

Schlumberger

Company:	Encana Oil & Gas (USA) Inc
Well:	Kennedy No. 1
Field:	Wattenberg
County:	Weld
	State: Colorado

Well: Kennedy No. 1

County: **Weld**

2N , R 68W

s (USA) Inc

Ultra Sonic imaging Tool
Cement

SESE Sec. 21 , T 2N , R 68W	Elev.: K.B. 4898.00 ft
SHL: 1650 FNL / 990 FWL	G.L. 4886.00 ft
Lat. / Long.: 40.1269 / -105.0021	D.F. 4897.00 ft

Wattenberg

SESE Sec. 21 , T 2N , R 68W

Kennedy No. 1

Encana Oil & Gas (USA) Inc

LOCATION	
S.H.L. 1650' N.E. / 990' F.W.L. Lat. / Long.: 40.1269 / -105.0021	G.L. 4886.00 ft D.F. 4897.00 ft
Permanent Datum: _____ Log Measured From: _____ Drilling Measured From: _____	Elev.: 4886.00 ft _____ 12.00 ft above Perm. Datum
_____ _____ _____	_____ _____ _____

API Serial No.

Section

Township

Range

County:
Field:
Location:
Well:

Field:

Locat
Well:

Comp

SESE Sec. 21, T 2N, R 68W		Elev.:	K.B.	4898.00 ft
SHL: 1650 FNL / 990 FWL			G.L.	4886.00 ft
Lat. / Long.: 40.1269 / -105.0021			D.F.	4897.00 ft
Permanent Datum:	Ground Level	Elev.:	4886.00 ft	
Log Measured From:	Kelly Bushing	12.00 ft	above Perm. Datum	
Drilling Measured From:	Kelly Bushing			
API Serial No.	Section 21	Township 2N	Range 68W	

	Run 1	Run 2	Run 3
PVT DATA			
Oil Density			
Water Salinity			
Gas Gravity			
Bo			
Bw			
1/Bg			
Bubble Point Pressure			
Bubble Point Temperature			
Solution GOR			
Maximum Deviation			
CEMENTING DATA			
Primary/Squeeze	Primary		
Casing String No			
Lead Cement Type			
Volume			
Density			
Water Loss			
Additives			
Tail Cement Type			
Volume			
Density			
Water Loss			
Additives			
Expected Cement Top			

Logging Date	4-Mar-2010								
Run Number	1								
Depth Driller	7900 ft								
Schlumberger Depth	7850 ft								
Bottom Log Interval	7849 ft								
Top Log Interval	125 ft								
Casing Fluid Type	KCL Polymer								
Salinity									
Density	8.4 lbm/gal								
Fluid Level	130 ft								
BIT/CASING/TUBING STRING									
Bit Size	7.875 in								
From									
To									
Casing/Tubing Size	4.500 in								
Weight	11.6 lbm/ft								
Grade									
From									
To									
Maximum Recorded Temperatures									
Logger On Bottom	4-Mar-2010								
Unit Number	Location								
Recorded By	Jared R. Hoskins								
Witnessed By	Ed Martin								
Logging Date									
Run Number									
Depth Driller									
Schlumberger Depth									
Bottom Log Interval									
Top Log Interval									
Casing Fluid Type									
Salinity									
Density									
Fluid Level									
BIT/CASING/TUBING STRING									
Bit Size									
From									
To									
Casing/Tubing Size									
Weight									
Grade									
From									
To									
Maximum Recorded Temperatures									
Logger On Bottom									
Unit Number	Location								
Recorded By									
Witnessed By									

DEPTH SUMMARY LISTING

Date Created: 4-MAR-2010 16:53:39

Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW-B	Type:	CMTD-B/A	Type:	7-39P LXS
Serial Number:	799	Serial Number:	1223	Serial Number:	708273
Calibration Date:	1-Oct-2009	Calibration Date:	11-Feb-10	Length:	16600 FT
Calibrator Serial Number:	33	Calibrator Serial Number:	100513	Conveyance Method:	Wireline
Calibration Cable Type:	7-46P	Number of Calibration Points:	0	Rig Type:	LAND
Wheel Correction 1:	-4				
Wheel Correction 2:	-5				

Depth Control Parameters

Log Sequence:	Subsequent Trip To the Well
Reference Log Name:	
Reference Log Run Number:	
Reference Log Date:	
Subsequent Trip Down Log Correction:	

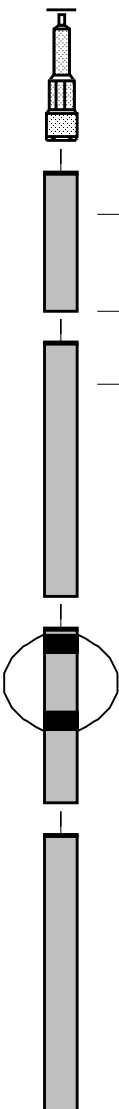
Depth Control Remarks

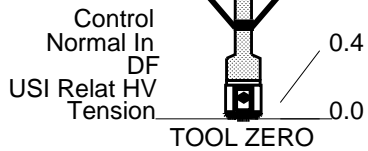
1. All Schlumberger depth policy procedures applied
2. This log is correlated to Brandex log on April 18, 1997.
- 3.
- 4.
- 5.
- 6.

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 OF 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.

OTHER SERVICES1	OTHER SERVICES2
OS1: None	OS1:
OS2:	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
1. This is the first run in hole.	
2. Tool run as per tool sketch.	
3. Main pass recorded in 10deg1.5in.	
4. HiRes pass at 7550–7450 at 5deg0.6in.	
5. HiRes pass at 7350–7050 at 5deg0.6in.	
6. HiRes pass at 6800–6725 at 5deg0.6in.	
7. HiRes pass at 6450–6300 at 5deg0.6in.	

8. HiRes pass at 6000–5850 at 5deg0.6in.					
9. HiRes pass at 5100–4650 at 5deg0.6in.					
10. HiRes pass at 4300–4200 at 5deg0.6in.					
11. HiRes pass at 2700–2600 at 5deg0.6in.					
12. HiRes pass at 1800–1730 at 5deg0.6in.					
13. HiRes pass at 700–625 at 5deg0.6in.					
Crew: Jay Musgrave & David Marquez					
RUN 1			RUN 2		
SERVICE ORDER #:		BCEK-00009	SERVICE ORDER #:		
PROGRAM VERSION:		17C0-154	PROGRAM VERSION:		
FLUID LEVEL:		130 ft	FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP
EQUIPMENT DESCRIPTION					
RUN 1			RUN 2		
SURFACE EQUIPMENT					
GSR-U/Y WITM (DTS)-A					
DOWNHOLE EQUIPMENT					
LEH-QT LEH-QT		35.8			
DTC-H ECH-KC DTCH0-A DTCH1-A		32.8			
	CTEM	31.9			
	TelStatus ToolStatu	29.8			
SGT-N SGH-K SGC-TB SGD-TAB	Gamma Ray	28.9	29.8		
AH-CME AH-CME		24.4			
USIT-D ECH-MRA USIC-D USIS-A USSC-A USRS-A/AB		20.6			



MAXIMUM STRING DIAMETER 4.50 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN FEET

Schlumberger

Upper Cement

MAXIS Field Log

Company: Encana Oil & Gas (USA) Inc

Well: Kennedy No. 1

Input DLIS Files

DEFAULT USI_027PUP FN:22 PRODUCER 04-Mar-2010 13:18 7850.0 FT 117.0 FT

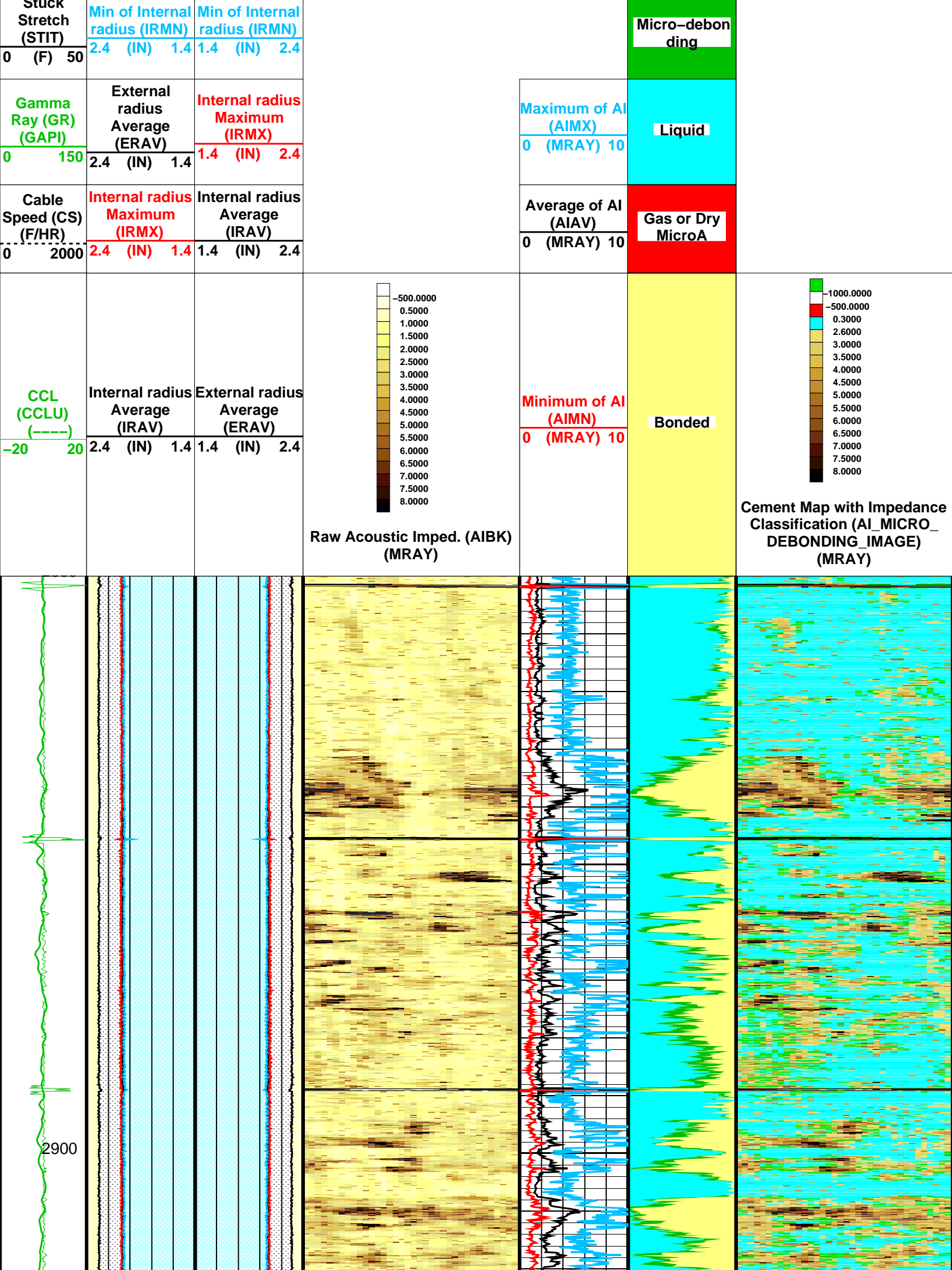
OP System Version: 17C0-154

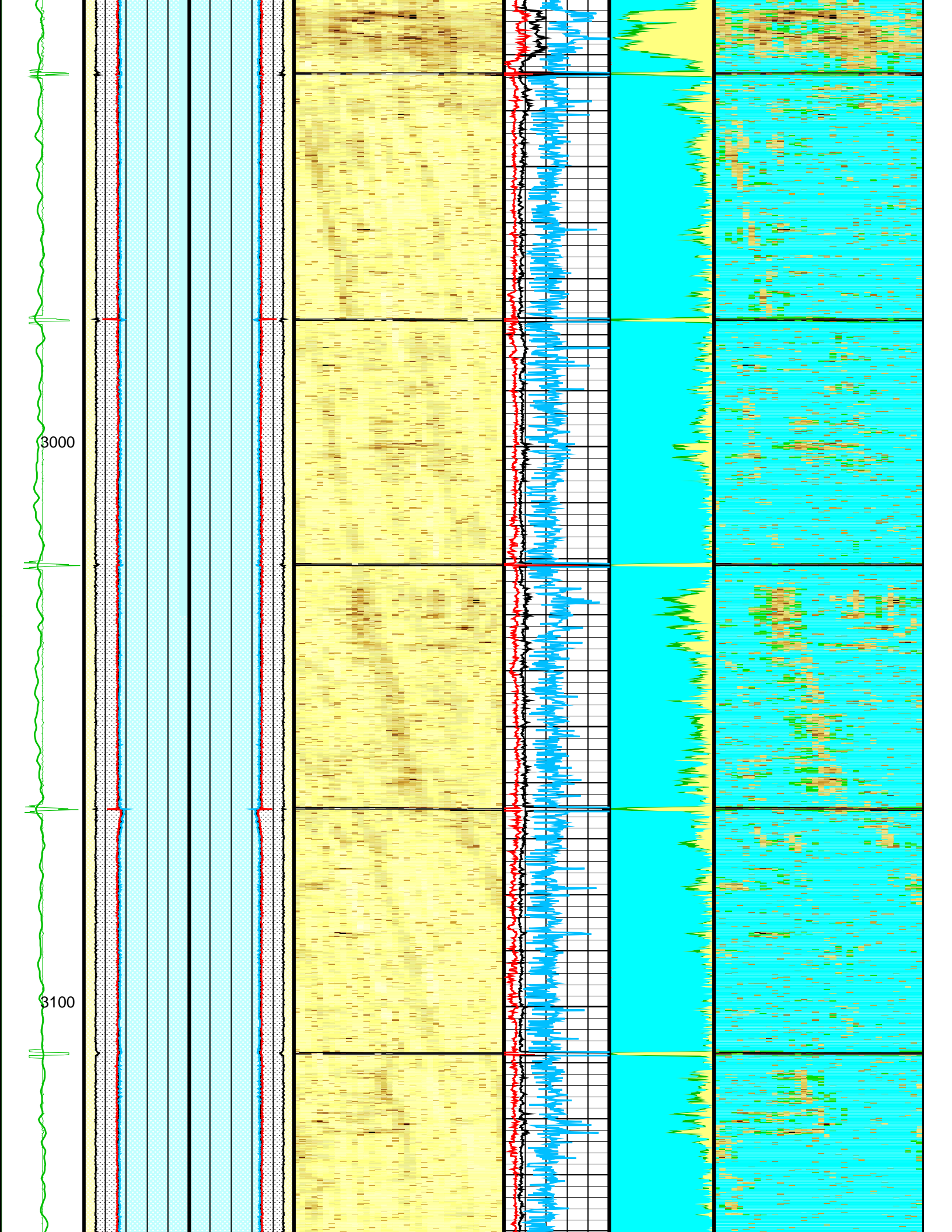
USITD 17C0-154 SGTN 17C0-154
DTCH 17C0-154

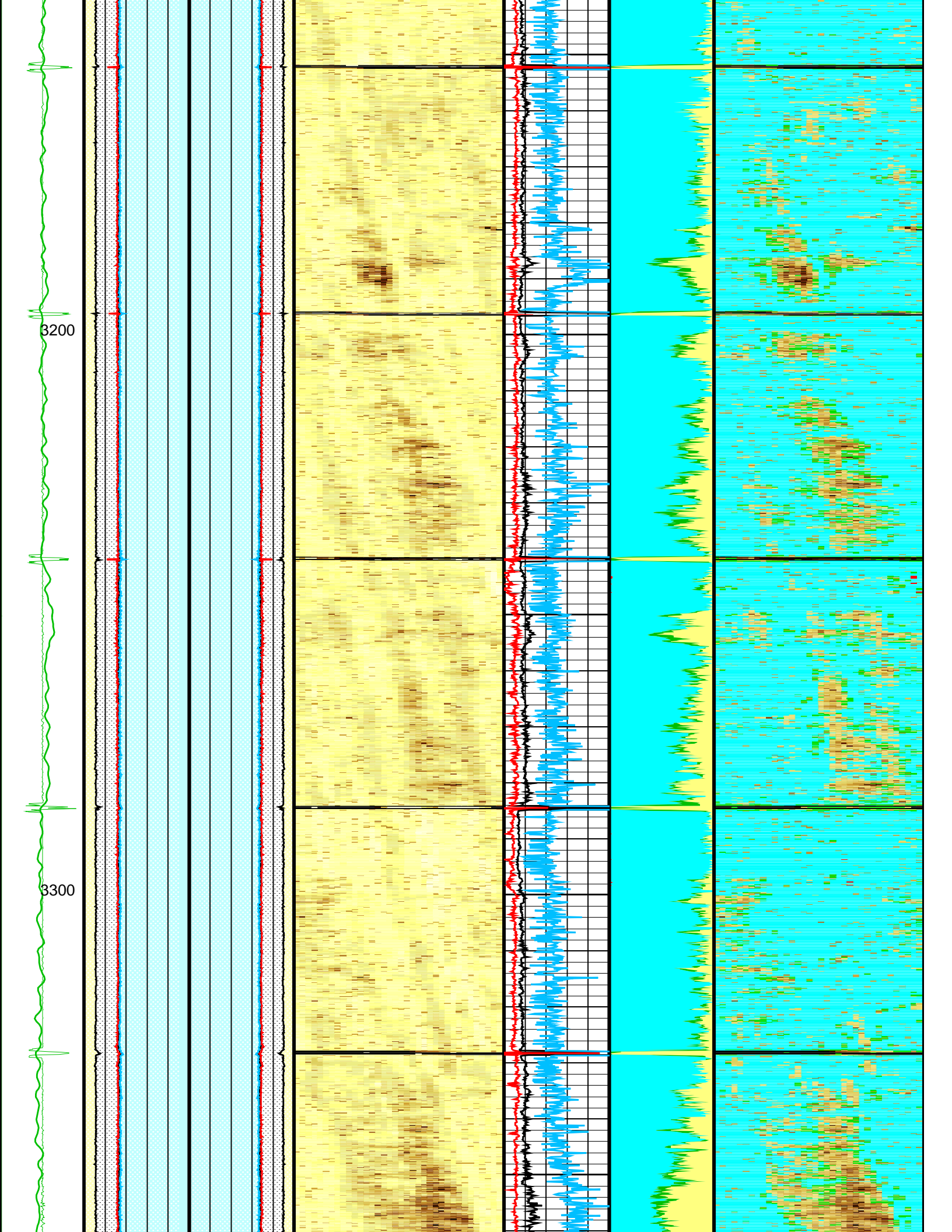
Image
rotation
(UCAZ)
(DEG)
0 360

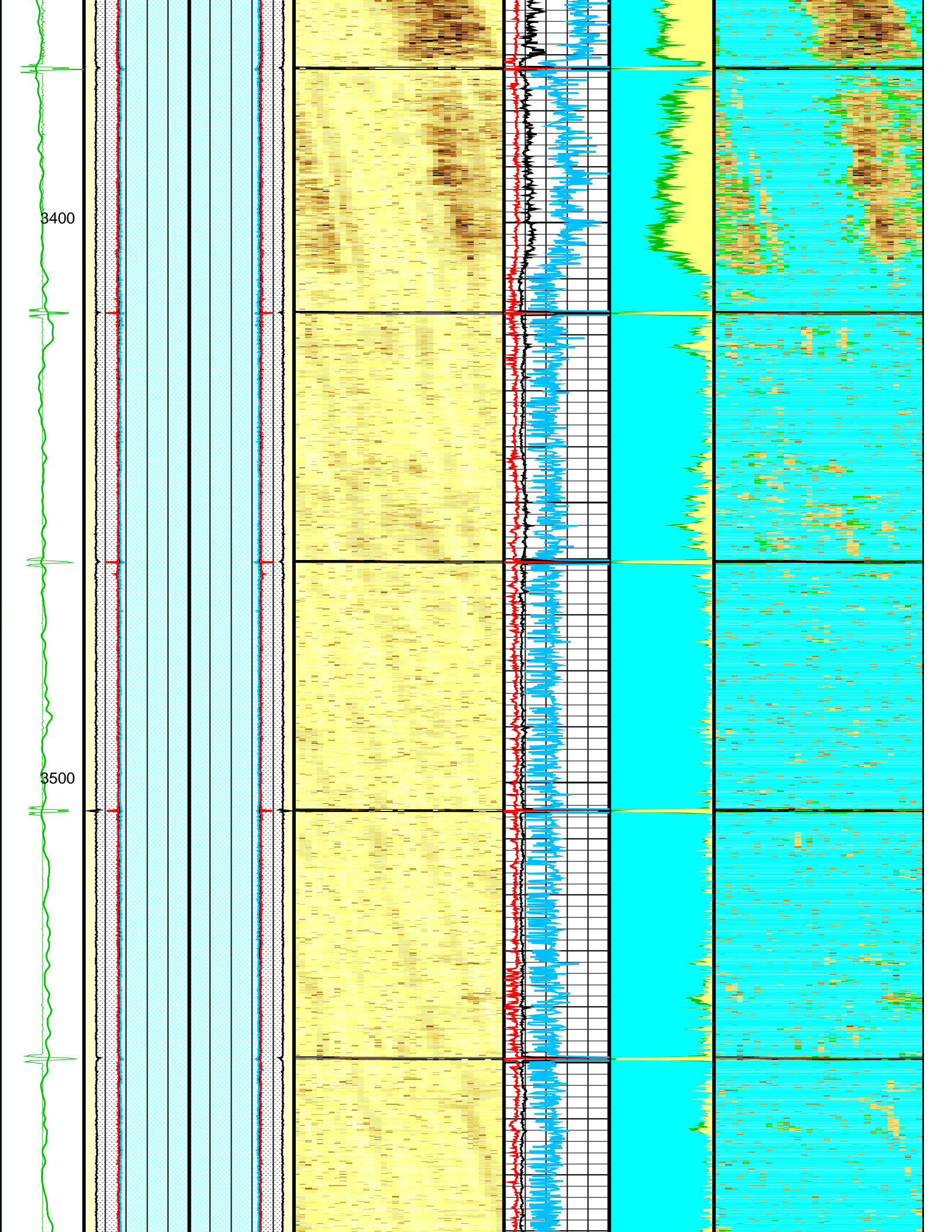
Tool/Tot.
Drag
From D4T
to STIA

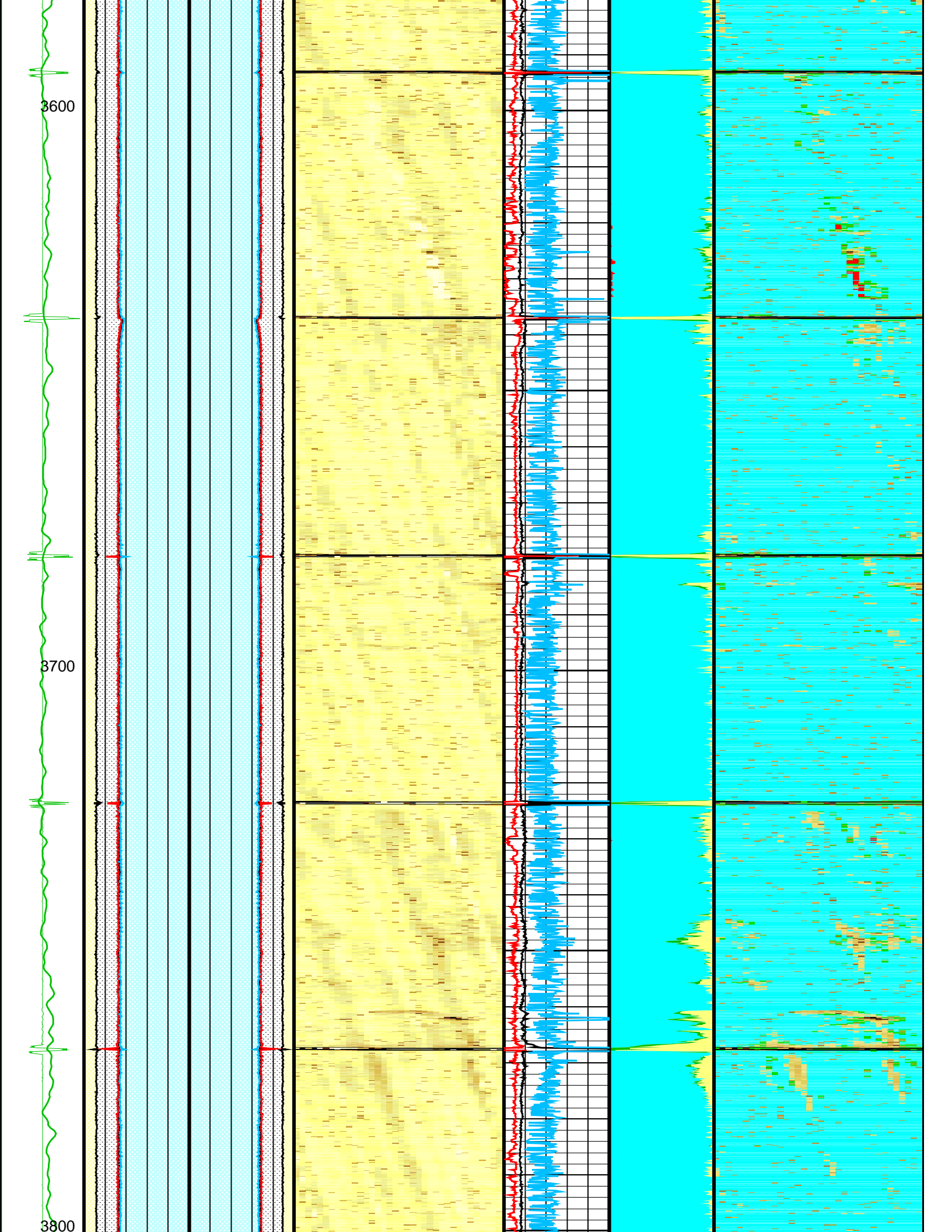
Cable
Drag
From D4T
to STIT

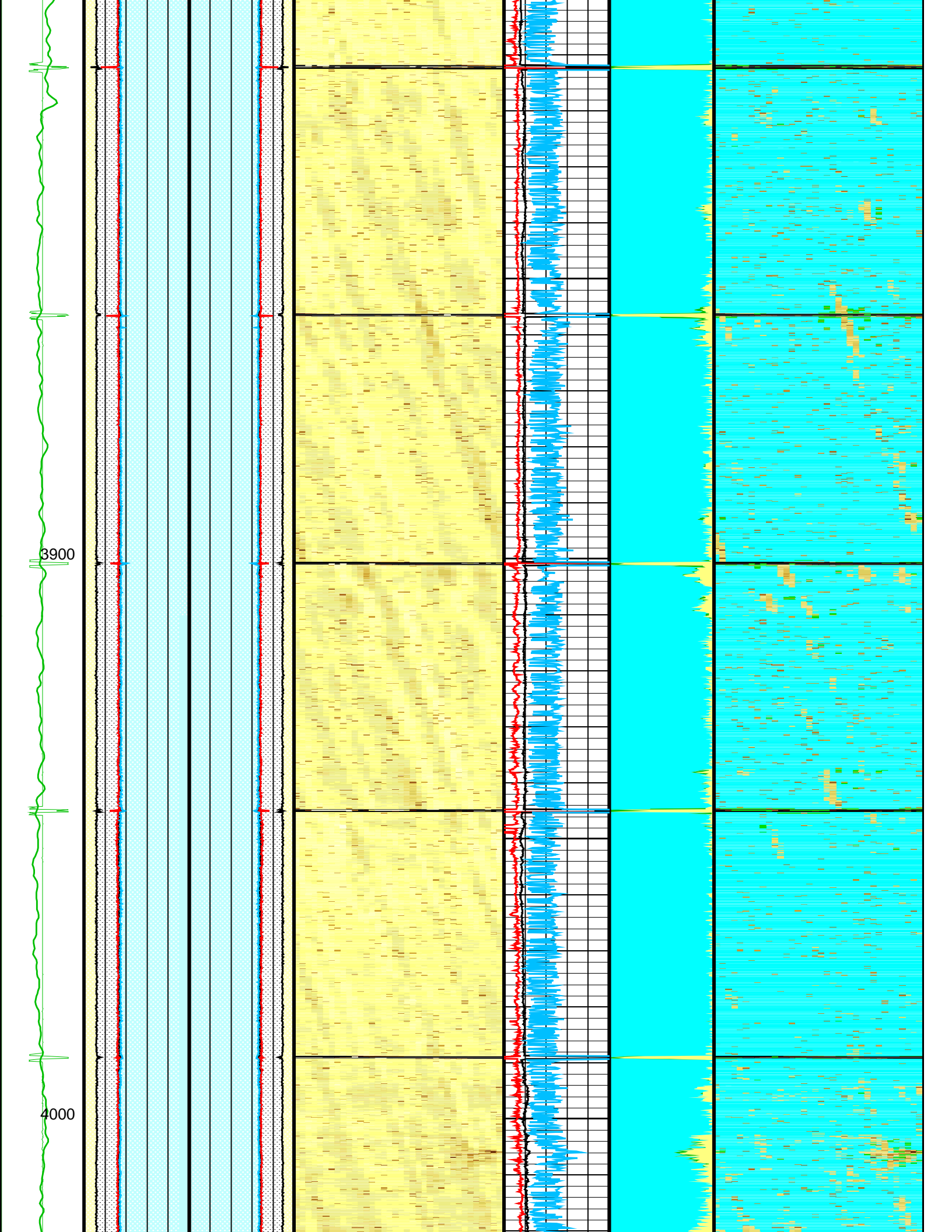


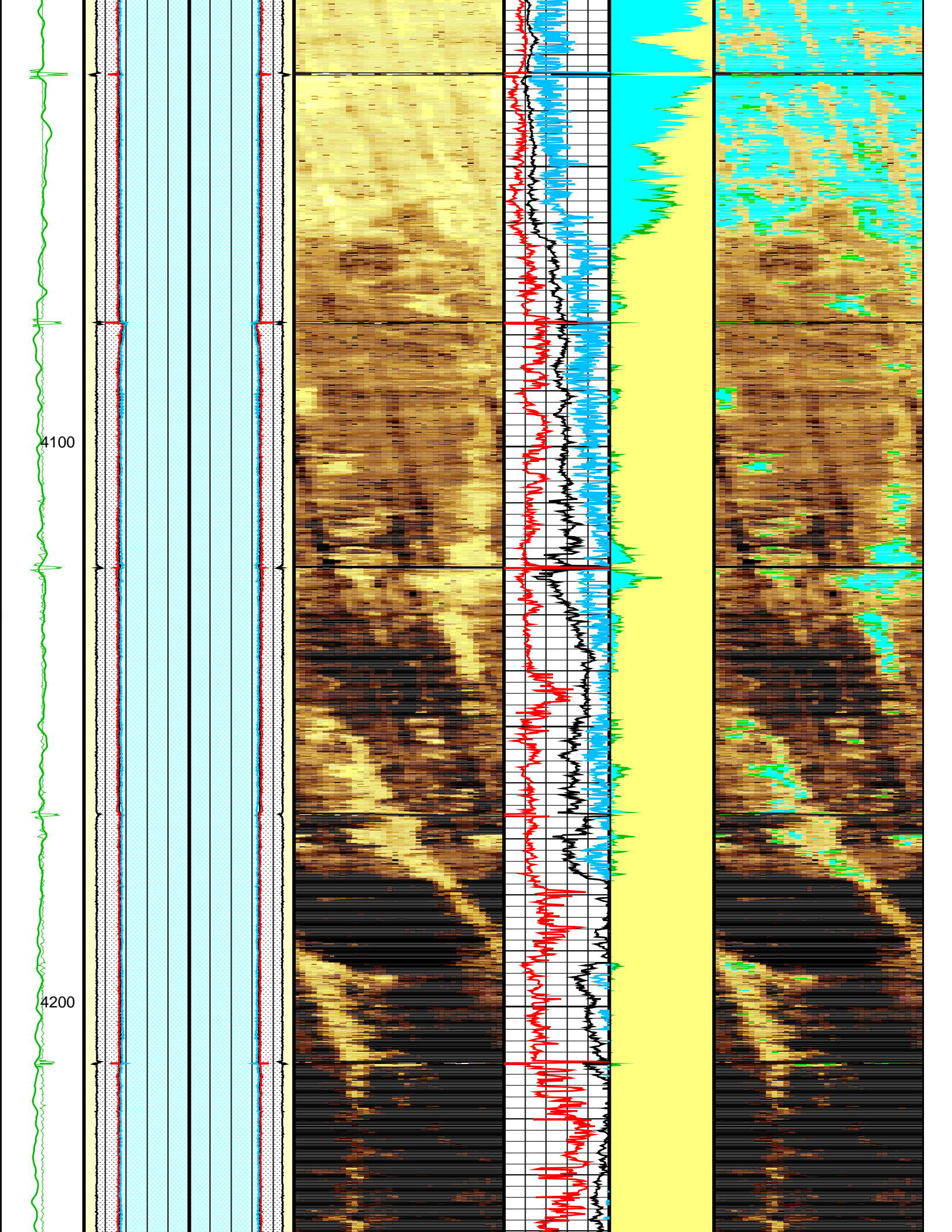


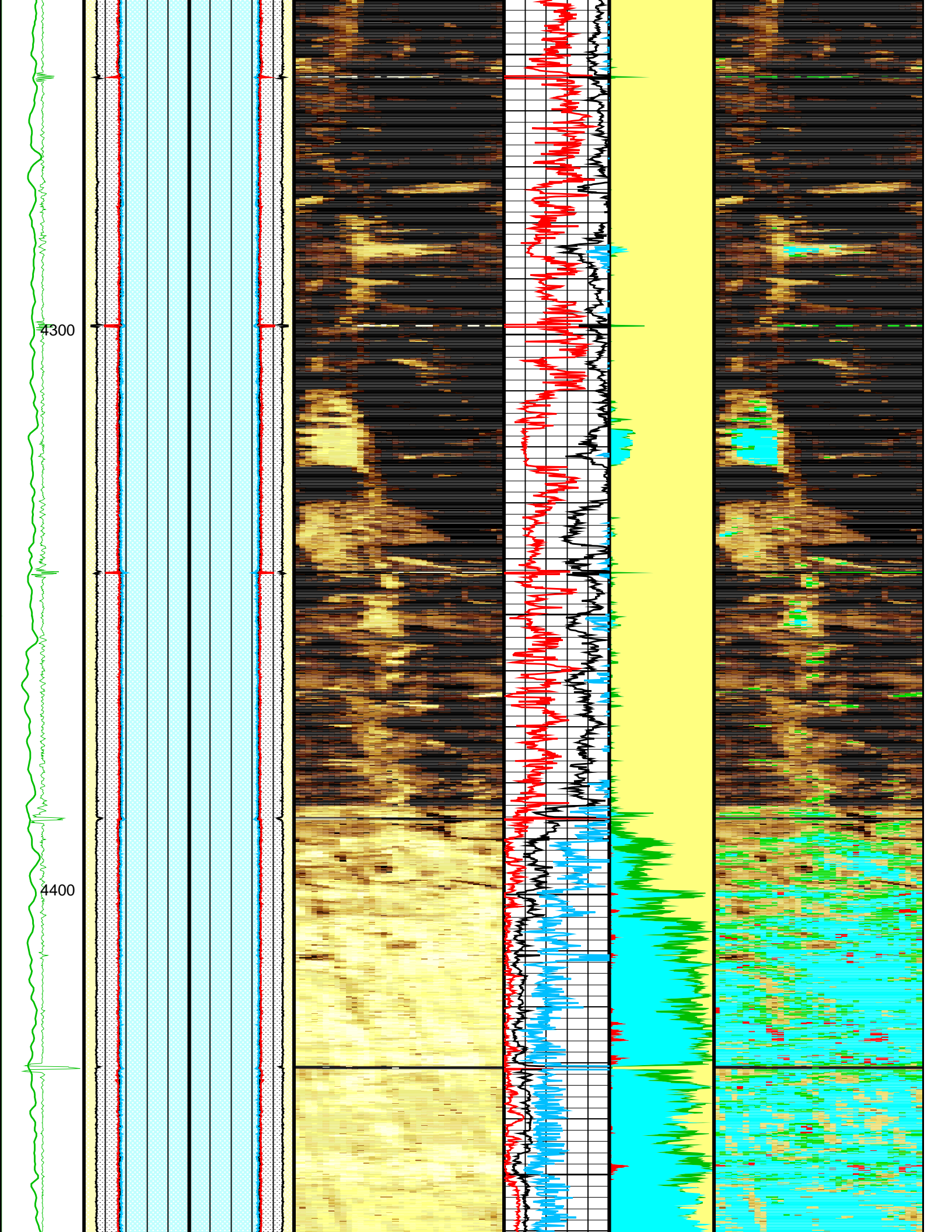


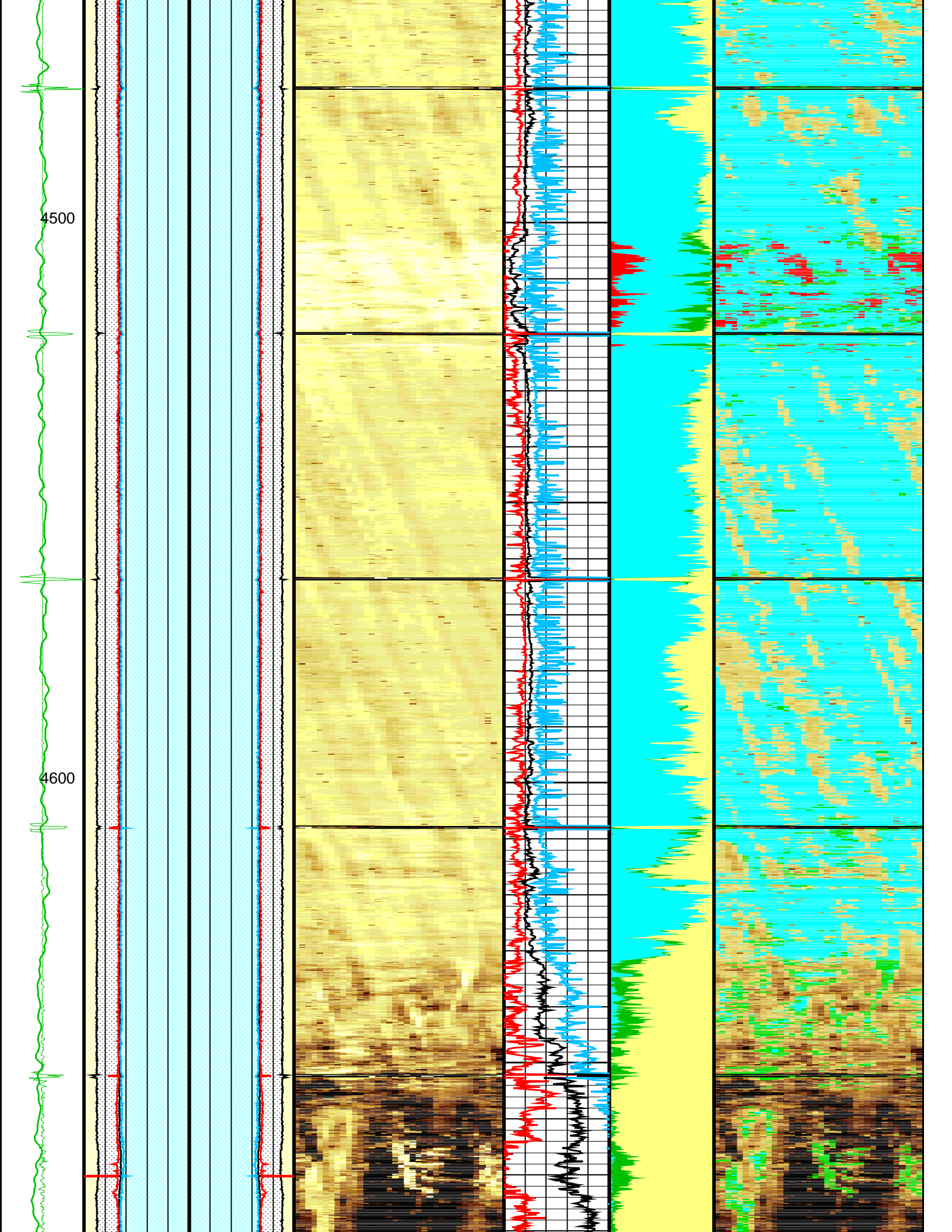


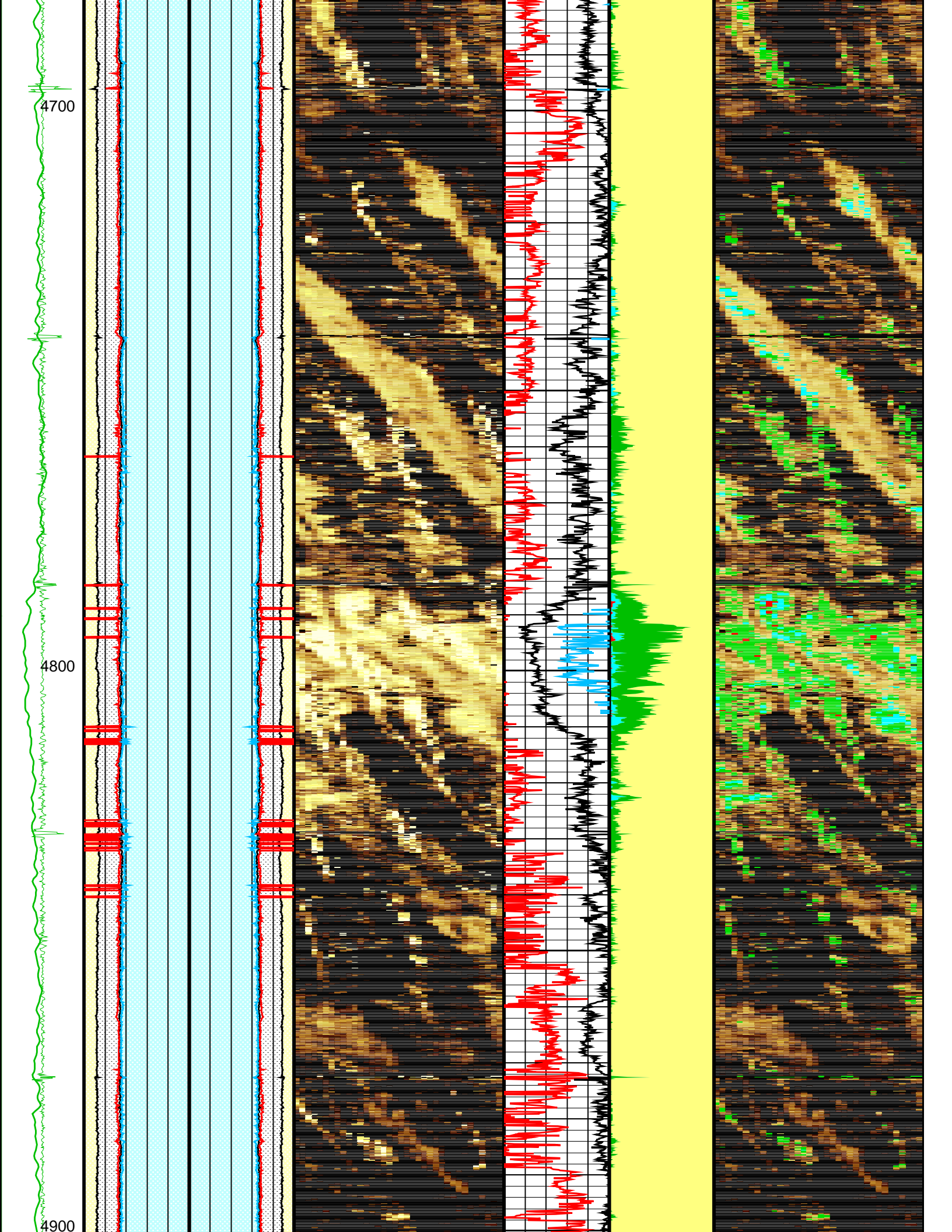


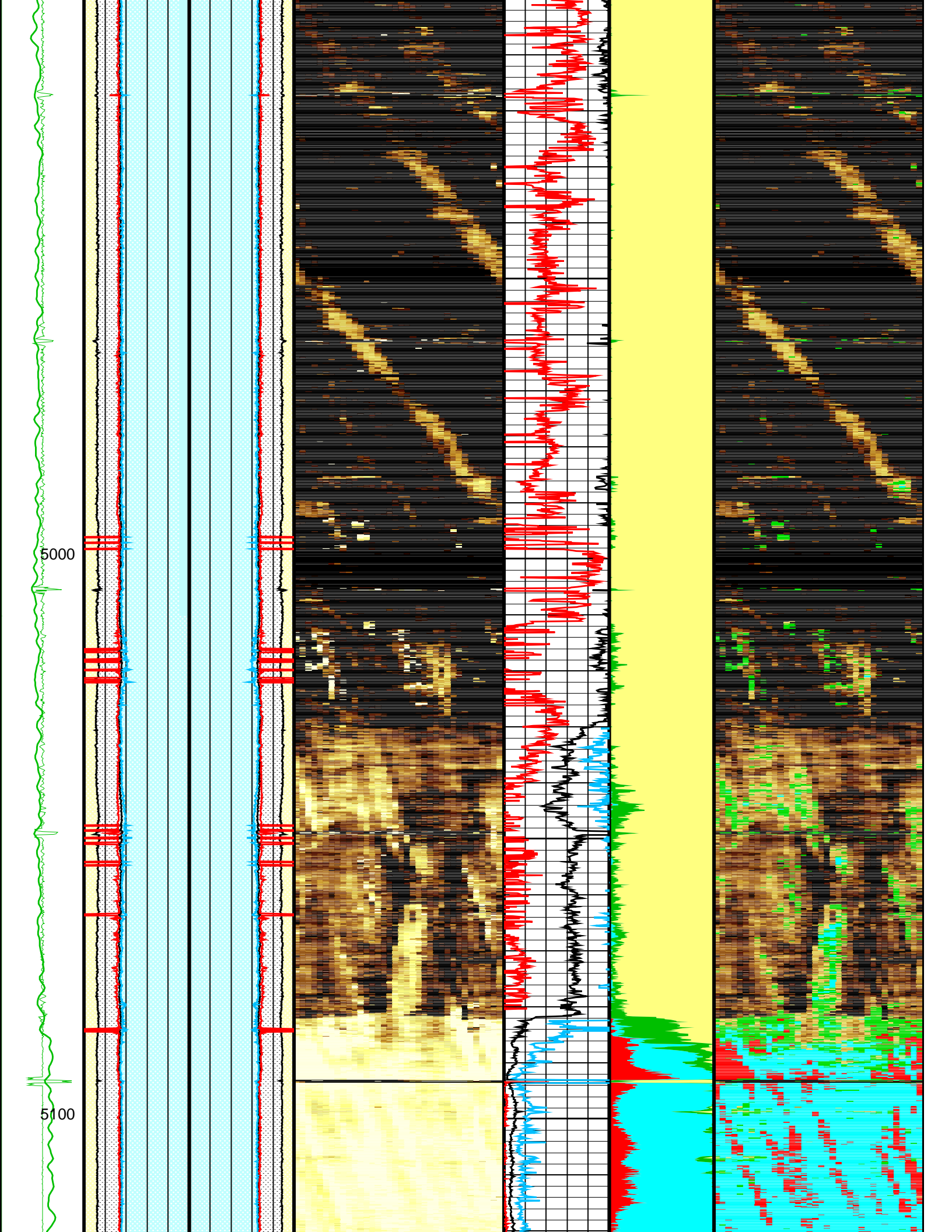


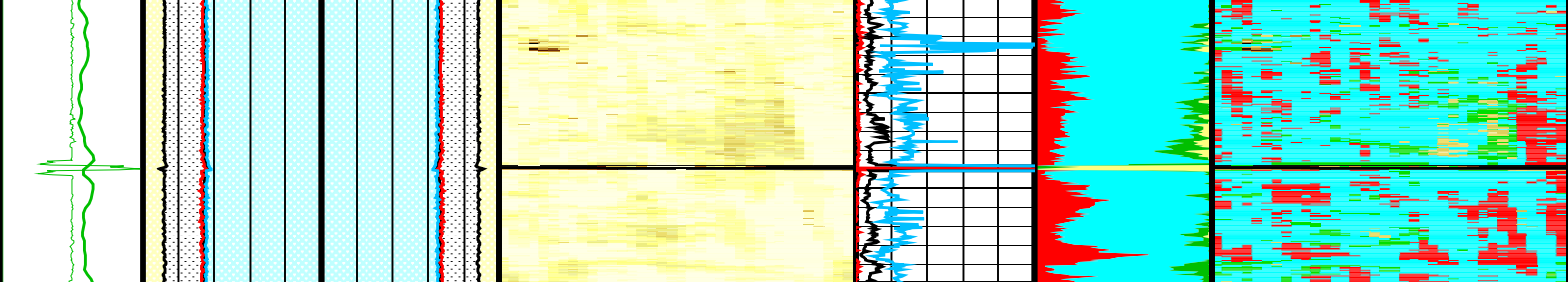












CCL (CCLU) (-----) -20 20	Internal radius Average (IRAV) 2.4 (IN) 1.4	External radius Average (ERAV) 1.4 (IN) 2.4	 Raw Acoustic Imped. (AIBK) (MRAY)	Minimum of AI (AIMN) 0 (MRAY) 10	Bonded	 Cement Map with Impedance Classification (AI_MICRO_DEBONDING_IMAGE) (MRAY)
Cable Speed (CS) (F/HR) 0 2000	Internal radius Maximum (IRMX) 2.4 (IN) 1.4	Internal radius Average (IRAV) 1.4 (IN) 2.4		Average of AI (AIAV) 0 (MRAY) 10	Gas or Dry MicroA	
Gamma Ray (GR) (GAPI) 0 150	External radius Average (ERAV) 2.4 (IN) 1.4	Internal radius Maximum (IRMX) 1.4 (IN) 2.4		Maximum of AI (AIMX) 0 (MRAY) 10	Liquid	
Stuck Stretch (STIT) (F) 0 50	Min of Internal radius (IRMN) 2.4 (IN) 1.4	Min of Internal radius (IRMN) 1.4 (IN) 2.4			Micro-debonding	
Cable Drag From D4T to STIT						
Tool/Tot. Drag From D4T to STIA						
Image rotation (UCAZ) (DEG) 0 360						

Format: USI_Cement Vertical Scale: 5" per 100' Graphics File Created: 04-Mar-2010 18:39

OP System Version: 17C0-154			
USITD	17C0-154	SGTN	17C0-154
DTCH	17C0-154		

Parameters		
DLIS Name	Description	Value
USIT-D:	Ultrasonic Imaging - D	

AGMN	Minimum Gain of Cartridge	-4	dB
AGMX	Maximum Gain of Cartridge	20	dB
BERJ	Bad Echo Rejection	ON	
CDIA	Casing Outer Diameter	4.500	in
CSDE	Casing Density	486.9	lbm/ft3
CSID	Casing Inner Diameter	4.000	in
DFVL	Default Fluid Velocity	206.0	us/ft
DOT	Diameter of Transducer Sensor	1.756	in
EMXV	EMEX Voltage	14	V
FDII	FPM Data Interpolation Interval	0.000	ft
MW	Mud Weight	8.400	lbm/gal
RCOD	Reference Calibrator Outer Diameter	4.500	in
RCSO	Reference Calibrator Standoff	0.842	in
RCTH	Reference Calibrator Thickness	0.216	in
TCUB	T^3 Processing Level	VXLP	
THDH	Maximum Search Thickness (percentage of nominal)	130.0	
THDL	Minimum Search Thickness (percentage of nominal)	70.000	
THDP	Thickness Detection Policy	FUNDAMENTAL	
THNO	Nominal Thickness of Casing	0.250	in
USTO	Ultrasonic Time Offset	-2.000	us
USUB	Ultrasonic Subassembly Identifier	5INC	
UWKM	Ultrasonic Working Mode	D601510H	
VCAS	Ultrasonic Transversal Velocity in Casing	51.400	us/ft
WLEN	T^3 Processing Length	14.992	us
ZCAS	Acoustic Impedance of Casing	46.250	Mrayl
ZINI	Initial Estimate of Cement Impedance	-1.000	Mrayl
ZMUD	Acoustic Impedance of Mud	1.480	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	2.600	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	0.300	Mrayl
STI: Stuck Tool Indicator			
STKT	STI Stuck Threshold	2.500	ft
TDD	Total Depth - Driller	7900.0	ft
TDL	Total Depth - Logger	7850.0	ft
System and Miscellaneous			
CWEI	Casing Weight	11.600	lbm/ft

Input DLIS Files

DEFAULT	USI_027PUP	FN:22	PRODUCER	04-Mar-2010 13:18	7850.0 FT	117.0 FT
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Schlumberger

Lower Cement

MAXIS Field Log

Company: Encana Oil & Gas (USA) Inc	Well: Kennedy No. 1
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Input DLIS Files

DEFAULT	USI_027PUP	FN:22	PRODUCER	04-Mar-2010 13:18	7850.5 FT	117.0 FT
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OP System Version: 17C0-154

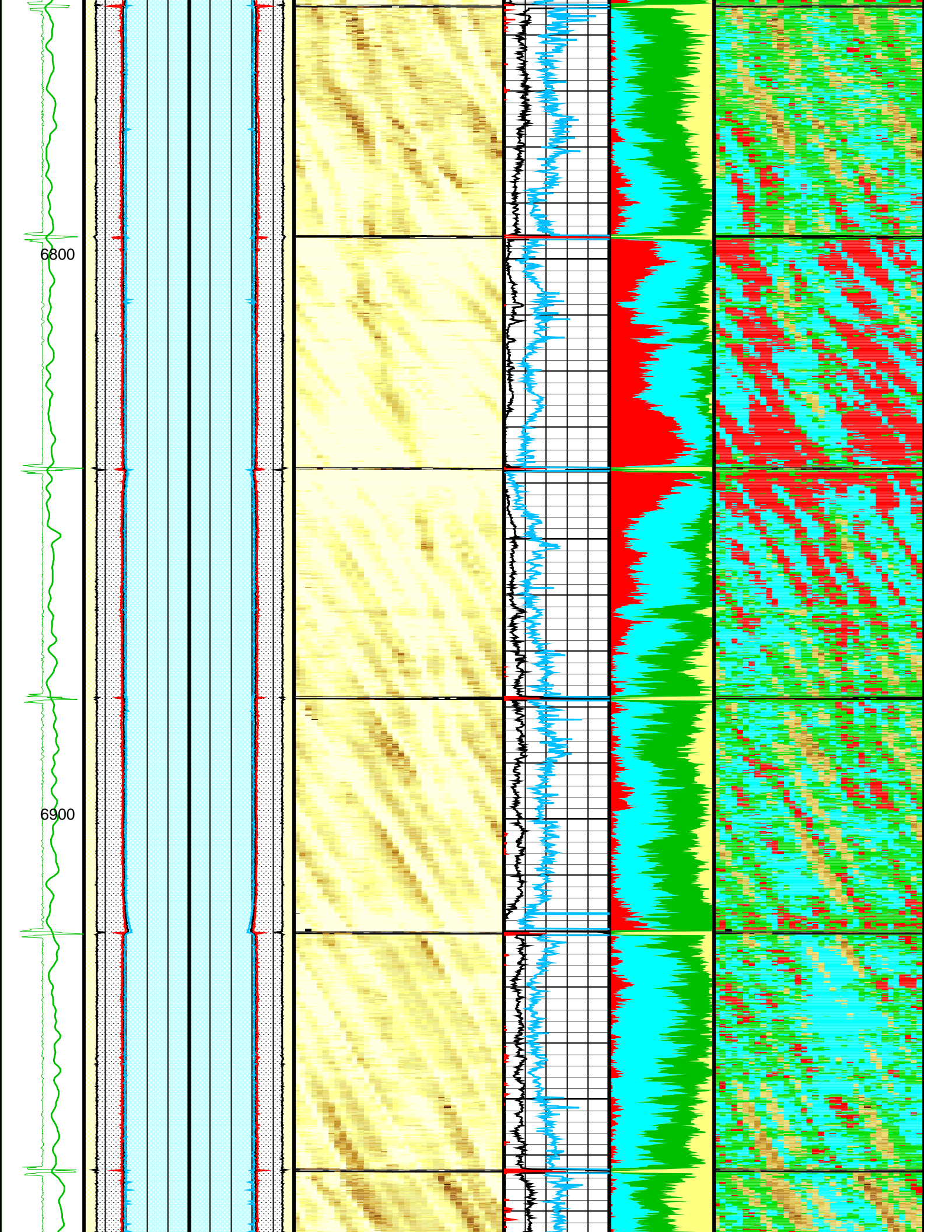
USITD	17C0-154	SGTN	17C0-154
DTCH	17C0-154		

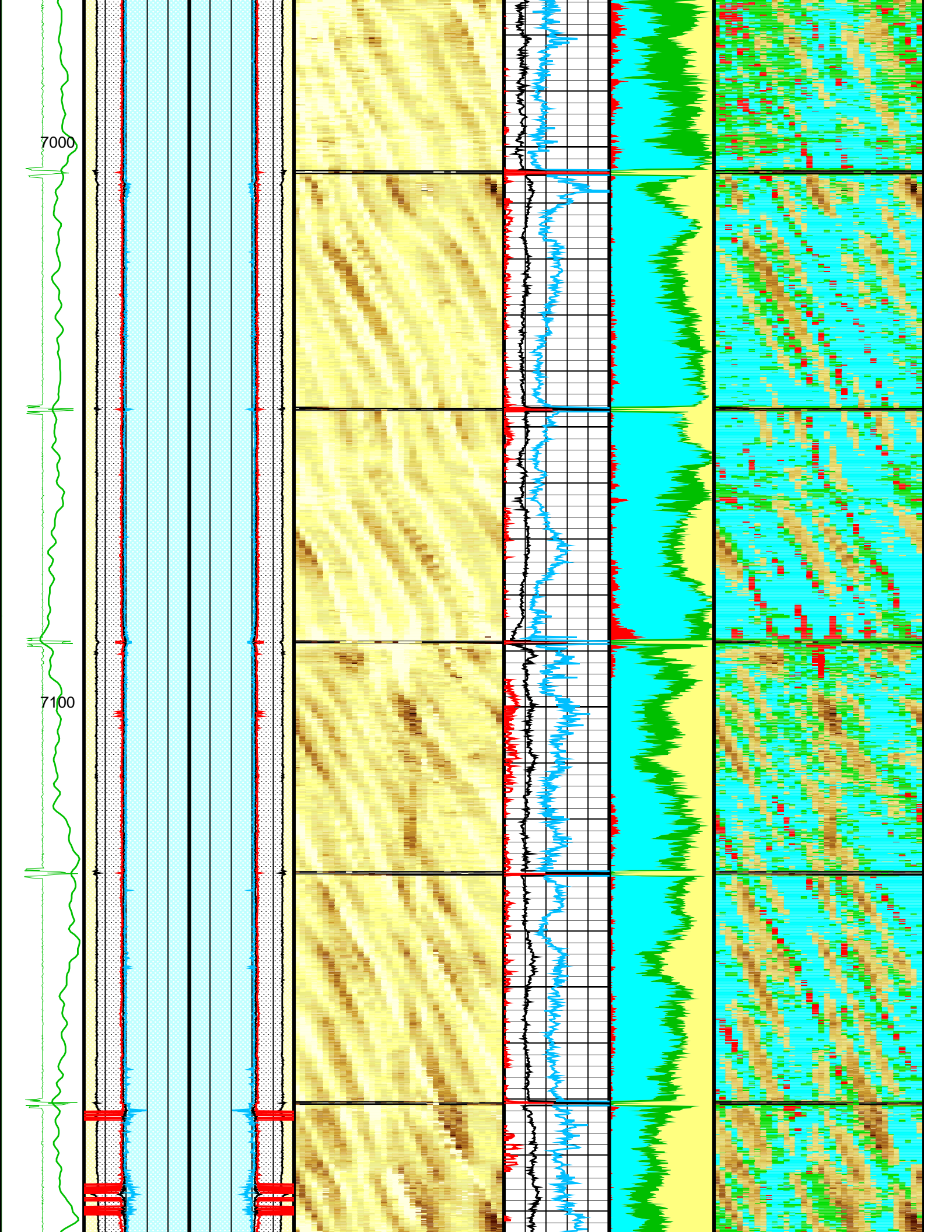
Image
rotation
(UCAZ)
(DEG)

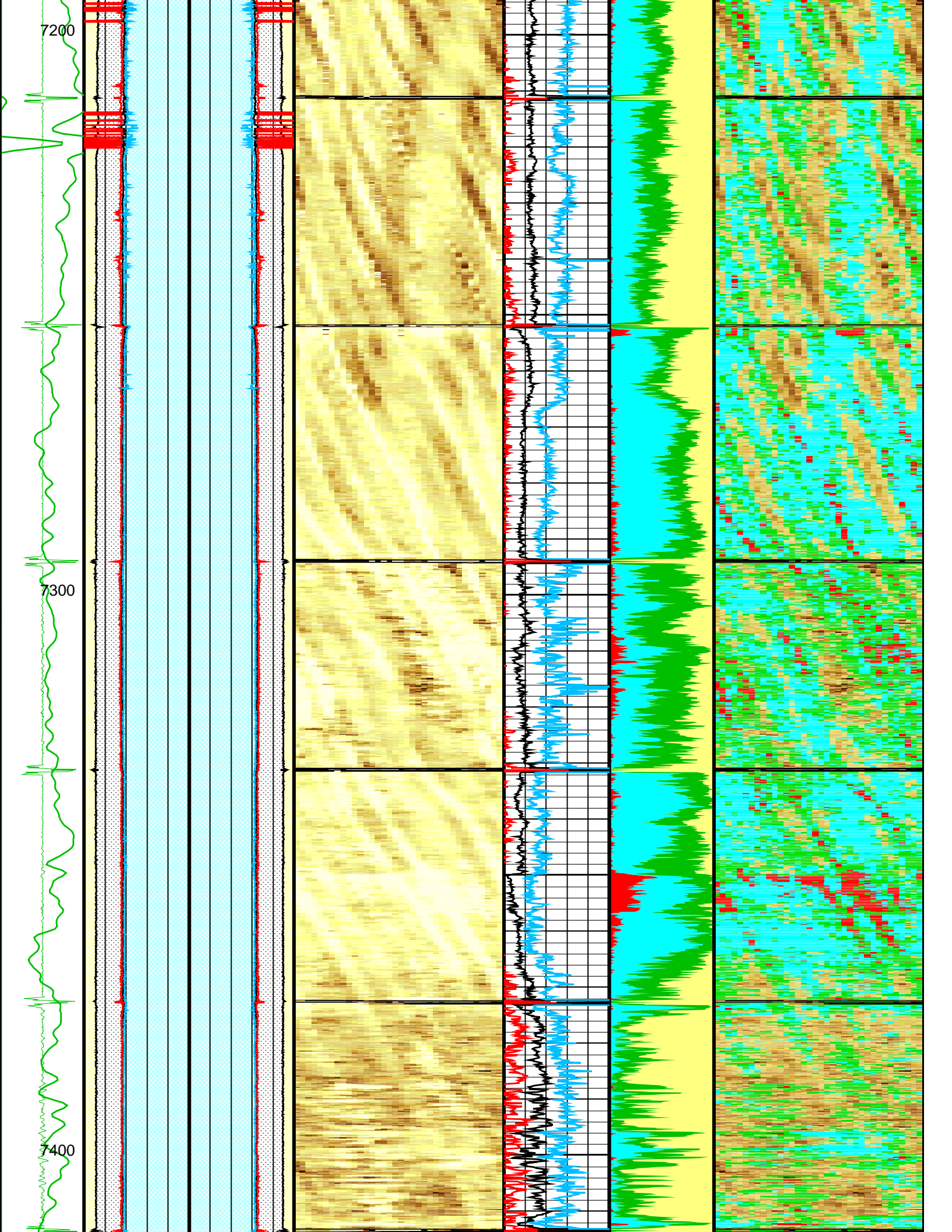
0 360

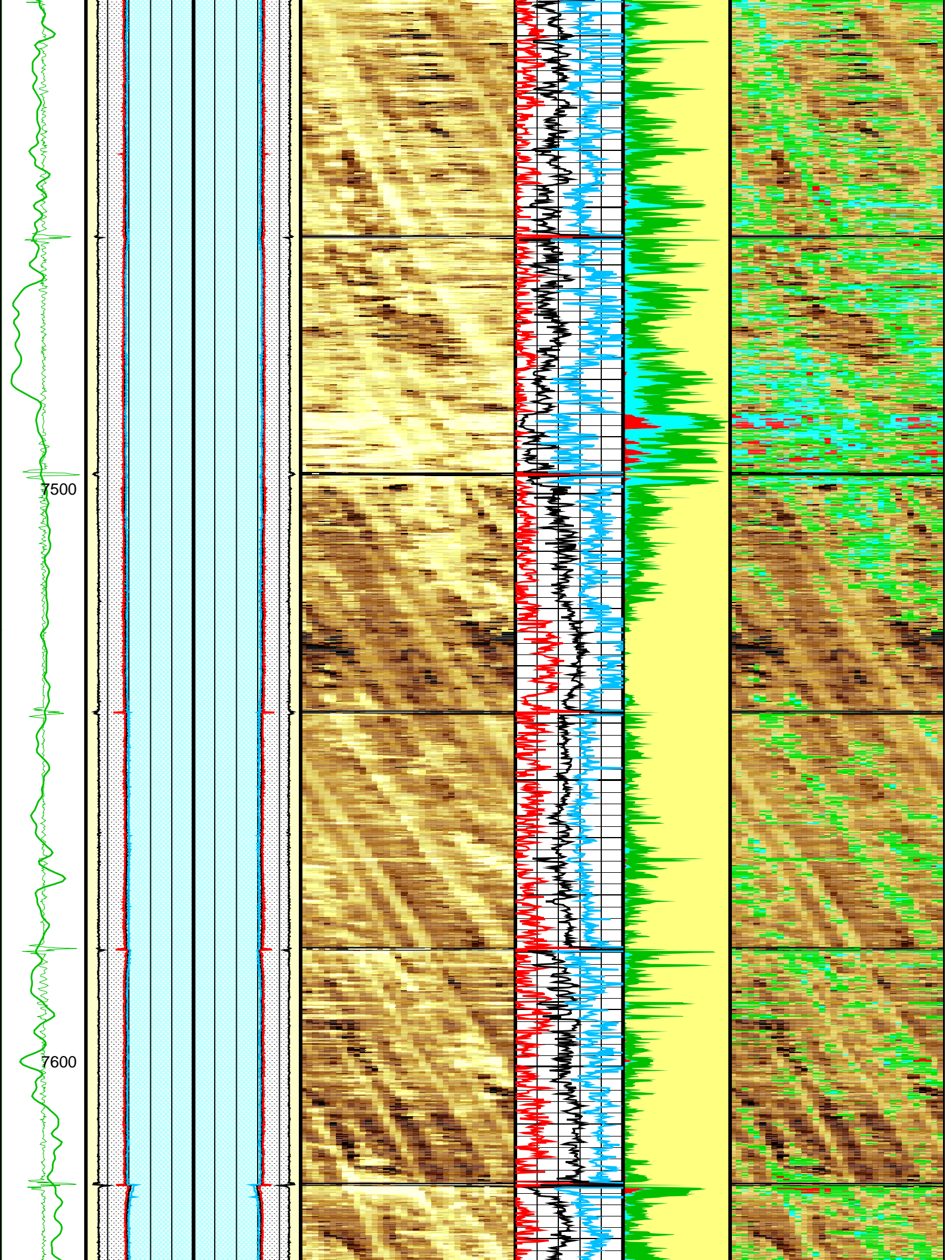
Tool/Tot.
Drag
From D4T
to STIA

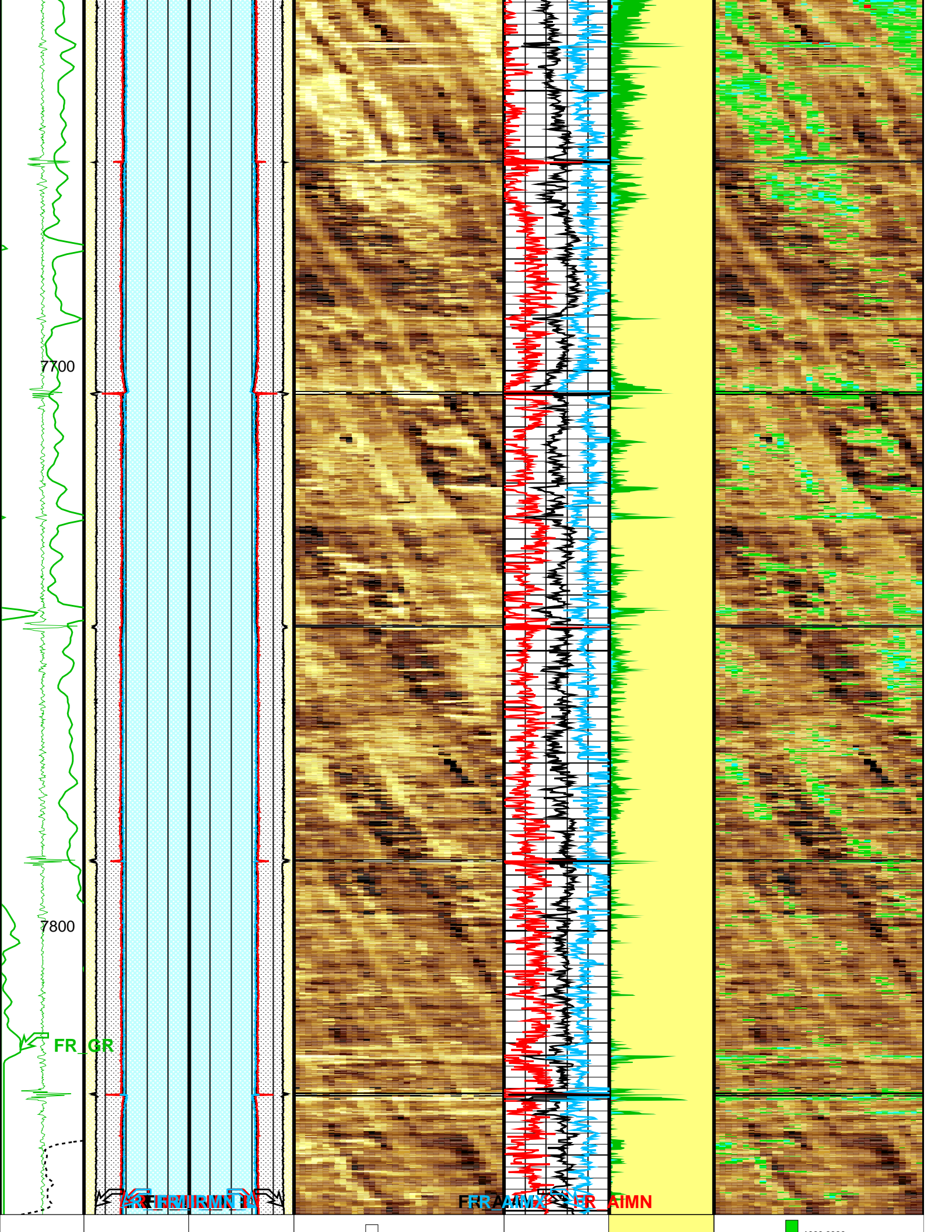
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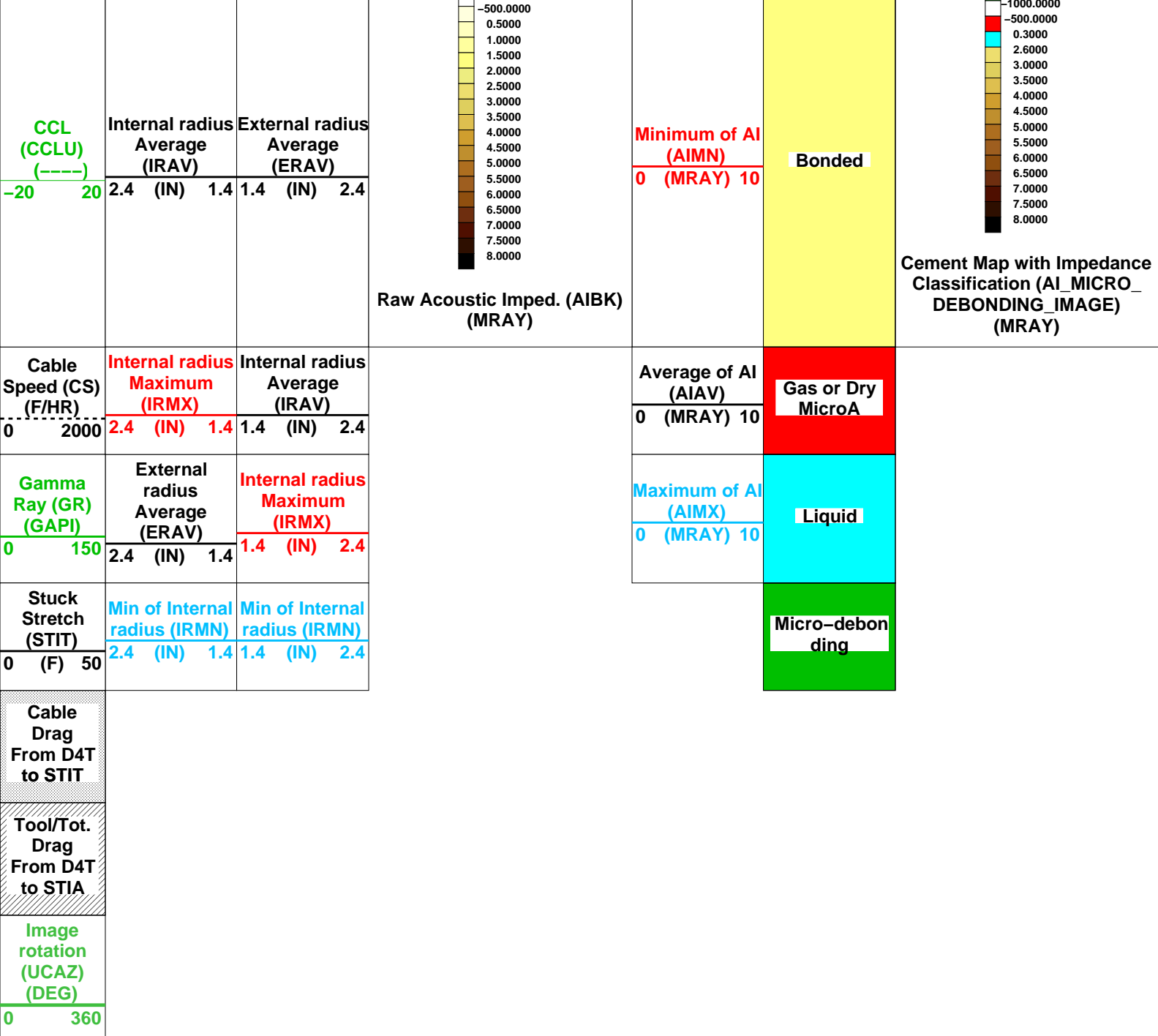












Format: USI_Cement Vertical Scale: 5" per 100' Graphics File Created: 04-Mar-2010 18:38

OP System Version: 17C0-154

USITD	17C0-154	SGTN	17C0-154
DTCH	17C0-154		

Parameters			
DLIS Name	Description	Value	
USIT-D: Ultrasonic Imaging – D			
AGMN	Minimum Gain of Cartridge	–4	dB
AGMX	Maximum Gain of Cartridge	20	dB
BERJ	Bad Echo Rejection	ON	
CDIA	Casing Outer Diameter	4.500	in
CSDE	Casing Density	486.9	lbm/ft3
CSID	Casing Inner Diameter	4.000	in
DFVL	Default Fluid Velocity	206.0	us/ft
DOT	Diameter of Transducer Sensor	1.756	in
EMXV	EMEX Voltage	14	V
FDII	FPM Data Interpolation Interval	0.000	ft
MW	Mud Weight	8.400	lbm/gal
RCOD	Reference Calibrator Outer Diameter	4.500	in
RCSD	Reference Calibrator Standoff	0.843	in

RCSO	Reference Calibrator Standoff	0.842	in
RCTH	Reference Calibrator Thickness	0.216	in
TCUB	T^3 Processing Level	VXLP	
THDH	Maximum Search Thickness (percentage of nominal)	130.0	
THDL	Minimum Search Thickness (percentage of nominal)	70.000	
THDP	Thickness Detection Policy	FUNDAMENTAL	
THNO	Nominal Thickness of Casing	0.250	in
USTO	Ultrasonic Time Offset	-2.000	us
USUB	Ultrasonic Subassembly Identifier	5INC	
UWKM	Ultrasonic Working Mode	D601510H	
VCAS	Ultrasonic Transversal Velocity in Casing	51.400	us/ft
WLEN	T^3 Processing Length	14.992	us
ZCAS	Acoustic Impedance of Casing	46.250	Mrayl
ZINI	Initial Estimate of Cement Impedance	-1.000	Mrayl
ZMUD	Acoustic Impedance of Mud	1.480	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	2.600	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	0.300	Mrayl
STI:	Stuck Tool Indicator		
STKT	STI Stuck Threshold	2.500	ft
TDD	Total Depth - Driller	7900.0	ft
TDL	Total Depth - Logger	7850.0	ft
System and Miscellaneous			
CWEI	Casing Weight	11.600	lbm/ft

Input DLIS Files

DEFAULT	USI_027PUP	FN:22	PRODUCER	04-Mar-2010 13:18	7850.5 FT	117.0 FT
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Company: **Encana Oil & Gas (USA) Inc**

Schlumberger

Well: **Kennedy No. 1**

Field: **Wattenberg**

County: **Weld**

State: **Colorado**

Ultra Sonic imaging Tool
Cement