

HALLIBURTON

RADIAL CEMENT BOND LOG

Company SANDRIDGE ENERGY
 Well MUTUAL 0780 4-8H
 Field NORTH PARK NIOBRARA
 County JACKSON State CO

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 Well MUTUAL 0780 4-8H
 Field NORTH PARK NIOBRARA
 County JACKSON State CO

Sec: 17 Twp: 7N Rge: 80W

API No.: 05057065410000 Serv #: 903365408 Other Services
 Location: SHL: 38' FNL & 744' FWL
 LAT: 40.584656
 LONG: -106.404444
 N/A

Permanent Datum	G.L.	Elevation	8148'	Elevation	
Log Measured From	K.B.	16 Ft. above perm. datum		K.B.	8164'
Drilling Measured From	K.B.			D.F.	8164'
				G.L.	8148'
Date @ Time Logged	6/20/2016 @ 11:00	Type Fluid in Hole	FRESH WATER		
Run No.	ONE	Density of Fluid	8.4#		
Depth - Driller	12576'	Fluid Level	SURFACE		
Depth - Logger	7736'	Cement Top Est. Logged	1464'		
Bottom - Logged Interval	7732'	Equipment / Location	11875120 / BRIGHTON		
Top - Log Interval	SURFACE	Recorded by	J. SCHMIDT		
Max. Recorded Temp.	REC	Witnessed by	0. ROZELL		
CEMENTING DATA	Surface String	Protection String	Production String	Liner	
Date / Time Cemented					
Primary / Squeeze					
Expected Compressive Strength	psi@	hrs	psi@	hrs	psi@
Cement Volume					
Cement Type / Weight Formulation	/		/		/
Mud Type / Mud Wgt.	/		/		/
Borehole Record		Casing & Tubing Record			
Run Number	Bit	From	To	Size	Weight

<<< Fold Here >>>

HALLIBURTON DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF THE LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS OR RECOMMENDATIONS WHICH MAY BE GIVEN BY HALLIBURTON PERSONNEL OR WHICH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR RECOMMENDATIONS AGREES THAT HALLIBURTON IS NOT RESPONSIBLE EXCEPT WHERE DUE TO GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, FOR ANY LOSS, DAMAGES, OR EXPENSES RESULTING FROM THE USE THEREOF.

Comments

DEPTH CORRELATED WITH SHORT JOINT AT 7207'

CCL-GR-RBT RAN IN COMBINATION

THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES

Service Ticket No. 903365408 API No. 05057065410000 PGM Ver WARRIOR 8.0

The Well Name, Location, Borehole Description, and / or Cementing Data Furnished by Client

EQUIPMENT DATA

TELEMETRY		RBT			
Run No.	ONE	Run No.	ONE	Run No.	Run No.
Serial No.	11224502	Serial No.	11002212	Serial No.	Serial No.
Model No.	TTTCU-002	Model No.	RBT (PROBE)	Model No.	Model No.
Diameter	1.69"	Diameter	3.125"	Diameter	Diameter

LOGGING DATA

General Data

Pass	Depths		Well Head	Speed	Logging Run Comments
No	From	To	Pressure	Ft/Min	

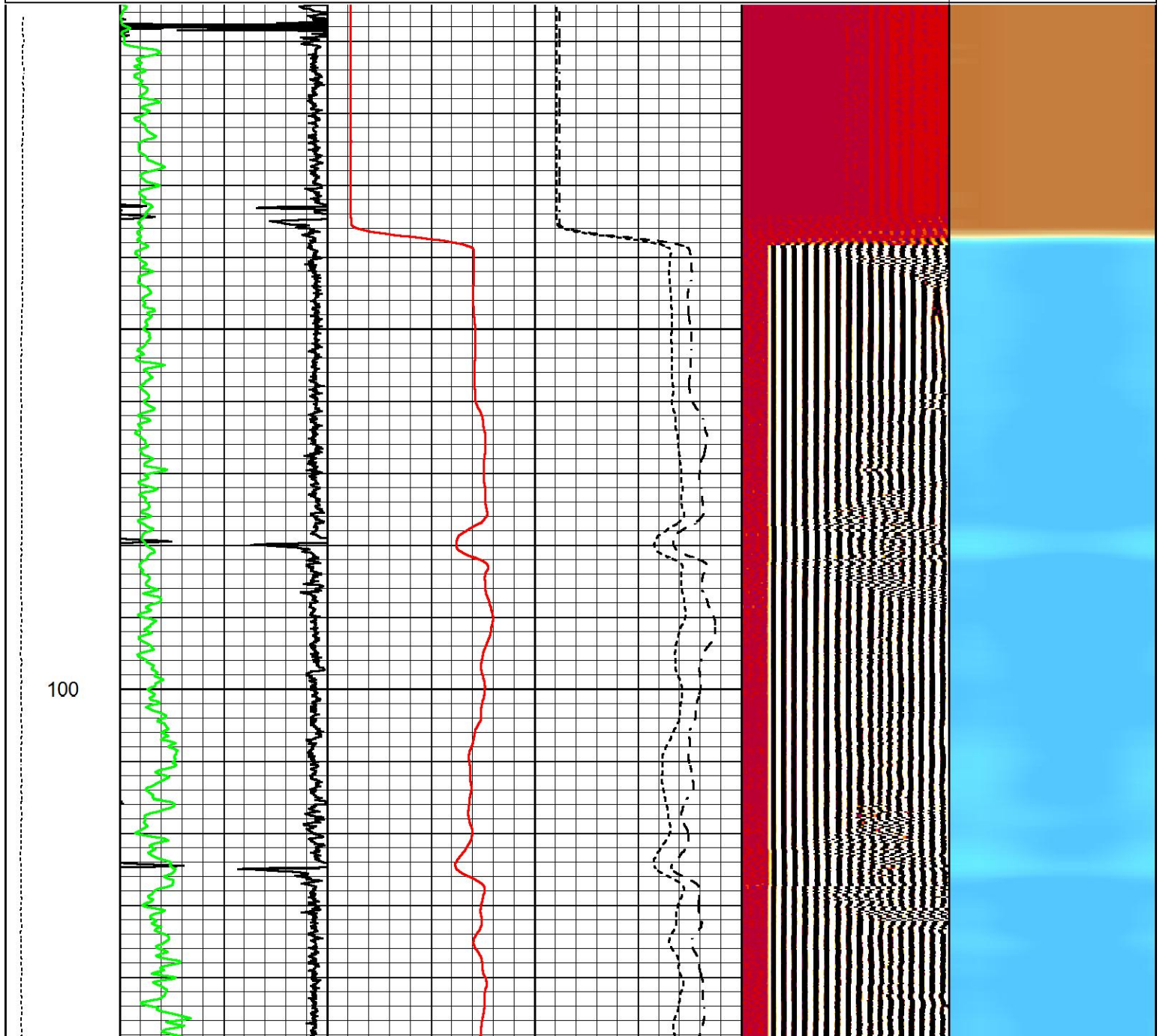
ONE	SURFACE	7736'	14.7 PSI	60				
	GAMMA		AMPLITUDE					
Pass	Scale		Scale		Scale		Scale	
No.	L	R	L	R	L	R	L	L
	0	150	0	100				
DIRECTIONAL INFORMATION								
Maximum Deviation			deg. @		KOP			

HALLIBURTON **MAIN PASS**

5" = 100'

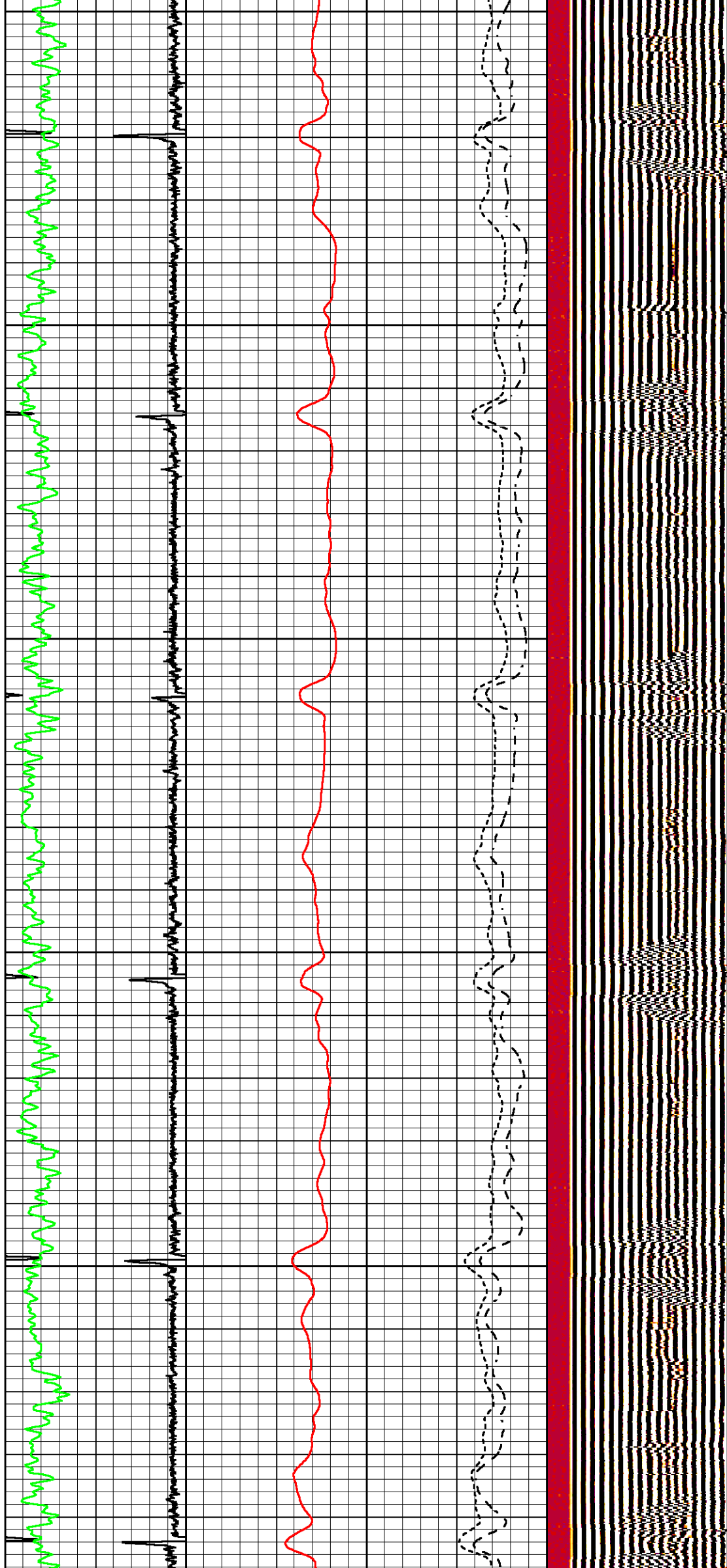
Database File mutual_0780_4-8h.db
Dataset Pathname MAIN1
Presentation Format rbtm_col
Dataset Creation Mon Jun 20 11:36:27 2016
Charted by Depth in Feet scaled 1:240

TENSION	17700	CCL	18350	0	AMP (mV)	100	0	AMPMAX	100	200	MSG	1200	1	SECTORS	8
0	(lb2000)	0	GR (GAPI)	150			0	AMPMIN	100				1		72



200

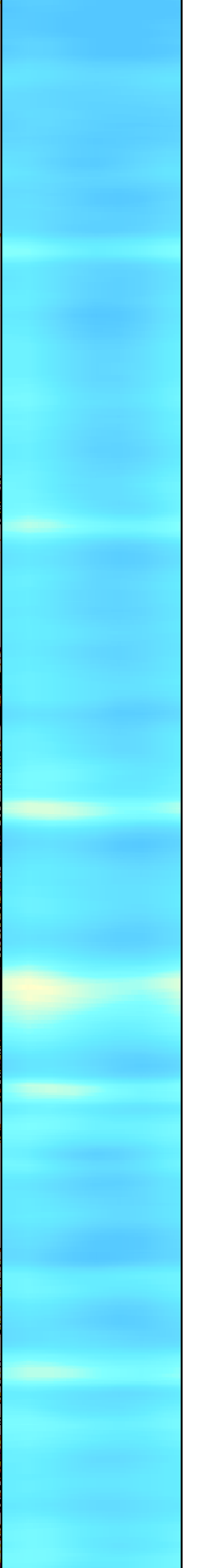
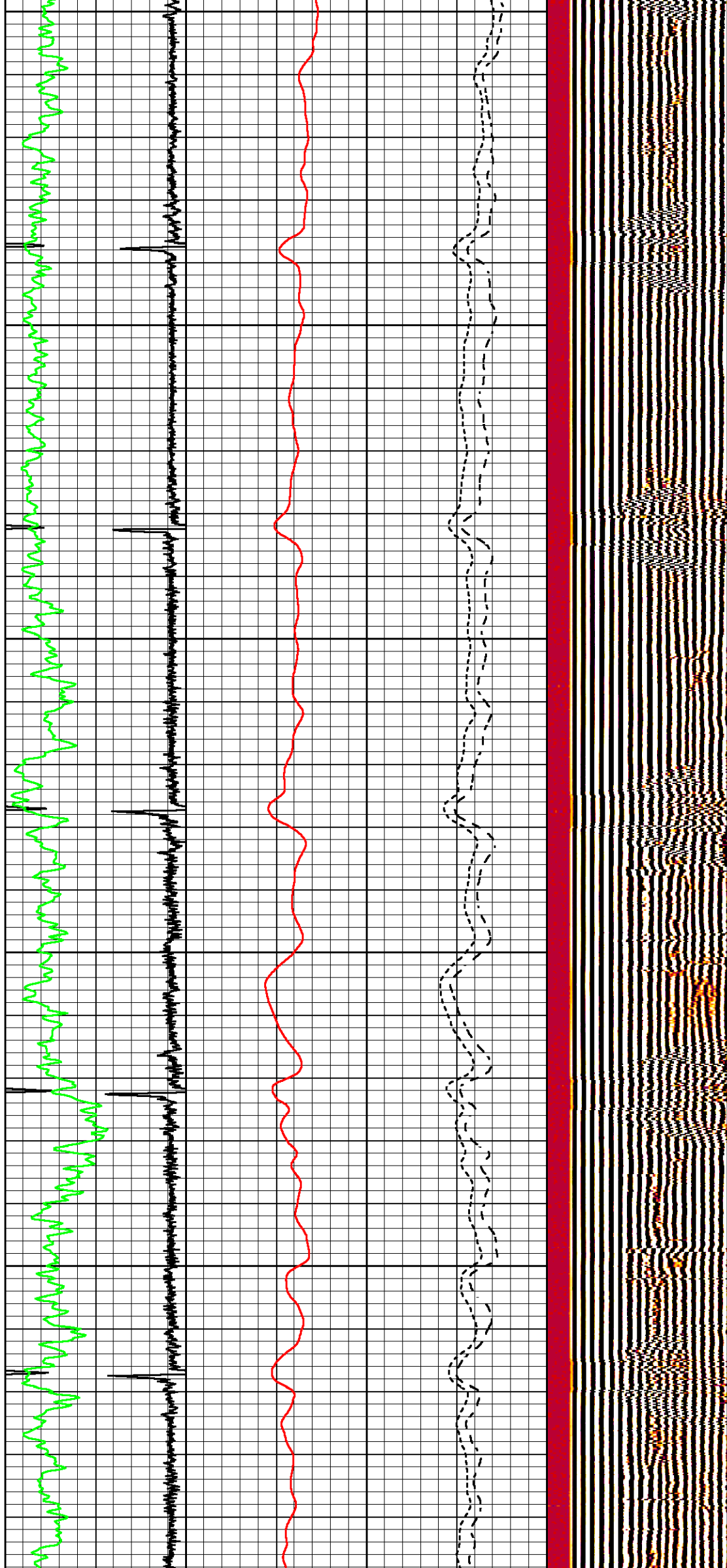
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400

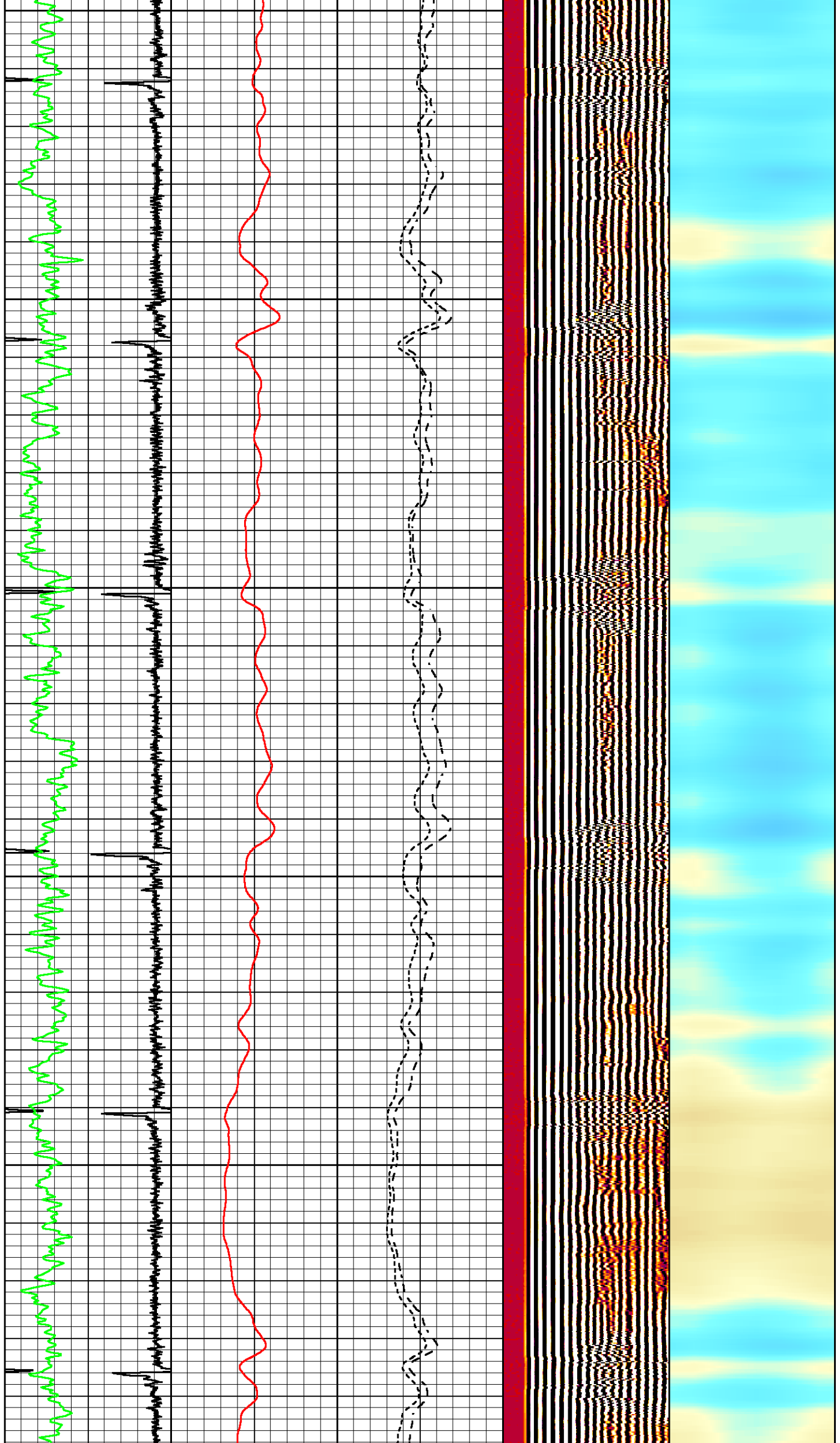
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600



700

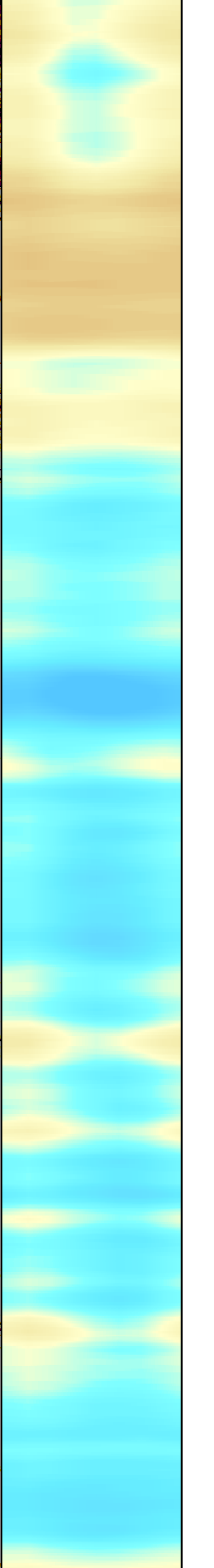
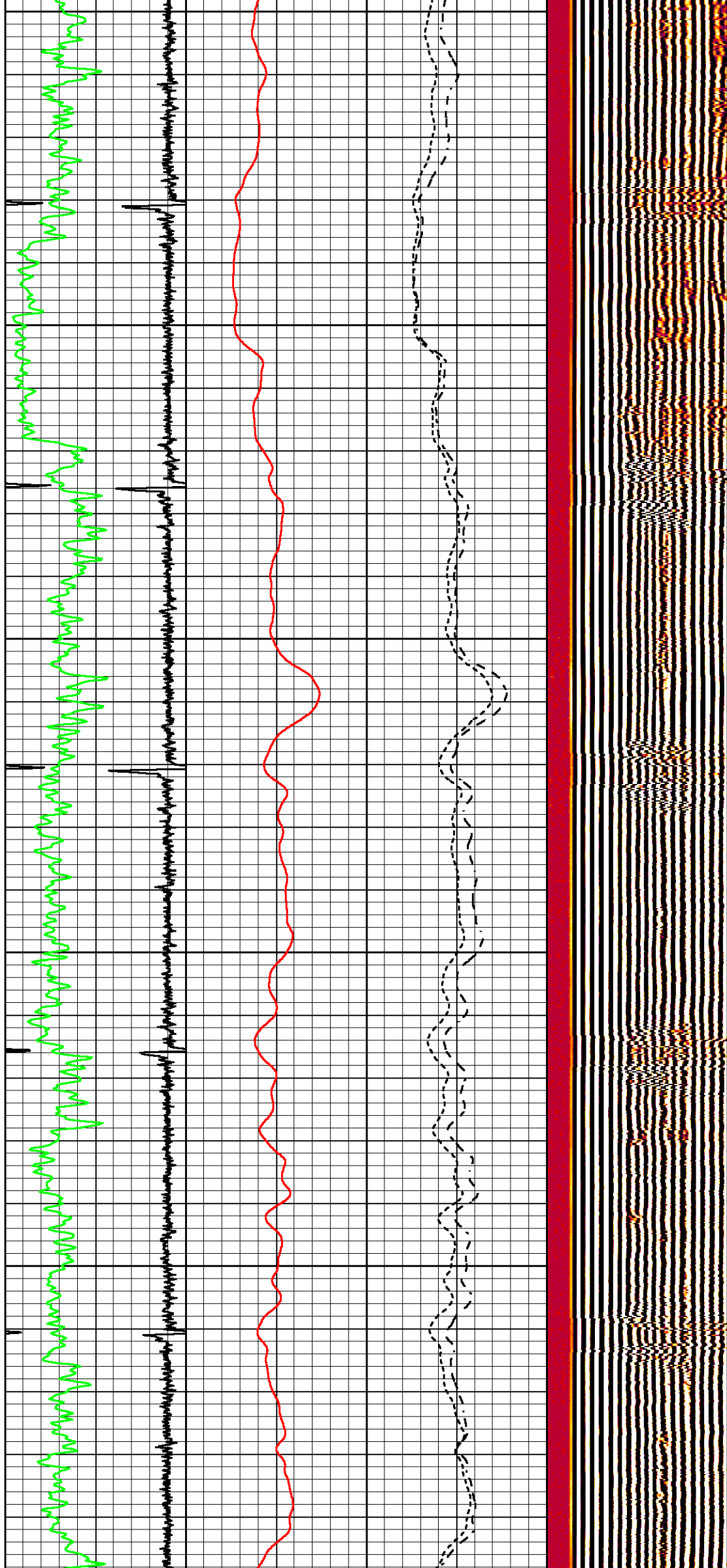
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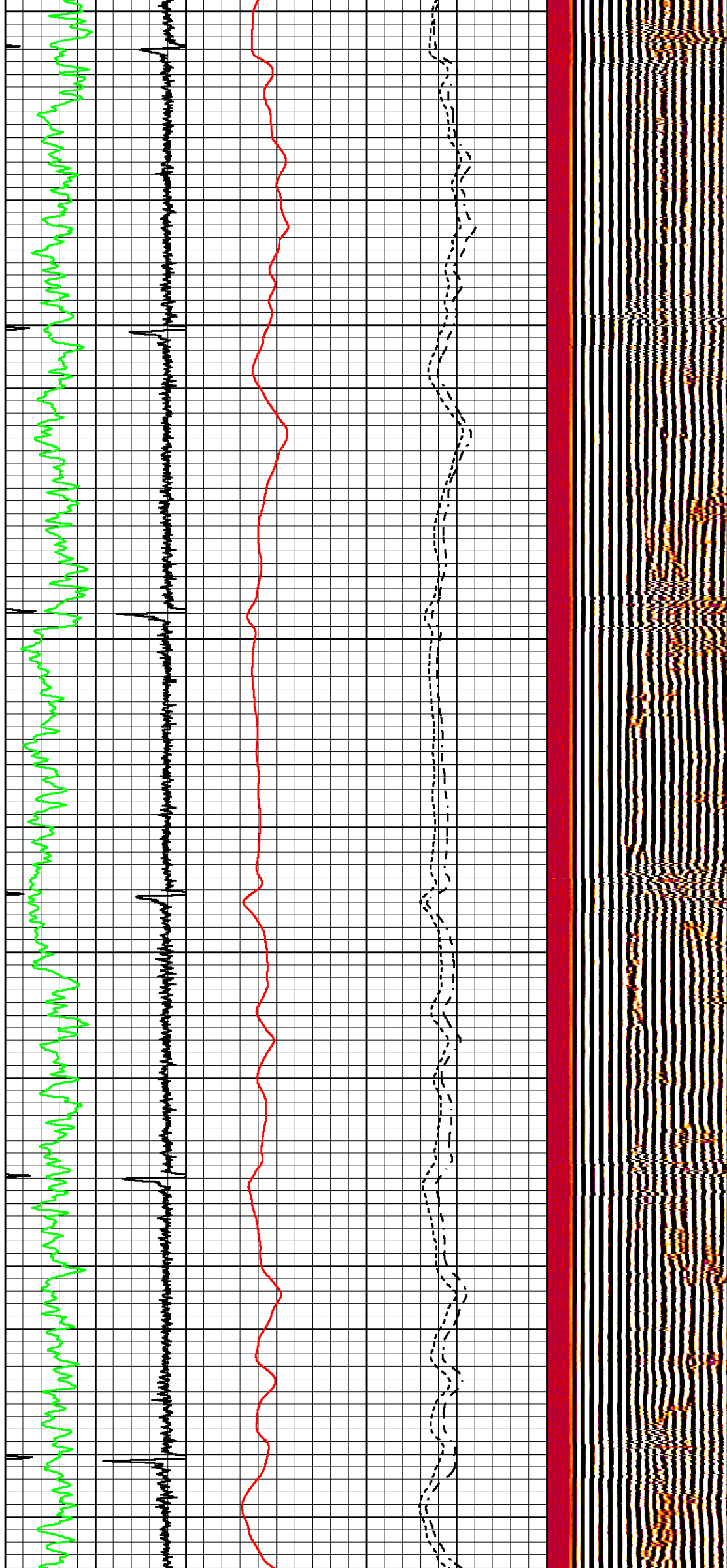
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1100



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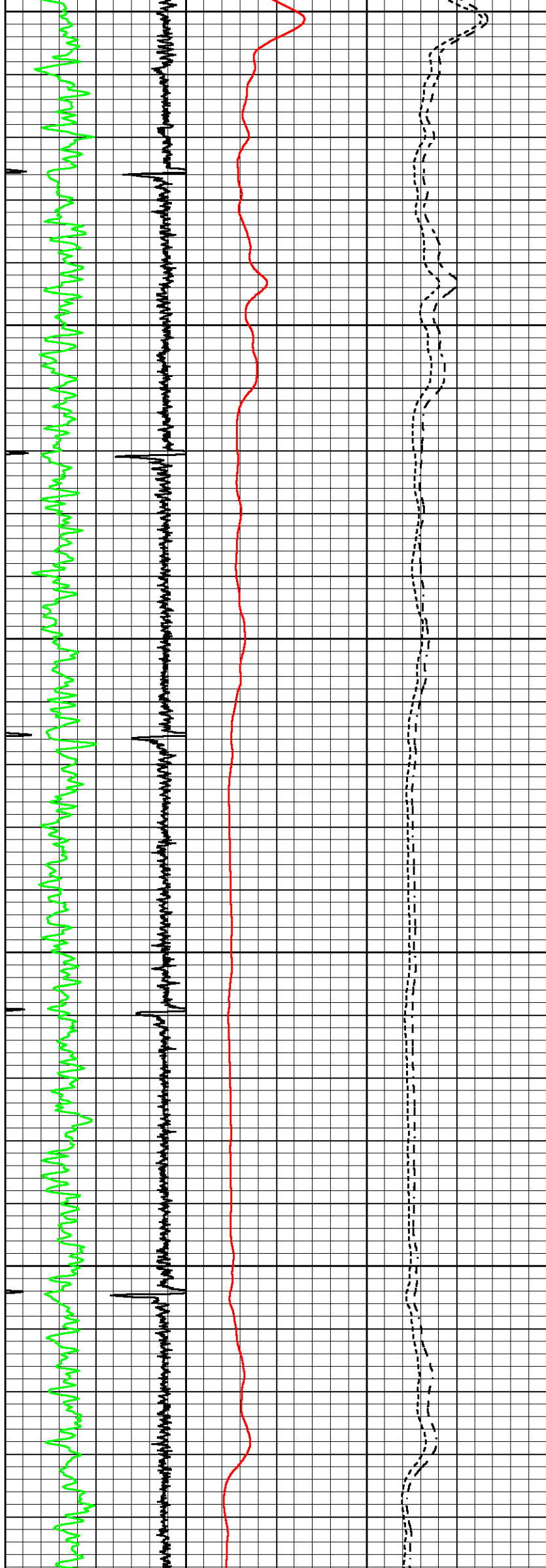
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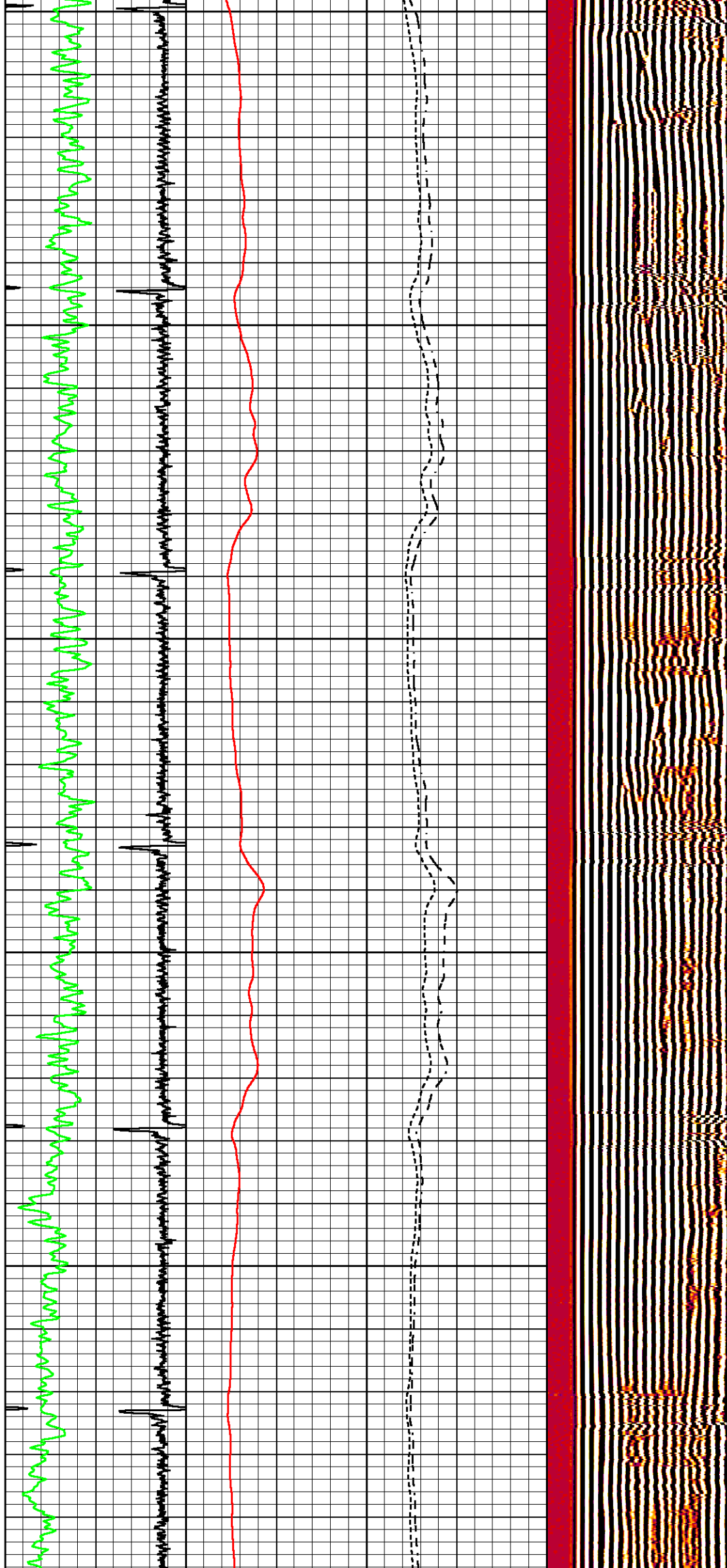
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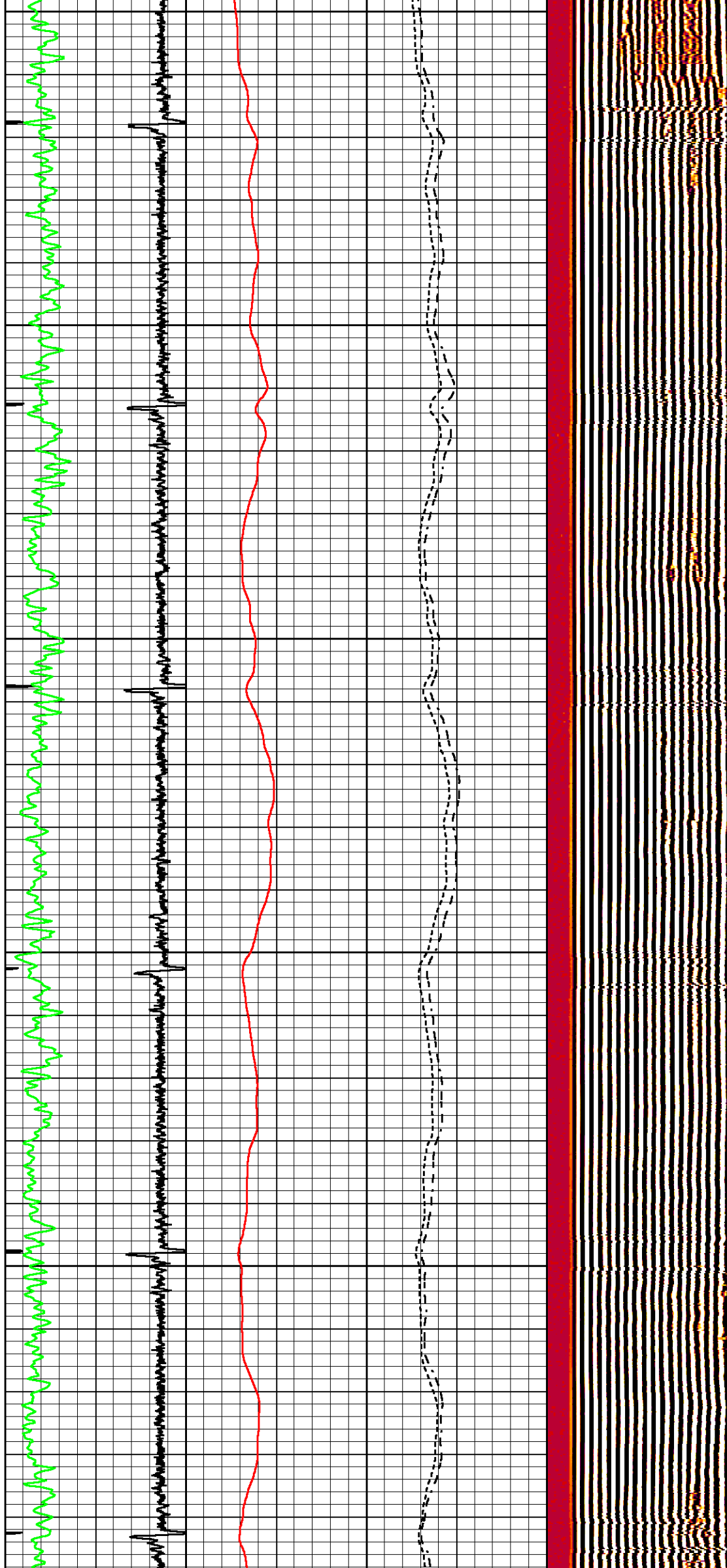
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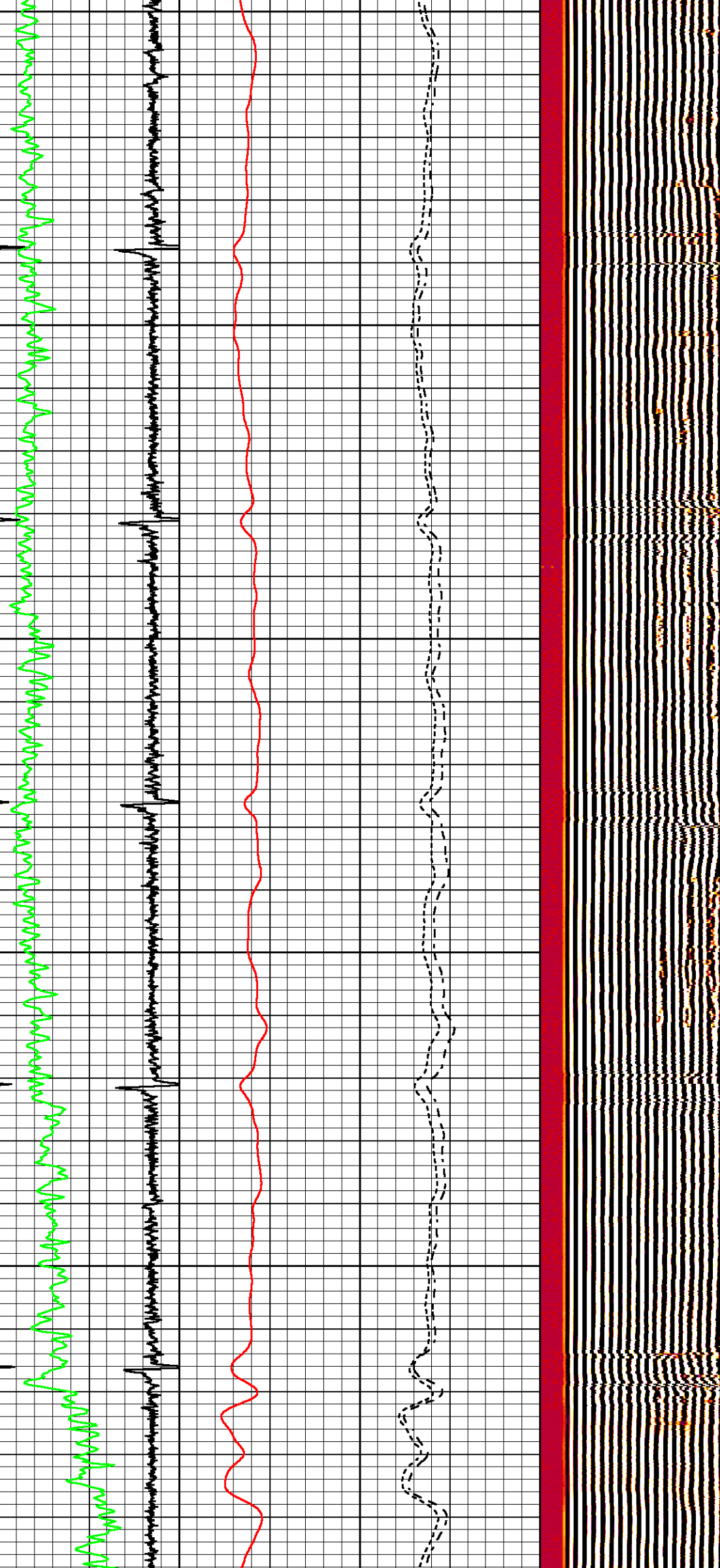
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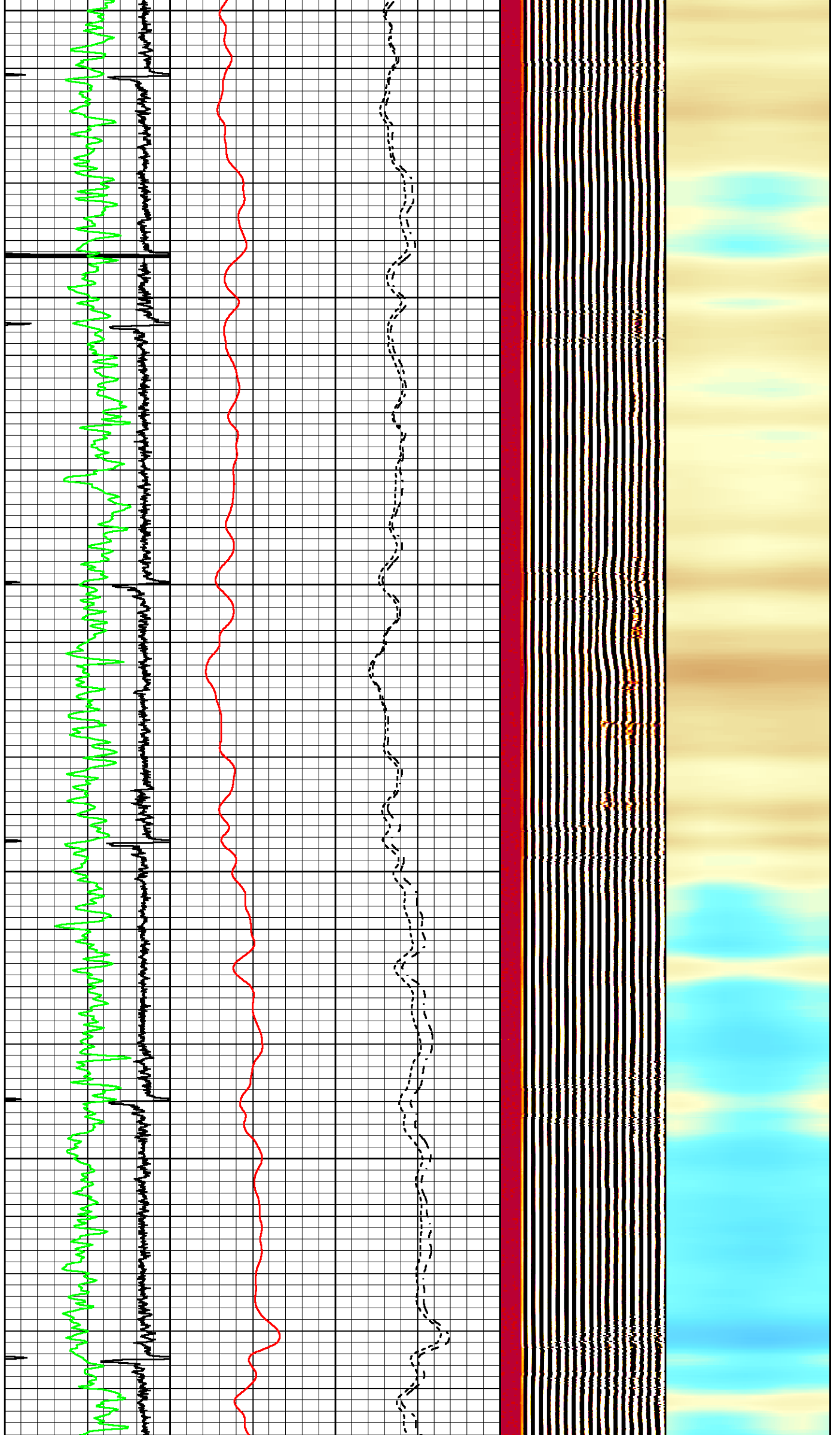
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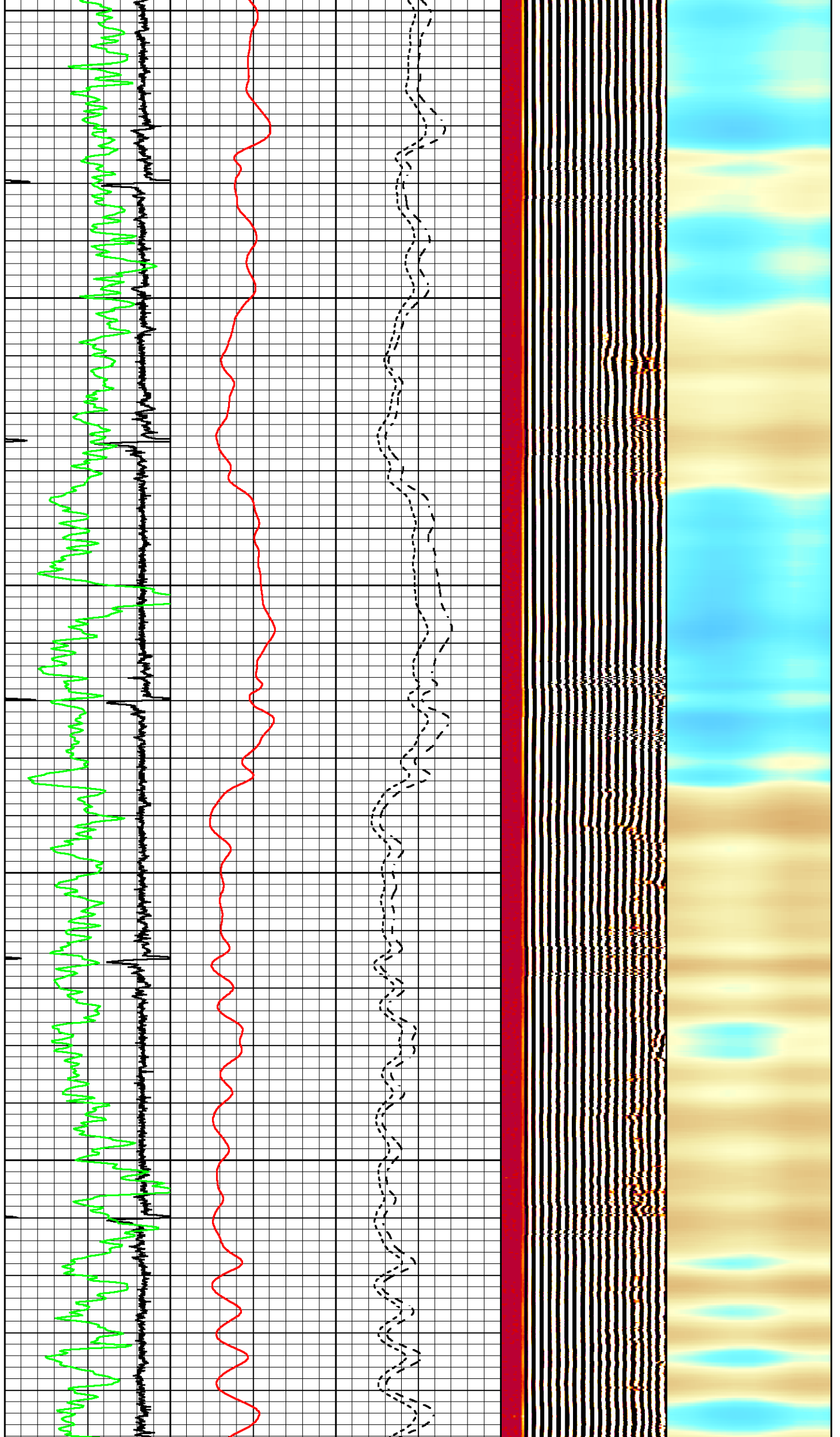
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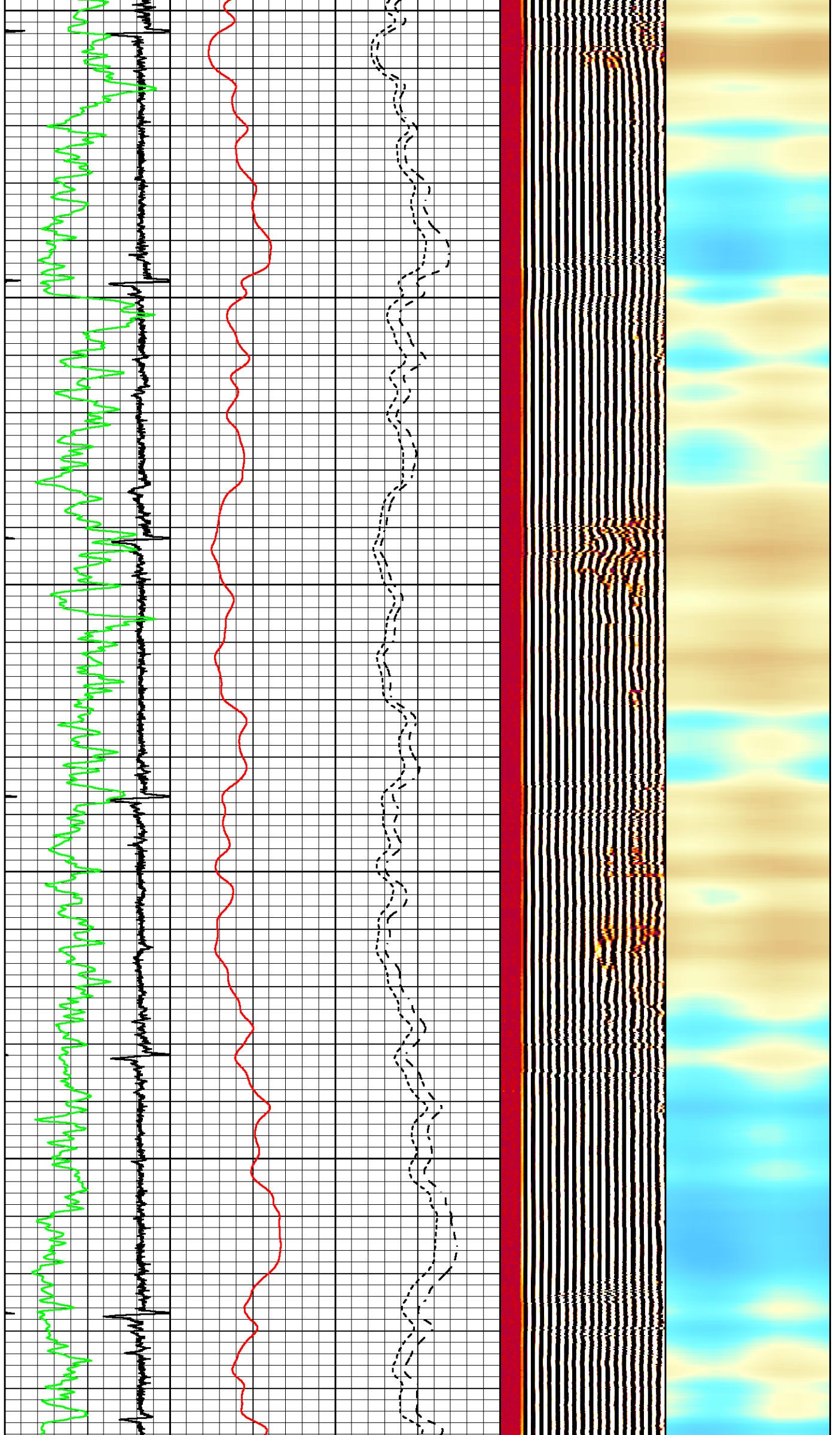
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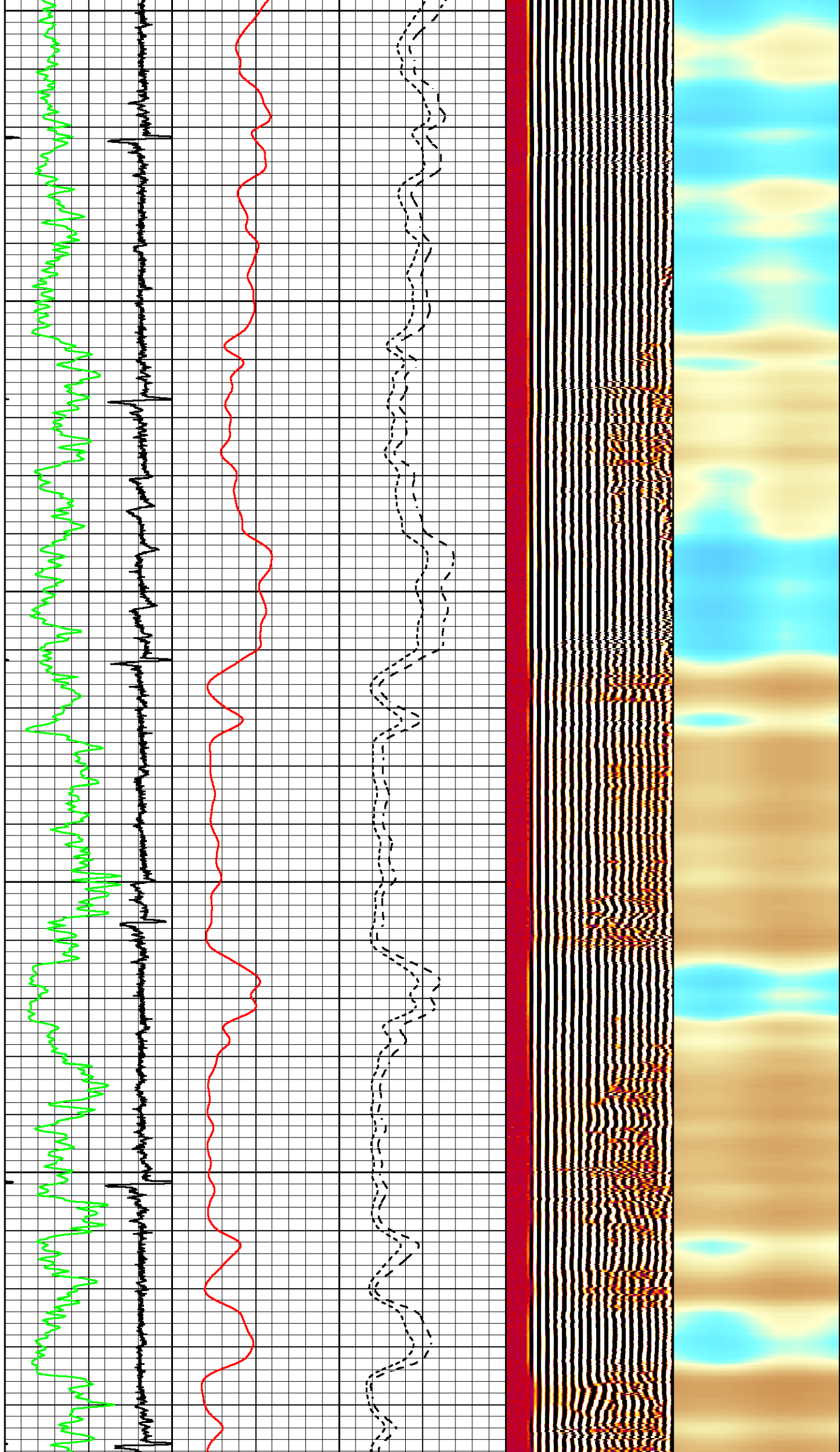
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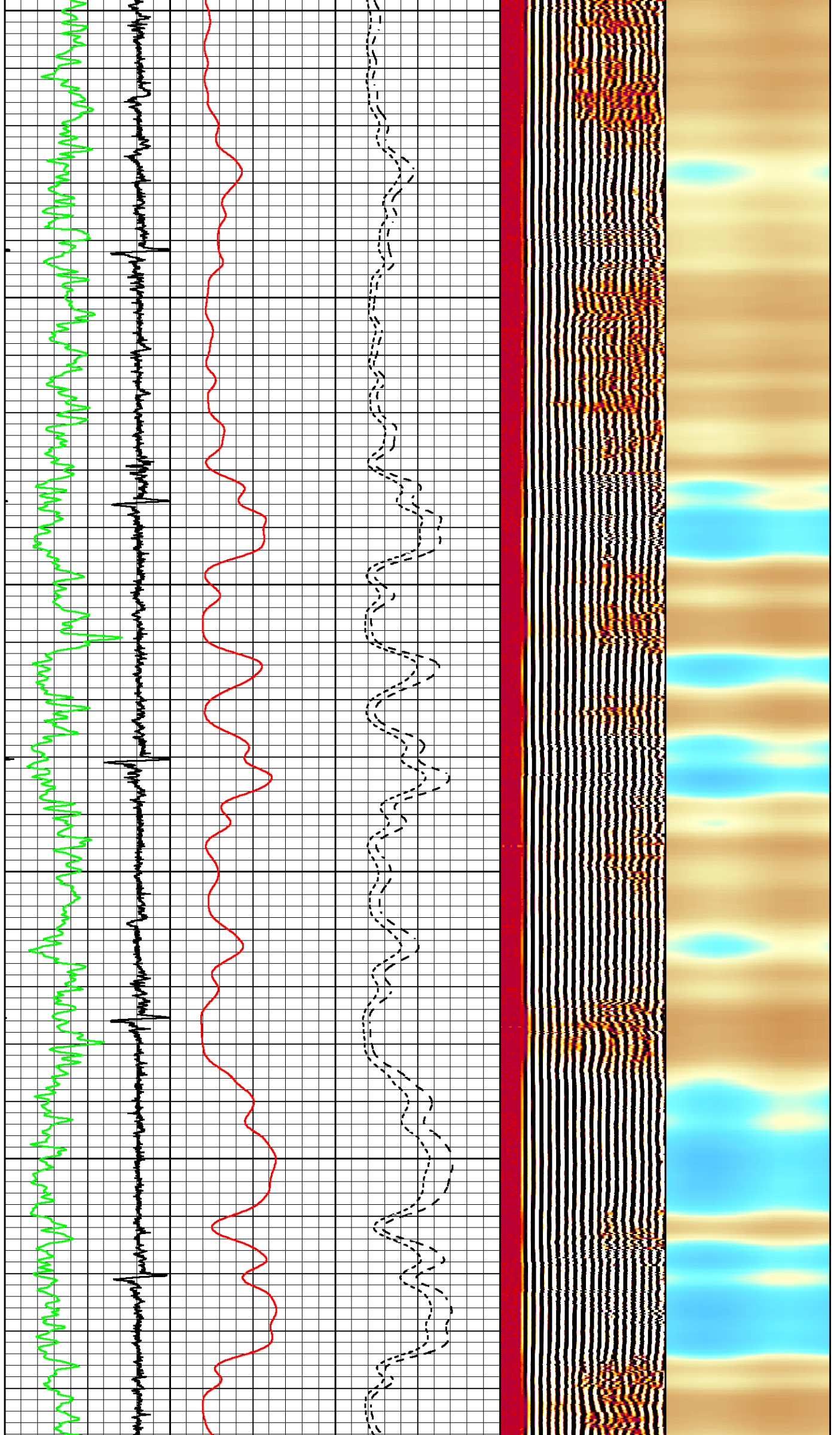
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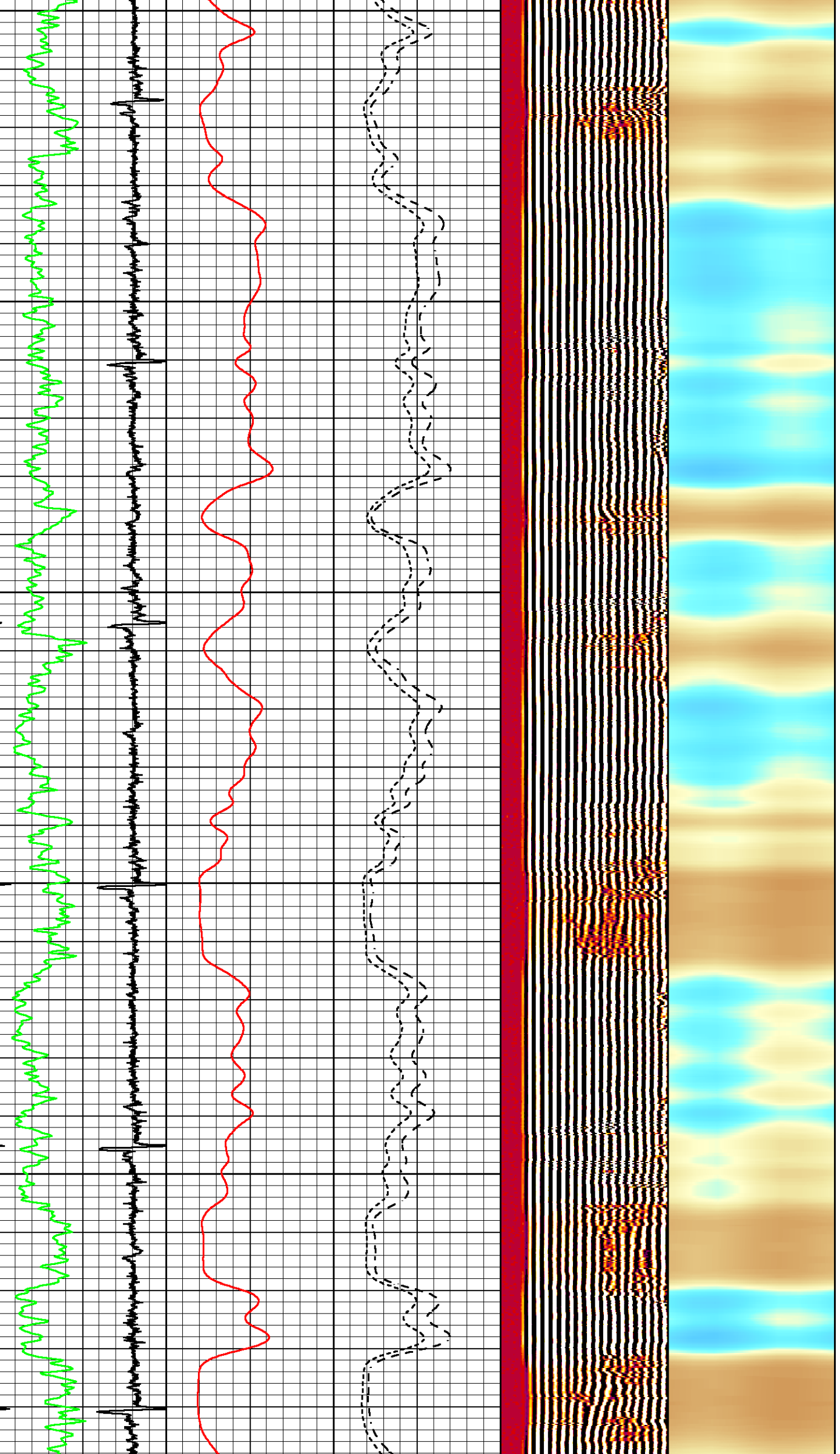
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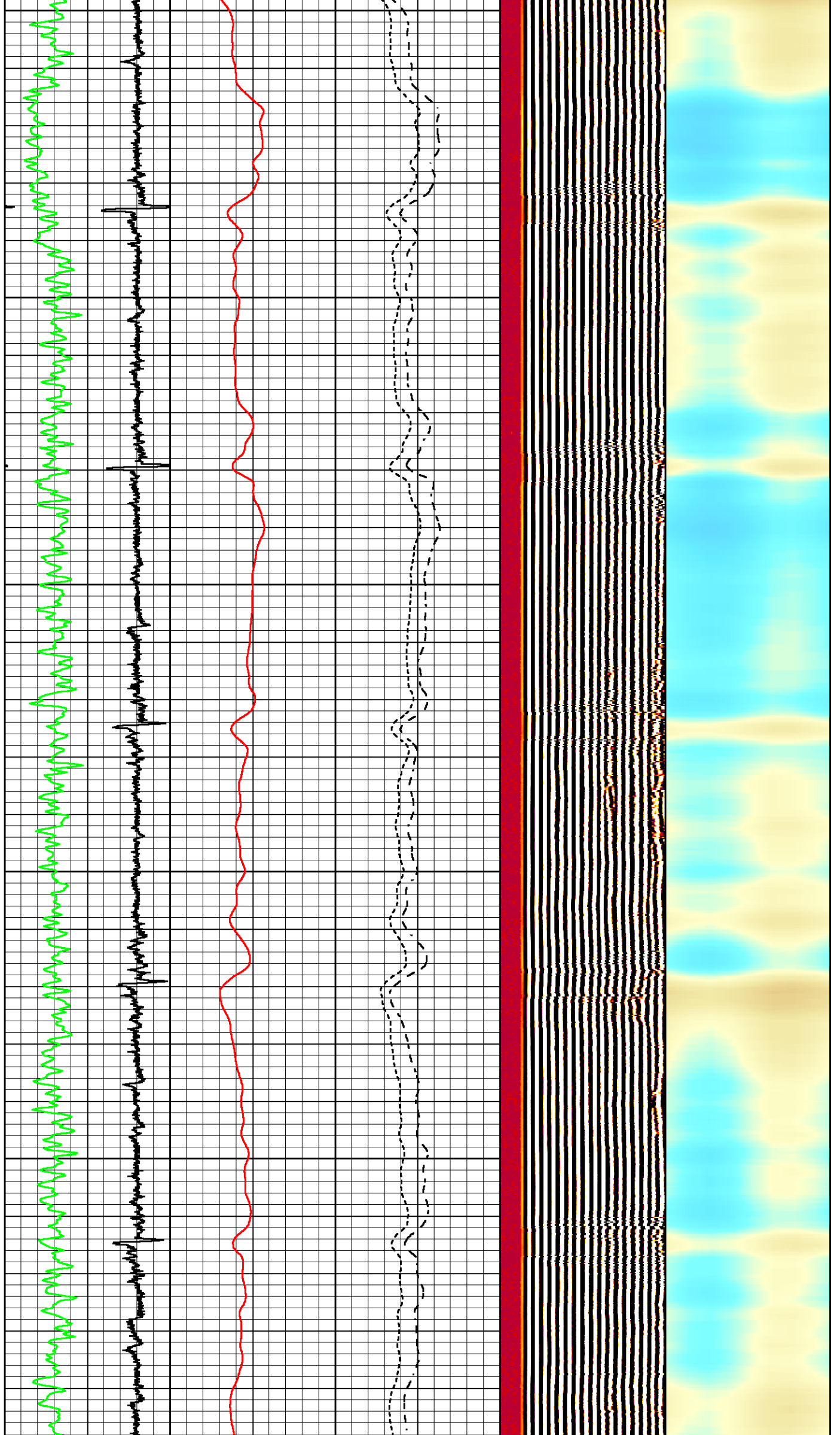
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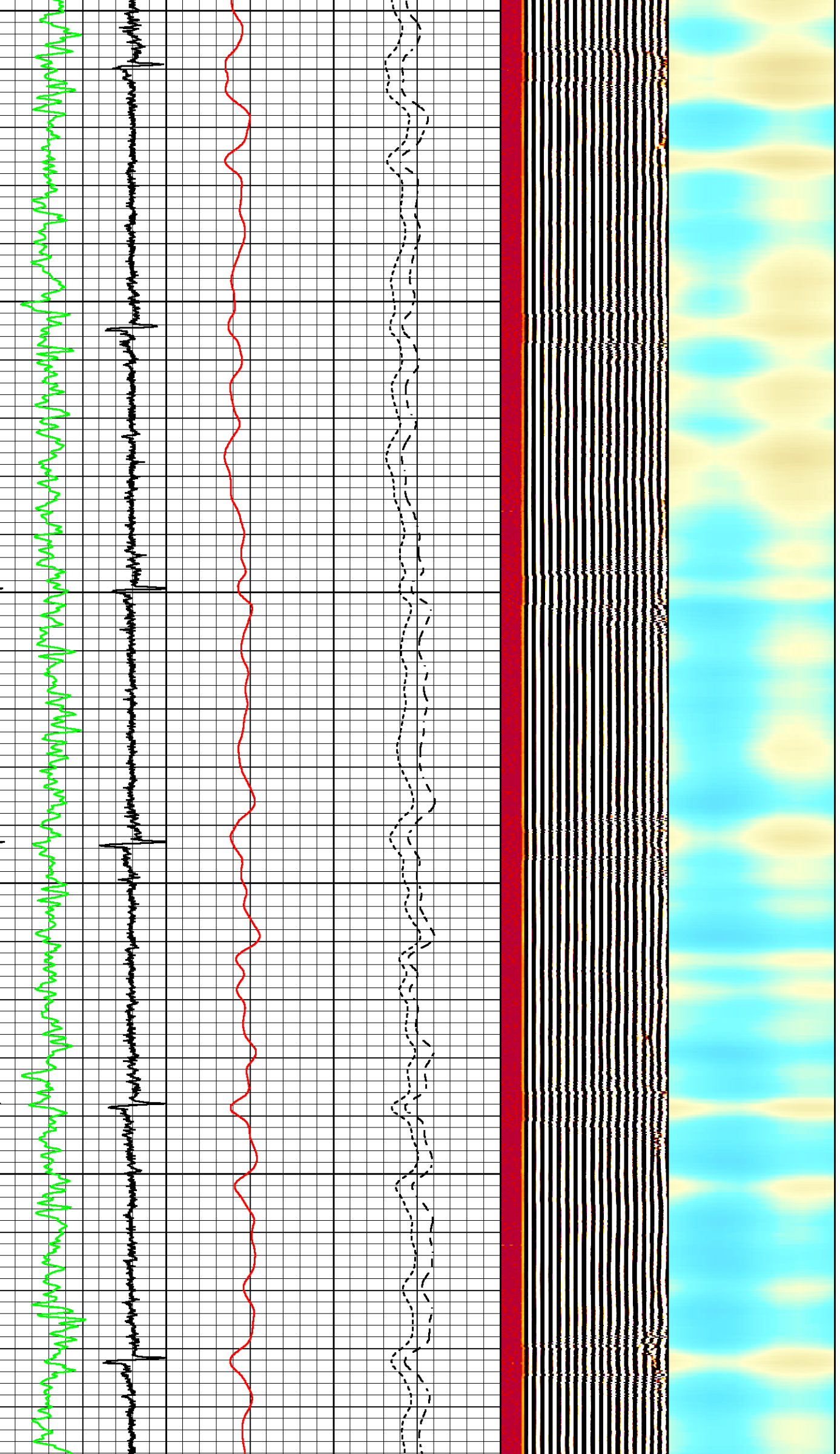
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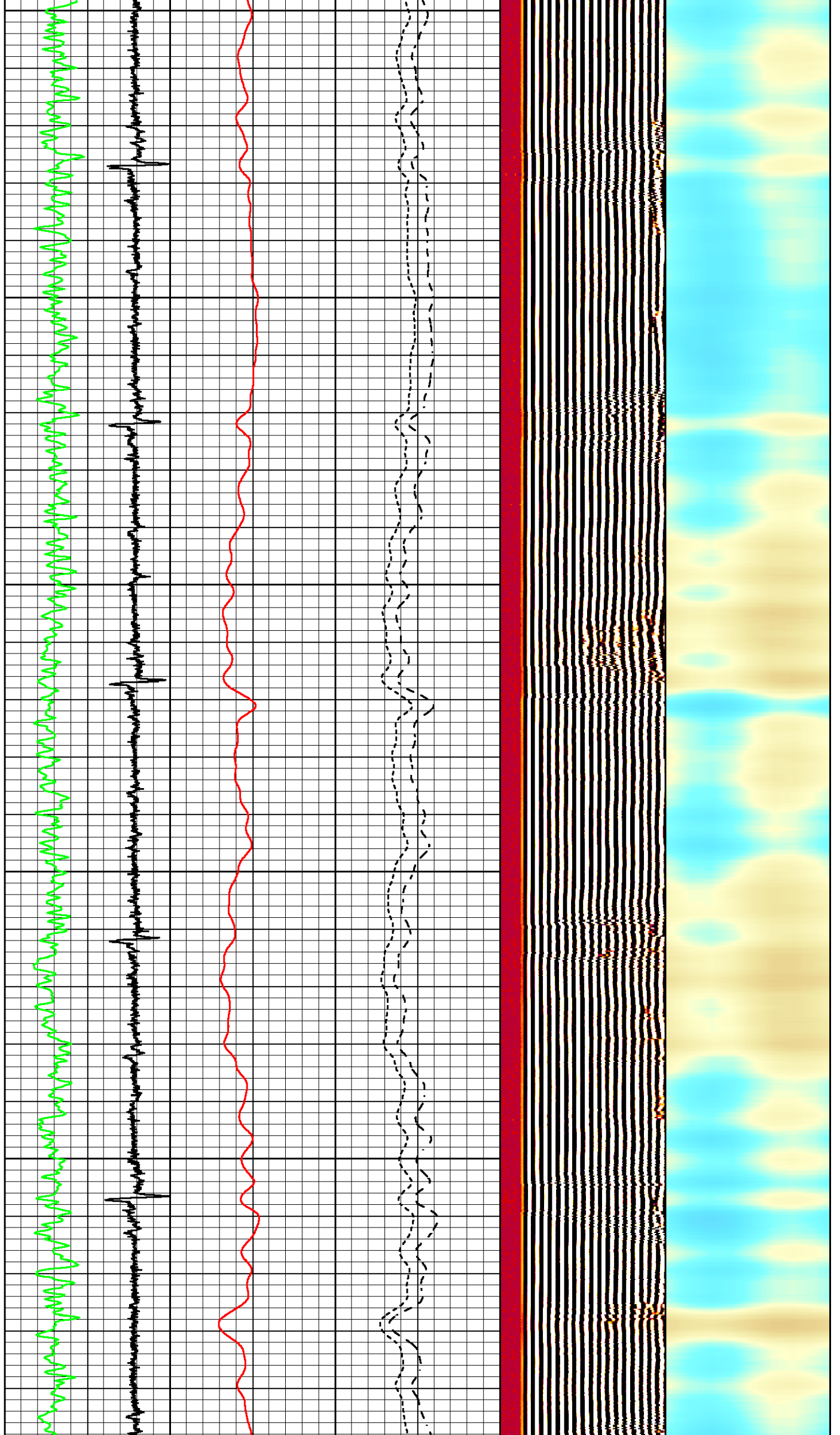
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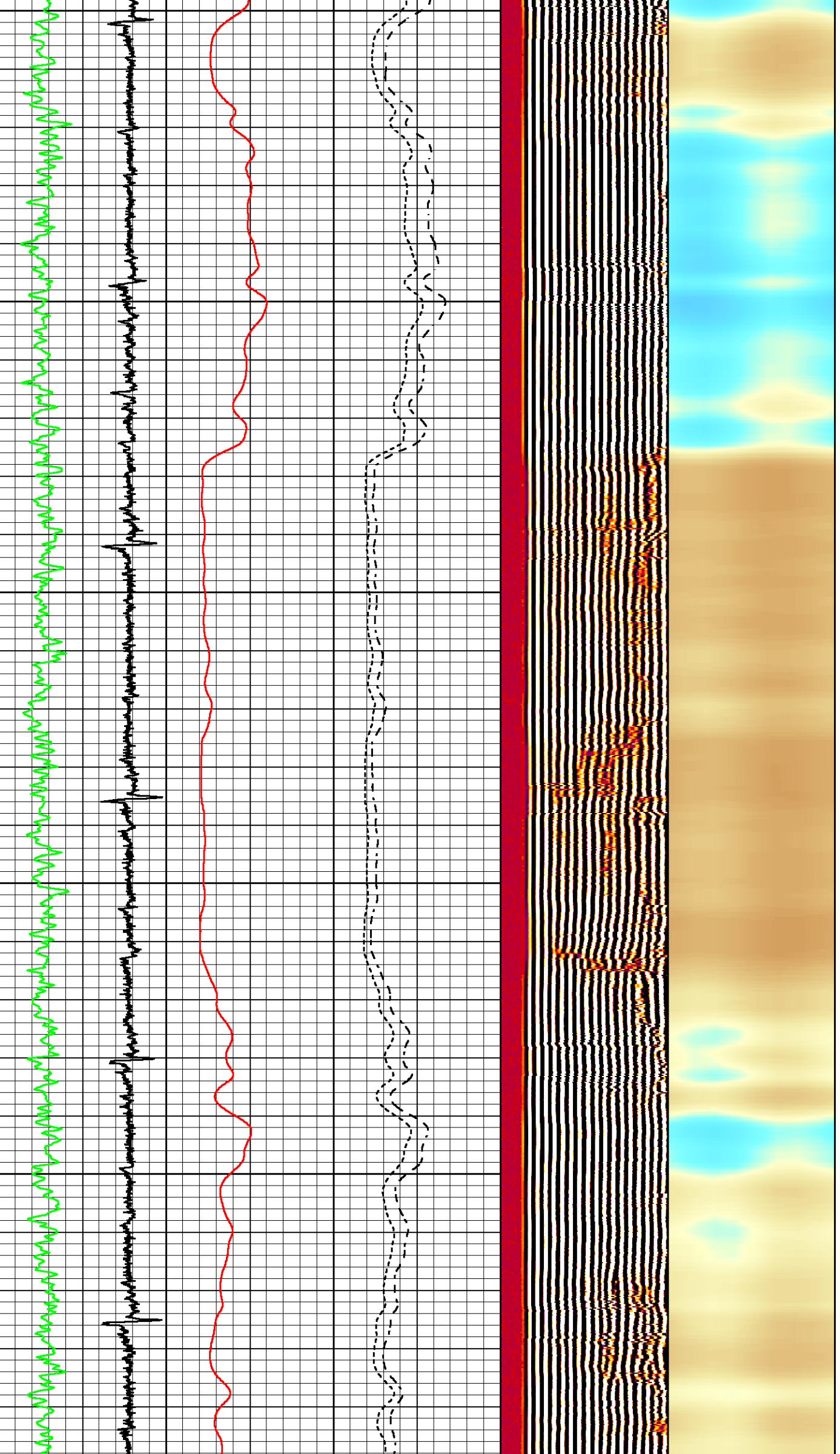
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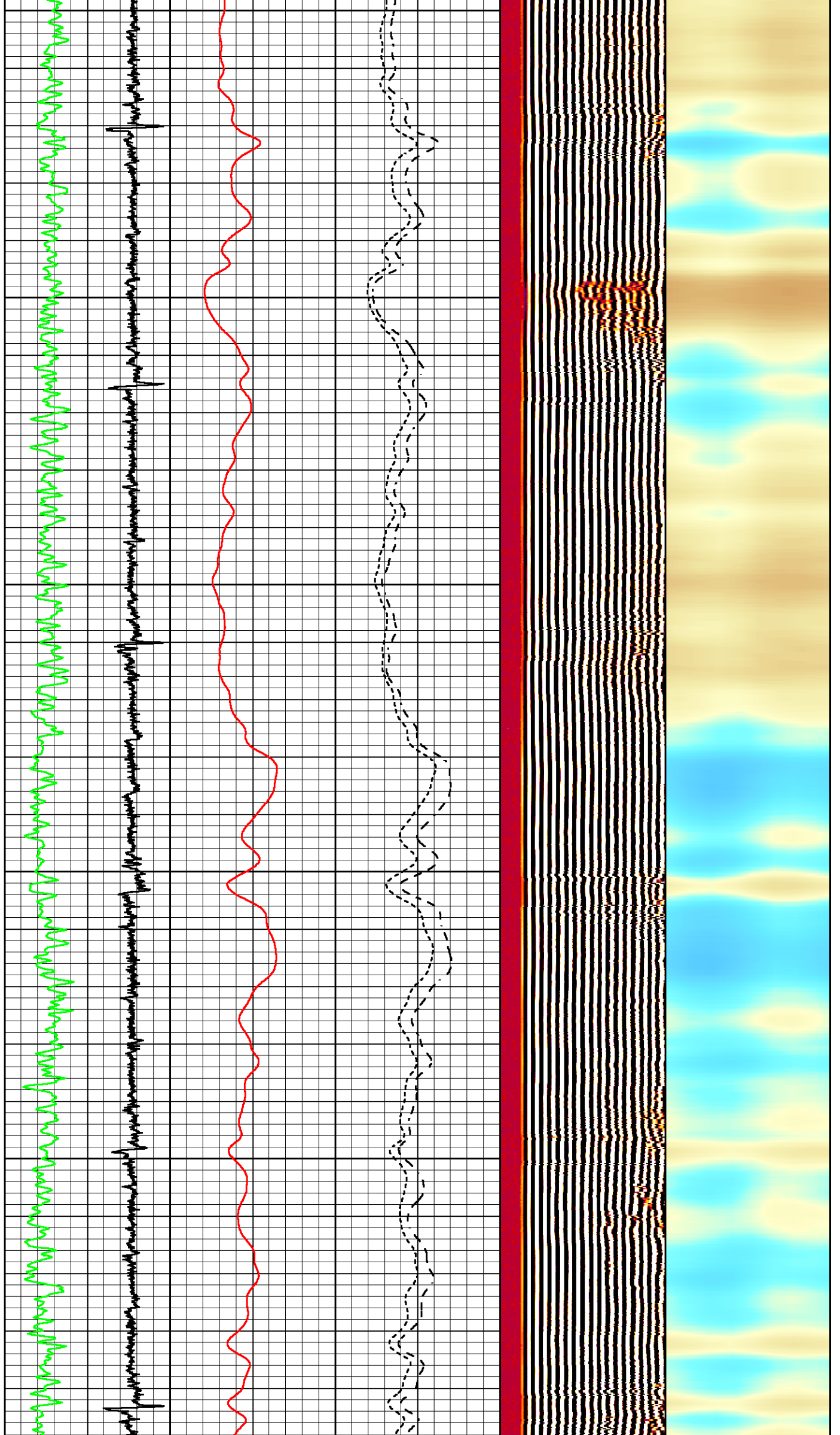
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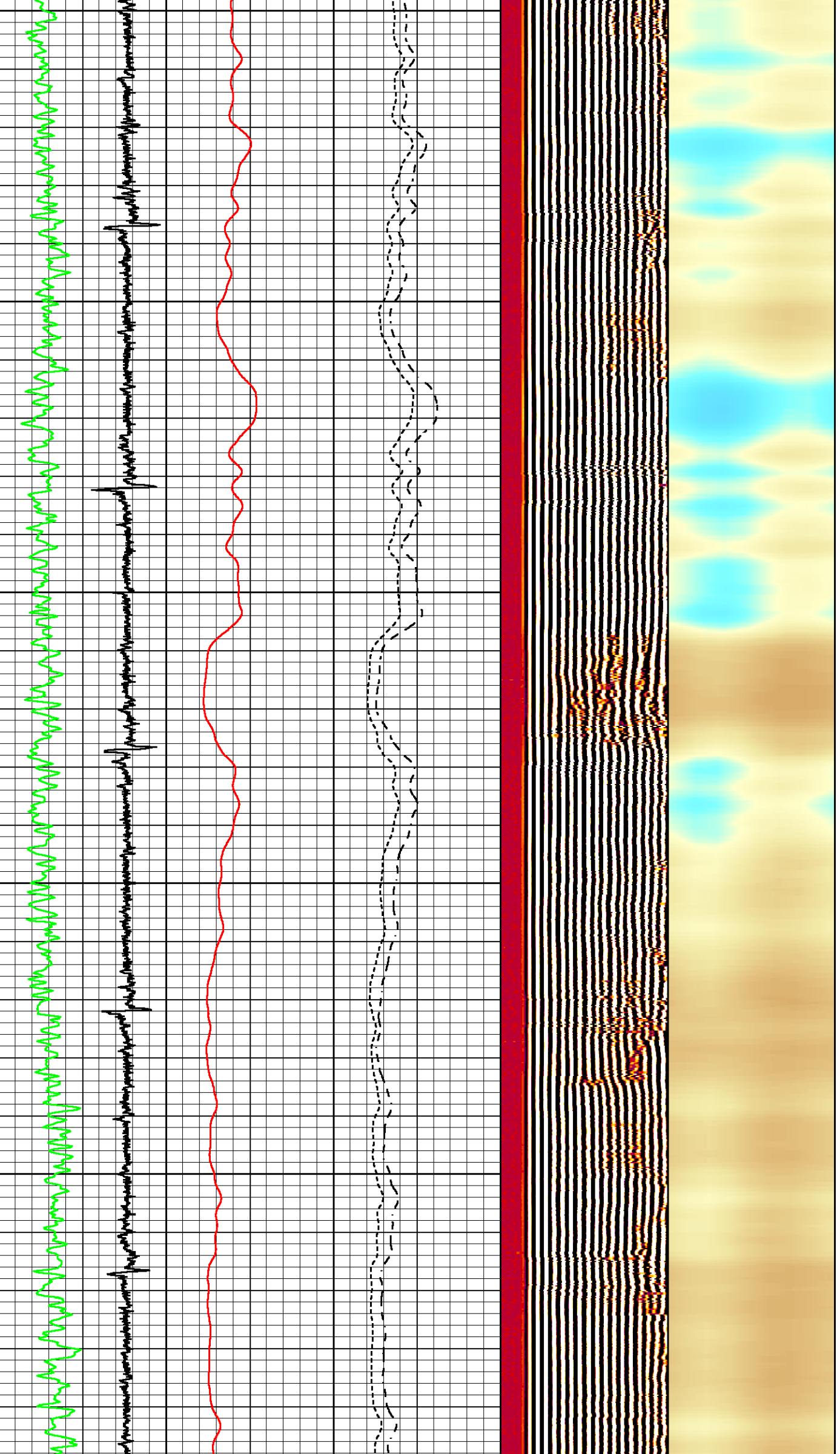
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5100



5200

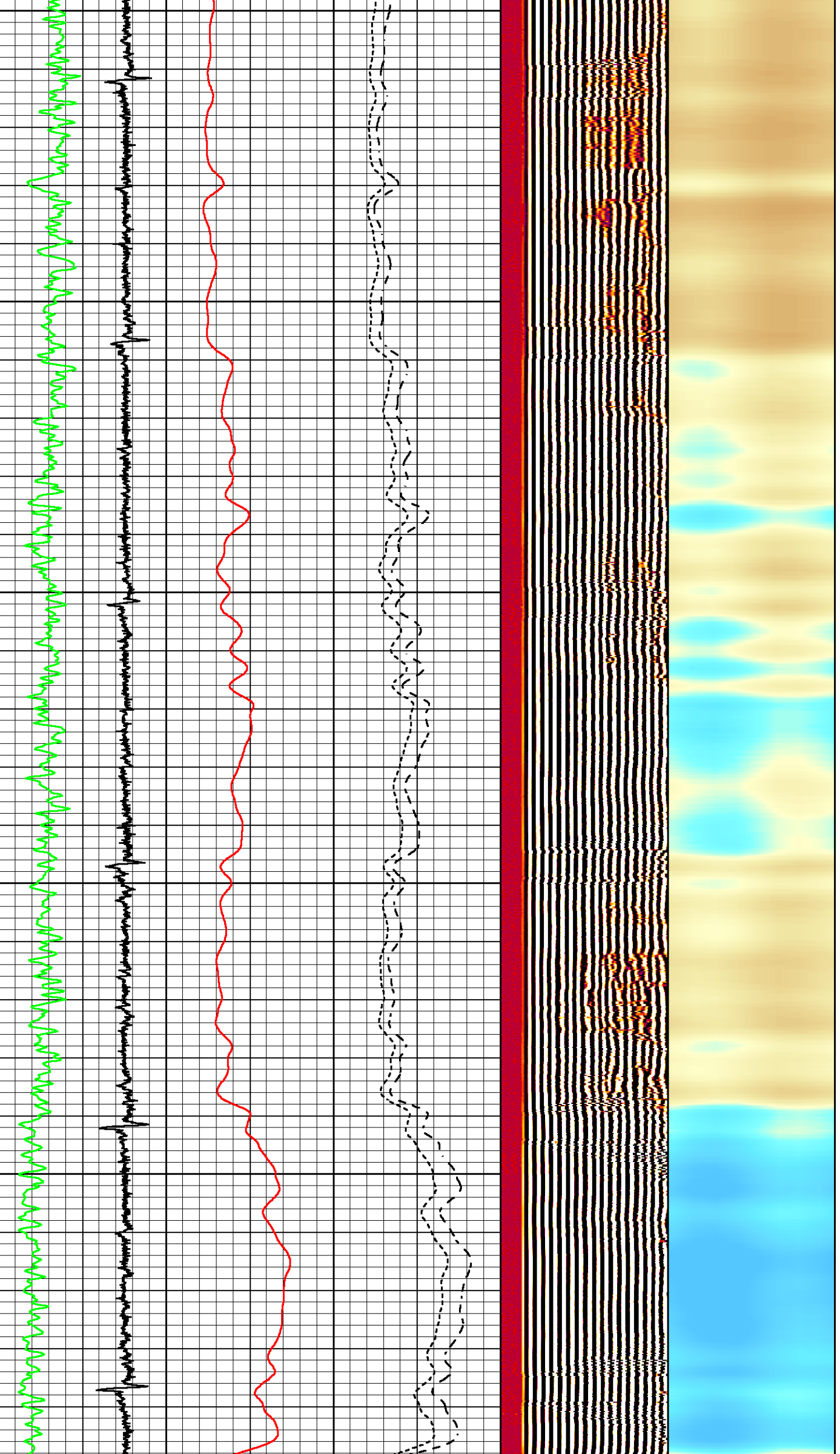
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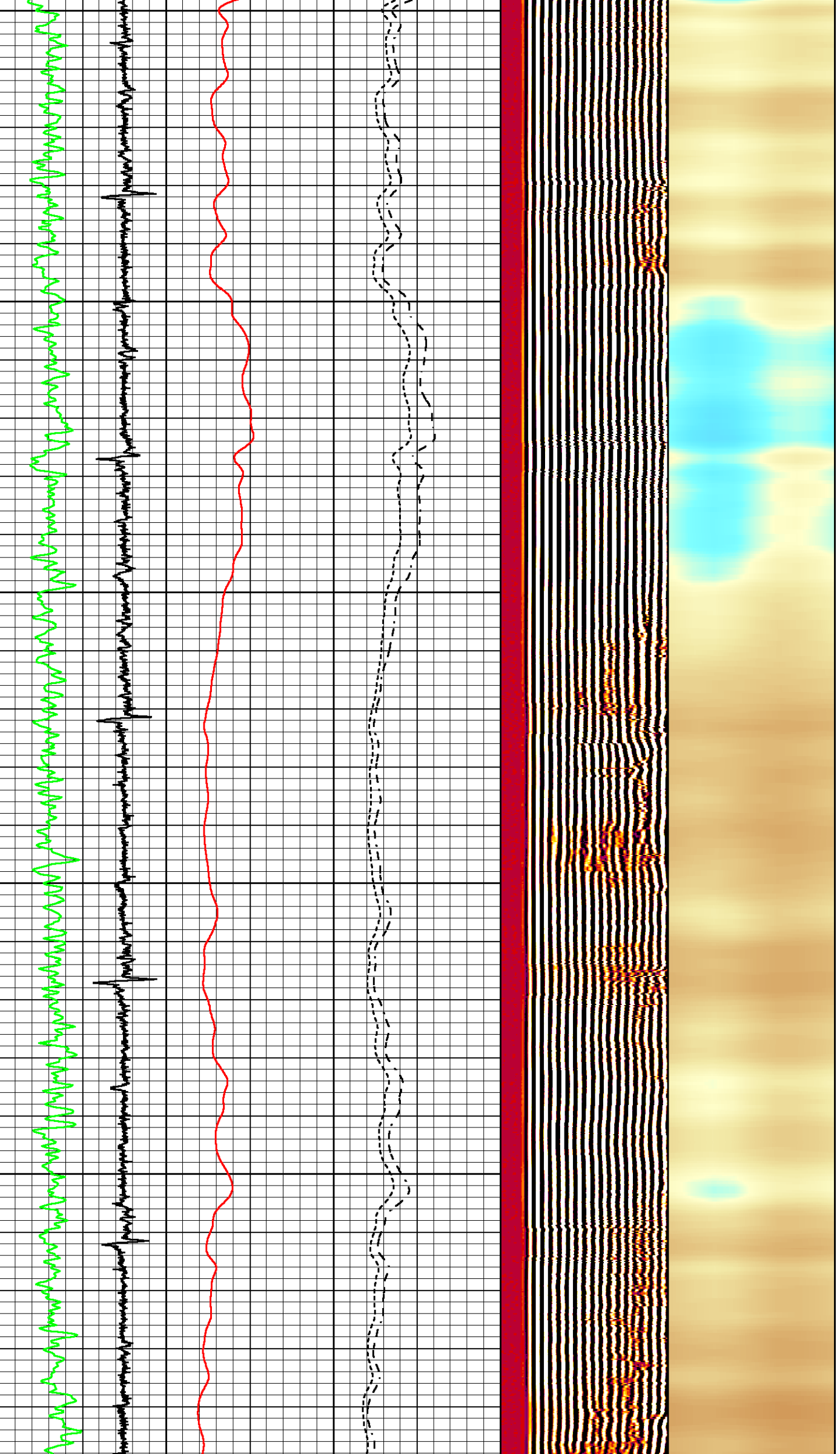
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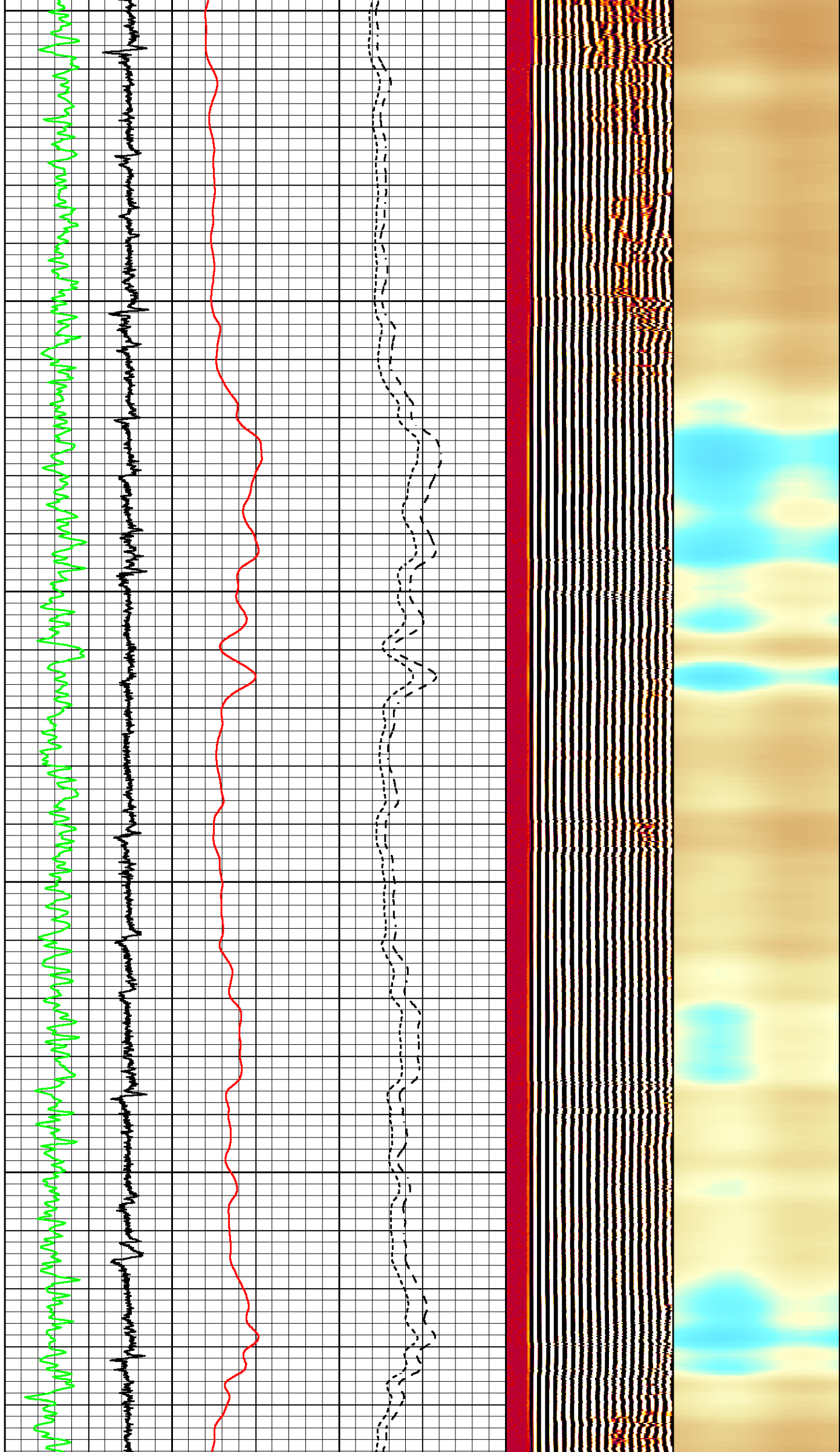
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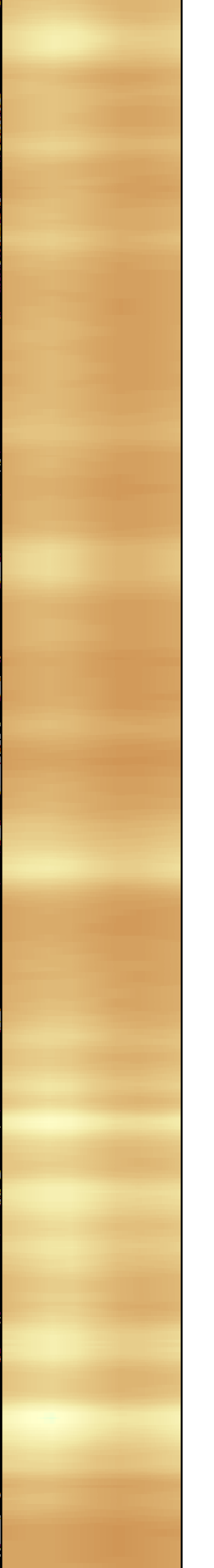
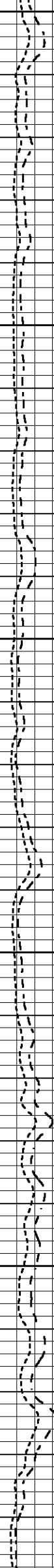
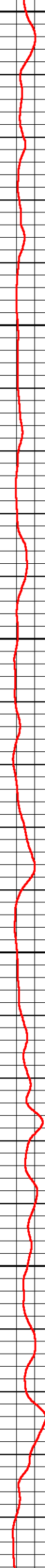
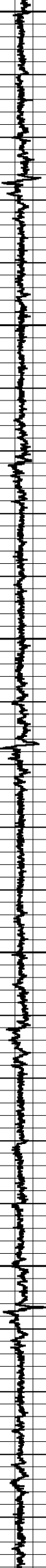
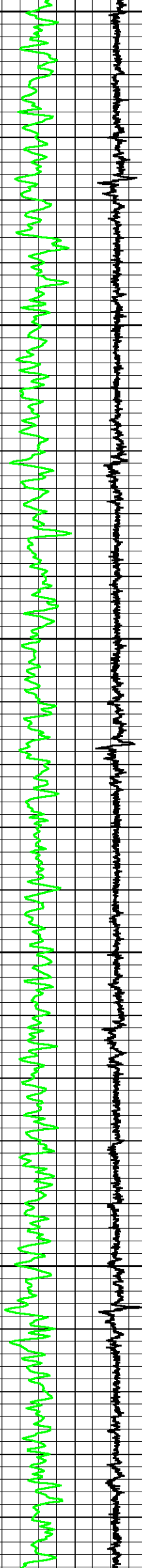
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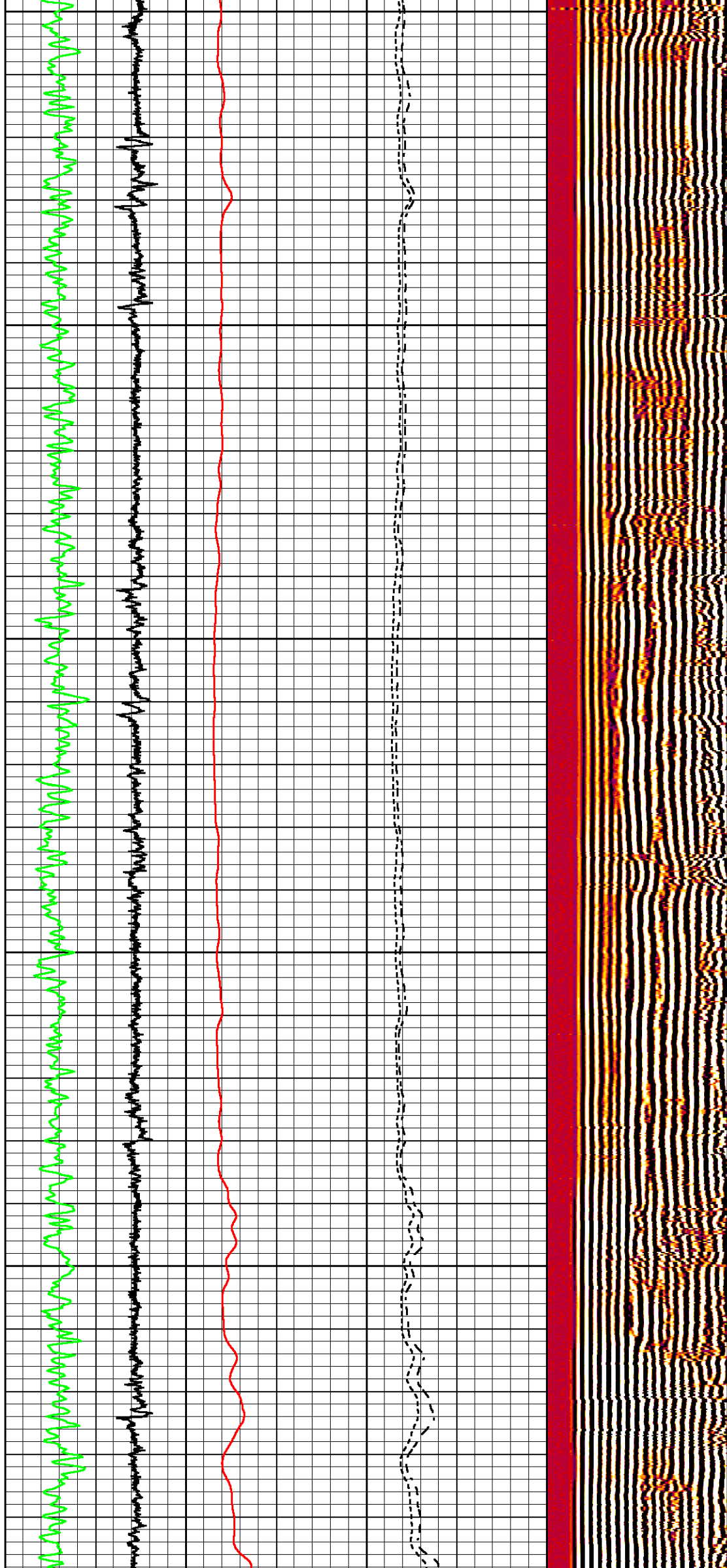
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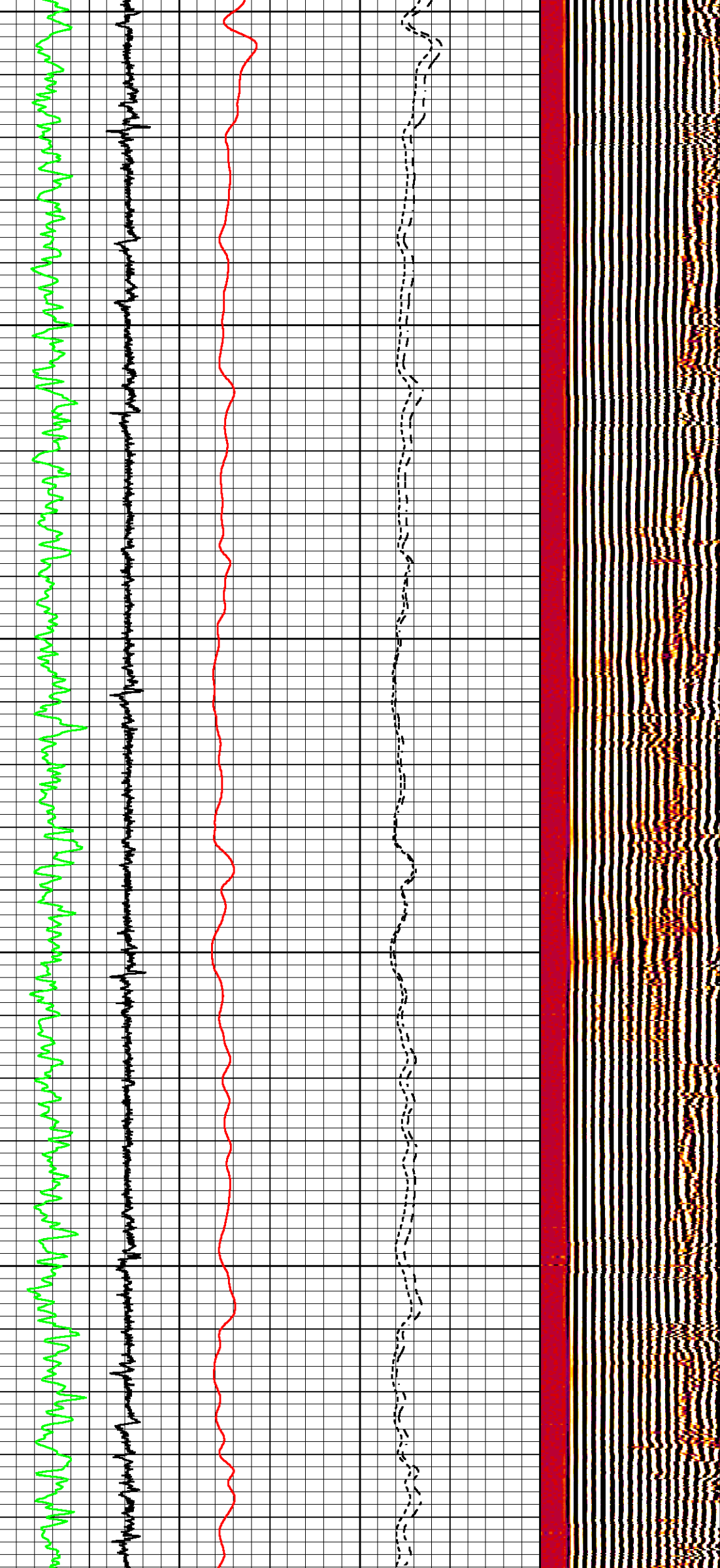
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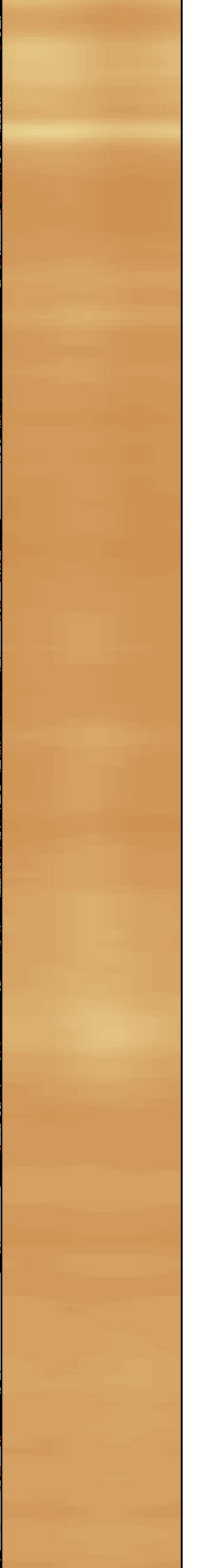
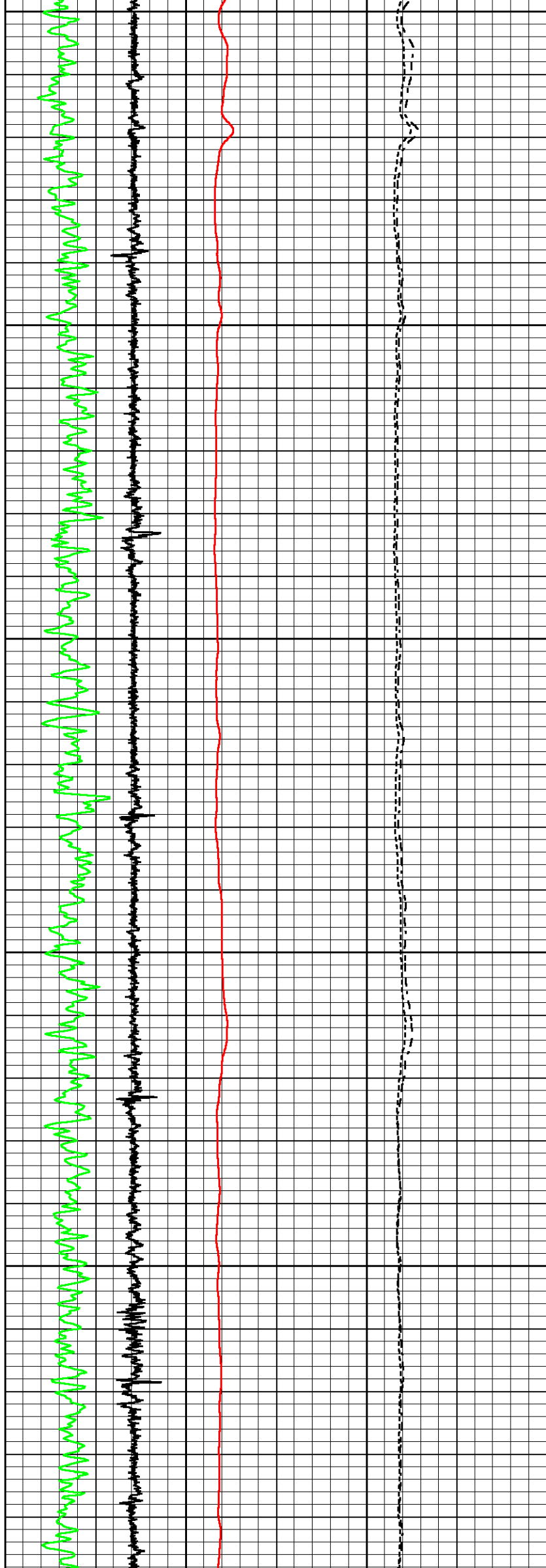
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6900

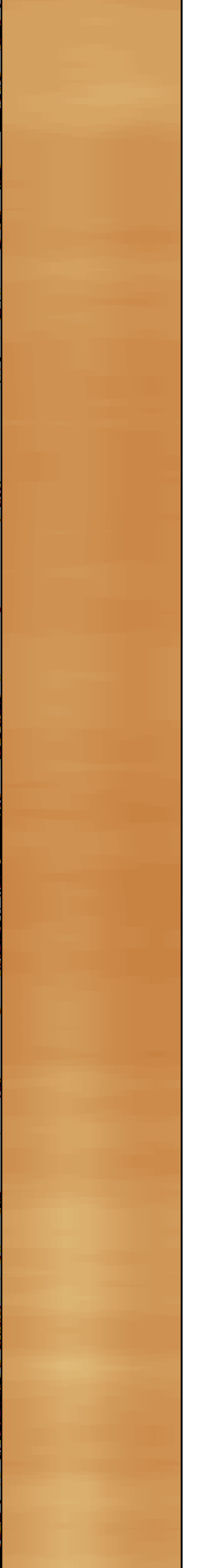
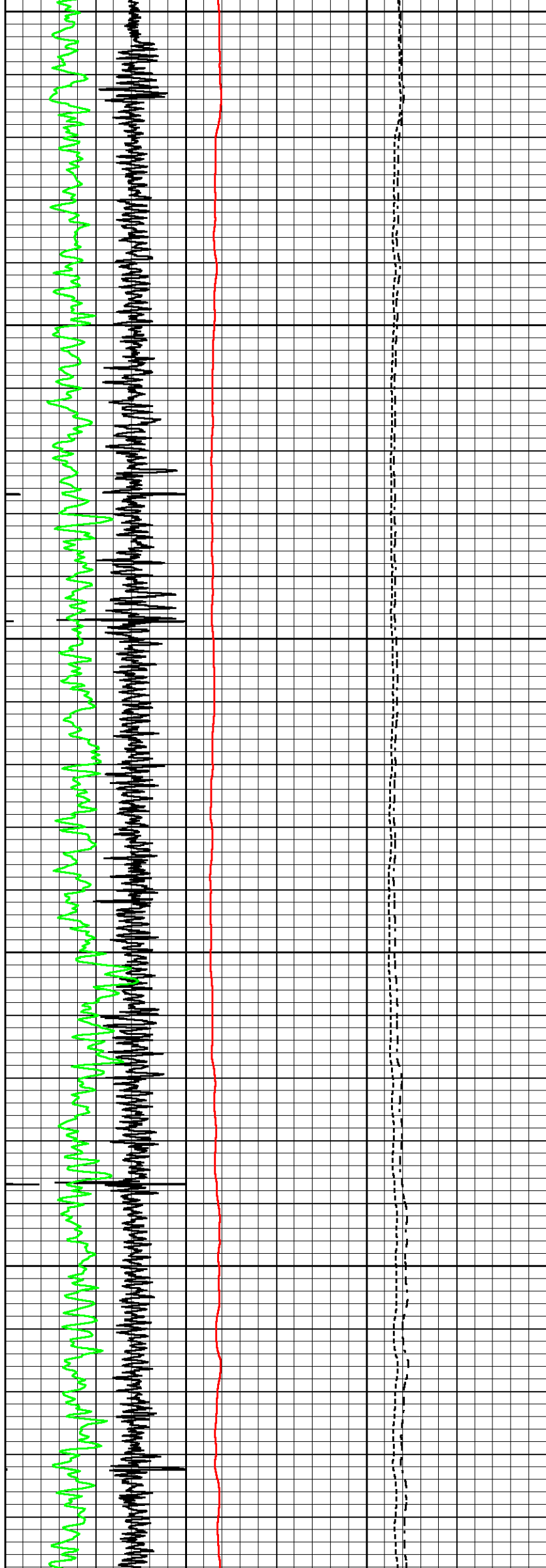
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7100



7200

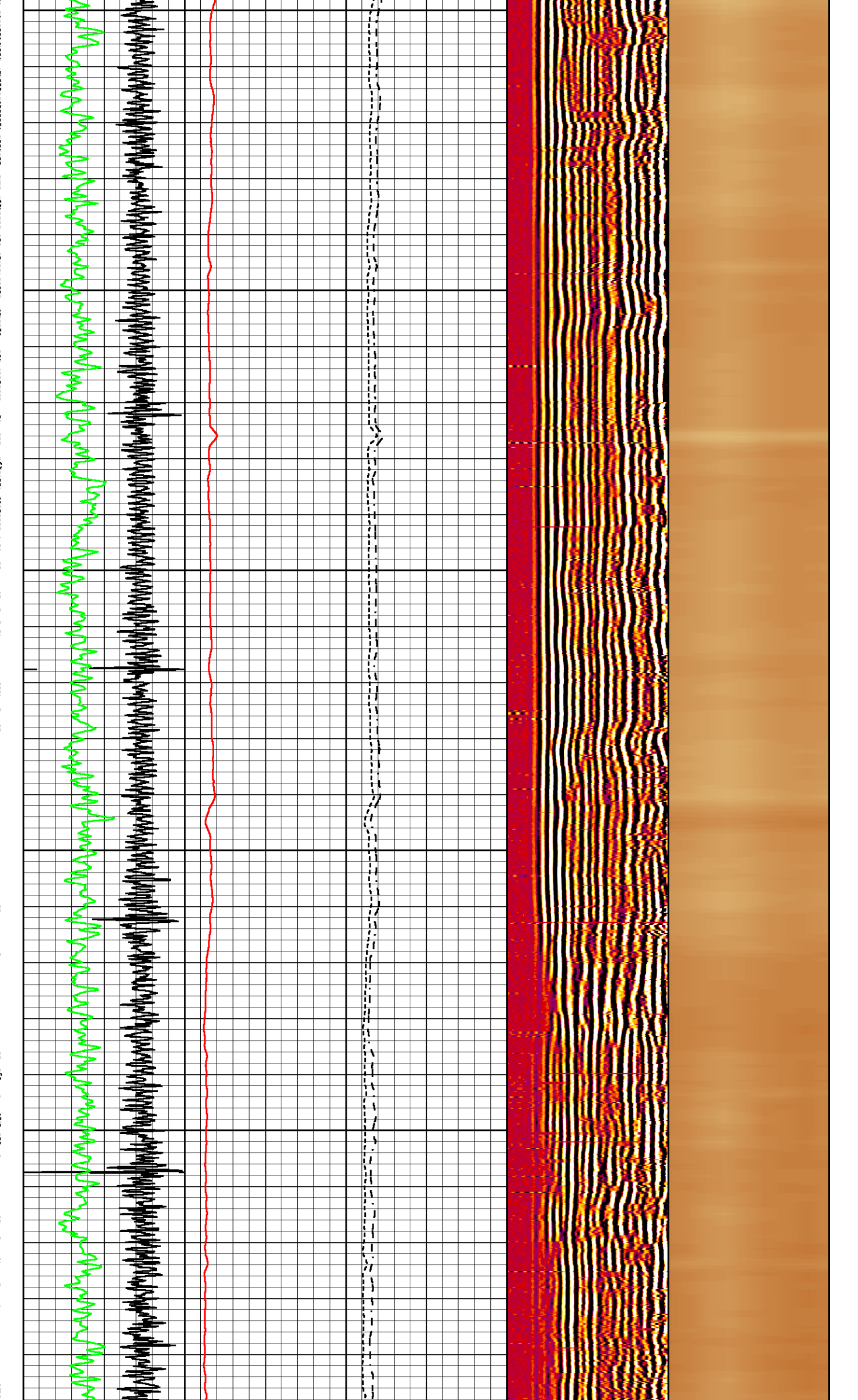
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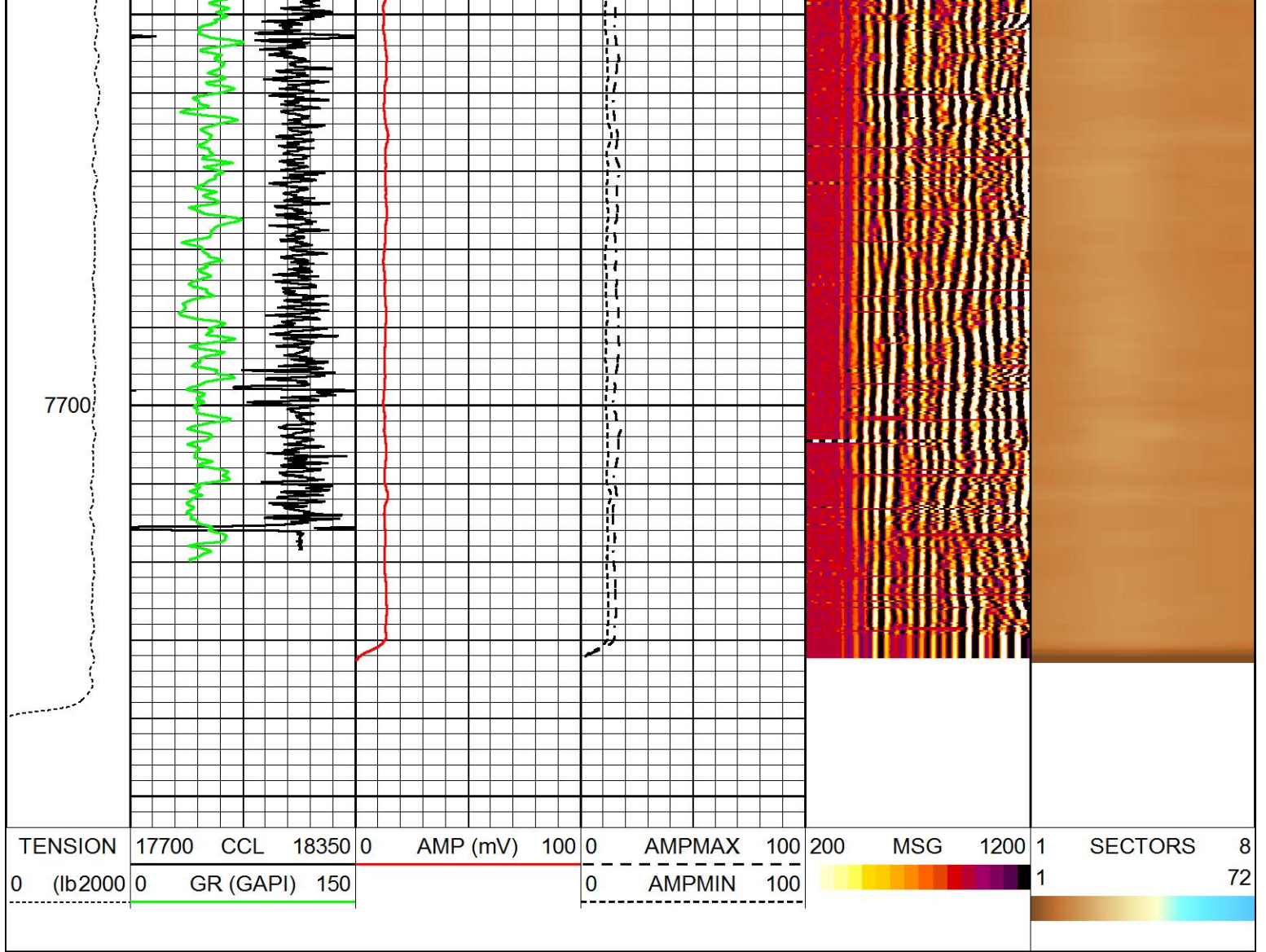


7400

7500

7600





MAIN PASS

HALLIBURTON

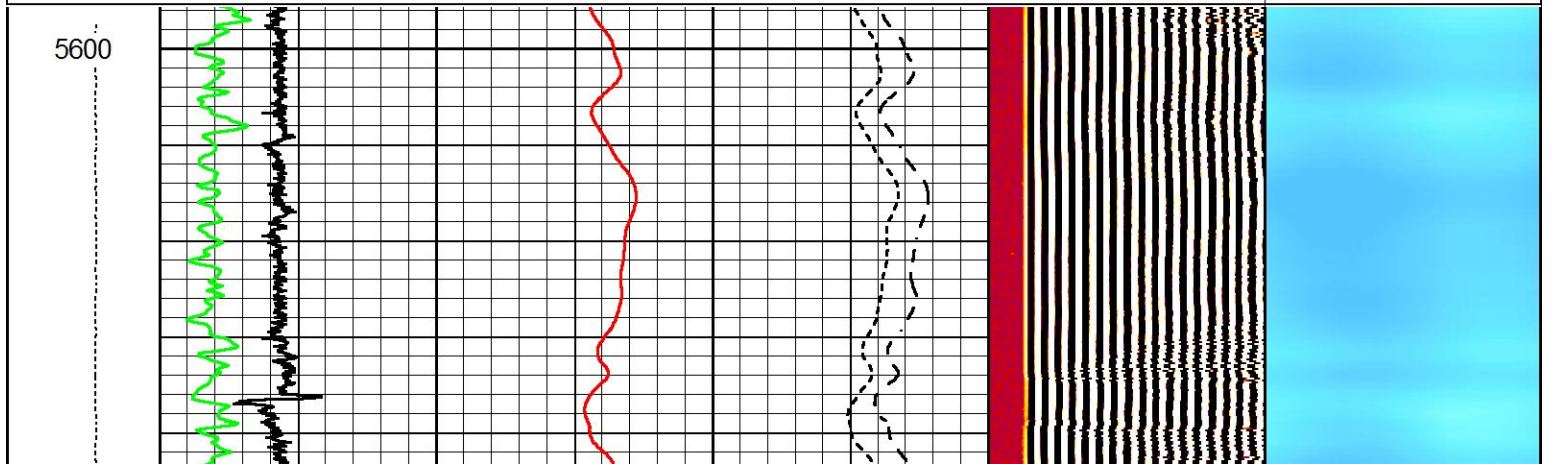
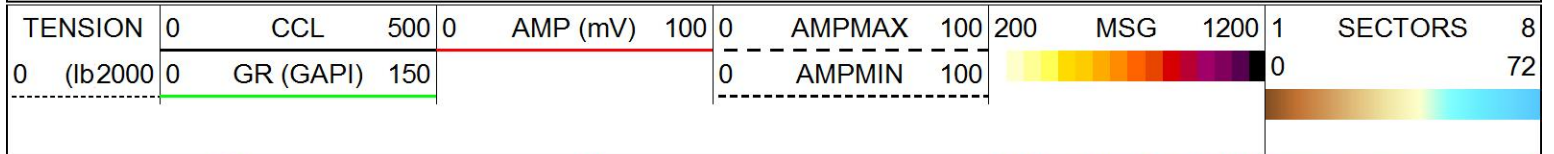
5" = 100'

REPEAT PASS

HALLIBURTON

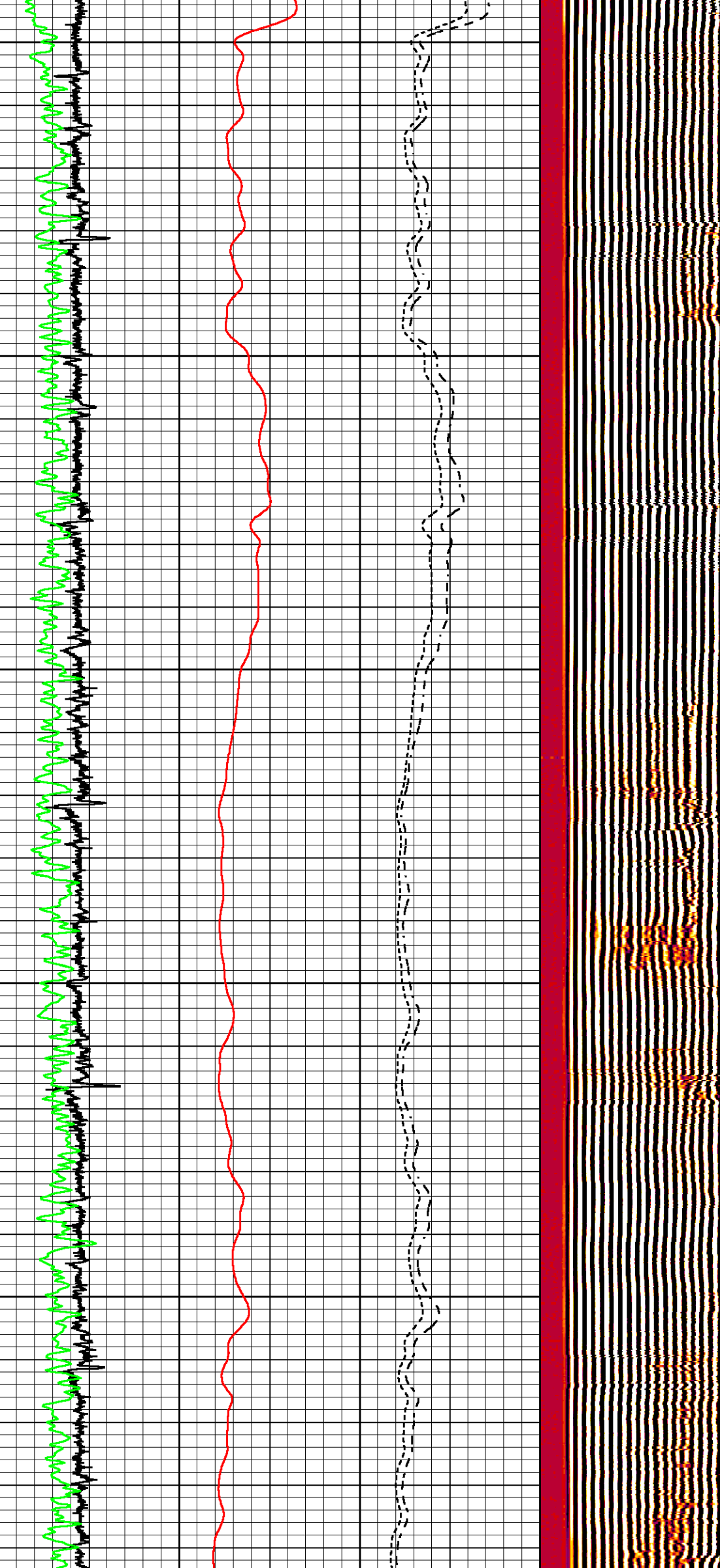
5" = 100'

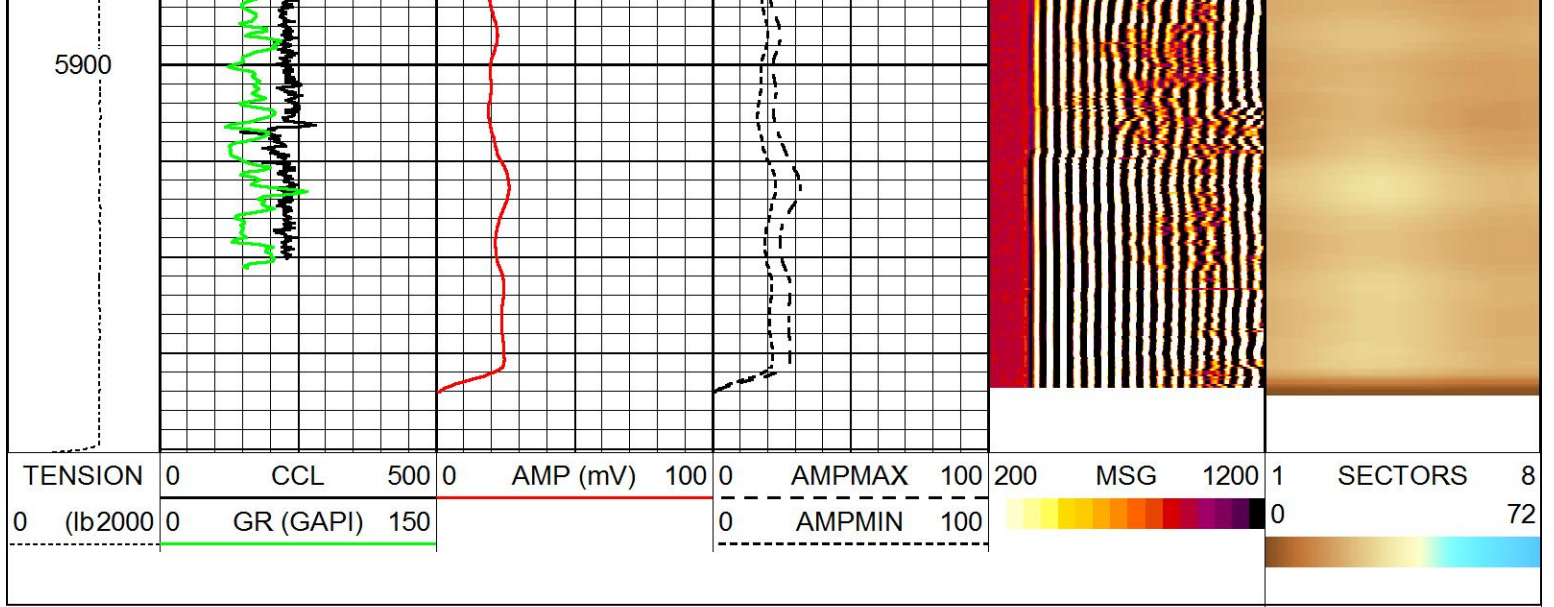
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 Dataset Pathname RPT
 Presentation Format rbtm_col
 Dataset Creation Mon Jun 20 11:25:57 2016
 Charted by Depth in Feet scaled 1:240



5700

5800





HALLIBURTON

REPEAT PASS

5" = 100'

DatabaseD:\Warrior_data\mutual_0780_4-8h.db
 Dataset field/well/run1/MAIN1/_vars_

Log Variables

Top - Bottom

BHTEMP_Src	PPT usec	CASEWGHT lb/ft	MAXAMPL mV	MINAMPL mV	MINATTN db/ft	SRFTEMP degF	MudWgt lb/gal
ITEMPX	0	20	72	1	0.8	75	8.5
CASETHCK in	CASEOD in	PERFS	TDEPTH ft	BOTTEMP degF	BITSIZE in		
0.361	5.5	0	0	200	8.75		

Calibration Report

Database File mutual_0780_4-8h.db
 Dataset Pathname RPT
 Dataset Creation Mon Jun 20 11:25:57 2016

Segmented Cement Bond Log Calibration Report

Serial Number: 000001
 Tool Model: 004

Calibration Casing Diameter: 5.500 in
 Calibration Depth: 320.033 ft

Master Calibration, performed Mon Jun 20 10:57:43 2016:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	0.000	0.692	0.000	72.000	103.985	0.000
5FT	0.000	1.268	0.000	72.000	56.793	0.000
S1	0.000	0.727	0.000	72.000	99.062	0.000
S2	0.000	0.699	0.000	72.000	102.960	0.000
S3	0.000	0.674	0.000	72.000	106.777	0.000
S4	0.000	0.658	0.000	72.000	109.497	0.000
S5	0.000	0.658	0.000	72.000	109.395	0.000
S6	0.000	0.671	0.000	72.000	107.247	0.000
S7	0.000	0.691	0.000	72.000	104.213	0.000
S8	0.000	0.709	0.000	72.000	101.500	0.000

Calibration Report

Serial Number: 000001
 Tool Model: 004

Tool Model: 004
 Performed:

Reference (degF) Reading ()
 Low: 33.000 512.000
 High: 345.000 850.000
 Gain = 0.923 Offset = -439.615


Gamma Ray Calibration Report

Serial Number: 10009835
 Tool Model: 002
 Performed: Thu May 12 12:53:25 2016

Calibrator Value: 155.0 GAPI

Background Reading: 47.8 cps
 Calibrator Reading: 208.4 cps

Sensitivity: 0.9654 GAPI/cps

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
			STNDCH-STND_CH Fishing Neck	1.50	2.00	1.00
CCL	20.02					
GR	17.76		TTTCU-002 (10009835) Through Tubing Telemetry Cartridge - Ultrawire	7.65	1.69	100.00
			CENT-CASTM-CENT CAST M INLINE CENTRALIZER	2.16	3.13	25.00
			AUH-001 (000001) Adaptor Ultrawire/Halliburton	0.38	1.69	3.00
CBLTEMP	7.55		RBT-004 (000001) Radial Bond Tool (UW 3 1/8) 20K Rated	9.48	3.13	140.00

						
			CENT-CSS169Roller CSS 1 11/16" ROLLER CENTRALIZER	2.20	1.69	4.41
LLMTEN	0.00		BUL-006 (000002) Bullnose Terminator	0.22	1.69	1.20
		Dataset: mutual_0780_4-8h.db: field/well/run1/MAIN1 Total length: 23.59 ft Total weight: 274.61 lb O.D.: 3.13 in				

Company	SANDRIDGE ENERGY				
Well	MUTUAL 0780 4-8H				
Field	NORTH PARK NIOBRARA				
County	JACKSON	State	CO		
HALLIBURTON	RADIAL CEMENT BOND LOG				