

Company: Noble Energy Inc

Well: Earp Federal LC23-735

Field: Wildcat

County: WELD Country: US

UltraSonic Summary Print

County:	WELD				
Field:	Wildcat				
Location:	SHL: SWSE Sec 11, T9N, R59W				
Well:	Earp Federal LC23-735				
Company:	Noble Energy Inc				
Location:		SHL: SWSE Sec 11, T9N, R59W	Elev.:	K.B.	5004.00 ft
		810' FSL & 1210' FEL		G.L.	4974.00 ft
		Lat: 40.75922 / Long: -103.94413		D.F.	5004.00 ft
Permanent Datum:		Ground Level	Elev.:	4974.00 f	
Log Measured From:		Kelly Bushing	30.00 ft	above Perm.Datum	
Drilling Measured From:		Kelly Bushing			
API Serial No.		Max.Hole Deviation	Longitude:	Latitude:	
05-123-42941			-103.94413 degrees	40.759220 degrees	

Logging Date	30-Jan-2017			
Run Number	One			
Depth Driller	16571.00 ft			
Schlumberger Depth	16571.00 ft			
Bottom Log Interval	6200.00 ft			
Top Log Interval	50.00 ft			
Casing Driller Size @ Depth	5.5 in @ 16555.80 ft			
Casing Schlumberger	16555.8 ft			
Bit Size	8.5 in			
Type Fluid In Hole	Water			
Density	8.9 lbm/gal	26 s		
Fluid Loss	PH			
MUD	Source of Sample	Active Tank		
RM @ Meas Temp	0.2 ohm.m @ 68 degF			
RMF @ Meas Temp	0.15 ohm.m @ 68 degF			
RMC @ Meas Temp				
Source RMF	RMC	Pressed		
RM @ BHT	RMF @ BHT	0.07 @ 212 0.05 @ 212		
Max Recorded Temperatures				
Circulation Stopped	Time			
Logger on Bottom	Time			
Unit Number	Location:	30-Jan-2017 11:53:00		
Recorded By		Benjamin Mammonm		
Witnessed By		Bill Mansfield		

Disclaimer

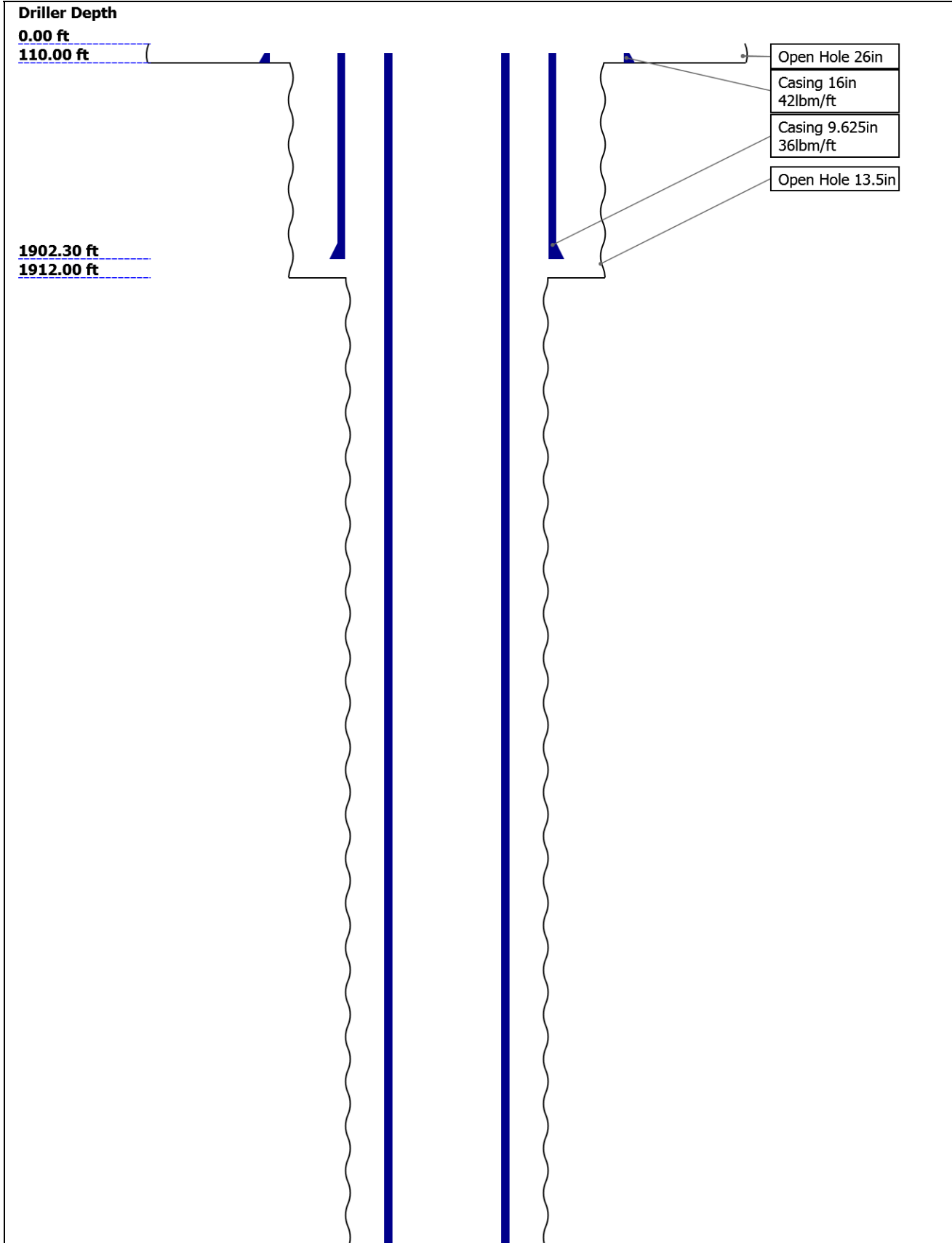
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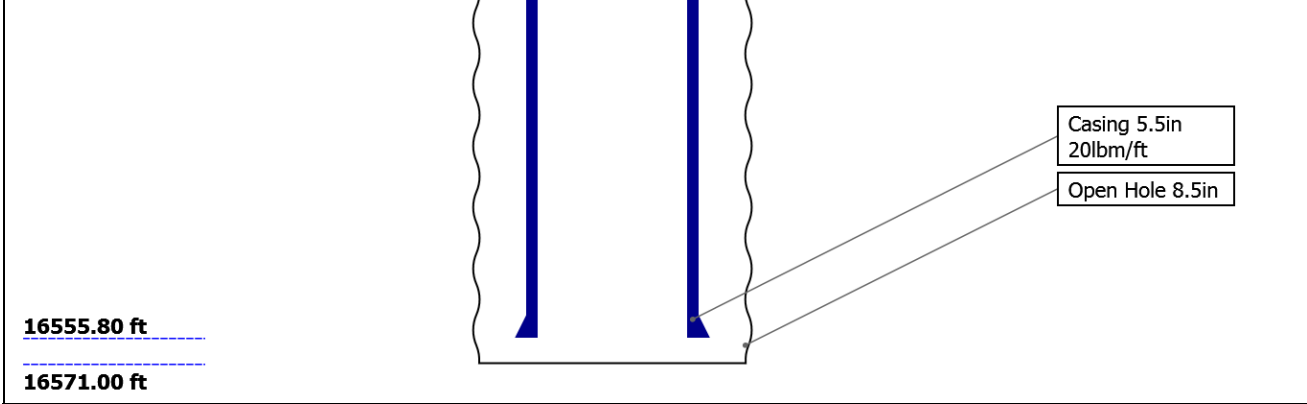
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Well Sketch





Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	26	13.5	8.5			
Top Driller (ft)	0	110	1912			
Top Logger (ft)	0	110	1912			
Bottom Driller (ft)	110	1912	16571			
Bottom Logger (ft)	110	1912	16571			
Casing						
Size (in)	16	9.625	5.5			
Weight (lbm/ft)	42	36	20			
Inner Diameter (in)	15.512	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	1902.3	16555.8			
Bottom Logger (ft)	110	1902.3	16555.8			

Operational Run Summary

Parameter (unit)	One					
Date Log Started	30-Jan-2017					
Time Log Started	11:24:18					
Date Log Finished	30-Jan-2017					
Time Log Finished	12:38:29					
Top Log Interval (ft)						
Bottom Log Interval (ft)						
Total Depth (ft)						
Max Hole Deviation (deg)						
Azimuth of Max Deviation (deg)						
Bit Size (in)	8.500					
Logging Unit Number	9115					
Logging Unit Location	Fort Morgan, CO					
Recorded By	Benjamin Marmonm					

Witnessed By	Bill Mansfield					
Service Order Number	D5ND-00152					

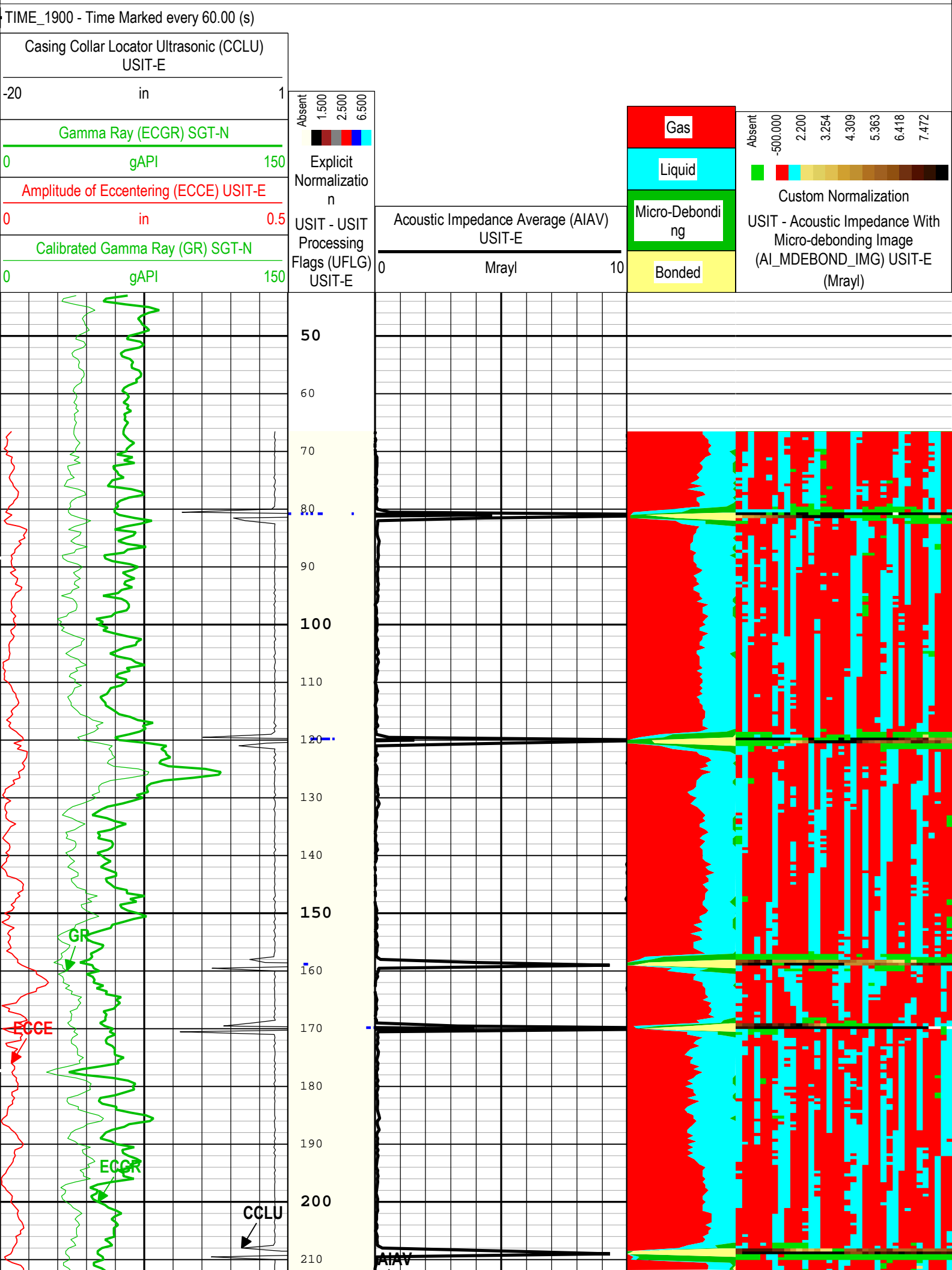
Remarks and Equipment Summary

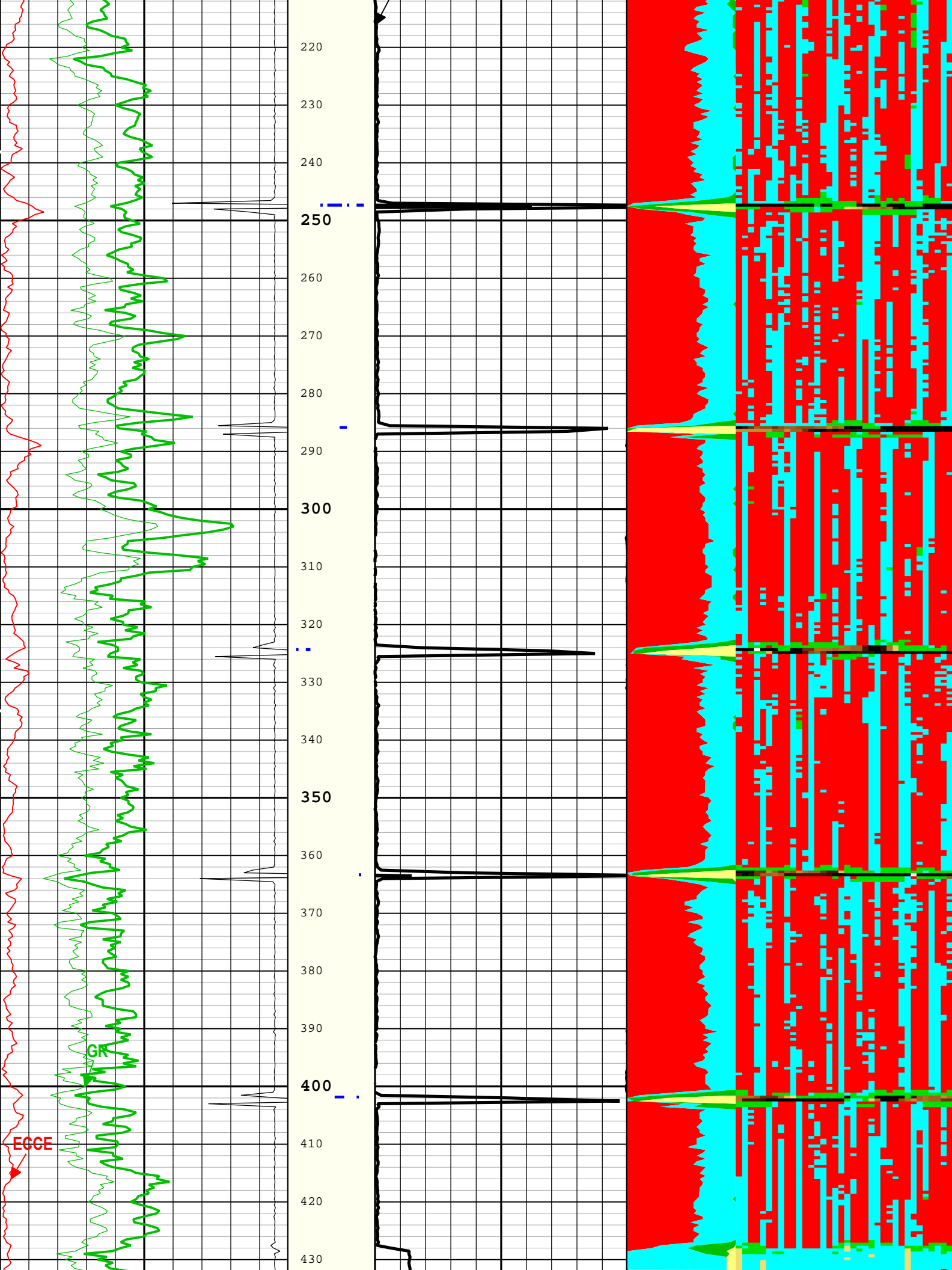
One: Toolstring			One: Remarks
<div><div><div>Equip name</div><div>Length</div><div>LEH-QT</div><div>30.97</div><div>LEH-QT</div></div><div><div><div>DTC-H:89</div><div>80</div><div>ECH-KC:1</div><div>0053</div><div>DTC-H:898</div><div>0</div><div>SGT-N:10</div><div>386</div><div>SGH-K:316</div><div>4</div><div>SGC-TB:10</div><div>386</div><div>SGD-TAA:</div><div>21892</div></div><div><div>AH-184[</div><div>2]</div><div>AH-184[</div><div>1]</div><div>USIT-E:92</div><div>1</div><div>ECH-MFA:</div><div>1908</div><div>USAC-A:9</div><div>21</div><div>USIS-A:27</div><div>75</div><div>USSC-B:98</div><div>5</div><div>USRS-A:93</div><div>2</div><div>USI-SENS</div><div>OR:929</div></div></div><div><div><div>MP name</div><div>Offset</div><div>CTEM</div><div>27.16</div><div>HV</div><div>0.00</div><div>TelStatu</div><div>25.06</div><div>s</div><div>ToolSta</div><div>25.06</div><div>tus</div><div>GR</div><div>24.14</div><div>3855</div><div>955</div><div>USI Sen</div><div>0.37</div><div>sor</div><div>Head Fe</div><div>nsion</div></div><div><div>TOOL_ZERO</div></div></div></div> <div><div>Lengths are in ft</div><div>Maximum Outer Diameter = 3.560 in</div><div>Line: Sensor Location, Value: Gating Offset</div><div>All measurements are relative to TOOL_ZERO</div></div>	<div>This is the first log in the well.</div> <div>Tool string ran as per tool sketch.</div> <div>Main pass recorded at 2500 PSI.</div> <div>Repeat pass recorded with 0 PSI.</div> <div>Expected TOC: 1119'</div>		

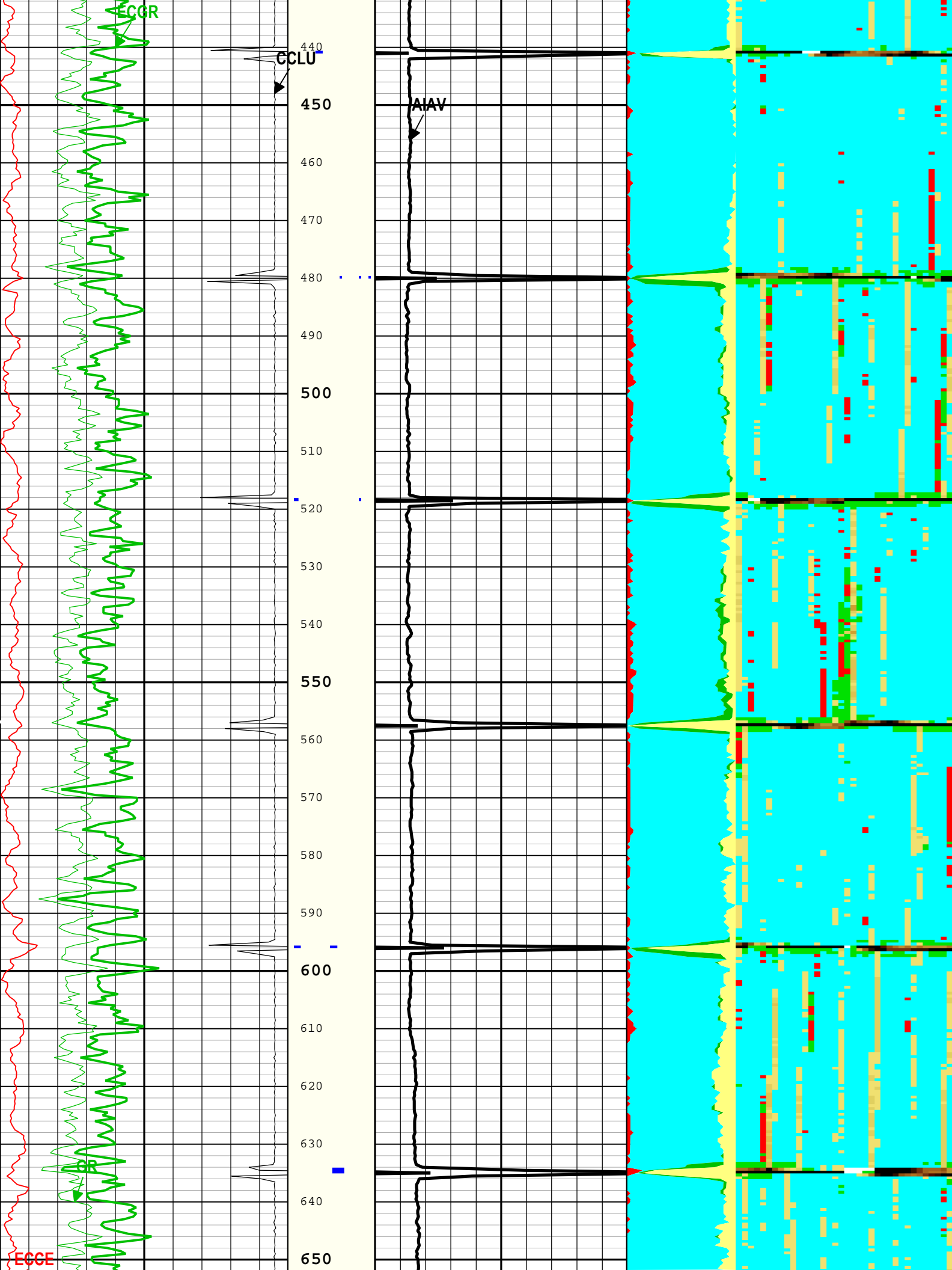
Depth Summary

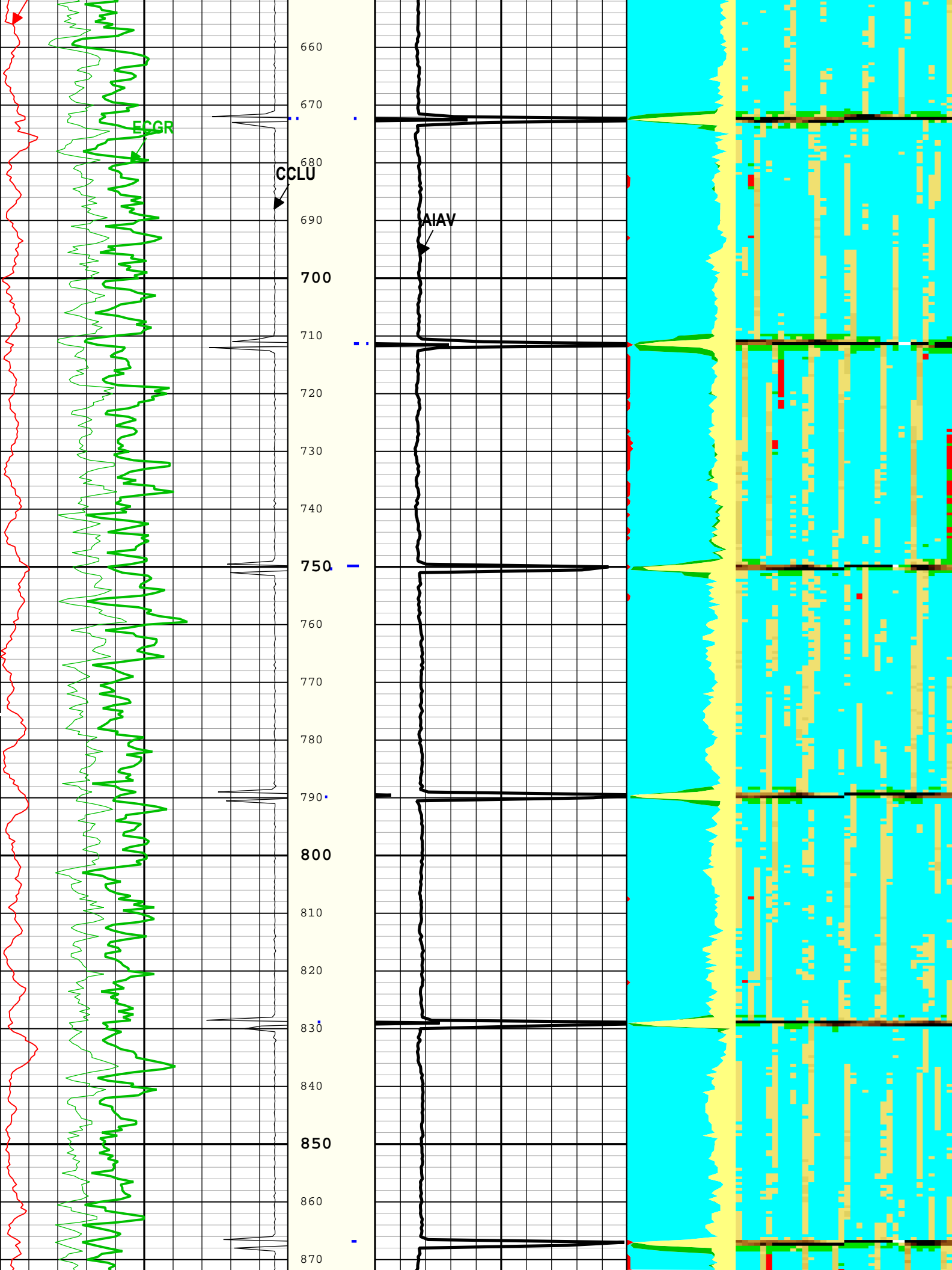
One			
Depth Measuring Device			
Type	IDW-JA		
Serial Number			
Calibration Date	23-Dec-2015		
Calibrator Serial Number			

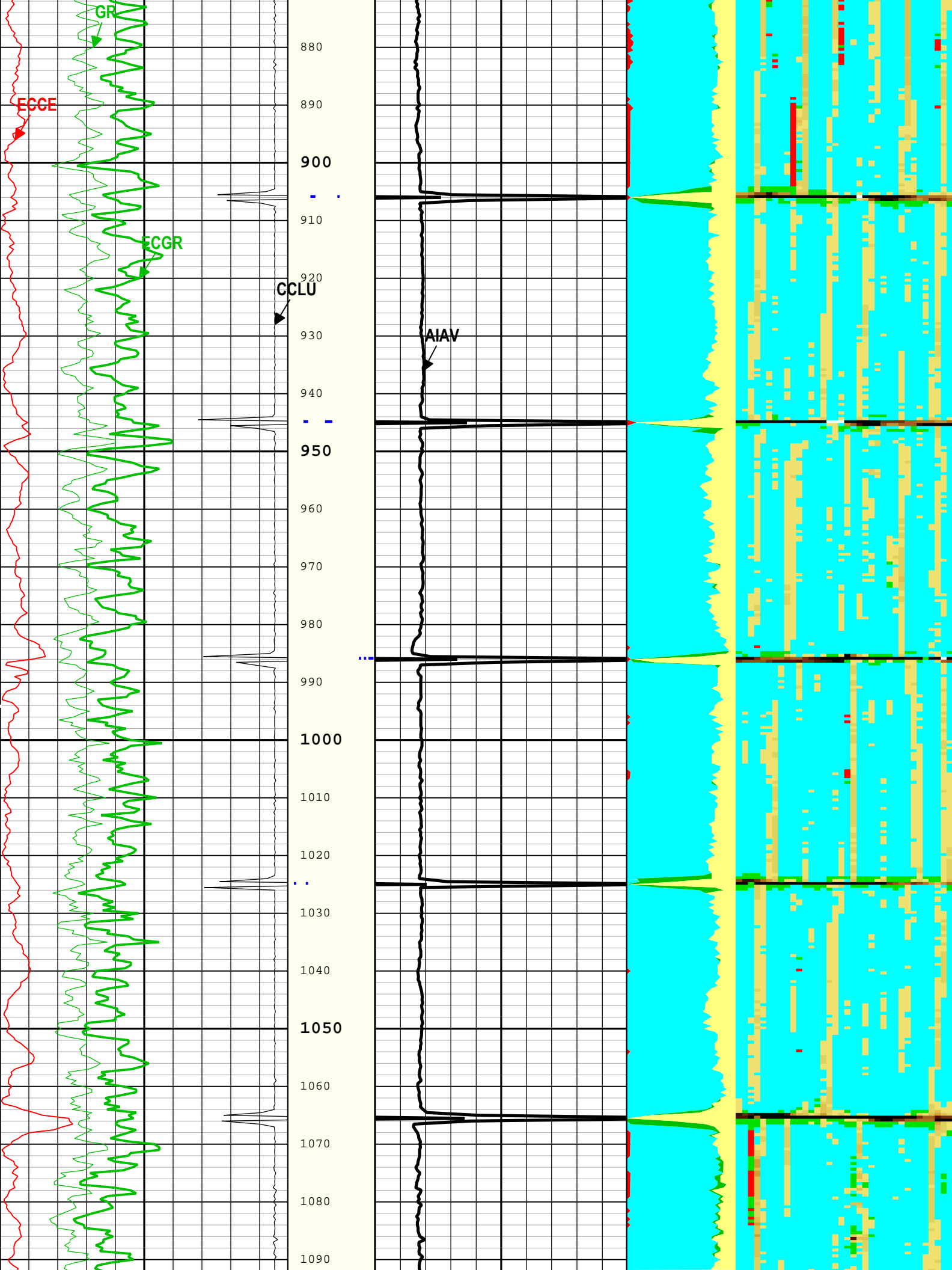
Calibration Cable Type	7-46 AXS								
Wheel Correction 1	-5								
Wheel Correction 2	-3								
Tension Device									
Type	CMTD-B/A								
Serial Number	146								
Calibration Date	02-Jan-2017								
Calibrator Serial Number									
Number of Calibration Points	10								
Calibration Root Mean Square Error	13								
Calibration Peak Error	23								
Logging Cable									
Type	7-46A-XS								
Serial Number									
Length	24000.00 ft								
Conveyance Type	Wireline								
Rig Type	Crane								
One:Depth Control Parameters		Depth Control Remarks							
Log Sequence	First Log In the Well	All Schlumberger depth control procedures used during logging operations.							
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									
Stretch Correction									
Tool Zero Check At Surface									
USIT - Fluid Properties Measurement									
Run Name	Pass Name	Start Depth(ft)	Stop Depth(ft)						
Fluid Velocity									
Start Depth(ft)	Stop Depth(ft)	Start Value(us/ft)	End Value(us/ft)						
Mud Impedance									
Start Depth(ft)	Stop Depth(ft)	Start Value(Mrayl)	End Value(Mrayl)						
One									
2500 PSI Main Pass									
Software Version									
Acquisition System		Version							
Maxwell 2016 SP2		6.2.68624.3100							
Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[4]:Up	Up	66.60 ft	6480.97 ft	30-Jan-2017 11:53:57 AM	30-Jan-2017 12:37:48 PM	ON	7.66 ft	No
All depths are referenced to toolstring zero									
Log	Company:Noble Energy Inc			Well:Earp Federal LC23-735					
One: Log[4]:Up:S004									
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: 30-Jan-2017 13:10:17									

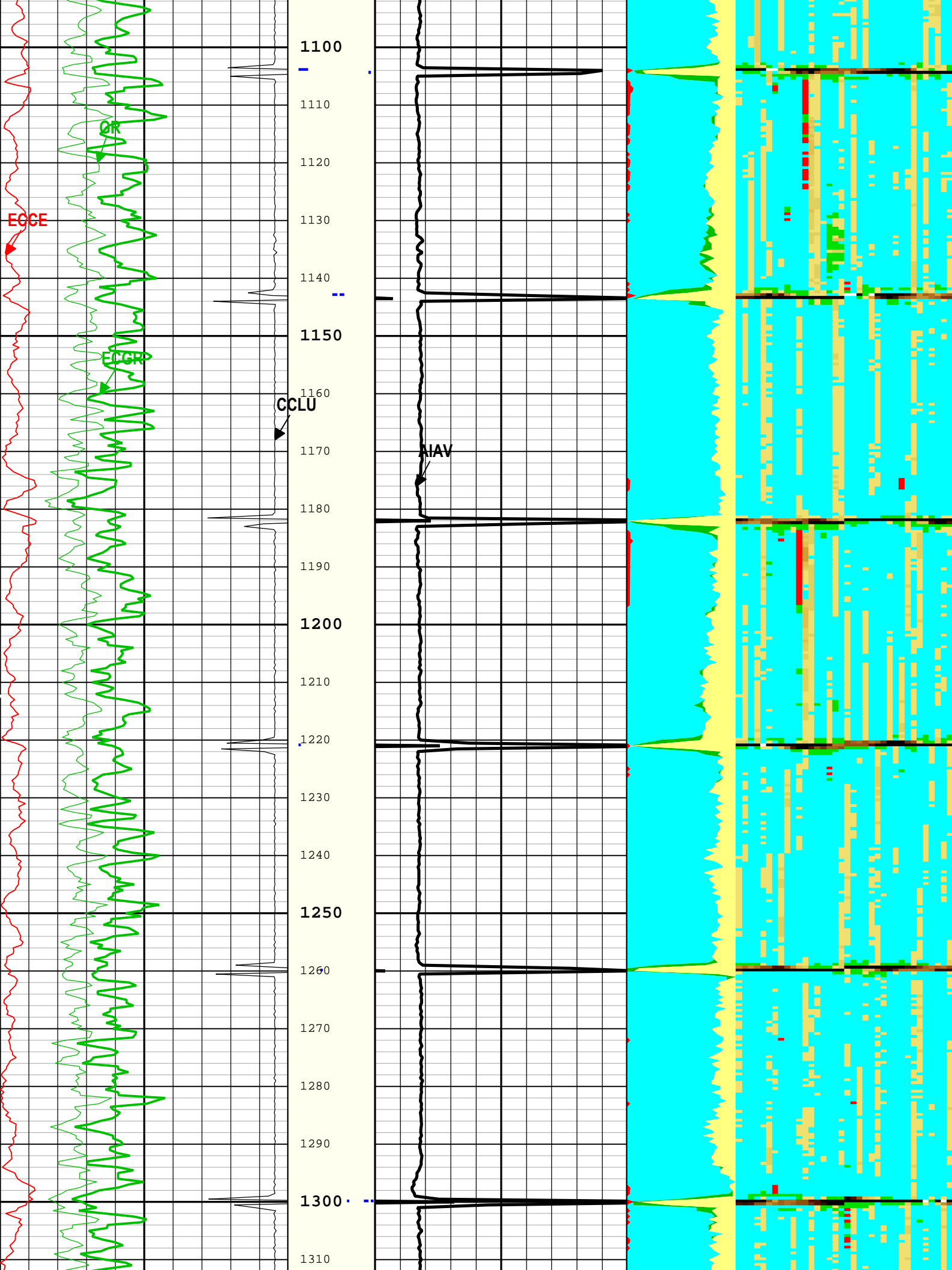


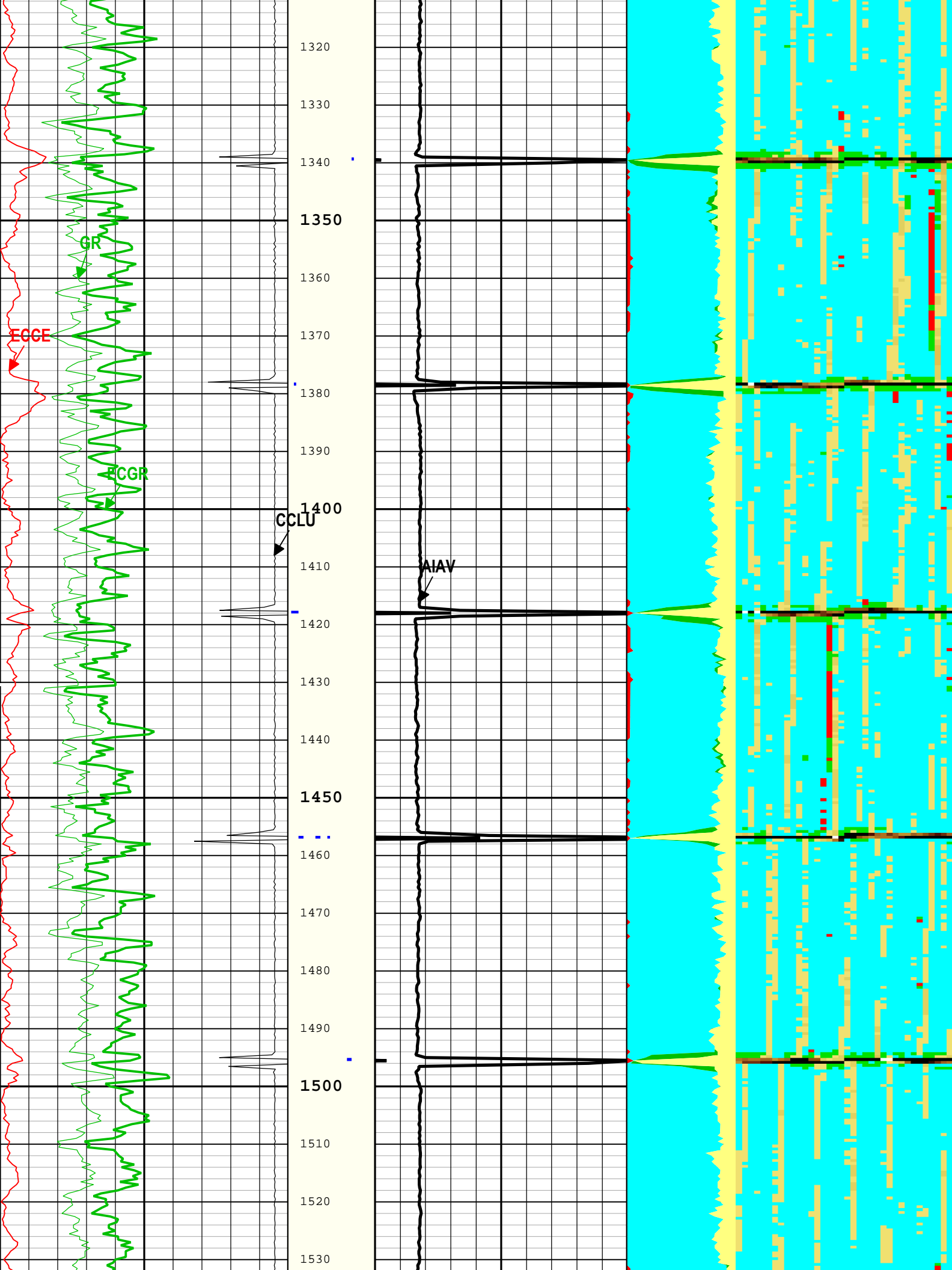


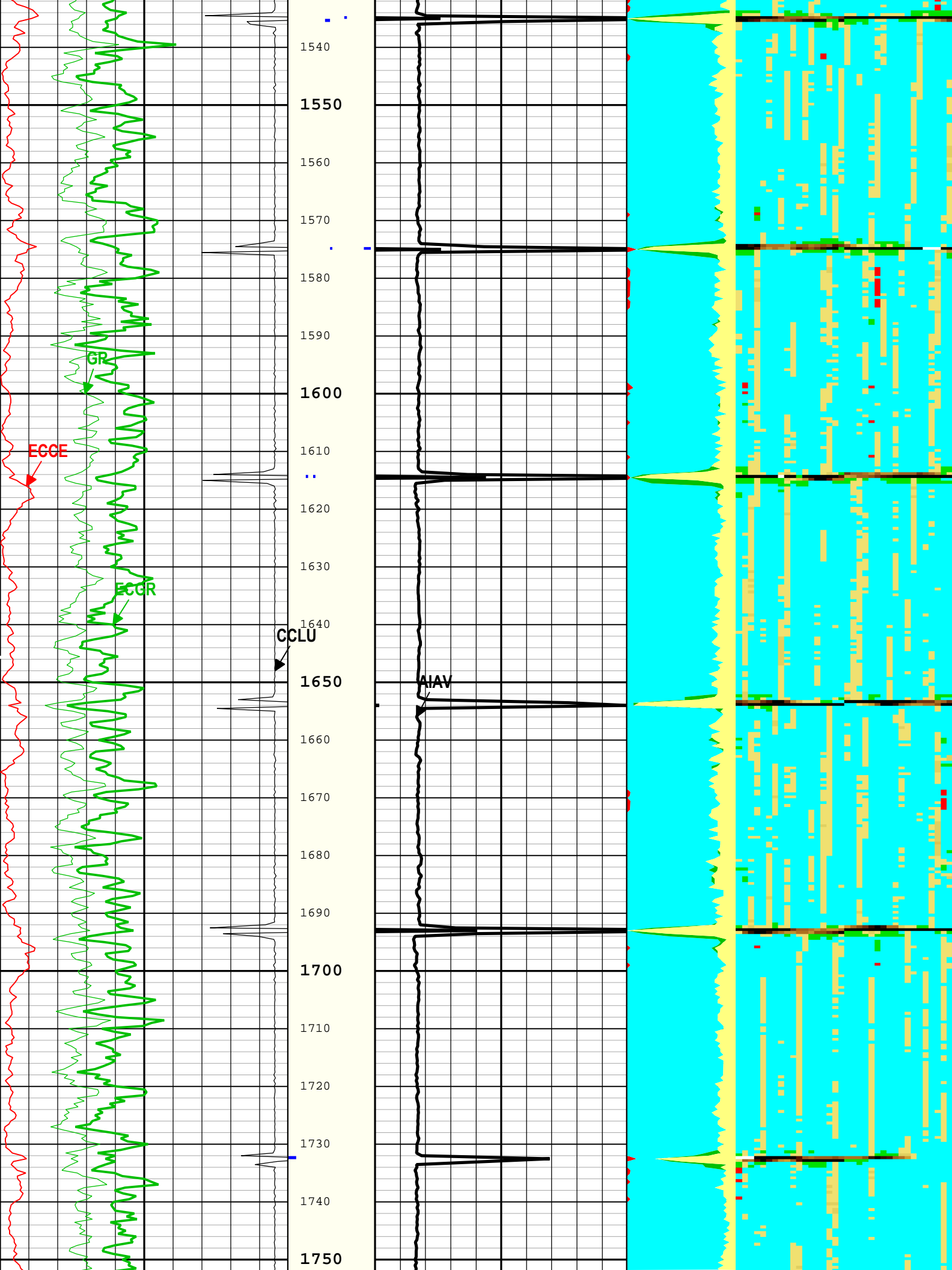


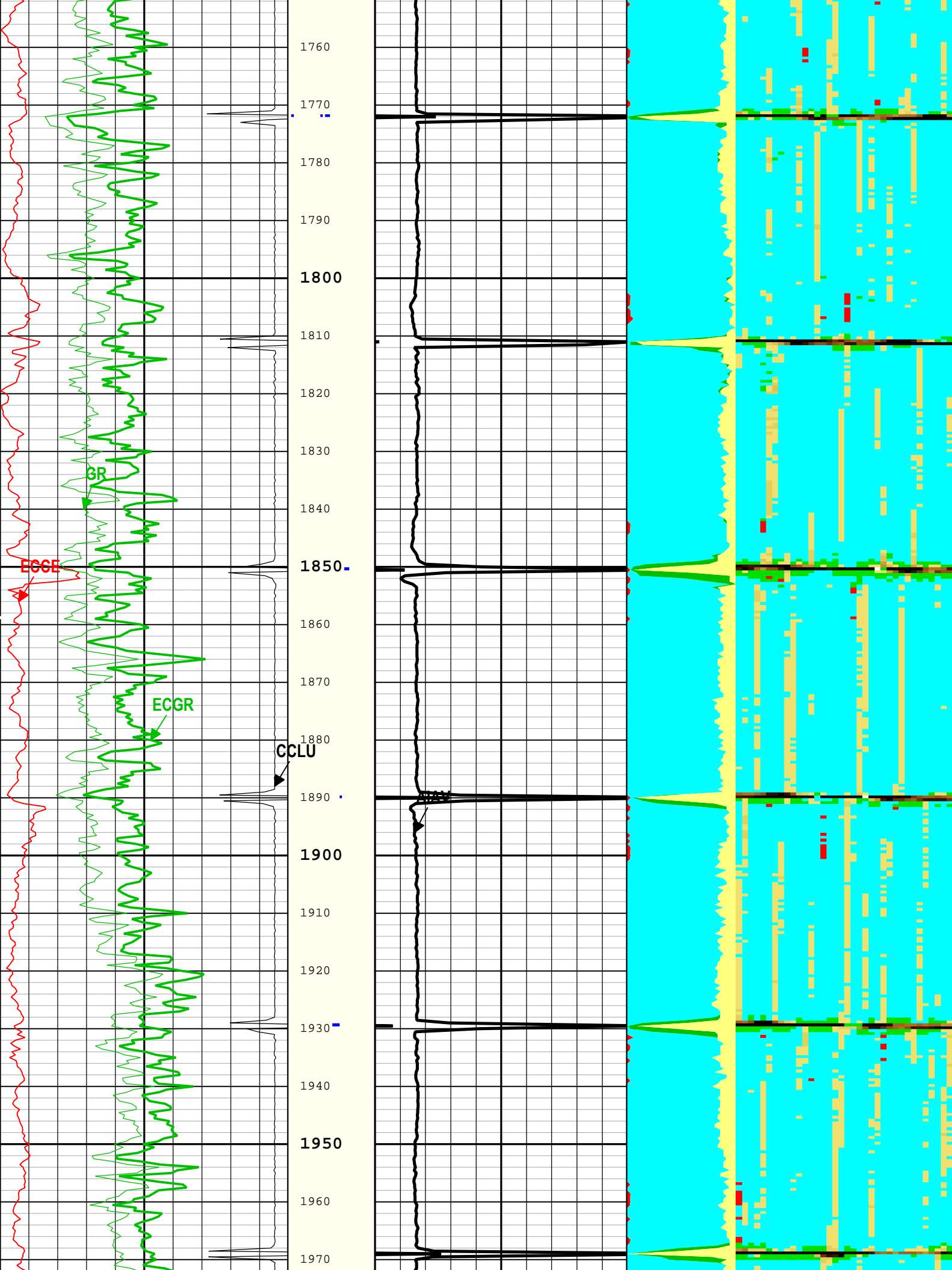


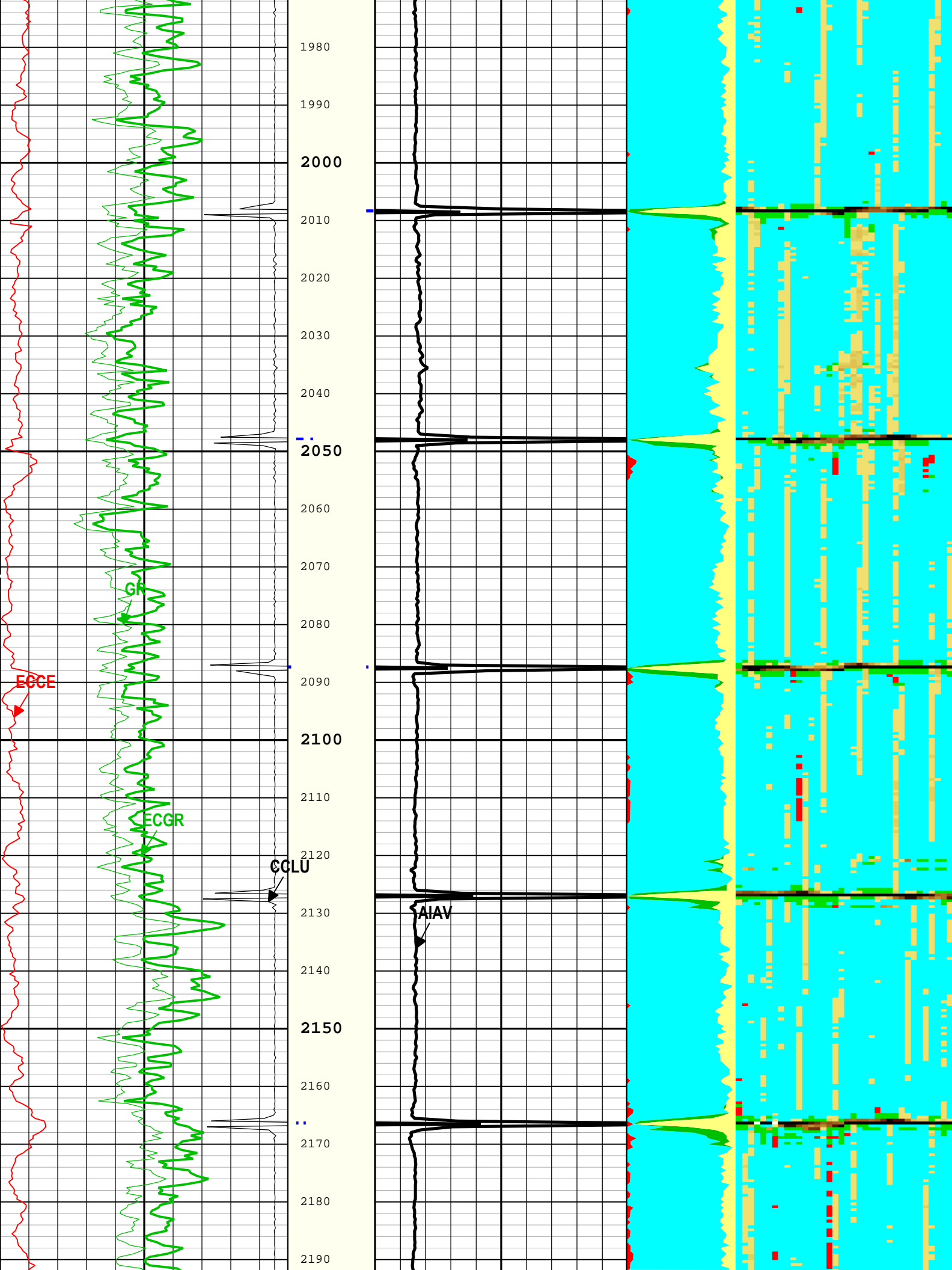


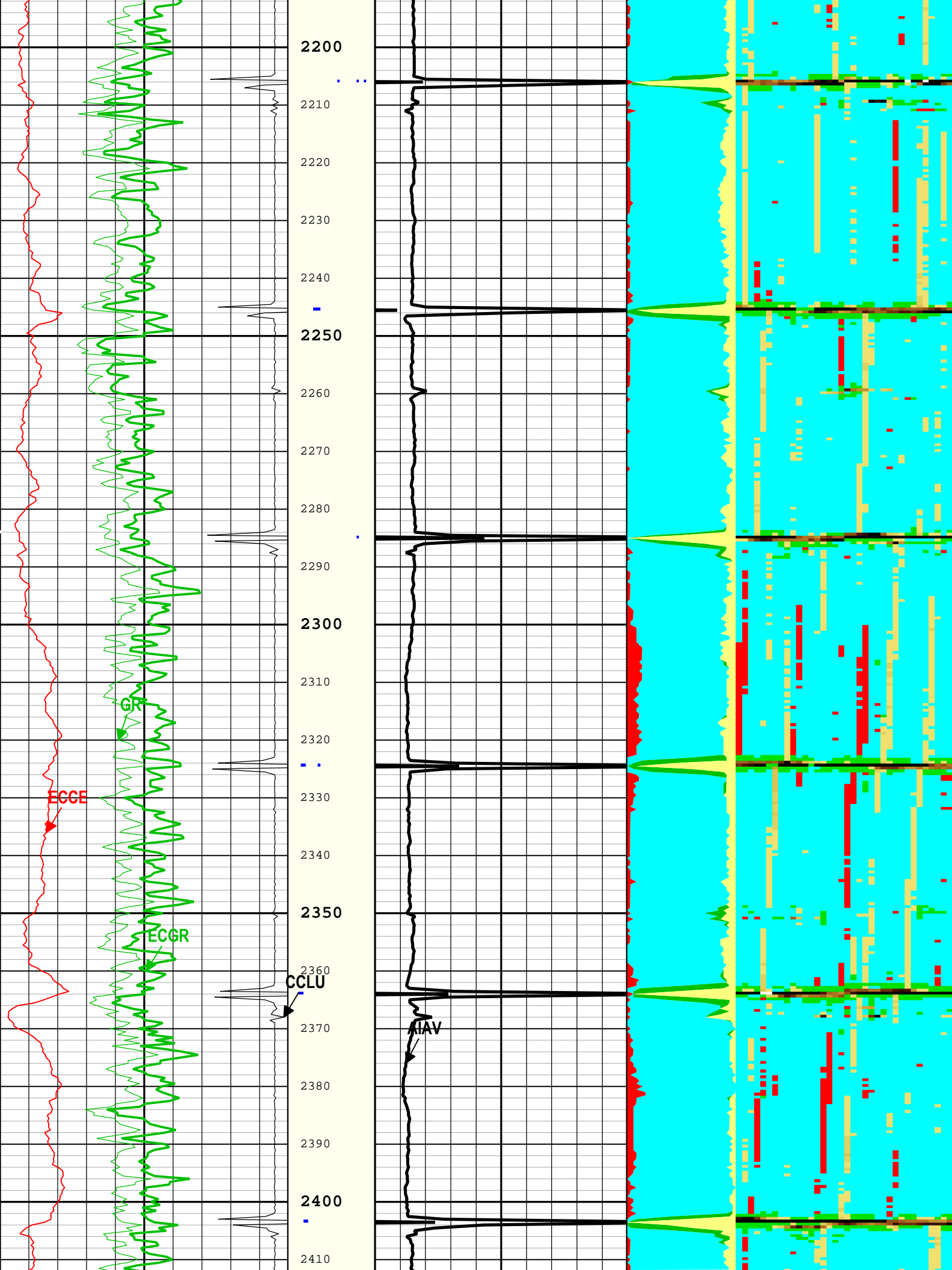


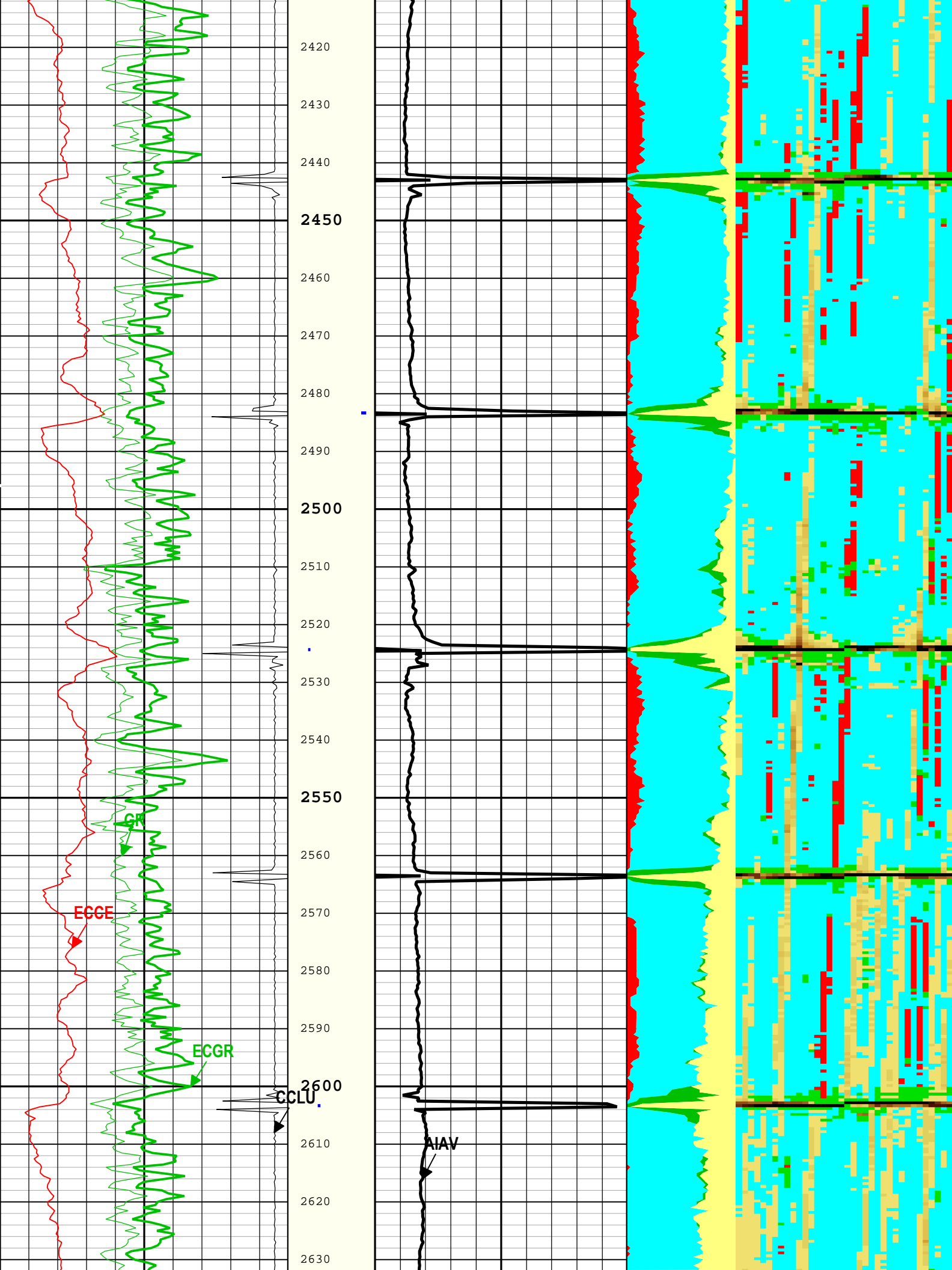


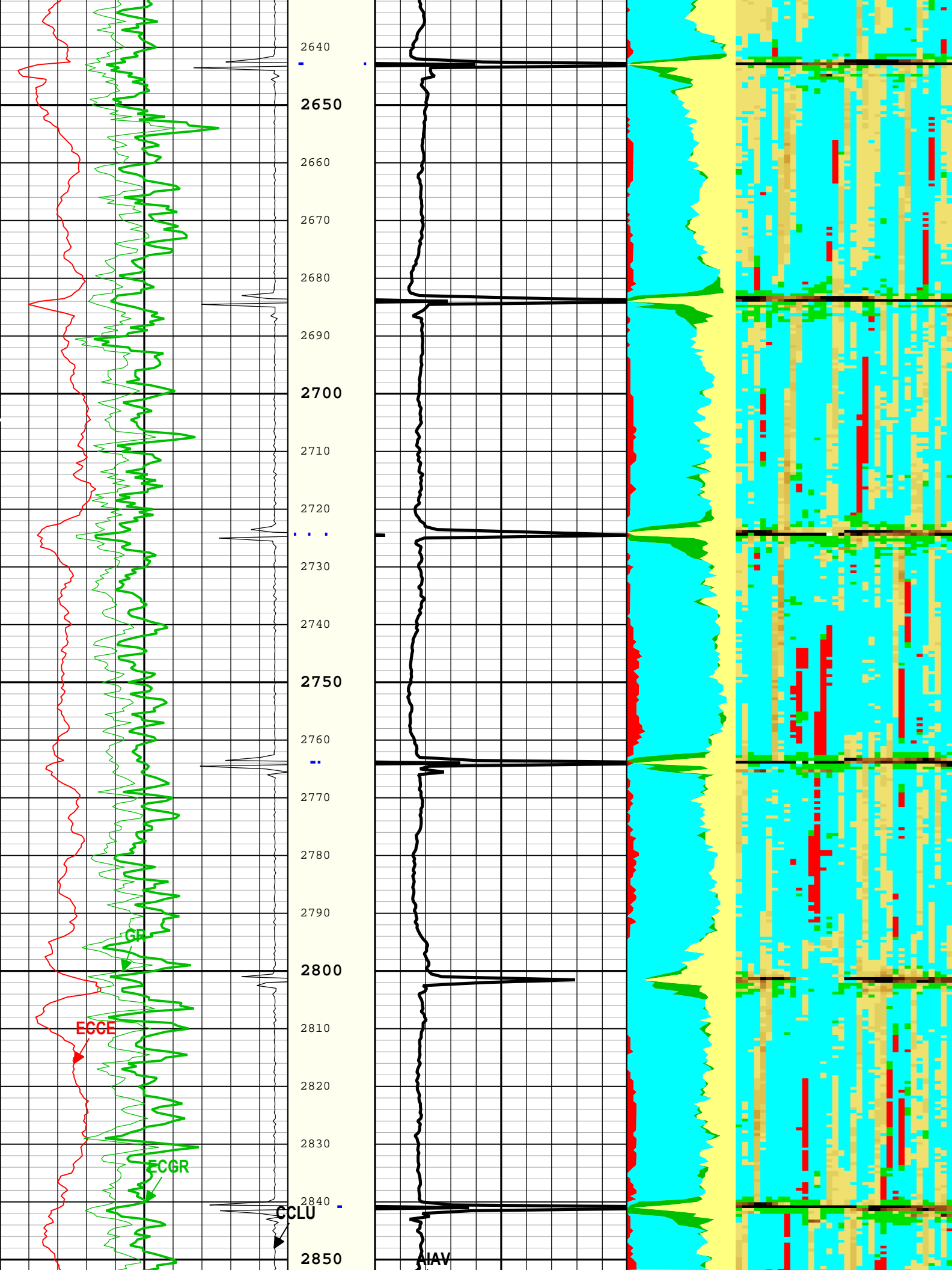


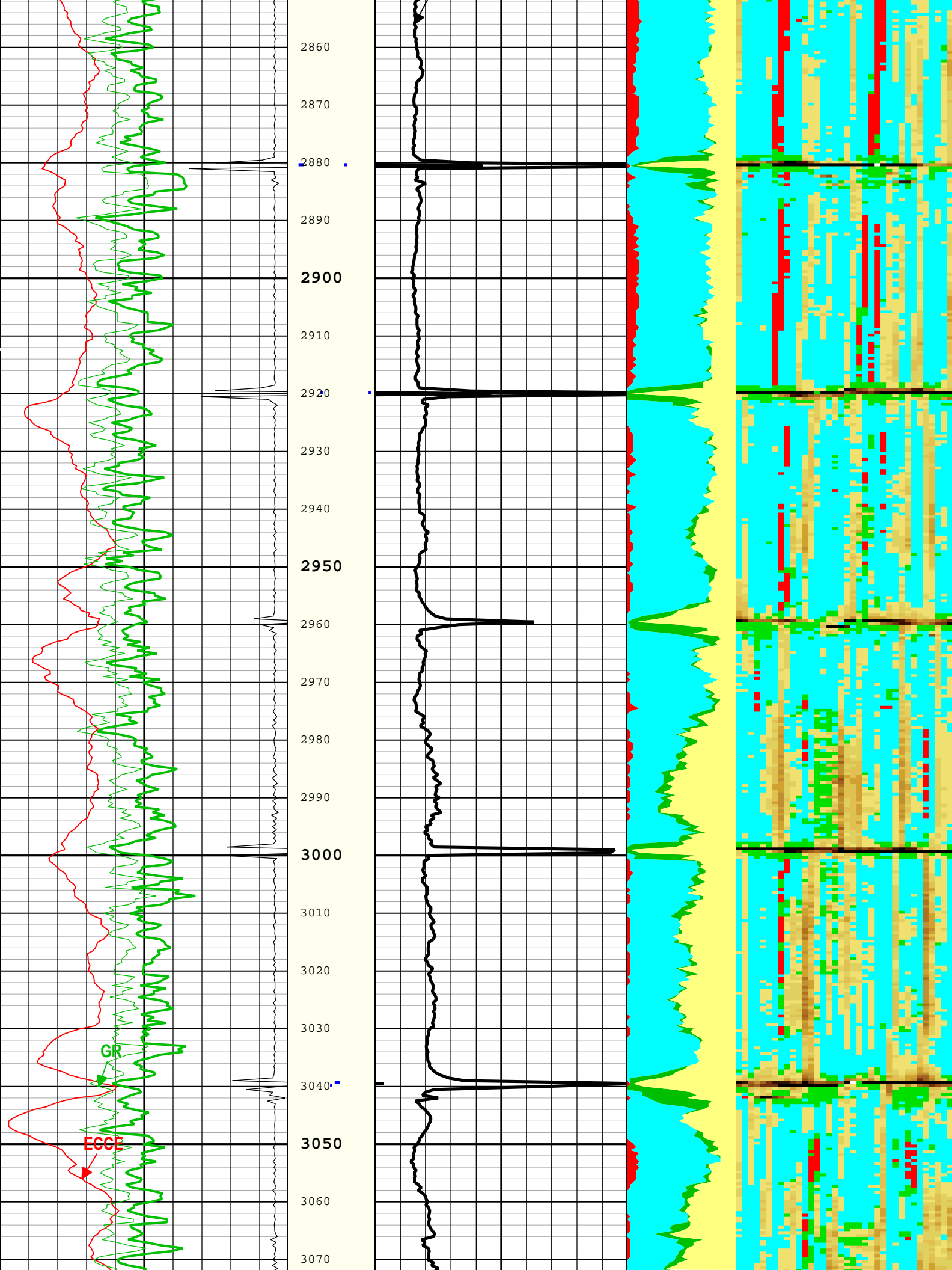


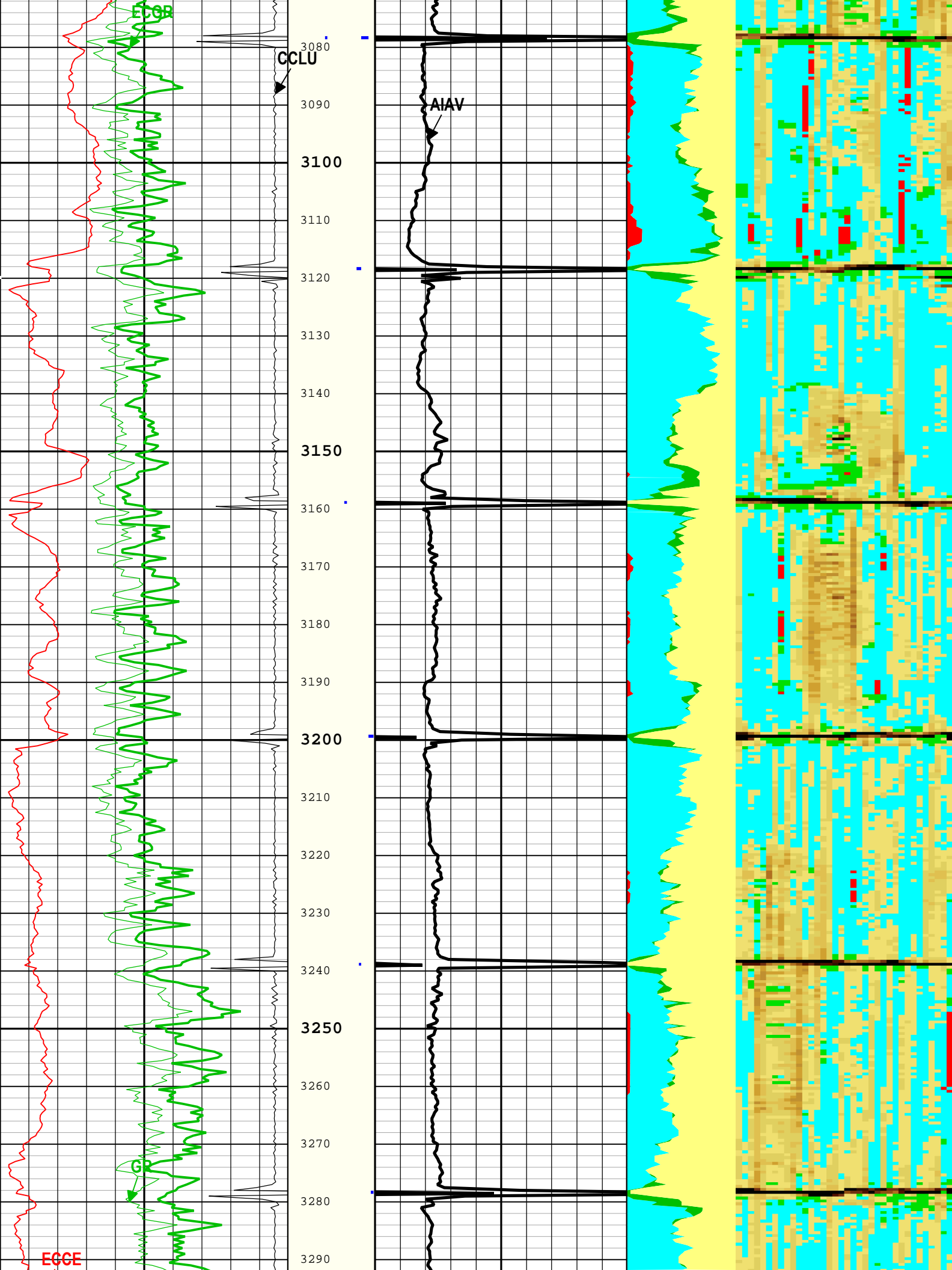


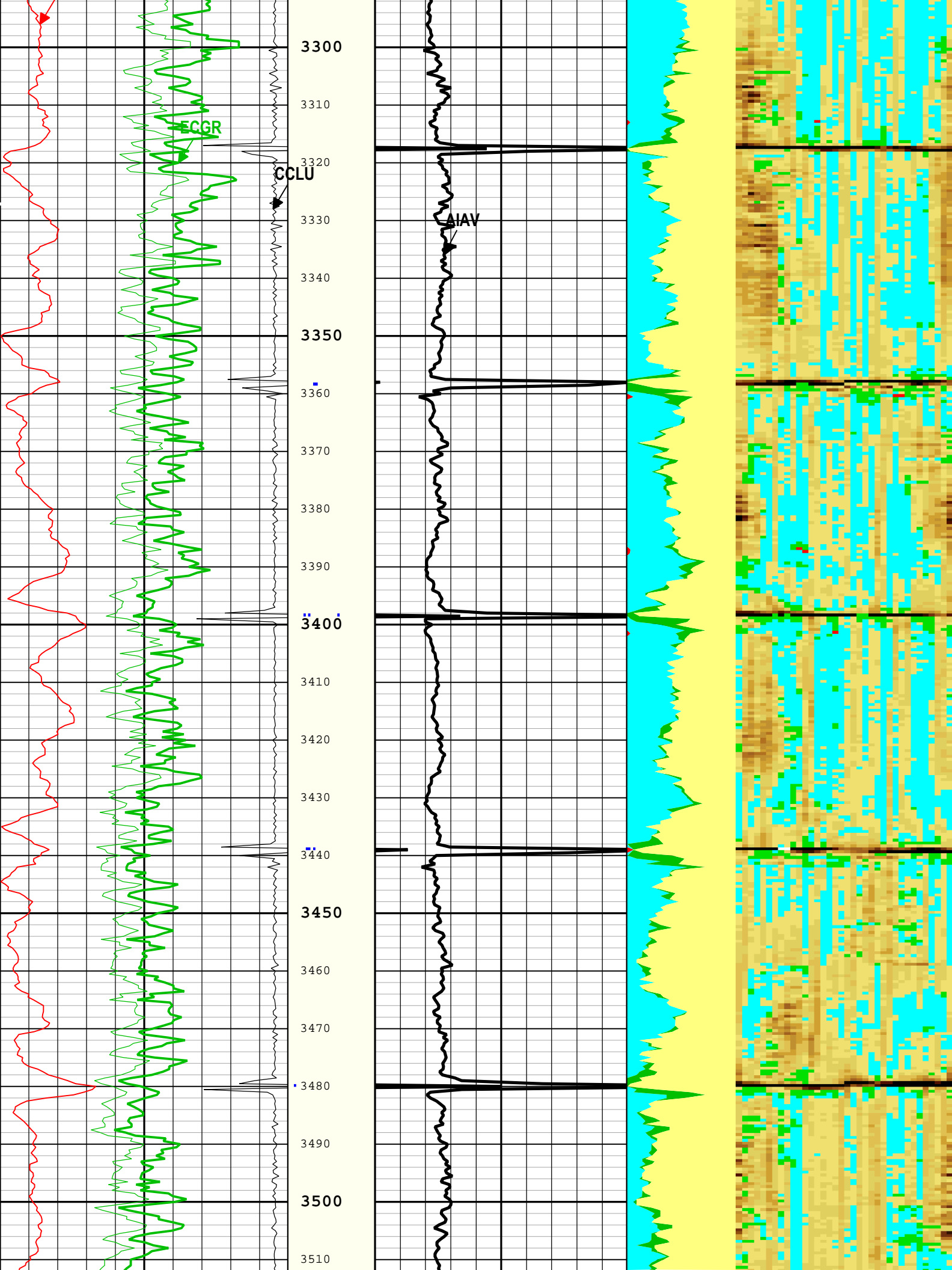


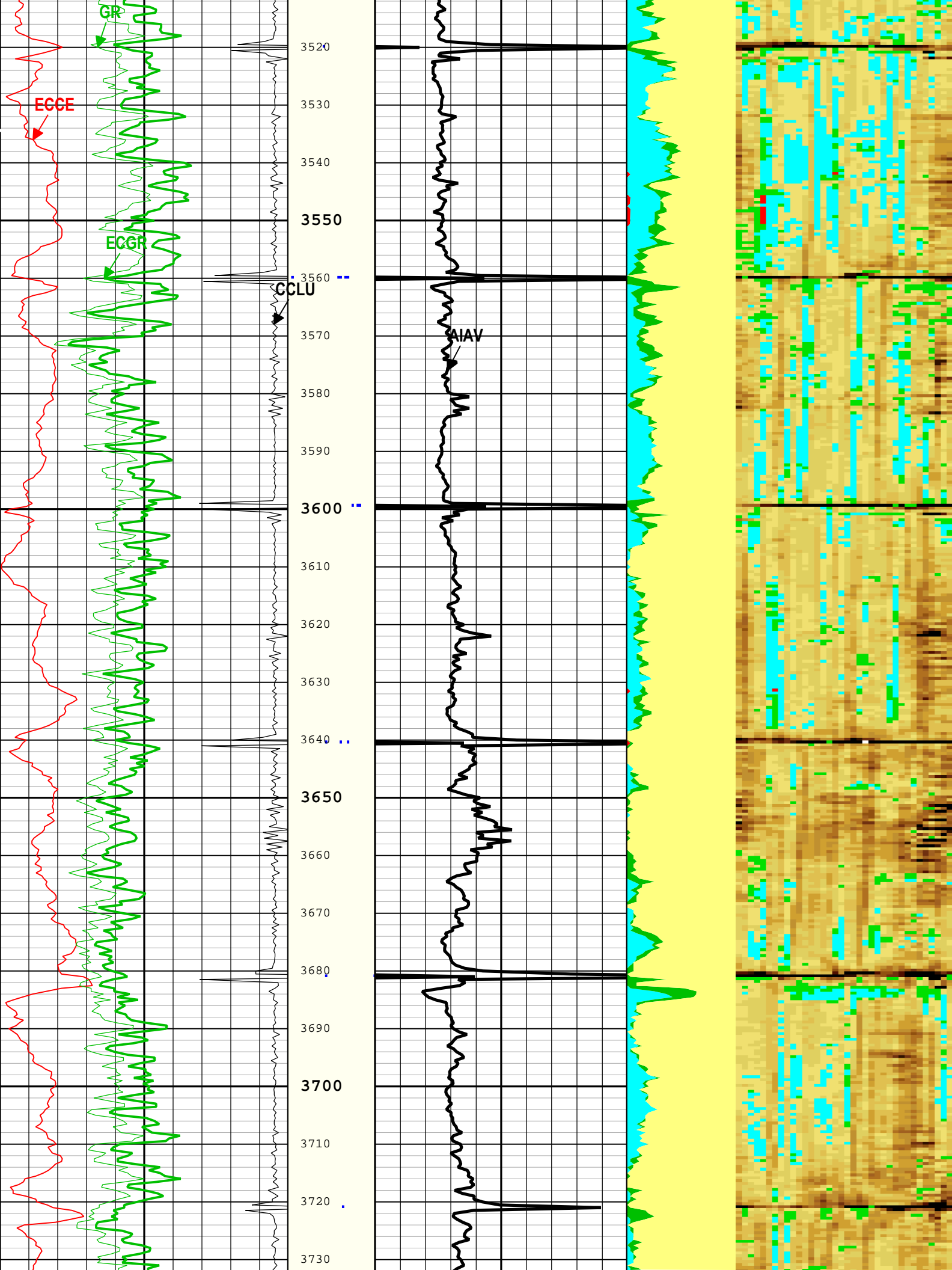


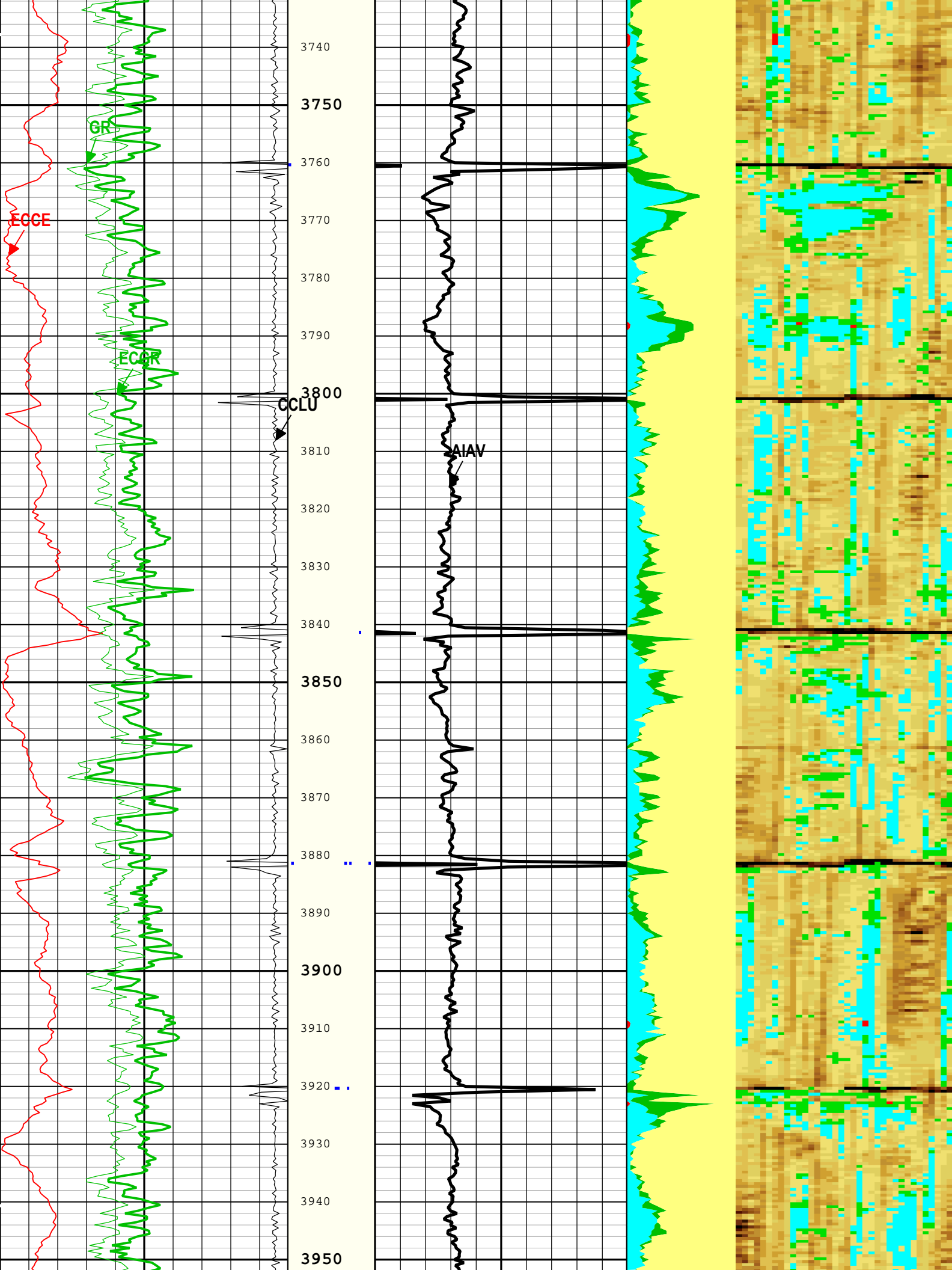


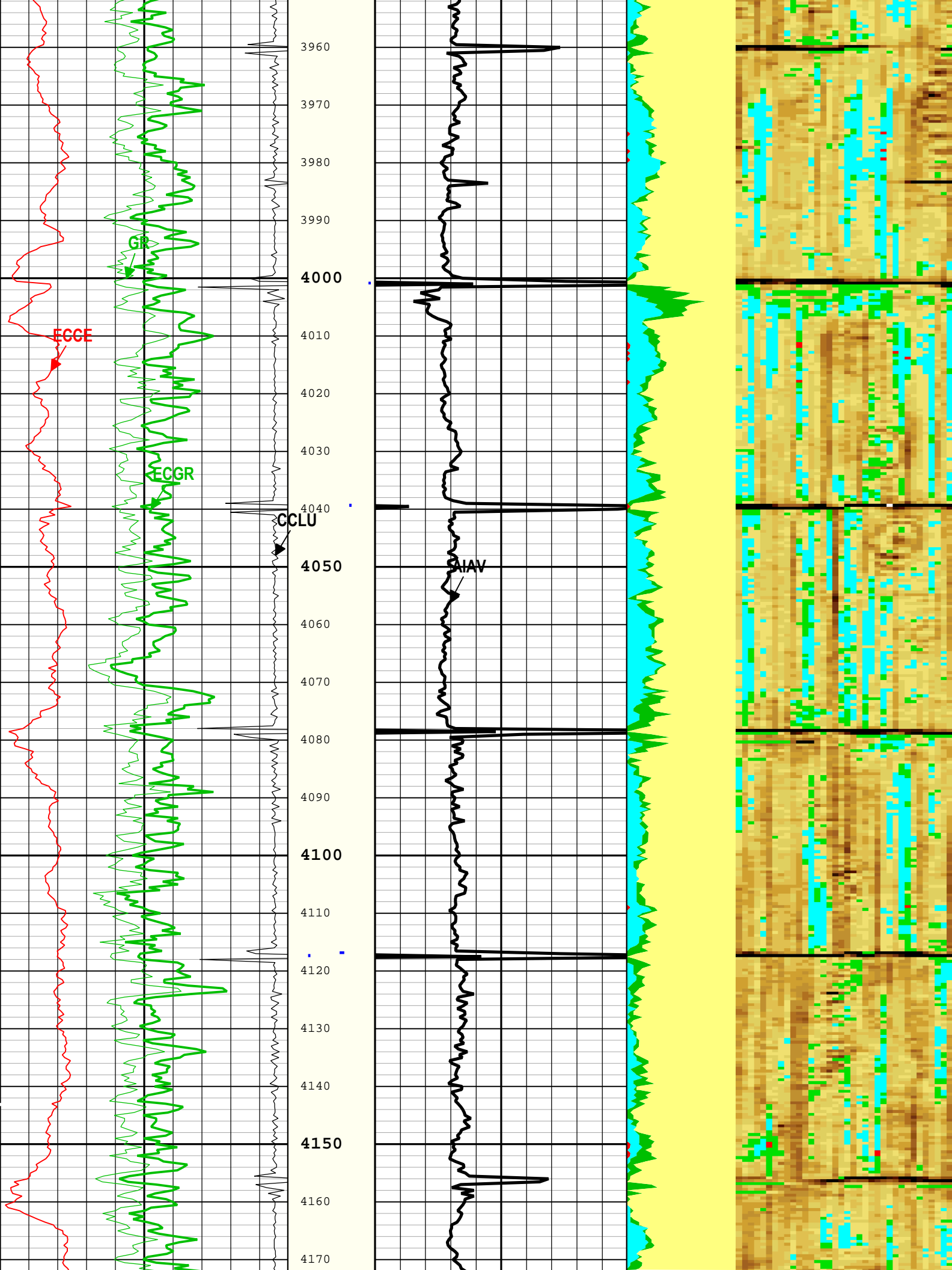


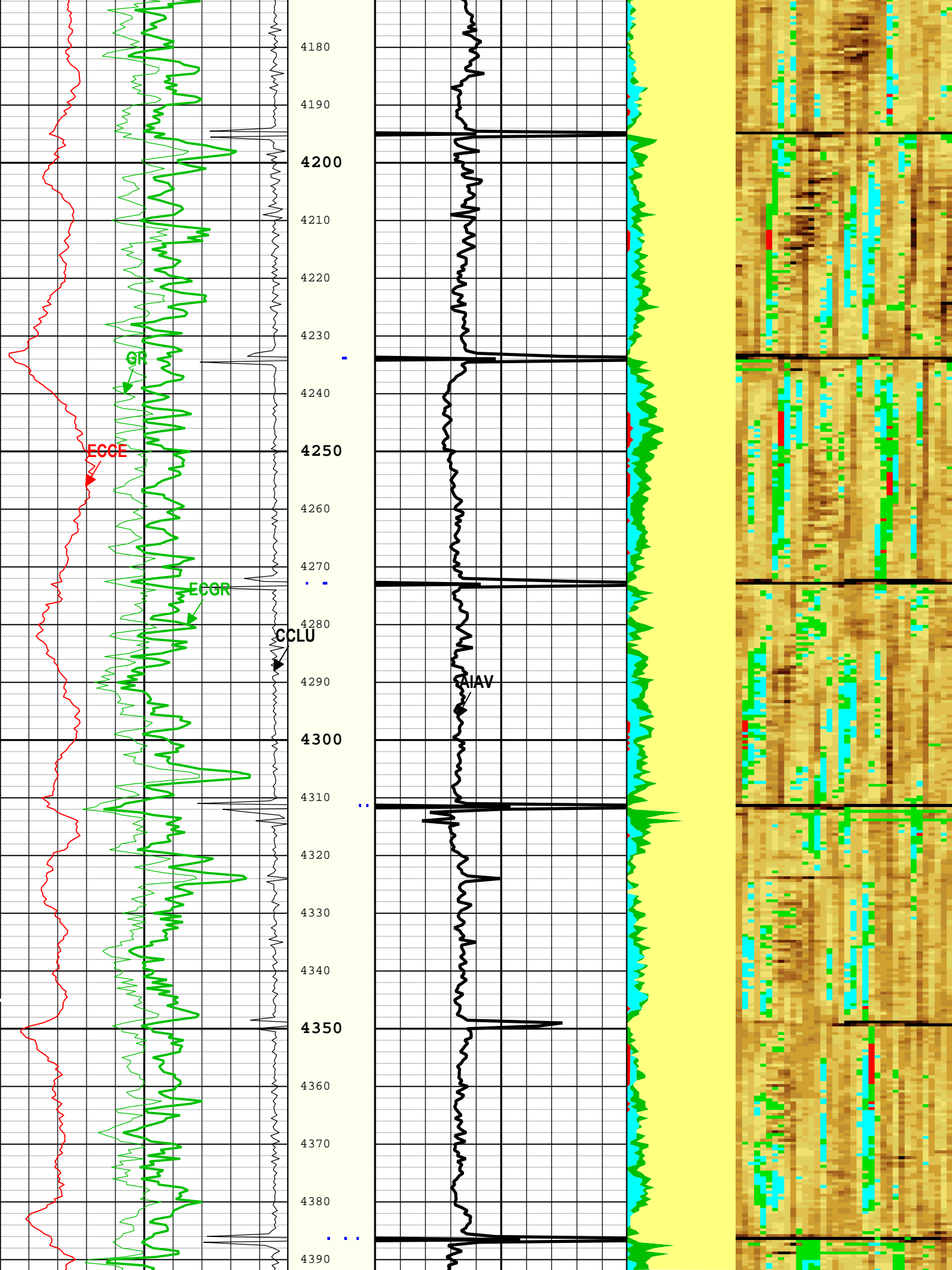


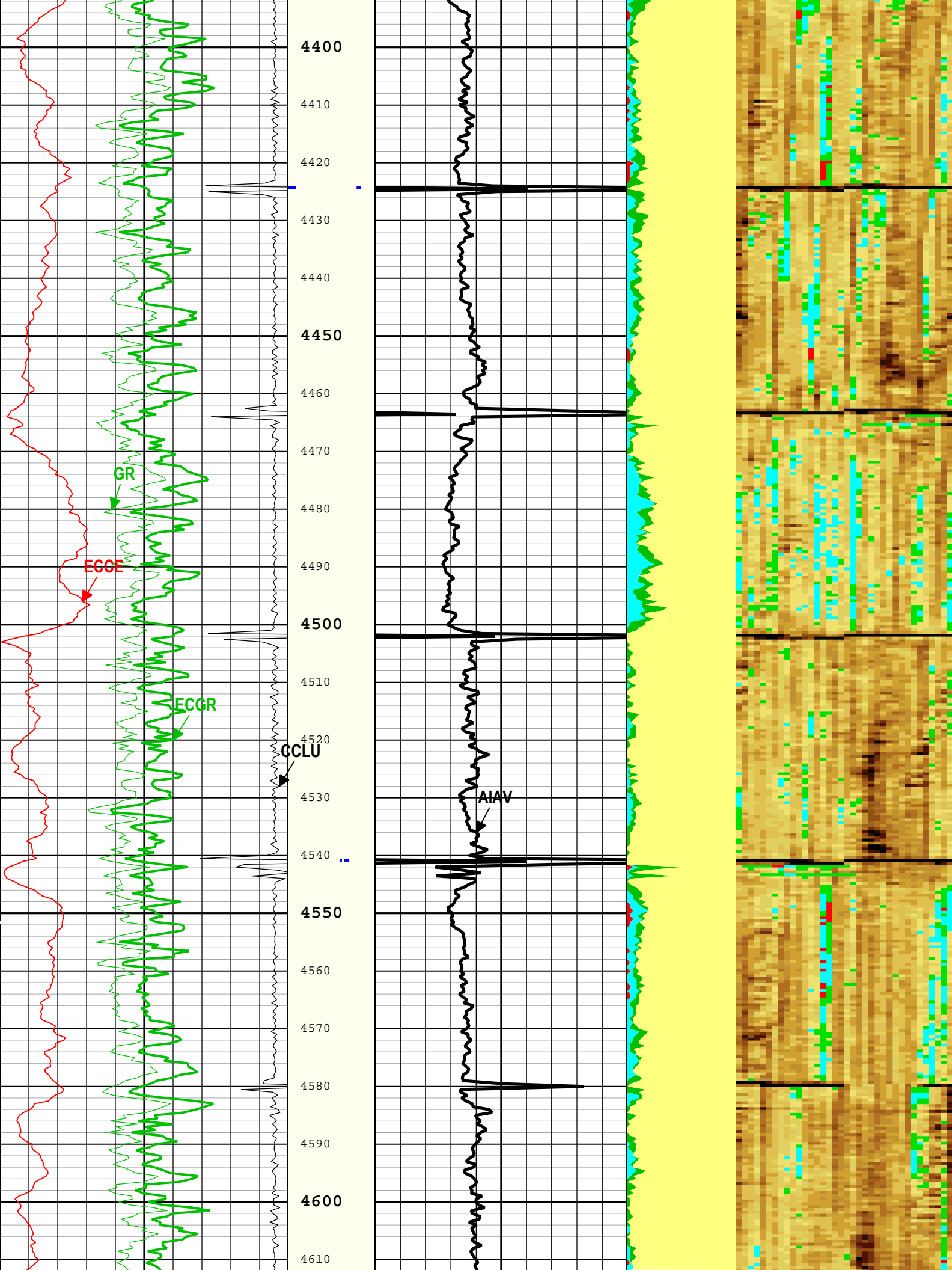


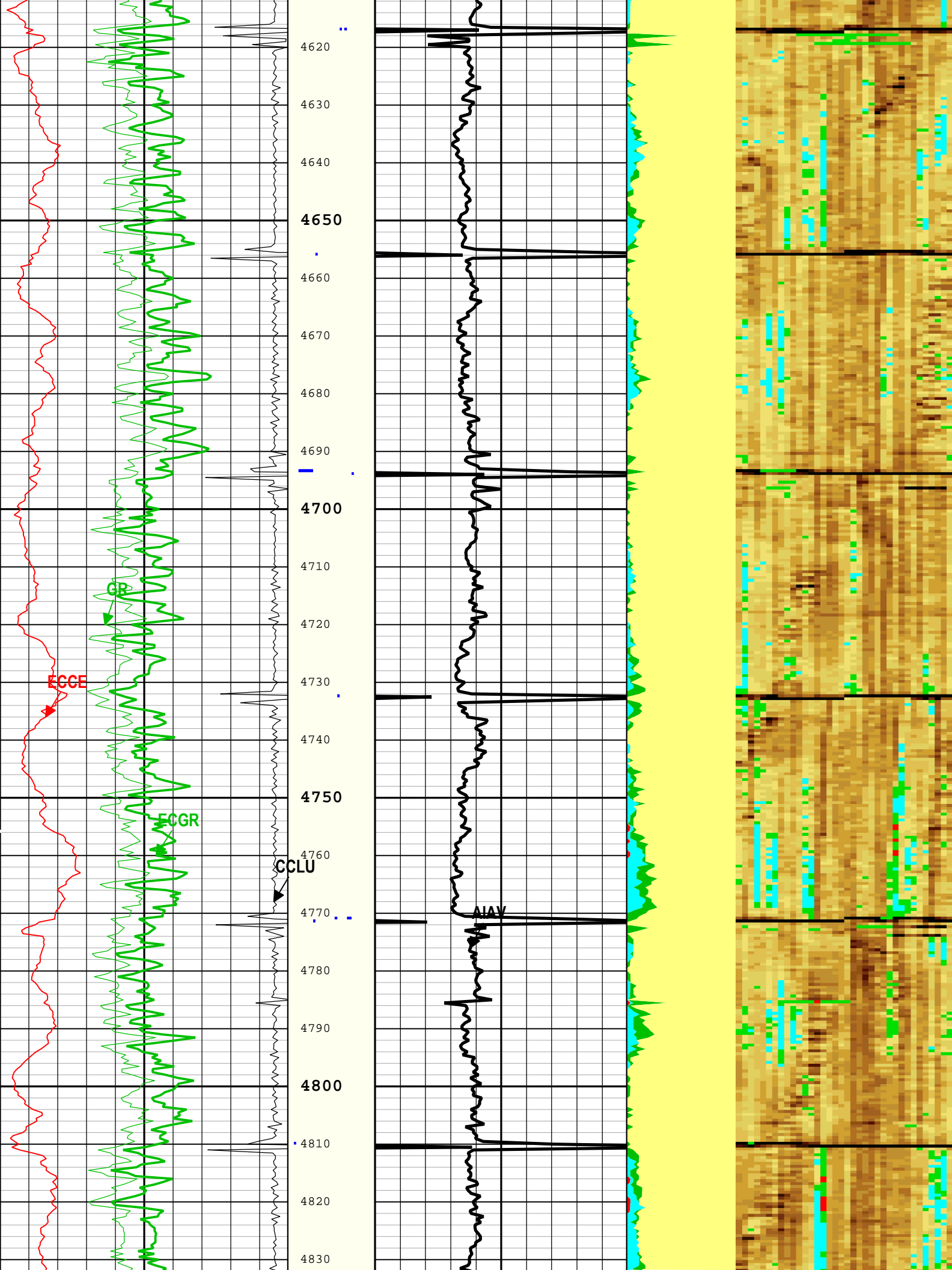


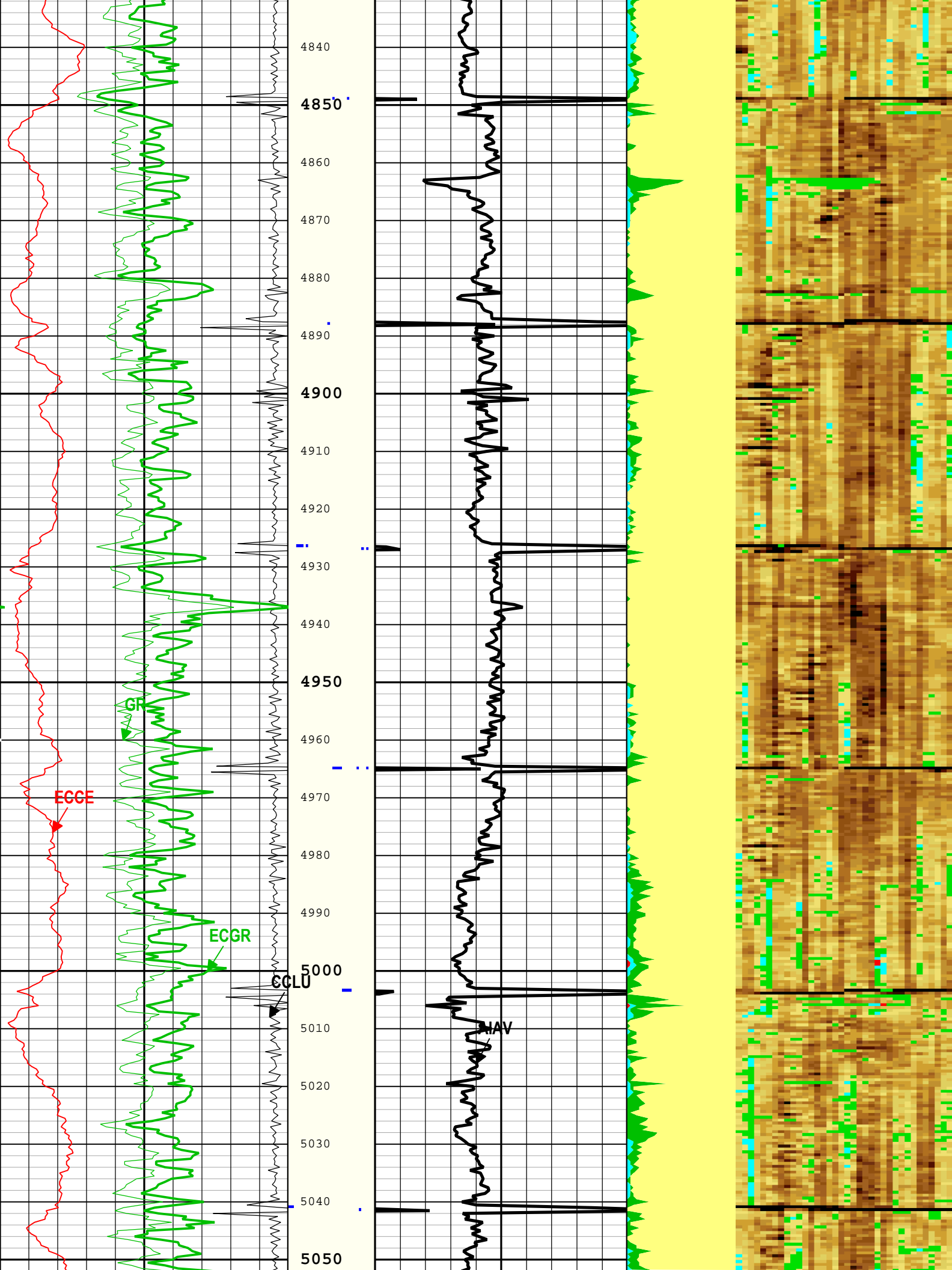


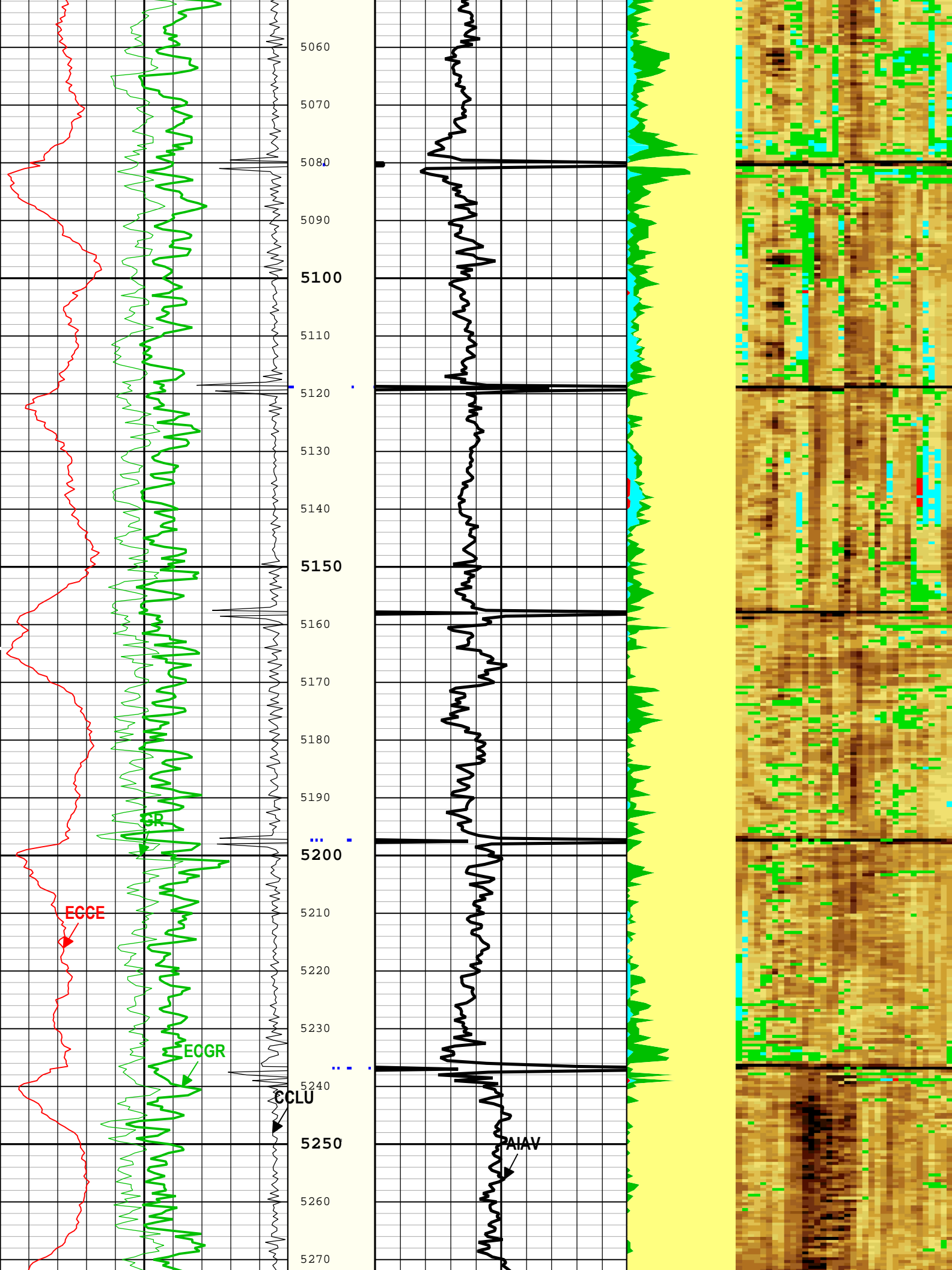


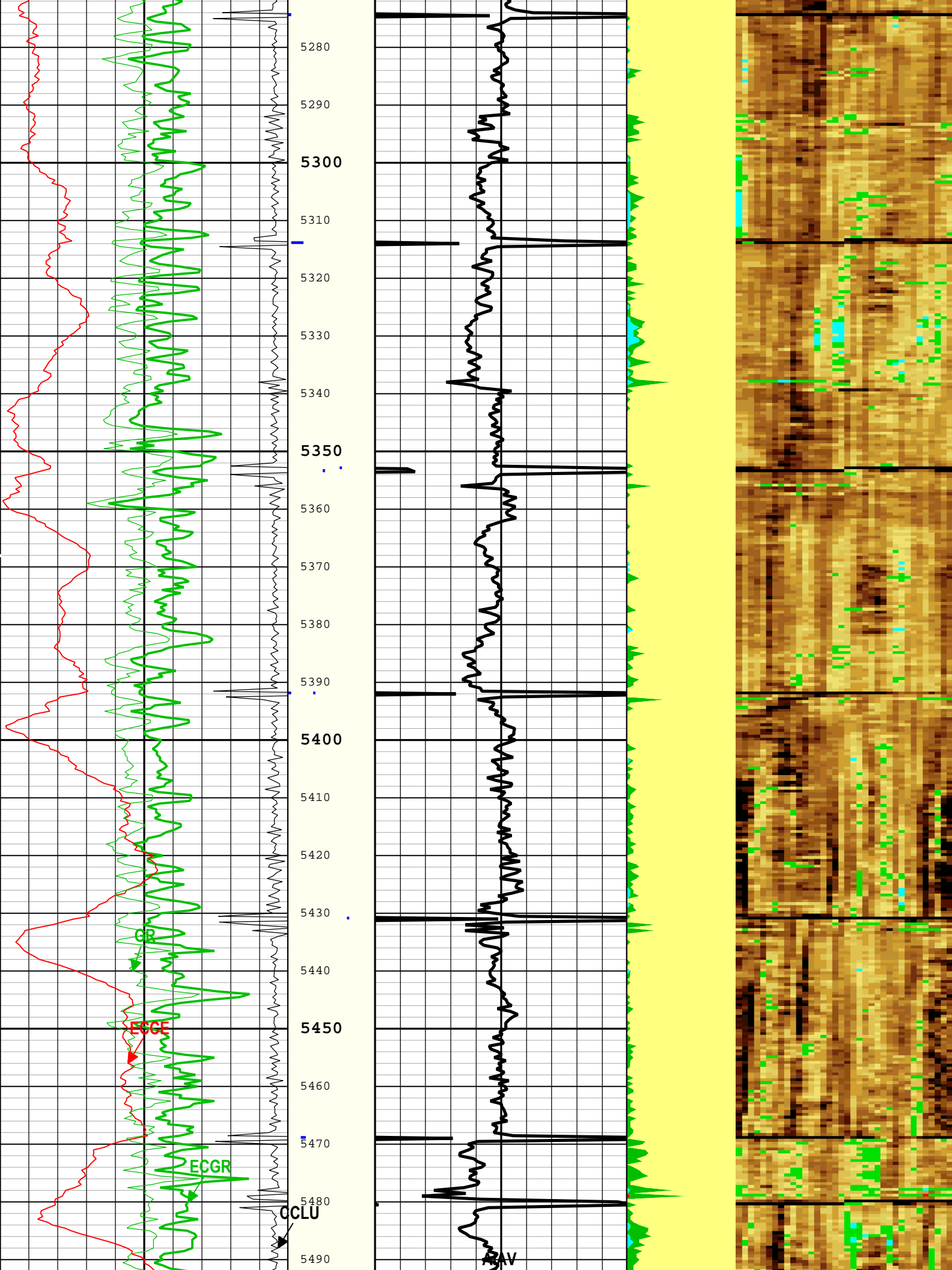


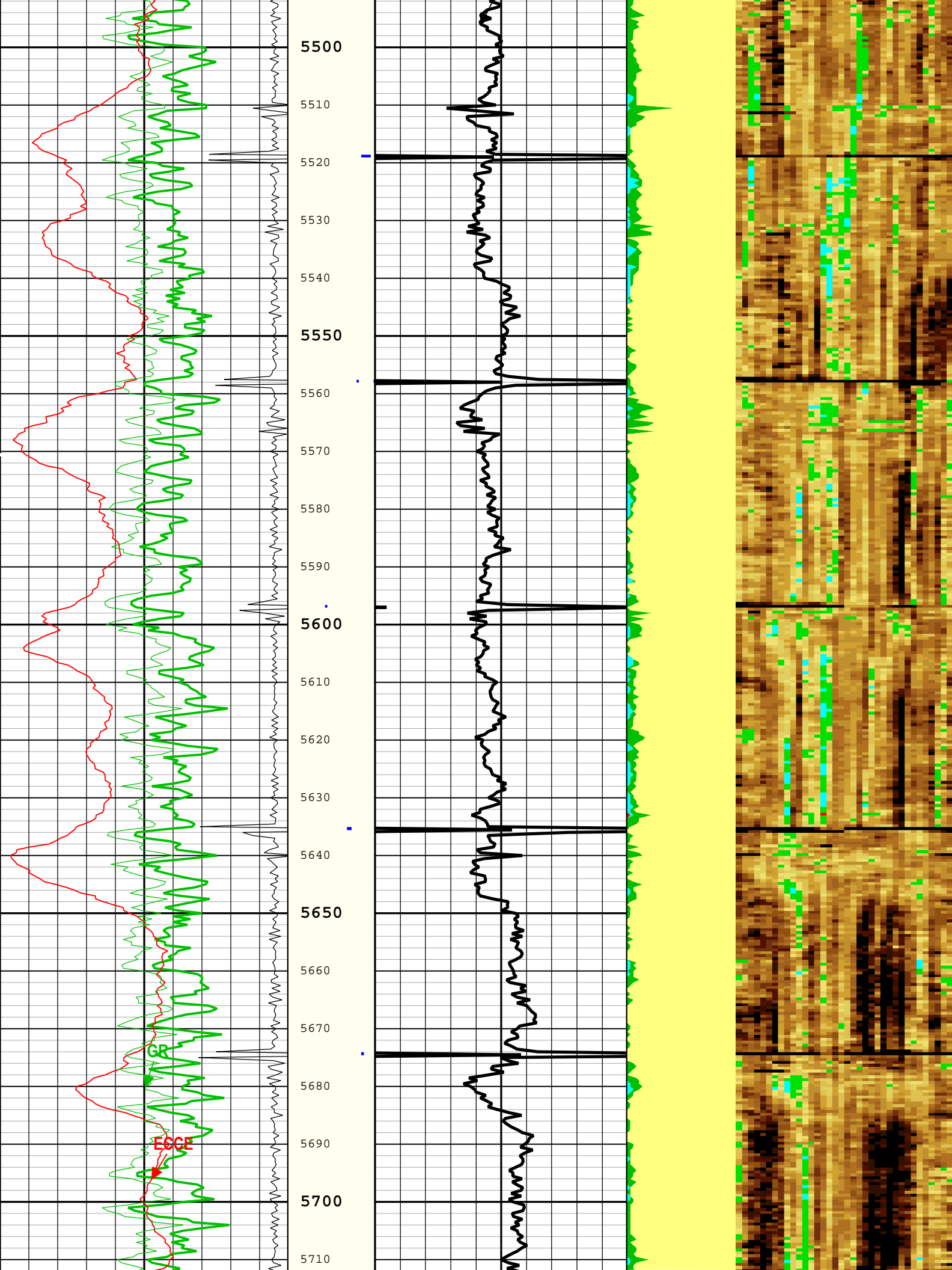


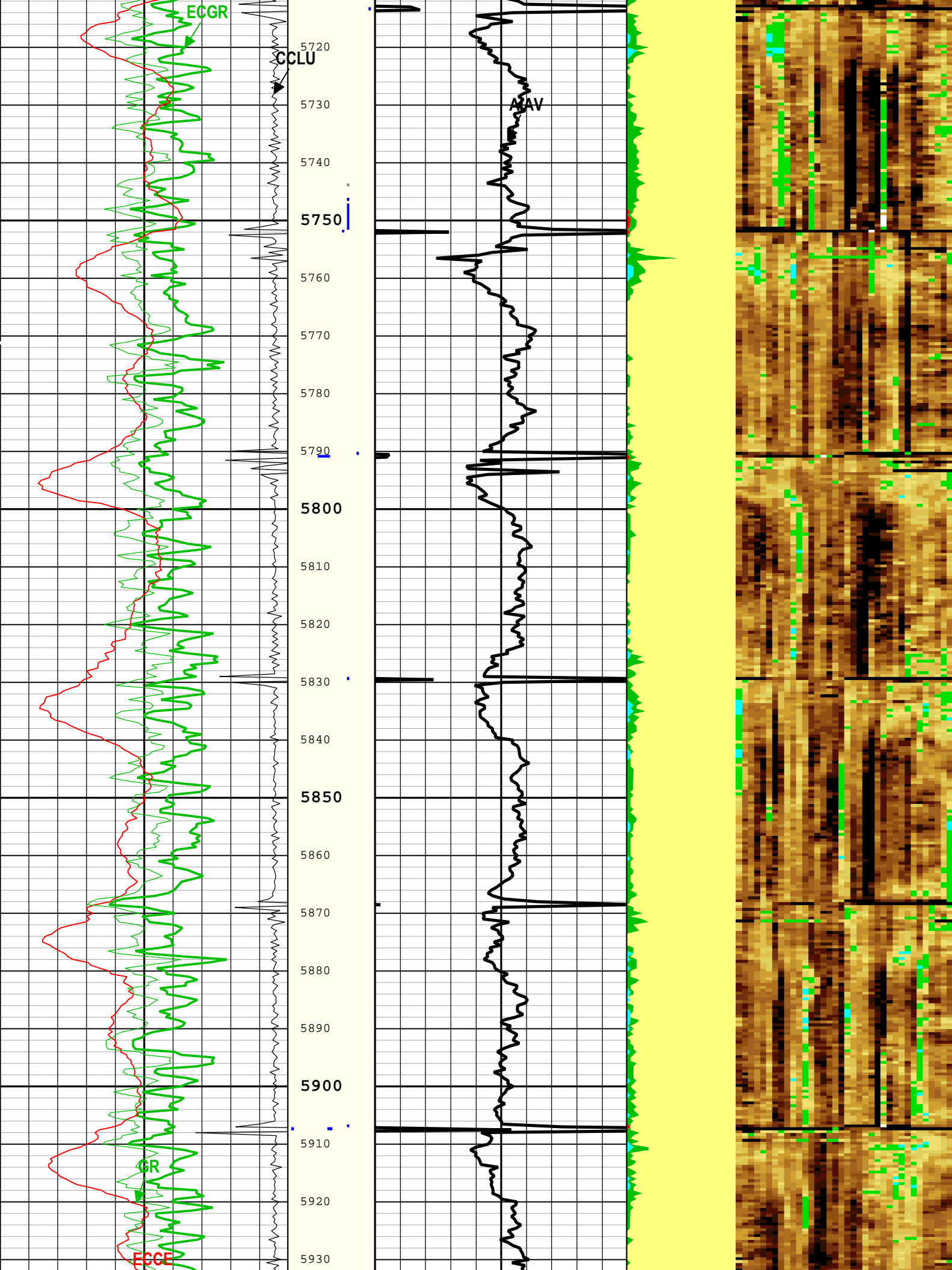


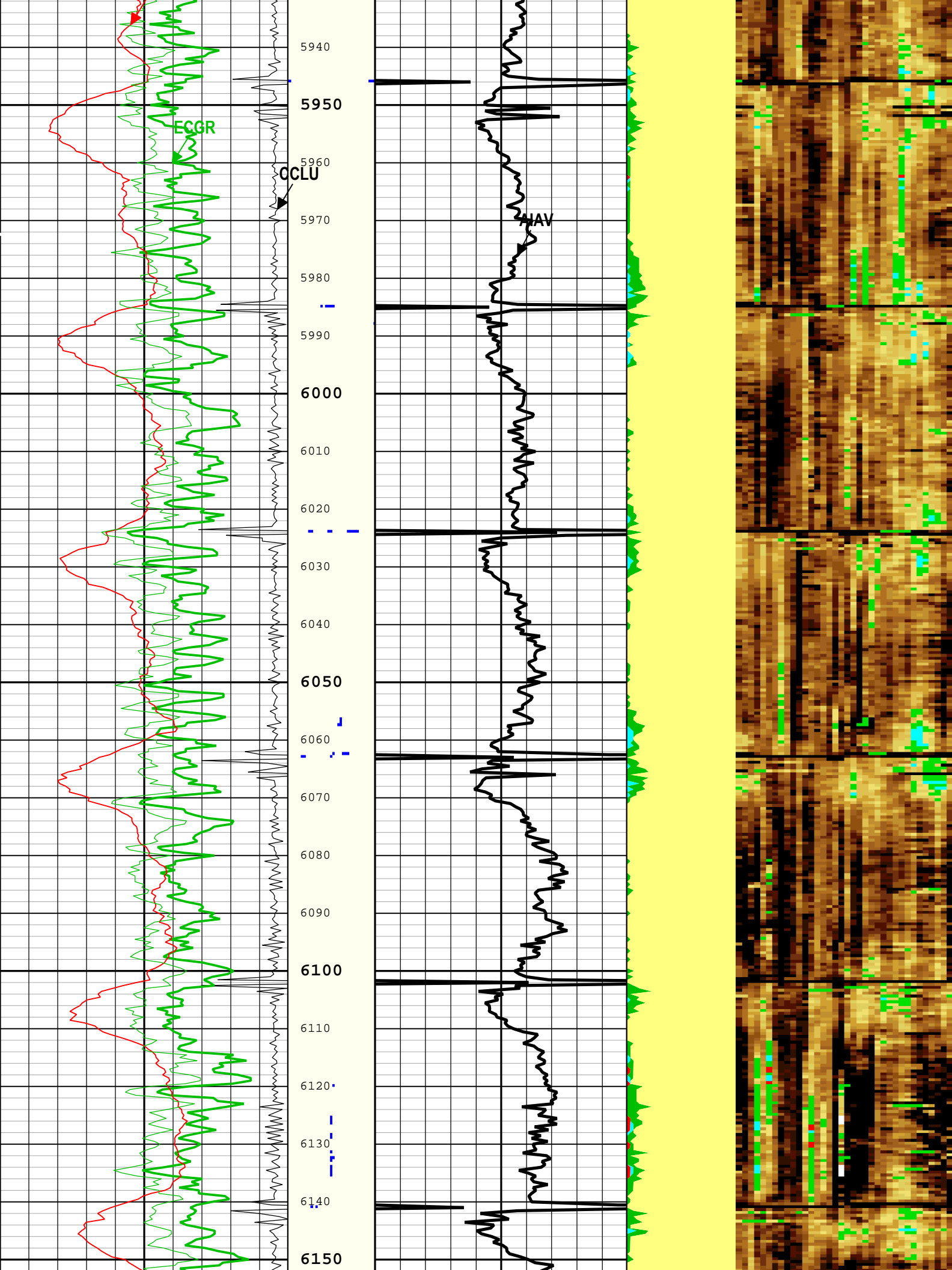


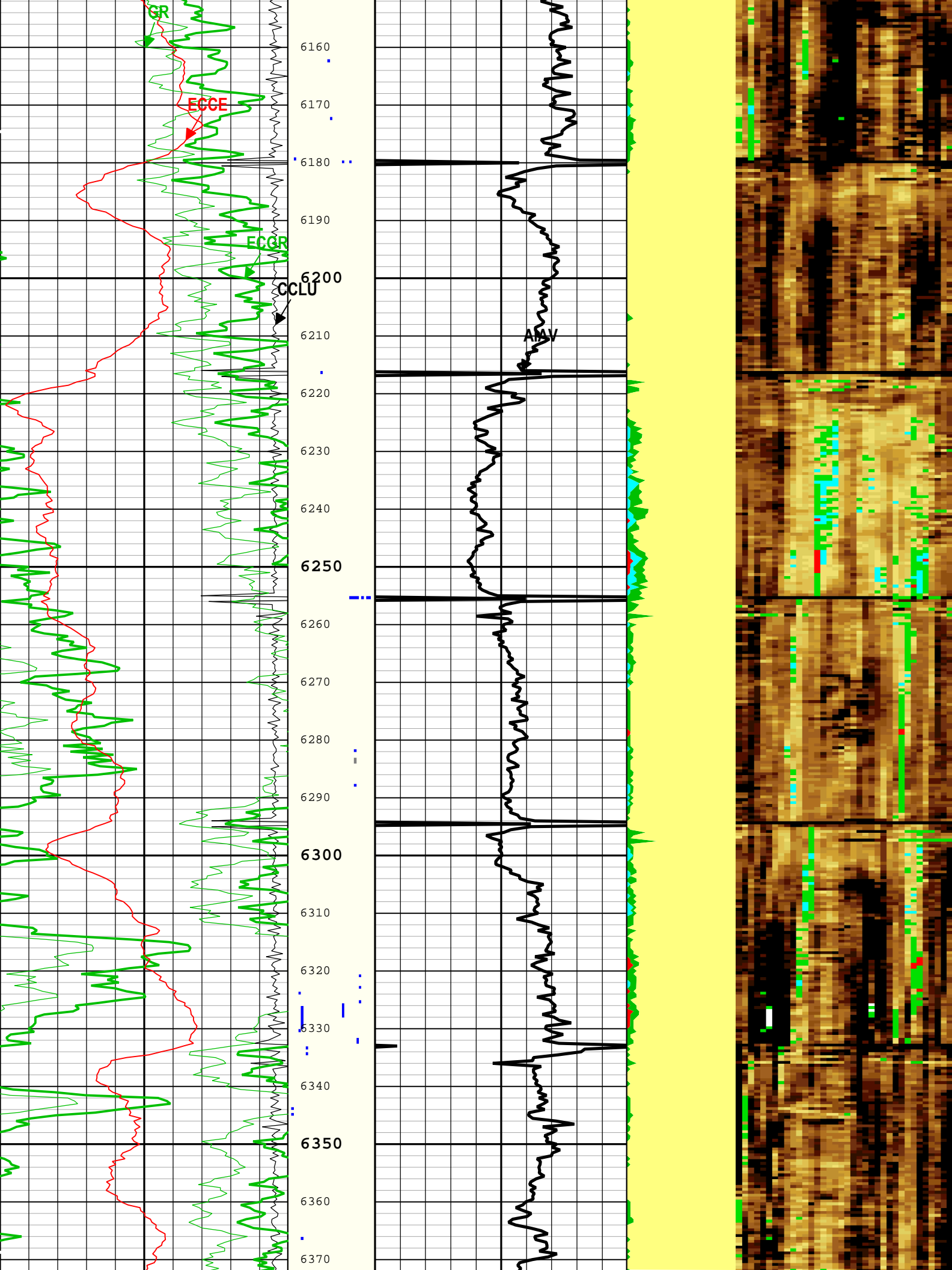


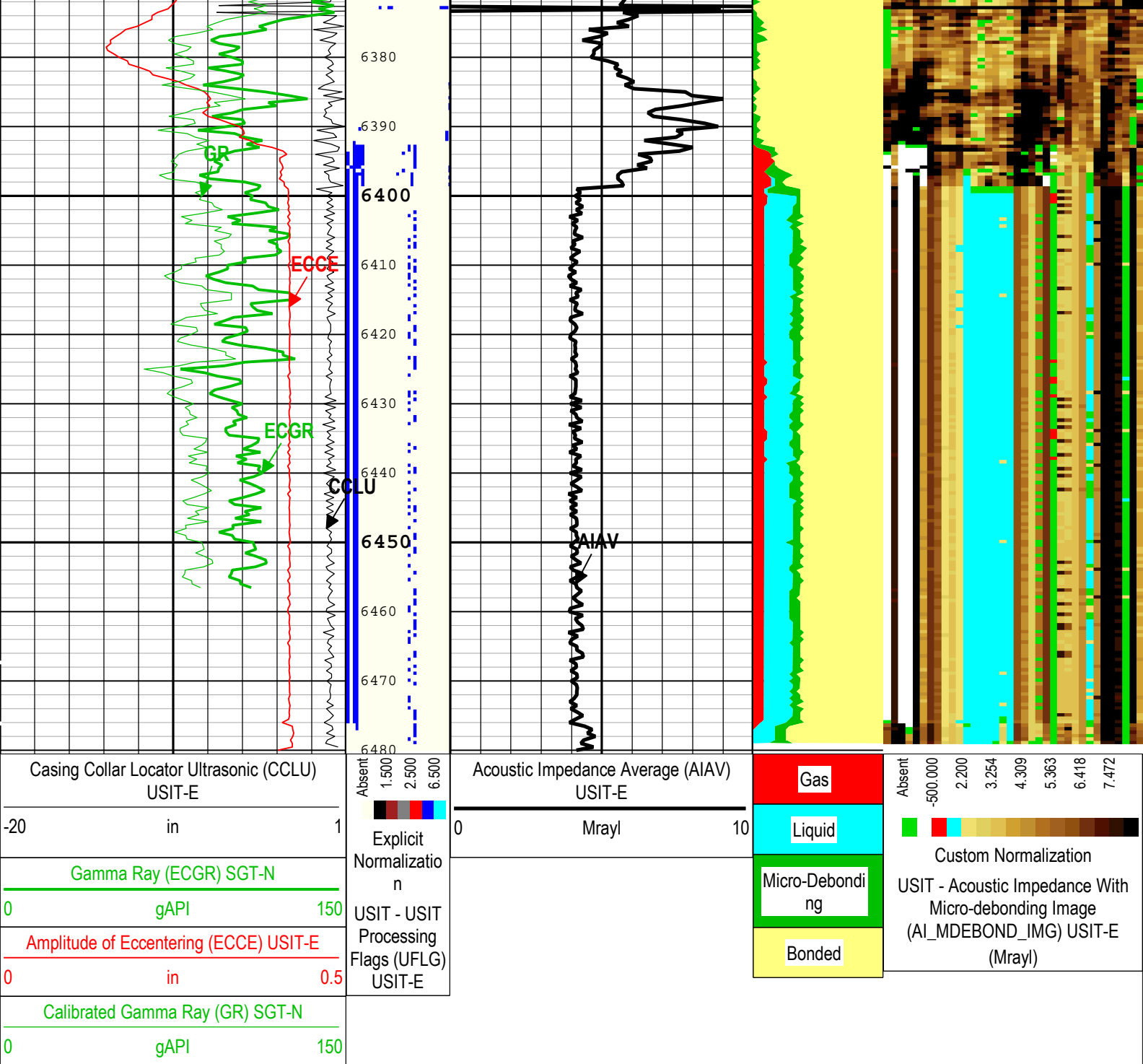












Description: Format: Log (DJ Basin Ultrasonic Cement Summary Report) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth
Creation Date: 30-Jan-2017 13:10:17

Channel Processing Parameters

One: Parameters

Parameter	Description	Tool	Value	Unit
ISSBAR	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BS	Bit Size	WLSESSION	Depth Zoned	in
CBLO	Casing Bottom (Logger)	WLSESSION	16555.8	ft
CDEN	Cement Density	SGT-N	16.69	lbm/gal
CMTY(U-USIT_CEMT)	Cement Type	USIT-E	Regular Cement	
DFD	Drilling Fluid Density	Borehole	8.9	lbm/gal
DFT	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	206	us/ft

TIME	Derivative Mud Slowness	Borehole	LOG	us
FDII	FPM Data Interpolation Interval	USIT-E	0	ft
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS(RT)	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	BS(RT)	
HEMA	Hematite Presence Flag	Borehole	No	
ICE_PROCESS	ICE Processing	USIT-E	Yes	
IMAR	Image Rotation	USIT-E	Off	
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-E	22.44	us
MUD_N_FRP	Free Pipe Mud Normalization Factor	USIT-E	1.07	
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	0.1	Mrayl
UFGDE	Fiberglass Density	USIT-E	16.27	lbm/gal
UFGPS	Fiberglass Processing Selection	USIT-E	No	
UFGVL	Fiberglass Velocity	USIT-E	9678.48	ft/s
USI_FSOD	USIT USI Fluid Slowness Fits Casing Outer Diameter	USIT-E	0_OFF	
USI_FVEL_SEL	USI Fluid Velocity Selection	USIT-E	Automatic	
USI_ZMUD_SEL	USI Mud Impedance Selection	USIT-E	FreePipe Norm.	
ZMUD	Acoustic Impedance of Mud	Borehole	1.48	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-E	2.2	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

Depth Zone Parameters			
Parameter	Value	Start (ft)	Stop (ft)
BS	26	42.5	110
BS	13.5	110	1912
BS	8.5	1912	6480.5
All depth are actual.			

Tool Control Parameters	
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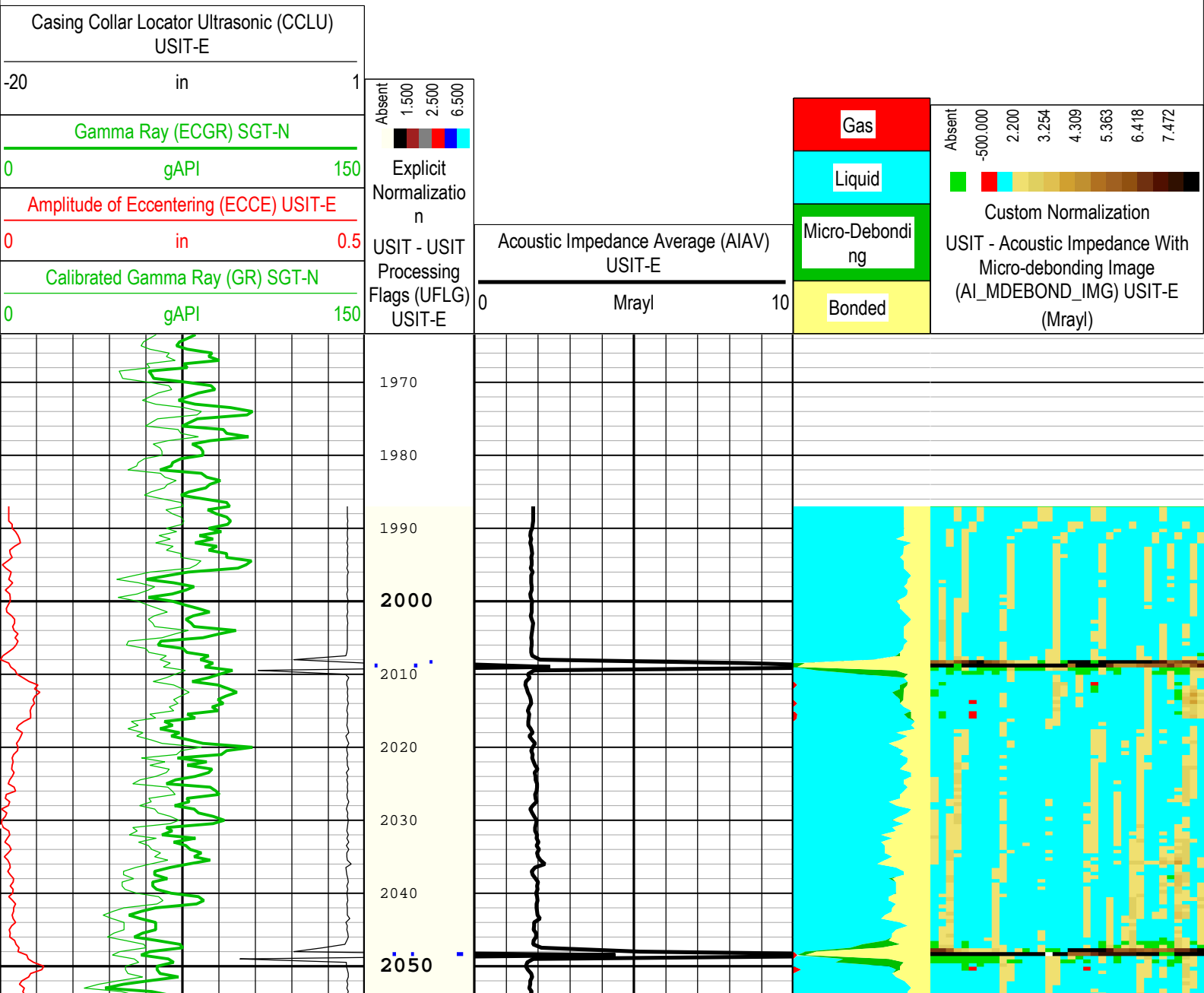
One: Parameters				
Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	30	dB
U-USIT_DDT5	USIC Downhole Decimation for T5 only	USIT-E	0_NONE	
EMXV	EMEX Voltage	USIT-E	45	V
HRES	Horizontal Resolution	USIT-E	10 deg	
TMUC	Type of Mud	USIT-E	BRI	
ULOG	Logging Objective	USIT-E	MEASUREMENT	
UMFR	Modulation Frequency	USIT-E	333333	Hz
USFR	Ultrasonic Sampling Frequency	USIT-E	500000	Hz
UPAT	USIT Emission Pattern	USIT-E	Pattern 375 KHz	
UWKM	USIT Working Mode	USIT-E	Uncompressed 10 deg at 6.0 in LF	
USIT_DEPTHLOG	Starting Depth Log for Ultrasonics	USIT-E	2500	ft
WINB	Window Begin Time	USIT-E	Time Zoned	us
WINE	Window End Time	USIT-E	Time Zoned	us

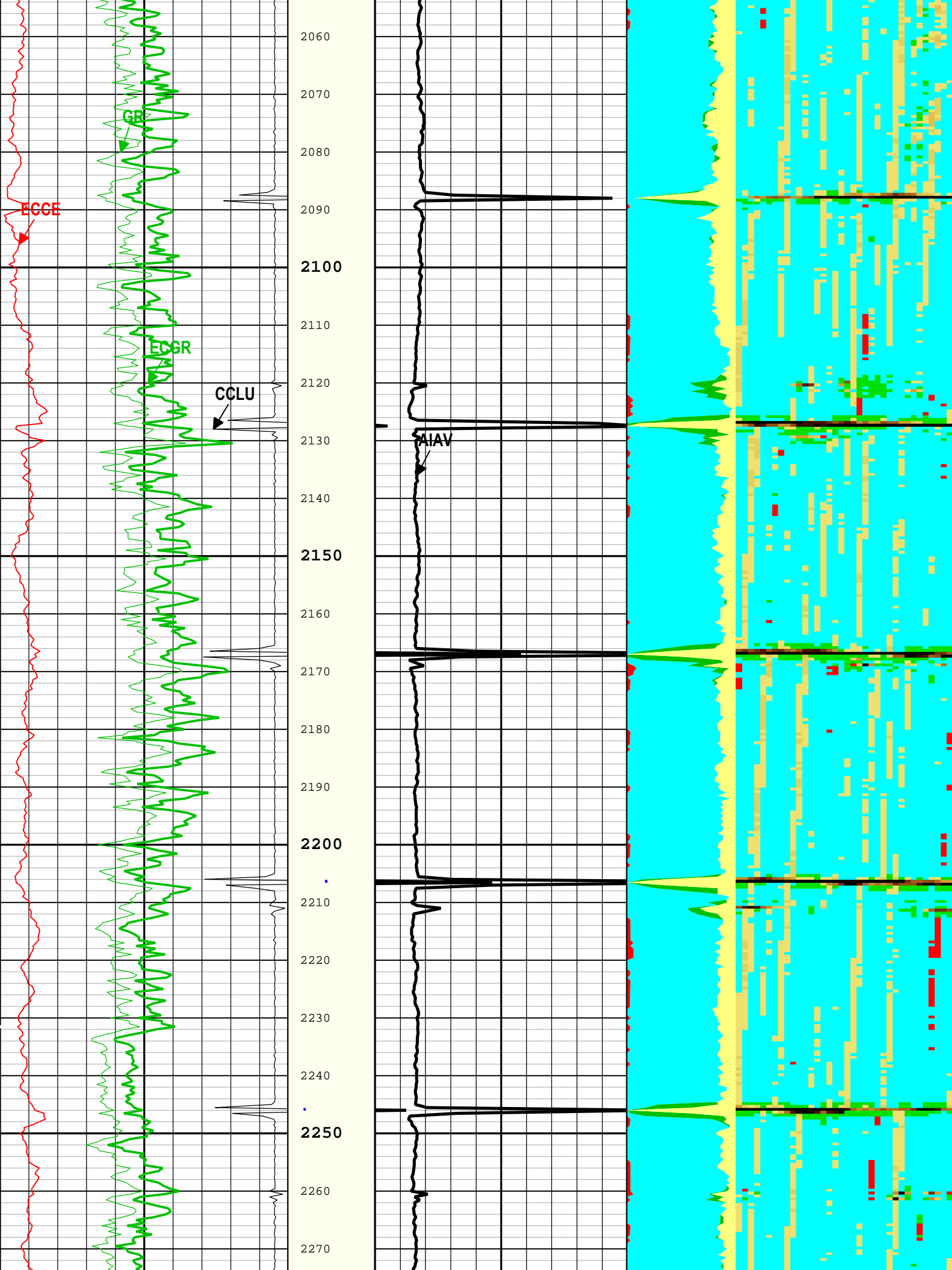
Time Zone Parameters					
Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
WINB	31.88	30-Jan-2017 11:53:57	30-Jan-2017 12:00:53	6480.97	6476.17
WINB	28	30-Jan-2017 12:00:53	30-Jan-2017 12:00:59	6476.17	6476.17
WINB	25	30-Jan-2017 12:00:59	30-Jan-2017 12:37:48	6476.17	66.6
WINE	71.88	30-Jan-2017 11:53:57	30-Jan-2017 12:00:56	6480.97	6476.17

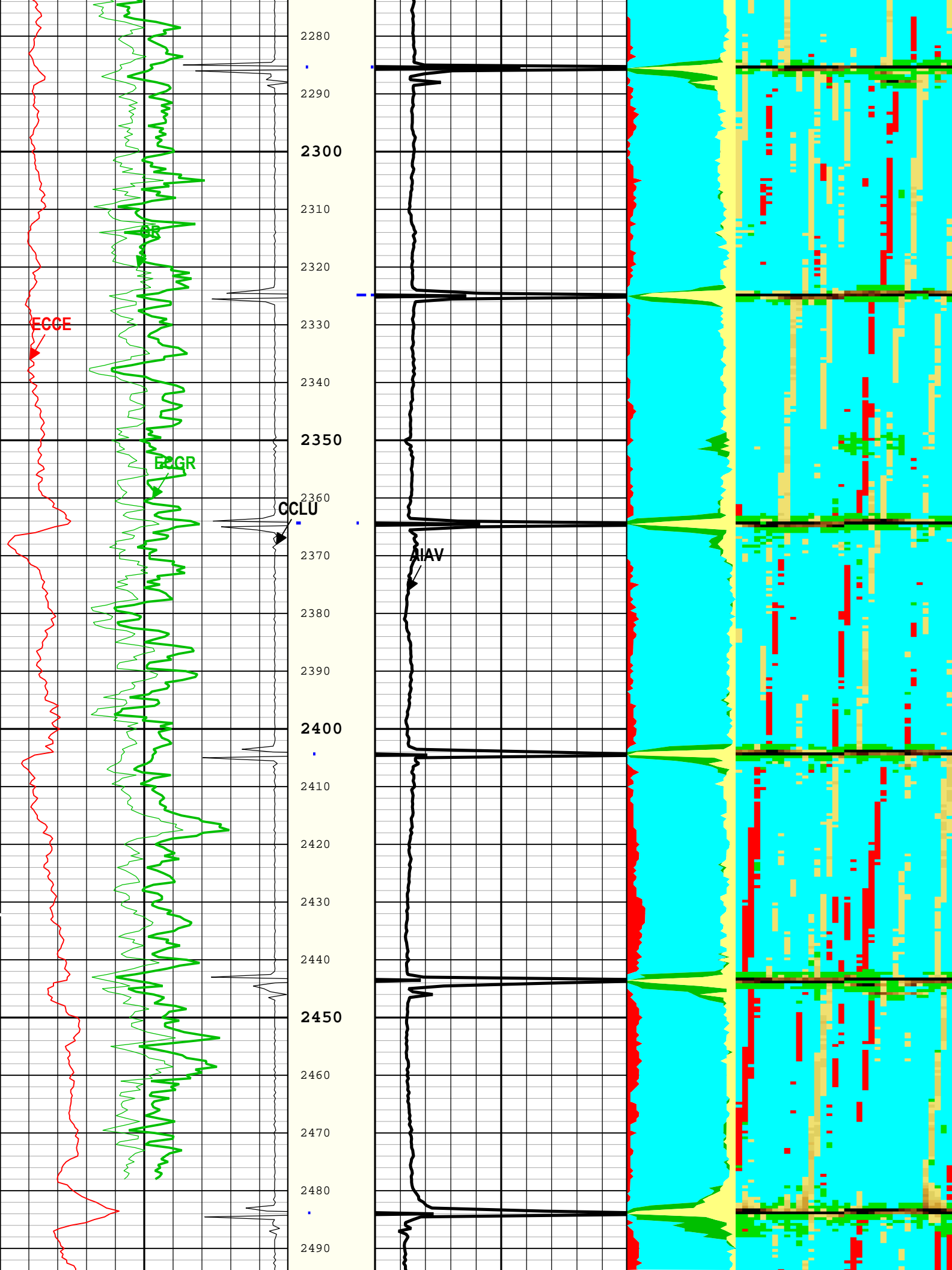
WINE	78	30-Jan-2017 12:00:56	30-Jan-2017 12:37:48	6476.17	66.6				
All depth are at tool zero.									
One									
0 PSI Repeat Pass									
Software Version									
Acquisition System				Version					
Maxwell 2016 SP2				6.2.68624.3100					
Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[2]:Up	Up	1987.22 ft	2502.52 ft	30-Jan-2017 11:36:29 AM	30-Jan-2017 11:39:14 AM	ON	5.17 ft	No
All depths are referenced to toolstring zero									
Log	Company:Noble Energy Inc			Well:Earp Federal LC23-735					
	One: Log[2]:Up:S004								

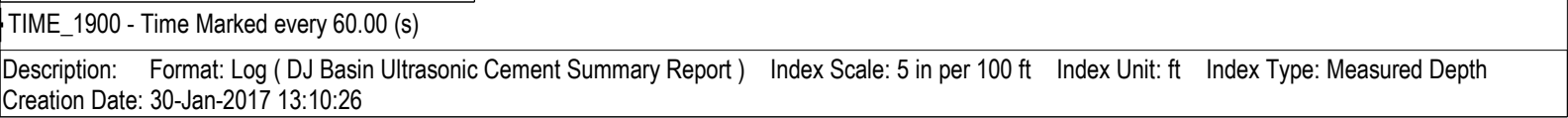
Description: Format: Log (DJ Basin Ultrasonic Cement Summary Report) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth
Creation Date: 30-Jan-2017 13:10:26

TIME_1900 - Time Marked every 60.00 (s)









Tool Control Parameters				
One: Parameters				
Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT.F	-12	dB

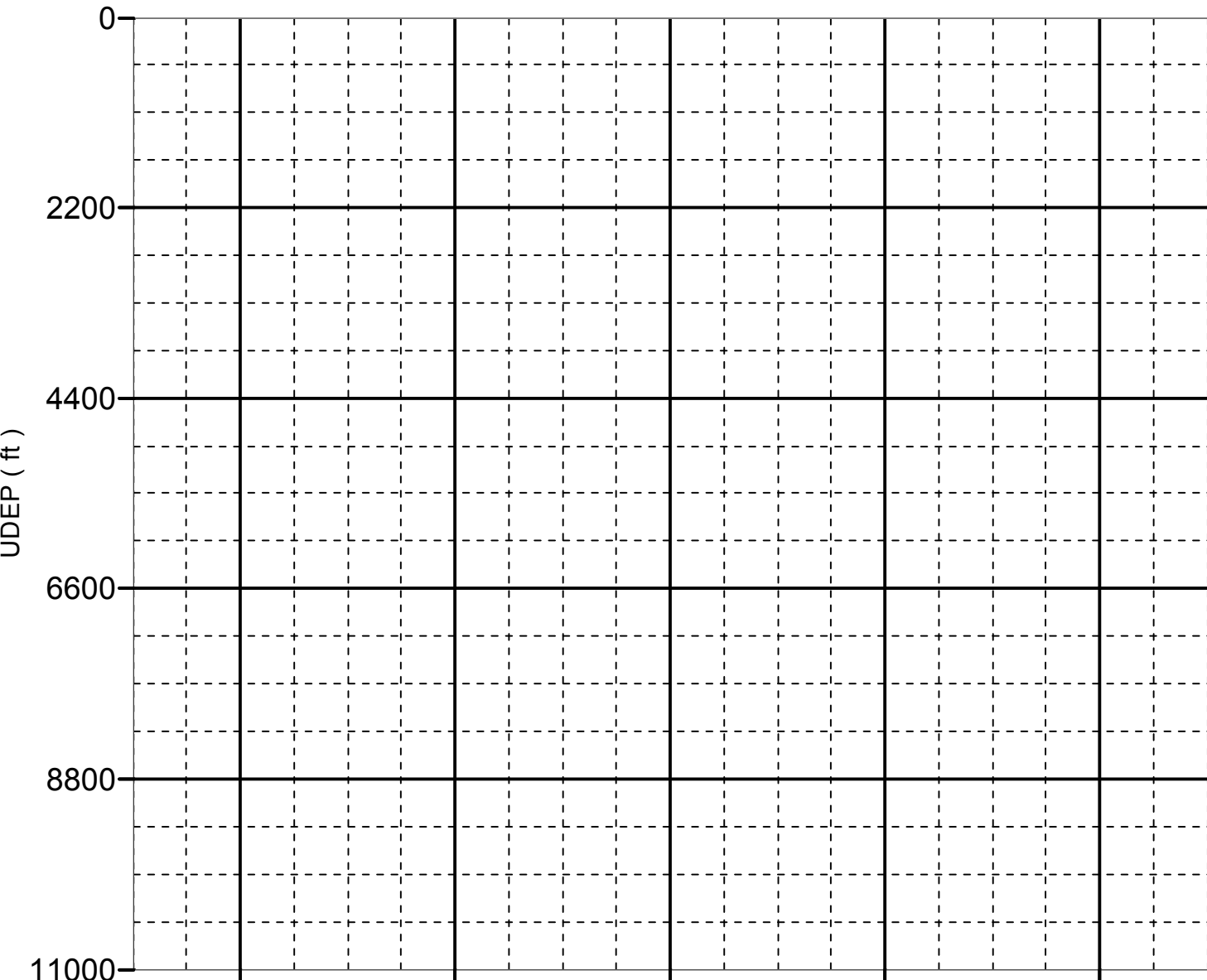
AGMX	Maximum Gain of Cartridge	USIT-E	30	dB
U-USIT_DDT5	USIC Downhole Decimation for T5 only	USIT-E	0_NONE	
EMXV	EMEX Voltage	USIT-E	45	V
HRES	Horizontal Resolution	USIT-E	10 deg	
TMUC	Type of Mud	USIT-E	BRI	
ULOG	Logging Objective	USIT-E	MEASUREMENT	
UMFR	Modulation Frequency	USIT-E	333333	Hz
USFR	Ultrasonic Sampling Frequency	USIT-E	500000	Hz
UPAT	USIT Emission Pattern	USIT-E	Pattern 375 KHz	
UWKM	USIT Working Mode	USIT-E	Uncompressed 10 deg at 6.0 in LF	
USIT_DEPTHLOG	Starting Depth Log for Ultrasonics	USIT-E	2500	ft
WINB	Window Begin Time	USIT-E	31.88	us
WINE	Window End Time	USIT-E	71.88	us

Fluid Acoustic Slow ness vs Depth 2D Cross Plot

Index Range: From to ft

●

CFVL-UDEP (CFVL,UDEP : Data Not Found)

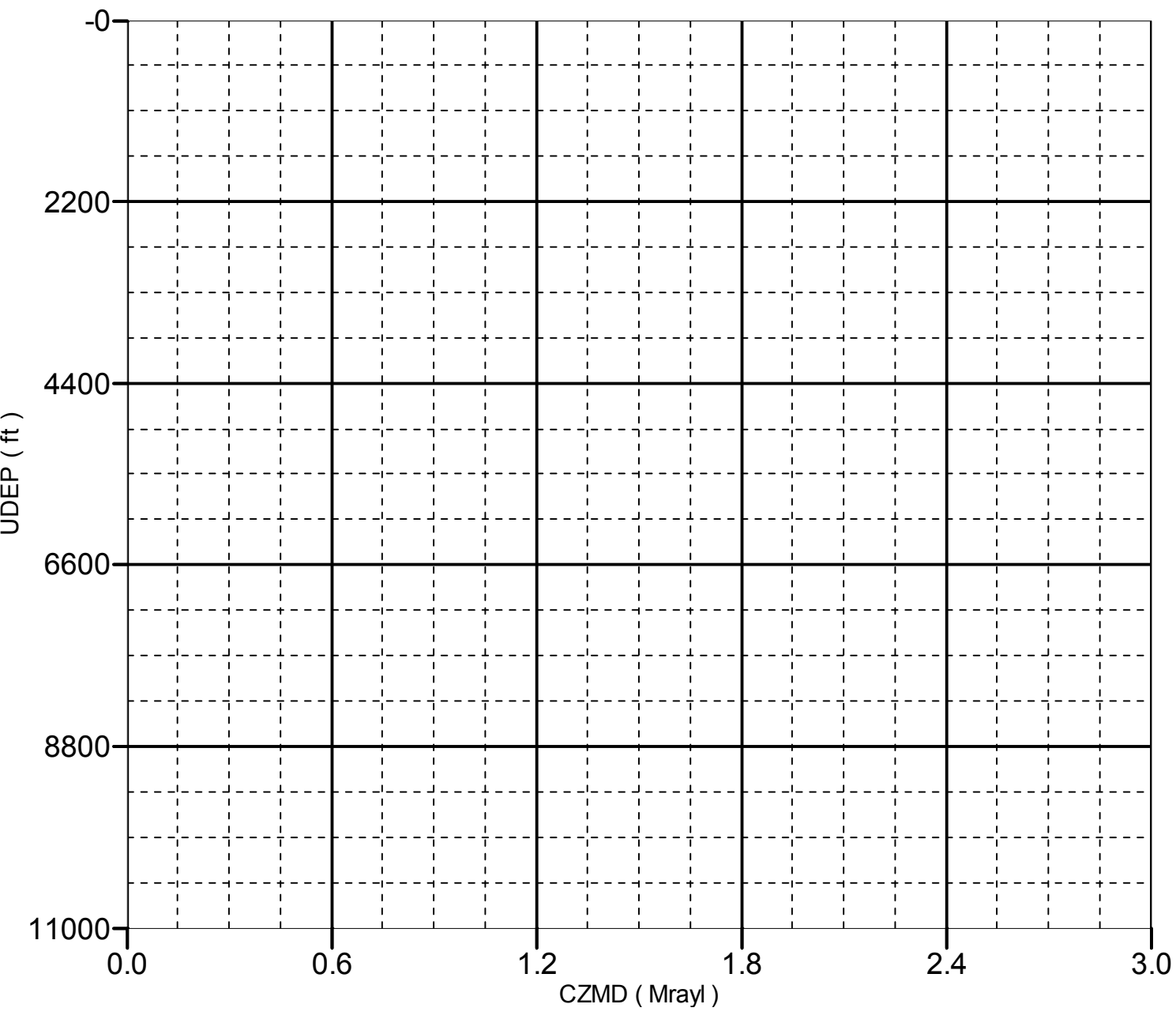


Acoustic Impedance of Mud vs Depth

2D Cross Plot

Index Range: From to ft

● CZMD-UDEP (CZMD,UDEP : Data Not Found)



Company: Noble Energy Inc

Schlumberger

Well: Earp Federal LC23-735

Field: Wildcat

County:	WELD
Country:	US
UltraSonic Summary Print	