

Company: Noble Energy Inc

Well: Heartland C31-78-1HN
Field: Wattenberg
County: Weld
State: Colorado

County: Weld		USI-LITE (2500 psi)	
Field: Wattenberg			
Location: SESE Sec.25 T4N R65W			
Well: Heartland C31-78-1HN			
Company: Noble Energy Inc			
LOCATION			
Permanent Datum:		Elev: K.B. 4862.0 F	
Log Measured From:		G.L. 4846.0 F	
Drilling Measured From:		D.F. 4861.0 F	
GL KB KB			
API Serial No. 05-123-39554-0000	Section 25	Township 4N	Range 65W
Logging Date	01-Oct-2014		
Run Number	Run 1 USIT		
Depth Driller	7357.0 F		
Schlumberger Depth	7222.9 F		
Bottom Log Interval	7222.9 F		
Top Log Interval	-999.2 F		
Casing Fluid Level	8.0 F		
Salinity			
Density	8.40 LB/G		
Fluid Level	8.0 F		
BIT/CASING/TUBING STRING			
Bit Size	8.750 IN		
From	7222.9 F		
To	-999.2 F		
Casing Size	7.00 IN		
Weight	26.00 LB/F		
Grade	P110		
From	0.0 F		
To	7346.9 F		
Max Recorded Temp	243.0		
Logger on bottom (date)	01-Oct-2014		
Location	Ft. Morgan		
Recorded By	Danielle Maniere		
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: 2858 Calibration Date: Calibrator Serial Number: Number Of Calibration Points: Calibration RMS: Calibration Peak Error:	Serial Number: F713711 Length: 11800.00000

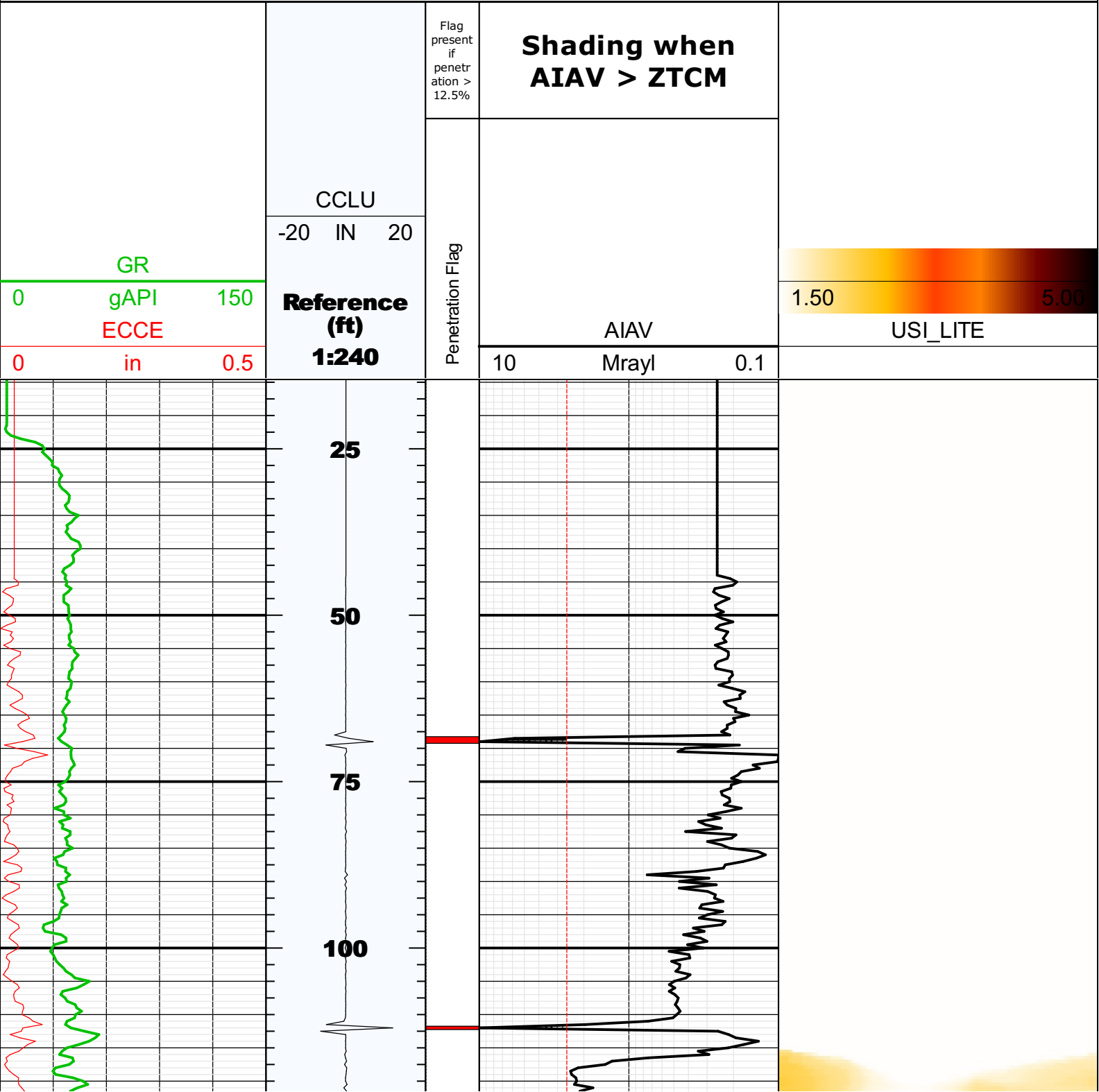
DISCLAIMER

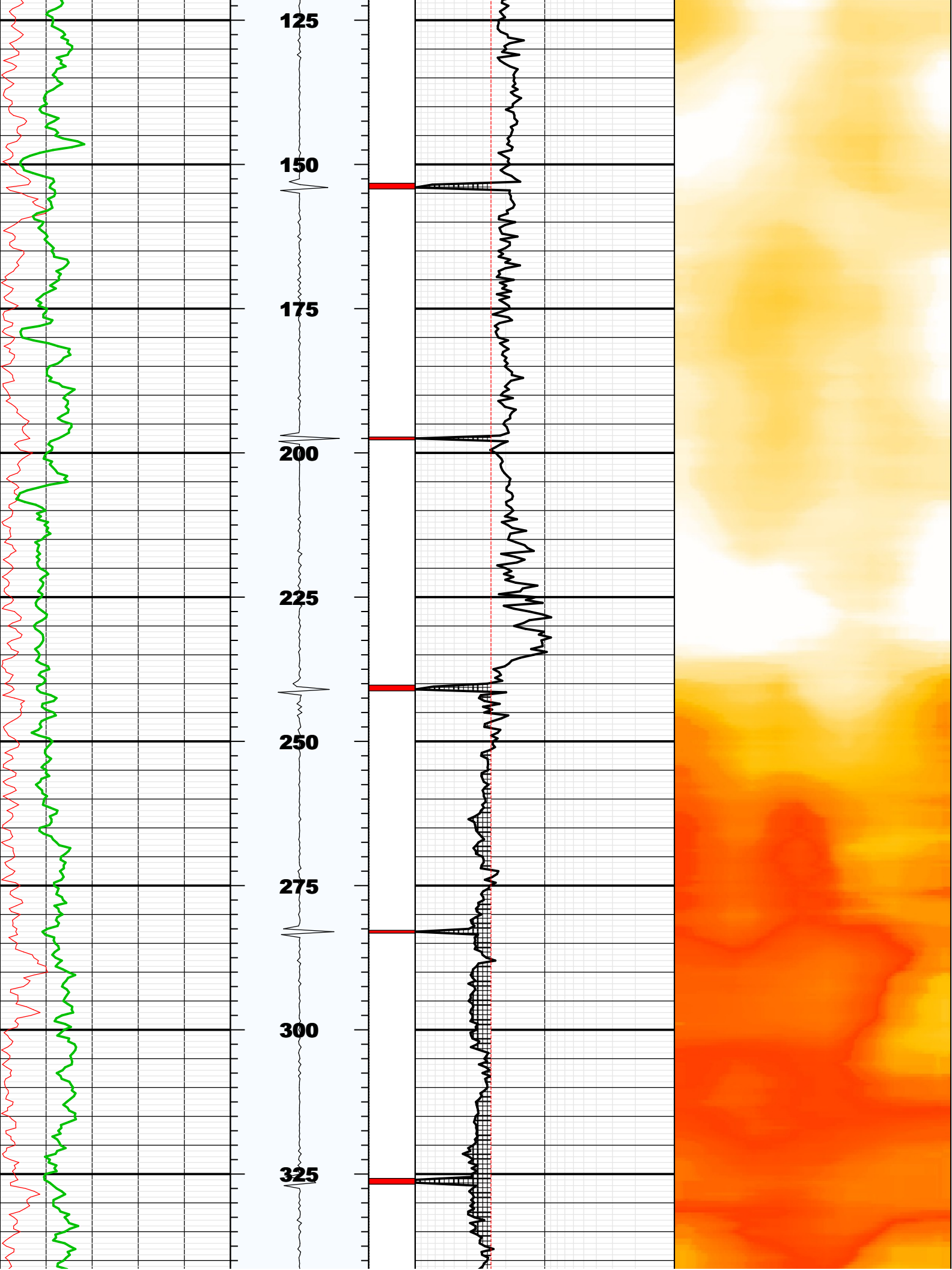
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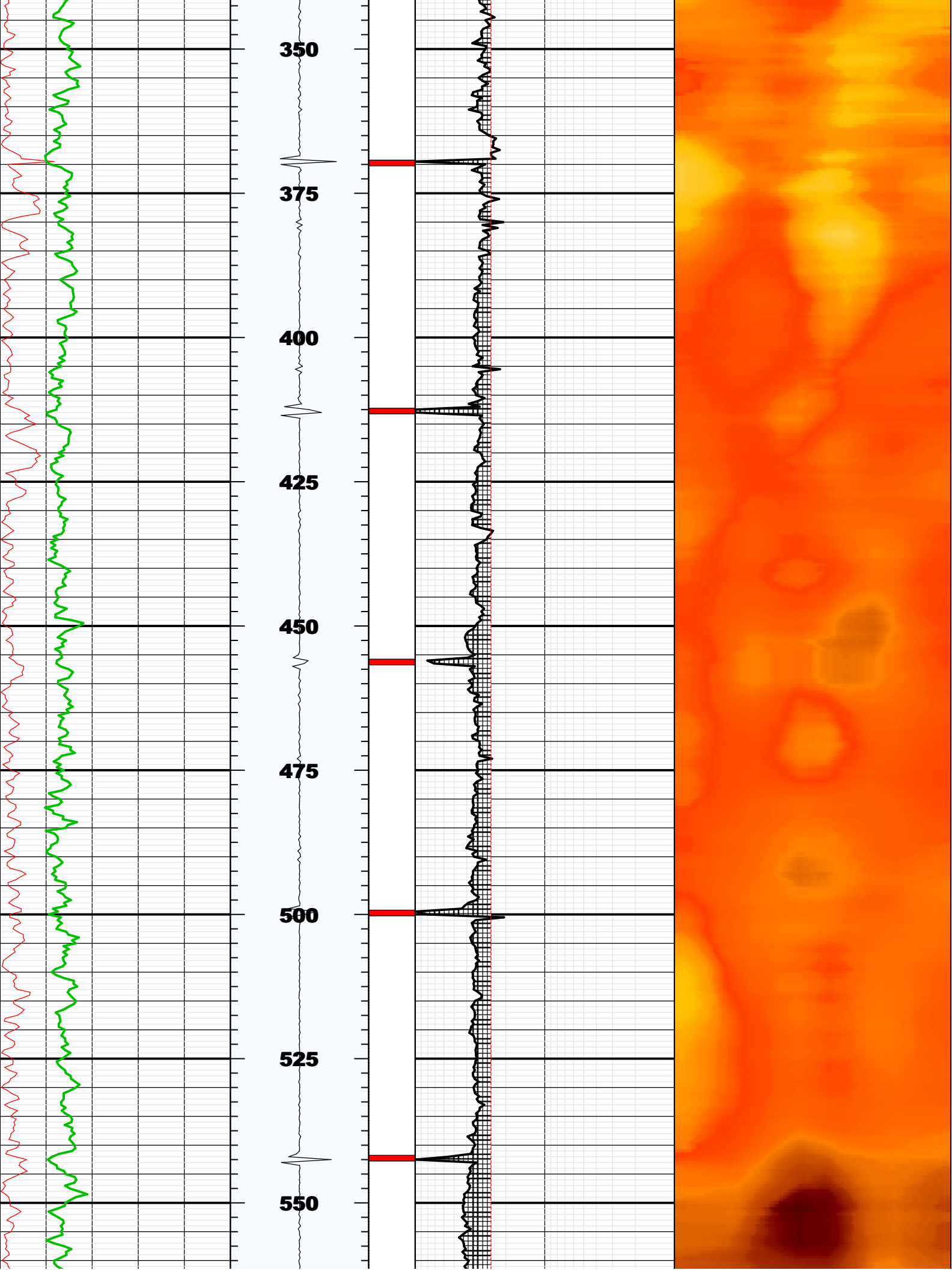
First run in hole procedures followed.
Tool string run as per tool sketch
12.5 ppg lead cement.
13.8 ppg tail cement.
0psi repeat pass
2500 psi main pass
Logged from 20ft above top of liner at 7243'.
Bottom log temperature 243 degF
Top of cement 230ft
Crew Derrick Hunter Tyler Riter

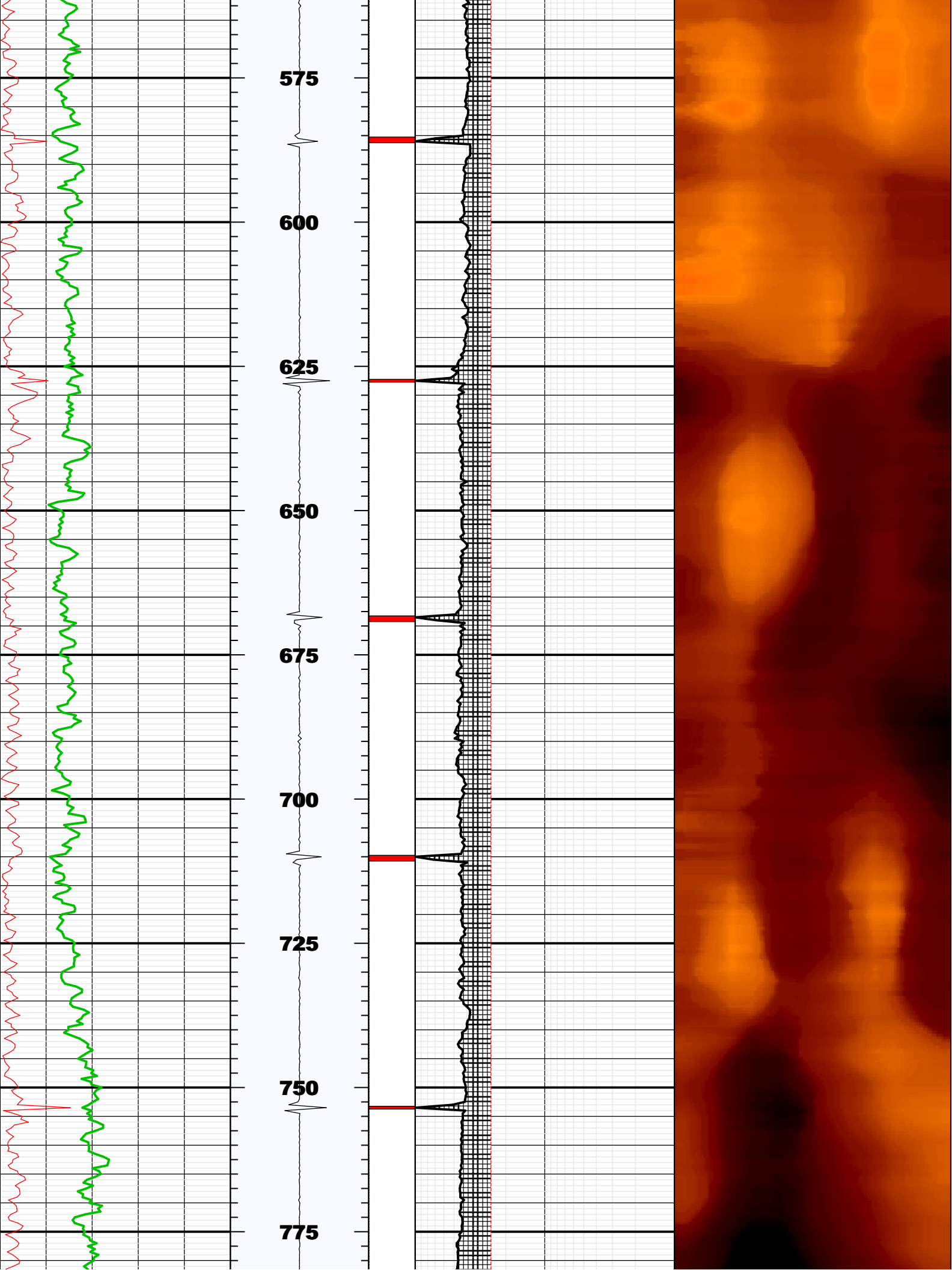
Main Pass

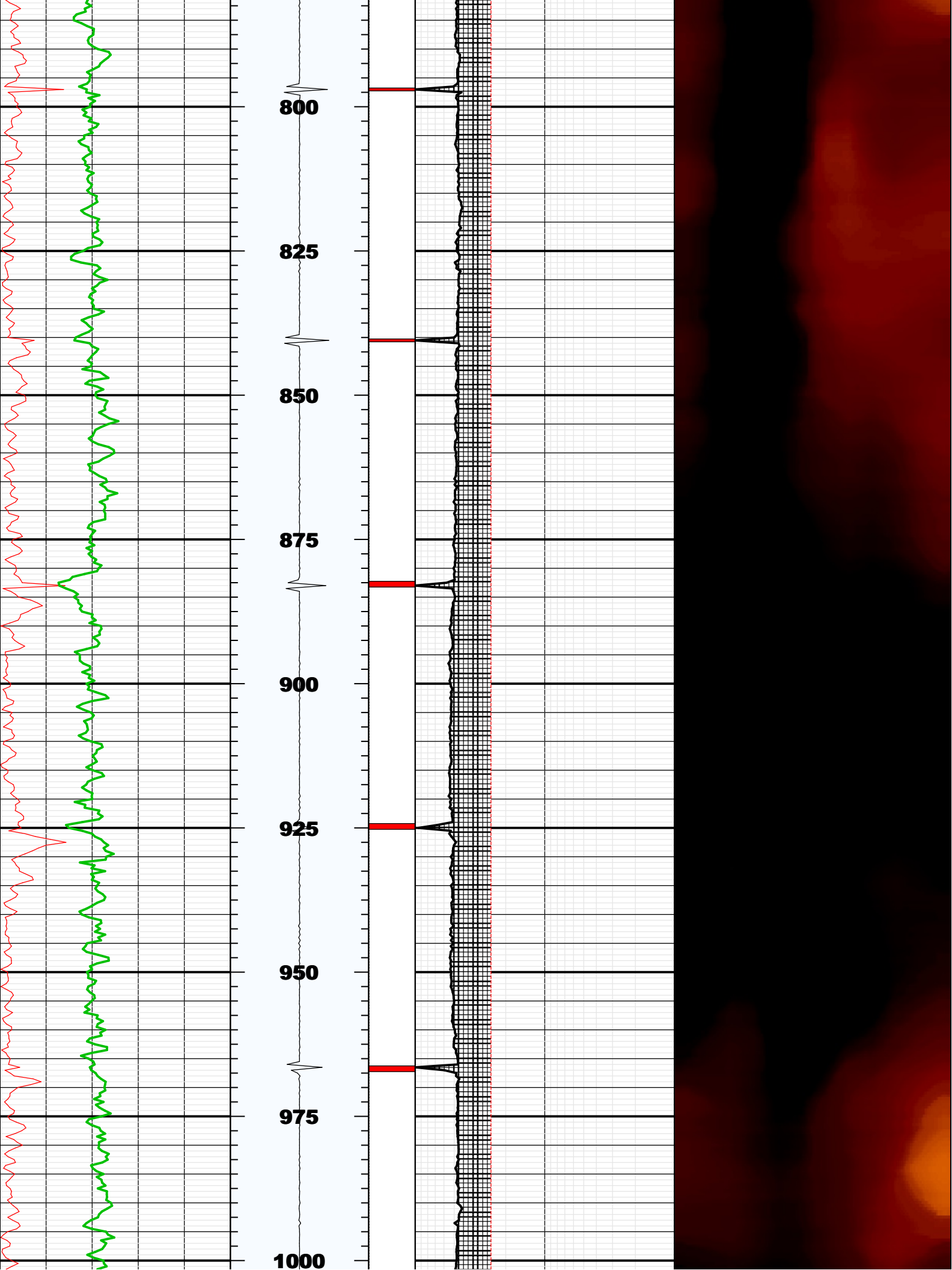
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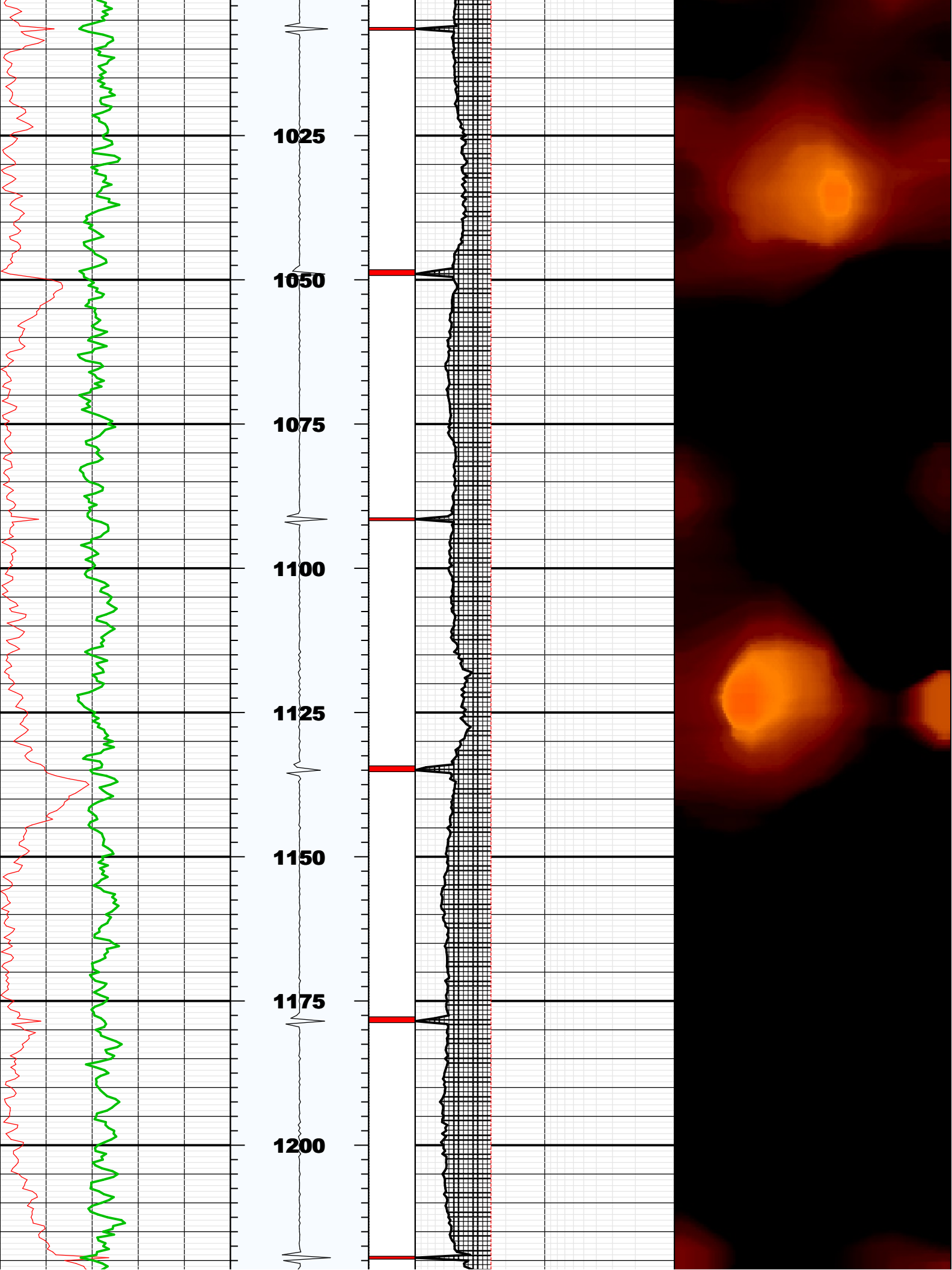


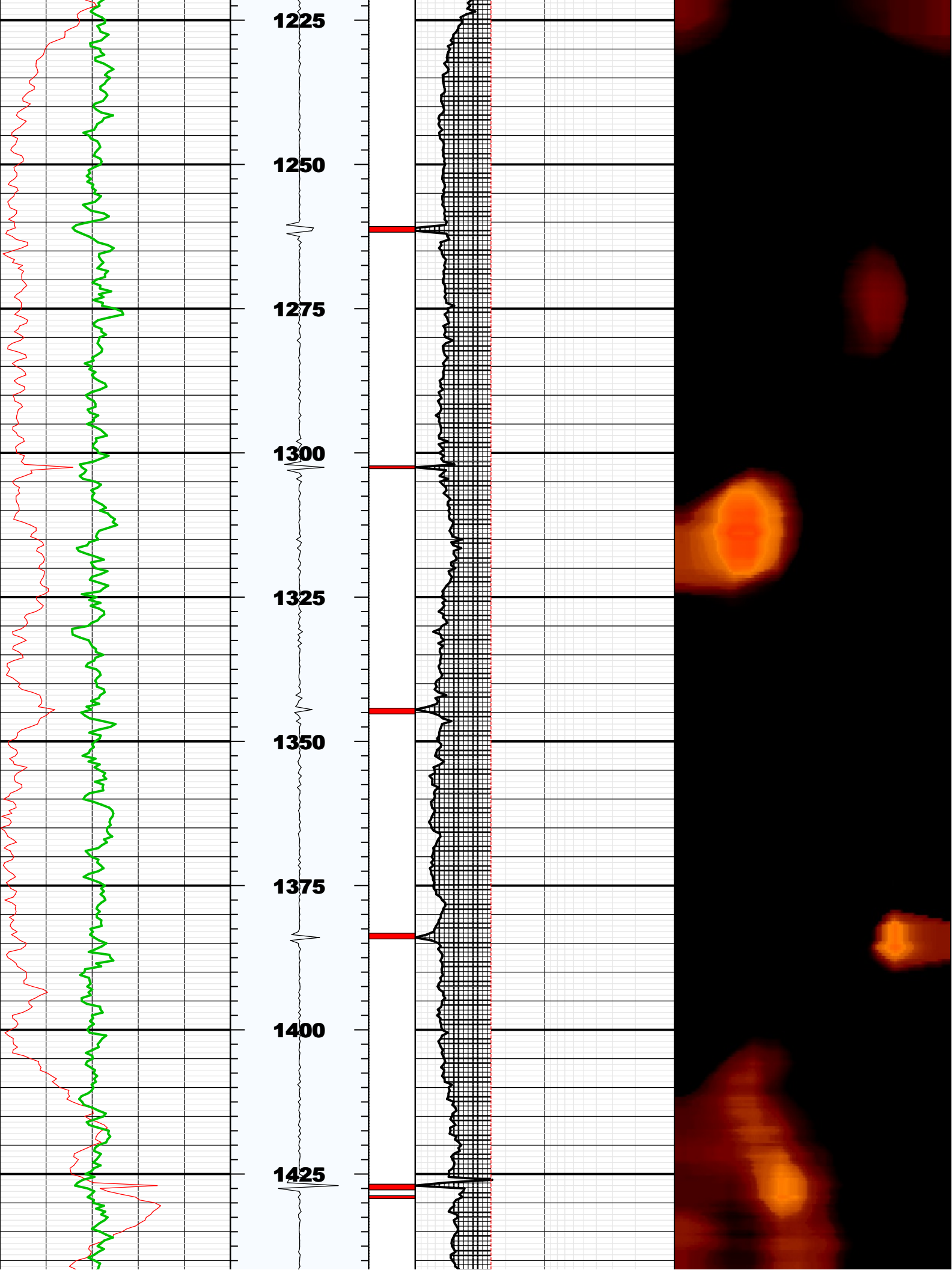


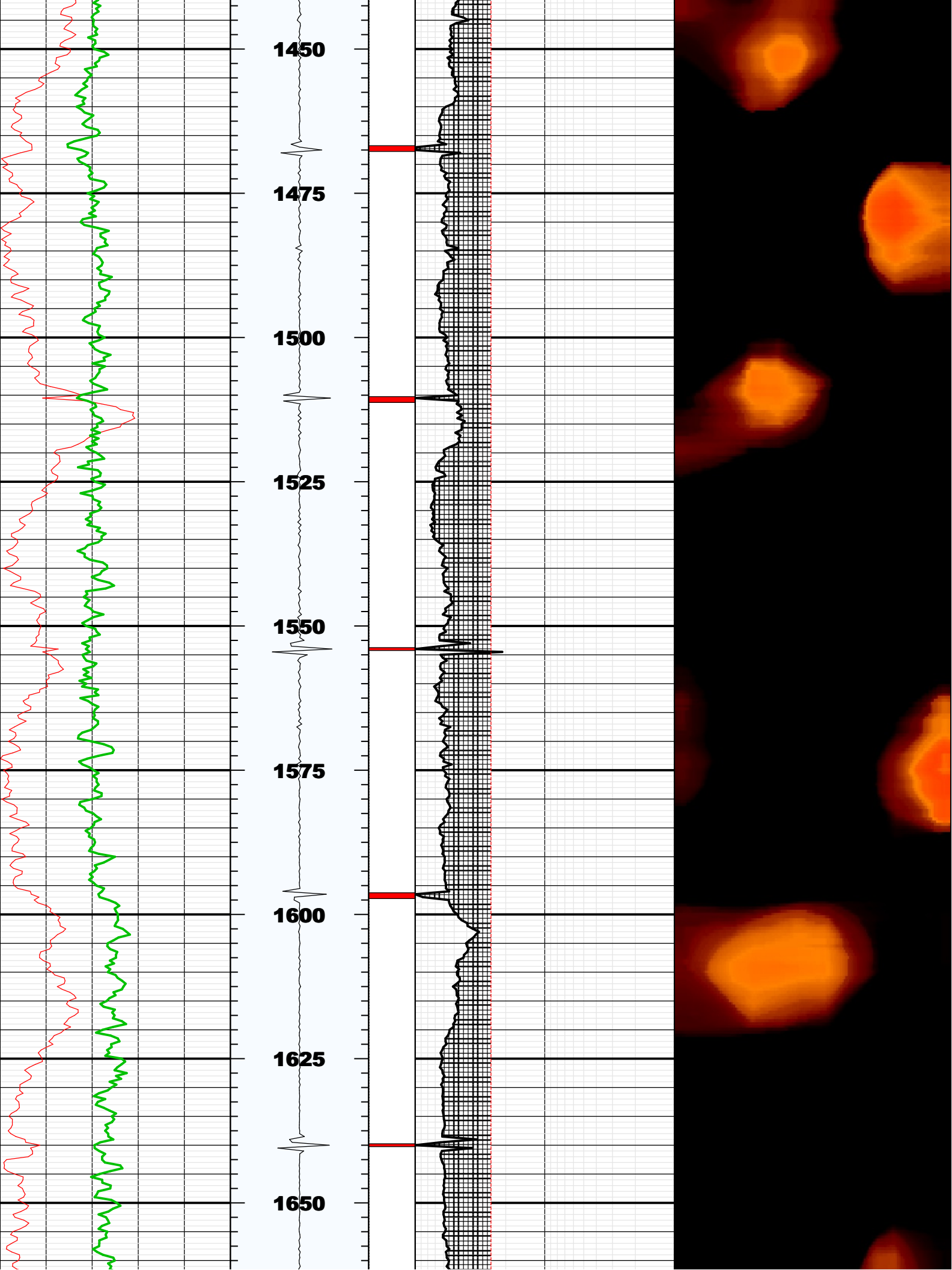


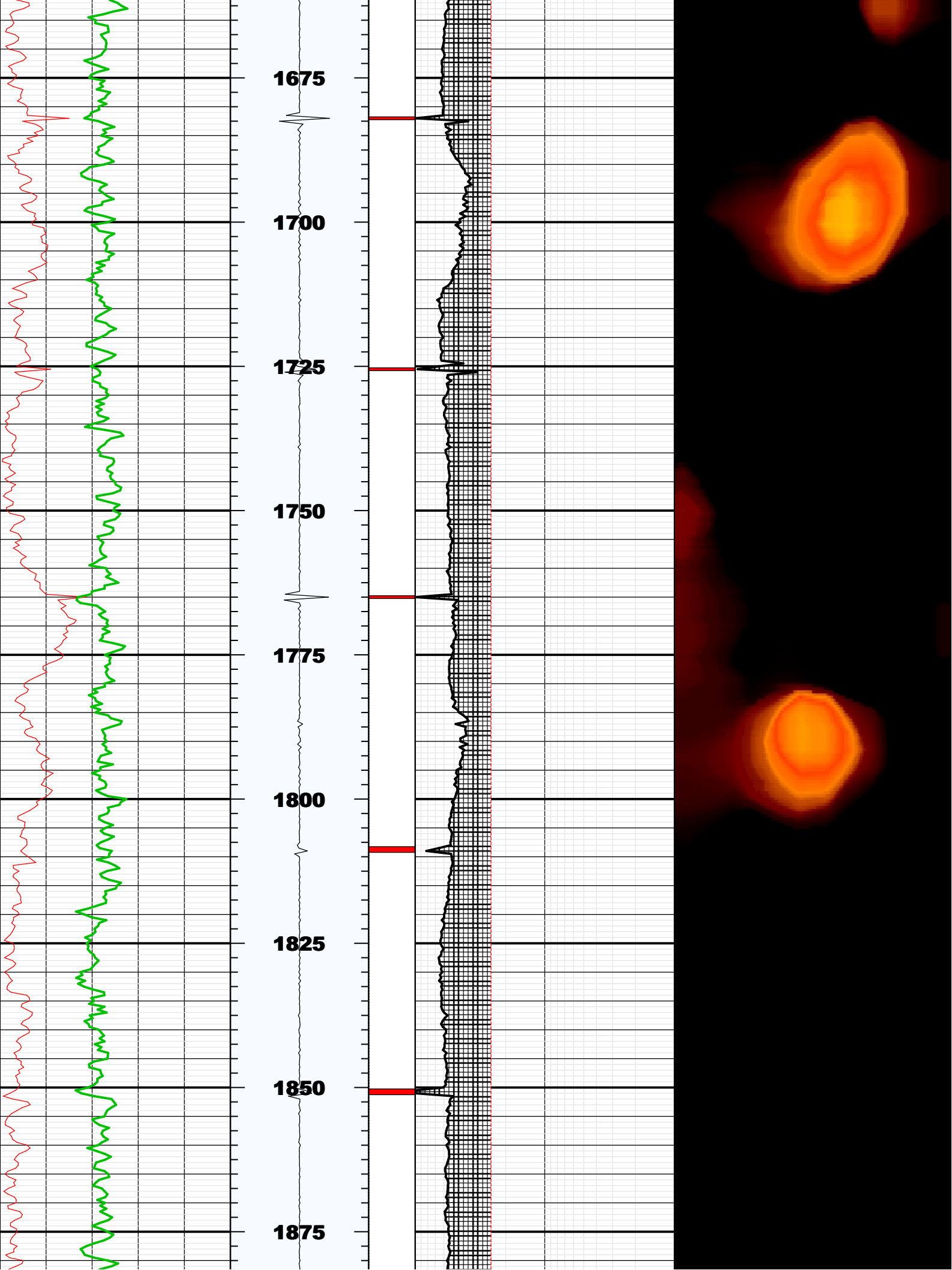


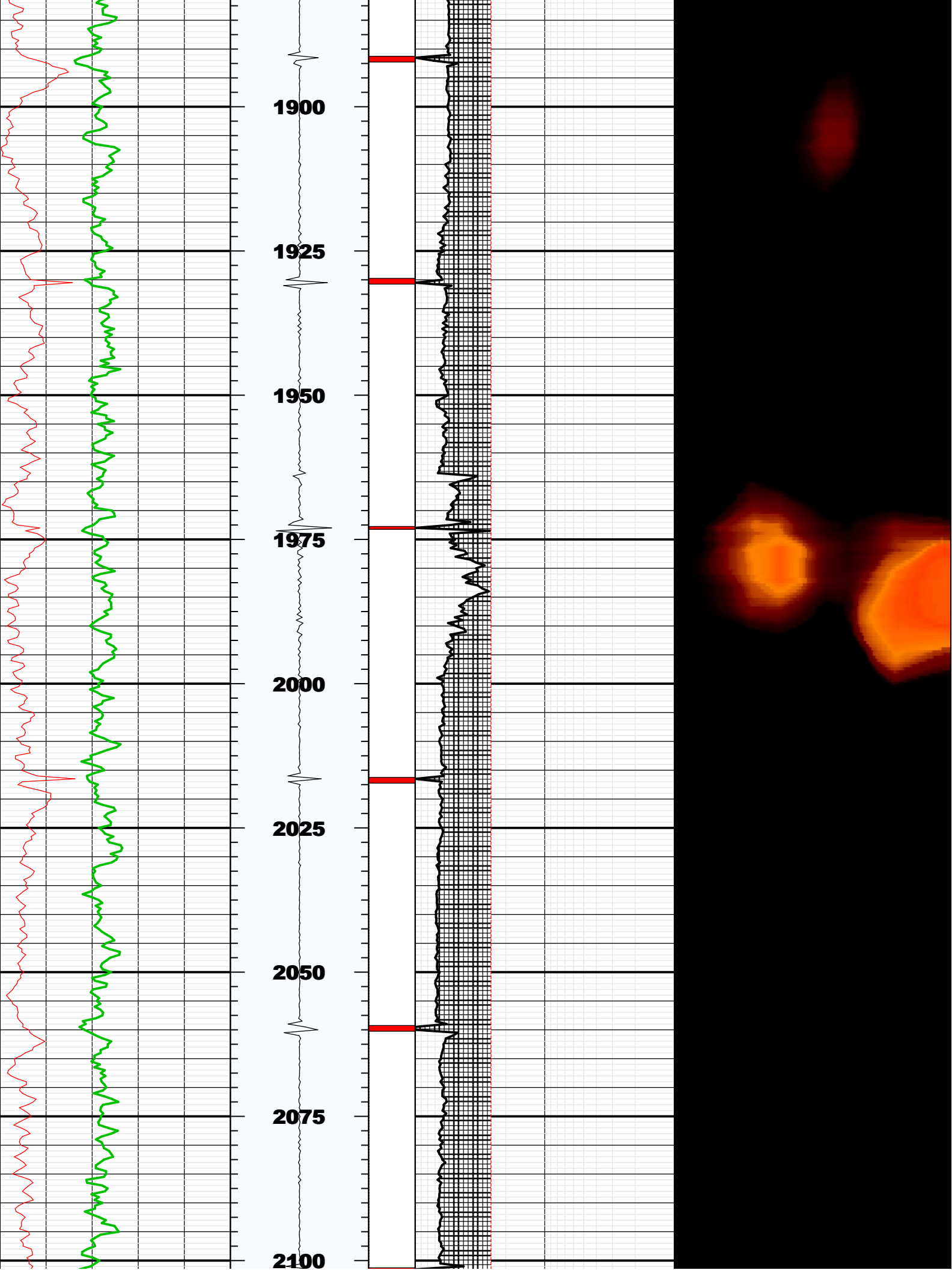


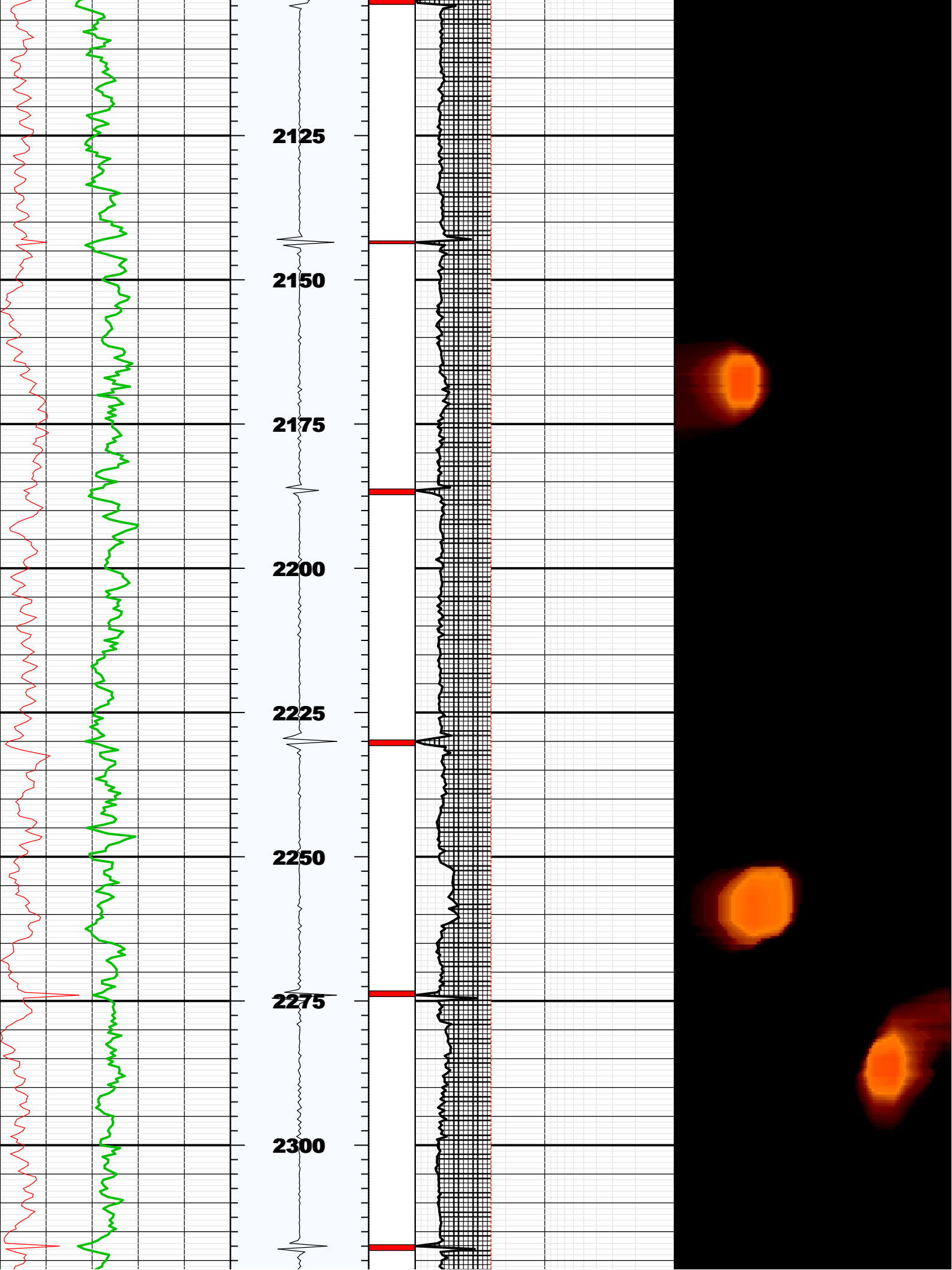


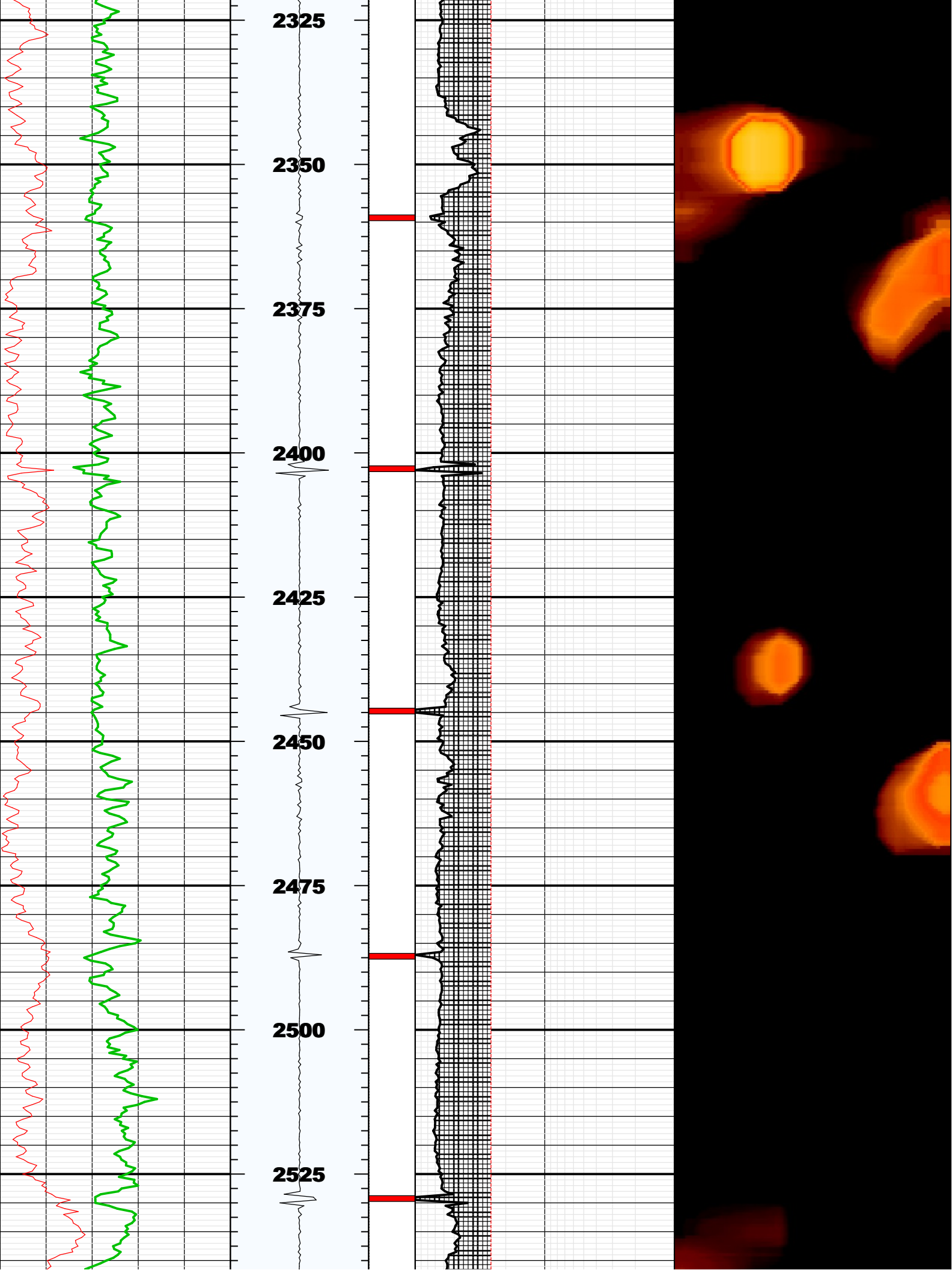


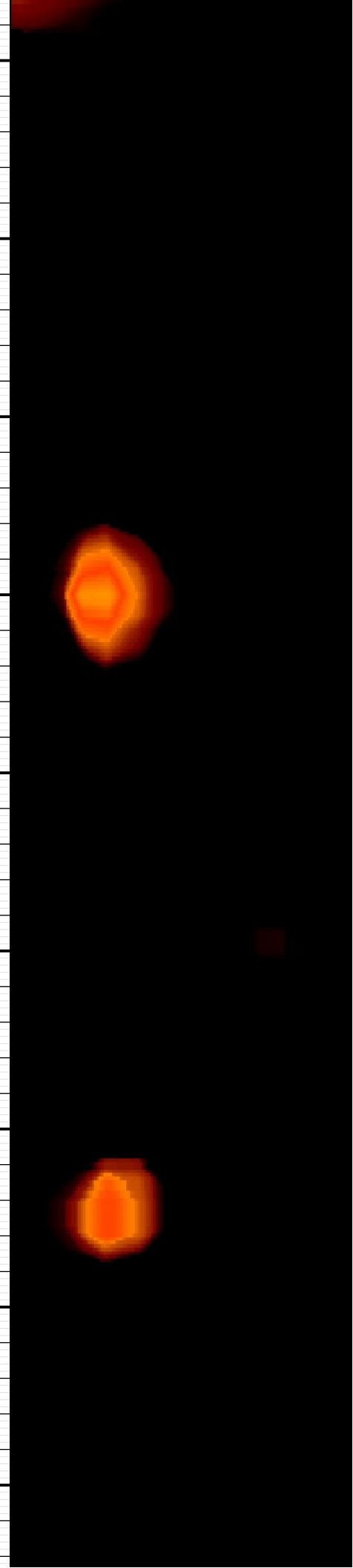
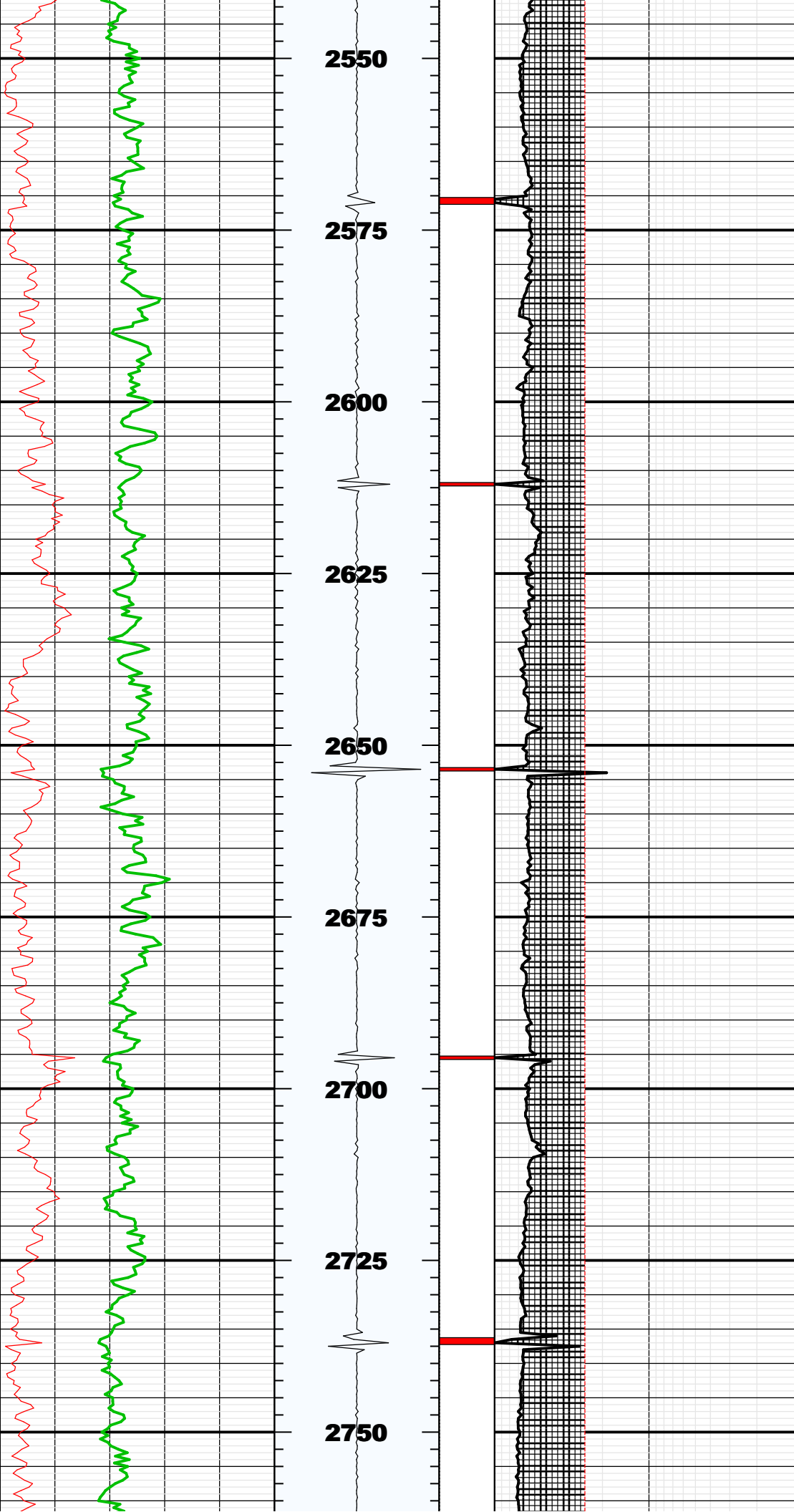


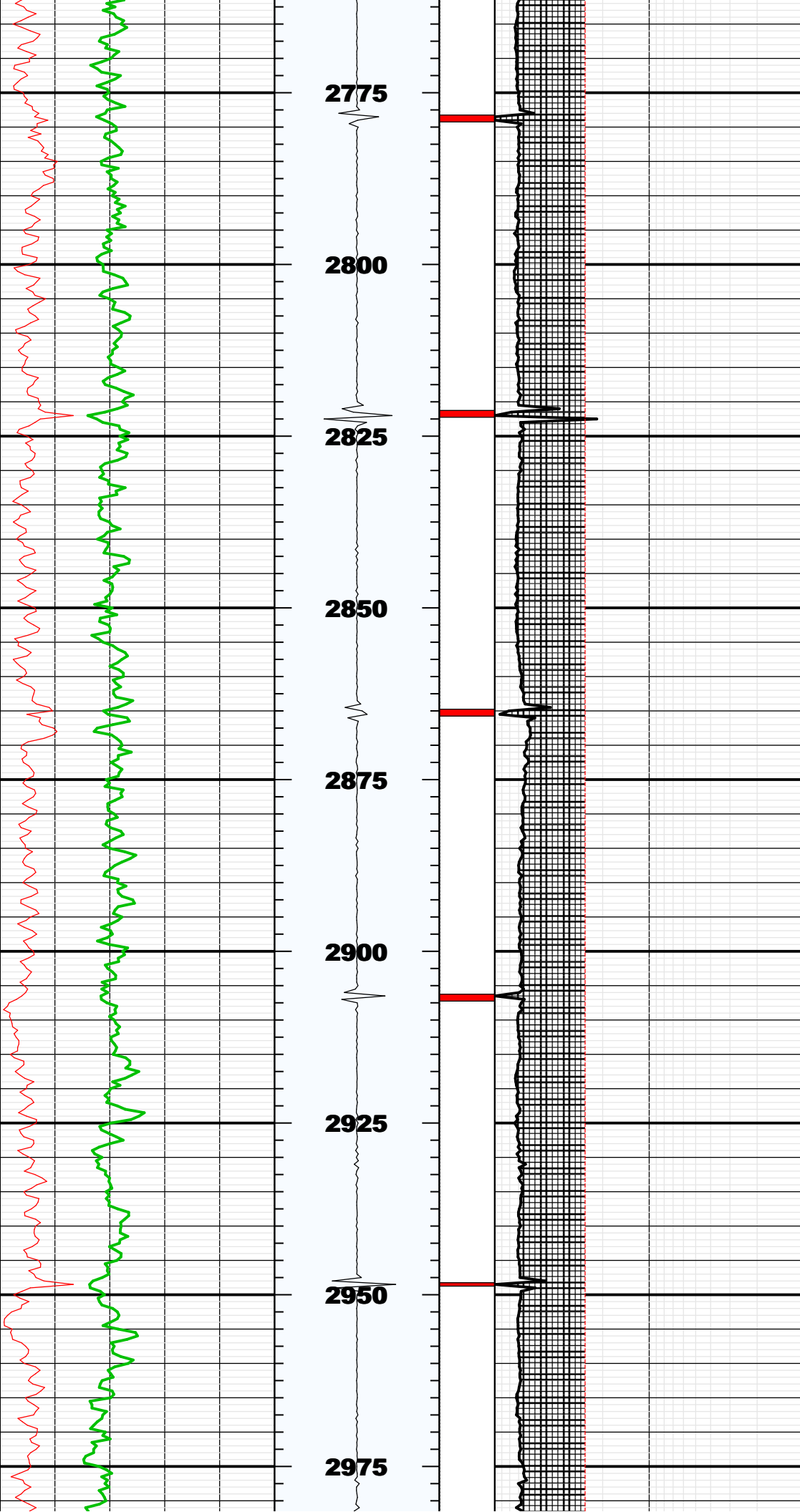


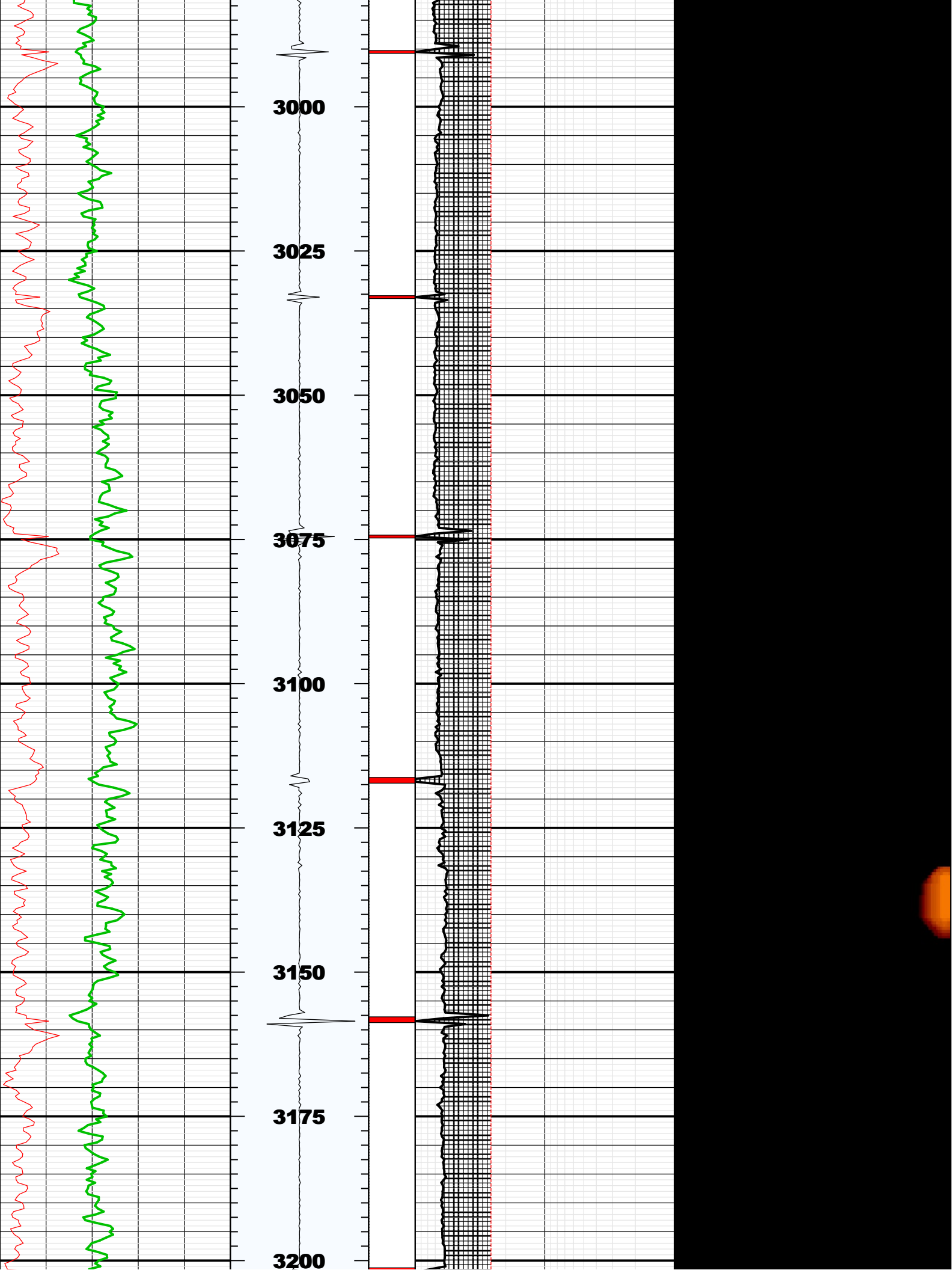


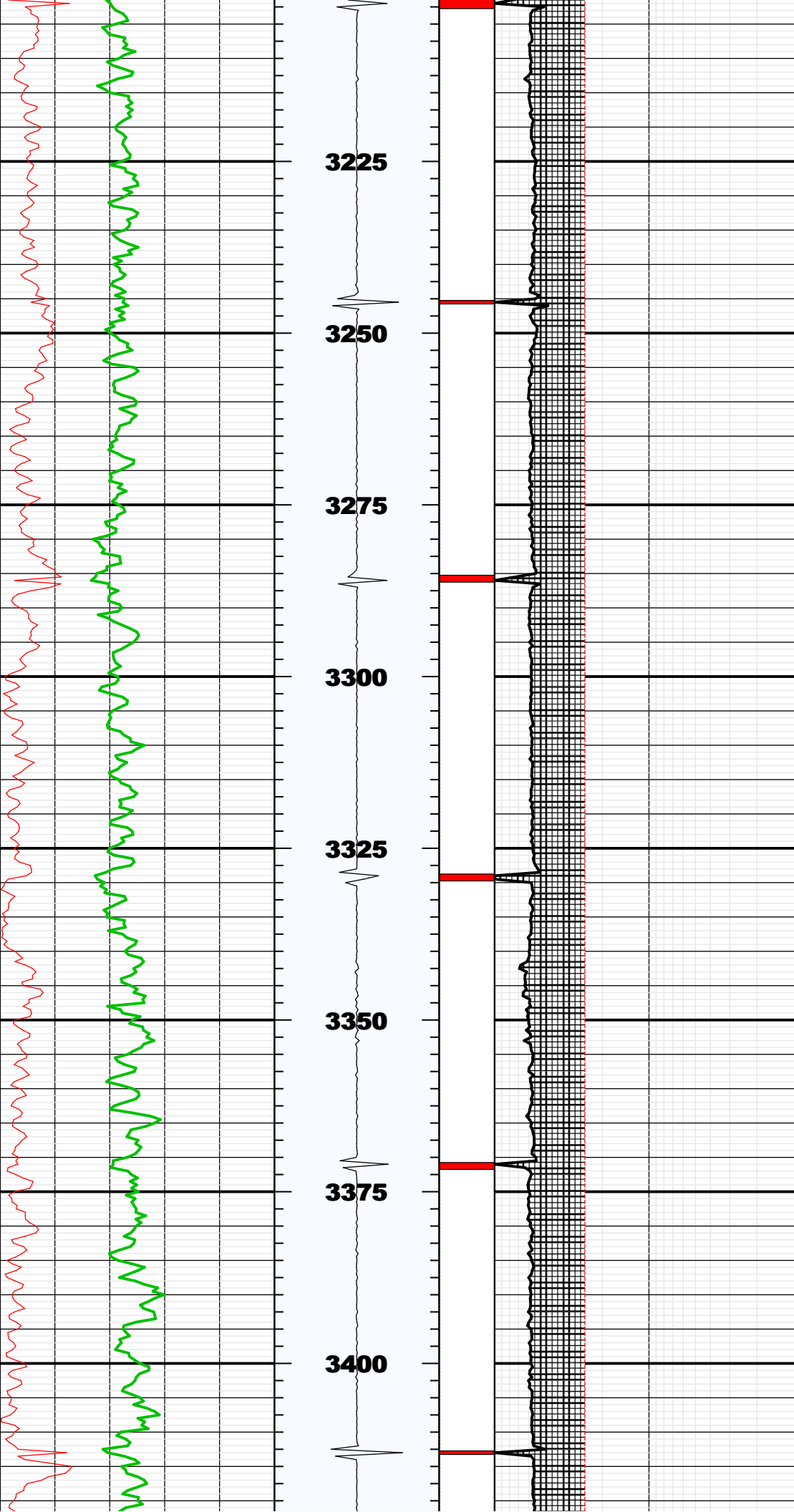


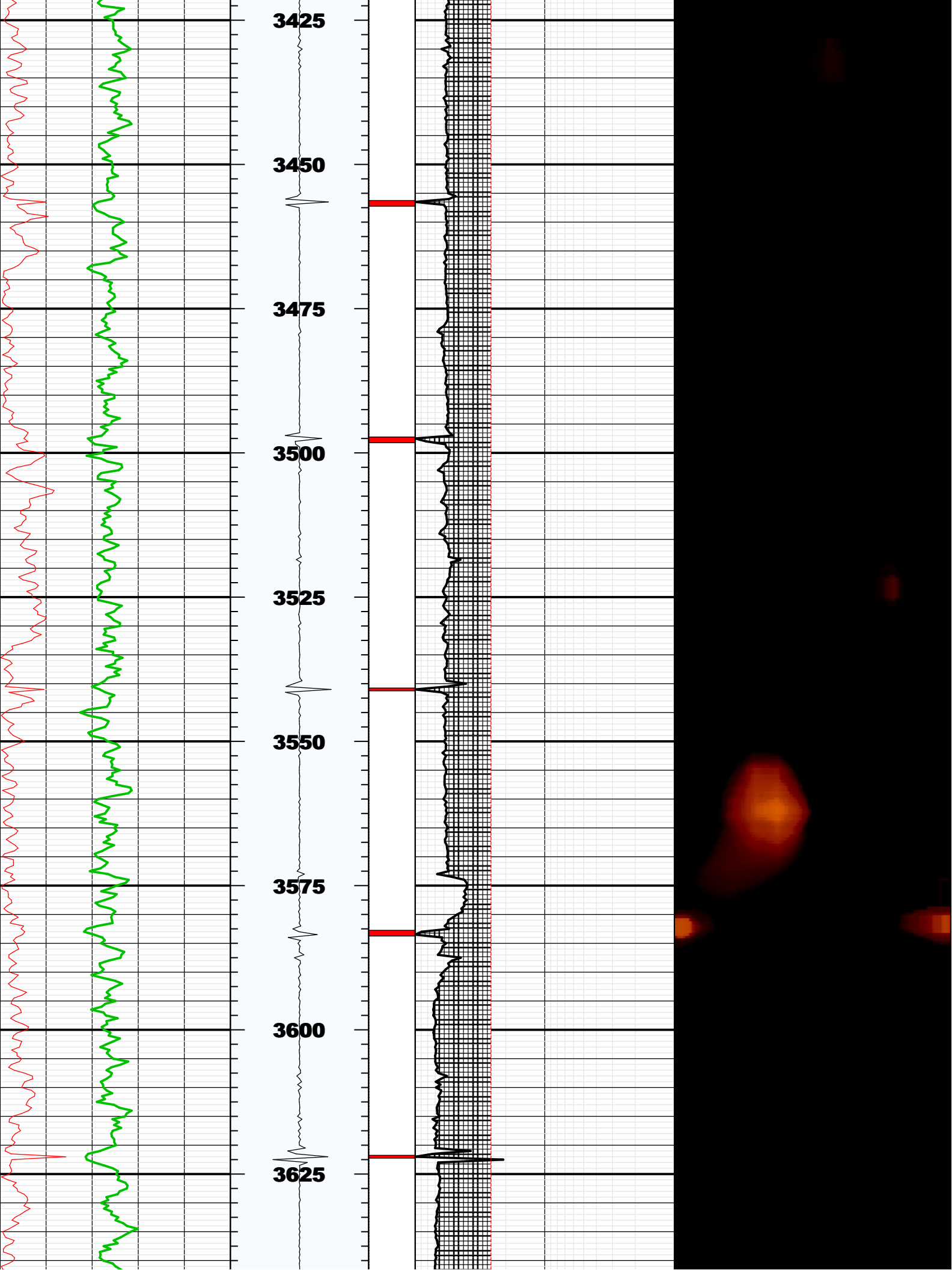


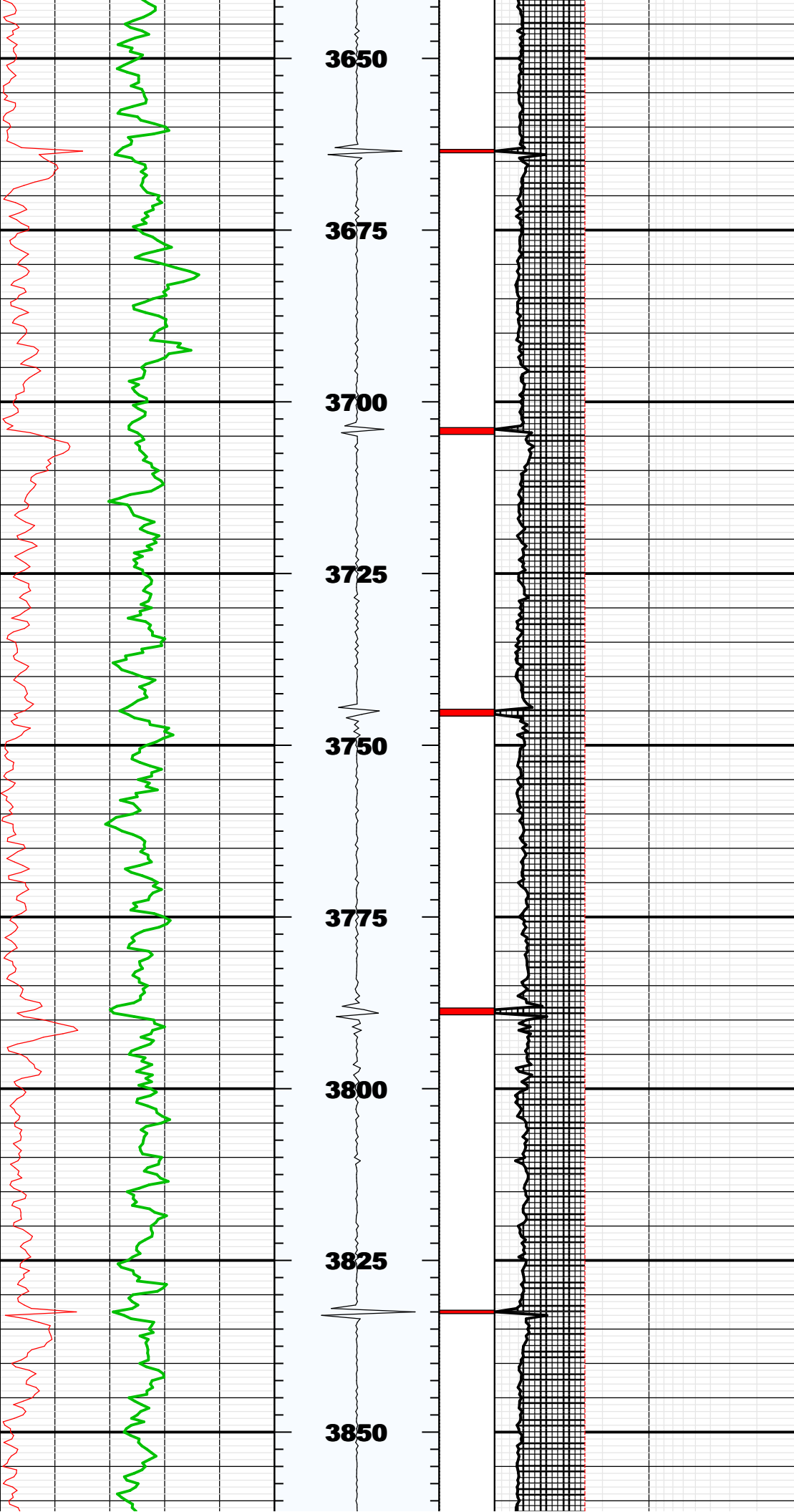


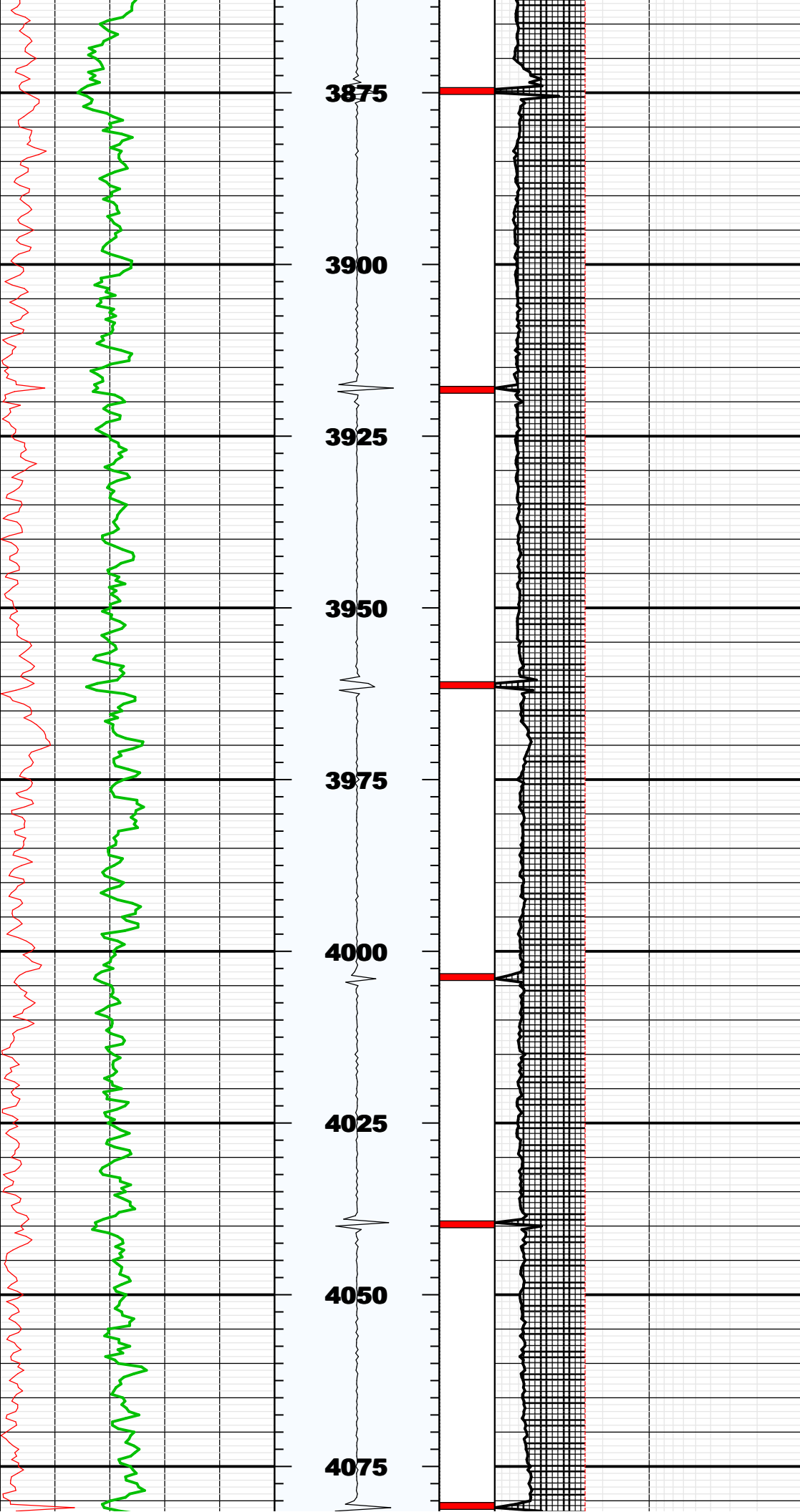


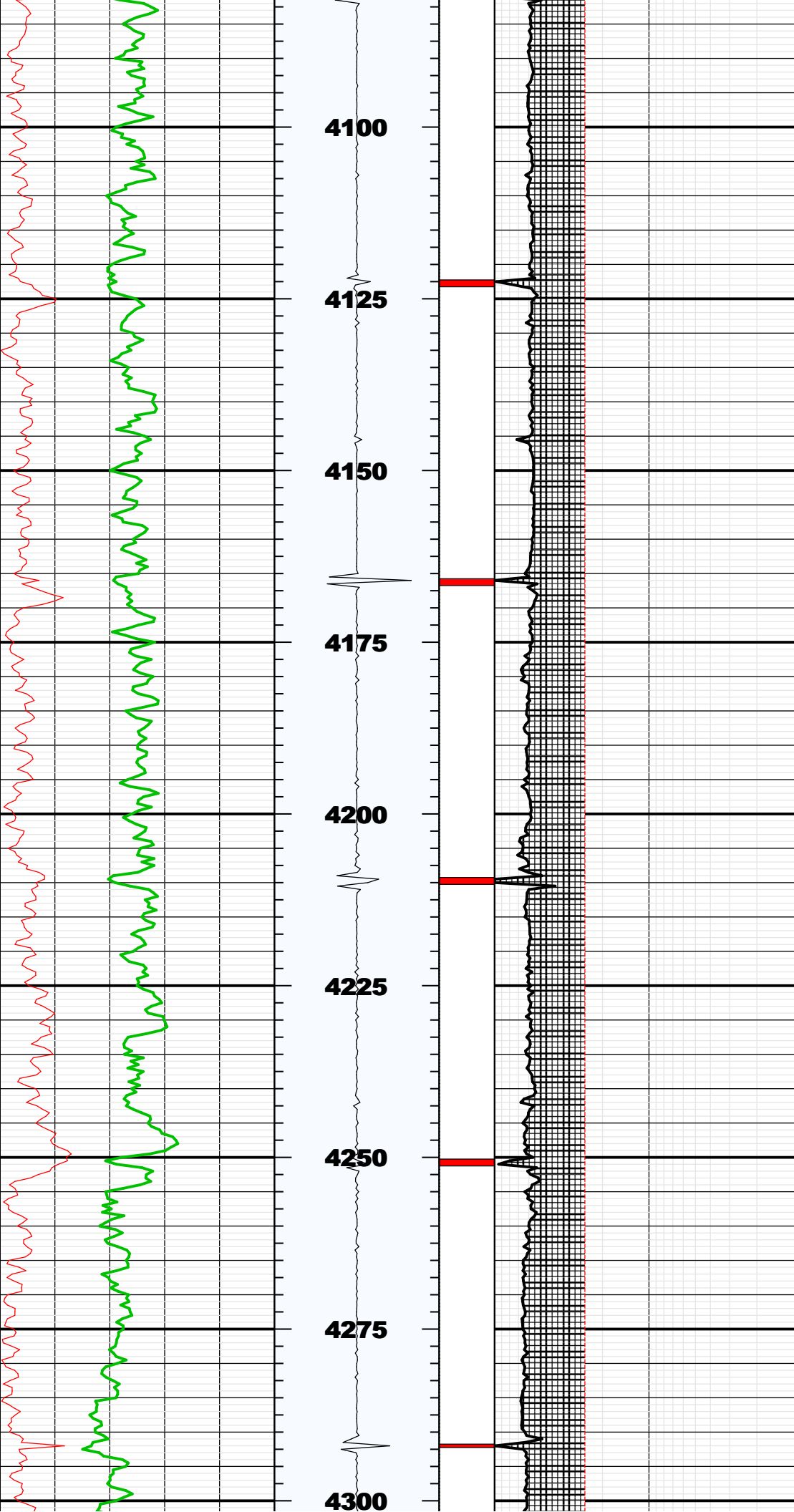


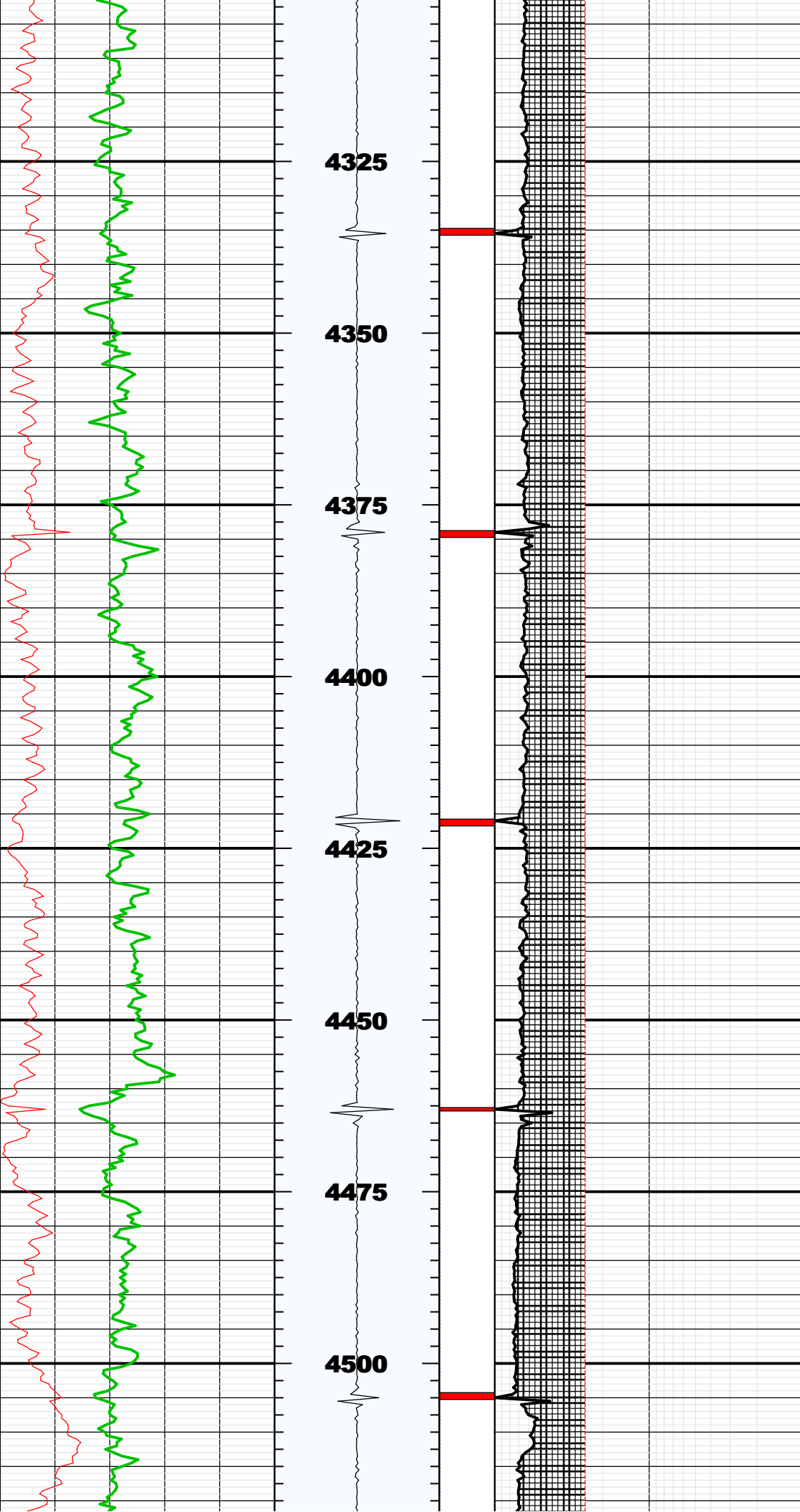


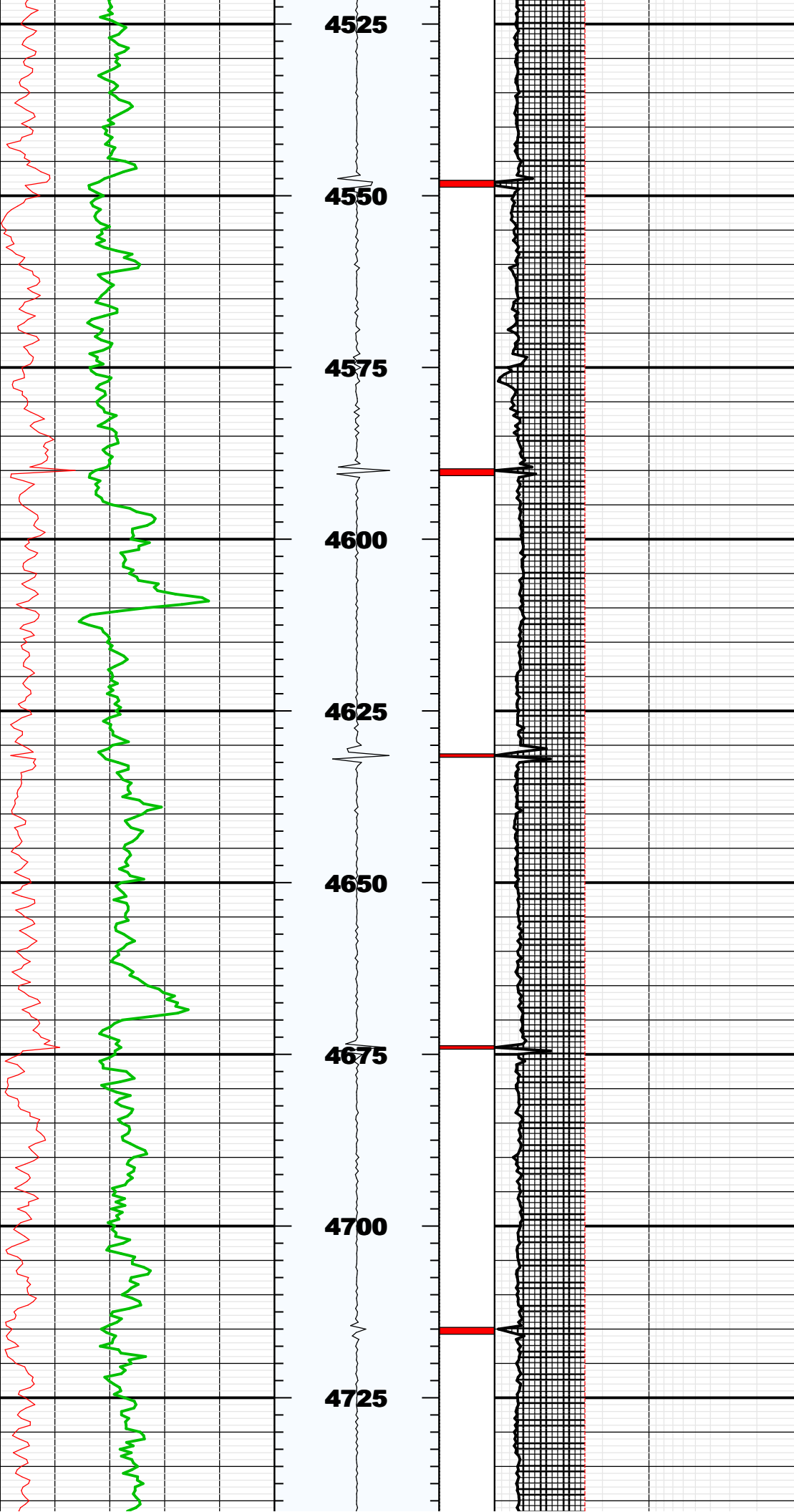


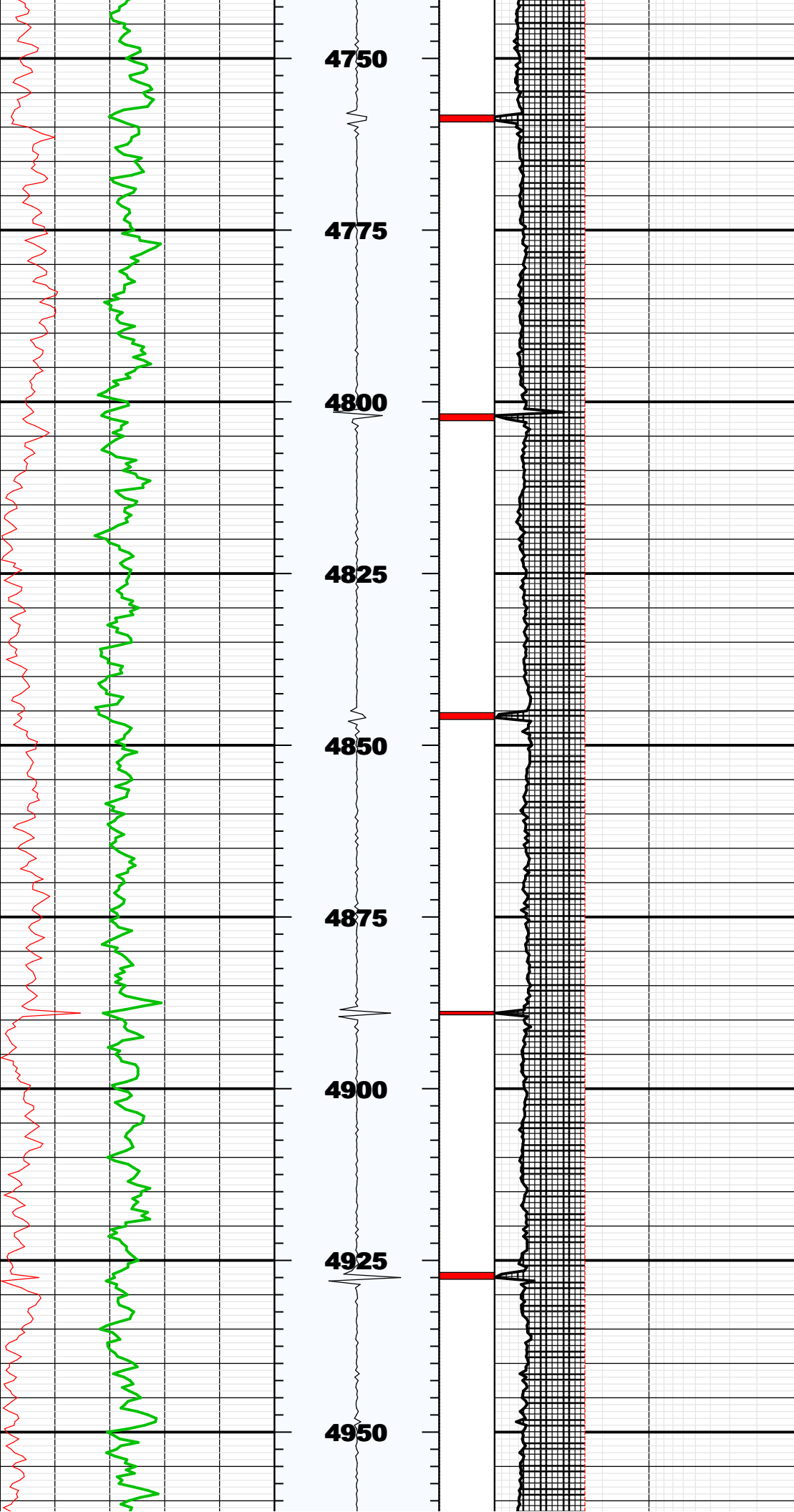


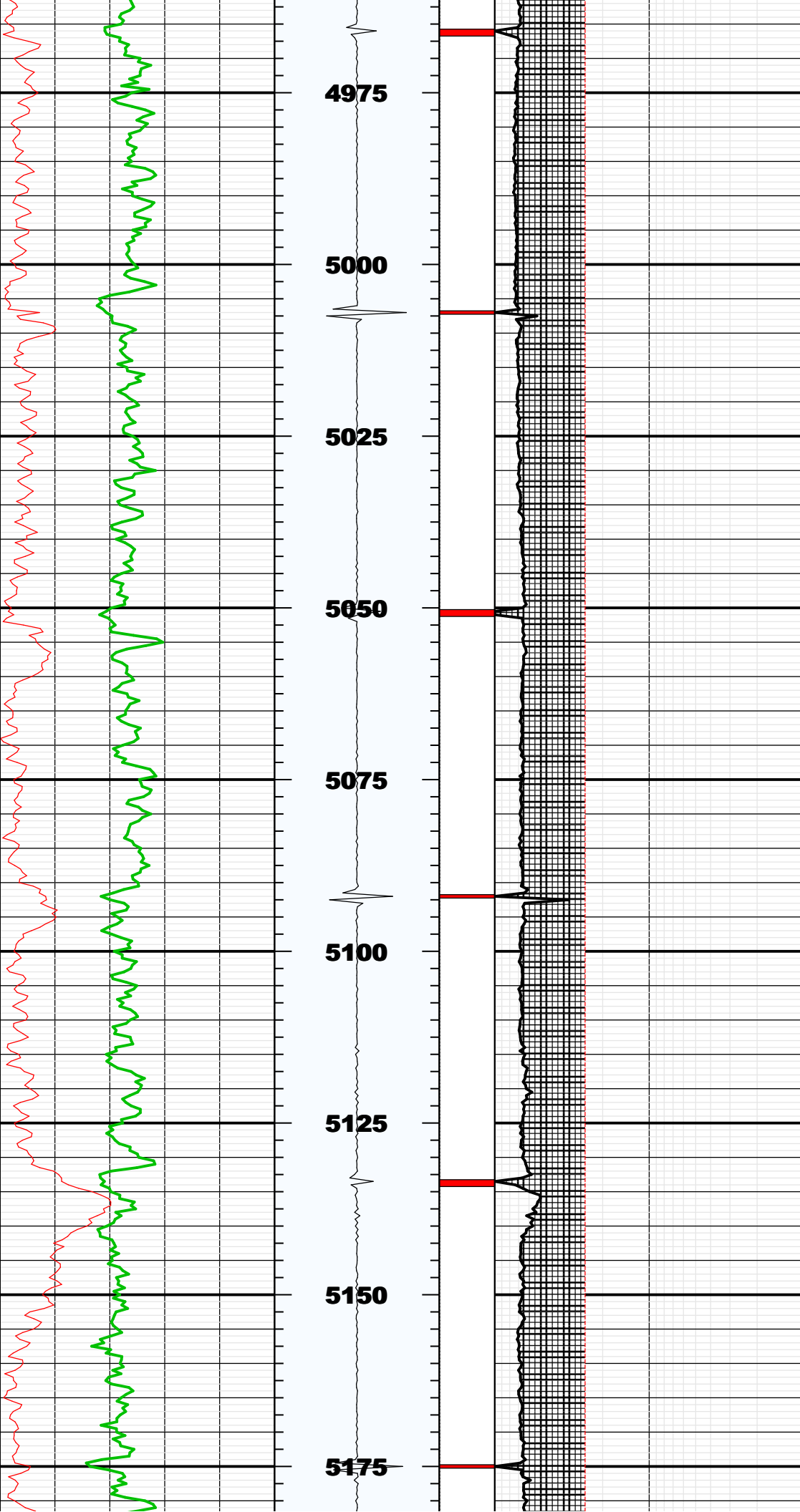


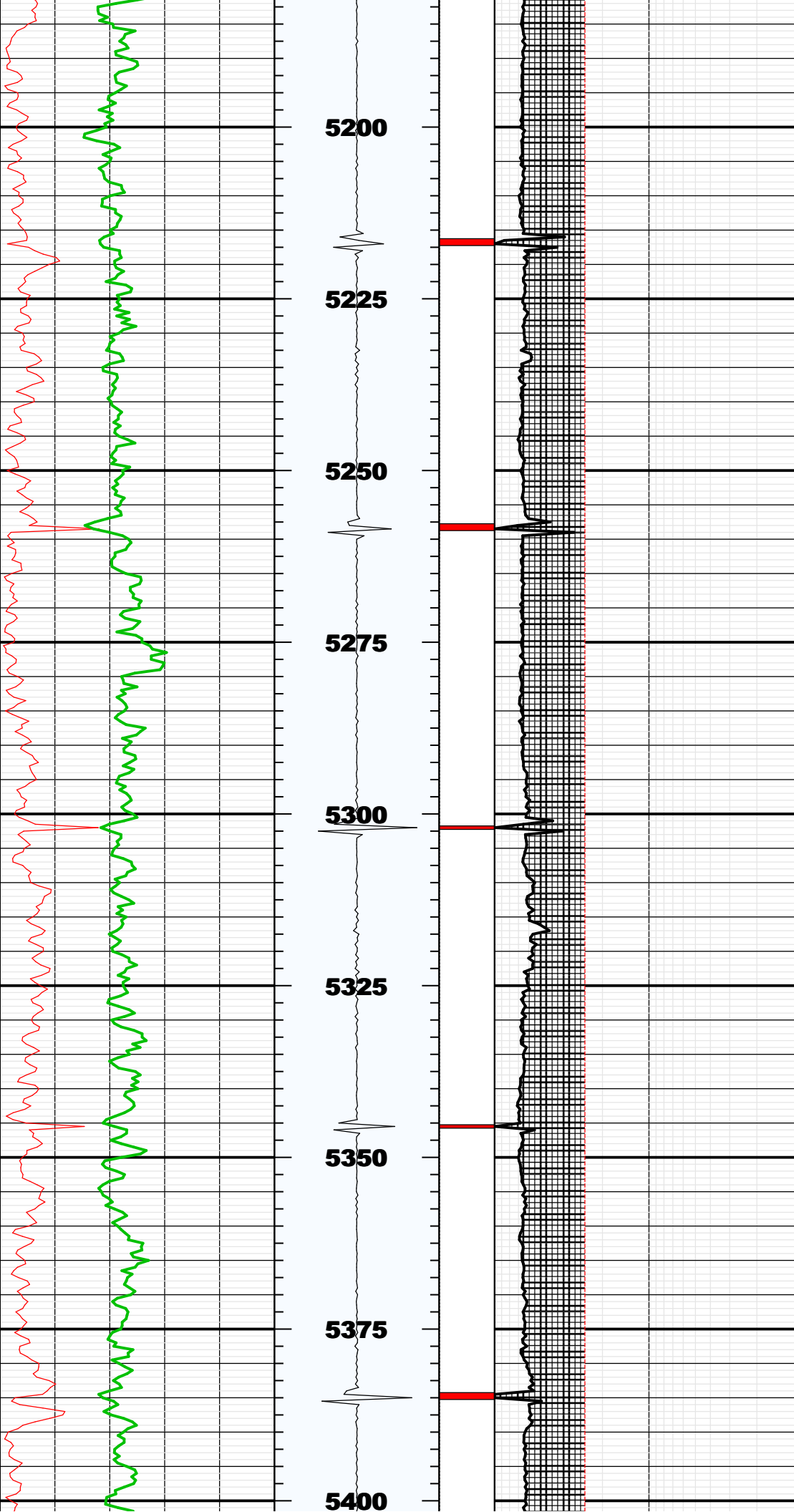


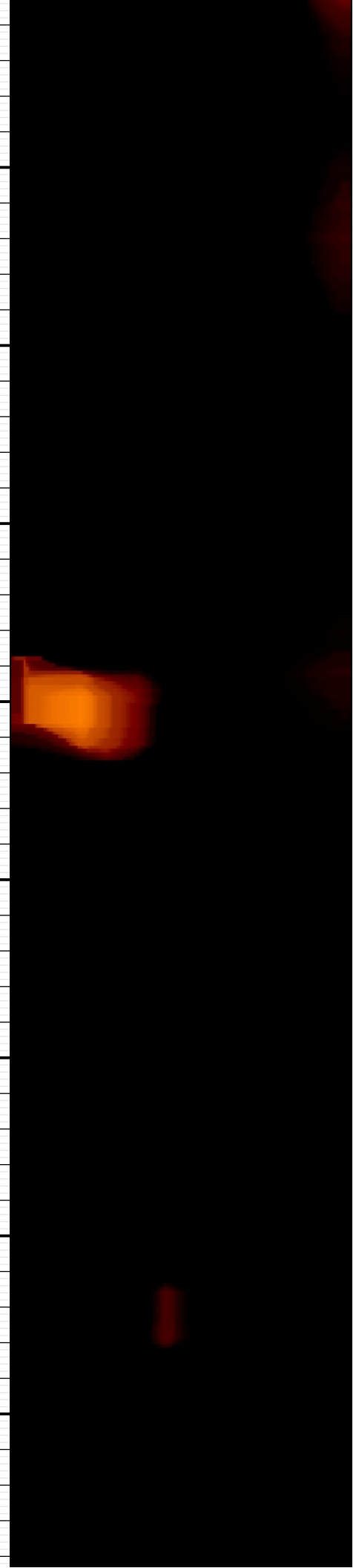
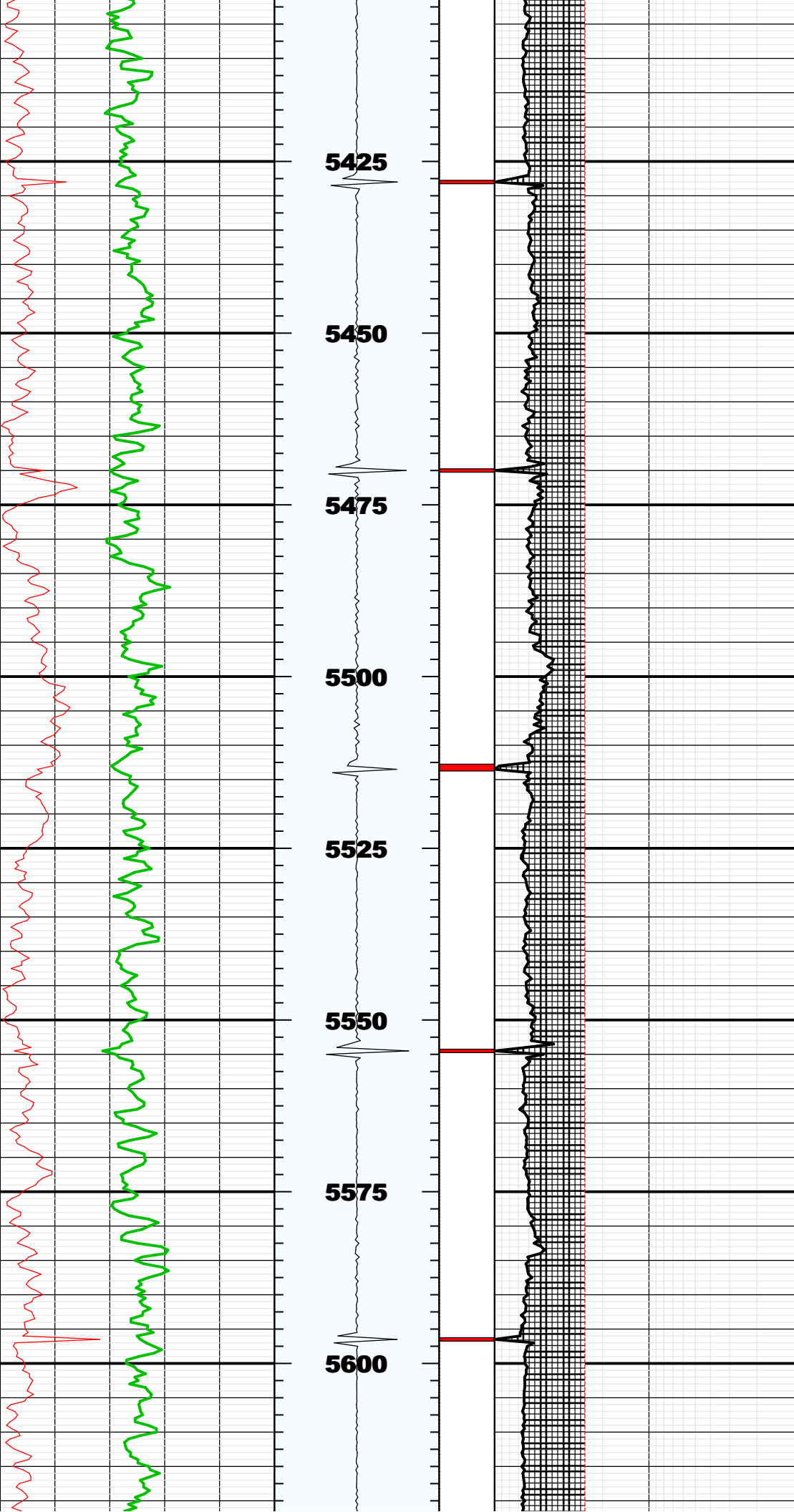


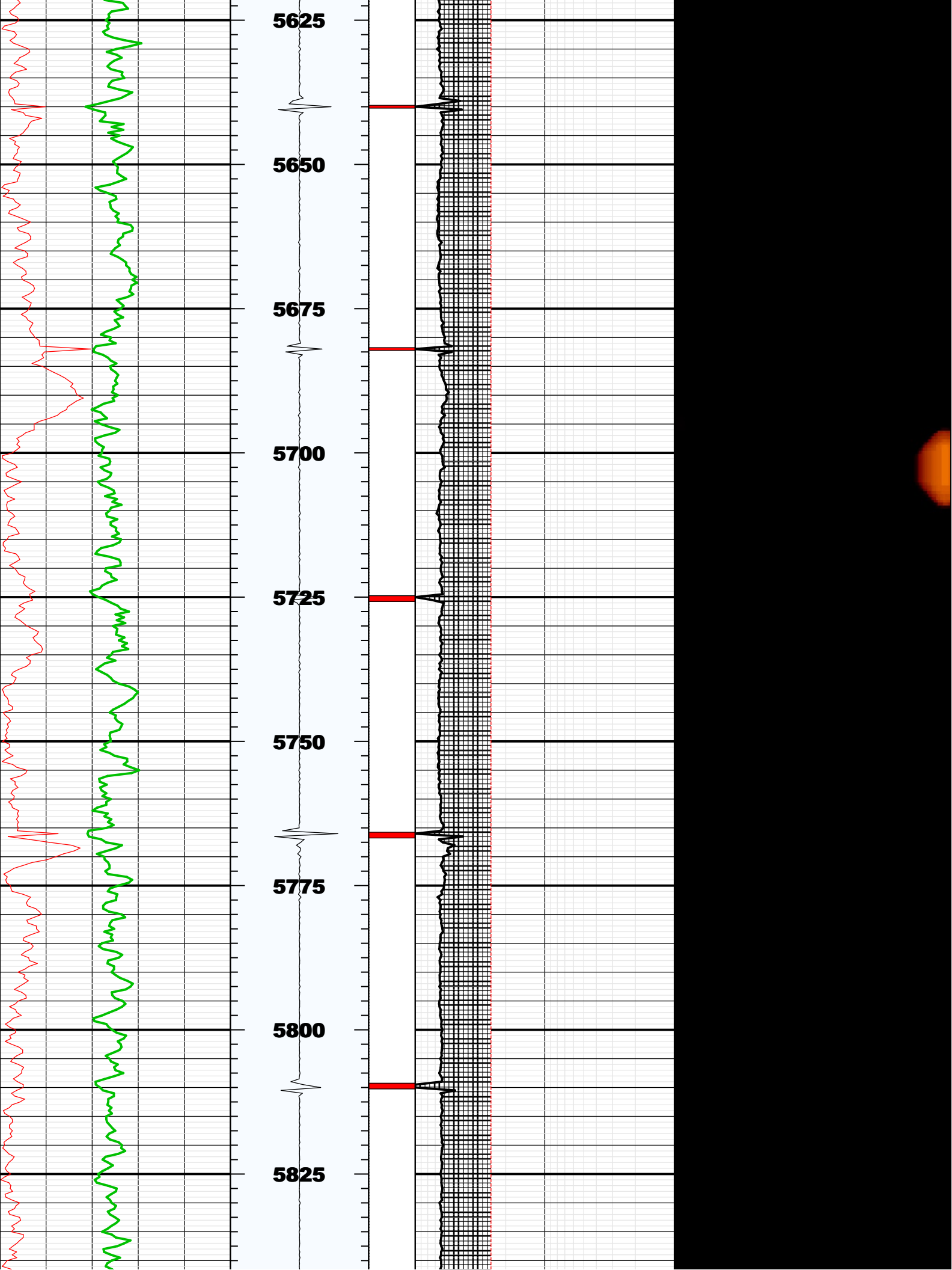


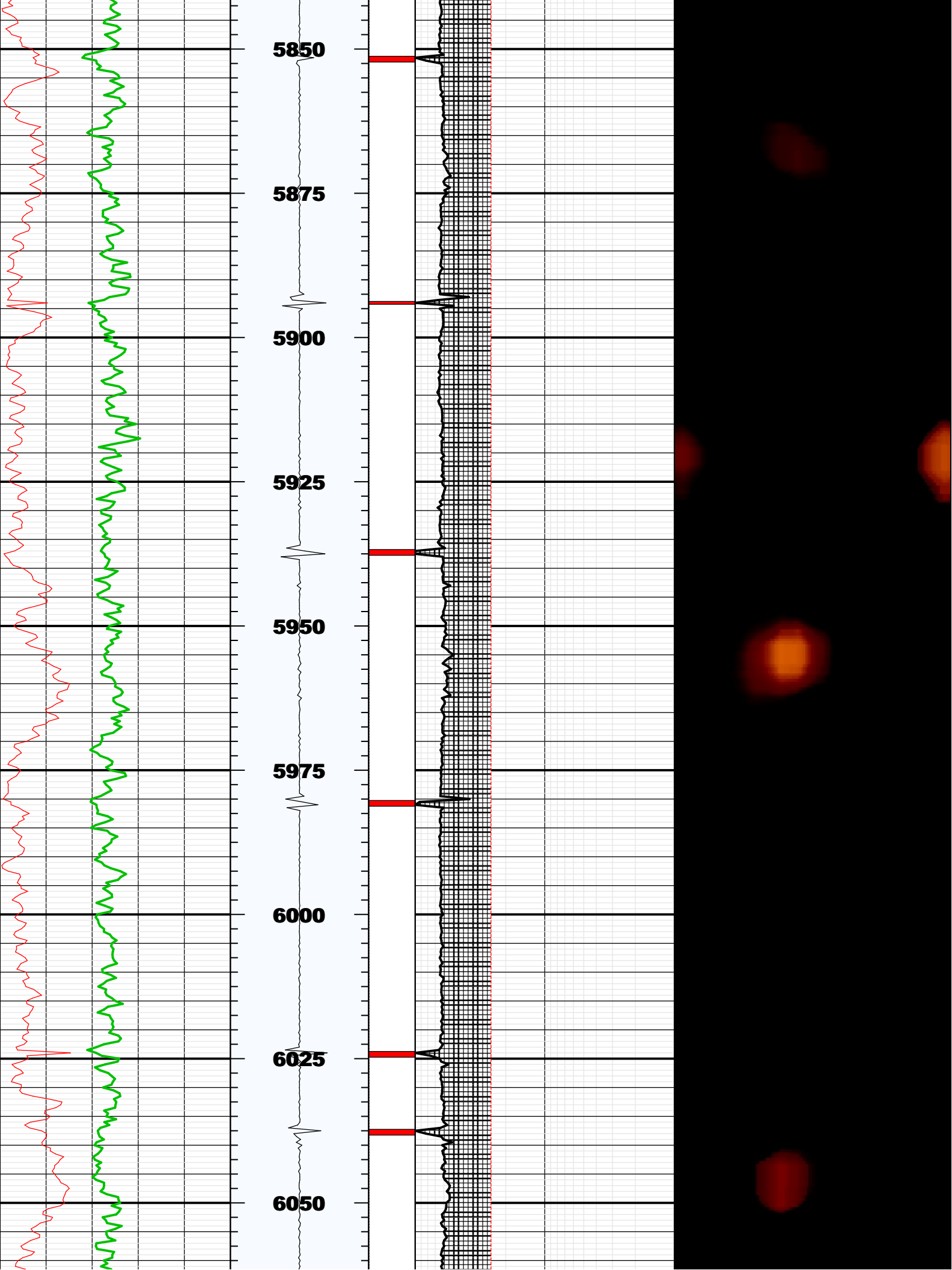


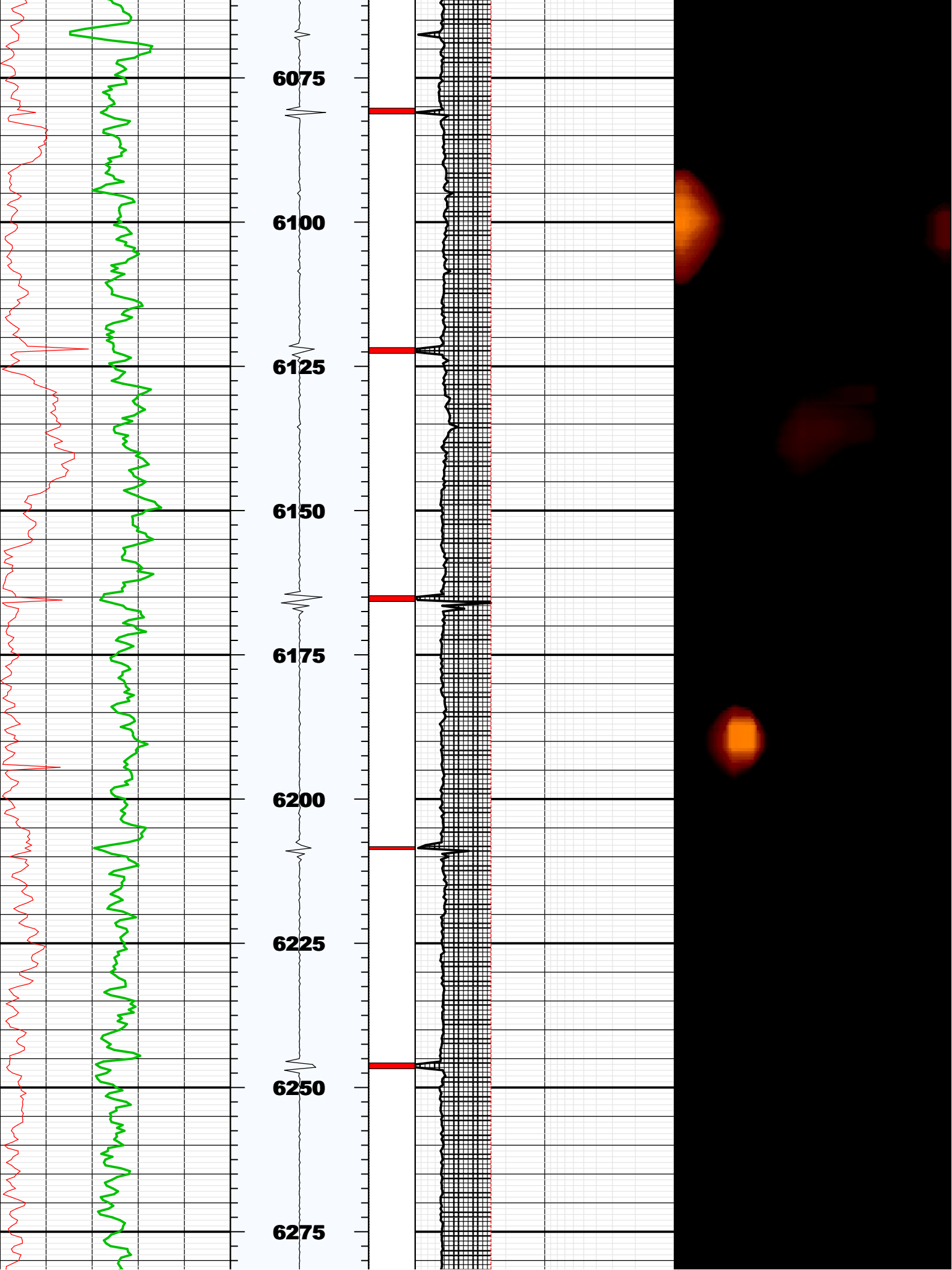


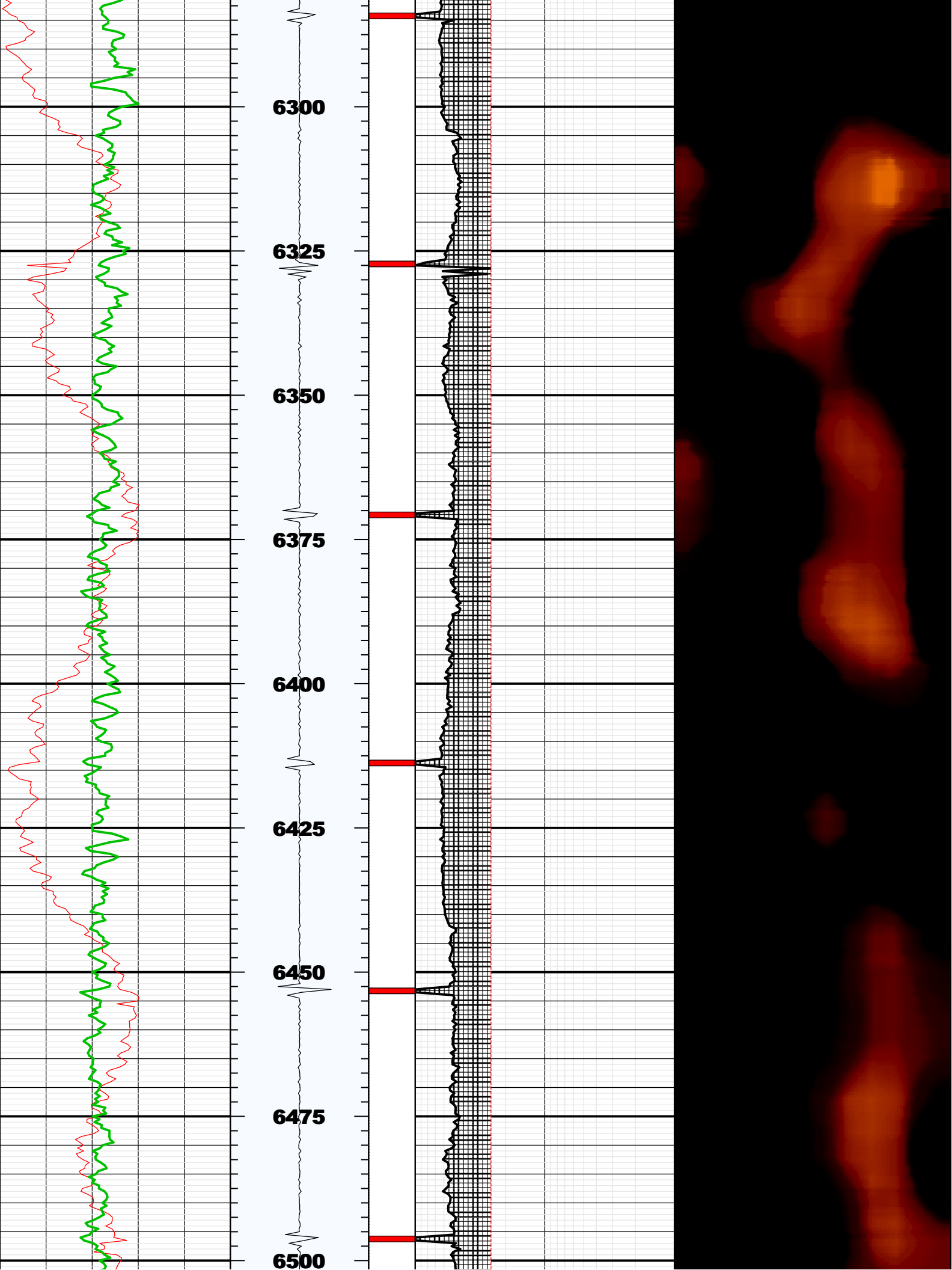


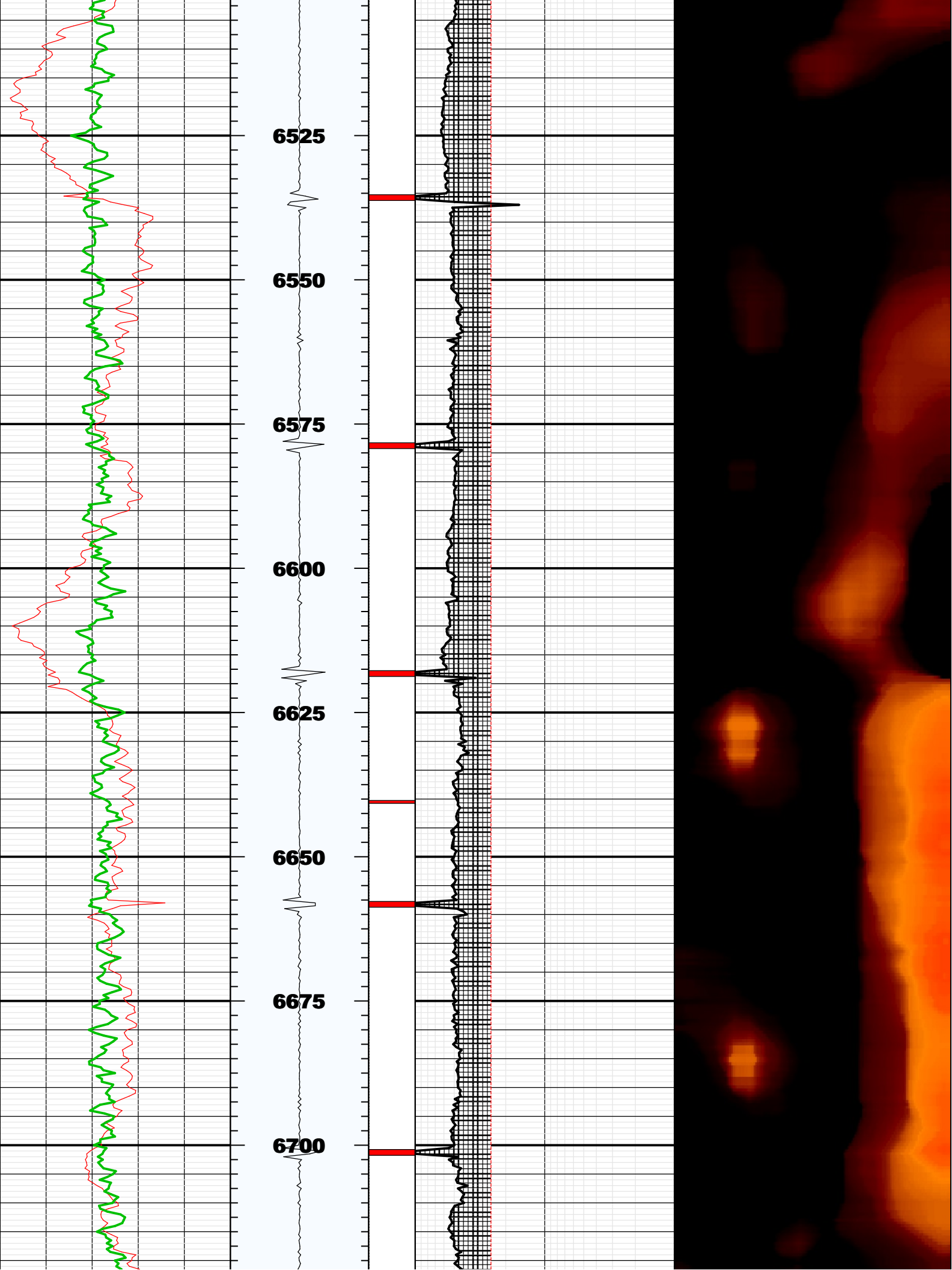


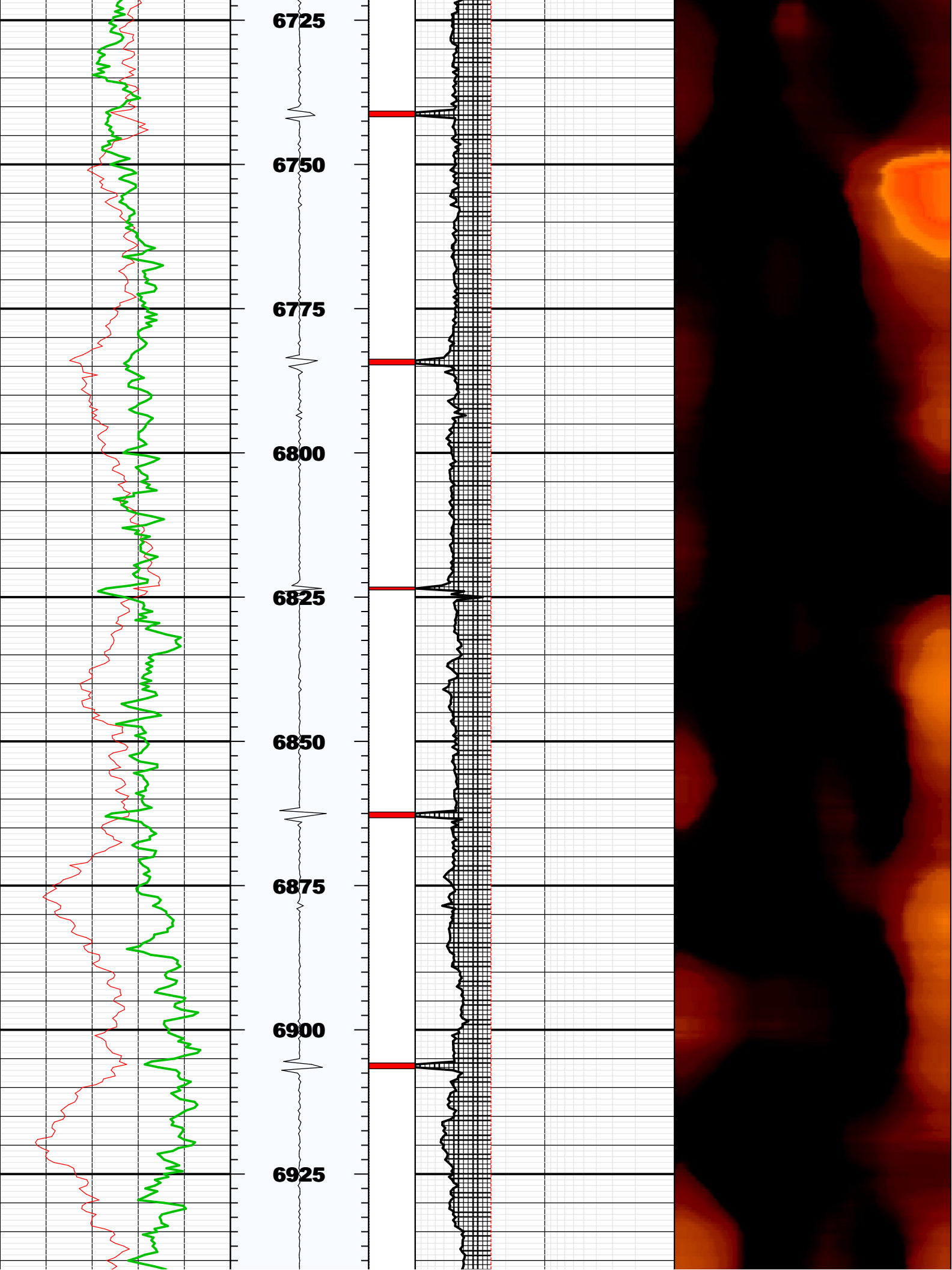


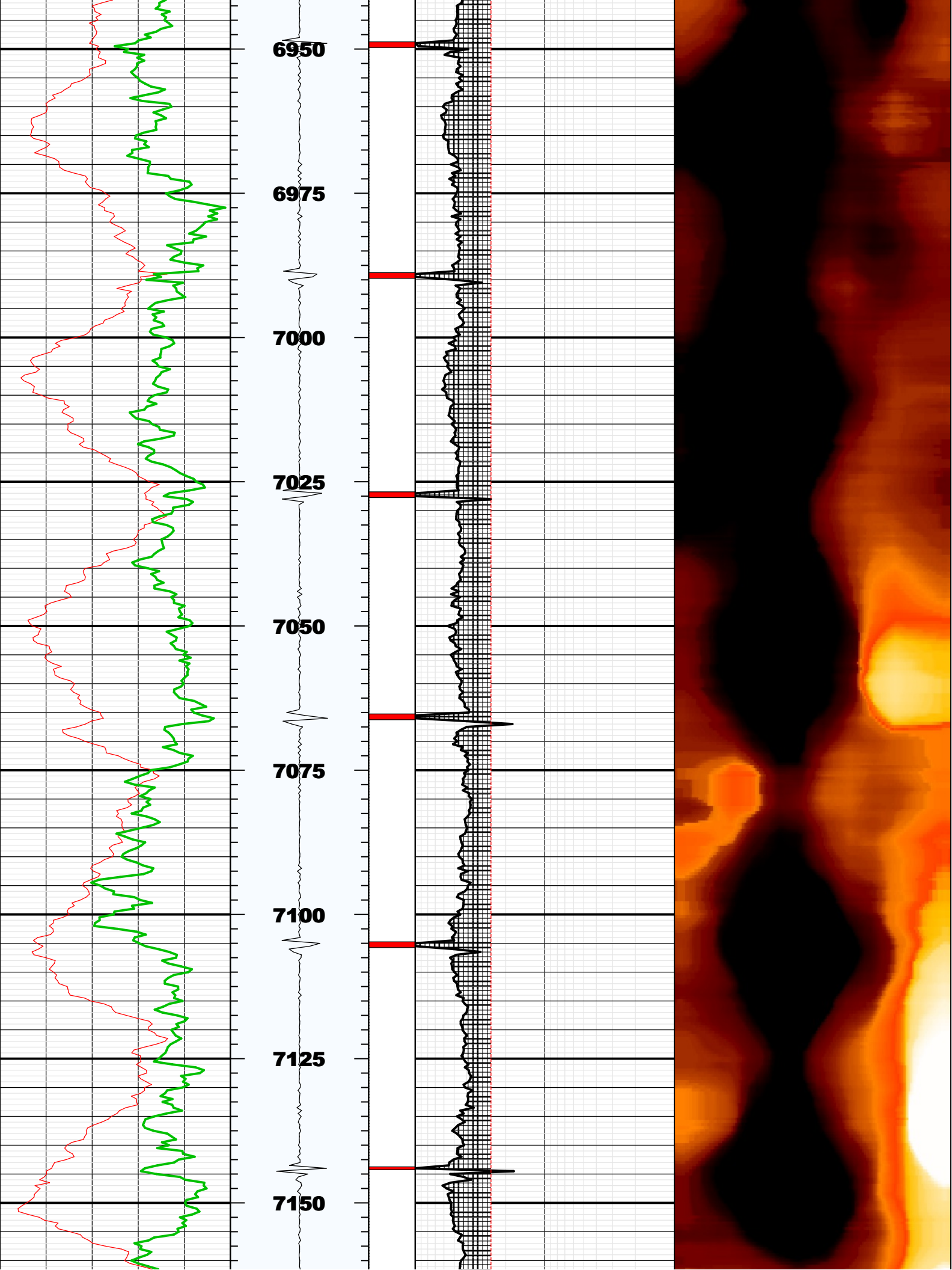


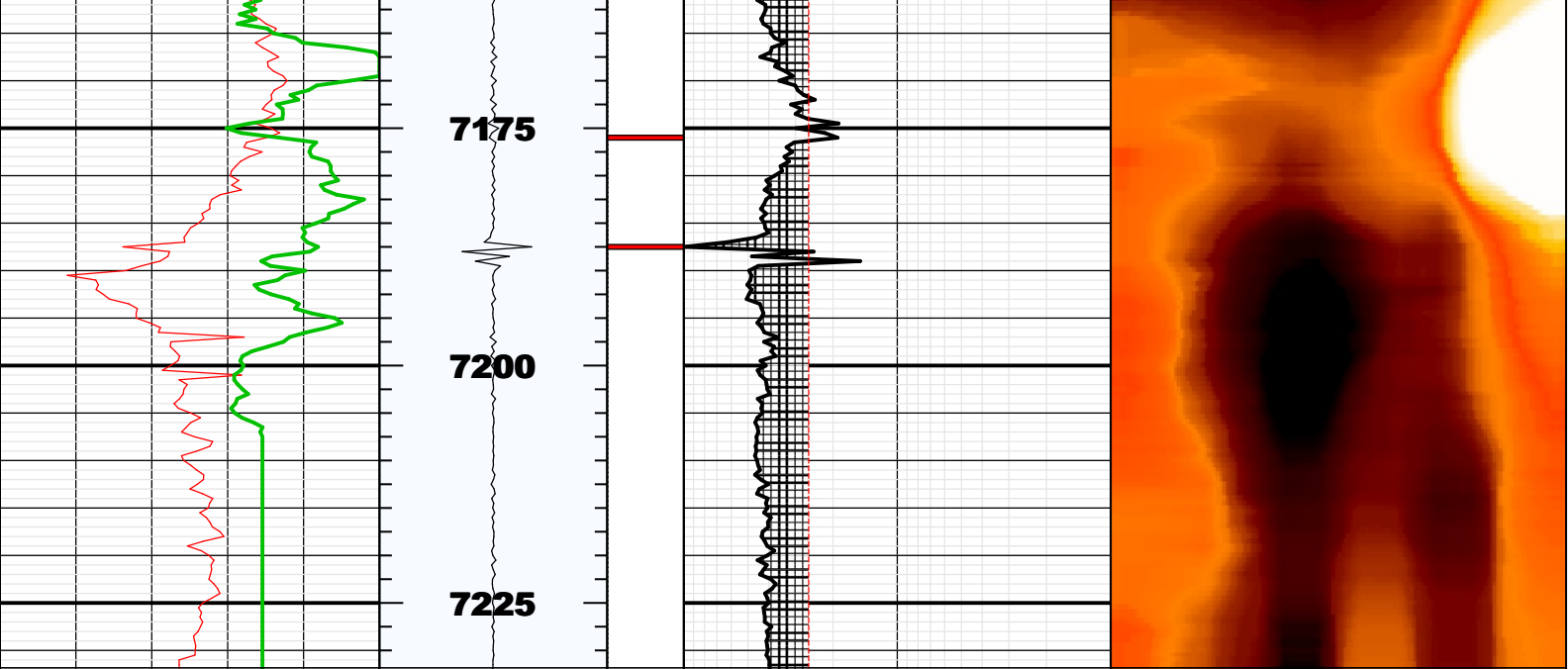








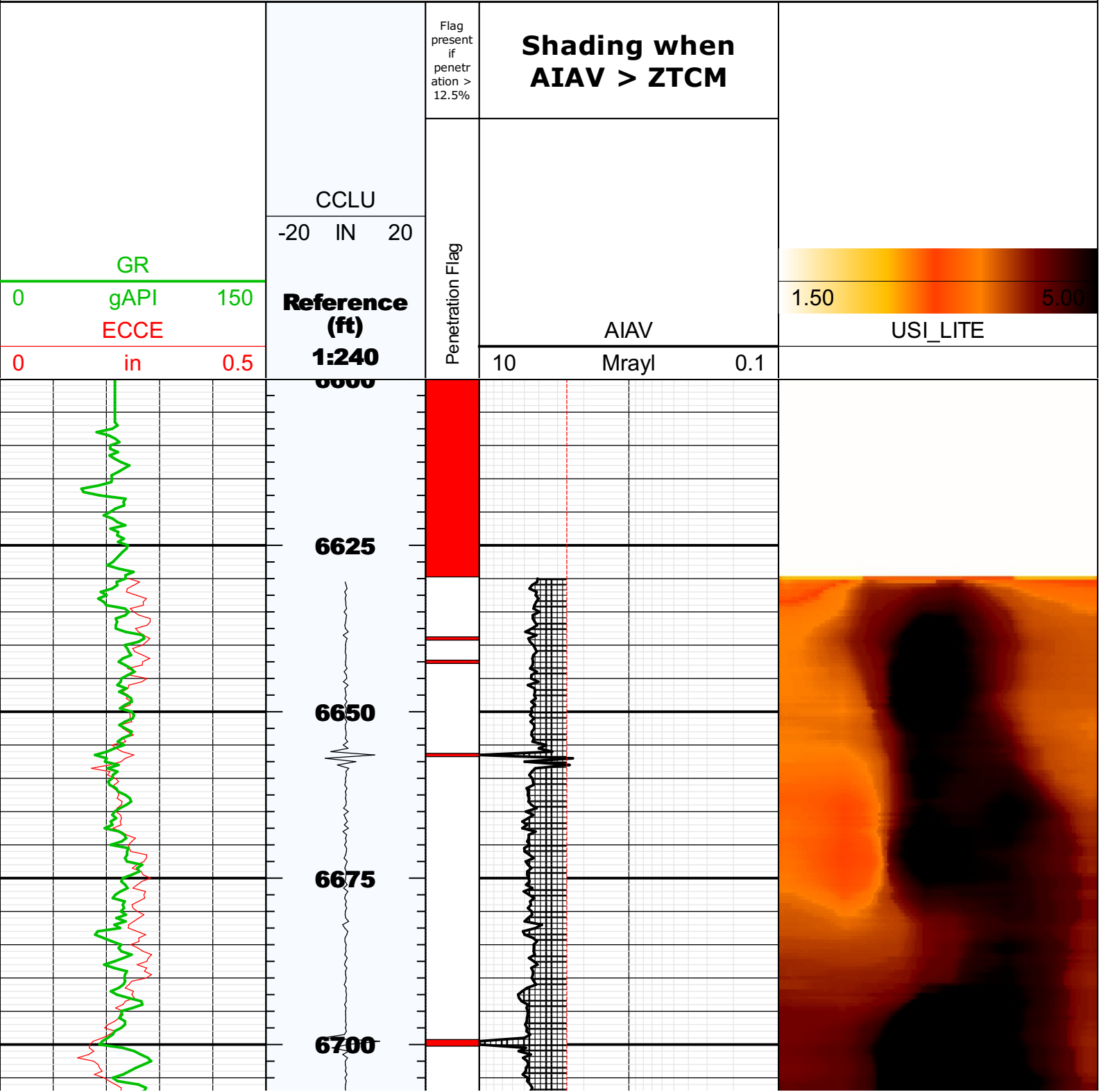


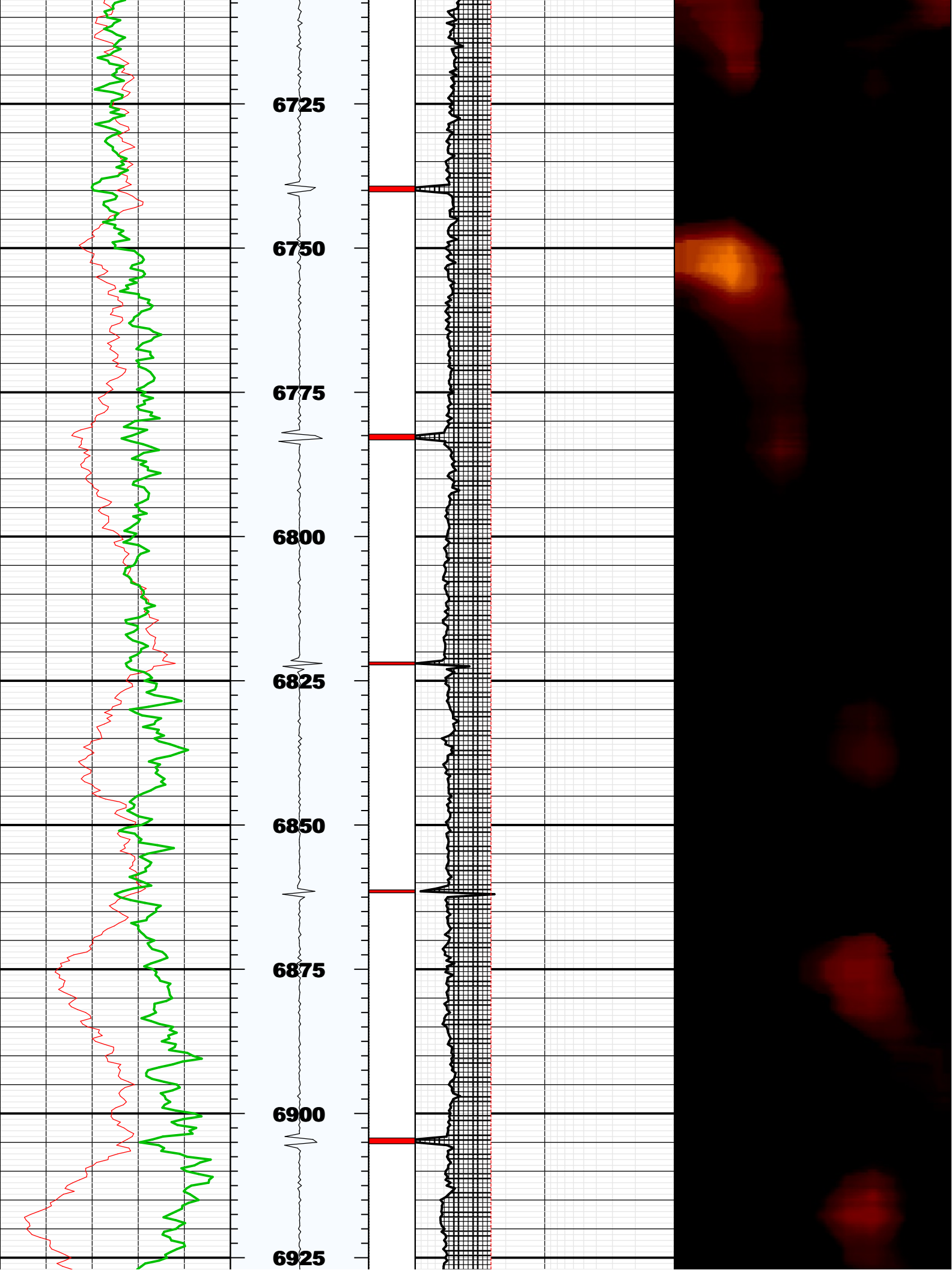


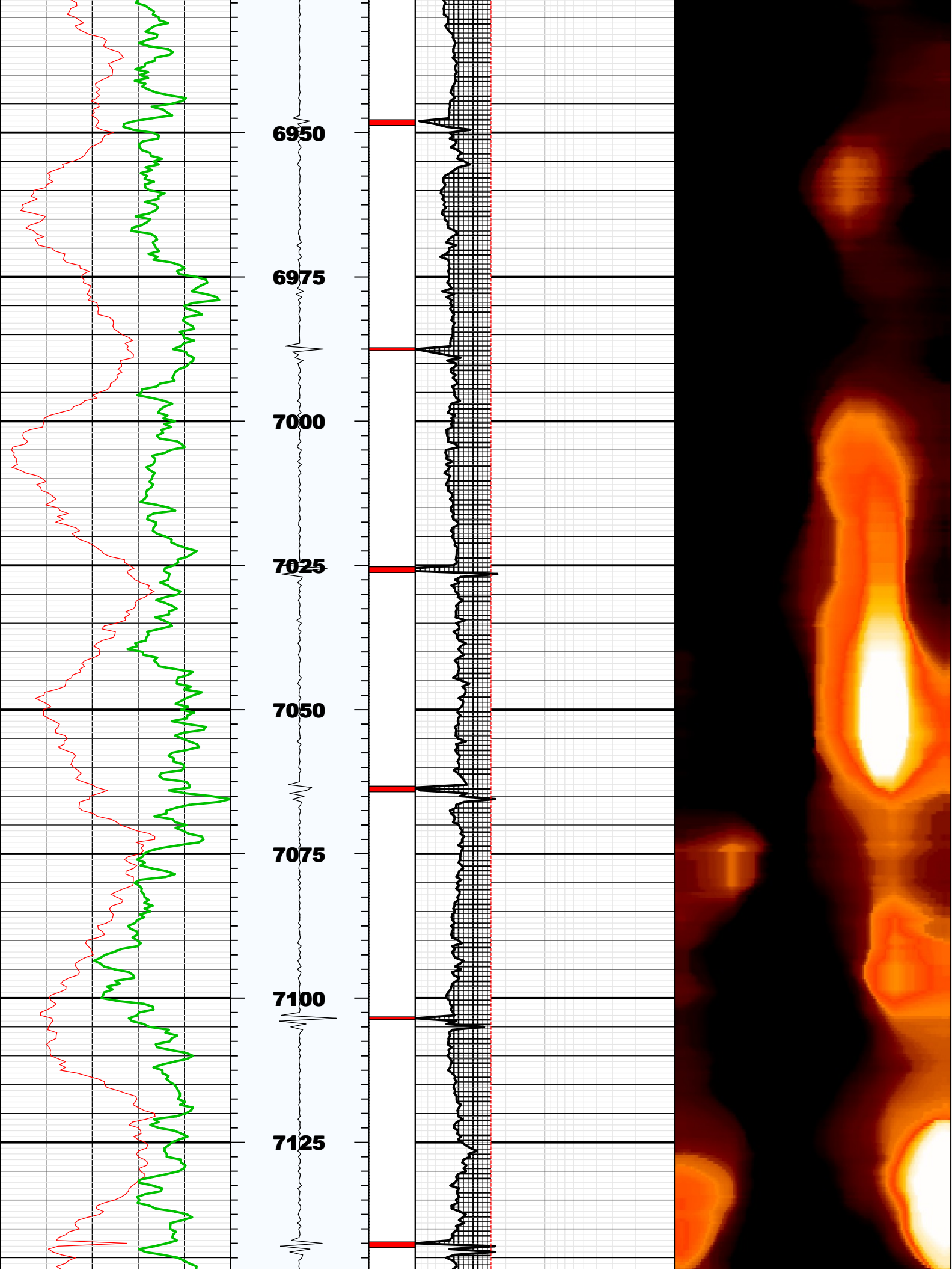
BS	8.75000	IN	Bit Size
CASG	P110		Casing Grade
CDIA	7.00000	IN	Casing Outer Diameter
CSID			
CSIZ	7.00000	IN	Current Casing Size
CWEI	26.00000	LB/F	Casing Weight
DFD	8.40000	LB/G	Drilling Fluid Density
DFVL	188.00000	US/F	Default Fluid Velocity
DO			
DOT	2.87400	IN	Diameter of Transducer Sensor
EMXV	70	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	30.43672	US	Window Begin Time
WINE	74.17931	US	Window End Time
ZCAS	46.25000	MRAY	Acoustic Impedance of Casing
ZINI	-1.00000	MRAY	Initial Estimate of Cement Impedance
ZMUD	1.80000	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

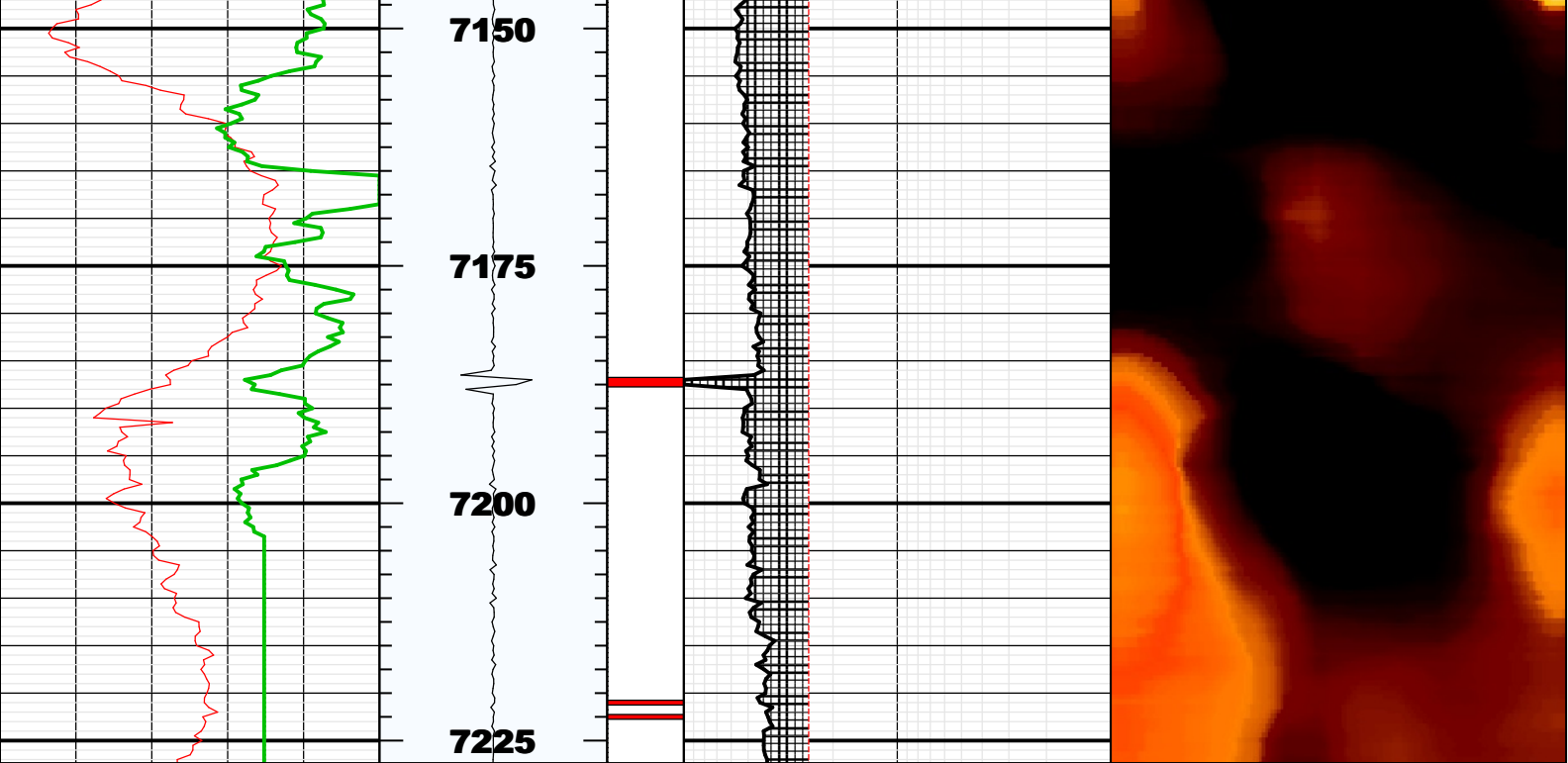
Repeat Pass

Company: Noble Energy Inc
Well: Heartland C31-78-1HN
Field: Wattenberg









Fluid Properties Used for Main Pass

