

County: RIO BLANCO

Ld	R	D	S	B	T	C	S	D	F		B	F	T	C	W	G	F	T	M	L	R	W
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Company: EXXONMOBIL PRODUCTION CO.

Well: PCU 197-34A9

Field: PICEANCE CREEK

County: RIO BLANCO

State: CO

CORRELATION LOG  
GAMMA RAY  
CCLU

Field: PICEANCE CREEK  
Location: NWSW 1731' FSL & 102' FWL  
Well: PCU 197-34A9  
Company: EXXONMOBIL PRODUCTION CO

CORRELATION LOG			
GAMMA RAY			
CCLU			
LOCATION			
NWSW 1731' FSL & 102' FWL		Elev.: K.B. 6519.20 ft G.L. 6489.00 ft D.F. 6518.20 ft	
Permanent Datum:	GROUND LEVEL	Elev.: 6489.00 ft	
Log Measured From:	KELLY BUSHING	30.20 ft above Perm. Datum	
Drilling Measured From:	KELLY BUSHING		
API Serial No. 05-103-11536	Section 34	Township 1S	Range 97W

Run 1		Run 2		Run 3	
Oil Density					
Water Salinity					
Gas Gravity					
Bo					
Bw					
1/Bg					
Bubble Point Pressure					
Bubble Point Temperature					
Solution GOR					
Maximum Deviation		20 deg			
CEMENTING DATA					
Primary/Squeeze		Primary			
Casing String No					
Lead Cement Type					
Volume					
Density		11 lbm/gal			
Water Loss					
Additives					
Tail Cement Type					
Volume					
Density					
Water Loss					
Additives					
Expected Cement Top					
Logging Date					
Run Number					
Depth Driller					
Schlumberger Depth					
Bottom Log Interval					
Top Log Interval					
Casing Fluid Type					
Salinity					
Density					
Fluid Level					
BIT/CASING/TUBING STRING					
Bit Size					
From					
To					
Casing/Tubing Size					
Weight					
Grade					
From					
To					
Maximum Recorded Temperatures					
Logger On Bottom					
Unit Number					
Location					
Recorded By					
Witnessed By					

Logging Date		26-Jun-2010	
Run Number		1	
Depth Driller		8421 ft	
Schlumberger Depth		8310 ft	
Bottom Log Interval		8310 ft	
Top Log Interval		3150 ft	
Casing Fluid Type		WBM	
Salinity			
Density		8.4 lbm/gal	
Fluid Level		10 ft	
BIT/CASING/TUBING STRING			
Bit Size		9.875 in	
From		3650 ft	
To		8421 ft	
Casing/Tubing Size		7.000 in	
Weight		26 lbm/ft	
Grade			
From		0 ft	
To		8421 ft	
Maximum Recorded Temperatures		209 degF	
Logger On Bottom		26-Jun-2010	
Unit Number		2379	
Location		VERNAL	
Recorded By		RYAN STEWART	
Witnessed By		JOSH LOVE	

## DEPTH SUMMARY LISTING

Date Created: 27-JUN-2010 3:51:40

### Depth System Equipment

Depth Measuring Device	Tension Device	Logging Cable
Type: IDW-B Serial Number: 6214 Calibration Date: 1-JAN-10 Calibrator Serial Number: 33 Calibration Cable Type: 7-46P Wheel Correction 1: -8 Wheel Correction 2: -9	Type: CMTD-B/A Serial Number: 8093 Calibration Date: 03-JUN-10 Calibrator Serial Number: 100518 Number of Calibration Points: 10 Calibration RMS: 34 Calibration Peak Error: 62	Type: 7-46P Serial Number: 709025 Length: 24000 FT Conveyance Method: Wireline Rig Type: LAND

### Depth Control Parameters

Log Sequence:	First Log In the Well
Rig Up Length At Surface:	227.80 FT
Rig Up Length At Bottom:	227.50 FT
Rig Up Length Correction:	0.30 FT
Stretch Correction:	6.70 FT
Tool Zero Check At Surface:	0.60 FT

### Depth Control Remarks

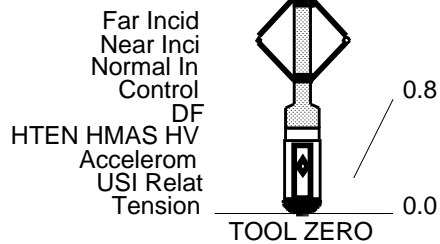
1. ALL SCHLUMBERGER DEPTH POLICIES FOLLOWED
2. IDW USED AS PRIMARY METHOD OF DEPTH CONTROL
3. Z-CHART USED AS SECONDARY METHOD OF DEPTH CONTROL
4.
5.
6.

#### DISCLAIMER

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OTHER SERVICES1	OTHER SERVICES2
OS1:	OS1:
OS2:	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
TOOL RAN AS PER TOOL SKETCH	
TOOL CENTERED USING 2 X ILC AND 2 X GEMCO	
UFAO = -12 DB/M	
EXPECTED CASING THICKNESS 0.362 INCH	
EXPECTED CASING ID 6.276 INCH	
CEMENT: SINGLE SLURRY 11LB/G	
LOG CORRELATED TO DOWNLOG AT 8200 FT	
HORIZONTAL RESOLUTION: 5 DEG	
VERTICLE RESOLUTION : 6 INCH	

RUN 1 SERVICE ORDER #: BADQ-00022 PROGRAM VERSION: 17C0-154 FLUID LEVEL: 10 ft			RUN 2 SERVICE ORDER #: PROGRAM VERSION: FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP



MAXIMUM STRING DIAMETER 7.50 IN  
MEASUREMENTS RELATIVE TO TOOL ZERO  
ALL LENGTHS IN FEET

Client: EXXONMOBIL PRODUCTION CO.

Drawing Date: 6/27/2010

Well: PCU 197-34A9

API #: 05-103-11536

Field: PICEANCE CREEK

Rig Name: MAST

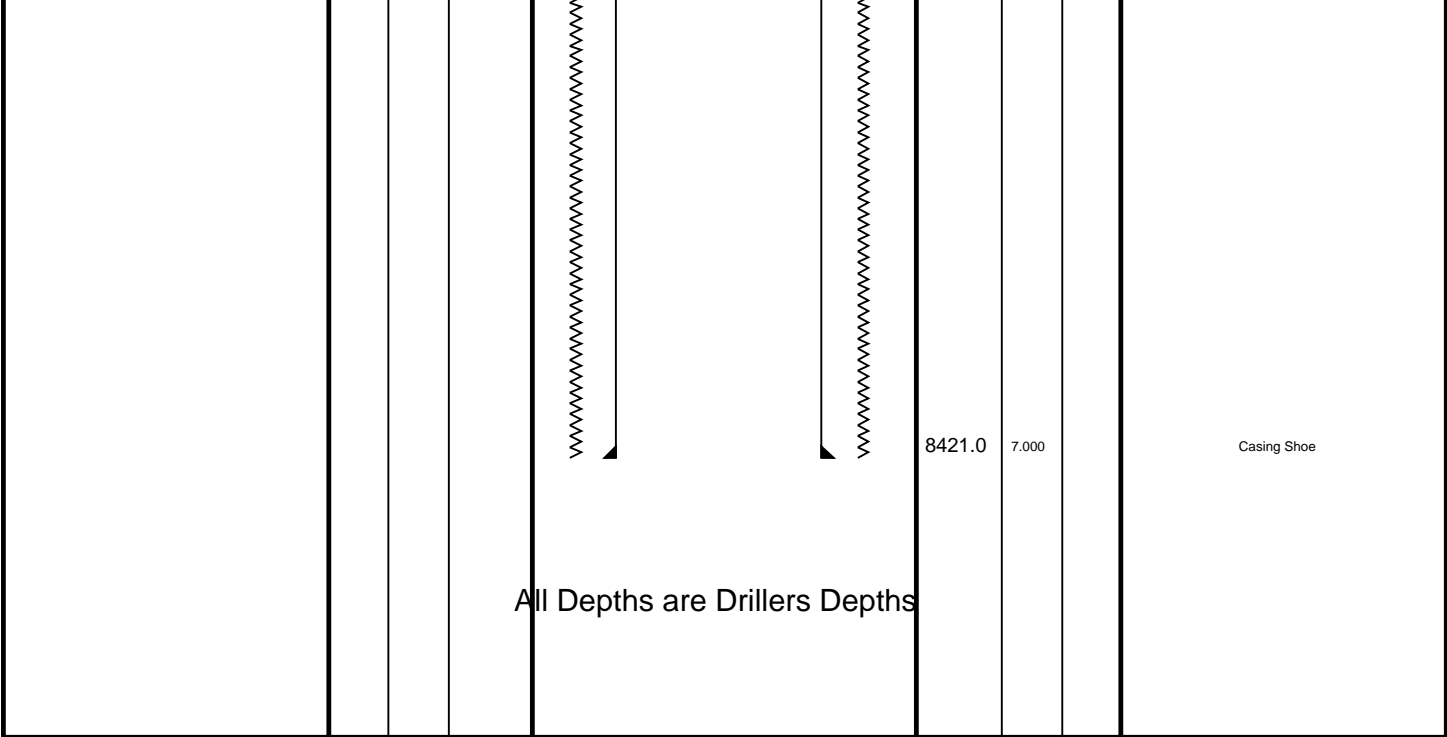
State: CO

Reference Datum: GROUND LEVEL

Country: USA

Elevation: 6489.0 ft

Production String	(in)		(ft)	Well Schematic			(ft)	(in)		Casing String
	OD	ID	MD				MD	OD	ID	
							0.0	7.000		Casing String
							3650.0	9.875		Borehole Segment



Correlation

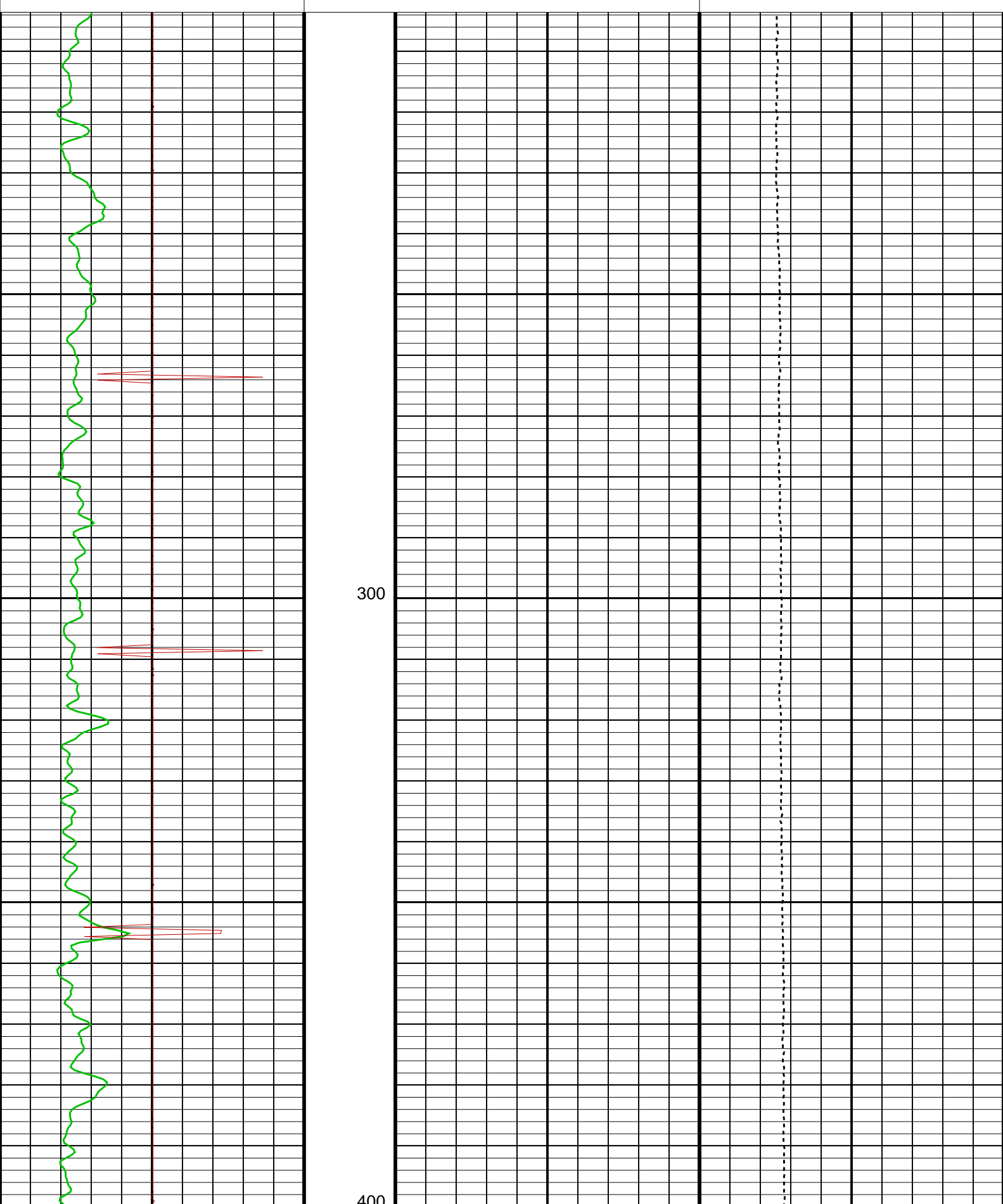
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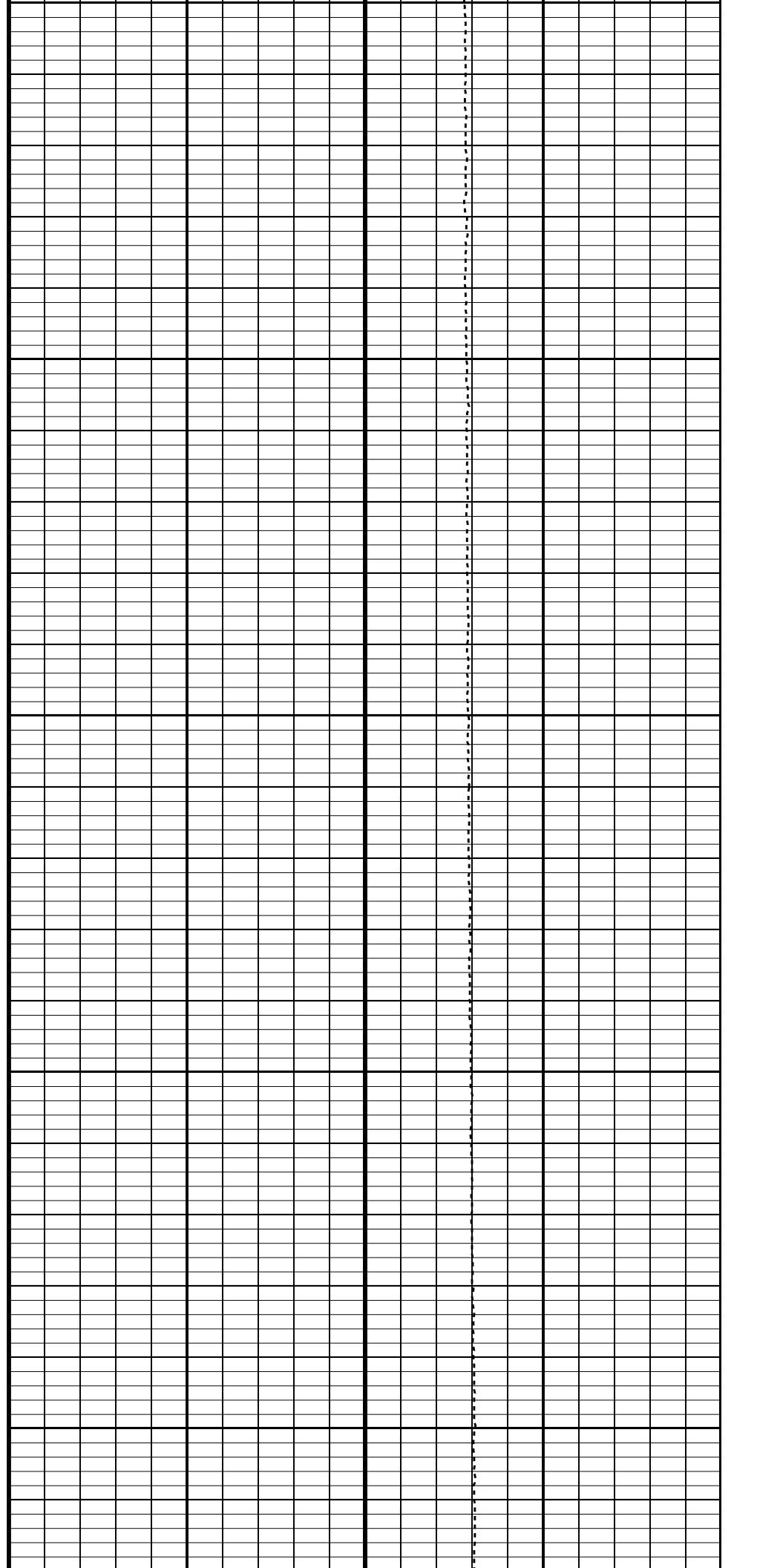
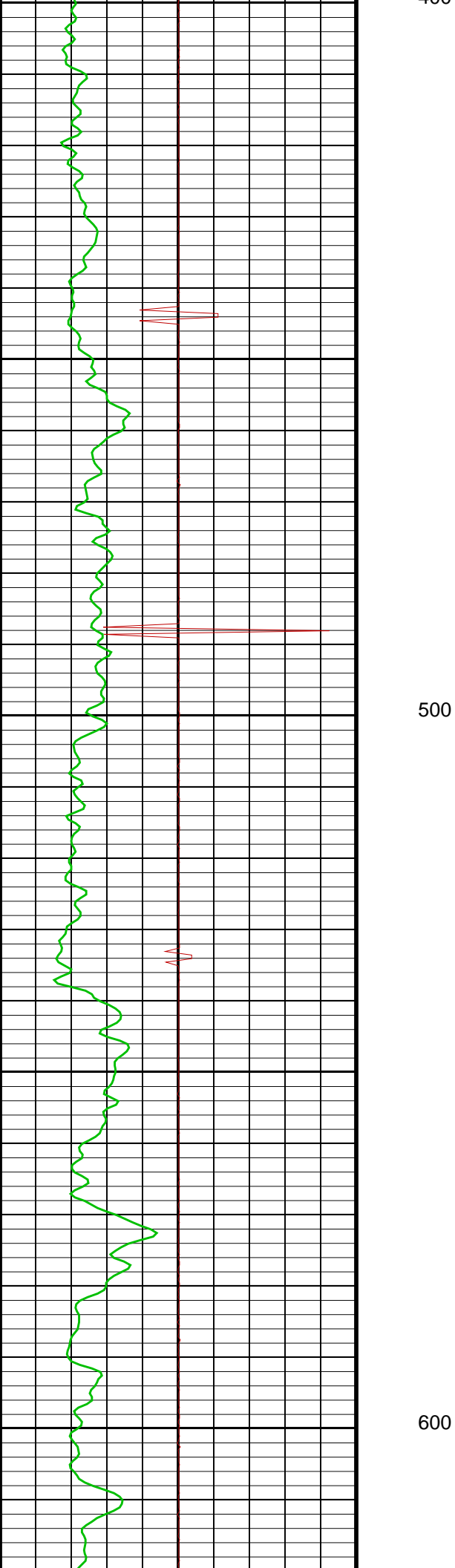
Company: EXXONMOBIL PRODUCTION CO. Well: PCU 197-34A9

Input DLIS Files						
DEFAULT	SPLICE_USI_TLD_MCFL_009	FN:1	PRODUCER	27-Jun-2010 04:26	8315.0 FT	203.5 FT
Output DLIS Files						
DEFAULT	USI_TLD_MCFL_CNL_012PUP	FN:10	PRODUCER	27-Jun-2010 04:33	8315.0 FT	203.5 FT
OP System Version: 17C0-154						
USIT-D	17C0-154		HILTH-FTB	17C0-154		
DTC-H	17C0-154					

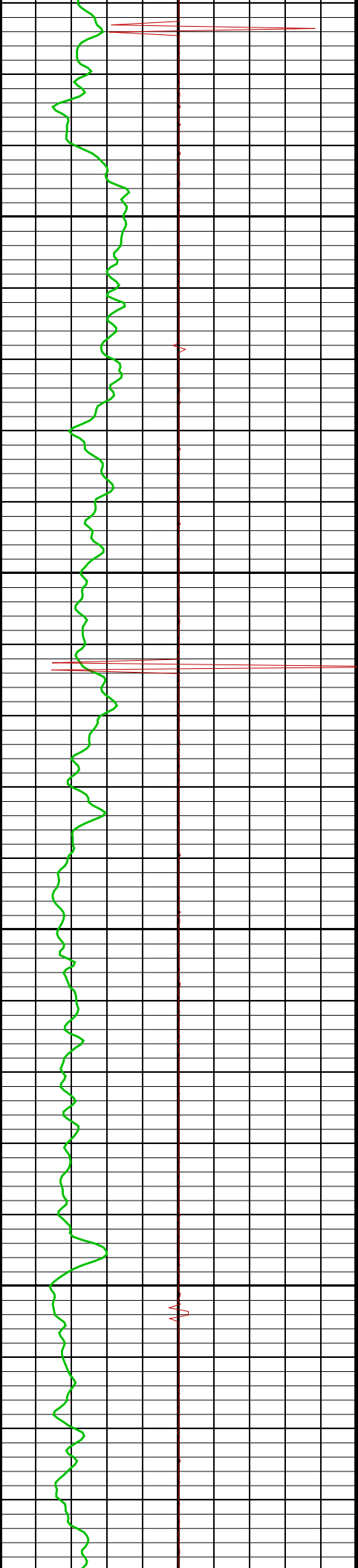
Changed Parameter Summary

DLIS Name	New Value	Previous Value	Depth & Time
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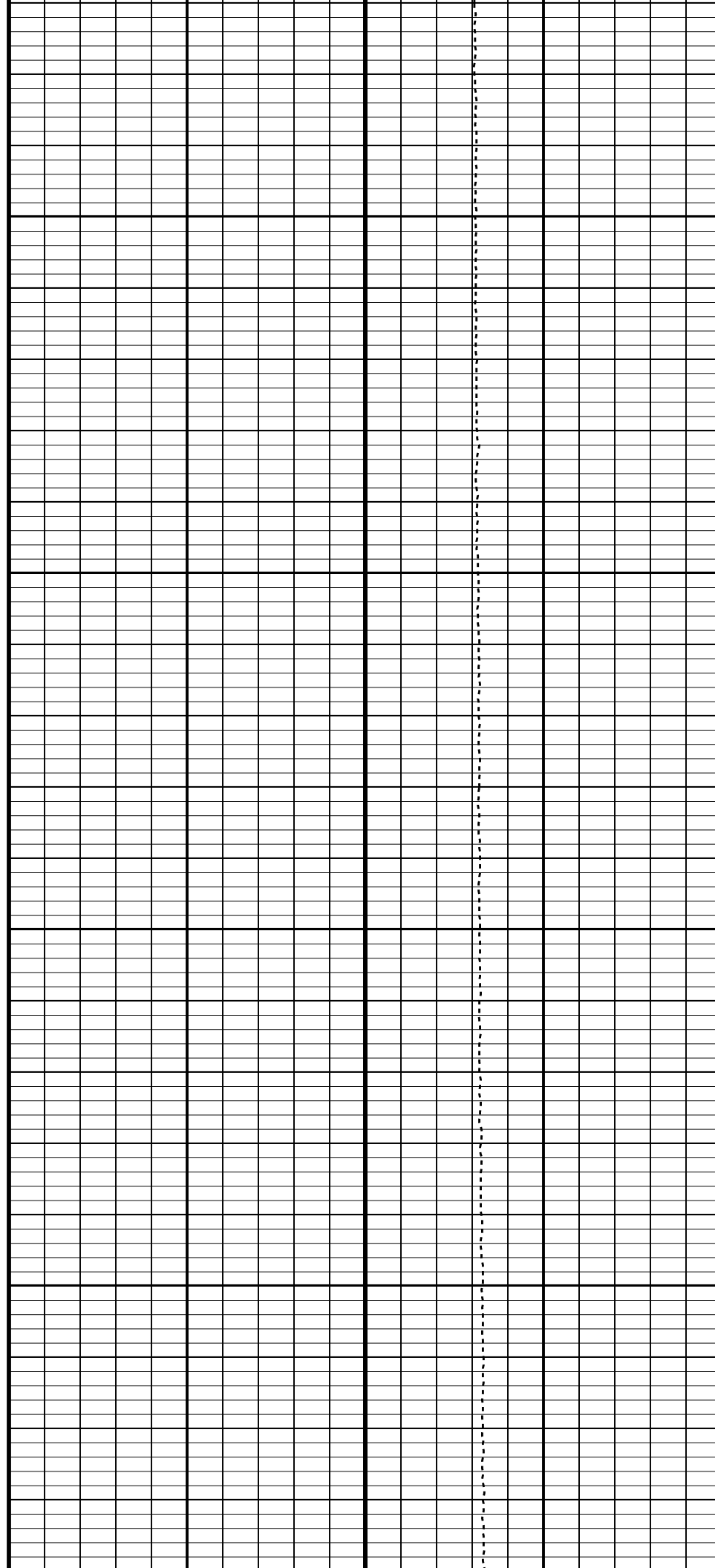


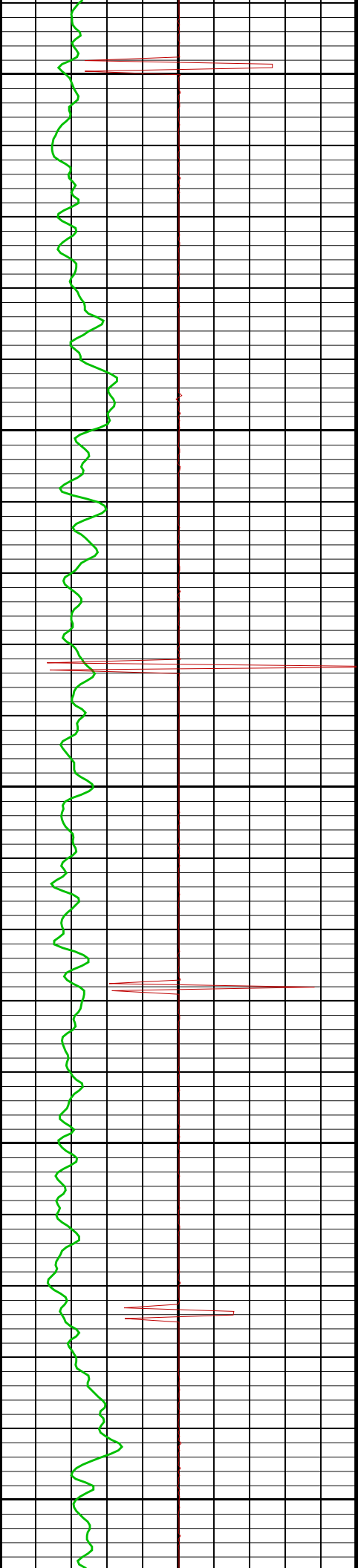




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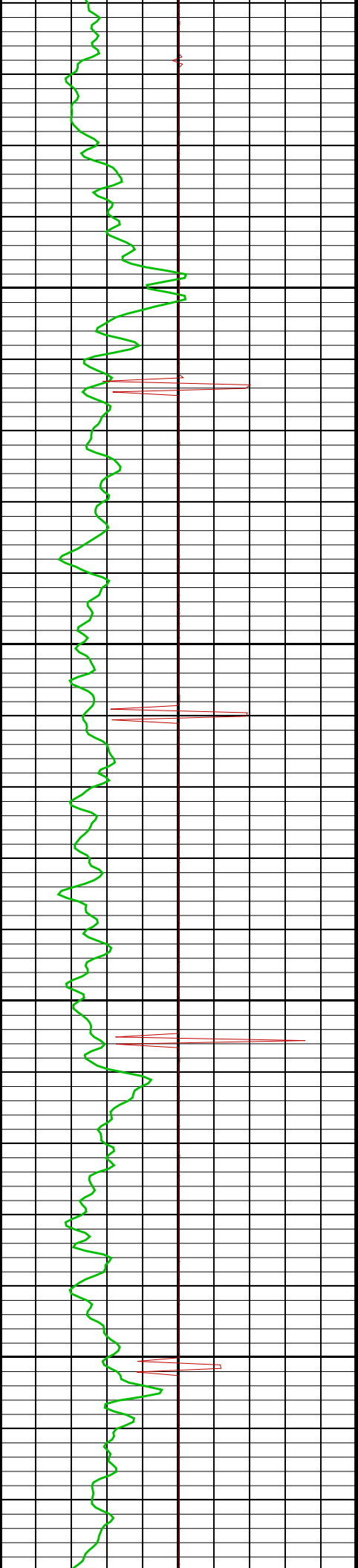
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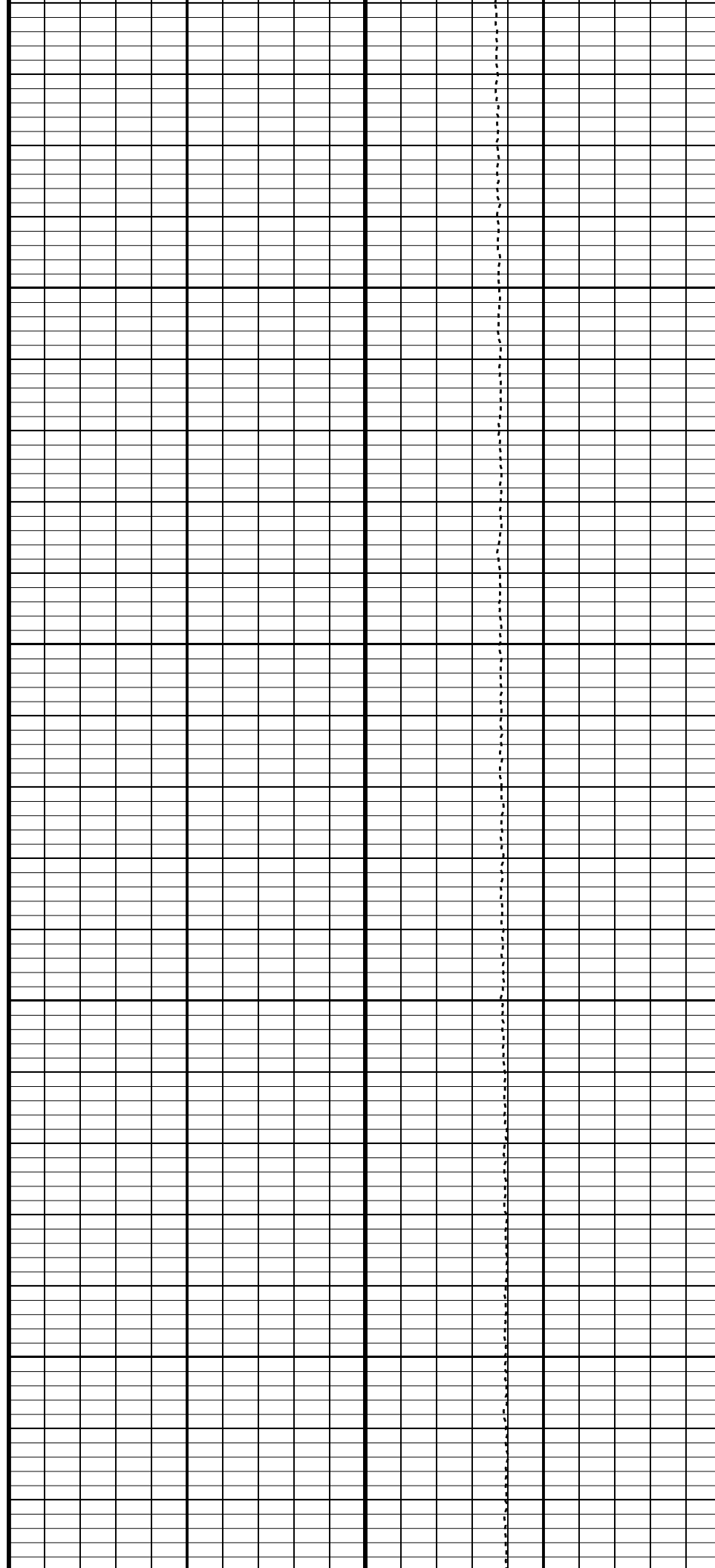
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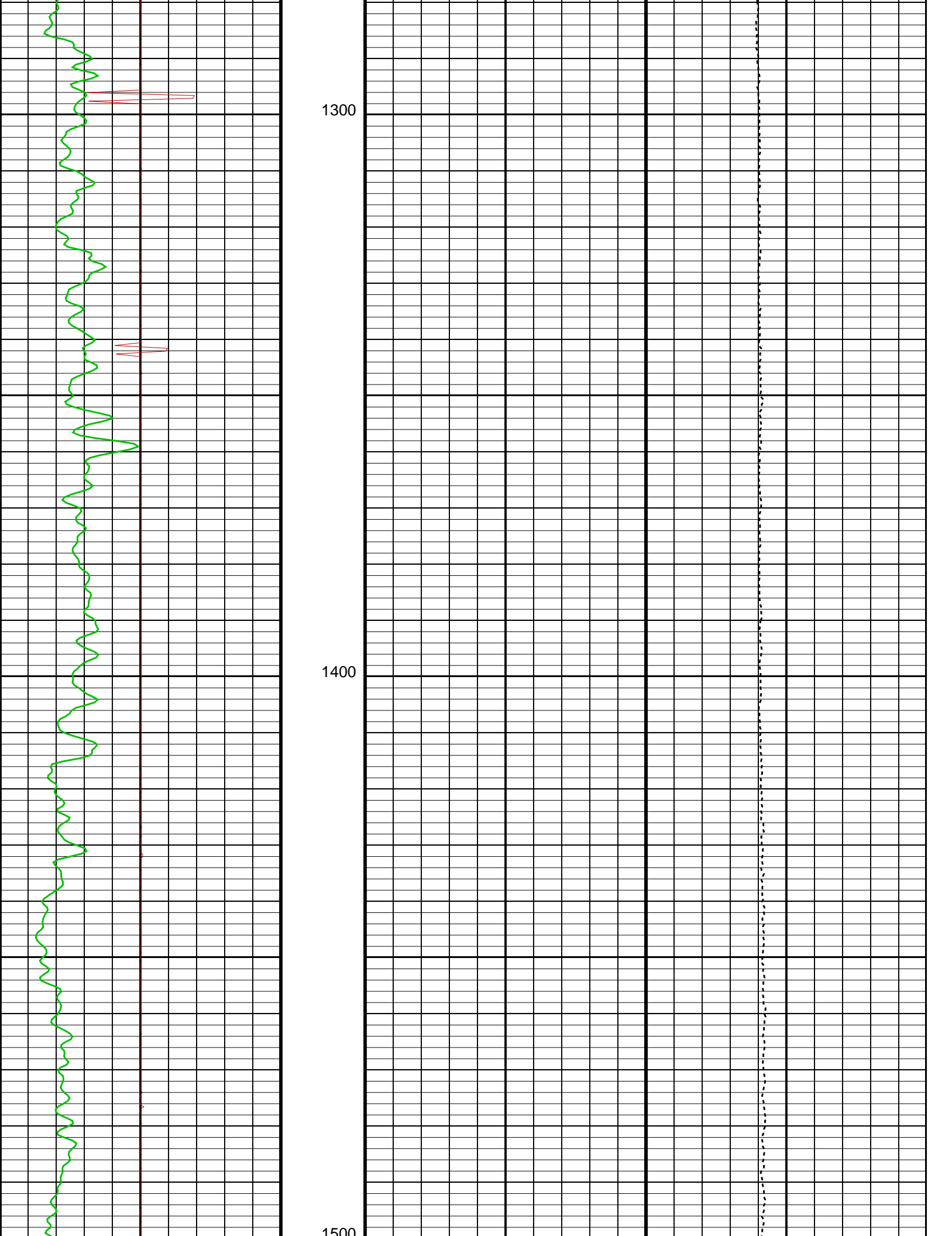
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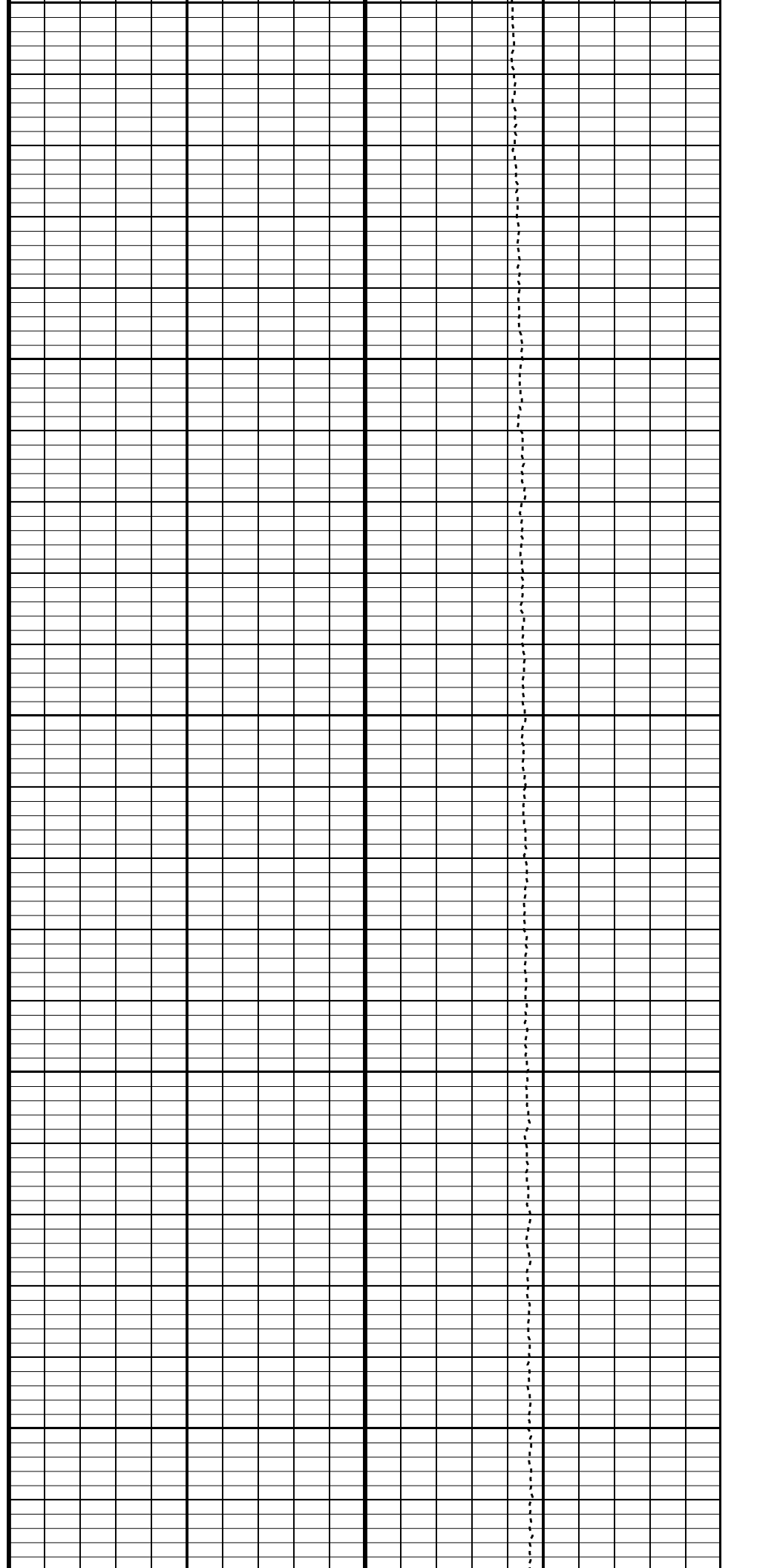
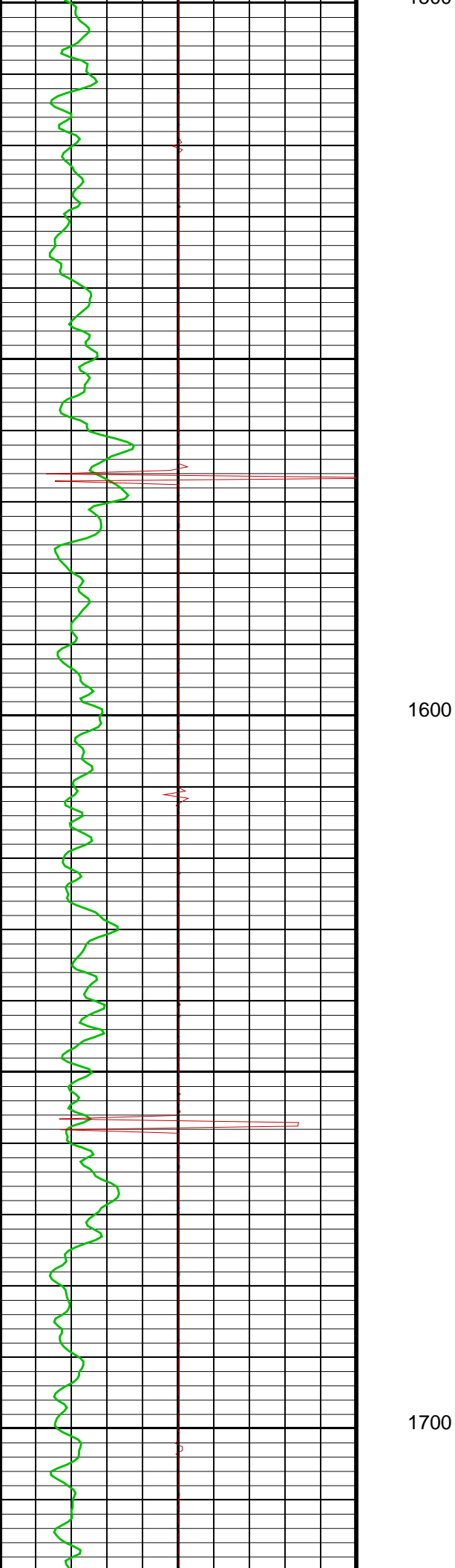


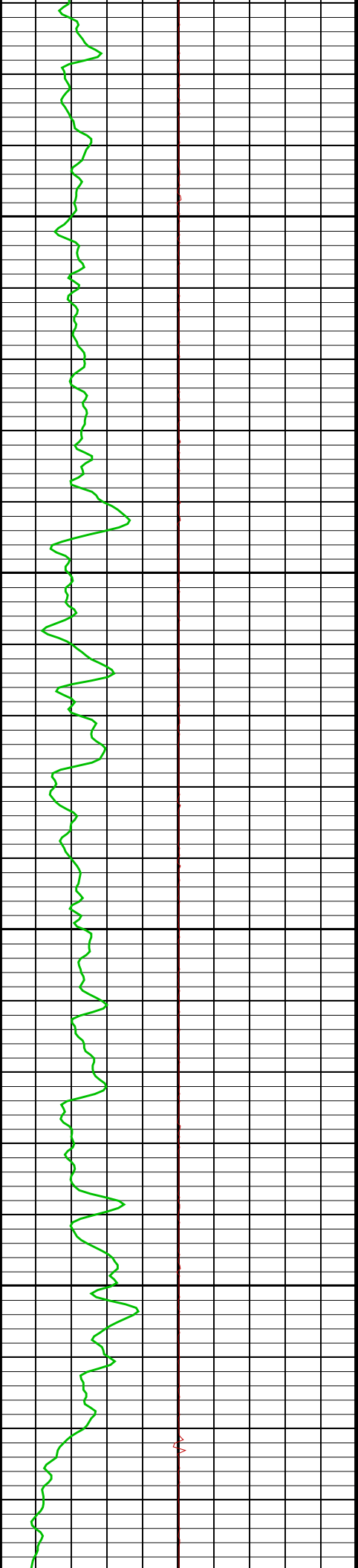
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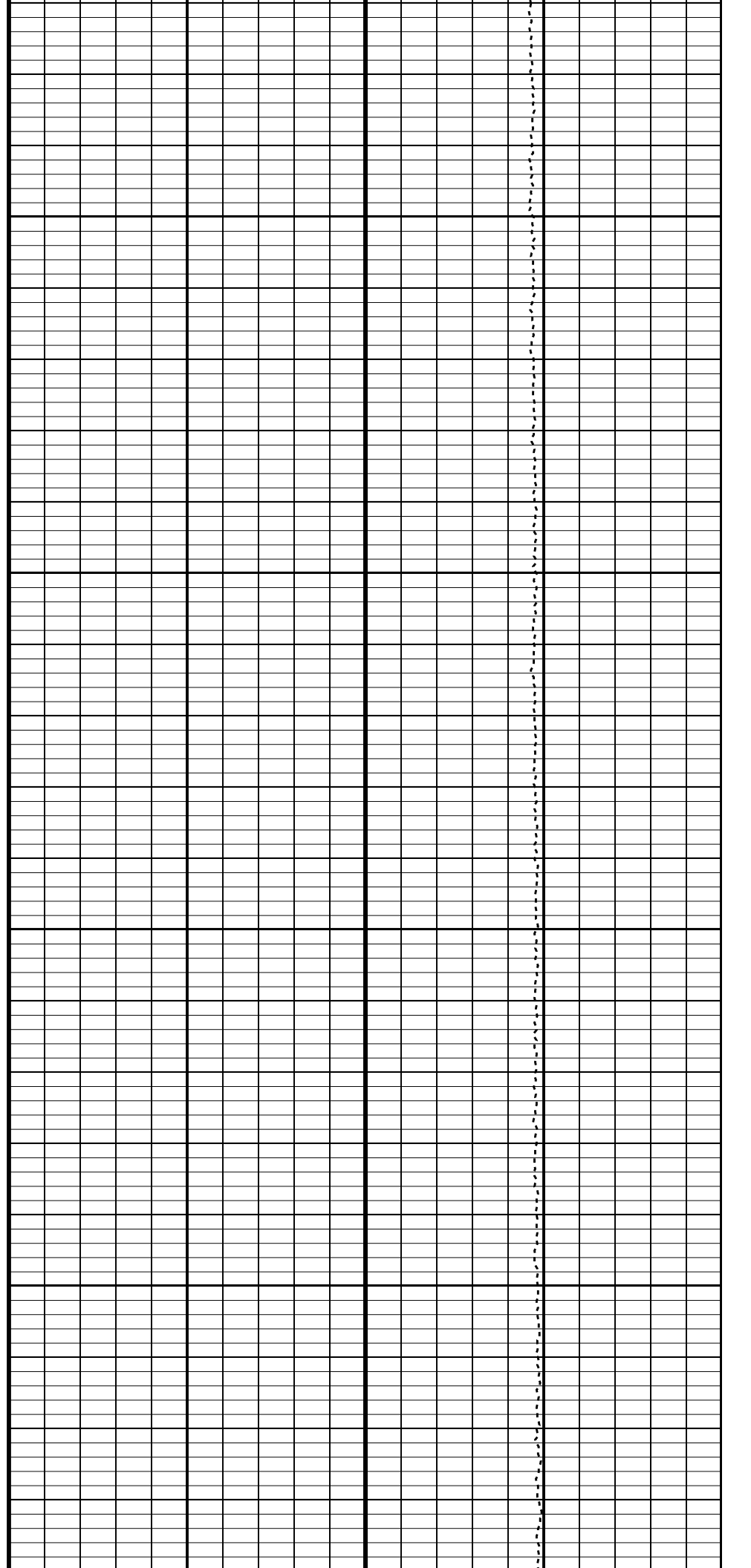


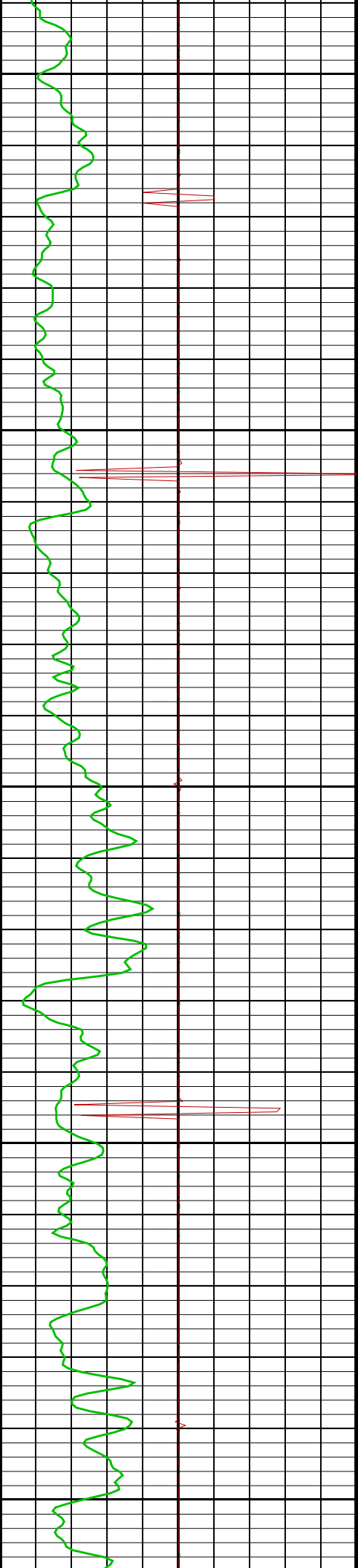




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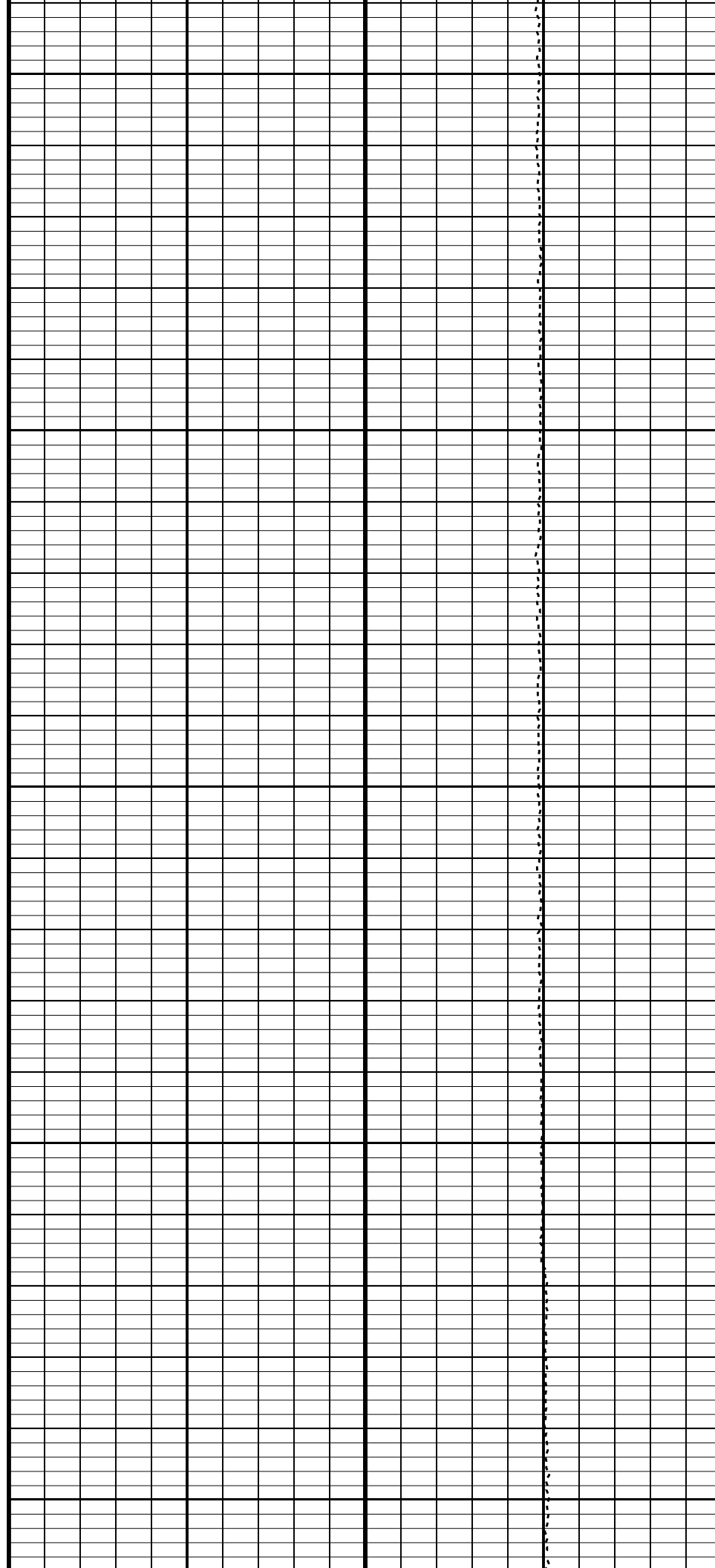
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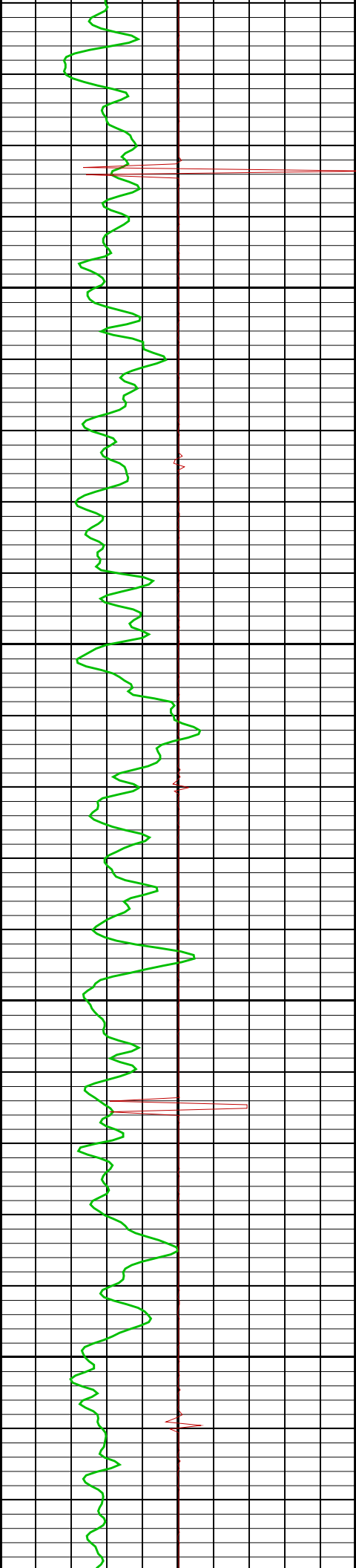




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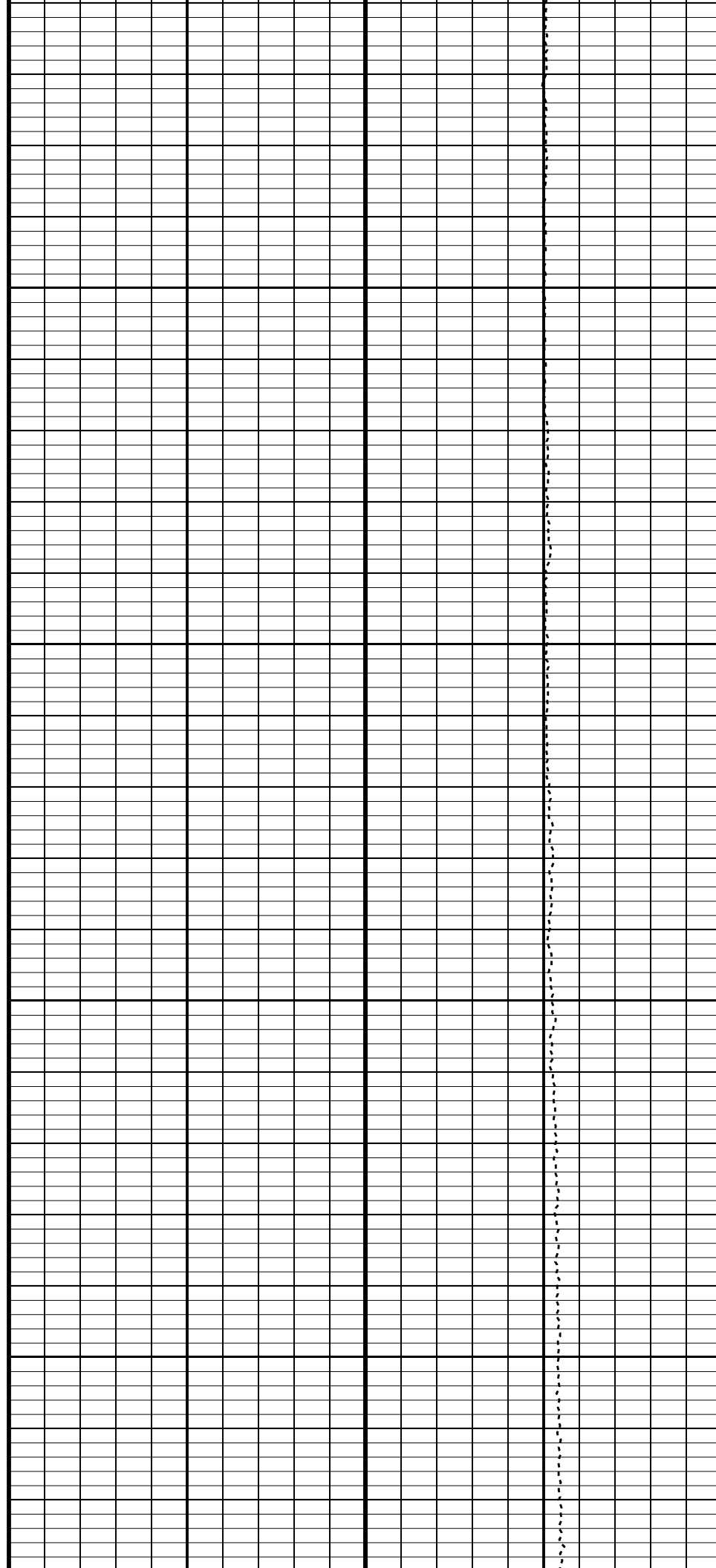
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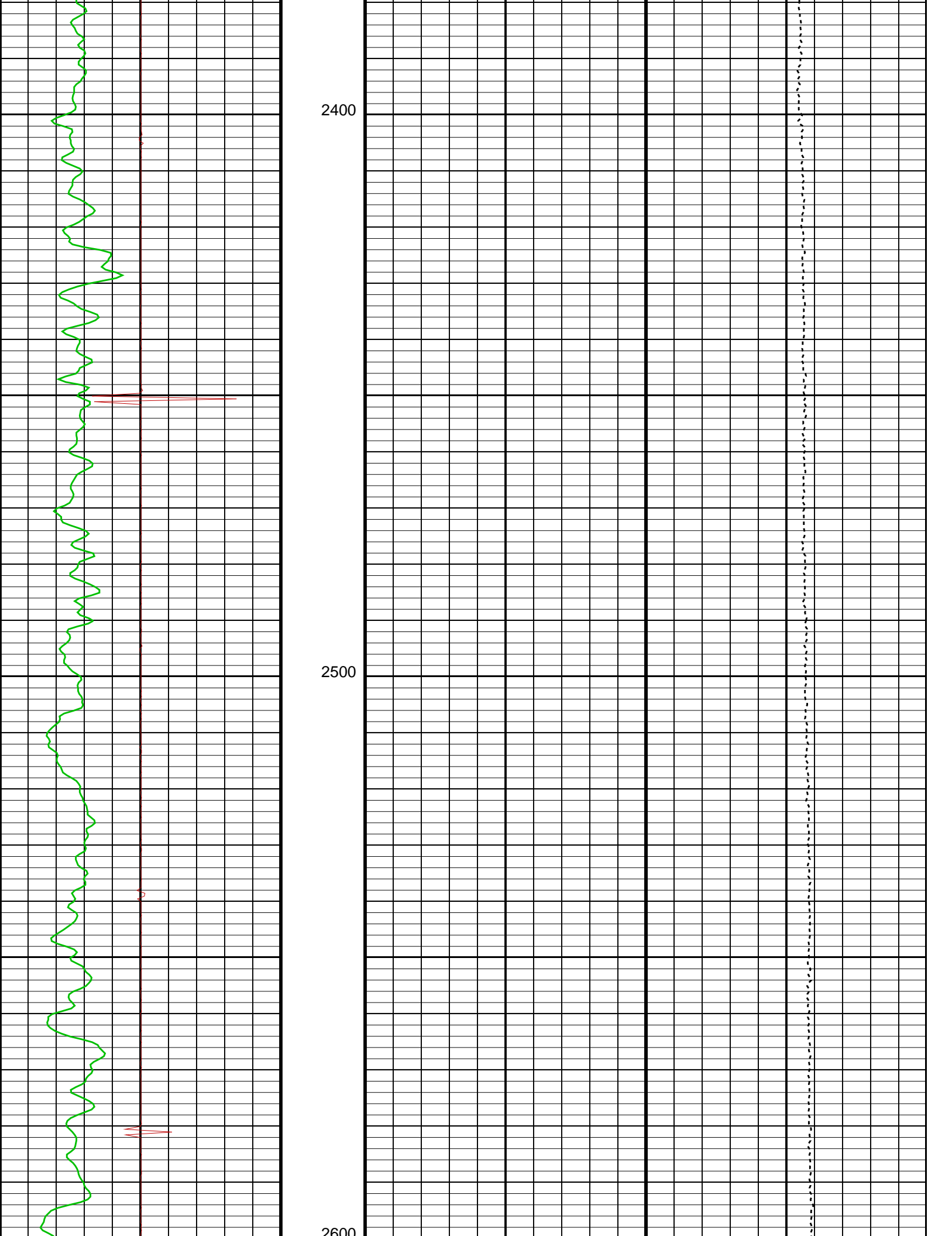


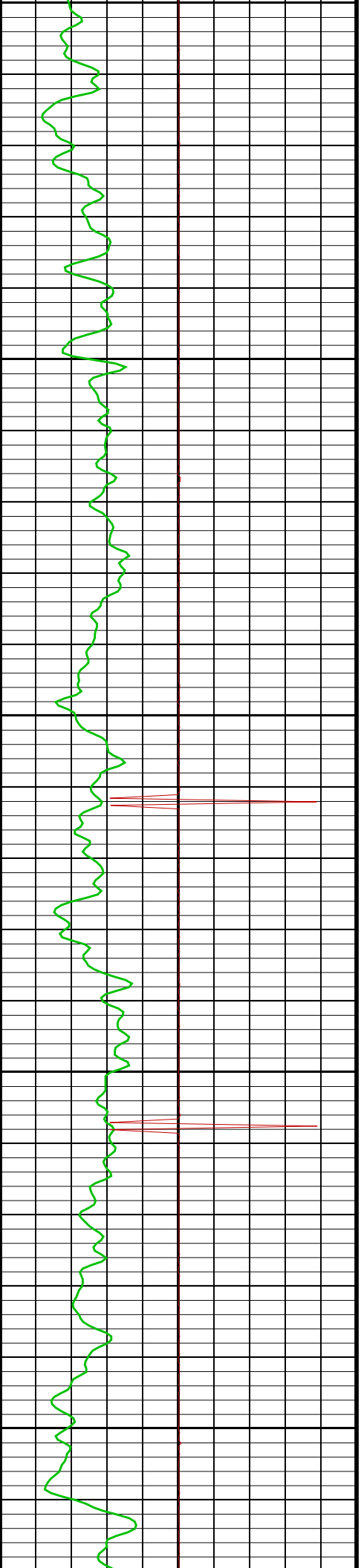
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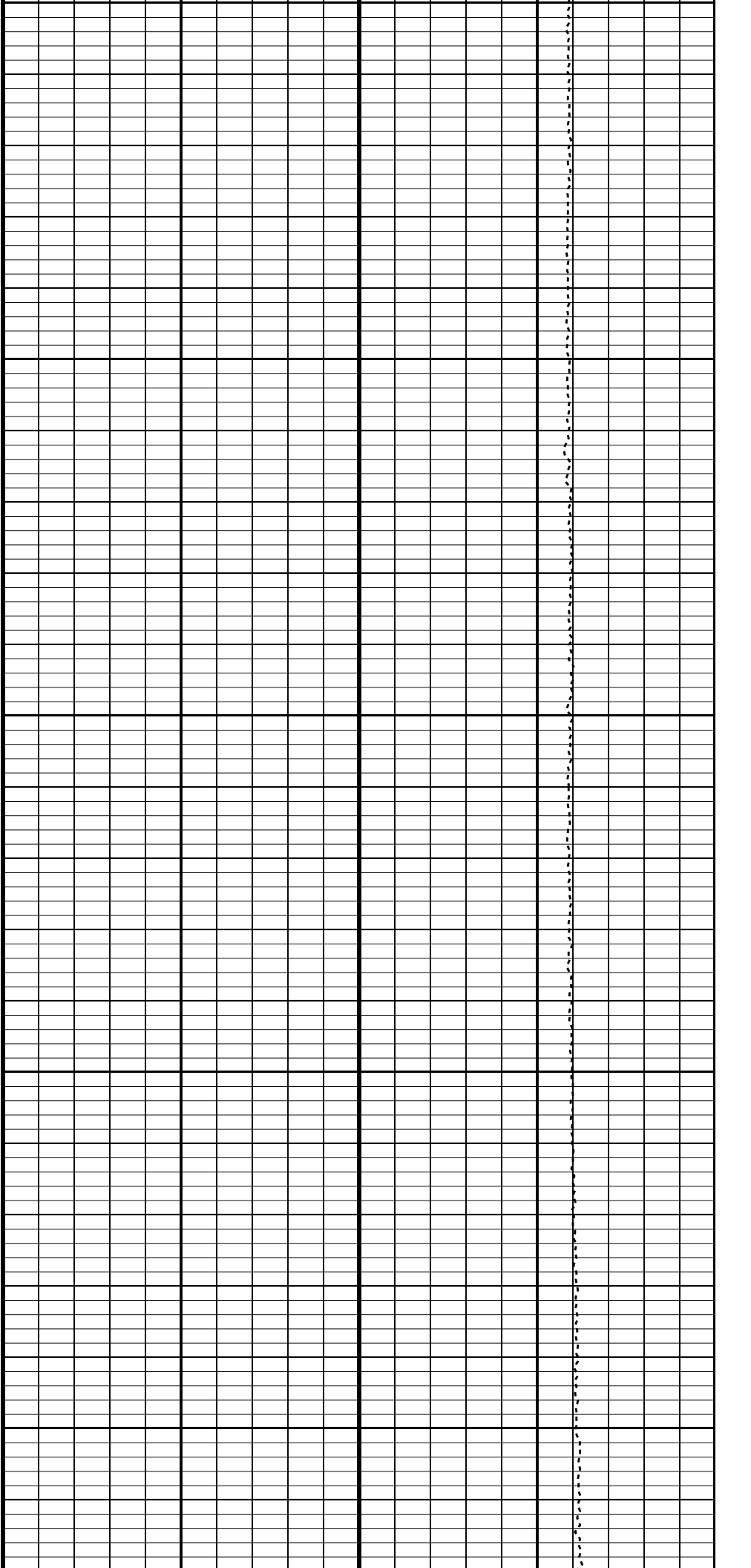


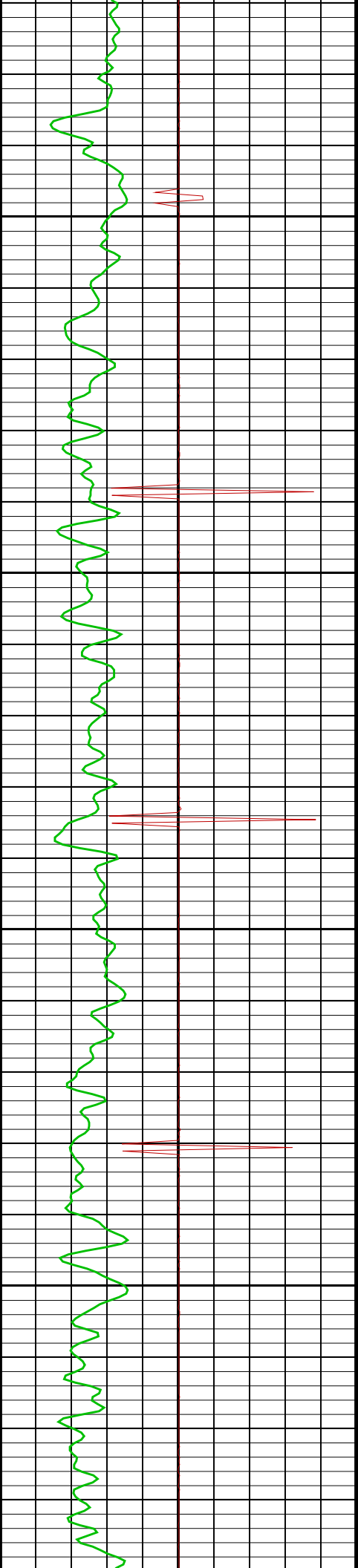


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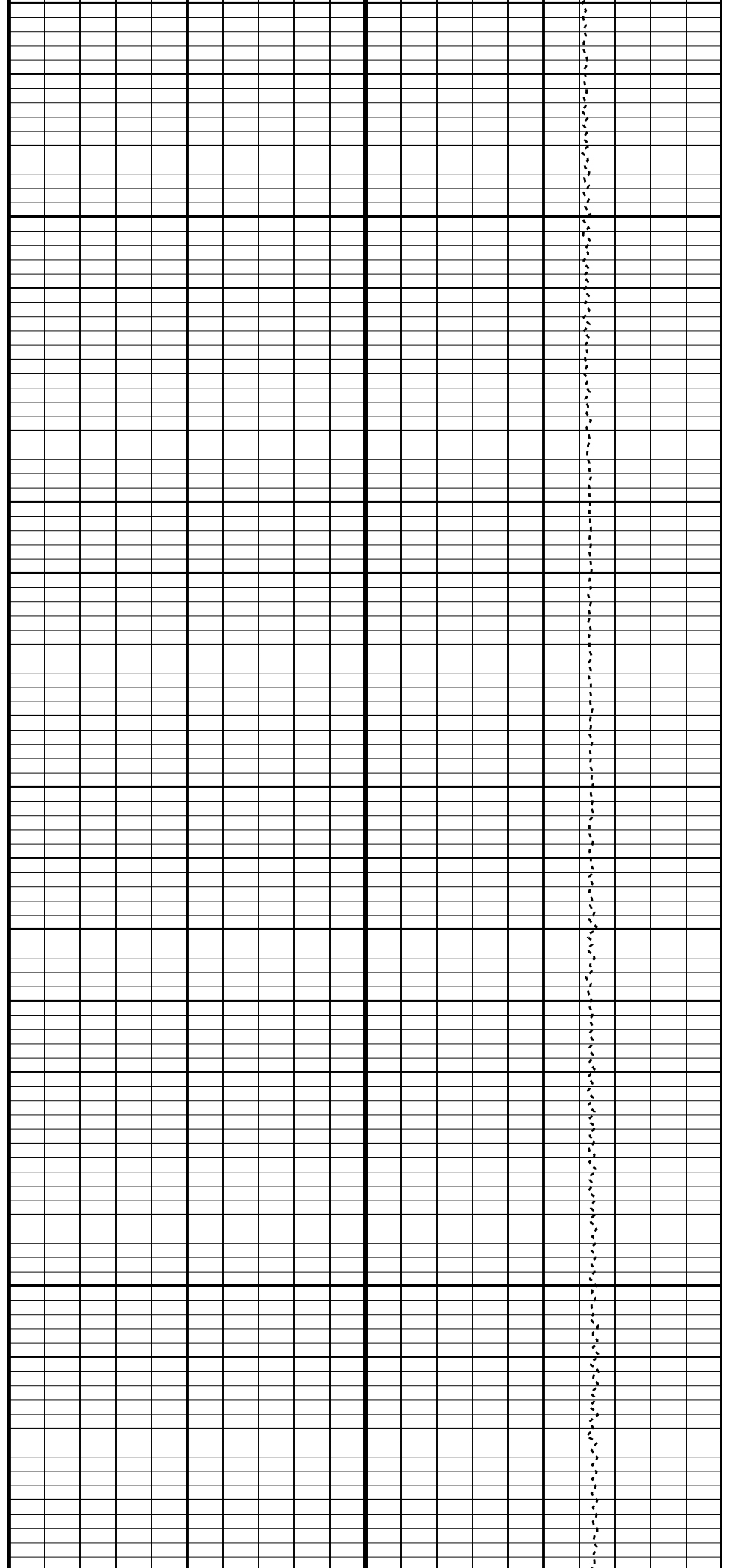
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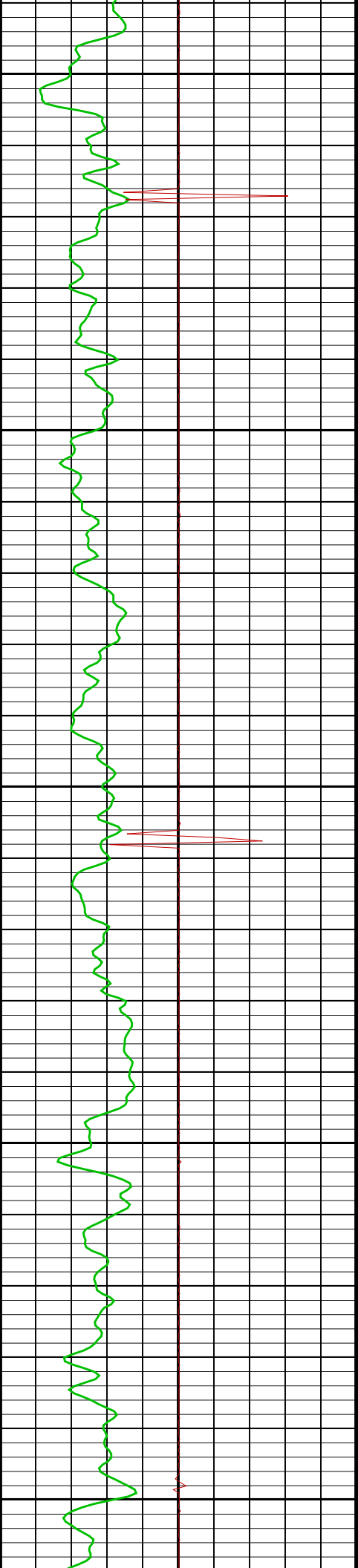




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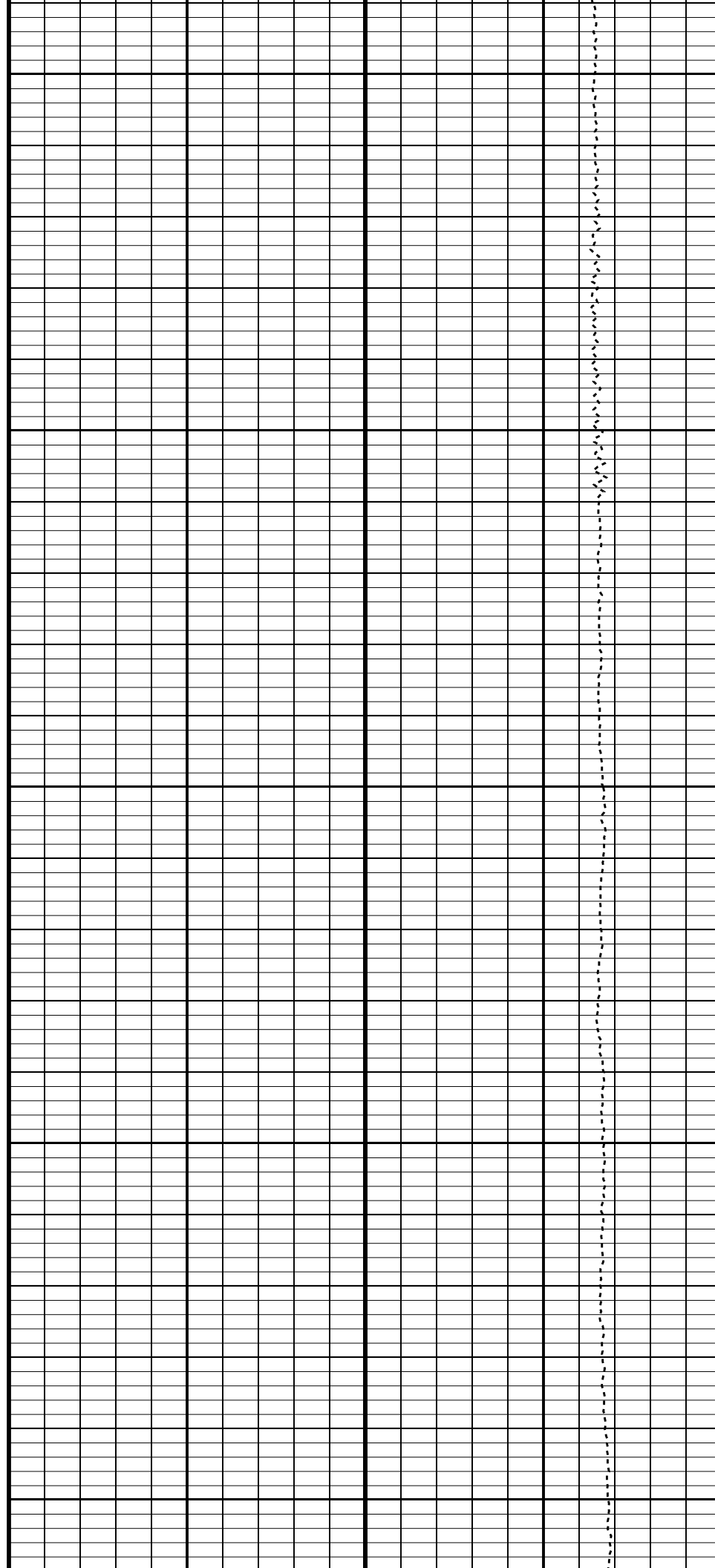
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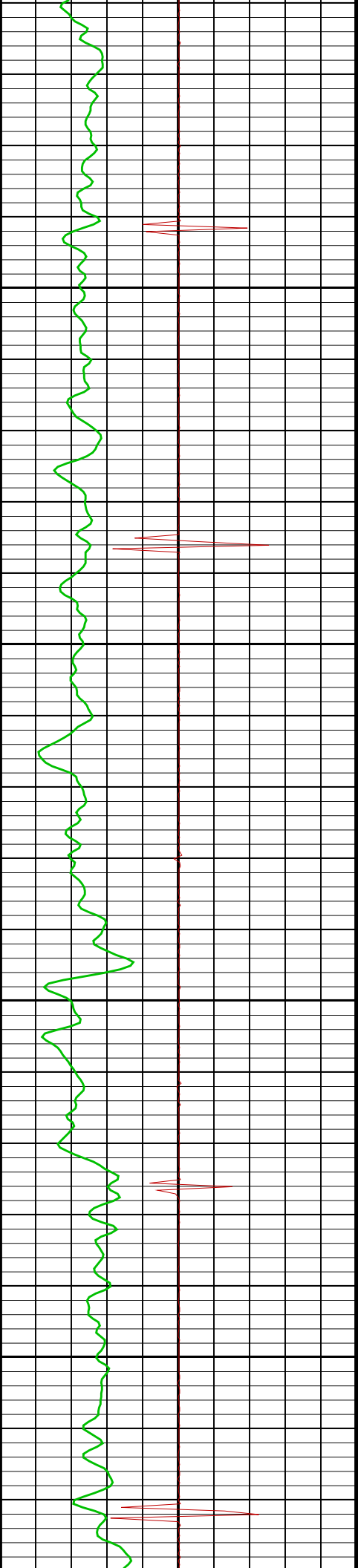




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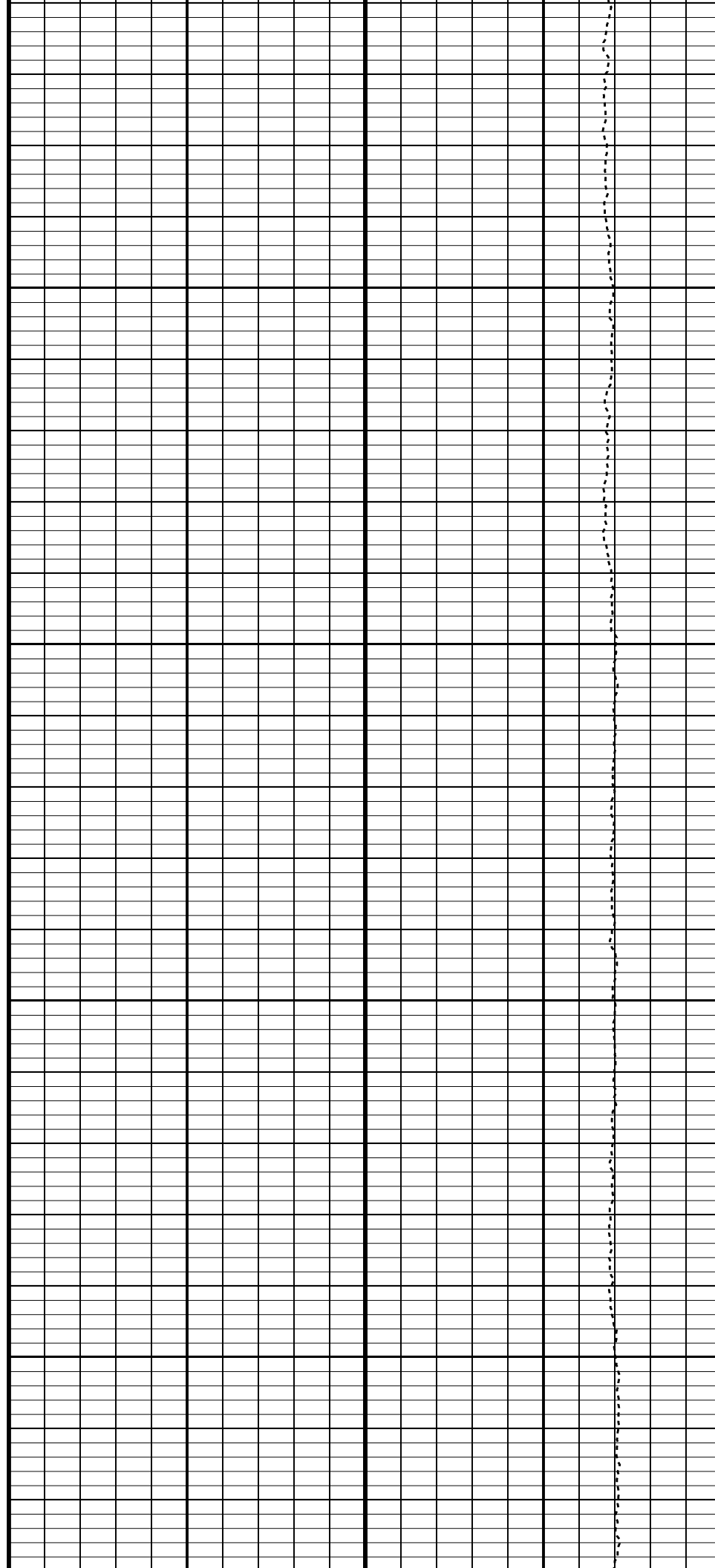
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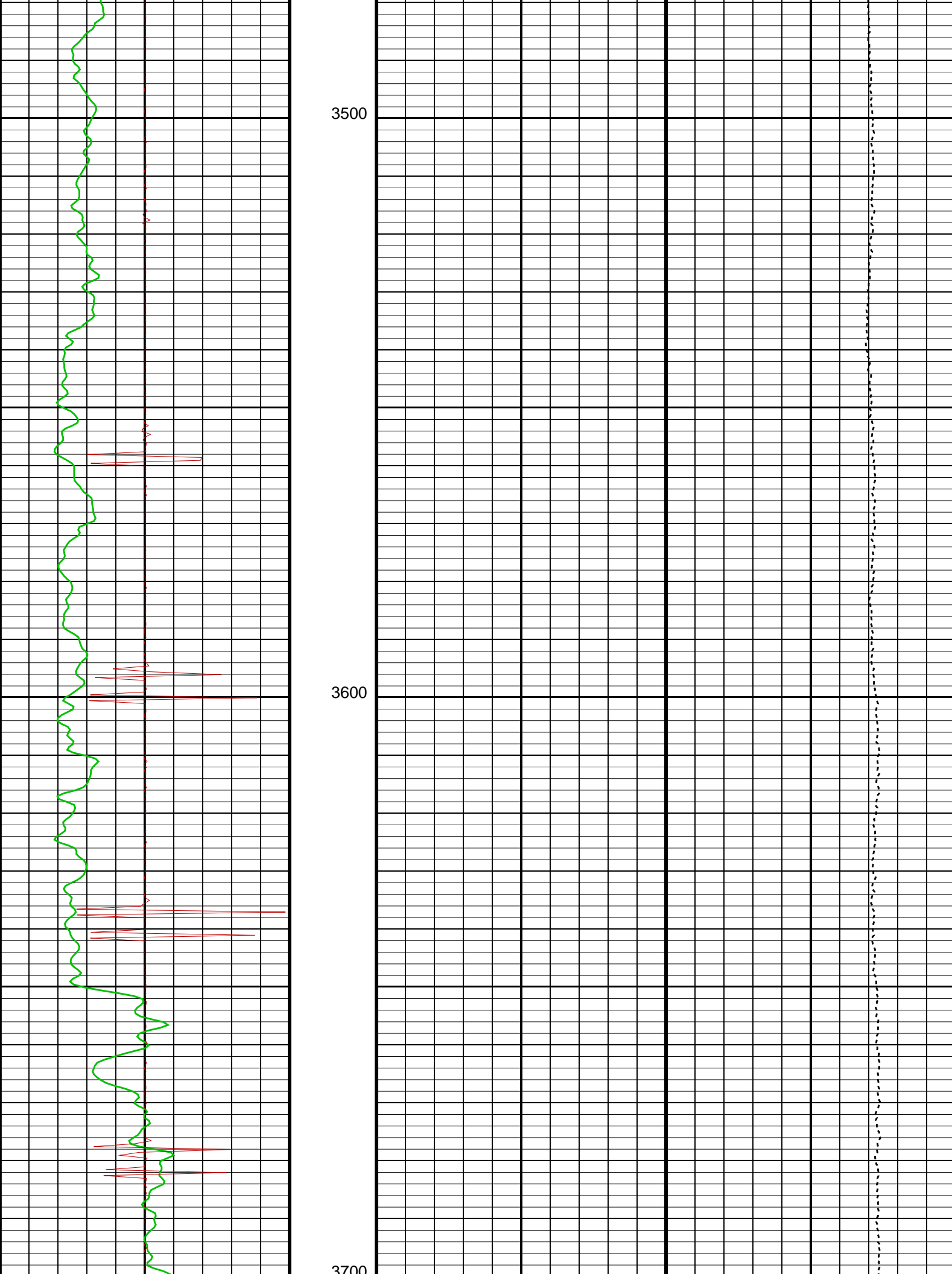


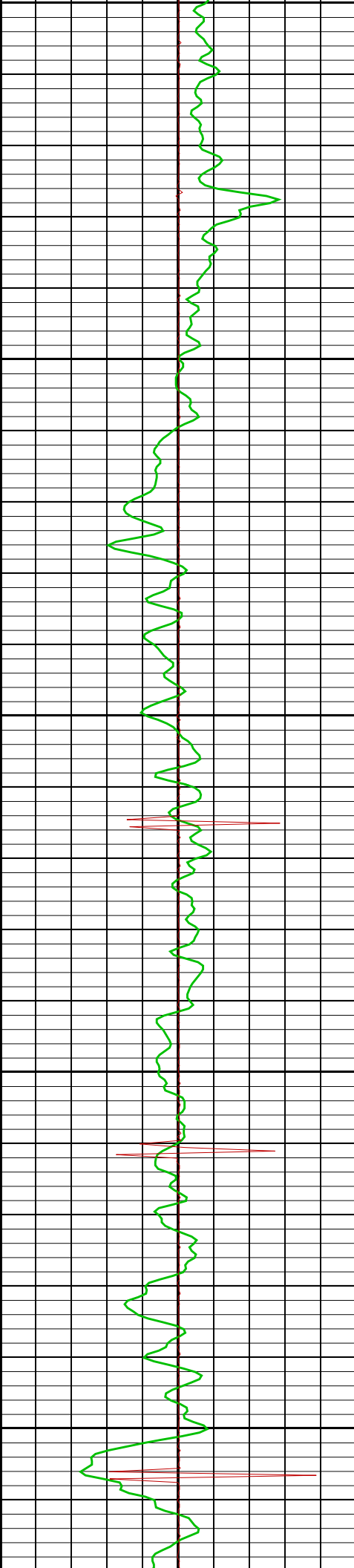


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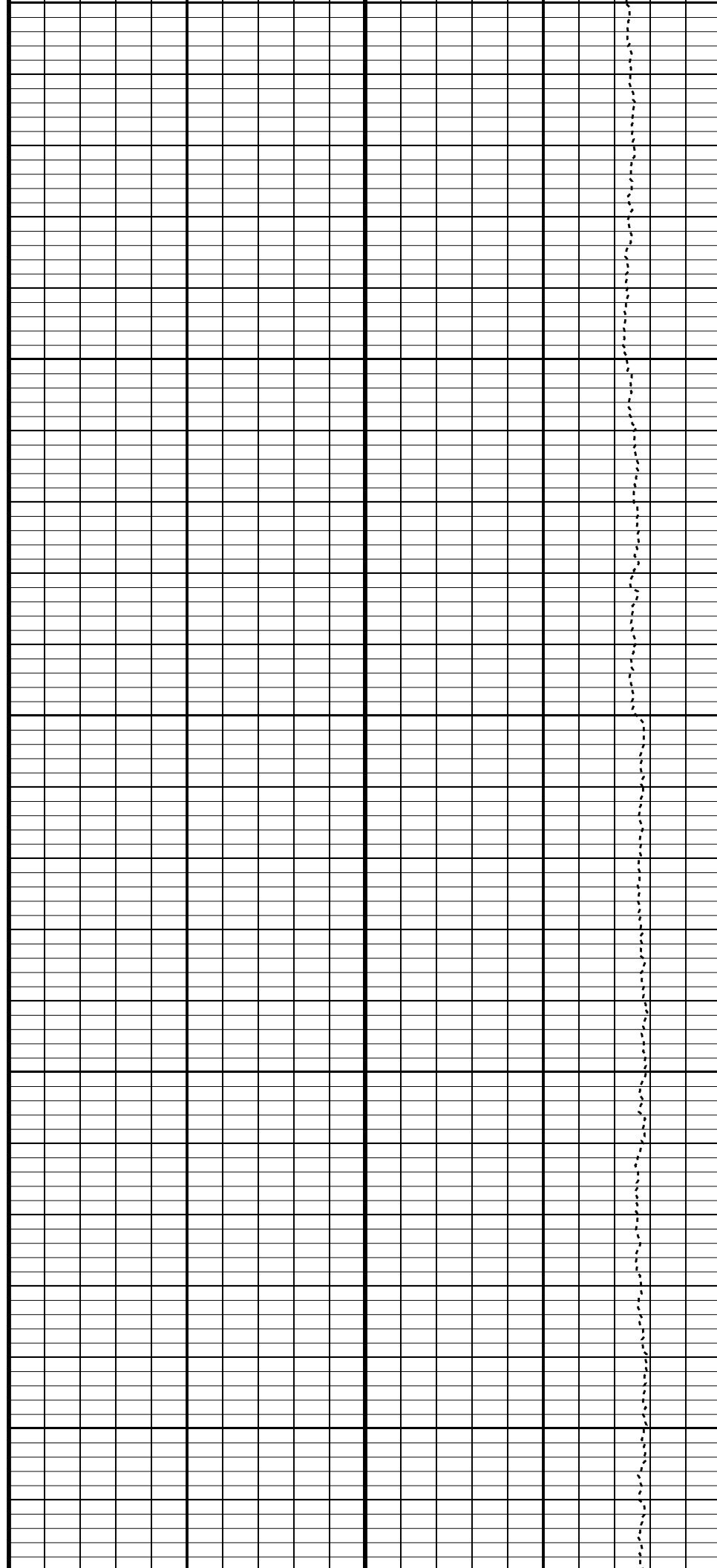


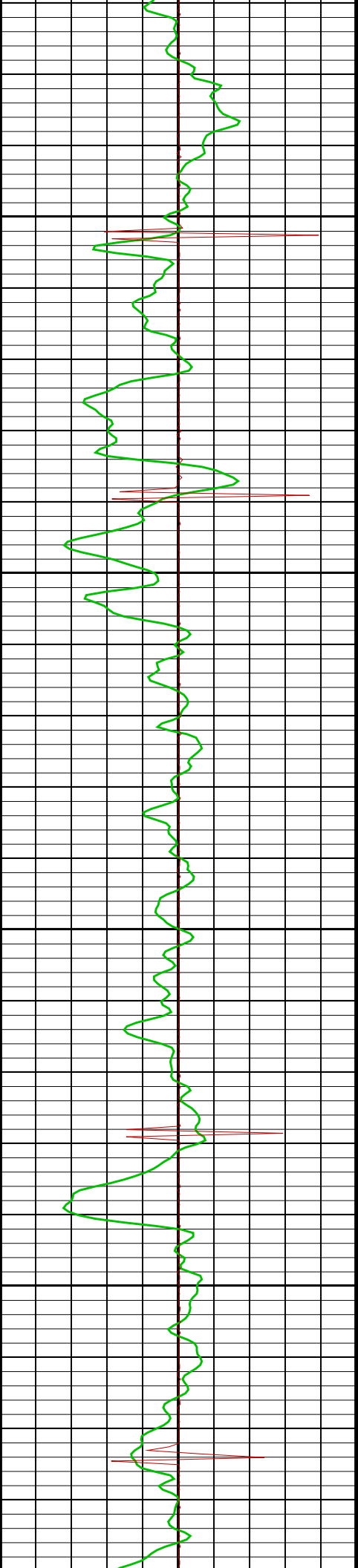


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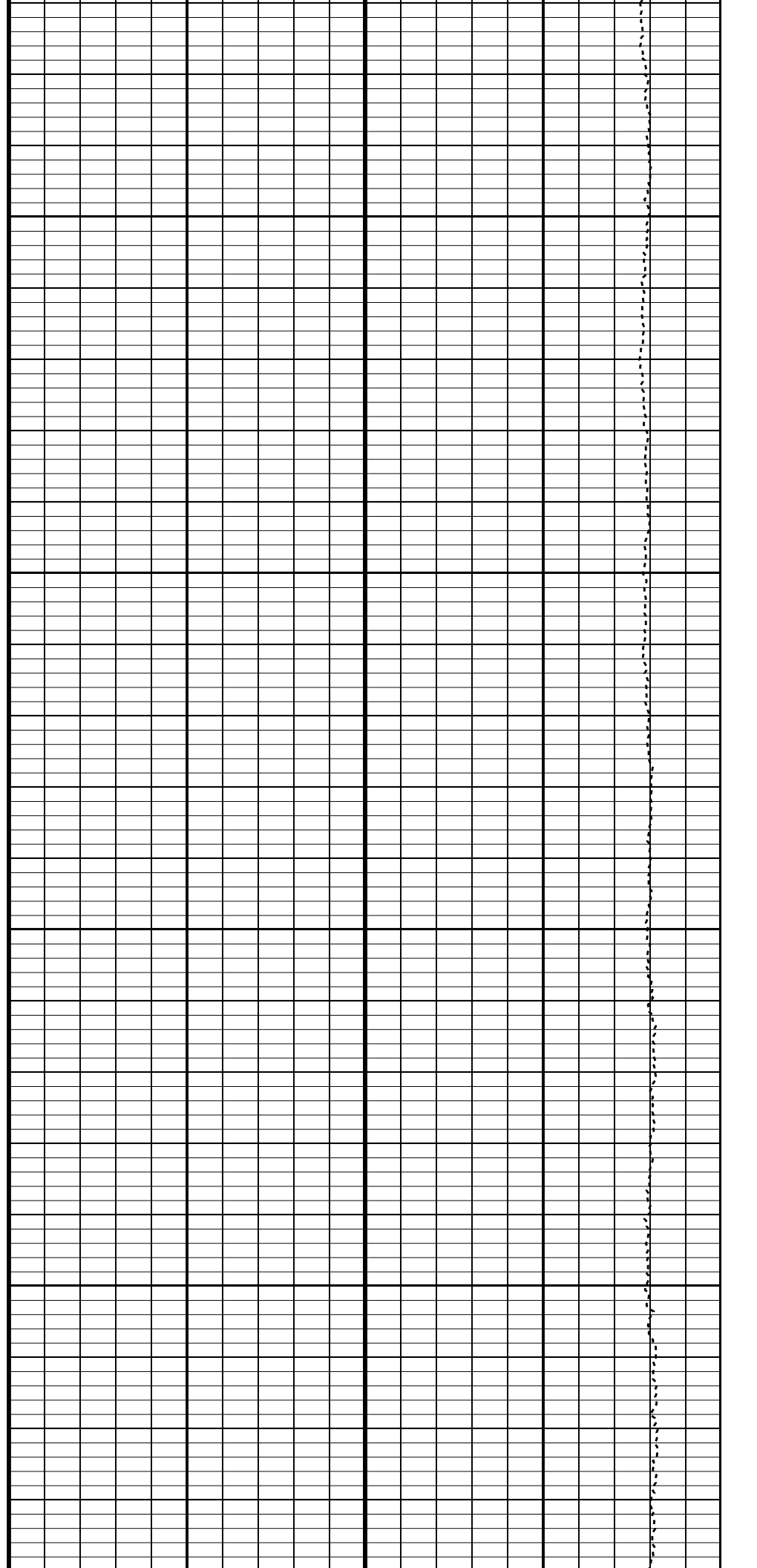
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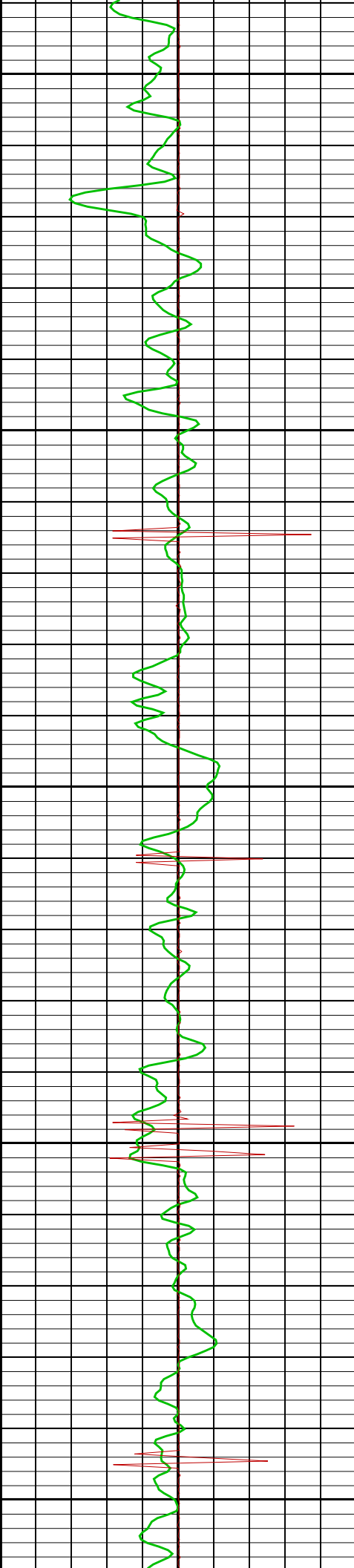


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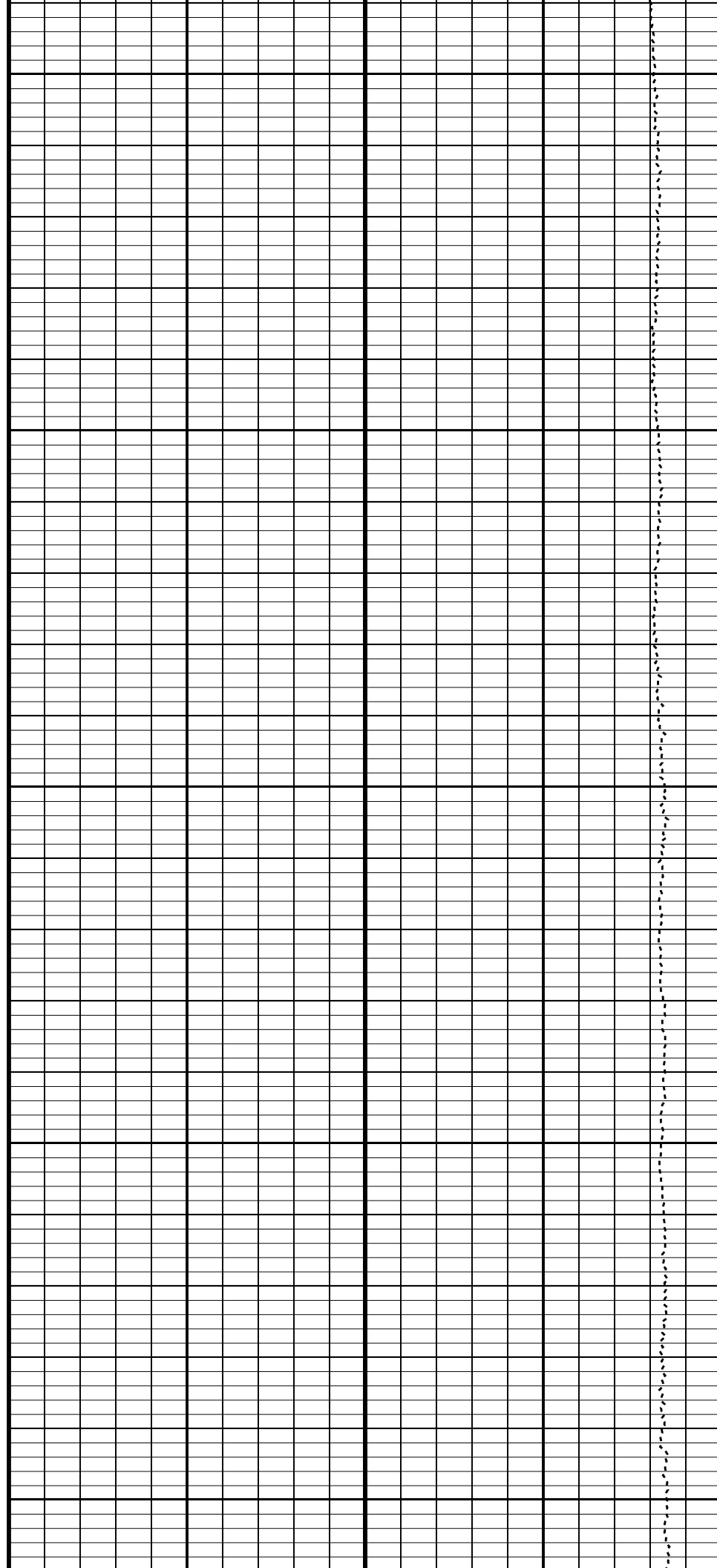


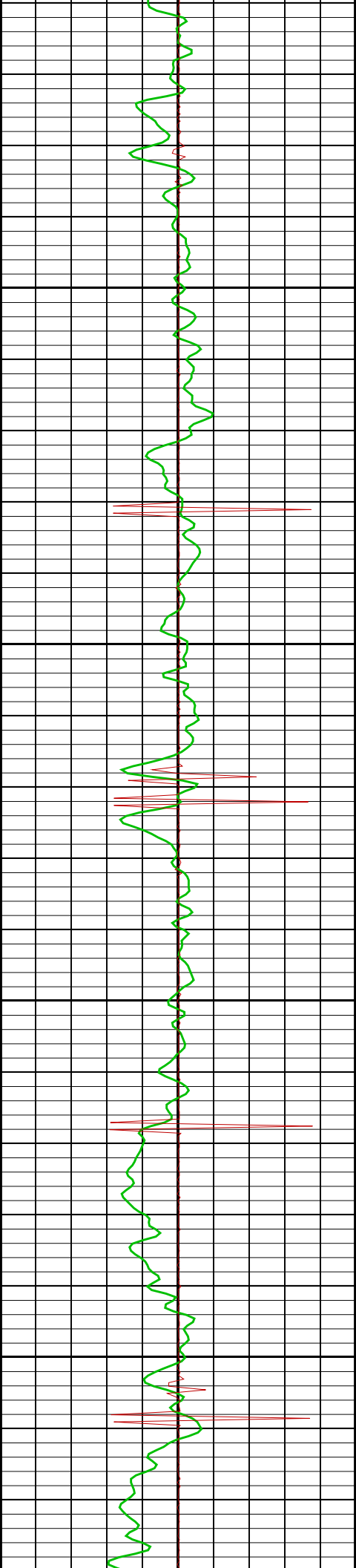




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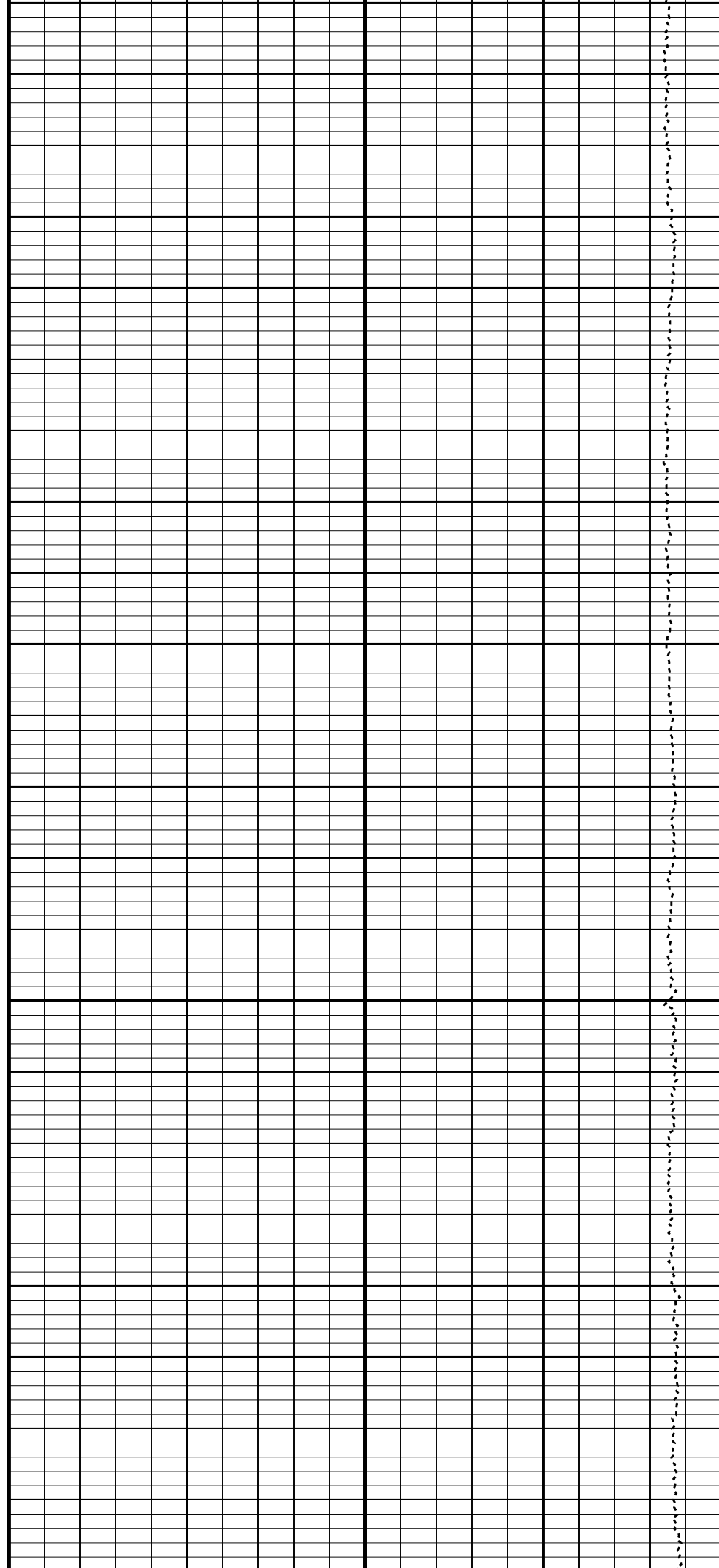
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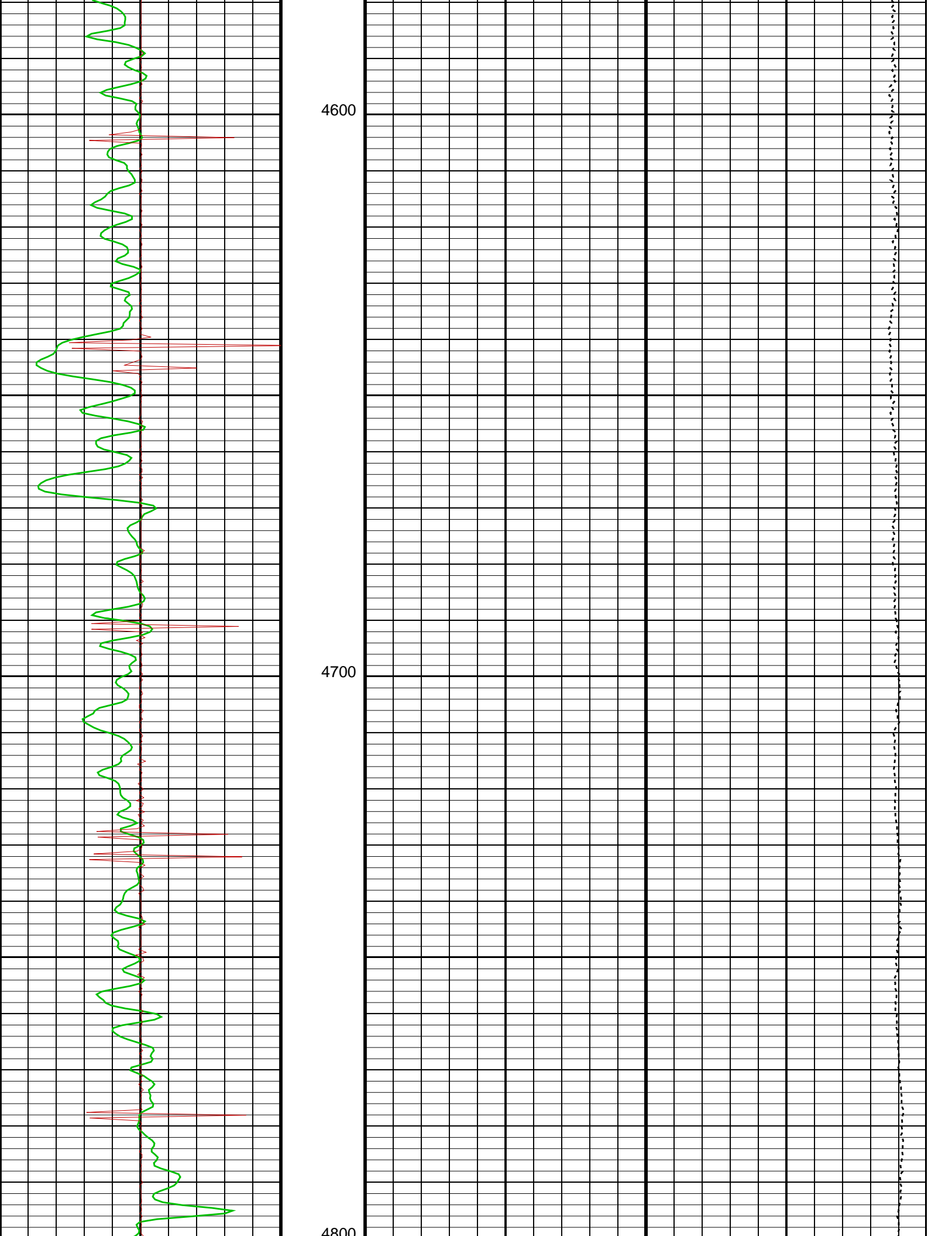


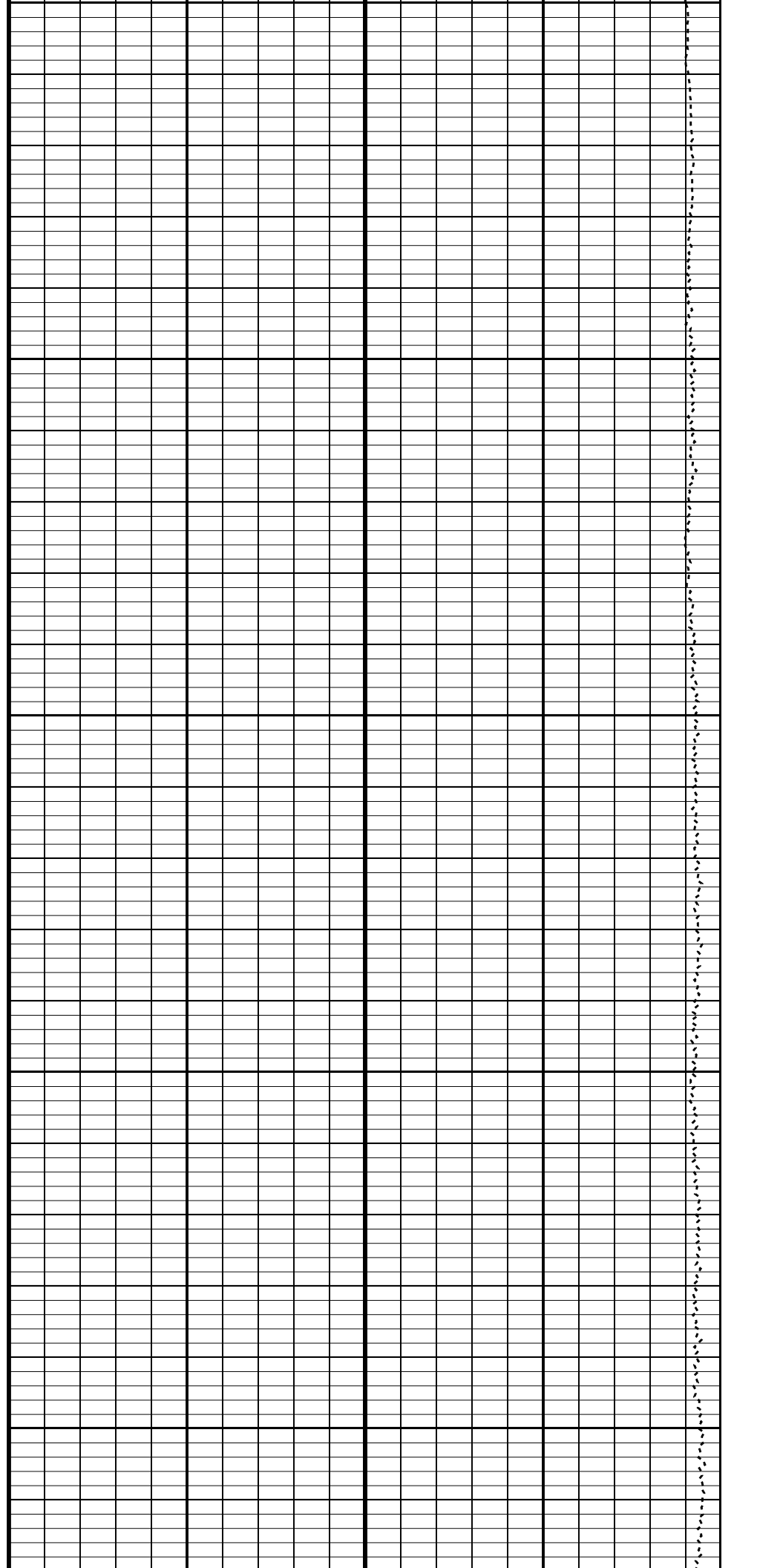
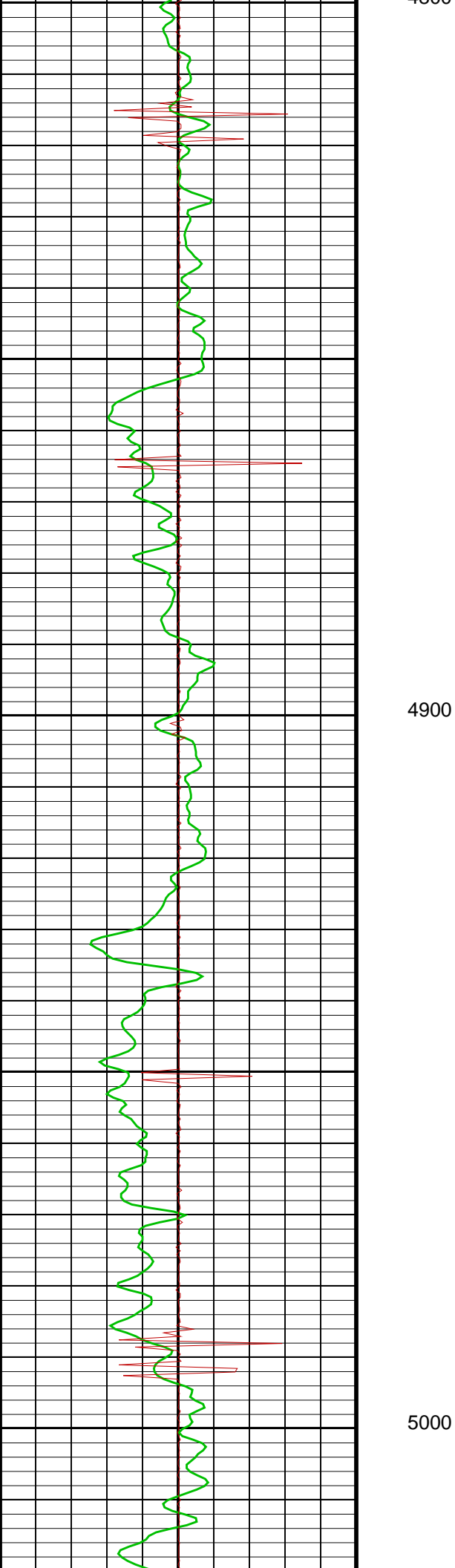


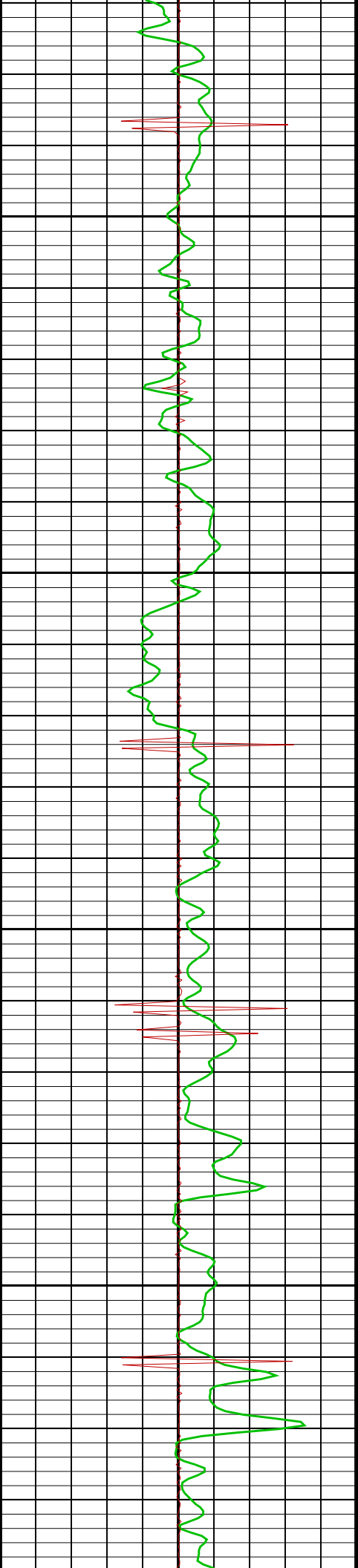
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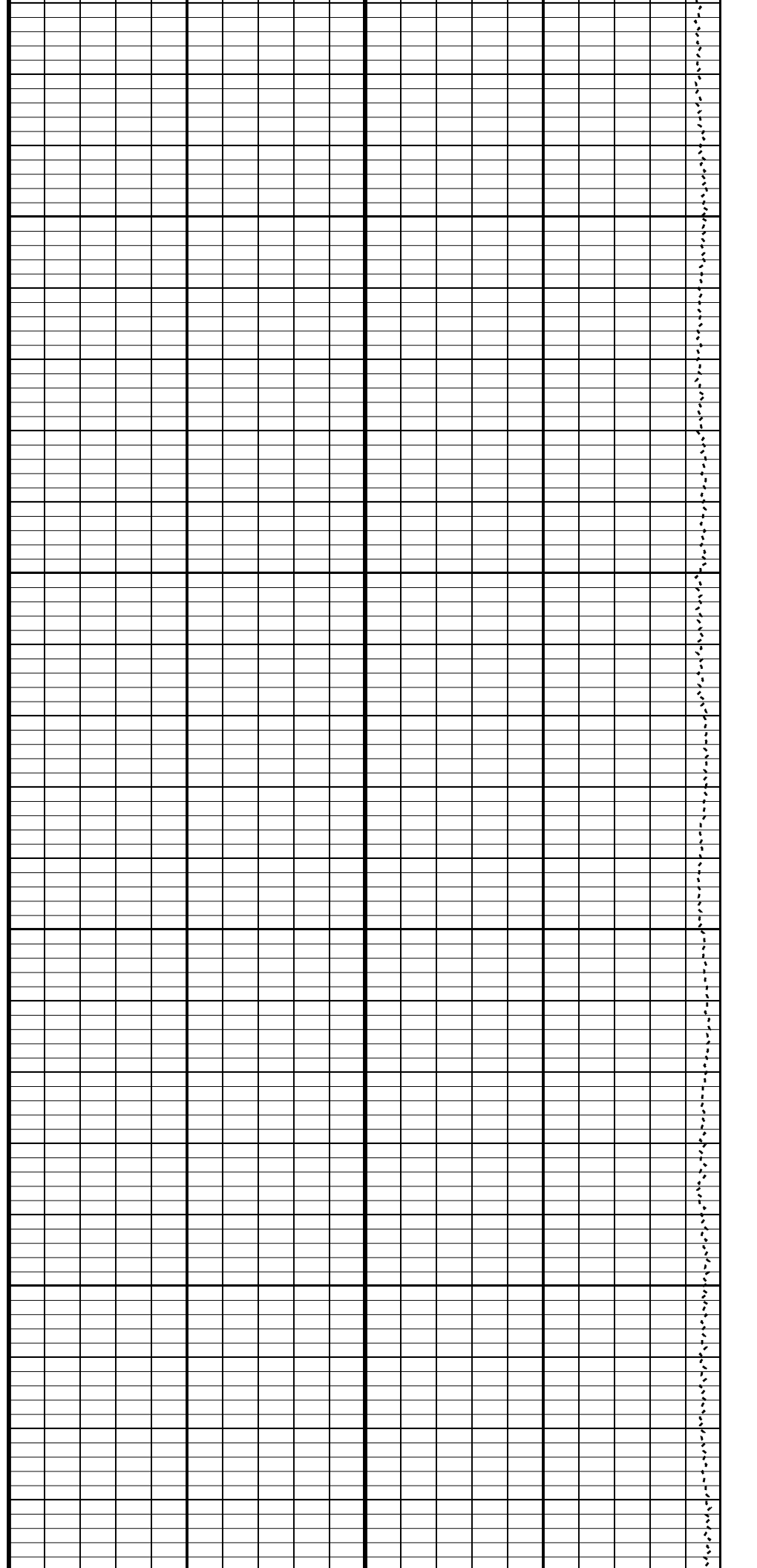


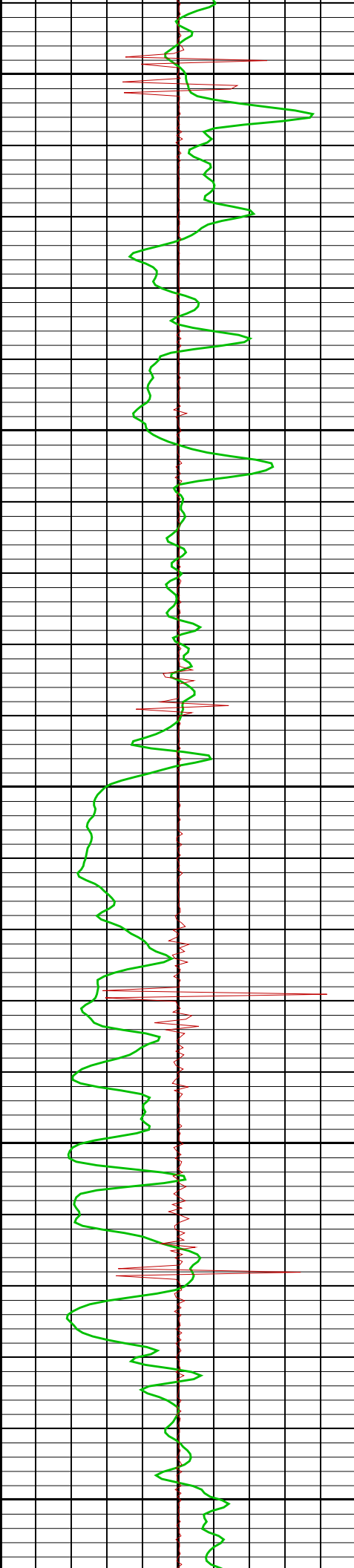




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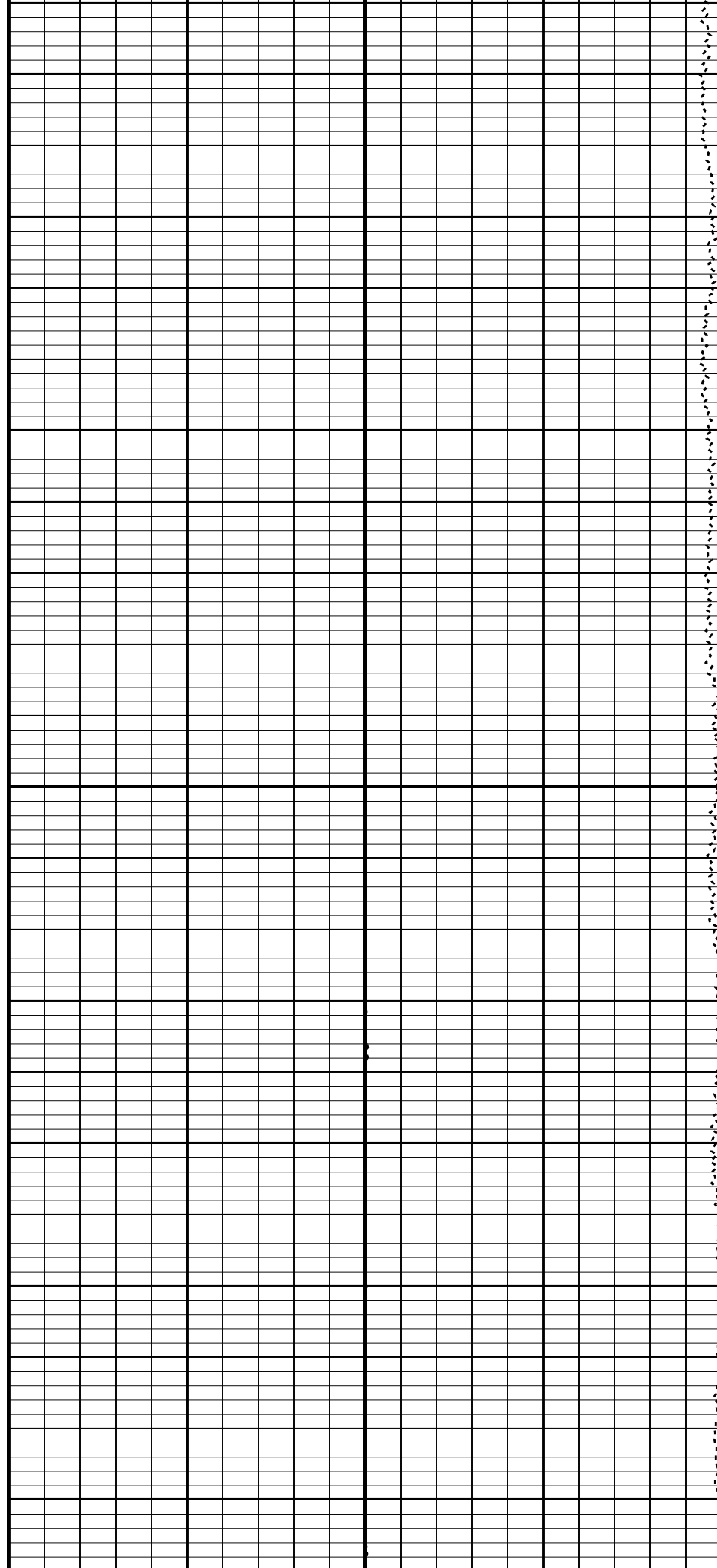
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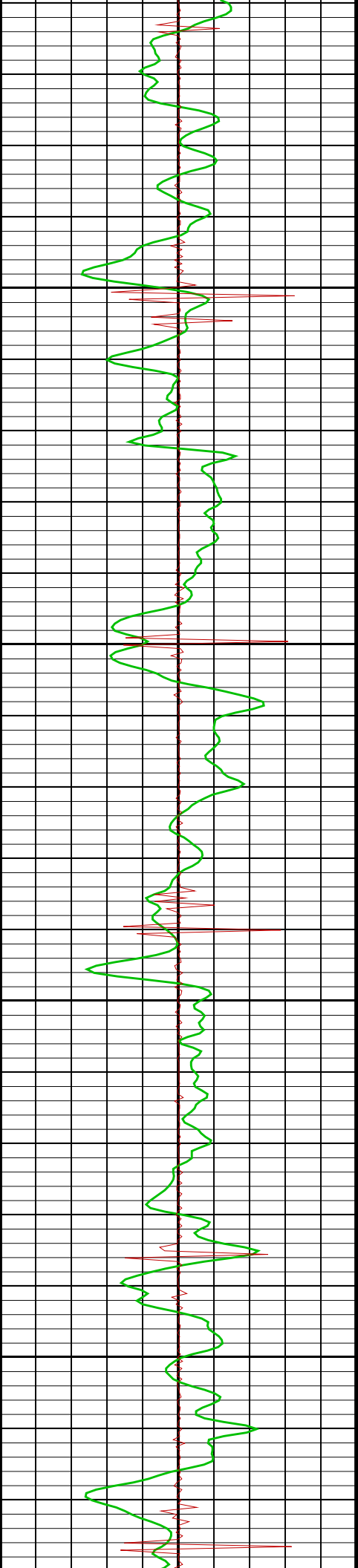




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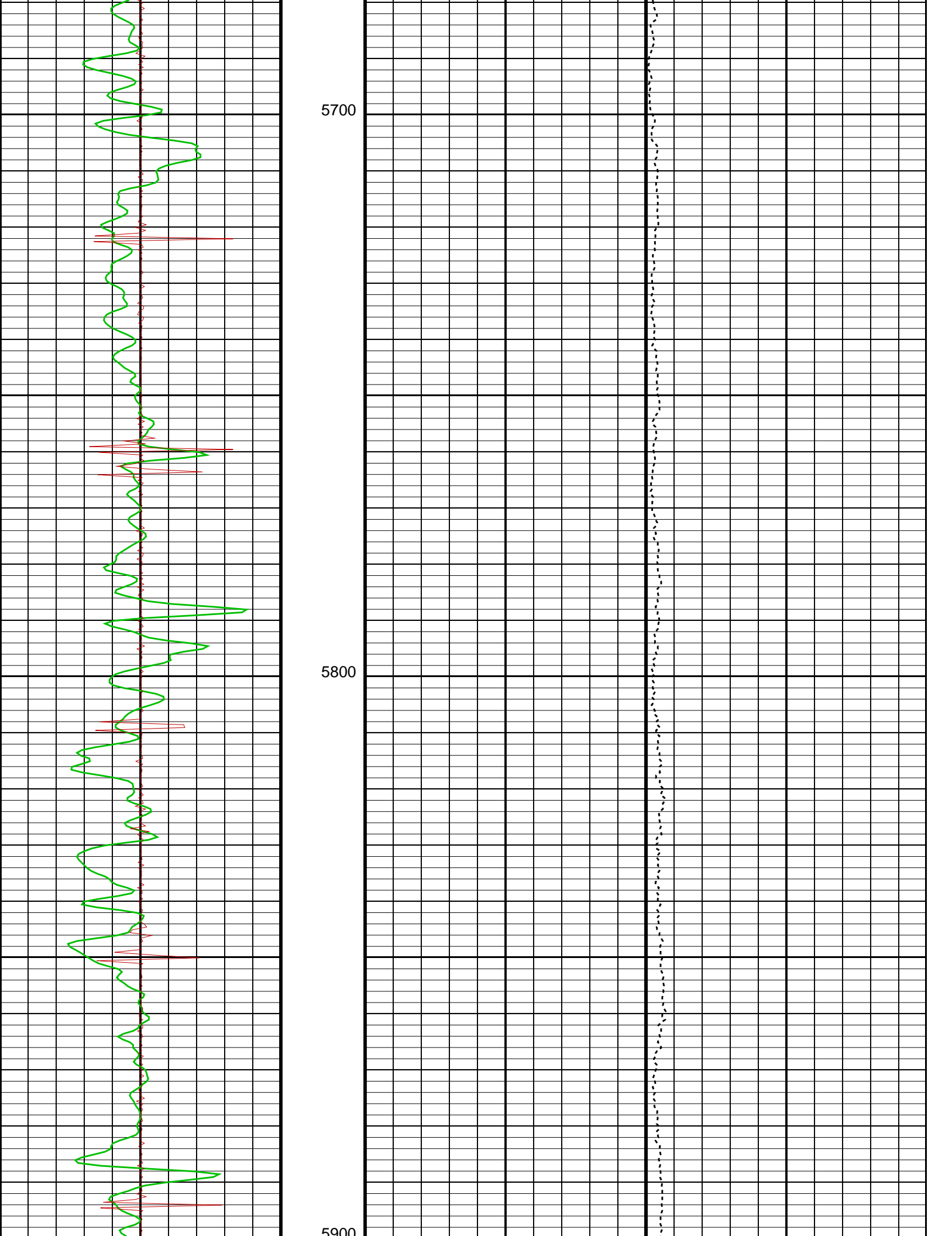
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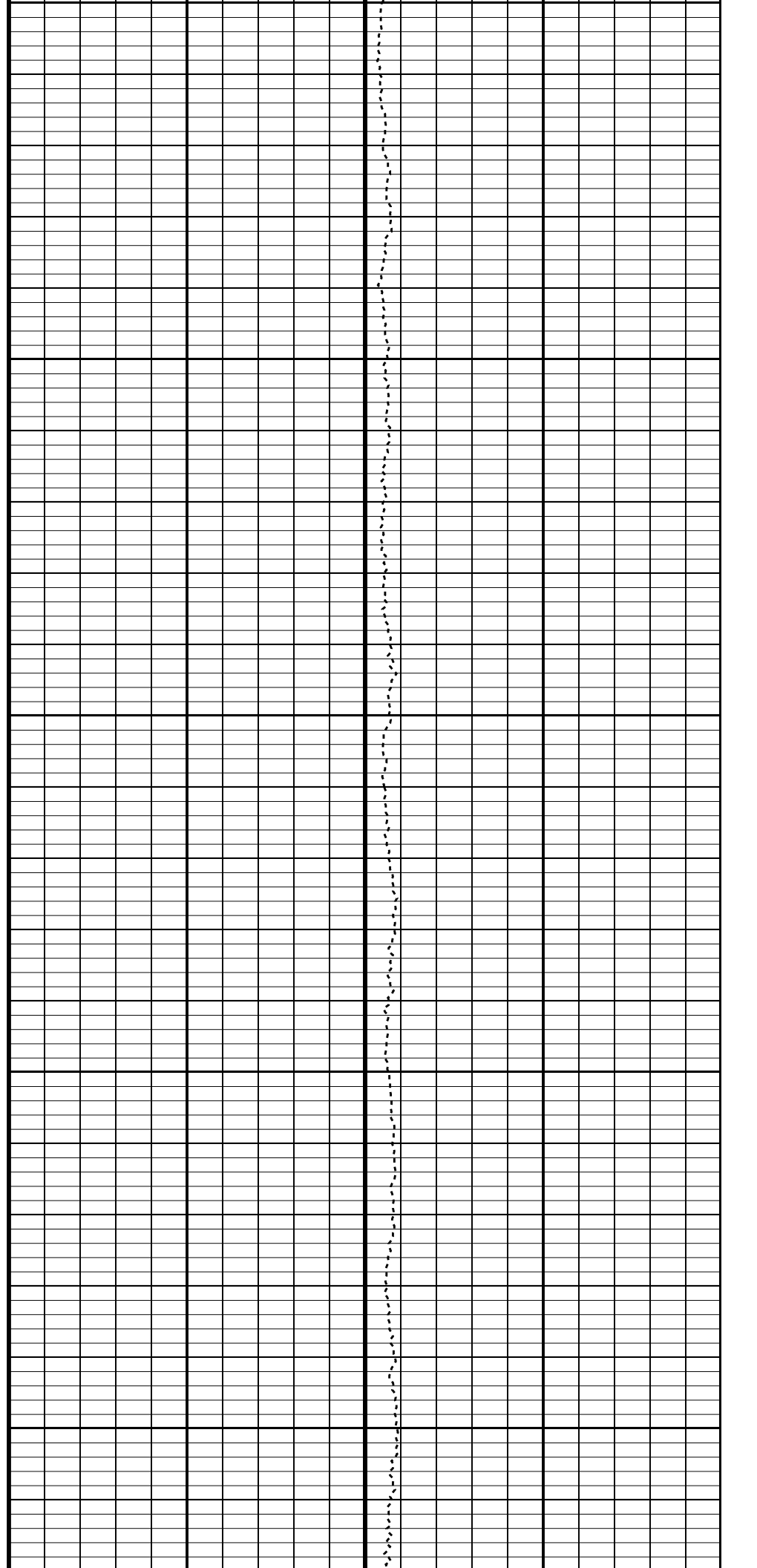
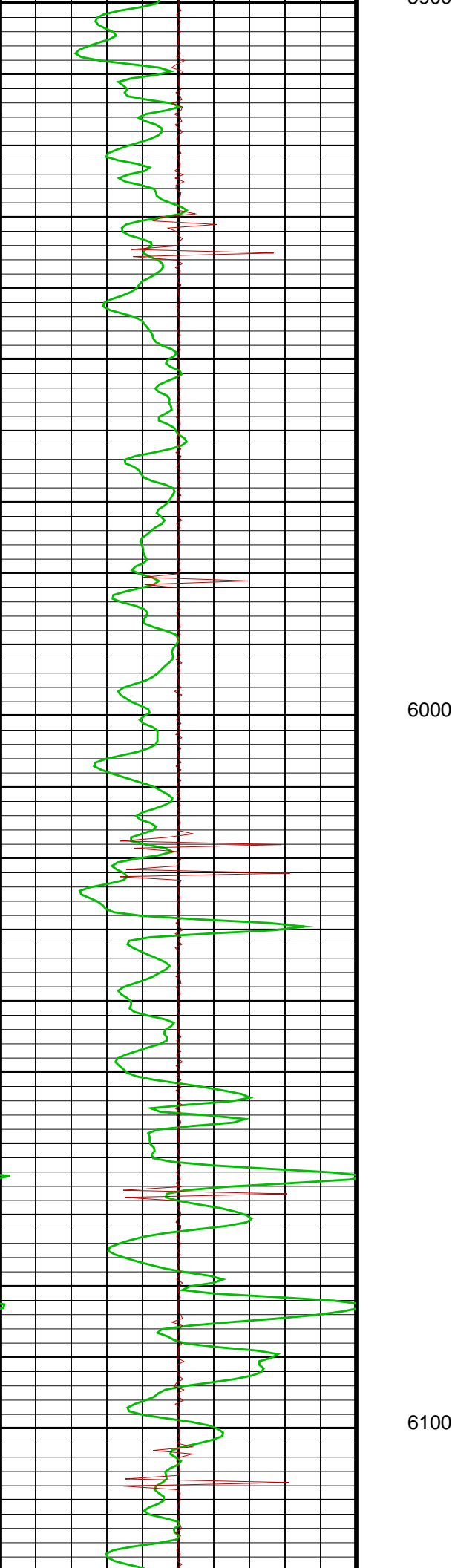


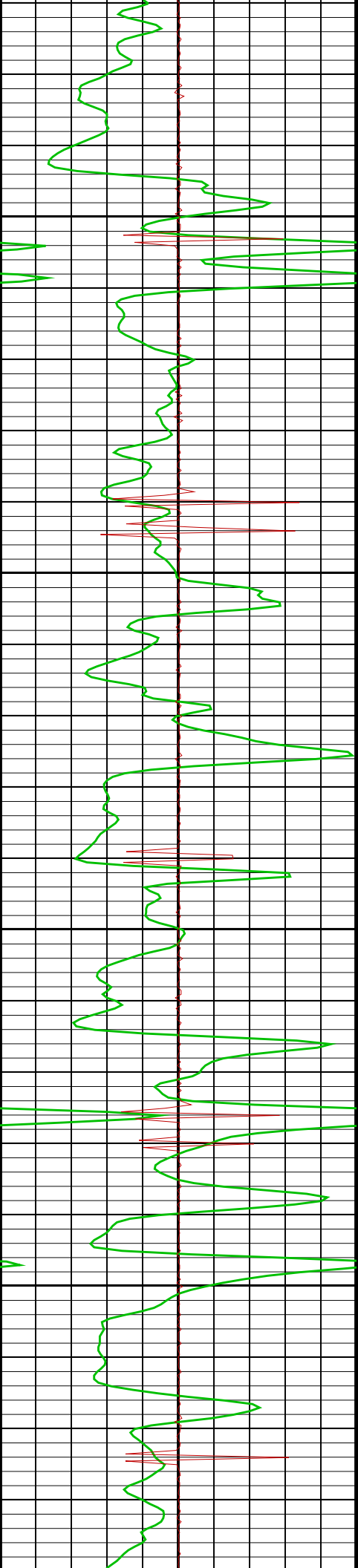
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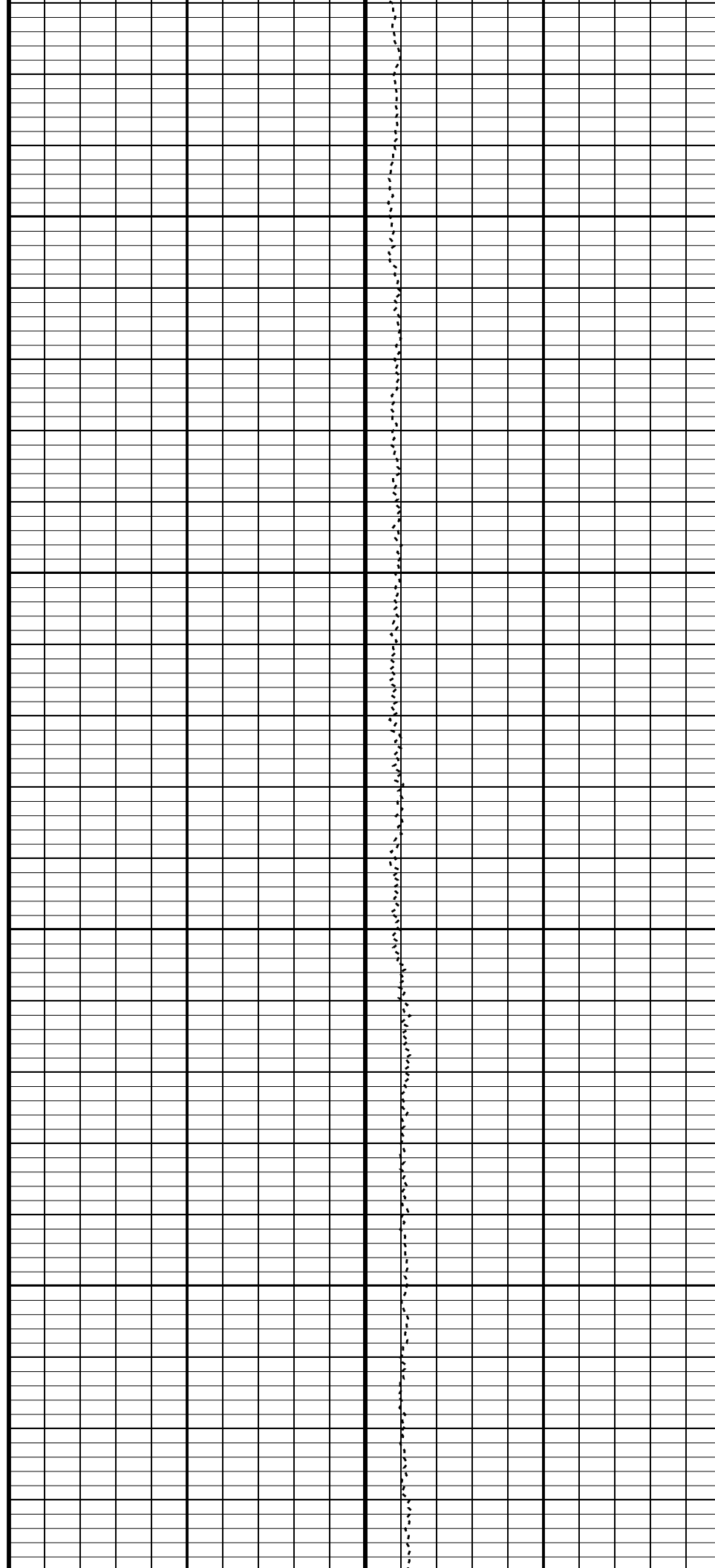


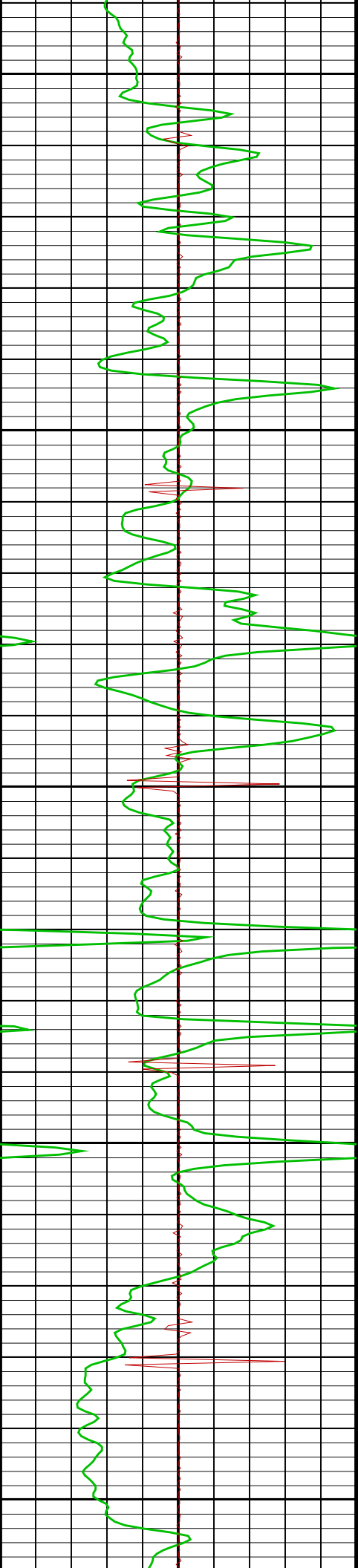




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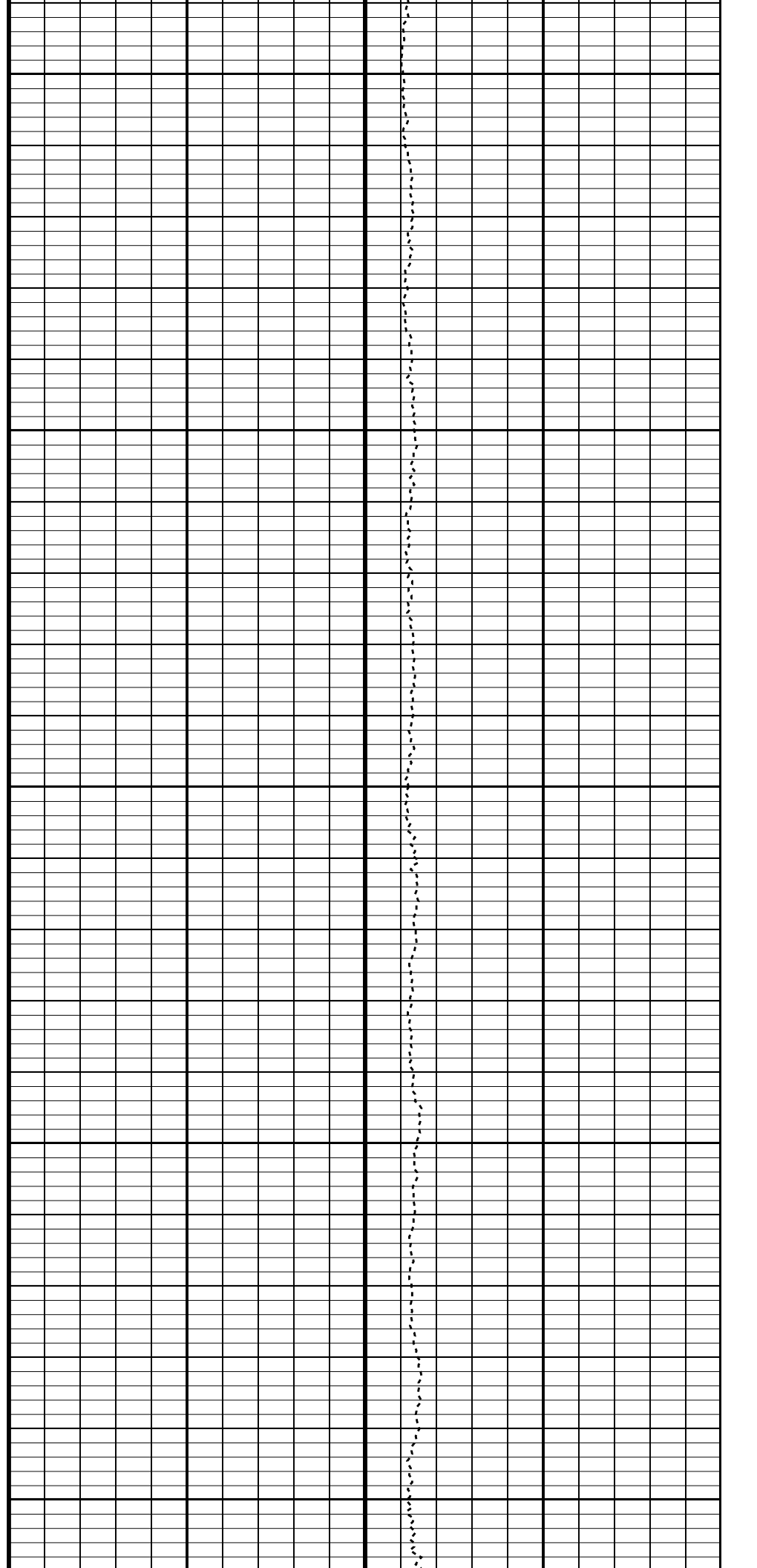
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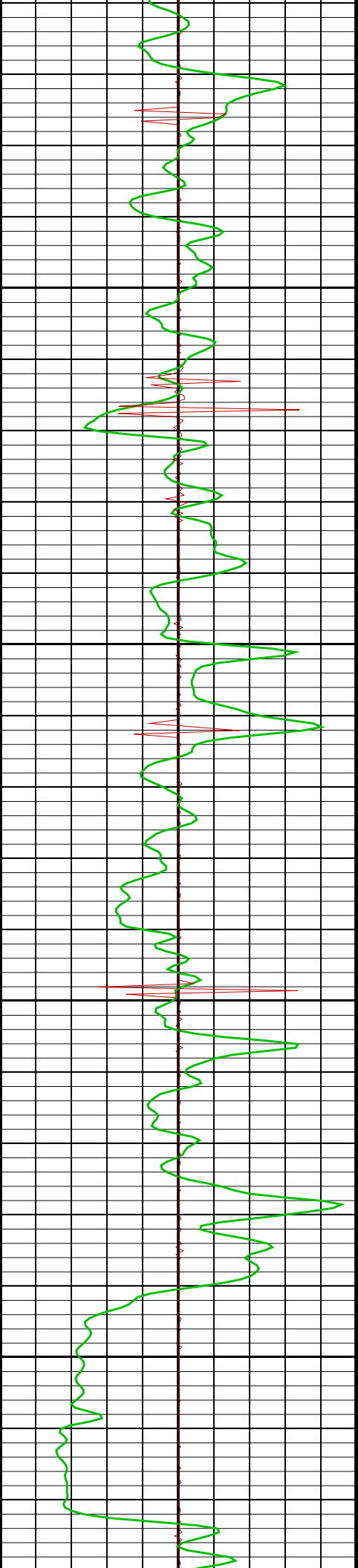




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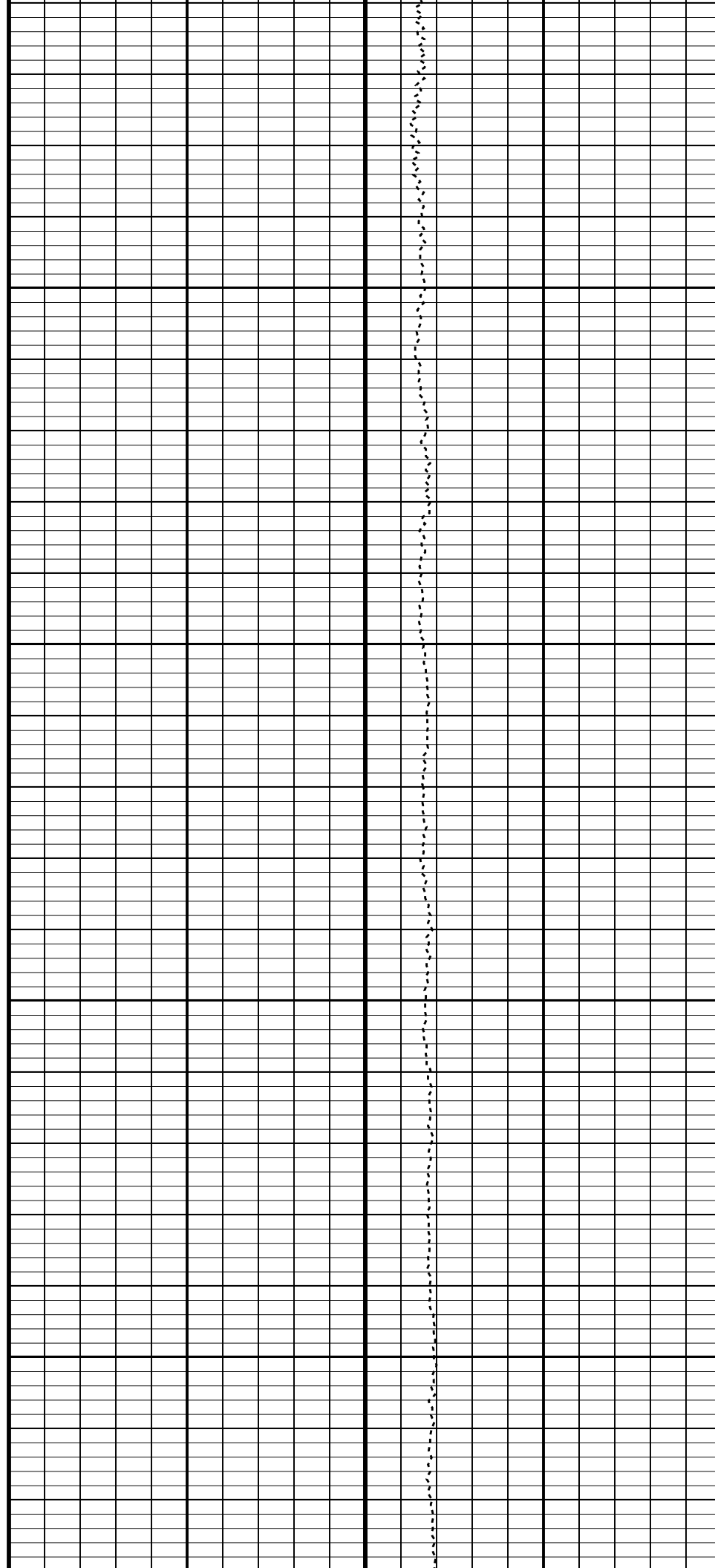
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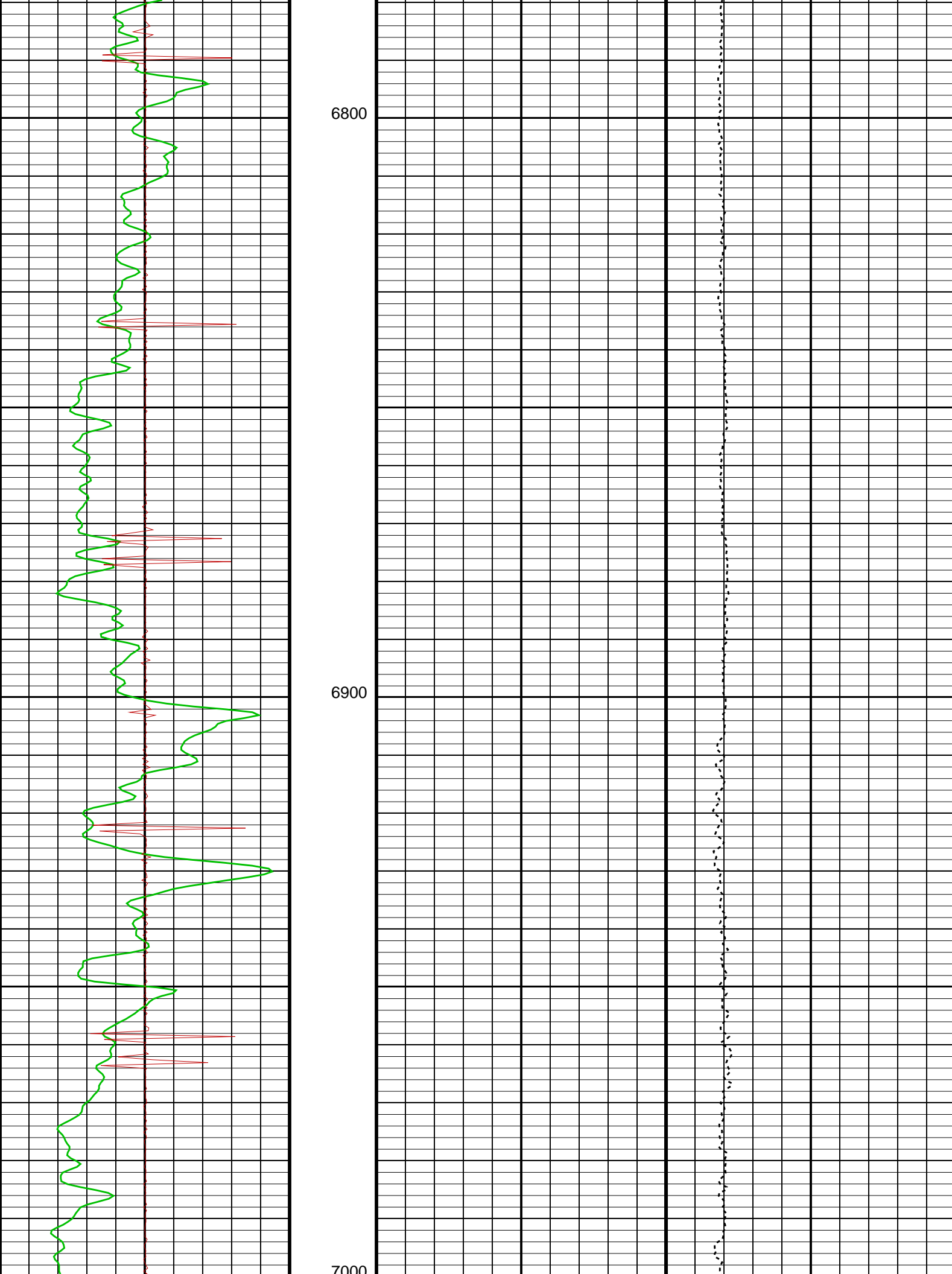


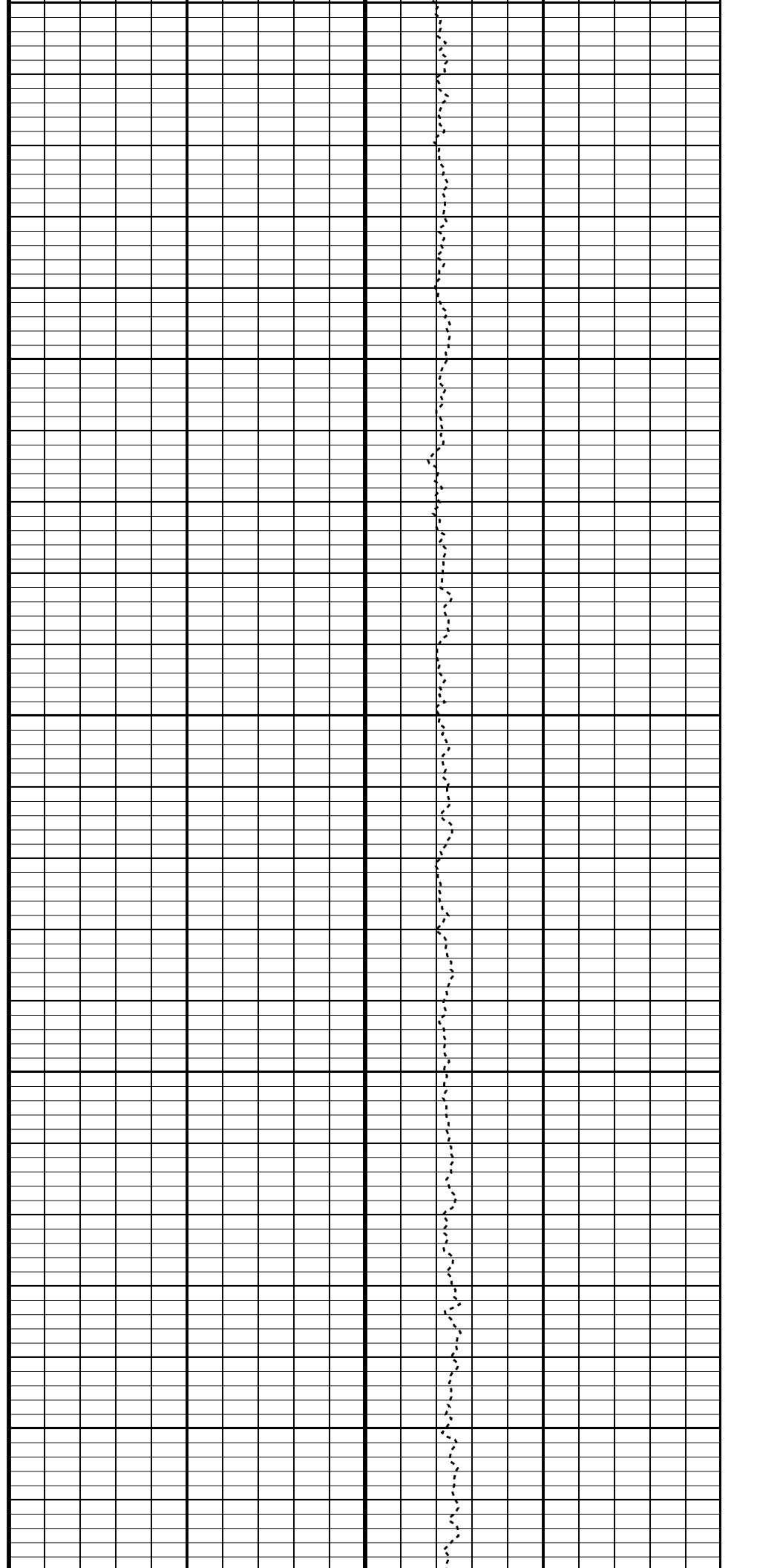
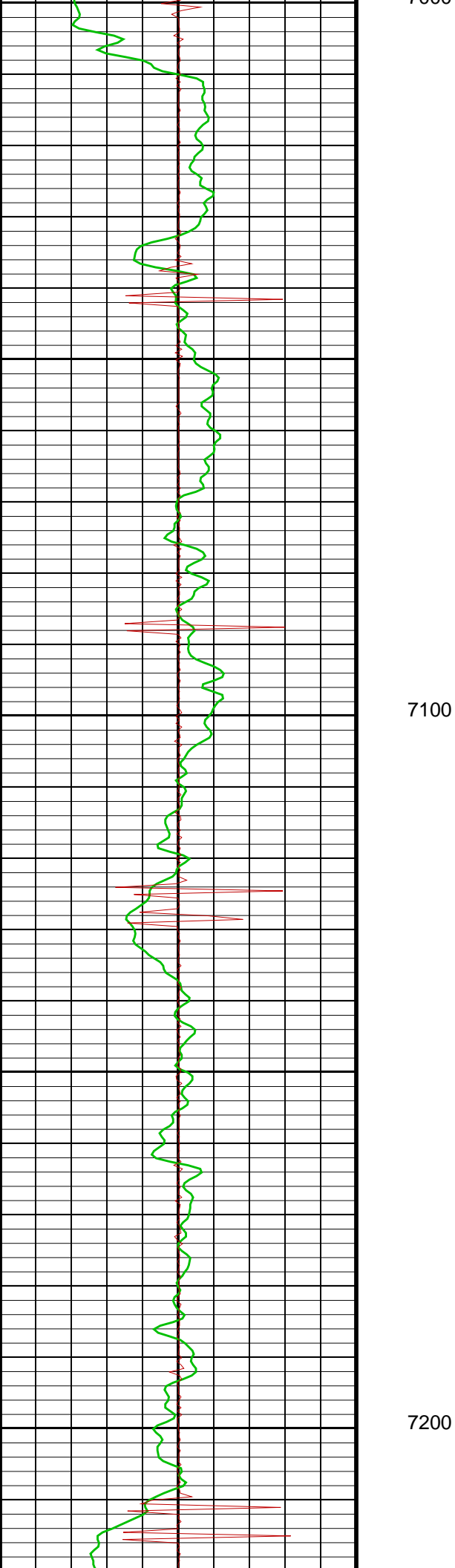


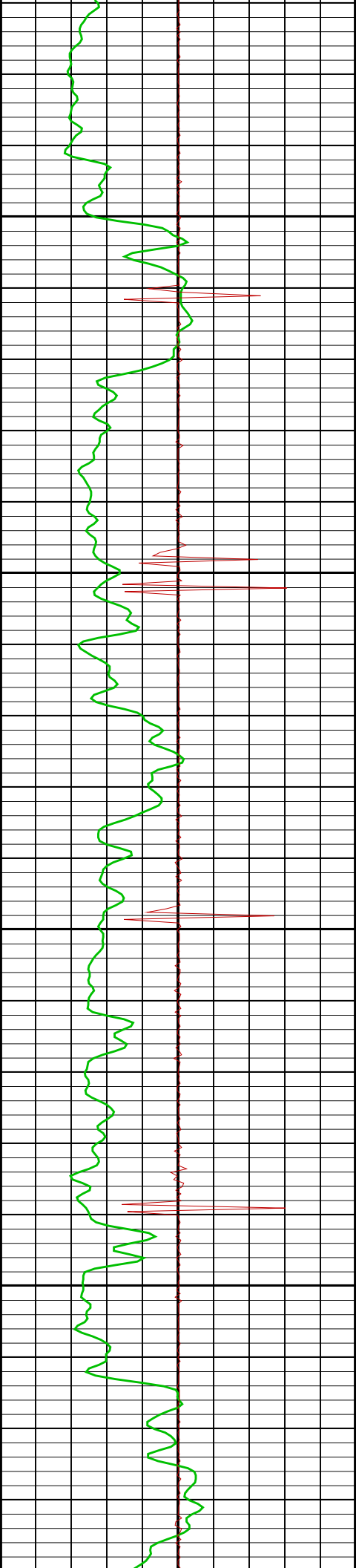
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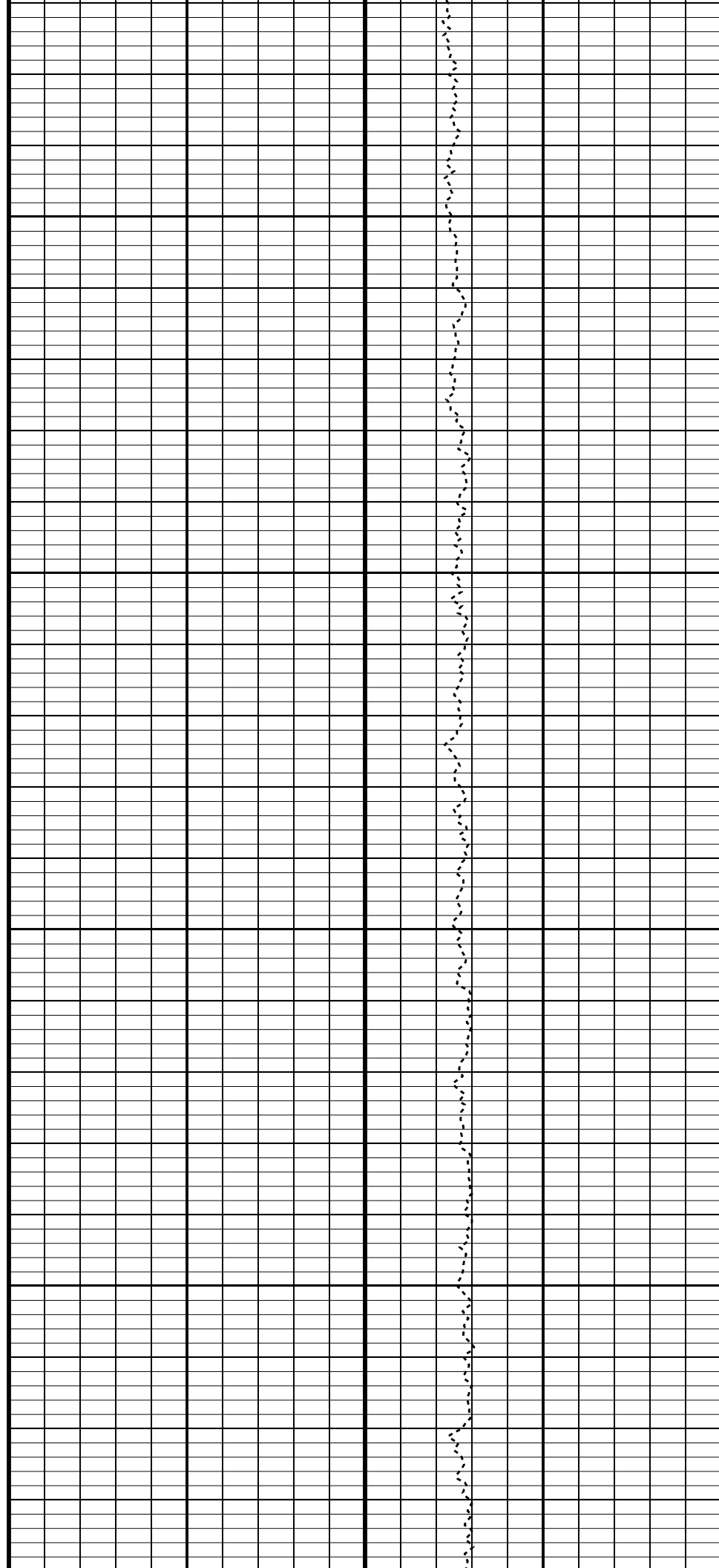


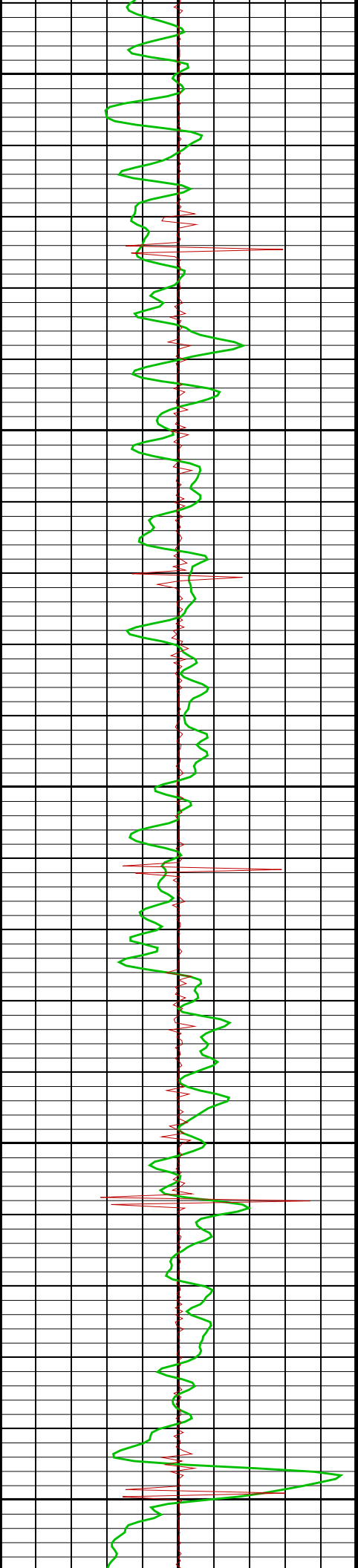




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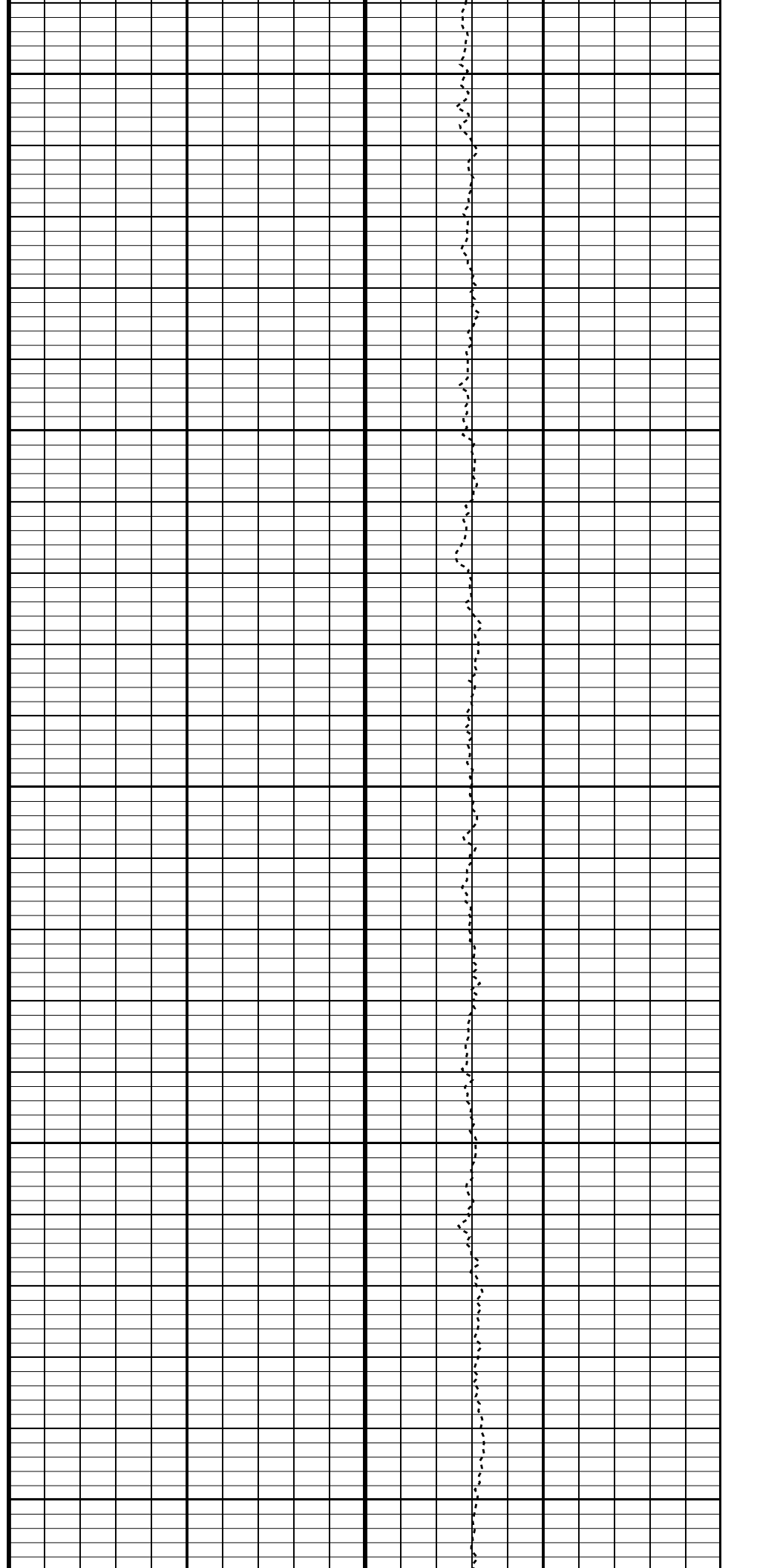
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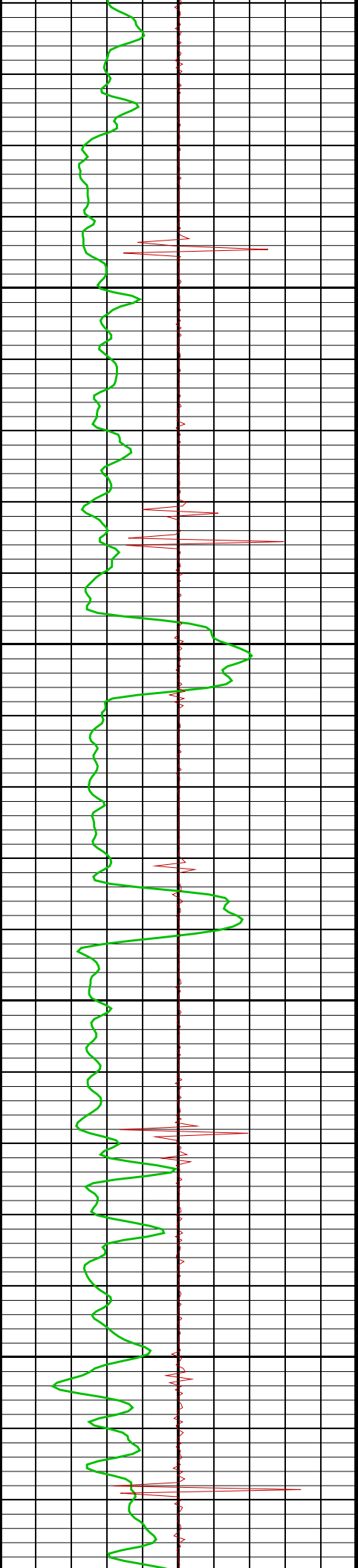


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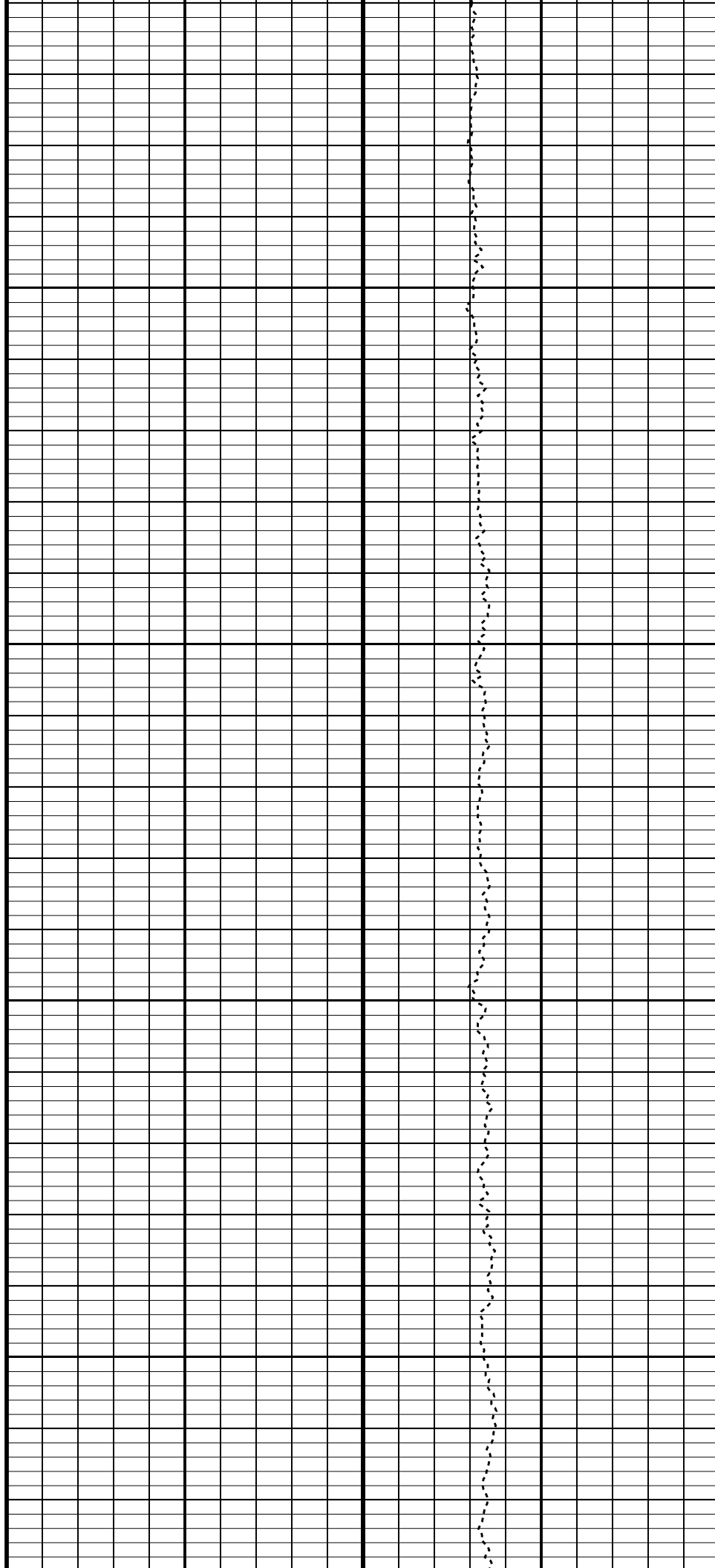


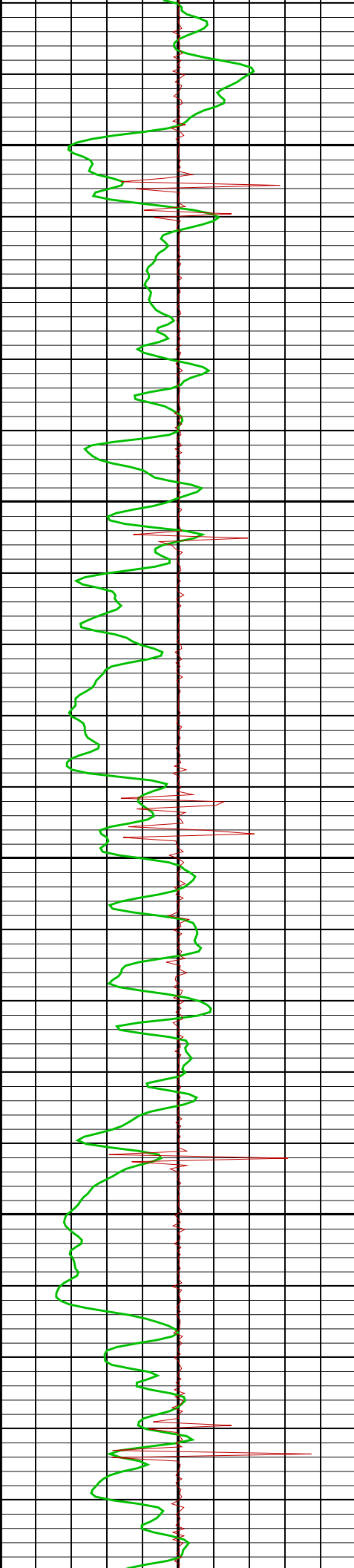




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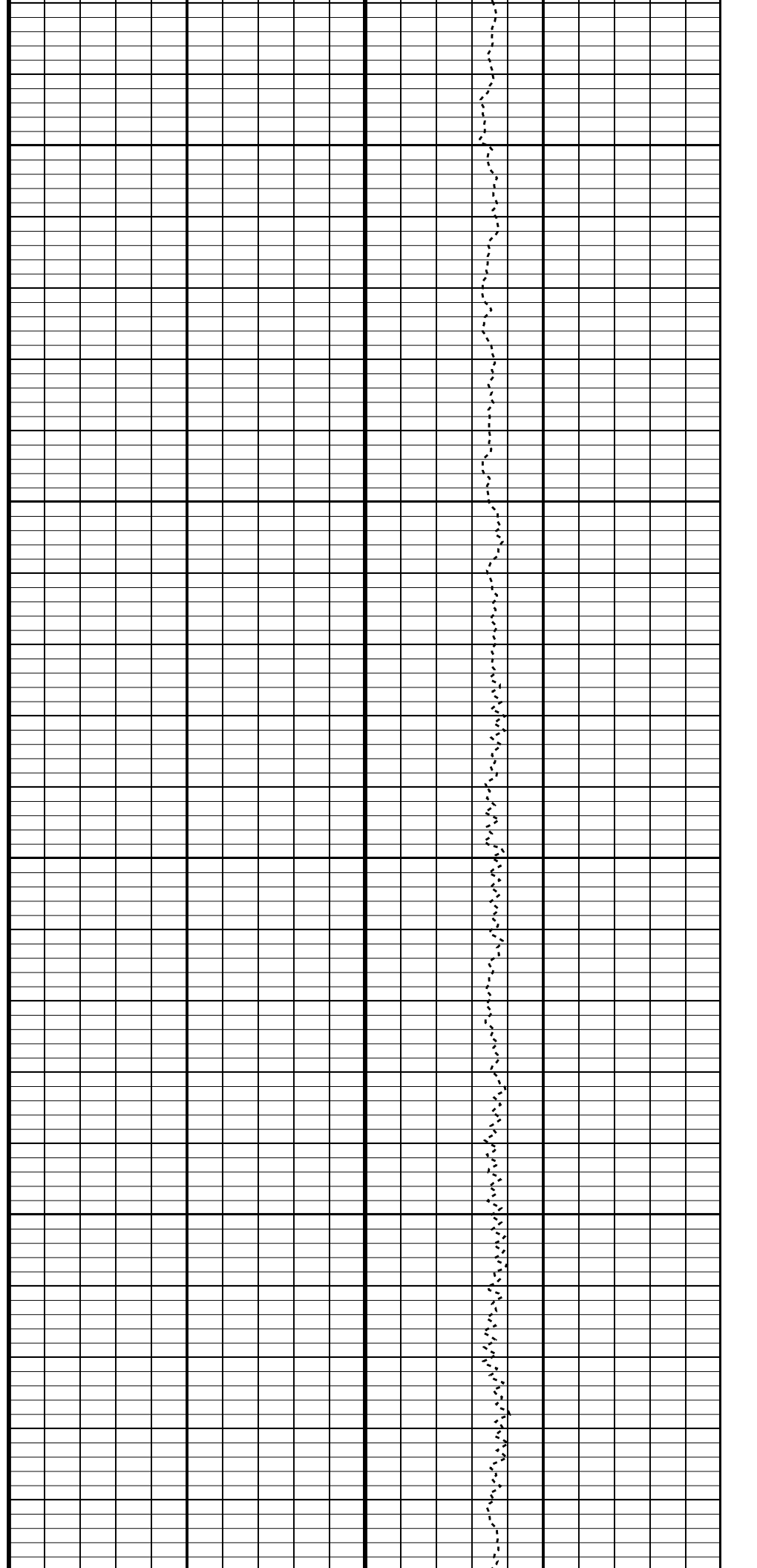


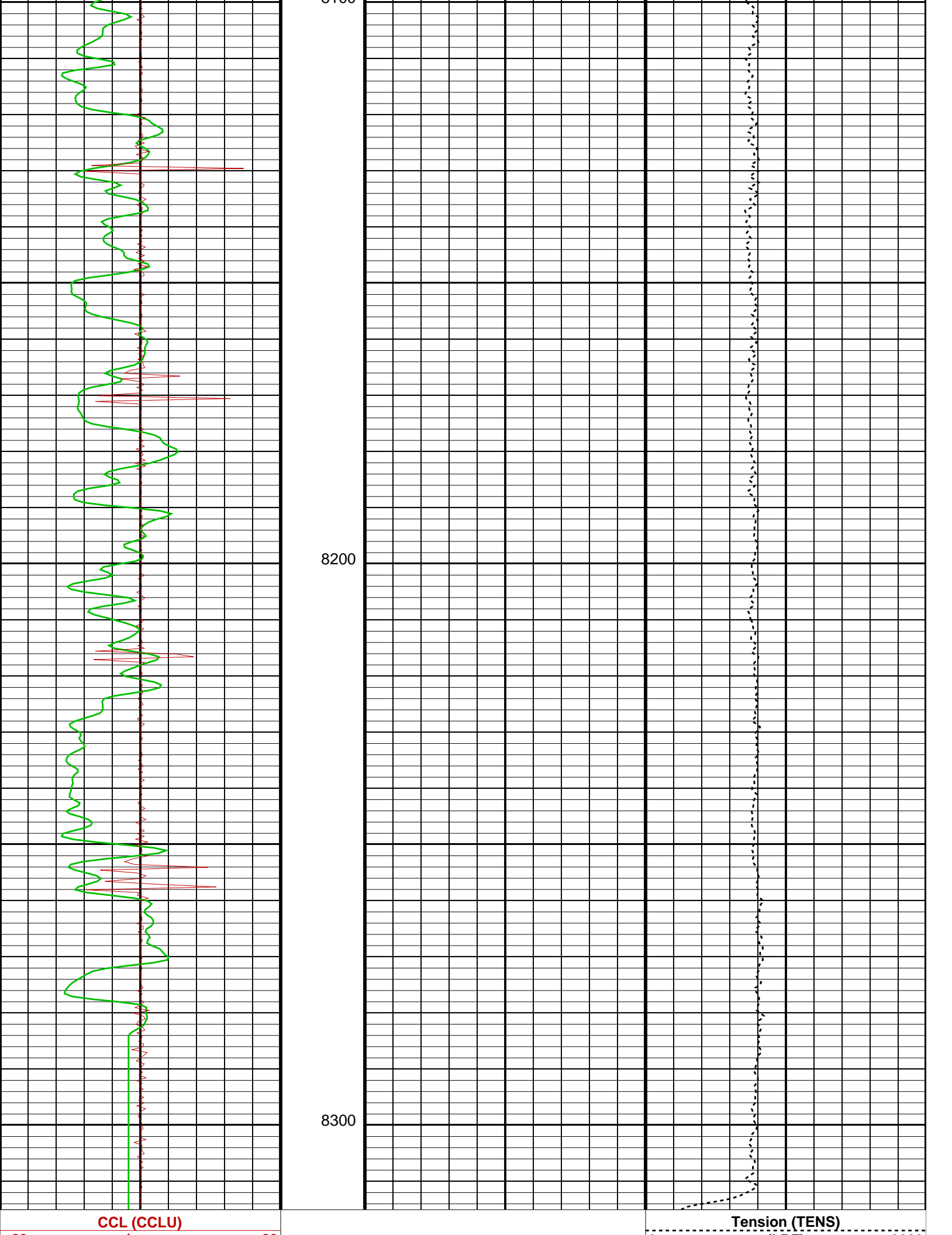


7900

8000

8100





Parameters			
DLIS Name	Description	Value	
USIT-D: Ultrasonic Imaging - D			
AGMN	Minimum Gain of Cartridge	-4	DB
AGMX	Maximum Gain of Cartridge	20	DB
BERJ	Bad Echo Rejection	ON	
CDIA	Casing Outer Diameter	7	IN
CSDE	Casing Density	486.94	LBCF
CSID	Casing Inner Diameter	6.276	IN
DFVL	Default Fluid Velocity	206	US/F
DOT	Diameter of Transducer Sensor	1.756	IN
EMXV	EMEX Voltage	80	V
MW	Mud Weight	8.4	LB/G
RCOD	Reference Calibrator Outer Diameter	4.5	IN
RCSO	Reference Calibrator Standoff	0.8425	IN
RCTH	Reference Calibrator Thickness	0.2165	IN
TCUB	T^3 Processing Level	Vax_Loop	
THDH	Maximum Search Thickness (percentage of nominal)	130	
THDL	Minimum Search Thickness (percentage of nominal)	70	
THDP	Thickness Detection Policy	Fundamental	
THNO	Nominal Thickness of Casing	0.362	IN
USTO	Ultrasonic Time Offset	-2	US
USUB	Ultrasonic Subassembly Identifier	Sub_5_inch	
UWKM	Ultrasonic Working Mode	5DEG_6IN_136UNF_LF	
VCAS	Ultrasonic Transversal Velocity in Casing	51.4	US/F
WLEN	T^3 Processing Length	21.7078	US
ZCAS	Acoustic Impedance of Casing	46.25	MRAY
ZINI	Initial Estimate of Cement Impedance	-1	MRAY
ZMUD	Acoustic Impedance of Mud	1.75	MRAY
ZTCM	Acoustic Impedance Threshold for Cement	2.6	MRAY
ZTGS	Acoustic Impedance Threshold for Gas	0.3	MRAY
System and Miscellaneous			
CWEI	Casing Weight	26.00	LB/F
DO	Depth Offset for Playback	0.0	FT
DORL	Depth Offset for Repeat Analysis	0.0	FT
PP	Playback Processing	NORMAL	


Format: CORRELATION

Vertical Scale: 5" per 100'

Graphics File Created: 27-Jun-2010 04:33

OP System Version: 17C0-154			
USIT-D	17C0-154	HILTH-FTB	17C0-154
DTC-H	17C0-154		

Input DLIS Files						
DEFAULT	SPLICE_USI_TLD_MCFL_009	FN:1	PRODUCER	27-Jun-2010 04:26	8315.0 FT	203.5 FT
Output DLIS Files						
DEFAULT	USI_TLD_MCFL_CNL_012PUP	FN:10	PRODUCER	27-Jun-2010 04:33		



Repeat Analysis

MAXIS Field Log

Input DLIS Files

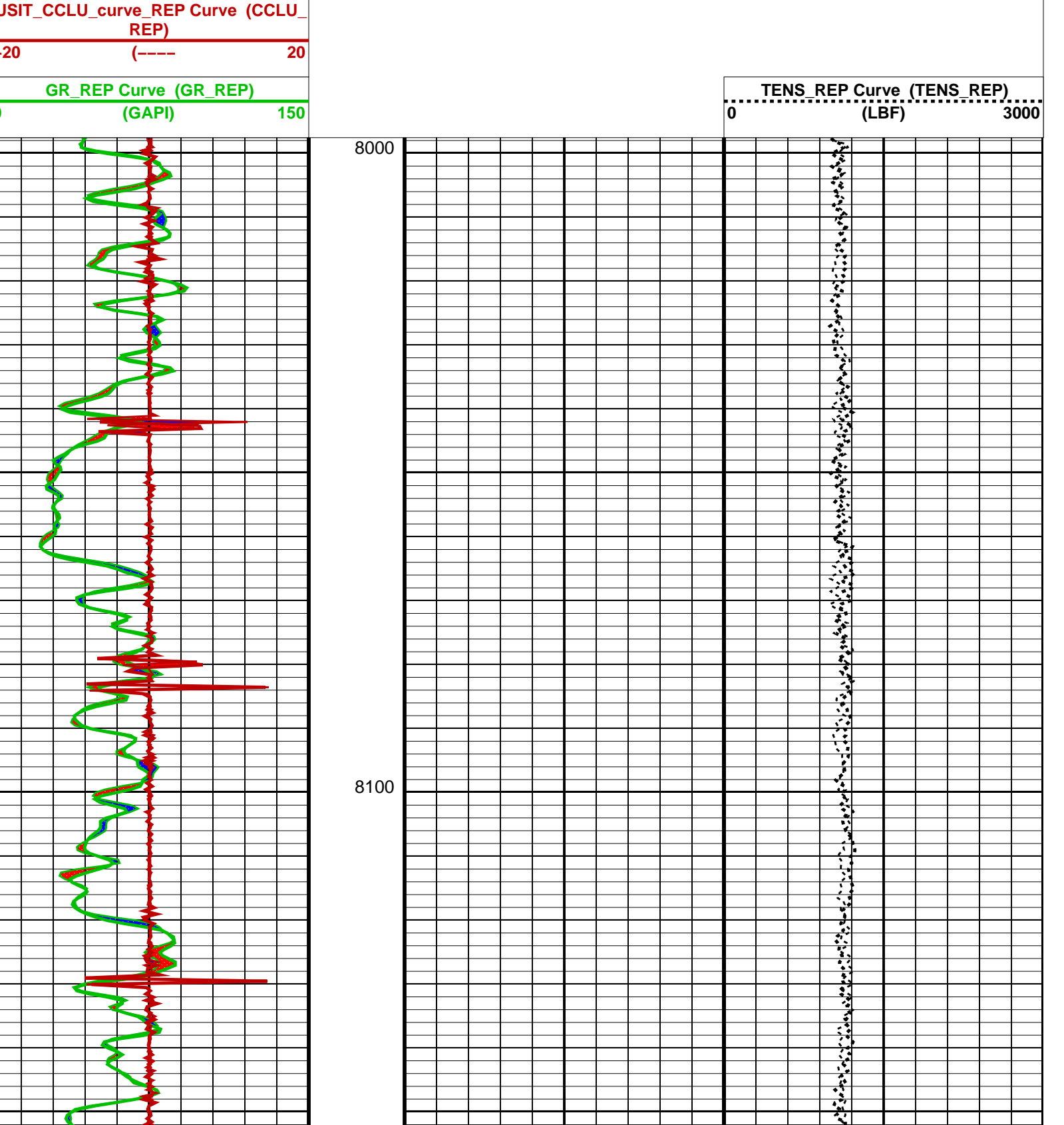
DEFAULT	SPLICE_USI_TLD_MCFL_009	FN:1	PRODUCER	27-Jun-2010 04:26	8315.0 FT	203.5 FT
DEFAULT	USI_TLD_MCFL_CNL_006PUP	FN:5	PRODUCER	27-Jun-2010 04:17	8317.5 FT	7998.0 FT

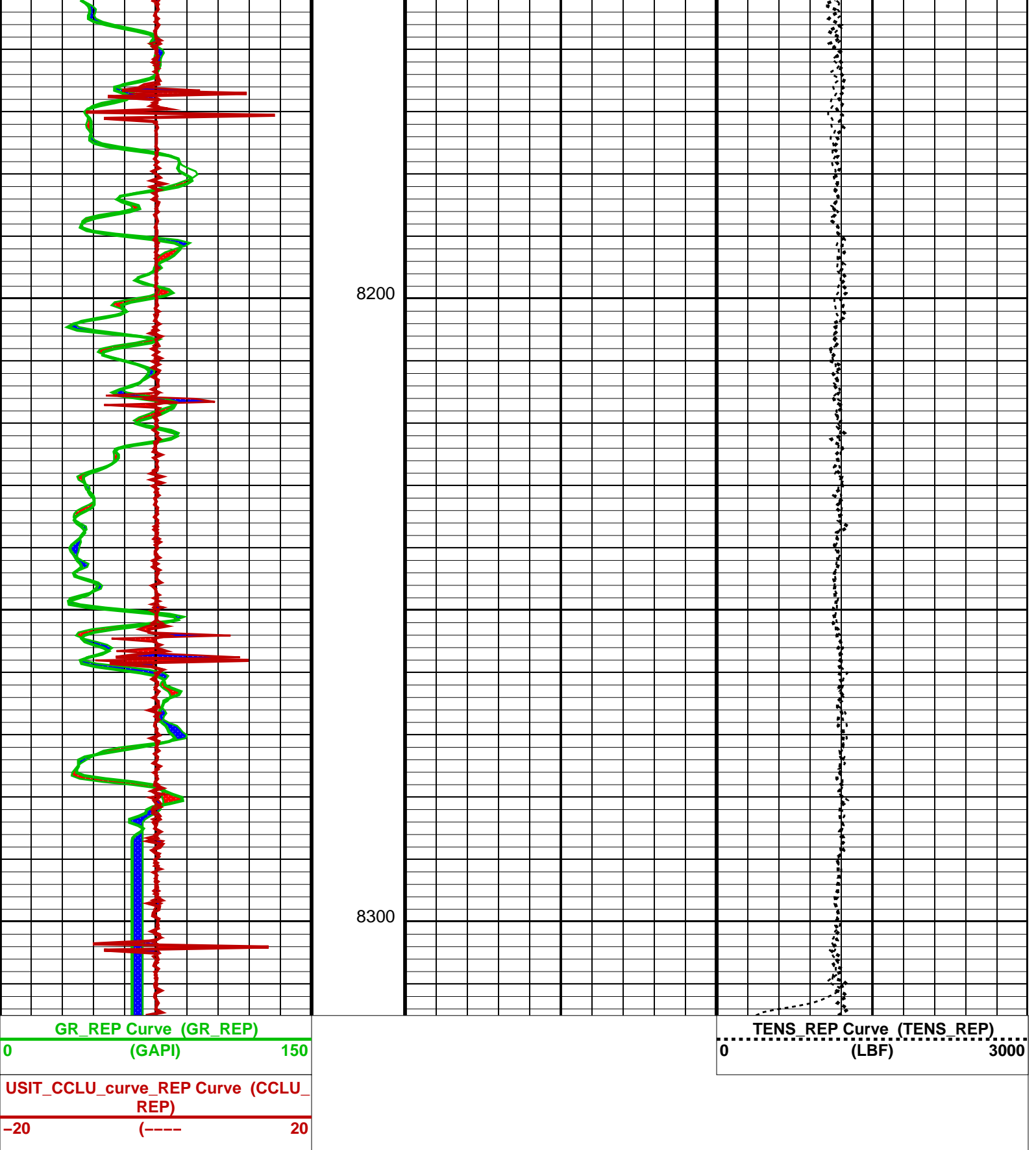
Output DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_012PUP	FN:10	PRODUCER	27-Jun-2010 04:33
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OP System Version: 17C0-154

USIT-D	17C0-154	HILTH-FTB	17C0-154
DTC-H	17C0-154		





## Parameters

DLIS Name	Description	Value	
USIT-D: Ultrasonic Imaging – D			
AGMN	Minimum Gain of Cartridge	–4	DB
AGMX	Maximum Gain of Cartridge	20	DB
BERJ	Bad Echo Rejection	ON	
CDIA	Casing Outer Diameter	7	IN
CSDE	Casing Density	486.94	LBCF
CSID	Casing Inner Diameter	6.276	IN
DEVL	Default Fluid Velocity	206	US/E

Format: CORRELATION\_REP      Vertical Scale: 5" per 100'      Graphics File Created: 27-Jun-2010 04:33

USIT-D	17C0-154	HILTH-FTB	17C0-154
DTC-H	17C0-154		

DEFAULT	SPLICE_USI_TLD_MCFL_009	FN:1	PRODUCER	27-Jun-2010 04:26	8315.0 FT	203.5 FT
DEFAULT	USI_TLD_MCFL_CNL_006PUP	FN:5	PRODUCER	27-Jun-2010 04:17	8317.5 FT	7998.0 FT




DEFAULT	USI TLD MCFL CNL 012PUP	FN:10	PRODUCER	27-Jun-2010 04:33
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

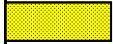
Calibration and Check Summary							
Measurement	Nominal	Master	Before	After	Change	Limit	Units
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Detector Calibration							
Before: 23–Jun–2010 14:06							
Gamma Ray Background	30.00	N/A	29.00	N/A	N/A	N/A	GAPI
Gamma Ray (Jig – Bkg)	168.1	N/A	168.1	N/A	N/A	15.28	GAPI
Gamma Ray (Calibrated)	165.0	N/A	165.0	N/A	N/A	15.00	GAPI
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Zero Measurement							
Master: 19–May–2010 12:23 Before: 23–Jun–2010 14:07							
CNTC Background	27.64	27.64	27.27	N/A	N/A	4.146	CPS
CFTC Background	28.93	28.93	27.90	N/A	N/A	4.340	CPS
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Ratio Measurement							


Master: 19-May-2010 12:23							
Thermal Near Corr. (Tank)	5800	5258	N/A	N/A	N/A	N/A	CPS
Thermal Far Corr. (Tank)	2400	2175	N/A	N/A	N/A	N/A	CPS
CNTC/CFTC (Tank)	2.159	2.417	N/A	N/A	N/A	N/A	
High resolution Integrated Logging Tool-DTS Wellsite Calibration – Accelerometer Calibration							
Before: 26-Jun-2010 11:48							
Z-Axis Acceleration	32.19	N/A	32.14	N/A	N/A	N/A	F/S2
The HGNS Neutron Master Calibration was done with the following parameters :							
NCT-B Water Temperature	61.8	DEGF.					
Thermal Housing Size	3.374	IN.					
NSR-F serial number	5138						

High resolution Integrated Logging Tool–DTS / Equipment Identification			
Primary Equipment:			
HILT Gamma–Ray Neutron Sonde–DTS	HGNS – H		
HGNS Gamma–Ray Device	HGR –		
HGNS Neutron Detector with Alpha Source	HCNT – H		
Z–Axis Accelerometer	HACC – H	3577	
Neutron Logging Source	NLS – KL		
Neutron Source Radioactive	NSR – F	5138	
Compensated Neutron Box	CNB – AB		
HTBC Communication Assembly DTS Mode	HMCA – H		
Auxiliary Equipment:			
Neutron Calibration Tank	NCT – B		
Gamma Source Radioactive	GSR – U/Y		
HGNS Housing	HGNH –		



High resolution Integrated Logging Tool–DTS Wellsite Calibration														
Detector Calibration														
Phase	Gamma Ray Background GAPI			Value	Phase	Gamma Ray (Jig – Bkg) GAPI			Value	Phase	Gamma Ray (Calibrated) GAPI			Value
Before				29.00	Before				168.1	Before				165.0
	0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)		152.8 (Minimum)	168.1 (Nominal)	183.4 (Maximum)		150.0 (Minimum)	165.0 (Nominal)	180.0 (Maximum)			
Before: 23–Jun–2010 14:06														




High resolution Integrated Logging Tool-DTS Wellsite Calibration							
Zero Measurement							
Phase	CNTC Background CPS		Value	Phase	CFTC Background CPS		Value
Master			27.64	Master			28.93
Before			27.27	Before			27.90
5.000 (Minimum)			27.64 (Nominal)	40.00 (Maximum)			
5.000 (Minimum)			28.93 (Nominal)	40.00 (Maximum)			
Master: 19-May-2010 12:23				Before: 23-Jun-2010 14:07			

High resolution Integrated Logging Tool—DTS Wellsite Calibration														
Ratio Measurement														
Phase	Thermal Near Corr. (Tank) CPS			Value	Phase	Thermal Far Corr. (Tank) CPS			Value	Phase	CNTC/CFTC (Tank)			Value
Master				5258	Master				2175	Master				2.417
	4700 (Minimum)	5800 (Nominal)	6900 (Maximum)			1900 (Minimum)	2400 (Nominal)	2900 (Maximum)			2.120 (Minimum)	2.159 (Nominal)	2.540 (Maximum)	
Master: 19-May-2010 12:23														

High resolution Integrated Logging Tool-DTS			
Wellsite Calibration			
Accelerometer Calibration			
Phase	Z-Axis Acceleration F/S2	Value	
Before		32.14	
	31.53 (Minimum)	32.19 (Nominal)	32.84 (Maximum)
Before: 26-Jun-2010 11:48			



High resolution Integrated Logging Tool-DTS Master Calibration							
Zero Measurement							
Phase	CNTC Background CPS		Value	Phase	CFTC Background CPS		Value
Master			27.64	Master			28.93
	5.000 (Minimum)	27.64 (Nominal)	40.00 (Maximum)		5.000 (Minimum)	28.93 (Nominal)	40.00 (Maximum)
Master: 19-May-2010 12:23							

High resolution Integrated Logging Tool–DTS Master Calibration														
Tank Measurement														
Phase	Thermal Near Corr. (Tank) CPS			Value	Phase	Thermal Far Corr. (Tank) CPS			Value	Phase	CNTC/CFTC (Tank)			Value
Master				5258	Master				2175	Master				2.417
	4700 (Minimum)	5800 (Nominal)	6900 (Maximum)		1900 (Minimum)	2400 (Nominal)	2900 (Maximum)		2.120 (Minimum)	2.159 (Nominal)	2.540 (Maximum)			
Master: 19–May–2010 12:23														

DTS Telemetry Tool / Equipment Identification	
Primary Equipment:	
DTC-H Auxiliary Cartridge	DTCH – A
DTC-H Telemetry Cartridge	DTCH – A
Auxiliary Equipment:	
DTCH Telemetry Cartridge Housing	ECH – KC

Company:	EXXONMOBIL PRODUCTION CO.	Schlumberger
Well:	PCU 197-34A9	
Field:	PICEANCE CREEK	
County:	RIO BLANCO	
State:	CO	
CORRELATION LOG		
GAMMA RAY		
CCLU		