

Company: NOBLE ENERGY INC

Well: Guttersen D29-738

Field: WATTENBERG

County: WELD State: COLORADO

ULTRASONIC SUMMARY PRINT

County:	WELD
Field:	WATTENBERG
Location:	2565 FSL 2043 FEL
Well:	Guttersen D29-738
Company:	NOBLE ENERGY INC
Location:	
Permanent Datum:	Ground Level
Log Measured From:	Kelly Bushing
Drilling Measured From:	Kelly Bushing
API Serial No.	Section:
05-123-48045	29
	Township:
	3N
	Range:
	64W

Logging Date	31-Jan-2019
Run Number	ONE
Depth Driller	17760.00 ft
Schlumberger Depth	TD NOT TAGGED
Bottom Log Interval	6749.50 ft
Top Log Interval	35.00 ft
Casing Fluid Type	Water
Salinity	
Density	8.4 lbm/gal
Fluid Level	8.00 ft
BIT/CASING/TUBING STRING	
Bit Size	8.50 in
From	1969.00 ft
To	17760.00 ft
Casing/Tubing Size	5.5 in
Weight	20 lbm/ft
Grade	N/A
From	30.00 ft
To	17745.90 ft
Max Recorded Temperatures	209.04 degF
Logger on Bottom	31-Jan-2019
Unit Number	9102
Recorded By	C. SPENCE/ L. SHOEMAKER
Witnessed By	Bill Mansfield

Disclaimer

THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

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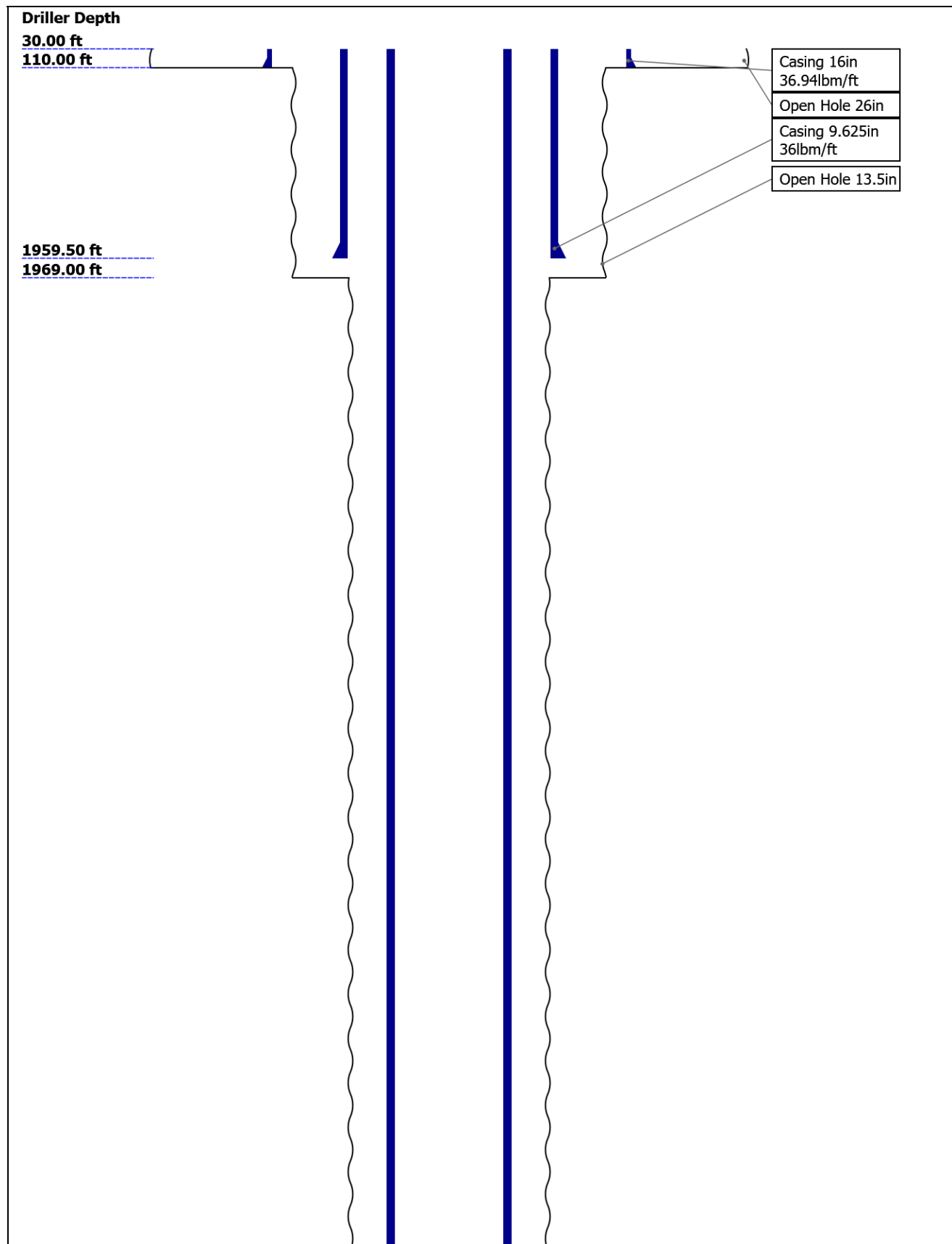
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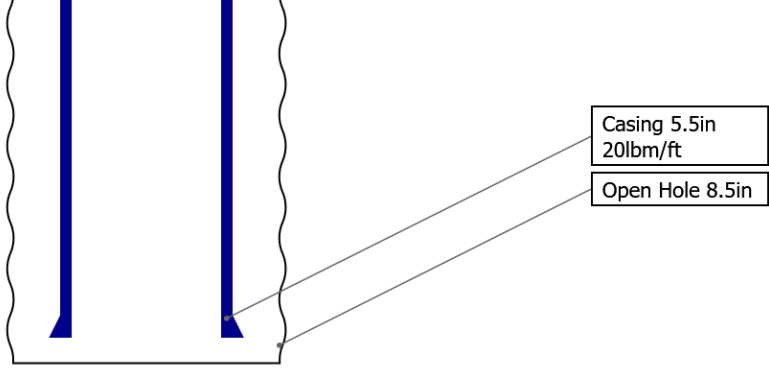
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- 10.5 Parameter Listing

Well Sketch



17745.90 ft

17760.00 ft



Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	26	13.5	8.5			
Top Driller (ft)	30	110	1969			
Top Logger (ft)	30	110	1969			
Bottom Driller (ft)	110	1969	17760			
Bottom Logger (ft)	110	1969	17760			
Casing						
Size (in)	16	9.625	5.5			
Weight (lbm/ft)	36.94	36	20			
Inner Diameter (in)	15.572	8.921	4.778			
Grade	N/A	N/A	N/A			
Top Driller (ft)	30	30	30			
Top Logger (ft)	30	30	30			
Bottom Driller (ft)	110	1959.5	17745.9			
Bottom Logger (ft)	110	1959.5	17745.9			

Remarks and Equipment Summary

ONE: Toolstring			ONE: Remarks		
<div><div><div>Equip nameLengthMP nameOffset</div><div>LEH-QT:234.46493</div><div>LEH-QT:2493</div><div>EDTC-B30.97</div><div>EDTH-B:8126</div><div>EDTG-A</div><div>EDTC-B</div><div>AH-184[2]:4812</div><div>AH-184[1]:5965</div><div>USIT-D20.47</div><div>ECH-MRA:6717</div><div>USIC-D</div><div>USIS-A</div><div>USSC-B</div><div>USPS-A:70</div></div><div></div></div>	THANK YOU FOR CHOOSING SCHLUMBERGER!				
	TOOLSTRING RUN AS PER TOOLSKETCH				
	5" GEMCO USED WITH BOOSTERS AND SMALLHOLE SPRING TO CENTRALIZE THE TOOL				
	BHT: 209.04 DEG F				
	MAIN PASS LOGGED WITH 2500 PSI, REPEAT PASS LOGGED WITH 0 PSI				

USRS-A:79
2
USI-SENS
OR
USI-TX



USI Sen 0.37
sor
TOOL_ZERO
nsion

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 7-46A-XS
Serial Number
Length 23000.00 ft
Conveyance Type Wireline
Rig Type LAND

ONE:Depth Control Parameters

Log Sequence First Log In the Well

Depth Control Remarks

ALL SCHLUMBERGER DEPTH CONTROL POLICES AND
PROCEDURES FOLLOWED

Rig Up Length At Surface

Rig Up Length At Bottom

Rig Up Length Correction

Stretch Correction

Tool Zero Check At Surface

IDW USED AS PRIMARY DEPTH CONTROL

Z-CHART USED AS SECONDARY DEPTH CONTROL

LOGS CORRELATED TO MARKER JOINT AT: 6310.0 FT TO 6321.5 FT

USIT - Fluid Properties Measurement

Run Name	Pass Name	Start Depth(ft)	Stop Depth(ft)
Run 1	Log[5]:Up	6751.78	31.33

Fluid Velocity = "Automatic".
CFVL equals DFSL channel

Start Depth(ft)	Stop Depth(ft)	Start Value(us/ft)	End Value(us/ft)
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Mud Impedance = "FreePipe Norm".
Free Pipe normalization zone is : 56.79m(186.33ft) to 59.33m(194.67ft)
MUD_N_FRP = 1.09
DFD = 1.01g/cm3(8.40lbm/gal)
CZMD median computed in free pipe normalization interval = 1.65 MRayl

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

CEMENT INTEGRITY MAIN PASS 2500 PSI 10 DEG X 6 IN [5:100]

Software Version

Acquisition System	Version
Maxwell 2019	9.0.106845.3100

Pass Summary

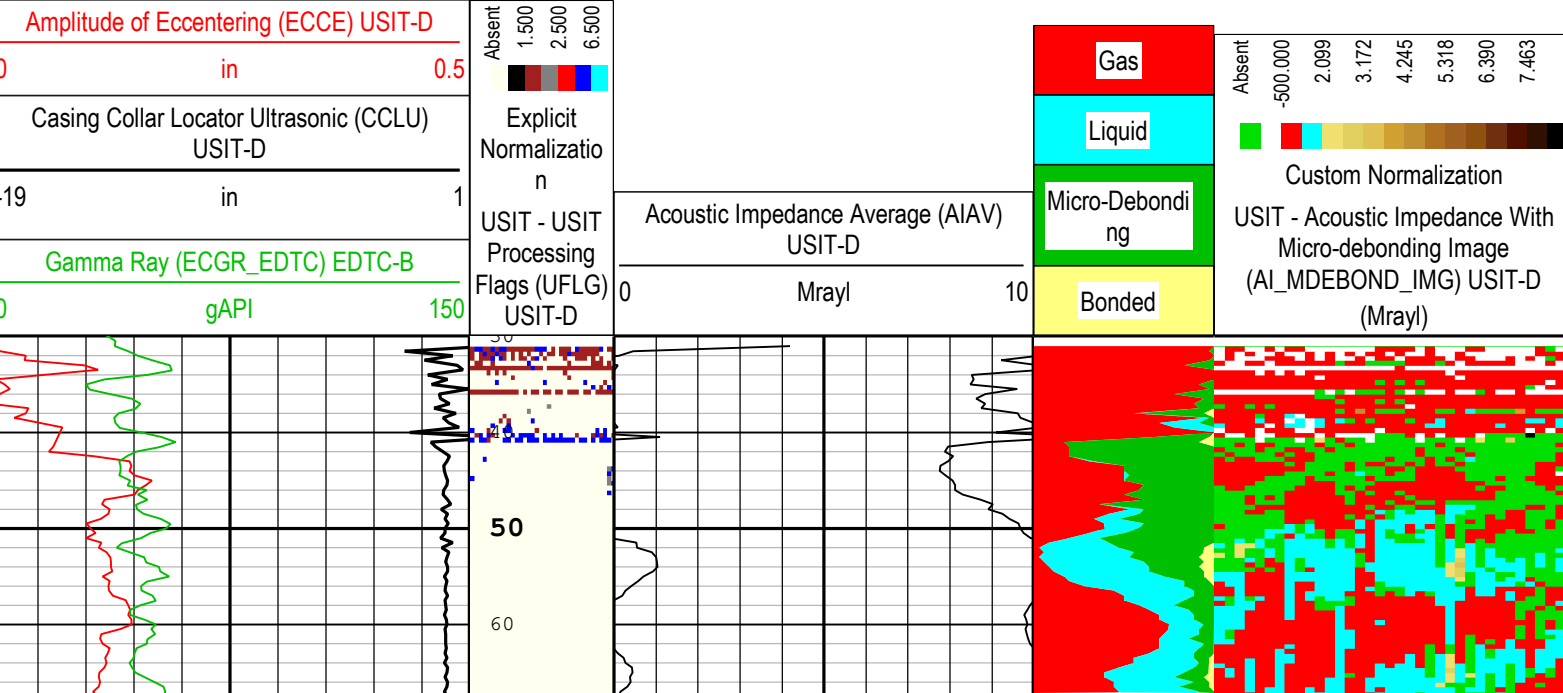
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
ONE	Log[5]:Up	Up	31.33 ft	6751.78 ft	31-Jan-2019 3:57:51 PM	31-Jan-2019 4:37:14 PM	ON	2.52 ft	Yes

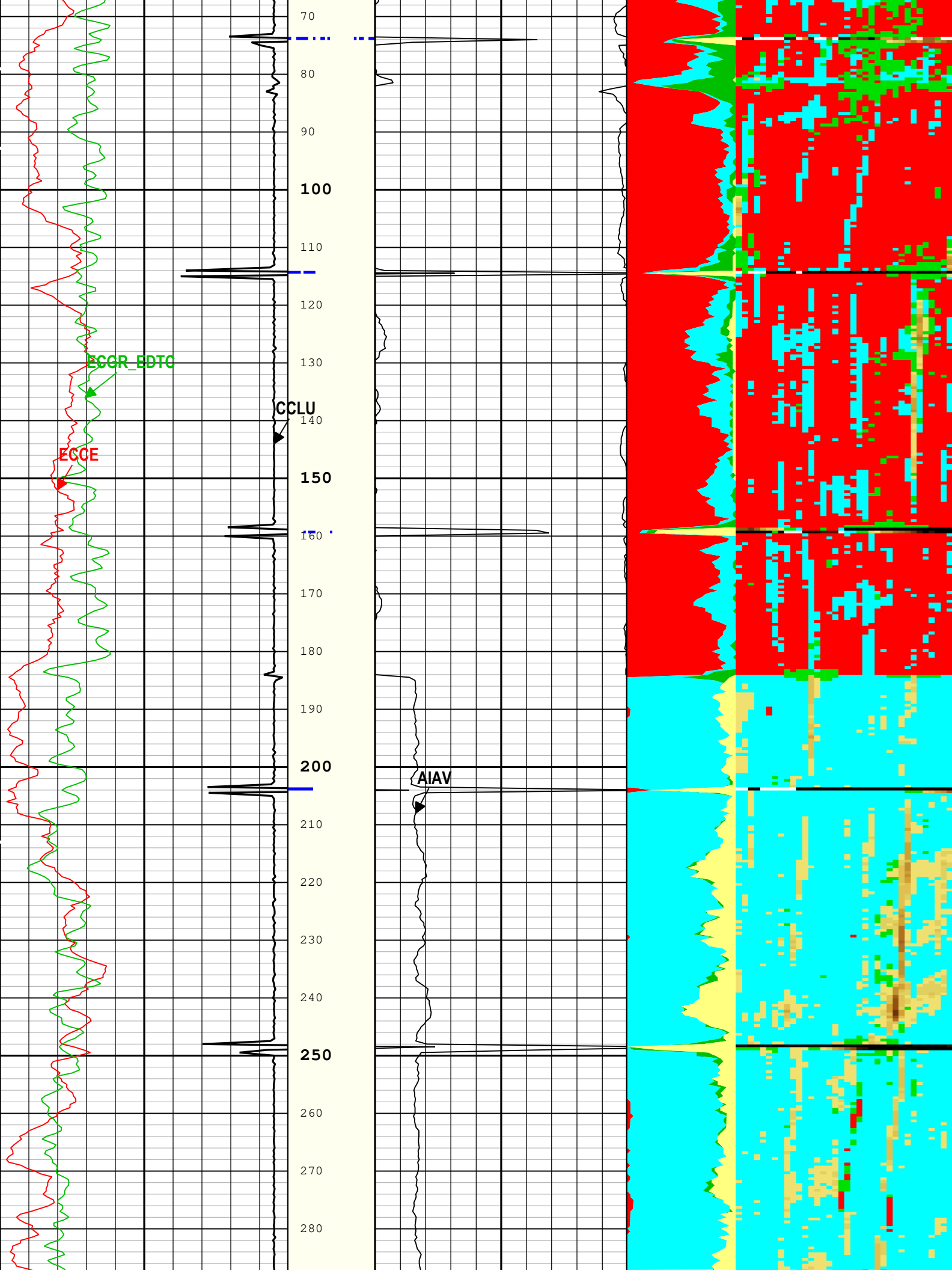
All depths are referenced to toolstring zero

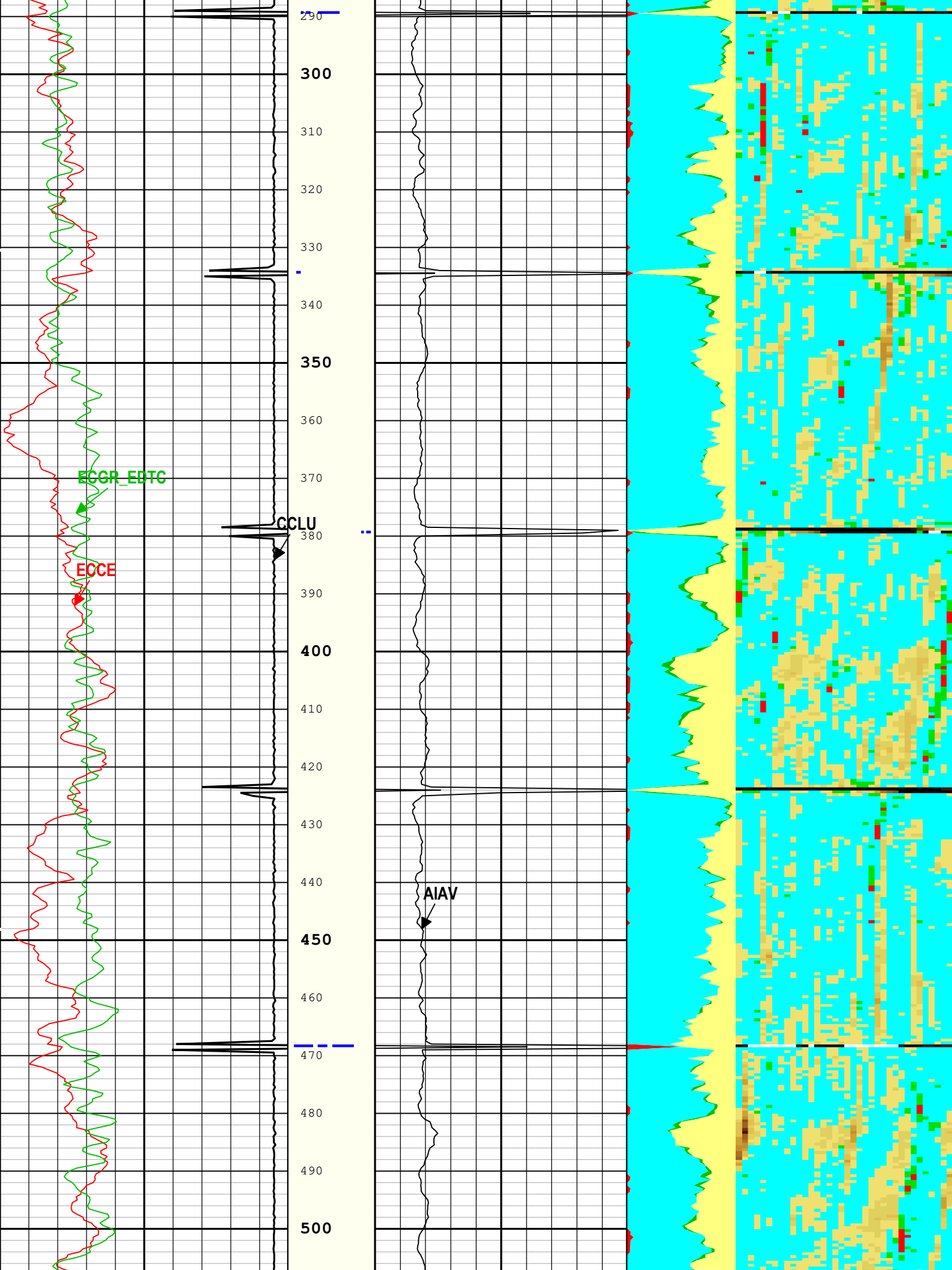
Log	Company:NOBLE ENERGY INC	Well:Guttersen D29-738
		ONE: Log[5]:Up:S007

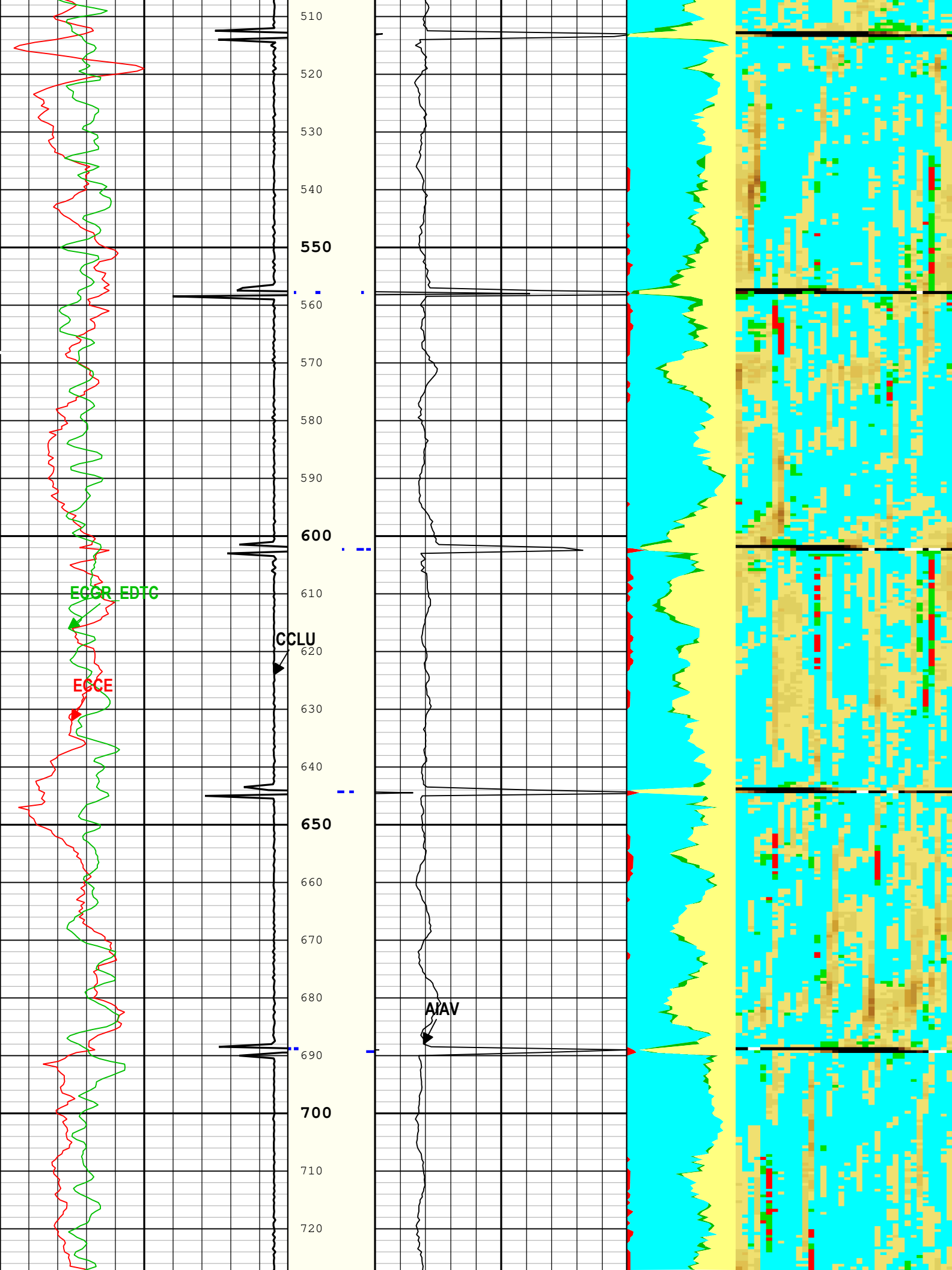
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Creation Date: 01-Feb-2019 00:01:10

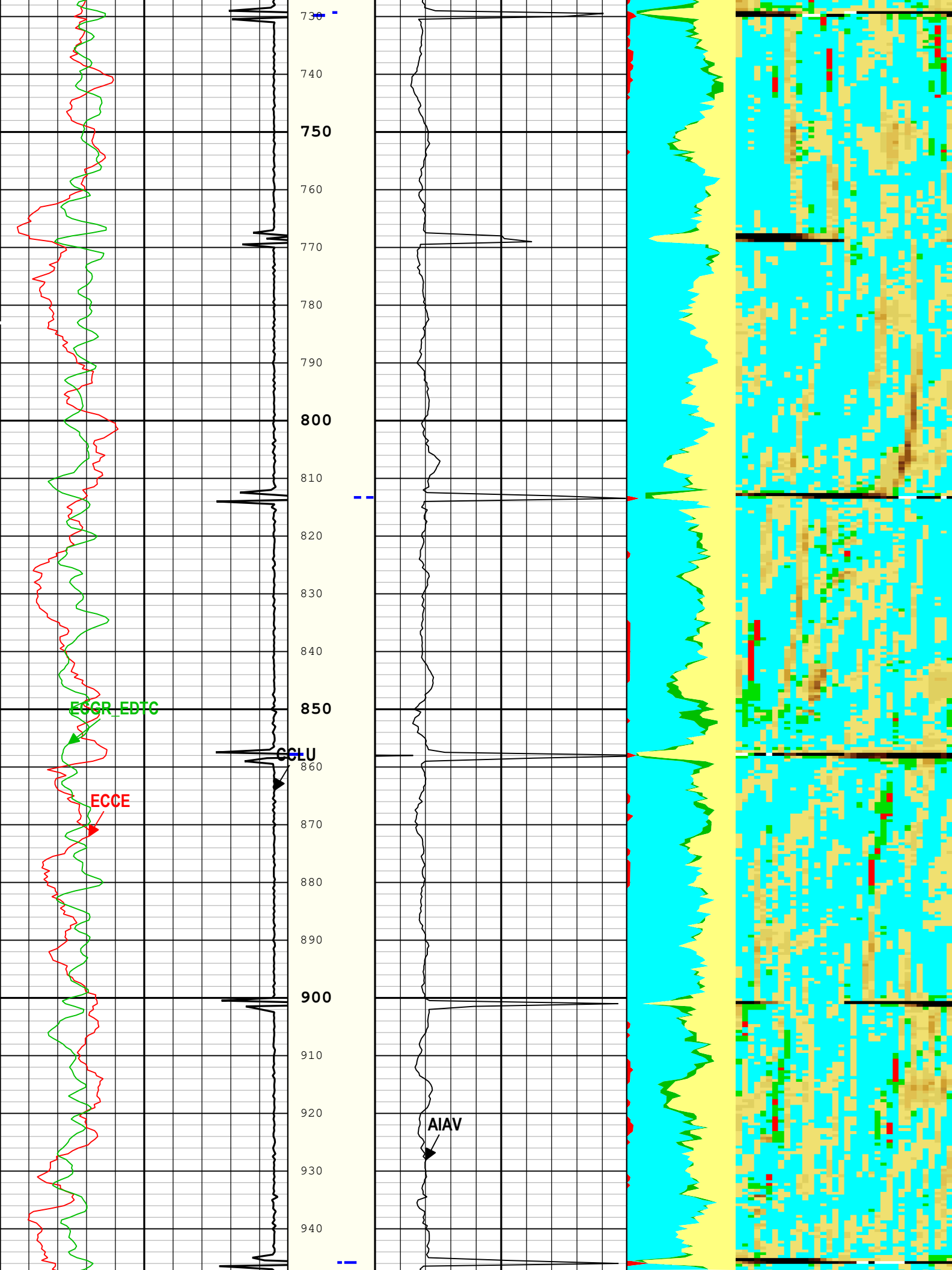
TIME_1900 - Time Marked every 60.00 (s)

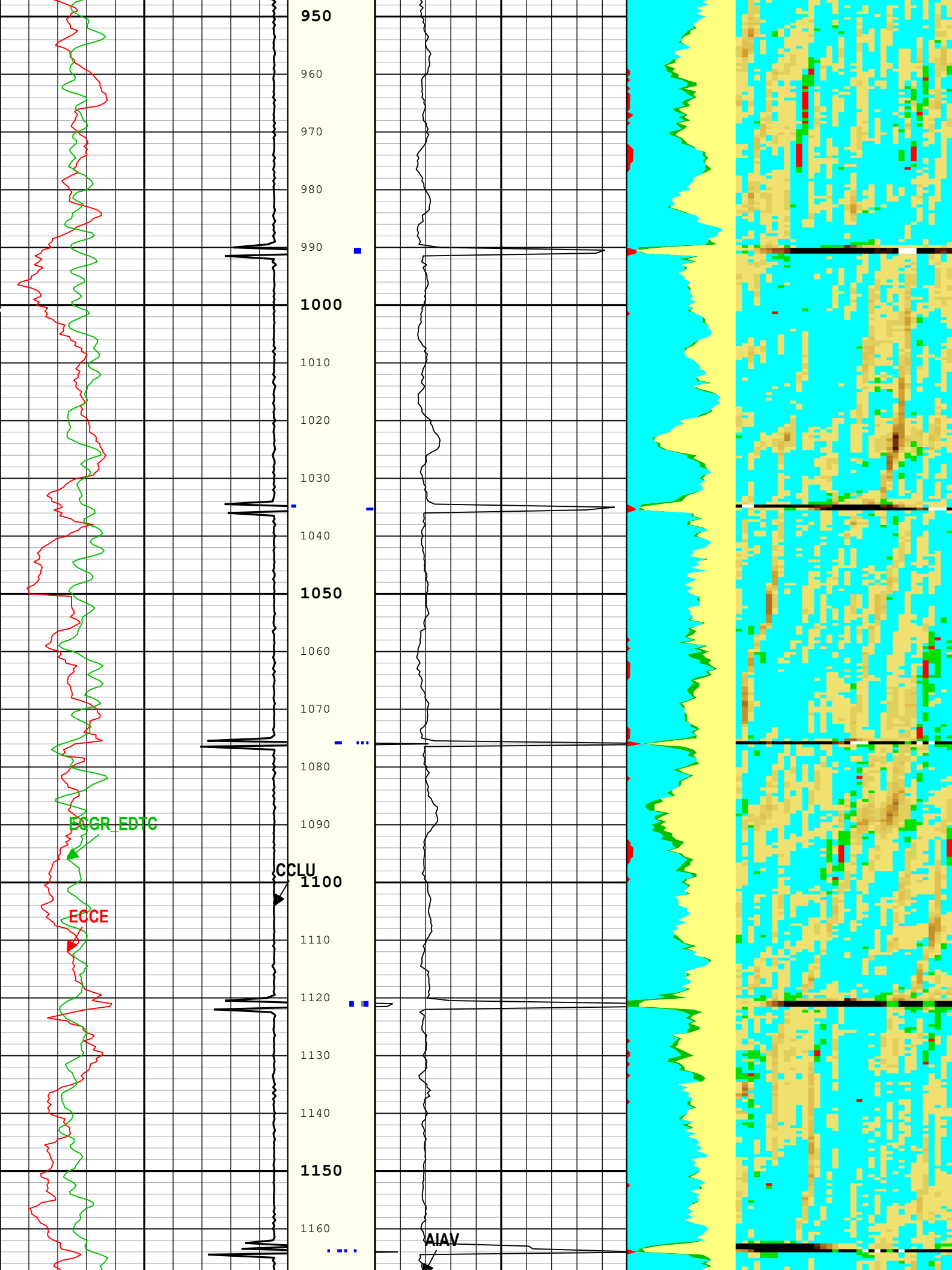


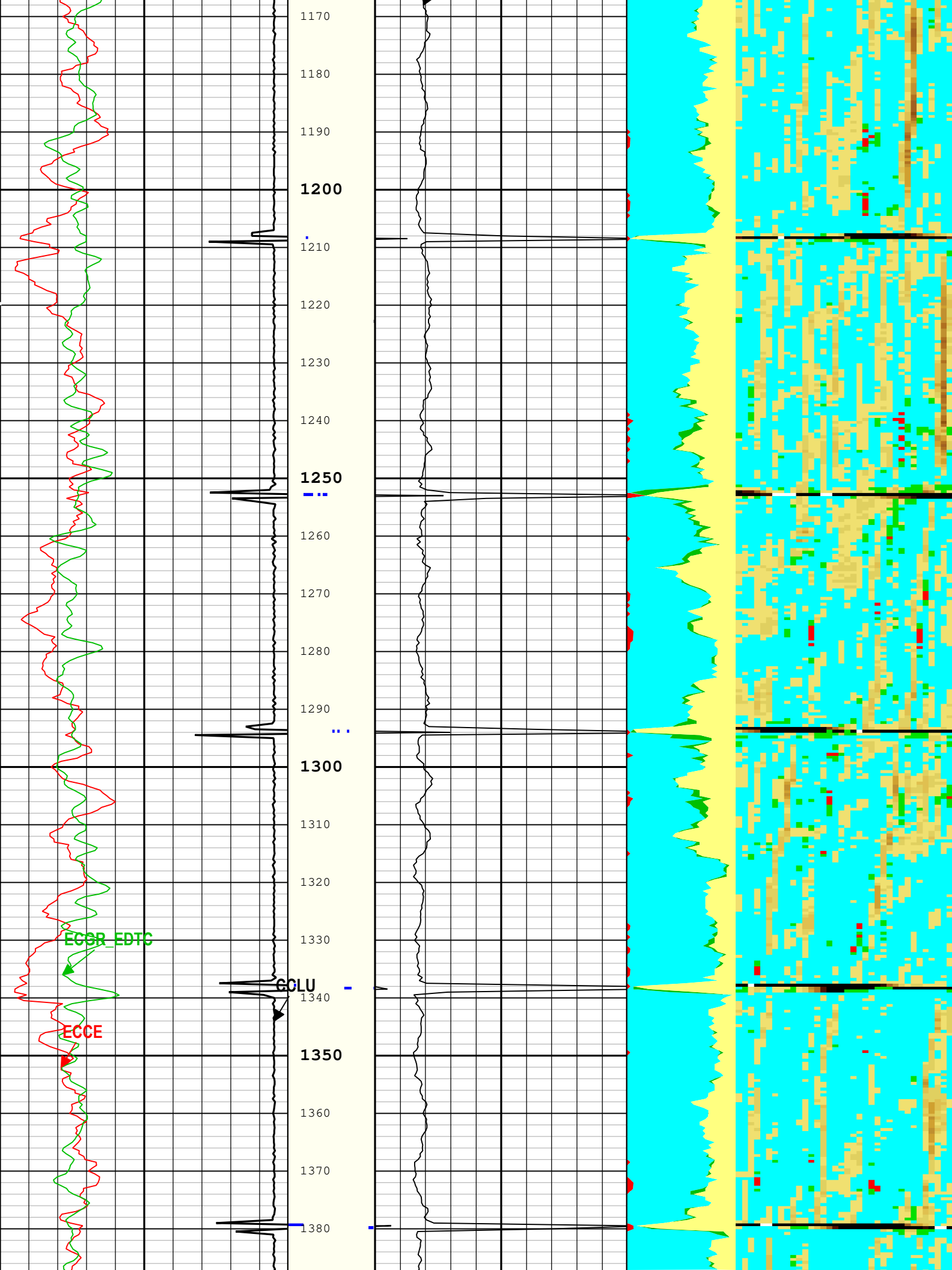


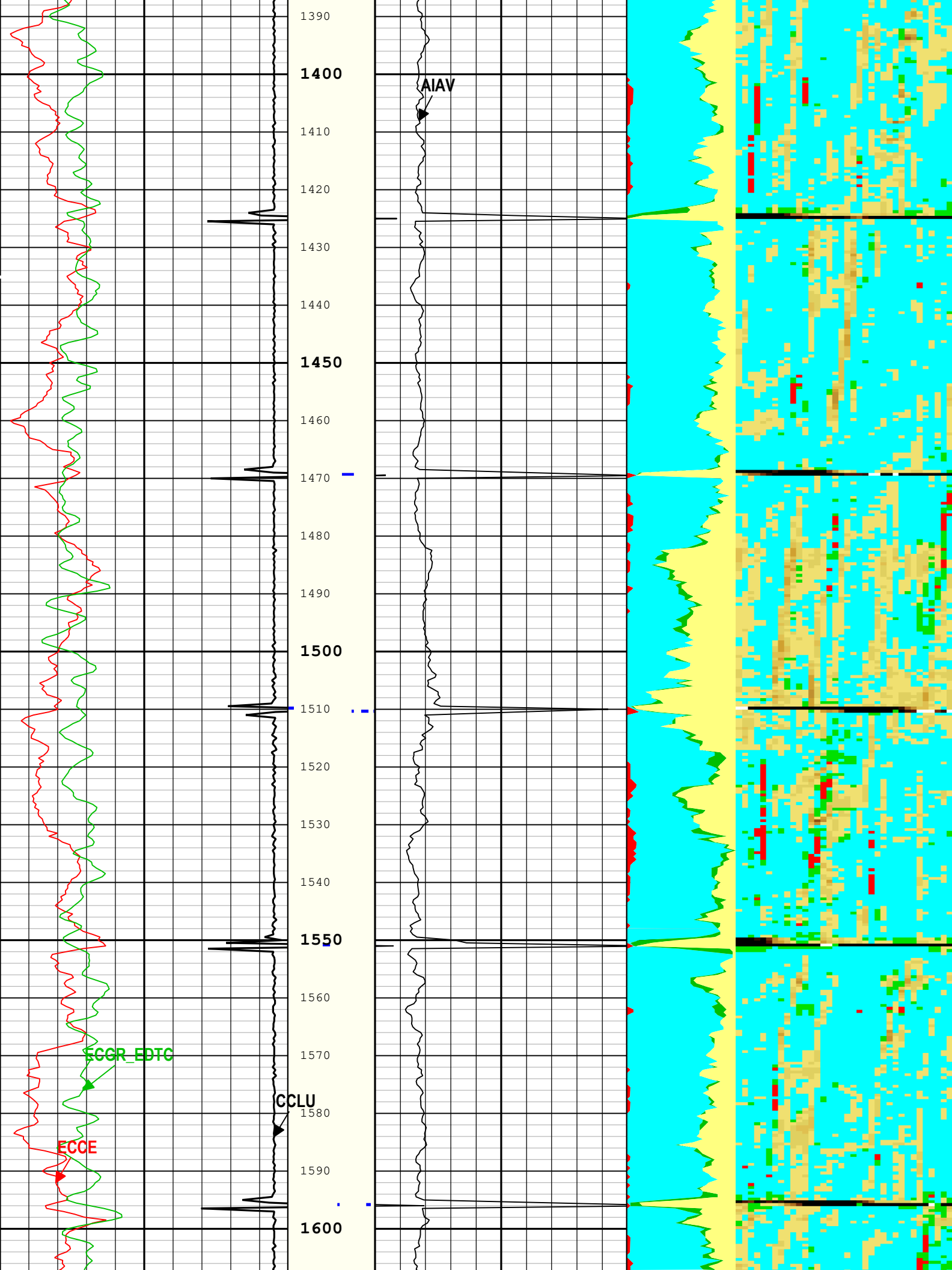


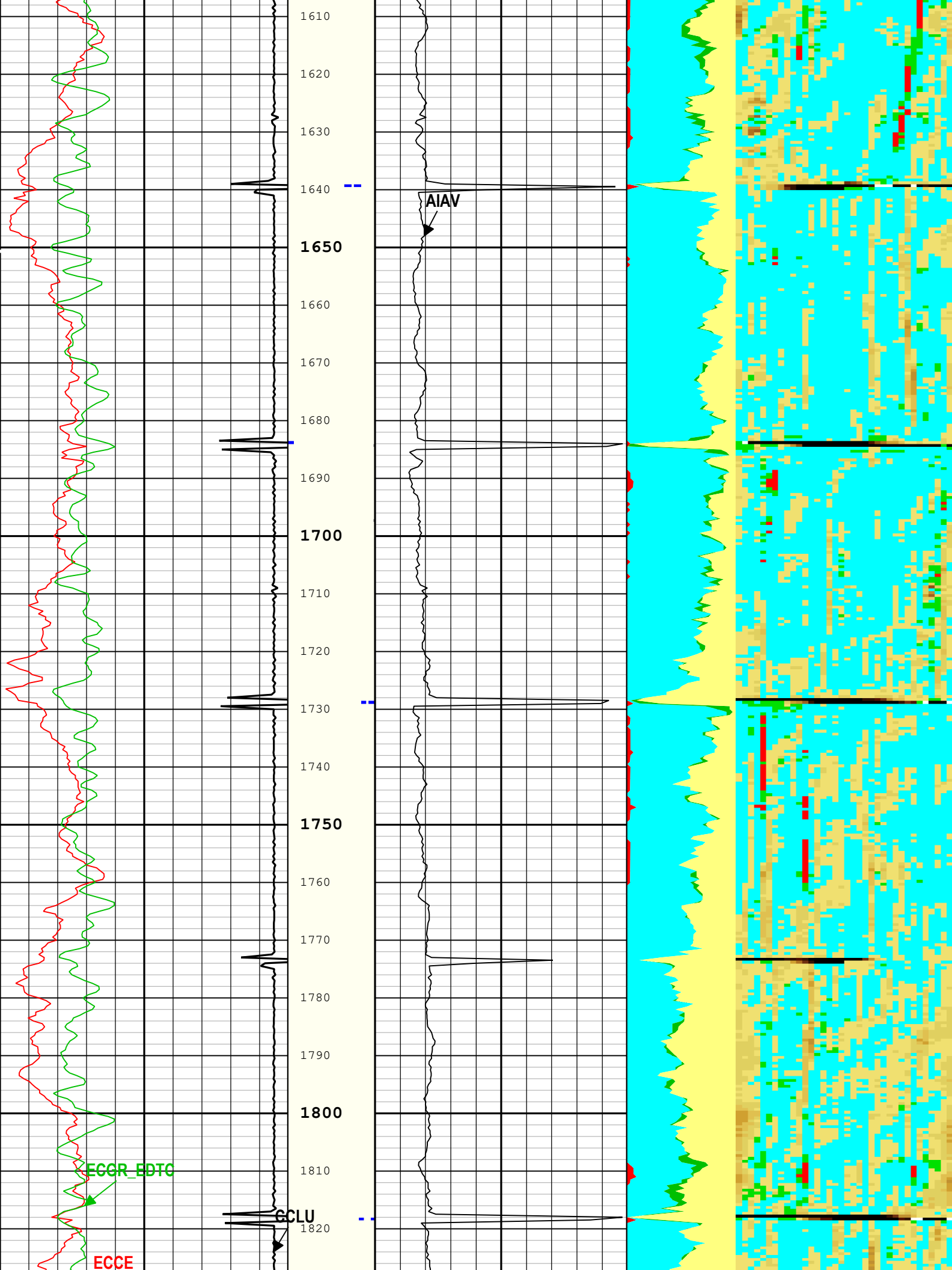


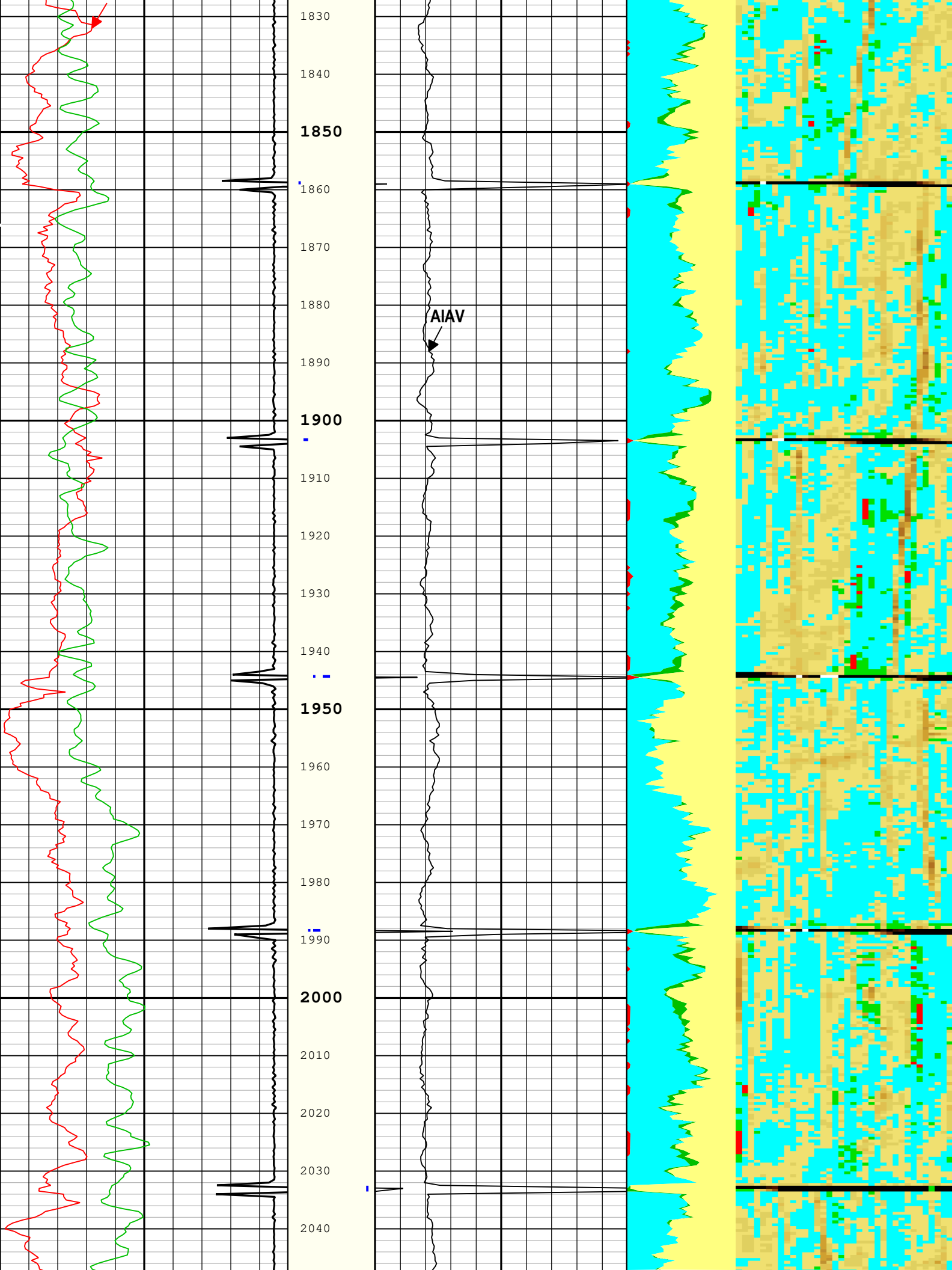


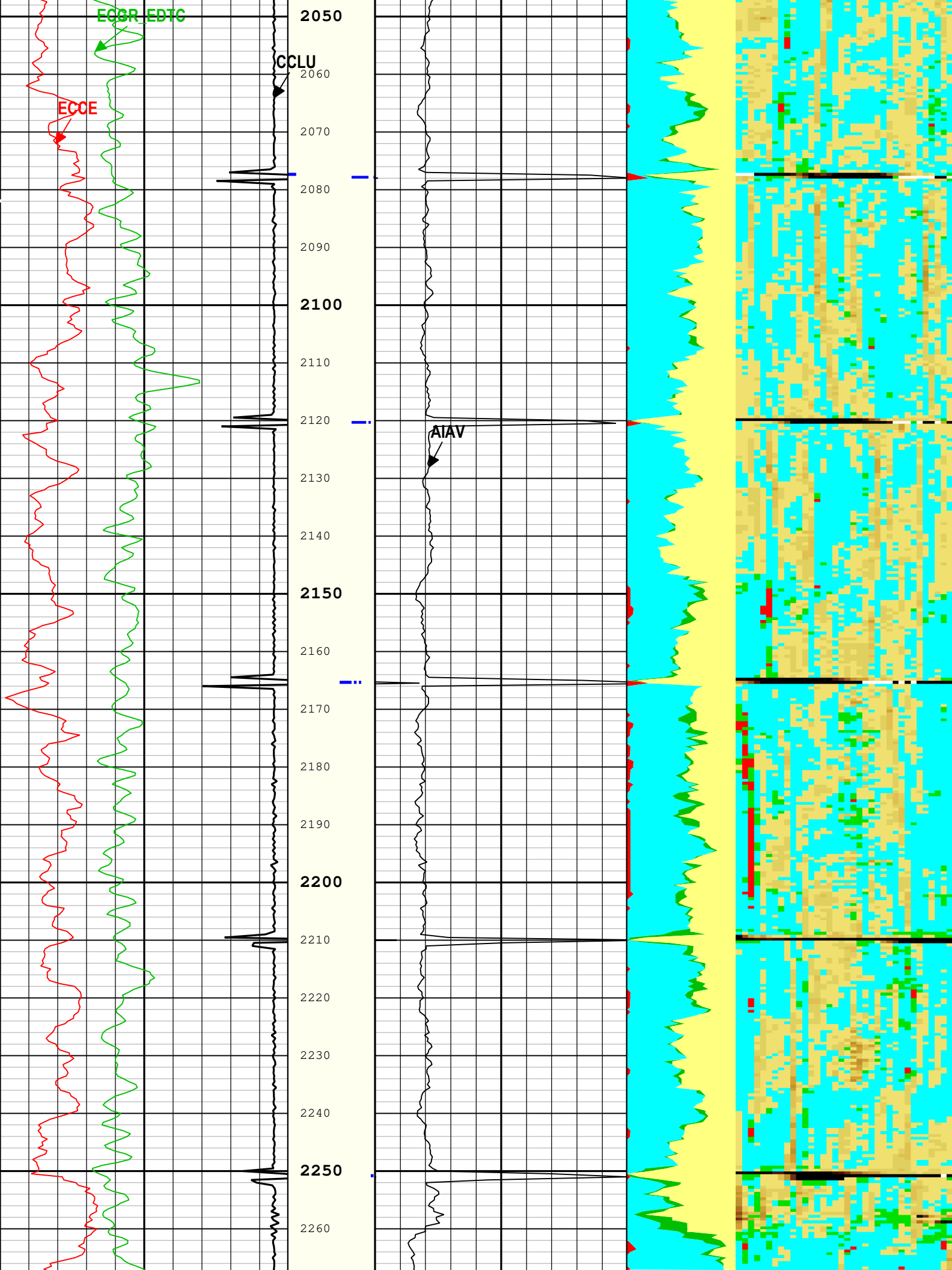


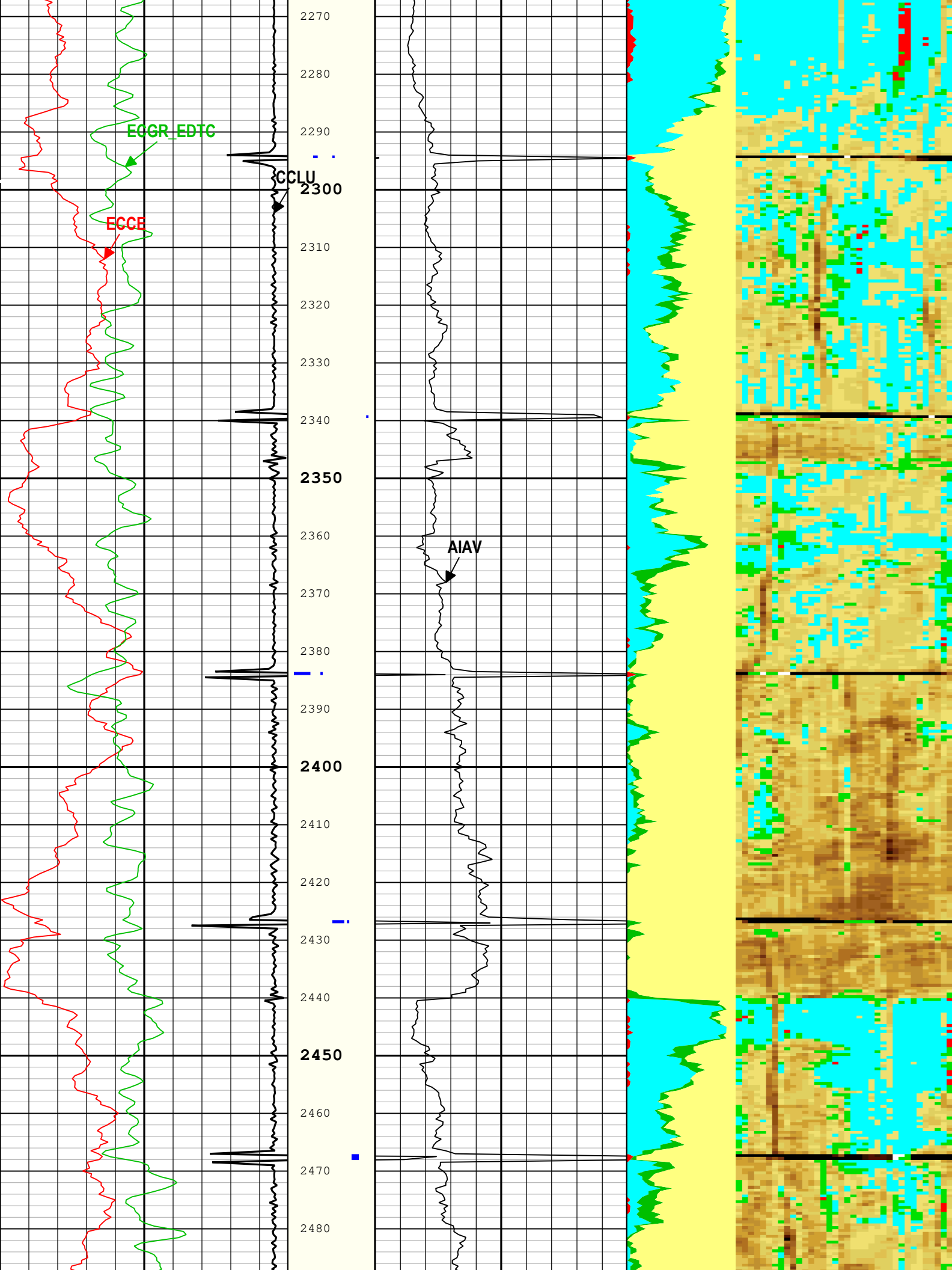


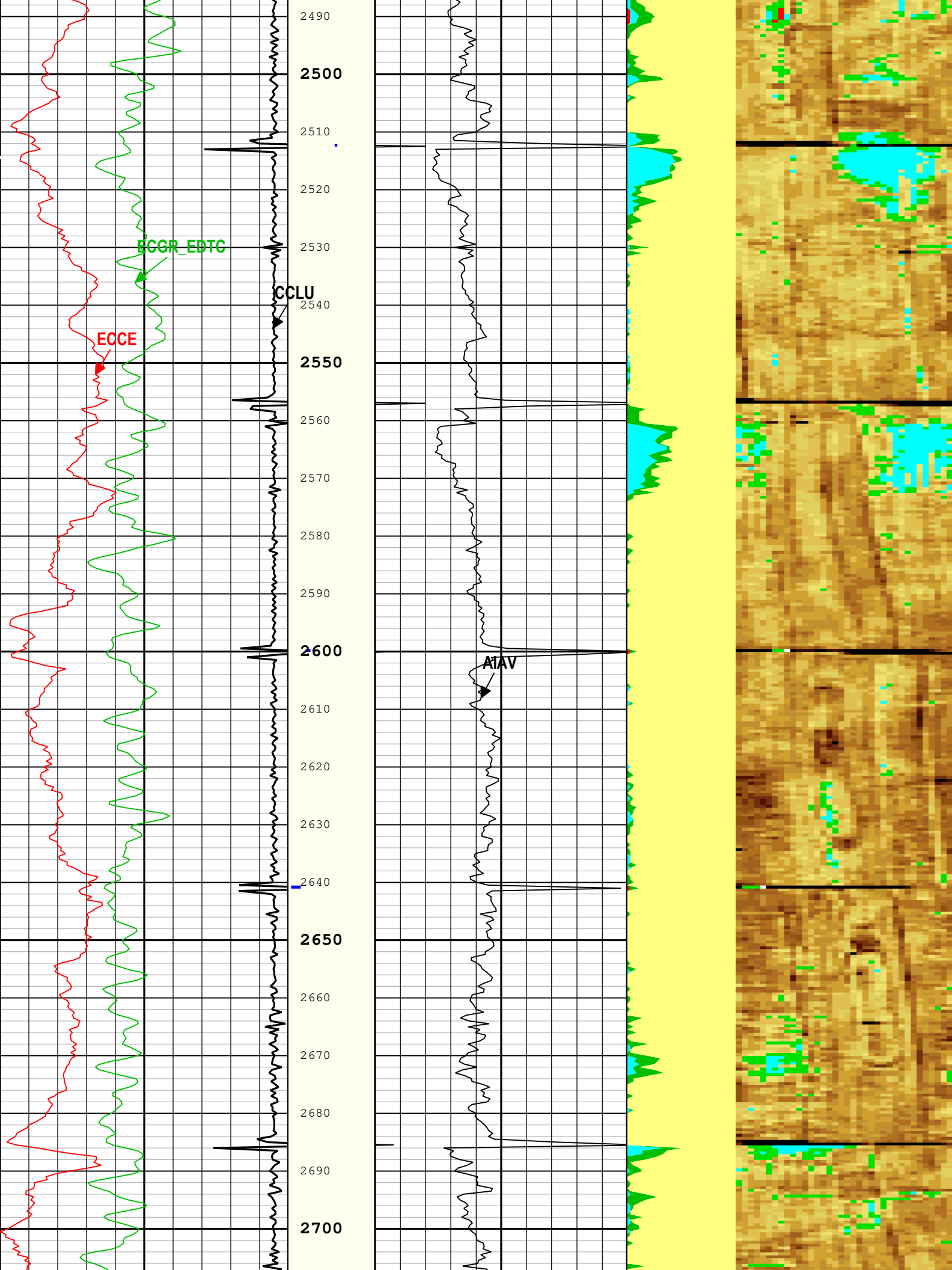


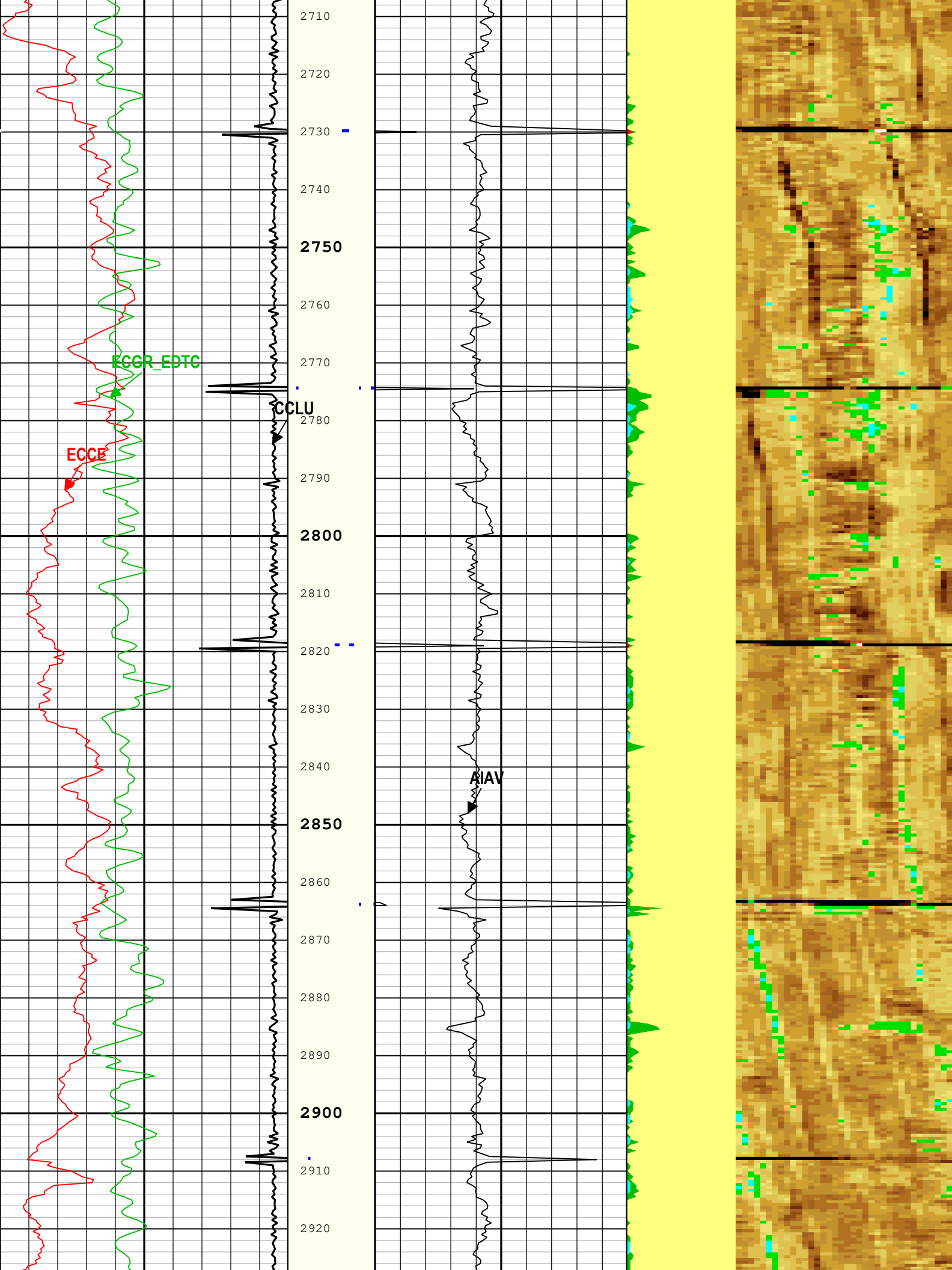


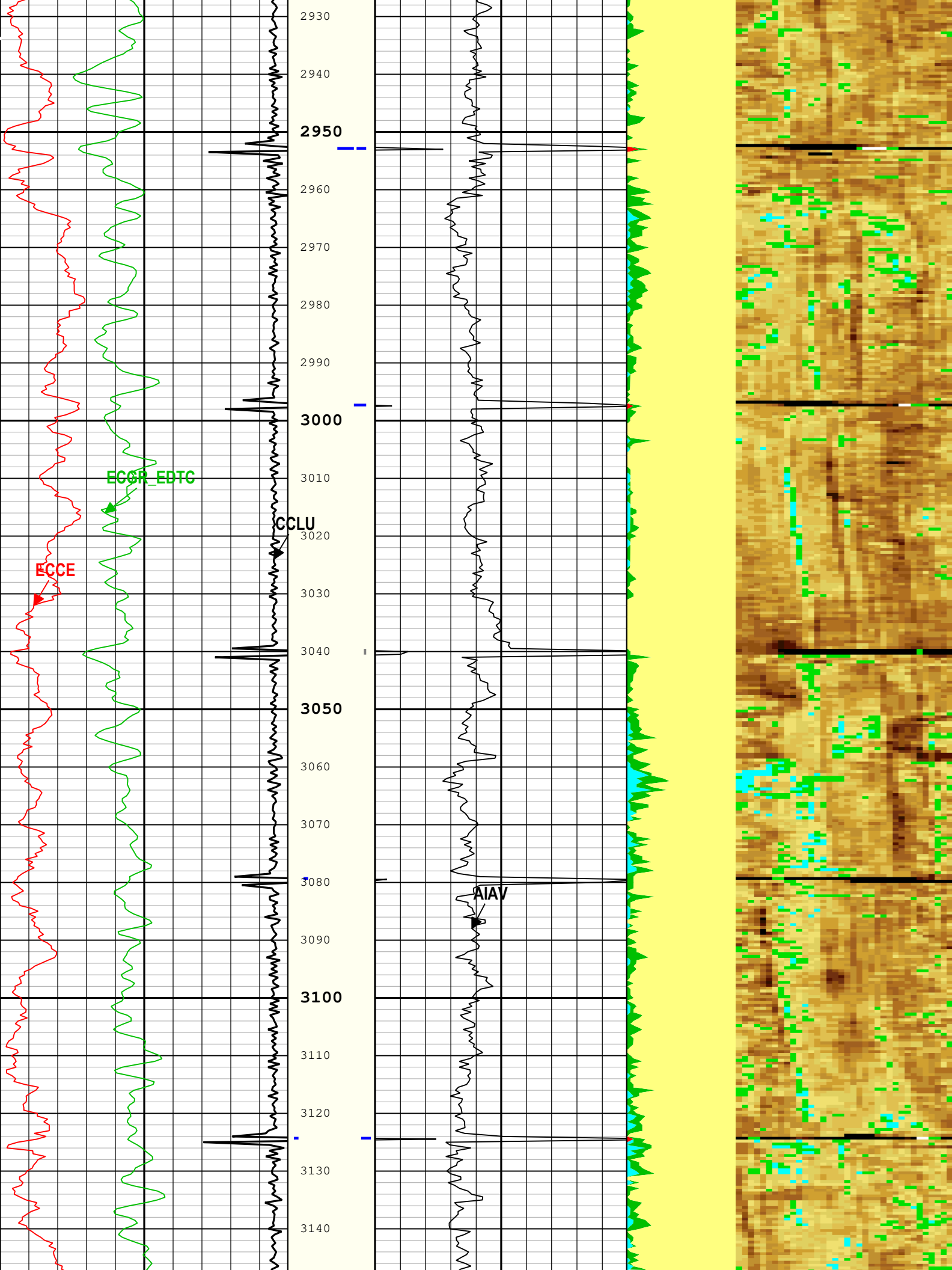


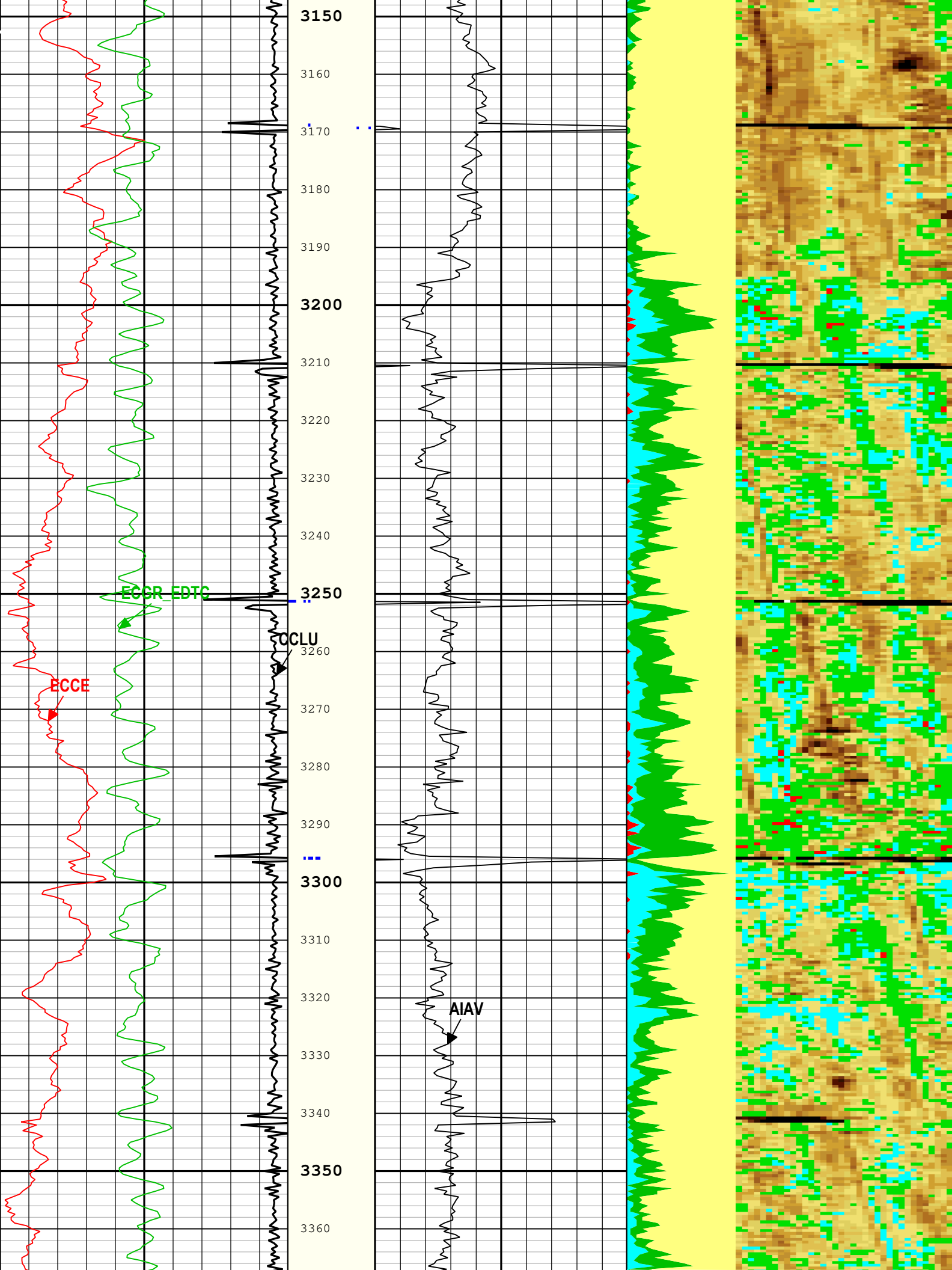


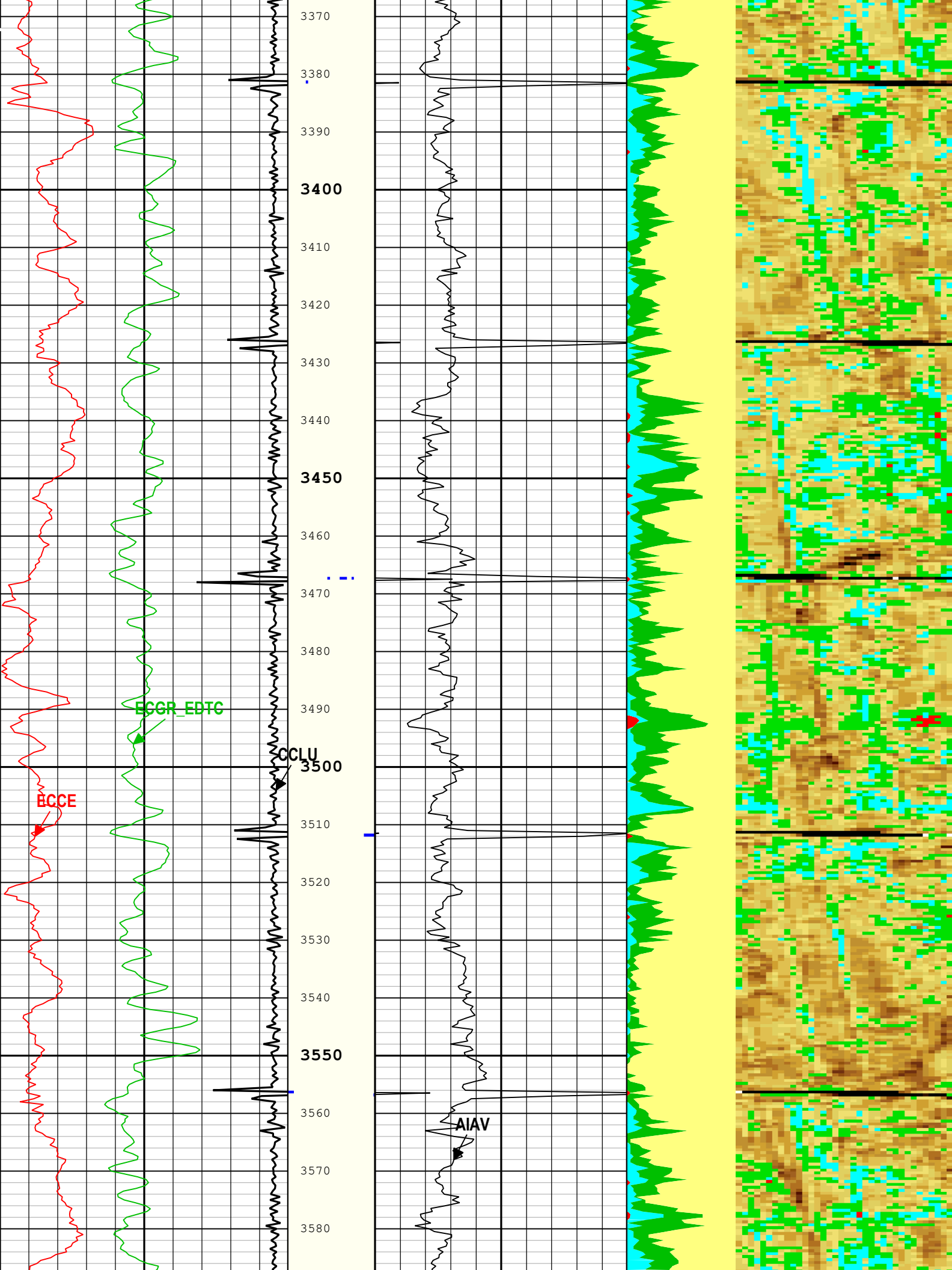


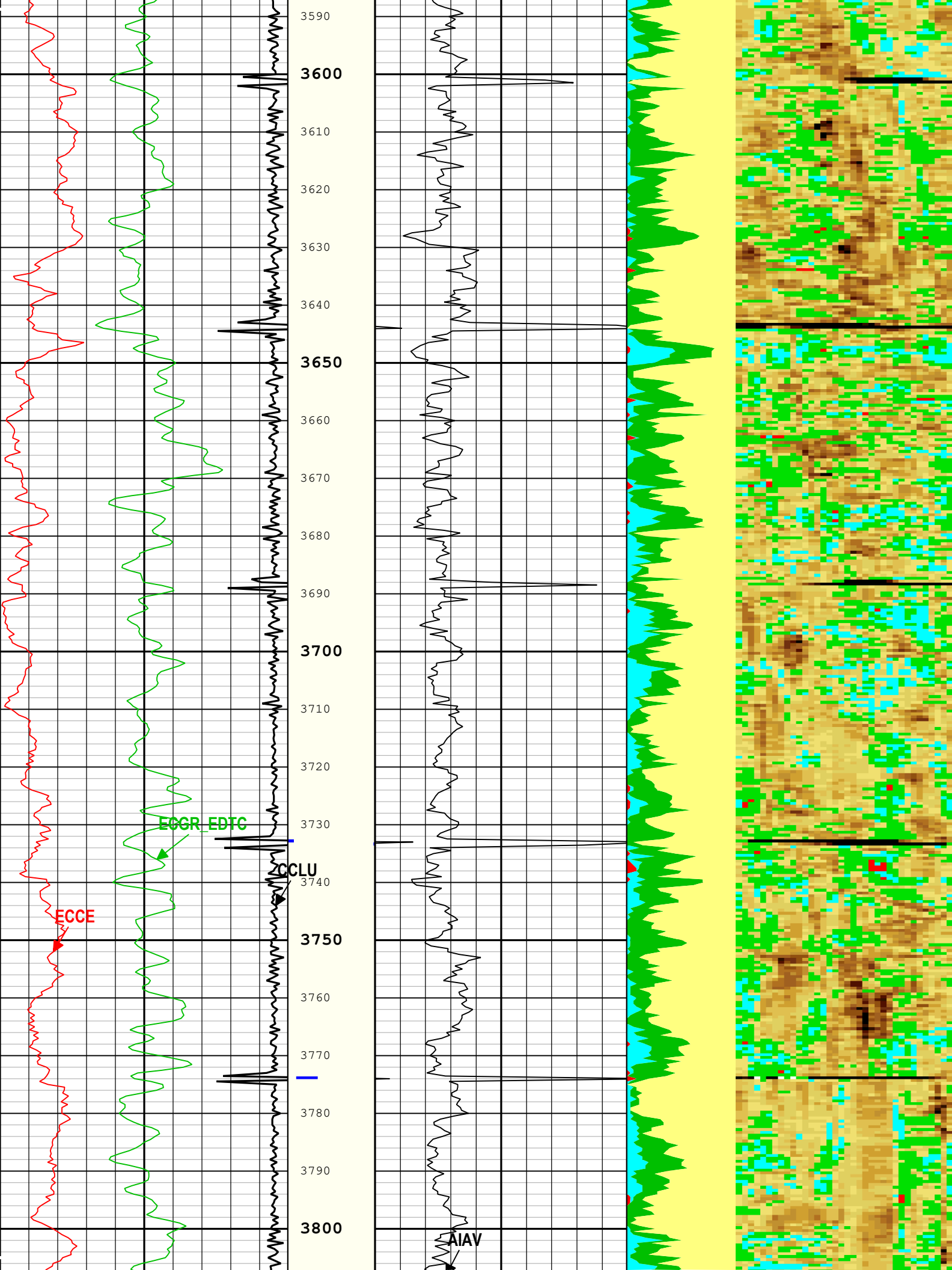


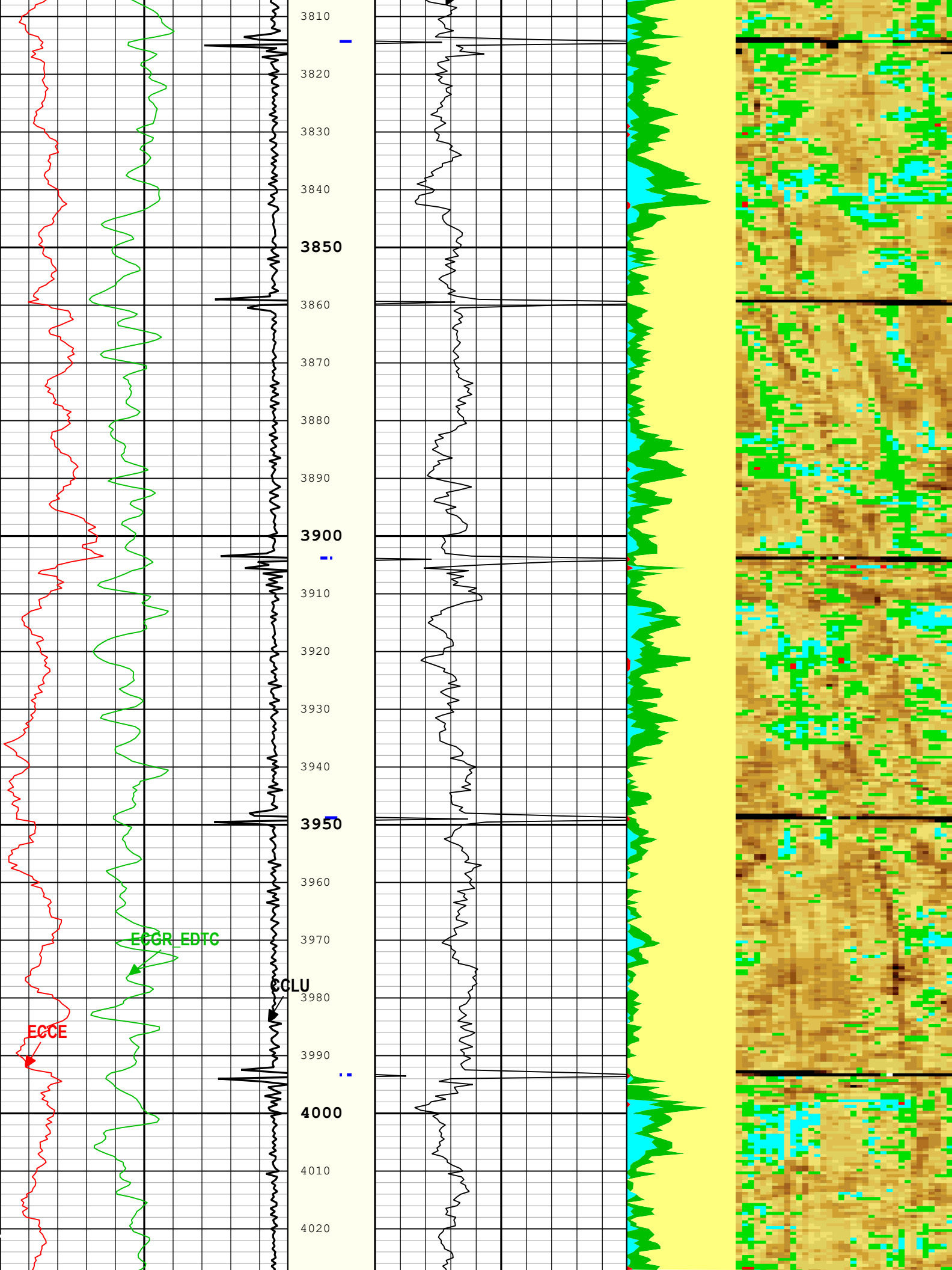


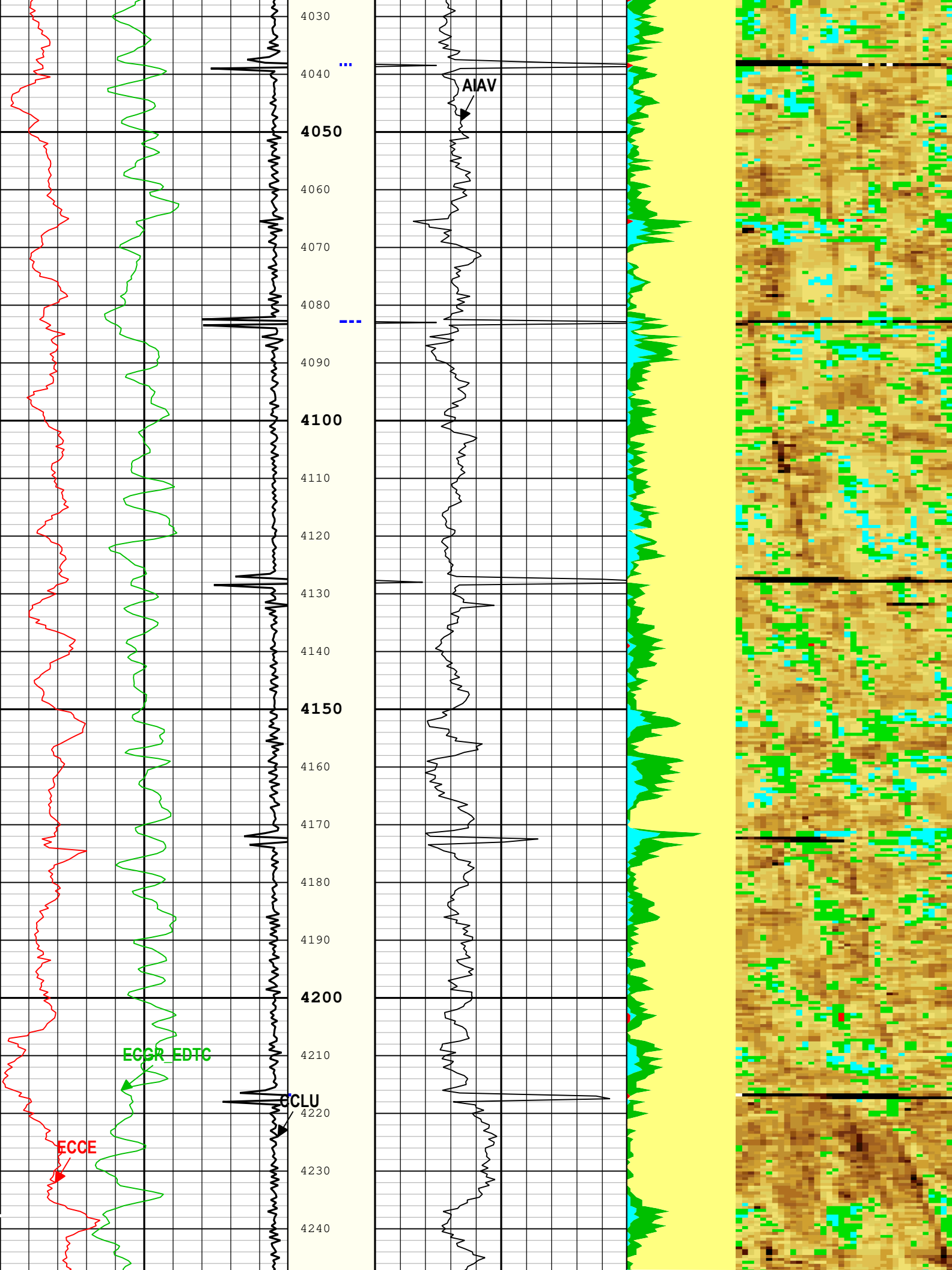


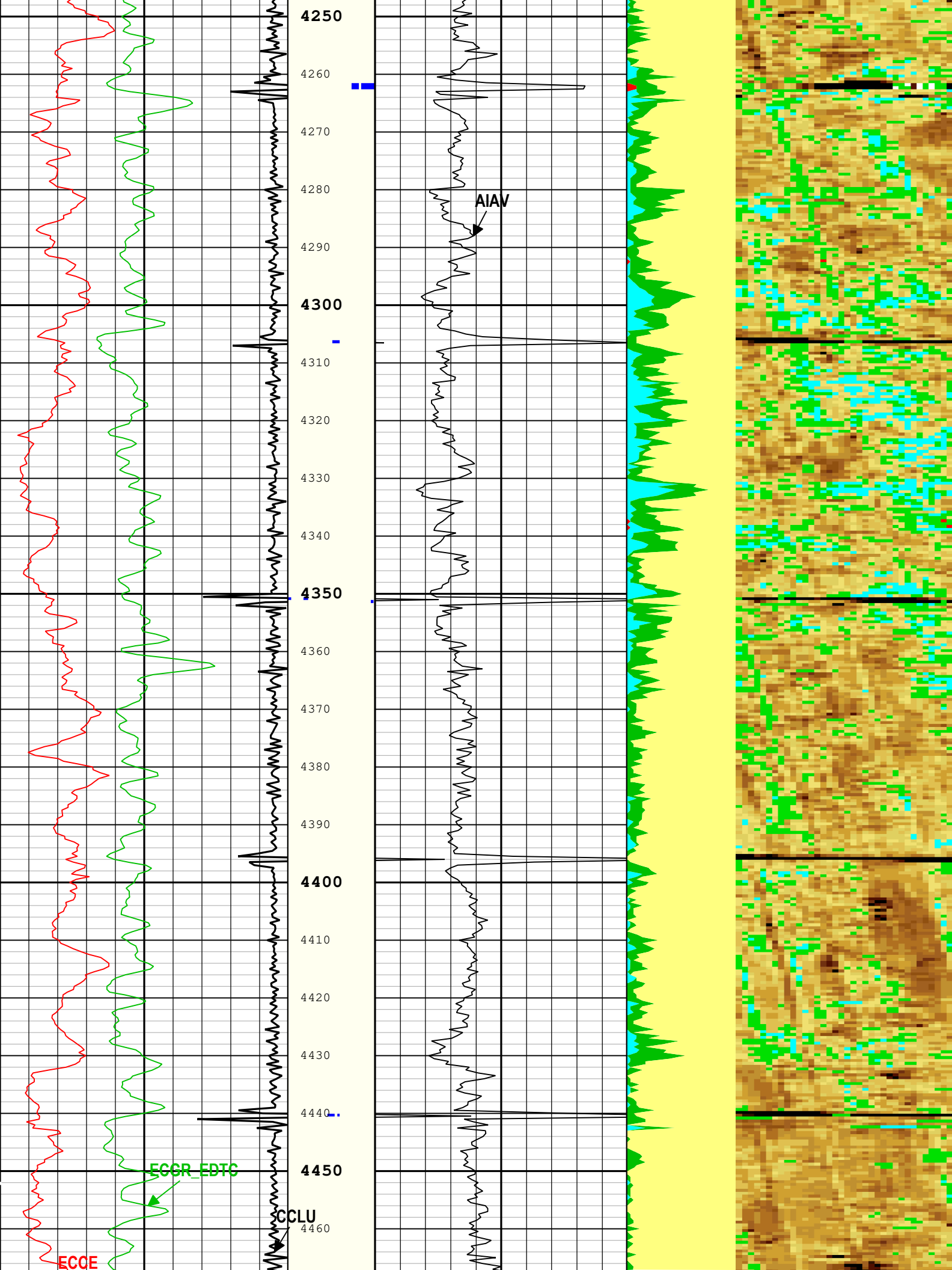


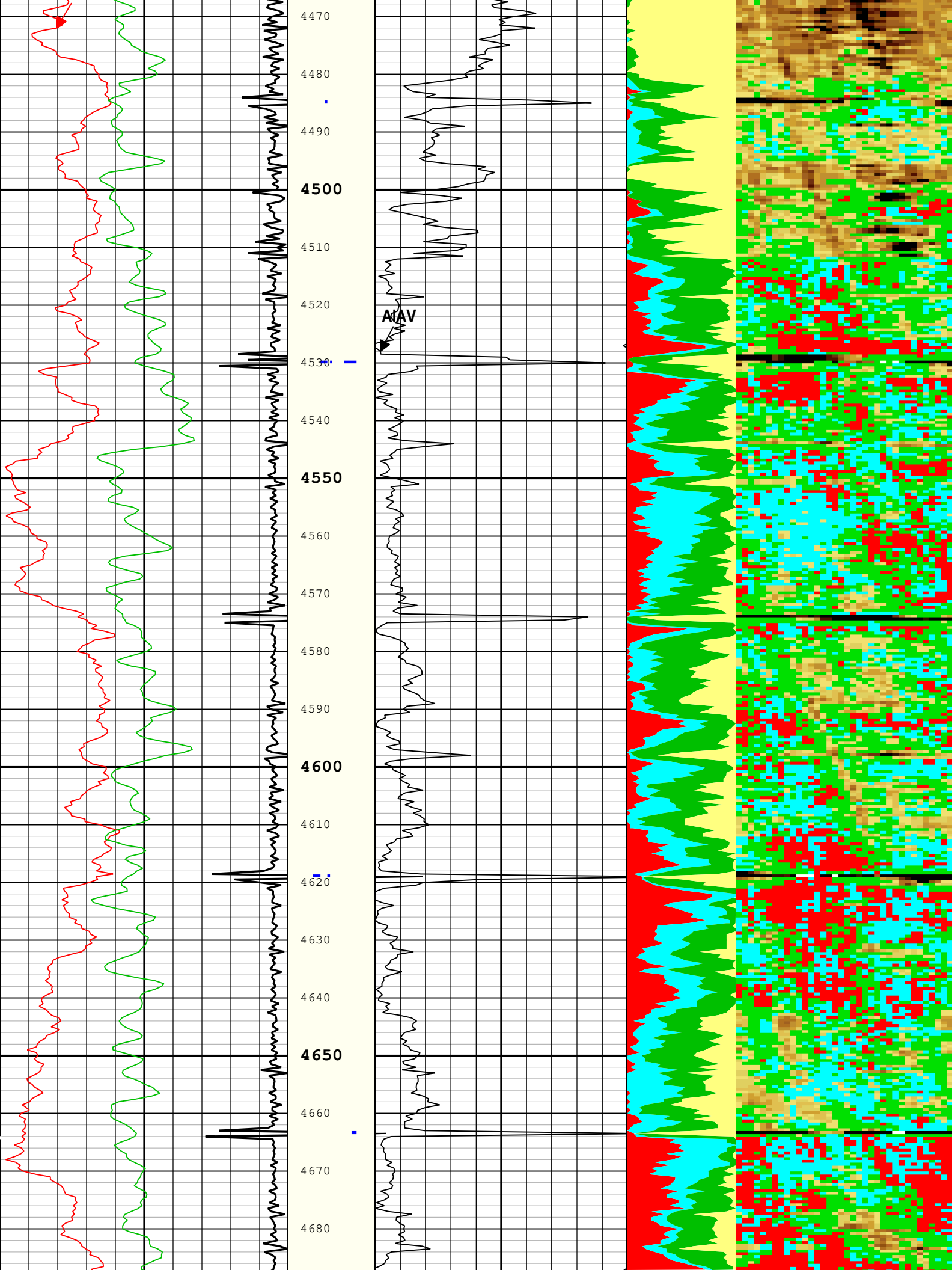


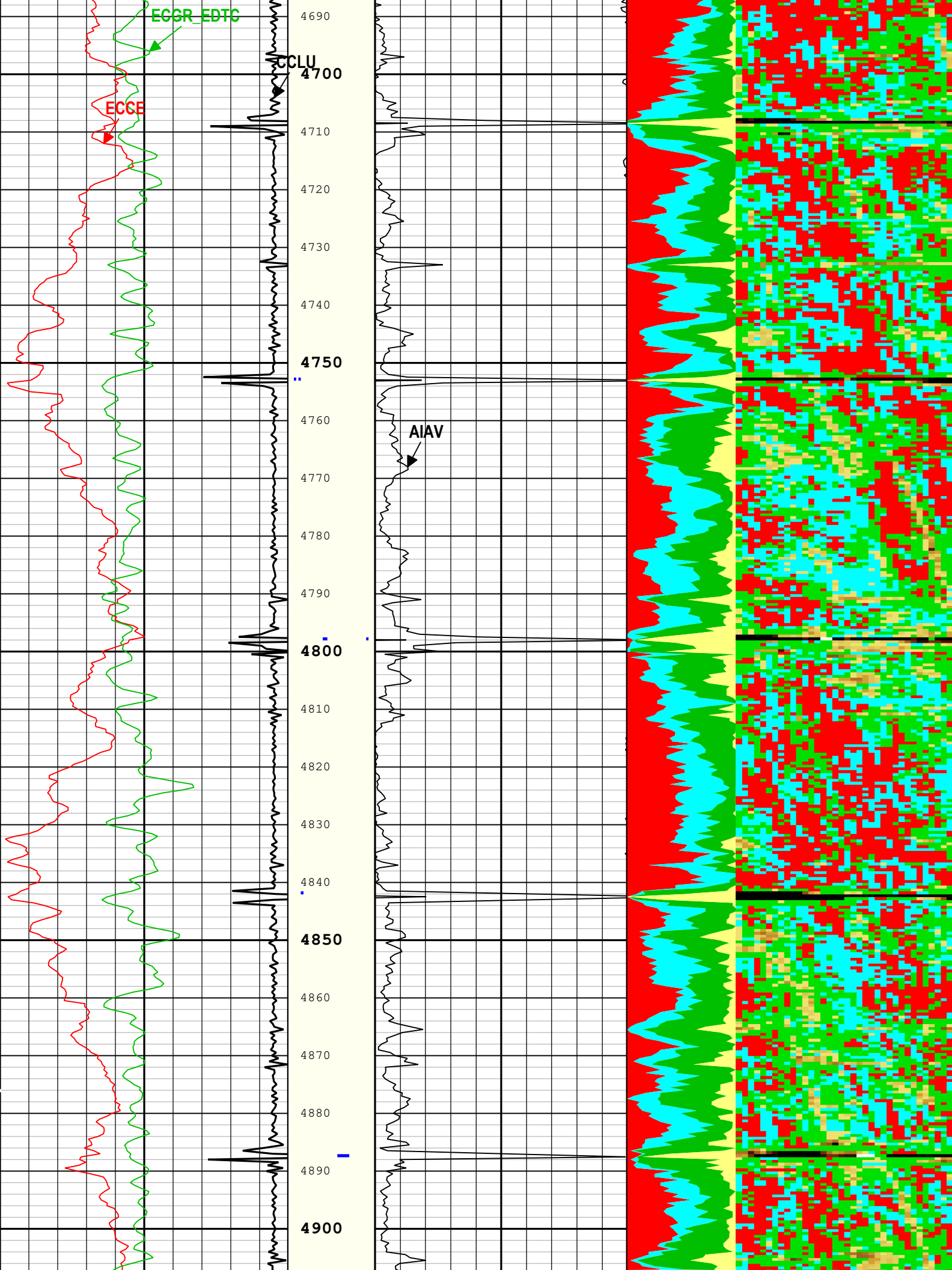


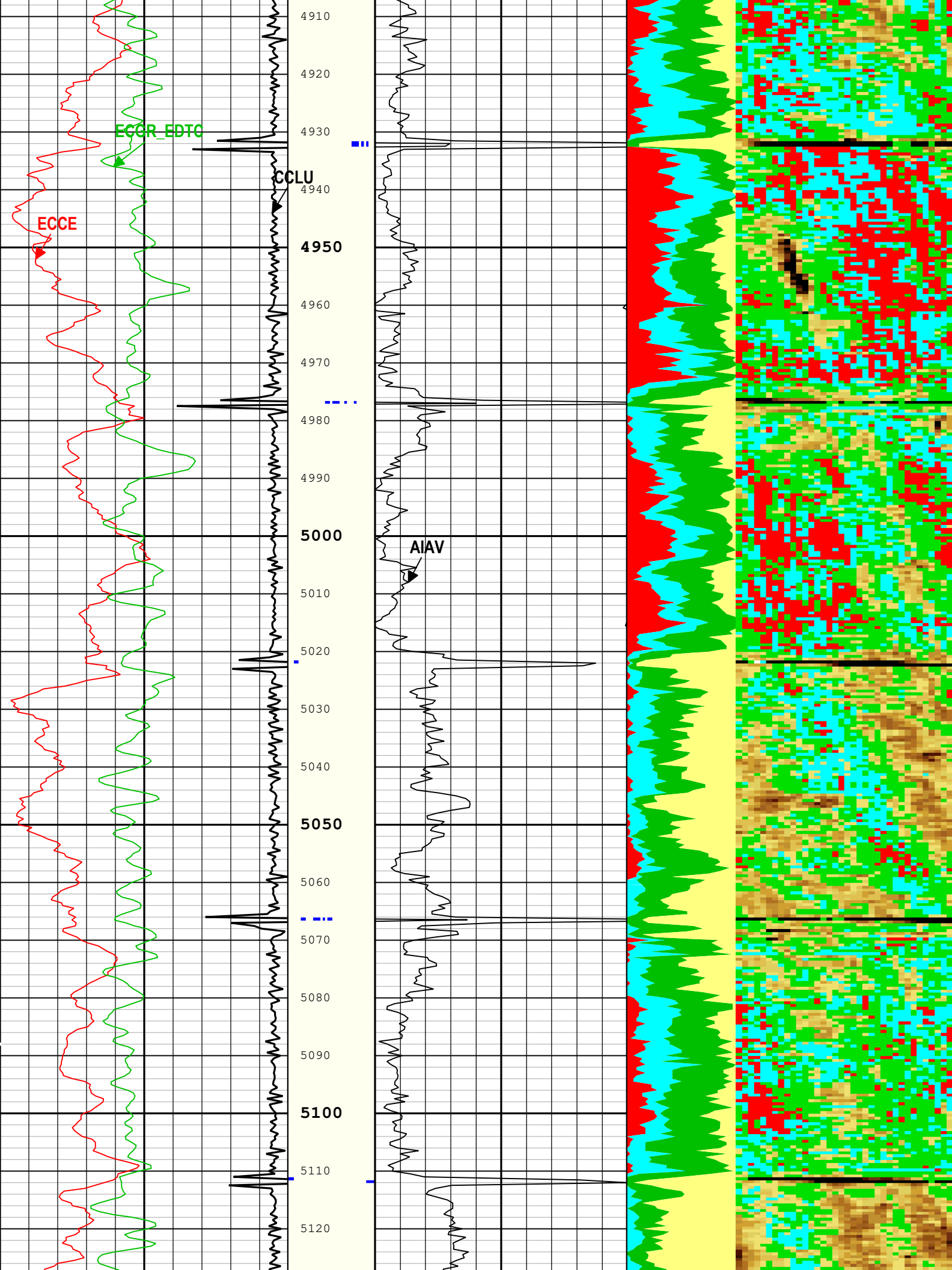


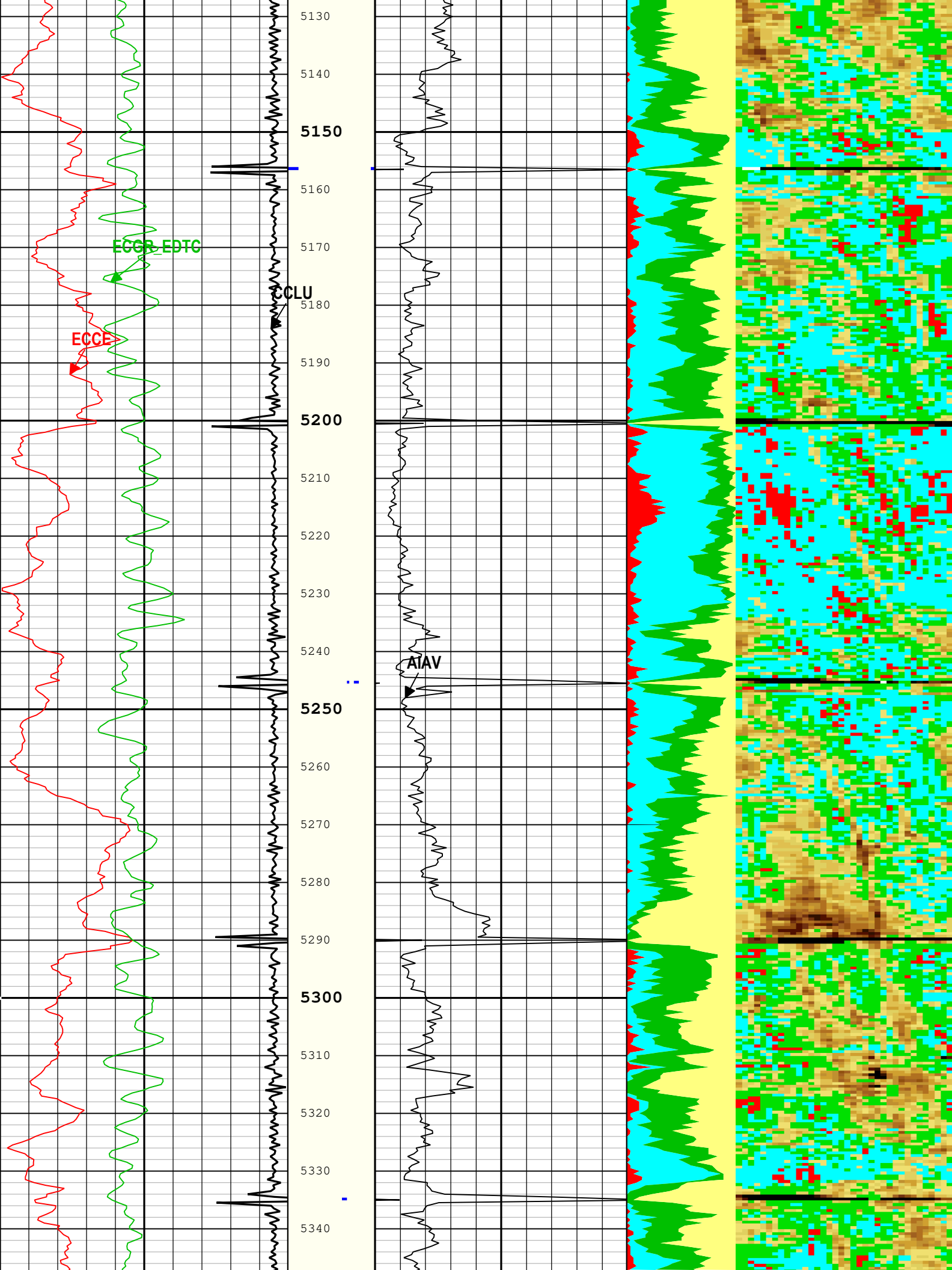


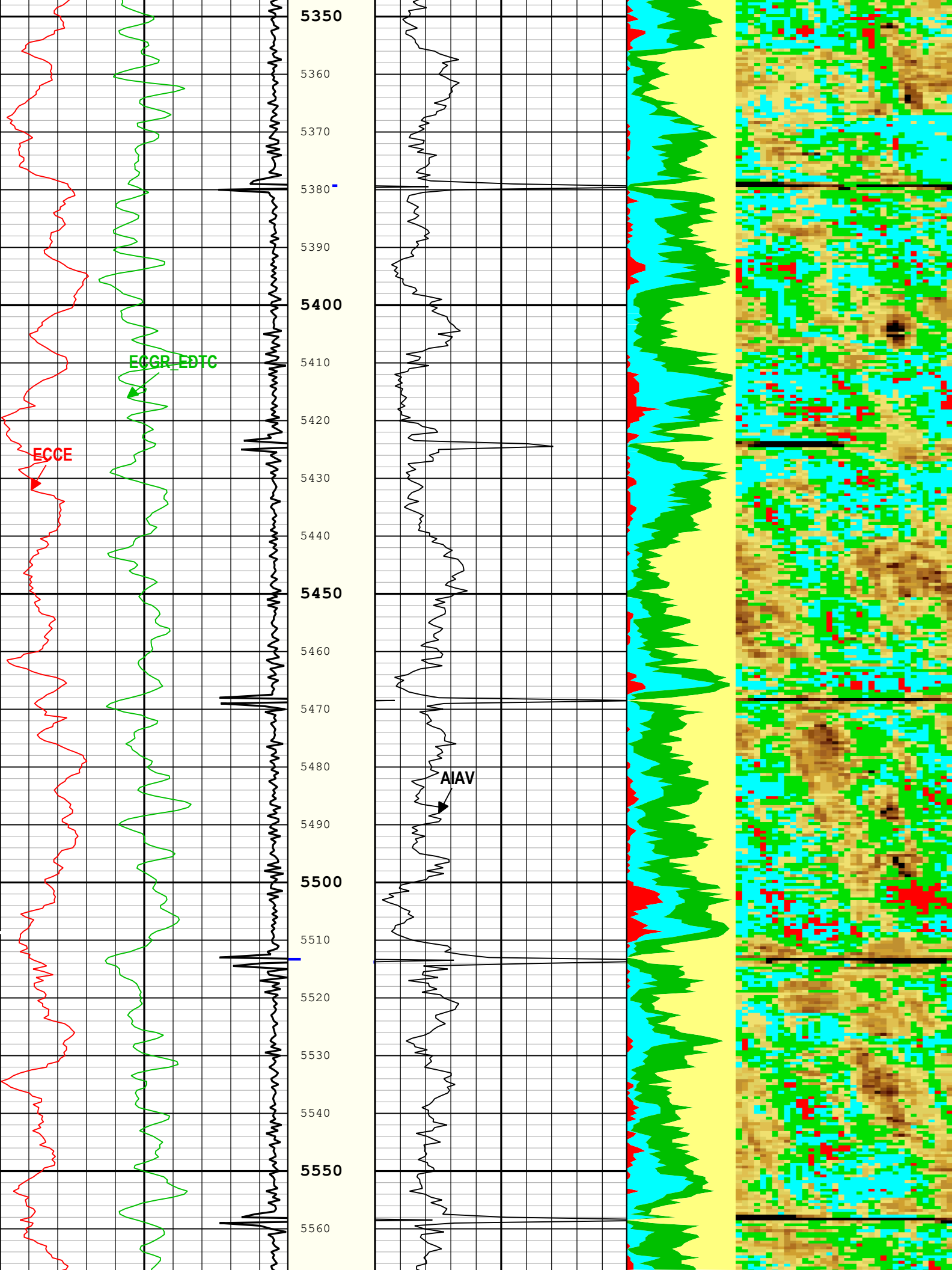


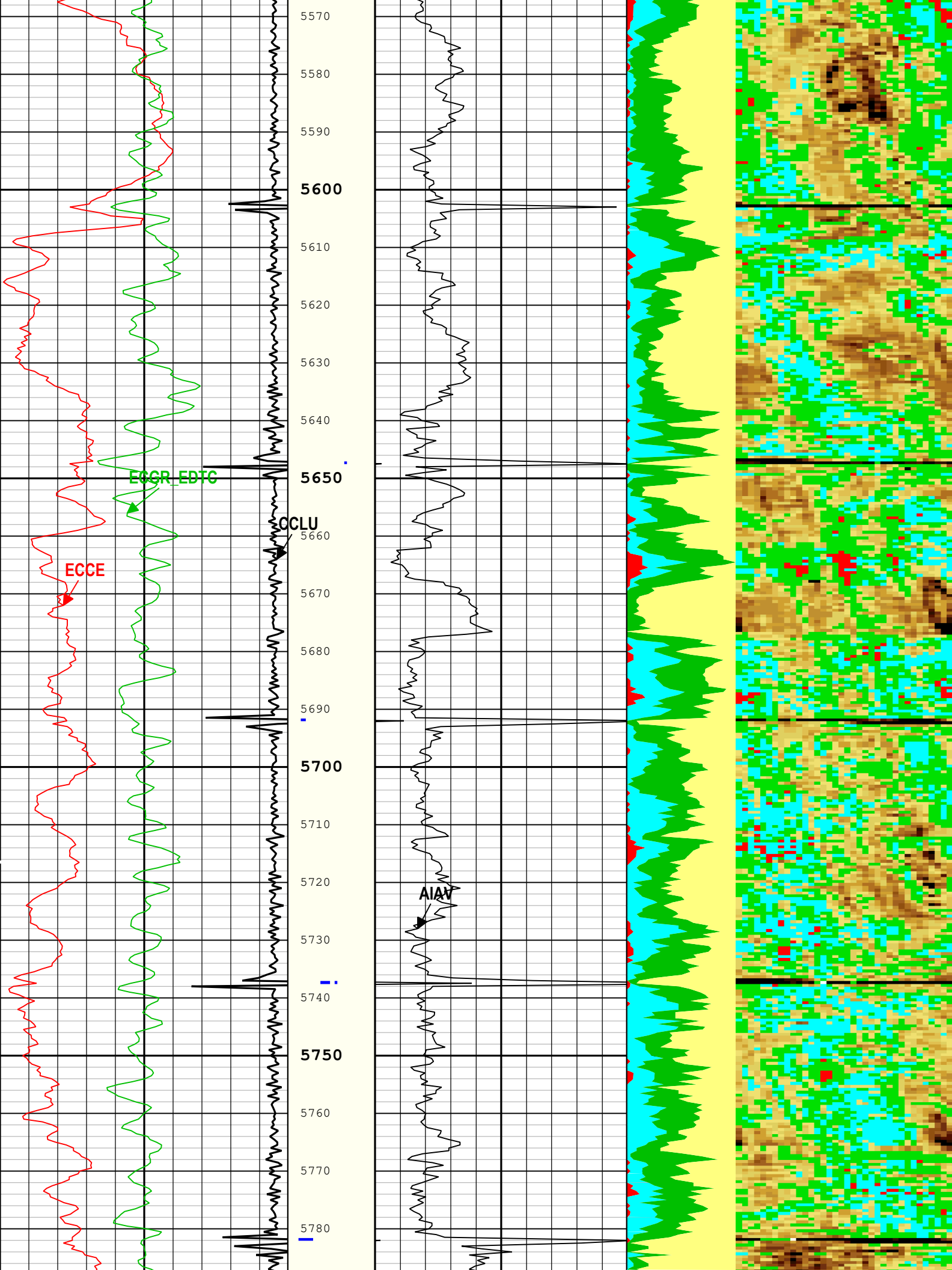


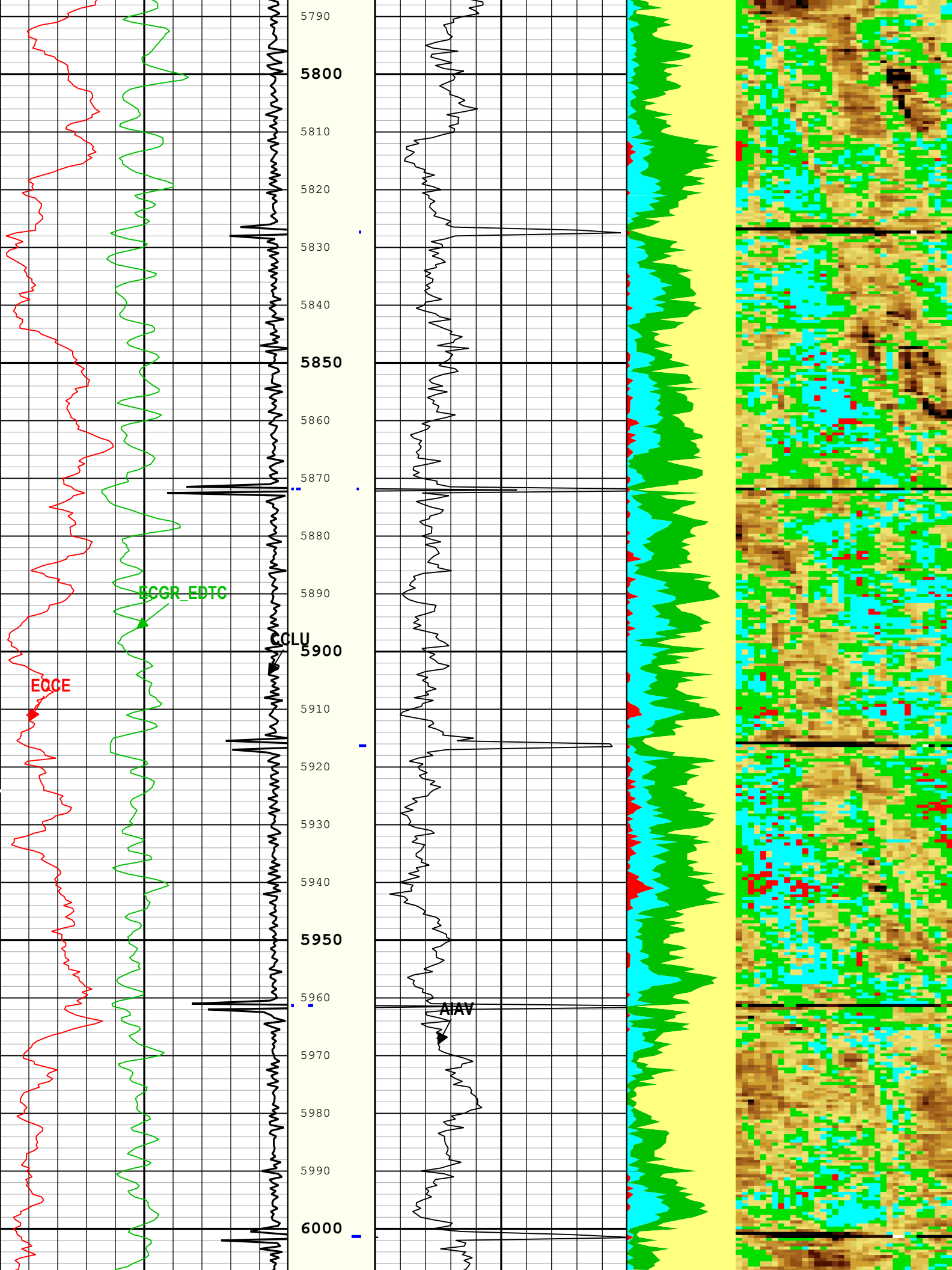


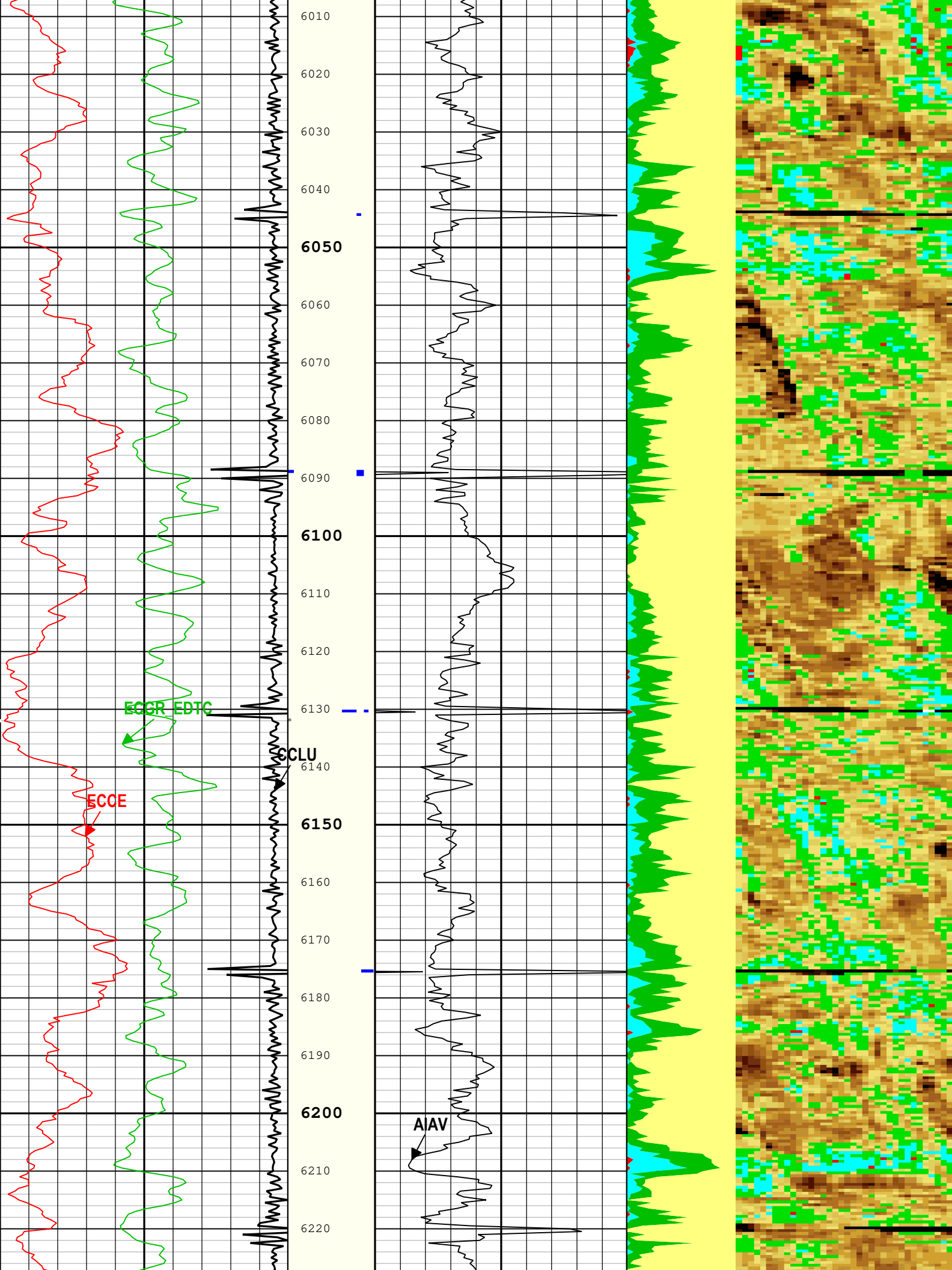


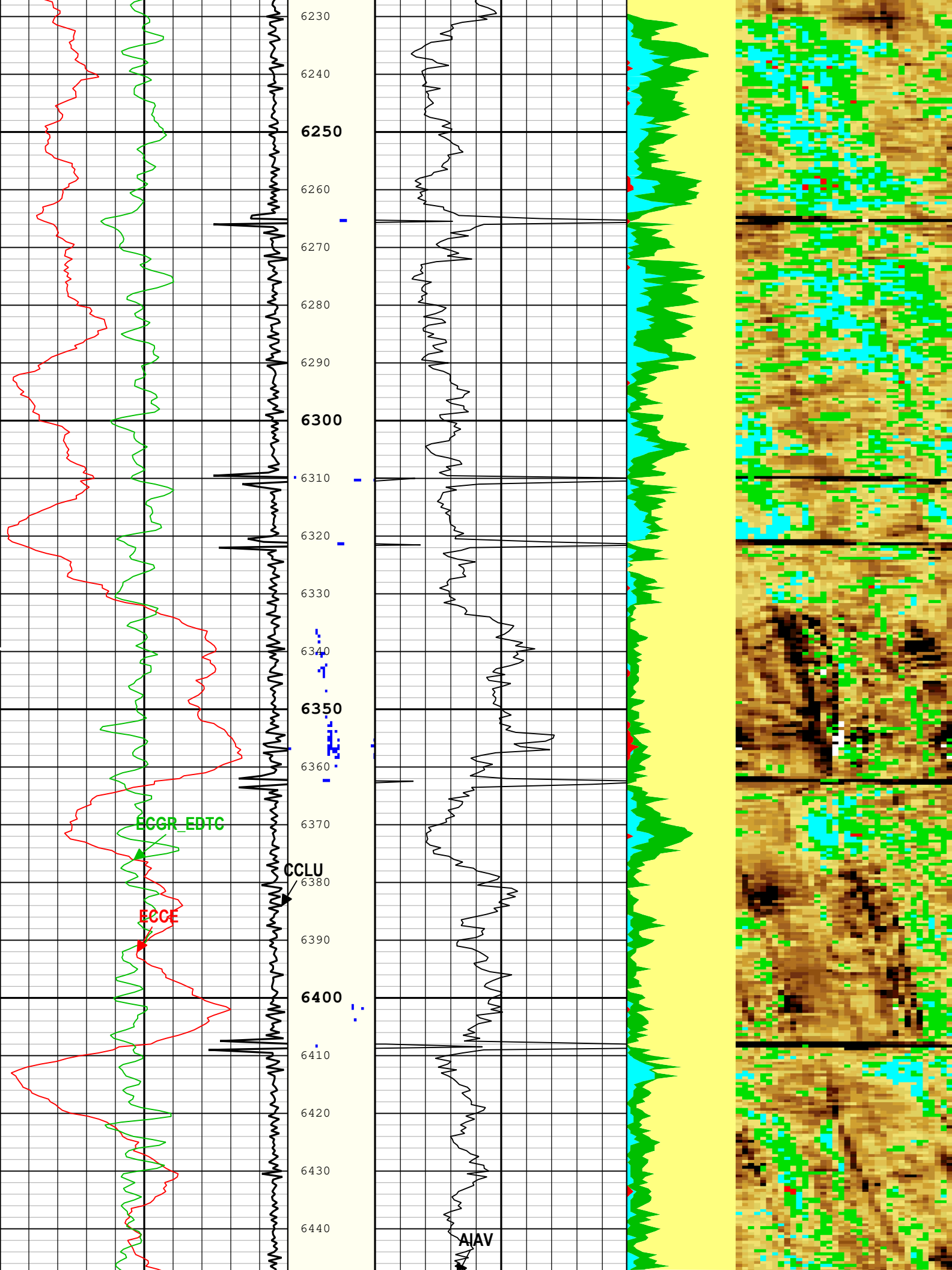


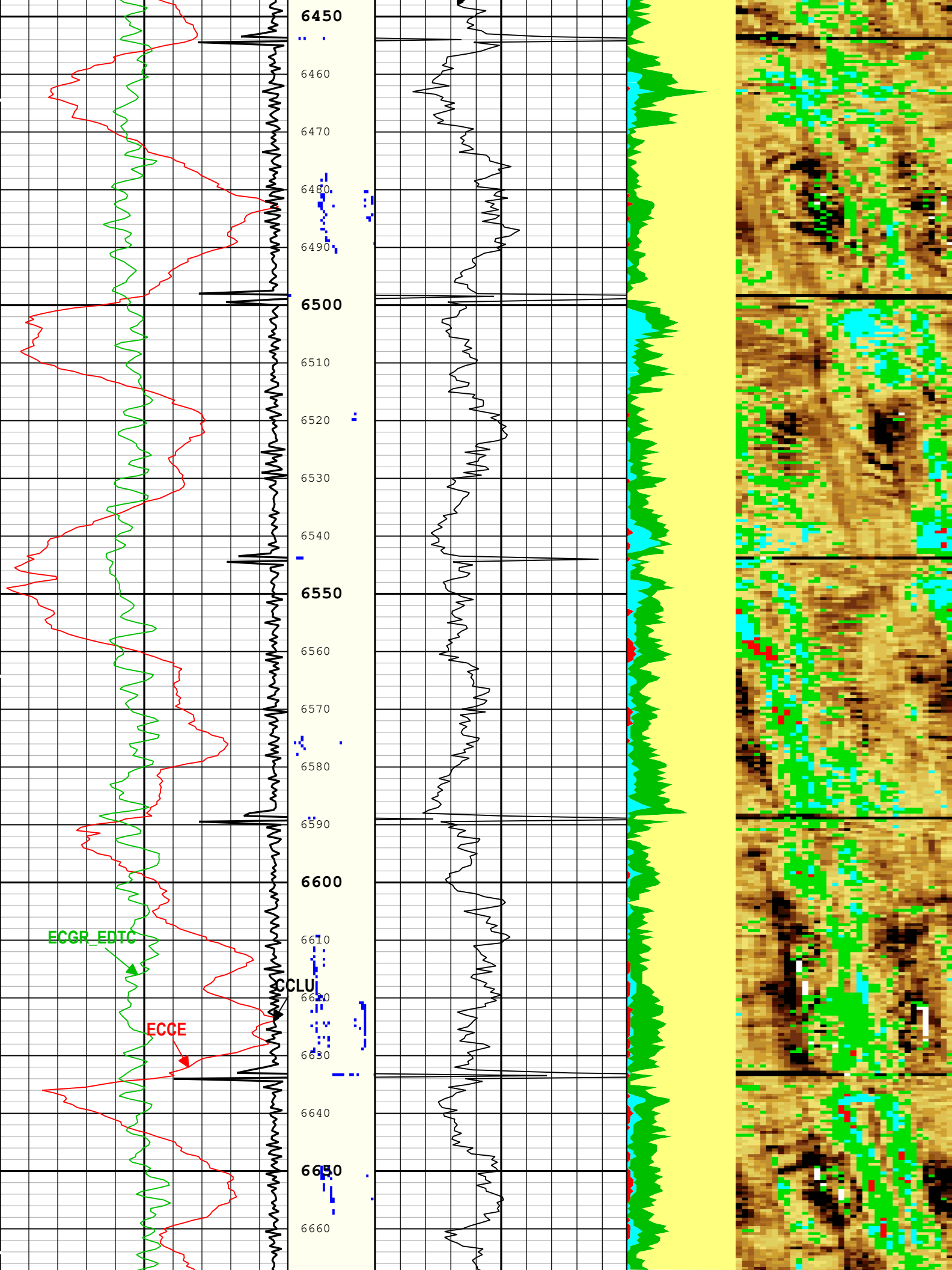


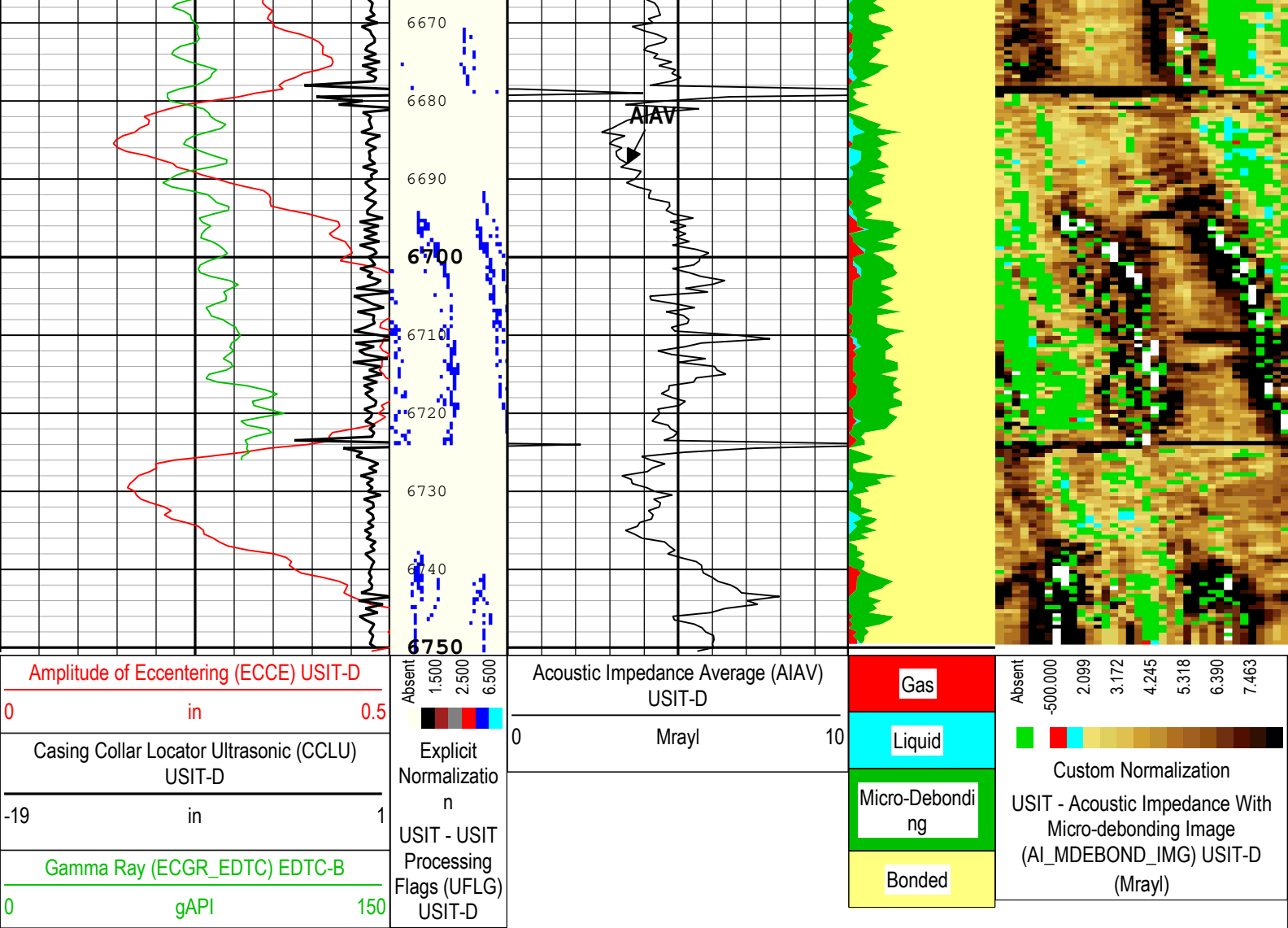












TIME_1900 - Time Marked every 60.00 (s)

Description: Format: Log (DJ Basin Ultrasonic Cement Summary Report) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth
Creation Date: 01-Feb-2019 00:01:10

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	Depth Zoned	in
CBLO	Casing Bottom (Logger)	WLSESSION	17745.9	ft
CDEN	Cement Density	EDTC-B	16.69	lbm/gal
CMTY(U-USIT_CEMT)	Cement Type	USIT-D	Regular Cement	
DFD	Drilling Fluid Density	Borehole	8.4	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	192	us/ft
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS(RT)	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	BS(RT)	
HEMA	Hematite Presence Flag	Borehole	No	
ICE_PROCESS	ICE Processing	USIT-D	Yes	
IMAR	Image Rotation	USIT-D	Off	
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-D	22.44	us
MUD_N_FRP	Free Pipe Mud Normalization Factor	USIT-D	1.09	
UUSIT_DESZ	Drilling Fluid Specific Acoustic Impedance	USIT-D	0	Mrayl

USI_FVEL_SEL	USI Fluid Velocity Selection	USIT-D	Automatic	
USI_ZMUD_SEL	USI Mud Impedance Selection	USIT-D	FreePipe Norm.	
ZMUD	Acoustic Impedance of Mud	Borehole	1.6	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-D	2.1	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-D	0.3	Mrayl

Depth Zone Parameters			
Parameter	Value	Start (ft)	Stop (ft)
BS	26	30	110
BS	13.5	110	1969
BS	8.5	1969	6751
All depth are actual.			

Tool Control Parameters				
ONE: Parameters				
Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-D	-4	dB
AGMX	Maximum Gain of Cartridge	USIT-D	20	dB
EMXV	EMEX Voltage	USIT-D	Time Zoned	V
HRES	Horizontal Resolution	USIT-D	10 deg	
ULOG	Logging Objective	USIT-D	MEASUREMENT	
USFR	Ultrasonic Sampling Frequency	USIT-D	500000	Hz
UPAT	USIT Emission Pattern	USIT-D	Pattern 375 KHz	
UWKM	USIT Working Mode	USIT-D	Uncompressed 10 deg at 6.0 in LF	
WINB	Window Begin Time	USIT-D	28.35	us
WINE	Window End Time	USIT-D	68.35	us

Time Zone Parameters					
Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
EMXV	70	31-Jan-2019 15:57:51	31-Jan-2019 15:59:35	6751.78	6604.89
EMXV	85	31-Jan-2019 15:59:35	31-Jan-2019 16:37:14	6604.89	31.33
All depth are at tool zero.					

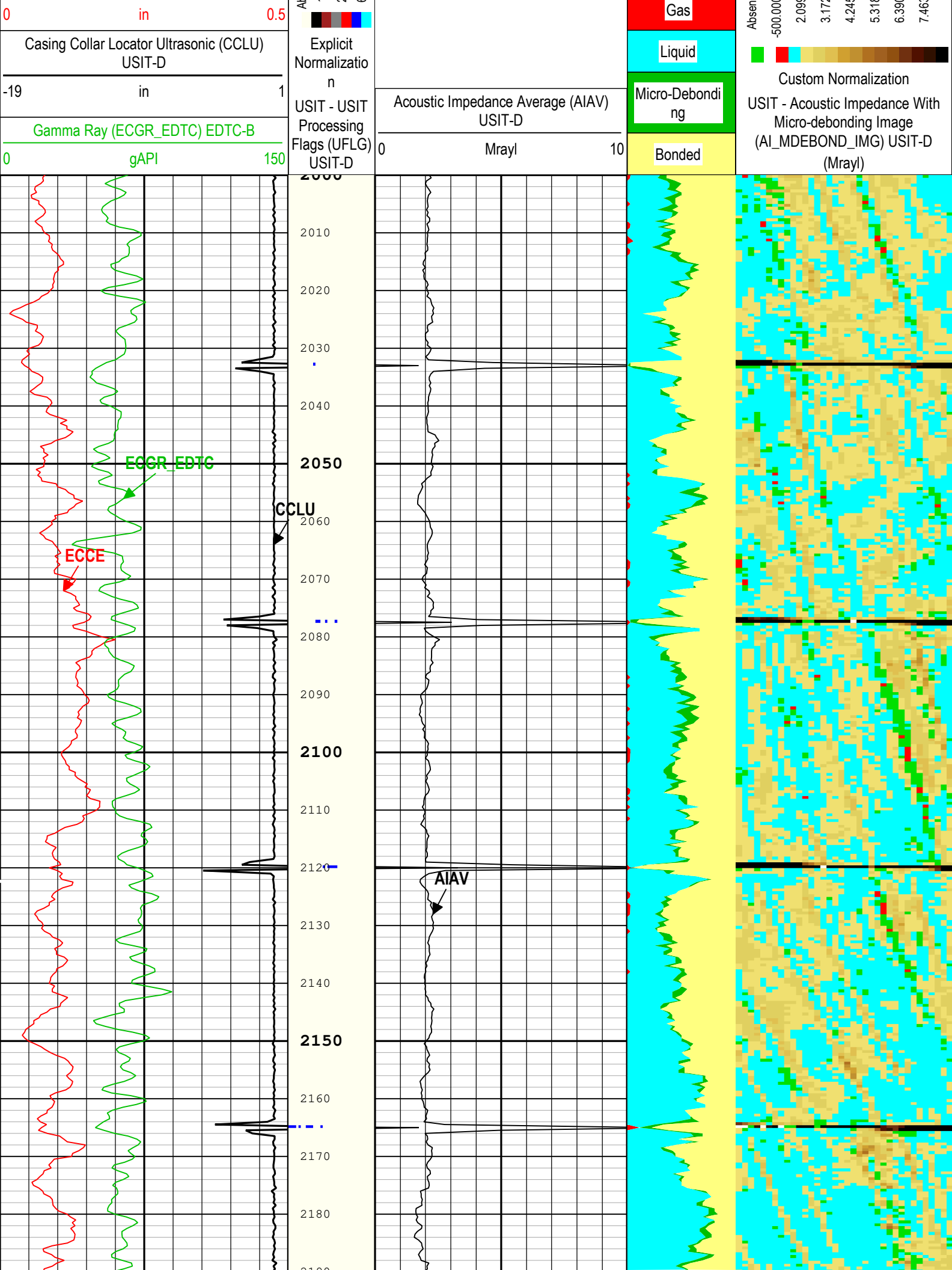
ONE					
CEMENT INTEGRITY REPEAT PASS 0 PSI 10 DEG X 6 IN [5:100]					

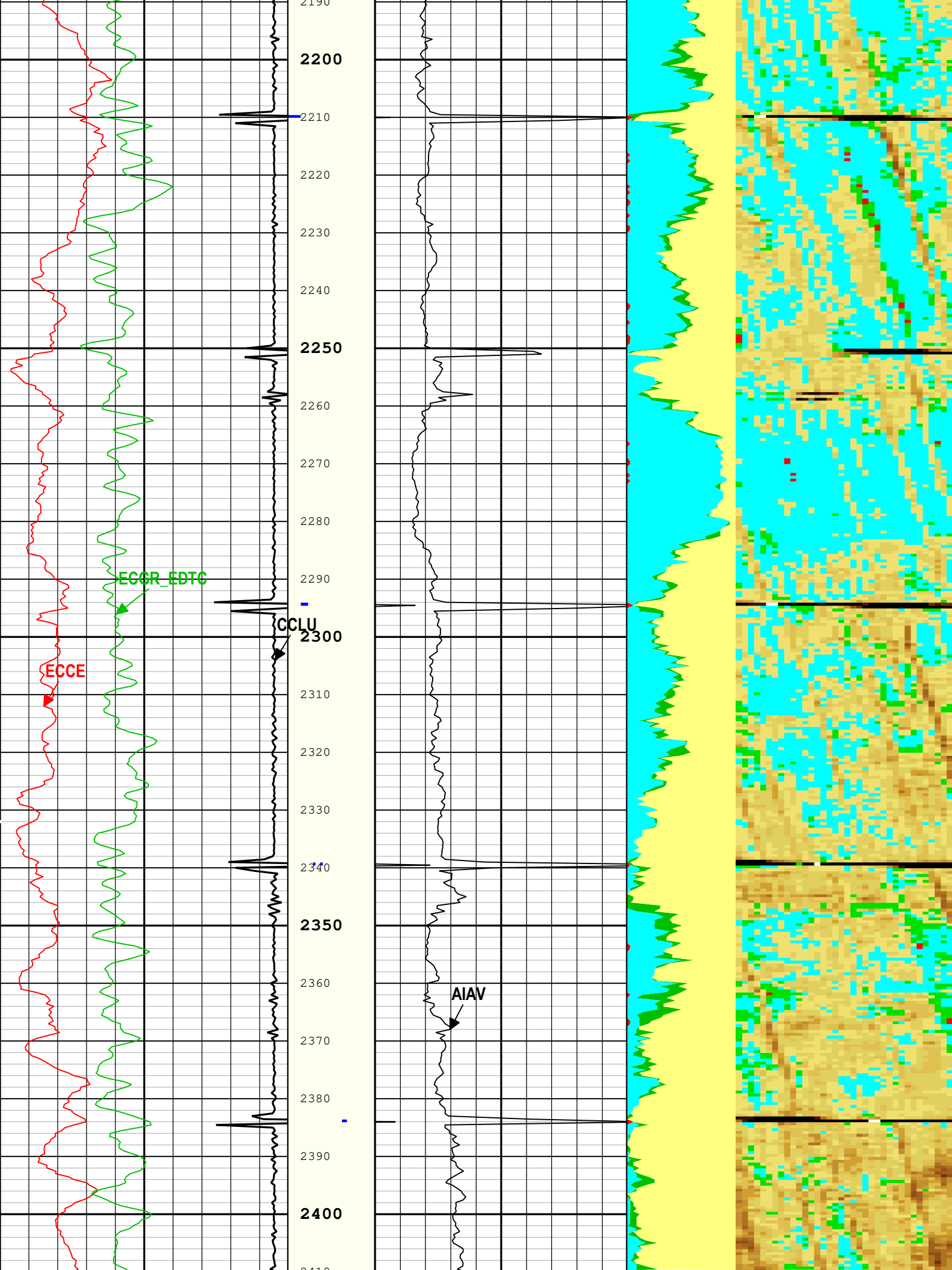
Software Version	
Acquisition System	Version
Maxwell 2019	9.0.106845.3100

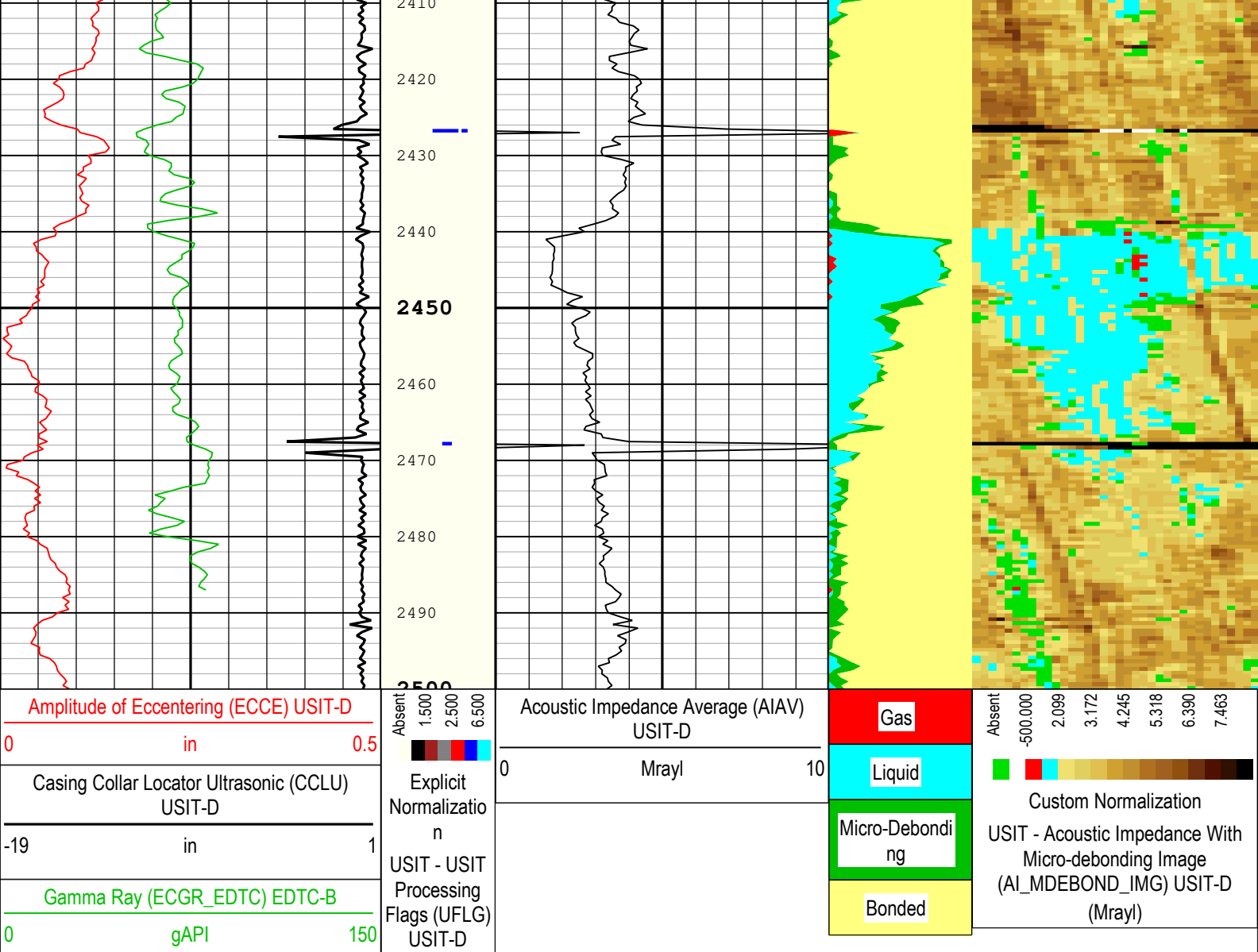
Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
ONE	Log[2]:Up	Up	1984.74 ft	2512.78 ft	31-Jan-2019 3:29:38 PM	31-Jan-2019 3:32:47 PM	ON	-0.40 ft	Yes
All depths are referenced to toolstring zero									

Log	Company:NOBLE ENERGY INC				Well:Guttersen D29-738	
	ONE: Log[2]:Up:S007					
	Description: Format: Log (DJ Basin Ultrasonic Cement Summary Report) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth					
	Creation Date: 01-Feb-2019 00:01:33					
TIME_1900 - Time Marked every 60.00 (s)						

Amplitude of Eccentering (ECCE) USIT-D	Percent	1.500	2.500	5.500
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TIME_1900 - Time Marked every 60.00 (s)

Description: Format: Log (DJ Basin Ultrasonic Cement Summary Report) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth
Creation Date: 01-Feb-2019 00:01:33

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	8.5	in
CBLO	Casing Bottom (Logger)	WLSESSION	17745.9	ft
CDEN	Cement Density	EDTC-B	16.69	lbm/gal
CMTY(U-USIT_CEMT)	Cement Type	USIT-D	Regular Cement	
DFD	Drilling Fluid Density	Borehole	8.4	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	192	us/ft
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GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	BS(RT)	
HEMA	Hematite Presence Flag	Borehole	No	
ICE_PROCESS	ICE Processing	USIT-D	Yes	
IMAR	Image Rotation	USIT-D	Off	
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-D	22.44	us

MUD_N_FRP	Free Pipe Mud Normalization Factor	USIT-D	1.09	
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-D	0	Mrayl
USI_FVEL_SEL	USI Fluid Velocity Selection	USIT-D	Automatic	
USI_ZMUD_SEL	USI Mud Impedance Selection	USIT-D	FreePipe Norm.	
ZMUD	Acoustic Impedance of Mud	Borehole	1.6	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-D	2.1	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-D	0.3	Mrayl

Tool Control Parameters

ONE: Parameters

Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-D	-4	dB
AGMX	Maximum Gain of Cartridge	USIT-D	20	dB
EMXV	EMEX Voltage	USIT-D	70	V
HRES	Horizontal Resolution	USIT-D	10 deg	
ULOG	Logging Objective	USIT-D	MEASUREMENT	
USFR	Ultrasonic Sampling Frequency	USIT-D	500000	Hz
UPAT	USIT Emission Pattern	USIT-D	Pattern 375 KHz	
UWKM	USIT Working Mode	USIT-D	Uncompressed 10 deg at 6.0 in LF	
WINB	Window Begin Time	USIT-D	Time Zoned	us
WINE	Window End Time	USIT-D	Time Zoned	us

Time Zone Parameters

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
WINB	28.35	31-Jan-2019 15:29:38	31-Jan-2019 15:31:03	2512.78	2321.56
WINB	32.08	31-Jan-2019 15:31:03	31-Jan-2019 15:31:15	2321.56	2279.41
WINB	31.31	31-Jan-2019 15:31:15	31-Jan-2019 15:32:47	2279.41	1984.74
WINE	68.35	31-Jan-2019 15:29:38	31-Jan-2019 15:30:59	2512.78	2334.69
WINE	71.36	31-Jan-2019 15:30:59	31-Jan-2019 15:32:47	2334.69	1984.74

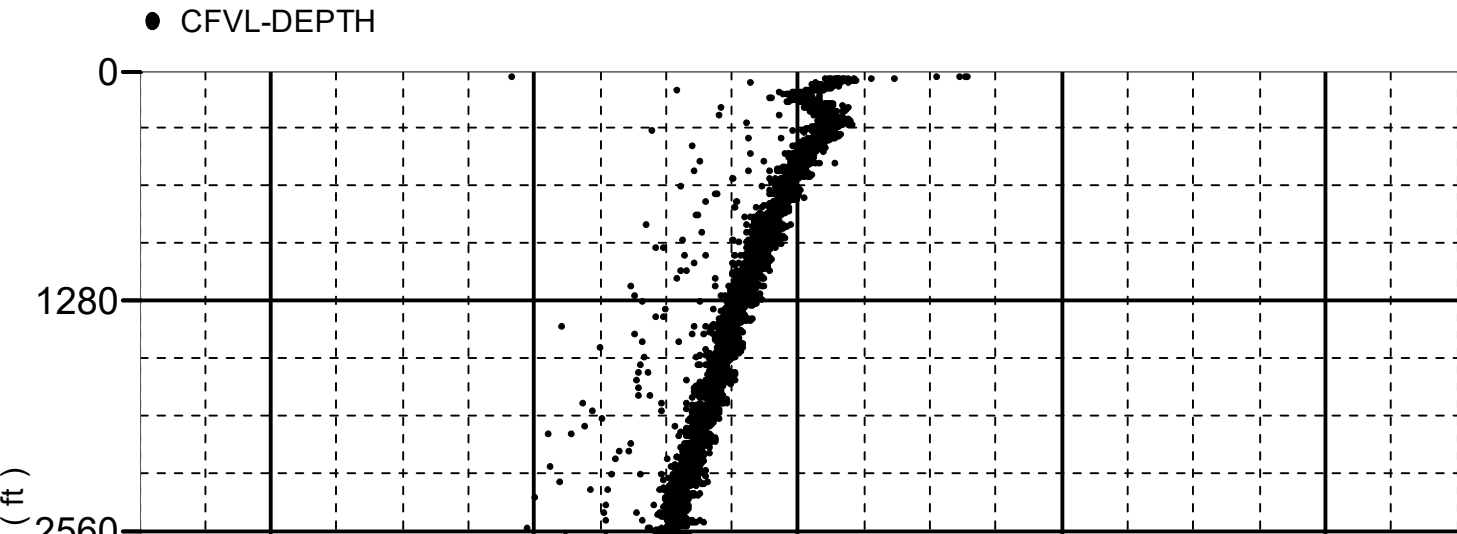
All depth are at tool zero.

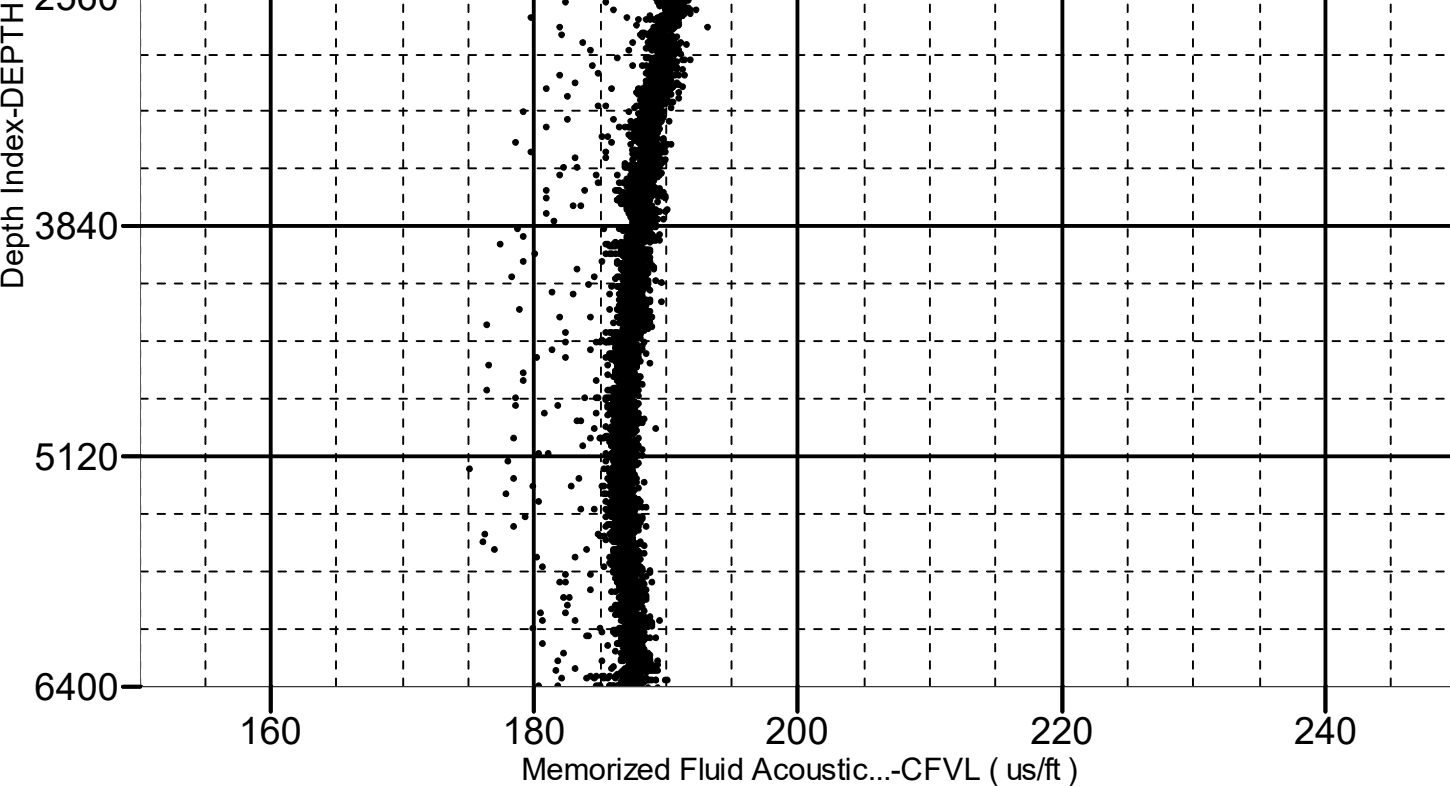
XYZ	Company:NOBLE ENERGY INC Well:Guttersen D29-738 ONE: Log[5]:Up:S007
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Fluid Acoustic Slowness vs Depth

2D Cross Plot

Index Range: From 6752.00 to 31.00 ft





XYZ

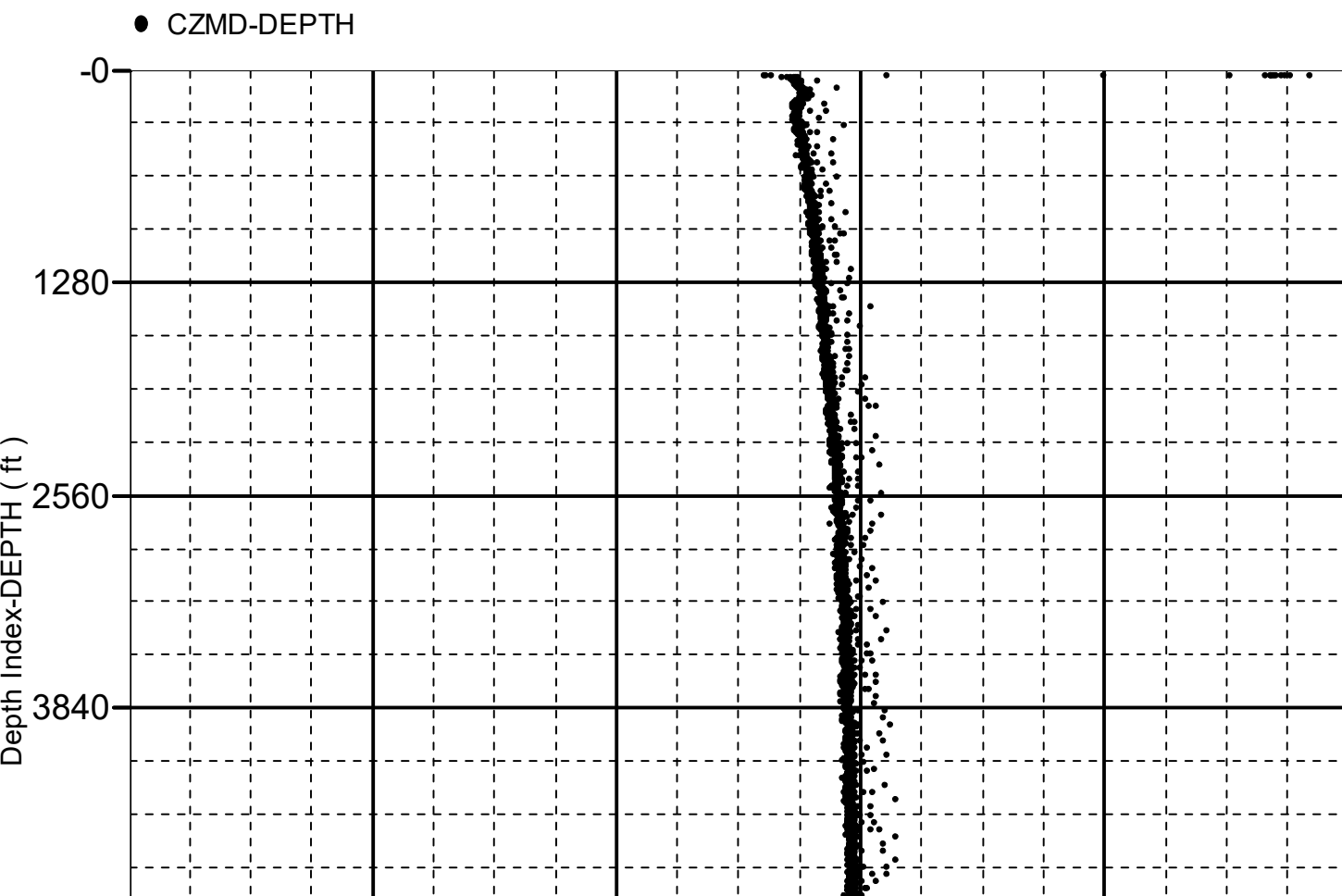
Company:NOBLE ENERGY INC Well:Guttersen D29-738

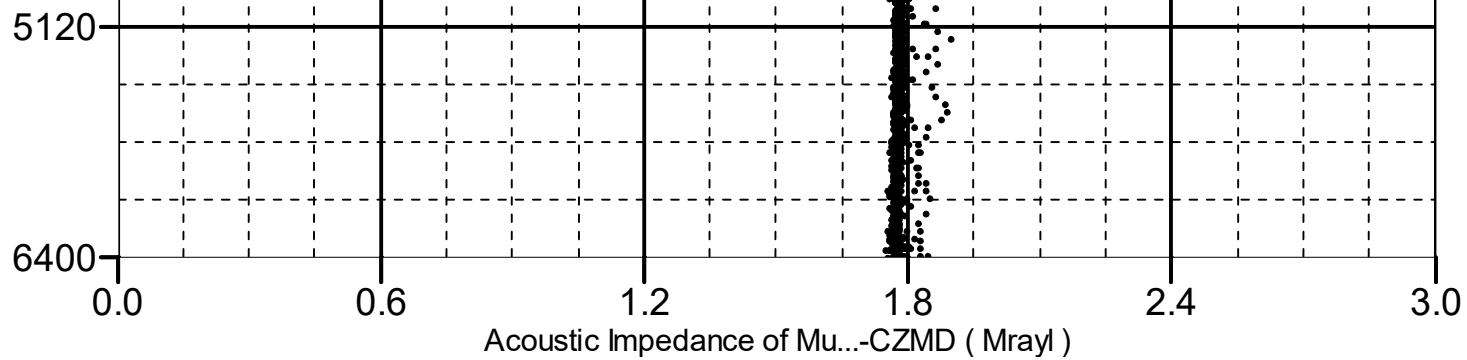
ONE: Log[5]:Up:S007

Acoustic Impedance of Mud vs Depth

2D Cross Plot

Index Range: From 6752.00 to 31.00 ft





County:	WELD
State:	COLORADO
ULTRASONIC SUMMARY PRINT	