

Company: Noble Energy Inc

Well: Mahalo State AA09-74-1AHNC
Field: Wattenberg
County: Weld State: Colorado

<div>USI-LITE (2500 psi)</div>				LOCATION		Elev. K.B. 4710.0 F G.L. 4694.0 F D.F. 4709.0 F	
				Permanent Datum: Log Measured From: Drilling Measured From:			GL KB KB
Logging Date		23-Feb-2015	API Serial No. 05-123-39015-0000		Section 4	Township 6N	Range 63W
Run Number		Run-1					
Depth Driller		7000.0 F					
Schlumberger Depth		6864.0 F					
Bottom Log Interval		6864.0 F					
Top Log Interval		50.0 F					
Casing Fluid Level		8.0 F					
Salinity							
Density		8.70 LB/G					
Fluid Level		8.0 F					
BIT/CASING/TUBING STRING							
Bit Size		8.750 IN					
From		6864.0 F					
To		-999.2 F					
Casing Size		7.00 IN					
Weight		26.00 LB/F					
Grade		P110					
From		16.0 F					
To		6989.6 F					
Max Recorded Temp		230.7					
Logger on bottom (date)		23-Feb-2015					
Location		Fort Morgan					
Recorded By		Nolan Welsh/ Rath Angraeny					
Witnessed By							

DEPTH SUMMARY LISTING

DEPTH SYSTEM EQUIPMENT

Depth Measuring Device	Tension Device	Logging Cable
Type: Serial Number: Calibration Date: Calibration Cable Type: Wheel Correction 1: Wheel Correction 2:	Type: Serial Number: 1109 Calibration Date: Calibrator Serial Number: Number Of Calibration Points: Calibration RMS: Calibration Peak Error:	Serial Number: F713384 Length: 13800.00098

DISCLAIMER

THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIIONS ON USE OF THE RECORDED-DATA (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE OF ANR RELIANCE UPN THE RECORDED-DATA; AND (c)CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISIONS MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA

0 PSI Ran on repeat pass and 2500 PSI on main.

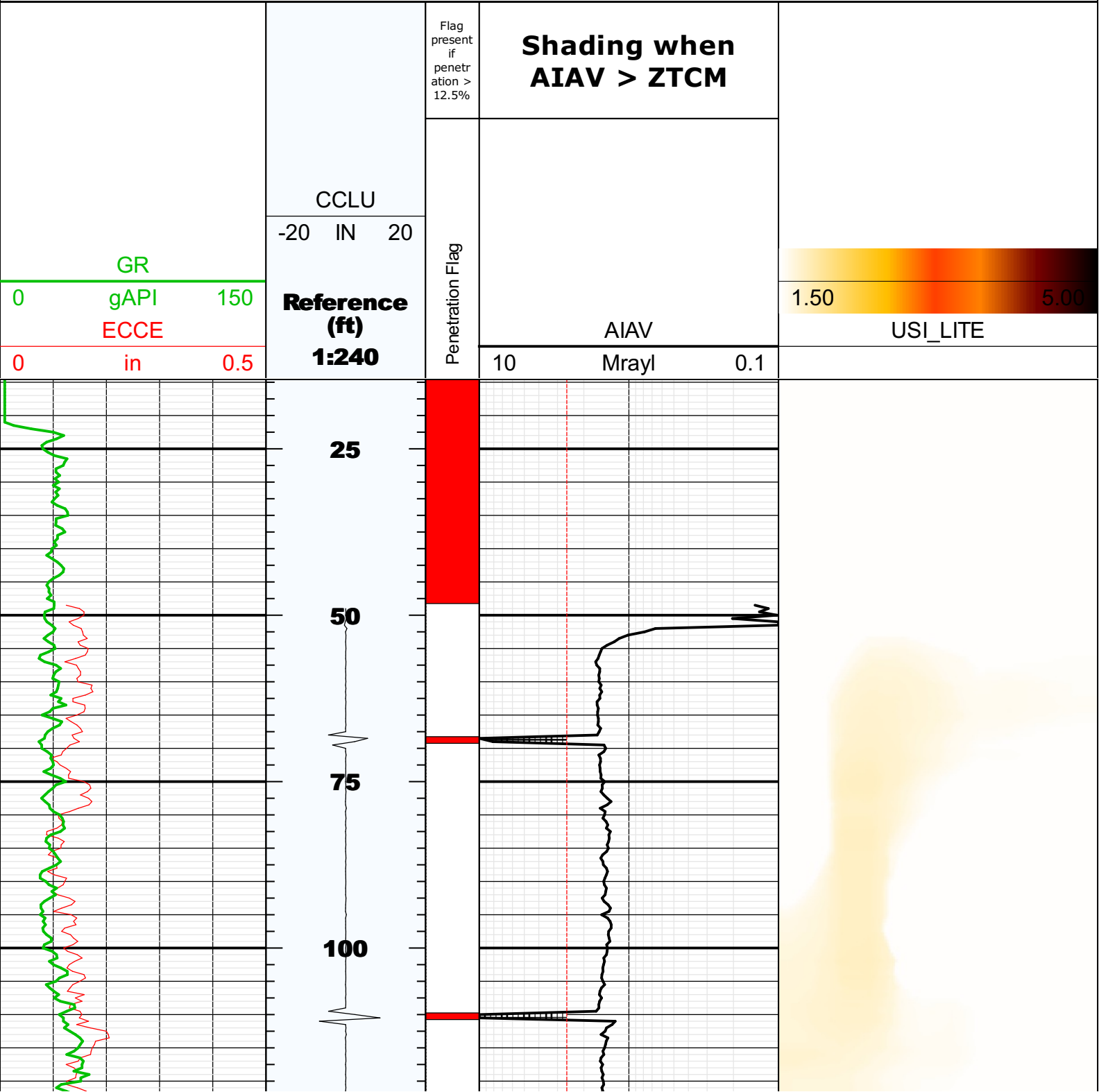
Top of Cement seen at 550', expected top of cement at 411'.

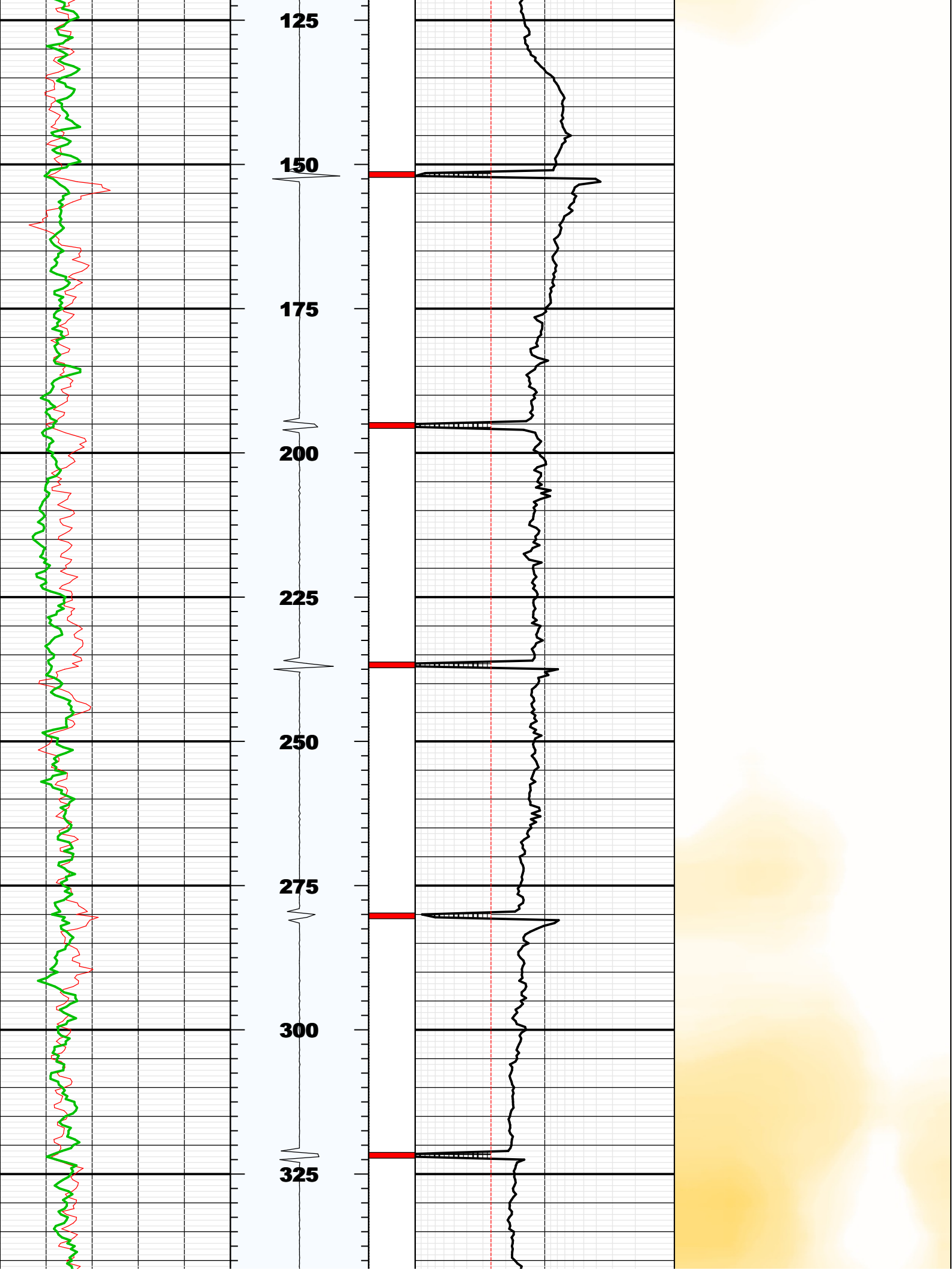
Bottom log interval at 6864' to maintain distance from top of liner at 8,880.5'

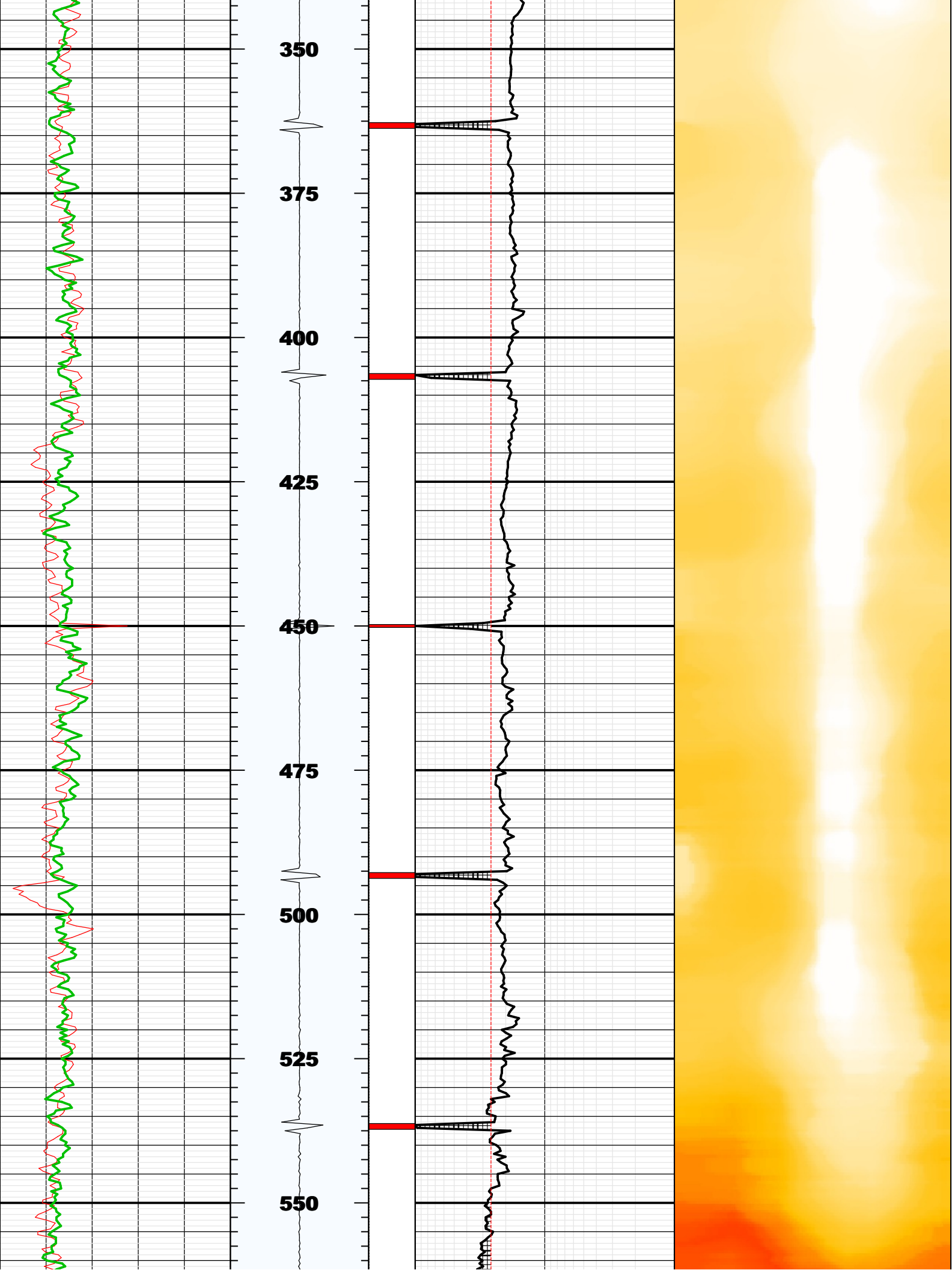
Temperature was 231 degF measured at depth

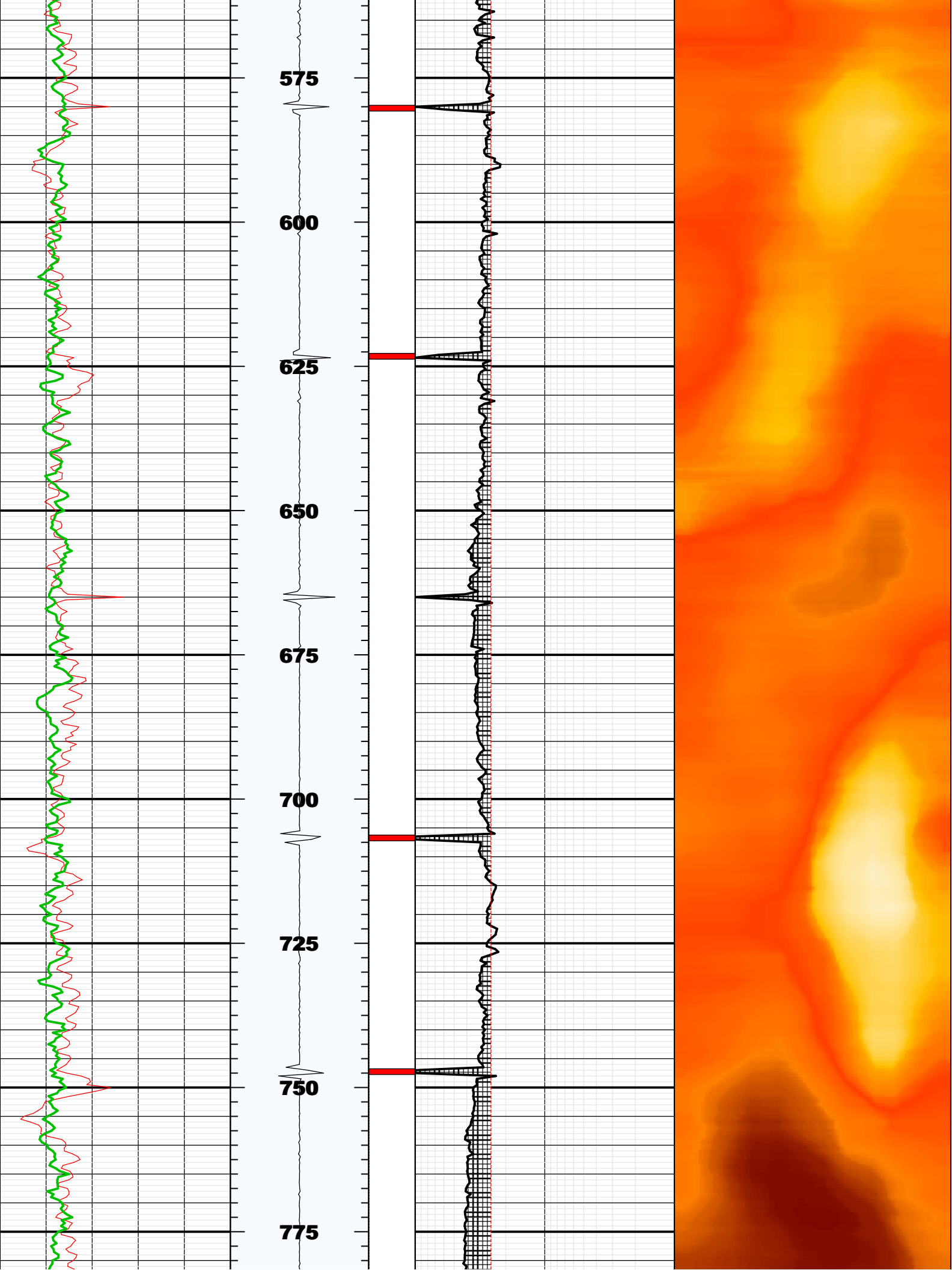
Main Pass

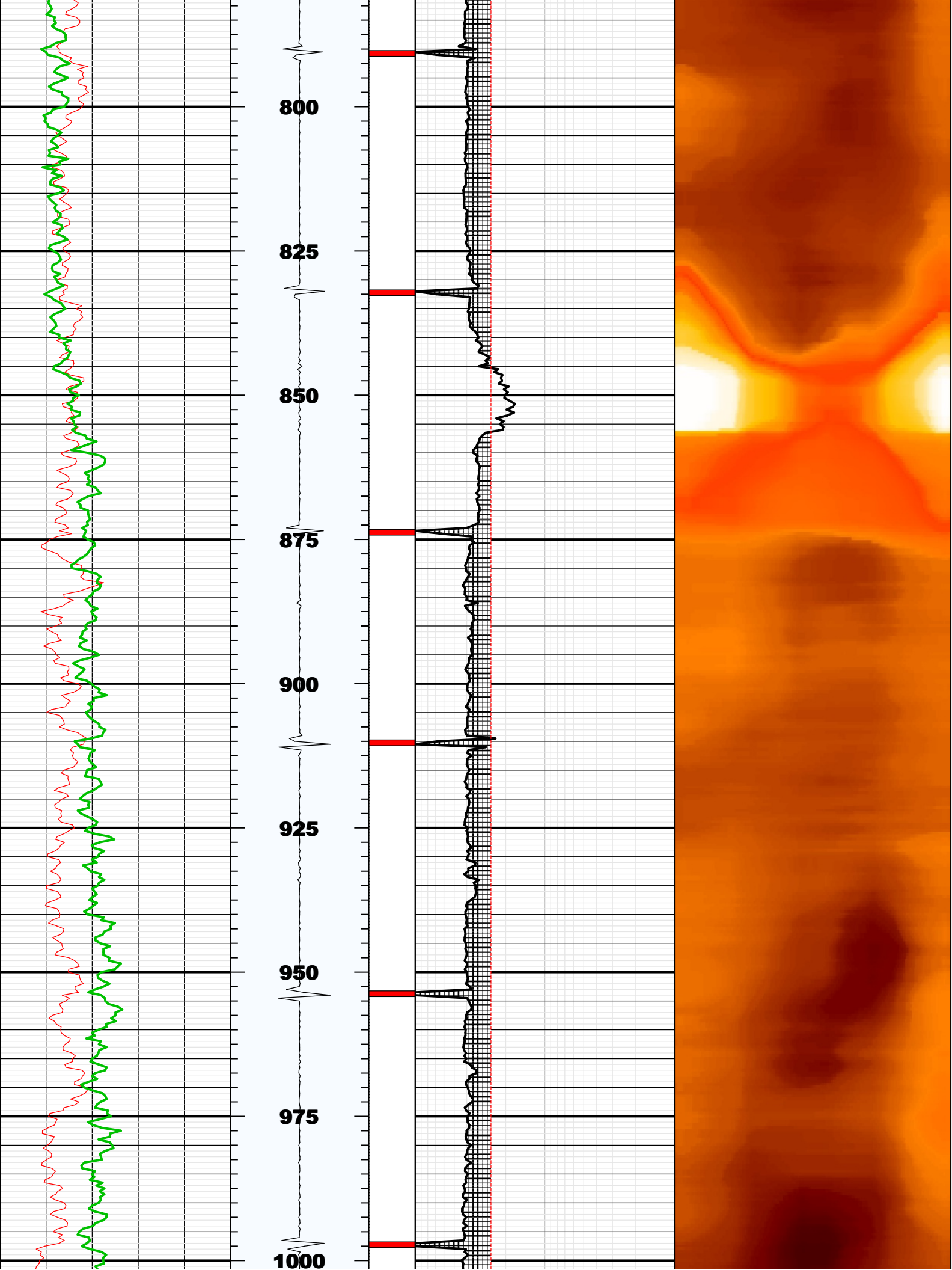
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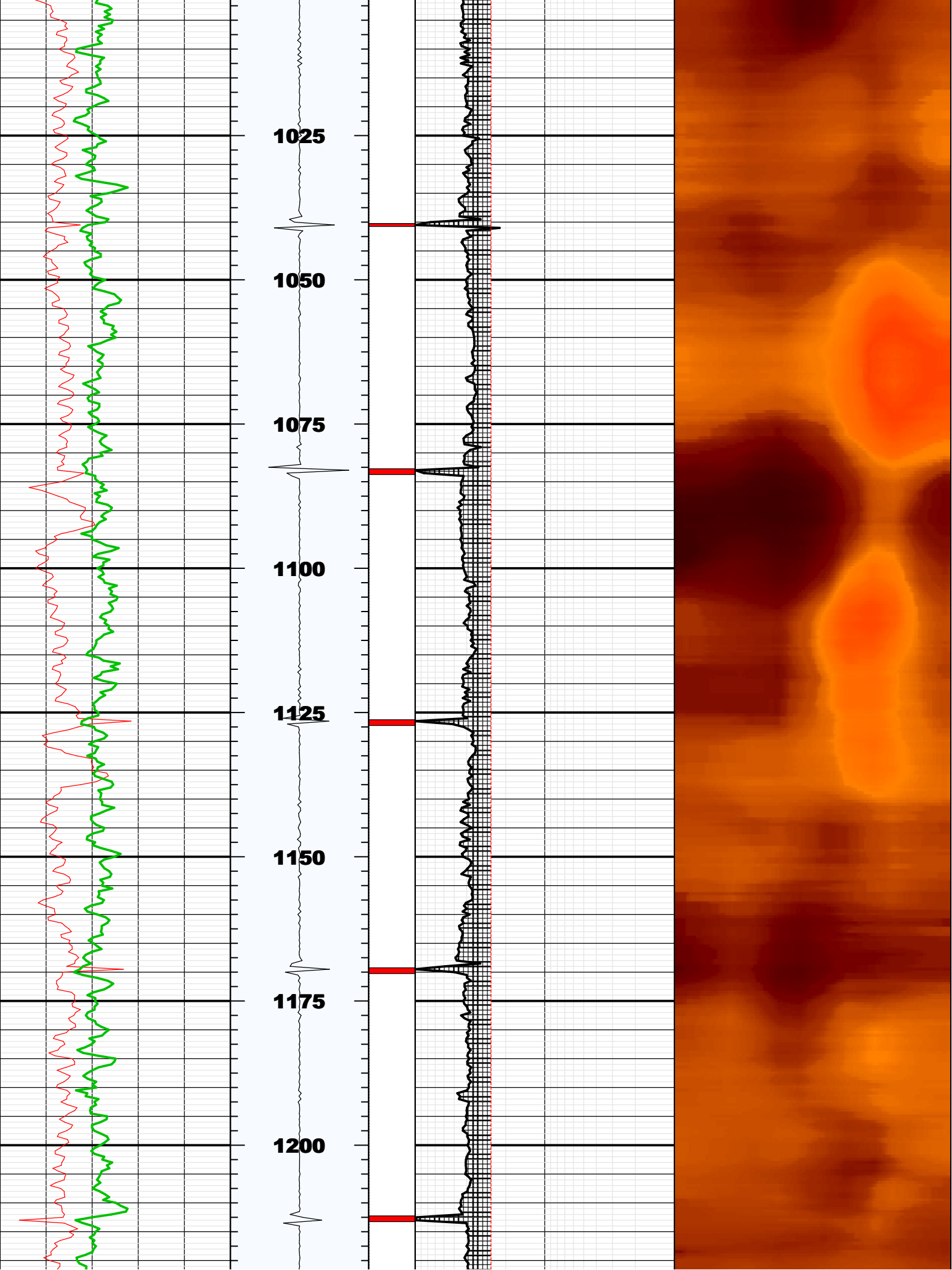


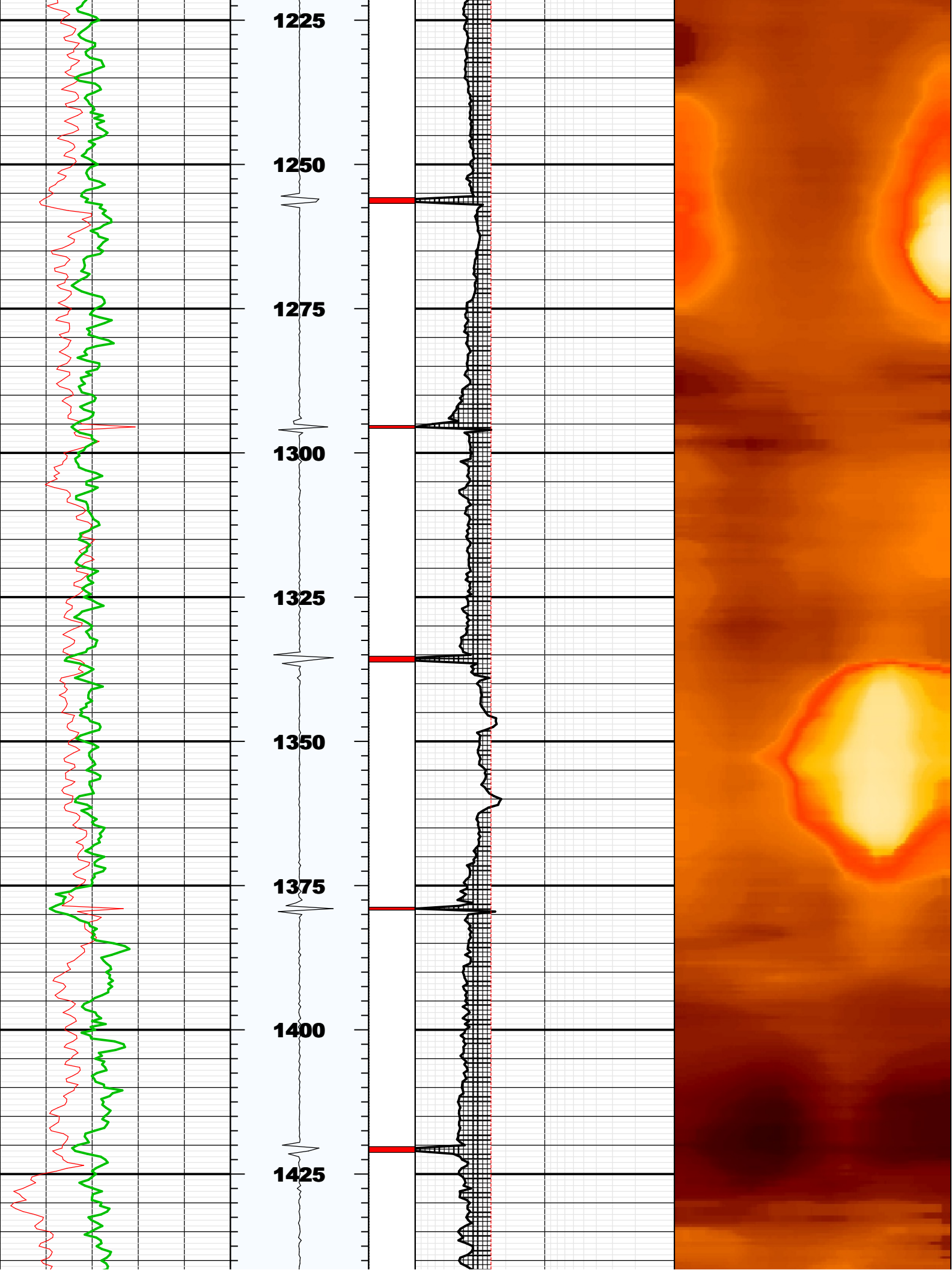


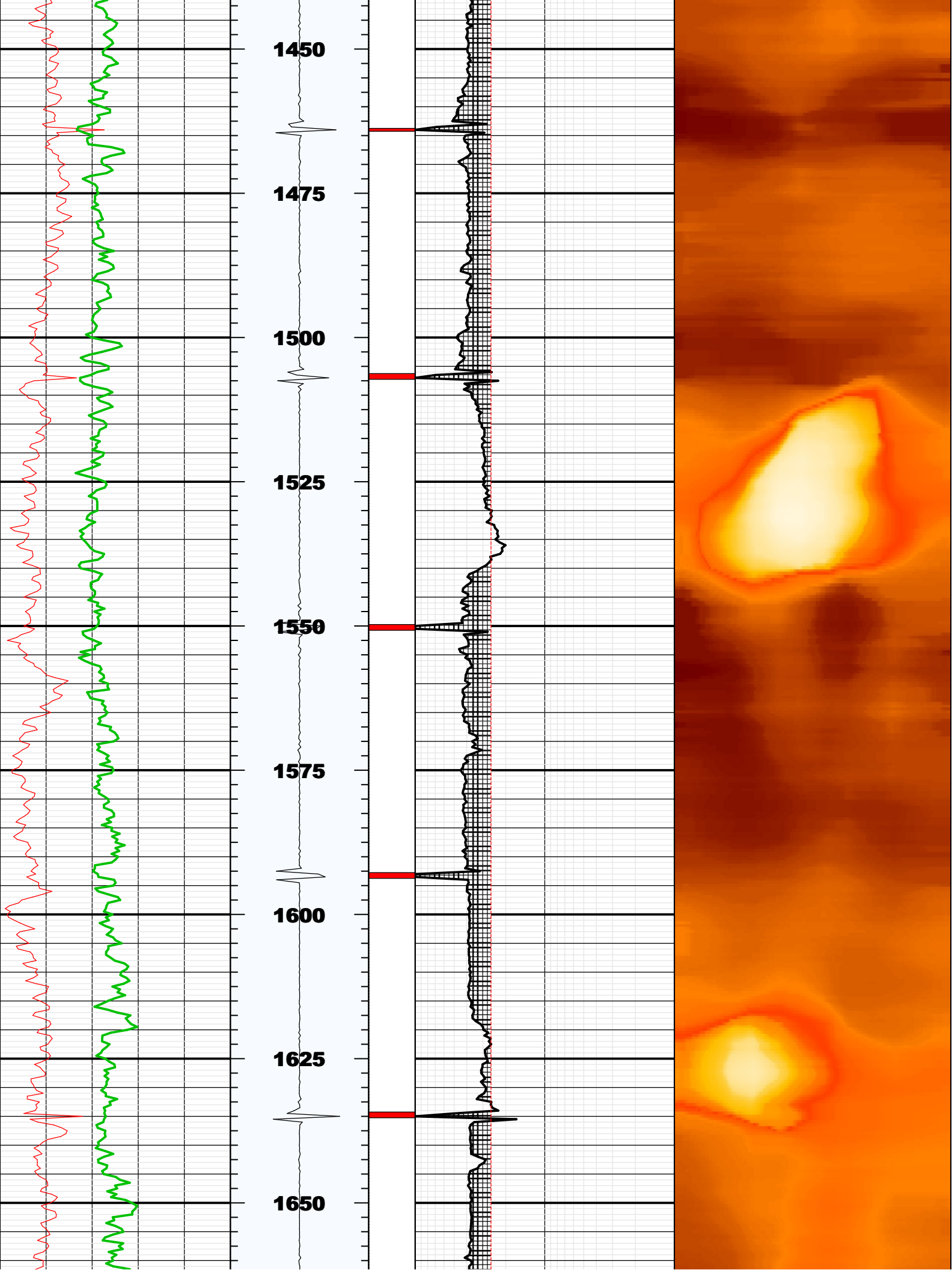


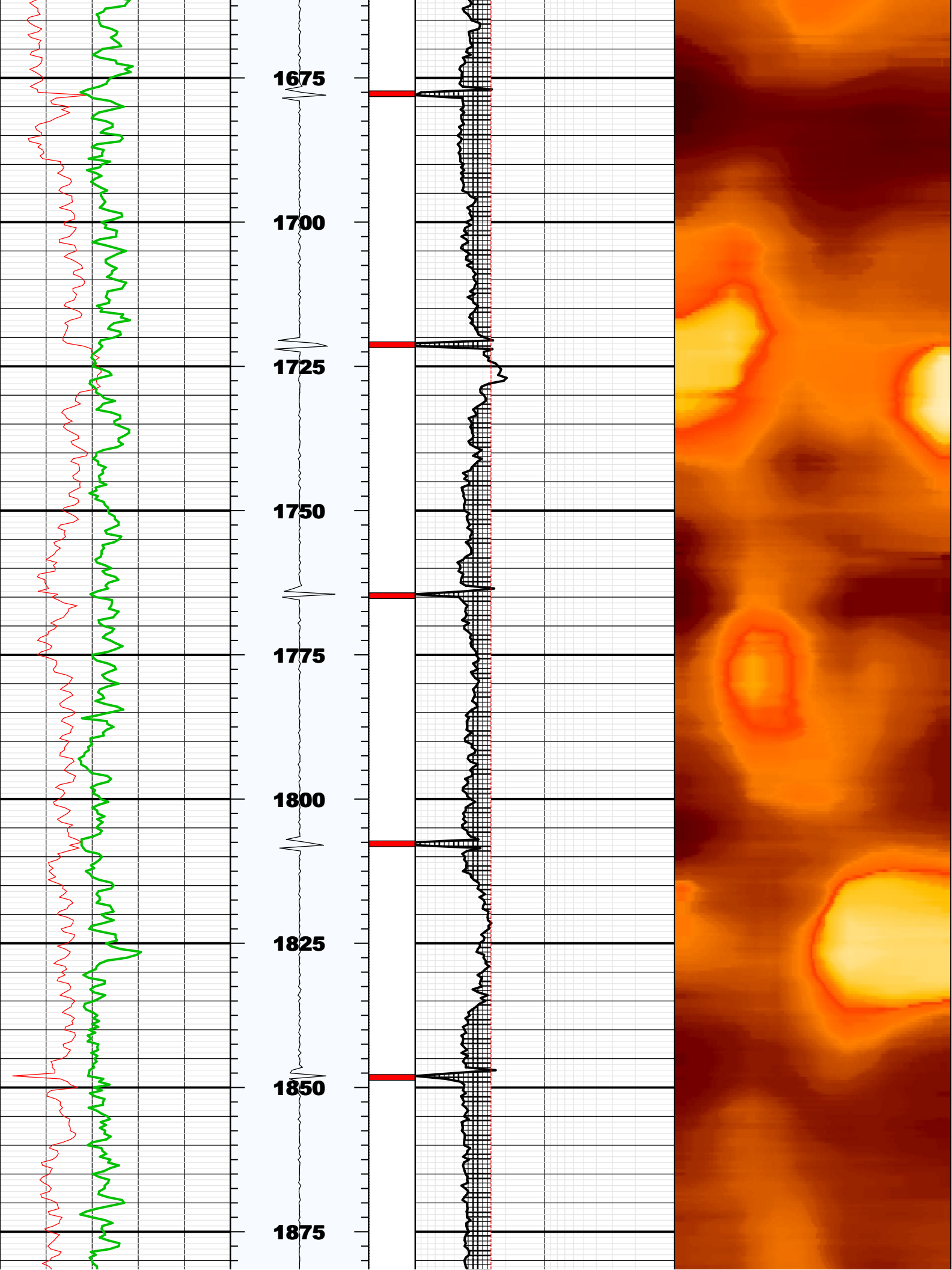


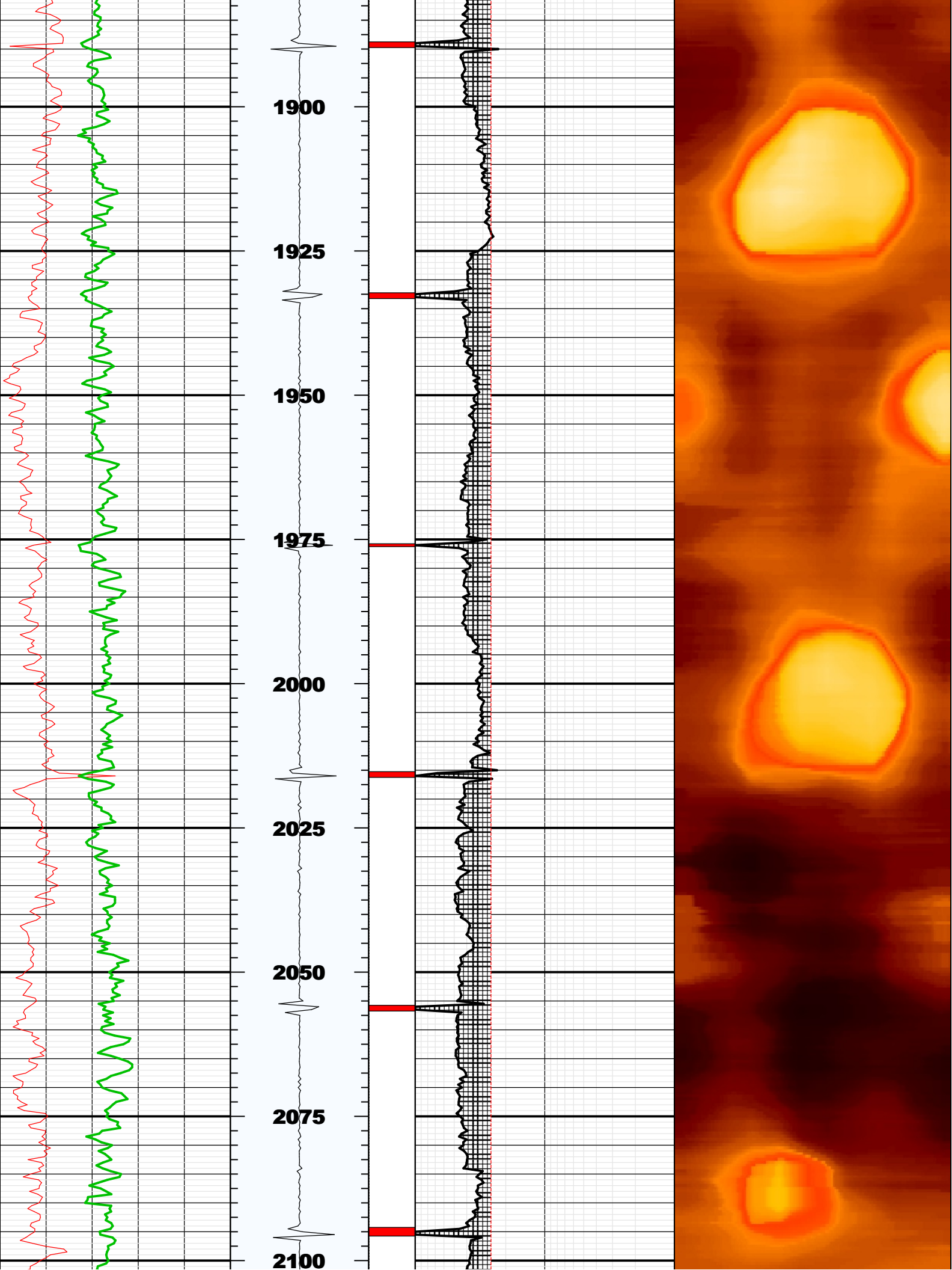


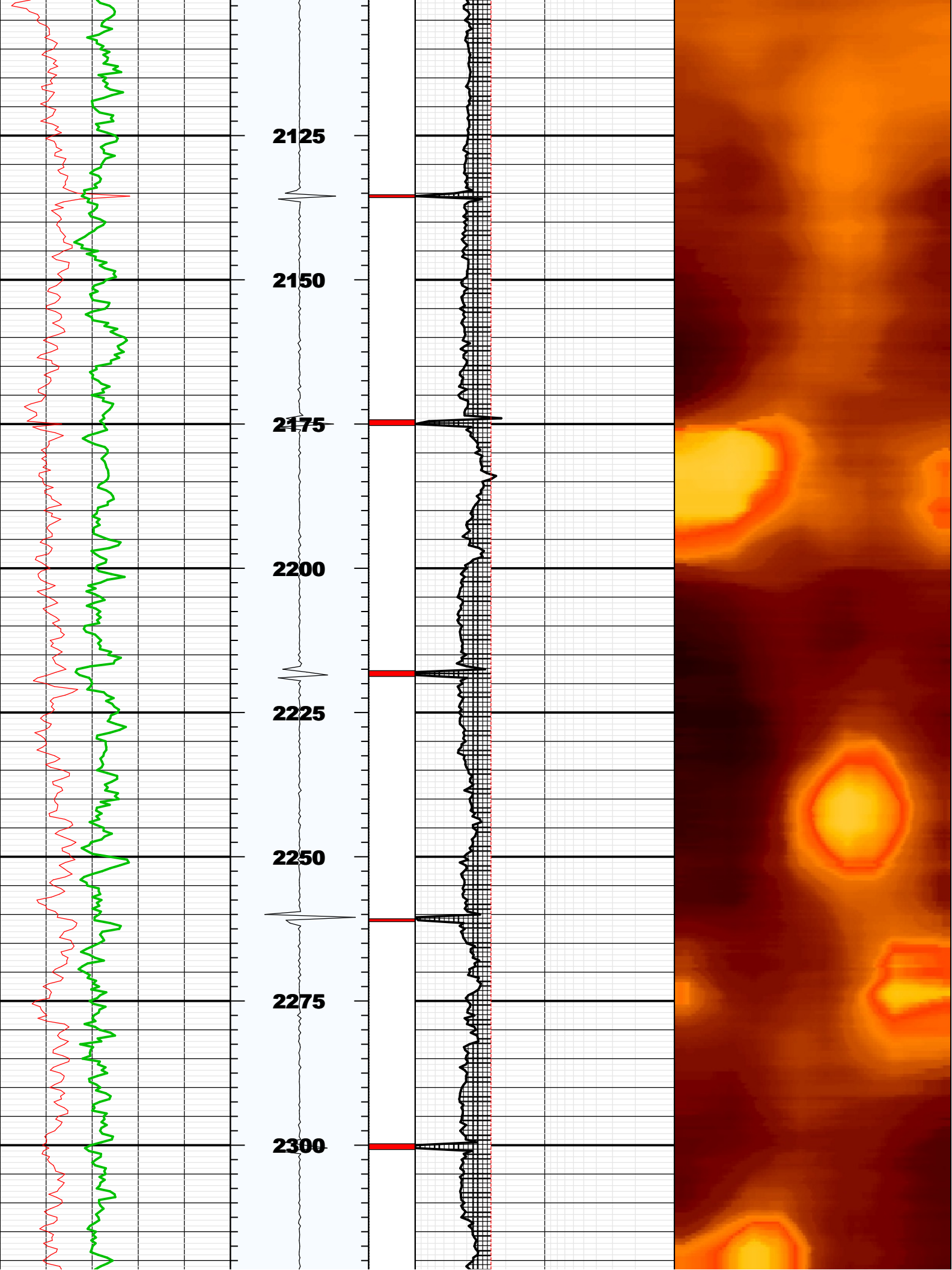


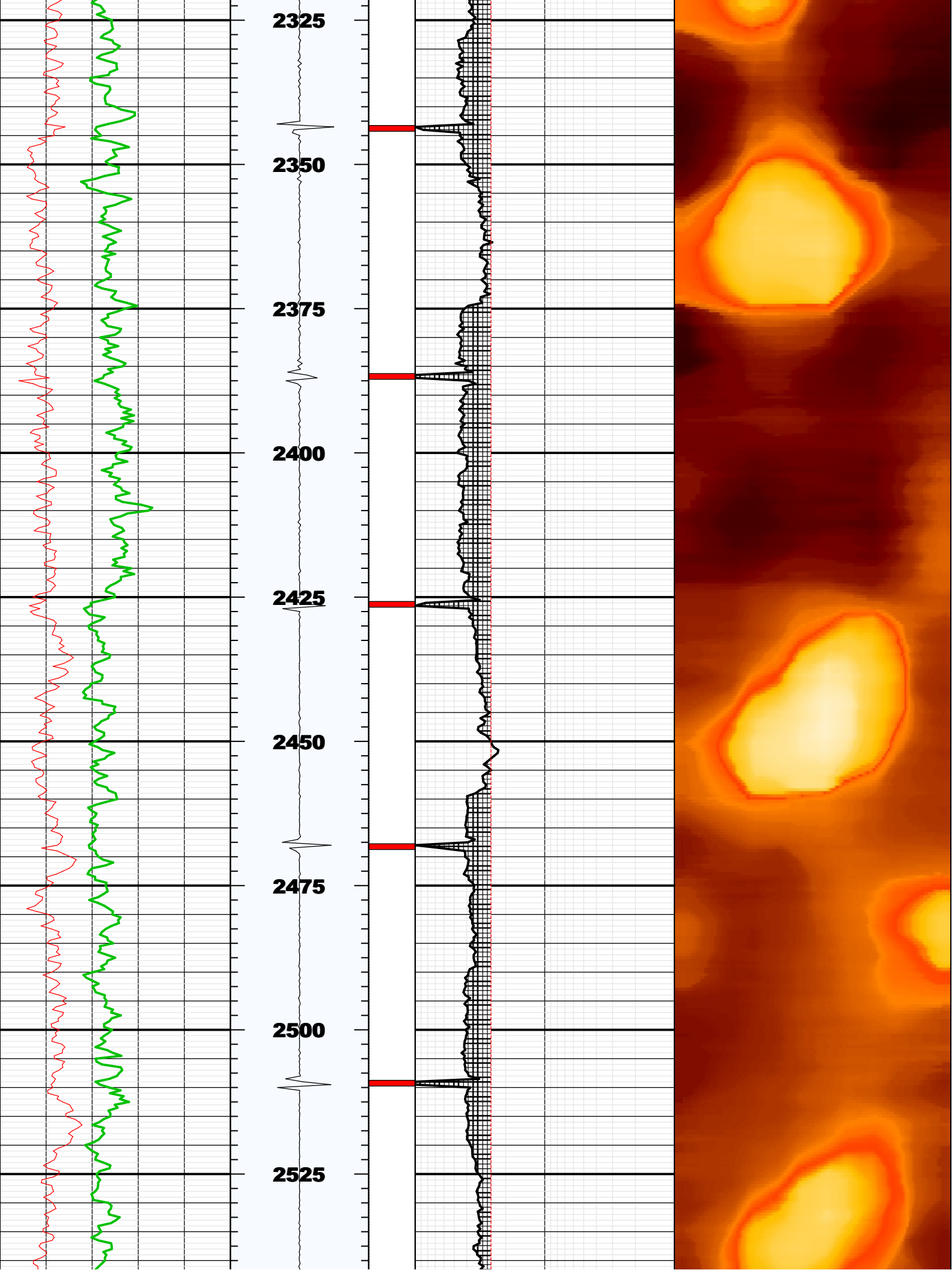


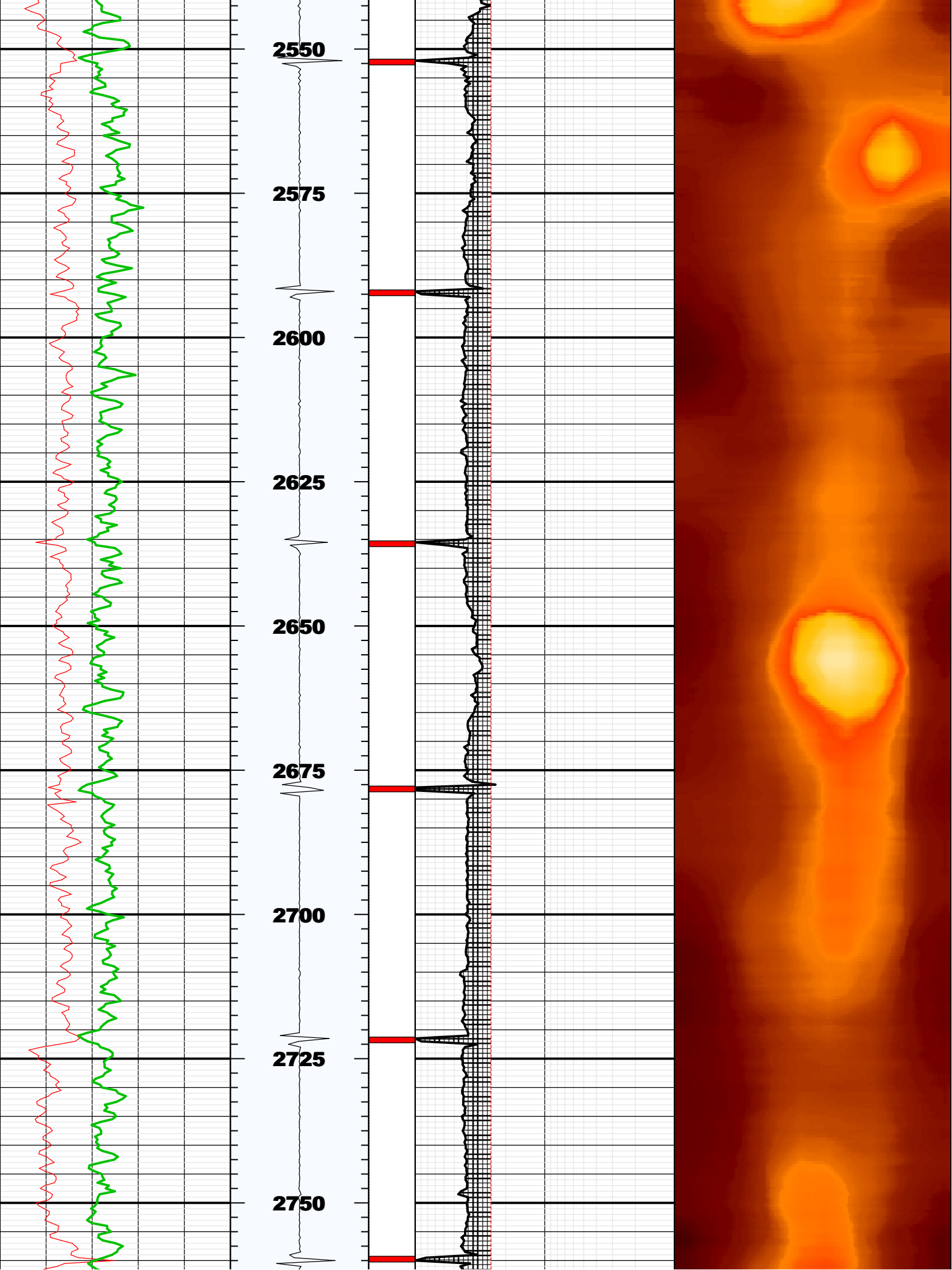


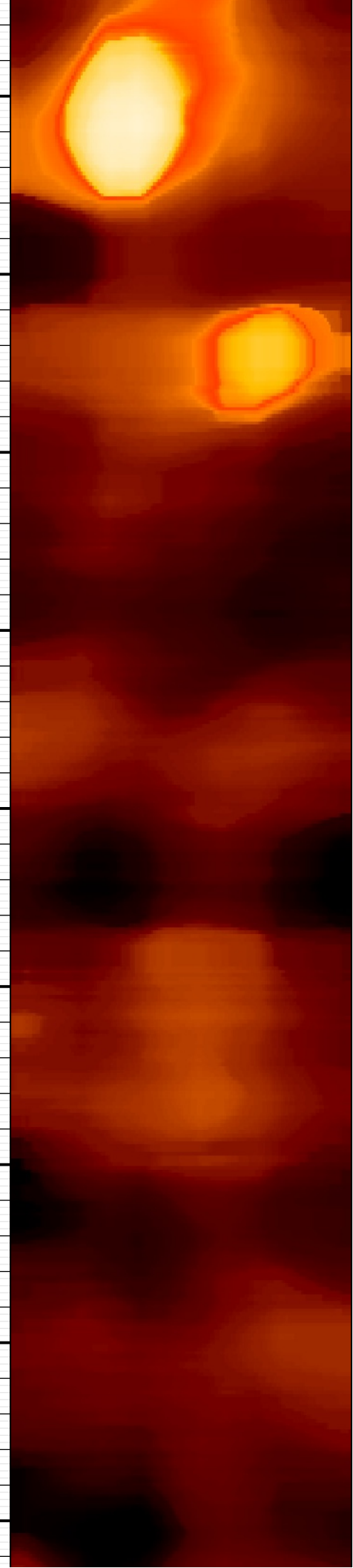
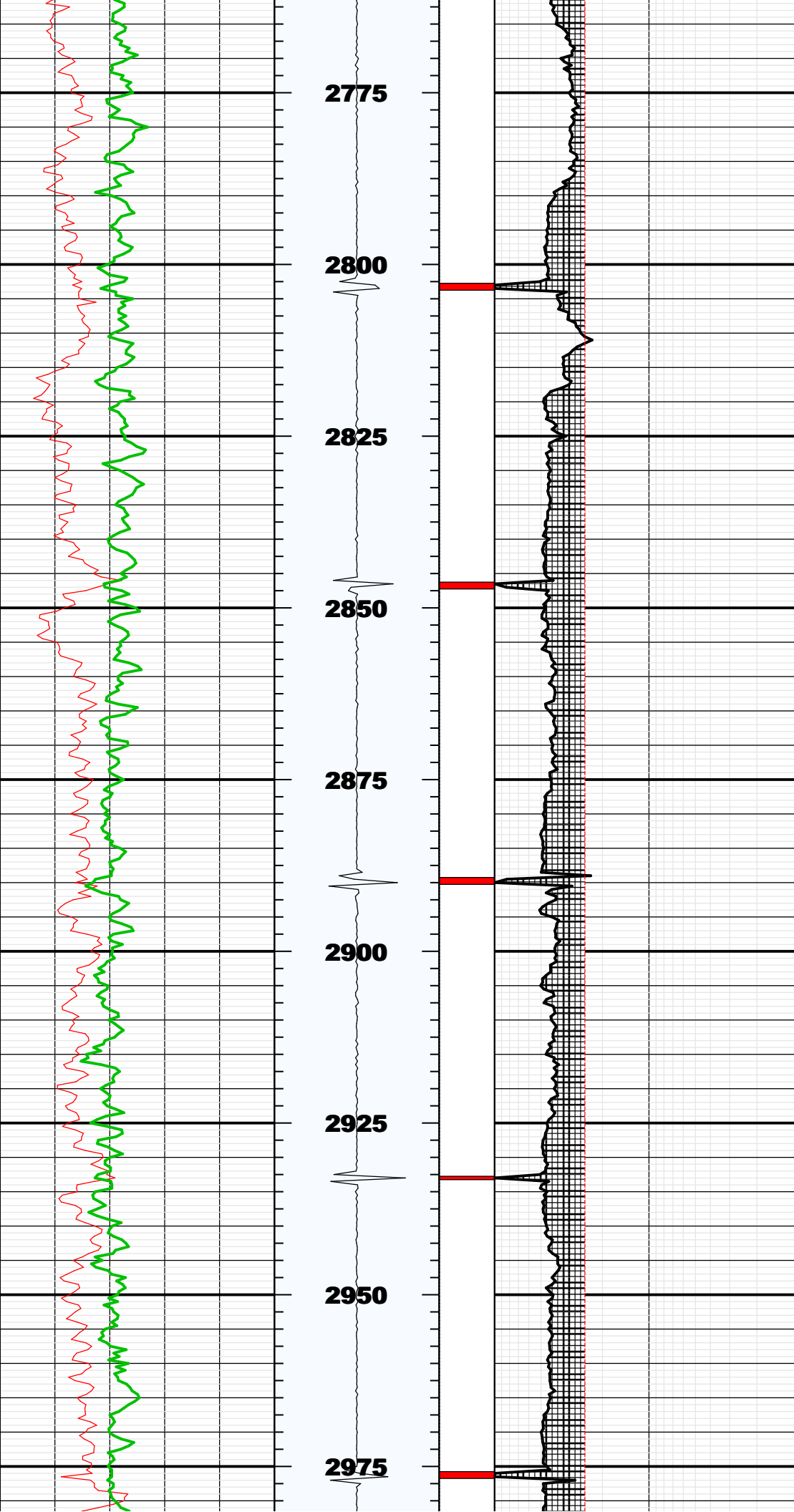


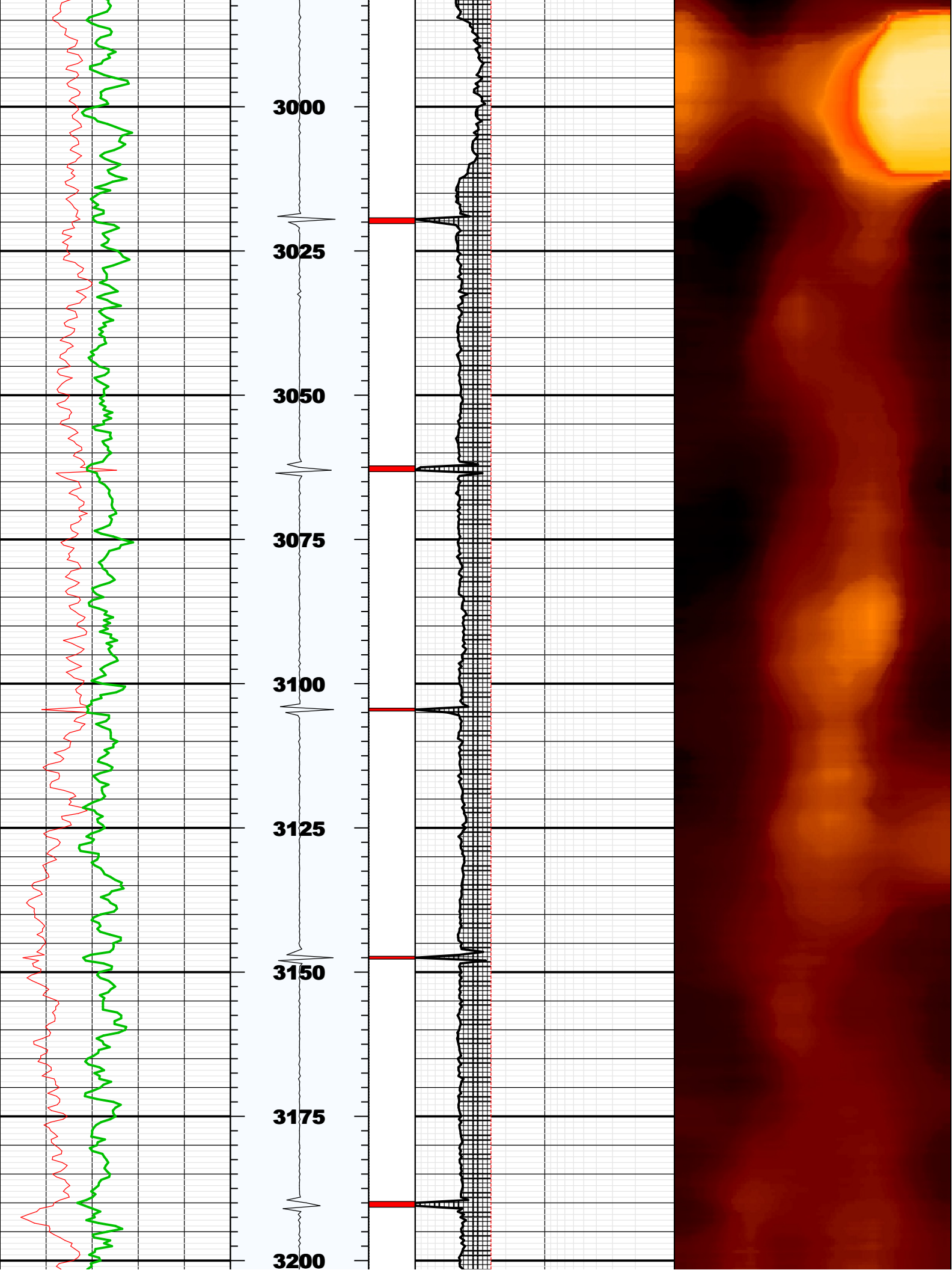


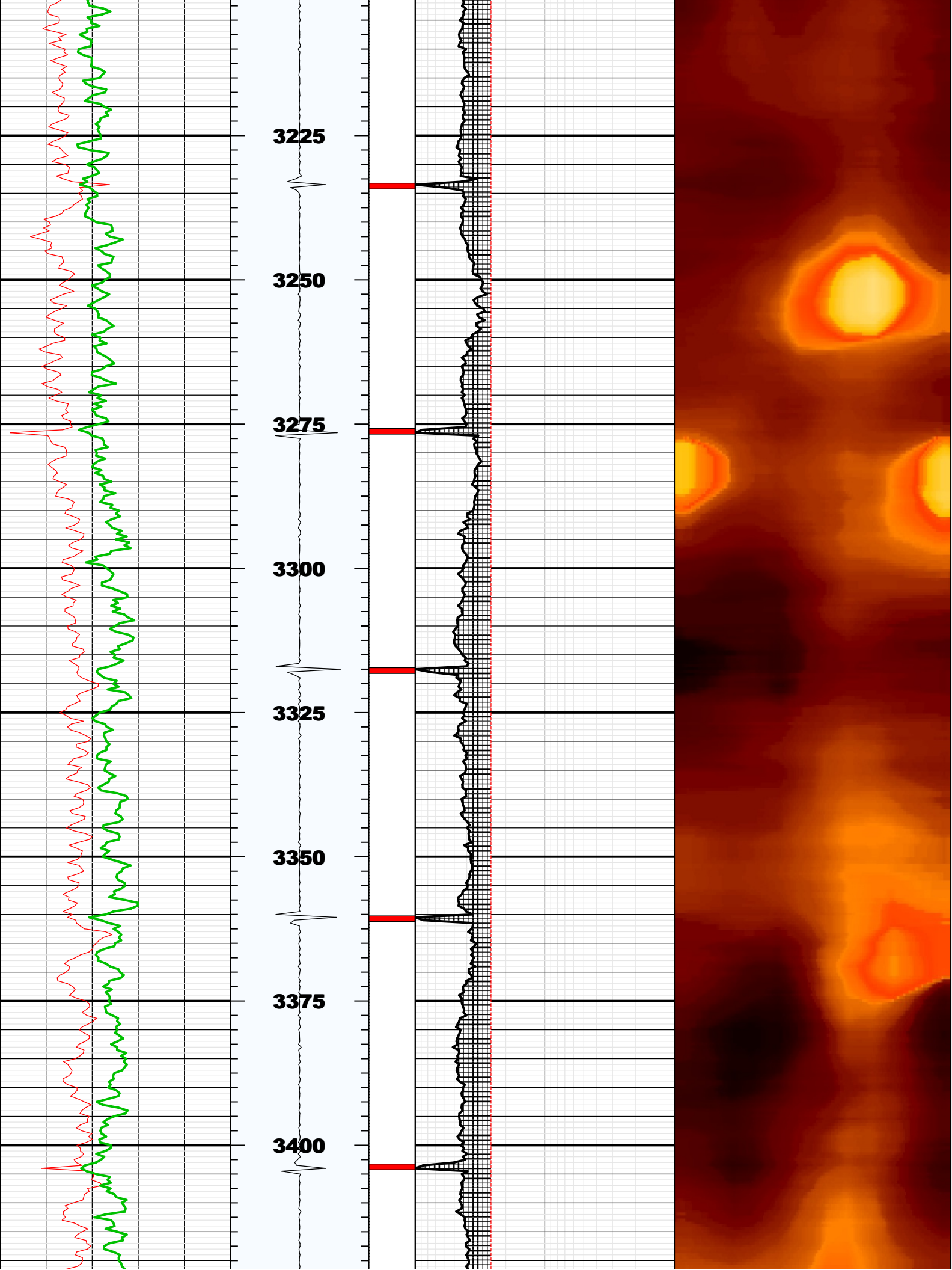


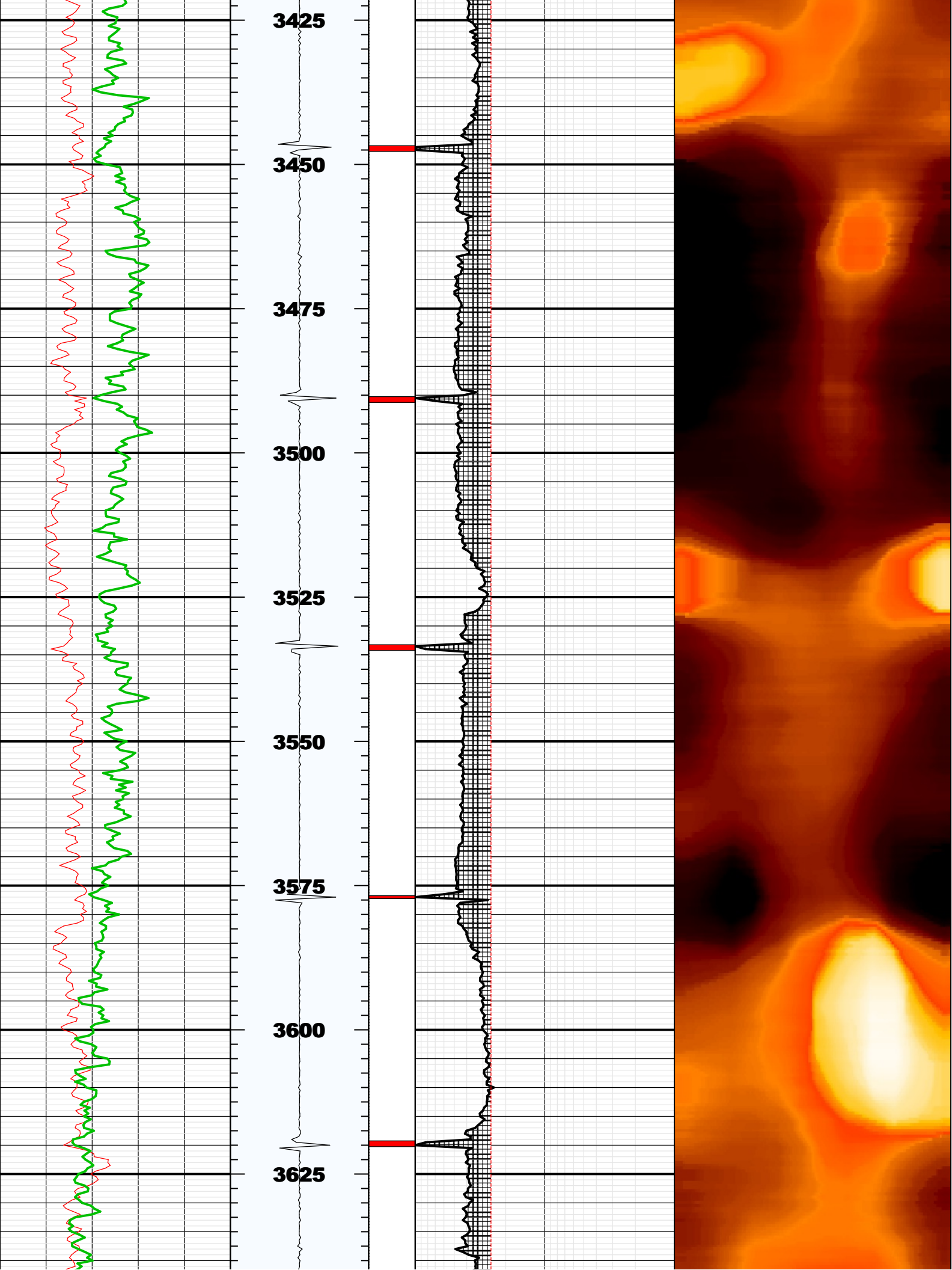


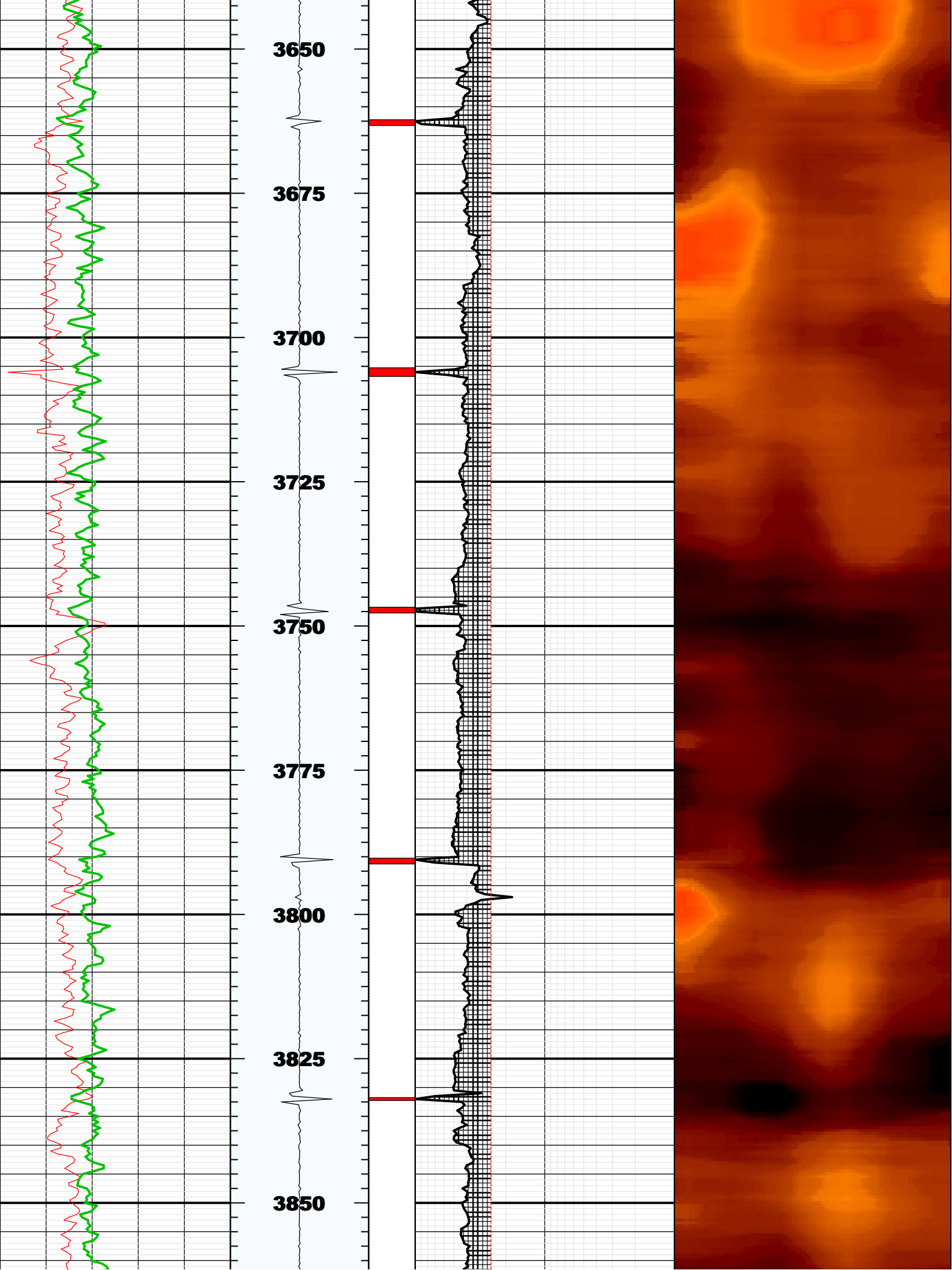


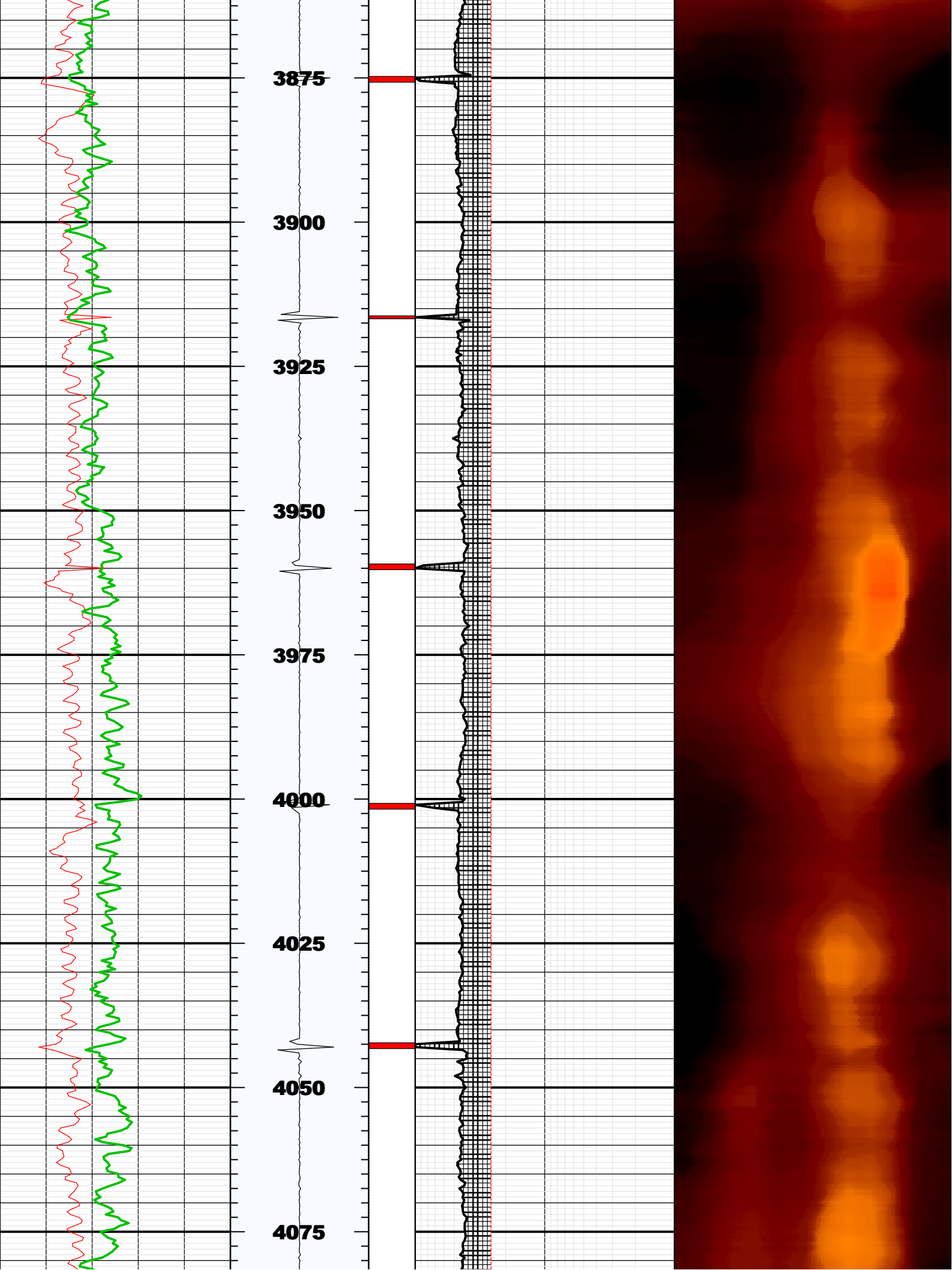


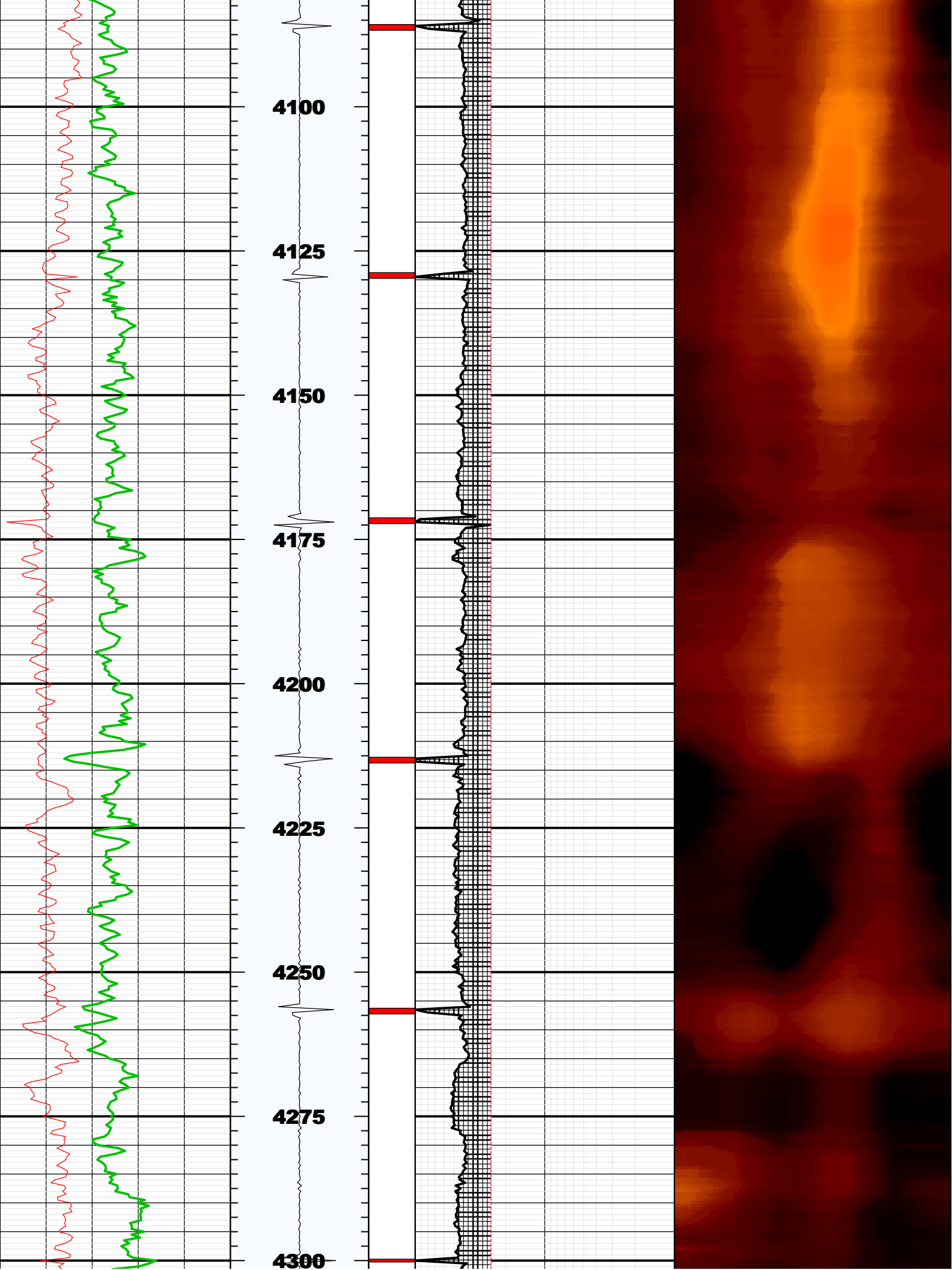


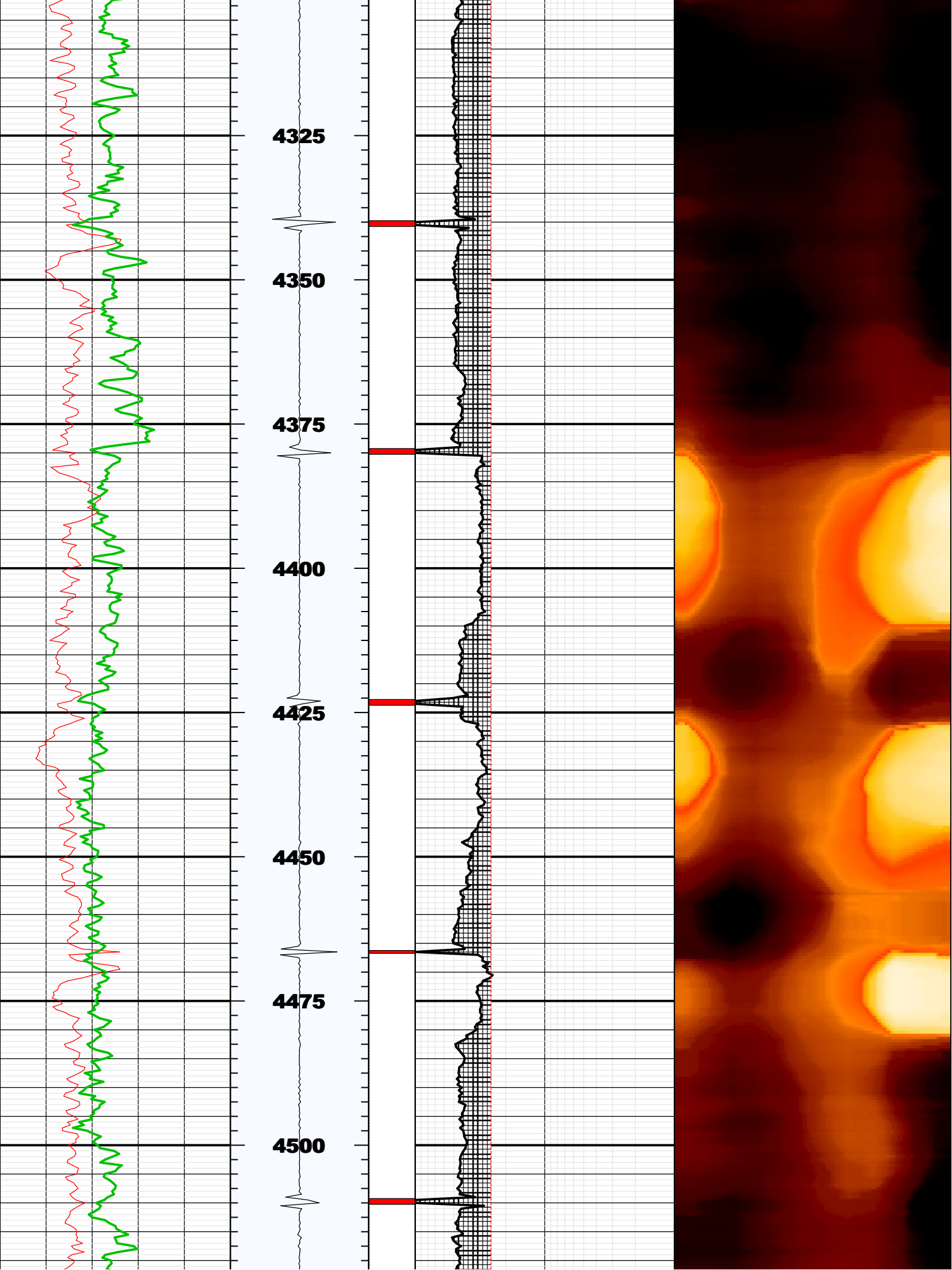


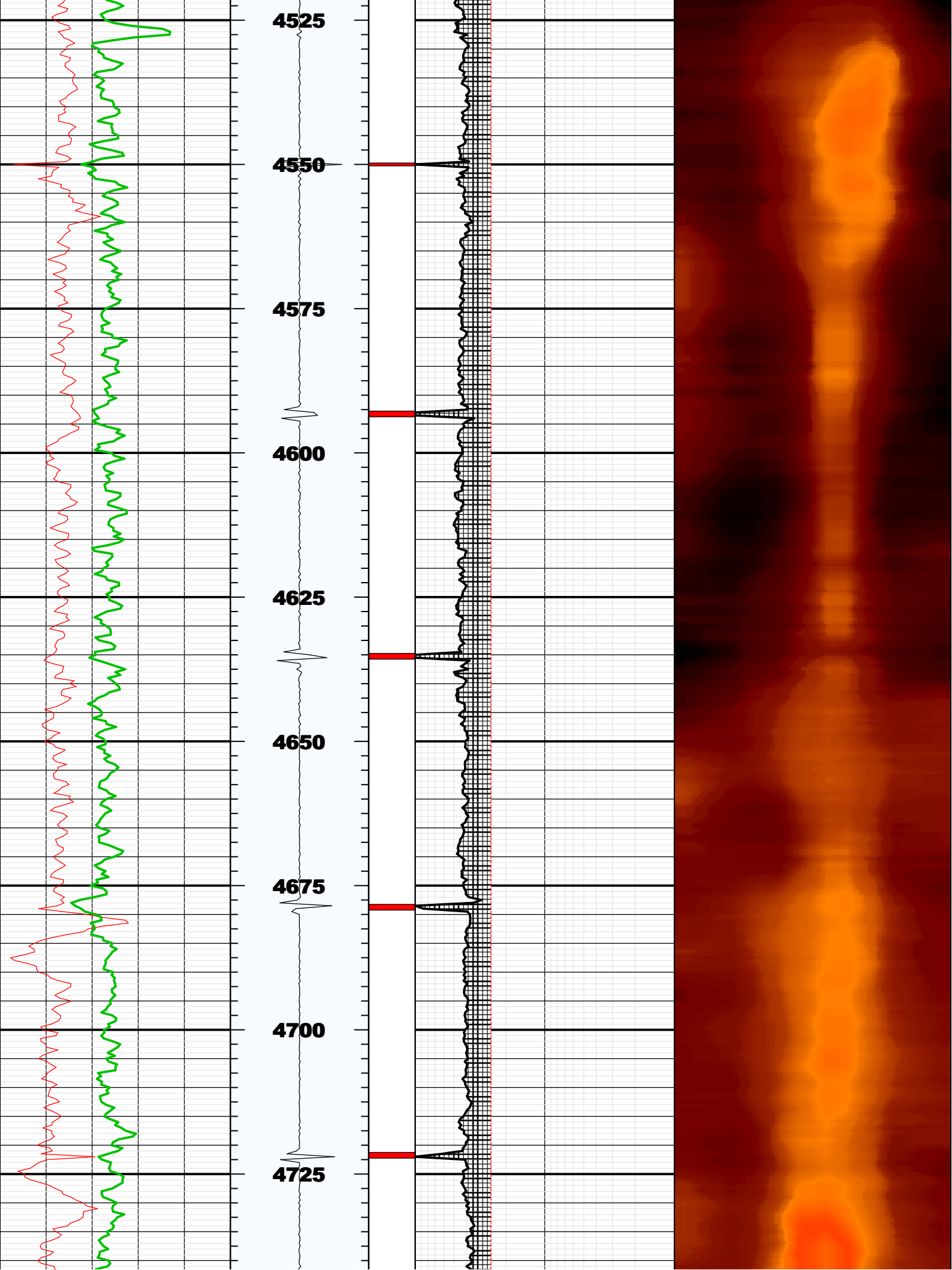


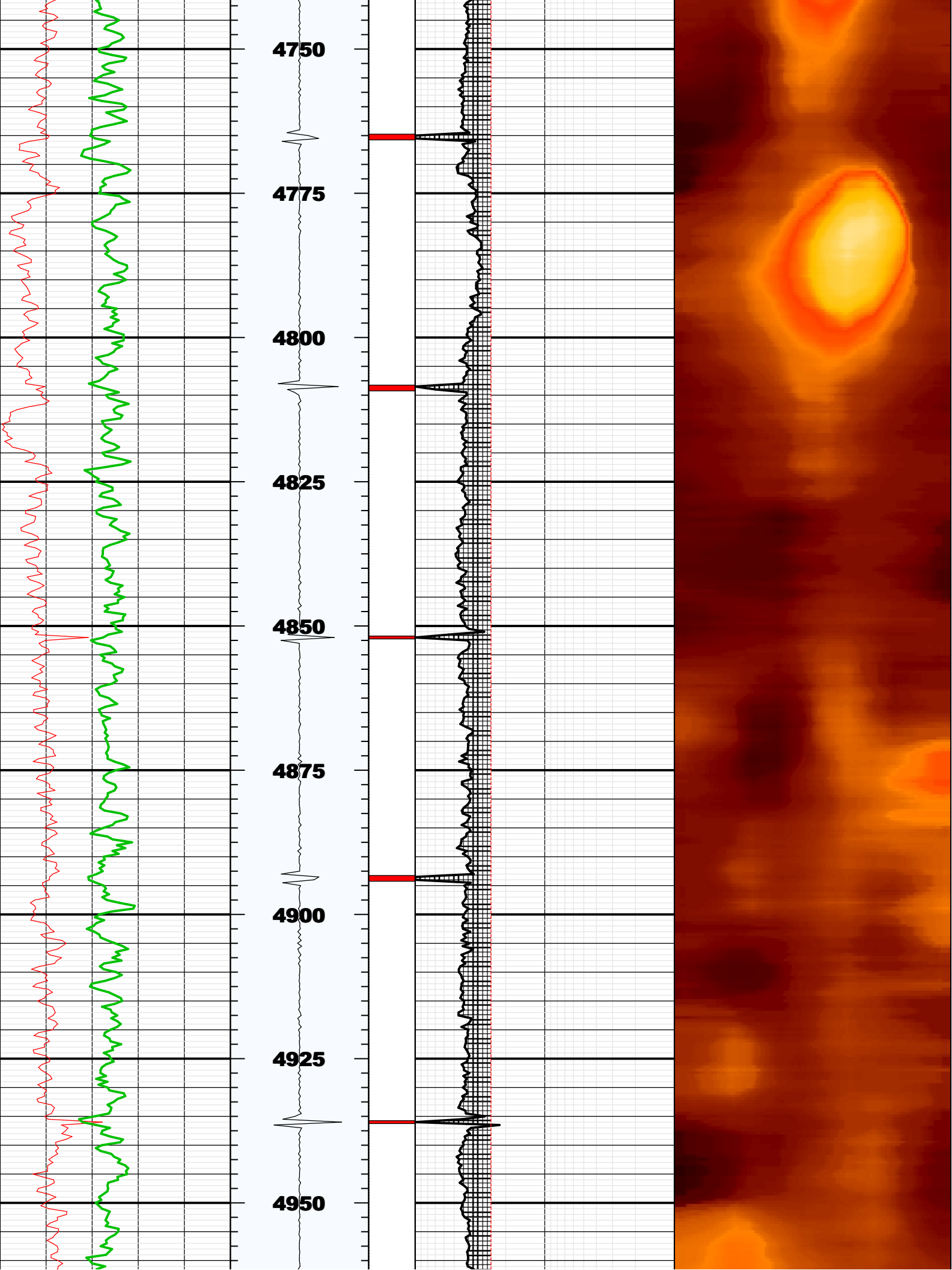


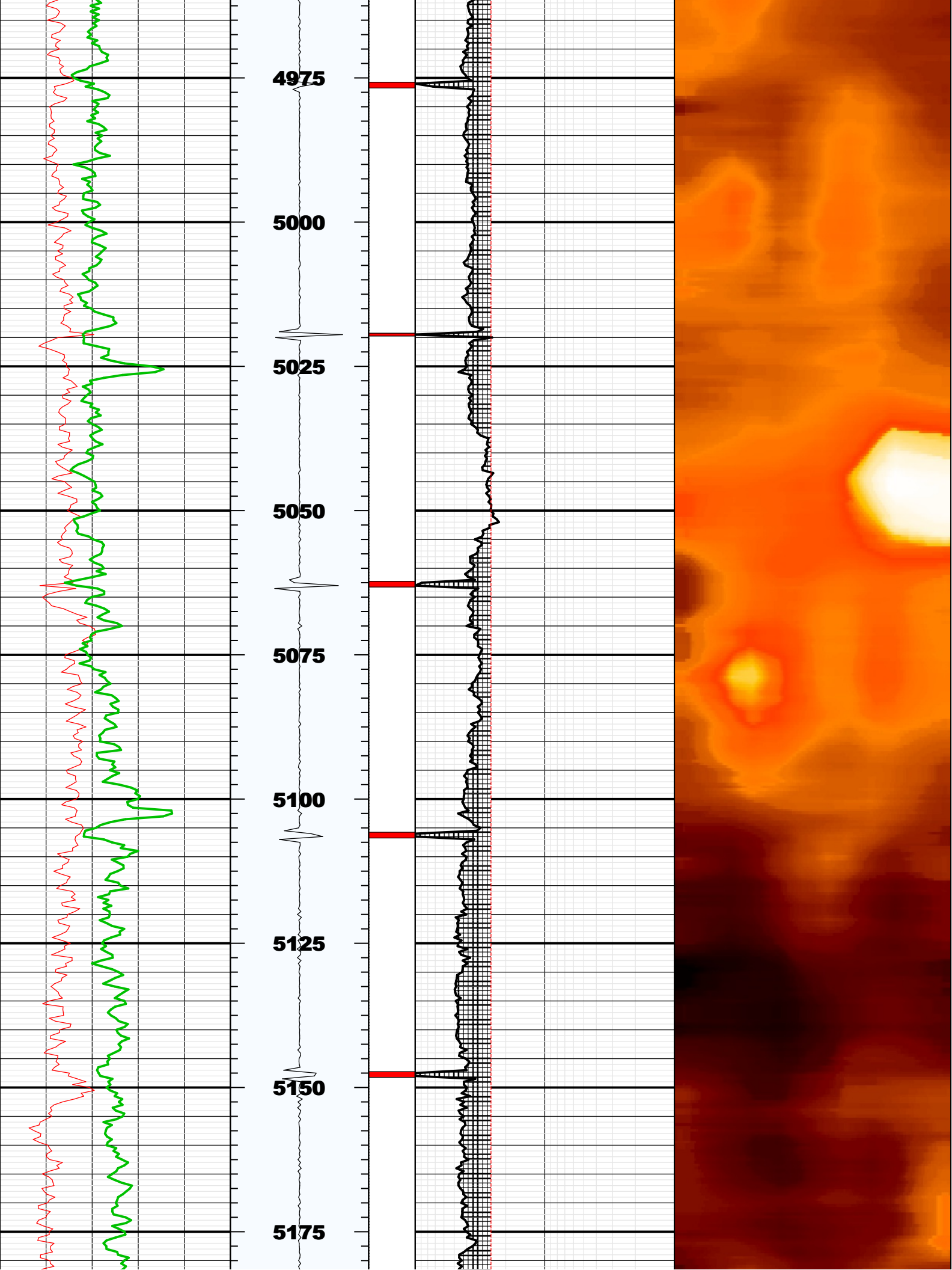


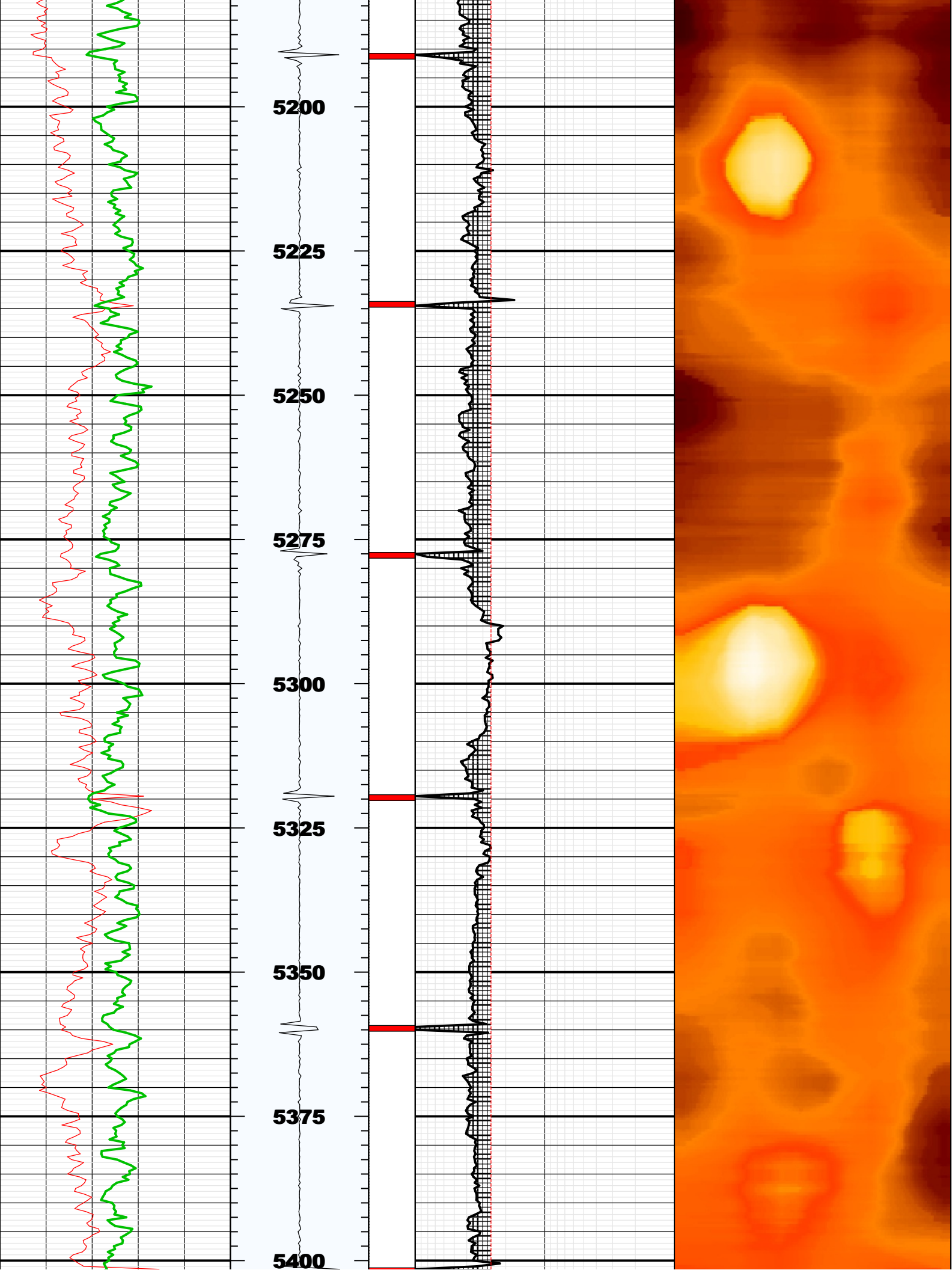


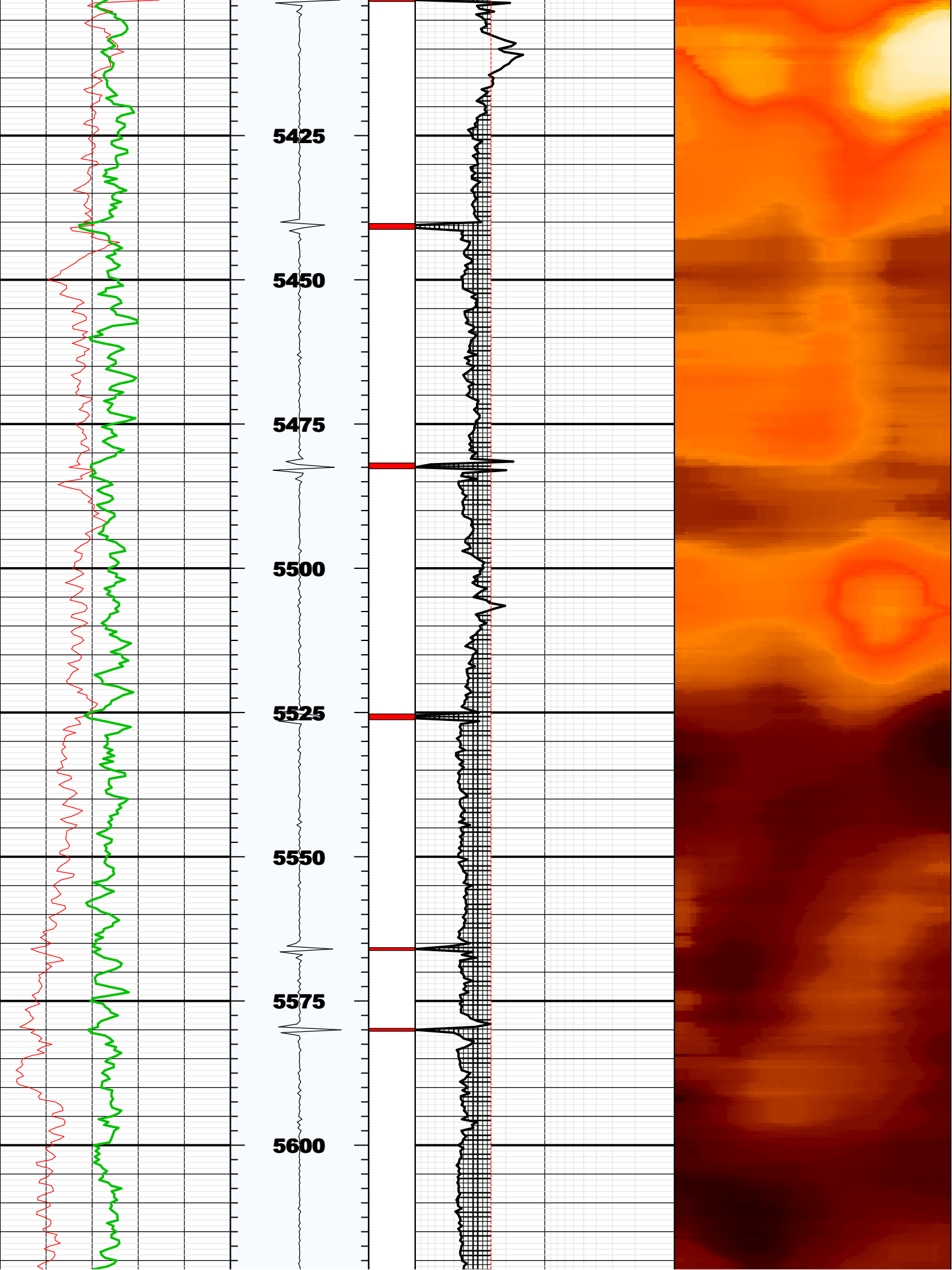


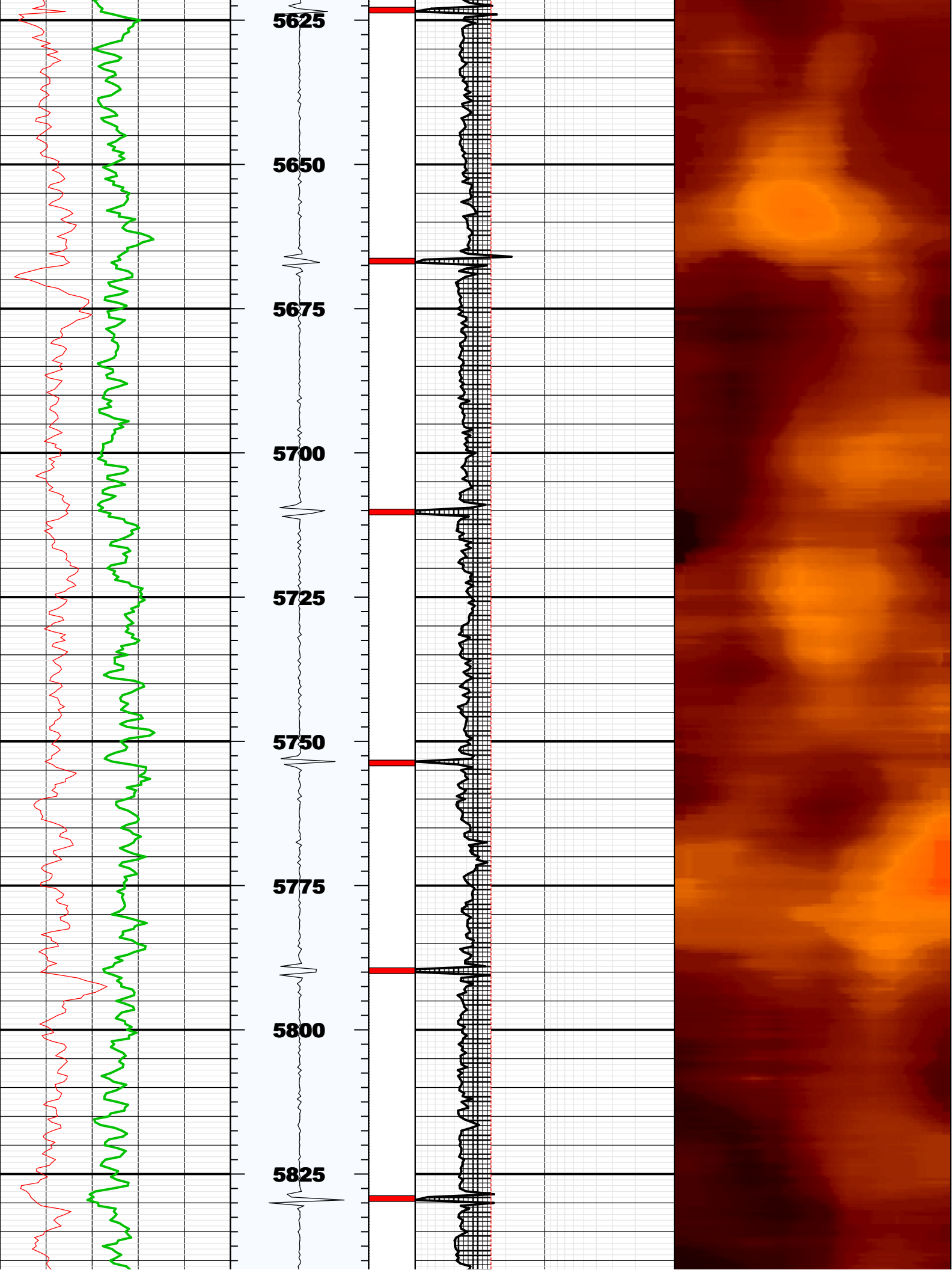


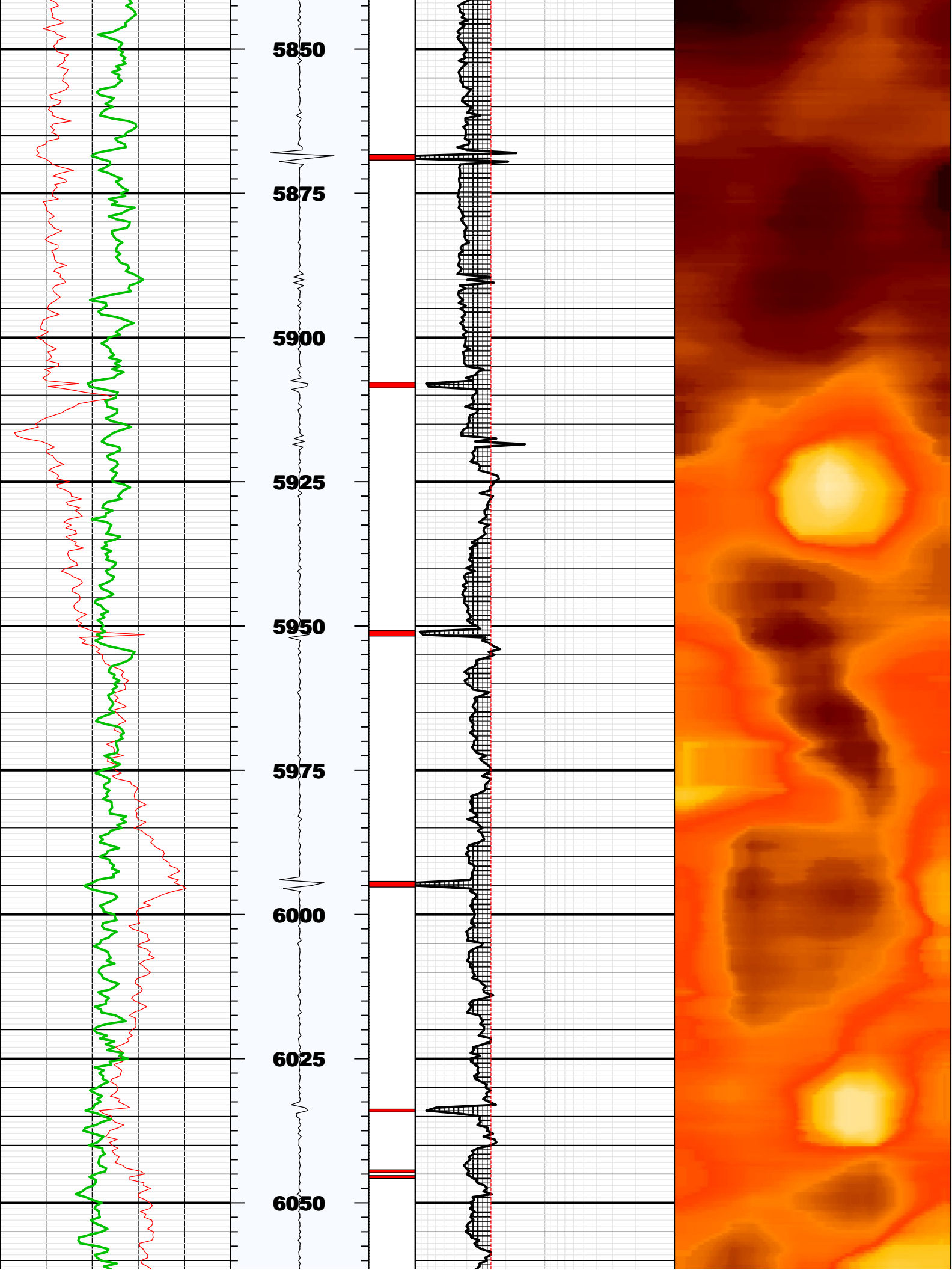


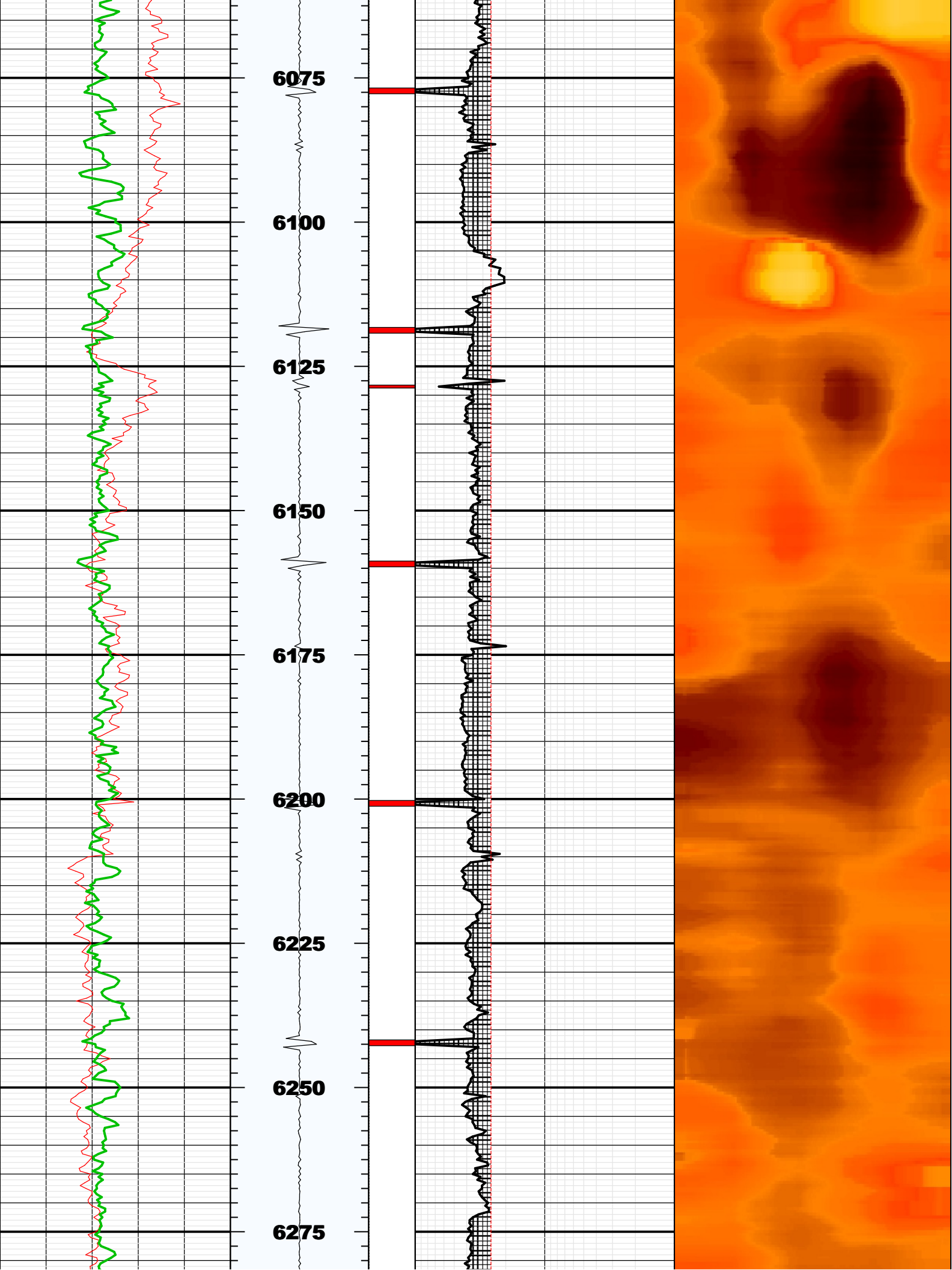


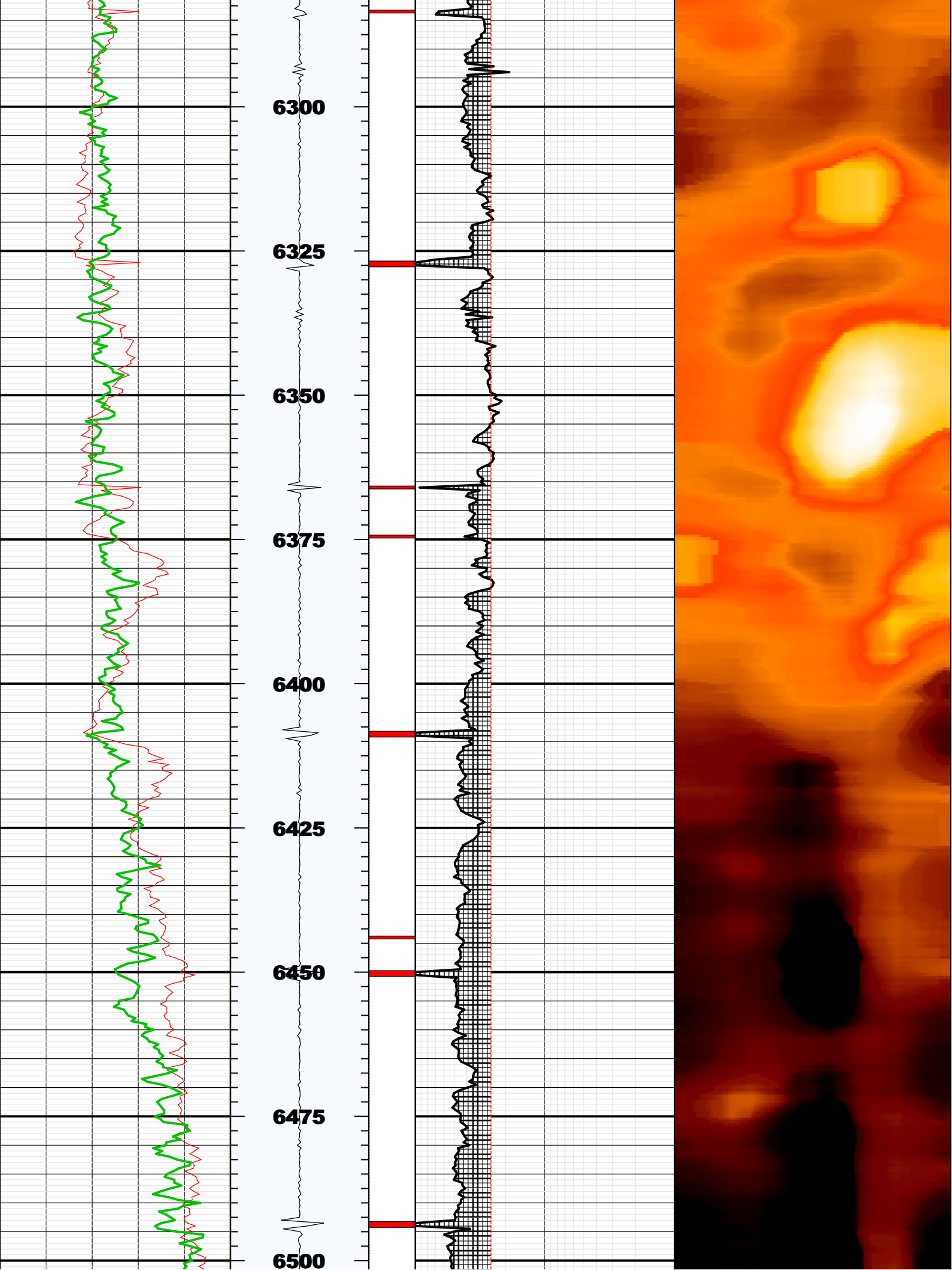


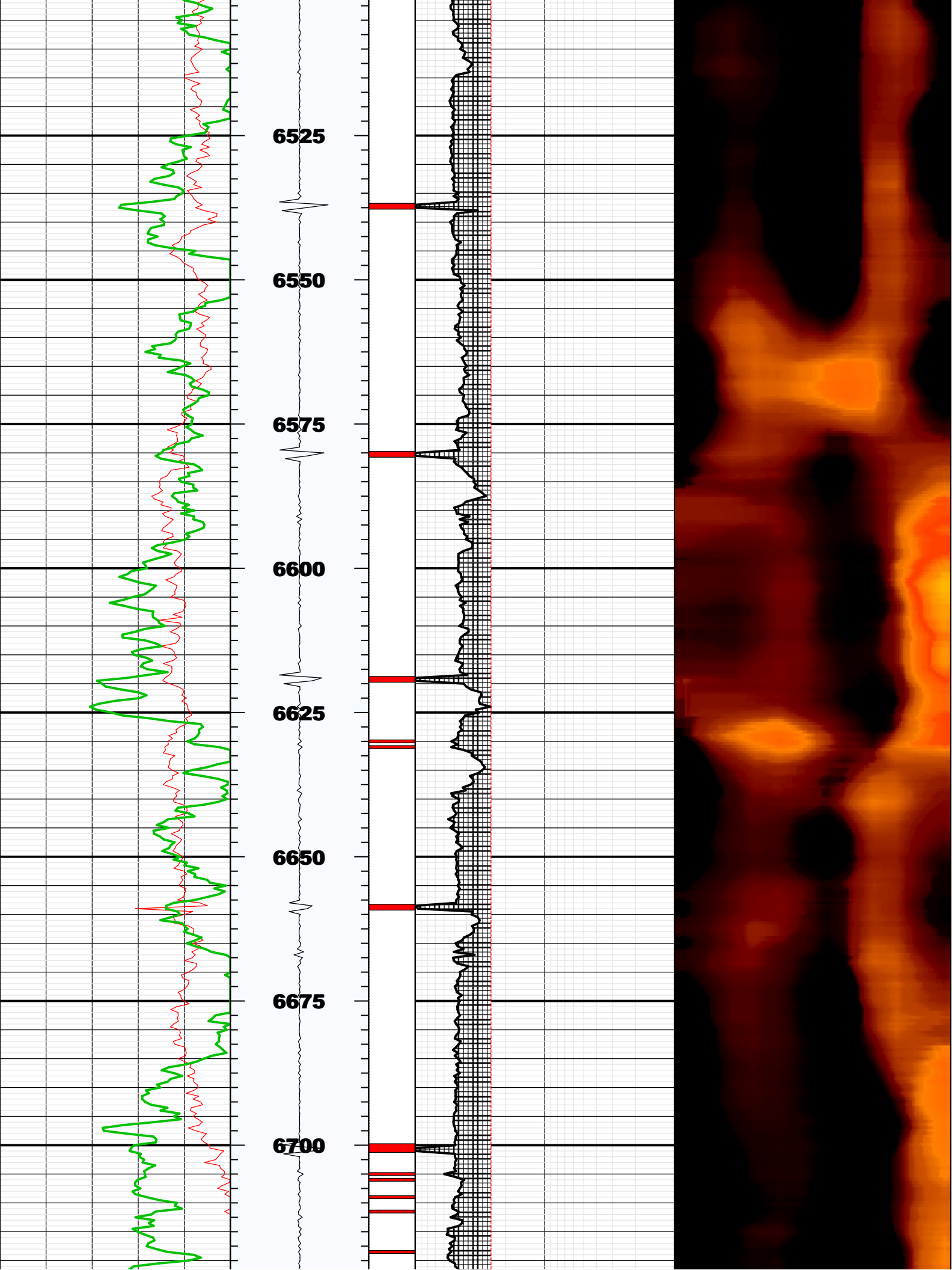


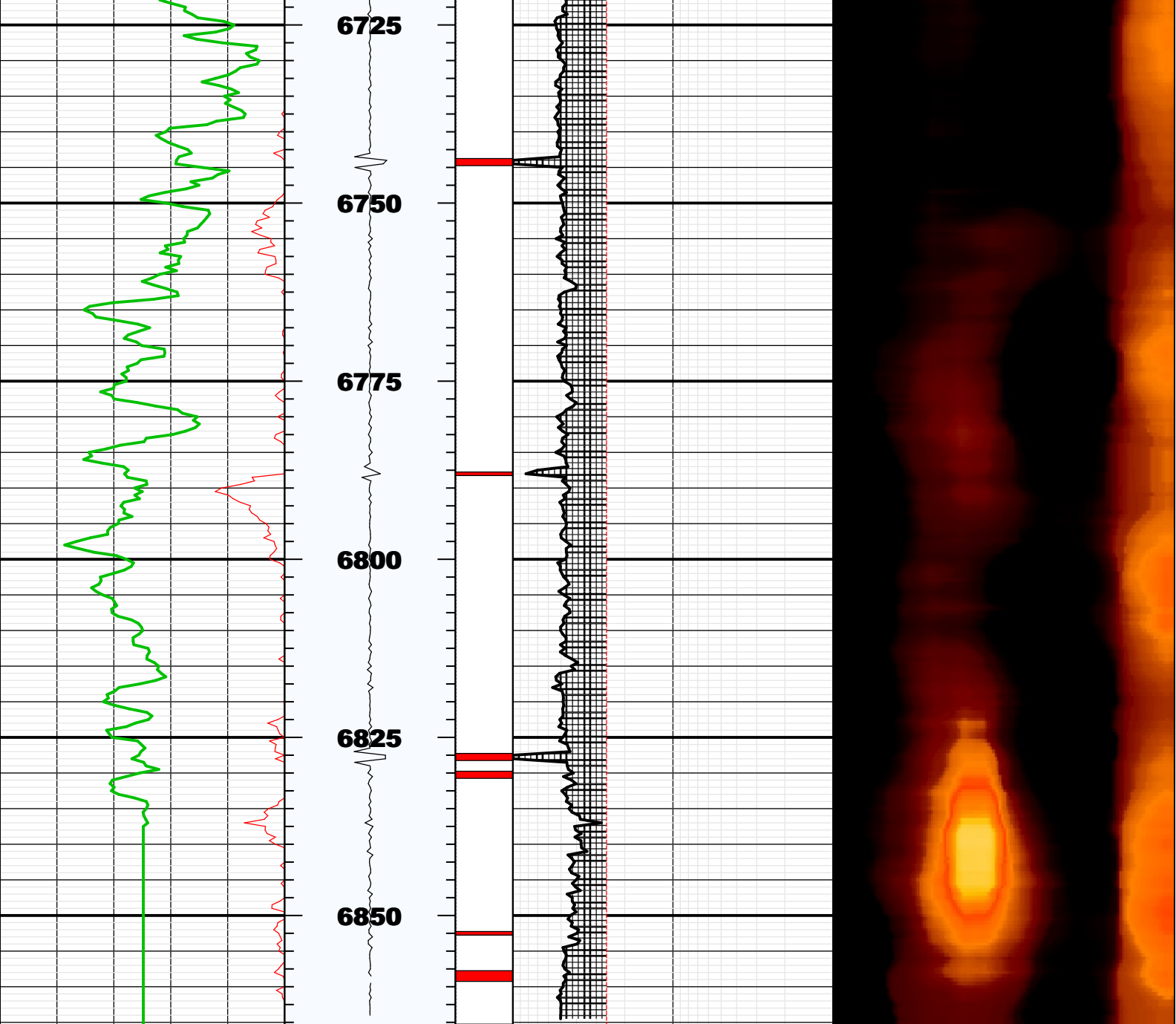








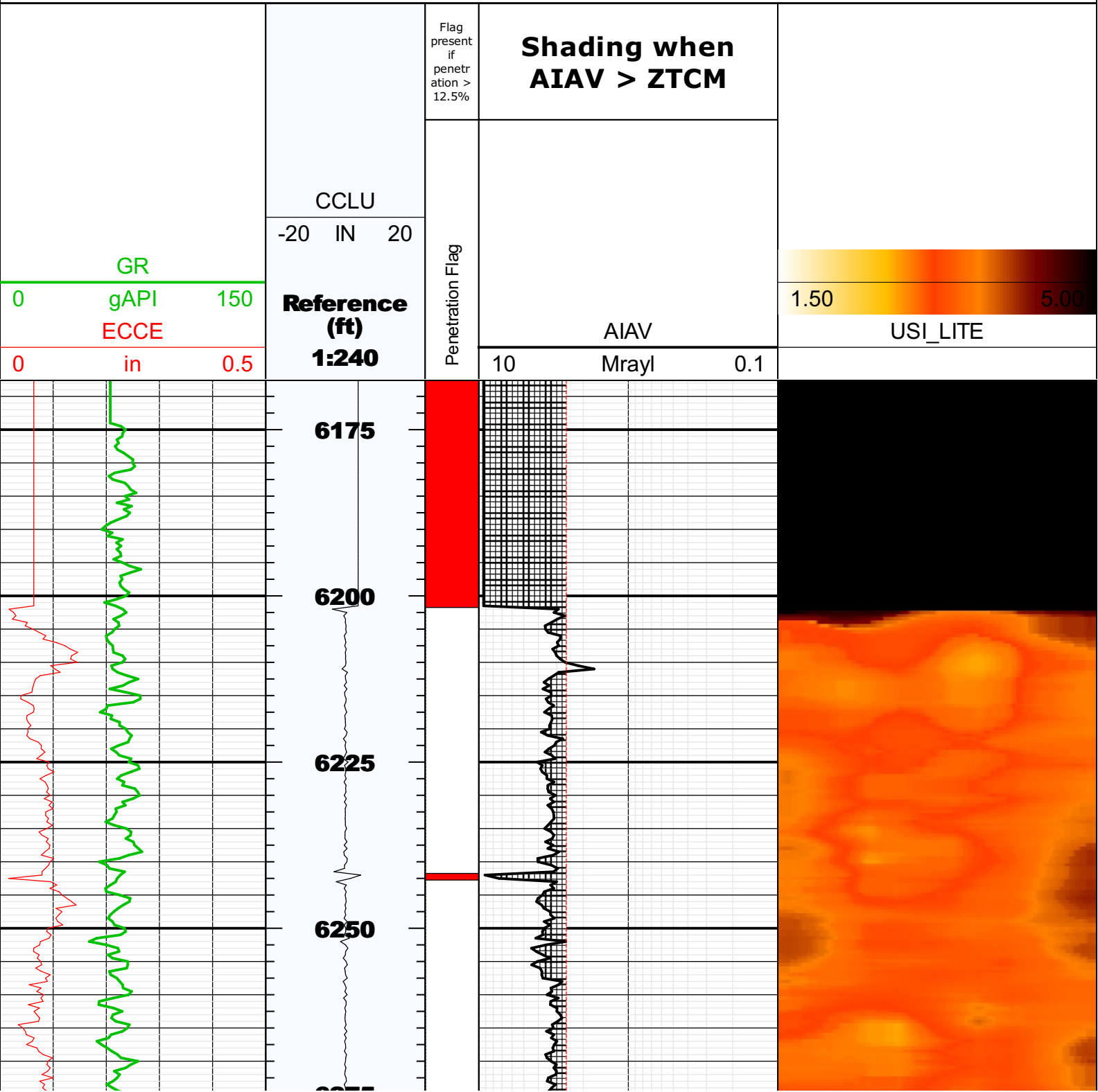


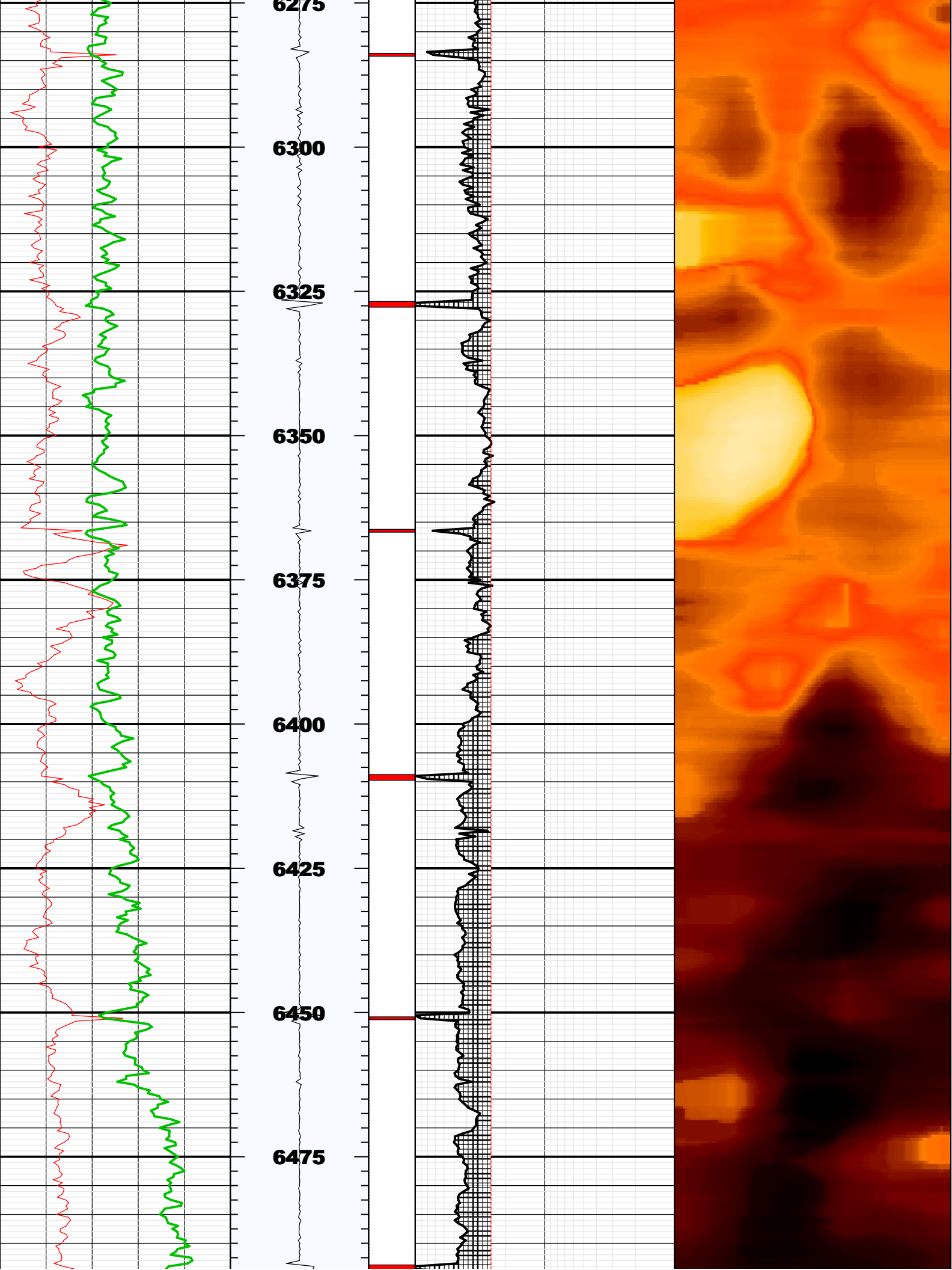


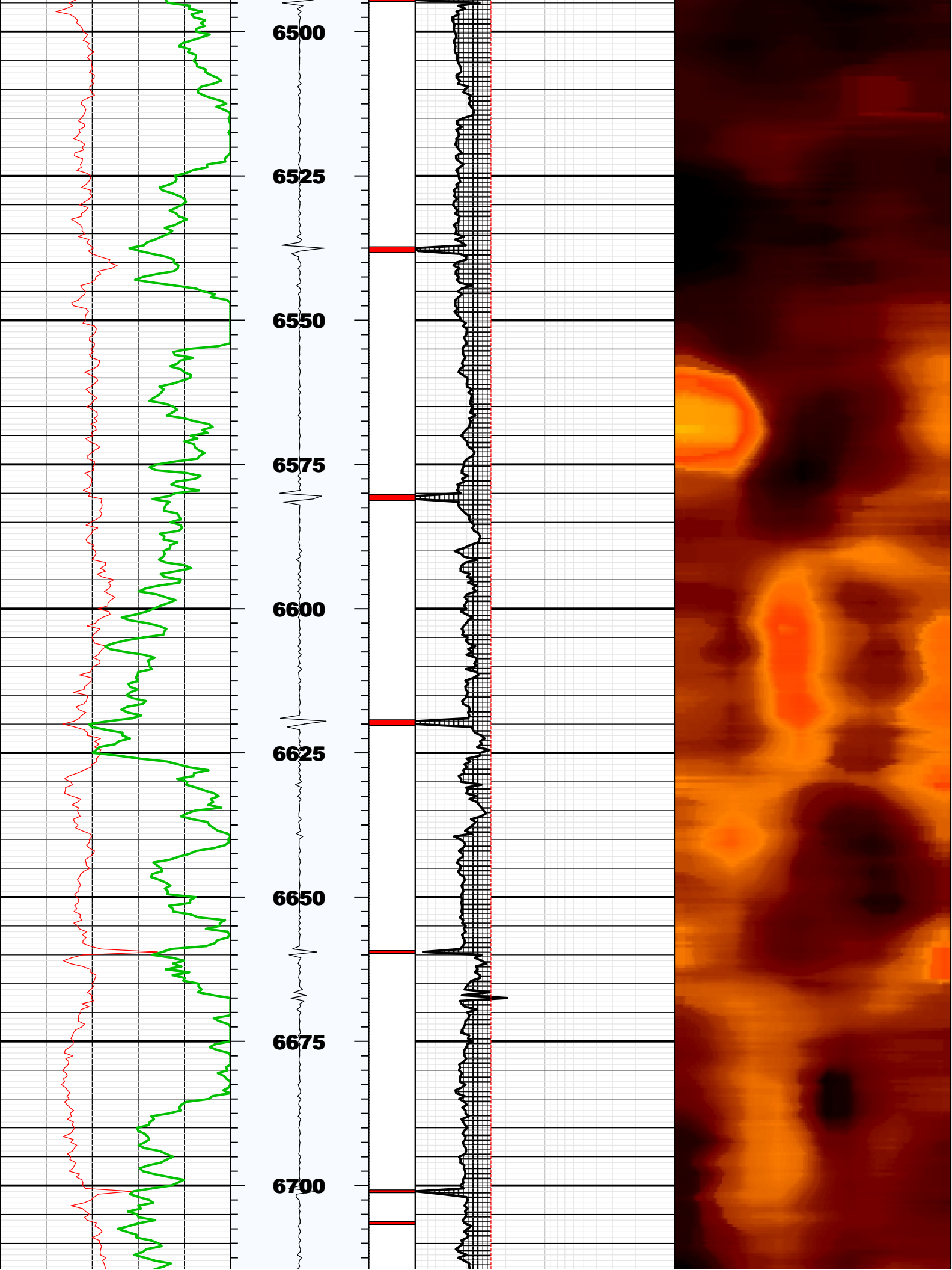
BS	8.75000	IN	Bit Size
CASG	P110		Casing Grade
CDIA	7.00000	IN	Casing Outer Diameter
CSID	6.27600	IN	Casing Inner Diameter
CSIZ	7.00000	IN	Current Casing Size
CWEI	26.00000	LB/F	Casing Weight
DFD	8.70000	LB/G	Drilling Fluid Density
DFVL	188.00000	US/F	Default Fluid Velocity
DO			
DOT	2.87400	IN	Diameter of Transducer Sensor
EMXV	30	V	EMEX Voltage
FDII	0.00000	F	FPM Data Interpolation Interval
FSOD	0_OFF		Fluid Slowness Fits Casing Outer Diameter
LOGMODE			
PP			
STEP	-0.5	F	STEP
THDH	130.00000	%	Maximum Search Thickness (percentage of nominal)
THDL	70.00000	%	Minimum Search Thickness (percentage of nominal)
THDP	Fundamental		Thickness Detection Policy
THNO	0.36200	IN	Nominal Thickness of Casing
TMUC	WRM		Type of Mud
U-USIT_DT3P			
UPAT	375K		Emission Pattern
USUB	7INC		USIT Sub Identifier
UWKM	D603010L		Working Mode
VCAS	51.40000	US/F	Ultrasonic Transversal Velocity in Casing
WINB	28.90190	US	Window Begin Time
WINE	84.15570	US	Window End Time
ZCAS	46.25000	MRAY	Acoustic Impedance of Casing
ZINI	-1.00000	MRAY	Initial Estimate of Cement Impedance
ZMUD	1.70000	MRAY	Acoustic Impedance of Mud
ZTCM	2.60000	MRAY	Acoustic Impedance Threshold for Cement
ZTGS	0.30000	MRAY	Acoustic Impedance Threshold for Gas
WLEN	22.50350	US	T^3 Processing Length

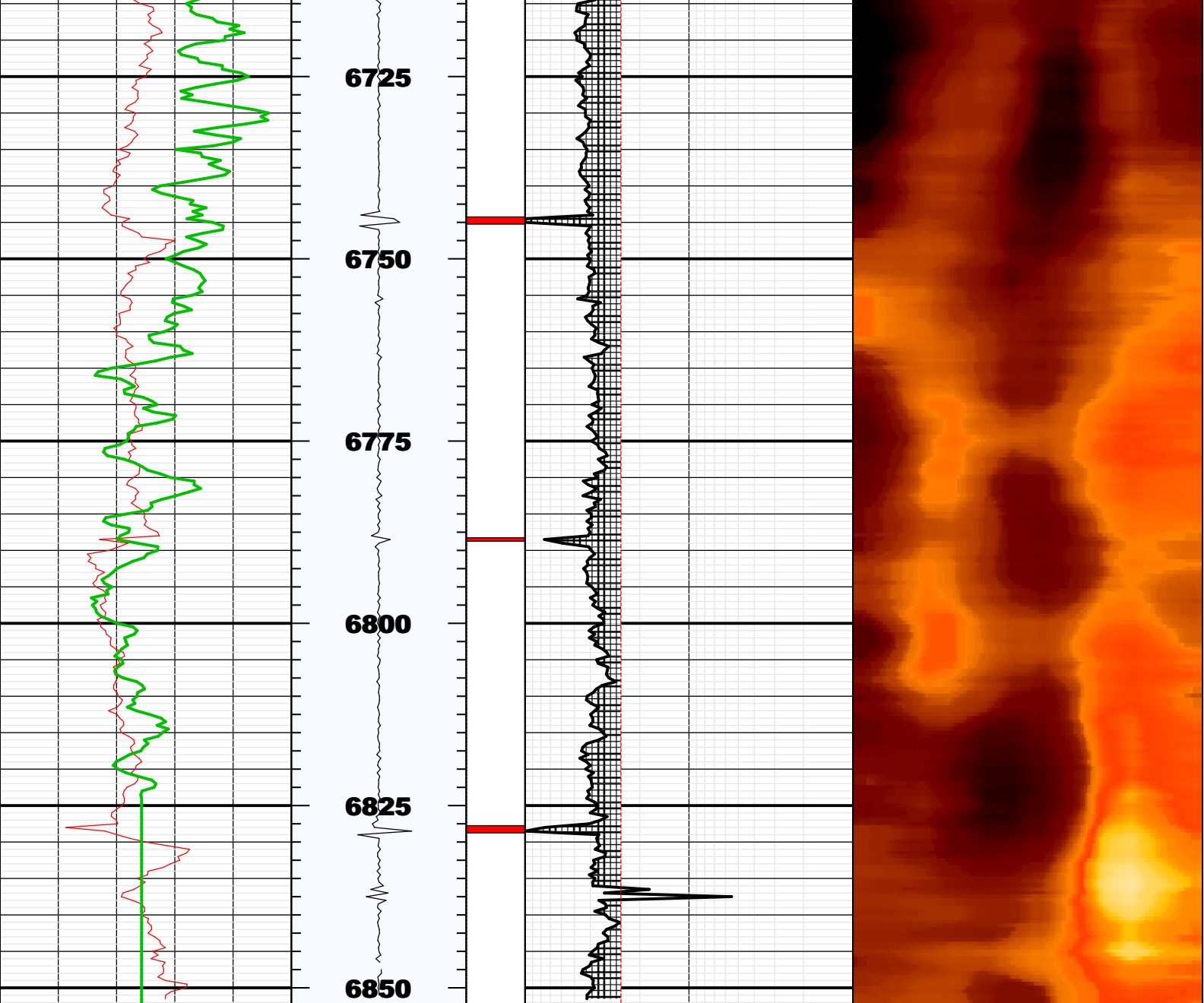
Repeat Pass

Company: Noble Energy Inc
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Field: Wattenberg









Fluid Properties Used for Main Pass

