

Company: Noble Energy Inc

Well: Wells Ranch AE32-685

Field: Wattenberg

County: Weld State: Colorado

Isolation Scanner  
Cement Evaluation (Short)  
Gamma Ray - CCL Log

County:	Weld			
Field:	Wattenberg			
Location:	NWNW Sec.32, T6N, R62W			
Well:	Wells Ranch AE32-685			
Company:	Noble Energy Inc			
Location:				
NWNW Sec.32, T6N, R62W			Elev.:	K.B. 4772.00 ft
SHL: 576' FNL x 650' FWL				G.L. 4748.00 ft
Lat: 40.448850/ Long: -104.354230				D.F. 4771.00 ft
Permanent Datum:		Ground Level	Elev.:	4748.00 f
Log Measured From:		Kelly Bushing	24.00 ft	above Perm.Datum
Drilling Measured From:		Kelly Bushing		
API Serial No.		Section:	Township:	Range:
05-123-41731		32	6N	62W
Logging Date	04-Nov-2015			

Run Number	Run 1	
Depth Driller	6884.00 ft	
Schlumberger Depth	6884.00 ft	
Bottom Log Interval	6732.00 ft	
Top Log Interval	24.00 ft	
Casing Fluid Type	Brine	
Salinity		
Density	8.4 lbm/gal	
Fluid Level	0.00 ft	
BIT/CASING/TUBING STRING		
Bit Size	8.75 in	
From	630.00 ft	
To	6884.00 ft	
Casing/Tubing Size	7 in	
Weight	26 lbm/ft	
Grade	P110	
From	0.00 ft	
To	6874.80 ft	
Max Recorded Temperatures	222.9 degF	
Logger on Bottom	04-Nov-2015	10:33:00
Unit Number	9115	Ft. Morgan, CO
Recorded By	Aleksei Bekhterev	
Witnessed By	Bill Mansfield	

Disclaimer

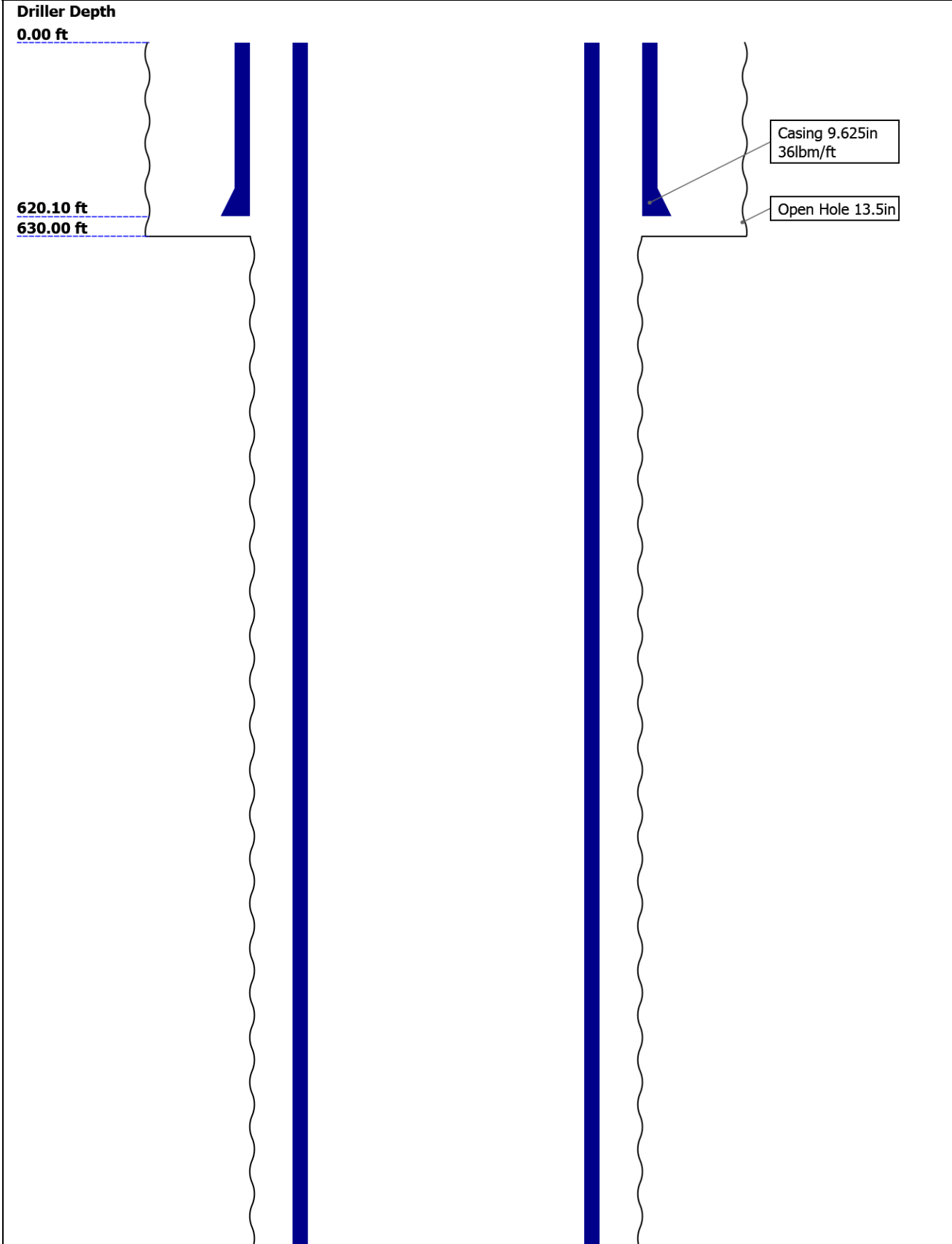
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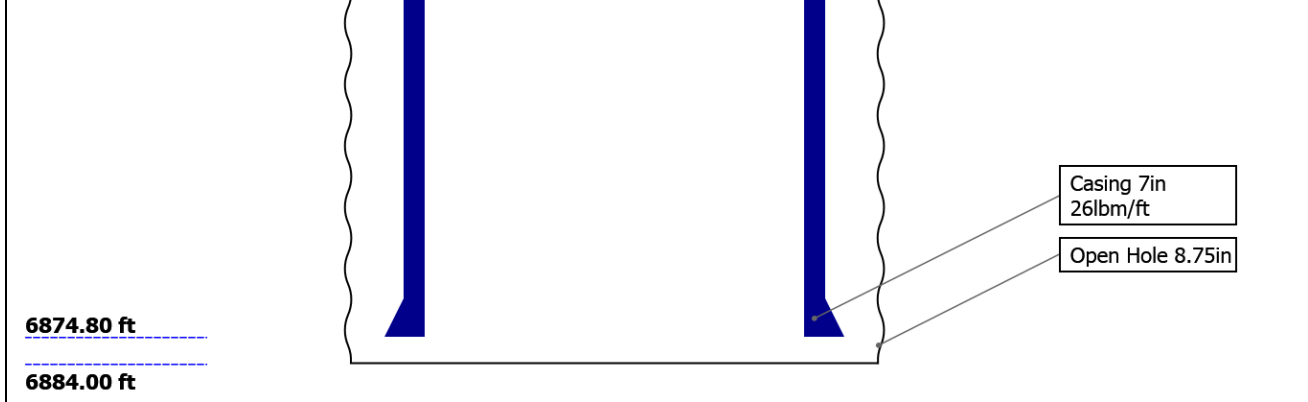
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Well Sketch





Borehole Size/Casing/Tubing Record

Bit						
Bit Size ( in )	13.5	8.75				
Top Driller ( ft )	0	630				
Top Logger ( ft )	0	630				
Bottom Driller ( ft )	630	6884				
Bottom Logger ( ft )	630	6884				
Casing						
Size ( in )	9.625	7				
Weight ( lbm/ft )	36	26				
Inner Diameter ( in )	8.921	6.276				
Grade	J55	P110				
Top Driller ( ft )	0	0				
Top Logger ( ft )	0	0				
Bottom Driller ( ft )	620.1	6874.8				
Bottom Logger ( ft )	620.1	6874.8				

Operational Run Summary

Parameter ( unit )	Run 1					
Date Log Started	04-Nov-2015					
Time Log Started	08:33:38					
Date Log Finished	04-Nov-2015					
Time Log Finished	13:51:11					
Top Log Interval ( ft )	24.00					
Bottom Log Interval ( ft )	6732.00					
Total Depth ( ft )						
Max Hole Deviation ( deg )	0.00					
Azimuth of Max Deviation ( deg )	0.00					
Bit Size ( in )	8.750					
Logging Unit Number	9115					
Logging Unit Location	Ft. Morgan, CO					
Recorded By	Aleksei Bekhterev					

Borehole Fluids						
Parameter( unit )	Run 1					
Fluid Type	Water					
Fluid Name	Brine					
Max Recorded Temperatures ( degF )	222.9					
Salinity ( ppm )	0					
Density ( lbm/gal )	8.4					
Date Logger on Bottom	04-Nov-2015					
Time Logger on Bottom	10:33:00					
Total Solid ( % )						
High Gravity Solids ( % )						

Run 1: Toolstring	Run 1: Remarks	
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Run 1: Toolstring			Run 1: Remarks
<b>Equip name</b> <b>LEH-QT</b> LEH-QT	<b>length</b> <b>33.92</b>	<b>MP name</b> CTEM ACCZ HV Gamm a Ray TelSta tus	Toolstring ran as per tool sketch 12 ppg Flex Seal, 15.8 ppg Tail cement Repeat pass is done with 0 psi Main pass is done with 2500 psi Temperature at the bottom: 222.9 degF Top of cement: 570 ft Log started 30 ft above top of the liner (6732') Data affected by high deviation at first 200' off the bottom No sufficient casing wear observed Crew: Jake Jump, Jay Musgrave Thank you for choosing Schlumberger Wireline!
<b>EDTC-B</b> EDTH-B EDTG-A EDTC-B	<b>31.00</b>	<b>Offset</b> 27.5 0.00 0.00 25.63 24.5	
<b>AH-184</b> [2]	<b>24.5</b>		
<b>AH-184</b> [1]	<b>22.5</b>		
<b>CME-AF</b>	<b>20.5</b>		
<b>USIT-E</b> ECH-MFA :1964 USAC-A USIS-A:9 99 USSC-B IBCS-B FAR-SEN SOR NEAR-SE NSOR USI-SEN SOR EMITTER -SENSOR	<b>16.71</b>		



USI Se 0.87  
nsor  
Head T  
ension  
TOOL\_ZERO

Lengths are in ft  
Maximum Outer Diameter = 4.472 in  
Line: Sensor Location, Value: Gating Offset  
All measurements are relative to TOOL\_ZERO

## Depth Summary

Run 1

### 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

7-46A-XS

Serial Number

Length

12000.00 ft

Conveyance Type

Wireline

Rig Type

Crane

### Run 1:Depth Control Parameters

### Depth Control Remarks

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

All Schlumberger depth policies followed

IDW used as primary depth device

Z-chart used as secondary depth reference

## USI IBC SLG

## USIT - Fluid Properties Measurement

Run Name

Pass Name

Start Depth(ft)

Stop Depth(ft)

Run 1

Main[3]:Up

6738.97

66.47

Fluid Velocity = "Automatic".  
CFVL equals DFSL channel

Start Depth(ft)

Stop Depth(ft)

Start Value(us/ft)

End Value(us/ft)

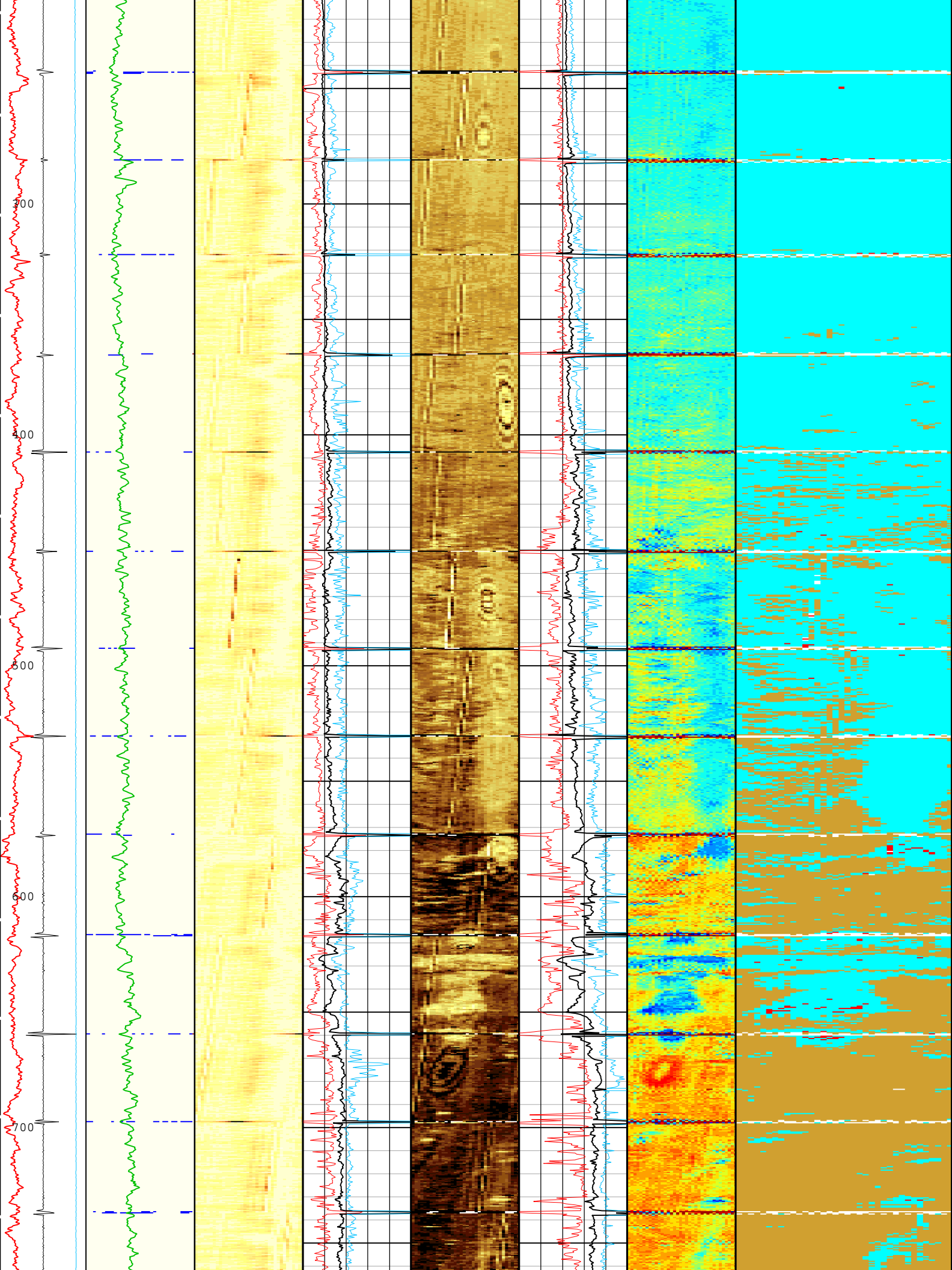
Mud Impedance = "FreePipe Norm.".

Free Pipe normalization zone is : 100.40m(329.40ft) to 107.49m(352.65ft)

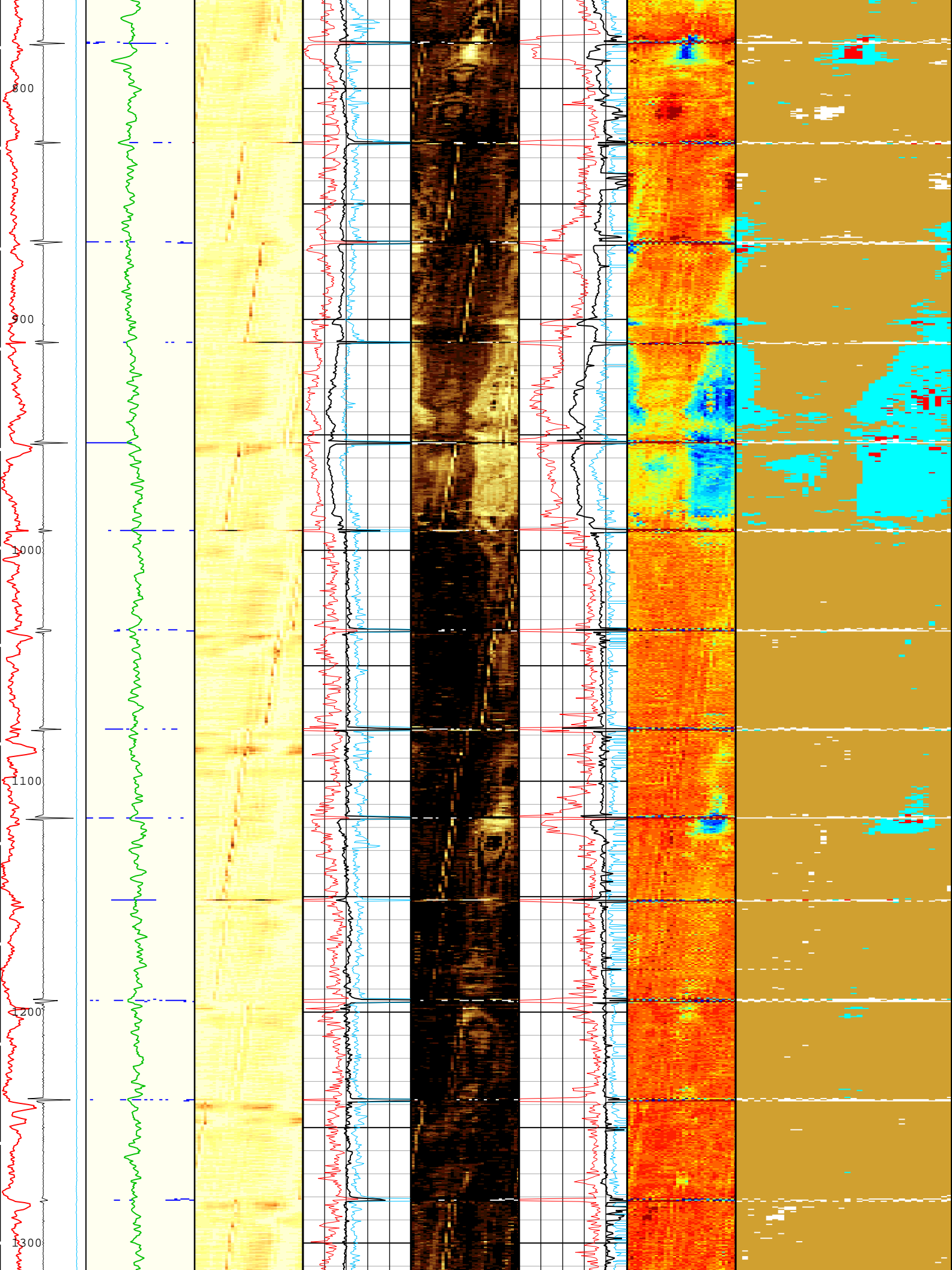
MUD\_N\_FRP = 1.12

CZMD median computed in free pipe normalization interval = 1.65 MRayl

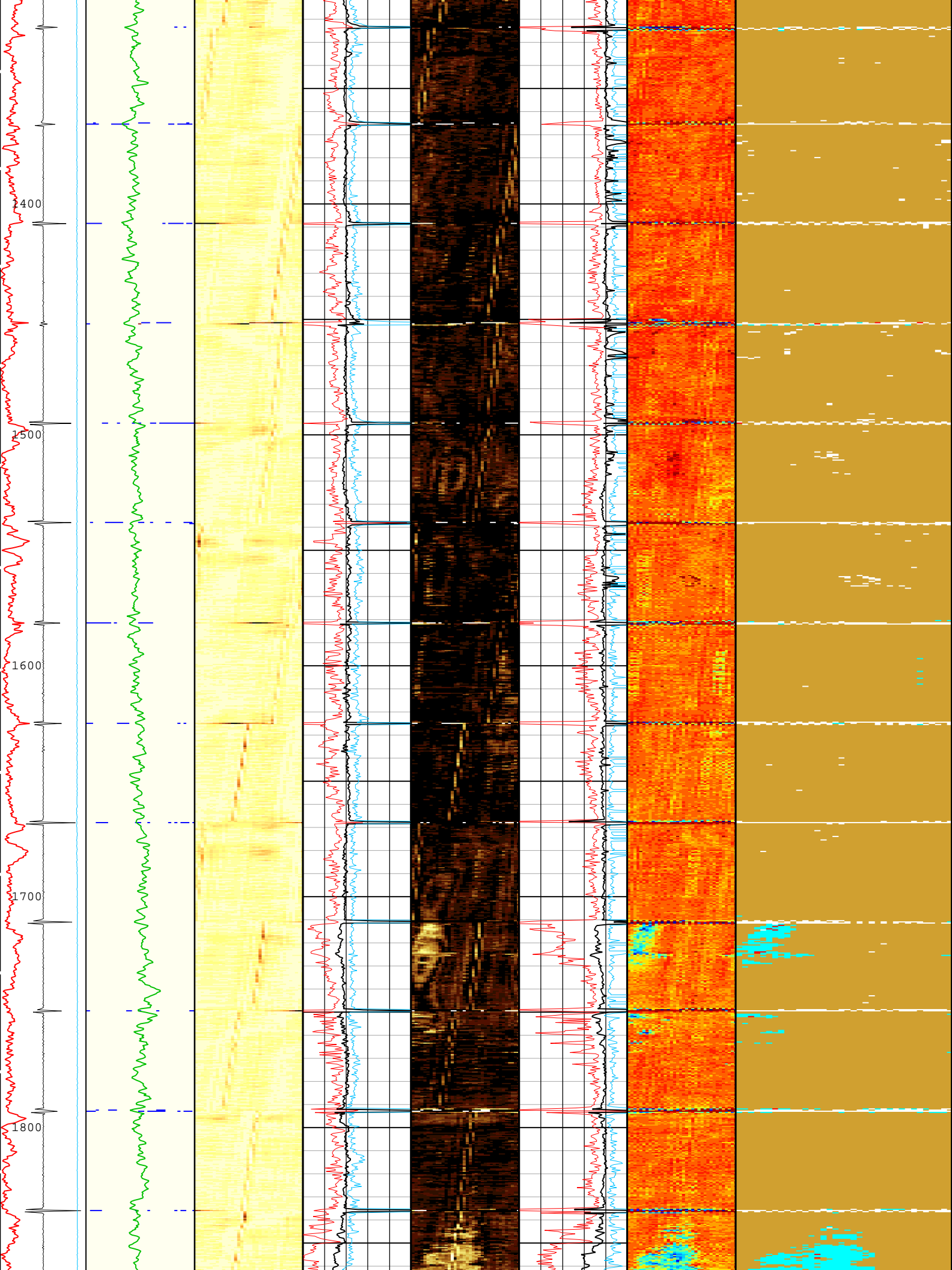
TIME\_1900 - Time Marked every 60.00 (s)[illegible]

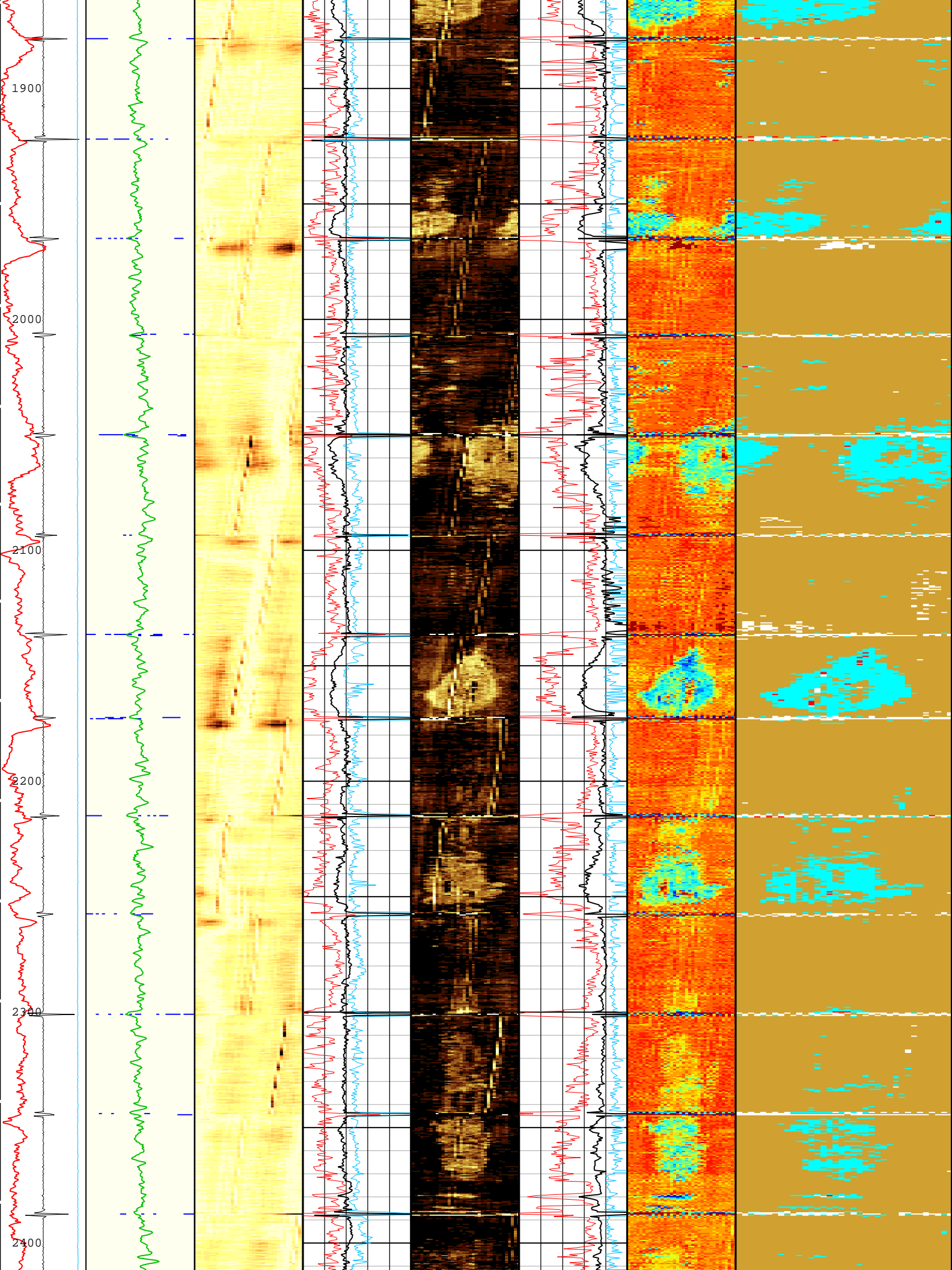


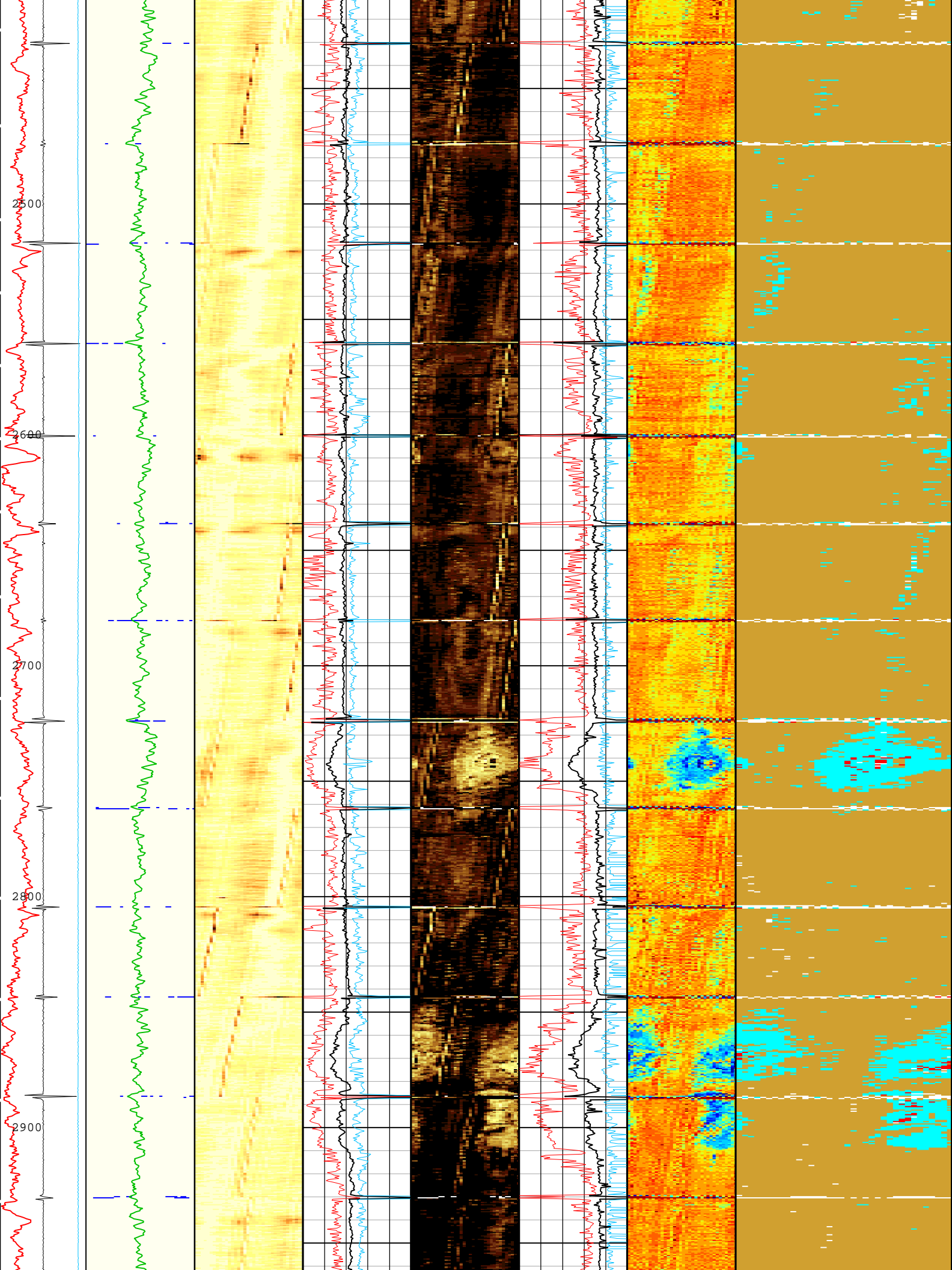




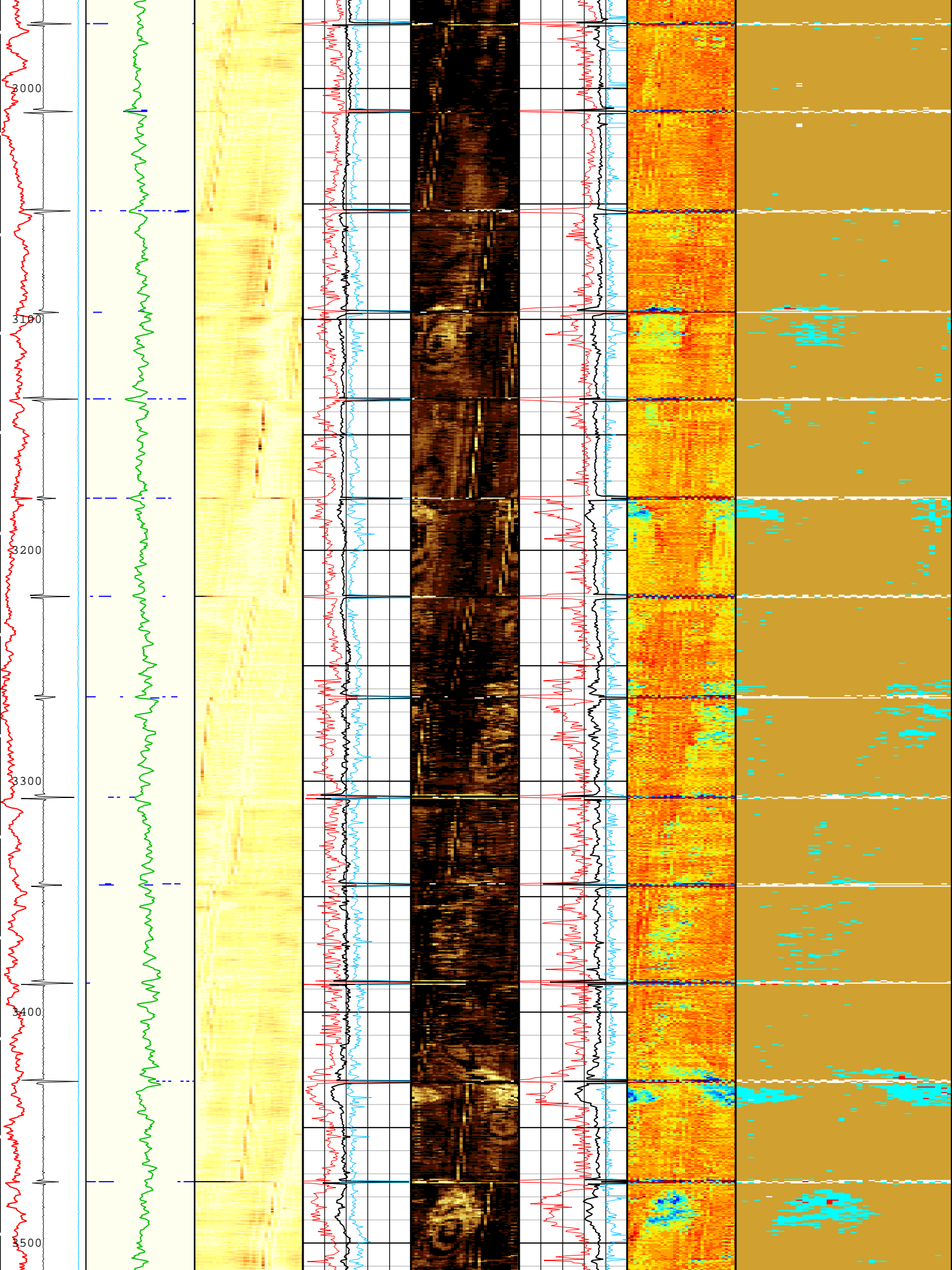


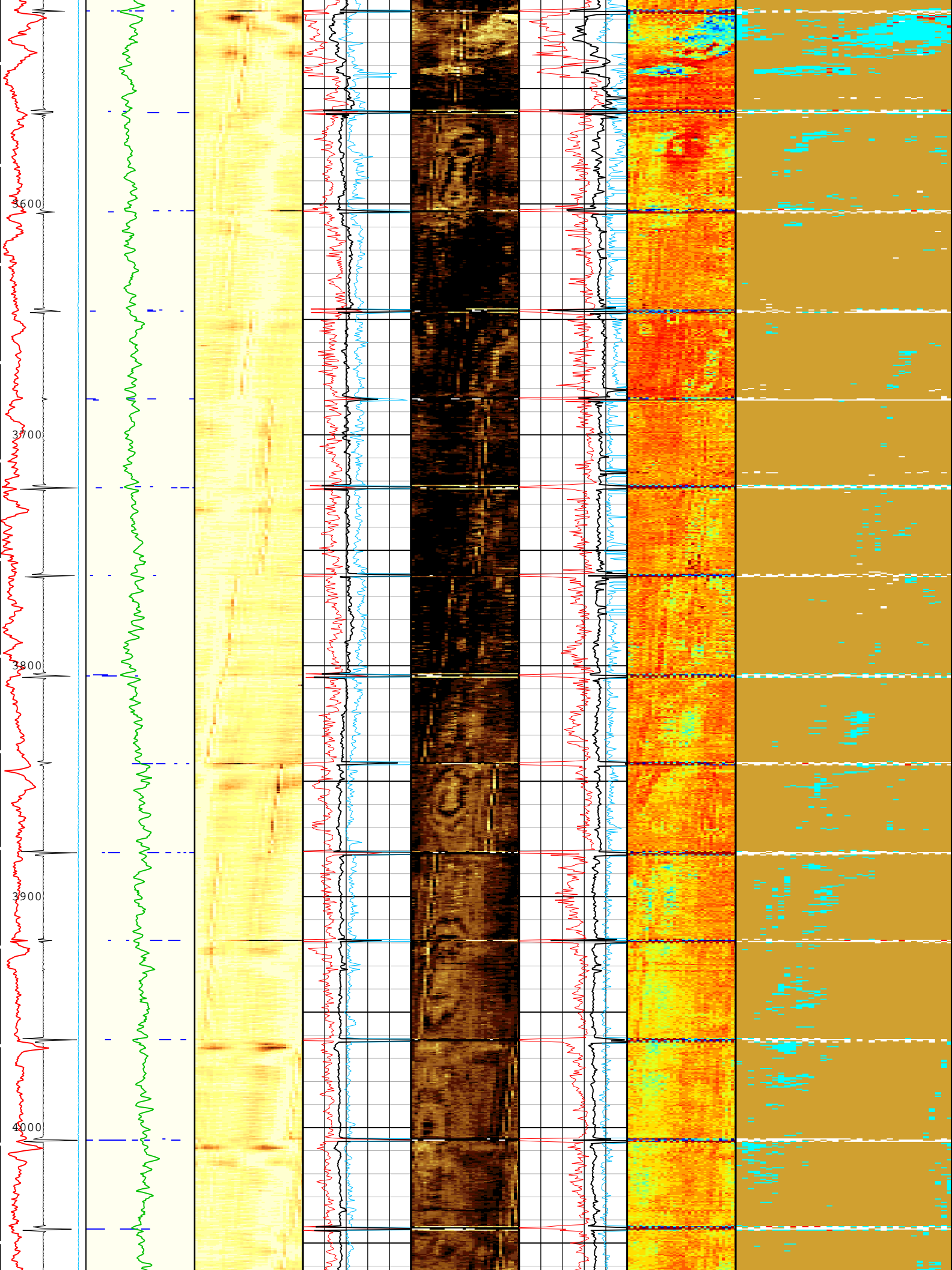


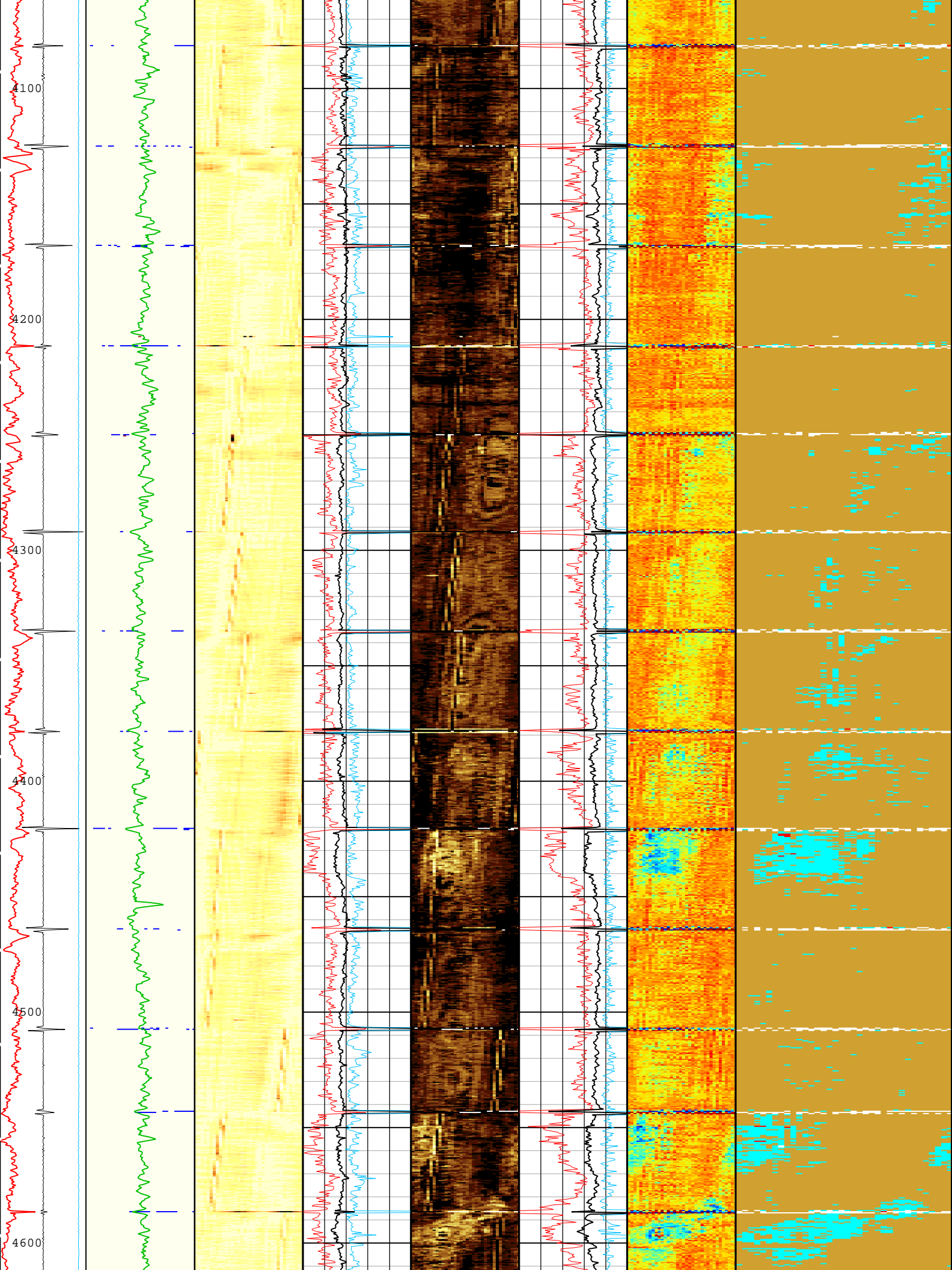




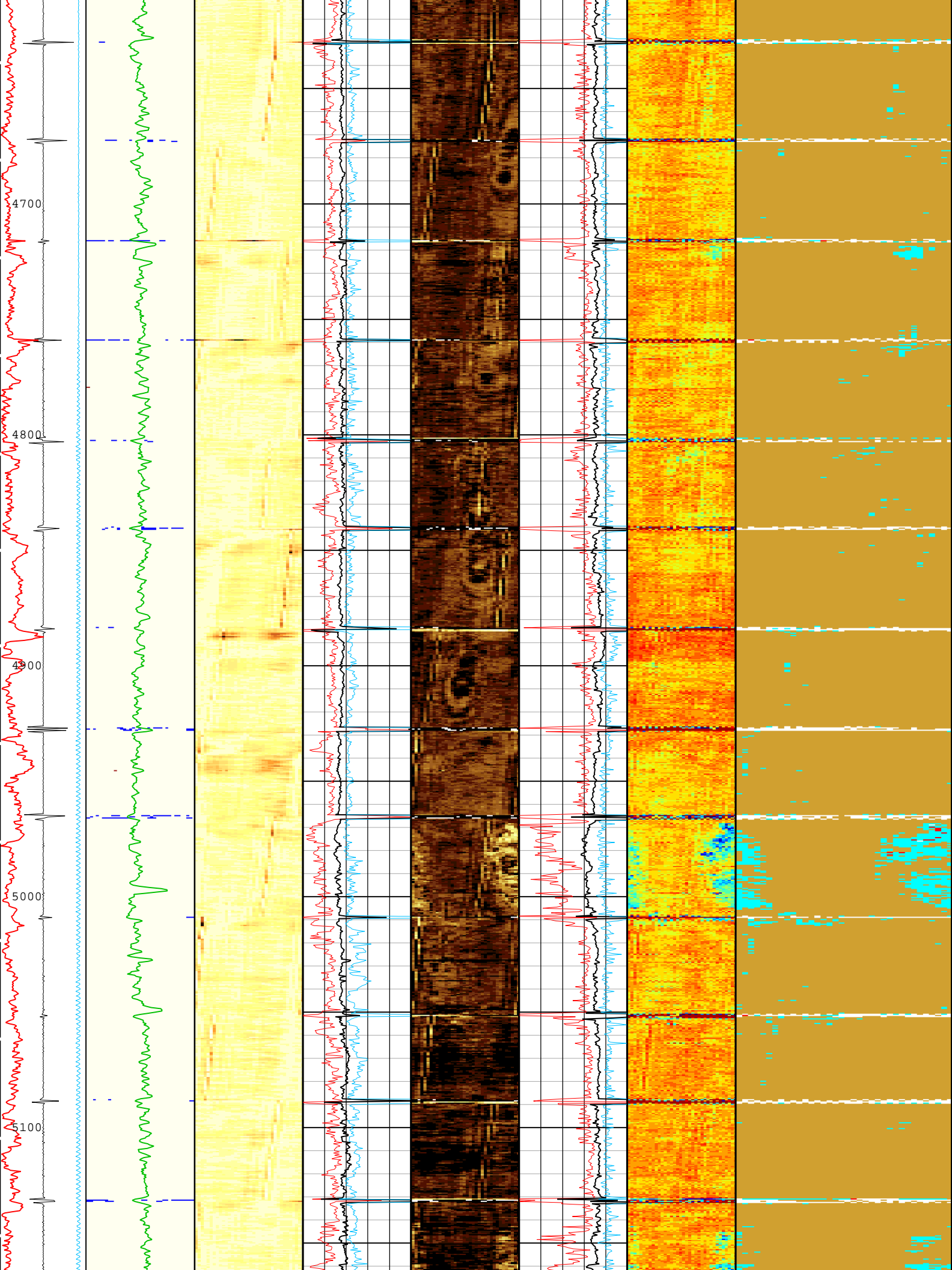




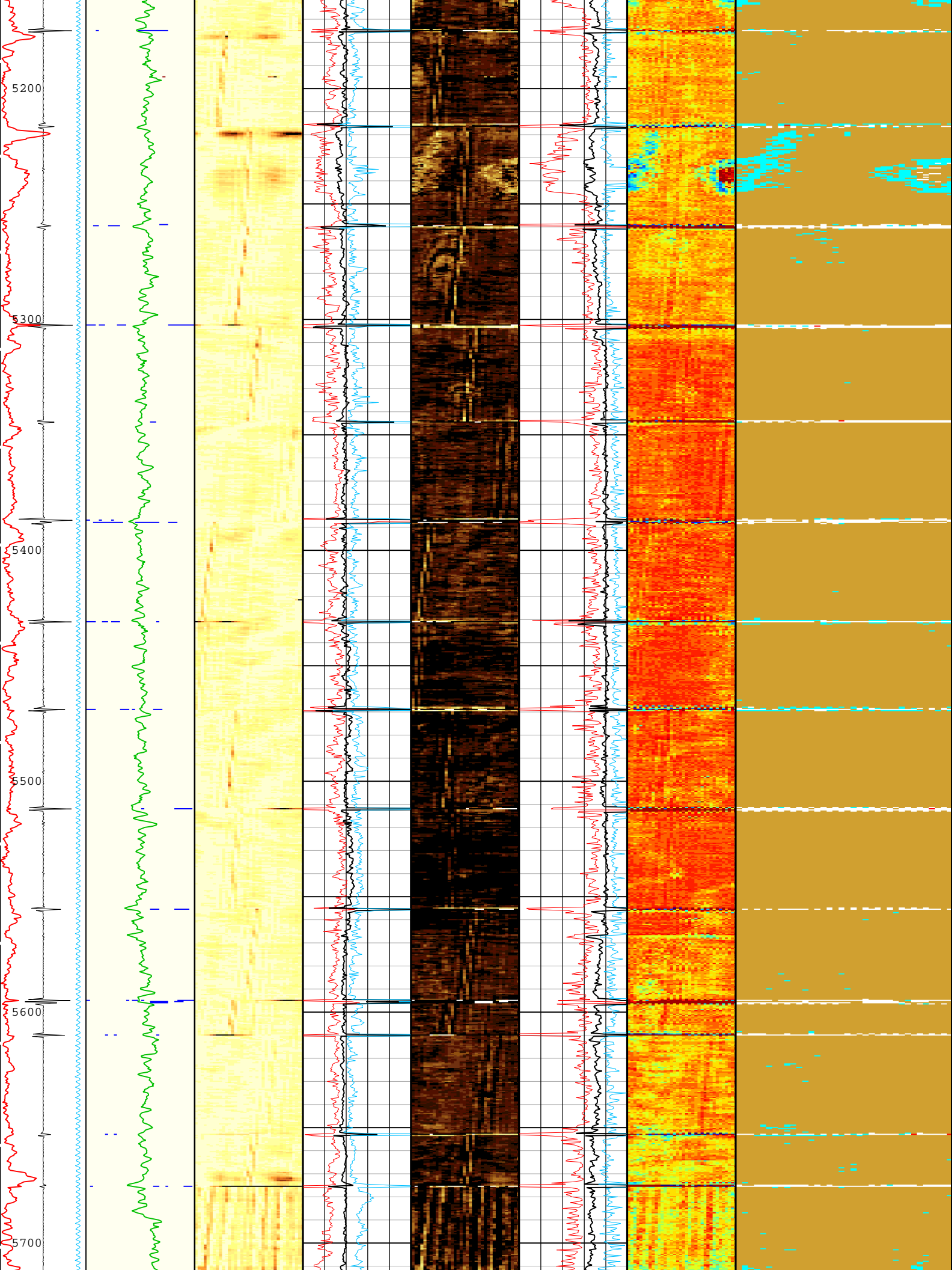


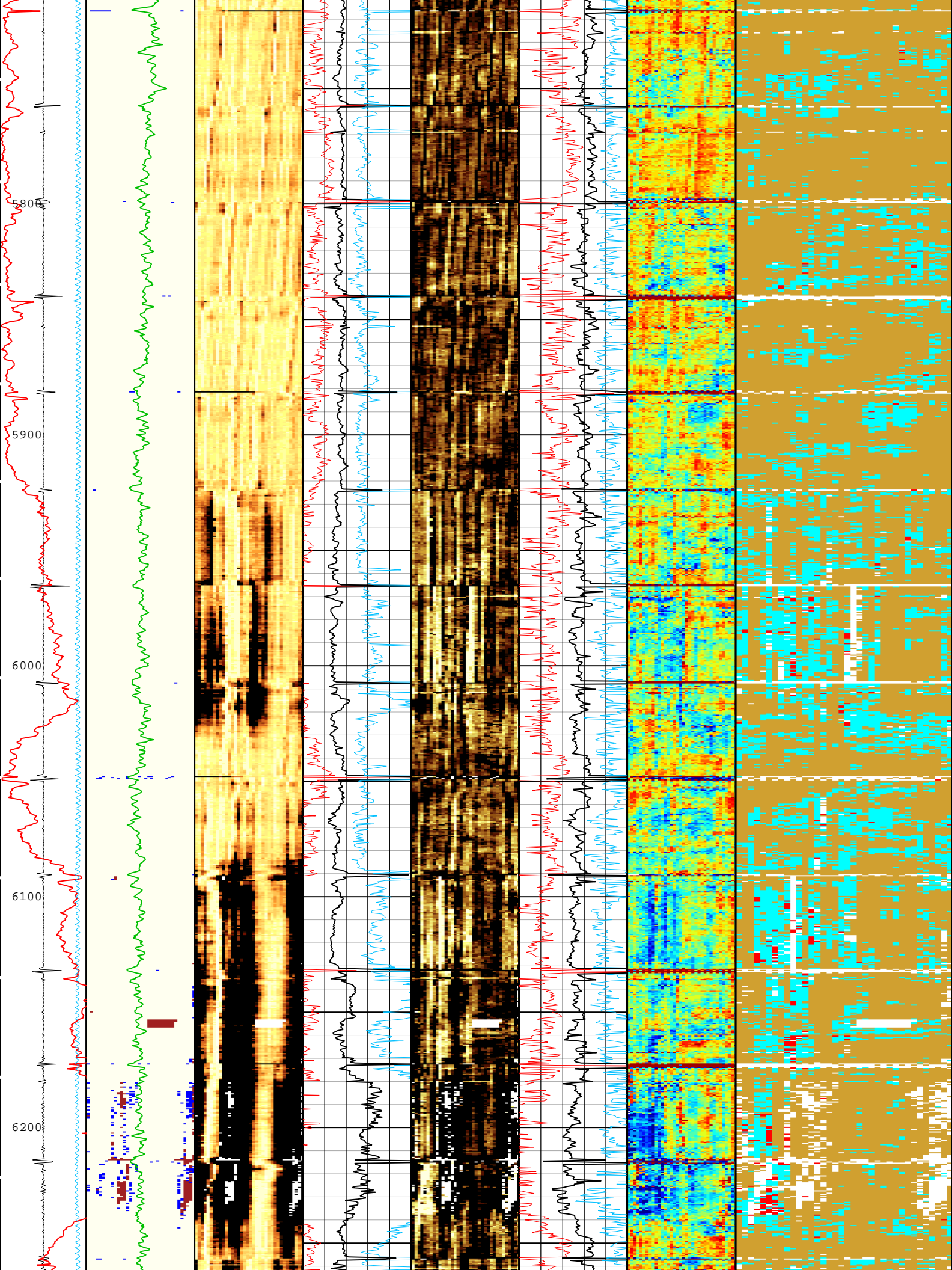


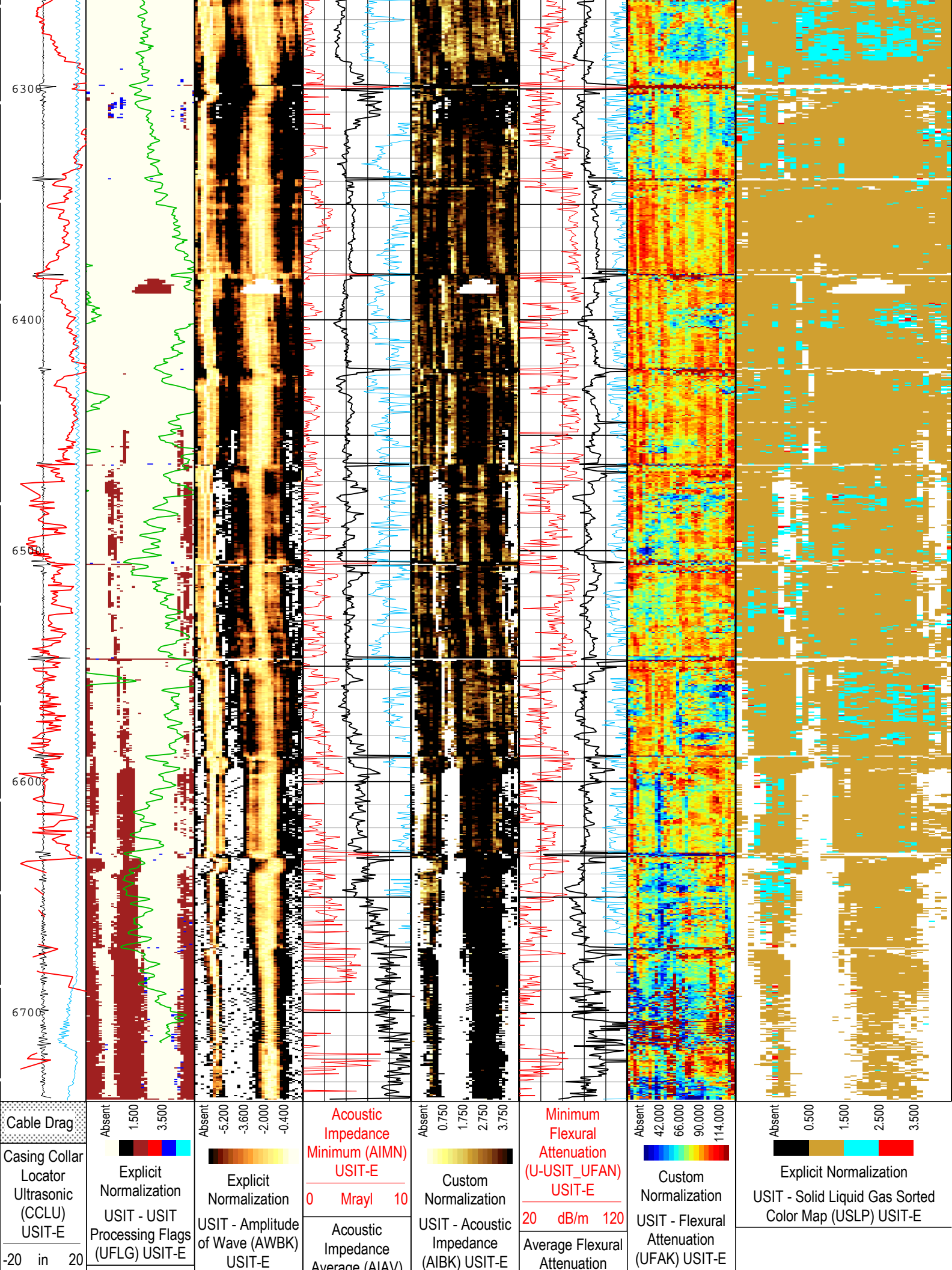














Amplitude of Eccentering (ECCE) USIT-E	Gamma Ray (ECGR_EDTC) EDTC-B	(dB)	Average (AIRV) USIT-E	(Mrayl)	(U-USIT_UFAV) USIT-E	(dB/m)
0 in 0.5	0 gAPI 150		0 Mrayl 10		20 dB/m 120	
Motor Revolution Speed (RSAV) USIT-E			Acoustic Impedance Maximum (AIMX) USIT-E		Maximum Flexural Attenuation (U-USIT_UFAX) USIT-E	
6 c/s 7.5			0 Mrayl 10		20 dB/m 120	
Stuck Tool Indicator, Total (STIT)						
0 ft 50						
TIME_1900 - Time Marked every 60.00 (s)						
Description: USI IBC SLG    Format: USI IBC SLG    Index Scale: 2 in per 100 ft    Index Unit: ft    Index Type: Measured Depth    Creation Date: 04-Nov-2015 13:57:46						

Channel Processing Parameters				
Run 1: Parameters				
Parameter	Description	Tool	Value	Unit
ISSBAR	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	Depth Zoned	in
CASING_PRATIO	Casing Poisson Ratio	USIT-E	Standard Poisson Ratio	
CBLO	Casing Bottom (Logger)	WLSESSION	6874.8	ft
CDEN	Cement Density	USIT-E	0	lbm/gal
CDEN	Cement Density	EDTC-B	16.69	lbm/gal
CMTY(U-USIT_CEMT)	Cement Type	USIT-E	Light Cement	
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
FD	Fluid Density	USIT-E	11.5	lbm/gal
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	EDTC-B	1	
HEMA	Hematite Presence Flag	Borehole	No	
IBC_FRP_OFFSET	IBC Flexural Offset from Free Pipe	USIT-E	-15.52	dB/m
FSOD	USIT IBC Fluid Slowness Fits Casing Outer Diameter	USIT-E	0_OFF	
IBC_FVEL_SEL	IBC Fluid Velocity Selection	USIT-E	Automatic	
IBC_OFFSET_SEL	IBC Flexural Offset Selector	USIT-E	IBC_FRP_OFFSET	
IBC_ZMUD_SEL	IBC Mud Impedance Selection	USIT-E	FreePipe Norm.	
ICE_PROCESS	ICE Processing	USIT-E	Yes	
IMAR	Image Rotation	USIT-E	Off	
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-E	22.5	us
MUD_N_FRP	Free Pipe Mud Normalization Factor	USIT-E	1.12	
MUD_N_THE	Theoretical Mud Normalization Factor	USIT-E	1	
U-USIT_OCDI	Outer Casing Diameter	USIT-E	0	in

U-USIT_OCSH	Outer Casing Shoe	USIT-E	0	ft
U-USIT_OCWE	Outer Casing Weight	USIT-E	0	lbm/ft
RCOD	Reference Calibrator Outer Diameter	USIT-E	7	in
RCSO	Reference Calibrator Standoff	USIT-E	1.181	in
RCTH	Reference Calibrator Thickness	USIT-E	0.295	in
SOCN	Standoff Distance	EDTC-B	0.125	in
SOCO	Standoff Correction Option	EDTC-B	No	
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_EDTC	Tool Position: Centered or Eccentered	EDTC-B	Centered	
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	2.07	Mrayl
U-USIT_UFAO	SIT Flexural Attenuation Offset	USIT-E	-22.98	dB/m
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
U-USIT_UIAP	IBC Answer Product Enabled	USIT-E	SolidLiquidGasMap	
THDP	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	1.48	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 )
BS	13.5	41	630
BS	8.75	630	6738.5
All depth are actual.			

Tool Control Parameters	
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Run 1: Parameters				
Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	18	dB
U-USIT_DDT5	USIC Downhole Decimation for T5 only	USIT-E	0_NONE	
DOT(DOS)	Distance between Opposite Transducer Faces	USIT-E	2.874	in
EMXV	EMEX Voltage	USIT-E	Time Zoned	V
HRES	Horizontal Resolution	USIT-E	10 deg	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	2700	ft/h
MOTOR_PROTECT	Motor Protection	USIT-E	On	
TMUC	Type of Mud	USIT-E	BRI	
UACLV_PERM	Ultrasonic ACLV Permanent	USIT-E	No	
U-USIT_UFWB	Far Receiver Window Begin Time	USIT-E	Time Zoned	us
U-USIT_UFWE	Far Receiver Window End Time	USIT-E	Time Zoned	us
ULOG	Logging Objective	USIT-E	MEASUREMENT	
UMFR	Modulation Frequency	USIT-E	333333	Hz
U-USIT_UNWB	Near Receiver Window Begin Time	USIT-E	Time Zoned	us
U-USIT_UNWE	Near Receiver Window End Time	USIT-E	Time Zoned	us
UUSER	Ultrasonic Calibration Factor	USIT-E	500000	1/ft

USFR	Ultrasonic Sampling Frequency	USIT-E	500000	Hz
UPAT	USIT Emission Pattern	USIT-E	Pattern 375 KHz	
UWKM	USIT Working Mode	USIT-E	10 deg at 6.0 in LF	
USIT_DEPTHLOG	Starting Depth Log for Ultrasonics	USIT-E	6732.6	ft
USSP	Ultrasonic Service	USIT-E	IBC	
U-USIT_UTAN	Transducer Angles	USIT-E	33_DEG	
VRES	Vertical Resolution	USIT-E	6.0 in	
WINB	Window Begin Time	USIT-E	Time Zoned	us
WINE	Window End Time	USIT-E	Time Zoned	us

Time Zone Parameters					
Parameter	Value	Start Time	Stop Time	Start Depth ( ft )	Stop Depth ( ft )
EMXV	120	04-Nov-2015 10:43:43	04-Nov-2015 11:21:42	6738.97	5496.25
EMXV	115	04-Nov-2015 11:21:42	04-Nov-2015 11:21:45	5496.25	5493.62
EMXV	110	04-Nov-2015 11:21:45	04-Nov-2015 11:21:49	5493.62	5490.86
EMXV	105	04-Nov-2015 11:21:49	04-Nov-2015 11:21:53	5490.86	5487.79
EMXV	100	04-Nov-2015 11:21:53	04-Nov-2015 11:21:57	5487.79	5485.08
EMXV	95	04-Nov-2015 11:21:57	04-Nov-2015 11:22:00	5485.08	5482.66
EMXV	90	04-Nov-2015 11:22:00	04-Nov-2015 11:22:03	5482.66	5480.68
EMXV	85	04-Nov-2015 11:22:03	04-Nov-2015 11:22:23	5480.68	5465.95
EMXV	80	04-Nov-2015 11:22:23	04-Nov-2015 11:22:27	5465.95	5463.1
EMXV	75	04-Nov-2015 11:22:27	04-Nov-2015 11:22:33	5463.1	5458.75
EMXV	70	04-Nov-2015 11:22:33	04-Nov-2015 11:22:36	5458.75	5456.72
EMXV	65	04-Nov-2015 11:22:36	04-Nov-2015 11:22:50	5456.72	5446.75
EMXV	60	04-Nov-2015 11:22:50	04-Nov-2015 11:22:53	5446.75	5444.63
EMXV	55	04-Nov-2015 11:22:53	04-Nov-2015 13:29:54	5444.63	66.47
U-USIT_UFWB	133	04-Nov-2015 10:43:43	04-Nov-2015 10:52:40	6738.97	6736.47
U-USIT_UFWB	37.04	04-Nov-2015 10:52:40	04-Nov-2015 10:53:10	6736.47	6722.38
U-USIT_UFWB	50.05	04-Nov-2015 10:53:10	04-Nov-2015 10:59:40	6722.38	6450.23
U-USIT_UFWB	80.5	04-Nov-2015 10:59:40	04-Nov-2015 10:59:50	6450.23	6443.17
U-USIT_UFWB	98.36	04-Nov-2015 10:59:50	04-Nov-2015 10:59:54	6443.17	6439.78
U-USIT_UFWB	84.71	04-Nov-2015 10:59:54	04-Nov-2015 11:01:15	6439.78	6380.68
U-USIT_UFWB	65.8	04-Nov-2015 11:01:15	04-Nov-2015 11:06:31	6380.68	6155.27
U-USIT_UFWB	86.81	04-Nov-2015 11:06:31	04-Nov-2015 11:06:59	6155.27	6135.51
U-USIT_UFWB	105.71	04-Nov-2015 11:06:59	04-Nov-2015 13:03:41	6135.51	1183.9
U-USIT_UFWB	117.18	04-Nov-2015 13:03:41	04-Nov-2015 13:29:54	1183.9	66.47
U-USIT_UFWE	173	04-Nov-2015 10:43:43	04-Nov-2015 10:52:43	6738.97	6735.74
U-USIT_UFWE	251.22	04-Nov-2015 10:52:43	04-Nov-2015 10:59:38	6735.74	6451.37
U-USIT_UFWE	208.62	04-Nov-2015 10:59:38	04-Nov-2015 11:13:30	6451.37	5856.32
U-USIT_UFWE	192.87	04-Nov-2015 11:13:30	04-Nov-2015 13:03:40	5856.32	1184.73
U-USIT_UFWE	181.46	04-Nov-2015 13:03:40	04-Nov-2015 13:29:54	1184.73	66.47
U-USIT_UNWB	102	04-Nov-2015 10:43:43	04-Nov-2015 10:52:38	6738.97	6736.93
U-USIT_UNWB	38.04	04-Nov-2015 10:52:38	04-Nov-2015 10:53:09	6736.93	6723.01
U-USIT_UNWB	44.8	04-Nov-2015 10:53:09	04-Nov-2015 10:59:47	6723.01	6445.39
U-USIT_UNWB	64.75	04-Nov-2015 10:59:47	04-Nov-2015 11:01:00	6445.39	6392.14
U-USIT_UNWB	85.76	04-Nov-2015 11:01:00	04-Nov-2015 11:01:17	6392.14	6379.9

U-USIT_UNWB	53.2	04-Nov-2015 11:01:17	04-Nov-2015 11:06:13	6379.9	6168.68
U-USIT_UNWB	68.95	04-Nov-2015 11:06:13	04-Nov-2015 11:06:19	6168.68	6163.91
U-USIT_UNWB	82.61	04-Nov-2015 11:06:19	04-Nov-2015 13:03:43	6163.91	1182.72
U-USIT_UNWB	94.08	04-Nov-2015 13:03:43	04-Nov-2015 13:29:54	1182.72	66.47
U-USIT_UNWE	142	04-Nov-2015 10:43:43	04-Nov-2015 10:52:36	6738.97	6737.34
U-USIT_UNWE	220.05	04-Nov-2015 10:52:36	04-Nov-2015 10:53:04	6737.34	6725.98
U-USIT_UNWE	200.22	04-Nov-2015 10:53:04	04-Nov-2015 10:59:45	6725.98	6446.64
U-USIT_UNWE	172.92	04-Nov-2015 10:59:45	04-Nov-2015 11:01:01	6446.64	6390.88
U-USIT_UNWE	157.16	04-Nov-2015 11:01:01	04-Nov-2015 13:03:44	6390.88	1181.79
U-USIT_UNWE	143.29	04-Nov-2015 13:03:44	04-Nov-2015 13:29:54	1181.79	66.47
WINB	37.61	04-Nov-2015 10:43:43	04-Nov-2015 10:52:32	6738.97	6738.24
WINB	16.84	04-Nov-2015 10:52:32	04-Nov-2015 10:59:41	6738.24	6449.12
WINB	35.16	04-Nov-2015 10:59:41	04-Nov-2015 11:01:03	6449.12	6389.62
WINB	48.26	04-Nov-2015 11:01:03	04-Nov-2015 11:01:08	6389.62	6385.82
WINB	43.63	04-Nov-2015 11:01:08	04-Nov-2015 11:01:18	6385.82	6378.74
WINB	27.46	04-Nov-2015 11:01:18	04-Nov-2015 11:05:03	6378.74	6219.1
WINB	31.31	04-Nov-2015 11:05:03	04-Nov-2015 11:06:28	6219.1	6157.38
WINB	42.86	04-Nov-2015 11:06:28	04-Nov-2015 11:06:33	6157.38	6154.02
WINB	26.69	04-Nov-2015 11:06:33	04-Nov-2015 13:03:53	6154.02	1175.36
WINB	34.39	04-Nov-2015 13:03:53	04-Nov-2015 13:03:54	1175.36	1174.72
WINB	42.09	04-Nov-2015 13:03:54	04-Nov-2015 13:29:54	1174.72	66.47
WINE	77.61	04-Nov-2015 10:43:43	04-Nov-2015 10:52:34	6738.97	6737.76
WINE	110.12	04-Nov-2015 10:52:34	04-Nov-2015 10:59:43	6737.76	6448.06
WINE	102.93	04-Nov-2015 10:59:43	04-Nov-2015 11:01:04	6448.06	6388.74
WINE	95.23	04-Nov-2015 11:01:04	04-Nov-2015 11:06:30	6388.74	6156.57
WINE	90.61	04-Nov-2015 11:06:30	04-Nov-2015 13:03:51	6156.57	1176.33
WINE	80.6	04-Nov-2015 13:03:51	04-Nov-2015 13:29:54	1176.33	66.47

All depth are at tool zero.

USI Goodwin

Run 1

IBC Goodwin Compressed

Log

Company:Noble Energy Inc

Well:Wells Ranch AE32-685

Run 1: Main[31:Up:S007

Description: USI Goodwin    Format: USI Goodwin    Index Scale: 0.1 in per 100 ft    Index Unit: ft    Index Type: Measured Depth    Creation Date: 04-Nov-2015 13:57:53

TIME\_1900 - Time Marked every 60.00 (s)

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
0   Mrayl 15	0   Mrayl 15	0   Mrayl 15	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



[illegible]

										
Gamma Ray (ECGR_EDTC) EDTC-B 0 gAPI 150	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	Minimum Flexural Attenuation (U-USIT_UF AN) USIT-E	Absent 0.750 1.750 2.750 3.750 Custom Normalizatio n USIT - Acoustic Impedance (AIBK) USIT-E (Mrayl)	Absent 42.000 66.000 90.000 114.000 Custom Normalizatio n USIT - Flexural Attenuation (UFAK) USIT-E (dB/m)	Absent 1.500 3.500 Explicit Normalizatio n USIT - Solid Liquid Gas Sorted Color Map (USLP) USIT-E
Amplitude of Eccentering (ECCE) USIT-E 0 in 0.5	0 Mrayl 15	0 Mrayl 15	0 Mrayl 15	0 Mrayl 15	0 Mrayl 15	0 Mrayl 15	0 Mrayl 7.5	40 dB/m 140		
	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	Maximum Flexural Attenuation (U-USIT_UF AX) USIT-E			
	0 Mrayl 15	0 Mrayl 15	0 Mrayl 15	0 Mrayl 15	0 Mrayl 15	0 Mrayl 15	0 Mrayl 7.5	40 dB/m 140		
	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	Average Flexural Attenuation (U-USIT_UF AV) USIT-E			
	0 Mrayl 15	0 Mrayl 15	0 Mrayl 15	0 Mrayl 15	0 Mrayl 15	0 Mrayl 15	0 Mrayl 7.5	40 dB/m 140		
	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						
	-7.5Mrayl 7.5	-7.5Mrayl 7.5	-7.5Mrayl 7.5	-7.5Mrayl 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						
	-7.5Mrayl 7.5	-7.5Mrayl 7.5	-7.5Mrayl 7.5	-7.5Mrayl 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						
	-7.5Mrayl 7.5	-7.5Mrayl 7.5	-7.5Mrayl 7.5	-7.5Mrayl 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: 04-Nov-2015 13:57:53

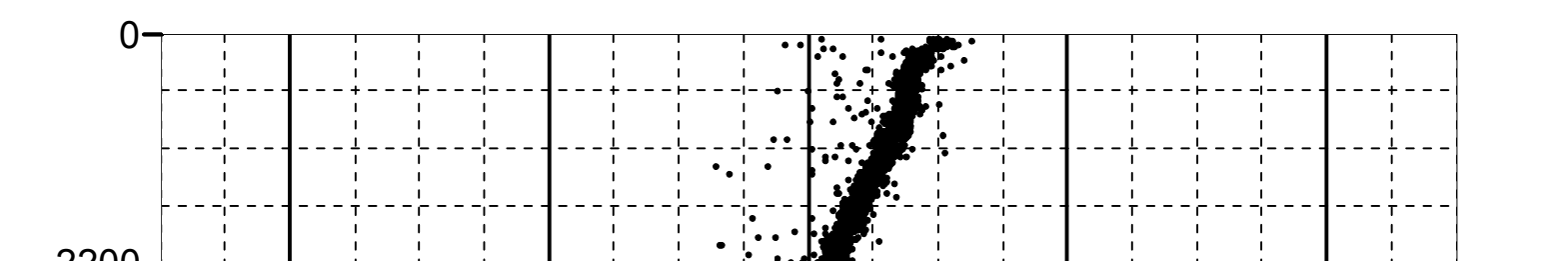
XYZ	Company:Noble Energy Inc Well:Wells Ranch AE32-685
	Run 1: Main[3]:Up:S007

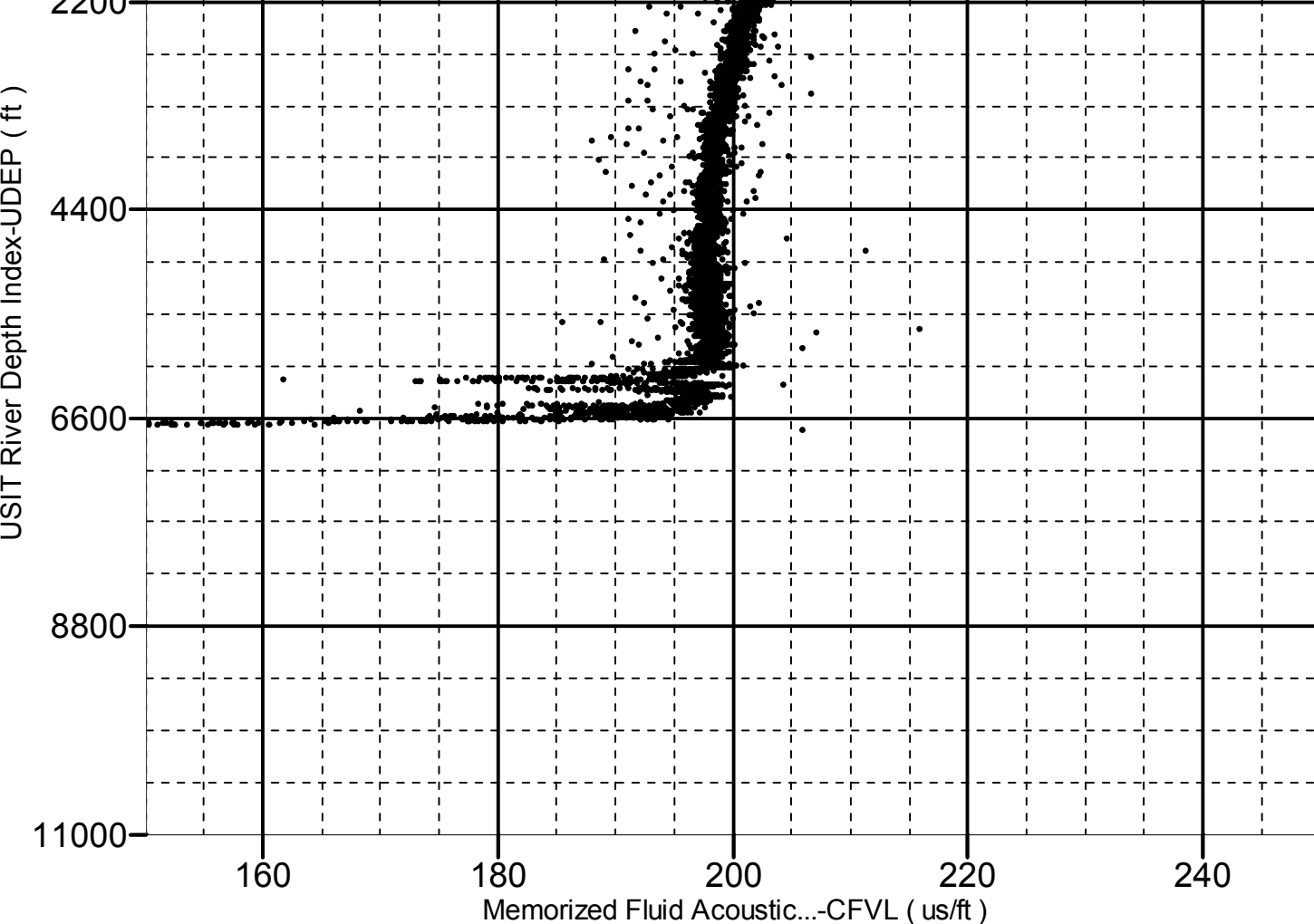
# Fluid Acoustic Slow ness vs Depth

## 2D Cross Plot

Index Range: From 6738.00 to 66.00 ft

● CFVL-UDEP





XYZ

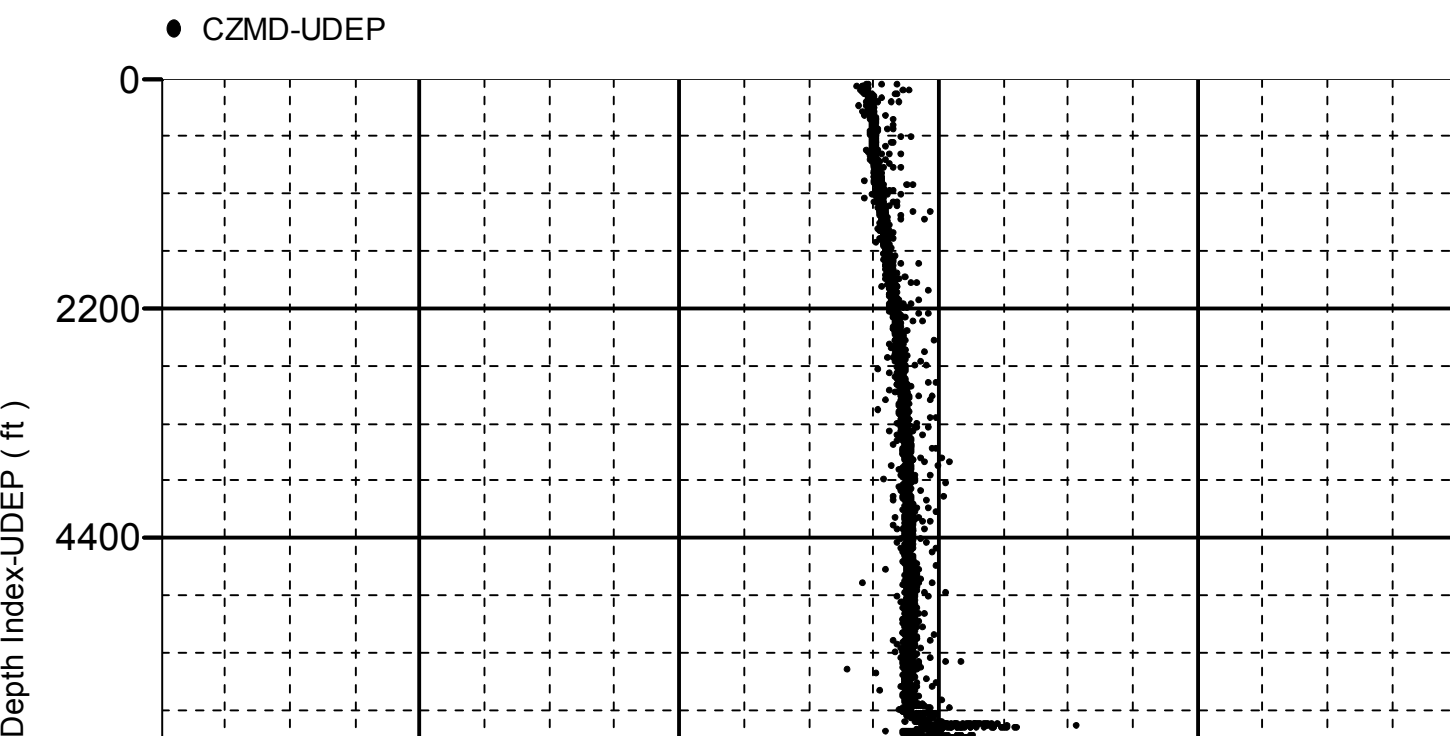
Company:Noble Energy Inc Well:Wells Ranch AE32-685

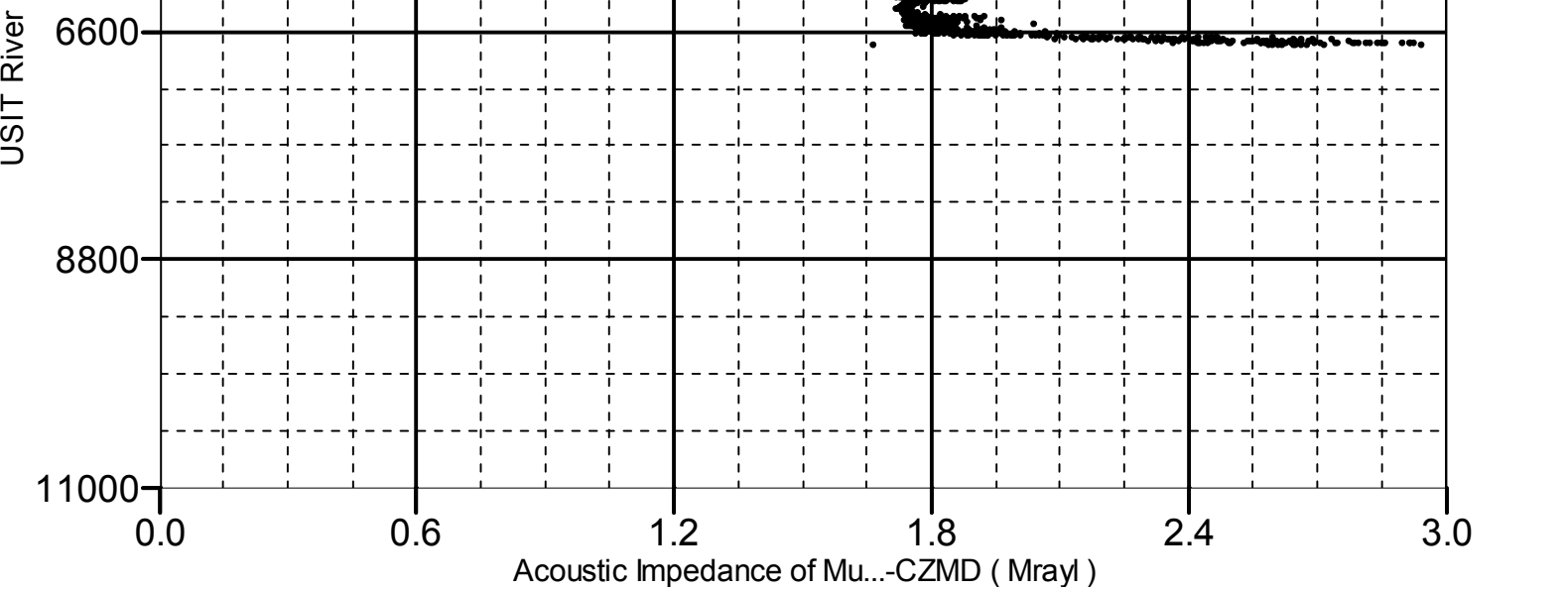
Run 1: Main[3]:Up:S007

# Acoustic Impedance of Mud vs Depth

2D Cross Plot

Index Range: From 6738.00 to 66.00 ft





Calibration Report							
EDTC-B (Enhanced Digital Telemetry Cartridge - Version B) Calibration - Run 1							
Primary Equipment :							
EDTC-B				EDTC-B			
Calibration Parameter :							
Plus Reference (Jig minus background reference)				160			
EDTC-B Accelerometer Calibration - EDTC-B Accelerometer Calibration							
Before (Measured): 16:40:49 03-Nov-2015							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div></div>
AZ Vertical Measurement	ft/s2	Before	32.19	31.53	32.10	32.84	<div><div></div><div></div><div></div><div></div></div>
EDTC-B Memory Data - EDTC-B Memory Data							
Master (EEPROM): 10:40:45 04-Nov-2015							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div></div>
Initial PMT HV	V	Master			1482.000		<div><div></div><div></div></div>
Accelerometer Serial Number		Master			696		<div><div></div><div></div></div>
Accelerometer Coefficients - 0		Master	-----	-----	2.987	-----	<div><div></div><div></div></div>
Accelerometer Coefficients - 1		Master	-----	-----	0.000	-----	<div><div></div><div></div></div>
Accelerometer Coefficients - 2		Master	-----	-----	0.000	-----	<div><div></div><div></div></div>
Accelerometer Coefficients - 3		Master	-----	-----	0.000	-----	<div><div></div><div></div></div>
Accelerometer Coefficients - 4		Master	-----	-----	0.000	-----	<div><div></div><div></div></div>
Accelerometer Coefficients - 5		Master	-----	-----	0.000	-----	<div><div></div><div></div></div>
Accelerometer Coefficients - 6		Master	-----	-----	0.000	-----	<div><div></div><div></div></div>
Accelerometer Coefficients - 7		Master	-----	-----	-0.007	-----	<div><div></div><div></div></div>
Accelerometer Coefficients - 8		Master	-----	-----	0.000	-----	<div><div></div><div></div></div>
Accelerometer Coefficients - 9		Master	-----	-----	0.000	-----	<div><div></div><div></div></div>
Accelerometer Coefficients - 10		Master	-----	-----	0.000	-----	<div><div></div><div></div></div>
Accelerometer Coefficients - 11		Master	-----	-----	0.000	-----	<div><div></div><div></div></div>
Gamma-Ray Detector Serial Number		Master			7792		<div><div></div><div></div></div>
EDTC-B Gamma-Ray Calibration - Gamma Ray Coefficients							
Before (Measured): 20:41:14 01-Nov-2015							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div></div>
Gamma Ray Gain		Before	1.000	0.900	1.066	1.100	<div><div></div><div></div><div></div><div></div></div>
EDTC-B Gamma-Ray Calibration - Gamma Ray Accumulations							
Before (Measured): 20:41:14 01-Nov-2015							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	<div><div></div><div></div></div>
RGR Zero Measurement	gAPI	Before		0	70.943	120.000	<div><div></div><div></div><div></div><div></div></div>
RGR Plus Measurement	gAPI	Before	160.000	145.000	150.150	175.000	<div><div></div><div></div><div></div><div></div></div>



Well: Wells Ranch AE32-685  
Field: Wattenberg  
County: Weld  
State: Colorado

Isolation Scanner

Cement Evaluation (Short)

Gamma Ray - CCL Log