Schlumberger

Company: Occidental Petroleum Corporation

Well: PSC #16-34

Field: Wattenberg

County: Weld State: Colorado

Isolation Scanner

Cement Bond Log

Gamma Ray - CCL

County:	Weld
Field:	Wattenberg
Location:	SESE
Well:	PSC #16-34
Company:	Occidental Petroleum Corporation

Location:

SESE
1900 FNL 499 FWL

Permanent Datum:	Ground Level	Elev.:	K.B. 4765.00 ft
Log Measured From:	Kelly Bushing	12.00 ft	G.L. 4753.00 ft
Drilling Measured From:	Kelly Bushing		D.F. 4765.00 ft

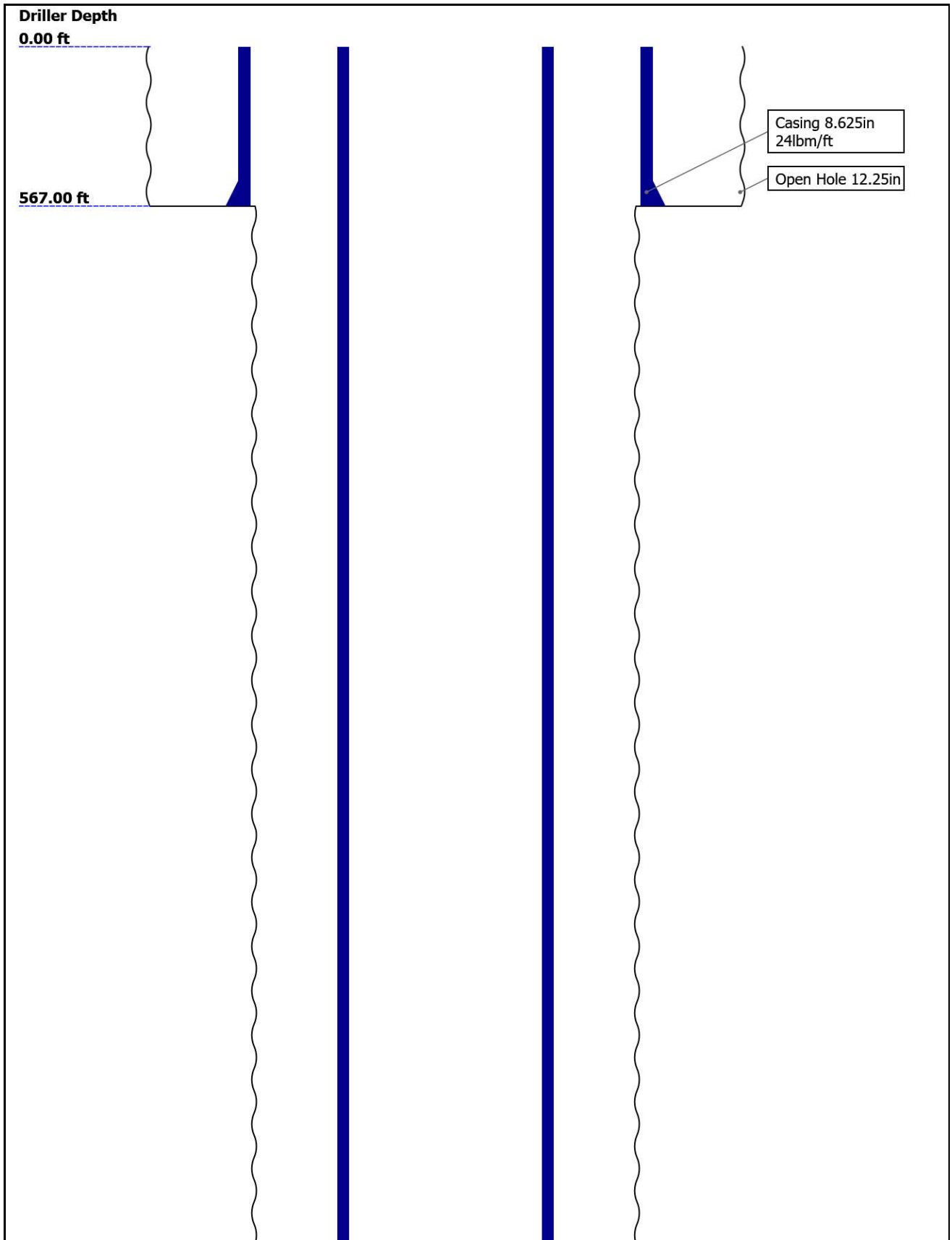
API Serial No. 05-123-21640	Section: 34	Township: 4N	Range: 67W	4753.00 f above Perm.Datum

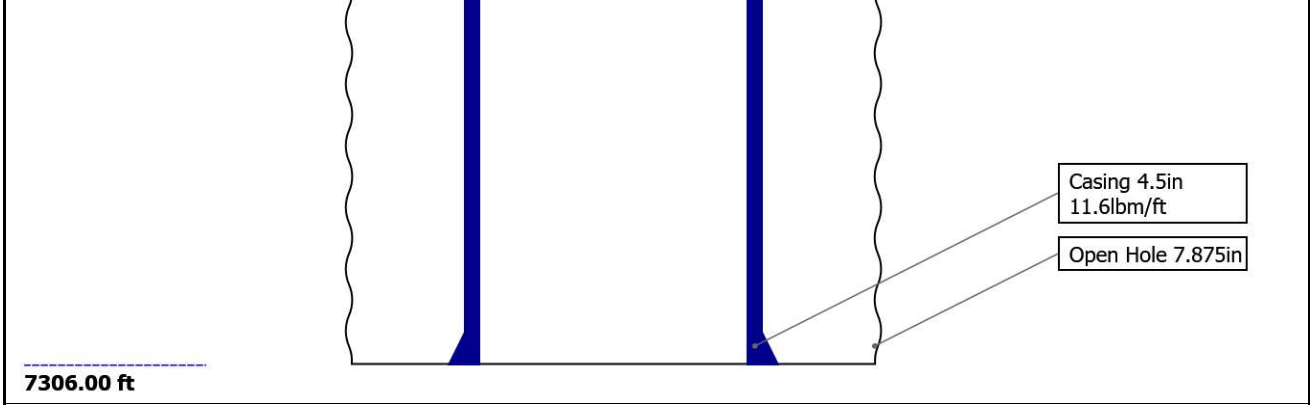
Logging Date	28-Jun-2022
Run Number	ONE
Depth Driller	7306.00 ft
Schlumberger Depth	7306.00 ft
Bottom Log Interval	6610.00 ft
Top Log Interval	50.00 ft
Casing Fluid Type	Water
Salinity	
Density	8.4 lbm/gal
Fluid Level	8.00 ft
BIT/CASING/TUBING STRING	
Bit Size	7.88 in
From	567.00 ft
To	7306.00 ft
Casing/Tubing Size	4.5 in
Weight	11.6 lbm/ft
Grade	N/A
From	0.00 ft
To	7306.00 ft
Max Recorded Temperatures	170 degF
Logger on Bottom Time	28-Jun-2022 13:41:00
Unit Number Location:	OSLC-HA9115 Fort Morgan
Recorded By	Erik Leslie
Witnessed By	Troy Spaulding

Disclaimer

Contents

Well Sketch





Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	12.25	7.875				
Top Driller (ft)	0	567				
Top Logger (ft)	0	567				
Bottom Driller (ft)	567	7306				
Bottom Logger (ft)	567	7306				
Casing						
Size (in)	8.625	4.5				
Weight (lbm/ft)	24	11.6				
Inner Diameter (in)	8.097	4				
Grade	N/A	N/A				
Top Driller (ft)	0	0				
Top Logger (ft)	0	0				
Bottom Driller (ft)	567	7306				
Bottom Logger (ft)	567	7306				

Remarks and Equipment Summary

ONE: Toolstring

Equip name	Length
LEH-QT	**51.68**
LEH-QT	
EDTC-B:8014	**48.19**
EDTH-B	
EDTG-A	
EDTC-B:8014	
MAST-B:8574	**41.69**
ECH-SF:8387	
MAPC-BA:8399	
MAMS-BA:8574	

MP name	Offset
CTEM	**44.69**
ACCZ	**0.00**
HV	**0.00**
Gamma Ray	**42.82**
TelStatus	**41.69**

ONE: Remarks

Thank you for choosing Schlumberger!
Log run for cement evaluation
Toolstring run centralized as per toolsketch using houma kit and small hole kit
IBCS-A sub used with IBC-TX
Main Log run under 500 psi
Crew: Jacob Quinn, John Price

Lengths are in ft
Maximum Outer Diameter = 3.625 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	7-46ZVI-XS		
Serial Number	1234		
Length	24000.00 ft		
Conveyance Type	Wireline		
Rig Type	Workover rig		

ONE:Depth Control Parameters		Depth Control Remarks
Log Sequence	First Log In the Well	Schlumberger depth control procedures followed
Rig Up Length At Surface		IDW used as primary depth control system
Rig Up Length At Bottom		Z-Chart used as secondary depth control system
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[3]:Up	6616.93	53.08

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=1.01g/cm3(8.40lbm/gal)

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

ONE

Software Version

Acquisition System	Version
Maxwell 2022.0	12.0.215014.3100
Application Patch	Wireline_Hotfix-Mandatory-2022.0_12.0.217167
	Wireline_NPD-ThruBit-2022.0_12.0.217960
	Wireline_TestKit-MRSFMRHF-2022.0_12.0.217371

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
ONE	Log[3]:Up	Up	53.08 ft	6616.93 ft	28-Jun-2022 12:53:35 PM	28-Jun-2022 2:48:18 PM	ON	6.28 ft	Yes

All depths are referenced to toolstring zero

Description: USI IBC SLG Format: Log (IBC SLG CBL-VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 28-Jun-2022 15:23:11

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)

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

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)

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)

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 64.000 92.000 120.000 148.000
Custom Normalization
USIT - Flexural Attenuation (UFAK) USIT-E
(dB/m)

Absent 1.500 3.500
Explicit Normalization
USIT - Solid Liquid Gas Sorted Color Map (USLP) USIT-E

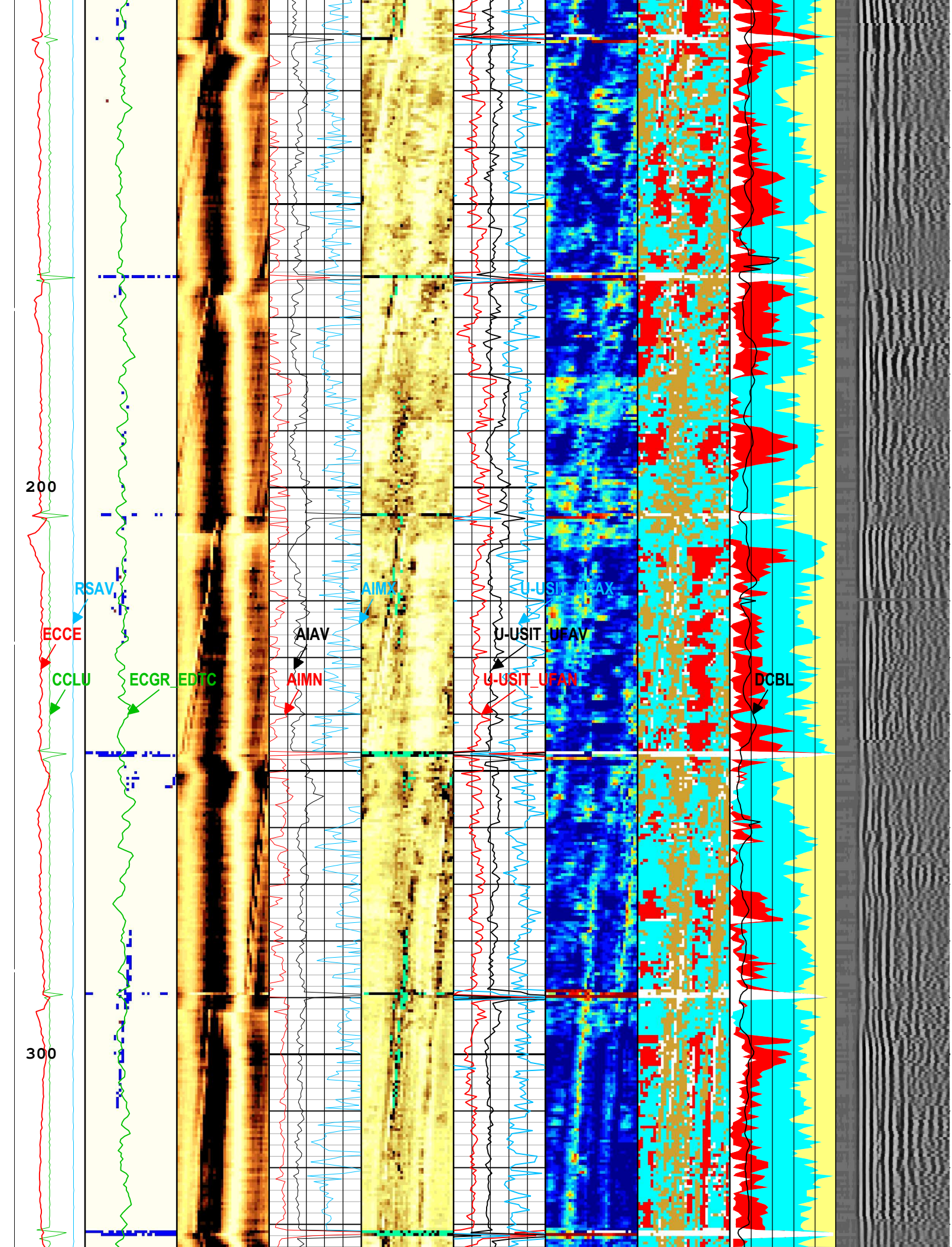
SLG Solid Index
SLG Liquid Index
SLG Gas Index
SLG White Point Index

Synthetic CBL from Discriminated Attenuation (DCBL) MAST-B
0 mV 100

Min Amplitude
VDL VariableDens (VDL) MAST-B
200 us

Min Amplitude
VDL VariableDens High Speed (VDI MAST-B
200 us

100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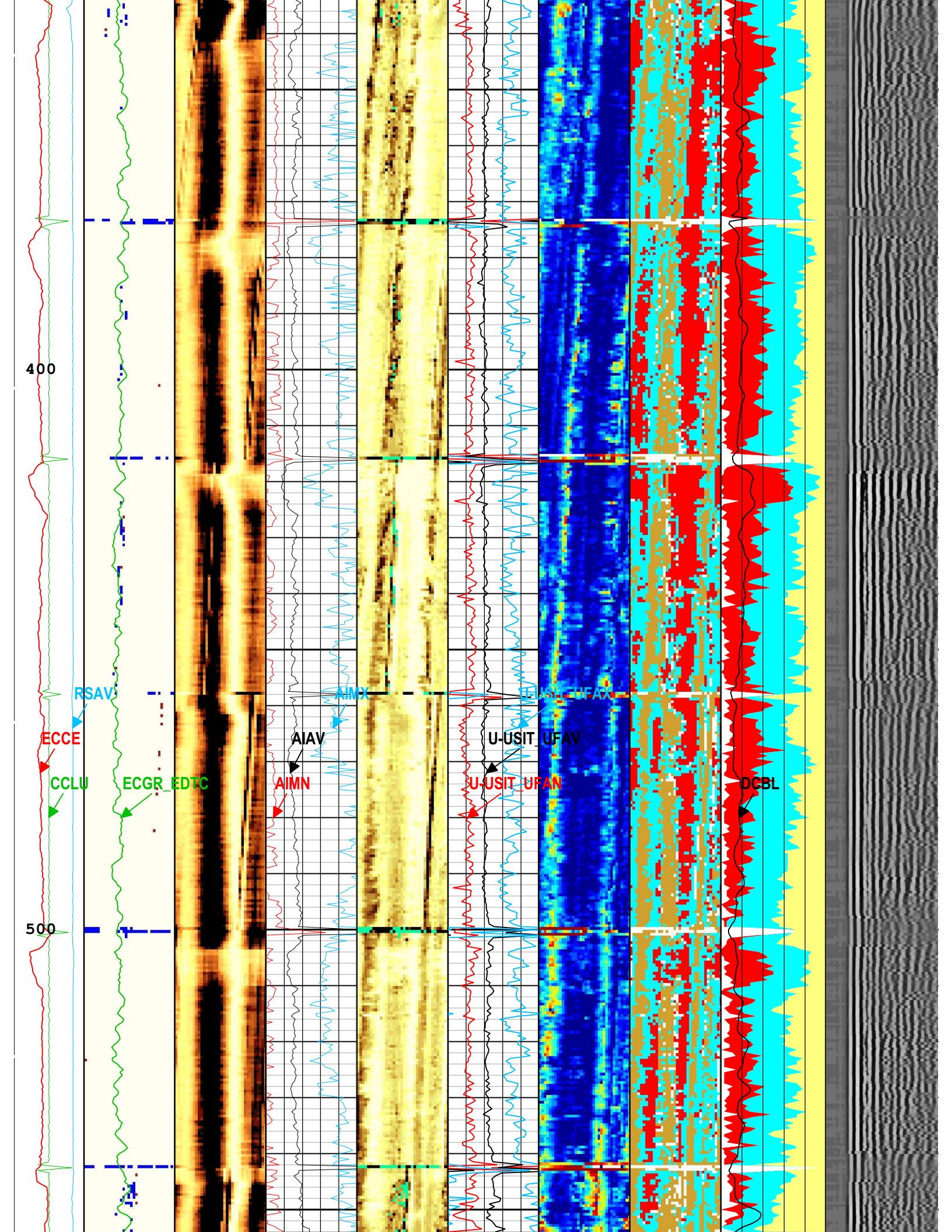
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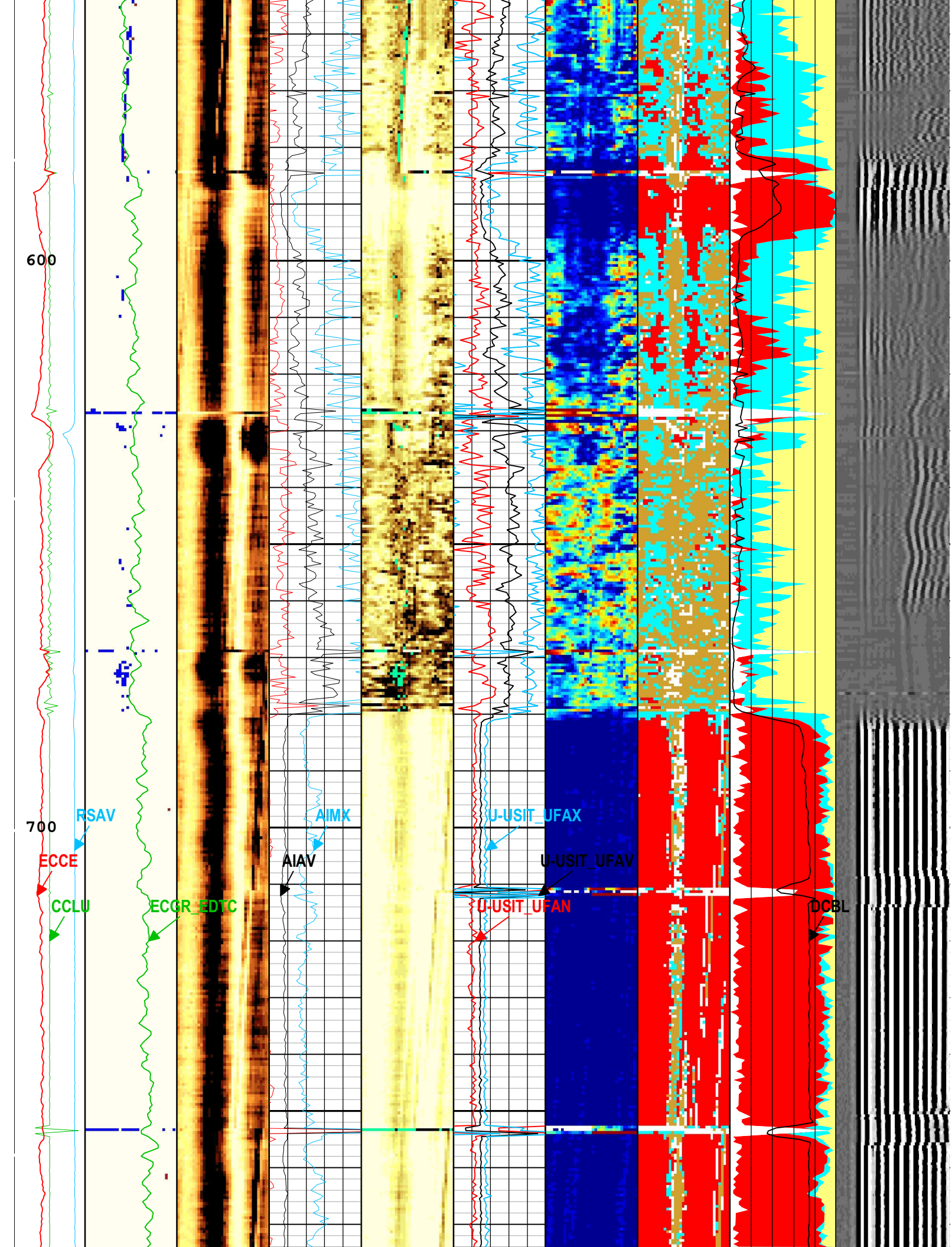
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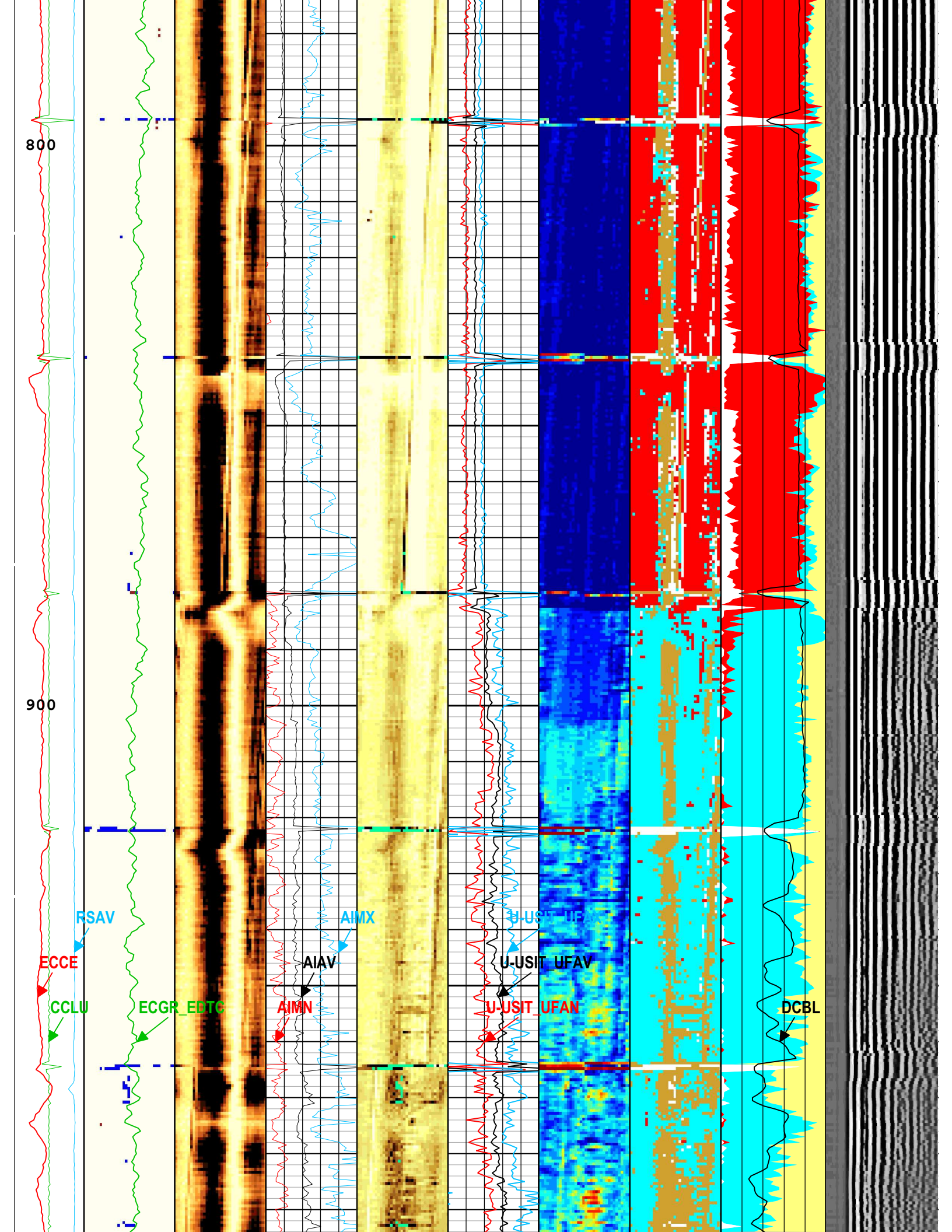
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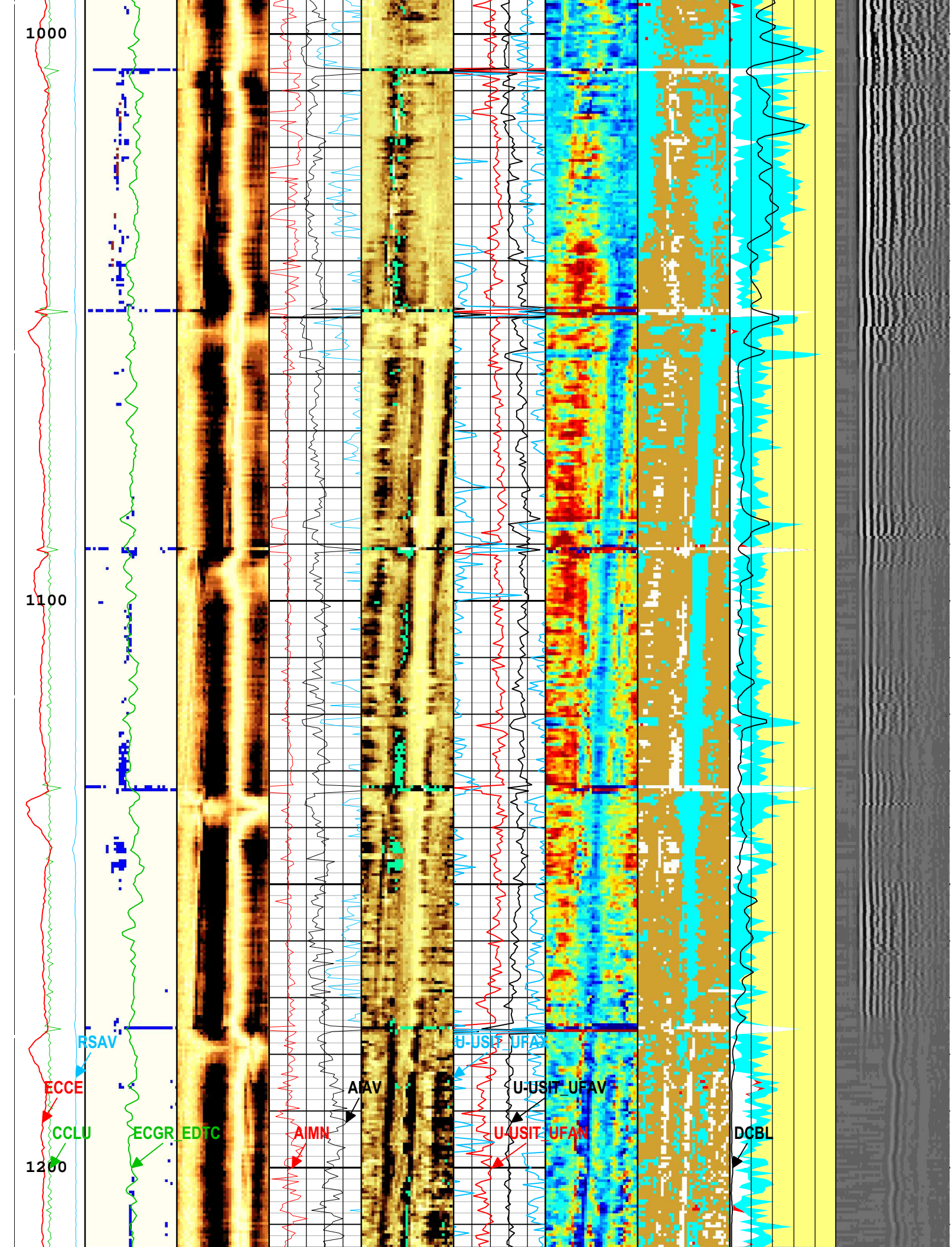
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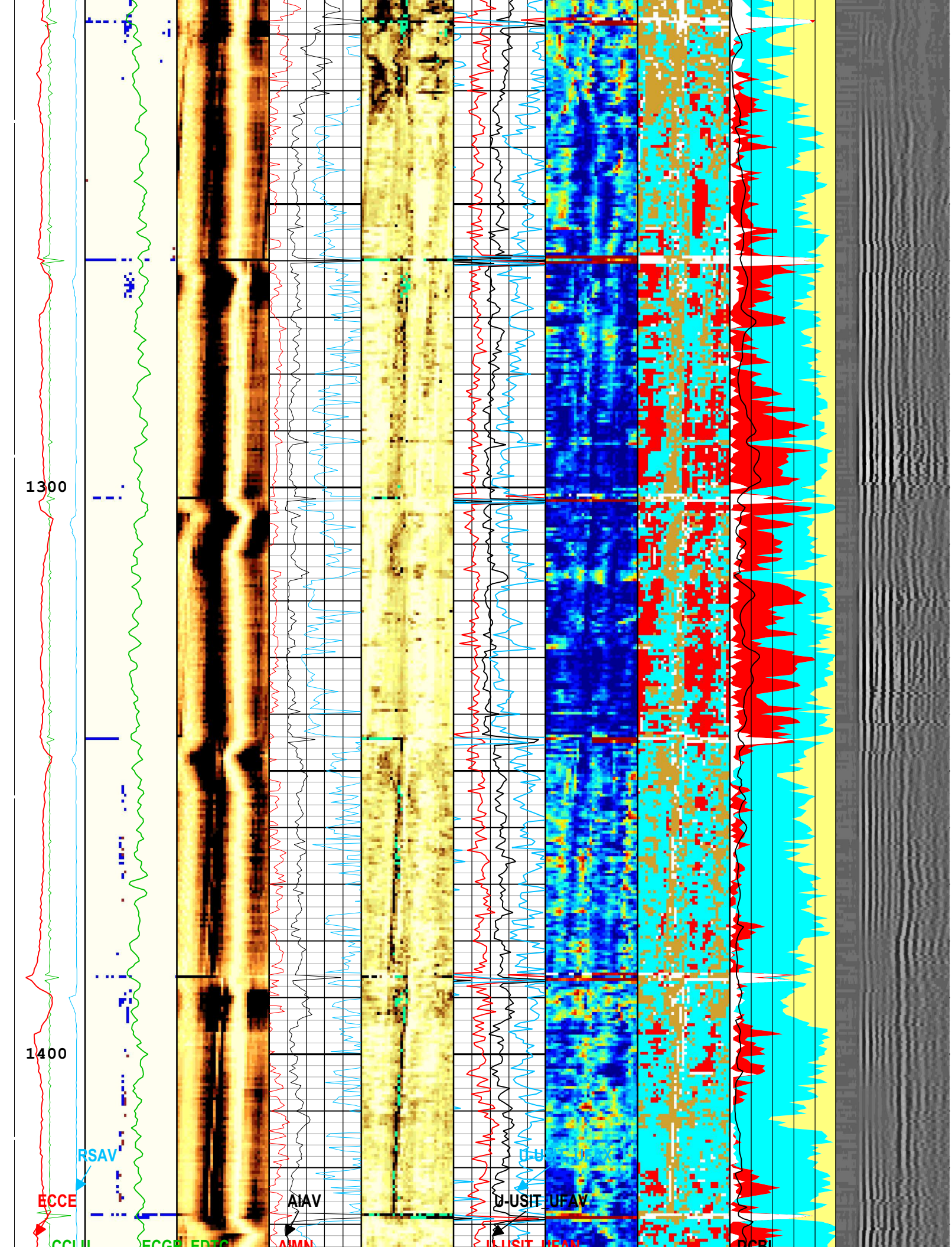
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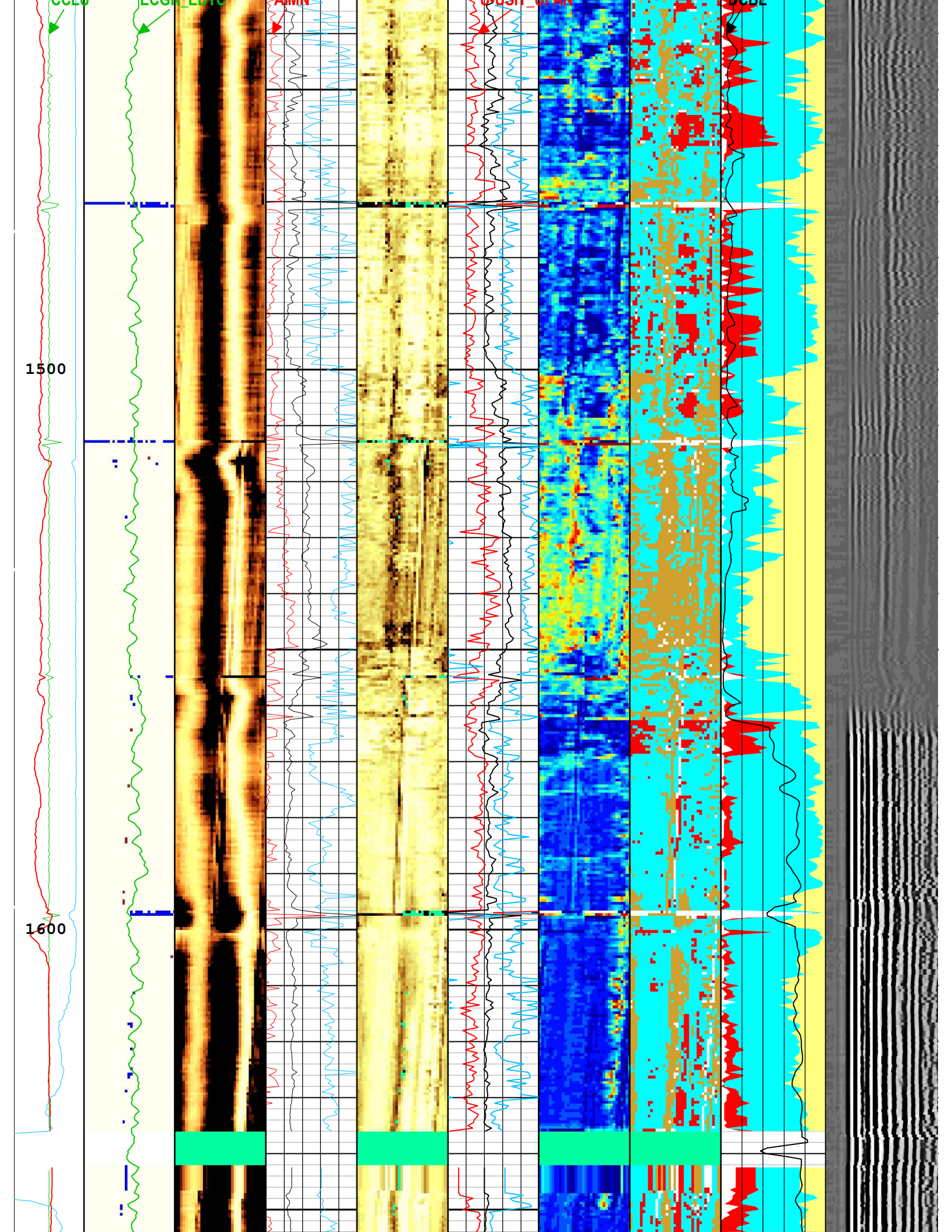
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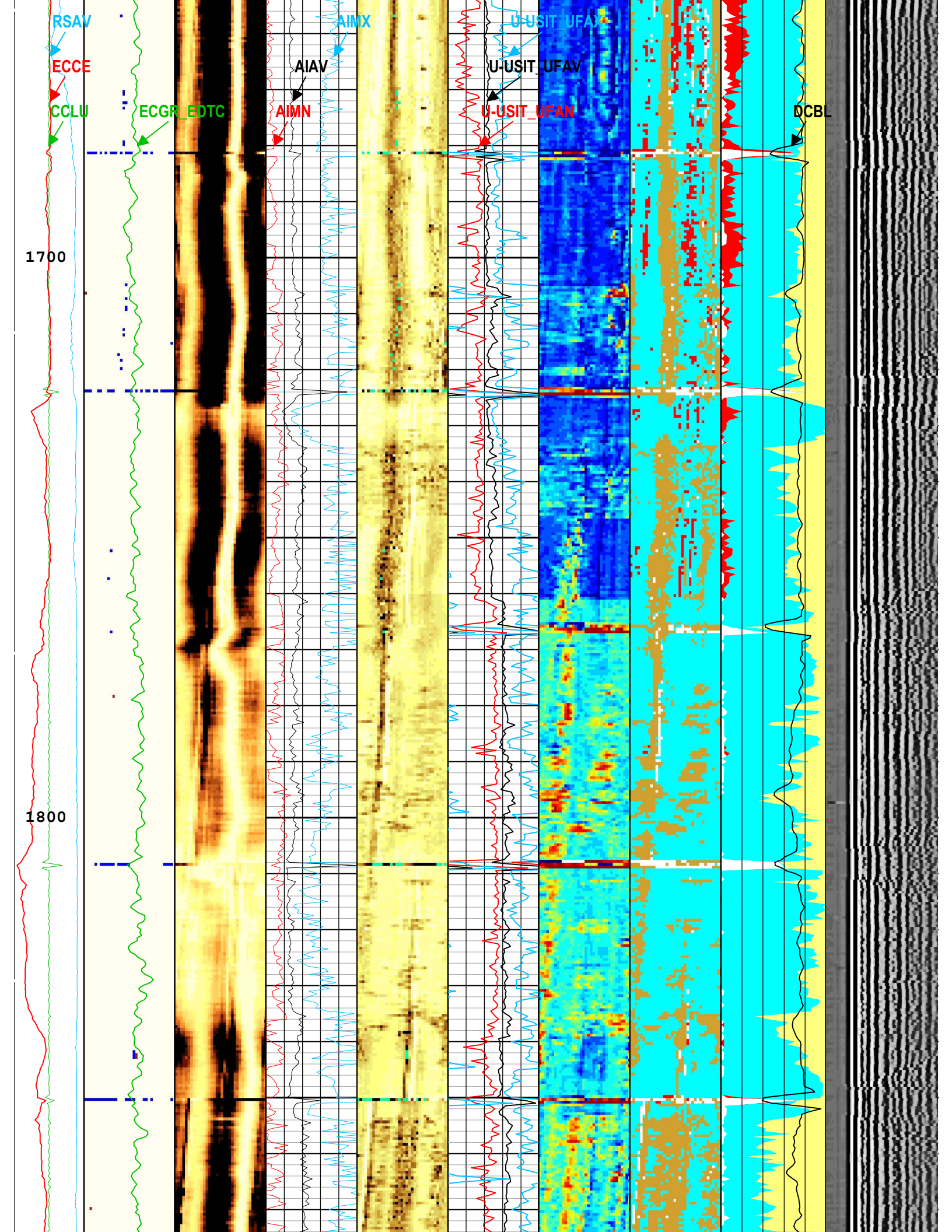
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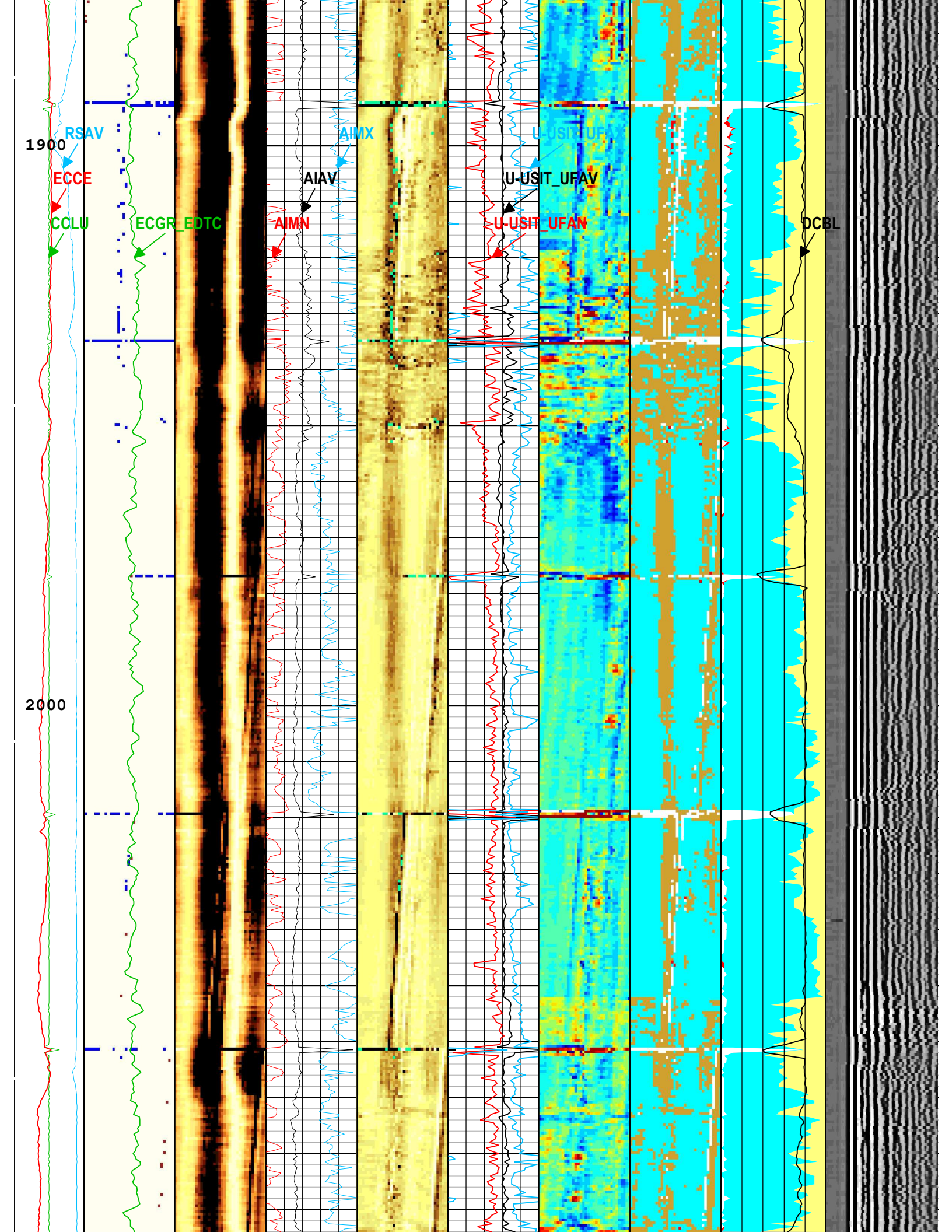
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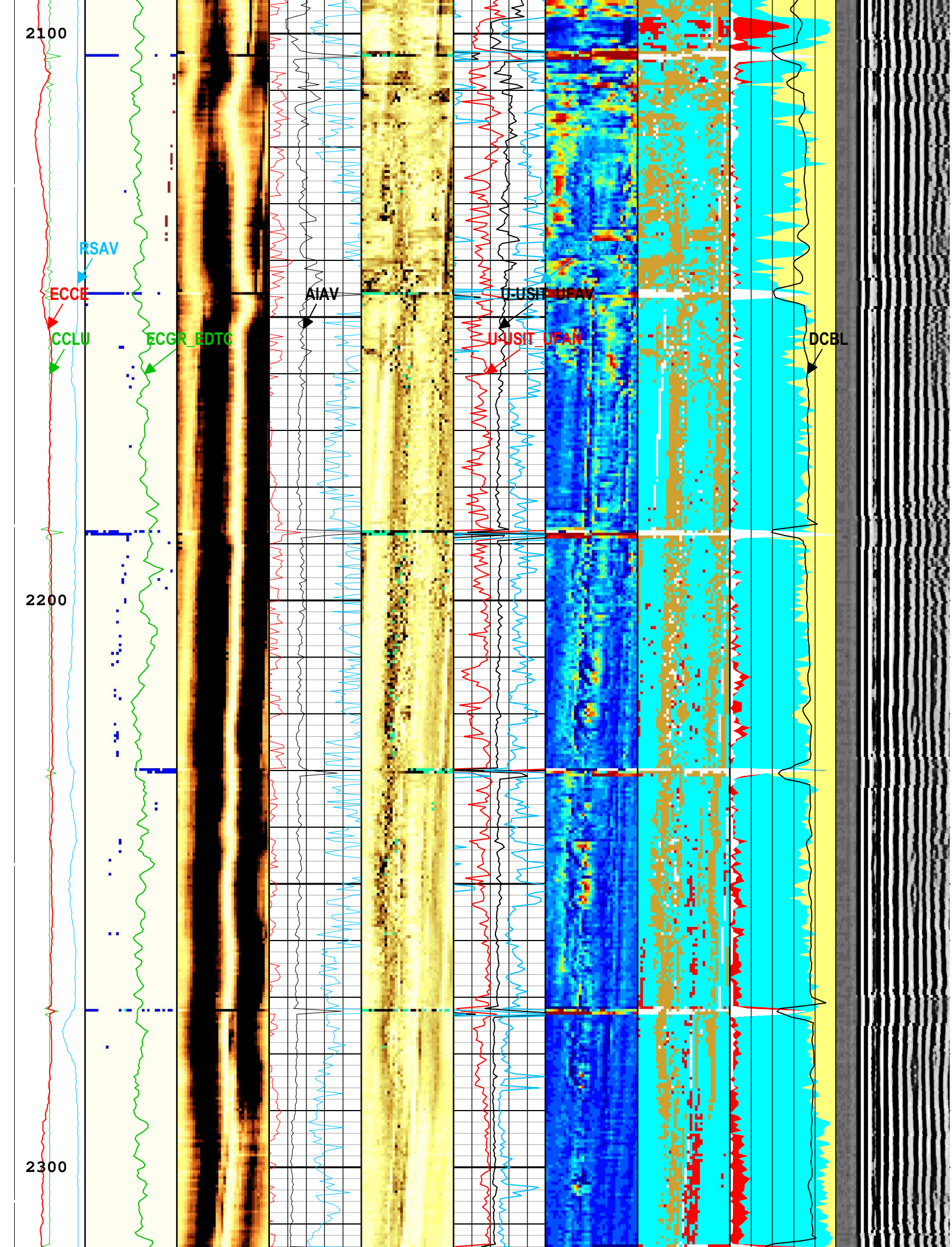
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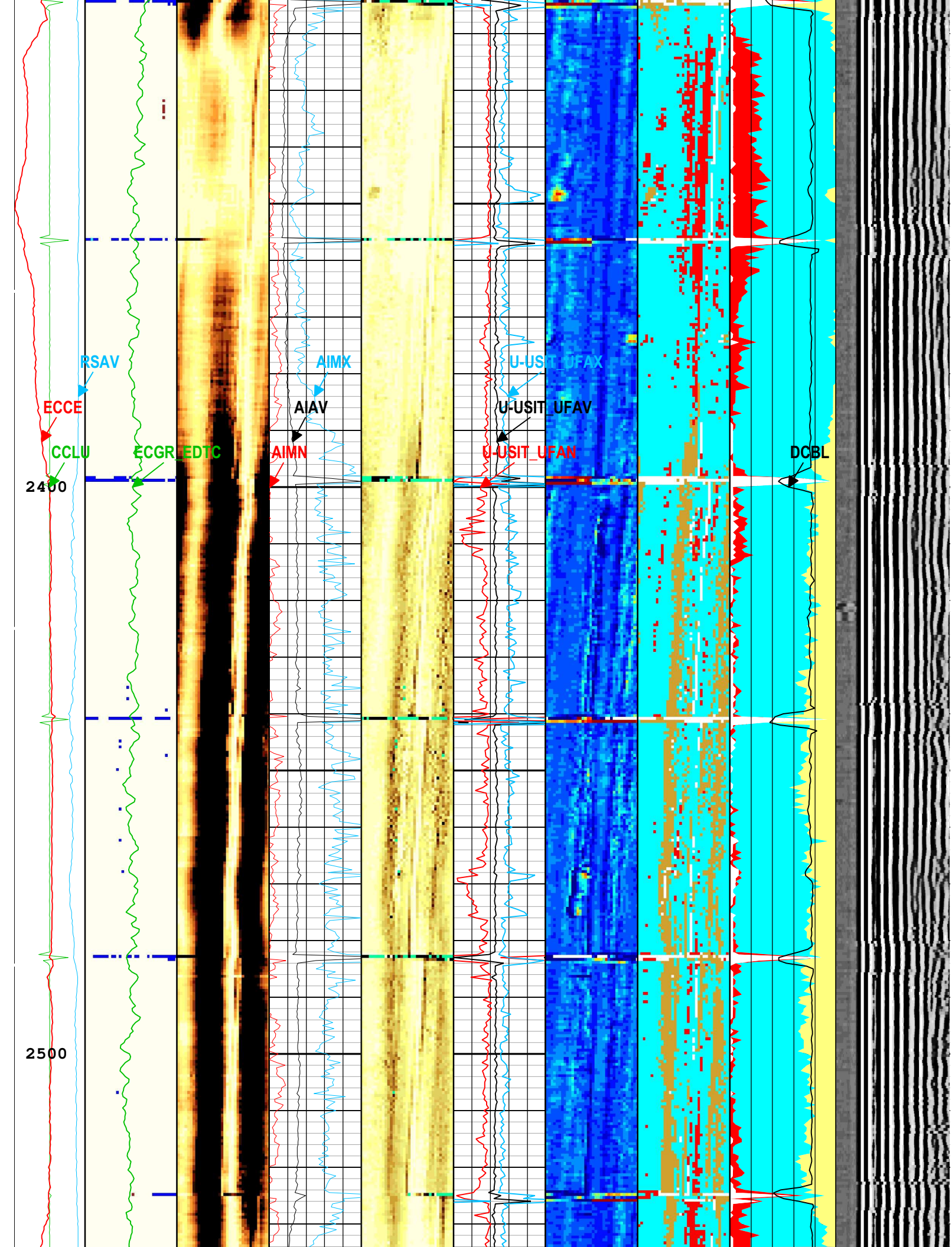
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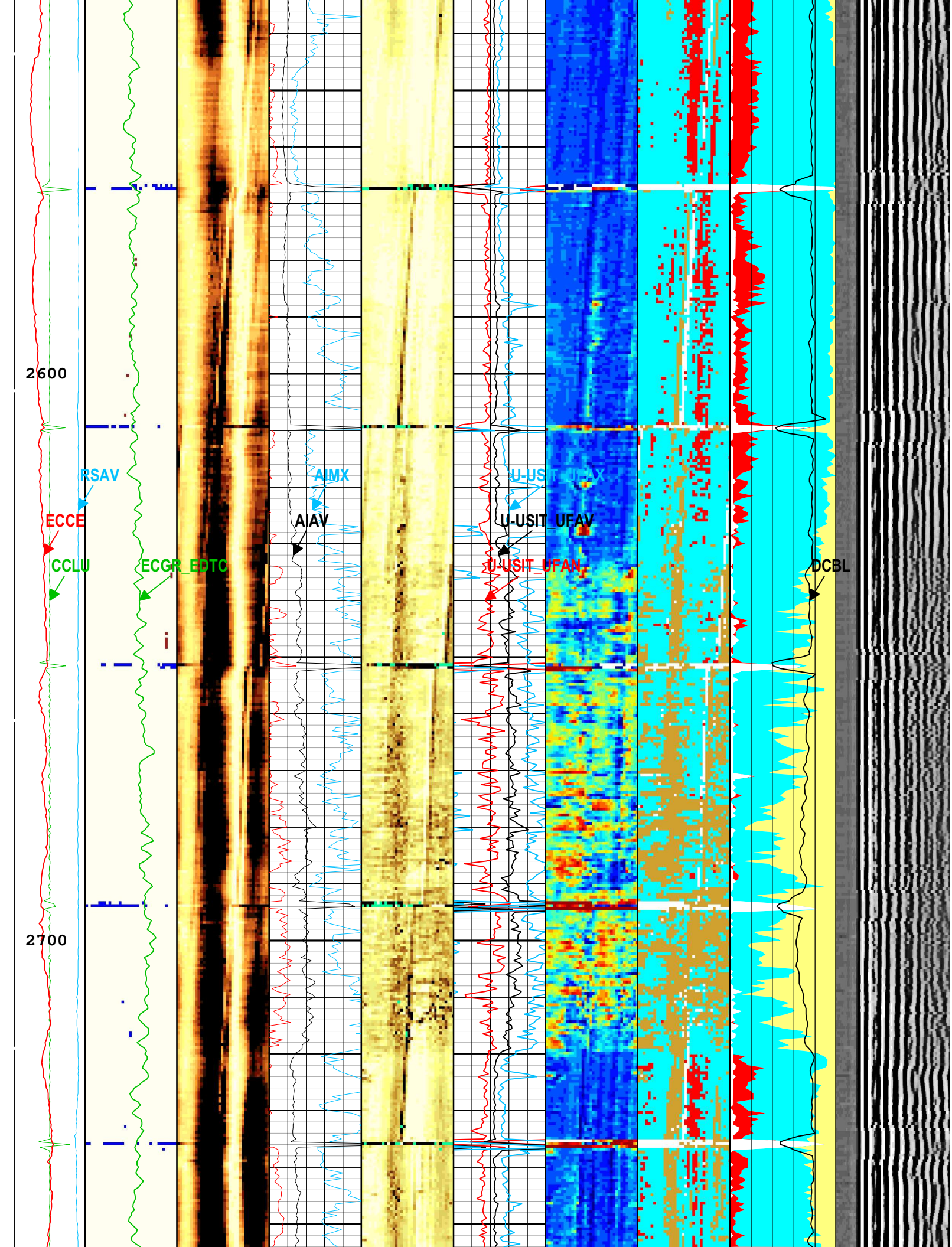
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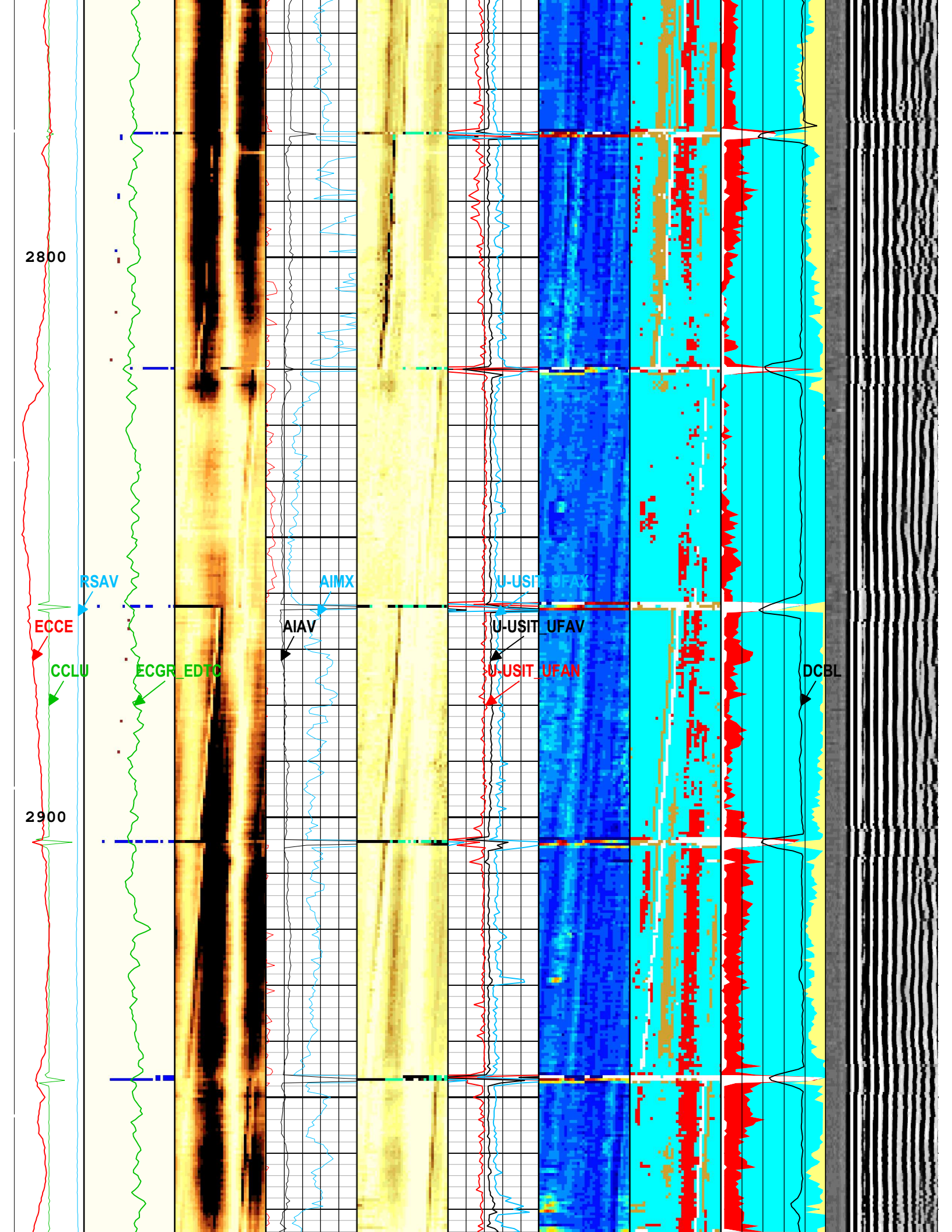
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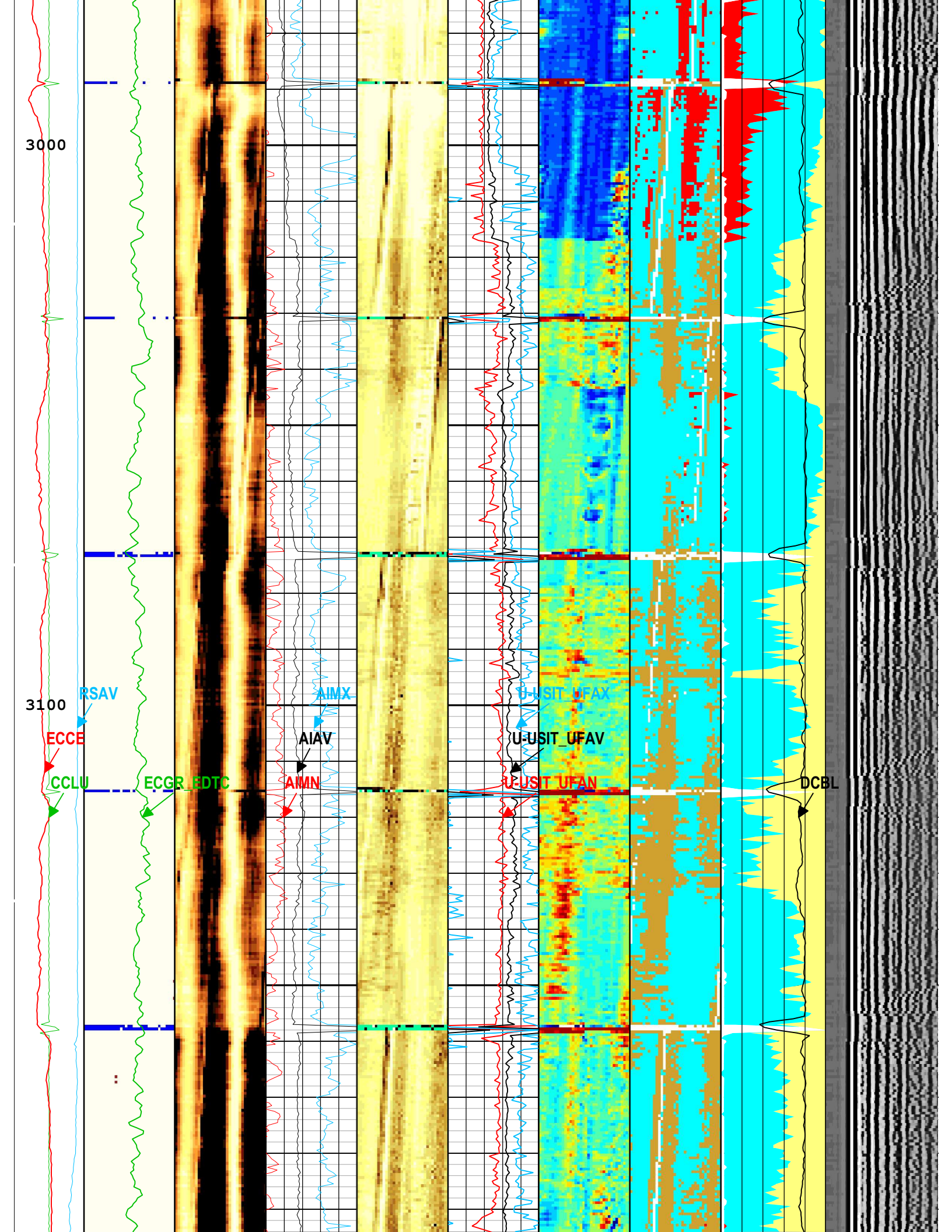
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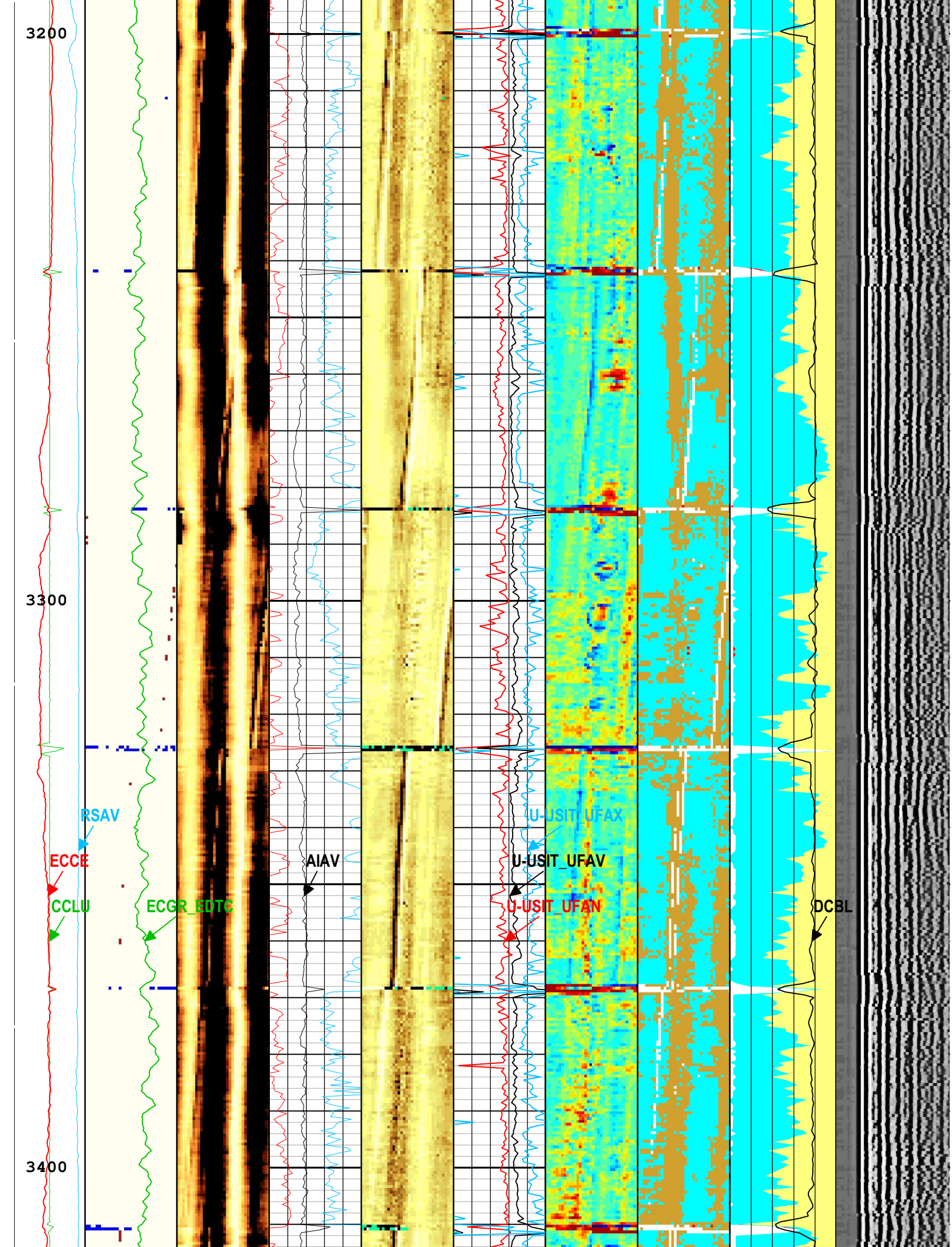
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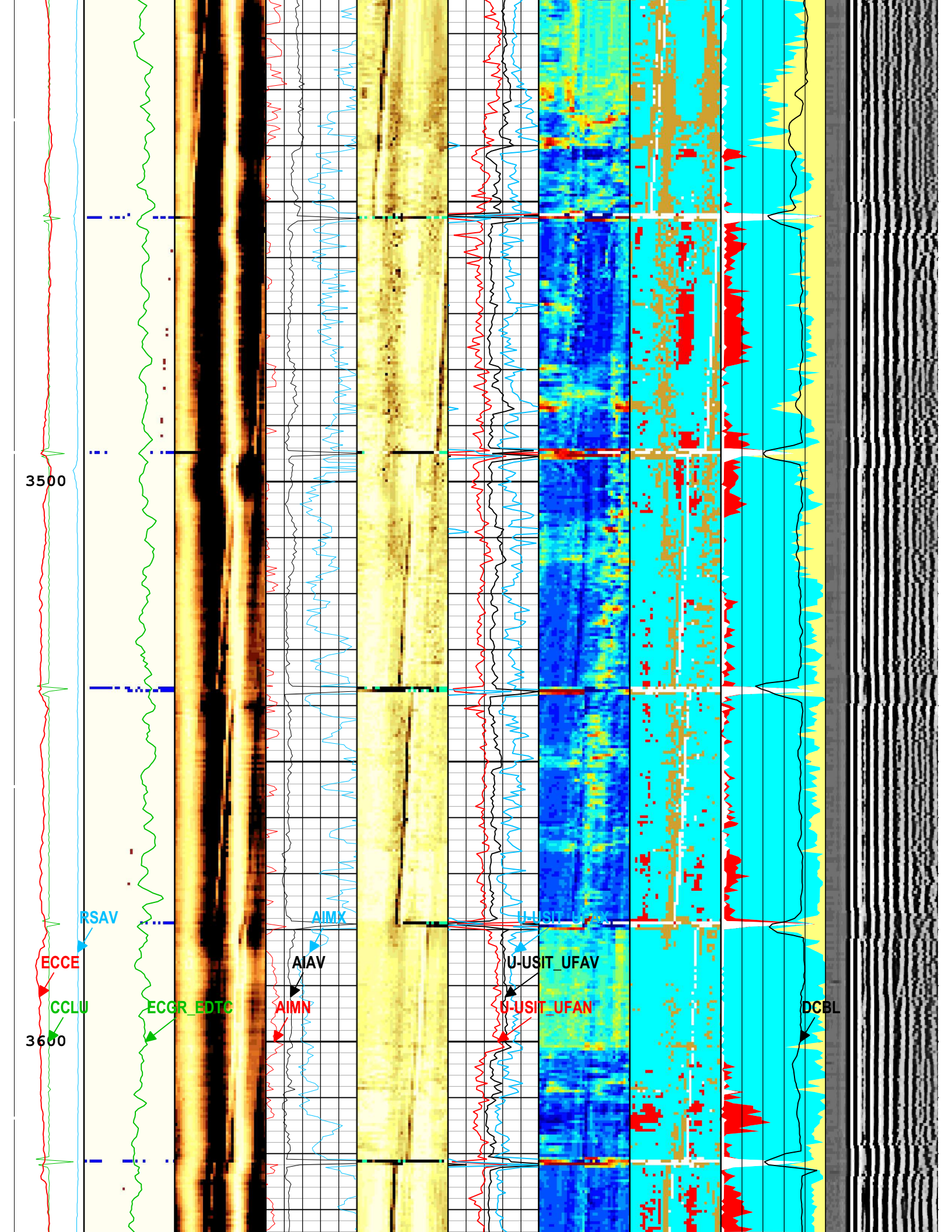
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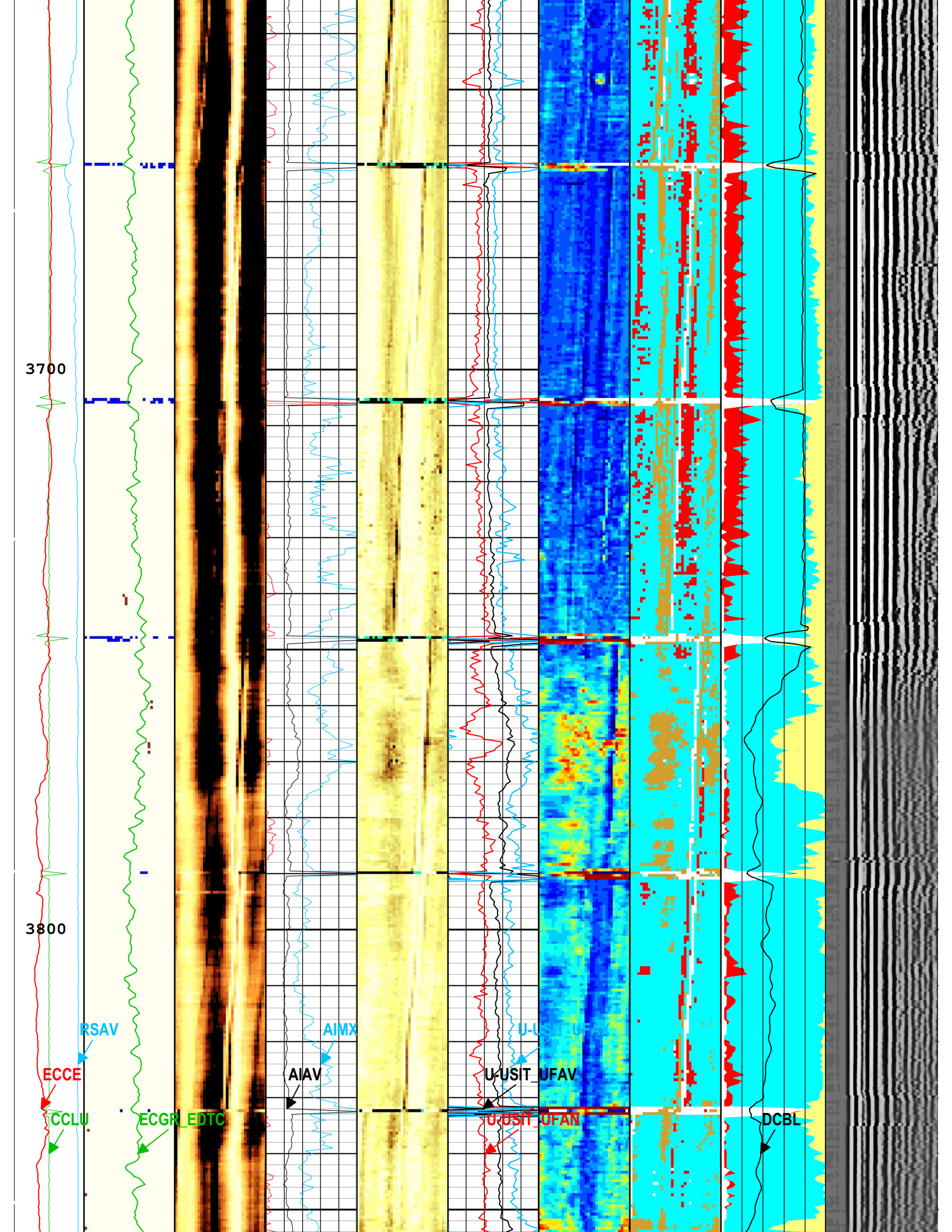
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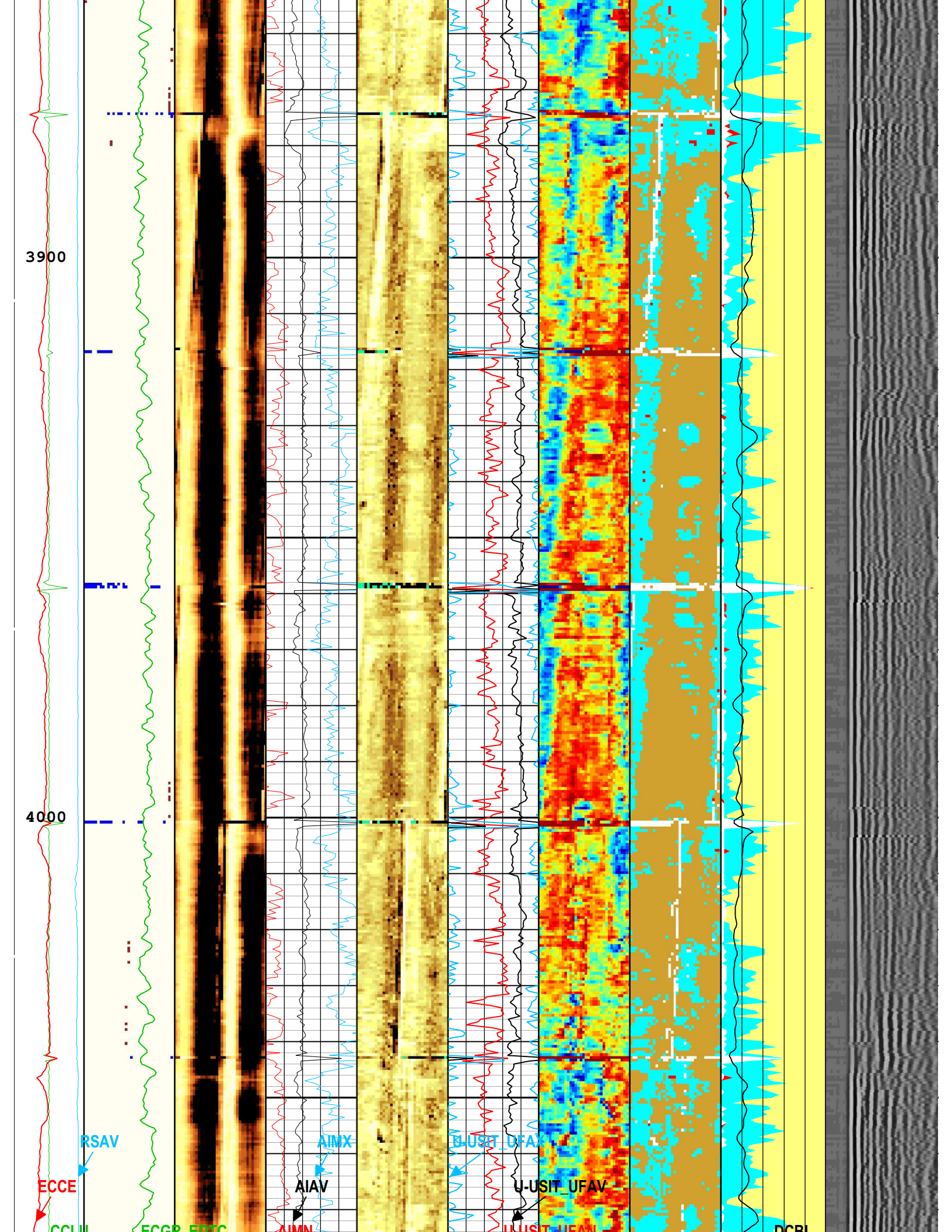
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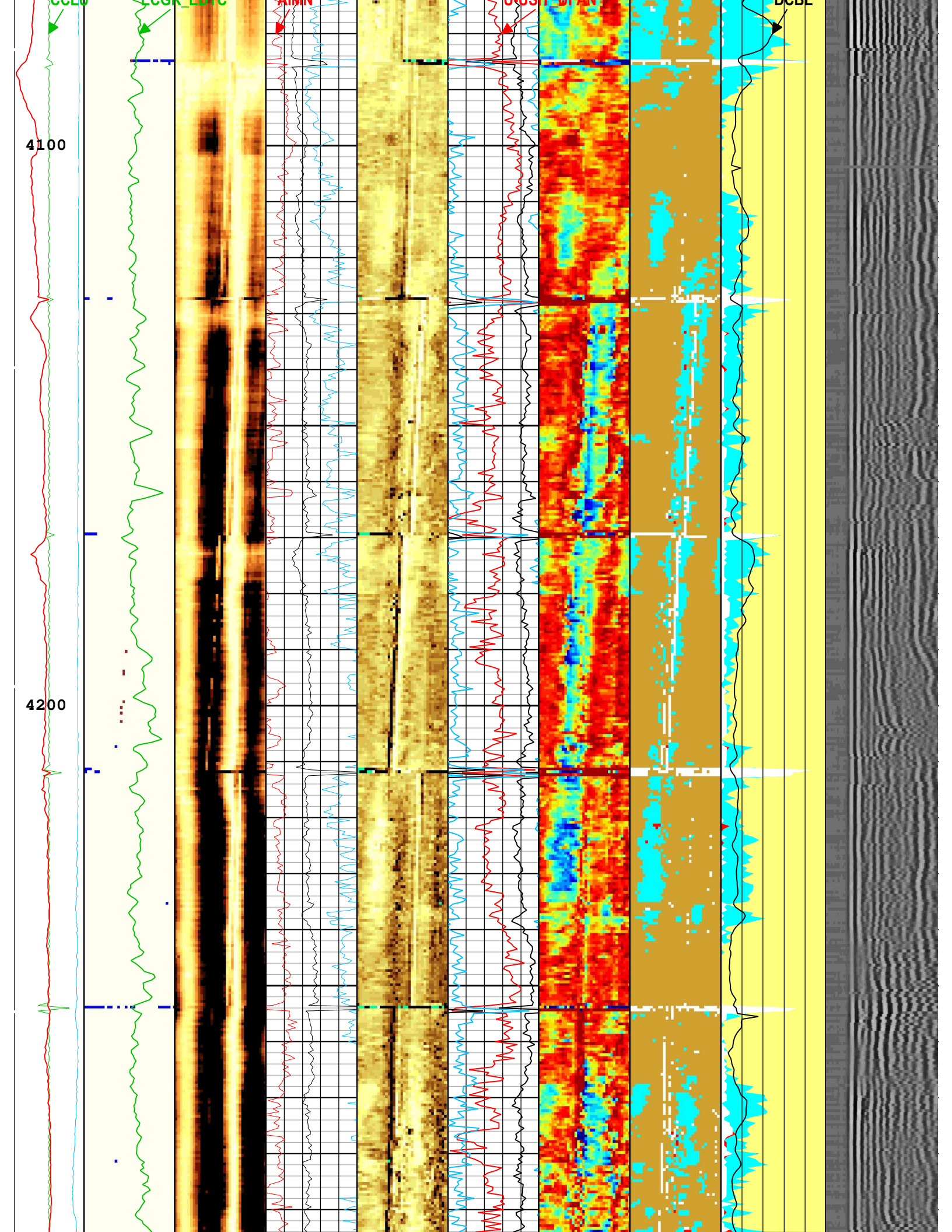
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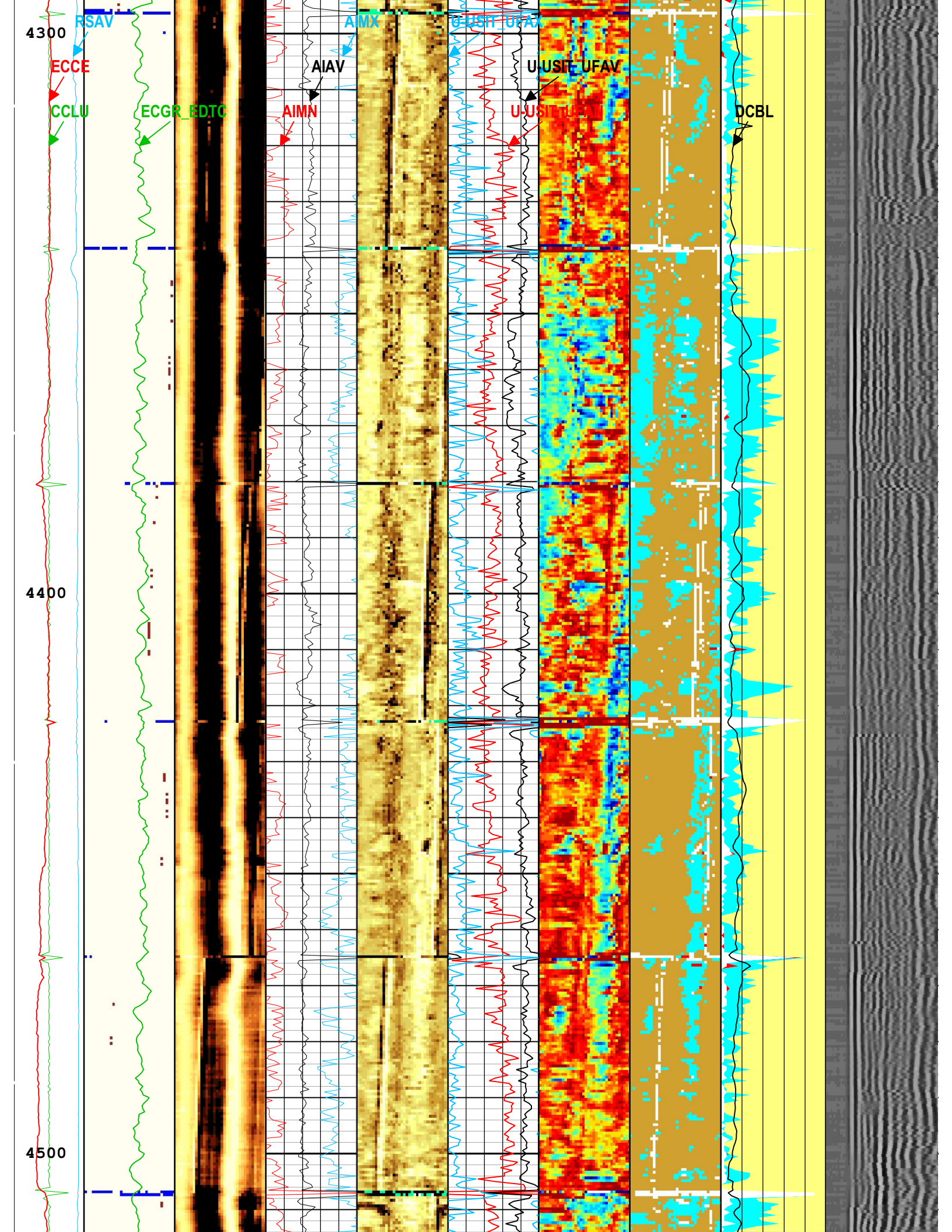
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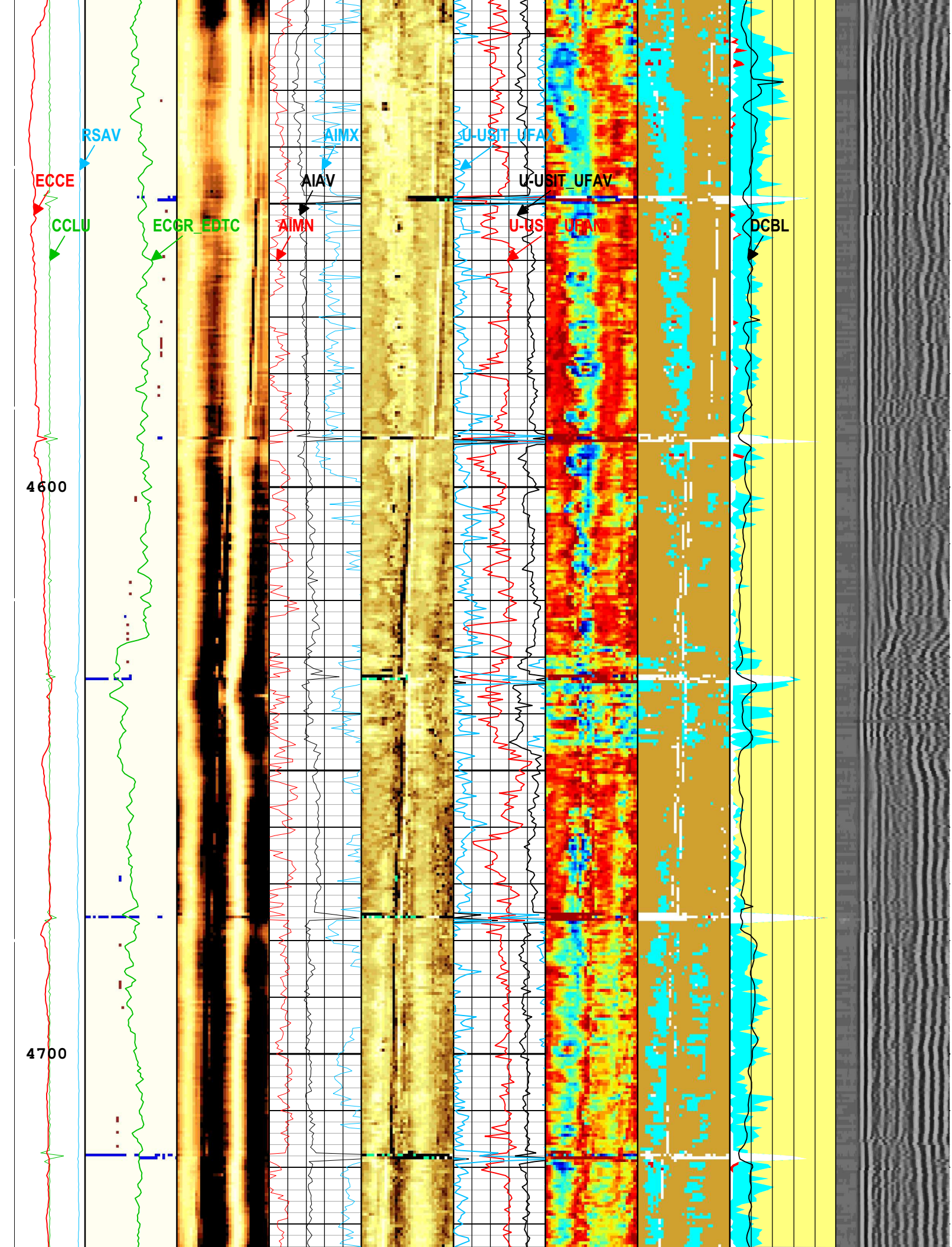
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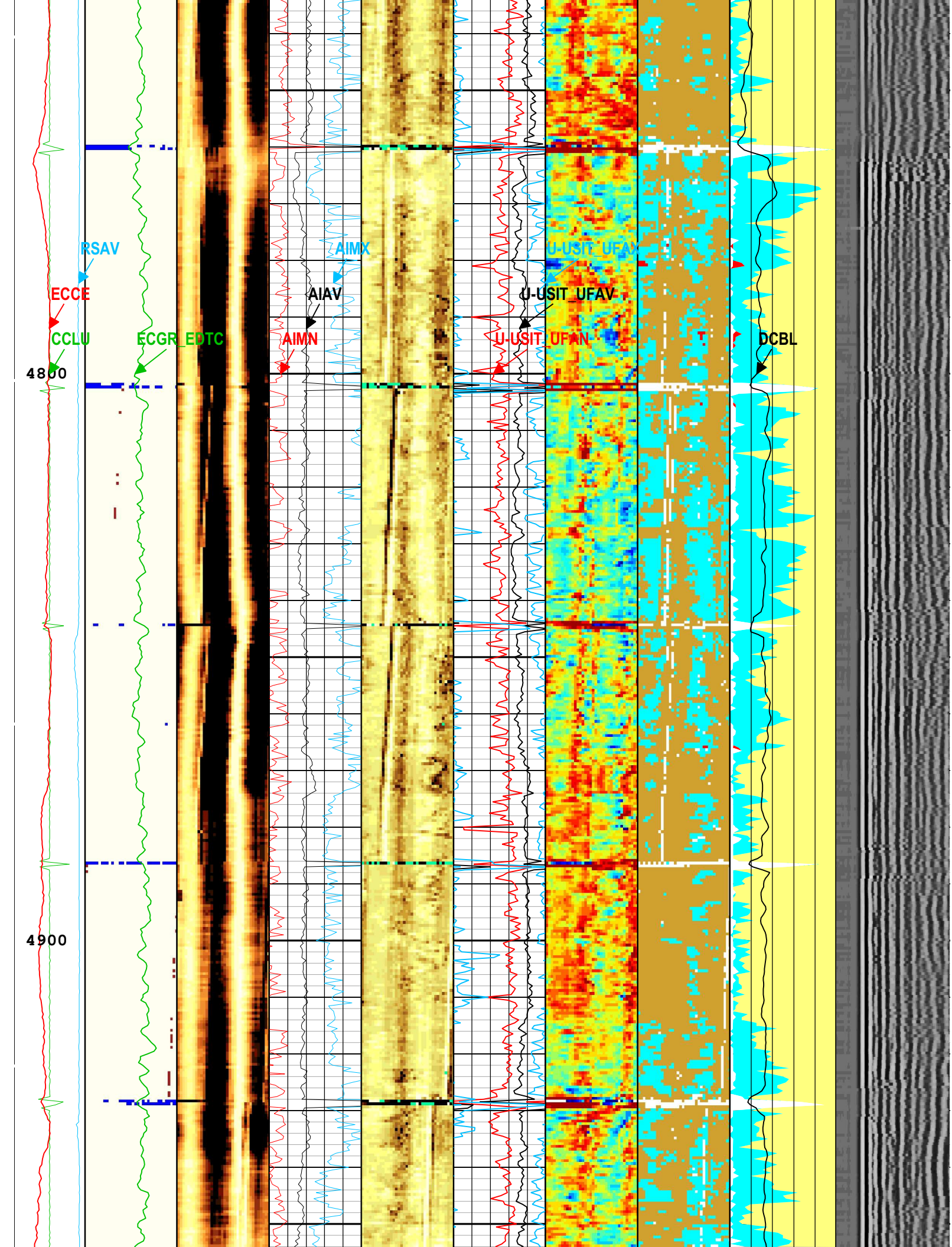
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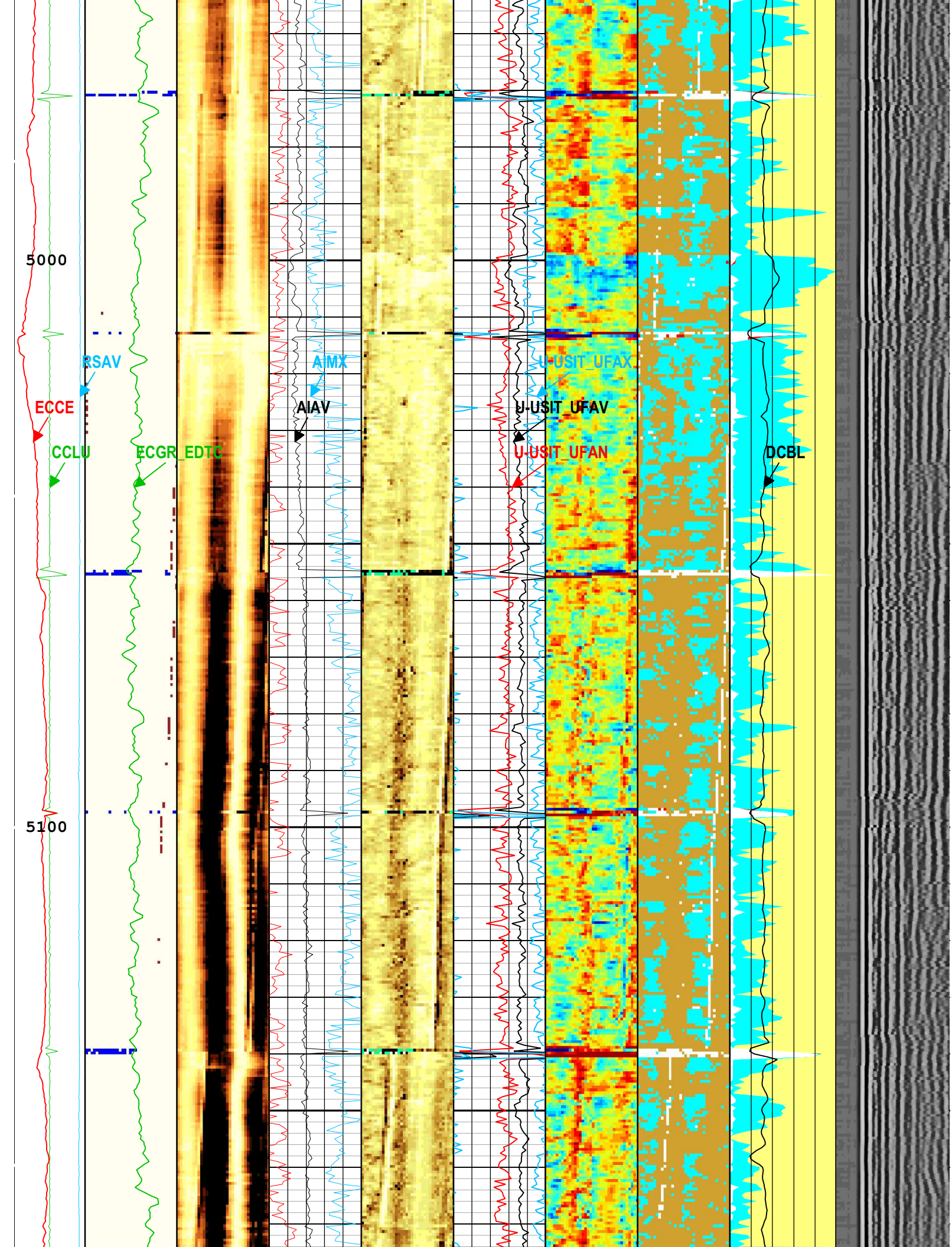
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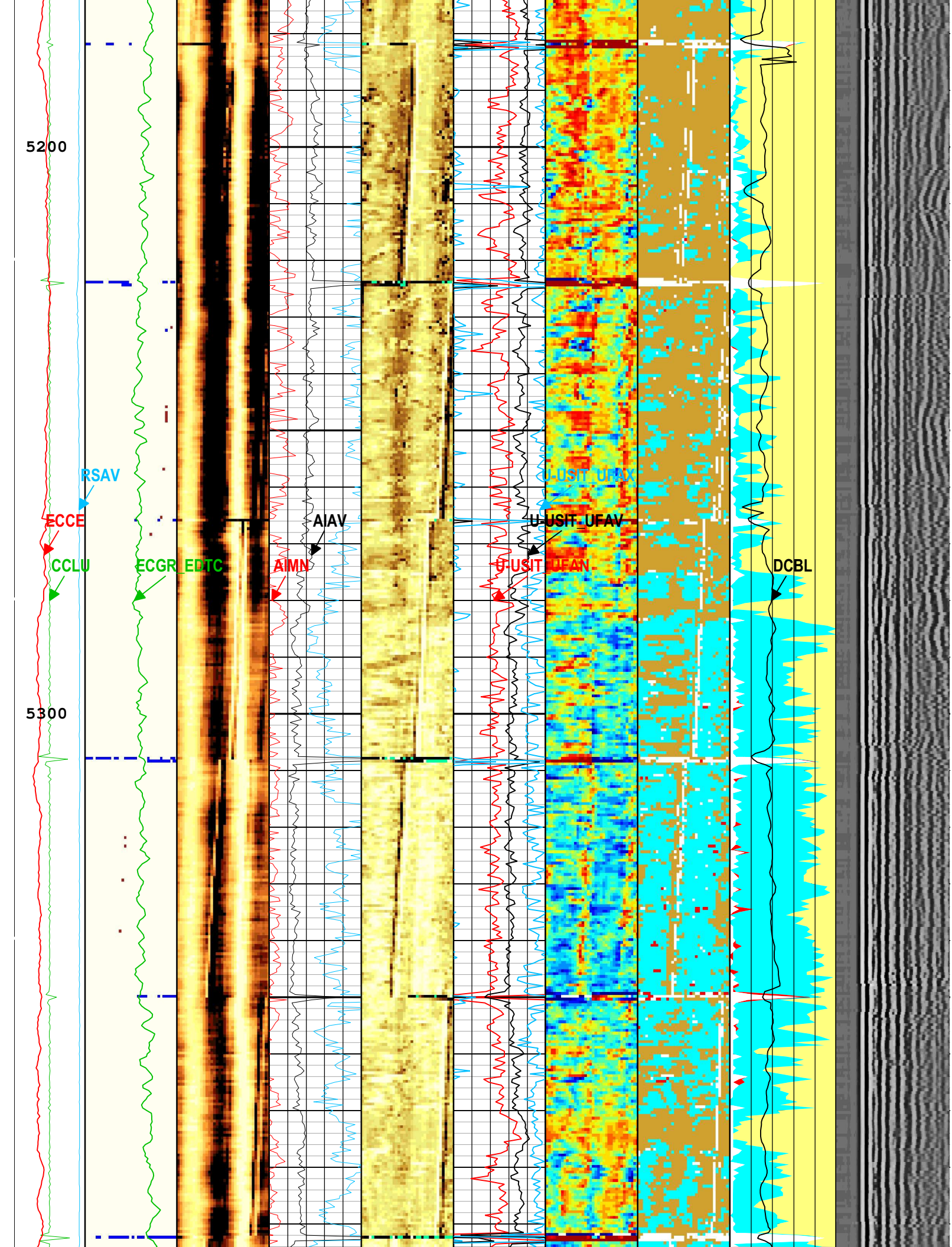
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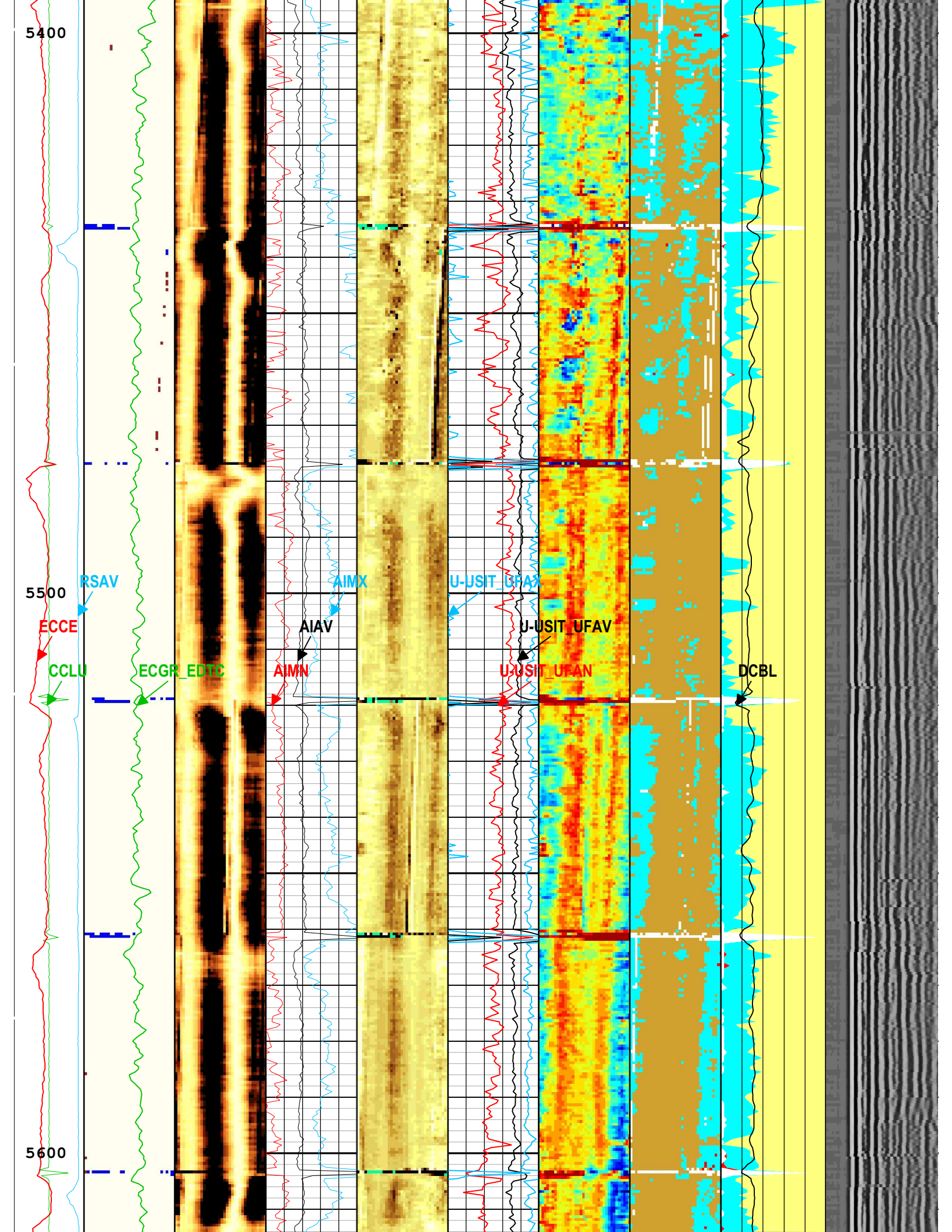
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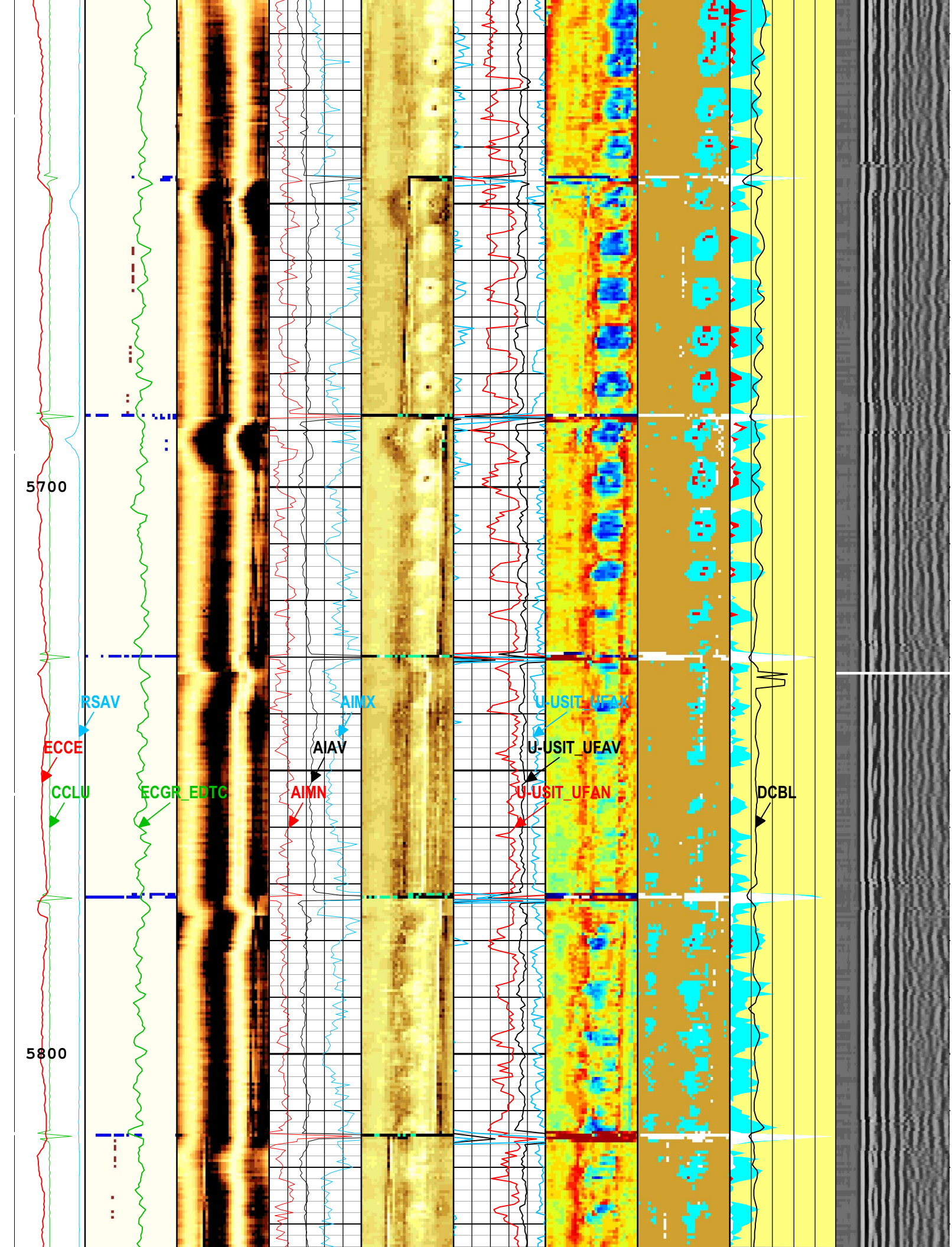
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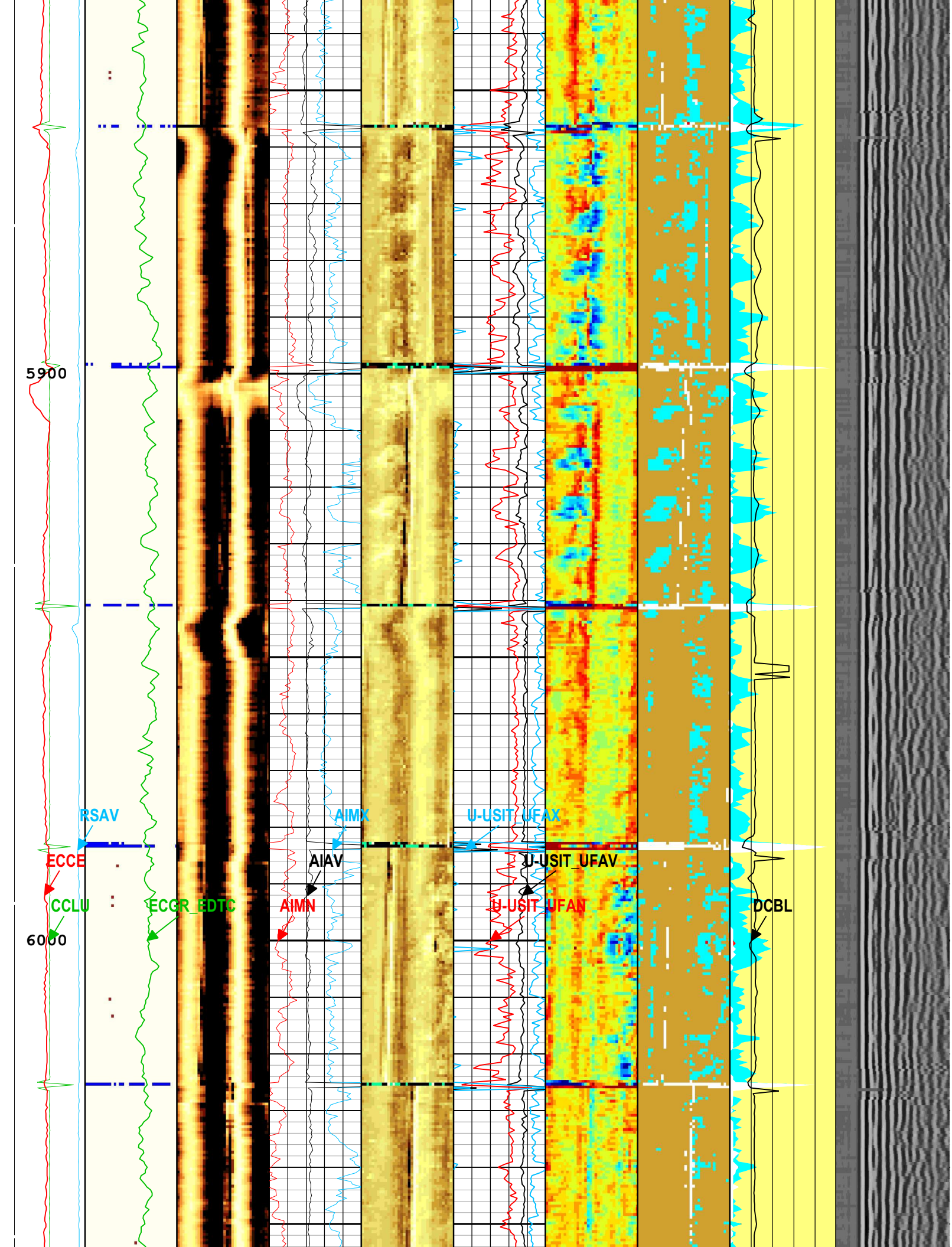
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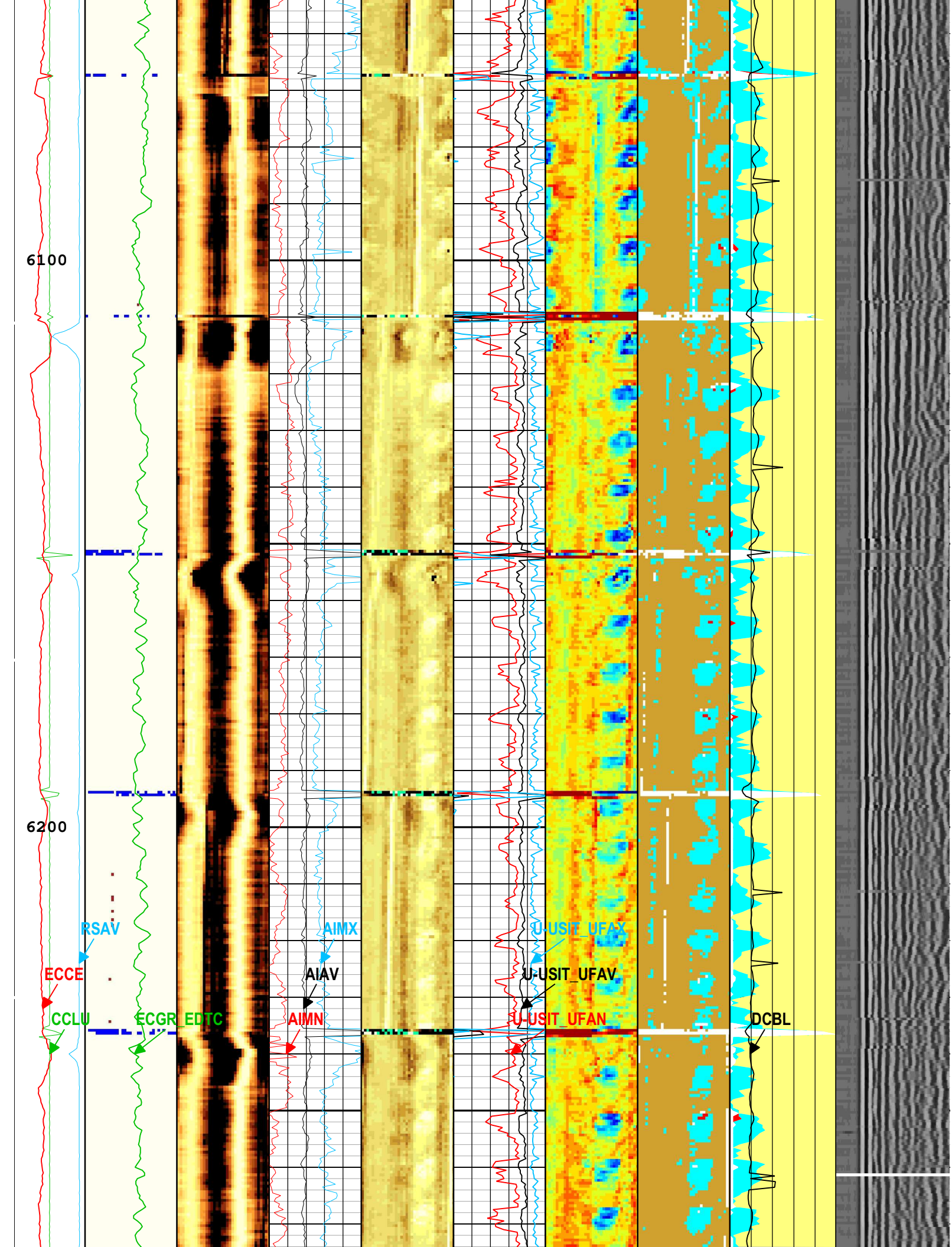
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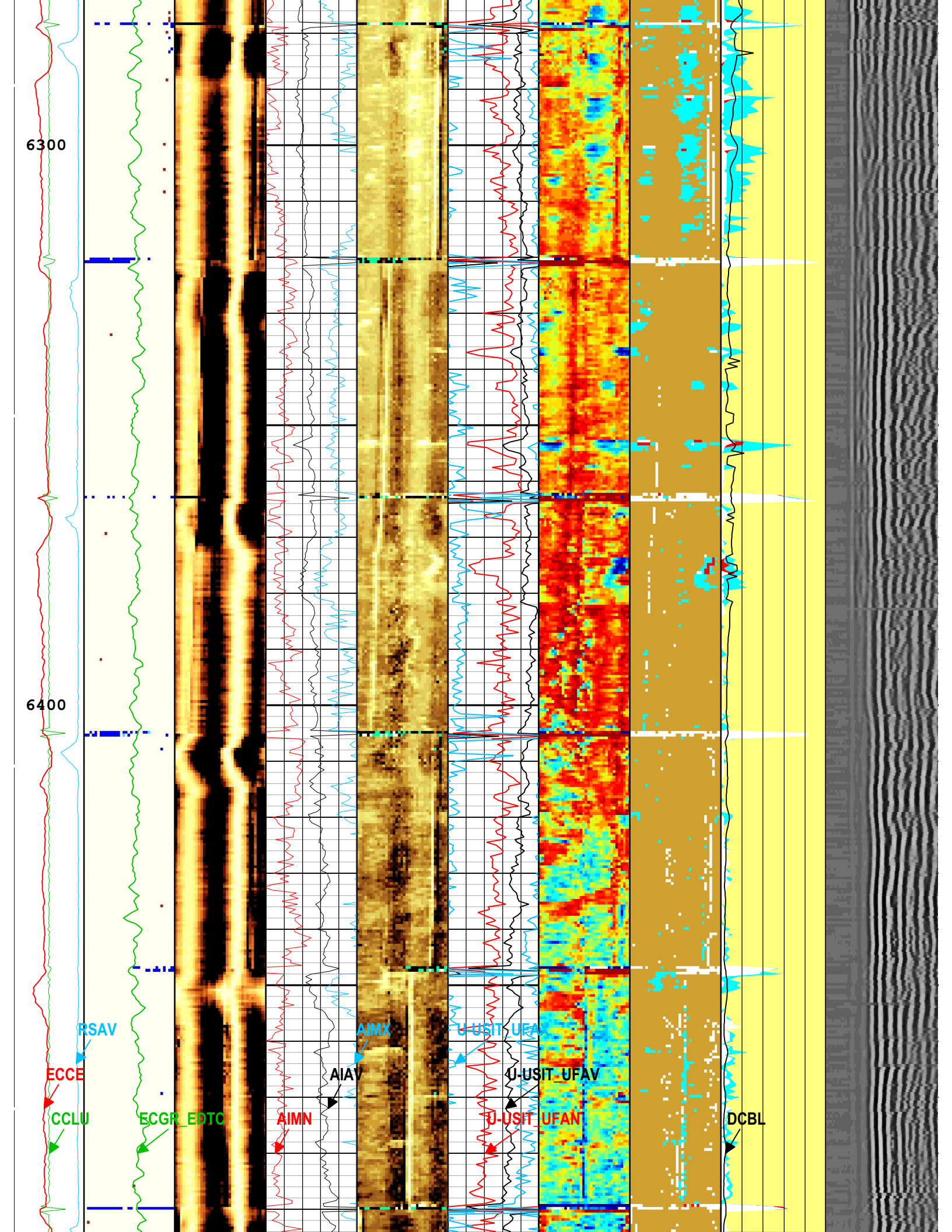
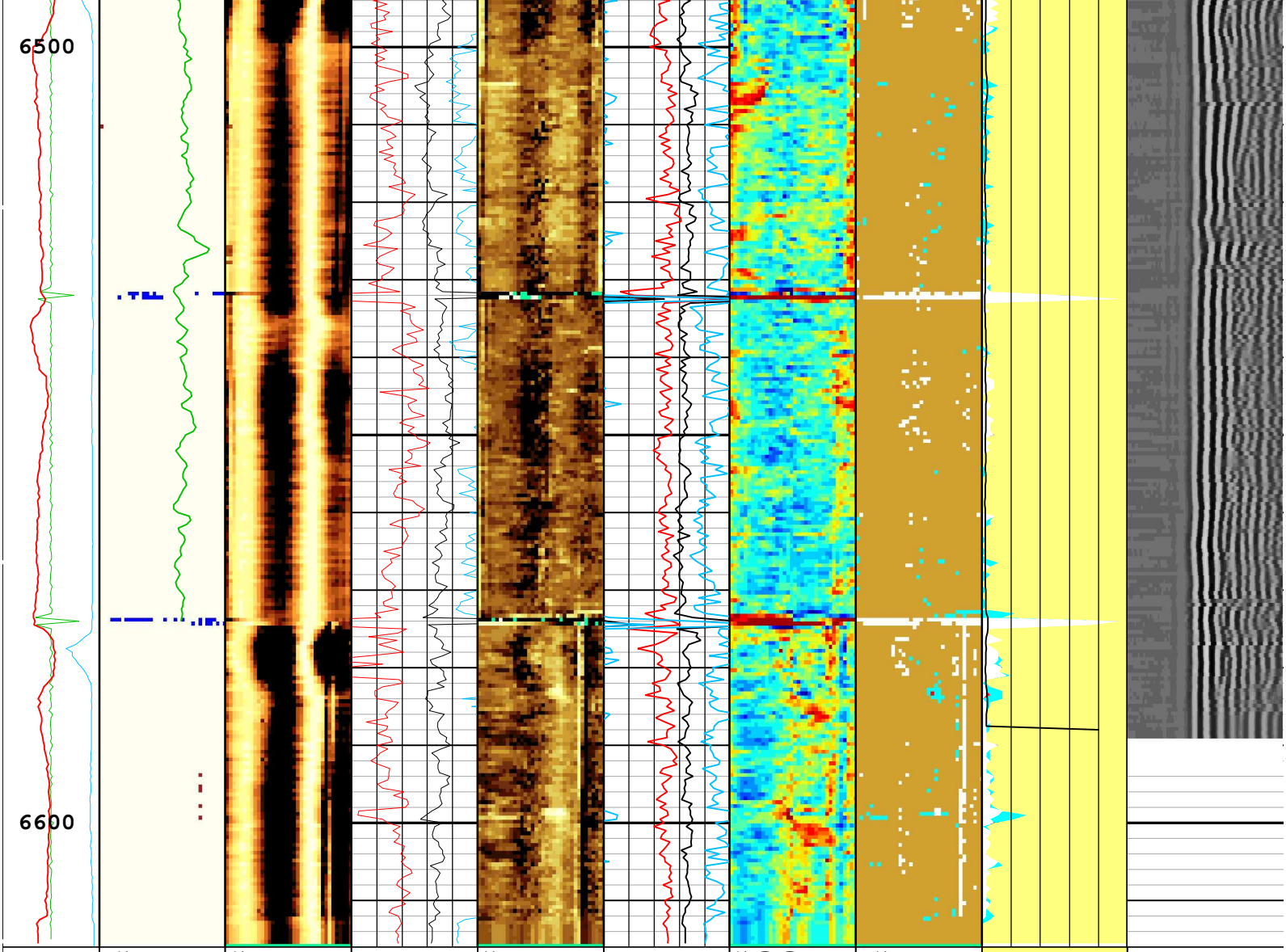
U-USIT_UFAV
U-USIT_UFAN
DCBL


6300
6400
RSAV
ECCE
CCLU
ECGR_EDTC
AIMX
AIAV
AIMN
U-USIT_UFAX
U-USIT_UFAV
U-USIT_UFAN
DCBL



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

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)

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)

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 64.000 92.000 120.000 148.000
Custom Normalization
USIT - Flexural Attenuation (UFAK) USIT-E
(dB/m)

Absent 1.500 3.500
Explicit Normalization
USIT - Solid Liquid Gas Sorted Color Map (USLP) USIT-E

SLG Solid Index

SLG Liquid Index

SLG Gas Index

SLG White Point Index

Synthetic CBL from Discriminated Attenuation (DCBL) MAST-B
0 mV 100

Min Amplitude
VDL VariableDens (VDL) MAST-B
200 us

Min Amplitude
VDL VariableDens High Speed (VDI MAST-B
200 us

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] - :

UTIM Error
Pulse Origin Not Detected
WINLEN Error
Casing Thickness Error

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

Description: USI IBC SLG Format: Log (IBC SLG CBL-VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 28-Jun-2022 15:23:11

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	Open	
BS	Bit Size	WLSESSION	Depth Zoned	in
CBLO	Casing Bottom (Logger)	WLSESSION	7306	ft
CBRA	CBL LQC Reference Amplitude in Free Pipe	MAST-B	80	mV
CDEN	Cement Density	USIT-E	0	lbm/gal
CDEN	Cement Density	EDTC-B	16.69	lbm/gal
CMTY(U-USIT_CEMT)	Cement Type	USIT-E	Regular Cement	
THNO	Nominal Casing Thickness - Zoned along logger depths	WLSESSION	0.25	in
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	8.4	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
DPINV_LAGCUT	Lag Cut for Dipole Inversion	MAST-B	No	
DT_MIN_MUH	Detection Minimum Slowness for Monopole Upper Transmitter High Frequency Firing	MAST-B	53.04	us/ft
DTF	Delta-T Fluid	Borehole	189	us/ft
DTMD	Borehole Fluid Slowness	Borehole	203	us/ft
DTST_SLO_MFL	Slowness Series of Mouse Clicks for Relabeling DTST_MFL	MAST-B	[0]	us/ft
FD	Fluid Density	USIT-E	10	lbm/gal
FDET_STRT_MLH	Fixed Detection Start Time for Monopole Lower Transmitter High Frequency Firing	MAST-B	200.32	us
FDET_STRT_MUH	Fixed Detection Start Time for Monopole Upper Transmitter High Frequency Firing	MAST-B	200.35	us
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)	
GOBO	Good Bond	MAST-B	1.32	mV
GOBO_CURR	Good Bond in Arbitrary Cement	MAST-B	1.32	mV
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	Off	
MATT	Maximum Attenuation	MAST-B	55.52	dB/m
MATT_CURR	Maximum Attenuation in Arbitrary Cement	MAST-B	55.52	dB/m
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-E	15.37	us
MSA_CURR	Minimum Sonic Amplitude in Arbitrary Cement	MAST-B	0.47	mV
MUD_N_THE	Theoretical Mud Normalization Factor	USIT-E	1.1	
THDL	Minimum Search Thickness (percentage of nominal)	USIT-E	80	%
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	1.67	Mrayl
U-USIT_UFAO	USIT Flexural Attenuation Offset	USIT-E	-5.7	dB/m
UFSFILT	Ultrasonic Flexural Surface Filter	USIT-E	LPF 250k	
U-USIT_UIAP	IBC Answer Product Enabled	USIT-E	ThirdInterfaceEcho	
ZMUD	Acoustic Impedance of Mud	Borehole	1.7	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	12.25	10.5	567
BS	7.875	567	6616

All depth are actual.

Tool Control Parameters

ONE: Parameters

Parameter	Description	Tool	Value	Unit
ACQ_DOMAIN	Custom Acquisition Domain Name	MAST-B	[UMHF, LMHF]	
ACQCTL	Acquisition Control	MAST-B	[1, 1]	
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	54	dB
CBOOTSTA_MAPC	MAMS Controller Boot Status	MAST-B	1	
CONTROLLER_FIRM_REV_MAPC	MAPC Firmware Revision of Controller Electronics	MAST-B	2098	
COMPCTL	Data Compression Control	MAST-B	[MZIPA, MZIPA]	
DHMODALCTL	Downhole/Surface Modal Computation Control	MAST-B	[OFF, OFF]	
DIGDEL	Waveform Digitizing Delay	MAST-B	[0, 0]	us
DIGDT	Sonic Waveform Digitizing Slowness	MAST-B	[0, 0]	us/ft
DIGTIME	Digitizing Time	MAST-B	[1200, 1200]	us
DIIN_WF_CHN	Dipole Inline Component Waveform Data Channel Name	MAST-B	[,]	
DIIN_WFN_CHN	Dipole Inline Component Waveform Normalization Data Channel Name	MAST-B	[,]	
DIOF_WF_CHN	Dipole Offline Component Waveform Data Channel Name	MAST-B	[,]	
DIOF_WFN_CHN	Dipole Offline Component Waveform Normalization Data Channel Name	MAST-B	[,]	
EMXV	EMEX Voltage	USIT-E	Time Zoned	V
GNINT	Automatic Gain Selection Time Interval	MAST-B	[1200, 1200]	us
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	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	4408.8	ft/h
MAX_TOOL_SPEED	Maximum service speed allowed for, or attained by, a logging tool.	MAST-B	Time Zoned	ft/h
MONO_WF_CHN	Monopole Component Waveform Data Channel Name	MAST-B	[SWMUH_M, SWMLH_M]	
MONO_WFN_CHN	Monopole Component Waveform Normalization Data Channel Name	MAST-B	[SWMUHN_M, SWMLHN_M]	
MOTOR_PROTECT	Motor Protection	USIT-E	Off	
MSMT_LIST	Measurement List	MAST-B	[MUH, MLH]	
NUMMSMT	Number of active measurements	MAST-B	2	
PROD_MASTUI	MAST Product Class Selection	MAST-B	CBL	
SENSOR10_FIRM_REV_MAPC	MAPC Firmware Revision of Sensor Electronics Station #10	MAST-B	1059	
SENSOR11_FIRM_REV_MAPC	MAPC Firmware Revision of Sensor Electronics Station #11	MAST-B	1059	
SENSOR12_FIRM_REV_MAPC	MAPC Firmware Revision of Sensor Electronics Station #12	MAST-B	1059	
SENSOR13_FIRM_REV_MAPC	MAPC Firmware Revision of Sensor Electronics Station #13	MAST-B	1059	
SENSOR1_FIRM_REV_MAPC	MAPC Firmware Revision of Sensor Electronics Station #1	MAST-B	1059	
SENSOR2_FIRM_REV_MAPC	MAPC Firmware Revision of Sensor Electronics Station #2	MAST-B	1059	
SENSOR3_FIRM_REV_MAPC	MAPC Firmware Revision of Sensor Electronics Station #3	MAST-B	1059	
SENSOR4_FIRM_REV_MAPC	MAPC Firmware Revision of Sensor Electronics Station #4	MAST-B	1059	
SENSOR5_FIRM_REV_MAPC	MAPC Firmware Revision of Sensor Electronics Station #5	MAST-B	1059	
SENSOR6_FIRM_REV_MAPC	MAPC Firmware Revision of Sensor Electronics Station #6	MAST-B	1059	
SENSOR7_FIRM_REV_MAPC	MAPC Firmware Revision of Sensor Electronics Station #7	MAST-B	1059	
SENSOR8_FIRM_REV_MAPC	MAPC Firmware Revision of Sensor Electronics Station #8	MAST-B	1059	

SENSOR9_FIRM_REV_MAPC	MAPC Firmware Revision of Sensor Electronics Station #9	MAST-B	1059	
RBOOTSTA_MAPC	MAMS Receiver Boot Status	MAST-B	1	
RXSEL	Receiver Station Select	MAST-B	[[Off, Off], [Off, Off], [Off, Off], [Off, Off], [On, On], [On, On], [On, On], [On, On], [On, On], [On, On], [Off, Off], [Off, Off], [Off, Off], [Off, Off]]	
SAMINT	Sonic Waveform Sampling Interval	MAST-B	[10, 10]	
SERVICE_LIST	Service Selection List	MAST-B	[DCBLVDL]	
SNSR_WF_CHN	Sensor Waveforms Data Channel Name	MAST-B	[RSWMUH, RSWMLH]	
SNSR_WFN_CHN	Sensor Waveforms Normalization Factor Channel Name	MAST-B	[SWMUHN, SWMLHN]	
SNSRSEL	Sensor Element Select	MAST-B	[[On, On], [On, On], [On, On], [On, On], [On, On], [On, On], [On, On], [On, On]]	
TX_AMP	Transmitter Amplitude Factor	MAST-B	[FULL, FULL]	
TX_WF_SIGNAL	Sonic Drive Signal	MAST-B	[PREDEFINED, PREDEFINED]	
TXSEL	Transmitter Drive Selection	MAST-B	[UM, LM]	
UPAT	USIT Emission Pattern	USIT-E	Pattern 750 KHz	
UWKM	USIT Working Mode	USIT-E	10 deg at 6.0 in	
U-USIT_UTAN	Transducer Angles	USIT-E	33_DEG	
VDL_INT	Variable Density Log Step Interval	MAST-B	HIGH_SPEED	
CE_VDL_MODE	Variable Density Log Mode	MAST-B	HIGH_SPEED	
VRES	Vertical Resolution	USIT-E	6.0 in	
WF_CR_CHN	Waveform Compression Rate Channel Name	MAST-B	[WCRMUH, WCRMLH]	
WF_DEPTH_CHN	Waveform Depth Channel Name	MAST-B	[WDMUH, WDMLH]	
WF_QI_CHN	Waveform Quality Indicator Channel Name	MAST-B	[WQMUH, WQMLH]	
WFSEL	Transmitter Drive Waveform Selection	MAST-B	[mp_hf_d, mp_hf_d]	

Time Zone Parameters

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
EMXV	65	28-Jun-2022 12:53:35	28-Jun-2022 14:24:15	6616.93	1399.77
EMXV	75	28-Jun-2022 14:24:15	28-Jun-2022 14:48:18	1399.77	53.08
MAX_TOOL_SPEED	8285	28-Jun-2022 12:53:35	28-Jun-2022 12:57:54	6616.93	6478.37
MAX_TOOL_SPEED	7812	28-Jun-2022 12:57:54	28-Jun-2022 13:05:57	6478.37	5996.22
MAX_TOOL_SPEED	9952	28-Jun-2022 13:05:57	28-Jun-2022 13:58:10	5996.22	2943.49
MAX_TOOL_SPEED	9446	28-Jun-2022 13:58:10	28-Jun-2022 14:03:11	2943.49	2650.37
MAX_TOOL_SPEED	10106	28-Jun-2022 14:03:11	28-Jun-2022 14:04:11	2650.37	2591.65
MAX_TOOL_SPEED	9200	28-Jun-2022 14:04:11	28-Jun-2022 14:13:13	2591.65	2052.71
MAX_TOOL_SPEED	10099	28-Jun-2022 14:13:13	28-Jun-2022 14:27:17	2052.71	1218.34
MAX_TOOL_SPEED	10923	28-Jun-2022 14:27:17	28-Jun-2022 14:30:18	1218.34	1037.48
MAX_TOOL_SPEED	10235	28-Jun-2022 14:30:18	28-Jun-2022 14:33:18	1037.48	856.35
MAX_TOOL_SPEED	9270	28-Jun-2022 14:33:18	28-Jun-2022 14:36:19	856.35	681.72
MAX_TOOL_SPEED	10037	28-Jun-2022 14:36:19	28-Jun-2022 14:41:20	681.72	382.58
MAX_TOOL_SPEED	9476	28-Jun-2022 14:41:20	28-Jun-2022 14:48:18	382.58	53.08

All depth are at tool zero.

Software Version

Acquisition System	Version
Maxwell 2022.0	12.0.215014.3100

Application Patch

Wireline_Hotfix-Mandatory-2022.0_12.0.217167

Wireline_NPD-ThruBit-2022.0_12.0.217960

Wireline_TestKit-MRSFMRHF-2022.0_12.0.217371

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
ONE	Log[1]:Up	Up	296.56 ft	506.88 ft	28-Jun-2022 11:52:41 AM	28-Jun-2022 11:58:04 AM	ON	-0.26 ft	Yes

All depths are referenced to toolstring zero

Log

Company:Occidental Petroleum Corporation Well:PSC #16-34

ONE: Log[1]:Up:S005

Description: USI IBC SLG Format: Log (IBC SLG CBL-VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 28-Jun-2022 15:23:31

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

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

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)

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)

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 64.000 92.000 120.000 148.000

Custom Normalization

USIT - Flexural Attenuation (UFAK) USIT-E

(dB/m)

Absent 1.500 3.500

Explicit Normalization

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

SLG Solid Index

SLG Liquid Index

SLG Gas Index

SLG White Point Index

Synthetic CBL from Discriminated Attenuation (DCBL) MAST-B

0 mV 100

Min Amplitude

VDL VariableDens (VDL) MAST-B

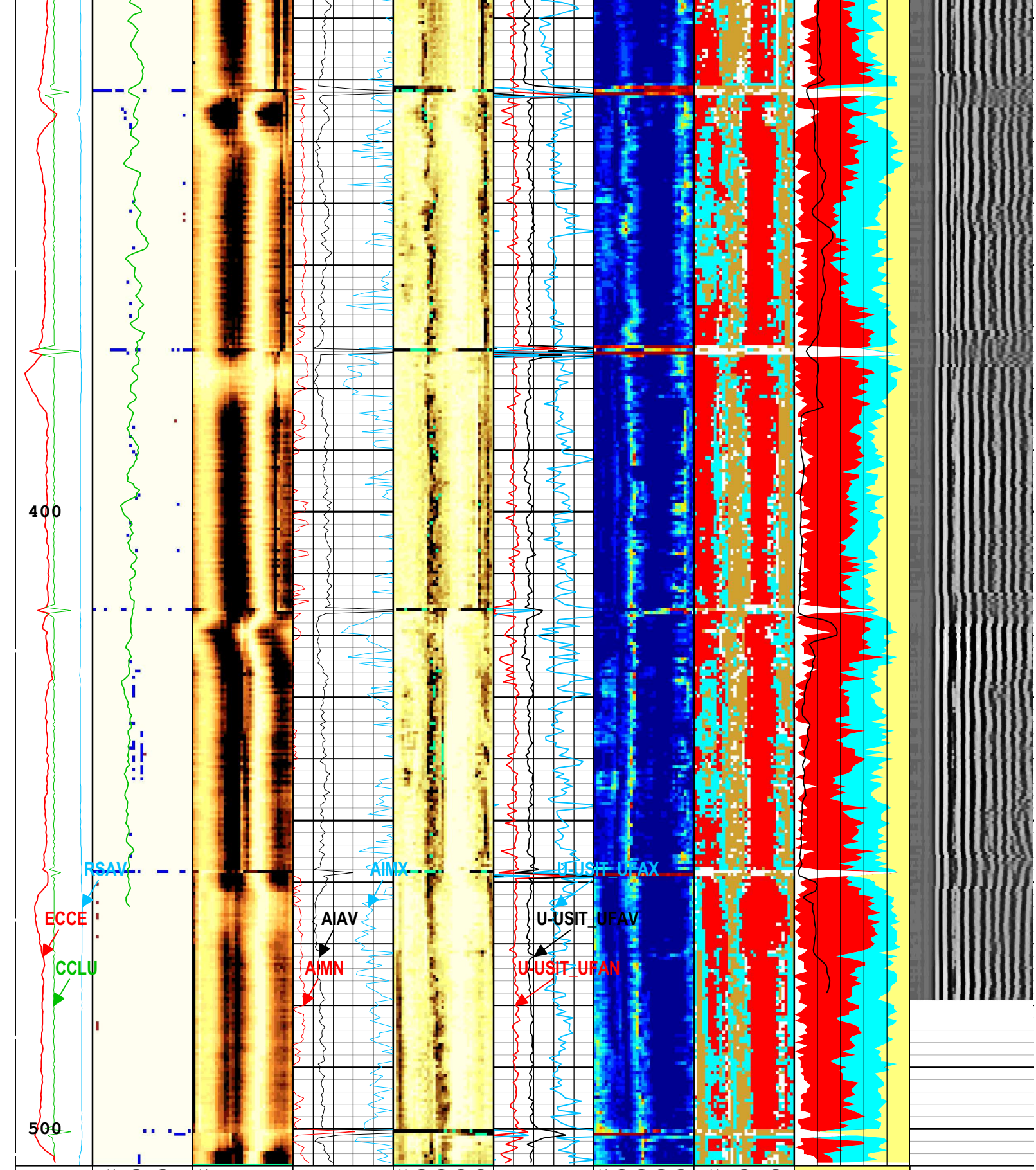
200 us

Min Amplitude

VDL VariableDens High Speed (VDL) MAST-B

200 us

300



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 Average (AIAV) USIT-E

Absent 1.500 3.500 5.500 7.500
Custom Normalization
USIT - Acoustic Impedance (AIBK) USIT-E

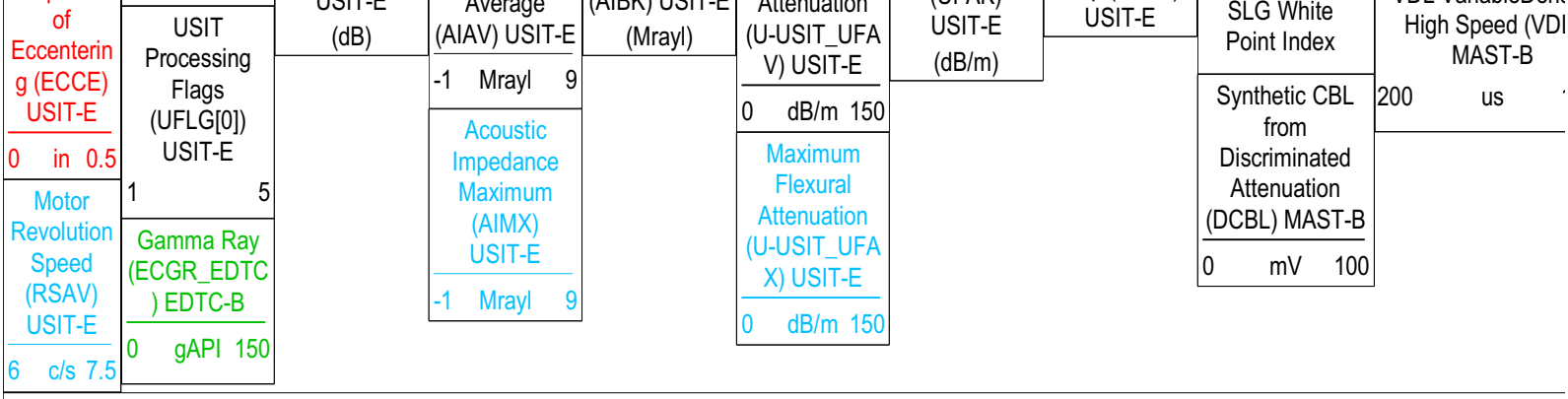
Minimum Flexural Attenuation (U-USIT_UFAN) USIT-E
0 dB/m 150
Average Flexural Attenuation (U-USIT_UFAV) USIT-E

Absent 64.000 92.000 120.000 148.000
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
VDL VariableDens (VDL) MAST-B
200 us
Min Amplitude
VDL VariableDens



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 CBL-VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 28-Jun-2022 15:23:31

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	Open	
BS	Bit Size	WLSESSION	12.25	in
CBLO	Casing Bottom (Logger)	WLSESSION	7306	ft
CBRA	CBL LQC Reference Amplitude in Free Pipe	MAST-B	80	mV
CDEN	Cement Density	USIT-E	0	lbm/gal
CDEN	Cement Density	EDTC-B	16.69	lbm/gal
CMTY(U-USIT_CEMT)	Cement Type	USIT-E	Regular Cement	
THNO	Nominal Casing Thickness - Zoned along logger depths	WLSESSION	0.25	in
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	8.4	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
DPINV_LAGCUT	Lag Cut for Dipole Inversion	MAST-B	No	
DT_MIN_MUH	Detection Minimum Slowness for Monopole Upper Transmitter High Frequency Firing	MAST-B	Time Zoned	us/ft
DTF	Delta-T Fluid	Borehole	189	us/ft
DTMD	Borehole Fluid Slowness	Borehole	203	us/ft
DTST_SLO_MFL	Slowness Series of Mouse Clicks for Relabeling DTST_MFL	MAST-B	[0]	us/ft
FD	Fluid Density	USIT-E	10	lbm/gal
FDET_STRT_MLH	Fixed Detection Start Time for Monopole Lower Transmitter High Frequency Firing	MAST-B	Time Zoned	us
FDET_STRT_MUH	Fixed Detection Start Time for Monopole Upper Transmitter High Frequency Firing	MAST-B	Time Zoned	us
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)	
GOBO	Good Bond	MAST-B	1.32	mV
GOBO_CURR	Good Bond in Arbitrary Cement	MAST-B	1.32	mV
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	Off	
MATT	Maximum Attenuation	MAST-B	55.52	dB/m
MATT_CURR	Maximum Attenuation in Arbitrary Cement	MAST-B	55.52	dB/m
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-E	15.37	us
MSA_CURR	Minimum Sonic Amplitude in Arbitrary Cement	MAST-B	0.47	mV
MUD_N_THE	Theoretical Mud Normalization Factor	USIT-E	1.1	
THDL	Minimum Search Thickness (percentage of nominal)	USIT-E	80	%
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	1.67	Mrayl
U-USIT_UFAO	USIT Flexural Attenuation Offset	USIT-E	-5.7	dB/m
UFSFILT	Ultrasonic Flexural Surface Filter	USIT-E	LPF 250k	
U-USIT_UIAP	IBC Answer Product Enabled	USIT-E	ThirdInterfaceEcho	
ZMUD	Acoustic Impedance of Mud	Borehole	1.7	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-E	2.6	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

Time Zone Parameters

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
DT_MIN_MUH	57	28-Jun-2022 11:52:41	28-Jun-2022 11:53:43	506.88	490.5
DT_MIN_MUH	49.42	28-Jun-2022 11:53:43	28-Jun-2022 11:55:06	490.5	464.16
DT_MIN_MUH	54.47	28-Jun-2022 11:55:06	28-Jun-2022 11:55:19	464.16	459.75
DT_MIN_MUH	53.04	28-Jun-2022 11:55:19	28-Jun-2022 11:58:04	459.75	296.56
FDET_STRT_MLH	242	28-Jun-2022 11:52:41	28-Jun-2022 11:53:32	506.88	493.97
FDET_STRT_MLH	200.32	28-Jun-2022 11:53:32	28-Jun-2022 11:58:04	493.97	296.56
FDET_STRT_MUH	242	28-Jun-2022 11:52:41	28-Jun-2022 11:53:46	506.88	489.56
FDET_STRT_MUH	229.02	28-Jun-2022 11:53:46	28-Jun-2022 11:53:49	489.56	488.5
FDET_STRT_MUH	217.55	28-Jun-2022 11:53:49	28-Jun-2022 11:56:12	488.5	409.74
FDET_STRT_MUH	200.35	28-Jun-2022 11:56:12	28-Jun-2022 11:58:04	409.74	296.56

All depth are at tool zero.

Tool Control Parameters

ONE: Parameters

Parameter	Description	Tool	Value	Unit
ACQ_DOMAIN	Custom Acquisition Domain Name	MAST-B	[UMHF, LMHF]	
ACQCTL	Acquisition Control	MAST-B	[1, 1]	
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	54	dB
CBOOTSTA_MAPC	MAMS Controller Boot Status	MAST-B	1	
CONTROLLER_FIRM_REV_MAPC	MAPC Firmware Revision of Controller Electronics	MAST-B	2098	
COMPCTL	Data Compression Control	MAST-B	[MZIPA, MZIPA]	
DHMODALCTL	Downhole/Surface Modal Computation Control	MAST-B	[OFF, OFF]	
DIGDEL	Waveform Digitizing Delay	MAST-B	[0, 0]	us
DIGDT	Sonic Waveform Digitizing Slowness	MAST-B	[0, 0]	us/ft
DIGTIME	Digitizing Time	MAST-B	[1200, 1200]	us
DIIN_WF_CHN	Dipole Inline Component Waveform Data Channel Name	MAST-B	[,]	
DIIN_WFN_CHN	Dipole Inline Component Waveform Normalization Data Channel Name	MAST-B	[,]	
DIOF_WF_CHN	Dipole Offline Component Waveform Data Channel Name	MAST-B	[,]	
DIOF_WFN_CHN	Dipole Offline Component Waveform Normalization Data Channel Name	MAST-B	[,]	
EMXV	EMEX Voltage	USIT-E	65	V

GNINT	Automatic Gain Selection Time Interval	MAST-B	[1200, 1200]	us
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	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	4408.8	ft/h
MAX_TOOL_SPEED	Maximum service speed allowed for, or attained by, a logging tool.	MAST-B	7668	ft/h
MONO_WF_CHN	Monopole Component Waveform Data Channel Name	MAST-B	[SWMUH_M, SWMLH_M]	
MONO_WFN_CHN	Monopole Component Waveform Normalization Data Channel Name	MAST-B	[SWMUHN_M, SWMLHN_M]	
MOTOR_PROTECT	Motor Protection	USIT-E	Time Zoned	
MSMT_LIST	Measurement List	MAST-B	[MUH, MLH]	
NUMMSMT	Number of active measurements	MAST-B	2	
PROD_MASTUI	MAST Product Class Selection	MAST-B	CBL	
SENSOR10_FIRM_REV_MAPC	MAPC Firmware Revision of Sensor Electronics Station #10	MAST-B	1059	
SENSOR11_FIRM_REV_MAPC	MAPC Firmware Revision of Sensor Electronics Station #11	MAST-B	1059	
SENSOR12_FIRM_REV_MAPC	MAPC Firmware Revision of Sensor Electronics Station #12	MAST-B	1059	
SENSOR13_FIRM_REV_MAPC	MAPC Firmware Revision of Sensor Electronics Station #13	MAST-B	1059	
SENSOR1_FIRM_REV_MAPC	MAPC Firmware Revision of Sensor Electronics Station #1	MAST-B	1059	
SENSOR2_FIRM_REV_MAPC	MAPC Firmware Revision of Sensor Electronics Station #2	MAST-B	1059	
SENSOR3_FIRM_REV_MAPC	MAPC Firmware Revision of Sensor Electronics Station #3	MAST-B	1059	
SENSOR4_FIRM_REV_MAPC	MAPC Firmware Revision of Sensor Electronics Station #4	MAST-B	1059	
SENSOR5_FIRM_REV_MAPC	MAPC Firmware Revision of Sensor Electronics Station #5	MAST-B	1059	
SENSOR6_FIRM_REV_MAPC	MAPC Firmware Revision of Sensor Electronics Station #6	MAST-B	1059	
SENSOR7_FIRM_REV_MAPC	MAPC Firmware Revision of Sensor Electronics Station #7	MAST-B	1059	
SENSOR8_FIRM_REV_MAPC	MAPC Firmware Revision of Sensor Electronics Station #8	MAST-B	1059	
SENSOR9_FIRM_REV_MAPC	MAPC Firmware Revision of Sensor Electronics Station #9	MAST-B	1059	
RBOOTSTA_MAPC	MAMS Receiver Boot Status	MAST-B	1	
RXSEL	Receiver Station Select	MAST-B	[[Off, Off], [Off, Off], [Off, Off], [Off, Off], [On, On], [On, On], [On, On], [On, On], [On, On], [Off, Off], [Off, Off], [Off, Off], [Off, Off]]	
SAMINT	Sonic Waveform Sampling Interval	MAST-B	[10, 10]	
SERVICE_LIST	Service Selection List	MAST-B	[DCBLVDL]	
SNSR_WF_CHN	Sensor Waveforms Data Channel Name	MAST-B	[RSWMUH, RSWMLH]	
SNSR_WFN_CHN	Sensor Waveforms Normalization Factor Channel Name	MAST-B	[SWMUHN, SWMLHN]	
SNSRSEL	Sensor Element Select	MAST-B	[[On, On], [On, On], [On, On], [On, On], [On, On], [On, On], [On, On], [On, On]]	
TX_AMP	Transmitter Amplitude Factor	MAST-B	[FULL, FULL]	
TX_WF_SIGNAL	Sonic Drive Signal	MAST-B	[PREDEFINED, PREDEFINED]	
TXSEL	Transmitter Drive Selection	MAST-B	[UM, LM]	
UPAT	USIT Emission Pattern	USIT-E	Pattern 750 KHz	
UWKM	USIT Working Mode	USIT-E	10 deg at 6.0 in	
U-USIT_UTAN	Transducer Angles	USIT-E	33_DEG	
VDL_INT	Variable Density Log Step Interval	MAST-B	HIGH_SPEED	
CE_VDL_MODE	Variable Density Log Mode	MAST-B	HIGH_SPEED	
VRES	Vertical Resolution	USIT-E	6.0 in	
WF_CR_CHN	Waveform Compression Rate Channel Name	MAST-B	[WCRMUH, WCRMLH]	
WF_DEPTH_CHN	Waveform Depth Channel Name	MAST-B	[WDMUH, WDMLH]	
WF_QI_CHN	Waveform Quality Indicator Channel Name	MAST-B	[WQMUH, WQMLH]	
WFSEL	Transmitter Drive Waveform Selection	MAST-B	[mp_hf_d, mp_hf_d]	

Time Zone Parameters

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

MOTOR_PROTECT	On	28-Jun-2022 11:52:41	28-Jun-2022 11:57:28	506.88	331.63
MOTOR_PROTECT	Off	28-Jun-2022 11:57:28	28-Jun-2022 11:58:04	331.63	296.56

All depth are at tool zero.

ONE

Software Version

Acquisition System	Version
Maxwell 2022.0	12.0.215014.3100
Application Patch	Wireline_Hotfix-Mandatory-2022.0_12.0.217167
	Wireline_NPD-ThruBit-2022.0_12.0.217960
	Wireline_TestKit-MRSFMRHF-2022.0_12.0.217371

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
ONE	Log[4]:Up	Up	1583.51 ft	1708.21 ft	28-Jun-2022 3:03:34 PM	28-Jun-2022 3:05:51 PM	ON	7.81 ft	Yes

All depths are referenced to toolstring zero

Log

Company:Occidental Petroleum Corporation Well:PSC #16-34

ONE: Log[4]:Up:S005

Description: USI IBC SLG Format: Log (IBC SLG CBL-VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 28-Jun-2022 15:23:38

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)

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

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)

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)

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 64.000 92.000 120.000 148.000
Custom Normalization
USIT - Flexural Attenuation (UFAK) USIT-E
(dB/m)

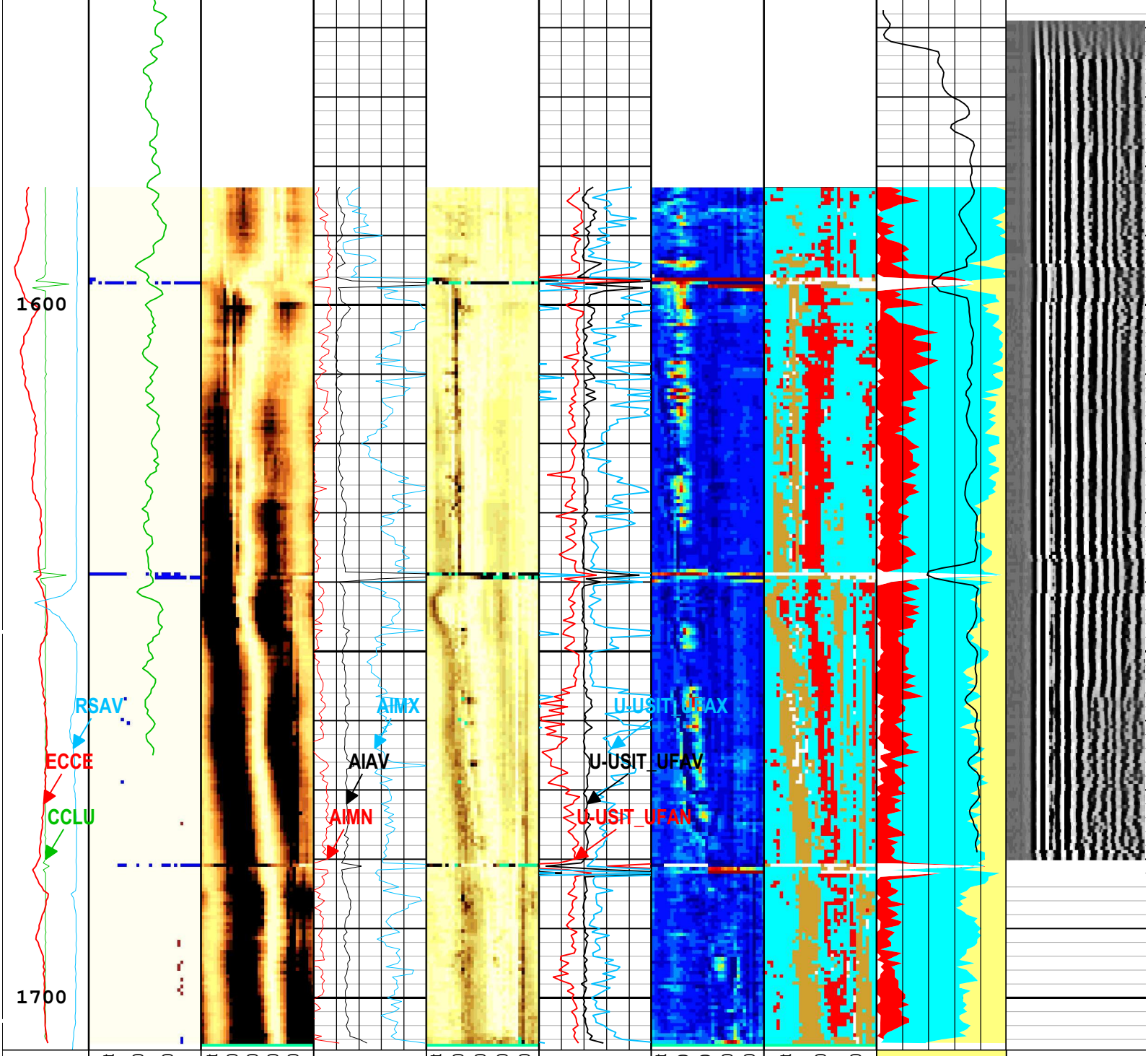
Absent 1.500 3.500
Explicit Normalization
USIT - Solid Liquid Gas Sorted Color Map (USLP) USIT-E

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

Synthetic CBL from Discriminated Attenuation (DCBL) MAST-B
0 mV 100

Min Amplitude
VDL VariableDens (VDL) MAST-B
200 us

Min Amplitude
VDL VariableDens High Speed (VDL) MAST-B
200 us



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

Absent 1.500 3.500
Explicit Normalization
USIT - USIT Processing Flags (UFLG) USIT-E

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)

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)

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 64.000 92.000 120.000 148.000
Custom Normalization
USIT - Flexural Attenuation (UFAK) USIT-E (dB/m)

Absent 1.500 3.500
Explicit Normalization
USIT - Solid Liquid Gas Sorted Color Map (USLP) USIT-E

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

Synthetic CBL from Discriminated Attenuation (DCBL) MAST-B
0 mV 100

Min Amplitude
VDL VariableDens (VDL) MAST-B
200 us

Min Amplitude
VDL VariableDens High Speed (VDL) MAST-B
200 us

6 c/s 7.5

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

Description: USI IBC SLG Format: Log (IBC SLG CBL-VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 28-Jun-2022 15:23:38

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	Open	
BS	Bit Size	WLSESSION	7.875	in
CBLO	Casing Bottom (Logger)	WLSESSION	7306	ft
CBRA	CBL LQC Reference Amplitude in Free Pipe	MAST-B	80	mV
CDEN	Cement Density	USIT-E	0	lbm/gal
CDEN	Cement Density	EDTC-B	16.69	lbm/gal
CMTY(U-USIT_CEMT)	Cement Type	USIT-E	Regular Cement	
THNO	Nominal Casing Thickness - Zoned along logger depths	WLSESSION	0.25	in
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	8.4	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
DPINV_LAGCUT	Lag Cut for Dipole Inversion	MAST-B	No	
DT_MIN_MUH	Detection Minimum Slowness for Monopole Upper Transmitter High Frequency Firing	MAST-B	53.04	us/ft
DTF	Delta-T Fluid	Borehole	189	us/ft
DTMD	Borehole Fluid Slowness	Borehole	203	us/ft
DTST_SLO_MFL	Slowness Series of Mouse Clicks for Relabeling DTST_MFL	MAST-B	[0]	us/ft
FD	Fluid Density	USIT-E	10	lbm/gal
FDET_STRT_MLH	Fixed Detection Start Time for Monopole Lower Transmitter High Frequency Firing	MAST-B	200.32	us
FDET_STRT_MUH	Fixed Detection Start Time for Monopole Upper Transmitter High Frequency Firing	MAST-B	200.35	us
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)	
GOBO	Good Bond	MAST-B	1.32	mV
GOBO_CURR	Good Bond in Arbitrary Cement	MAST-B	1.32	mV
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	Off	
MATT	Maximum Attenuation	MAST-B	55.52	dB/m
MATT_CURR	Maximum Attenuation in Arbitrary Cement	MAST-B	55.52	dB/m
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-E	15.37	us
MSA_CURR	Minimum Sonic Amplitude in Arbitrary Cement	MAST-B	0.47	mV
MUD_N_THE	Theoretical Mud Normalization Factor	USIT-E	1.1	
THDL	Minimum Search Thickness (percentage of nominal)	USIT-E	80	%
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	1.67	Mrayl

U-USIT_UFAO	USIT Flexural Attenuation Offset	USIT-E	-5.7	dB/m
UFSFILT	Ultrasonic Flexural Surface Filter	USIT-E	LPF 250k	
U-USIT_UIAP	IBC Answer Product Enabled	USIT-E	ThirdInterfaceEcho	
ZMUD	Acoustic Impedance of Mud	Borehole	1.7	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
ACQ_DOMAIN	Custom Acquisition Domain Name	MAST-B	[UMHF, LMHF]	
ACQCTL	Acquisition Control	MAST-B	[1, 1]	
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	54	dB
CBOOTSTA_MAPC	MAMS Controller Boot Status	MAST-B	1	
CONTROLLER_FIRM_REV_MAPC	MAPC Firmware Revision of Controller Electronics	MAST-B	2098	
COMPCTL	Data Compression Control	MAST-B	[MZIPA, MZIPA]	
DHMODALCTL	Downhole/Surface Modal Computation Control	MAST-B	[OFF, OFF]	
DIGDEL	Waveform Digitizing Delay	MAST-B	[0, 0]	us
DIGDT	Sonic Waveform Digitizing Slowness	MAST-B	[0, 0]	us/ft
DIGTIME	Digitizing Time	MAST-B	[1200, 1200]	us
DIIN_WF_CHN	Dipole Inline Component Waveform Data Channel Name	MAST-B	[,]	
DIIN_WFN_CHN	Dipole Inline Component Waveform Normalization Data Channel Name	MAST-B	[,]	
DIOF_WF_CHN	Dipole Offline Component Waveform Data Channel Name	MAST-B	[,]	
DIOF_WFN_CHN	Dipole Offline Component Waveform Normalization Data Channel Name	MAST-B	[,]	
EMXV	EMEX Voltage	USIT-E	75	V
GNINT	Automatic Gain Selection Time Interval	MAST-B	[1200, 1200]	us
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	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	4408.8	ft/h
MAX_TOOL_SPEED	Maximum service speed allowed for, or attained by, a logging tool.	MAST-B	9406	ft/h
MONO_WF_CHN	Monopole Component Waveform Data Channel Name	MAST-B	[SWMUH_M, SWMLH_M]	
MONO_WFN_CHN	Monopole Component Waveform Normalization Data Channel Name	MAST-B	[SWMUHN_M, SWMLHN_M]	
MOTOR_PROTECT	Motor Protection	USIT-E	Off	
MSMT_LIST	Measurement List	MAST-B	[MUH, MLH]	
NUMMSMT	Number of active measurements	MAST-B	2	
PROD_MASTUI	MAST Product Class Selection	MAST-B	CBL	
SENSOR10_FIRM_REV_MAPC	MAPC Firmware Revision of Sensor Electronics Station #10	MAST-B	1059	
SENSOR11_FIRM_REV_MAPC	MAPC Firmware Revision of Sensor Electronics Station #11	MAST-B	1059	
SENSOR12_FIRM_REV_MAPC	MAPC Firmware Revision of Sensor Electronics Station #12	MAST-B	1059	
SENSOR13_FIRM_REV_MAPC	MAPC Firmware Revision of Sensor Electronics Station #13	MAST-B	1059	
SENSOR1_FIRM_REV_MAPC	MAPC Firmware Revision of Sensor Electronics Station #1	MAST-B	1059	
SENSOR2_FIRM_REV_MAPC	MAPC Firmware Revision of Sensor Electronics Station #2	MAST-B	1059	
SENSOR3_FIRM_REV_MAPC	MAPC Firmware Revision of Sensor Electronics Station #3	MAST-B	1059	
SENSOR4_FIRM_REV_MAPC	MAPC Firmware Revision of Sensor Electronics Station #4	MAST-B	1059	
SENSOR5_FIRM_REV_MAPC	MAPC Firmware Revision of Sensor Electronics Station #5	MAST-B	1059	
SENSOR6_FIRM_REV_MAPC	MAPC Firmware Revision of Sensor Electronics Station #6	MAST-B	1059	
SENSOR7_FIRM_REV_MAPC	MAPC Firmware Revision of Sensor Electronics Station #7	MAST-B	1059	

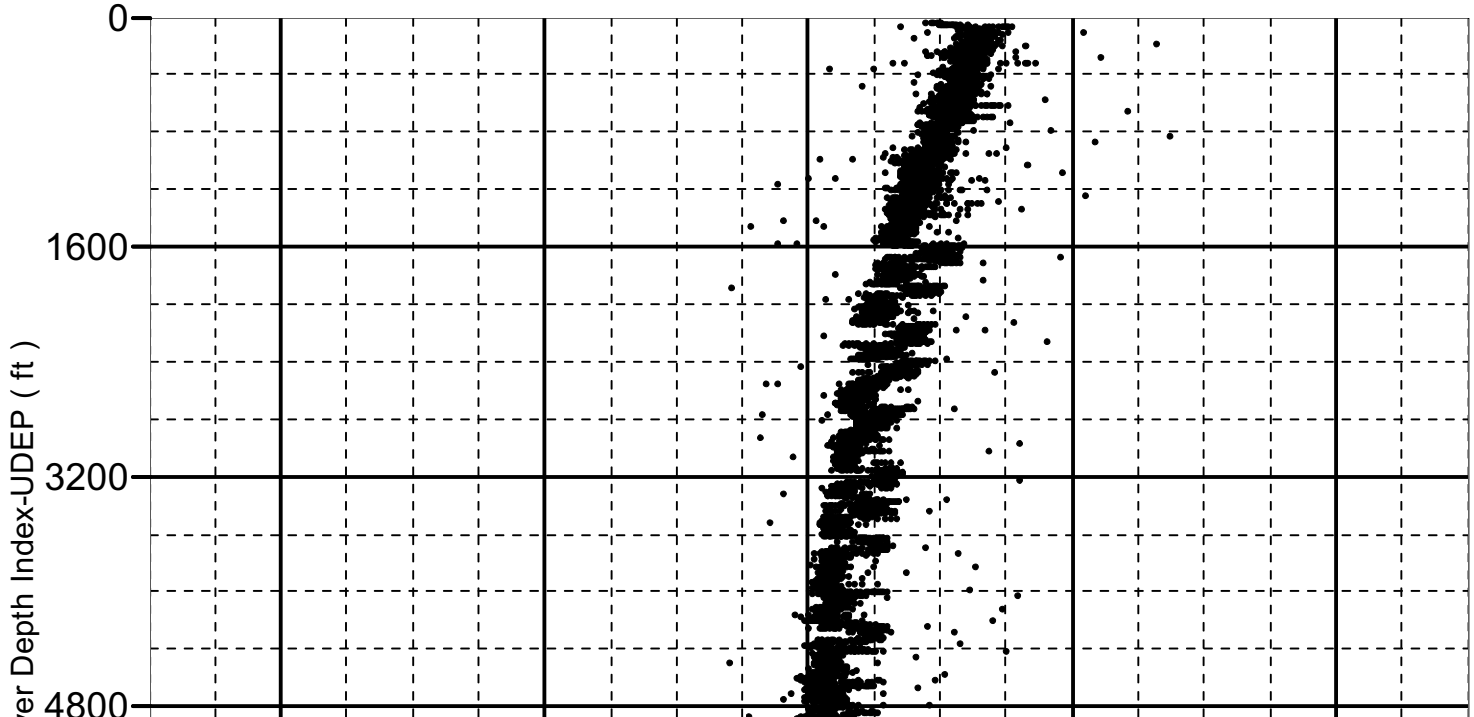
SENSOR8_FIRM_REV_MAPC	MAPC Firmware Revision of Sensor Electronics Station #8	MAST-B	1059	
SENSOR9_FIRM_REV_MAPC	MAPC Firmware Revision of Sensor Electronics Station #9	MAST-B	1059	
RBOOTSTA_MAPC	MAMS Receiver Boot Status	MAST-B	1	
RXSEL	Receiver Station Select	MAST-B	[[Off, Off], [Off, Off], [Off, Off], [Off, Off], [On, On], [On, On], [On, On], [On, On], [On, On], [Off, Off], [Off, Off], [Off, Off], [Off, Off]]	
SAMINT	Sonic Waveform Sampling Interval	MAST-B	[10, 10]	
SERVICE_LIST	Service Selection List	MAST-B	[DCBLVDL]	
SNSR_WF_CHN	Sensor Waveforms Data Channel Name	MAST-B	[RSWMUH, RSWMLH]	
SNSR_WFN_CHN	Sensor Waveforms Normalization Factor Channel Name	MAST-B	[SWMUHN, SWMLHN]	
SNSRSEL	Sensor Element Select	MAST-B	[[On, On], [On, On], [On, On], [On, On], [On, On], [On, On], [On, On], [On, On]]	
TX_AMP	Transmitter Amplitude Factor	MAST-B	[FULL, FULL]	
TX_WF_SIGNAL	Sonic Drive Signal	MAST-B	[PREDEFINED, PREDEFINED]	
TXSEL	Transmitter Drive Selection	MAST-B	[UM, LM]	
UPAT	USIT Emission Pattern	USIT-E	Pattern 750 KHz	
UWKM	USIT Working Mode	USIT-E	10 deg at 6.0 in	
U-USIT_UTAN	Transducer Angles	USIT-E	33_DEG	
VDL_INT	Variable Density Log Step Interval	MAST-B	HIGH_SPEED	
CE_VDL_MODE	Variable Density Log Mode	MAST-B	HIGH_SPEED	
VRES	Vertical Resolution	USIT-E	6.0 in	
WF_CR_CHN	Waveform Compression Rate Channel Name	MAST-B	[WCRMUH, WCRMLH]	
WF_DEPTH_CHN	Waveform Depth Channel Name	MAST-B	[WDMUH, WDMLH]	
WF_QI_CHN	Waveform Quality Indicator Channel Name	MAST-B	[WQMUH, WQMLH]	
WFSEL	Transmitter Drive Waveform Selection	MAST-B	[mp_hf_d, mp_hf_d]	

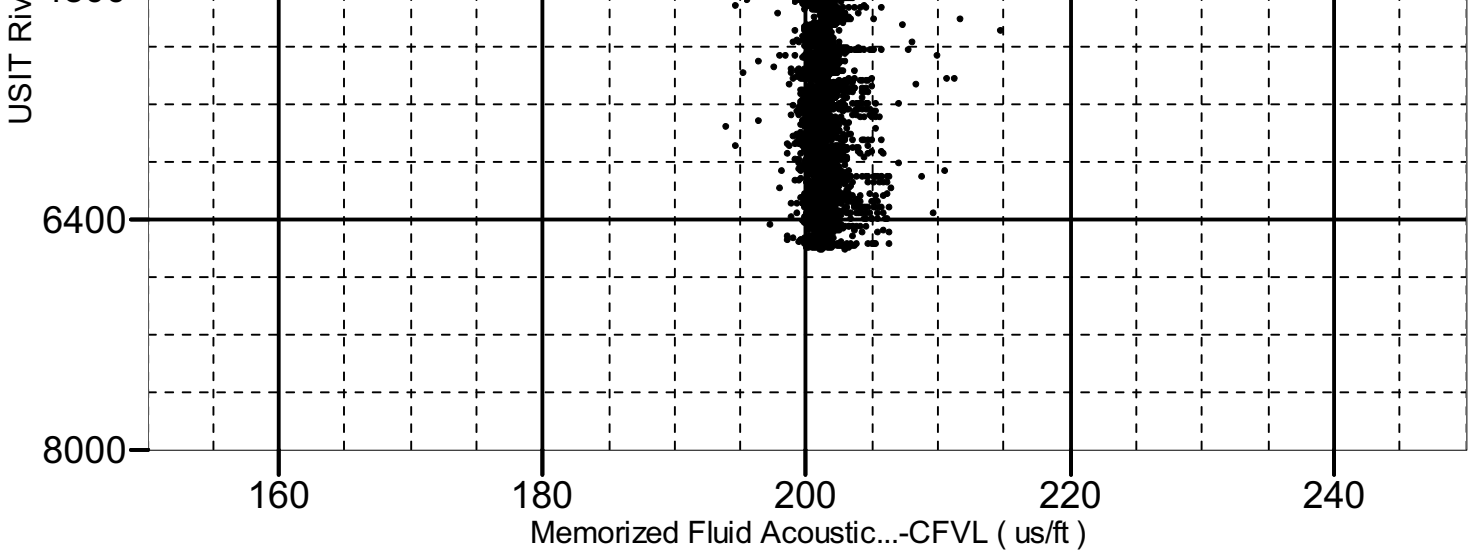
Fluid Acoustic Slowness vs Depth

2D Cross Plot

Index Range: From 6616.00 to 52.50 ft

● CFVL-UDEP





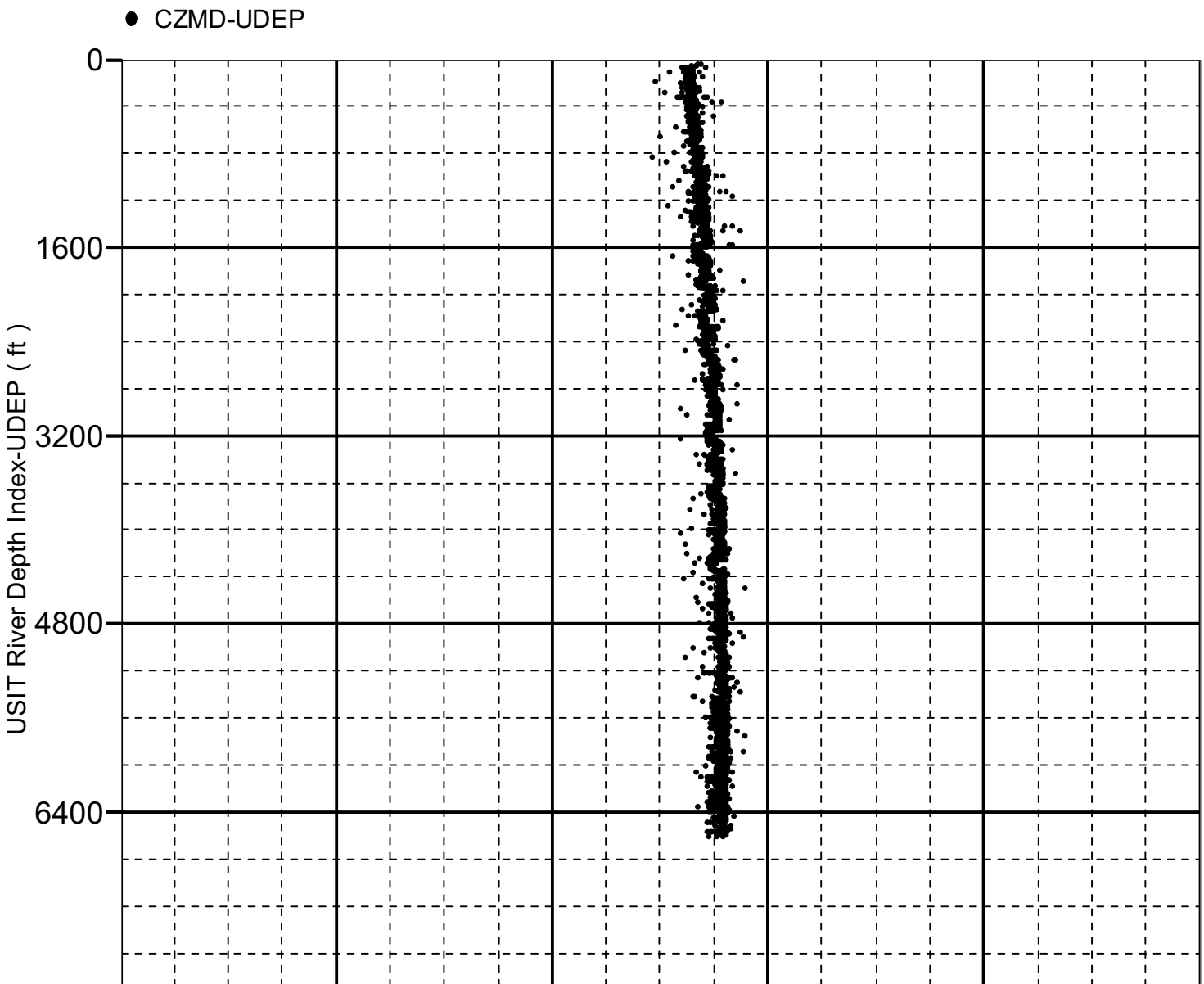
XYZ

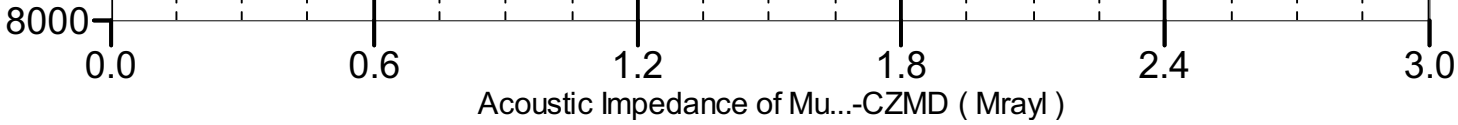
Company:Occidental Petroleum Corporation Well:PSC #16-34
ONE: Log[3]:Up:S005

Acoustic Impedance of Mud vs Depth

2D Cross Plot

Index Range: From 6616.00 to 52.50 ft





Calibration Report

MAST-B (Multimode Array Sonic Service Tool) Calibration - Run ONE

Primary Equipment :

MAMS-BA	MAMS-BA	8574

MAST Master Characterization Coefficients - Characterization Coefficients Summary

Master (EEPROM): 09:56:00 07-Nov-2021 Expired by 52 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
Sensor Sensitivity Correction Factor Minimum		Master	1.000	0.500	0.878	1.700
Sensor Sensitivity Correction Factor Maximum		Master	1.000	0.500	1.155	1.700
Sensor Time Delay Factor Minimum	us	Master	0	-2.000	-0.549	2.000
Sensor Time Delay Factor Maximum	us	Master	0	-2.000	0.491	2.000
Sensor Sensitivity Correction Factor Low Frequency to High Frequency Ratio Minimum		Master	1.000	0.900	0.908	1.700
Sensor Sensitivity Correction Factor Low Frequency to High Frequency Ratio Maximum		Master	1.000	0.900	1.121	1.700

Characterization Coefficients

Master (EEPROM): 09:56:00 07-Nov-2021 Expired by 52 days

CALI_SSCF (Master) Sensor Sensitivity Correction Factor

Minimum/Nominal/Maximum 0.500/1.000/1.700 Unit

	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8
SO1	1.054	1.155	1.046	1.110	0.929	0.918	0.988	0.962
SO2	0.996	1.018	1.040	0.972	1.000	0.937	0.946	1.034
SO3	1.109	1.003	0.979	1.082	1.047	0.946	0.935	1.013
SO4	1.035	1.010	1.064	1.034	1.025	0.930	0.936	0.963
SO5	0.979	1.045	1.012	0.932	1.009	0.963	0.963	1.024
SO6	1.004	0.980	0.991	1.003	0.968	0.937	0.970	1.032
SO7	1.037	1.015	1.000	1.001	0.987	0.970	0.993	0.970
SO8	1.028	1.002	0.974	1.010	0.982	0.975	0.966	1.025
SO9	0.980	1.018	1.071	1.000	1.067	0.976	1.004	1.033
SO10	1.014	0.977	1.088	0.997	0.988	1.080	1.012	0.994
SO11	0.934	0.977	1.011	0.968	0.982	0.972	1.054	1.125
SO12	1.000	1.013	0.974	0.961	1.004	0.880	0.904	1.035
SO13	1.022	0.973	1.038	1.004	0.878	1.030	0.911	0.905

CALI_STDF (Master) Sensor Time Delay Factor

Minimum/Nominal/Maximum -2.000/0/2.000 Unit us

	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8
SO1	0.280	0.329	0.016	-0.016	-0.266	-0.387	0.042	-0.066
SO2	0.250	0.394	0.491	-0.334	0.186	-0.227	-0.186	-0.306
SO3	0.122	0.039	-0.039	0.131	0.085	-0.213	-0.106	-0.052
SO4	0.101	0.042	0.130	0.161	-0.042	-0.164	-0.351	-0.549
SO5	0.094	0.114	0.002	-0.185	0.008	-0.008	-0.097	0.008
SO6	0.134	0.106	0.183	0.015	-0.015	-0.121	-0.119	-0.086
SO7	0.154	-0.021	0.068	-0.054	0.007	-0.029	-0.021	0.107
SO8	0.206	0.028	0.117	0.077	0.069	0.056	0.054	0.028

SO8	0.206	-0.028	-0.117	-0.077	-0.069	0.056	0.054	0.028
SO9	0.012	0.070	-0.012	-0.149	-0.055	-0.248	0.169	0.054
SO10	0.127	0.075	-0.105	-0.199	-0.211	0.007	0.051	0.045
SO11	0.043	-0.011	-0.155	-0.345	-0.195	0.011	0.201	0.197
SO12	0.038	-0.058	-0.170	-0.038	0.077	0.177	-0.197	0.232
SO13	-0.304	-0.097	-0.022	0.022	0.134	0.378	-0.109	0.100

CALI_SSCR (Master)	Sensor Sensitivity Correction Factor Low Frequency to High Frequency Ratio	
Minimum/Nominal/Maximum	0.900/1.000/1.700	Unit

	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8
SO1	1.011	0.990	1.040	1.015	0.994	1.001	0.963	1.001
SO2	0.999	1.003	0.947	0.973	0.908	1.003	1.021	1.046
SO3	1.027	0.996	0.991	0.939	0.945	0.941	0.978	1.005
SO4	1.013	0.996	0.978	0.953	0.942	0.946	0.972	1.059
SO5	1.052	1.035	0.996	0.979	0.965	0.960	1.002	1.041
SO6	1.061	1.039	0.996	1.009	0.972	0.964	0.992	1.035
SO7	0.993	0.991	1.020	1.016	1.009	0.990	0.964	0.962
SO8	1.005	1.006	1.017	1.022	1.012	0.988	0.970	0.981
SO9	0.994	1.013	1.037	1.045	1.029	1.081	0.987	0.977
SO10	1.000	1.014	1.034	1.045	1.032	1.008	1.003	0.994
SO11	0.990	0.995	1.034	1.121	1.018	0.989	0.987	0.981
SO12	0.991	0.995	1.006	1.021	0.998	0.978	1.072	0.983
SO13	1.055	0.956	0.974	0.995	0.987	0.964	1.036	0.950

CALI_SSCTF (Master)	Sensor Sensitivity Correction Transmitter Failure Flag	
Minimum/Nominal/Maximum	0/0/0	Unit
Monopole Upper Transmitter	0	
Monopole Lower Transmitter	0	

CALI_SSCHF (Master)	Sensor Sensitivity Correction High Frequency Diagnostic Failure Flag	
Minimum/Nominal/Maximum	0/0/0	Unit

	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8
SO1	0	0	0	0	0	0	0	0
SO2	0	0	0	0	0	0	0	0
SO3	0	0	0	0	0	0	0	0
SO4	0	0	0	0	0	0	0	0
SO5	0	0	0	0	0	0	0	0
SO6	0	0	0	0	0	0	0	0
SO7	0	0	0	0	0	0	0	0
SO8	0	0	0	0	0	0	0	0
SO9	0	0	0	0	0	0	0	0
SO10	0	0	0	0	0	0	0	0
SO11	0	0	0	0	0	0	0	0
SO12	0	0	0	0	0	0	0	0
SO13	0	0	0	0	0	0	0	0

CALI_SSCLF (Master)	Sensor Sensitivity Correction Low Frequency Diagnostic Failure Flag	
Minimum/Nominal/Maximum	0/0/0	Unit

	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8
SO1	0	0	0	0	0	0	0	0

SO2	0	0	0	0	0	0	0	0
SO3	0	0	0	0	0	0	0	0
SO4	0	0	0	0	0	0	0	0
SO5	0	0	0	0	0	0	0	0
SO6	0	0	0	0	0	0	0	0
SO7	0	0	0	0	0	0	0	0
SO8	0	0	0	0	0	0	0	0
SO9	0	0	0	0	0	0	0	0
SO10	0	0	0	0	0	0	0	0
SO11	0	0	0	0	0	0	0	0
SO12	0	0	0	0	0	0	0	0
SO13	0	0	0	0	0	0	0	0

CALI_SSCHA (Master) Sensor Sensitivity Correction High Frequency Normalized Amplitudes

Minimum/Nominal/Maximum -----/1.000/----- Unit

	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8
SO1	0.965	0.880	0.971	0.915	1.094	1.107	1.029	1.057
SO2	1.002	0.981	0.960	1.027	0.998	1.066	1.056	0.965
SO3	0.909	1.005	1.030	0.932	0.963	1.066	1.078	0.995
SO4	0.983	1.008	0.957	0.984	0.992	1.094	1.087	1.056
SO5	1.015	0.951	0.981	1.066	0.985	1.031	1.031	0.970
SO6	0.982	1.006	0.994	0.983	1.018	1.052	1.017	0.955
SO7	0.961	0.982	0.997	0.996	1.010	1.027	1.003	1.027
SO8	0.965	0.990	1.019	0.982	1.010	1.017	1.026	0.967
SO9	1.032	0.993	0.944	1.011	0.948	1.036	1.007	0.979
SO10	0.991	1.028	0.924	1.007	1.017	0.930	0.993	1.011
SO11	1.049	1.002	0.969	1.012	0.998	1.008	0.930	0.871
SO12	0.987	0.974	1.013	1.026	0.983	1.121	1.092	0.953
SO13	0.967	1.015	0.952	0.985	1.126	0.959	1.085	1.092

CALI_SSCLA (Master) Sensor Sensitivity Correction Low Frequency Normalized Amplitudes

Minimum/Nominal/Maximum -----/1.000/----- Unit

	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8
SO1	0.975	0.871	1.010	0.929	1.088	1.108	0.990	1.058
SO2	1.001	0.984	0.909	0.999	0.907	1.069	1.078	1.010
SO3	0.934	1.001	1.021	0.875	0.910	1.003	1.055	0.999
SO4	0.996	1.004	0.935	0.938	0.934	1.035	1.056	1.119
SO5	1.067	0.984	0.977	1.043	0.950	0.990	1.033	1.010
SO6	1.041	1.045	0.991	0.992	0.990	1.014	1.008	0.989
SO7	0.955	0.973	1.016	1.011	1.019	1.017	0.968	0.989
SO8	0.970	0.996	1.036	1.004	1.022	1.005	0.995	0.948
SO9	1.025	1.006	0.979	1.056	0.976	1.120	0.994	0.956
SO10	0.991	1.042	0.955	1.053	1.050	0.937	0.995	1.005
SO11	1.039	0.998	1.002	1.135	1.015	0.997	0.917	0.854
SO12	0.978	0.969	1.019	1.047	0.981	1.097	1.170	0.937
SO13	1.020	0.971	0.927	0.980	1.112	0.925	1.124	1.038

CALI_SSTRS (Master) Sensor Sensitivity Correction Transmitter-Receiver Spacing

Minimum/Nominal/Maximum -----/4.000/----- Unit ft

Monopole Upper Transmitter	4.000
Monopole Lower Transmitter	4.000

CALI_TTMUH (Master)	Sensor Sensitivity Transit Time from Monopole Upper Transmitter High Frequency Firing							
Minimum/Nominal/Maximum	0/0/5000.000						Unit	us
	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8
SO1	500.896	500.846	501.160	501.191	501.441	501.562	501.133	501.242
SO2	472.179	472.035	471.939	472.764	472.244	472.656	472.615	472.736
SO3	443.137	443.220	443.297	443.128	443.173	443.471	443.364	443.310
SO4	414.221	414.277	414.131	414.166	414.300	414.401	414.617	414.903
SO5	385.284	385.283	385.356	385.544	385.337	385.376	385.466	385.365
SO6	356.263	356.335	356.228	356.475	356.401	356.510	356.532	356.538
SO7	327.479	327.707	327.588	327.703	327.637	327.713	327.682	327.548
SO8	298.204	298.396	298.453	298.479	298.494	298.382	298.357	298.366
SO9	269.344	269.308	269.385	269.599	269.447	269.771	269.307	269.336
SO10	240.297	240.239	240.401	240.604	240.671	240.403	240.404	240.408
SO11	211.307	211.357	211.548	211.976	211.618	211.634	211.371	211.391
SO12	182.391	182.444	182.572	182.475	182.457	182.471	182.916	182.415
SO13	153.651	153.297	153.202	153.163	152.960	152.737	153.428	152.967

CALI_TTMLH (Master)	Sensor Sensitivity Transit Time from Monopole Lower Transmitter High Frequency Firing							
Minimum/Nominal/Maximum	0/0/5000.000						Unit	us
	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8
SO1	150.923	150.983	150.932	151.170	151.274	151.168	151.156	151.200
SO2	180.033	179.779	179.728	180.492	180.090	180.516	180.479	180.477
SO3	208.759	208.874	208.951	208.922	208.921	209.150	209.144	209.055
SO4	237.680	237.742	237.712	237.616	237.888	238.031	238.189	238.299
SO5	266.726	266.688	266.838	267.024	266.844	266.837	266.927	266.817
SO6	295.837	295.820	295.775	295.864	295.997	296.100	296.073	296.003
SO7	324.540	324.661	324.603	324.731	324.675	324.672	324.686	324.563
SO8	353.603	353.879	354.001	353.895	353.863	353.725	353.756	353.798
SO9	382.804	382.723	382.811	382.871	382.835	382.896	382.527	382.728
SO10	411.512	411.673	411.872	411.857	411.815	411.645	411.556	411.565
SO11	440.529	440.583	440.727	440.917	440.767	440.561	440.371	440.375
SO12	469.483	469.578	469.691	469.558	469.444	469.344	469.717	469.288
SO13	498.888	498.681	498.606	498.562	498.449	498.206	498.692	498.484

CALI_AMPMUH (Master)	Sensor Sensitivity First Break Amplitude from Monopole Upper Transmitter High Frequency Firing							
Minimum/Nominal/Maximum	-50000.000/0/50000.000						Unit	
	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8
SO1	4388.867	4005.093	4419.330	4165.292	4979.893	5035.332	4681.480	4808.138
SO2	4858.919	4756.741	4655.347	4983.341	4841.468	5168.244	5120.004	4682.335
SO3	4571.912	5054.170	5177.804	4684.765	4843.149	5359.090	5420.747	5001.747
SO4	5112.118	5219.167	4956.346	5123.674	5156.136	5683.943	5647.469	5543.117
SO5	5593.078	5245.290	5422.179	5904.408	5468.890	5722.201	5704.601	5369.761
SO6	5719.428	5890.912	5816.731	5767.442	5950.750	6149.406	5941.381	5572.805
SO7	5934.344	6096.397	6165.718	6164.412	6280.131	6422.247	6260.650	6347.483
SO8	6213.536	6368.442	6540.731	6329.487	6525.198	6576.090	6617.911	6220.638
SO9	6814.878	6573.233	6247.560	6706.646	6239.944	6923.138	6668.337	6473.933

SO10	6895.459	7115.648	6381.326	6990.581	7058.582	6437.096	6891.129	7040.885
SO11	7831.789	7568.665	7341.447	7796.773	7350.606	7497.151	6852.794	6519.760
SO12	7665.500	7696.673	7959.191	7852.765	7415.892	8406.586	8574.169	7309.056
SO13	8087.152	7711.220	7259.144	7340.686	8176.311	6696.832	8483.752	7877.958

CALI_AMPMLH (Master)	Sensor Sensitivity First Break Amplitude from Monopole Lower Transmitter High Frequency Firing							
Minimum/Nominal/Maximum	-50000.000/0/50000.000						Unit	
	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8
SO1	7090.638	6577.472	6376.511	6205.661	7058.798	7199.098	7376.361	7697.400
SO2	7530.101	7243.256	7084.672	7241.883	7179.107	7472.369	7468.958	6923.041
SO3	6362.652	7002.397	7155.408	6439.373	6600.533	7264.609	7456.412	6951.947
SO4	6378.372	6563.794	6228.061	6376.754	6443.593	7109.363	7059.146	6789.934
SO5	6491.823	6080.314	6264.055	6783.220	6256.940	6555.523	6578.956	6186.244
SO6	6012.524	6126.383	6066.928	5979.164	6218.269	6419.027	6208.162	5841.748
SO7	5418.489	5502.038	5602.598	5594.082	5654.072	5715.917	5593.968	5782.917
SO8	5244.388	5387.807	5551.052	5335.917	5467.336	5504.234	5570.027	5262.779
SO9	5240.134	5030.613	4788.172	5110.176	4830.181	5196.454	5100.175	4964.288
SO10	4820.866	5027.002	4527.058	4915.234	4964.099	4551.817	4840.810	4912.232
SO11	4981.226	4758.642	4601.110	4803.120	4735.671	4786.796	4412.745	4135.492
SO12	4426.338	4369.826	4546.527	4604.269	4408.675	5031.474	4897.039	4277.074
SO13	4120.849	4327.749	4058.177	4196.286	4800.083	4087.600	4624.335	4654.879

CALI_AMPMUL (Master)	Sensor Sensitivity First Break Amplitude from Monopole Upper Transmitter Low Frequency Firing							
Minimum/Nominal/Maximum	-50000.000/0/50000.000						Unit	
	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8
SO1	-5767.625	-5334.404	-6263.247	-5520.168	-6376.671	-6435.673	-5856.879	-6121.687
SO2	-6625.748	-6573.448	-6340.754	-6923.241	-6214.847	-7034.516	-7111.522	-6594.446
SO3	-6650.113	-7165.168	-7453.303	-6634.697	-6890.419	-7083.094	-7327.055	-6940.241
SO4	-7976.981	-8010.417	-7755.122	-8033.243	-8084.667	-8494.012	-8379.831	-8793.322
SO5	-9208.633	-8818.838	-9188.051	-9946.718	-8983.881	-9179.331	-9036.662	-8596.839
SO6	-10257.000	-11096.140	-11232.550	-11176.760	-10938.340	-11297.110	-10613.090	-9784.091
SO7	-16937.380	-17260.130	-18016.640	-17934.020	-18074.200	-18030.290	-17159.600	-17528.330
SO8	-16202.980	-16639.370	-17307.370	-16779.340	-17077.350	-16798.090	-16628.790	-15848.330
SO9	-17629.840	-17299.080	-16838.240	-18158.330	-16777.550	-19253.570	-17089.170	-16445.140
SO10	-17923.640	-18843.180	-17268.360	-19042.400	-18978.730	-16951.140	-17995.850	-18170.830
SO11	-20278.230	-19466.520	-19561.630	-22142.150	-19814.110	-19459.310	-17900.650	-16672.980
SO12	-20693.650	-20497.950	-21563.350	-22163.180	-20755.360	-23210.400	-24749.130	-19825.220
SO13	-24730.820	-23534.330	-22474.850	-23748.480	-26955.570	-22409.560	-27256.890	-25159.210

CALI_AMPMLL (Master)	Sensor Sensitivity First Break Amplitude from Monopole Lower Transmitter Low Frequency Firing							
Minimum/Nominal/Maximum	-50000.000/0/50000.000						Unit	
	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8
SO1	-23104.180	-20646.190	-23928.070	-22015.250	-25778.100	-26254.670	-23467.130	-25068.660
SO2	-21913.700	-21544.710	-19915.440	-21890.480	-19857.750	-23416.720	-23603.050	-22126.980
SO3	-17522.040	-18772.650	-19152.850	-16405.770	-17076.340	-18821.750	-19786.980	-18746.630
SO4	-16492.500	-16620.360	-15484.740	-15529.070	-15469.410	-17133.420	-17485.040	-18528.080
SO5	-15379.050	-14187.760	-14088.210	-15032.340	-13695.630	-14272.860	-14898.790	-14559.320
SO6	-16618.240	-16675.120	-15815.270	-15834.380	-15798.610	-16185.140	-16092.390	-15786.140
SO7	-9250.190	-9691.097	-10494.970	-10161.860	-10164.300	-10164.600	-10058.510	-10184.500

SO8	-8834.775	-8966.771	-9281.358	-8708.206	-8965.882	-9043.996	-9273.733	-8704.038
SO9	-8613.932	-8293.795	-7896.579	-8451.952	-8020.038	-9251.961	-8283.585	-7881.143
SO10	-7868.765	-8160.524	-7493.698	-8434.161	-8642.416	-7420.560	-7761.599	-7772.297
SO11	-7671.988	-7411.458	-7745.006	-8941.319	-8004.077	-7686.334	-6792.041	-6283.437
SO12	-6607.768	-6777.424	-7331.879	-8204.444	-7588.629	-8161.271	-8279.821	-6323.382
SO13	-6164.652	-6099.243	-6370.750	-6971.303	-7831.236	-6314.282	-7275.309	-6255.211

Company: Occidental Petroleum Corporation

Schlumberger

Well: PSC #16-34

Field: Wattenberg

County: Weld

State: Colorado

Isolation Scanner

Cement Bond Log

Gamma Ray - CCL