

Company: Noble Energy Inc

Well: Mahalo State AA09-73-1HNC
Field: Wattenberg
County: Weld State: Colorado

County: Weld		USI-LITE (2500 psi)		
Field: Wattenberg				
Location: SESE Sec 4 T6N 63W				
Well: Mahalo State AA09-73-1HNC				
Company: Noble Energy Inc				
LOCATION		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
API Serial No. 05-123-39021-0000				
Section 4				
Township 6N Range 63				
Logging Date	04-Feb-2015			
Run Number	Run 1			
Depth Driller	7010.0 F			
Schlumberger Depth	7010.0 F			
Bottom Log Interval	6895.0 F			
Top Log Interval	60.0 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	839.0 F			
To	7010.0 F			
Casing Size	7.00 IN			
Weight	26.00 LB/F			
Grade	P110			
From	16.0 F			
To	6895.0 F			
Max Recorded Temp	224.0			
Logger on bottom (date)	04-Feb-2015			
Location	Fort Morgan			
Recorded By	B Beggs MK Henrikson R Anggraeny			
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: 1109 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 @ 12.5 ppg Lead @ 13.6

2500 psi Main Pass 0 psi Repeat Pass

Top of cement seen at 1039'.

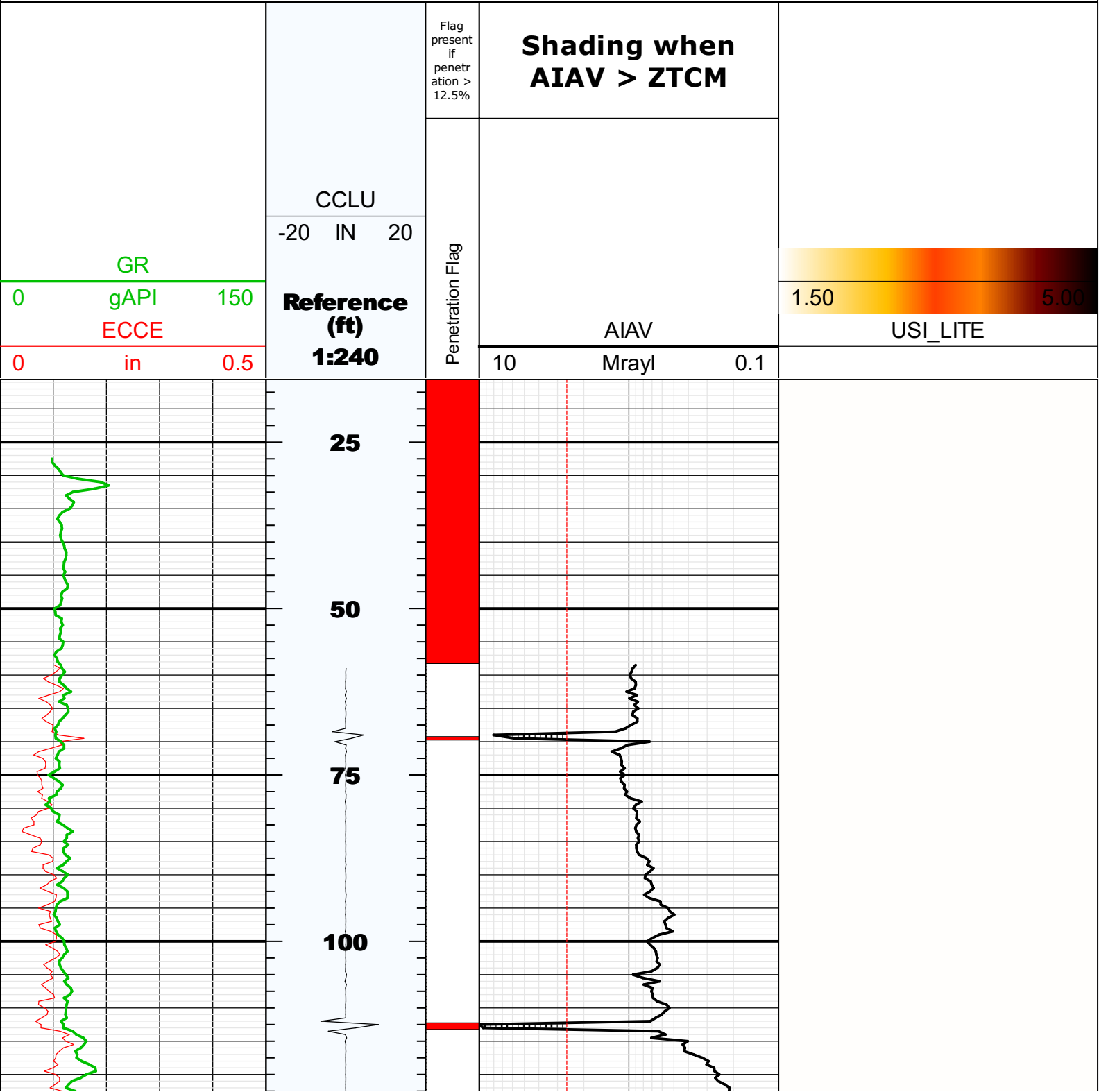
Log was recorded from bottom log interval to surface.

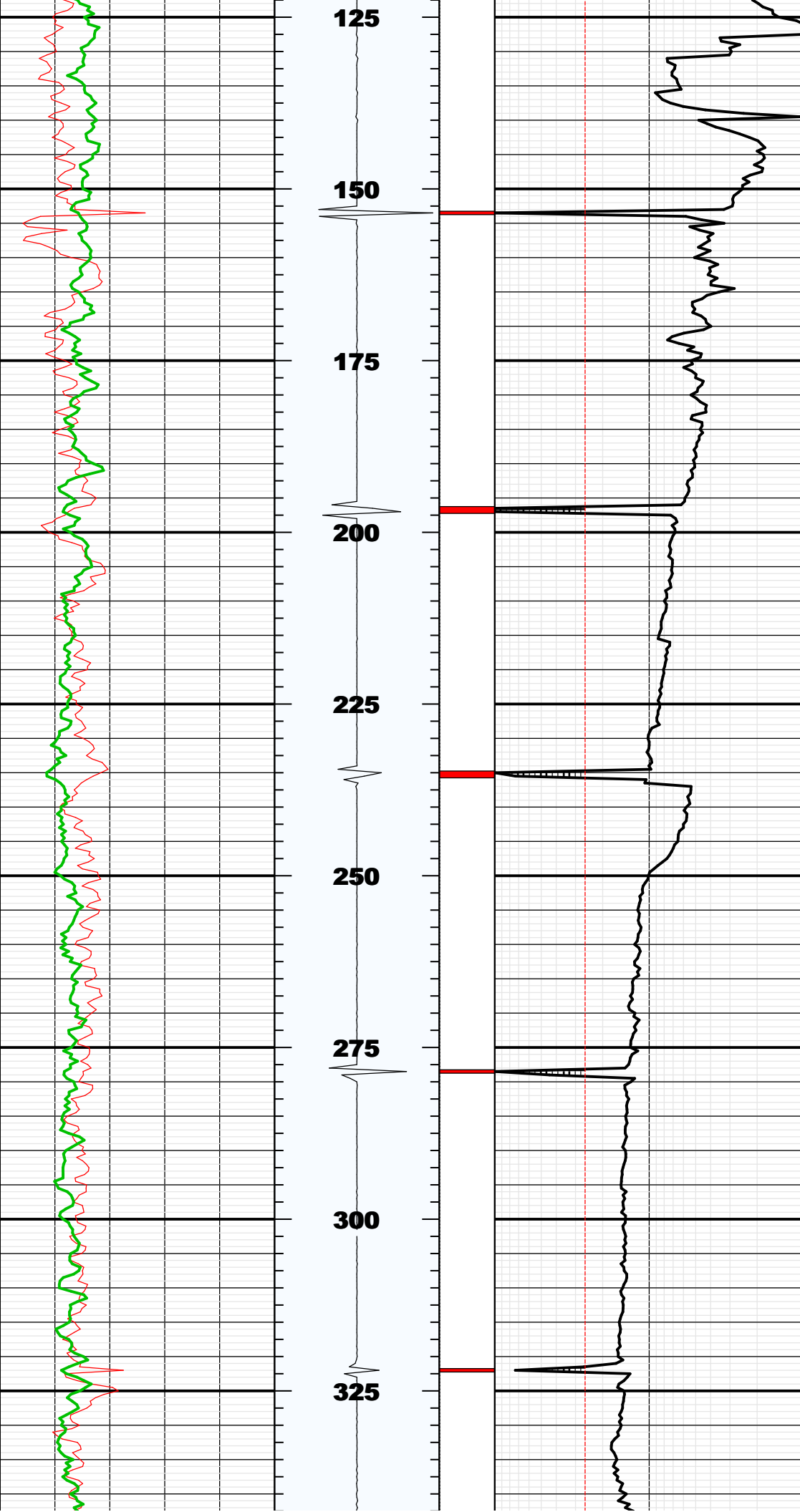
Bottom log interval was 6895 to maintain distance from top of liner.

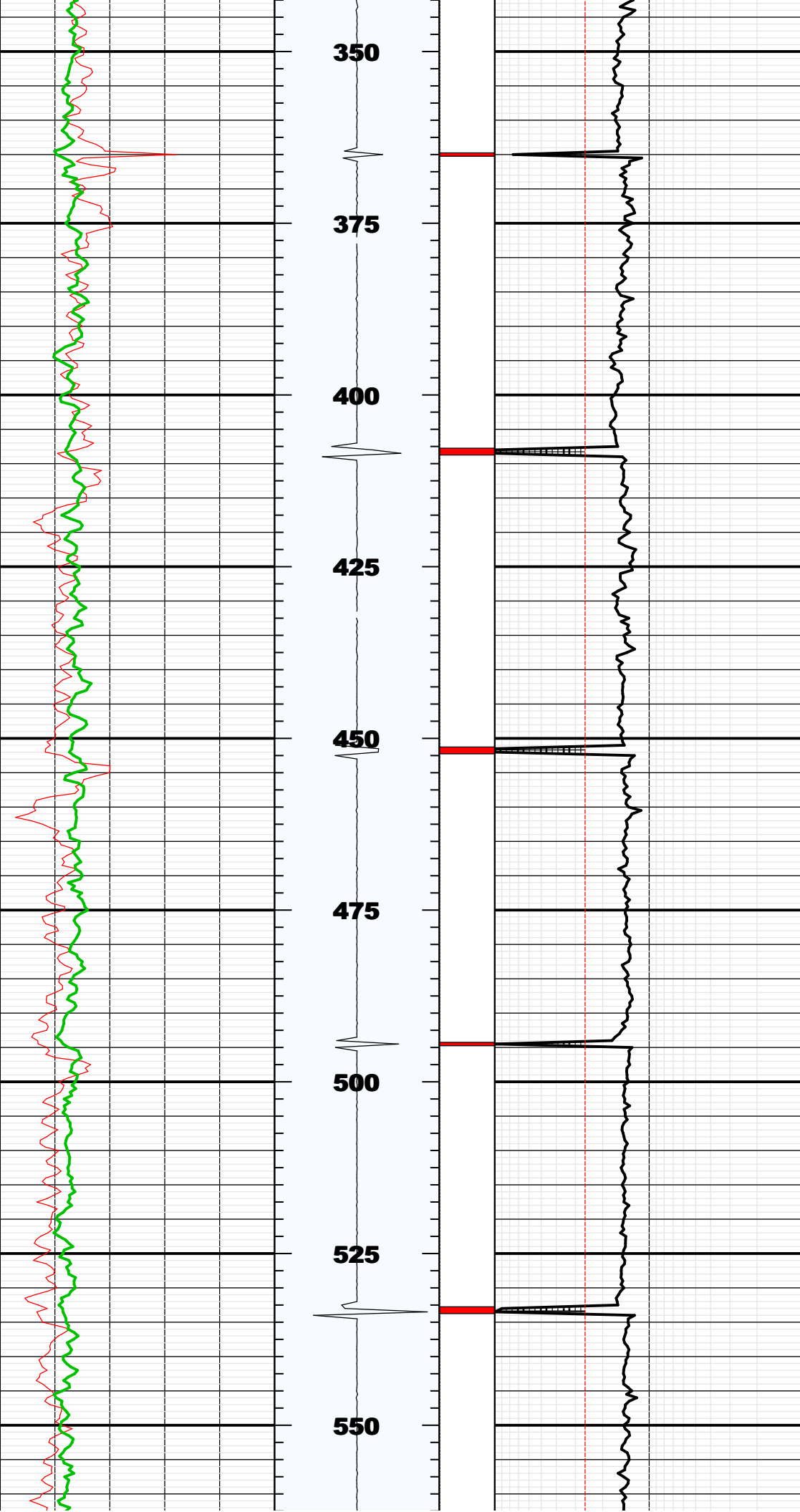
Max recorded temperature = 224 degF measured at depth

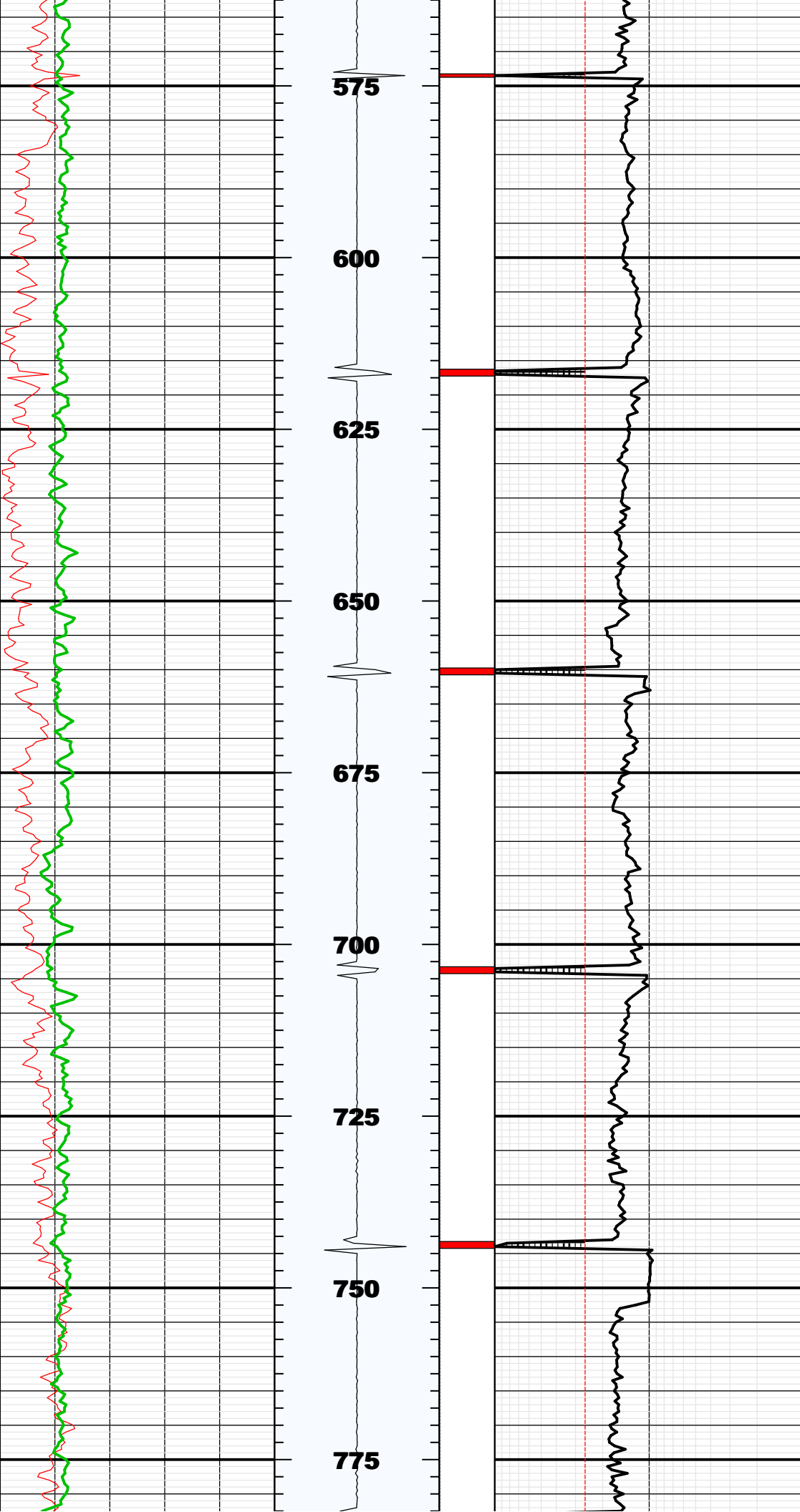
Main Pass

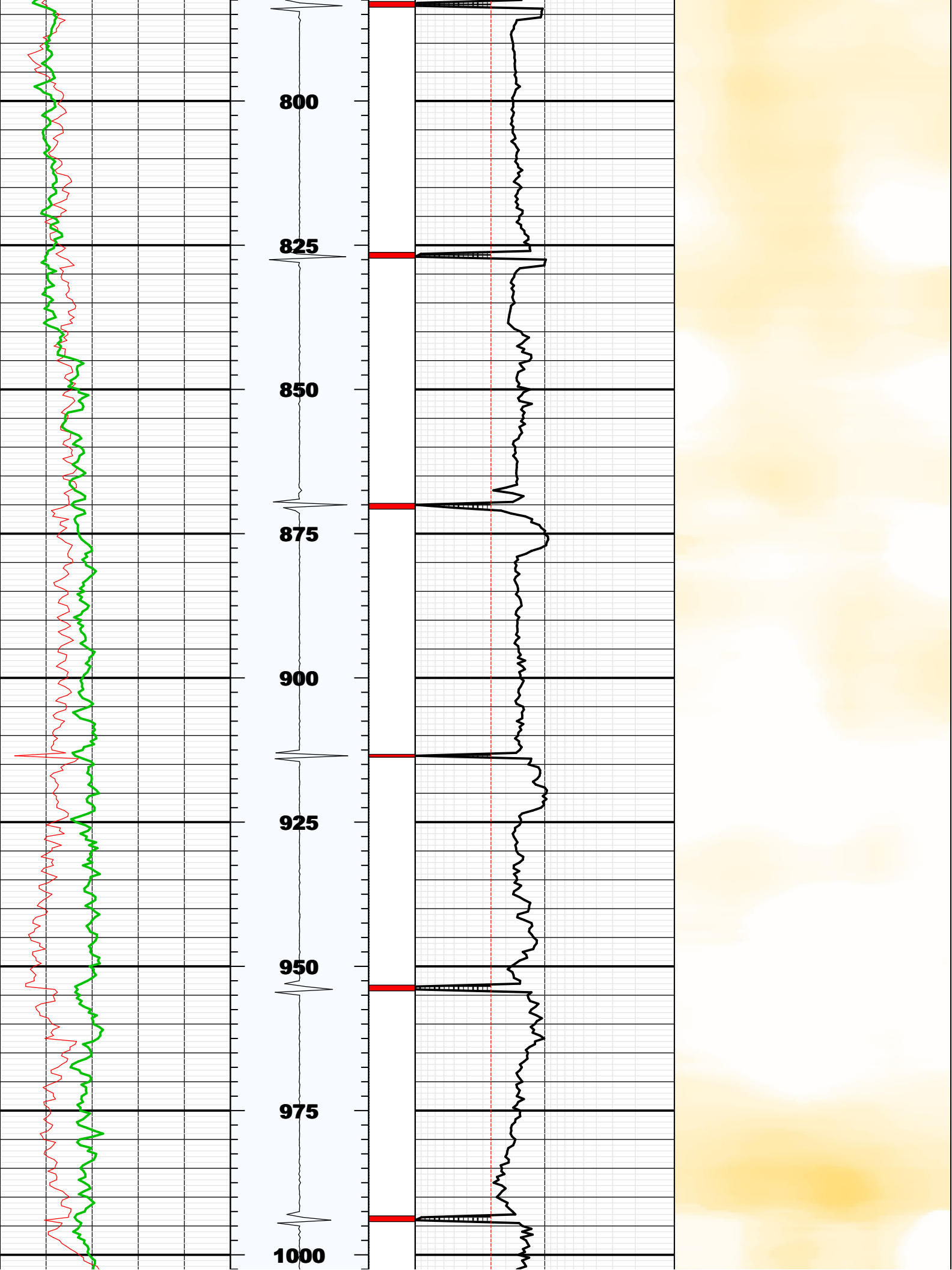
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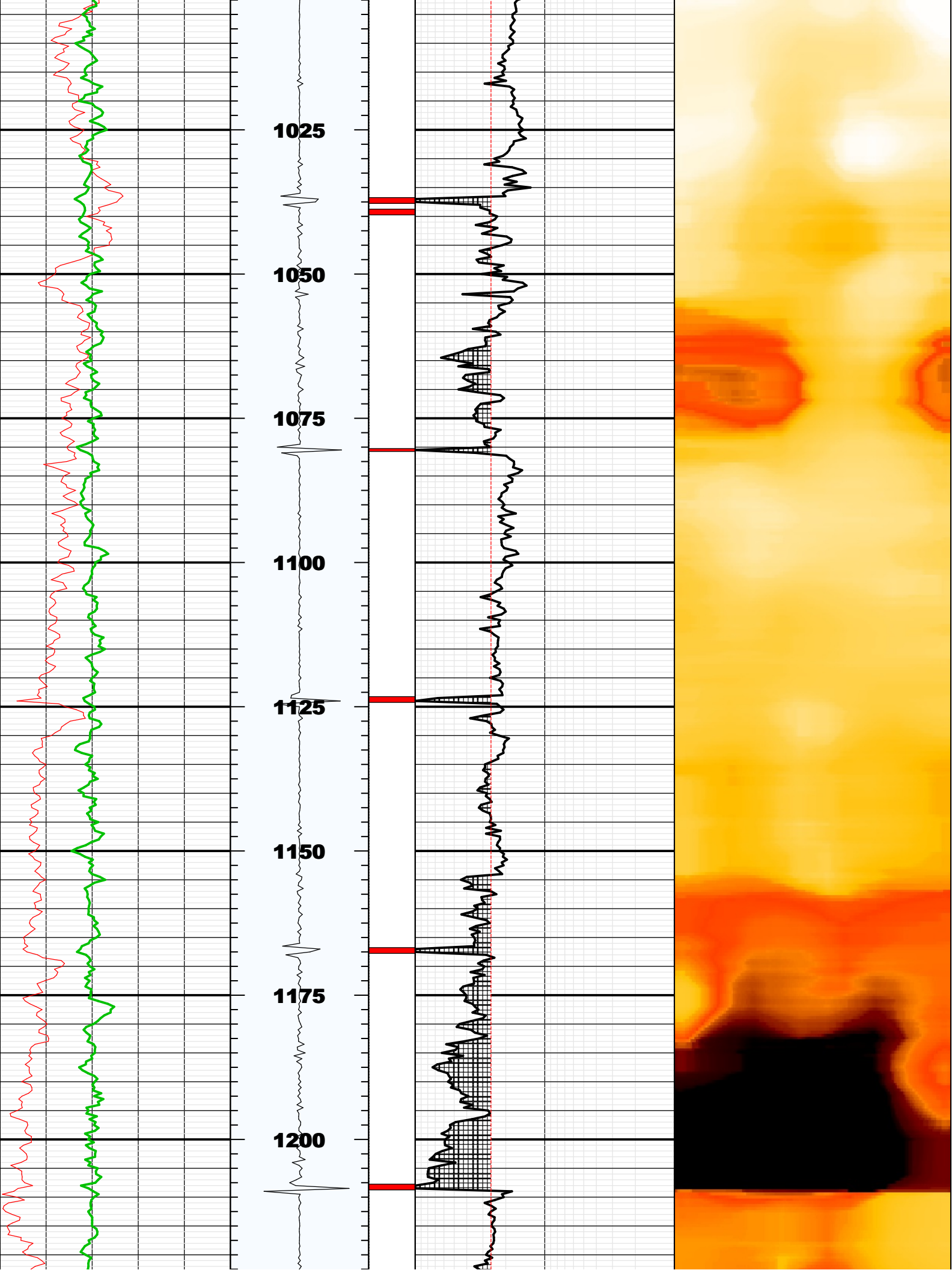


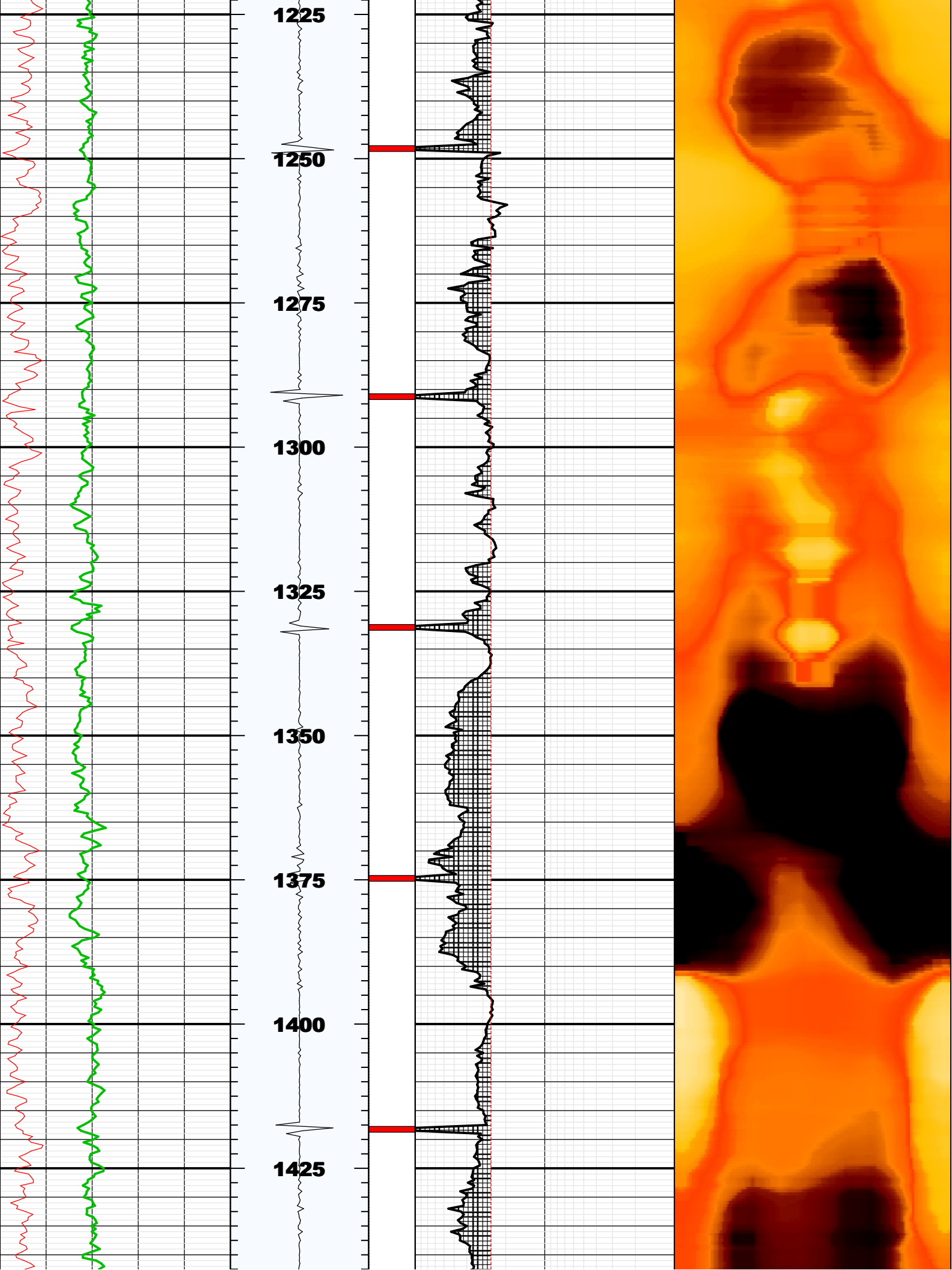


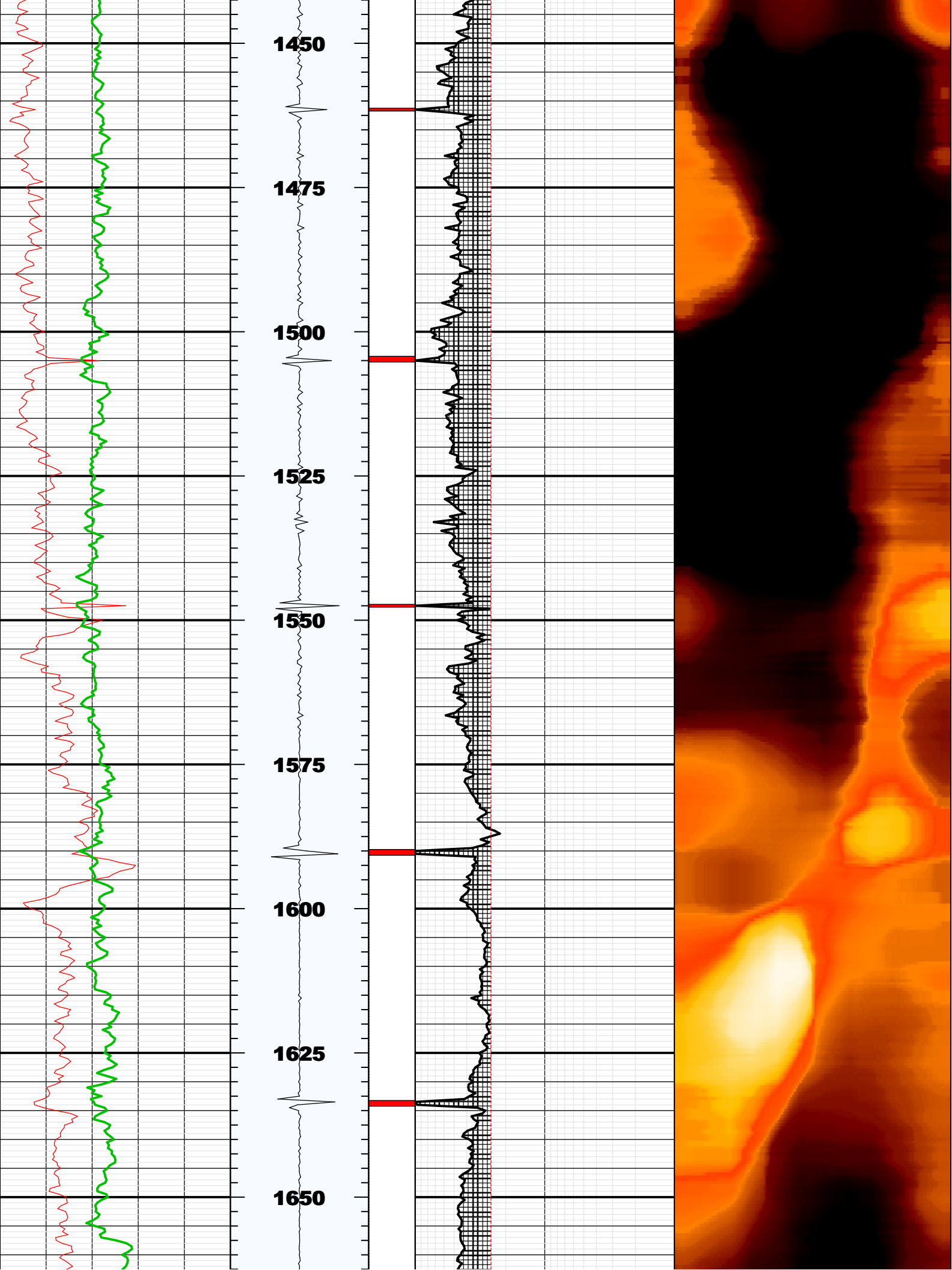


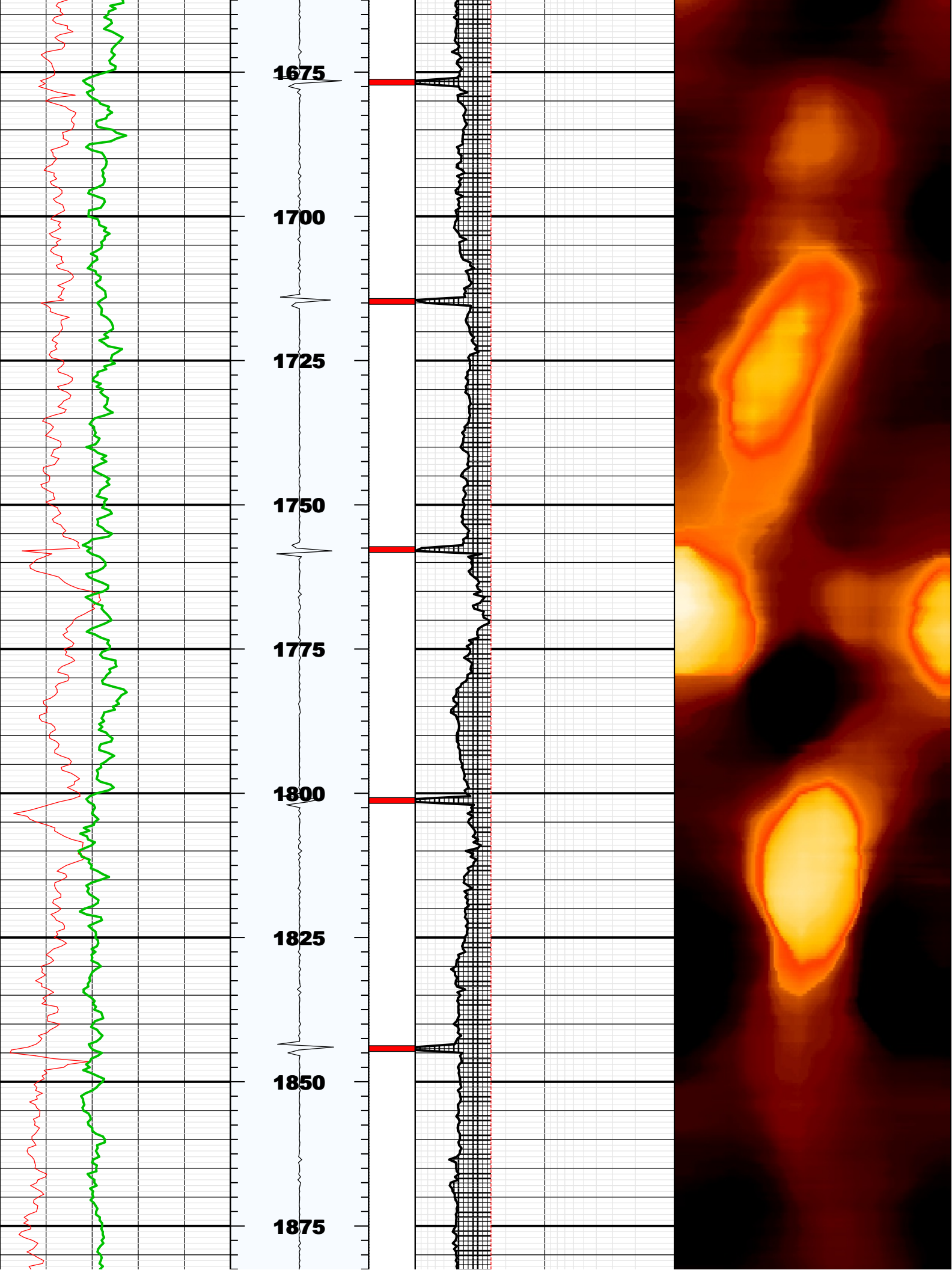


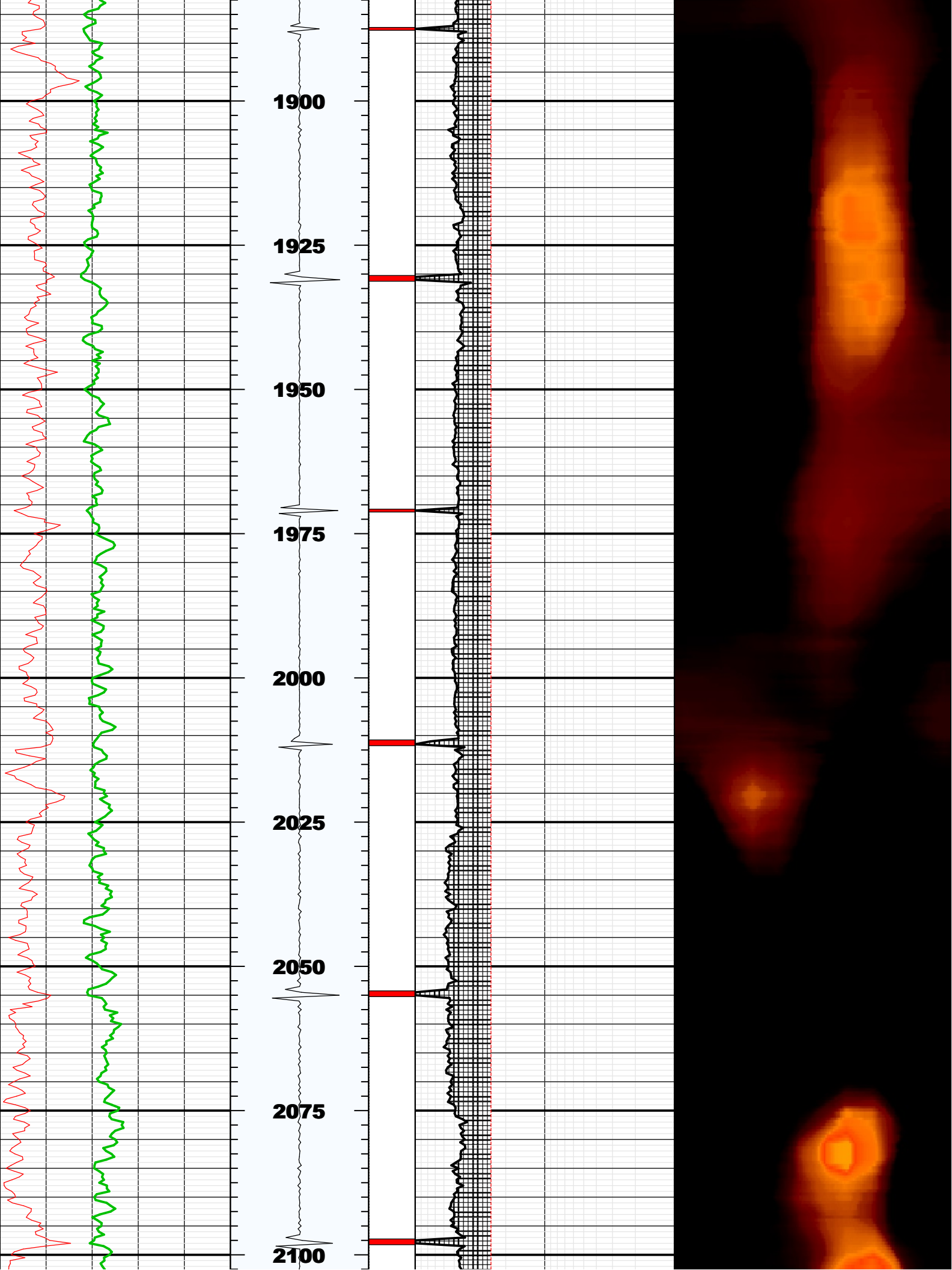


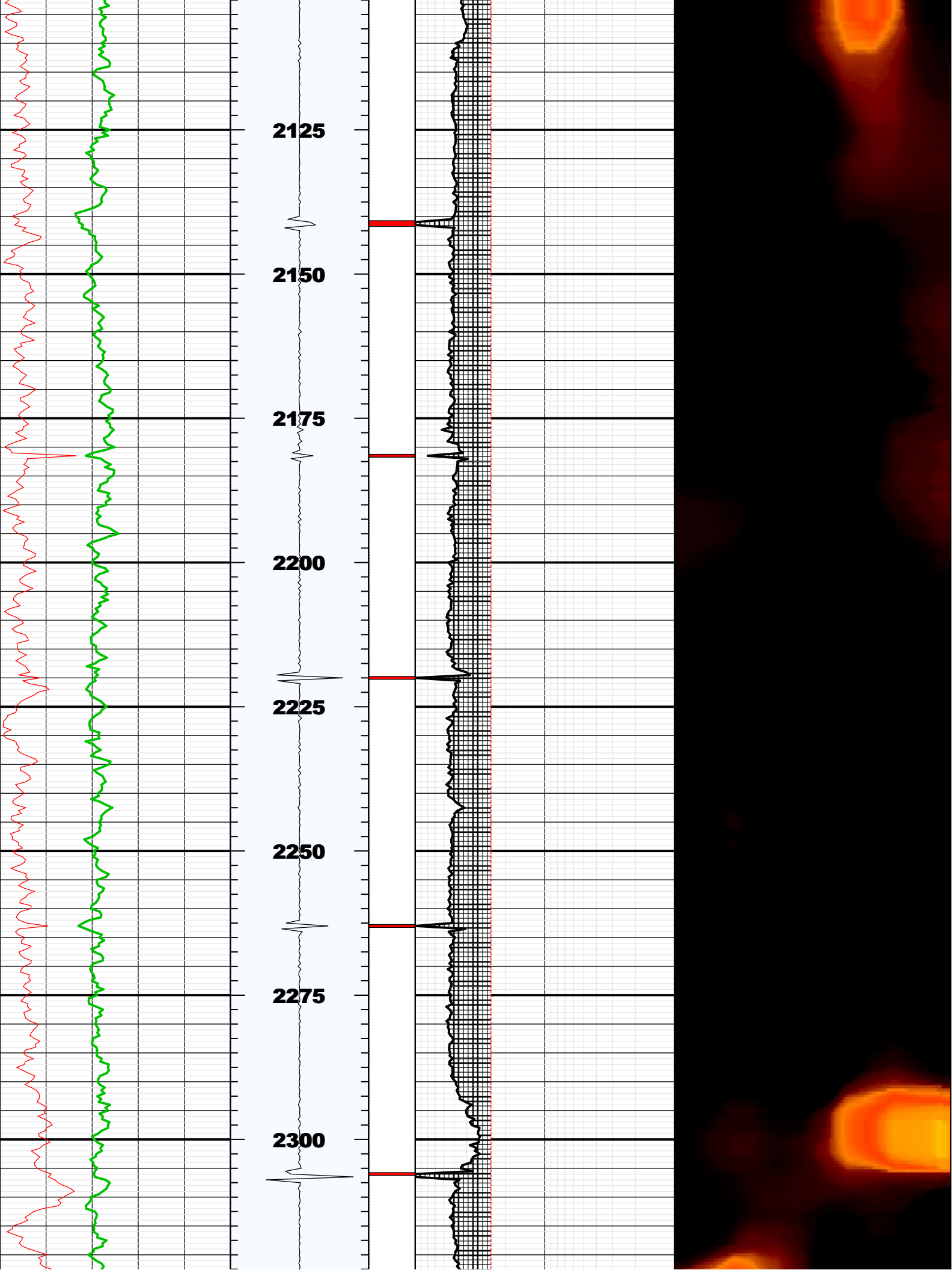


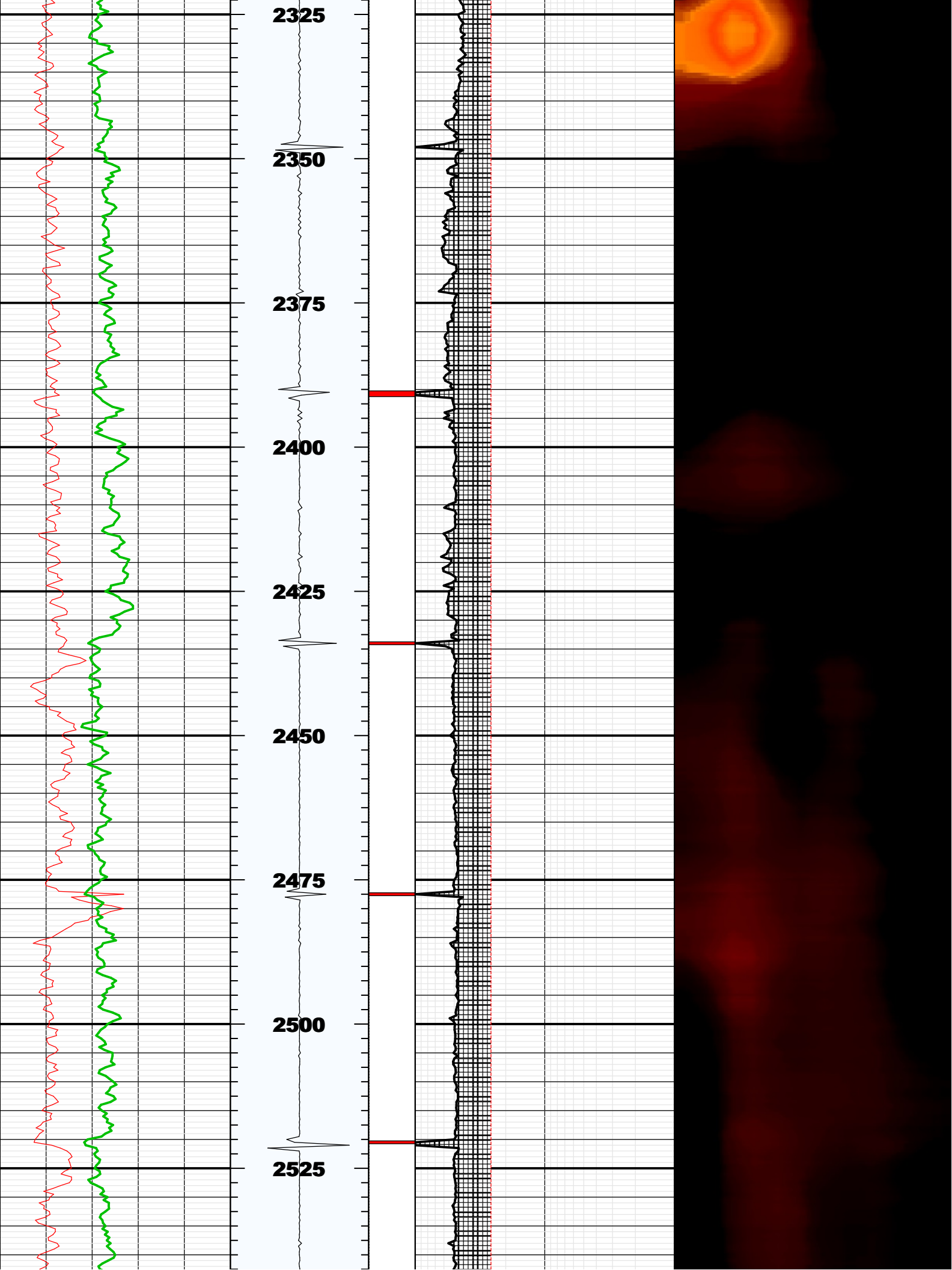


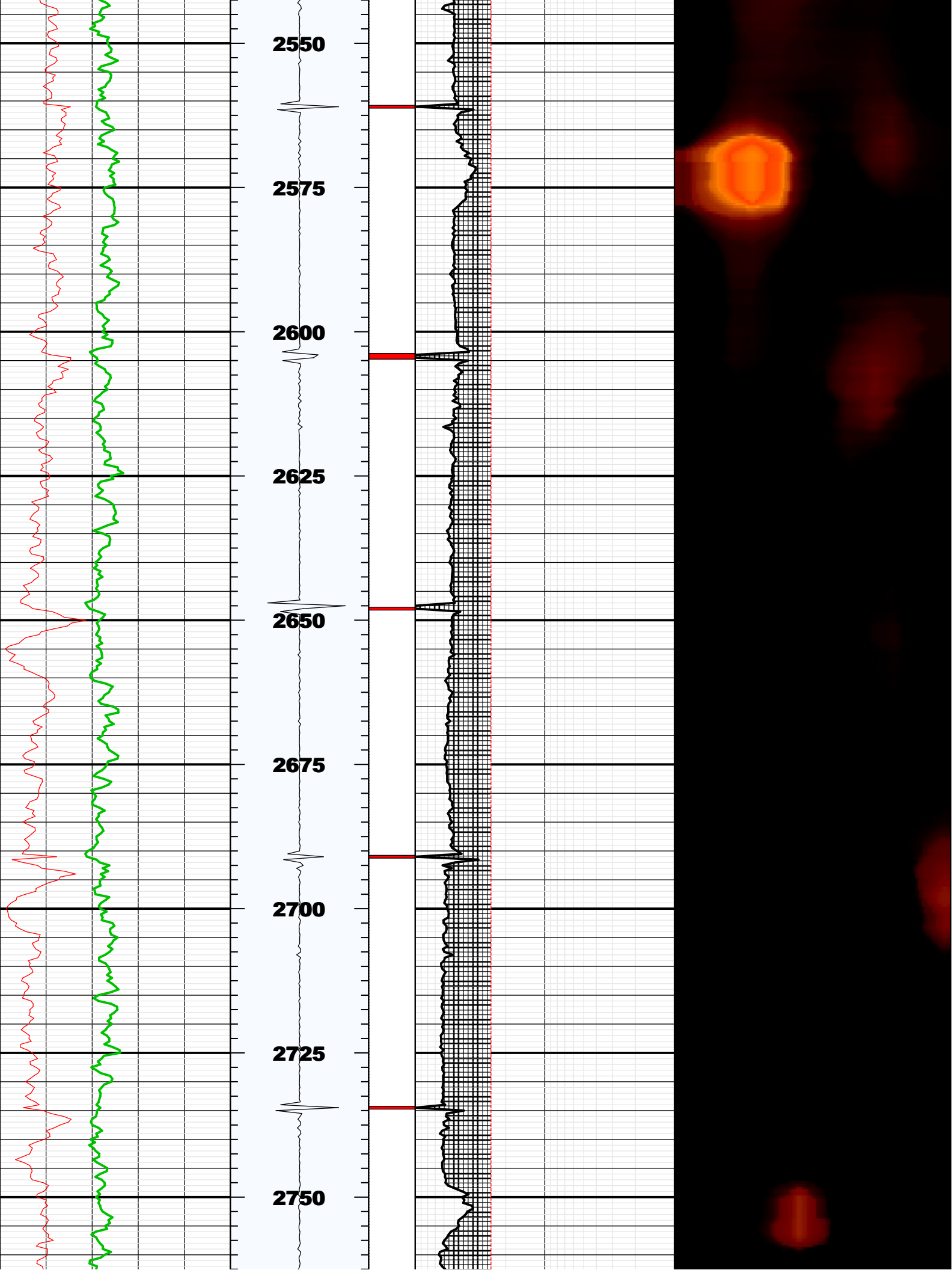


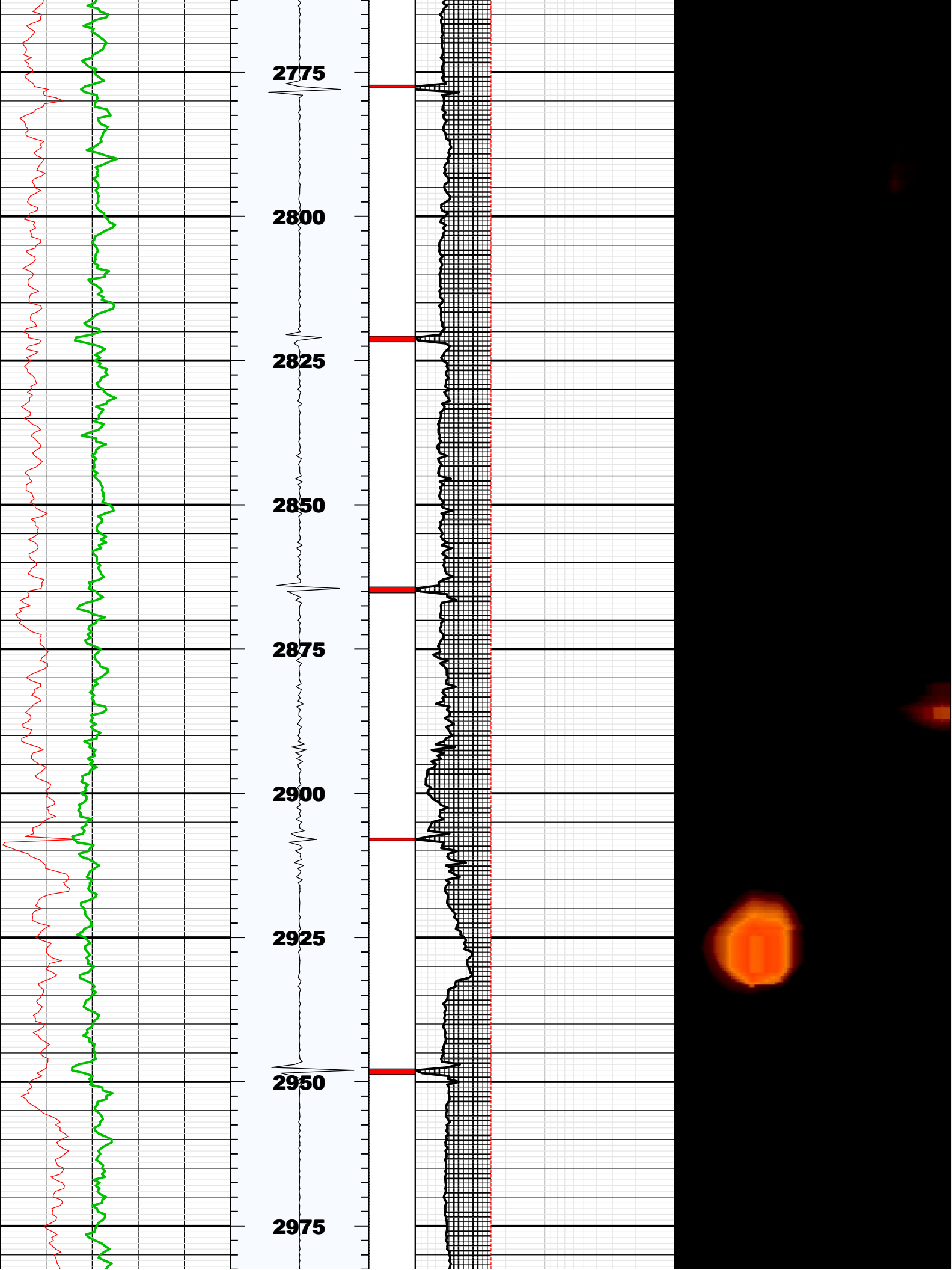


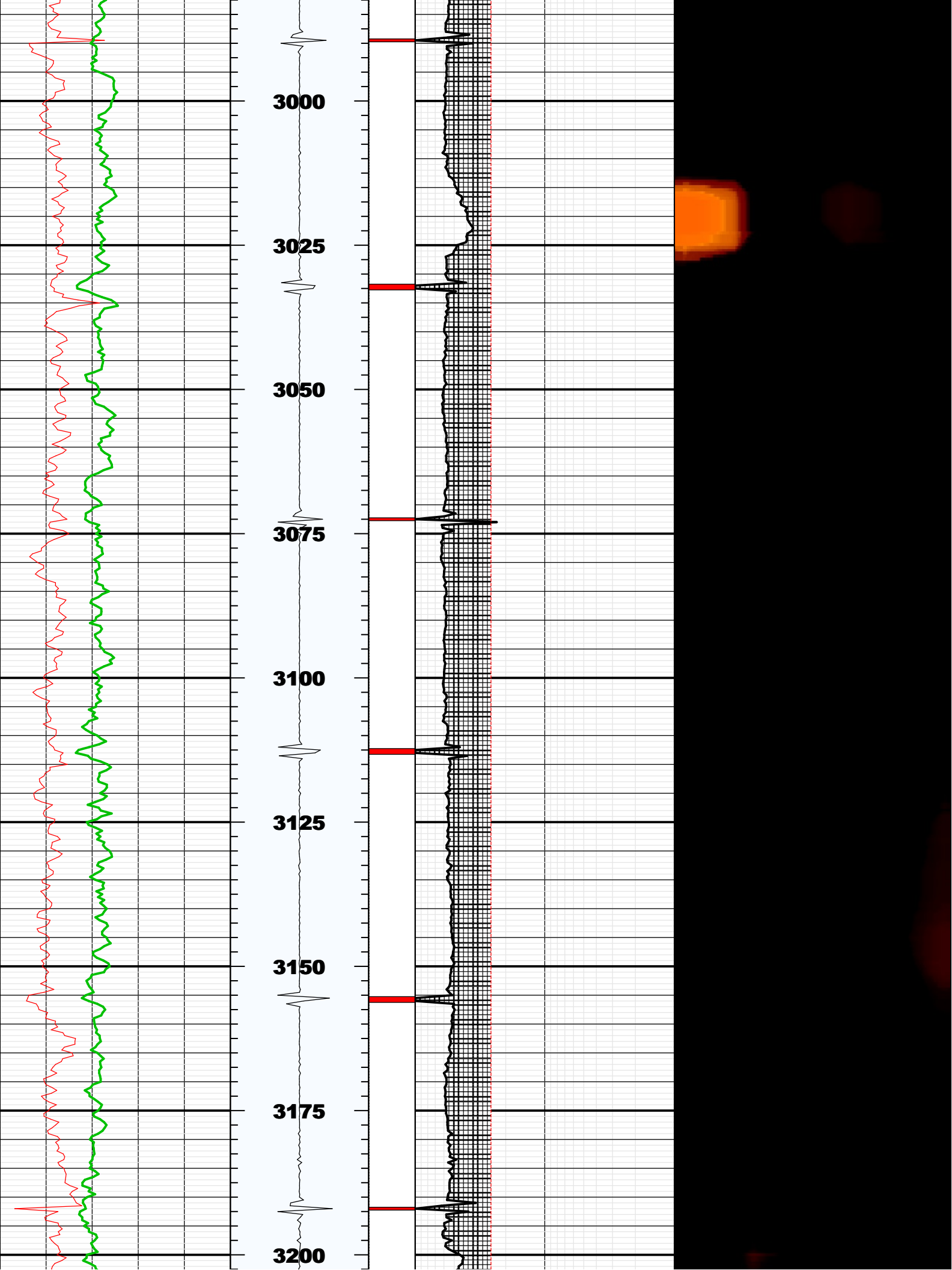


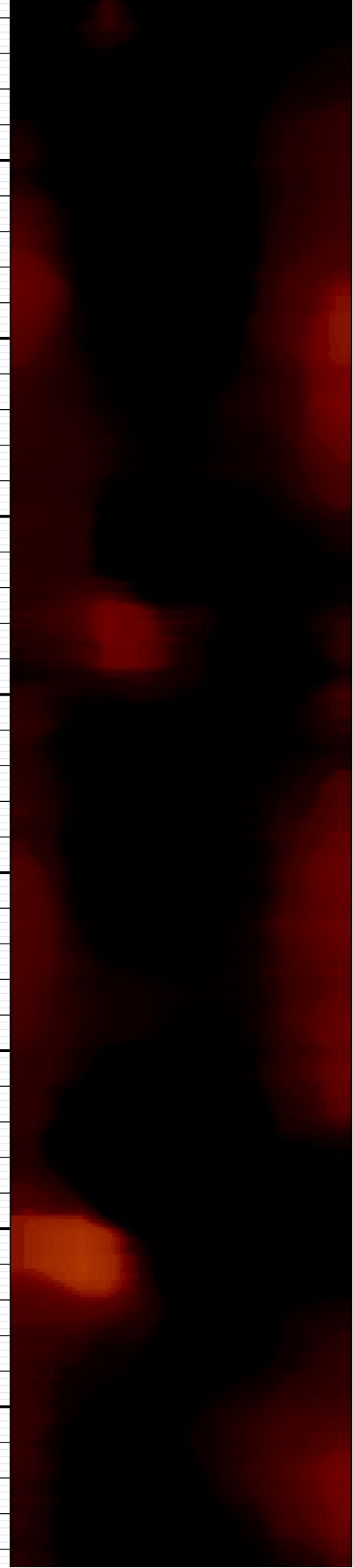
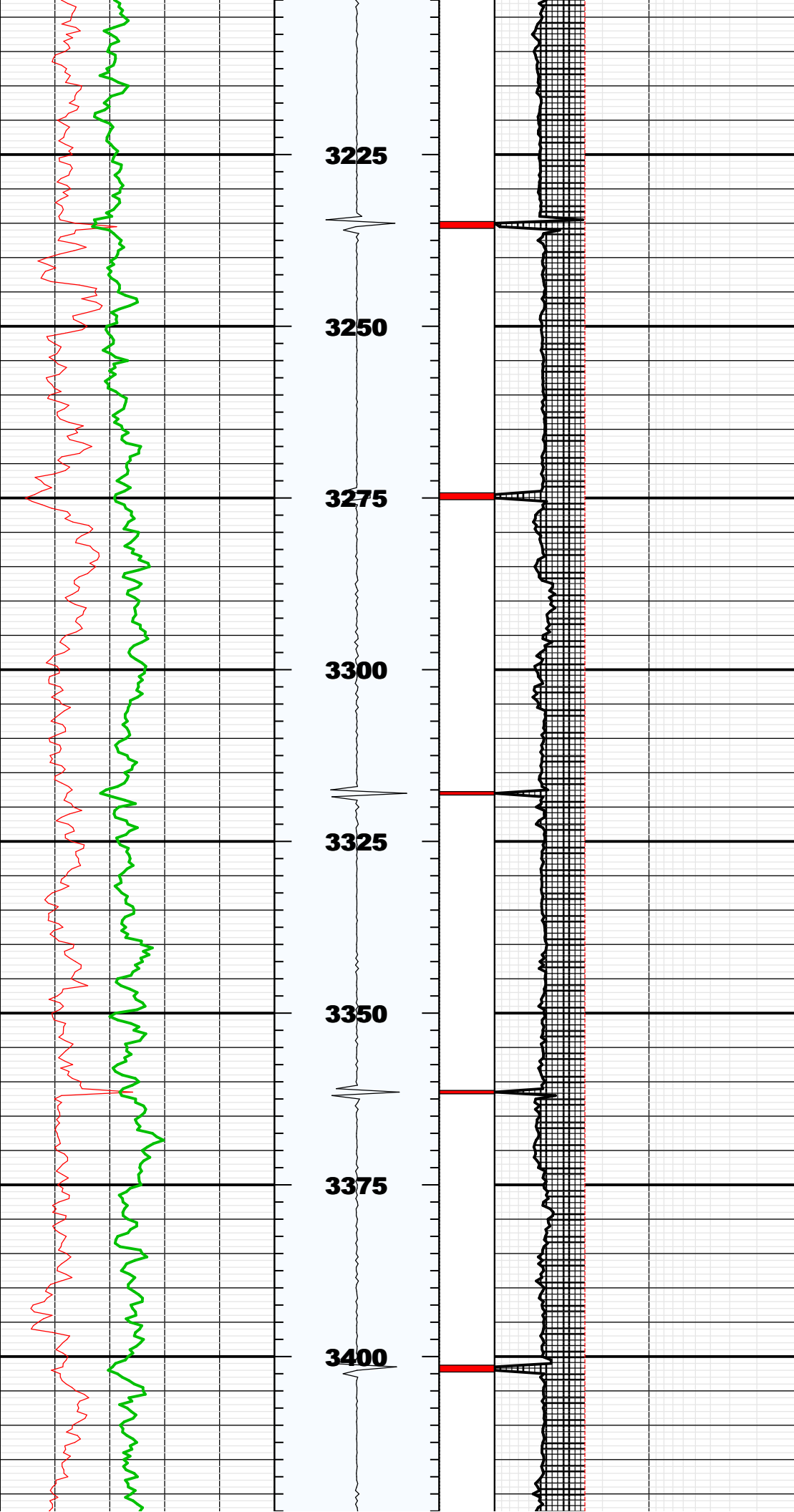


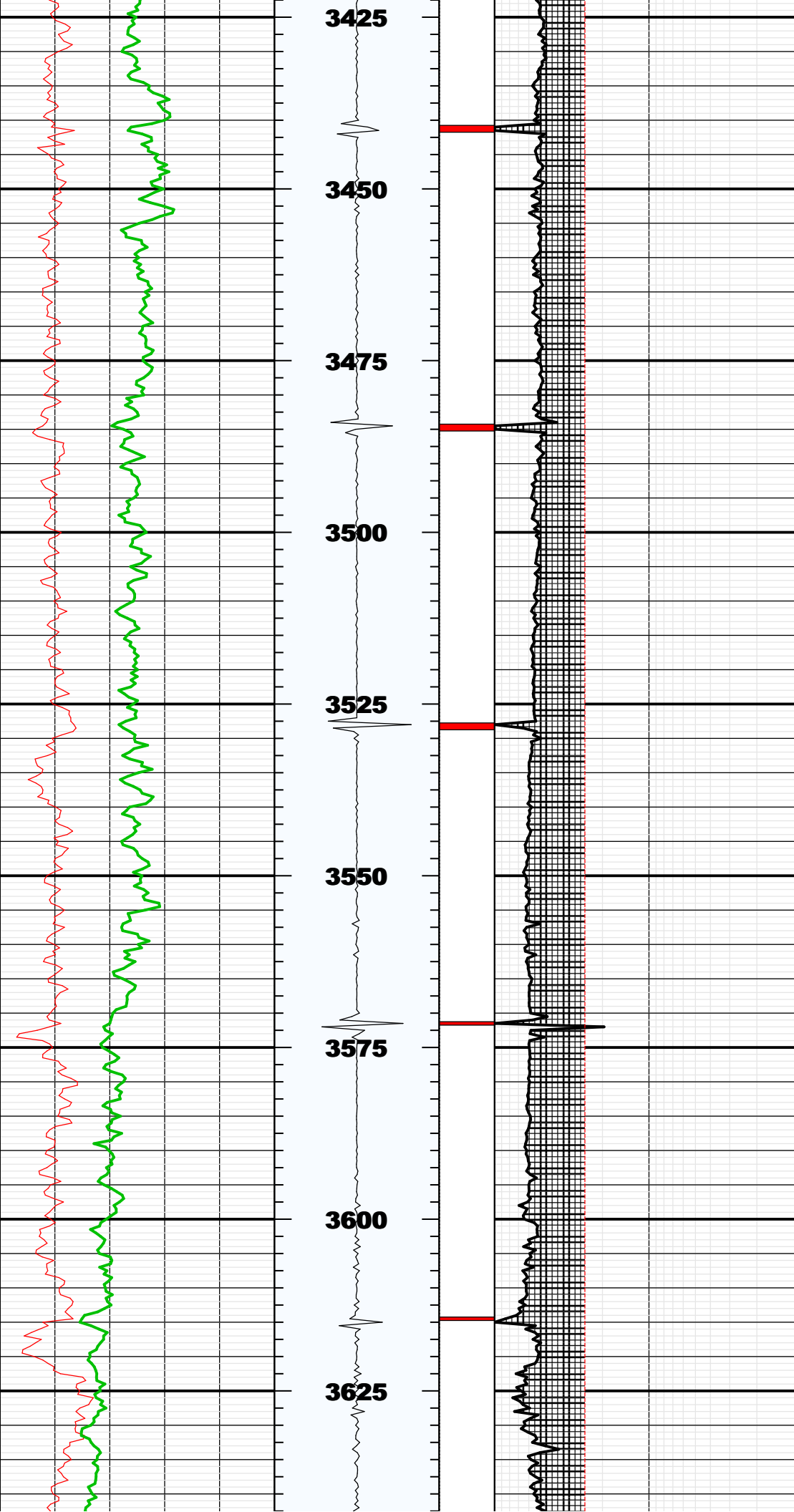


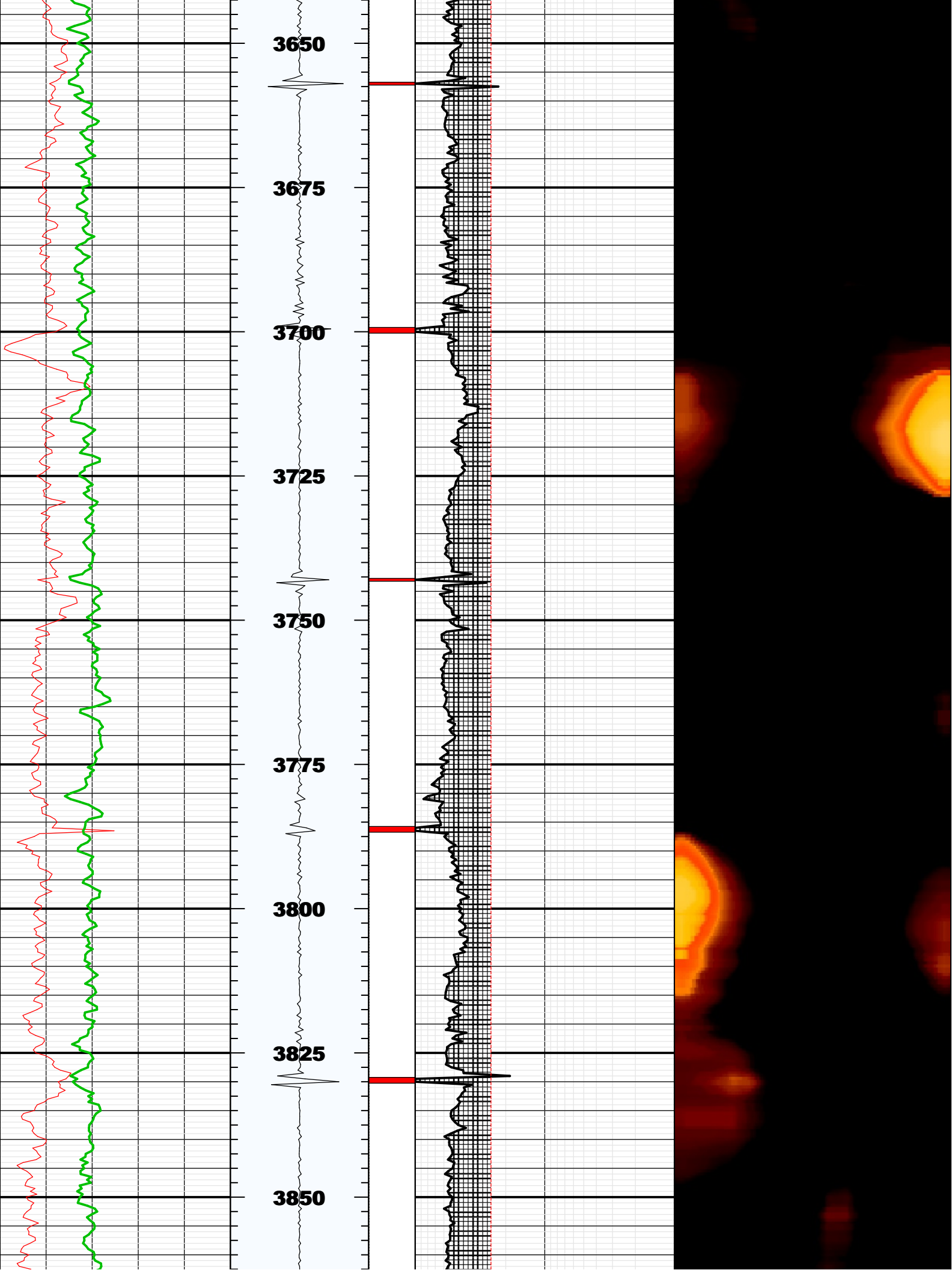


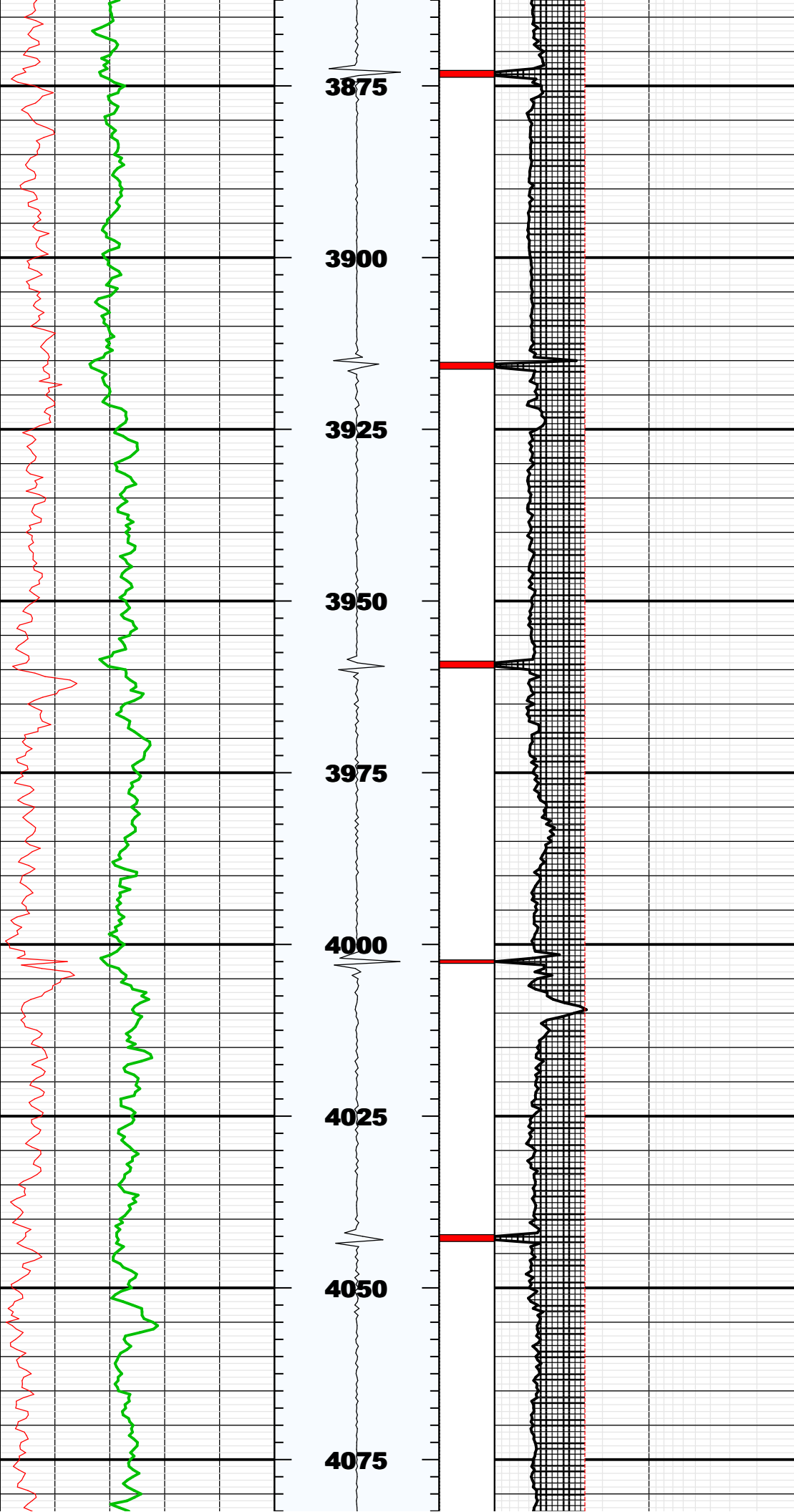


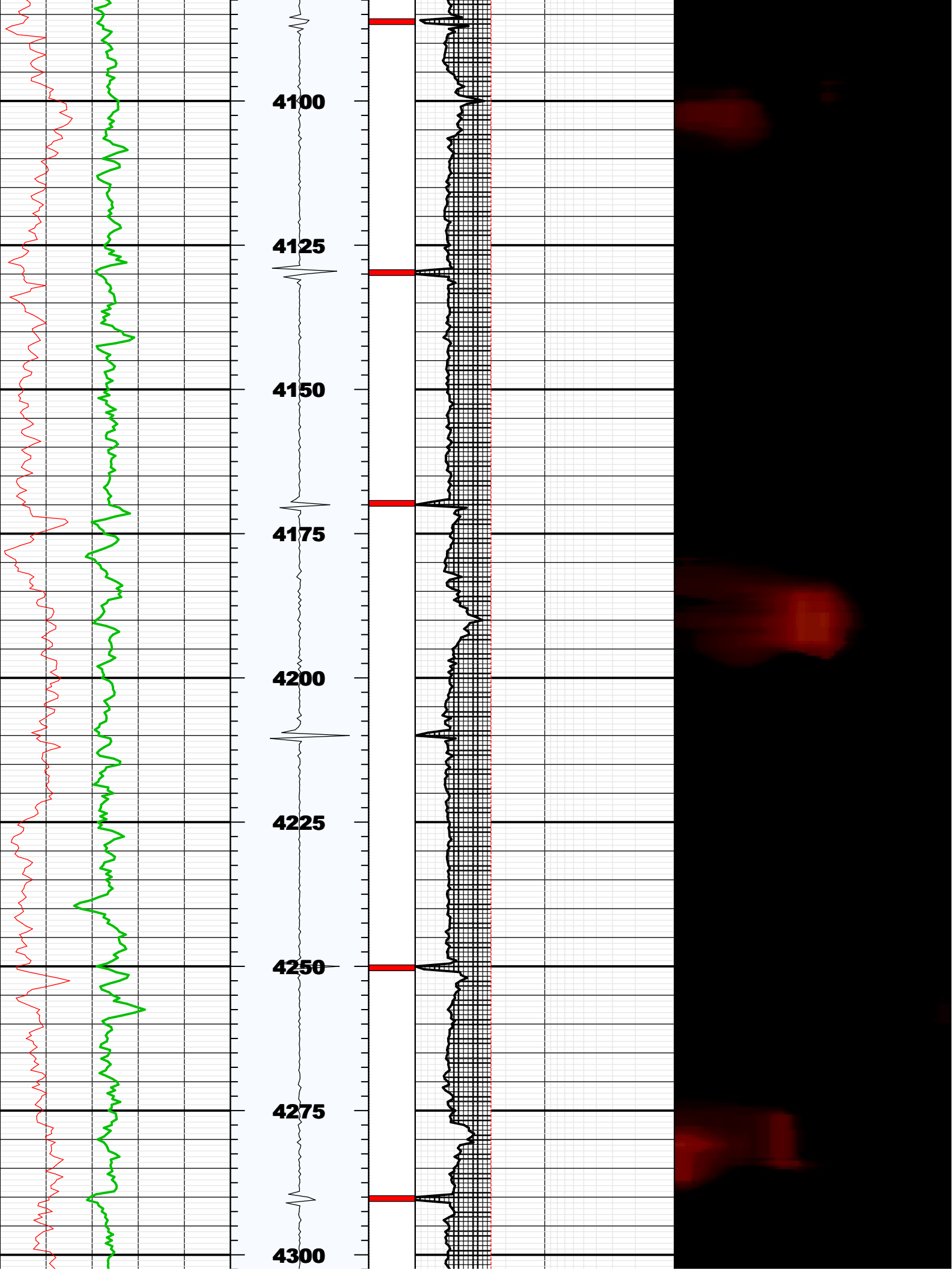


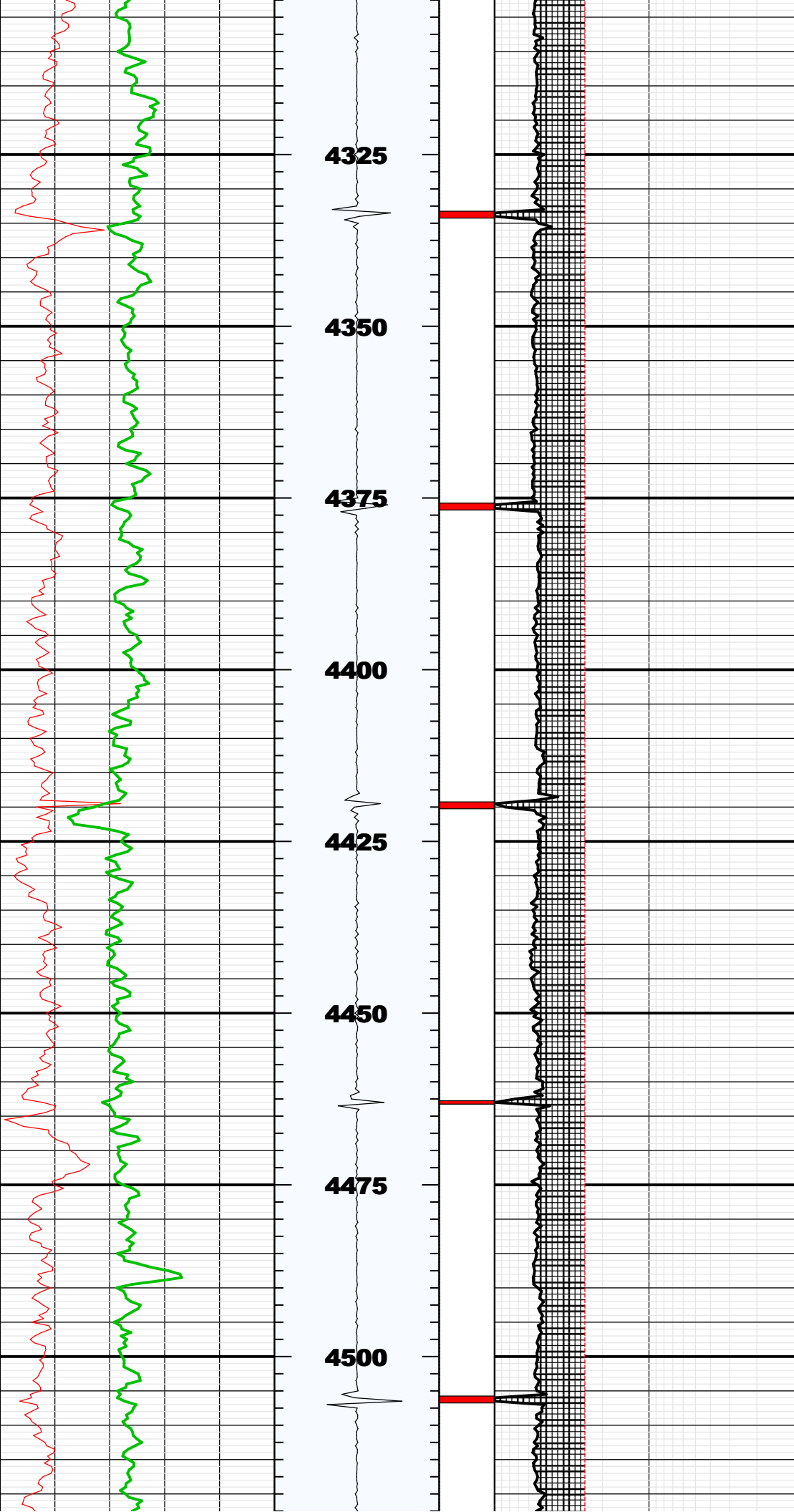


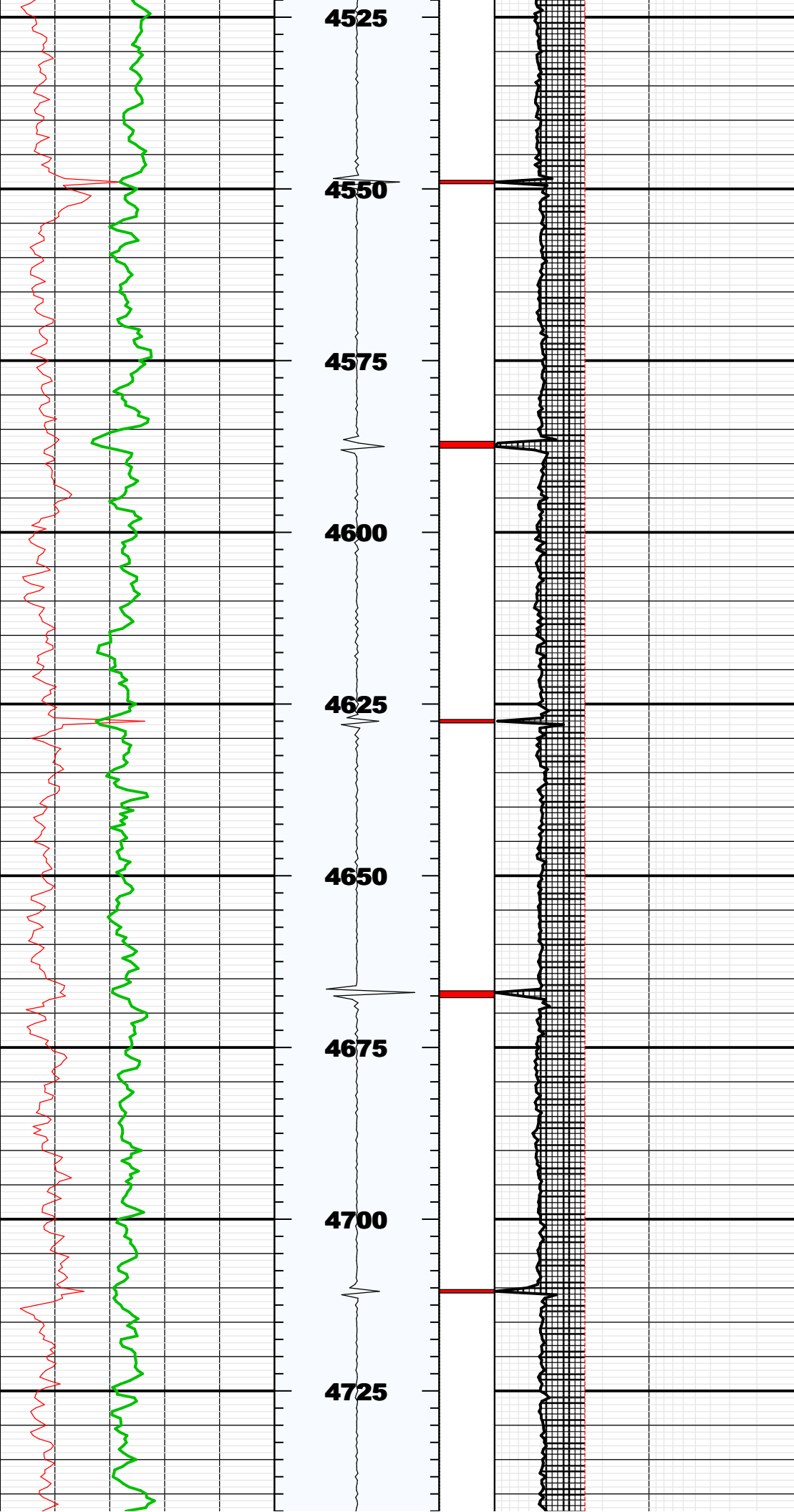


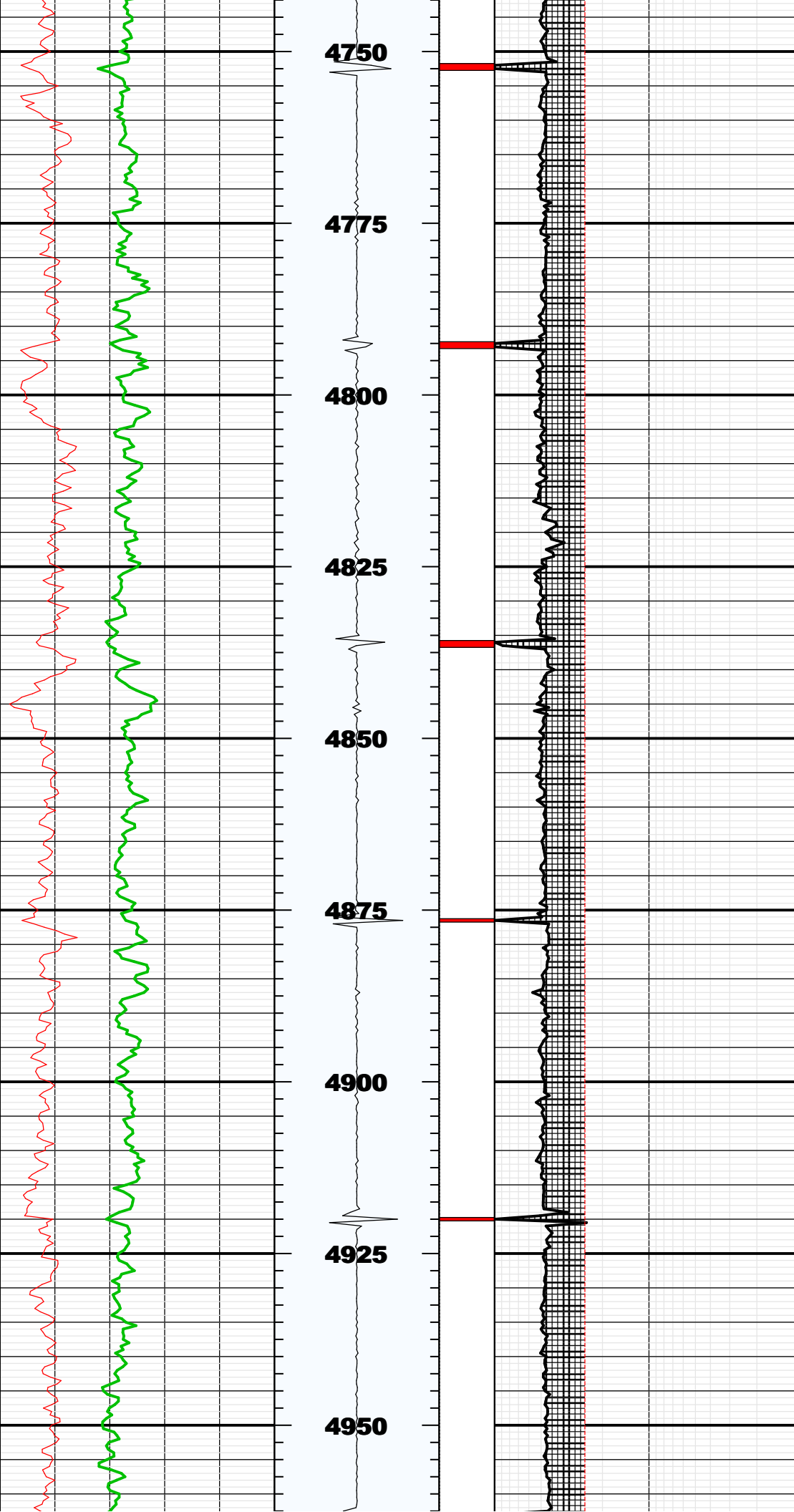


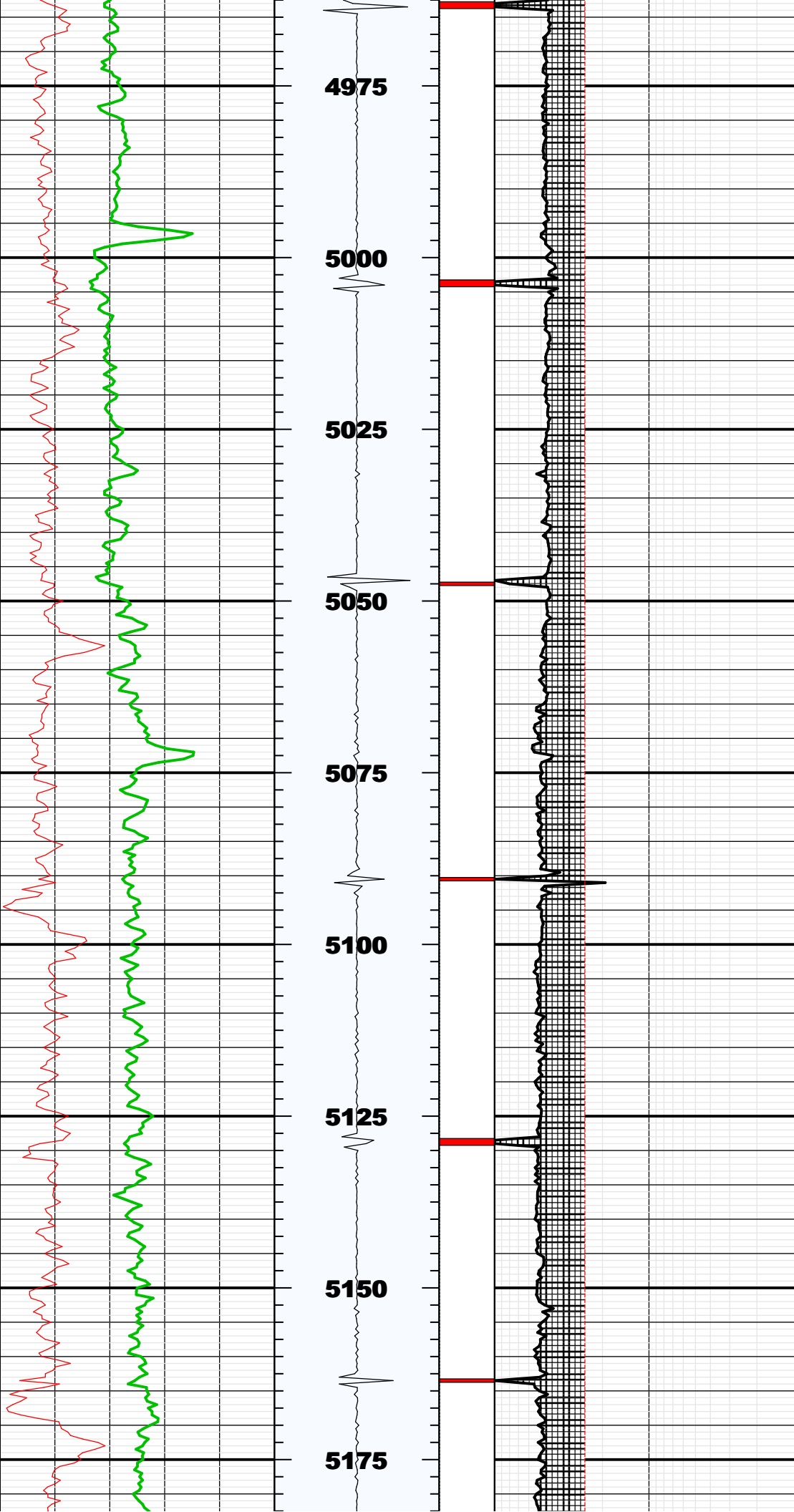


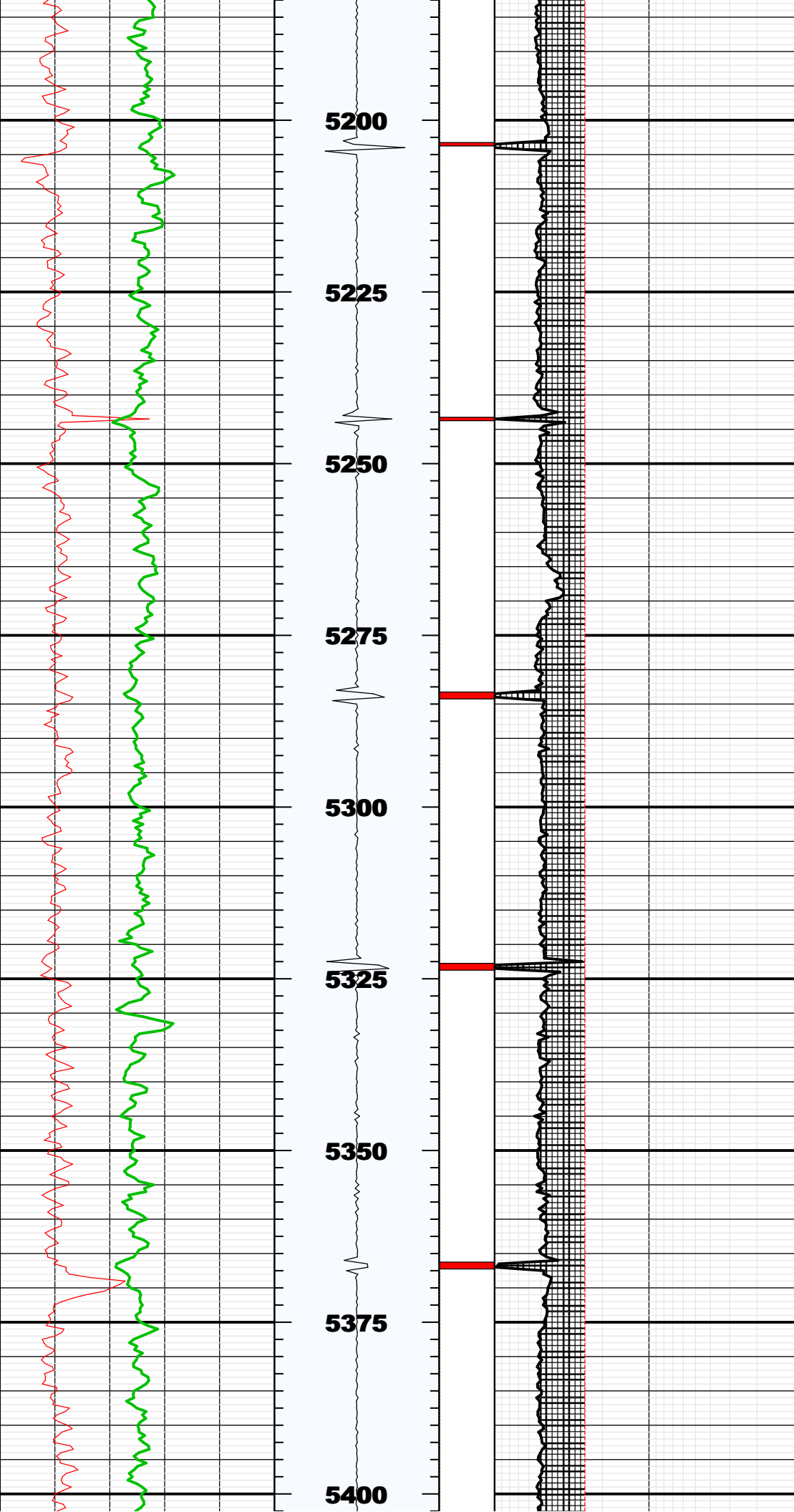


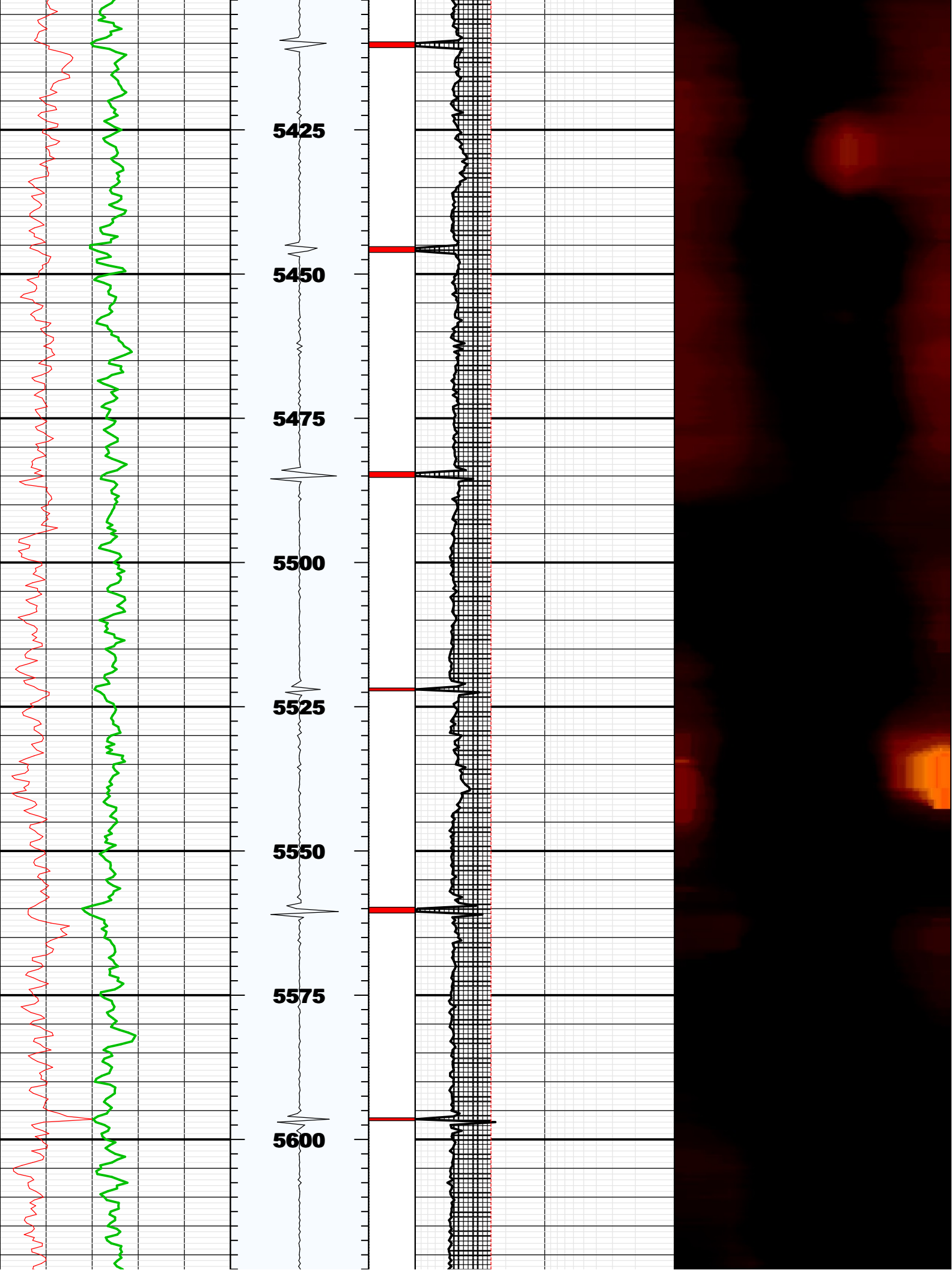


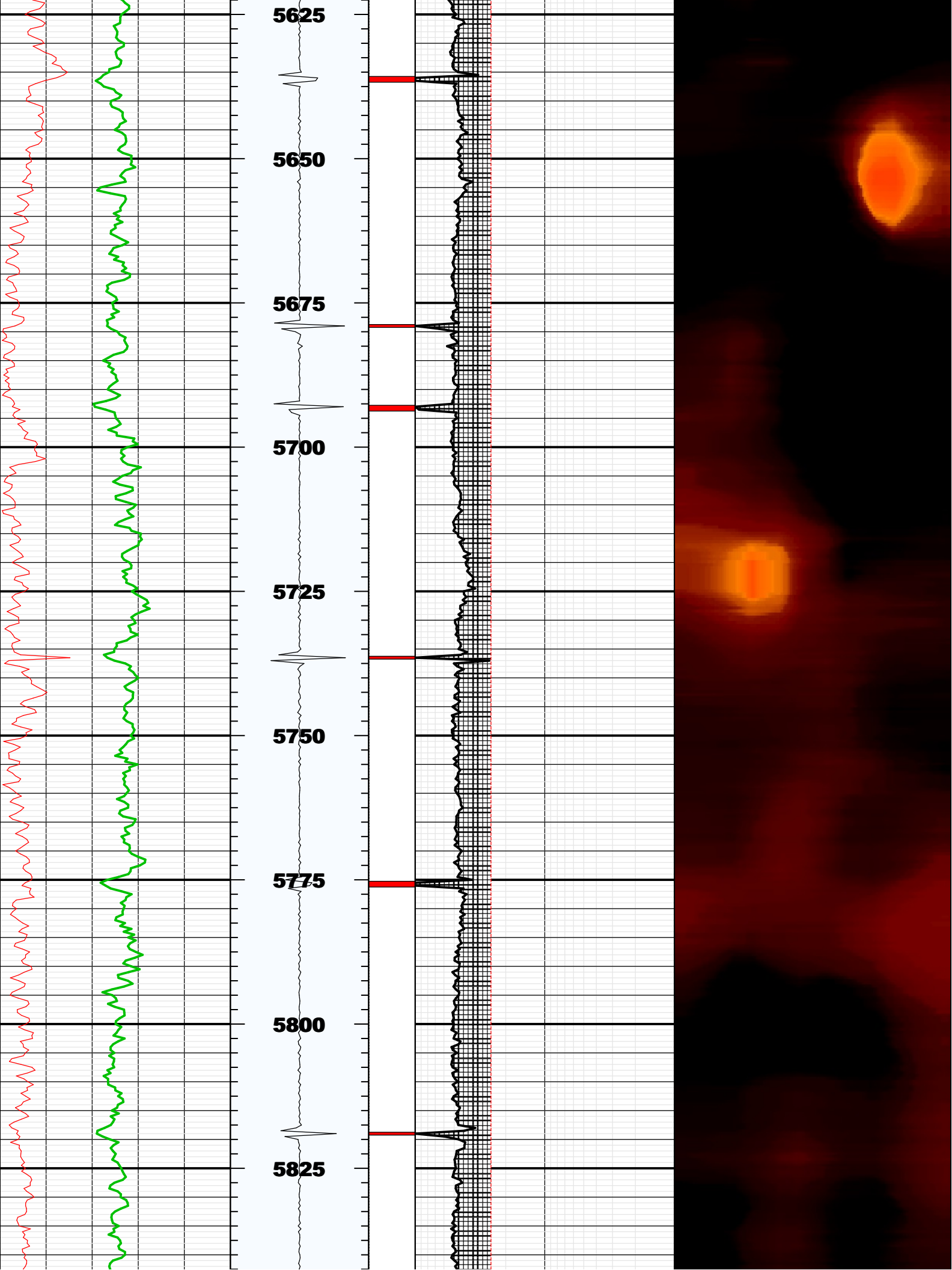


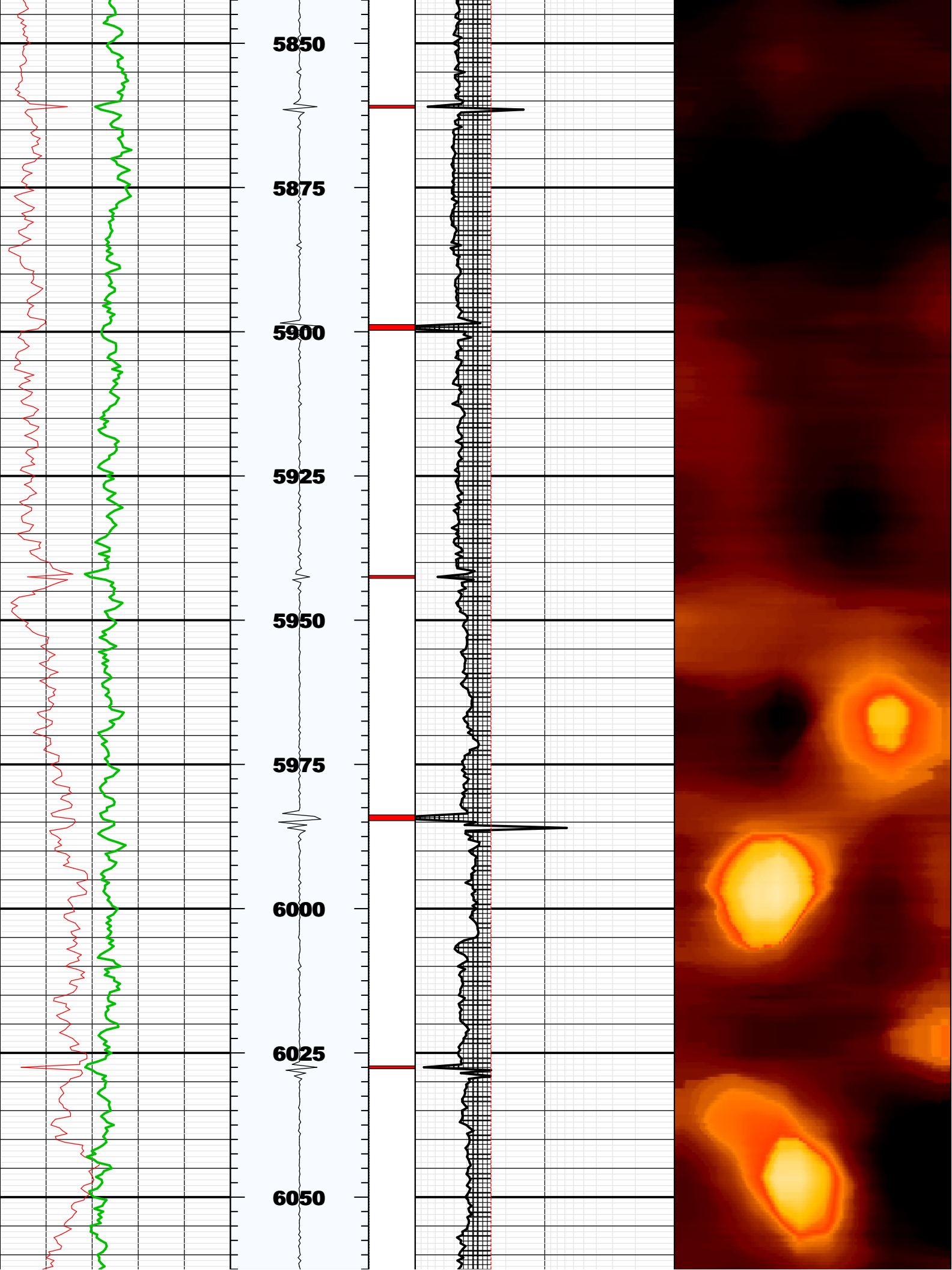


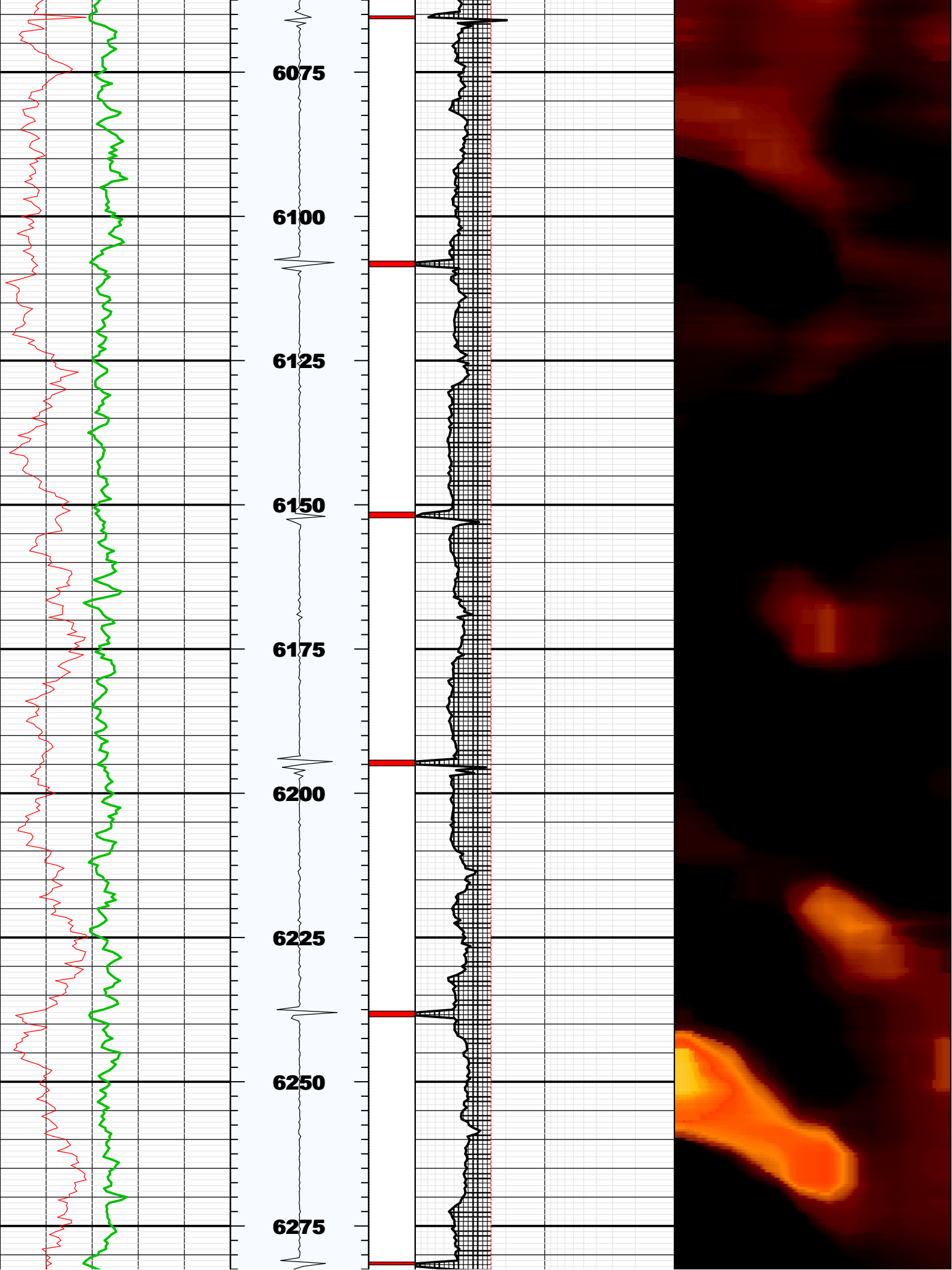


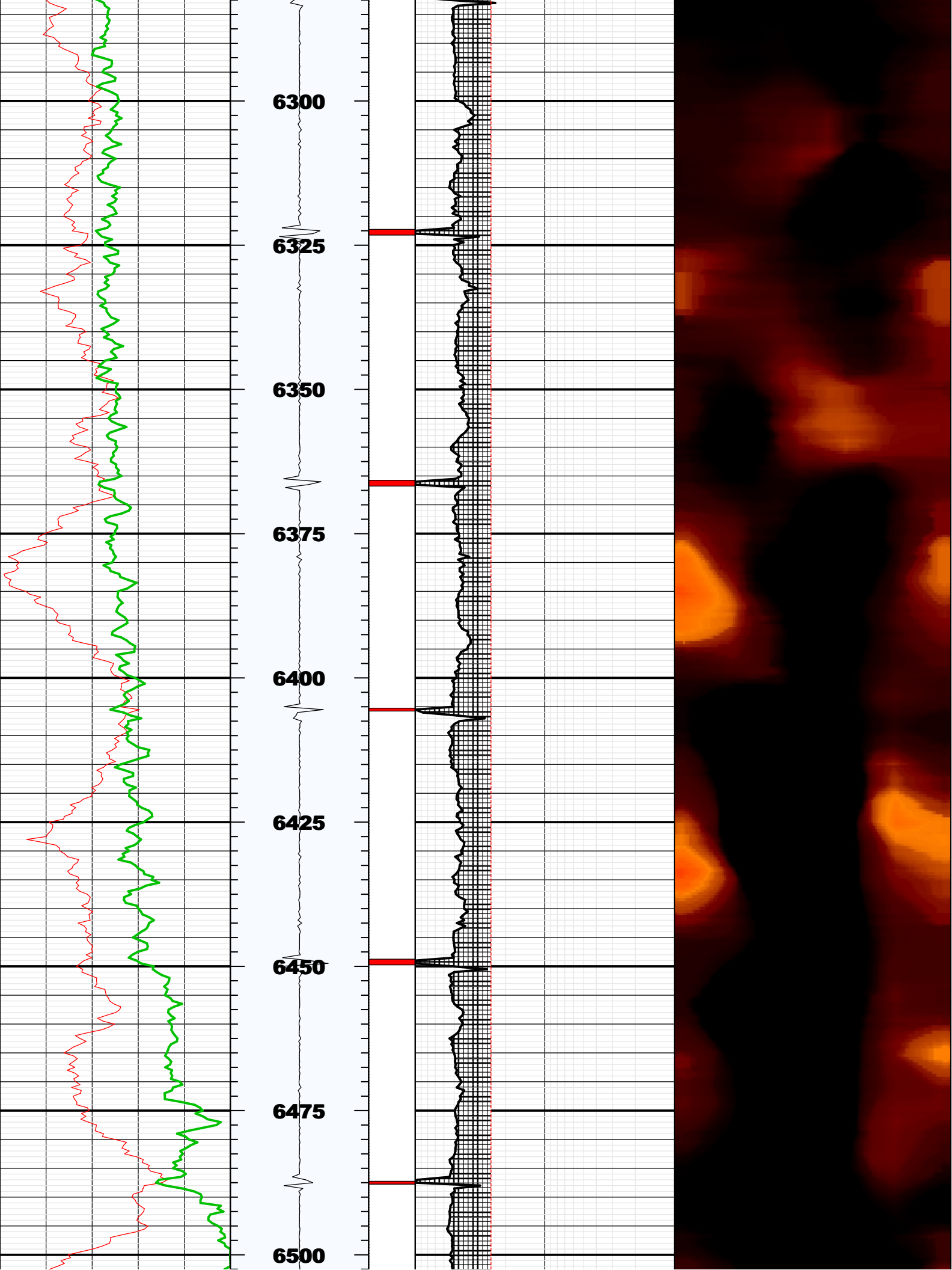


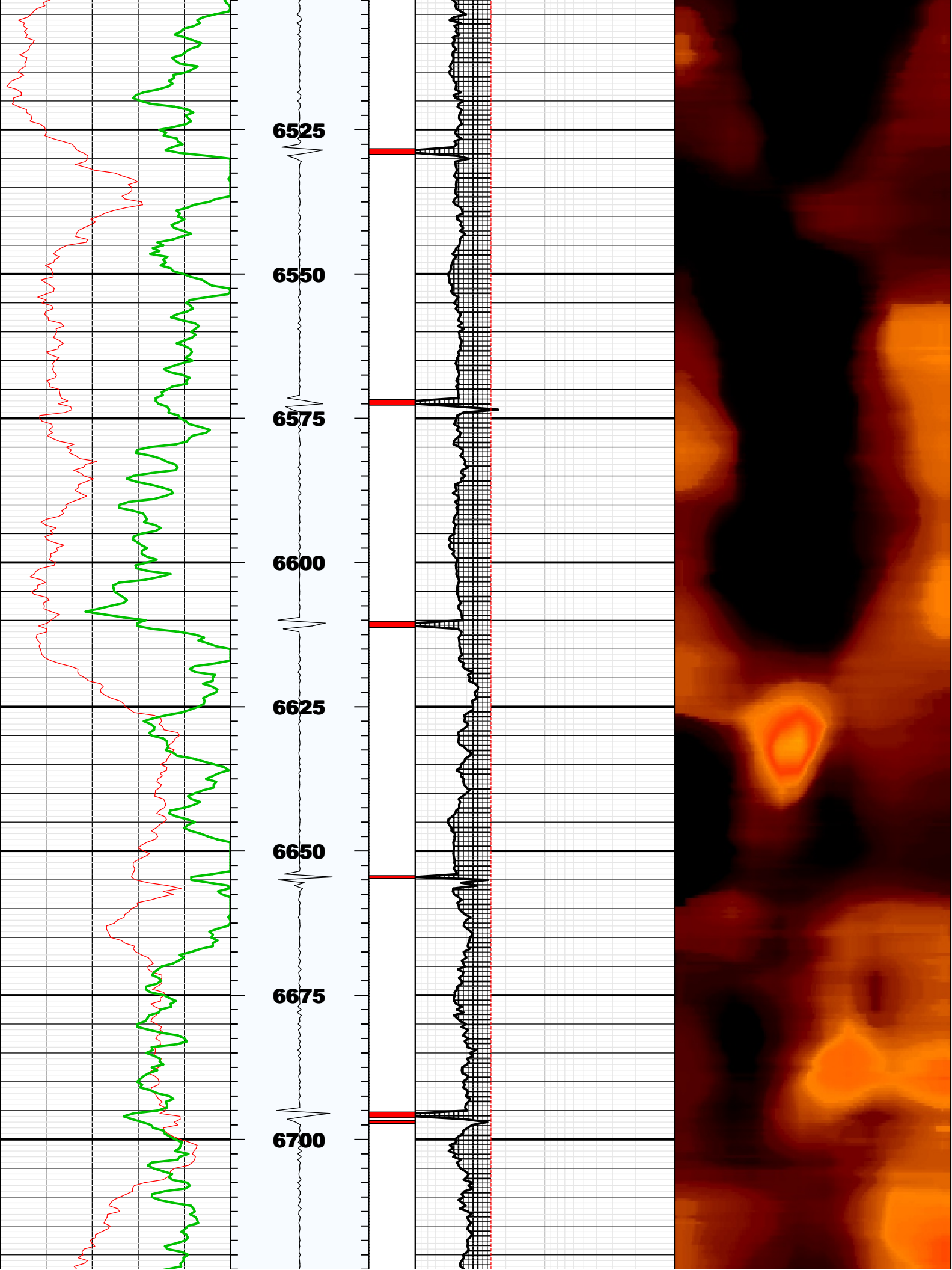


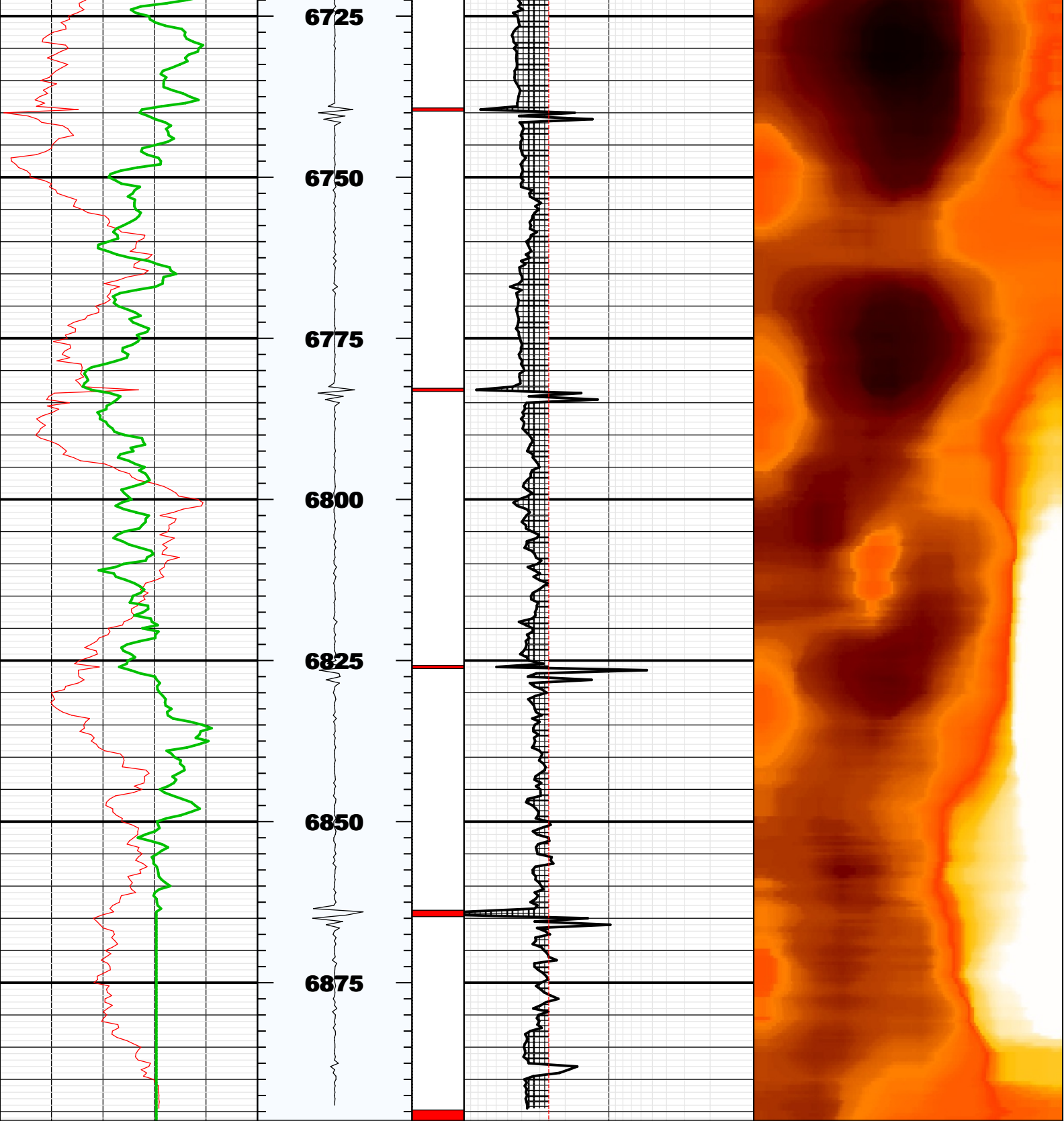








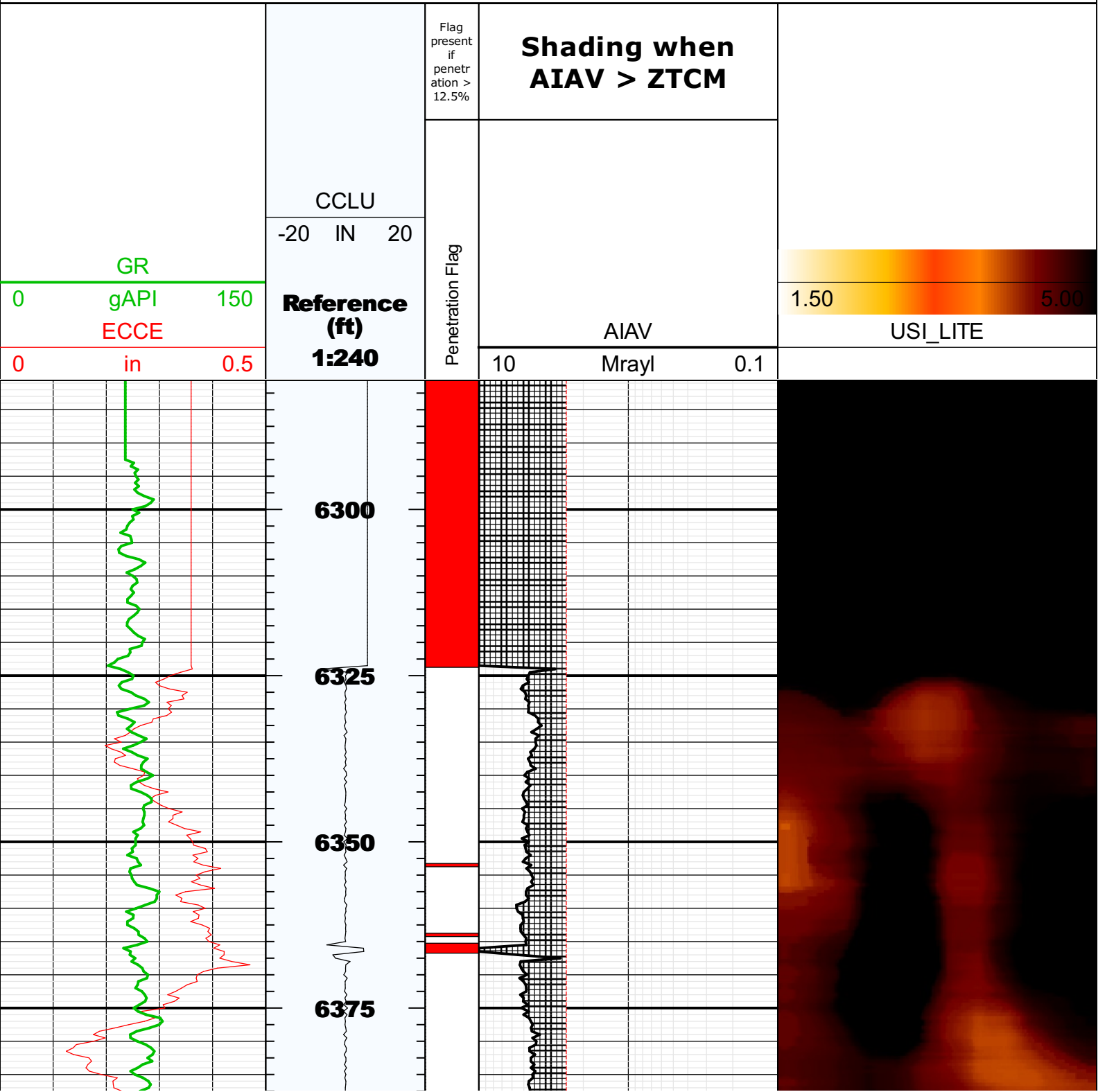


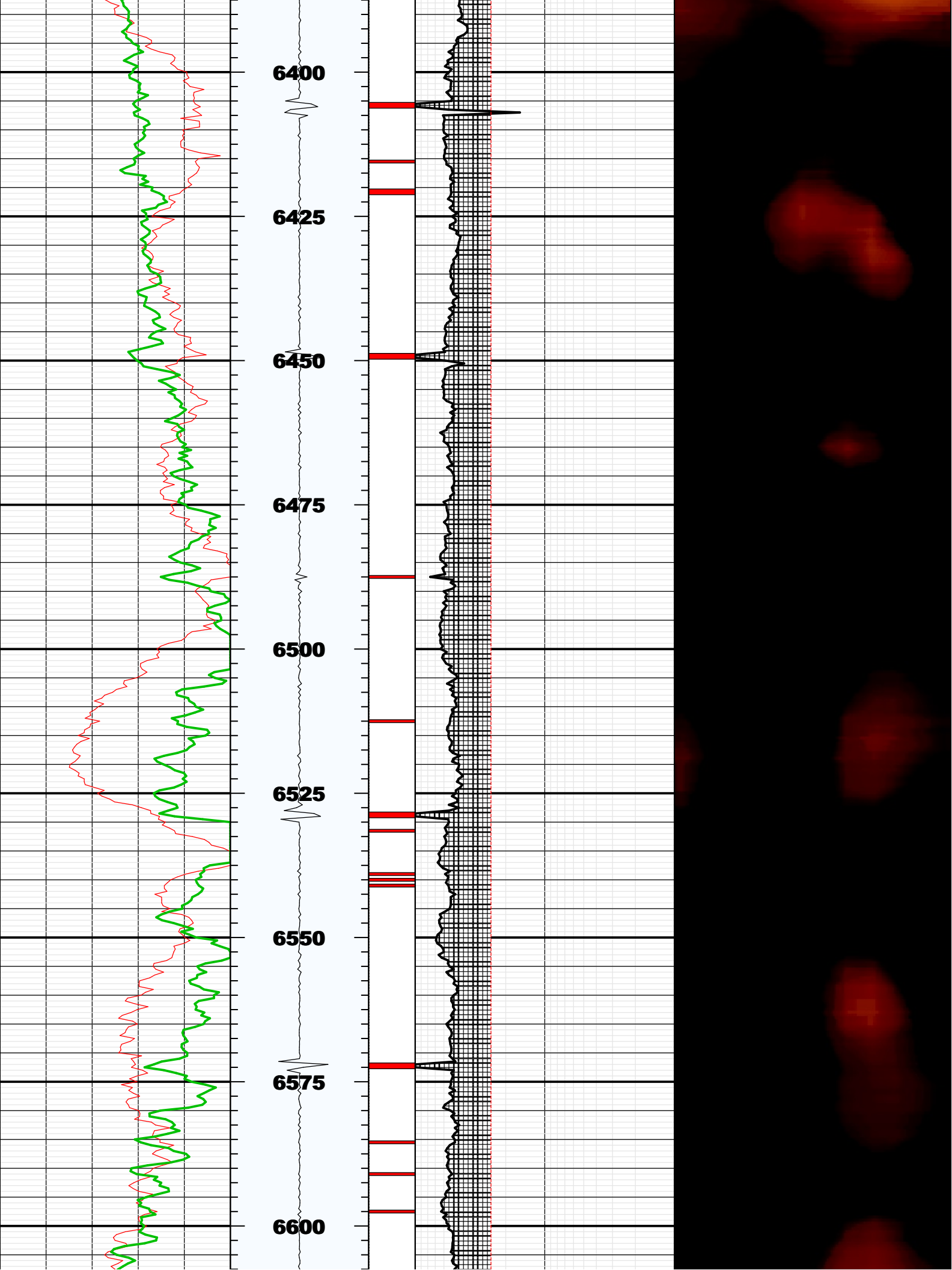


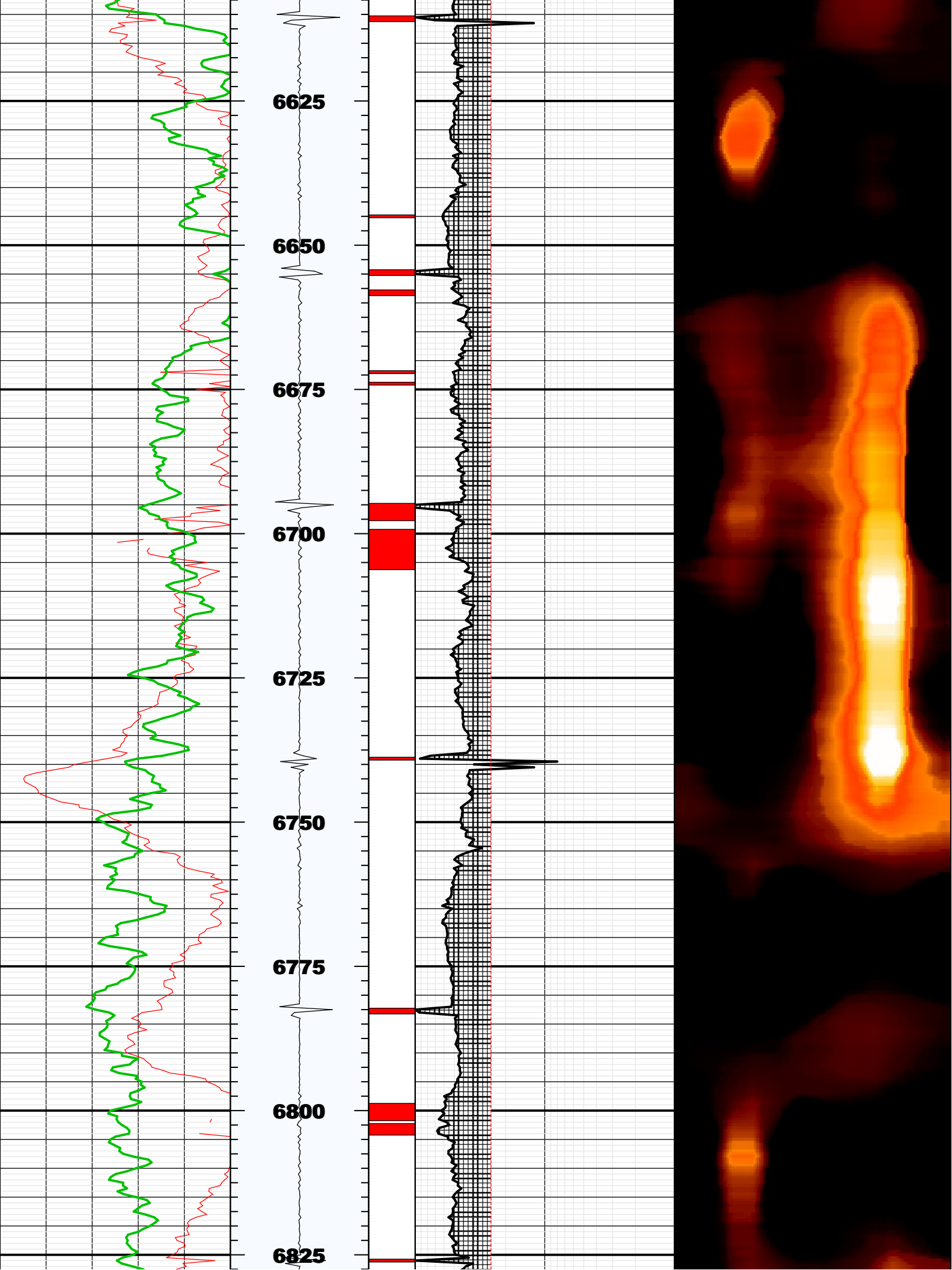
BS	8.75000	IN	Bit Size
CASG	P110		Casing Grade
CDIA	7.00000	IN	Casing Outer Diameter
CSID	6.27600	IN	Casing Inner Diameter
CSIZ	7.00000	IN	Current Casing Size
CWEI	26.00000	LB/F	Casing Weight
DFD	8.70000	LB/G	Drilling Fluid Density
DFVL	188.00000	US/F	Default Fluid Velocity
DO			
DOT	2.87400	IN	Diameter of Transducer Sensor
EMXV	61	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	32.83649	US	Window Begin Time
WINE	75.25755	US	Window End Time
ZCAS	46.25000	MRAY	Acoustic Impedance of Casing
ZINI	-1.00000	MRAY	Initial Estimate of Cement Impedance
ZMUD	1.69000	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

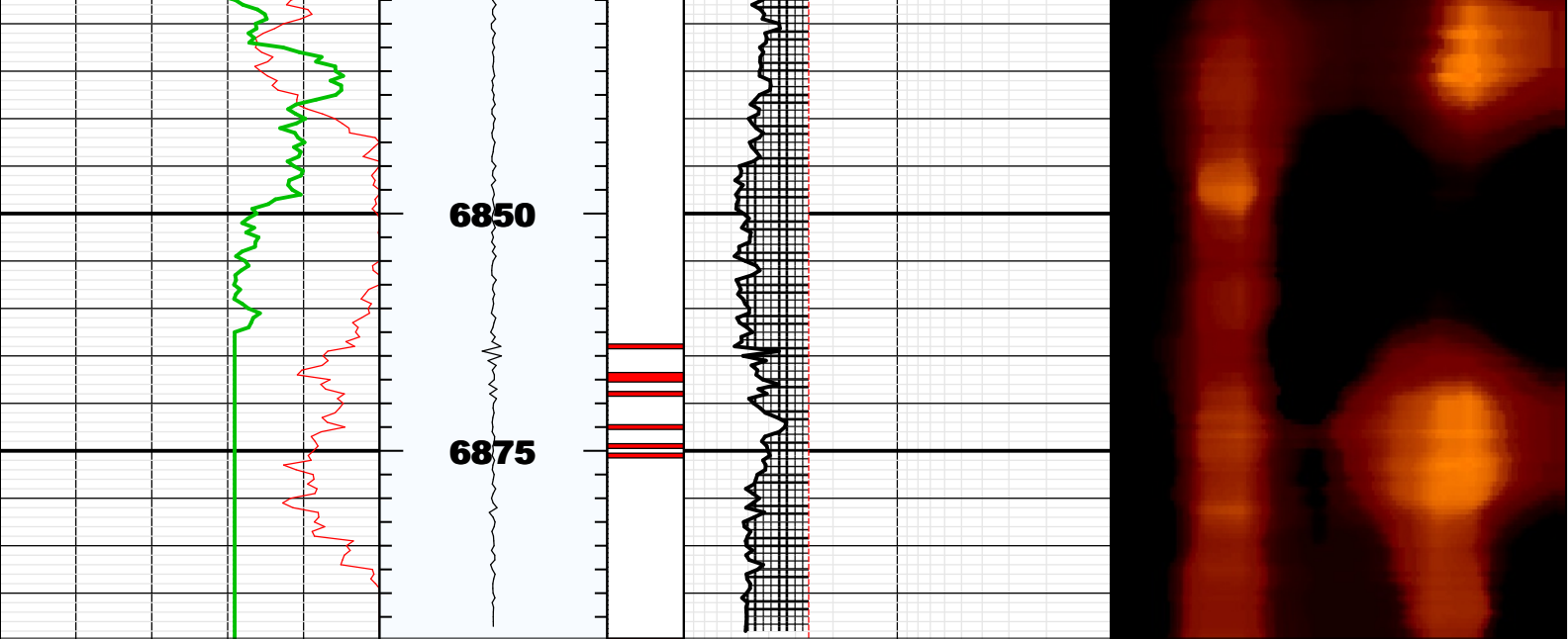
Repeat Pass

Company: Noble Energy Inc
Well: Mahalo State AA09-73-1HNC
Field: Wattenberg









Fluid Properties Used for Main Pass

