

Company: Noble Energy Inc

Well: Wells Ranch AE19-615  
Field: Wattenberg  
County: Weld State: Colorado

County: Weld		<b>USI-LITE (2500 psi)</b>	
Field: Wattenberg			
Location: NWSW Sec. 20 T6N R62W			
Well: Wells Ranch AE19-615			
Company: Noble Energy Inc			
LOCATION			
Permanent Datum:		Elev: K.B. 4816.0 F	
Log Measured From:		G.L. 4786.0 F	
Drilling Measured From:		D.F. 4815.0 F	
GL			
KB			
KB			
API Serial No.			
05-123-39633-0000			
Section 20			
Township 6N			
Range 62W			
Logging Date			
07-Feb-2015			
Run Number		1	
Depth Driller		7105.0 F	
Schlumberger Depth		6970.0 F	
Bottom Log Interval		6970.0 F	
Top Log Interval		30.0 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		6970.0 F	
To		-999.2 F	
Casing Size		7.00 IN	
Weight		26.00 LB/F	
Grade		P110	
From		30.0 F	
To		7100.0 F	
Max Recorded Temp		226.8	
Logger on bottom (date)		07-Feb-2015	
Location		Fort Morgan CO	
Recorded By		Keri Ondrus	
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: 14000.00098

DISCLAIMER

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0 PSI repeat pass and 2500 PSI main pass.

Seen Top of Cement @ 625'. Expected TOC @ 30'.

11.5 PPG tuned spacer and 13.6 PPG single slurry cement.

During cement job casing pressure tested to 3000 PSI for 15 min. Floats good.

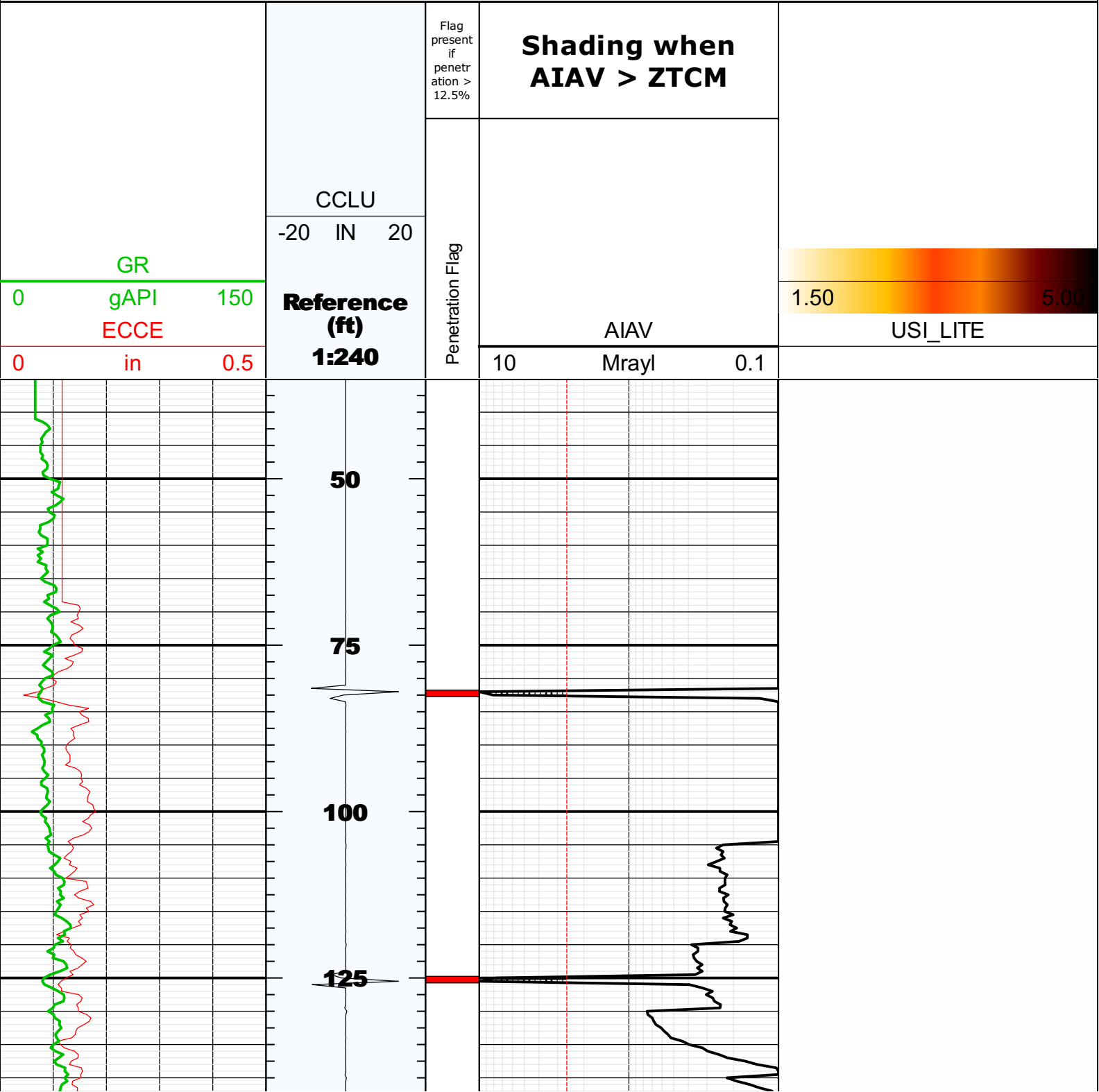
Top of 4.5 liner at 6982.6'.

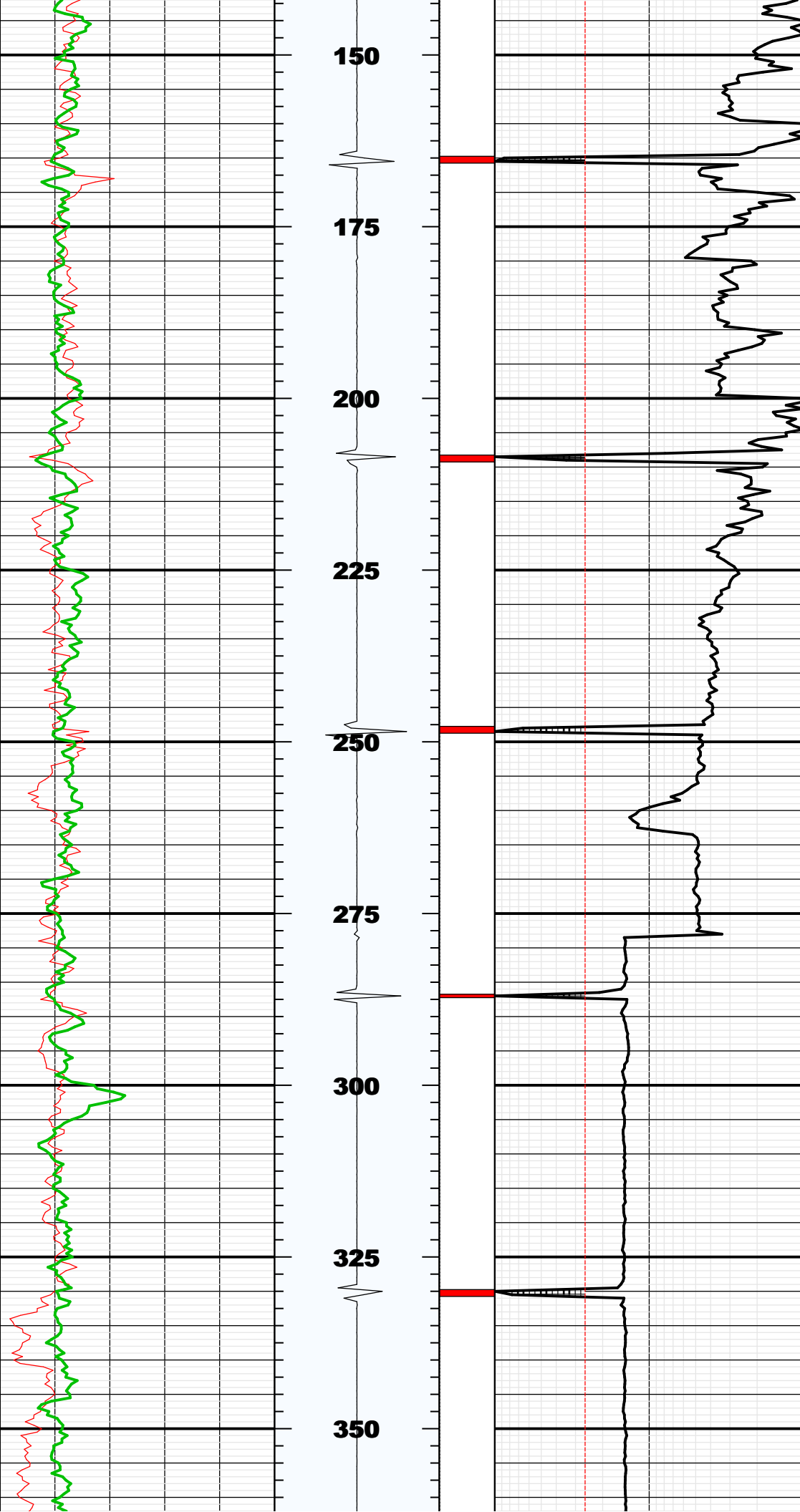
Bottom log interval at 6970 to maintain distance from liner top.

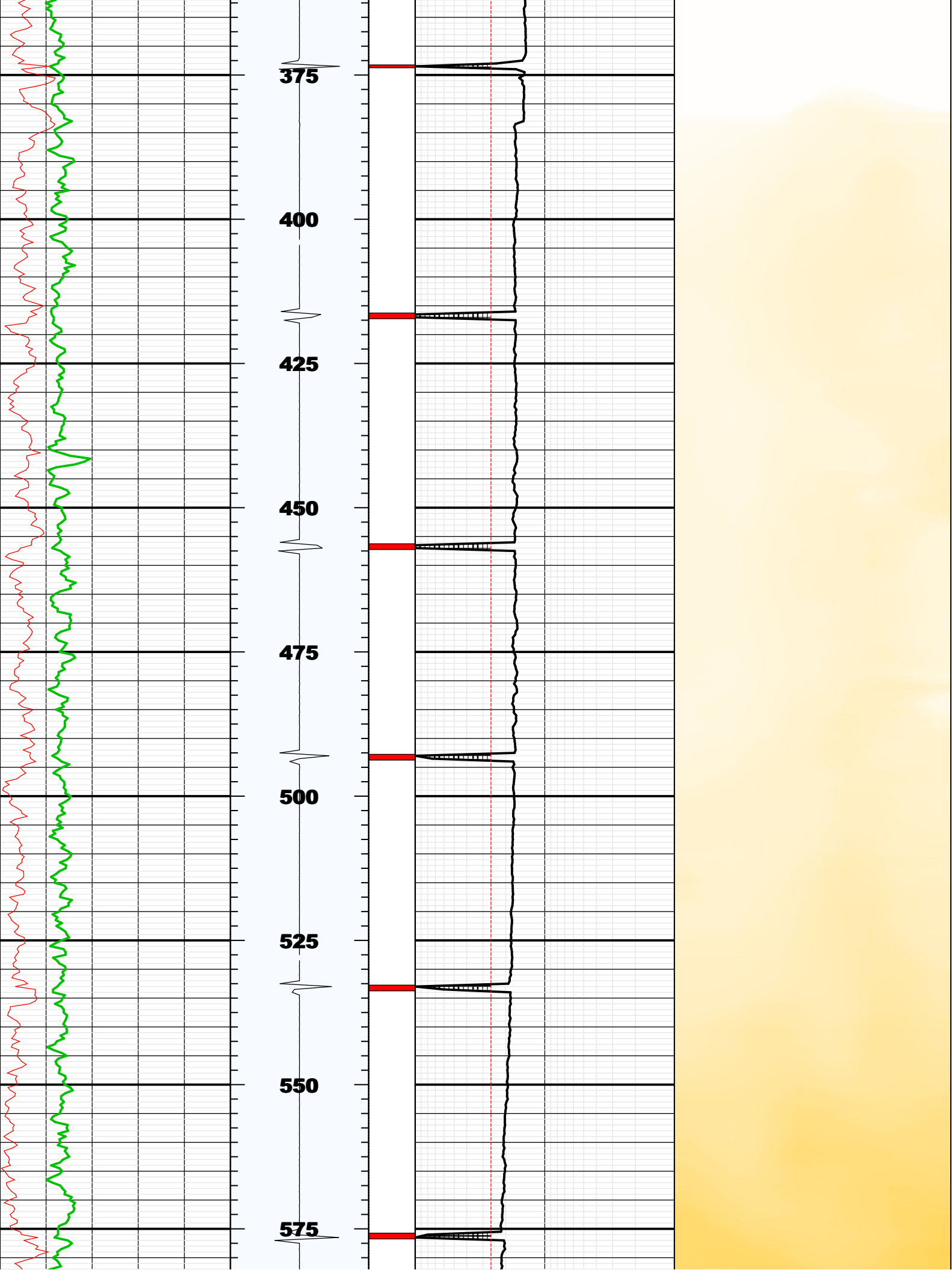
Bottom hole temperature 227 degF measured at depth.

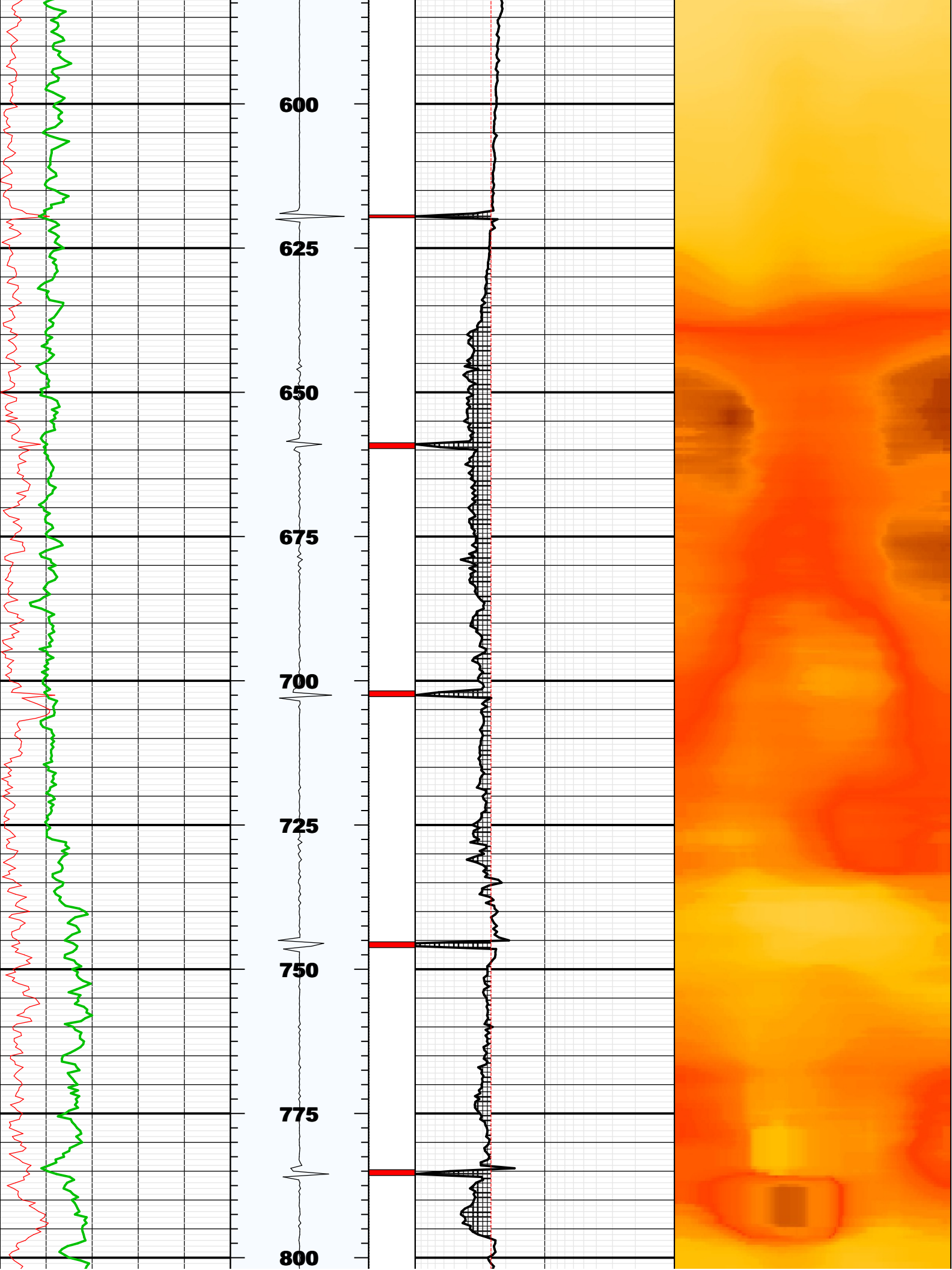
Main Pass

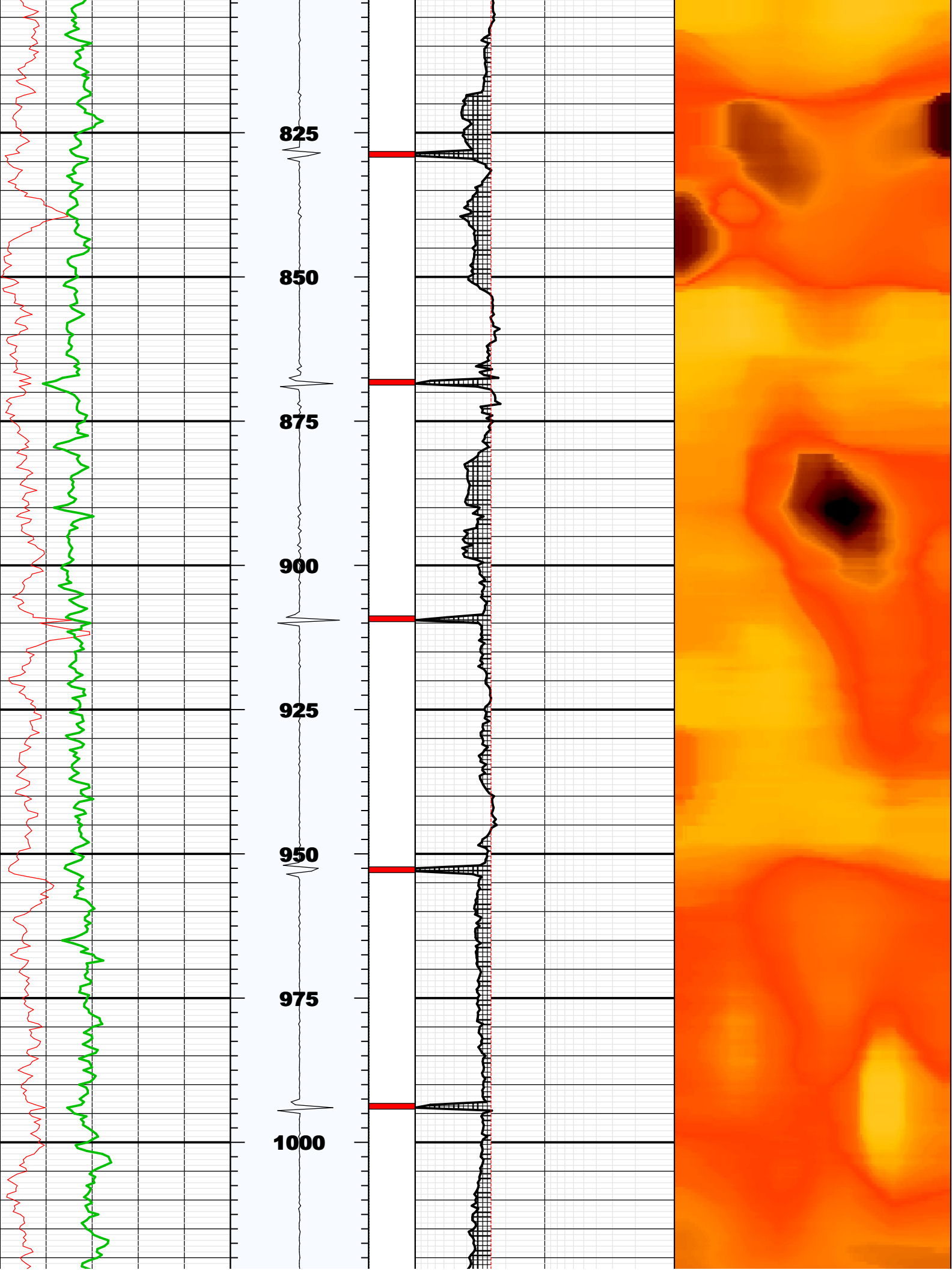
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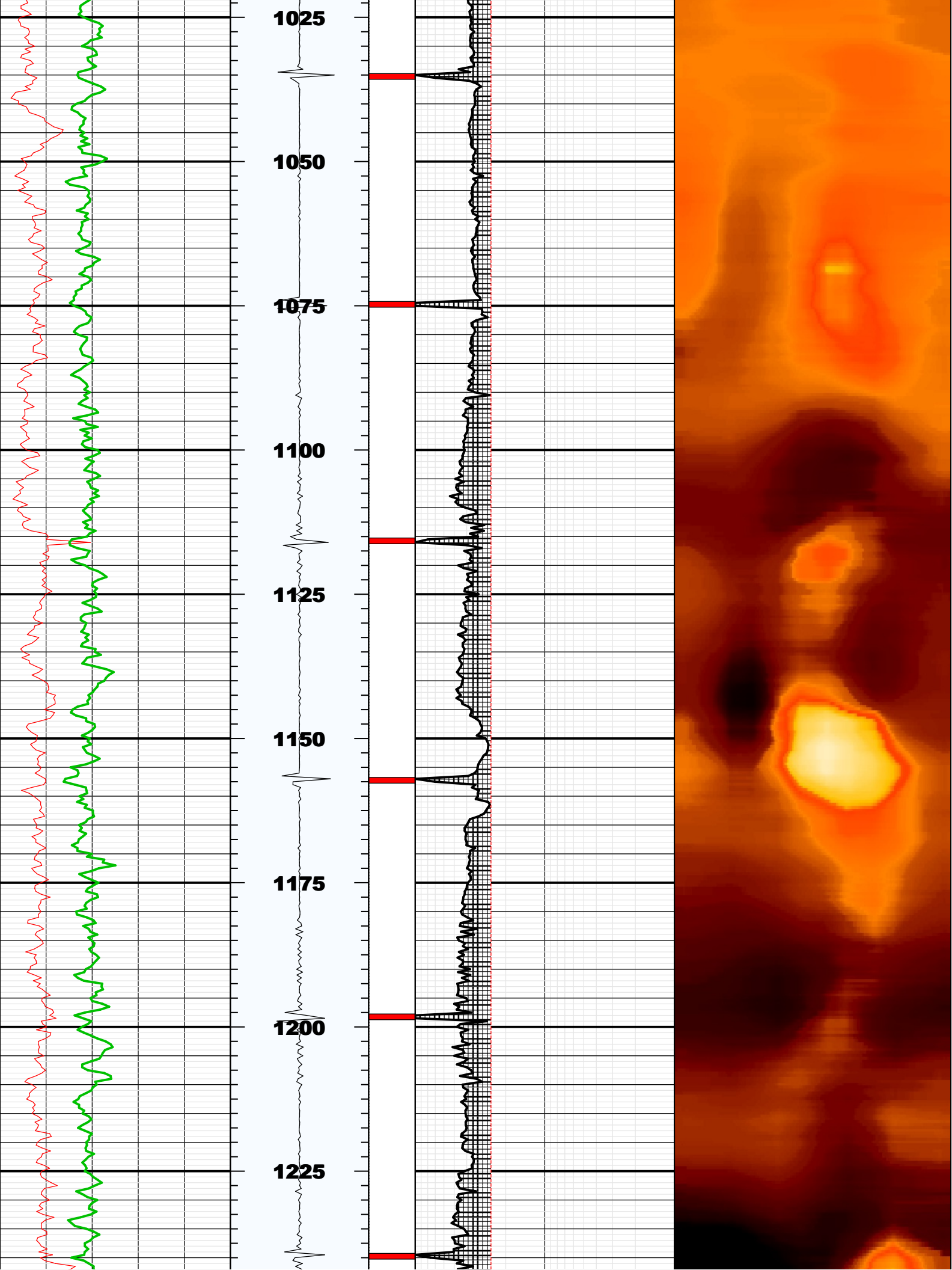




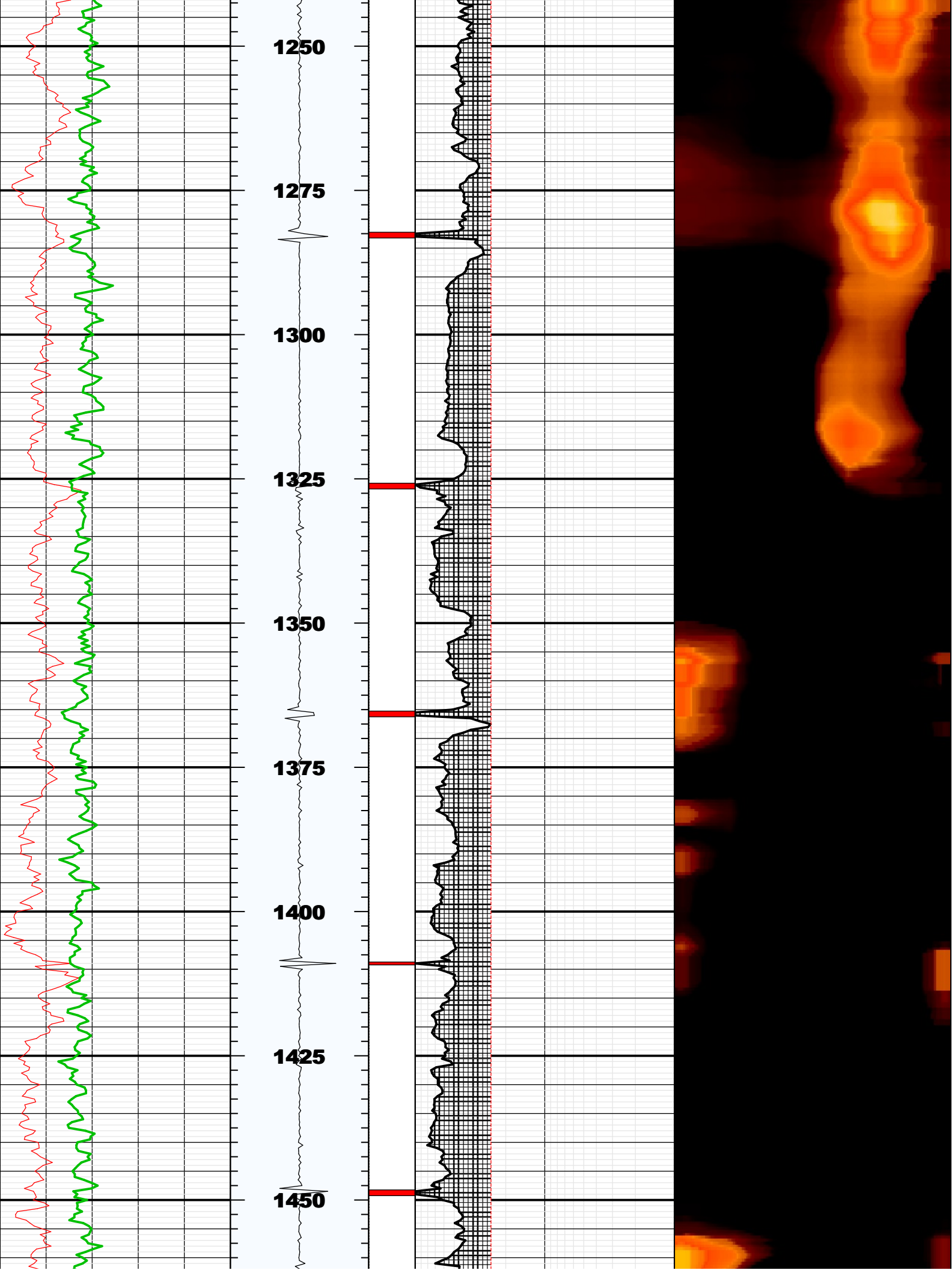


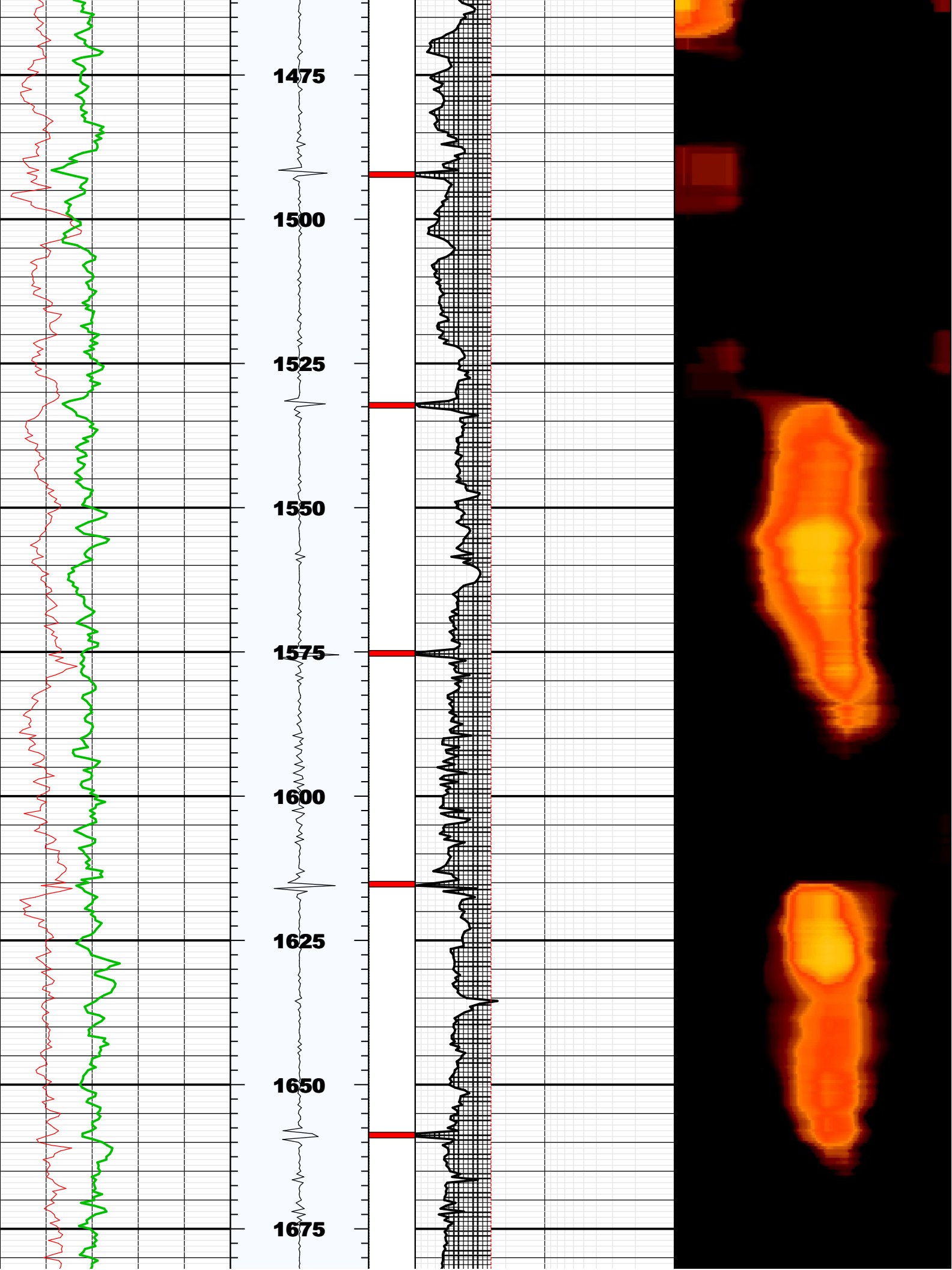


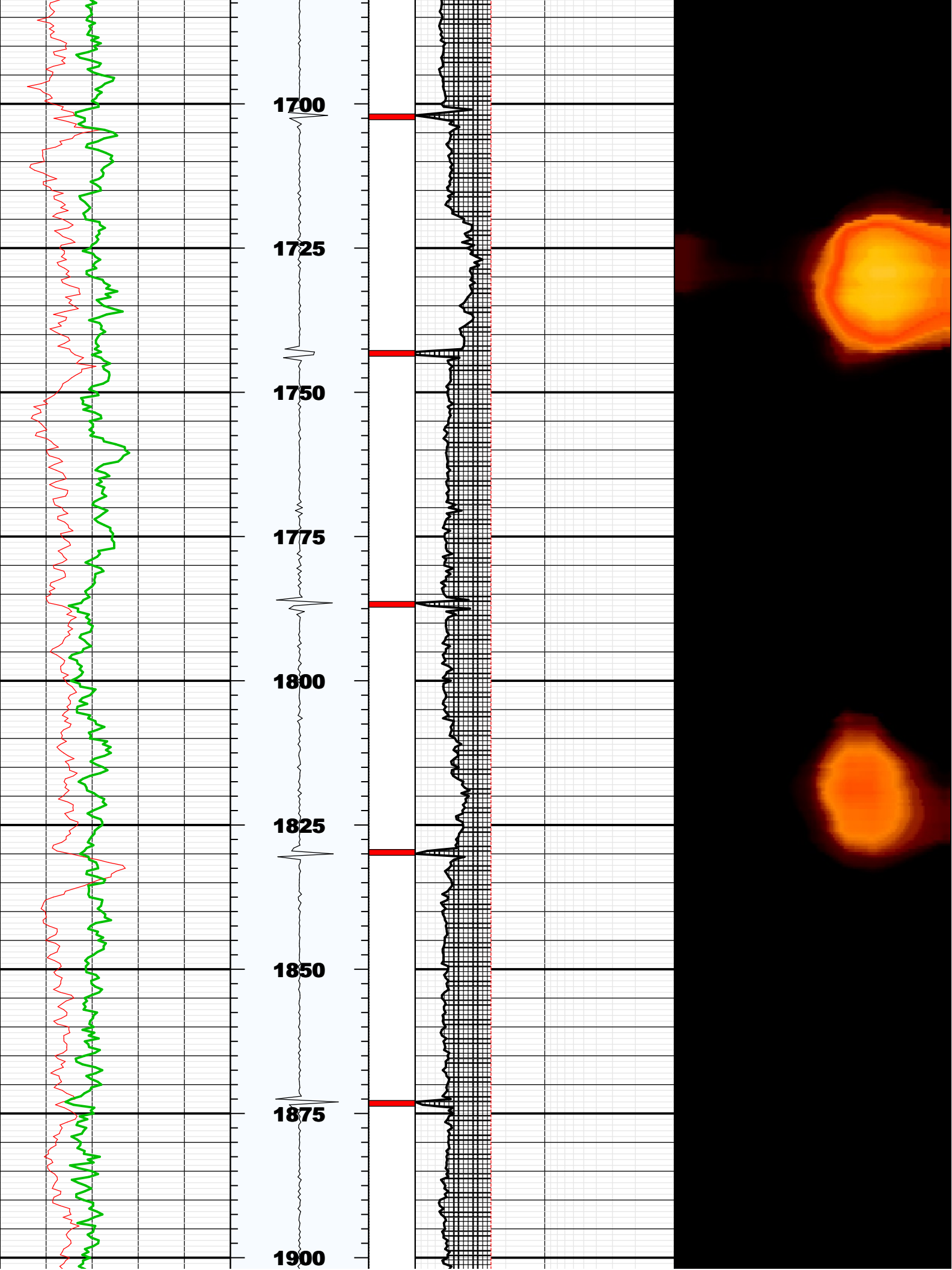


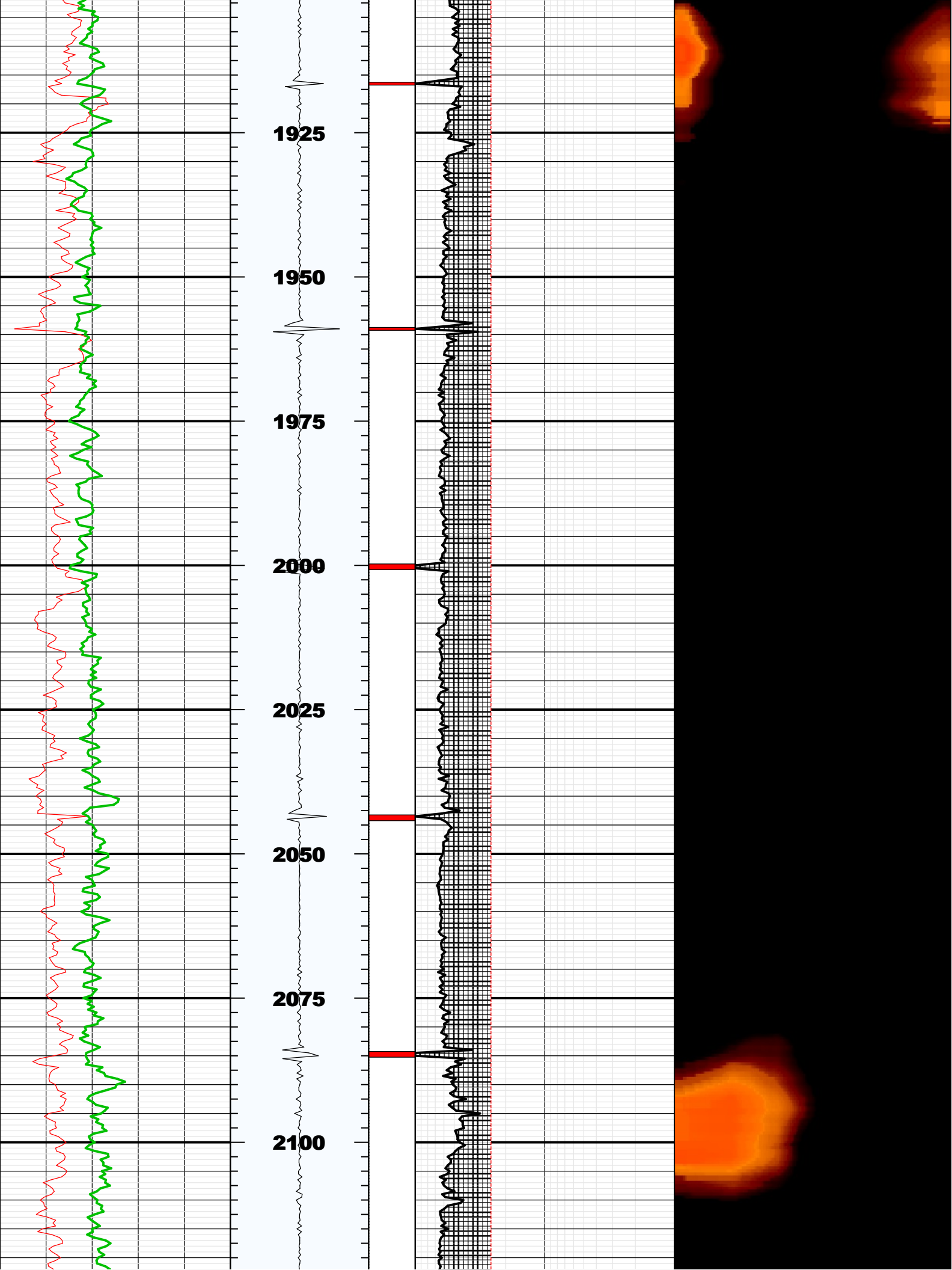


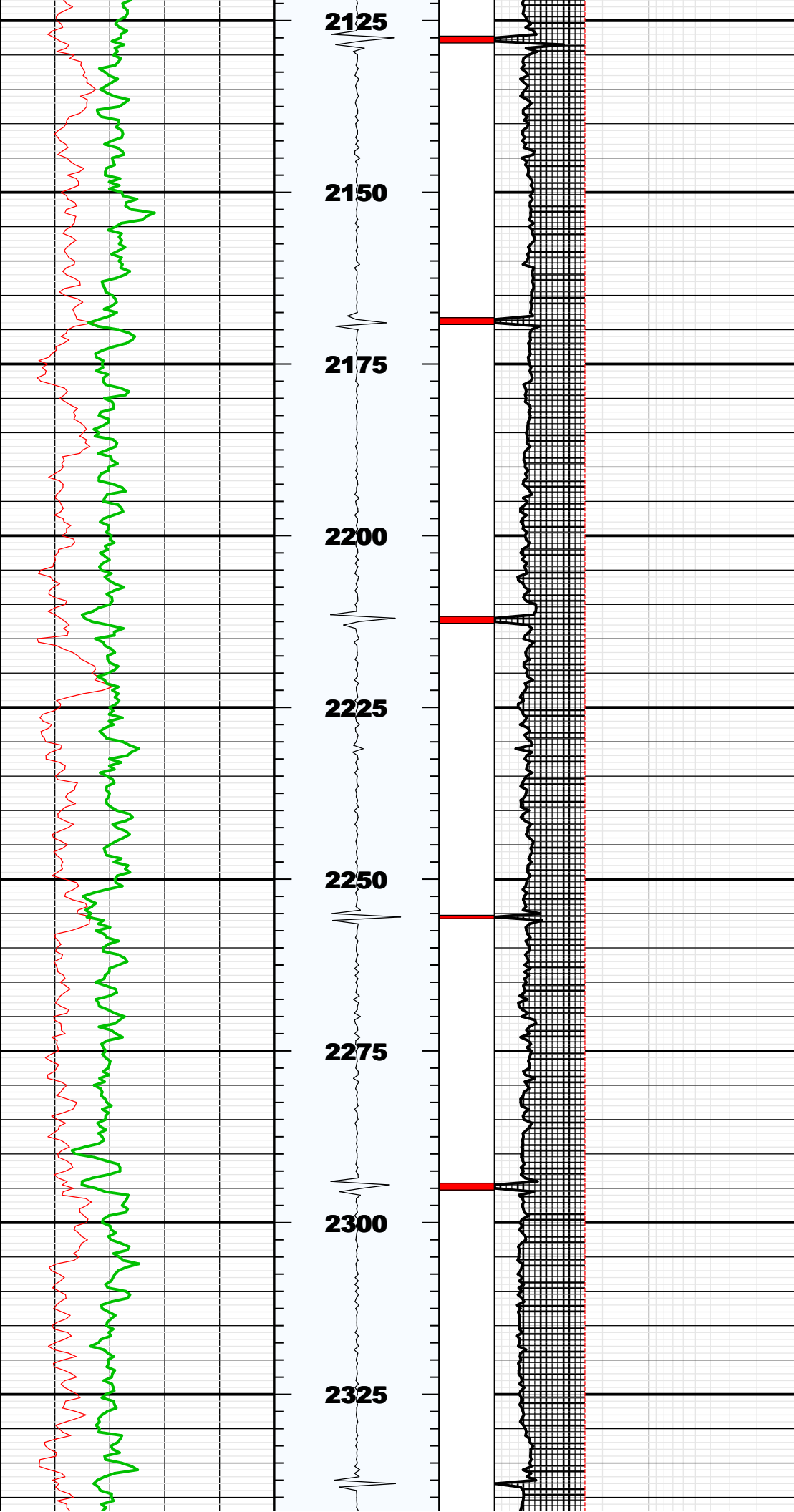


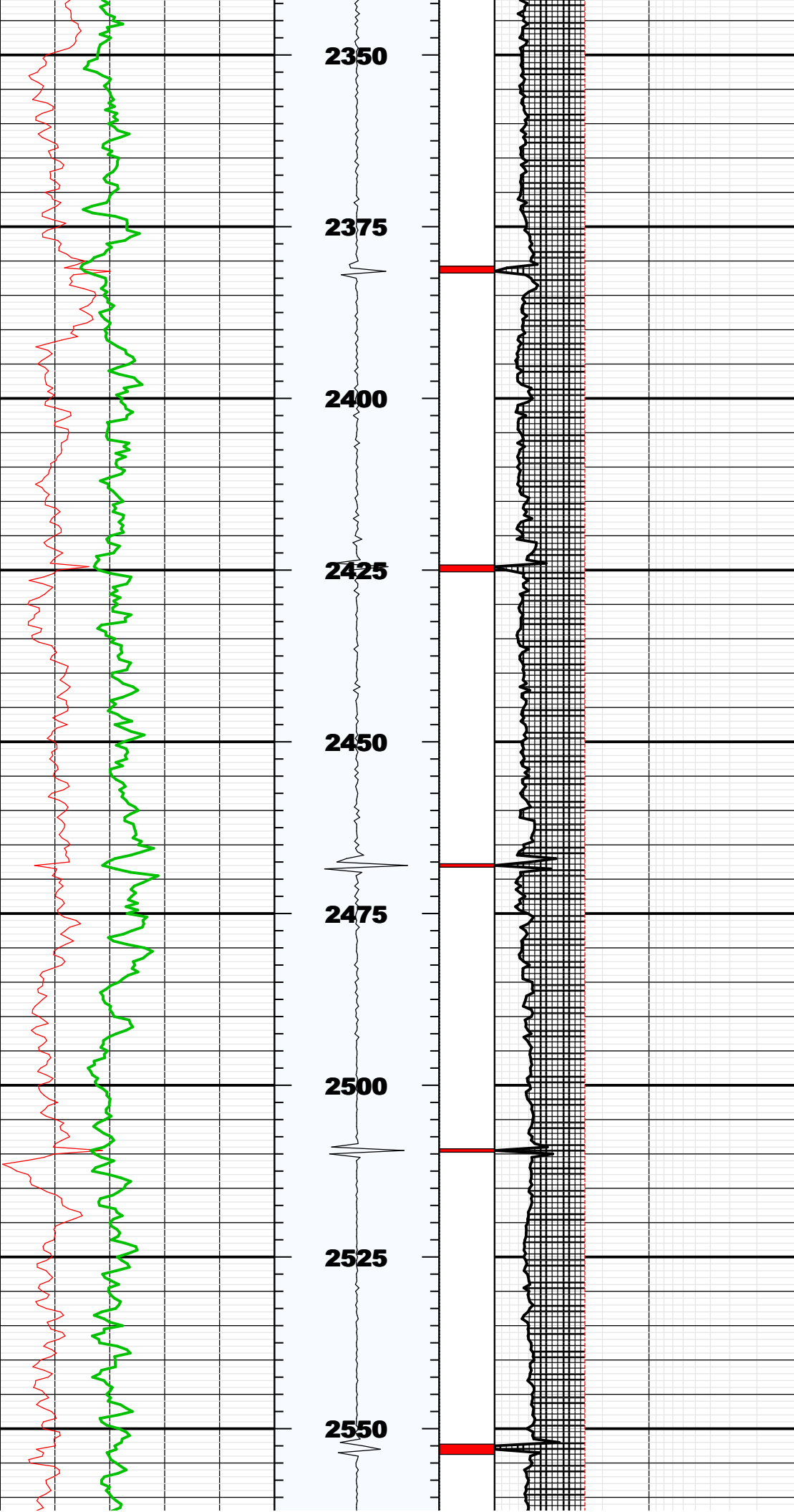




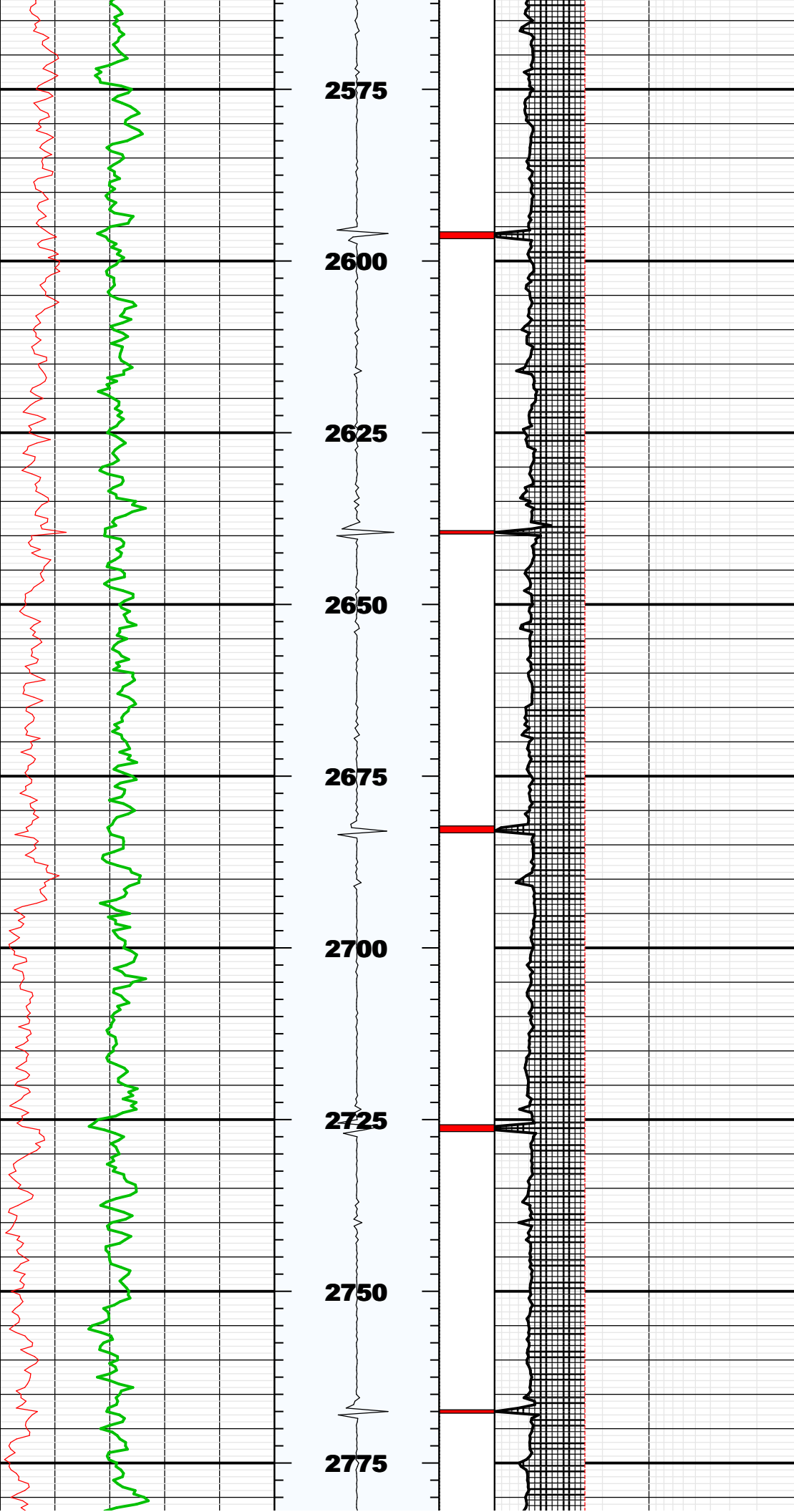


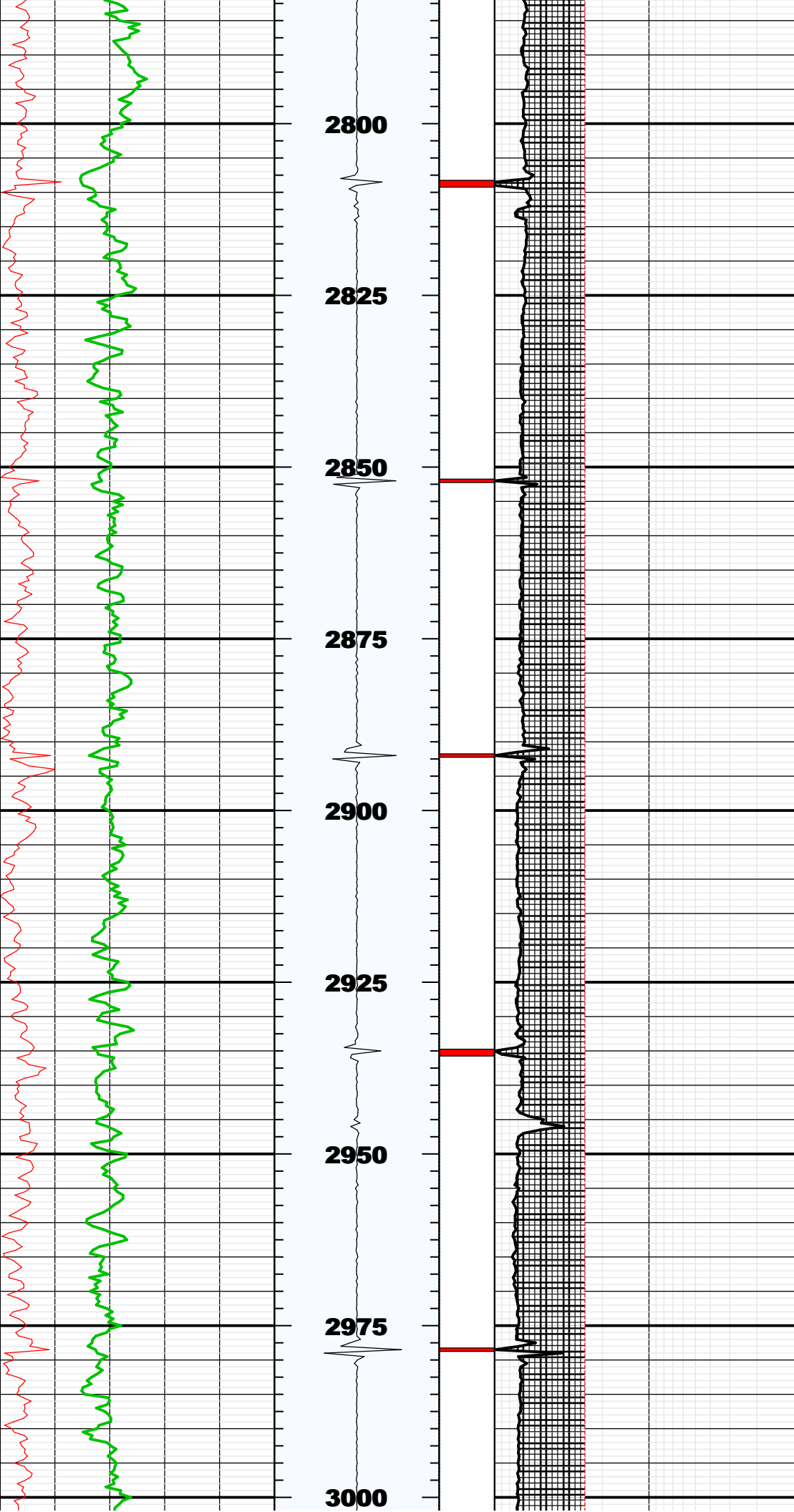




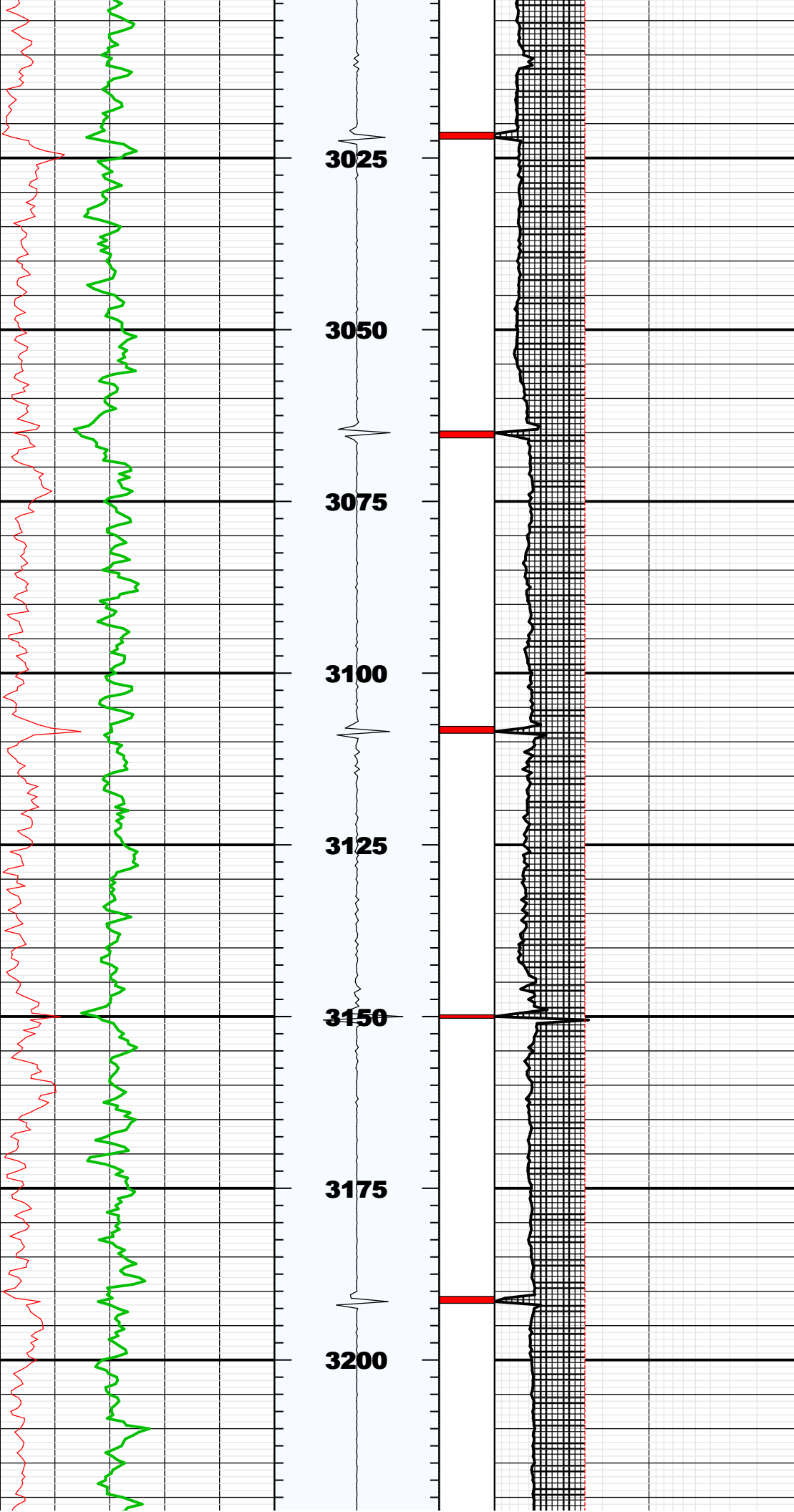


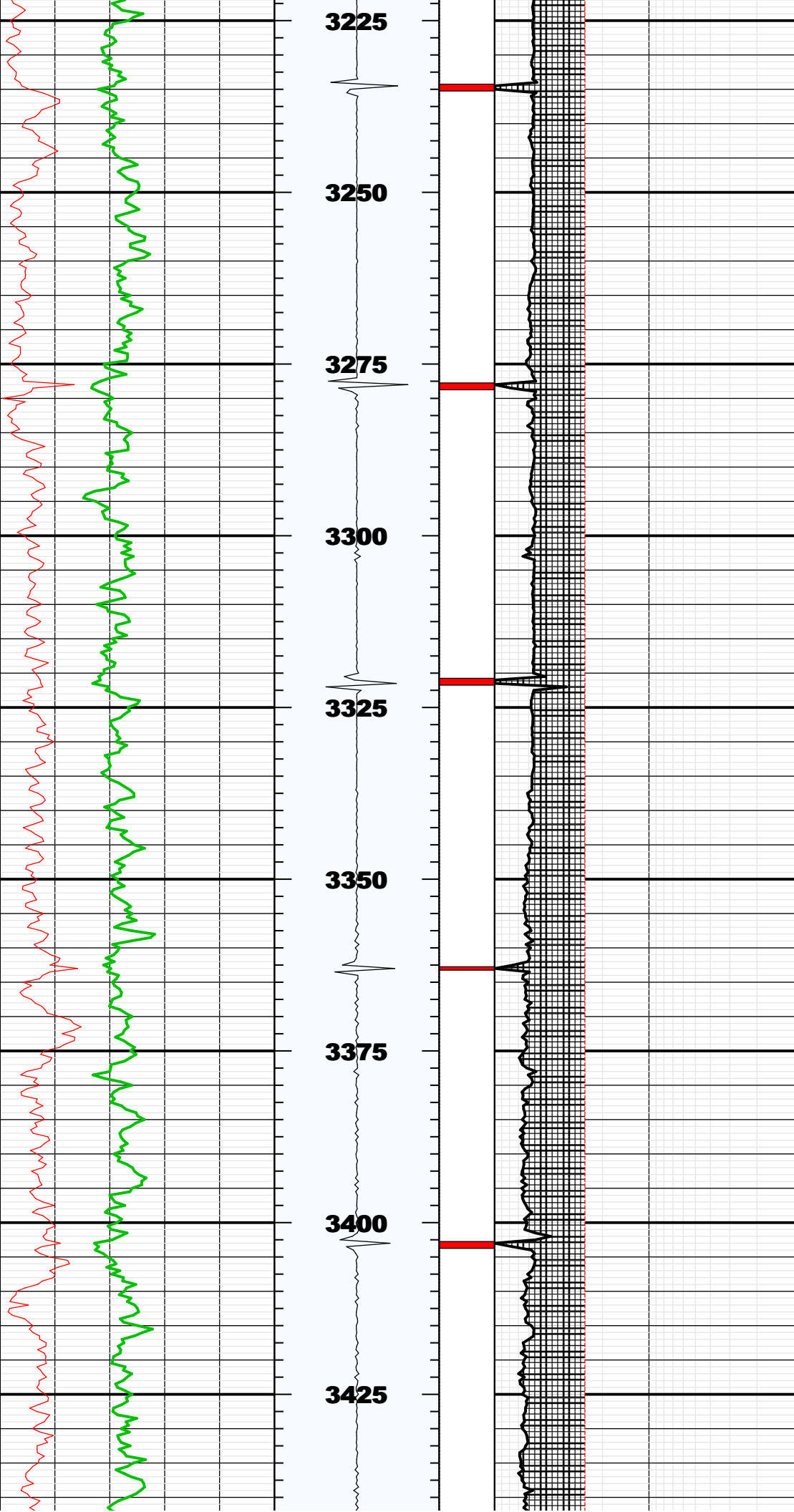


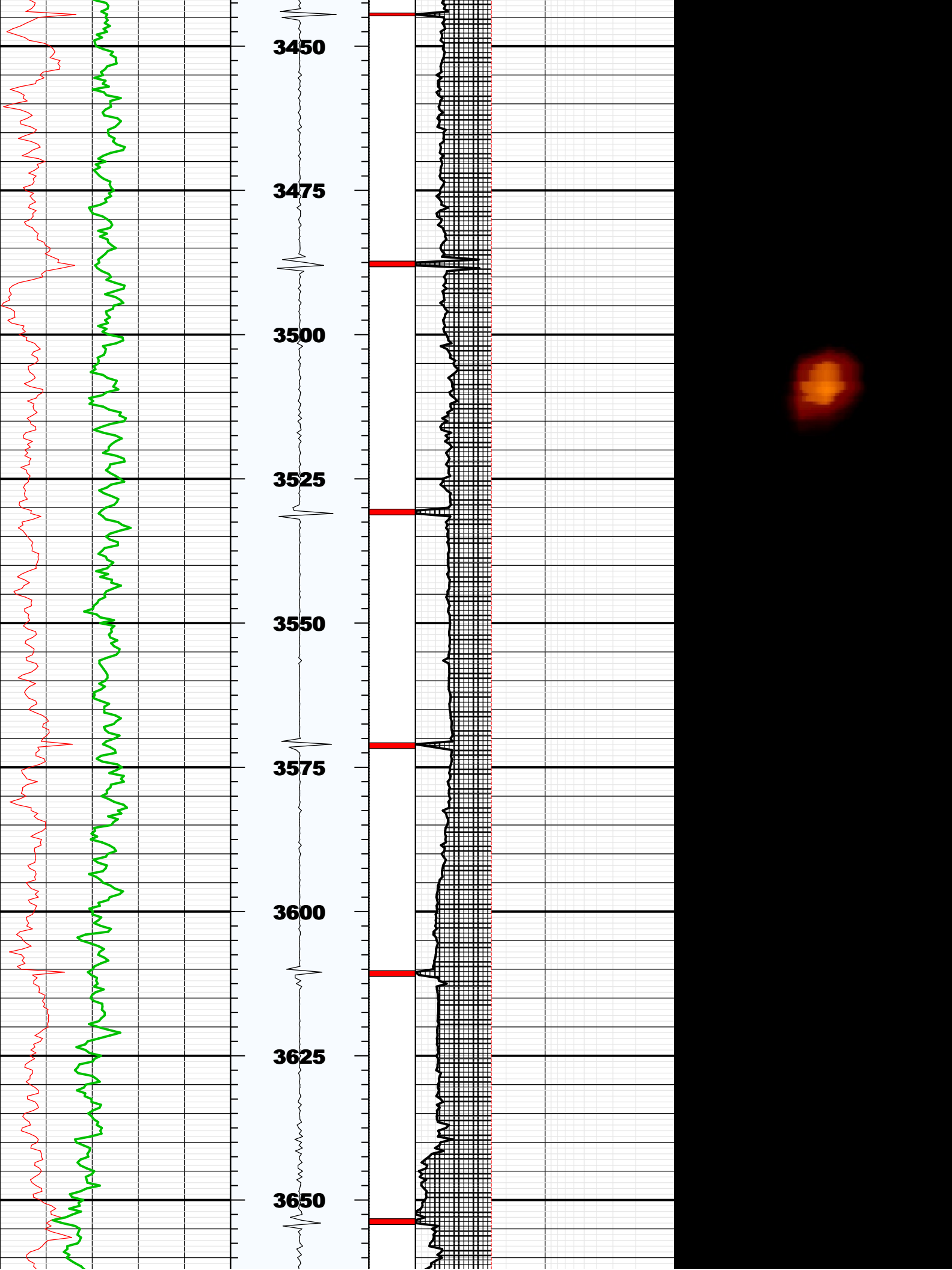


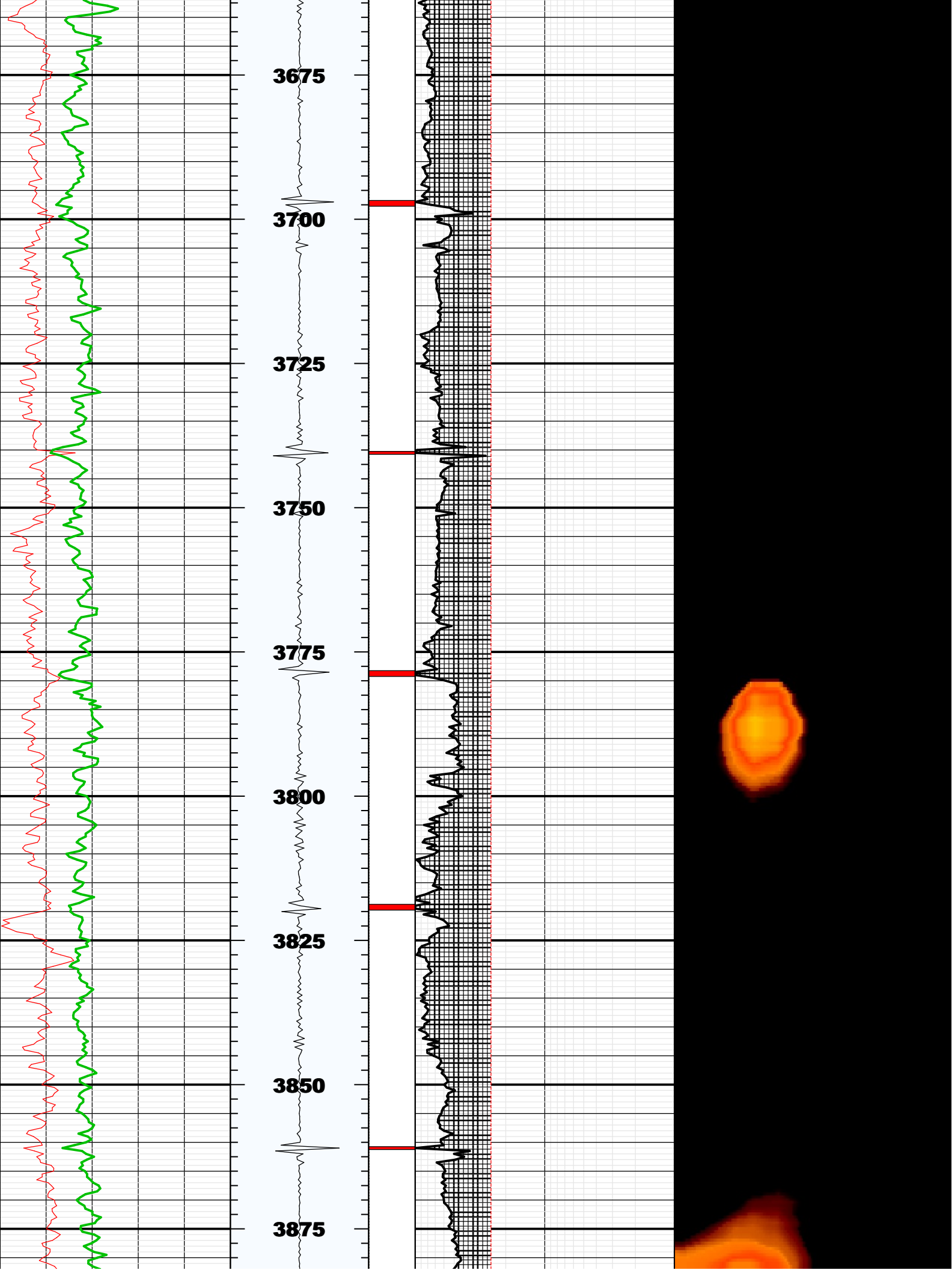


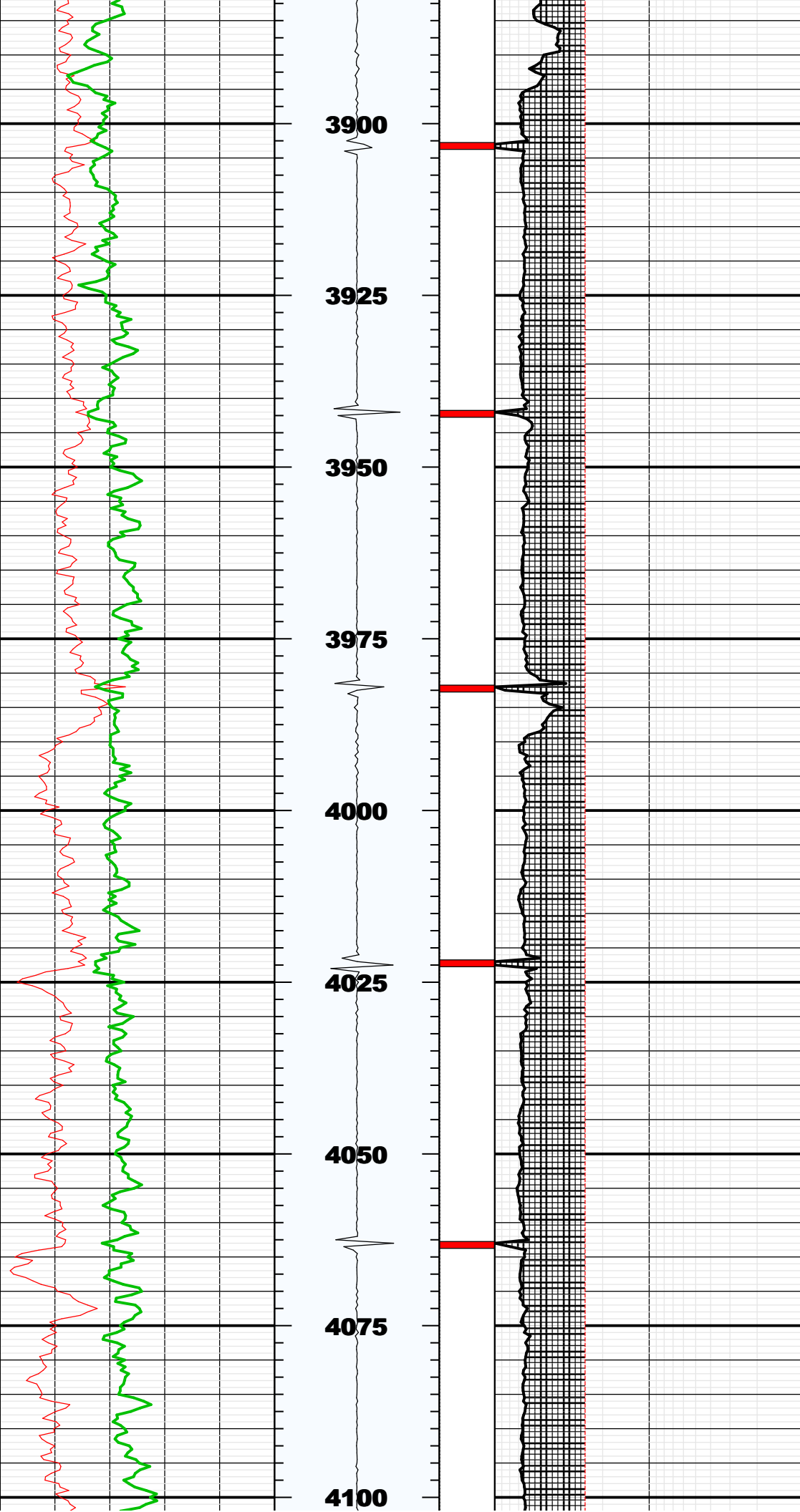


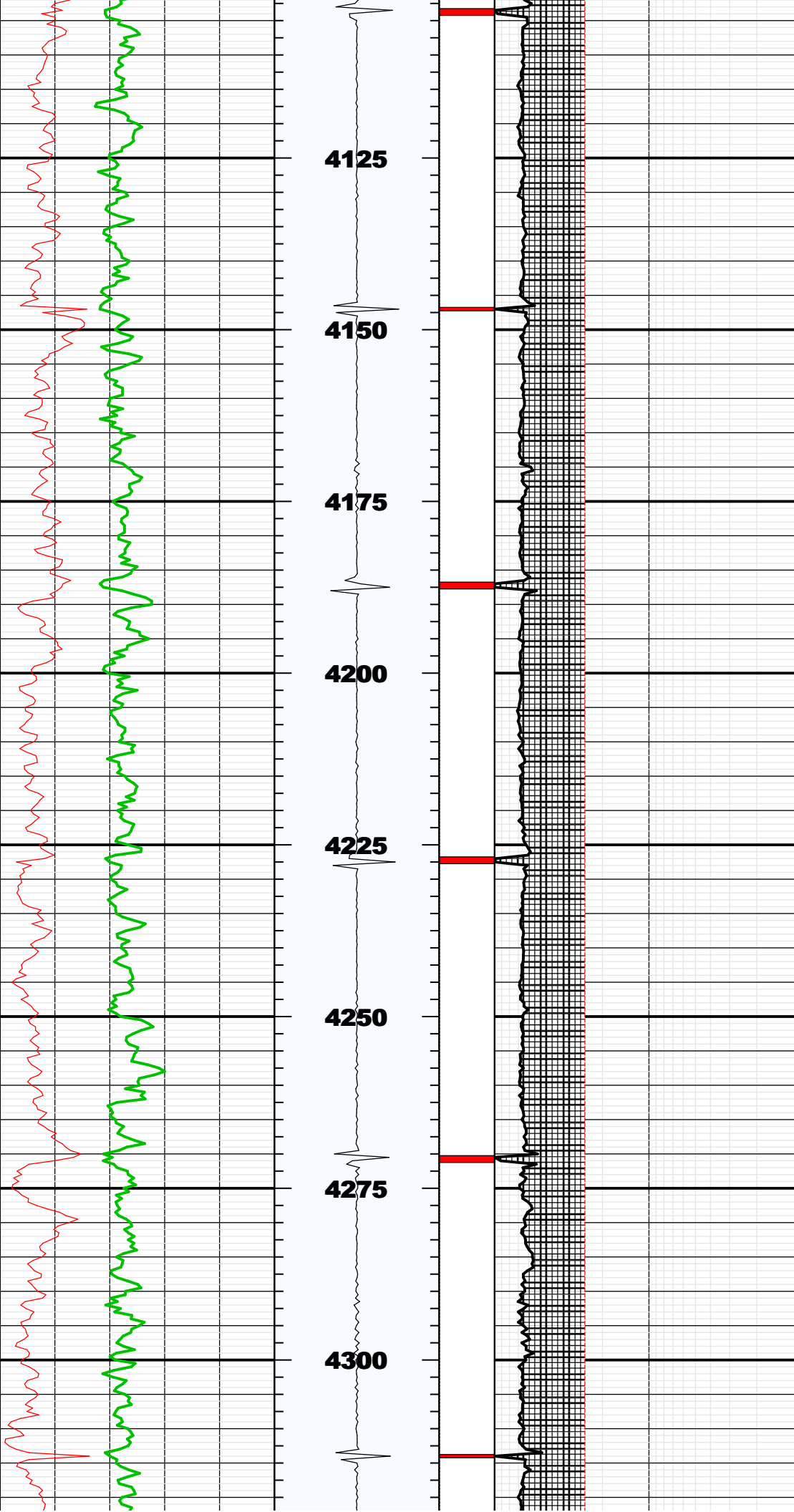


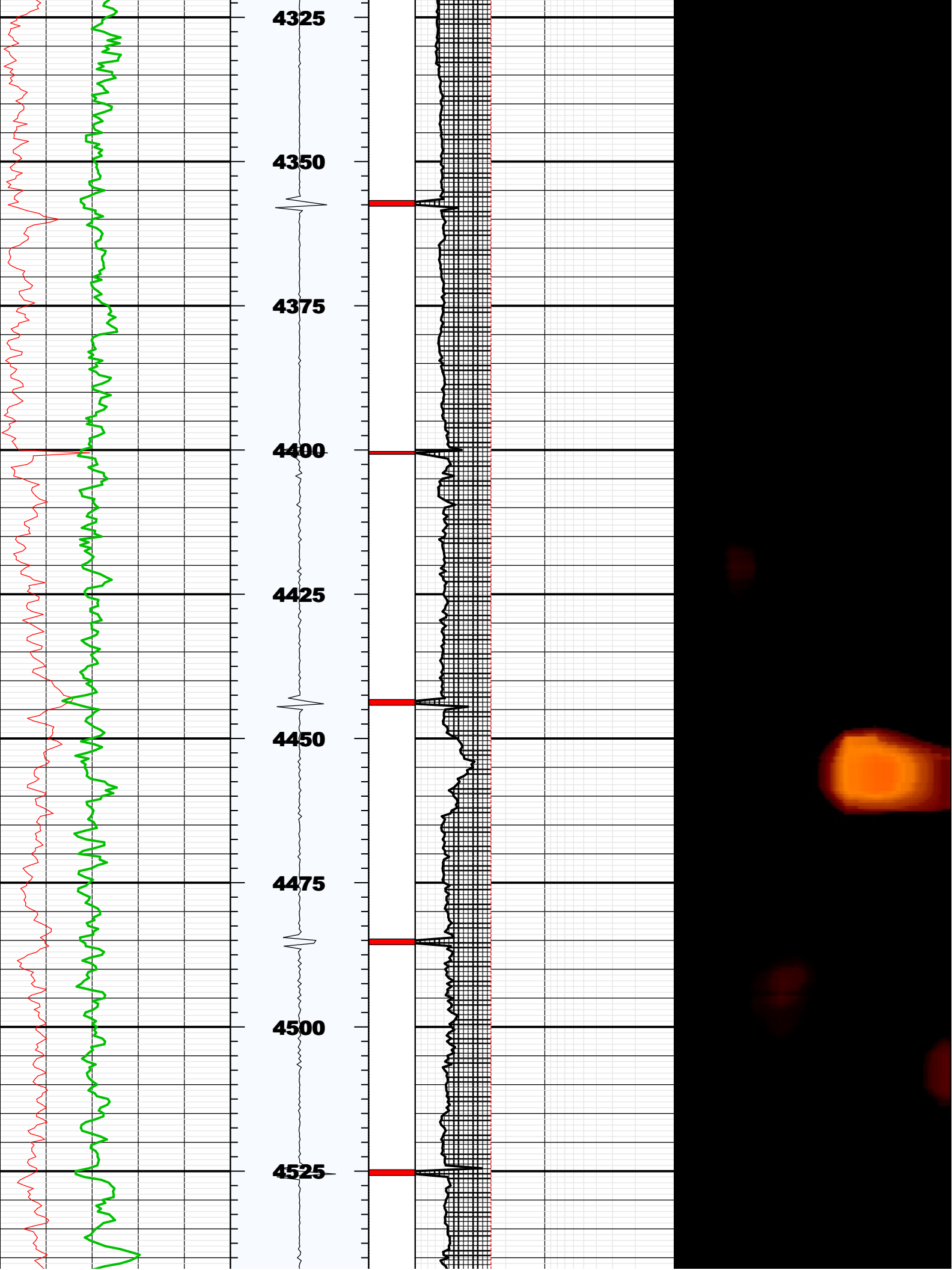




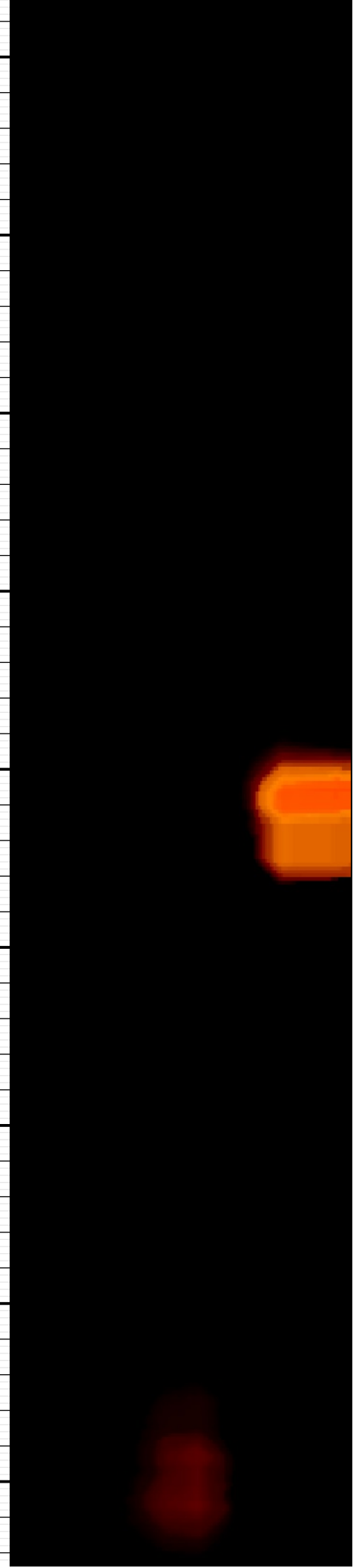
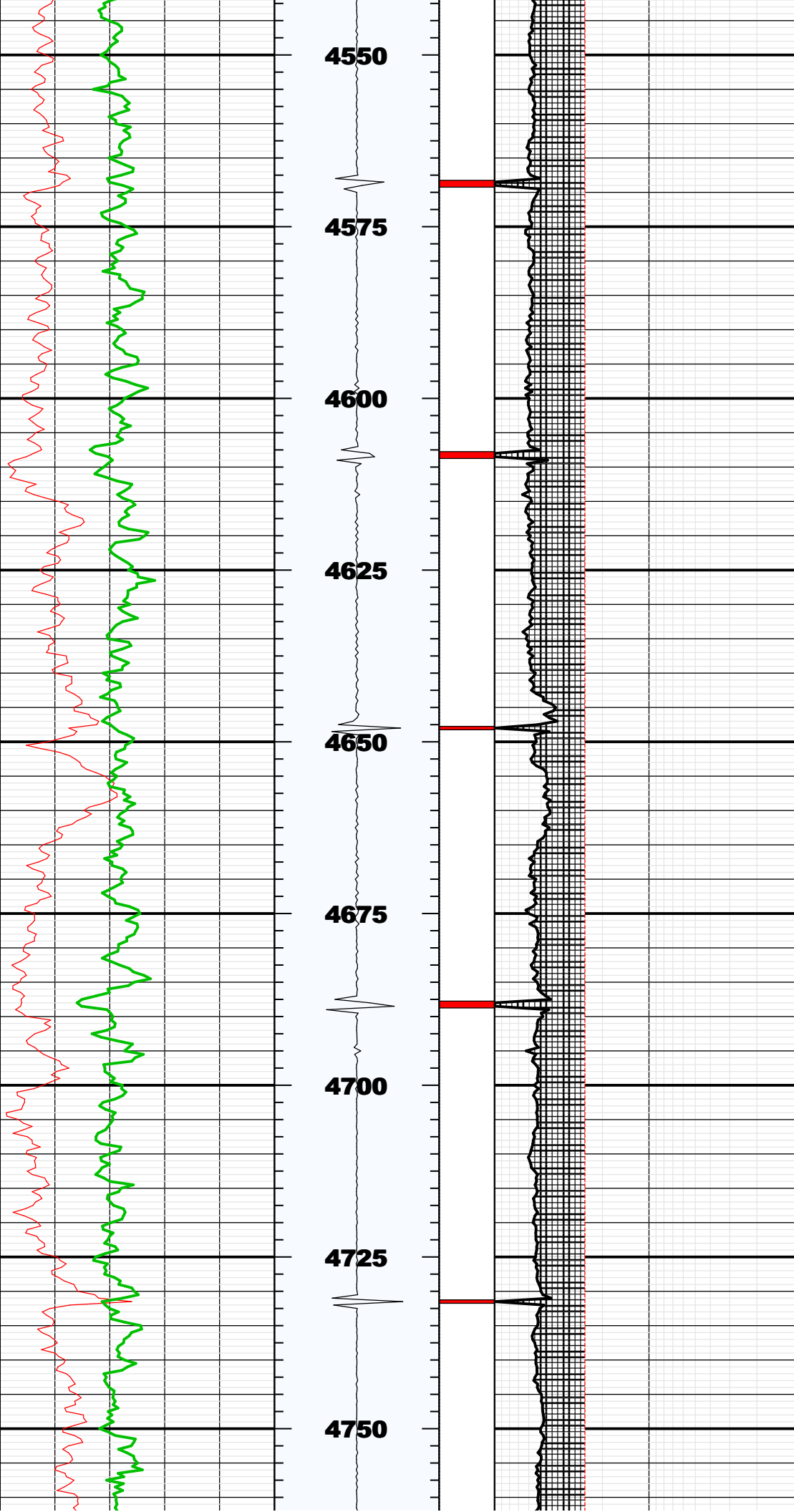




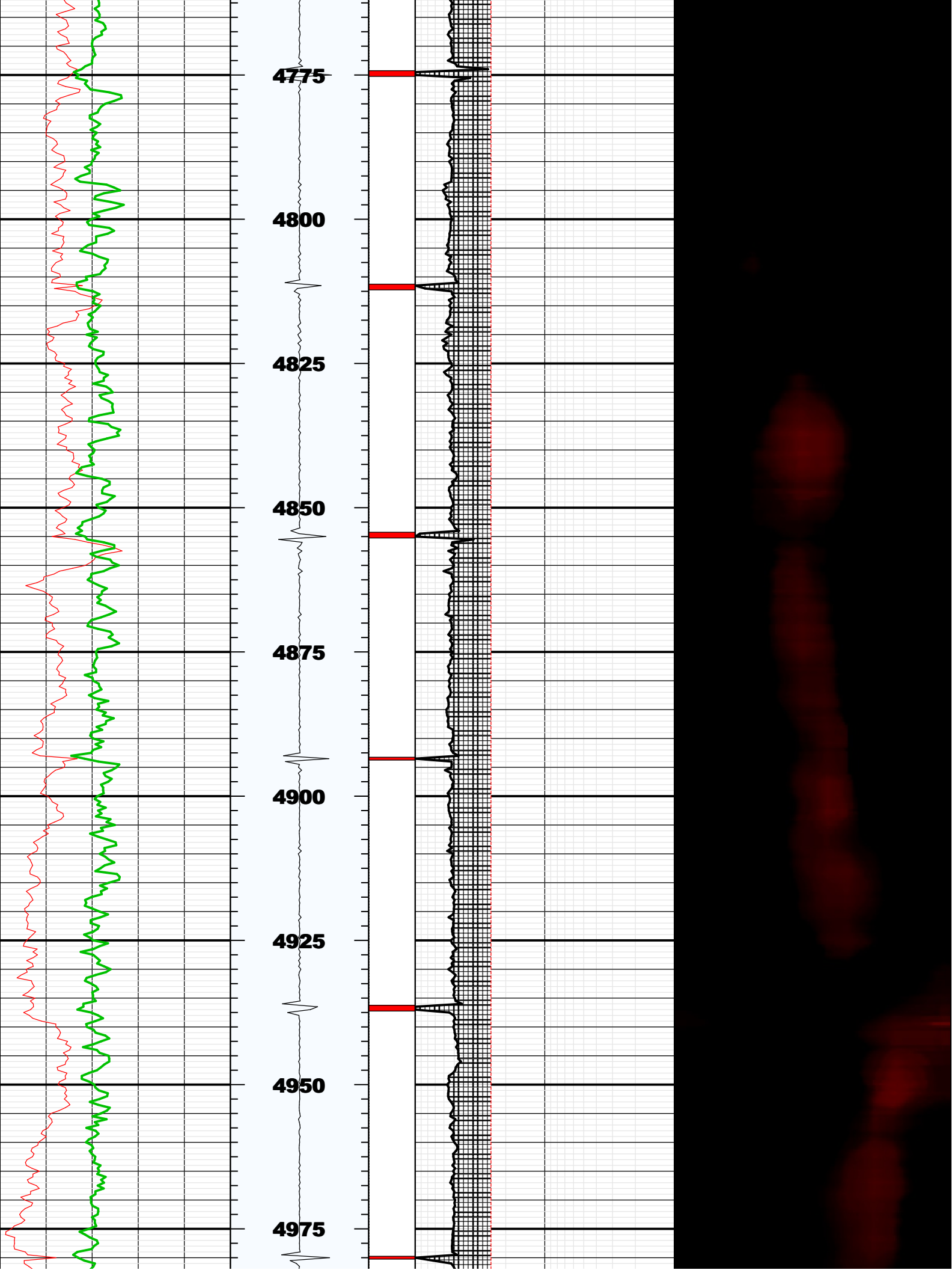


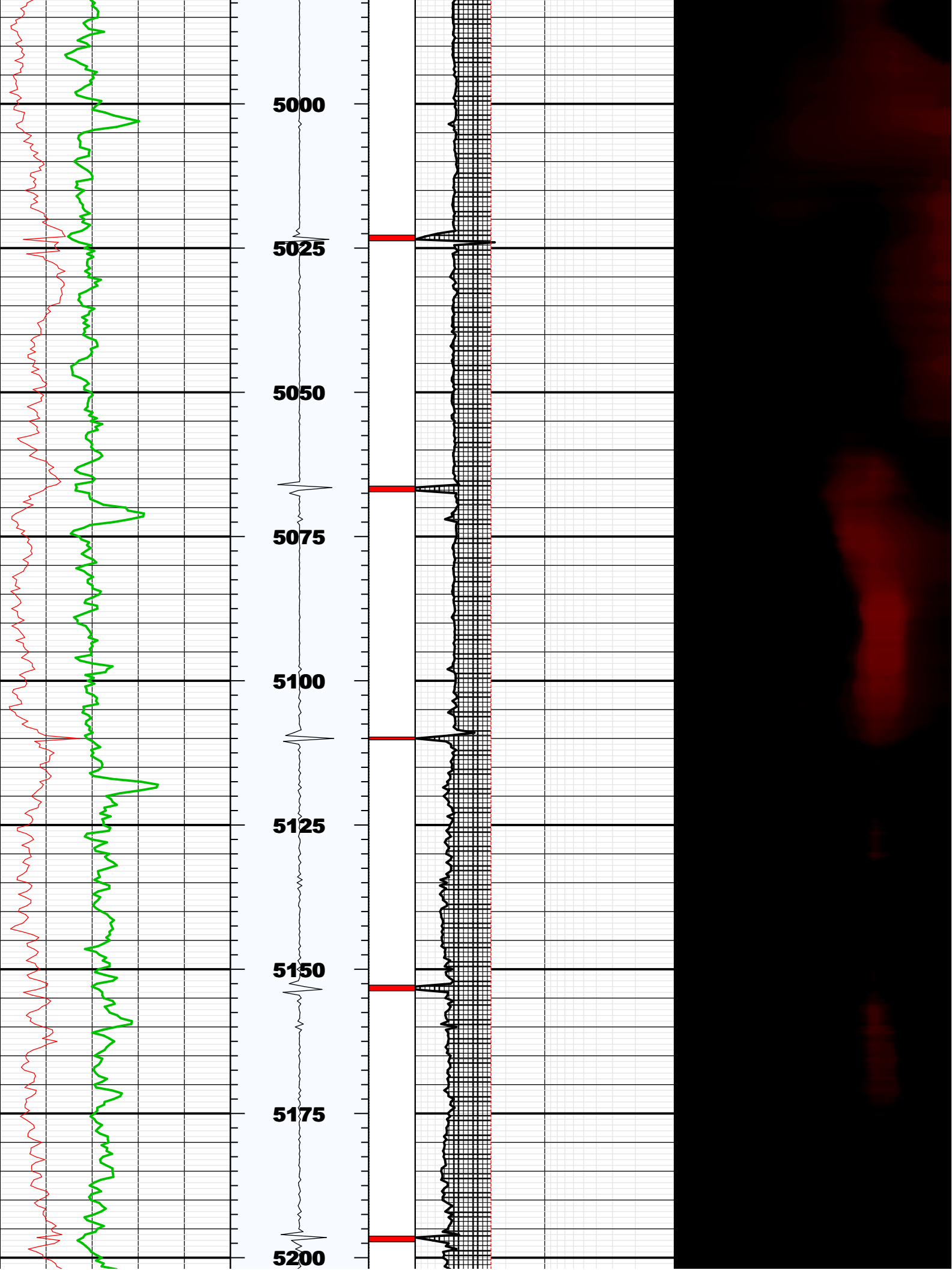


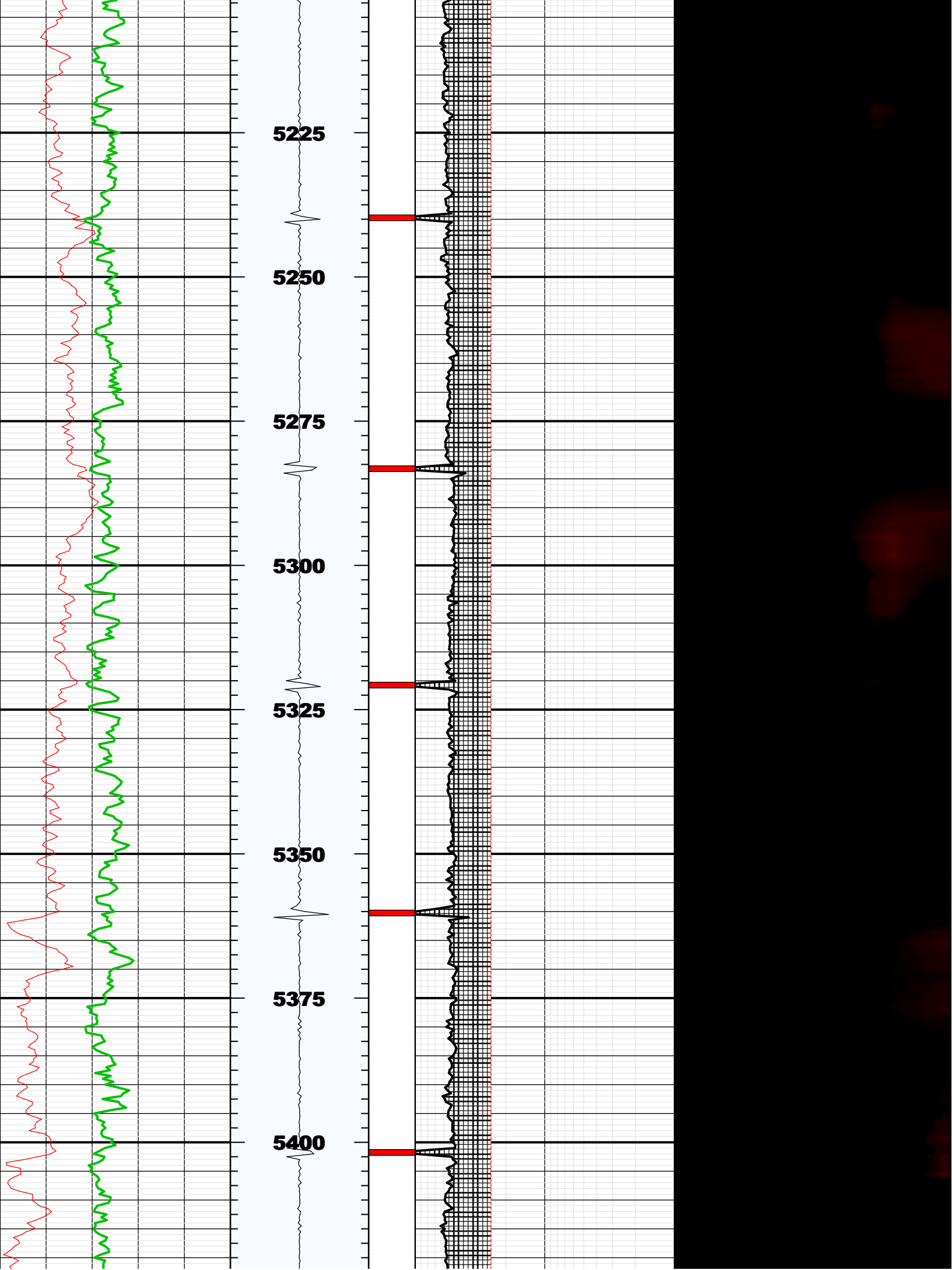


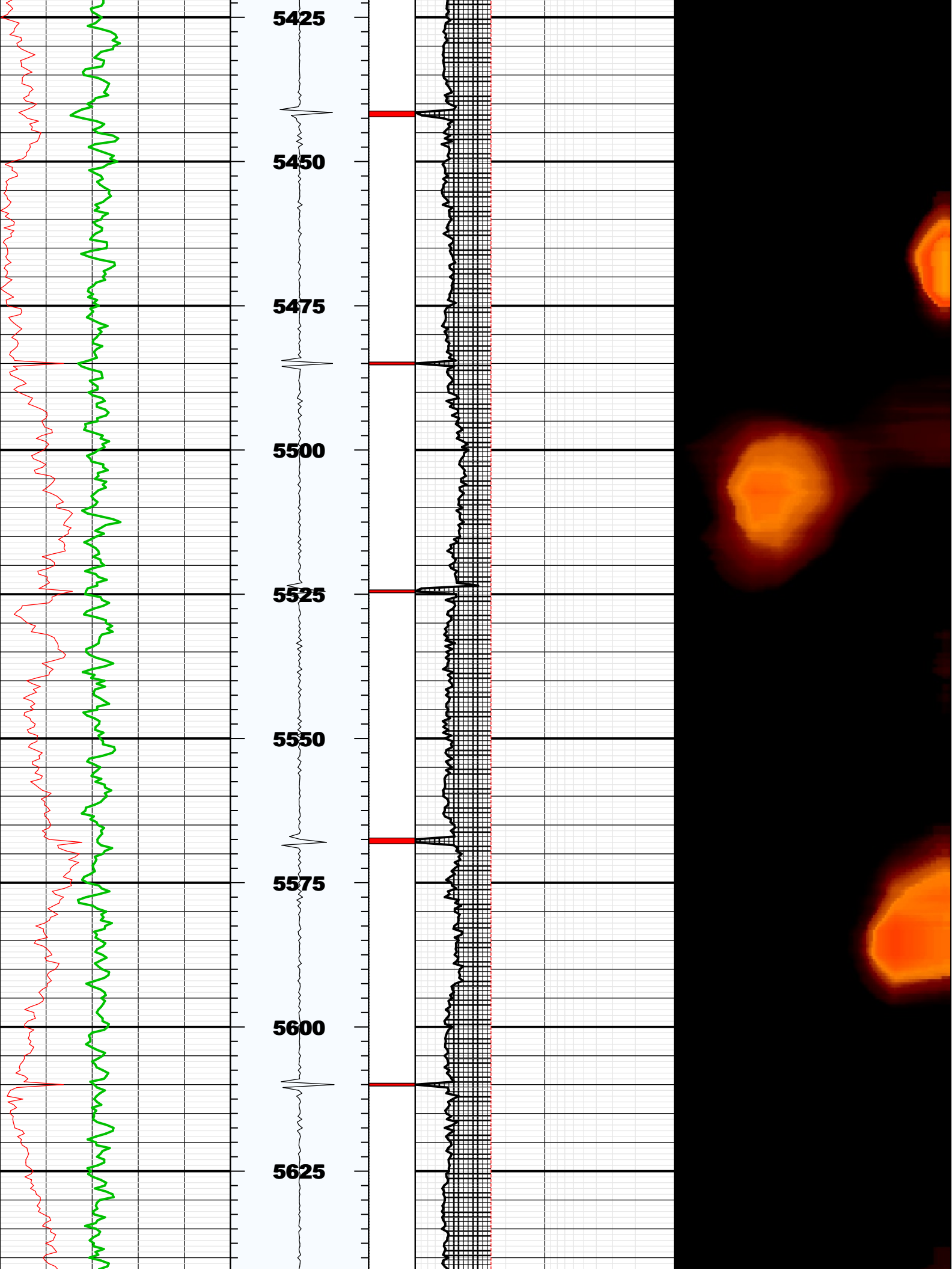


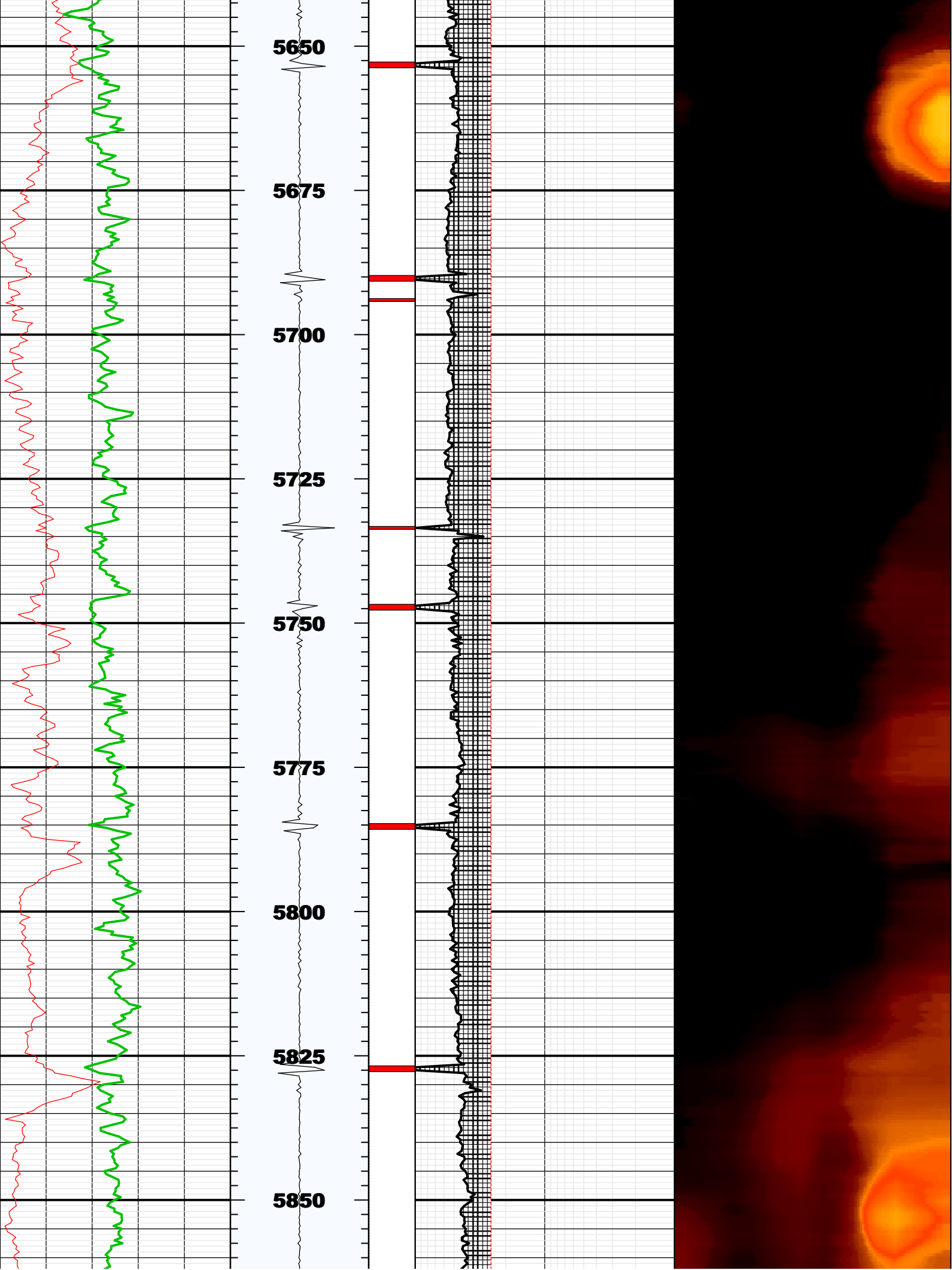




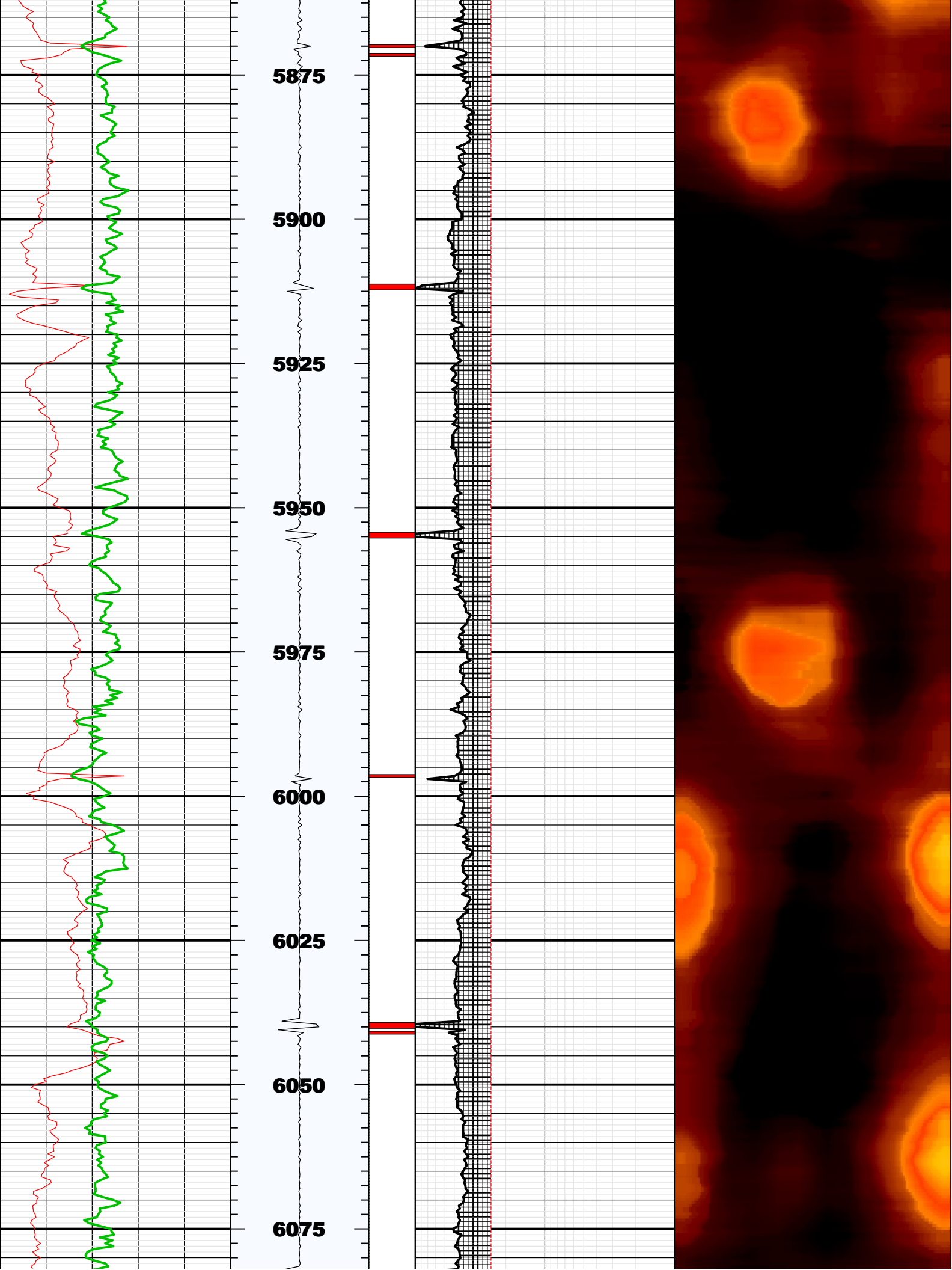


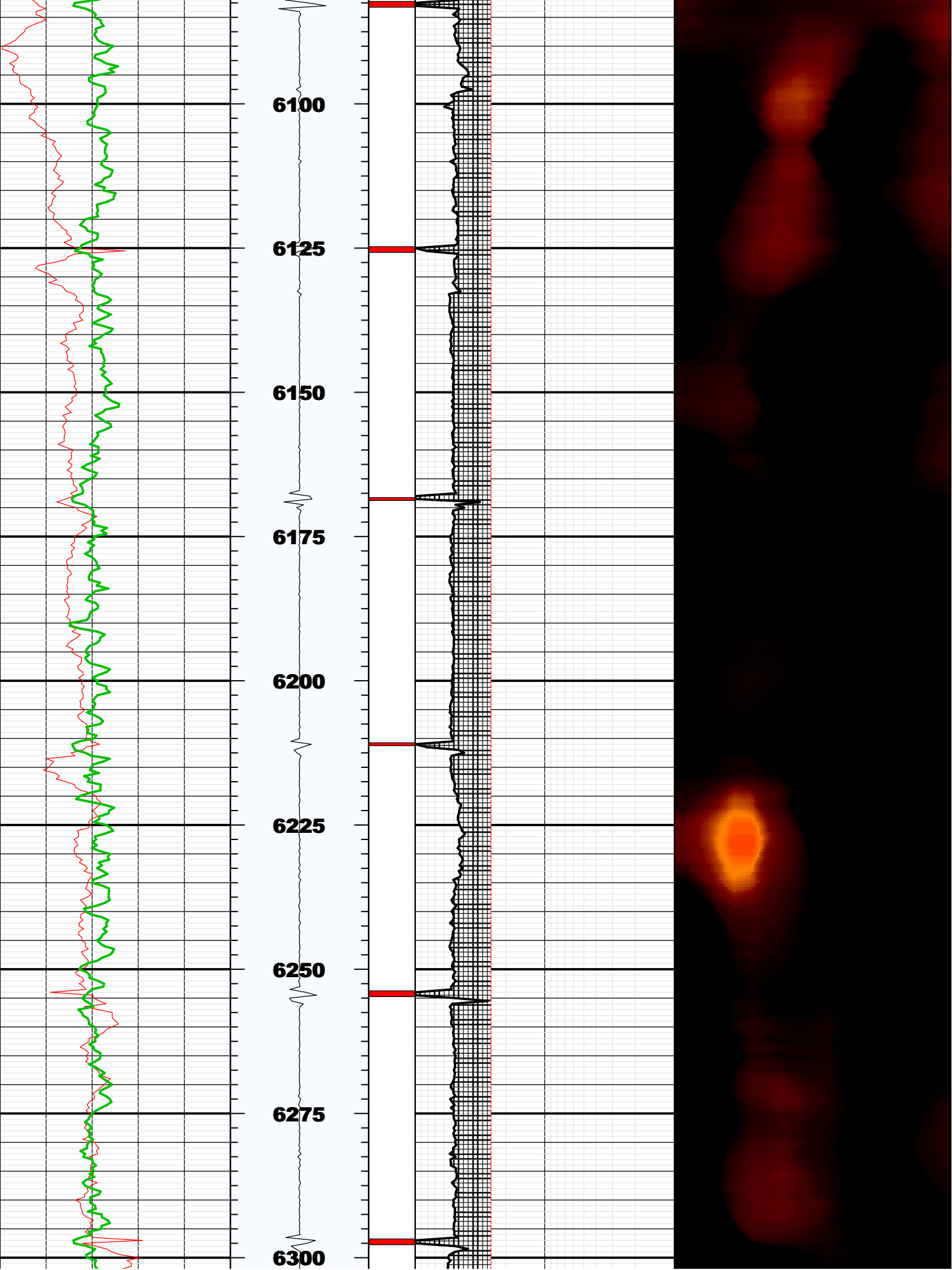


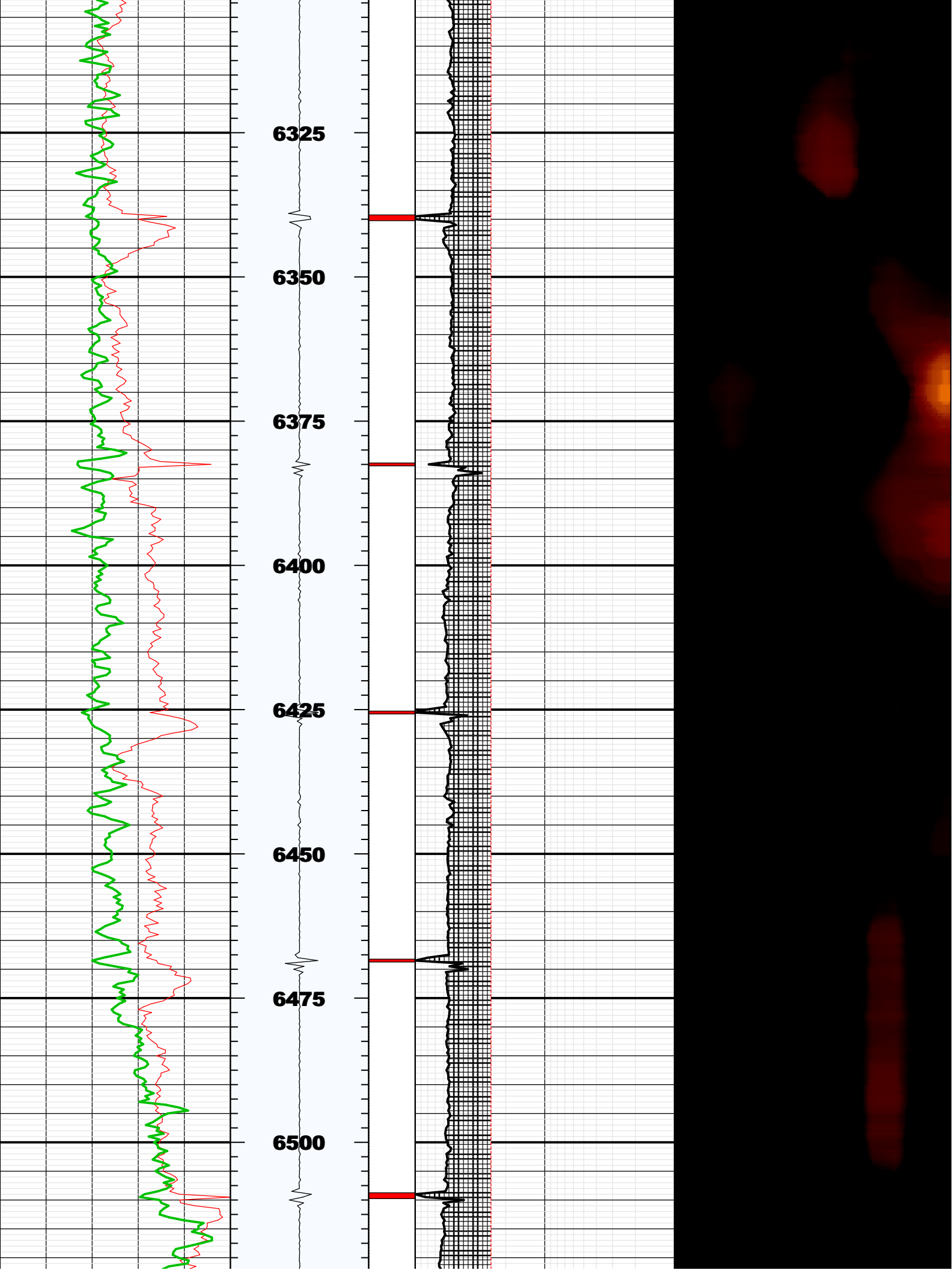




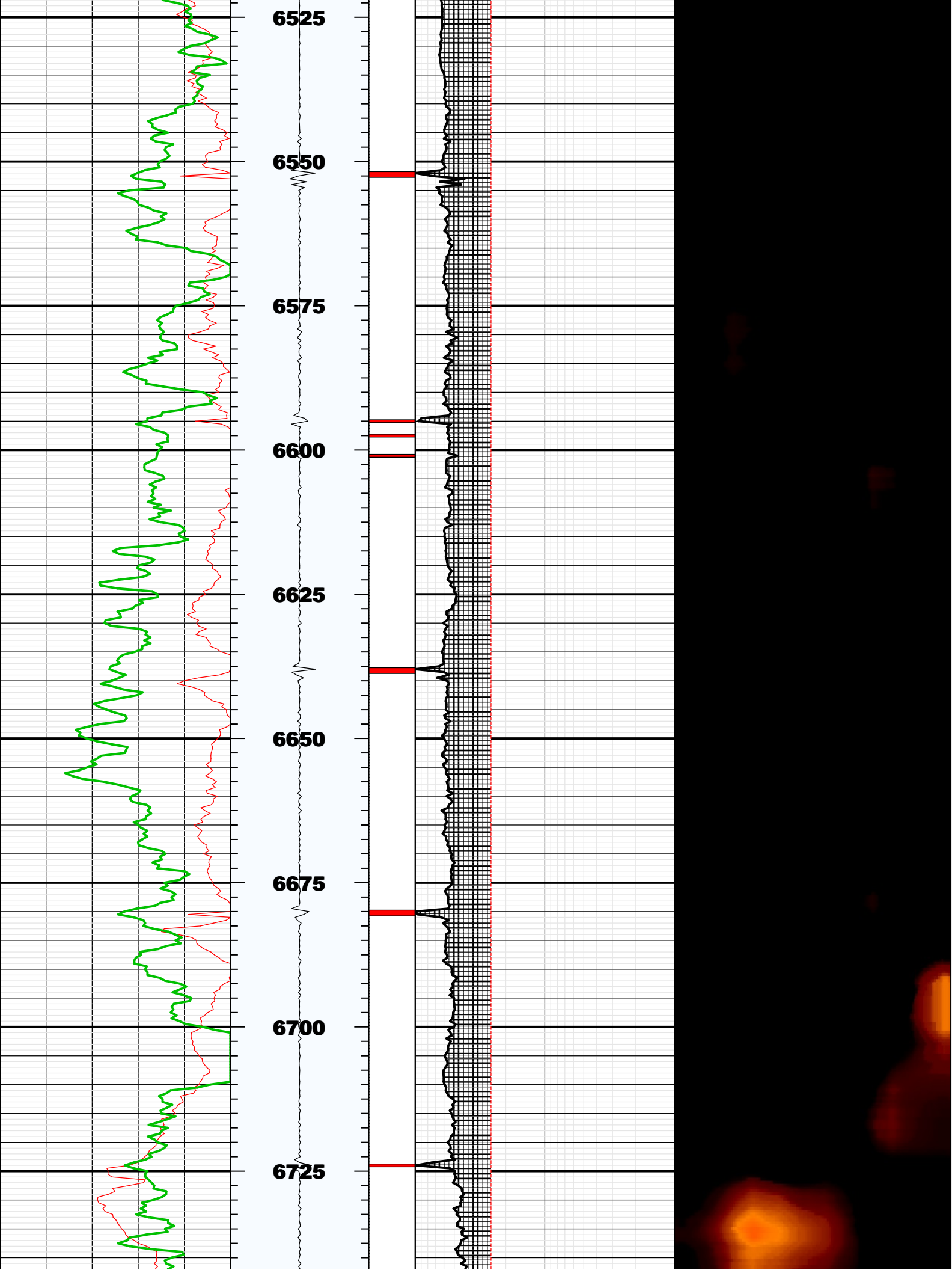


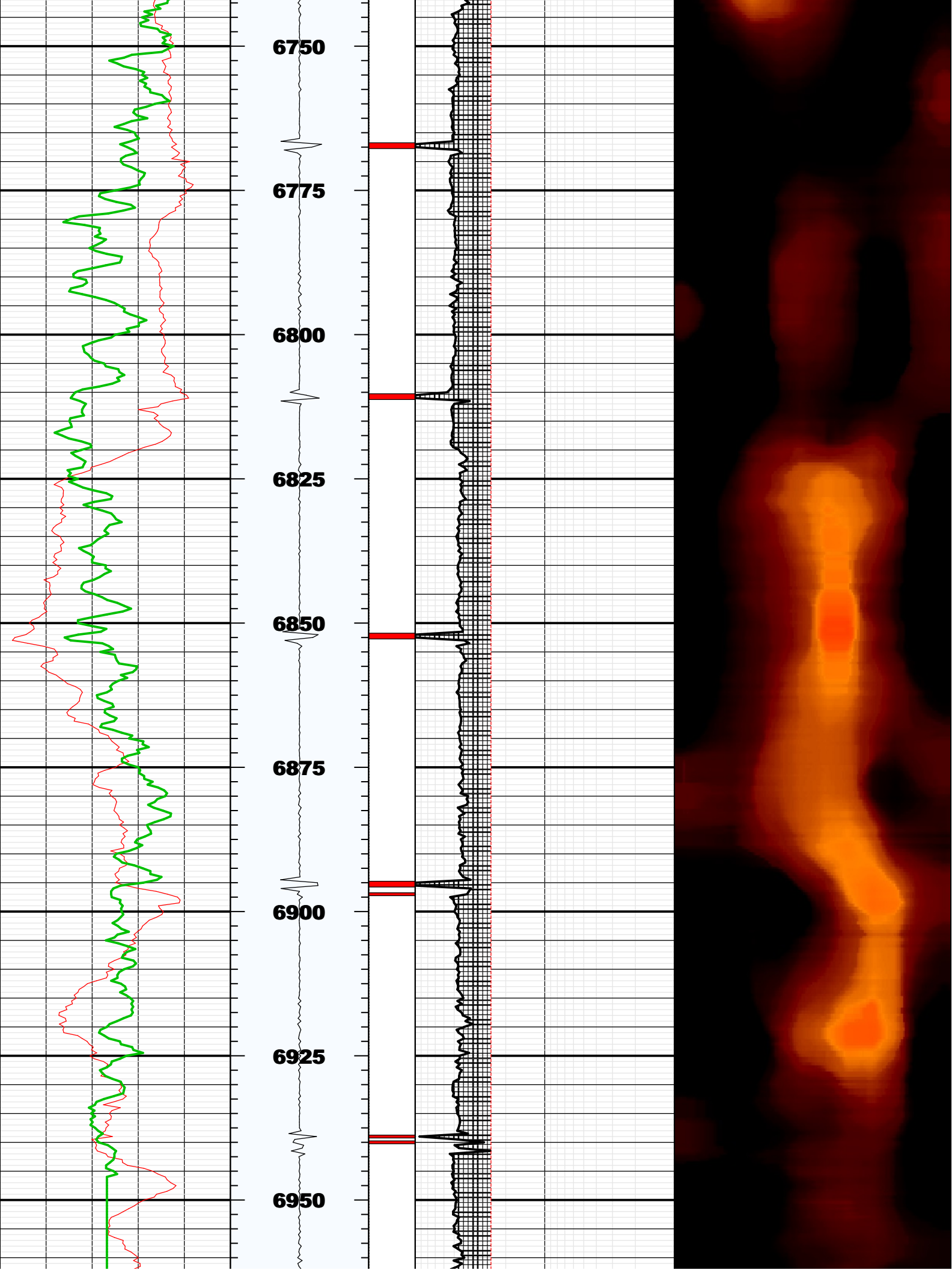


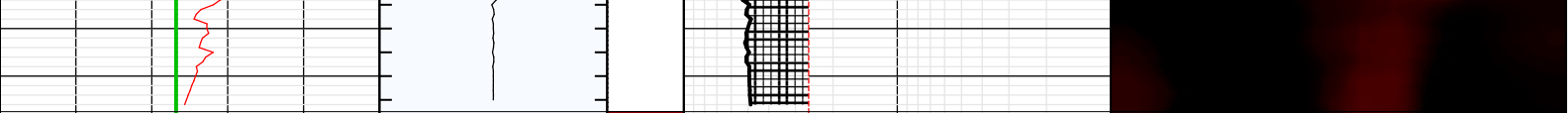








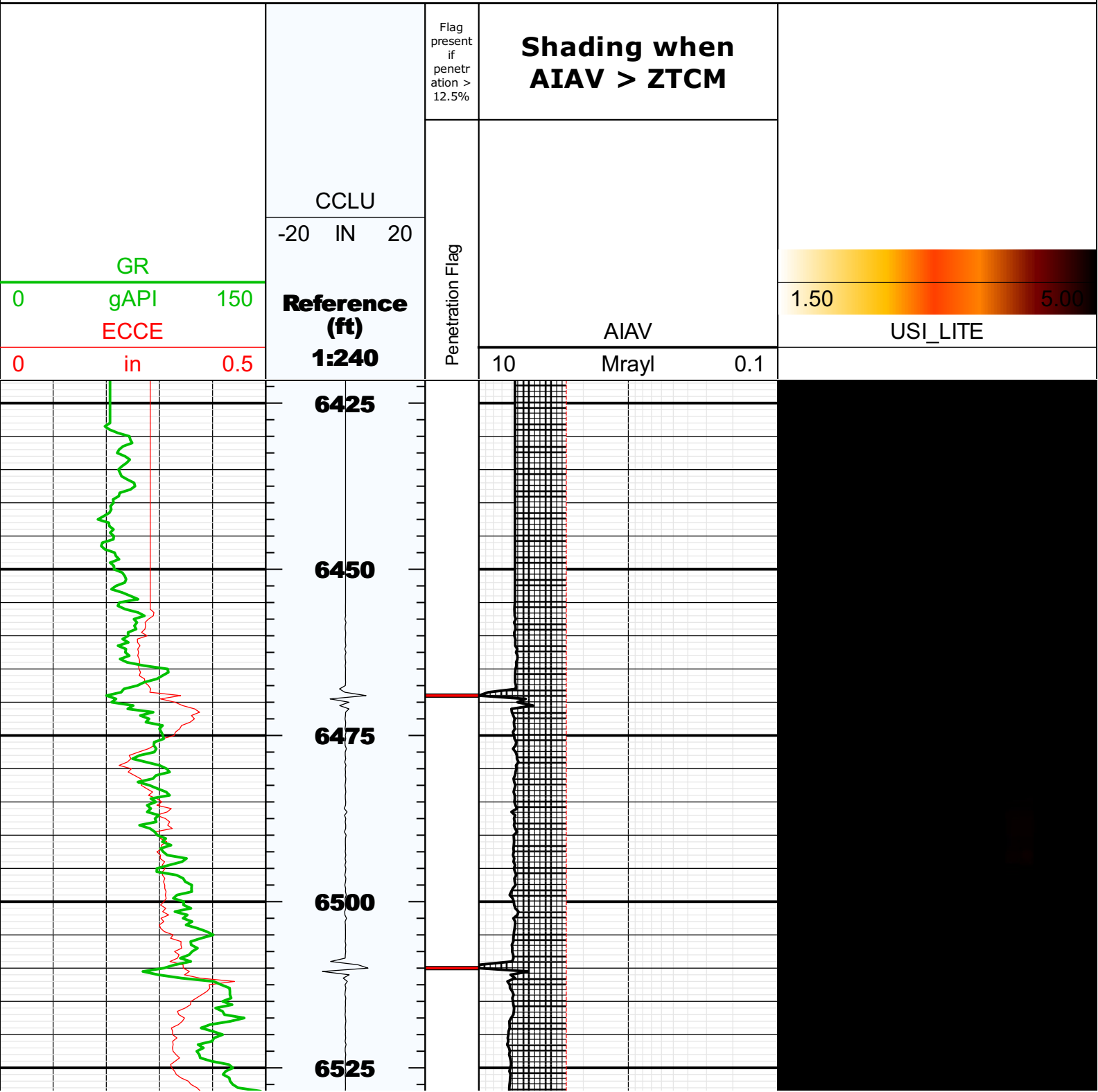


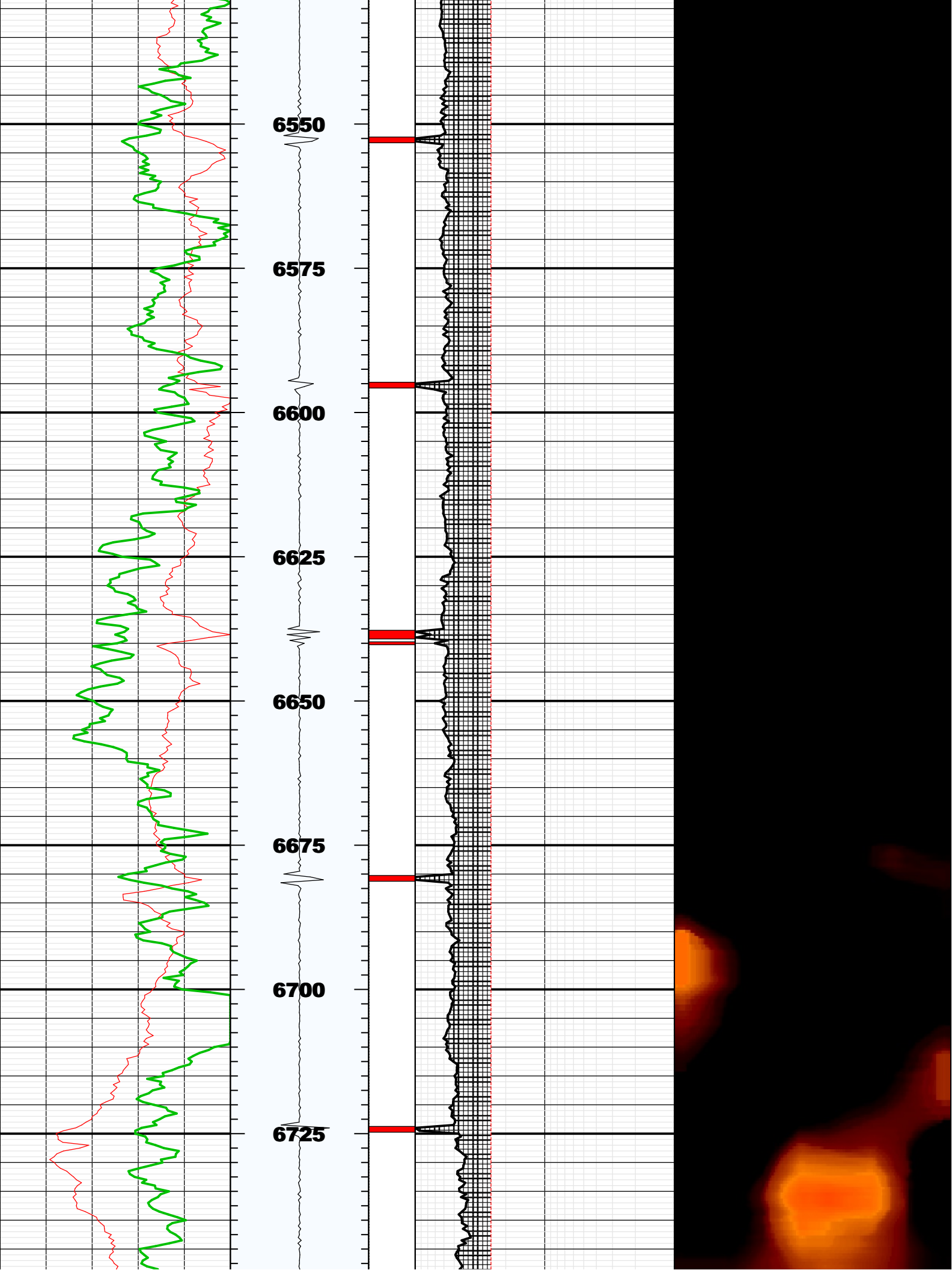


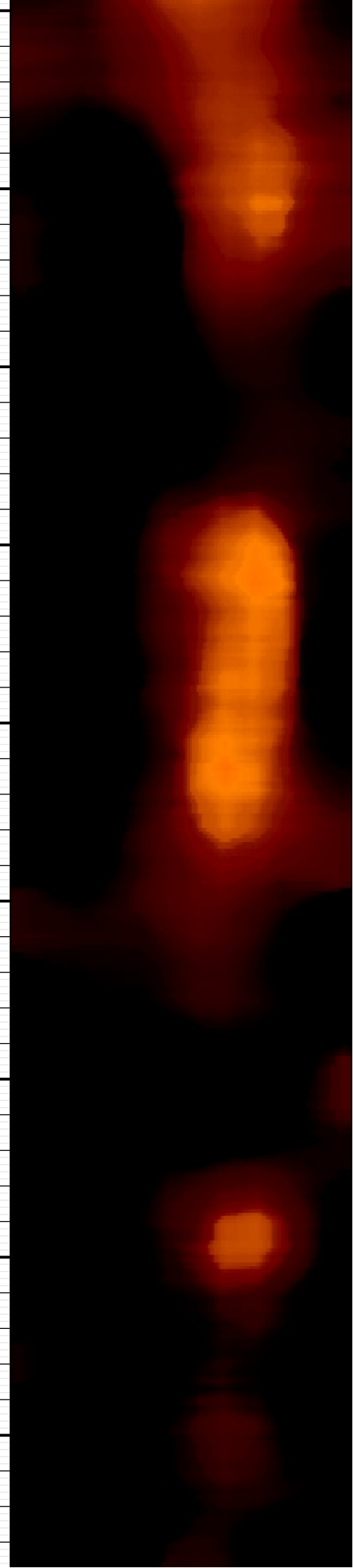
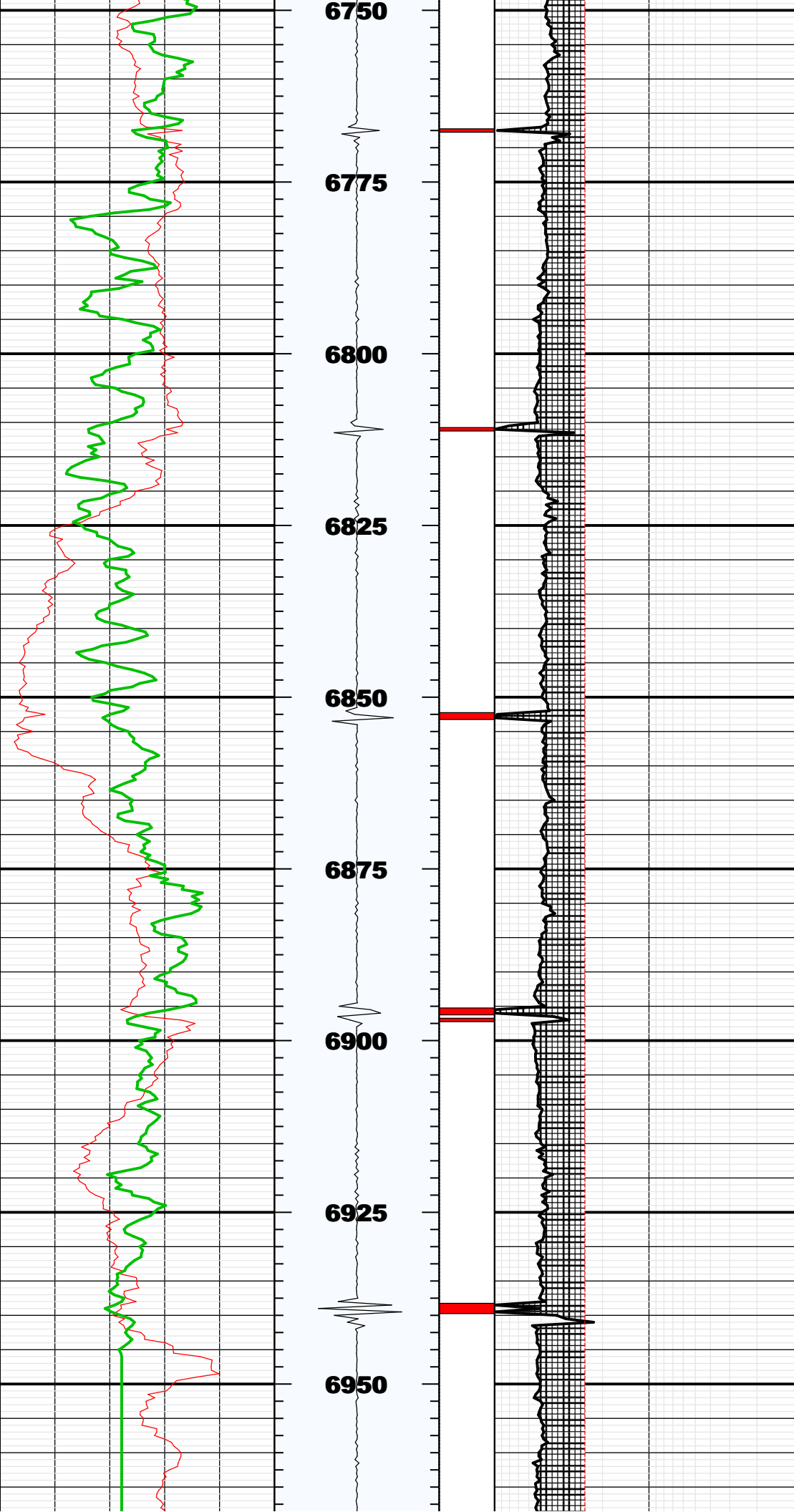
BS	8.75000	IN	Bit Size
CASG	P110		Casing Grade
CDIA	7.00000	IN	Casing Outer Diameter
CSID	6.27600	IN	Casing Inner Diameter
CSIZ	7.00000	IN	Current Casing Size
CWEI	26.00000	LB/F	Casing Weight
DFD	8.70000	LB/G	Drilling Fluid Density
DFVL	206.00000	US/F	Default Fluid Velocity
DO			
DOT	2.87400	IN	Diameter of Transducer Sensor
EMXV	62	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	32.79592	US	Window Begin Time
WINE	78.40100	US	Window End Time
ZCAS	46.25000	MRAY	Acoustic Impedance of Casing
ZINI	-1.00000	MRAY	Initial Estimate of Cement Impedance
ZMUD	1.77000	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

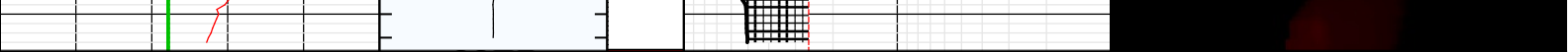
Repeat Pass

Company: Noble Energy Inc  
Well: Wells Ranch AE19-615  
Field: Wattenberg











## Fluid Properties Used for Main Pass

