Schlumberger

Company: Anadarko Petroleum Company

Well: Bane 28N2-9HZ

Field: Wattenberg

County: Weld State: Colorado

Ultrasonic Imager

Cement Evaluation

Gamma Ray - CCL Log

County: Weld
Field: Wattenberg
Location: SWSE Sec 9 T1N R65W
Well: Bane 28N2-9HZ
Company: Anadarko Petroleum Company

Location:				
SWSE Sec 9 T1N R65W		Elev.:	K.B.	4991.00 ft
SHL: 620' FSL & 1620' FEL			G.L.	4966.00 ft
Lat/Long: 40.060443/-104.665379			D.F.	4991.00 ft
Permanent Datum:	Ground Level	Elev.:	4966.00 f	
Log Measured From:	Kelly Bushing	25.00 ft	above Perm.Datum	
Drilling Measured From:	Kelly Bushing			

API Serial No.	Section:	Township:	Range:
05-123-41306	9	1N	65W

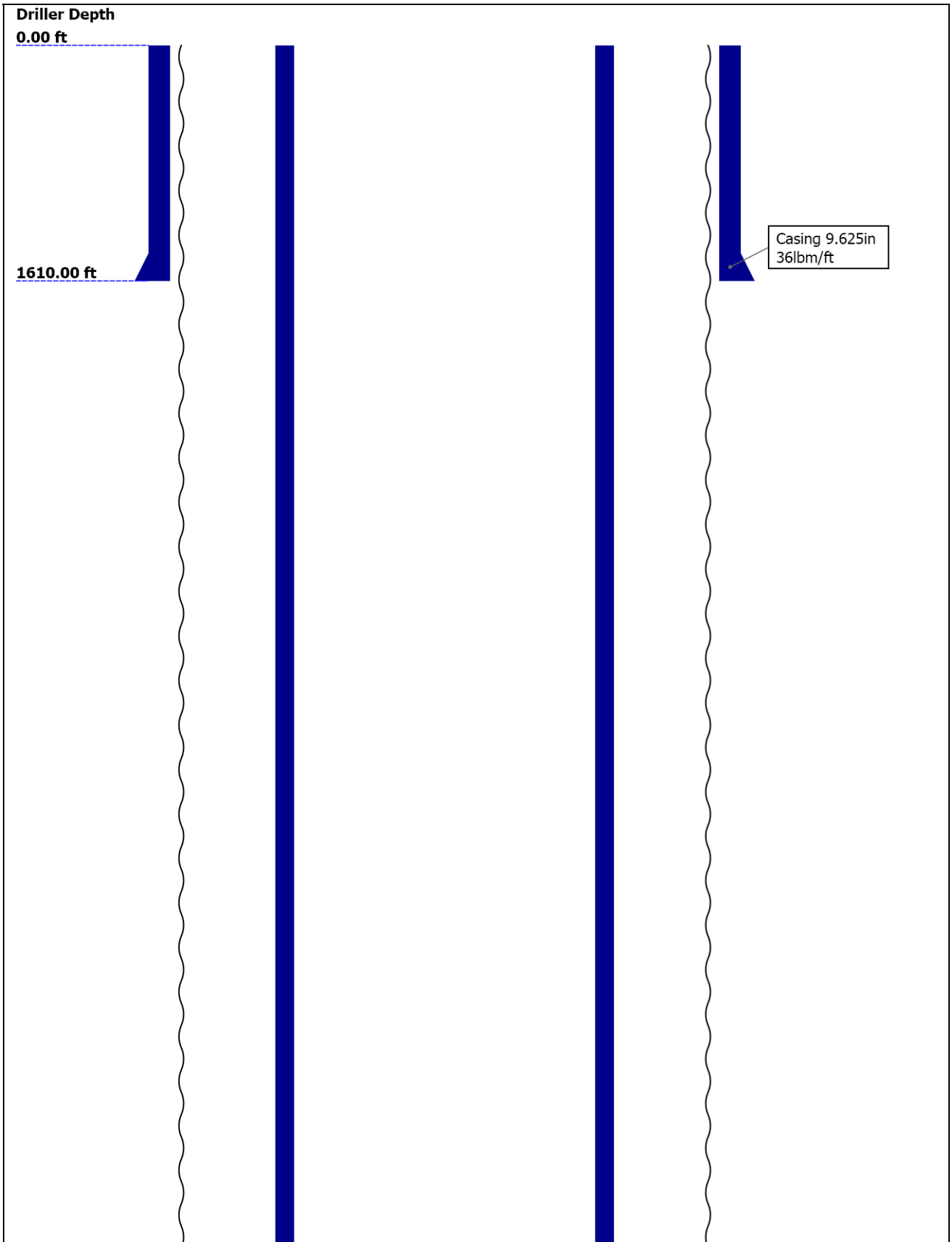
Logging Date		09-Sep-2015			
Run Number		ONE			
Depth Driller		12058.00 ft			
Schlumberger Depth		12058.00 ft			
Bottom Log Interval		7450.00 ft			
Top Log Interval					
Casing Fluid Type		Water			
Salinity					
Density		8.4 lbm/gal			
Fluid Level		8.00 ft			
BIT/CASING/TUBING STRING					
Bit Size		8.50 in			
From		0.00 ft			
To		12058.00 ft			
Casing/Tubing Size		5.5 in			
Weight		17 lbm/ft			
Grade		N/A			
From		0.00 ft			
To		12058.00 ft			
Max Recorded Temperatures					
Logger on Bottom	Time	09-Sep-2015	10:07:09		
Unit Number	Location:	2135	Fort Morgan, CO		
Recorded By		Evan Meadows			
Witnessed By		Steve Vigil			

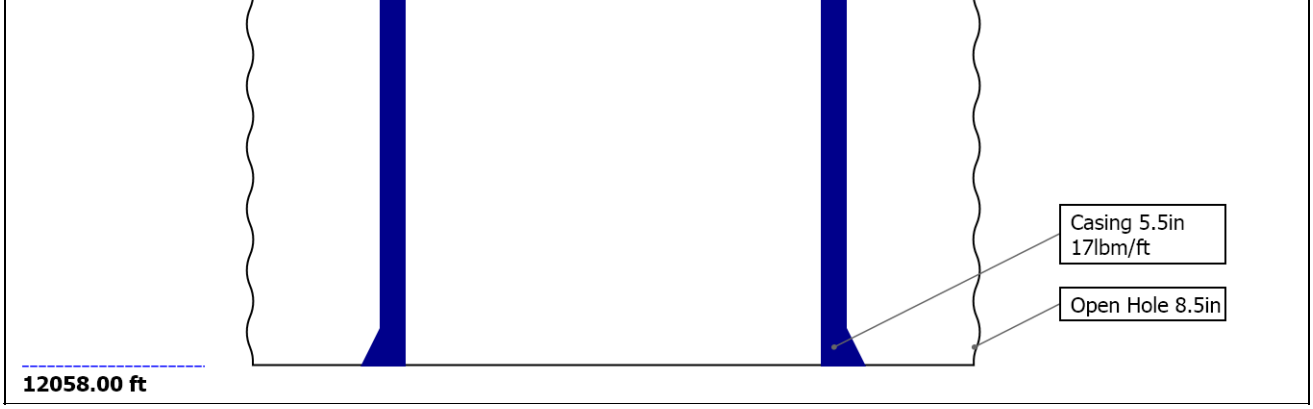
Disclaimer

Contents

12. XYZ (USI Fluid Acoustic Slowness vs Depth 3.0 in)
13. XYZ (USI Acoustic Impedance of Mud vs Depth 3.0 in)
14. Tail

Well Sketch





Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	8.5					
Top Driller (ft)	0					
Top Logger (ft)	0					
Bottom Driller (ft)	12058					
Bottom Logger (ft)	12058					
Casing						
Size (in)	9.625	5.5				
Weight (lbm/ft)	36	17				
Inner Diameter (in)	8.921	4.892				
Grade	N/A	N/A				
Top Driller (ft)	0	0				
Top Logger (ft)	0	0				
Bottom Driller (ft)	1610	12058				
Bottom Logger (ft)	1610	12058				

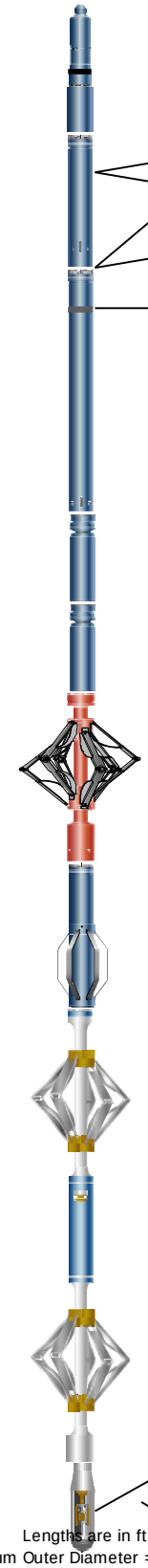
Operational Run Summary

Parameter (unit)	ONE					
Date Log Started	09-Sep-2015					
Time Log Started	08:59:30					
Date Log Finished	09-Sep-2015					
Time Log Finished	12:13:19					
Top Log Interval (ft)						
Bottom Log Interval (ft)						
Total Depth (ft)						
Max Hole Deviation (deg)						
Azimuth of Max Deviation (deg)						
Bit Size (in)	8.500					
Logging Unit Number	2135					
Logging Unit Location	Fort Morgan, CO					
Recorded By	Evan Meadows					
Witnessed By	Steve Vigil					
Service Order Number	D62I-00046					

Service Order Number	D021-00040					

Remarks and Equipment Summary

ONE: Toolstring



Lengths are in ft
Maximum Outer Diameter = 6.250 in
Line: Sensor Location, Value: Gating Offset
All measurements are relative to TOOL_ZERO

ONE: Remarks

1. THIS IS THE FIRST RUN IN THE WELL.
2. TOOL RAN AS PER TOOL SKETCH.
3. CSG: 5.5" 17#
   FLUID: 8.4 PPG BIOCIDE WATER
4. LEAD: 12 PPG CLASS G
   TAIL: 13.5 PPG CLASS G
   SPACER: 8.34 PPG FRESH WATER
5. LOG STARTED AT 7450' DUE TO LOSS OF HEAD TENSION IN CURVE.
6. REPEAT PASS RECORDED AT 0 PSI
   MAIN PASS RECORDED AT 2800 PSI

Depth Summary

	ONE		
Depth Measuring Device			
Type	IDW-B		
Serial Number			
Calibration Date			

Calibrator Serial Number			
Calibration Cable Type			
Wheel Correction 1	0		
Wheel Correction 2	0		

Tension Device

Type	CMTD-B/A		
Serial Number			
Calibration Date			
Calibrator Serial Number			
Number of Calibration Points	0		

Logging Cable

Type	7-46NT-XS		
Serial Number			
Length	24000.00 ft		
Conveyance Type	Wireline		
Rig Type	Crane		

ONE:Depth Control Parameters

Log Sequence	First Log In the Well
Rig Up Length At Surface	
Rig Up Length At Bottom	
Rig Up Length Correction	
Stretch Correction	
Tool Zero Check At Surface	

Depth Control Remarks

1. ALL SCHLUMBERGER DEPTH CONTROL PROCEDURES WERE FOLLOWED DURING LOGGING OPERATIONS.
2. IDW USED AS PRIMARY DEPTH CONTROL.
3. Z CHART USED AS SECONDARY DEPTH CONTROL.
4. LOG STARTED FROM 7450' DUE TO LOSS OF HEAD TENSION IN CURVE

USI Cement

USIT - Fluid Properties Measurement

Run Name	Pass Name	Start Depth(ft)	Stop Depth(ft)
Run 1	Main[4]:Up	7449.61	10.02

Fluid Velocity = "Automatic".
CFVL equals DFSL channel

Start Depth(ft)	Stop Depth(ft)	Start Value(us/ft)	End Value(us/ft)

Mud Impedance = "FreePipe Norm.".
Free Pipe normalization zone is : 8.59m(28.17ft) to 10.93m(35.88ft)
MUD_N_FRP = 1.05
DFD = 1.01g/cm3(8.40lbm/gal)
CZMD median computed in free pipe normalization interval = 1.62 MRayl

Start Depth(ft)	Stop Depth(ft)	Start Value(Mrayl)	End Value(Mrayl)

ONE

USI Cement

Log

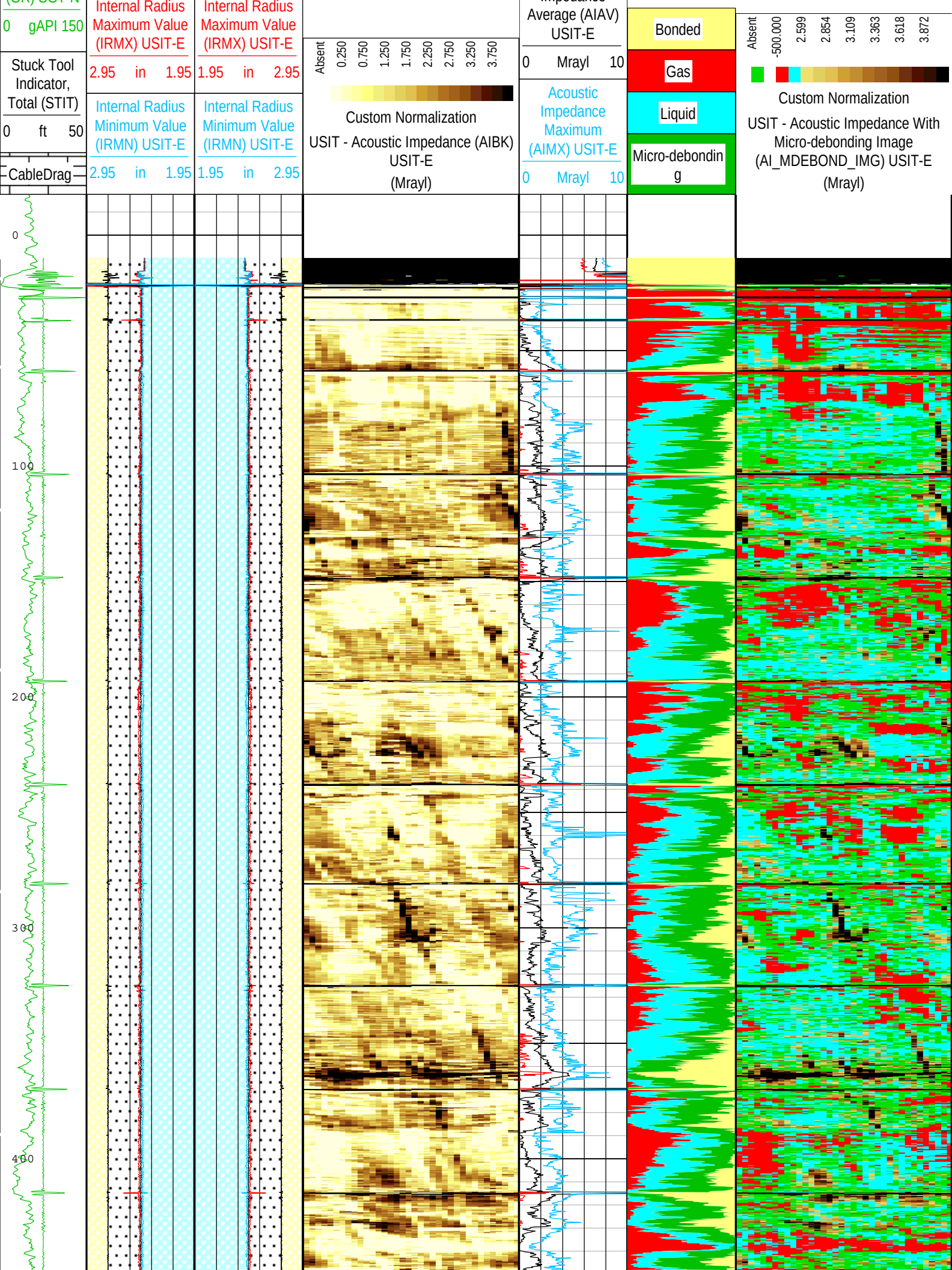
Company:Anadarko Petroleum Company Well:Bane 28N2-9HZ

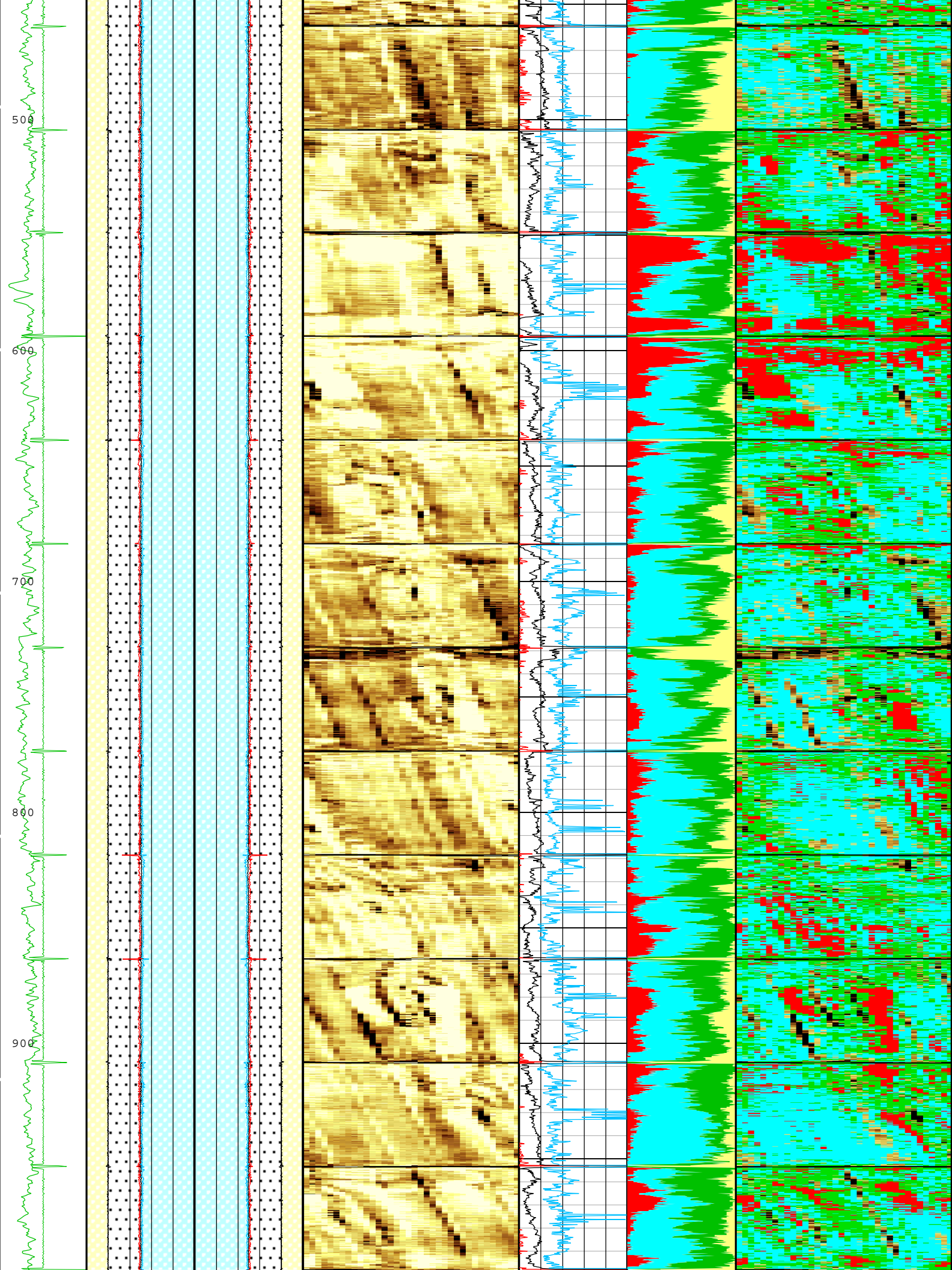
ONE: Main[4]:Up:S004

Description: USI Cement Format: USI Cement Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 09-Sep-2015 12:46:15

TIME_1900 - Time Marked every 60.00 (s)

Casing Collar Locator Ultrasonic (CCLU) USIT-E	External Radii Average (ERAV) USIT-E	External Radii Average (ERAV) USIT-E	Acoustic Impedance Minimum (AIMN) USIT-E
-20 in 20	2.95 in 1.95	1.95 in 2.95	0 Mrayl 10
Gamma Ray (GR) SGT-N	Internal Radius Averaged Value (IRAV) USIT-E	Internal Radius Averaged Value (IRAV) USIT-E	Acoustic Impedance
	2.95 in 1.95	1.95 in 2.95	


(GR) USIT-E
0 gAPI 150
Stuck Tool Indicator, Total (STIT)
0 ft 50
CableDrag
Internal Radius Maximum Value (IRMX) USIT-E
2.95 in 1.95
Internal Radius Minimum Value (IRMN) USIT-E
2.95 in 1.95
Internal Radius Maximum Value (IRMX) USIT-E
1.95 in 2.95
Internal Radius Minimum Value (IRMN) USIT-E
1.95 in 2.95
Absent 0.250 0.750 1.250 1.750 2.250 2.750 3.250 3.750
Custom Normalization
USIT - Acoustic Impedance (AIBK) USIT-E (Mrayl)
Impedance Average (AIAV) USIT-E
0 Mrayl 10
Acoustic Impedance Maximum (AIMX) USIT-E
0 Mrayl 10
Bonded
Gas
Liquid
Micro-debondin g
Absent -500.000 2.599 2.854 3.109 3.363 3.618 3.872
Custom Normalization
USIT - Acoustic Impedance With Micro-debonding Image (AI_MDEBOND_IMG) USIT-E (Mrayl)
0
100
200
300
400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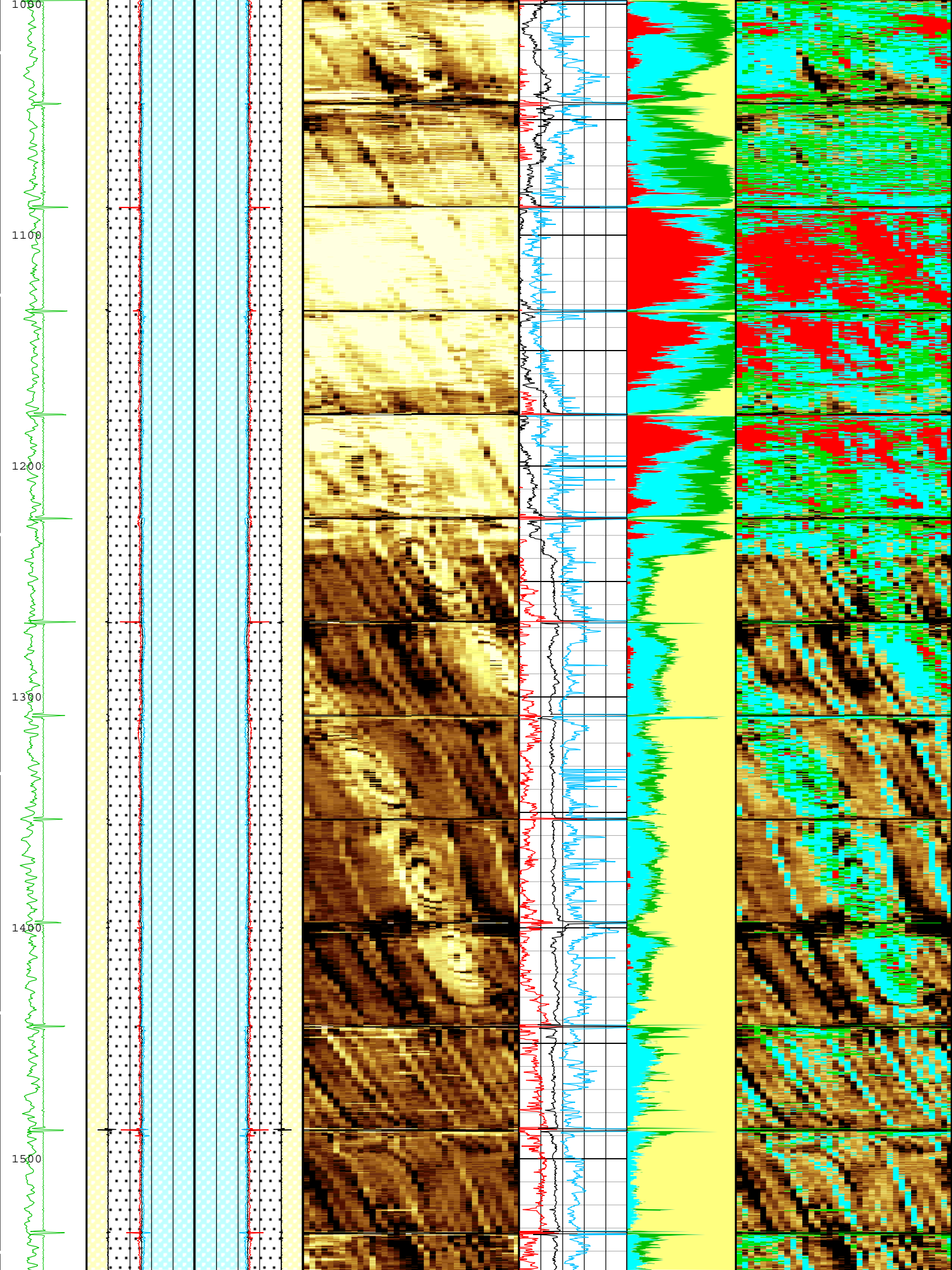
700
800
900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1400
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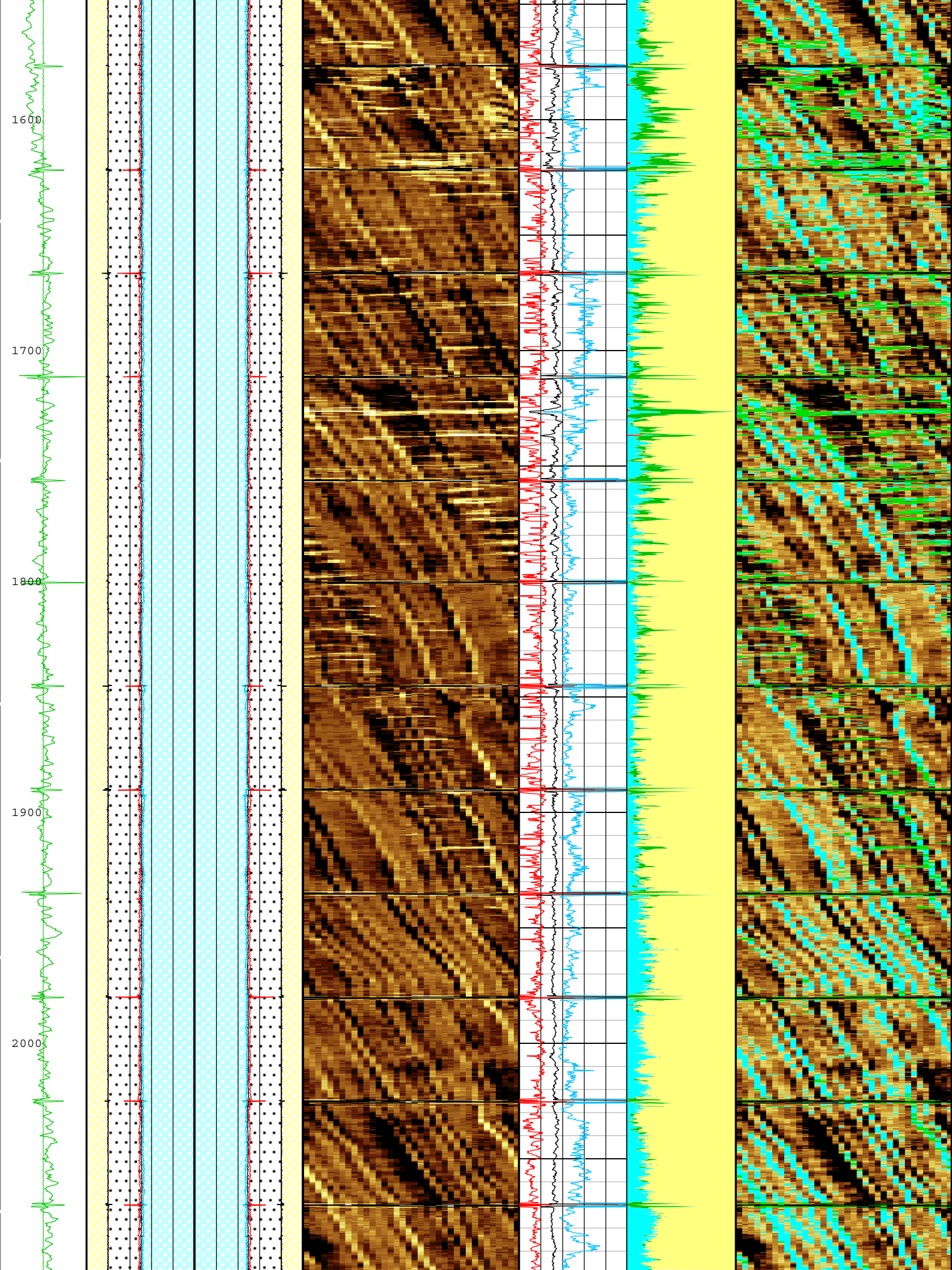
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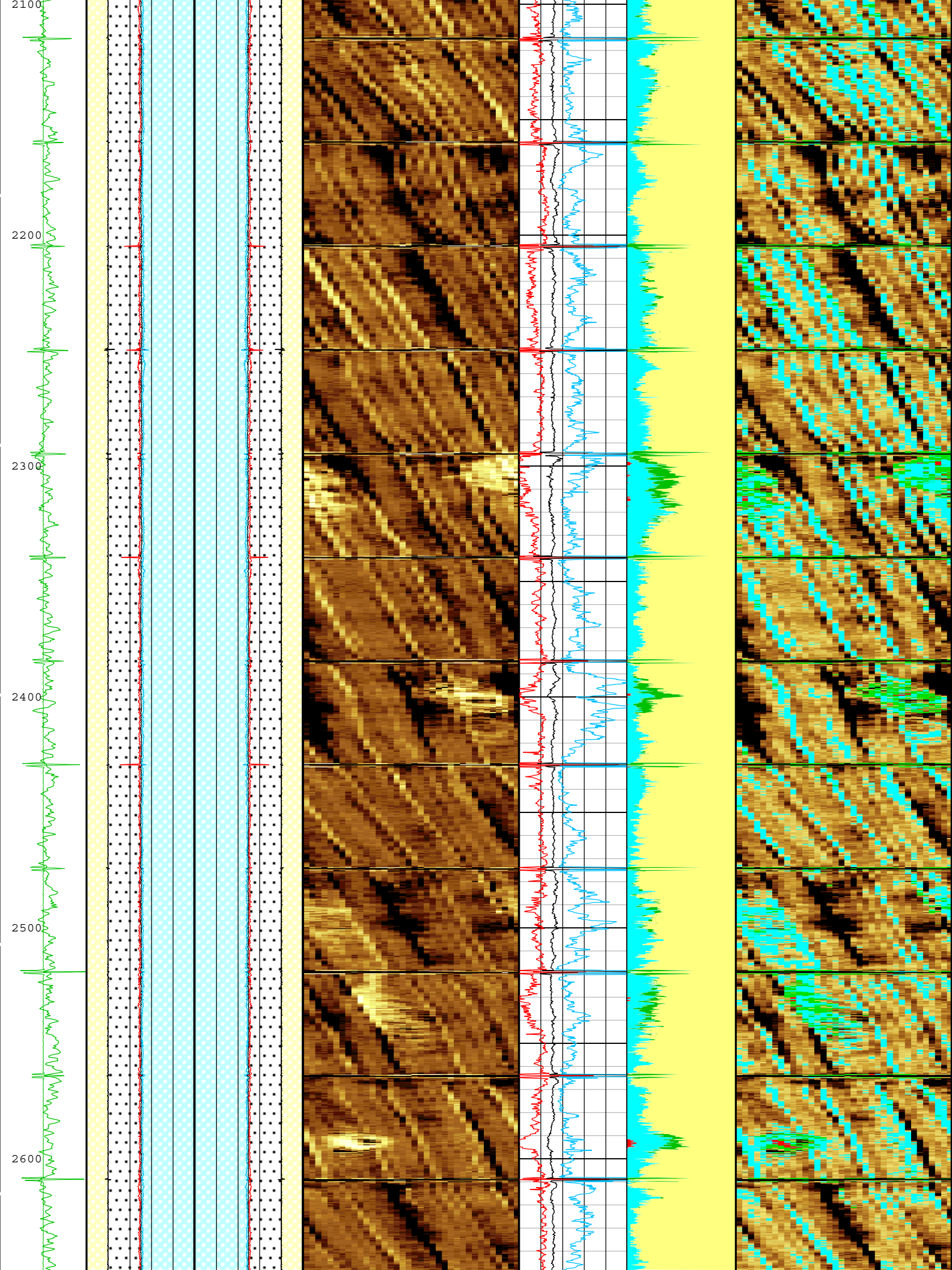
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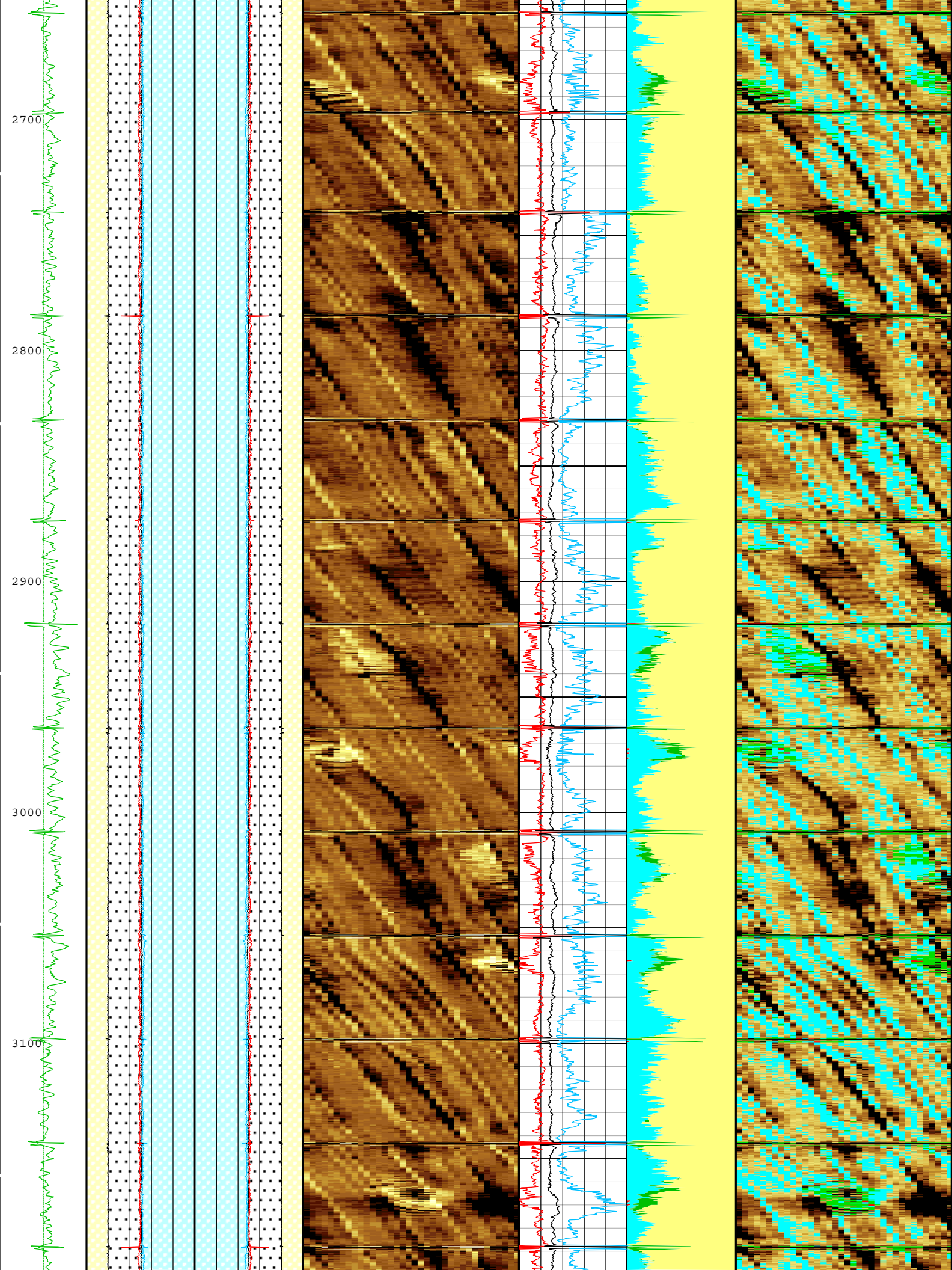
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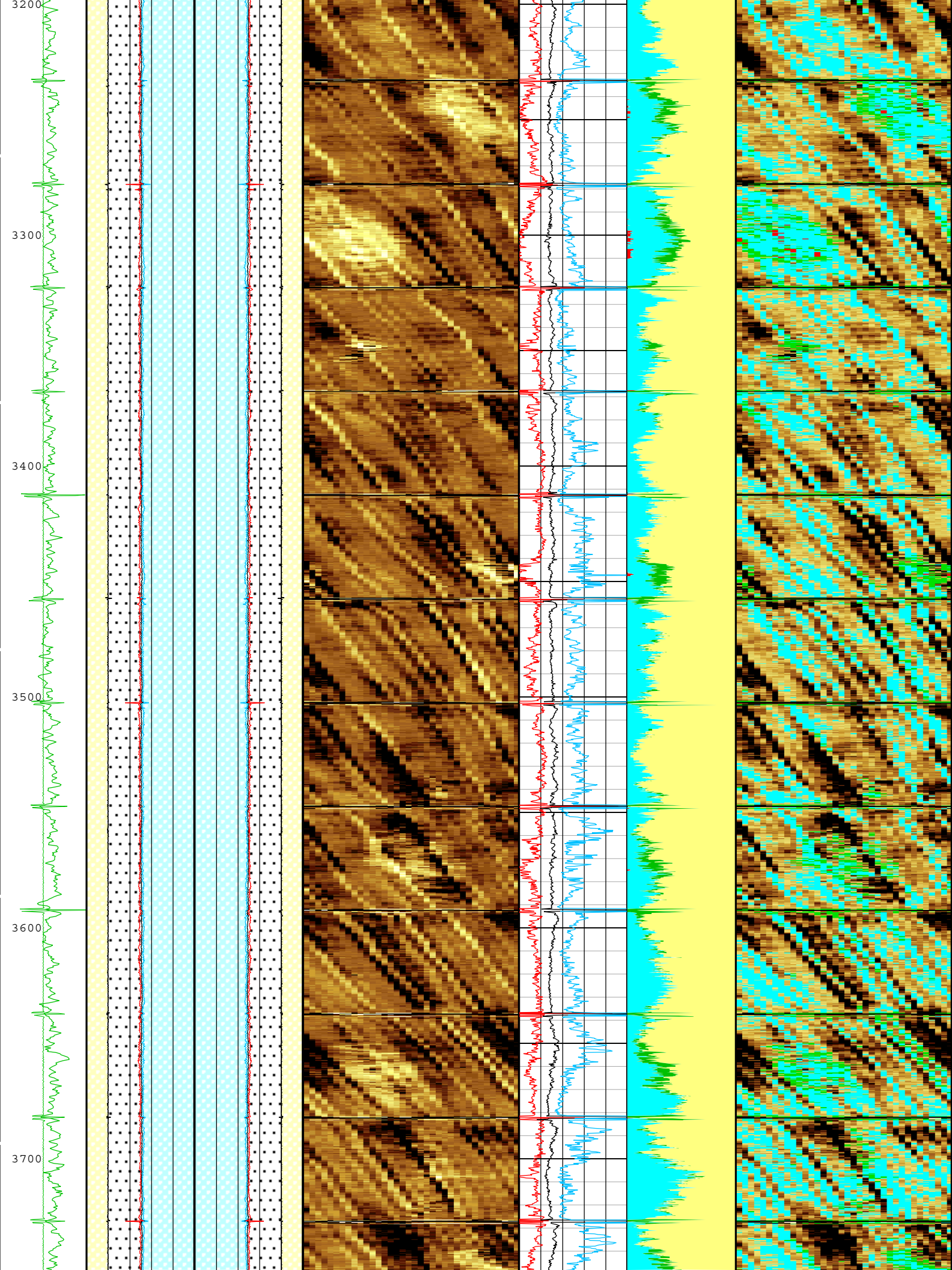
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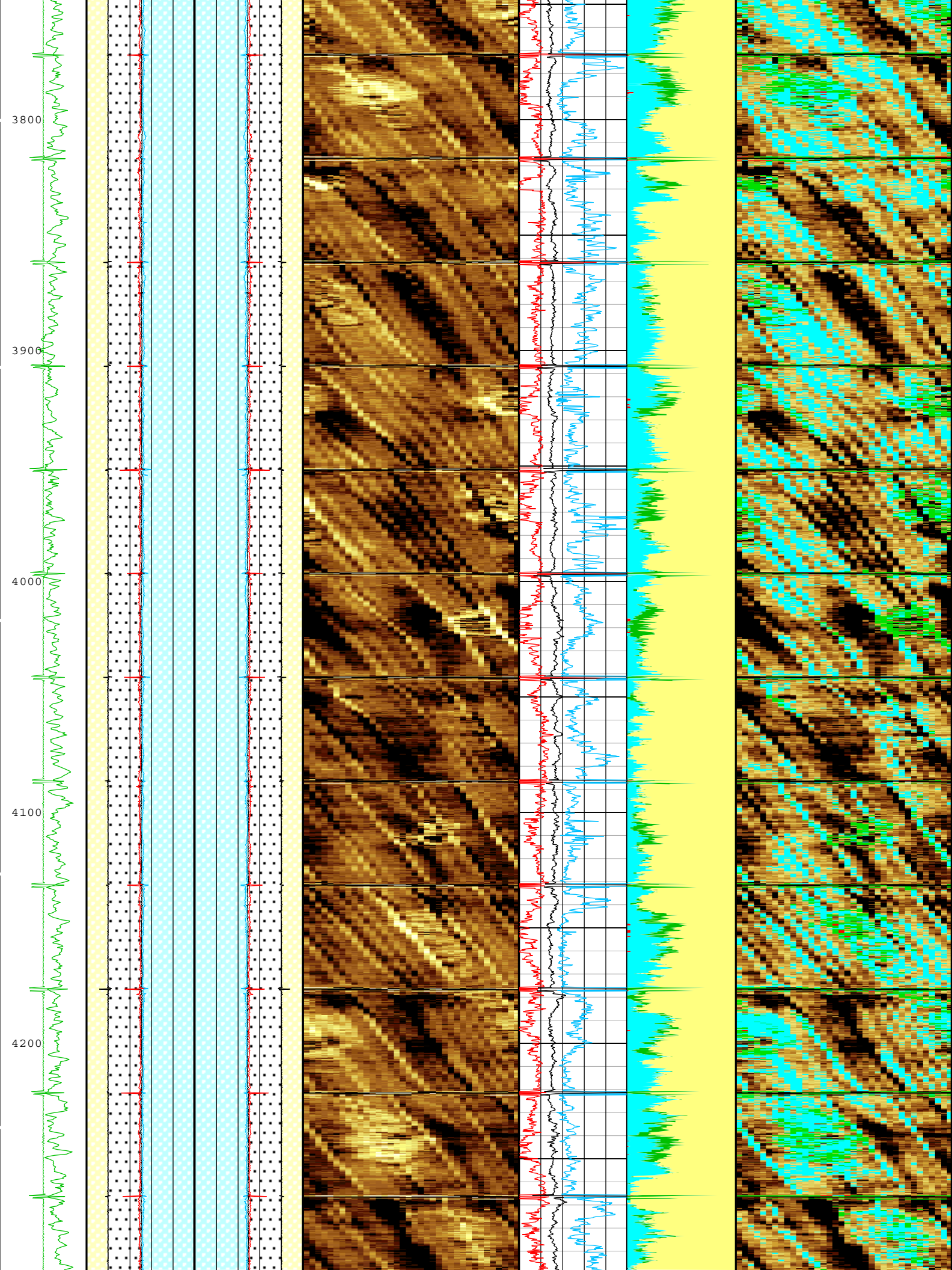
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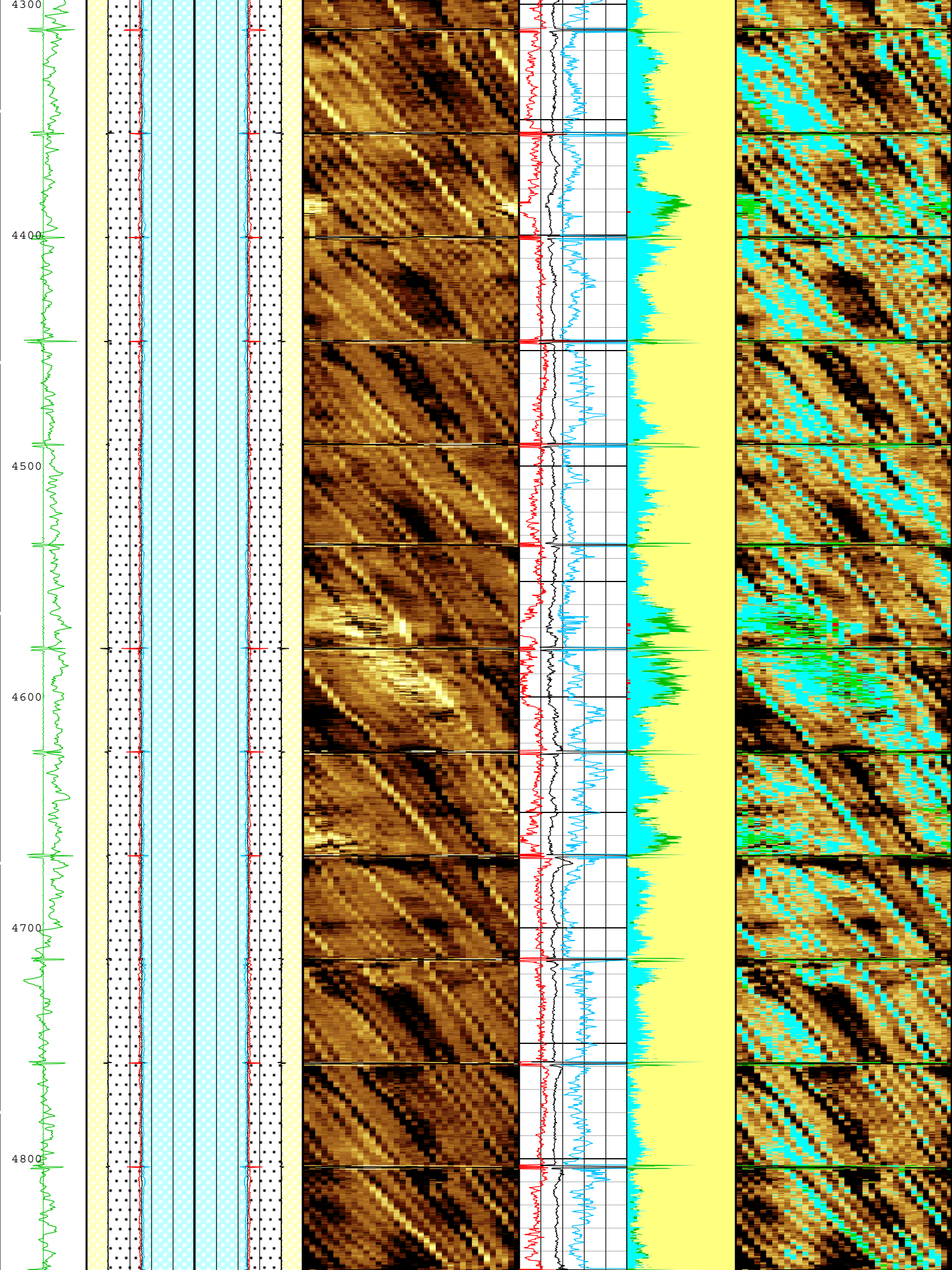
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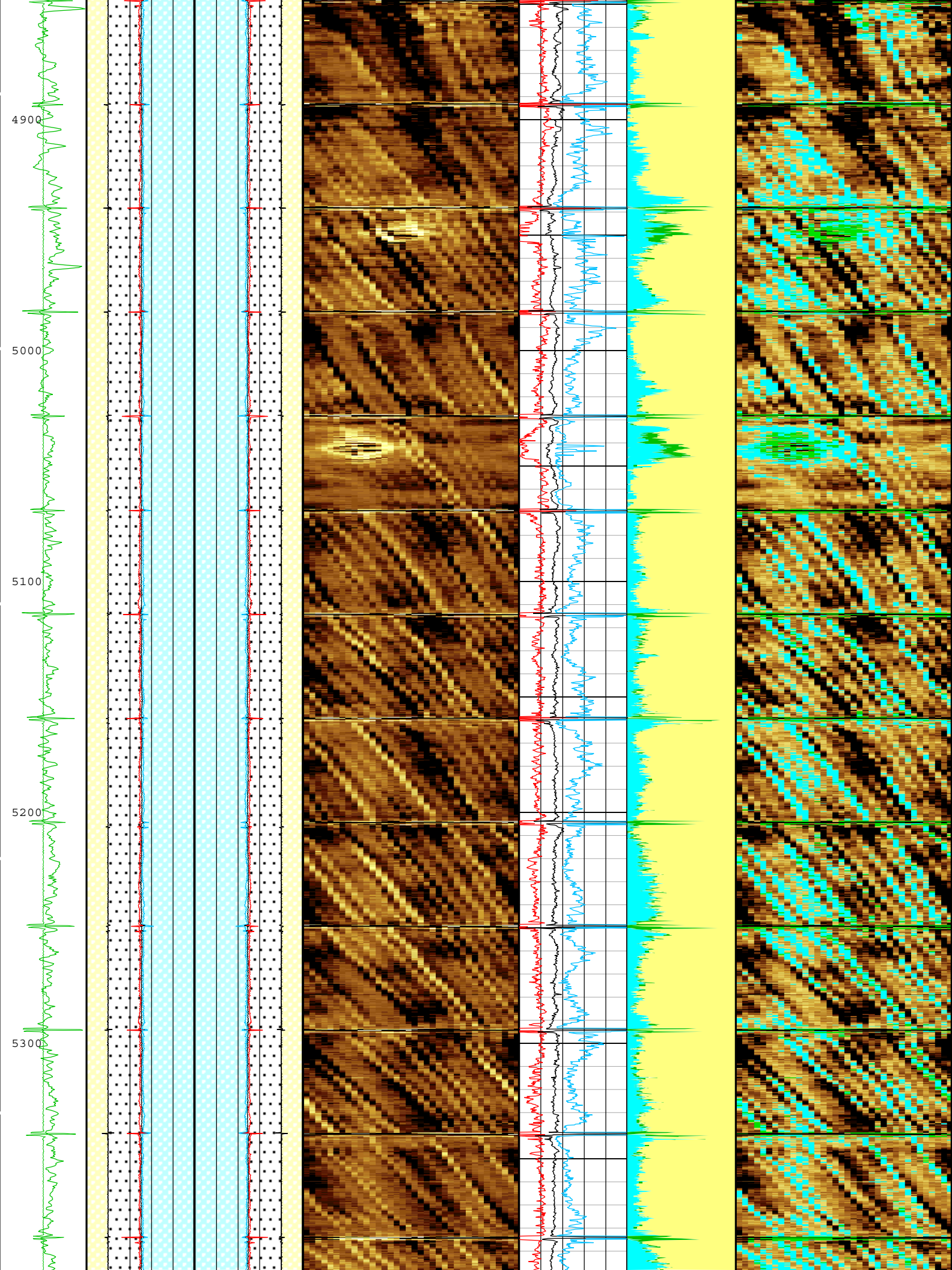
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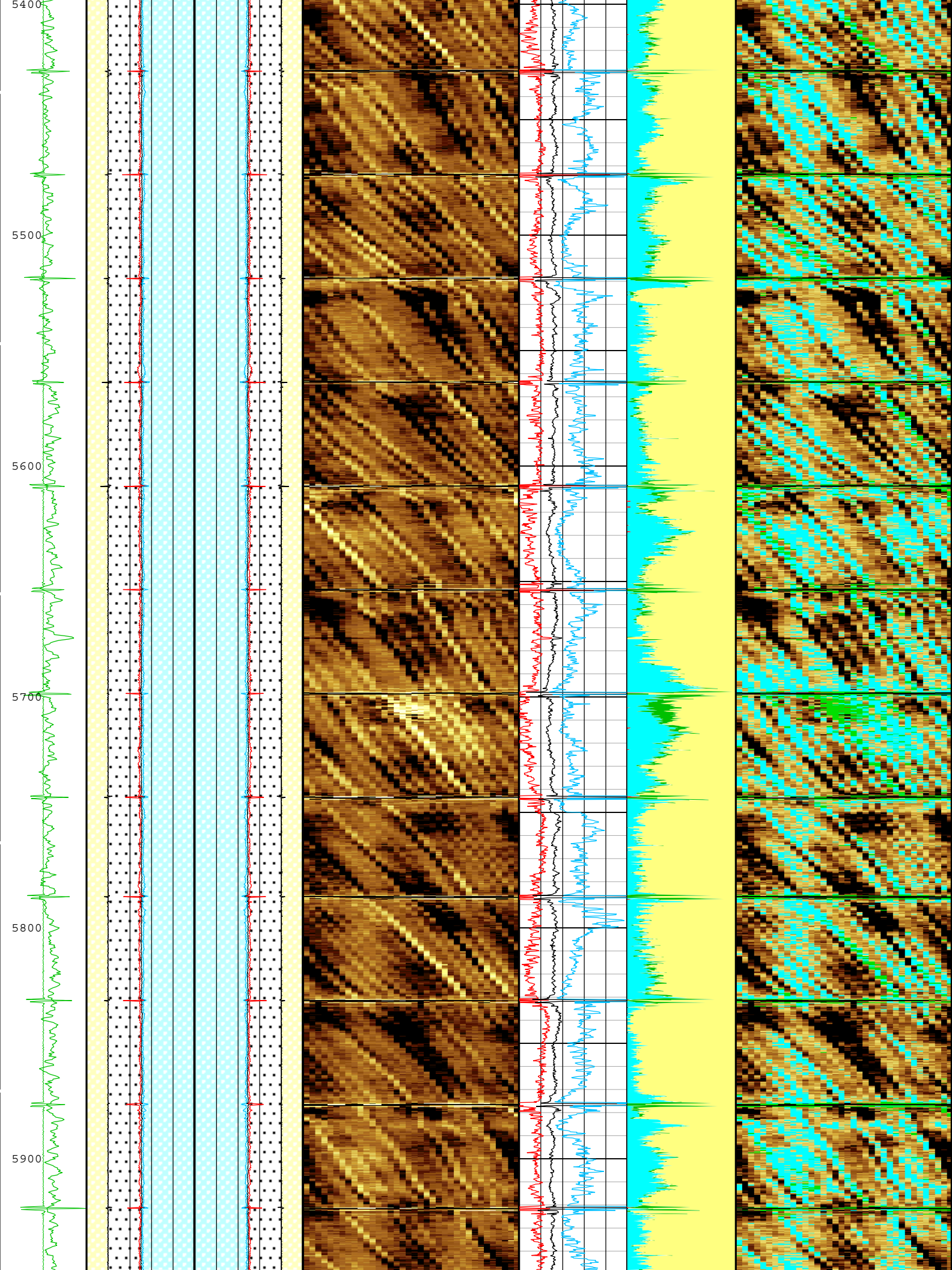
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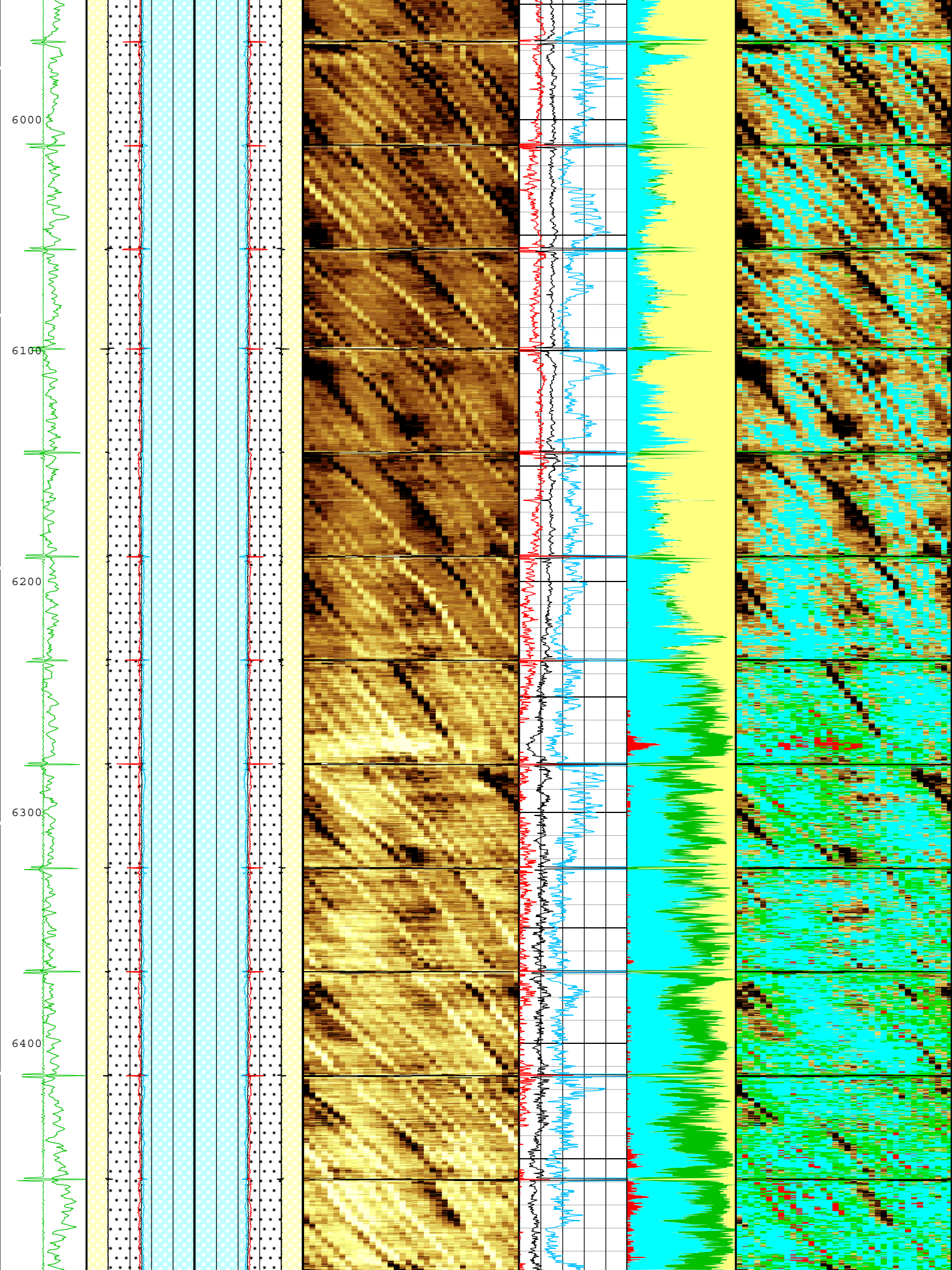
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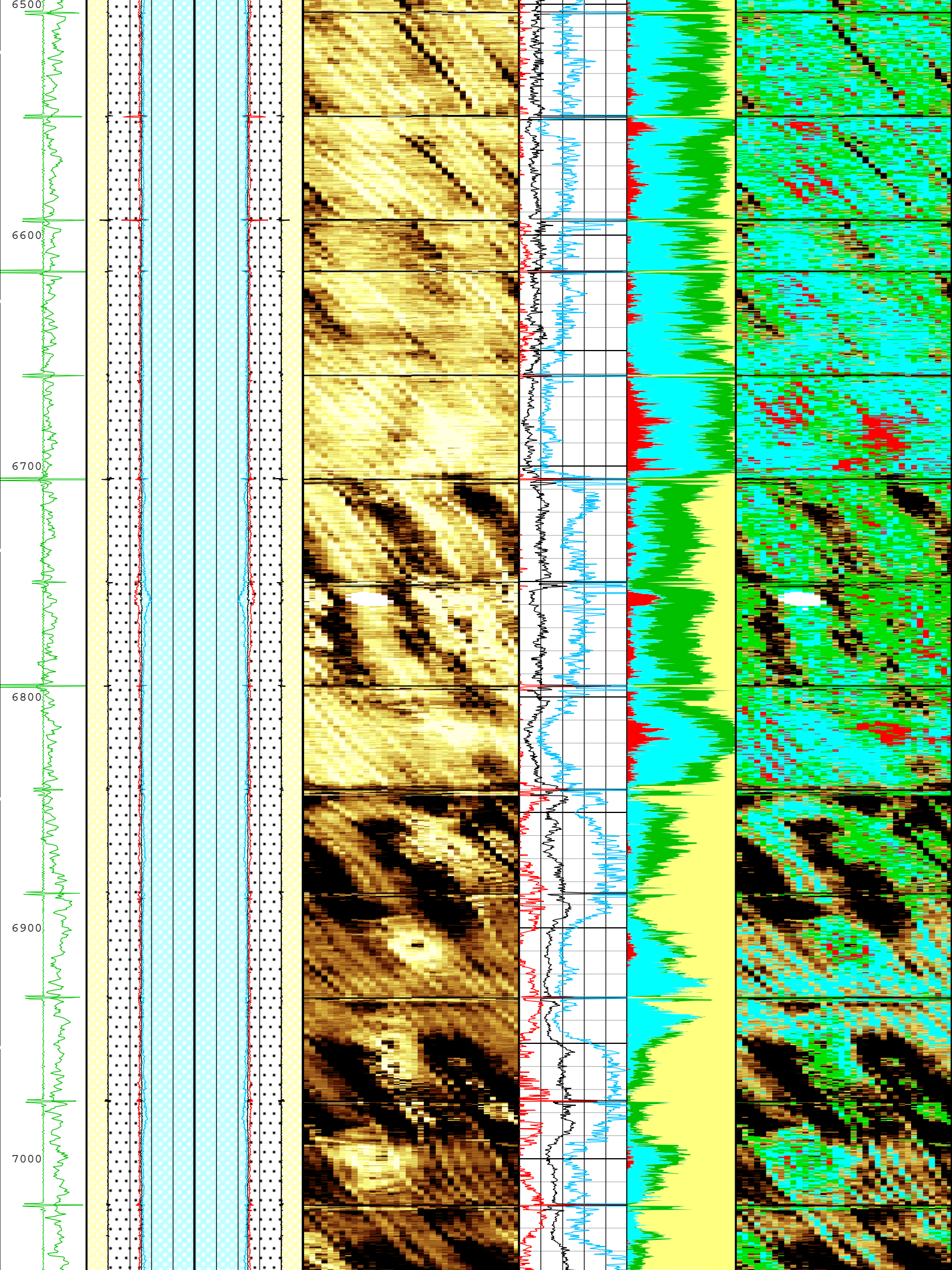
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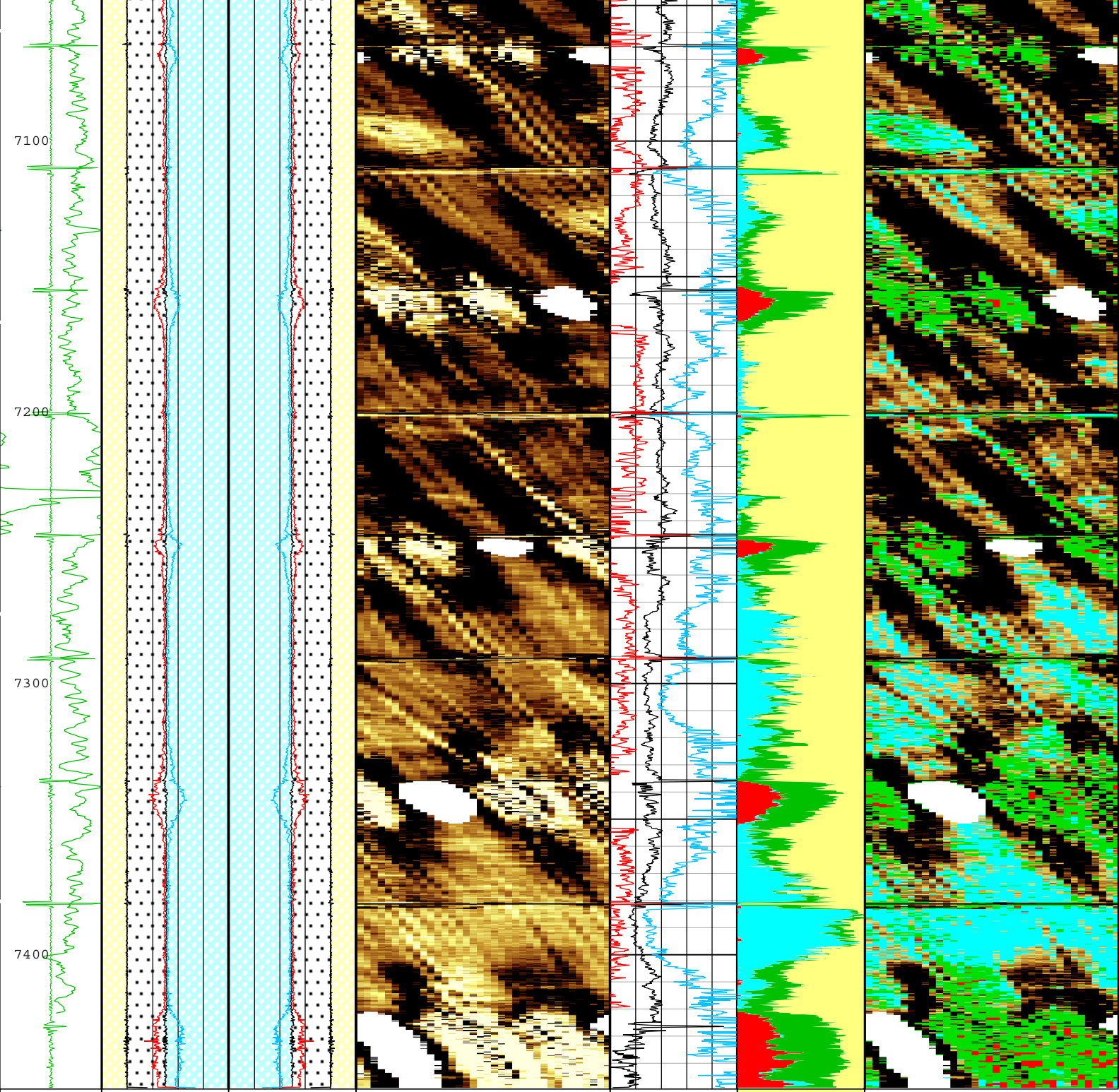


Casing Collar Locator Ultrasonic (CCLU) USIT-E	External Radii Average (ERAV) USIT-E	External Radii Average (ERAV) USIT-E	Absent 0.250 0.750 1.250 1.750 2.250 2.750 3.250 3.750	Acoustic Impedance Minimum (AIMN) USIT-E	Bonded	Absent -500.000 2.599 2.854 3.109 3.363 3.618 3.872
-20 in 20	2.95 in 1.95	1.95 in 2.95	Custom Normalization	0 Mrayl 10	Gas	Custom Normalization
Gamma Ray (GR) SGT-N	Internal Radius Averaged Value (IRAV) USIT-E	Internal Radius Averaged Value (IRAV) USIT-E	USIT - Acoustic Impedance (AIBK) USIT-E (Mrayl)	Acoustic Impedance Average (AIAV) USIT-E	Liquid	USIT - Acoustic Impedance With Micro-debonding Image (AI_MDEBOND_IMG) USIT-E (Mrayl)
0 gAPI 150	2.95 in 1.95	1.95 in 2.95		0 Mrayl 10	Micro-debondin g	
Stuck Tool Indicator, Total (STIT)	Internal Radius Maximum Value (IRMX) USIT-E	Internal Radius Maximum Value (IRMX) USIT-E		Acoustic Impedance Maximum (AIMX) USIT-E		
0 ft 50	2.95 in 1.95	1.95 in 2.95		0 Mrayl 10		
CableDrag	Internal Radius Minimum Value	Internal Radius Minimum Value				

(IRMN) USIT-E			(IRMN) USIT-E		
2.95	in	1.95	1.95	in	2.95

TIME_1900 - Time Marked every 60.00 (s)

Description: USI Cement Format: USI Cement Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 09-Sep-2015 12:46:15

Channel Processing Parameters

Parameter	Description	Tool	Value	Unit
AFVU	Automatic Fluid Velocity Update	USIT-E	On	
BARI	Barite Mud Presence Flag	Borehole	No	
BERJ	Bad Echo Rejection	USIT-E	On	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BS	Bit Size	WLSESSION	8.5	in
CASING_PRATIO	Casing Poisson Ratio	USIT-E	Standard Poisson ratio	
CBLO	Casing Bottom (Logger)	WLSESSION	12058	ft
CDEN	Cement Density	SGT-N	16.69	lbm/gal
CMTY	Cement Type	USIT-E	Light Cement	
CTHILGR	Nominal Casing Thickness - Zoned along logger depths	WLSESSION	0.304	in
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	8.4	lbm/gal
DFT	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	206	us/ft
FDII	FPM Data Interpolation Interval	USIT-E	0	ft
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	
GR_MULTIPLIER	Gamma Ray Multiplier	SGT-N	1	
HEMA	Hematite Presence Flag	Borehole	No	
ICE_PROCESS	ICE Processing	USIT-E	Yes	
IMAR	Image Rotation	USIT-E	Off	
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-E	18.79	us
MUD_N_FRP	Free Pipe Mud Normalization Factor	USIT-E	1.05	
MUD_N_THE	Theoretical Mud Normalization Factor	USIT-E	1	
RAPID_OPTION	Rapid Access Computation Option	USIT-E	Off	
RCOD	Reference Calibrator Outer Diameter	USIT-E	4.5	in
RCSO	Reference Calibrator Standoff	USIT-E	0.842	in
RCTH	Reference Calibrator Thickness	USIT-E	0.217	in
SDNV	Number of Vertical Samples used for Micro-debonding Computation	USIT-E	5	
SDTHOR	Acoustic Impedance STD Horizontal Threshold for Micro-debonding	USIT-E	0.5	Mrayl
SDTVER	Acoustic Impedance STD Vertical Threshold for Micro-debonding	USIT-E	0.3	Mrayl
SOGR	Standoff Distance of the Gamma Ray Tool	SGT-N	0	in
TCUB	T^3 Processing Level	USIT-E	Loop	
THDH	Maximum Search Thickness (percentage of nominal)	USIT-E	130	%
THDL	Minimum Search Thickness (percentage of nominal)	USIT-E	70	%
TPOS	Tool Position: Centered or Eccentered	SGT-N	Eccentered	
UDFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	0	Mrayl
UFGDE	Fiberglass Density	USIT-E	16.27	lbm/gal
UFGPS	Fiberglass Processing Selection	USIT-E	No	
UFGVL	Fiberglass Velocity	USIT-E	9678.48	ft/s
USI_FSOD	USIT USI Fluid Slowness Fits Casing Outer Diameter	USIT-E	0_OFF	
USI_FVEL_SEL	USI Fluid Velocity Selection	USIT-E	Automatic	

USI_ZMUD_SEL	USI Mud Impedance Selection	USIT-E	FreePipe Norm.	
UTHDP	Thickness Detection Policy	USIT-E	Fundamental	
VCAS	Ultrasonic Transversal Velocity in Casing	USIT-E	51.4	us/ft
ZCAS	Acoustic Impedance of Casing	USIT-E	46.25	Mrayl
ZINI	Initial Estimate of Cement Impedance	USIT-E	-1	Mrayl
ZMUD	Acoustic Impedance of Mud	Borehole	Depth Zoned	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-E	2.6	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

Depth Zone Parameters

Parameter	Value	Start (ft)	Stop (ft)
ZMUD	1.5	0	500
ZMUD	1.52	500	1000
ZMUD	1.54	1000	2000
ZMUD	1.55	2000	3000
ZMUD	1.56	3000	4000
ZMUD	1.57	4000	5000
ZMUD	1.58	5000	6000
ZMUD	1.59	6000	7000
ZMUD	1.6	7000	7449.5

All depth are actual.

Tool Control Parameters

Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	36	dB
DDT5	USIC Downhole Decimation for T5 only	USIT-E	0_NONE	
DOTF	Distance between Opposite Transducer Faces	USIT-E	1.756	in
EMXV	EMEX Voltage	USIT-E	50	V
HRES	Horizontal Resolution	USIT-E	10 deg	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	3600	ft/h
ULOG	Logging Objective	USIT-E	MEASUREMENT	
UMFR	Modulation Frequency	USIT-E	333333	Hz
USFR	Ultrasonic Sampling Frequency	USIT-E	500000	Hz
USI_UPAT	USIT Emission Pattern	USIT-E	Pattern 500 KHz	
USI_UWKM	USIT Working Mode	USIT-E	Uncompressed 10 deg at 3.0 in LF	
USIT_DEPTHLOG	Starting Depth Log for Ultrasonics	USIT-E	4500	ft
VRES	Vertical Resolution	USIT-E	3.0 in	
WINB	Window Begin Time	USIT-E	33.83	us
WINE	Window End Time	USIT-E	73.83	us

USI Cement

ONE

USI Cement - Repeat

Log

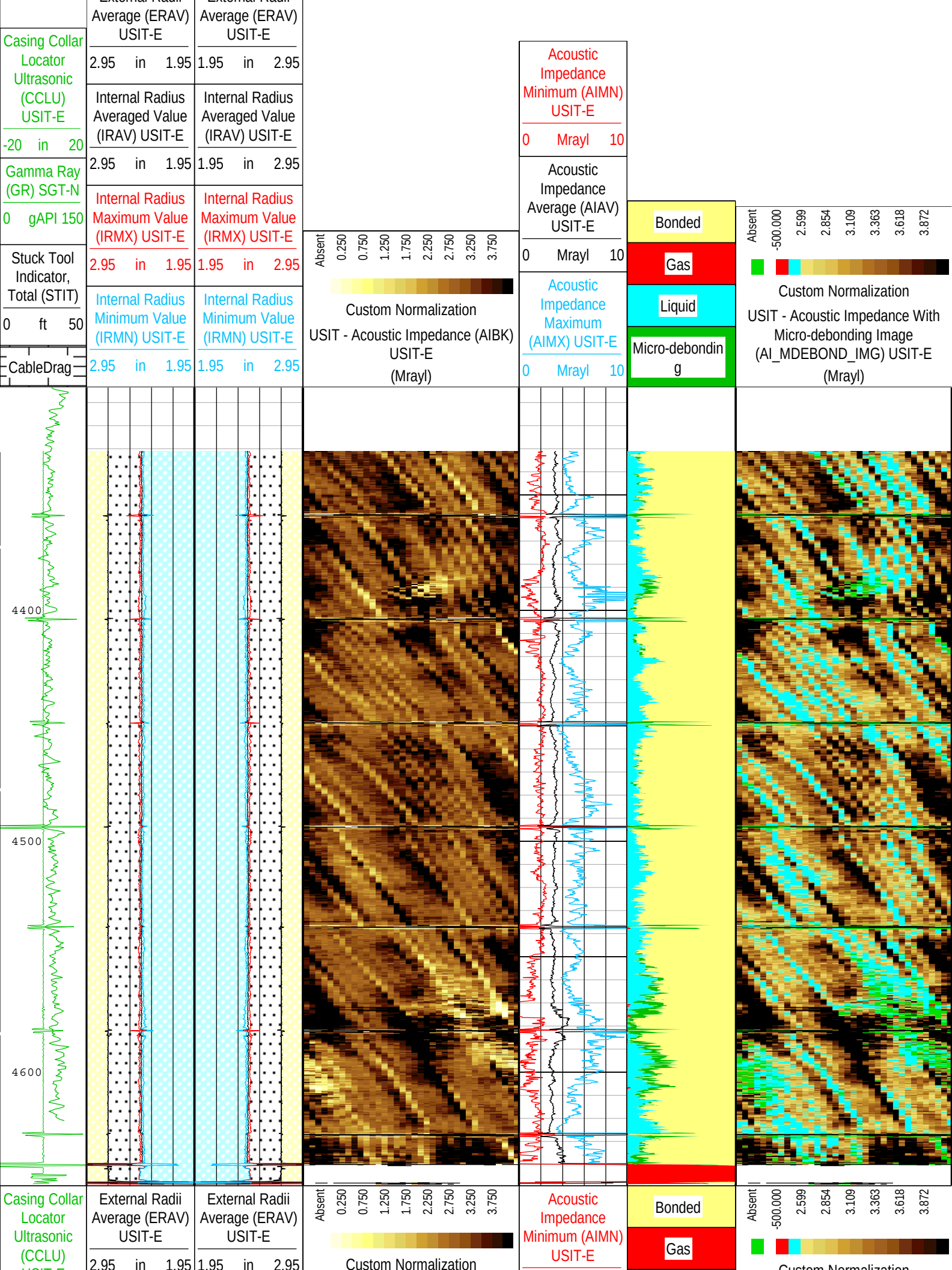
Company:Anadarko Petroleum Company Well:Bane 28N2-9HZ

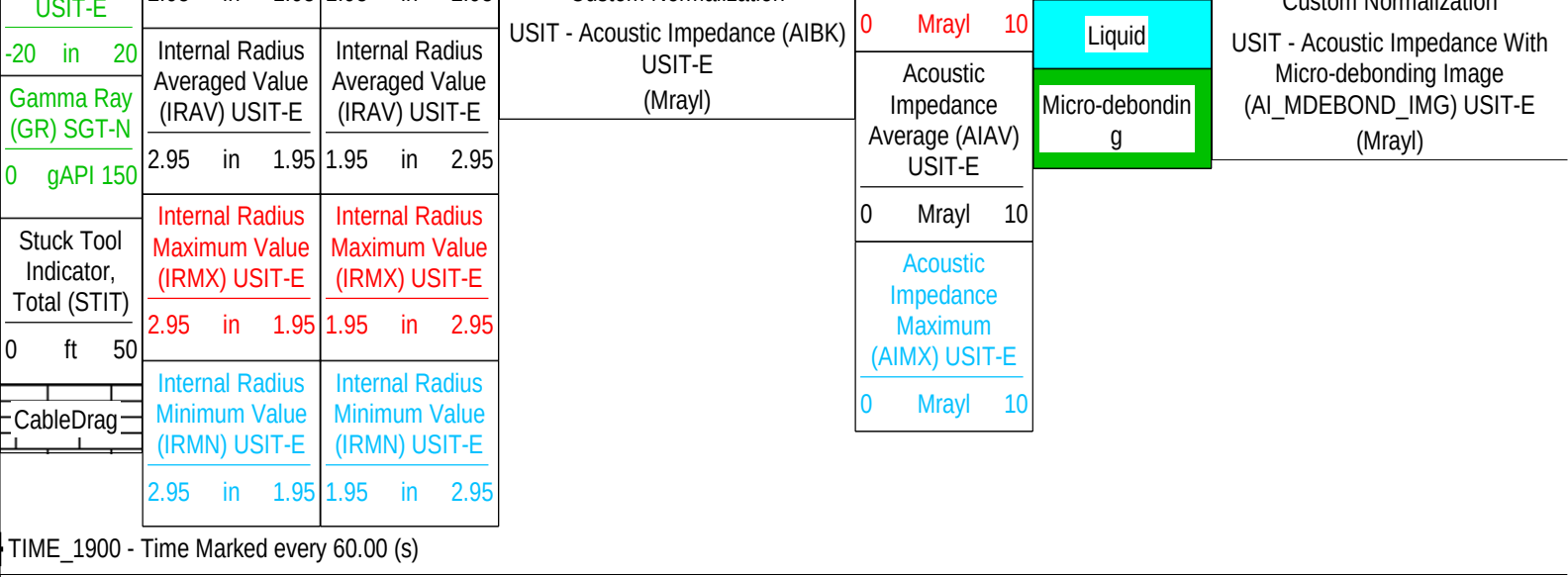
ONE: Log[3]:Up:S004

Description: USI Cement Format: USI Cement Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 09-Sep-2015 12:46:27

TIME_1900 - Time Marked every 60.00 (s)

External Radii	External Radii


Casing Collar Locator Ultrasonic (CCLU) USIT-E
-20 in 20
Gamma Ray (GR) SGT-N
0 gAPI 150
Stuck Tool Indicator, Total (STIT)
0 ft 50
CableDrag
External Radii Average (ERAV) USIT-E
2.95 in 1.95
Internal Radius Averaged Value (IRAV) USIT-E
2.95 in 1.95
Internal Radius Maximum Value (IRMX) USIT-E
2.95 in 1.95
Internal Radius Minimum Value (IRMN) USIT-E
2.95 in 1.95
External Radii Average (ERAV) USIT-E
1.95 in 2.95
Internal Radius Averaged Value (IRAV) USIT-E
1.95 in 2.95
Internal Radius Maximum Value (IRMX) USIT-E
1.95 in 2.95
Internal Radius Minimum Value (IRMN) USIT-E
1.95 in 2.95
Absent 0.250 0.750 1.250 1.750 2.250 2.750 3.250 3.750
Custom Normalization
USIT - Acoustic Impedance (AIBK) USIT-E (Mrayl)
Acoustic Impedance Minimum (AIMN) USIT-E
0 Mrayl 10
Acoustic Impedance Average (AIAV) USIT-E
0 Mrayl 10
Acoustic Impedance Maximum (AIMX) USIT-E
0 Mrayl 10
Bonded
Gas
Liquid
Micro-debondin g
Absent -500.000 2.599 2.854 3.109 3.363 3.618 3.872
Custom Normalization
USIT - Acoustic Impedance With Micro-debonding Image (AI_MDEBOND_IMG) USIT-E (Mrayl)
4400
4500
4600
Casing Collar Locator Ultrasonic (CCLU)
External Radii Average (ERAV) USIT-E
2.95 in 1.95
External Radii Average (ERAV) USIT-E
1.95 in 2.95
Acoustic Impedance Minimum (AIMN) USIT-E
Bonded
Gas



Description: USI Cement Format: USI Cement Index Scale: 2 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 09-Sep-2015 12:46:27

Channel Processing Parameters

Parameter	Description	Tool	Value	Unit
AFVU	Automatic Fluid Velocity Update	USIT-E	On	
BARI	Barite Mud Presence Flag	Borehole	No	
BERJ	Bad Echo Rejection	USIT-E	On	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BS	Bit Size	WLSESSION	8.5	in
CASING_PRATIO	Casing Poisson Ratio	USIT-E	Standard Poisson ratio	
CBLO	Casing Bottom (Logger)	WLSESSION	12058	ft
CDEN	Cement Density	SGT-N	16.69	lbm/gal
CMTY	Cement Type	USIT-E	Light Cement	
CTHILGR	Nominal Casing Thickness - Zoned along logger depths	WLSESSION	0.304	in
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	8.4	lbm/gal
DFT	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	206	us/ft
FDII	FPM Data Interpolation Interval	USIT-E	0	ft
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	
GR_MULTIPLIER	Gamma Ray Multiplier	SGT-N	1	
HEMA	Hematite Presence Flag	Borehole	No	
ICE_PROCESS	ICE Processing	USIT-E	Yes	
IMAR	Image Rotation	USIT-E	Off	
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-E	18.79	us
MUD_N_FRP	Free Pipe Mud Normalization Factor	USIT-E	1.05	
MUD_N_THE	Theoretical Mud Normalization Factor	USIT-E	1	
RAPID_OPTION	Rapid Access Computation Option	USIT-E	Off	
RCOD	Reference Calibrator Outer Diameter	USIT-E	4.5	in
RCSO	Reference Calibrator Standoff	USIT-E	0.842	in
RCTH	Reference Calibrator Thickness	USIT-E	0.217	in
SDNV	Number of Vertical Samples used for Micro-debonding Computation	USIT-E	5	
SDTHOR	Acoustic Impedance STD Horizontal Threshold for Micro-debonding	USIT-E	0.5	Mrayl
SDTVER	Acoustic Impedance STD Vertical Threshold for Micro-debonding	USIT-E	0.3	Mrayl
SOGR	Standoff Distance of the Gamma Ray Tool	SGT-N	0	in

TCUB	T^3 Processing Level	USIT-E	Loop	
THDH	Maximum Search Thickness (percentage of nominal)	USIT-E	130	%
THDL	Minimum Search Thickness (percentage of nominal)	USIT-E	70	%
TPOS	Tool Position: Centered or Eccentered	SGT-N	Eccentered	
UDFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	0	Mrayl
UFGDE	Fiberglass Density	USIT-E	16.27	lbm/gal
UFGPS	Fiberglass Processing Selection	USIT-E	No	
UFGVL	Fiberglass Velocity	USIT-E	9678.48	ft/s
USI_FSOD	USIT USI Fluid Slowness Fits Casing Outer Diameter	USIT-E	0_OFF	
USI_FVEL_SEL	USI Fluid Velocity Selection	USIT-E	Automatic	
USI_ZMUD_SEL	USI Mud Impedance Selection	USIT-E	FreePipe Norm.	
UTHDP	Thickness Detection Policy	USIT-E	Fundamental	
VCAS	Ultrasonic Transversal Velocity in Casing	USIT-E	51.4	us/ft
ZCAS	Acoustic Impedance of Casing	USIT-E	46.25	Mrayl
ZINI	Initial Estimate of Cement Impedance	USIT-E	-1	Mrayl
ZMUD	Acoustic Impedance of Mud	Borehole	1.57	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-E	2.6	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

Tool Control Parameters

Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	36	dB
DDT5	USIC Downhole Decimation for T5 only	USIT-E	0_NONE	
DOTF	Distance between Opposite Transducer Faces	USIT-E	1.756	in
EMXV	EMEX Voltage	USIT-E	50	V
HRES	Horizontal Resolution	USIT-E	10 deg	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	3600	ft/h
ULOG	Logging Objective	USIT-E	MEASUREMENT	
UMFR	Modulation Frequency	USIT-E	333333	Hz
USFR	Ultrasonic Sampling Frequency	USIT-E	500000	Hz
USI_UPAT	USIT Emission Pattern	USIT-E	Pattern 500 KHz	
USI_UWKM	USIT Working Mode	USIT-E	Uncompressed 10 deg at 3.0 in LF	
USIT_DEPTHLOG	Starting Depth Log for Ultrasonics	USIT-E	4500	ft
VRES	Vertical Resolution	USIT-E	3.0 in	
WINB	Window Begin Time	USIT-E	33.83	us
WINE	Window End Time	USIT-E	73.83	us

USI Goodwin

ONE

USI Goodwin Compressed

Log

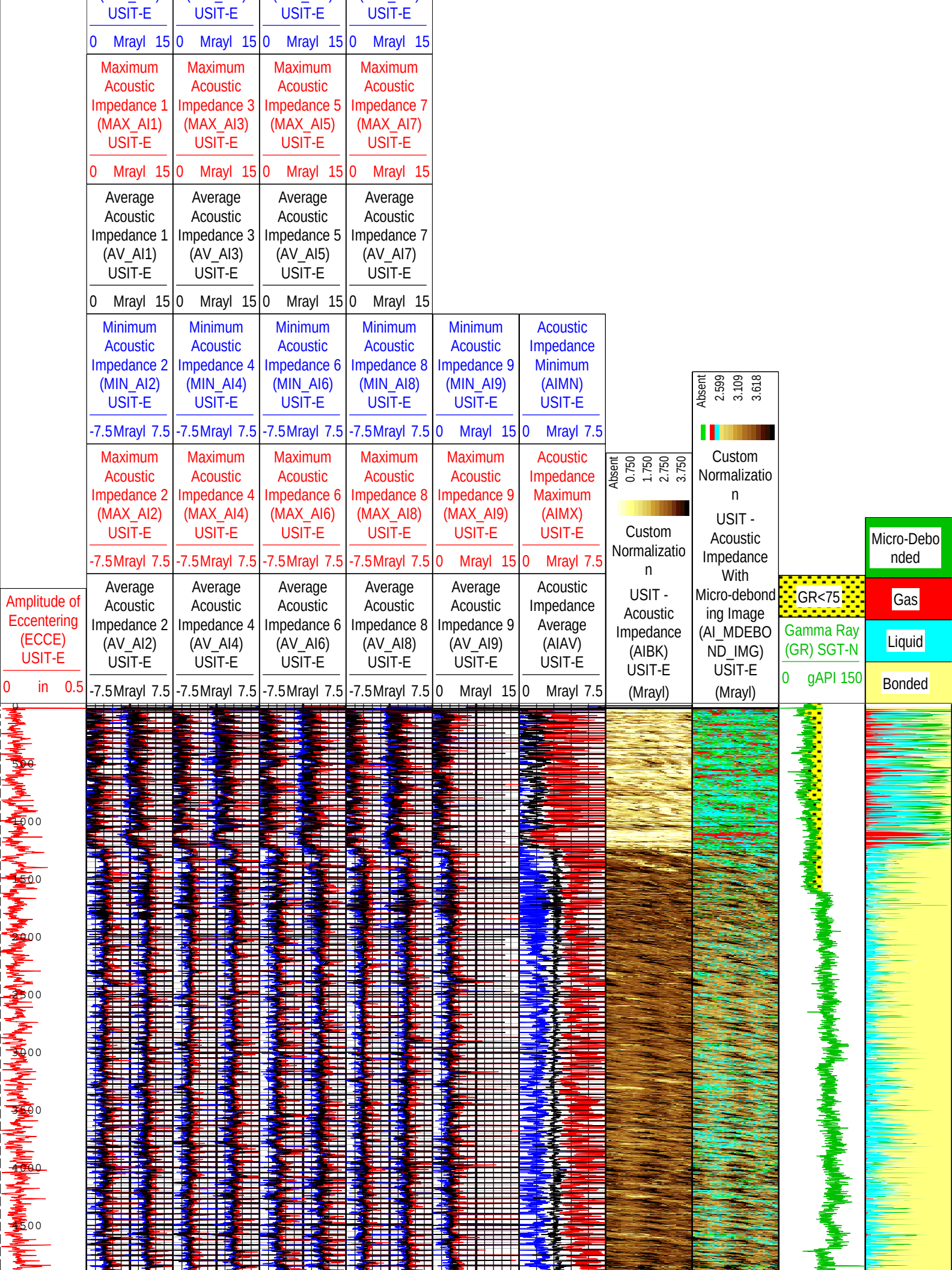
Company:Anadarko Petroleum Company Well:Bane 28N2-9HZ

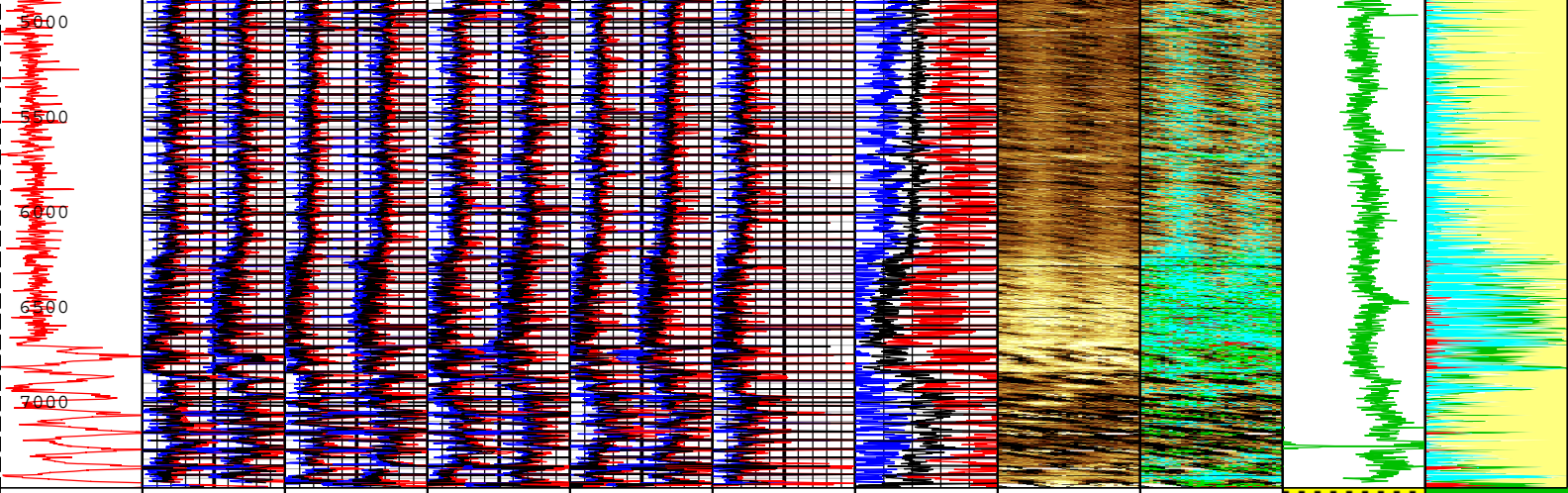
ONE: Main[4]:Up:S004

Description: USI Goodwin Format: USI Goodwin Index Scale: 0.1 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 09-Sep-2015 12:46:32

TIME_1900 - Time Marked every 60.00 (s)

Minimum Acoustic Impedance 1 (MIN_AI1)	Minimum Acoustic Impedance 3 (MIN_AI3)	Minimum Acoustic Impedance 5 (MIN_AI5)	Minimum Acoustic Impedance 7 (MIN_AI7)


USIT-E
0 Mrayl 15
Maximum Acoustic Impedance 1 (MAX_AI1) USIT-E
Maximum Acoustic Impedance 3 (MAX_AI3) USIT-E
Maximum Acoustic Impedance 5 (MAX_AI5) USIT-E
Maximum Acoustic Impedance 7 (MAX_AI7) USIT-E
Average Acoustic Impedance 1 (AV_AI1) USIT-E
Average Acoustic Impedance 3 (AV_AI3) USIT-E
Average Acoustic Impedance 5 (AV_AI5) USIT-E
Average Acoustic Impedance 7 (AV_AI7) USIT-E
Minimum Acoustic Impedance 2 (MIN_AI2) USIT-E
Minimum Acoustic Impedance 4 (MIN_AI4) USIT-E
Minimum Acoustic Impedance 6 (MIN_AI6) USIT-E
Minimum Acoustic Impedance 8 (MIN_AI8) USIT-E
Minimum Acoustic Impedance 9 (MIN_AI9) USIT-E
Acoustic Impedance Minimum (AIMN) USIT-E
-7.5 Mrayl 7.5
0 Mrayl 15
0 Mrayl 7.5
Maximum Acoustic Impedance 2 (MAX_AI2) USIT-E
Maximum Acoustic Impedance 4 (MAX_AI4) USIT-E
Maximum Acoustic Impedance 6 (MAX_AI6) USIT-E
Maximum Acoustic Impedance 8 (MAX_AI8) USIT-E
Maximum Acoustic Impedance 9 (MAX_AI9) USIT-E
Acoustic Impedance Maximum (AIMX) USIT-E
Average Acoustic Impedance 2 (AV_AI2) USIT-E
Average Acoustic Impedance 4 (AV_AI4) USIT-E
Average Acoustic Impedance 6 (AV_AI6) USIT-E
Average Acoustic Impedance 8 (AV_AI8) USIT-E
Average Acoustic Impedance 9 (AV_AI9) USIT-E
Acoustic Impedance Average (AIAV) USIT-E
Amplitude of Eccentering (ECCE) USIT-E
0 in 0.5
Absent 0.750 1.750 2.750 3.750
Custom Normalization
USIT - Acoustic Impedance (AIBK) USIT-E (Mrayl)
Absent 2.599 3.109 3.618
Custom Normalization
USIT - Acoustic Impedance With Micro-debonding Image (AI_MDEBOND_IMG) USIT-E (Mrayl)
GR<75
Gamma Ray (GR) SGT-N
0 gAPI 150
Micro-Debonded
Gas
Liquid
Bonded
0
500
1000
1500
2000
2500
3000
3500
4000
4500



Amplitude of Eccentering (ECCE) USIT-E	Minimum Acoustic Impedance 1 (MIN_AI1) USIT-E	Minimum Acoustic Impedance 3 (MIN_AI3) USIT-E	Minimum Acoustic Impedance 5 (MIN_AI5) USIT-E	Minimum Acoustic Impedance 7 (MIN_AI7) USIT-E	Minimum Acoustic Impedance 9 (MIN_AI9) USIT-E	Acoustic Impedance Minimum (AIMN) USIT-E	Absent 0.750 1.750 2.750 3.750	Absent 2.599 3.109 3.618	GR<75	Micro-Debonded
0 in 0.5	0 Mrayl 15	0 Mrayl 15	0 Mrayl 15	0 Mrayl 15	0 Mrayl 15	0 Mrayl 7.5	Custom Normalization USIT - Acoustic Impedance (AIBK) USIT-E (Mrayl)	Custom Normalization USIT - Acoustic Impedance With Micro-debonding Image (AI_MDEBOND_IMG) USIT-E (Mrayl)	Gamma Ray (GR) SGT-N 0 gAPI 150	Gas
	Maximum Acoustic Impedance 1 (MAX_AI1) USIT-E	Maximum Acoustic Impedance 3 (MAX_AI3) USIT-E	Maximum Acoustic Impedance 5 (MAX_AI5) USIT-E	Maximum Acoustic Impedance 7 (MAX_AI7) USIT-E	Maximum Acoustic Impedance 9 (MAX_AI9) USIT-E	Acoustic Impedance Maximum (AIMX) USIT-E				Liquid
	0 Mrayl 15	0 Mrayl 15	0 Mrayl 15	0 Mrayl 15	0 Mrayl 15	0 Mrayl 7.5				Bonded
	Average Acoustic Impedance 1 (AV_AI1) USIT-E	Average Acoustic Impedance 3 (AV_AI3) USIT-E	Average Acoustic Impedance 5 (AV_AI5) USIT-E	Average Acoustic Impedance 7 (AV_AI7) USIT-E	Average Acoustic Impedance 9 (AV_AI9) USIT-E	Acoustic Impedance Average (AIAV) USIT-E				
	0 Mrayl 15	0 Mrayl 15	0 Mrayl 15	0 Mrayl 15	0 Mrayl 15	0 Mrayl 7.5				
	Minimum Acoustic Impedance 2 (MIN_AI2) USIT-E	Minimum Acoustic Impedance 4 (MIN_AI4) USIT-E	Minimum Acoustic Impedance 6 (MIN_AI6) USIT-E	Minimum Acoustic Impedance 8 (MIN_AI8) USIT-E						
	-7.5 Mrayl 7.5	-7.5 Mrayl 7.5	-7.5 Mrayl 7.5	-7.5 Mrayl 7.5						
	Maximum Acoustic Impedance 2 (MAX_AI2) USIT-E	Maximum Acoustic Impedance 4 (MAX_AI4) USIT-E	Maximum Acoustic Impedance 6 (MAX_AI6) USIT-E	Maximum Acoustic Impedance 8 (MAX_AI8) USIT-E						
	-7.5 Mrayl 7.5	-7.5 Mrayl 7.5	-7.5 Mrayl 7.5	-7.5 Mrayl 7.5						
	Average Acoustic Impedance 2 (AV_AI2) USIT-E	Average Acoustic Impedance 4 (AV_AI4) USIT-E	Average Acoustic Impedance 6 (AV_AI6) USIT-E	Average Acoustic Impedance 8 (AV_AI8) USIT-E						
	-7.5 Mrayl 7.5	-7.5 Mrayl 7.5	-7.5 Mrayl 7.5	-7.5 Mrayl 7.5						

TIME_1900 - Time Marked every 60.00 (s)

Description: USI Goodwin Format: USI Goodwin Index Scale: 0.1 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 09-Sep-2015 12:46:32

XYZ

Company:Anadarko Petroleum Company Well:Bane 28N2-9HZ

ONE: Main[4]:Up:S004

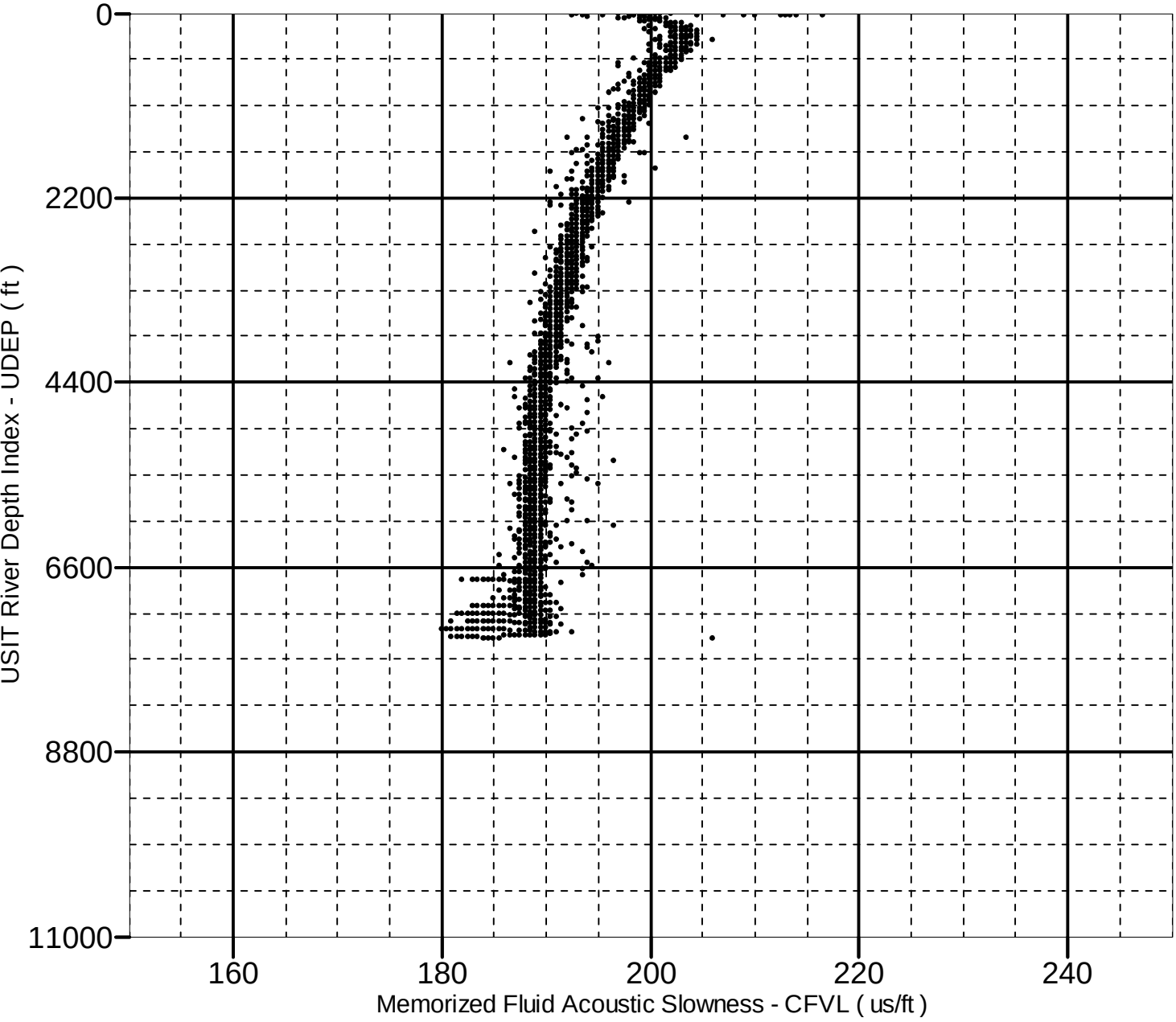
Fluid Acoustic Slowness vs Depth

2D Cross Plot

2D Cross Plot

Index Range: From 7449.25 to 9.75 ft

● CFVL-UDEP



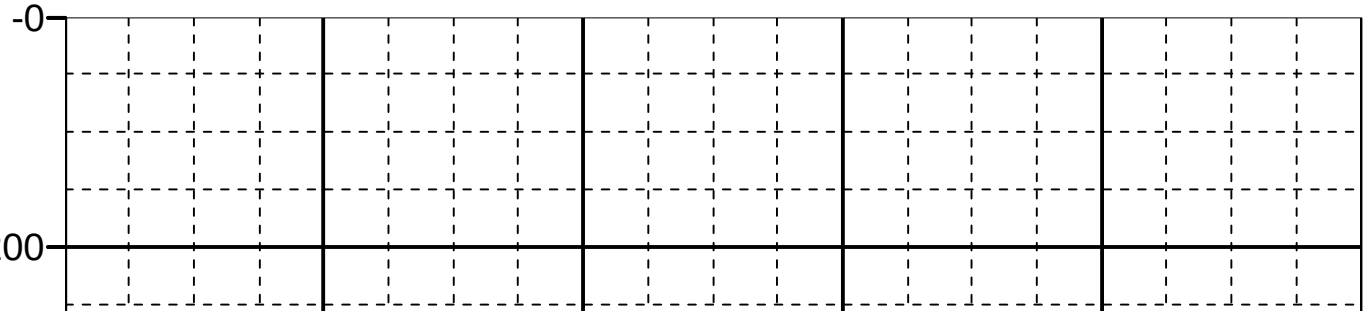
XYZ

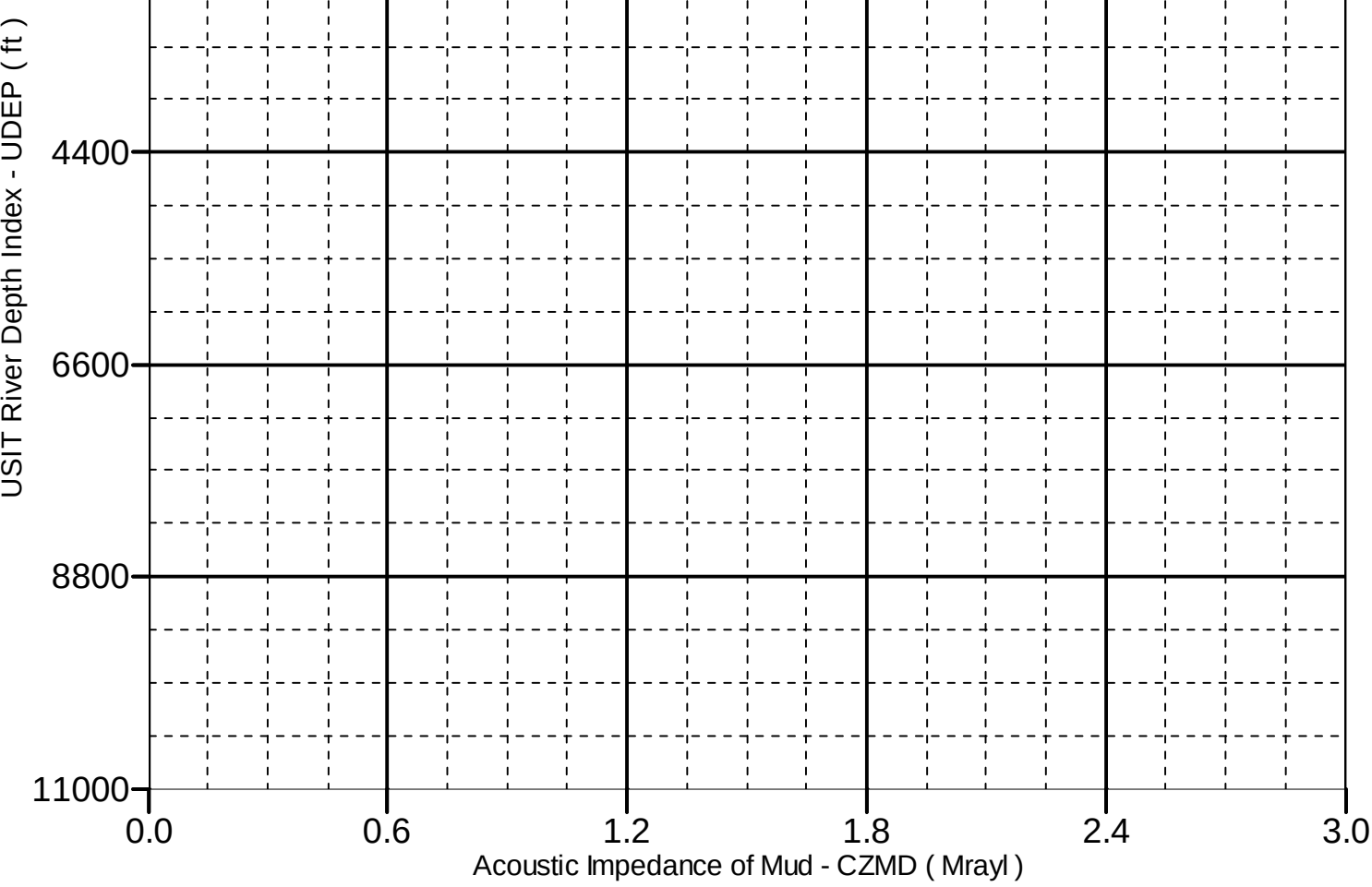
Acoustic Impedance of Mud vs Depth

2D Cross Plot

Index Range: From to ft

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




USIT River Depth Index - UDEP (ft)
4400
6600
8800
11000
0.0
0.6
1.2
1.8
2.4
3.0
Acoustic Impedance of Mud - CZMD (Mrayl)

Company:	Anadarko Petroleum Company
Well:	Bane 28N2-9HZ
Field:	Wattenberg
County:	Weld
State:	Colorado

Schlumberger

Ultrasonic Imager
Cement Evaluation
Gamma Ray - CCL Log