

HALLIBURTON

CIRCUMFERENTIAL  
ACOUSTIC  
SCANNING TOOL

CEMENT INSPECTION

Company EAST CHEYENNE GAS  
Well ECGS 6-18 WP-D011-2  
Field WEST PEETZ  
County LOGAN State CO

Company EAST CHEYENNE GAS STORAGE, LLC  
Well ECGS 6-18 WP-D011-2  
Field WEST PEETZ  
County LOGAN State CO

API No.: 05-075-09406-00  
Location: SURFACE HOLE LOCATION:  
2320' FSL & 1566' FEL NWSE

Other Services  
GAUGE RING  
JUNK BASKET  
ACX  
RMTI  
PRT #2  
PLUG SET

Sec: 6 Twp:11N Rge: 52W

Permanent Datum  
Log Measured From  
Drilling Measured From

G.L.  
K.B. ,  
K.B.

Elevation  
14 Ft. above perm. datum

4550 ft

Elevation  
K.B. 4,564 ft  
D.F. 4,564 ft  
G.L. 4,550 ft

Date @ Time Logged  
Run No.  
Depth - Driller  
Depth - Logger  
Bottom - Logged Interval  
Top - Log Interval  
Max. Recorded Temp.

22-MAR 2016 @ 21:40  
ONE  
5,265 ft  
5,202 ft  
5,082 ft  
200 ft  
158 degF

Type Fluid in Hole  
Density of Fluid  
Fluid Level  
Cement Top Est. Logged  
Equipment / Location  
Recorded by  
Witnessed by

WBM  
8.5 ppg  
FULL  
LOGGED  
11875120 / FT. LUPTON  
DIMPFL/SCHMIDT  
G. FRANCIS/G. OHLMAN

CEMENTING DATA  
Date / Time Cemented  
Primary / Squeeze  
Expected  
Compressive Strength  
Cement Volume  
Cement Type / Weight  
Formulation  
Mud Type / Mud Wgt.

String  
String  
String  
String  
String  
String  
String  
String  
String  
String

Protection  
String  
String  
String  
String  
String  
String  
String  
String  
String

Liner

Borehole Record  
Run Number  
Bit  
From  
To  
Size  
9.625 in  
7.00 in

Casing & Tubing Record  
Weight  
36 lb/ft  
26 lb/ft

From  
SURFACE  
SURFACE

To  
1,203 ft  
5,264 ft

<<< Fold Here >>>

HALLIBURTON DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF THE LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS OR RECOMMENDATIONS WHICH MAY BE GIVEN BY HALLIBURTON PERSONNEL OR WHICH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR RECOMMENDATIONS AGREES THAT HALLIBURTON IS NOT RESPONSIBLE EXCEPT WHERE DUE TO GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, FOR ANY LOSS, DAMAGES, OR EXPENSES RESULTING FROM THE USE THEREOF.

Comments

1. LOG CORRELATED TO J-W WIRELINE CEMENT BOND LOG DATED OCTOBER 9, 2012

2. CAST CONFIG: 4 3/8" HEAD, BROWN 350KHz TRANSDUCER, CIM, 72 SHOTS, 12SPF

3. LOGGING INTERVALS PER CUSTOMER REQUEST

4. SLICE AT 5011

HALLIBURTON CREW: J. WILKERSON, C. BUCANEK

\*\*\*THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES, FT. LUPTON, CO\*\*\*

Service Ticket No. 903183196

API No. 05-075-09406-0000

PGM Ver WARRIOR 8

The Well Name, Location, Borehole Description, and / or Cementing Data Furnished by Client

EQUIPMENT DATA

TELEMETRY

CAST

Run No. ONE

Run No. ONE

Run No.

Run No.

Serial No. 10010734

Serial No. 11523900

Serial No.

Serial No.

Model No. TTTC-U-002

Model No. CAST-M

Model No.

Model No.

Diameter 1.688"

Diameter 2.125"

Diameter

Diameter

LOGGING DATA

General Data

Pass

Depths

Well Head

Speed

Logging Run Comments

No

From

To

Pressure

Ft/Min



ONE	PLUG	SURFACE	0 PSI	15 FPM	MAIN LOG SECTION			
	GAMMA RAY		IR		THICKNESS		IMPEDANCE	
Pass	Scale		Scale		Scale		Scale	
No.	L	R	L	R	L	R	L	L
	0 API	150 API	2.6	3.6	0.26	0.46	0	6.15
DIRECTIONAL INFORMATION								
Maximum Deviation			deg. @		KOP			

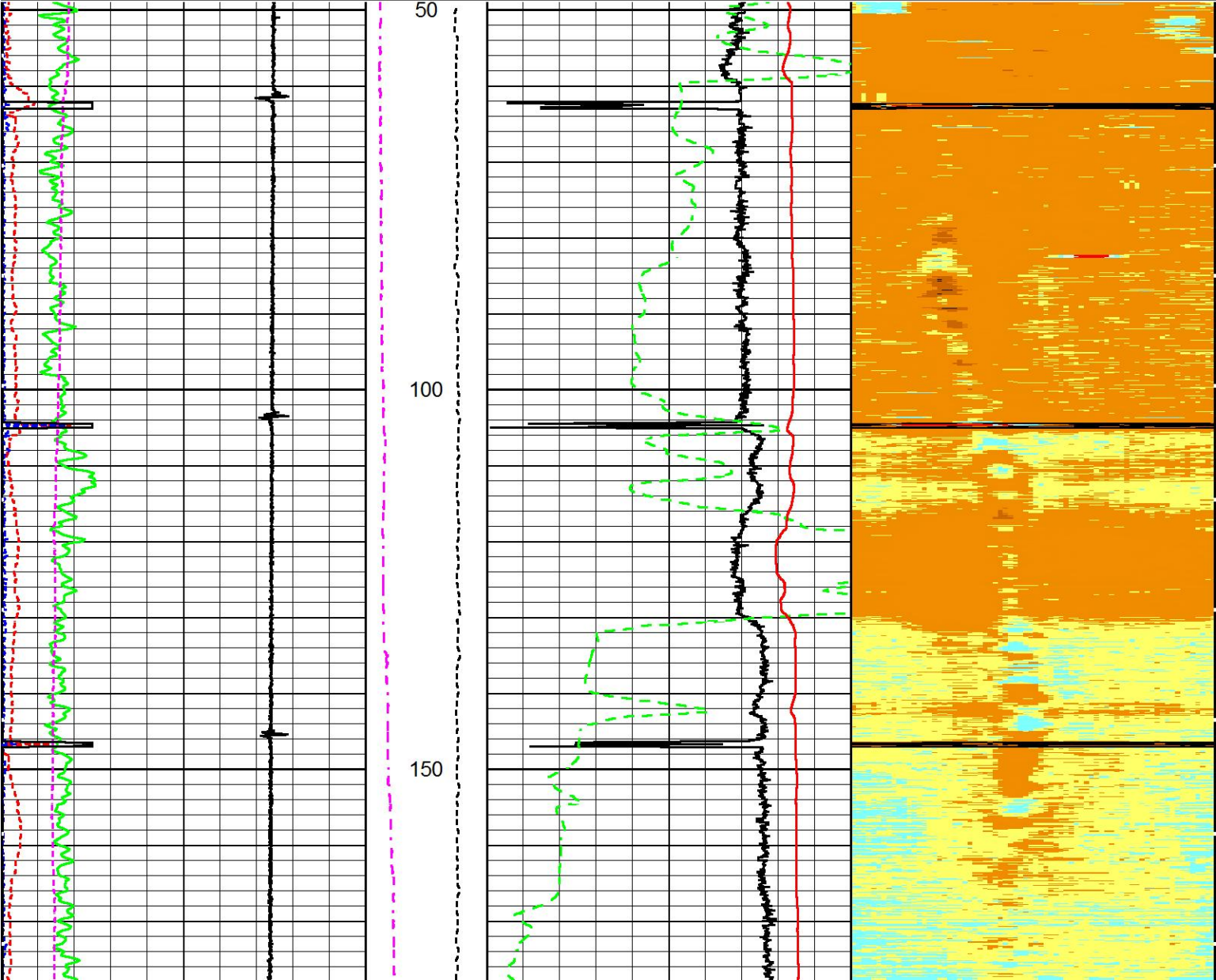
HALLIBURTON

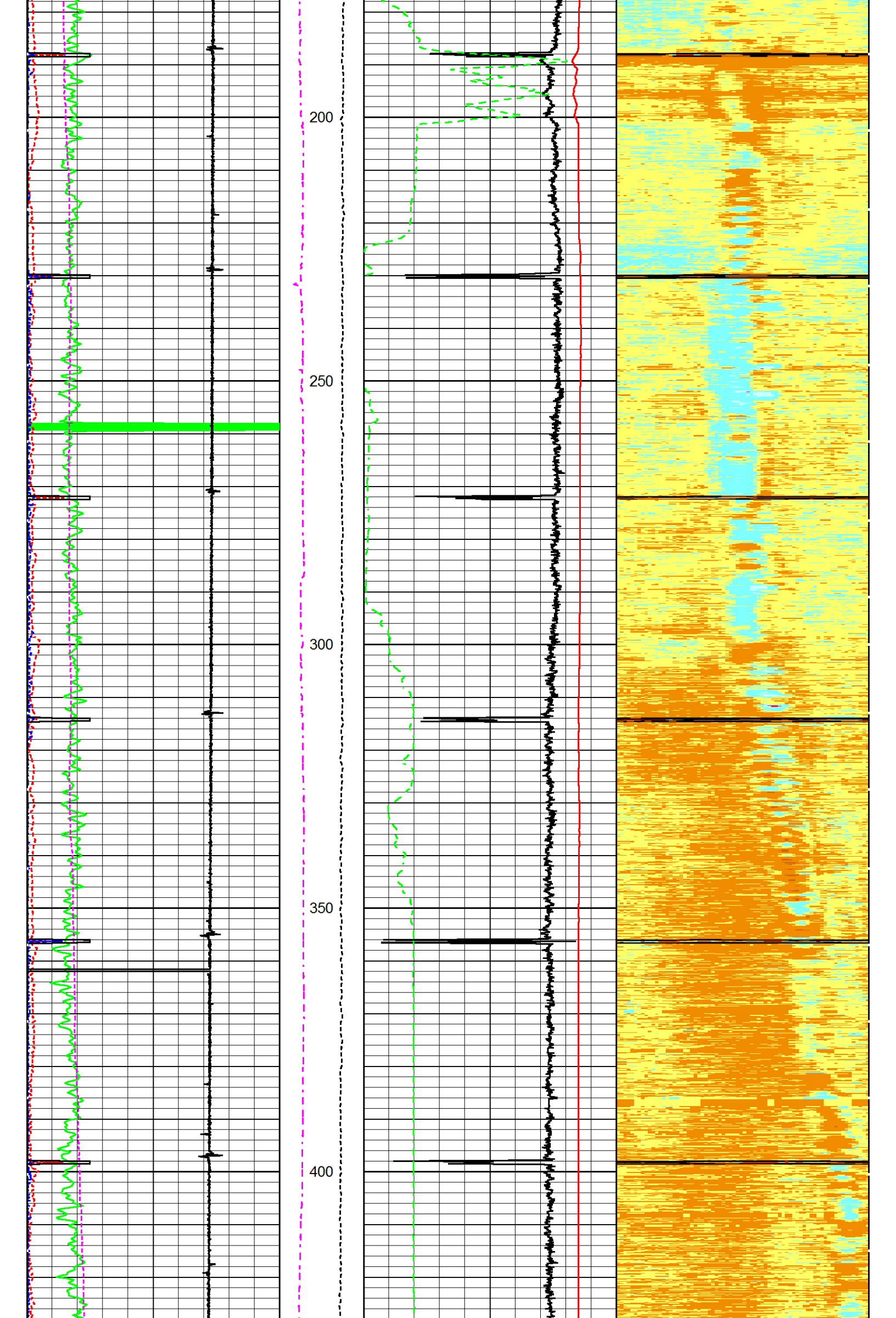
MAIN PASS

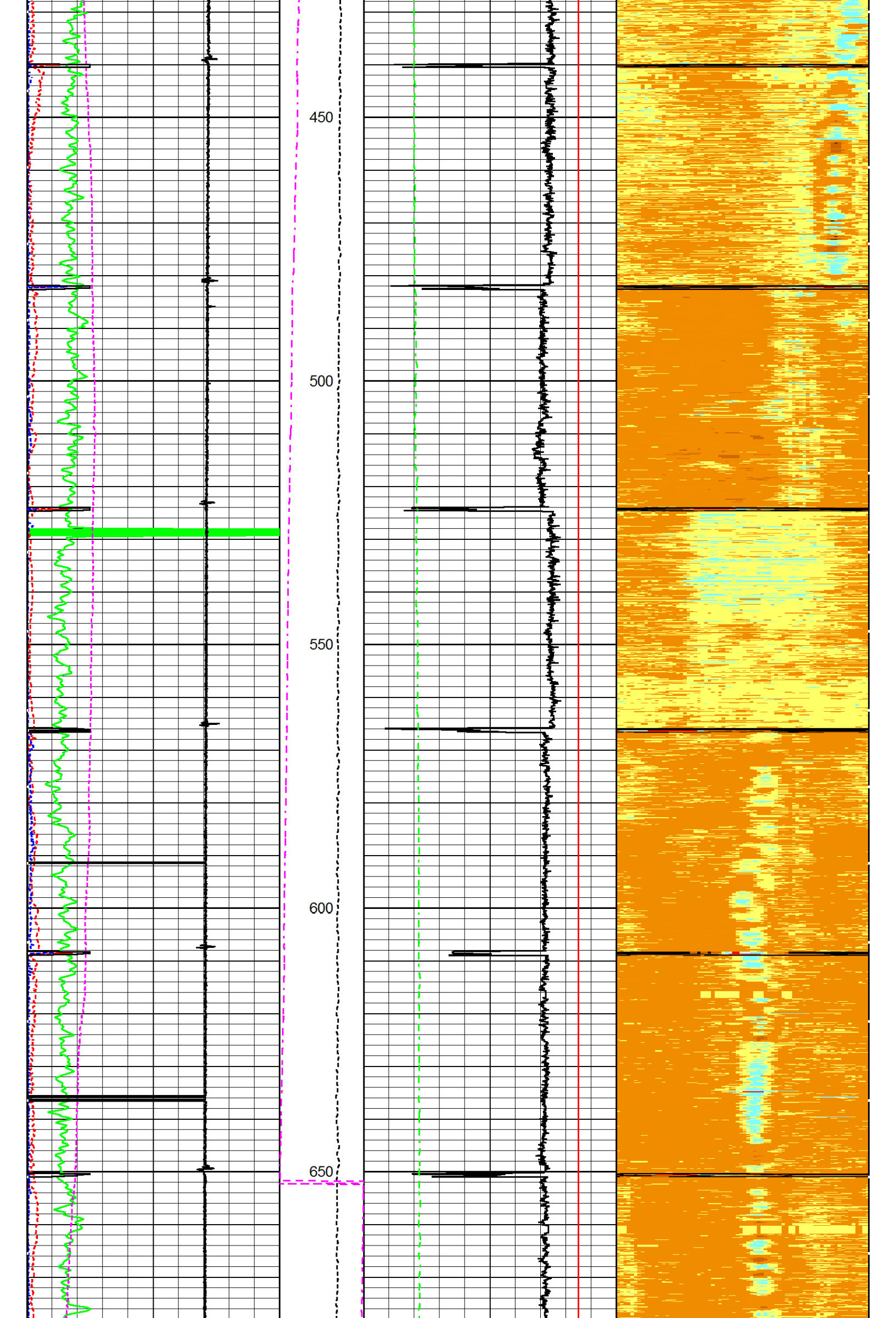
5" = 100'

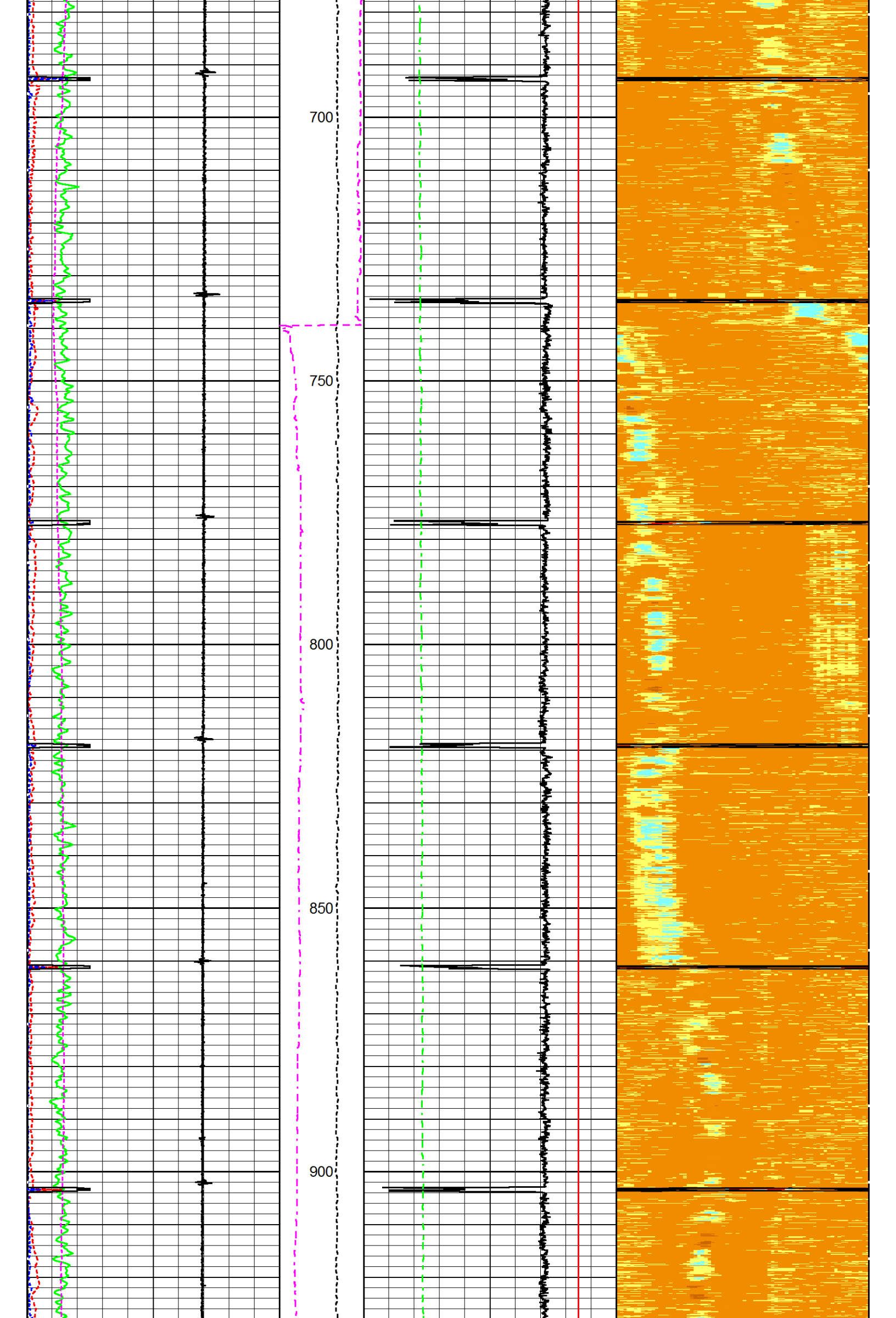
Database File egcs\_6\_18\_wp\_d011\_2\_cast.db  
Dataset Pathname MAIN\_FINAL  
Presentation Format 1CIM~1  
Dataset Creation Fri Mar 25 11:00:23 2016  
Charted by Depth in Feet scaled 1:240

0	GR (GAPI)	200	LTEN	10	zc_av (MRayl)	0	0	Impedance	360
0	ecen (in)	1	1000lb	0	220	Fluid Travel Time (usec/ft)	170	0	6.15
0	oval (in)	0.25	Rel Bearing	10	Z Mud (MRayl)	0			
-1	Instant Deviation (deg)	9	(deg)						
0	accl	4	-1	359					
17750	CCL	18350							

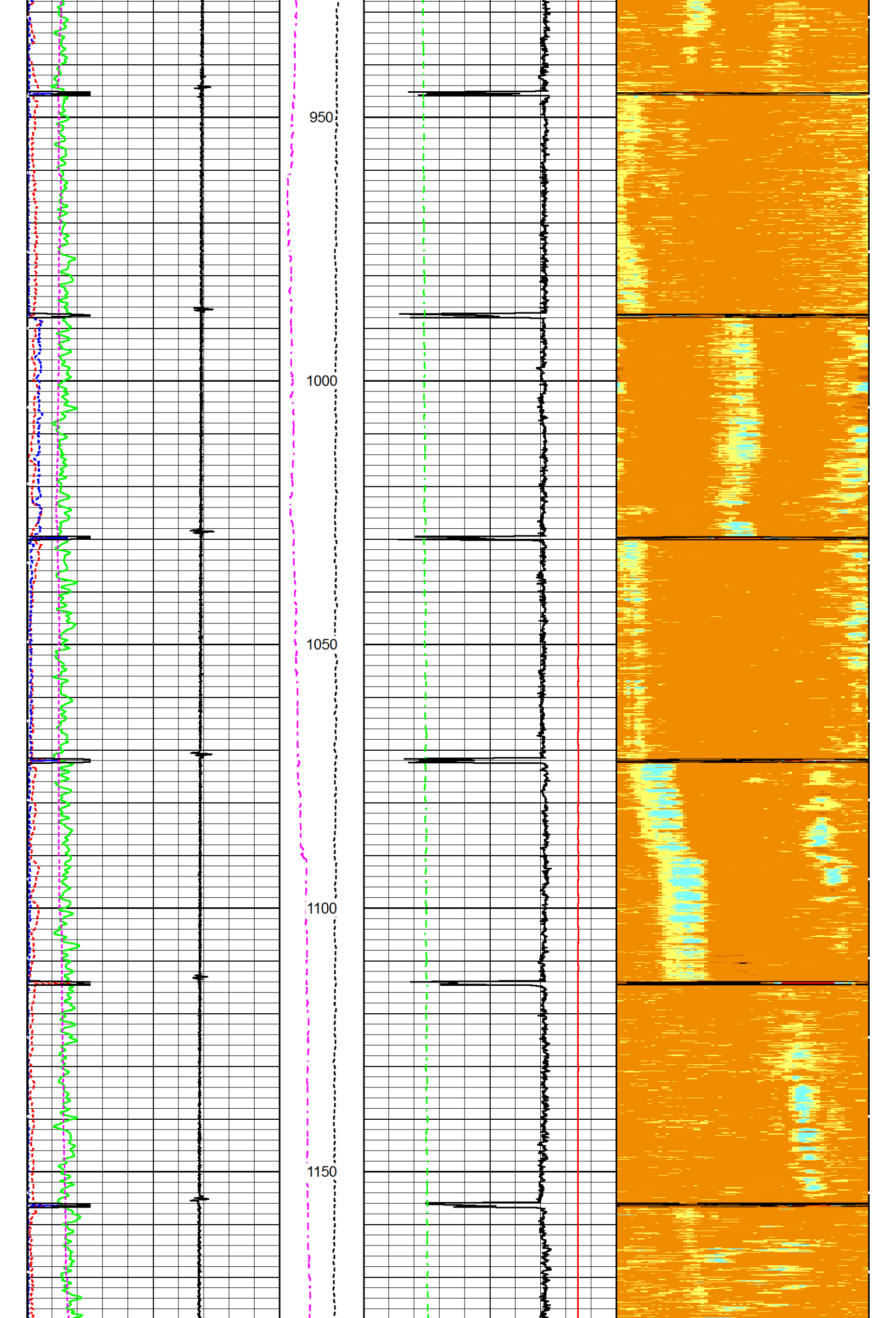


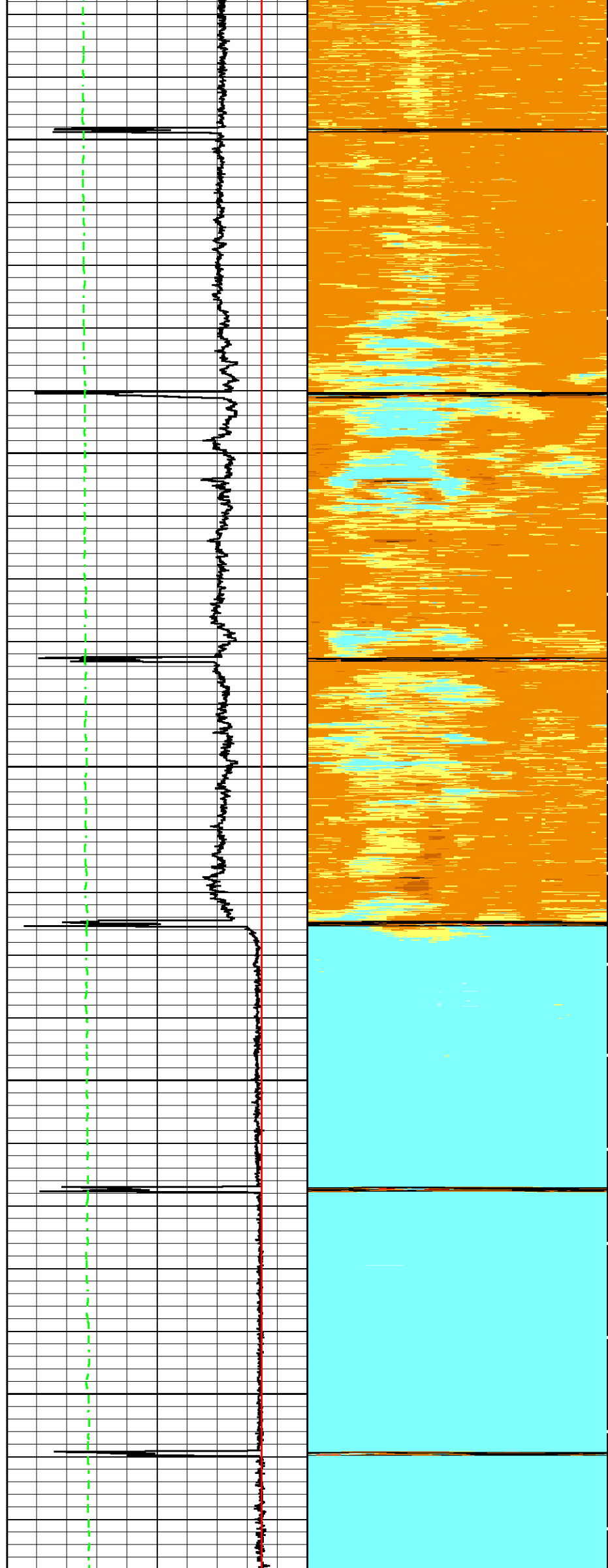
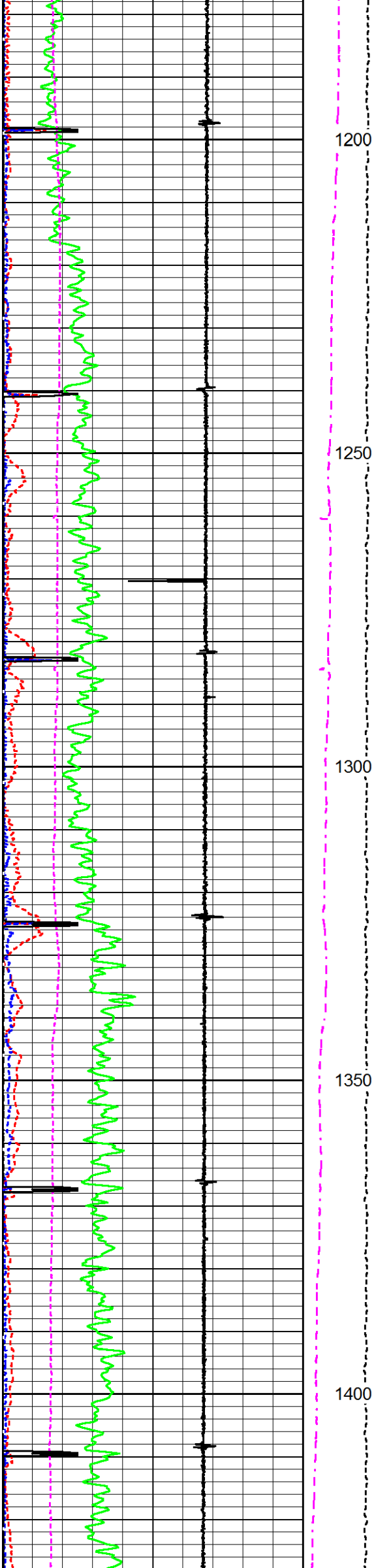


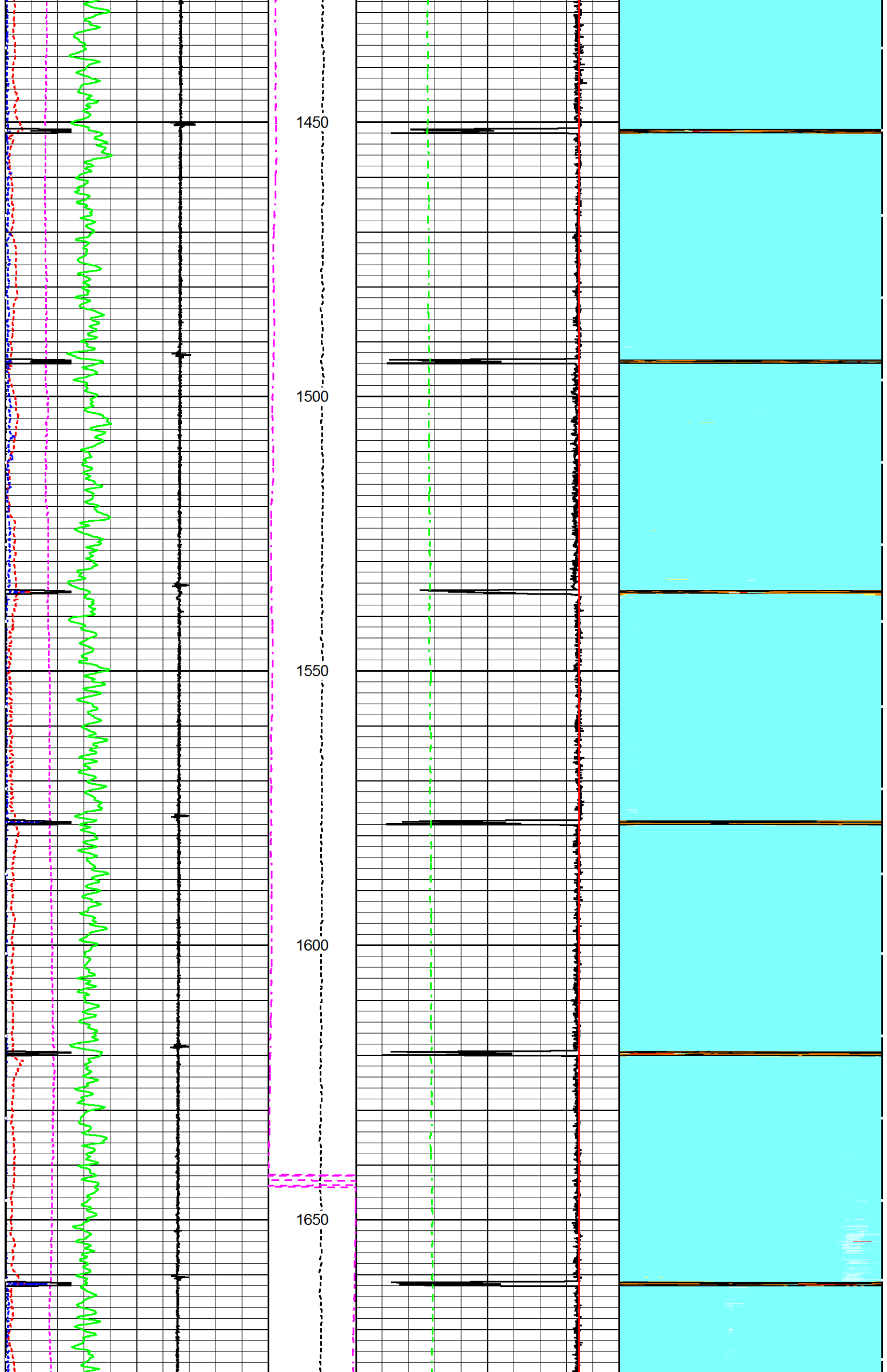




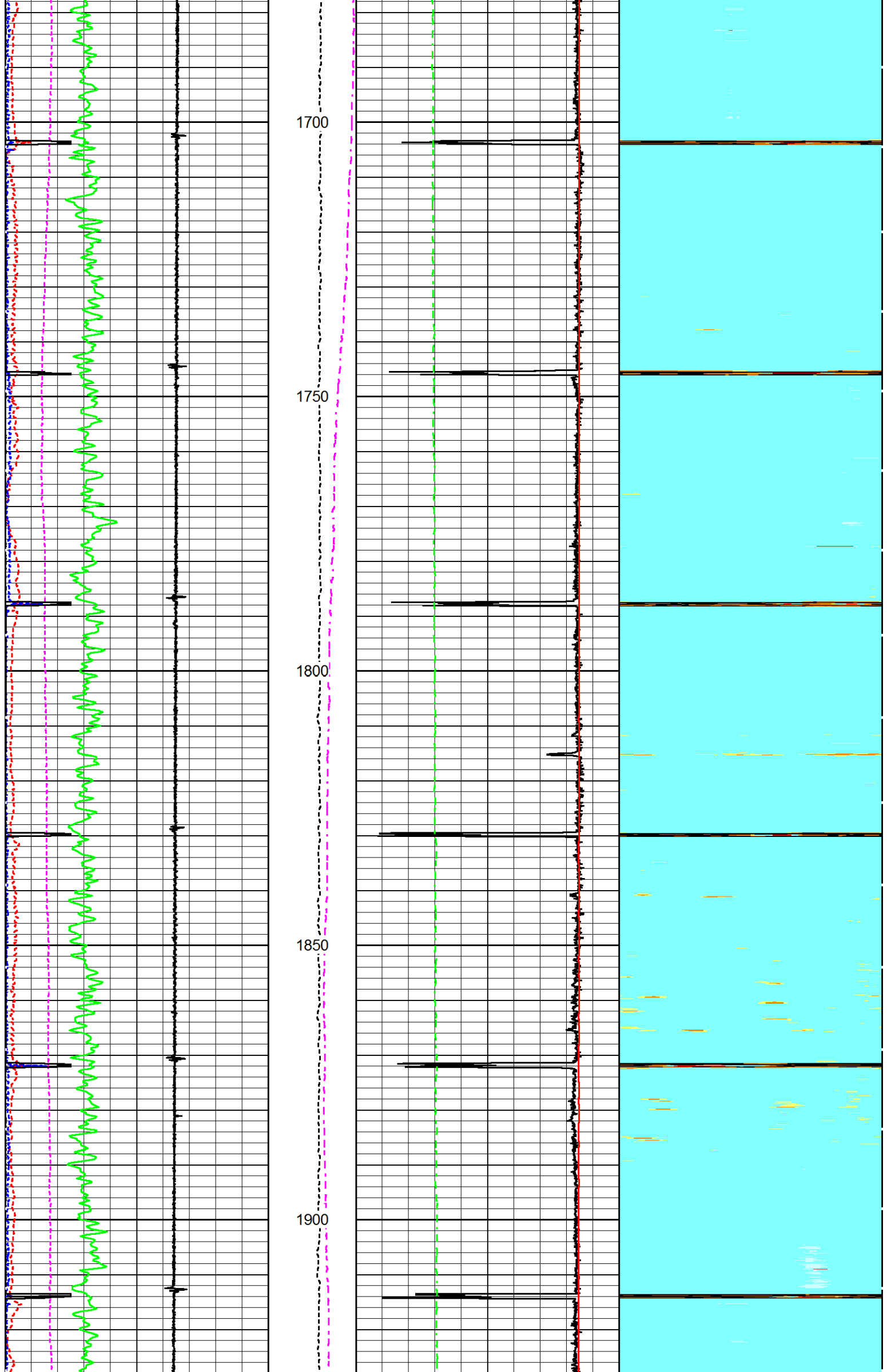


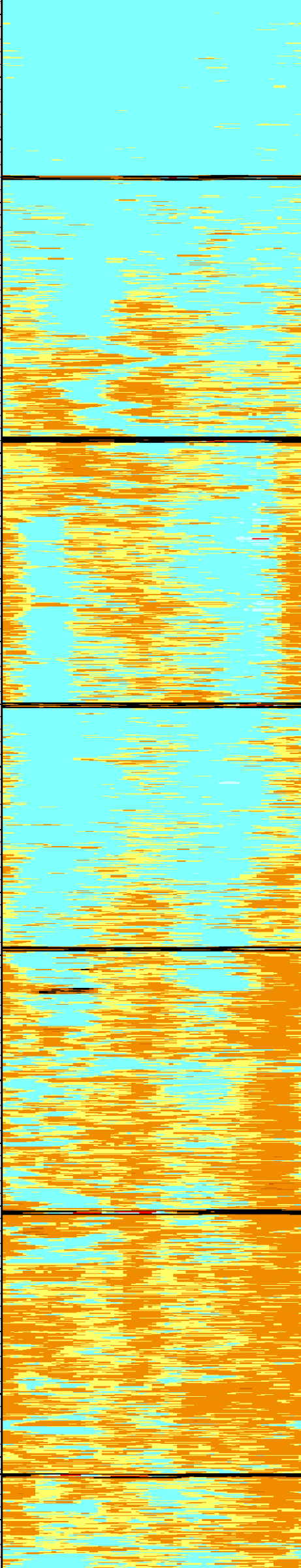
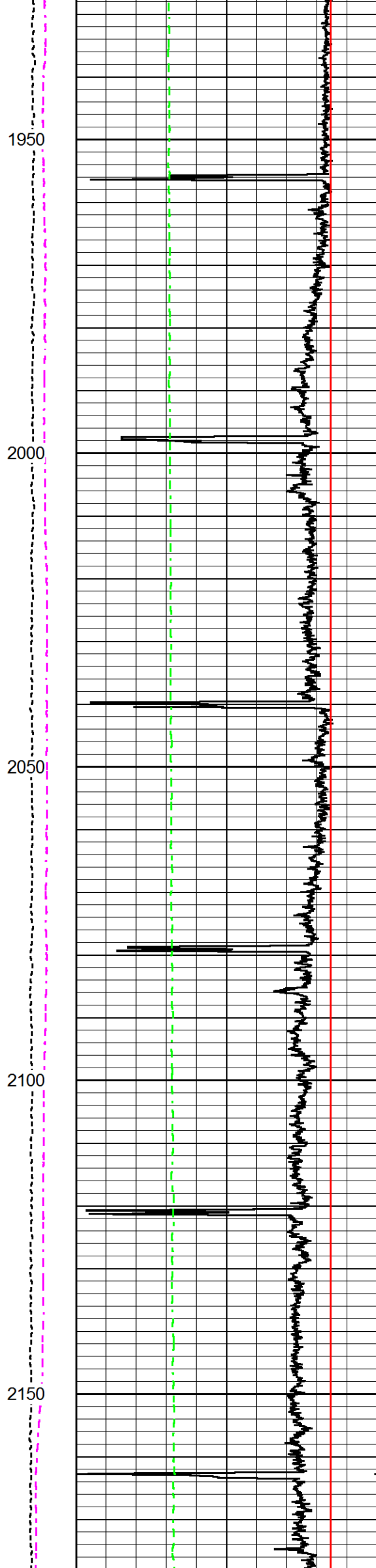
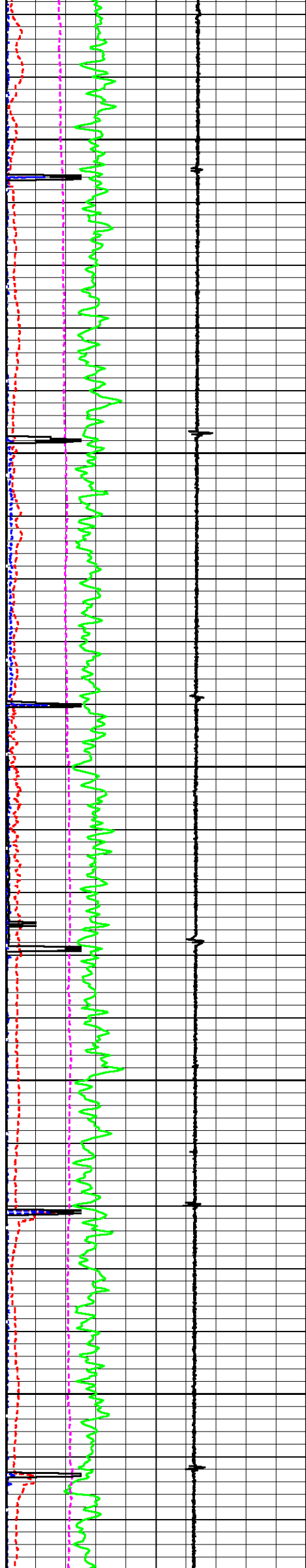


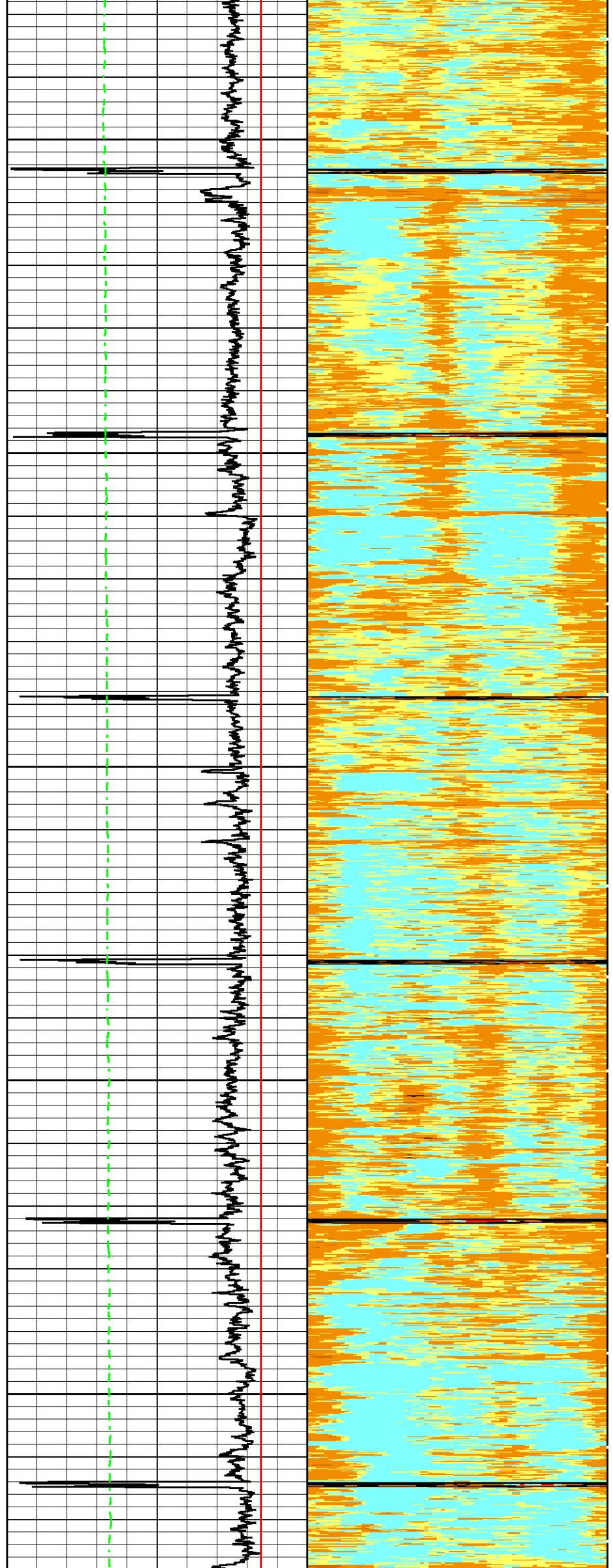
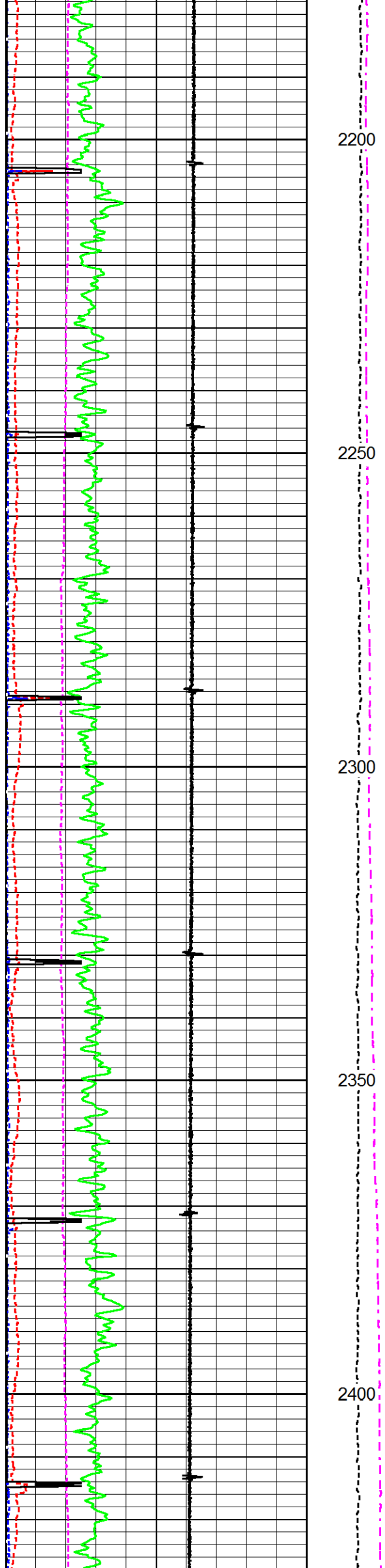


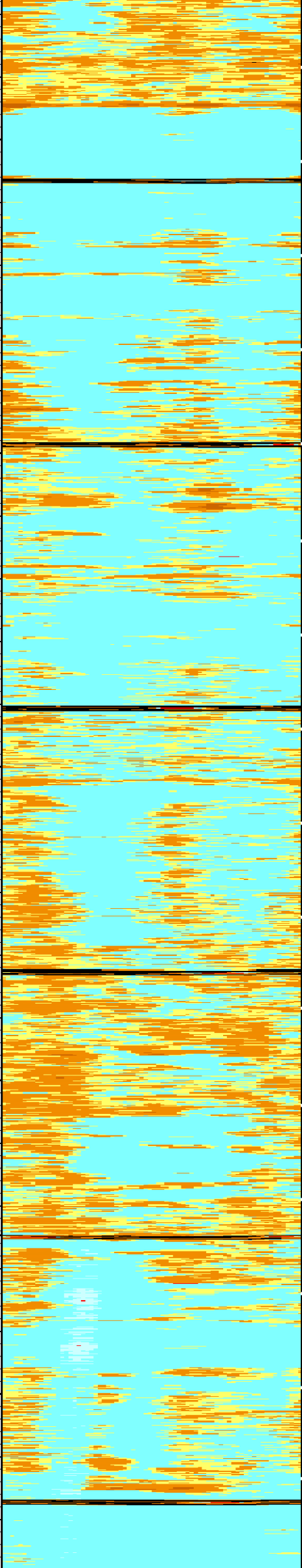
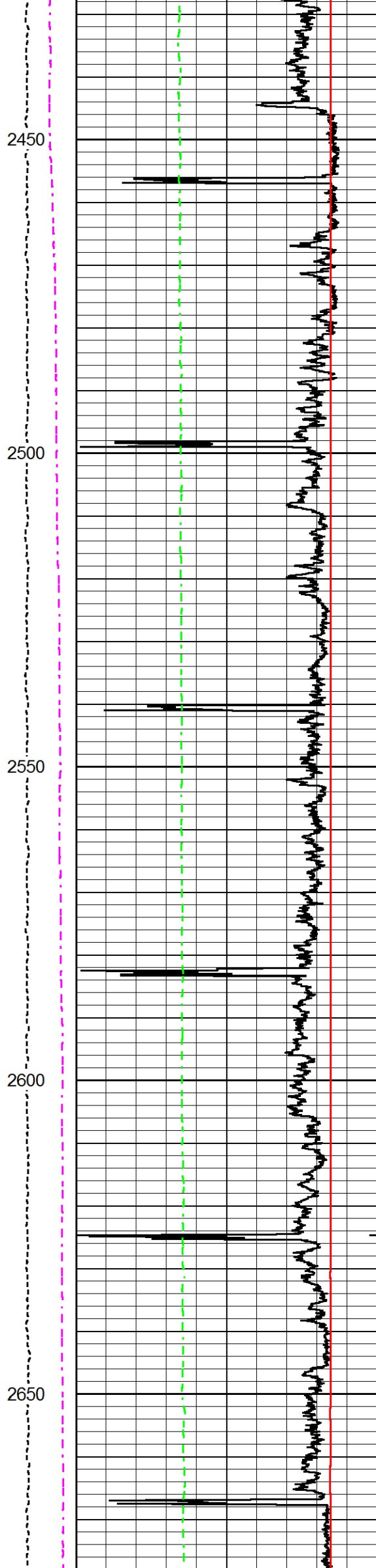
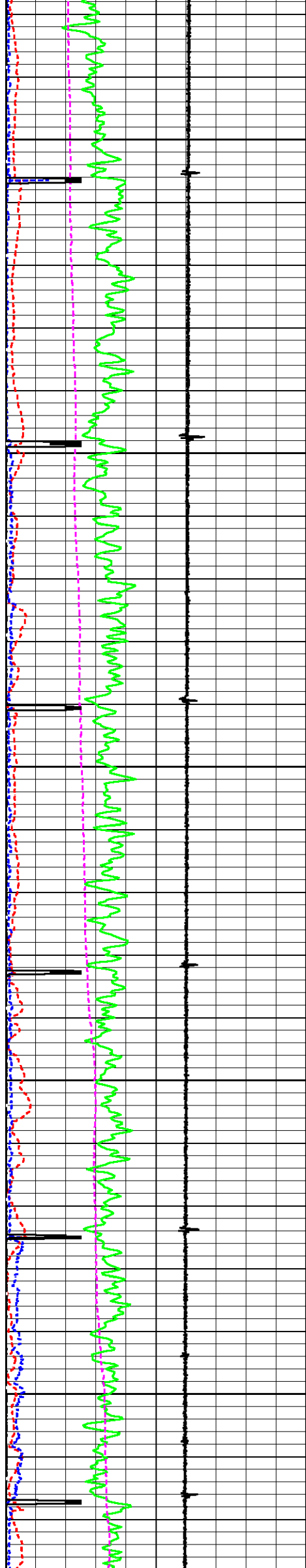




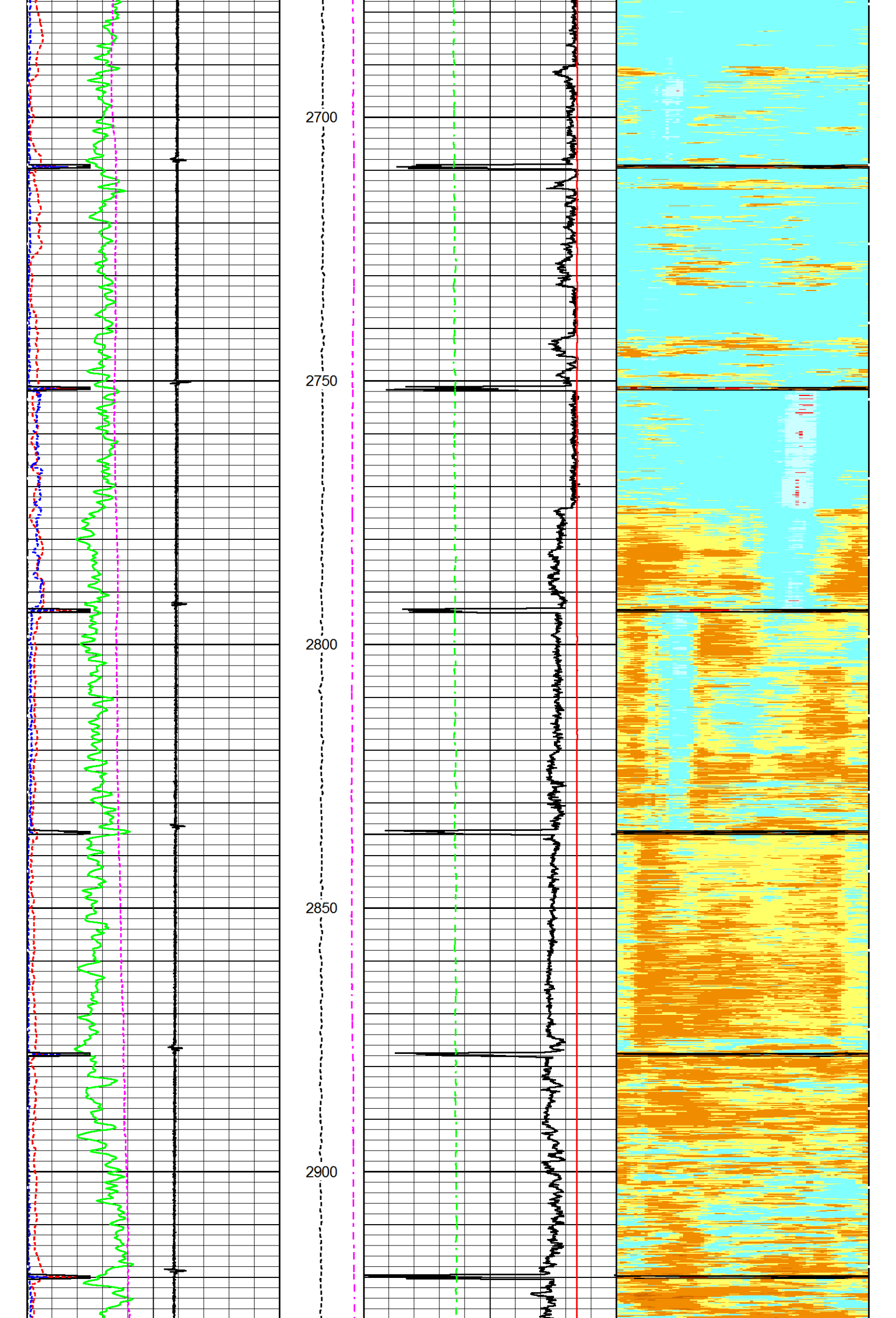


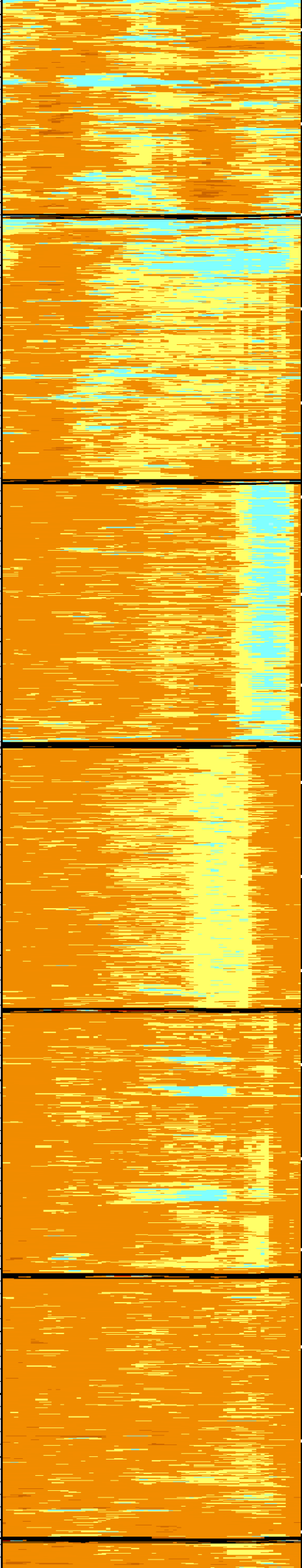
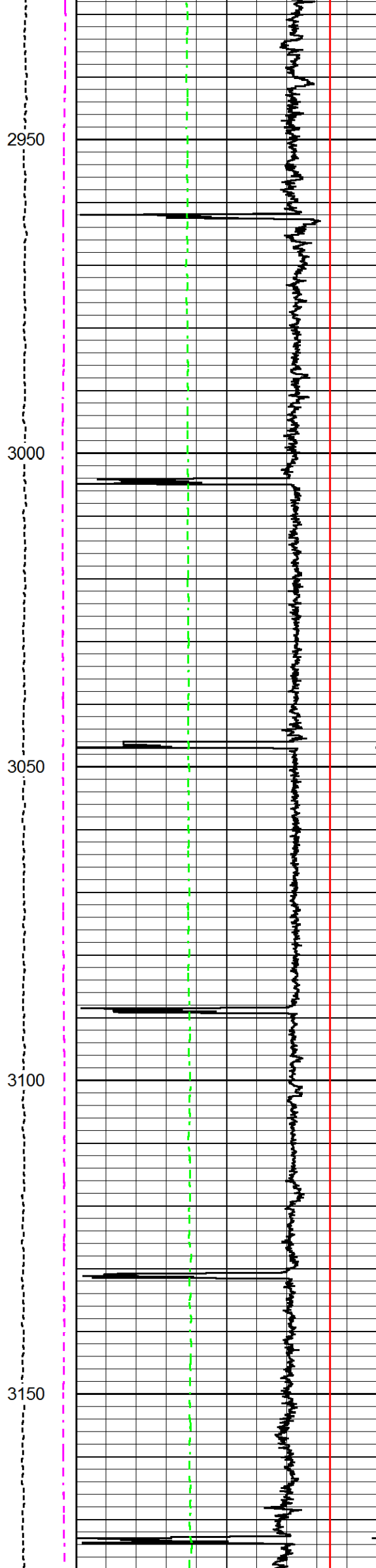
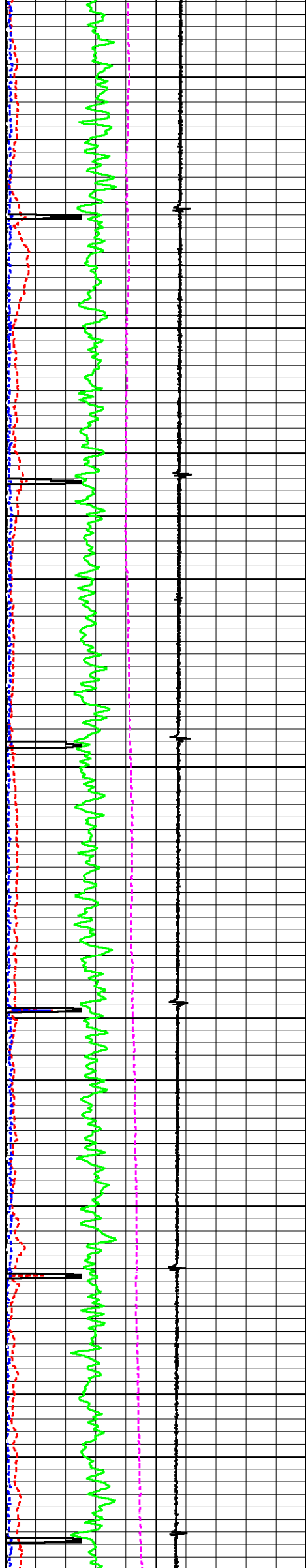


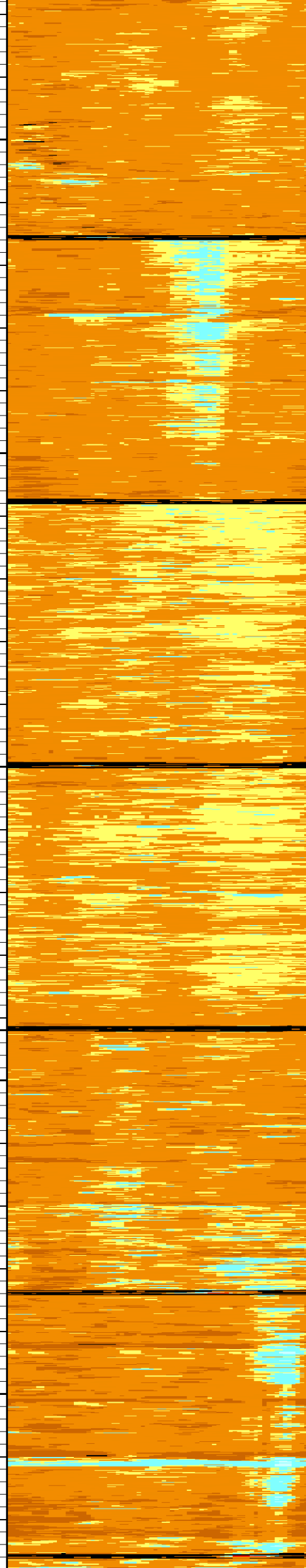
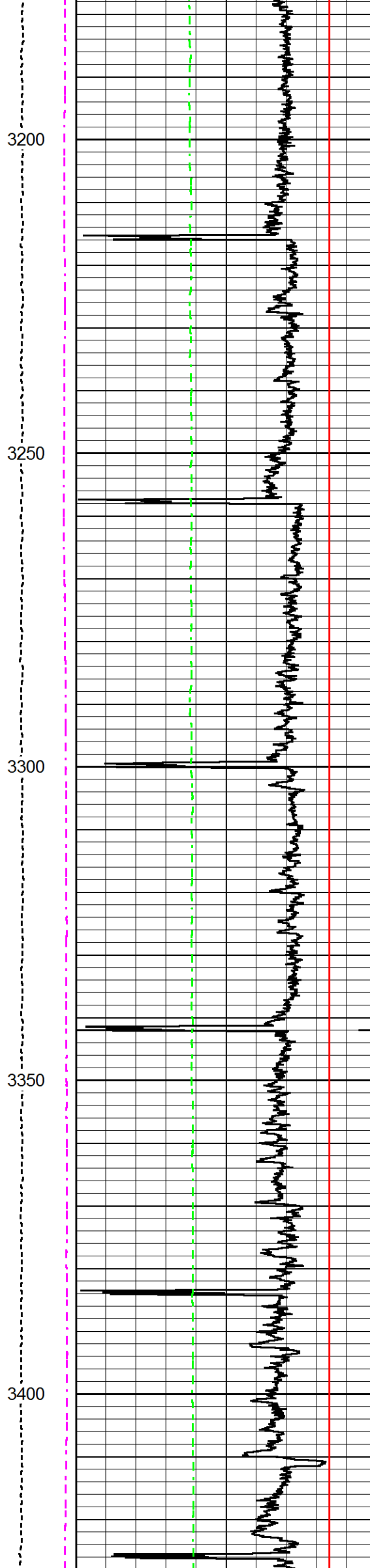
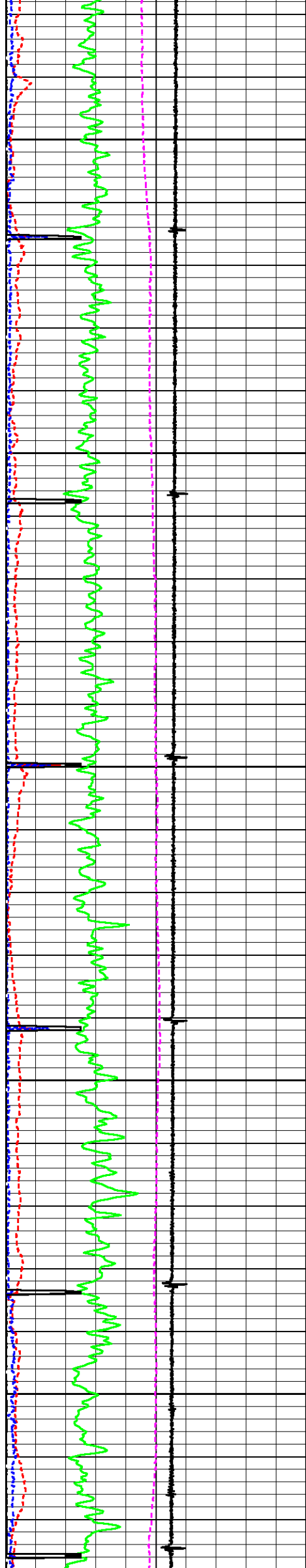


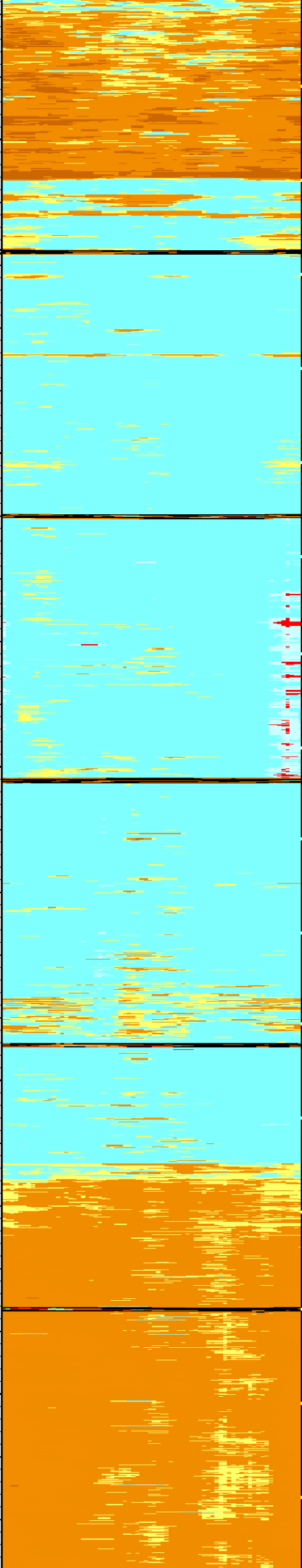
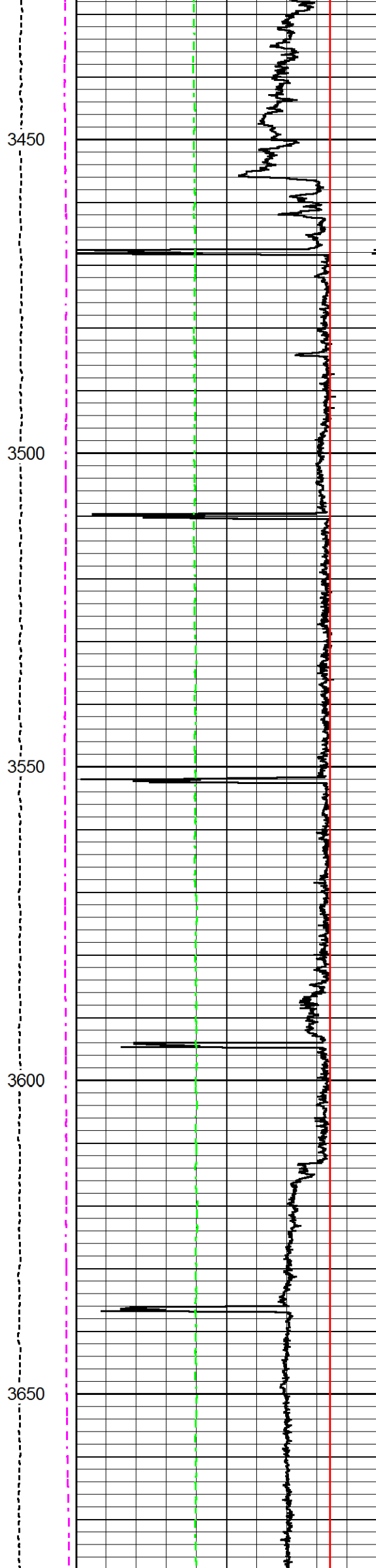
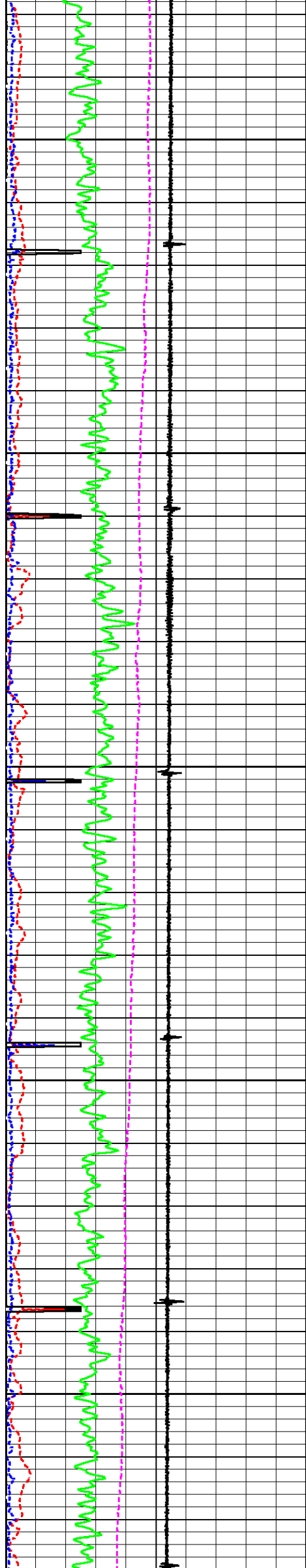




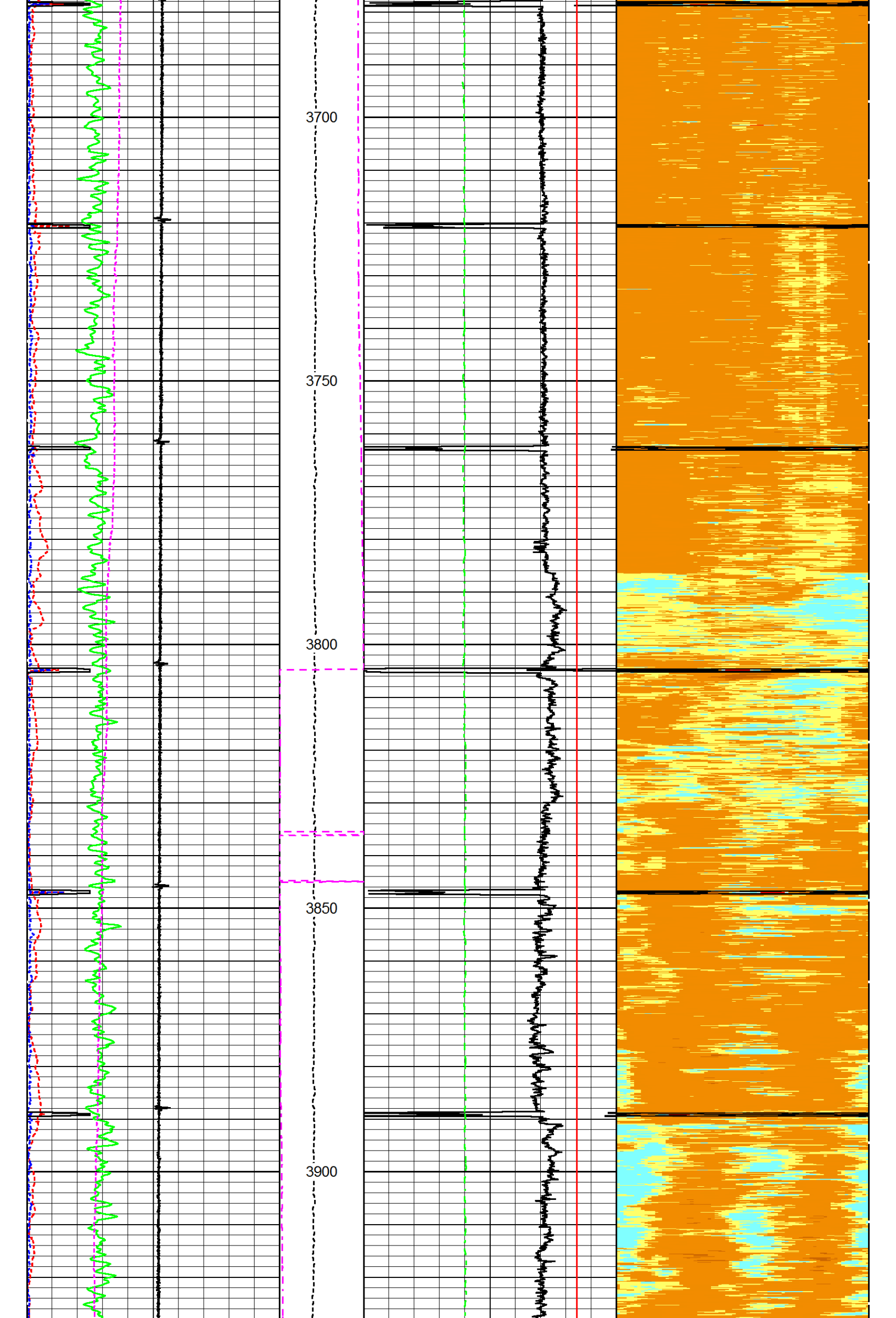


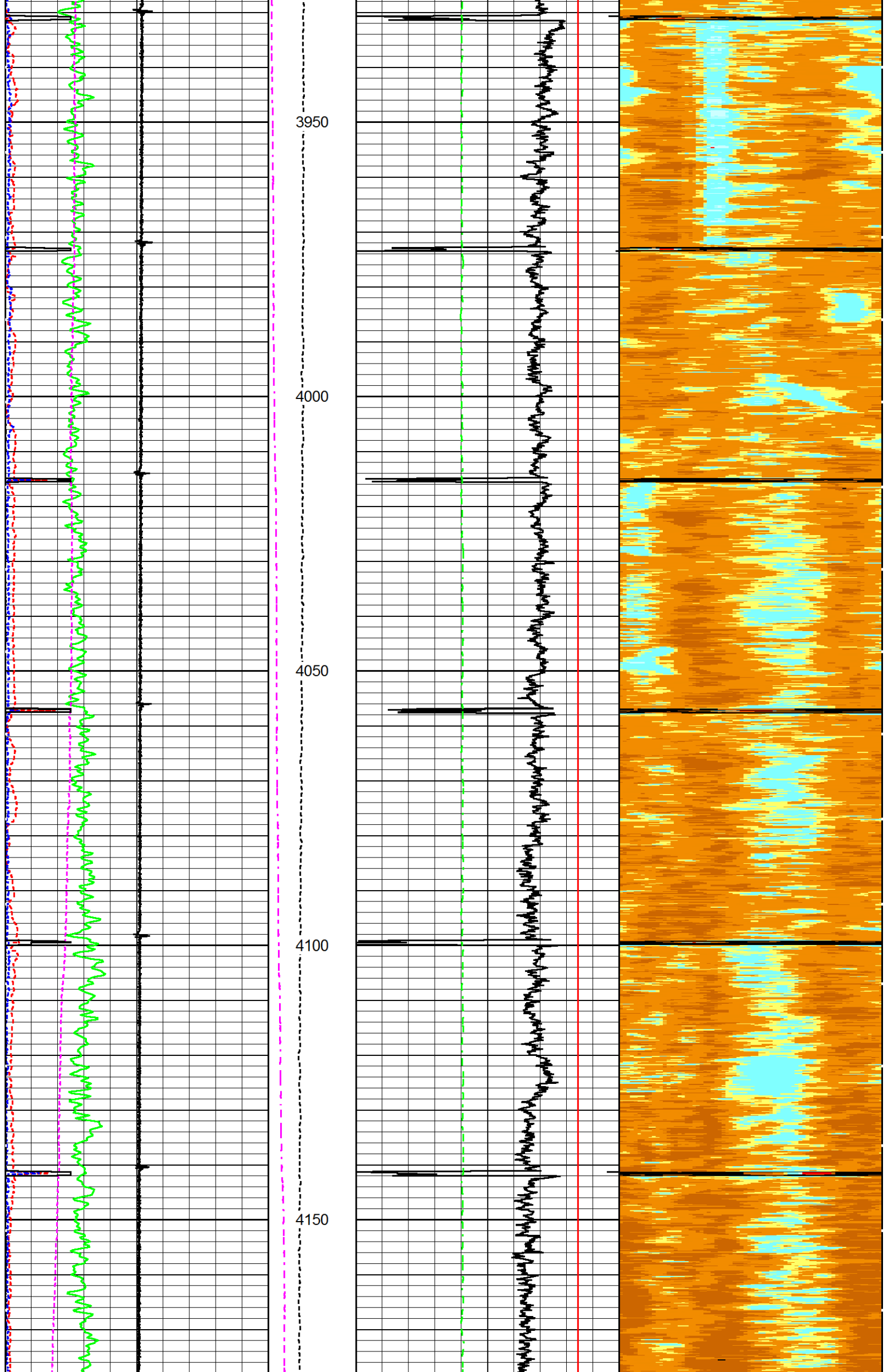


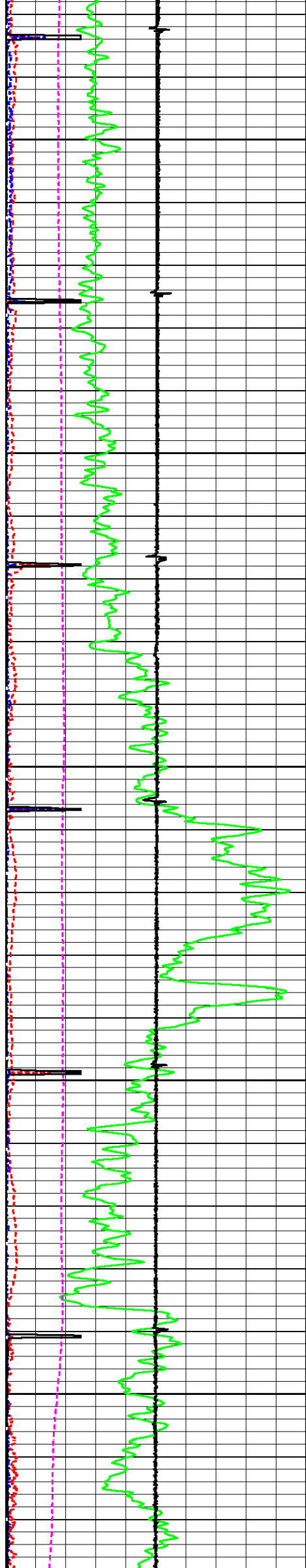












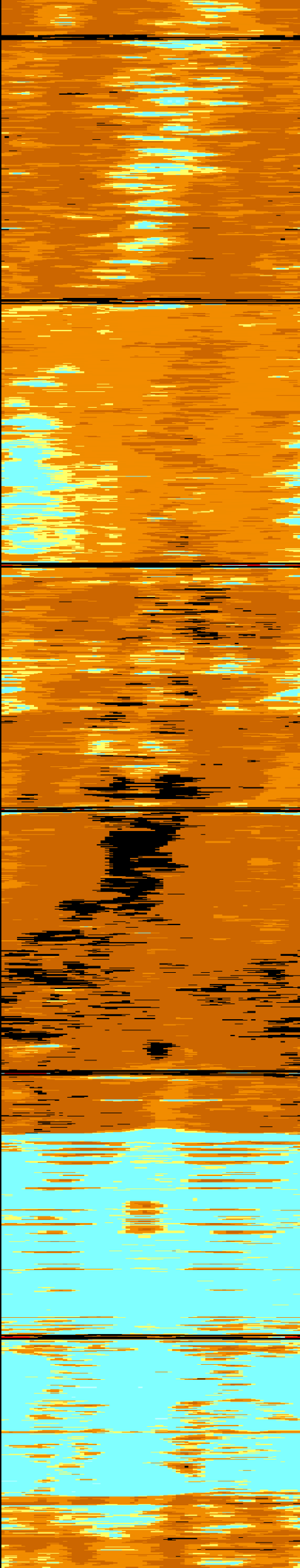
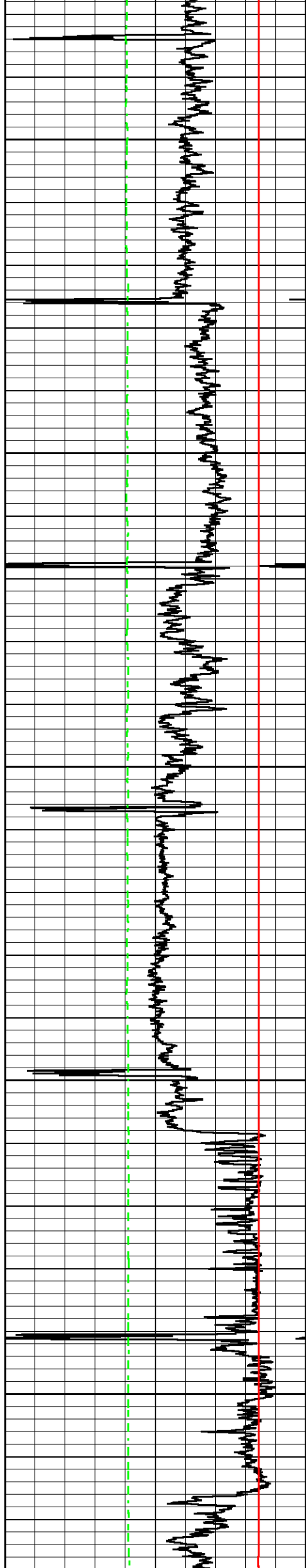
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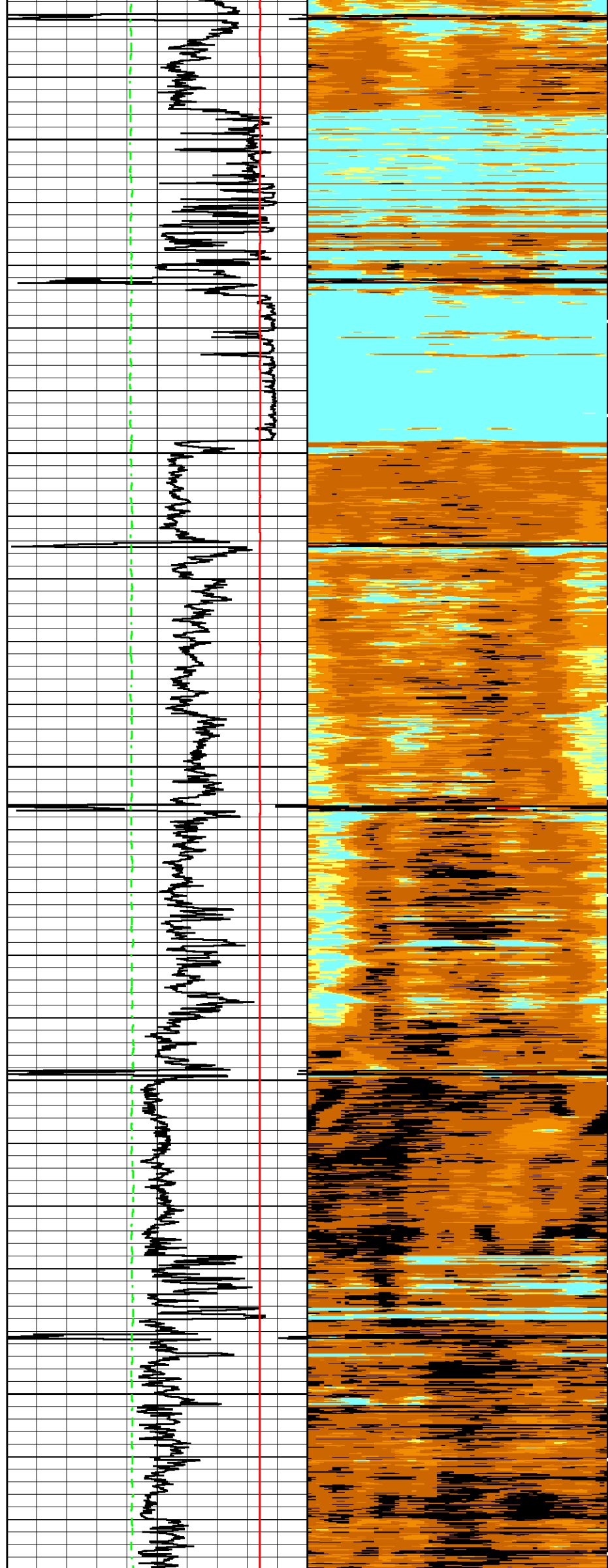
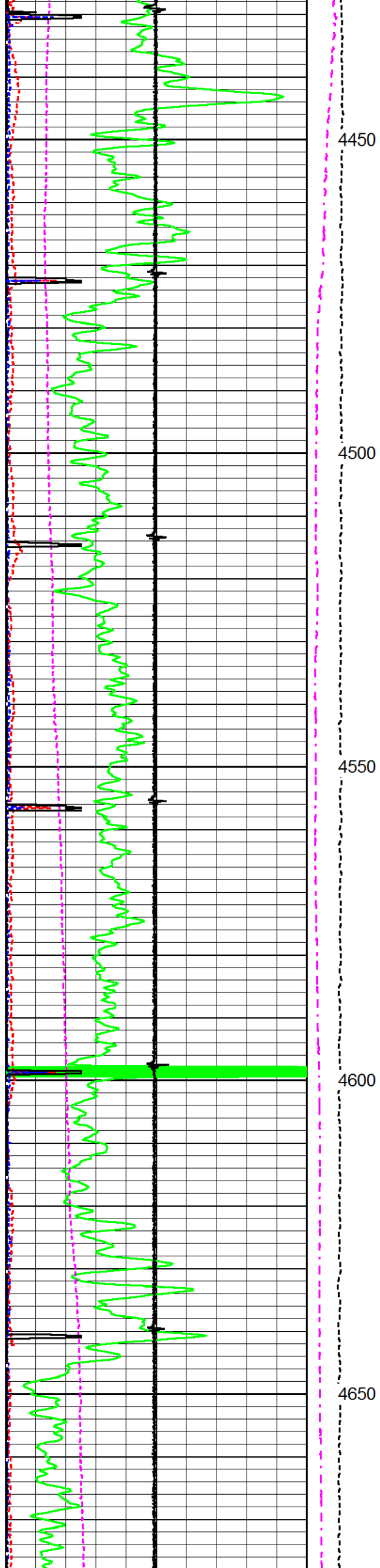
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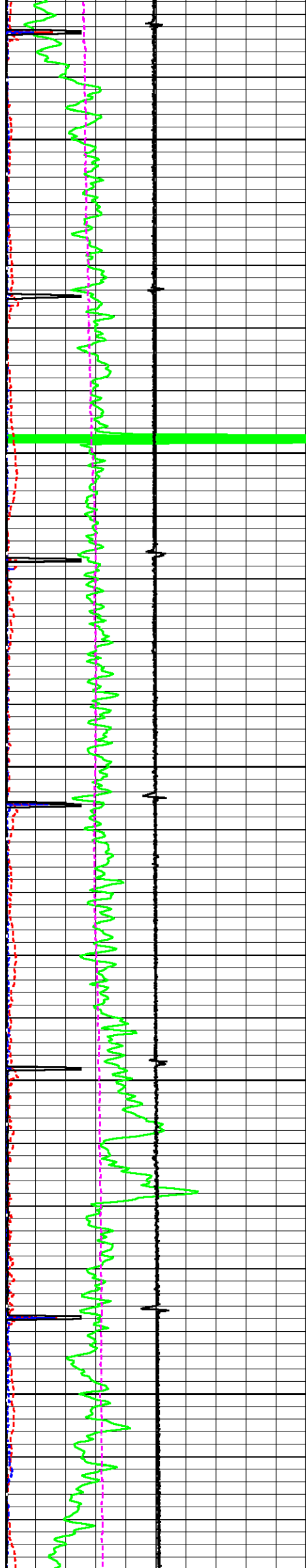
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4400









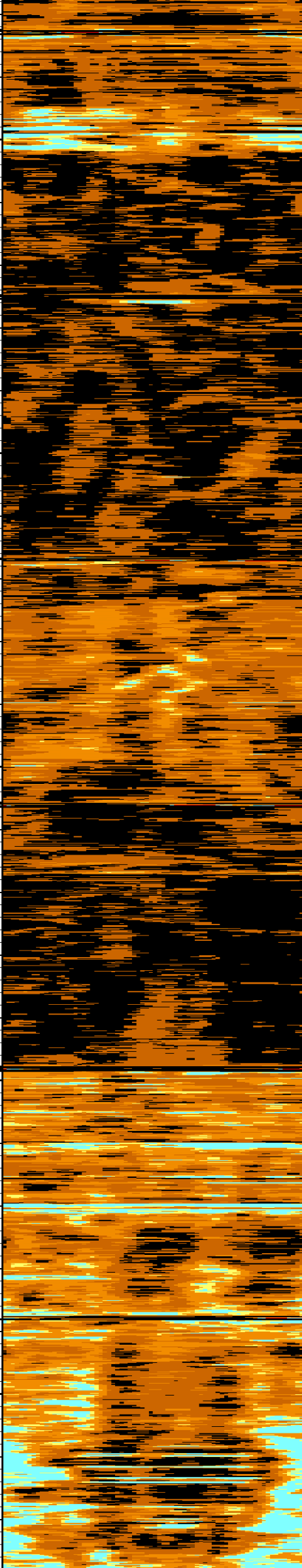
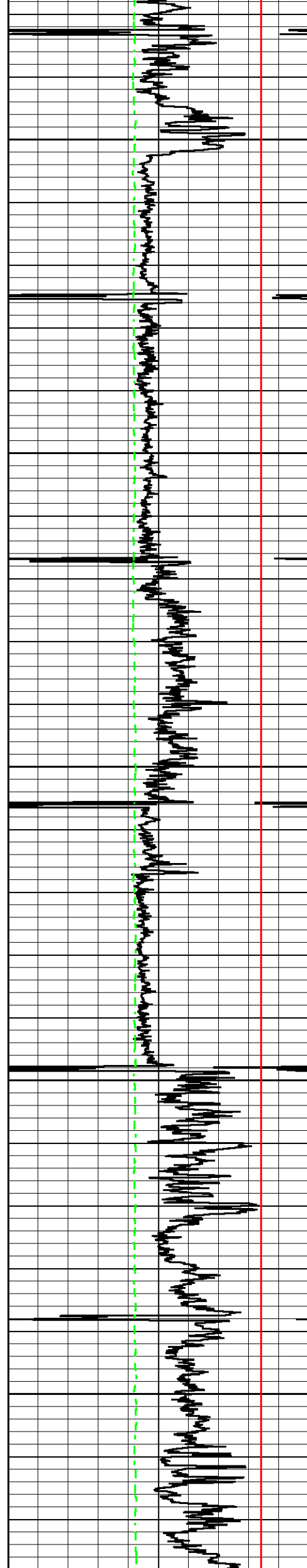
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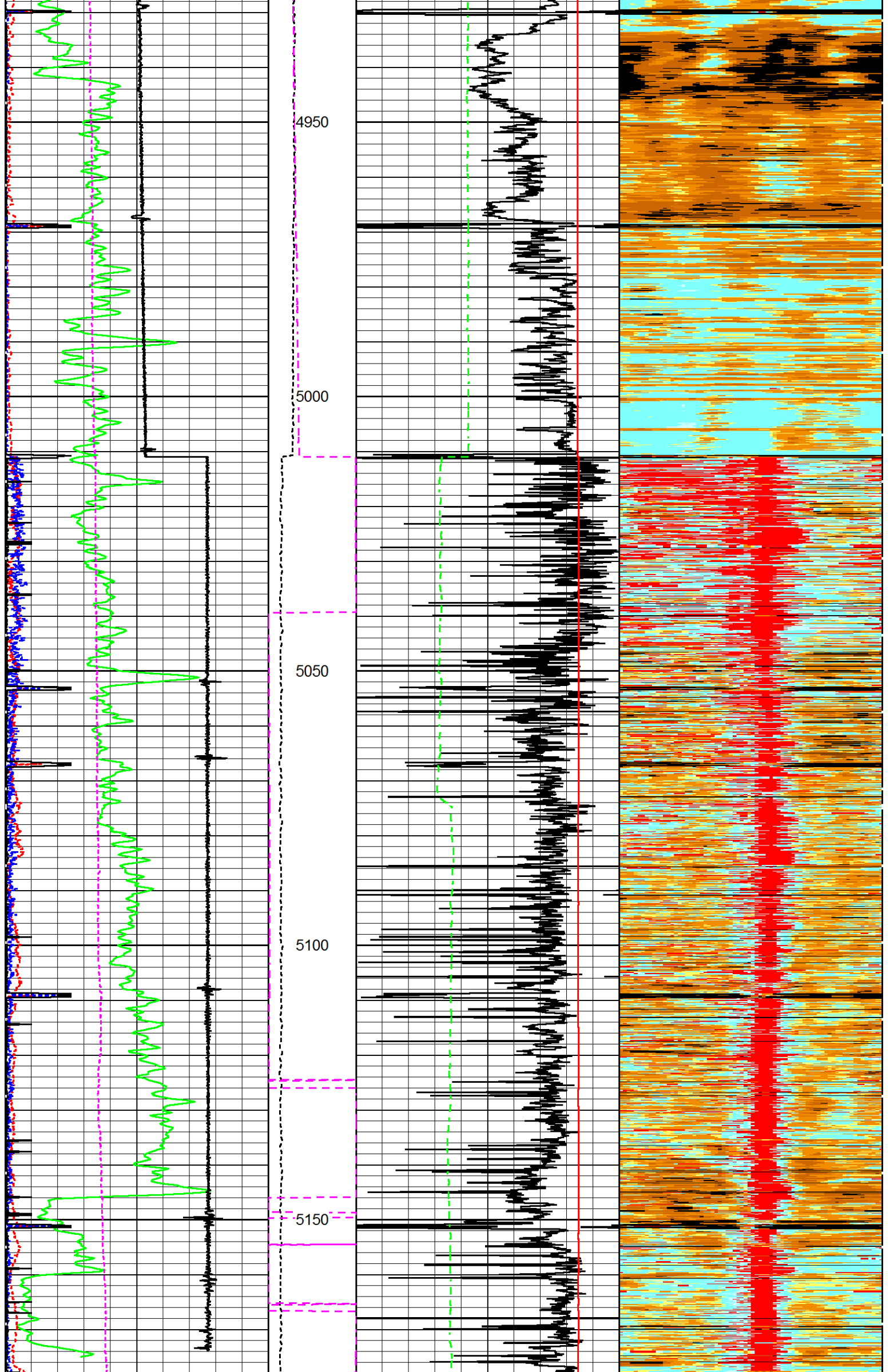
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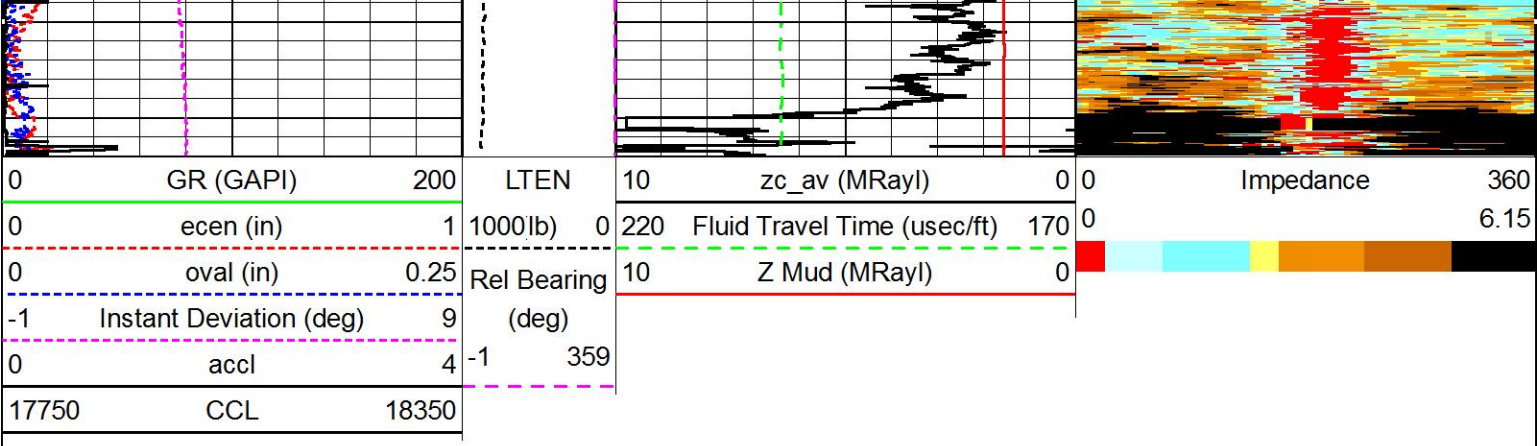
4800

4850

4900



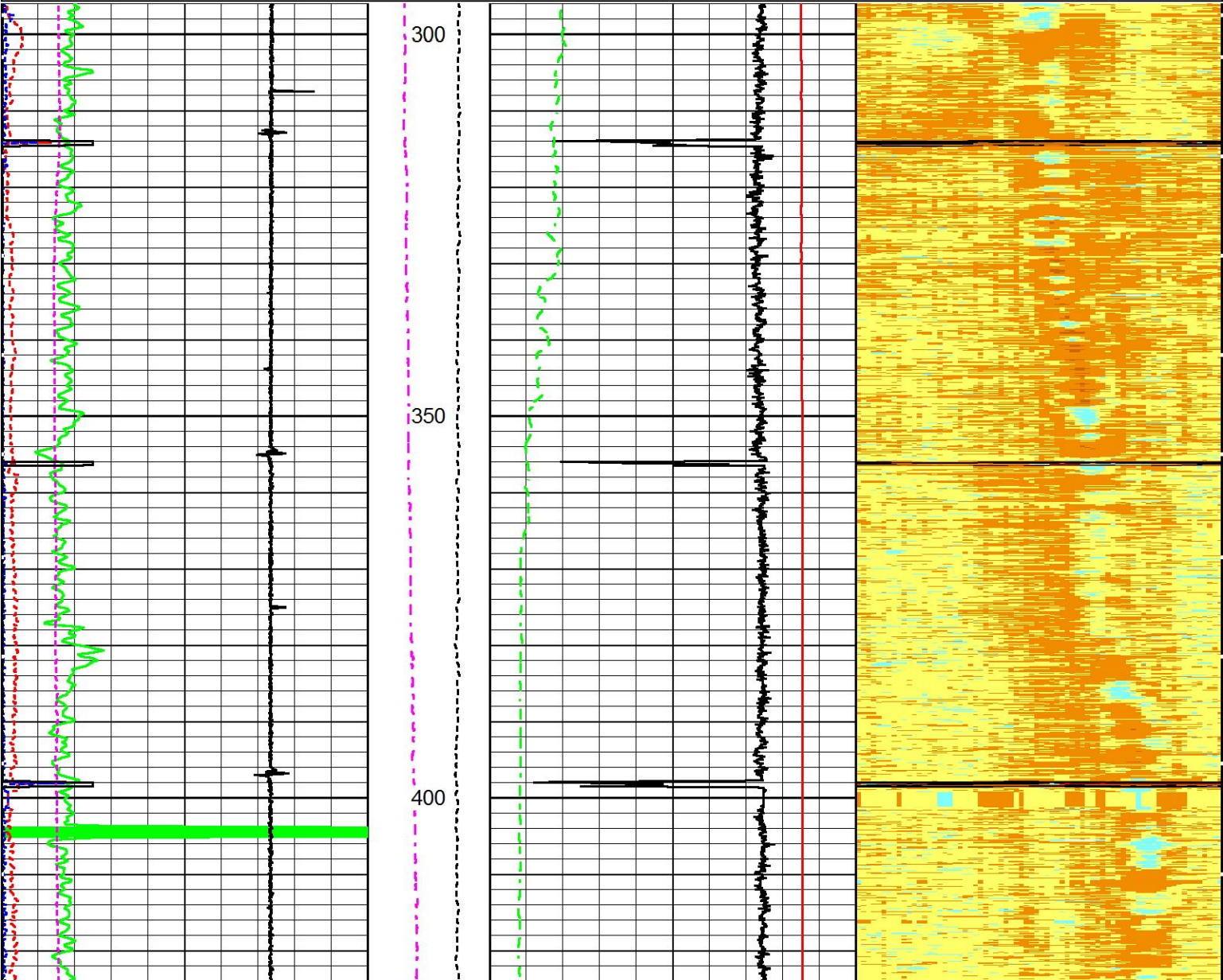
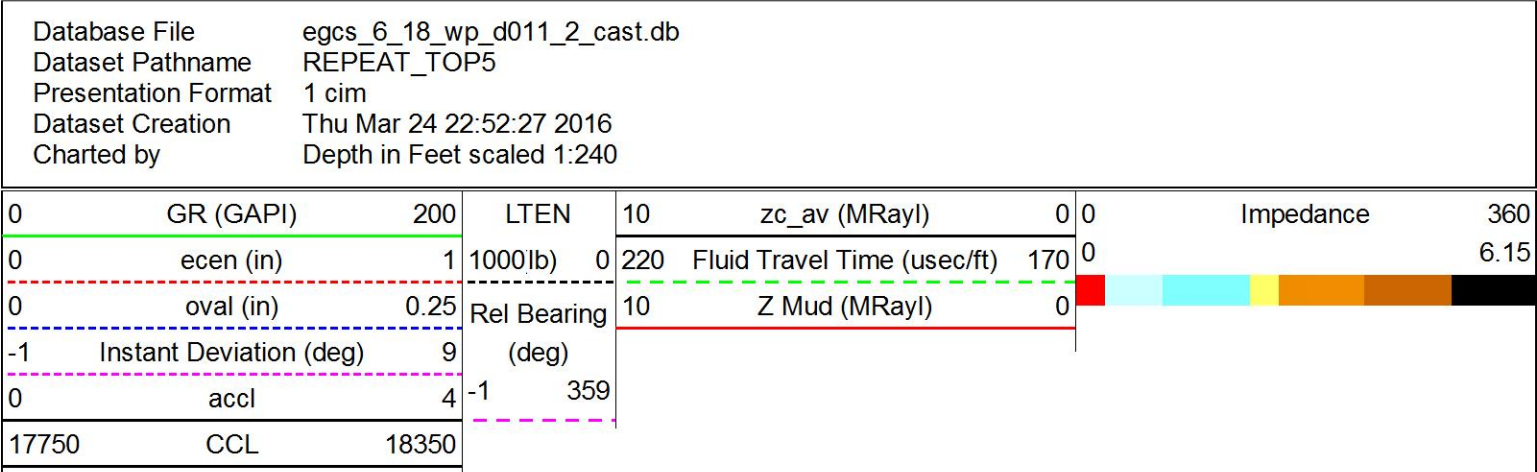




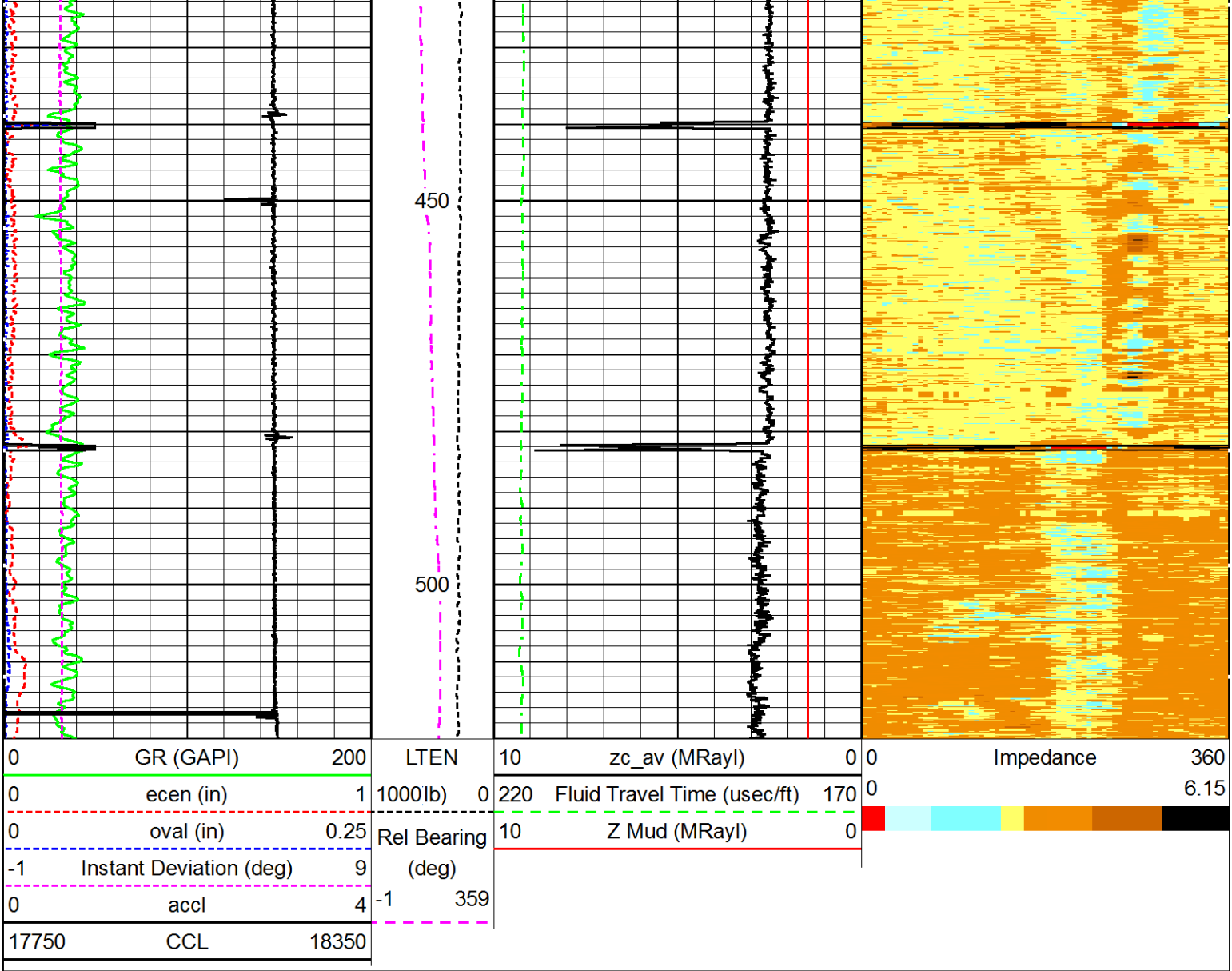
MAIN PASS

HALLIBURTON

5" = 100'







Log Variables DatabaseC:\ProgramData\Warrior\Data\egcs\_6\_18\_wp\_d011\_2\_cast.db  
Dataset field/well/run1/REPEAT\_TOP5/\_vars\_

Top - Bottom

BHTEMP_Src	USERFTT	ZREF	CASEWGHT	SRFTEMP	MudWgt	CASETHCK	CASEOD
ITEMPX	usec/ft	MRayl	lb/ft	degF	lb/gal	in	in
	0	1.7	26	30	8.5	0.362	7
PERFS	TDEPTH	BOTTEMP	BITSIZE				
0	ft	degF	in				
	5205	169	8.75				

Calibration Report

Database File egcs\_6\_18\_wp\_d011\_2\_cast.db  
Dataset Pathname MAIN\_FINAL  
Dataset Creation Fri Mar 25 11:00:23 2016

Circumferential Acoustic Scanning Tool Downhole Calibration Report

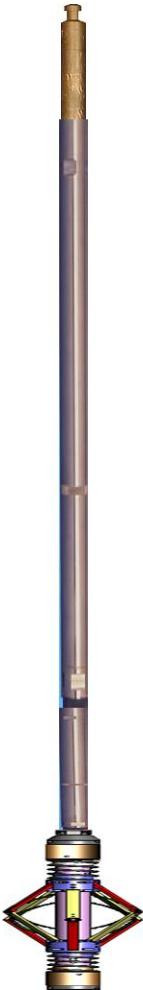
Serial-Model: 11488892-4 3/8 SCAN  
Calibration Performed: Thu Mar 24 16:58:52 2016

Averaged Results


Name	Value	Units
TT-Main	48.7	usec
Amp-Main	65.4	
Frq-Main	270.2	khz
TT-Mud	45.8	usec
Amp-Mud	55.6	
TT-LWW1	48.8	usec

TT-LWw2	93.3	usec
Amp-LWw1	65.6	
Amp-LWw2	39.2	
Frq-LWw	335.1	khz
TT-MWw1	45.8	usec
TT-MWw2	87.6	usec
Amp-MWw1	55.9	
Amp-MWw2	19.8	
Frq-MWw	319.1	khz
Calibrated Offsets		
Name	Value	
TCAL	4.3	
MCAL	4.0	

XY Accelerometers Calibration Report						
Performed:	(Not Performed)					
	Low Read.	High Read.		Low Ref.	High Ref.	
X Accelerometer	0.000	1.000	gee	0.000	1.000	gee
Y Accelerometer	0.000	1.000	gee	0.000	1.000	gee
Gamma Ray Calibration Report						
Serial Number:	10010734					
Tool Model:	002					
Performed:	Tue Mar 08 14:57:04 2016					
Calibrator Value:	190.0	GAPI				
Background Reading:	42.0	cps				
Calibrator Reading:	184.4	cps				
Sensitivity:	1.3349	GAPI/cps				

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
CCL	24.68		STNDCH-STND_CH Fishing Neck	1.50	2.00	1.00
			TTTCU-002 (10010734) Through Tubing Telemetry Cartridge - Ultrawire	7.65	1.69	100.00
			XHU-003 (11899561) Crossover Halliburton 1553 to Ultrawire	1.58	1.69	7.00
			CENT-CASTM-CENT CAST M INLINE CENTRALIZER	2.16	3.13	25.00



			HAL-CAST-M-ELECT-CAST-M-Elect (11927.573) CAST M ELECTRONIC		2.75	30.00		
AccY2	0.00		HAL-CAST-M-4 3/8 SCAN (11488892) 4 3/8 SCAN CASTM		7.78	4.38	276.00	
AccX2	0.00							
AccY1	0.00							
AccX1	0.00							
SCAN	0.00							
LOCTIM	0.00							
UTCTIM	0.00							
LLMTEN	0.00							
Dataset: egcs_6_18_wp_d011_2_cast.db: field/well/run1/MAIN_FINAL								
Total length: 28.25 ft								
Total weight: 439.00 lb								
O.D.: 4.38 in								

Company	EAST CHEYENNE GAS STORAGE, LLC.		
Well	ECGS 6-18 WP-D011-2		
Field	WEST PEETZ		
County	LOGAN	State	CO
<b>HALLIBURTON</b>	CIRCUMFERENTIAL ACOUSTIC SCANNING TOOL CEMENT INSPECTION		