



Company: **EXXONMOBIL PRODUCTION CO**

Well: **PCU 197-34B10**

Field: **PICEANCE CREEK**

County: **RIO BLANCO**

State: **COLORADO**

CORRELATION PRINT

GAMMA RAY / CCL

SESE, 788' FSL & 963' FEL

Elev.: K.B. 6681.40 ft
G.L. 6651.20 ft
D.F. 6680.40 ft

Permanent Datum: _____ GROUND LEVEL _____ Elev.: 6651.20 ft
Log Measured From: _____ KELLY BUSHING _____ 30.20 ft above Perm. Datum
Drilling Measured From: _____ KELLY BUSHING _____

API Serial No. 05-103-11146-0C
Section 34
Township 1S
Range 97W

Logging Date 10-Nov-2009

Run Number 1

Depth Driller 9005 ft

Schlumberger Depth 8500 ft

Bottom Log Interval 8500 ft

Top Log Interval 300 ft

Casing Fluid Type WBM

Salinity 400 ppm

Density 9.4 lbm/gal

Fluid Level 10 ft

BIT/CASING/TUBING STRING

Bit Size 9.875 in

From 3900 ft

To 9005 ft

Casing/Tubing Size 7.000 In

Weight 26 lbm/ft

Grade 30.2 ft

From 9005 ft

To

Maximum Recorded Temperatures 199 degF

Logger On Bottom 10-Nov-2009

Unit Number 2379

Recorded By RYAN STEWART

Witnessed By ROBERT KEMPER

PVT DATA

	Run 1	Run 2	Run 3
Oil Density			
Water Salinity			
Gas Gravity	400 ppm		
Bo			
Bw			
1/Bq			
Bubble Point Pressure			
Bubble Point Temperature			
Solution GOR			
Maximum Deviation	15.7 deg		

CEMENTING DATA

Primary/Squeeze	Primary
Casing String No	
Lead Cement Type	
Volume	
Density	10.5 lbm/gal
Water Loss	
Additives	
Tail Cement Type	
Volume	
Density	12 lbm/gal
Water Loss	
Additives	
Expected Cement Top	4000 ft

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	
Recorded By	
Witnessed By	

DEPTH SUMMARY LISTING

Date Created: 11-NOV-2009 4:03:52

Depth System Equipment

Depth Measuring Device	Tension Device	Logging Cable
Type: IDW-B	Type: CMTD-B/A	Type: 7-46V XS
Serial Number: 6195	Serial Number: 8093	Serial Number: 709025
Calibration Date: 22-OCT-2009	Calibration Date: 07-Nov-2009	Length: 30100 FT
Calibrator Serial Number: 33	Calibrator Serial Number: 1	Conveyance Method: Wireline
Calibration Cable Type: 7-46P	Number of Calibration Points: 9	Rig Type: LAND
Wheel Correction 1: -13	Calibration RMS: 65	
Wheel Correction 2: -11	Calibration Peak Error: 106	

Depth Control Parameters

Log Sequence:	First Log In the Well
Rig Up Length At Surface:	236.60 FT
Rig Up Length At Bottom:	236.10 FT
Rig Up Length Correction:	0.50 FT
Stretch Correction:	9.50 FT
Tool Zero Check At Surface:	0.40 FT

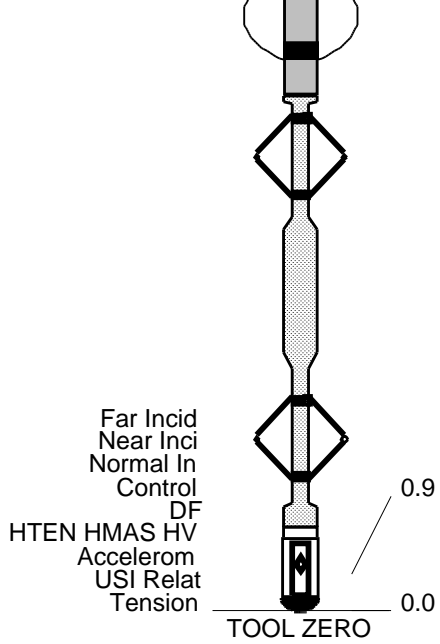
Depth Control Remarks

1. All Schlumberger depth control policies followed
2. IDW used as primary depth reference, z-chart used as secondary reference
3.
4.
5.
6.

DISCLAIMER

THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE 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) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE OF AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

OTHER SERVICES1	OTHER SERVICES2
OS1: IBC/USIT	OS1:
OS2:	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
Tool run as per tool sketch	
Tool run with 2 x gemcos and 2 x in-line centralizers	
Neutron run for gamma ray purpose only	
Transducer angle = 33 degrees	
Data spliced at 6690 ft	
Vertical resolution = 6 inch	
Horizontal resolution = 5 degree	
UFAO = -14	
Max temp = 199 degF	



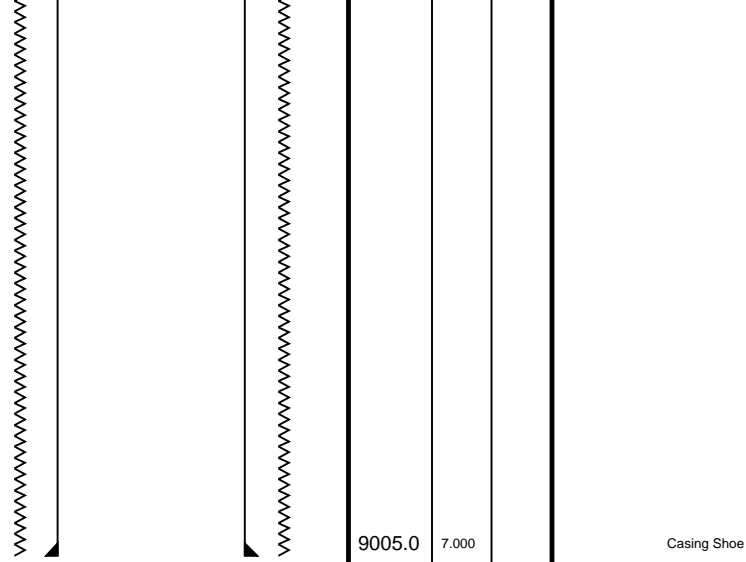
MAXIMUM STRING DIAMETER 7.50 IN
 MEASUREMENTS RELATIVE TO TOOL ZERO
 ALL LENGTHS IN FEET

Client: EXXONMOBIL PRODUCTION CO
 Well: PCU 197-34B10
 Field: PICEANCE CREEK
 State: COLORADO
 Country: USA

Rig Name: H&P 320
 Reference Datum: Kelly Bushing
 Elevation: 6681.4 ft

Drawing Date: 11/10/2009
 API #: 05-103-11146-00

Production String	(in)		(ft)	Well Schematic	(ft)		(in)		Casing String
	OD	ID	MD		MD	OD	ID		
					30.2	10.750			Surface Casing String
						7.000			Casing String
					3900.0	10.750			Casing Shoe
					3900.0	9.875			Borehole Segment



All depths are referenced to driller's depths



CORRELATION

MAXIS Field Log

Company: EXXONMOBIL PRODUCTION CO

Well: PCU 197-34B10

Input DLIS Files

DEFAULT	SPLICE_USI_TLD_MCFL_017	FN:1	PRODUCER	11-Nov-2009 03:26	8506.5 FT	201.5 FT
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Output DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_019PUP	FN:29	PRODUCER	11-Nov-2009 03:36	8506.5 FT	201.5 FT
BACKUP	USI_TLD_MCFL_CNL_019PUP	FN:30	PRODUCER	11-Nov-2009 03:37	8506.5 FT	201.5 FT

OP System Version: 17C0-154

USIT-D	SRPC-3779-Q1_2009_OP17_b	HILTH-FTB	SRPC-3779-Q1_2009_OP17_b
DTC-H	17C0-154		

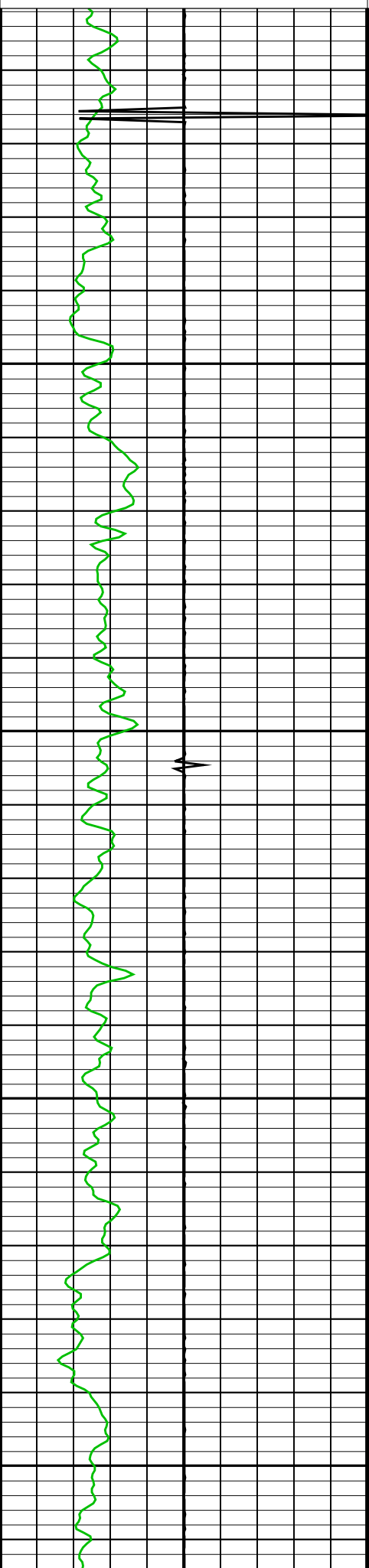
CCL (CCLU)

-20	(----	20
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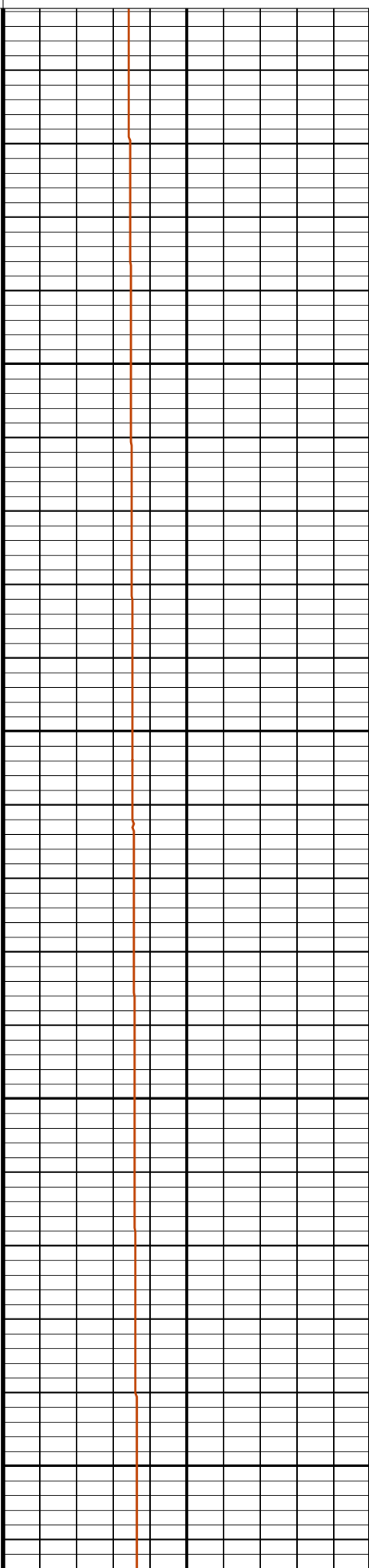
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Temperature (TEMP)

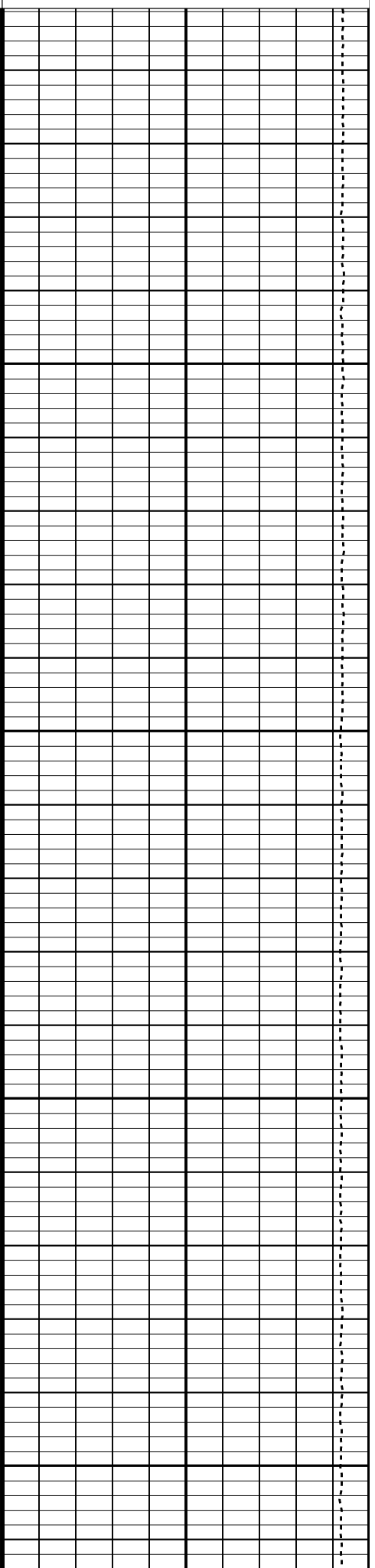
Gamma Ray (GR) (GAPI) 150

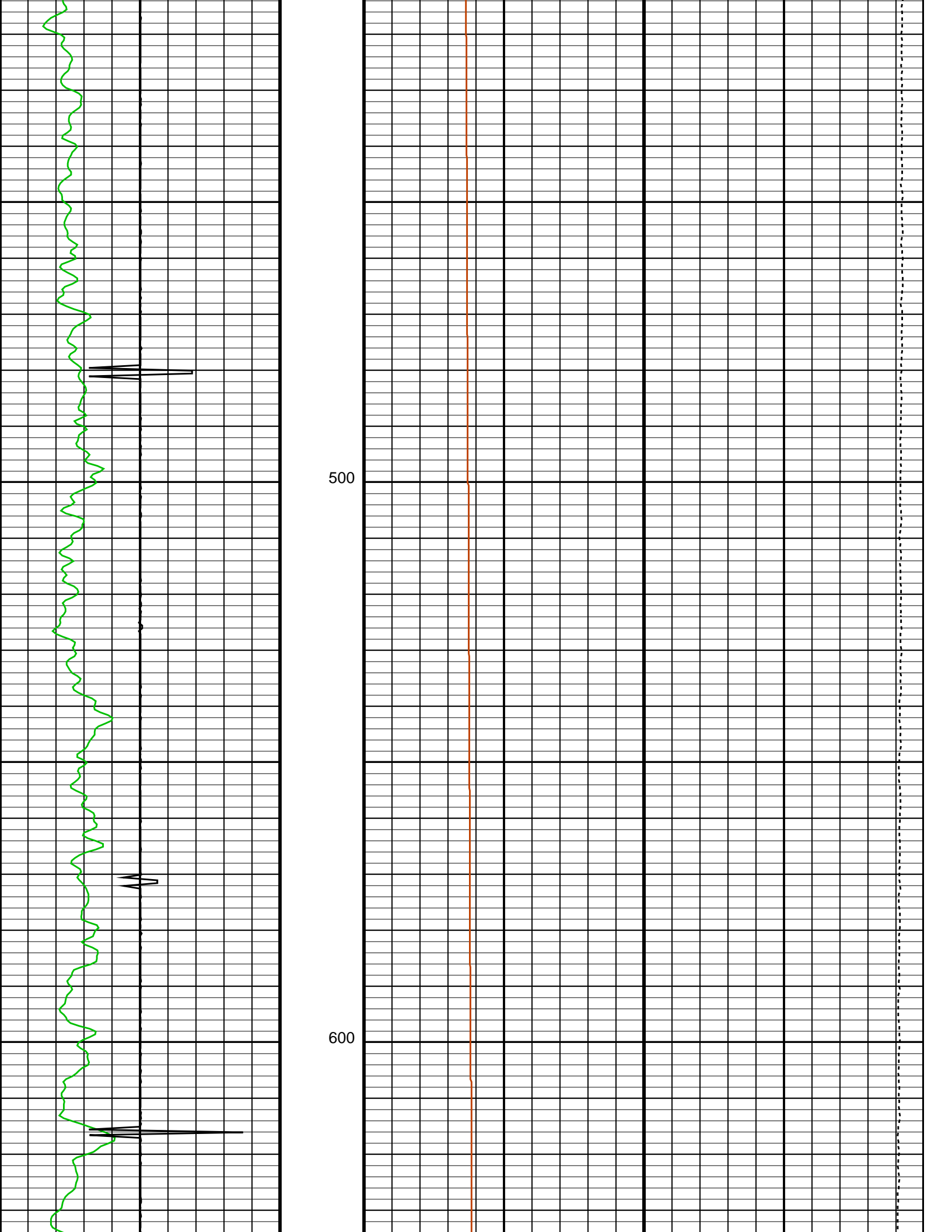


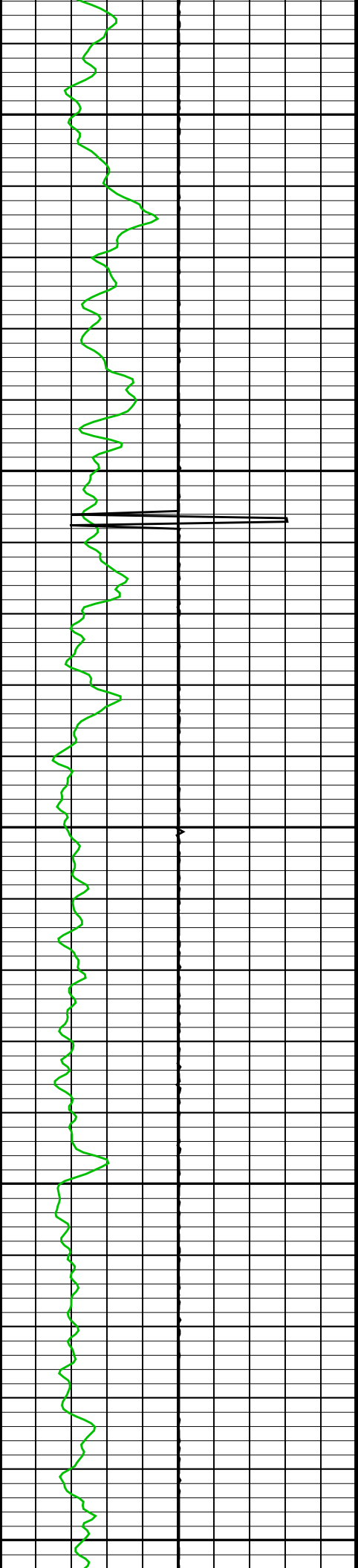
HTC Cartridge Temperature (HIEM) (DEGF) 220



Tension (TENS) (LBF) 10000 0

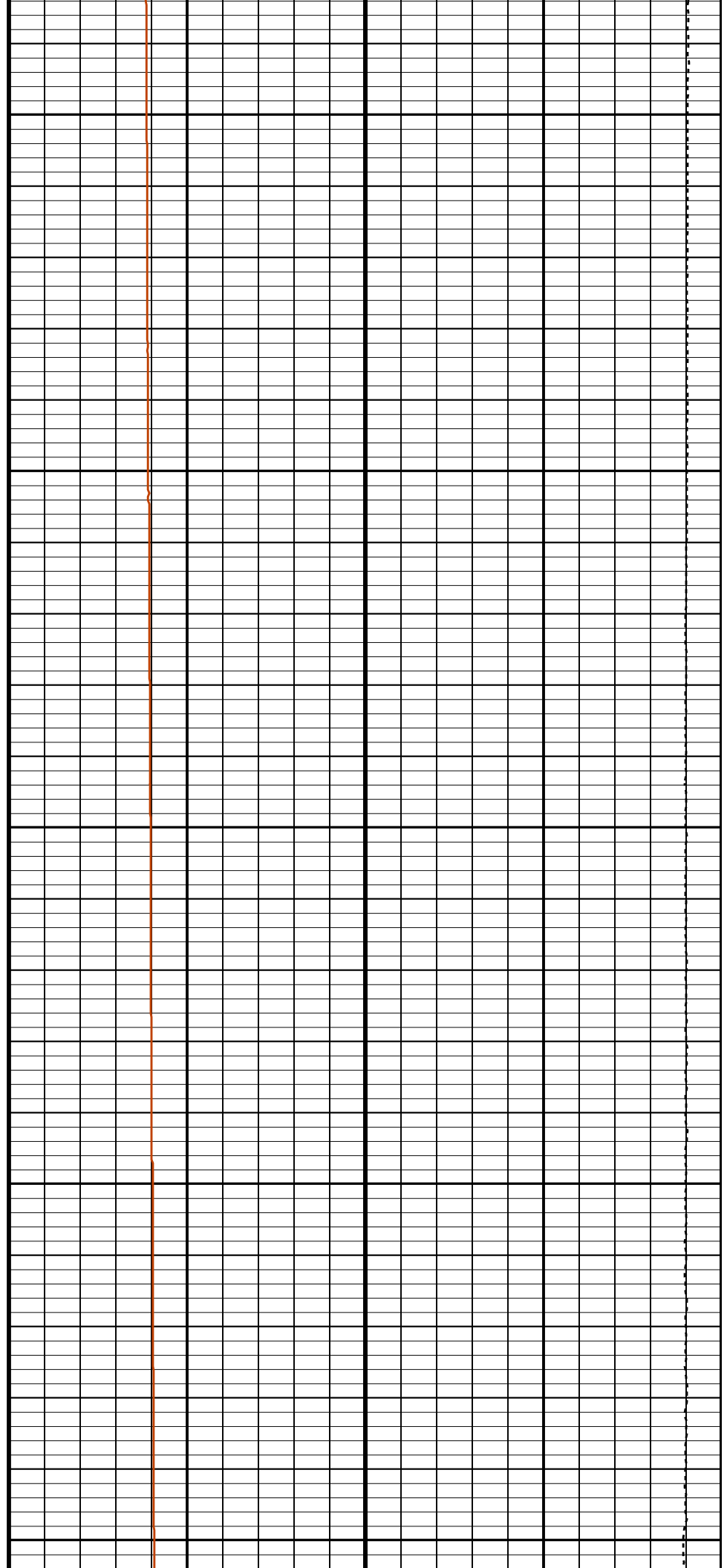


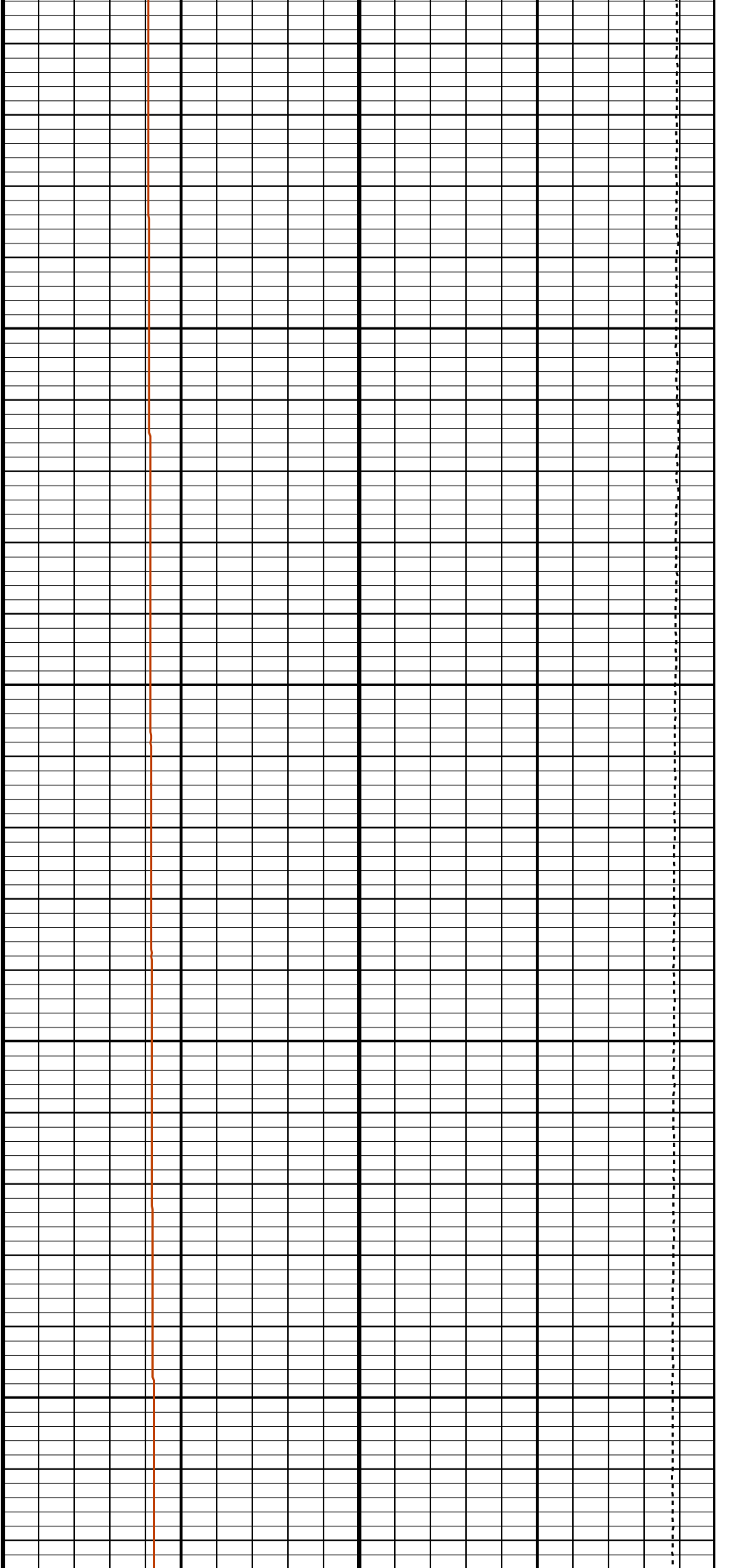
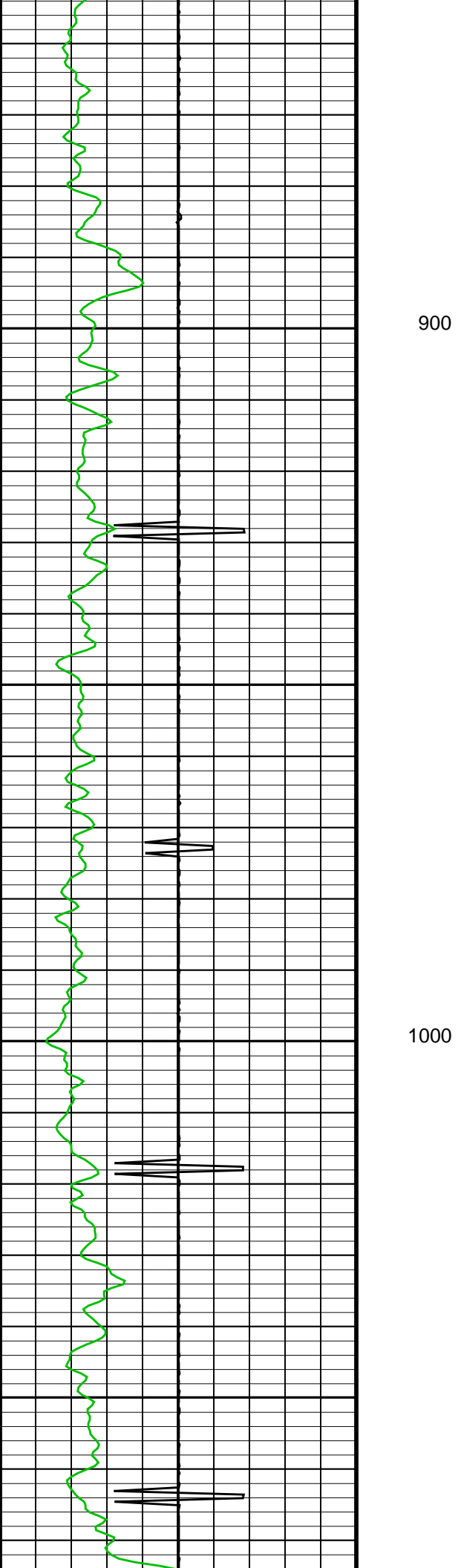


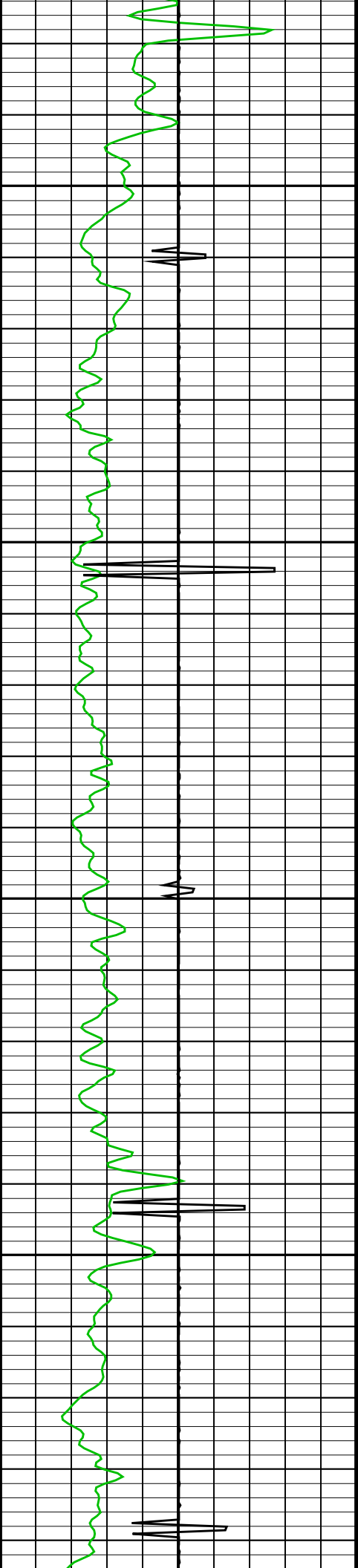


700

800

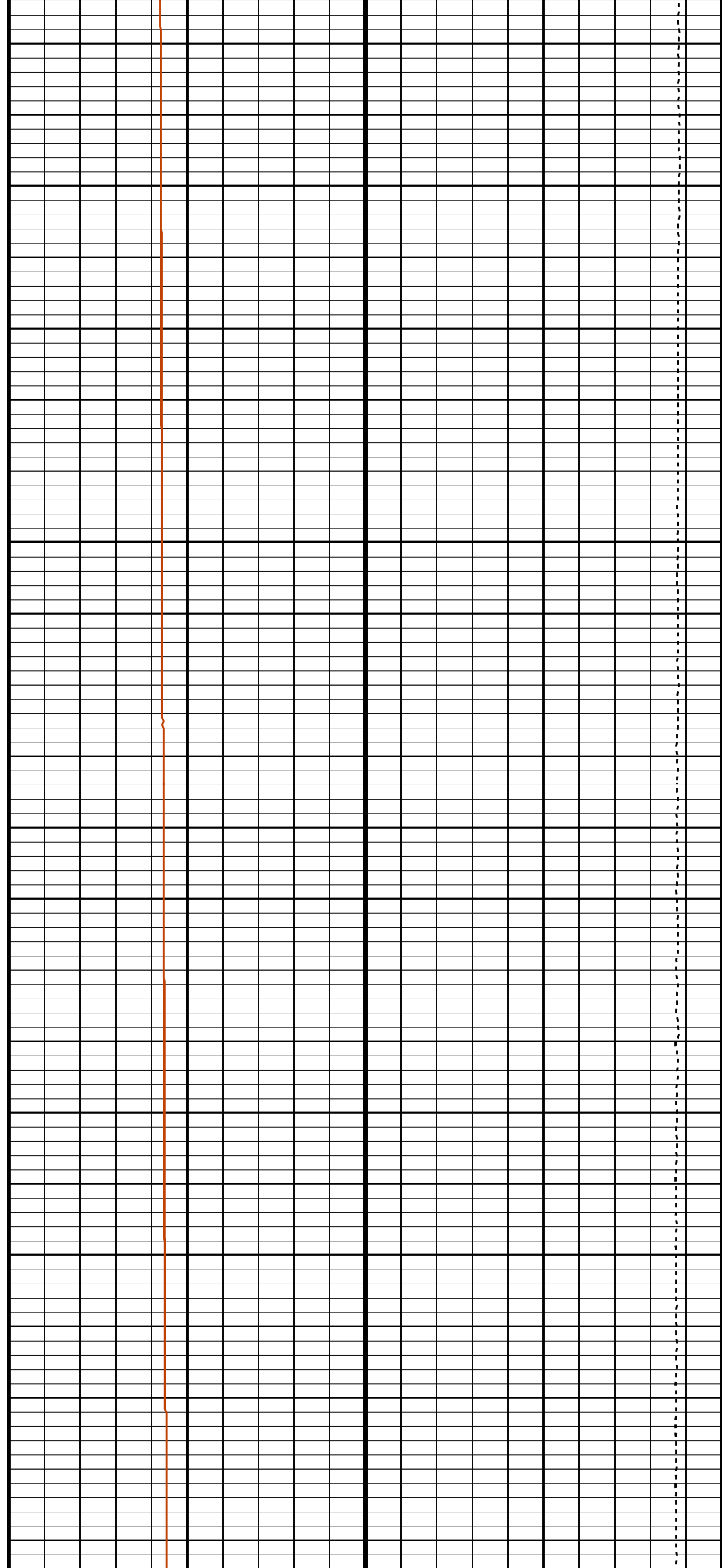


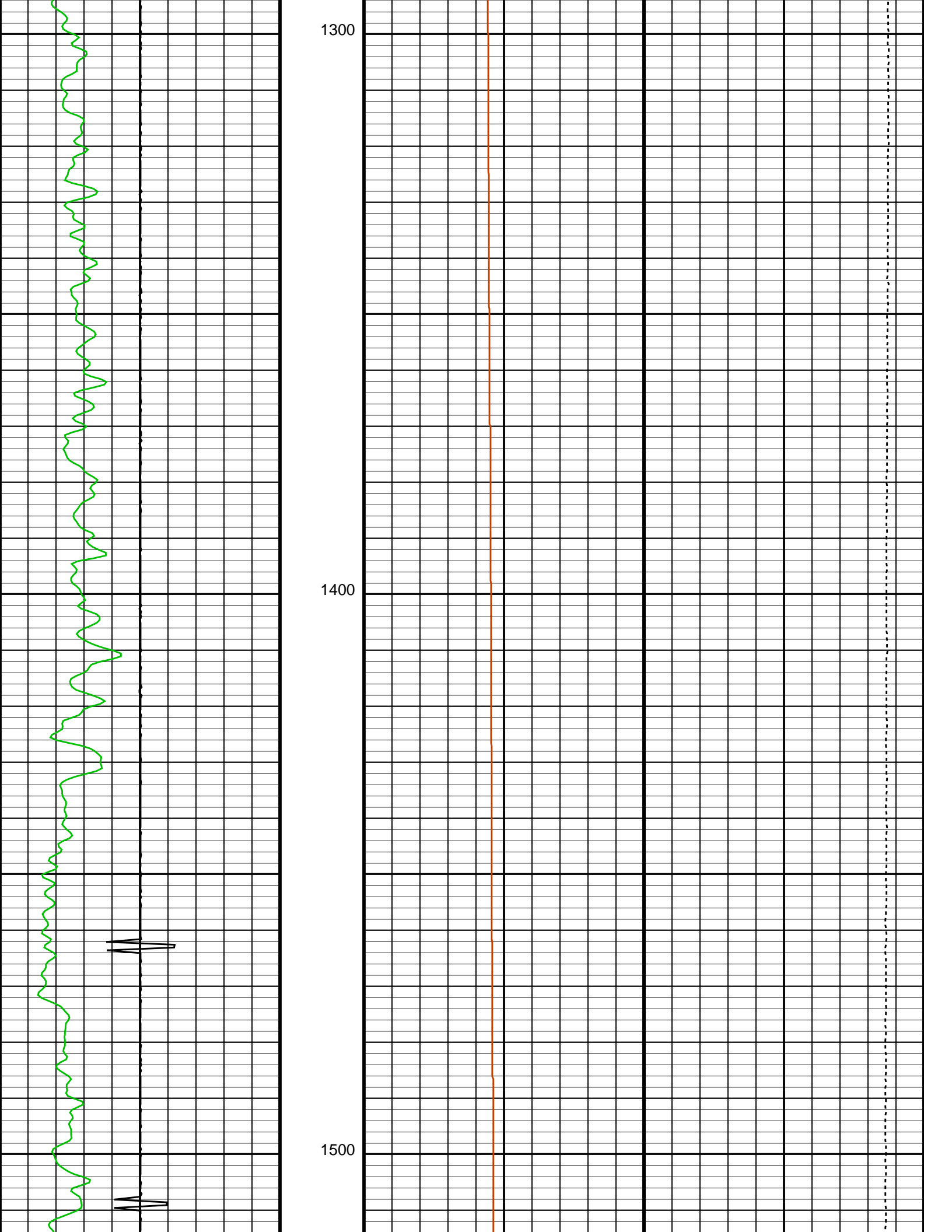


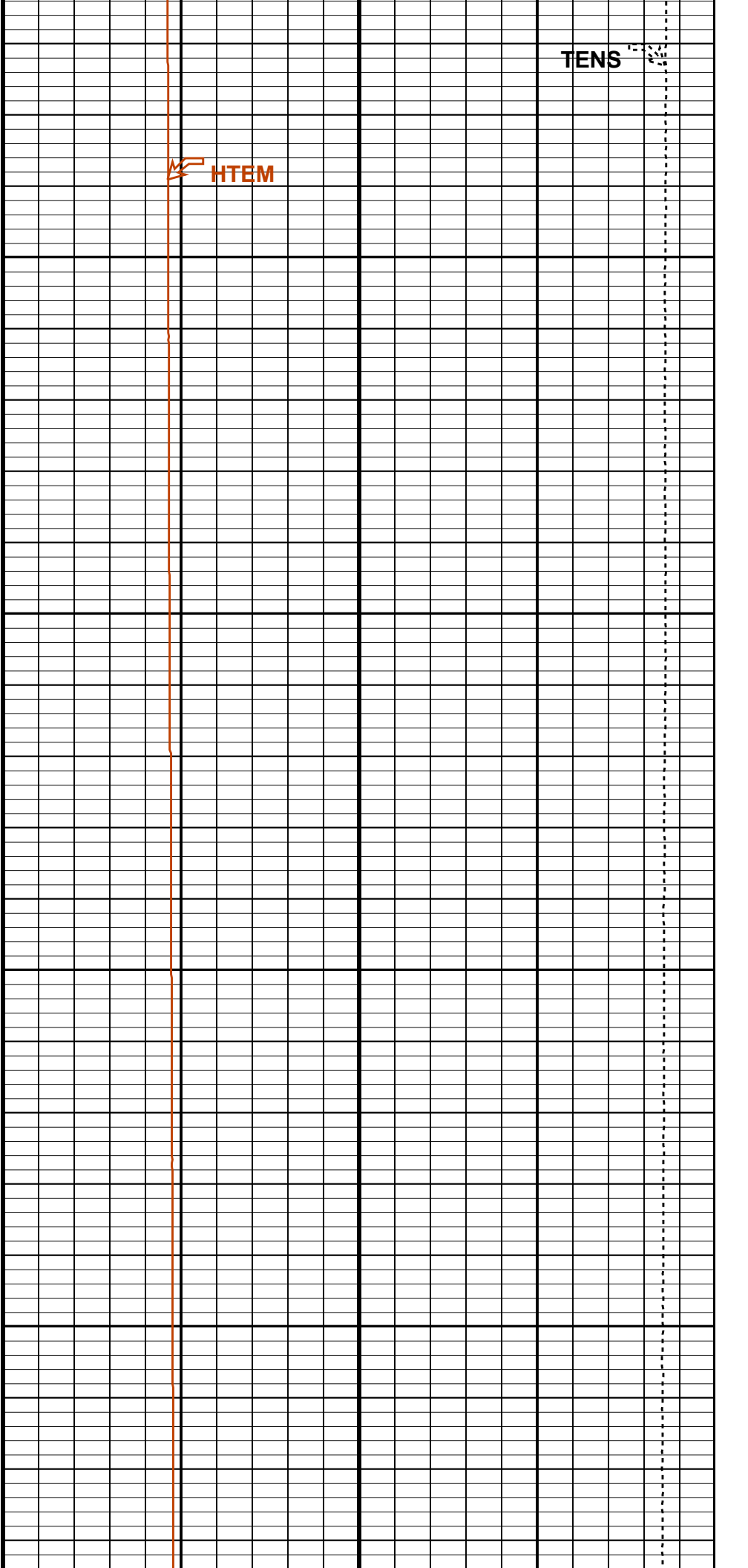
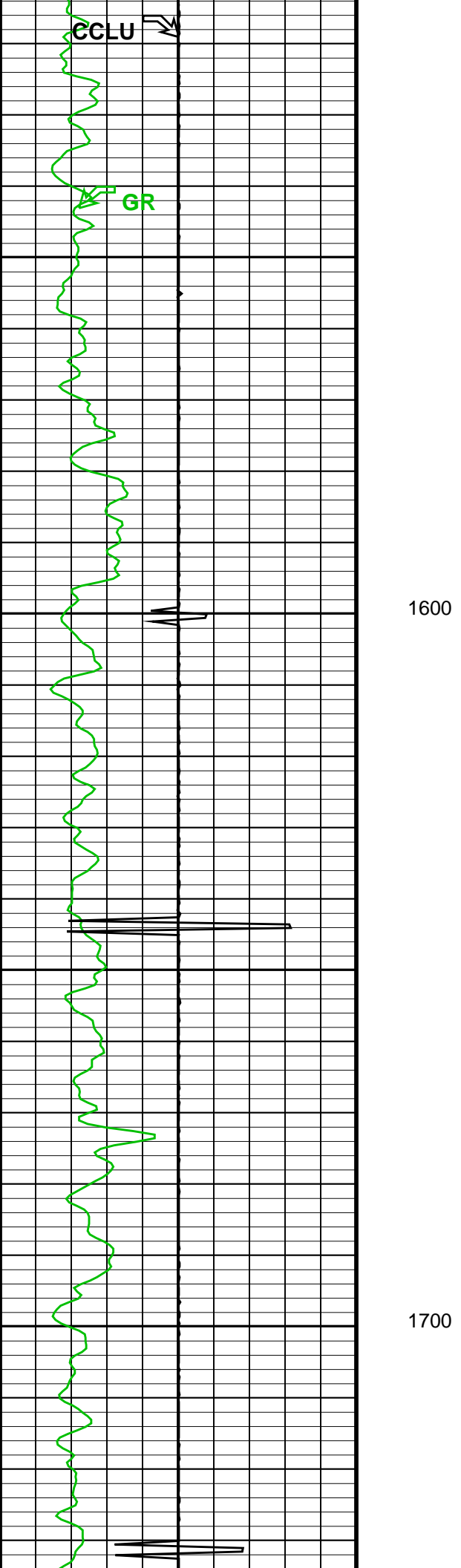


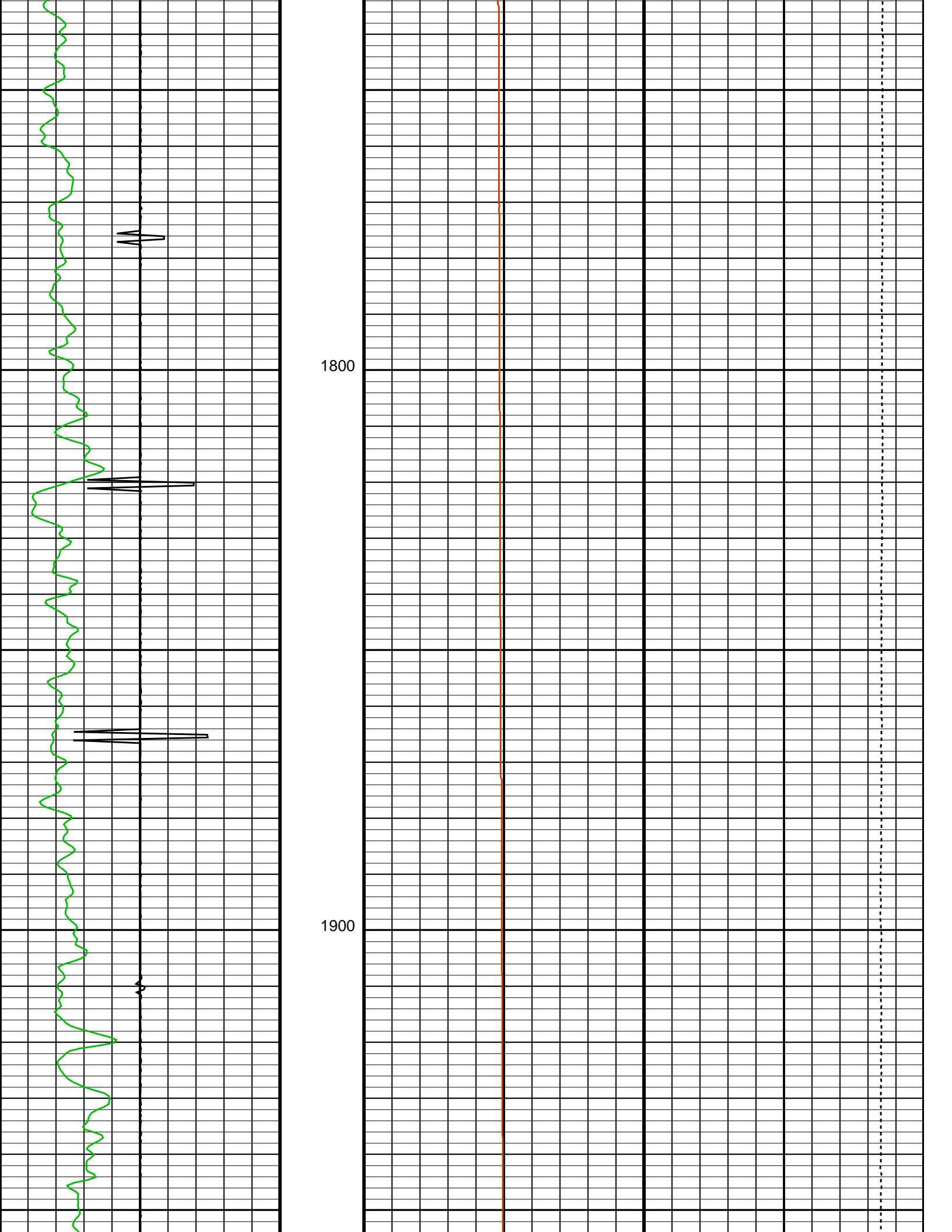
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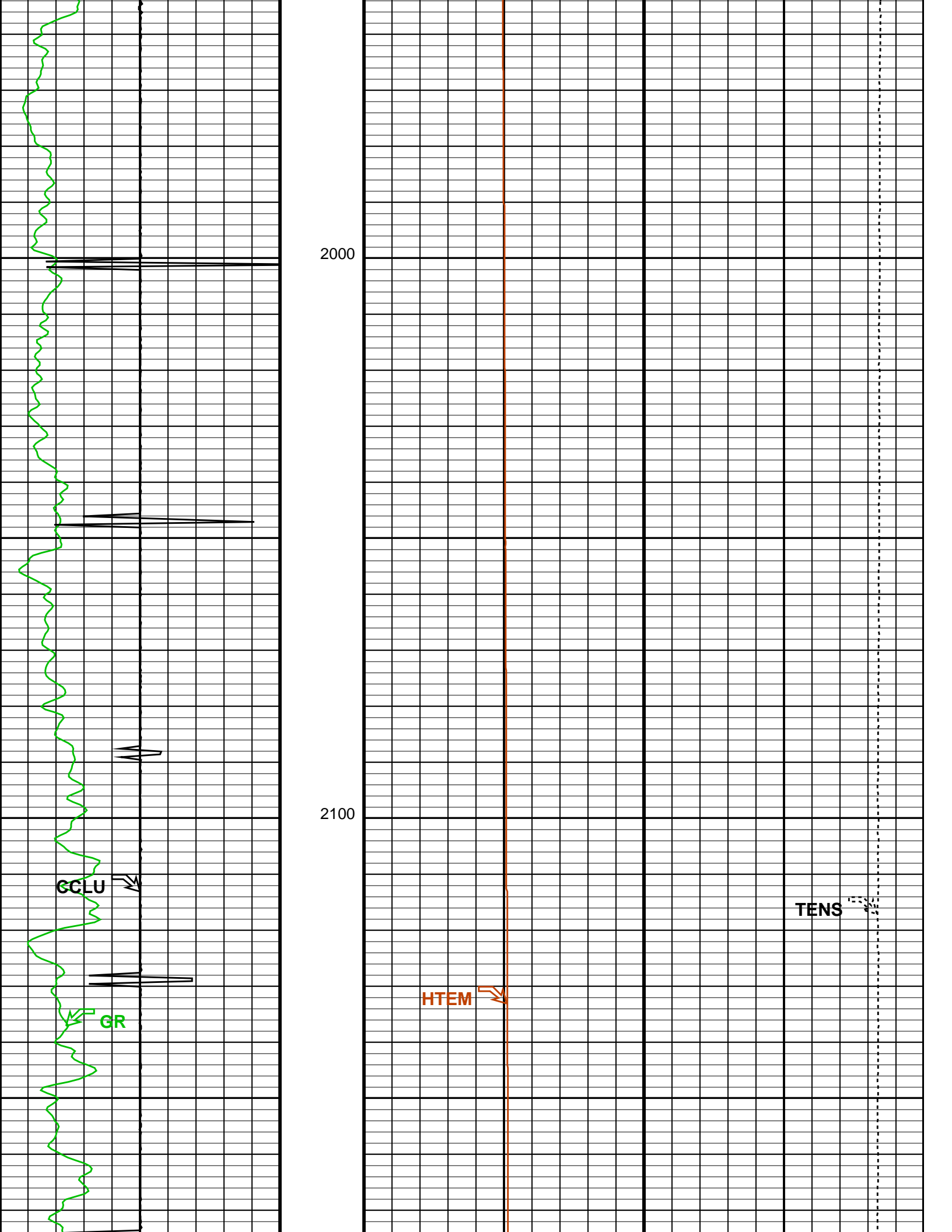
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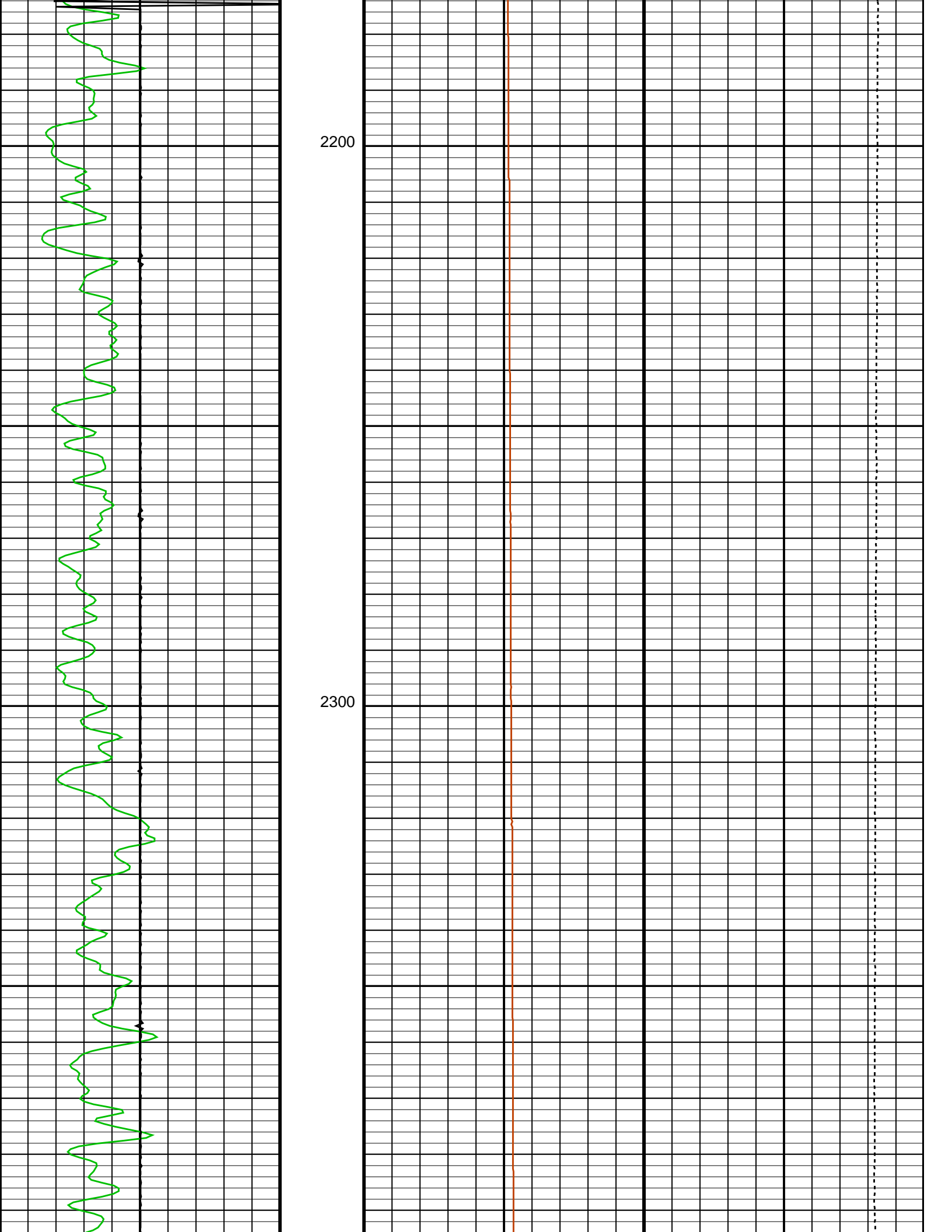


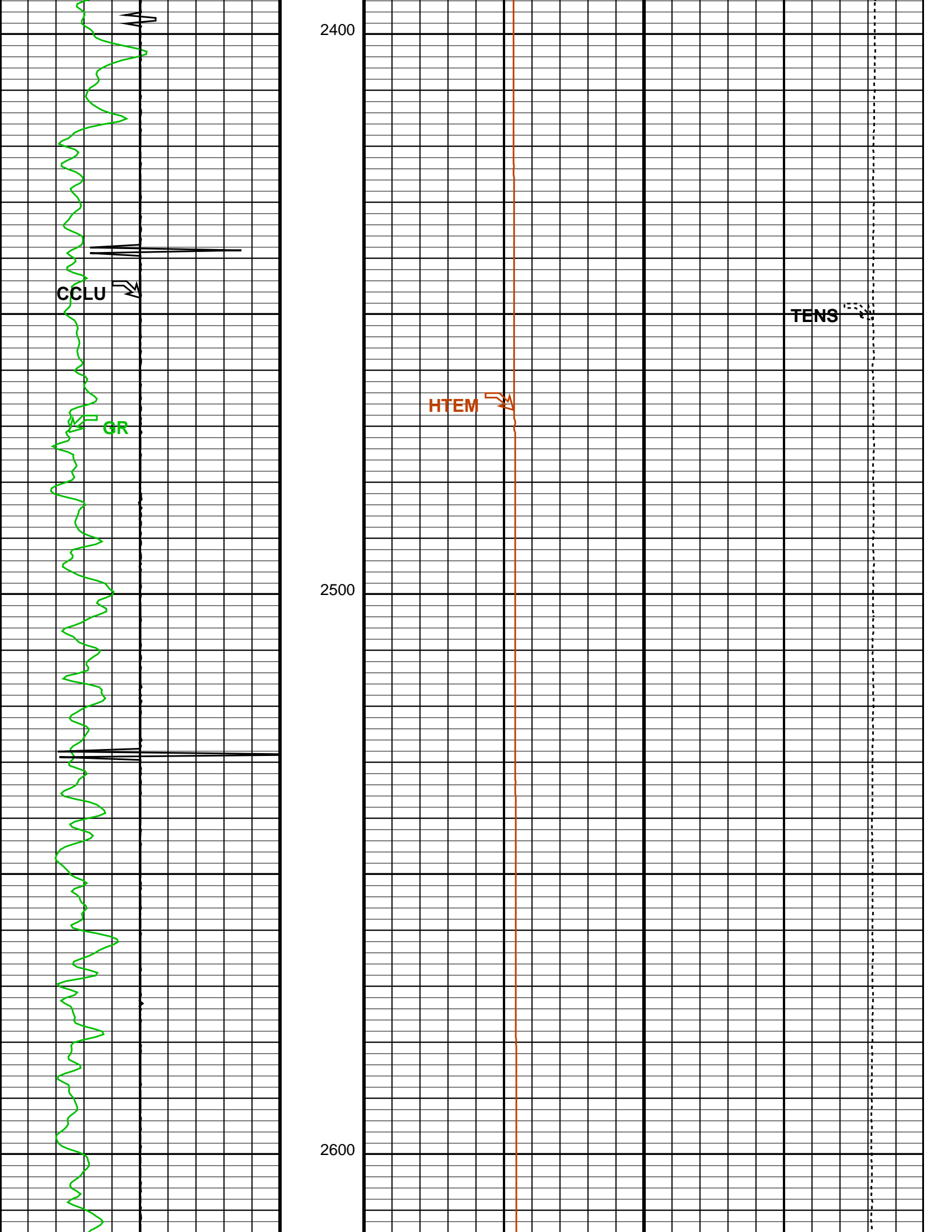


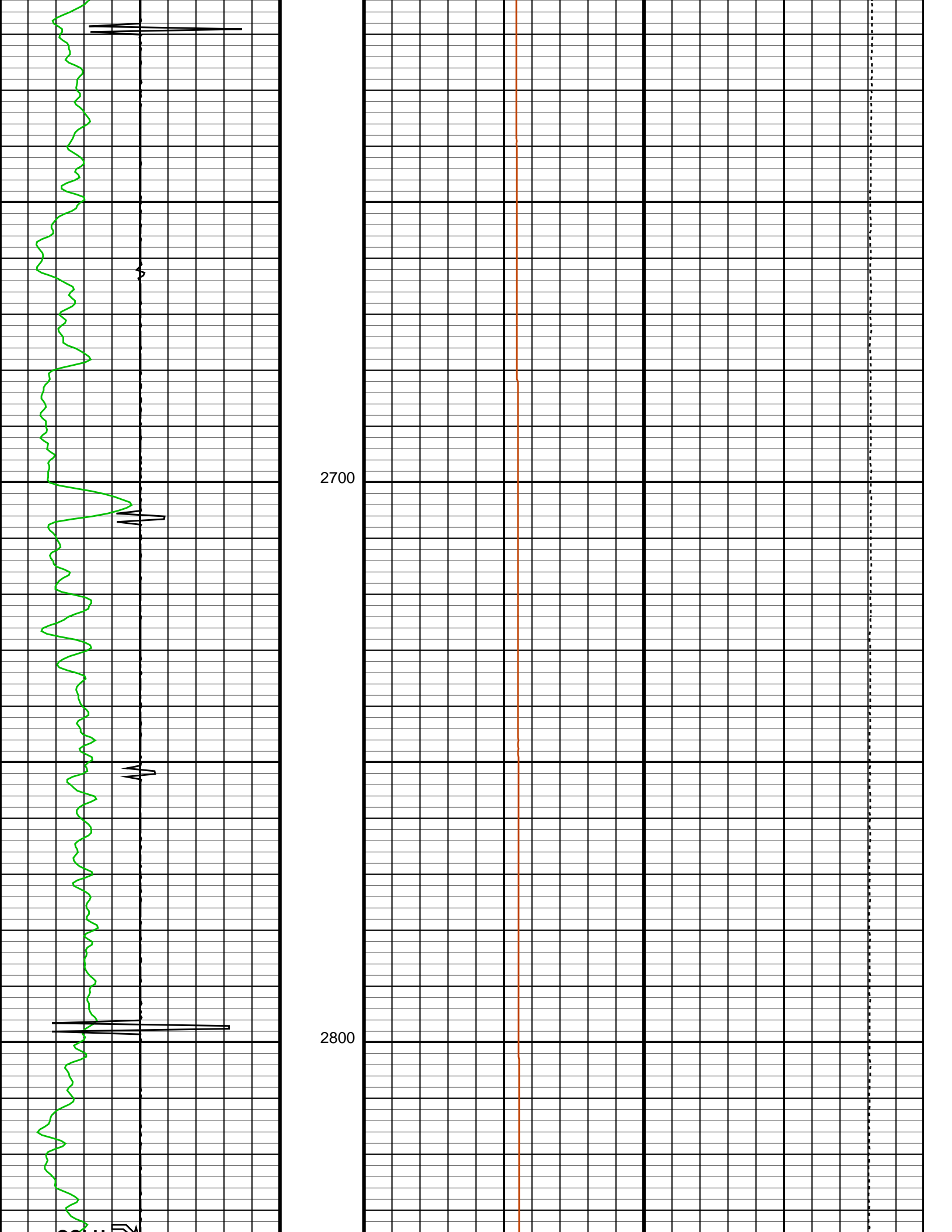


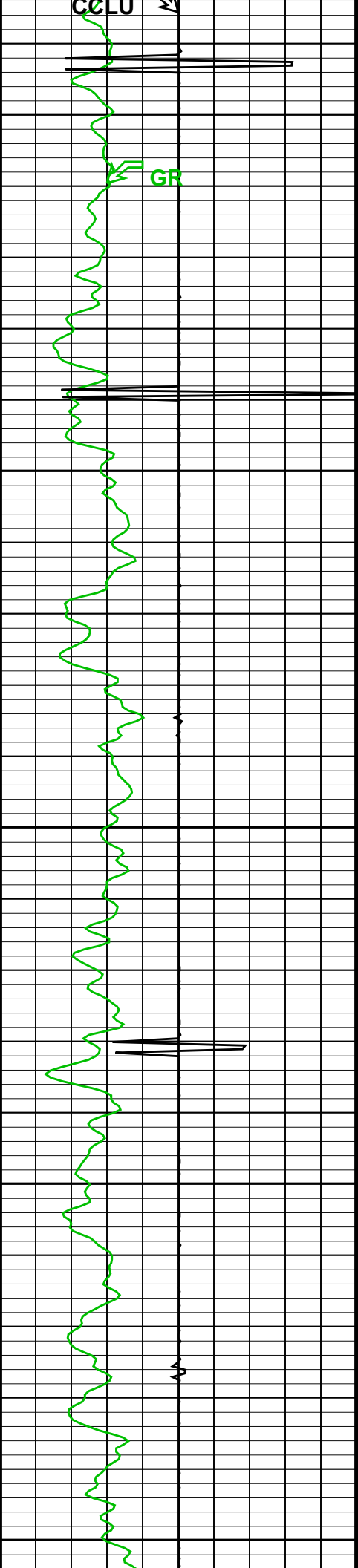






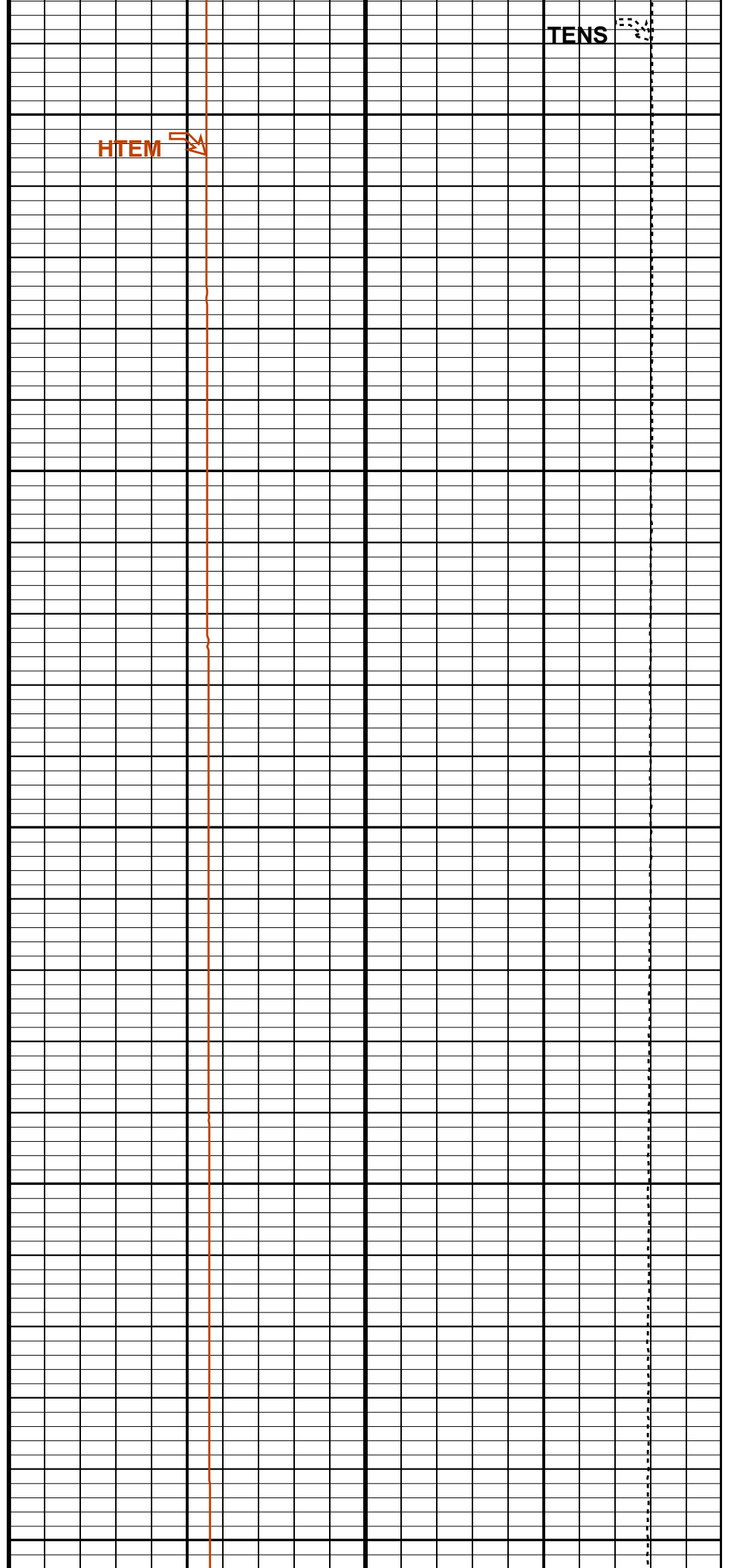






2900

3000



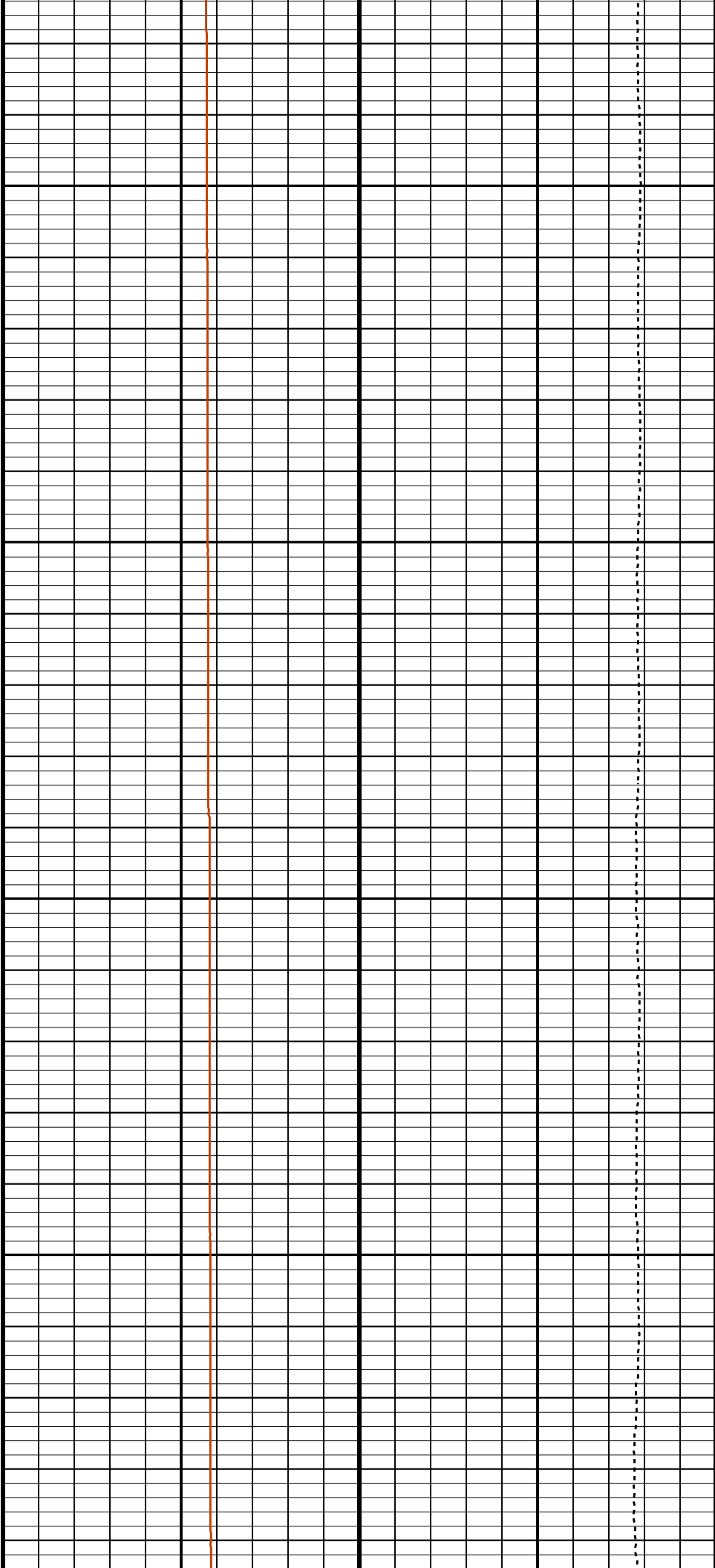
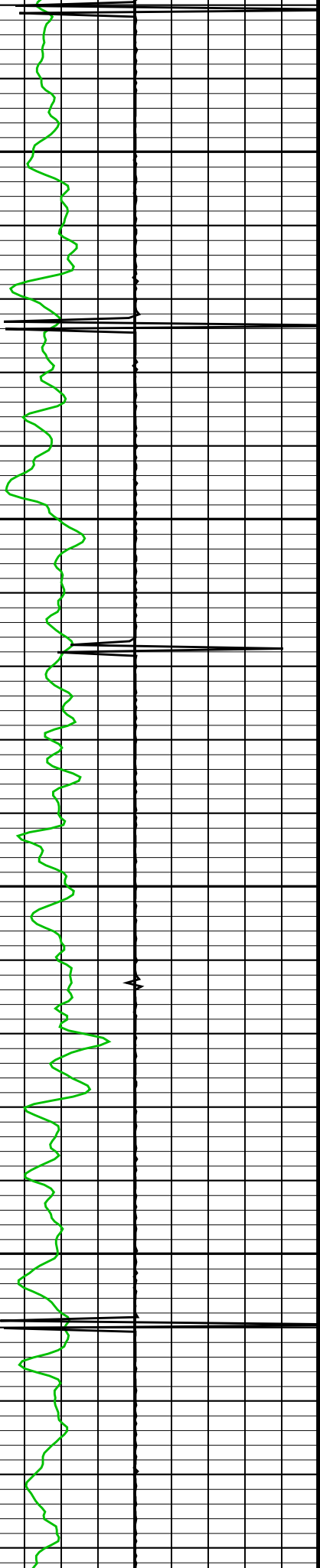
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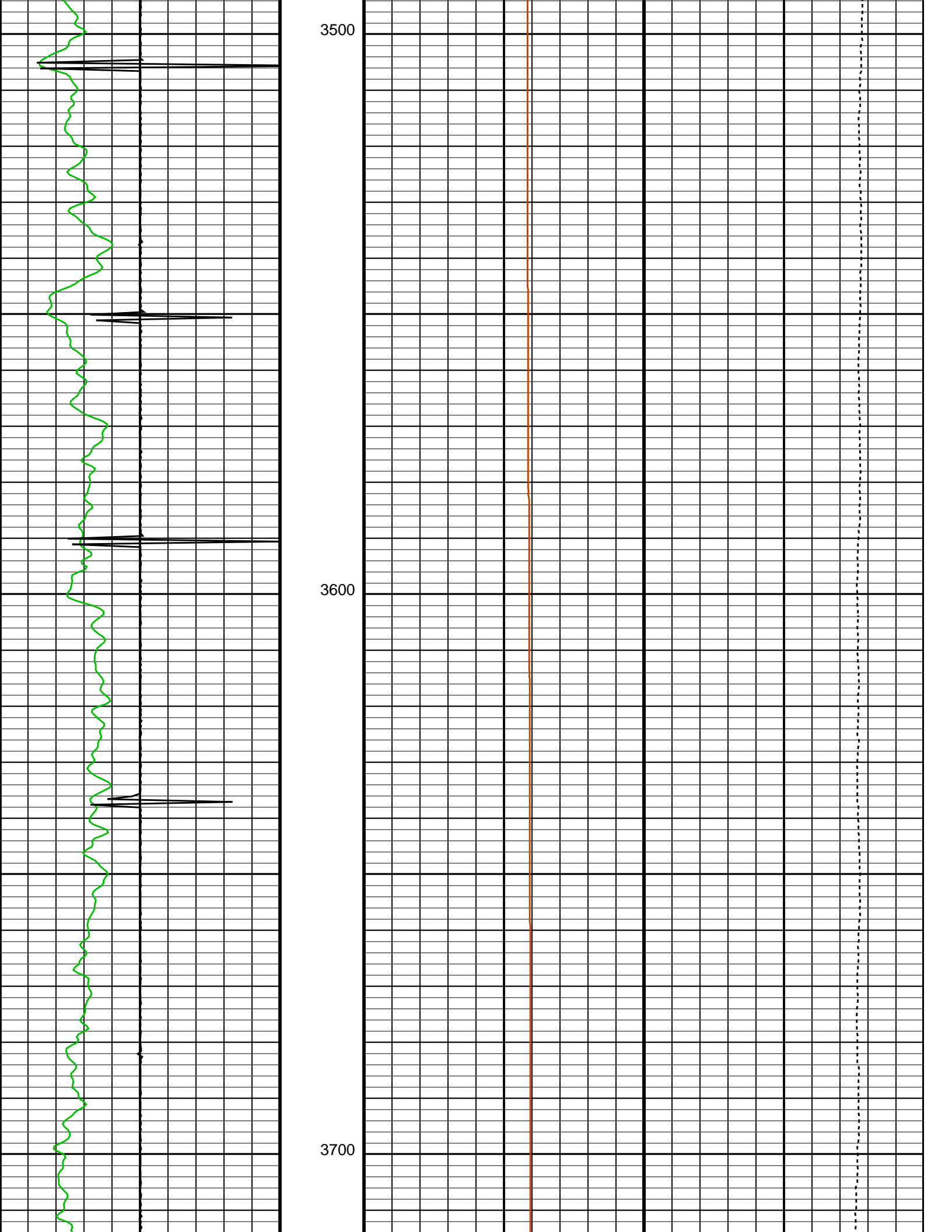
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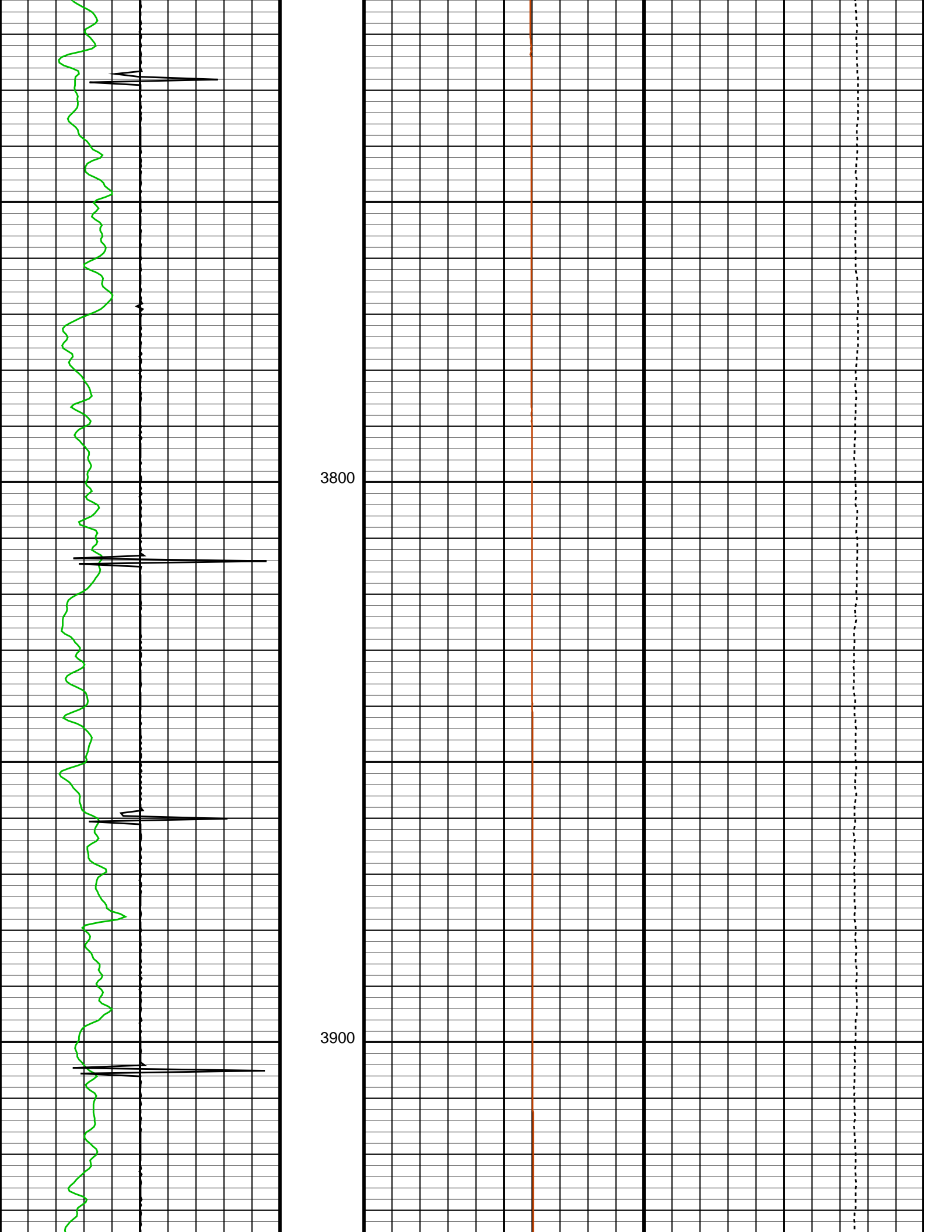
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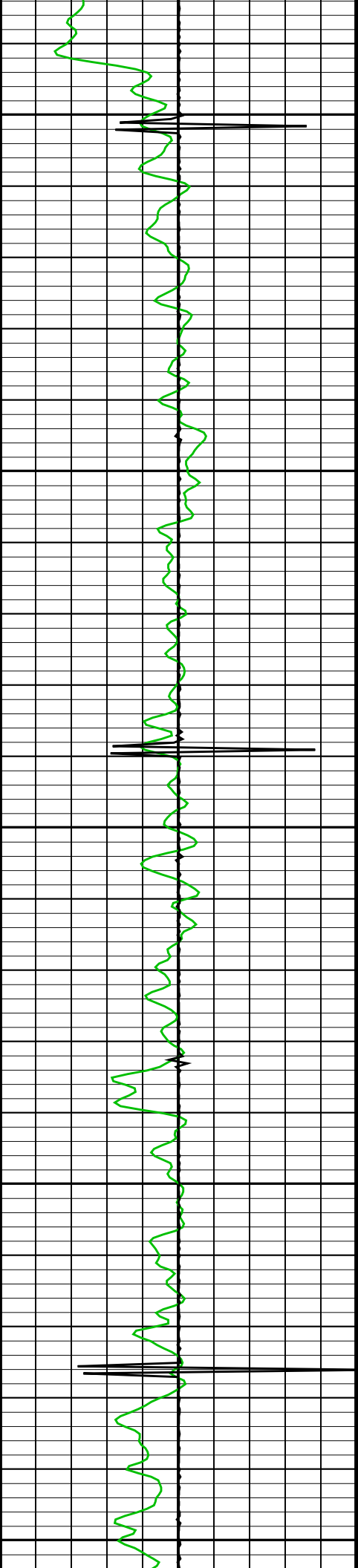
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3400



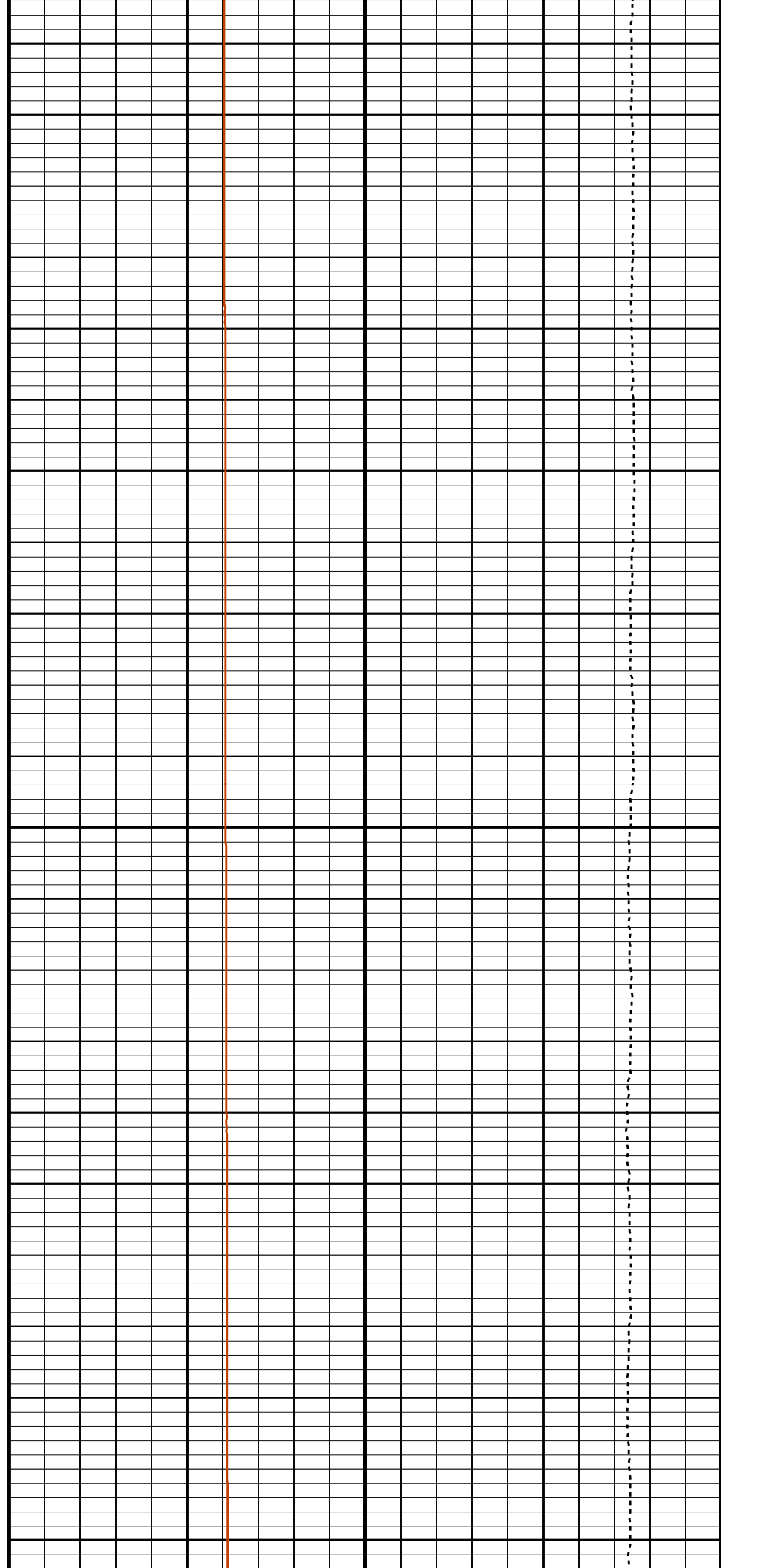


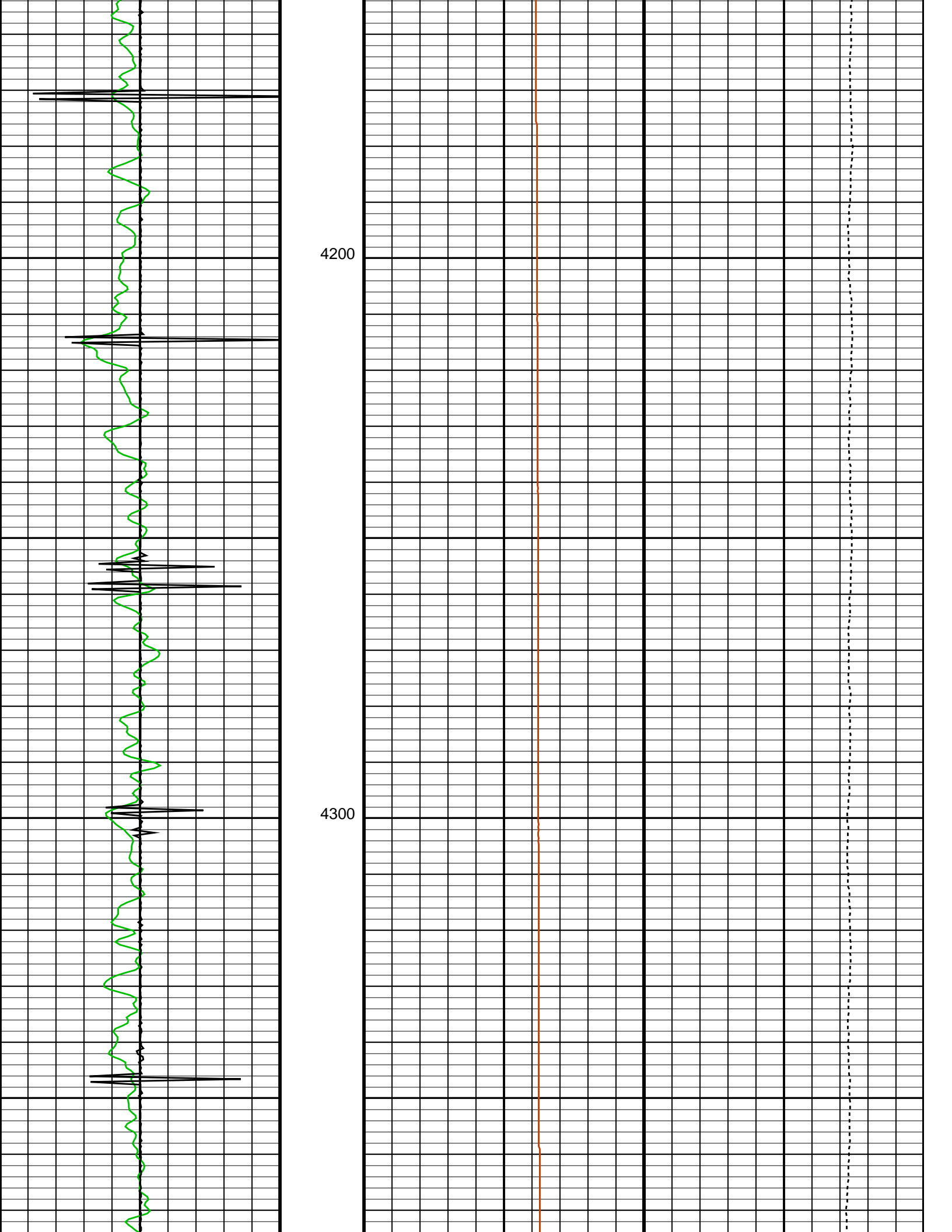


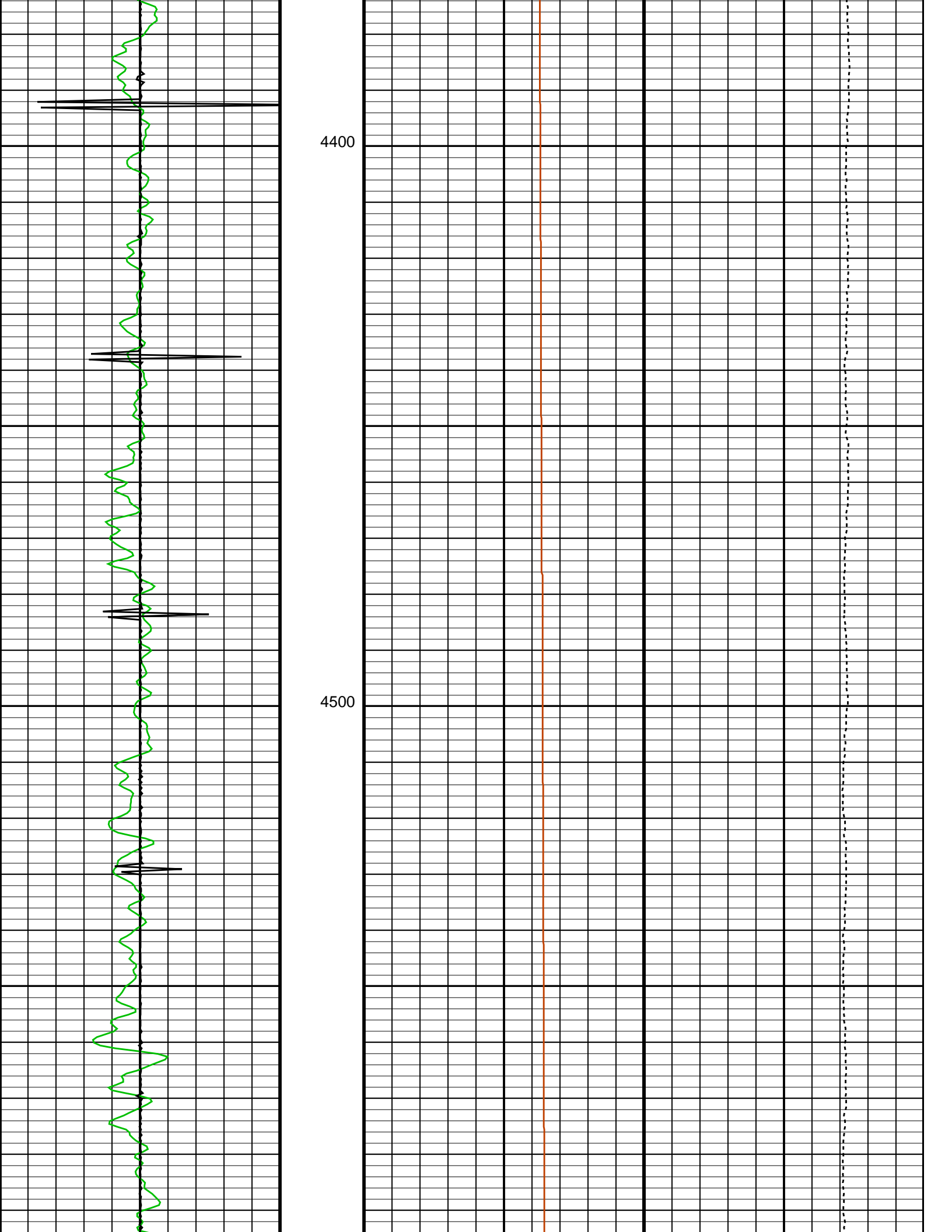


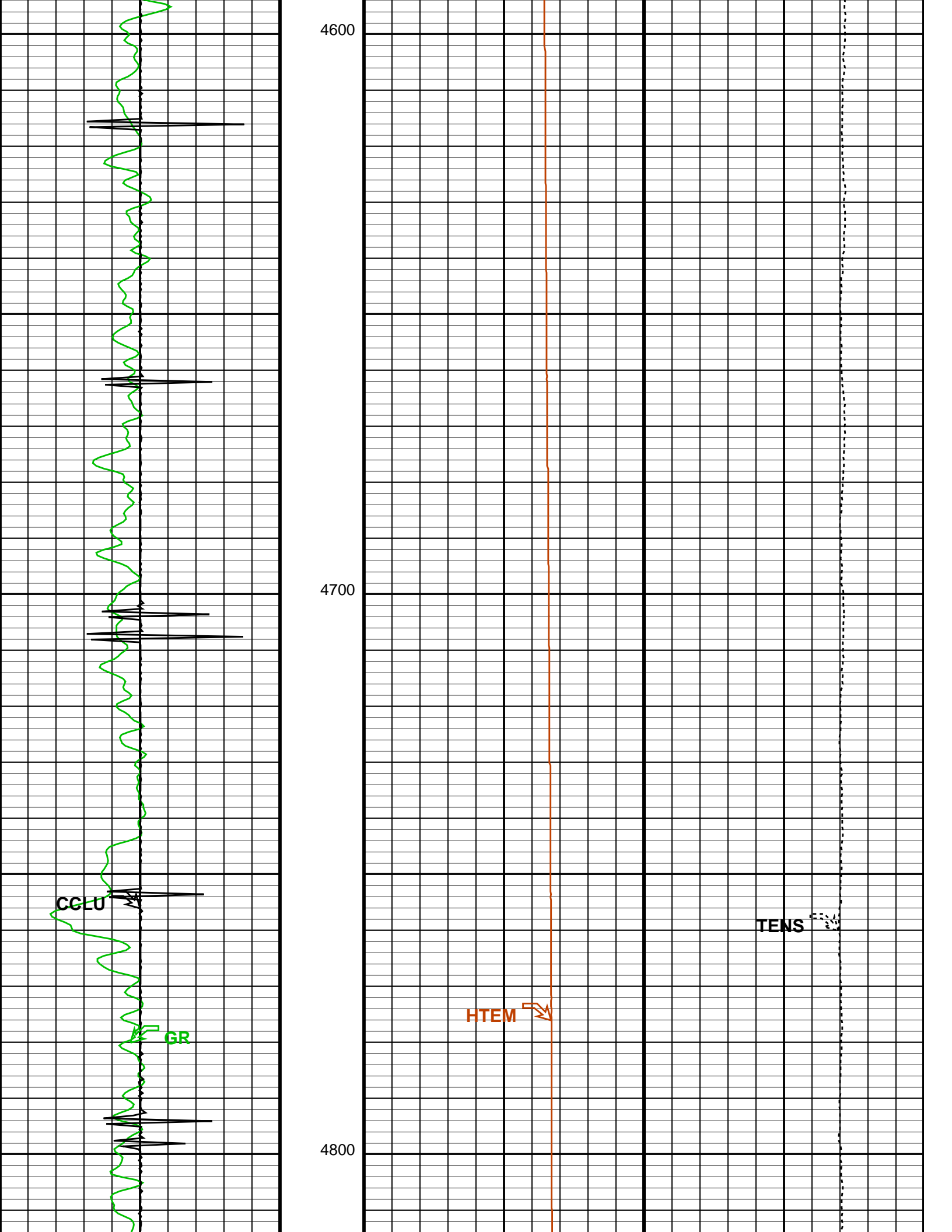
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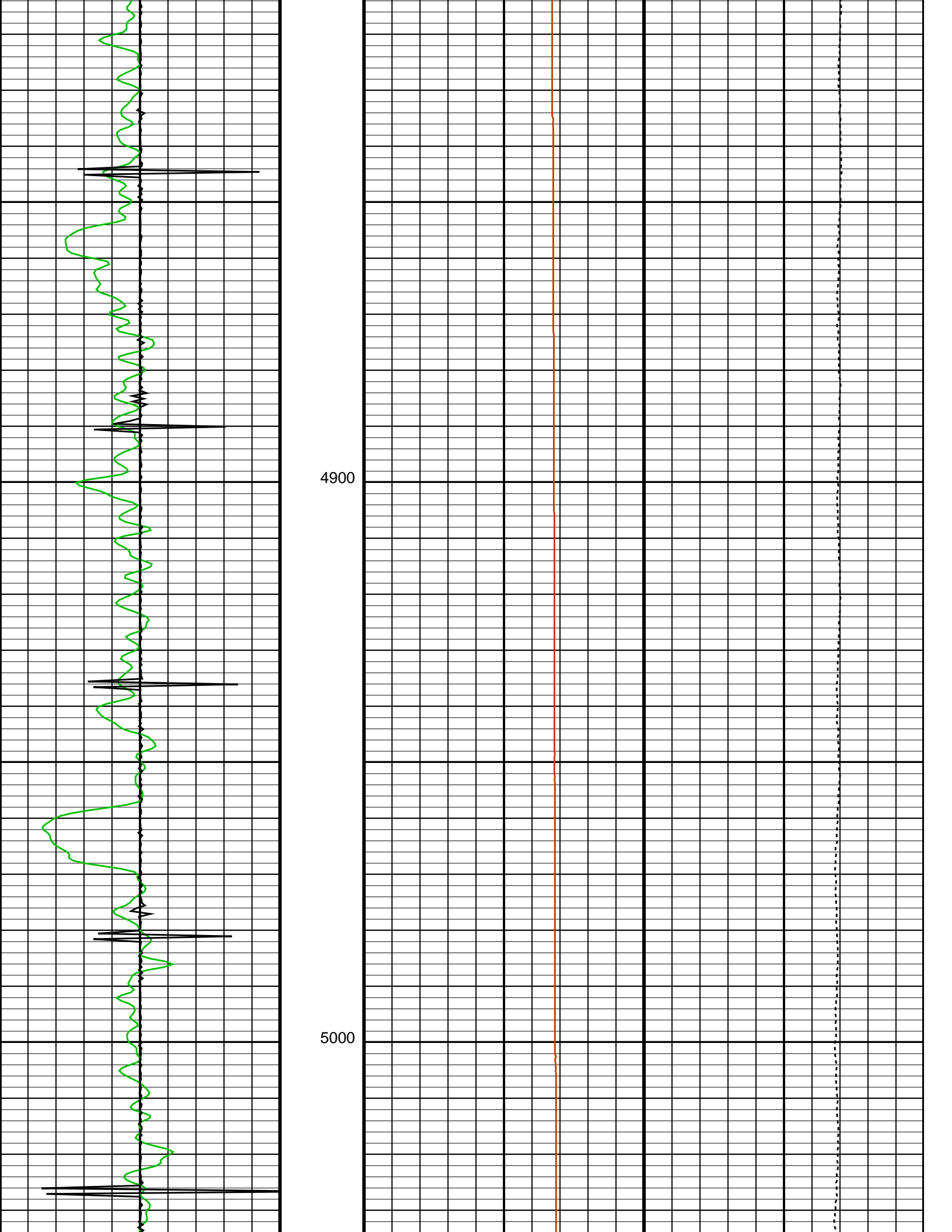
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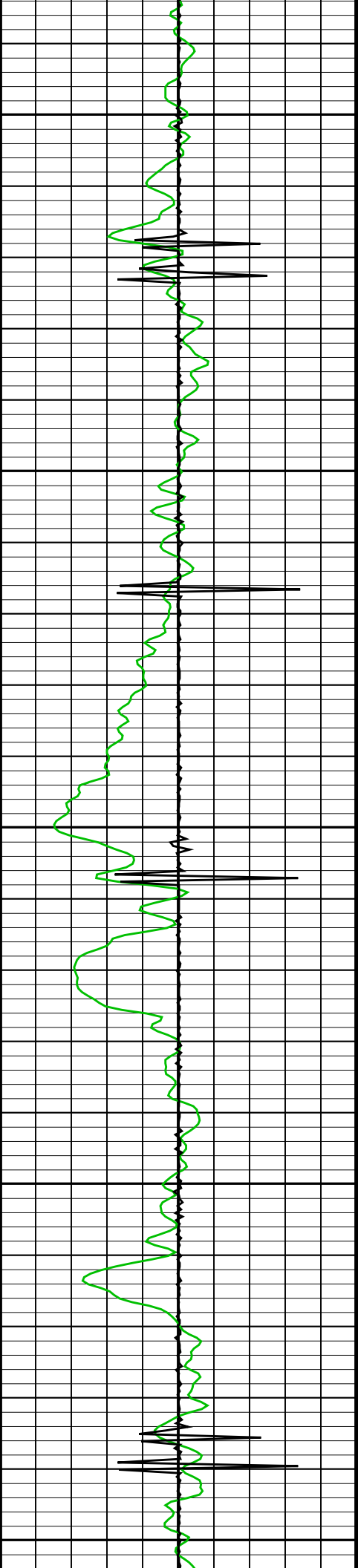






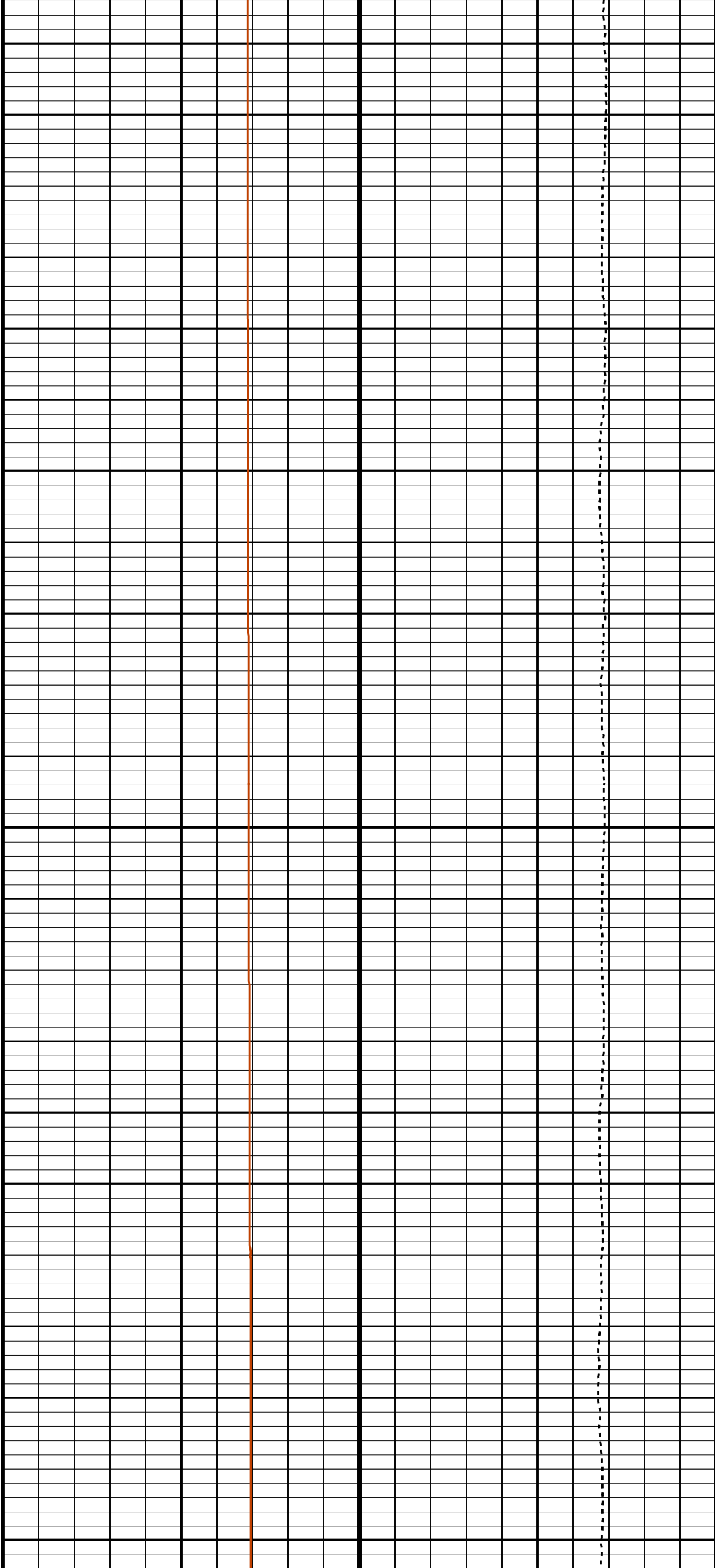


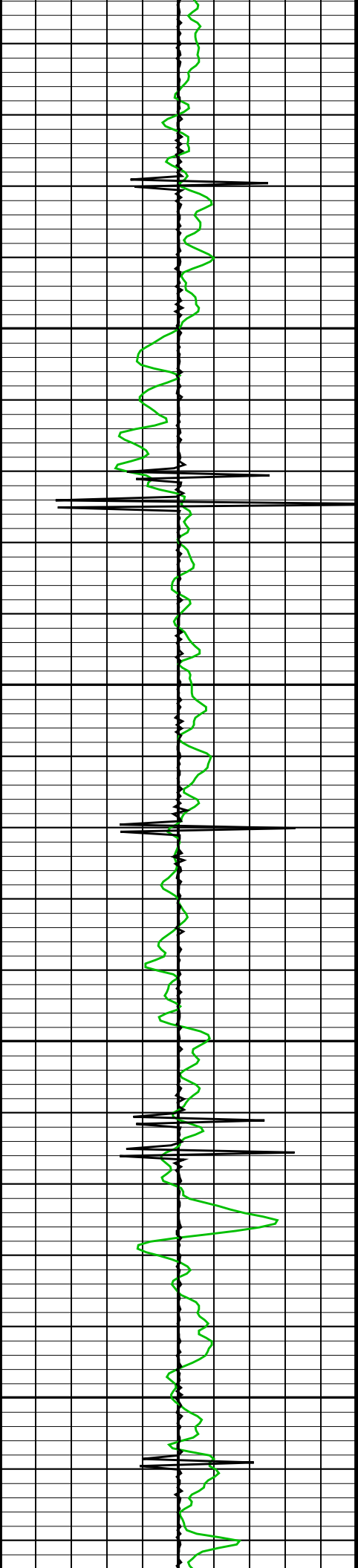




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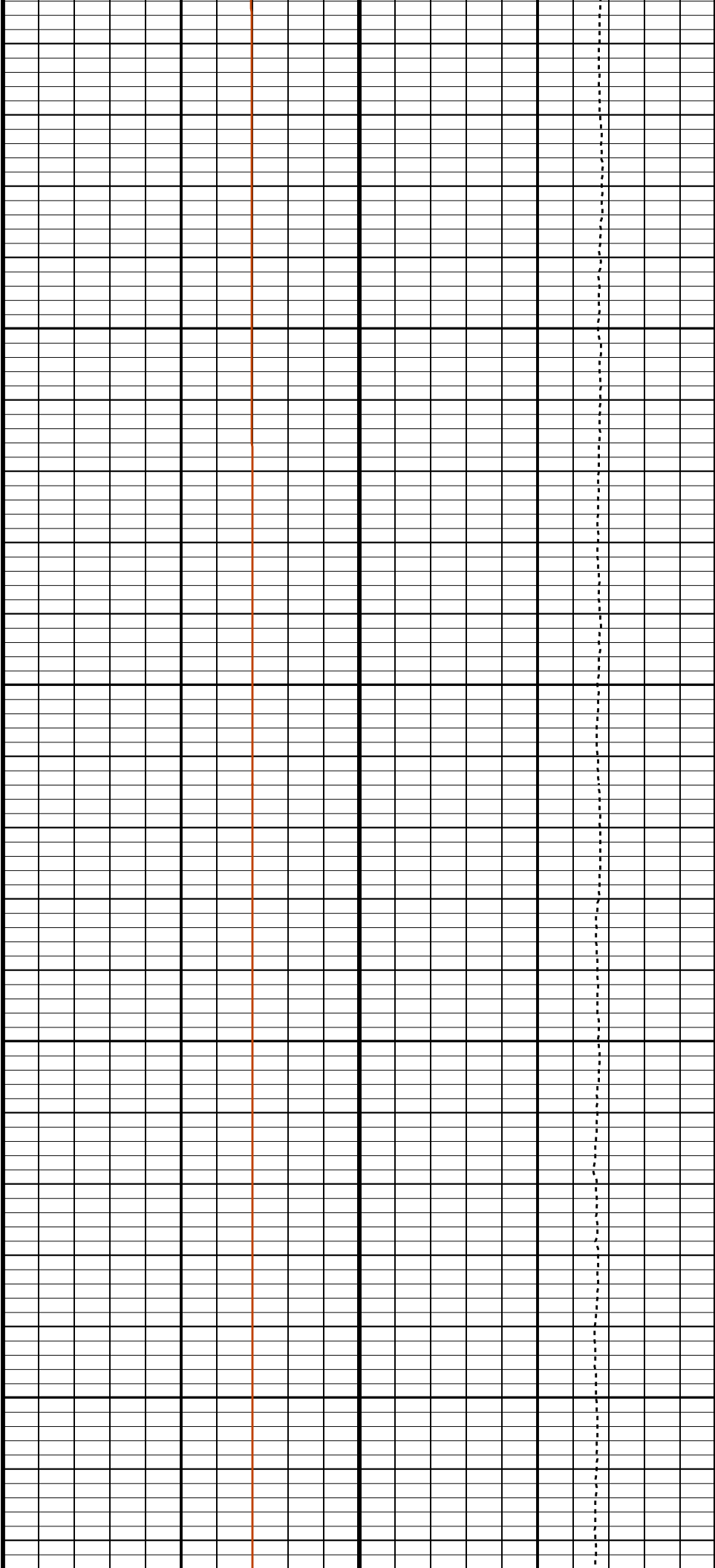
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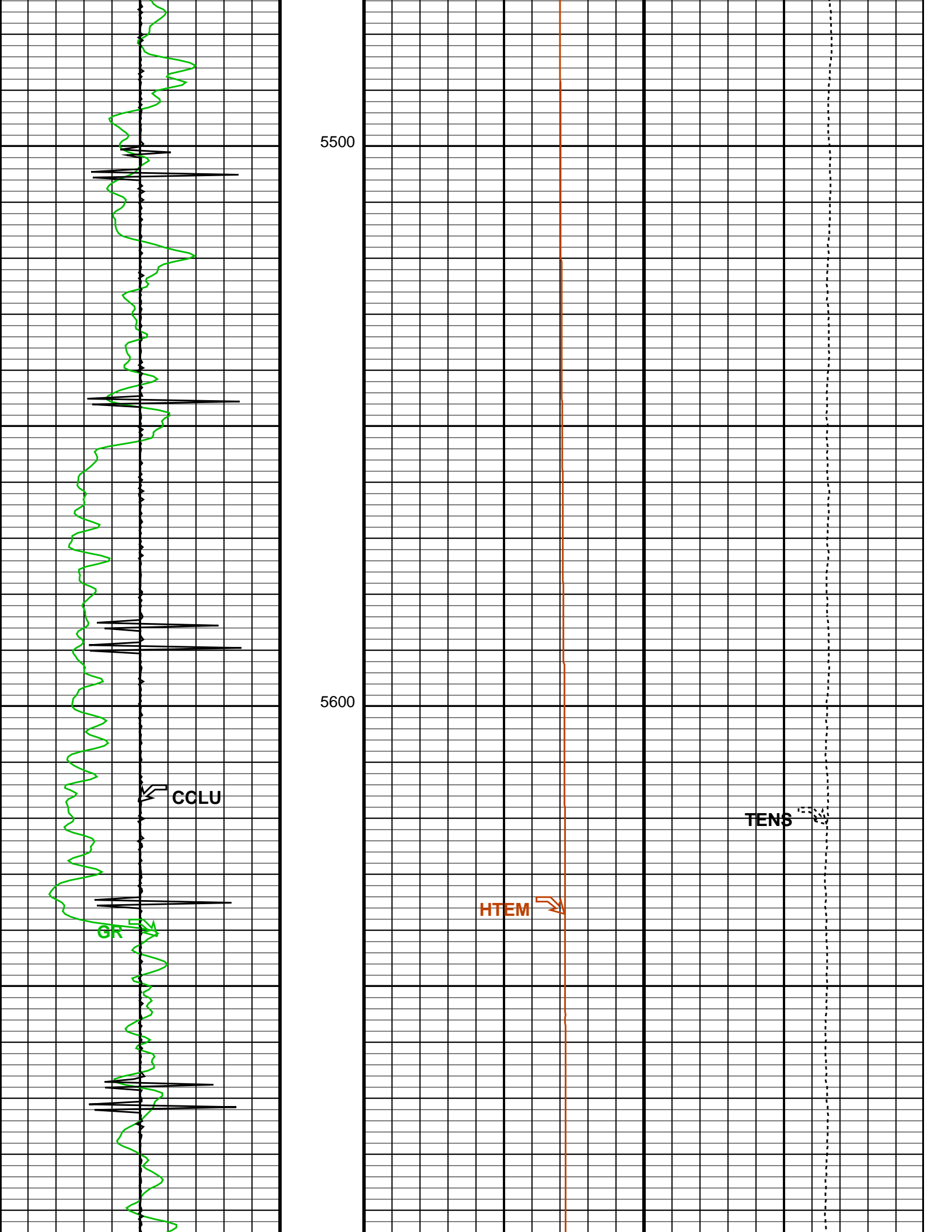


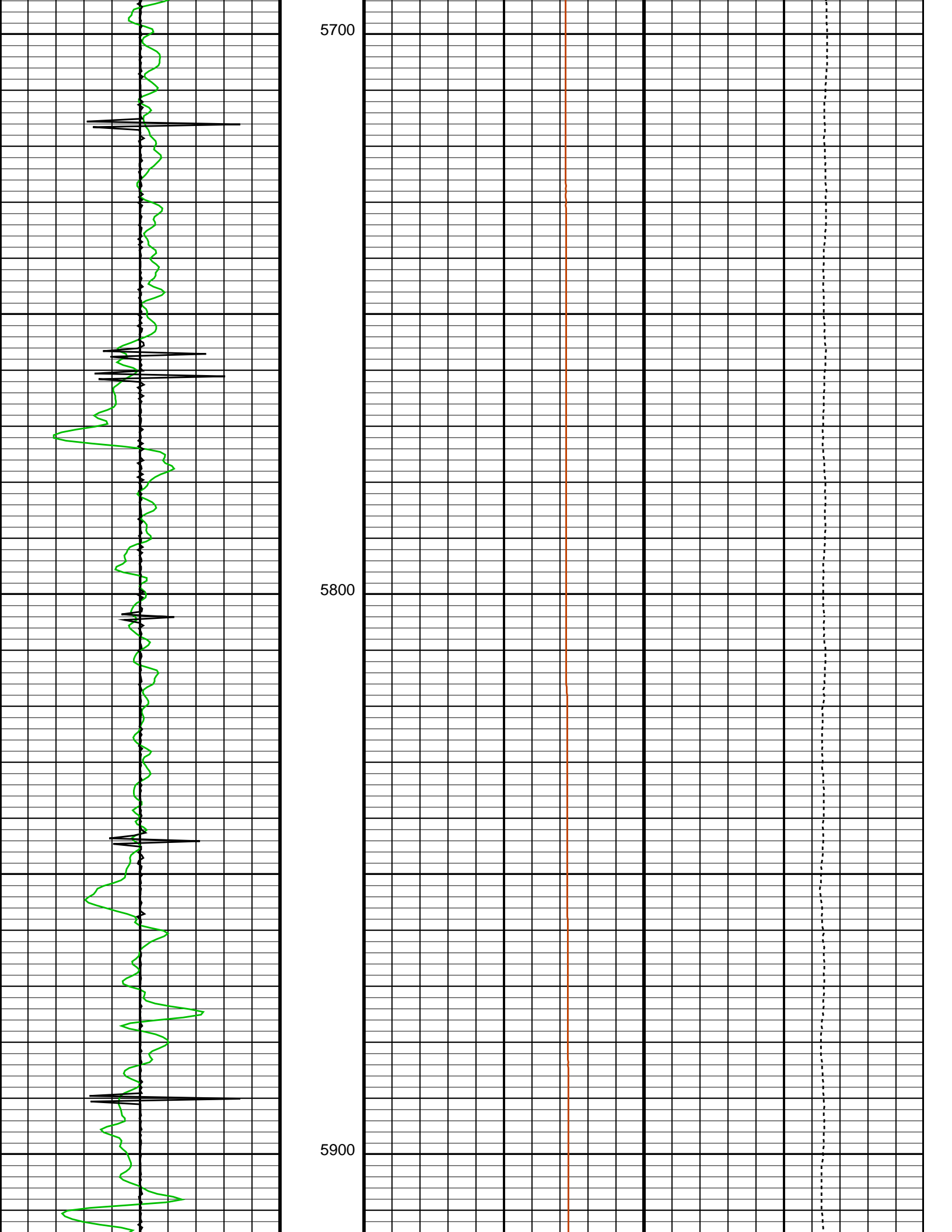


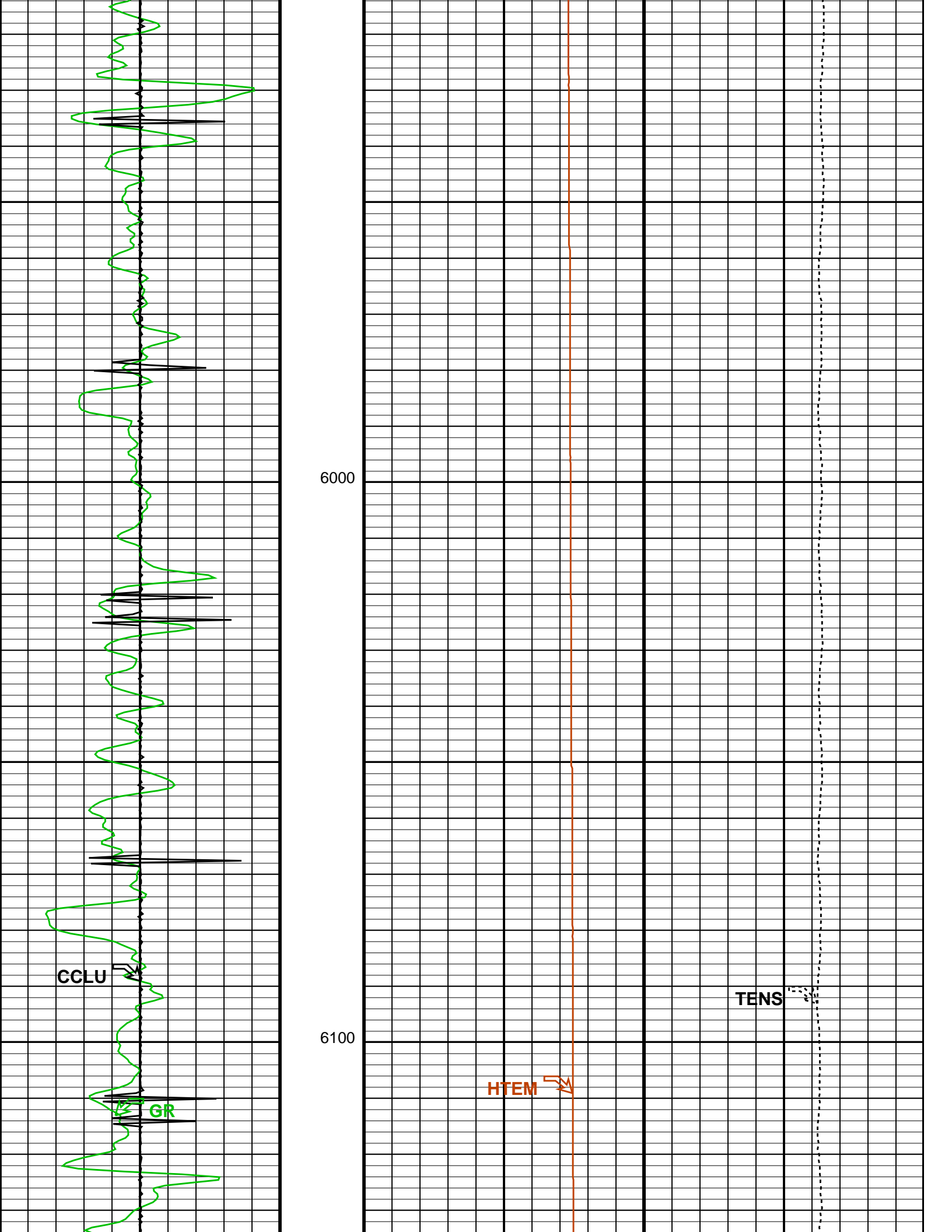
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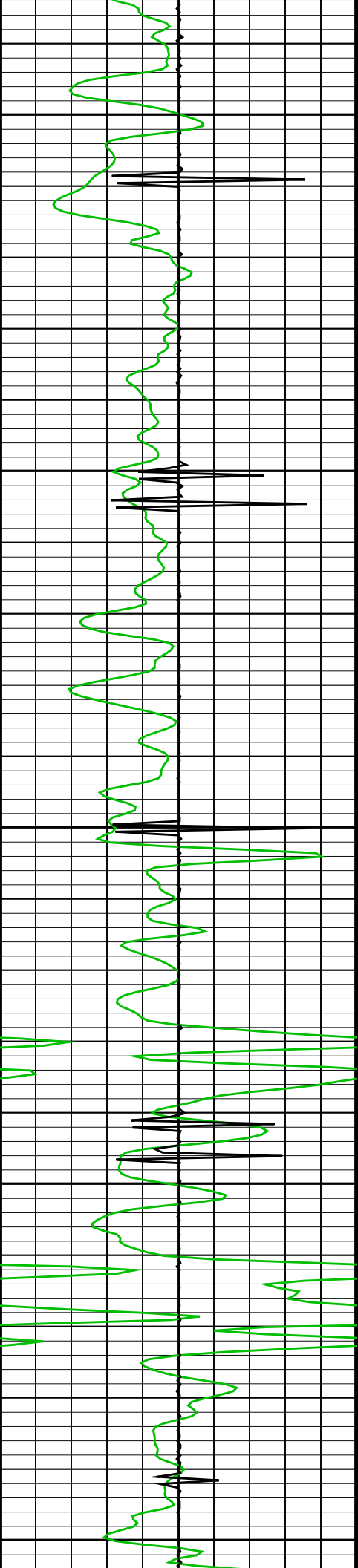
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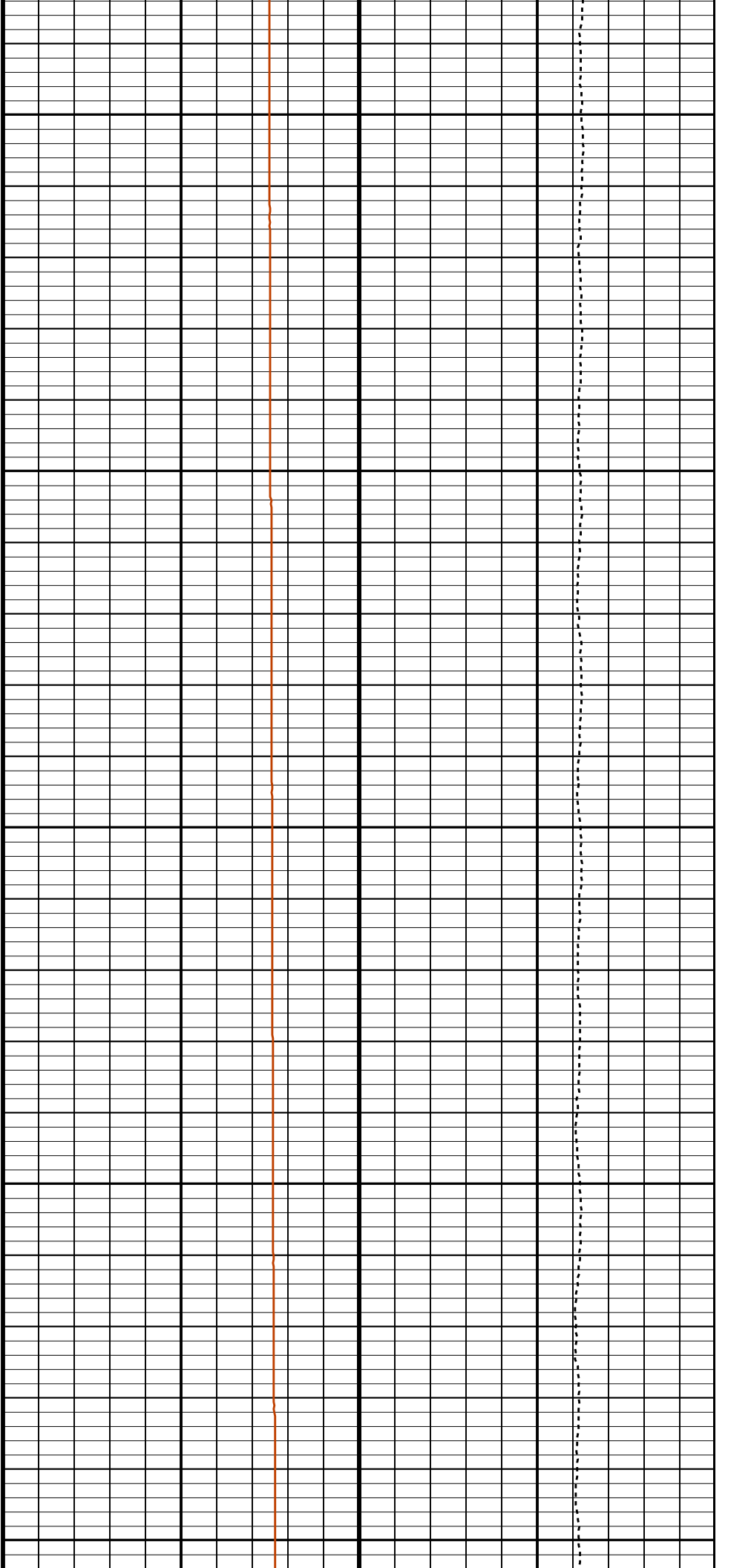


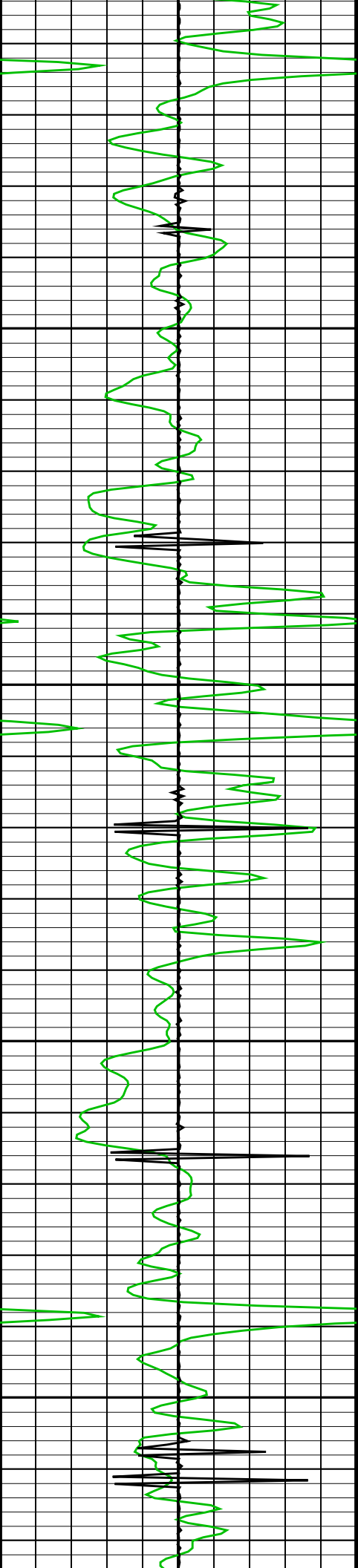




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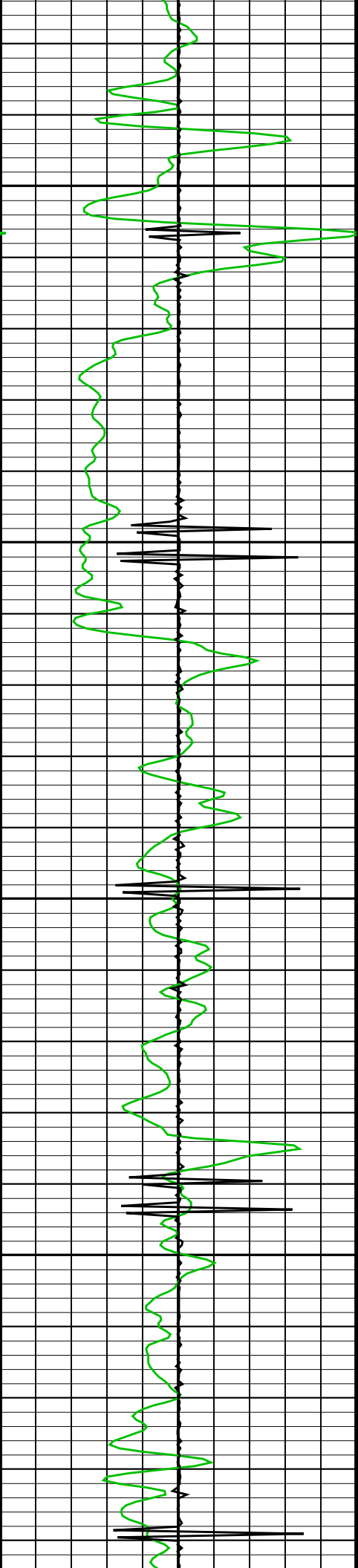
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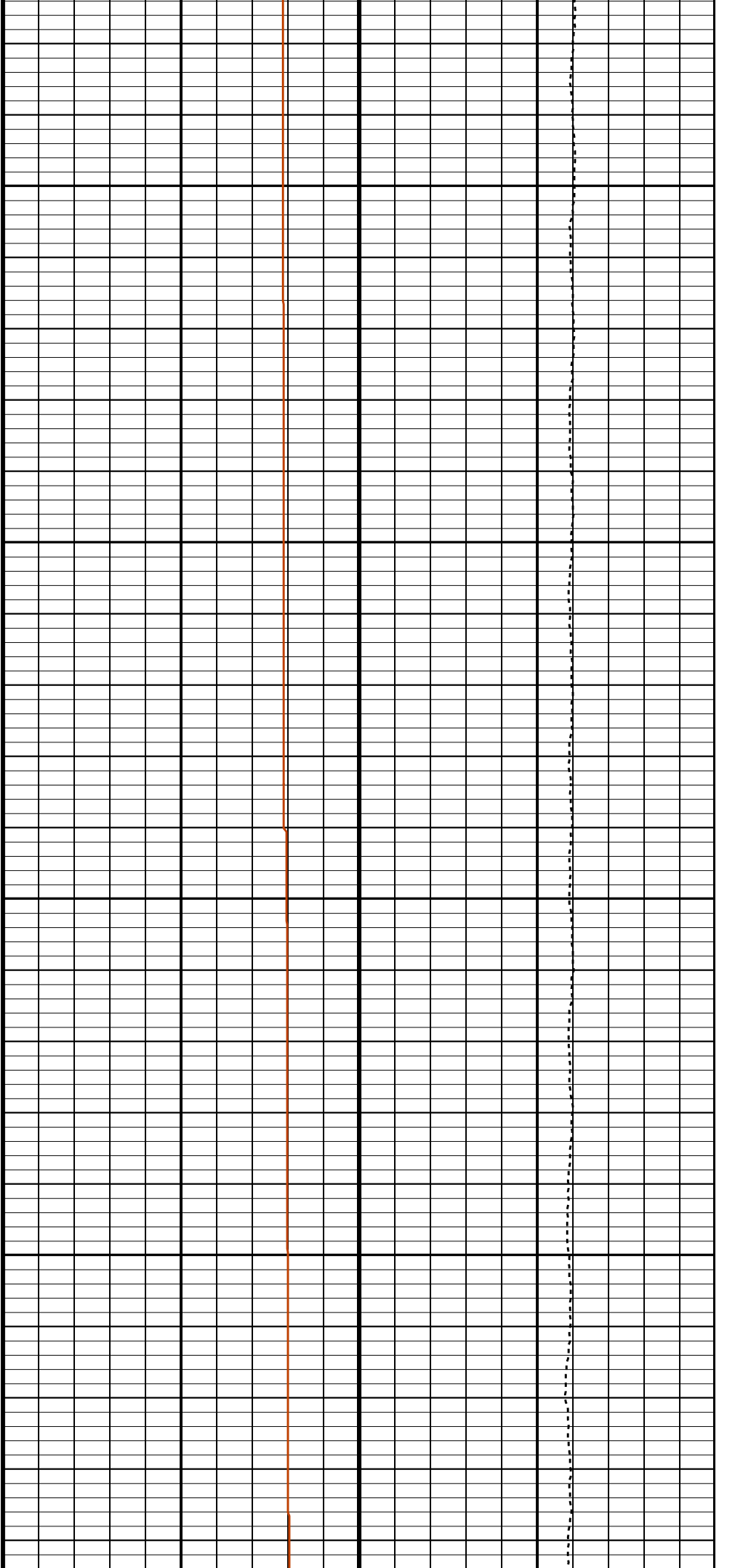
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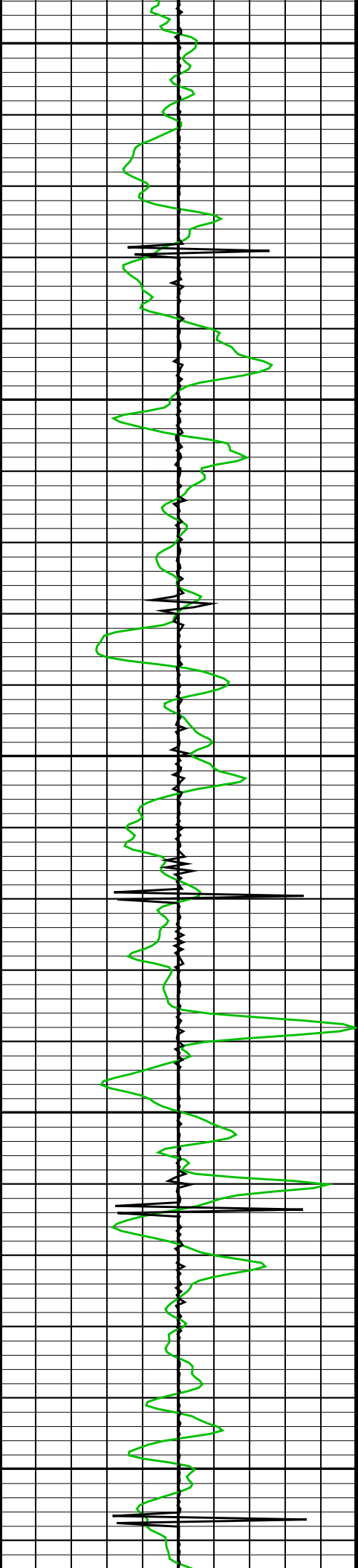
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6600

6700

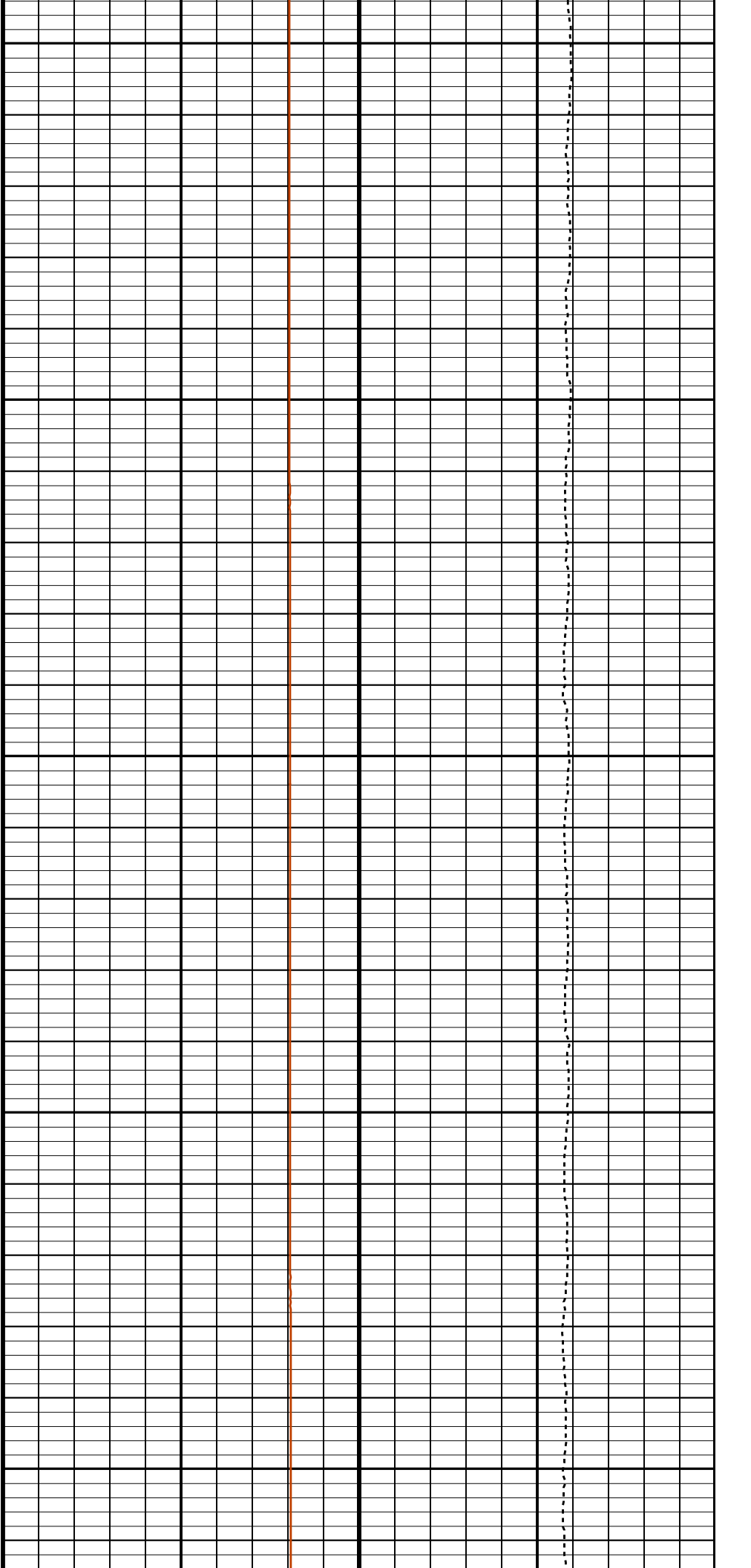


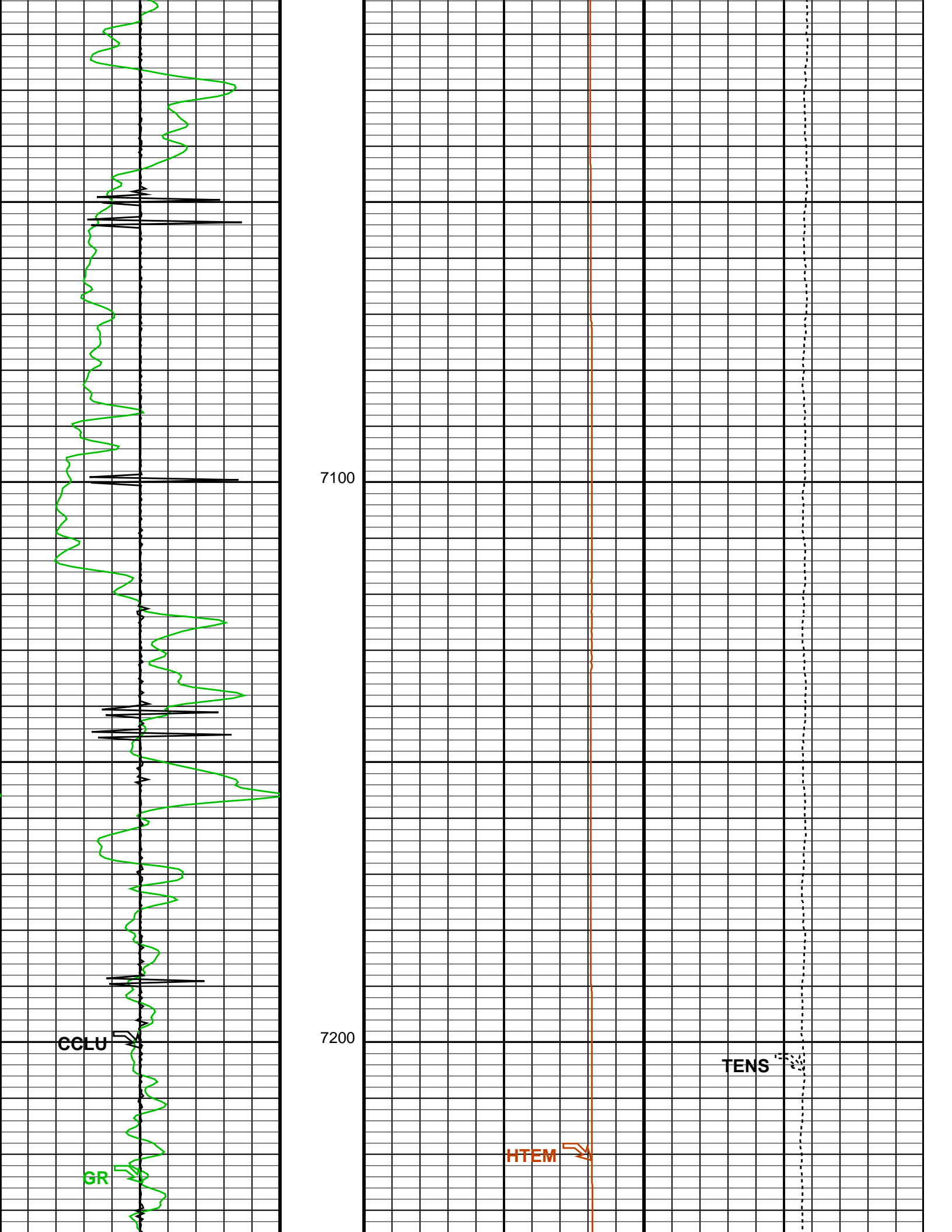


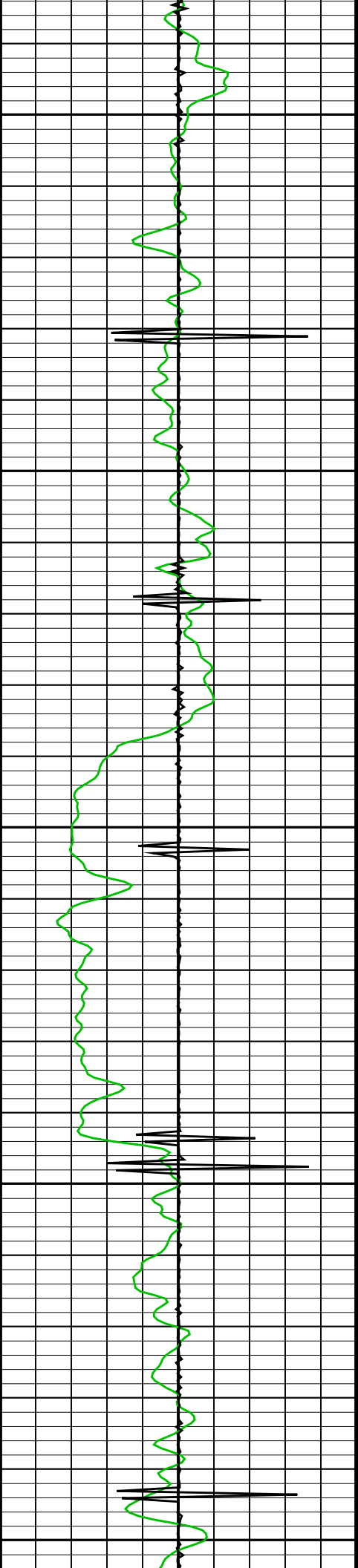
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6900

7000

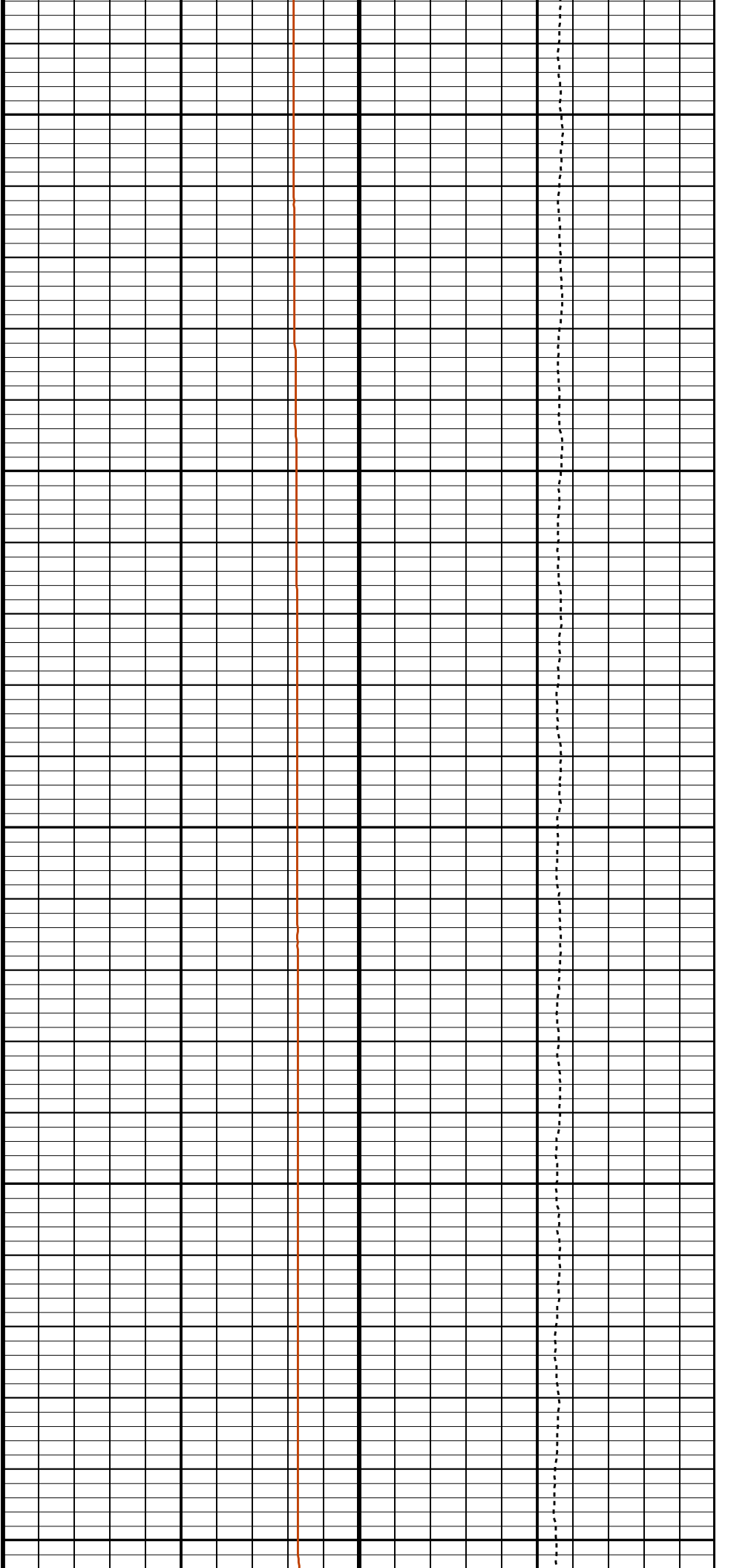


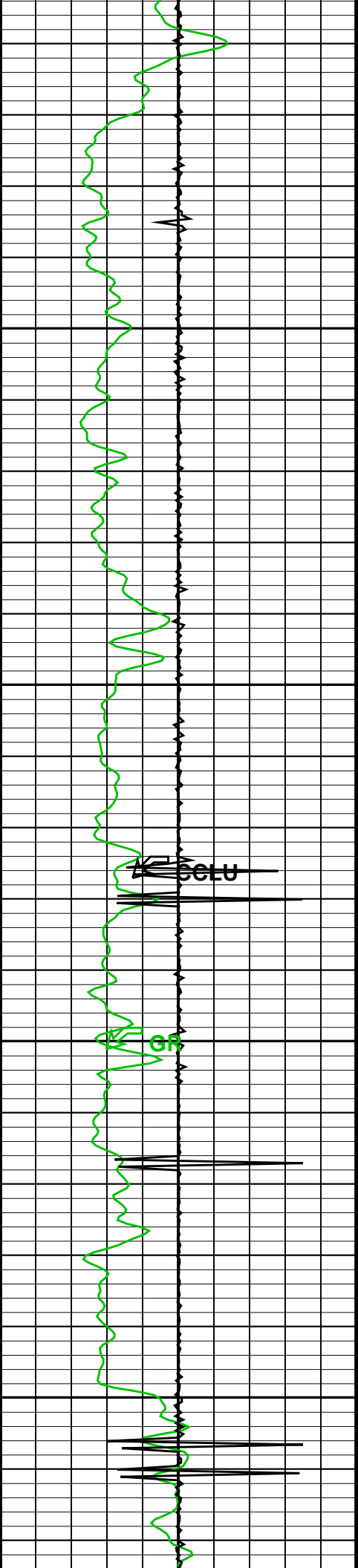




7300

7400





7500

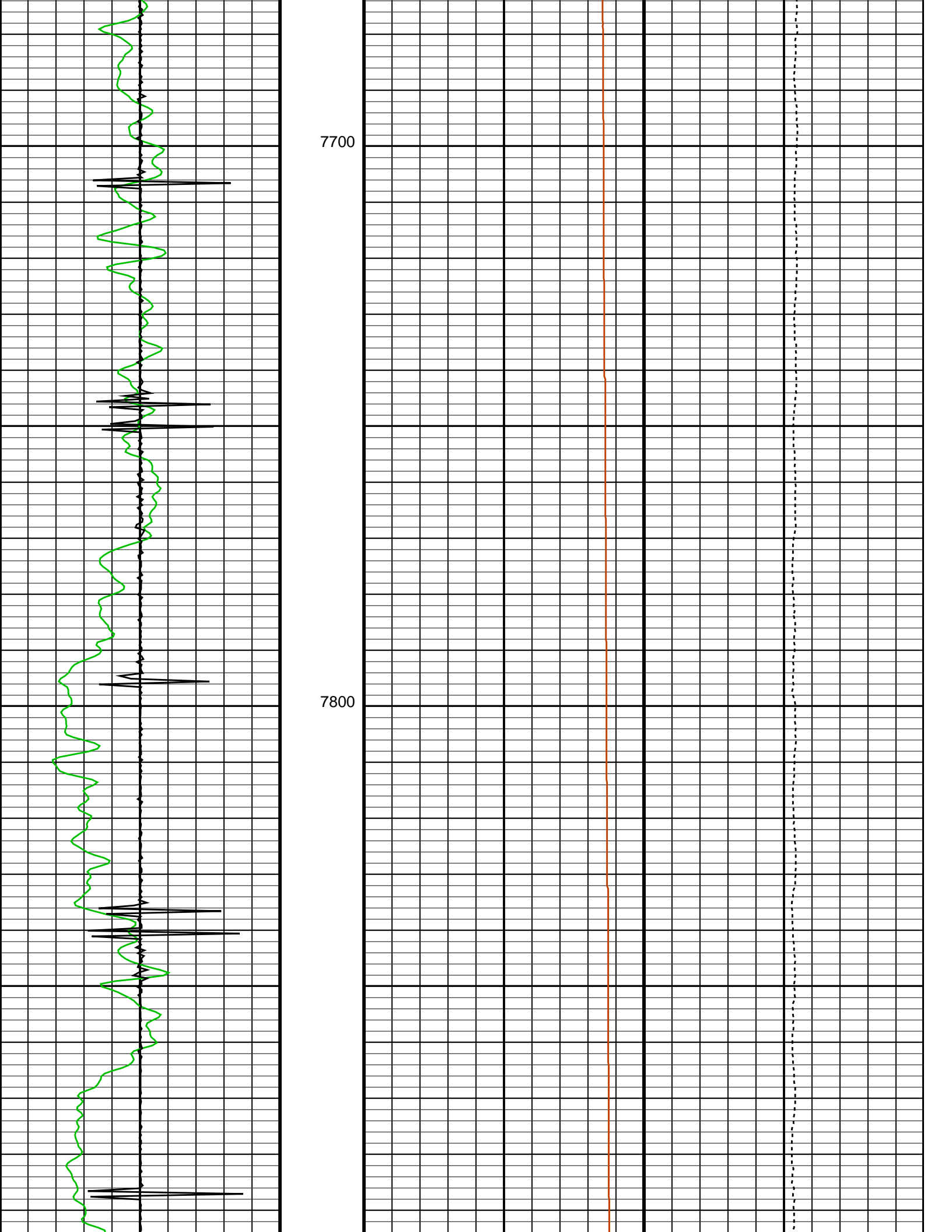
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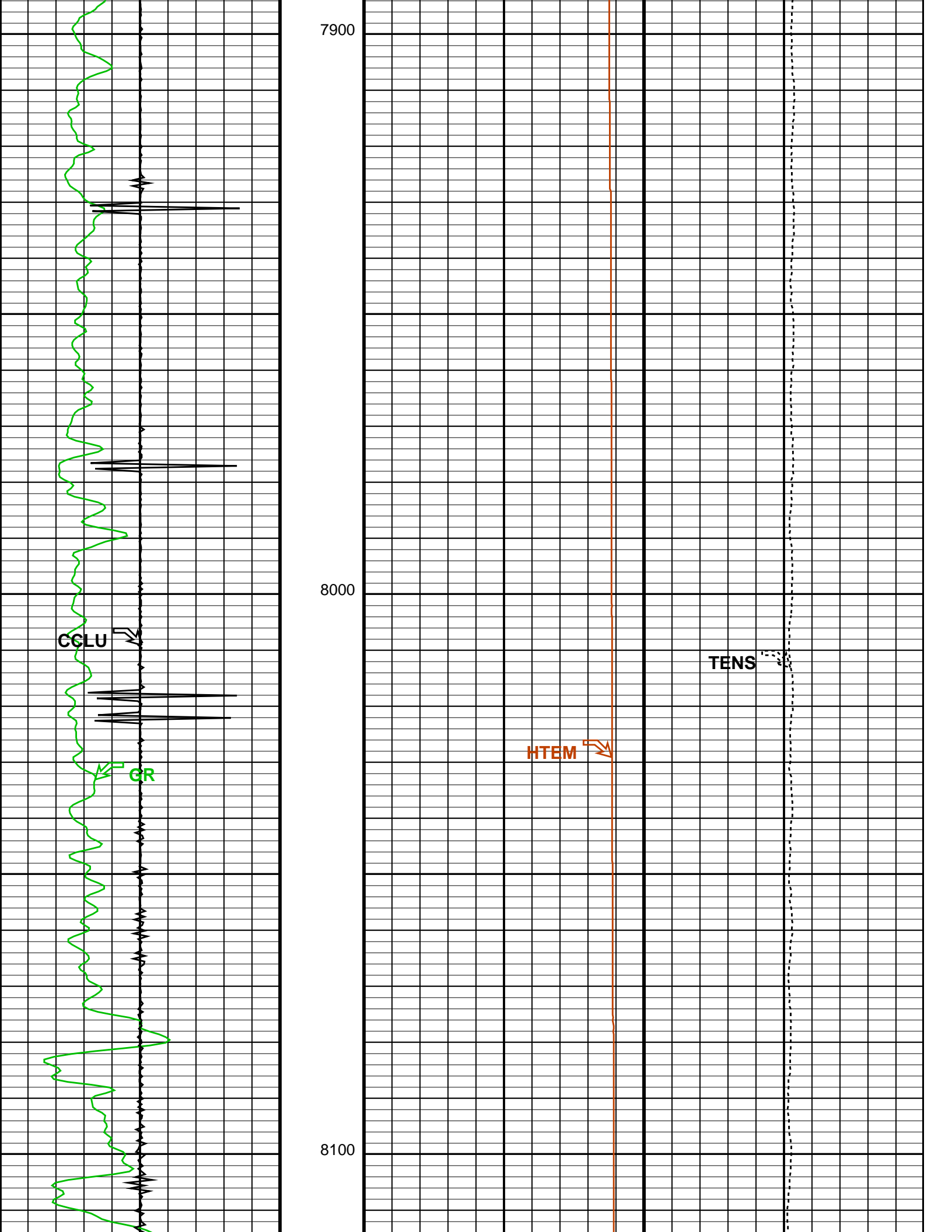
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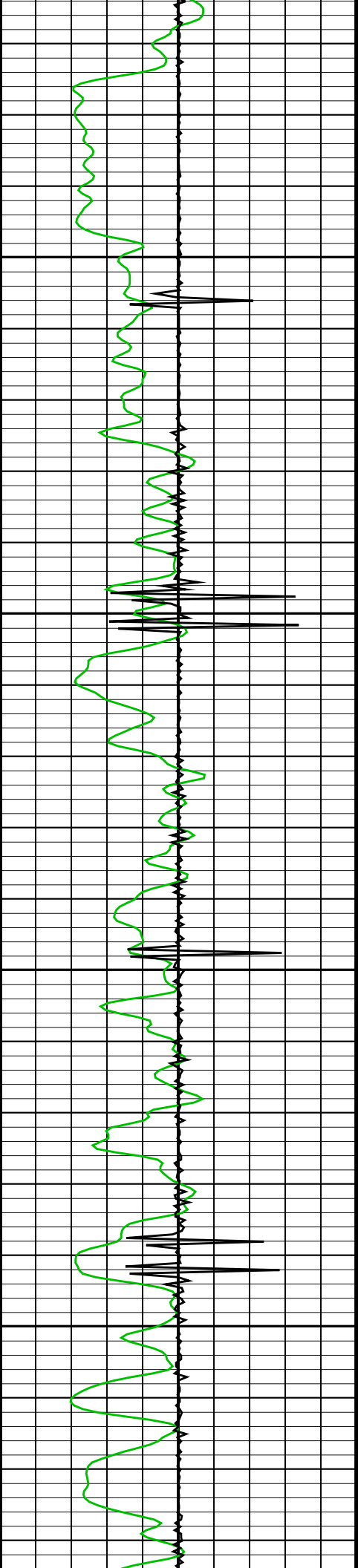
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HTEM

TENS

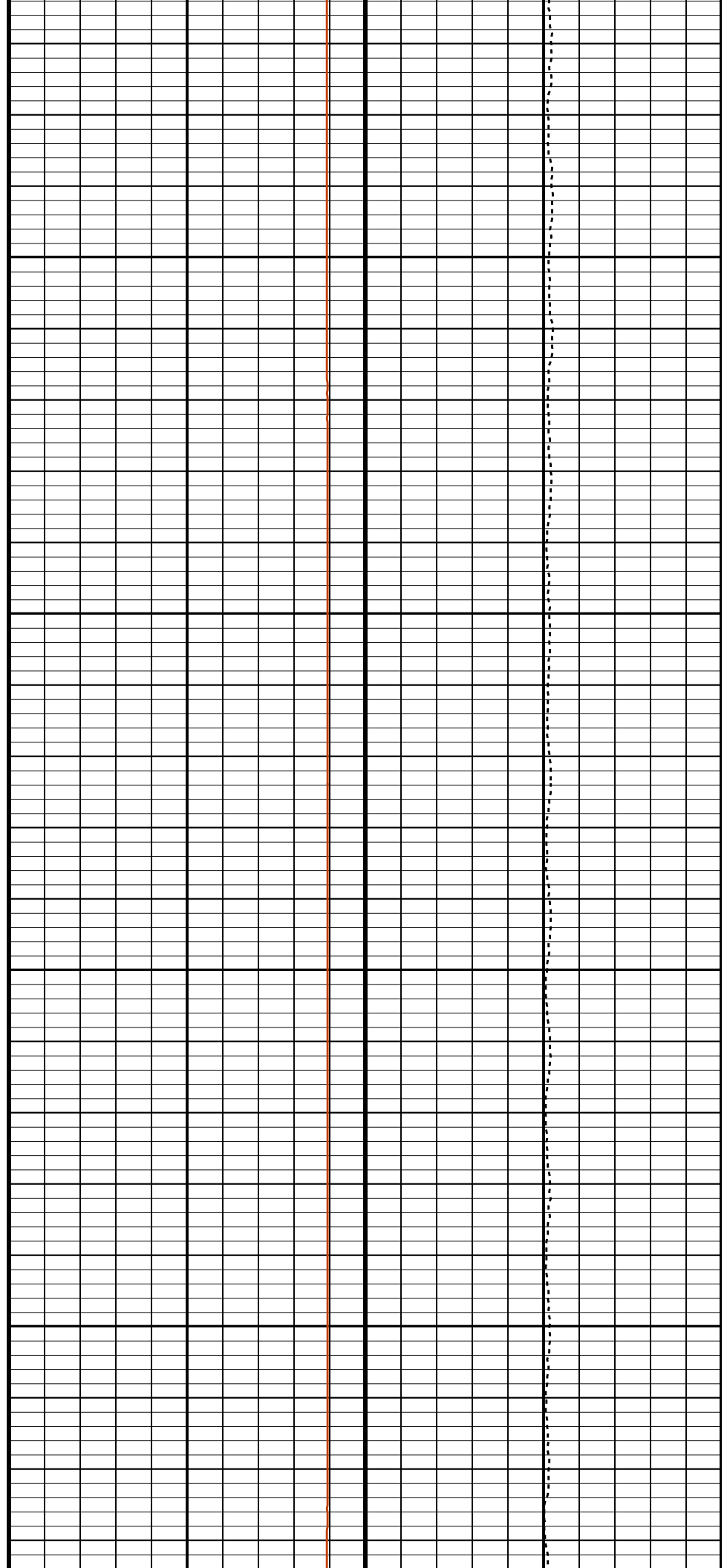


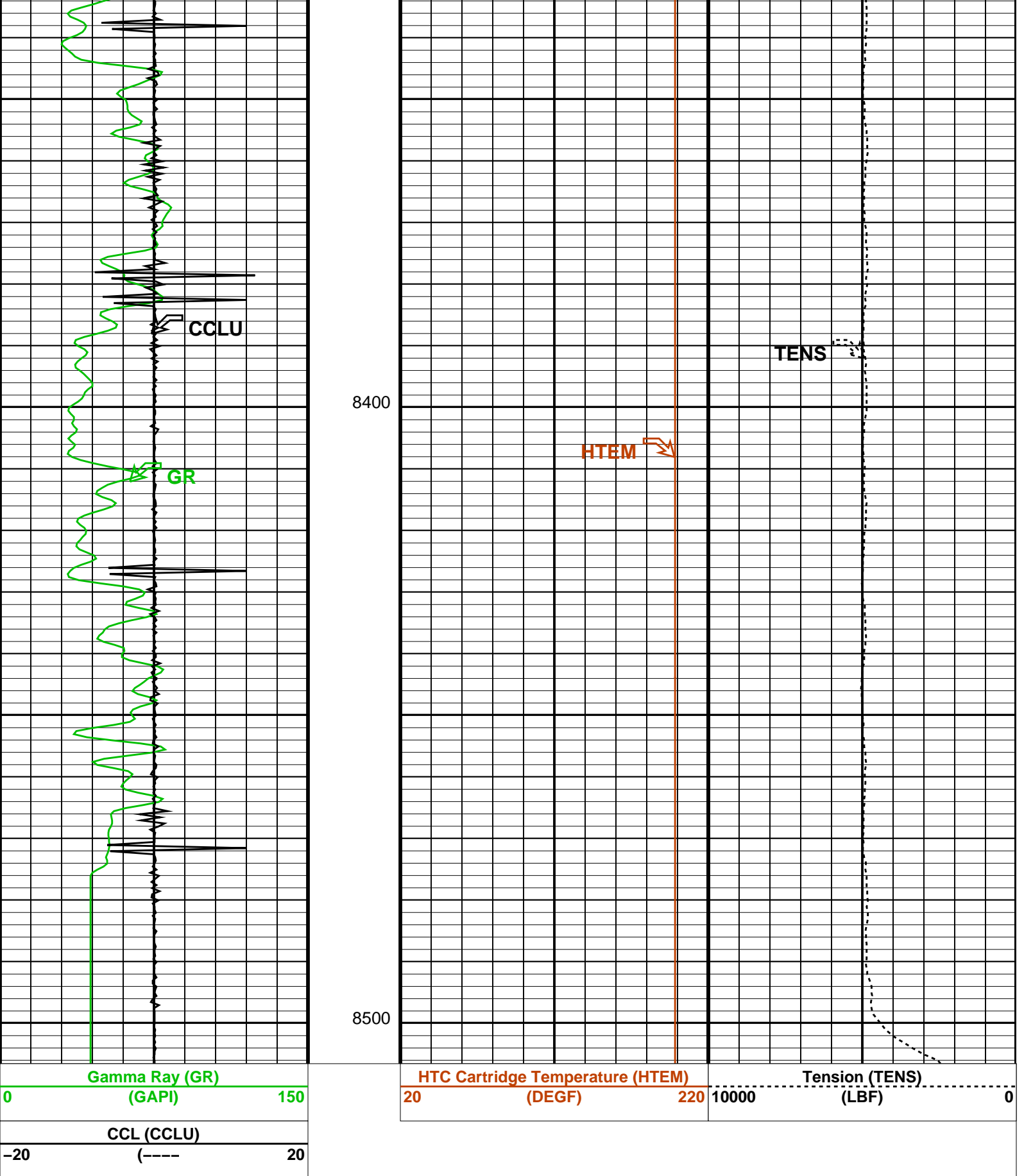




8200

8300





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
CSDF	Casing Density	486.04 LB/CF

CSDE	Casing Density	486.94	LB/CF
CSID	Casing Inner Diameter	6.276	IN
DFVL	Default Fluid Velocity	203	US/F
DOT	Diameter of Transducer Sensor	2.874	IN
EMXV	EMEX Voltage	120	V
MW	Mud Weight	9.4	LB/G
RCOD	Reference Calibrator Outer Diameter	7	IN
RCSO	Reference Calibrator Standoff	1.1811	IN
RCTH	Reference Calibrator Thickness	0.2952	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_7_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	2	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: 11-Nov-2009 03:36

OP System Version: 17C0-154

USIT-D SRPC-3779-Q1_2009_OP17_b HILTH-FTB SRPC-3779-Q1_2009_OP17_b
DTC-H 17C0-154

Input DLIS Files

DEFAULT SPLICE_USI_TLD_MCFL_017 FN:1 PRODUCER 11-Nov-2009 03:26 8506.5 FT 201.5 FT

Output DLIS Files

DEFAULT USI_TLD_MCFL_CNL_019PUP FN:29 PRODUCER 11-Nov-2009 03:36
BACKUP USI_TLD_MCFL_CNL_019PUP FN:30 PRODUCER 11-Nov-2009 03:37



Repeat Analysis

MAXIS Field Log

Company: EXXONMOBIL PRODUCTION CO Well: PCU 197-34B10

Input DLIS Files

DEFAULT SPLICE_USI_TLD_MCFL_017 FN:1 PRODUCER 11-Nov-2009 03:26 8506.5 FT 201.5 FT
DEFAULT USI_TLD_MCFL_CNL_016PUP FN:26 PRODUCER 11-Nov-2009 03:24 8509.0 FT 8209.0 FT

Output DLIS Files

DEFAULT USI_TLD_MCFL_CNL_019PUP FN:29 PRODUCER 11-Nov-2009 03:36
BACKUP USI_TLD_MCFL_CNL_019PUP FN:30 PRODUCER 11-Nov-2009 03:37

OP System Version: 17C0-154

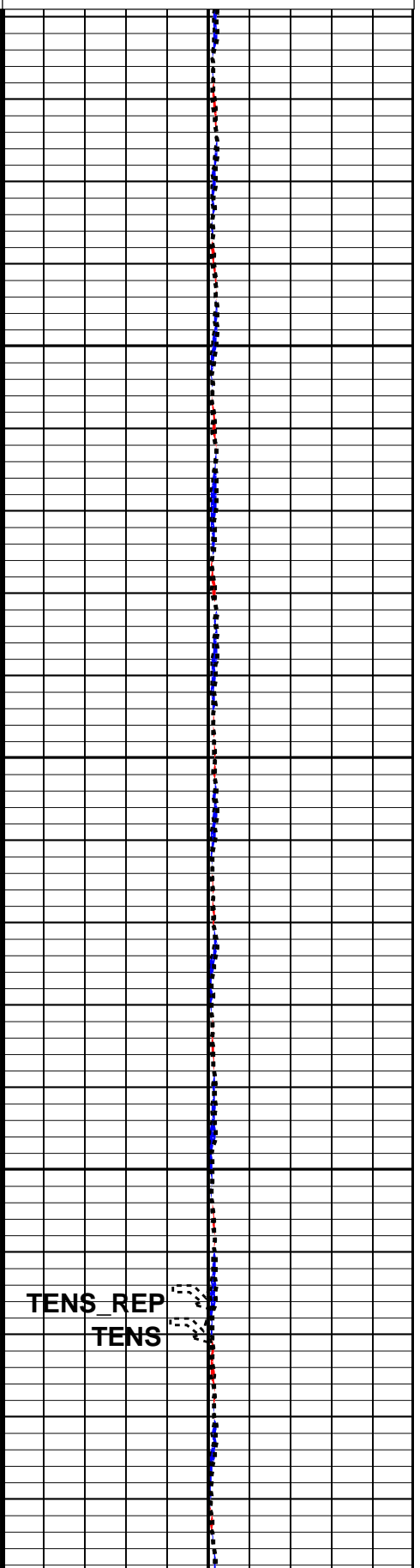
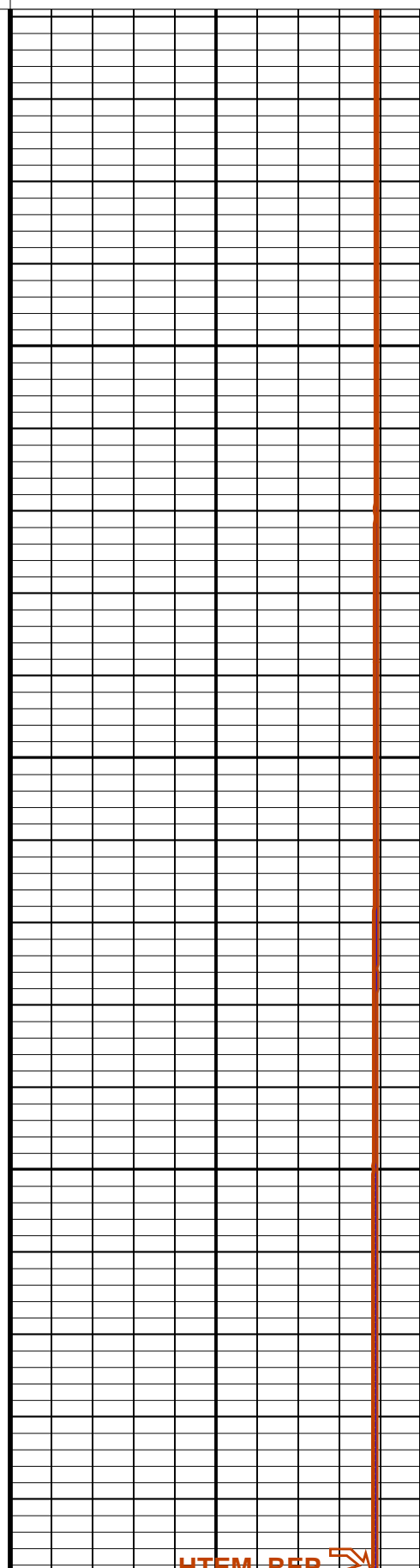
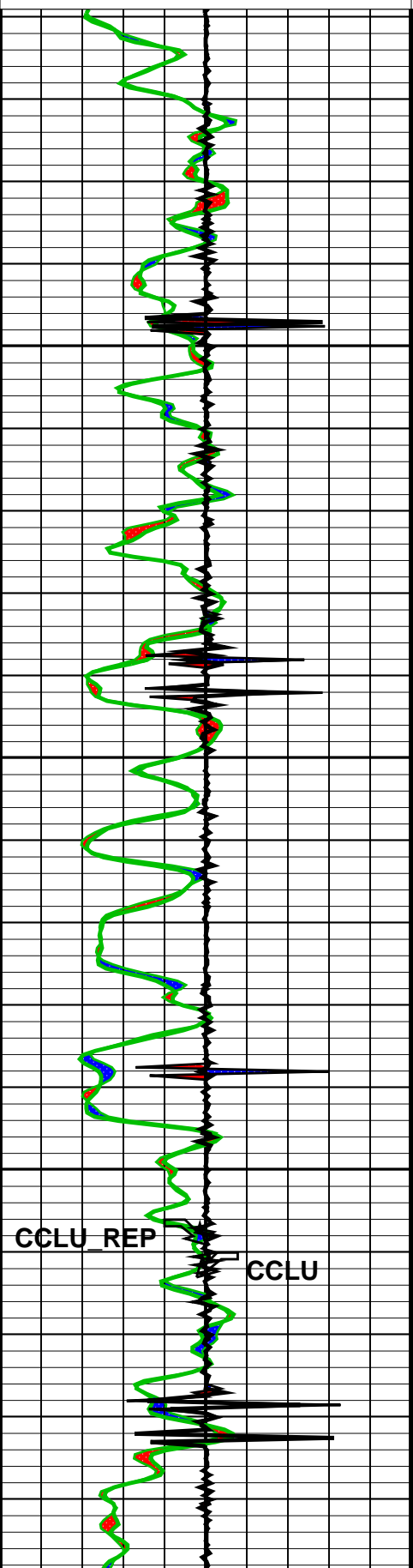
USIT_CCLU_curve_REP Curve (CCLU_REP)

-20 (----) 20

GR_REP Curve (GR_REP)
(GAPI) 0 150

HTEM_REP Curve (HTEM_REP)
(DEGF) 20 220

TENS_REP Curve (TENS_REP)
(LBF) 10000 0



8300

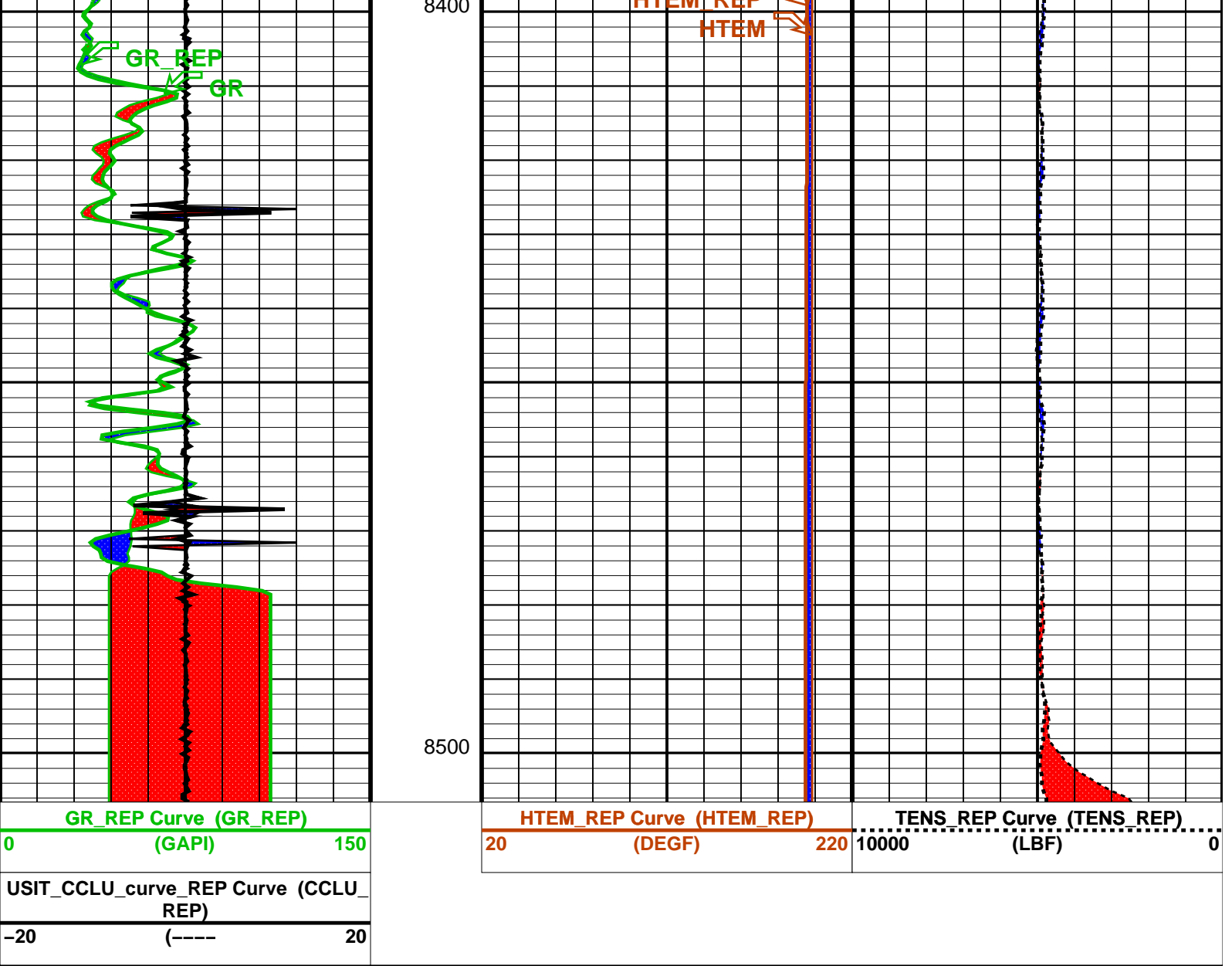
CCLU_REP

CCLU

TENS_REP

TENS

HTEM_REP



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	203	US/F
DOT	Diameter of Transducer Sensor	2.874	IN
EMXV	EMEX Voltage	120	V
MW	Mud Weight	9.4	LB/G
RCOD	Reference Calibrator Outer Diameter	7	IN
RCSO	Reference Calibrator Standoff	1.1811	IN
RCTH	Reference Calibrator Thickness	0.2952	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_7_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	2	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_REP Vertical Scale: 5" per 100' Graphics File Created: 11-Nov-2009 03:36

OP System Version: 17C0-154

USIT-D SRPC-3779-Q1_2009_OP17_b HILTH-FTB SRPC-3779-Q1_2009_OP17_b
 DTC-H 17C0-154

Input DLIS Files

DEFAULT	SPLICE_USI_TLD_MCFL_017	FN:1	PRODUCER	11-Nov-2009 03:26	8506.5 FT	201.5 FT
DEFAULT	USI_TLD_MCFL_CNL_016PUP	FN:26	PRODUCER	11-Nov-2009 03:24	8509.0 FT	8209.0 FT

Output DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_019PUP	FN:29	PRODUCER	11-Nov-2009 03:36
BACKUP	USI_TLD_MCFL_CNL_019PUP	FN:30	PRODUCER	11-Nov-2009 03:37



CALIBRATIONS

MAXIS Field Log

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
High resolution Integrated Logging Tool-DTS Wellsite Calibration – Detector Calibration							
Before: 10-Nov-2009 13:51							
Gamma Ray Background	30.00	N/A	37.63	N/A	N/A	N/A	GAPI
Gamma Ray (Jig – Bkgd)	165.0	N/A	162.3	N/A	N/A	15.00	GAPI
High resolution Integrated Logging Tool-DTS Wellsite Calibration – Zero Measurement							
Master: 31-Aug-2009 11:18 Before: 10-Nov-2009 13:52							
CNTC Background	26.93	26.93	27.38	N/A	N/A	4.040	CPS
CFTC Background	29.90	29.90	27.37	N/A	N/A	4.485	CPS
High resolution Integrated Logging Tool-DTS Wellsite Calibration – Ratio Measurement							
Master: 31-Aug-2009 11:18							
Thermal Near Corr. (Tank)	5800	5398	N/A	N/A	N/A	N/A	CPS
Thermal Far Corr. (Tank)	2400	2144	N/A	N/A	N/A	N/A	CPS
CNTC/CFTC (Tank)	2.159	2.518	N/A	N/A	N/A	N/A	
High resolution Integrated Logging Tool-DTS Wellsite Calibration – Accelerometer Calibration							
Before: 10-Nov-2009 20:52							
Z-Axis Acceleration	32.19	N/A	32.03	N/A	N/A	N/A	F/S2

The HGNS Neutron Master Calibration was done with the following parameters :

NCT-B Water Temperature	65.0	DEGF.
Thermal Housing Size	3.381	IN.
NSR-F serial number	0	

High resolution Integrated Logging Tool–DTS / Equipment Identification

Primary Equipment:

HILT Gamma–Ray Neutron Sonde–DTS
 HGNS Gamma–Ray Device
 HGNS Neutron Detector with Alpha Source
 Z–Axis Accelerometer
 Compensated Neutron Box
 HTBC Communication Assembly DTS Mode

HGNS – H
 HGR –
 HCNT – H
 HACC – H
 CNB – AB
 HMCA – H

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Auxiliary Equipment:

Neutron Calibration Tank
 Gamma Source Radioactive
 HGNS Housing

NCT – B
 GSR – U/Y
 HGNH –

High resolution Integrated Logging Tool–DTS Wellsite Calibration						
Detector Calibration						
Phase	Gamma Ray Background GAPI	Value	Phase	Gamma Ray (Jig – Bkgd) GAPI	Value	
Before		37.63	Before		162.3	
	0 (Minimum) 30.00 (Nominal) 120.0 (Maximum)			157.1 (Minimum) 165.0 (Nominal) 206.3 (Maximum)		
Before: 10–Nov–2009 13:51						

High resolution Integrated Logging Tool–DTS Wellsite Calibration						
Zero Measurement						
Phase	CNTC Background CPS	Value	Phase	CFTC Background CPS	Value	
Master		26.93	Master		29.90	
Before		27.38	Before		27.37	
	5.000 (Minimum) 26.93 (Nominal) 40.00 (Maximum)			5.000 (Minimum) 29.90 (Nominal) 40.00 (Maximum)		
Master: 31–Aug–2009 11:18			Before: 10–Nov–2009 13:52			

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		5398	Master		2144	Master		2.518	
	4700 (Minimum) 5800 (Nominal) 6900 (Maximum)			1900 (Minimum) 2400 (Nominal) 2900 (Maximum)			2.120 (Minimum) 2.159 (Nominal) 2.540 (Maximum)		
Master: 31–Aug–2009 11:18									

High resolution Integrated Logging Tool–DTS Wellsite Calibration		
Accelerometer Calibration		
Phase	Z–Axis Acceleration F/S2	Value
Before		32.03
	31.53 (Minimum) 32.19 (Nominal) 32.84 (Maximum)	
Before: 10–Nov–2009 20:52		

High resolution Integrated Logging Tool–DTS Master Calibration						
Zero Measurement						
Phase	CNTC Background CPS	Value	Phase	CFTC Background CPS	Value	
Master		26.93	Master		29.90	
	5.000 (Minimum) 26.93 (Nominal) 40.00 (Maximum)			5.000 (Minimum) 29.90 (Nominal) 40.00 (Maximum)		
Master: 31–Aug–2009 11:18						

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		5398	Master		2144	Master		2.518	
	4700 (Minimum) 5800 (Nominal) 6900 (Maximum)			1900 (Minimum) 2400 (Nominal) 2900 (Maximum)			2.120 (Minimum) 2.159 (Nominal) 2.540 (Maximum)		
Master: 31–Aug–2009 11:18									

Primary Equipment:

DTC-H Auxiliary Cartridge
DTC-H Telemetry Cartridge

DTCH - A
DTCH - A

Auxiliary Equipment:

DTCH Telemetry Cartridge Housing

ECH - KC

Company: **EXXONMOBIL PRODUCTION CO**

Schlumberger

Well: **PCU 197-34B10**

Field: **PICEANCE CREEK**

County: **RIO BLANCO**

State: **COLORADO**

CORRELATION PRINT

GAMMA RAY / CCL