

Company: Noble Energy Inc

Well: Mahalo State AA09-72-1AHNB  
Field: Wattenberg  
County: Weld State: Colorado

County: Weld			
Field: Wattenberg			
Location: SESE Sec 4 T6N 63W			
Well: Mahalo State AA09-72-1AHNB			
Company: Noble Energy Inc			
USI-LITE (2500 psi)			
Permanent Datum: Log Measured From: Drilling Measured From:		GL KB KB	Elev: K.B. 4716.0 F G.L. 4700.0 F D.F. 4715.0 F
Logging Date	API Serial No. 05-123-39012-0000	Section 4	Township 6N
Run Number	Run-1		Range 63
Depth Driller	7042.9 F		
Schlumberger Depth	7042.9 F		
Bottom Log Interval	6827.0 F		
Top Log Interval	70.0 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	830.0 F		
To	7042.9 F		
Casing Size	7.00 IN		
Weight	26.00 LB/F		
Grade	P110		
From	16.0 F		
To	7038.0 F		
Max Recorded Temp	228.0		
Logger on bottom (date)	03-Feb-2015		
Location	Fort Morgan		
Recorded By	Marry K/Rath A/ Brandon Beggs		
Witnessed By	Bill Mansfield		

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: Calibration Date: Calibrator Serial Number: Number Of Calibration Points: Calibration RMS: Calibration Peak Error:	Serial Number: F713384 Length: 14074.00098

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

Cement Density Spacer @ 12.5ppg Lead @ 13.6ppg

2500psi main pass 0psi repeat pass

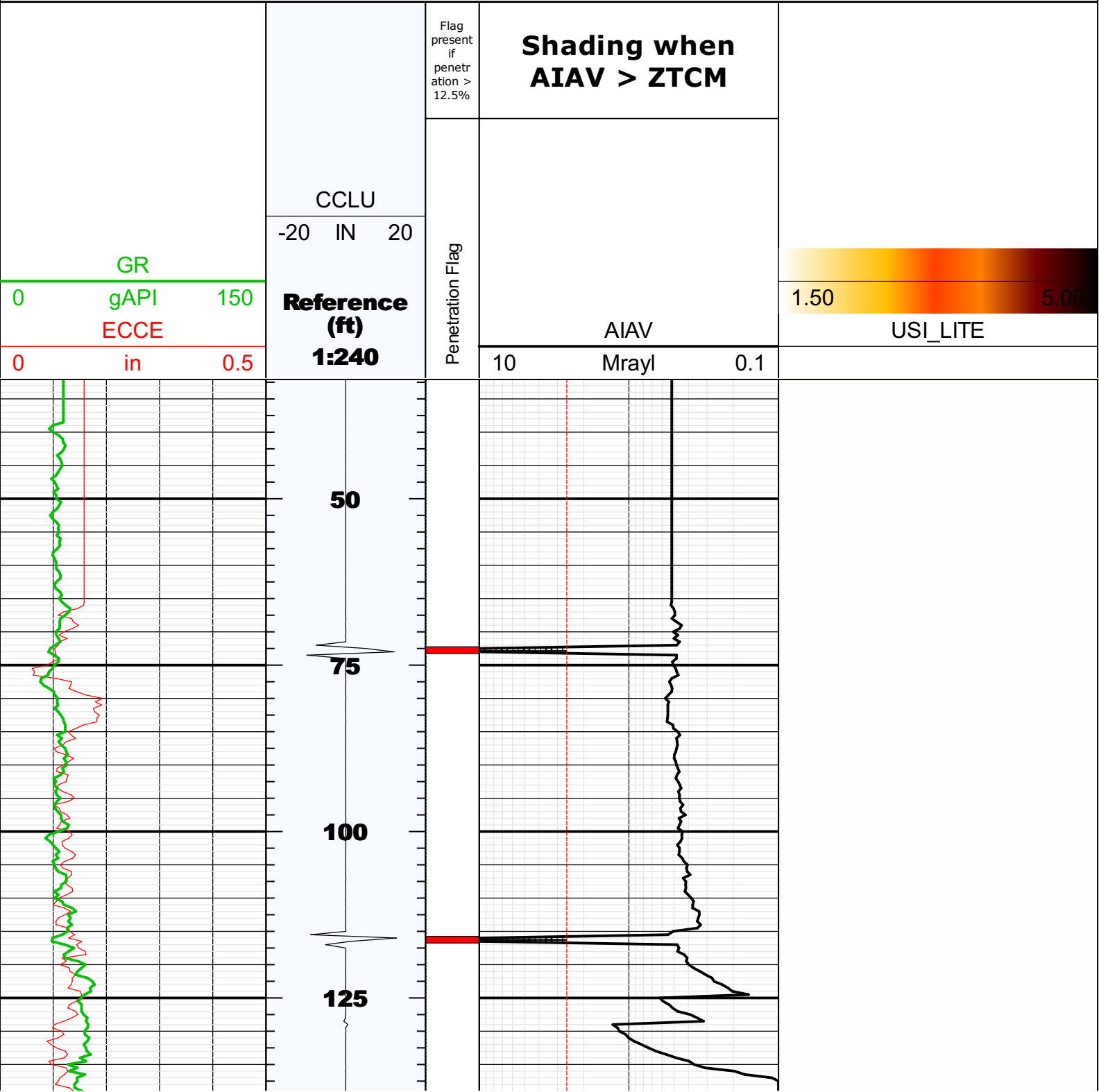
Top of cement seen at 1210'.

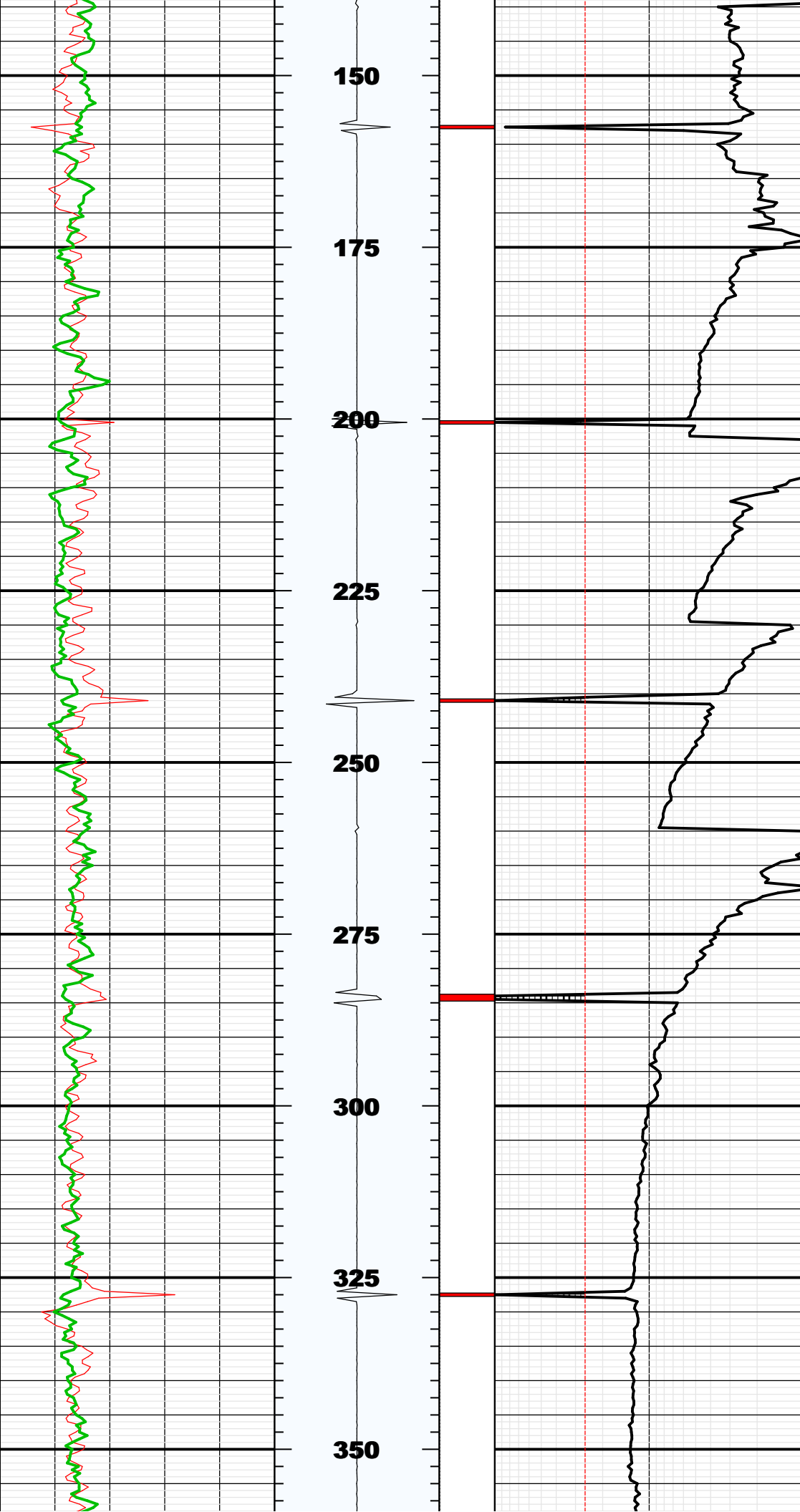
Logged from 6827ft to maintain distance from top of liner to surface

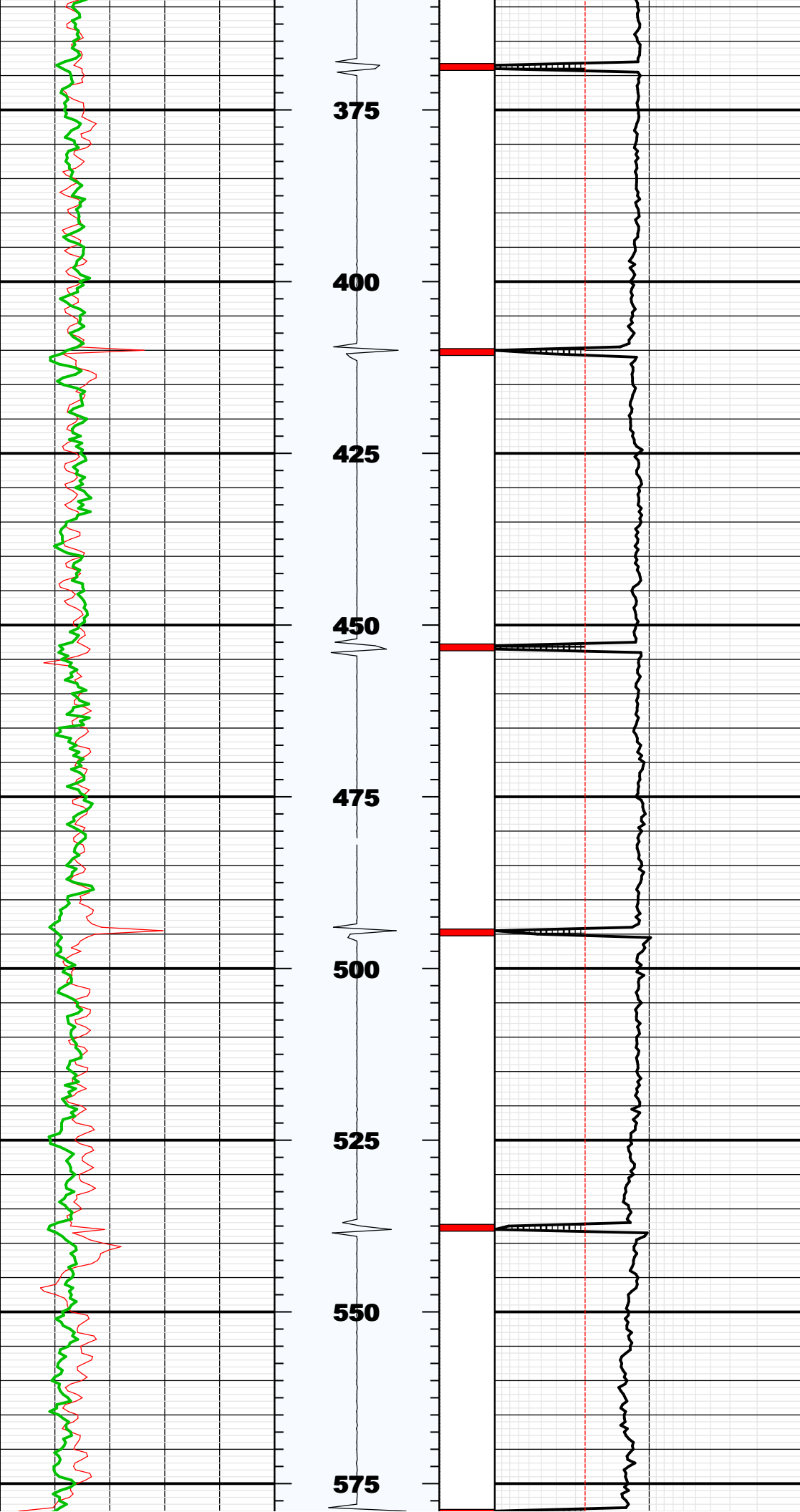
Bottom hole temperature 228F measured at depth.

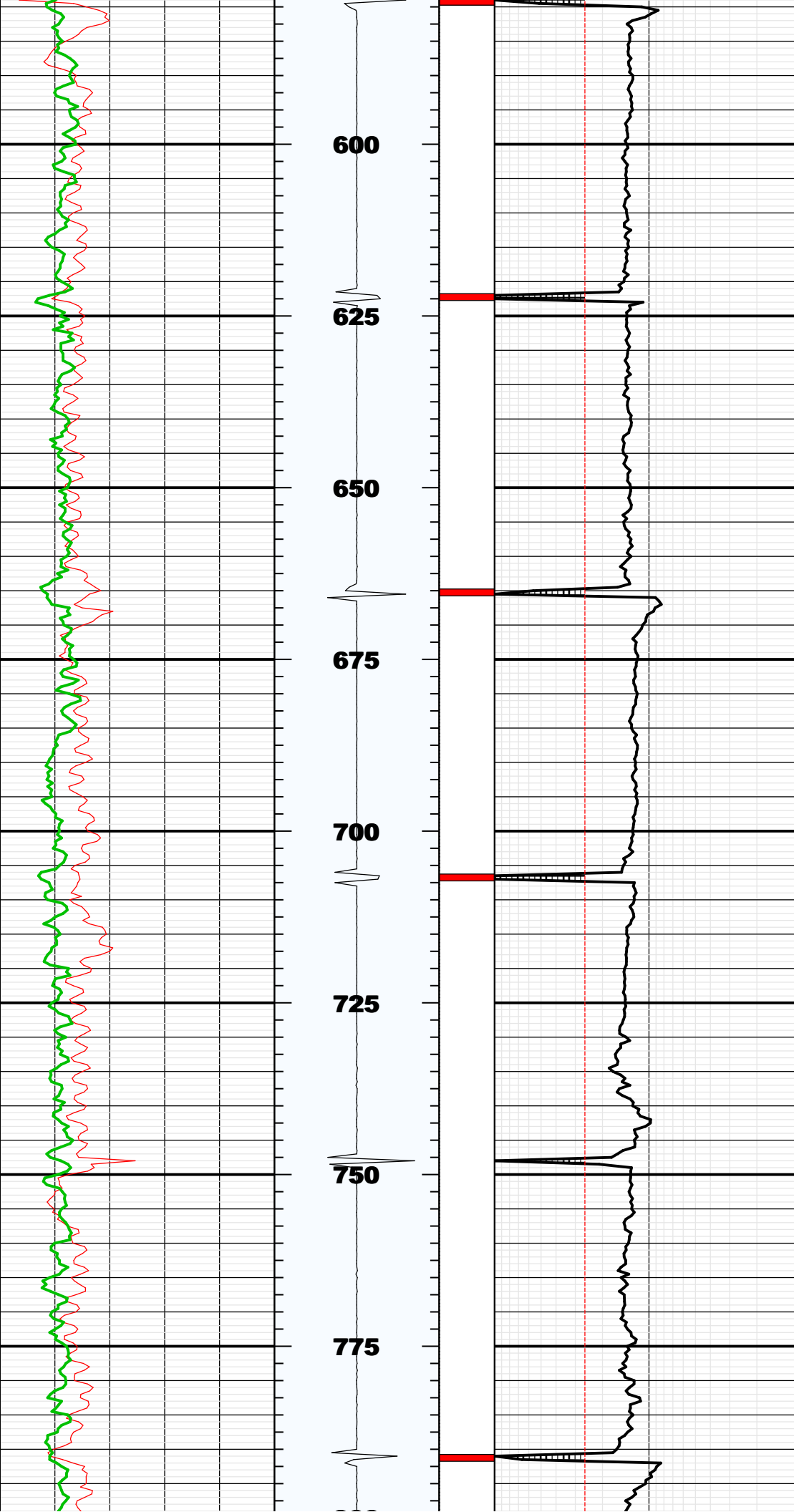
Main Pass

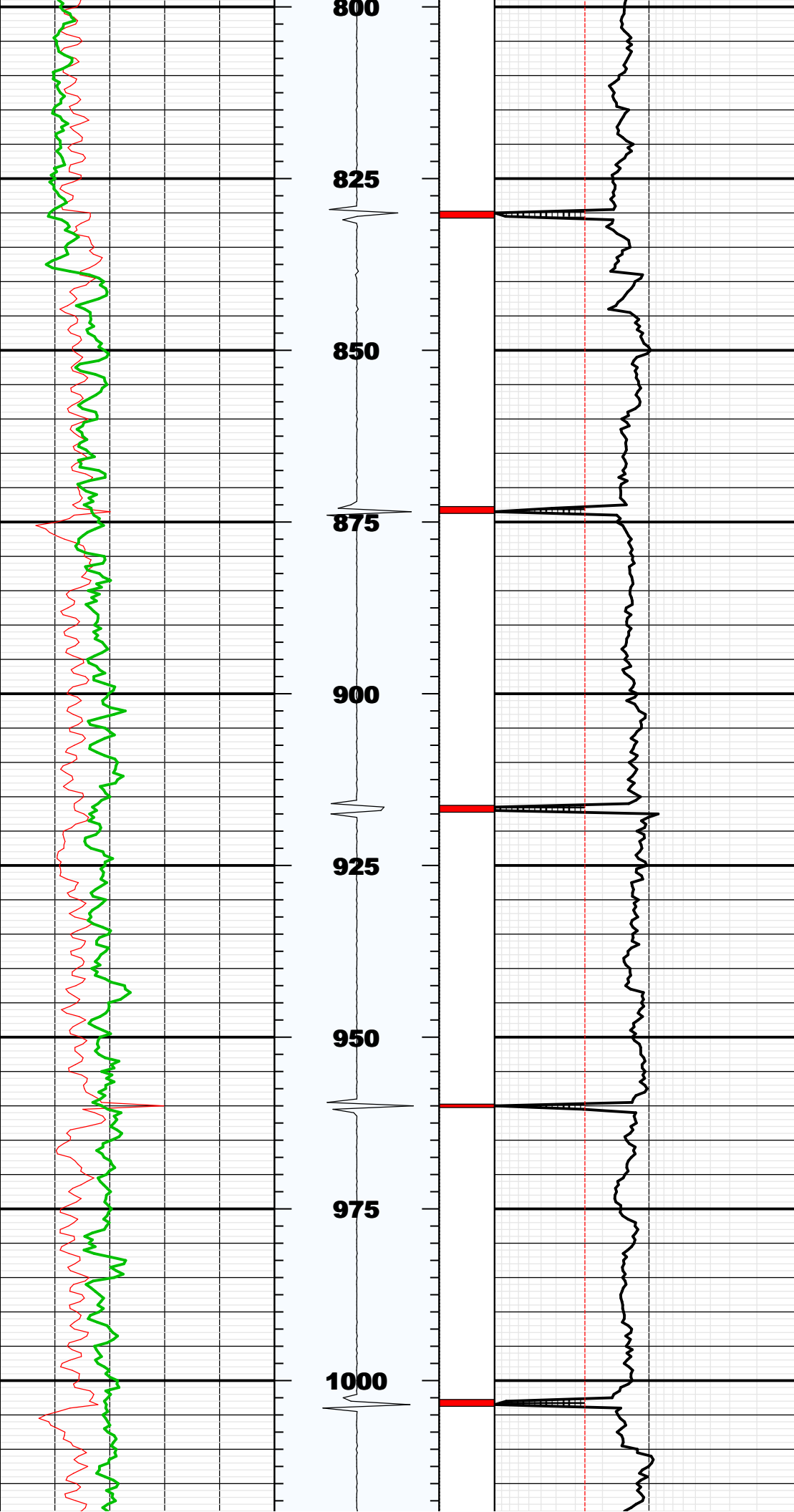
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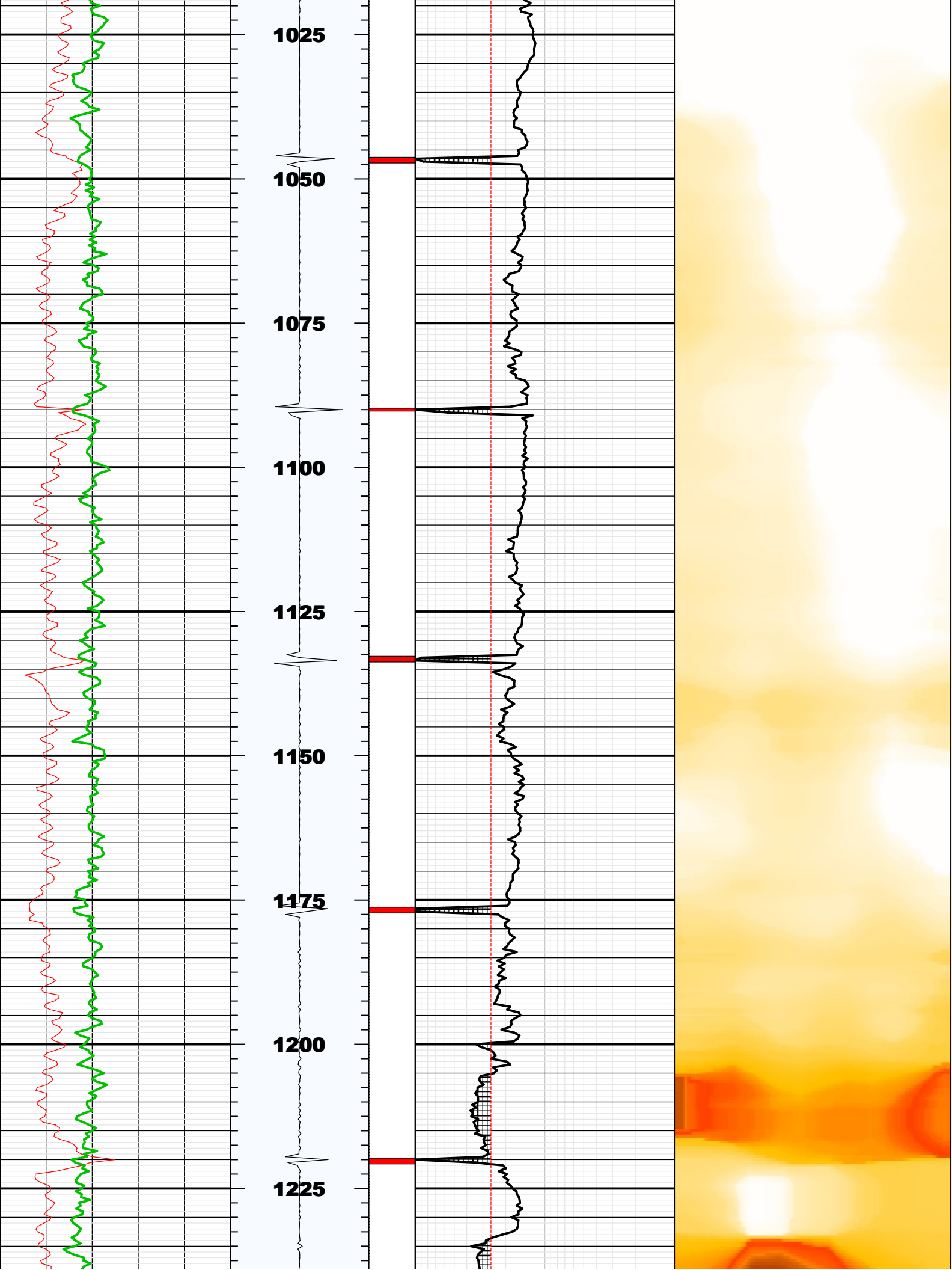




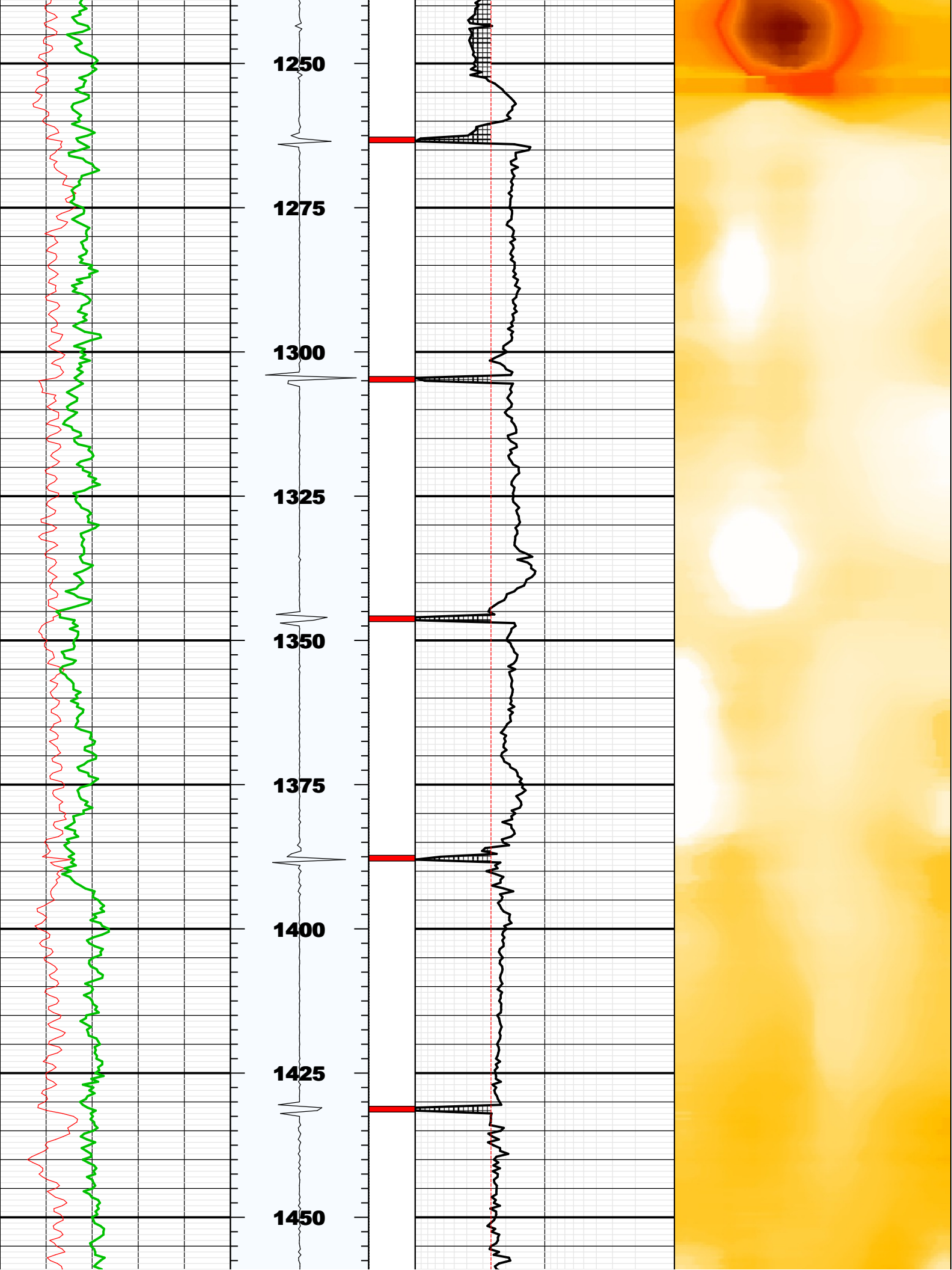


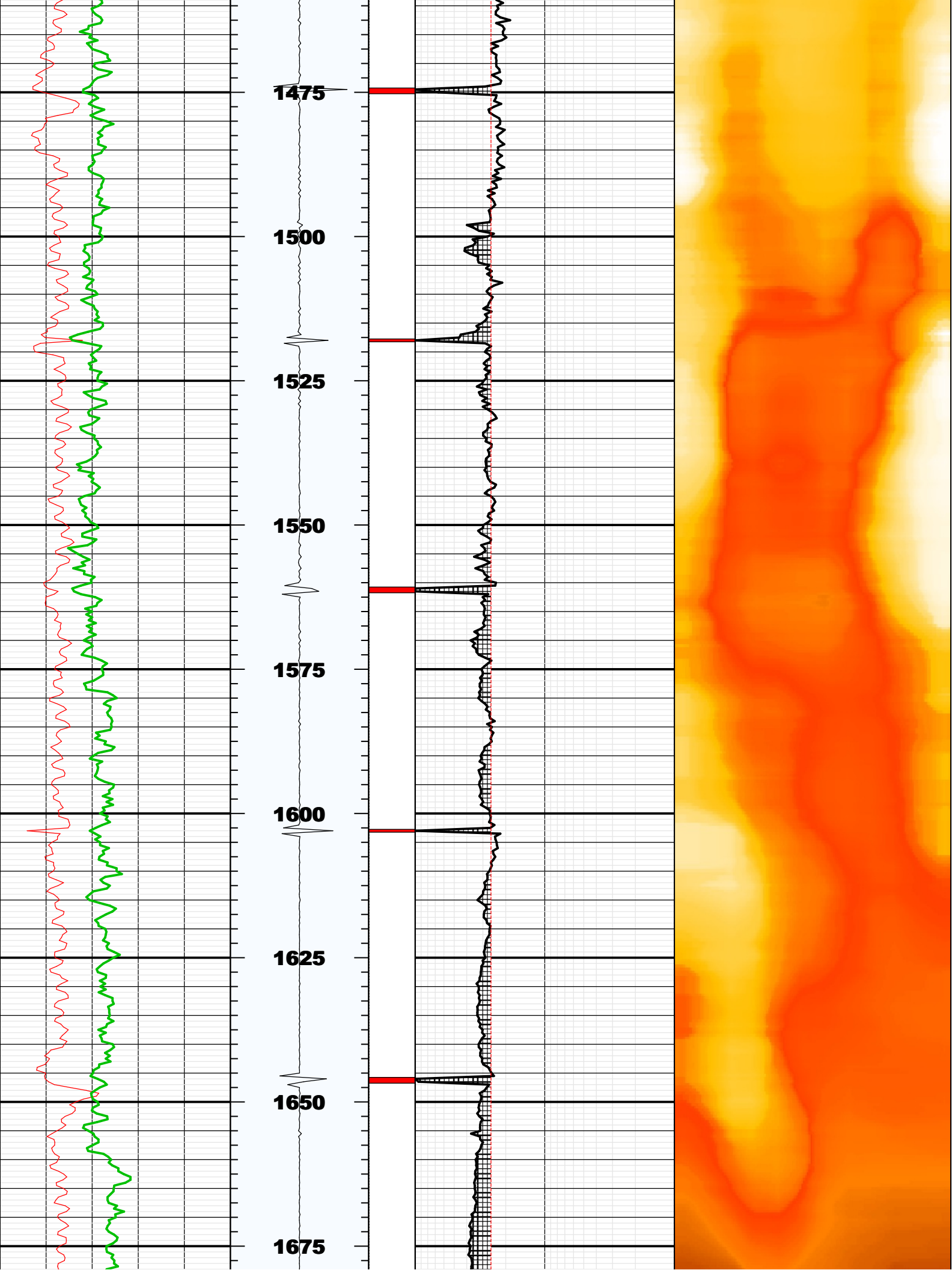


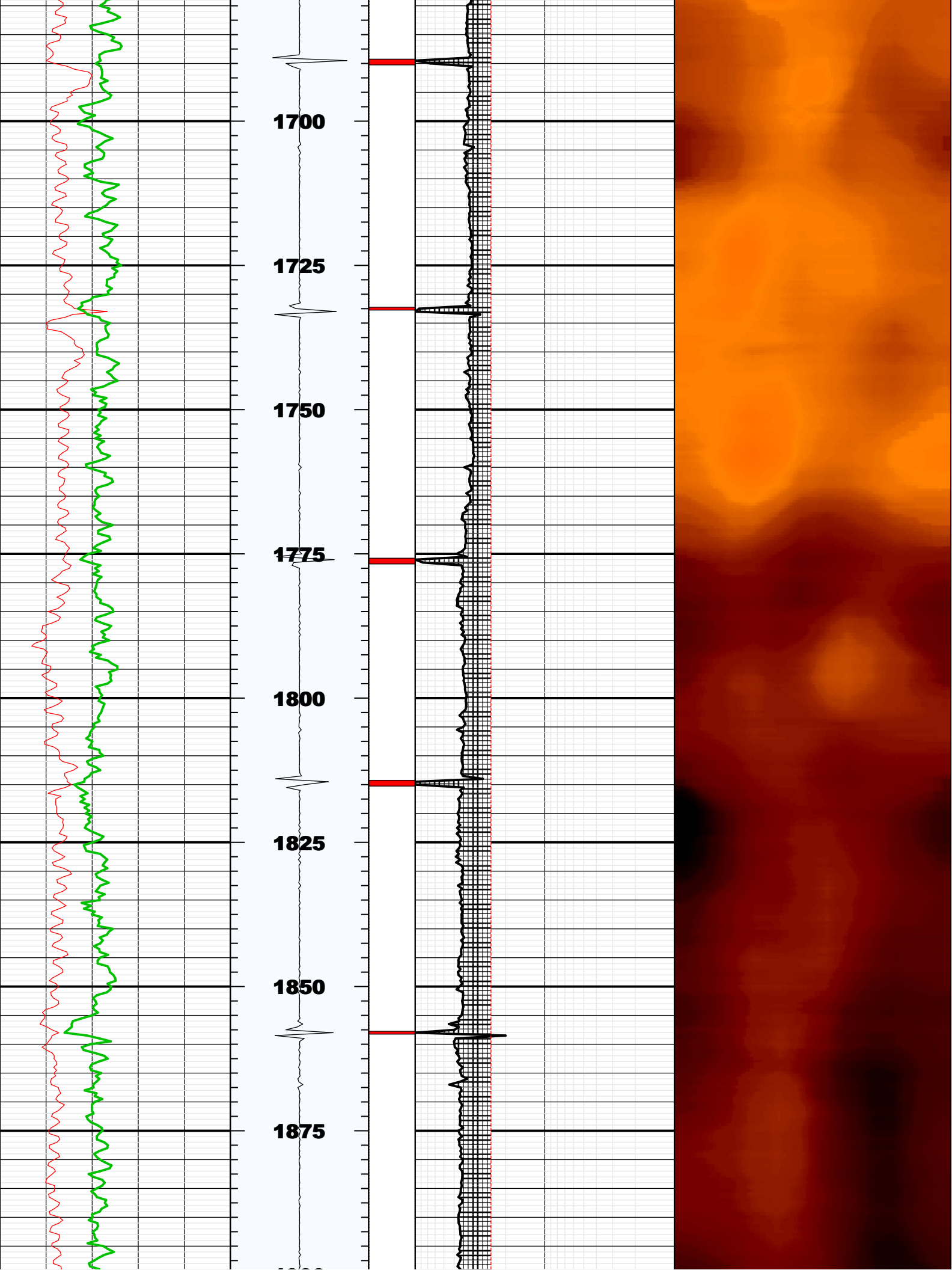


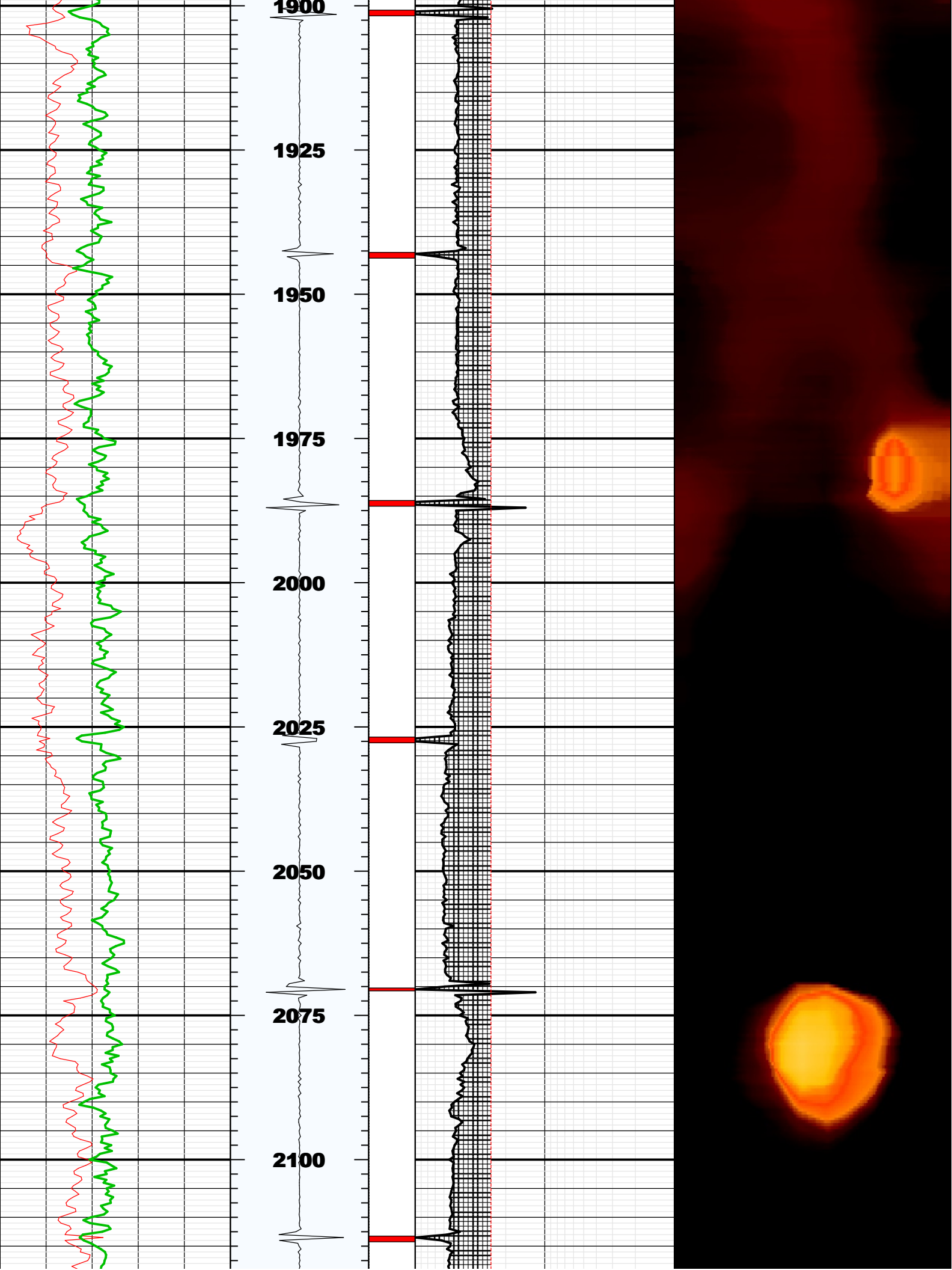


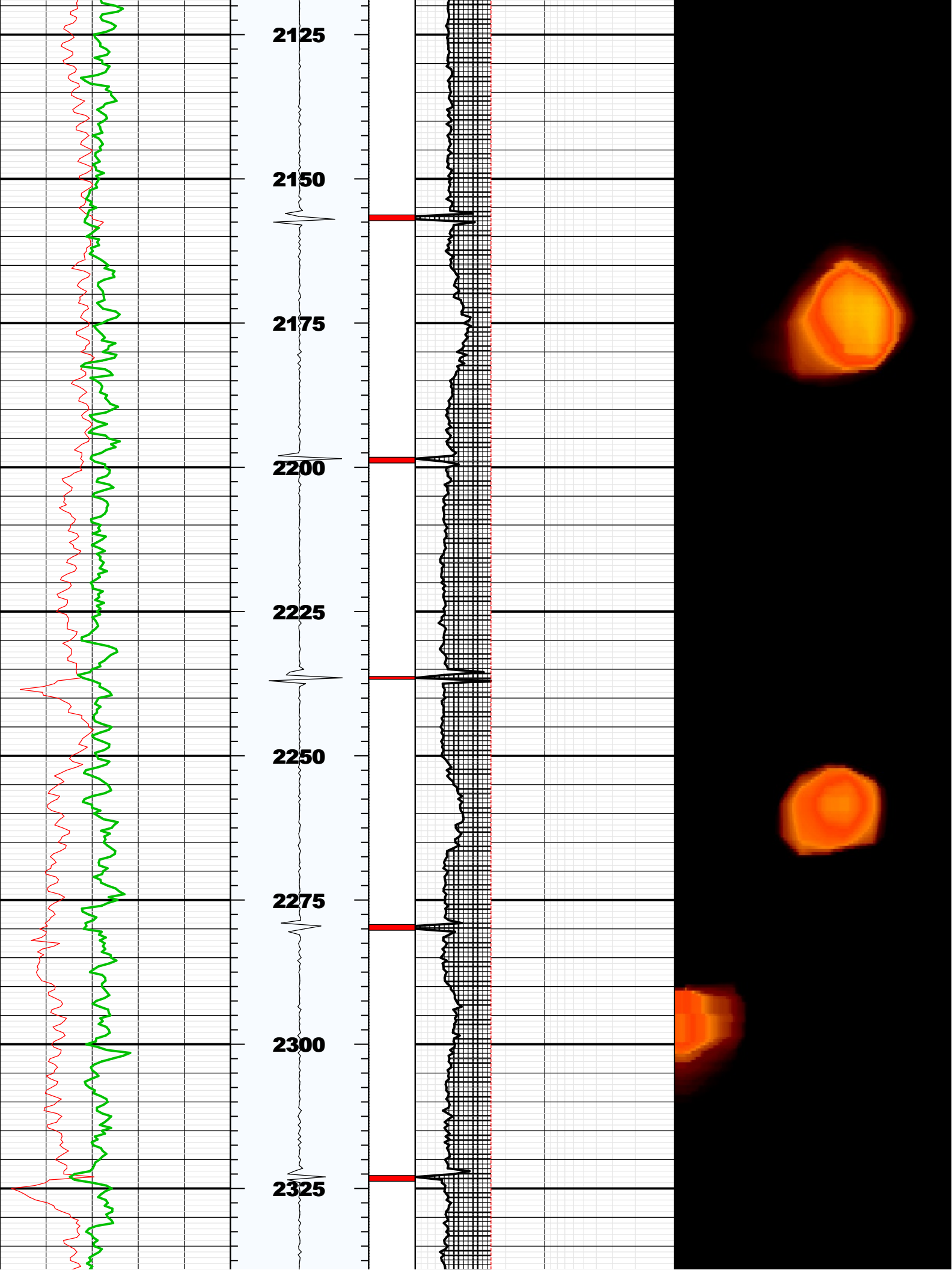




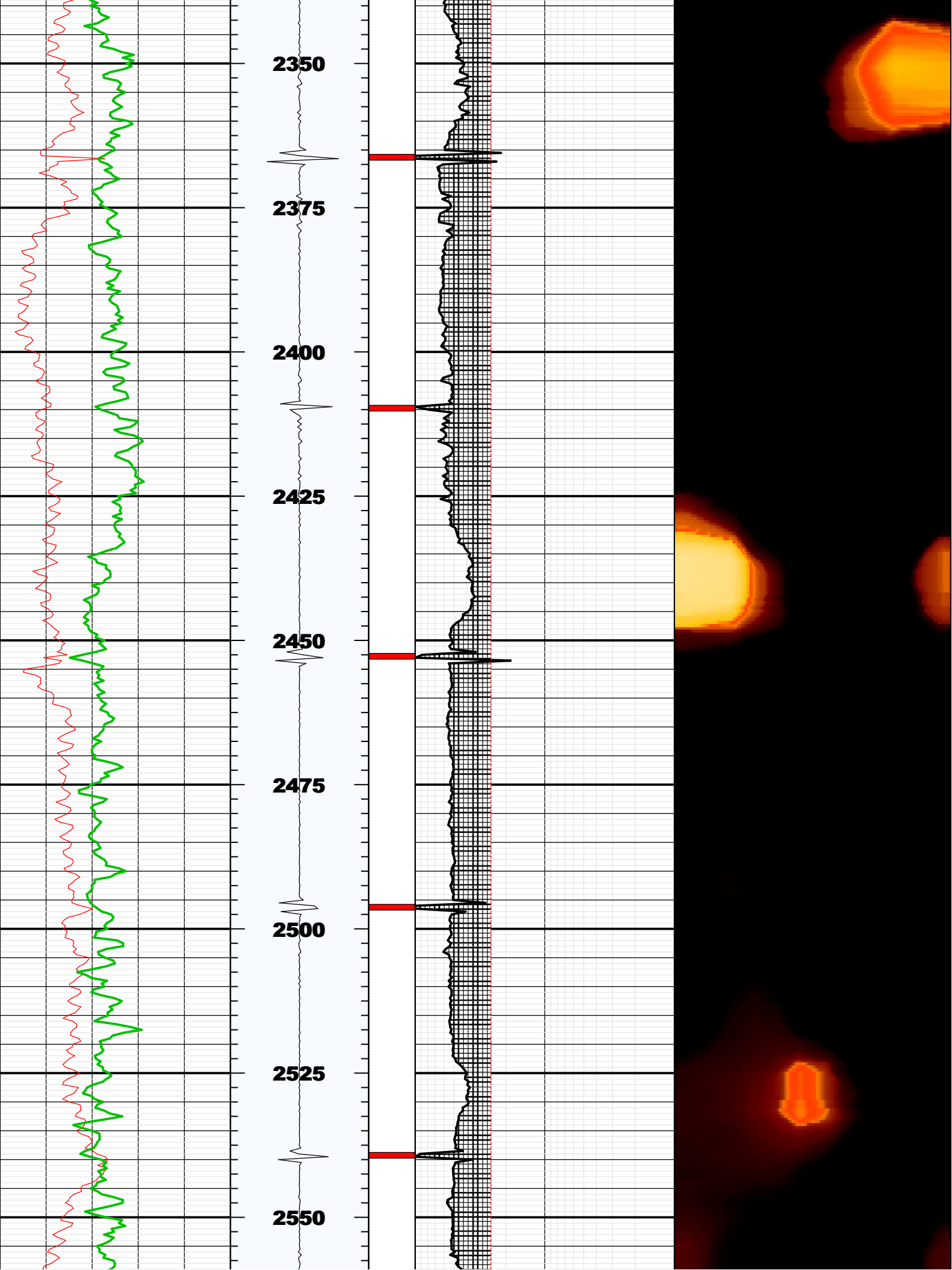


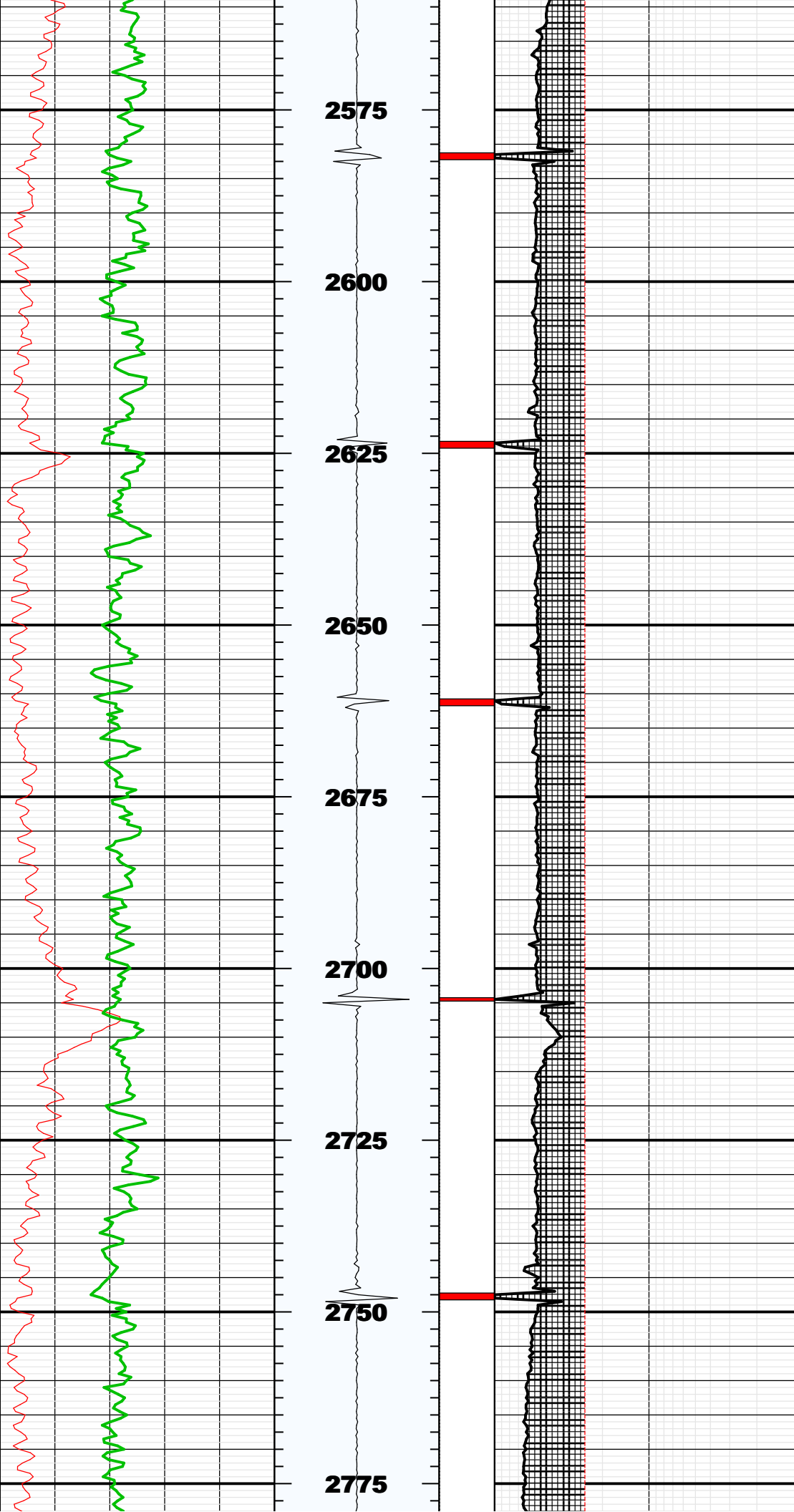


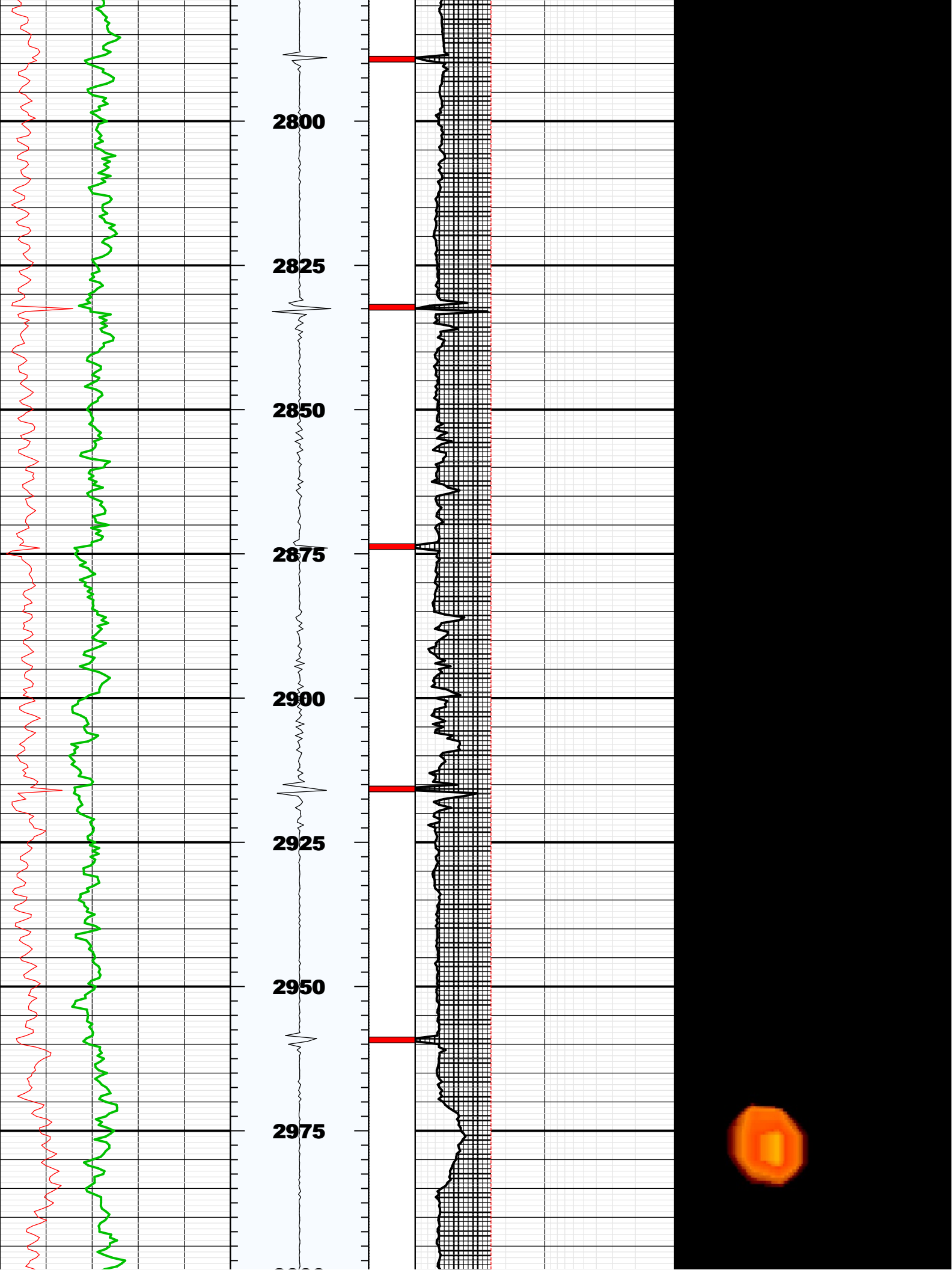




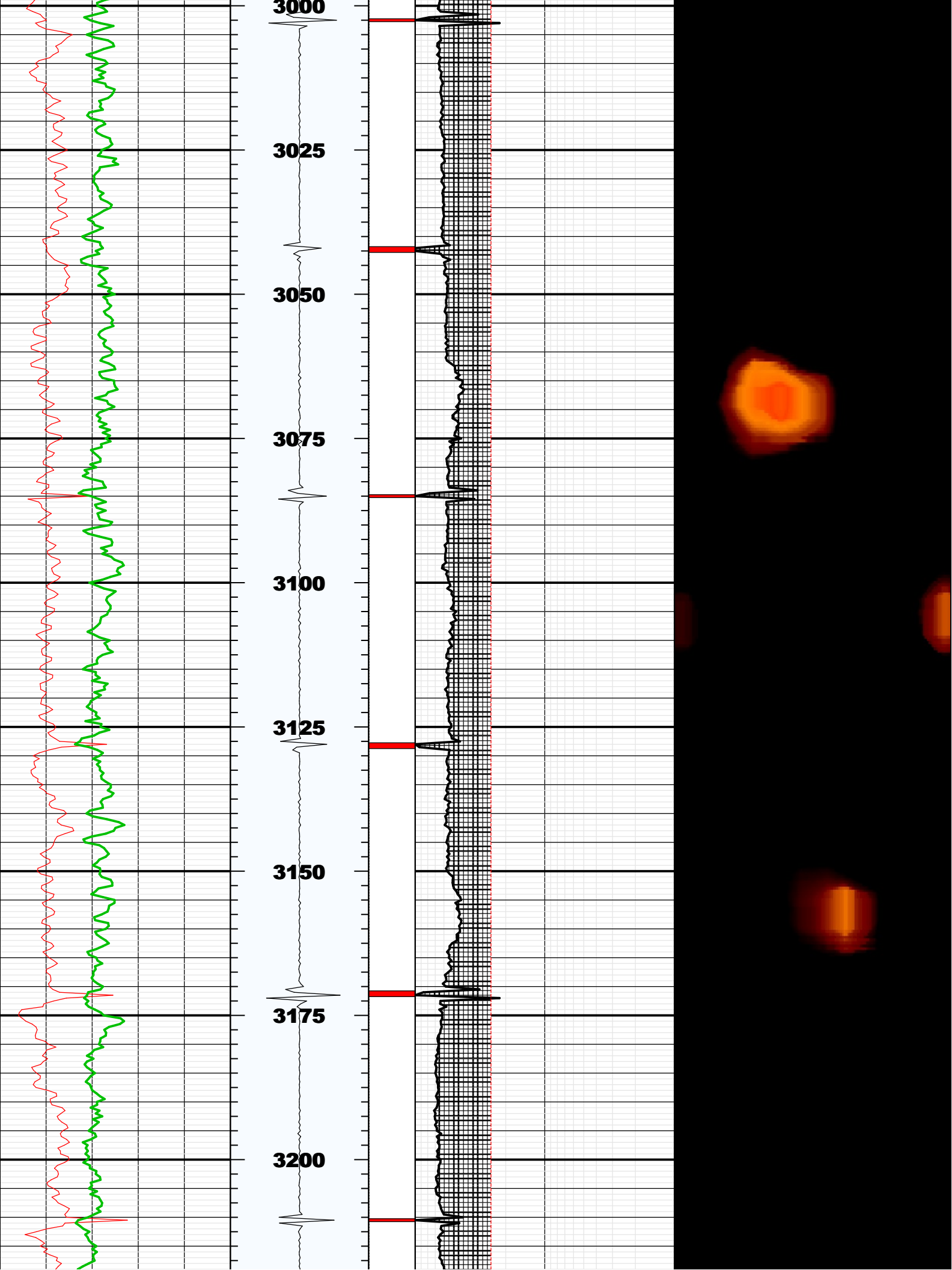


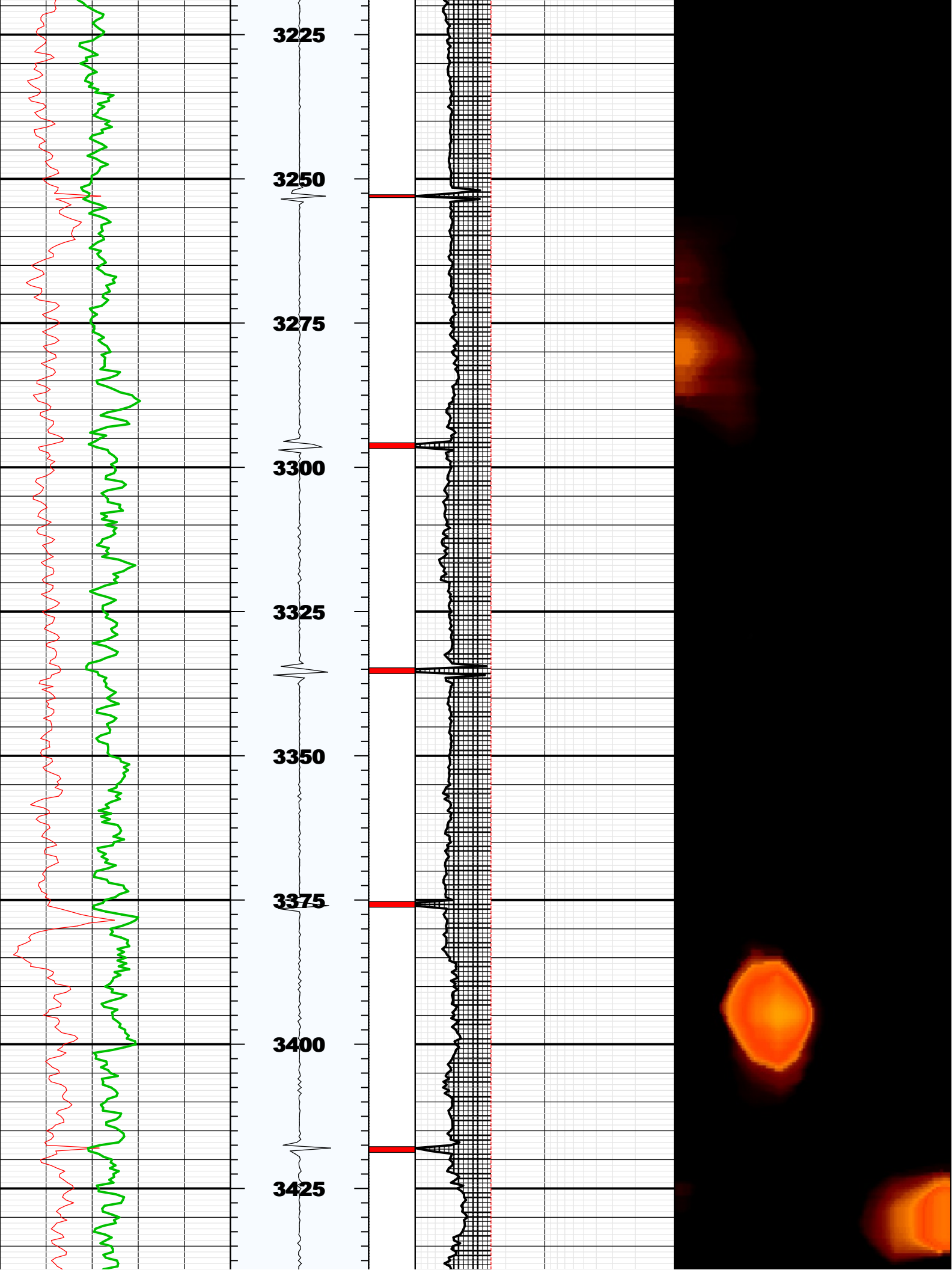


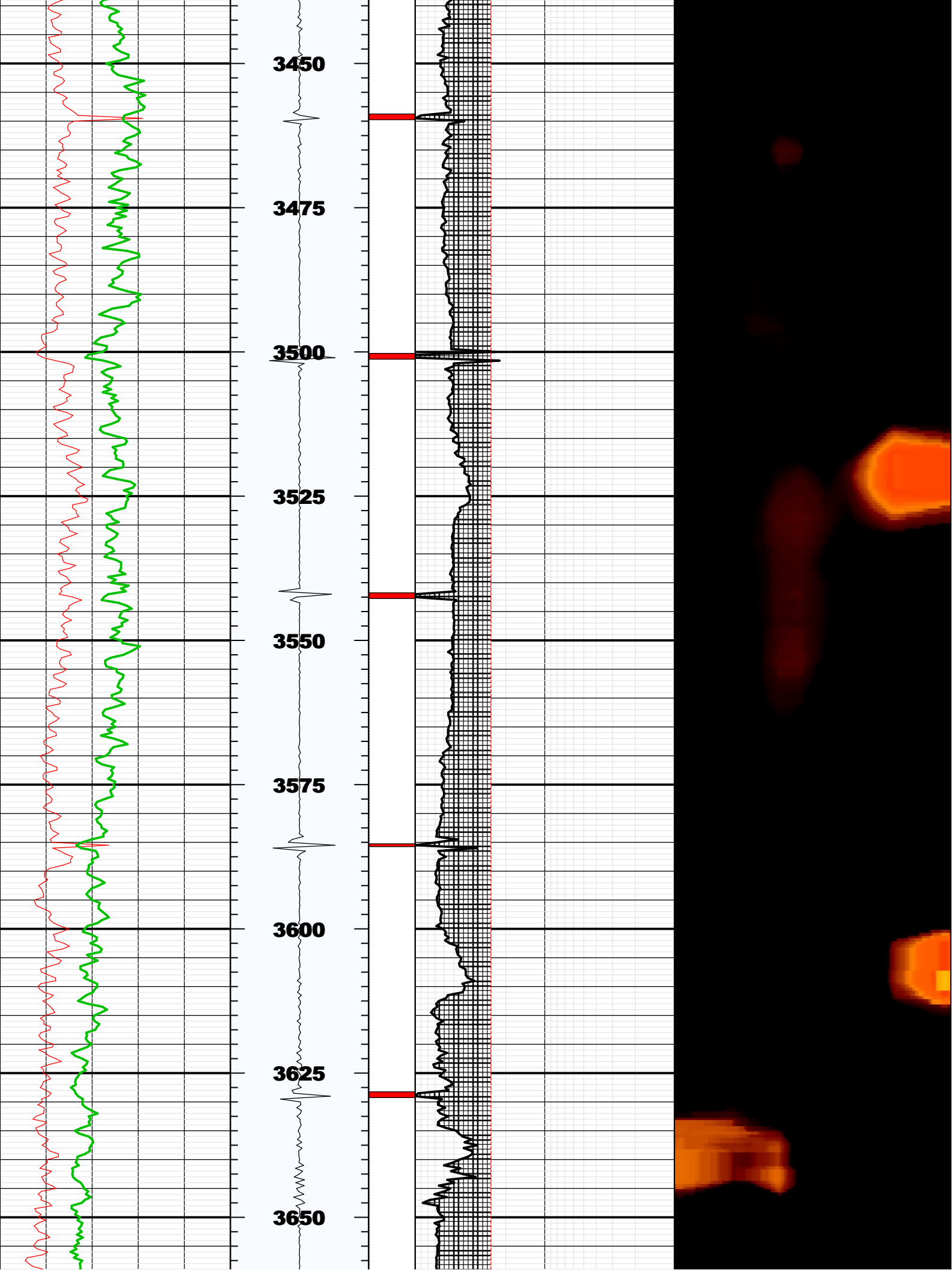


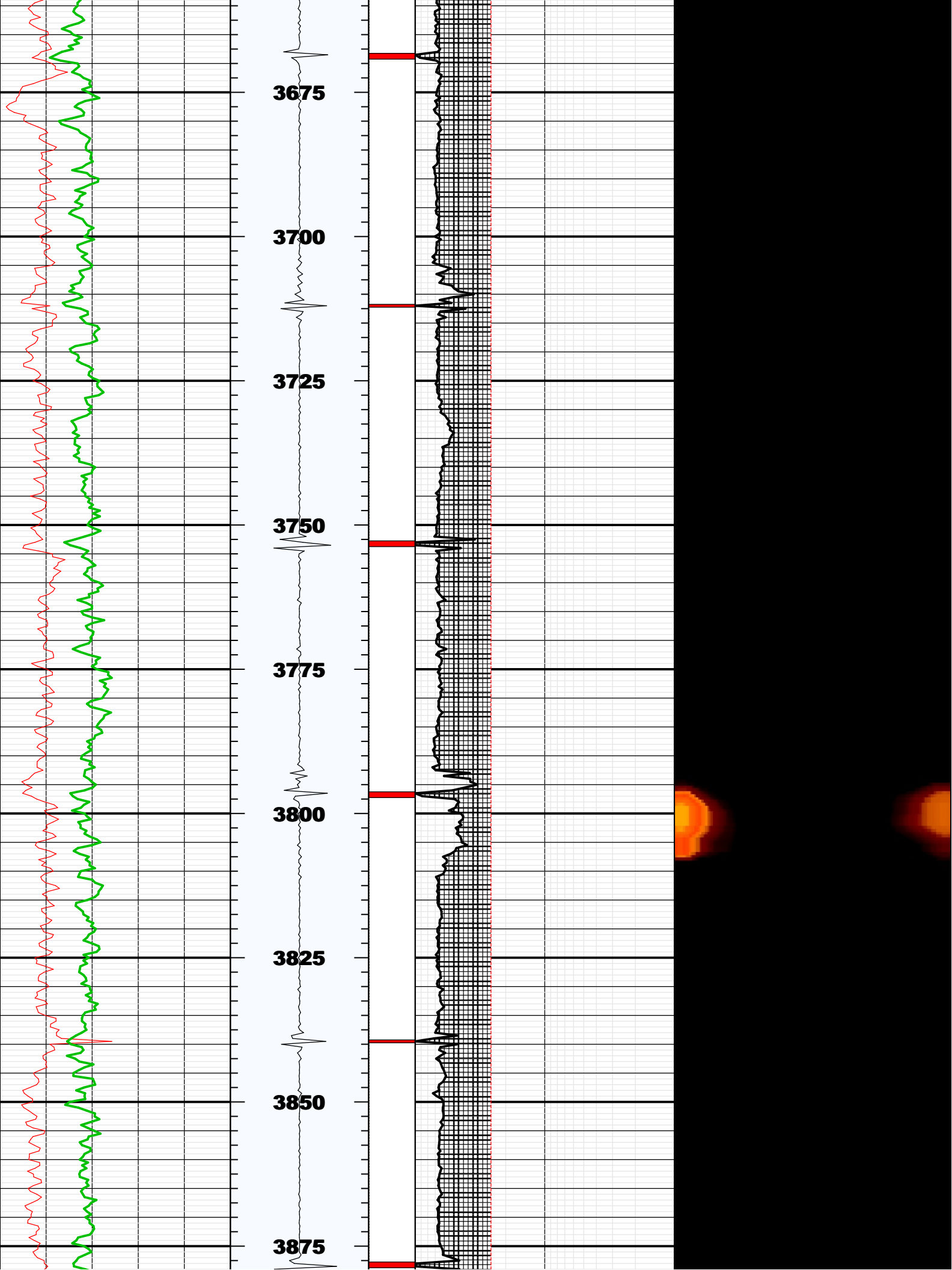


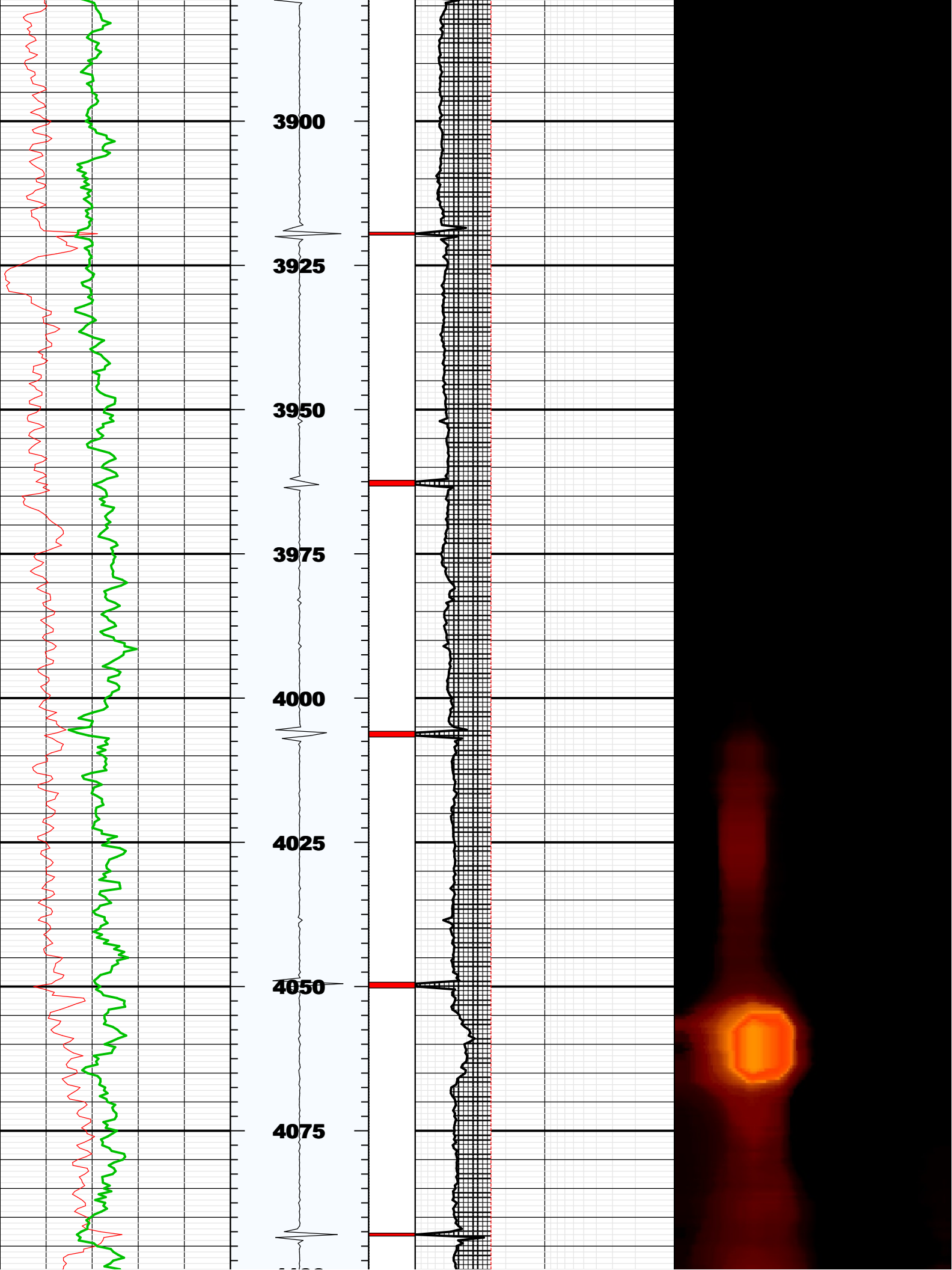


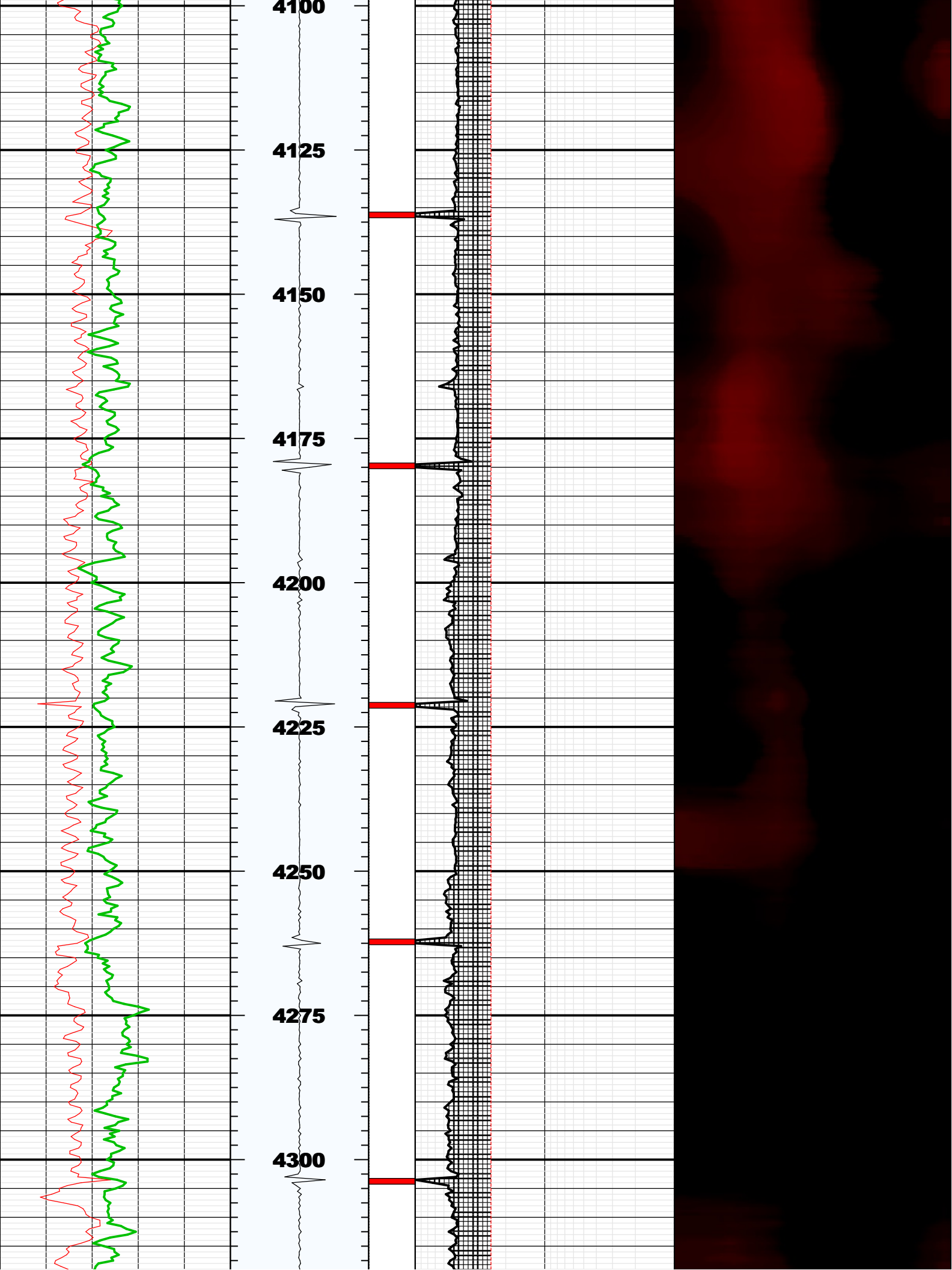




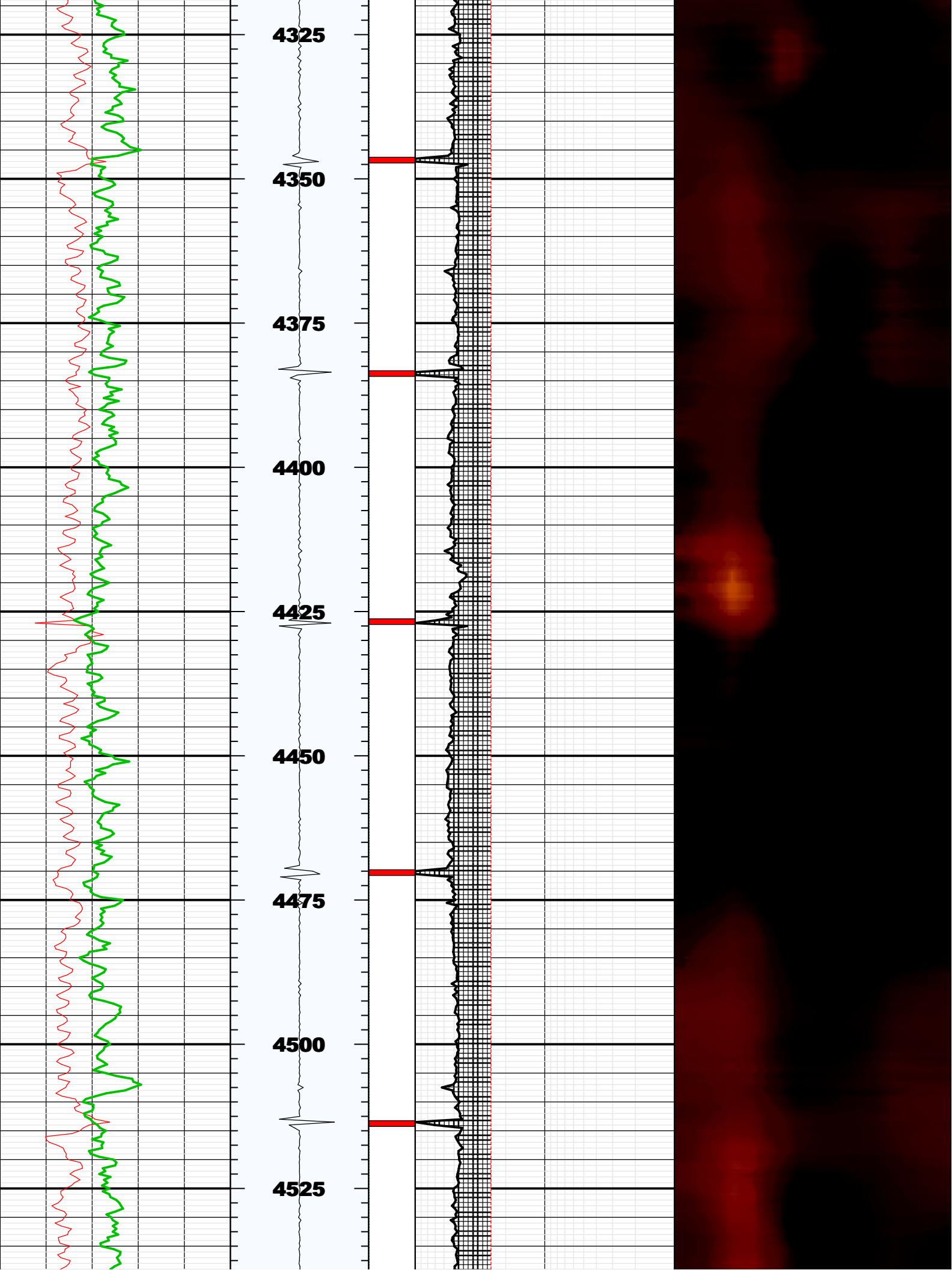


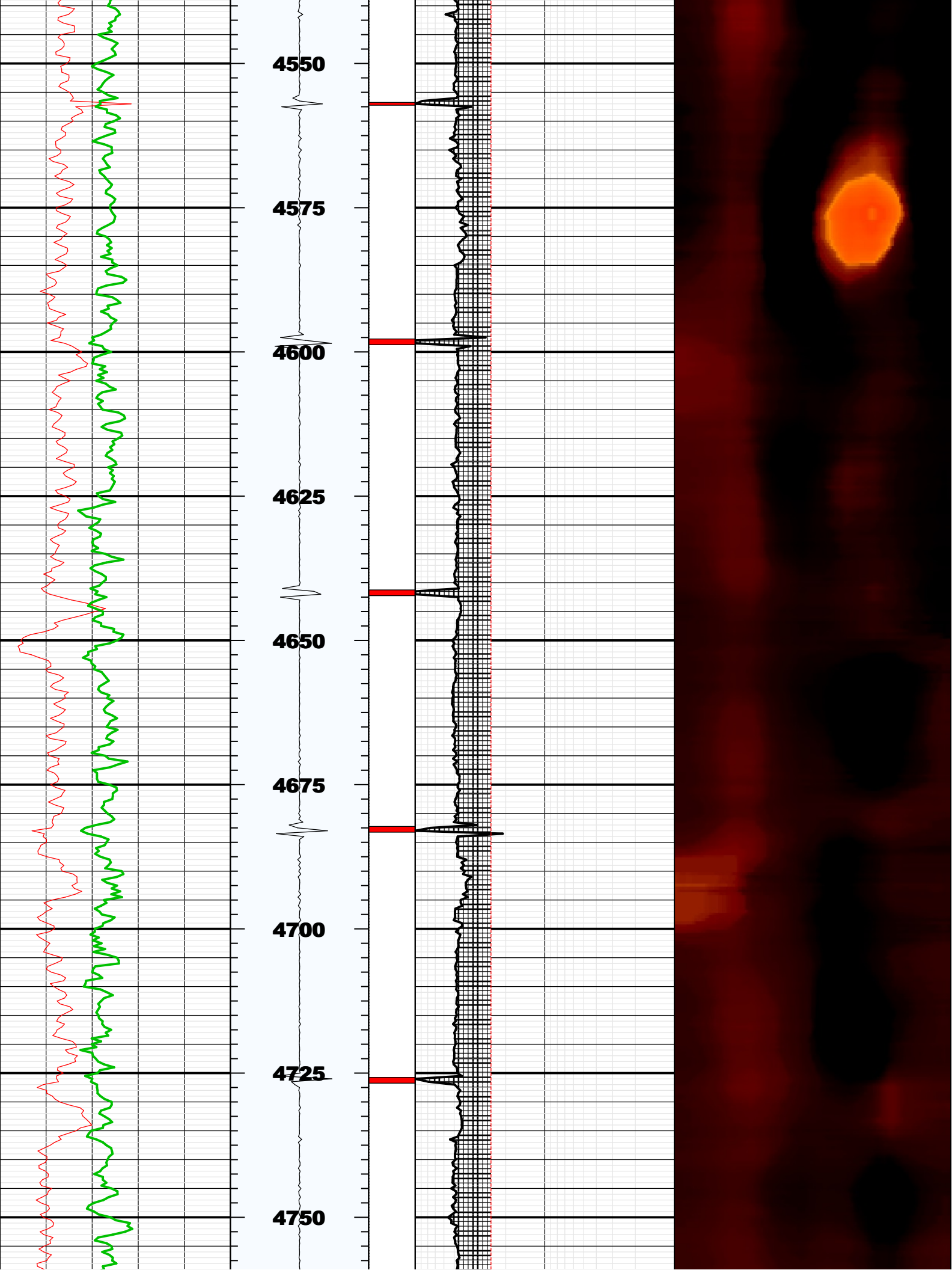




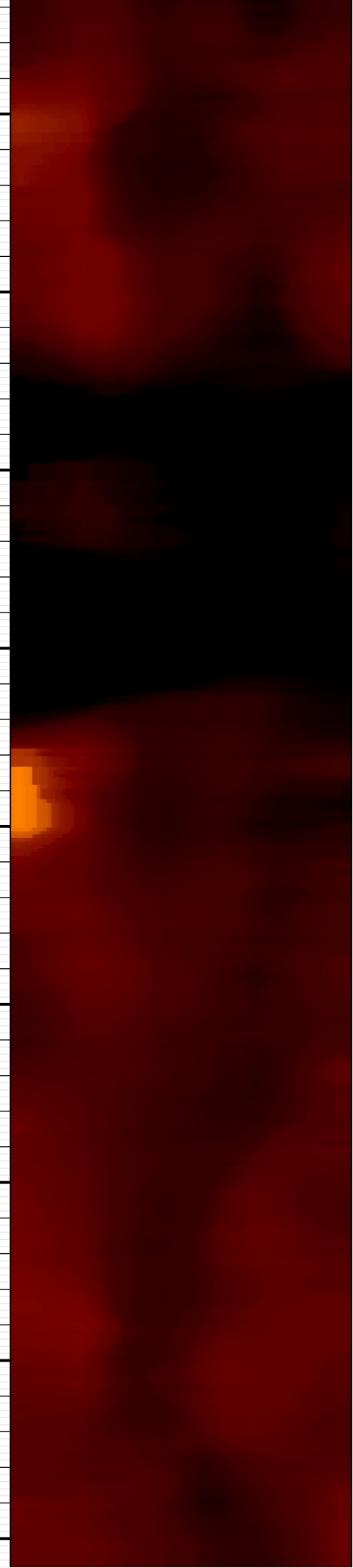
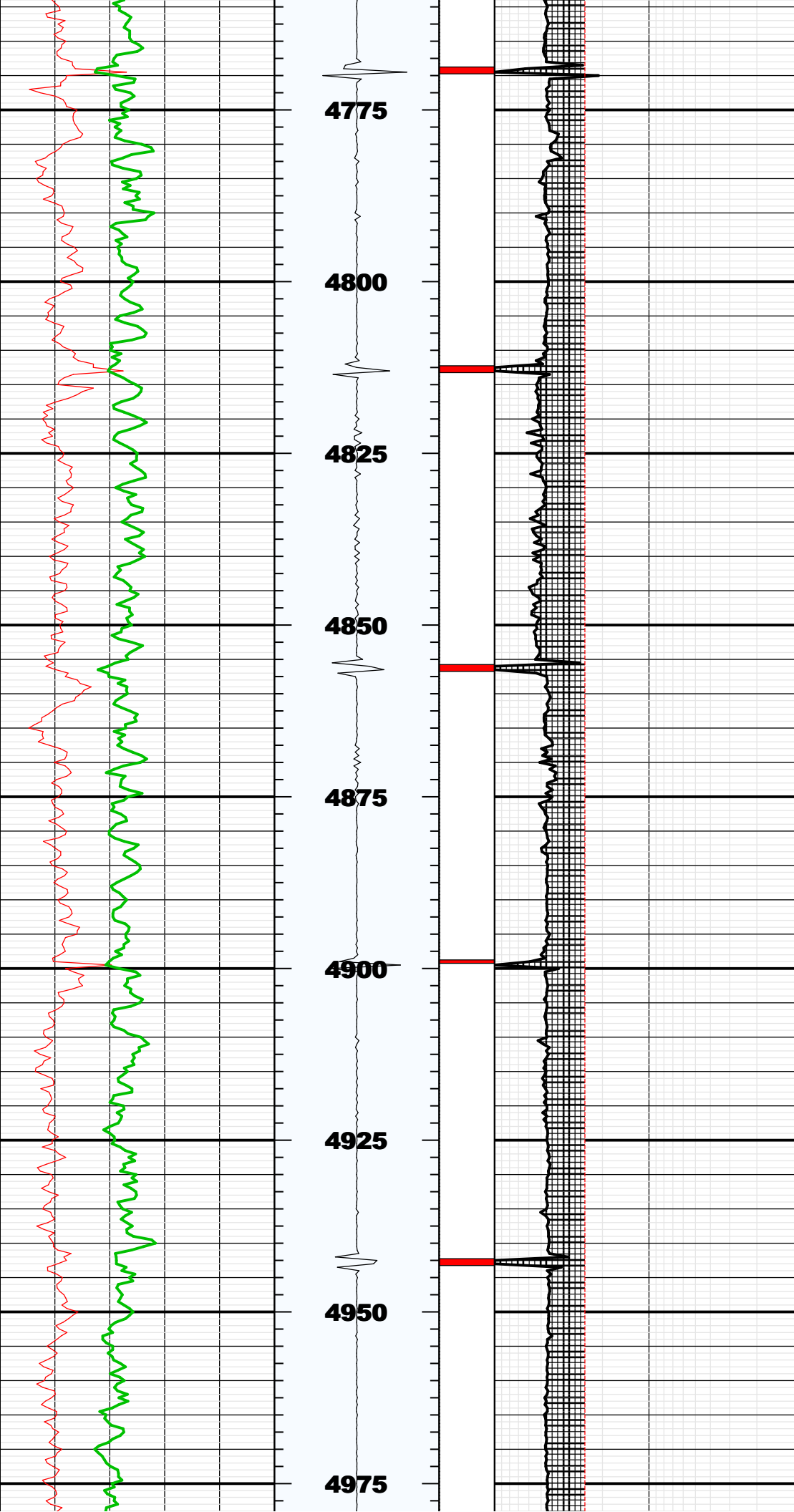


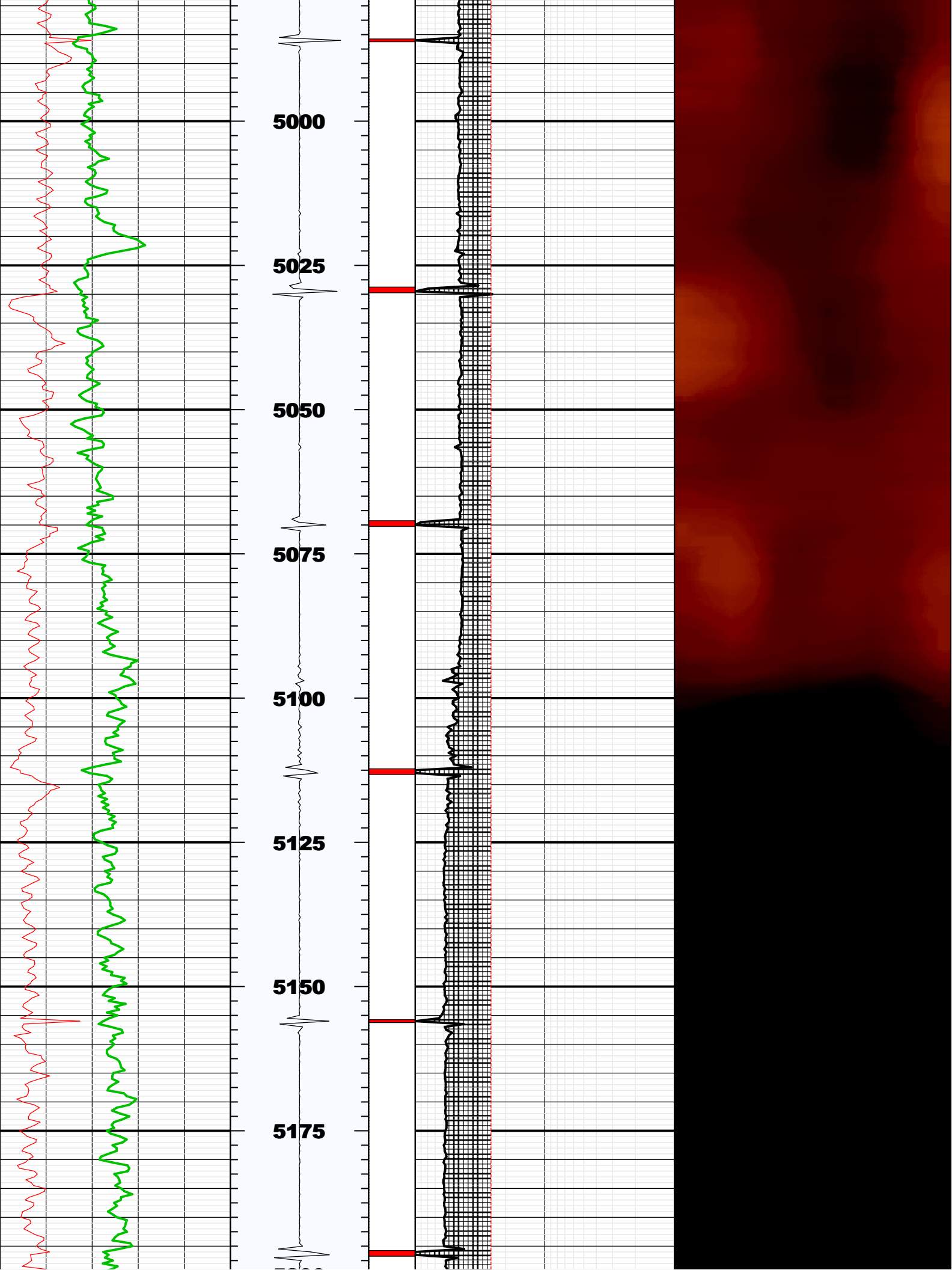


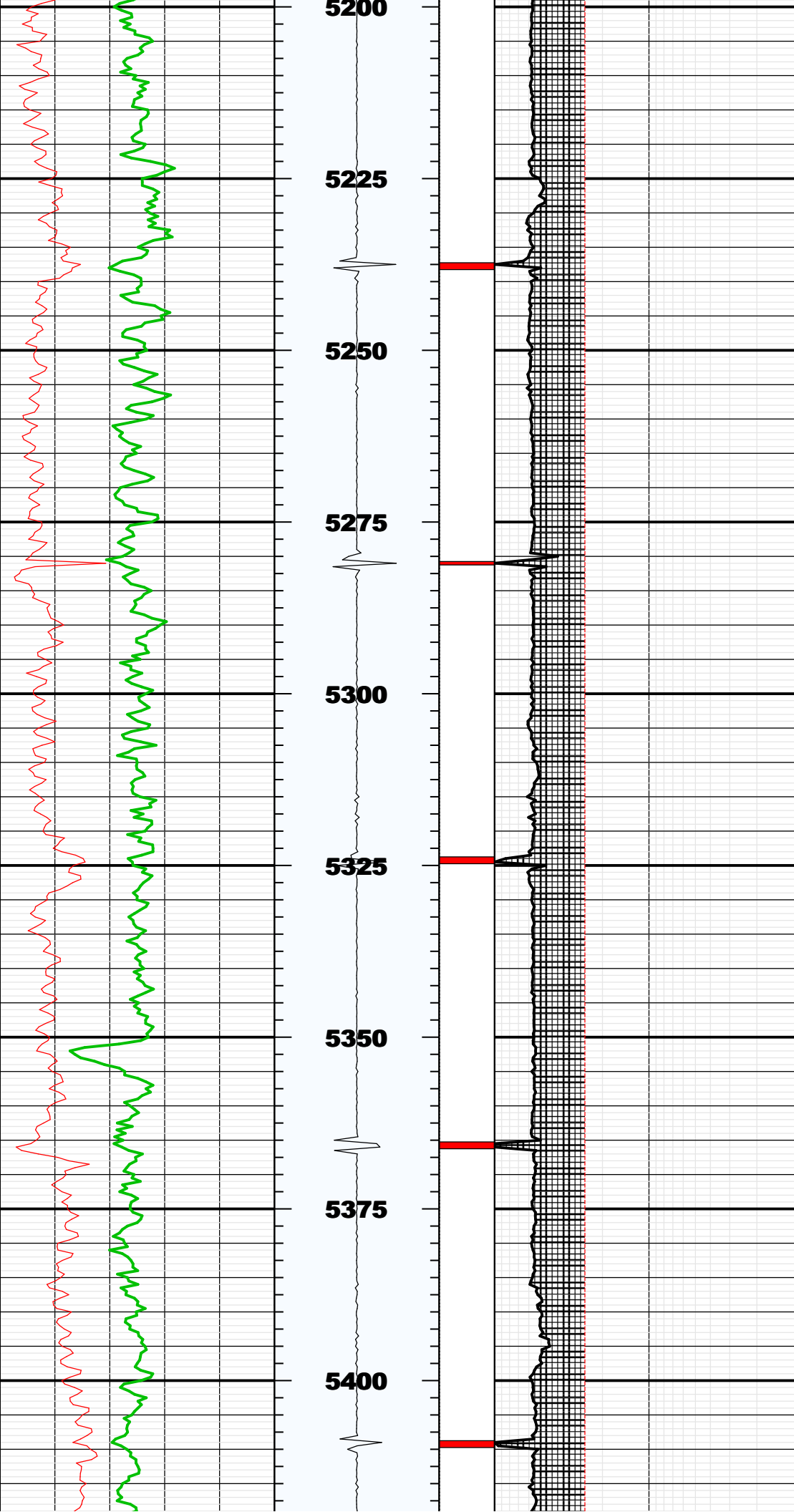


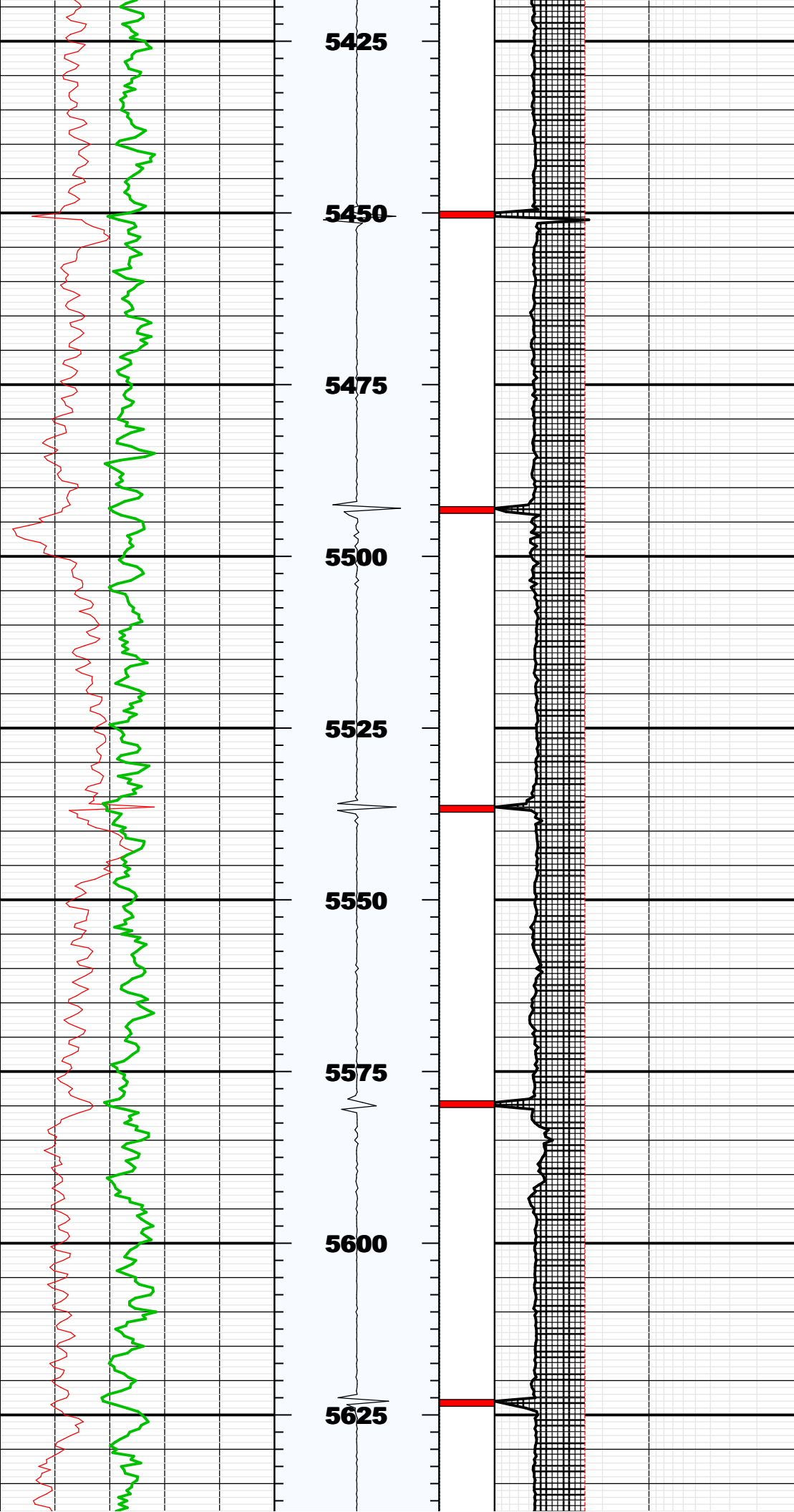


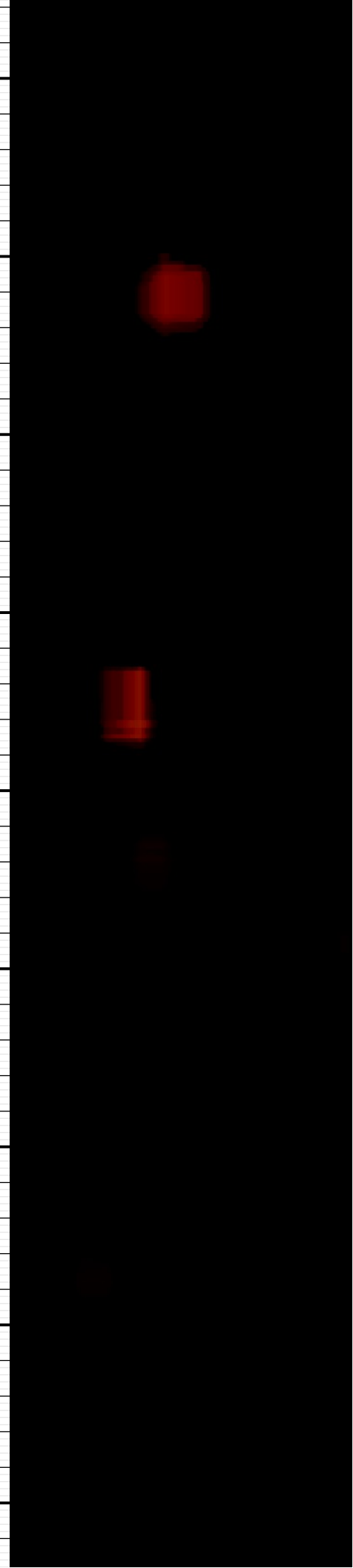
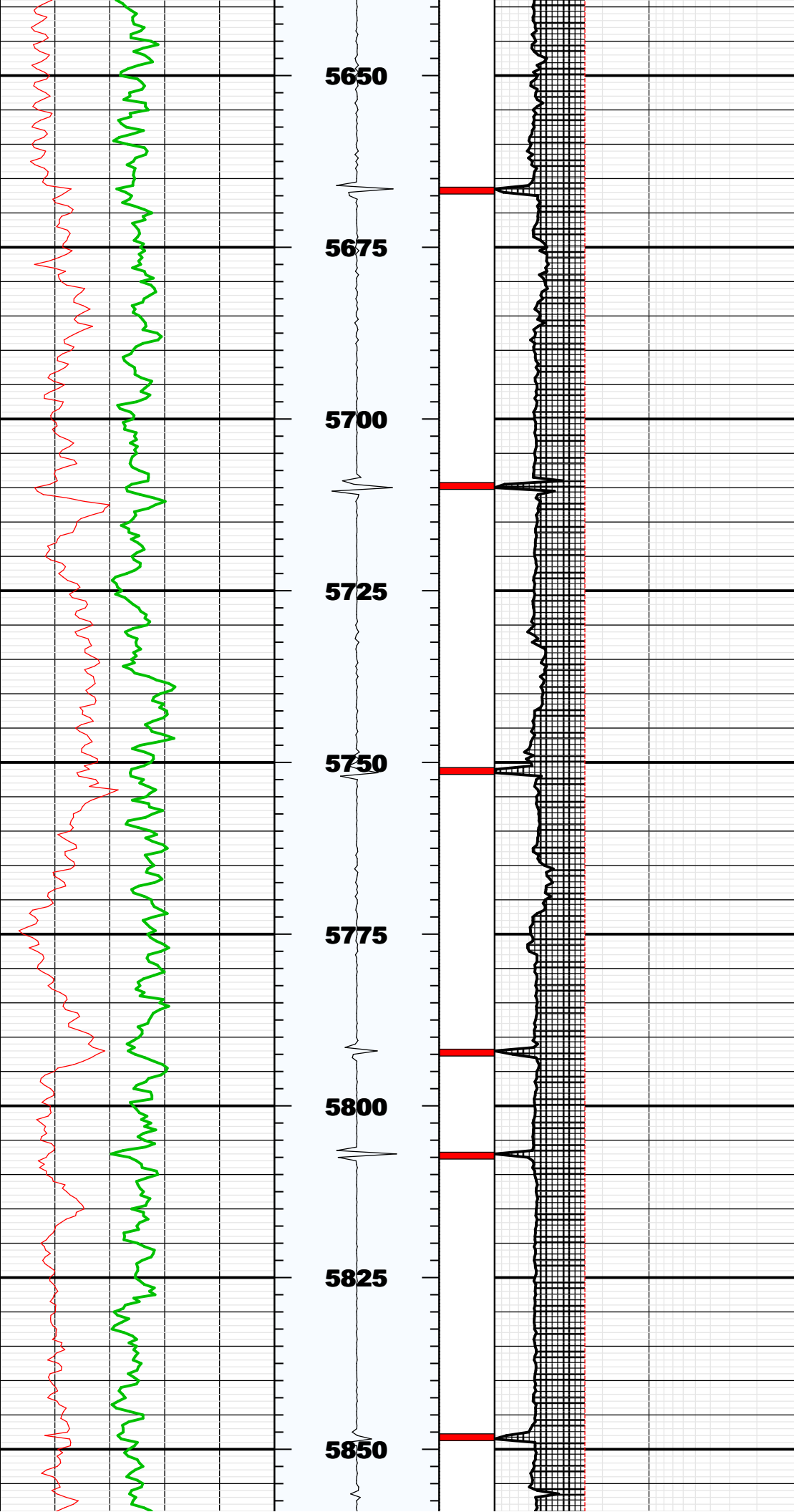


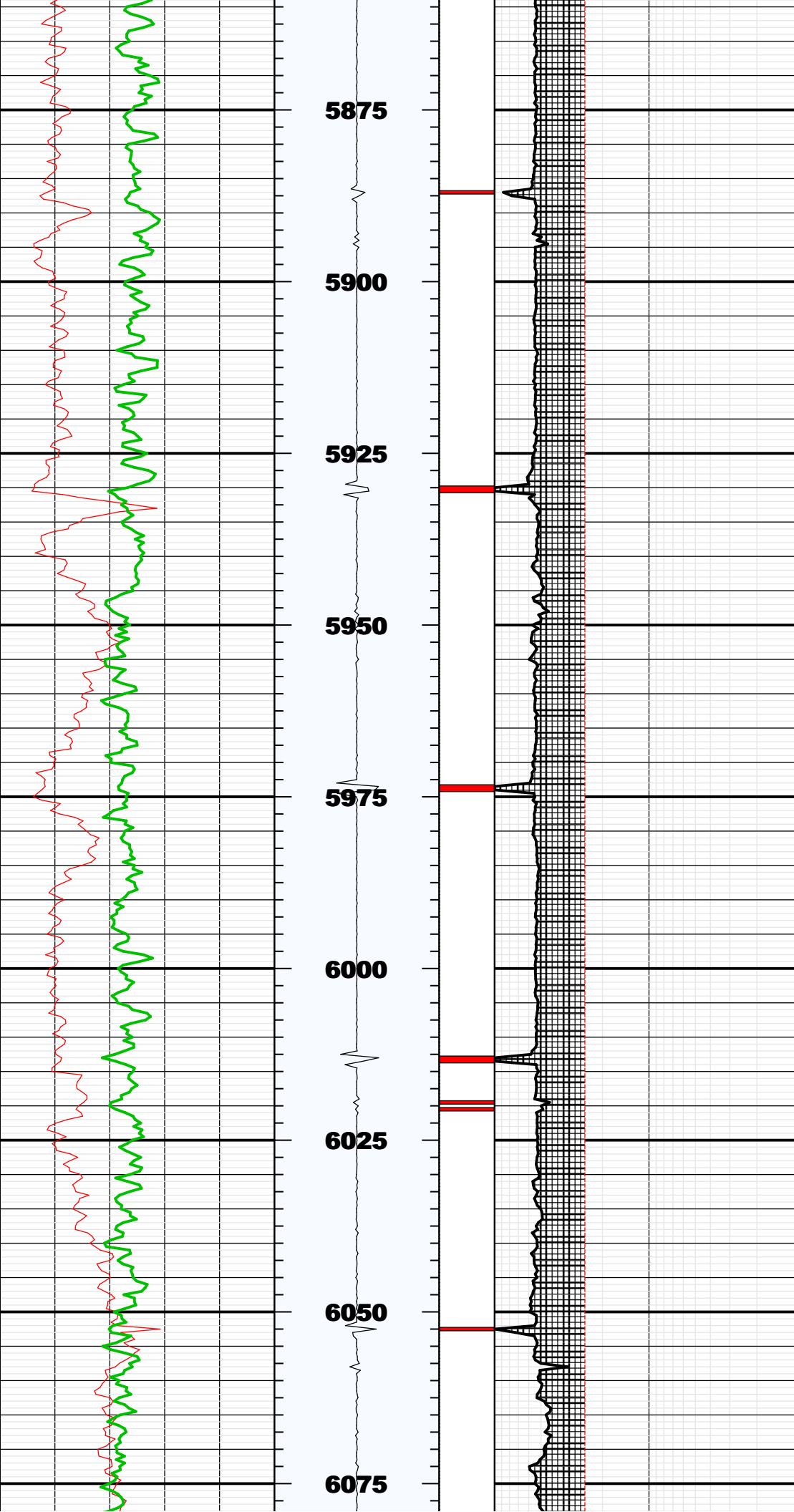




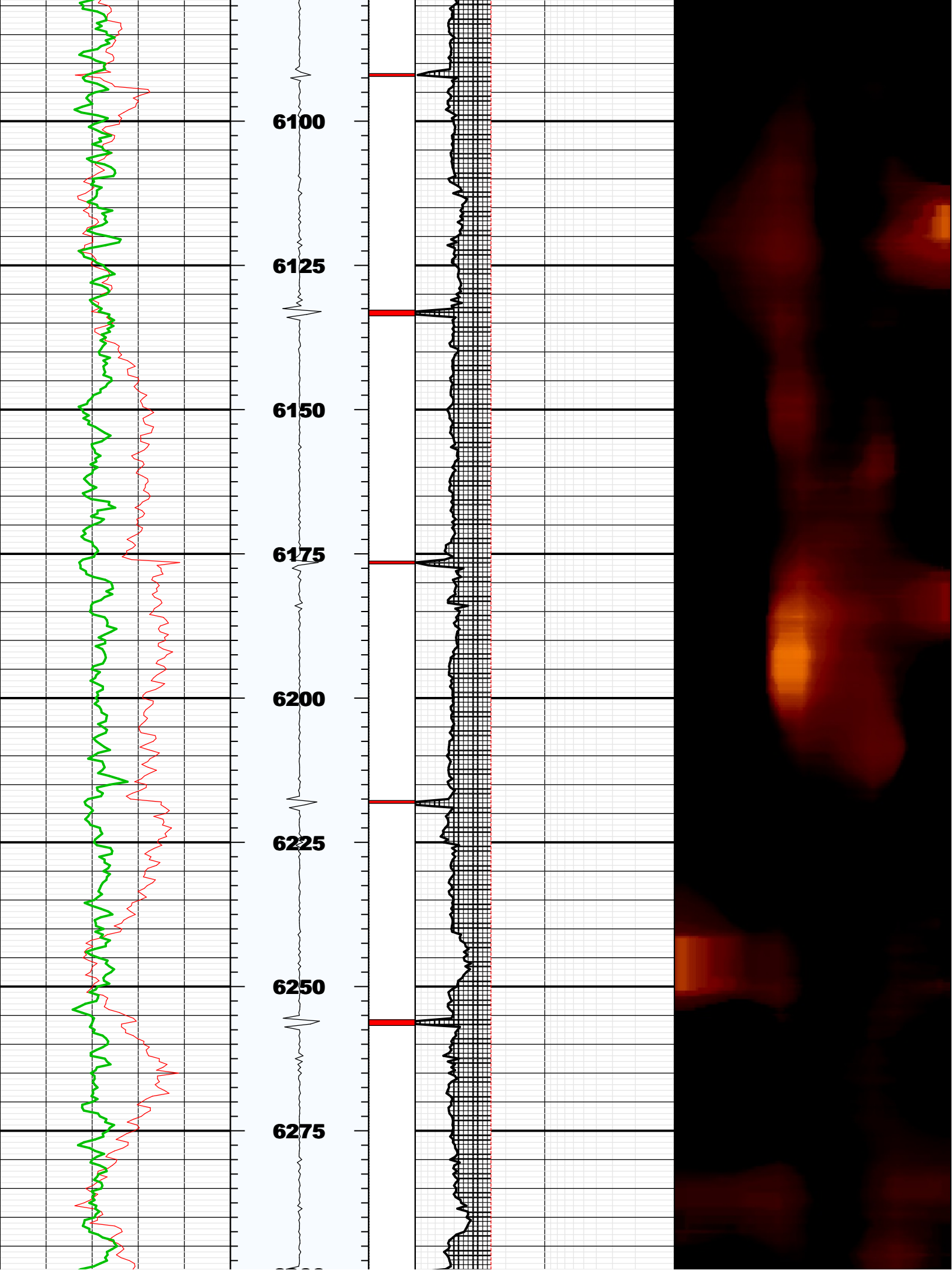


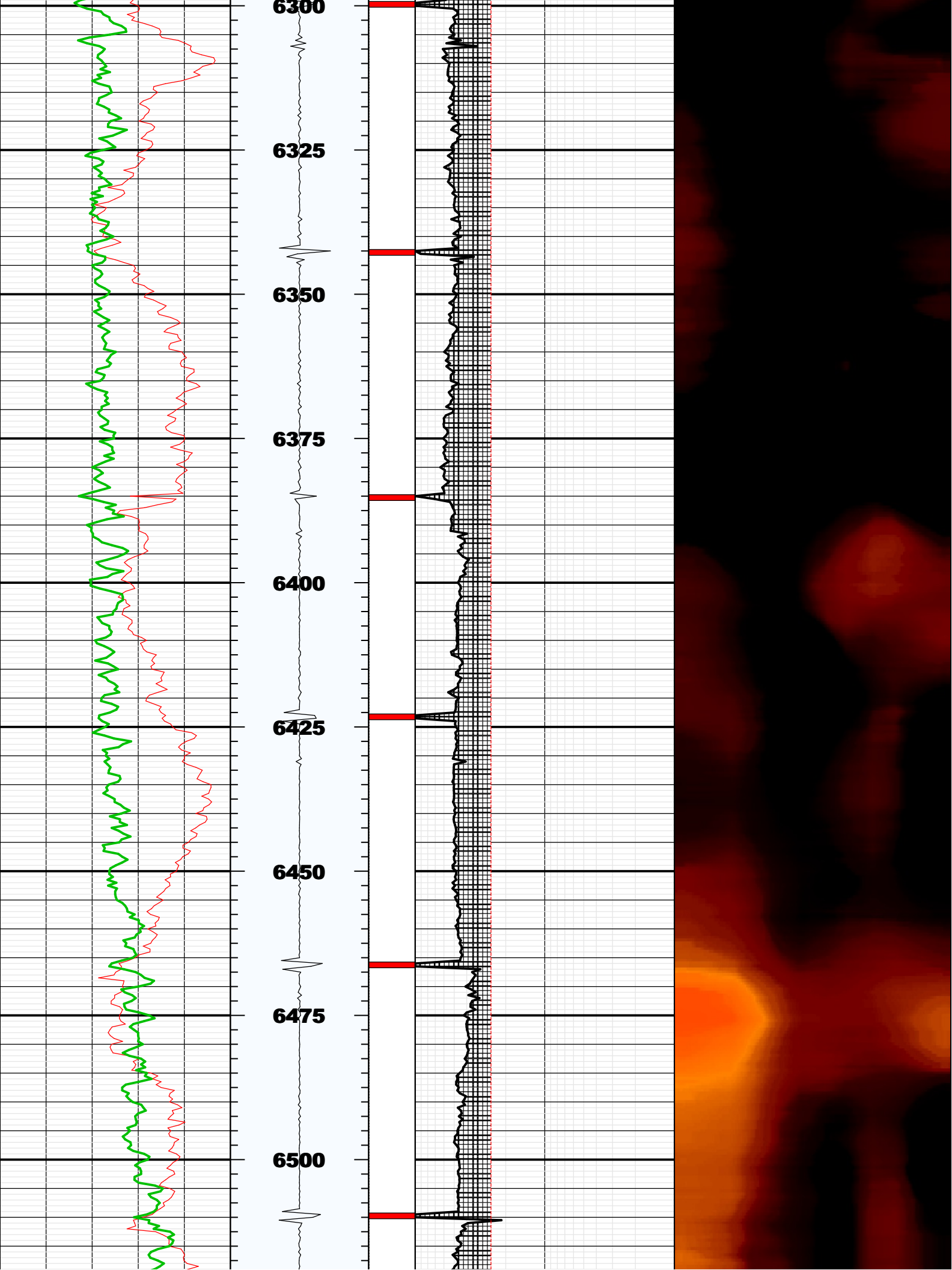




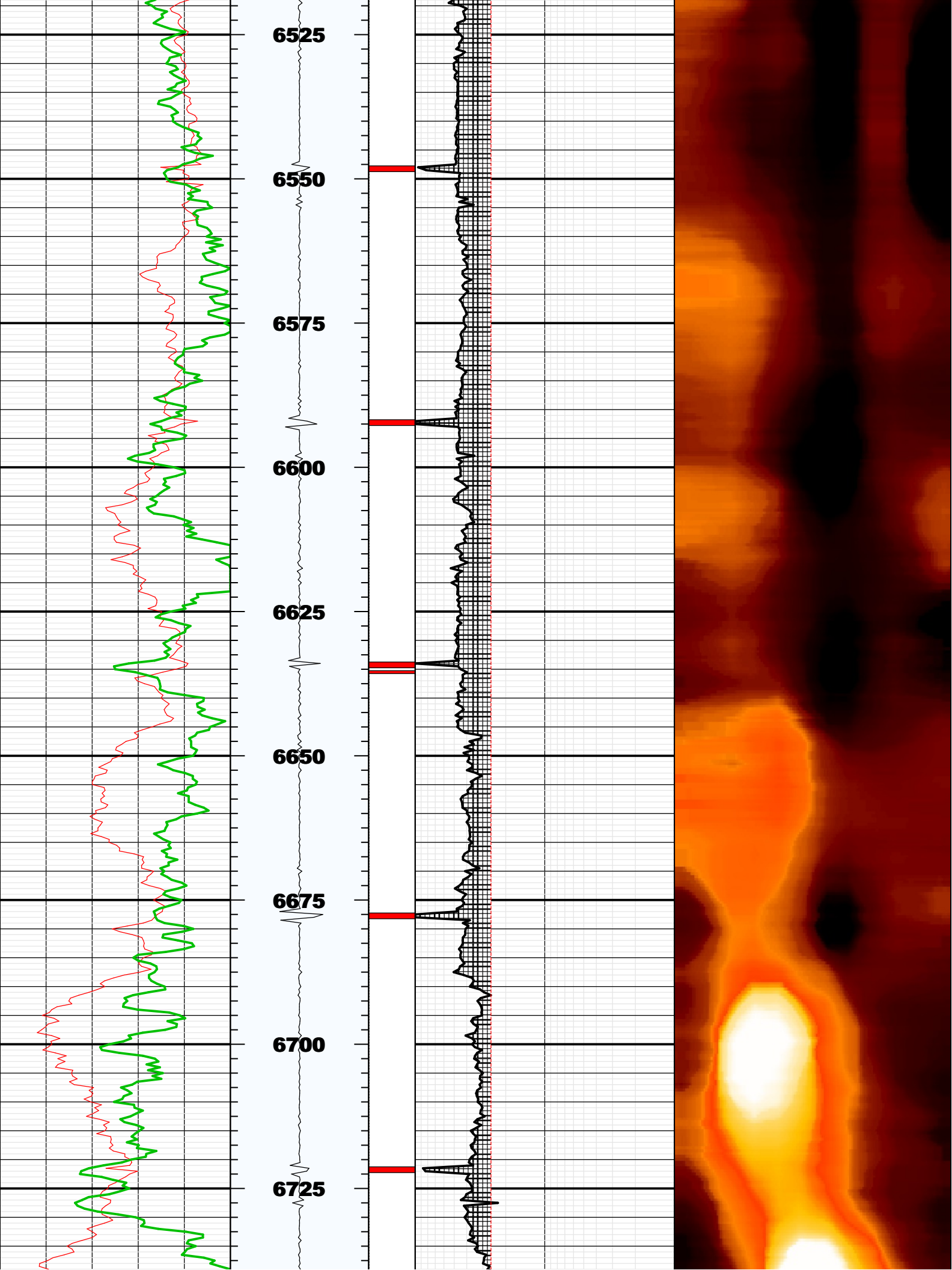


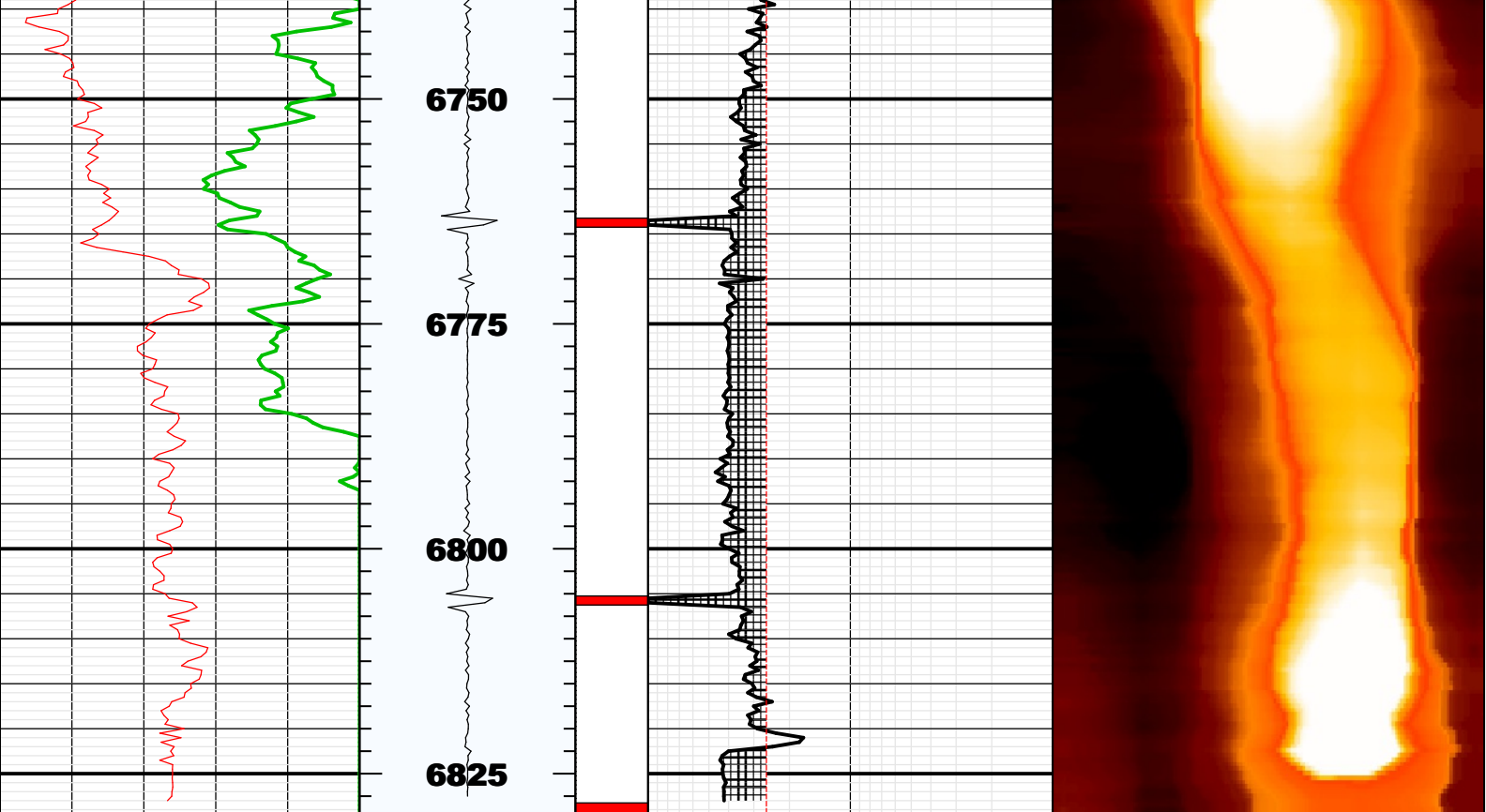








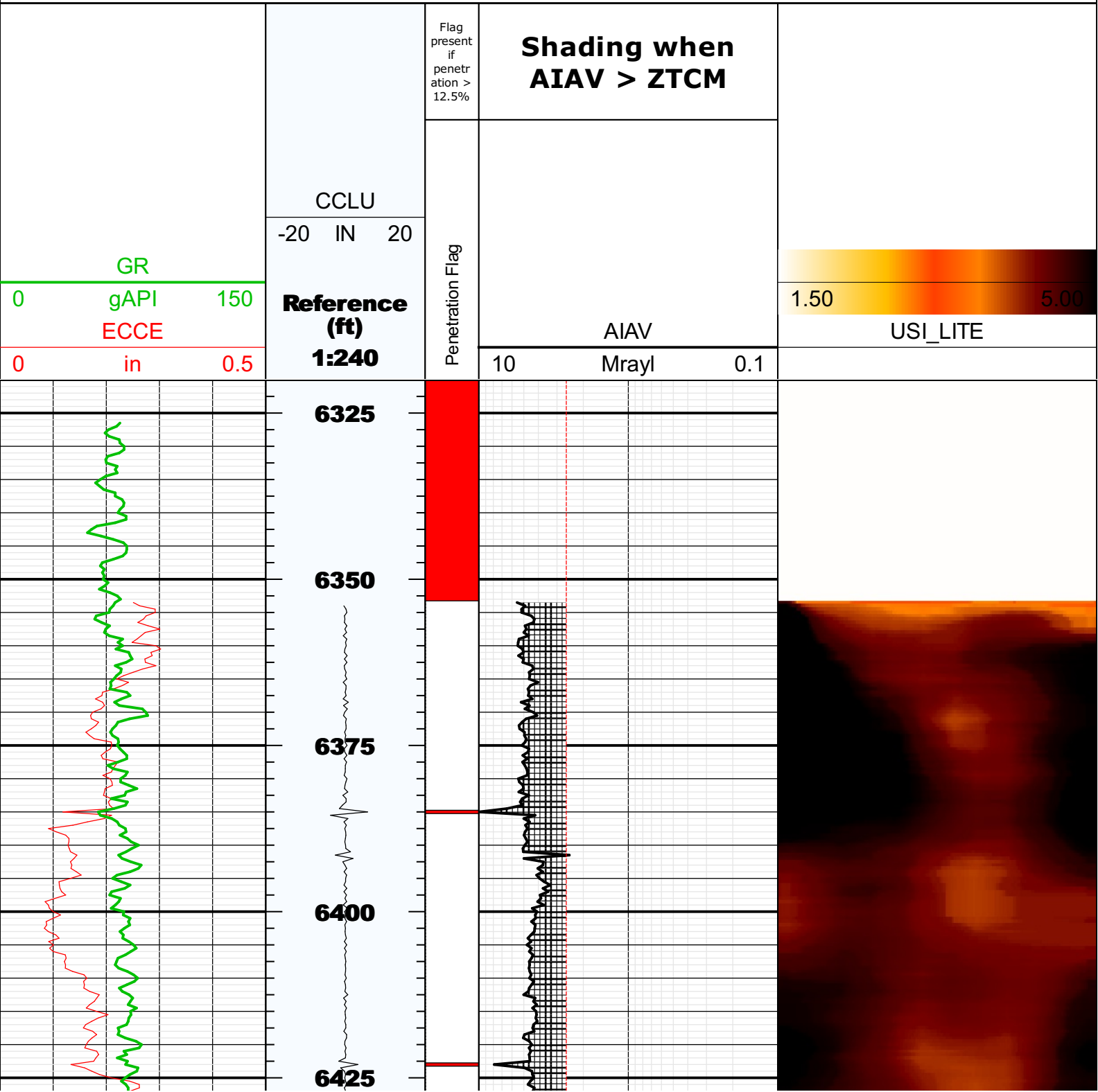


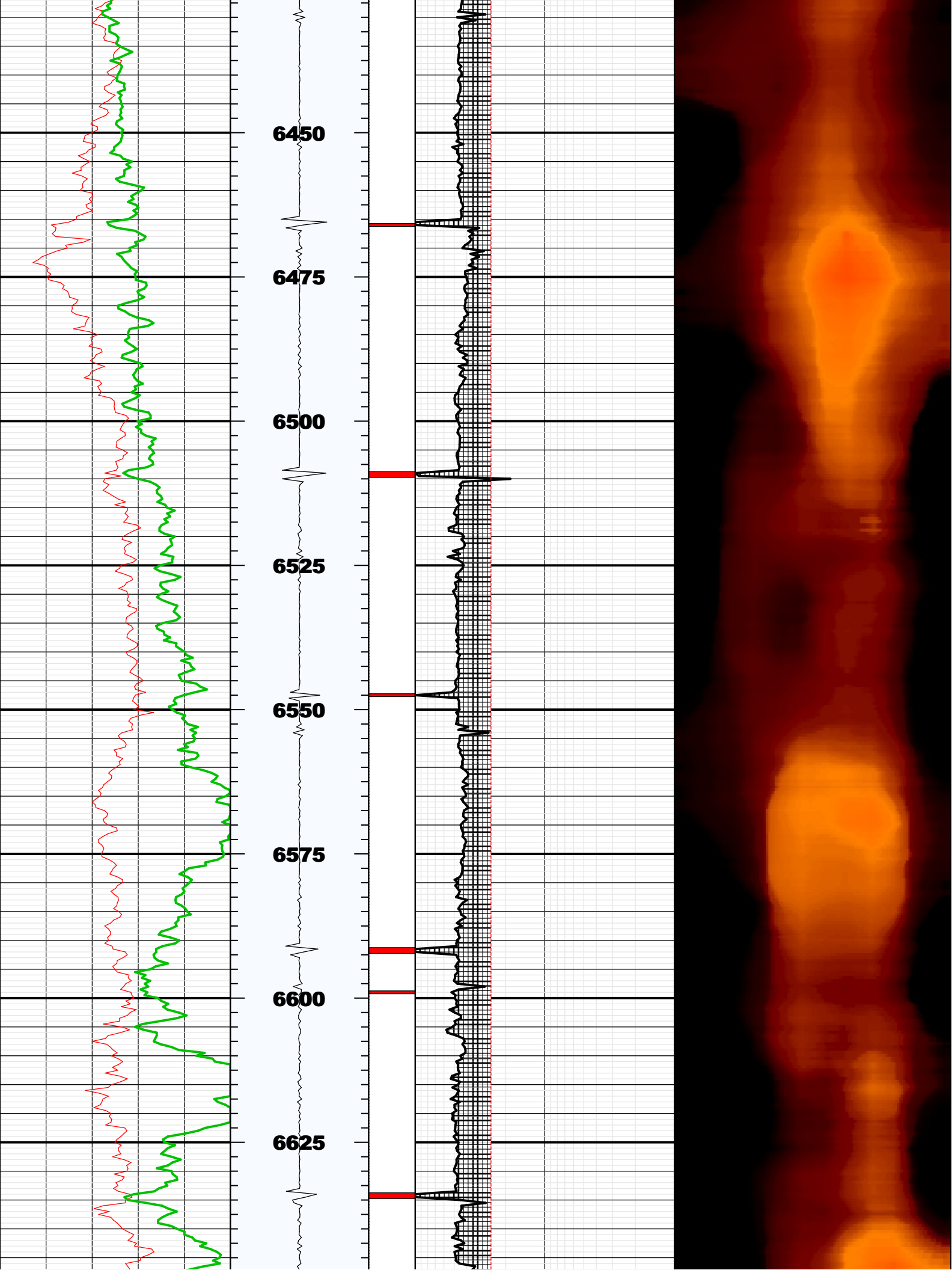


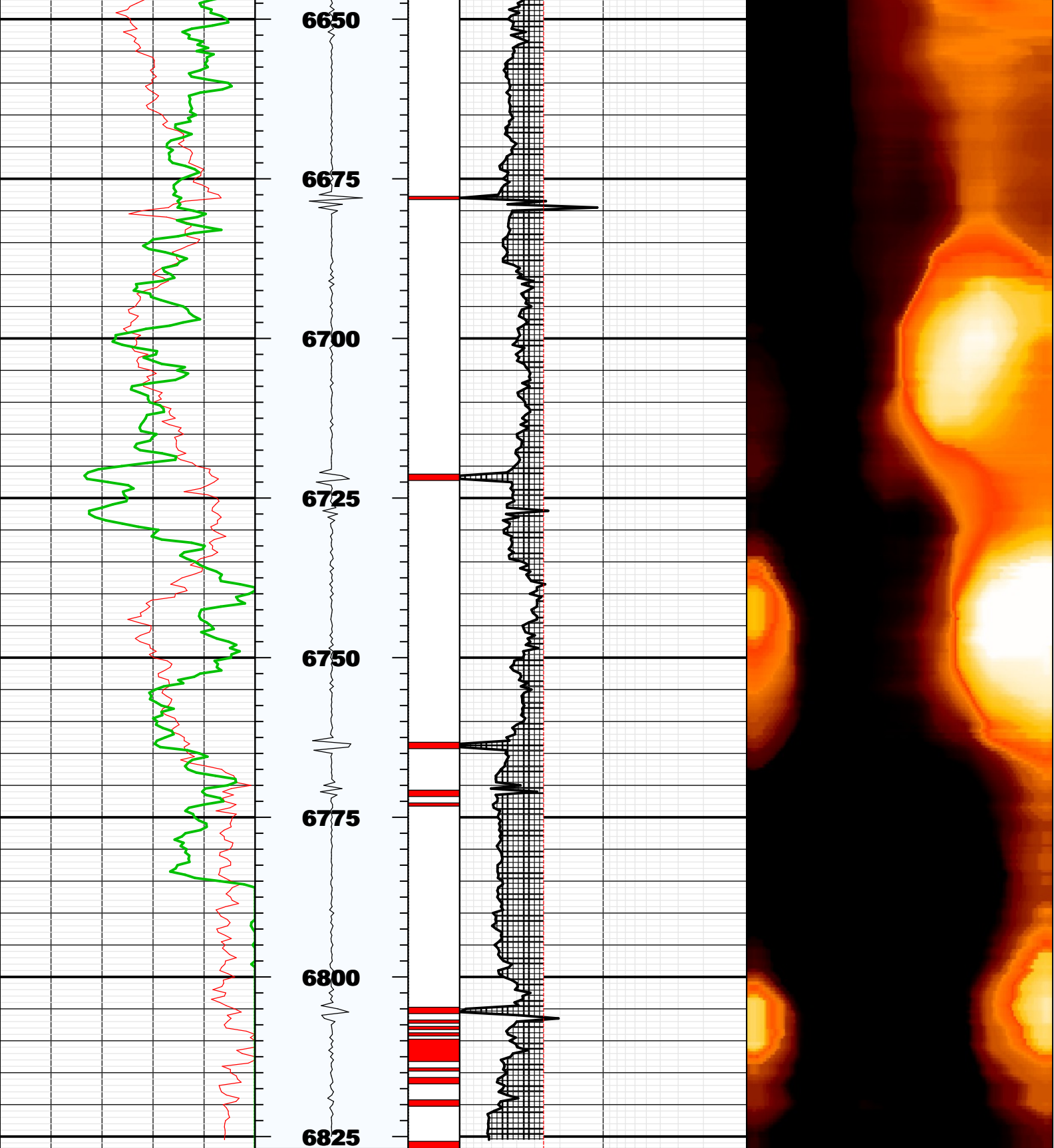
BS	8.75000	IN	Bit Size
CASG	P110		Casing Grade
CDIA	7.00000	IN	Casing Outer Diameter
CSID	6.27600	IN	Casing Inner Diameter
CSIZ	7.00000	IN	Current Casing Size
CWEI	26.00000	LB/F	Casing Weight
DFD	8.70000	LB/G	Drilling Fluid Density
DFVL	188.00000	US/F	Default Fluid Velocity
DO			
DOT	2.87400	IN	Diameter of Transducer Sensor
EMXV	35	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	33.29800	US	Window Begin Time
WINE	73.29800	US	Window End Time
ZCAS	46.25000	MRAY	Acoustic Impedance of Casing
ZINI	-1.00000	MRAY	Initial Estimate of Cement Impedance
ZMUD	1.66000	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 <sup>^</sup> 3 Processing Length

Repeat Pass

Company: Noble Energy Inc  
Well: Mahalo State AA09-72-1AHNB  
Field: Wattenberg









## Fluid Properties Used for Main Pass

