

Company: CONOCOPHILLIPS CANADA RESOURCES CORP.

Well: COPRC DODO CANYON E76

Field: DODO CANYON

Province: NORTHWEST TERRITORE

CEMENT EVALUATION

ULTRASONIC IMAGING / CEMENT BOND LOG

Province: NORTHWEST TERRITORIES
Field: DODO CANYON
Location: UNIT E SECTION 76
Well: COPRC DODO CANYON E76
Company: CONOCOPHILLIPS CANADA RESOURCES CO

Location:		Elev.:		K.B.	
UNIT E SECTION 76		300E766510126450		273.40 m	
NORTHING: 7219874.66		EASTING: 594010.01		G.L. 268.20 m	
Permanent Datum:		Ground Level		Elev.: 268.20	
Log Measured From:		Kelly Bushing		5.20 m	
Drilling Measured From:		Kelly Bushing		above Perm.Datum	
API Serial No.		Longitude:		Latitude:	
EL470		126° 59' 58" W		65° 5' 27" N	

Logging Date	21-Jan-2014		
Run Number	2.1		
Depth Driller	2910.00 m		
Schlumberger Depth	1824.10 m		
Bottom Log Interval	1823.88 m		
Top Log Interval	5.00 m		
Casing Driller Size @ Depth	177.8 mm @ 1908.00 m		
Casing Schlumberger	1824 m		
Bit Size	156 mm		
Type Fluid In Hole	INVERT		
Density	1040 kg/m3	75 s	
Fluid Loss	PH		
Source of Sample	N/A		
RM @ Meas Temp	N/A		
RMF @ Meas Temp	N/A		
RMC @ Meas Temp	N/A		
Source RMF	RMC	N/A	
RM @ BHT	RMF @ BHT	N/A	
Max Recorded Temperatures	71.5 degC		
Circulation Stopped	20-Jan-2014	13:40:00	
Logger on Bottom	21-Jan-2014	02:55:00	
Unit Number	3139	JEFFREY TATLOCK	GRANDE PRAIRIE
Recorded By	DAVID LAWRENCE		
Witnessed By			

Disclaimer

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Borehole Fluids

Parameter(unit)	2.1					
Fluid Type	Oil					
Fluid Name	INVERT					
Max Recorded Temperatures (degC)	71.5					
Source of Sample	N/A					
Salinity (ppm)	0					
Density (kg/m3)	1040					
Funnel Viscosity (s)	75					
Fluid Loss (cm3)						
PH						
Date/Time Circulation Stopped	20-Jan-2014 13:40:00					
Date Logger on Bottom	21-Jan-2014					
Time Logger on Bottom	02:55:00					
Source RMF	N/A					
RMC	N/A					
RM @ Meas Temp (ohm.m@degC)	N/A					
RMF @ Meas Temp (ohm.m@degC)	N/A					
RMC @ Meas Temp (ohm.m@degC)	N/A					
RM @ BHT (ohm.m@degC)	N/A					
RMF @ BHT (ohm.m@degC)	N/A					
RMC @ BHT (ohm.m@degC)	N/A					
Electricity Stability (V)						
Oil/Water						
Total Solid (%)						
High Gravity Solids (%)						

Remarks and Equipment Summary

2.1: Toolstring	2.1: Remarks	
<div>Equip name Length LEH-QT:285 17.87 0 LEH-QT:2850</div> <div>DTC-H:9100 16.98 ECH-KC:10172 DTC-H:9100</div> <div>SGT-N:1044 16.06</div> <div></div>	ALL INTERVALS AND PRESENTATIONS AS PER CLIENT REQUEST	
	RIG: BEAVER 2	
	SLB CREW: JASON LEGASSIE	
	LOGGER REQUESTED AT: 19:00 20-JAN-2014	
	LOGGER ARRIVED AT: 18:45 20-JAN-2014	
	RIG READY AT: 01:00 21-JAN-2014	
	USIT TOOL CENTERED WITH INTEGRAL	

SGH-K:3210
SGD-TAA
SGC-TB:10447

AH-107:183 14.39
8

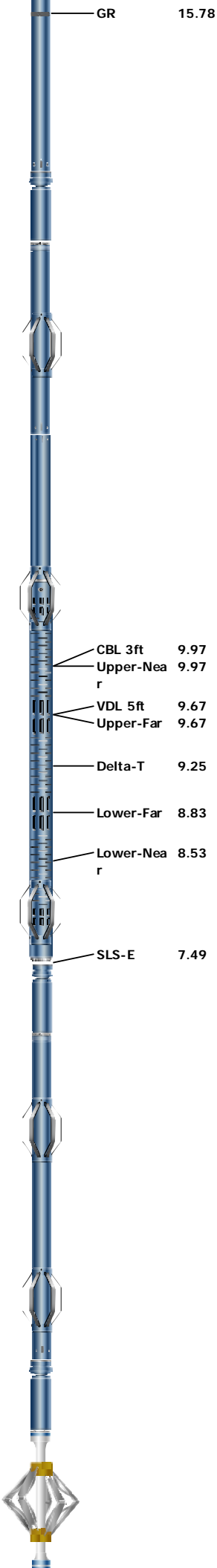
DSLT-H:839 13.78
5

ECH-KH:8141
DSL-C-H:8395
SLS-E:2047

AH-184:380 7.49
3

USIT-D:181 6.88
6

ECH-MRA:598
2
USIC-D:1816
AH-107
USIS-A:885
USSC-B
USRS-B:932
USI-SENSOR:9
32



USIT TOOL CENTERED WITH INTEGRAL
ROLLER CENTRALIZERS WITH BOOSTER
SPRING KIT INSTALLED

2 GEMCO RIGID CENTRALIZERS
INSTALLED ON USIT CARTRIDGE,
KNUCKLE JOINT BETWEEN

SONIC TOOL CENETERED WITH 3 GEMCO
RIGID CENTRALIZERS

USIT RUN WITH USRS-B SUB

FPM DOWNLOG PERFORMED

2 REPEAT PASSES MADE TO ENSURE
VALIDITY OF USIT DATA

USIT ECCENTERING CURVE READS HIGH
VALUE, ESPECIALLY IN DEVIATED
SECTION, DESPITE ALL RECOMMENDED
CENTRALIZERS AND KNUCKLE JOINTS

ESTIMATED TOP OF CEMENT
APPROXIMATELY 67 M

 <p>USI Sensor 0.12</p> <p>TOOL ZERO</p> <p>Head-Tens</p> <p>Lengths are in m</p> <p>Maximum Outer Diameter = 158.750 mm</p> <p>Line: Sensor Location, Value: Gating Offset</p> <p>All measurements are relative to TOOL_ZERO</p>		
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Depth Summary			
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	2.1		
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Depth Measuring Device			
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Type	IDW-JA		
Serial Number	6162		
Calibration Date	10-MAY-2010		
Calibrator Serial Number	4		
Calibration Cable Type	7-39PLXS		
Wheel Correction 1	-3		
Wheel Correction 2	-1		

Tension Device			
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Type	CMTD-B/A		
Serial Number	1293		
Calibration Date	06-SEP-2013		
Calibrator Serial Number	1111		
Number of Calibration Points	10		
Calibration Root Mean Square Error	28		
Calibration Peak Error	54		

Logging Cable			
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Type	7-39P-LXS		
Serial Number	1180		
Length	3100.00 m		
Conveyance Type	Wireline		
Rig Type			

2.1:Depth Control Parameters	Depth Control Remarks
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Log Sequence	Subsequent Trip To the Well	ALL SCHLUMBERGER DEPTH CONTROL PROCEDURES FOLLOWED
Reference Log Name	PLATFORM EXPRESS COMPENSATED NEUTRON DUAL LITHOLOGY DENSITY LOG	IDW USED AS PRIMARY DEPTH CONTROL
Reference Log Run Number	1.1	Z-CHART USED AS SECONDARY DEPTH CONTROL
Reference Log Date	14-Jan-2014	ALL LOGS CORRELATED TO PREVIOUS RUN 1.1 IN THE VERTICAL SECTION BETWEEN 1250 - 1350 M
Subsequent Trip Down Log Correction	0.00 m	

2.1	
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Software Version			
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Acquisition System		Version	
MaxWell		4.0.9163.3000	
Application Patch		Patch-SP-10767_13075-4.0.9163.3001	

Computation	Description	Version
CEVAL	Sonic Cement Evaluation Computation Ensemble provides common Parameters and	4.0.9033.3000

Pass Summary

All depths are referenced to toolstring zero

Log	Company:CONOCOPHILLIPS CANADA RESOURCES CORP.	Well:COPRC DODO CANYON E76
		2.1: Log[6]:Up:S042

Description: CBL_VDL Format: Log (Sonic CBL with VDL) Index Scale: 1:240 Index Unit: m Index Type: Measured Depth Creation Date: 21-Jan-2014 20:04:52

└ BIEP - Bond Index Event Pips DSLT-H

TIME_1900 - Time Marked every 60.00 (s)

Stuck Tool Indicator, Total (STIT)		
0	m	20
Cable Tension (TENS)	CBL Amplitude (CBL) DSLT-H	
	0	50 mV
20000 N	CBL Amplitude (CBL) DSLT-H	
	0	10 mV
Cable Drag	Good Bond (GOBO)	
	0	10 mV
Tool_Tot. Drag	GoodBond from CBL to GOBO	
	200	1200 us

Gamma Ray (GR) SGT-N

0 gAPI 300

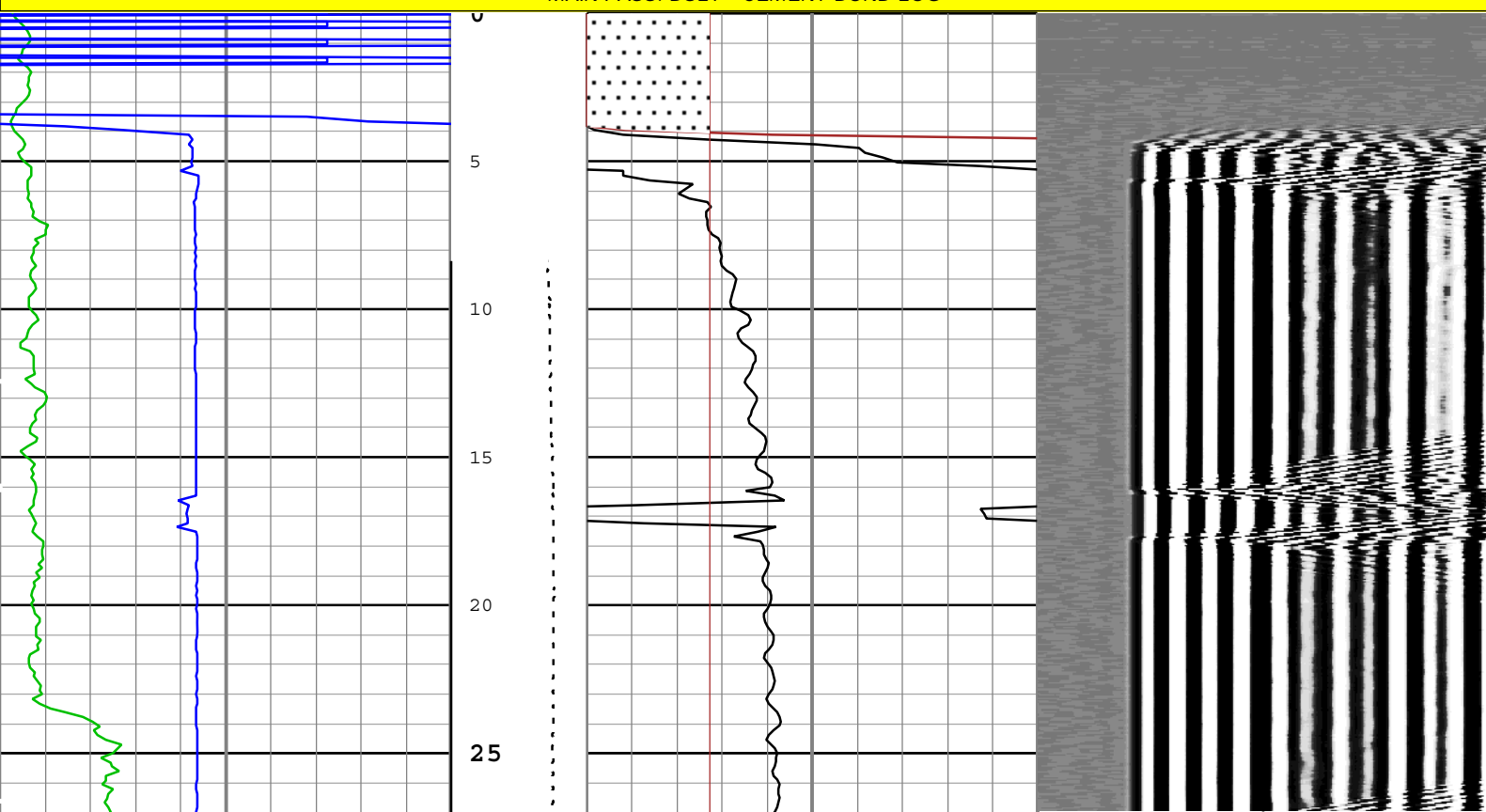
Transit Time for CBL (TT) DSLT-H

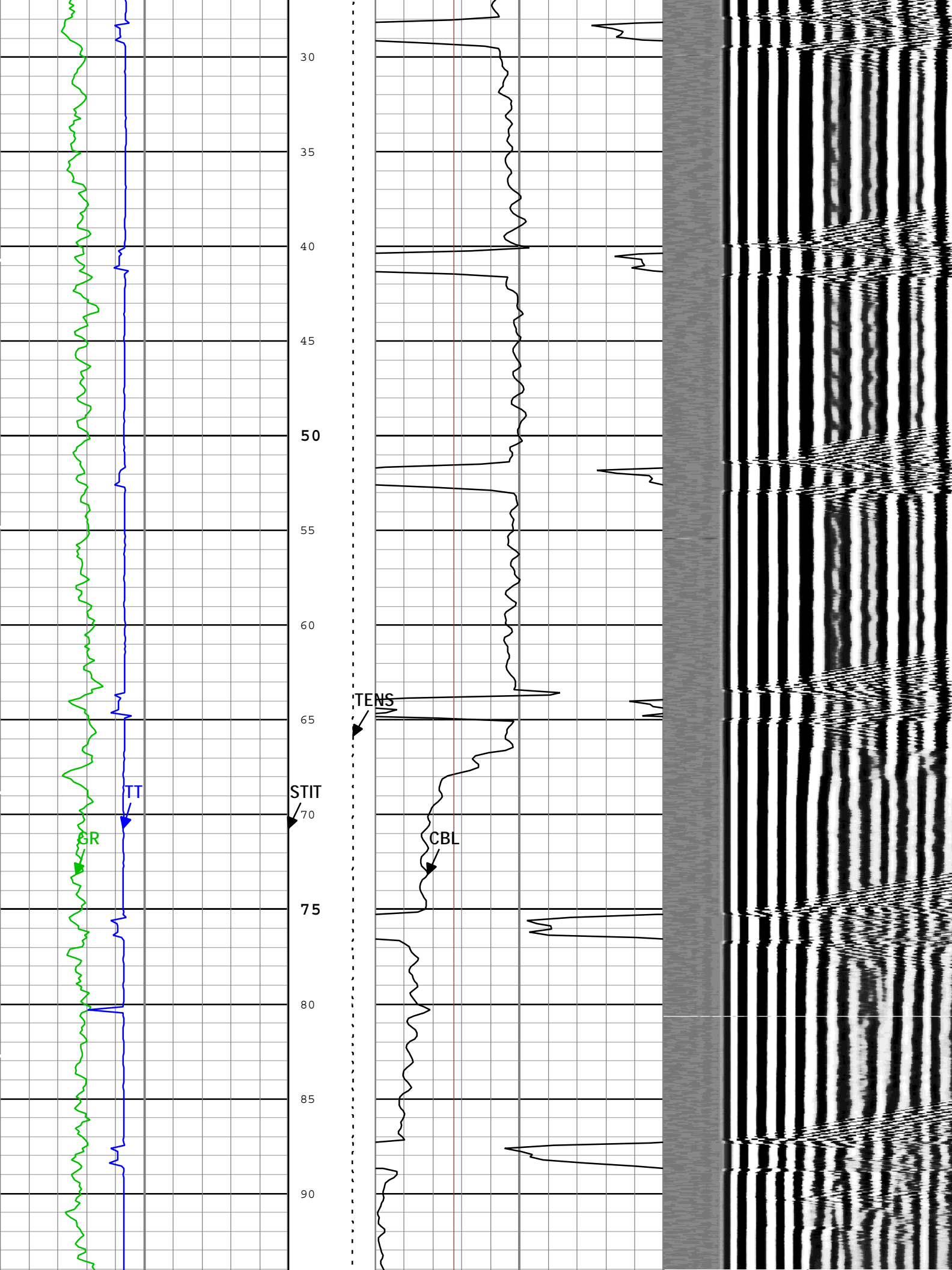
400 us 200

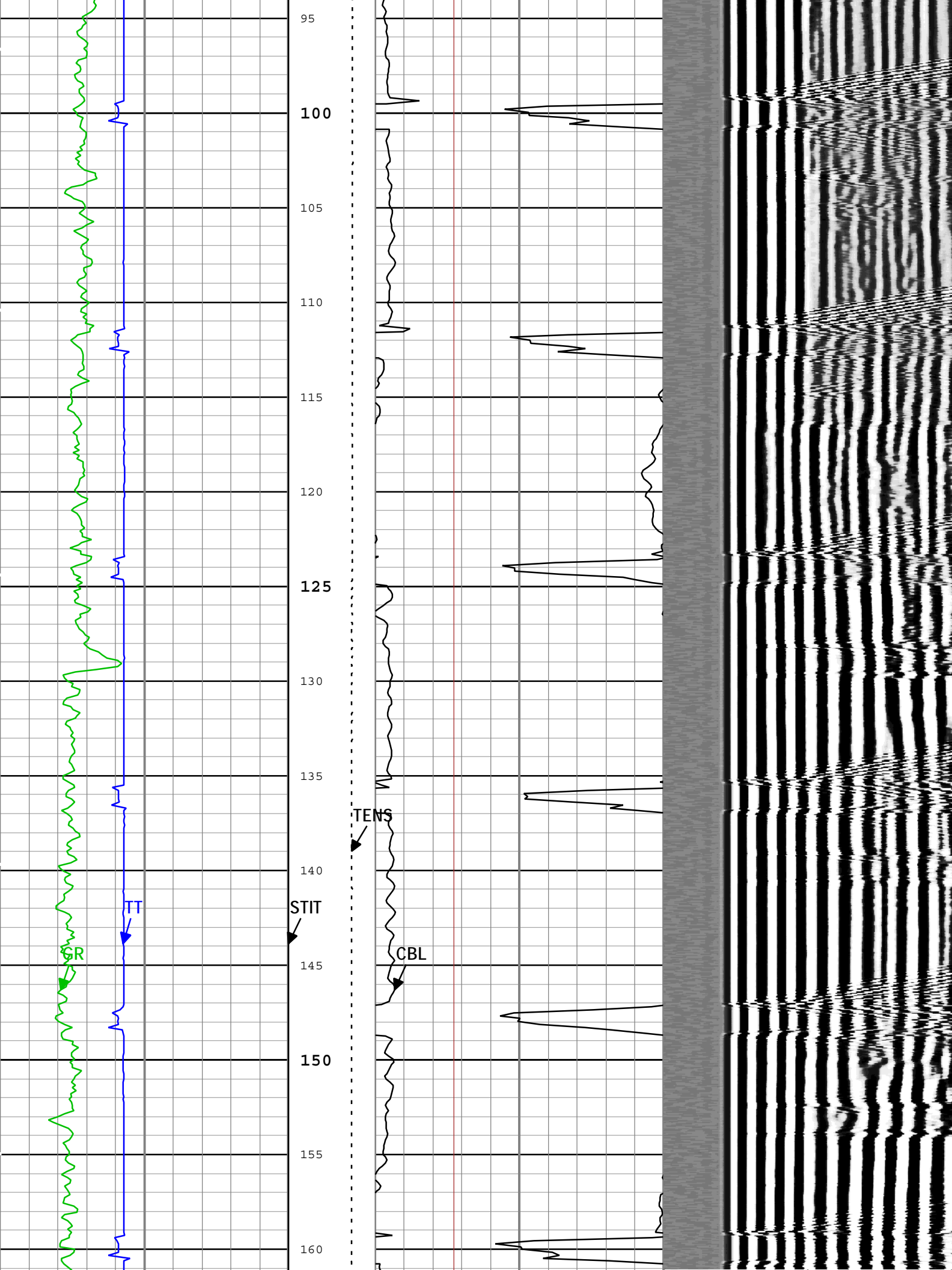
Min Amplitude Max

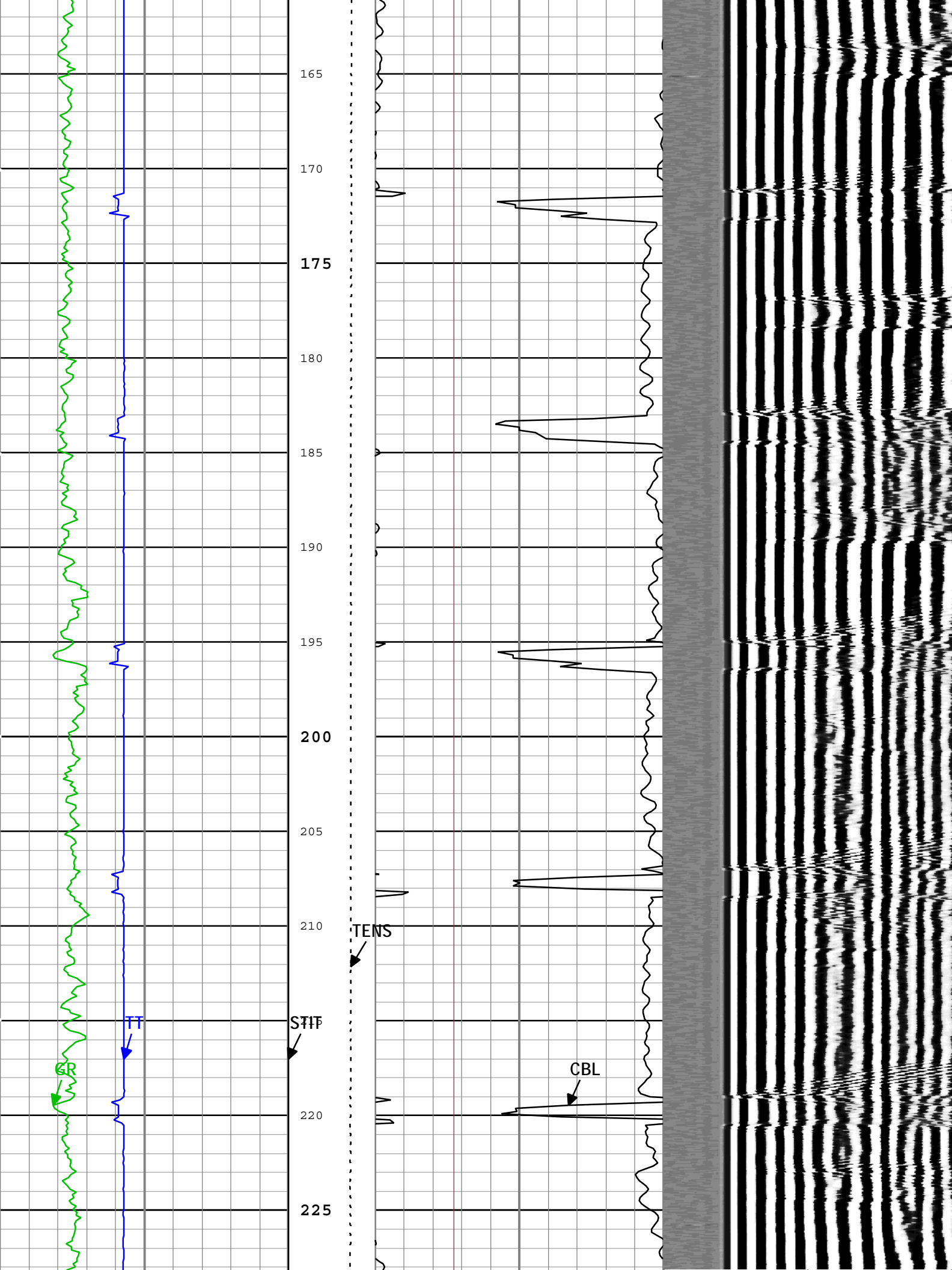
Variable Density Log (VDL) DSLT-H

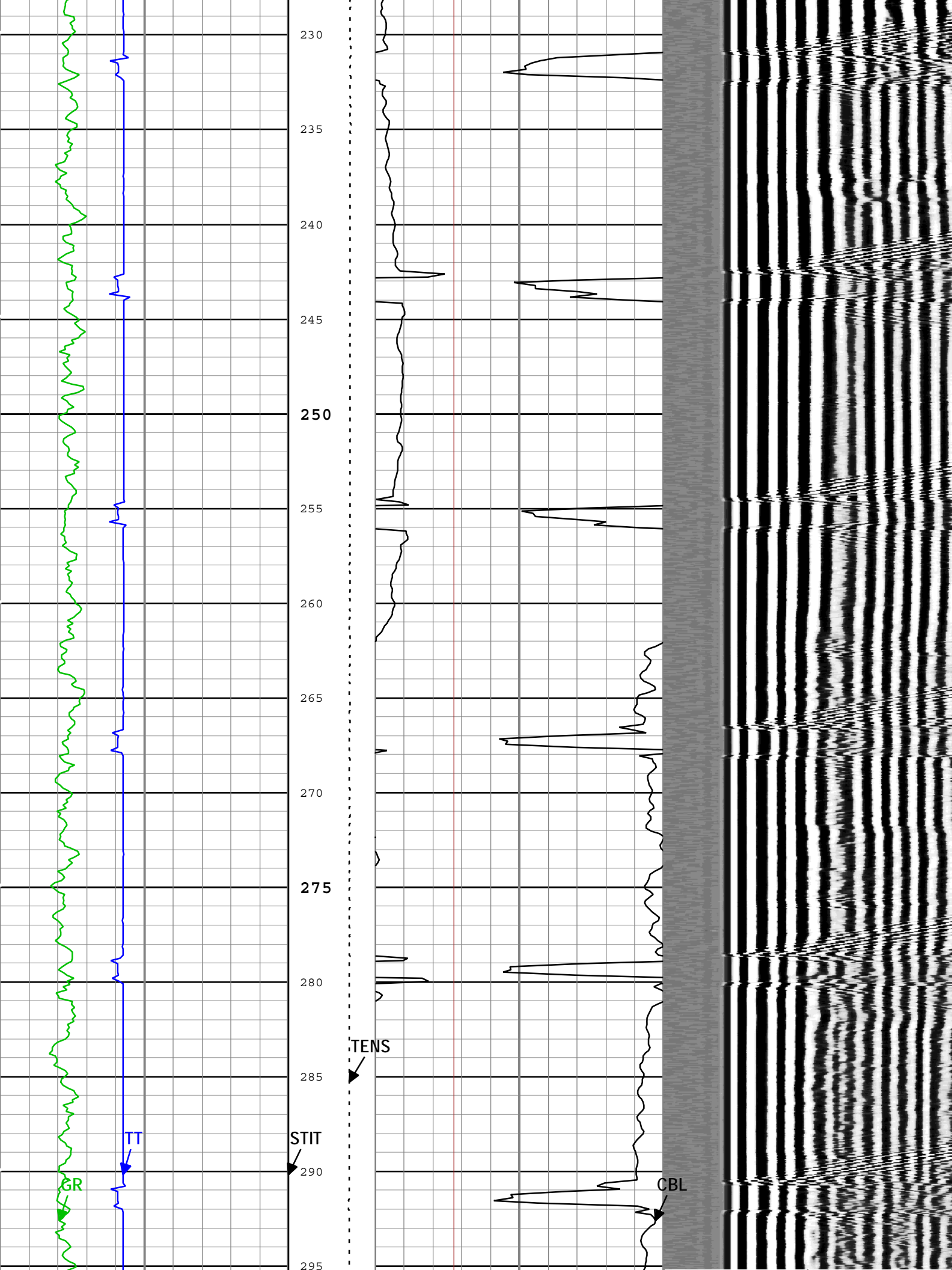
MAIN PASS: DSLT - CEMENT BOND LOG

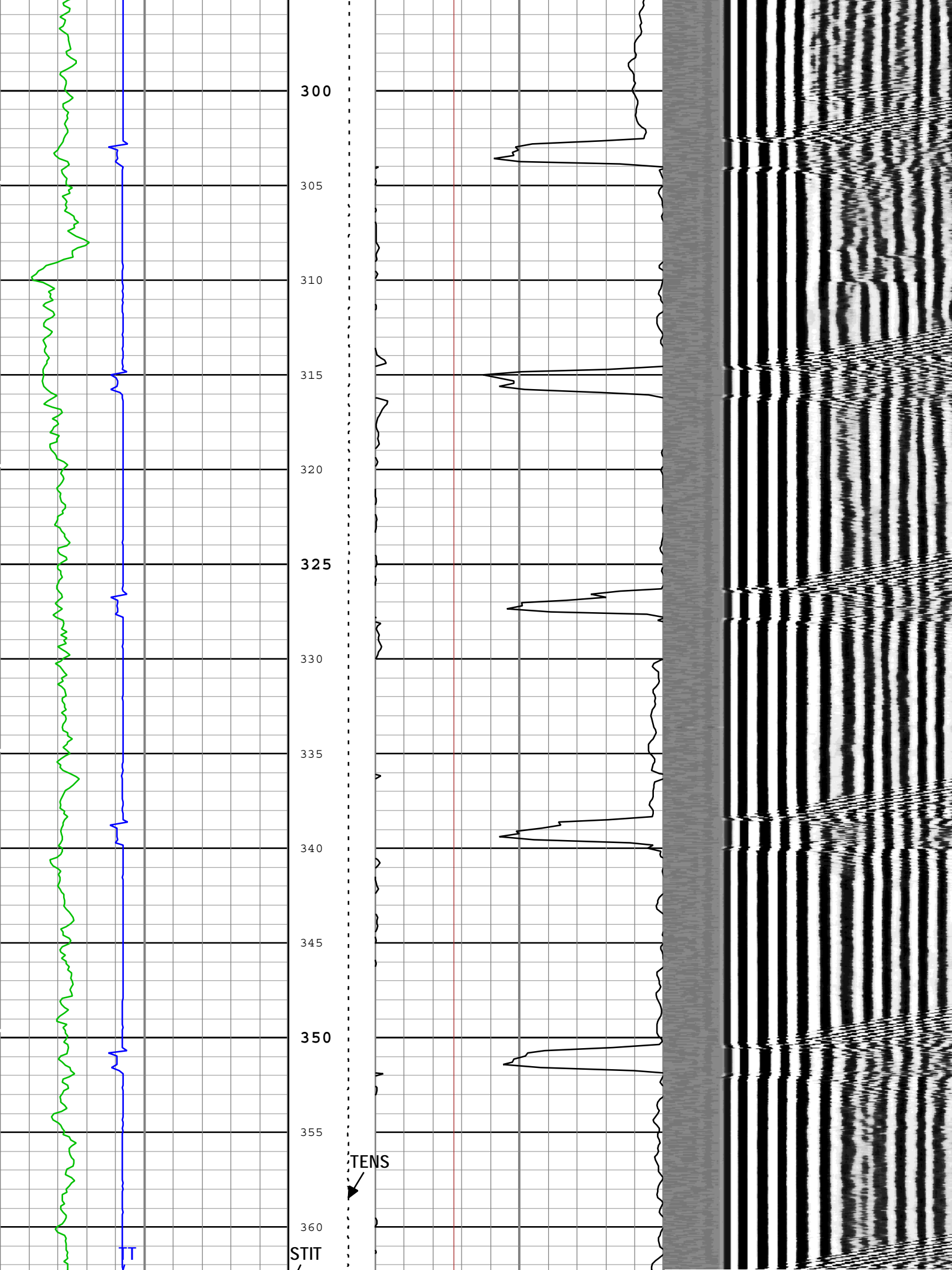


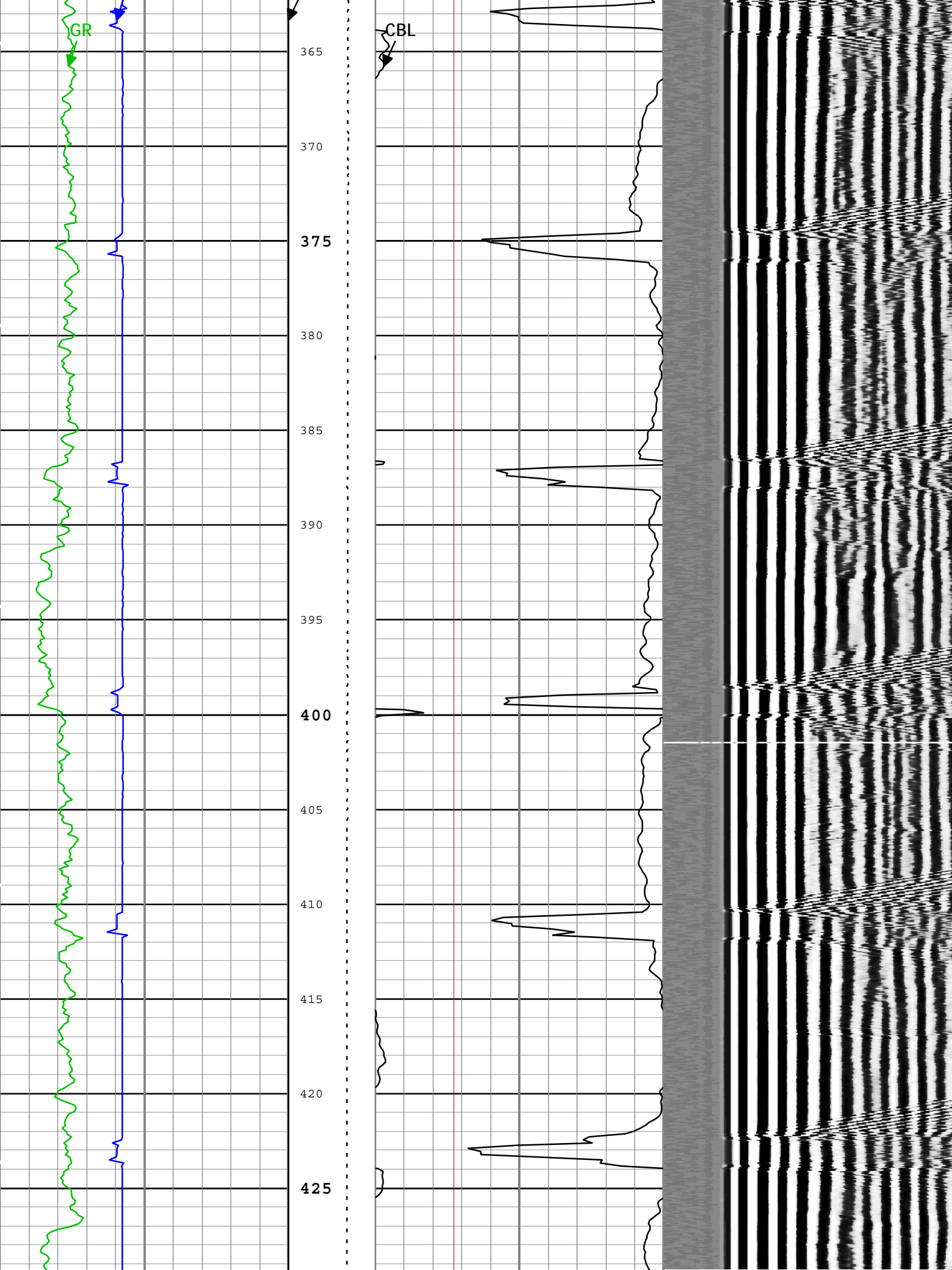


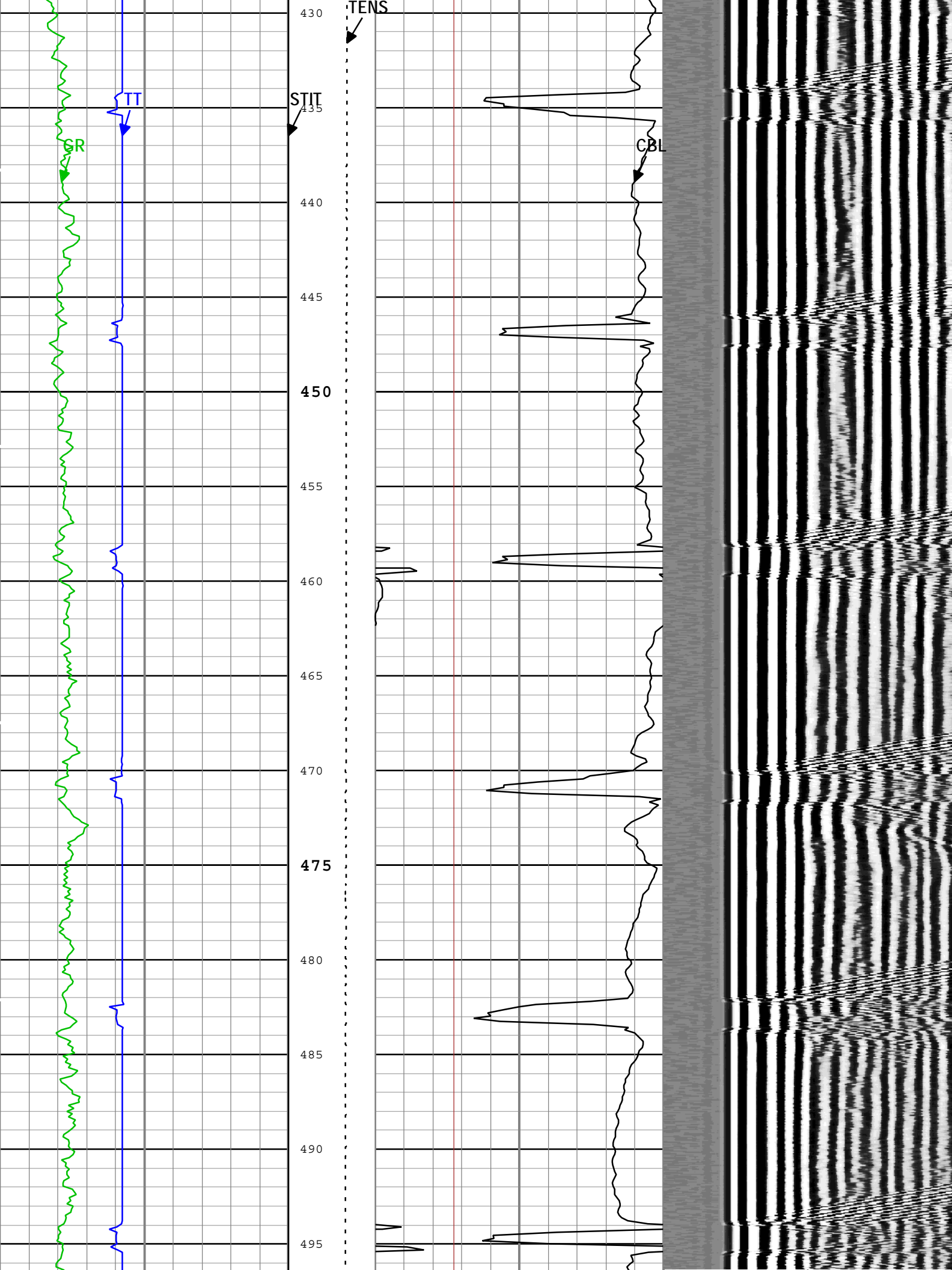


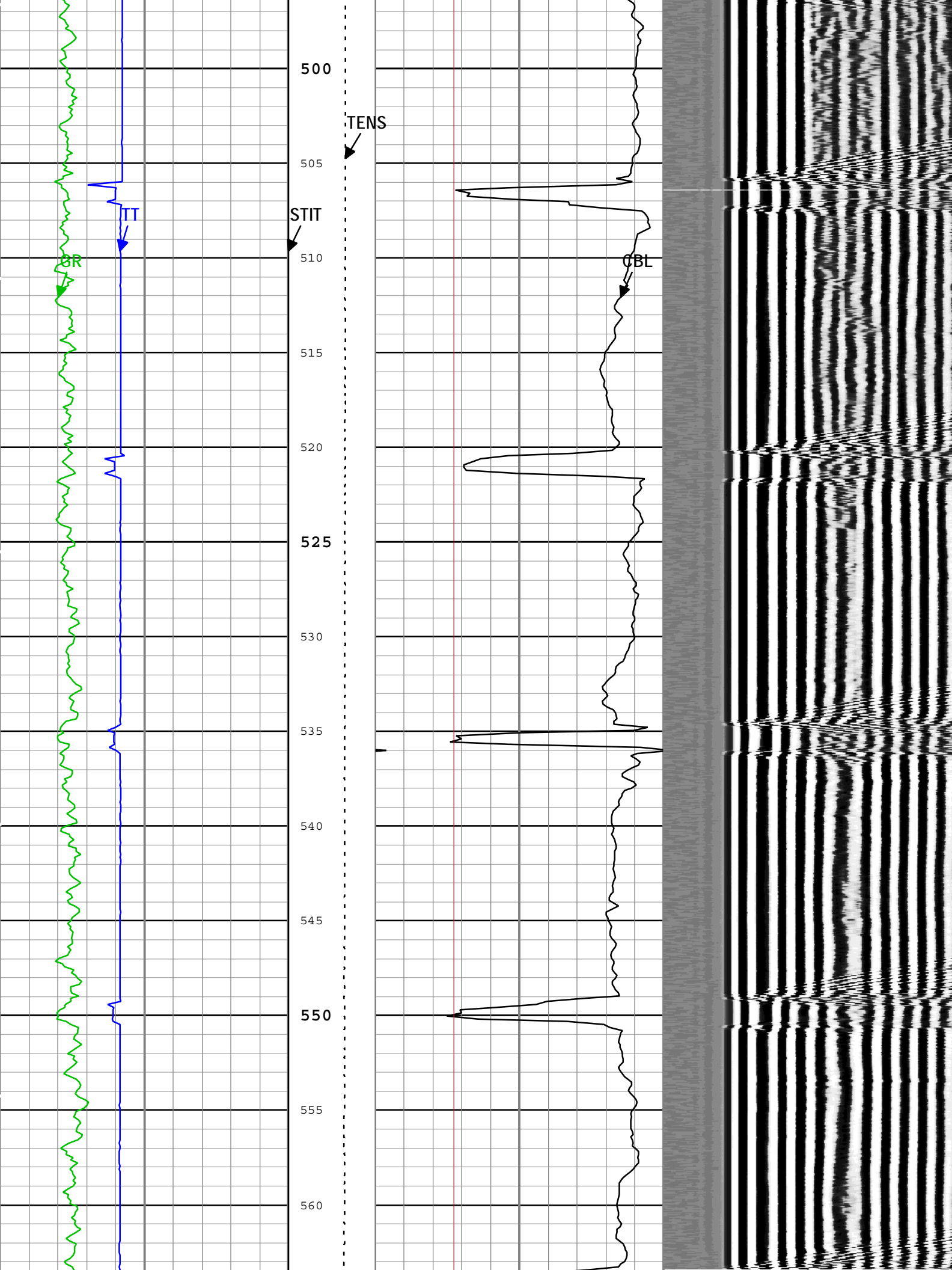


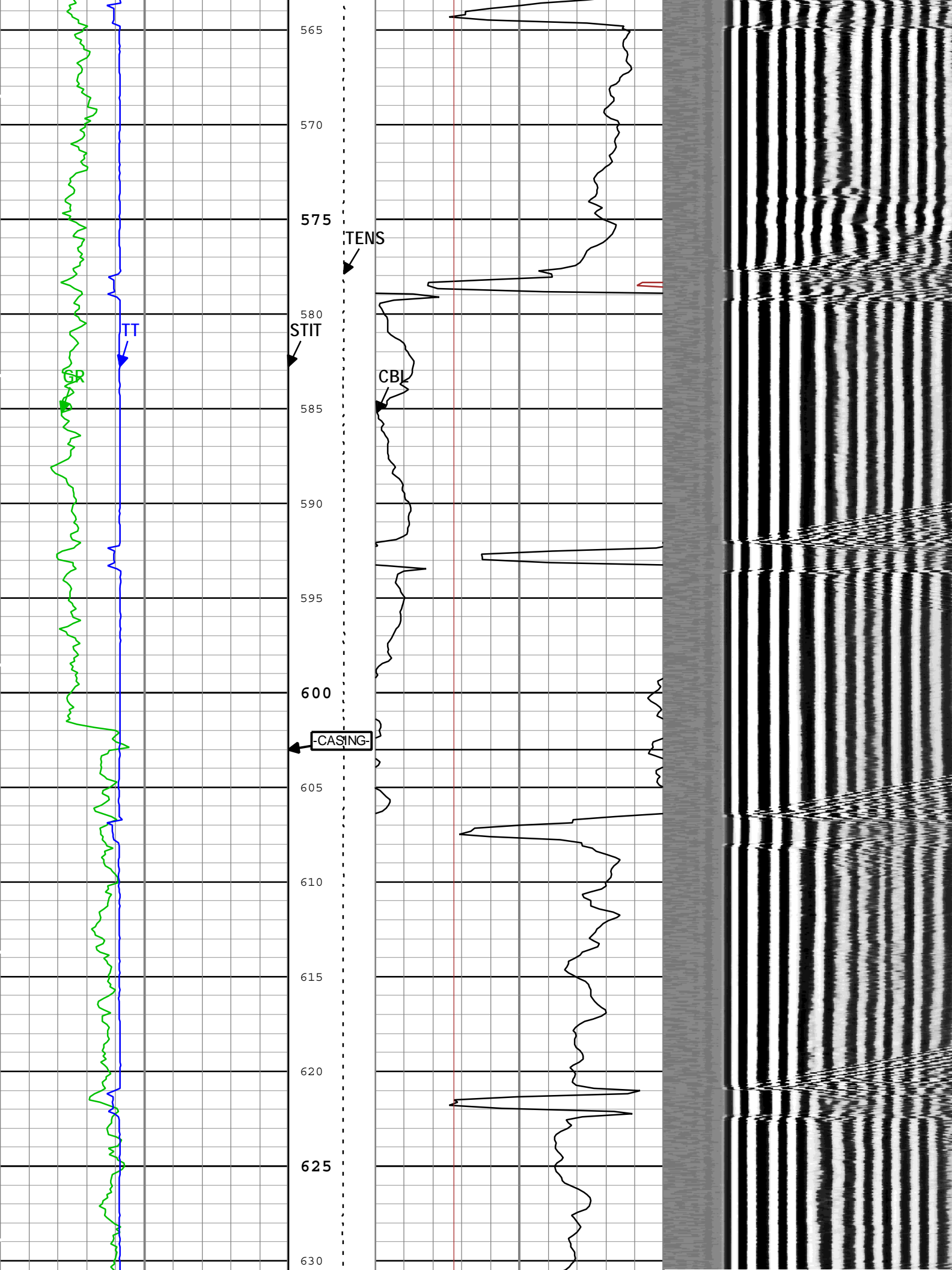


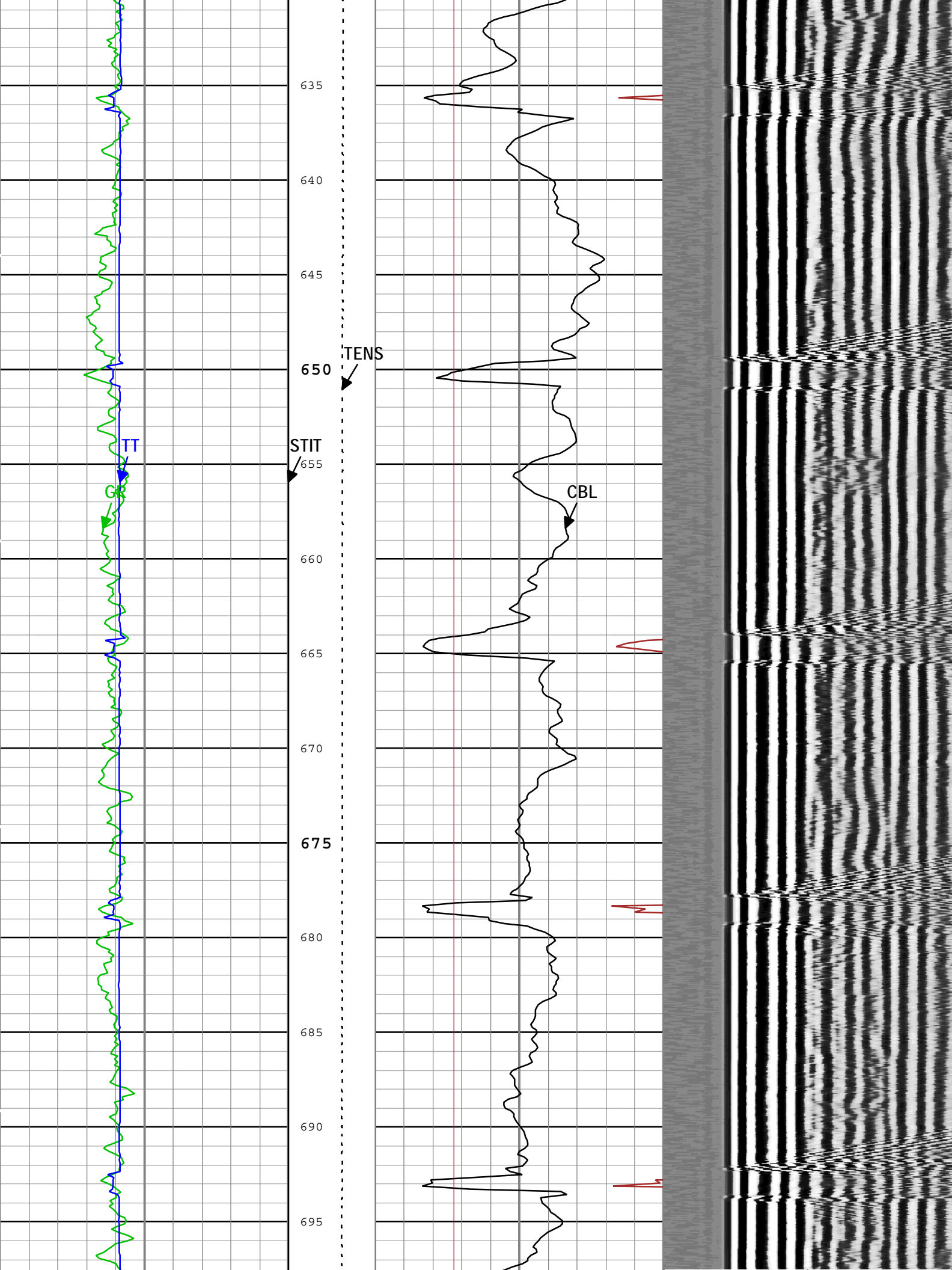


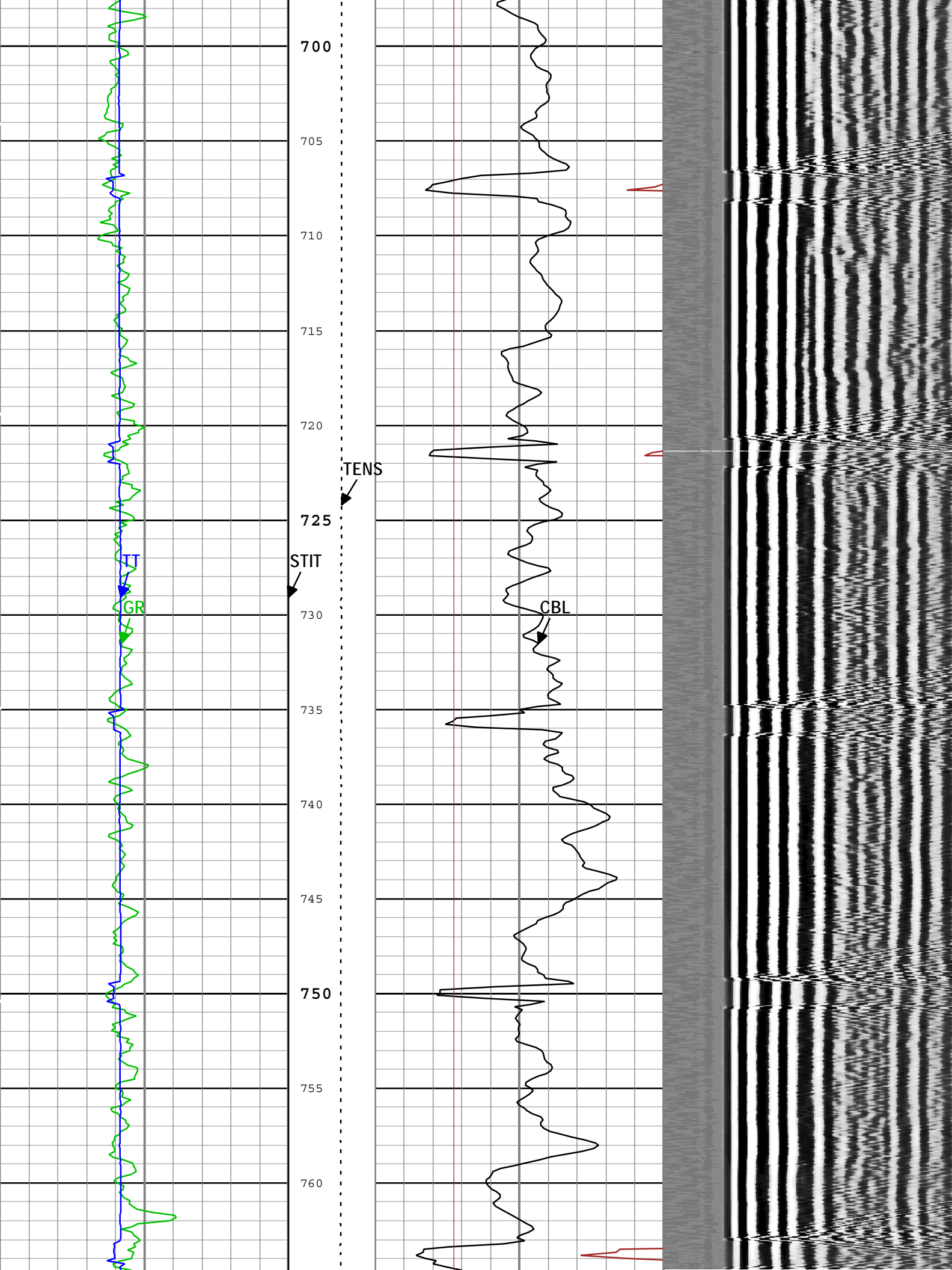


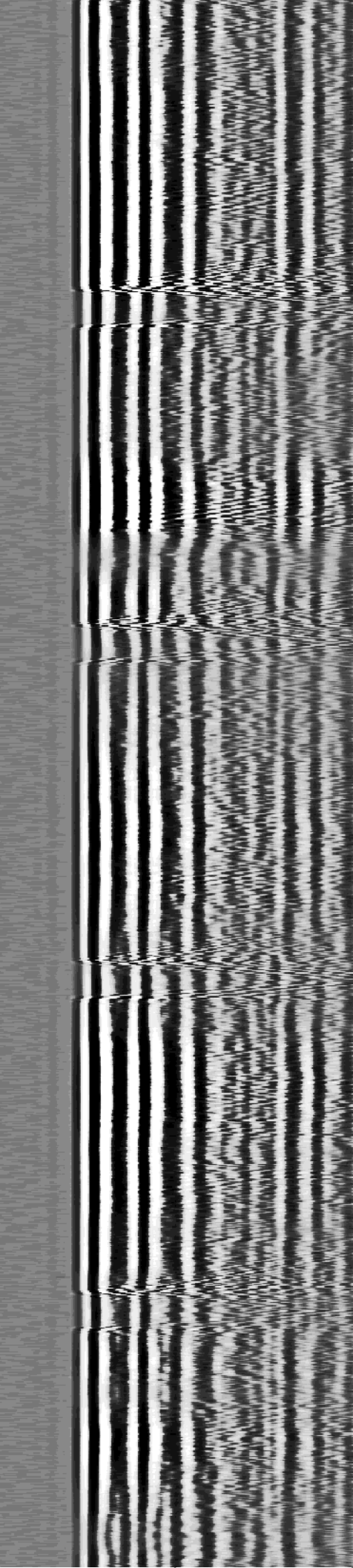
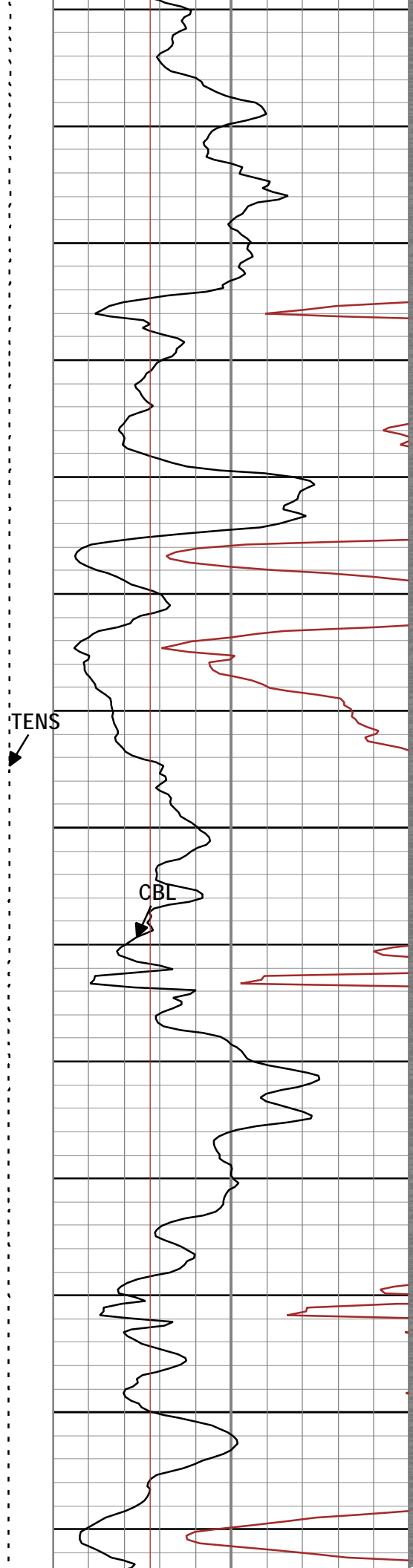
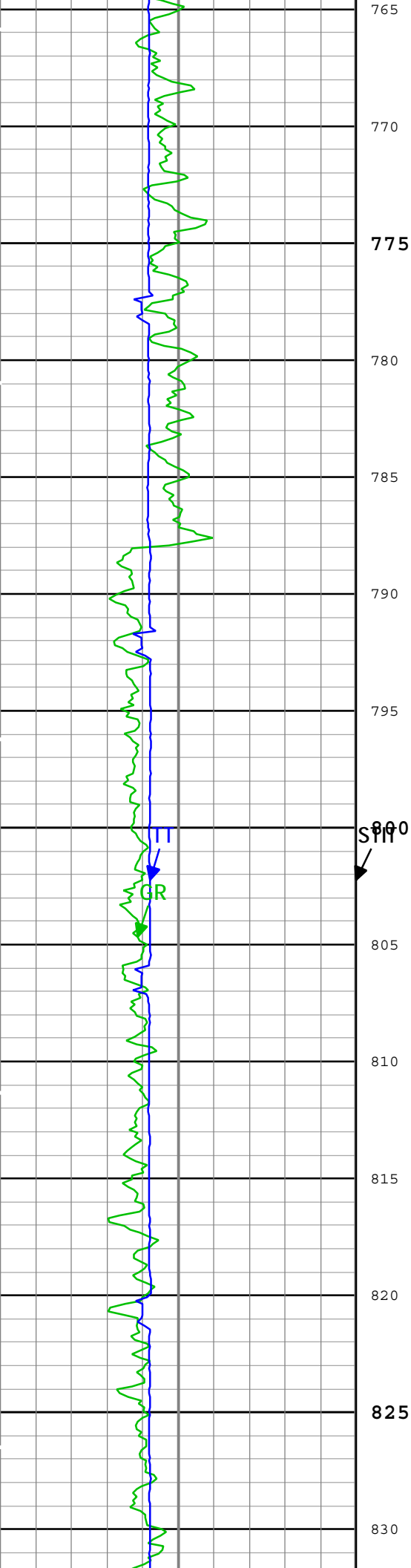


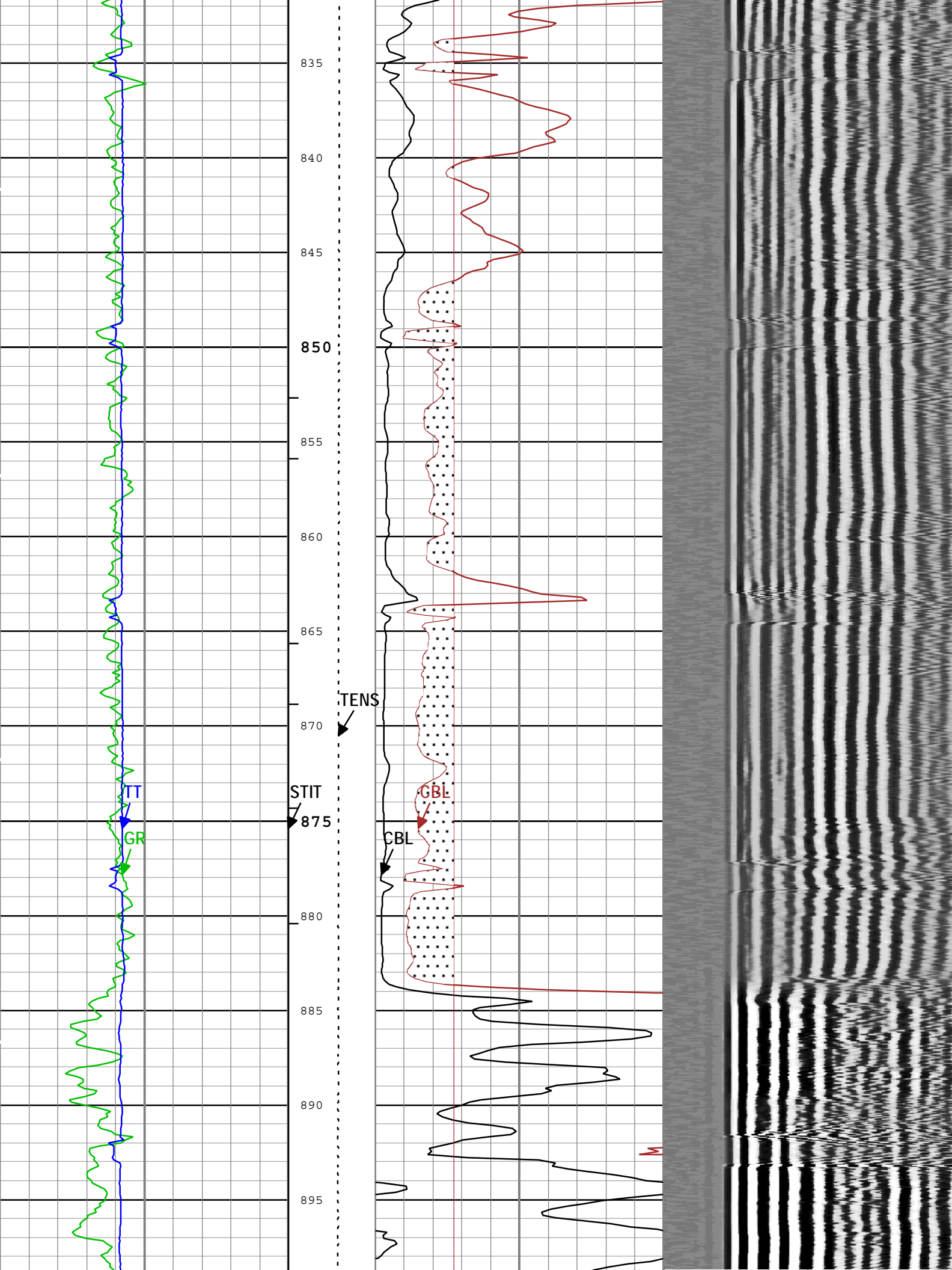


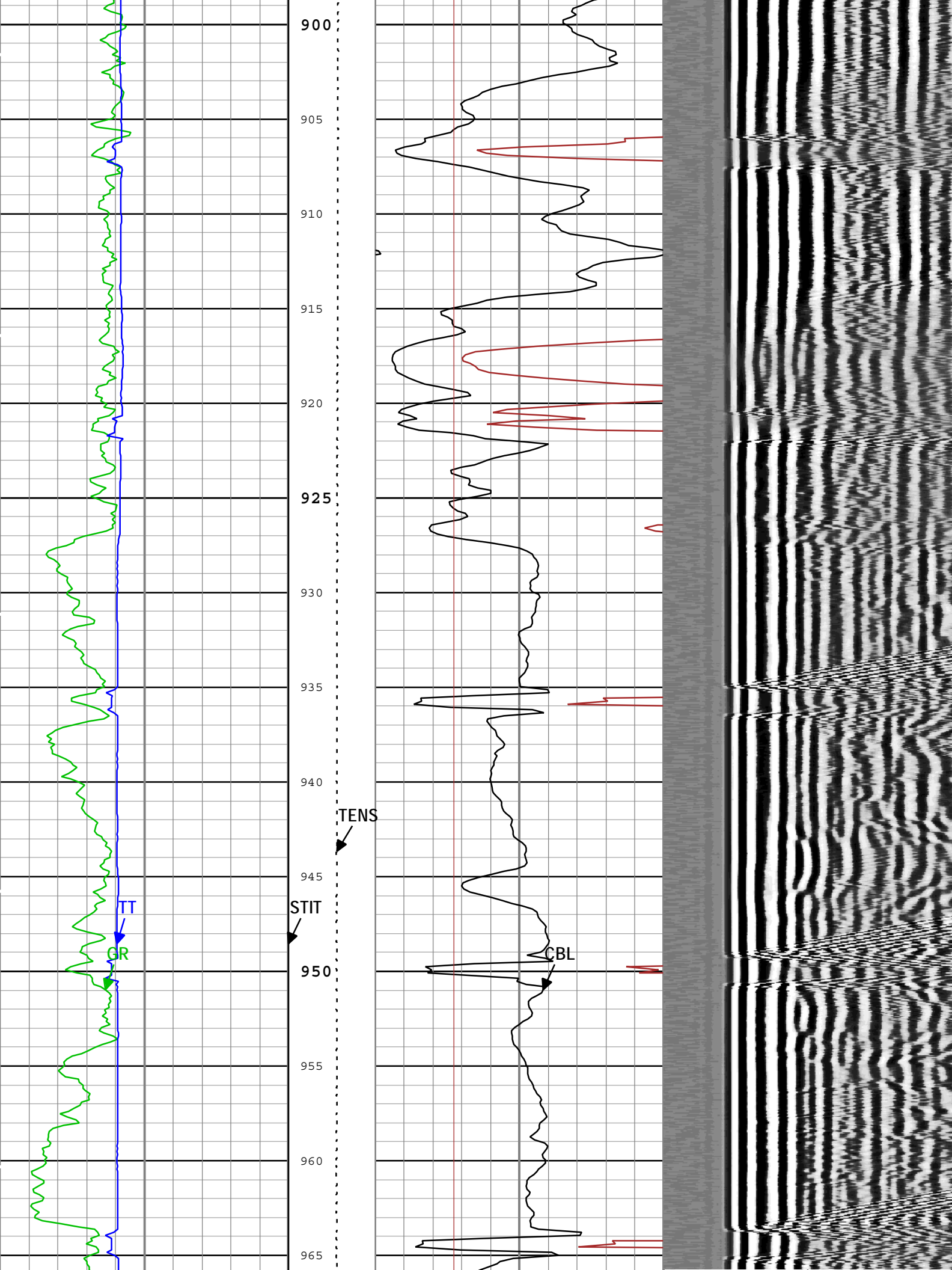


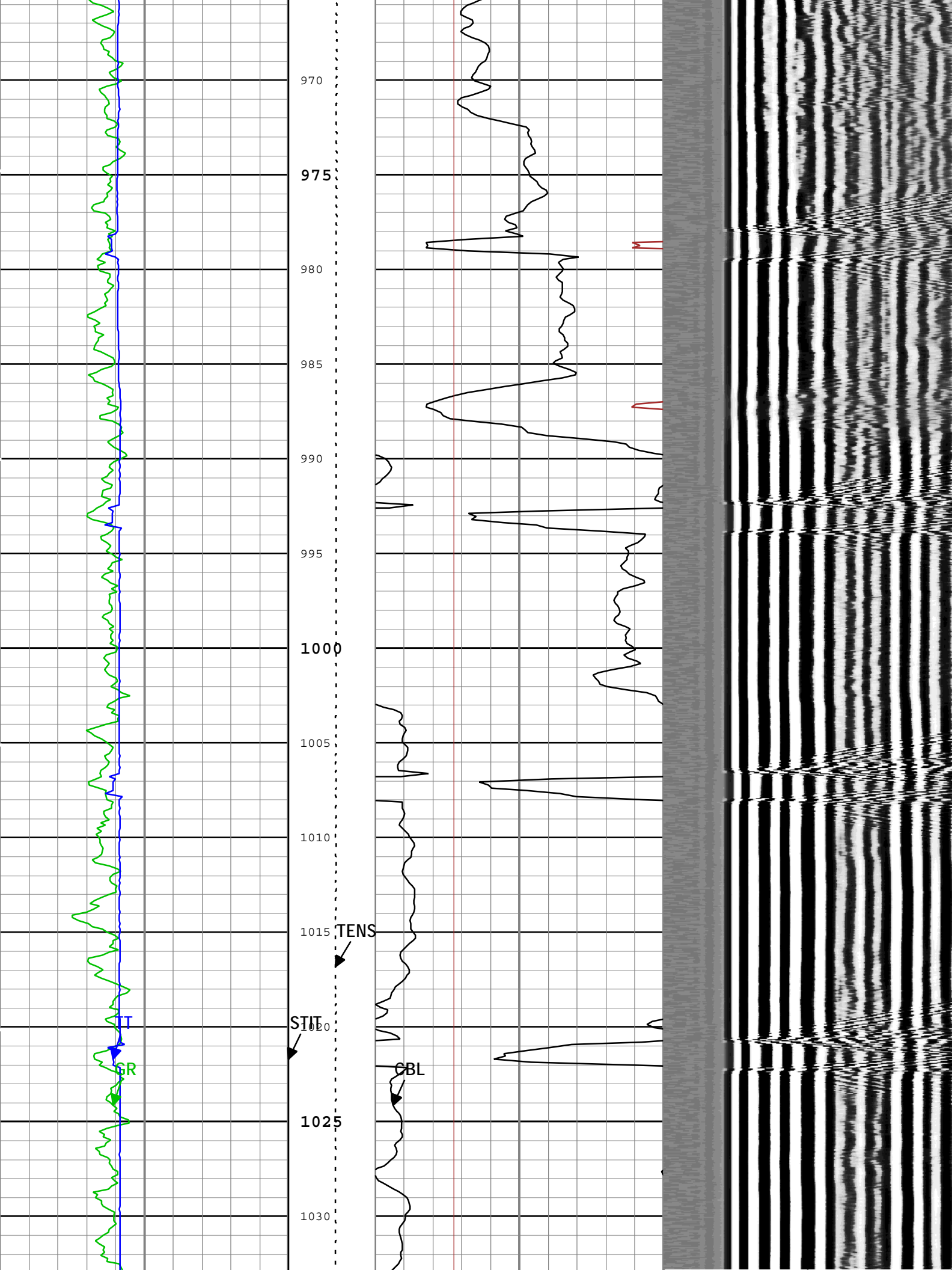


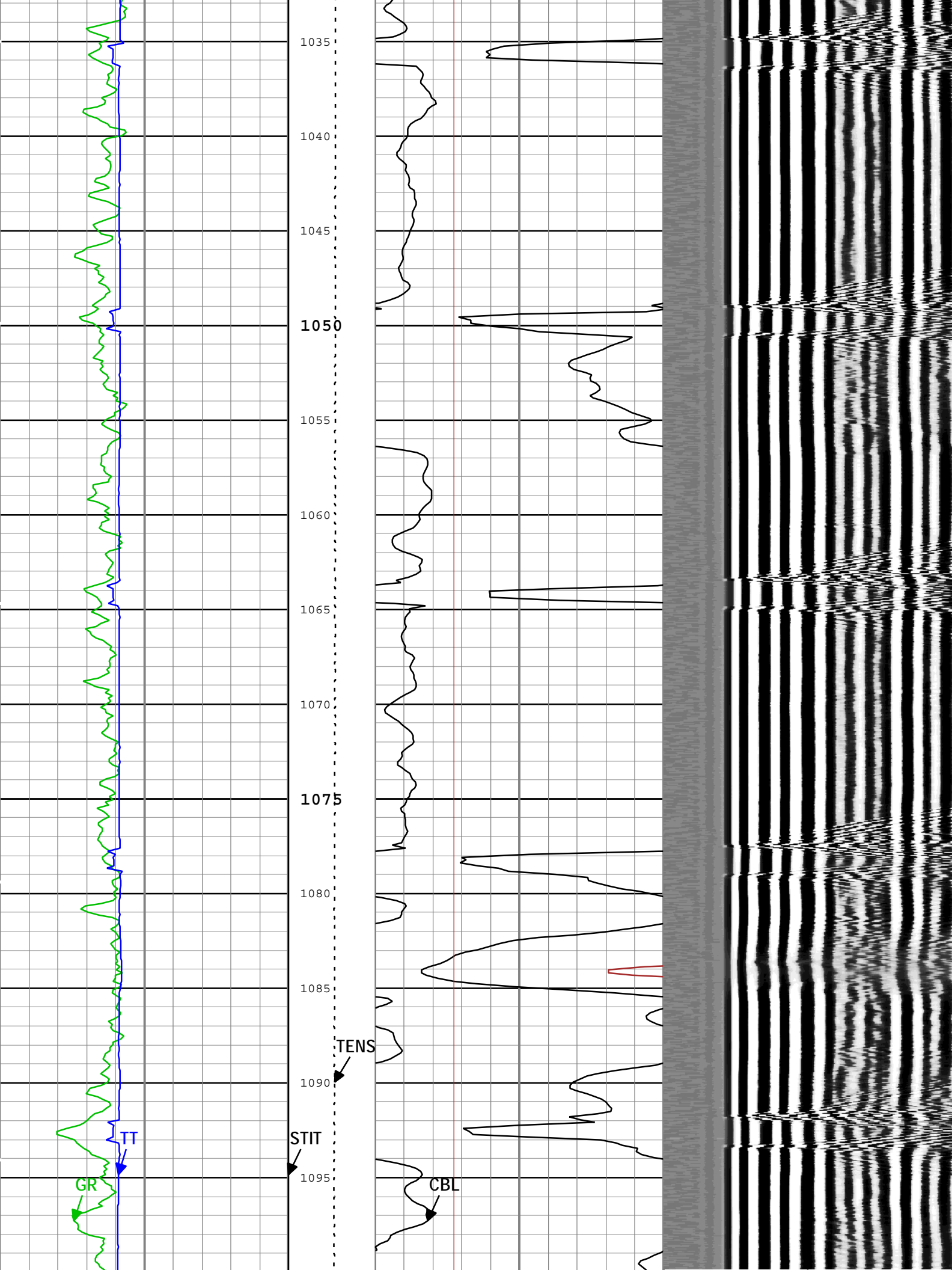


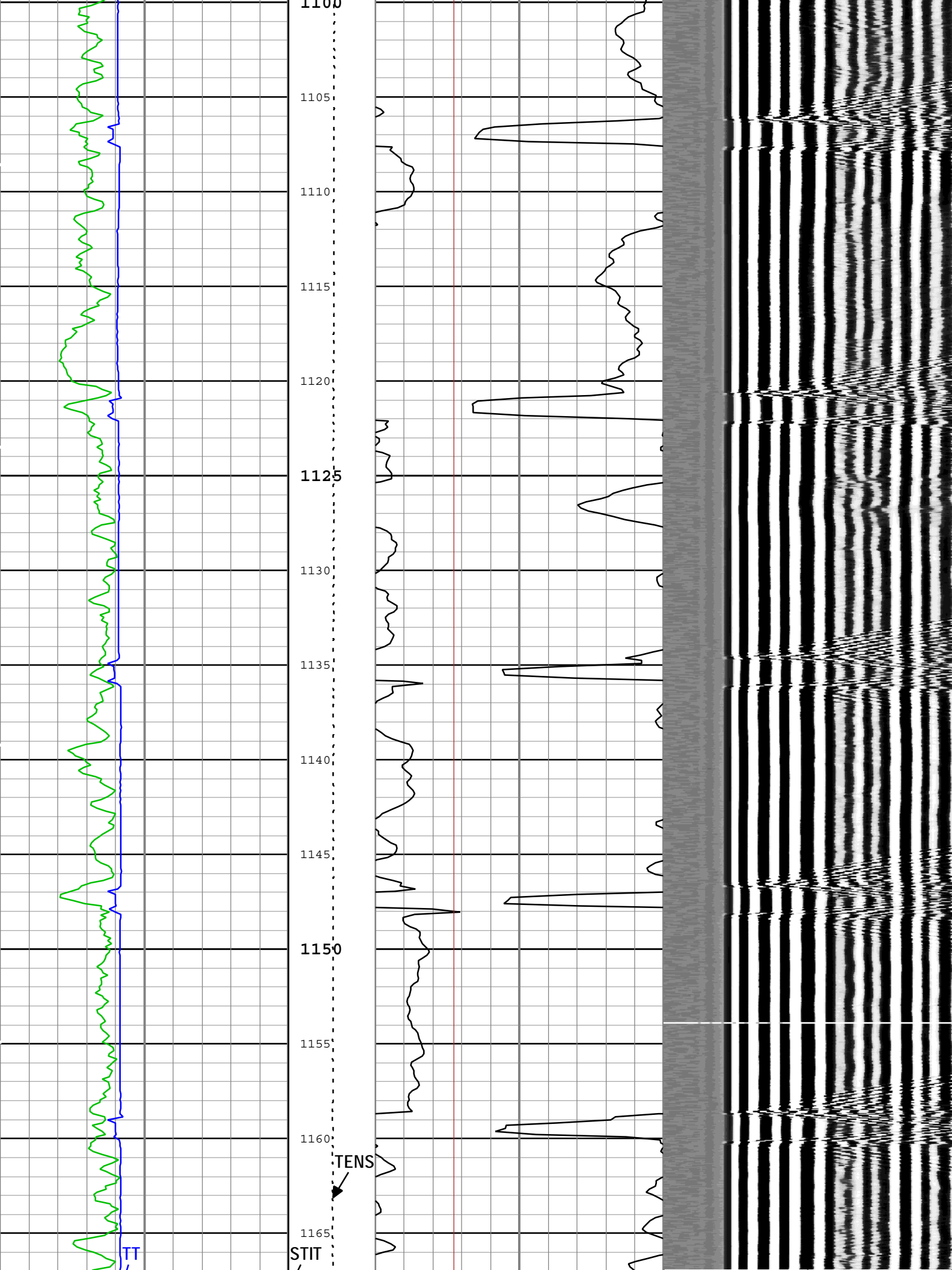


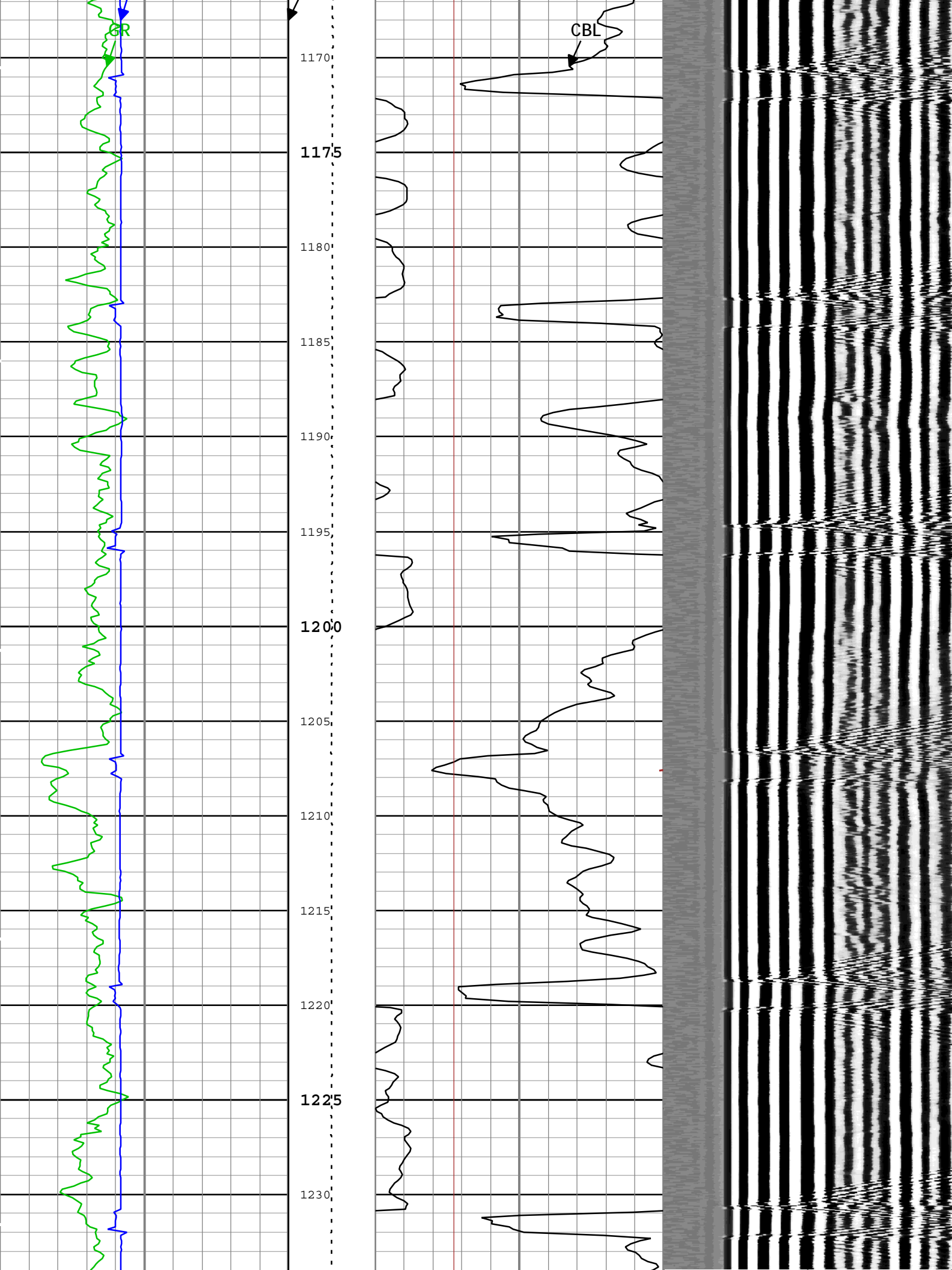


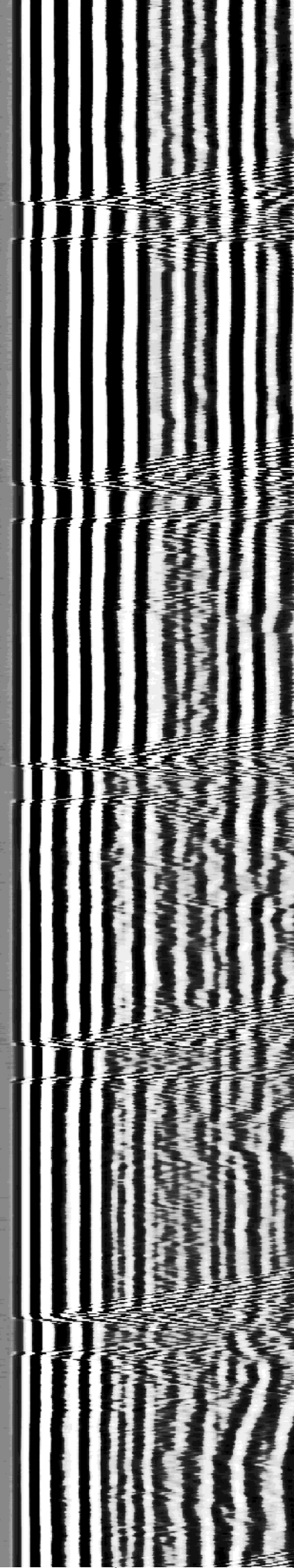
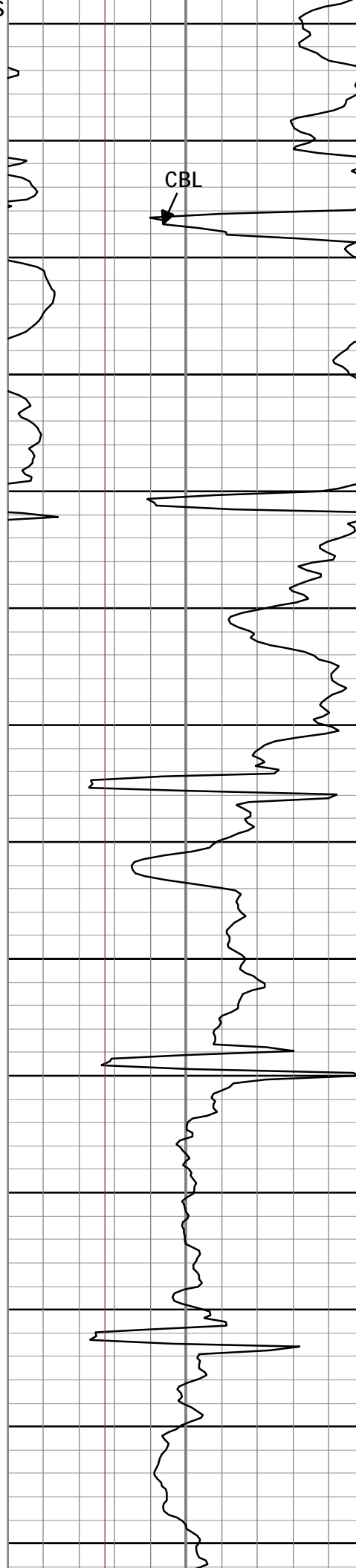
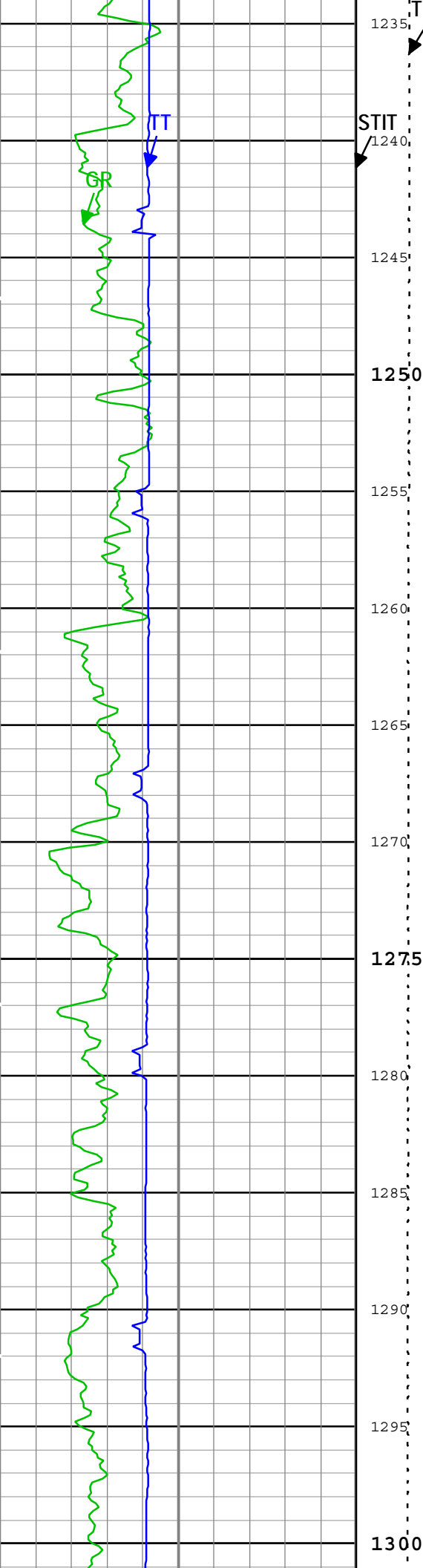


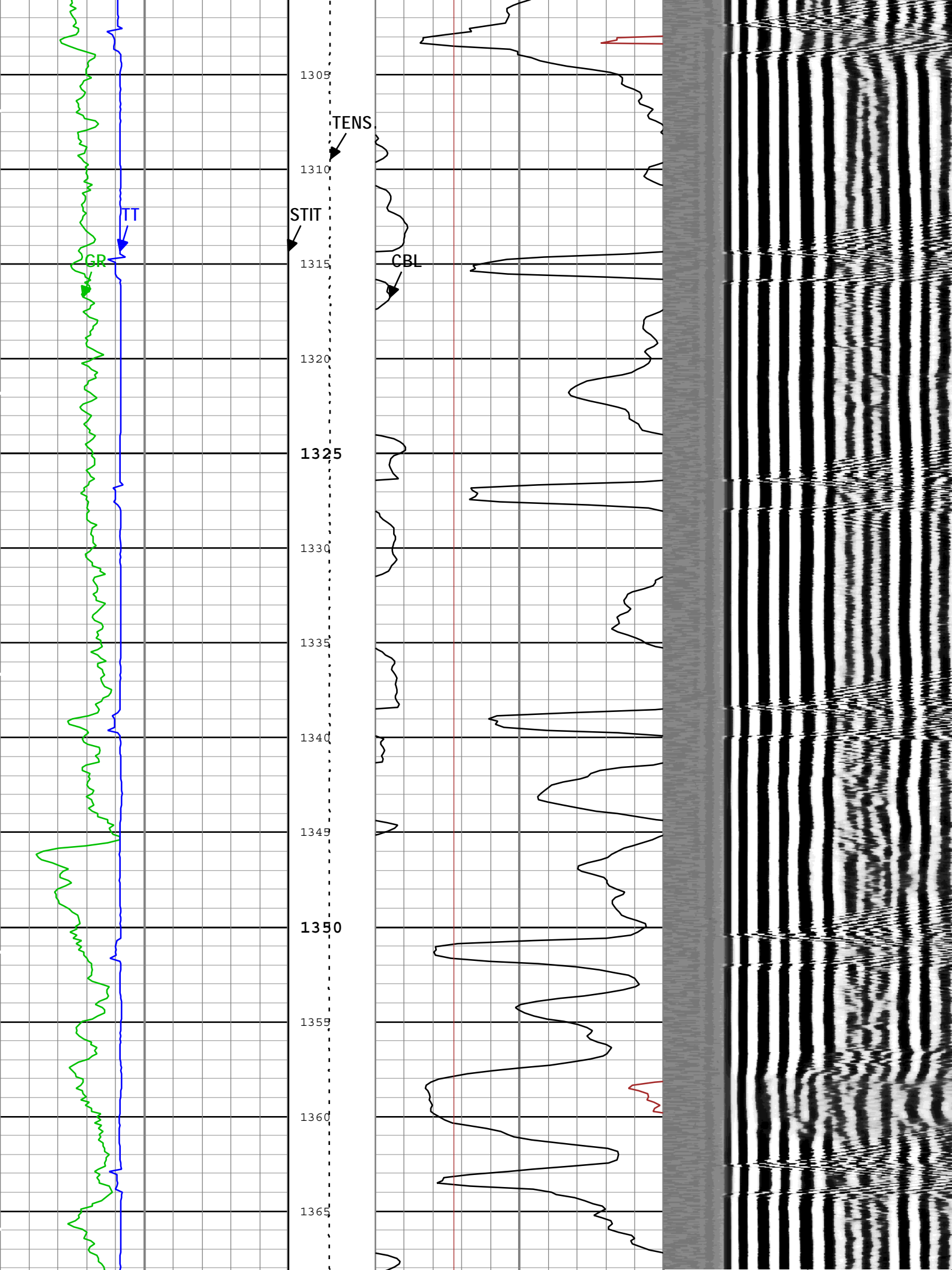


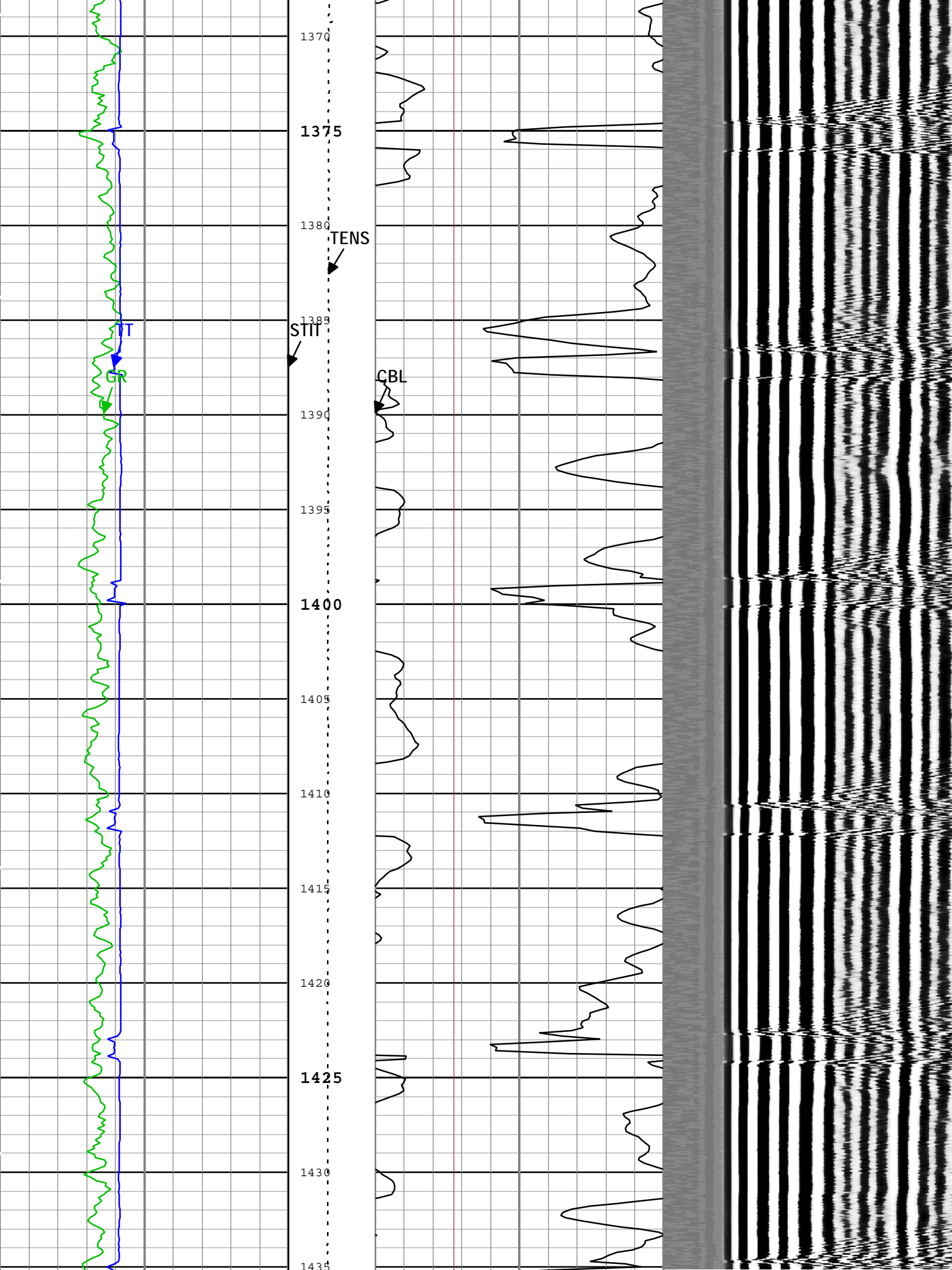


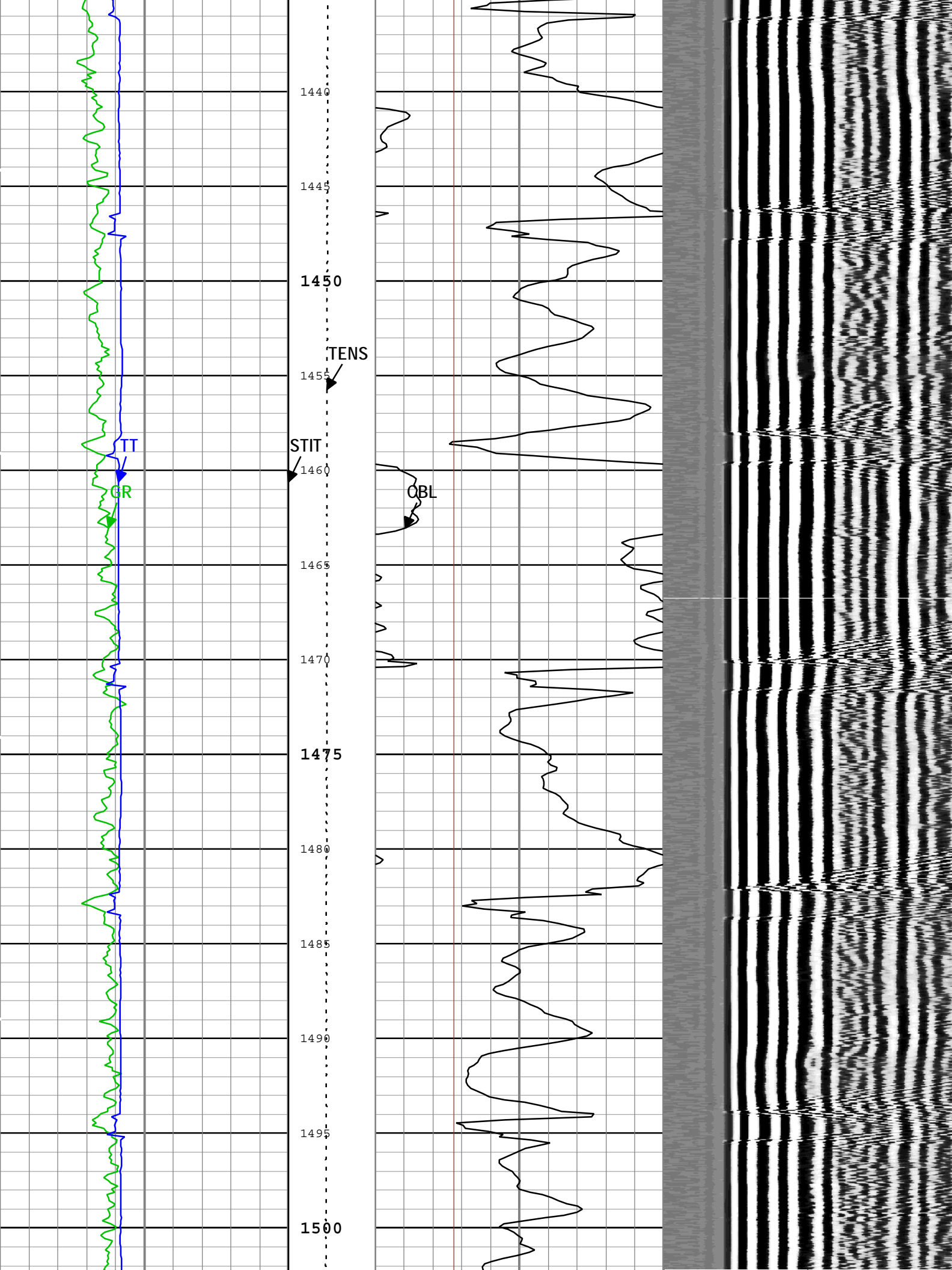


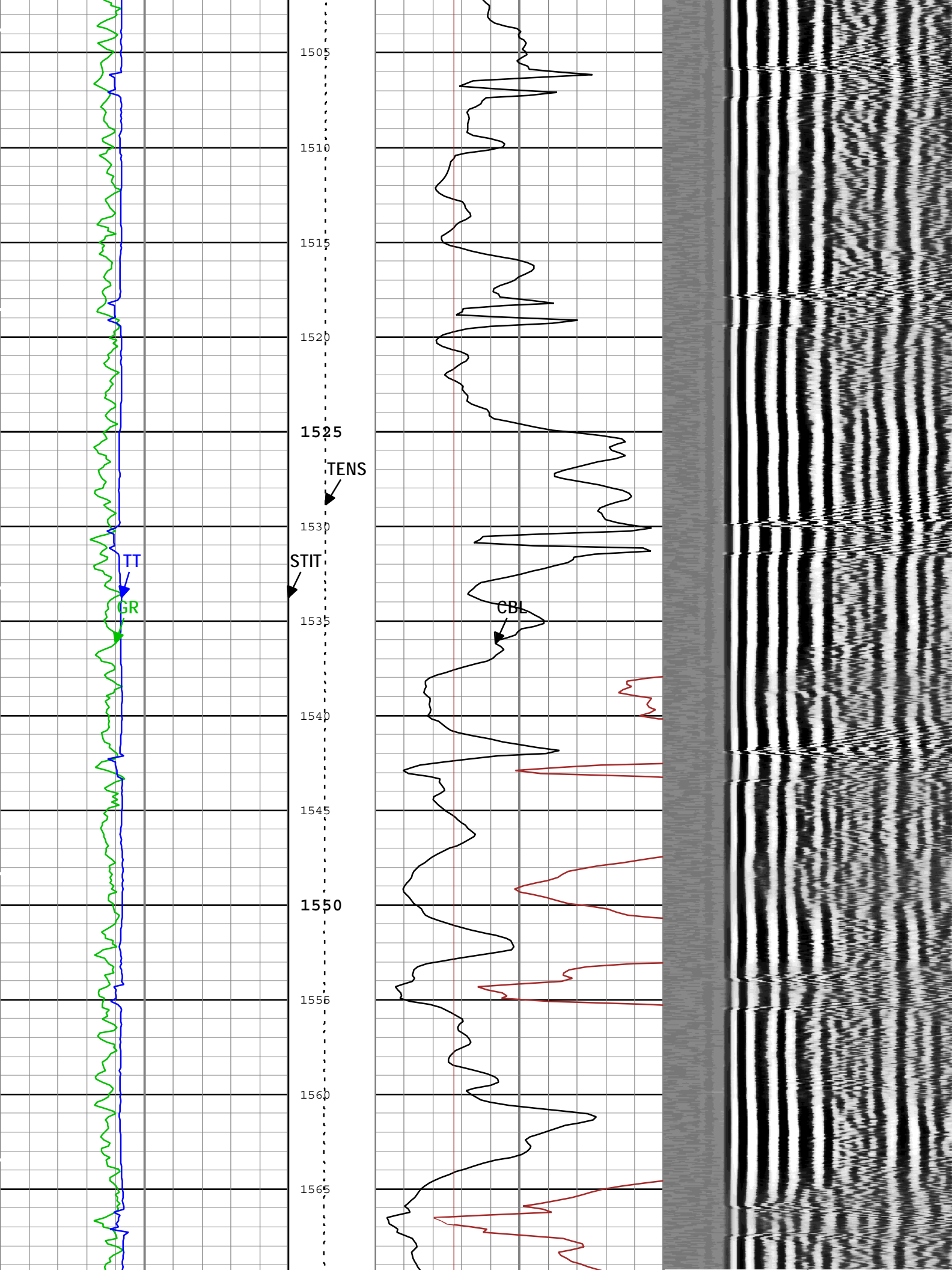


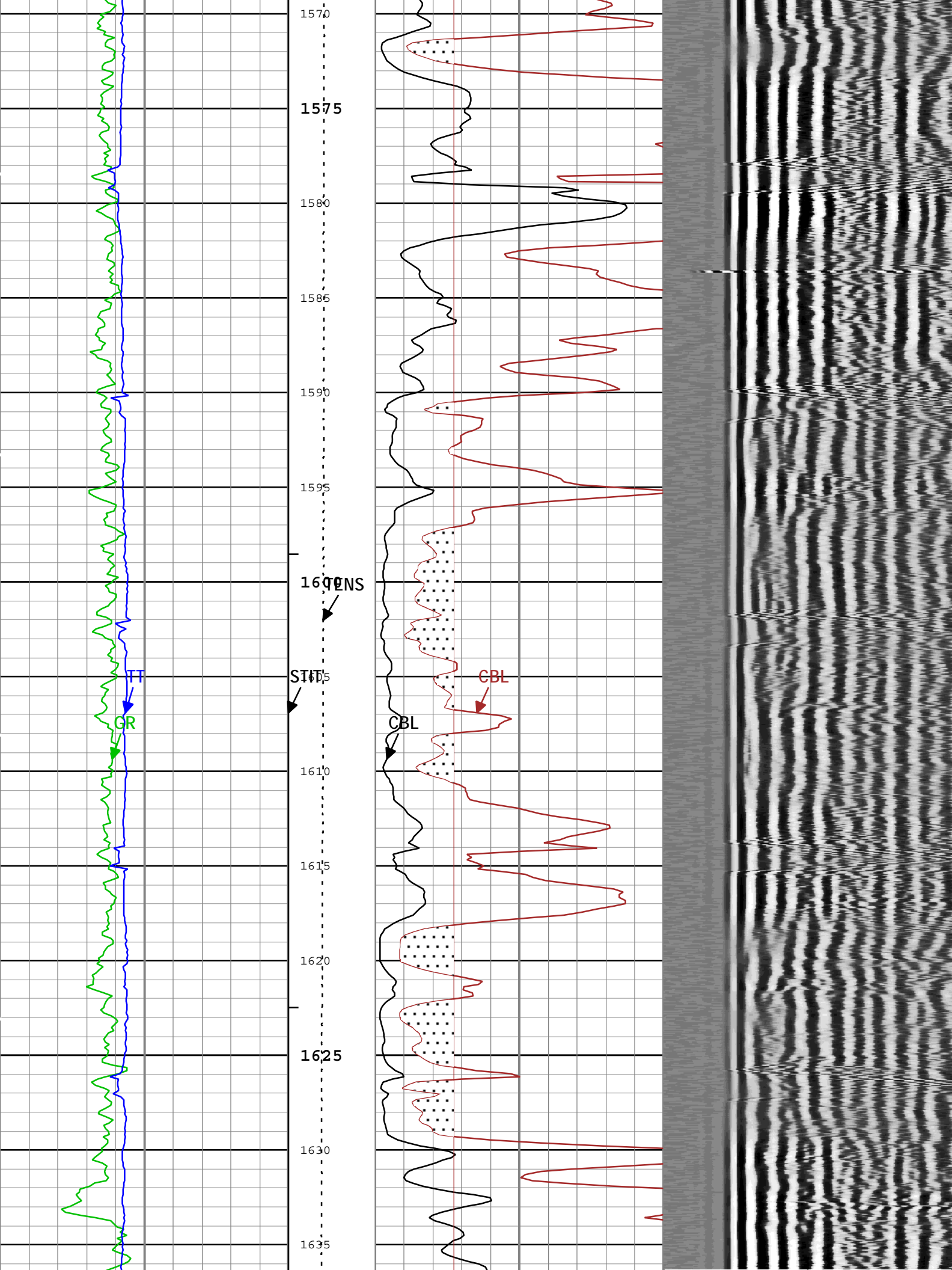


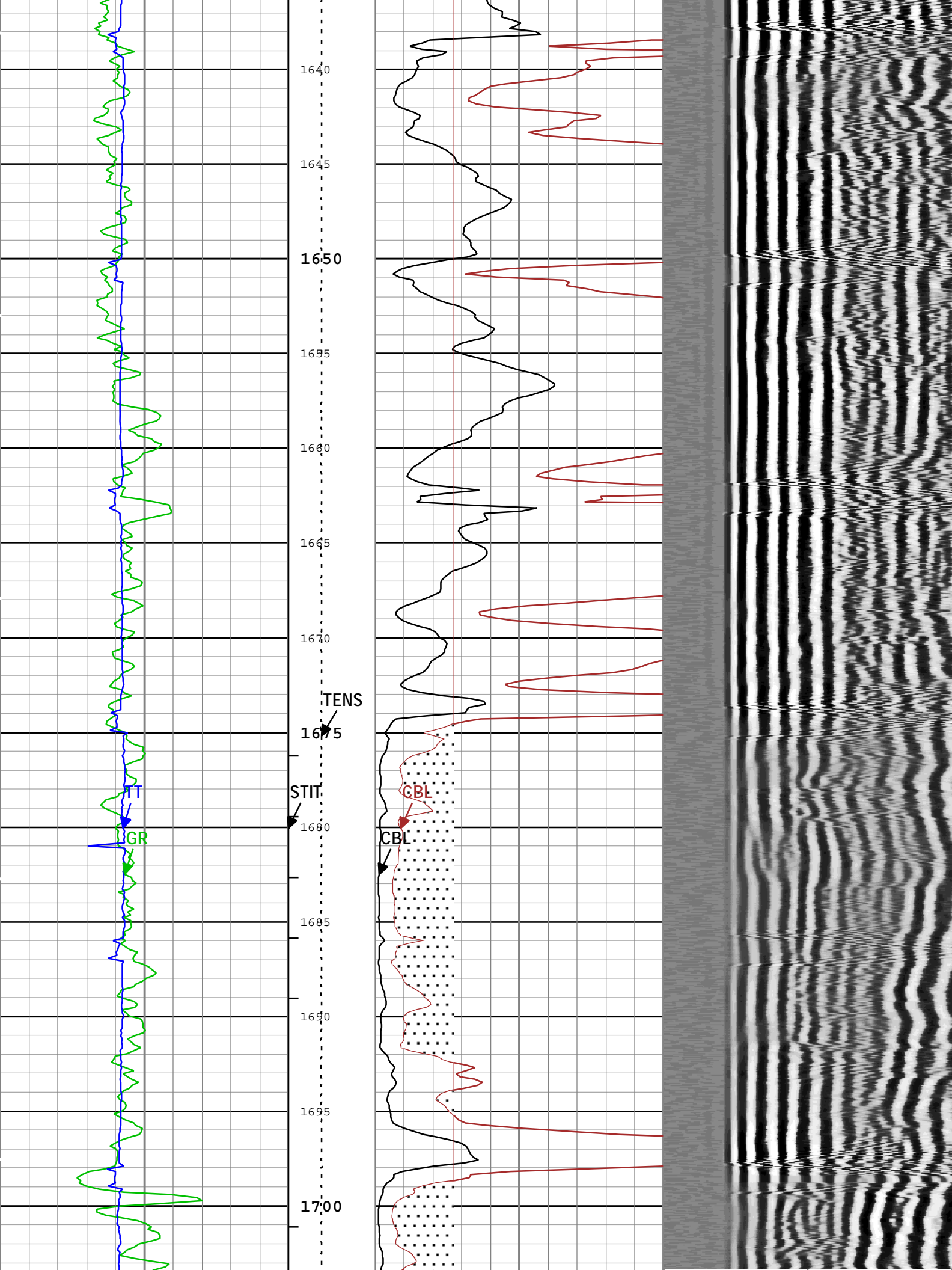


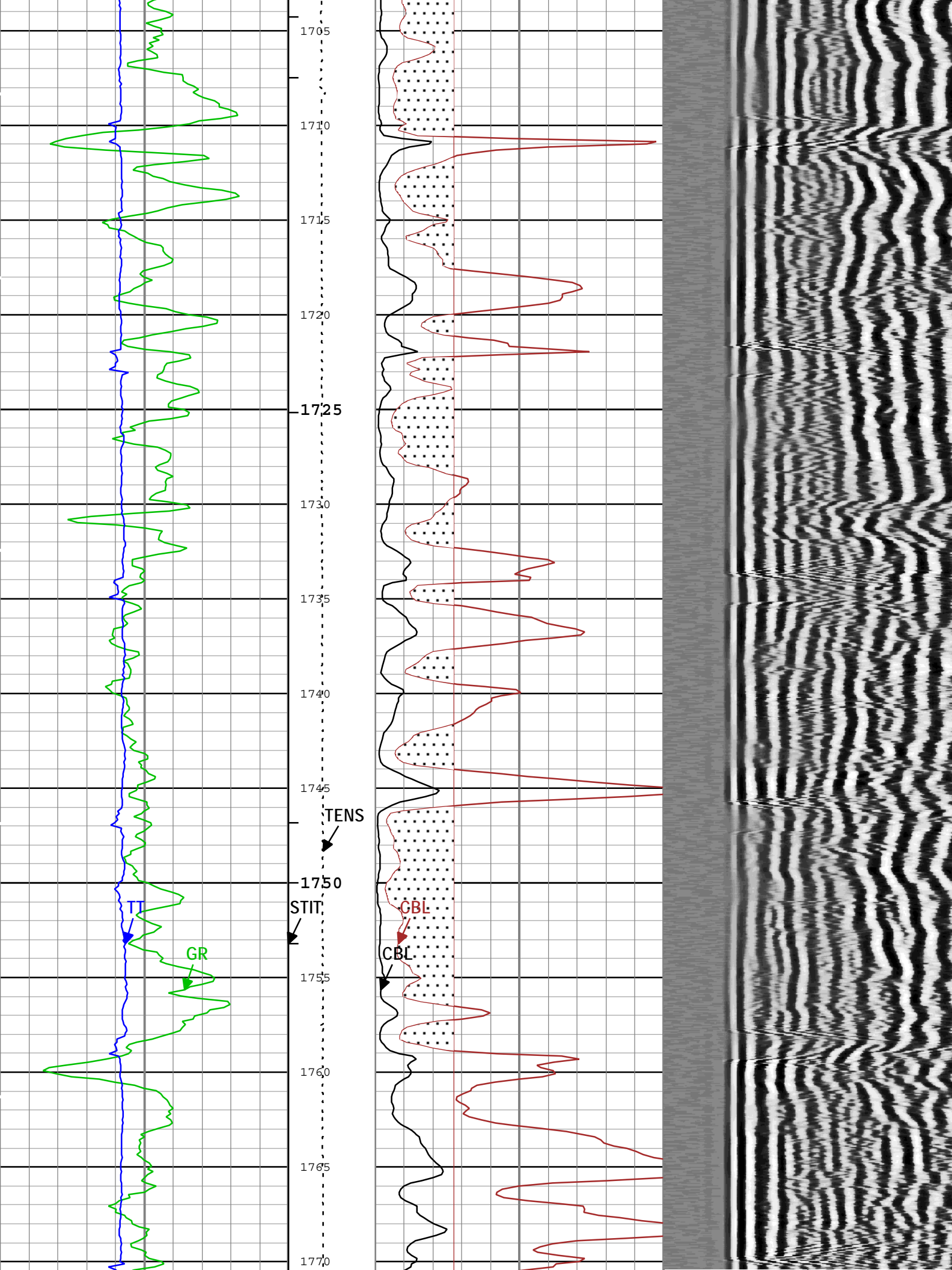


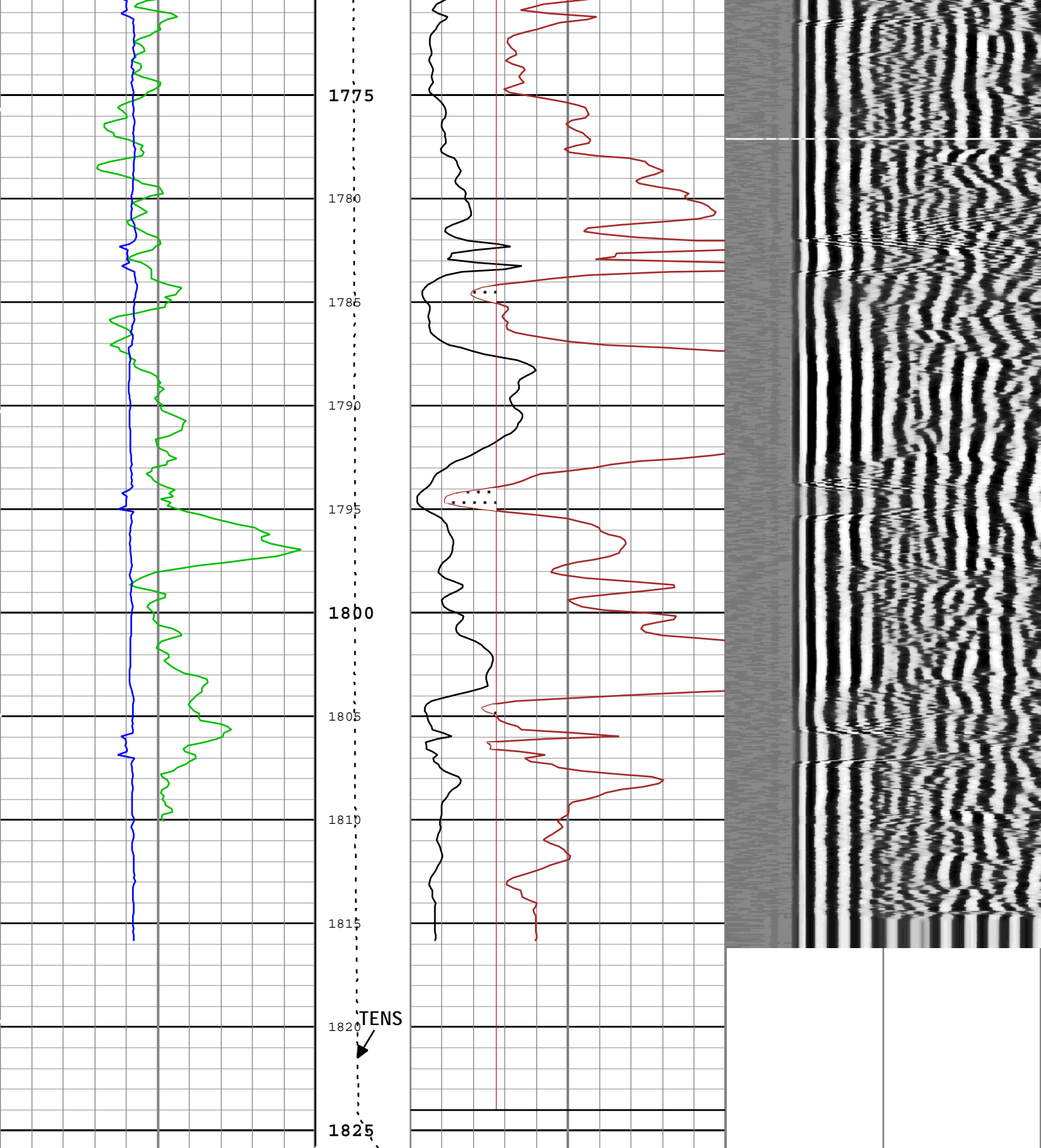












MAIN PASS: DSLT - CEMENT BOND LOG					
Gamma Ray (GR) SGT-N		Stuck Tool Indicator, Total (STIT)	CBL Amplitude (CBL) DSLT-H		Min Amplitude Max Variable Density Log (VDL) DSLT-H
0	gAPI 300		0	mV 50	
Transit Time for CBL (TT) DSLT-H		0 m 20	CBL Amplitude (CBL) DSLT-H		200 us 1200
400	us 200	Cable Tension (TENS)	0	mV 10	
			Good Bond (GOBO)		
		20000 0	0	mV 10	
			Good Bond from CBL to GOBO		

GoodBond from CBL to GUBU.

Tool_Tot.
Drag

└ BIEP - Bond Index Event Pips DSLT-H

Channel Processing Parameters				
Parameter	Description	Tool	Value	Unit
BARI	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BS	Bit Size	WLSESSION	Depth Zoned	mm
CBLG	CBL Gate Width	DSLT-H	92	us
CBLO	Casing Bottom (Logger)	WLSESSION	1824	m
CBRA	CBL LQC Reference Amplitude in Free Pipe	DSLT-H	Depth Zoned	mV
CDEN	Cement Density	SGT-N	2000	kg/m3
CMCF	CBL Cement Type Compensation Factor	DSLT-H	Depth Zoned	
CMTY	Cement Type	USIT-D	Regular Cement	
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DETE	Delta-T Detection	DSLT-H	E1	
DFD	Drilling Fluid Density	Borehole	1040	kg/m3
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	BS	
IMAR	Image Rotation	USIT-D	Off	
MAHTR	Manual High Threshold Reference for first arrival detection	DSLT-H	120	
MCI	Minimum Cemented Interval for Isolation	DSLT-H	Depth Zoned	m
MNHTR	Minimum High Threshold Reference for first arrival detection	DSLT-H	100	
MSA	Minimum Sonic Amplitude	DSLT-H	Depth Zoned	mV
NMSG	Near Minimum Sliding Gate	DSLT-H	256	us
RCTH	Reference Calibrator Thickness	USIT-D	7.498	mm
SGAD	Sliding Gate Status	DSLT-H	Off	
TCUB	T^3 Processing Level	USIT-D	Loop	
TD	Total Measured Depth	Borehole	1824	m
THDH	Maximum Search Thickness (percentage of nominal)	USIT-D	130	%
THDL	Minimum Search Thickness (percentage of nominal)	USIT-D	70	%
UDFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-D	0	Mrayl
UFGDE	Fiberglass Density	USIT-D	1950	kg/m3
UFGPS	Fiberglass Processing Selection	USIT-D	No	
UFGVL	Fiberglass Velocity	USIT-D	2950	m/s
USI_FSOD	USIT USI Fluid Slowness Fits Casing Outer Diameter	USIT-D	0_OFF	
USI_FVEL_SEL	USI Fluid Velocity Selection	USIT-D	Automatic	
USI_ZMUD_SEL	USI Mud Impedance Selection	USIT-D	Manual	
UTHDP	Thickness Detection Policy	USIT-D	Fundamental	
VCAS	Ultrasonic Transversal Velocity in Casing	USIT-D	168.64	us/m
ZCAS	Acoustic Impedance of Casing	USIT-D	46.25	Mrayl
ZCMT	Acoustic Impedance of Cement	DSLT-H	3.65	Mrayl

Depth Zone Parameters

Parameter	Value	Start (m)	Stop (m)
BS	311	0	603
BS	222	603	1824
BS	156	1824	1824.1
CBRA	62	0	1824
CBRA	0	1824	1825.88
CMCF	0.2	0	1824
CMCF	0	1824	1825.88
MCI	4.52	0	603
MCI	3.05	603	1824
MCI	0	1824	1825.88
MSA	1.25	0	1824
MSA	0	1824	1825.88

All depth are actual.

Tool Control Parameters				
Parameter	Description	Tool	Value	Unit
DSLT_MODE	DSLT Acquisition Mode	DSLT-H	CBL	
DSLT_RATE	DSLT Firing Rate	DSLT-H	15 Hz	
DTFS	DSLT Telemetry Frame Size	DSLT-H	536	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	1028.7	m/h
ULOG	Logging Objective	USIT-D	MEASUREMENT	
UMFR	Modulation Frequency	USIT-D	333333	Hz
USI_UPAT	USIT Emission Pattern	USIT-D	Pattern 375 KHz	
USI_UWKM	USIT Working Mode	USIT-D	Uncompressed 10 deg at 1.5 in LF	
USIT_DEPTHLOG	Starting Depth Log for Ultrasonics	USIT-D	1828	m
VRES	Vertical Resolution	USIT-D	1.5 in	
WINB	Window Begin Time	USIT-D	51.7	us
WINE	Window End Time	USIT-D	119.19	us

2.1

Software Version			
Acquisition System		Version	
MaxWell		4.0.9163.3000	
Application Patch		Patch-SP-10767_13075-4.0.9163.3001	
Computation	Description	Version	
Cementation	Cementation Computation Application	4.0.9167.3000	
Tool Elements	Description	Software Version	Firmware Version
USI-SENSOR	USIT Transducer Element	4.0.9265.3000	DHC: P321617
SGC-TB	Scintillation Gamma Cartridge	4.0.9033.3000	

Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
2.1	Log[6]:Up	Up	8.33 m	1825.87 m	21-Jan-2014 3:44:29 AM	21-Jan-2014 5:51:45 AM	ON	0.00 m	Yes

All depths are referenced to toolstring zero

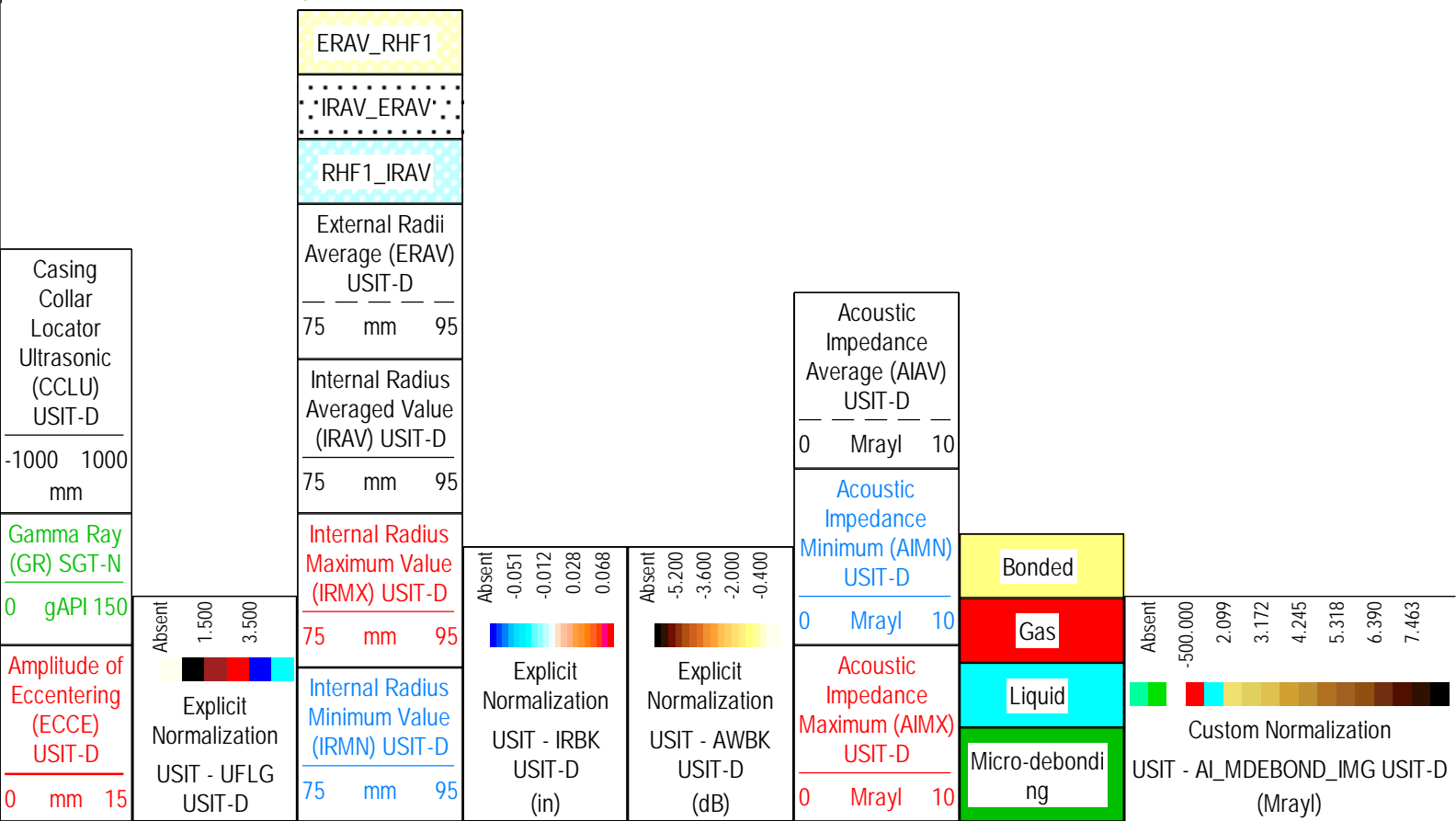
Log	Company:CONOCOPHILLIPS CANADA RESOURCES CORP.	Well:COPRC DODO CANYON E76
	2.1: Log[6]:Up:S042	

Description: USI VDL Cement Format: Log (USIT Cement) Index Scale: 1:240 Index Unit: m Index Type: Measured Depth Creation Date:

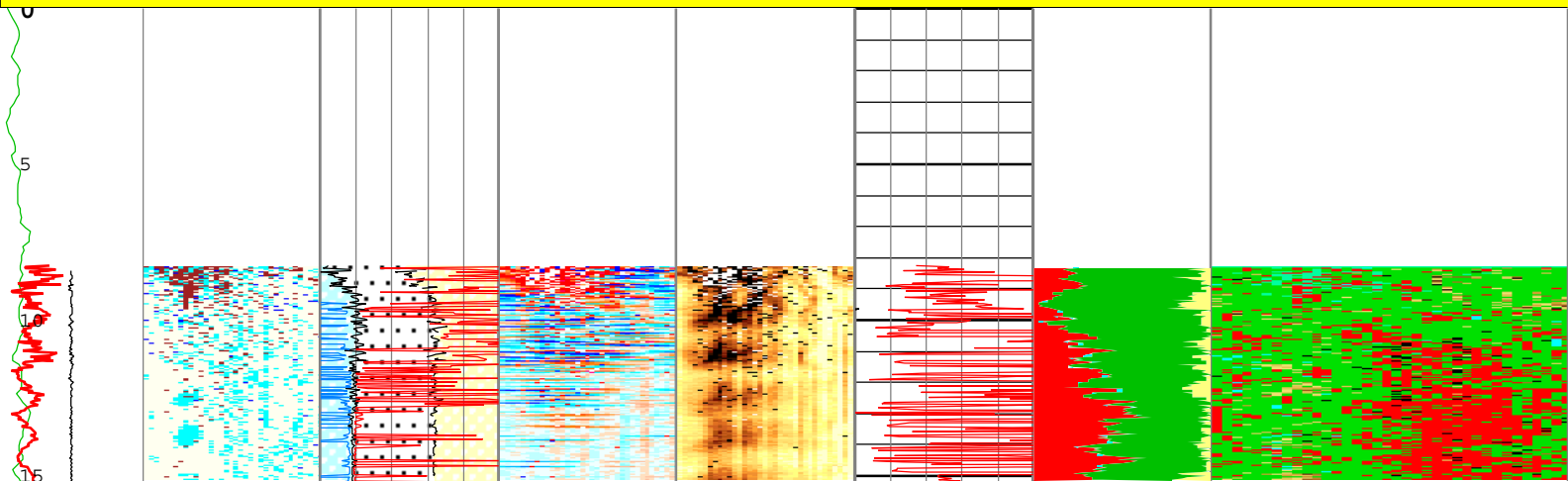
21-Jan-2014 20:04:57

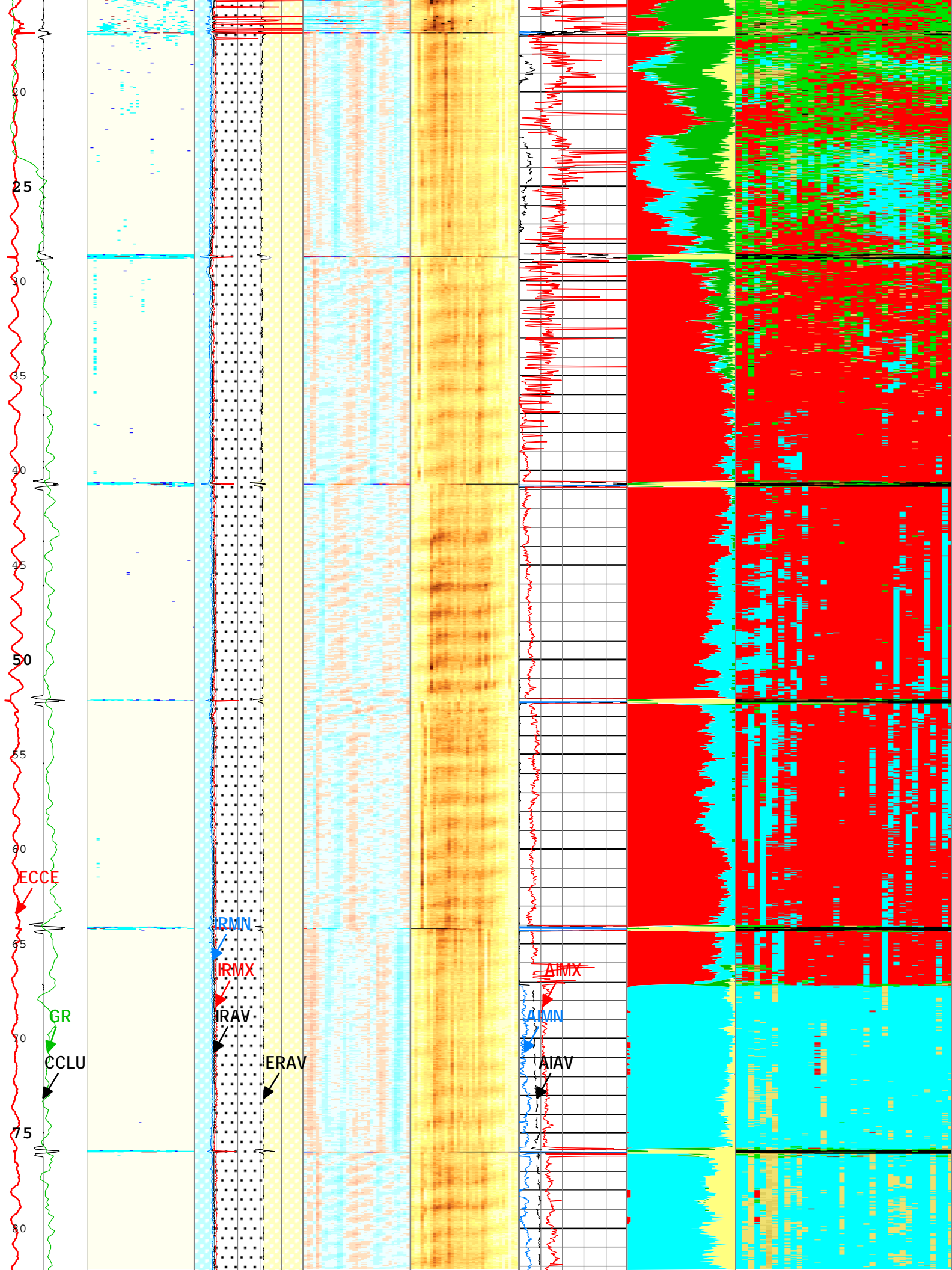
Channel	Source	Sampling
AIAV	USIT-D:USRS:USI-SENSOR	1.5in
AIMN	USIT-D:USRS:USI-SENSOR	1.5in
AIMX	USIT-D:USRS:USI-SENSOR	1.5in
CCLU	USIT-D:USRS:USI-SENSOR	1.5in
CEMR	USIT-D:USRS:USI-SENSOR	1.5in
ECCE	USIT-D:USRS:USI-SENSOR	1.5in
ERAV	USIT-D:USRS:USI-SENSOR	1.5in
GASR	USIT-D:USRS:USI-SENSOR	1.5in
GR	SGT-N:SGT-N:SGC-TB	6in
IRAV	USIT-D:USRS:USI-SENSOR	1.5in
IRMN	USIT-D:USRS:USI-SENSOR	1.5in
IRMX	USIT-D:USRS:USI-SENSOR	1.5in
MDR	USIT-D:USRS:USI-SENSOR	1.5in
TIME_1900	WLWorkflow	0.1in

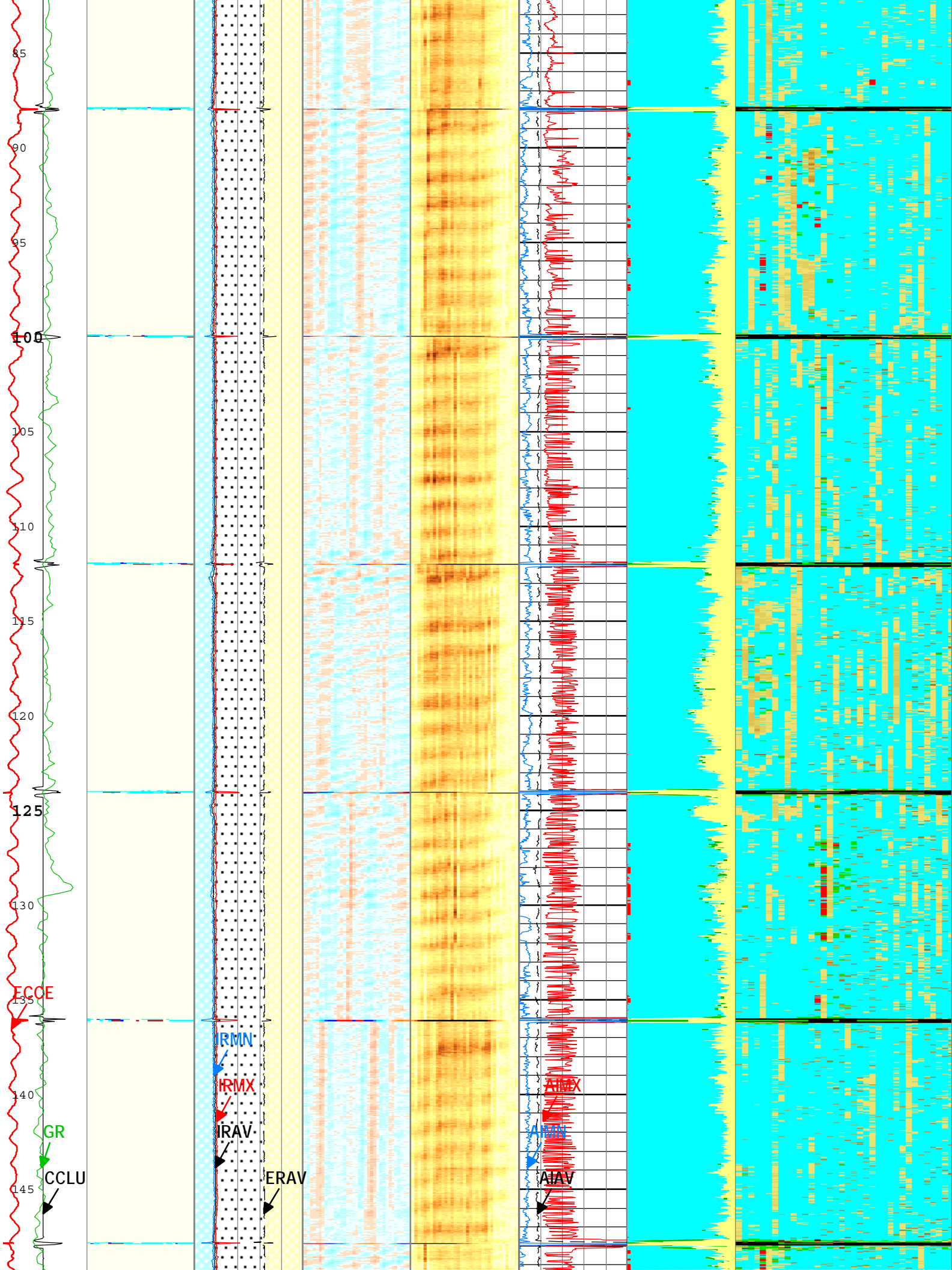
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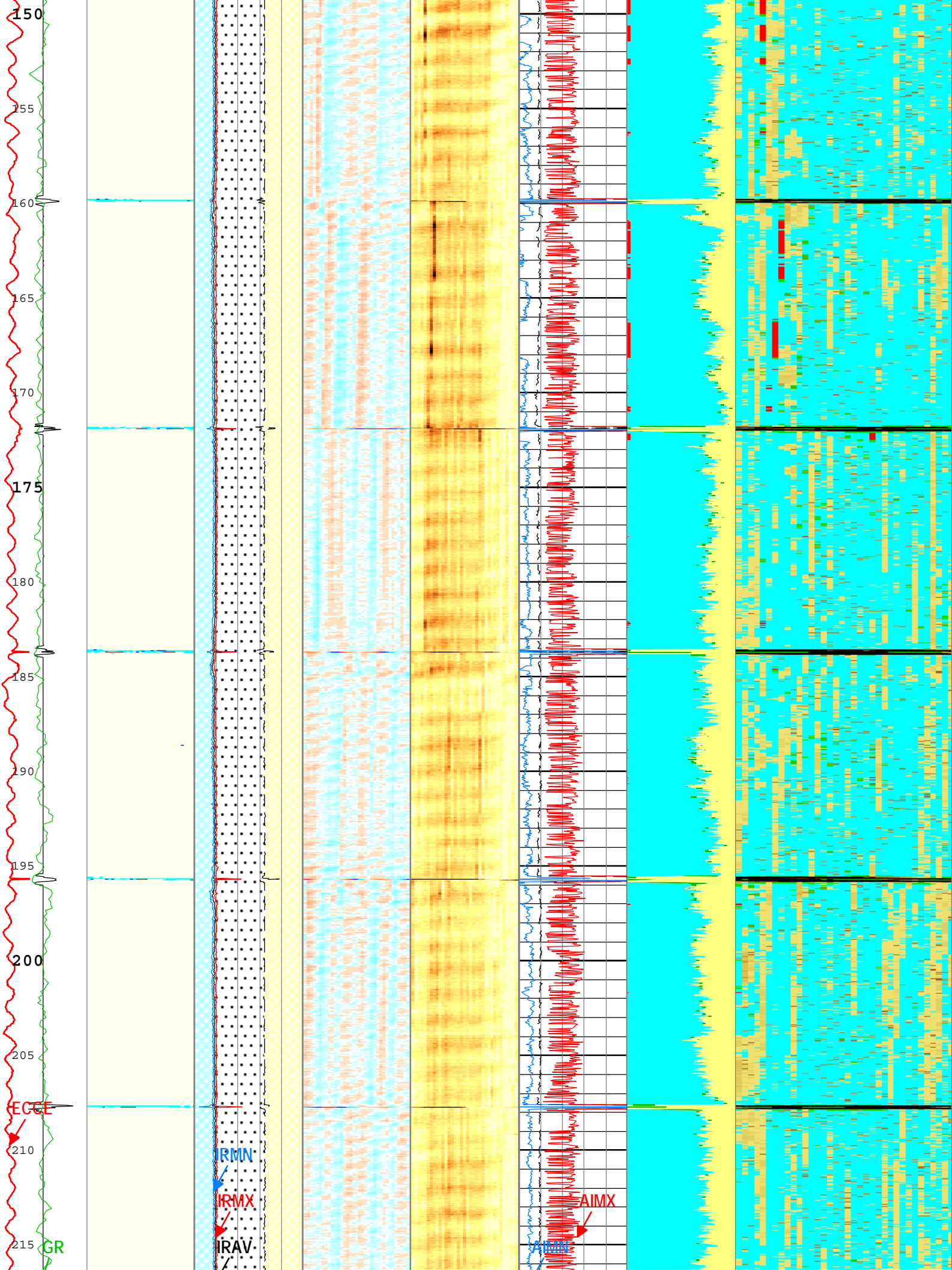


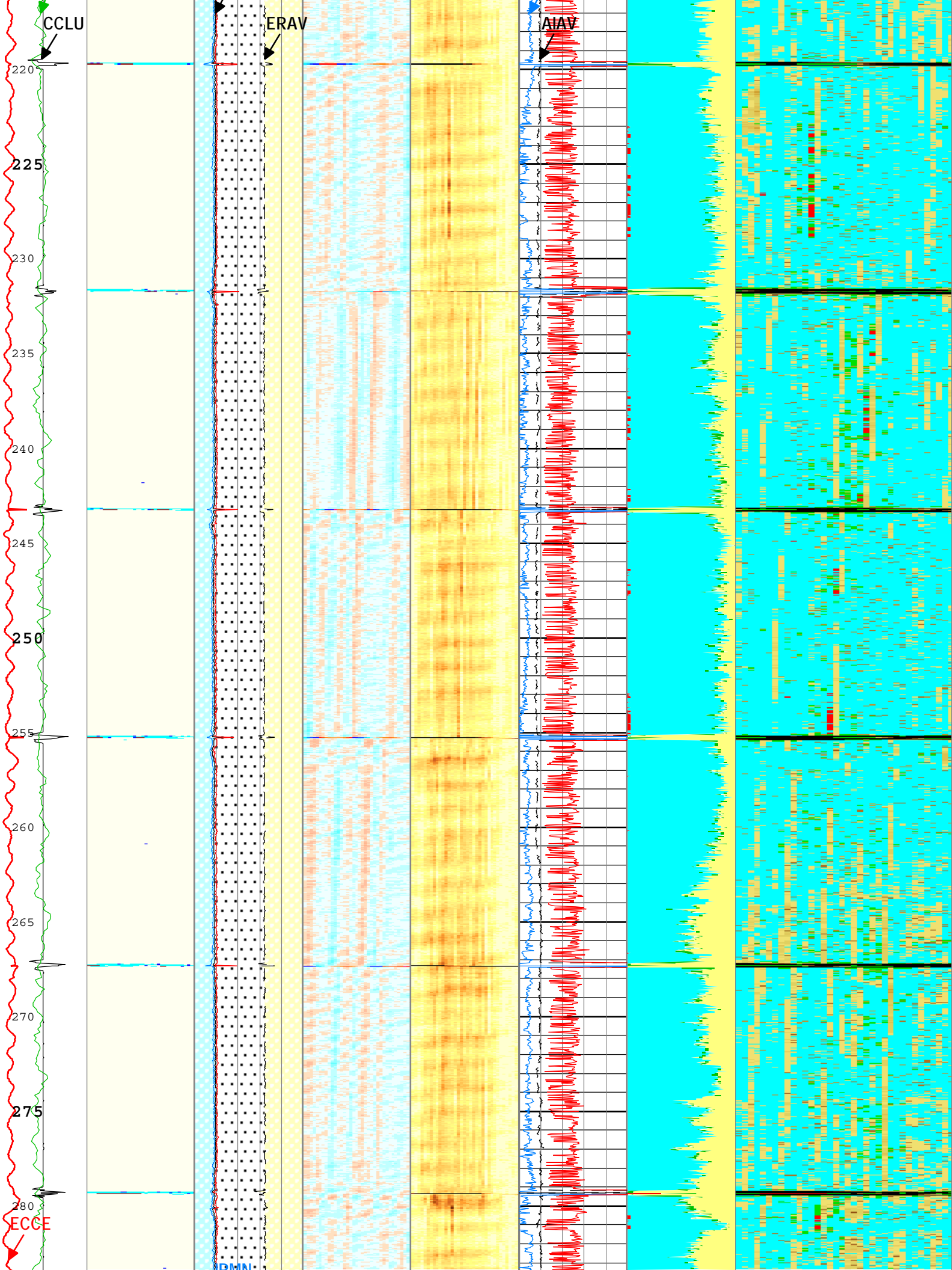
MAIN PASS: USIT CEMENT LOG

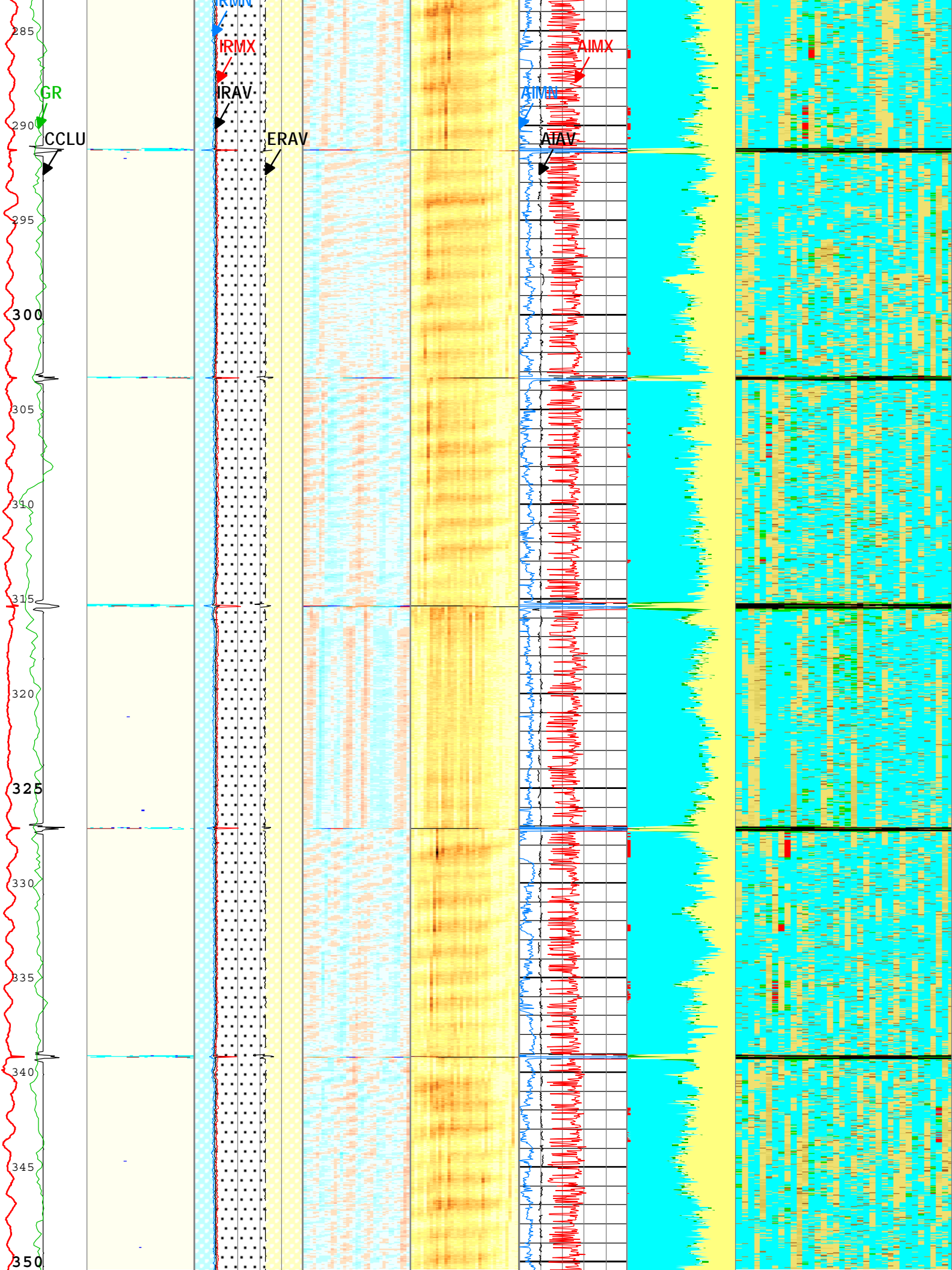


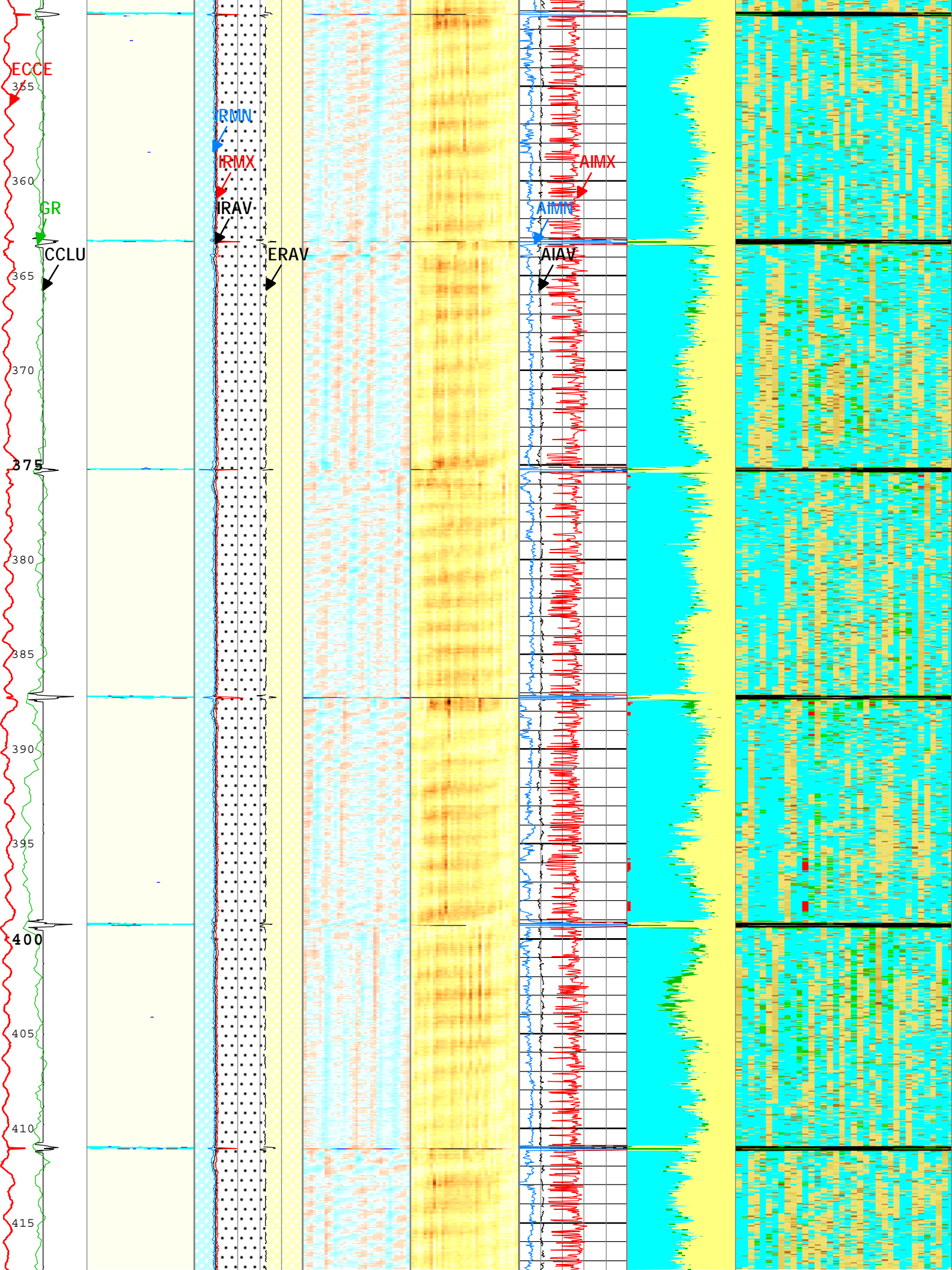


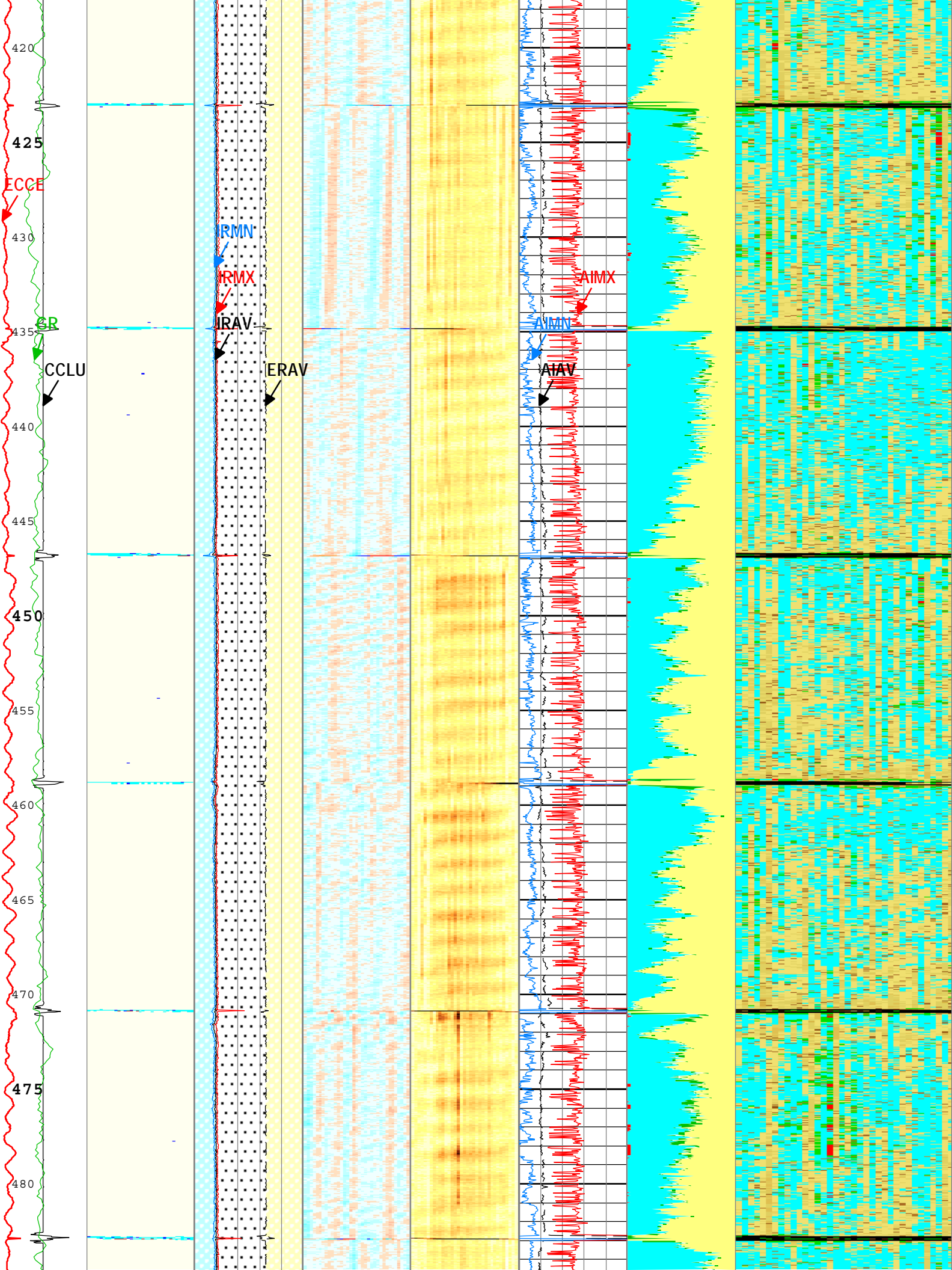


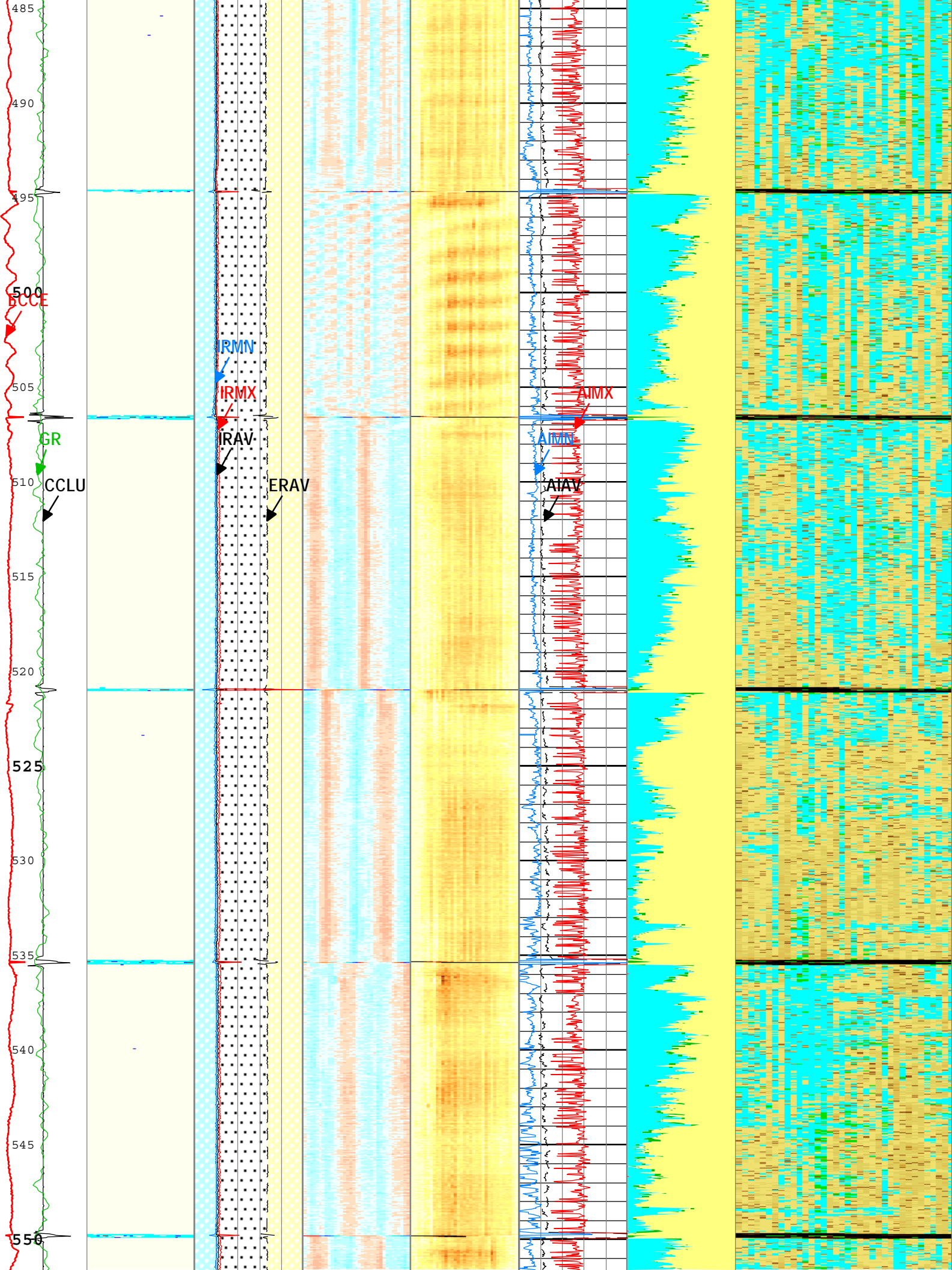


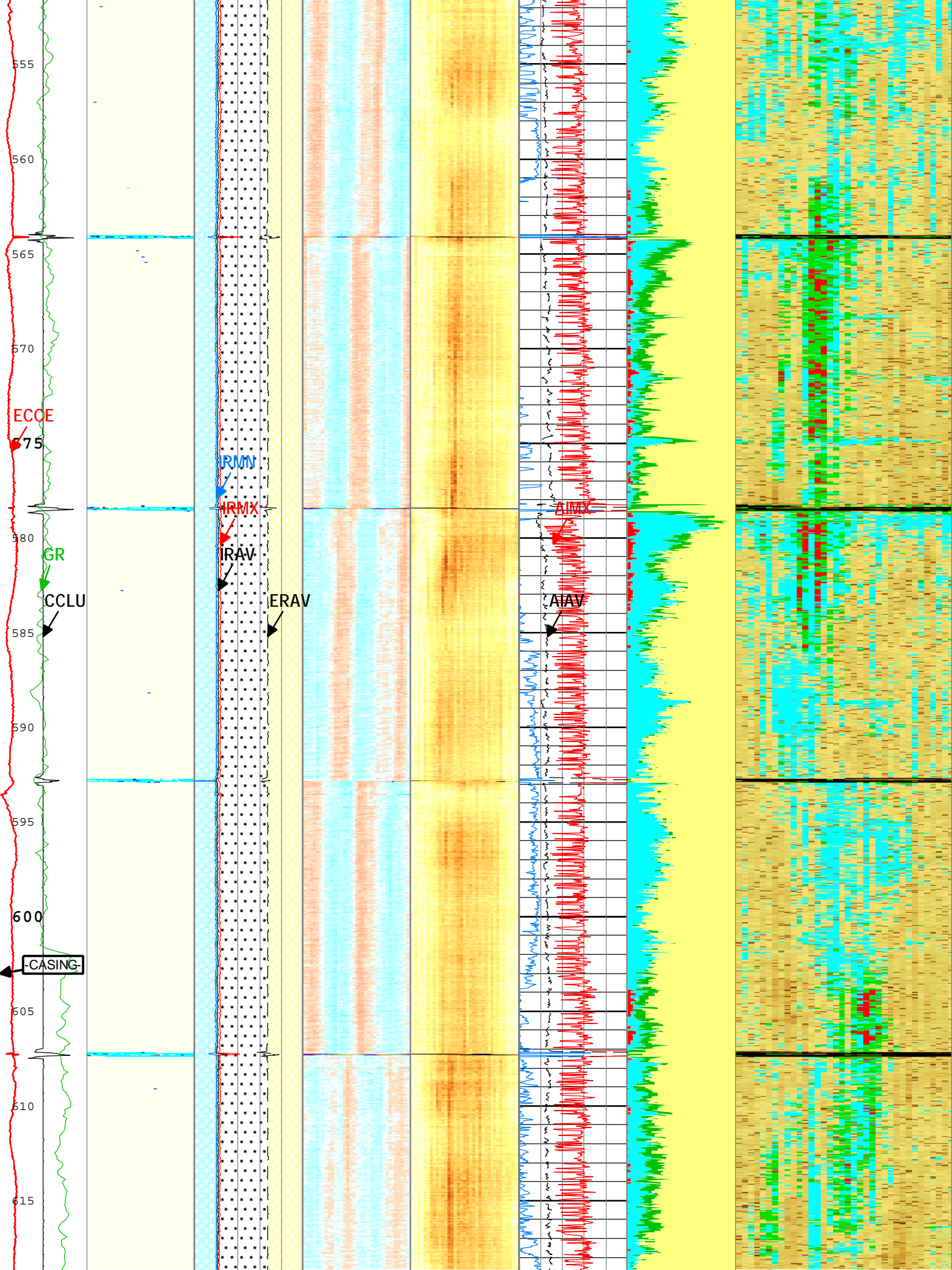


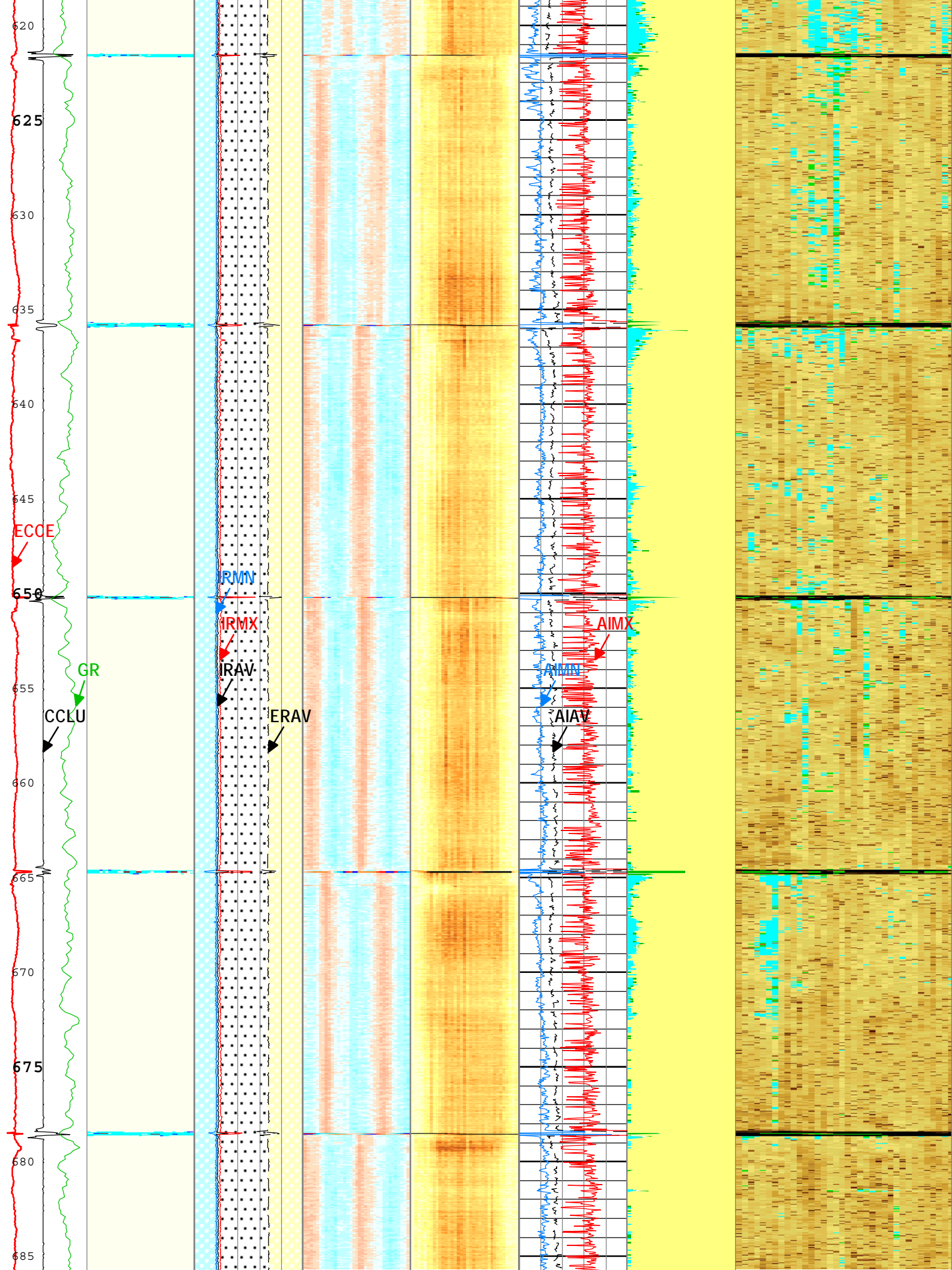


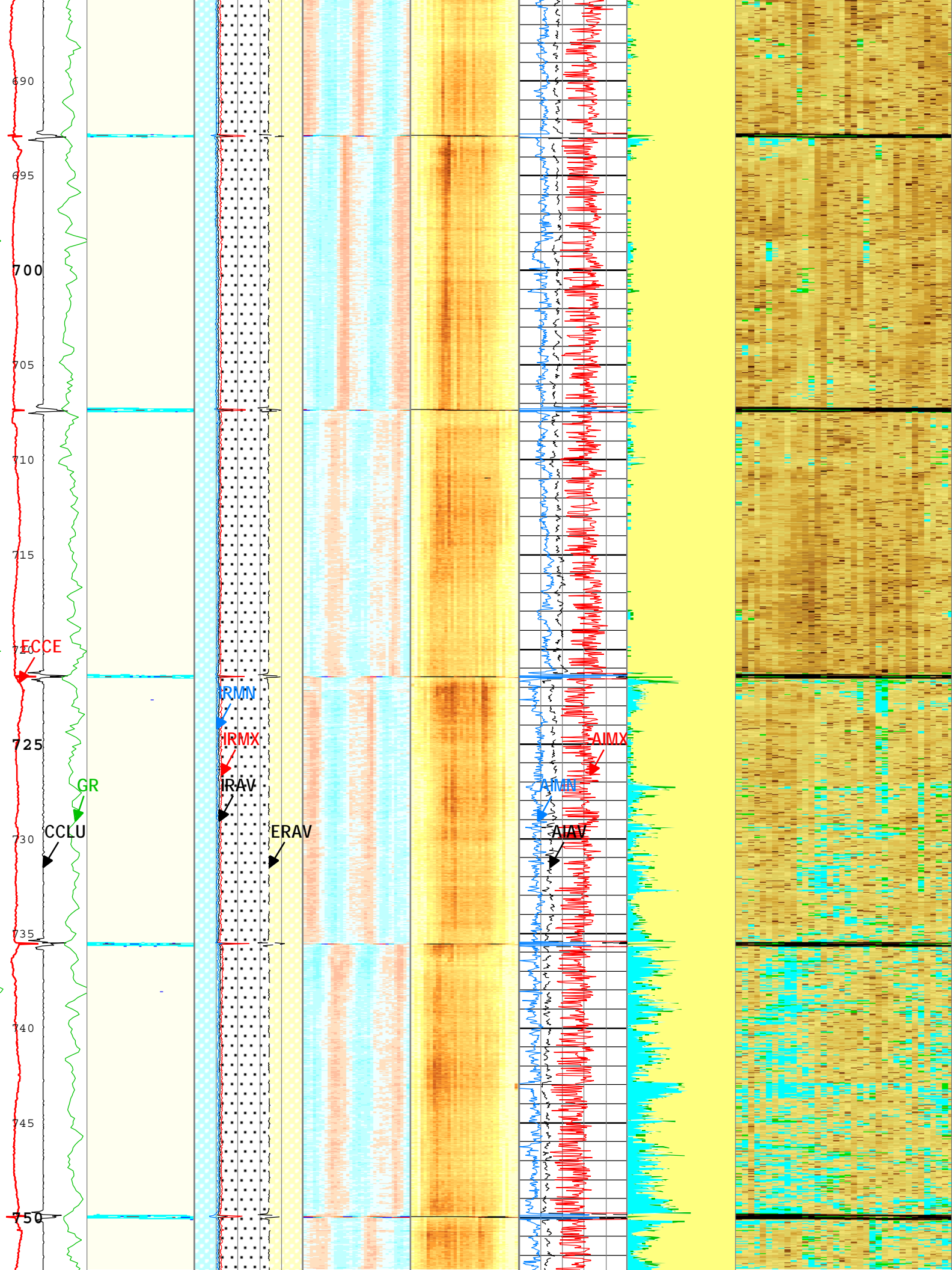


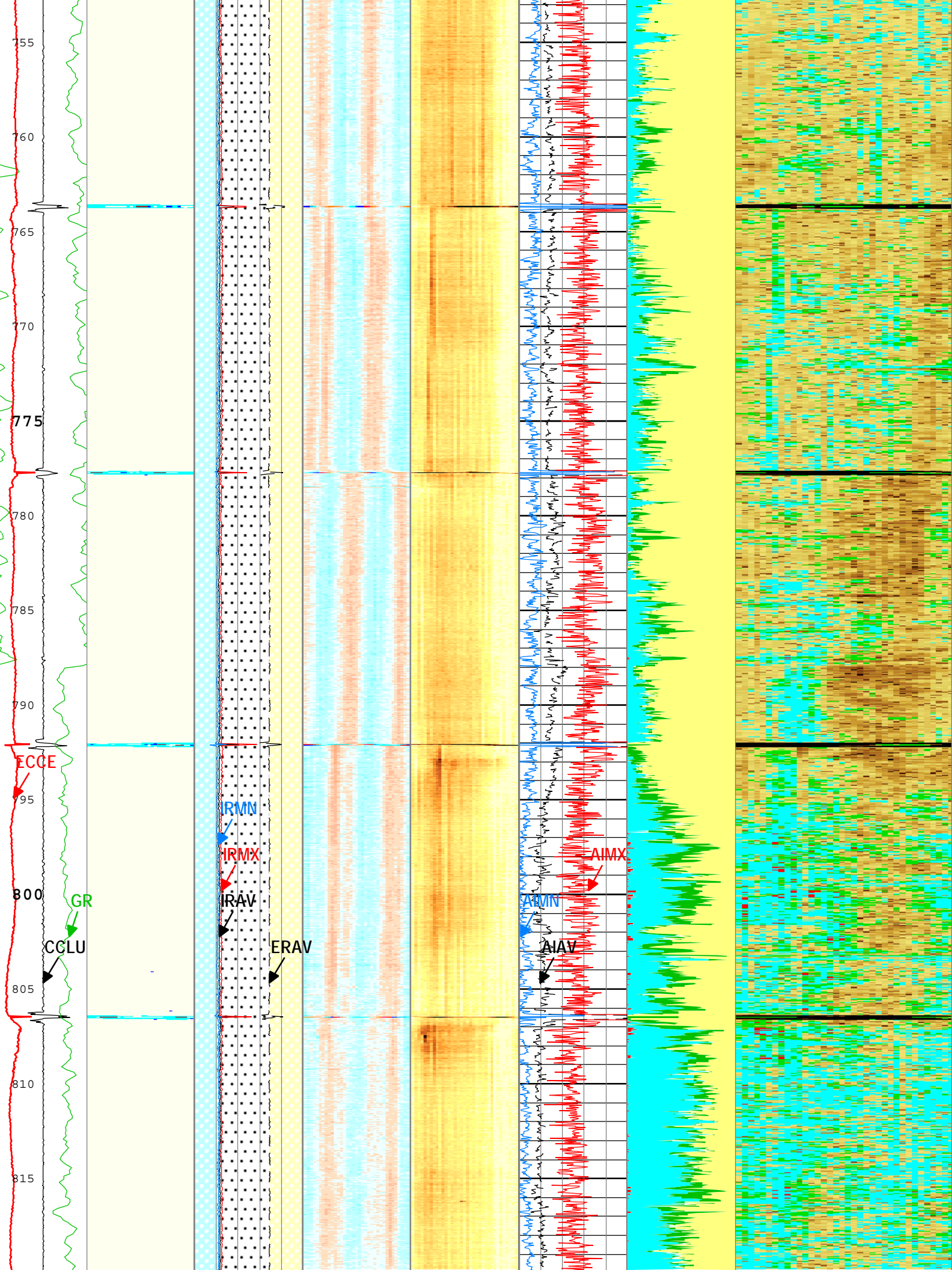


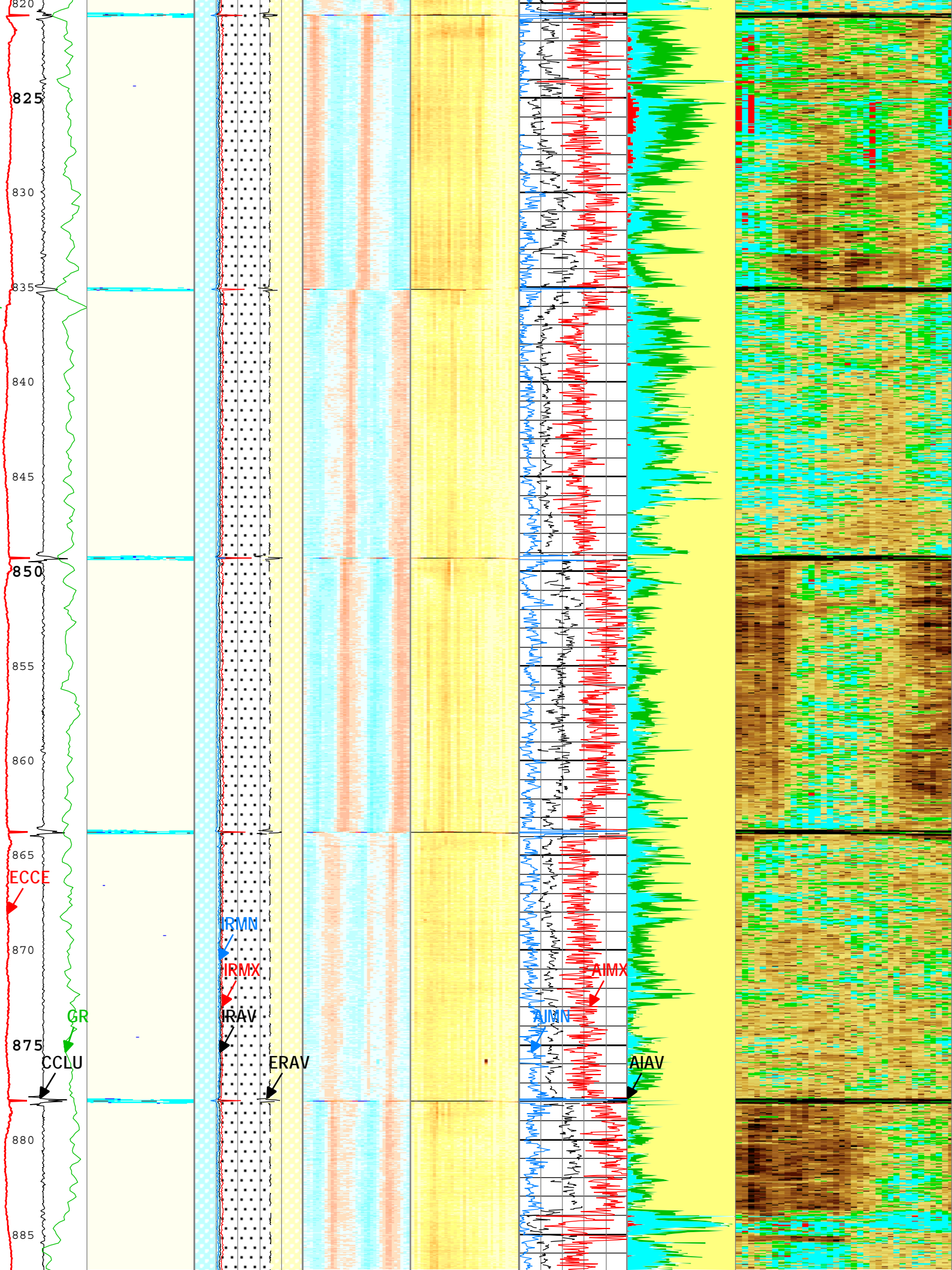


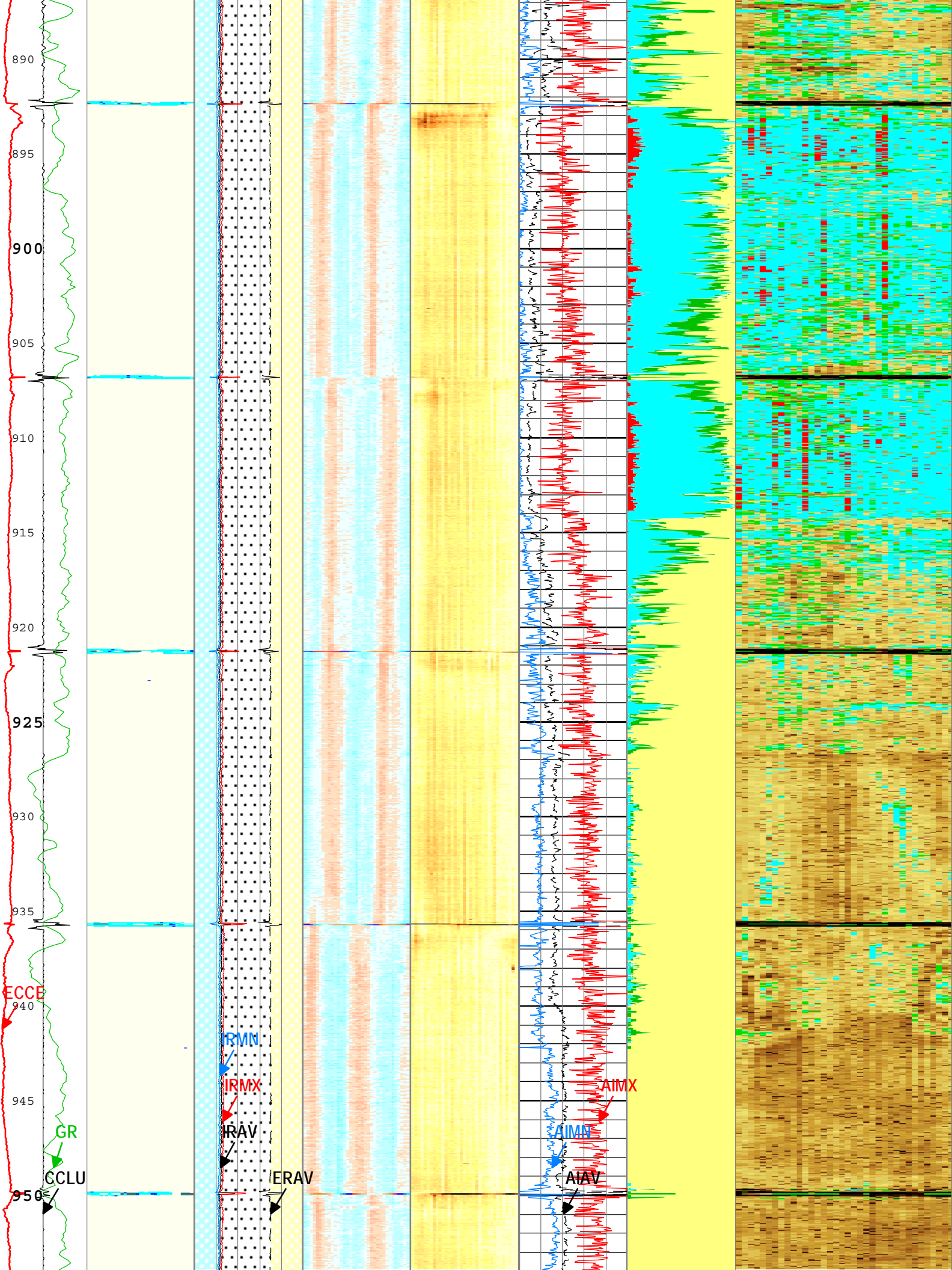


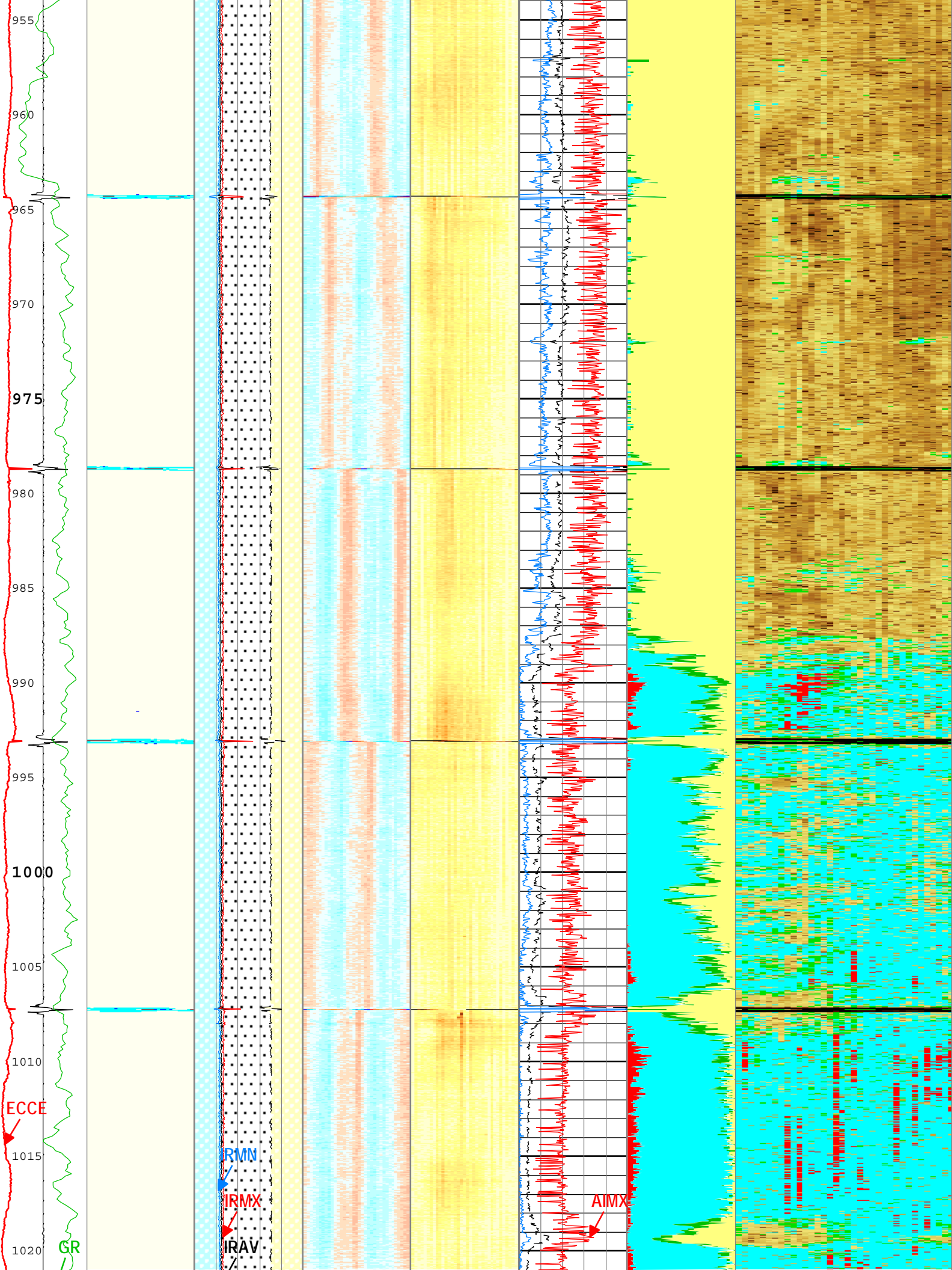


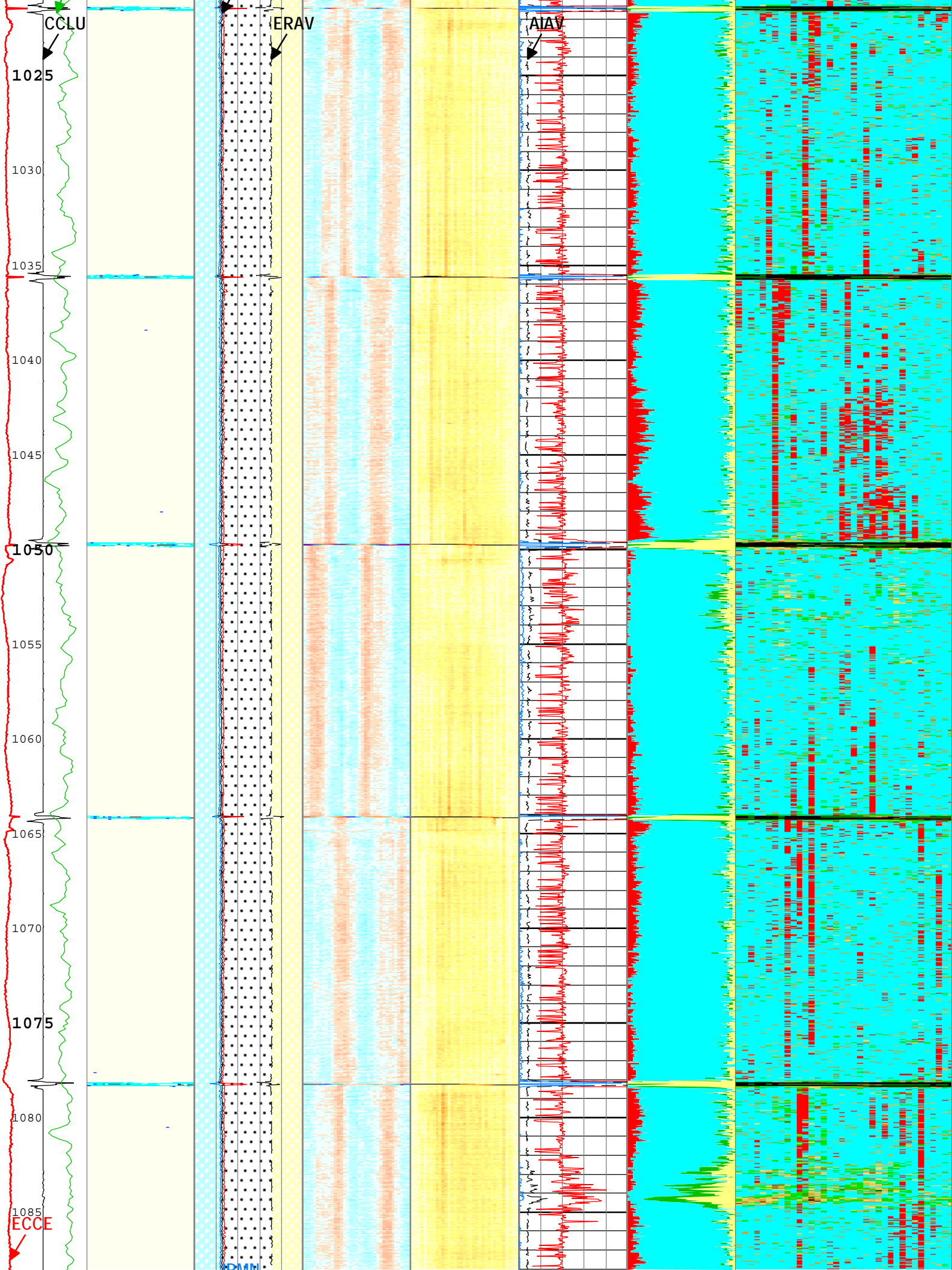


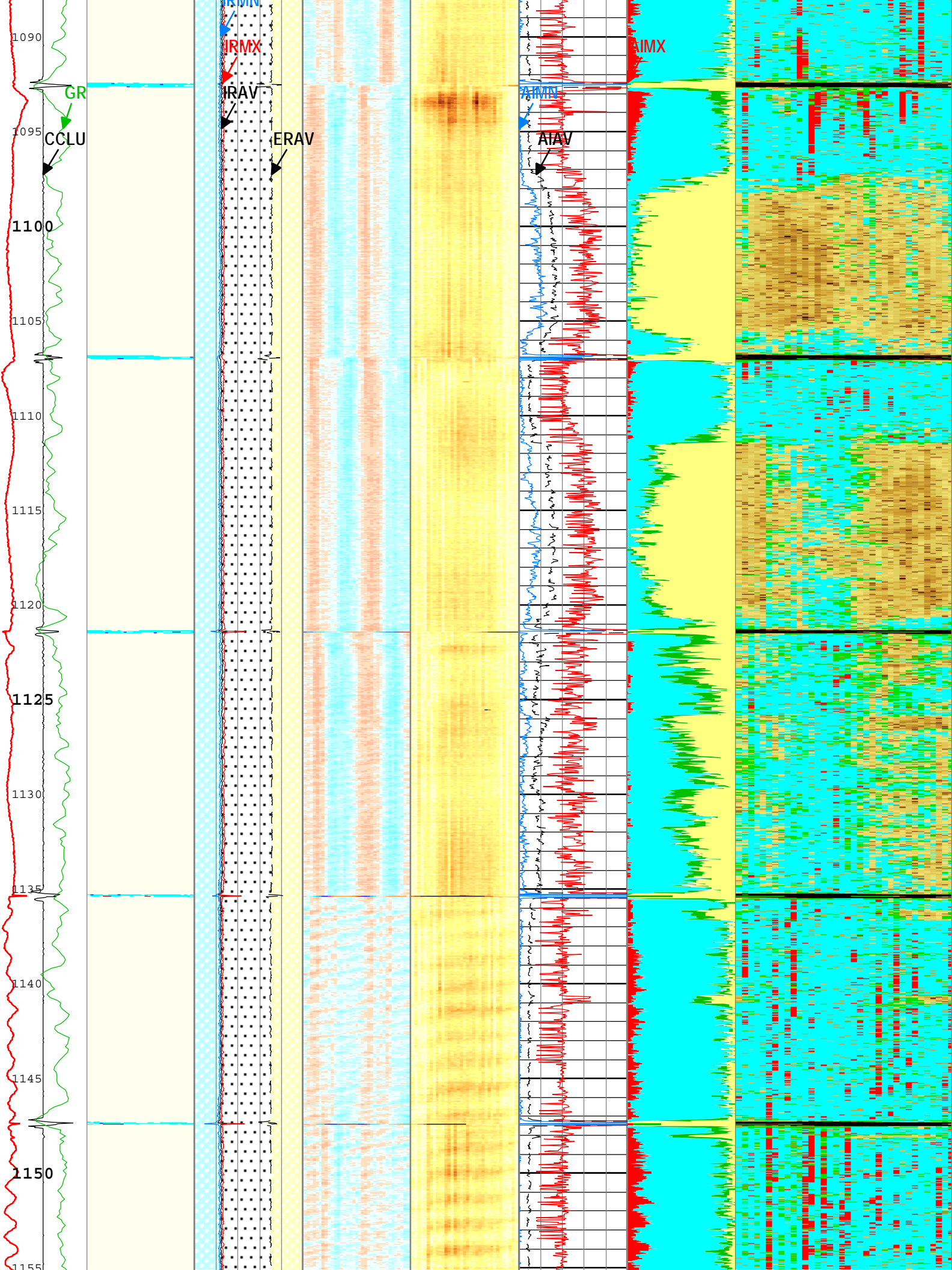


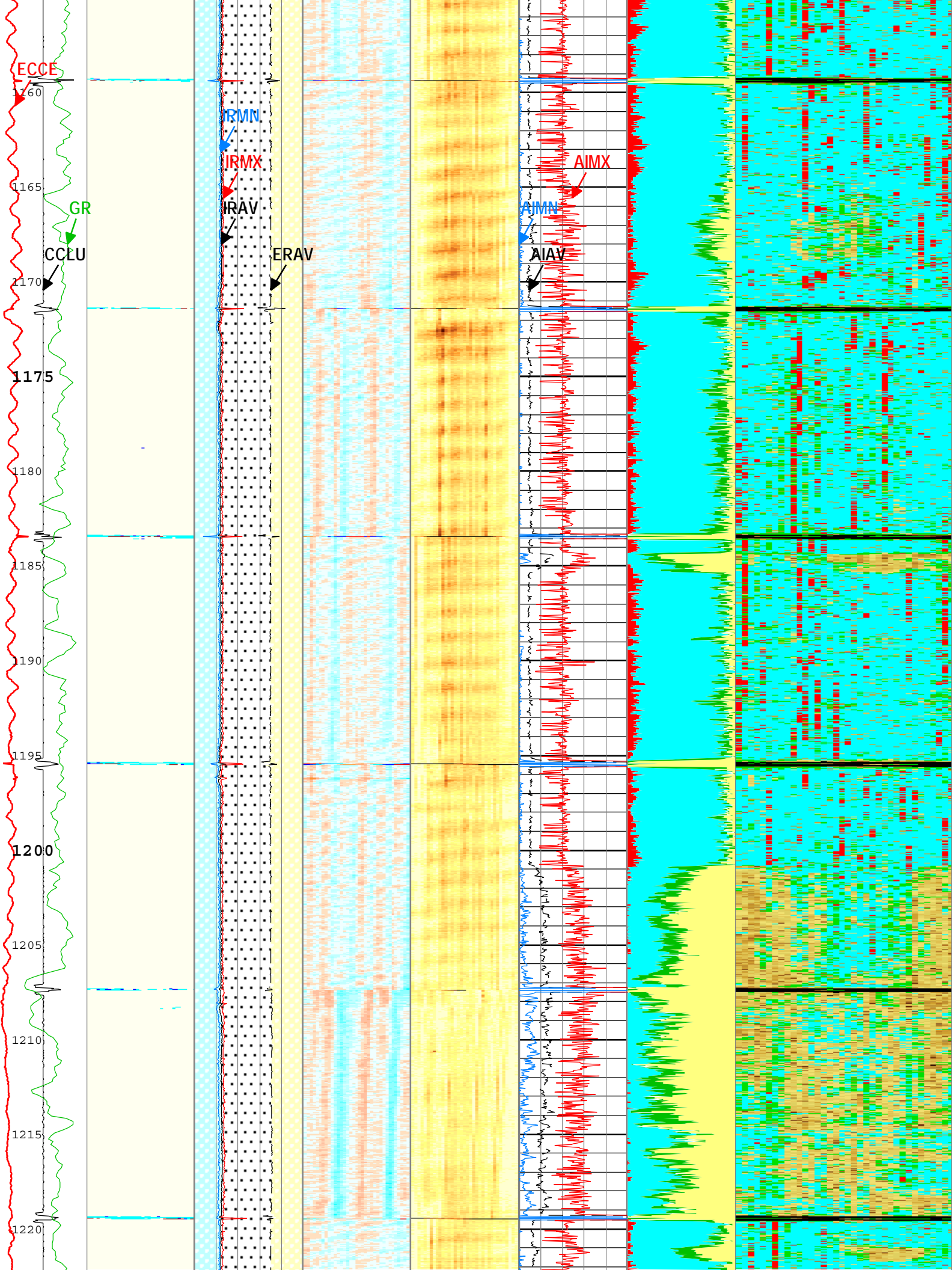


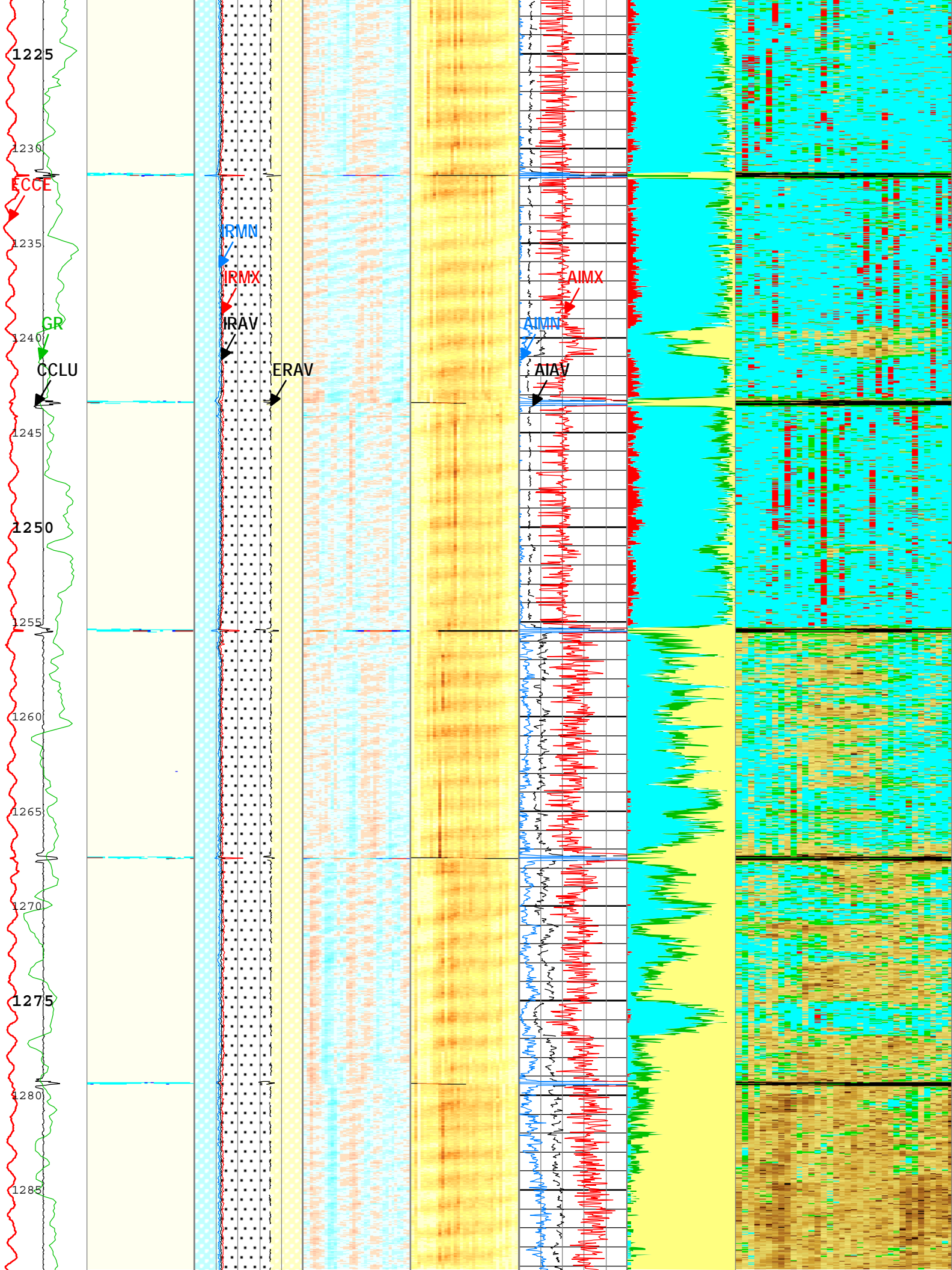


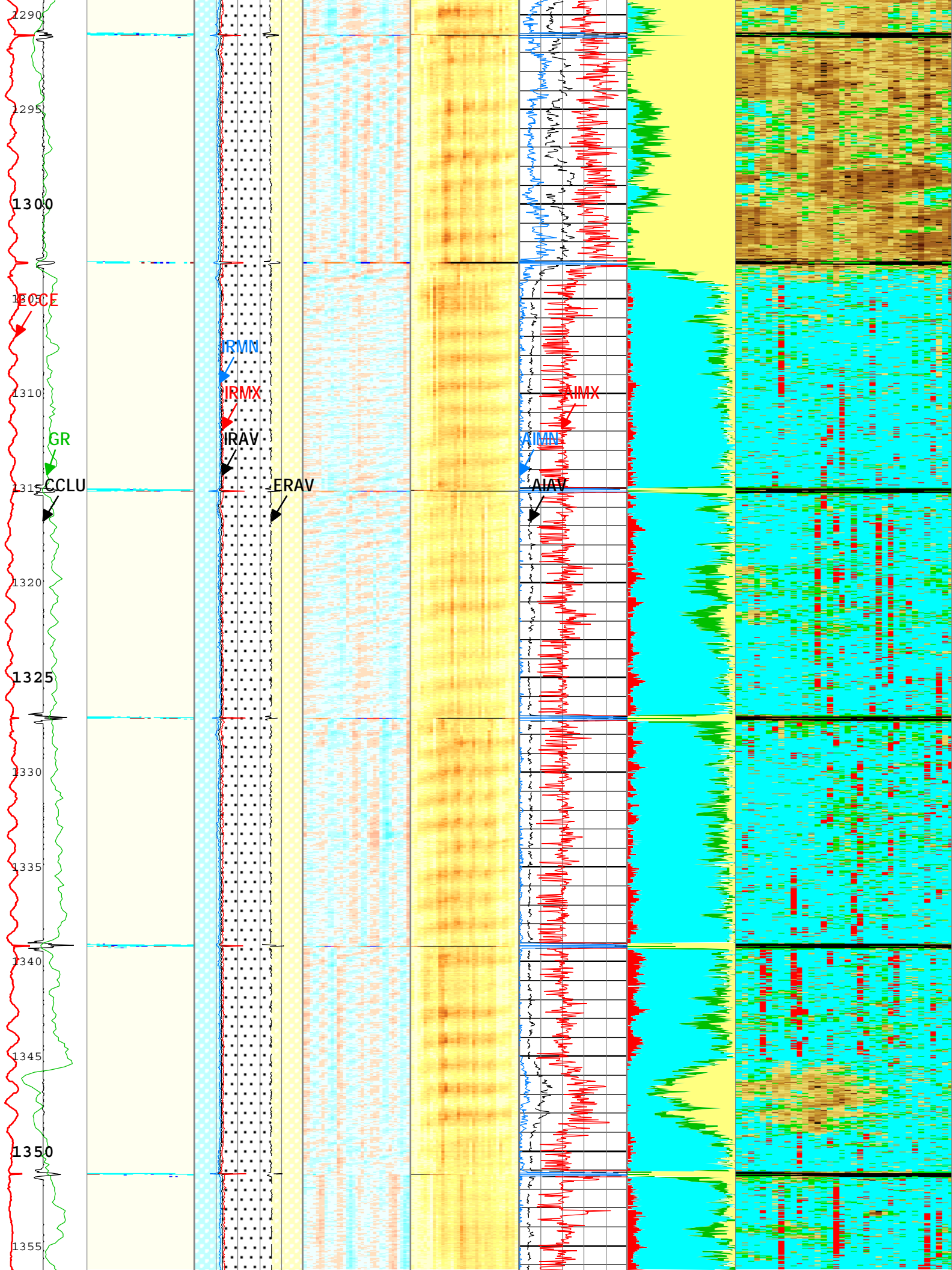


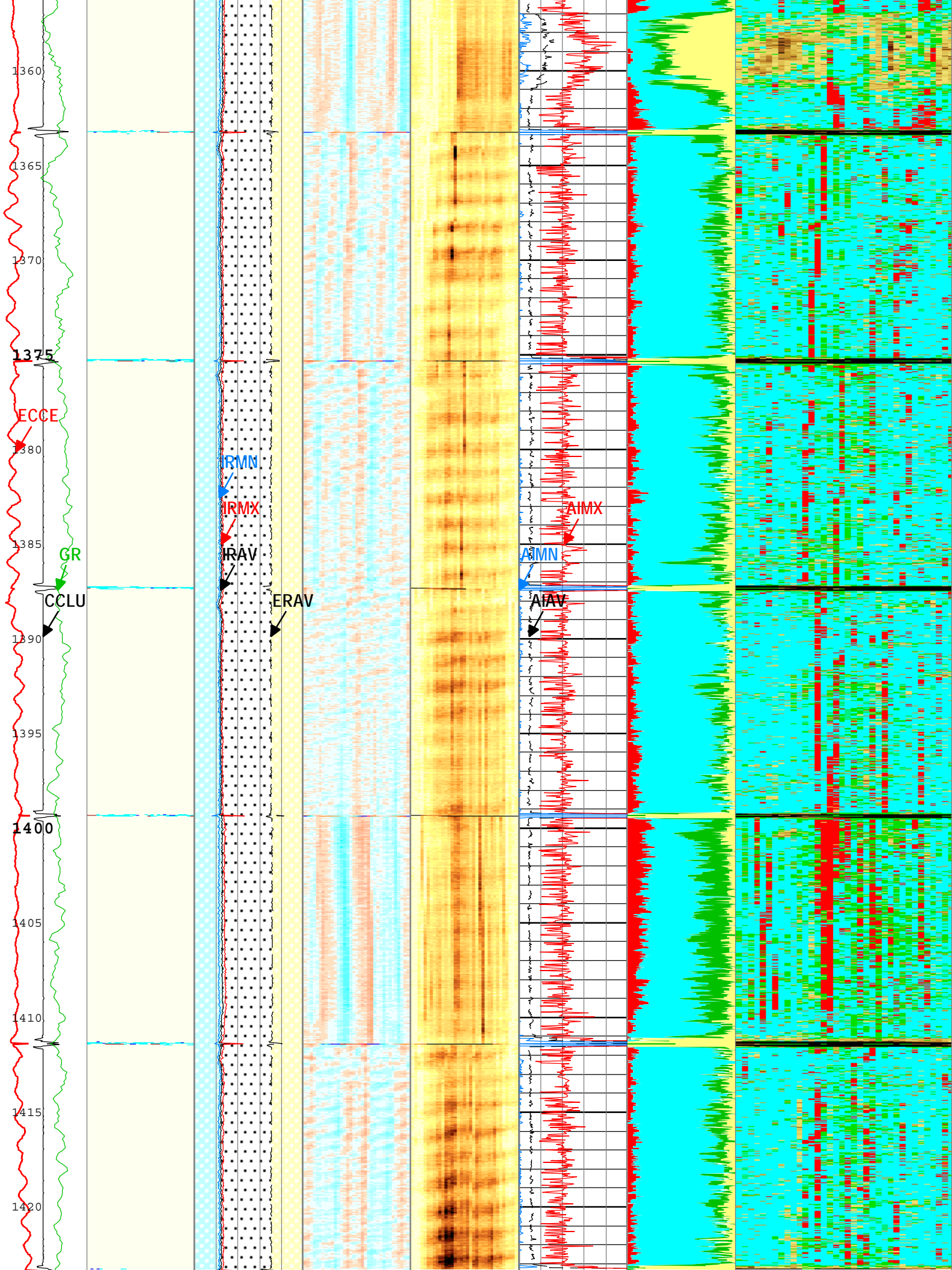


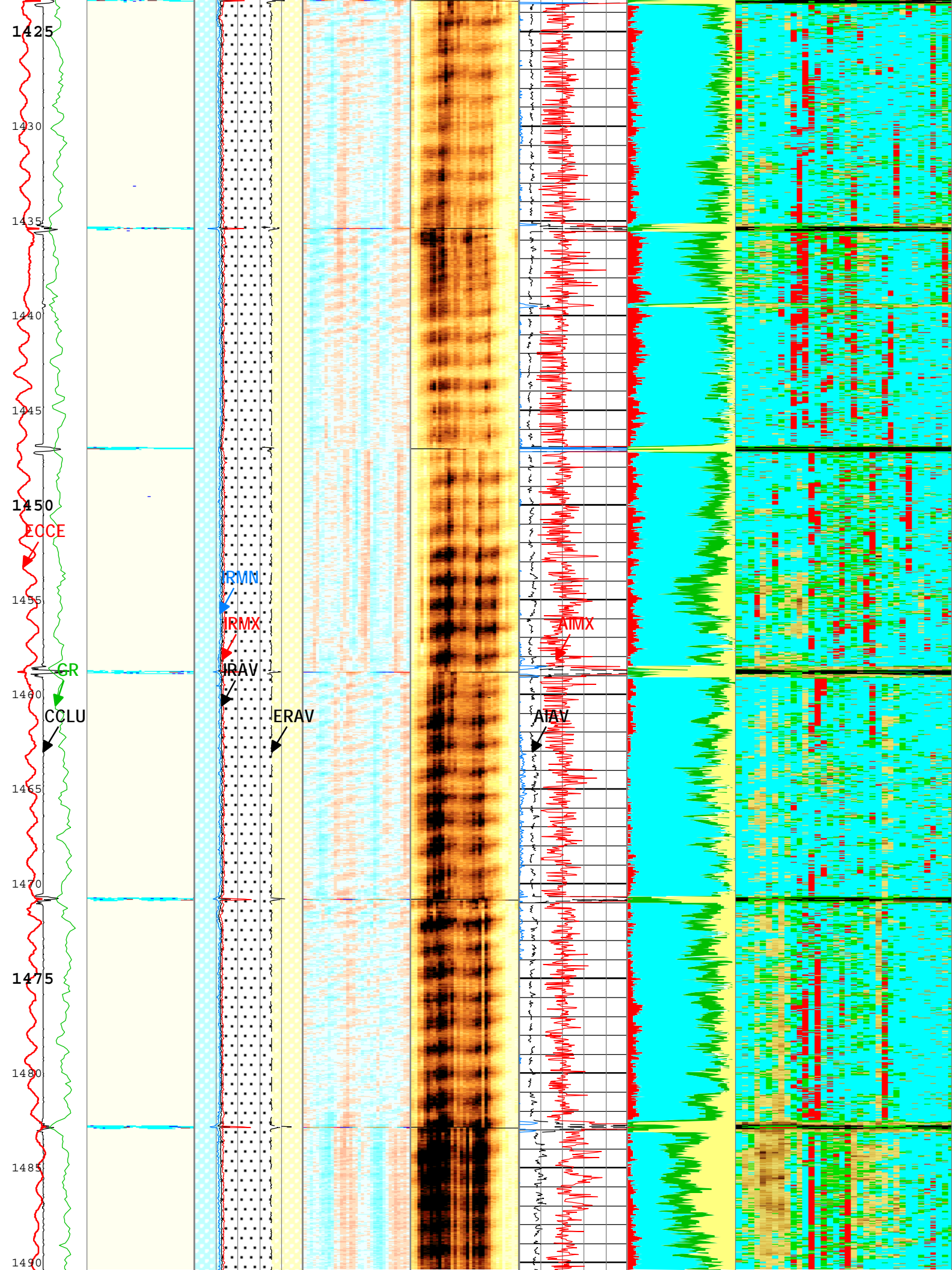


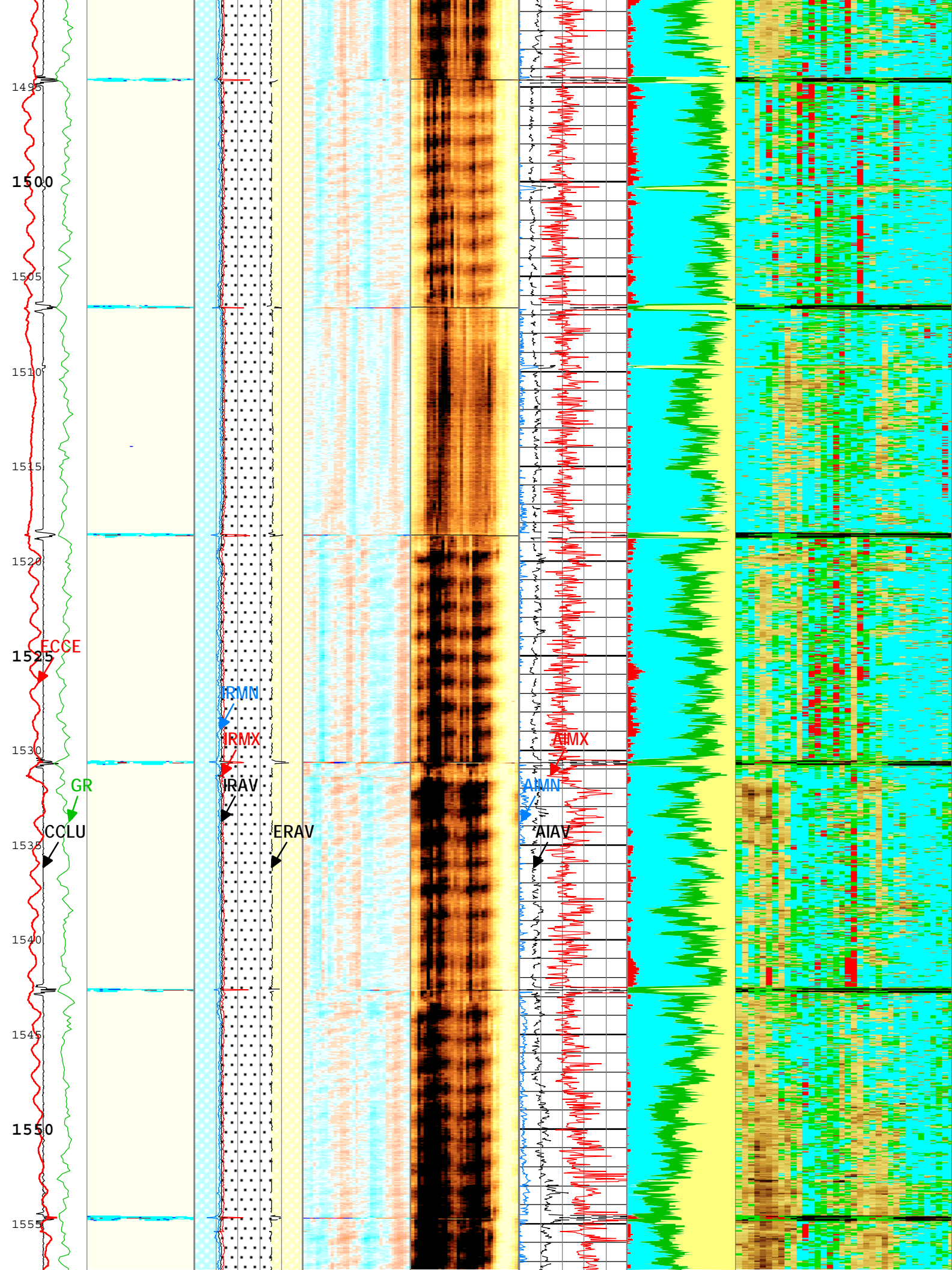


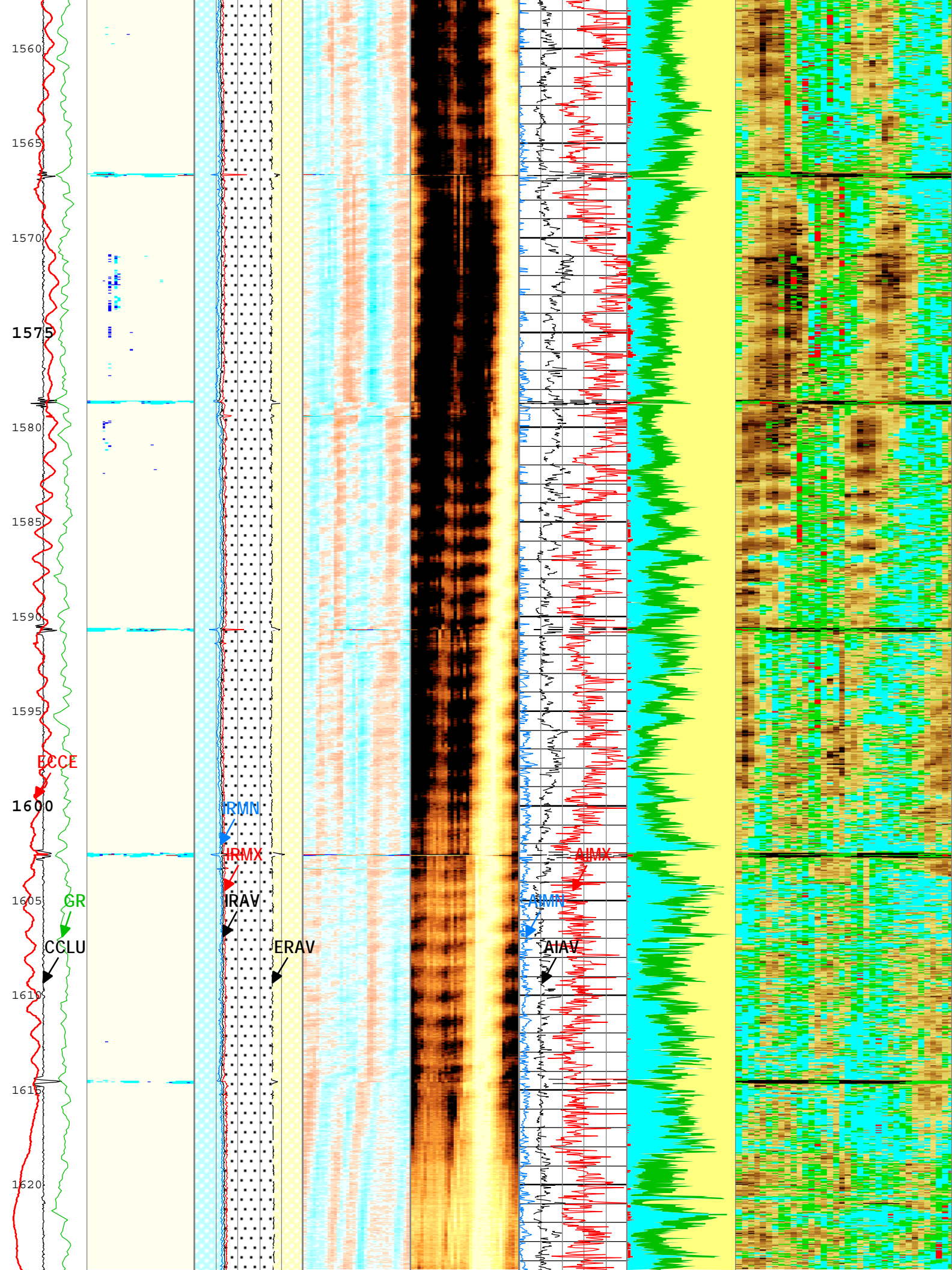


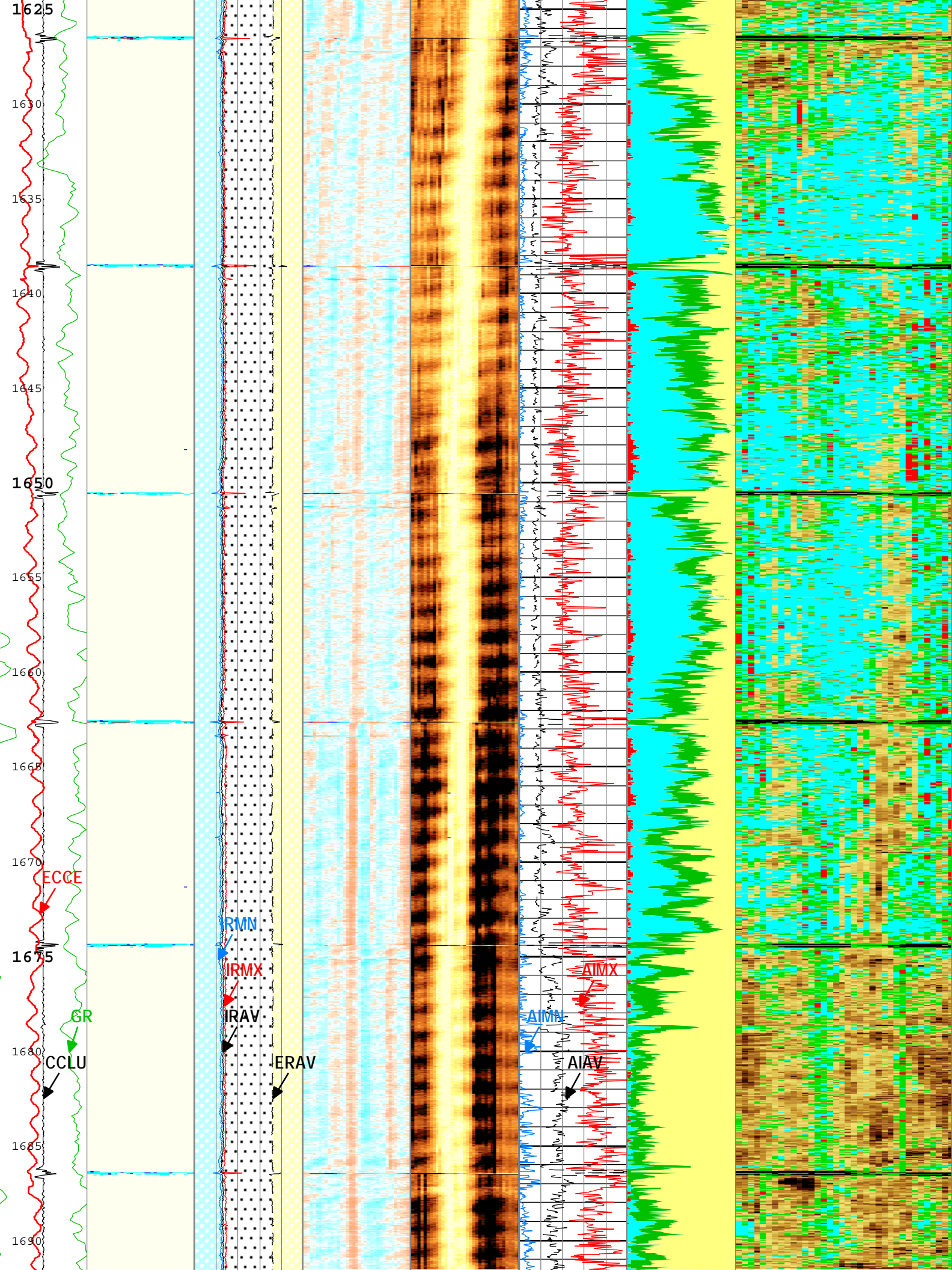


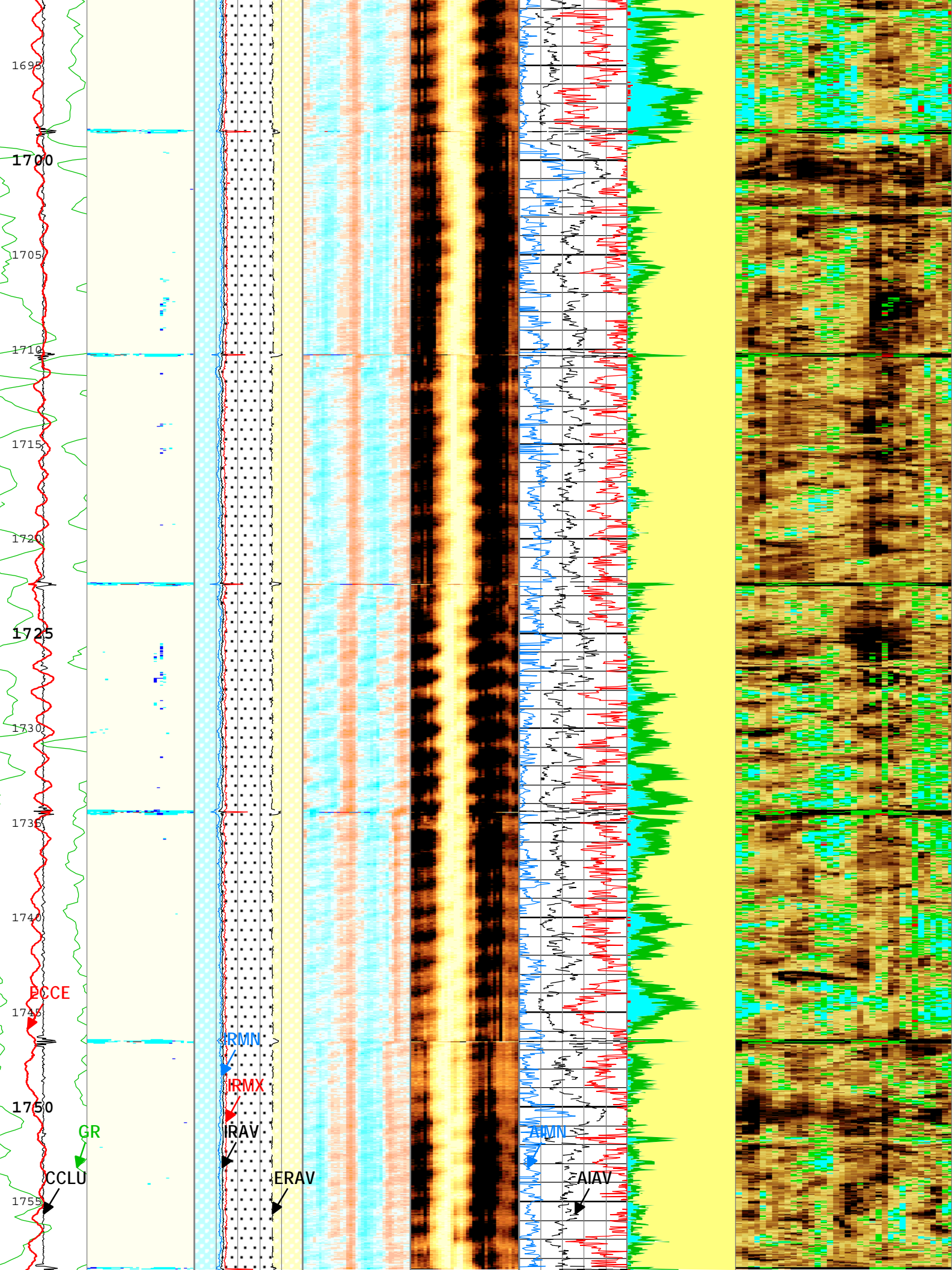


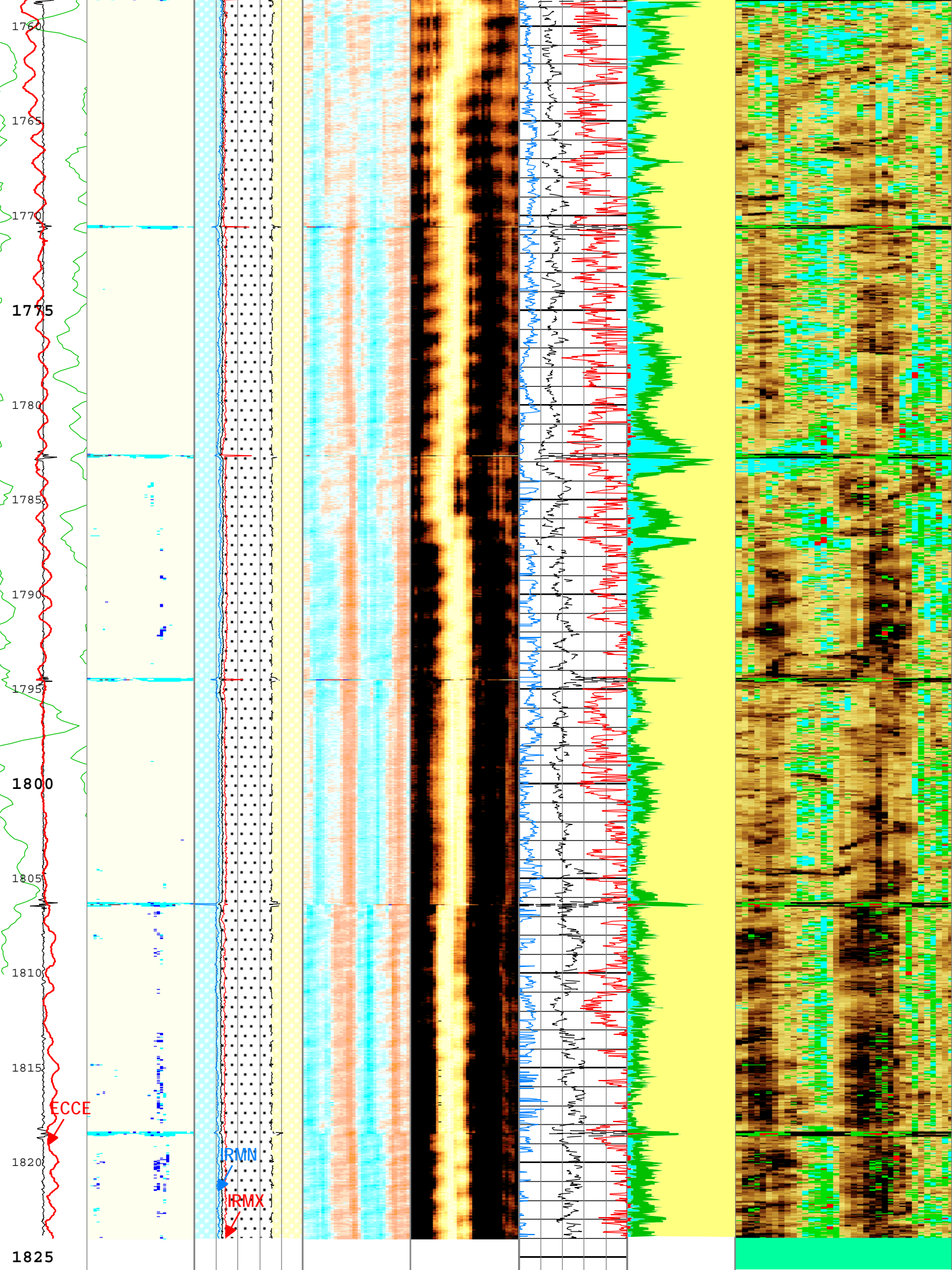


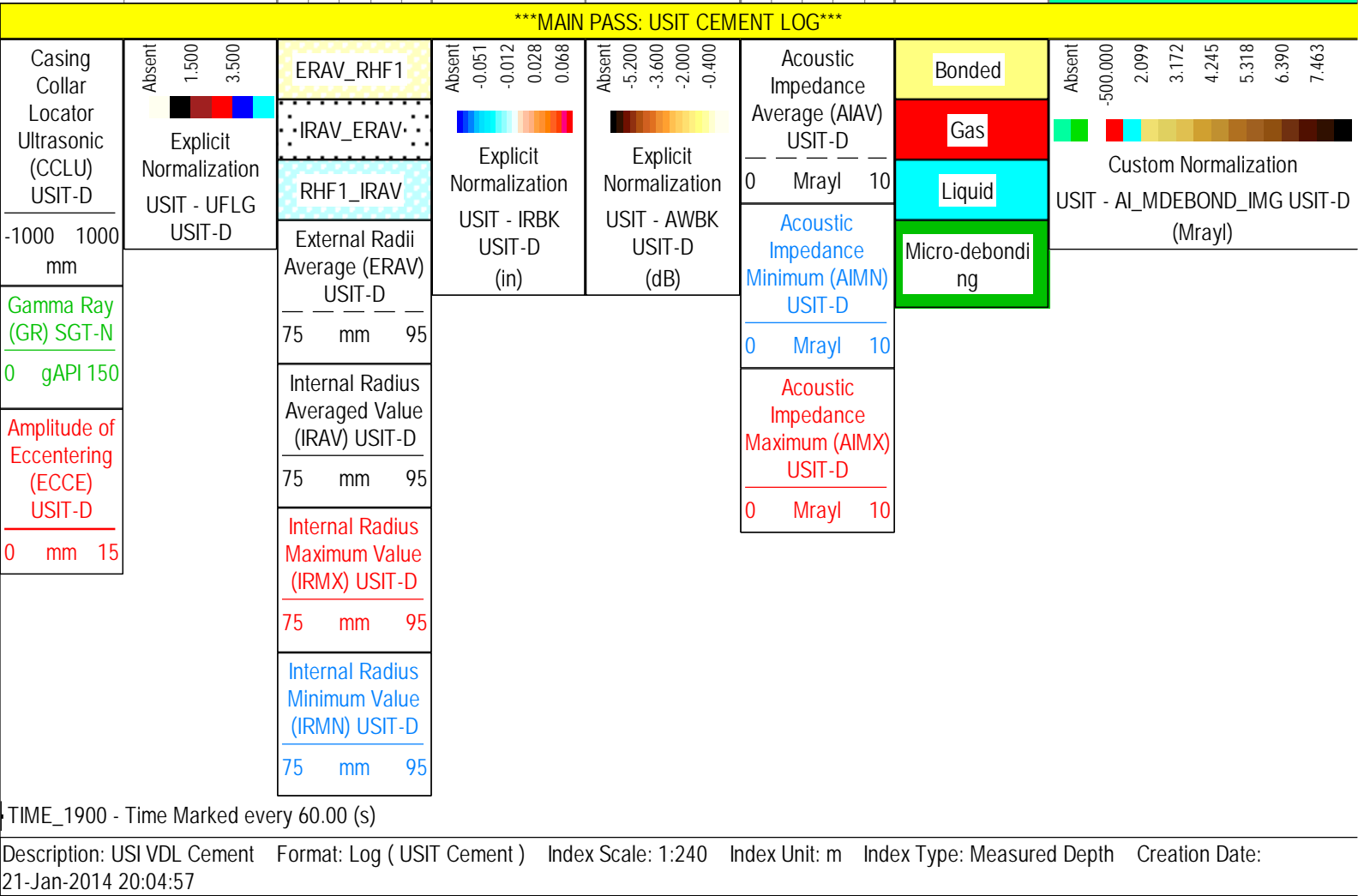












Channel Processing Parameters				
Parameter	Description	Tool	Value	Unit
BARI	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BS	Bit Size	WLSESSION	Depth Zoned	mm
CBLO	Casing Bottom (Logger)	WLSESSION	1824	m
CDEN	Cement Density	SGT-N	2000	kg/m3
CMTY	Cement Type	USIT-D	Regular Cement	
CTHILGR	Nominal Casing Thickness - Zoned along logger depths	WLSESSION	9.03	mm
DFD	Drilling Fluid Density	Borehole	1040	kg/m3
DFT	Drilling Fluid Type	Borehole	Oil	
DFT_OIL	Drilling Fluid Oil Type	Borehole	INVERT	
DTMD	Borehole Fluid Slowness	Borehole	828	us/m
FDII	FPM Data Interpolation Interval	USIT-D	0	m
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	BS	
HEMA	Hematite Presence Flag	Borehole	No	
ICE_PROCESS	ICE Processing	USIT-D	No	
IMAR	Image Rotation	USIT-D	Off	
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-D	Depth Zoned	us
RCTH	Reference Calibrator Thickness	USIT-D	7.498	mm
TCUB	T^3 Processing Level	USIT-D	Loop	
THDH	Maximum Search Thickness (percentage of nominal)	USIT-D	130	%
THDL	Minimum Search Thickness (percentage of nominal)	USIT-D	70	%
UDFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-D	0	Mrayl

UFGDE	Fiberglass Density	USIT-D	1950	kg/m3
UFGPS	Fiberglass Processing Selection	USIT-D	No	
UFGVL	Fiberglass Velocity	USIT-D	2950	m/s
USI_FSOD	USIT USI Fluid Slowness Fits Casing Outer Diameter	USIT-D	0_OFF	
USI_FVEL_SEL	USI Fluid Velocity Selection	USIT-D	Automatic	
USI_ZMUD_SEL	USI Mud Impedance Selection	USIT-D	Manual	
UTHDP	Thickness Detection Policy	USIT-D	Fundamental	
VCAS	Ultrasonic Transversal Velocity in Casing	USIT-D	168.64	us/m
ZCAS	Acoustic Impedance of Casing	USIT-D	46.25	Mrayl
ZMUD	Acoustic Impedance of Mud	Borehole	1.55	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-D	2.1	Mrayl

Depth Zone Parameters

Parameter	Value	Start (m)	Stop (m)
BS	311	0	603
BS	222	603	1824
BS	156	1824	1824.1
MEAS_WLEN	22.27	0	1825.75

All depth are actual.

Tool Control Parameters	
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Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-D	-4	dB
AGMX	Maximum Gain of Cartridge	USIT-D	20	dB
DDT5	USIC Downhole Decimation for T5 only	USIT-D	0_NONE	
EMXV	EMEX Voltage	USIT-D	100	V
HRES	Horizontal Resolution	USIT-D	10 deg	
ULOG	Logging Objective	USIT-D	MEASUREMENT	
UMFR	Modulation Frequency	USIT-D	333333	Hz
USFR	Ultrasonic Sampling Frequency	USIT-D	500000	Hz
USI_UPAT	USIT Emission Pattern	USIT-D	Pattern 375 KHz	
USI_UWKM	USIT Working Mode	USIT-D	Uncompressed 10 deg at 1.5 in LF	
USIT_DEPTHLOG	Starting Depth Log for Ultrasonics	USIT-D	1828	m
VRES	Vertical Resolution	USIT-D	1.5 in	
WINB	Window Begin Time	USIT-D	51.7	us
WINE	Window End Time	USIT-D	119.19	us

2.1

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Software Version	
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Acquisition System	Version
MaxWell	4.0.9163.3000
Application Patch	Patch-SP-10767_13075-4.0.9163.3001

Computation	Description	Version
Cementation	Cementation Computation Application	4.0.9167.3000

Tool Elements	Description	Software Version	Firmware Version
USI-SENSOR	USIT Transducer Element	4.0.9265.3000	DHC: P321617
SGC-TB	Scintillation Gamma Cartridge	4.0.9033.3000	

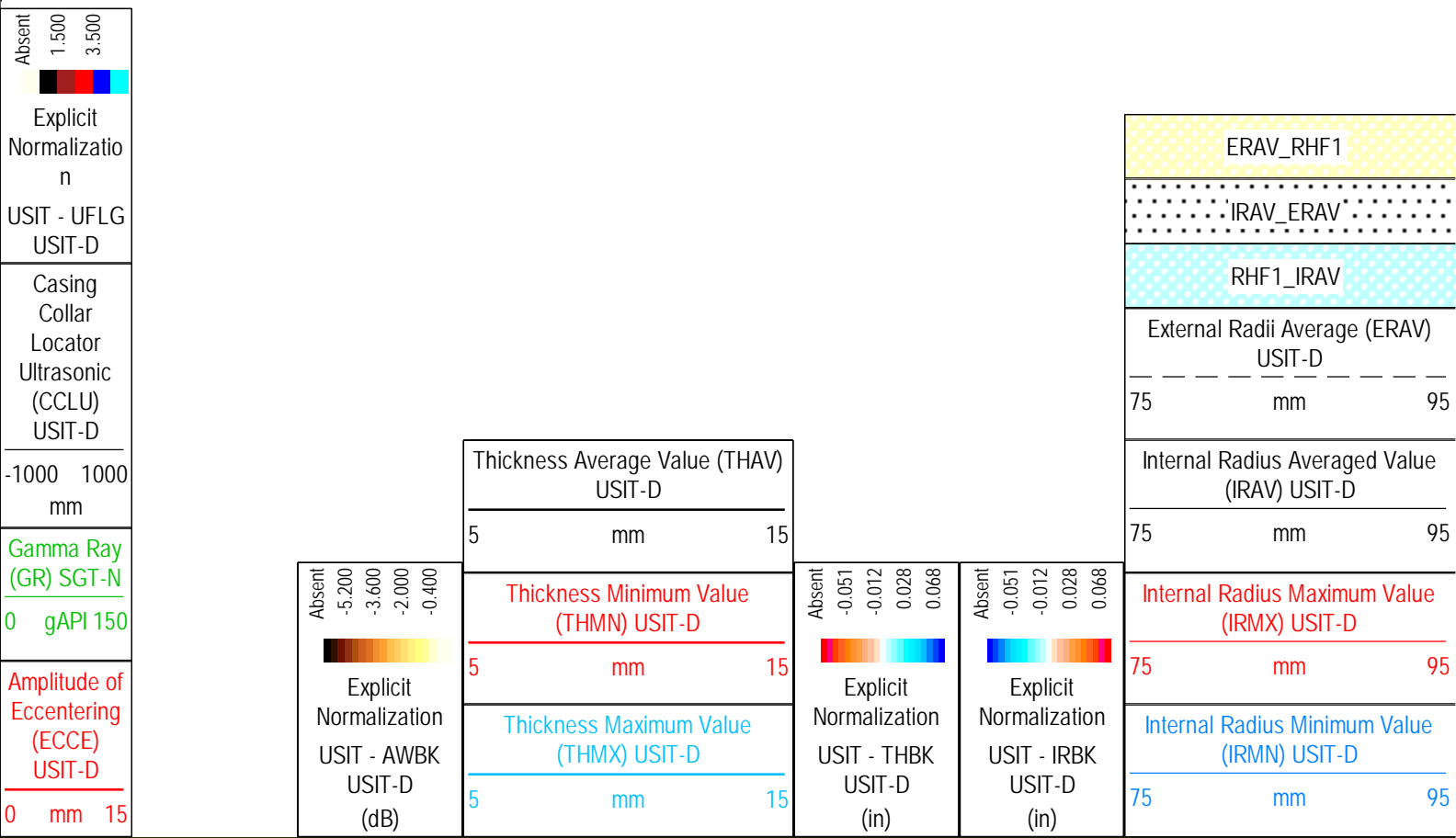
Pass Summary	
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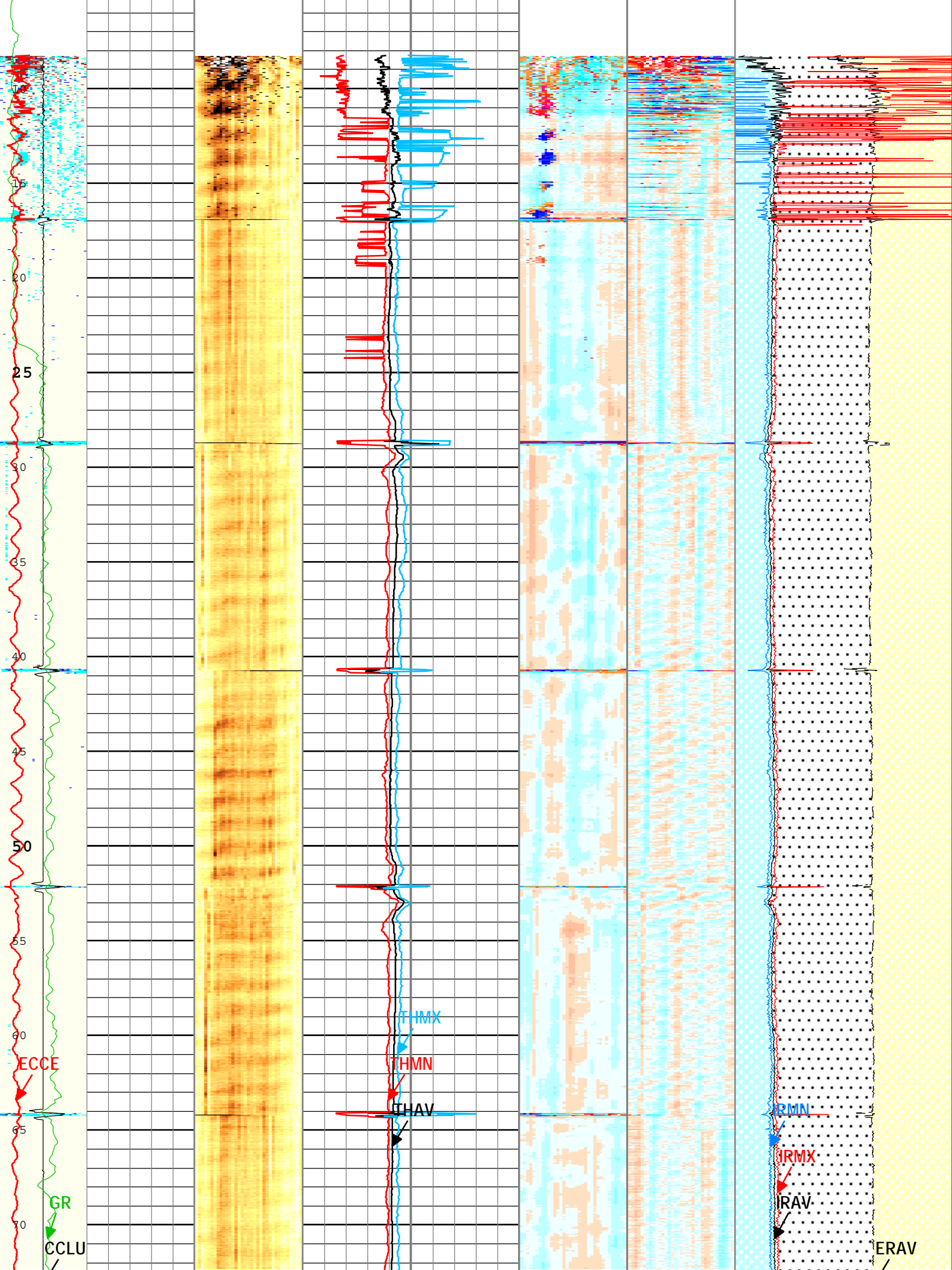
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
2.1	Log[6]:Up	Up	8.33 m	1825.87 m	21-Jan-2014 3:44:29 AM	21-Jan-2014 5:51:45 AM	ON	0.00 m	Yes
All depths are referenced to toolstring zero									
Log	Company:CONOCOPHILLIPS CANADA RESOURCES CORP.						Well:COPRC DODO CANYON E76		
	2.1: Log[6]:Up:S042								

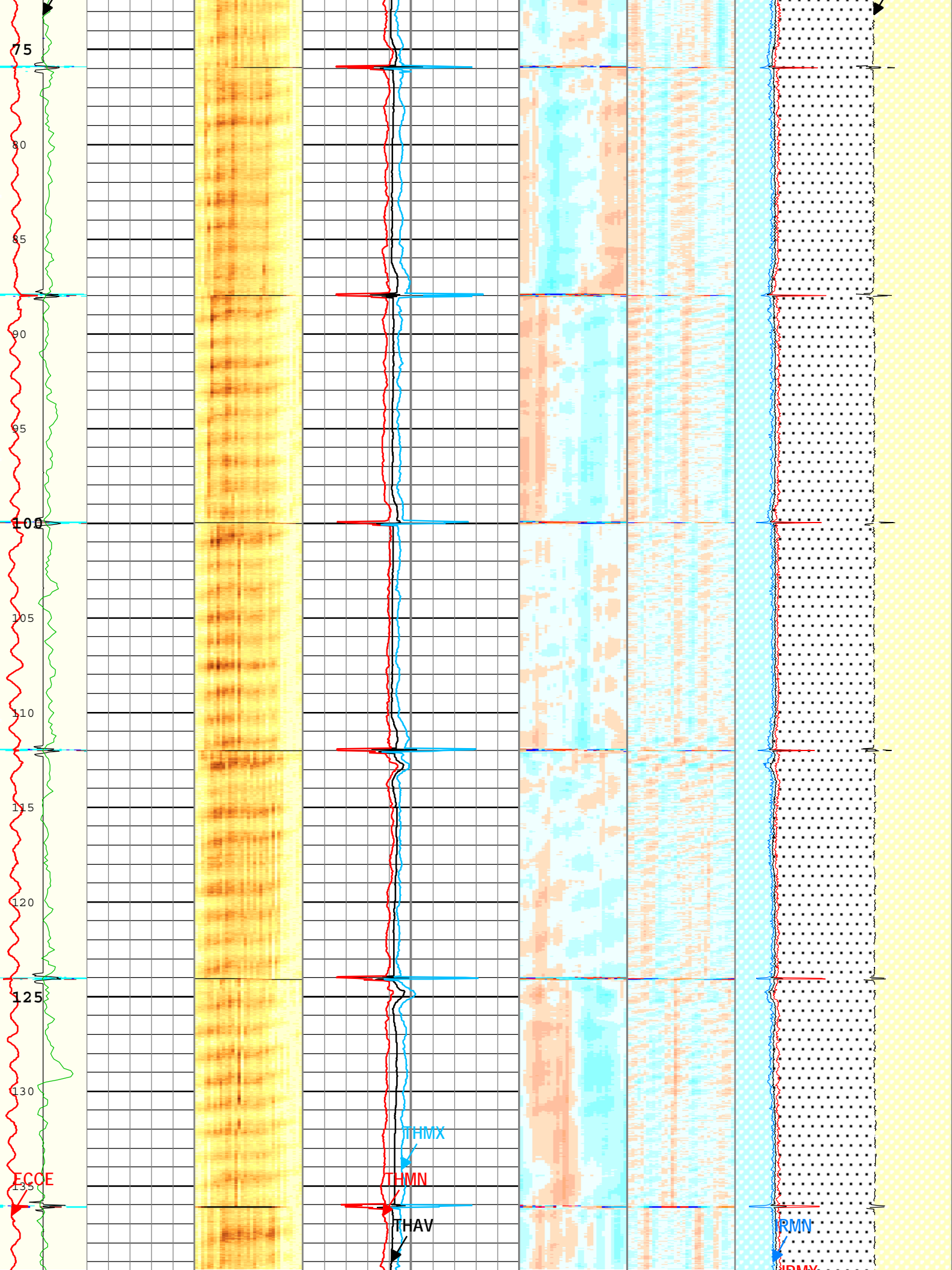
Description: USI VDL Cement Format: Log (USIT Drilling Wear) Index Scale: 1:240 Index Unit: m Index Type: Measured Depth Creation Date: 21-Jan-2014 20:05:08

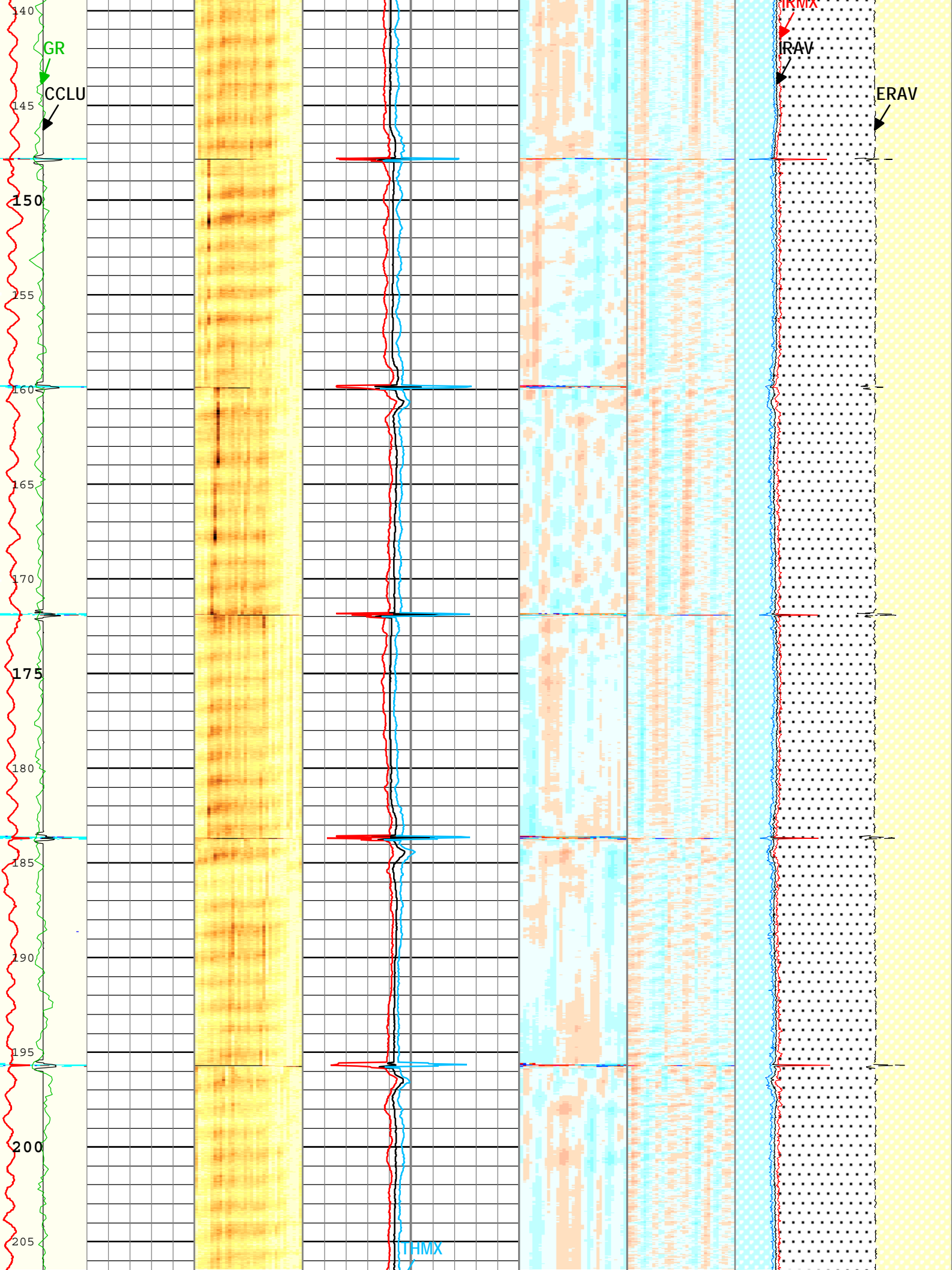
Channel	Source	Sampling
CCLU	USIT-D:USRS:USI-SENSOR	1.5in
CEMR	USIT-D:USRS:USI-SENSOR	1.5in
ECCE	USIT-D:USRS:USI-SENSOR	1.5in
ERAV	USIT-D:USRS:USI-SENSOR	1.5in
GASR	USIT-D:USRS:USI-SENSOR	1.5in
GR	SGT-N:SGT-N:SGC-TB	6in
IRAV	USIT-D:USRS:USI-SENSOR	1.5in
IRMN	USIT-D:USRS:USI-SENSOR	1.5in
IRMX	USIT-D:USRS:USI-SENSOR	1.5in
MDR	USIT-D:USRS:USI-SENSOR	1.5in
THAV	USIT-D:USRS:USI-SENSOR	1.5in
THMN	USIT-D:USRS:USI-SENSOR	1.5in
THMX	USIT-D:USRS:USI-SENSOR	1.5in
TIME_1900	WLWorkflow	0.1in

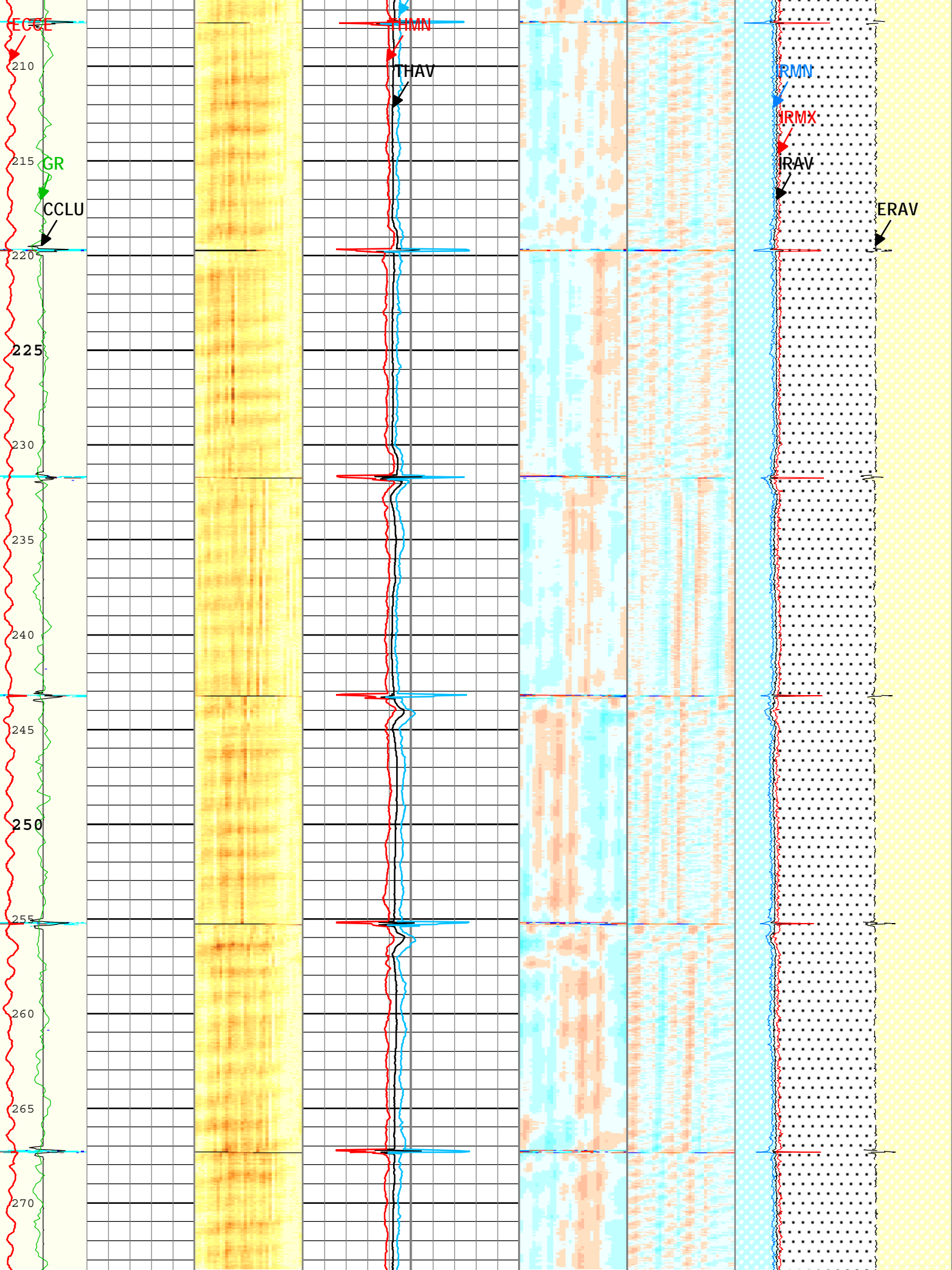
TIME_1900 - Time Marked every 60.00 (s)

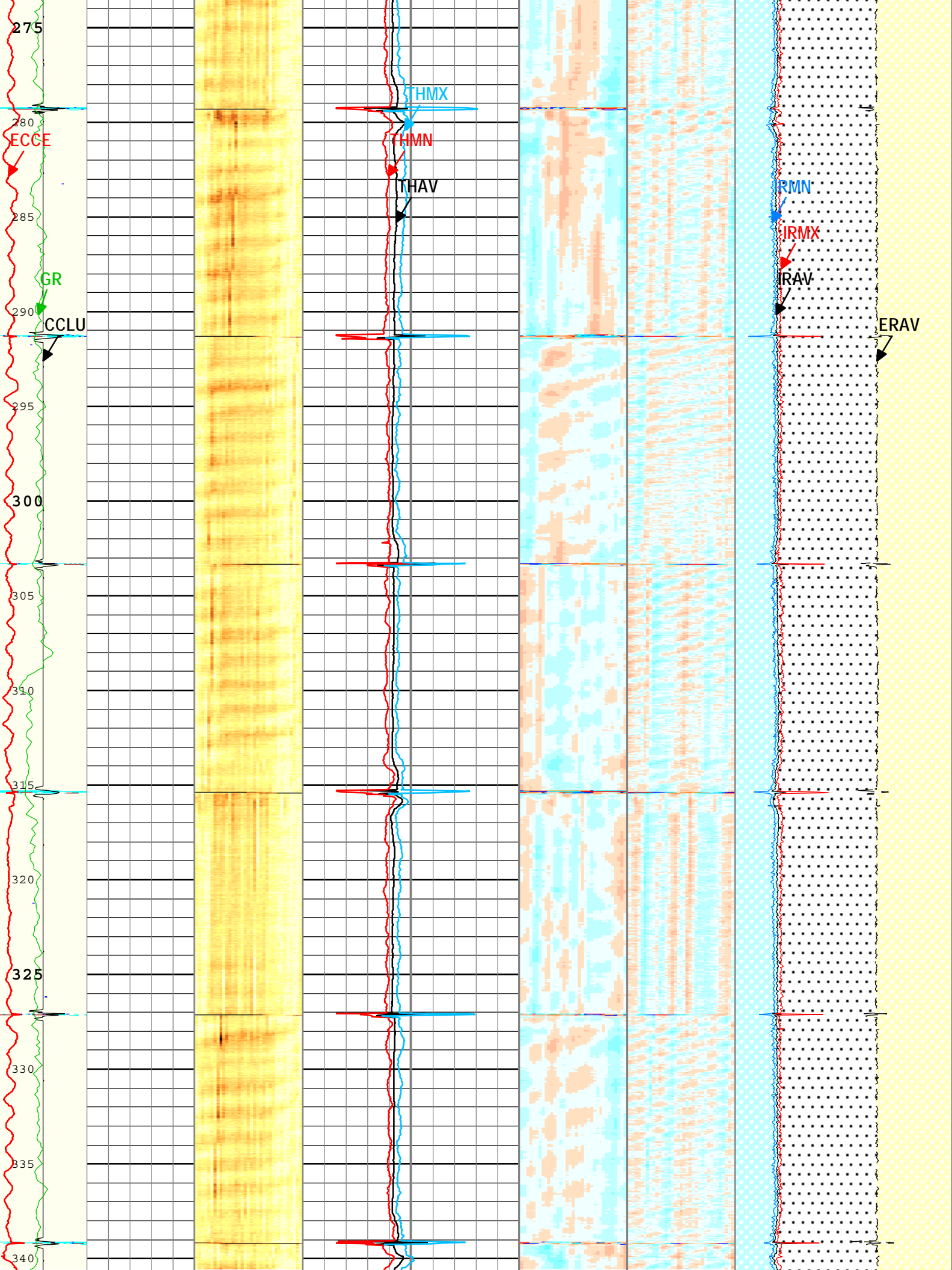


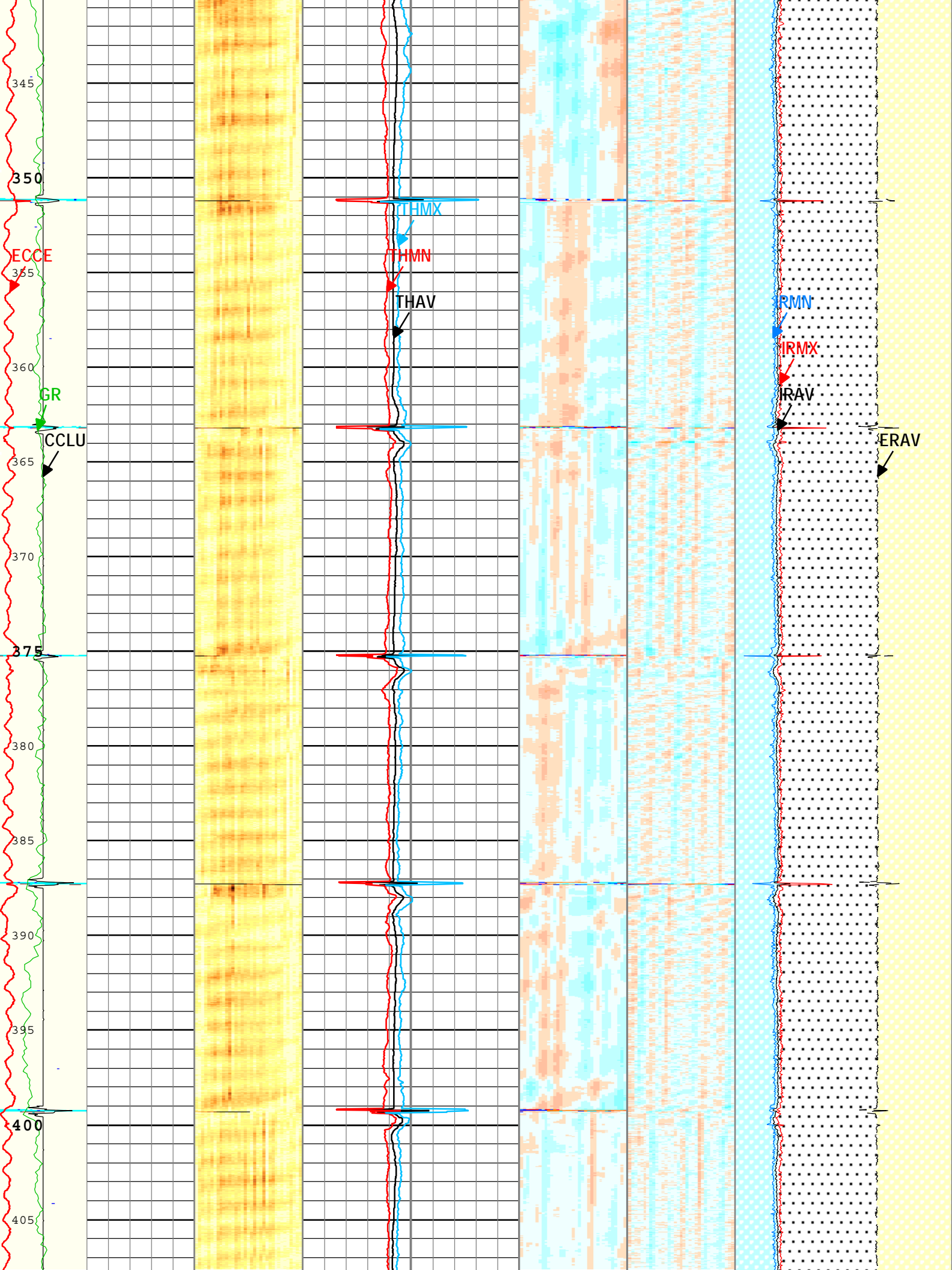


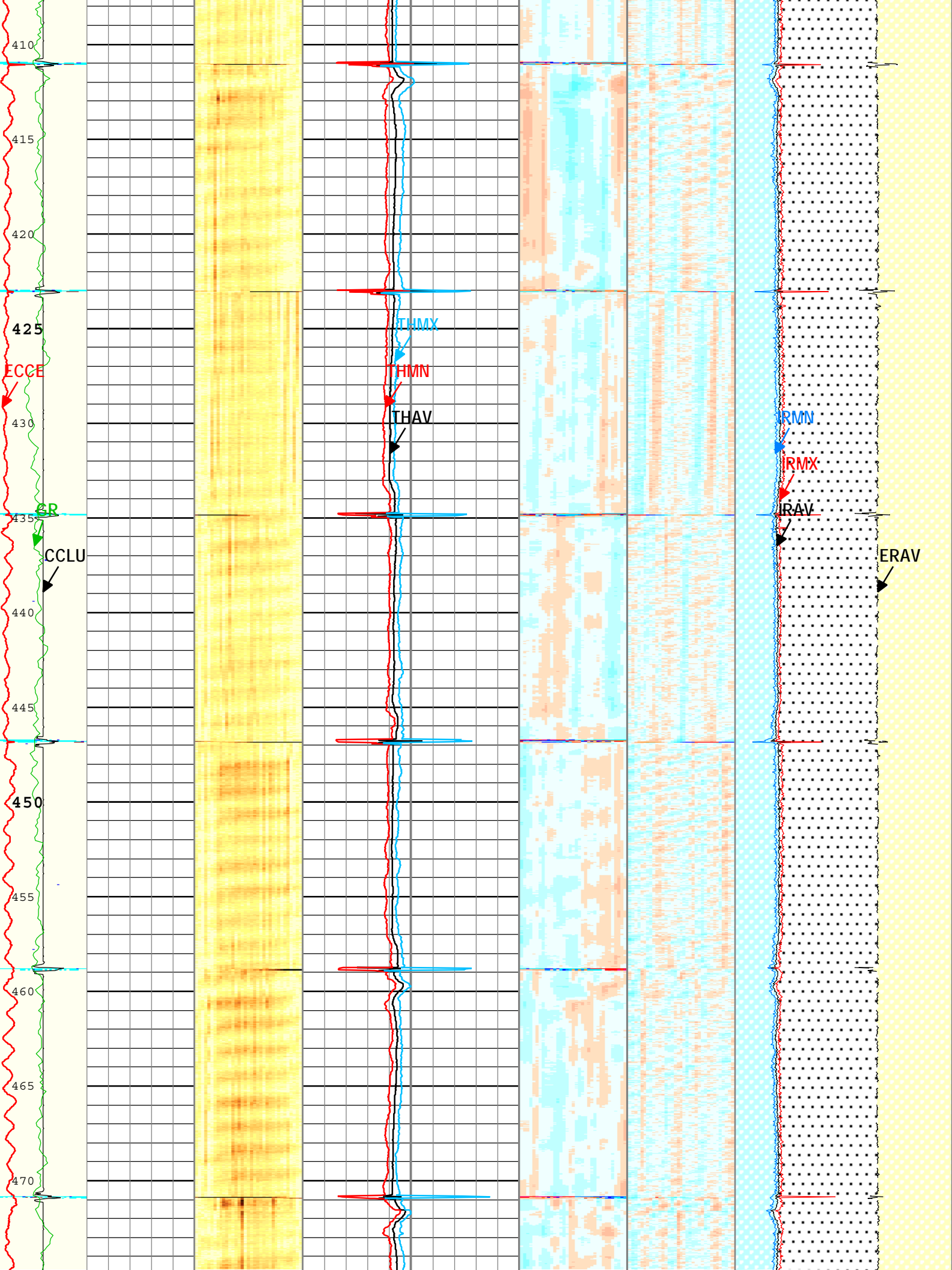


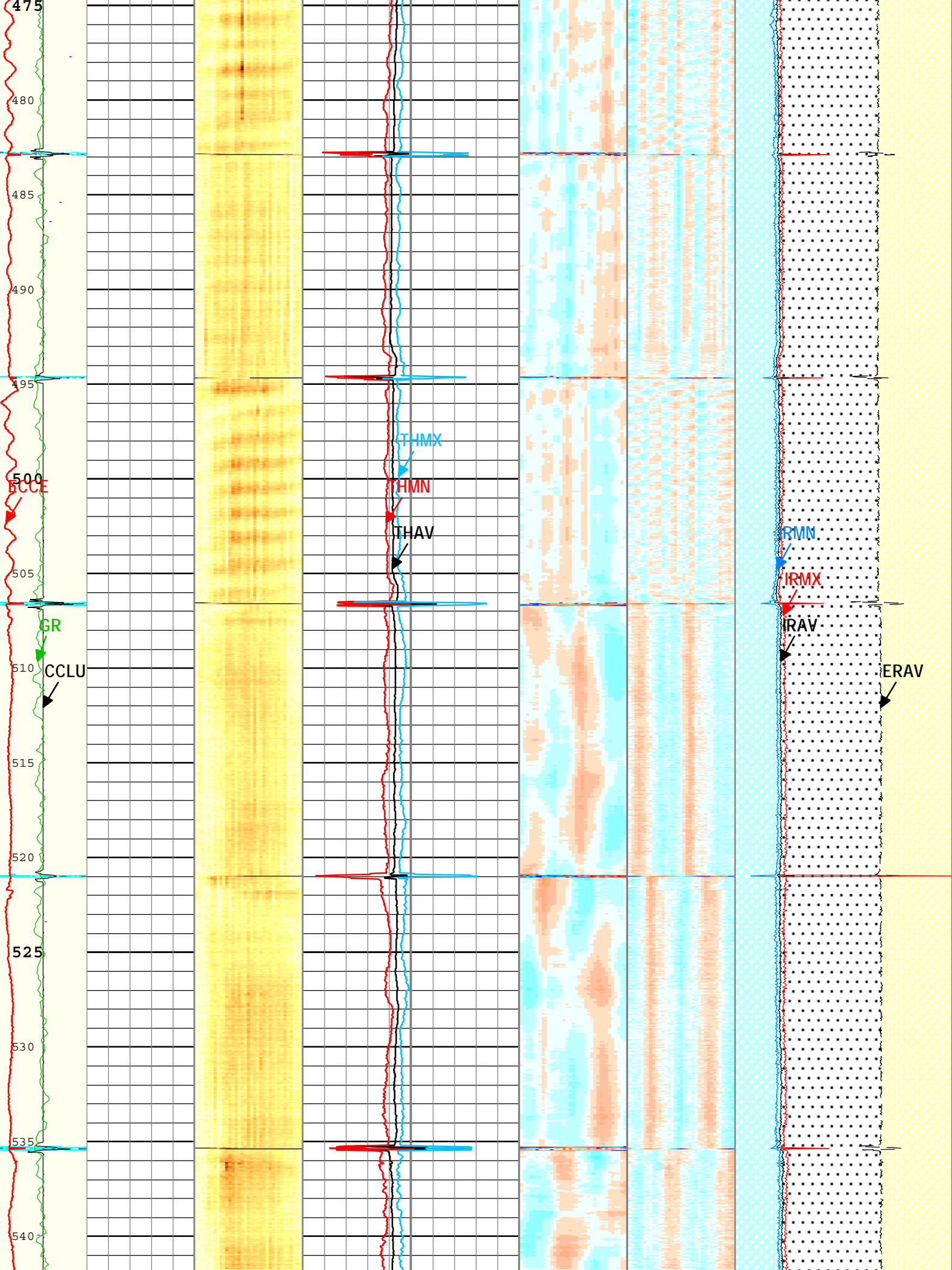


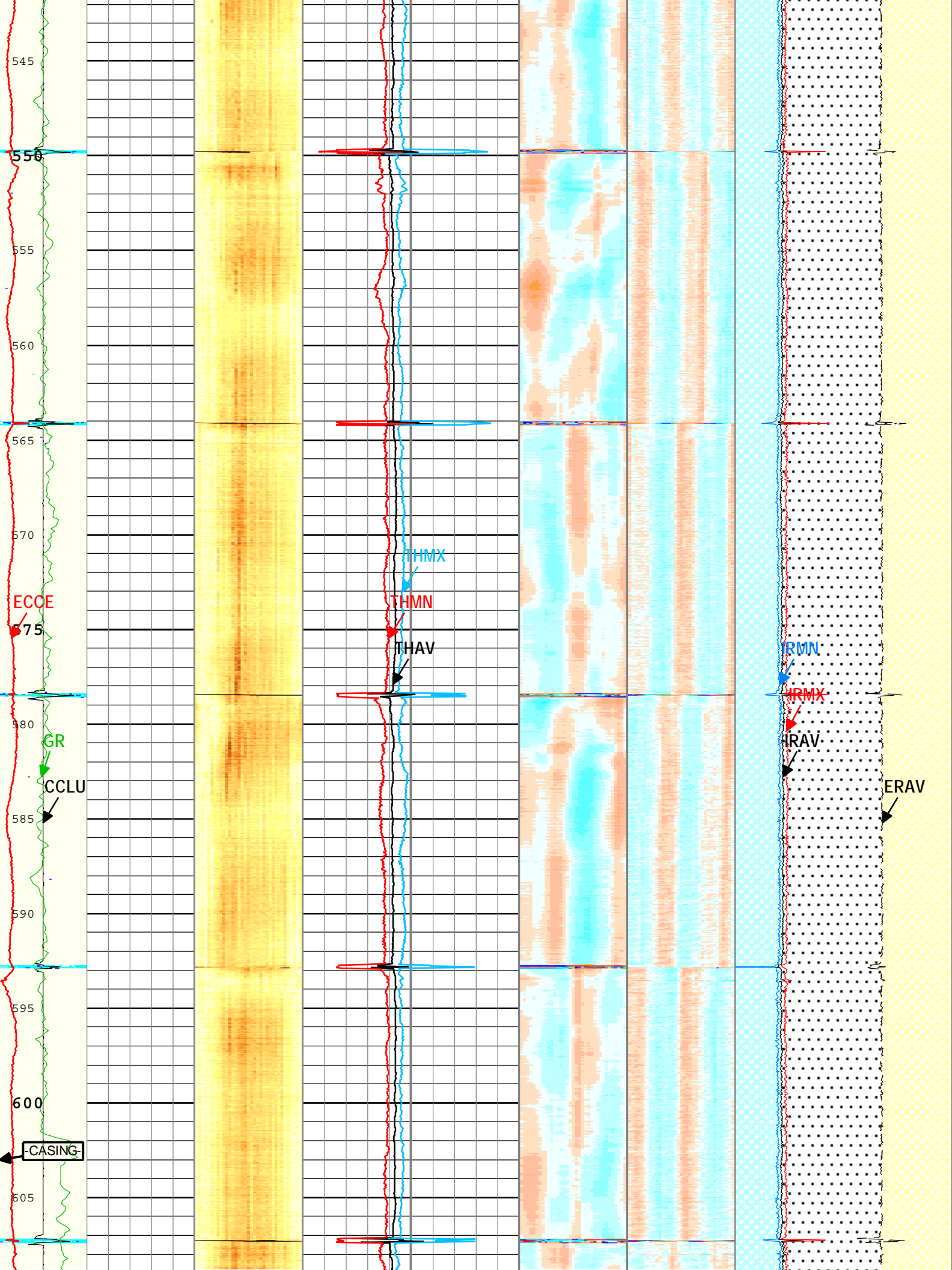


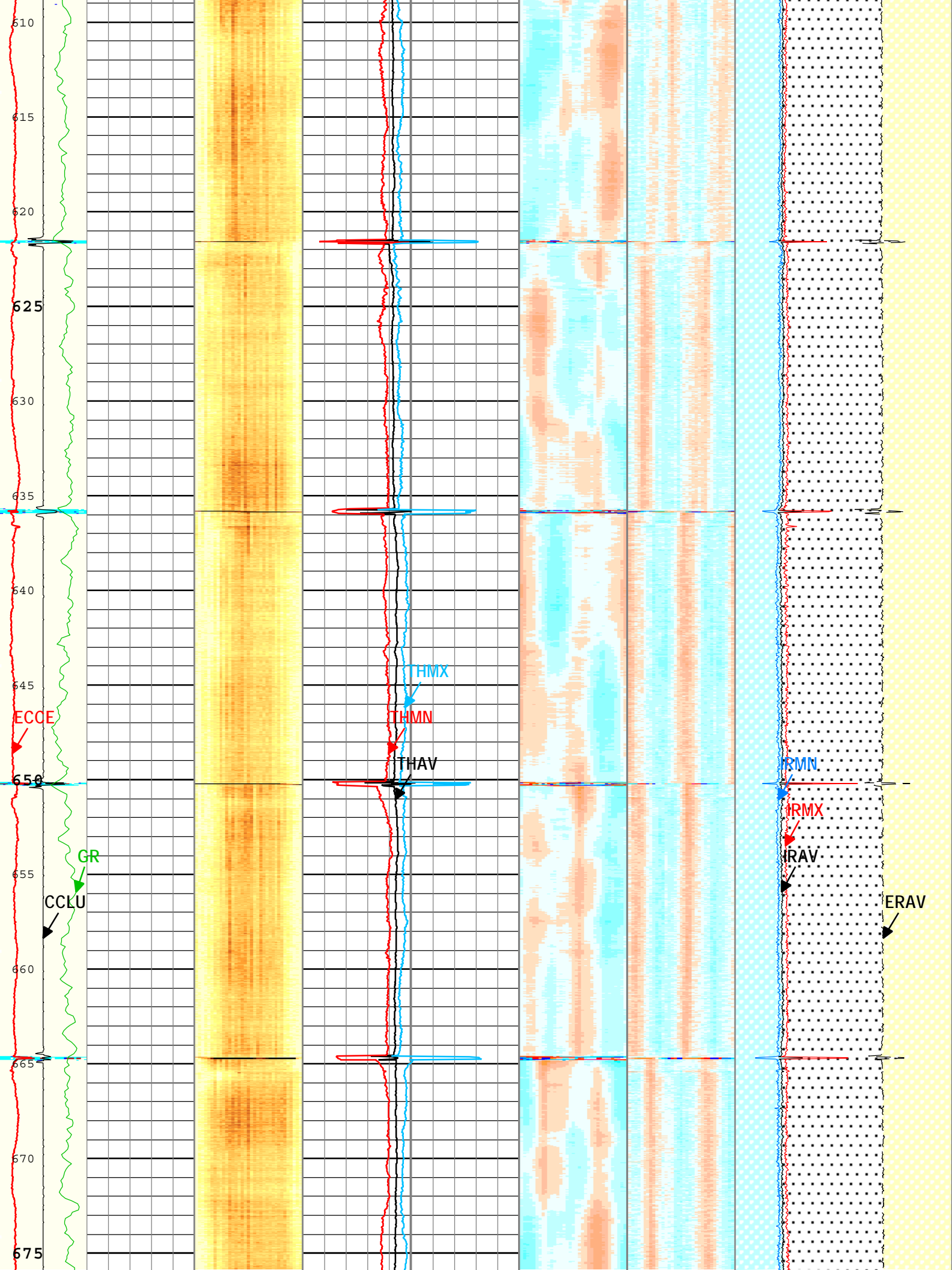


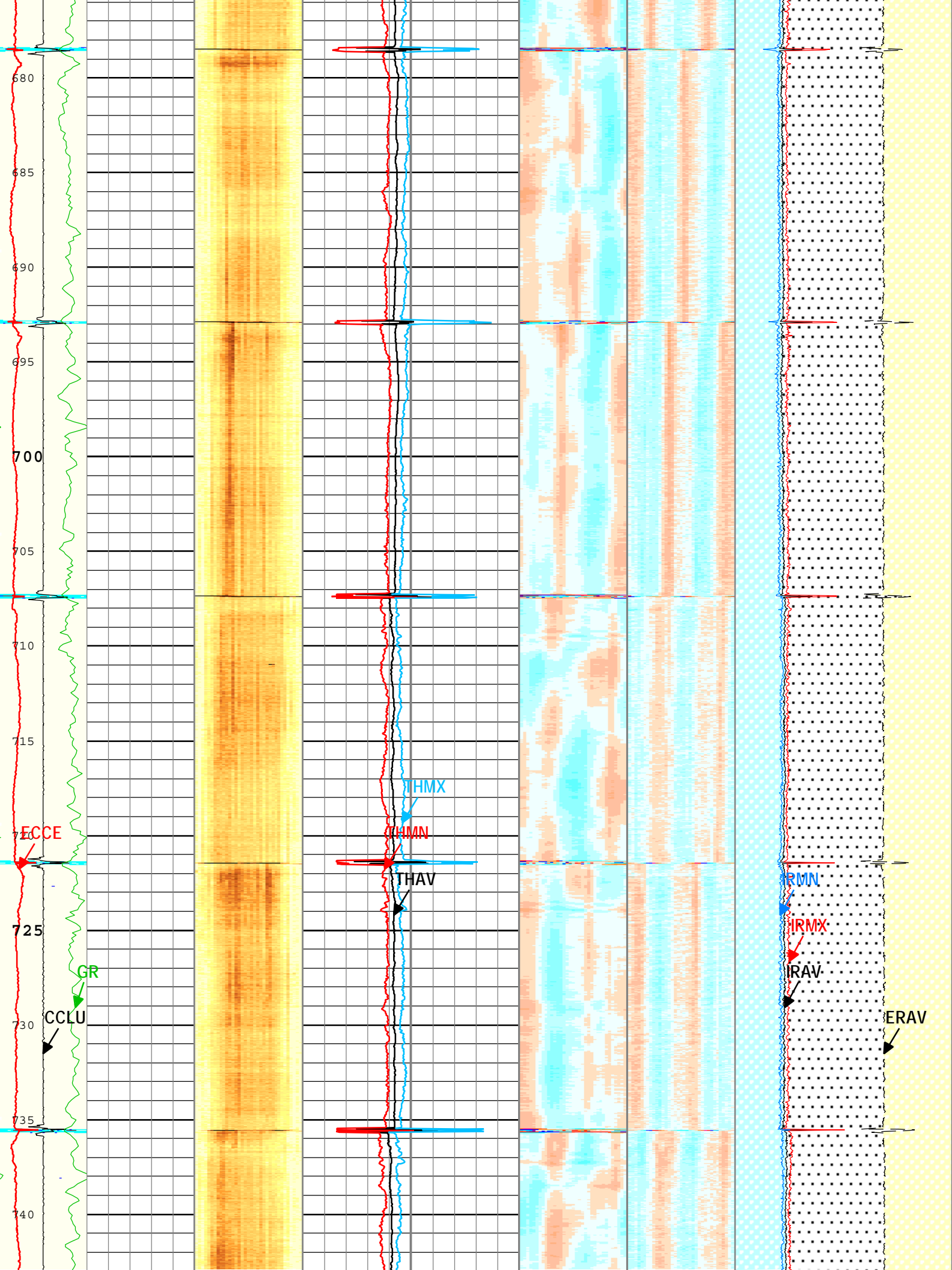


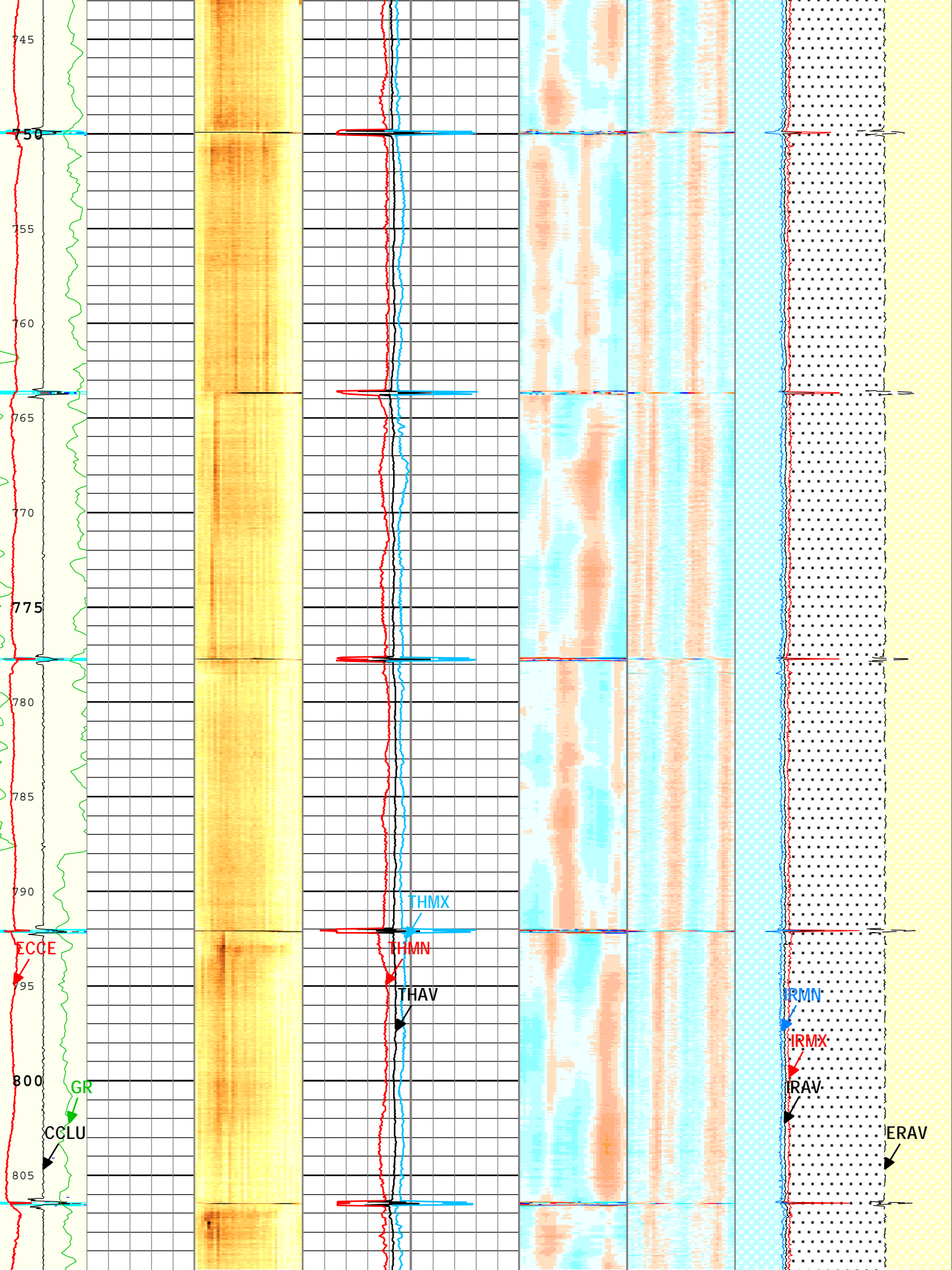


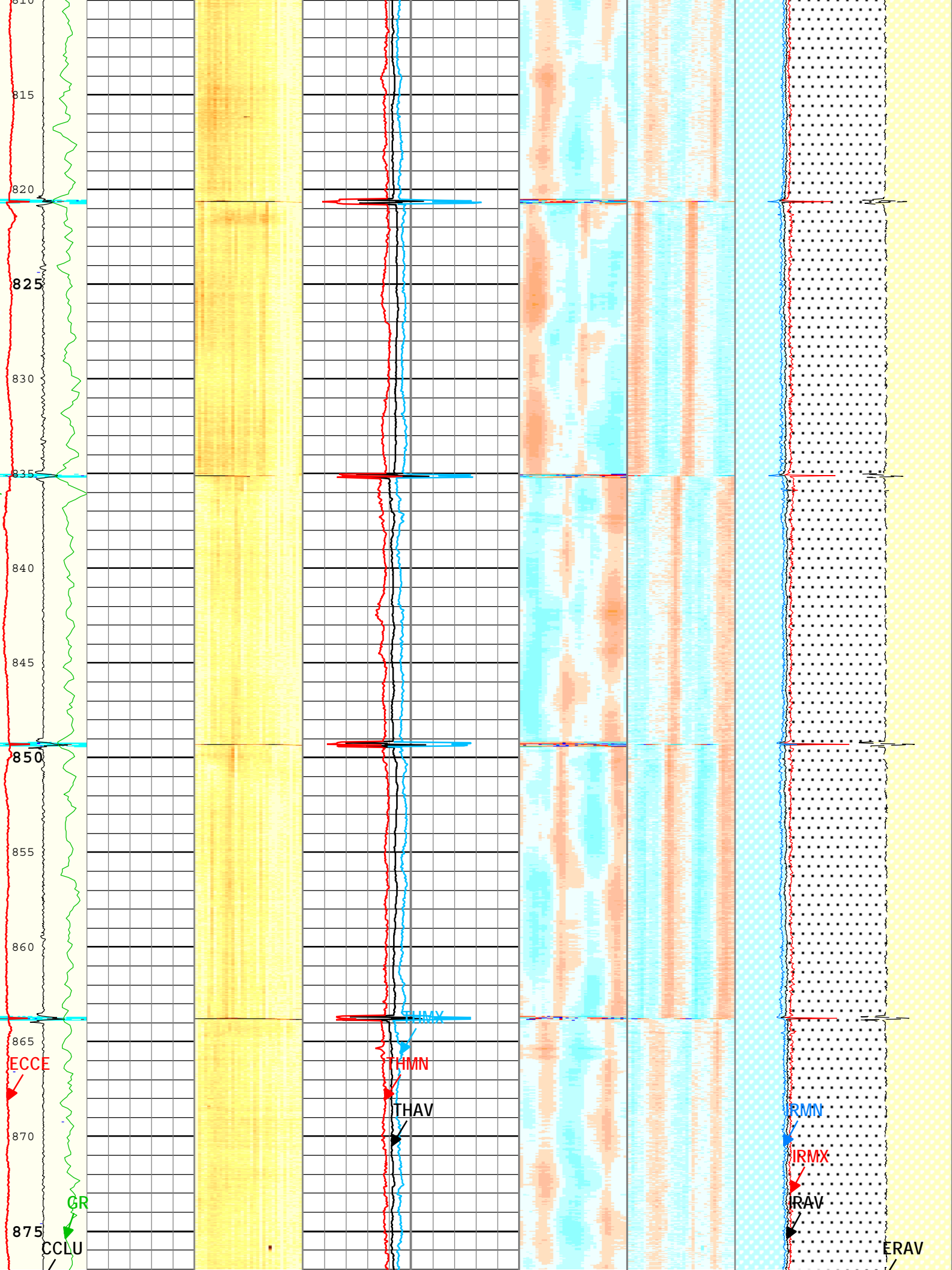


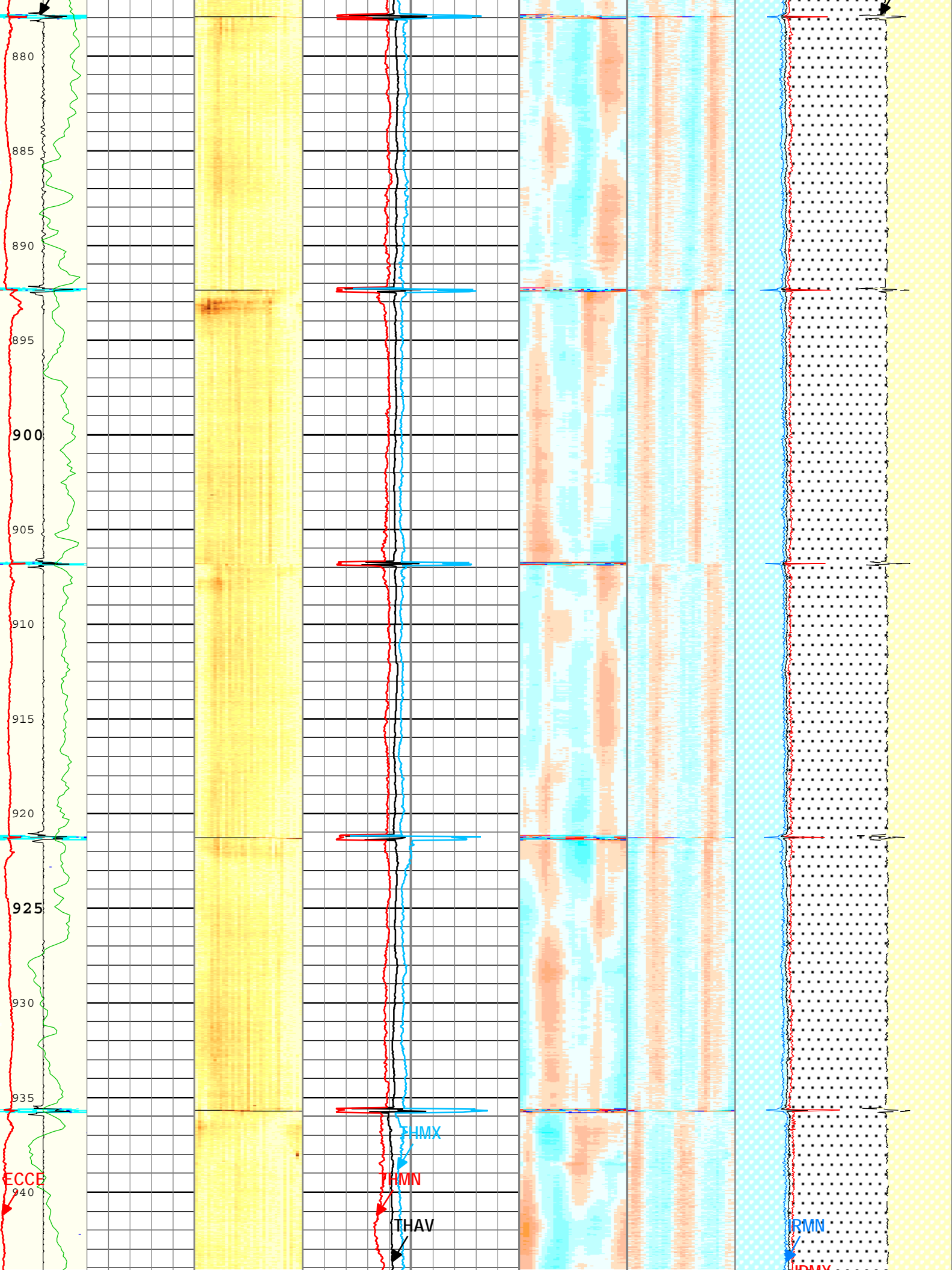


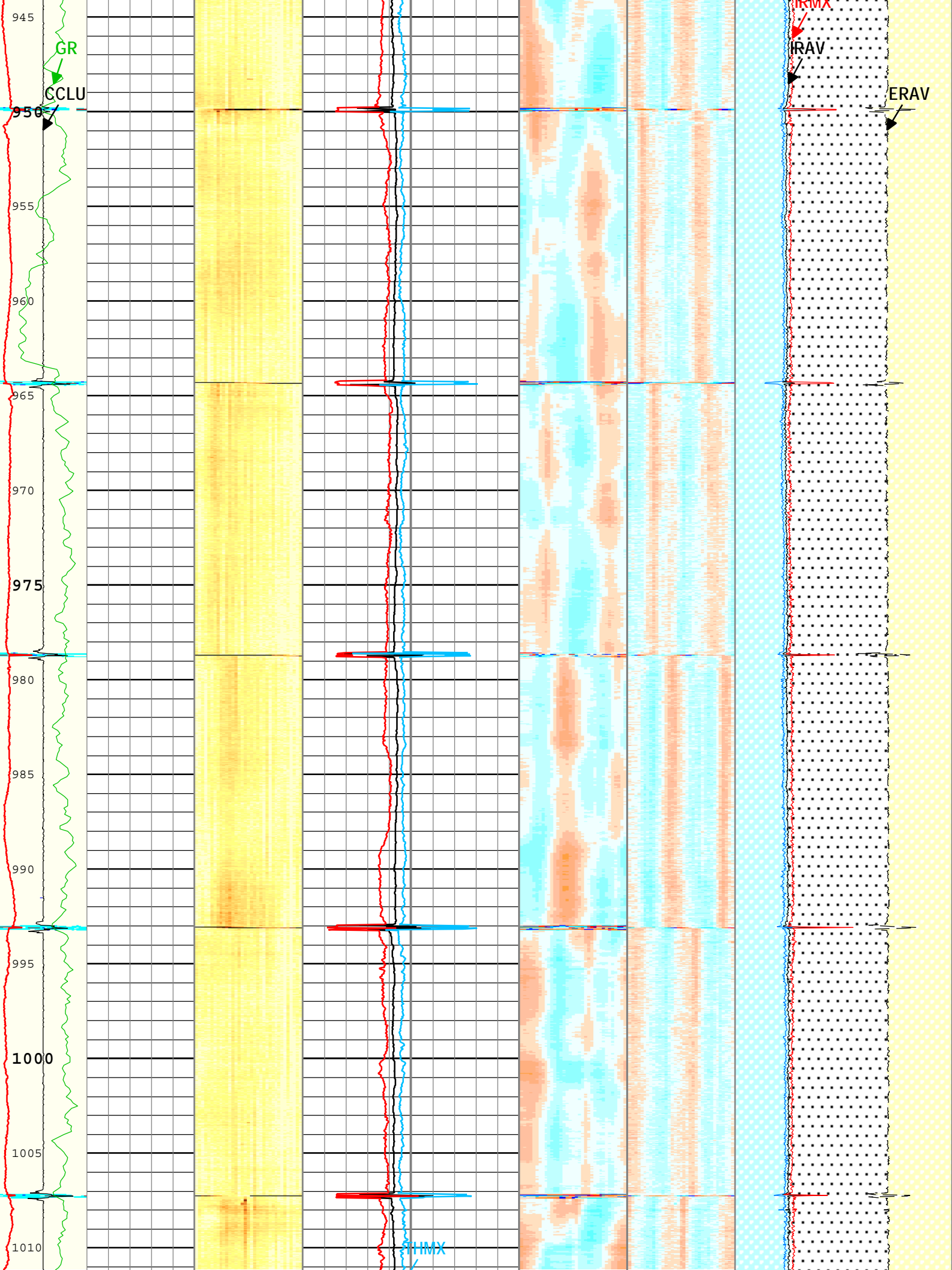


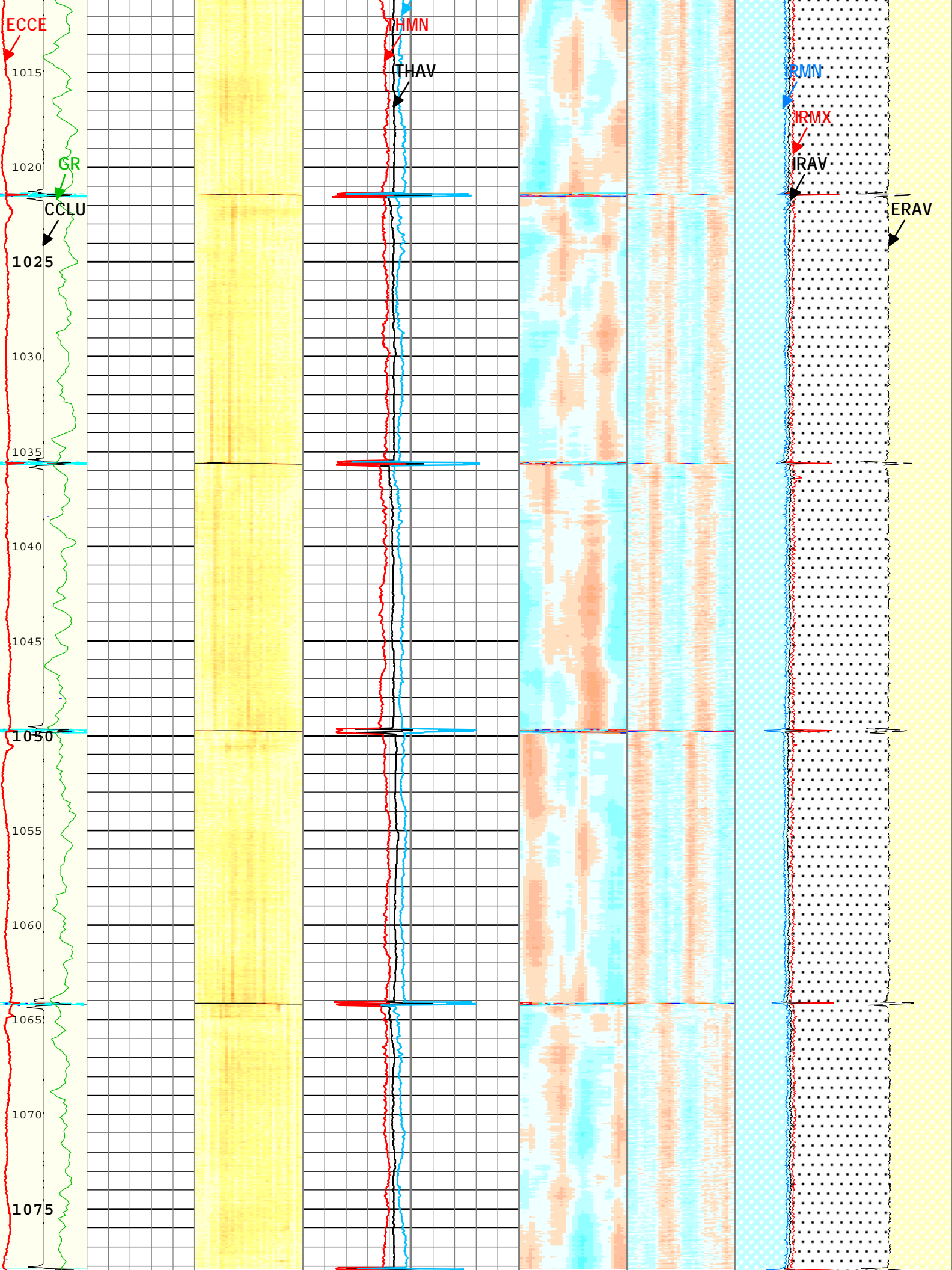


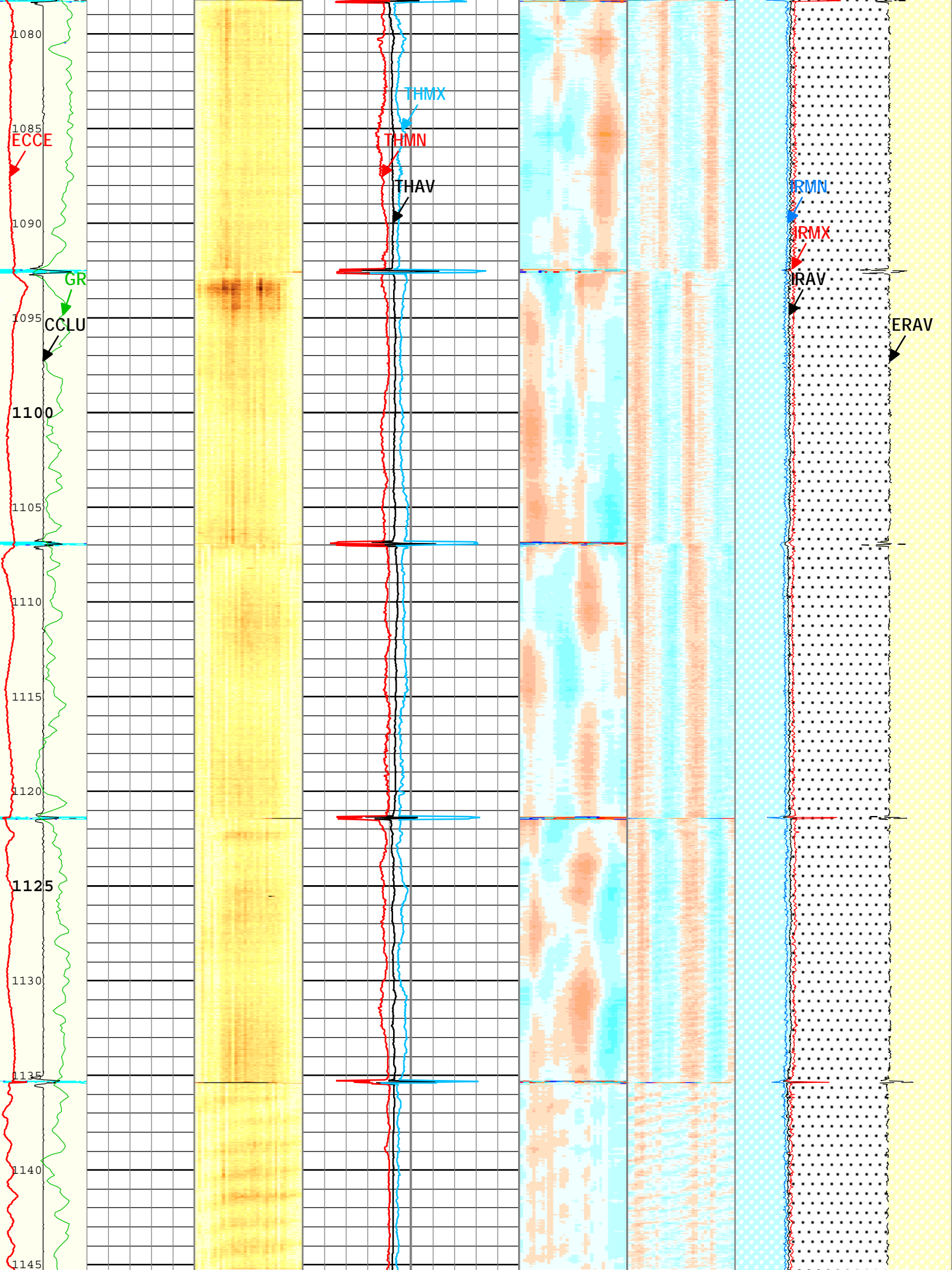


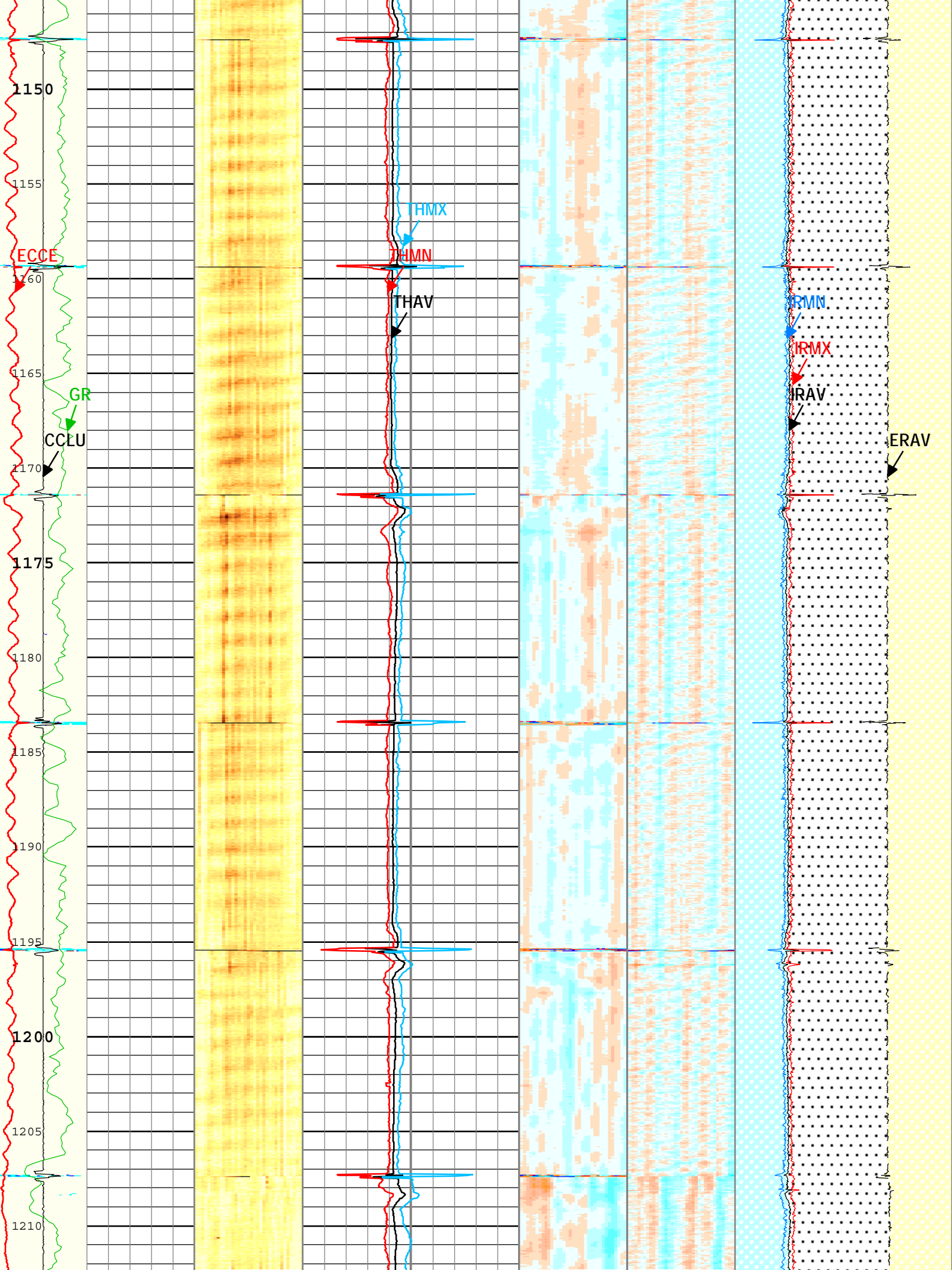


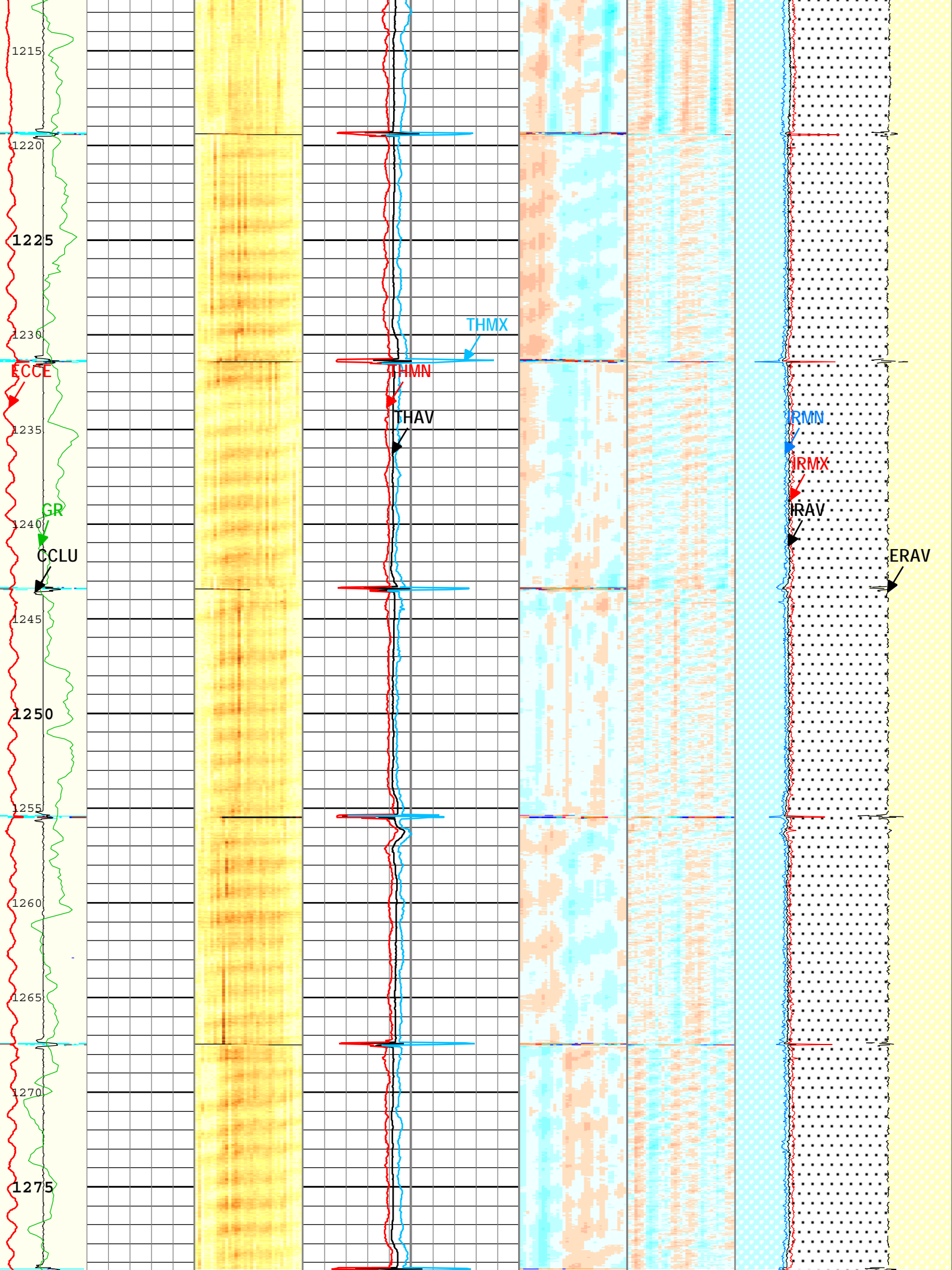


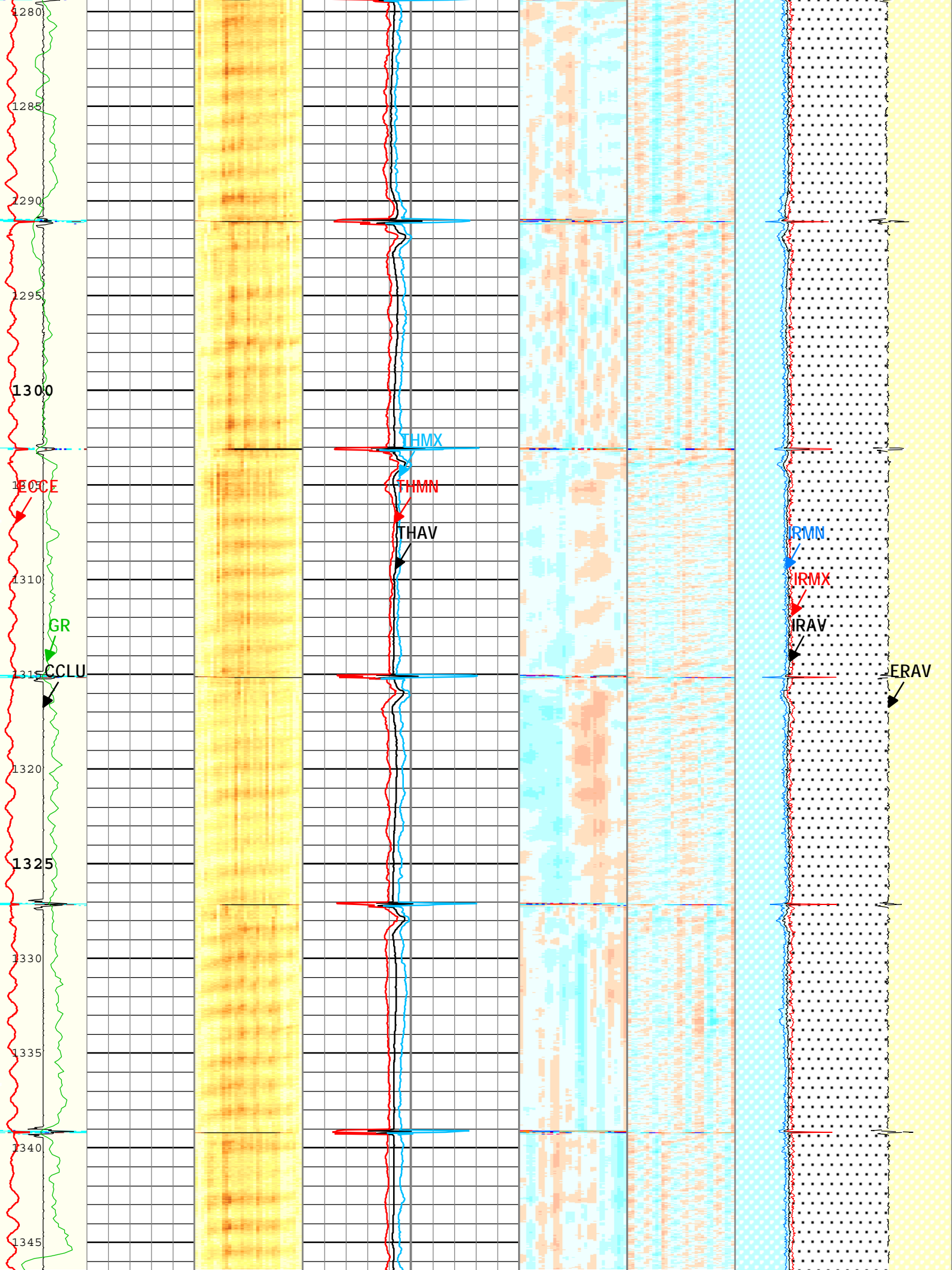


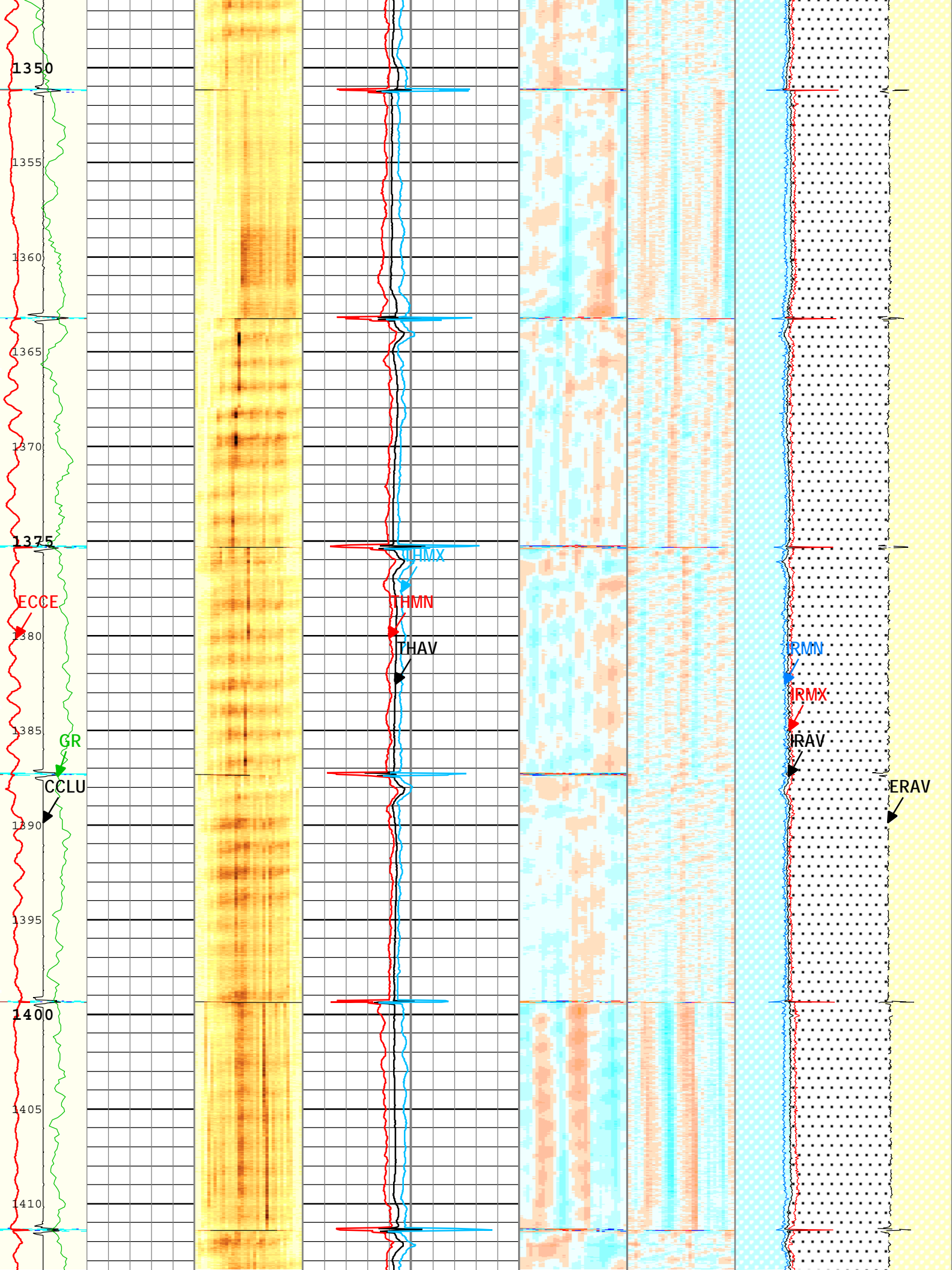


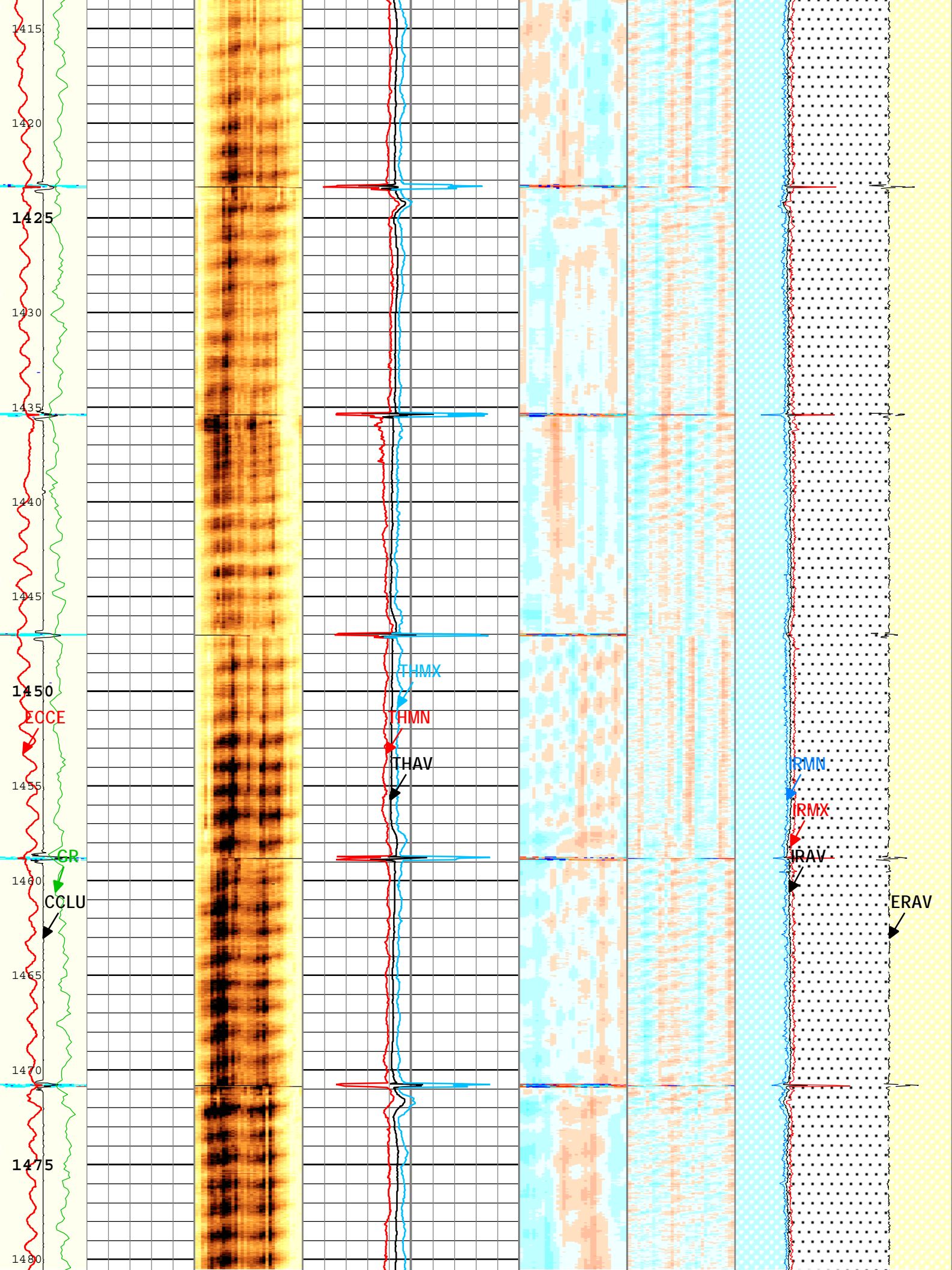


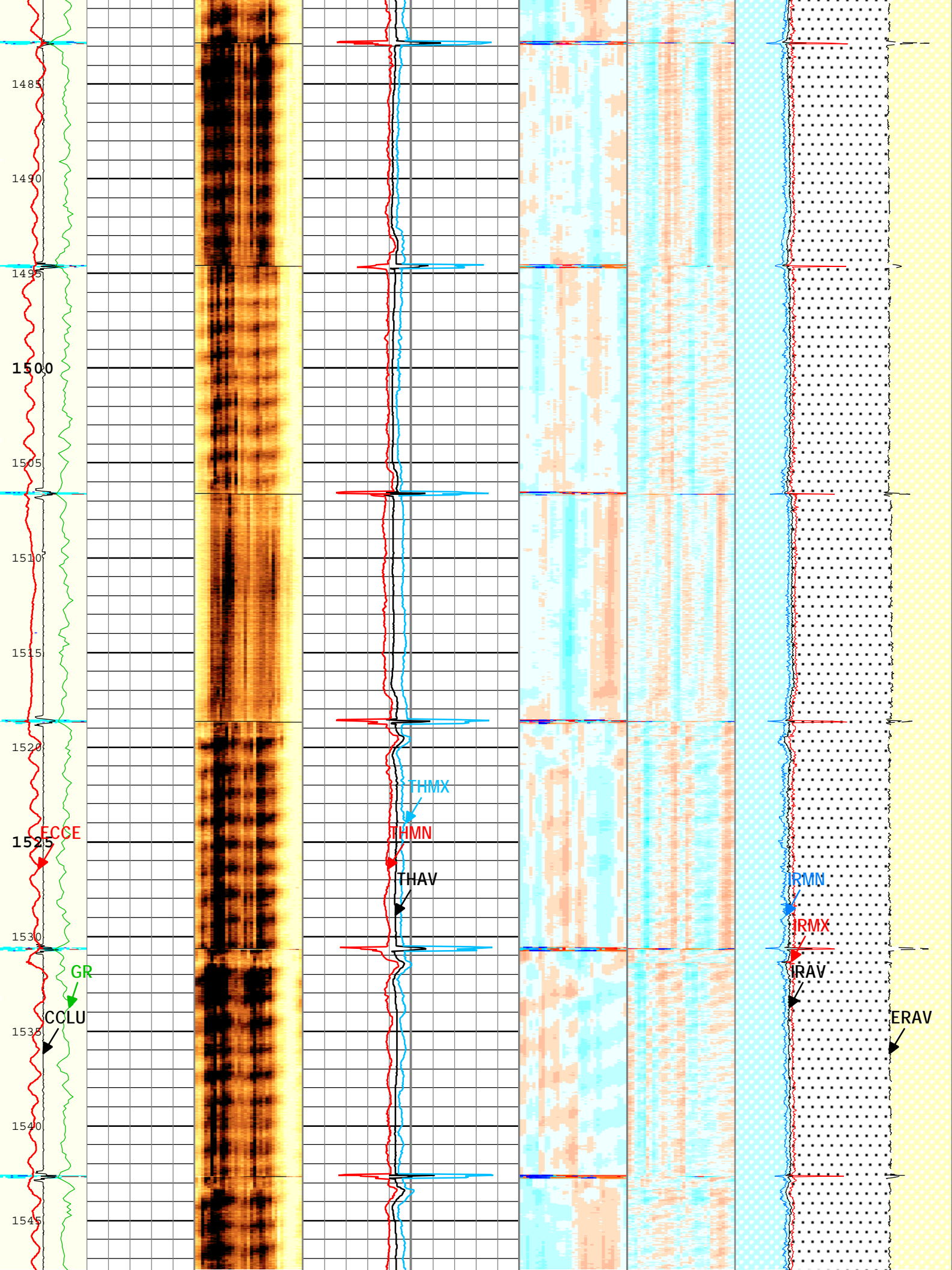


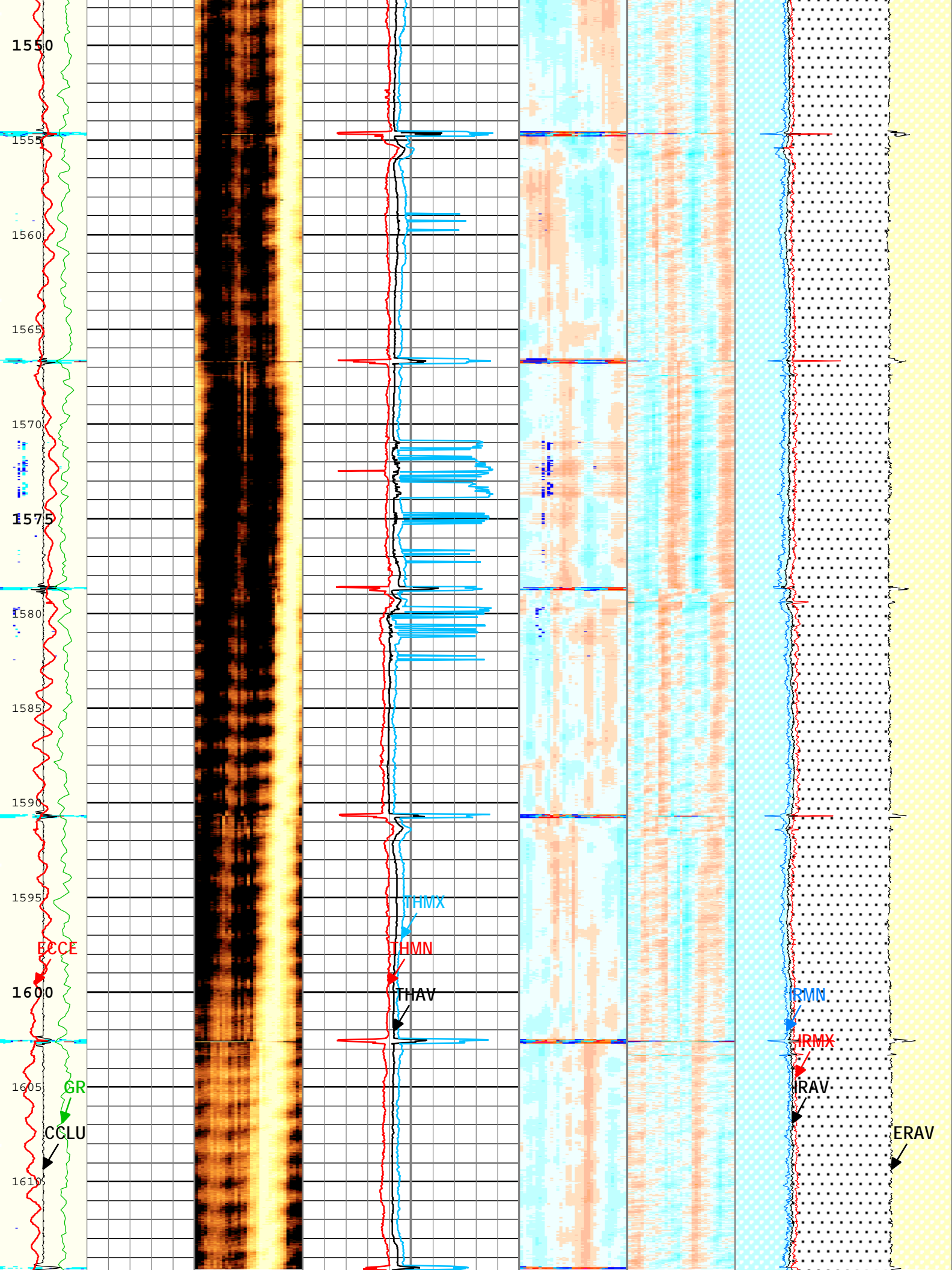


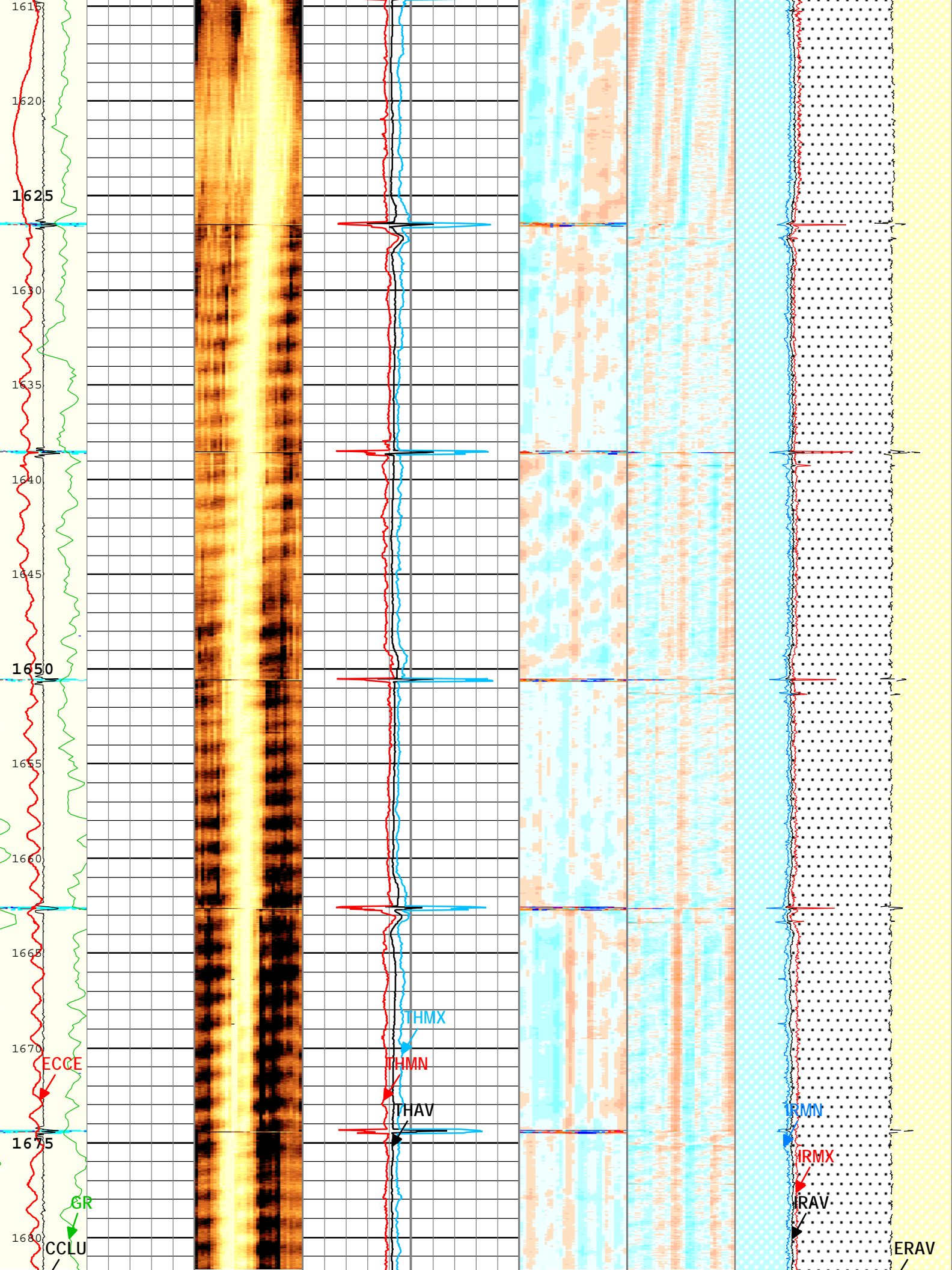


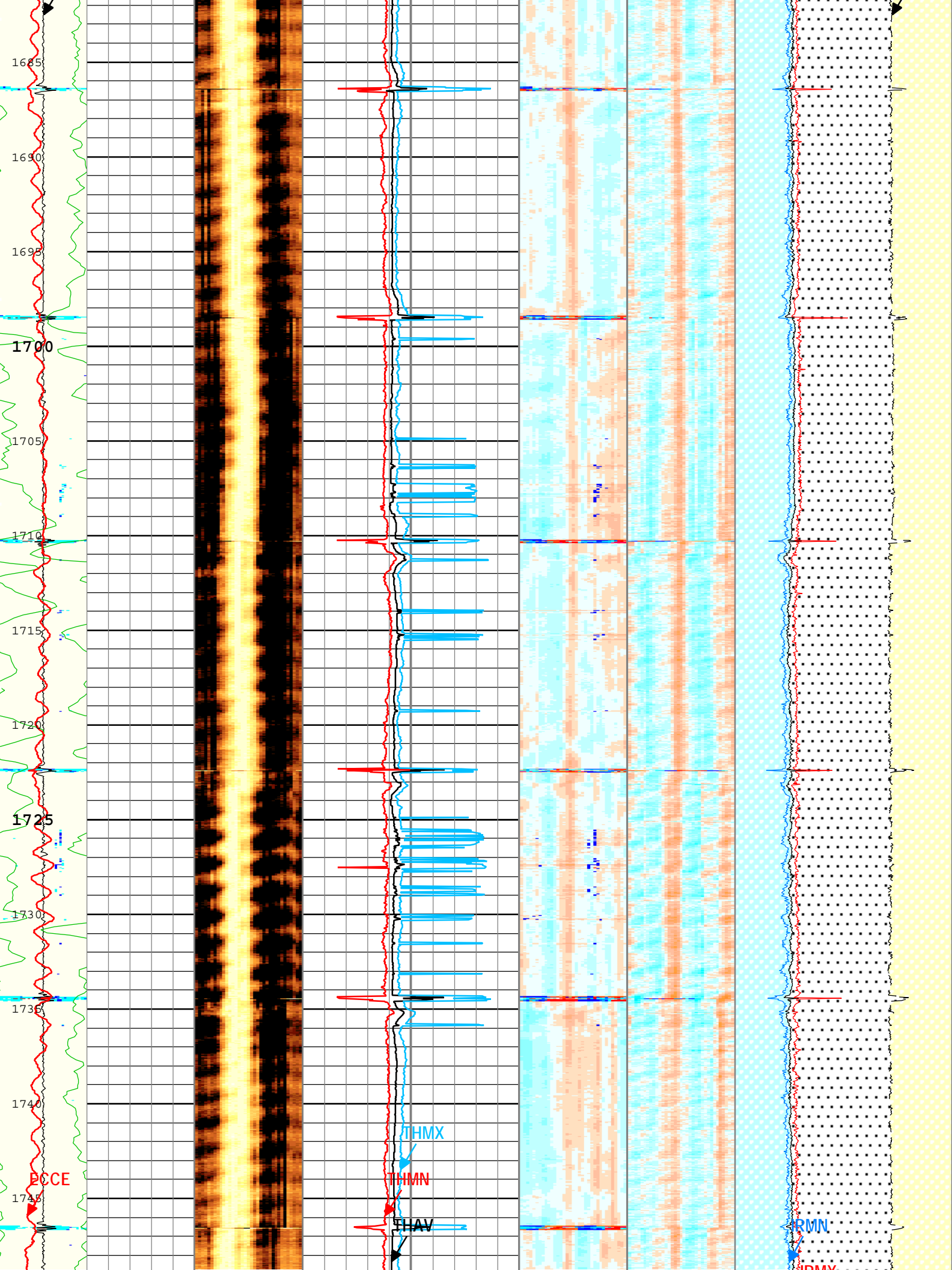


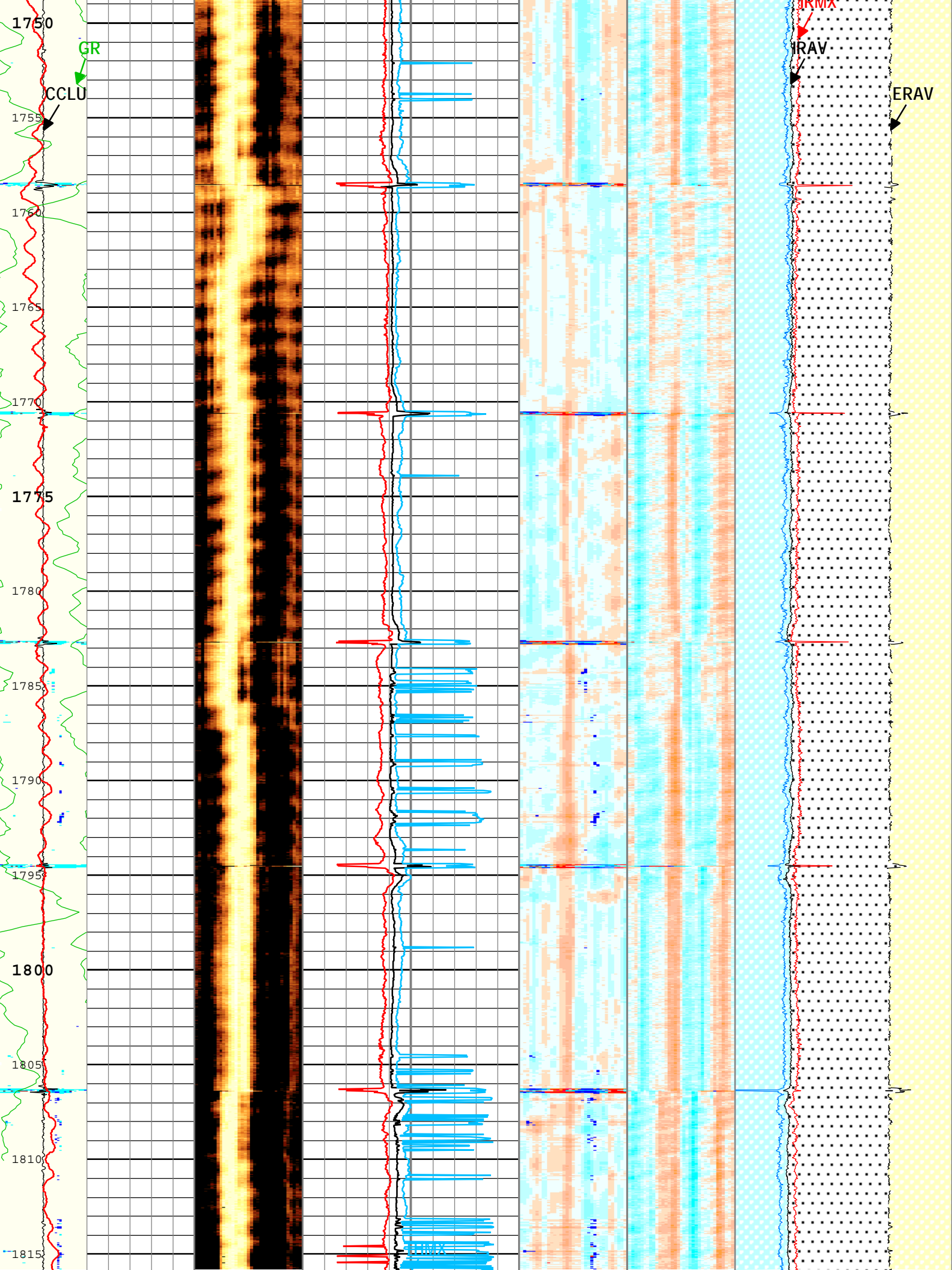


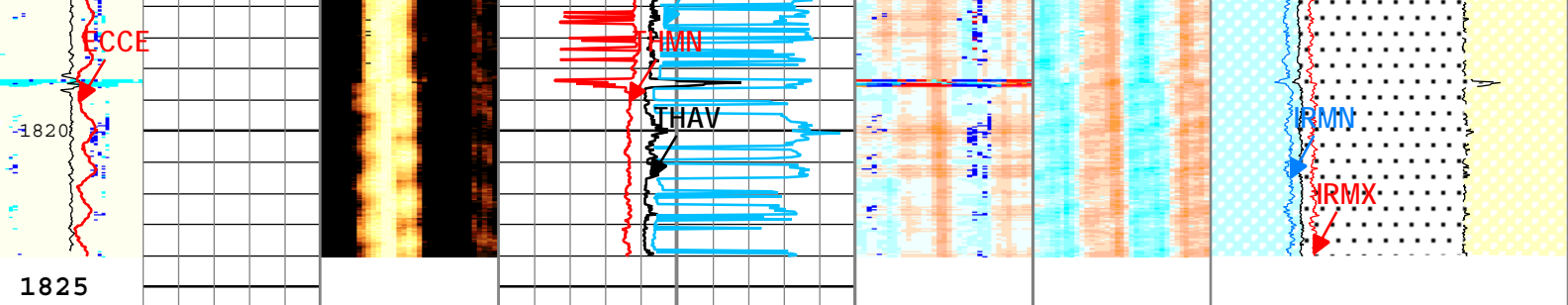












MAIN PASS: USIT DRILLWEAR

<div>Explicit Normalization</div> <div>USIT - UFLG USIT-D</div> <div>Casing Collar Locator Ultrasonic (CCLU) USIT-D</div> <div>-1000 1000 mm</div> <div>Gamma Ray (GR) SGT-N</div> <div>0 gAPI 150</div> <div>Amplitude of Eccentering (ECCE) USIT-D</div> <div>0 mm 15</div>	<div>Absent 1.500 3.500</div> <div>Explicit Normalization</div> <div>USIT - AWBK USIT-D (dB)</div> <div>Absent -5.200 -3.600 -2.000 -0.400</div> <div>Explicit Normalization</div> <div>USIT - THBK USIT-D (in)</div> <div>Absent -0.051 -0.012 0.028 0.068</div> <div>Explicit Normalization</div> <div>USIT - IRBK USIT-D (in)</div>	<div>Thickness Average Value (THAV) USIT-D</div> <div>5 mm 15</div> <div>Thickness Minimum Value (THMN) USIT-D</div> <div>5 mm 15</div> <div>Thickness Maximum Value (THMX) USIT-D</div> <div>5 mm 15</div>	<div>ERAV_RHF1</div> <div>IRAV_ERAV</div> <div>RHF1_IRAV</div> <div>External Radii Average (ERAV) USIT-D</div> <div>75 mm 95</div> <div>Internal Radius Averaged Value (IRAV) USIT-D</div> <div>75 mm 95</div> <div>Internal Radius Maximum Value (IRMX) USIT-D</div> <div>75 mm 95</div> <div>Internal Radius Minimum Value (IRMN) USIT-D</div> <div>75 mm 95</div>

TIME_1900 - Time Marked every 60.00 (s)

Description: USI VDL Cement Format: Log (USIT Drilling Wear) Index Scale: 1:240 Index Unit: m Index Type: Measured Depth Creation Date: 21-Jan-2014 20:05:08

Channel Processing Parameters				
Parameter	Description	Tool	Value	Unit
BARI	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BS	Bit Size	WLSESSION	Depth Zoned	mm
CBLO	Casing Bottom (Logger)	WLSESSION	1824	m
CDEN	Cement Density	SGT-N	2000	kg/m3
CMTY	Cement Type	USIT-D	Regular Cement	
CTHILGR	Nominal Casing Thickness - Zoned along logger depths	WLSESSION	9.03	mm
DFD	Drilling Fluid Density	Borehole	1040	kg/m3
DFT	Drilling Fluid Type	Borehole	Oil	
DFT_OIL	Drilling Fluid Oil Type	Borehole	INVERT	
DTMD	Borehole Fluid Slowness	Borehole	828	us/m
FDII	FPM Data Interpolation Interval	USIT-D	0	m
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	BS	
HEMA	Hematite Presence Flag	Borehole	No	

ICE_PROCESS	ICE Processing	USIT-D	No	
IMAR	Image Rotation	USIT-D	Off	
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-D	Depth Zoned	us
RCTH	Reference Calibrator Thickness	USIT-D	7.498	mm
TCUB	T^3 Processing Level	USIT-D	Loop	
THDH	Maximum Search Thickness (percentage of nominal)	USIT-D	130	%
THDL	Minimum Search Thickness (percentage of nominal)	USIT-D	70	%
UDFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-D	0	Mrayl
UFGDE	Fiberglass Density	USIT-D	1950	kg/m3
UFGPS	Fiberglass Processing Selection	USIT-D	No	
UFGVL	Fiberglass Velocity	USIT-D	2950	m/s
USI_FSOD	USIT USI Fluid Slowness Fits Casing Outer Diameter	USIT-D	0_OFF	
USI_FVEL_SEL	USI Fluid Velocity Selection	USIT-D	Automatic	
USI_ZMUD_SEL	USI Mud Impedance Selection	USIT-D	Manual	
UTHDP	Thickness Detection Policy	USIT-D	Fundamental	
VCAS	Ultrasonic Transversal Velocity in Casing	USIT-D	168.64	us/m
ZCAS	Acoustic Impedance of Casing	USIT-D	46.25	Mrayl
ZMUD	Acoustic Impedance of Mud	Borehole	1.55	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-D	2.1	Mrayl

Depth Zone Parameters				
Parameter	Value	Start (m)	Stop (m)	
BS	311	0	603	
BS	222	603	1824	
BS	156	1824	1824.1	
MEAS_WLEN	22.27	0	1825.75	
All depth are actual.				

Tool Control Parameters				
Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-D	-4	dB
AGMX	Maximum Gain of Cartridge	USIT-D	20	dB
DDT5	USIC Downhole Decimation for T5 only	USIT-D	0_NONE	
EMXV	EMEX Voltage	USIT-D	100	V
HRES	Horizontal Resolution	USIT-D	10 deg	
ULOG	Logging Objective	USIT-D	MEASUREMENT	
UMFR	Modulation Frequency	USIT-D	333333	Hz
USFR	Ultrasonic Sampling Frequency	USIT-D	500000	Hz
USI_UPAT	USIT Emission Pattern	USIT-D	Pattern 375 KHz	
USI_UWKM	USIT Working Mode	USIT-D	Uncompressed 10 deg at 1.5 in LF	
USIT_DEPTHLOG	Starting Depth Log for Ultrasonics	USIT-D	1828	m
VRES	Vertical Resolution	USIT-D	1.5 in	
WINB	Window Begin Time	USIT-D	51.7	us
WINE	Window End Time	USIT-D	119.19	us

2.1				

Software Version				
Acquisition System		Version		
MaxWell		4.0.9163.3000		

Computation	Description	Version	
CEVAL	Sonic Cement Evaluation Computation Ensemble provides common Parameters and Channels	4.0.9033.3000	
DepthCorrection	DepthCorrection	4.0.9213.3000	
Tool Elements	Description	Software Version	Firmware Version
SLS-E	Sonic Logging Sonde E supports 3'-5'BHC DT and CBL/VDL	4.0.9033.3000	4.0
SGC-TB	Scintillation Gamma Cartridge	4.0.9033.3000	

Pass Summary

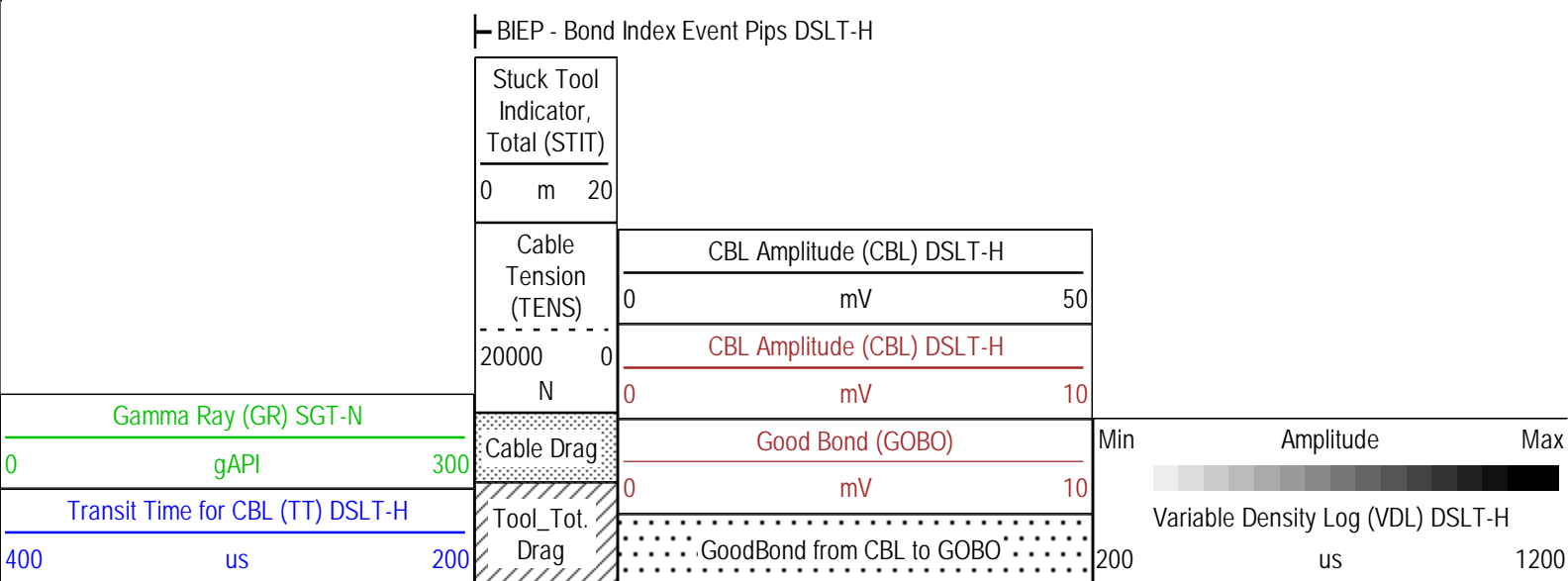
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
2.1	Log[5]:Up	Up	1684.29 m	1826.33 m	21-Jan-2014 3:31:14 AM	21-Jan-2014 3:41:13 AM	ON	0.00 m	Yes

All depths are referenced to toolstring zero

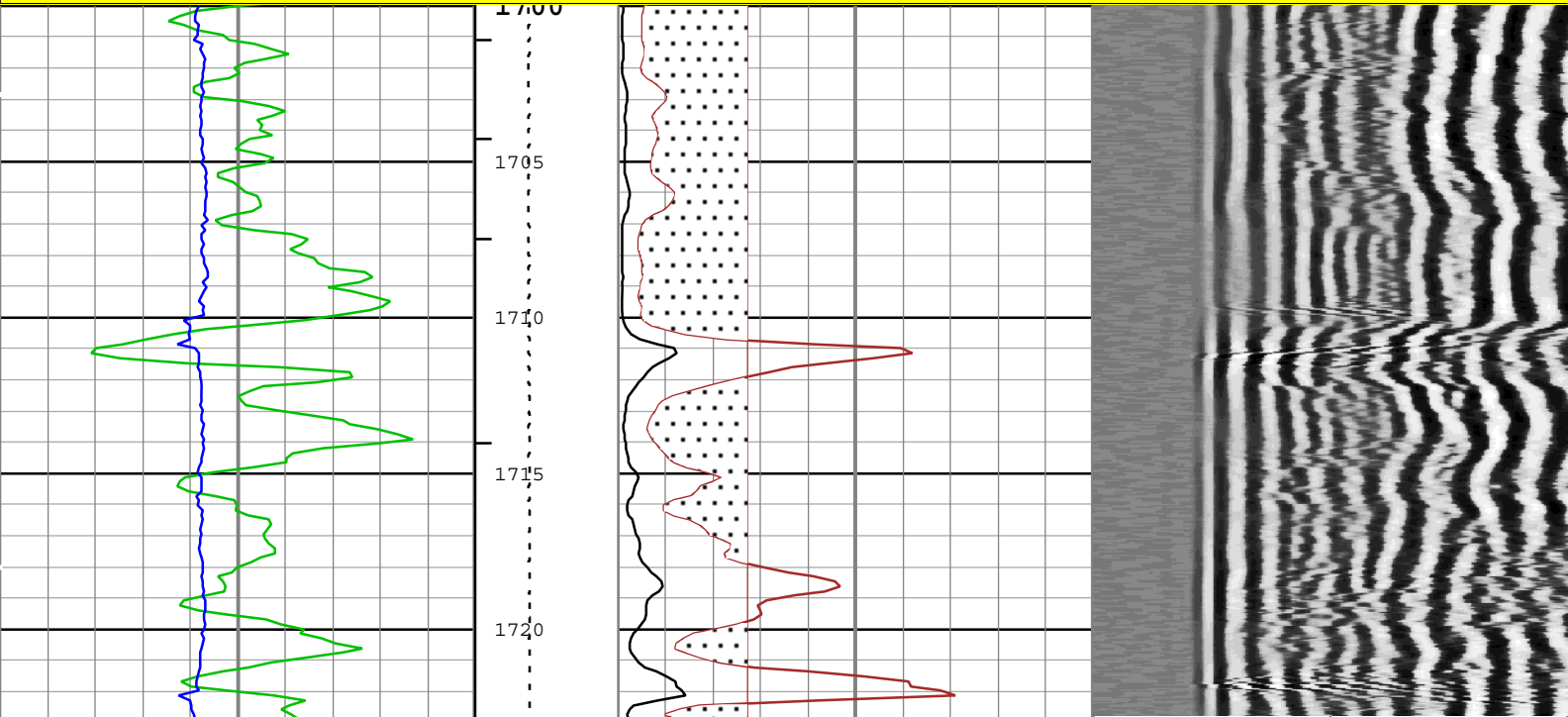
Log	Company:CONOCOPHILLIPS CANADA RESOURCES CORP. Well:COPRC DODO CANYON E76 2.1: Log[5]:Up:S042
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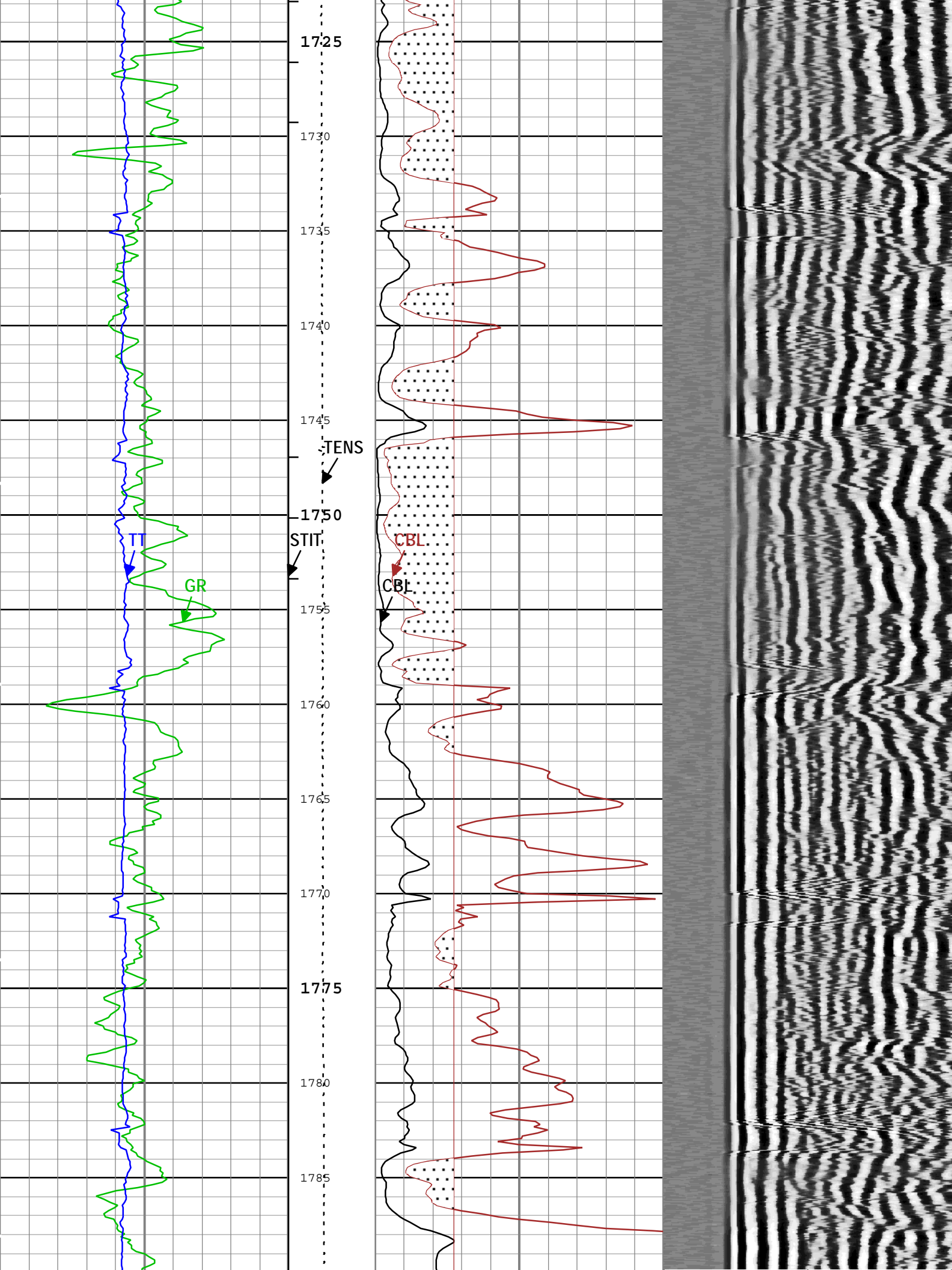
Description: CBL_VDL Format: Log (Copy of Sonic CBL with VDL) Index Scale: 1:240 Index Unit: m Index Type: Measured Depth Creation Date: 21-Jan-2014 20:05:17

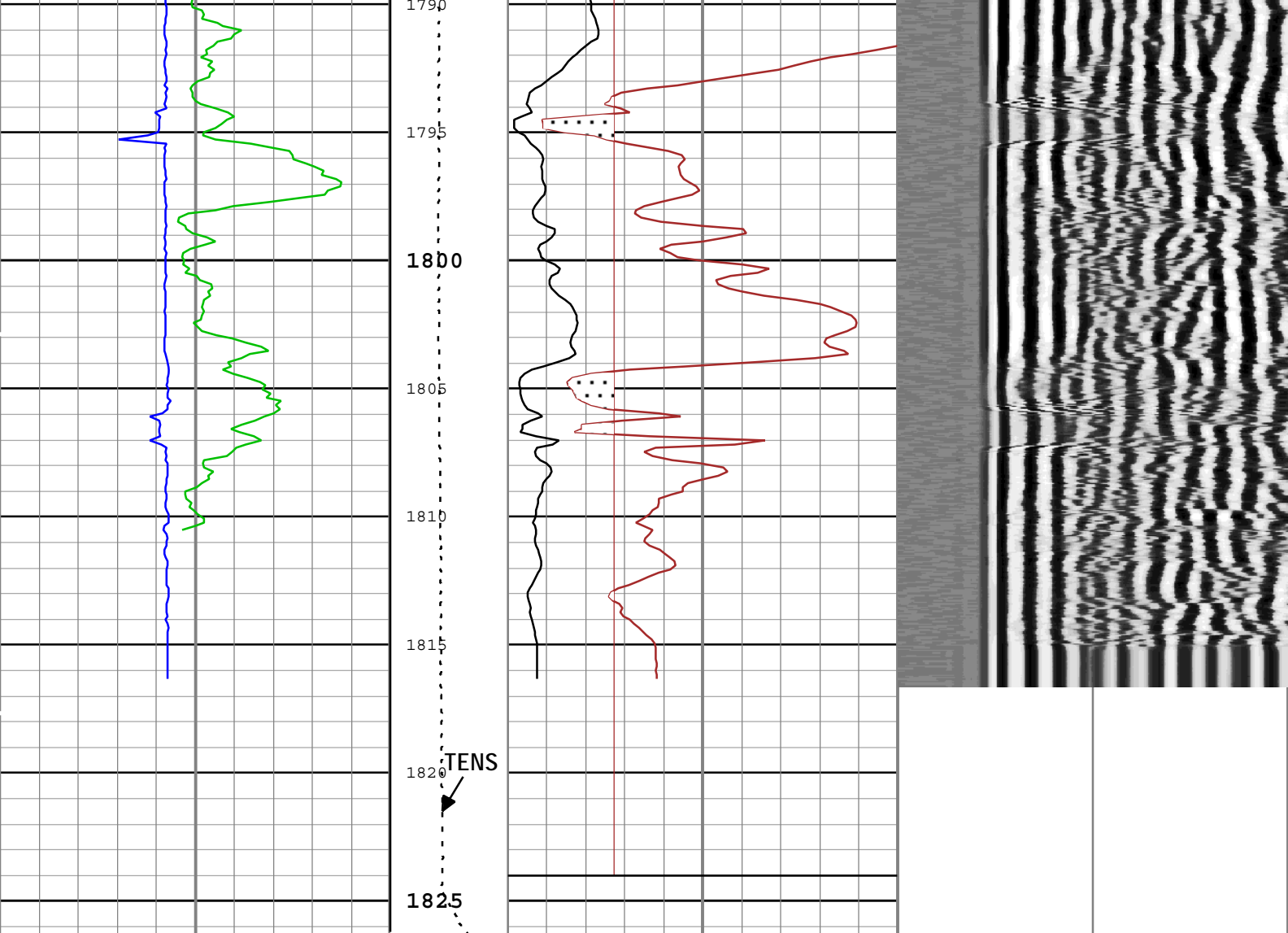
TIME_1900 - Time Marked every 60.00 (s)



REPEAT PASS: DSLT - CEMENT BOND LOG







REPEAT PASS: DSLT - CEMENT BOND LOG

Gamma Ray (GR) SGT-N	Stuck Tool Indicator, Total (STIT)	CBL Amplitude (CBL) DSLT-H	Min	Amplitude	Max
0 gAPI 300	0 m 20	0 mV 50			
Transit Time for CBL (TT) DSLT-H		CBL Amplitude (CBL) DSLT-H		Variable Density Log (VDL) DSLT-H	
400 us 200		0 mV 10	200	us	1200
	Cable Tension (TENS)	Good Bond (GOBO)			
	20000 N	0 mV 10			
		GoodBond from CBL to GOBO			
	Cable Drag				
	Tool_Tot. Drag				
	BIEP - Bond Index Event Pips DSLT-H				

TIME_1900 - Time Marked every 60.00 (s)

Description: CBL_VDL Format: Log (Copy of Sonic CBL with VDL) Index Scale: 1:240 Index Unit: m Index Type: Measured Depth Creation Date: 21-Jan-2014 20:05:17

Channel Processing Parameters				
Parameter	Description	Tool	Value	Unit
BARI	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BS	Bit Size	WLSESSION	Depth Zoned	mm

CBLG	CBL Gate Width	DSLT-H	92	us
CBLO	Casing Bottom (Logger)	WLSESSION	1824	m
CBRA	CBL LQC Reference Amplitude in Free Pipe	DSLT-H	Depth Zoned	mV
CDEN	Cement Density	SGT-N	2000	kg/m3
CMCF	CBL Cement Type Compensation Factor	DSLT-H	Depth Zoned	
CMTY	Cement Type	USIT-D	Regular Cement	
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DETE	Delta-T Detection	DSLT-H	E1	
DFD	Drilling Fluid Density	Borehole	1040	kg/m3
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	BS	
IMAR	Image Rotation	USIT-D	Off	
MAHTR	Manual High Threshold Reference for first arrival detection	DSLT-H	120	
MCI	Minimum Cemented Interval for Isolation	DSLT-H	Depth Zoned	m
MNHTR	Minimum High Threshold Reference for first arrival detection	DSLT-H	100	
MSA	Minimum Sonic Amplitude	DSLT-H	Depth Zoned	mV
NMSG	Near Minimum Sliding Gate	DSLT-H	256	us
RCTH	Reference Calibrator Thickness	USIT-D	7.498	mm
SGAD	Sliding Gate Status	DSLT-H	Off	
TCUB	T^3 Processing Level	USIT-D	Loop	
TD	Total Measured Depth	Borehole	1824	m
THDH	Maximum Search Thickness (percentage of nominal)	USIT-D	130	%
THDL	Minimum Search Thickness (percentage of nominal)	USIT-D	70	%
UDFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-D	0	Mrayl
UFGDE	Fiberglass Density	USIT-D	1950	kg/m3
UFGPS	Fiberglass Processing Selection	USIT-D	No	
UFGVL	Fiberglass Velocity	USIT-D	2950	m/s
USI_FSOD	USIT USI Fluid Slowness Fits Casing Outer Diameter	USIT-D	0_OFF	
USI_FVEL_SEL	USI Fluid Velocity Selection	USIT-D	Automatic	
USI_ZMUD_SEL	USI Mud Impedance Selection	USIT-D	Manual	
UTHDP	Thickness Detection Policy	USIT-D	Fundamental	
VCAS	Ultrasonic Transversal Velocity in Casing	USIT-D	168.64	us/m
ZCAS	Acoustic Impedance of Casing	USIT-D	46.25	Mrayl
ZCMT	Acoustic Impedance of Cement	DSLT-H	3.65	Mrayl

Depth Zone Parameters

Parameter	Value	Start (m)	Stop (m)
BS	222	1700	1824
BS	156	1824	1824.1
CBRA	62	1700	1824
CBRA	0	1824	1826.34
CMCF	0.2	1700	1824
CMCF	0	1824	1826.34
MCI	3.05	1700	1824
MCI	0	1824	1826.34
MSA	1.25	1700	1824
MSA	0	1824	1826.34

All depth are actual.

Tool Control Parameters

Parameter	Description	Tool	Value	Unit
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DSLTT_MODE	DSLTT Acquisition Mode	DSLTT-H	CBL	
DSLTT_RATE	DSLTT Firing Rate	DSLTT-H	15 Hz	
DTFS	DSLTT Telemetry Frame Size	DSLTT-H	536	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	1028.7	m/h
ULOG	Logging Objective	USIT-D	MEASUREMENT	
UMFR	Modulation Frequency	USIT-D	333333	Hz
USI_UPAT	USIT Emission Pattern	USIT-D	Pattern 375 KHz	
USI_UWKM	USIT Working Mode	USIT-D	Uncompressed 10 deg at 1.5 in LF	
USIT_DEPTHLOG	Starting Depth Log for Ultrasonics	USIT-D	1828	m
VRES	Vertical Resolution	USIT-D	1.5 in	
WINB	Window Begin Time	USIT-D	51.7	us
WINE	Window End Time	USIT-D	Time Zoned	us

Time Zone Parameters

All depth are at tool zero.

2.1

Software Version

Acquisition System	Version
MaxWell	4.0.9163.3000
Application Patch	Patch-SP-10767_13075-4.0.9163.3001

Computation	Description		Version
Cementation	Cementation Computation Application		4.0.9167.3000
Tool Elements	Description	Software Version	Firmware Version
USI-SENSOR	USIT Transducer Element	4.0.9265.3000	DHC: P321617
SGC-TB	Scintillation Gamma Cartridge	4.0.9033.3000	

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
2.1	Log[5]:Up	Up	1684.29 m	1826.33 m	21-Jan-2014 3:31:14 AM	21-Jan-2014 3:41:13 AM	ON	0.00 m	Yes

All depths are referenced to toolstring zero

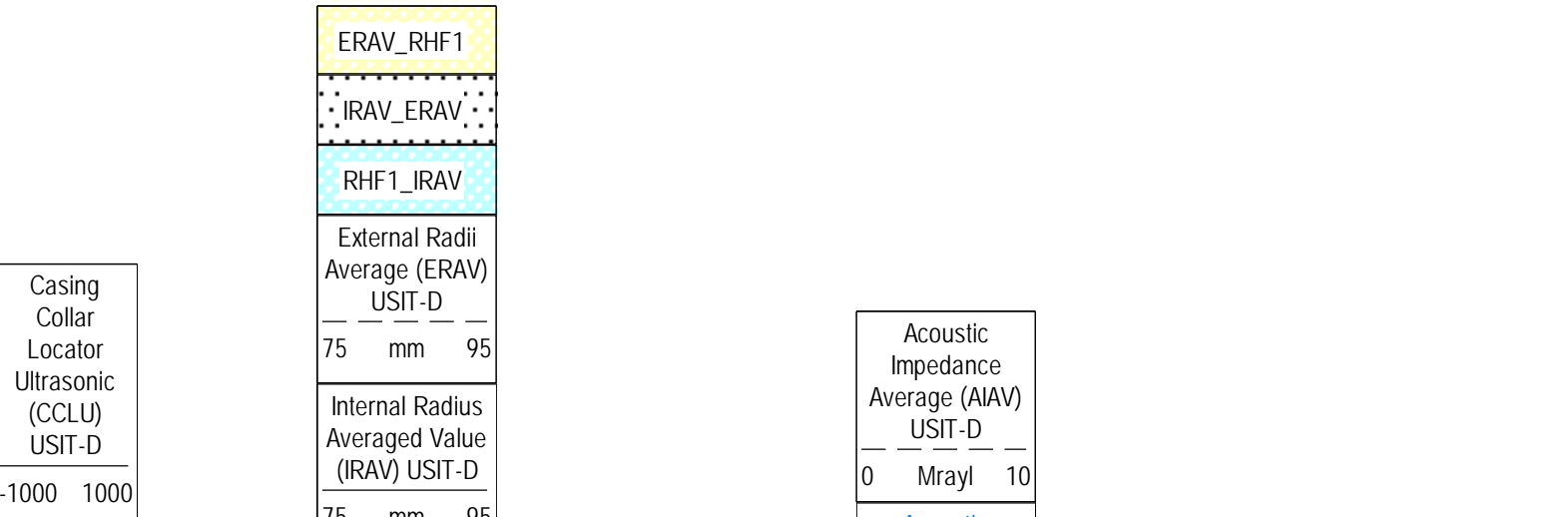
Log

Company:CONOCOPHILLIPS CANADA RESOURCES CORP. Well:COPRC DODO CANYON E76

2.1: Log[5]:Up:S042

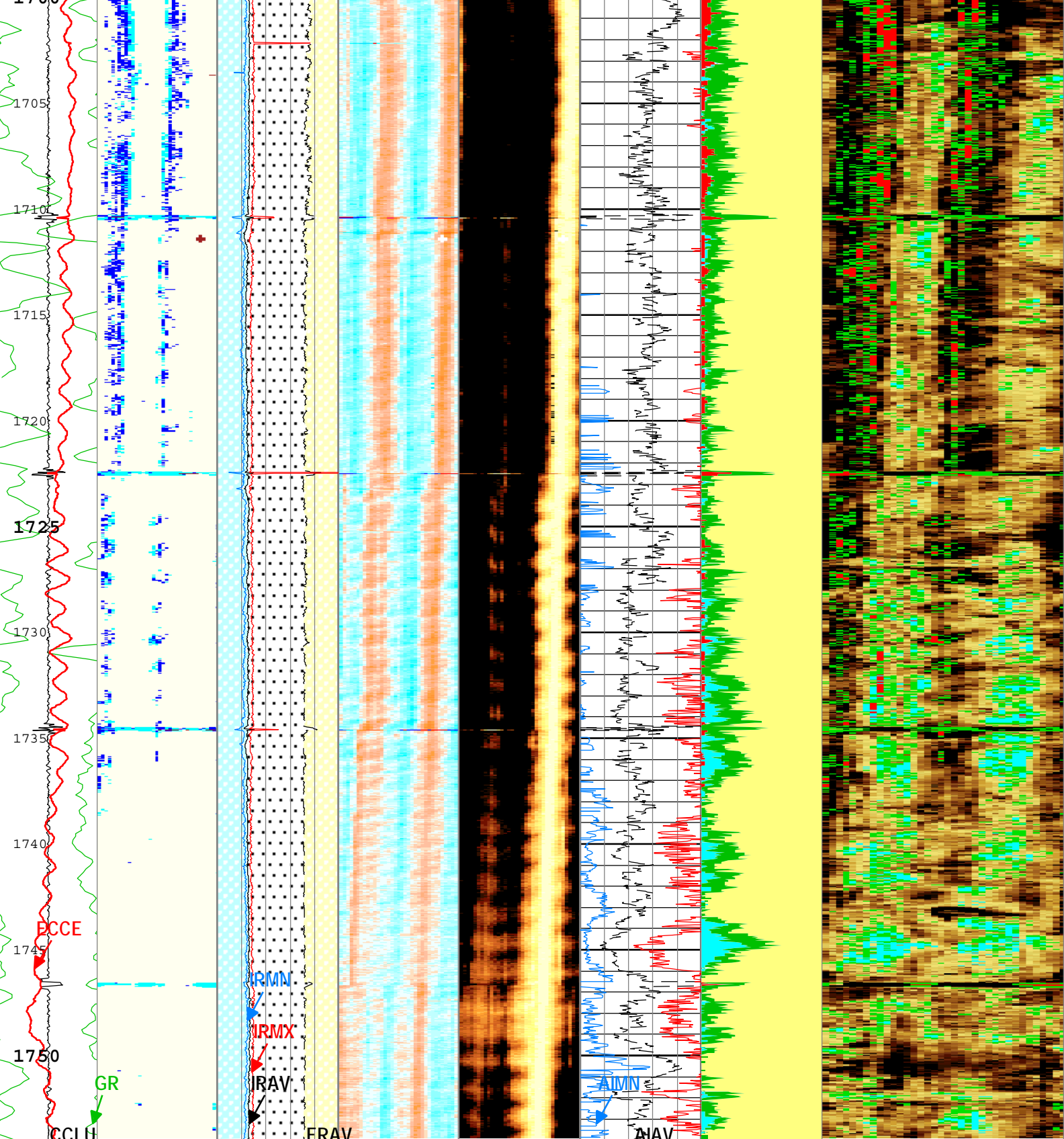
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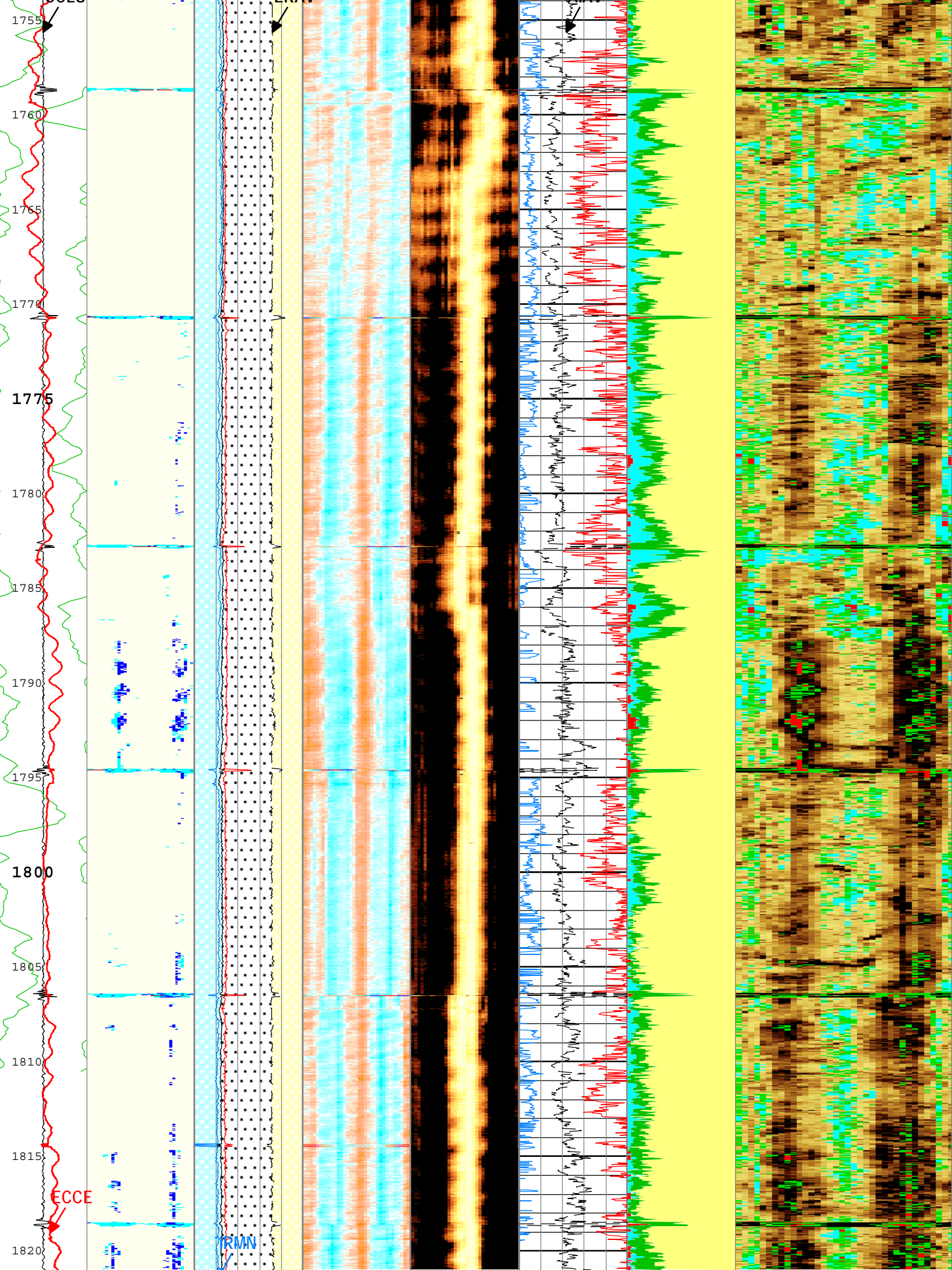
TIME_1900 - Time Marked every 60.00 (s)

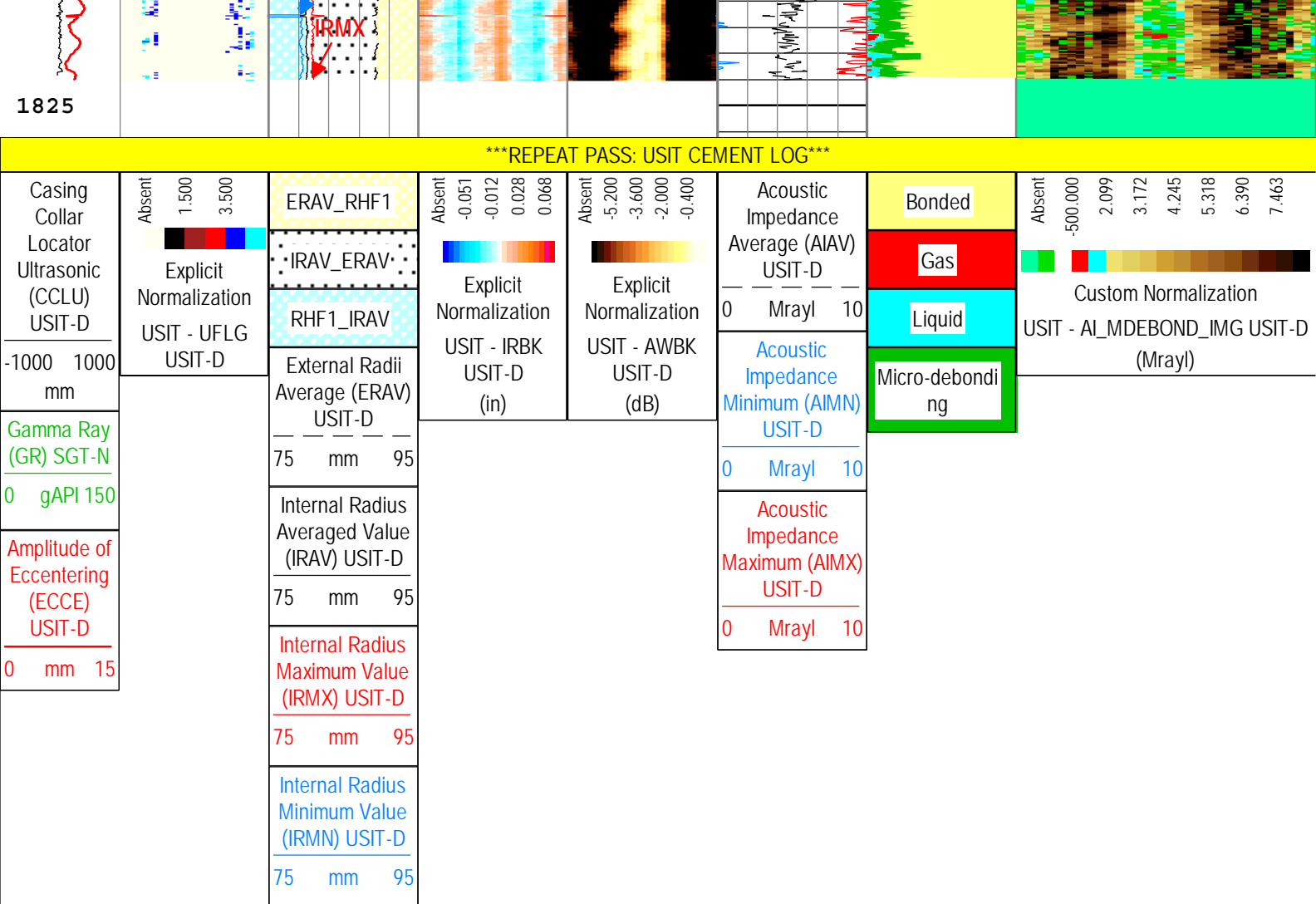


mm	75	mm	95			Acoustic Impedance Minimum (AIMN) USIT-D		Bonded			
Gamma Ray (GR) SGT-N				Internal Radius Maximum Value (IRMX) USIT-D				Gas			
0 gAPI 150	Absent 1.500 3.500			75 mm 95		0 Mrayl 10		Liquid		Absent -500.000 2.099 3.172 4.245 5.318 6.390 7.463	
Amplitude of Eccentering (ECCE) USIT-D	Explicit Normalization USIT - UFLG USIT-D			Internal Radius Minimum Value (IRMN) USIT-D		Acoustic Impedance Maximum (AIMX) USIT-D		Micro-debonding		Custom Normalization USIT - AI_MDEBOND_IMG USIT-D (Mrayl)	
0 mm 15				75 mm 95		0 Mrayl 10					

REPEAT PASS: USIT CEMENT LOG







TIME_1900 - Time Marked every 60.00 (s)

Description: USI VDL Cement Format: Log (Copy of USIT Cement) Index Scale: 1:240 Index Unit: m Index Type: Measured Depth Creation Date: 21-Jan-2014 20:05:20

Channel Processing Parameters				
Parameter	Description	Tool	Value	Unit
BARI	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BS	Bit Size	WLSESSION	Depth Zoned	mm
CBLO	Casing Bottom (Logger)	WLSESSION	1824	m
CDEN	Cement Density	SGT-N	2000	kg/m3
CMTY	Cement Type	USIT-D	Regular Cement	
CTHILGR	Nominal Casing Thickness - Zoned along logger depths	WLSESSION	9.103	mm
DFD	Drilling Fluid Density	Borehole	1040	kg/m3
DFT	Drilling Fluid Type	Borehole	Oil	
DFT_OIL	Drilling Fluid Oil Type	Borehole	INVERT	
DTMD	Borehole Fluid Slowness	Borehole	828	us/m
FDII	FPM Data Interpolation Interval	USIT-D	0	m
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	BS	
HEMA	Hematite Presence Flag	Borehole	No	
ICE_PROCESS	ICE Processing	USIT-D	No	
IMAR	Image Rotation	USIT-D	Off	
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-D	22.27	us
RCTH	Reference Calibrator Thickness	USIT-D	7.498	mm

TCUB	T^3 Processing Level	USIT-D	Loop	
THDH	Maximum Search Thickness (percentage of nominal)	USIT-D	130	%
THDL	Minimum Search Thickness (percentage of nominal)	USIT-D	70	%
UDFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-D	0	Mrayl
UFGDE	Fiberglass Density	USIT-D	1950	kg/m3
UFGPS	Fiberglass Processing Selection	USIT-D	No	
UFGVL	Fiberglass Velocity	USIT-D	2950	m/s
USI_FSOD	USIT USI Fluid Slowness Fits Casing Outer Diameter	USIT-D	0_OFF	
USI_FVEL_SEL	USI Fluid Velocity Selection	USIT-D	Automatic	
USI_ZMUD_SEL	USI Mud Impedance Selection	USIT-D	Manual	
UTHDP	Thickness Detection Policy	USIT-D	Fundamental	
VCAS	Ultrasonic Transversal Velocity in Casing	USIT-D	168.64	us/m
ZCAS	Acoustic Impedance of Casing	USIT-D	46.25	Mrayl
ZMUD	Acoustic Impedance of Mud	Borehole	1.55	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-D	2.1	Mrayl

Depth Zone Parameters				
Parameter	Value	Start (m)	Stop (m)	
BS	222	1700	1824	
BS	156	1824	1824.1	

All depth are actual.

Tool Control Parameters				
Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-D	-4	dB
AGMX	Maximum Gain of Cartridge	USIT-D	20	dB
DDT5	USIC Downhole Decimation for T5 only	USIT-D	0_NONE	
EMXV	EMEX Voltage	USIT-D	100	V
HRES	Horizontal Resolution	USIT-D	10 deg	
ULOG	Logging Objective	USIT-D	MEASUREMENT	
UMFR	Modulation Frequency	USIT-D	333333	Hz
USFR	Ultrasonic Sampling Frequency	USIT-D	500000	Hz
USI_UPAT	USIT Emission Pattern	USIT-D	Pattern 375 KHz	
USI_UWKM	USIT Working Mode	USIT-D	Uncompressed 10 deg at 1.5 in LF	
USIT_DEPTHLOG	Starting Depth Log for Ultrasonics	USIT-D	1828	m
VRES	Vertical Resolution	USIT-D	1.5 in	
WINB	Window Begin Time	USIT-D	51.7	us
WINE	Window End Time	USIT-D	Time Zoned	us

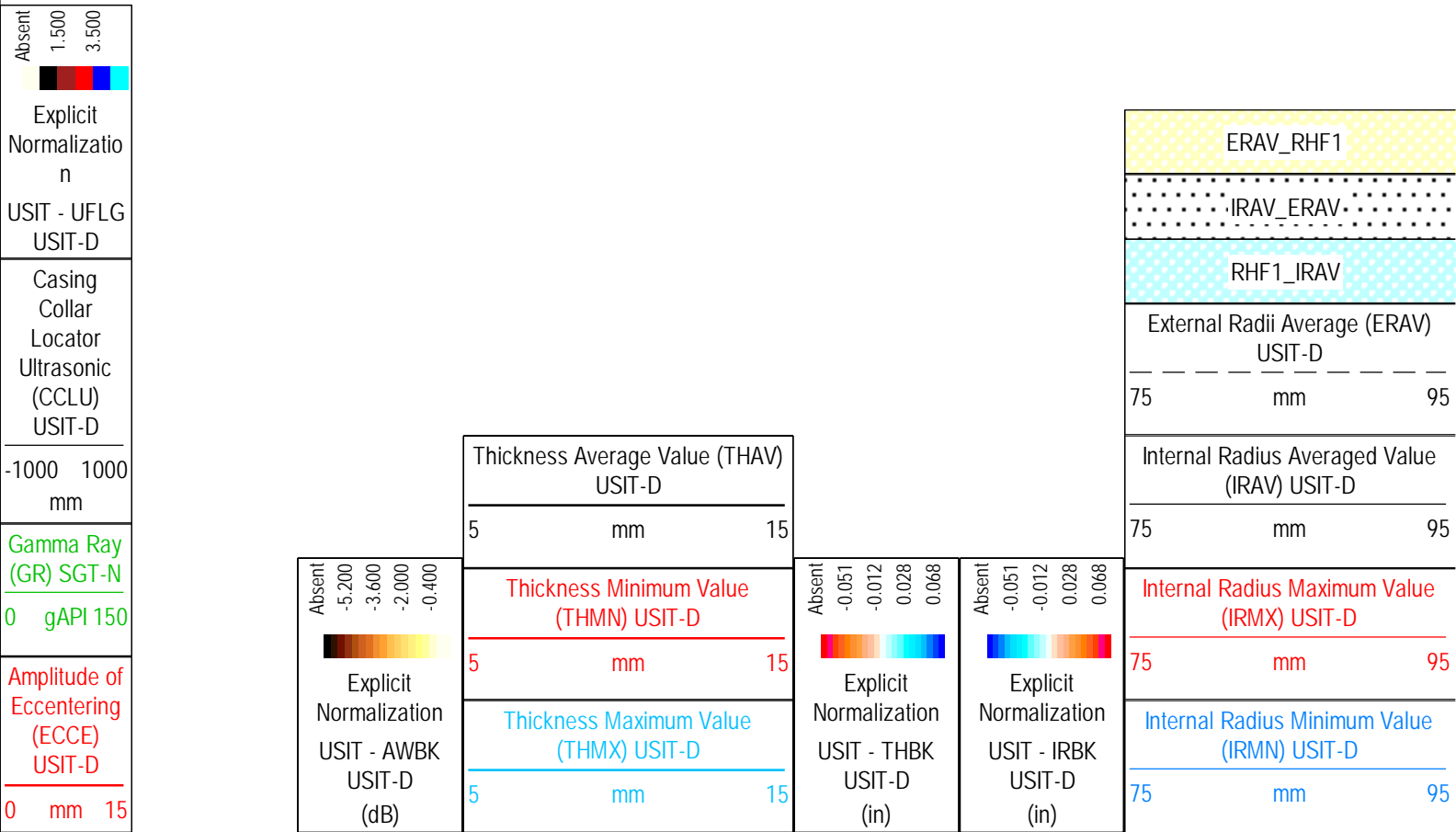
Time Zone Parameters					
Parameter	Value	Start Time	Stop Time	Start Depth (m)	Stop Depth (m)
WINE	91.7	21-Jan-2014 03:31:14	21-Jan-2014 03:31:42	1826.33	1822.01
WINE	107.79	21-Jan-2014 03:31:42	21-Jan-2014 03:32:11	1822.01	1814.76
WINE	119.19	21-Jan-2014 03:32:11	21-Jan-2014 03:41:13	1814.76	1684.29

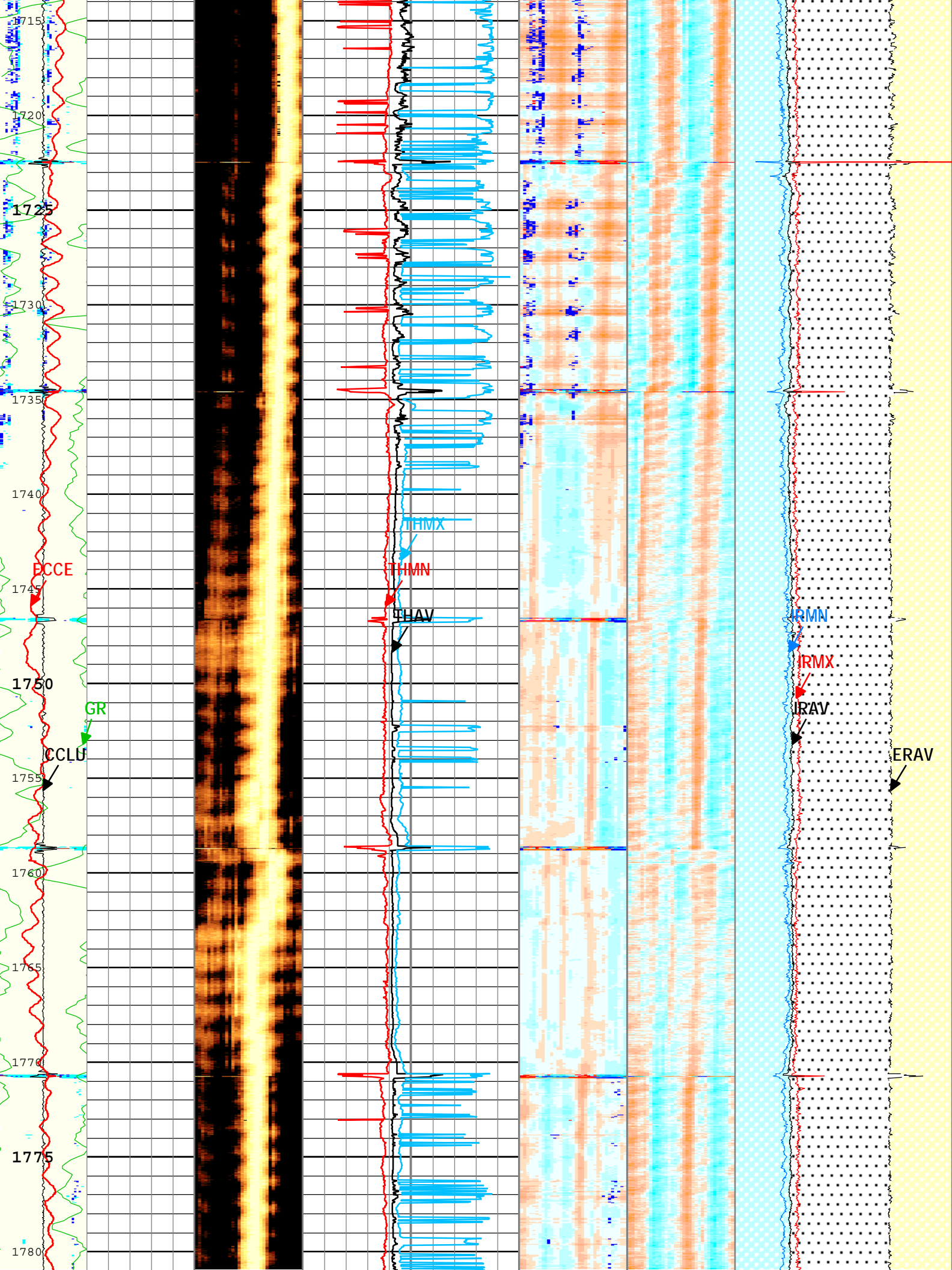
All depth are at tool zero.

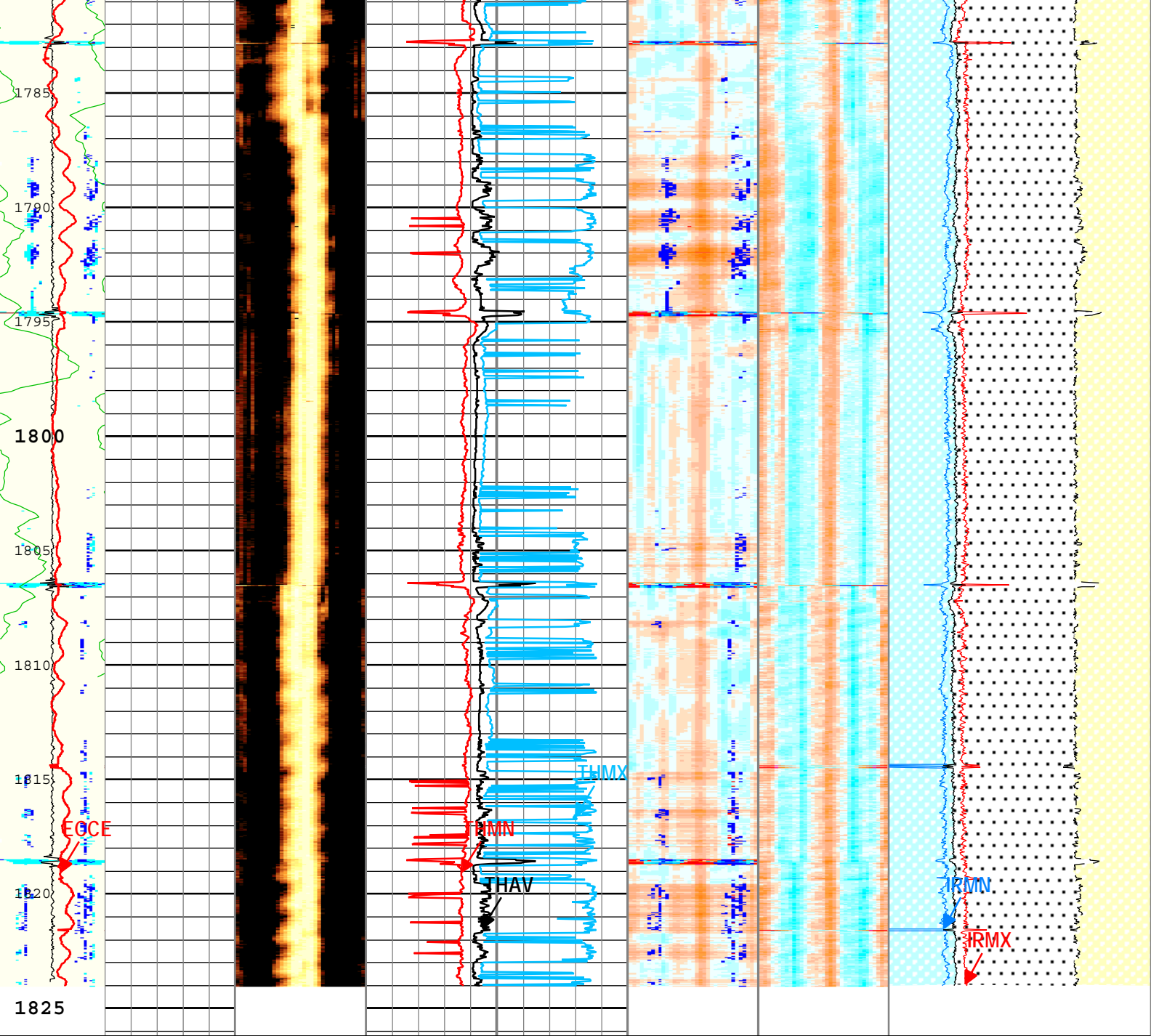
2.1				

Software Version				
Acquisition System			Version	

MaxWell						4.0.9163.3000			
Application Patch						Patch-SP-10767_13075-4.0.9163.3001			
Computation		Description						Version	
Cementation		Cementation Computation Application						4.0.9167.3000	
Tool Elements		Description				Software Version		Firmware Version	
USI-SENSOR		USIT Transducer Element				4.0.9265.3000		DHC: P321617	
SGC-TB		Scintillation Gamma Cartridge				4.0.9033.3000			
Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
2.1	Log[5]:Up	Up	1684.29 m	1826.33 m	21-Jan-2014 3:31:14 AM	21-Jan-2014 3:41:13 AM	ON	0.00 m	Yes
All depths are referenced to toolstring zero									
Log	Company:CONOCOPHILLIPS CANADA RESOURCES CORP.						Well:COPRC DODO CANYON E76		
2.1: Log[5]:Up:S042									
Description: USI VDL Cement Format: Log (Copy of USIT Drilling Wear) Index Scale: 1:240 Index Unit: m Index Type: Measured Depth Creation Date: 21-Jan-2014 20:05:23									
TIME_1900 - Time Marked every 60.00 (s)									







REPEAT PASS: USIT DRILLWEAR

<p>Absent 1.500 3.500</p> <p>Explicit Normalization</p> <p>USIT - UFLG USIT-D</p> <p>Casing Collar Locator Ultrasonic (CCLU) USIT-D</p> <p>-1000 1000 mm</p> <p>Gamma Ray (GR) SGT-N</p>	<p>Absent -5.200 -3.600 -2.000 -0.400</p> <p>Explicit Normalization</p> <p>USIT - AWBK USIT-D (dB)</p>	<p>Thickness Average Value (THAV) USIT-D</p> <p>5 mm 15</p> <p>Thickness Minimum Value (THMN) USIT-D</p> <p>5 mm 15</p> <p>Thickness Maximum Value (THMX) USIT-D</p> <p>5 mm 15</p>	<p>Absent -0.051 -0.012 0.028 0.068</p> <p>Explicit Normalization</p> <p>USIT - THBK USIT-D (in)</p> <p>Absent -0.051 -0.012 0.028 0.068</p> <p>Explicit Normalization</p> <p>USIT - IRBK USIT-D (in)</p>	<p>ERAV_RHF1</p> <p>IRAV_ERAV</p> <p>RHF1_IRAV</p> <p>External Radii Average (ERAV) USIT-D</p> <p>75 mm 95</p> <p>Internal Radius Averaged Value (IRAV) USIT-D</p> <p>75 mm 95</p> <p>Internal Radius Maximum Value (IRMX) USIT-D</p> <p>75 mm 95</p>
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TIME_1900 - Time Marked every 60.00 (s)

Description: USI VDL Cement Format: Log (Copy of USIT Drilling Wear) Index Scale: 1:240 Index Unit: m Index Type: Measured Depth Creation Date: 21-Jan-2014 20:05:23

Channel Processing Parameters				
Parameter	Description	Tool	Value	Unit
BARI	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BS	Bit Size	WLSESSION	Depth Zoned	mm
CBLO	Casing Bottom (Logger)	WLSESSION	1824	m
CDEN	Cement Density	SGT-N	2000	kg/m3
CMTY	Cement Type	USIT-D	Regular Cement	
CTHILGR	Nominal Casing Thickness - Zoned along logger depths	WLSESSION	9.103	mm
DFD	Drilling Fluid Density	Borehole	1040	kg/m3
DFT	Drilling Fluid Type	Borehole	Oil	
DFT_OIL	Drilling Fluid Oil Type	Borehole	INVERT	
DTMD	Borehole Fluid Slowness	Borehole	828	us/m
FDII	FPM Data Interpolation Interval	USIT-D	0	m
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	BS	
HEMA	Hematite Presence Flag	Borehole	No	
ICE_PROCESS	ICE Processing	USIT-D	No	
IMAR	Image Rotation	USIT-D	Off	
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-D	22.27	us
RCTH	Reference Calibrator Thickness	USIT-D	7.498	mm
TCUB	T^3 Processing Level	USIT-D	Loop	
THDH	Maximum Search Thickness (percentage of nominal)	USIT-D	130	%
THDL	Minimum Search Thickness (percentage of nominal)	USIT-D	70	%
UDFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-D	0	Mrayl
UFGDE	Fiberglass Density	USIT-D	1950	kg/m3
UFGPS	Fiberglass Processing Selection	USIT-D	No	
UFGVL	Fiberglass Velocity	USIT-D	2950	m/s
USI_FSOD	USIT USI Fluid Slowness Fits Casing Outer Diameter	USIT-D	0_OFF	
USI_FVEL_SEL	USI Fluid Velocity Selection	USIT-D	Automatic	
USI_ZMUD_SEL	USI Mud Impedance Selection	USIT-D	Manual	
UTHDP	Thickness Detection Policy	USIT-D	Fundamental	
VCAS	Ultrasonic Transversal Velocity in Casing	USIT-D	168.64	us/m
ZCAS	Acoustic Impedance of Casing	USIT-D	46.25	Mrayl
ZMUD	Acoustic Impedance of Mud	Borehole	1.55	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-D	2.1	Mrayl

Depth Zone Parameters			
Parameter	Value	Start (m)	Stop (m)
BS	222	1700	1824
BS	156	1824	1824.1

All depth are actual.

Tool Control Parameters				
Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-D	-4	dB
AGMX	Maximum Gain of Cartridge	USIT-D	20	dB
DDT5	USIC Downhole Decimation for T5 only	USIT-D	0_NONE	
EMXV	EMEX Voltage	USIT-D	100	V
HRES	Horizontal Resolution	USIT-D	10 deg	
ULOG	Logging Objective	USIT-D	MEASUREMENT	
UMFR	Modulation Frequency	USIT-D	333333	Hz
USFR	Ultrasonic Sampling Frequency	USIT-D	500000	Hz
USI_UPAT	USIT Emission Pattern	USIT-D	Pattern 375 KHz	
USI_UWKM	USIT Working Mode	USIT-D	Uncompressed 10 deg at 1.5 in LF	
USIT_DEPTHLOG	Starting Depth Log for Ultrasonics	USIT-D	1828	m
VRES	Vertical Resolution	USIT-D	1.5 in	
WINB	Window Begin Time	USIT-D	51.7	us
WINE	Window End Time	USIT-D	Time Zoned	us

Time Zone Parameters					
Parameter	Value	Start Time	Stop Time	Start Depth (m)	Stop Depth (m)
WINE	91.7	21-Jan-2014 03:31:14	21-Jan-2014 03:31:42	1826.33	1822.01
WINE	107.79	21-Jan-2014 03:31:42	21-Jan-2014 03:32:11	1822.01	1814.76
WINE	119.19	21-Jan-2014 03:32:11	21-Jan-2014 03:41:13	1814.76	1684.29
All depth are at tool zero.					

2.1

Software Version			
Acquisition System		Version	
MaxWell		4.0.9163.3000	
Application Patch		Patch-SP-10767_13075-4.0.9163.3001	
Tool Elements	Description	Software Version	Firmware Version
USI-SENSOR	USIT Transducer Element	4.0.9265.3000	DHC: P321617

Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
2.1	Log[6]:Up	Up	8.33 m	1825.87 m	21-Jan-2014 3:44:29 AM	21-Jan-2014 5:51:45 AM	ON	0.00 m	Yes

All depths are referenced to toolstring zero






Log	Company:CONOCOPHILLIPS CANADA RESOURCES CORP.	Well:COPRC DODO CANYON E76
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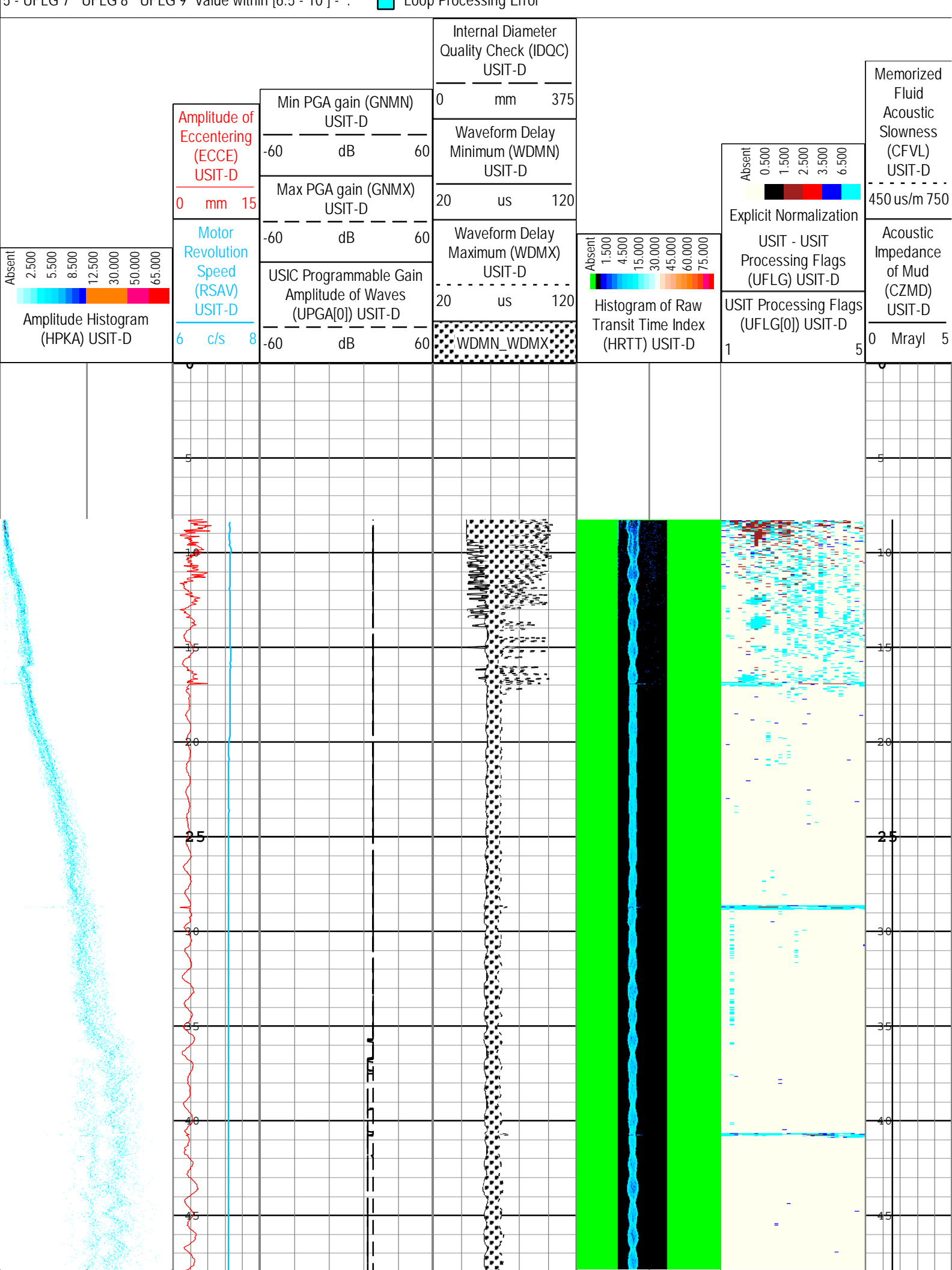
2.1: Log[6]:Up:S042

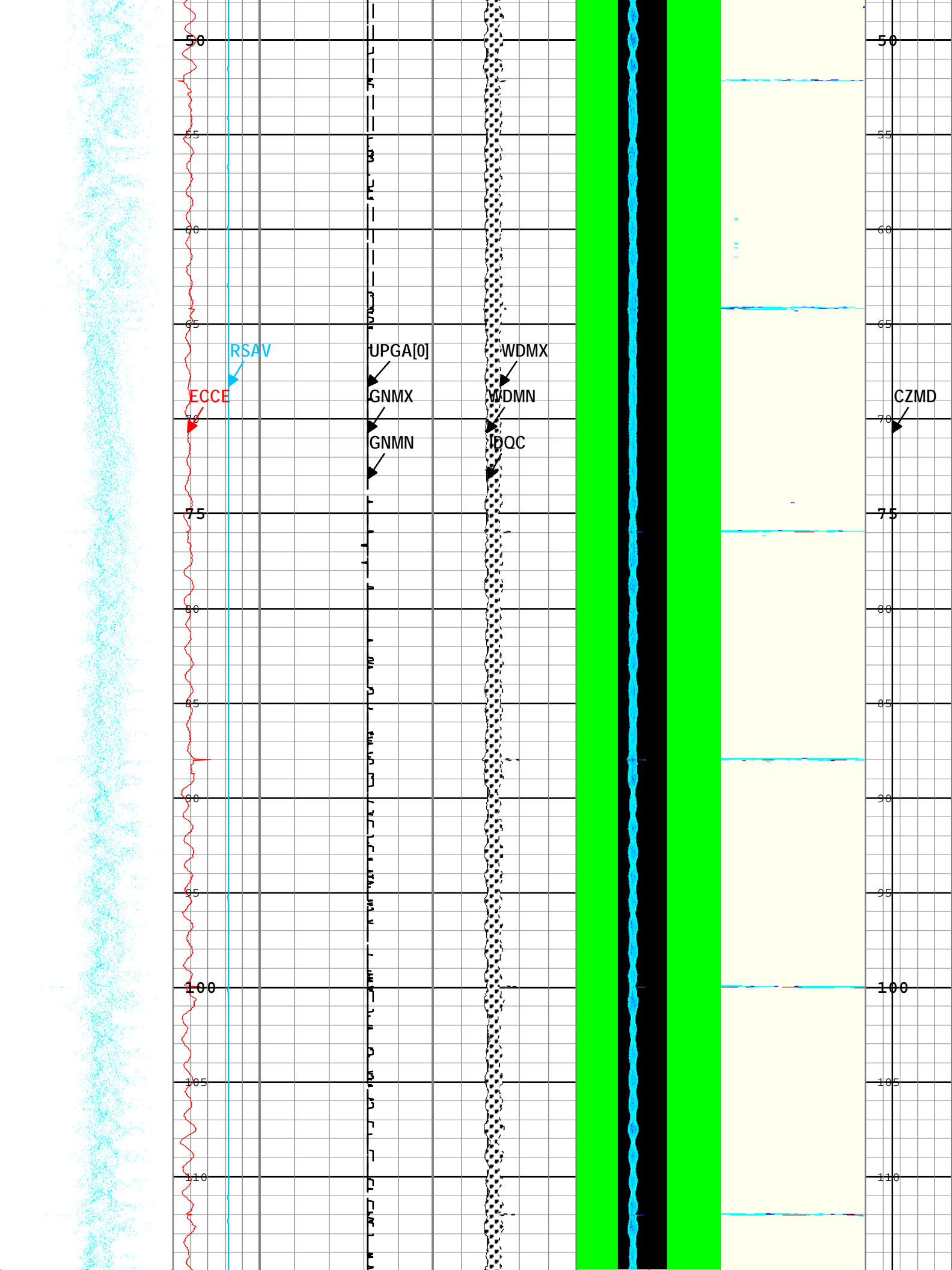
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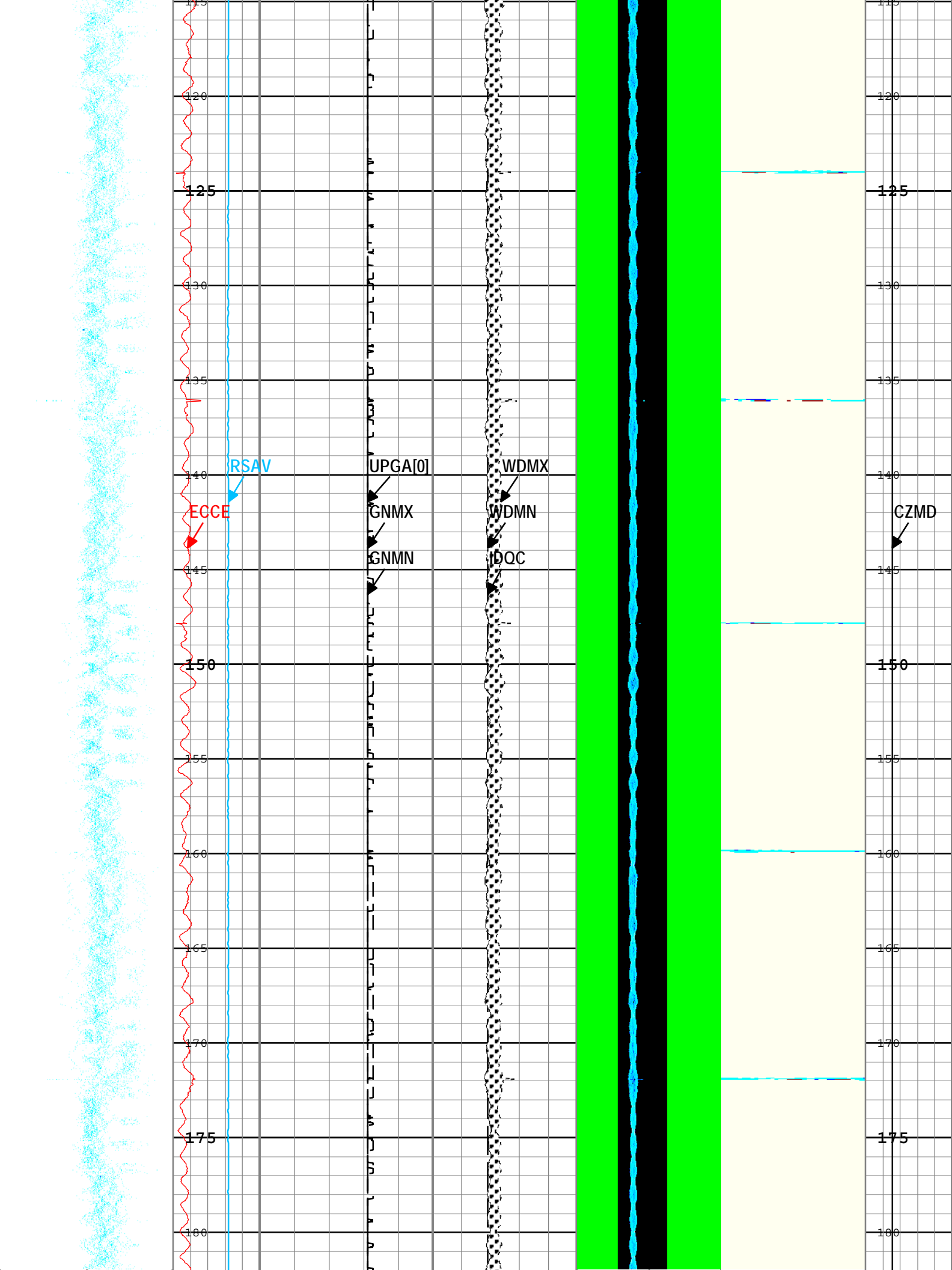
TIME_1900 - Time Marked every 60.00 (s)

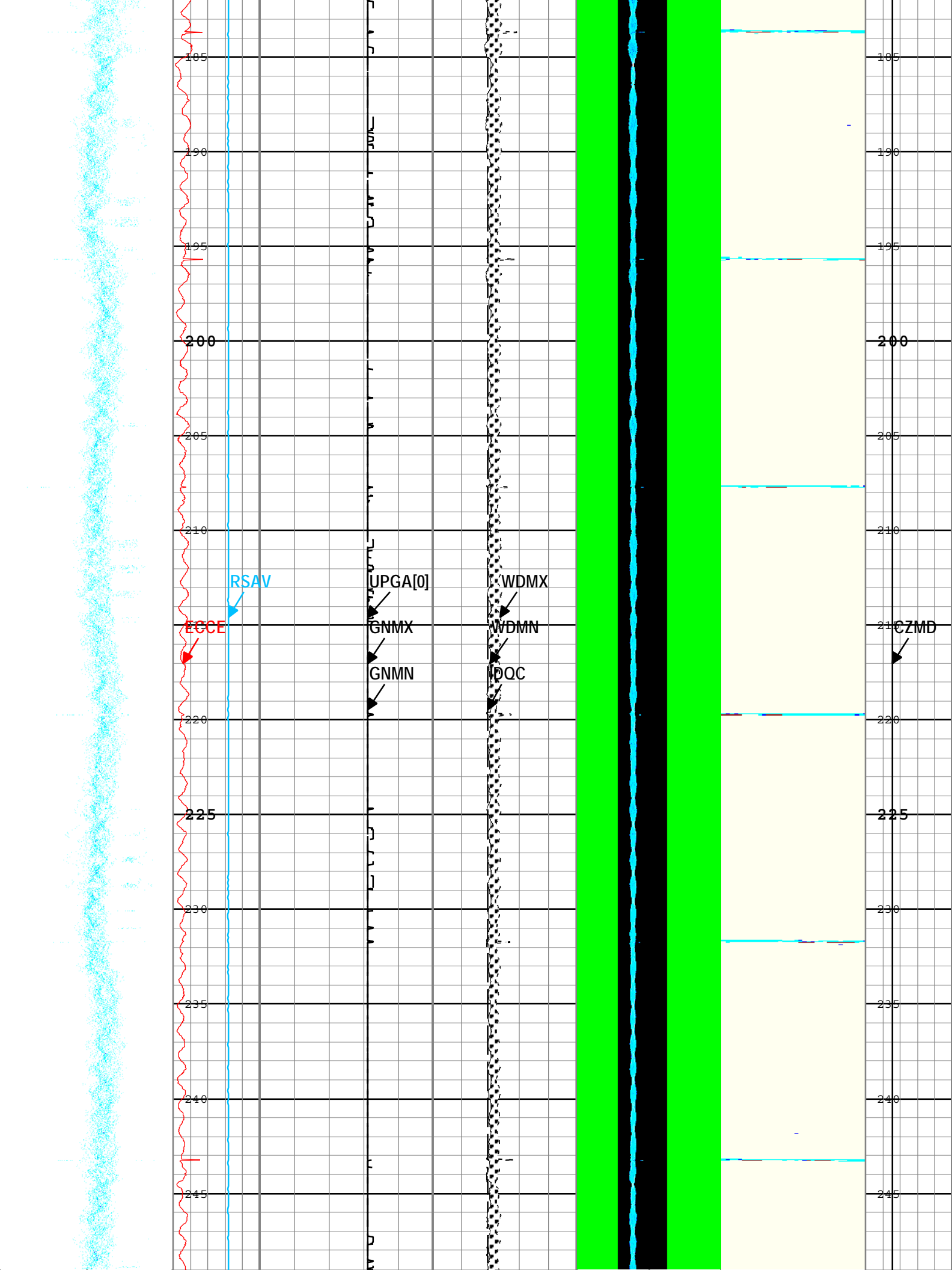
USIT Processing Flags (UFLG[0]) USIT-D

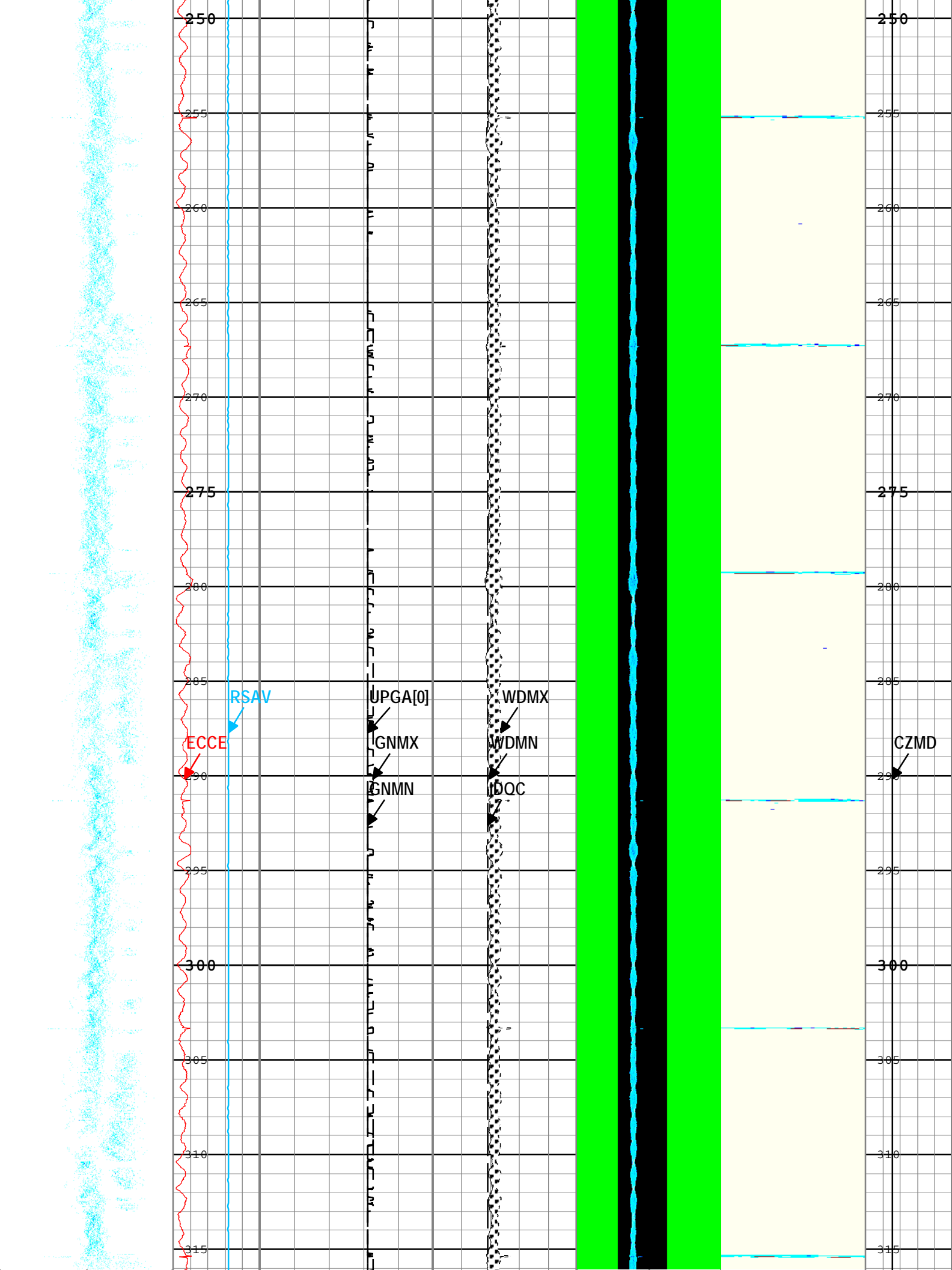
- | | |
|--|---|
| 1 - UFLG 1 Value within [0.0 - 1.5] - : |  UTIM Error |
| 2 - UFLG 2 Value within [1.5 - 2.5] - : |  Pulse Origin Not Detected |
| 3 - UFLG 3 Value within [2.5 - 3.5] - : |  WINLEN Error |
| 4 - UFLG 4 UFLG 5 UFLG 6 Value within [3.5 - 6.5] - : |  Casing Thickness Error |
| 5 - UFLG 7 UFLG 8 UFLG 9 Value within [6.5 - 10.1] - : |  Loop Processing Error |

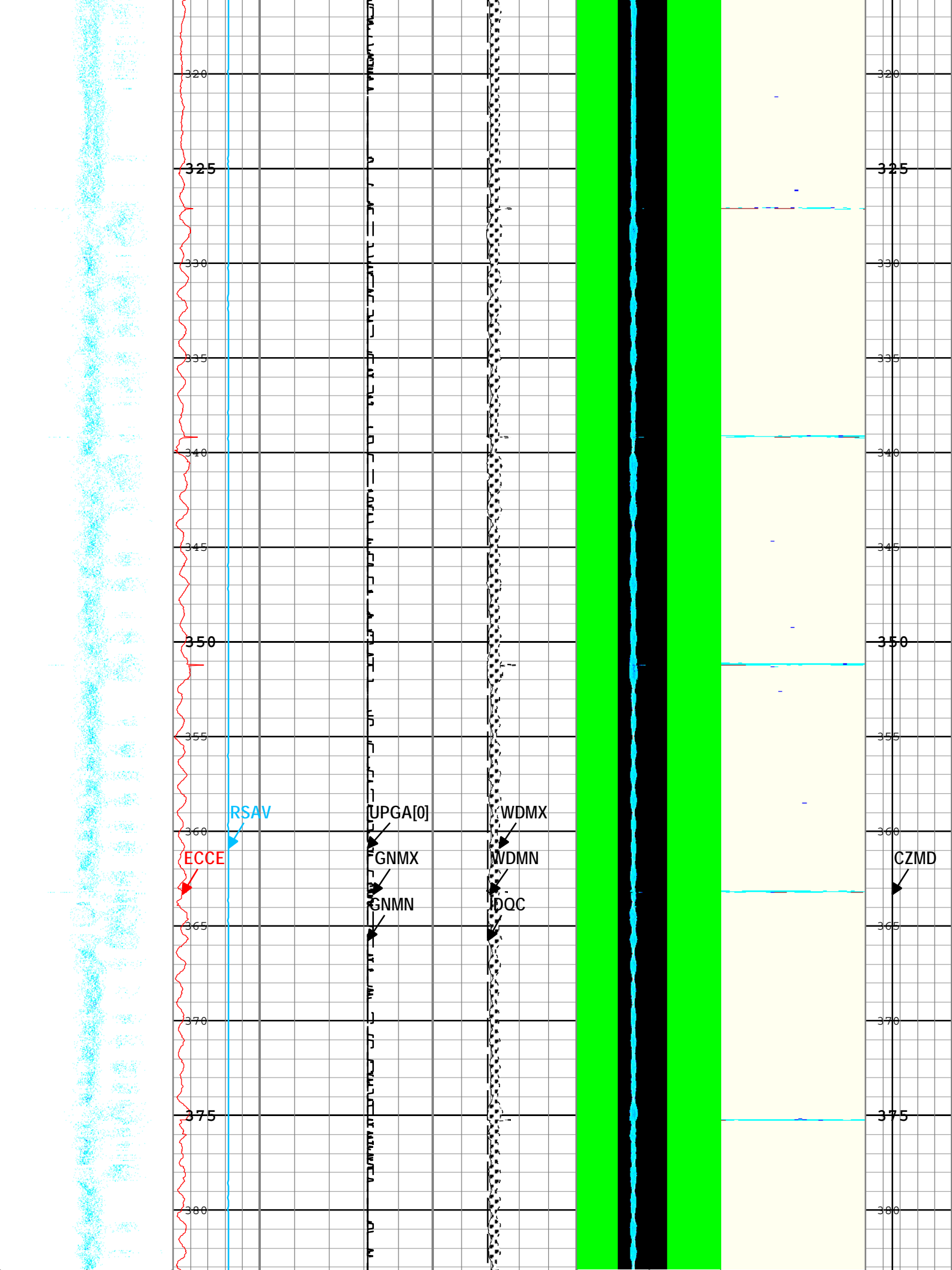


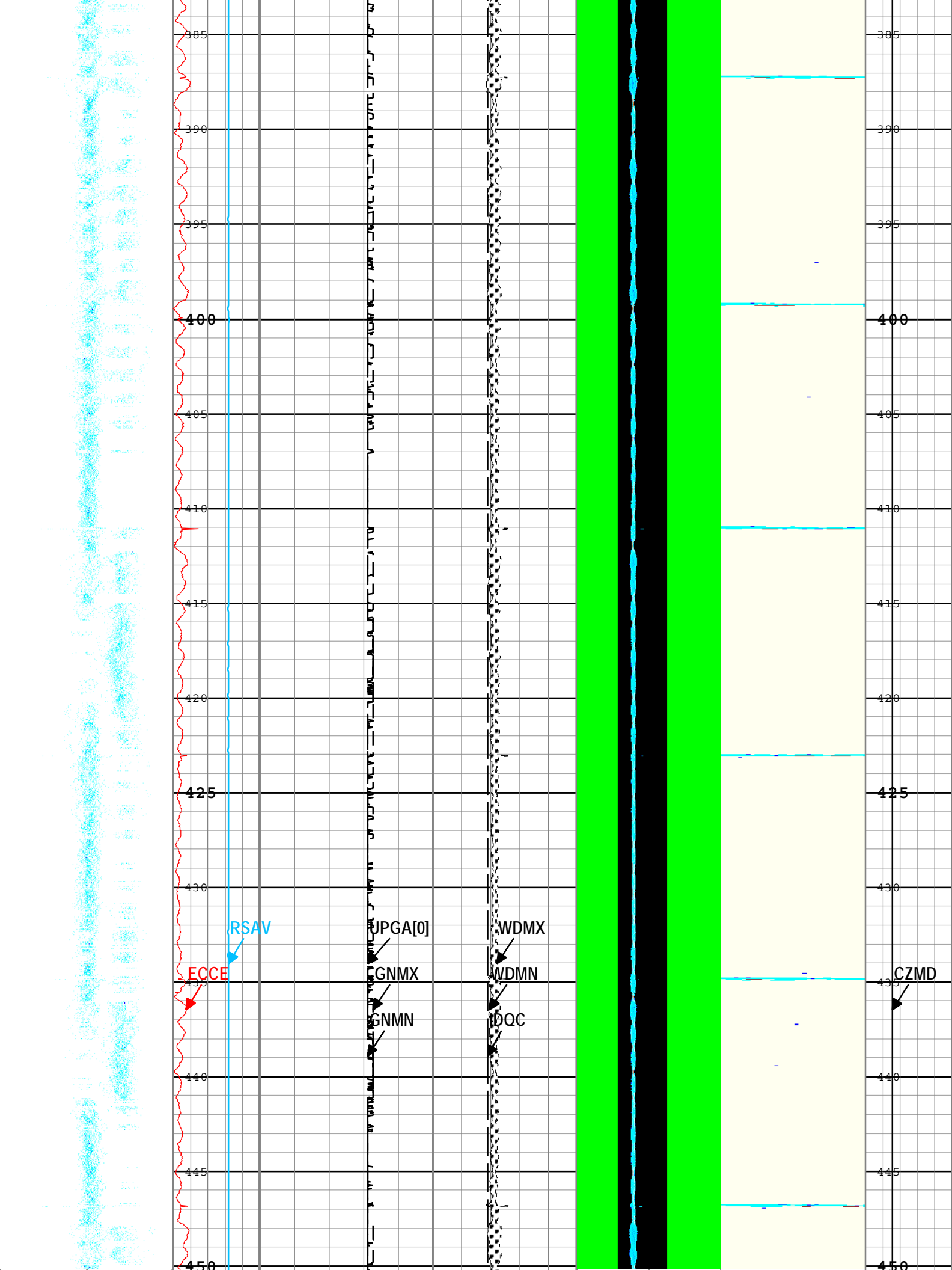


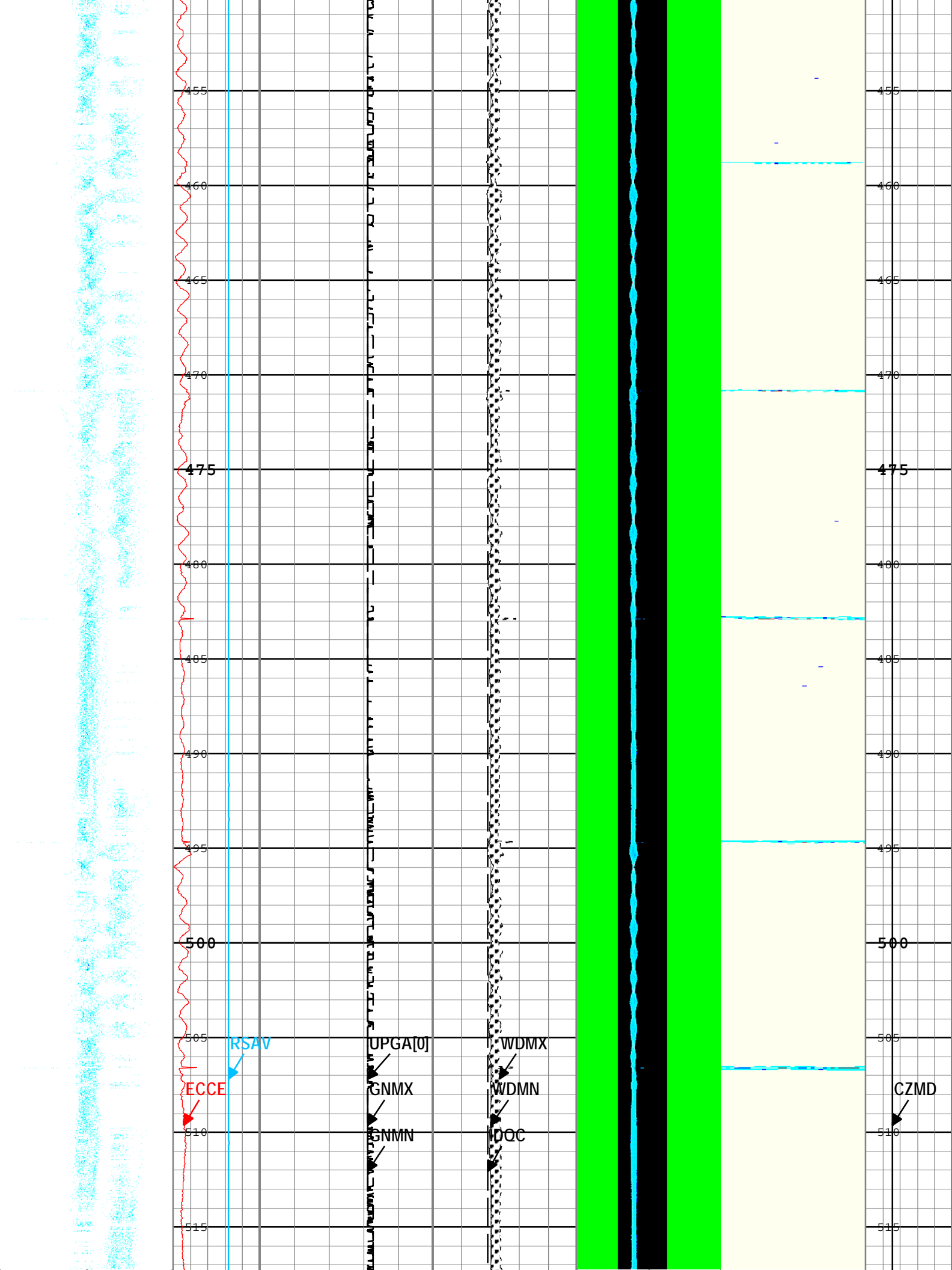


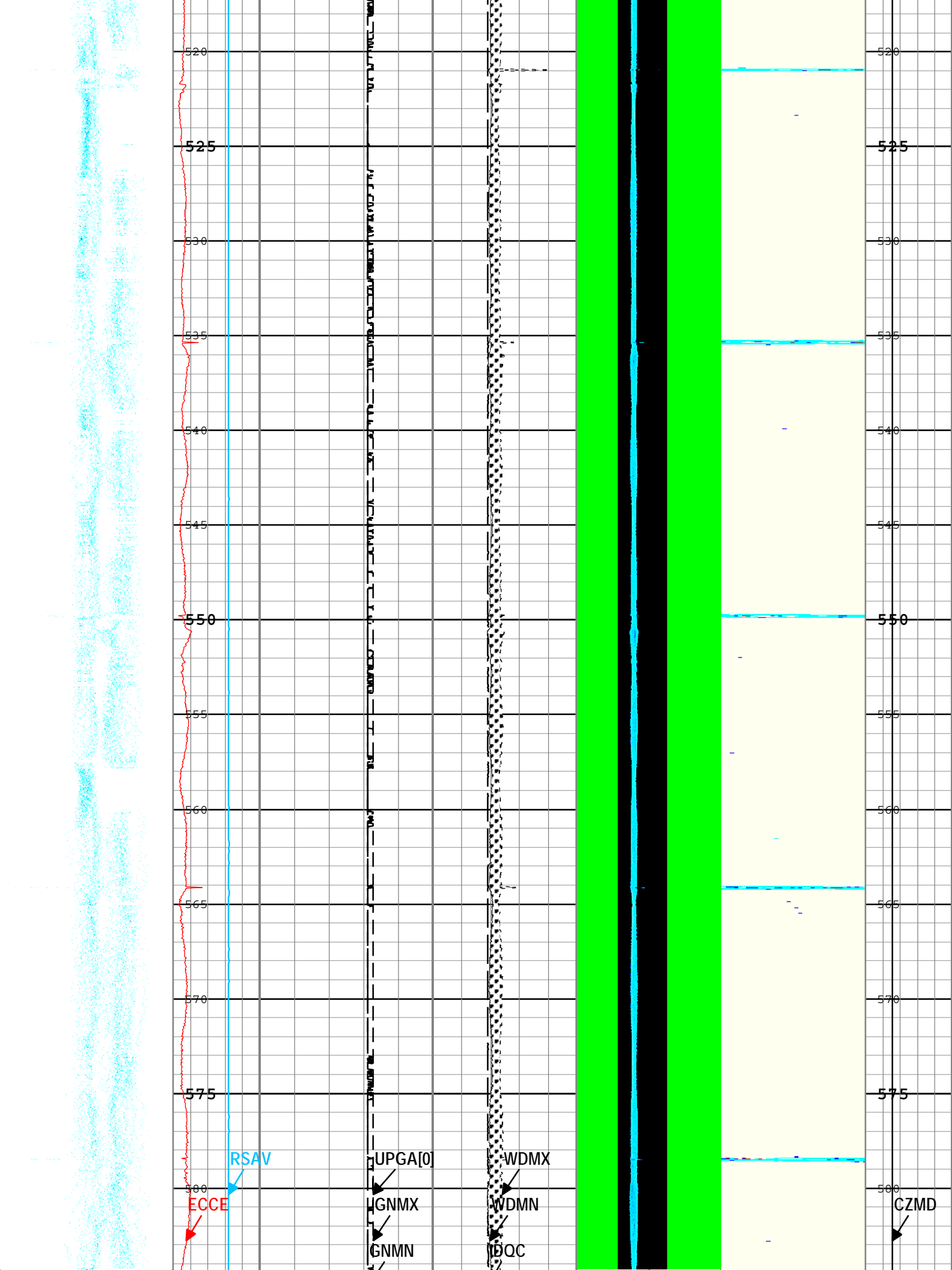


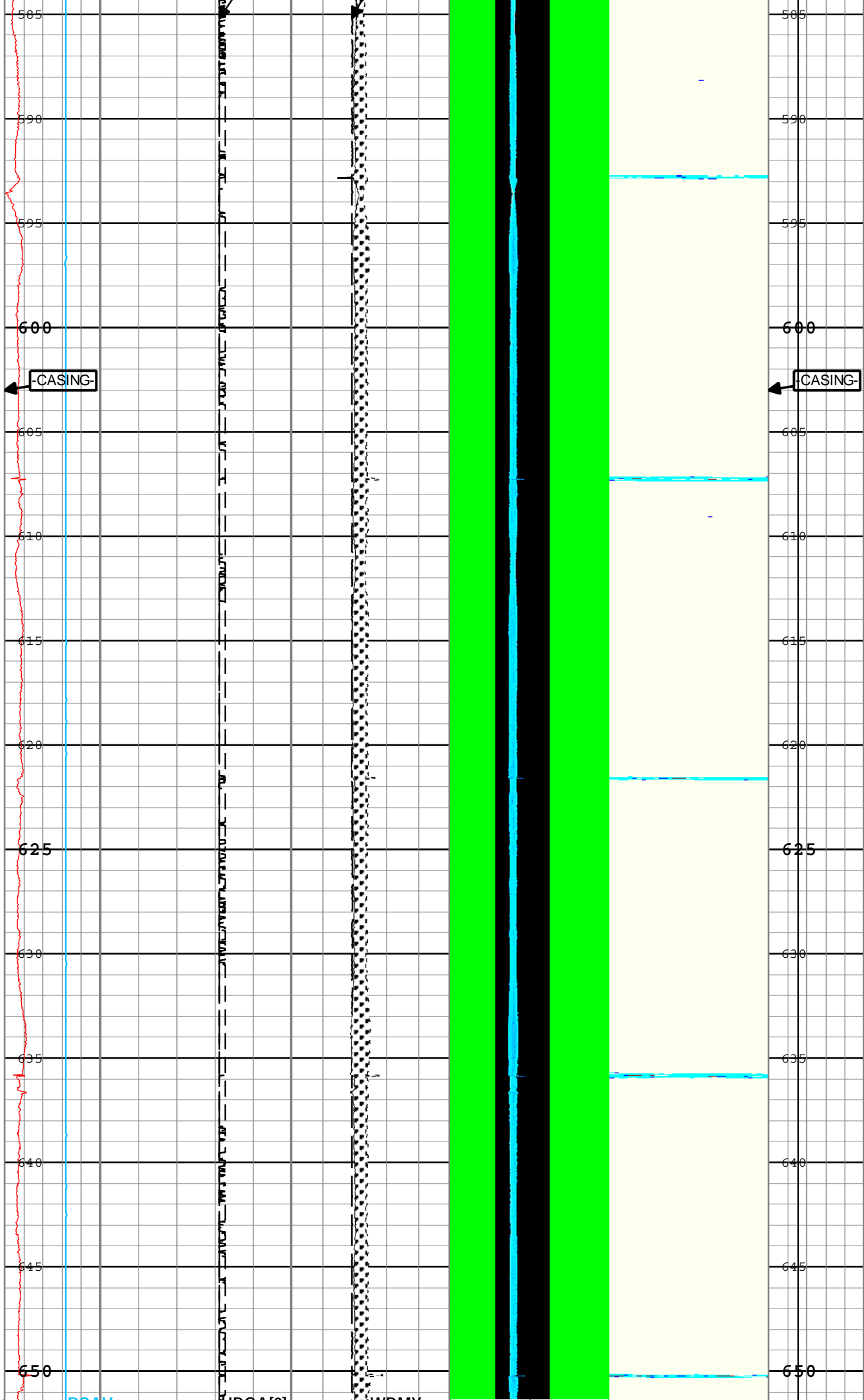


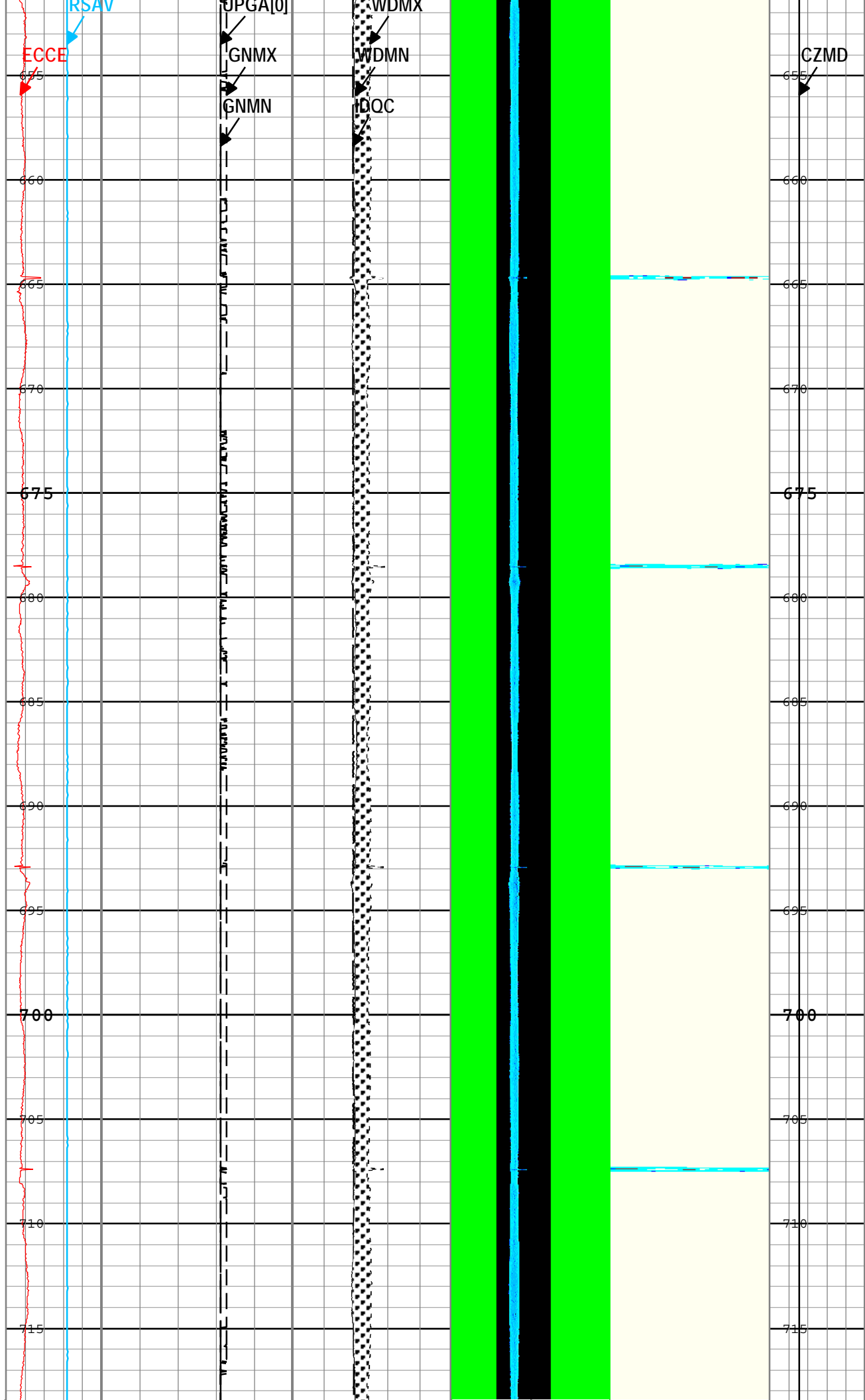


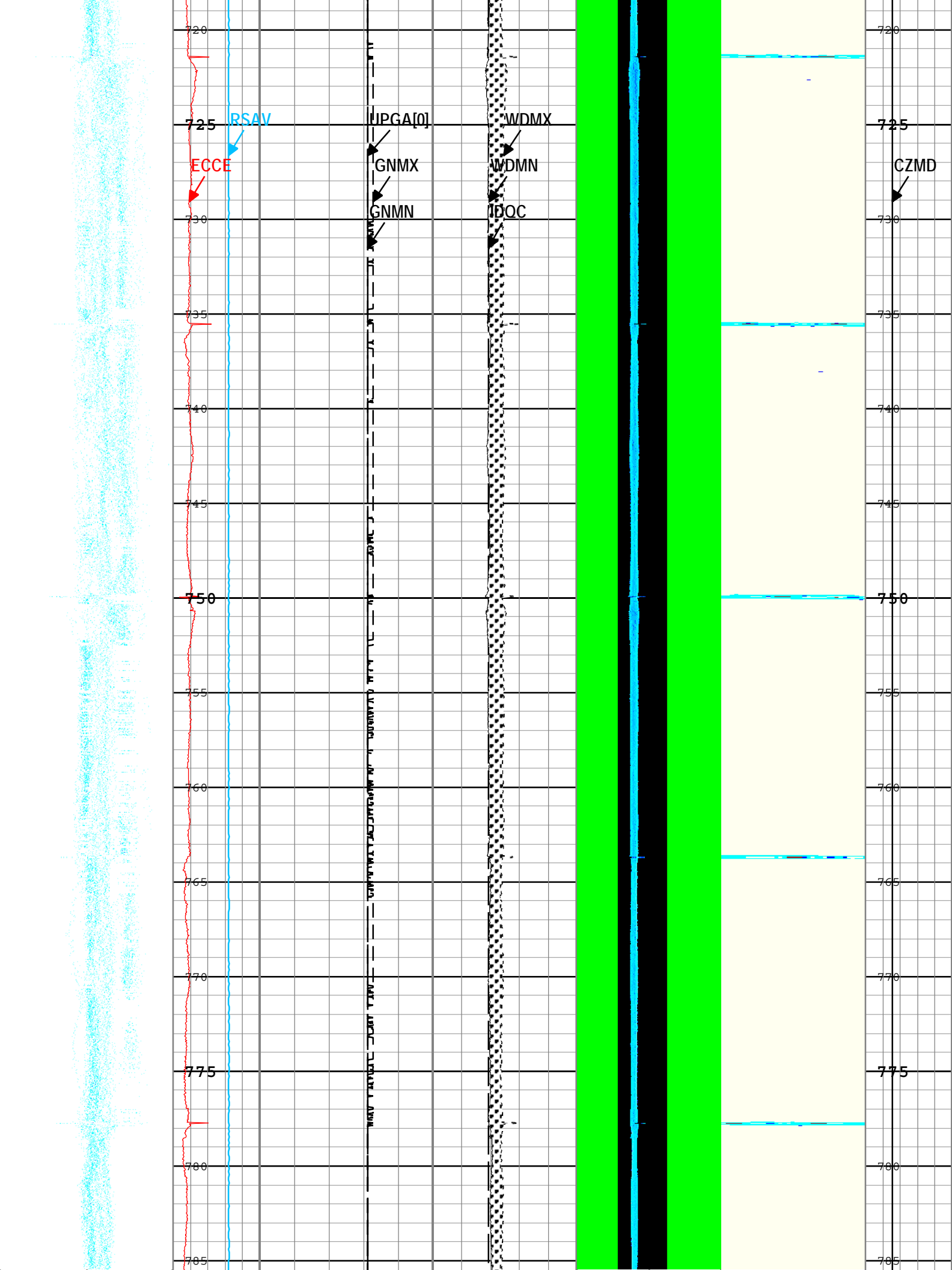


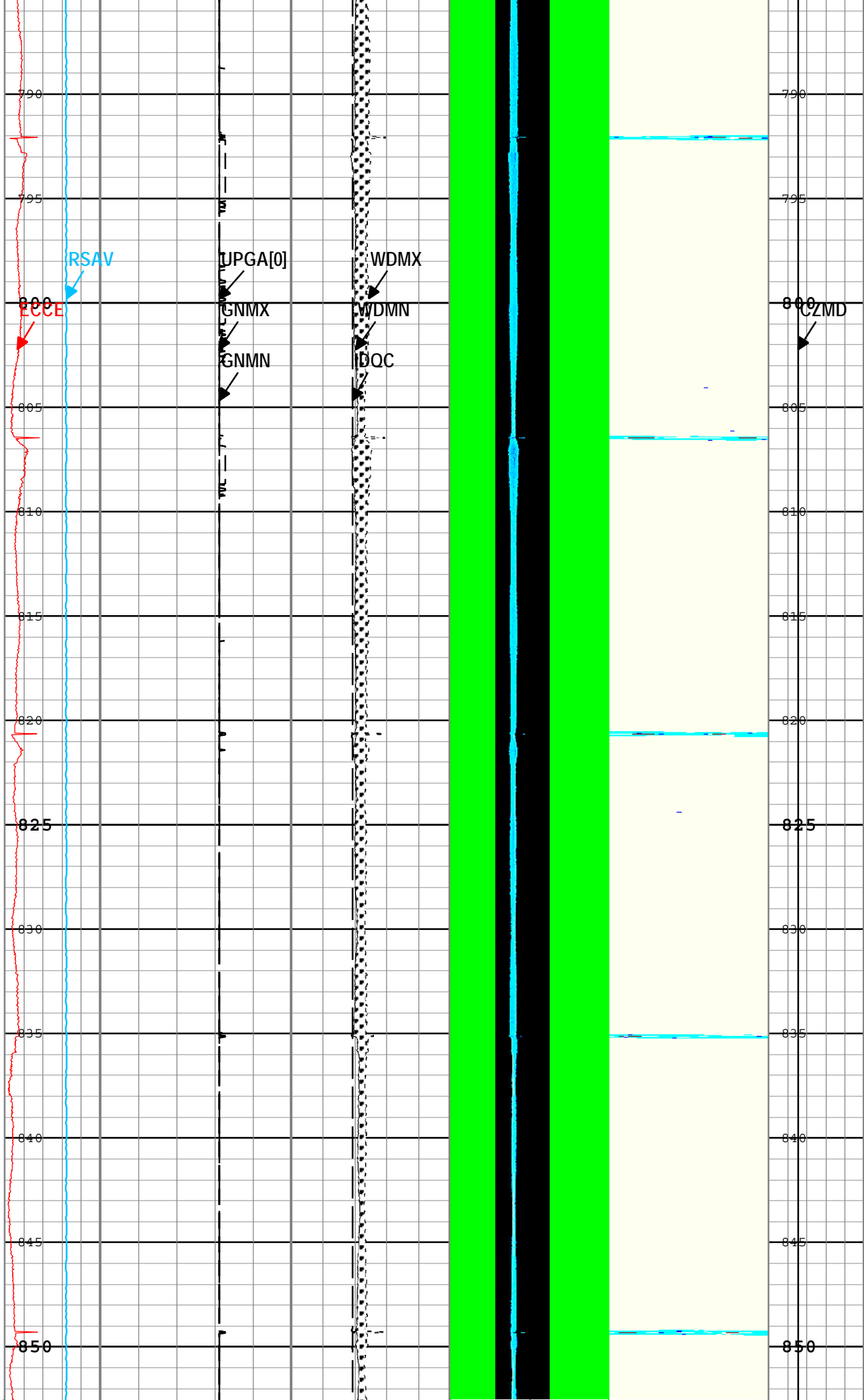


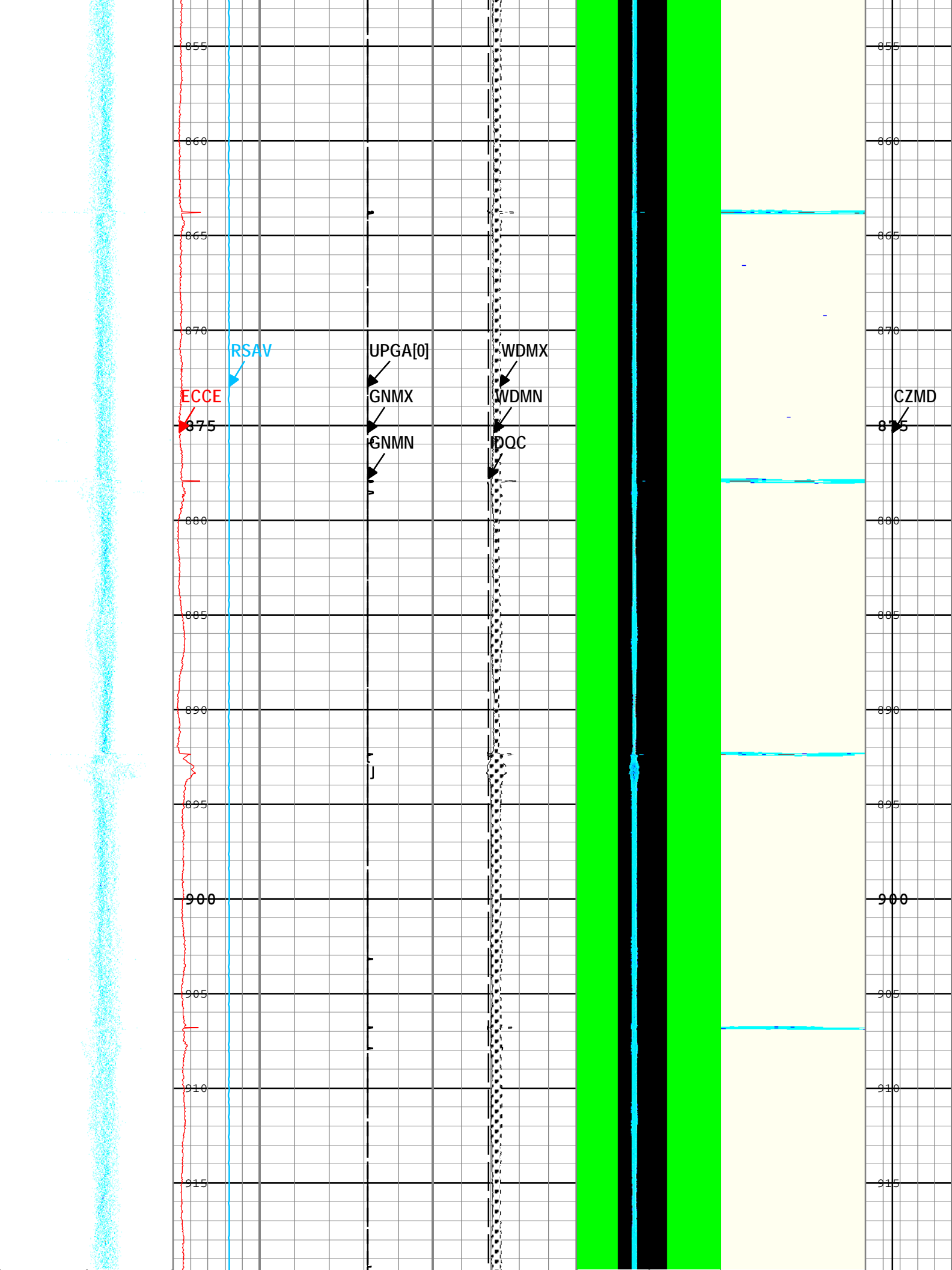


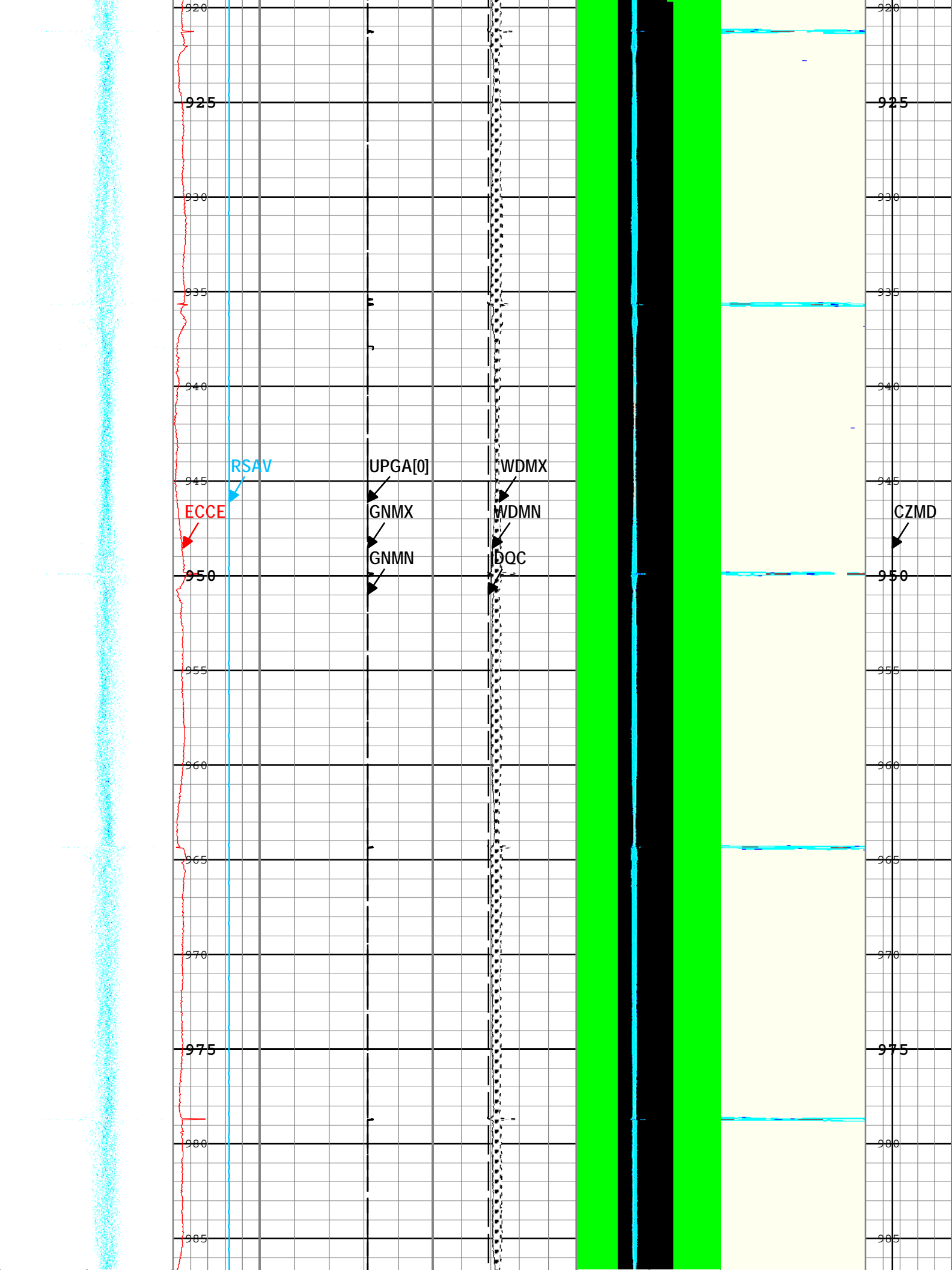


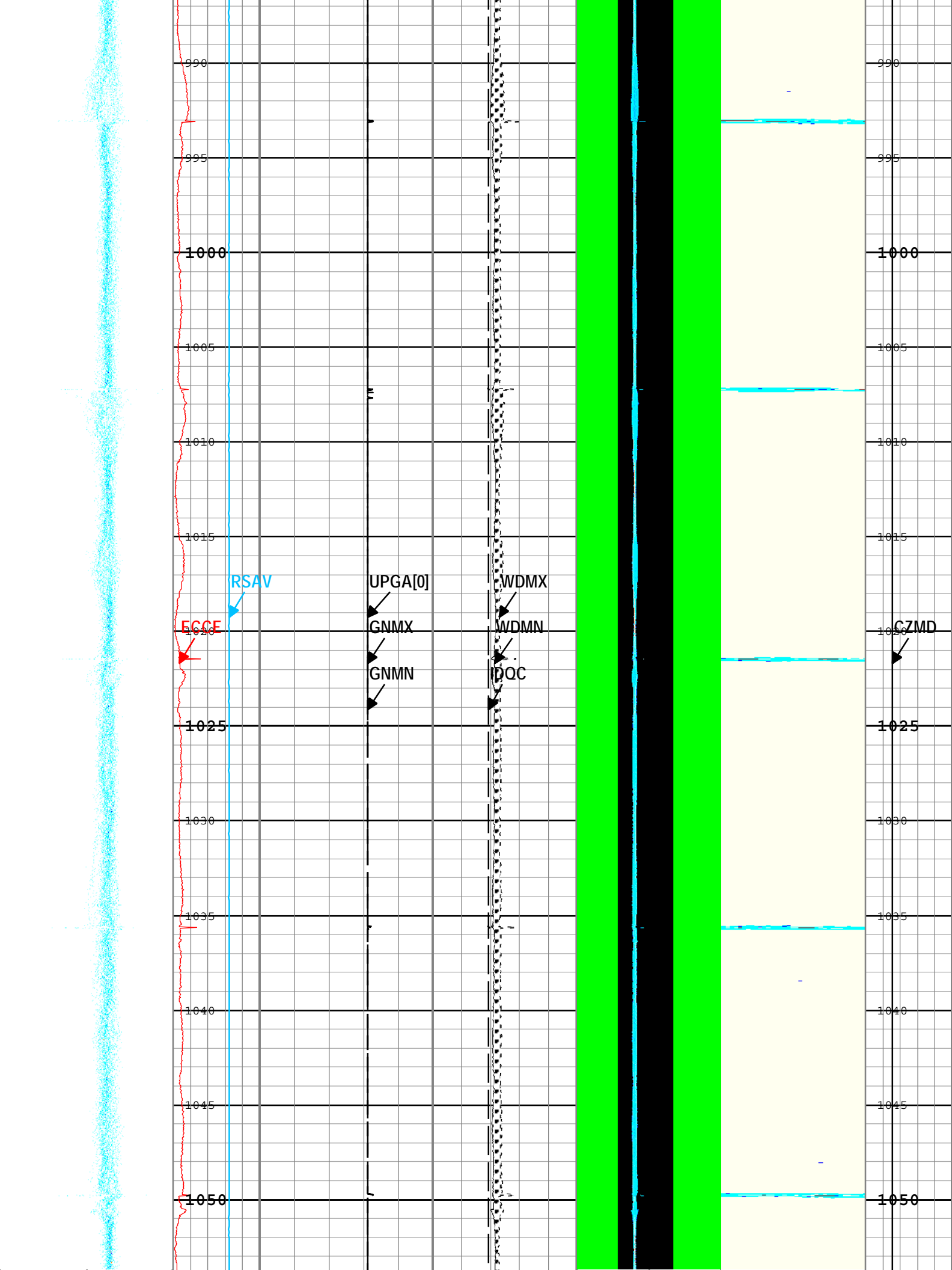


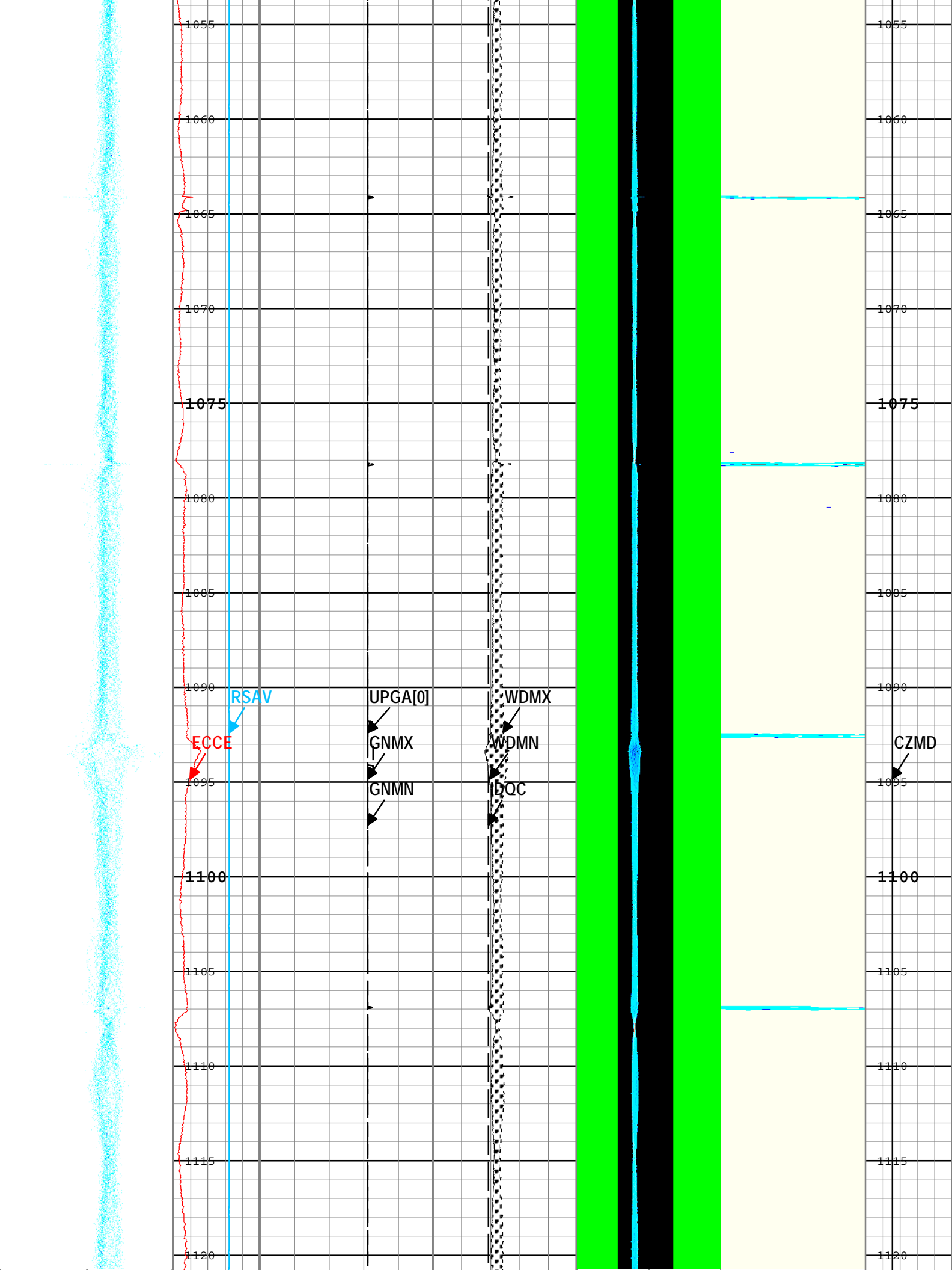


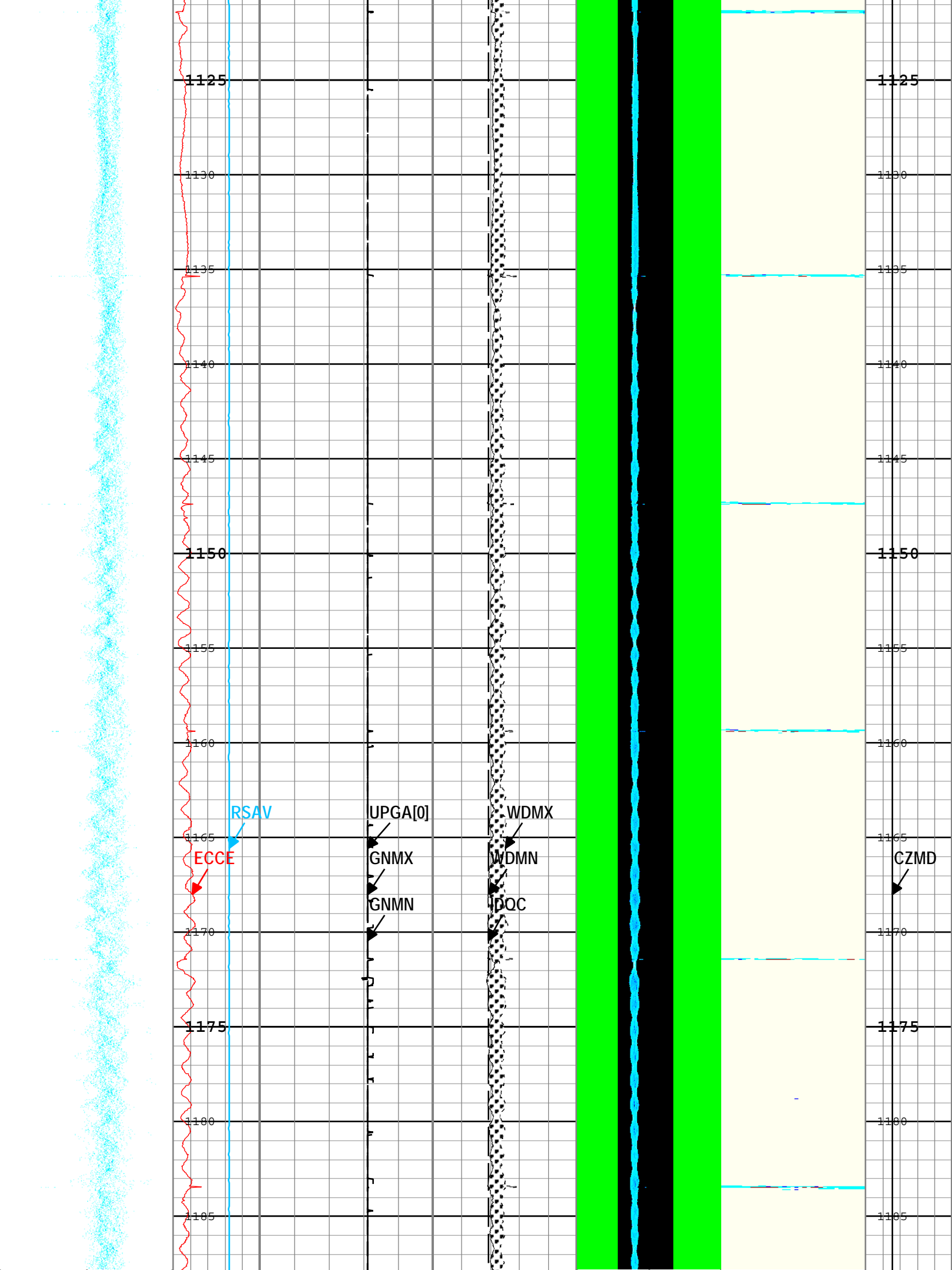


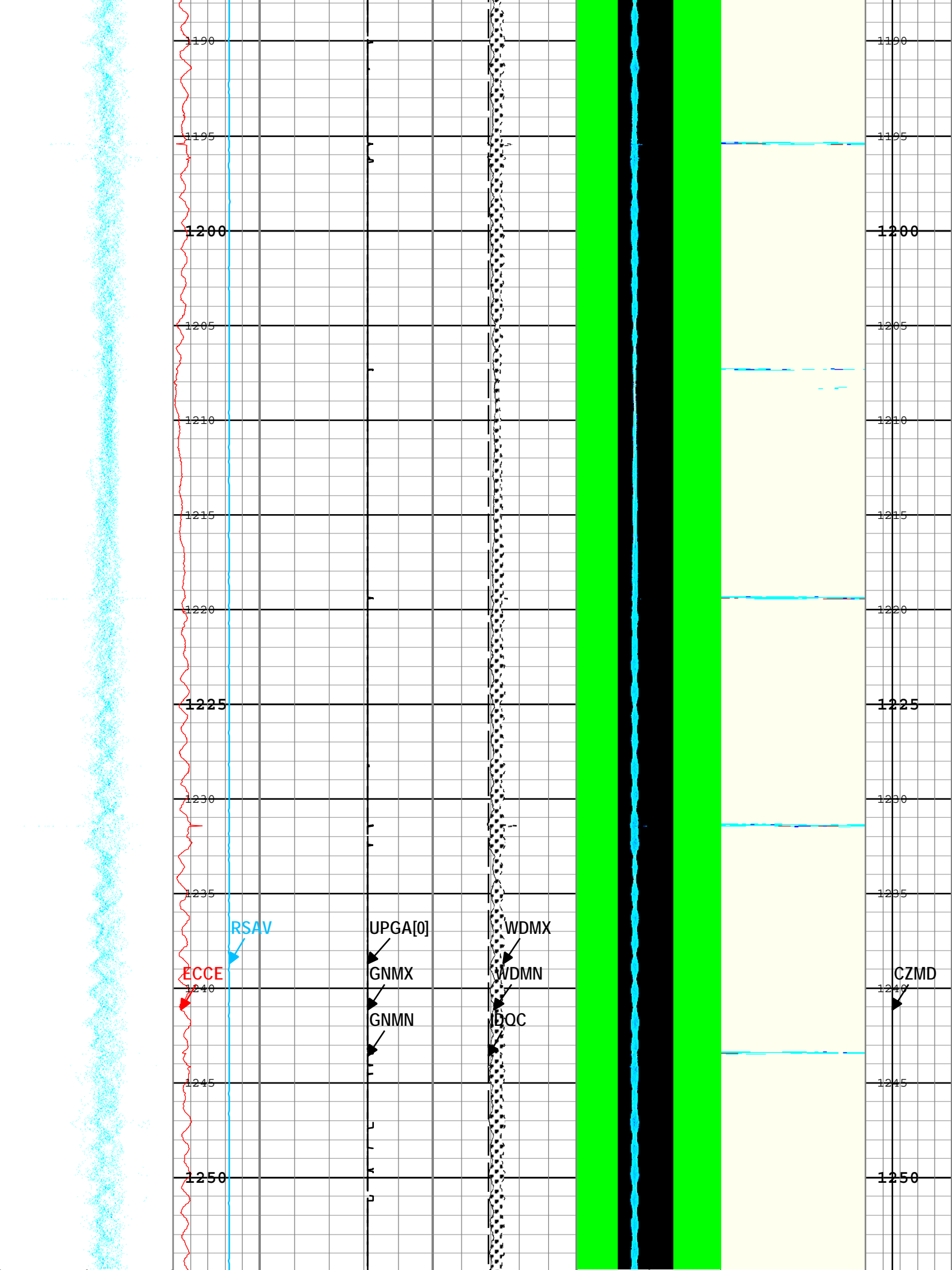


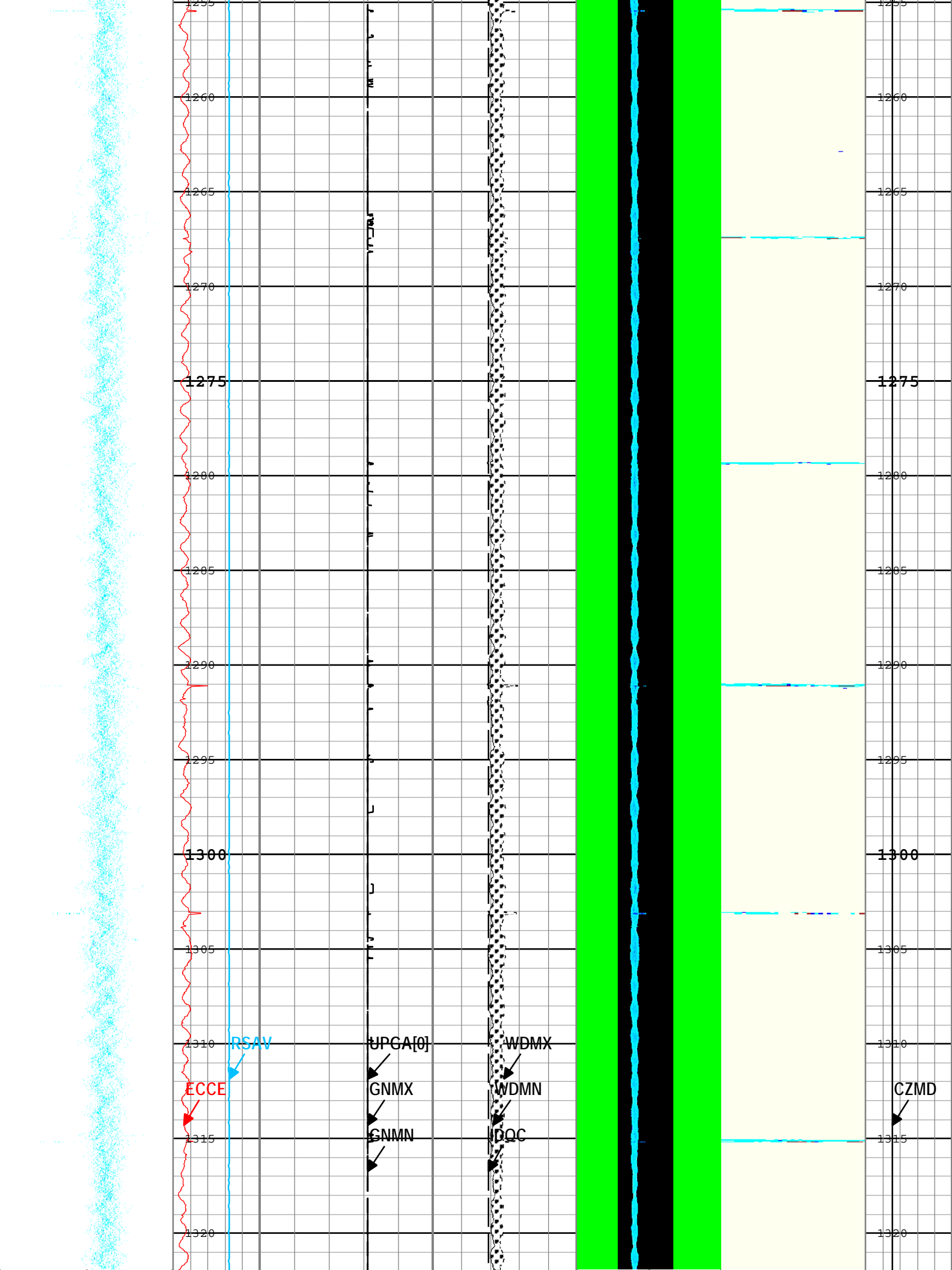


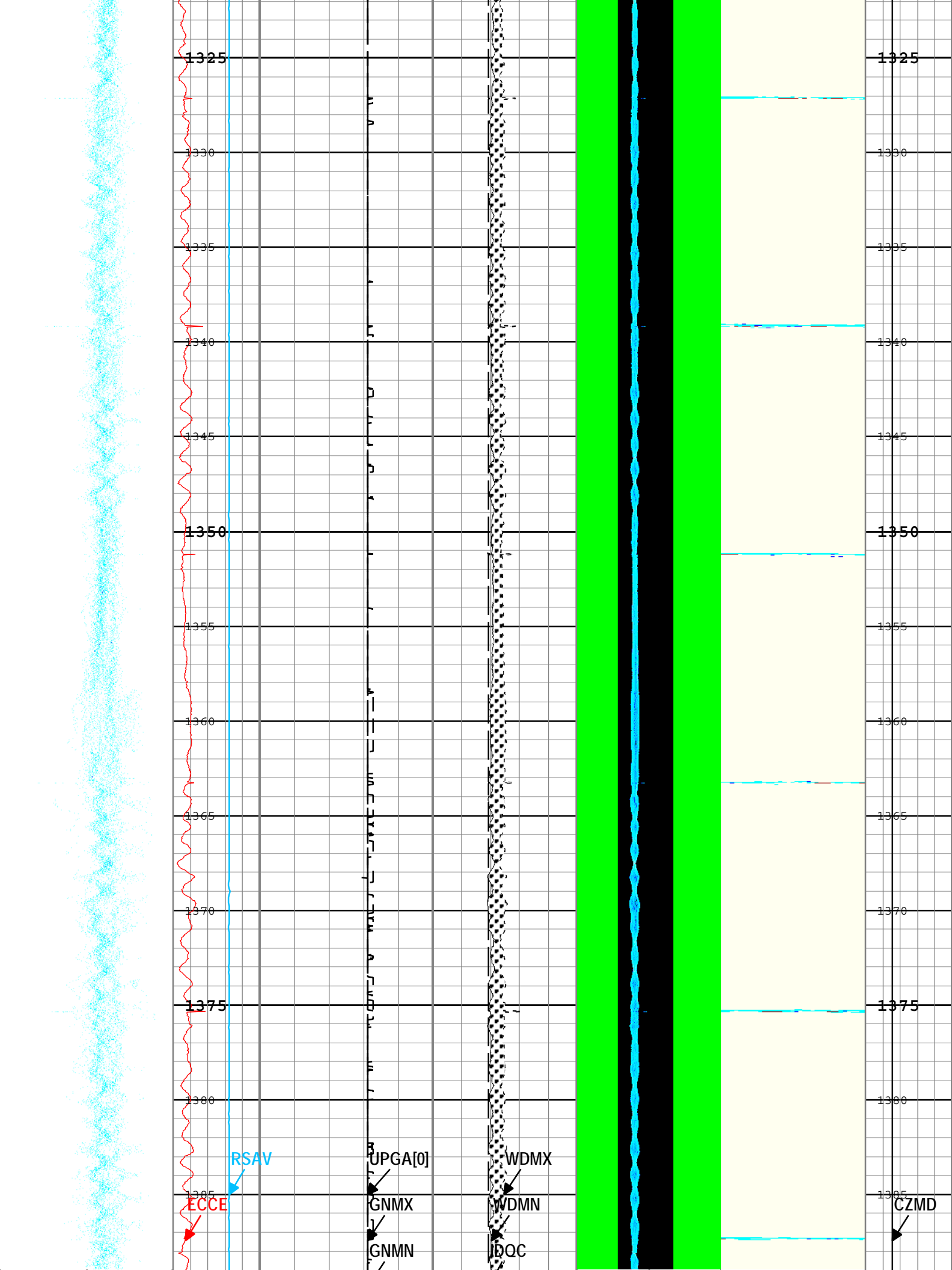


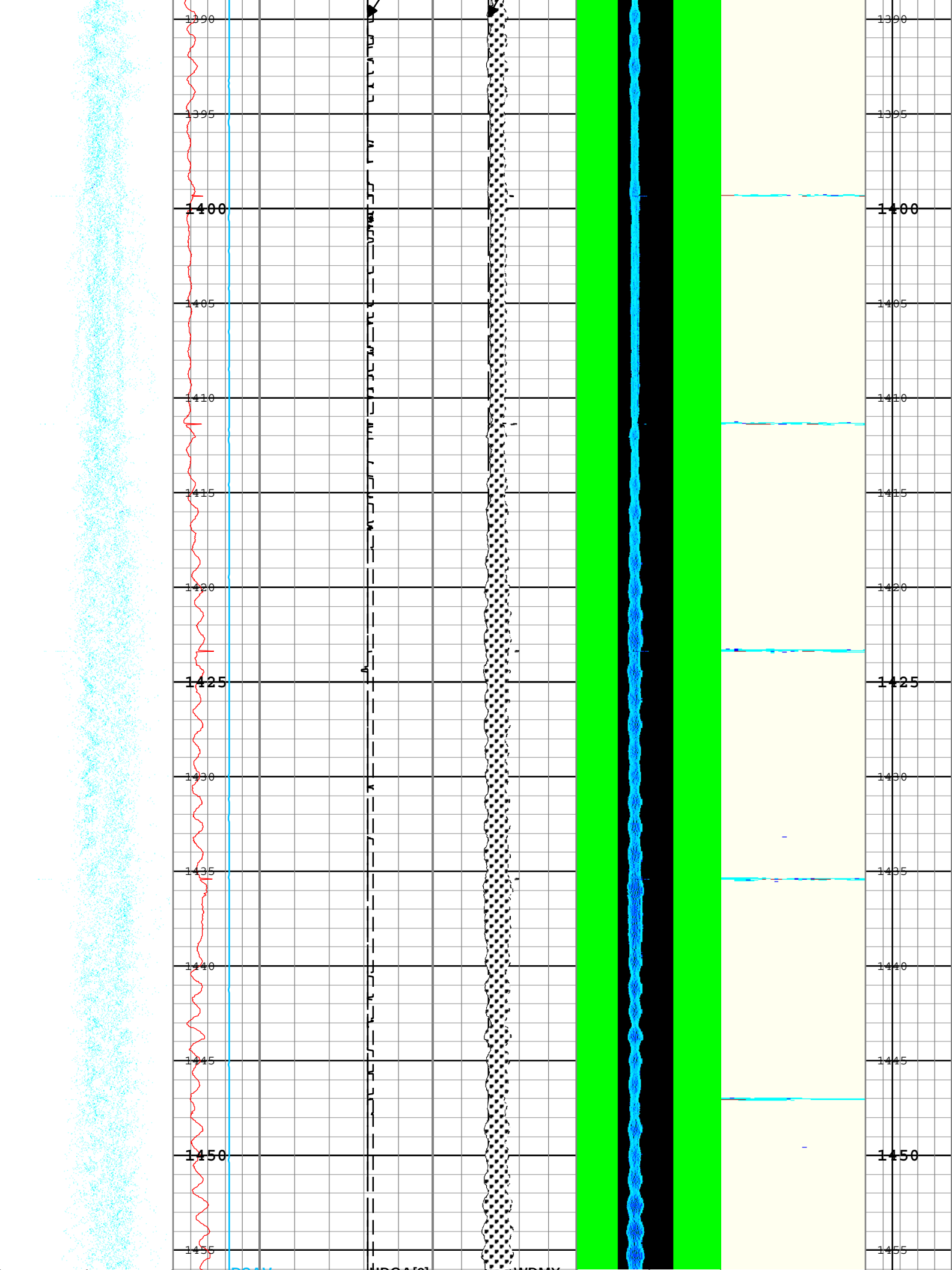


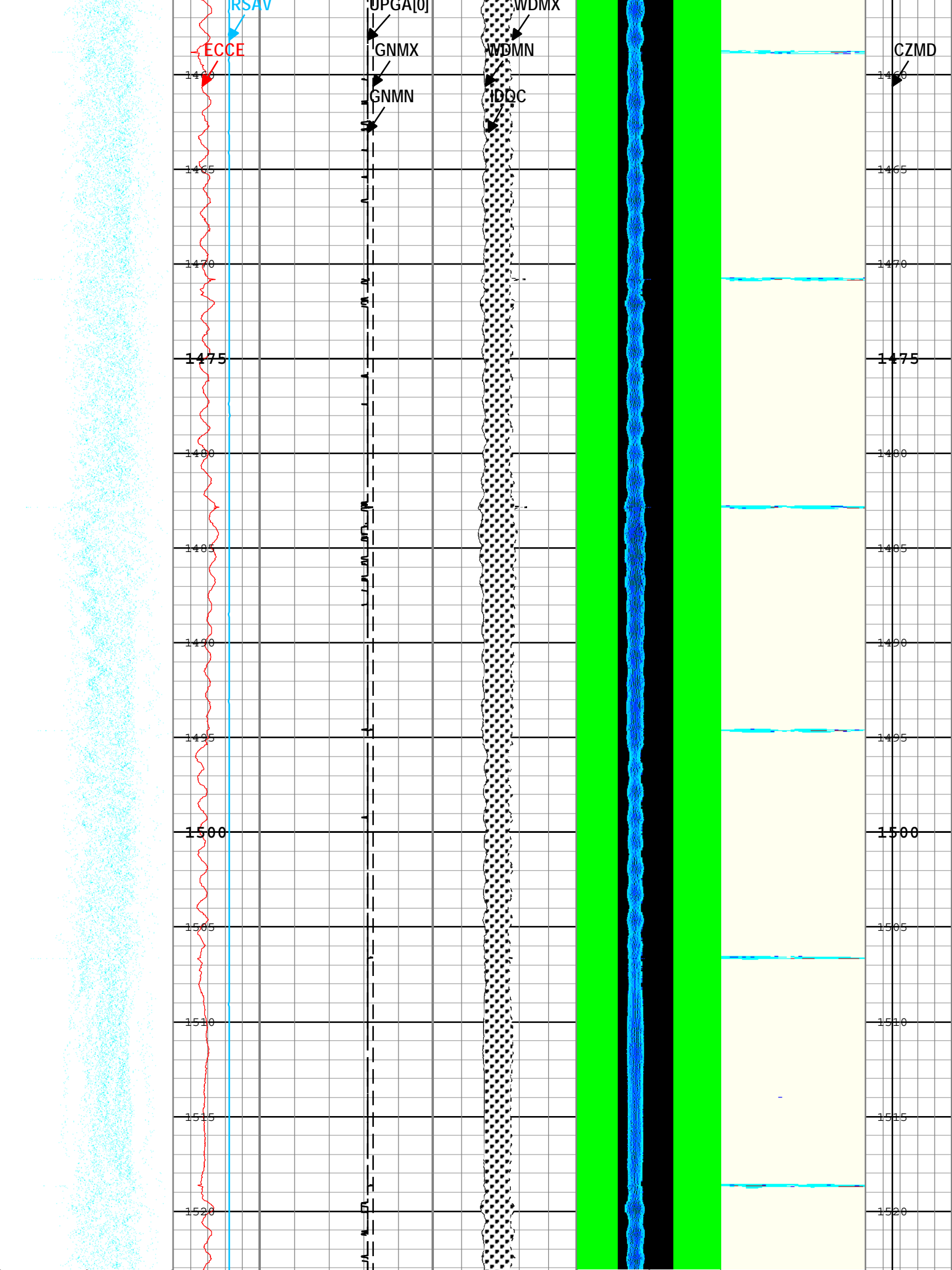


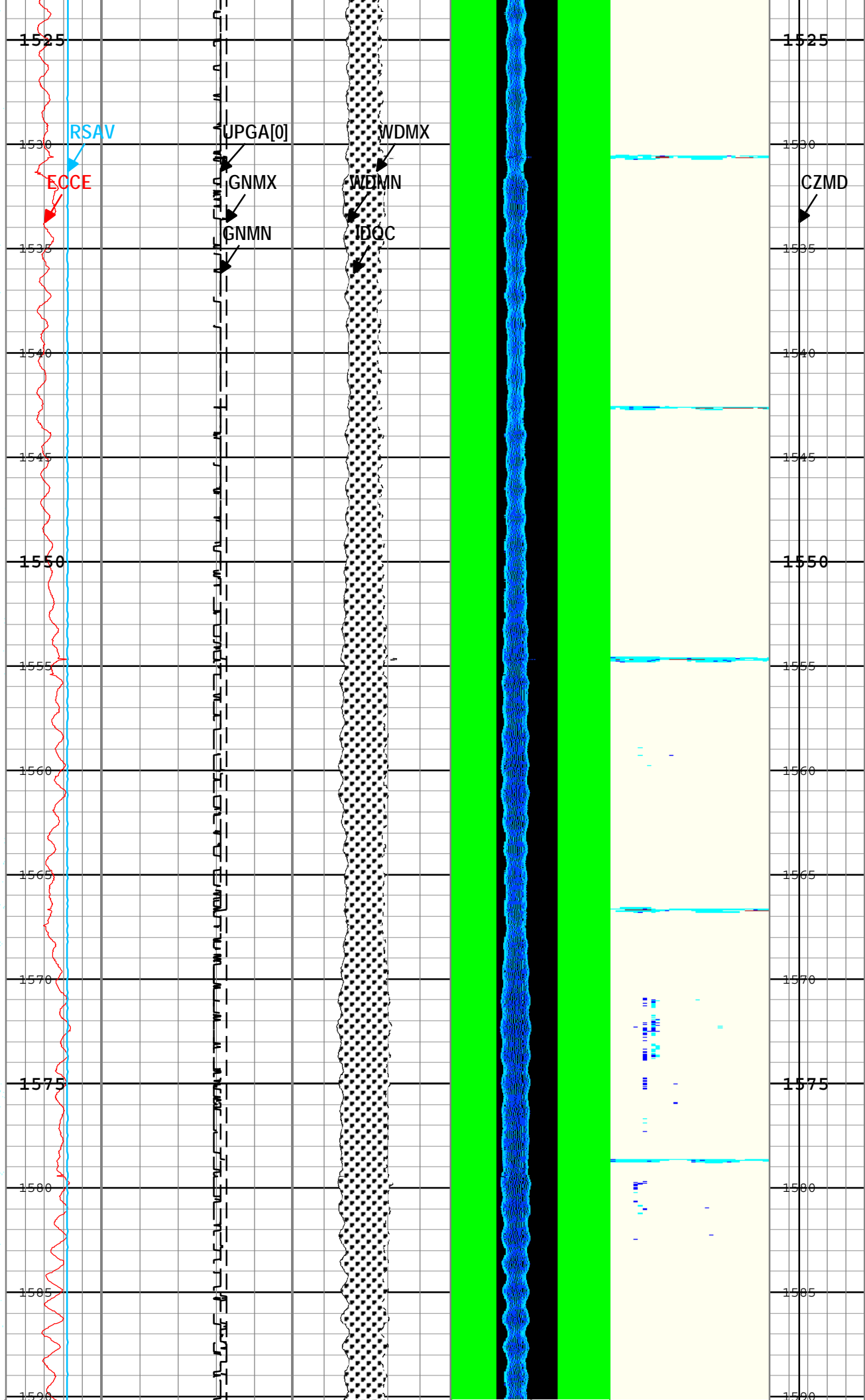


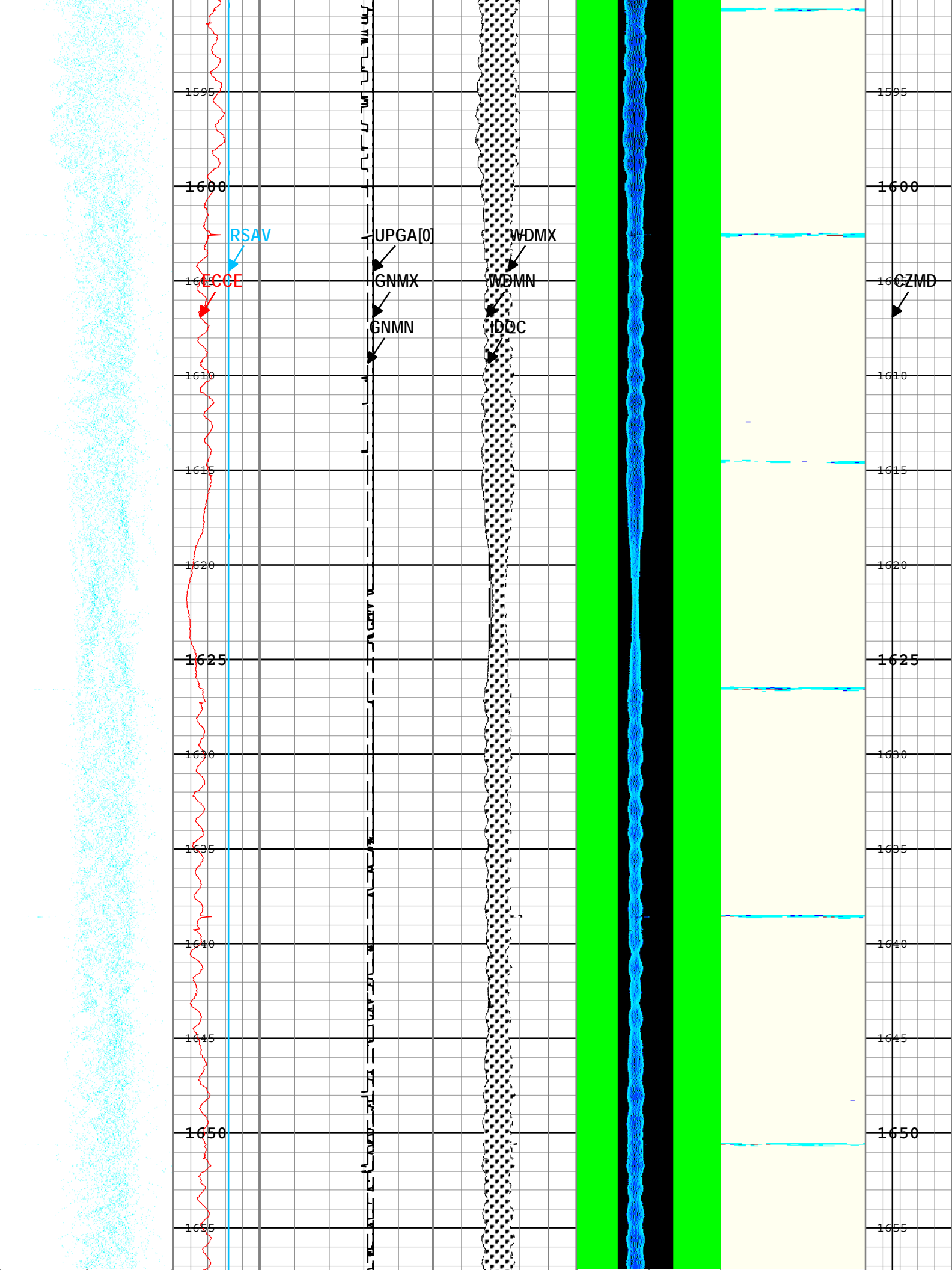


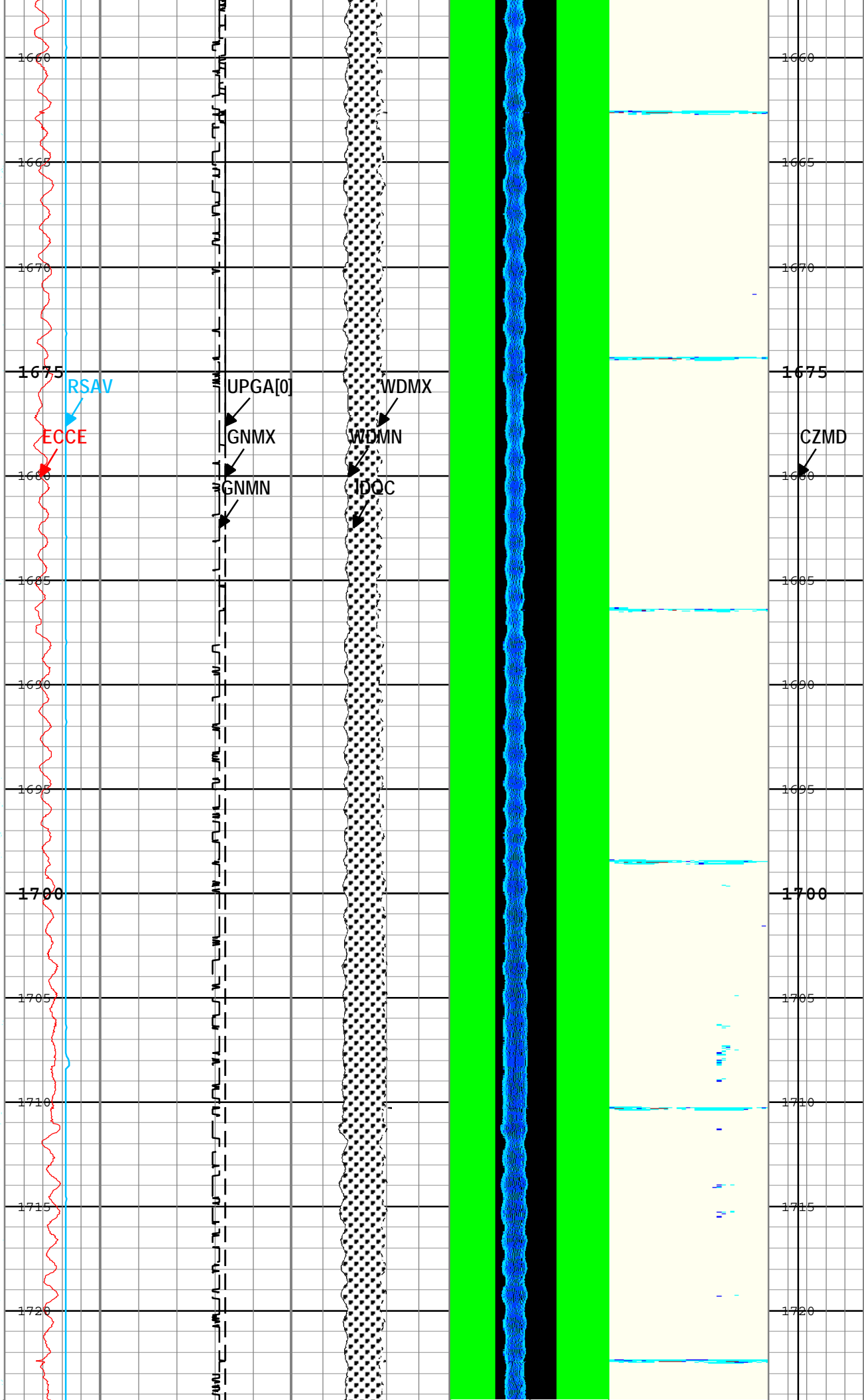


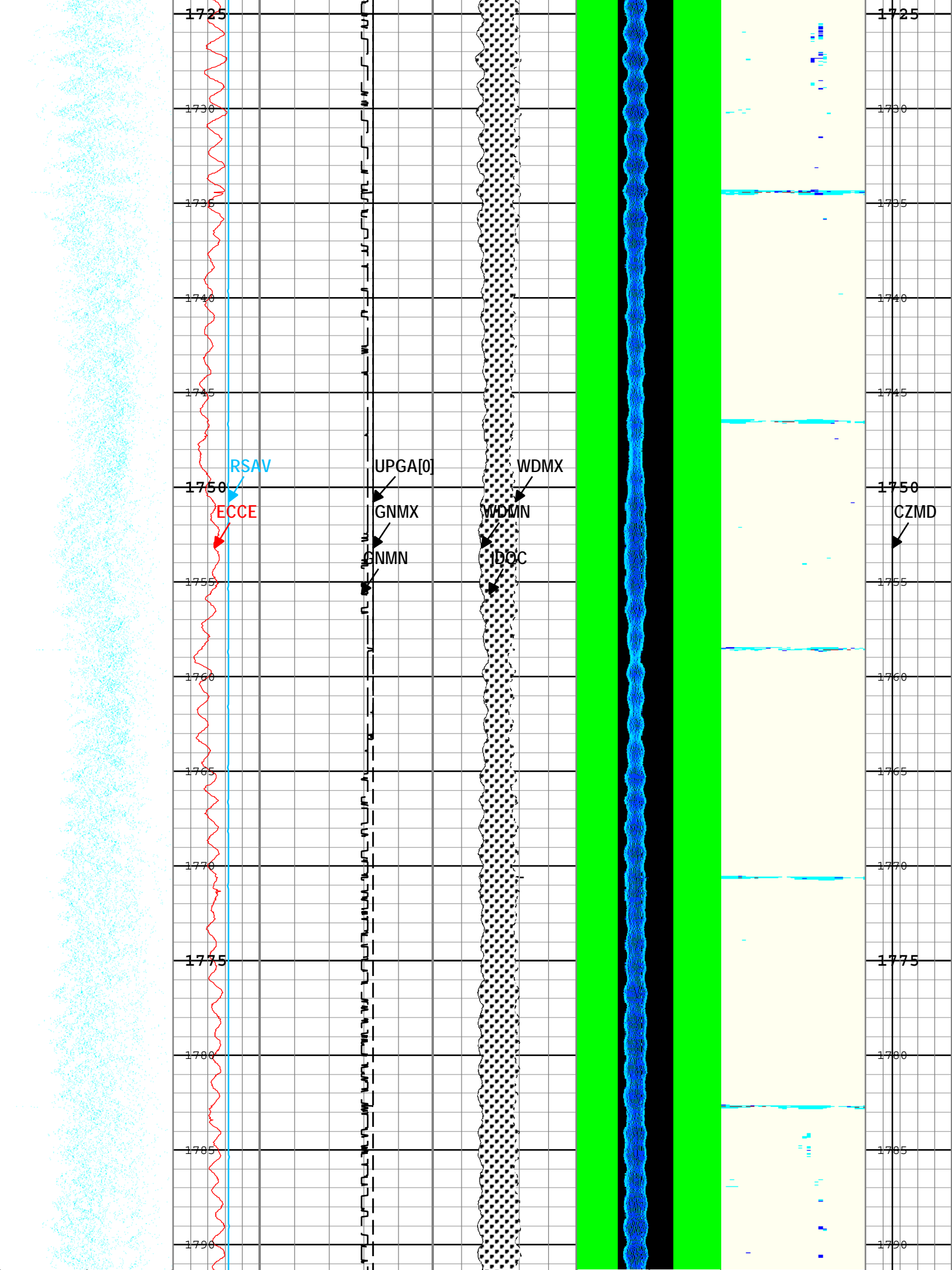


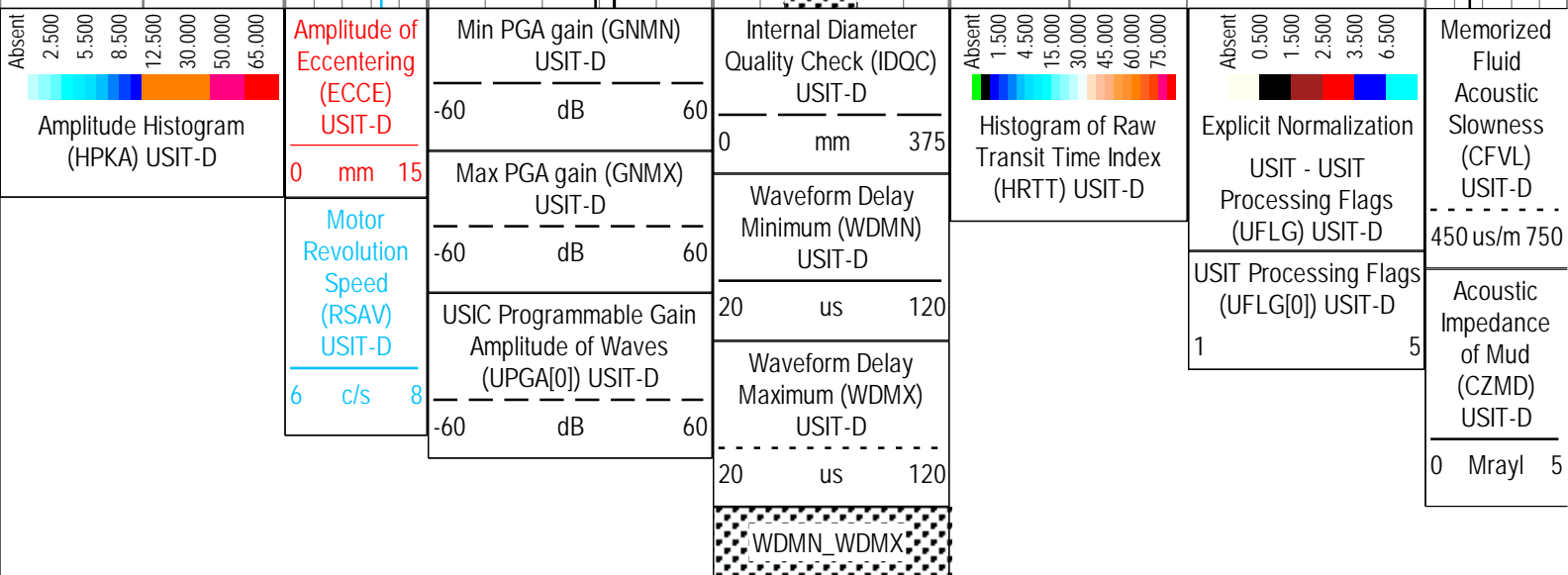
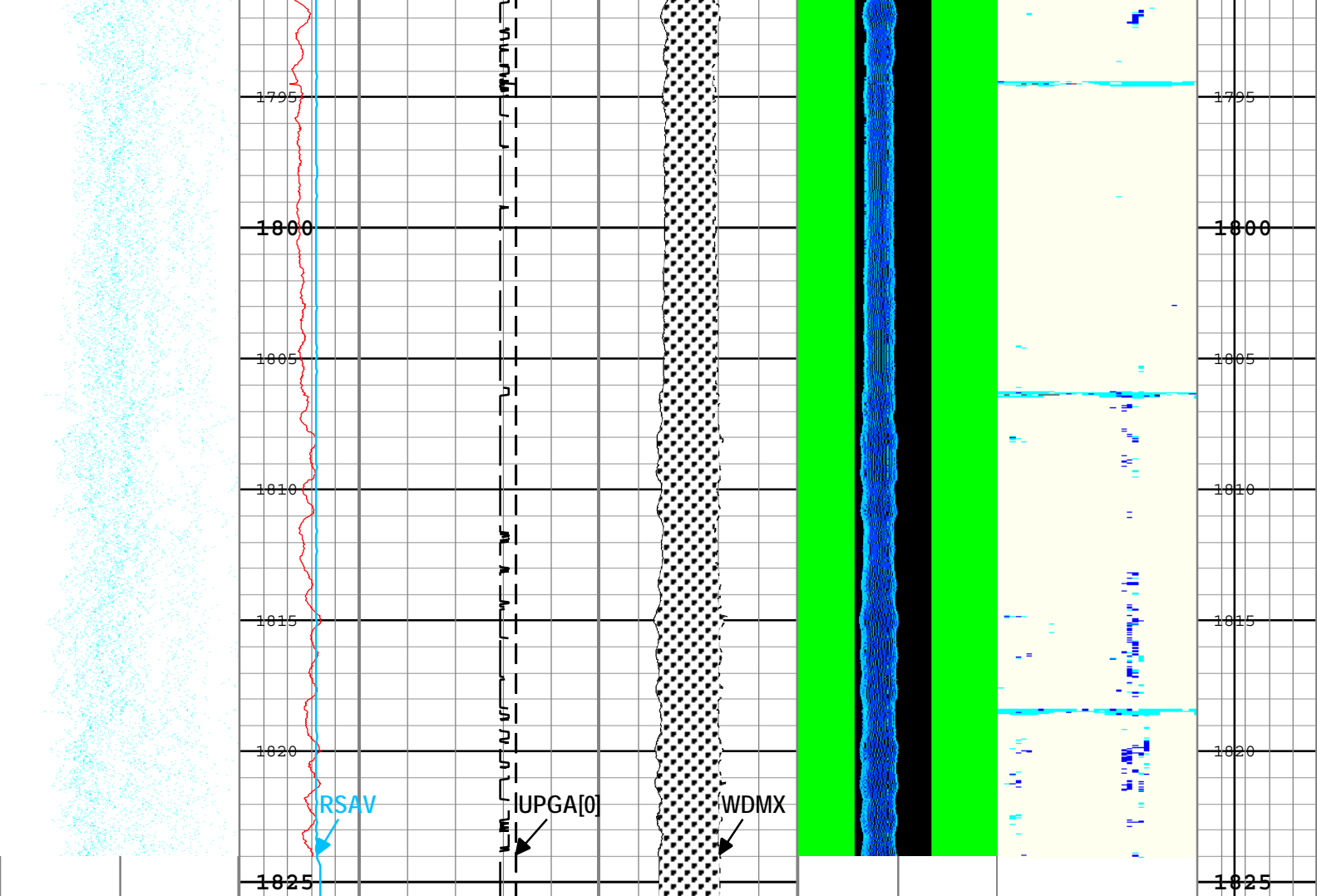












- USIT Processing Flags (UFLG[0]) USIT-D
- | | |
|---|---------------------------|
| 1 - UFLG 1 Value within [0.0 - 1.5] - : | UTIM Error |
| 2 - UFLG 2 Value within [1.5 - 2.5] - : | Pulse Origin Not Detected |
| 3 - UFLG 3 Value within [2.5 - 3.5] - : | WINLEN Error |
| 4 - UFLG 4 UFLG 5 UFLG 6 Value within [3.5 - 6.5] - : | Casing Thickness Error |
| 5 - UFLG 7 UFLG 8 UFLG 9 Value within [6.5 - 10] - : | Loop Processing Error |

Parameter	Description	Tool	Value	Unit
BARI	Barite Mud Presence Flag	Borehole	No	
CMTY	Cement Type	USIT-D	Regular Cement	
CTHILGR	Nominal Casing Thickness - Zoned along logger depths	WLSESSION	9.03	mm
DFD	Drilling Fluid Density	Borehole	1040	kg/m3
DFT	Drilling Fluid Type	Borehole	Oil	
DFT_OIL	Drilling Fluid Oil Type	Borehole	INVERT	
DTMD	Borehole Fluid Slowness	Borehole	828	us/m
FDII	FPM Data Interpolation Interval	USIT-D	0	m
HEMA	Hematite Presence Flag	Borehole	No	
ICE_PROCESS	ICE Processing	USIT-D	No	
IMAR	Image Rotation	USIT-D	Off	
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-D	Depth Zoned	us
RCTH	Reference Calibrator Thickness	USIT-D	7.498	mm
TCUB	T^3 Processing Level	USIT-D	Loop	
THDH	Maximum Search Thickness (percentage of nominal)	USIT-D	130	%
THDL	Minimum Search Thickness (percentage of nominal)	USIT-D	70	%
UDFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-D	0	Mrayl
UFGDE	Fiberglass Density	USIT-D	1950	kg/m3
UFGPS	Fiberglass Processing Selection	USIT-D	No	
UFGVL	Fiberglass Velocity	USIT-D	2950	m/s
USI_FSOD	USIT USI Fluid Slowness Fits Casing Outer Diameter	USIT-D	0_OFF	
USI_FVEL_SEL	USI Fluid Velocity Selection	USIT-D	Automatic	
USI_ZMUD_SEL	USI Mud Impedance Selection	USIT-D	Manual	
UTHDP	Thickness Detection Policy	USIT-D	Fundamental	
VCAS	Ultrasonic Transversal Velocity in Casing	USIT-D	168.64	us/m
ZCAS	Acoustic Impedance of Casing	USIT-D	46.25	Mrayl
ZMUD	Acoustic Impedance of Mud	Borehole	1.55	Mrayl

Depth Zone Parameters

Parameter	Value	Start (m)	Stop (m)
MEAS_WLEN	22.27	0	1825.75

All depth are actual.

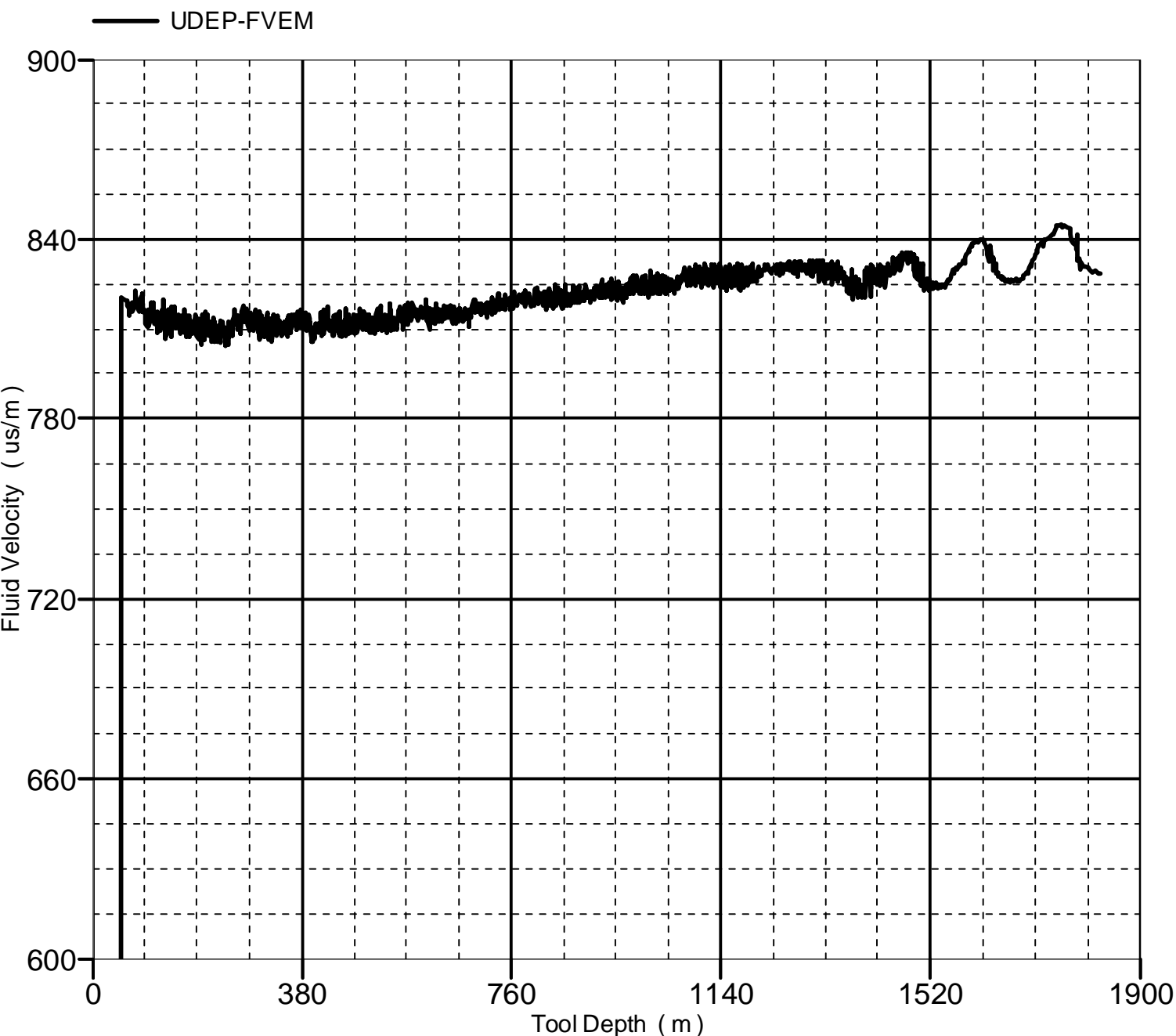
Tool Control Parameters

Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-D	-4	dB
AGMX	Maximum Gain of Cartridge	USIT-D	20	dB
DDT5	USIC Downhole Decimation for T5 only	USIT-D	0_NONE	
EMXV	EMEX Voltage	USIT-D	100	V
HRES	Horizontal Resolution	USIT-D	10 deg	
ULOG	Logging Objective	USIT-D	MEASUREMENT	
UMFR	Modulation Frequency	USIT-D	333333	Hz
USFR	Ultrasonic Sampling Frequency	USIT-D	500000	Hz
USI_UPAT	USIT Emission Pattern	USIT-D	Pattern 375 KHz	
USI_UWKM	USIT Working Mode	USIT-D	Uncompressed 10 deg at 1.5 in LF	
USIT_DEPTHLOG	Starting Depth Log for Ultrasonics	USIT-D	1828	m
VRES	Vertical Resolution	USIT-D	1.5 in	
WINB	Window Begin Time	USIT-D	51.7	us
WINE	Window End Time	USIT-D	119.19	us

Fluid Acoustic Slowness vs Depth

2D Cross Plot

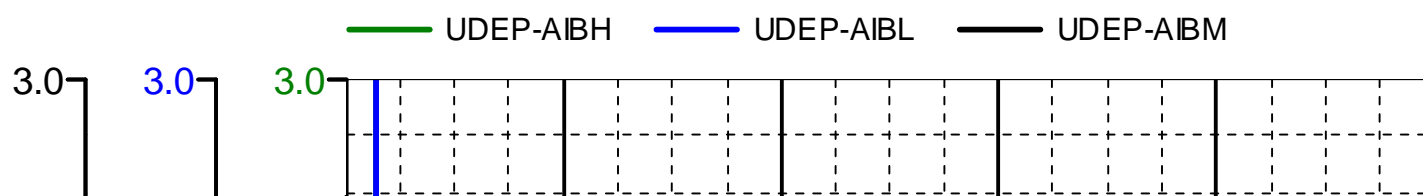
Index Range: From 51.51 to 1828.50 m

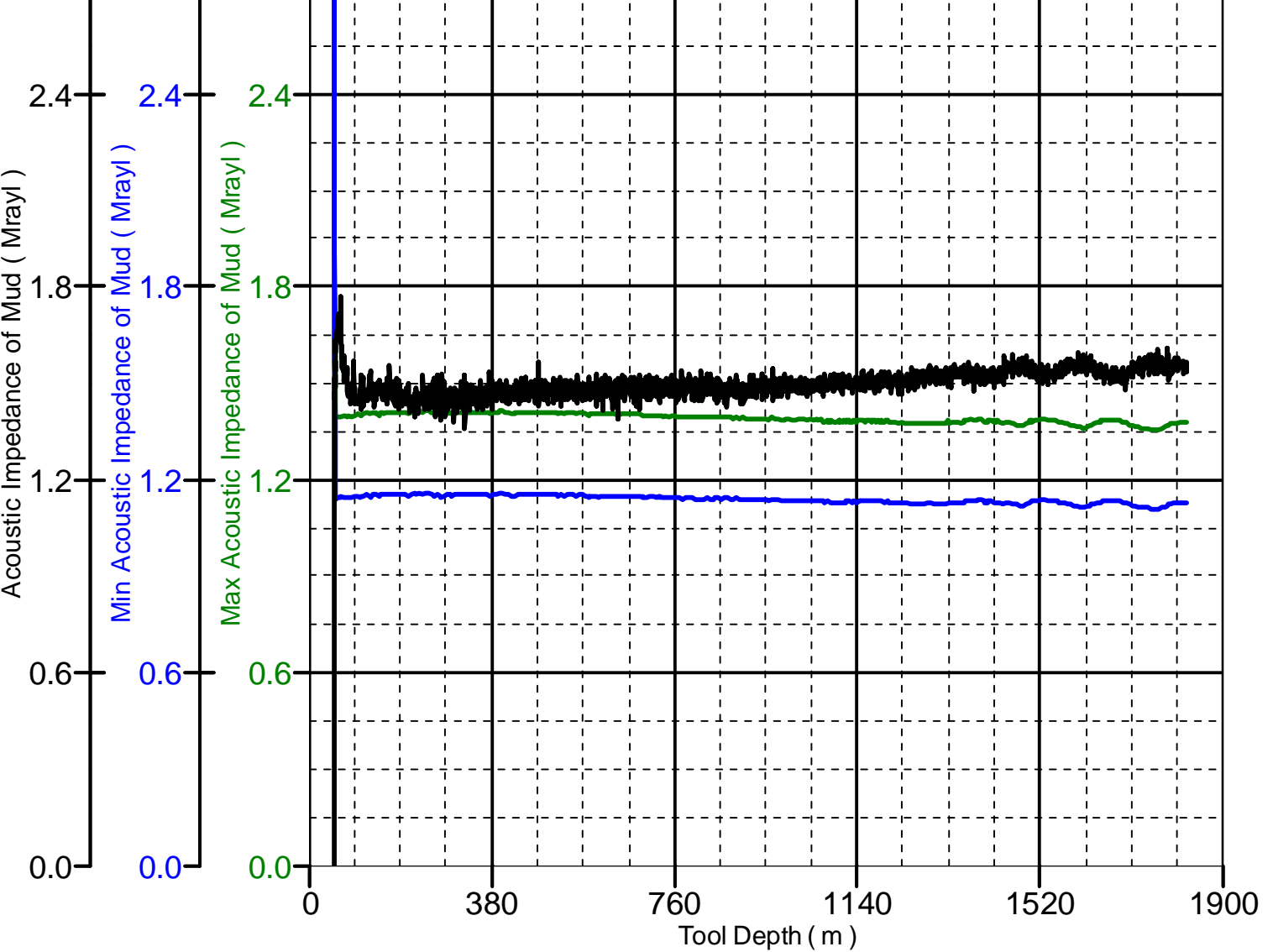


Theoretical Acoustic Impedance of Mud vs Depth

2D Cross Plot

Index Range: From 51.51 to 1828.50 m





Calibration Report

DSLT-H (Digitizing Sonic Logging Tool - H) Calibration - Run 2.1

Primary Equipment :
Sonic Logging Sonde E supports 3'-5'BHC DT and CBL/VDL SLS-E 2047

CBL Normalization - CBL Accumulations

Master:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Upper Far Amplitude - 0		Master	----	----	----	----	
Upper Near Raw Amplitude - 0	mV	Master	----	----	----	----	
Lower Far Amplitude - 0		Master	----	----	----	----	
Lower Near Raw Amplitude - 0	mV	Master	----	----	----	----	

CBL Normalization - CBL/VDL Coefficients

Master:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
CBL Correction Factor for UT		Master	3.500	2.700	NOT DONE	4.300	
CBL Correction Factor for LT		Master	2.500	1.700	NOT DONE	4.300	
VDL Ratio between UT and LT for CBLB Mode		Master	1.000		NOT DONE		

CBL Free Pipe Adjustment - Free Pipe Measurement

Before:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
CBL Amplitude - 0	mV	Before	----	----	----	----	
CBL Reference Amplitude (CBRA) - 0	mV	Before	----	----	----	----	
Measurement Depth - 0	m	Before	----	----	----	----	

CBL Free Pipe Adjustment - CBL Amplitude Coefficient

Before:

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
CBL Adjustment Factor		Before	1.000	0.200	NOT DONE	5.000		
Depth of Before Calibration	ft	Before			NOT DONE			

SGT-N (Scintillation Gamma-Ray Tool) Calibration - Run 2.1

Primary Equipment :

Scintillation Gamma Cartridge

SGC-TB

10447

Calibration Parameter :

Plus Reference (Jig minus background reference)

165

SGT-N Gamma-Ray Calibration - Gamma Ray Coefficients

Before (Measured): 10:04:30 20-Jan-2014 After:

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
Gamma Ray Gain		Before			1.227			
		After	----	----	----	----		
		After-Before	----	----	----	----		

SGT-N Gamma-Ray Calibration - Gamma Ray Accumulations

Before (Measured): 10:04:30 20-Jan-2014 After:

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
RGR Zero Measurement	gAPI	Before		0	50.990	120.000		
		After	----	----	----	----		
		After-Before	----	----	----	----		
RGR Plus Measurement	gAPI	Before	134.491	122.264	134.491	146.717		
		After			NOT DONE			
		After-Before	----	----	----	----		

SGT-N Gamma-Ray Plateau Check - Gamma Ray Plateau Check

Before (Measured): 14:58:24 09-Jan-2014 After:

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
RGR Plus Plateau Measurement	gAPI	Before			173.529			
		After	----	----	----	----		
		After-Before	----	----	----	----		
RGR Minus Plateau Measurement	gAPI	Before			170.096			
		After	----	----	----	----		
		After-Before	----	----	----	----		

LEH-QT (Logging Equipment Head - QT, 3-3/8 inch 31 pin HPHT with Tension Sensor) Calibration - Run 2.1

Primary Equipment :

Logging Equipment Head - QT, 3-3/8 inch 31 pin HPHT with
Tension Sensor

LEH-QT

2850

HTEN Master Calibration - HTEN Master Calibration

Master:

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
HTEN Shop Gain		Master	1.000	0.800	NOT DONE	4.500		
HTEN Shop Offset	lbf	Master	0	-4448.222	NOT DONE	4448.222		

HTEN Before Calibration - HTEN Before Calibration

Before:

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
RHTE Zero Measurement - 0	lbf	Before	----	----	----	----		
RHTE Plus Measurement - 0	lbf	Before	----	----	----	----		
HTEN Gain - 0		Before	----	----	----	----		
HTEN Offset - 0	lbf	Before	----	----	----	----		

Company:	CONOCOPHILLIPS CANADA RESOURCES CORP	Schlumberger
Well:	COPRC DODO CANYON E76	
Field:	DODO CANYON	
Province:	NORTHWEST TERRITORIES	

CEMENT EVALUATION ULTRASONIC IMAGING / CEMENT BOND LOG
