

HALLIBURTON

CIRCUMFERENTIAL  
ACOUSTIC  
SCANNING TOOL

CEMENT INSPECTION

Company EAST CHEYENNE GAS  
Well GILLHAM 6  
Field PEETZ WEST  
County LOGAN State CO

Company EAST CHEYENNE GAS STORAGE LLC  
Well GILLHAM 6  
Field PEETZ WEST  
County LOGAN State CO

API No.: 05075071820000    Serv #: 903829094  
Location: SURFACE HOLE LOCATION:  
325' FNL & 910' FWL NWNW  
LAT: 40.962900  
LONG: -103.225640  
Sec: 6    Twp: 11N    Rge: 52W

Other Services  
CBL  
RMT  
PRT

Permanent Datum  
Log Measured From  
Drilling Measured From

G.L.  
K.B.    12    Ft. above perm. datum  
K.B.

Elevation  
4550'  
K.B. 4562'  
D.F. 4562'  
G.L. 4550'

Elevation  
4550'

Date @ Time Logged  
Run No.  
Depth - Driller  
Depth - Logger  
Bottom - Logged Interval  
Top - Log Interval  
Max. Recorded Temp.  
CEMENTING DATA  
Date / Time Cemented  
Primary / Squeeze  
Expected  
Compressive Strength  
Cement Volume  
Cement Type / Weight  
Formulation  
Mud Type / Mud Wgt.

02/07/2017 @ 17:00  
ONE  
5100'  
5100'  
5072'  
SURFACE  
174 F  
Surface  
String

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

FRESH WATER  
8.5 PPG  
SURFACE  
SURFACE  
11808537 / BRIGHTON  
J. SCHMIDT  
G. OHLMAN

Borehole Record  
Run Number  
Bit  
From  
To  
Size  
Weight  
From  
To

Casing & Tubing Record  
Weight  
From  
To

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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

GR-CBL-CAST RAN IN COMBINATION

LOGS CORRELATED TO J-W CBL DATED 12/09/2010

TOOLS RAN IN 5.5" 15.5 LB CASING

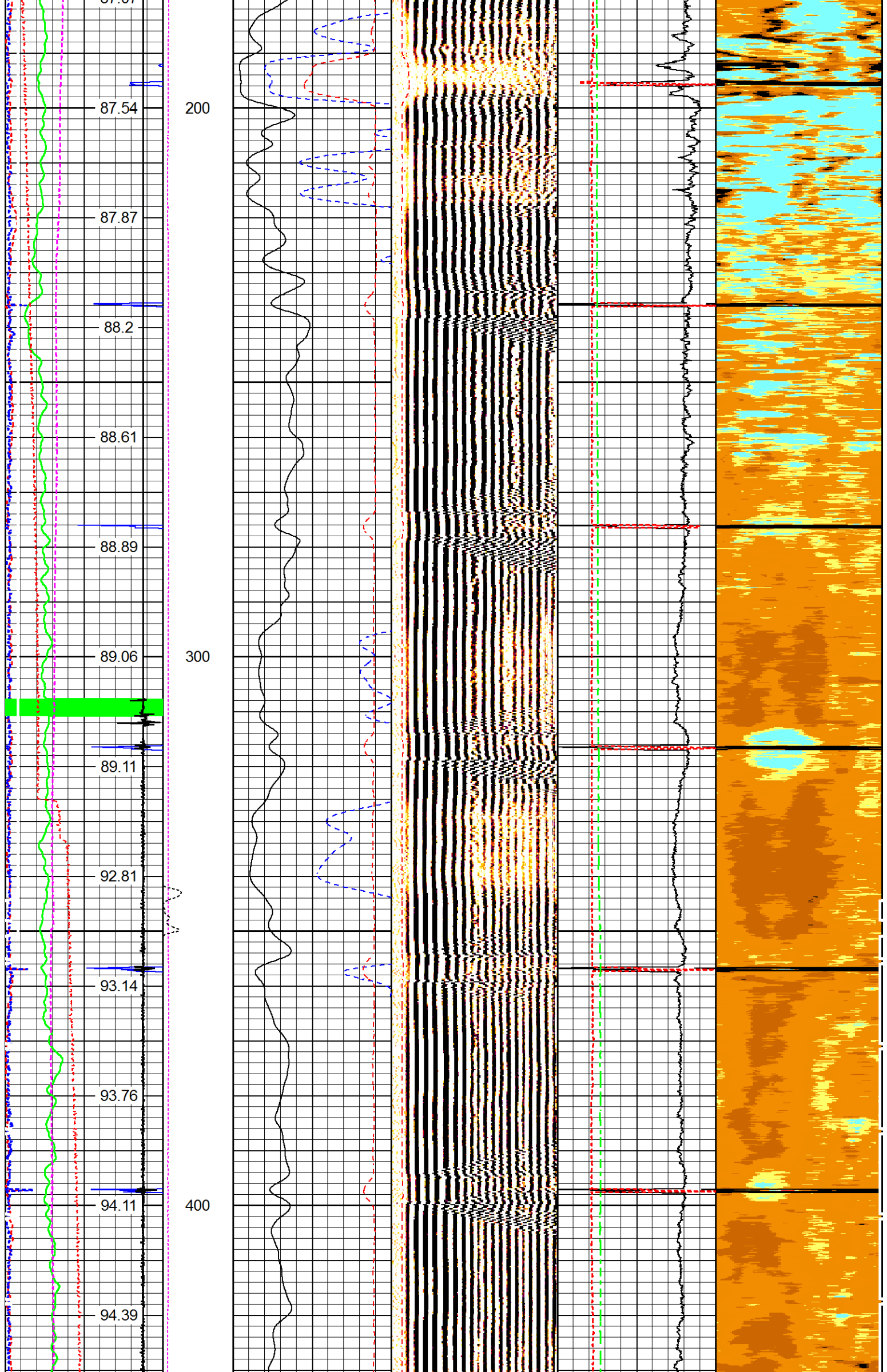
CAST CONFIG: 3 5/8" HEAD, BLACK 450KHz TRANSDUCER, CIM, 72 SHOTS, 12 SPF

\*\*\*THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES\*\*\*

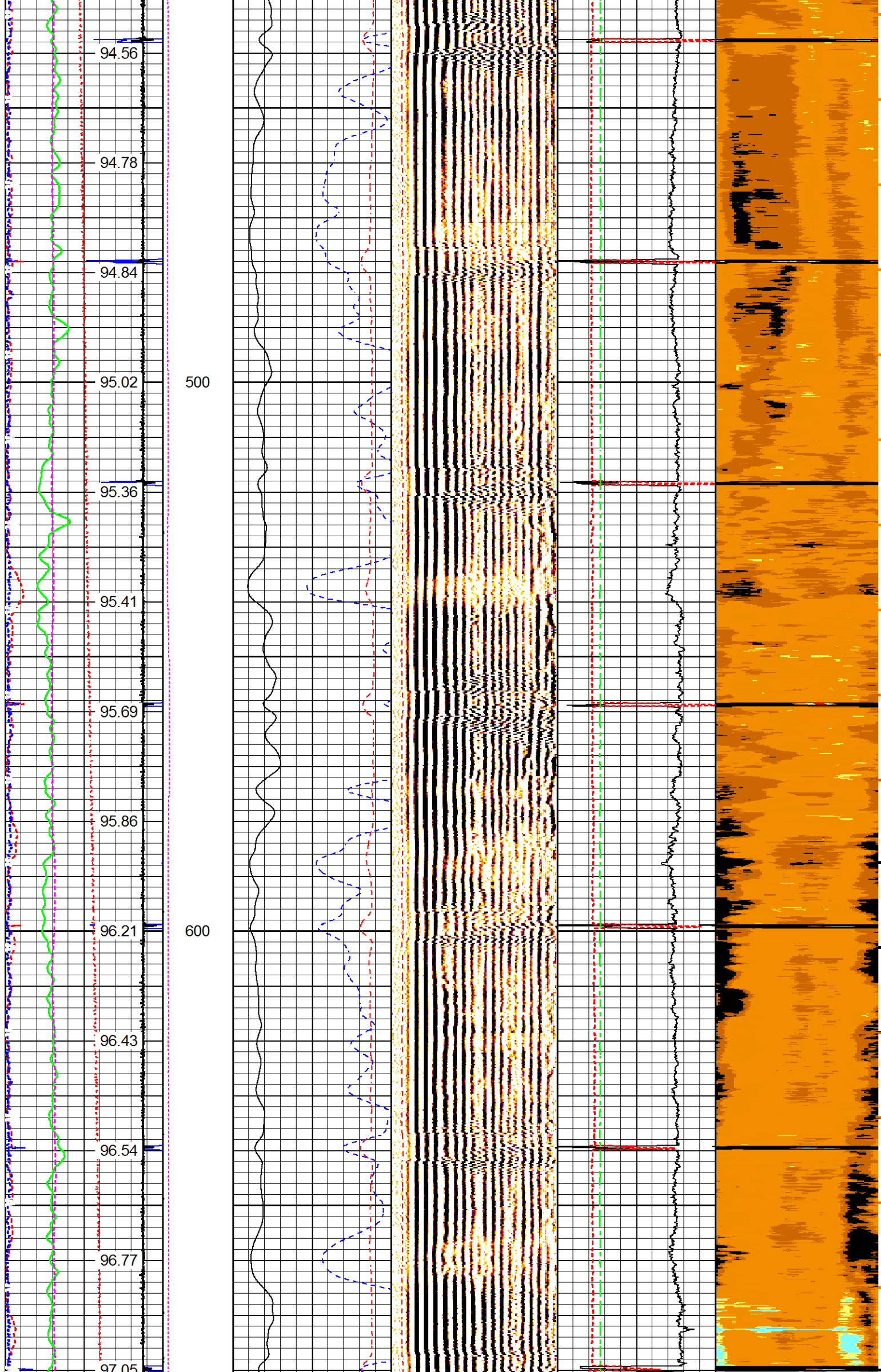
Service Ticket No.	903829094	API No.	05075071820000	PGM Ver	WARRIOR 8.0
The Well Name, Location, Borehole Description, and / or Cementing Data Furnished by Client					
EQUIPMENT DATA					
GAMMA		CBL		CAST	
Run No.	ONE	Run No.	ONE	Run No.	ONE
Serial No.	12105786	Serial No.	12091451	Serial No.	12158270
Model No.	TTTCU-002	Model No.	CBL-M	Model No.	CAST-M
Diameter	1.69"	Diameter	2.75"	Diameter	3.125"
LOGGING DATA					
General Data					
Pass	Depths		Well Head	Speed	Logging Run Comments
No	From	To	Pressure	Ft/Min	

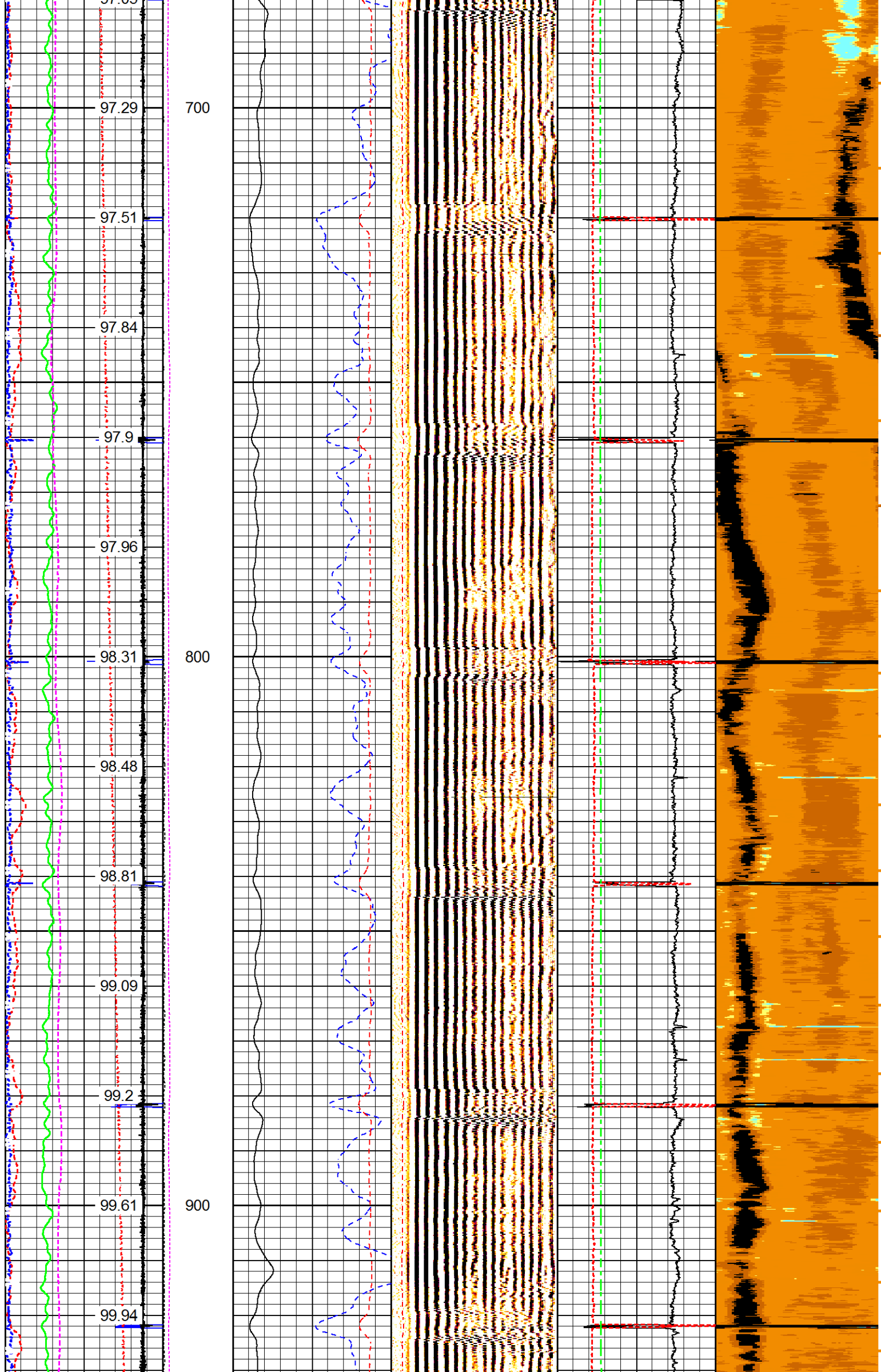


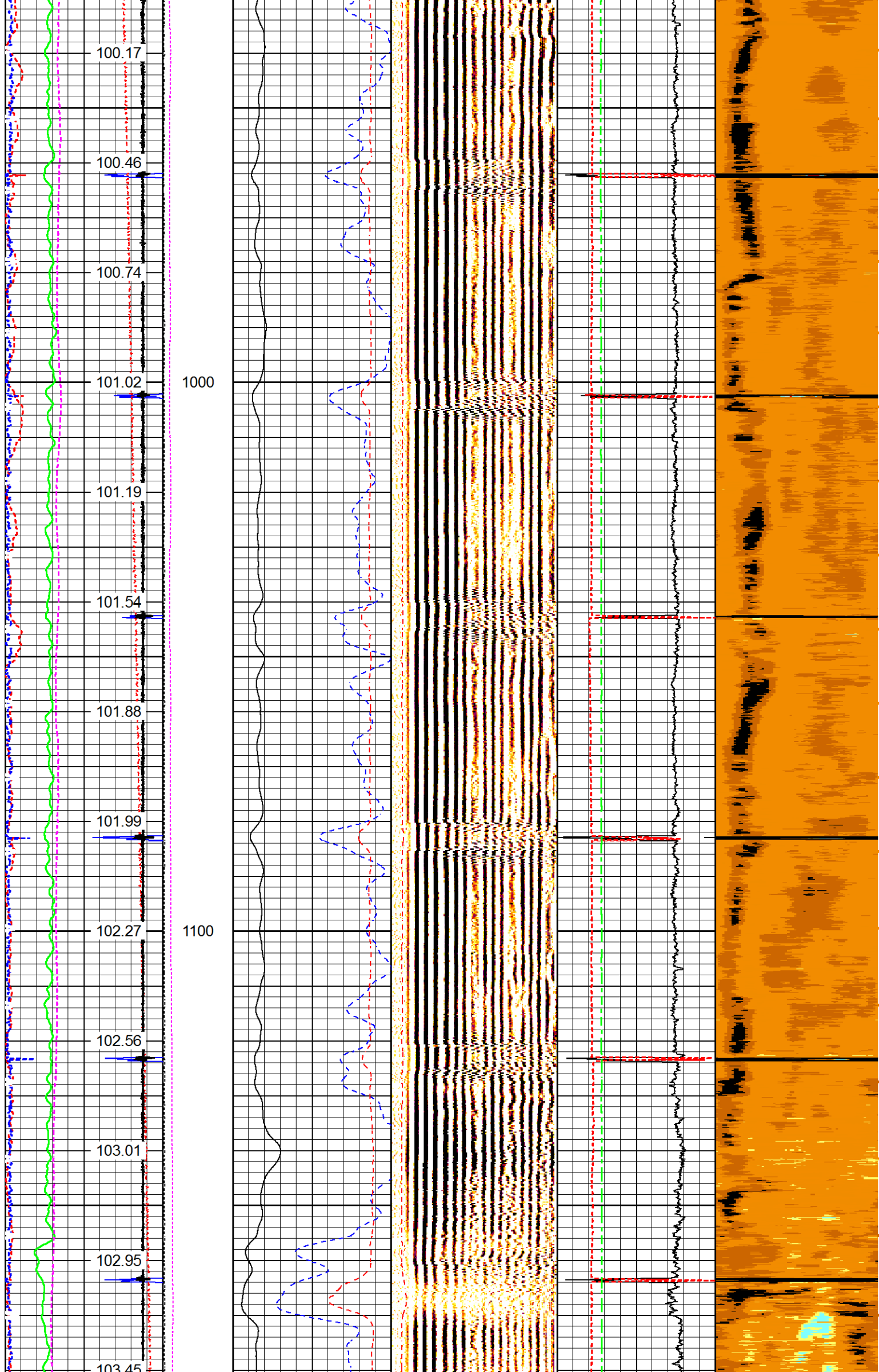




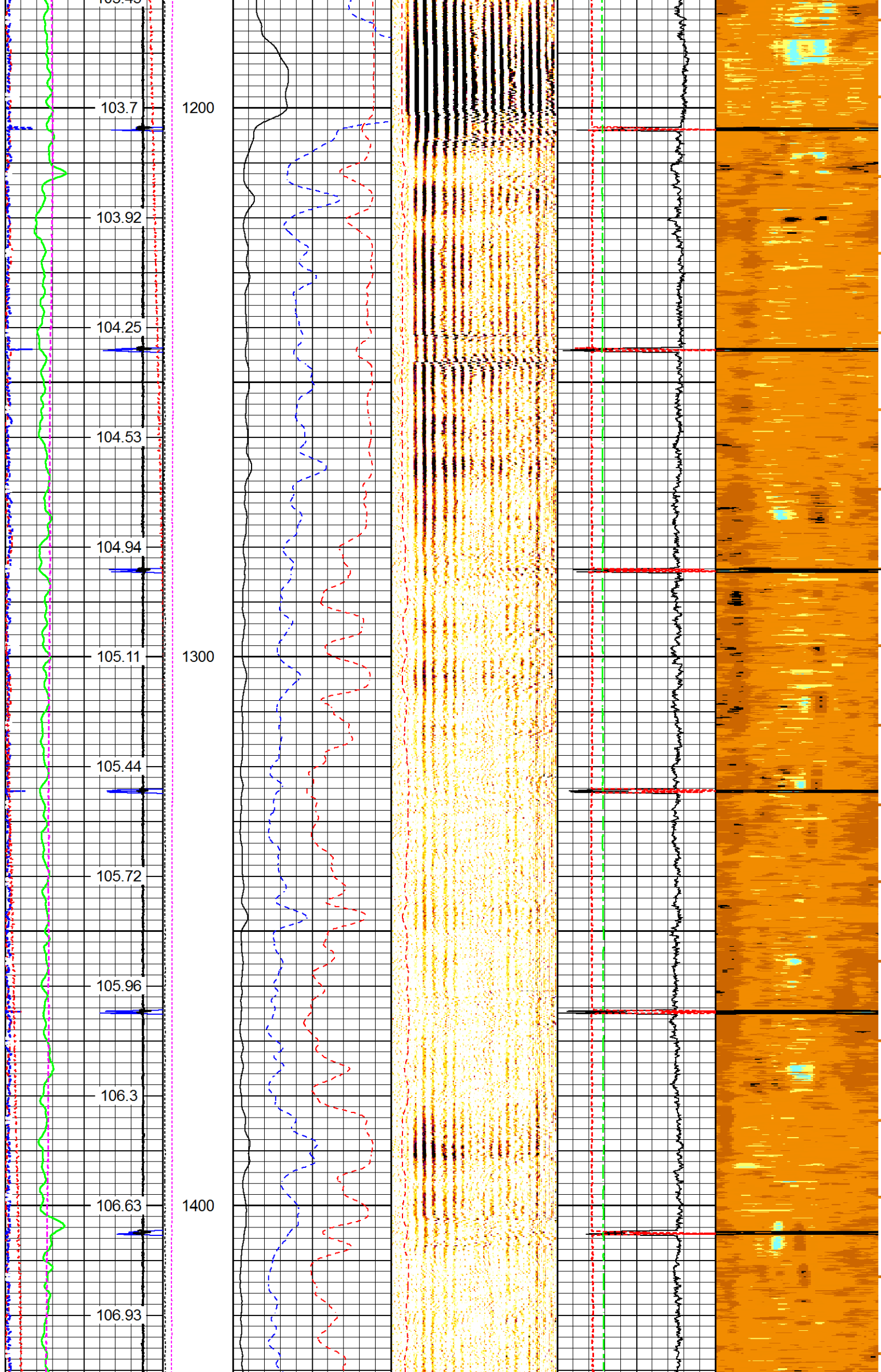


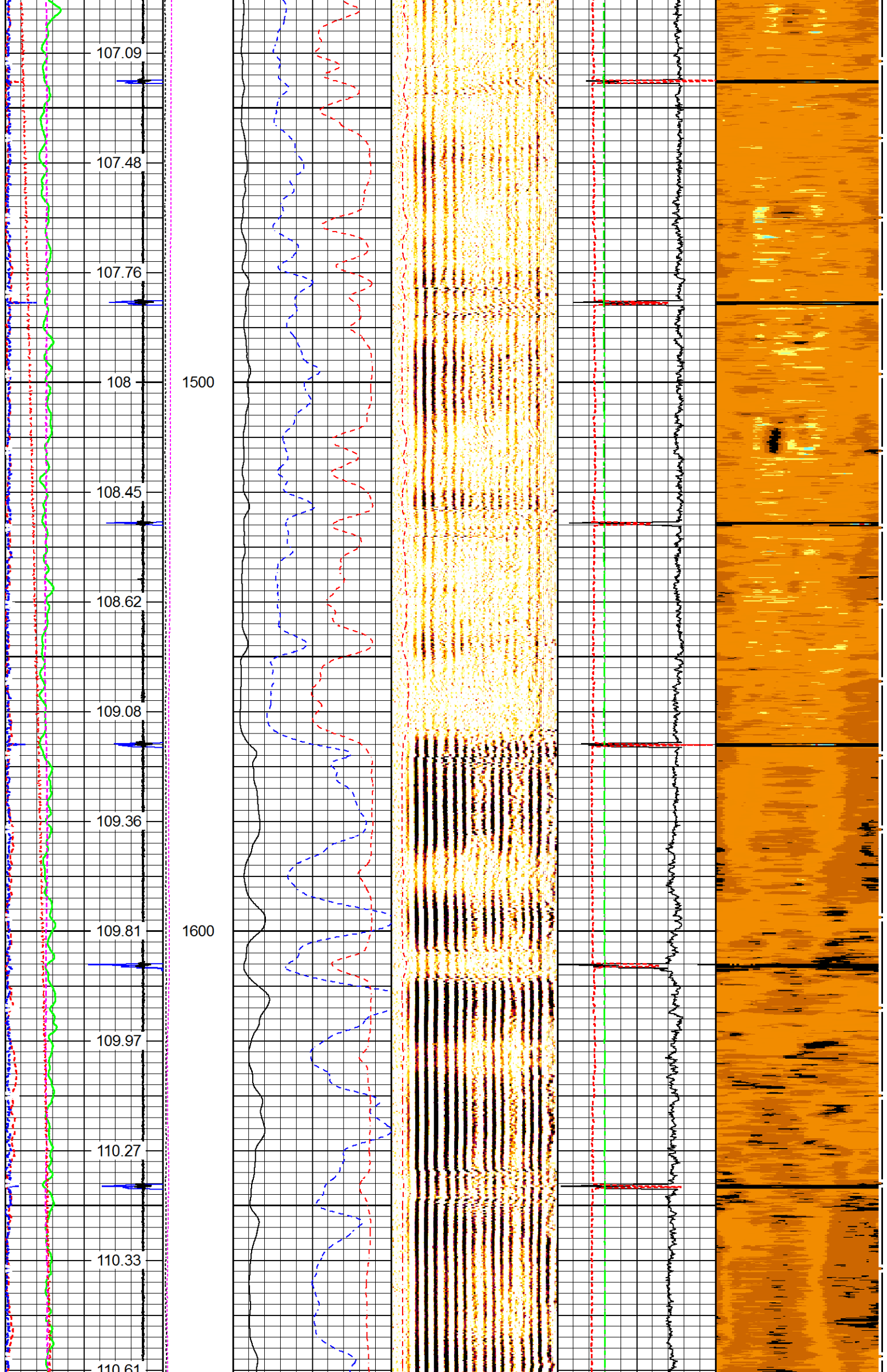




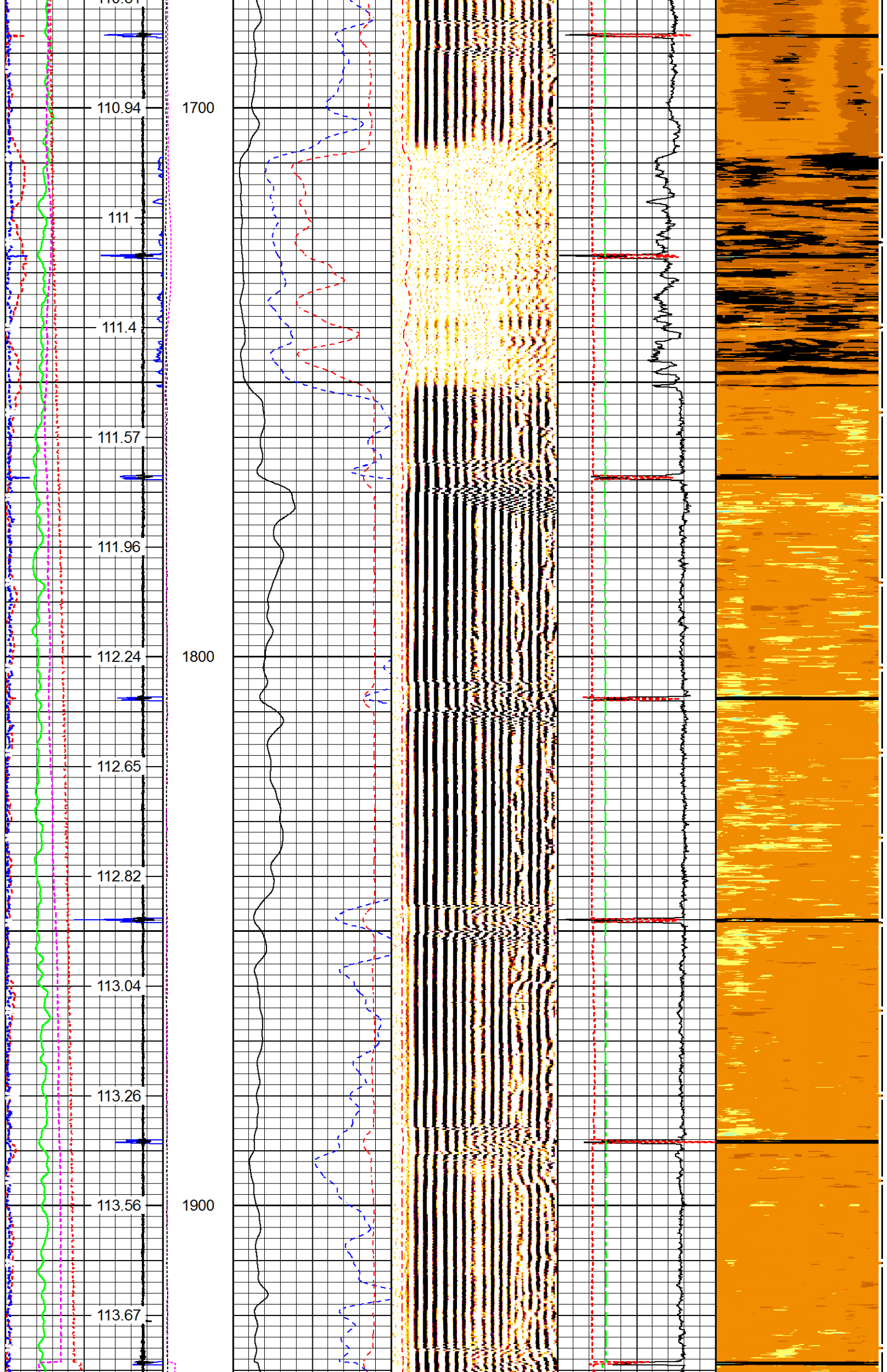


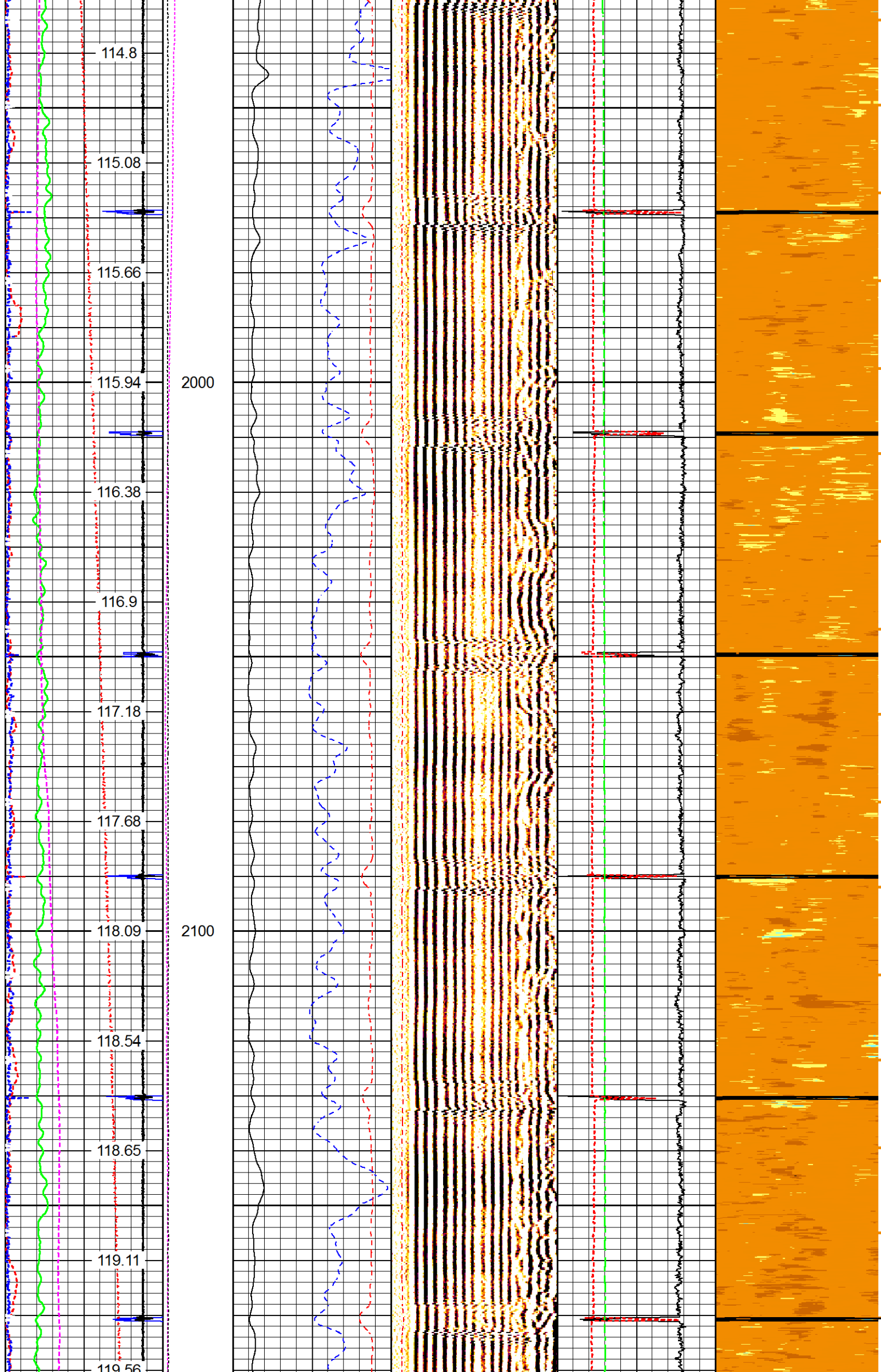




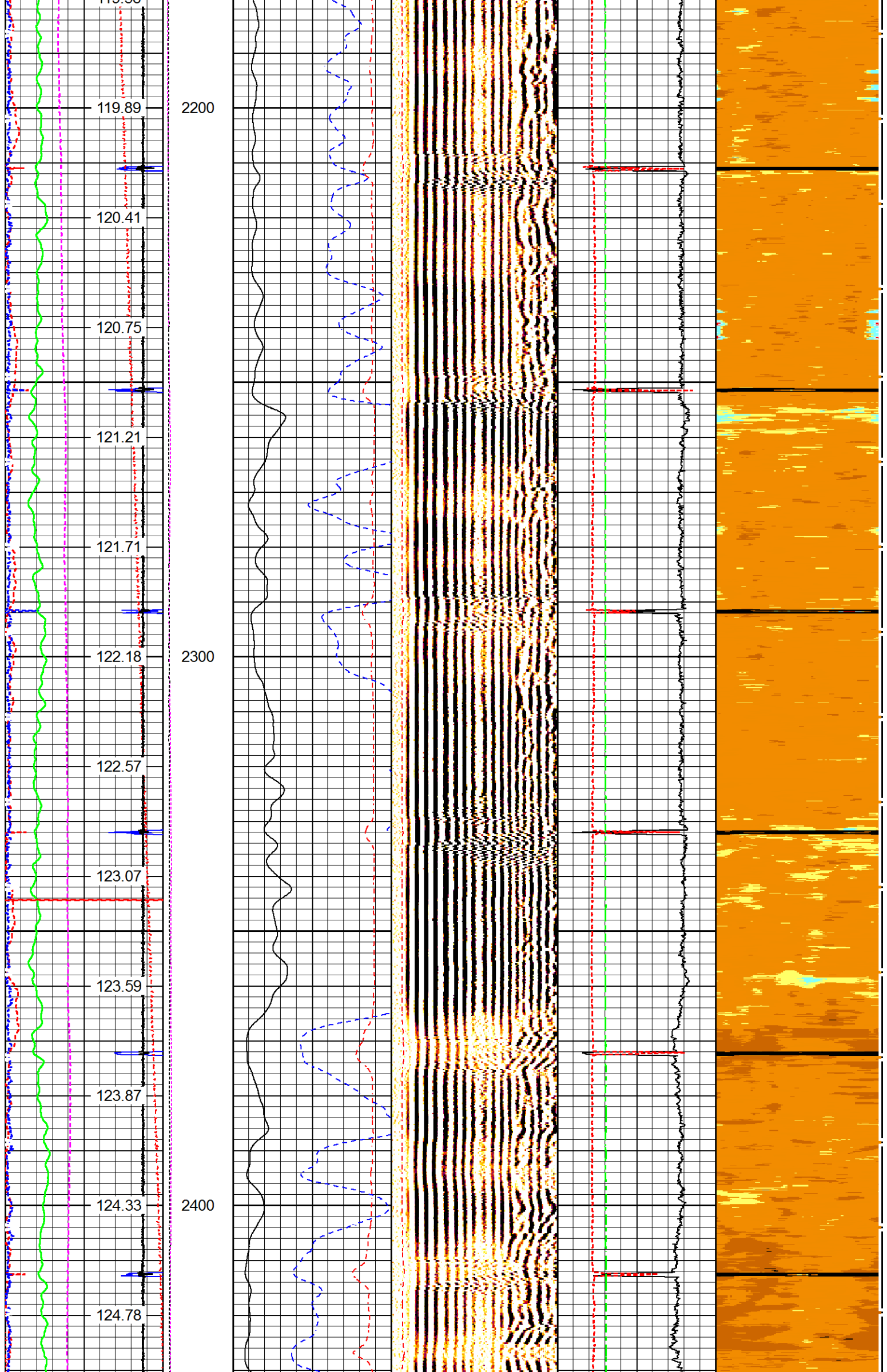


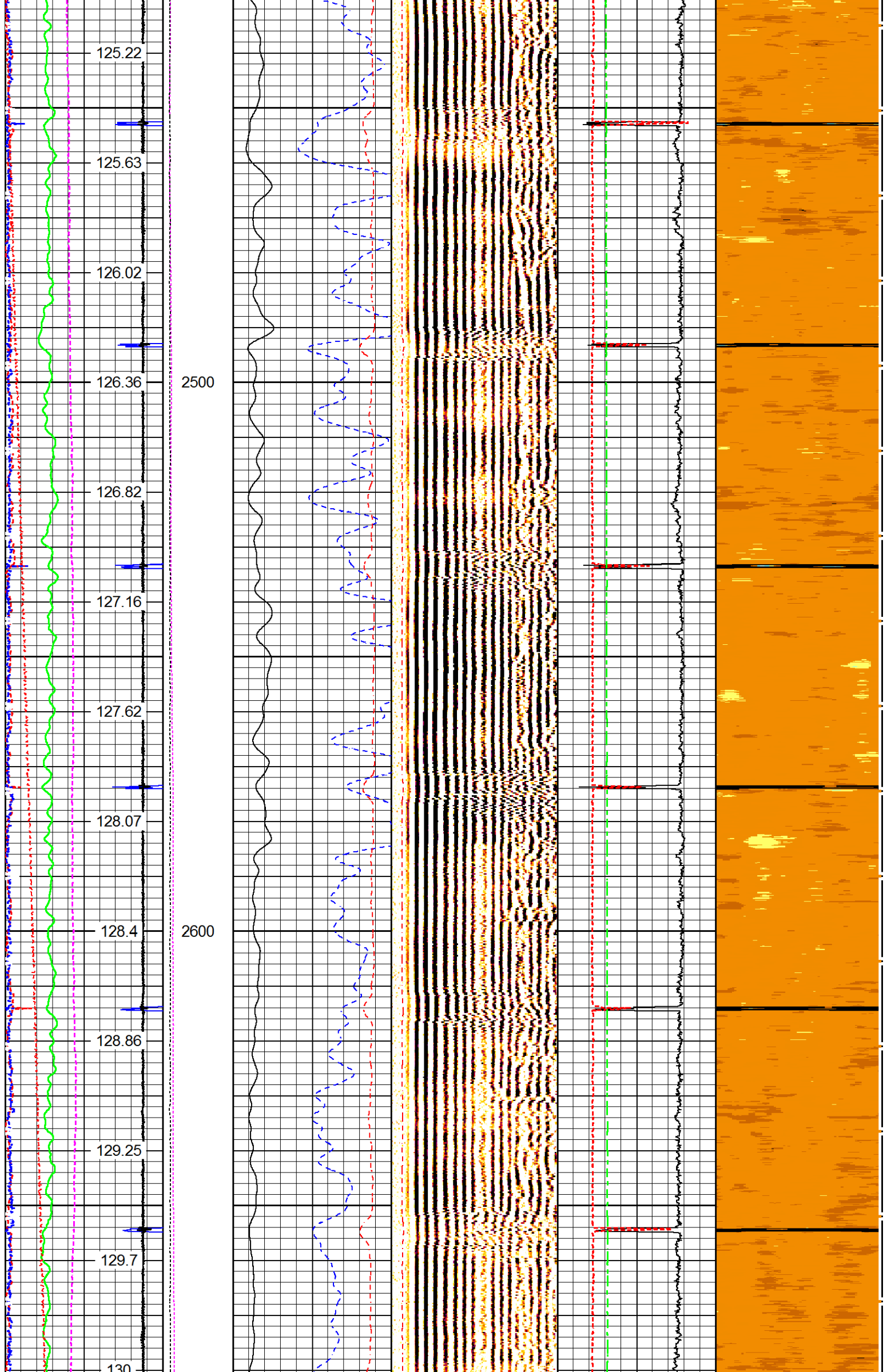




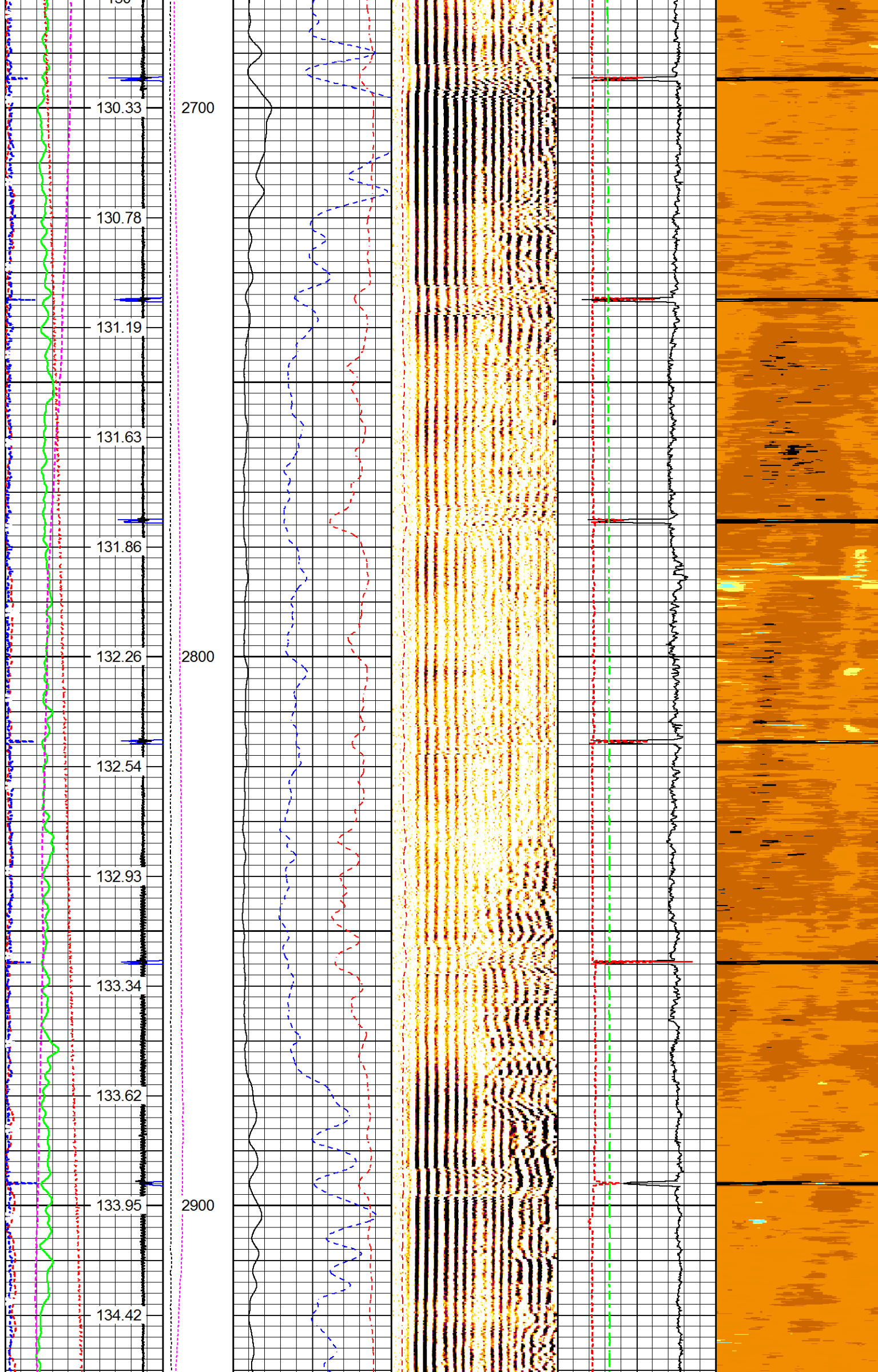


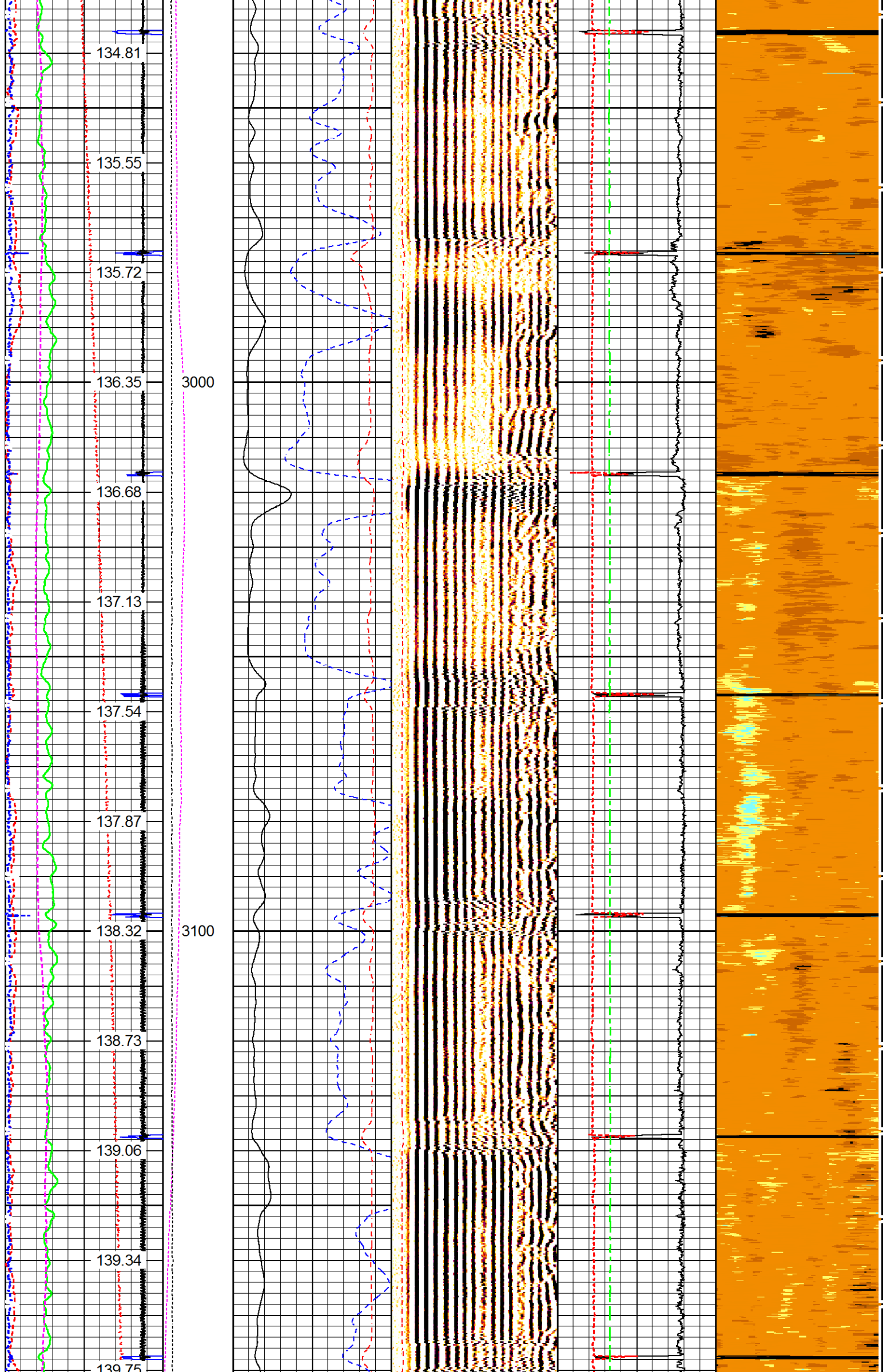




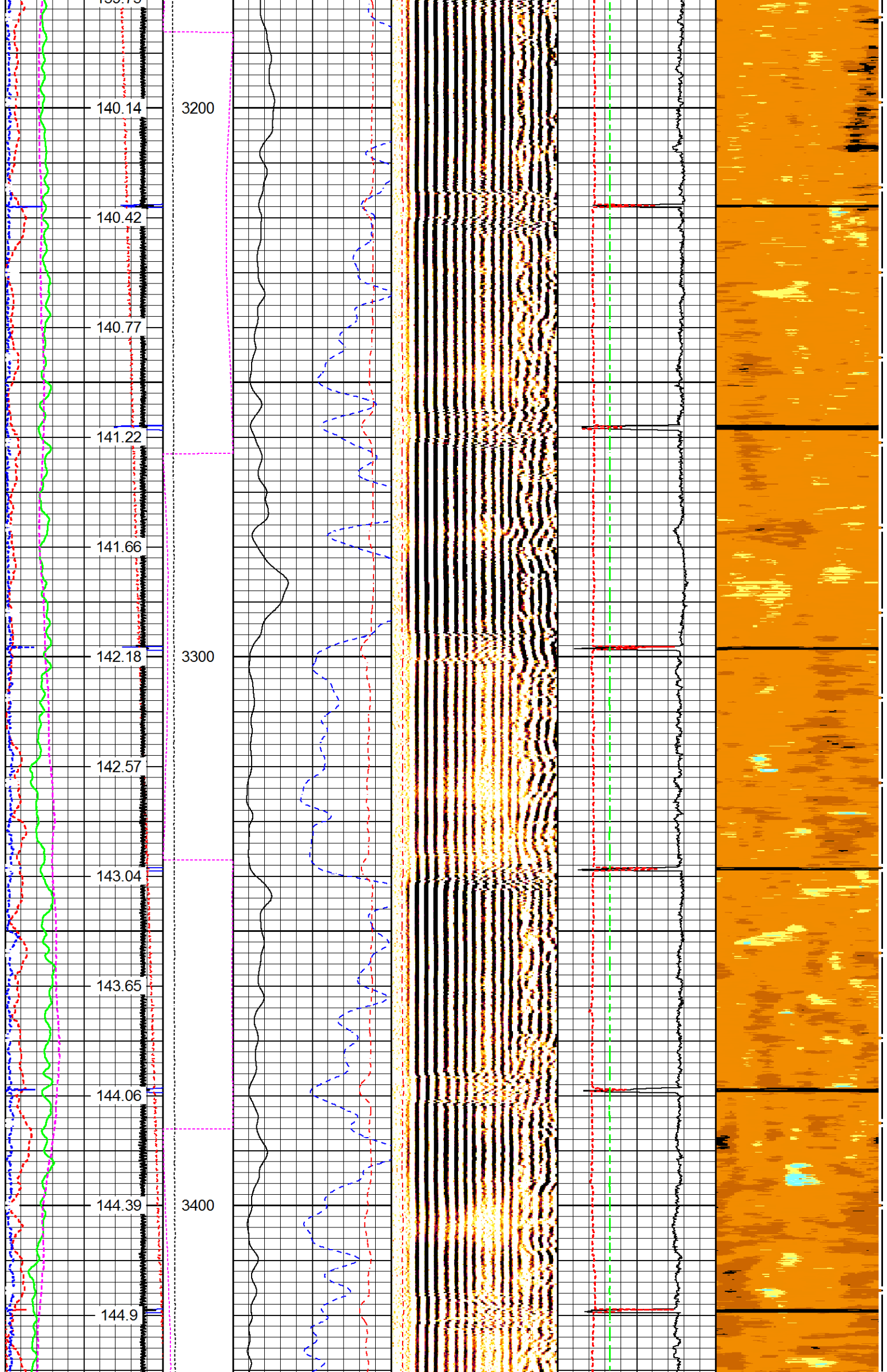


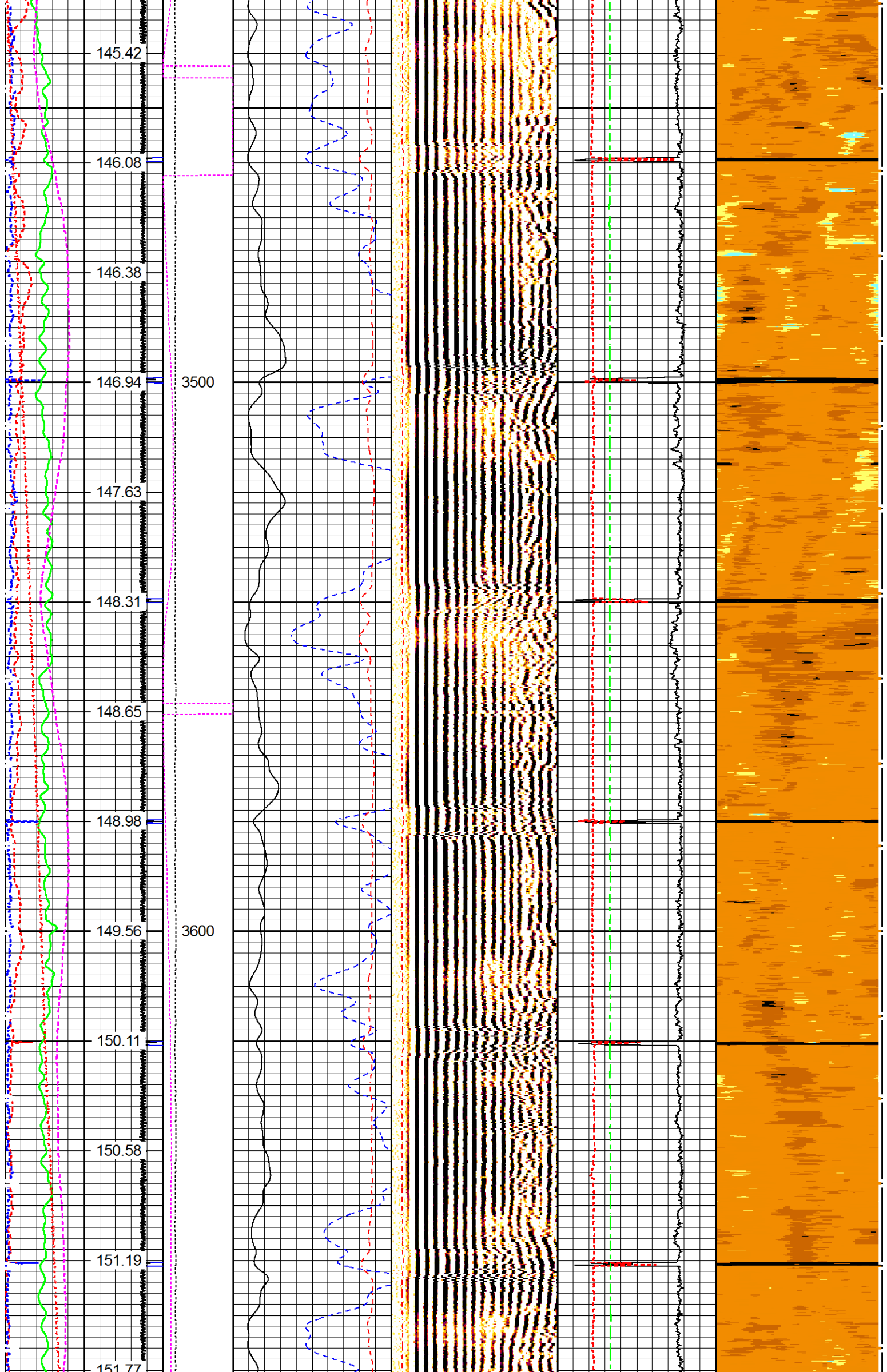




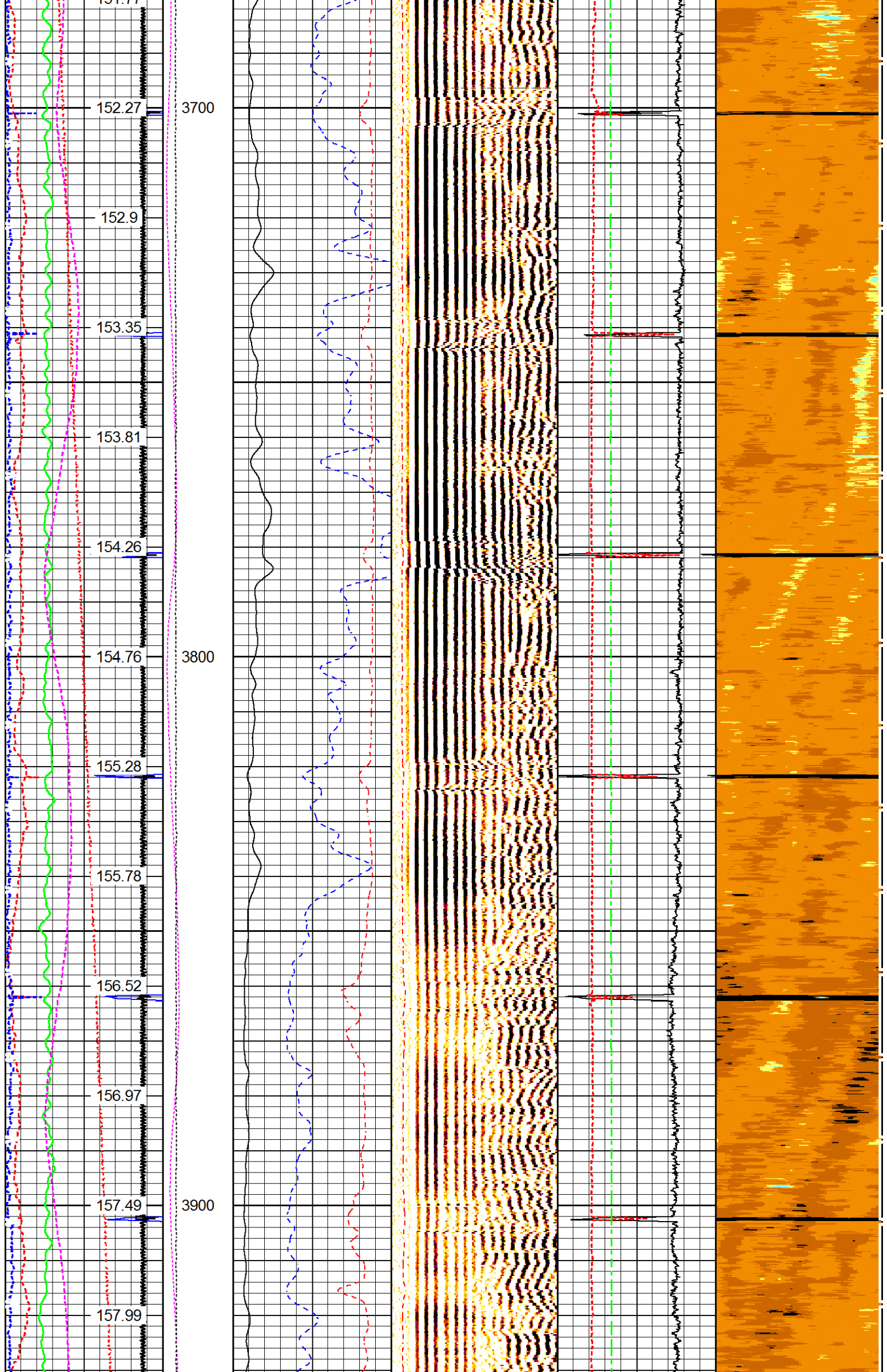


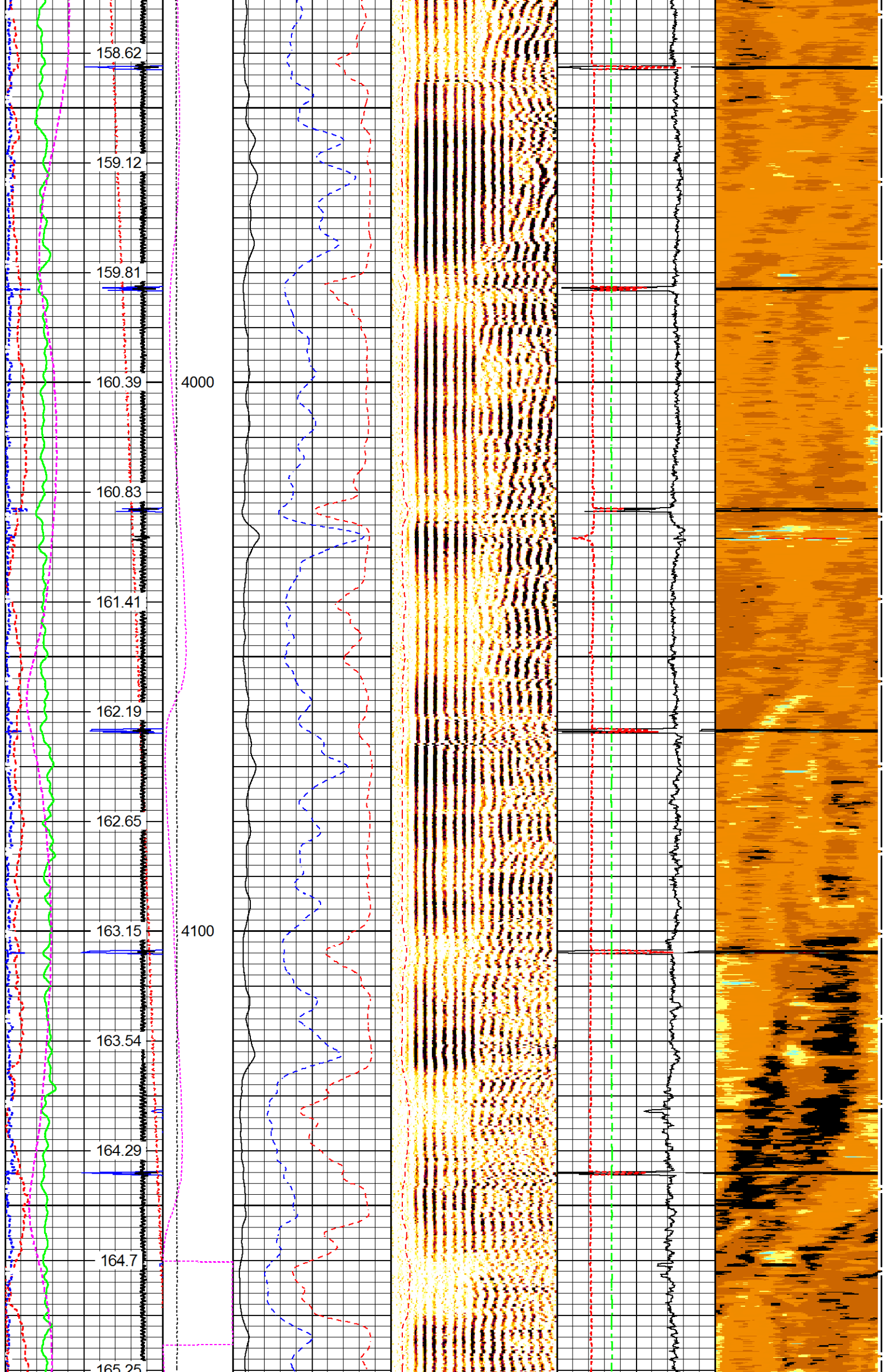




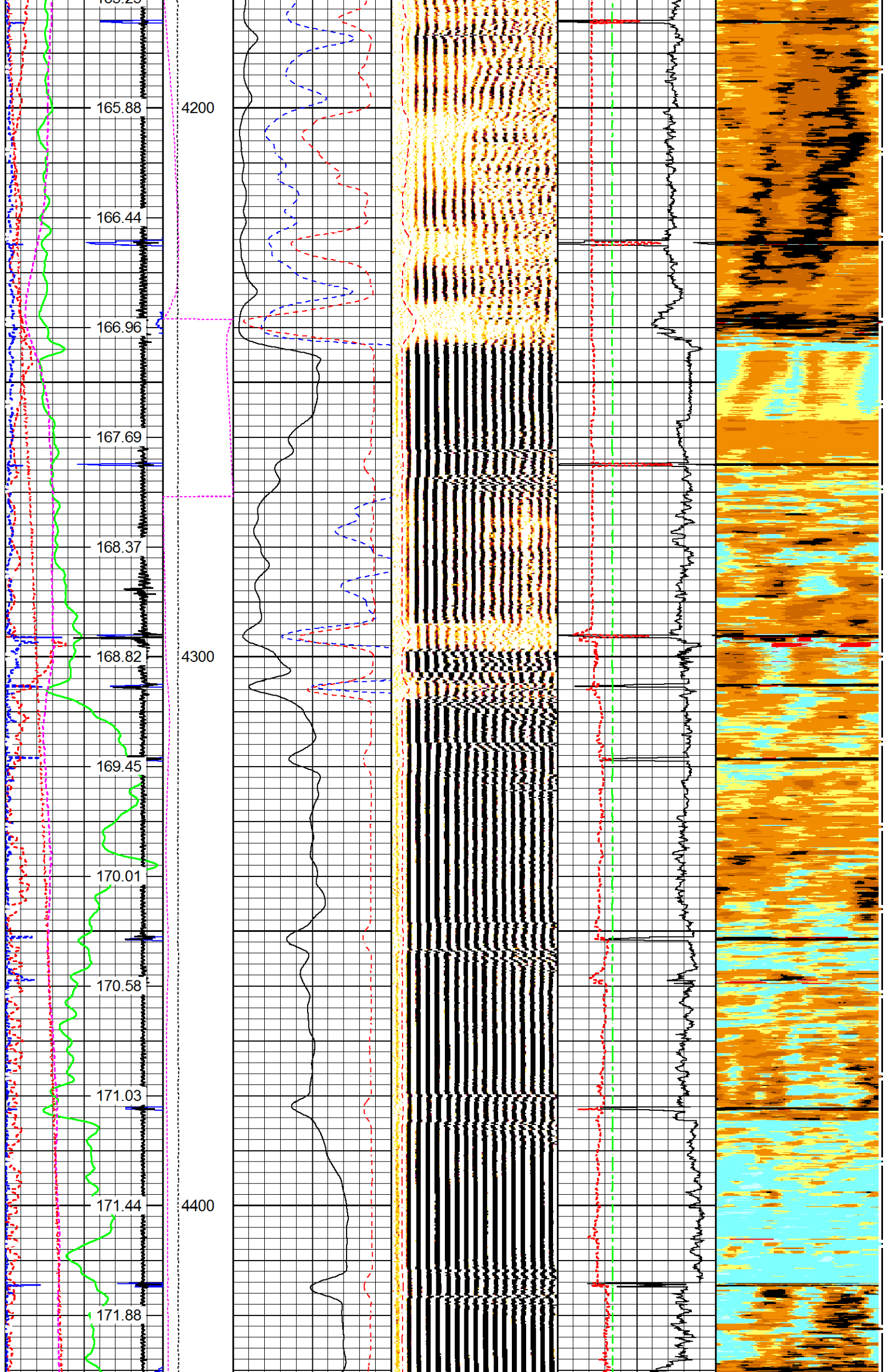


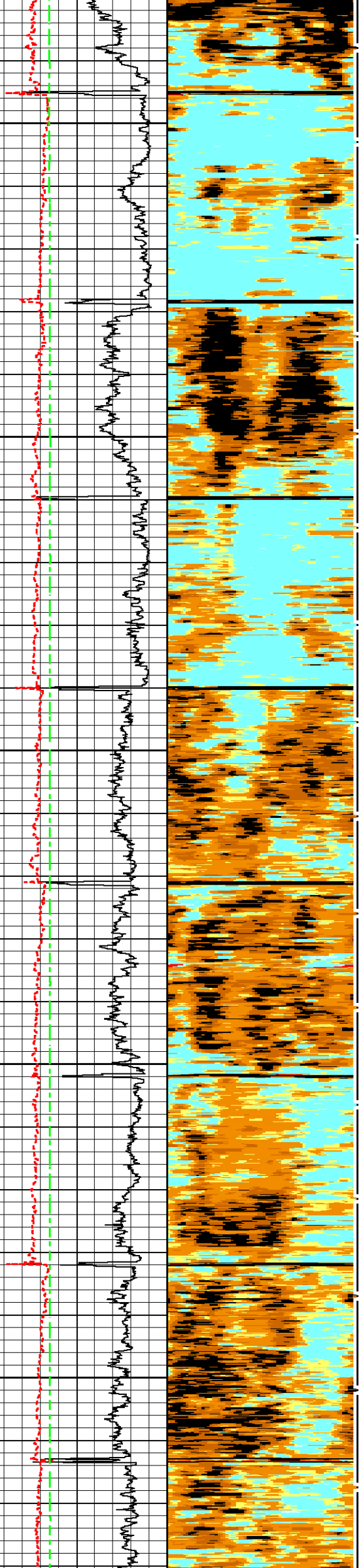
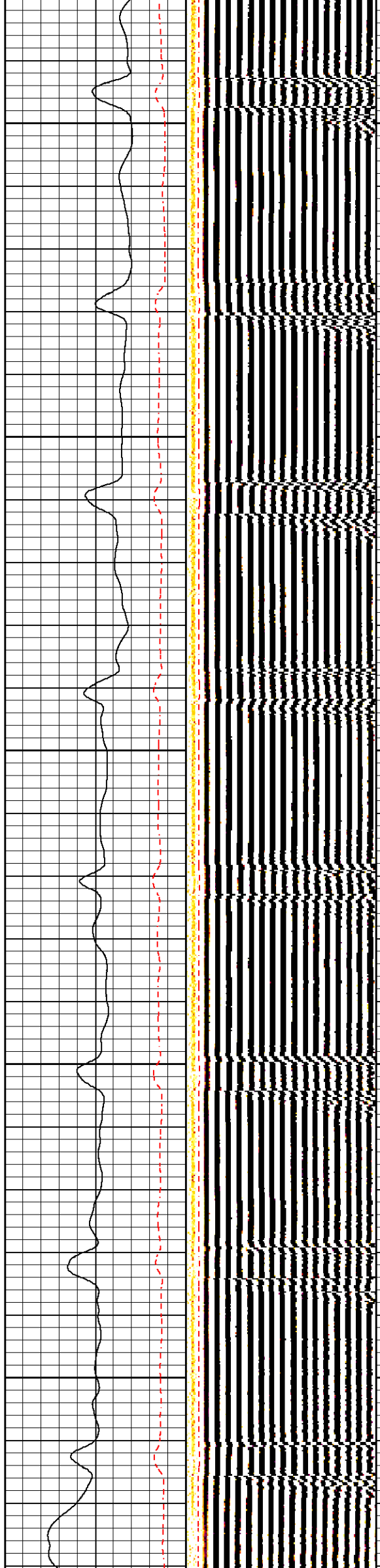
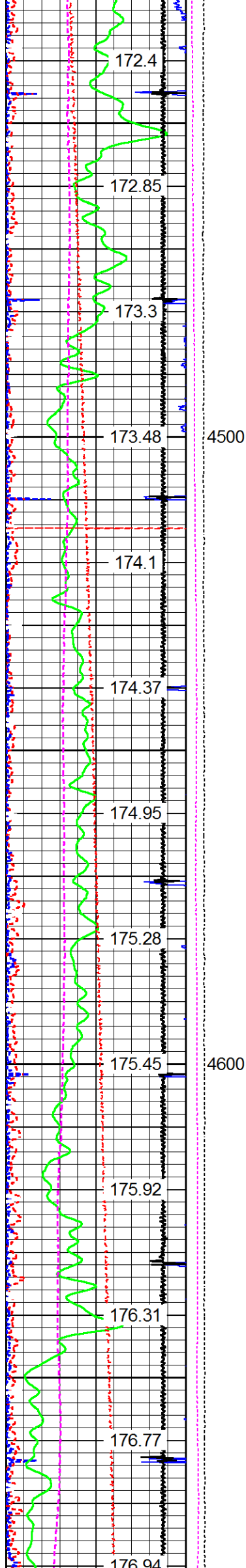




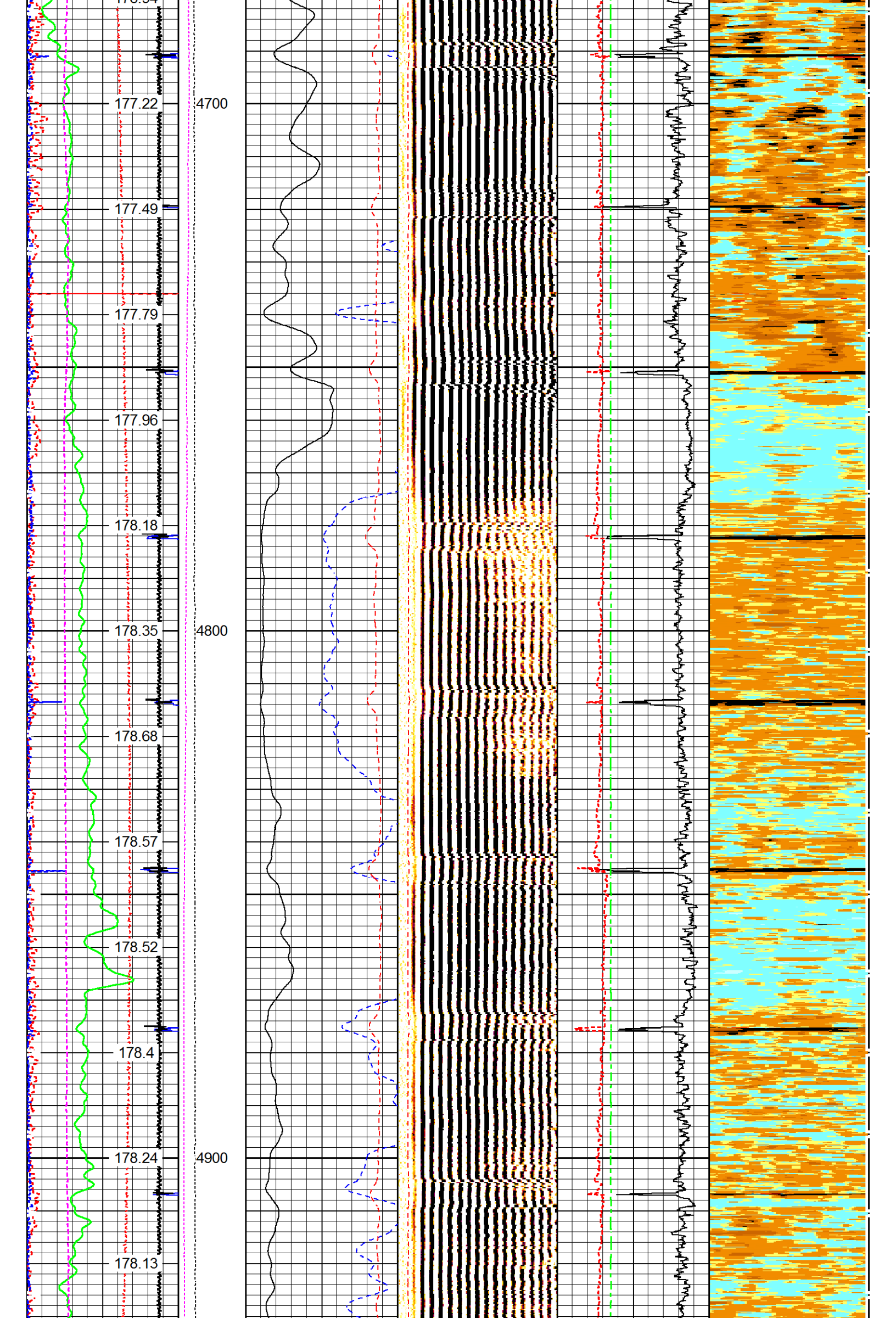


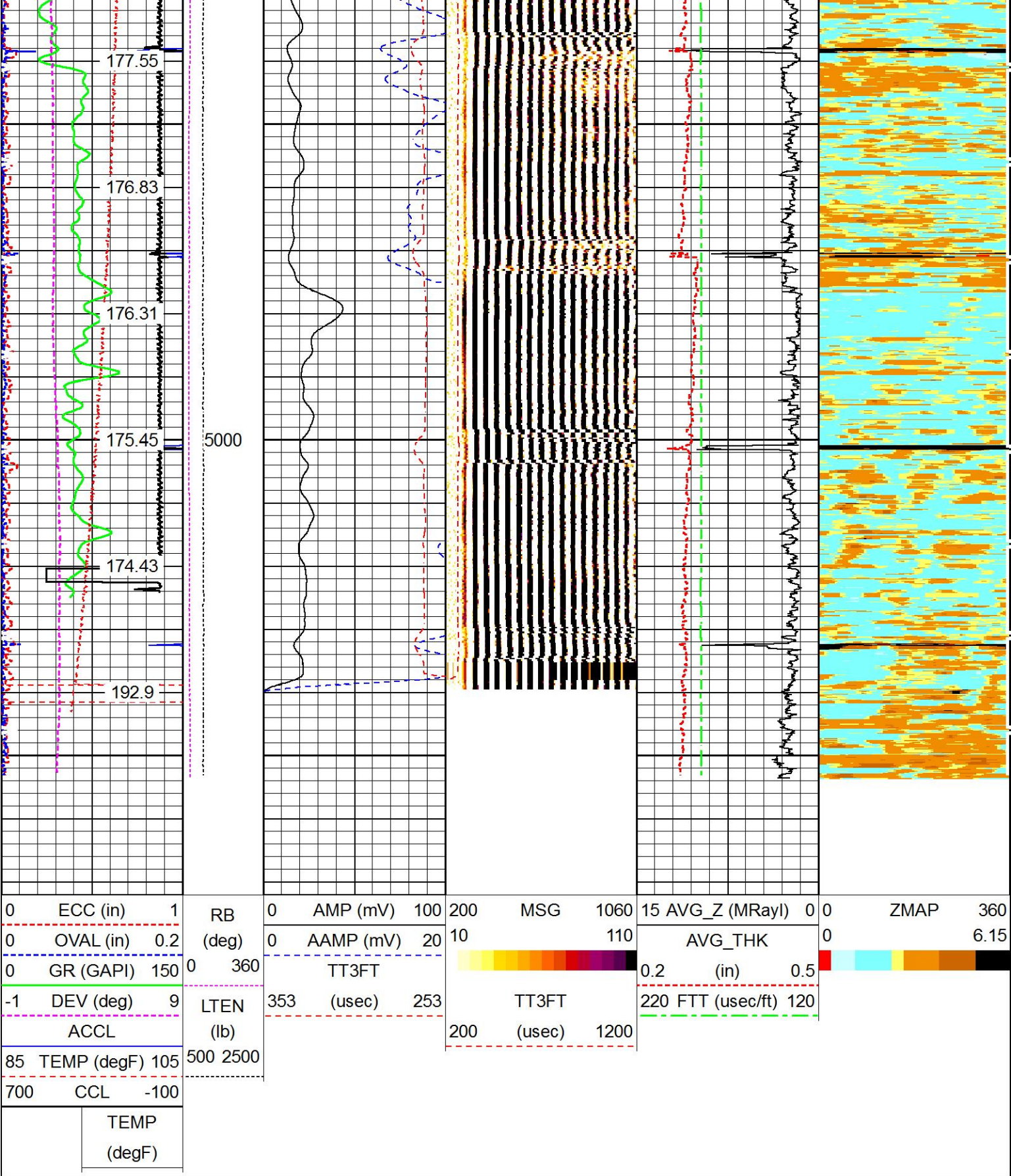












MAIN PASS

HALLIBURTON

5" = 100'

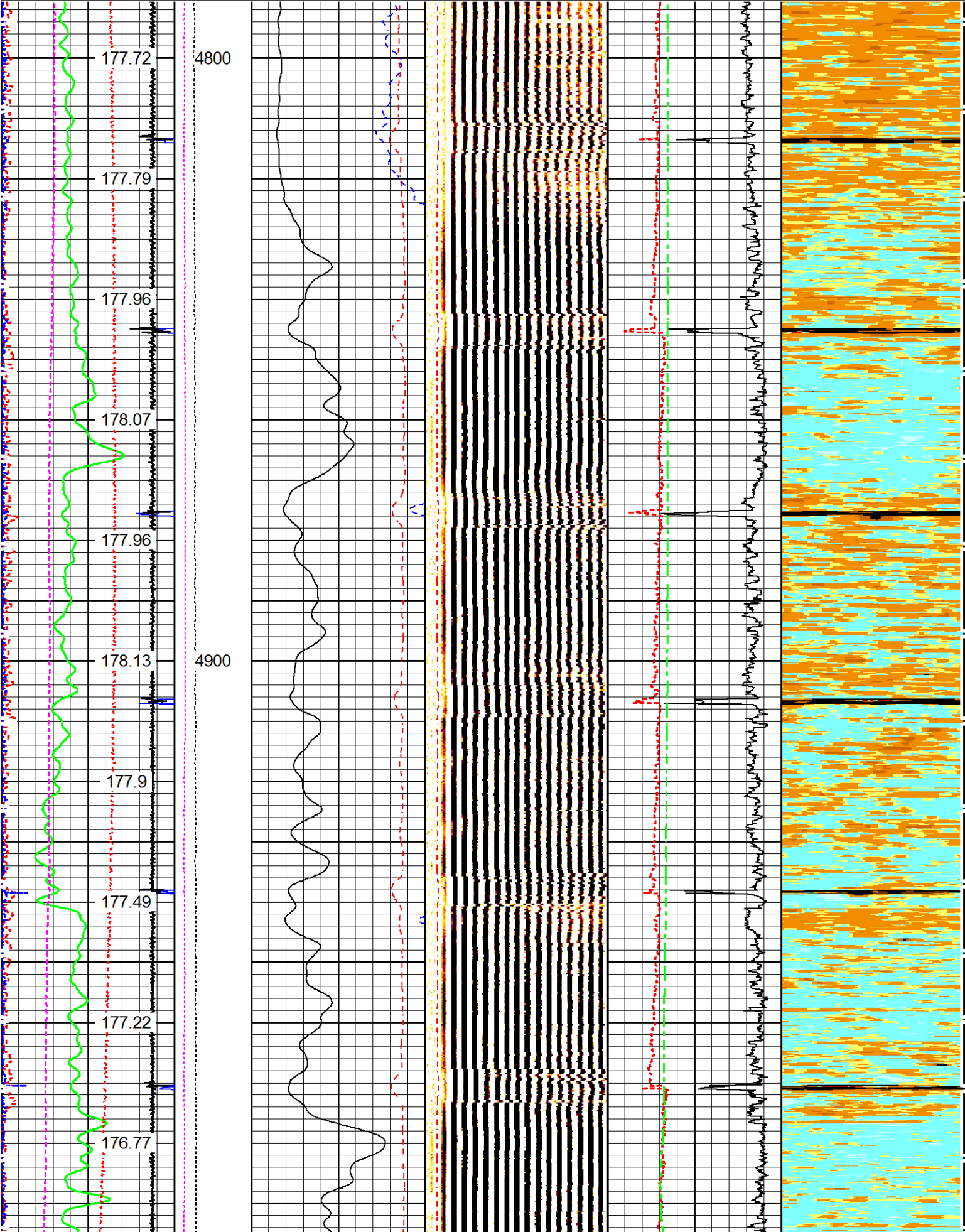
REPEAT PASS

HALLIBURTON

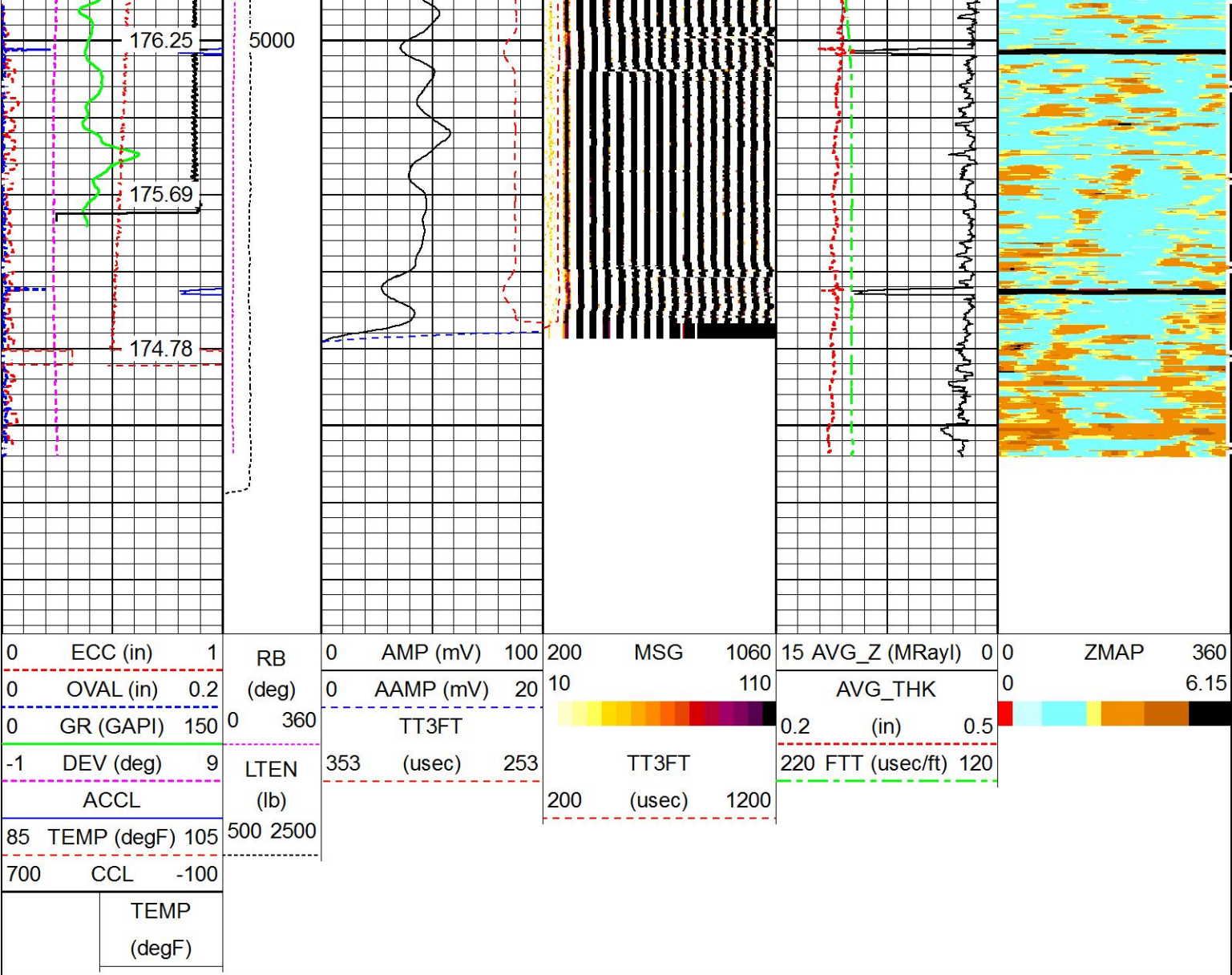
5" = 100'



0	ECC (in)	1	RB	0	AMP (mV)	100	200	MSG	1060	15	AVG_Z (MRayl)	0	0	ZMAP	360
0	OVAL (in)	0.2	(deg)	0	AAMP (mV)	20	10		110		AVG_THK	0	0		6.15
0	GR (GAPI)	150	0	360	TT3FT					0.2	(in)	0.5			
-1	DEV (deg)	9	LTEN	353	(usec)	253		TT3FT		220	FTT (usec/ft)	120			
	ACCL		(lb)				200	(usec)	1200						
85	TEMP (degF)	105	500	2500											
700	CCL	-100													
	TEMP														
	(degF)														







REPEAT PASS

HALLIBURTON

5" = 100'

Log Variables

DatabaseC:\ProgramData\Warrior\Data\ecgs\_gillham\_6.db  
Dataset field/well/run1/MAIN/\_vars\_

Top - Bottom

BHTEMP_Src	BITSIZE	BOTTEMP	CASEOD	CASETHCK	CASEWGHT	MSGGN	MudWgt
TEMP	in	degF	in	in	lb/ft		lb/gal
	7.875	180	5.5	0.275	15.5	1	8.5
PERFS	SRFTEMP	TDEPTH	USERFTT	ZREF			
0	degF	ft	u sec/ft	MRayl			
	40	5100	0	1.7			

Calibration Report

Database File ecgs\_gillham\_6.db  
Dataset Pathname RPT  
Dataset Creation Tue Feb 07 16:24:04 2017

Circumferential Acoustic Scanning Tool Shop Calibration Report

Serial-Model: 12158270-3 5/8 EXT SCAN  
Calibration Performed: Mon Feb 06 17:50:26 2017

Mudcell Transducer

Main Transducer

Measured Expected Measured Expected Units

W/O Calibrator	Measured	Expected	Measured	Expected	Units
W Calibrator	47.80	44.00	N/A	N/A	usec
	39.62	35.00	54.80	50.00	usec
Calibrated Offsets					
Name	Value	Units			
TCAL	4.8000	usec			
MCAL	6.8881	usec			
XY Accelerometers Calibration Report					
Performed:	Mon Apr 14 09:51:09 2014				
	Low Read.	High Read.	Low Ref.	High Ref.	
X Accelerometer	-1.006	0.998	gee	-1.000	1.000
					gee
Y Accelerometer	-1.004	0.980	gee	-1.000	1.000
					gee
Cement Bond Log Shop Calibration Report					
Serial-Model:	12091451-A				
Calibration Performed:	Thu Dec 01 13:19:47 2016				
Free Pipe Calibration					
TT	Measured	Units			
Amplitude	244.6	usec			
Log Base Line	552.0	mV			
	5.9	mV			
Calibration References and Gain					
Name	Value	Units			
Pipe O.D.	4.500	in			
Pipe Weight	11.6	lb/ft			
Pipe Ref. Amp.	81.2	mV			
Amp. Gain	0.149				
Gamma Ray Calibration Report					
Type / Serial:	002 / 12105786				
SHOP CALIBRATION					
	Mon Feb 06 14:47:35 2017				
	Counts/Sec.	Gain	Offset	Jig	Units
Background	43.5				cps
Calibrator	203.8				cps
		0.9981			GAPI/cps
PRIMARY VERIFICATION					
Background	42.6				cps
Calibrator	206.2				cps
Difference				163.6	GAPI
BEFORE SURVEY VERIFICATION					
Background	0.0				cps
Calibrator	0.0				cps
Difference				0.0	GAPI
AFTER SURVEY VERIFICATION					
Background	0.0				cps
Calibrator	0.0				cps
Difference				0.0	GAPI

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb
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Company	EAST CHEYENNE GAS STORAGE LLC		
Well	GILLHAM 6		
Field	PEETZ WEST		
County	LOGAN	State	CO
<b>HALLIBURTON</b>	CIRCUMFERENTIAL ACOUSTIC SCANNING TOOL CEMENT INSPECTION		