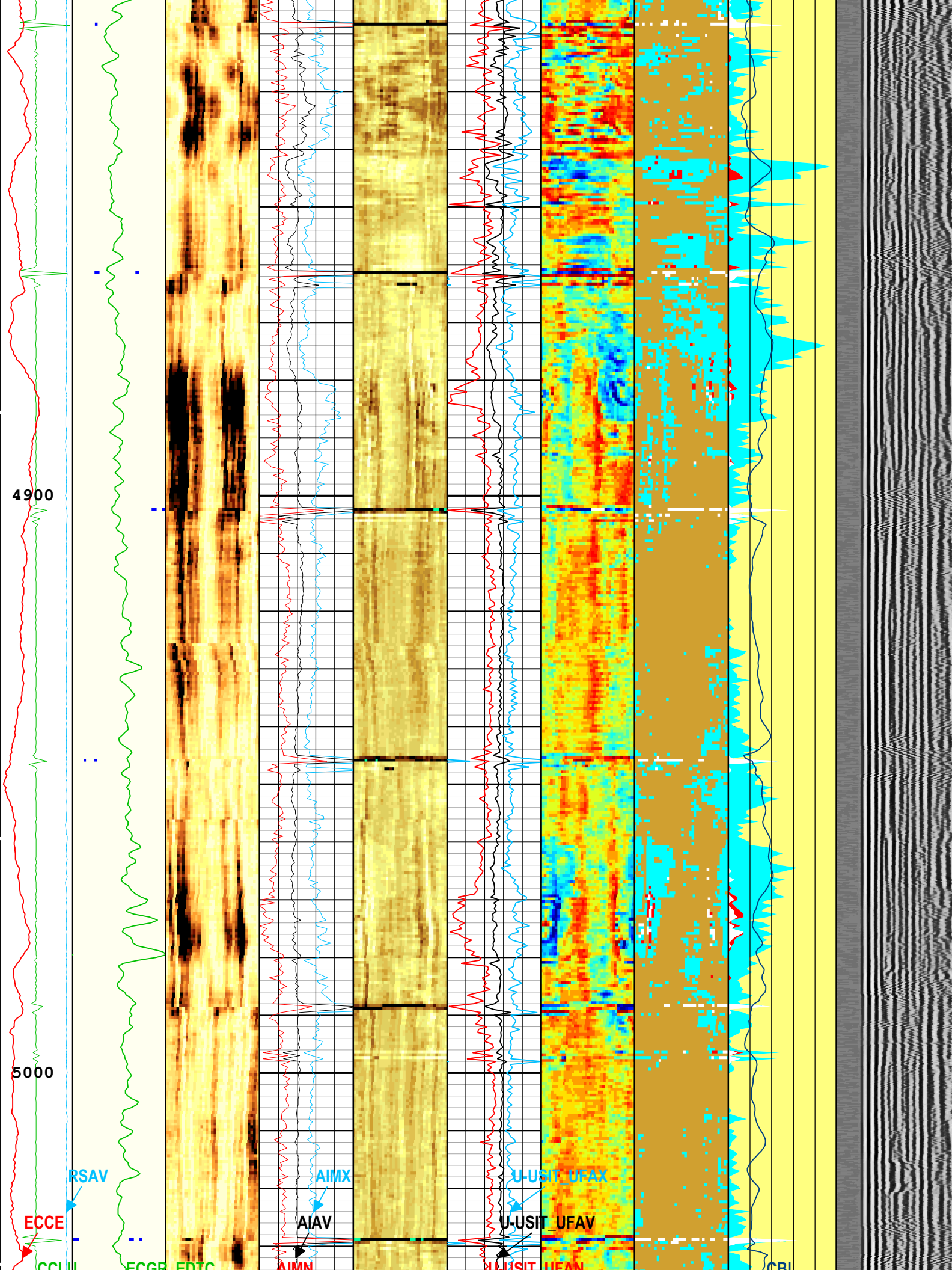
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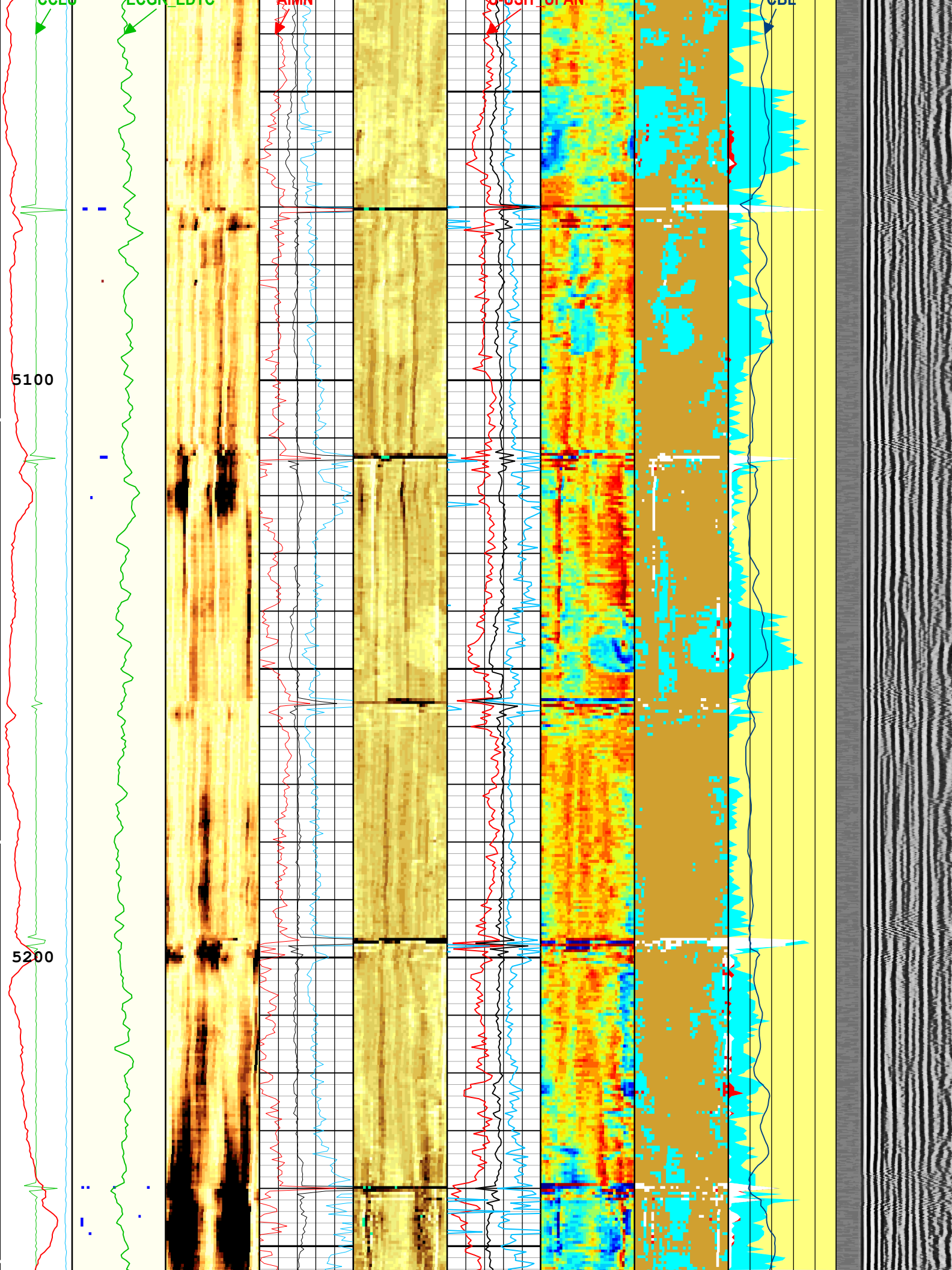
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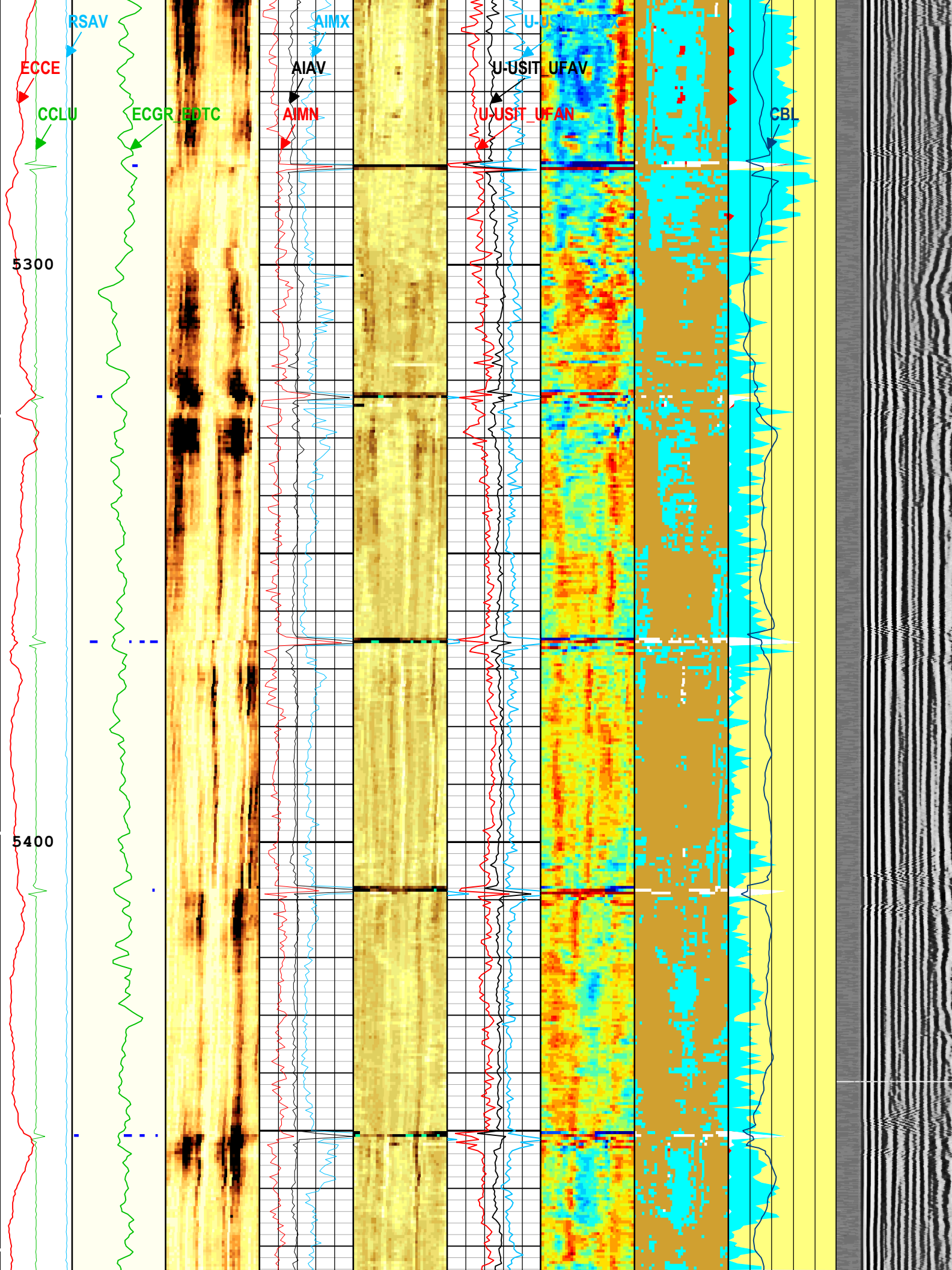
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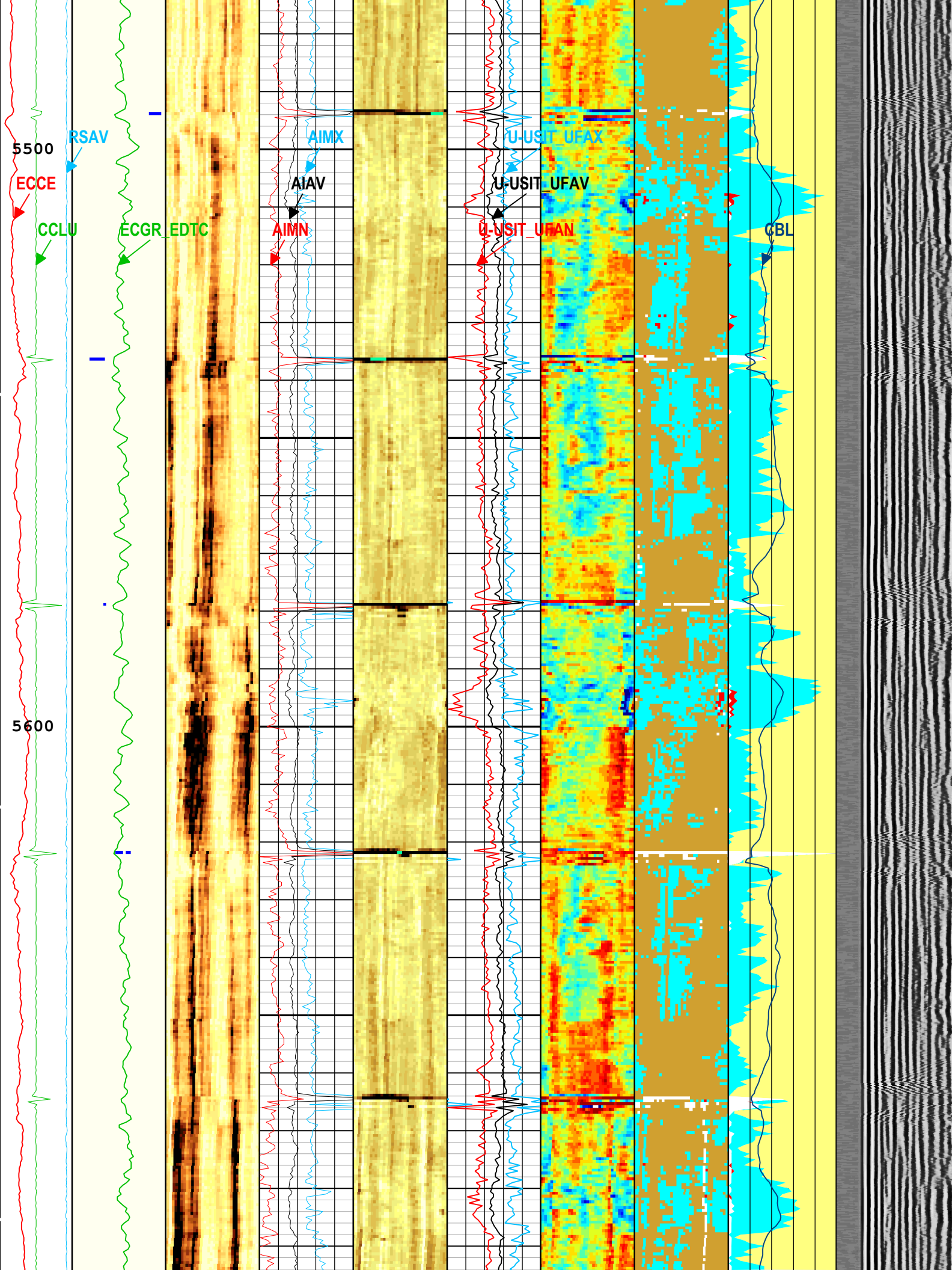
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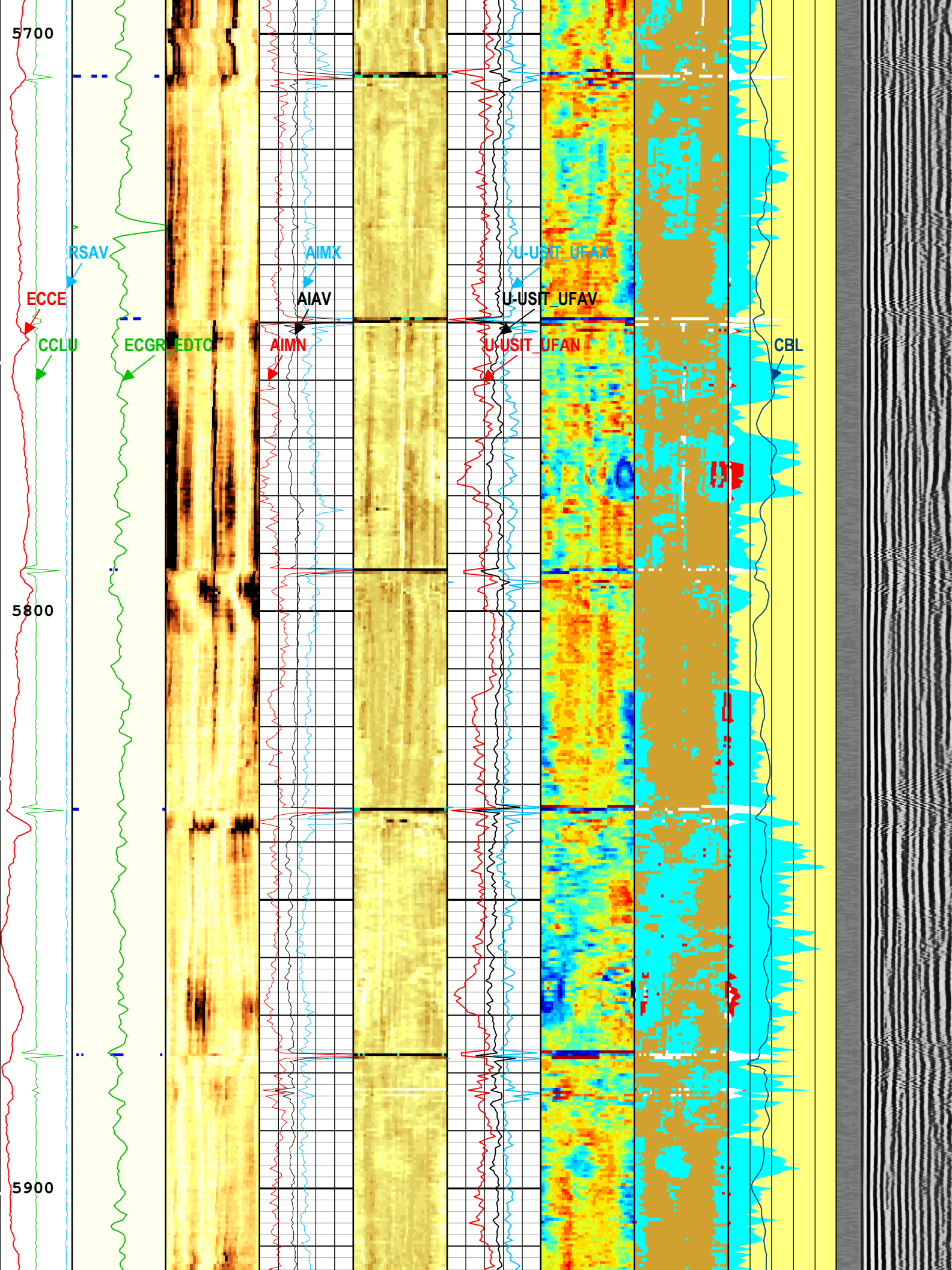
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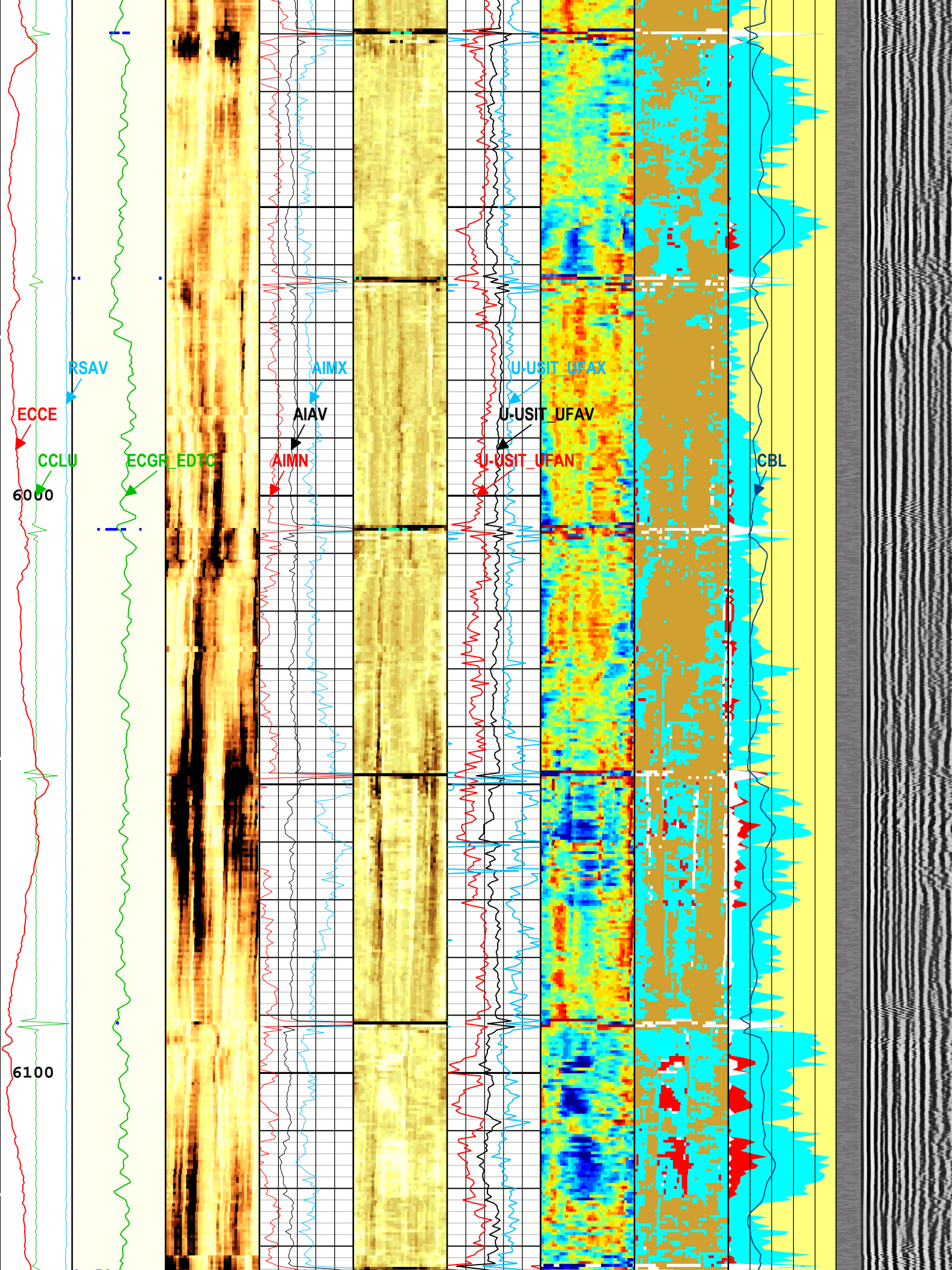
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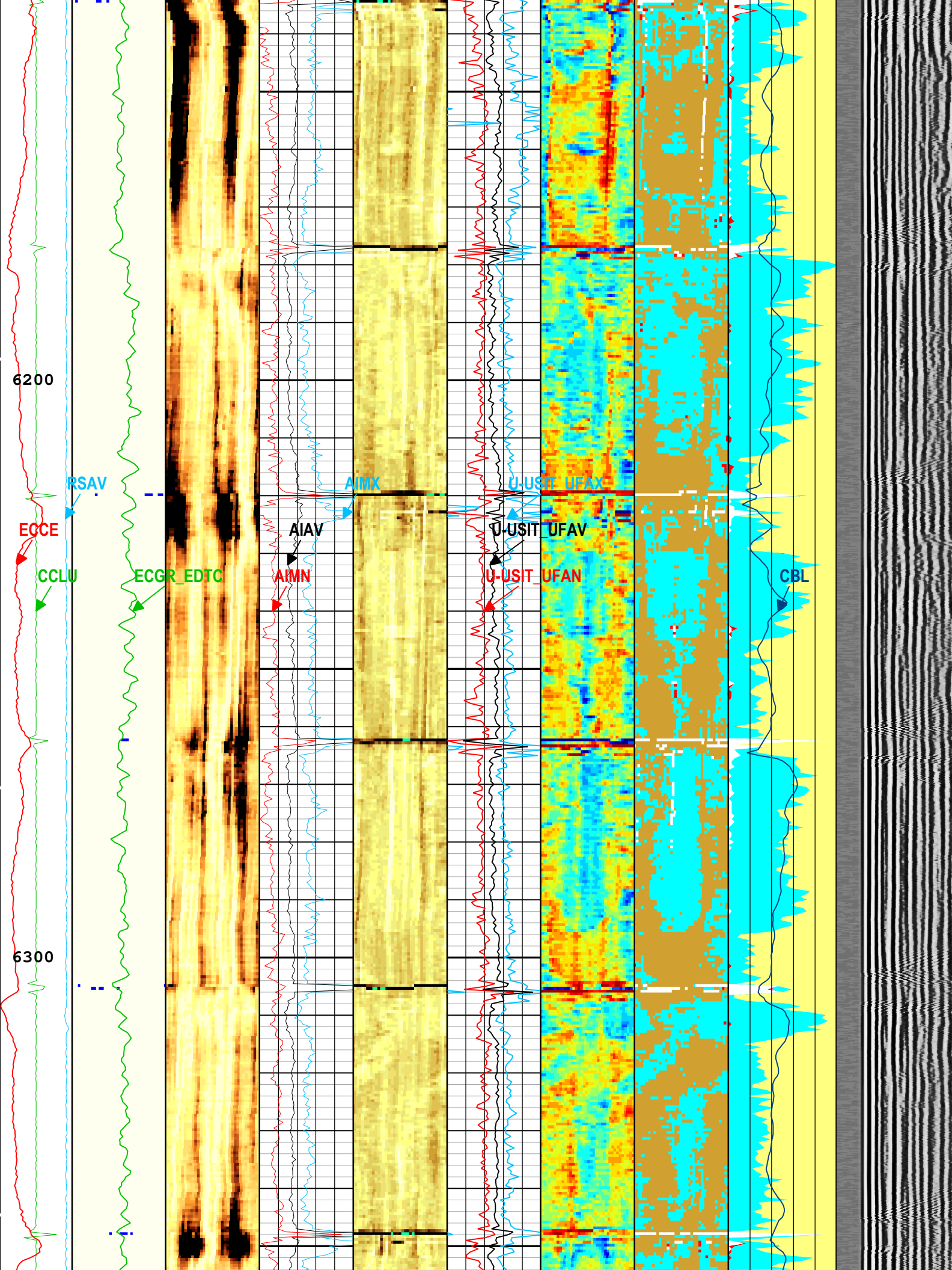
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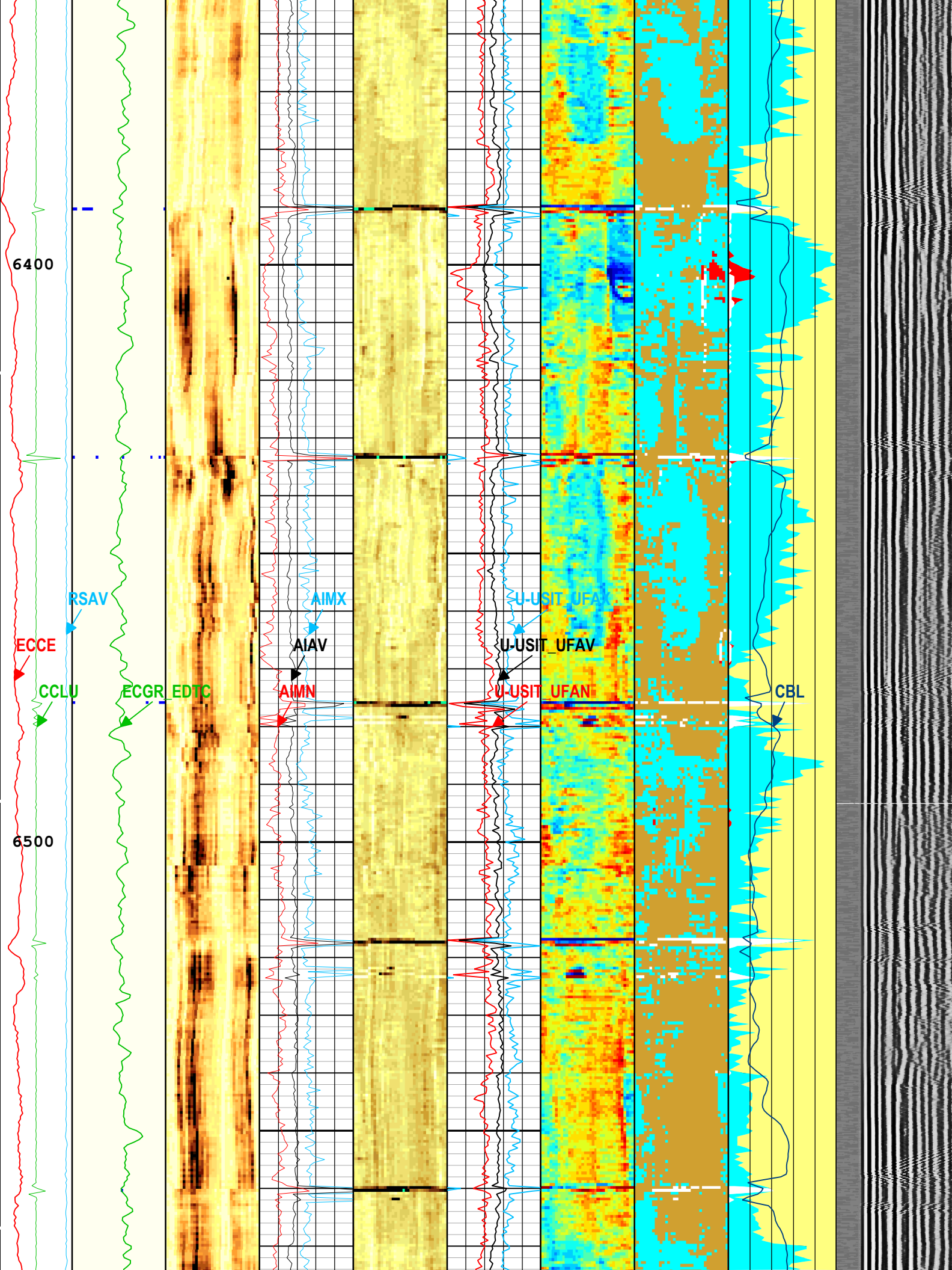
CBL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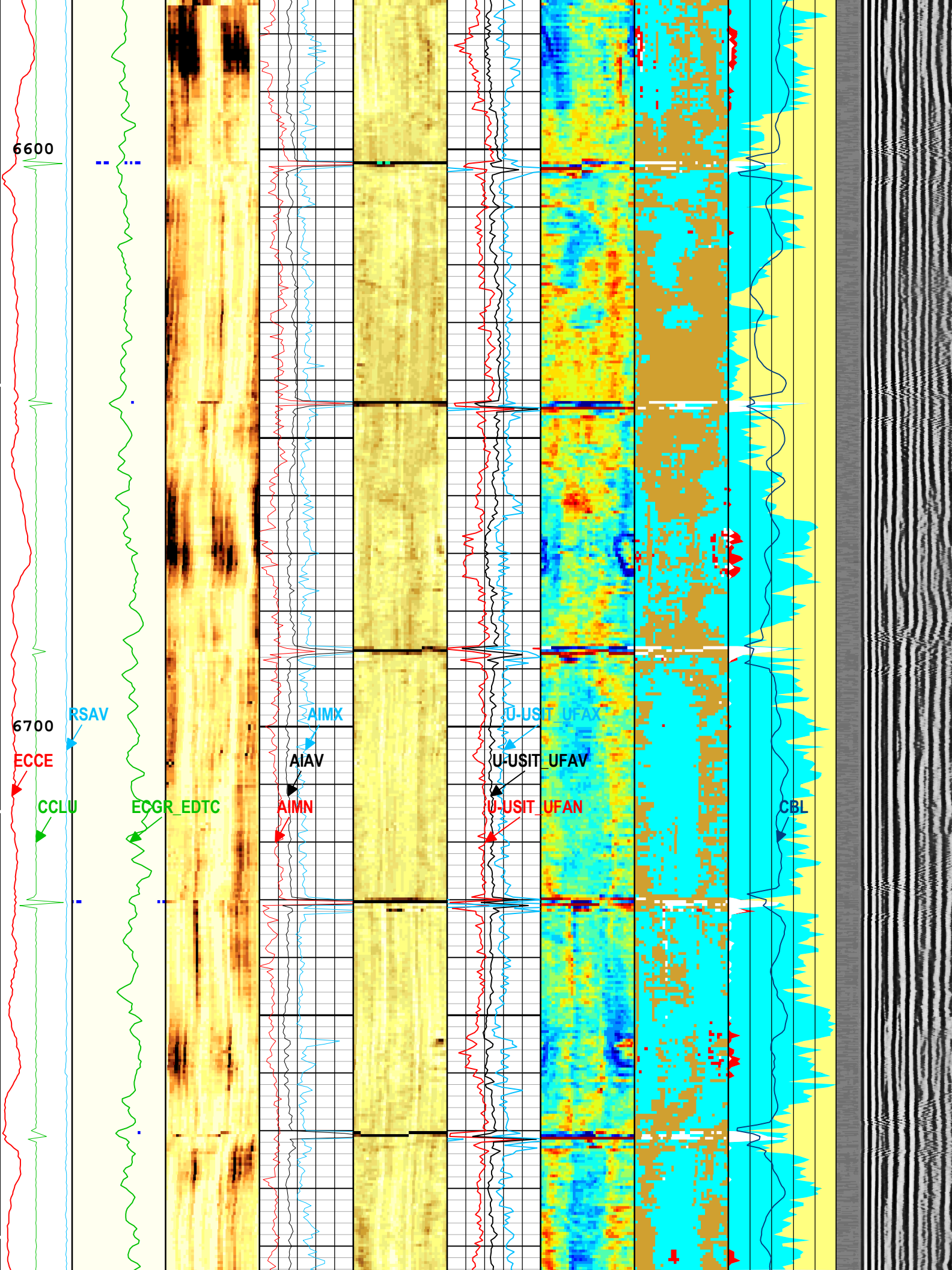
6500
RSAV
ECCE
CCLU
ECGR_EDTC
AIMX
AIAV
AIMN
U-USIT_UFAX
U-USIT_UFAV
U-USIT_UFAN
CBL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AIMX
AIAV
AIMN
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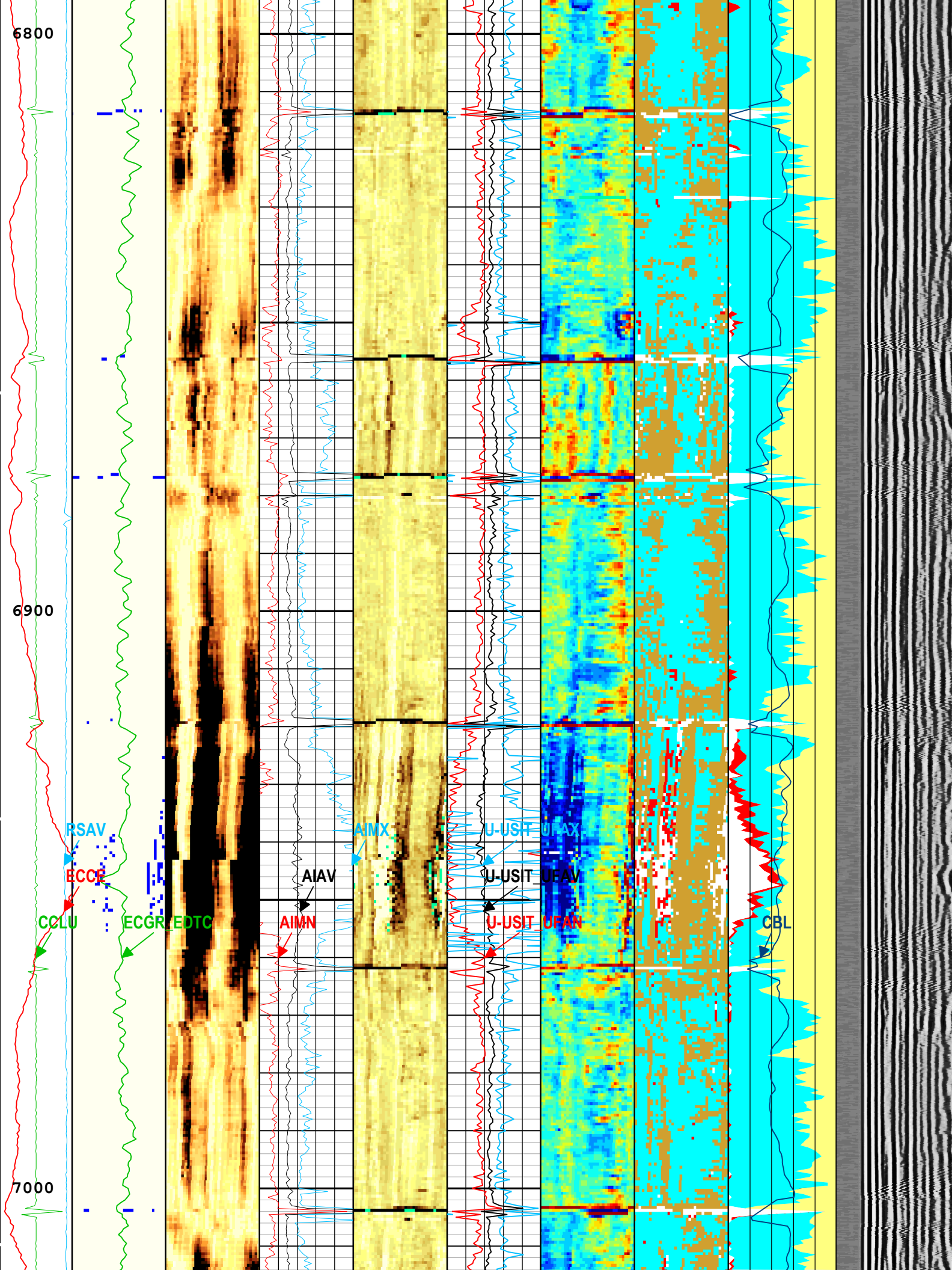
U-USIT_UFAV
U-USIT_UFAN
CBL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6900
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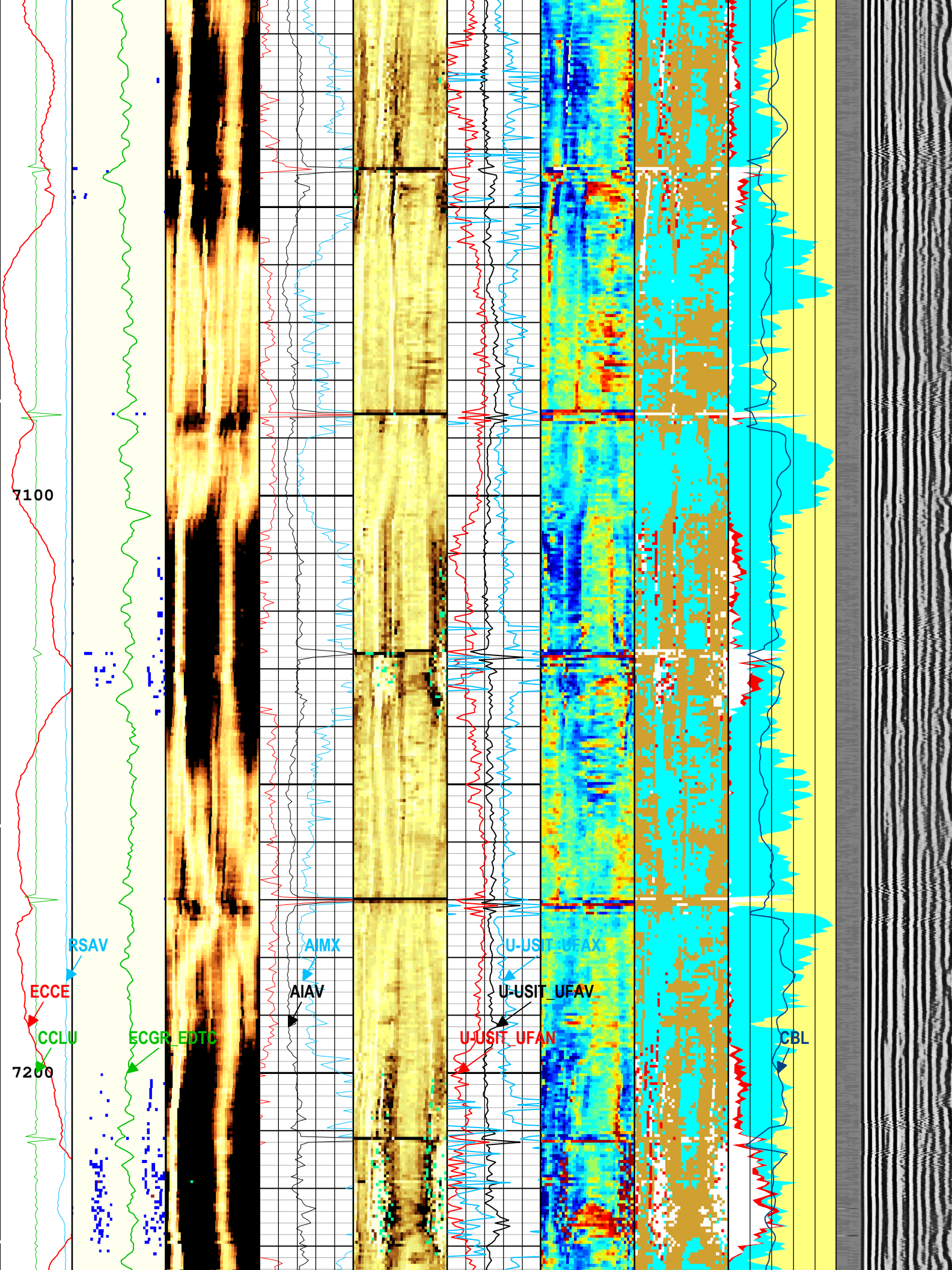
U-USIT_UFAN
CBL


7100
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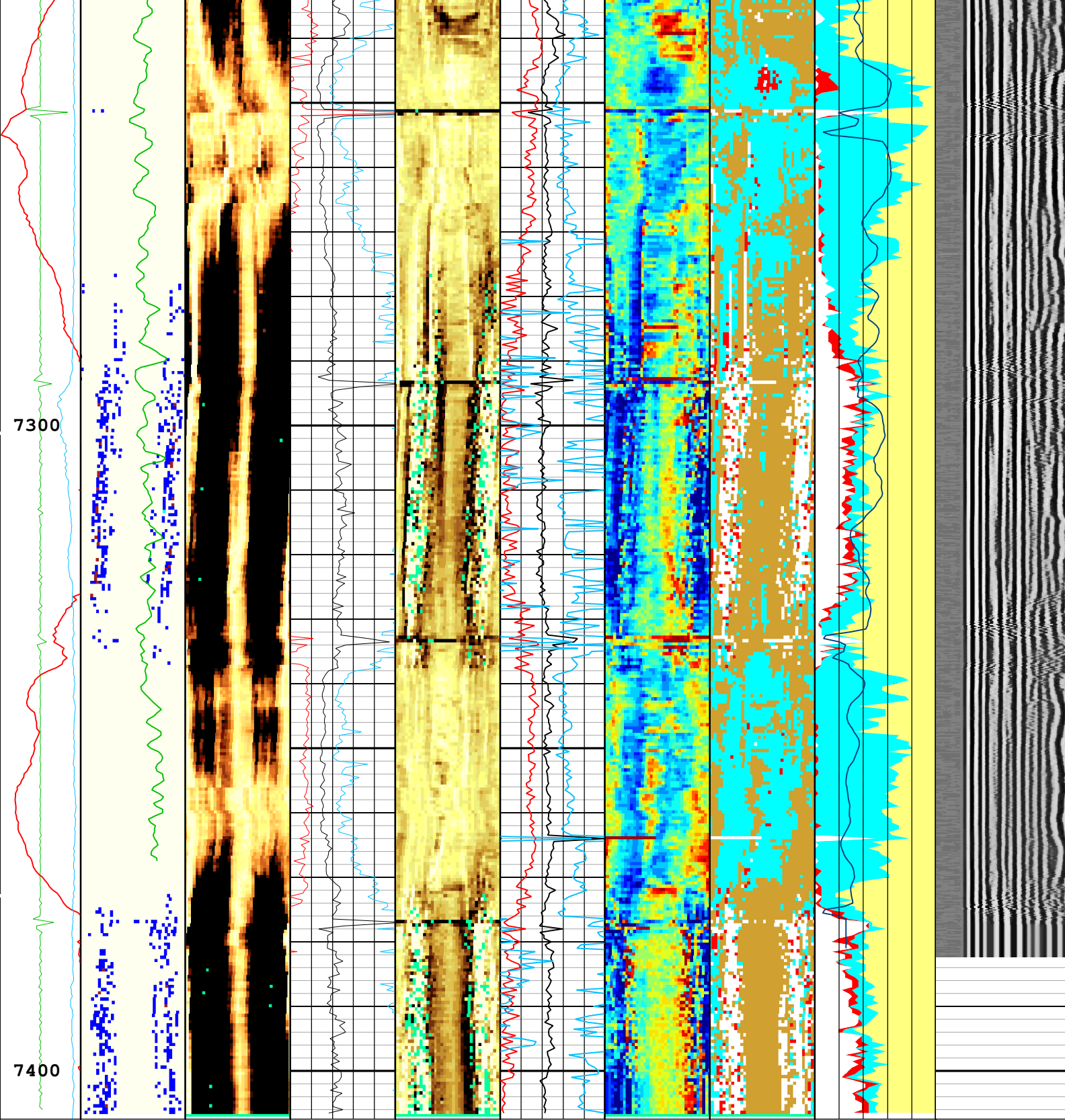
CCLU
ECGR_EDTC
AIMX
AIAV
U-USIT_UFAX
U-USIT_UFAV
U-USIT_UFAN
CBL



Casing Collar Locator Ultrasonic (CCLU) USIT-E

-20 in 20

Amplitude of Eccentering (ECCE) USIT-E

Absent 1.500 3.500

Explicit Normalization

USIT - USIT Processing Flags (UFLG) USIT-E

Orientation: Top of Hole

U L B R U

USIT

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

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

Absent 42.000 66.000 90.000 114.000

Custom Normalization

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

Orientation: Top of Hole

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

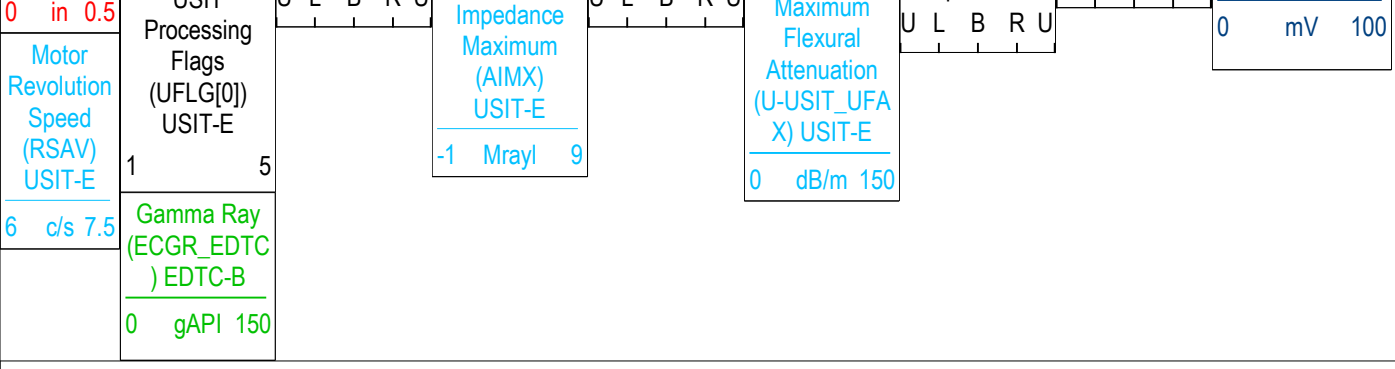
SLG White Point Index

CBL Amplitude (CBL) DSLT-H

Min Amplitude

Variable Density L (VDL) DSLT-H

200 us



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 (IBC SLG DSLT VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 15-Nov-2019 14:14:48

Channel Processing Parameters

ONE: Parameters

Parameter	Description	Tool	Value	Unit
BARI(ISSBAR)	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BS	Bit Size	WLSESSION	Depth Zoned	in
CBLG	CBL Gate Width	DSLT-H	50	us
CBLO	Casing Bottom (Logger)	WLSESSION	12495	ft
CBRA	CBL LQC Reference Amplitude in Free Pipe	DSLT-H	72	mV
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	
DETE	Delta-T Detection	DSLT-H	E1	
DFD	Drilling Fluid Density	Borehole	9.5	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	203	us/ft
FCF	CBL Fluid Compensation Factor	DSLT-H	1	
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	
IMAR	Image Rotation	USIT-E	RB	
MAHTR	Manual High Threshold Reference for first arrival detection	DSLT-H	120	
MCI	Minimum Cemented Interval for Isolation	DSLT-H	Depth Zoned	ft
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-E	22.44	us
MNHTR	Minimum High Threshold Reference for first arrival detection	DSLT-H	90	
MSA	Minimum Sonic Amplitude	DSLT-H	1.6	mV
MUD_N_THE	Theoretical Mud Normalization Factor	USIT-E	1.07	
NMSG	Near Minimum Sliding Gate	DSLT-H	240	us

SGAD	Sliding Gate Status	DSLT-H	Off	
SGDT	Sliding Gate Delta-T	DSLT-H	57	us/ft
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	1.68	Mrayl
U-USIT_UFAO	SIT Flexural Attenuation Offset	USIT-E	-28.91	dB/m
U-USIT_UIAP	IBC Answer Product Enabled	USIT-E	SolidLiquidGasMap	
ZMUD	Acoustic Impedance of Mud	Borehole	1.8	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	74	2596
BS	8.75	2596	7407.5
MCI	14.81	74	2580
MCI	4.75	2580	7407.5

All depth are actual.

Tool Control Parameters

ONE: Parameters

Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	20	dB
MODE	DSLT Acquisition Mode	DSLT-H	CBL	
RATE	DSLT Firing Rate	DSLT-H	15 Hz	
DTFS	DSLT Telemetry Frame Size	DSLT-H	536	
EMXV	EMEX Voltage	USIT-E	120	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	
SGAI	Selectable Acquisition Gain	DSLT-H	x1	
U-USIT_UFWB	Far Receiver Window Begin Time	USIT-E	Time Zoned	us
U-USIT_UFWE	Far Receiver Window End Time	USIT-E	176	us
U-USIT_UNWB	Near Receiver Window Begin Time	USIT-E	Time Zoned	us
U-USIT_UNWE	Near Receiver Window End Time	USIT-E	145	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	33_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)
U-USIT_UFWB	136	15-Nov-2019 09:38:59	15-Nov-2019 09:41:17	7408.22	7280.78
U-USIT_UFWB	129.82	15-Nov-2019 09:41:17	15-Nov-2019 11:21:58	7280.78	72.95
U-USIT_UNWB	105	15-Nov-2019 09:38:59	15-Nov-2019 09:40:53	7408.22	7308.75
U-USIT_UNWB	100.36	15-Nov-2019 09:40:53	15-Nov-2019 09:41:00	7308.75	7300.13
U-USIT_UNWB	92.51	15-Nov-2019 09:41:00	15-Nov-2019 09:41:11	7300.13	7287.54
U-USIT_UNWB	88.25	15-Nov-2019 09:41:11	15-Nov-2019 09:44:09	7287.54	7072.1
U-USIT_UNWB	94.14	15-Nov-2019 09:44:09	15-Nov-2019 09:44:27	7072.1	7050.17

U-USIT_UNWB	97.74	15-Nov-2019 09:44:27	15-Nov-2019 09:44:41	7050.17	7033.16
U-USIT_UNWB	103.96	15-Nov-2019 09:44:41	15-Nov-2019 09:46:03	7033.16	6931.92
U-USIT_UNWB	102.65	15-Nov-2019 09:46:03	15-Nov-2019 09:46:15	6931.92	6916.78
U-USIT_UNWB	98.07	15-Nov-2019 09:46:15	15-Nov-2019 11:21:58	6916.78	72.95
WINB	31.12	15-Nov-2019 09:38:59	15-Nov-2019 09:40:06	7408.22	7365
WINB	26.08	15-Nov-2019 09:40:06	15-Nov-2019 09:41:24	7365	7271.43
WINB	23.2	15-Nov-2019 09:41:24	15-Nov-2019 10:47:26	7271.43	2440.28
WINB	25.47	15-Nov-2019 10:47:26	15-Nov-2019 11:21:58	2440.28	72.95
WINE	71.12	15-Nov-2019 09:38:59	15-Nov-2019 09:40:14	7408.22	7356.05
WINE	74.32	15-Nov-2019 09:40:14	15-Nov-2019 09:43:37	7356.05	7111.92
WINE	79.36	15-Nov-2019 09:43:37	15-Nov-2019 09:46:23	7111.92	6907.46
WINE	75.28	15-Nov-2019 09:46:23	15-Nov-2019 09:47:26	6907.46	6829.78
WINE	78.16	15-Nov-2019 09:47:26	15-Nov-2019 10:47:32	6829.78	2433.64
WINE	79.66	15-Nov-2019 10:47:32	15-Nov-2019 11:21:58	2433.64	72.95

All depth are at tool zero.

ONE

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

Software Version

Acquisition System	Version
Maxwell 2019.2	9.2.113335.3100

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
ONE	Log[5]:Up	Up	7079.88 ft	7407.92 ft	15-Nov-2019 9:29:04 AM	15-Nov-2019 9:35:19 AM	ON	7.94 ft	Yes

All depths are referenced to toolstring zero

Log

Company:CRESTONE PEAK RESOURCES OPERATING LLC Well:HINGLEY 1E-18H-A167

ONE: Log[5]:Up:S018

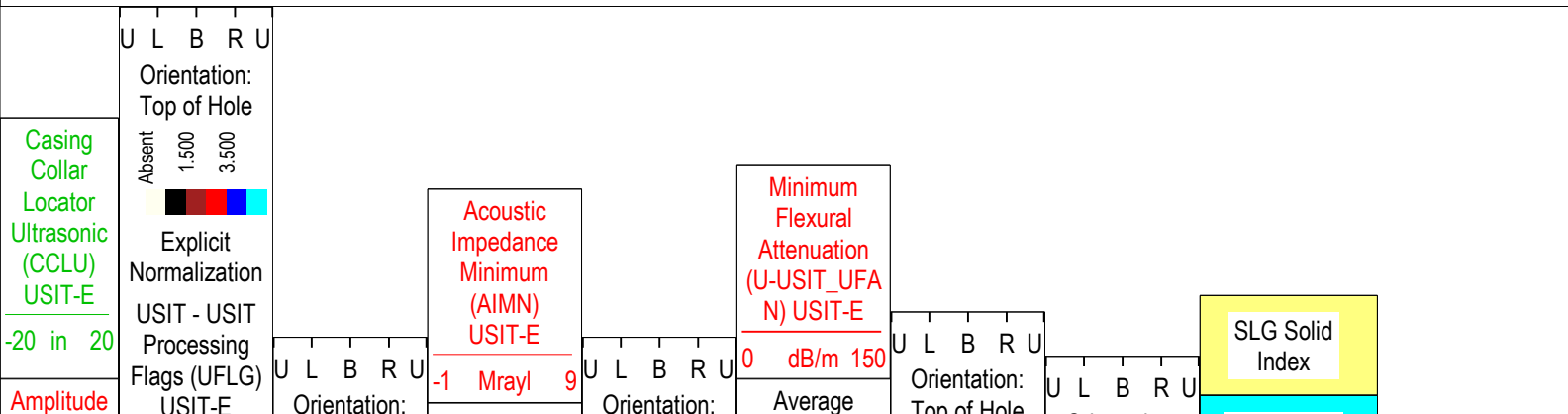
Description: USI IBC SLG Format: Log (IBC SLG DSLT VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 15-Nov-2019 14:15:10

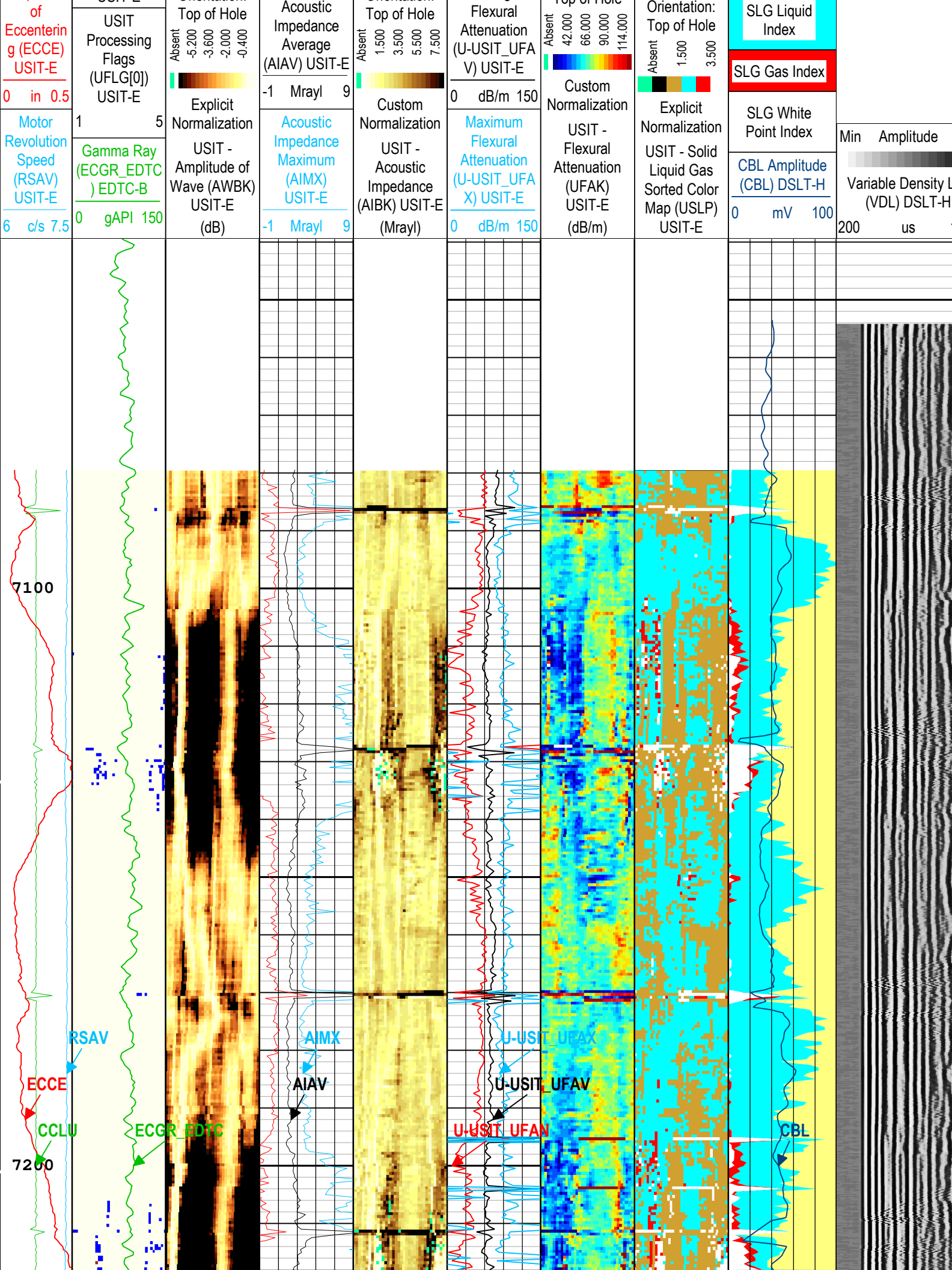
TIME_1900 - Time Marked every 60.00 (s)

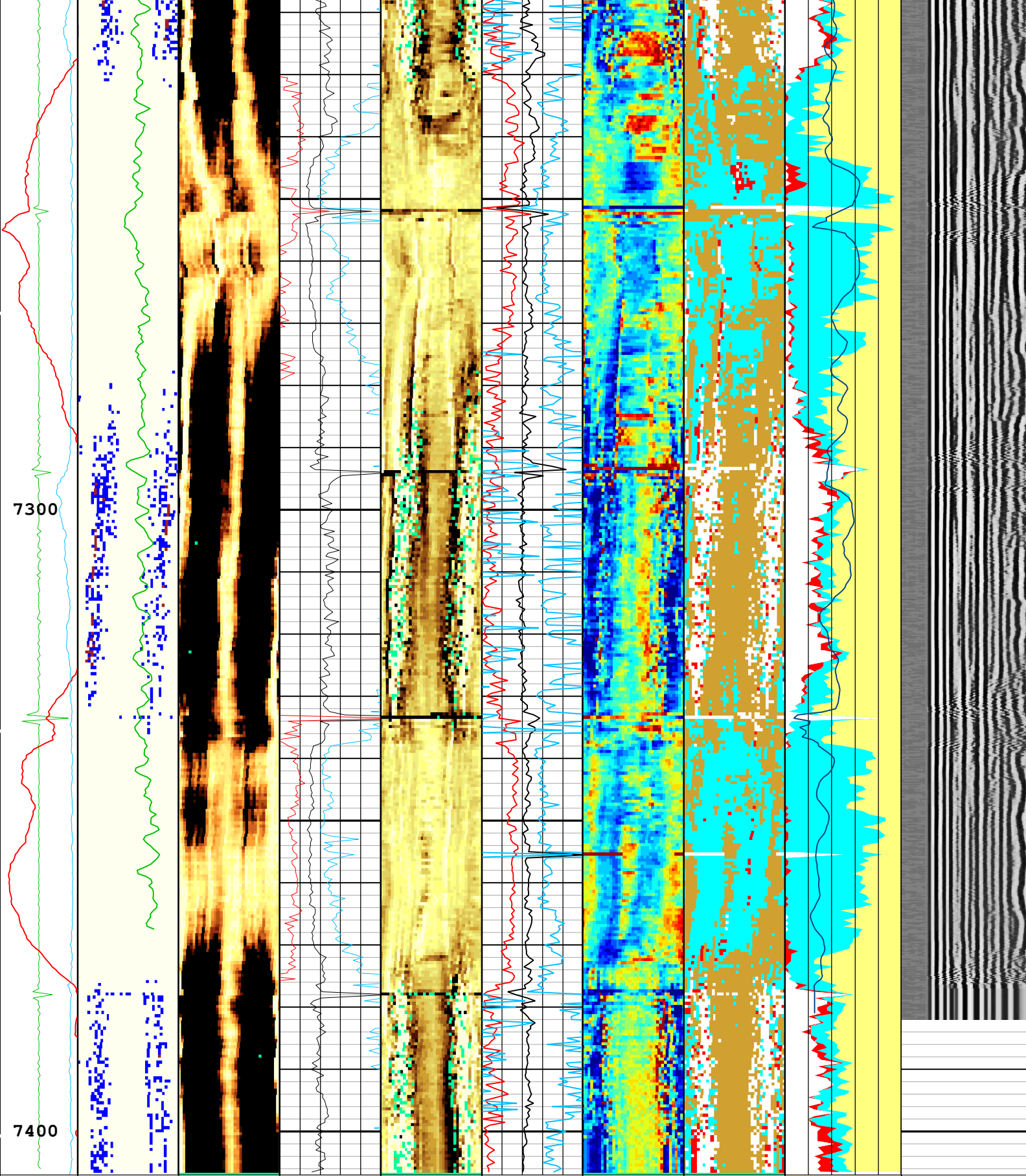
USIT Processing Flags (UFLG[0]) USIT-E

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




of Eccenterin g (ECCE) USIT-E
0 in 0.5
Motor Revolution Speed (RSAV) USIT-E
6 c/s 7.5
USIT Processing Flags (UFLG[0]) USIT-E
1 5
Gamma Ray (ECGR_EDTC) EDTC-B
0 gAPI 150
Top of Hole
Absent -5.200 -3.600 -2.000 -0.400
Explicit Normalization
USIT - Amplitude of Wave (AWBK) USIT-E
(dB)
Acoustic Impedance Average (AIAV) USIT-E
-1 Mrayl 9
Acoustic Impedance Maximum (AIMX) USIT-E
-1 Mrayl 9
Top of Hole
Absent 1.500 3.500 5.500 7.500
Custom Normalization
USIT - Acoustic Impedance (AIBK) USIT-E
(Mrayl)
Flexural Attenuation (U-USIT_UFA V) USIT-E
0 dB/m 150
Maximum Flexural Attenuation (U-USIT_UFA X) 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
Absent 1.500 3.500
Explicit Normalization
USIT - Solid Liquid Gas Sorted Color Map (USLP) USIT-E
SLG Liquid Index
SLG Gas Index
SLG White Point Index
CBL Amplitude (CBL) DSLT-H
0 mV 100
Min Amplitude
Variable Density L (VDL) DSLT-H
200 us
7100
7200
RSAV
ECCE
CCLU
ECGR_EDTC
AIMX
AIAV
U-USIT_UFAX
U-USIT_UFAV
U-USIT_UFAN
CBL



Casing Collar Locator Ultrasonic (CCLU) USIT-E

-20 in 20

Amplitude

Absent 1.500 3.500

Explicit Normalization

USIT - USIT Processing Flags (UFLG) USIT-E

Absent -5.200 -3.600 -2.000 -0.400

Explicit Normalization

USIT - Amplitude of Wave (AWBK) USIT-E

Acoustic Impedance Minimum (AIMN) USIT-E

-1 Mrayl 9

Acoustic Impedance

Absent 1.500 3.500 5.500 7.500

Custom Normalization

USIT - Acoustic Impedance (AIBK) USIT-E

Minimum Flexural Attenuation (U-USIT_UFAN) USIT-E

0 dB/m 150

Average Flexural Attenuation

Absent 42.000 66.000 90.000 114.000

Custom Normalization

USIT - Flexural Attenuation (UFAK)

Absent 1.500 3.500

Explicit Normalization

USIT - Solid Liquid Gas Sorted Color Map (USLP)

SLG Solid Index

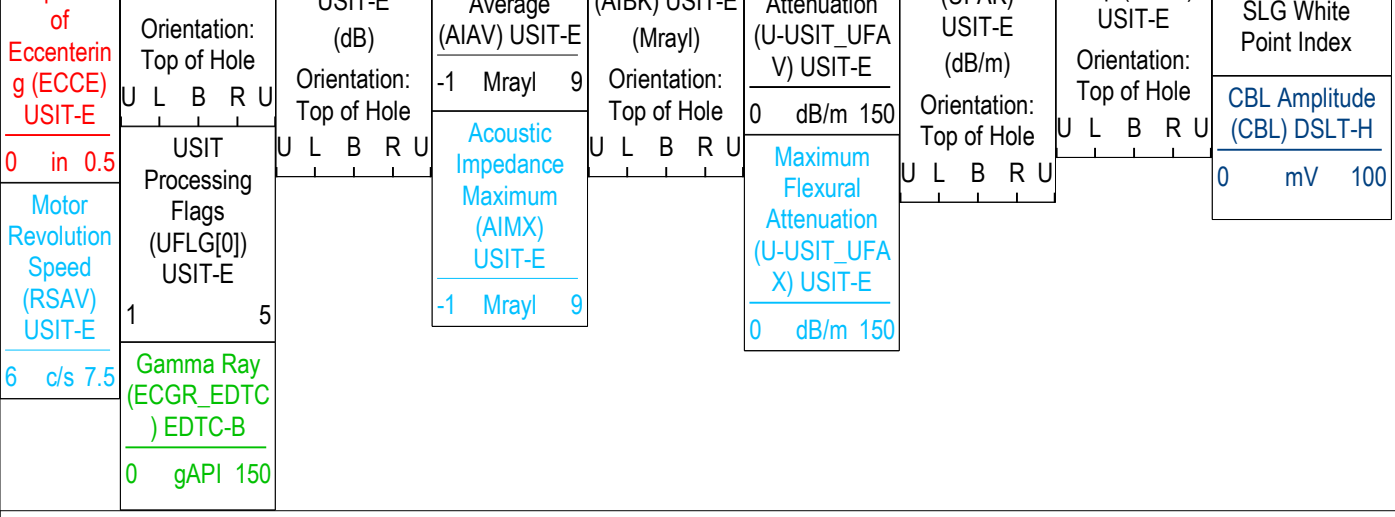
SLG Liquid Index

SLG Gas Index

Min Amplitude

Variable Density L (VDL) DSLT-H

200 us



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 (IBC SLG DSLT VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 15-Nov-2019 14:15:10

Channel Processing Parameters

ONE: Parameters

Parameter	Description	Tool	Value	Unit
BARI(ISSBAR)	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BS	Bit Size	WLSESSION	8.75	in
CBLG	CBL Gate Width	DSLT-H	50	us
CBLO	Casing Bottom (Logger)	WLSESSION	12495	ft
CBRA	CBL LQC Reference Amplitude in Free Pipe	DSLT-H	72	mV
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	
DETE	Delta-T Detection	DSLT-H	E1	
DFD	Drilling Fluid Density	Borehole	9.5	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	203	us/ft
FCF	CBL Fluid Compensation Factor	DSLT-H	1	
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	
IMAR	Image Rotation	USIT-E	RB	
MAHTR	Manual High Threshold Reference for first arrival detection	DSLT-H	120	
MCI	Minimum Cemented Interval for Isolation	DSLT-H	4.75	ft
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-E	22.44	us

MNHTR	Minimum High Threshold Reference for first arrival detection	DSLT-H	90	
MSA	Minimum Sonic Amplitude	DSLT-H	1.6	mV
MUD_N_THE	Theoretical Mud Normalization Factor	USIT-E	1.07	
NMSG	Near Minimum Sliding Gate	DSLT-H	240	us
SGAD	Sliding Gate Status	DSLT-H	Off	
SGDT	Sliding Gate Delta-T	DSLT-H	57	us/ft
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	1.68	Mrayl
U-USIT_UFAO	SIT Flexural Attenuation Offset	USIT-E	-28.91	dB/m
U-USIT_UIAP	IBC Answer Product Enabled	USIT-E	SolidLiquidGasMap	
ZMUD	Acoustic Impedance of Mud	Borehole	1.8	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

ONE: Parameters

Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	20	dB
MODE	DSLT Acquisition Mode	DSLT-H	CBL	
RATE	DSLT Firing Rate	DSLT-H	15 Hz	
DTFS	DSLT Telemetry Frame Size	DSLT-H	536	
EMXV	EMEX Voltage	USIT-E	120	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	
SGAI	Selectable Acquisition Gain	DSLT-H	x1	
U-USIT_UFWB	Far Receiver Window Begin Time	USIT-E	Time Zoned	us
U-USIT_UFWE	Far Receiver Window End Time	USIT-E	176	us
U-USIT_UNWB	Near Receiver Window Begin Time	USIT-E	Time Zoned	us
U-USIT_UNWE	Near Receiver Window End Time	USIT-E	145	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	33_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)
U-USIT_UFWB	136	15-Nov-2019 09:29:04	15-Nov-2019 09:31:36	7407.92	7294.71
U-USIT_UFWB	126.85	15-Nov-2019 09:31:36	15-Nov-2019 09:31:39	7294.71	7291.48
U-USIT_UFWB	124.47	15-Nov-2019 09:31:39	15-Nov-2019 09:35:19	7291.48	7079.88
U-USIT_UNWB	105	15-Nov-2019 09:29:04	15-Nov-2019 09:31:13	7407.92	7320.68
U-USIT_UNWB	96.4	15-Nov-2019 09:31:13	15-Nov-2019 09:31:19	7320.68	7313.62
U-USIT_UNWB	93.55	15-Nov-2019 09:31:19	15-Nov-2019 09:31:23	7313.62	7309.96
U-USIT_UNWB	91.65	15-Nov-2019 09:31:23	15-Nov-2019 09:31:27	7309.96	7305.1
U-USIT_UNWB	86.41	15-Nov-2019 09:31:27	15-Nov-2019 09:35:19	7305.1	7079.88
WINB	31.12	15-Nov-2019 09:29:04	15-Nov-2019 09:30:45	7407.92	7351.43
WINB	28.14	15-Nov-2019 09:30:45	15-Nov-2019 09:30:52	7351.43	7343.75
WINB	23.05	15-Nov-2019 09:30:52	15-Nov-2019 09:32:59	7343.75	7291.39

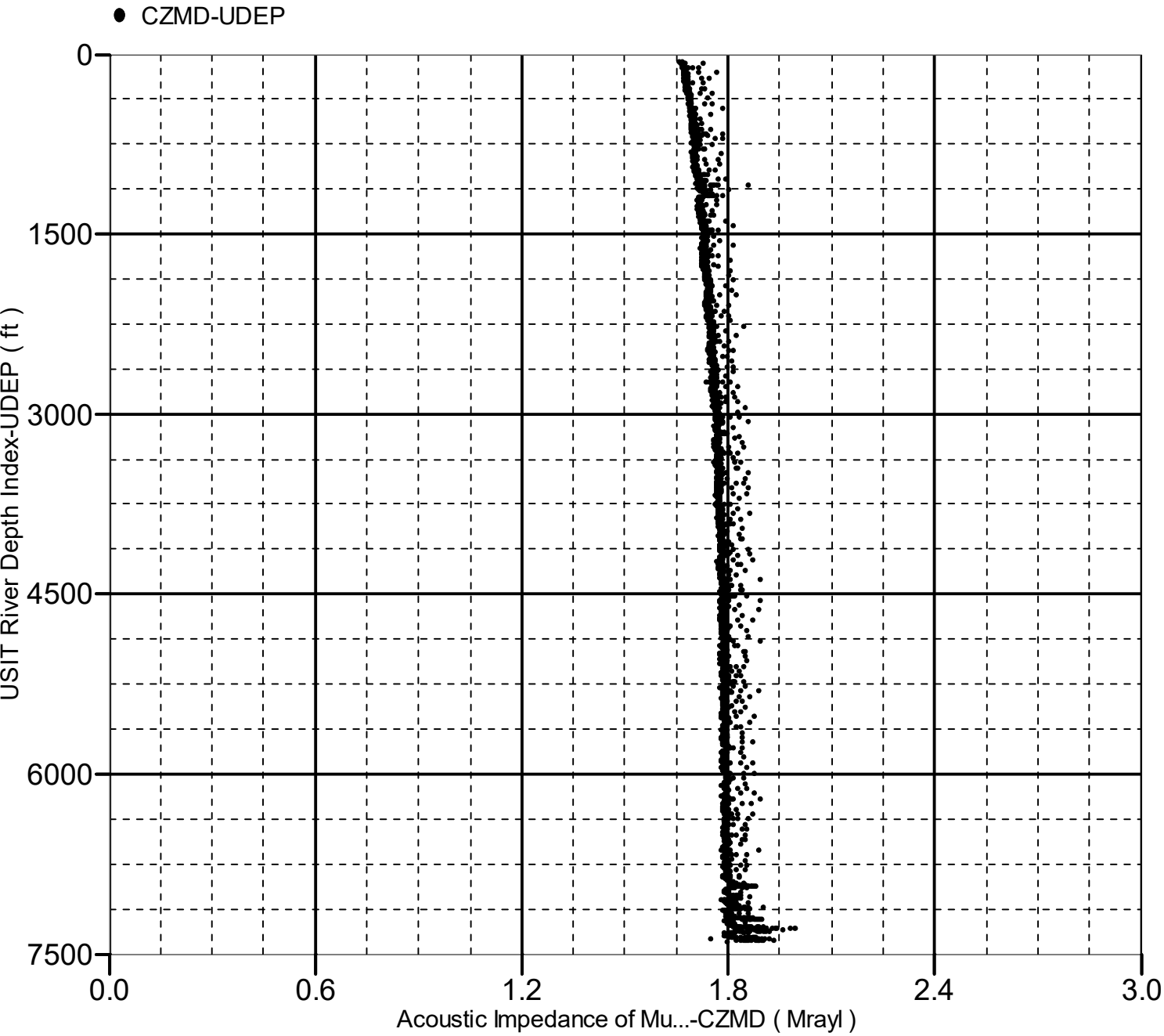
WINB	23.95	15-Nov-2019 09:30:52	15-Nov-2019 09:32:59	7343.75	7201.39
WINB	27.04	15-Nov-2019 09:32:59	15-Nov-2019 09:35:19	7201.39	7079.88
WINE	71.12	15-Nov-2019 09:29:04	15-Nov-2019 09:30:41	7407.92	7356.51
WINE	76.62	15-Nov-2019 09:30:41	15-Nov-2019 09:32:55	7356.51	7205.57
WINE	82.24	15-Nov-2019 09:32:55	15-Nov-2019 09:33:03	7205.57	7196.66
WINE	83.44	15-Nov-2019 09:33:03	15-Nov-2019 09:35:19	7196.66	7079.88

All depth are at tool zero.

Acoustic Impedance of Mud vs Depth

2D Cross Plot

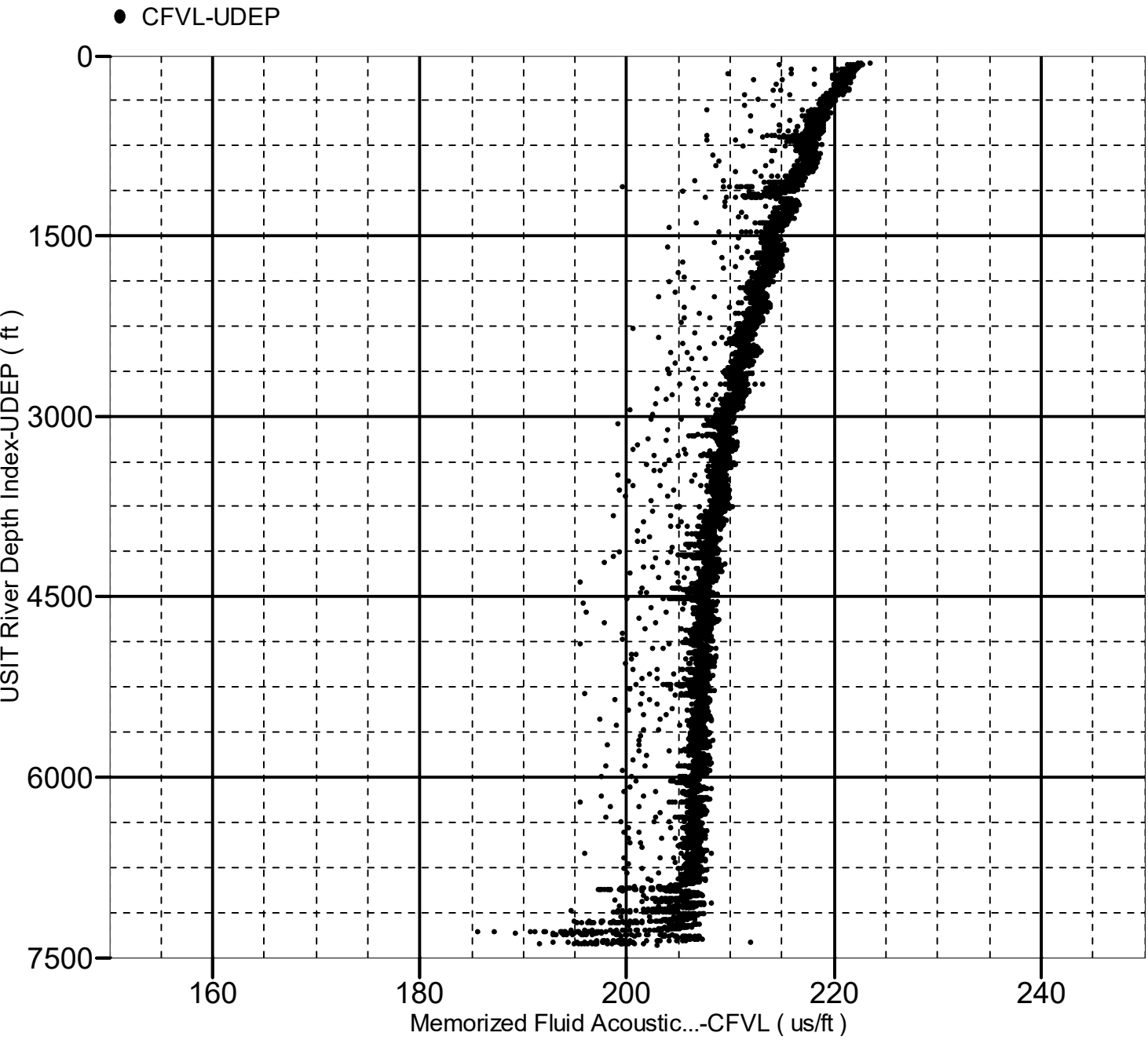
Index Range: From 7407.50 to 72.50 ft



Fluid Acoustic Slowness vs Depth

2D Cross Plot

Index Range: From 7407.50 to 72.50 ft



Calibration Report

DSLT-H (Digitizing Sonic Logging Tool - H) Calibration - Run ONE

Primary Equipment :

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

CBL Normalization - CBL Accumulations

Master (Measured): 05:37:25 21-Jan-2019

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
Upper Far Amplitude (AMF1)		Master	4200.0	3200.0	3281.4	
Upper Near Raw Amplitude (RAF2)	mV	Master	33.000	27.000	27.878	43.000
Lower Far Amplitude (AMF3)		Master	4200.0	3200.0	3618.5	
Lower Near Raw Amplitude (RAF4)	mV	Master	46.000	27.000	35.332	68.000

CBL Normalization - CBL/VDL Coefficients

Master (Measured): 05:37:25 21-Jan-2019

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

CBL Free Pipe Adjustment - Free Pipe Measurement

Before (Manual Entry): 14:04:45 15-Nov-2019

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

CBL Free Pipe Adjustment - CBL Amplitude Coefficient

Before (Manual Entry): 14:04:45 15-Nov-2019

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
CBL Adjustment Factor (CBL_ADJUST_FACTOR)		Before	1.000	0.200	0.968	5.000
Depth of Before Calibration (BDEP)	ft	Before			90.66	

Company: CRESTONE PEAK RESOURCES OPERATING LLC

Schlumberger

Well: HINGLEY 1E-18H-A167

Field: WATTENBERG

County: WELD

State: COLORADO

ISOLATION SCANNER

VDL-IBC COMBINED PRINT

GAMMA RAY - COLLAR LOCTOR LOG