

Company: Noble Energy, Inc.

Well: Holliday Federal LC23-780

Field: Wildcat

County: Weld State: Colorado

UltraSonic Summary Print

County:		Weld	
Field:		Wildcat	
Location:		SWSW Sec 11 T9N R59W	
Well:		Holliday Federal LC23-780	
Company:		Noble Energy, Inc.	
<div>API Serial No. 05-123-42950</div> <div>Section: 11</div> <div>Township: 9N</div> <div>Range: 59W</div>		Location:	
		SWSW Sec 11 T9N R59W	
		SHL: 334 FSL 979 FWL	
		Latitude: 40.75915 Longitude: -103.95125	
		Permanent Datum: <div>Ground Level</div>	
		Log Measured From: <div>Kelly Bushing</div>	
Drilling Measured From: <div>Kelly Bushing</div>		Elev.: <div>5007.00 f</div>	
		30.00 ft	
		above Perm.Datum	

Run Number	One	
Depth Driller	16710.00 ft	
Schlumberger Depth	16710.00 ft	
Bottom Log Interval	6100.00 ft	
Top Log Interval	0.00 ft	
Casing Fluid Type	Brine	
Salinity		
Density	9.2 lbm/gal	
Fluid Level	8.00 ft	
BIT/CASING/TUBING STRING		
Bit Size	8.50 in	
From	1919.00 ft	
To	16710.00 ft	
Casing/Tubing Size	5.5 in	
Weight	20 lbm/ft	
Grade	N/A	
From	0.00 ft	
To	16698.10 ft	
Max Recorded Temperatures	171.48 degF	
Logger on Bottom	14-Feb-2017	11:59:00
Unit Number	Location:	Time
2161	Stephen Tang	Fort Morgan
Recorded By		
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.

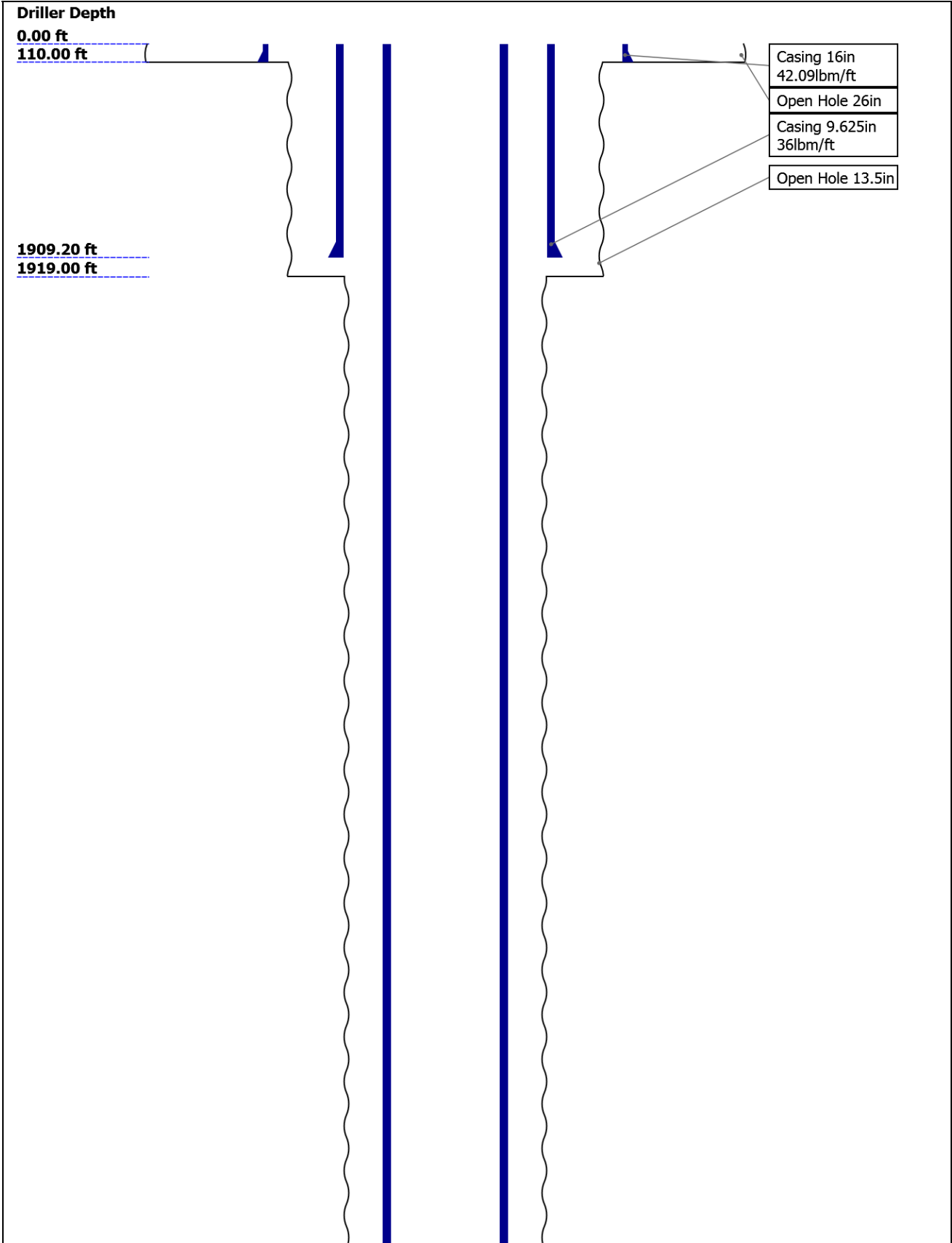
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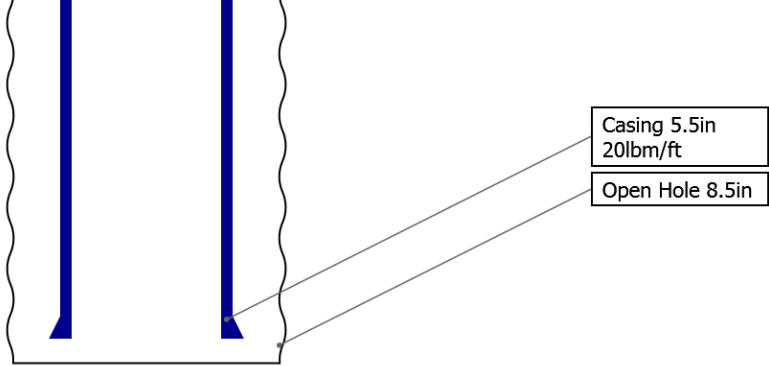
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Well Sketch



16698.10 ft

16710.00 ft

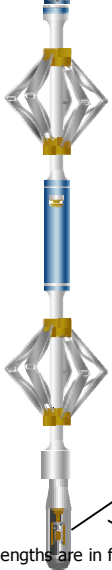


Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	26	13.5	8.5			
Top Driller (ft)	0	110	1919			
Top Logger (ft)	0	110	1919			
Bottom Driller (ft)	110	1919	16710			
Bottom Logger (ft)	110	1919	16710			
Casing						
Size (in)	16	9.625	5.5			
Weight (lbm/ft)	42.09	36	20			
Inner Diameter (in)	15.511	8.921	4.778			
Grade	N/A	N/A	N/A			
Top Driller (ft)	0	0	0			
Top Logger (ft)	0	0	0			
Bottom Driller (ft)	110	1909.2	16698.1			
Bottom Logger (ft)	110	1909.2	16698.1			

Remarks and Equipment Summary

One: Toolstring			One: Remarks	
<div><div><div>Equip nameLength</div><div>LEH-QT28.97</div><div>LEH-QT</div></div><div><div>EDTC-B:926.06</div><div>100</div><div>EDTH-B:939</div><div>EDTG-B:79275</div><div>EDTC-B:9100</div></div><div><div>AH-184[2]19.56</div><div>AH-184[1]17.56</div><div>USIT-E:92115.56</div><div>ECH-MFA:1908</div><div>USAC-A:921</div><div>USIT-A:27</div></div></div> <div><div><div>MP nameOffset</div><div>CTEM22.56</div><div>ACCZ0.00</div><div>HV0.00</div><div>Gamma20.69</div><div>Ray</div><div>TelStatu19.56</div><div>s</div></div><div></div></div>	Toolstring ran as per tool sketch.			
	Well logged at 10 degree 6 inch.			
	Main pass logged with 2500 psi.			
	Repeat pass logged with 0 psi.			
	Crew: Ian Derry and Derrick Hunter			
	Thank you for choosing Schlumberger!			

USIS-A:27 75 USSC-B:98 5 USRS-A:93 2 USI-SENS OR	 <p> USI Sensor 0.37 TOOL ZERO </p> <p> Lengths are in ft Maximum Outer Diameter = 3.625 in Line: Sensor Location, Value: Gating Offset All measurements are relative to TOOL_ZERO </p>	
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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	7-46NT-XS		
Serial Number			
Length	24000.00 ft		
Conveyance Type	Wireline		
Rig Type			
One:Depth Control Parameters		Depth Control Remarks	
Log Sequence	First Log In the Well	All Schlumberger depth procedures followed.	
Rig Up Length At Surface		IDW used as primary depth device.	
Rig Up Length At Bottom		Z-Chart used as secondary depth device.	
Rig Up Length Correction			
Stretch Correction			
Tool Zero Check At Surface			
One			

2500 PSI Main Pass

Software Version

Acquisition System

Maxwell 2017 SP1

Version

7.1.82245.3100

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[4]:Up	Up	53.79 ft	6110.53 ft	14-Feb-2017 11:52:26 AM	14-Feb-2017 12:45:40 PM	ON	6.25 ft	Yes

All depths are referenced to toolstring zero

Log

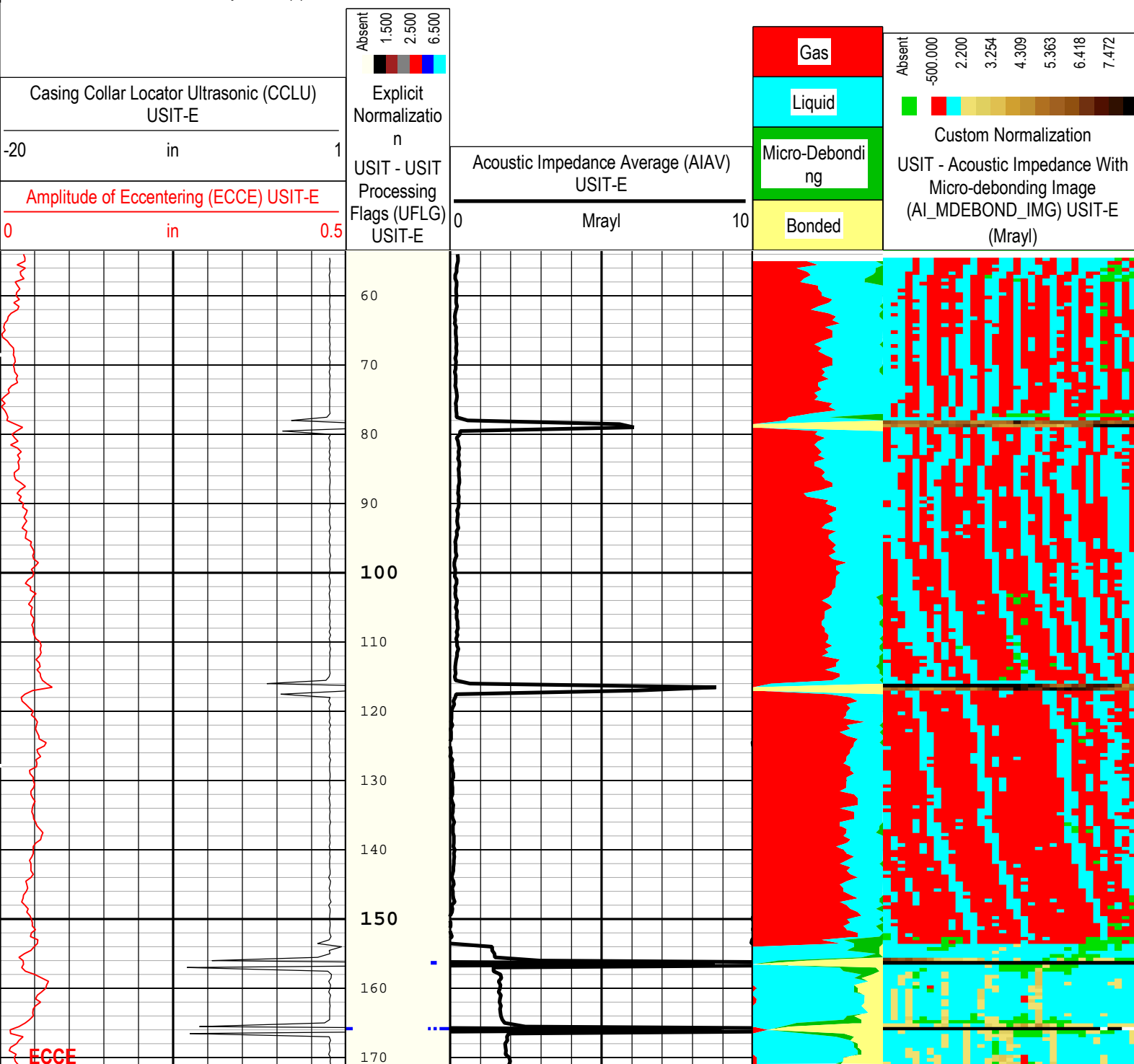
Company:Noble Energy, Inc.

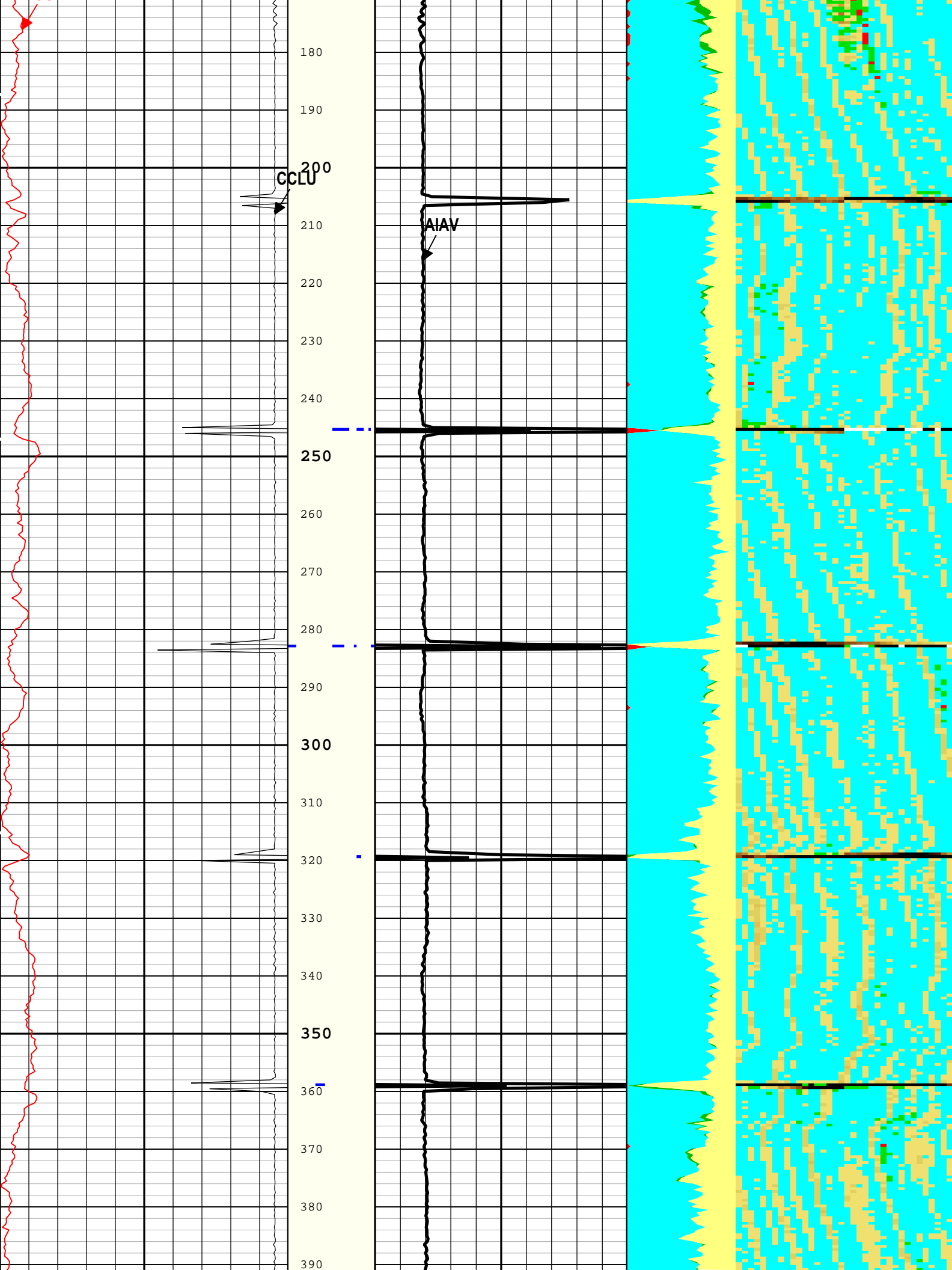
Well:Holliday Federal LC23-780

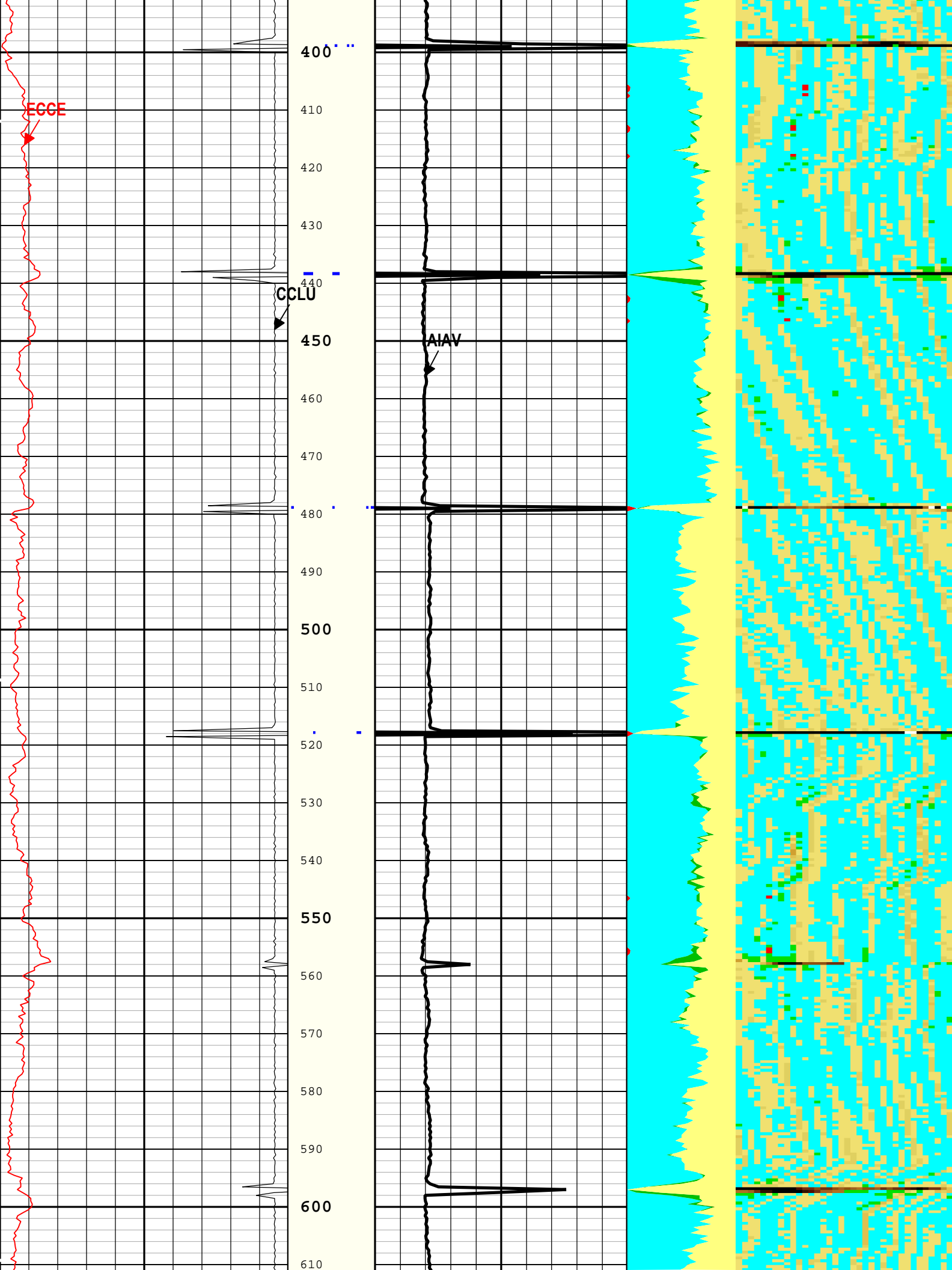
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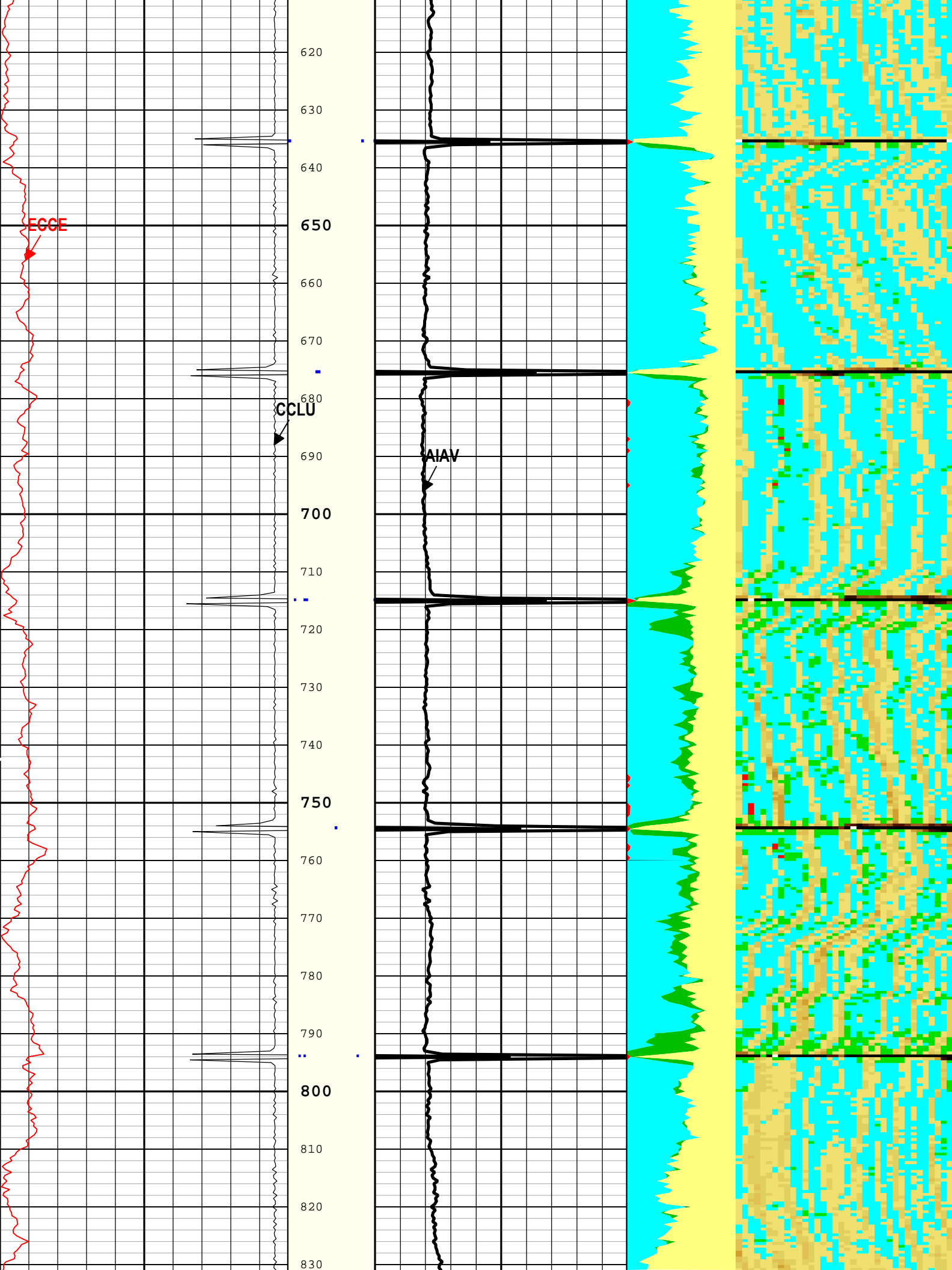
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Creation Date: 14-Feb-2017 13:40:13

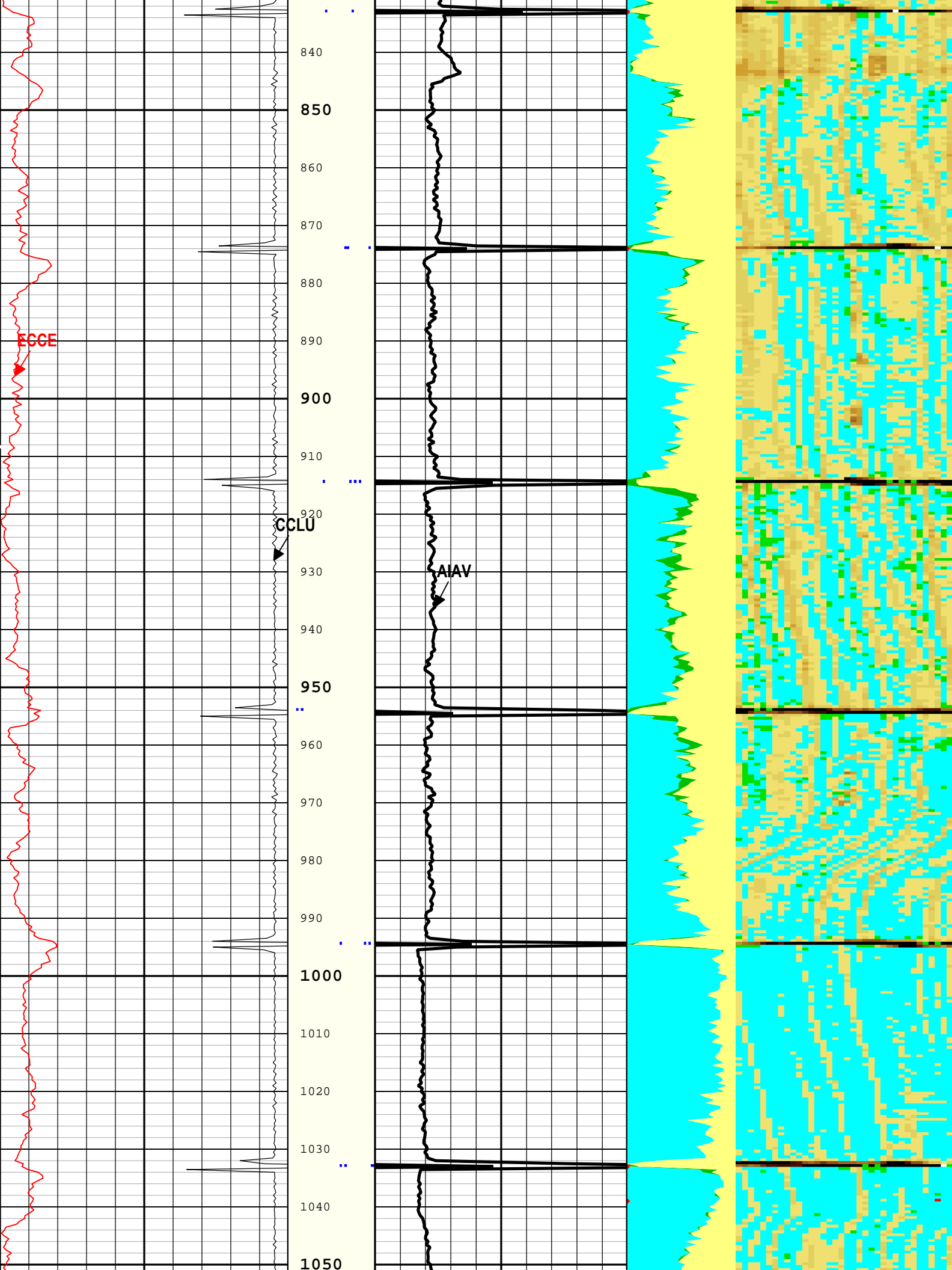
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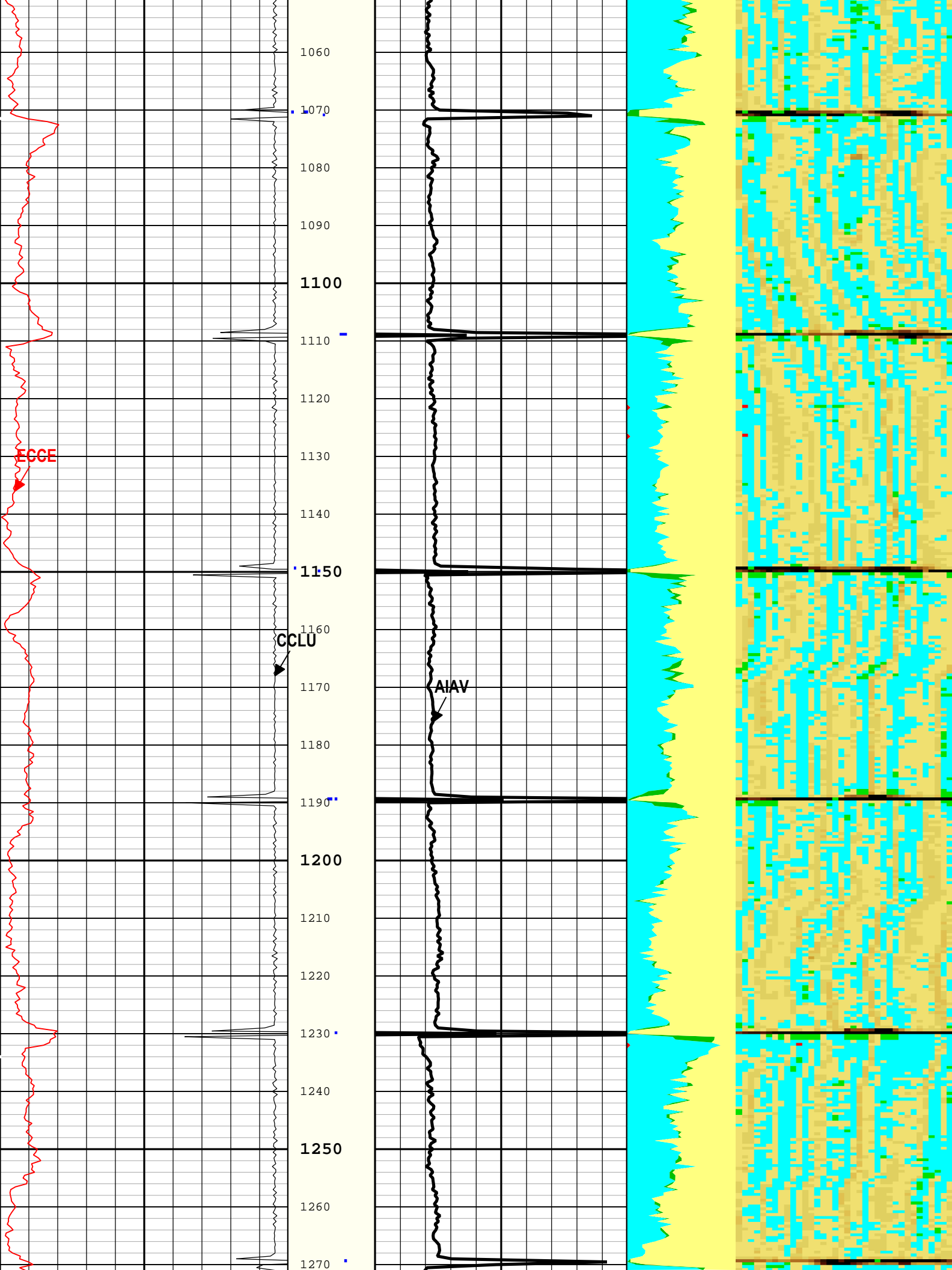


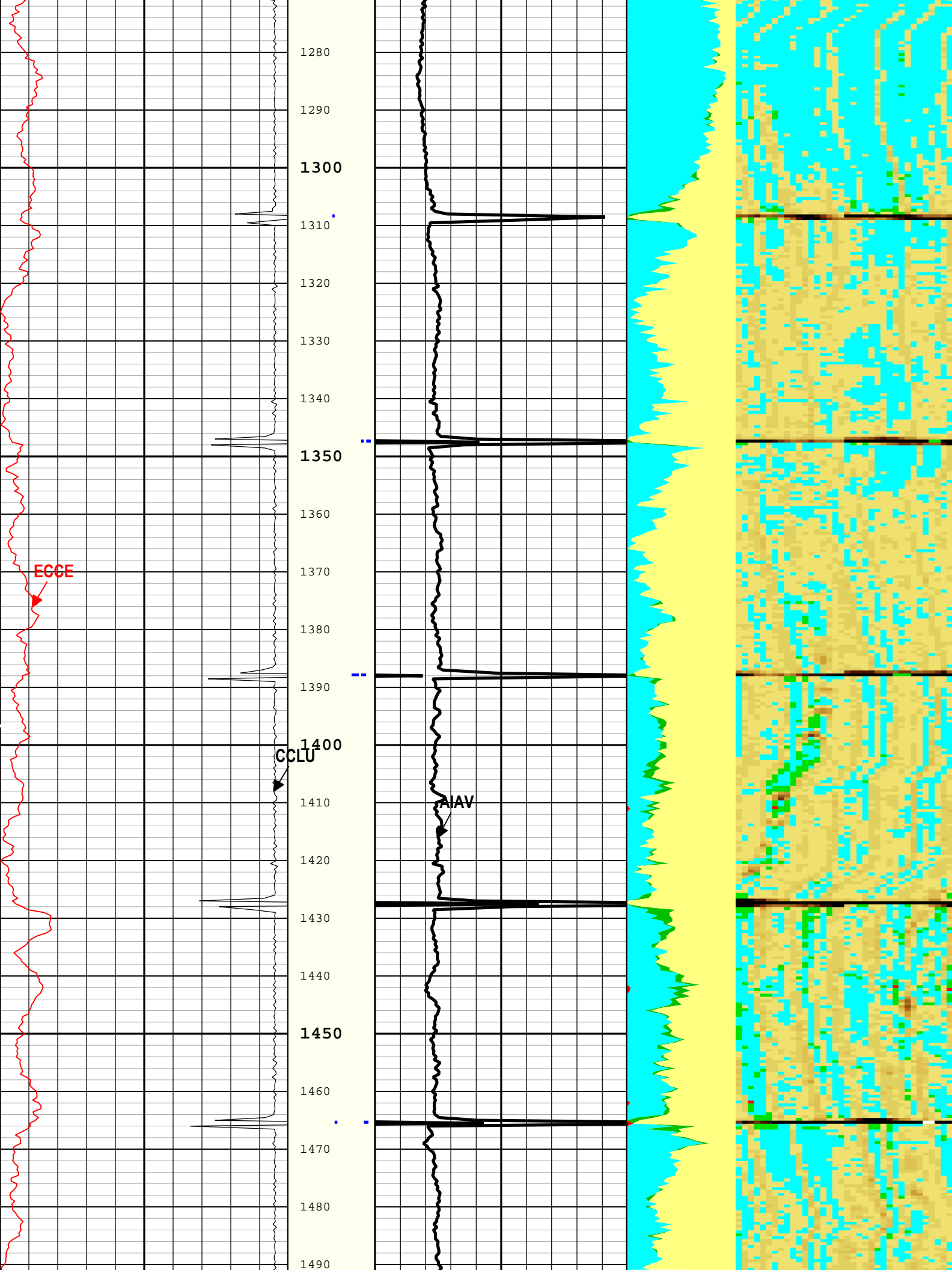


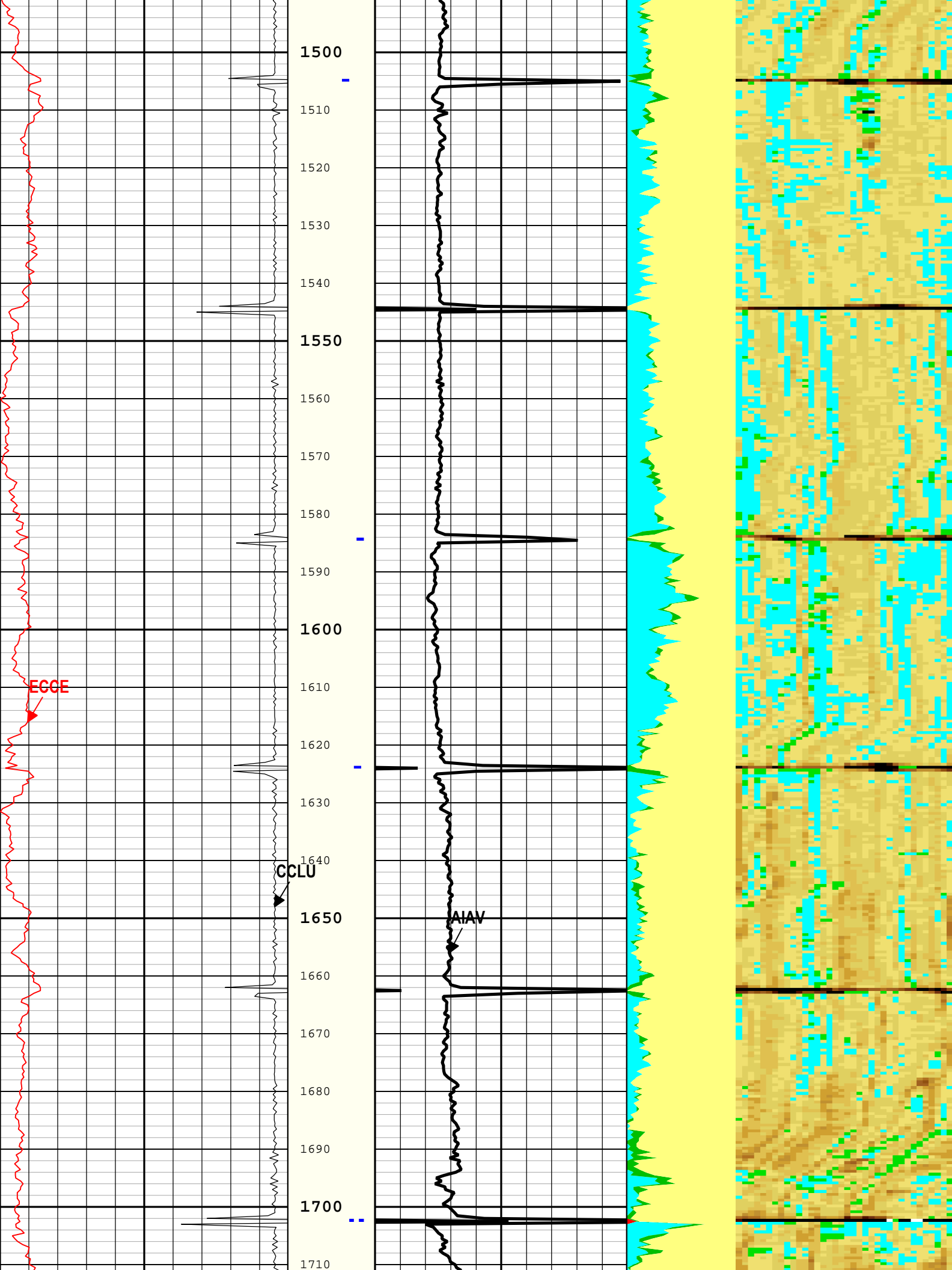


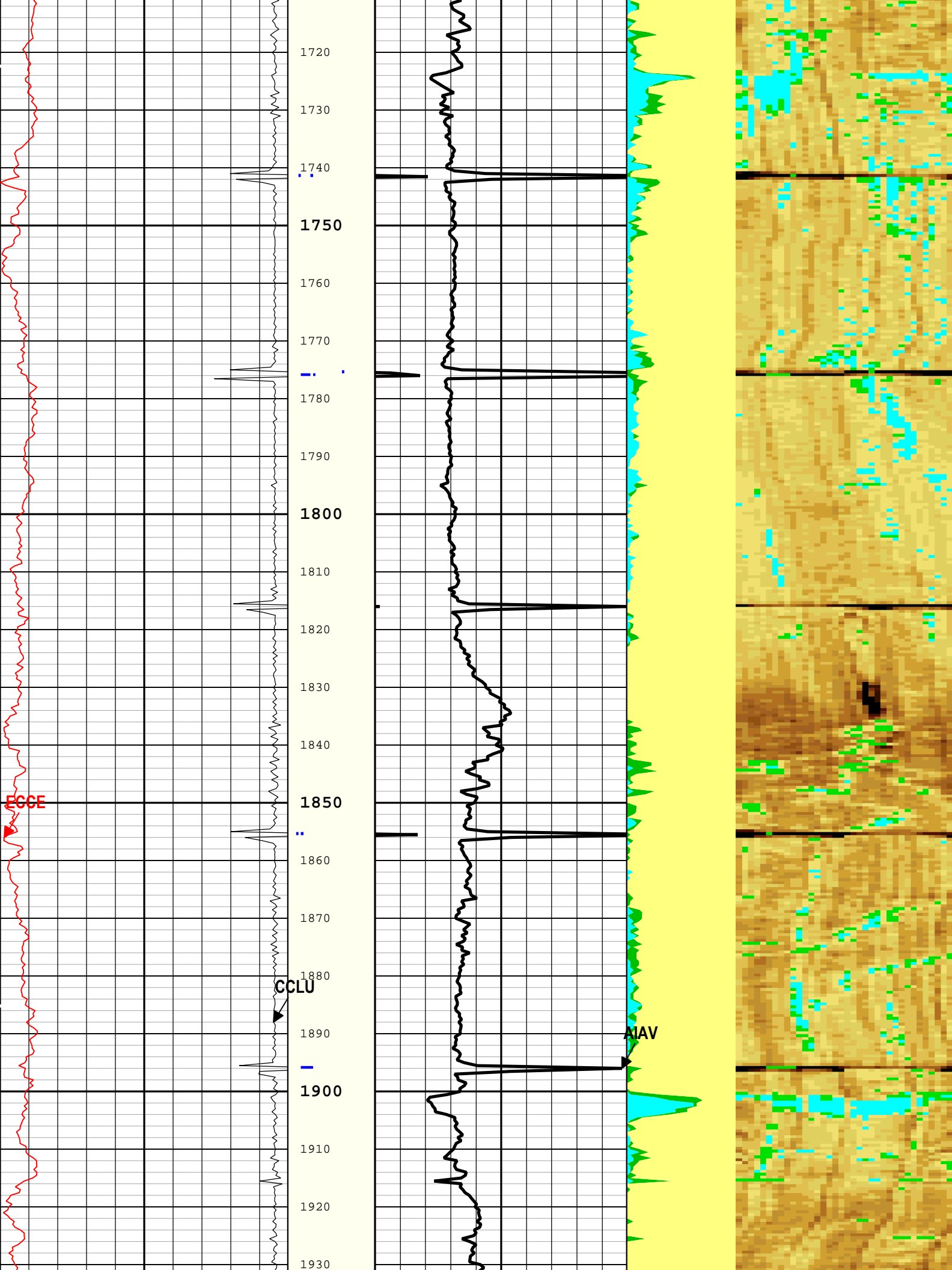


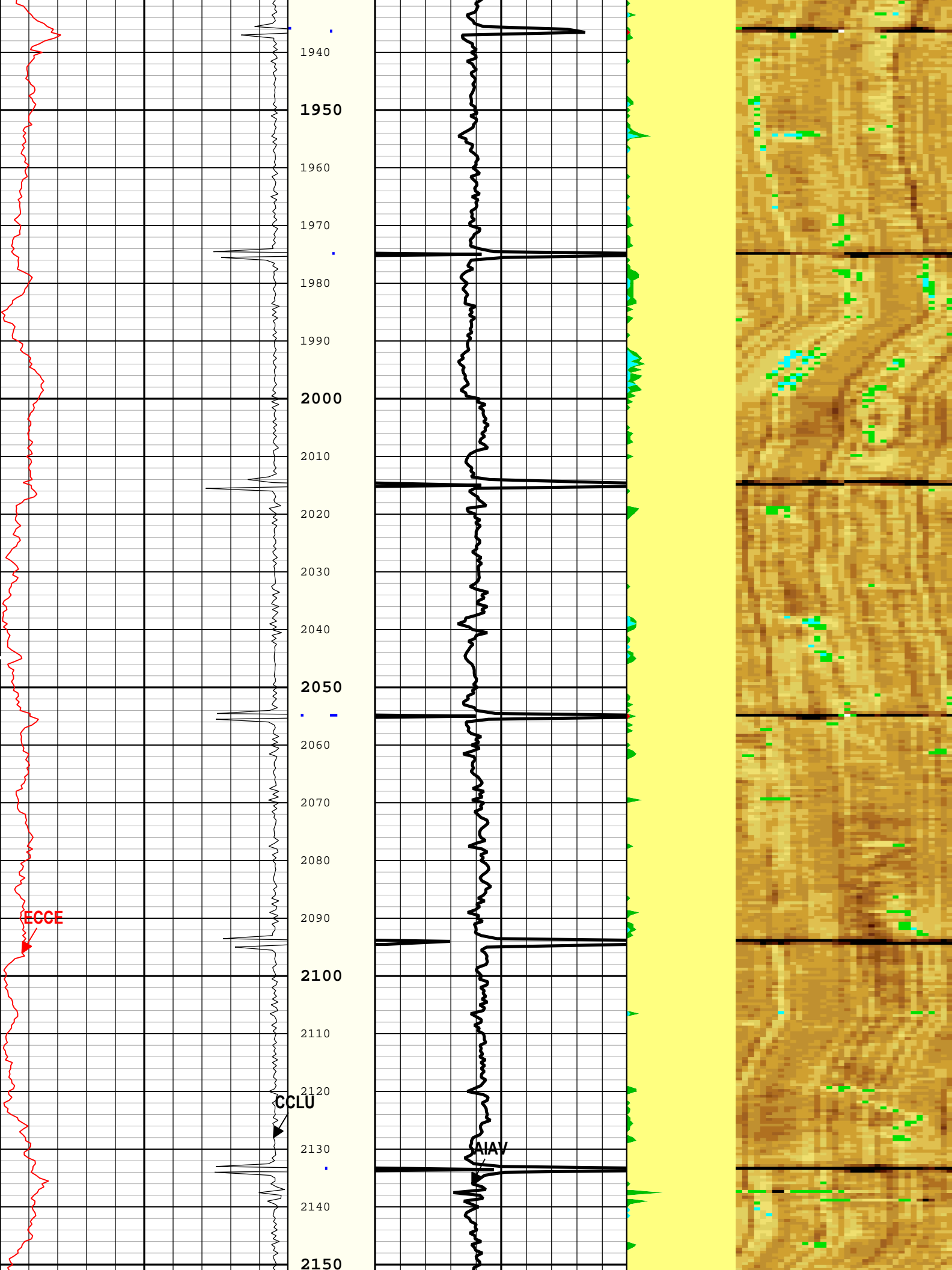


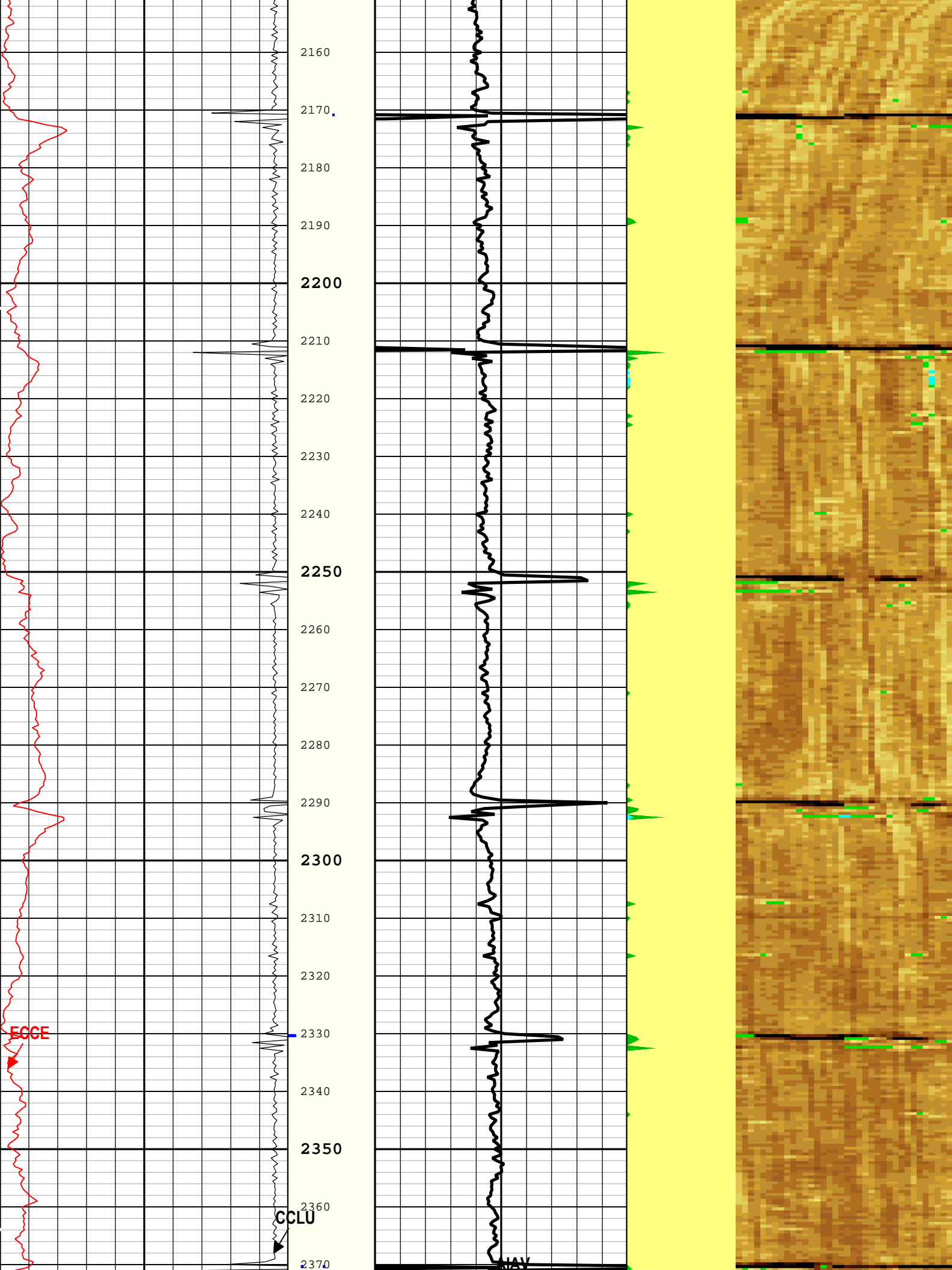


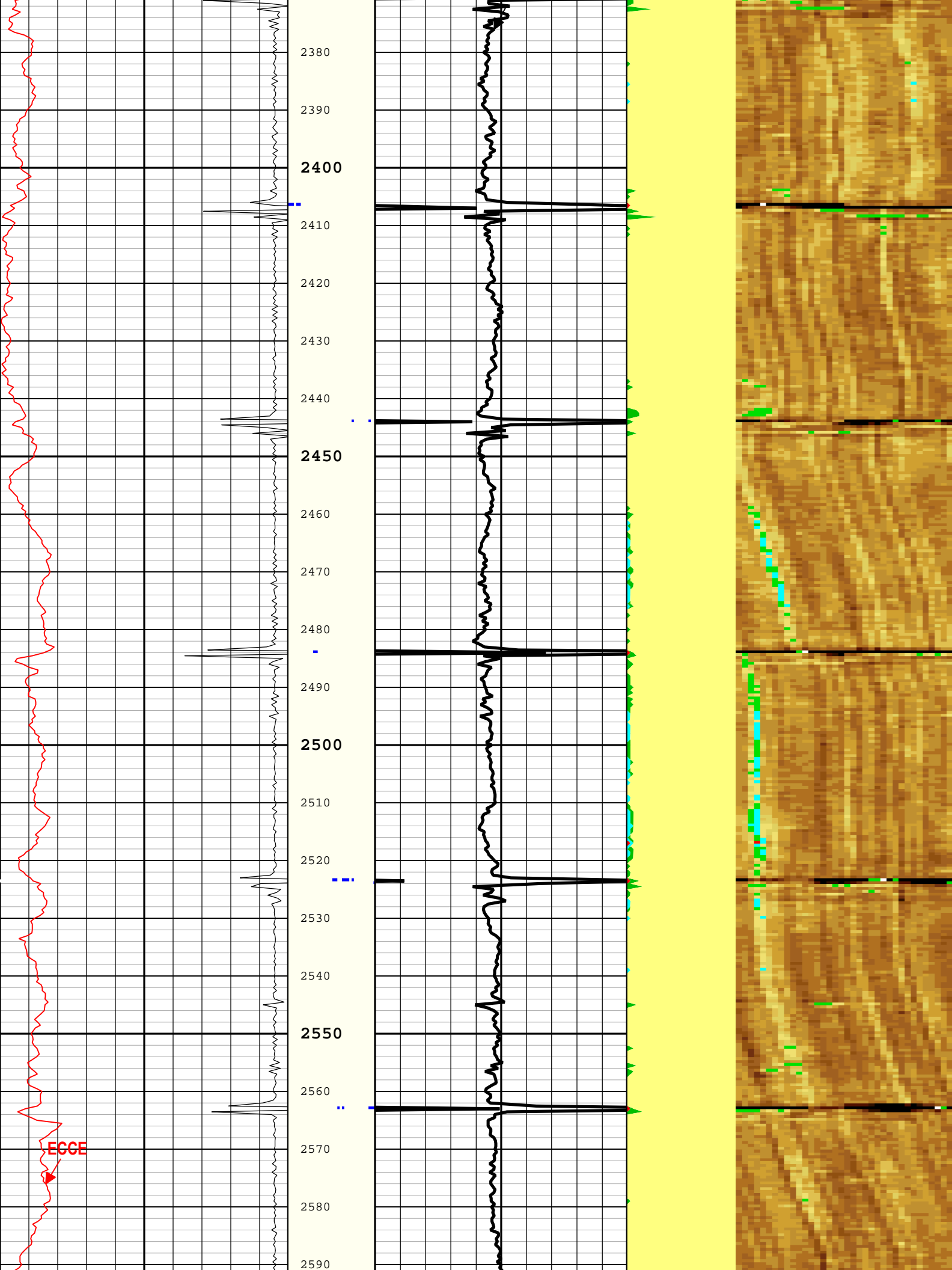


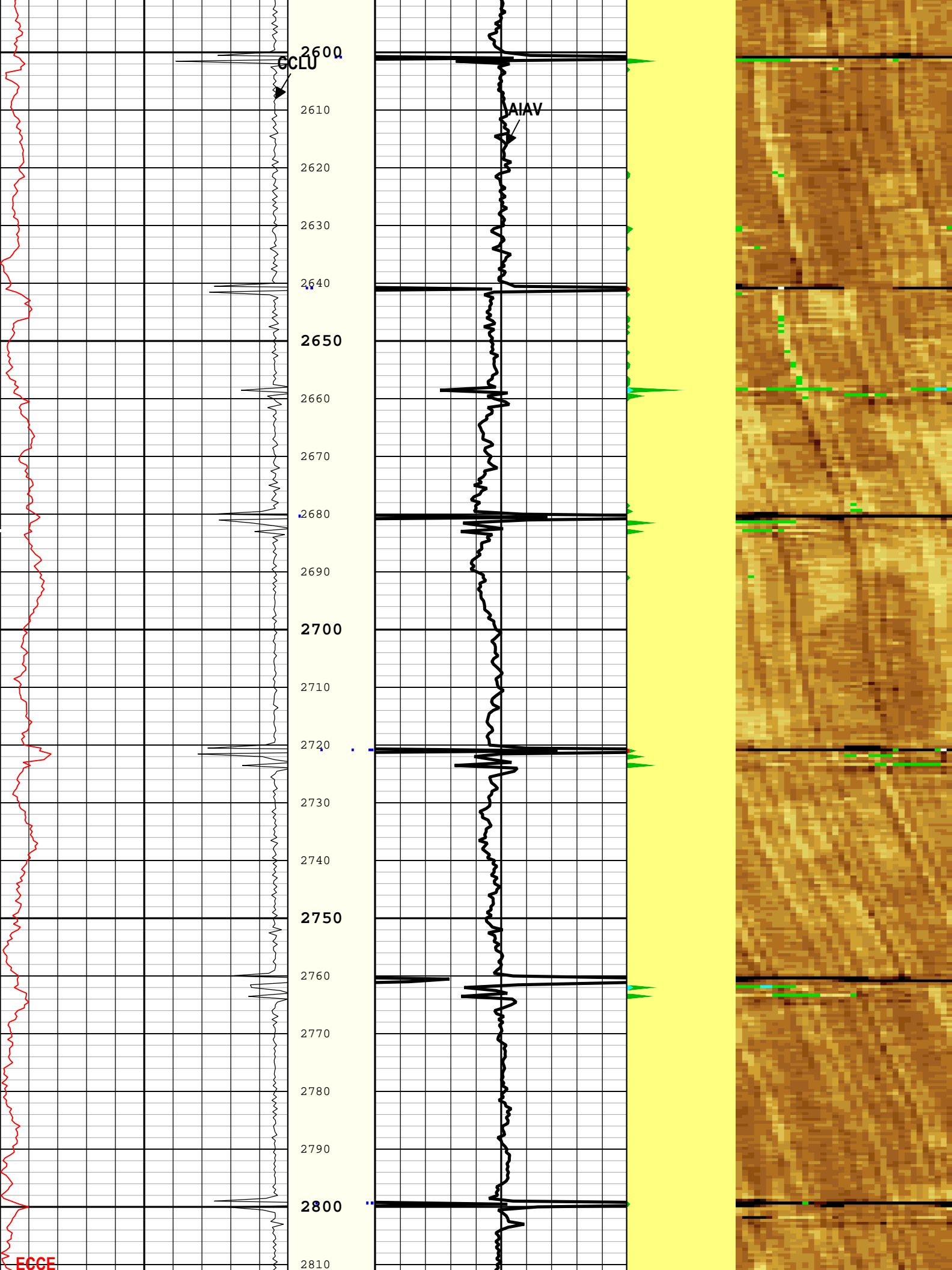


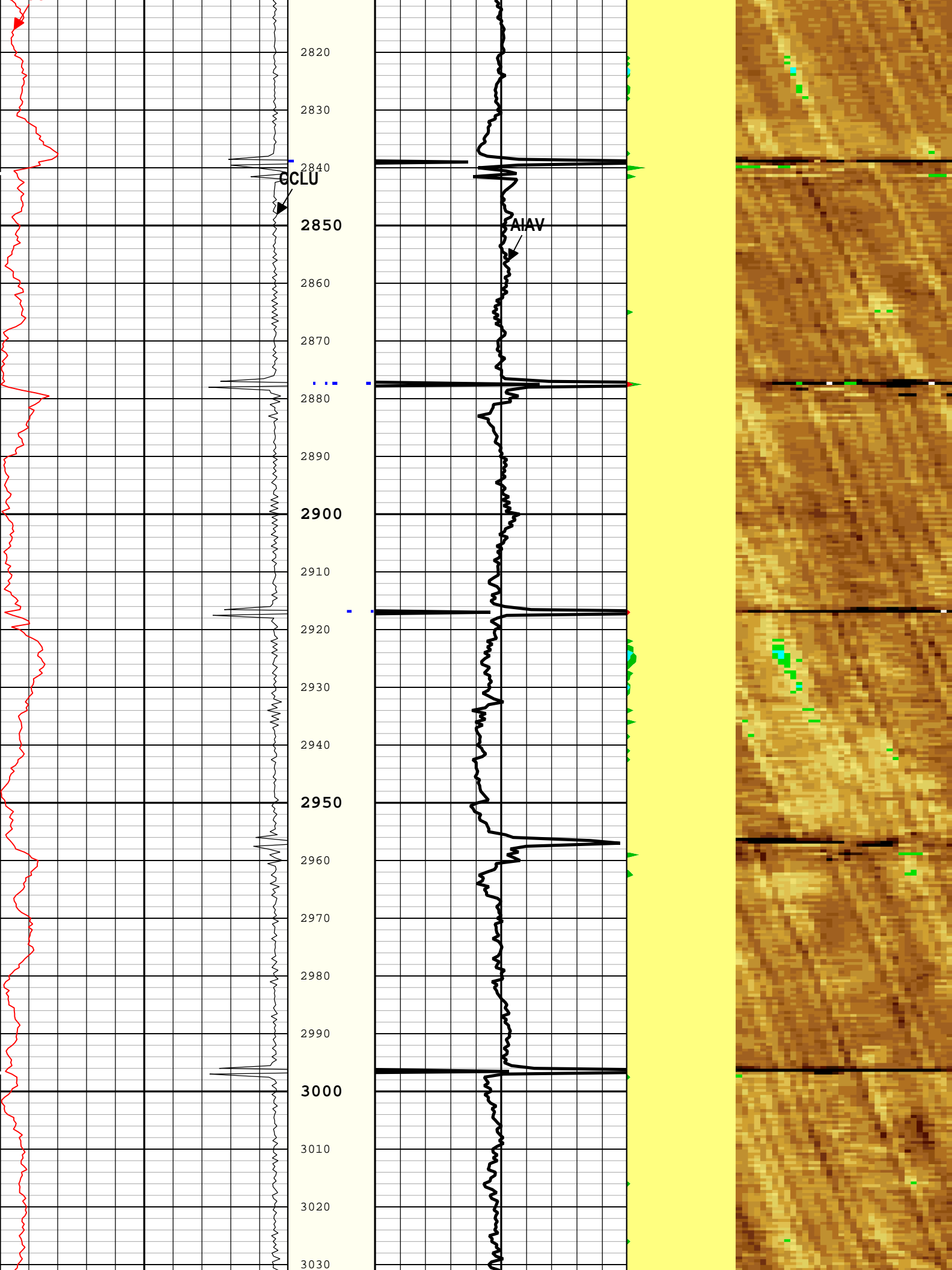


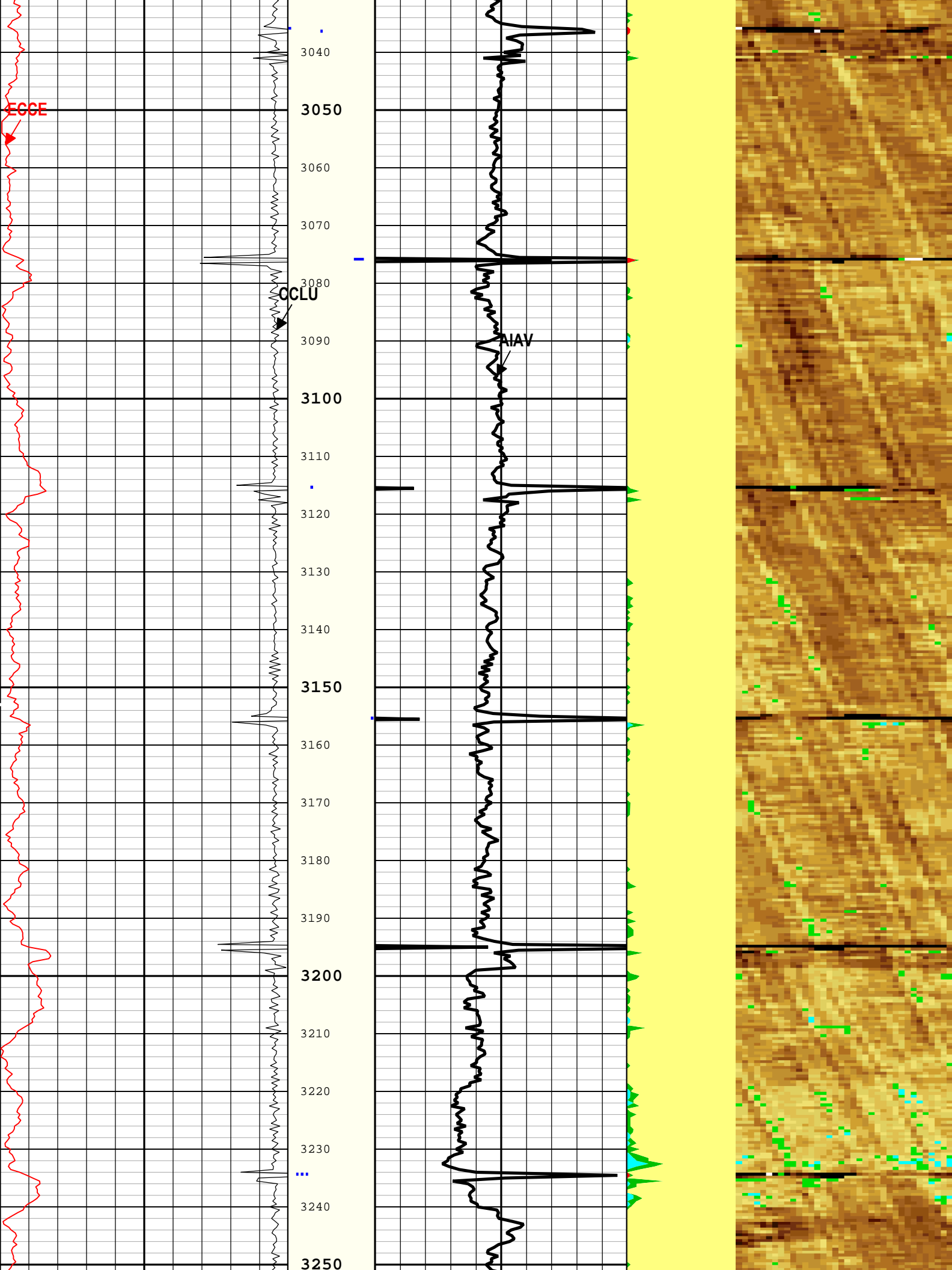


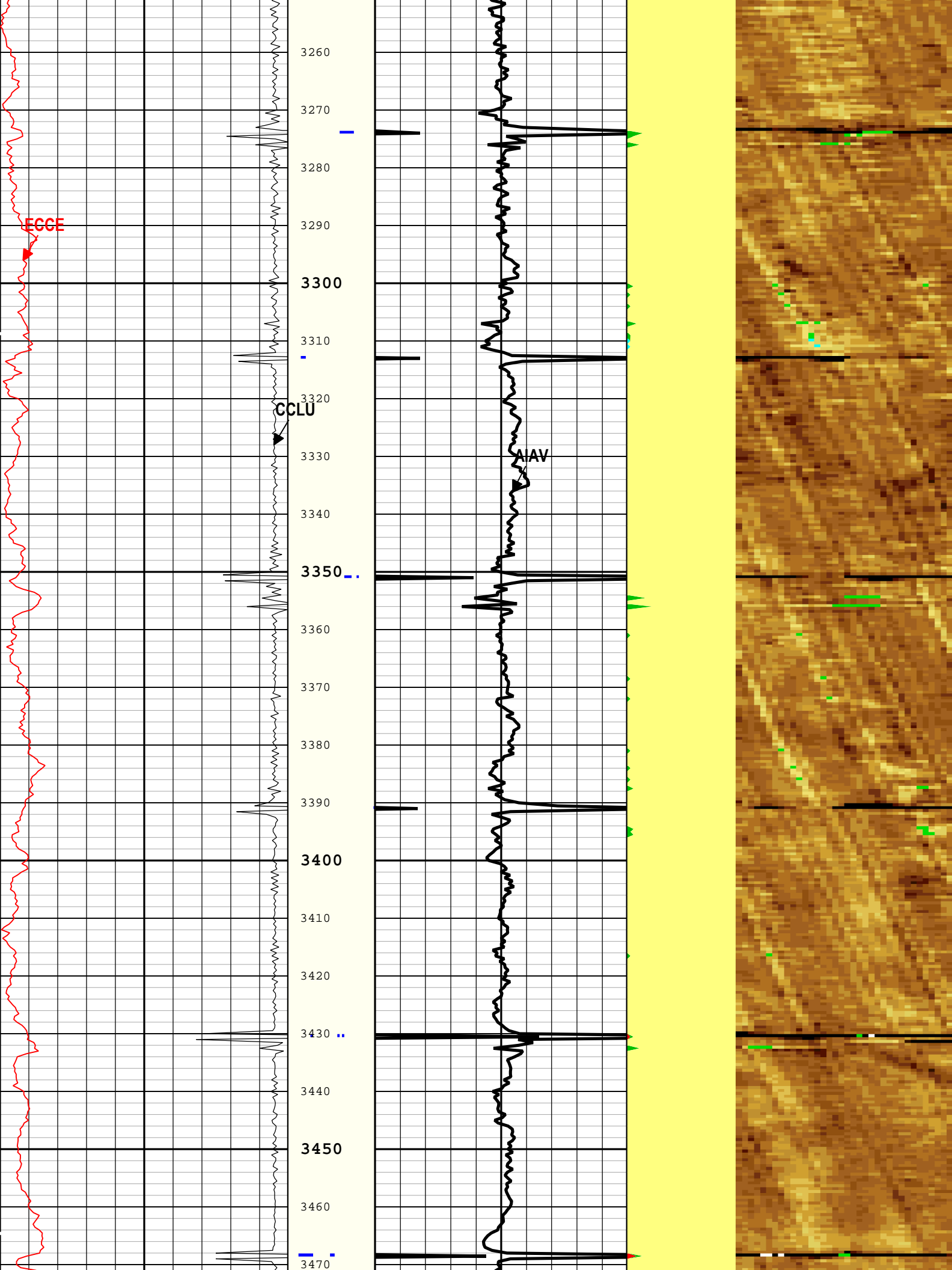


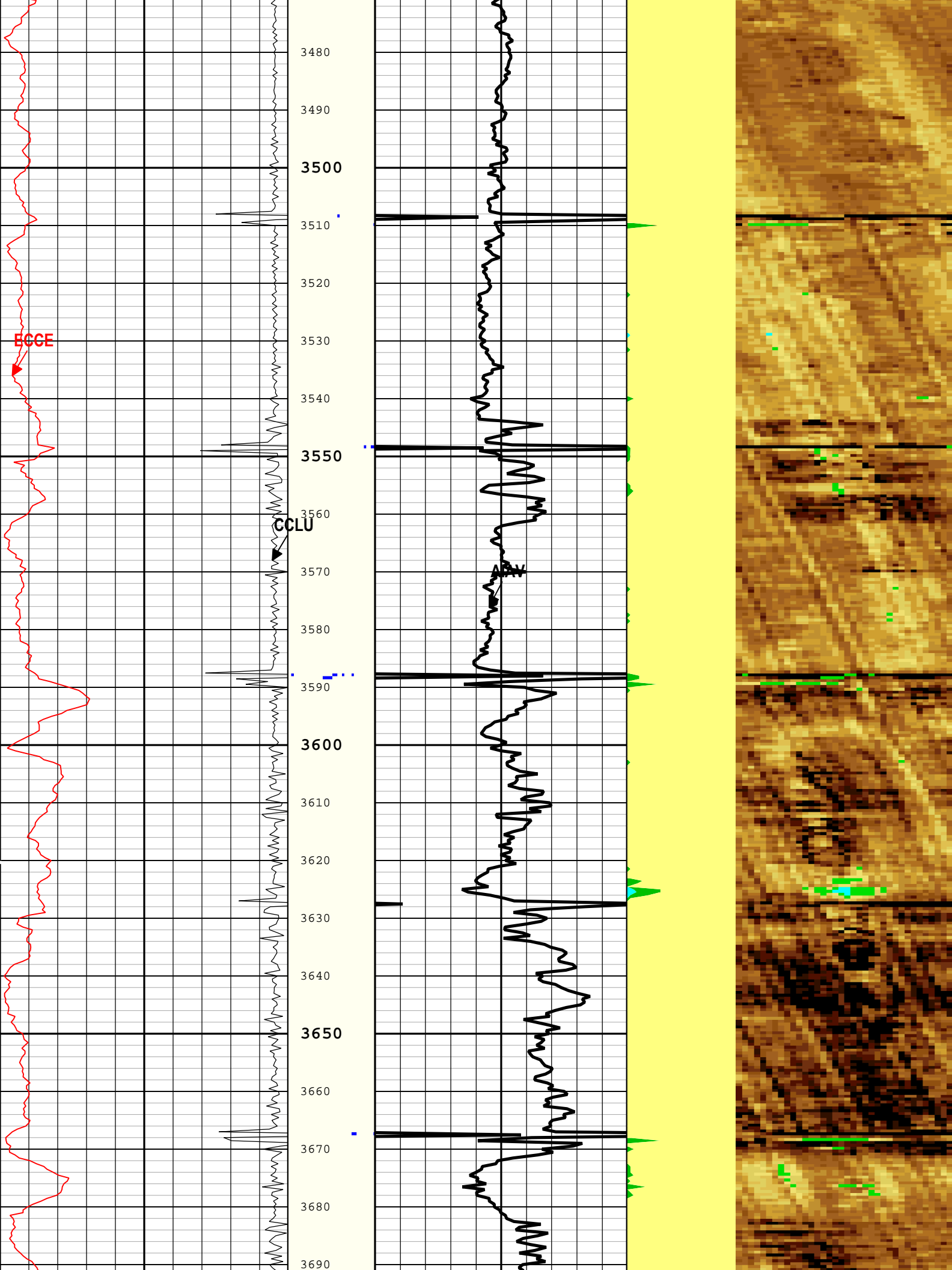


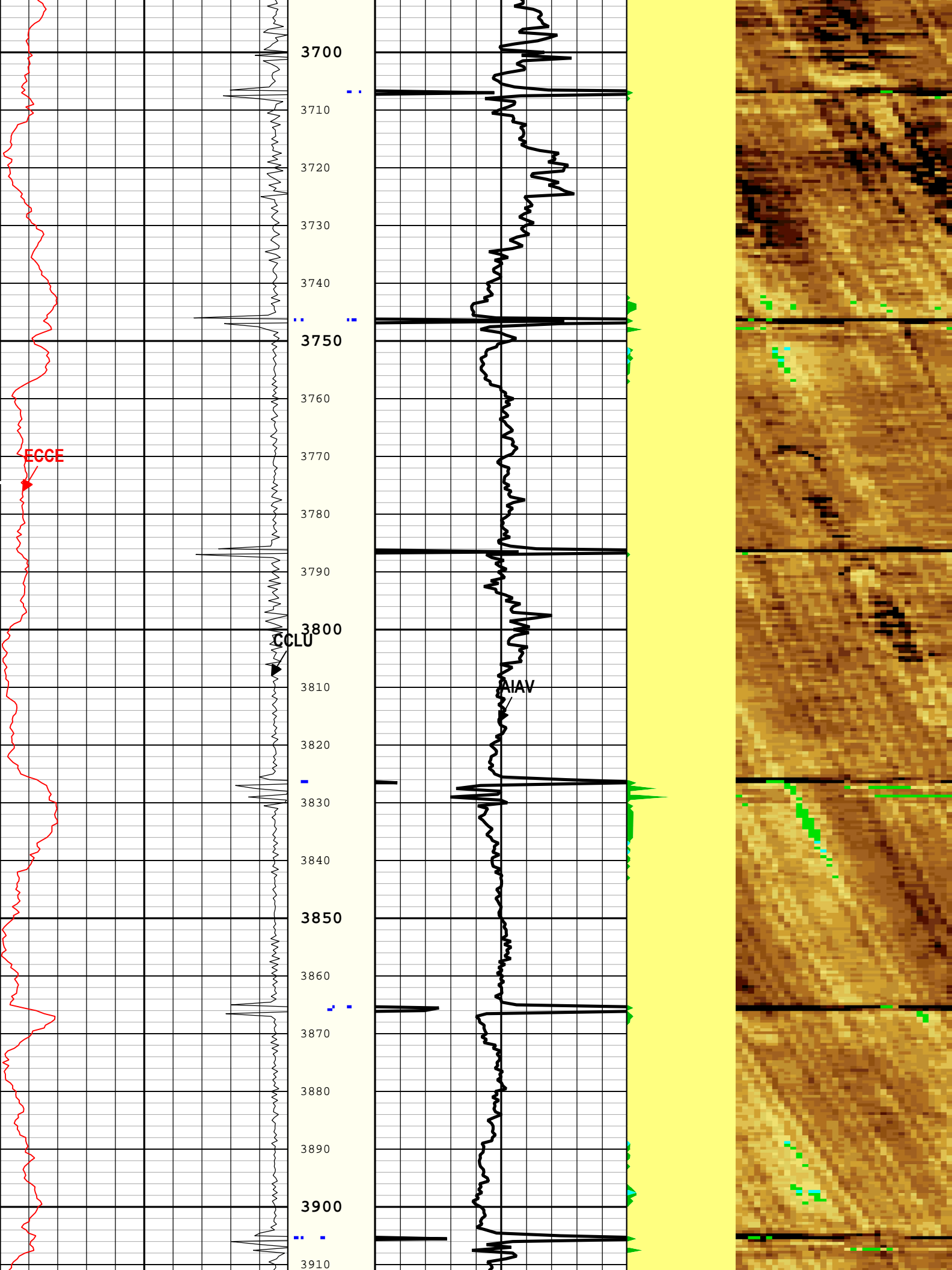


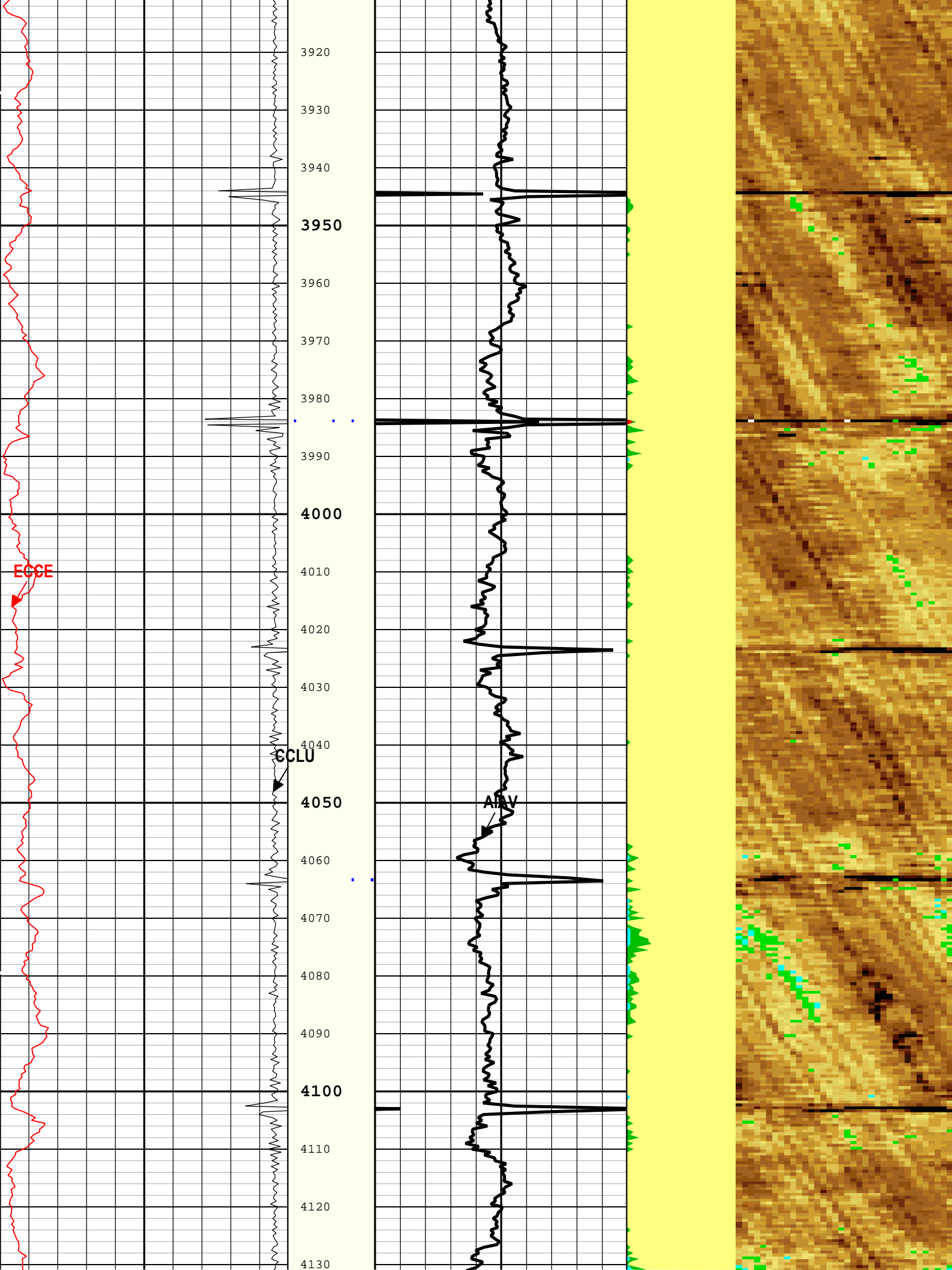


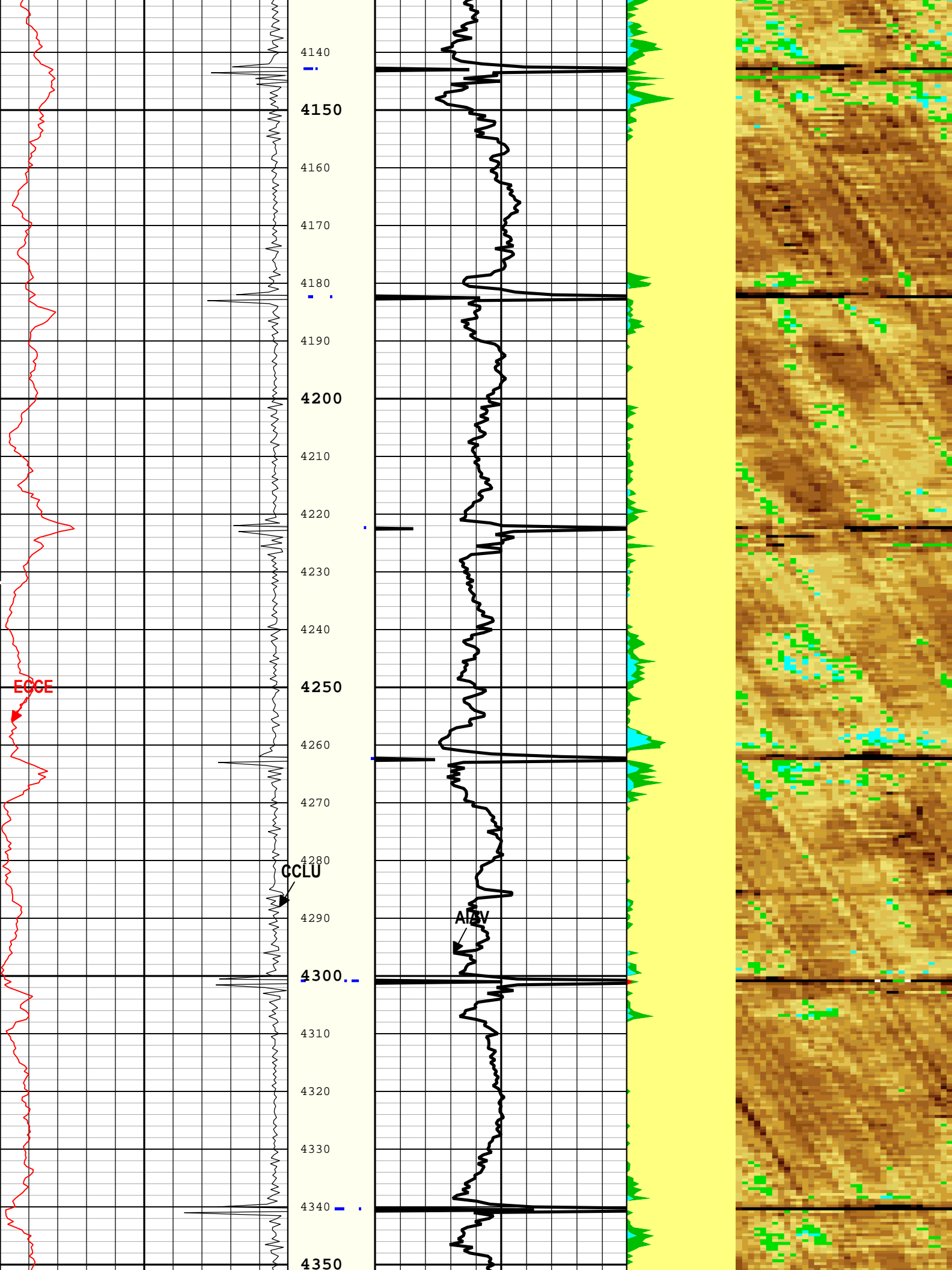


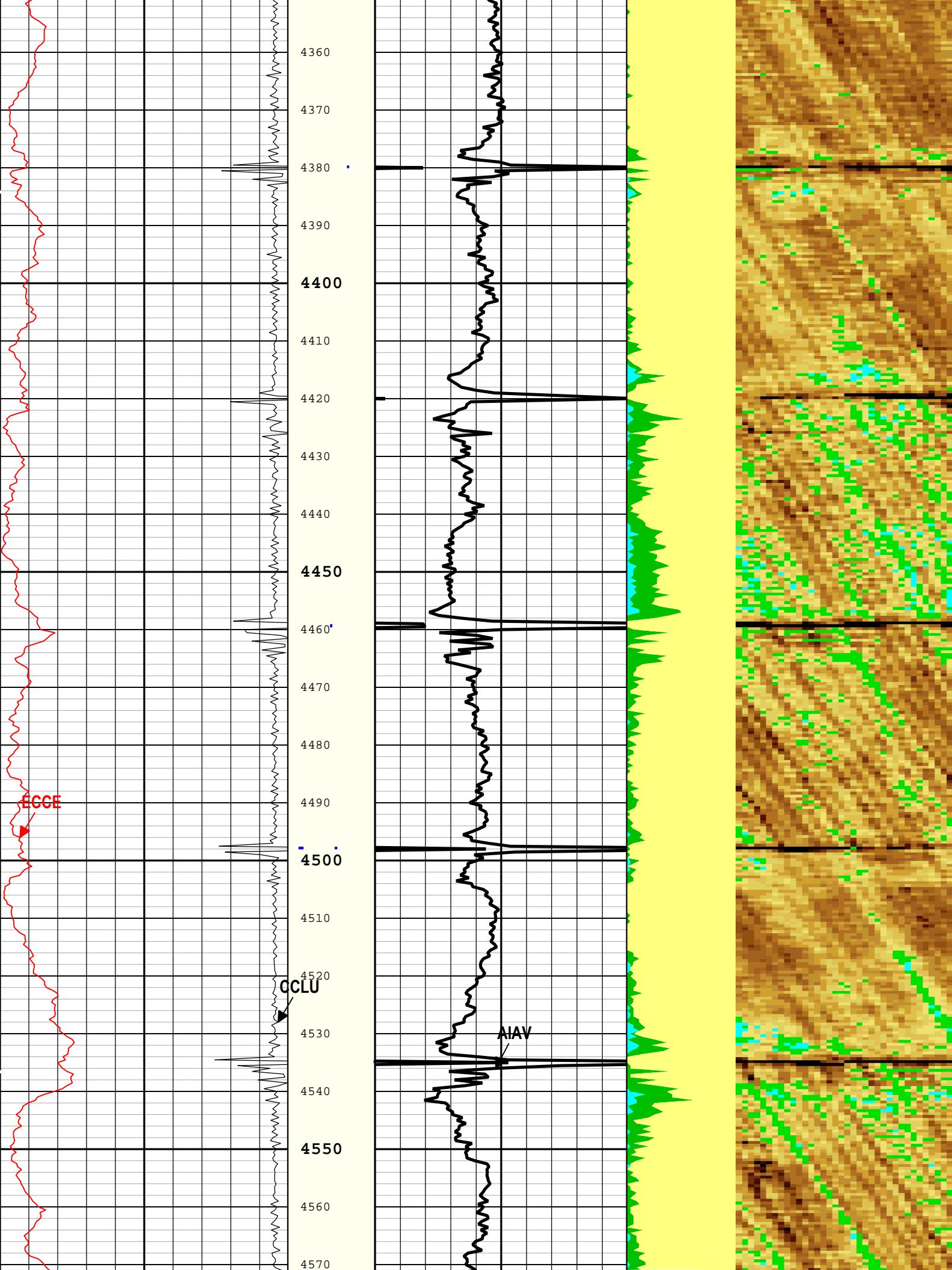


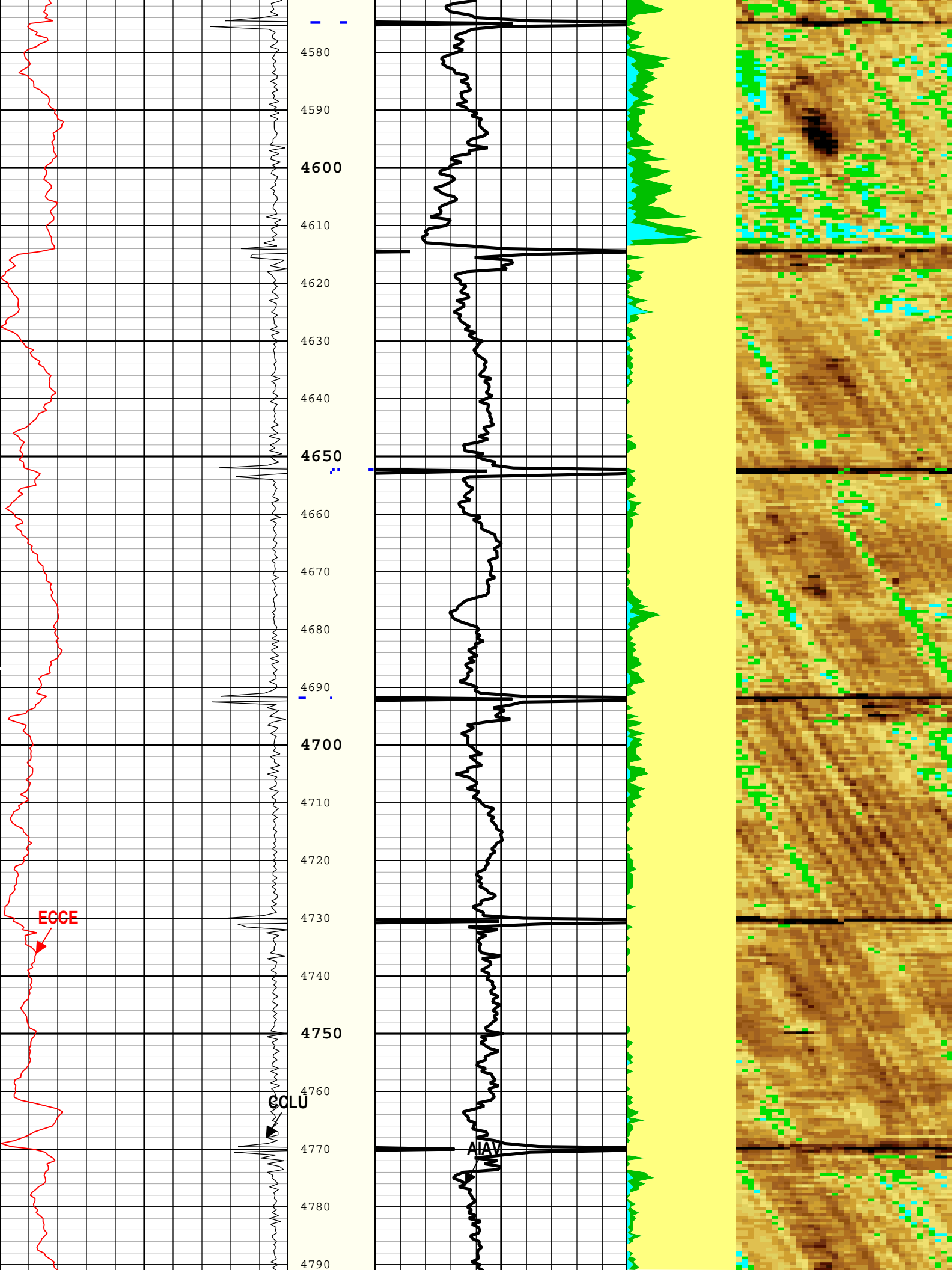


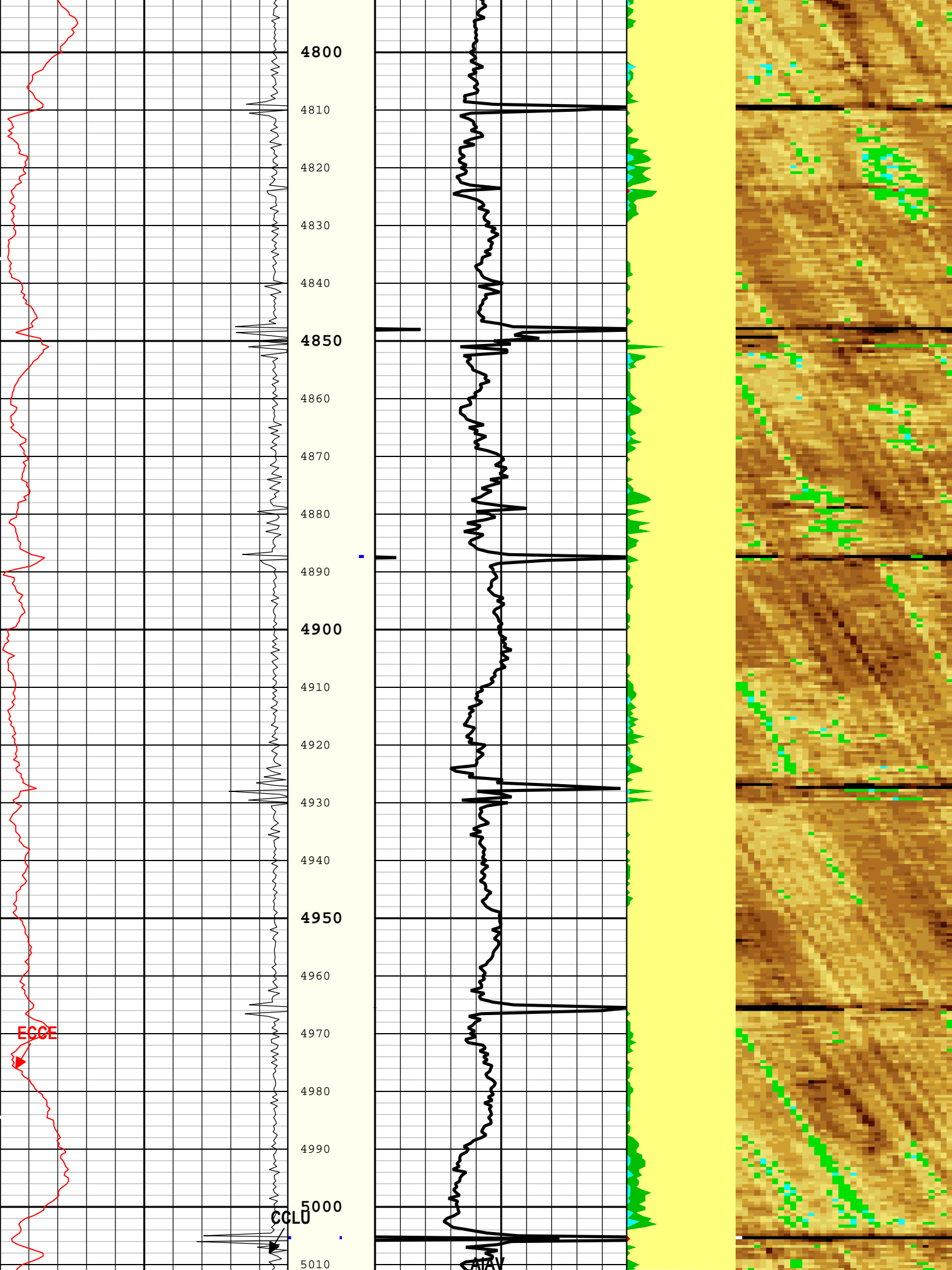


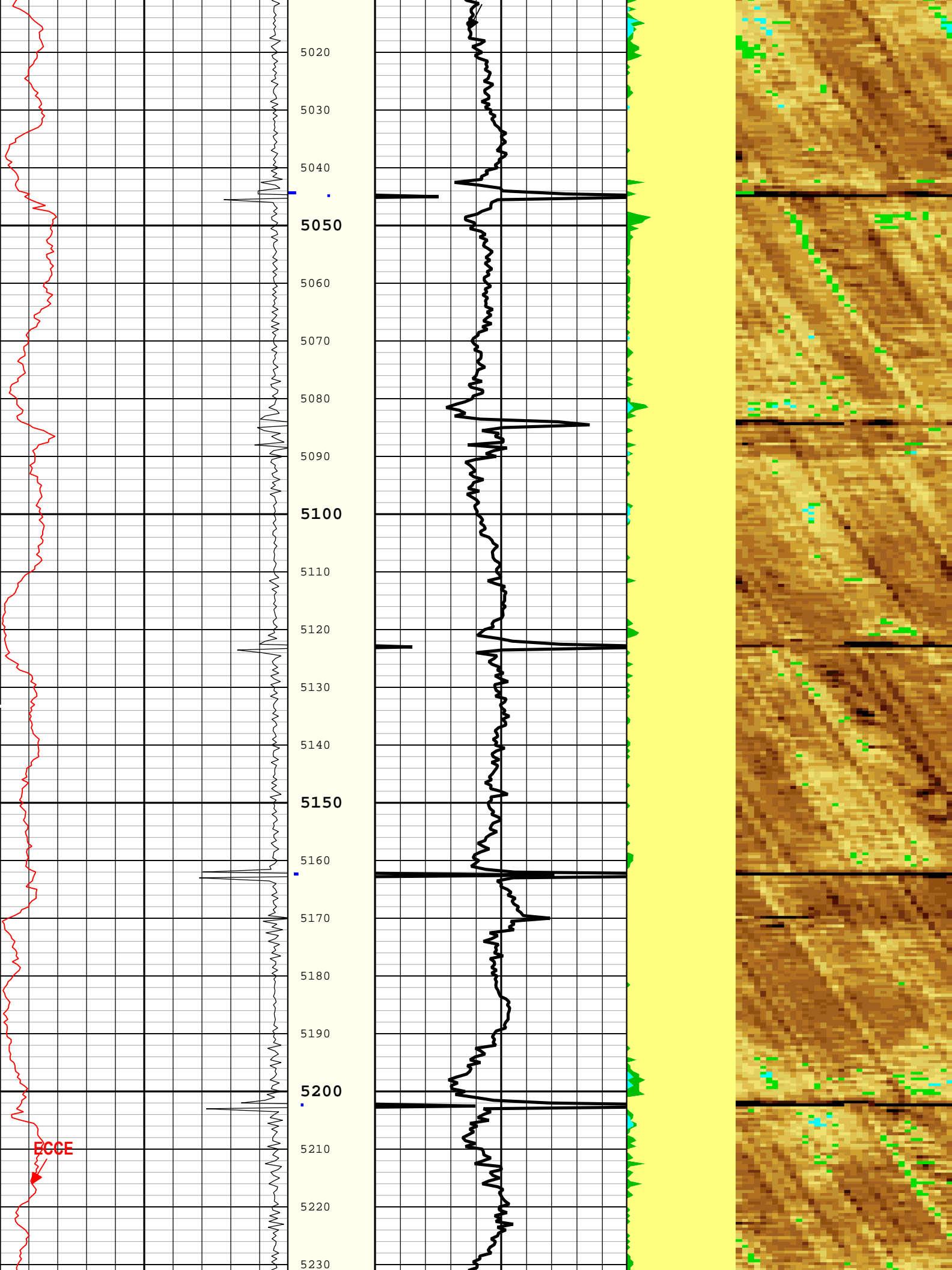


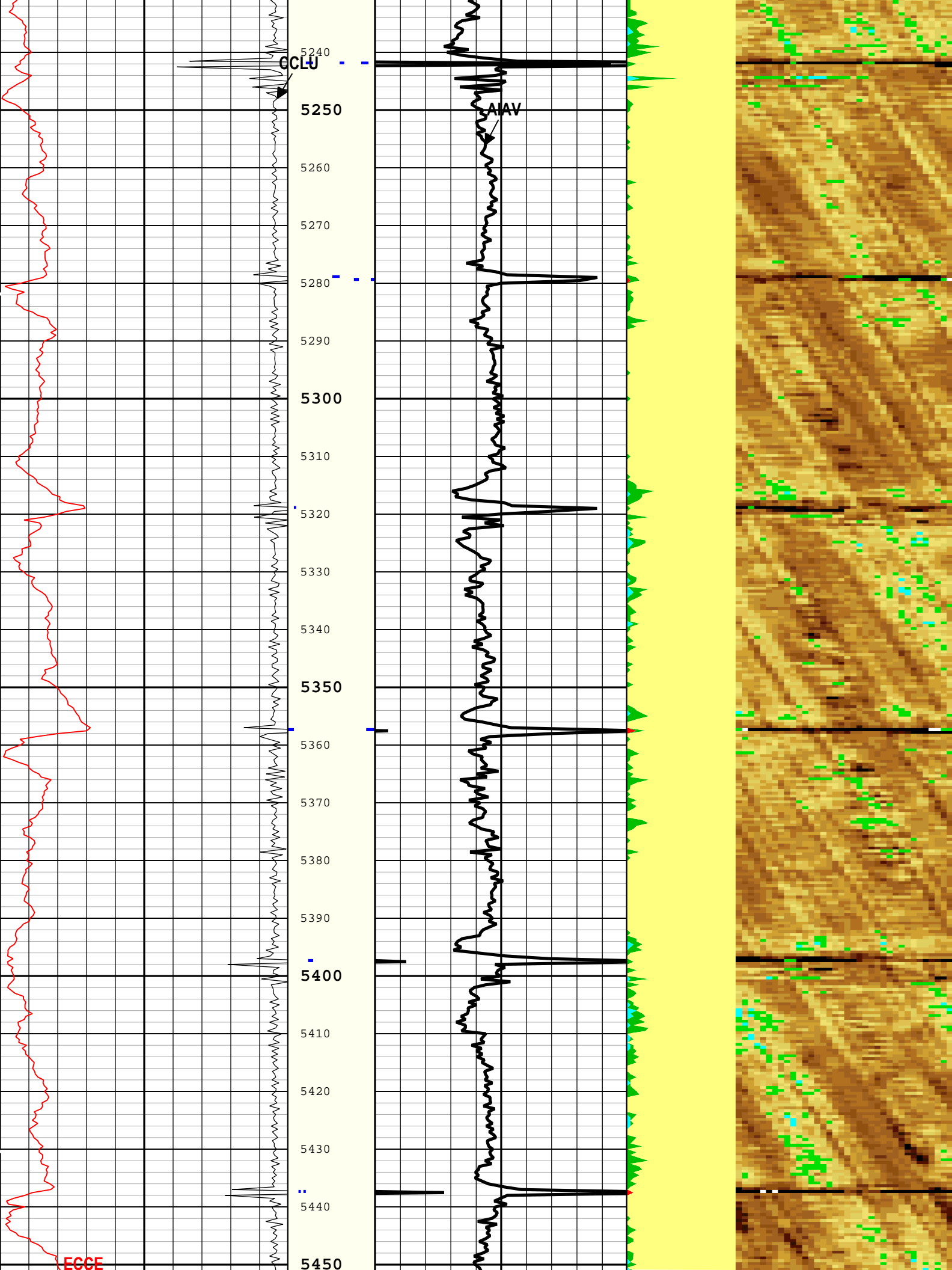


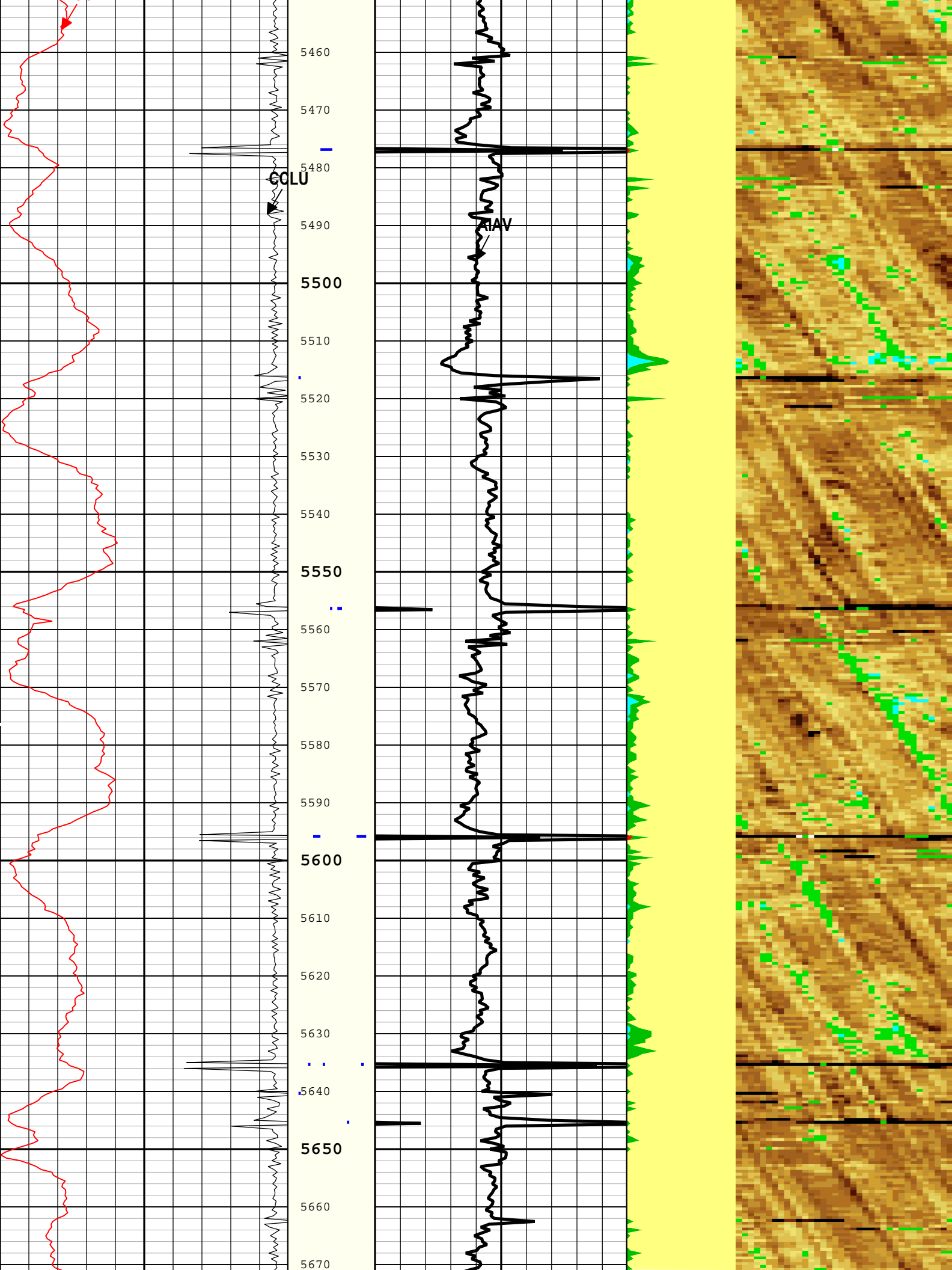


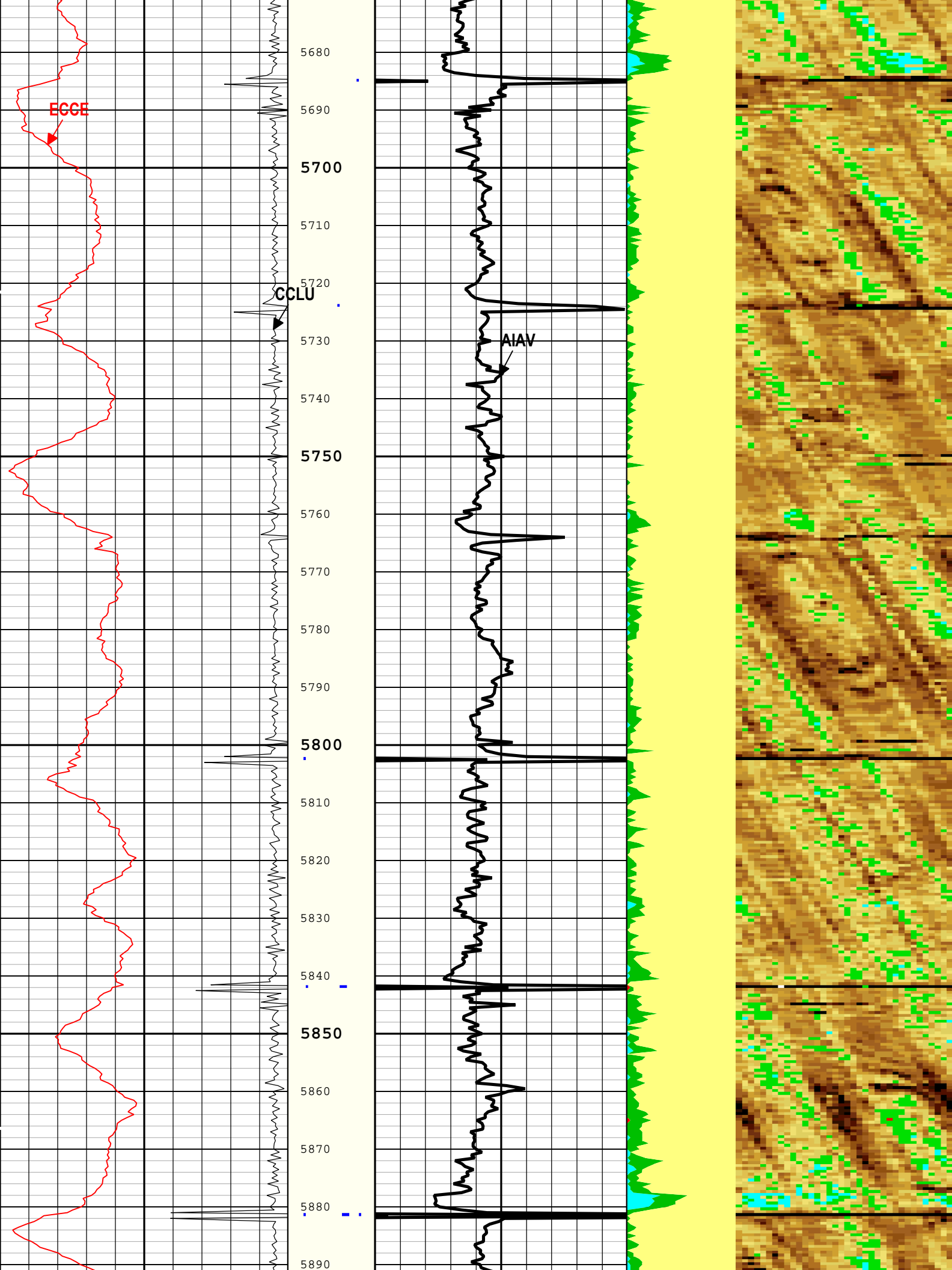


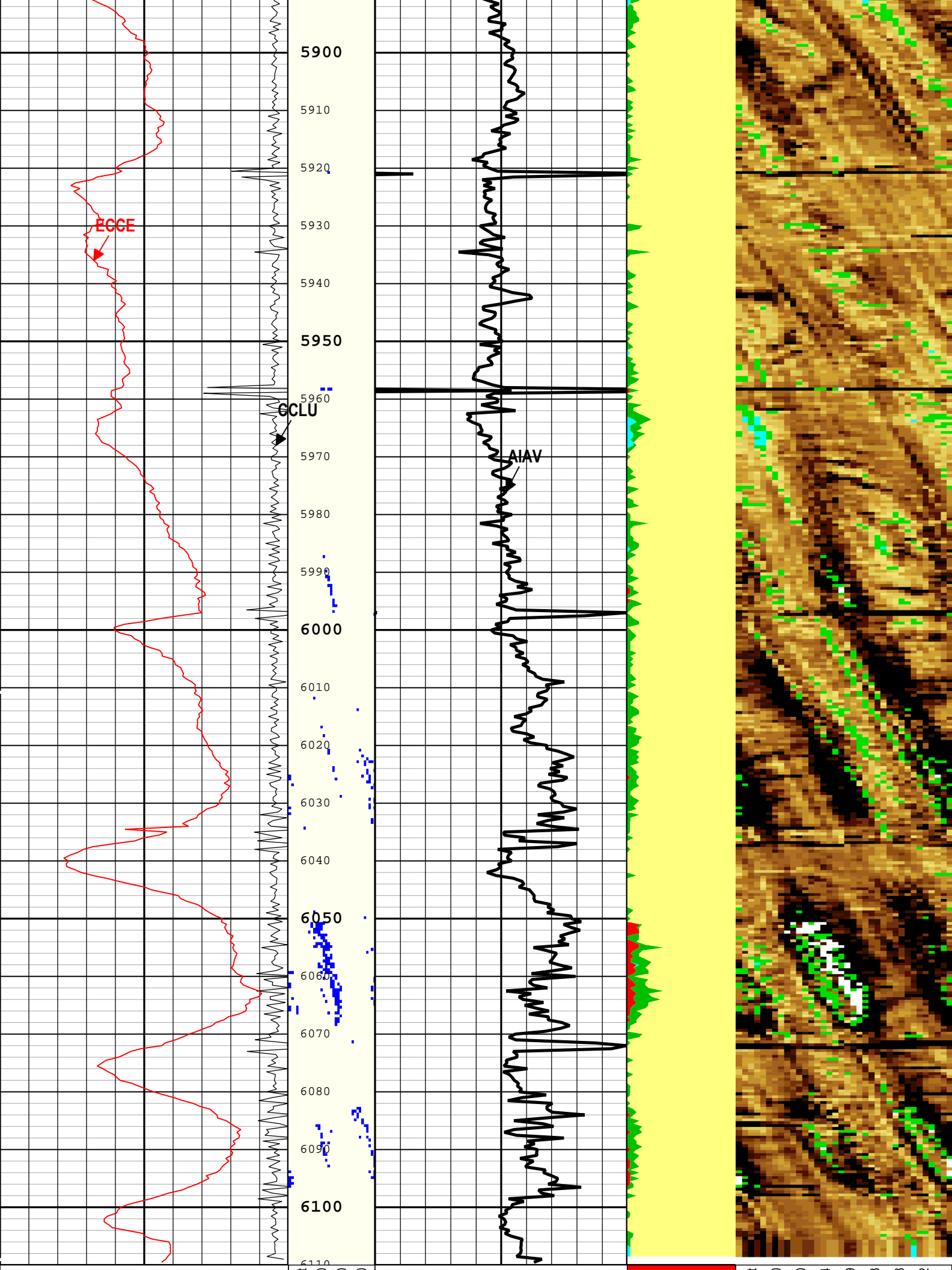


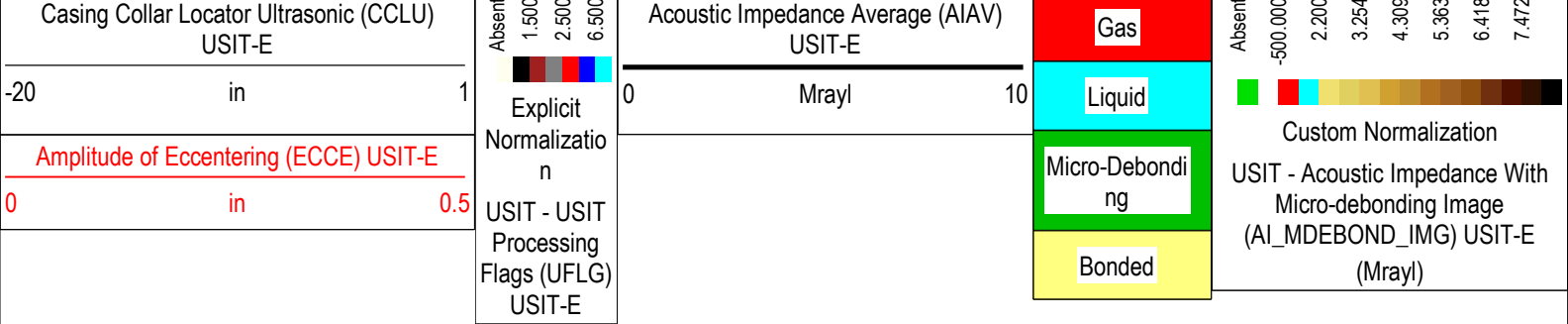












EMXV	EMEX Voltage	USIT-E	45	V
HRES	Horizontal Resolution	USIT-E	10 deg	
TMUC	Type of Mud	USIT-E	BRI	
ULOG	Logging Objective	USIT-E	MEASUREMENT	
UMFR	Modulation Frequency	USIT-E	333333	Hz
USFR	Ultrasonic Sampling Frequency	USIT-E	500000	Hz
UPAT	USIT Emission Pattern	USIT-E	Pattern 375 KHz	
UWKM	USIT Working Mode	USIT-E	Uncompressed 10 deg at 6.0 in LF	
USIT_DEPTHLOG	Starting Depth Log for Ultrasonics	USIT-E	3247	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	14-Feb-2017 11:52:26	14-Feb-2017 12:02:49	6110.52	6035.46
WINB	30	14-Feb-2017 12:02:49	14-Feb-2017 12:45:40	6035.46	53.79
WINE	71.88	14-Feb-2017 11:52:26	14-Feb-2017 12:02:55	6110.52	6021.38
WINE	73.88	14-Feb-2017 12:02:55	14-Feb-2017 12:45:40	6021.38	53.79

All depths are at tool zero.

One

0 PSI Repeat Pass

Software Version

Acquisition System	Version
Maxwell 2017 SP1	7.1.82245.3100

Pass Summary

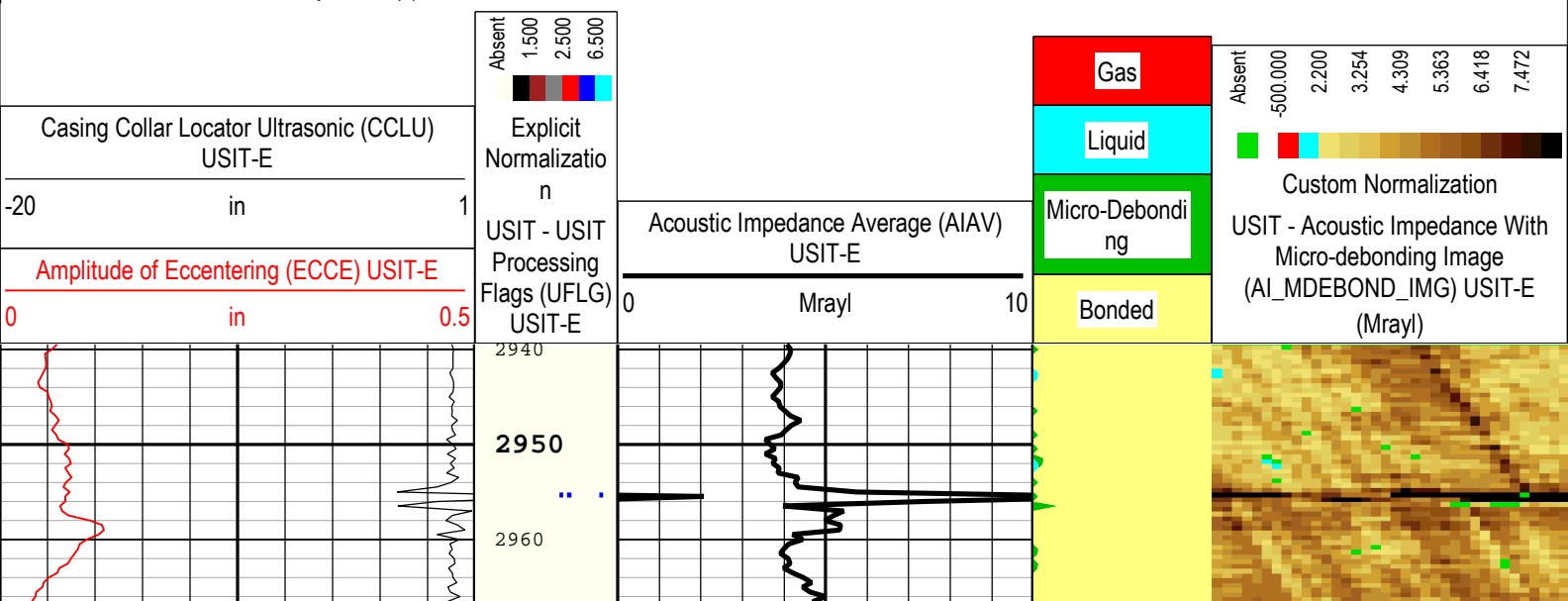
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[2]:Up	Up	2939.40 ft	3250.67 ft	14-Feb-2017 11:38:20 AM	14-Feb-2017 11:40:46 AM	ON	3.13 ft	Yes

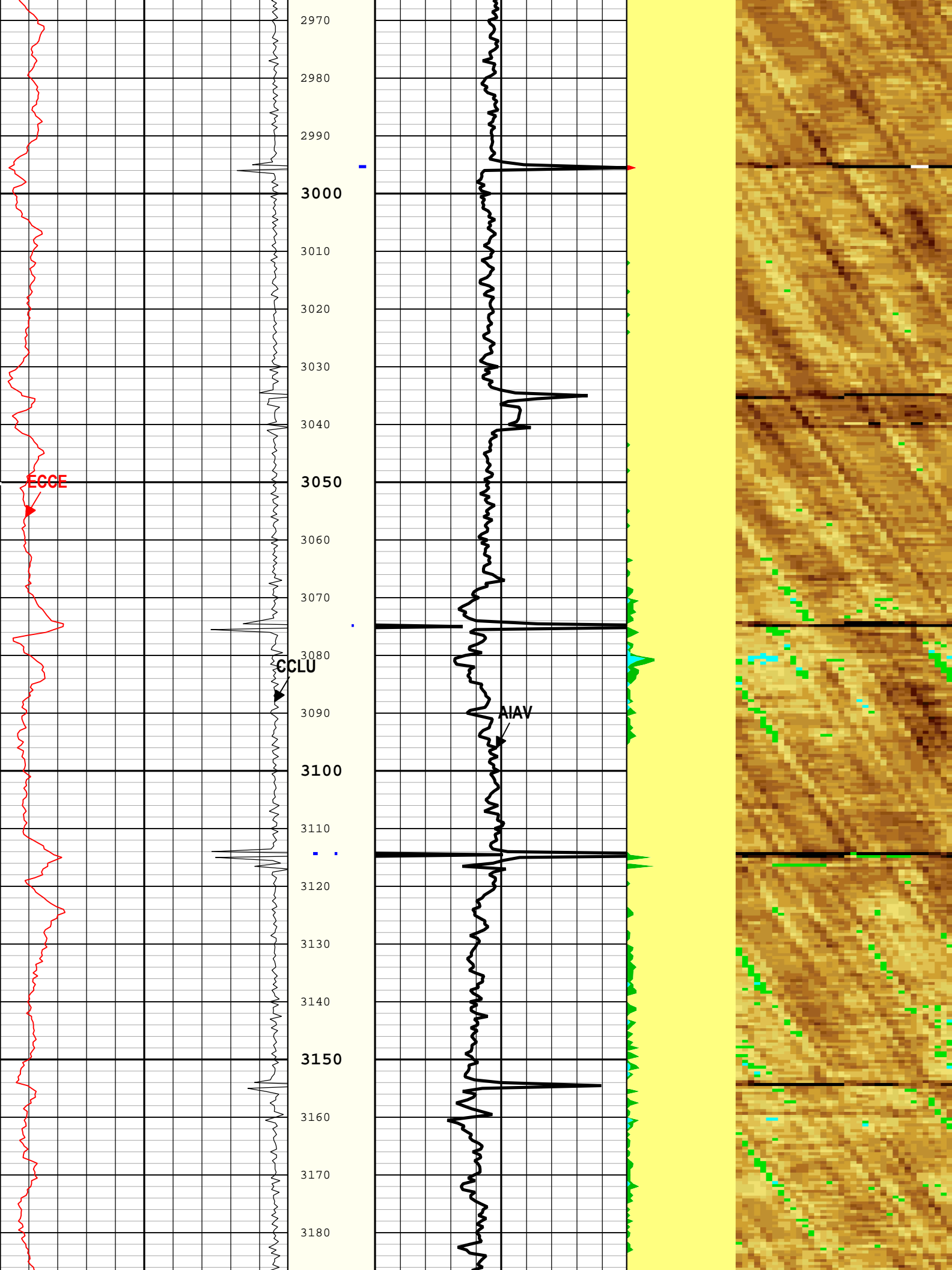
All depths are referenced to toolstring zero

Log	Company:Noble Energy, Inc. Well:Holliday Federal LC23-780 One: Log[2]:Up:S004
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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: 14-Feb-2017 13:40:25

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: 14-Feb-2017 13:40:25

ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl
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Tool Control Parameters

One: Parameters

Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	18	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	3247	ft
WINB	Window Begin Time	USIT-E	31.88	us
WINE	Window End Time	USIT-E	71.88	us

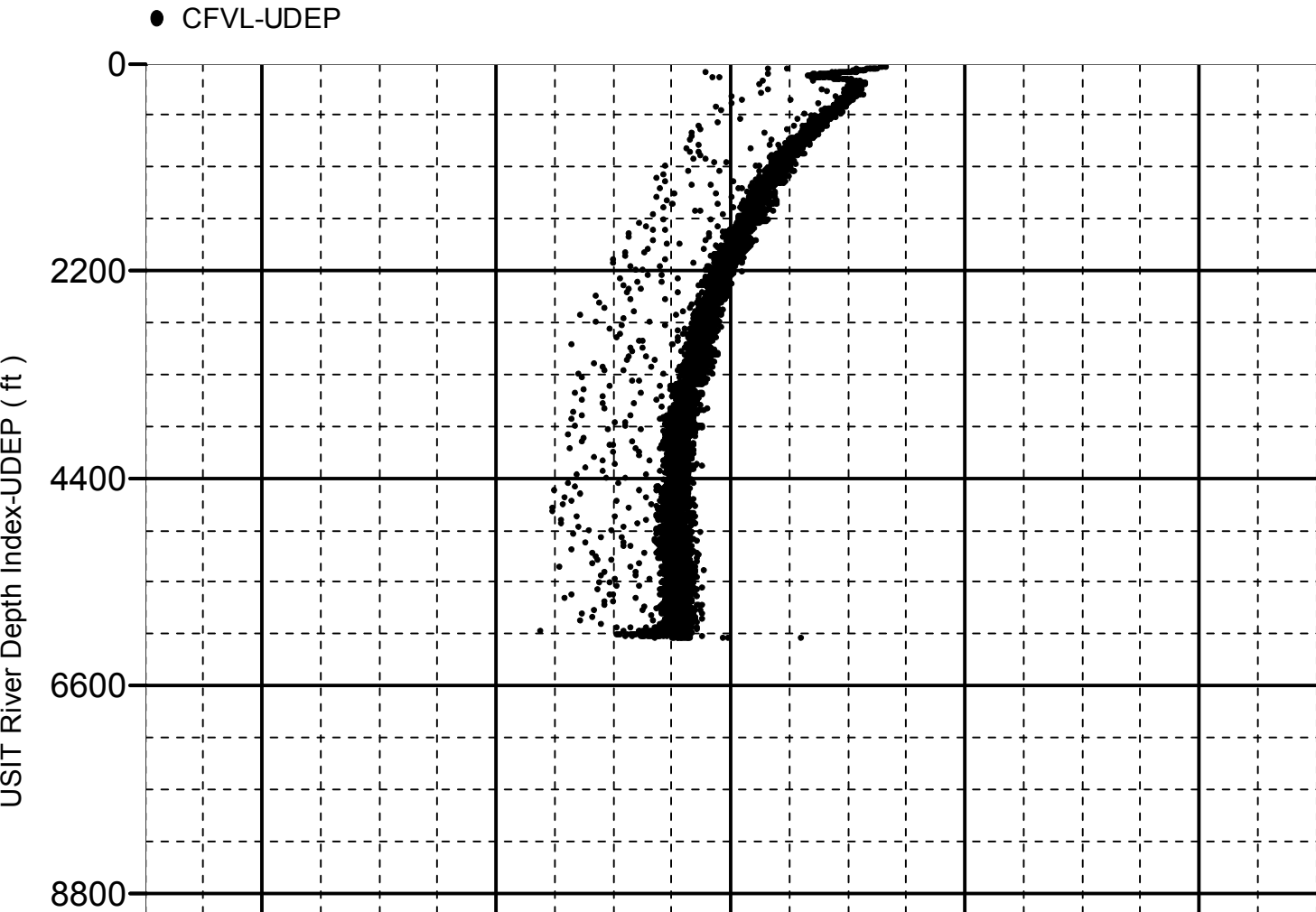
XYZ

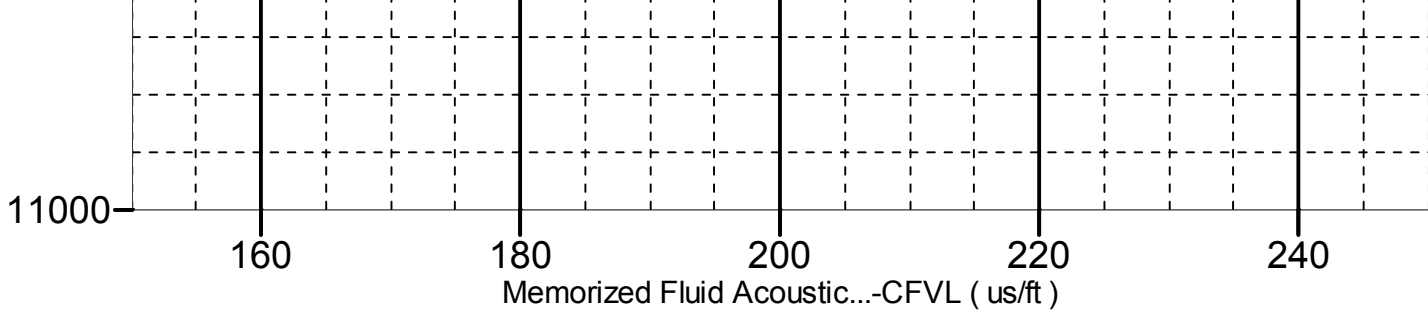
Company:Noble Energy, Inc. Well:Holliday Federal LC23-780
One: Log[4]:Up:S004

Fluid Acoustic Slowness vs Depth

2D Cross Plot

Index Range: From 6110.00 to 53.50 ft





XYZ

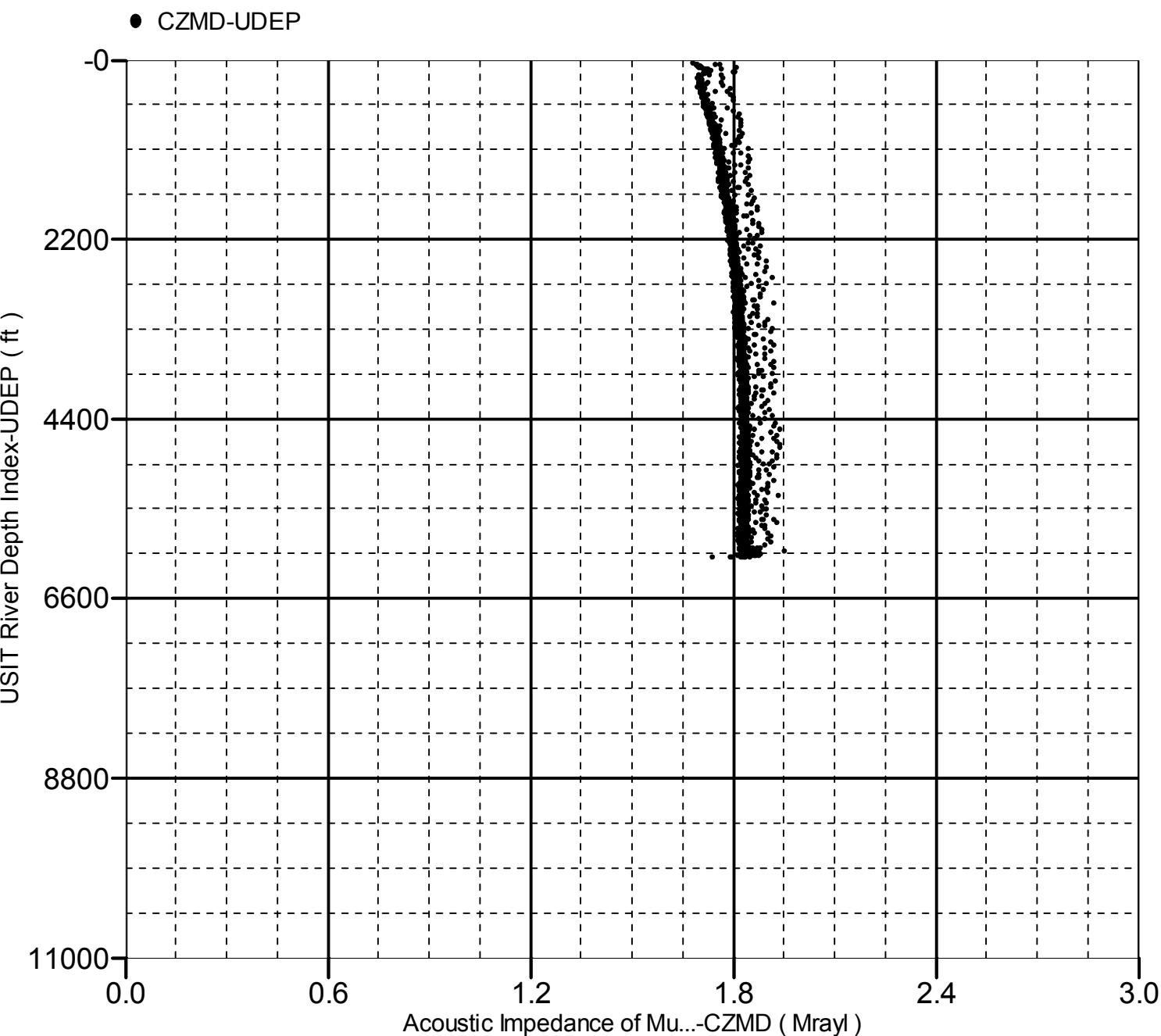
Company:Noble Energy, Inc. Well:Holliday Federal LC23-780

One: Log[4]:Up:S004

Acoustic Impedance of Mud vs Depth

2D Cross Plot

Index Range: From 6110.00 to 53.50 ft



Company:	Noble Energy, Inc.	Schlumberger
Well:	Holliday Federal LC23-780	
Field:	Wildcat	
County:	Weld	
State:	Colorado	

UltraSonic Summary Print