

**Tucker**  
ENERGY SERVICES

**MICRO**  
**LOG**

**Company** : QUAILOIL & GAS, LC  
**Well** : LEON #1-23  
**Field** : MORRISON NORTHEAST  
**Country** : CLARK  
**State** : KANSAS  
**Country** : USA  
**API No.** : 15-025-21576-0000

**File No** : TUL-59631  
**Company** : QUAILOIL & GAS, LC  
**Well** : LEON #1-23  
**Field** : MORRISON NORTHEAST  
**Country** : CLARK  
**State** : KANSAS  
**Country** : USA  
**API No** : 15-025-21576-0000

**Location** :  
 795' FNL & 2200' FWL  
 NW SE NE NW

**LSD** :                   **Sect** : 23                   **Twp** : 32S                   **Rge** : 21W

<b>Permanent Datum:</b>	GL	<b>Elevations:</b>	Ft	<b>Services:</b>	MLT
<b>Drilling Measured From:</b>	KB	<b>KB 2034.00</b>	Ft	<b>CST</b>	
<b>Log Measured From:</b>	KB	<b>DF 2033.00</b>	Ft	<b>PIT</b>	
<b>Above Permanent Datum:</b>	1200 Ft	<b>GL 2032.00</b>	Ft		
<b>Date</b>	06-24-2014				
<b>Run Number</b>	1				
<b>Depth--Driller</b>	6650.0 Ft				
<b>Depth--Logger</b>	6664.0 Ft				
<b>First Reading</b>	6642.0 Ft				
<b>Last Reading</b>	626.0 Ft				
<b>Casing--Driller</b>	626.0 Ft				
<b>Casing--Logger</b>	626.0 Ft				
<b>Bit Size</b>	7.875 In				
<b>Casing Size</b>	8.625 In				
<b>Hole Fluid Type</b>	CHEM-GEL				
<b>Density</b>	8.7				
<b>Fluid Loss</b>	9.2				
<b>PH/Viscosity</b>	10.5	50.0			
<b>Sample Source</b>	MEASURED				
<b>RM@Measured Temp.</b>	1.500	@ 75 F			
<b>RMF@Measured Temp</b>	1.200	@ 75 F			
<b>RM@Measured Temp.</b>	1.800	@ 75 F			
<b>Source RMF/RMC</b>	CALCULATED/CALCULATED				
<b>RM@BHT</b>	0.810	@ 145 F			
<b>Time Circulation Stopped</b>	06-24-2014 3:00 pm				
<b>Max Recorded Temp.</b>	145	F			
<b>Equipment/Base</b>	127	TULSA			
<b>Recorded By</b>	SHELDON TYLER				
<b>Witnessed By</b>	ROGER MARTIN				

The customer is hereby warned that by providing the log data herein, T. E. S. does not agree to provide any interpretation of log data, conversion of log data to physical rock parameters or recommendations. T. E. S. does not guarantee or warrant either expressly or impliedly, the accuracy of any interpretation of log data, conversion of log data to physical rock parameters or recommendations which may be given by T. E. S. personnel. Any interpretation, conversion or recommendation is not part of the consideration for the agreement between the parties and is not part of any part of the charge by T. E. S. for its services. Any user of the log data is warned that said user is not entitled to rely on interpretations, conversions or recommendations as aforesaid.

Bitsize Intervals		Casing Strings			
Size (In)	Bottom (Ft)	Size (In)	Weight (Lbs)	Bottom (Ft)	Top (Ft)
7.875	6650.00	8.625	32.00	626.00	0.00

<b>Run Number</b>	1
<b>Date</b>	06-24-2014
<b>Date/Time On Bottom</b>	06-24-2014 8:00 pm
<b>Depth to Fluid</b>	0.0 Ft
<b>Salinity</b>	2100.000
<b>RMF@BHT</b>	0.650 @ 145 F
<b>RMC@BHT</b>	0.970 @ 145 F

Run Number 1

Comments

ALL PRESENTATIONS AS PER CUSTOMER REQUEST  
 GRT, MLT, CST AND PIT RUN IN COMBINATION

CUSTOMER REQUESTED NO REPEAT BAD HOLE

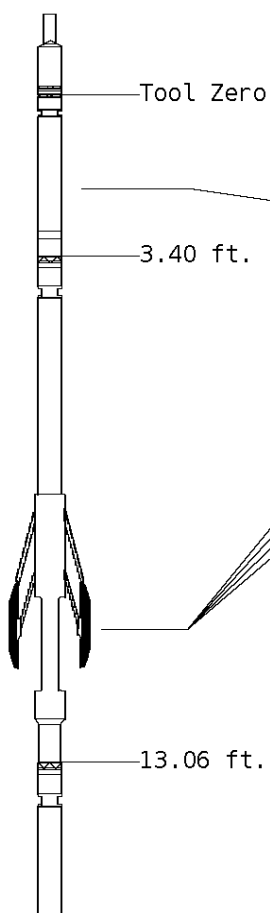
GRT: GRP, GRX  
 CST: PORS, CDTF, TT1PF, TT2PF, TT3PF, TT4PF, ITT

MLT: NOR\_RF, INV\_RF, MSCLPIN  
 PIT: ILD, ILM, SPU, SFLAEC, CIRD

OPERATORS:  
 J.JOHNSON  
 A.DJAHO

### Tool String Schematic

**Total Tool Length** - 48.35 ft.  
**Maximum Outside diameter** - 6.00 in.  
**Net Weight in Air** - 716.00 lbs.



**Tool:** GRT-B      **Length:** 3.40 ft.    **O.D.** 3.60 in.  
 Gamma Ray Controller  
**Sonde ID** :GRT-BB-006

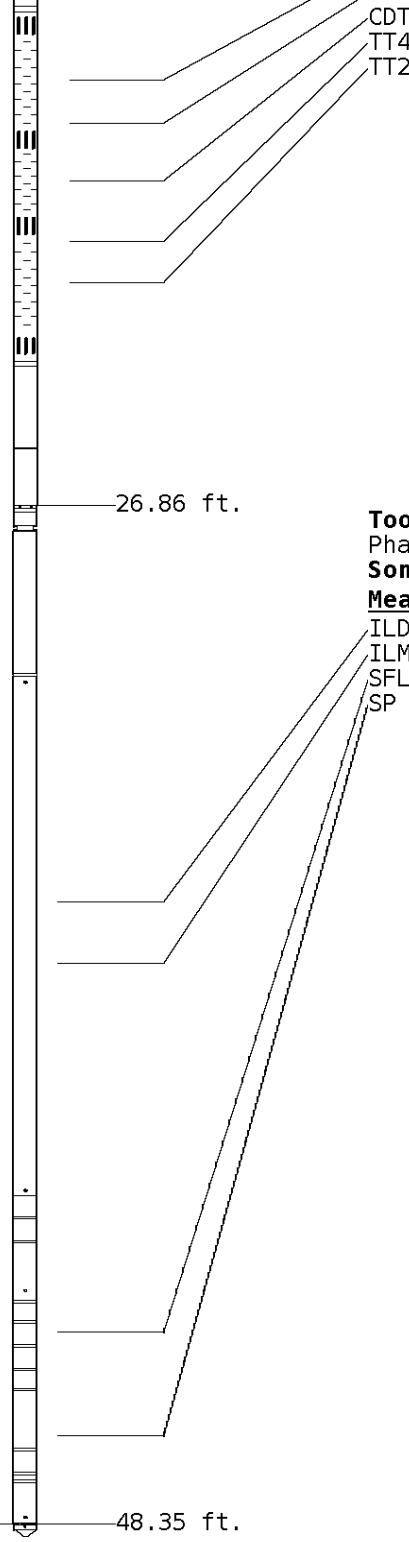
Measure Point	Tool Offset	Stack Offset	Bottom Offset
GRP	2.00	2.00	46.35

**Tool:** MST-DA      **Length:** 9.66 ft.    **O.D.** 6.00 in.  
 Micro Spherically Focused (IC)  
**Sonde ID** :MST-DA-25

Measure Point	Tool Offset	Stack Offset	Bottom Offset
MSFL	7.60	11.00	37.35
MSCLP	7.60	11.00	37.35
INV	7.60	11.00	37.35
NOR	7.60	11.00	37.35

**Tool:** CST-AD      **Length:** 13.80 ft.    **O.D.** 3.60 in.  
 Open Hole Sonic  
**Sonde ID** :CST-AB-012

Measure Point	Tool Offset	Stack Offset	Bottom Offset
TT1	4.80	17.86	30.49
TT3	5.80	18.86	29.49



7.30	20.36	27.99
8.80	21.86	26.49
9.80	22.86	25.49

**Tool:** PIT-CA      **Length:** 21.49 ft.    **O.D.** 3.62 in.  
 Phased Dual Induction w/ RM & D  
**Sonde ID** :PIT-CA-062

Measure Point	Tool Offset	Stack Offset	Bottom Offset
ILD	8.92	35.78	12.56
ILM	10.10	36.96	11.39
SFLU	17.49	44.35	4.00
SP	20.60	47.46	0.88

**Well File:** QUAIL\_OIL\_LEON\_1-23\_JUNE24\_MLTCSTPIT\_ONLY

**Scale:** 1:240      **Format:** MST-240

**Segment:** V1.D2.S4 Reprocess of MAIN

**Acquired:** 2014-06/25 00:32 3.5.0-12850

**Reference:** 0

**Processed:** 2014-06/25 02:41 3.5.0-12850

**BIT SIZE  
INCHES (IN)**

6 16

**CALIPER MICRO  
INCHES (IN)**

16 26  
6 16

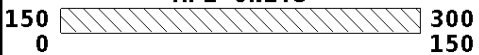
**TENSION  
LBS**

10000 0

**INVERSE  
OHMM**

0 40

GAMMA RAY  
API UNITS

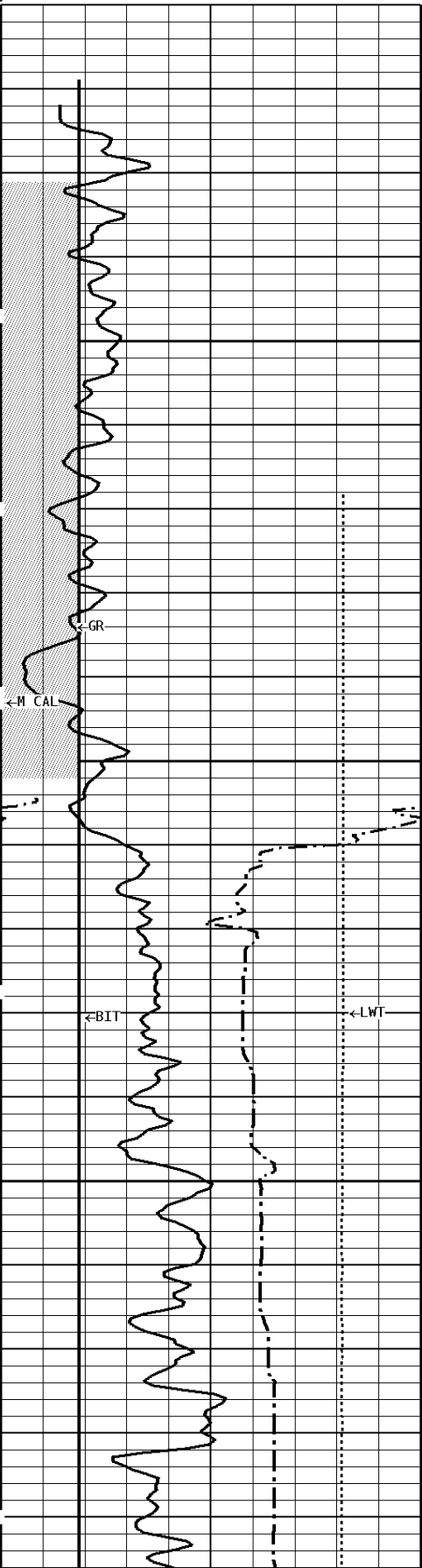


NORMAL  
OHMM



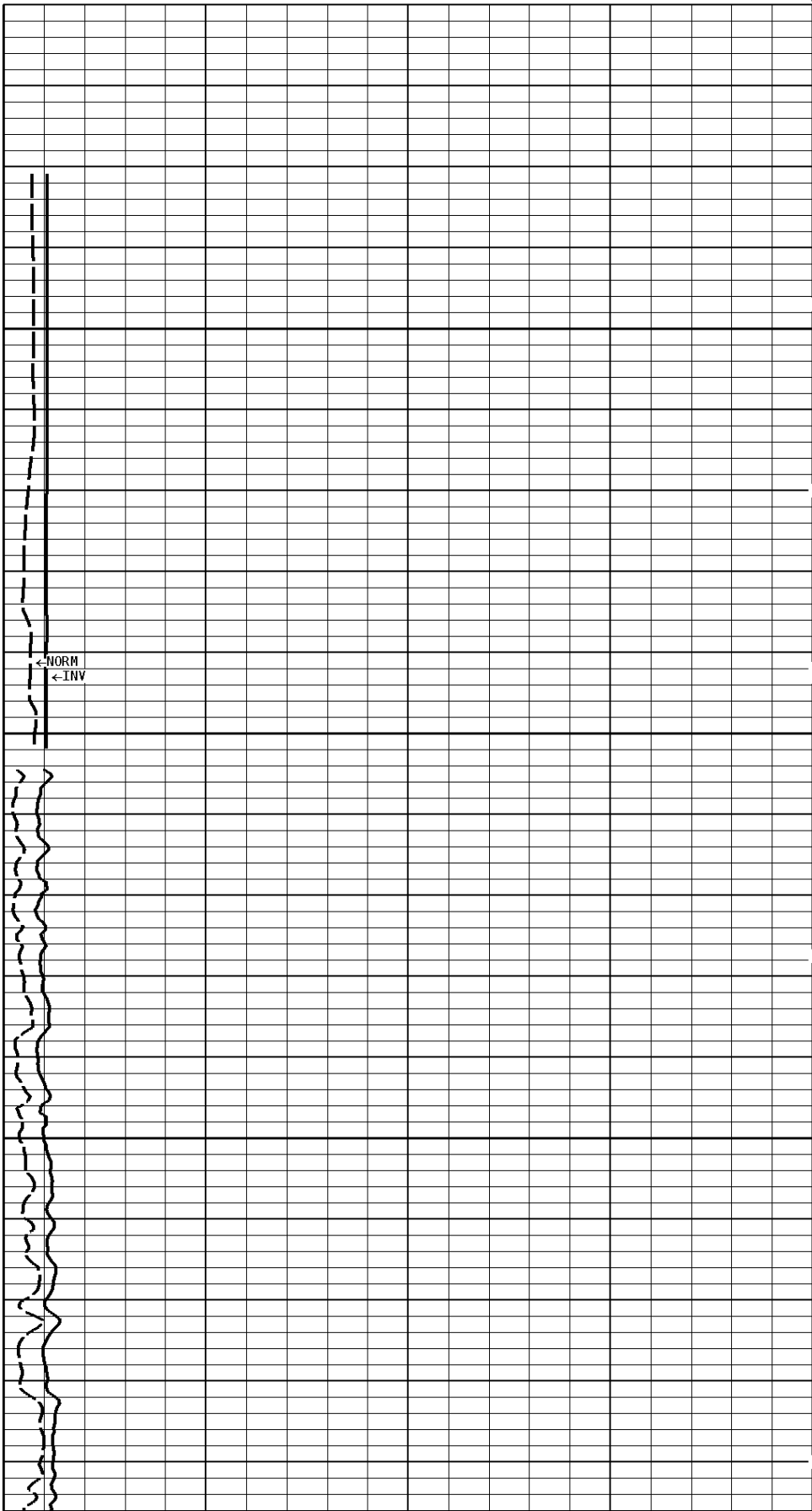
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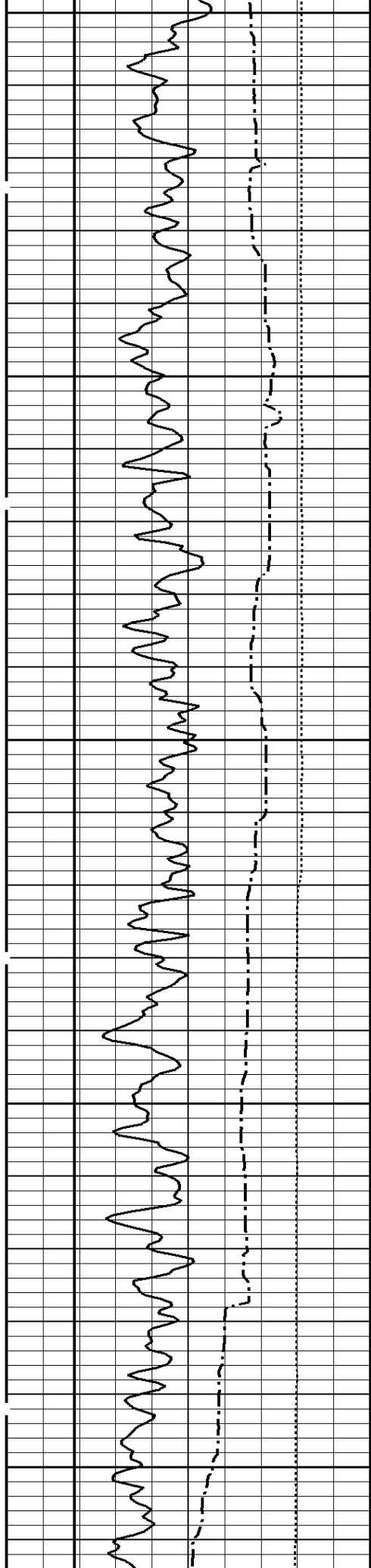
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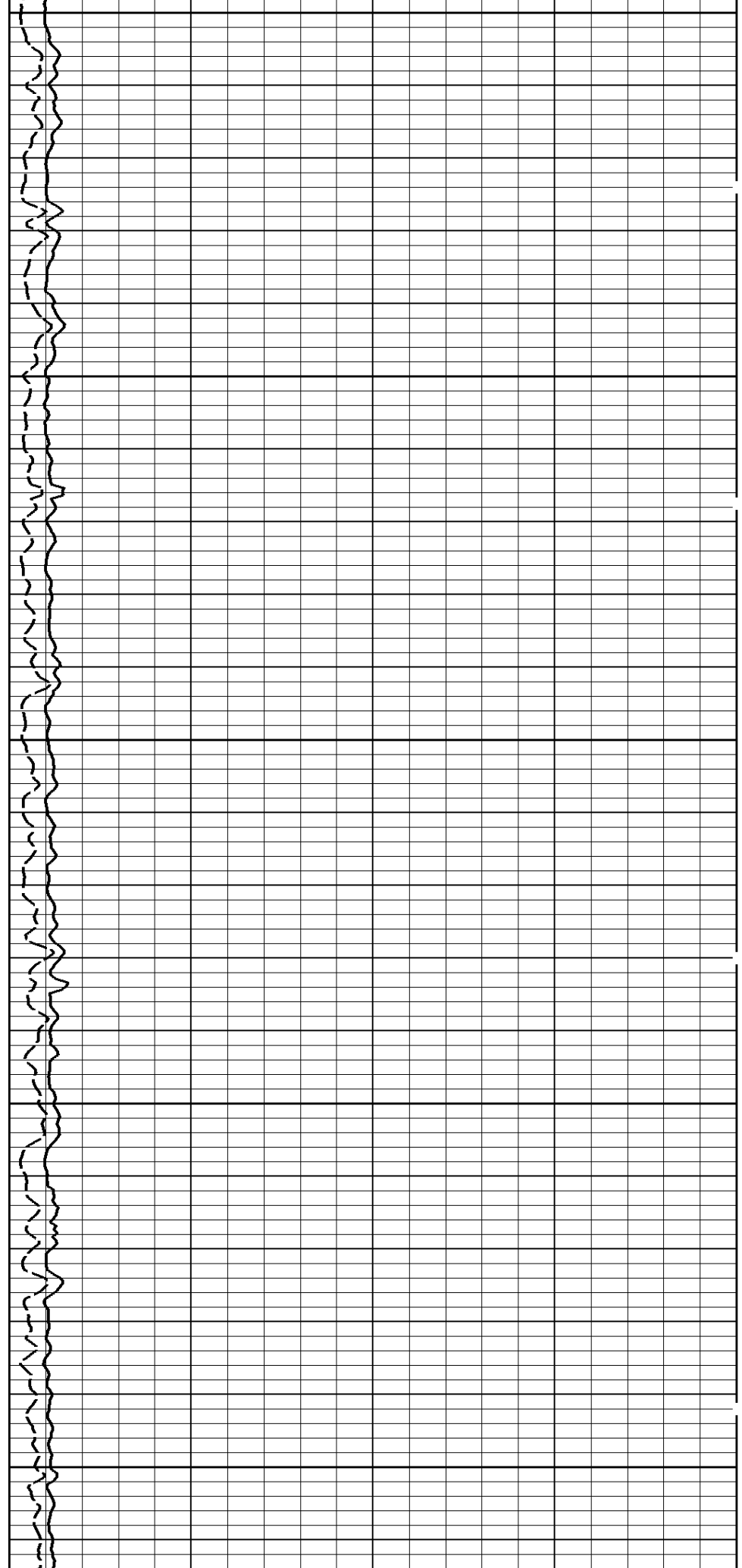
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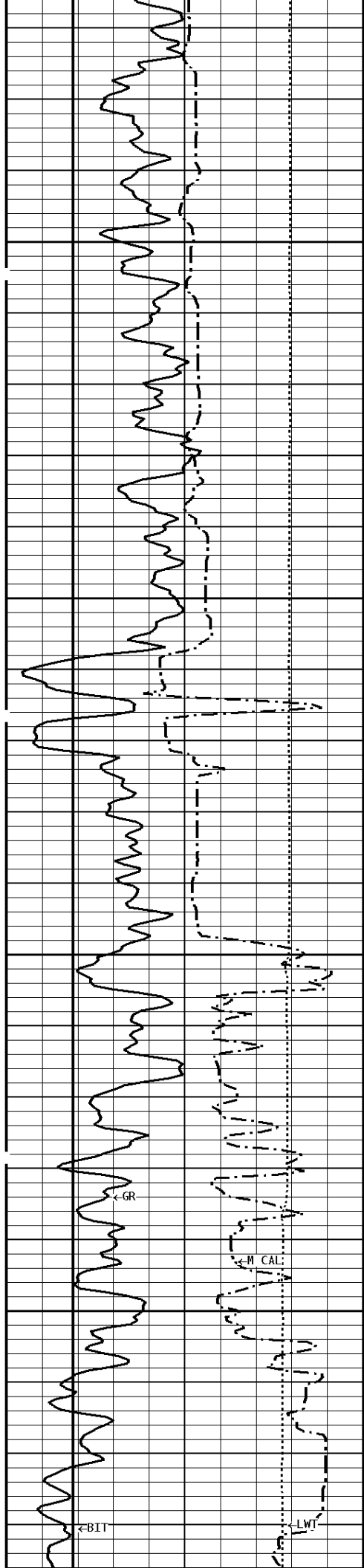




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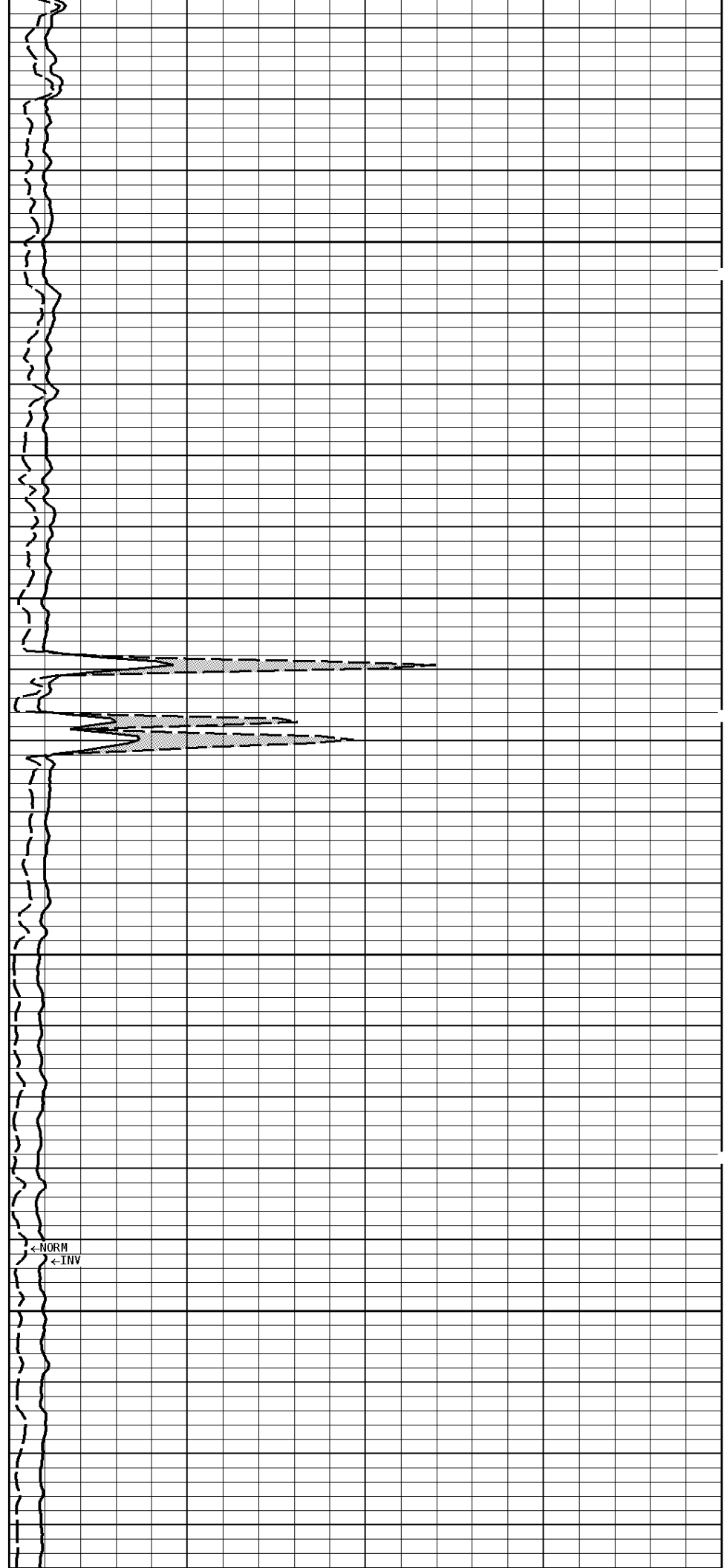
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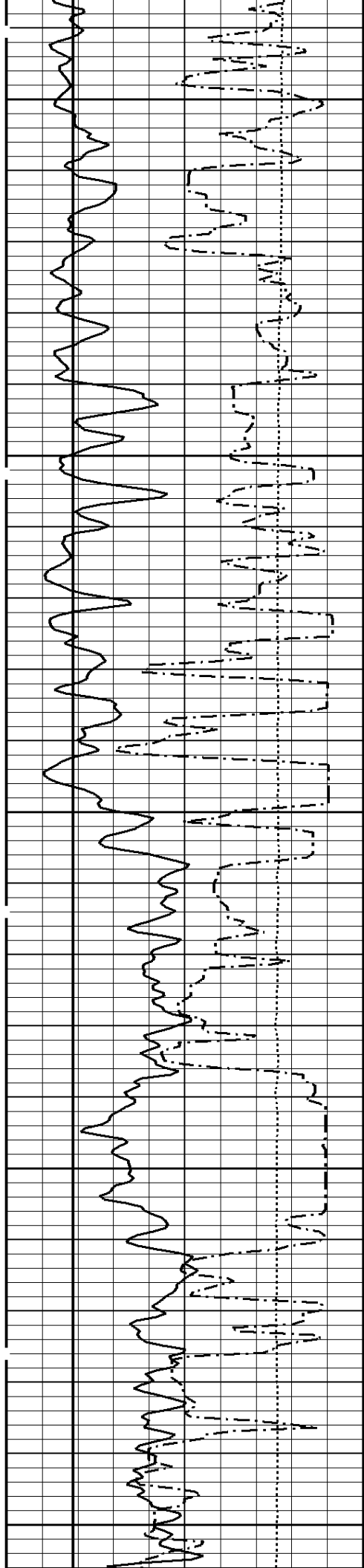




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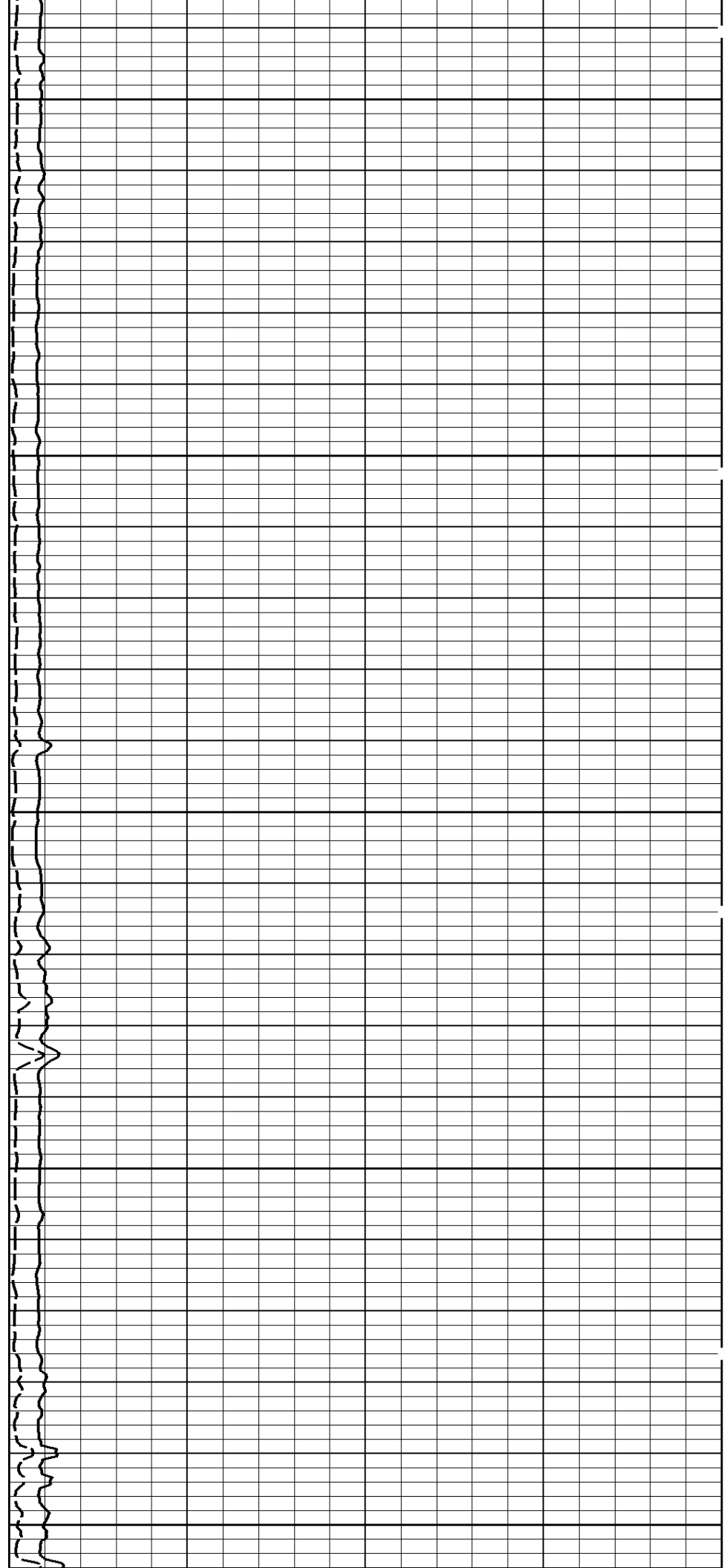


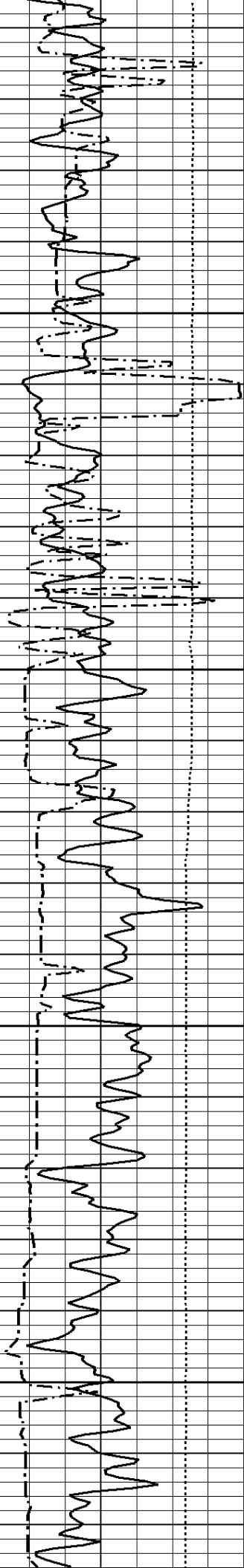


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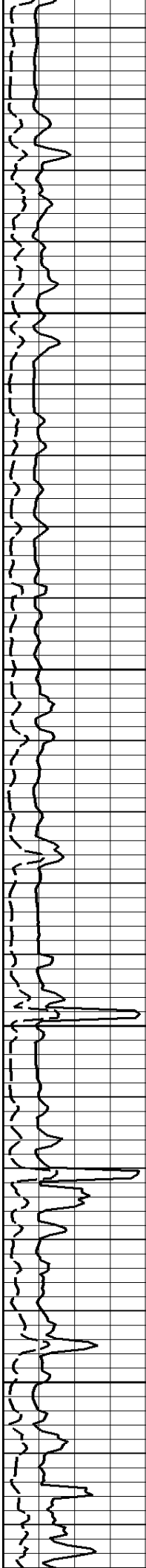
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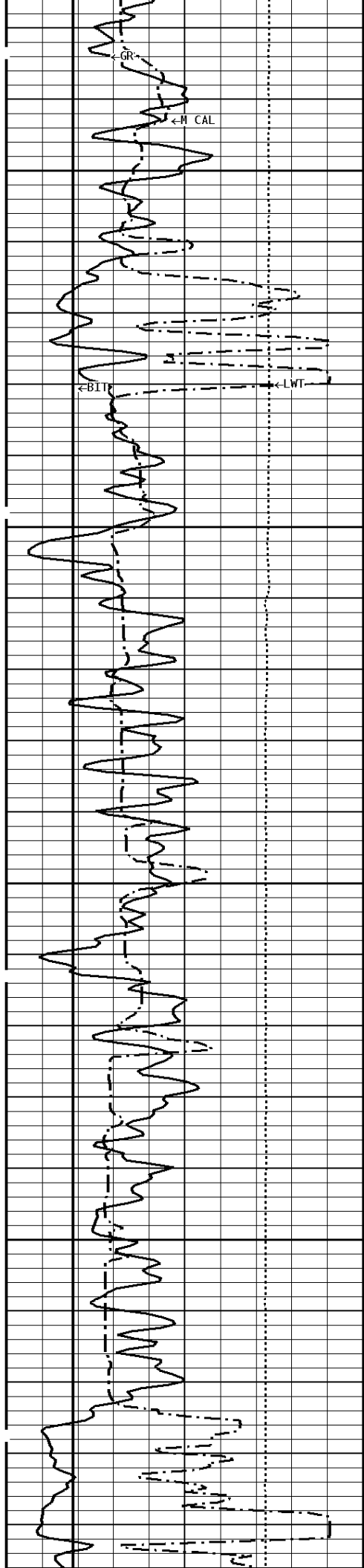




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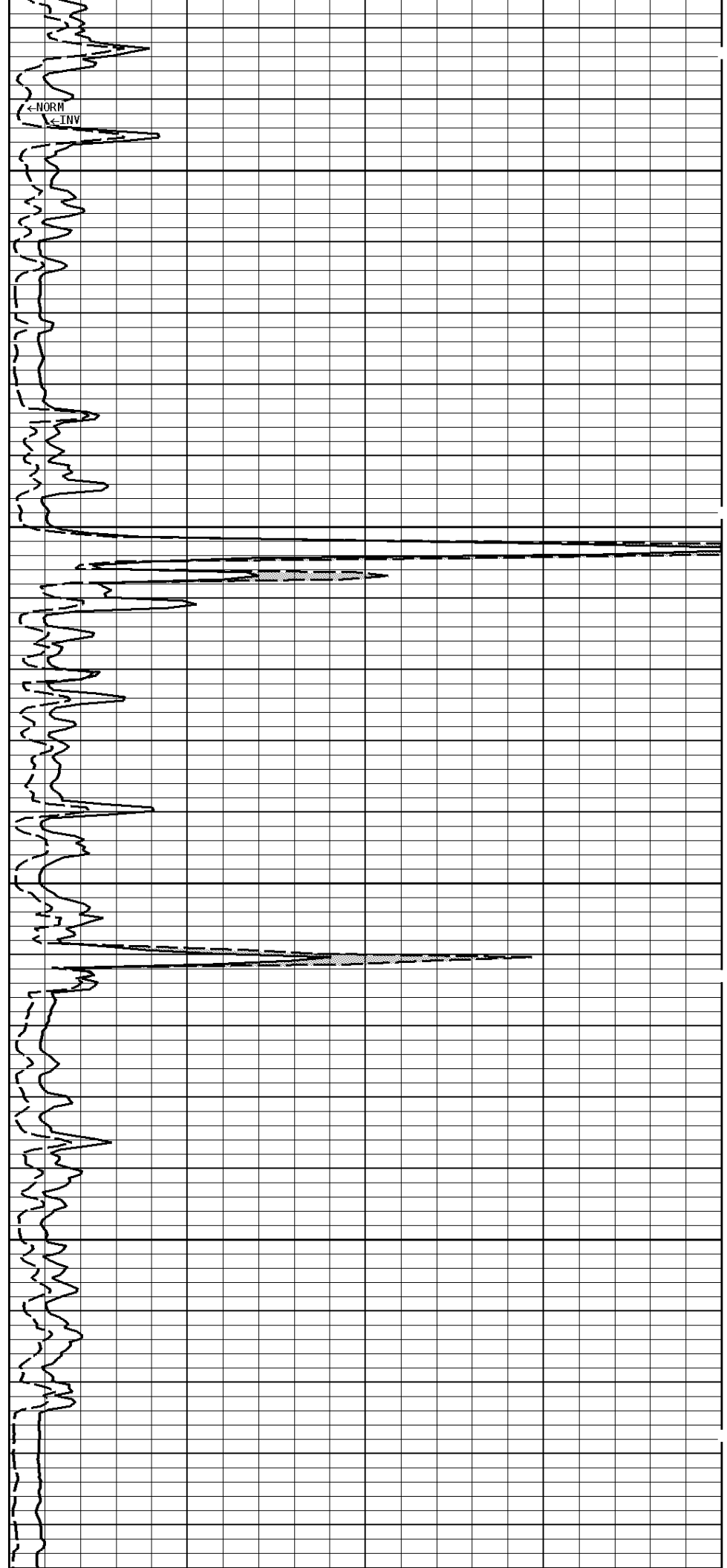
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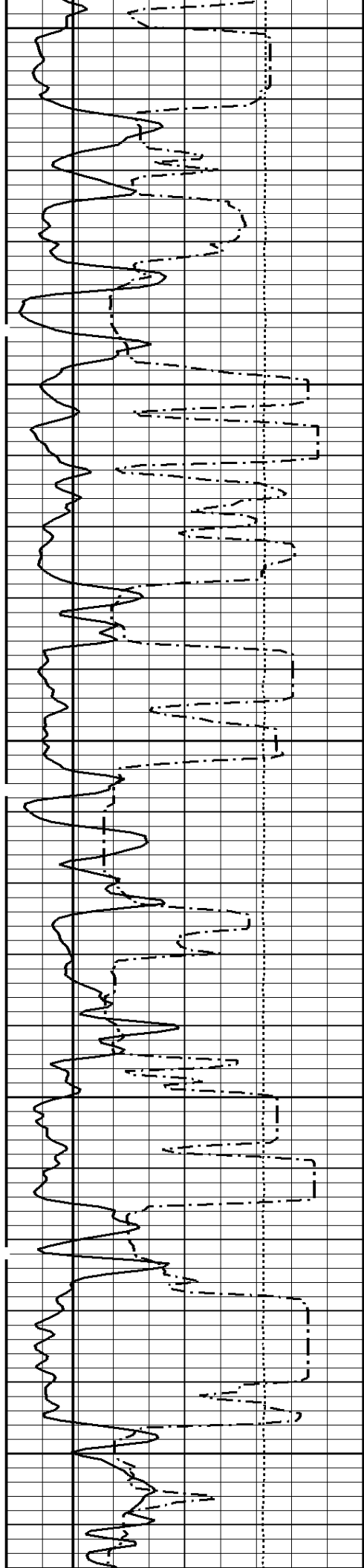




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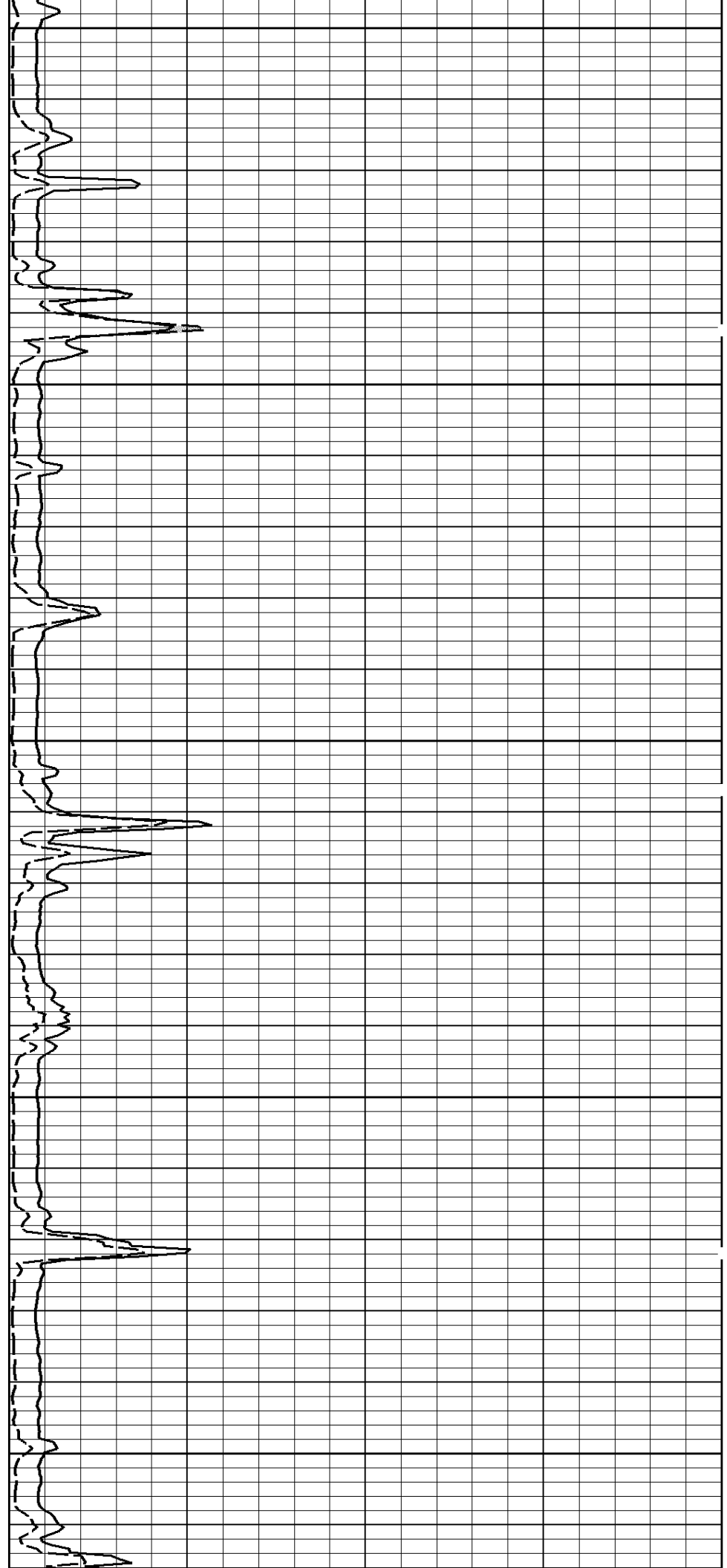
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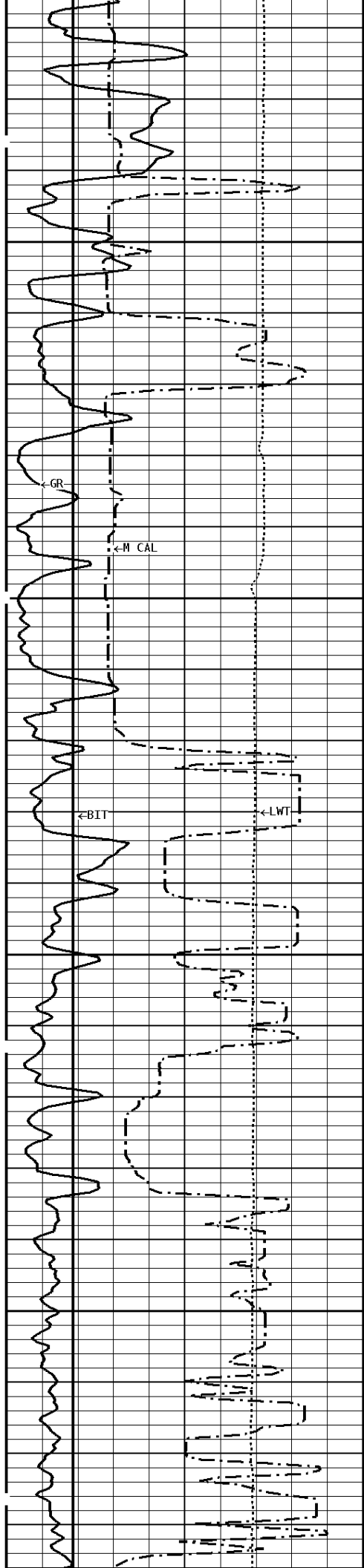




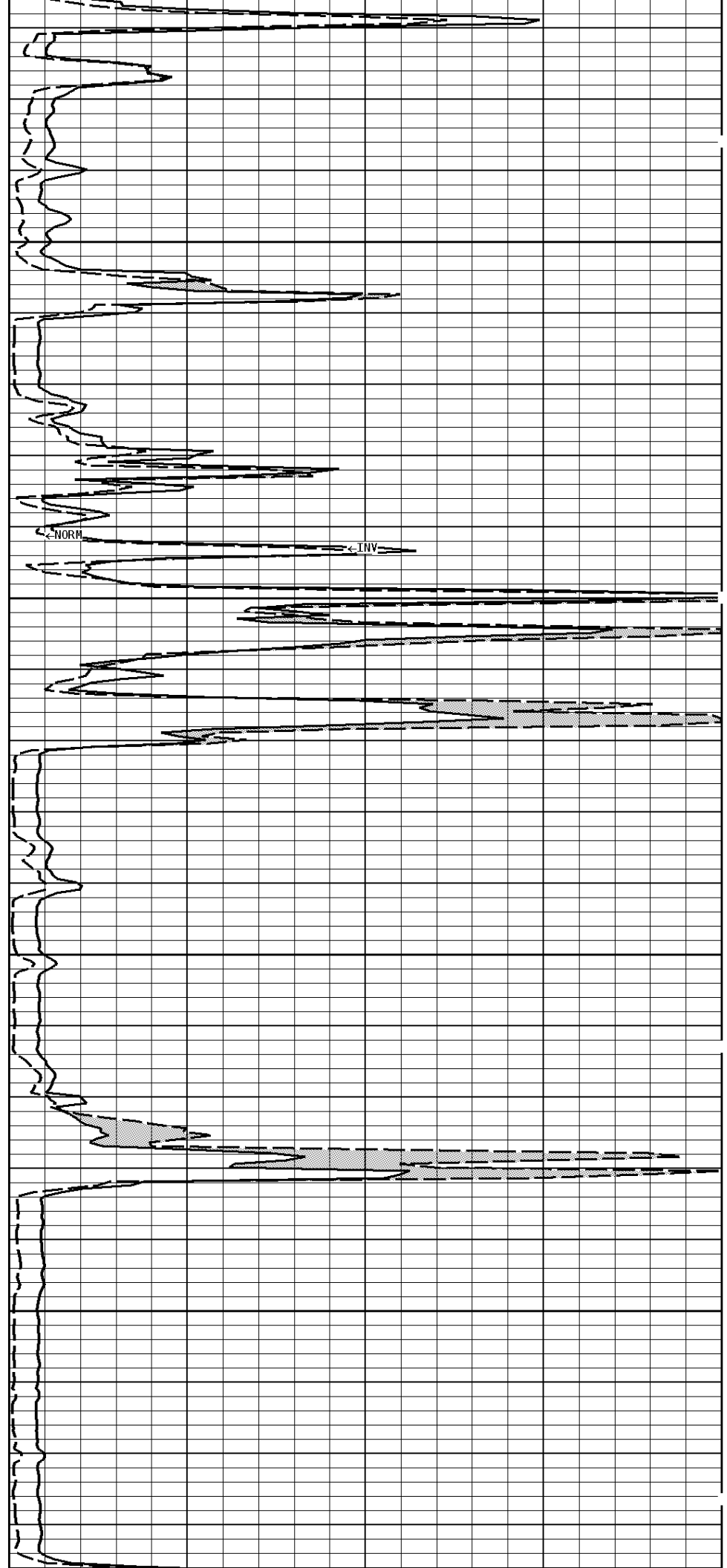
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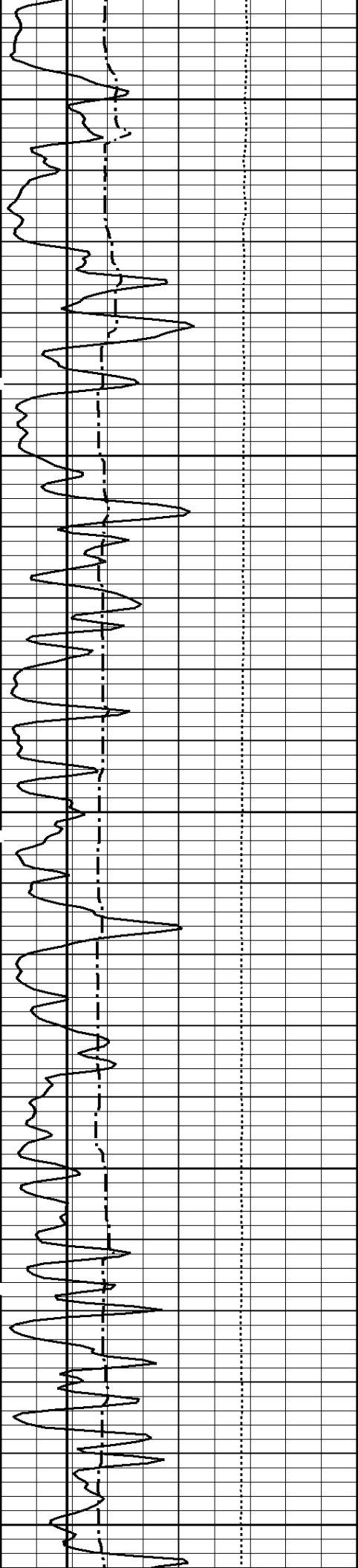




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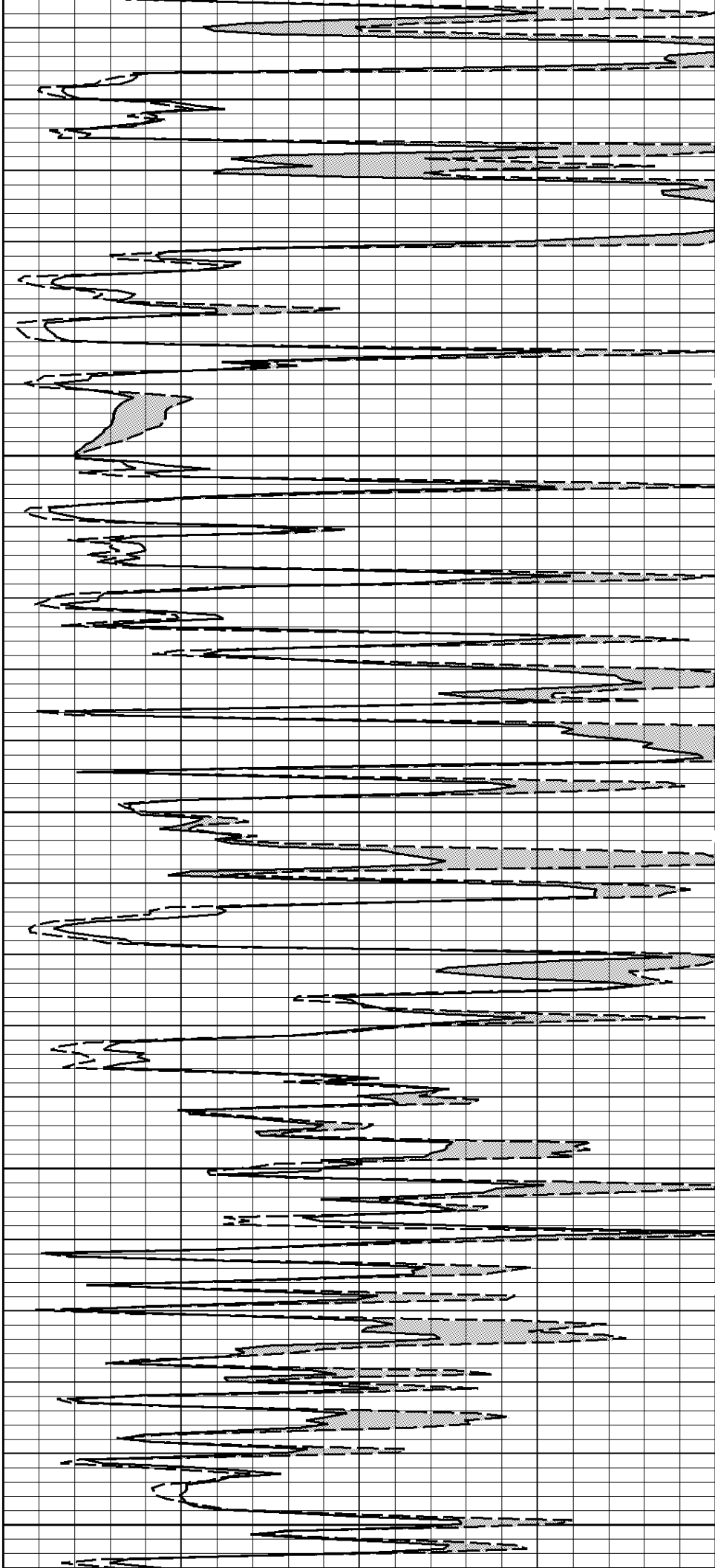
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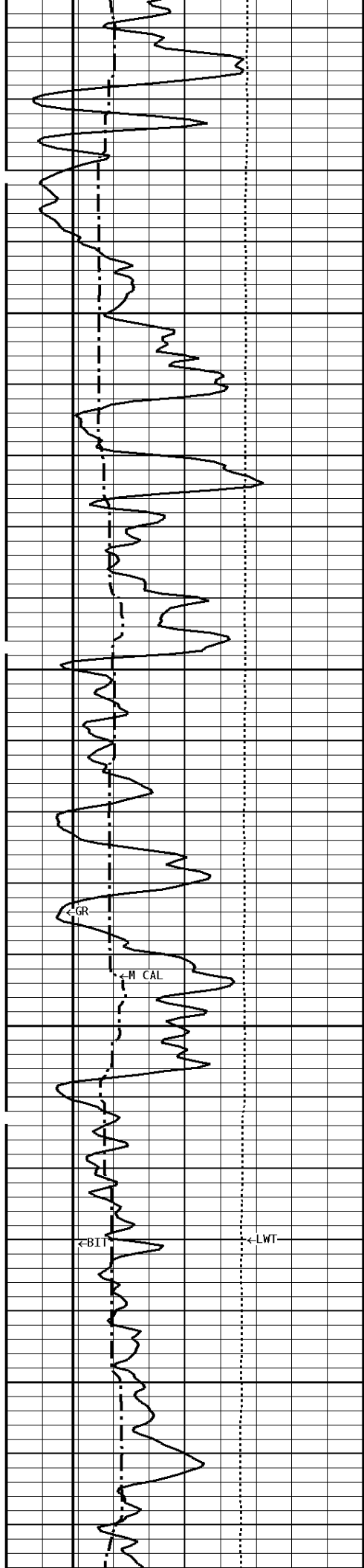


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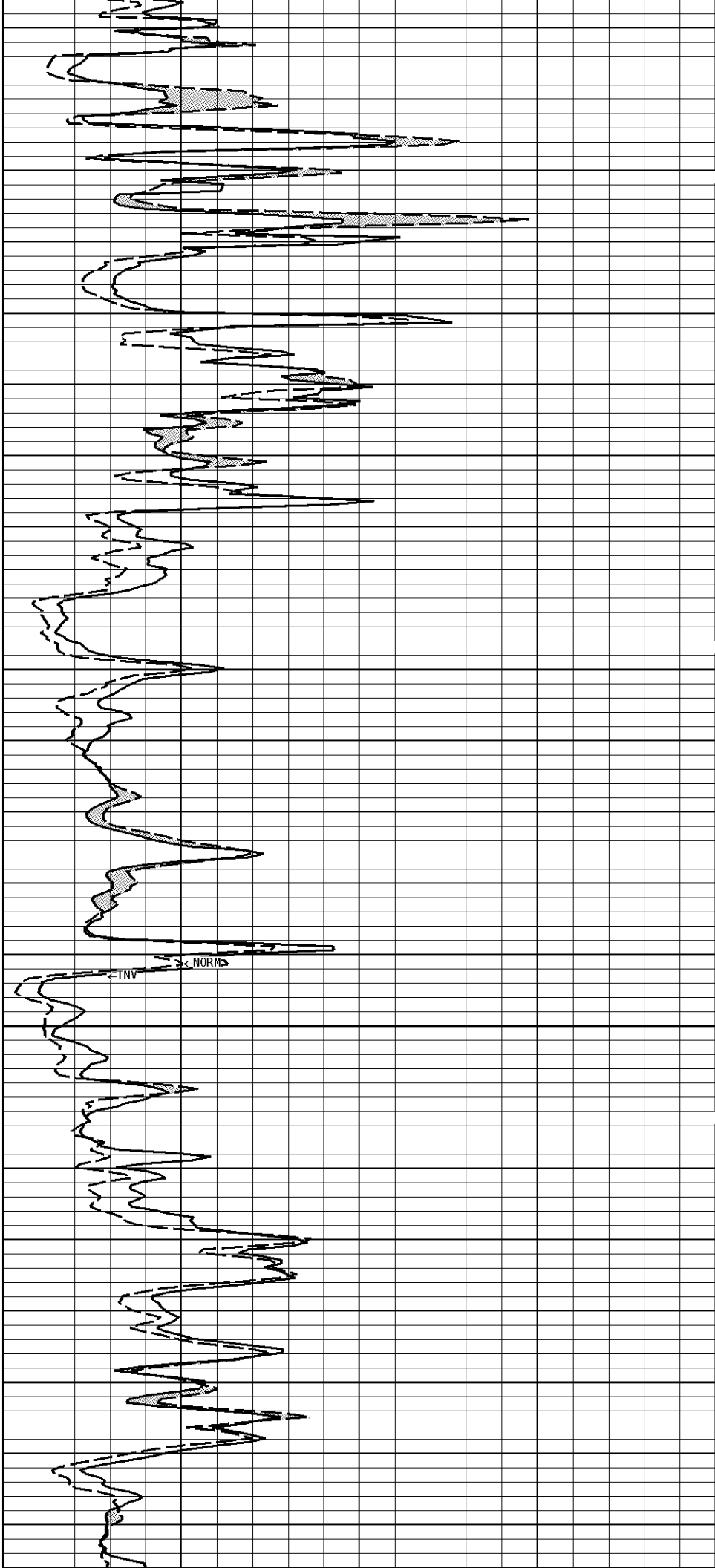
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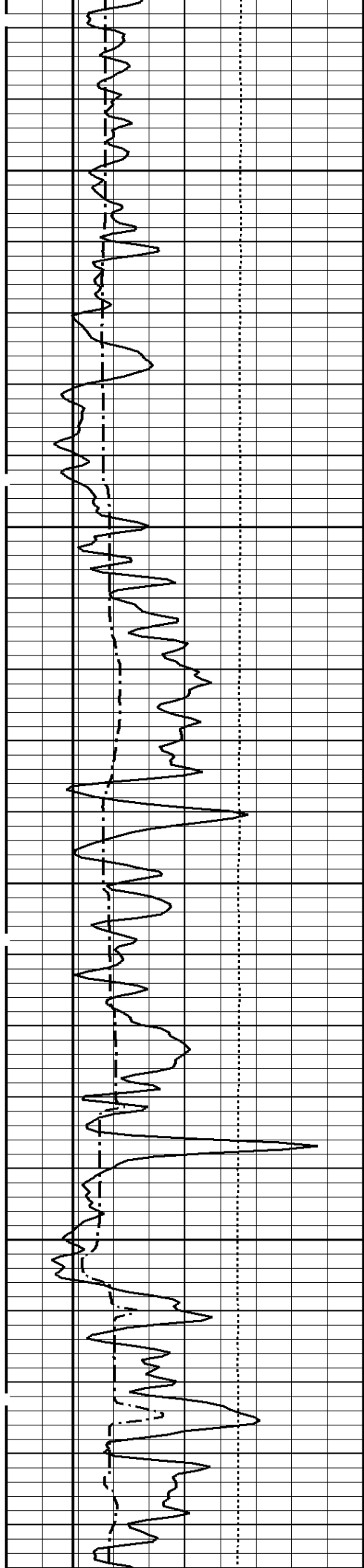




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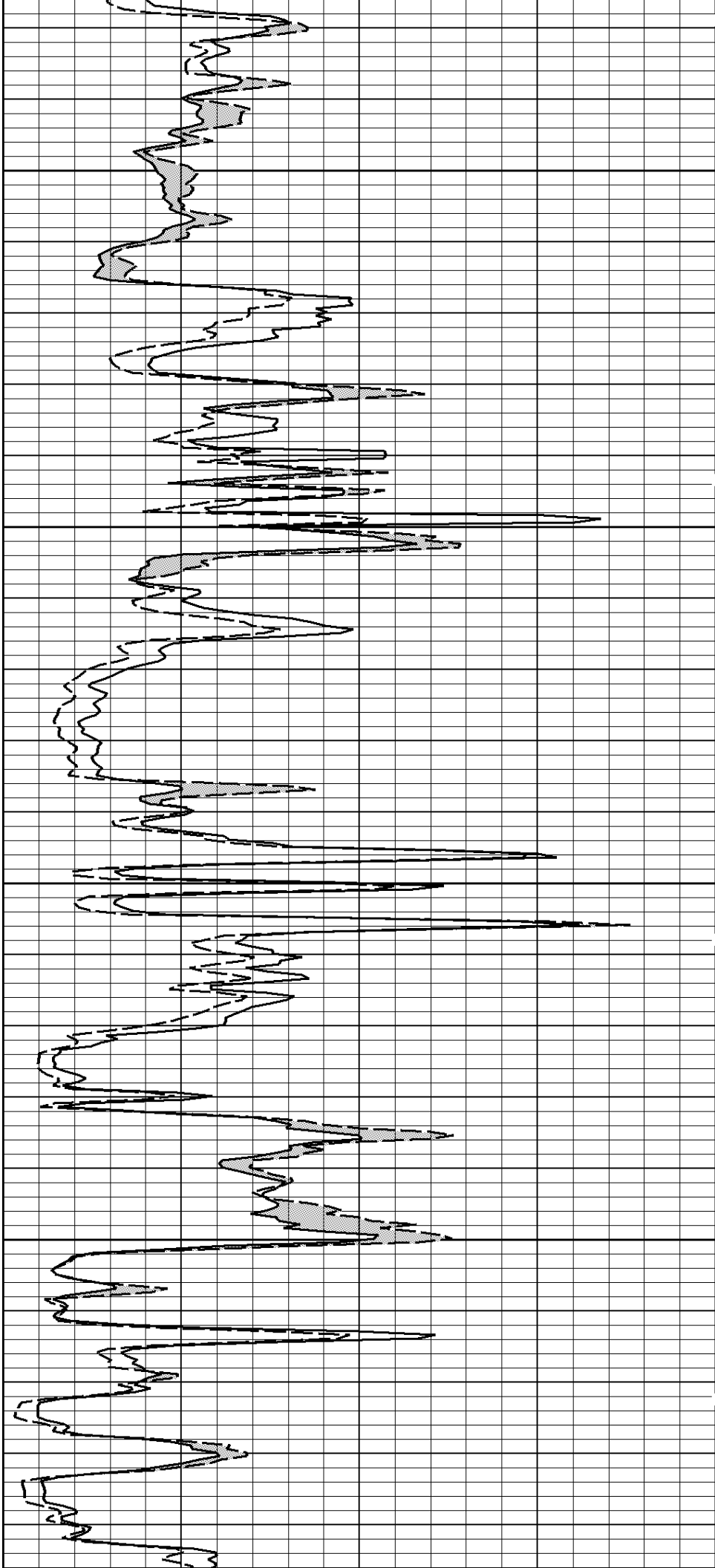
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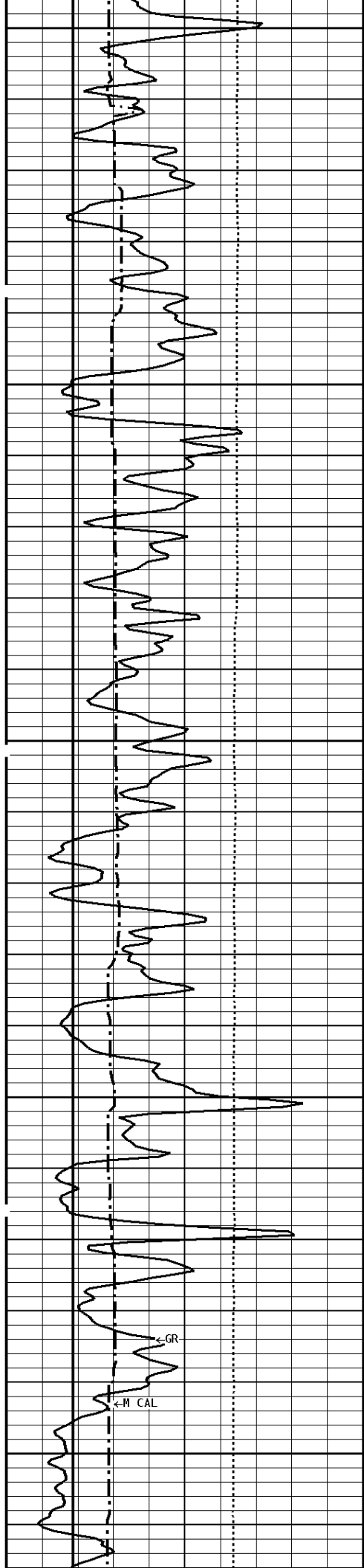




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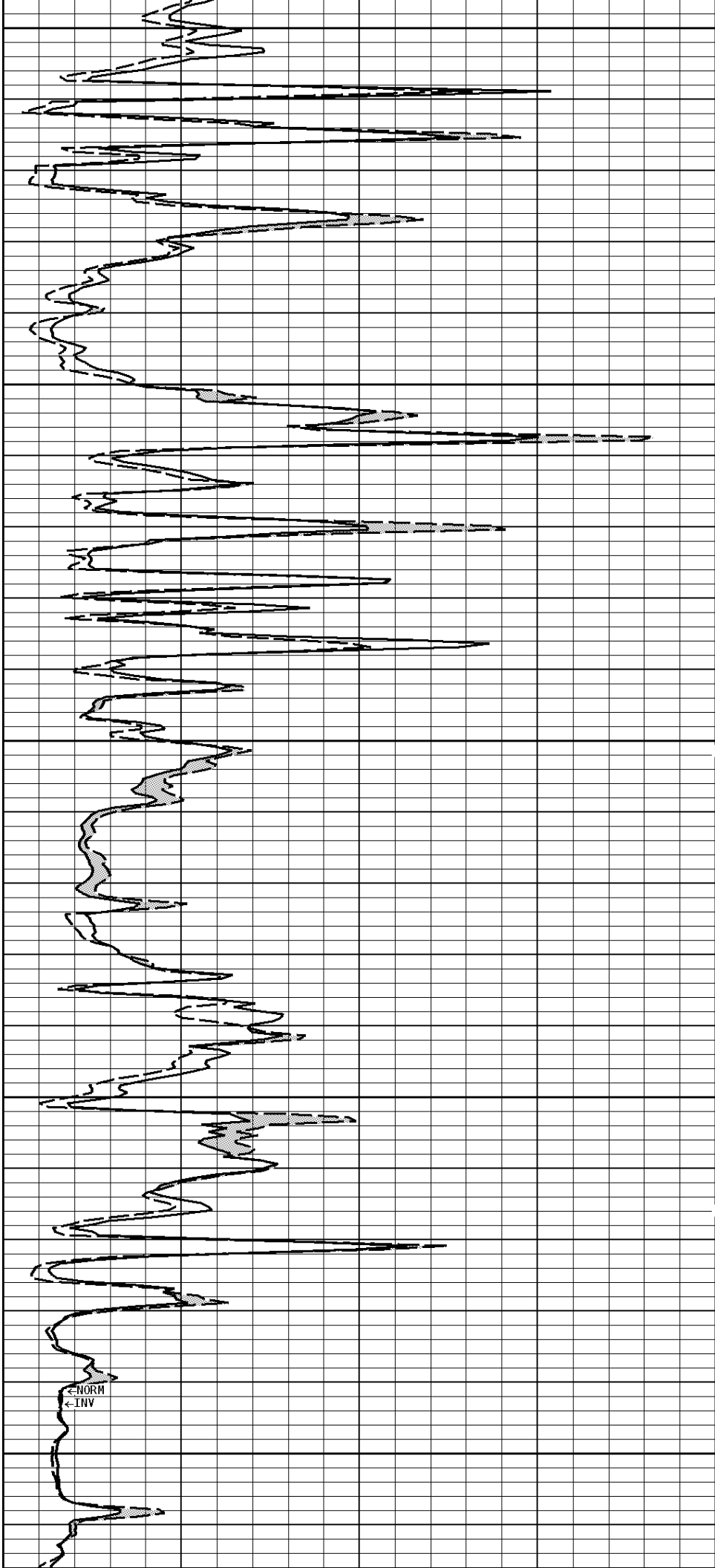


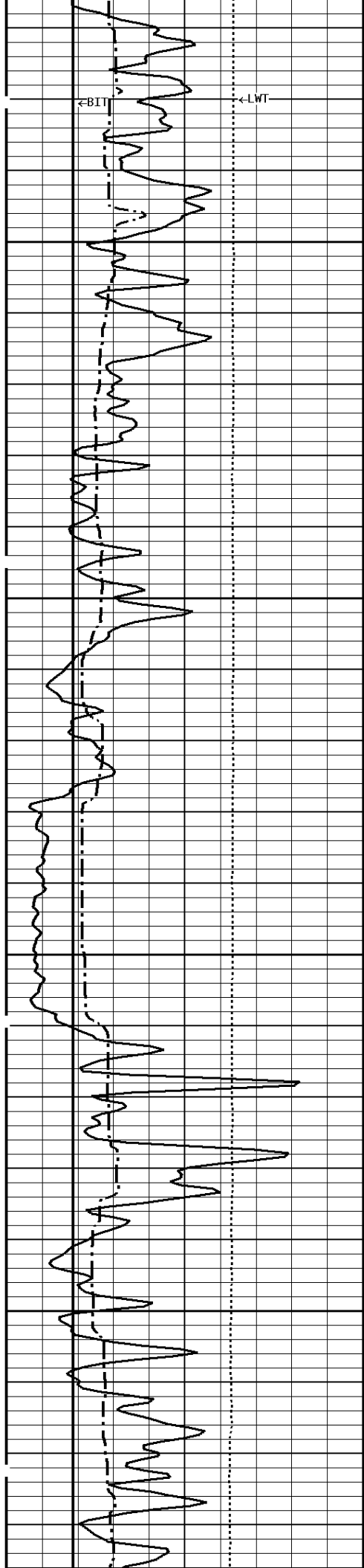
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3100

← GR  
← M CAL

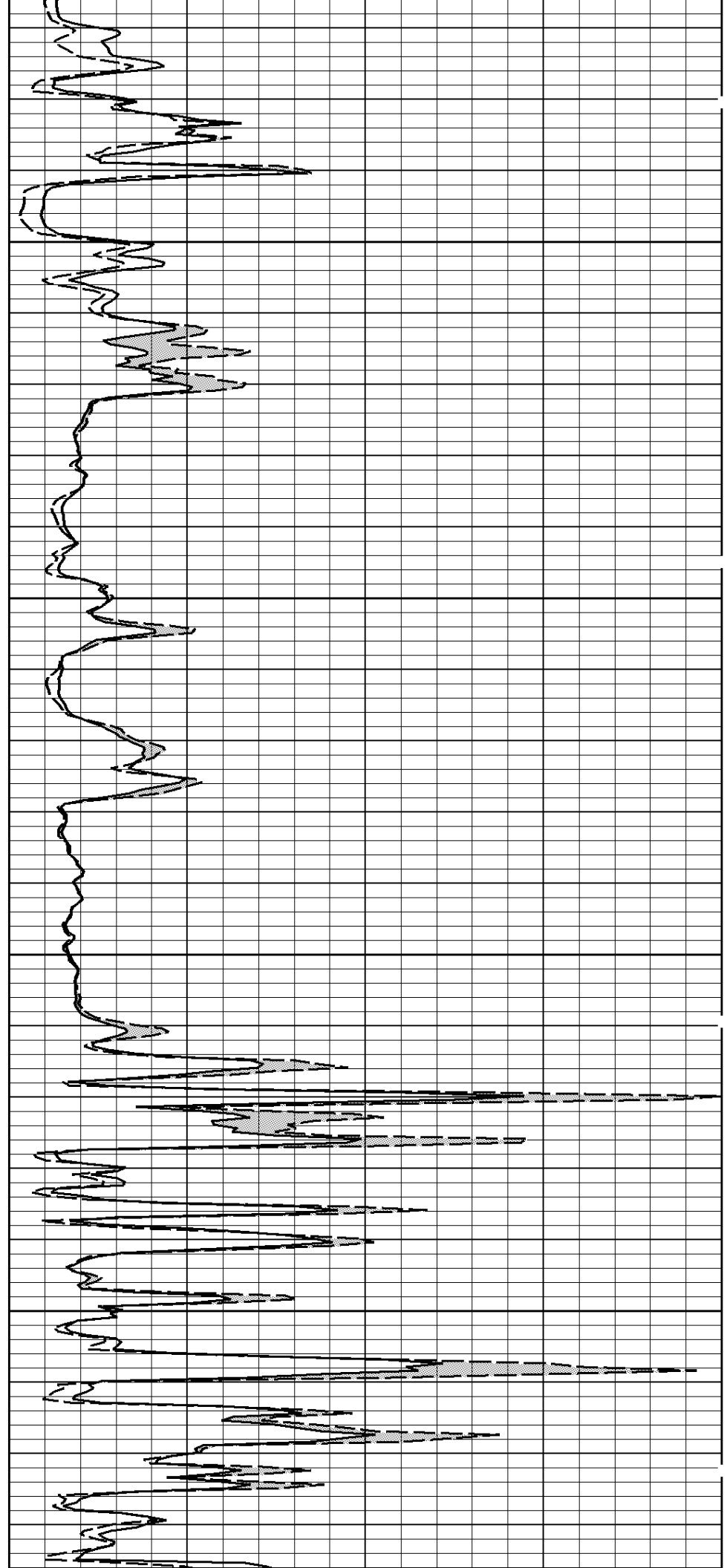
← NORM  
← INV





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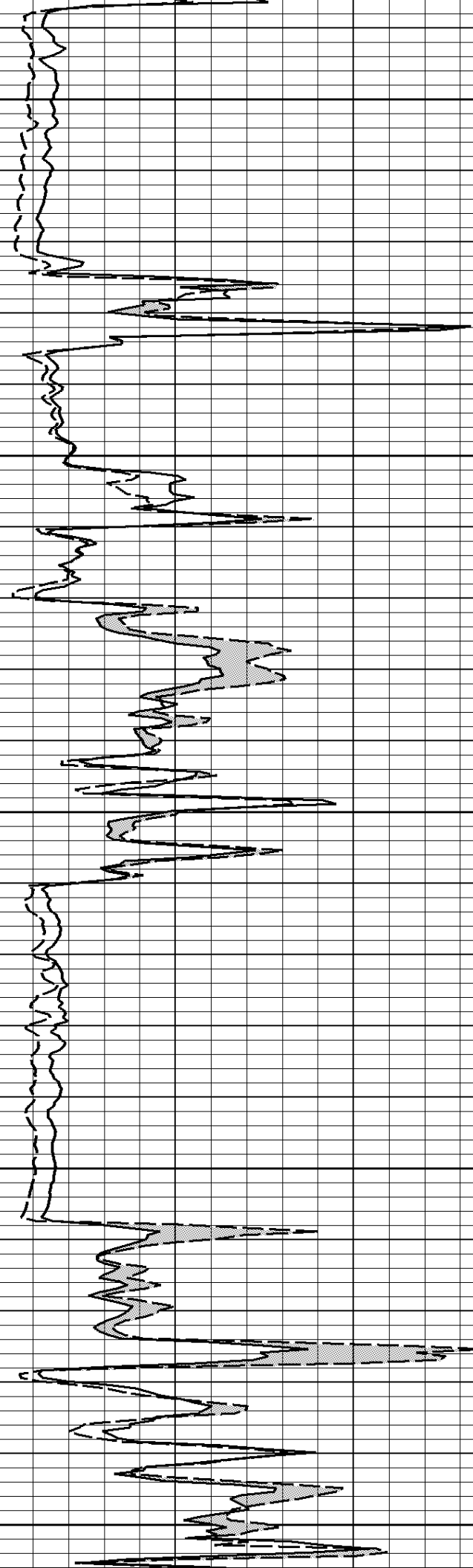
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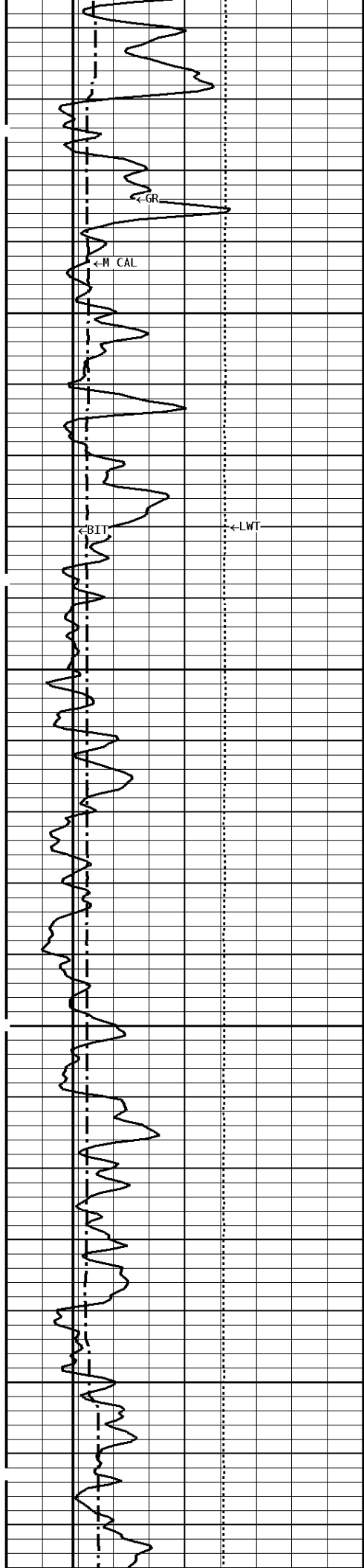


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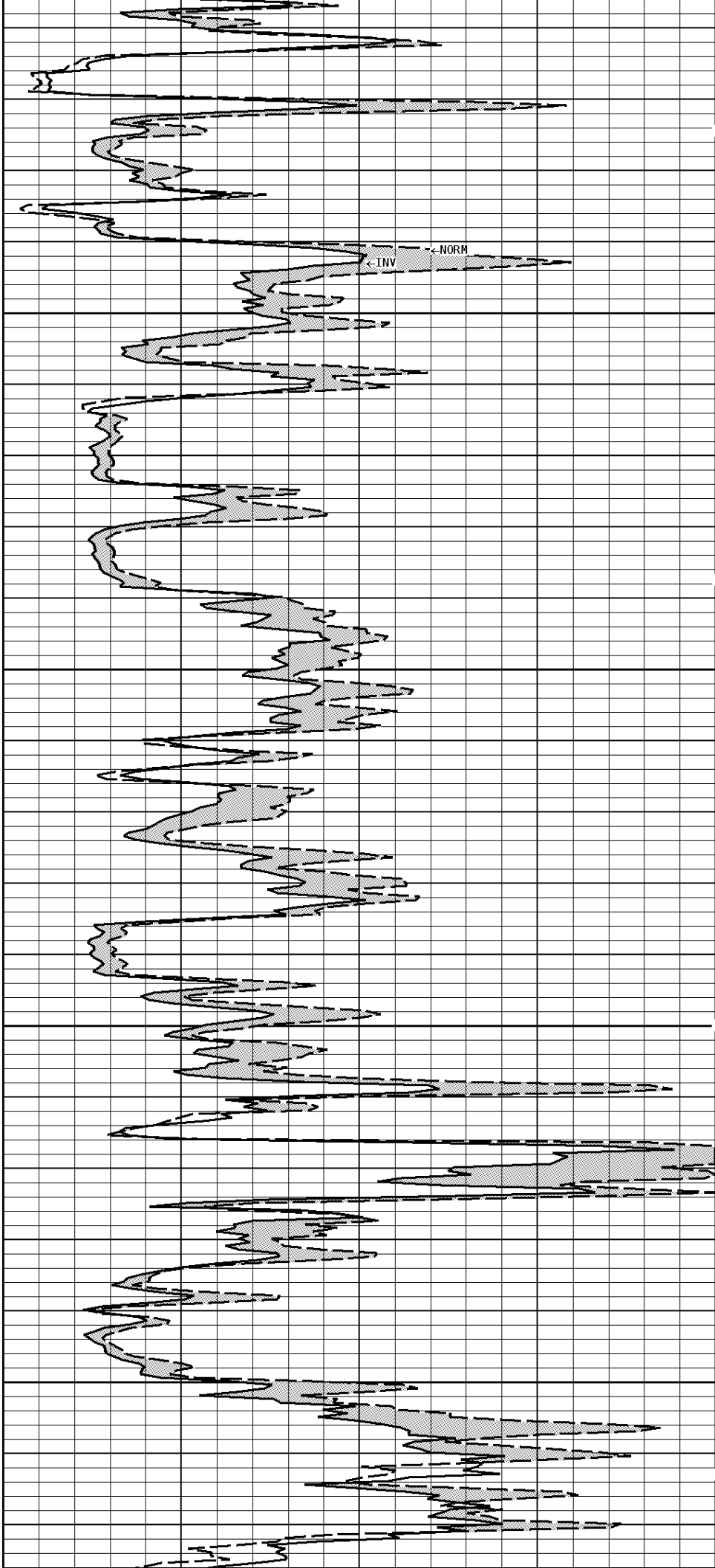
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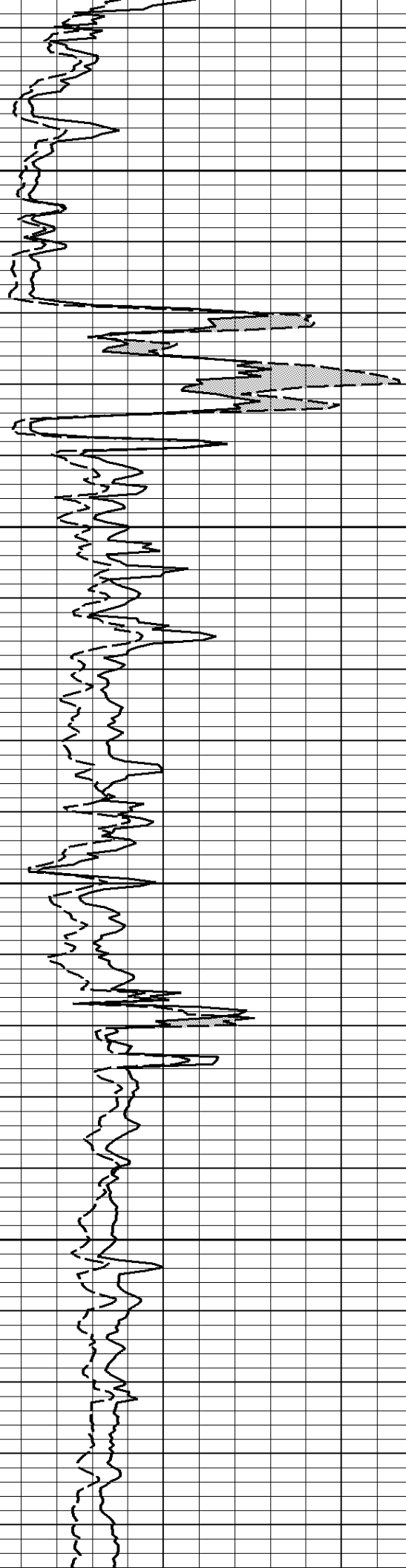
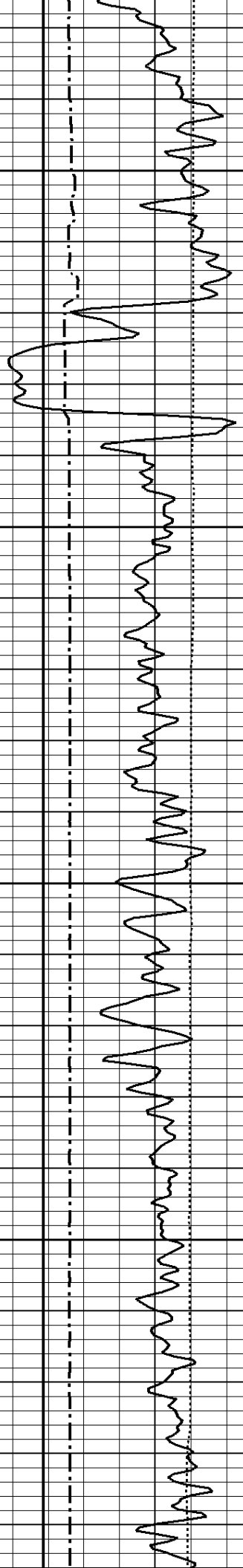
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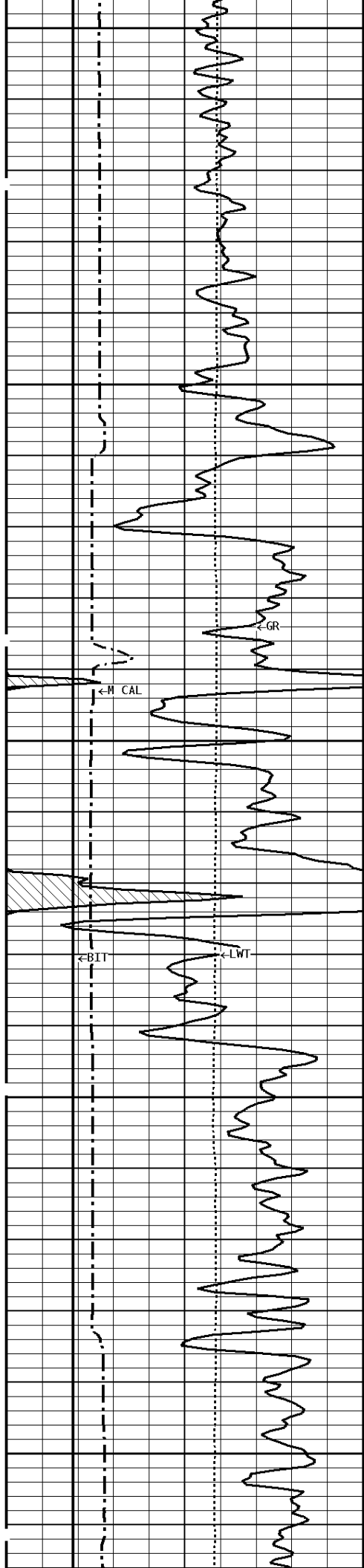
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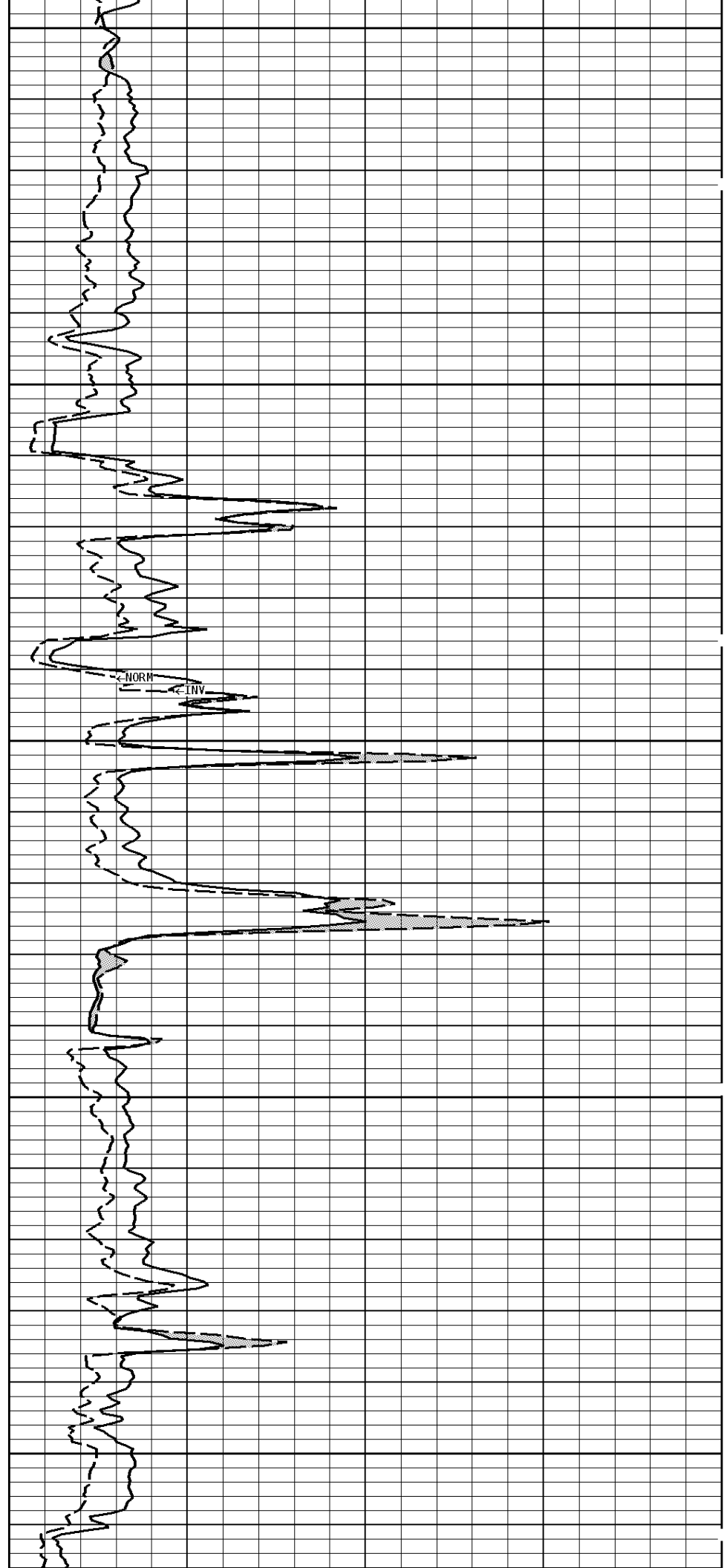
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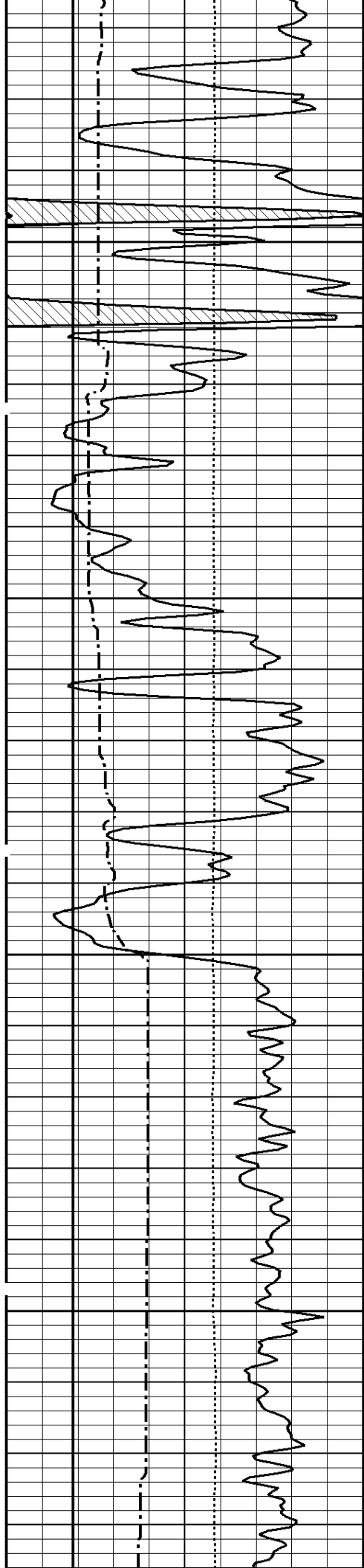




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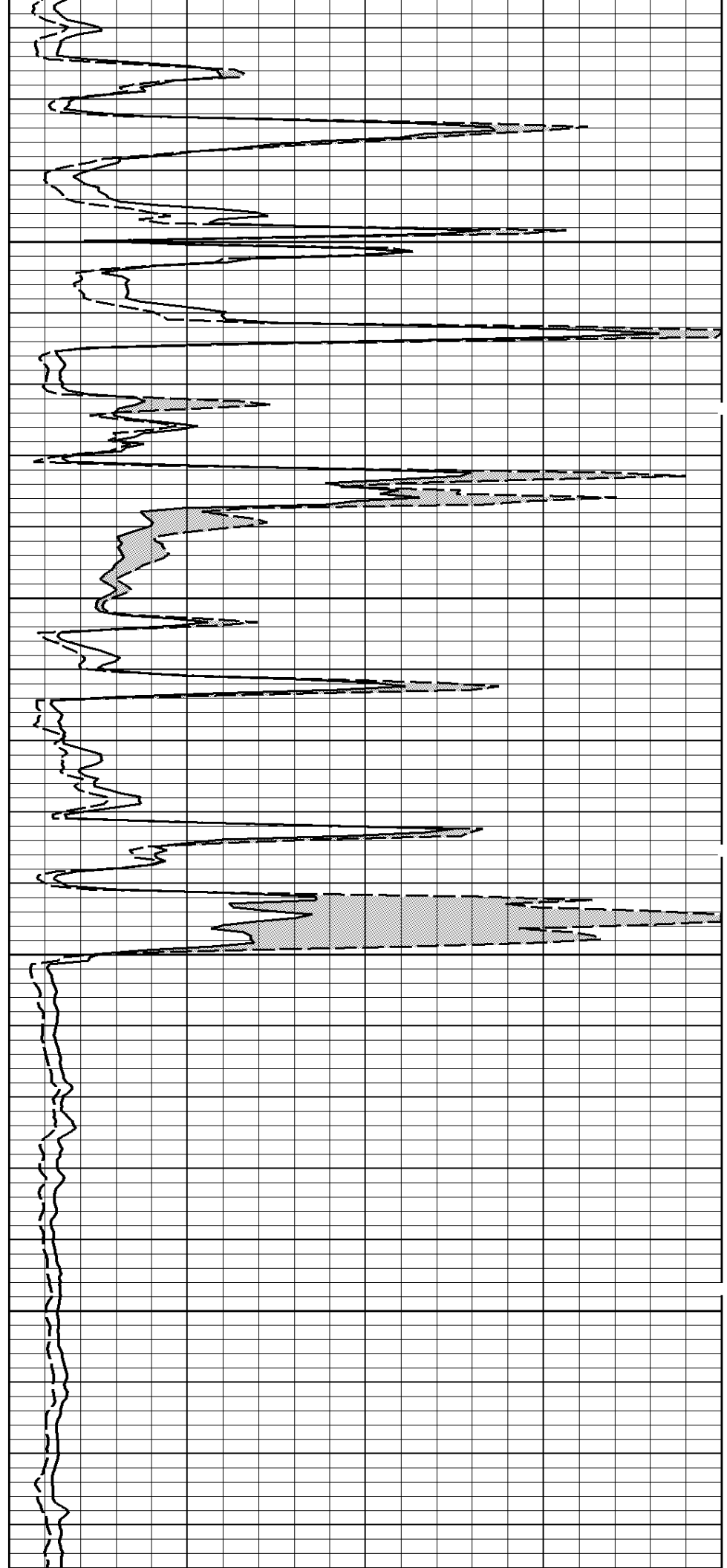
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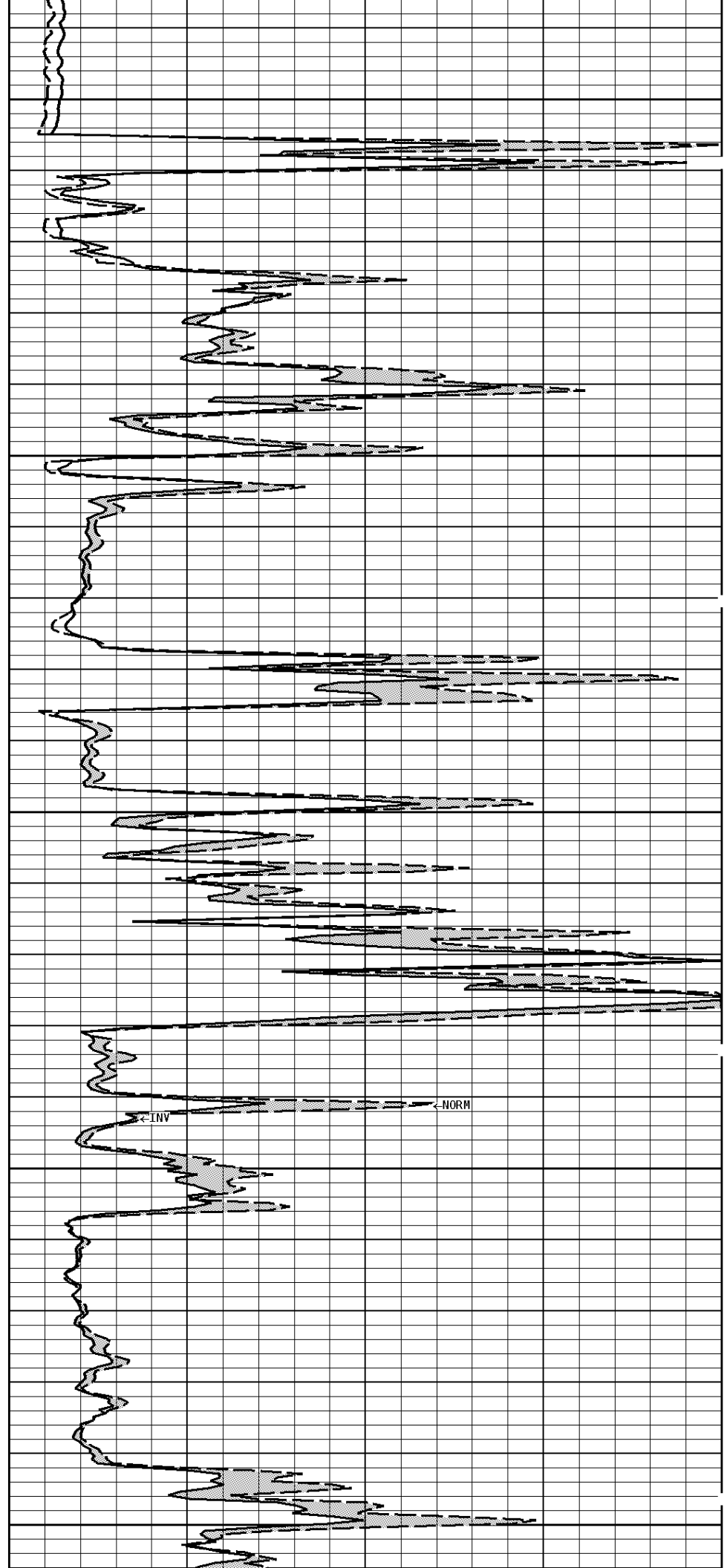
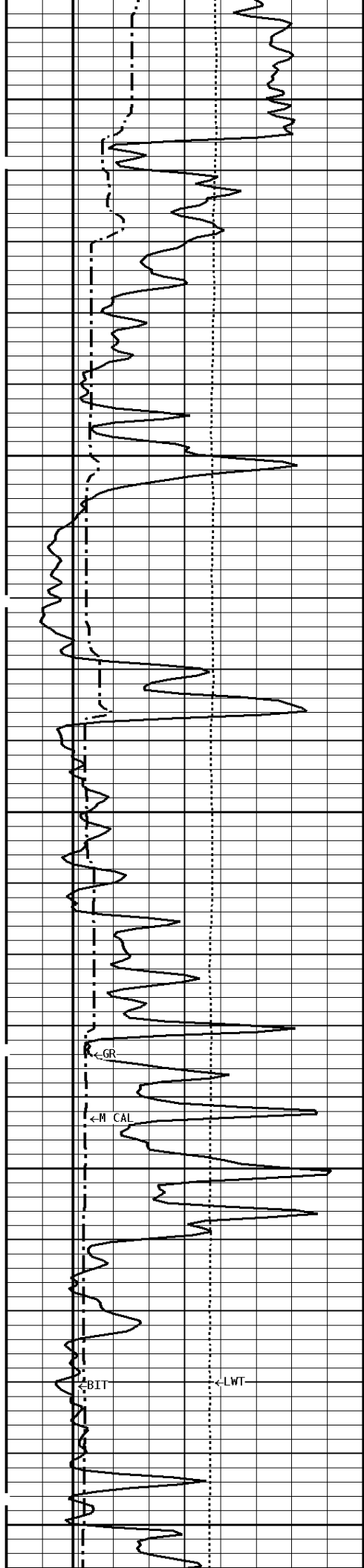
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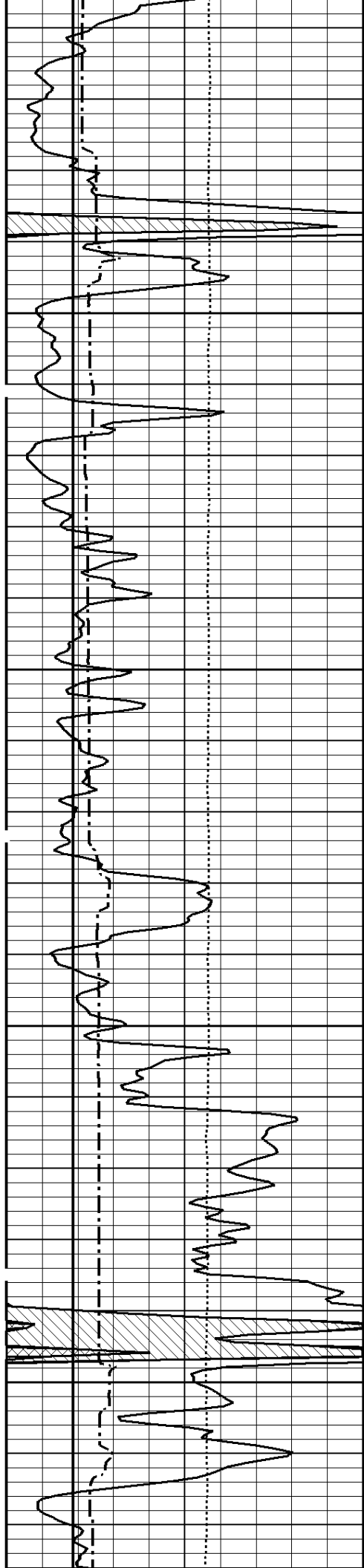


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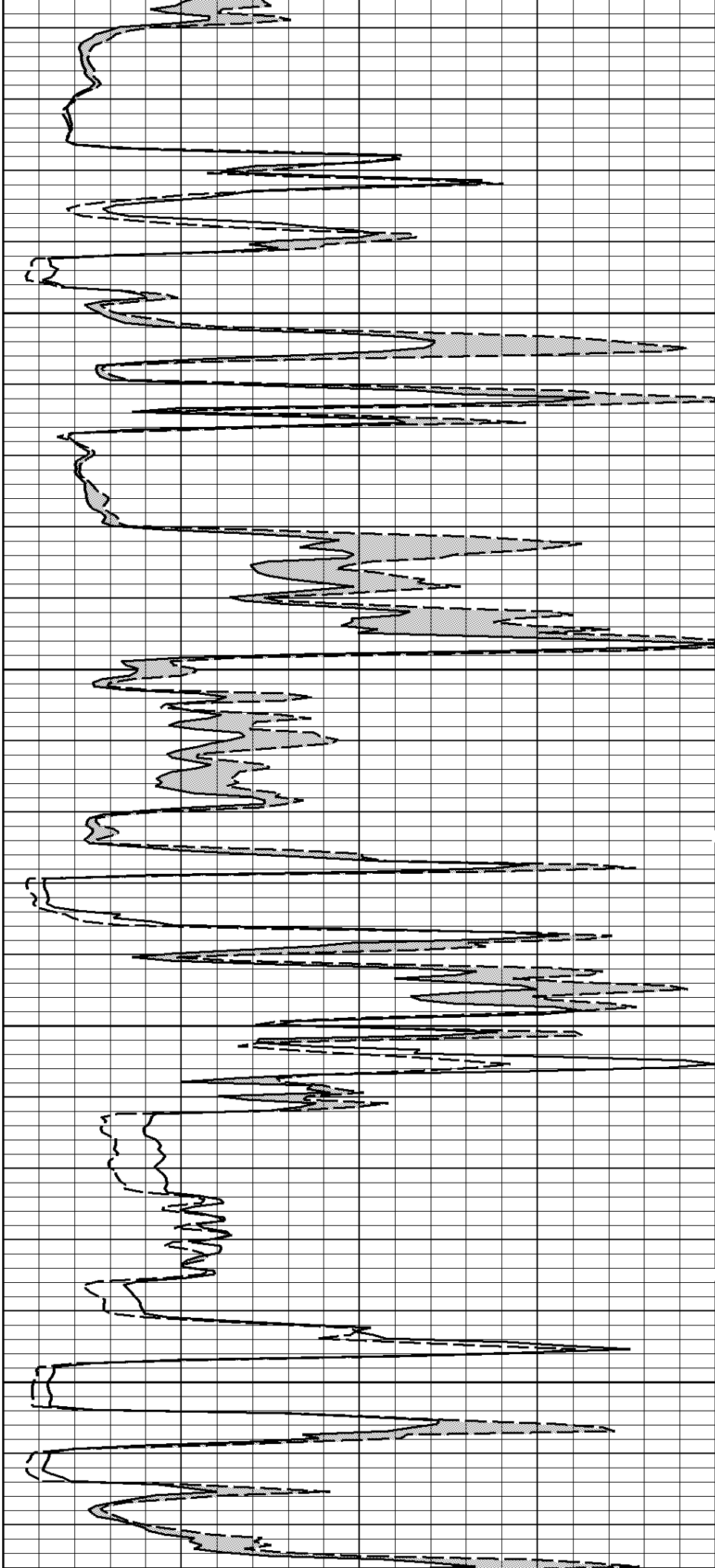
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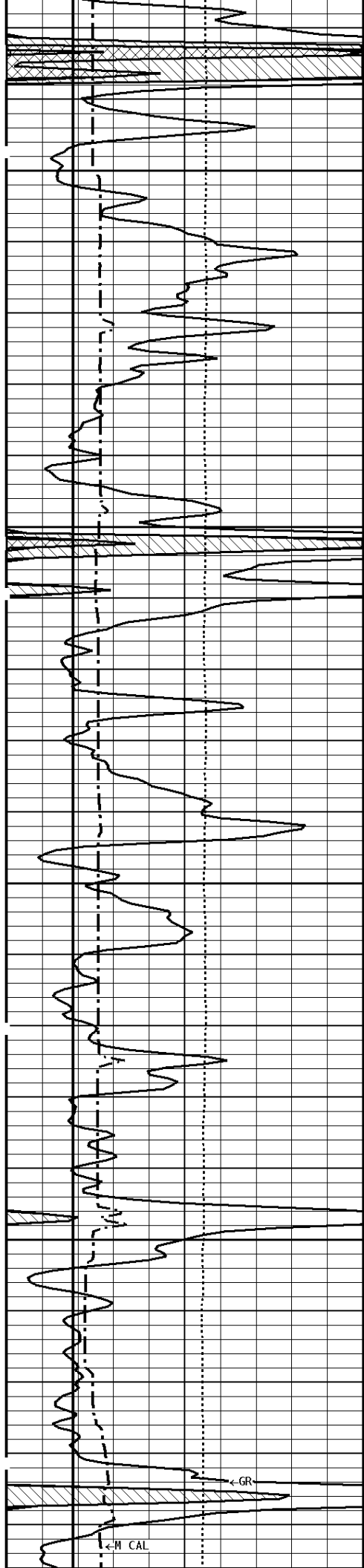




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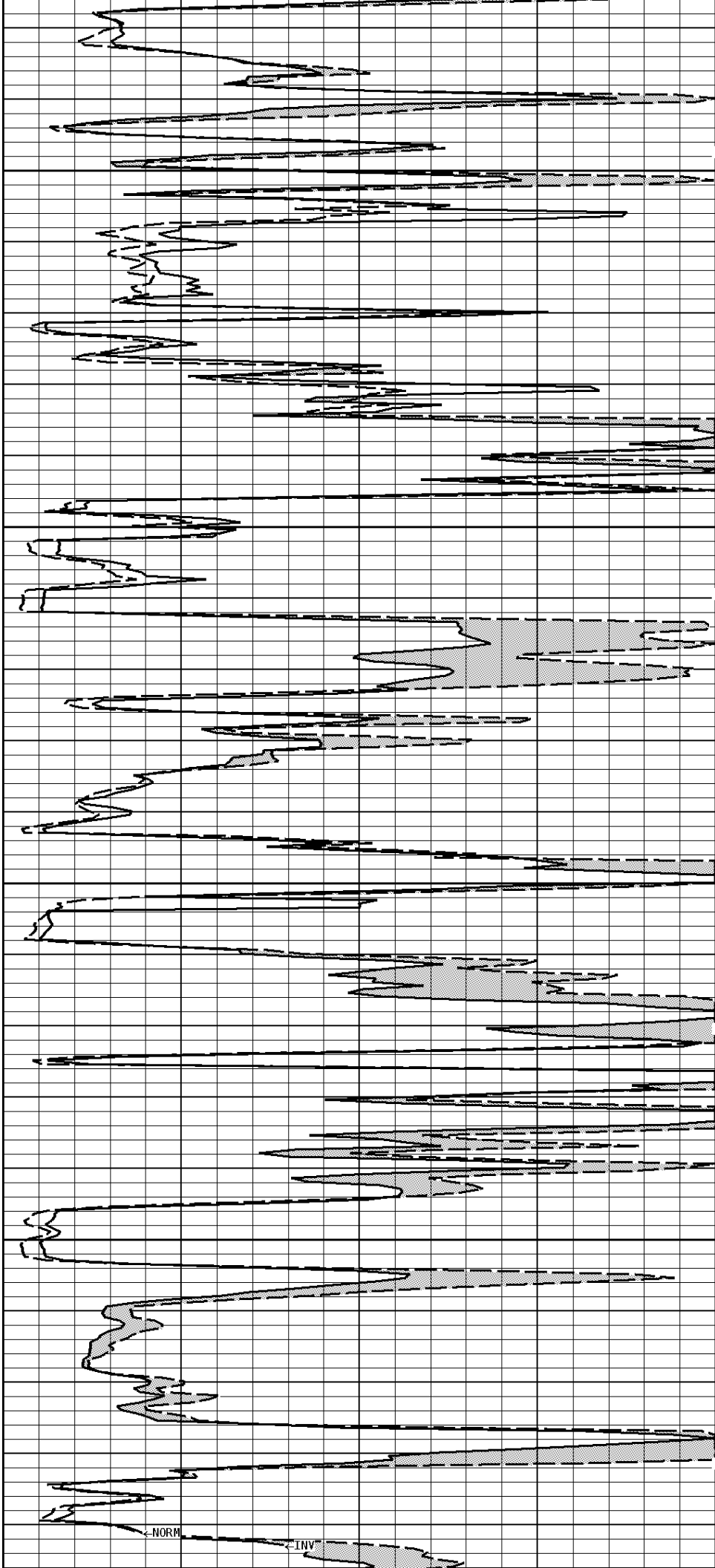
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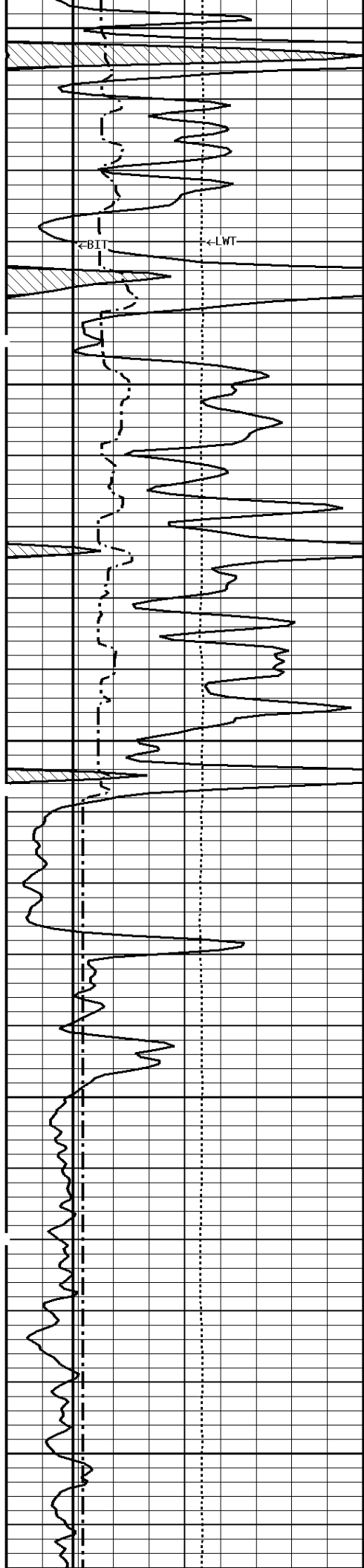


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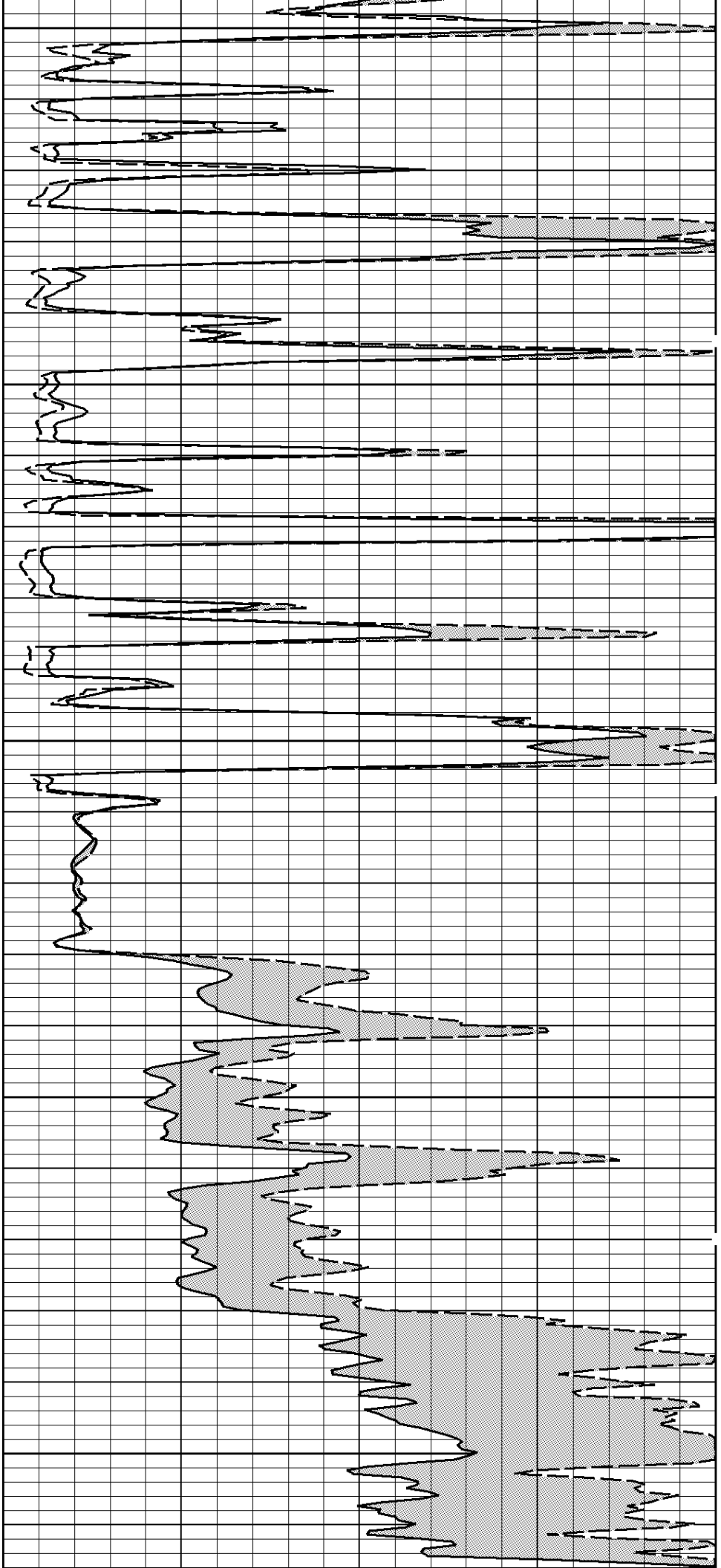
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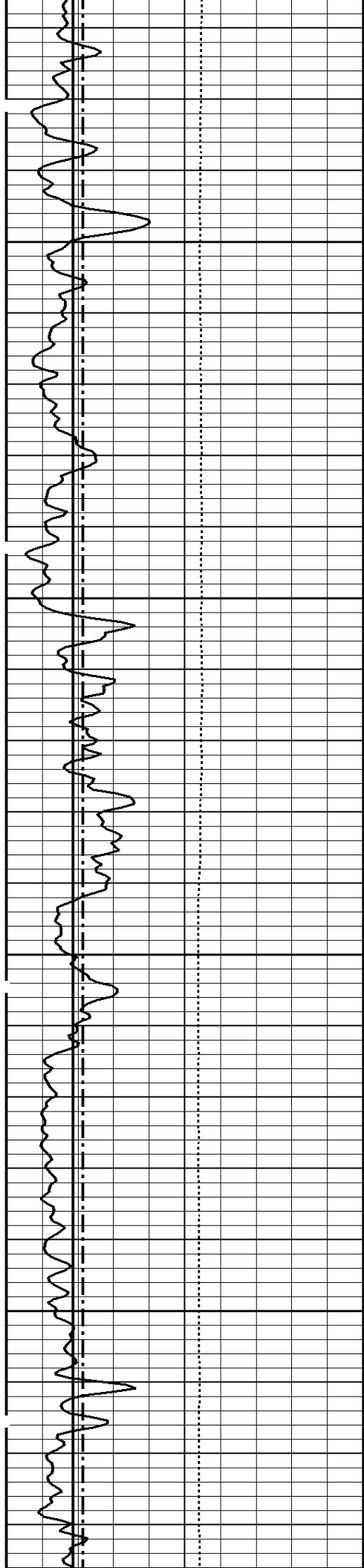
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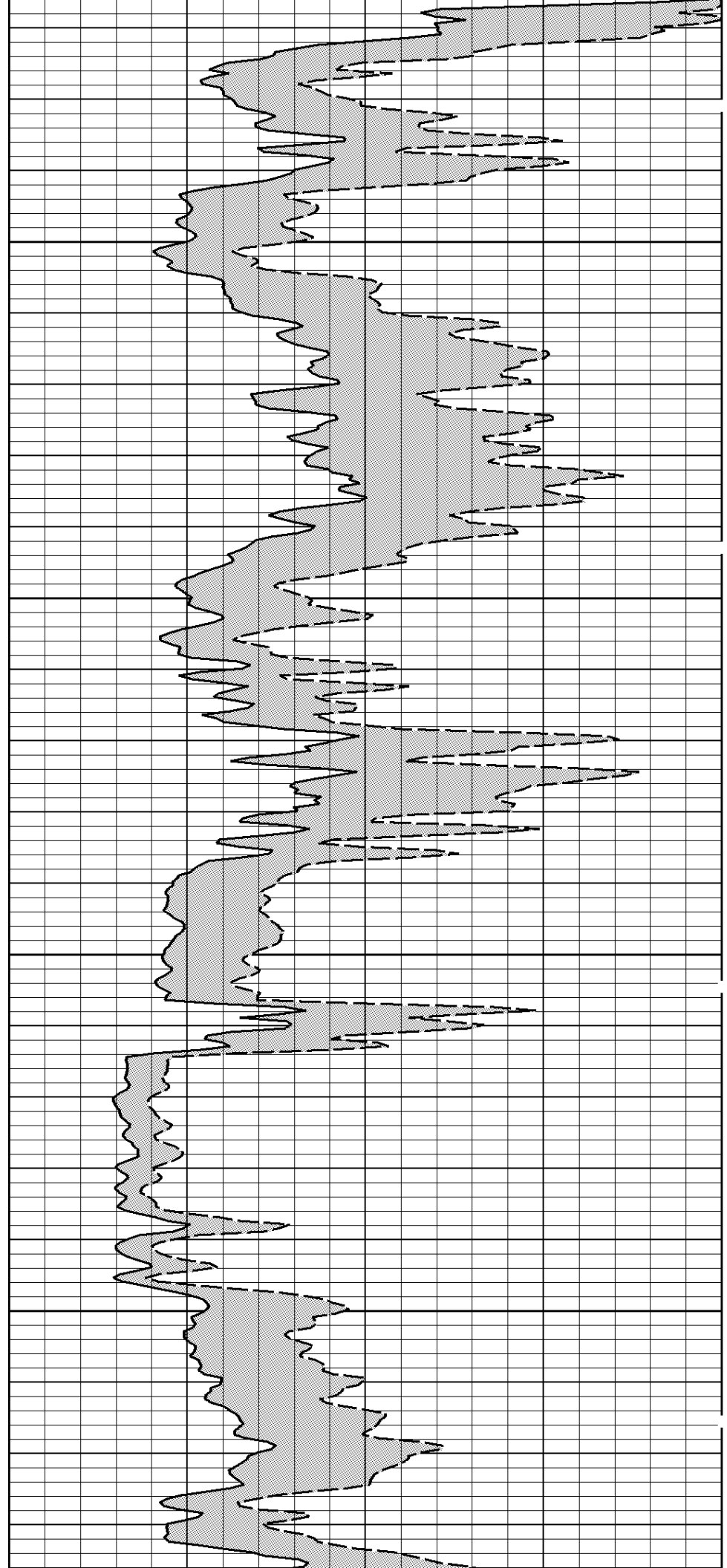
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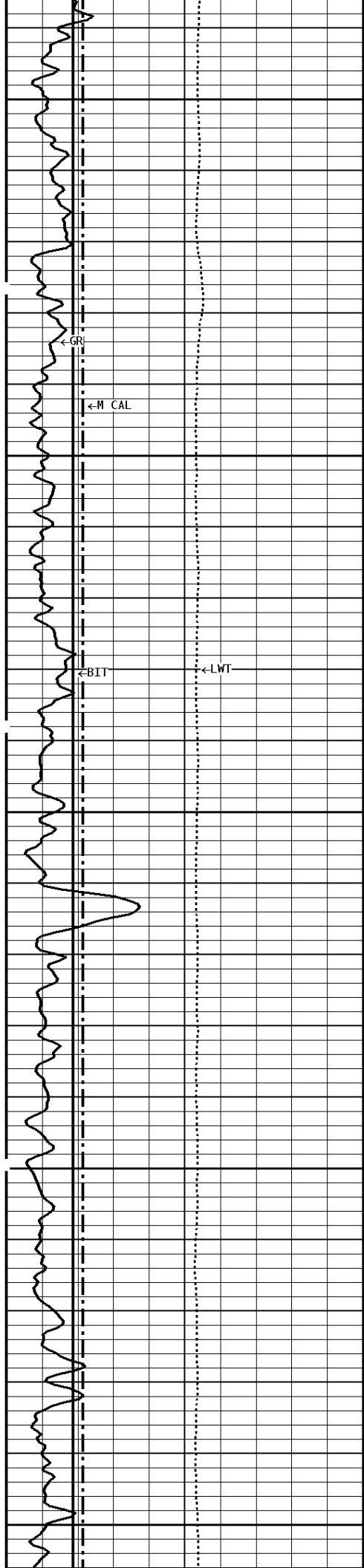




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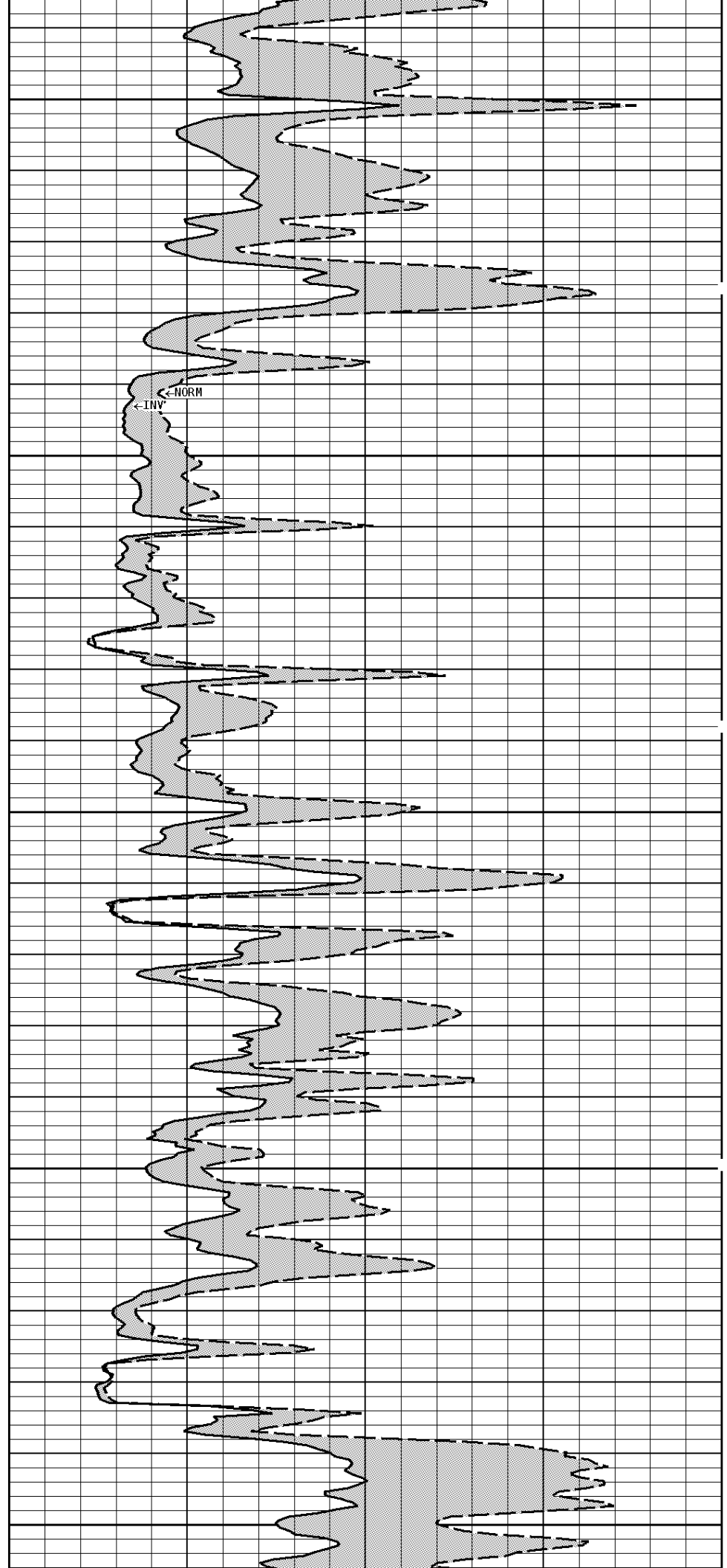


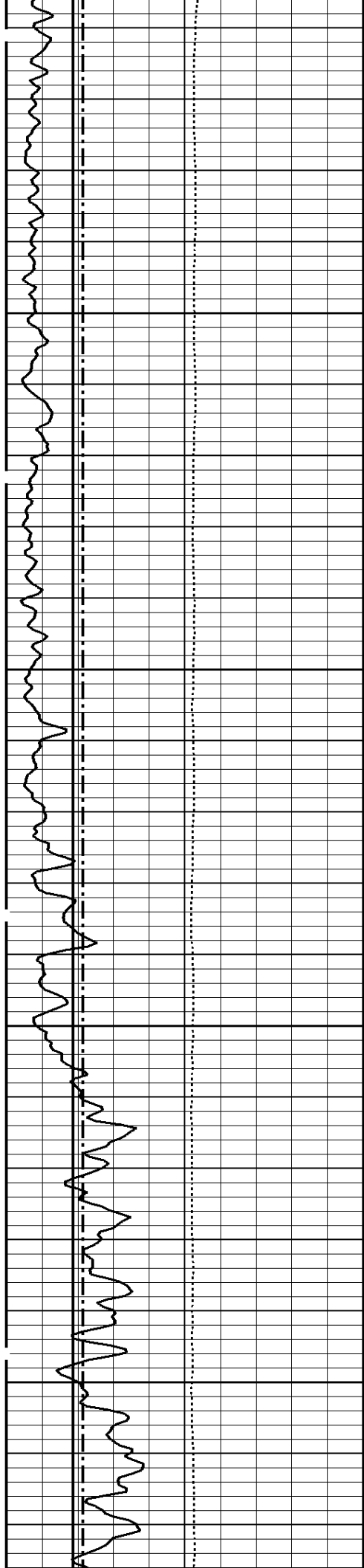


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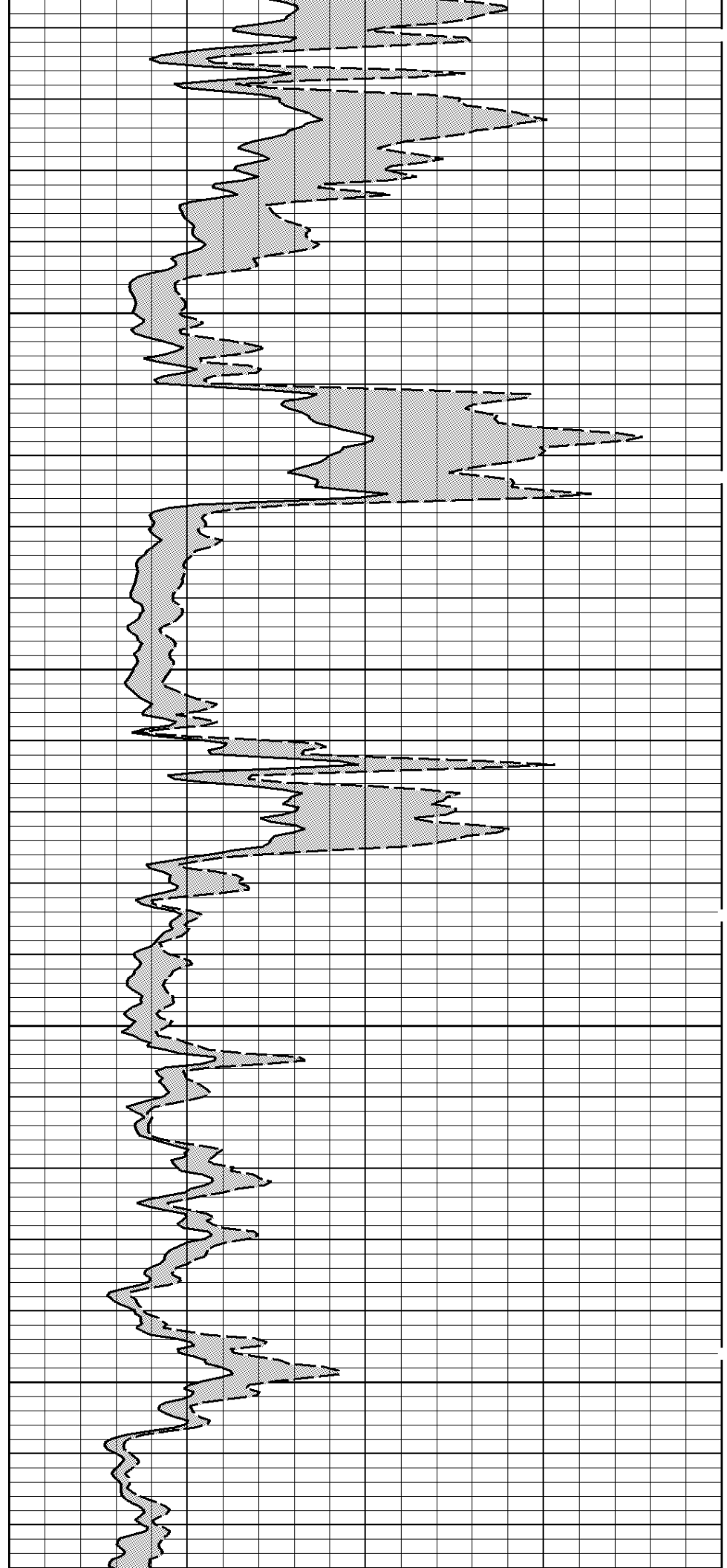
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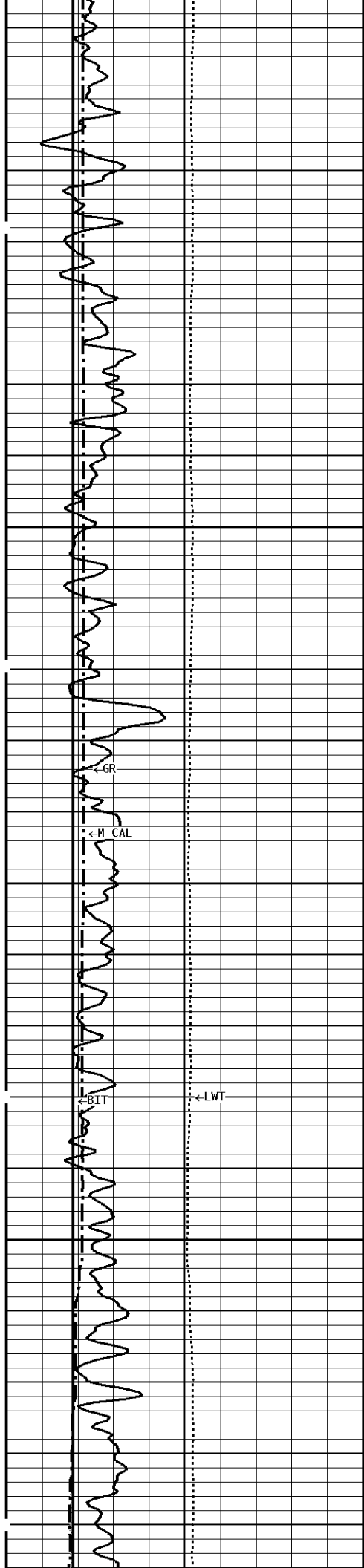




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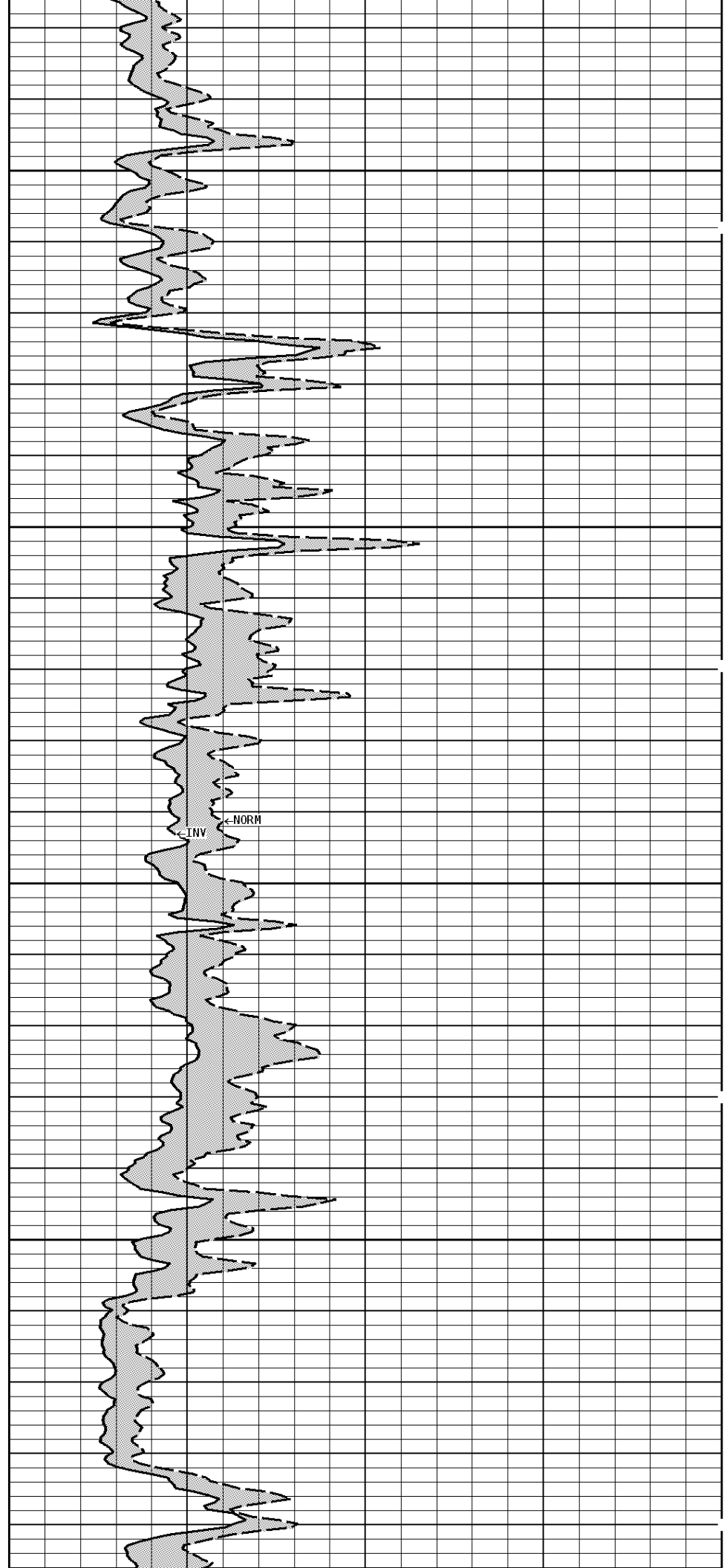
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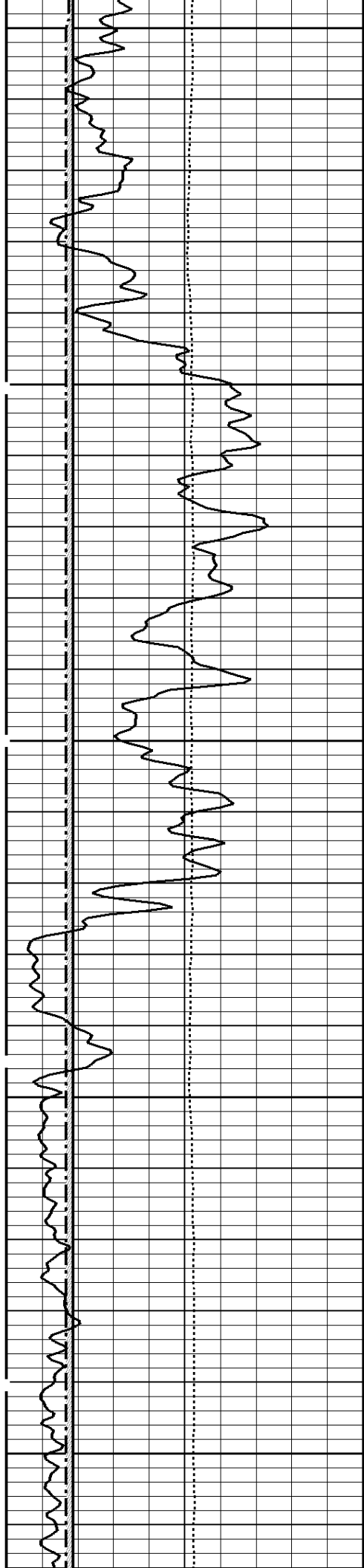




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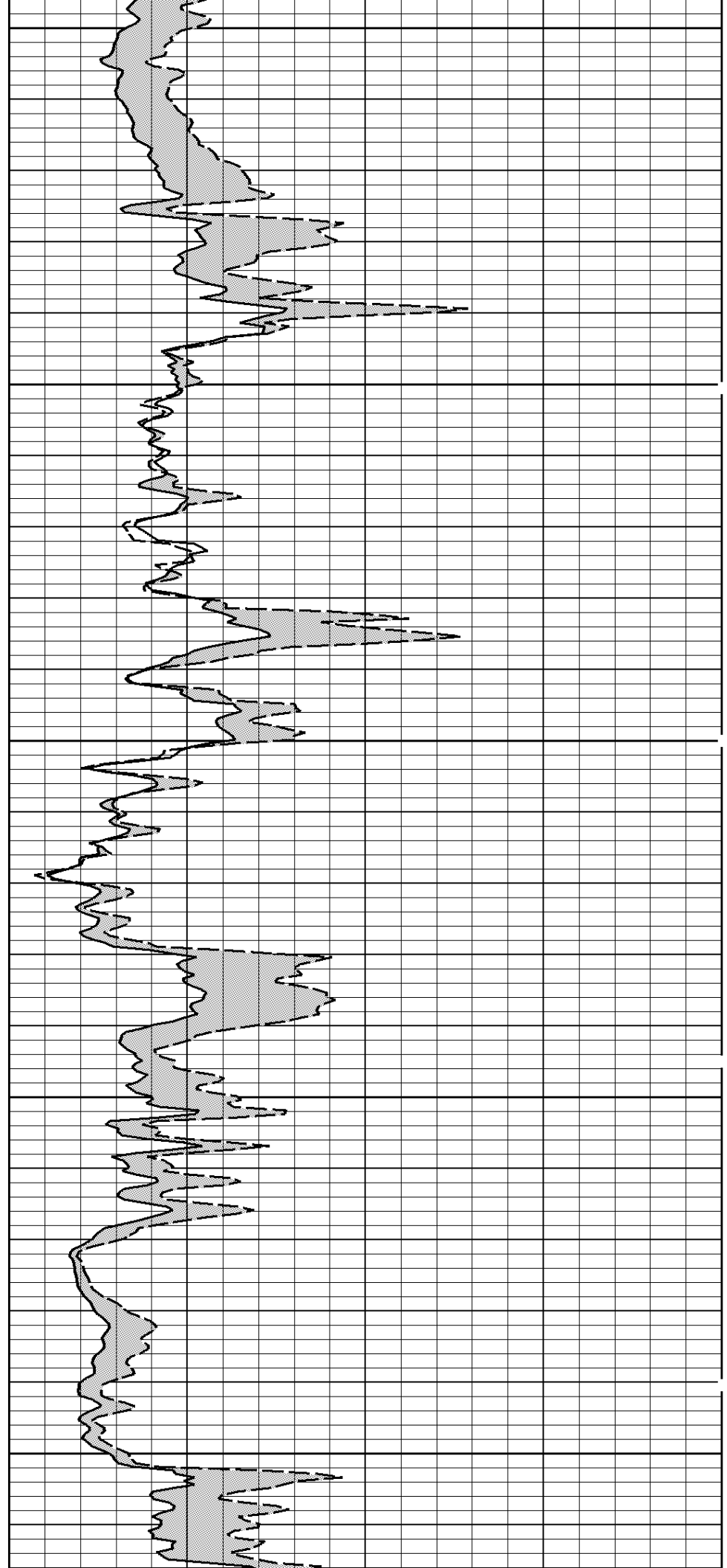
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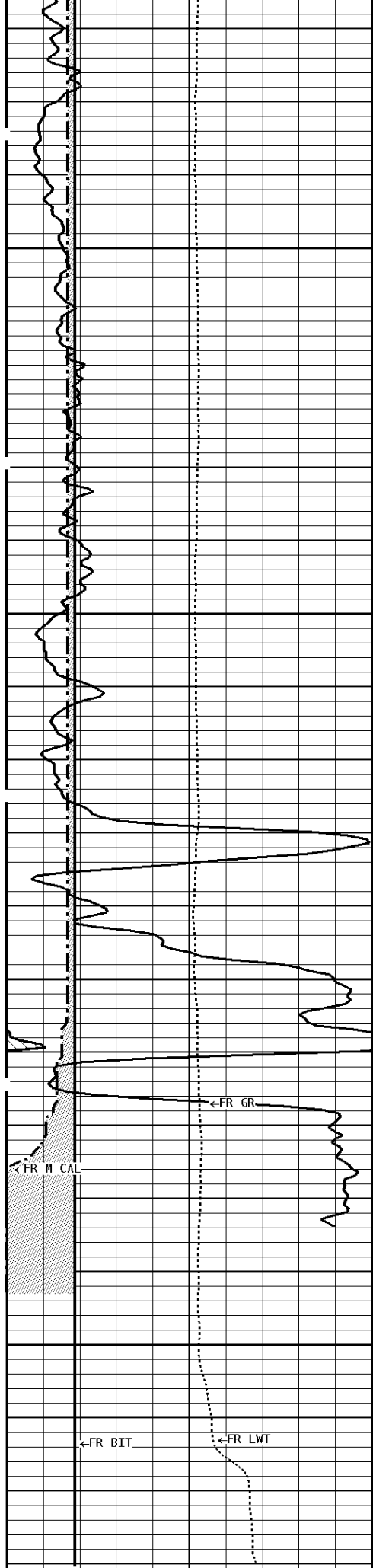




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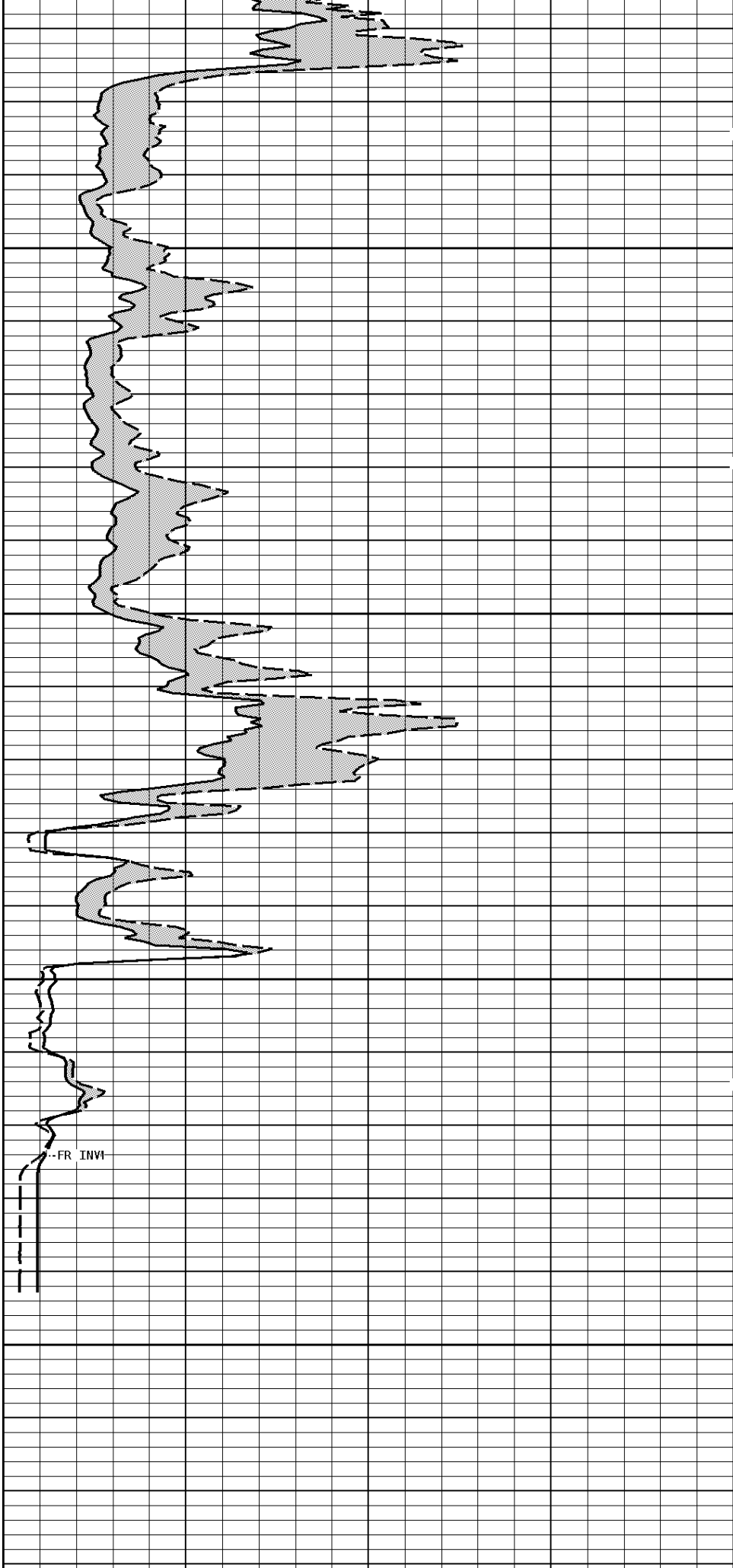




6500

6600

6664



# 1:240 MAIN SECTION

<b>GAMMA RAY API UNITS</b>	
150 0	300 150
<b>TENSION LBS</b>	
10000	0
<b>CALIPER MICRO INCHES (IN)</b>	
16 6	26 16
<b>BIT SIZE INCHES (IN)</b>	
6	16

<b>NORMAL OHMM</b>	
0	40
<b>INVERSE OHMM</b>	
0	40

**\* Borehole Zone Factors \***

<b>Zone 1 99999.0 to 0.0 Feet</b>		
Drill Bit Size	_____	7.875 in
MSTNG Normal Correction	_____	0.00 ohm/m
MSTNG Inverse Correction	_____	1.50 ohm/m

**\* Calibration Summary \***

<b>Shop Calibration GRT-B</b>						
Performed : 28-MAY-2014			Time : 09:56			
Sensor Suite : GR-GR5			ID : GRT-BB-006			
	Background	Measured Jig	Units	Calibrated Jig	Units	
GR	62	374	CPS	175	GRAPI	
<b>Shop Calibration MST-DA</b>						
Performed : 28-MAY-2014			Time : 11:44			
Sensor Suite : CALI-MSN			ID : MST-DA-25			
	Jig - Measured		Jig - Calibrated		Units	
CL # 1	Ring#1	Ring#2	Ring#1	Ring#2	IN.	
	6.7	12.4	6.0	12.0		
Performed : 28-MAY-2014			Time : 11:44			
Sensor Suite : MSTDA-NI			ID : MST-DA-25			
	Measured		Internal	Calibrated		Units
	Zero	Reference	Units	Zero	Reference	Units
INV-V	0.0	30010.6		0.00	1546.00	MV
NOR-V	0.1	30159.6		0.00	1546.00	MV
IN-C	0.0	57334.5		0.00	15.46	UA
INV-R				32.34	OHMM	
NOR-R				55.11	OHMM	