Schlumberger

Company: **ENCANA OIL & GAS (USA) INC**

Well: **SGU 8506A−36 (B36) 496**

Field: **STORY GULCH**

County: **GARFIELD** State: **COLORADO**

IMAGING BEHIND CASING
ULTRASONIC TOOL
CCL / GAMMA RAY

County: GARFIELD
Field: STORY GULCH
Location: SHL: 725' FNL 1627' FEL
Well: SGU 8506A−36 (B36) 496
Company: ENCANA OIL & GAS (USA) INC

LOCATION

SHL: 725' FNL 1627' FEL

Elev.: K.B. 8373.00 ft
G.L. 8351.00 ft
D.F. 8372.00 ft

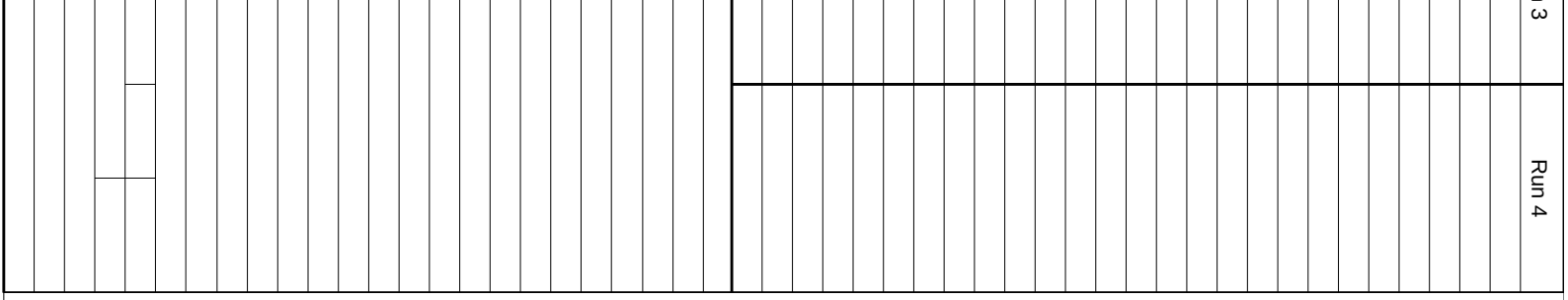
Permanent Datum: GROUND LEVEL Elev.: 8351.00 ft
Log Measured From: KELLY BUSHING 22.00 ft above Perm. Datum
Drilling Measured From: KELLY BUSHING

API Serial No.	Section	Township	Range
05−045−1911900	36	4S	96W

		Run 1	Run 2	Run
PVT DATA	Oil Density			
	Water Salinity			
	Gas Gravity			
	Bo			
	Bw			
	1/Bg			
	Bubble Point Pressure			
	Bubble Point Temperature			
	Solution GOR			
	Maximum Deviation	0 deg		
	CEMENTING DATA			
	Primary/Squeeze	Primary		
	Casing String No			
	Lead Cement Type	LIGHTCRETE		
	Volume			
	Density	9 lbm/gal		
	Water Loss			
	Additives			
	Tail Cement Type			
	Volume			
	Density	9 lbm/gal		
	Water Loss			
	Additives			
	Expected Cement Top	300 ft		

Logging Date		25−Jul−2010						
Run Number		1						
Depth Driller		3062 ft						
Schlumberger Depth		2826 ft						
Bottom Log Interval		2826 ft						
Top Log Interval		100 ft						
Casing Fluid Type		WBM						
Salinity								
Density		8.4 lbm/gal						
Fluid Level		30 ft						
BIT/CASING/TUBING STRING								
Bit Size		14.750 in						
From		120 ft						
To		3062 ft						
Casing/Tubing Size		9.625 in						
Weight		36 lbm/ft						
Grade								
From		120 ft						
To		3062 ft						
Maximum Recorded Temperatures		105 degF						
Logger On Bottom	Time	25−Jul−2010	17:43					
Unit Number	Location	2379	Vernal					
Recorded By		Katie Walsh/Yating Wang						
Witnessed By		Ira Cox						

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	Time			
Unit Number	Location			
Recorded By				
Witnessed By				



DEPTH SUMMARY LISTING

Date Created: 25−JUL−2010 19:22:24

Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW−B	Type:	CMTD−B/A	Type:	7−46V XS
Serial Number:	6214	Serial Number:	8093	Serial Number:	709025
Calibration Date:	26−Jan−2010	Calibration Date:	22−Jul−2010	Length:	29060 FT
Calibrator Serial Number:	33	Calibrator Serial Number:	100518		
Calibration Cable Type:	7−46P	Number of Calibration Points:	10	Conveyance Method:	Wireline
Wheel Correction 1:	−8	Calibration RMS:	24	Rig Type:	LAND
Wheel Correction 2:	−7	Calibration Peak Error:	51		

Depth Control Parameters

Log Sequence:	First Log In the Well
Rig Up Length At Surface:	249.80 FT
Rig Up Length At Bottom:	250.20 FT
Rig Up Length Correction:	−0.40 FT
Stretch Correction:	2.00 FT
Tool Zero Check At Surface:	1.00 FT

Depth Control Remarks

1. All Schlumberger depth control policies followed
2. IDW used as primary depth reference, Z−chart used as secondary depth reference
3. Log up correlated to log down from TD to 2500ft
4.
5.
6.

OTHER SERVICES1	OTHER SERVICES2
OS1: NONE	OS1:
OS2:	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
Tool ran as per tool sketch	
Tool centralized using 2 x In−Line−Centralizers and 1 x Gemco	
GR from EDTC	
UFAO =−5 db/m	
Logged at 1700 ft/hr	
Expected Casing Thickness=0.352", observed Casing Thickness=0.352"	
Expected Casing ID = 8.921", observed Casing ID=8.9"	

IBC resolution set to 5 deg 6 inch	
IBC transducer angles set at 33 deg	
Cement used is LIGHTCRETE, 9 ppg, Acoustic impedance= 1.7 MRayls	
Some gas shows may be due to ultra light cement or nitrogen infused cement	

RUN 1		RUN 2	
SERVICE ORDER #:	B49A−00068	SERVICE ORDER #:	
PROGRAM VERSION:	17C0−154	PROGRAM VERSION:	
FLUID LEVEL:	30 ft	FLUID LEVEL:	

LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

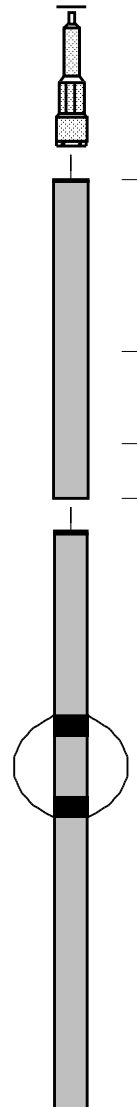
EQUIPMENT DESCRIPTION

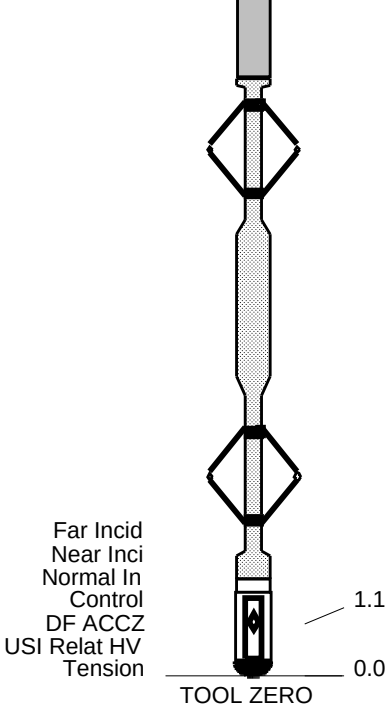
RUN 1 RUN 2

SURFACE EQUIPMENT

WITM (EDTS)−A

DOWNHOLE EQUIPMENT

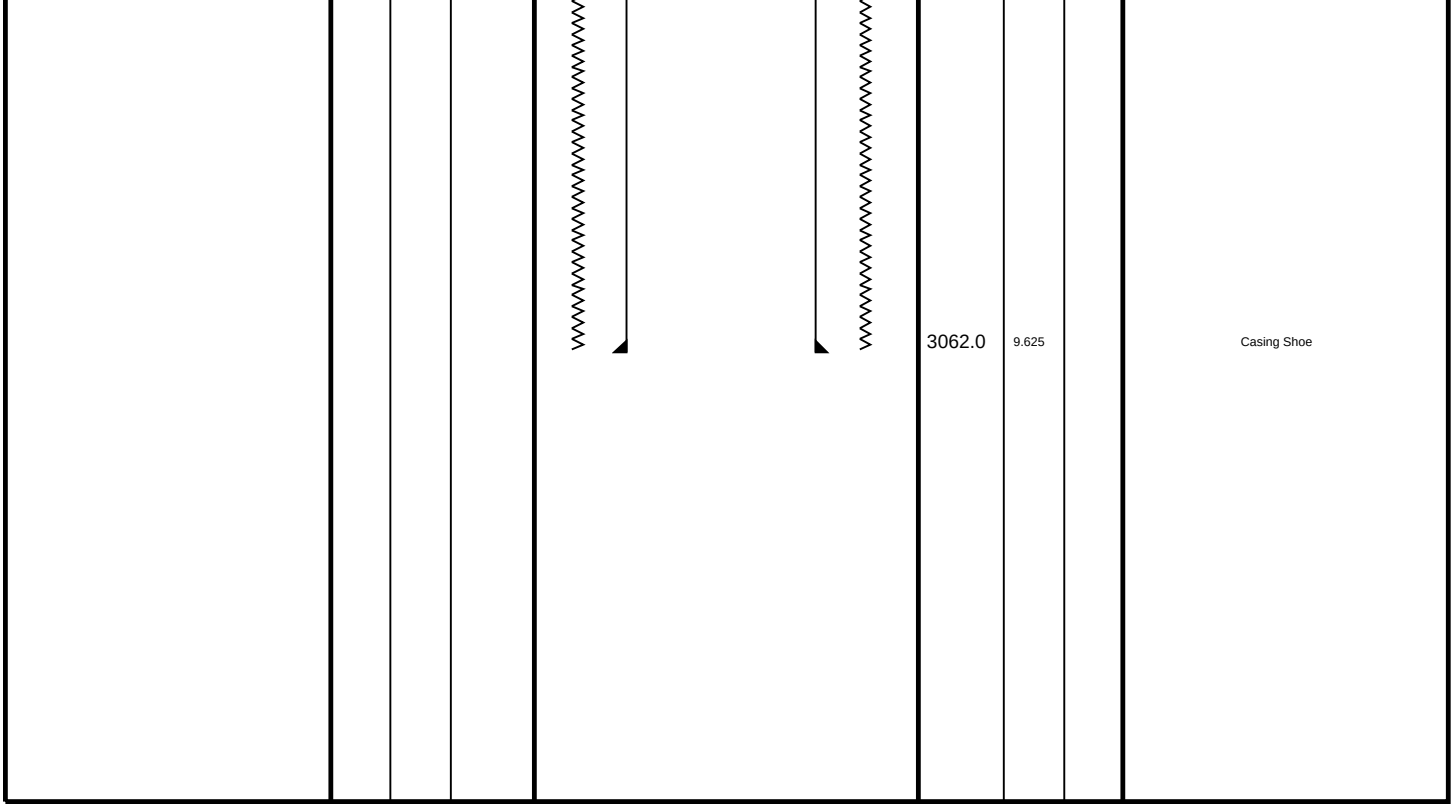




MAXIMUM STRING DIAMETER 7.50 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN FEET

Client: ENCANA OIL & GAS (USA) INC
Drawing Date: 7/25/2010
Well: SGU 8506A−36 (B36) 496
API #: 05−045−1911900
Field: STORY GULCH
Rig Name: Crane
State: COLORADO
Reference Datum: Kelly Bushing
Country: USA
Elevation: 8373.0 ft

Production String	(in) OD	(in) ID	(ft) MD	Well Schematic	(ft) MD	(in) OD	(in) ID	Casing String
					120.0	9.625		Casing String
					120.0	14.750		Borehole Segment



All depths are driller's depth

Schlumberger

IBC SLG COMPOSITE

MAXIS Field Log

Company: ENCANA OIL & GAS (USA) INC **Well: SGU 8506A−36 (B36) 496**

Input DLIS Files

DEFAULT	**USI_013LUP**	**FN:12**	**PRODUCER**	**25−Jul−2010 17:43**	**2823.5 FT**	**100.0 FT**

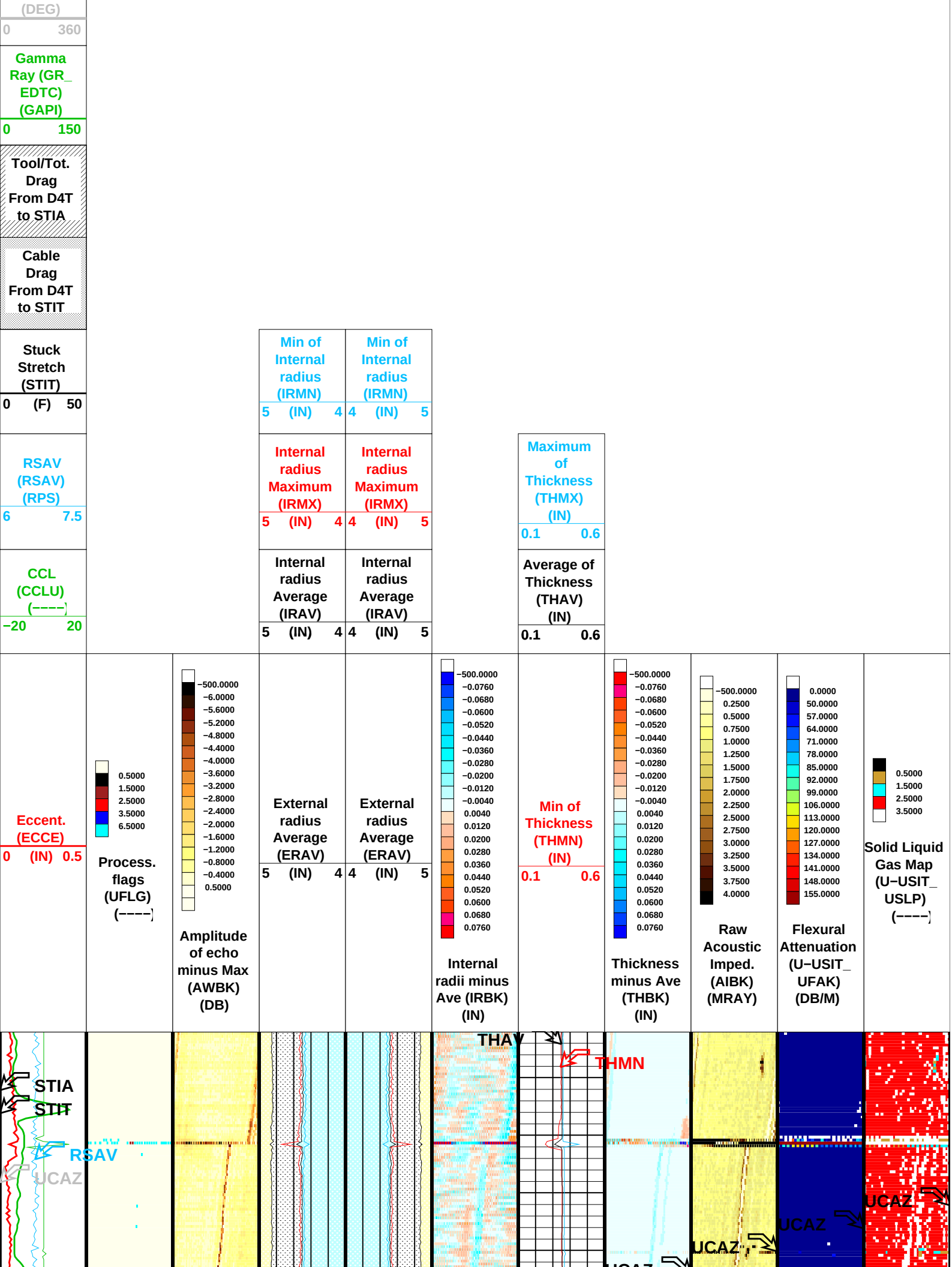
Output DLIS Files

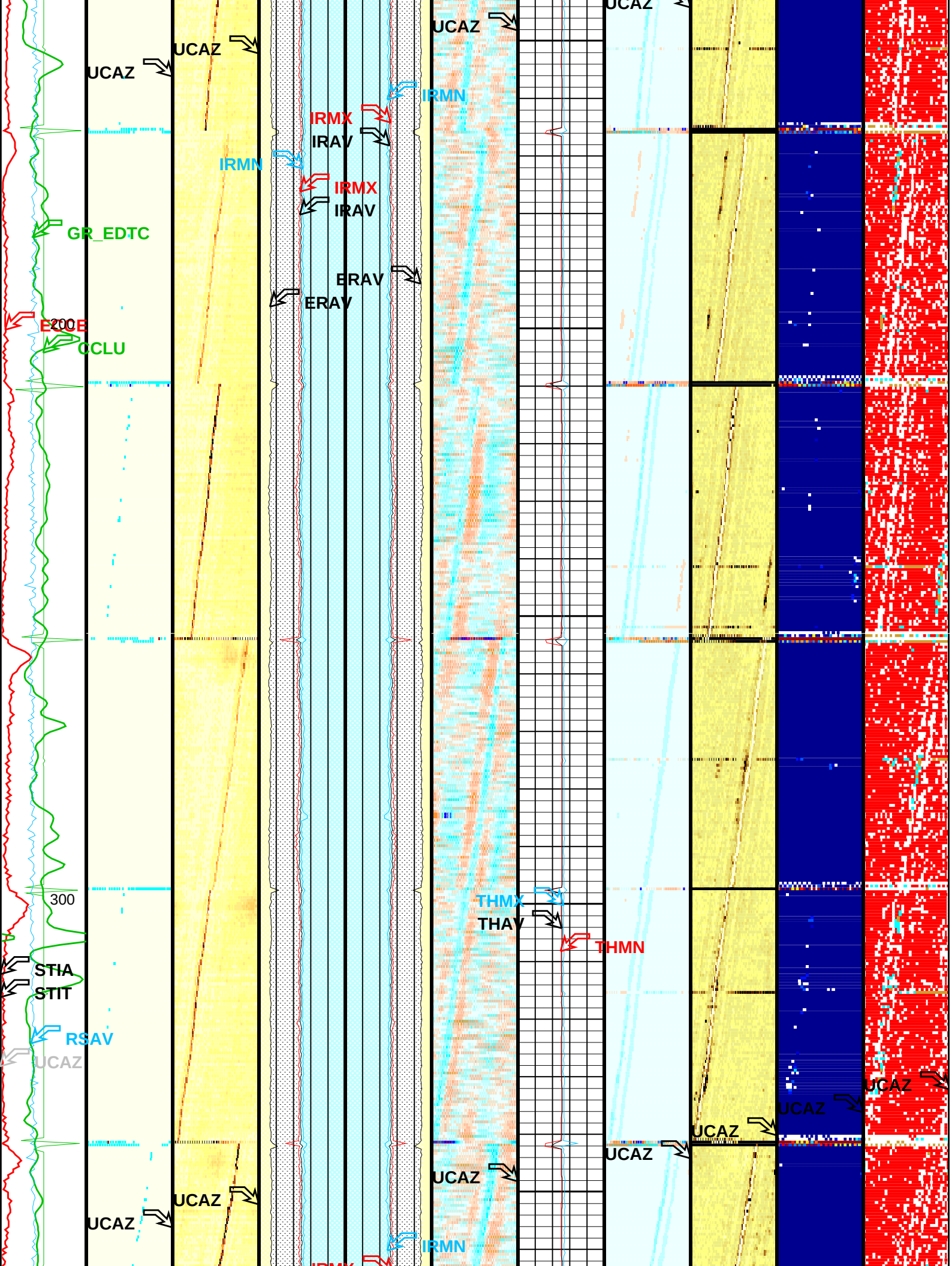
DEFAULT	**USI_016PUP**	**FN:24**	**PRODUCER**	**25−Jul−2010 20:01**	**2825.5 FT**	**102.0 FT**

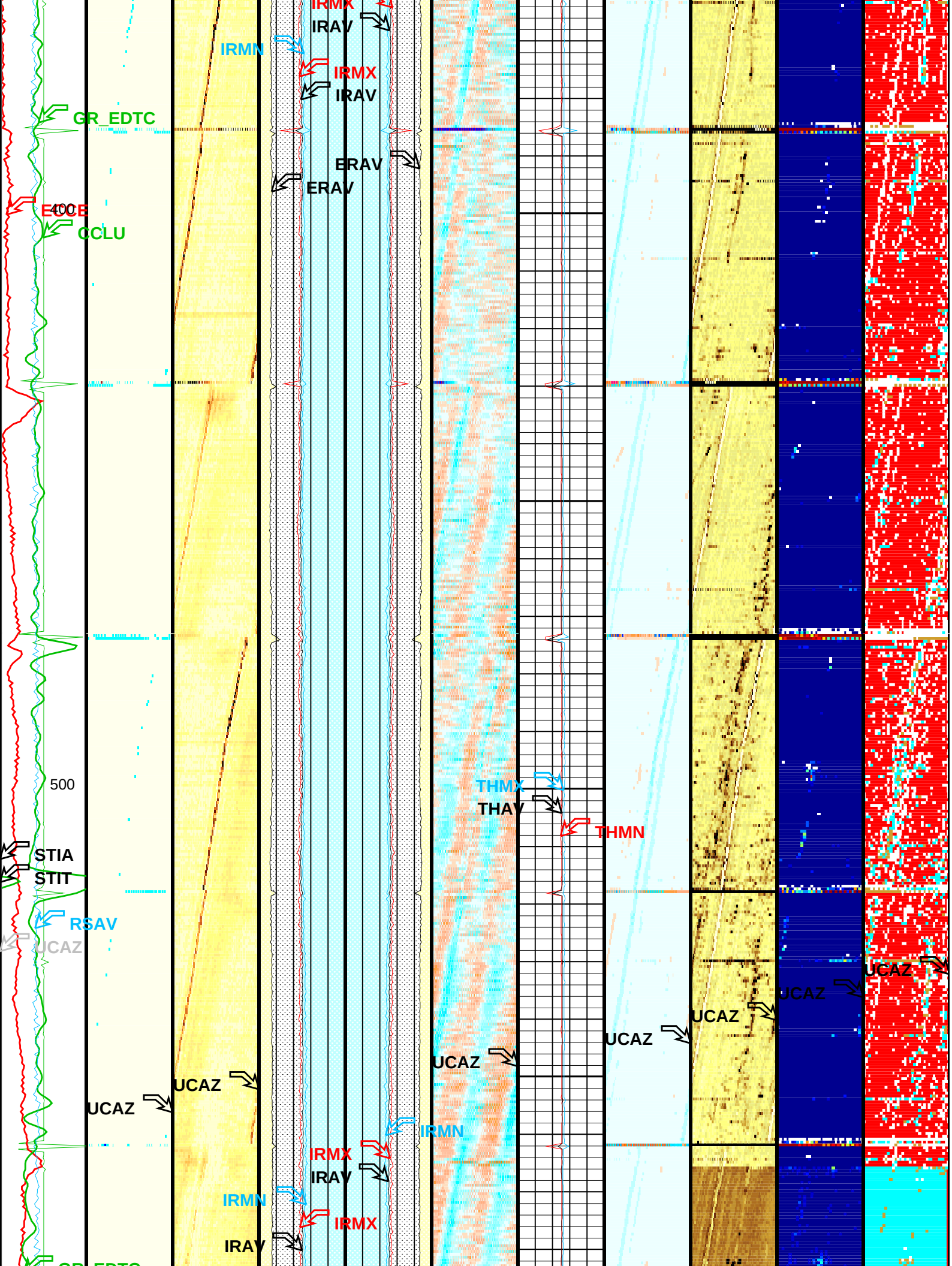
OP System Version: 17C0−154

USIT−D	**17C0−154**	**EDTC−B**	**17C0−154**

Image rotation (UCAZ)


(DEG)
0 360
Gamma Ray (GR_ EDTC) (GAPI)
0 150
Tool/Tot. Drag From D4T to STIA
Cable Drag From D4T to STIT
Stuck Stretch (STIT)
0 (F) 50
RSAV (RSAV) (RPS)
6 7.5
CCL (CCLU) (----)
−20 20
Eccent. (ECCE)
0 (IN) 0.5
0.5000
1.5000
2.5000
3.5000
6.5000
Process. flags (UFLG) (----)
−500.0000
−6.0000
−5.6000
−5.2000
−4.8000
−4.4000
−4.0000
−3.6000
−3.2000
−2.8000
−2.4000
−2.0000
−1.6000
−1.2000
−0.8000
−0.4000
0.5000
Amplitude of echo minus Max (AWBK) (DB)
Min of Internal radius (IRMN)
5 (IN) 4
Internal radius Maximum (IRMX)
5 (IN) 4
Internal radius Average (IRAV)
5 (IN) 4
External radius Average (ERAV)
5 (IN) 4
Min of Internal radius (IRMN)
4 (IN) 5
Internal radius Maximum (IRMX)
4 (IN) 5
Internal radius Average (IRAV)
4 (IN) 5
External radius Average (ERAV)
4 (IN) 5
−500.0000
−0.0760
−0.0680
−0.0600
−0.0520
−0.0440
−0.0360
−0.0280
−0.0200
−0.0120
−0.0040
0.0040
0.0120
0.0200
0.0280
0.0360
0.0440
0.0520
0.0600
0.0680
0.0760
Internal radii minus Ave (IRBK) (IN)
Maximum of Thickness (THMX) (IN)
0.1 0.6
Average of Thickness (THAV) (IN)
0.1 0.6
Min of Thickness (THMN) (IN)
0.1 0.6
−500.0000
−0.0760
−0.0680
−0.0600
−0.0520
−0.0440
−0.0360
−0.0280
−0.0200
−0.0120
−0.0040
0.0040
0.0120
0.0200
0.0280
0.0360
0.0440
0.0520
0.0600
0.0680
0.0760
Thickness minus Ave (THBK) (IN)
−500.0000
0.2500
0.5000
0.7500
1.0000
1.2500
1.5000
1.7500
2.0000
2.2500
2.5000
2.7500
3.0000
3.2500
3.5000
3.7500
4.0000
Raw Acoustic Imped. (AIBK) (MRAY)
0.0000
50.0000
57.0000
64.0000
71.0000
78.0000
85.0000
92.0000
99.0000
106.0000
113.0000
120.0000
127.0000
134.0000
141.0000
148.0000
155.0000
Flexural Attenuation (U−USIT_ UFAK) (DB/M)
0.5000
1.5000
2.5000
3.5000
Solid Liquid Gas Map (U−USIT_ USLP) (----)
STIA
STIT
RSAV
UCAZ
THAV
THMN
UCAZ
UCAZ
UCAZ
UCAZ


UCAZ
UCAZ
UCAZ
IRMN
IRMX
IRAV
IRMN
IRMX
IRAV
GR_EDTC
ERAV
ERAV
200
ECLU
CCLU
300
THMX
THAV
THMN
STIA
STIT
RSAV
UCAZ
UCAZ
UCAZ
UCAZ
UCAZ
UCAZ
UCAZ
IRMN


IRMX
IRAV
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IRMX
IRAV
GR_EDTC
ERAV
ERAV
400
CCLU
500
THMX
THAV
THMN
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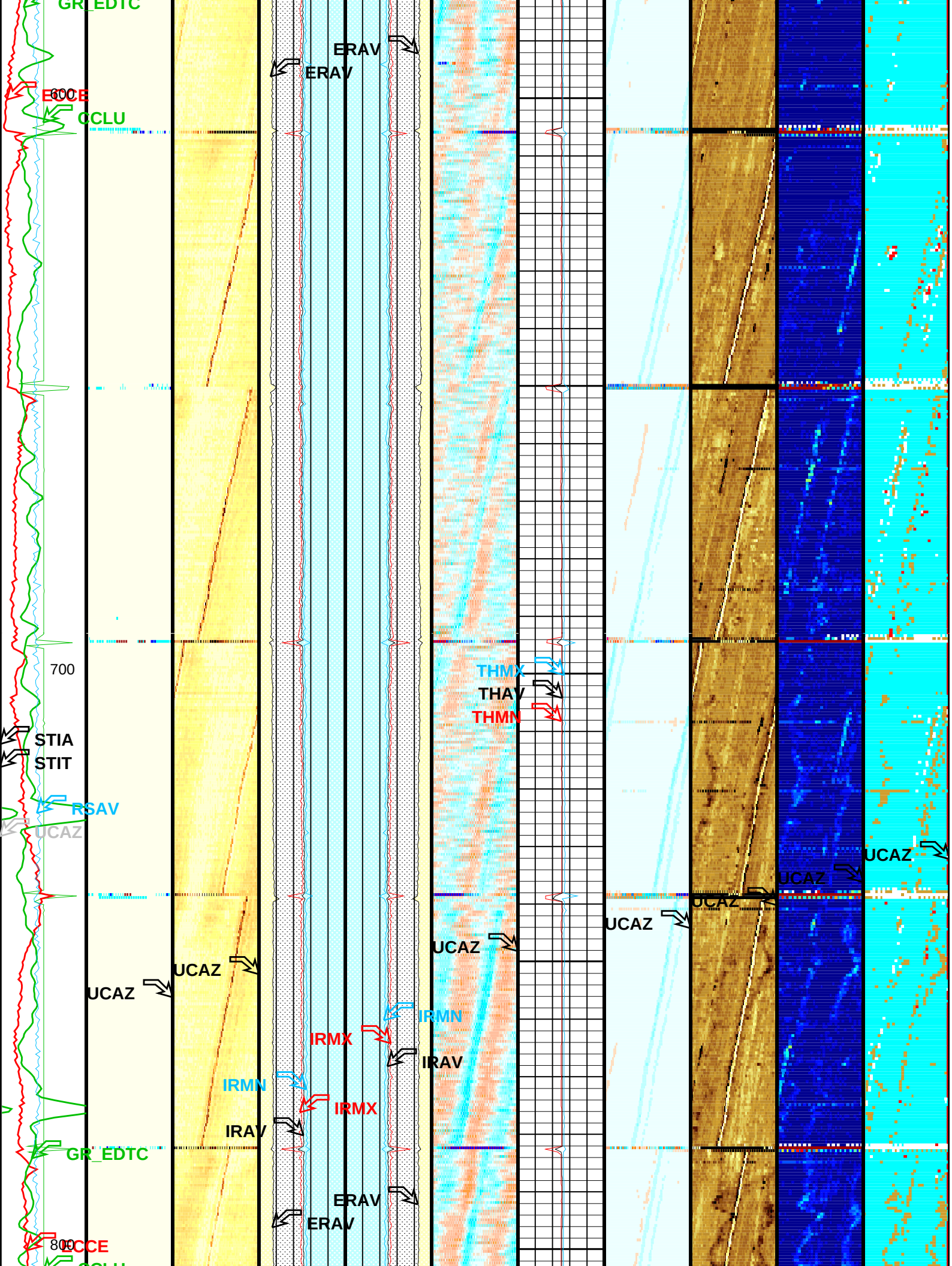
STIT
RSAV
UCAZ
UCAZ
UCAZ
UCAZ
UCAZ
UCAZ
UCAZ
IRMN
IRMX
IRAV
IRMN
IRMX
IRAV


GR_EDTC
ERAV
ERAV
600
ECCE
CCLU
700
THMX
THAV
THMN
STIA
STIT
RSAV
UCAZ
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UCAZ
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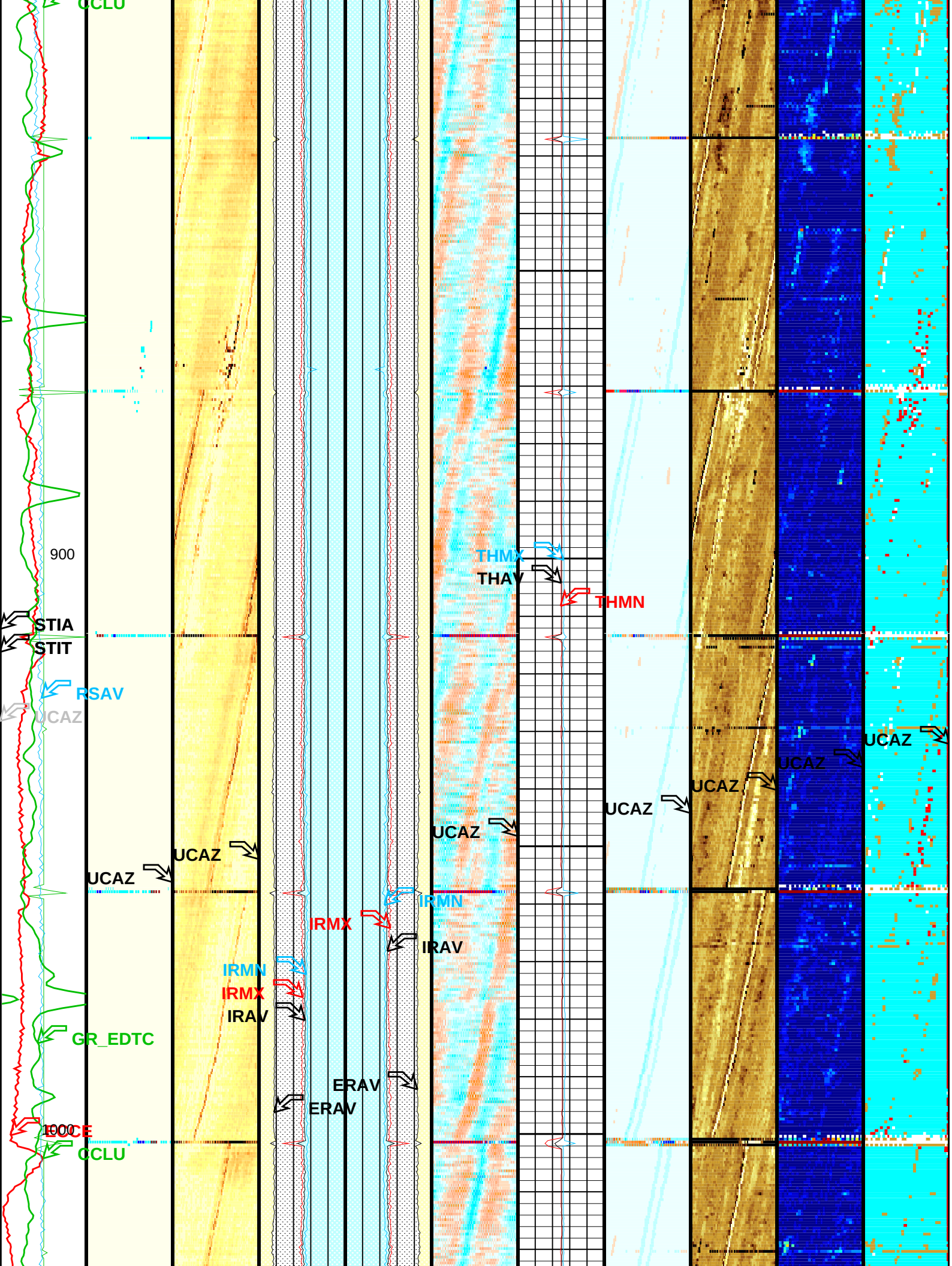
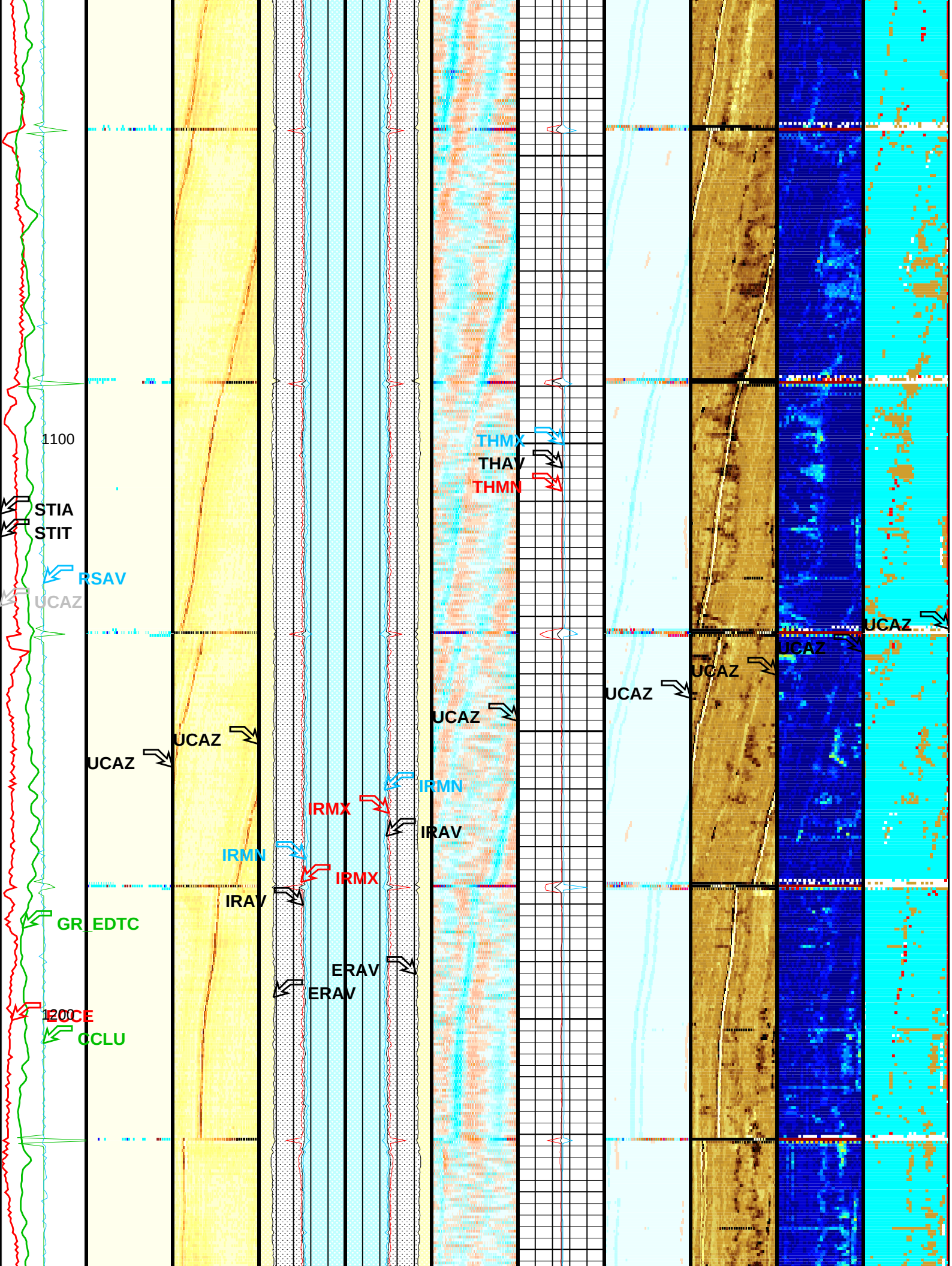
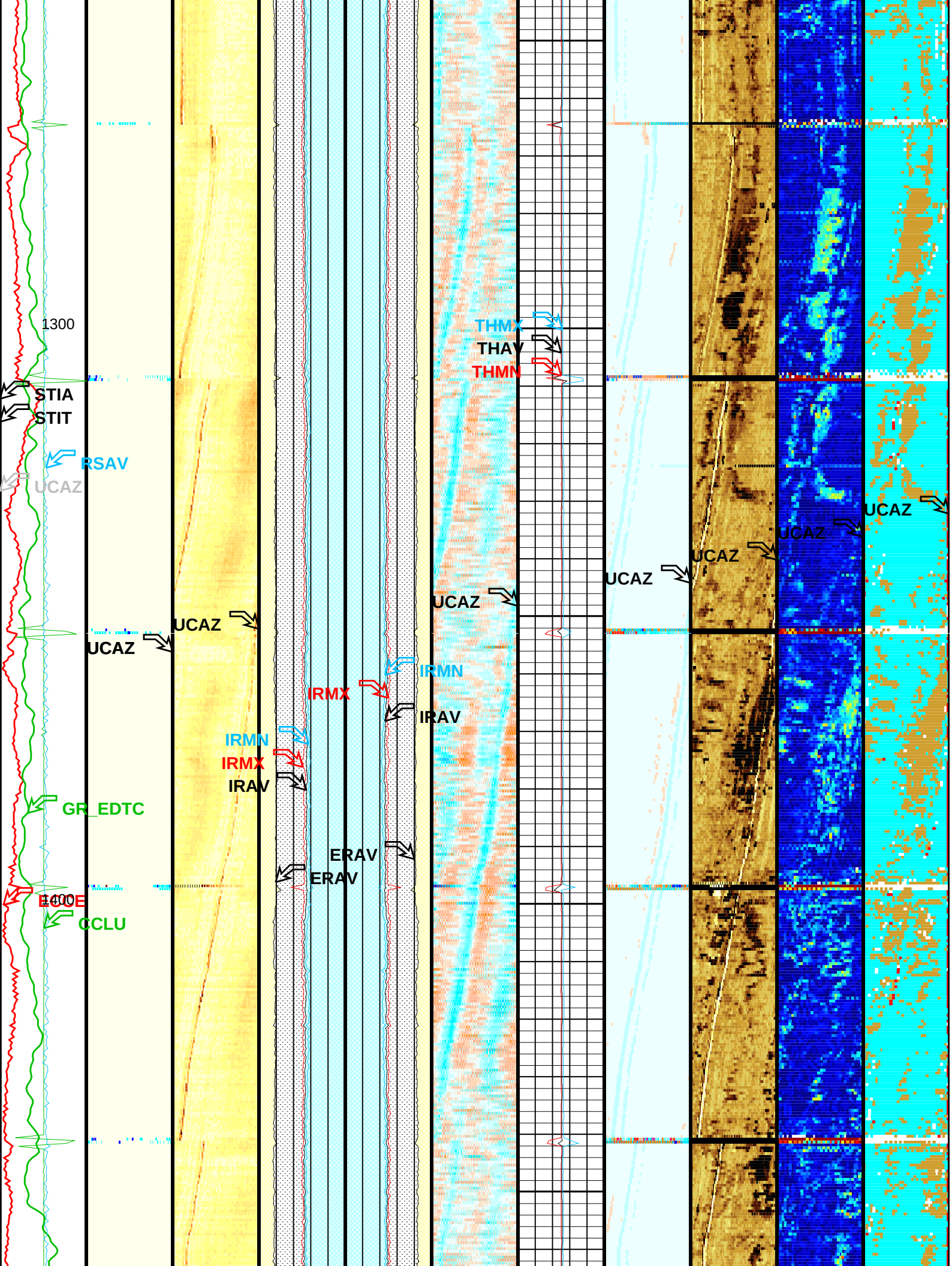
IRMX
IRAV
GR_EDTC
ERAV
ERAV
800
CCLU


CCLU
900
STIA
STIT
RSAV
UCAZ
GR_EDTC
1000
CCLU
THMX
THAV
THMN
UCAZ
UCAZ
UCAZ
UCAZ
UCAZ
UCAZ
IRMN
IRMX
IRAV
IRMN
IRMX
IRAV
ERAV
ERAV


1100
THMX
THAV
THMN
STIA
STIT
RSAV
UCAZ
UCAZ
UCAZ
UCAZ
UCAZ
UCAZ
UCAZ
IRMN
IRMX
IRAV
IRMN
IRMX
IRAV
GR_EDTC
ERAV
ERAV
1200
CCLU


1300
THMX
THAV
THMN
STIA
STIT
RSAV
UCAZ
UCAZ
UCAZ
UCAZ
UCAZ
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IRMN
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IRAV
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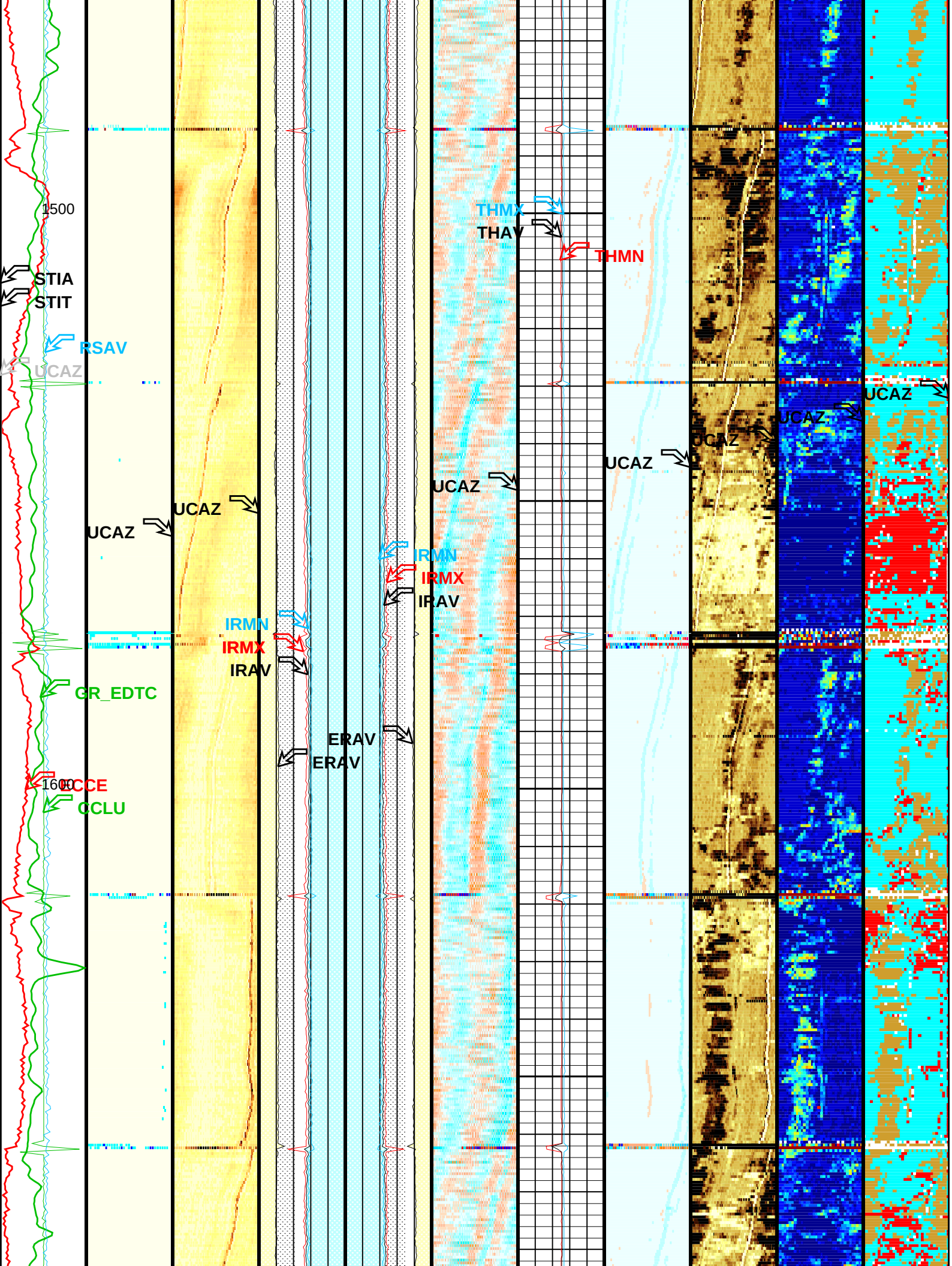
IRMX
IRAV
GR_EDTC
ERAV
ERAV
1400
CCLU


1500
1600
STIA
STIT
RSAV
UCAZ
GR_EDTC
CCCE
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UCAZ
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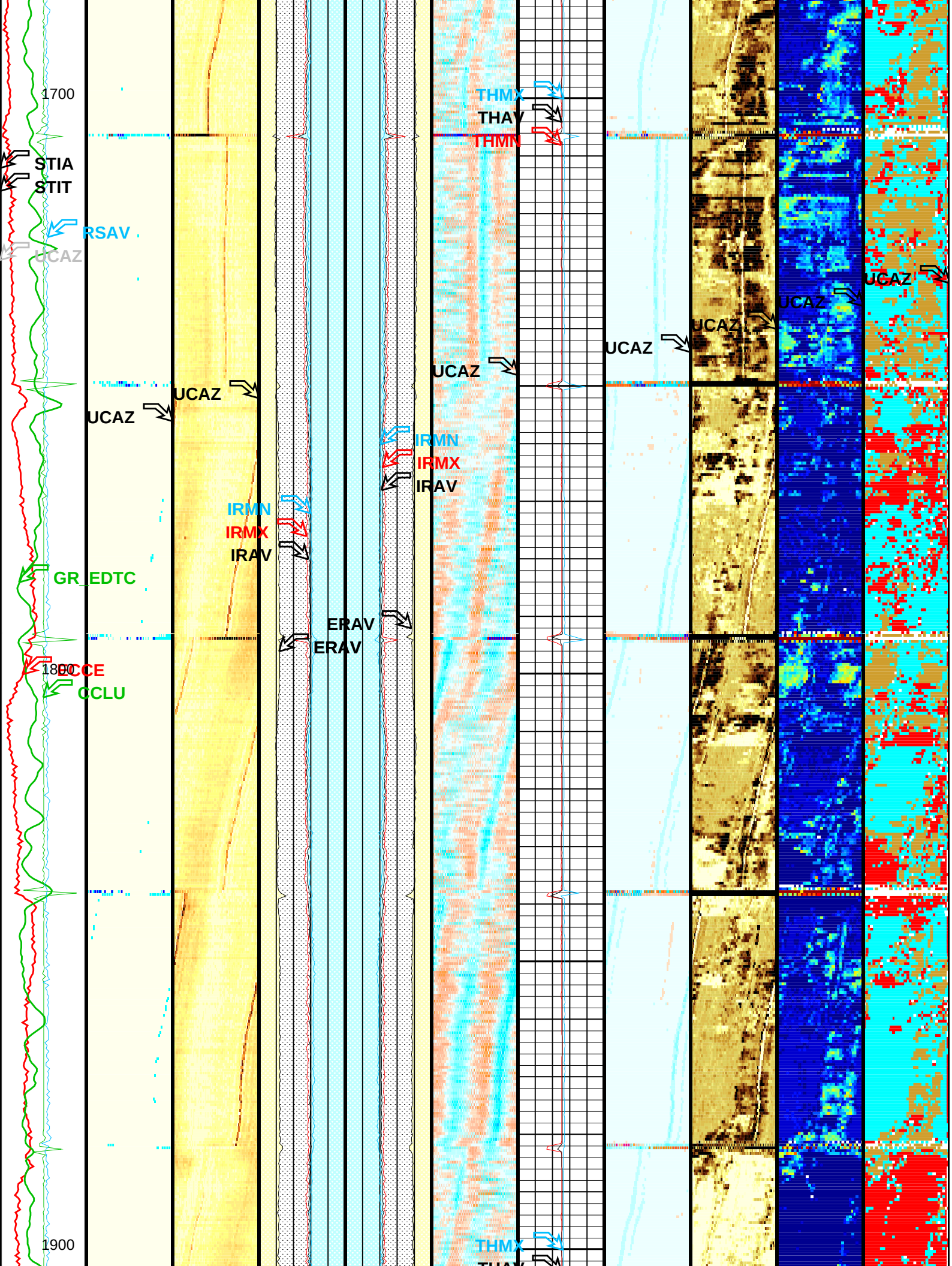
ERAV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STIT
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ERAV
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1800
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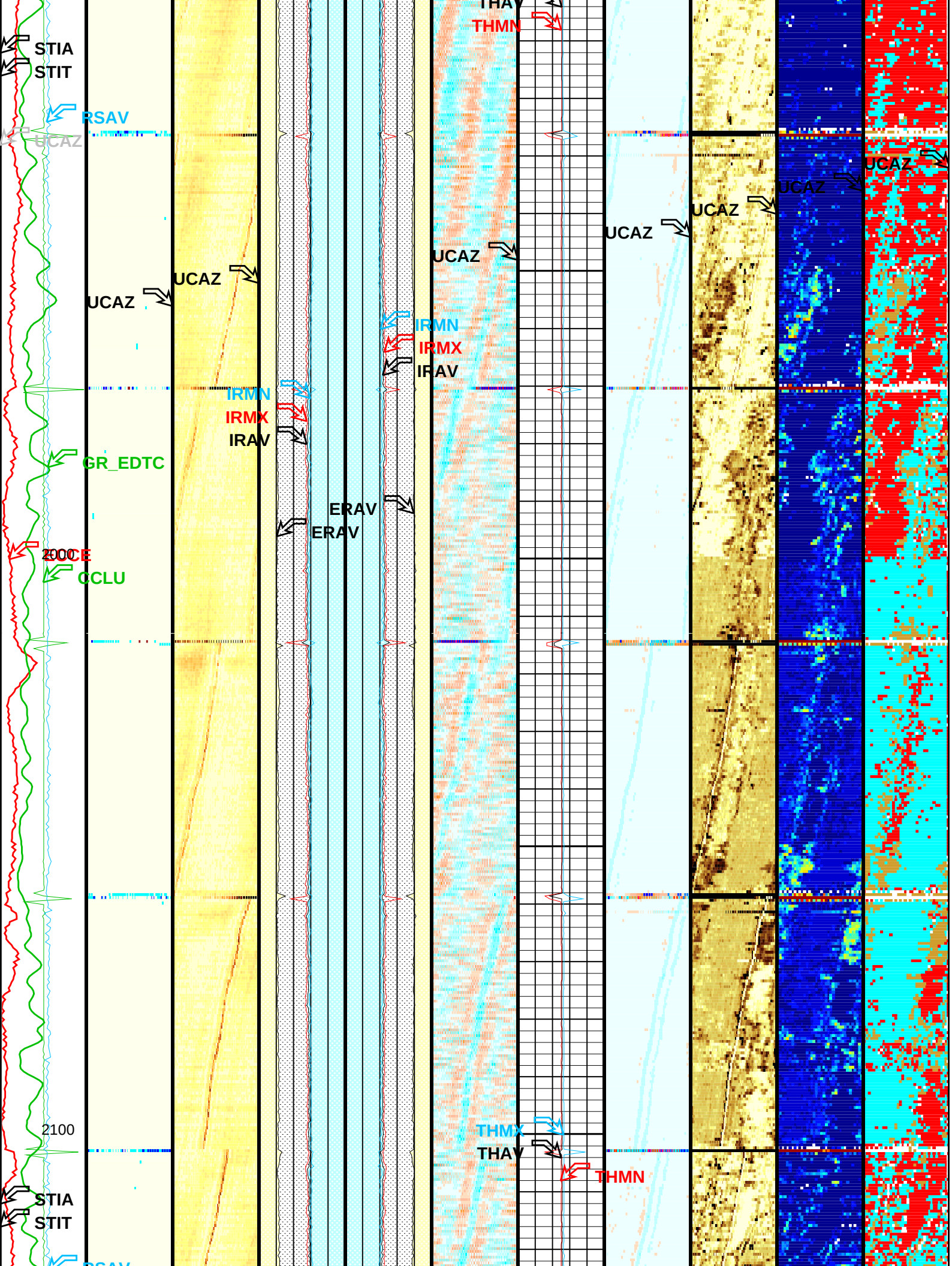
1900
THMX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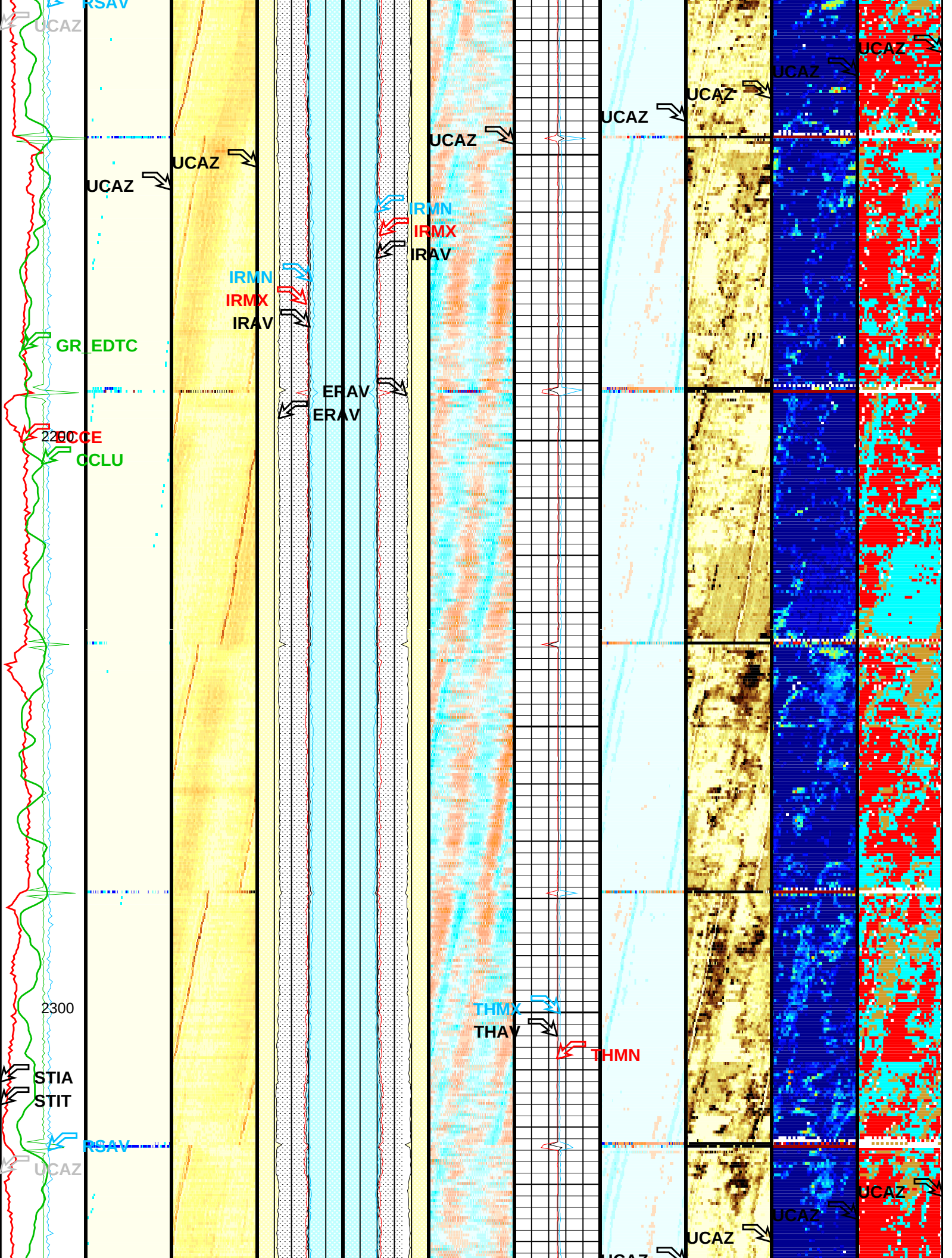
STIT
RSAV


RSAV
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ERAV
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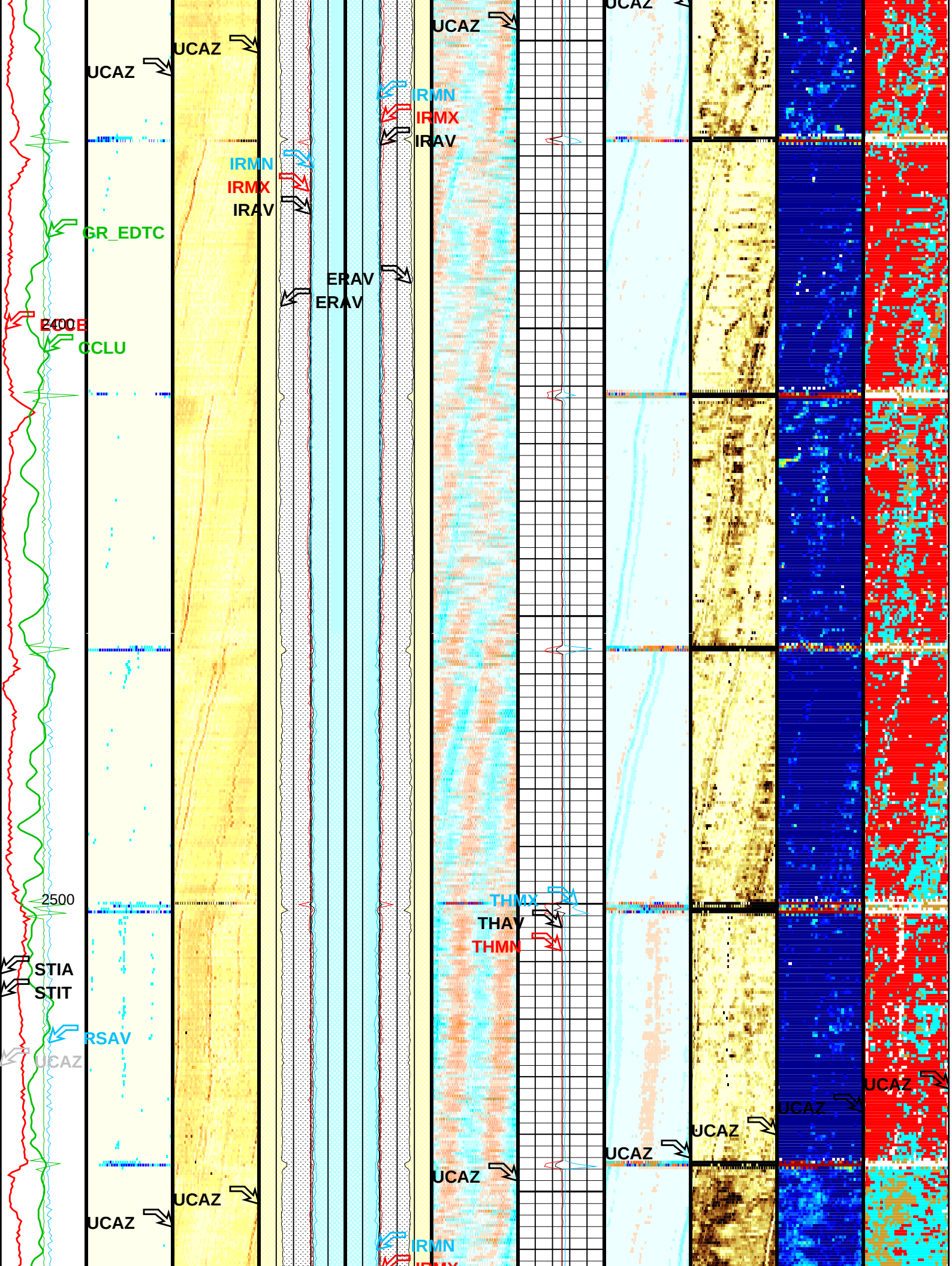
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UCAZ
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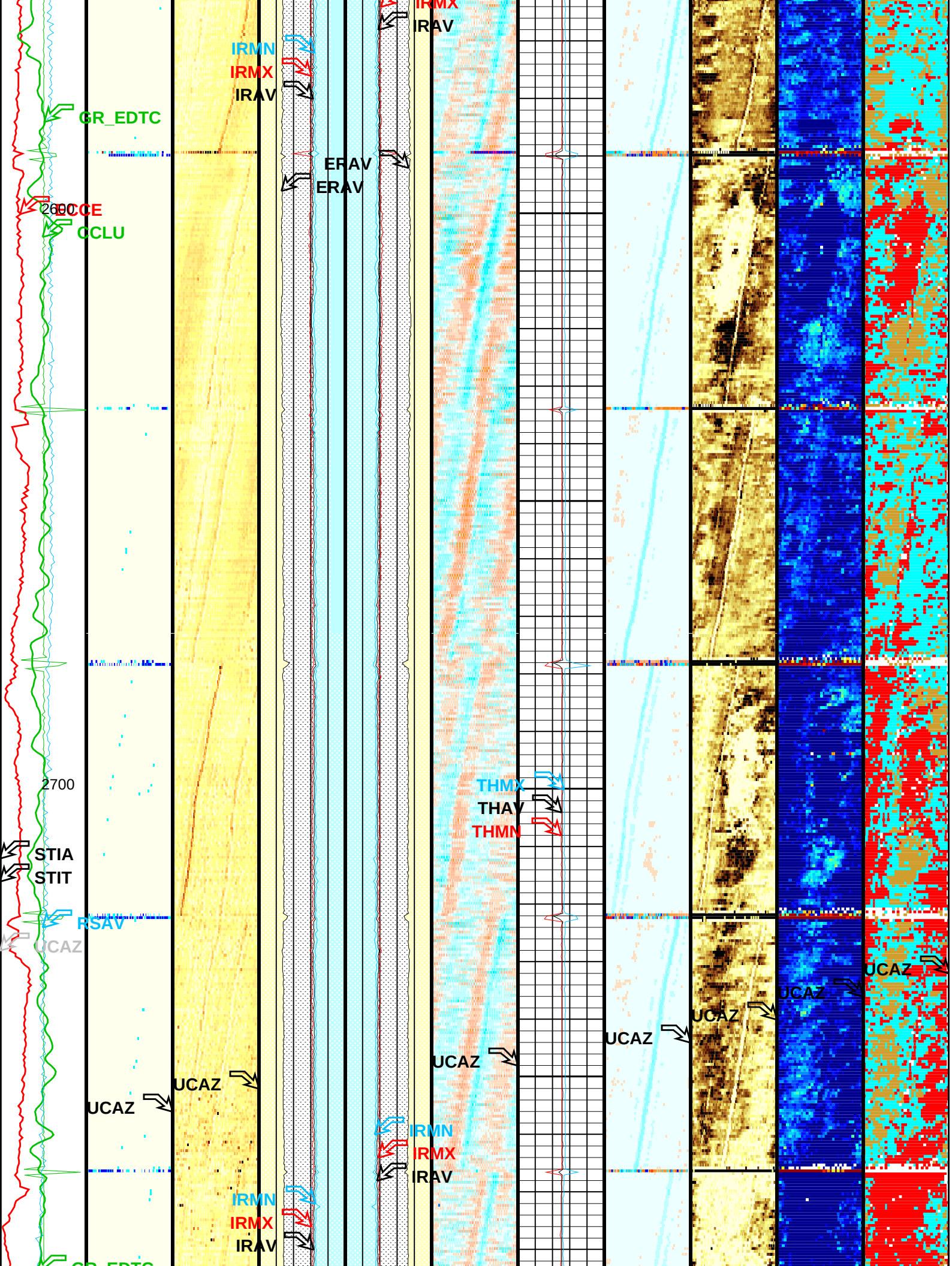
UCAZ
IRMN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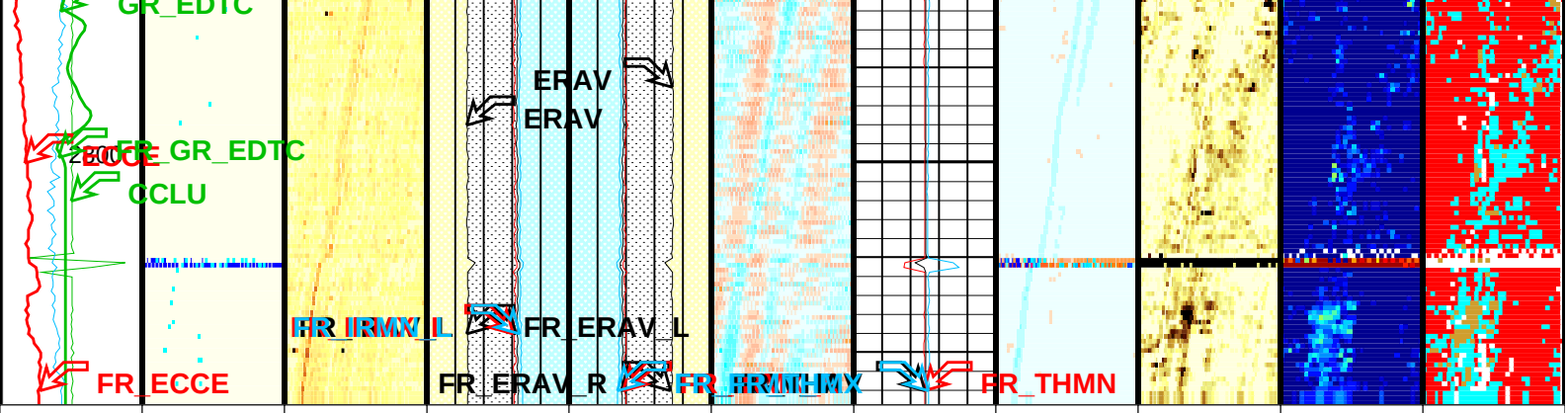


Eccent. (ECCE) 0 (IN) 0.5	Process. flags (UFLG) (----) 0.5000 1.5000 2.5000 3.5000 6.5000	Amplitude of echo minus Max (AWBK) (DB) −500.0000 −6.0000 −5.6000 −5.2000 −4.8000 −4.4000 −4.0000 −3.6000 −3.2000 −2.8000 −2.4000 −2.0000 −1.6000 −1.2000 −0.8000 −0.4000 0.5000	External radius Average (ERAV) 5 (IN) 4	External radius Average (ERAV) 4 (IN) 5	Internal radii minus Ave (IRBK) (IN) −500.0000 −0.0760 −0.0680 −0.0600 −0.0520 −0.0440 −0.0360 −0.0280 −0.0200 −0.0120 −0.0040 0.0040 0.0120 0.0200 0.0280 0.0360 0.0440 0.0520 0.0600 0.0680 0.0760	Min of Thickness (THMN) (IN) 0.1 0.6	Thickness minus Ave (THBK) (IN) −500.0000 −0.0760 −0.0680 −0.0600 −0.0520 −0.0440 −0.0360 −0.0280 −0.0200 −0.0120 −0.0040 0.0040 0.0120 0.0200 0.0280 0.0360 0.0440 0.0520 0.0600 0.0680 0.0760	Raw Acoustic Imped. (AIBK) (MRAY) −500.0000 0.2500 0.5000 0.7500 1.0000 1.2500 1.5000 1.7500 2.0000 2.2500 2.5000 2.7500 3.0000 3.2500 3.5000 3.7500 4.0000	Flexural Attenuation (U−USIT_ UFAK) (DB/M) 0.0000 50.0000 57.0000 64.0000 71.0000 78.0000 85.0000 92.0000 99.0000 106.0000 113.0000 120.0000 127.0000 134.0000 141.0000 148.0000 155.0000	Solid Liquid Gas Map (U−USIT_ USLP) (----) 0.5000 1.5000 2.5000 3.5000
CCL (CCLU) (----) −20 20			Internal radius Average (IRAV) 5 (IN) 4	Internal radius Average (IRAV) 4 (IN) 5		Average of Thickness (THAV) (IN) 0.1 0.6				
RSAV (RSAV) (RPS) 6 7.5			Internal radius Maximum (IRMX) 5 (IN) 4	Internal radius Maximum (IRMX) 4 (IN) 5		Maximum of Thickness (THMX) (IN) 0.1 0.6				
Stuck Stretch (STIT) 0 (F) 50			Min of Internal radius (IRMN) 5 (IN) 4	Min of Internal radius (IRMN) 4 (IN) 5						
Cable Drag From D4T to STIT										
Tool/Tot. Drag From D4T to STIA										
Gamma Ray (GR_ EDTC) (GAPI) 0 150										
Image rotation										

(UCAZ)
(DEG)
0 360

Format: USI_IBC_SLG_Composite Vertical Scale: 5" per 100' Graphics File Created: 25−Jul−2010 20:01

OP System Version: 17C0−154

USIT−D 17C0−154 EDTC−B 17C0−154

All USI Images are outside views

USI : LOW Frequency Compression Mode Used For Logging.

Recommended casing thickness range for optimum cement impedance measurement : 0.27 to 0.6 IN.

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	9.625	IN
CSDE	Casing Density	486.94	LBCF
CSID	Casing Inner Diameter	8.921	IN
DFVL	Default Fluid Velocity	202	US/F
DOT	Diameter of Transducer Sensor	4.874	IN
EMXV	EMEX Voltage	75	V
FDII	FPM Data Interpolation Interval	0	FT
IMAR	Image Rotation	OFF	
MW	Mud Weight	8.4	LB/G
RCOD	Reference Calibrator Outer Diameter	7	IN
RCSO	Reference Calibrator Standoff	1.37795	IN
RCTH	Reference Calibrator Thickness	0.2952	IN
TCUB	T^3 Processing Level	Vax_Loop	
THDH	Maximum Search Thickness (percentage of nominal)	130	
THDL	Minimum Search Thickness (percentage of nominal)	70	
THDP	Thickness Detection Policy	Fundamental	
THNO	Nominal Thickness of Casing	0.352	IN
U−USIT_CEMT	USIT Cement Type	ULTRA_LIGHT	
U−USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	0	MRAY
U−USIT_IISR	USIT IBC Inverted Fluid Slowness Resolution	1.0_US_P_FT	
U−USIT_IIZR	USIT IBC Inverted ZMUD Resolution	0.050_MRAY	
U−USIT_OCDI	USIT Outer Casing Diameter	0	IN
U−USIT_OCSH	USIT Outer Casing Shoe	0	FT
U−USIT_OCWE	USIT Outer Casing Weight	0	LB/F
U−USIT_TIEB	IBC Third Interface Echo Bin Processing	YES	
U−USIT_TIEC	IBC Third Interface Echo Cleaning	NONE	
U−USIT_TIEM	IBC Third Interface Echo Multi Tracking	NO	
U−USIT_TIEP	IBC Third Interface Echo Policy	BFEP	
U−USIT_TIER	IBC Third Interface Echo Receivers	BOTH	
U−USIT_U3WE	Third Interface Echo Window End	110	US
U−USIT_UBTP	USIT Bottom Transducer Position	UNKNOWN	
U−USIT_UFAO	USIT Flexural Attenuation Offset	−5	DB/M
U−USIT_UIAP	USIT IBC Answer Product Enabled	SolidLiquidGasMap	
U−USIT_UIST	Ultrasonic IBC Sonde Type	Sub_Ibcs_C	
U−USIT_UTAN	USIT Transducer Angles	33_DEG	
UMAO	USIT Measurement Angular Offset	−10	DEG
USTO	Ultrasonic Time Offset	−2	US
USUB	Ultrasonic Subassembly Identifier	Sub_9_58_inch	
UWKM	Ultrasonic Working Mode	5DEG_6IN_136UNF_LF	
VCAS	Ultrasonic Transversal Velocity in Casing	51.4	US/F
WLEN	T^3 Processing Length	21.1081	US
ZCAS	Acoustic Impedance of Casing	46.2537	MRAY
ZINI	Initial Estimate of Cement Impedance	−1	MRAY
ZMUD	Acoustic Impedance of Mud	1.7	MRAY
ZTCM	Acoustic Impedance Threshold for Cement	2.5	MRAY
ZTGS	Acoustic Impedance Threshold for Gas	0.3	MRAY
	STI: Stuck Tool Indicator		
LBFR	Trigger for MAXIS First Reading Label	TDL	
STKT	STI Stuck Threshold	2.5	FT

STRT	STI Stuck Threshold		2.5	FT
TDD	Total Depth − Driller		3062.00	FT
TDL	Total Depth − Logger		2826.00	FT
	System and Miscellaneous			
BS	Bit Size		14.750	IN
CWEI	Casing Weight		36.00	LB/F
DO	Depth Offset for Playback		2.0	FT
PP	Playback Processing		RECOMPUTE	

Input DLIS Files

DEFAULT	USI_013LUP	FN:12	PRODUCER	25−Jul−2010 17:43	2823.5 FT	100.0 FT

Output DLIS Files

DEFAULT	USI_016PUP	FN:24	PRODUCER	25−Jul−2010 20:01		

Schlumberger

VDL WIDE

MAXIS Field Log

Company: ENCANA OIL & GAS (USA) INC

Well: SGU 8506A−36 (B36) 496

Input DLIS Files

DEFAULT	USI_013LUP	FN:12	PRODUCER	25−Jul−2010 17:43	2823.5 FT	100.0 FT

Output DLIS Files

DEFAULT	USI_016PUP	FN:24	PRODUCER	25−Jul−2010 20:01	2825.5 FT	102.0 FT

OP System Version: 17C0−154

USIT−D	17C0−154	EDTC−B	17C0−154

Gamma Ray (GR_EDTC) (GAPI)
0 150

Tool/Tot. Drag From D4T to STIA

Cable Drag From D4T to STIT

Stuck Stretch (STIT)

−500.0000
0.5000
1.0000
1.5000
2.0000
2.5000
3.0000
3.5000
4.0000
4.5000
5.0000
5.5000
6.0000
6.5000

0.5000
1.5000
2.5000
3.5000

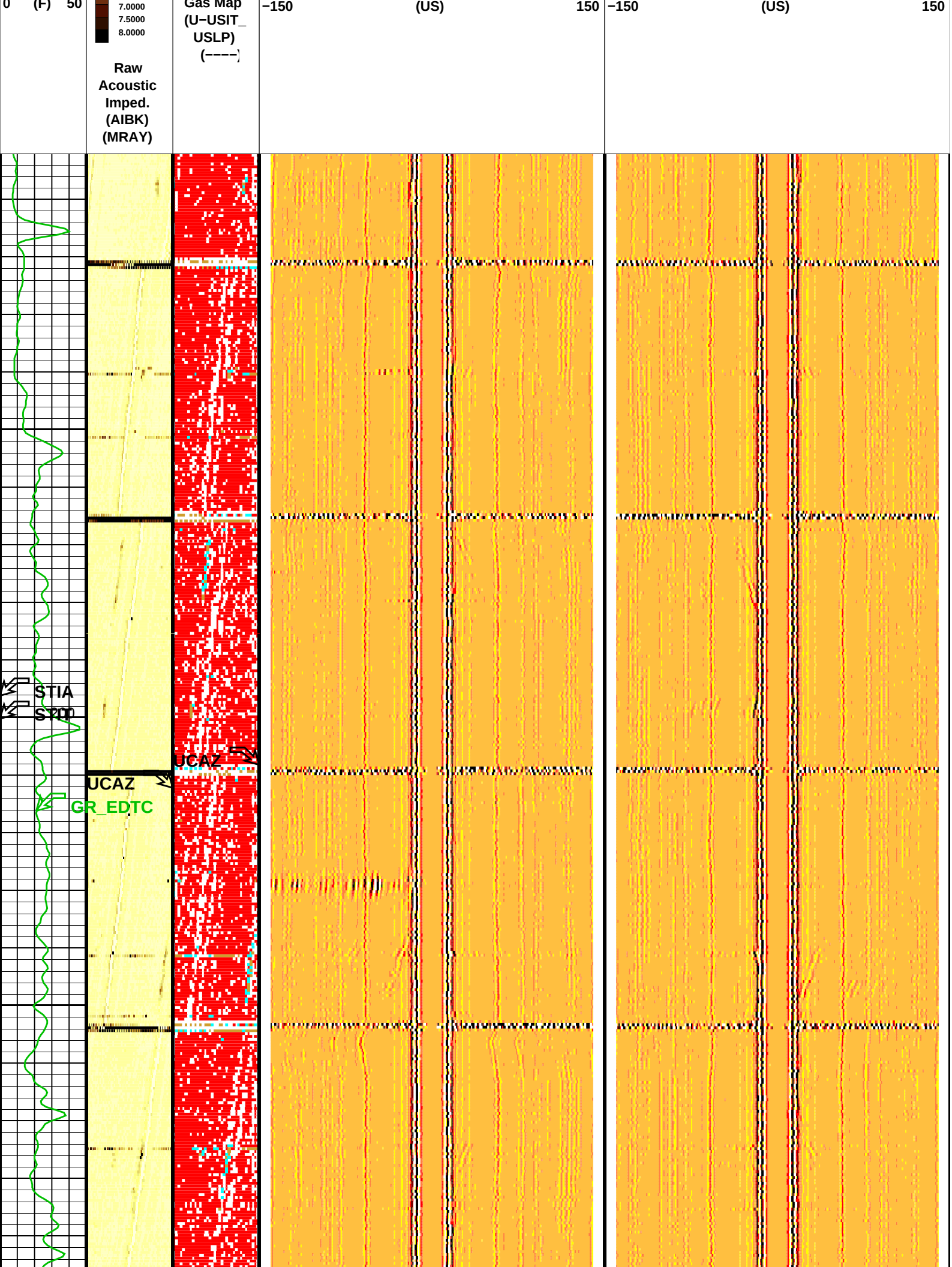
Solid Liquid Gas Map

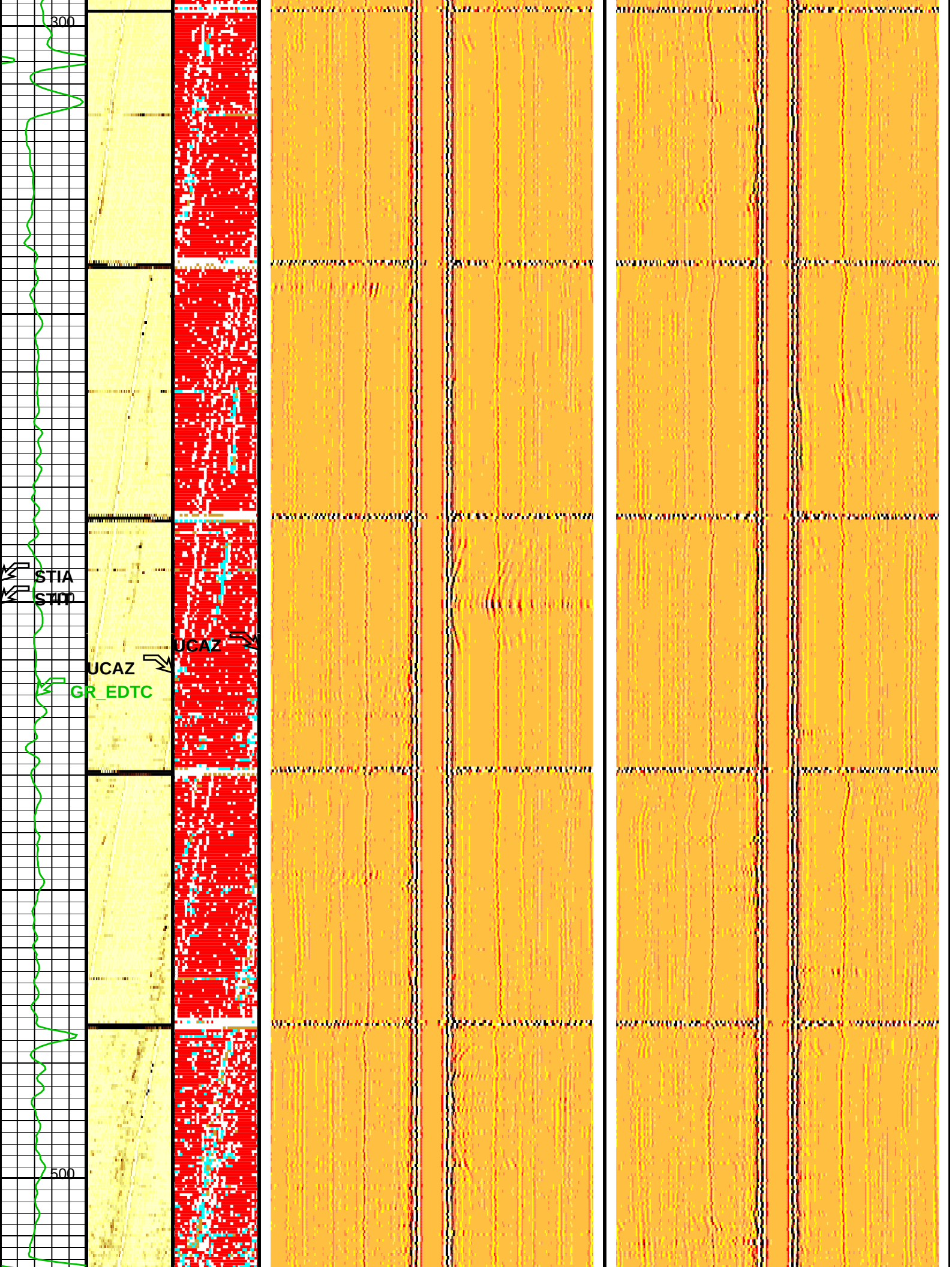
Min Amplitude Max

Far at 0 and 180 deg (U−USIT_VDWFF000)

Min Amplitude Max

Far at 90 and 270 deg (U−USIT_VDWFF090)


0
(F)
50
7.0000
7.5000
8.0000
Raw Acoustic Imped. (AIBK) (MRAY)
Gas Map (U−USIT_ USLP) (−−−−)
−150
(US)
150
−150
(US)
150
STIA
UCAZ
UCAZ
GR_EDTC


300
STIA
400
UCAZ
UCAZ
GR_EDTC
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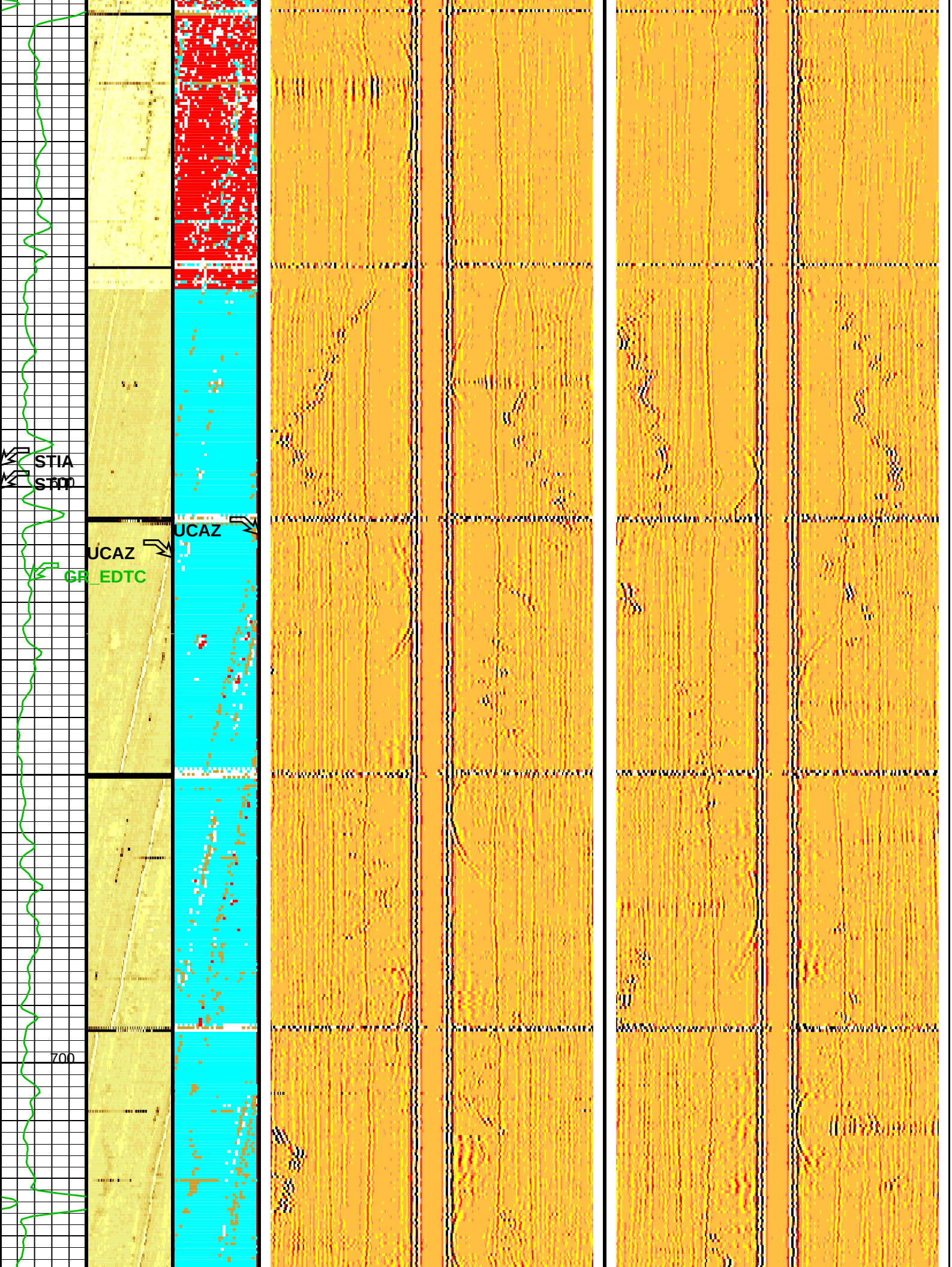
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UCAZ
GR_EDTC
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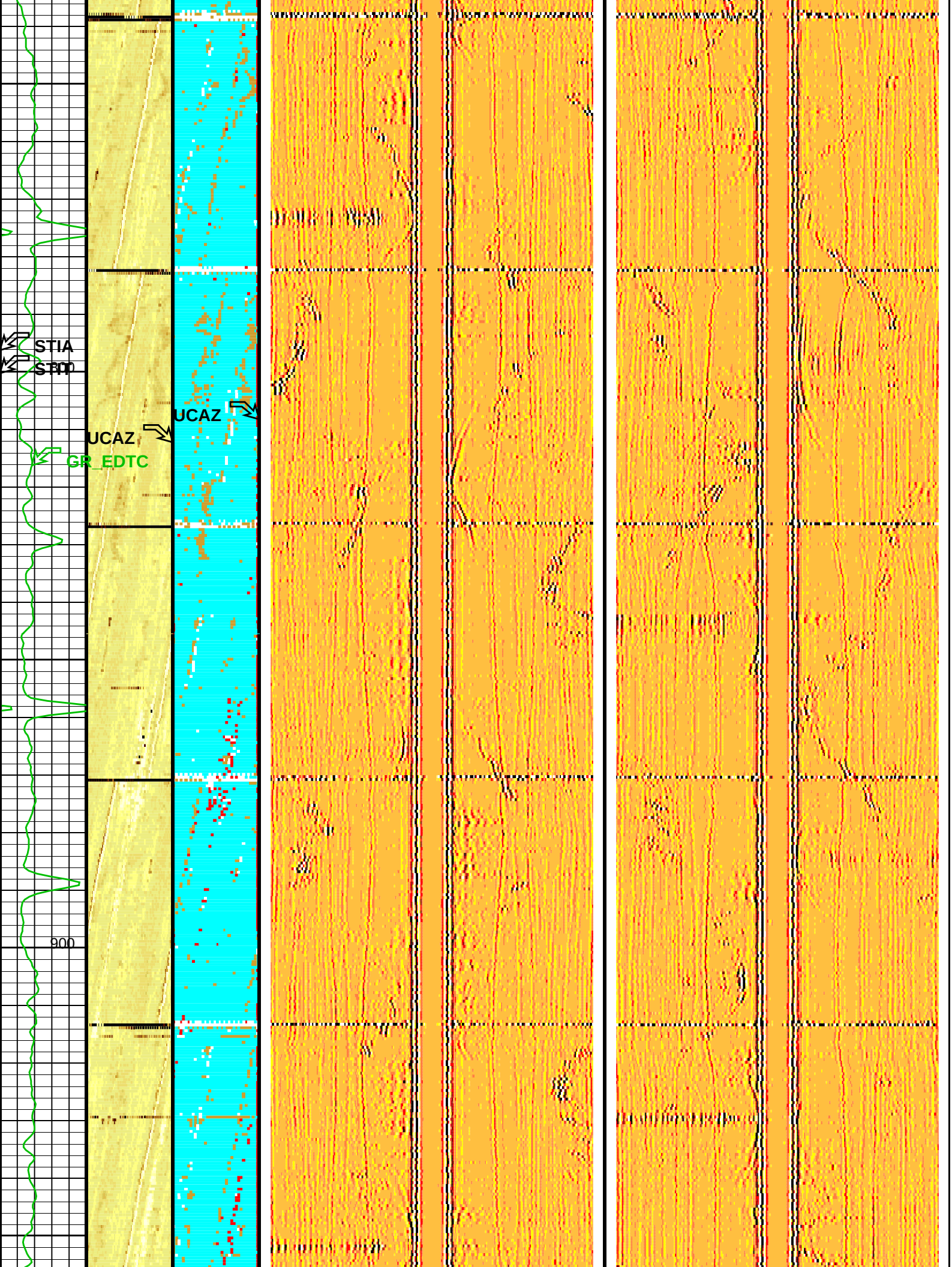
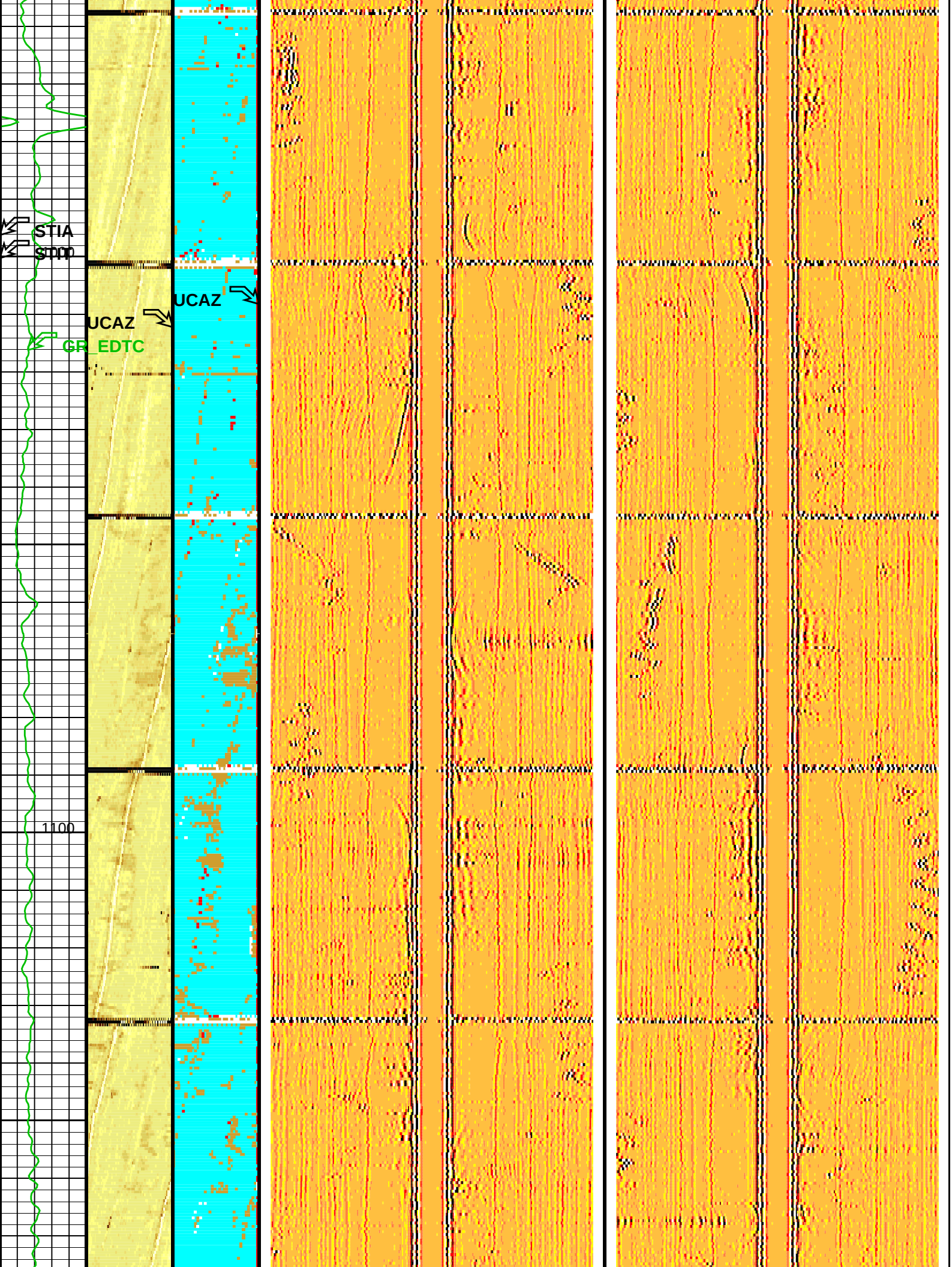

STIA
STIA
UCAZ
UCAZ
GR_EDTC
900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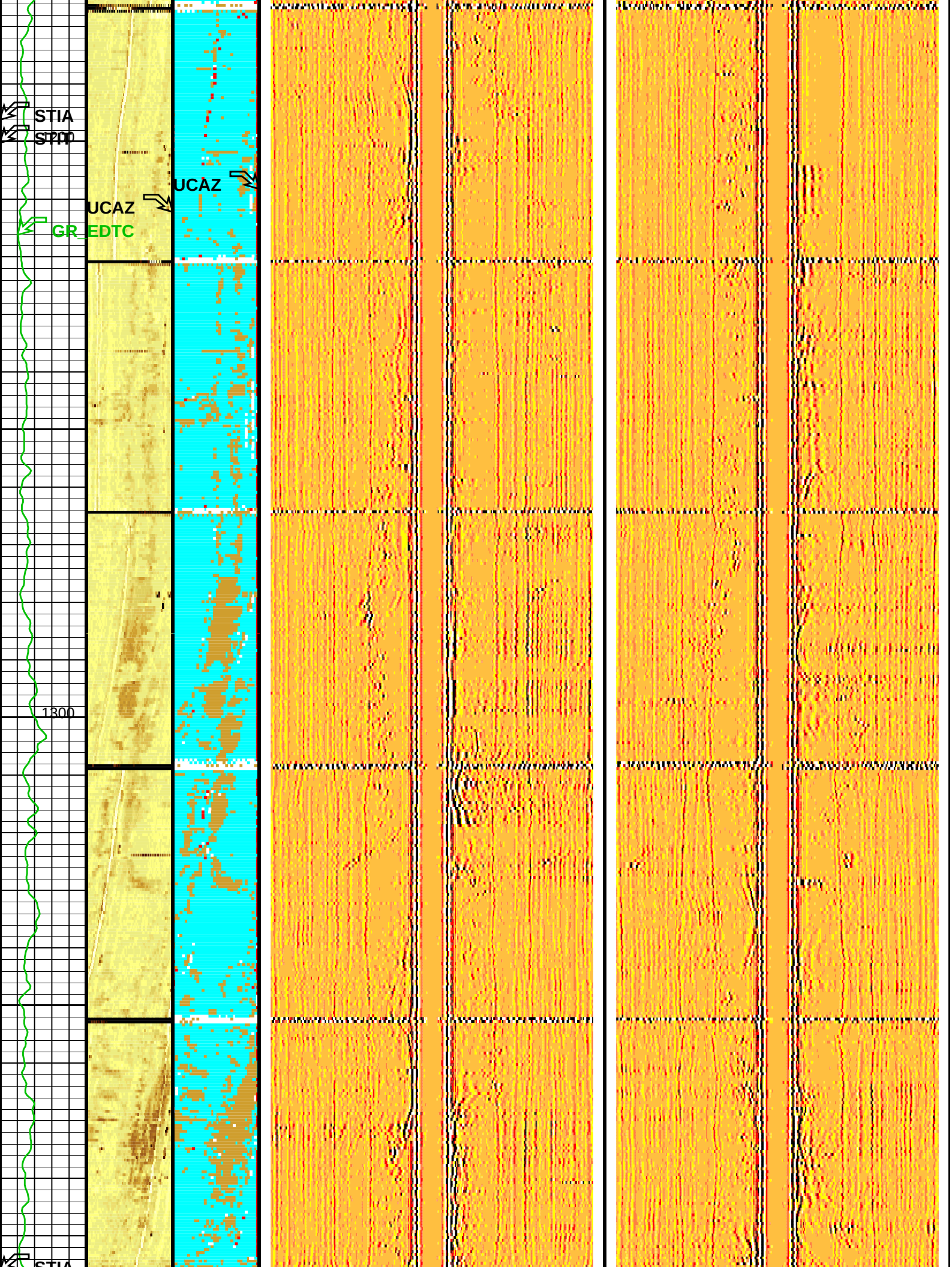
UCAZ
GR_EDTC
1100


STIA
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UCAZ
GR_EDTC
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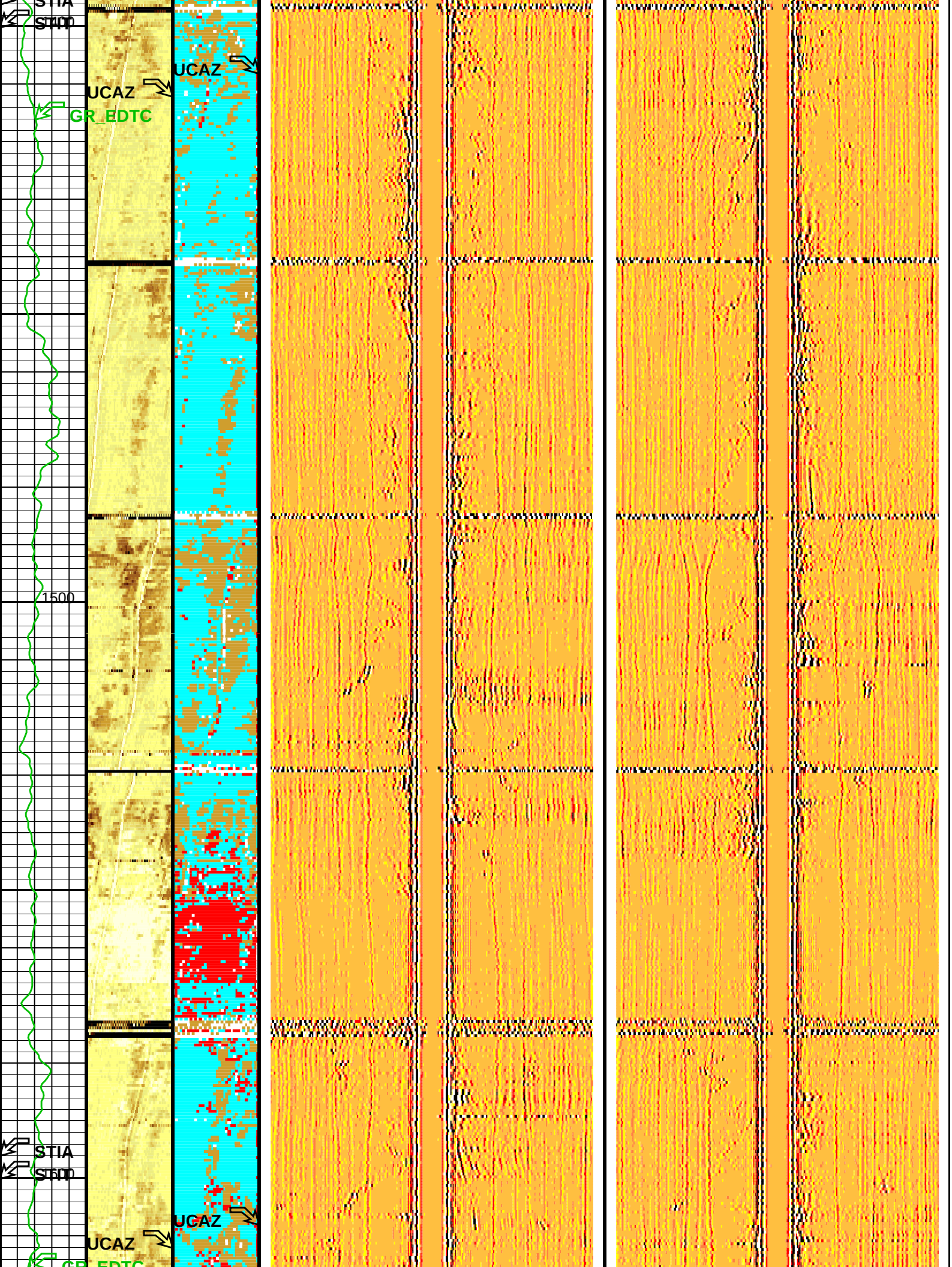
STIA
UCAZ
UCAZ
GR_EDTC
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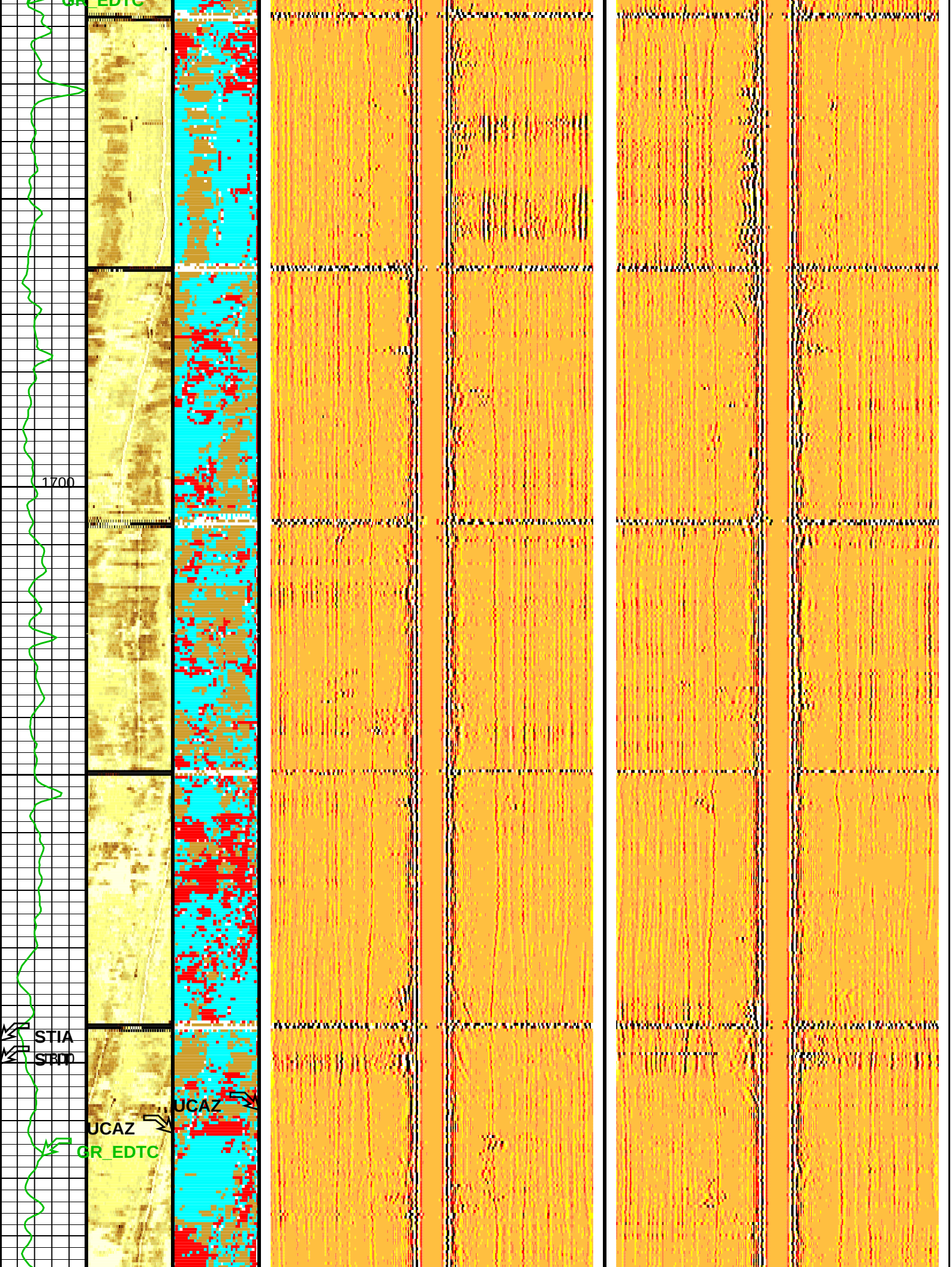
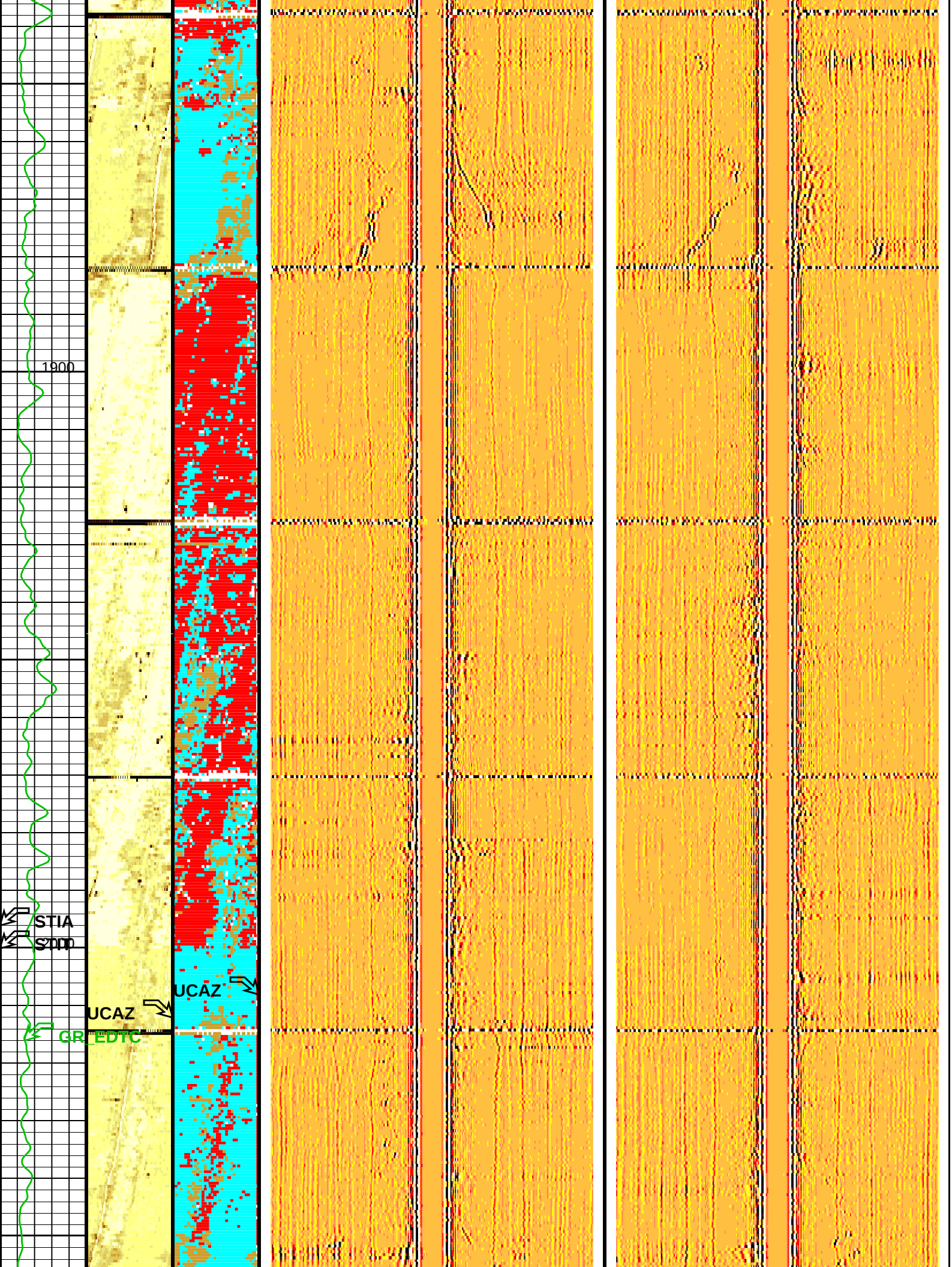
STIA
UCAZ
UCAZ
GR_EDTC


GR_EDTC
1700
STIA
STIA
UCAZ
UCAZ
GR_EDTC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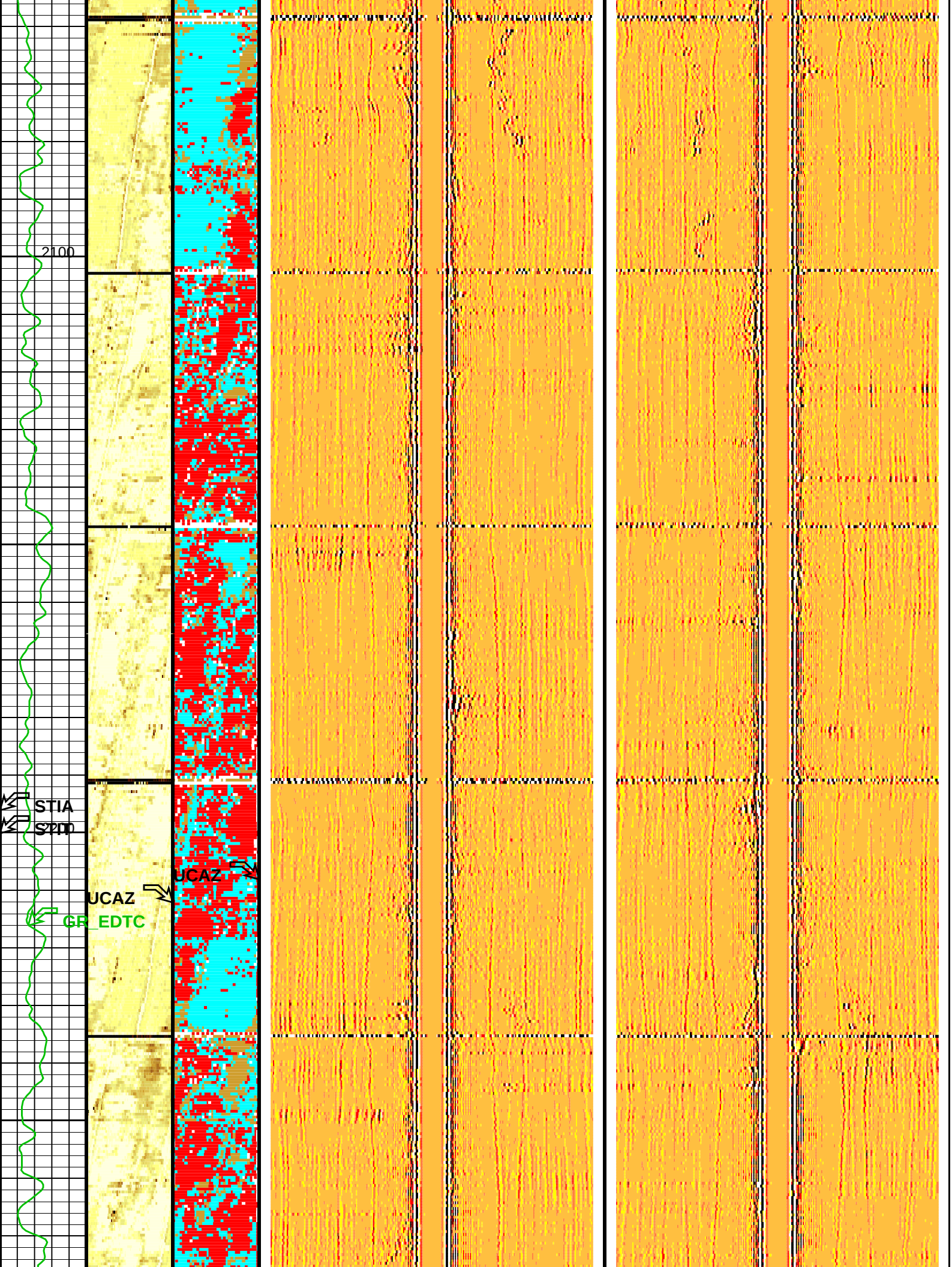
UCAZ
UCAZ
GR_EDTC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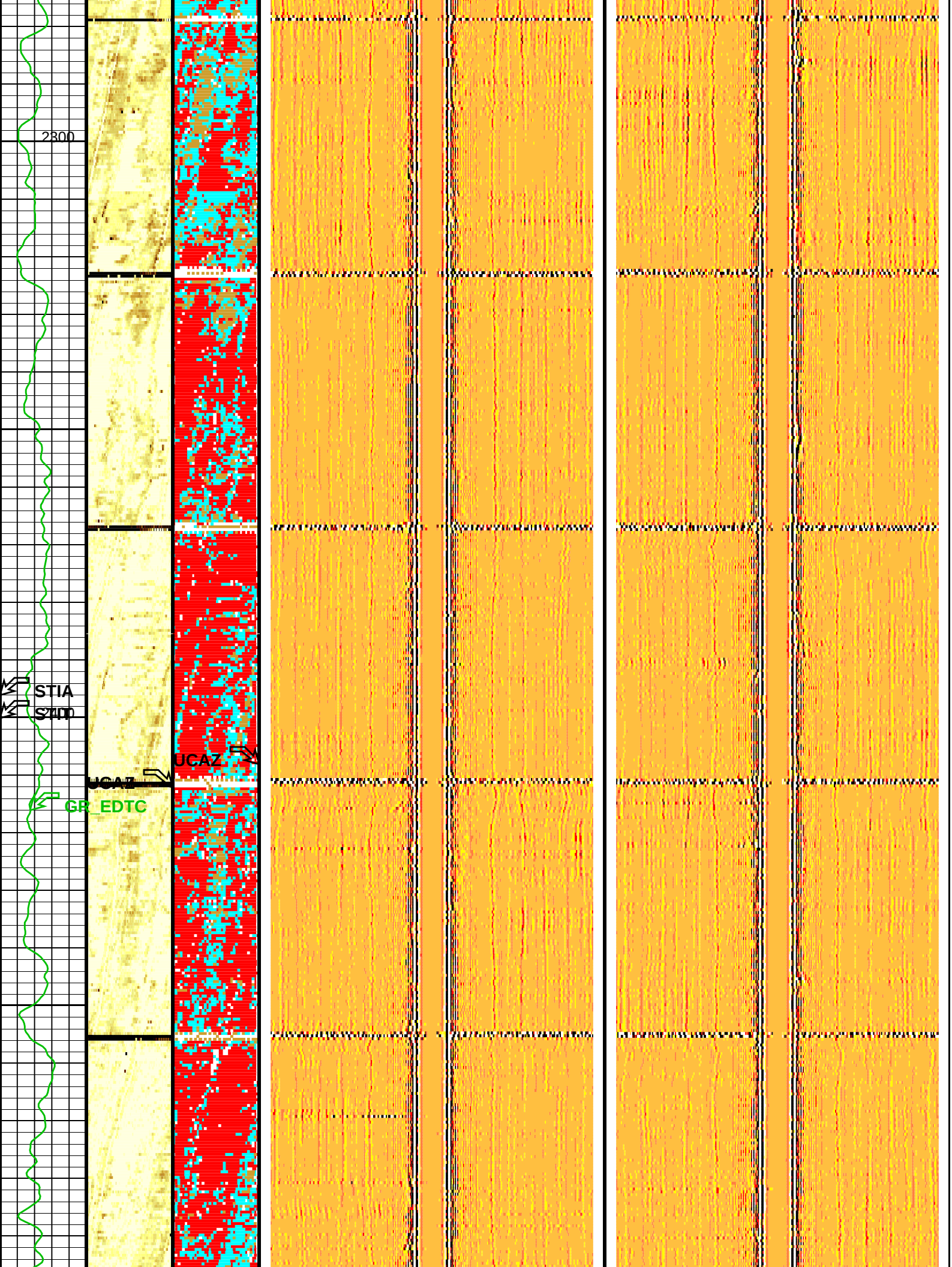
GR_EDTC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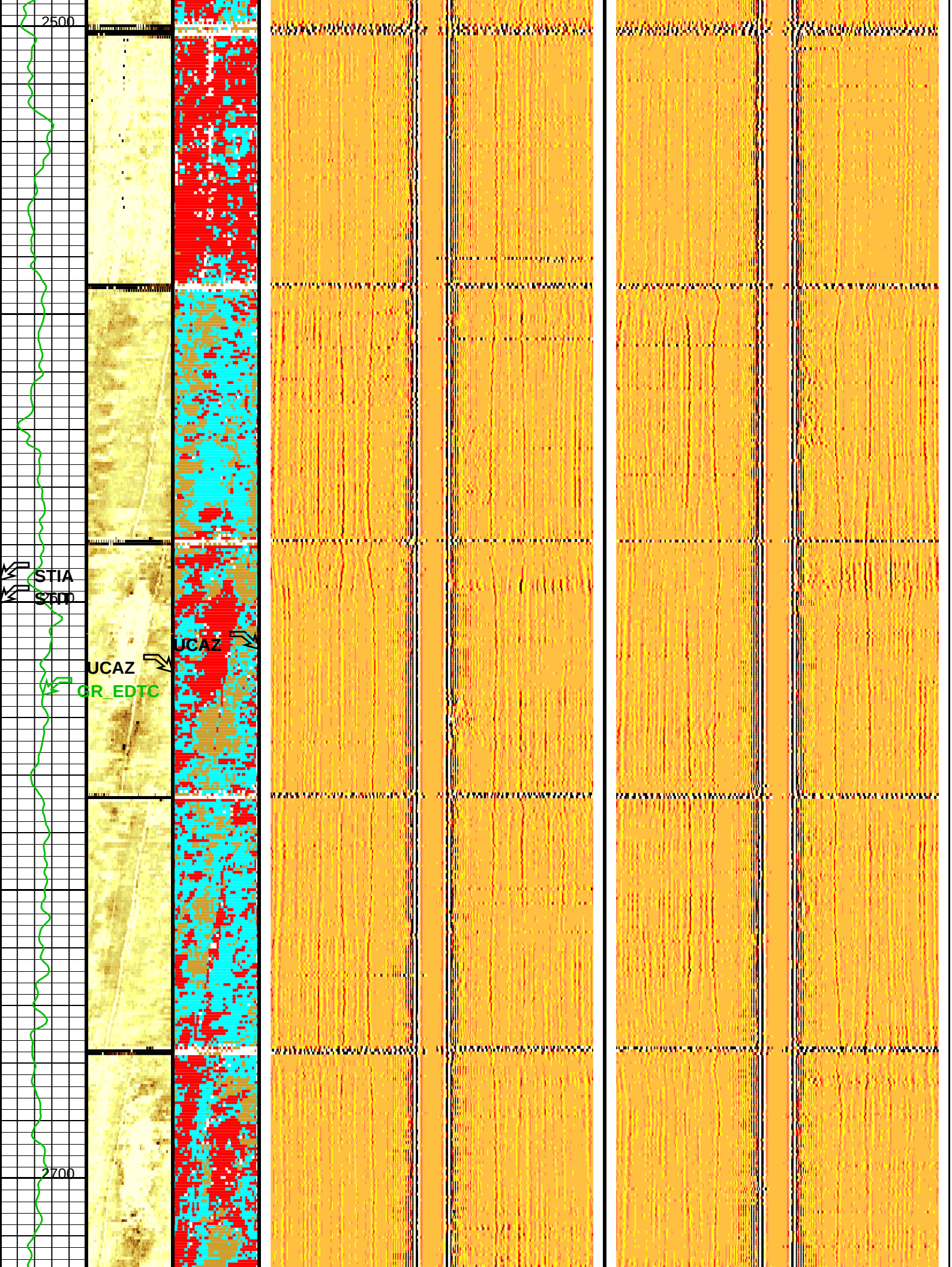
UCAZ
GR_EDTC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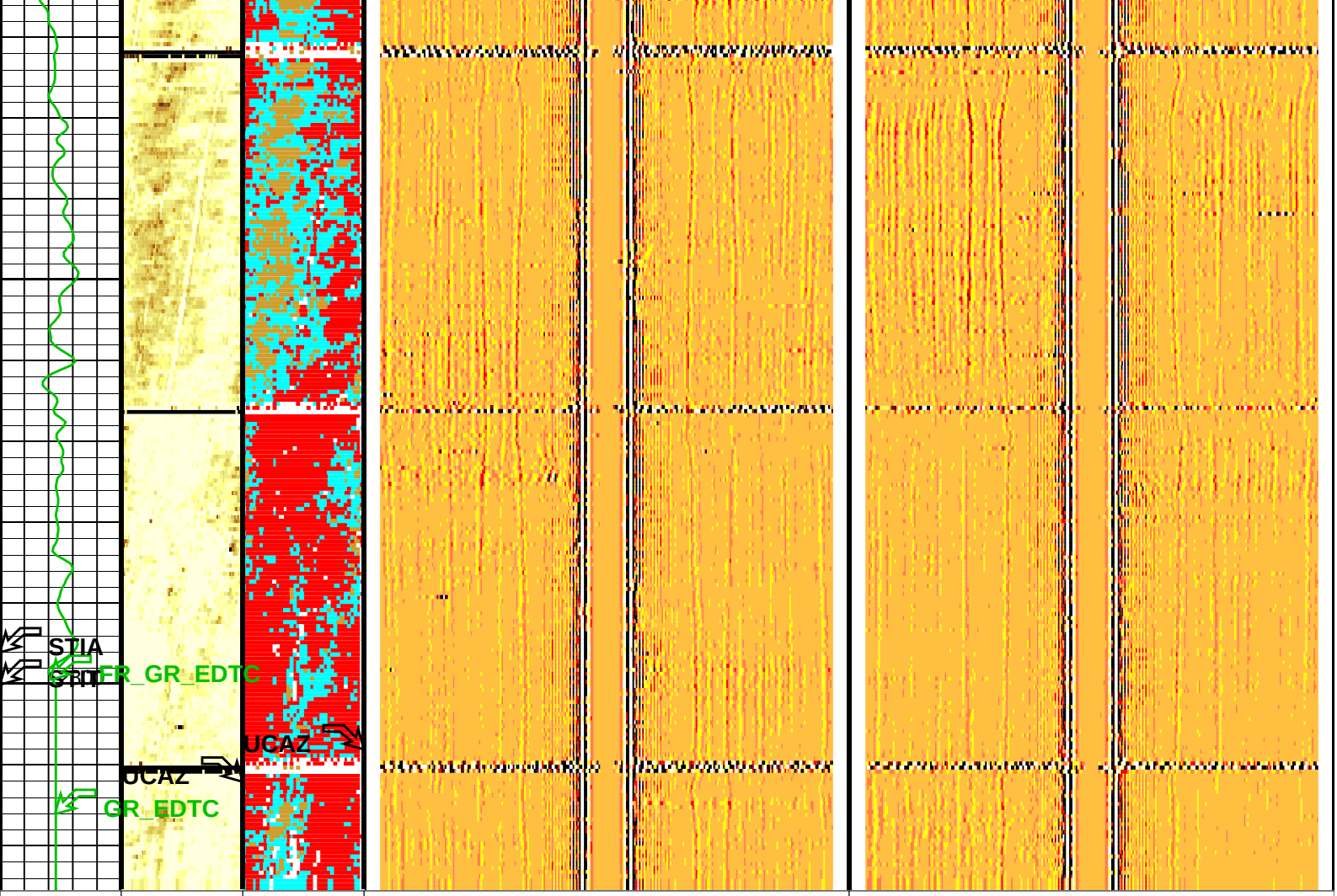
2600
UCAZ
UCAZ
GR_EDTC
2700



Stuck Stretch (STIT)

0 (F) 50

−500.0000
0.5000
1.0000
1.5000
2.0000
2.5000
3.0000
3.5000
4.0000
4.5000
5.0000
5.5000
6.0000
6.5000
7.0000
7.5000
8.0000

Raw Acoustic Imped. (AIBK) (MRAY)

0.5000
1.5000
2.5000
3.5000

Solid Liquid Gas Map (U−USIT_USLP) (−−−−)

Min Amplitude Max

Far at 0 and 180 deg (U−USIT_VDWFF000)

−150 (US) 150

Min Amplitude Max

Far at 90 and 270 deg (U−USIT_VDWFF090)

−150 (US) 150

Cable Drag From D4T to STIT

Tool/Tot. Drag From D4T to STIA

Gamma Ray (GR_EDTC) (GAPI)

0 150

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	9.625	IN
CSDE	Casing Density	486.94	LBCF
CSID	Casing Inner Diameter	8.921	IN
DFVL	Default Fluid Velocity	202	US/F
DOT	Diameter of Transducer Sensor	4.874	IN
EMXV	EMEX Voltage	75	V
FDII	FPM Data Interpolation Interval	0	FT
IMAR	Image Rotation	OFF	
MW	Mud Weight	8.4	LB/G
RCOD	Reference Calibrator Outer Diameter	7	IN
RCSO	Reference Calibrator Standoff	1.37795	IN
RCTH	Reference Calibrator Thickness	0.2952	IN
TCUB	T^3 Processing Level	Vax_Loop	
THDH	Maximum Search Thickness (percentage of nominal)	130	
THDL	Minimum Search Thickness (percentage of nominal)	70	
THDP	Thickness Detection Policy	Fundamental	
THNO	Nominal Thickness of Casing	0.352	IN
U−USIT_CEMT	USIT Cement Type	ULTRA_LIGHT	
U−USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	0	MRAY
U−USIT_IISR	USIT IBC Inverted Fluid Slowness Resolution	1.0_US_P_FT	
U−USIT_IIZR	USIT IBC Inverted ZMUD Resolution	0.050_MRAY	
U−USIT_OCDI	USIT Outer Casing Diameter	0	IN
U−USIT_OCSH	USIT Outer Casing Shoe	0	FT
U−USIT_OCWE	USIT Outer Casing Weight	0	LB/F
U−USIT_TIEB	IBC Third Interface Echo Bin Processing	YES	
U−USIT_TIEC	IBC Third Interface Echo Cleaning	NONE	
U−USIT_TIEM	IBC Third Interface Echo Multi Tracking	NO	
U−USIT_TIEP	IBC Third Interface Echo Policy	BFEP	
U−USIT_TIER	IBC Third Interface Echo Receivers	BOTH	
U−USIT_U3WE	Third Interface Echo Window End	110	US
U−USIT_UBTP	USIT Bottom Transducer Position	UNKNOWN	
U−USIT_UFAO	USIT Flexural Attenuation Offset	−5	DB/M
U−USIT_UIAP	USIT IBC Answer Product Enabled	SolidLiquidGasMap	
U−USIT_UIST	Ultrasonic IBC Sonde Type	Sub_Ibcs_C	
U−USIT_UTAN	USIT Transducer Angles	33_DEG	
UMAO	USIT Measurement Angular Offset	−10	DEG
USTO	Ultrasonic Time Offset	−2	US
USUB	Ultrasonic Subassembly Identifier	Sub_9_58_inch	
UWKM	Ultrasonic Working Mode	5DEG_6IN_136UNF_LF	
VCAS	Ultrasonic Transversal Velocity in Casing	51.4	US/F
WLEN	T^3 Processing Length	21.1081	US
ZCAS	Acoustic Impedance of Casing	46.2537	MRAY
ZINI	Initial Estimate of Cement Impedance	−1	MRAY
ZMUD	Acoustic Impedance of Mud	1.7	MRAY
ZTCM	Acoustic Impedance Threshold for Cement	2.5	MRAY
ZTGS	Acoustic Impedance Threshold for Gas	0.3	MRAY
	STI: Stuck Tool Indicator		
LBFR	Trigger for MAXIS First Reading Label	TDL	
STKT	STI Stuck Threshold	2.5	FT
TDD	Total Depth − Driller	3062.00	FT
TDL	Total Depth − Logger	2826.00	FT
	System and Miscellaneous		
BS	Bit Size	14.750	IN
CWEI	Casing Weight	36.00	LB/F
DO	Depth Offset for Playback	2.0	FT
PP	Playback Processing	RECOMPUTE	

Format: USI_IBC_VDL_WIDE **Vertical Scale: 5" per 100'** **Graphics File Created: 25−Jul−2010 20:01**

OP System Version: 17C0−154

USIT−D	17C0−154	EDTC−B	17C0−154

Input DLIS Files

DEFAULT	USI_013LUP	FN:12	PRODUCER	25−Jul−2010 17:43	2823.5 FT	100.0 FT

Output DLIS Files

DEFAULT	USI_016PUP	FN:24	PRODUCER	25−Jul−2010 20:01

Schlumberger

GOODWIN 5 INCH

MAXIS Field Log

Company: ENCANA OIL & GAS (USA) INC **Well: SGU 8506A−36 (B36) 496**

Input DLIS Files

DEFAULT	USI_013LUP	FN:12	PRODUCER	25−Jul−2010 17:43	2823.5 FT	100.0 FT

Output DLIS Files

DEFAULT	USI_016PUP	FN:24	PRODUCER	25−Jul−2010 20:01	2825.5 FT	102.0 FT

OP System Version: 17C0−154

USIT−D	17C0−154	EDTC−B	17C0−154

	Minimum Acoustic Impedance #2 (MIN_AI2) (MRAY) −7.5 7.5	Minimum Acoustic Impedance #4 (MIN_AI4) (MRAY) −7.5 7.5	Minimum Acoustic Impedance #6 (MIN_AI6) (MRAY) −7.5 7.5	Minimum Acoustic Impedance #8 (MIN_AI8) (MRAY) −7.5 7.5			
	Minimum Acoustic Impedance #1 (MIN_AI1) (MRAY) 0 15	Minimum Acoustic Impedance #3 (MIN_AI3) (MRAY) 0 15	Minimum Acoustic Impedance #5 (MIN_AI5) (MRAY) 0 15	Minimum Acoustic Impedance #7 (MIN_AI7) (MRAY) 0 15			
	Maximum Acoustic Impedance #2 (MAX_AI2) (MRAY) −7.5 7.5	Maximum Acoustic Impedance #4 (MAX_AI4) (MRAY) −7.5 7.5	Maximum Acoustic Impedance #6 (MAX_AI6) (MRAY) −7.5 7.5	Maximum Acoustic Impedance #8 (MAX_AI8) (MRAY) −7.5 7.5			
	Maximum Acoustic Impedance #1 (MAX_AI1) (MRAY) 0 15	Maximum Acoustic Impedance #3 (MAX_AI3) (MRAY) 0 15	Maximum Acoustic Impedance #5 (MAX_AI5) (MRAY) 0 15	Maximum Acoustic Impedance #7 (MAX_AI7) (MRAY) 0 15	Minimum Acoustic Impedance #9 (MIN_AI9) (MRAY) 0 15	Maximum of AI (AIMX) (MRAY) 0 7.5	Maximum Flexural Attenuation (U−USIT_UFAX) (DB/M) 0 150
Gamma Ray (GR_EDTC) (GAPI) 0 150	Average Acoustic Impedance #2 (AV_AI2) (MRAY) −7.5 7.5	Average Acoustic Impedance #4 (AV_AI4) (MRAY) −7.5 7.5	Average Acoustic Impedance #6 (AV_AI6) (MRAY) −7.5 7.5	Average Acoustic Impedance #8 (AV_AI8) (MRAY) −7.5 7.5	Maximum Acoustic Impedance #9 (MAX_AI9) (MRAY) 0 15	Minimum of AI (AIMN) (MRAY) 0 7.5	Average Flexural Attenuation (U−USIT_UFAV) (DB/M) 0 150

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1.0000

0.0000
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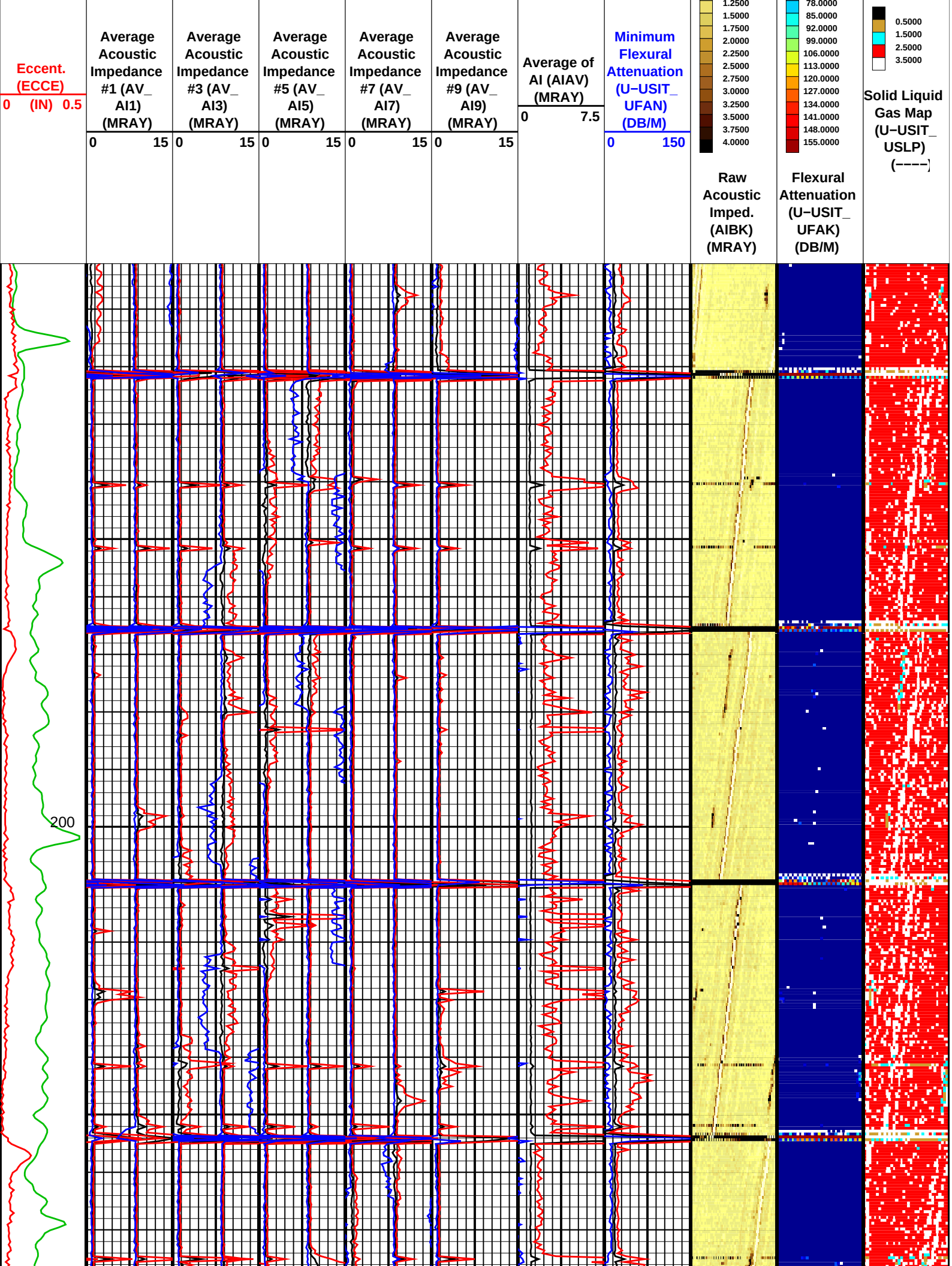
57.0000
64.0000
71.0000


Eccent. (ECCE)
0 (IN) 0.5
Average Acoustic Impedance #1 (AV_ AI1) (MRAY)
0 15
Average Acoustic Impedance #3 (AV_ AI3) (MRAY)
0 15
Average Acoustic Impedance #5 (AV_ AI5) (MRAY)
0 15
Average Acoustic Impedance #7 (AV_ AI7) (MRAY)
0 15
Average Acoustic Impedance #9 (AV_ AI9) (MRAY)
0 15
Average of AI (AIAV) (MRAY)
0 7.5
Minimum Flexural Attenuation (U-USIT_ UFAN) (DB/M)
0 150
1.2500
1.5000
1.7500
2.0000
2.2500
2.5000
2.7500
3.0000
3.2500
3.5000
3.7500
4.0000
Raw Acoustic Imped. (AIBK) (MRAY)
78.0000
85.0000
92.0000
99.0000
106.0000
113.0000
120.0000
127.0000
134.0000
141.0000
148.0000
155.0000
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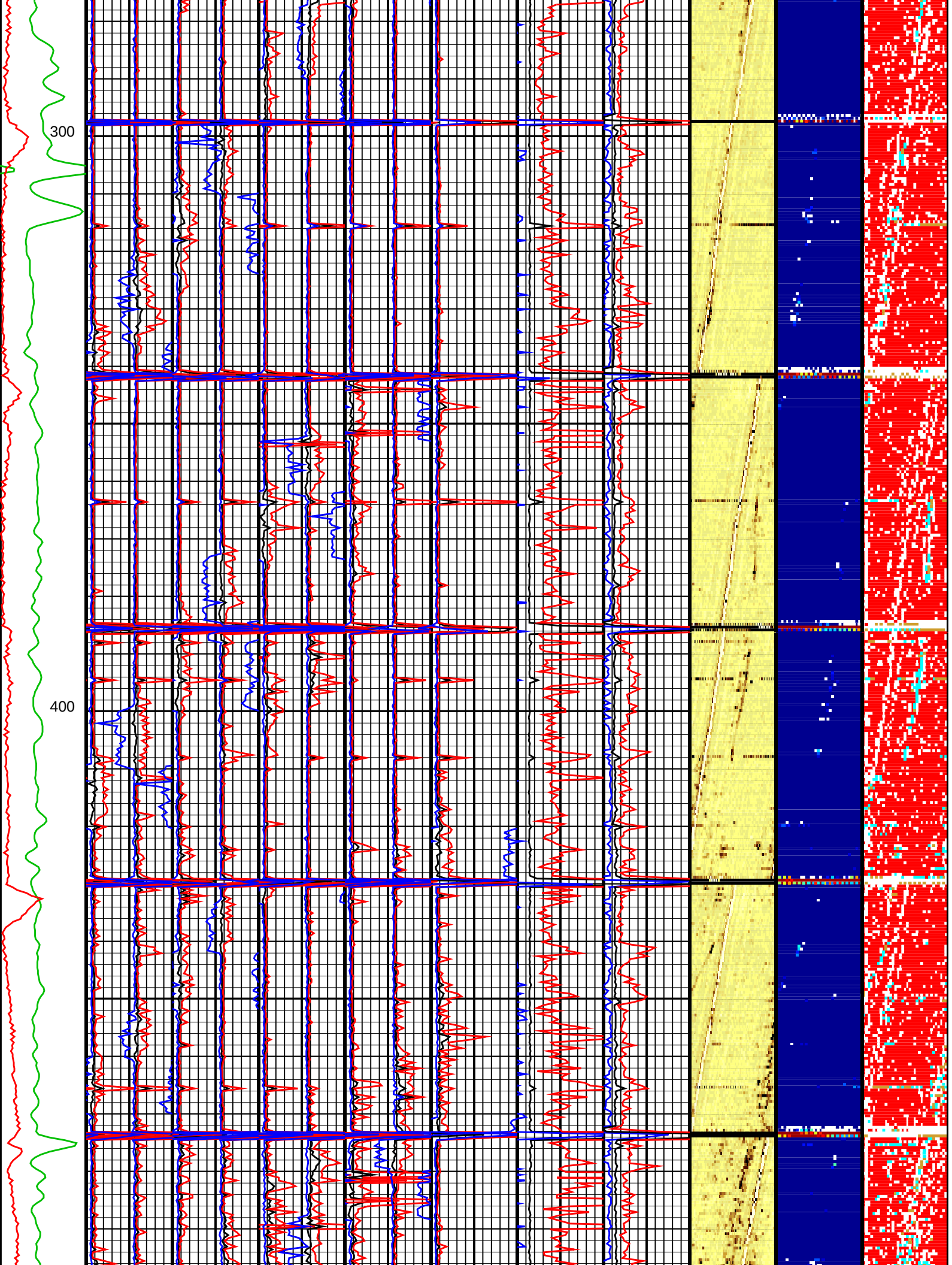
Solid Liquid Gas Map (U-USIT_ USLP)
200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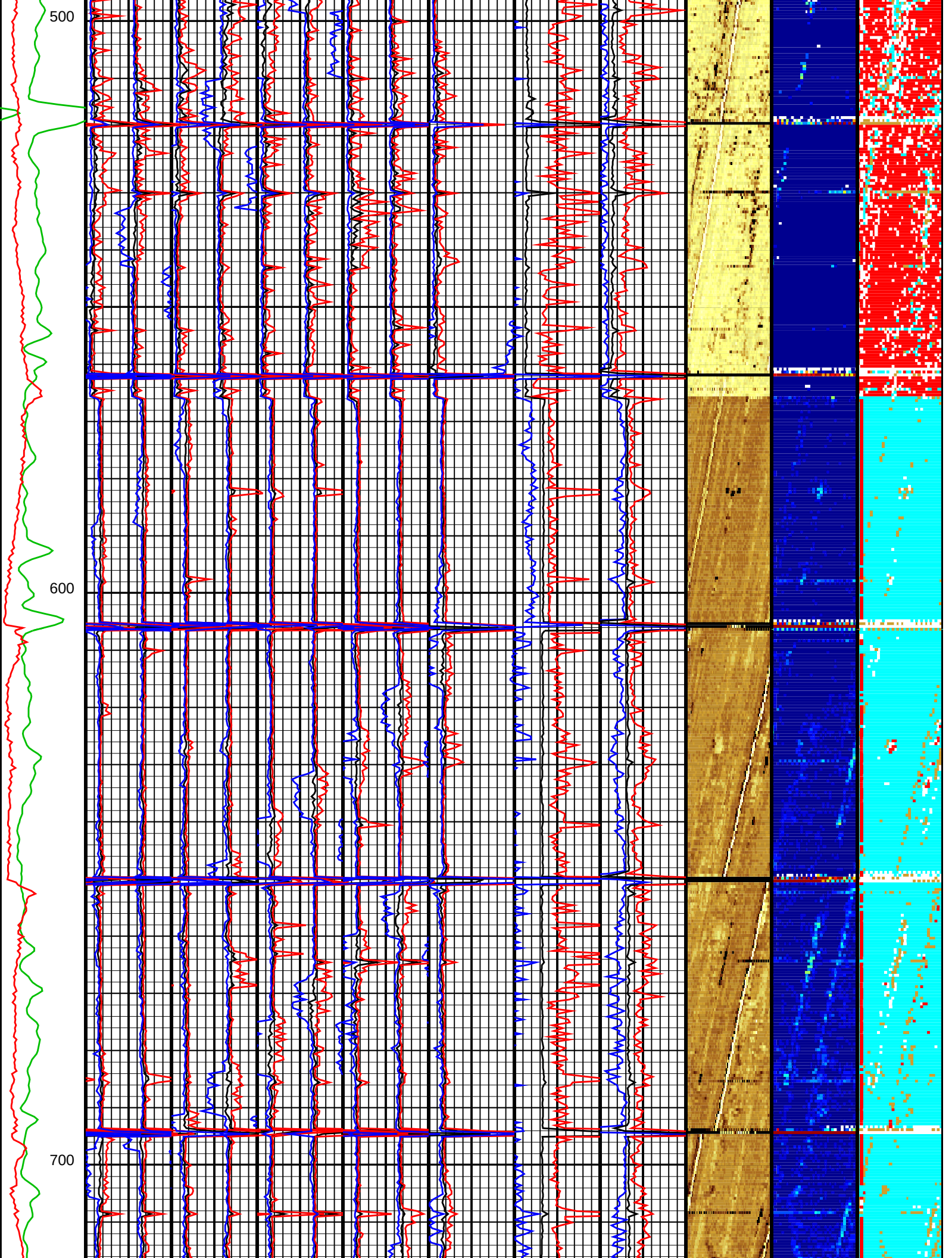
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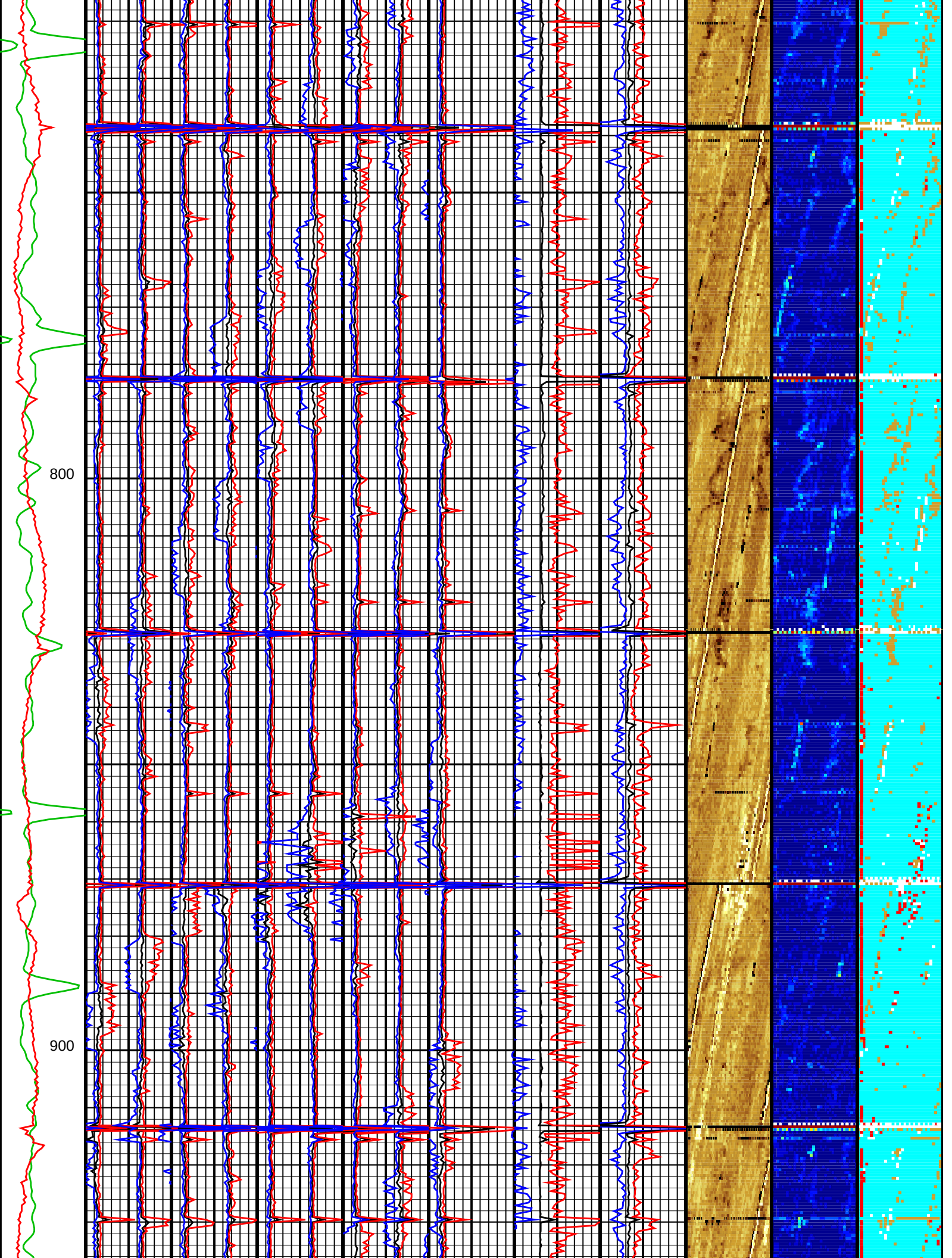
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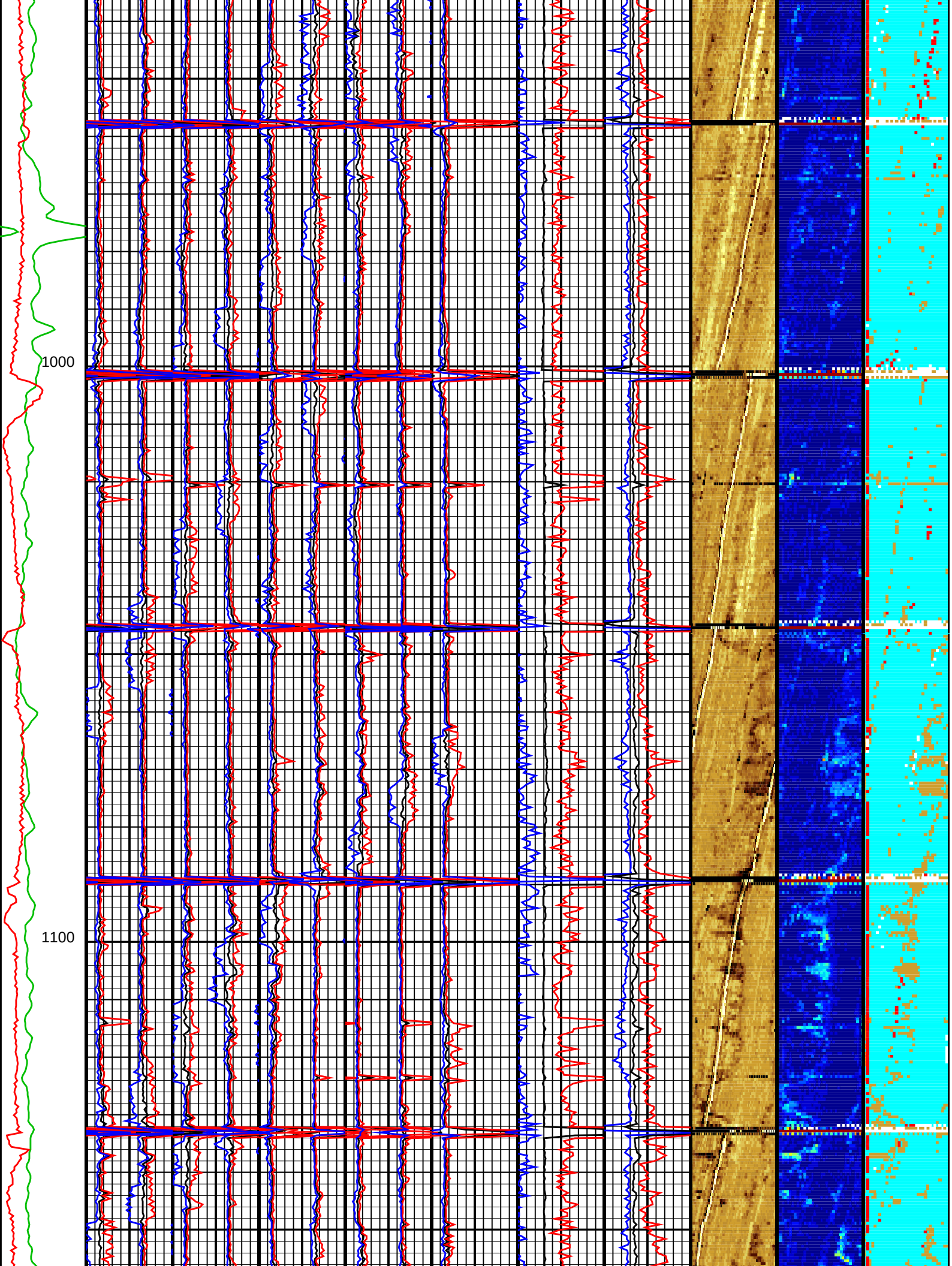
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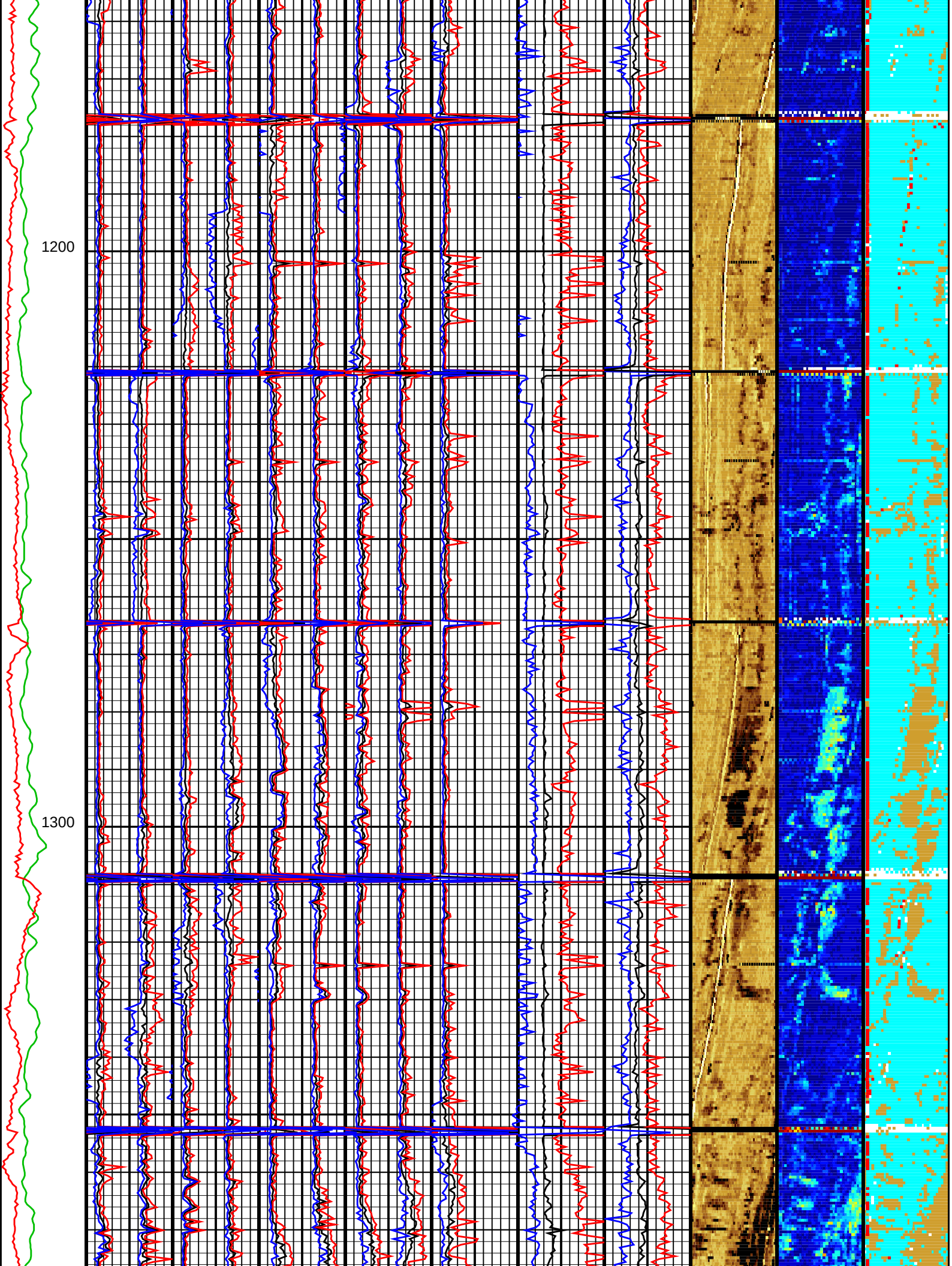
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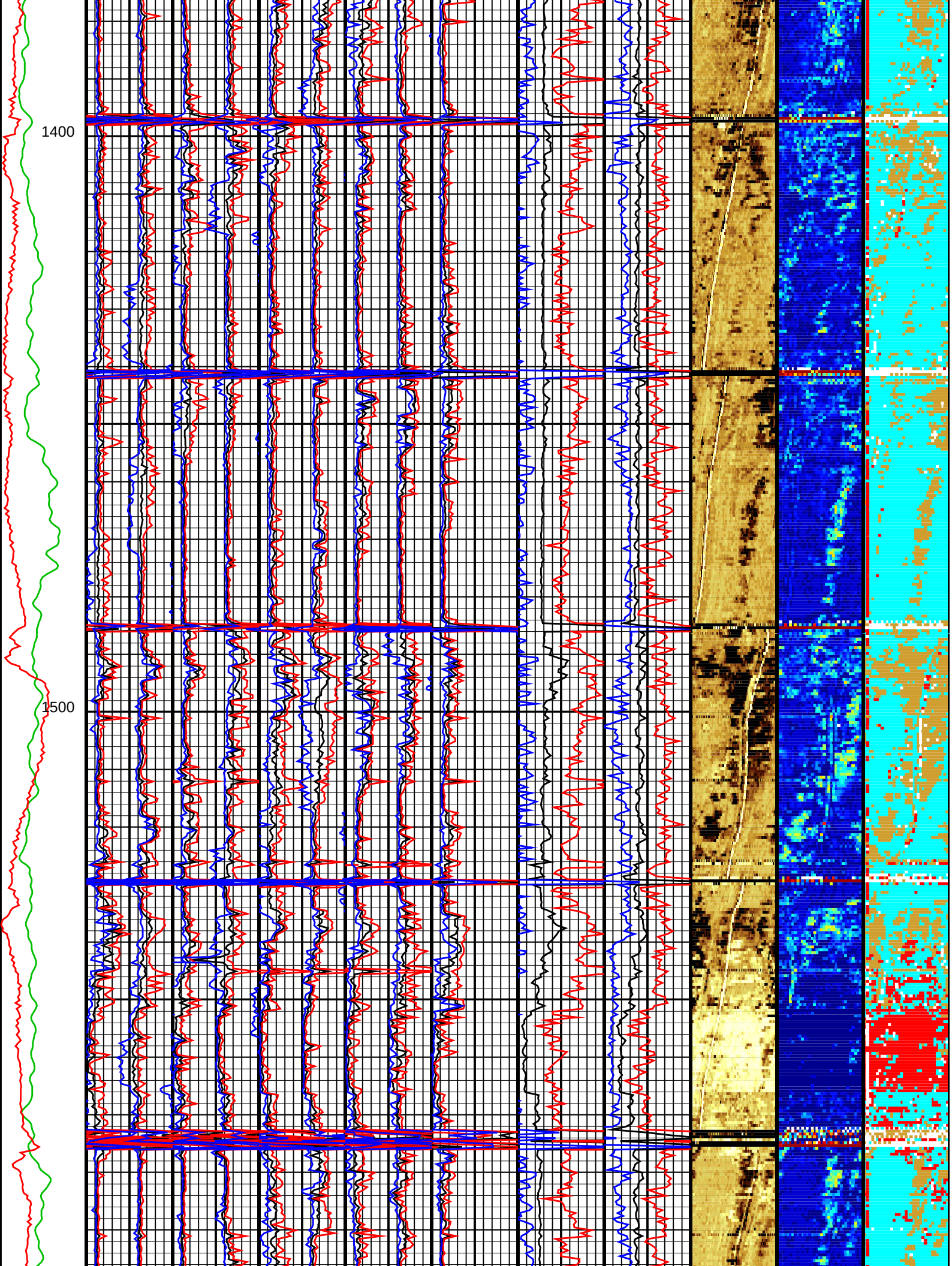
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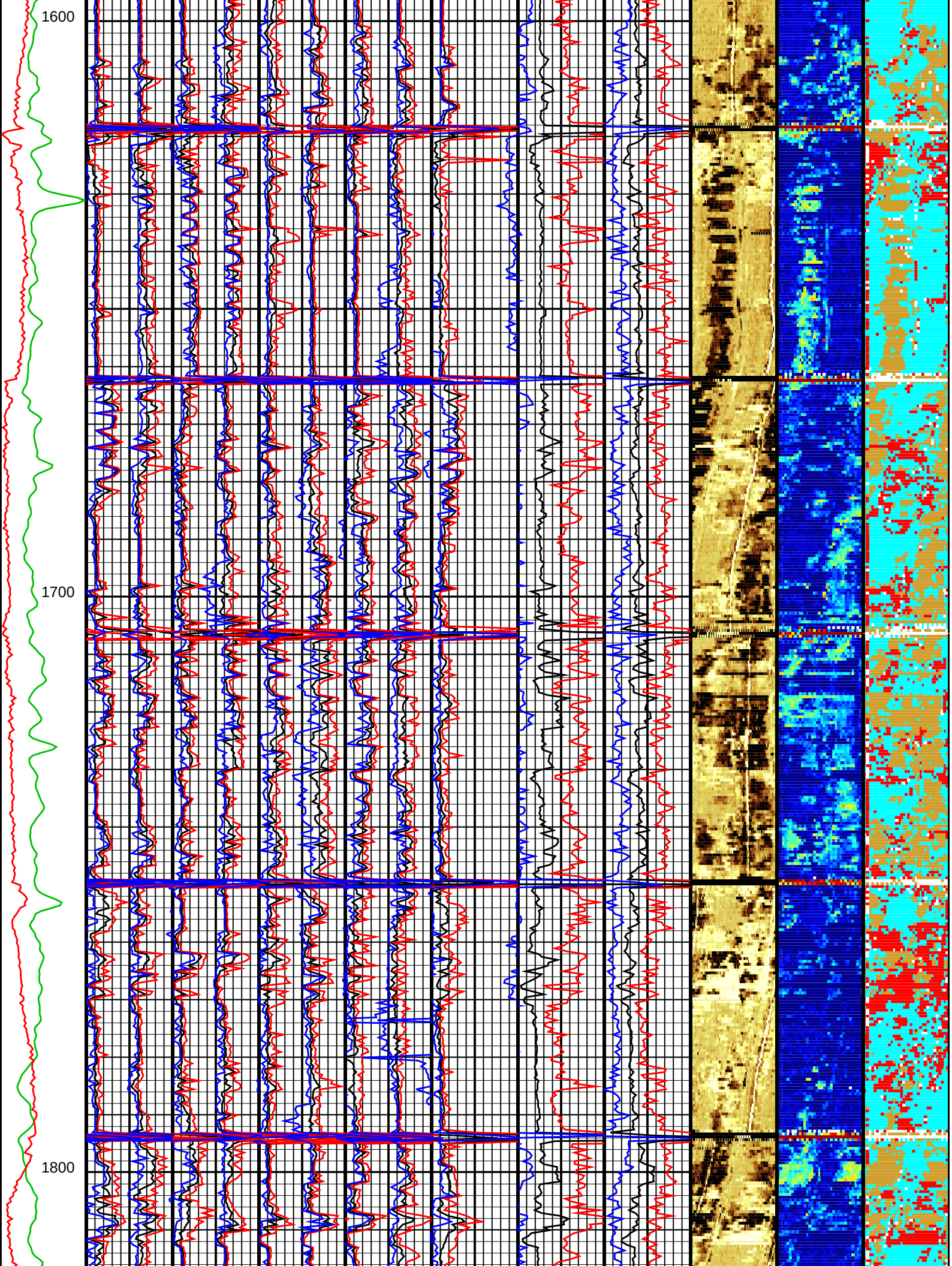
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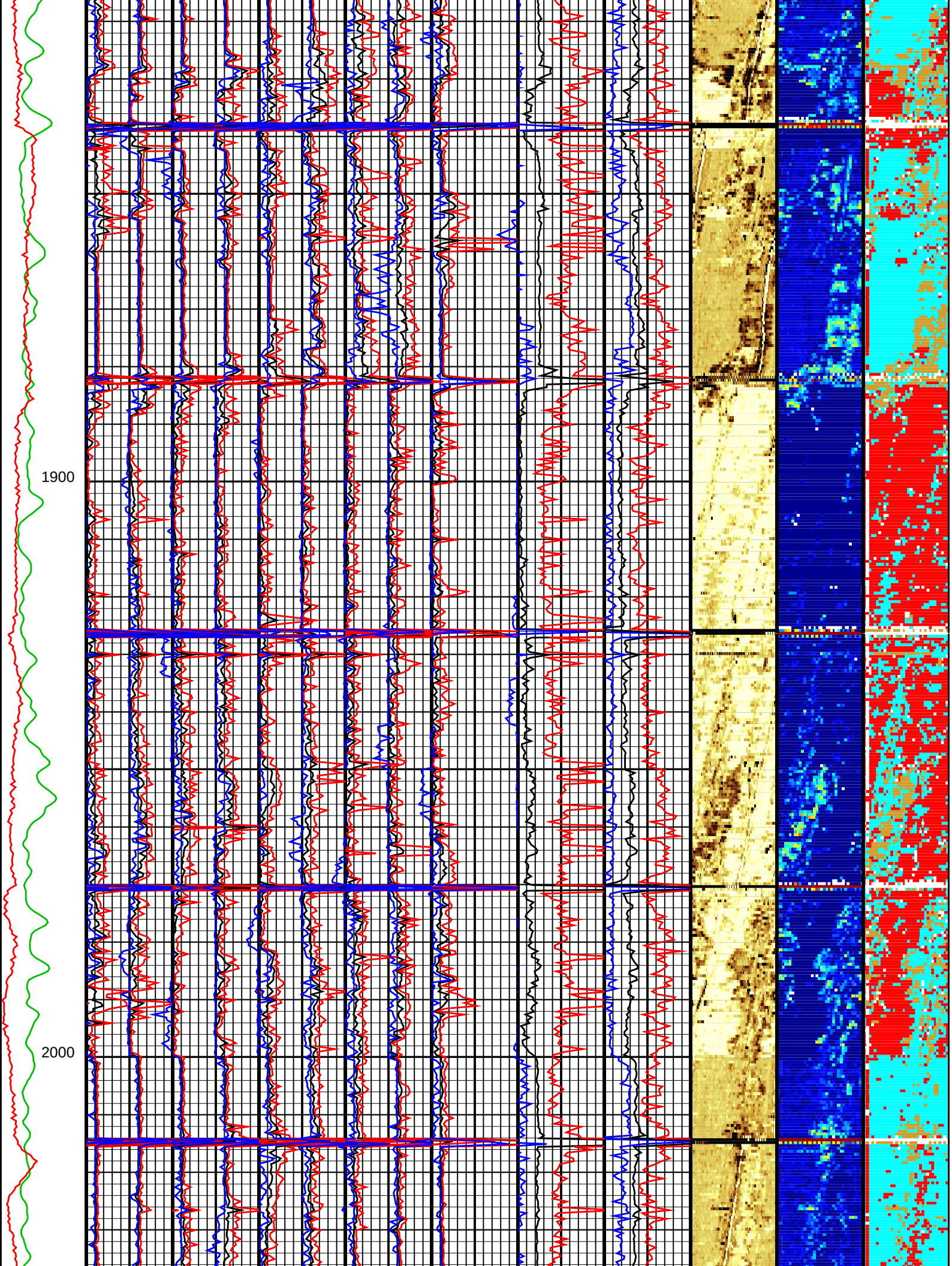
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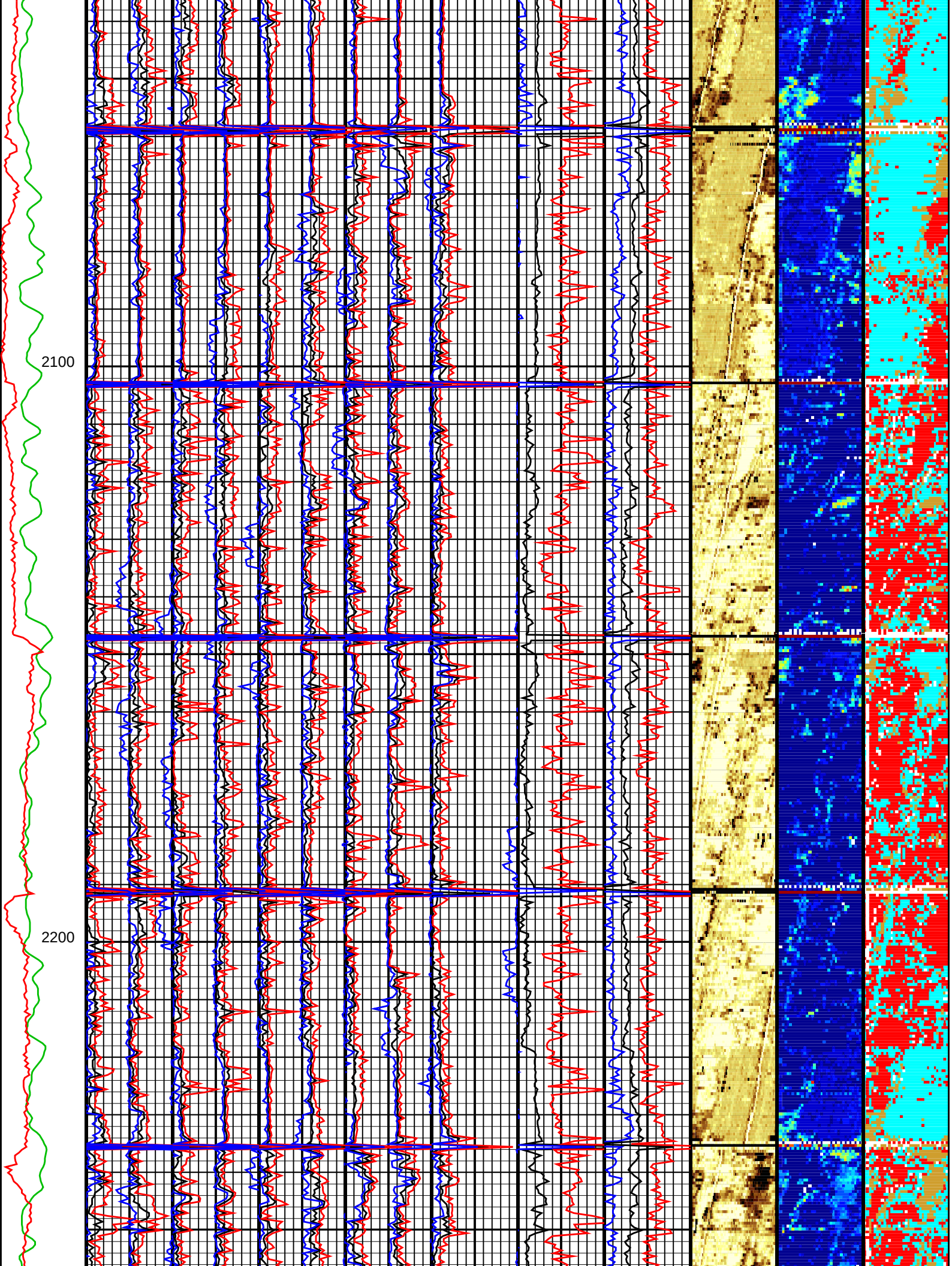
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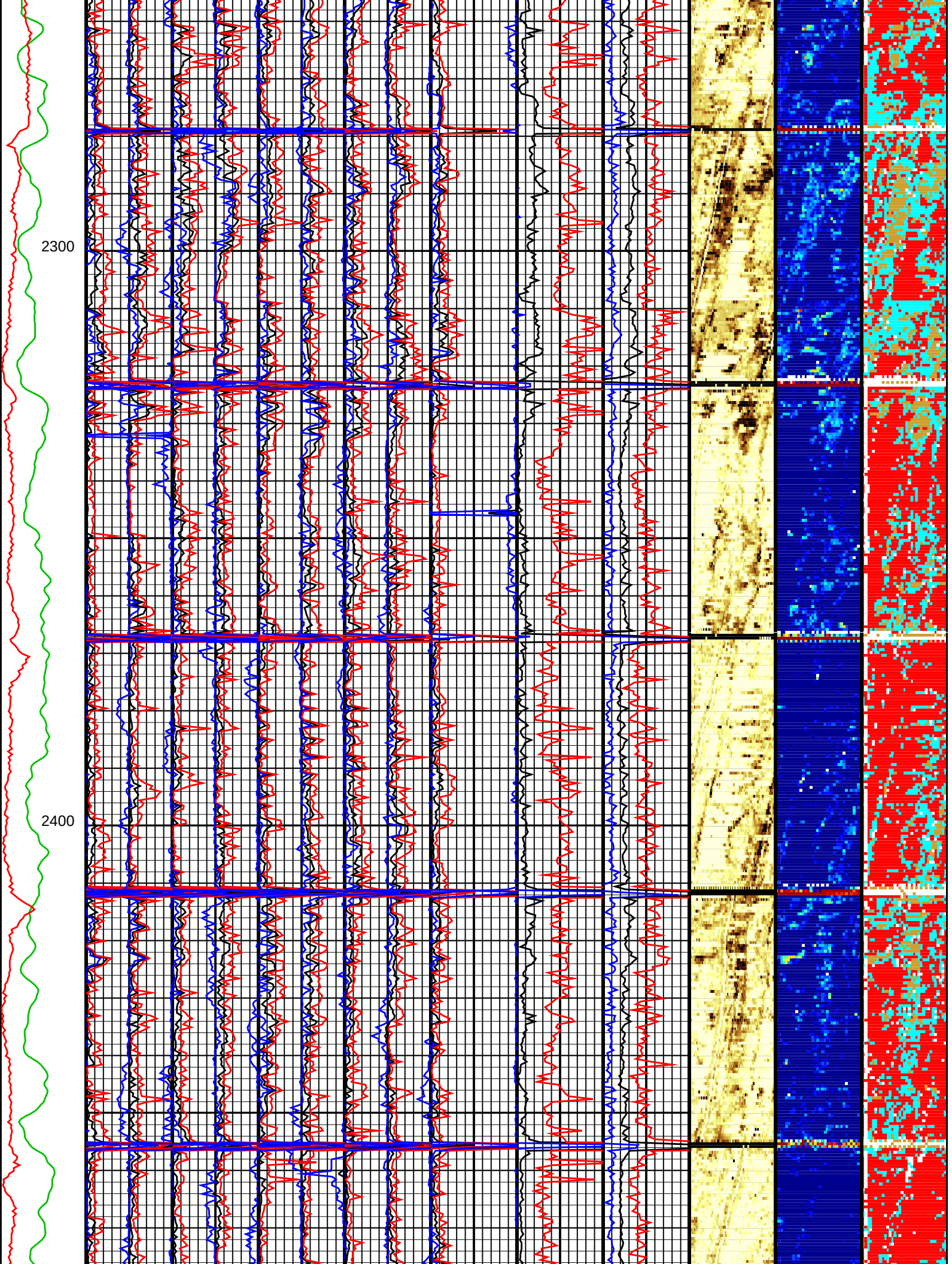
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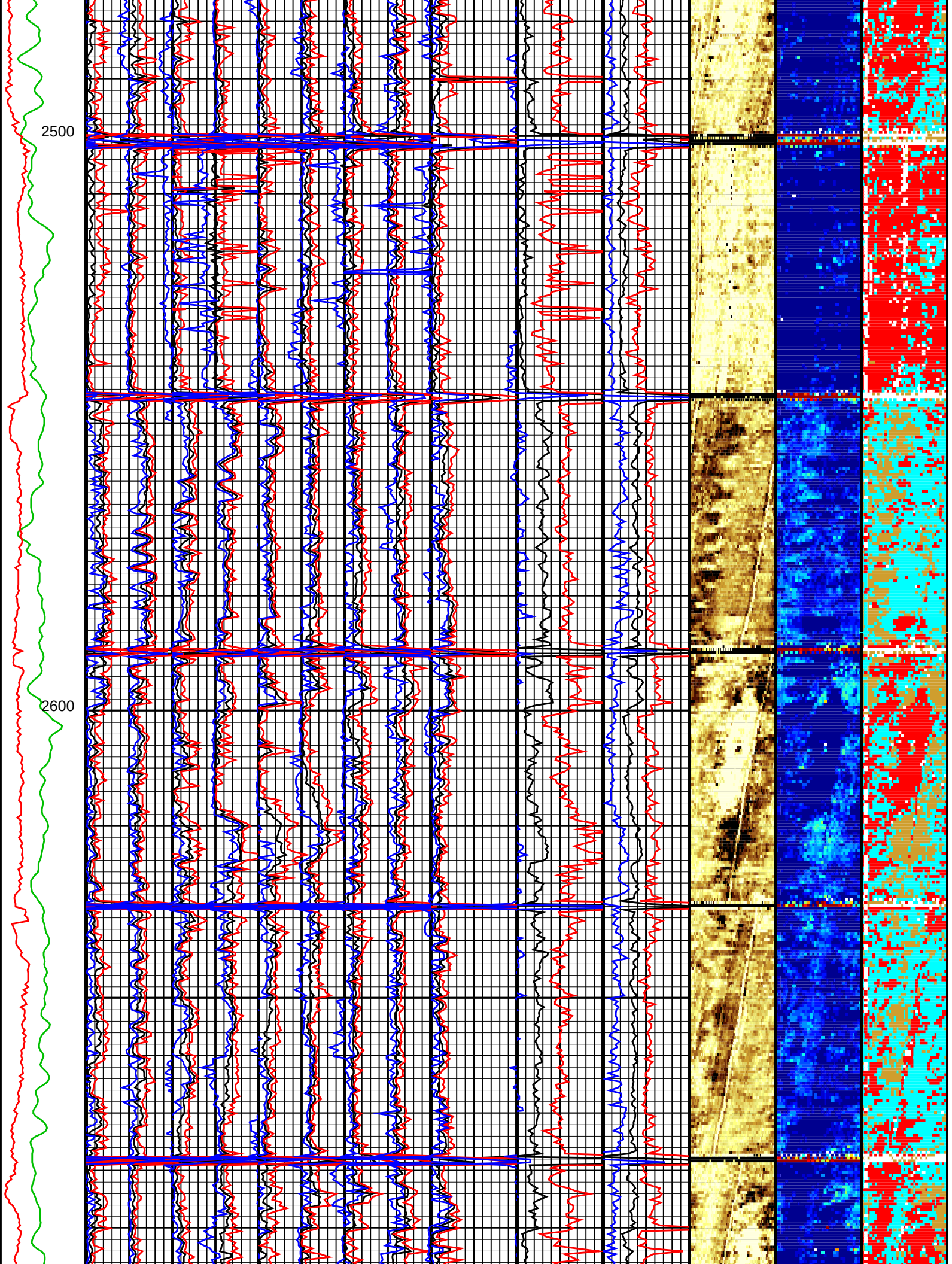
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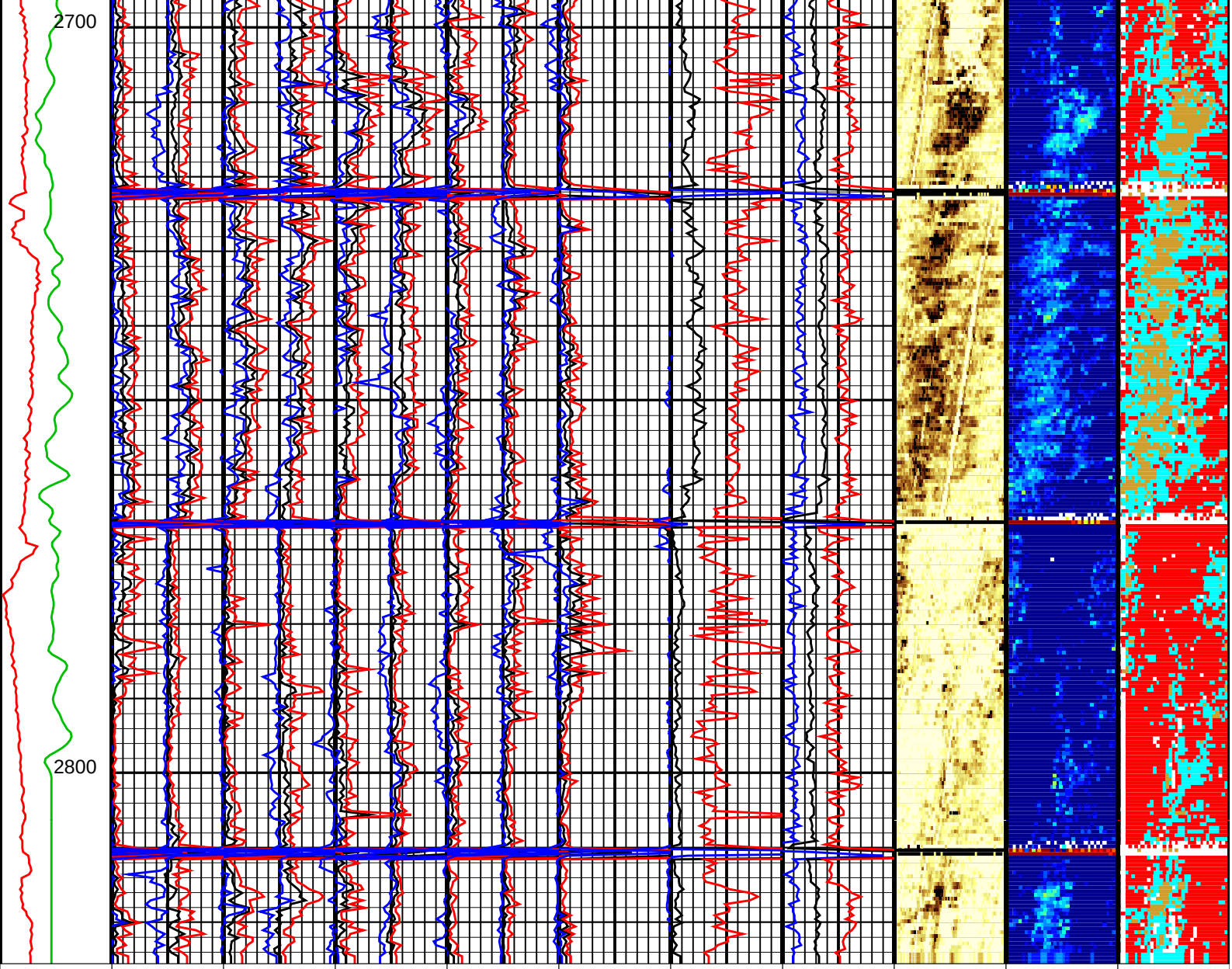
2600



Eccent. (ECCE) 0 (IN) 0.5	Average Acoustic Impedance #1 (AV_AI1) (MRAY) 0 15	Average Acoustic Impedance #3 (AV_AI3) (MRAY) 0 15	Average Acoustic Impedance #5 (AV_AI5) (MRAY) 0 15	Average Acoustic Impedance #7 (AV_AI7) (MRAY) 0 15	Average Acoustic Impedance #9 (AV_AI9) (MRAY) 0 15	Average of AI (AIAV) (MRAY) 0 7.5	Minimum Flexural Attenuation (U−USIT_UFAN) (DB/M) 0 150	−500.0000 0.2500 0.5000 0.7500 1.0000 1.2500 1.5000 1.7500 2.0000 2.2500 2.5000 2.7500 3.0000 3.2500 3.5000 3.7500 4.0000 Raw Acoustic Imped. (AIBK) (MRAY)	0.0000 50.0000 57.0000 64.0000 71.0000 78.0000 85.0000 92.0000 99.0000 106.0000 113.0000 120.0000 127.0000 134.0000 141.0000 148.0000 155.0000 Flexural Attenuation (U−USIT_UFAK) (DB/M)	0.5000 1.5000 2.5000 3.5000 Solid Liquid Gas Map (U−USIT_USLP) (−−−−)
Gamma Ray (GR_EDTC) (GAPI) 0 150	Average Acoustic Impedance #2 (AV_AI2) (MRAY) −7.5 7.5	Average Acoustic Impedance #4 (AV_AI4) (MRAY) −7.5 7.5	Average Acoustic Impedance #6 (AV_AI6) (MRAY) −7.5 7.5	Average Acoustic Impedance #8 (AV_AI8) (MRAY) −7.5 7.5	Maximum Acoustic Impedance #9 (MAX_AI9) (MRAY) 0 15	Minimum of AI (AIMN) (MRAY) 0 7.5	Average Flexural Attenuation (U−USIT_UFAV) (DB/M) 0 150			
	Maximum Acoustic	Maximum Acoustic	Maximum Acoustic	Maximum Acoustic	Minimum Acoustic	Maximum	Maximum Flexural			

Impedance #1 (MAX_ AI1) (MRAY)	Impedance #3 (MAX_ AI3) (MRAY)	Impedance #5 (MAX_ AI5) (MRAY)	Impedance #7 (MAX_ AI7) (MRAY)	Impedance #9 (MIN_ AI9) (MRAY)	of AI (AIMX) (MRAY)	Attenuation (U−USIT_ UFAX) (DB/M)
0 15	0 15	0 15	0 15	0 15	0 7.5	0 150

Maximum Acoustic Impedance #2 (MAX_ AI2) (MRAY)	Maximum Acoustic Impedance #4 (MAX_ AI4) (MRAY)	Maximum Acoustic Impedance #6 (MAX_ AI6) (MRAY)	Maximum Acoustic Impedance #8 (MAX_ AI8) (MRAY)
−7.5 7.5	−7.5 7.5	−7.5 7.5	−7.5 7.5

Minimum Acoustic Impedance #1 (MIN_ AI1) (MRAY)	Minimum Acoustic Impedance #3 (MIN_ AI3) (MRAY)	Minimum Acoustic Impedance #5 (MIN_ AI5) (MRAY)	Minimum Acoustic Impedance #7 (MIN_ AI7) (MRAY)
0 15	0 15	0 15	0 15

Minimum Acoustic Impedance #2 (MIN_ AI2) (MRAY)	Minimum Acoustic Impedance #4 (MIN_ AI4) (MRAY)	Minimum Acoustic Impedance #6 (MIN_ AI6) (MRAY)	Minimum Acoustic Impedance #8 (MIN_ AI8) (MRAY)
−7.5 7.5	−7.5 7.5	−7.5 7.5	−7.5 7.5

Format: M_Goodwin **Vertical Scale: 5" per 100'** **Graphics File Created: 25−Jul−2010 20:01**

OP System Version: 17C0−154

USIT−D	17C0−154	EDTC−B	17C0−154

All USI Images are outside views

USI : LOW Frequency Compression Mode Used For Logging.

Recommended casing thickness range for optimum cement impedance measurement : 0.27 to 0.6 IN.

Input DLIS Files

DEFAULT	USI_013LUP	FN:12	PRODUCER	25−Jul−2010 17:43	2823.5 FT	100.0 FT

Output DLIS Files

DEFAULT	USI_016PUP	FN:24	PRODUCER	25−Jul−2010 20:01

Schlumberger

GOODWIN 0.1 INCH

MAXIS Field Log

Company: ENCANA OIL & GAS (USA) INC **Well: SGU 8506A−36 (B36) 496**

Input DLIS Files

DEFAULT	USI_013LUP	FN:12	PRODUCER	25−Jul−2010 17:43	2823.5 FT	100.0 FT

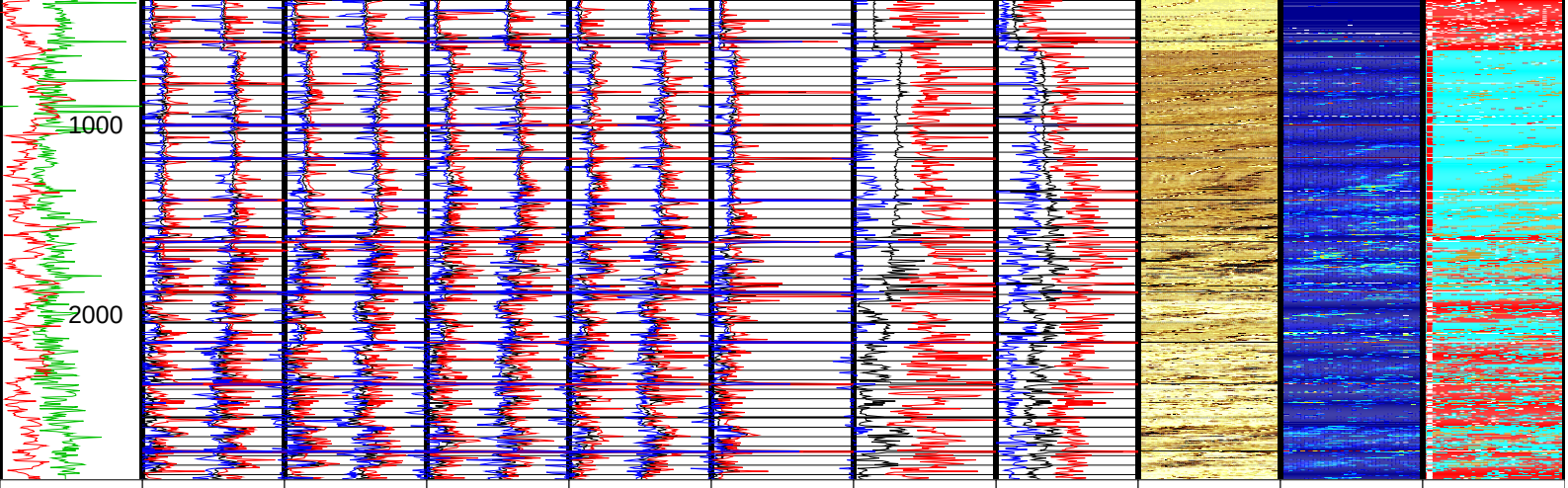
Output DLIS Files

DEFAULT	USI_016PUP	FN:24	PRODUCER	25−Jul−2010 20:01	2825.5 FT	102.0 FT

OP System Version: 17C0−154

USIT−D	17C0−154	EDTC−B	17C0−154

	Minimum Acoustic Impedance #2 (MIN_AI2) (MRAY) −7.5 7.5	Minimum Acoustic Impedance #4 (MIN_AI4) (MRAY) −7.5 7.5	Minimum Acoustic Impedance #6 (MIN_AI6) (MRAY) −7.5 7.5	Minimum Acoustic Impedance #8 (MIN_AI8) (MRAY) −7.5 7.5				
	Minimum Acoustic Impedance #1 (MIN_AI1) (MRAY) 0 15	Minimum Acoustic Impedance #3 (MIN_AI3) (MRAY) 0 15	Minimum Acoustic Impedance #5 (MIN_AI5) (MRAY) 0 15	Minimum Acoustic Impedance #7 (MIN_AI7) (MRAY) 0 15				
	Maximum Acoustic Impedance #2 (MAX_AI2) (MRAY) −7.5 7.5	Maximum Acoustic Impedance #4 (MAX_AI4) (MRAY) −7.5 7.5	Maximum Acoustic Impedance #6 (MAX_AI6) (MRAY) −7.5 7.5	Maximum Acoustic Impedance #8 (MAX_AI8) (MRAY) −7.5 7.5				
	Maximum Acoustic Impedance #1 (MAX_AI1) (MRAY) 0 15	Maximum Acoustic Impedance #3 (MAX_AI3) (MRAY) 0 15	Maximum Acoustic Impedance #5 (MAX_AI5) (MRAY) 0 15	Maximum Acoustic Impedance #7 (MAX_AI7) (MRAY) 0 15	Minimum Acoustic Impedance #9 (MIN_AI9) (MRAY) 0 15	Maximum of AI (AIMX) (MRAY) 0 7.5	Maximum Flexural Attenuation (U−USIT_UFAX) (DB/M) 0 150	
Gamma Ray (GR_EDTC) (GAPI) 0 150	Average Acoustic Impedance #2 (AV_AI2) (MRAY) −7.5 7.5	Average Acoustic Impedance #4 (AV_AI4) (MRAY) −7.5 7.5	Average Acoustic Impedance #6 (AV_AI6) (MRAY) −7.5 7.5	Average Acoustic Impedance #8 (AV_AI8) (MRAY) −7.5 7.5	Maximum Acoustic Impedance #9 (MAX_AI9) (MRAY) 0 15	Minimum of AI (AIMN) (MRAY) 0 7.5	Average Flexural Attenuation (U−USIT_UFAV) (DB/M) 0 150	
Eccent. (ECCE) 0 (IN) 0.5	Average Acoustic Impedance #1 (AV_AI1) (MRAY) 0 15	Average Acoustic Impedance #3 (AV_AI3) (MRAY) 0 15	Average Acoustic Impedance #5 (AV_AI5) (MRAY) 0 15	Average Acoustic Impedance #7 (AV_AI7) (MRAY) 0 15	Average Acoustic Impedance #9 (AV_AI9) (MRAY) 0 15	Average of AI (AIAV) (MRAY) 0 7.5	Minimum Flexural Attenuation (U−USIT_UFAN) (DB/M) 0 150	Raw Acoustic Imped. (AIBK) (MRAY) −500.0000 0.2500 0.5000 0.7500 1.0000 1.2500 1.5000 1.7500 2.0000 2.2500 2.5000 2.7500 3.0000 3.2500 3.5000 3.7500 4.0000
								Flexural Attenuation (U−USIT_UFAK) (DB/M) 0.0000 50.0000 57.0000 64.0000 71.0000 78.0000 85.0000 92.0000 99.0000 106.0000 113.0000 120.0000 127.0000 134.0000 141.0000 148.0000 155.0000
								Solid Liquid Gas Map (U−USIT_USLP) (−−−−) 0.5000 1.5000 2.5000 3.5000



Eccent. (ECCE) 0 (IN) 0.5	Average Acoustic Impedance #1 (AV_AI1) (MRAY) 0 15	Average Acoustic Impedance #3 (AV_AI3) (MRAY) 0 15	Average Acoustic Impedance #5 (AV_AI5) (MRAY) 0 15	Average Acoustic Impedance #7 (AV_AI7) (MRAY) 0 15	Average Acoustic Impedance #9 (AV_AI9) (MRAY) 0 15	Average of AI (AIAV) (MRAY) 0 7.5	Minimum Flexural Attenuation (U−USIT_UFAN) (DB/M) 0 150	−500.0000 0.2500 0.5000 0.7500 1.0000 1.2500 1.5000 1.7500 2.0000 2.2500 2.5000 2.7500 3.0000 3.2500 3.5000 3.7500 4.0000 Raw Acoustic Imped. (AIBK) (MRAY)	0.0000 50.0000 57.0000 64.0000 71.0000 78.0000 85.0000 92.0000 99.0000 106.0000 113.0000 120.0000 127.0000 134.0000 141.0000 148.0000 155.0000 Flexural Attenuation (U−USIT_UFAK) (DB/M)	0.5000 1.5000 2.5000 3.5000 Solid Liquid Gas Map (U−USIT_USLP) (−−−−)
Gamma Ray (GR_EDTC) (GAPI) 0 150	Average Acoustic Impedance #2 (AV_AI2) (MRAY) −7.5 7.5	Average Acoustic Impedance #4 (AV_AI4) (MRAY) −7.5 7.5	Average Acoustic Impedance #6 (AV_AI6) (MRAY) −7.5 7.5	Average Acoustic Impedance #8 (AV_AI8) (MRAY) −7.5 7.5	Maximum Acoustic Impedance #9 (MAX_AI9) (MRAY) 0 15	Minimum of AI (AIMN) (MRAY) 0 7.5	Average Flexural Attenuation (U−USIT_UFAV) (DB/M) 0 150			
	Maximum Acoustic Impedance #1 (MAX_AI1) (MRAY) 0 15	Maximum Acoustic Impedance #3 (MAX_AI3) (MRAY) 0 15	Maximum Acoustic Impedance #5 (MAX_AI5) (MRAY) 0 15	Maximum Acoustic Impedance #7 (MAX_AI7) (MRAY) 0 15	Minimum Acoustic Impedance #9 (MIN_AI9) (MRAY) 0 15	Maximum of AI (AIMX) (MRAY) 0 7.5	Maximum Flexural Attenuation (U−USIT_UFAX) (DB/M) 0 150			
	Maximum Acoustic Impedance #2 (MAX_AI2) (MRAY) −7.5 7.5	Maximum Acoustic Impedance #4 (MAX_AI4) (MRAY) −7.5 7.5	Maximum Acoustic Impedance #6 (MAX_AI6) (MRAY) −7.5 7.5	Maximum Acoustic Impedance #8 (MAX_AI8) (MRAY) −7.5 7.5						
	Minimum Acoustic Impedance #1 (MIN_AI1) (MRAY) 0 15	Minimum Acoustic Impedance #3 (MIN_AI3) (MRAY) 0 15	Minimum Acoustic Impedance #5 (MIN_AI5) (MRAY) 0 15	Minimum Acoustic Impedance #7 (MIN_AI7) (MRAY) 0 15						
	Minimum Acoustic Impedance #2 (MIN_AI2) (MRAY)	Minimum Acoustic Impedance #4 (MIN_AI4) (MRAY)	Minimum Acoustic Impedance #6 (MIN_AI6) (MRAY)	Minimum Acoustic Impedance #8 (MIN_AI8) (MRAY)						

(MRAY)		(MRAY)		(MRAY)		(MRAY)	
−7.5	7.5	−7.5	7.5	−7.5	7.5	−7.5	7.5

Format: M_Goodwin_Compressed Vertical Scale: 0.1" per 100' Graphics File Created: 25−Jul−2010 20:01

OP System Version: 17C0−154

USIT−D	17C0−154	EDTC−B	17C0−154

All USI Images are outside views

USI : LOW Frequency Compression Mode Used For Logging.

Recommended casing thickness range for optimum cement impedance measurement : 0.27 to 0.6 IN.

Input DLIS Files

DEFAULT	USI_013LUP	FN:12	PRODUCER	25−Jul−2010 17:43	2823.5 FT	100.0 FT

Output DLIS Files

DEFAULT	USI_016PUP	FN:24	PRODUCER	25−Jul−2010 20:01

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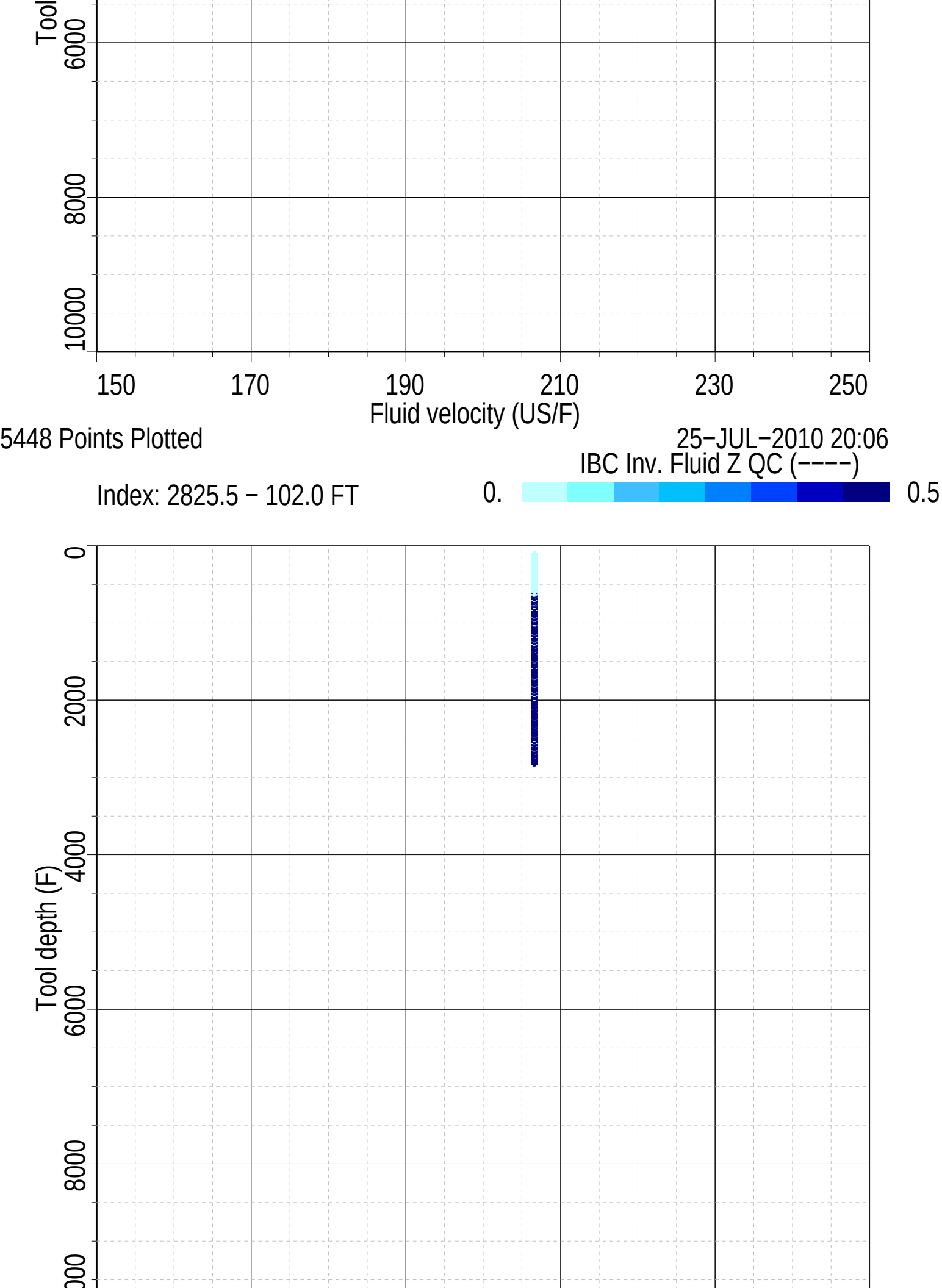
FLUID PROPERTIES

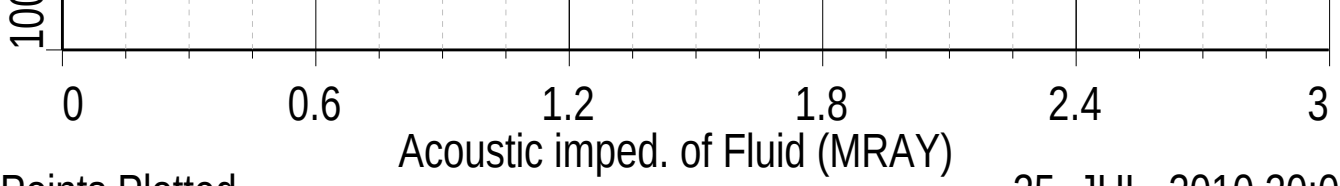
MAXIS Field Log

Index: 2825.5 − 102.0 FT

IBC Inv. Fluid Z QC (−−−−)

0. 0.5


Tool
6000
8000
10000
150
170
190
210
230
250
Fluid velocity (US/F)
5448 Points Plotted
25−JUL−2010 20:06
IBC Inv. Fluid Z QC (−−−−)
Index: 2825.5 − 102.0 FT
0.
0.5
Tool depth (F)
0
2000
4000
6000
8000



5448 Points Plotted 25−JUL−2010 20:06

Schlumberger

REPEAT PASS NONE PRESSURE

MAXIS Field Log

Company: ENCANA OIL & GAS (USA) INC **Well: SGU 8506A−36 (B36) 496**

Input DLIS Files

DEFAULT	USI_011LUP	FN:10	PRODUCER	25−Jul−2010 17:11	2821.0 FT	2590.5 FT

Output DLIS Files

DEFAULT	USI_015PUP	FN:23	PRODUCER	25−Jul−2010 19:59	2823.0 FT	2592.5 FT

OP System Version: 17C0−154

USIT−D	17C0−154	EDTC−B	17C0−154

Image rotation (UCAZ) (DEG)
0 360

Gamma Ray (GR_EDTC) (GAPI)
0 150

Tool/Tot. Drag From D4T to STIA

Cable Drag From D4T to STIT

Stuck Stretch (STIT)
0 (F) 50

RSAV (RSAV) (RPS)
6 7.5

Min of Internal radius (IRMN)
5 (IN) 4

Min of Internal radius (IRMN)
4 (IN) 5

Internal radius Maximum (IRMX)
5 (IN) 4

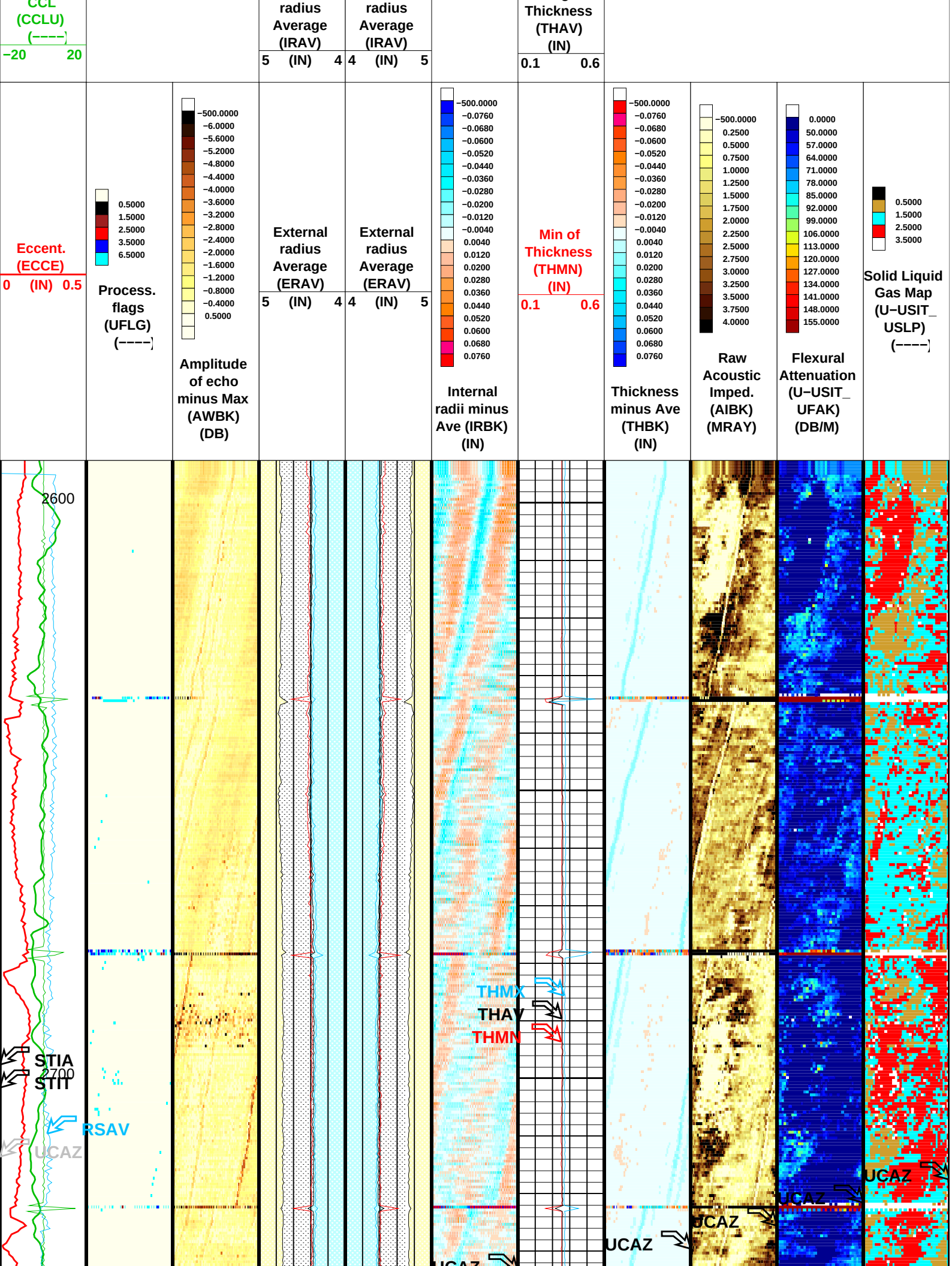
Internal radius Maximum (IRMX)
4 (IN) 5

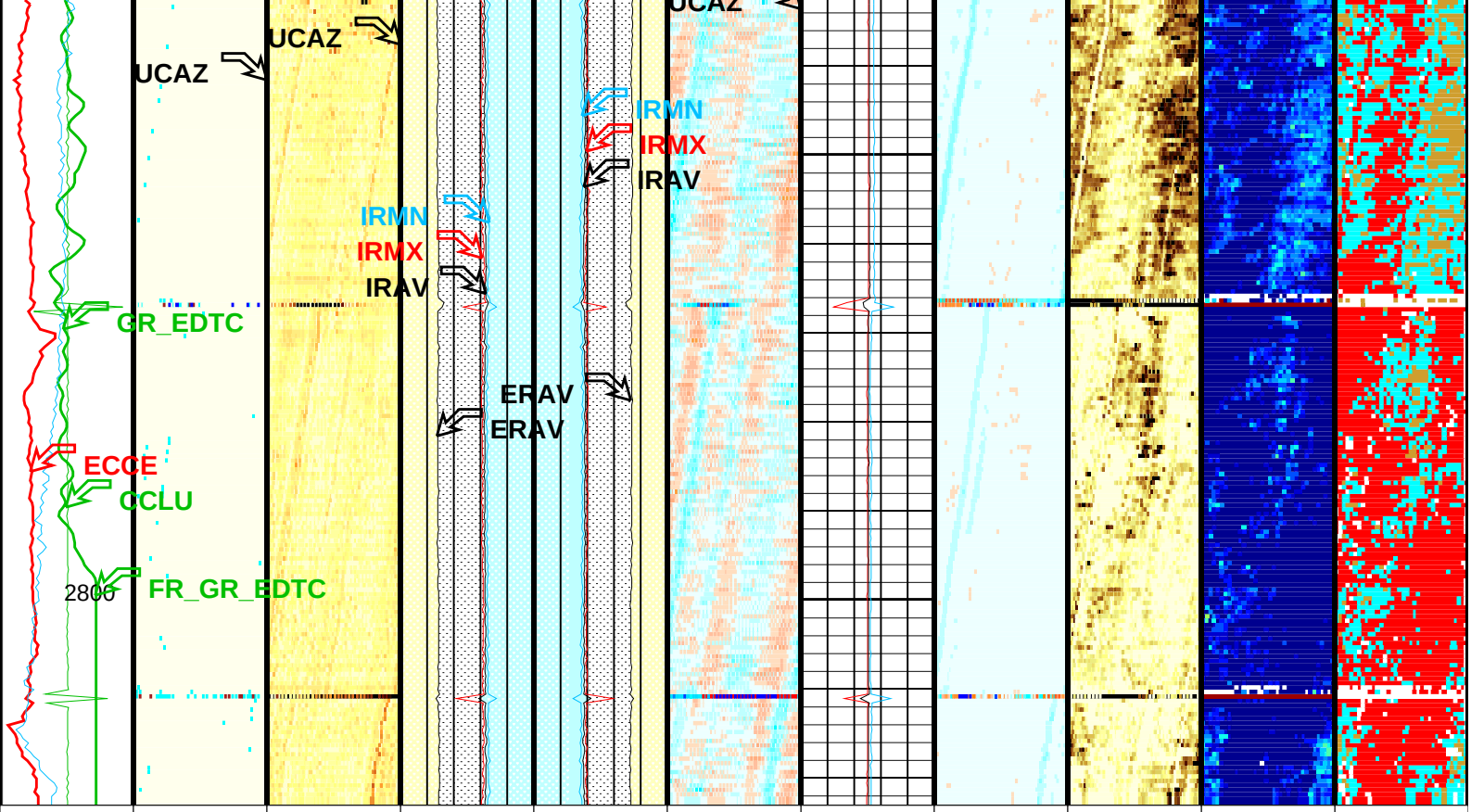
Maximum of Thickness (THMX) (IN)
0.1 0.6

Internal

Internal

Average of


CCL (CCLU) (----)
−20 20
radius Average (IRAV)
5 (IN) 4
radius Average (IRAV)
4 (IN) 5
Thickness (THAV) (IN)
0.1 0.6
Eccent. (ECCE)
0 (IN) 0.5
0.5000 1.5000 2.5000 3.5000 6.5000
Process. flags (UFLG) (----)
−500.0000 −6.0000 −5.6000 −5.2000 −4.8000 −4.4000 −4.0000 −3.6000 −3.2000 −2.8000 −2.4000 −2.0000 −1.6000 −1.2000 −0.8000 −0.4000 0.5000
Amplitude of echo minus Max (AWBK) (DB)
External radius Average (ERAV)
5 (IN) 4
External radius Average (ERAV)
4 (IN) 5
−500.0000 −0.0760 −0.0680 −0.0600 −0.0520 −0.0440 −0.0360 −0.0280 −0.0200 −0.0120 −0.0040 0.0040 0.0120 0.0200 0.0280 0.0360 0.0440 0.0520 0.0600 0.0680 0.0760
Internal radii minus Ave (IRBK) (IN)
Min of Thickness (THMN) (IN)
0.1 0.6
−500.0000 −0.0760 −0.0680 −0.0600 −0.0520 −0.0440 −0.0360 −0.0280 −0.0200 −0.0120 −0.0040 0.0040 0.0120 0.0200 0.0280 0.0360 0.0440 0.0520 0.0600 0.0680 0.0760
Thickness minus Ave (THBK) (IN)
−500.0000 0.2500 0.5000 0.7500 1.0000 1.2500 1.5000 1.7500 2.0000 2.2500 2.5000 2.7500 3.0000 3.2500 3.5000 3.7500 4.0000
Raw Acoustic Imped. (AIBK) (MRAY)
0.0000 50.0000 57.0000 64.0000 71.0000 78.0000 85.0000 92.0000 99.0000 106.0000 113.0000 120.0000 127.0000 134.0000 141.0000 148.0000 155.0000
Flexural Attenuation (U−USIT_ UFAK) (DB/M)
0.5000 1.5000 2.5000 3.5000
Solid Liquid Gas Map (U−USIT_ USLP) (----)
2600
2700
STIA
STII
RSAV
UCAZ
THMX
THAV
THMN
UCAZ
UCAZ
UCAZ
UCAZ



Eccent. (ECCE)
0 (IN) 0.5

0.5000
1.5000
2.5000
3.5000
6.5000

Process. flags (UFLG) (----)

−500.0000
−6.0000
−5.6000
−5.2000
−4.8000
−4.4000
−4.0000
−3.6000
−3.2000
−2.8000
−2.4000
−2.0000
−1.6000
−1.2000
−0.8000
−0.4000
0.5000

Amplitude of echo minus Max (AWBK) (DB)

External radius Average (ERAV)
5 (IN) 4

External radius Average (ERAV)
4 (IN) 5

−500.0000
−0.0760
−0.0680
−0.0600
−0.0520
−0.0440
−0.0360
−0.0280
−0.0200
−0.0120
−0.0040
0.0040
0.0120
0.0200
0.0280
0.0360
0.0440
0.0520
0.0600
0.0680
0.0760

Internal radii minus Ave (IRBK) (IN)

Min of Thickness (THMN) (IN)
0.1 0.6

−500.0000
−0.0760
−0.0680
−0.0600
−0.0520
−0.0440
−0.0360
−0.0280
−0.0200
−0.0120
−0.0040
0.0040
0.0120
0.0200
0.0280
0.0360
0.0440
0.0520
0.0600
0.0680
0.0760

Thickness minus Ave (THBK) (IN)

−500.0000
0.2500
0.5000
0.7500
1.0000
1.2500
1.5000
1.7500
2.0000
2.2500
2.5000
2.7500
3.0000
3.2500
3.5000
3.7500
4.0000

Raw Acoustic Imped. (AIBK) (MRAY)

0.0000
50.0000
57.0000
64.0000
71.0000
78.0000
85.0000
92.0000
99.0000
106.0000
113.0000
120.0000
127.0000
134.0000
141.0000
148.0000
155.0000

Flexural Attenuation (U−USIT_UFAK) (DB/M)

0.5000
1.5000
2.5000
3.5000

Solid Liquid Gas Map (U−USIT_USLP) (----)

CCL (CCLU) (----)
−20 20

Internal radius Average (IRAV)
5 (IN) 4

Internal radius Average (IRAV)
4 (IN) 5

Average of Thickness (THAV) (IN)
0.1 0.6

RSAV (RSAV) (RPS)
6 7.5

Internal radius Maximum (IRMX)
5 (IN) 4

Internal radius Maximum (IRMX)
4 (IN) 5

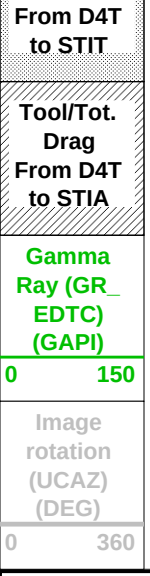
Maximum of Thickness (THMX) (IN)
0.1 0.6

Stuck Stretch (STIT)
0 (F) 50

Min of Internal radius (IRMN)
5 (IN) 4

Min of Internal radius (IRMN)
4 (IN) 5

Cable Drag



Format: USI_IBC_SLG_Composite Vertical Scale: 5" per 100' Graphics File Created: 25−Jul−2010 19:59

OP System Version: 17C0−154

USIT−D 17C0−154 EDTC−B 17C0−154

All USI Images are outside views

USI : LOW Frequency Compression Mode Used For Logging.

Recommended casing thickness range for optimum cement impedance measurement : 0.27 to 0.6 IN.

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	9.625	IN
CSDE	Casing Density	486.94	LBCF
CSID	Casing Inner Diameter	8.921	IN
DFVL	Default Fluid Velocity	202	US/F
DOT	Diameter of Transducer Sensor	4.874	IN
EMXV	EMEX Voltage	75	V
FDII	FPM Data Interpolation Interval	0	FT
IMAR	Image Rotation	OFF	
MW	Mud Weight	8.4	LB/G
RCOD	Reference Calibrator Outer Diameter	7	IN
RCSO	Reference Calibrator Standoff	1.37795	IN
RCTH	Reference Calibrator Thickness	0.2952	IN
TCUB	T^3 Processing Level	Vax_Loop	
THDH	Maximum Search Thickness (percentage of nominal)	130	
THDL	Minimum Search Thickness (percentage of nominal)	70	
THDP	Thickness Detection Policy	Fundamental	
THNO	Nominal Thickness of Casing	0.352	IN
U−USIT_CEMT	USIT Cement Type	ULTRA_LIGHT	
U−USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	0	MRAY
U−USIT_IISR	USIT IBC Inverted Fluid Slowness Resolution	1.0_US_P_FT	
U−USIT_IIZR	USIT IBC Inverted ZMUD Resolution	0.050_MRAY	
U−USIT_OCDI	USIT Outer Casing Diameter	0	IN
U−USIT_OCSH	USIT Outer Casing Shoe	0	FT
U−USIT_OCWE	USIT Outer Casing Weight	0	LB/F
U−USIT_TIEB	IBC Third Interface Echo Bin Processing	YES	
U−USIT_TIEC	IBC Third Interface Echo Cleaning	NONE	
U−USIT_TIEM	IBC Third Interface Echo Multi Tracking	NO	
U−USIT_TIEP	IBC Third Interface Echo Policy	BFEP	
U−USIT_TIER	IBC Third Interface Echo Receivers	BOTH	
U−USIT_U3WE	Third Interface Echo Window End	110	US

U−USIT_UBTP	USIT Bottom Transducer Position	UNKNOWN	
U−USIT_UFAO	USIT Flexural Attenuation Offset	−5	DB/M
U−USIT_UIAP	USIT IBC Answer Product Enabled	SolidLiquidGasMap	
U−USIT_UIST	Ultrasonic IBC Sonde Type	Sub_Ibcs_C	
U−USIT_UTAN	USIT Transducer Angles	33_DEG	
UMAO	USIT Measurement Angular Offset	−10	DEG
USTO	Ultrasonic Time Offset	−2	US
USUB	Ultrasonic Subassembly Identifier	Sub_9_58_inch	
UWKM	Ultrasonic Working Mode	5DEG_6IN_136UNF_LF	
VCAS	Ultrasonic Transversal Velocity in Casing	51.4	US/F
WLEN	T^3 Processing Length	21.1081	US
ZCAS	Acoustic Impedance of Casing	46.2537	MRAY
ZINI	Initial Estimate of Cement Impedance	−1	MRAY
ZMUD	Acoustic Impedance of Mud	1.7	MRAY
ZTCM	Acoustic Impedance Threshold for Cement	2.5	MRAY
ZTGS	Acoustic Impedance Threshold for Gas	0.3	MRAY
	STI: Stuck Tool Indicator		
LBFR	Trigger for MAXIS First Reading Label	TDL	
STKT	STI Stuck Threshold	2.5	FT
TDD	Total Depth − Driller	3062.00	FT
TDL	Total Depth − Logger	2826.00	FT
	System and Miscellaneous		
BS	Bit Size	14.750	IN
CWEI	Casing Weight	36.00	LB/F
DO	Depth Offset for Playback	2.0	FT
PP	Playback Processing	RECOMPUTE	

Input DLIS Files

DEFAULT	USI_011LUP	FN:10	PRODUCER	25−Jul−2010 17:11	2821.0 FT	2590.5 FT

Output DLIS Files

DEFAULT	USI_015PUP	FN:23	PRODUCER	25−Jul−2010 19:59

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CALIBRATIONS

MAXIS Field Log

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Enhanced DTS Cartridge Wellsite Calibration − EDTC Accelerometer Calibration							
Before: 25−Jul−2010 16:43							
EDTC Z−Axis Acceleration	32.19	N/A	32.10	N/A	N/A	N/A	F/S2
Enhanced DTS Cartridge Wellsite Calibration − Detector Calibration							
Before: 24−Jul−2010 21:11							
Gamma Ray (Jig − Bkg)	156.8	N/A	156.8	N/A	N/A	14.25	GAPI
Gamma Ray (Calibrated)	165.0	N/A	165.0	N/A	N/A	15.00	GAPI

Enhanced DTS Cartridge / Equipment Identification

Primary Equipment:		
EDTC Gamma Ray Detector	EDTG − A/B	
Enhanced DTS Cartridge	EDTC − B	8491
Auxiliary Equipment:		
EDTC Housing	EDTH − B	

Enhanced DTS Cartridge Wellsite Calibration

EDTC Accelerometer Calibration

Phase	EDTC Z−Axis Acceleration F/S2			Value
Before				32.10
	31.53 (Minimum)	32.19 (Nominal)	32.84 (Maximum)	

Before: 25−Jul−2010 16:43

Enhanced DTS Cartridge Wellsite Calibration

Detector Calibration

Phase	Gamma Ray Background GAPI			Value
Before				34.01
	0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)	

Phase	Gamma Ray (Jig − Bkg) GAPI			Value
Before				156.8
	142.5 (Minimum)	156.8 (Nominal)	171.0 (Maximum)	

Phase	Gamma Ray (Calibrated) GAPI			Value
Before				165.0
	150.0 (Minimum)	165.0 (Nominal)	180.0 (Maximum)	

Before: 24−Jul−2010 21:11

Company: **ENCANA OIL & GAS (USA) INC**

Schlumberger

Well: **SGU 8506A−36 (B36) 496**
Field: **STORY GULCH**
County: **GARFIELD**
State: **COLORADO**

IMAGING BEHIND CASING
ULTRASONIC TOOL
CCL / GAMMA RAY