

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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Schlumberger

Company: ExxonMobil Production Corp

Well: PCU 297-11C6

Field: Piceance Creek

County: Rio Blanco

State: Colorado

CORRELATION PRINT

GAMMA RAY

Field: Piceance Creek	
Location: NWNW 977' FNL 886' FWL	
Well: PCU 297-11C6	
Company: ExxonMobil Production Corp	
COUNTY: Rio Blanco	
STATE: Colorado	
CORRELATION PRINT	
GAMMA RAY	
NWNW 977' FNL 886' FWL	
Elev.: K.B. 7023.40 ft	
G.L. 6993.20 ft	
D.F. 7022.40 ft	
LOCATION	
Permanent Datum: _____	GROUND LEVEL _____
Log Measured From: _____	KELLY BUSHING _____
Drilling Measured From: _____	KELLY BUSHING _____
API Serial No. _____	Section _____
05-103-11472-0C	11
Township _____	Range _____
2S	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	30.58 deg		
CEMENTING DATA			
Primary/Squeeze	Primary		
Casing String No			
Lead Cement Type	TUNE LIGHT		
Volume			
Density	11 lbm/gal		
Water Loss			
Additives			
Tail Cement Type	TUNE LIGHT		
Volume			
Density	11 lbm/gal		
Water Loss			
Additives			
Expected Cement Top	3500 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			
Location			
Recorded By			
Witnessed By			

Logging Date		11-May-2010	
Run Number	1		
Depth Driller	8567 ft		
Schlumberger Depth	8234.1 ft		
Bottom Log Interval	8234.1 ft		
Top Log Interval	234.1 ft		
Casing Fluid Type	WBM		
Salinity			
Density	8.6 lbm/gal		
Fluid Level	40 ft		
BIT/CASING/TUBING STRING			
Bit Size	9.875 in		
From	30.2 ft		
To	8567 ft		
Maximum Recorded Temperatures	206 degF		
Logger On Bottom	11-May-2010	9:28	
Unit Number	2276	Vernal	
Location			
Recorded By	Saurabh Dass / Yating Wang		
Witnessed By	Mike Sadler / Jonathon Jones		

## DEPTH SUMMARY LISTING

Date Created: 11-MAY-2010 12:52:54

### Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW-B	Type:	CMTD-B/A	Type:	7-46A XS
Serial Number:	6195	Serial Number:	2527	Serial Number:	7232
Calibration Date:	22-Feb-2010	Calibration Date:	11-Apr-2010	Length:	20090 FT
Calibrator Serial Number:	33	Calibrator Serial Number:	100518	Conveyance Method: Wireline Rig Type: LAND	
Calibration Cable Type:	7-46P	Number of Calibration Points:	10		
Wheel Correction 1:	-9	Calibration RMS:	18		
Wheel Correction 2:	-8	Calibration Peak Error:	27		

### Depth Control Parameters

Log Sequence:	First Log In the Well
Rig Up Length At Surface:	173.90 FT
Rig Up Length At Bottom:	173.30 FT
Rig Up Length Correction:	0.60 FT
Stretch Correction:	5.00 FT
Tool Zero Check At Surface:	1.90 FT

### Depth Control Remarks

1. All Schlumberger depth control policies followed
2. IDW used as primary depth reference, Z-chart used as secondary depth reference
3. Uplog correlated to downlog from 8000 ft to 6000 ft
4.
5.
6.

#### DISCLAIMER

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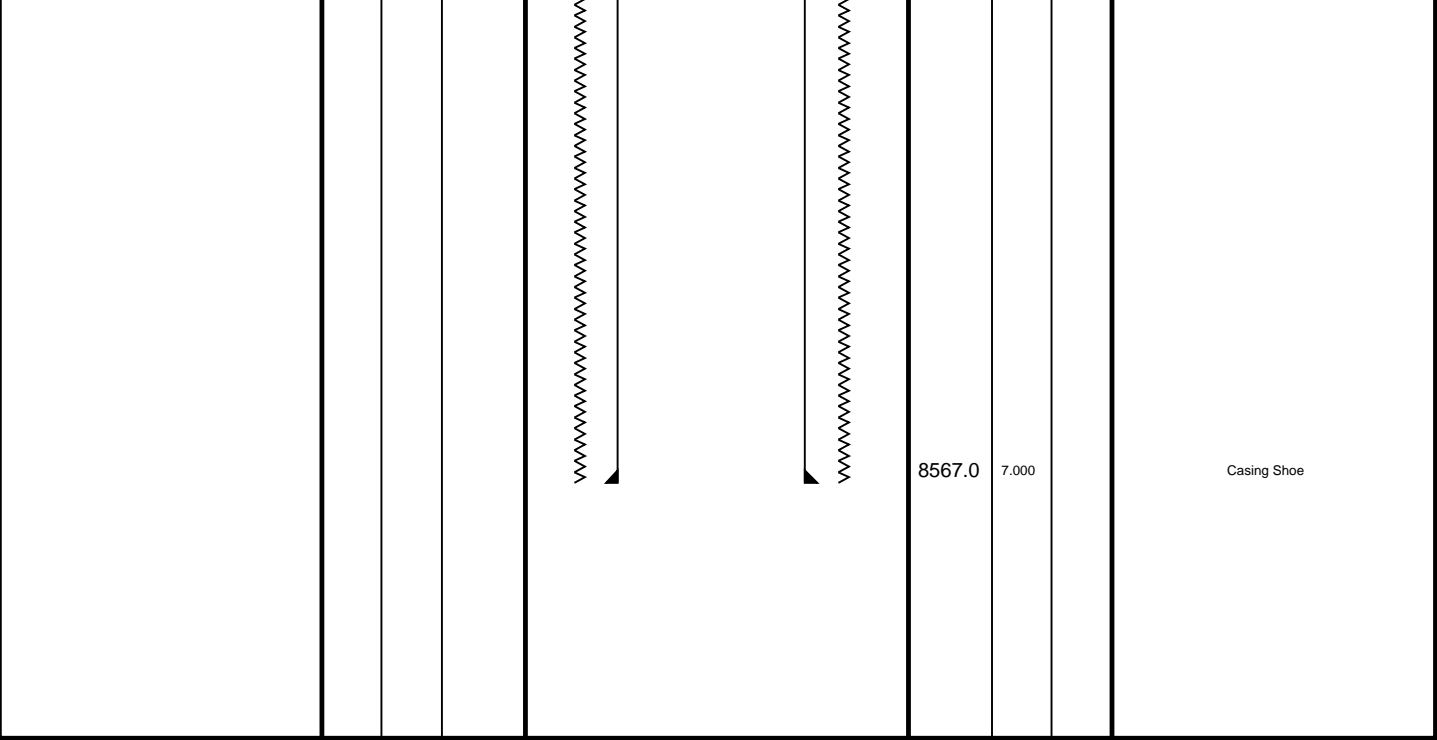
OTHER SERVICES1	OTHER SERVICES2
OS1: NONE	OS1:
OS2:	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
Tool ran as per tool sketch	
Tool centralized using 2 x In-Line-Centralizers and 2 x Gemco	
Neutron ran for GR only	
UFAO = 8	
Logged at 1700 ft/hr	
Expected casing Thickness: 0.362"	
Expected Casing ID = 6.276"	
Minor effects of eccentricity seen on data.	
IBC resolution set to 5 deg 6 inch.	

21.7



Elevation: 7023.4 ft

[illegible]



All depths are referenced to driller's depths



# Correlation

MAXIS Field Log

Company: ExxonMobil Production Corp Well: PCU 297-11C6

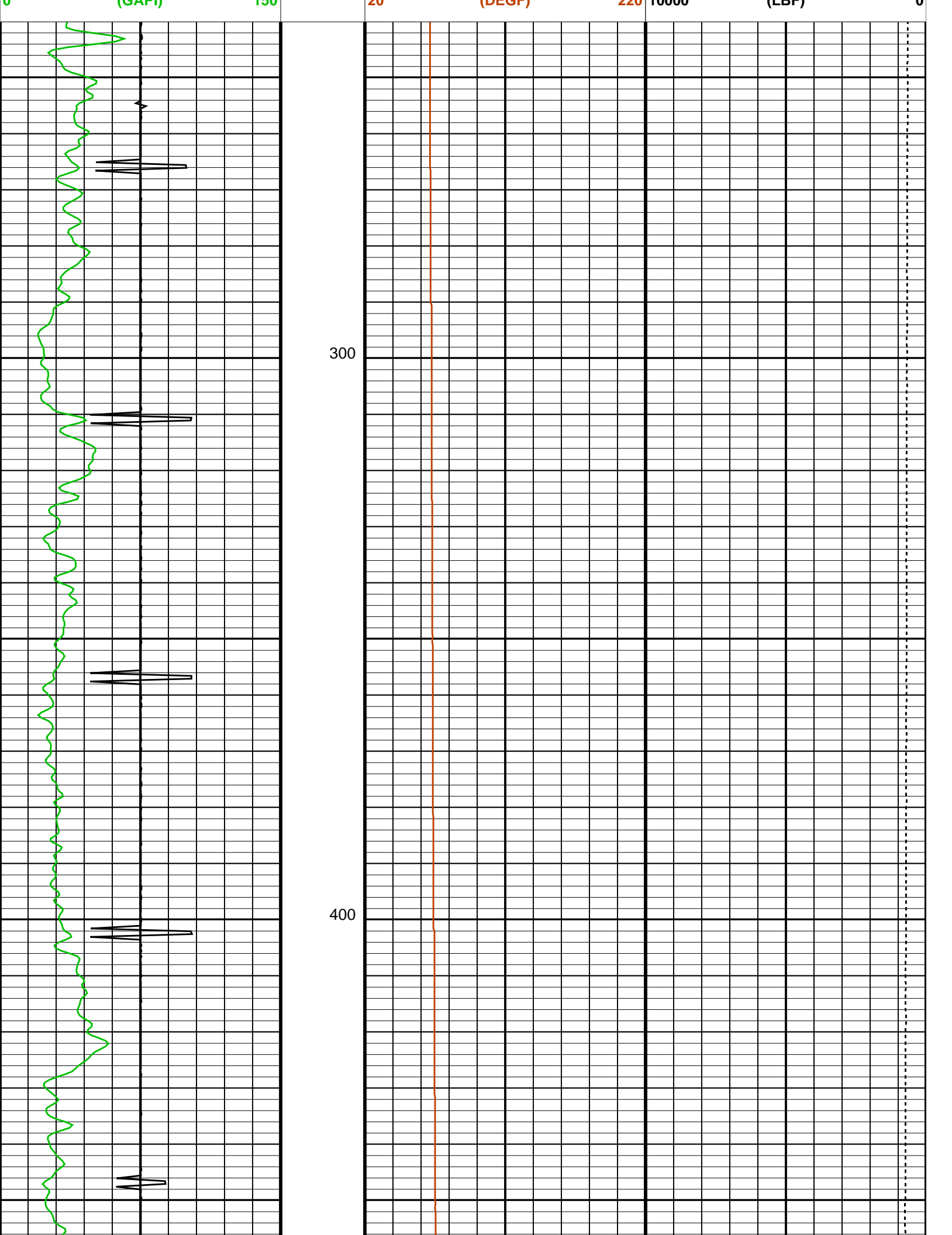
Input DLIS Files						
DEFAULT	Splice_USI_TLD_MCFL_021CUP	FN:1	PRODUCER	11-May-2010 14:37	8200.0 FT	199.6 FT
Output DLIS Files						
DEFAULT	USI_TLD_MCFL_CNL_025PUP	FN:22	PRODUCER	11-May-2010 14:50	8240.0 FT	240.0 FT

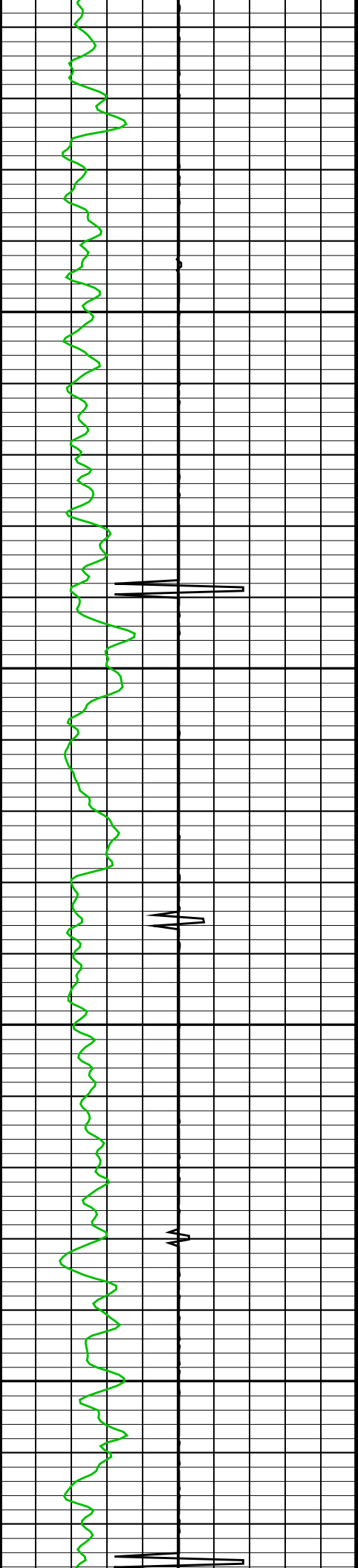
OP System Version: 17C0-154			
USIT-D	17C0-154	HILTH-FTB	17C0-154
DTC-H	17C0-154		

CCL (CCLU)		
-20	(----	20

Gamma Ray (GR)		
0	(CAP)	150

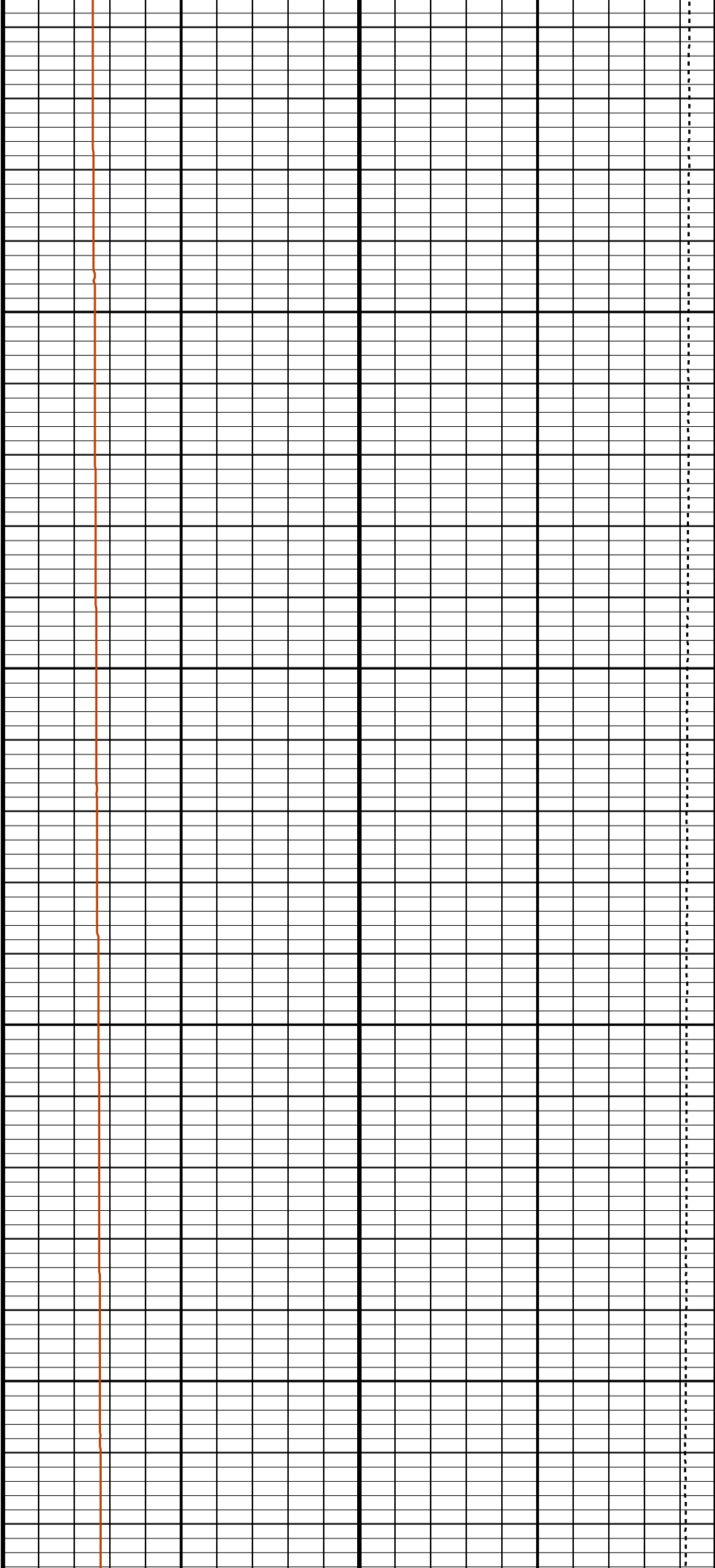
HTC Cartridge Temperature (HTEM)			Tension (TENS)		
20	(DEGE)	220	10000	(L BE)	0



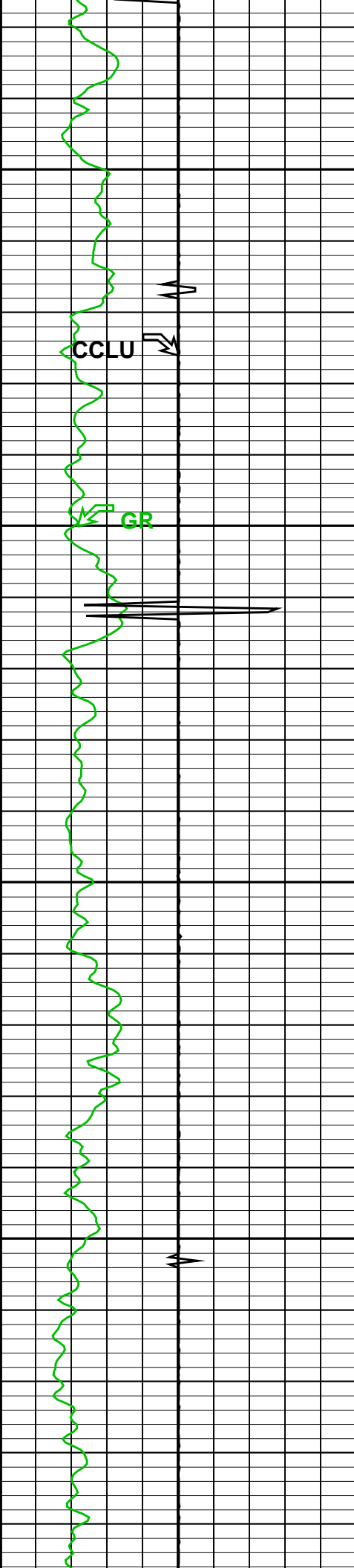


500

600

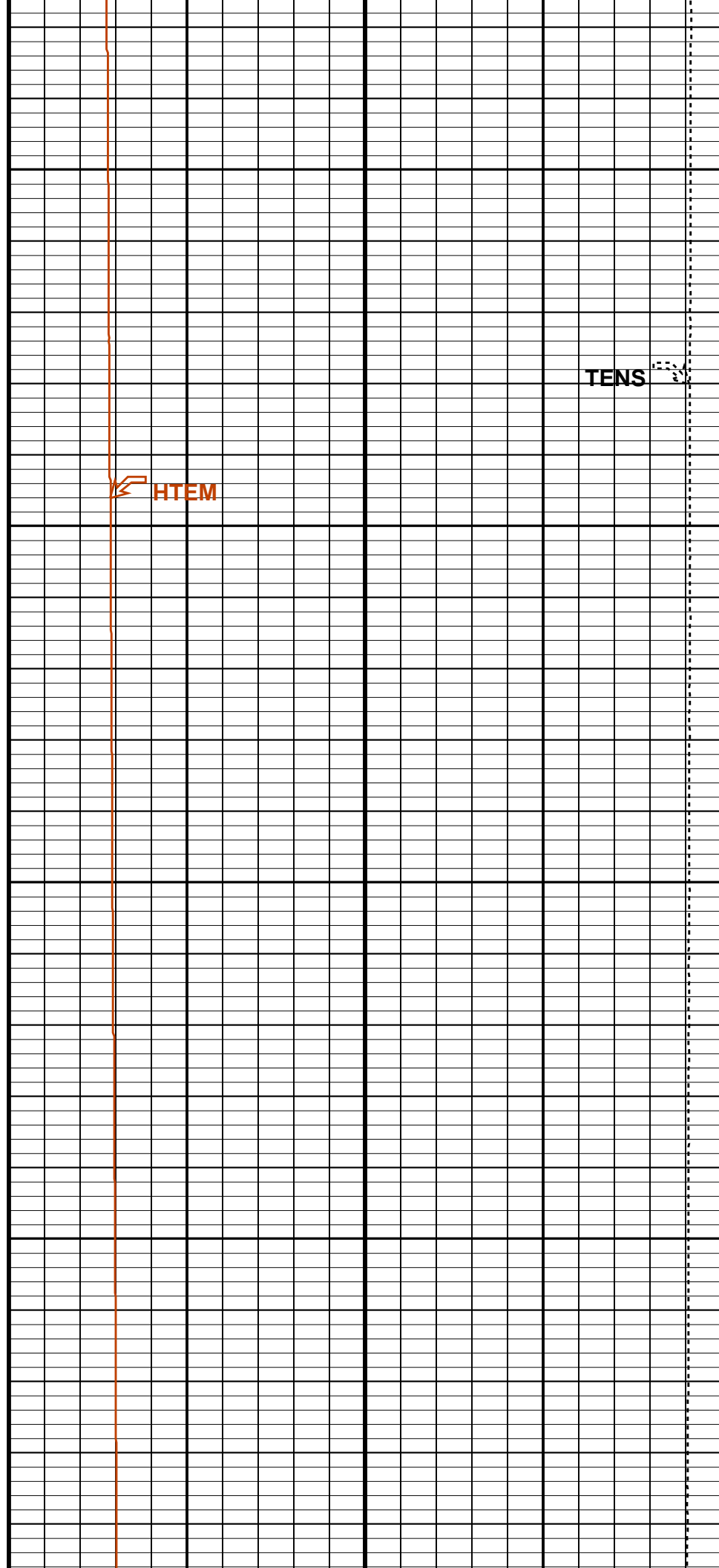


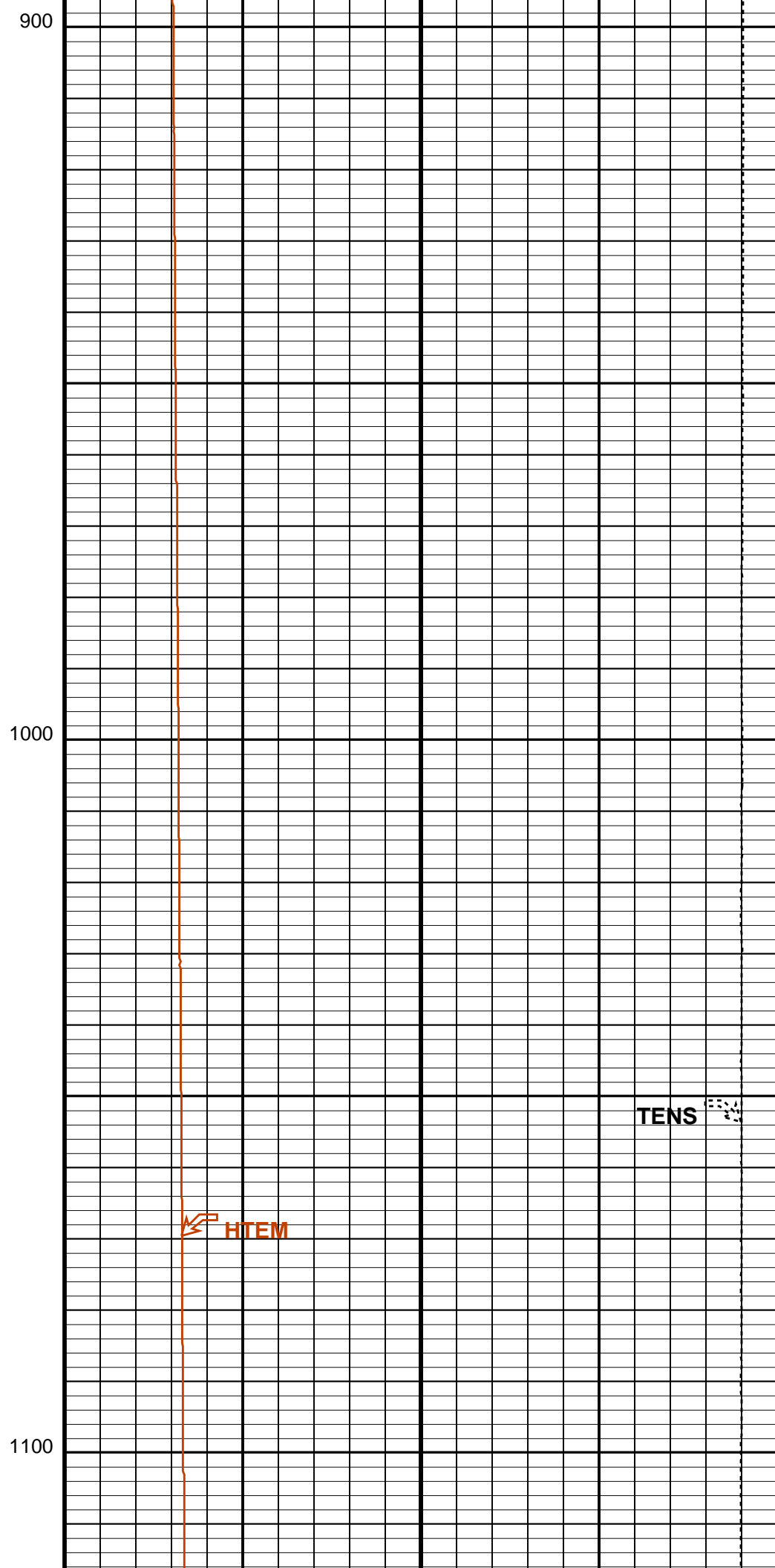
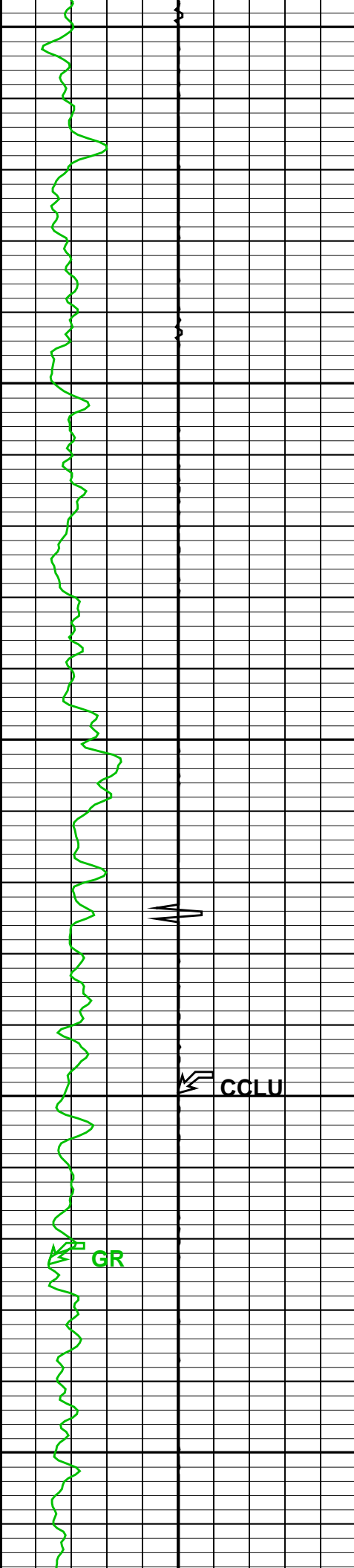


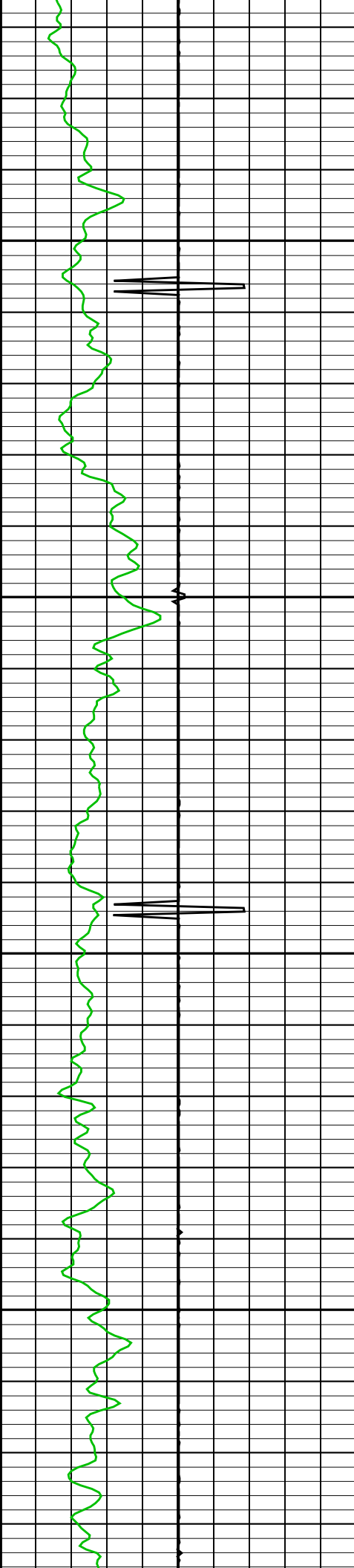


700

800

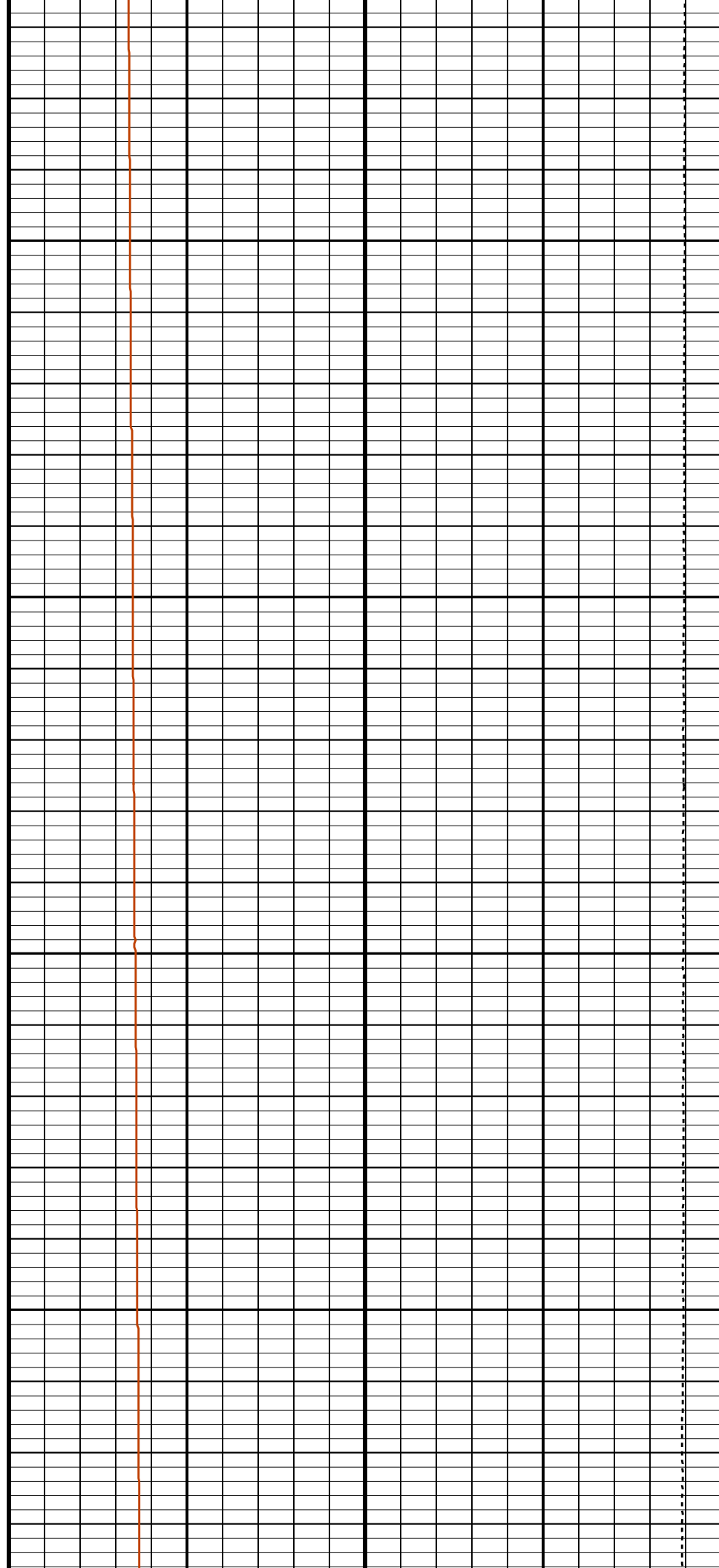


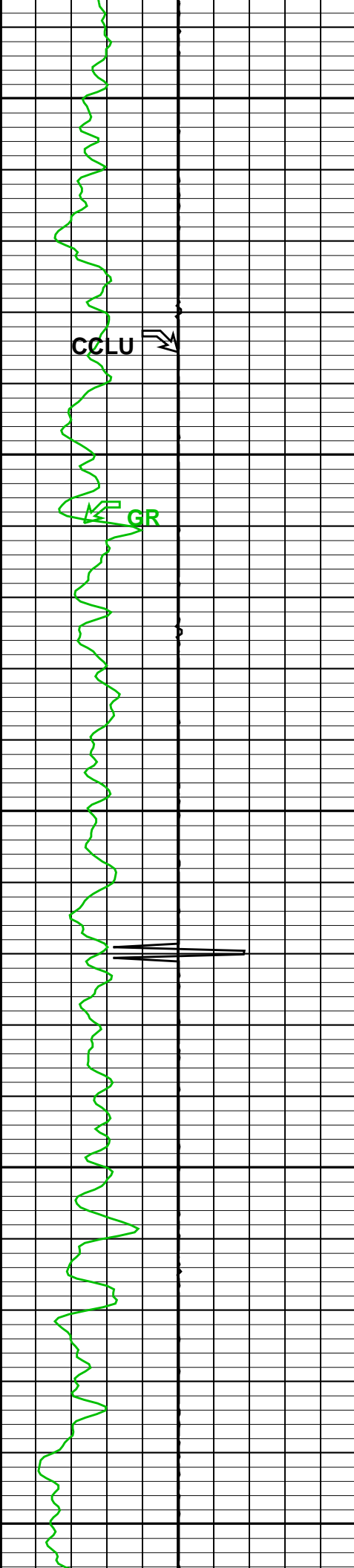




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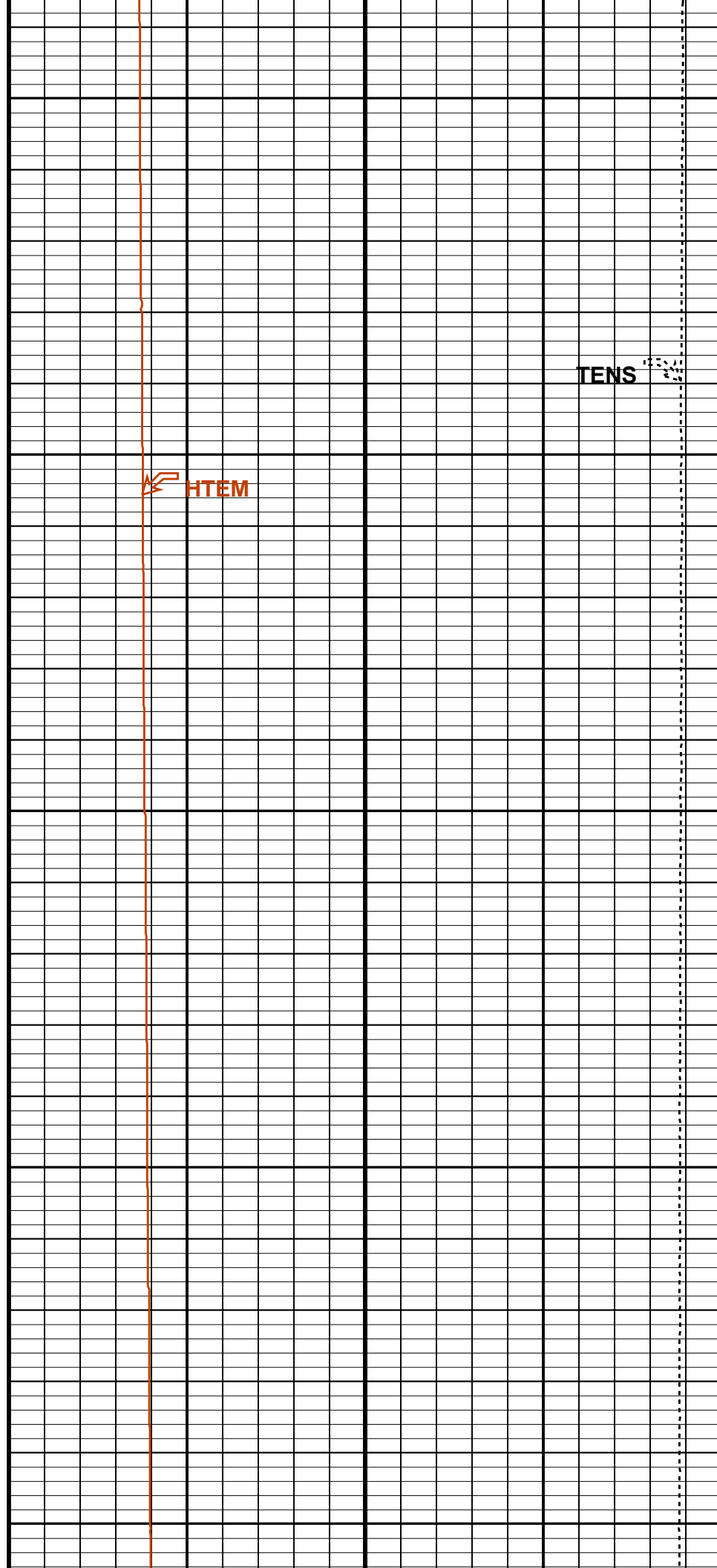
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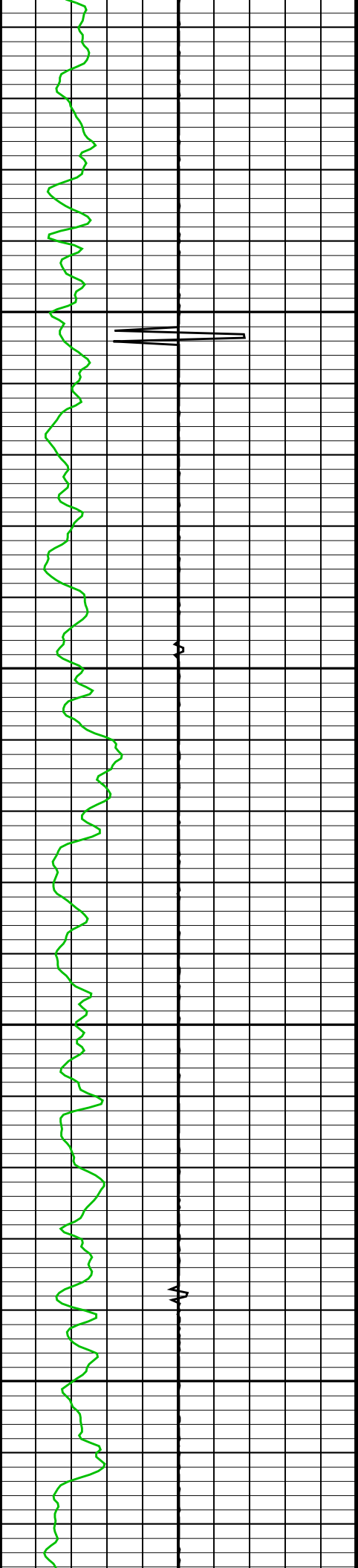




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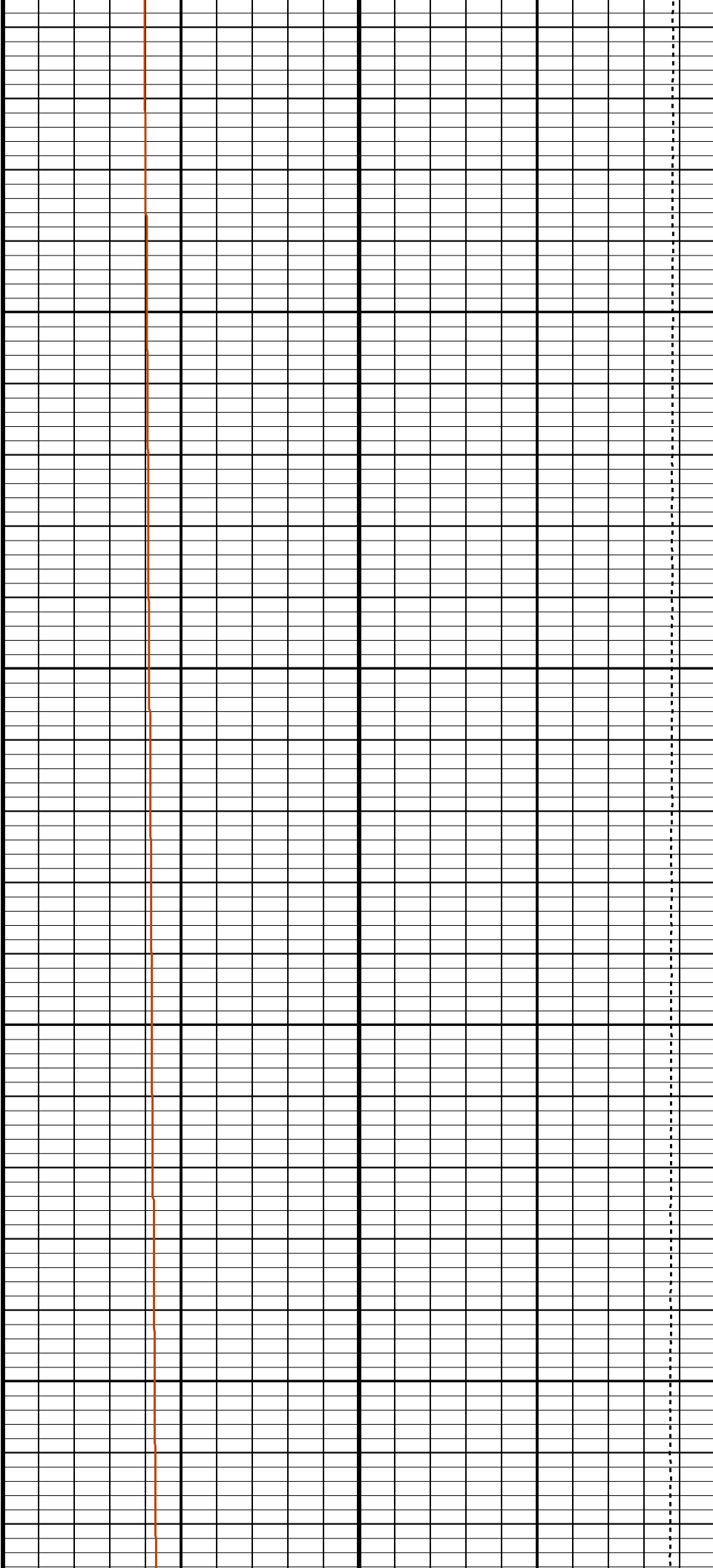
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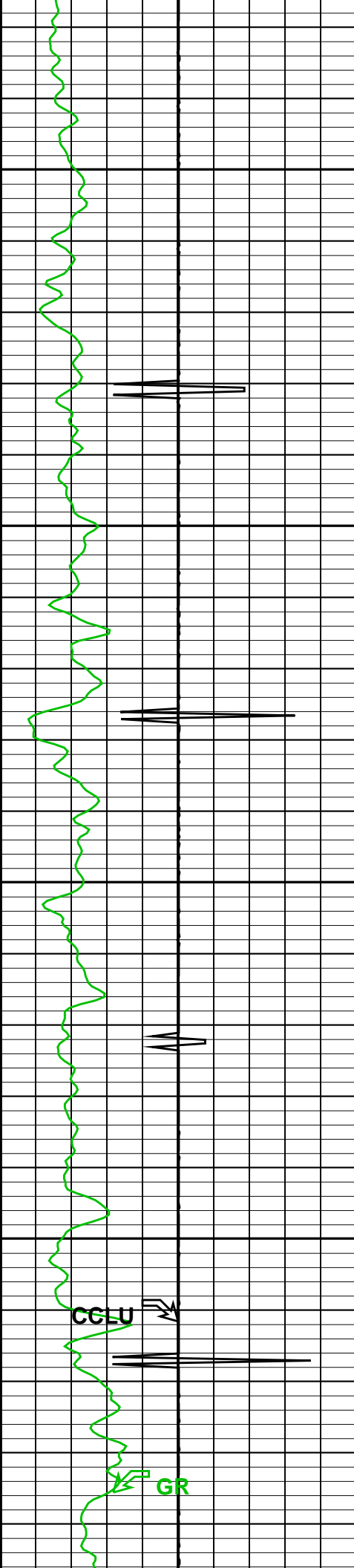




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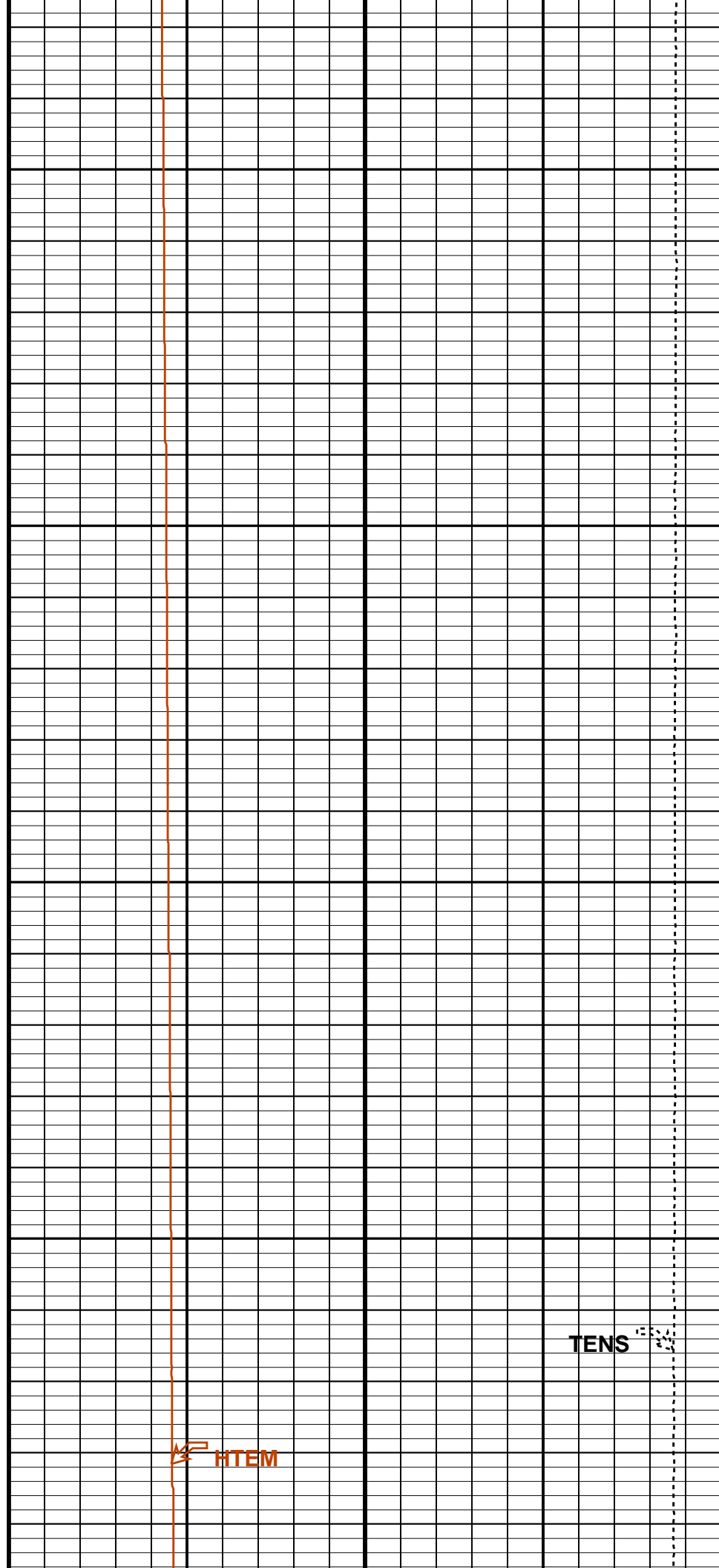
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1800

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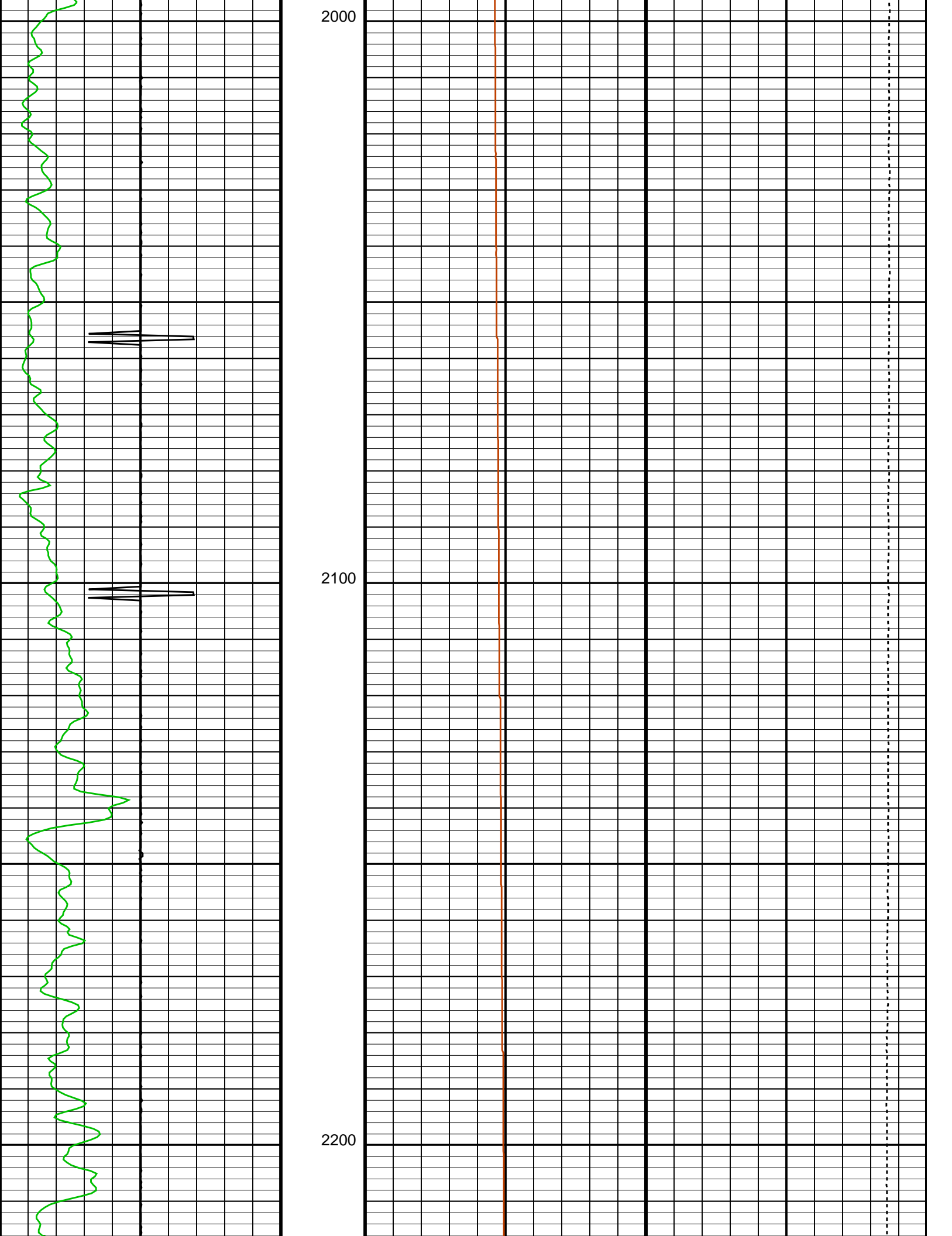


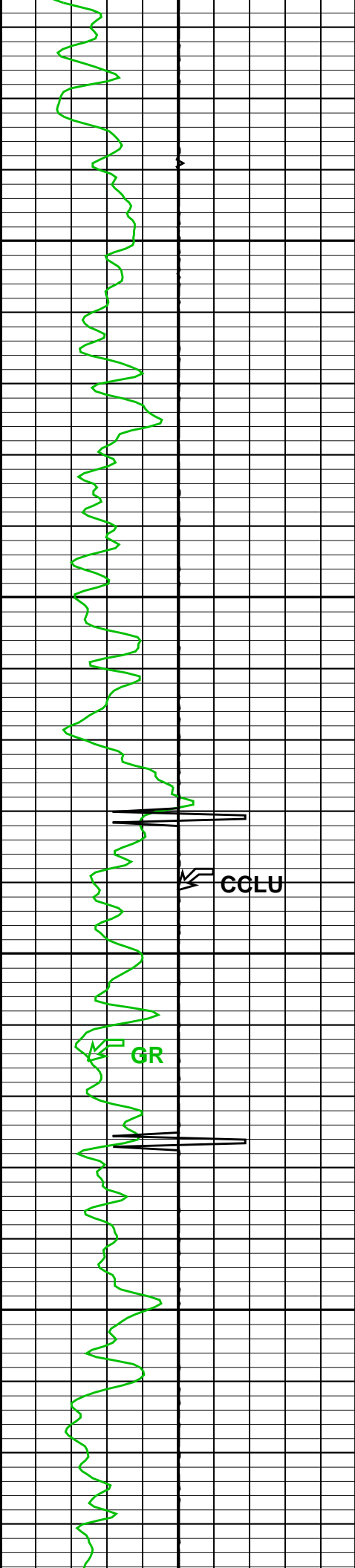
CGLU

GR

HTEM

TENS



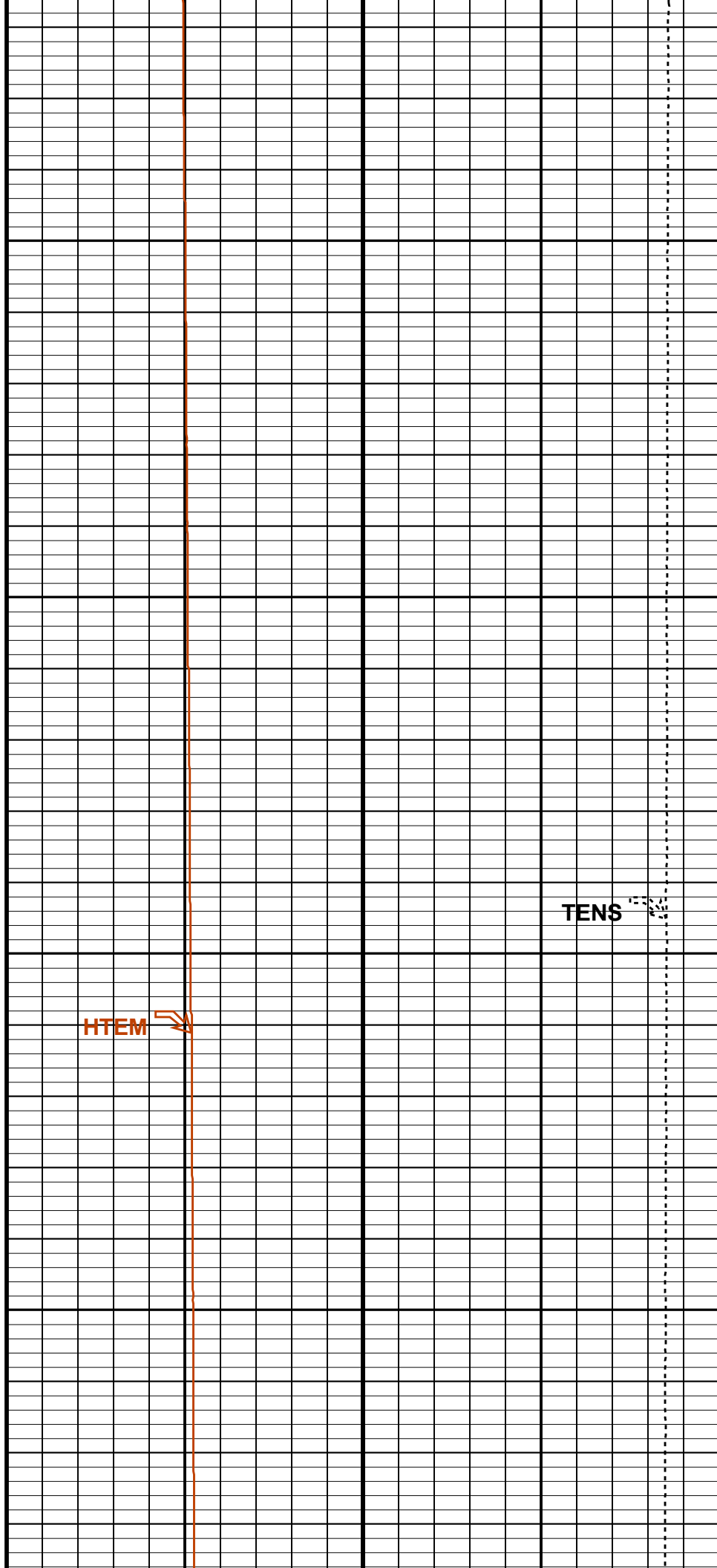


2300

CCLU

GR

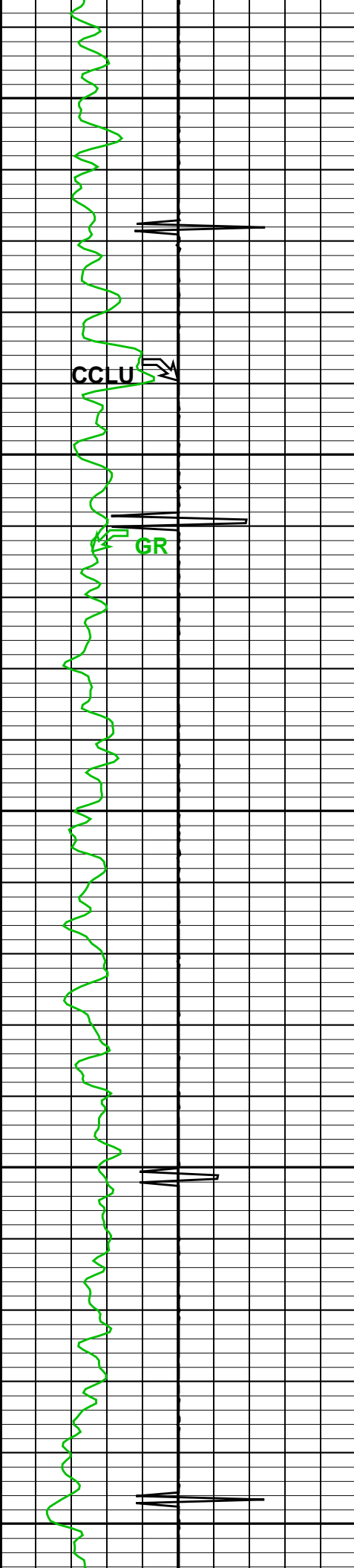
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HTEM

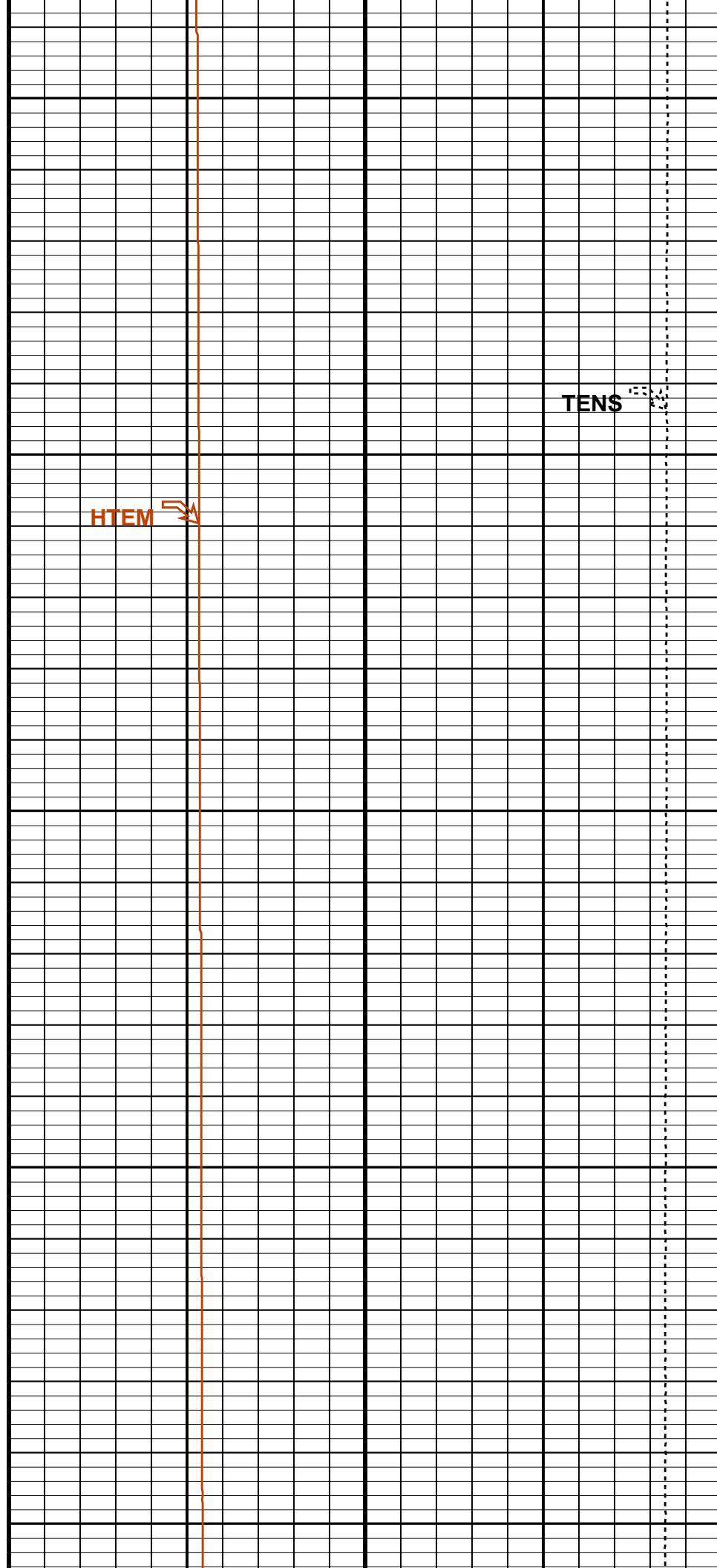
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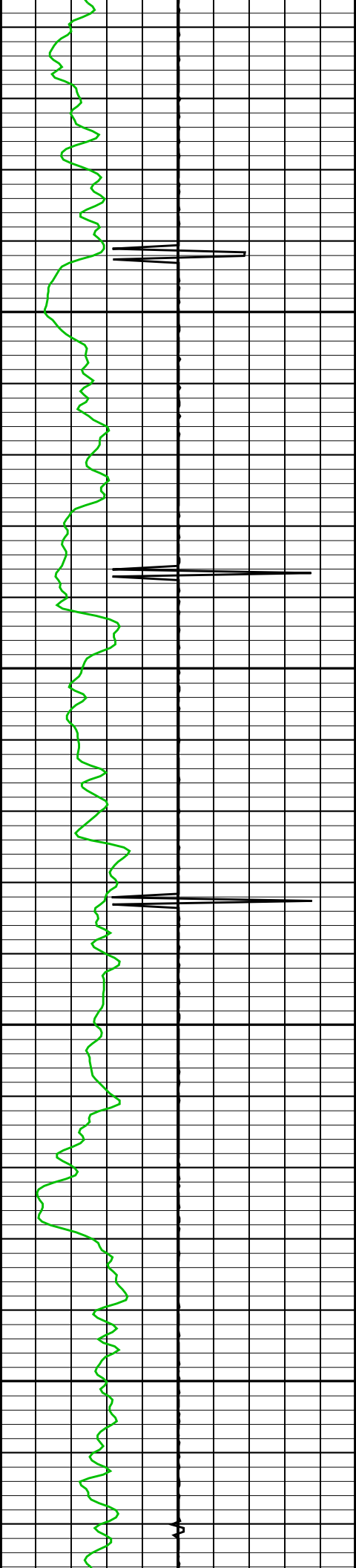




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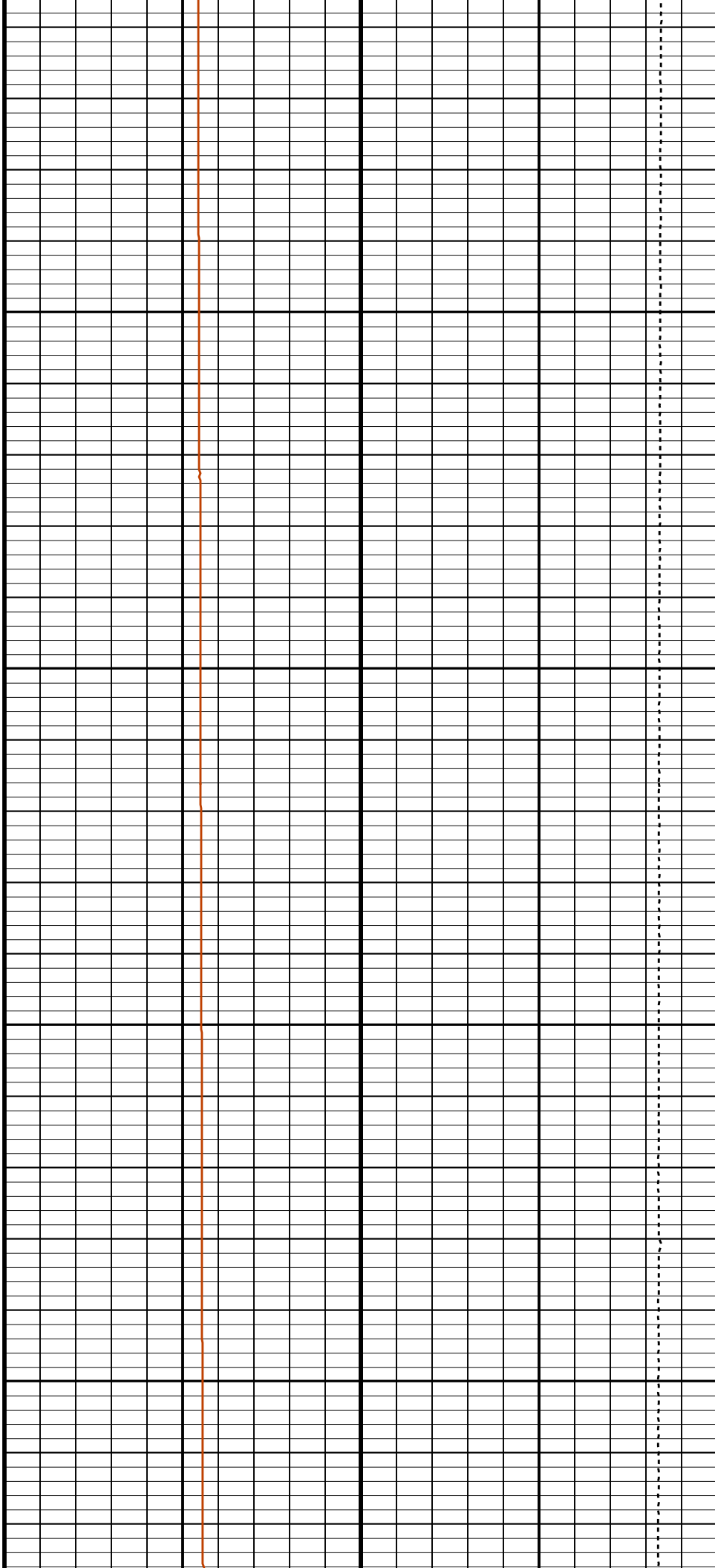
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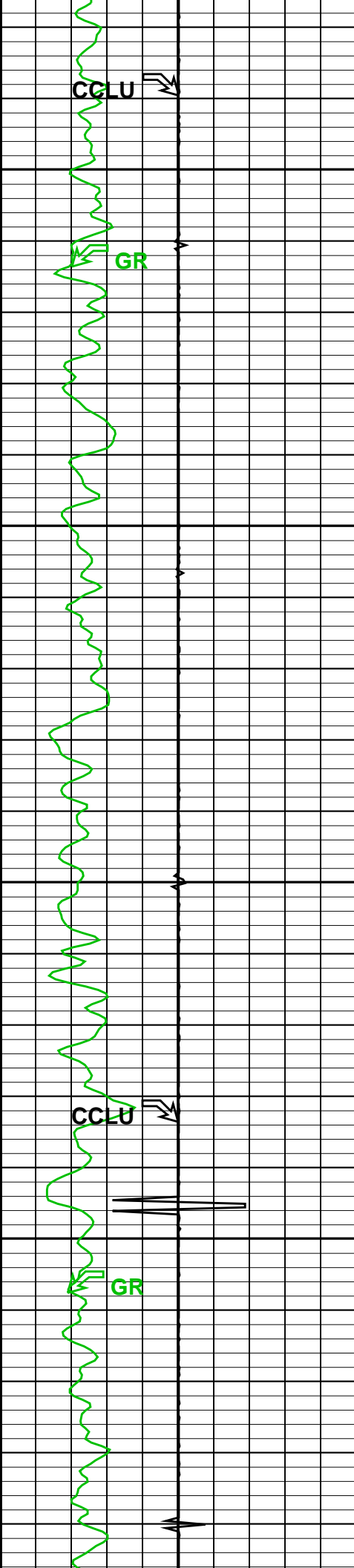




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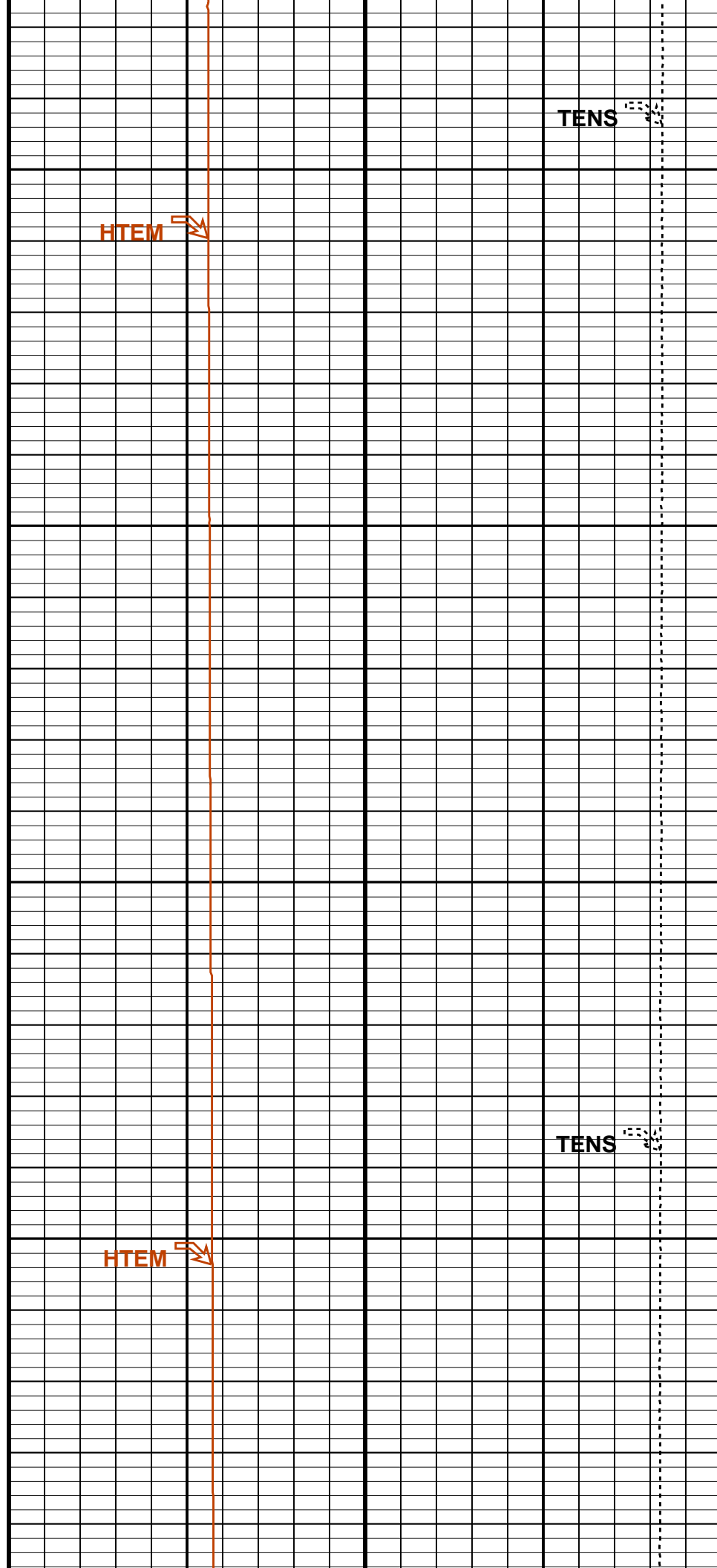
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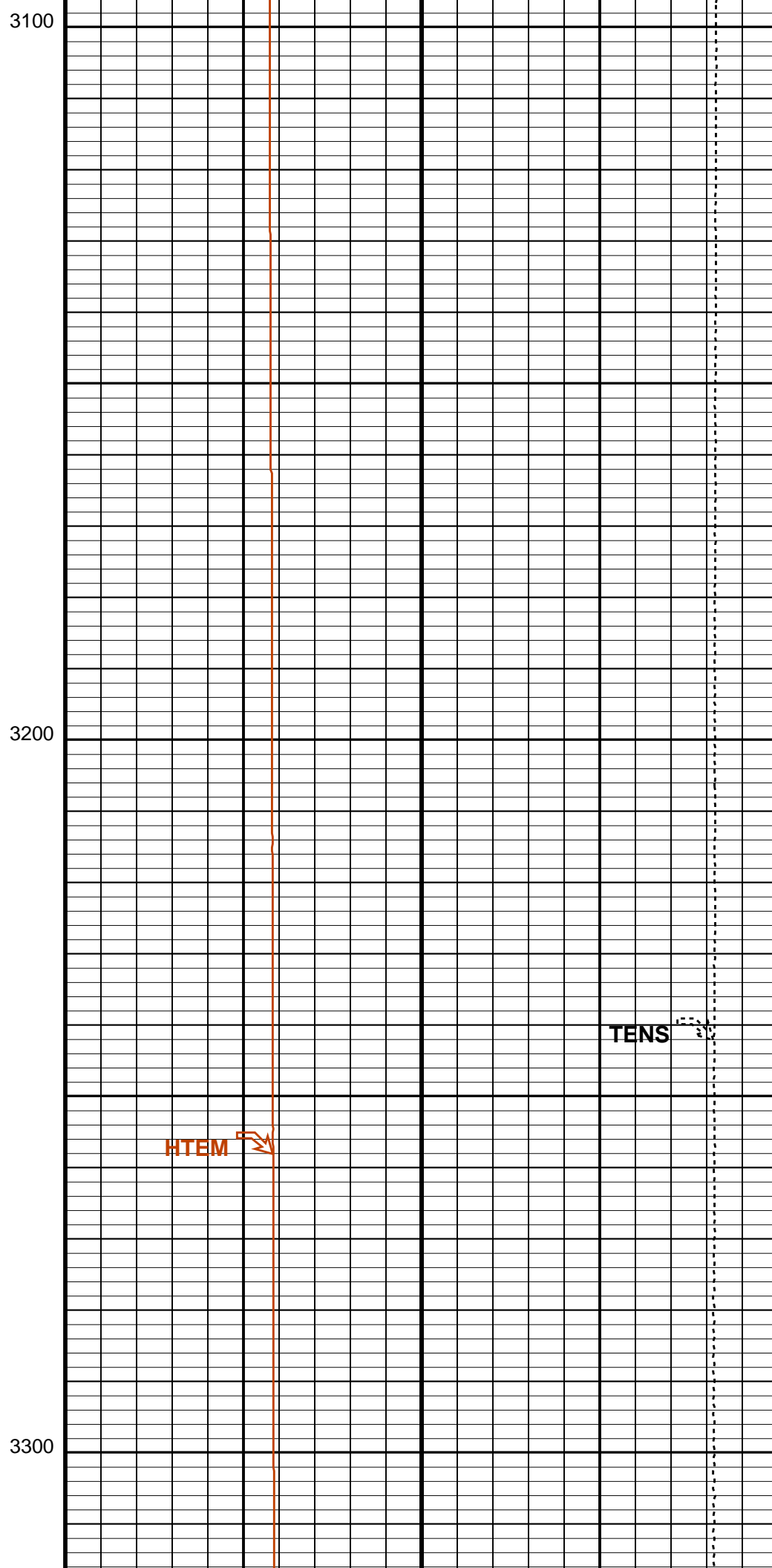
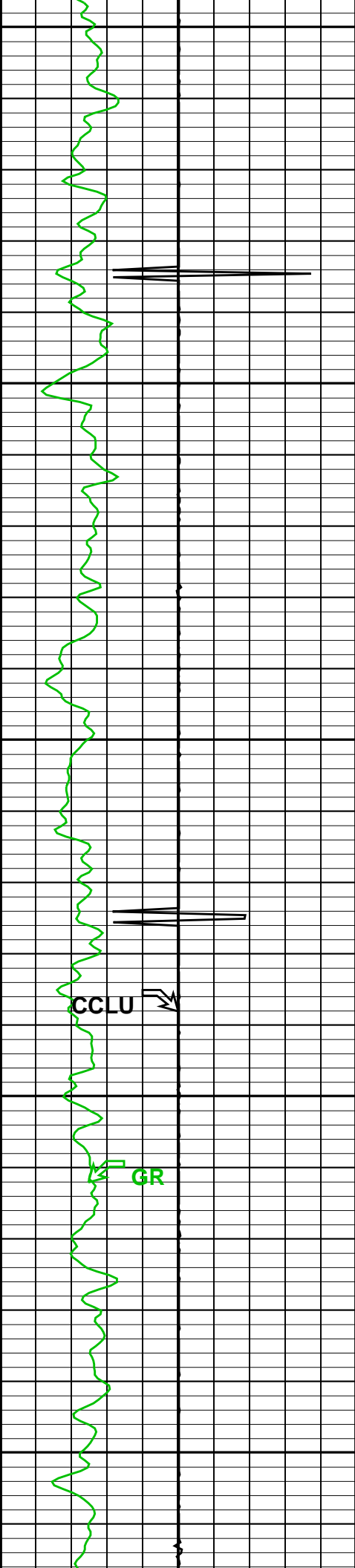


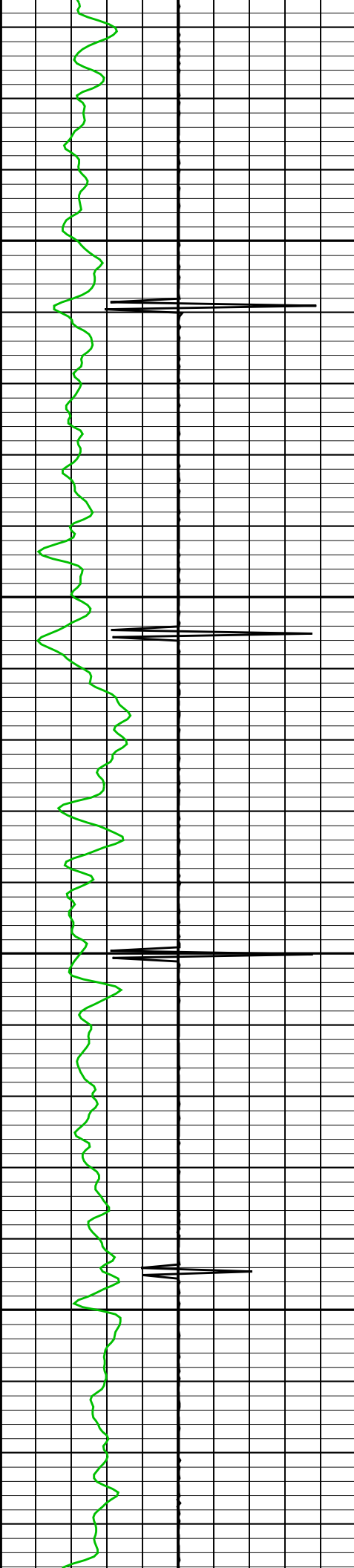


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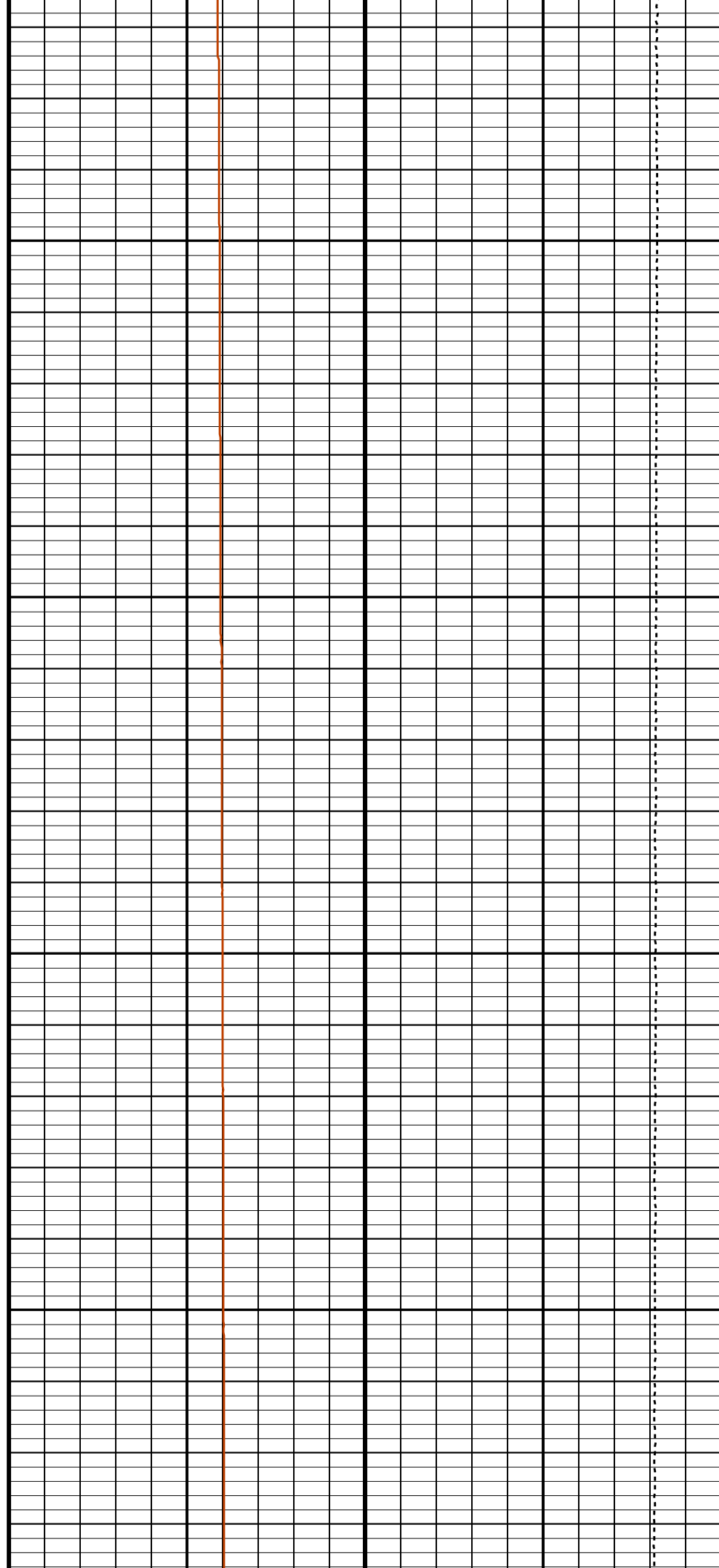


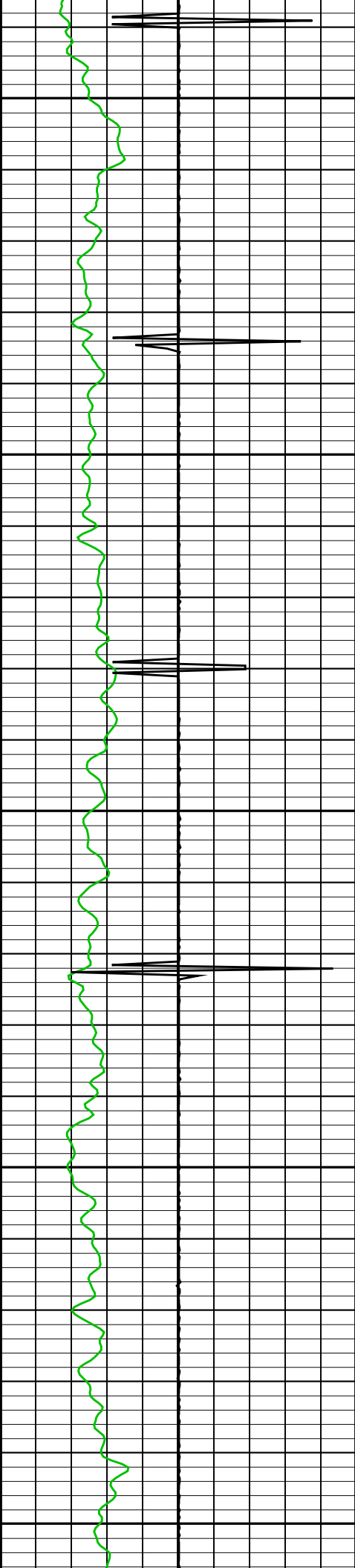




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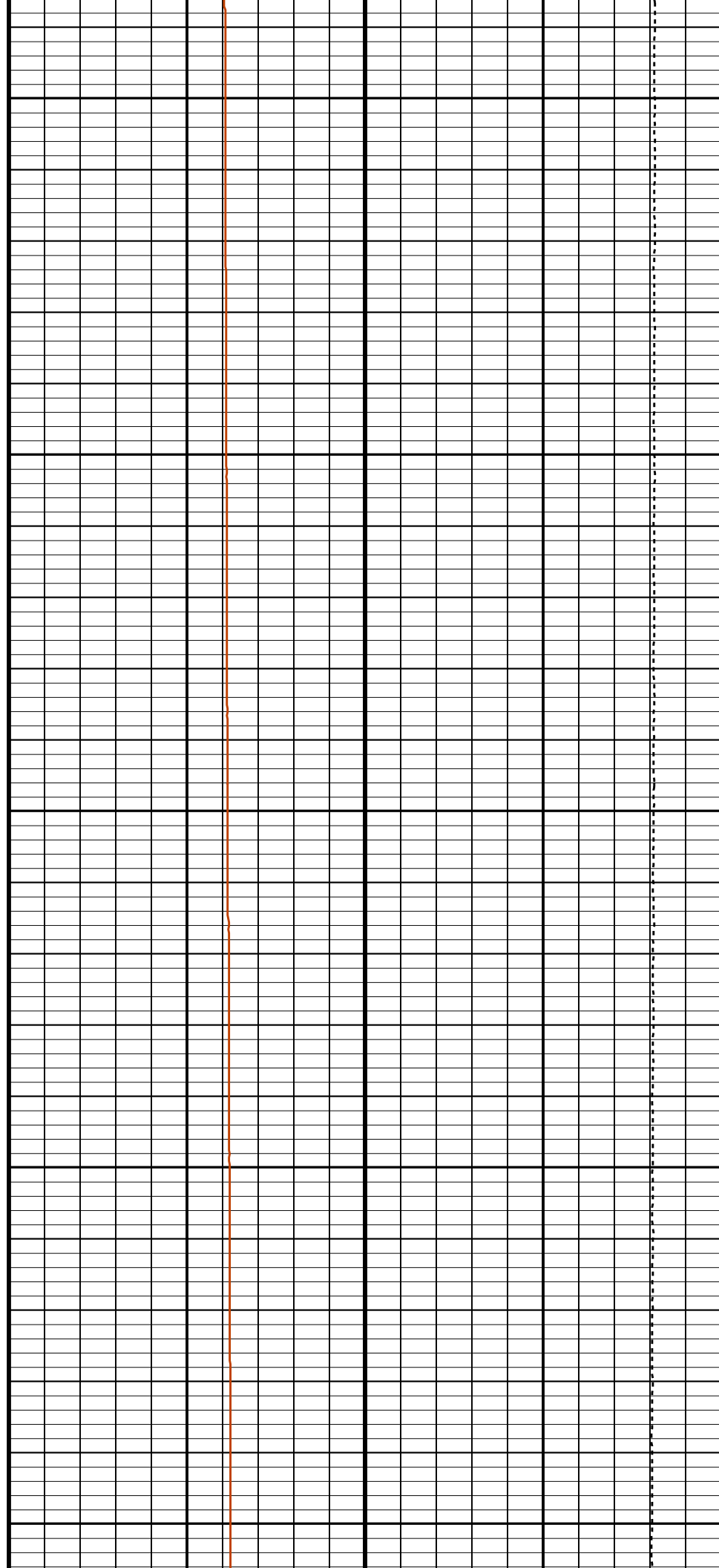
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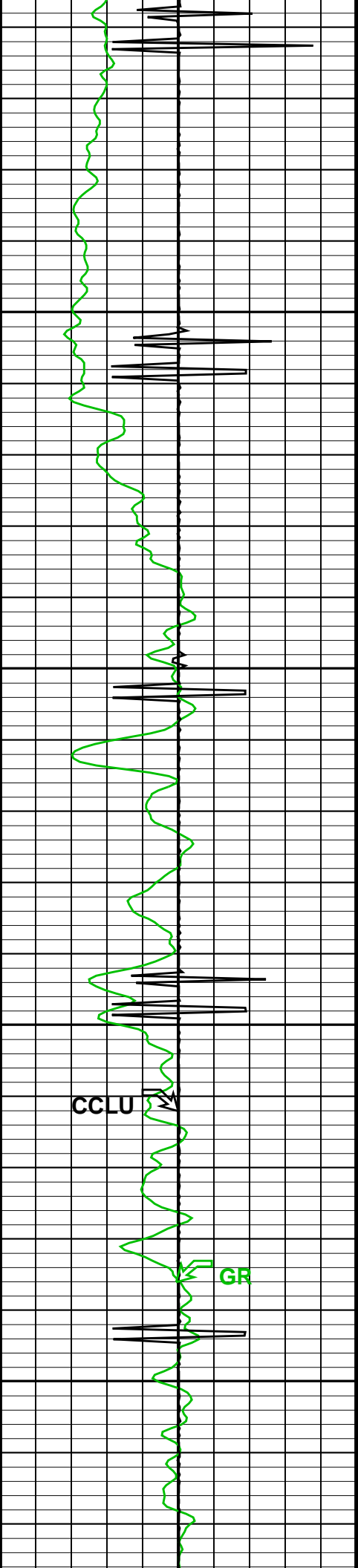




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3700





3800

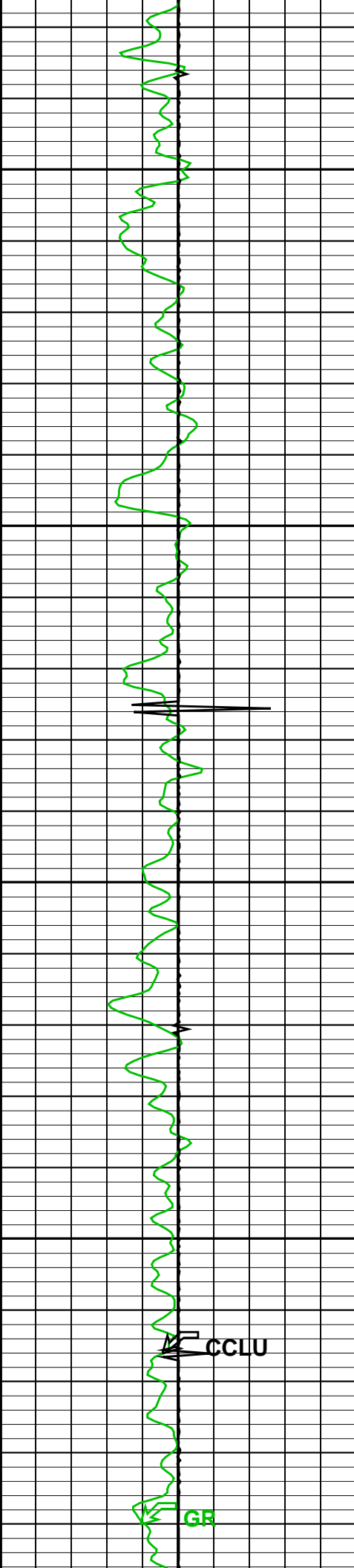
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CCLU

GR

HTEM

TENS



4000

4100

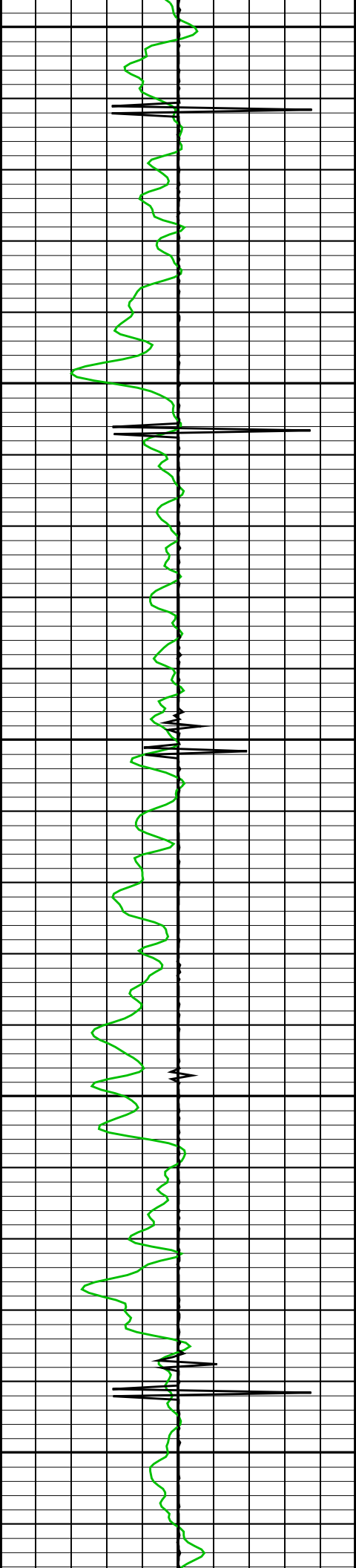
CCLU

GR

HTEM

TENS

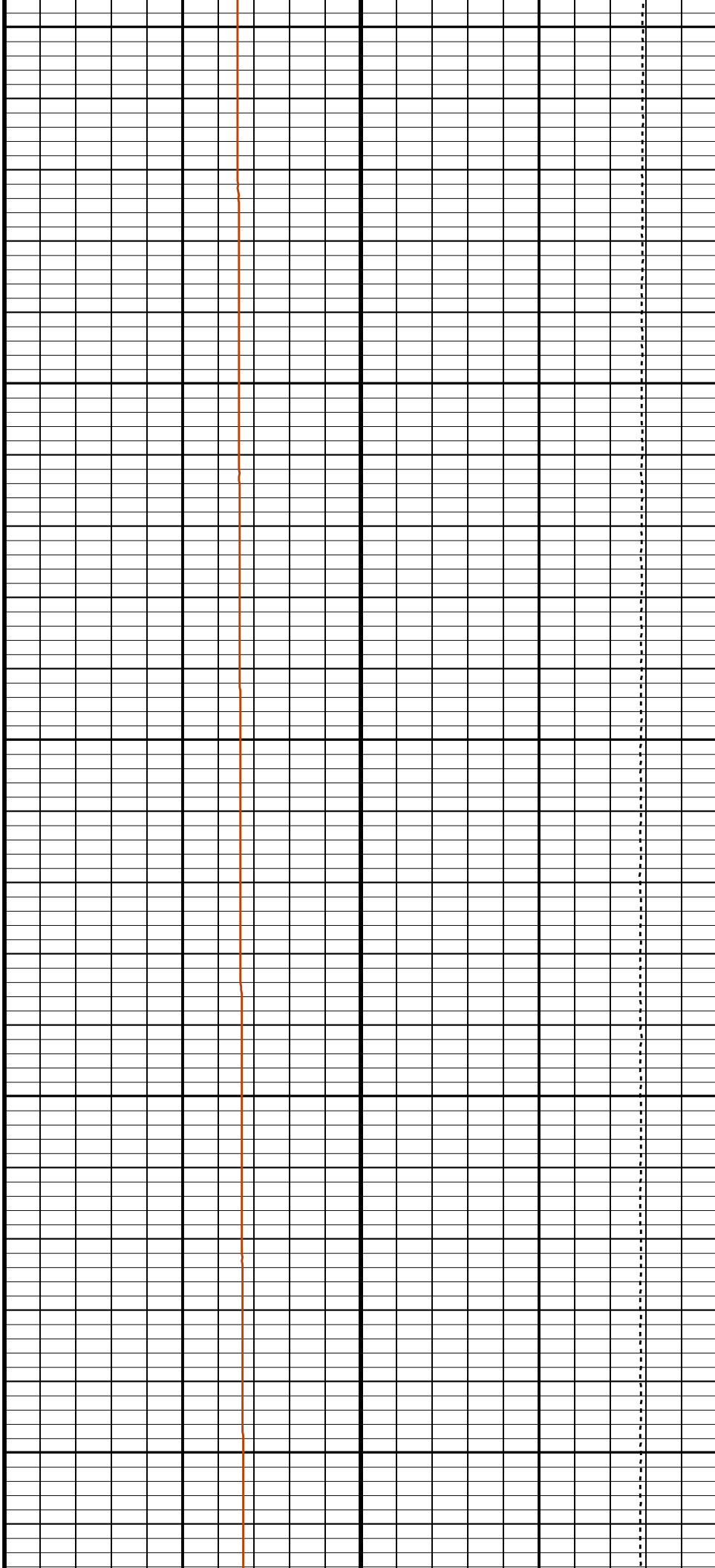


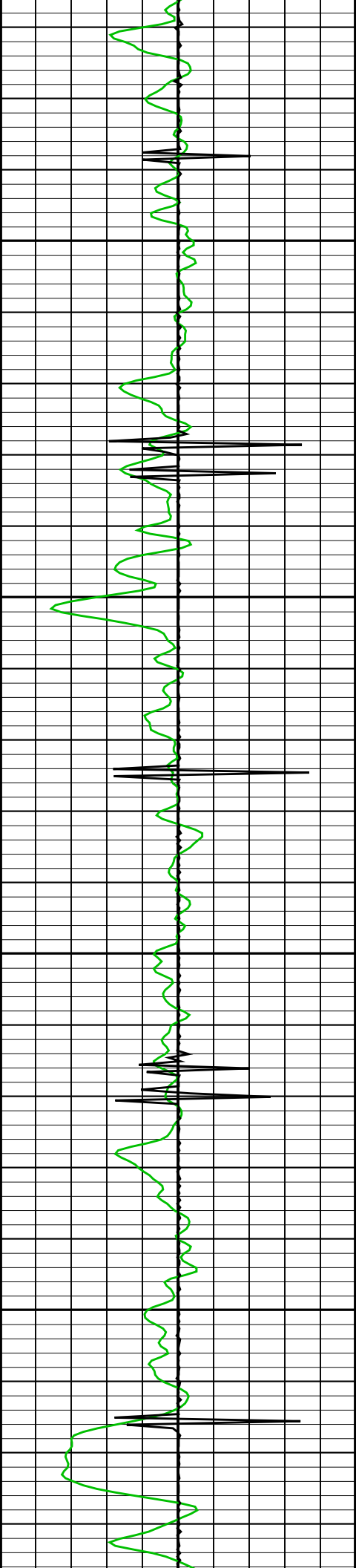


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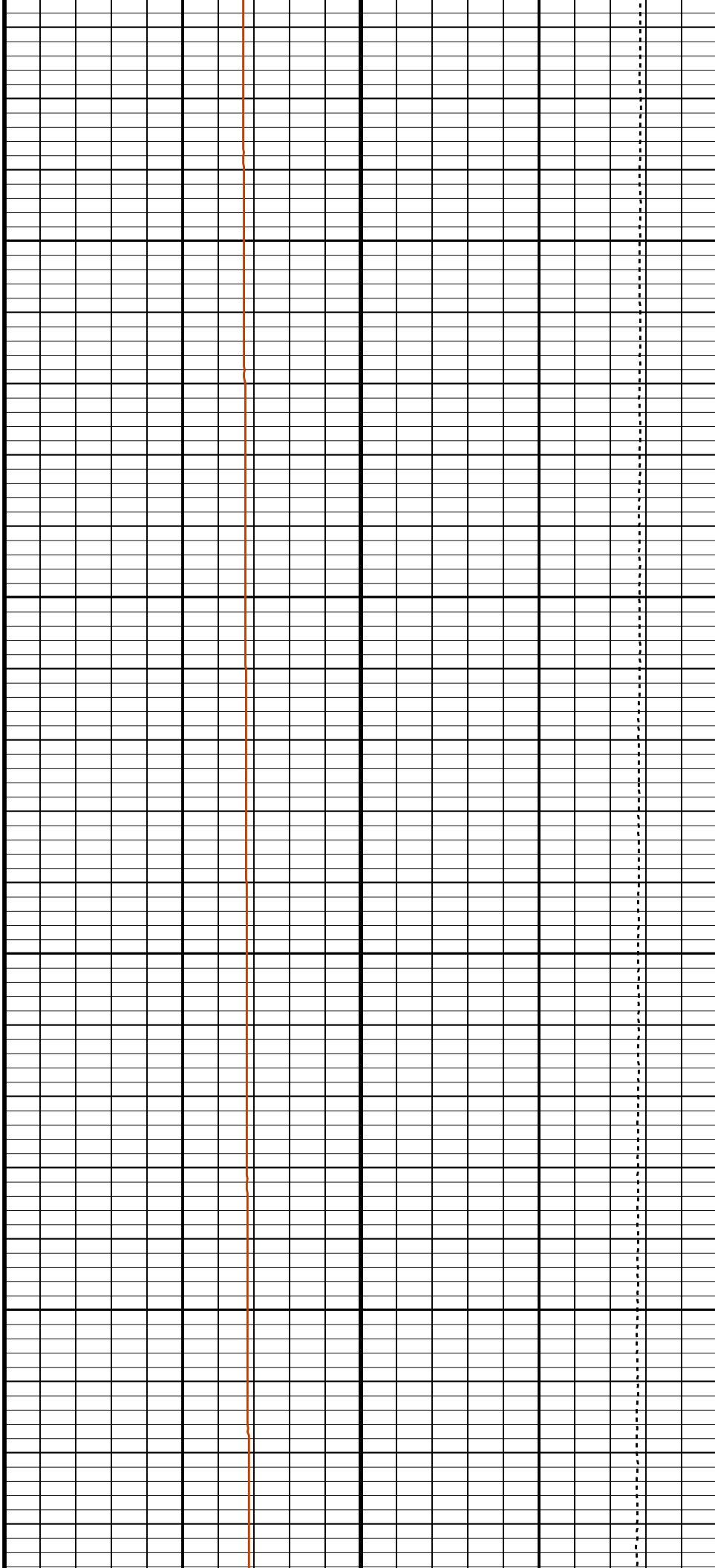
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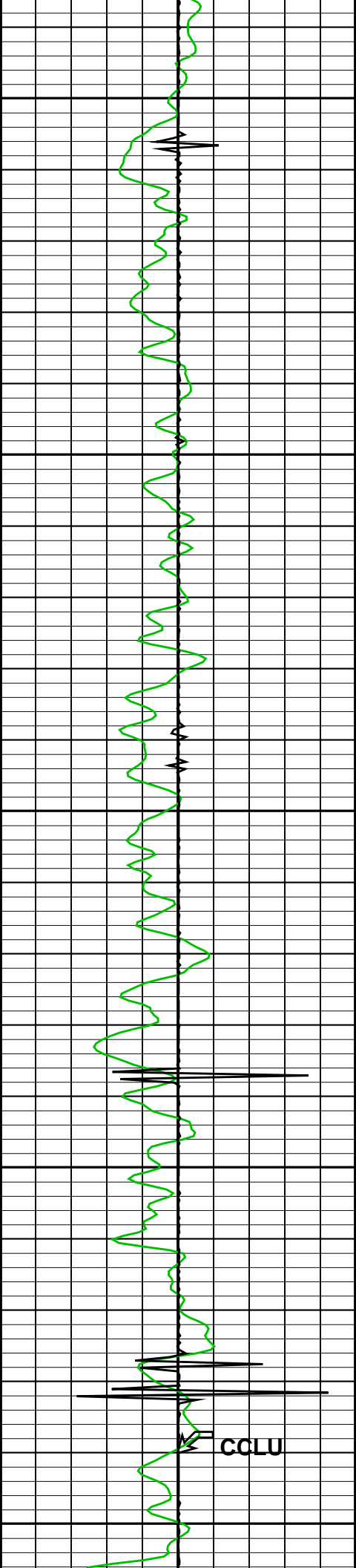




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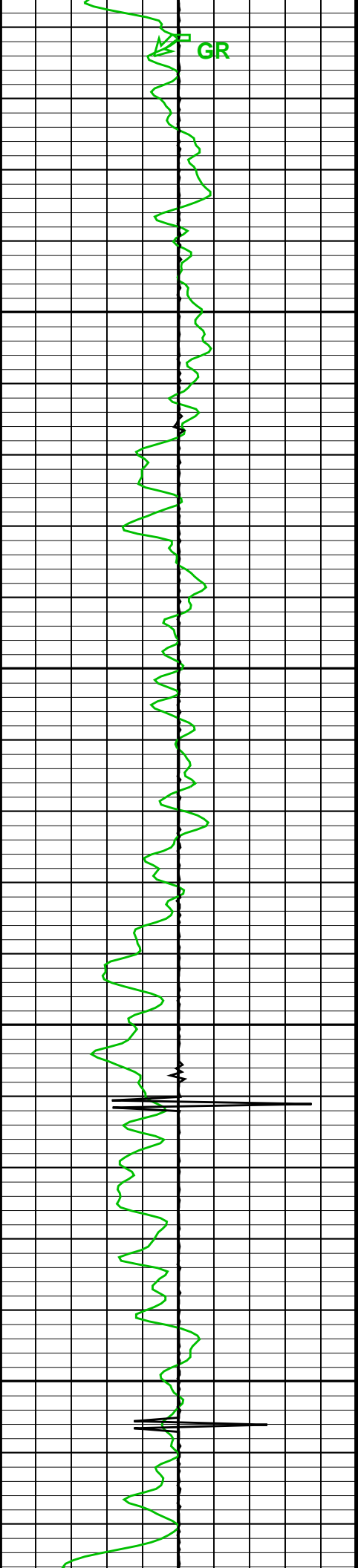
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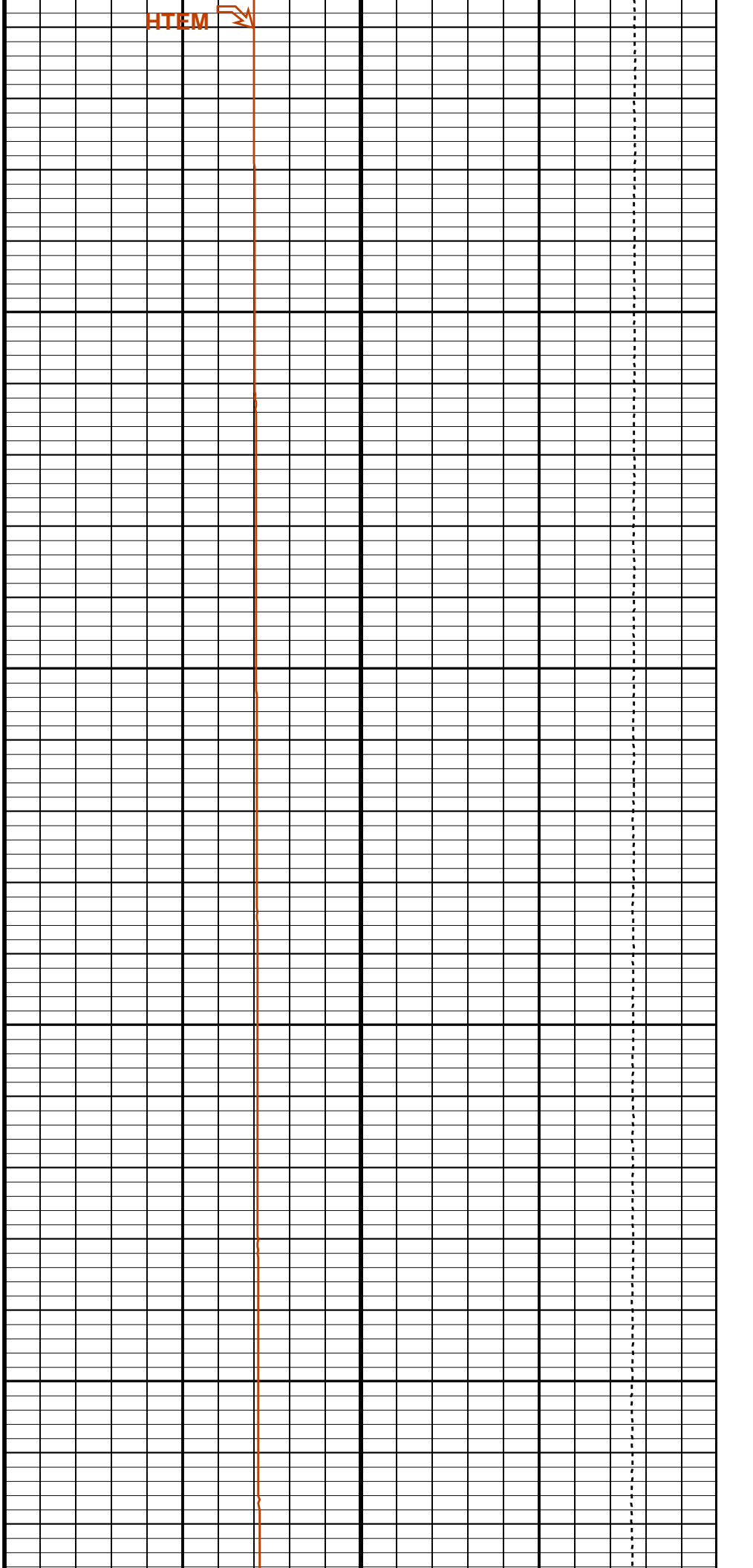
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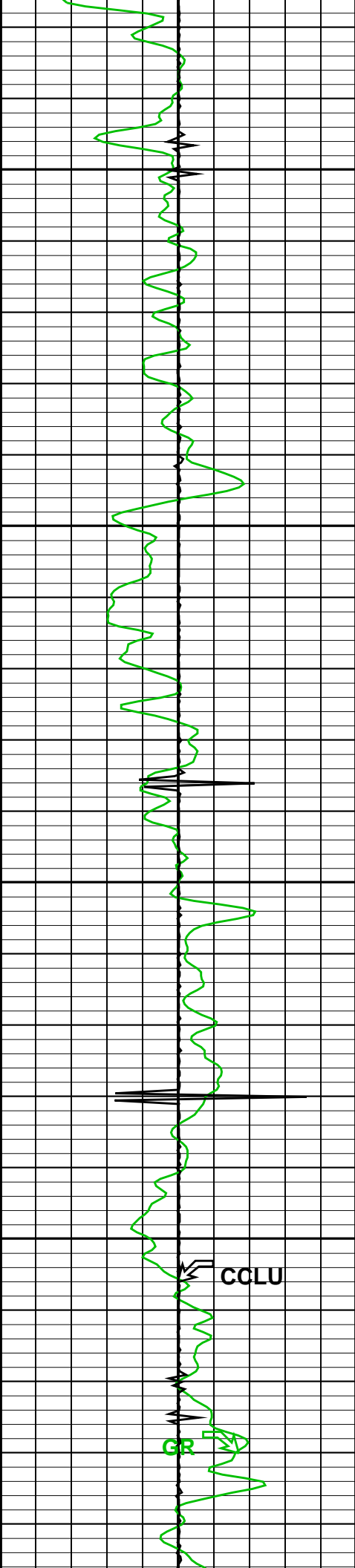


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HTEM



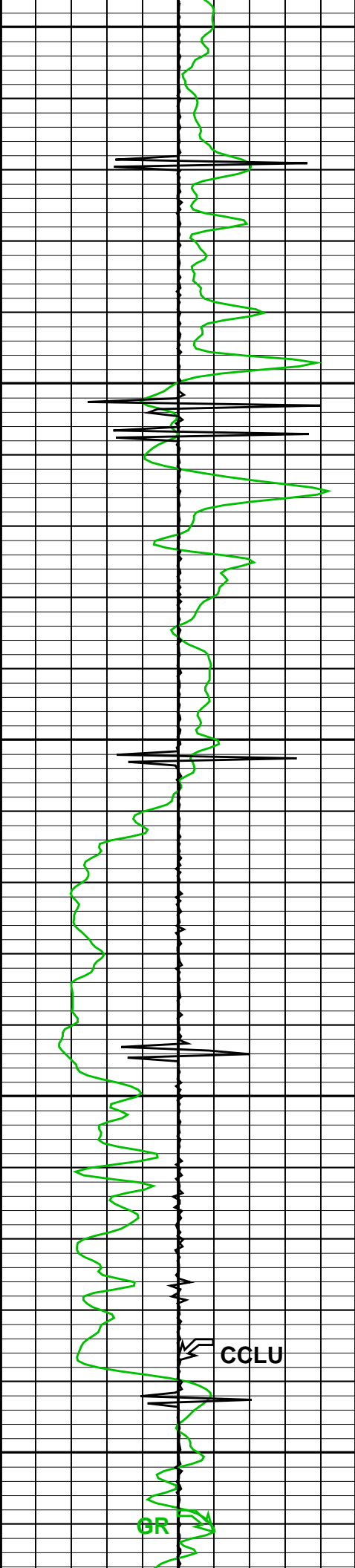
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CCLU

HTEM

TENS



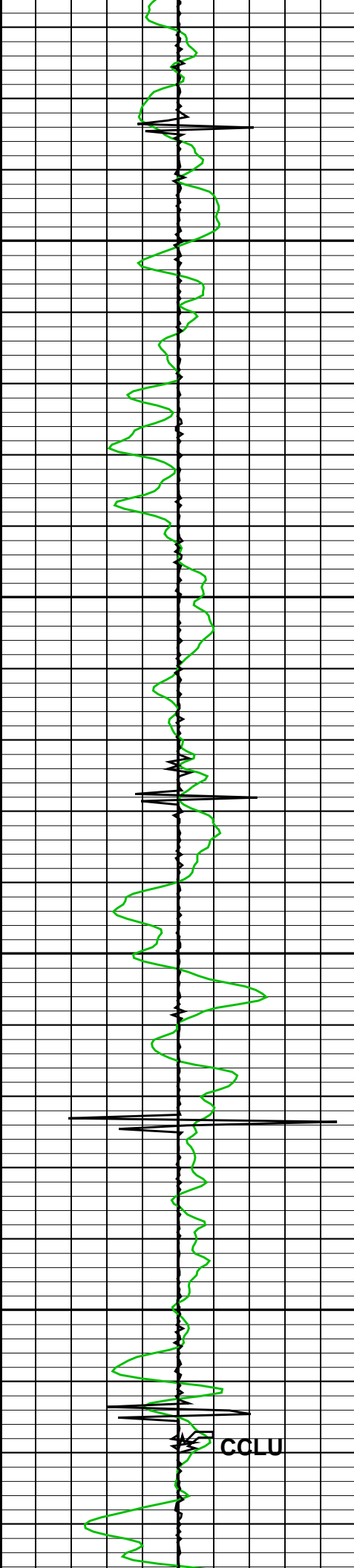
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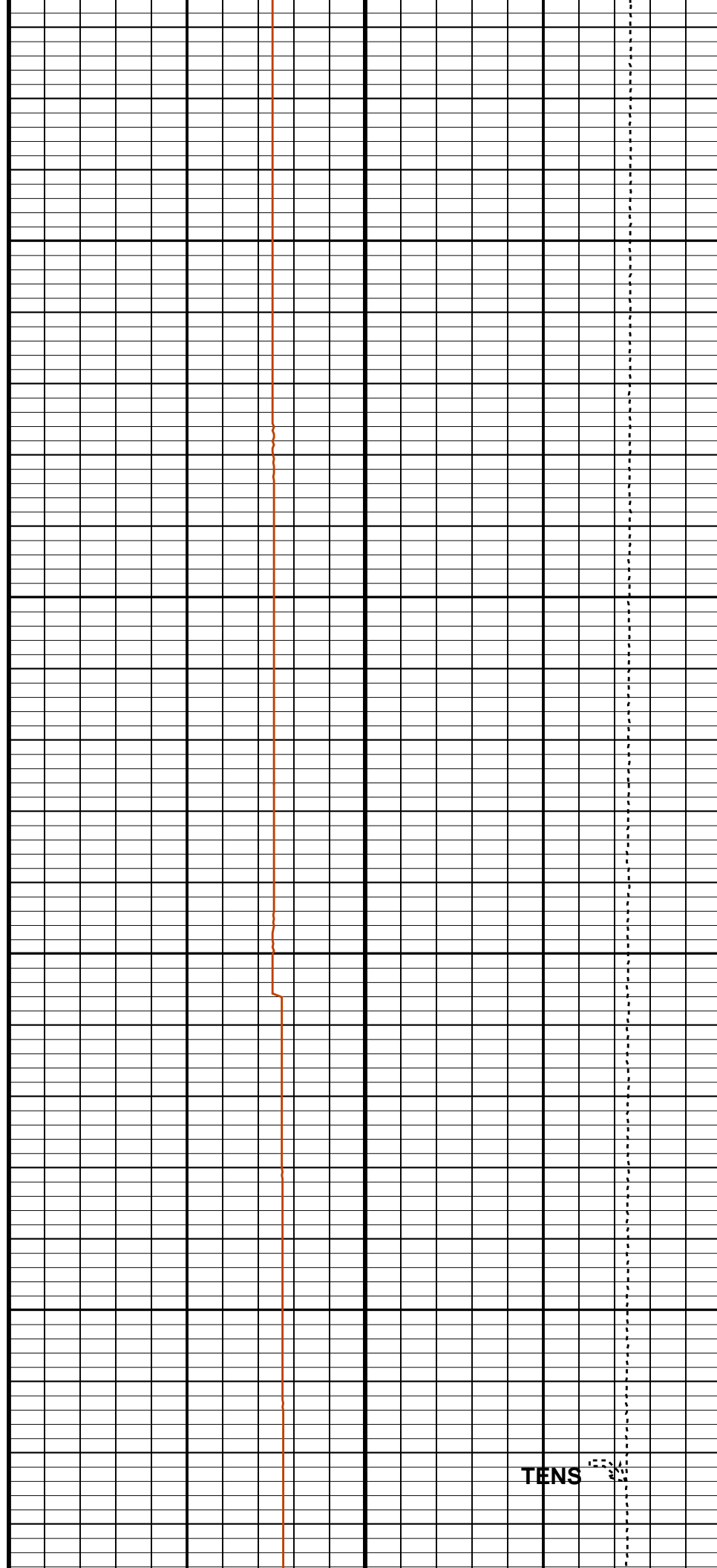
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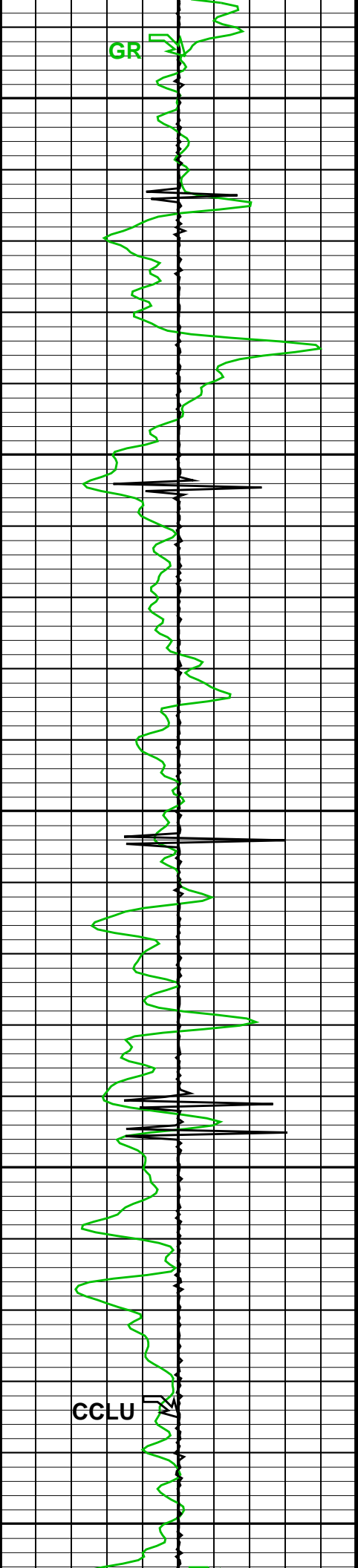
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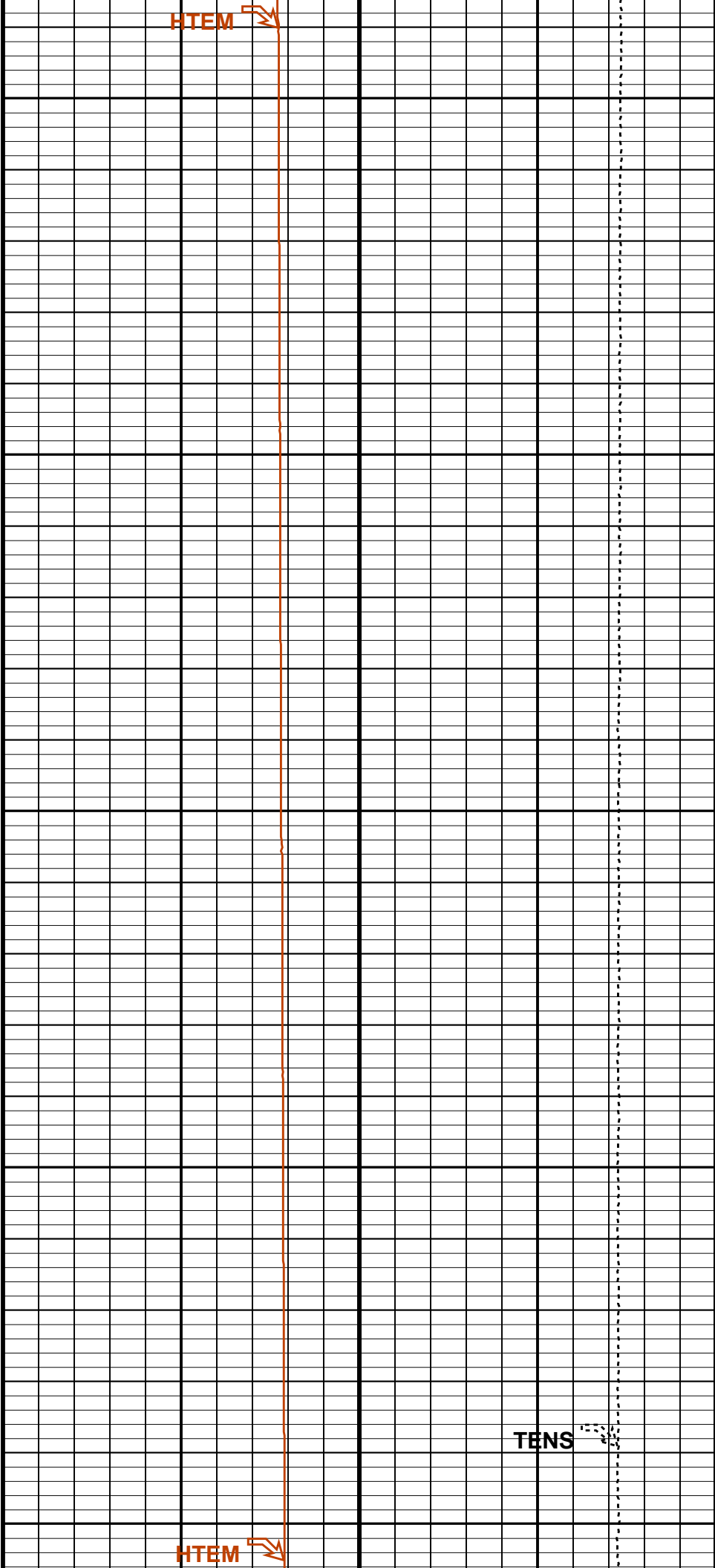
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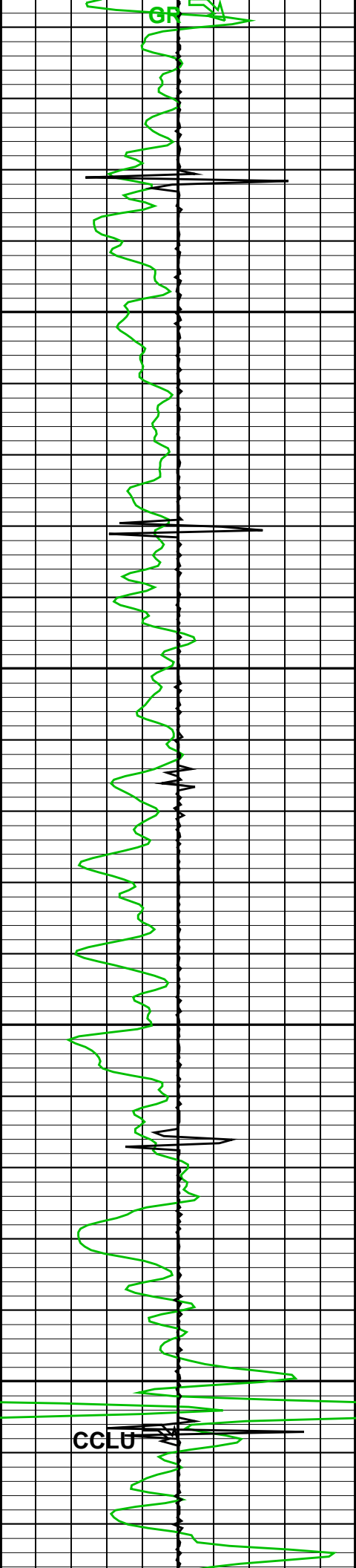


HTEM

HTEM

TENS



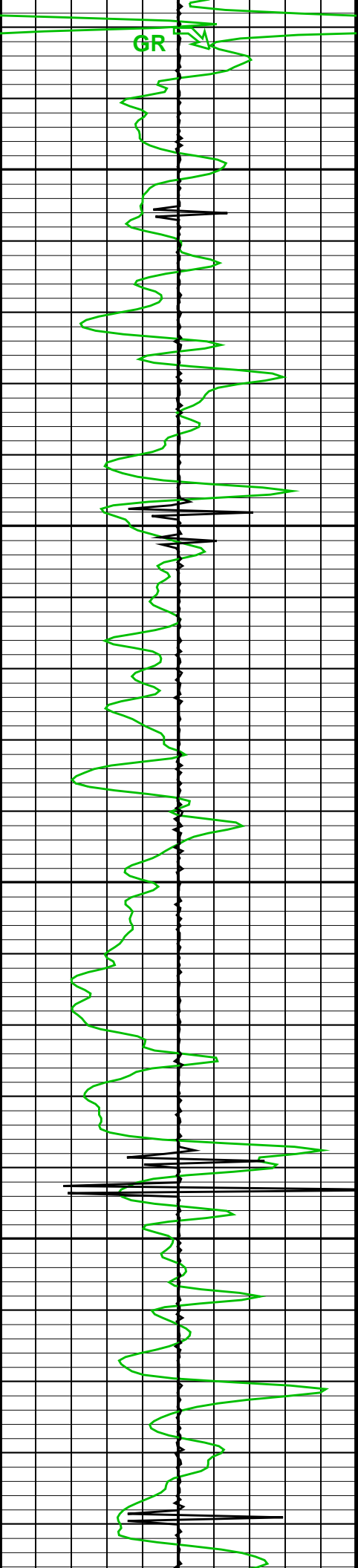


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CCLU

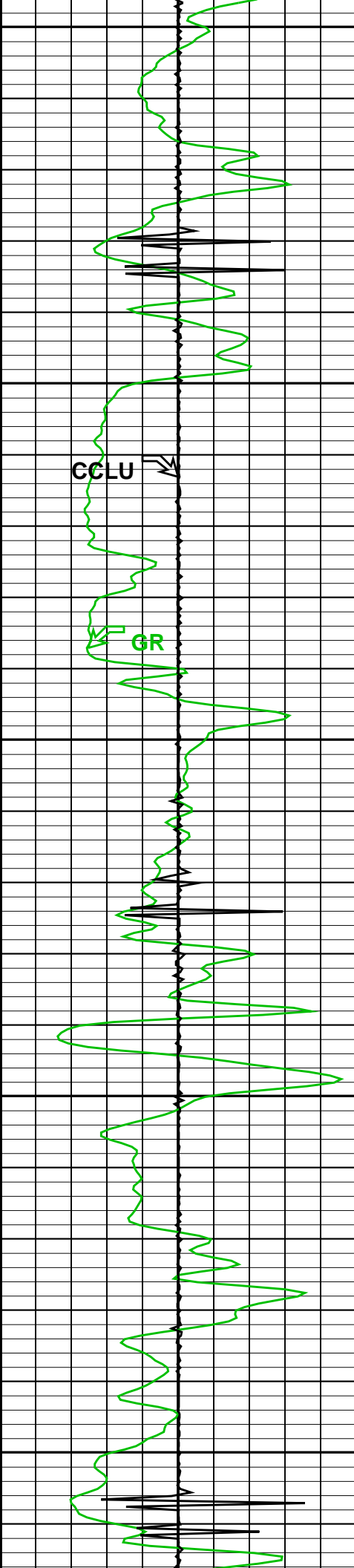
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6200

6300

HTEM



6400

6500

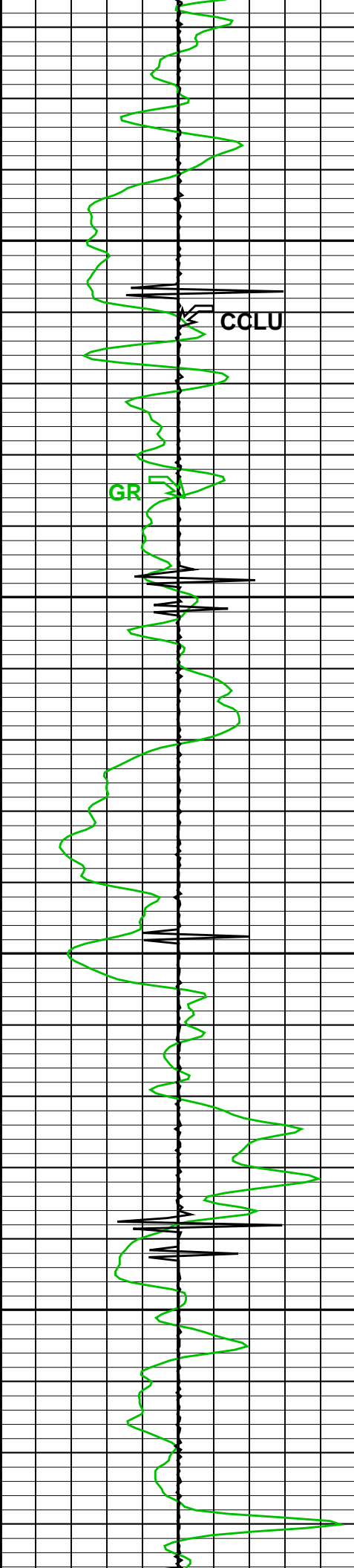
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CCLU

GR

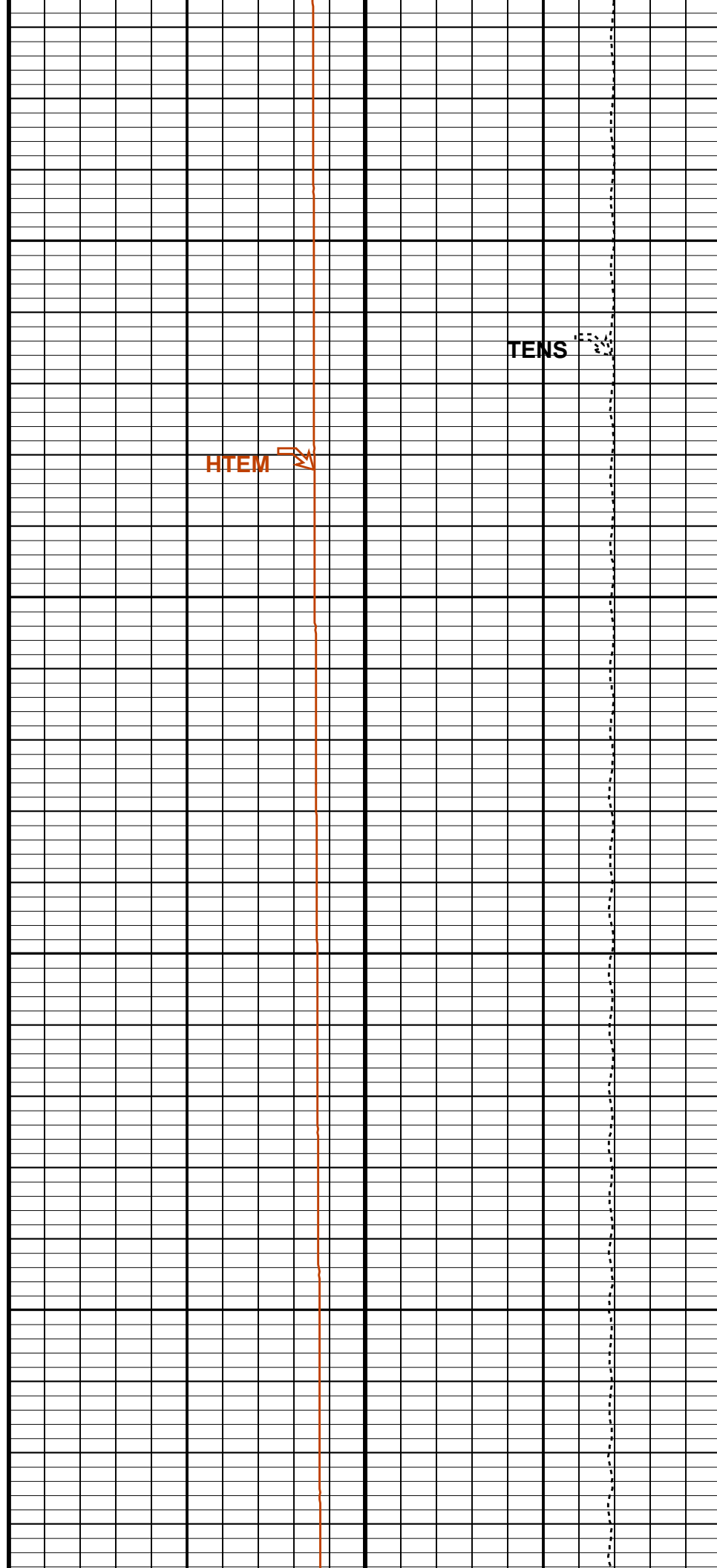
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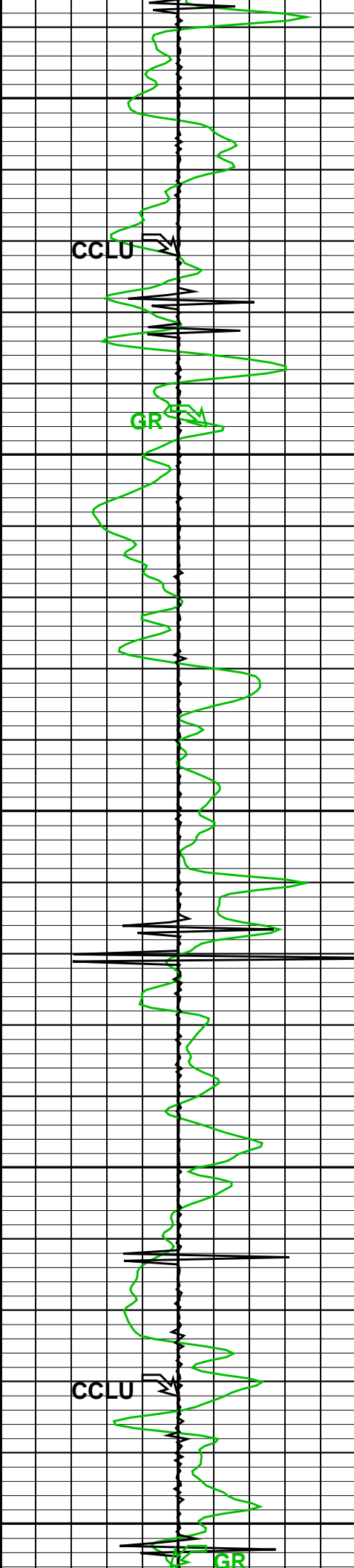
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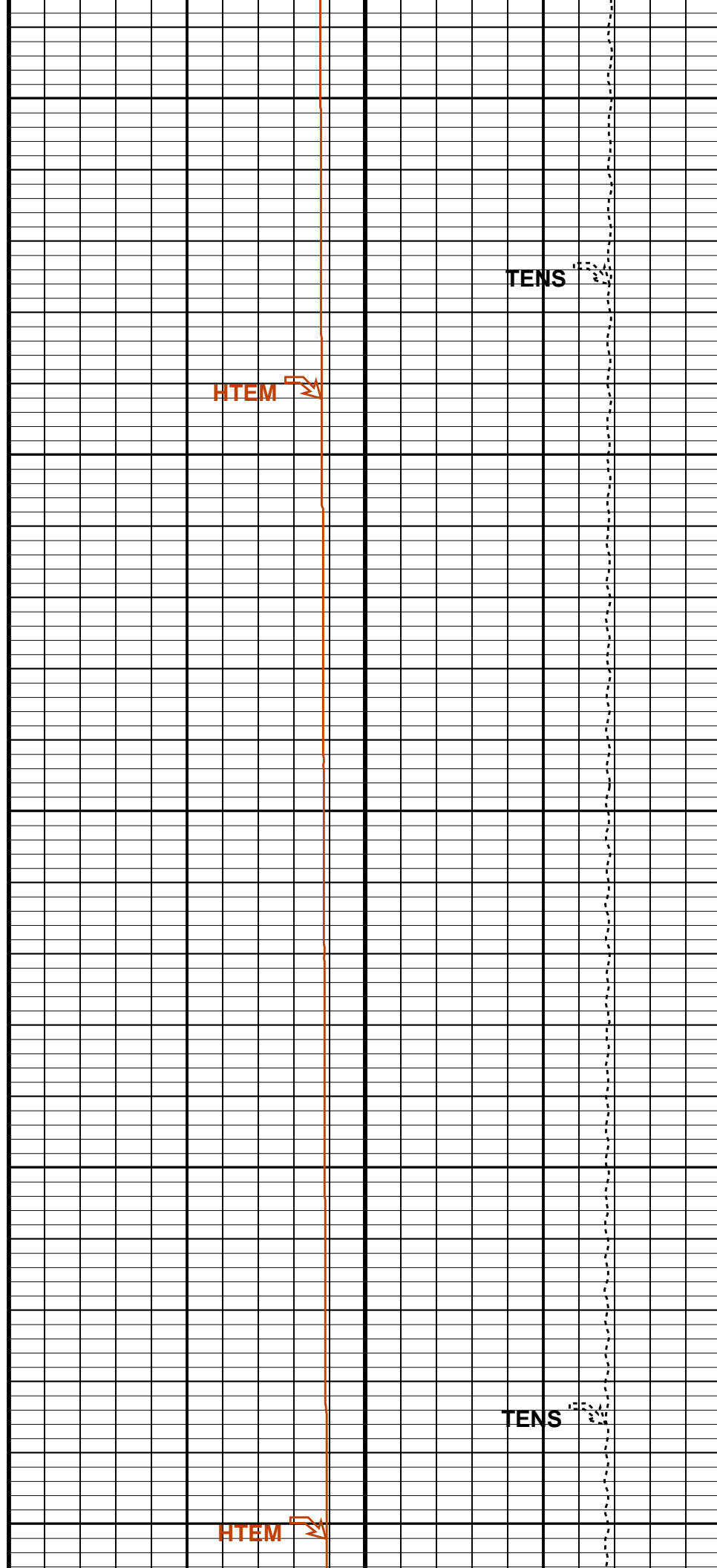
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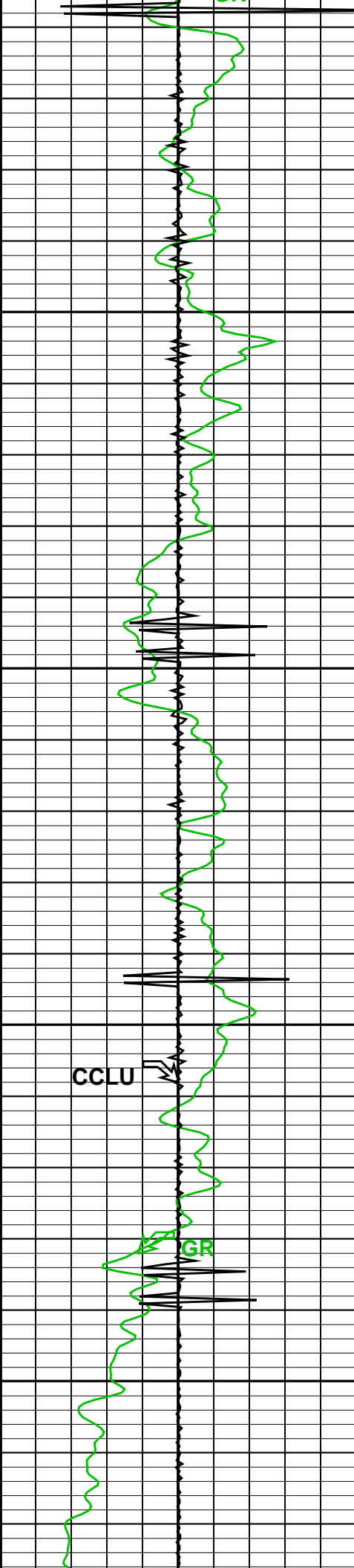




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7000





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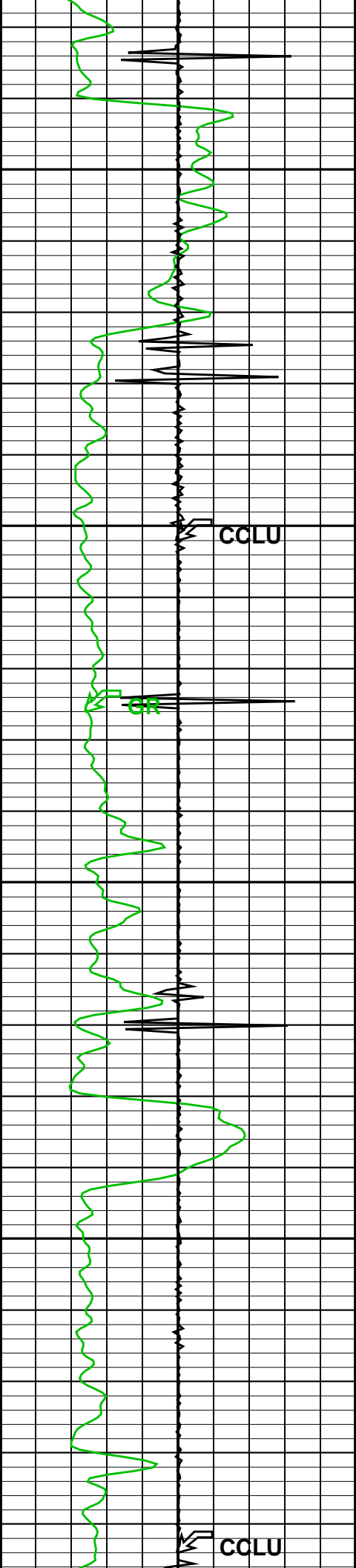
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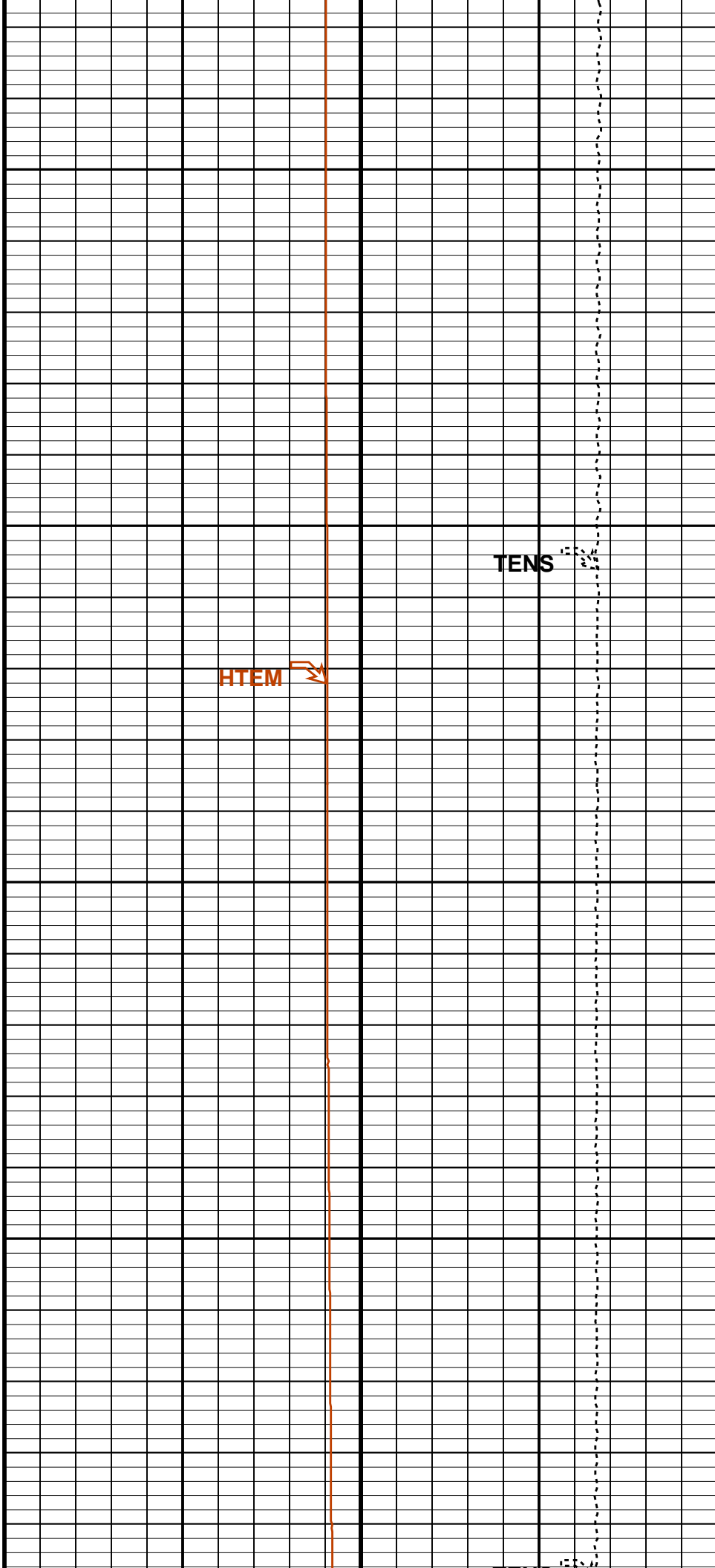
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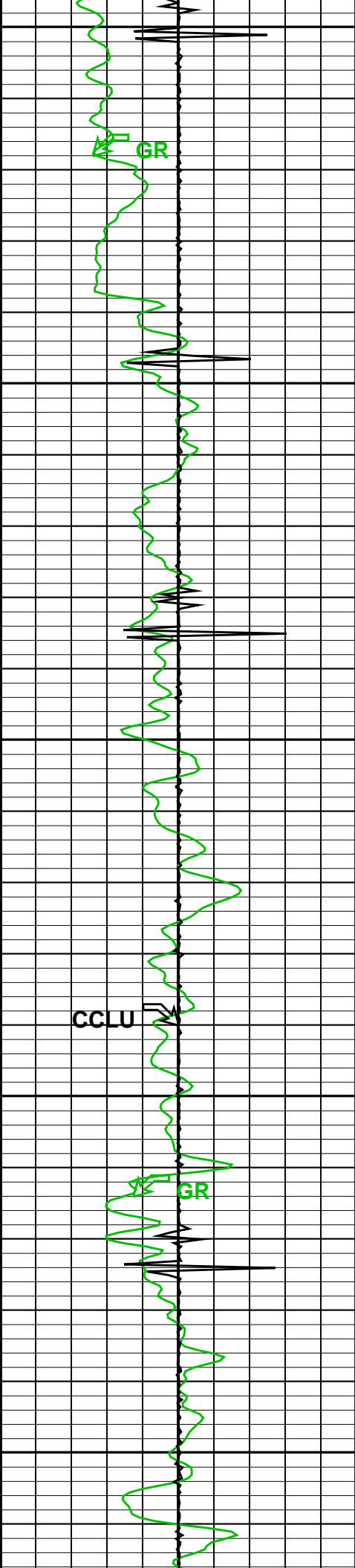
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7400





7500

7600

7700

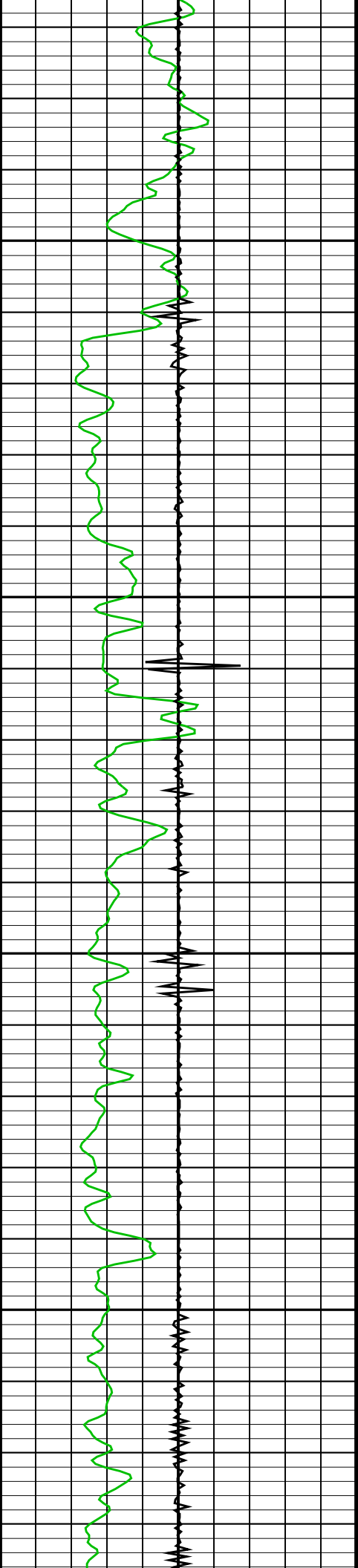
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HTEM

TENS

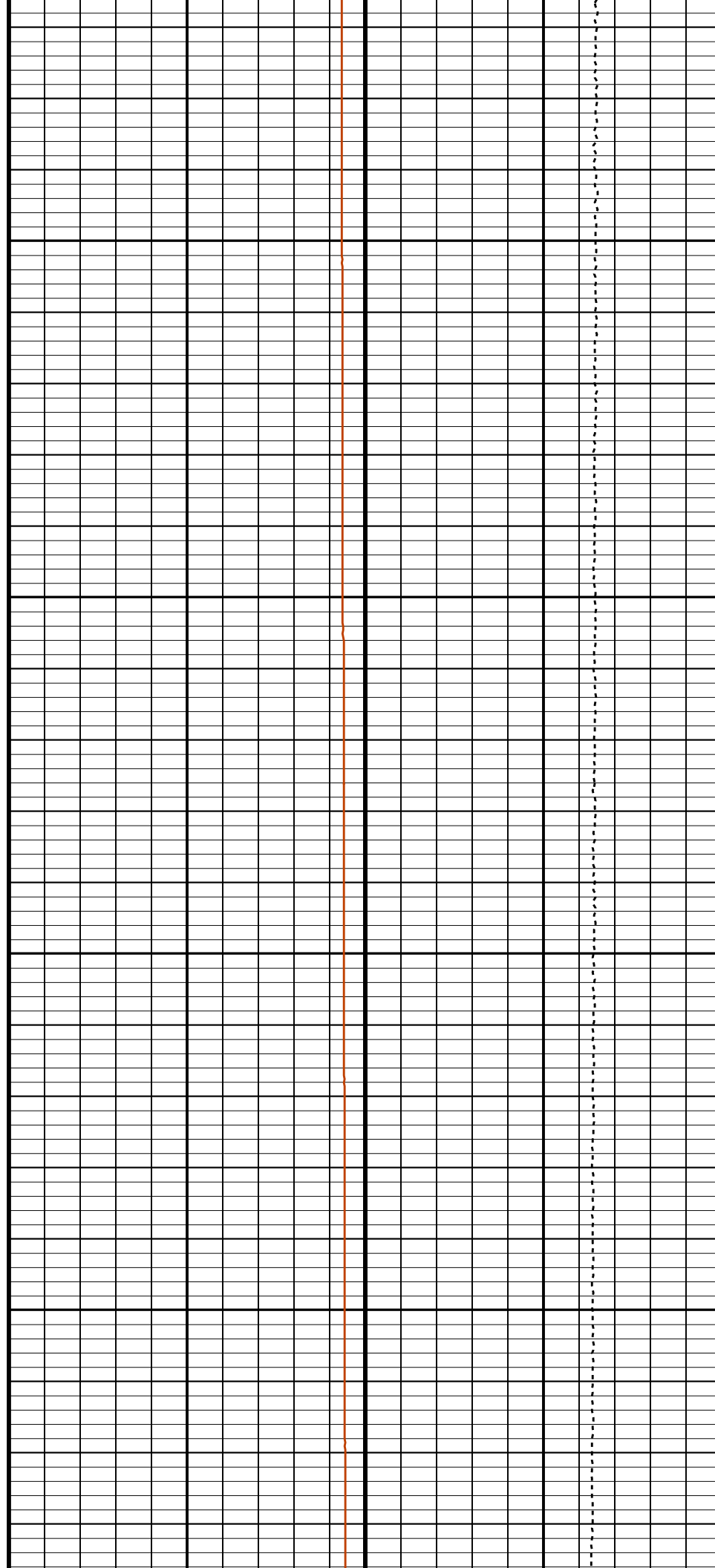
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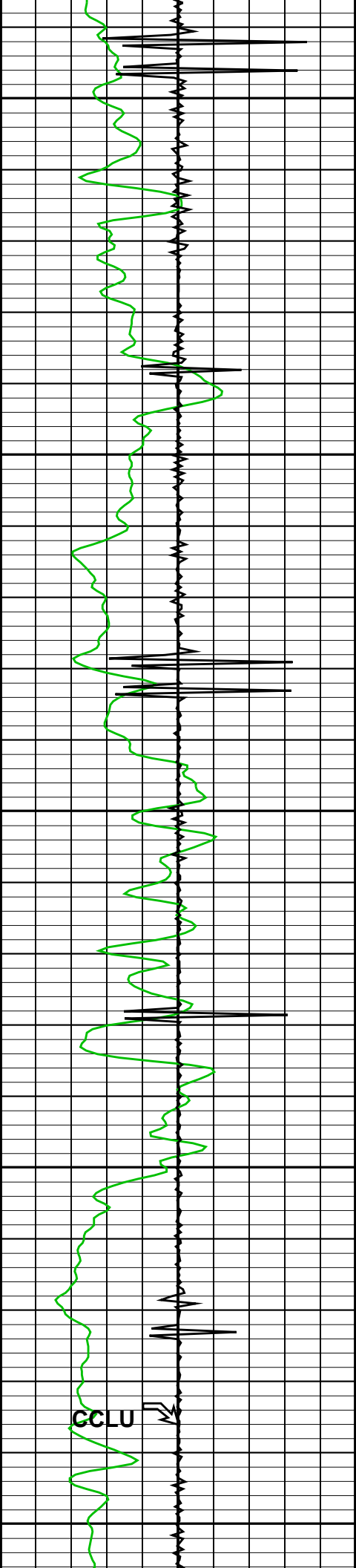




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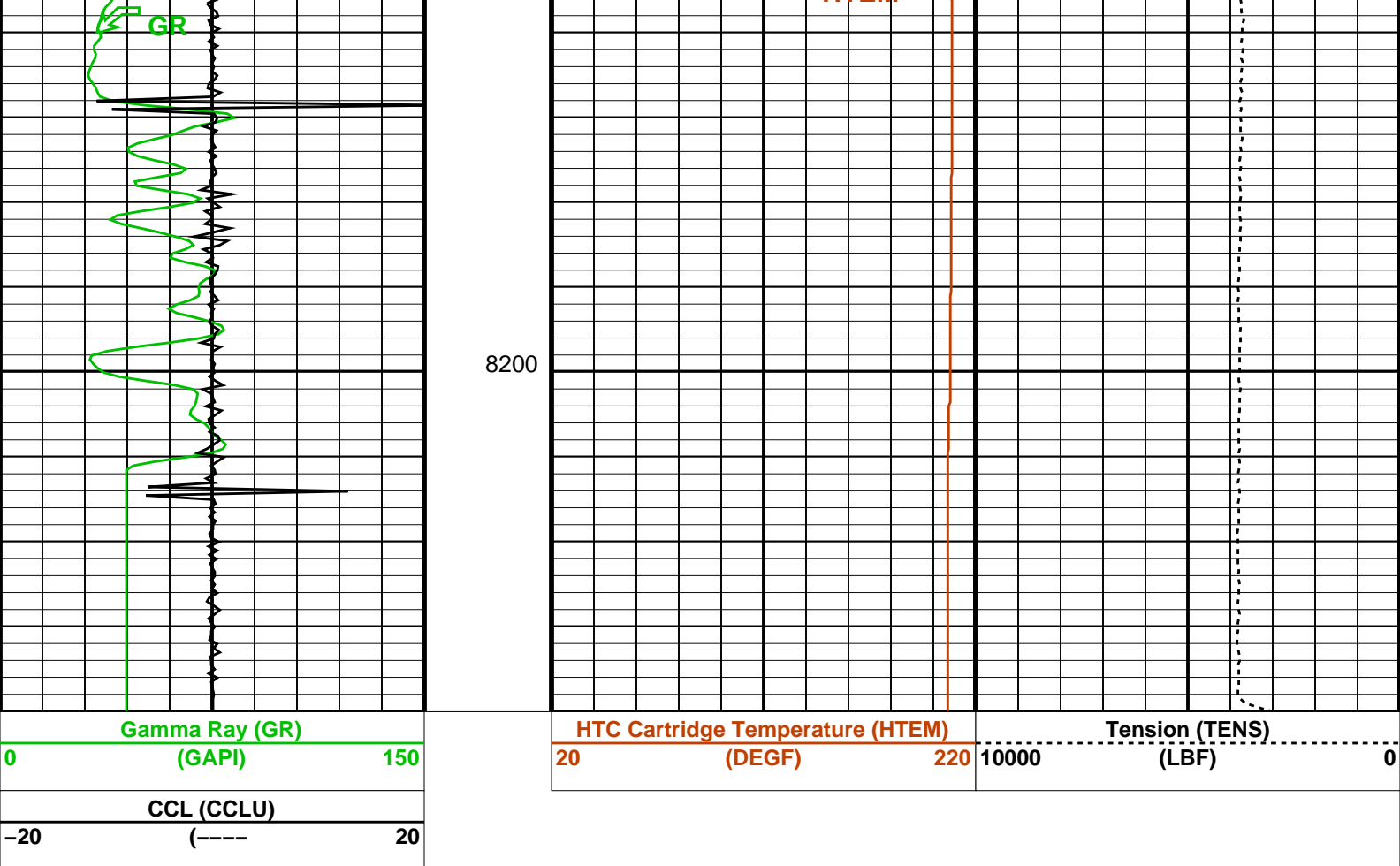
8000

8100

CCLU

HTEM

TENS



## 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	2.874	IN
EMXV	EMEX Voltage	80	V
MW	Mud Weight	8.6	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	46.2537	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	40.1	FT
DORL	Depth Offset for Repeat Analysis	0.0	FT
PP	Playback Processing	RECOMPUTE	

Format: CORRELATION

Vertical Scale: 5" per 100'

Graphics File Created: 11-May-2010 14:50

Input DLIS Files						
DEFAULT	Splice_USI_TLD_MCFL_021CUP	FN:1	PRODUCER	11-May-2010 14:37	8200.0 FT	199.6 FT
Output DLIS Files						
DEFAULT	USI_TLD_MCFL_CNL_025PUP	FN:22	PRODUCER	11-May-2010 14:50		



Repeat Analysis

MAXIS Field Log

Company: ExxonMobil Production Corp

Well: PCU 297-11C6

Input DLIS Files						
DEFAULT	Splice_USI_TLD_MCFL_021CUP	FN:1	PRODUCER	11-May-2010 14:37	8200.0 FT	199.6 FT
DEFAULT	USI_TLD_MCFL_CNL_022PUP	FN:19	PRODUCER	11-May-2010 14:45	8290.5 FT	7970.5 FT
Output DLIS Files						
DEFAULT	USI_TLD_MCFL_CNL_025PUP	FN:22	PRODUCER	11-May-2010 14:50		

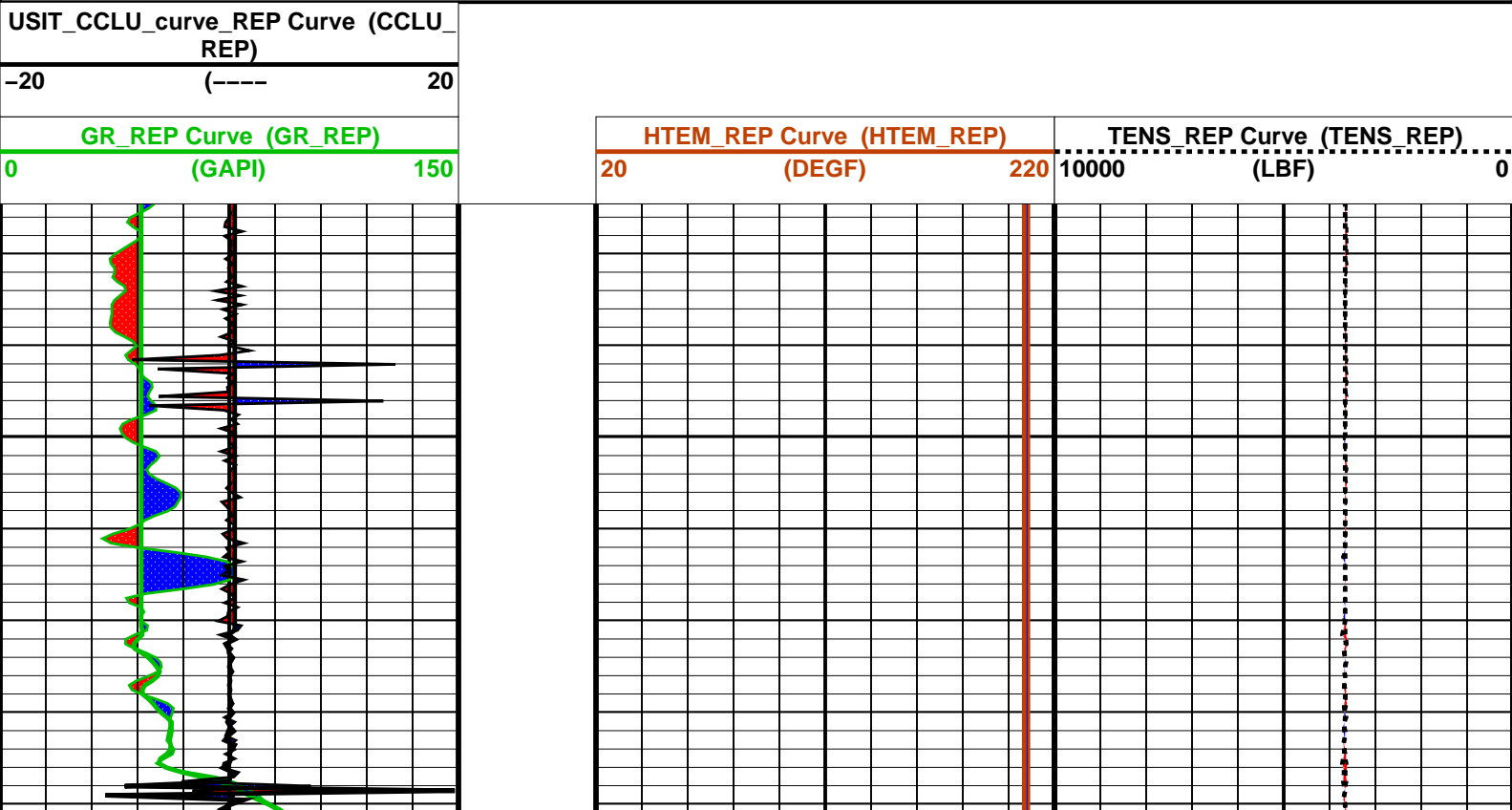
OP System Version: 17C0-154

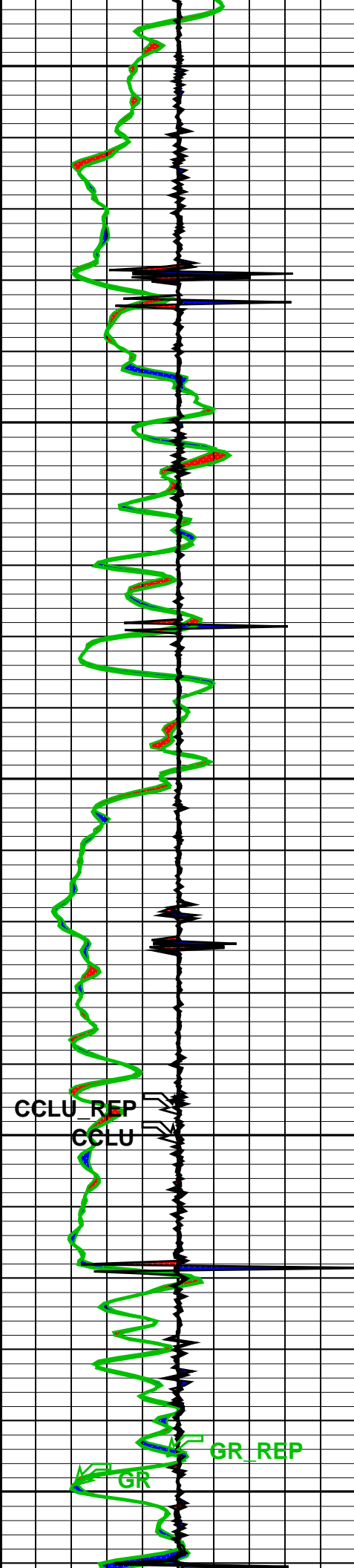
USIT-D  
DTC-H

17C0-154  
17C0-154

HILTH-FTB

17C0-154

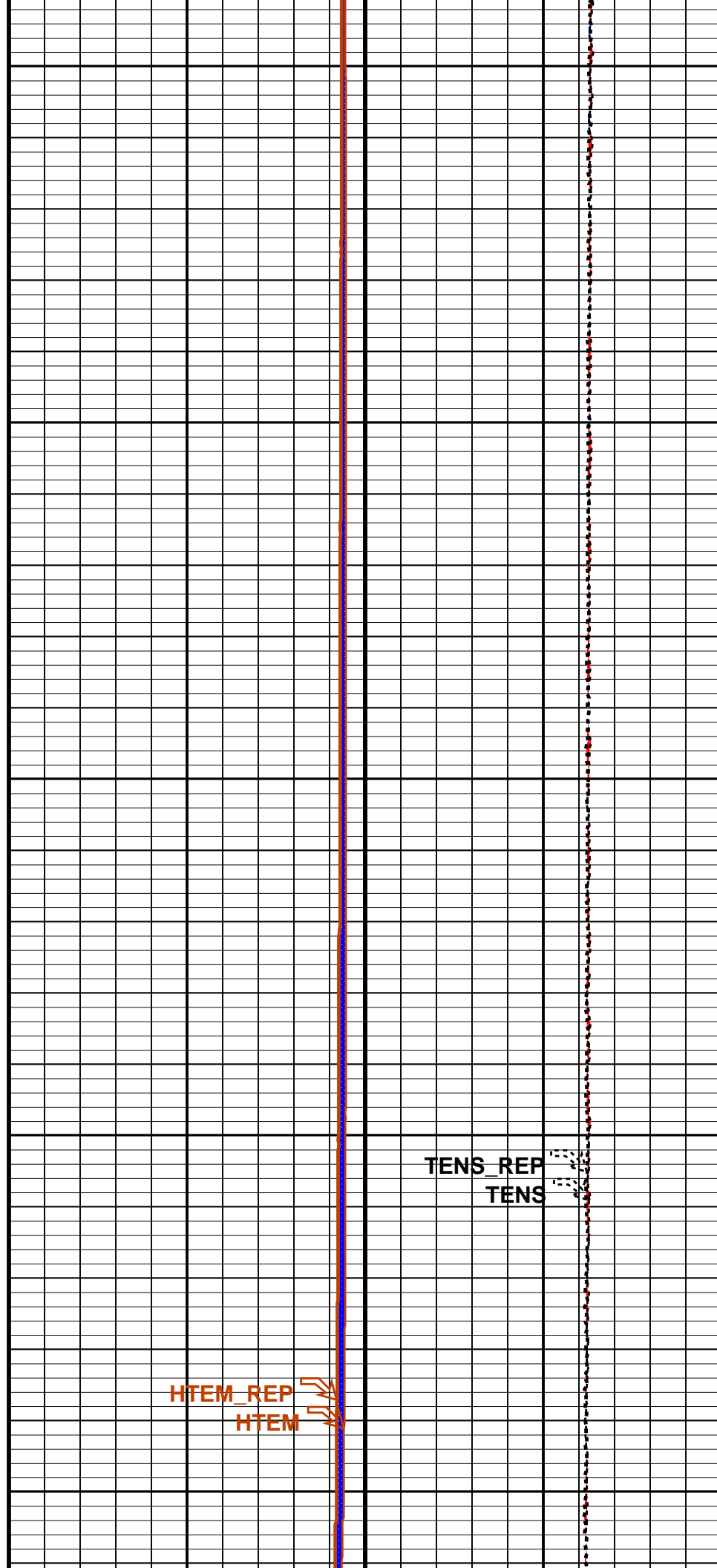


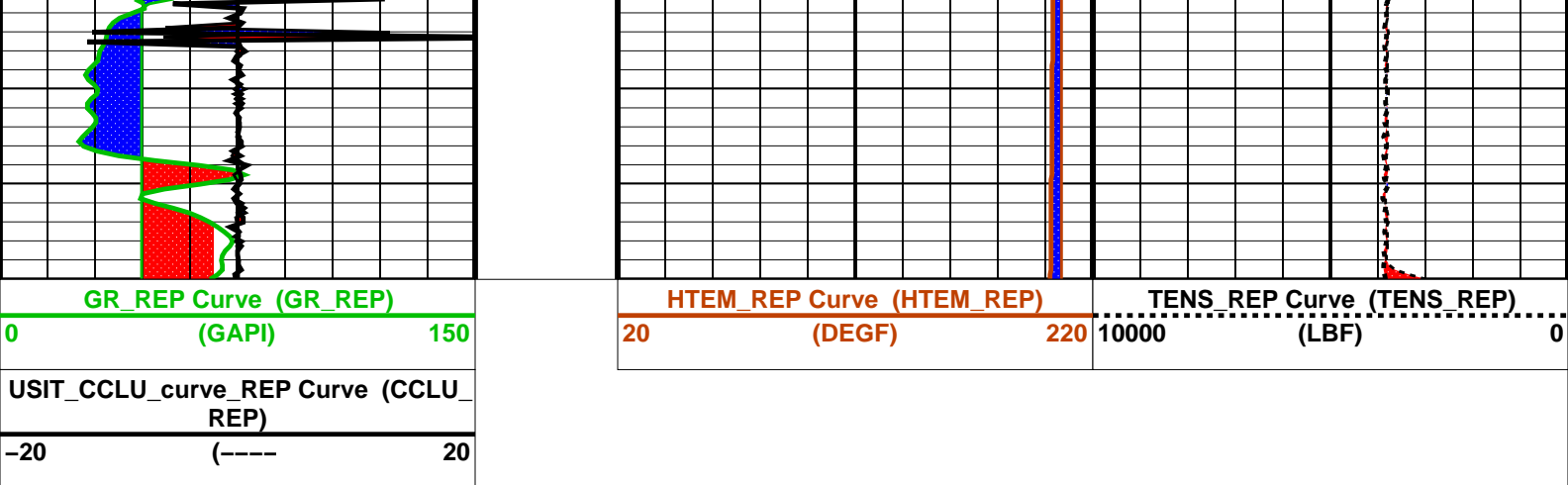


8000

8100

8200





## 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	2.874 IN
EMXV	EMEX Voltage	80 V
MW	Mud Weight	8.6 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	46.2537 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	40.1 FT
DORL	Depth Offset for Repeat Analysis	0.0 FT
PP	Playback Processing	RECOMPUTE

Format: CORRELATION\_REP Vertical Scale: 5" per 100' Graphics File Created: 11-May-2010 14:50

## 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_021CUP	FN:1	PRODUCER	11-May-2010 14:37	8200.0 FT	199.6 FT
DEFAULT	USI_TLD_MCFL_CNL_022PUP	FN:19	PRODUCER	11-May-2010 14:45	8290.5 FT	7970.5 FT

## Output DLIS Files

DEFAULT	USI_TLD_MCFL_CNL_025PUP	FN:22	PRODUCER	11-May-2010 14:50
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## 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: 9–May–2010 18:56							
Gamma Ray Background	30.00	N/A	31.45	N/A	N/A	N/A	GAPI
Gamma Ray (Jig – Bkg)	180.0	N/A	180.0	N/A	N/A	16.37	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: 28–Feb–2010 14:11 Before: 9–May–2010 18:57							
CNTC Background	27.81	27.81	26.60	N/A	N/A	4.172	CPS
CFTC Background	28.32	28.32	29.94	N/A	N/A	4.248	CPS
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Ratio Measurement							
Master: 28–Feb–2010 14:11							
Thermal Near Corr. (Tank)	5800	5615	N/A	N/A	N/A	N/A	CPS
Thermal Far Corr. (Tank)	2400	2289	N/A	N/A	N/A	N/A	CPS
CNTC/CFTC (Tank)	2.159	2.453	N/A	N/A	N/A	N/A	
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Accelerometer Calibration							
Before: 10–May–2010 20:41							
Z–Axis Acceleration	32.19	N/A	32.08	N/A	N/A	N/A	F/S2

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

NCT–B Water Temperature 66.0 DEGF.  
 Thermal Housing Size 3.362 IN.  
 NSR–F serial number 0

## High resolution Integrated Logging Tool–DTS / Equipment Identification

## Primary Equipment:

HILT Gamma–Ray Neutron Sonde–DTS	HGNS – H	3920
HGNS Gamma–Ray Device	HGR –	
HGNS Neutron Detector with Alpha Source	HCNT – H	
Z–Axis Accelerometer	HACC – H	2594
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			31.45	Before			180.0	Before			165.0
	0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)		163.7 (Minimum)	180.0 (Nominal)	196.4 (Maximum)		150.0 (Minimum)	165.0 (Nominal)	180.0 (Maximum)


Before: 9–May–2010 18:56



## High resolution Integrated Logging Tool–DTS Wellsite Calibration




## Zero Measurement

Phase	CNTC Background CPS	Value	Phase	CFTC Background CPS	Value
Master		27.81	Master		28.32
Before		26.60	Before		29.94
5.000 (Minimum)	27.81 (Nominal)	40.00 (Maximum)	5.000 (Minimum)	28.32 (Nominal)	40.00 (Maximum)
Master: 28-Feb-2010 14:11			Before: 9-May-2010 18:57		

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				5615	Master				2289	Master				2.453
	4700 (Minimum)	5800 (Nominal)	6900 (Maximum)			1900 (Minimum)	2400 (Nominal)	2900 (Maximum)			2.120 (Minimum)	2.159 (Nominal)	2.540 (Maximum)	
Master: 28-Feb-2010 14:11														

High resolution Integrated Logging Tool-DTS Wellsite Calibration		
Accelerometer Calibration		
Phase	Z-Axis Acceleration F/S2	Value
Before		32.08
31.53 (Minimum)	32.19 (Nominal)	32.84 (Maximum)
Before: 10-May-2010 20:41		

High resolution Integrated Logging Tool-DTS Master Calibration					
Zero Measurement					
Phase	CNTC Background CPS	Value	Phase	CFTC Background CPS	Value
Master		27.81	Master		28.32
5.000 (Minimum)	27.81 (Nominal)	40.00 (Maximum)	5.000 (Minimum)	28.32 (Nominal)	40.00 (Maximum)
Master: 28-Feb-2010 14:11					

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				5615	Master				2289	Master				2.453
	4700 (Minimum)	5800 (Nominal)	6900 (Maximum)			1900 (Minimum)	2400 (Nominal)	2900 (Maximum)			2.120 (Minimum)	2.159 (Nominal)	2.540 (Maximum)	
Master: 28-Feb-2010 14:11														

DTS Telemetry Tool / Equipment Identification			
Primary Equipment:			
DTC-H Auxiliary Cartridge		DTCH - A	
DTC-H Telemetry Cartridge		DTCH - A	8907
Auxiliary Equipment:			
DTCH Telemetry Cartridge Housing		ECH - KC	

Company: **ExxonMobil Production Corp**

**Schlumberger**

Well: **PCU 297-11C6**  
Field: **Piceance Creek**  
County: **Rio Blanco**



State: **Colorado**

CORRELATION PRINT

GAMMA RAY