

# STEP

## energy services

### MICRO LOG

**Company** BEREXCO, LLC.  
**Well** LEMKE 'A' #3  
**Field** WAKEENEY  
**Country** TREGO  
**State** KANSAS  
**Country** USA  
**API No.** 15-195-23101-00-00

**File No** : HAYS-70631  
**Company** : BEREXCO, LLC.  
**Well** : LEMKE 'A' #3  
**Field** : WAKEENEY  
**Country** : TREGO  
**State** : KANSAS  
**Country** : USA  
**API No** : 15-195-23101-00-00

**Location** :  
 330' FSL & 1320' FWL  
 S2 S2 SW

**LSD** :                      **Sect** : 15                      **Twp** : 11S                      **Rge** : 23W

<b>Permanent Datum:</b>	GL	<b>Elevations:</b>		<b>Services:</b>	
<b>Drilling Measured From:</b>	KB	KB 2271.00	Ft	CNP	MLT
<b>Log Measured From:</b>	KB	DF 2270.00	Ft	LDP	PIT
<b>Above Permanent Datum:</b>	7.00 Ft	GL 2264.00	Ft	CST	
<b>Date</b>	03-16-2020				
<b>Run Number</b>	1				
<b>Depth--Driller</b>	4075.0 Ft				
<b>Depth--Logger</b>	4076.0 Ft				
<b>First Reading</b>	4054.0 Ft				
<b>Last Reading</b>	263.0 Ft				
<b>Casing--Driller</b>	263.0 Ft				
<b>Casing--Logger</b>	263.0 Ft				
<b>Bit Size</b>	7.875 In				
<b>Casing Size</b>	8.625 In				
<b>Hole Fluid Type</b>	CHEMICAL				
<b>Density</b>	9.3				
<b>Fluid Loss</b>	7.6				
<b>PH/Viscosity</b>	9.5                      50.0				
<b>Sample Source</b>	MEASURED				
<b>RM@Measured Temp.</b>	1.000 @ 79 F				
<b>RMF@Measured Temp</b>	0.850 @ 79 F				
<b>RMG@Measured Temp.</b>	1.150 @ 79 F				
<b>Source RMF/RMC</b>	CALCULATED/CALCULATED				
<b>RM@BHT</b>	0.680 @ 123 F				
<b>Time Circulation Stopped</b>	03-16-2020 12:00				
<b>Max Recorded Temp.</b>	123 F				
<b>Equipment/Base</b>	TRK137                      HAYS				
<b>Recorded By</b>	B.BAILEY				
<b>Witnessed By</b>	JERRY SMITH				

The customer is hereby warned that by providing the log data herein, STEP Energy Services does not agree to provide any interpretation of log data, conversion of log data to physical rock parameters or recommendations. STEP Energy Services 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 STEP Energy Services 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 STEP Energy Services 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	4075.00	8.625	17.00	263.00	0.00

<b>Run Number</b>	1	
<b>Date</b>	03-16-2020	
<b>Date/Time On Bottom</b>	03-16-2020 17:15	
<b>Depth to Fluid</b>	0.0	Ft
<b>Salinity</b>	3000.000	
<b>RMF@BHT</b>	0.680	@ 123 F
<b>RMC@BHT</b>	0.780	@ 123 F

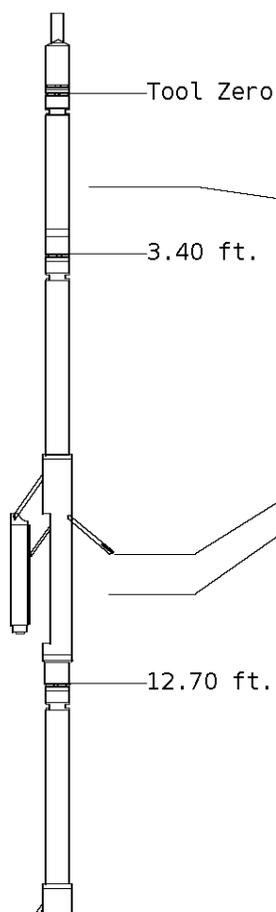
ALL PRESENTATIONS AS PER CUSTOMER REQUEST  
 GRT, CNT, LDT, CST, MLT AND PIT RUN IN COMBINATION  
 CALIPERS ORIENTED ON X-Y AXIS  
 2.71 G/CC USED TO CALCULATE POROSITY  
 ANNULAR HOLE VOLUME CALCULATED USING 5.5" PRODUCTION CASING  
 PHIN IS CALIPER CORRECTED

GRT: GRP  
 CNT: PHIN, CLCNIN,  
 LDT: PORL, LCORN, PECLN, LDENN, PORLLS, CLLDIN  
 CST: PORS, CDTF, TTIPF, TT2PF, TT3PF, TT4PF, ITT  
 MLT: NOR\_RF, INV\_RF, MSCLPIN  
 PIT: ILD, ILM, SPU, SFLAEC, CIRD

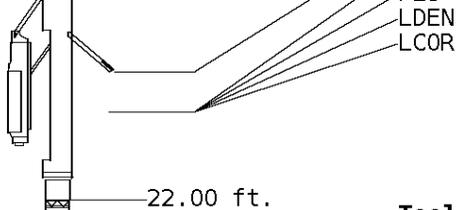
OPERATORS:  
 D. RAGSDALE  
 J. VAUGHN  
 D.LEGLEITER

### Tool String Schematic

**Total Tool Length** - 66.95 ft.  
**Maximum Outside diameter** - 6.00 in.  
**Net Weight in Air** - 1171.00 lbs.



<b>Tool:</b> GRT-B Gamma Ray Controller	<b>Length:</b> 3.40 ft.	<b>O.D.:</b> 3.60 in.		
<b>Sonde ID</b> :GRT-BC-038				
<b>Measure Point</b>	<b>Tool Offset</b>	<b>Stack Offset</b>	<b>Bottom Offset</b>	
GRP	2.00	2.00	64.95	
<b>Tool:</b> CNT-AA Compensated Neutron A Pad on NDT-A	<b>Length:</b> 9.30 ft.	<b>O.D.:</b> 4.36 in.		
<b>Sonde ID</b> :NDT-AF-411				
<b>Source ID</b> :N-1104				
<b>Pad ID</b> :CNP-AE-41				
<b>Measure Point</b>	<b>Tool Offset</b>	<b>Stack Offset</b>	<b>Bottom Offset</b>	
CLCN	6.00	9.40	57.55	
PHIN	6.80	10.20	56.75	
<b>Tool:</b> LDT-DA Litho Density D Pad on NDT-A	<b>Length:</b> 9.30 ft.	<b>O.D.:</b> 4.80 in.		
<b>Sonde ID</b> :NDT-FA-404				
<b>Source ID</b> :1637GW				
<b>Pad ID</b> :LDP-DA-062				
<b>Measure Point</b>	<b>Tool Offset</b>	<b>Stack Offset</b>	<b>Bottom Offset</b>	
CLLD	6.00	18.70	48.25	
PEL	7.00	19.70	47.25	
PES	7.40	20.10	46.85	

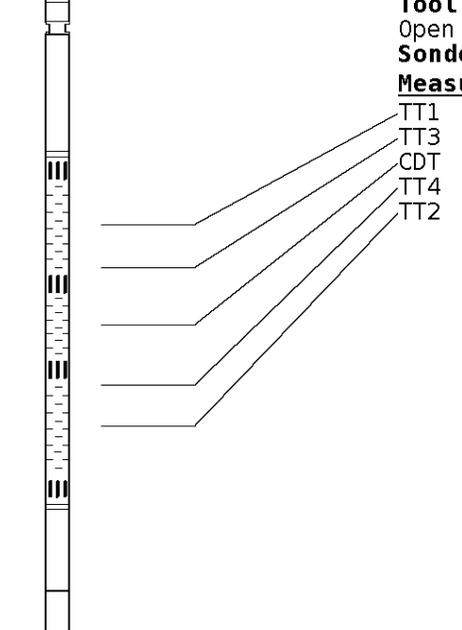


7.20 19.90 47.05  
7.20 19.90 47.05

22.00 ft.

**Tool:** CST-AD      **Length:** 13.80 ft.   **O.D.** 3.60 in.  
Open Hole Sonic  
**Sonde ID** :CST-AB-21

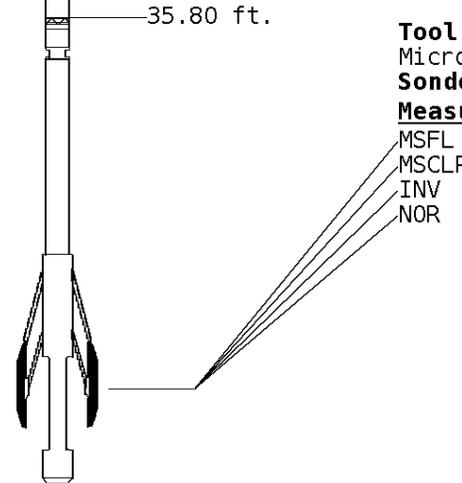
Measure Point	Tool Offset	Stack Offset	Bottom Offset
TT1	4.80	26.80	40.15
TT3	5.80	27.80	39.15
CDT	7.30	29.30	37.65
TT4	8.80	30.80	36.15
TT2	9.80	31.80	35.15



35.80 ft.

**Tool:** MST-DA      **Length:** 9.66 ft.   **O.D.** 6.00 in.  
Micro Spherically Focused (IC)  
**Sonde ID** :MST-DA-13

Measure Point	Tool Offset	Stack Offset	Bottom Offset
MSFL	7.60	43.40	23.55
MSCLP	7.60	43.40	23.55
INV	7.60	43.40	23.55
NOR	7.60	43.40	23.55



45.46 ft.

**Tool:** PIT-CA      **Length:** 21.49 ft.   **O.D.** 3.62 in.  
Phased Dual Induction w/ RM & D  
**Sonde ID** :PIT-AC-043

Measure Point	Tool Offset	Stack Offset	Bottom Offset
ILD	8.92	54.38	12.56
ILM	10.10	55.56	11.39
SFLU	17.49	62.95	4.00
SP	20.60	66.06	0.88

LWT 66.95 ft.

Well File: Berexco Lemke A 3 Mar16 Quint  
 Segment: V1.D1.S4 mn  
 Reference: 0

Scale: 1:240 Format: MST-240  
 Acquired: 2020-03/16 18:22 3.4.1-13972  
 Processed: 2020-03/16 18:22 3.4.1-13972

BIT SIZE INCHES (IN)	
6	16

CALIPER MICRO INCHES (IN)	
16	26
6	16

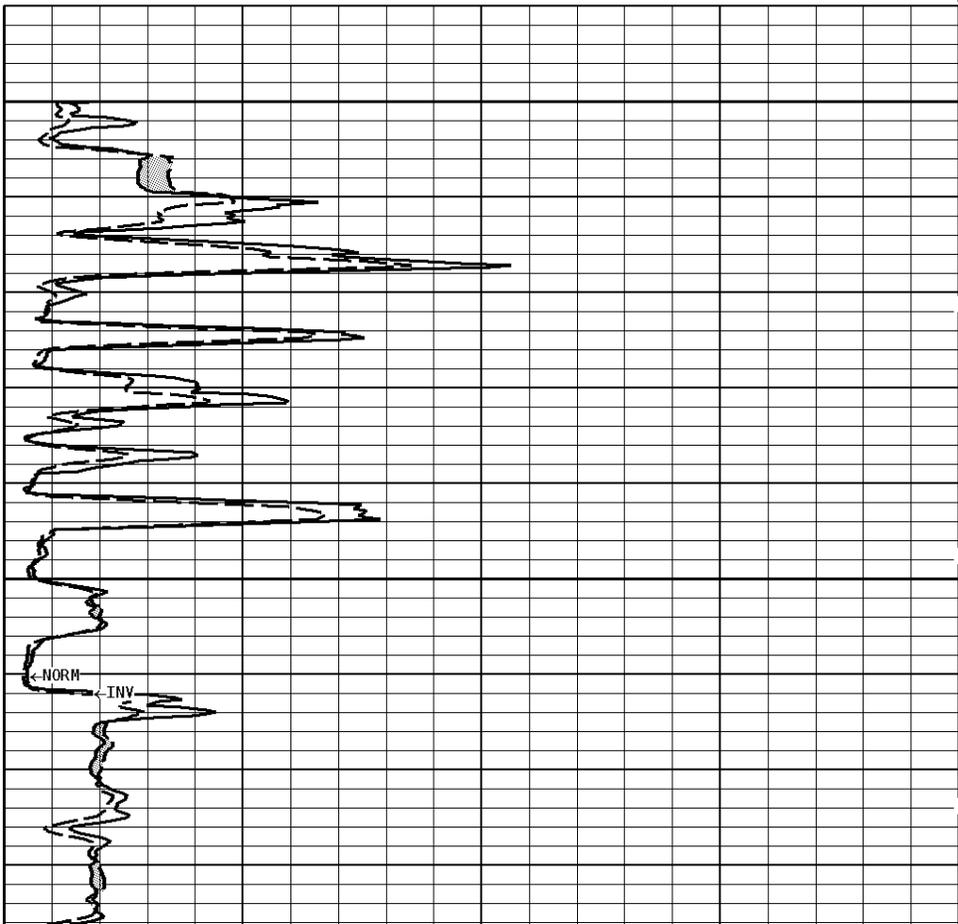
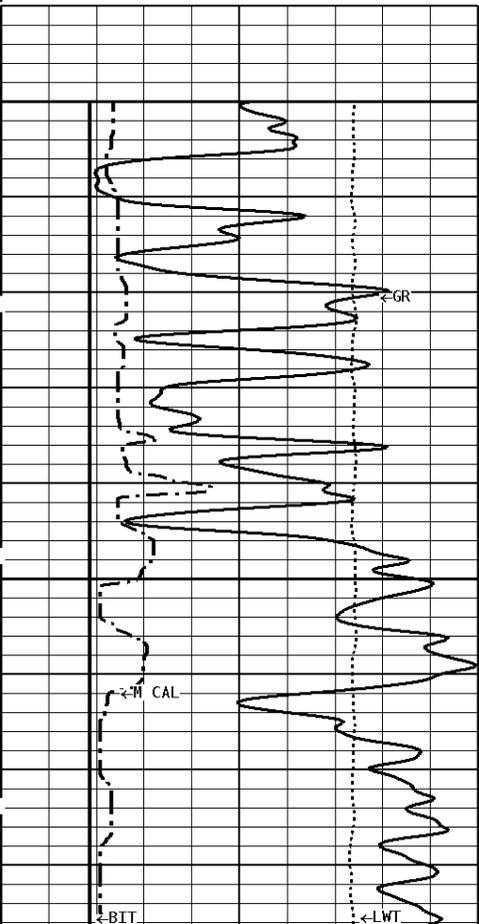
TENSION LBS	
10000	0

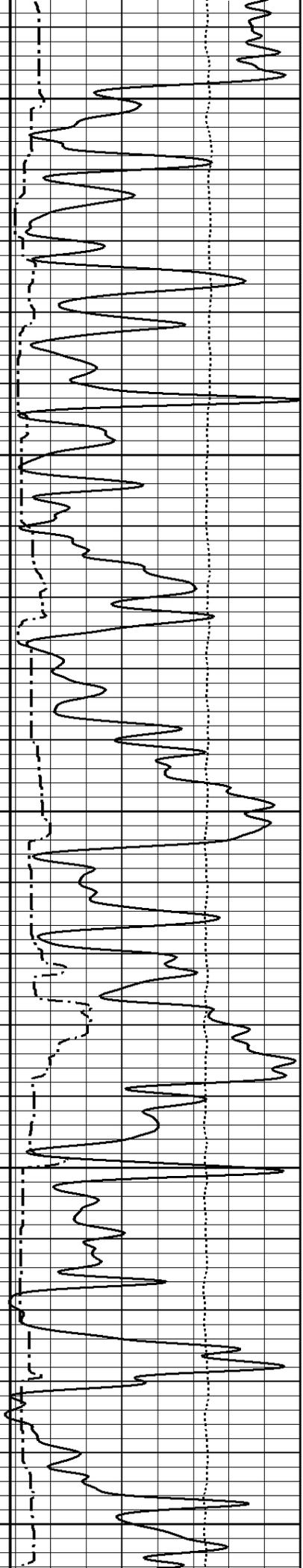
GAMMA RAY API UNITS	
150	300
0	150

INVERSE OHMM	
0	40

NORMAL OHMM	
0	40

1:240 MAIN SECTION

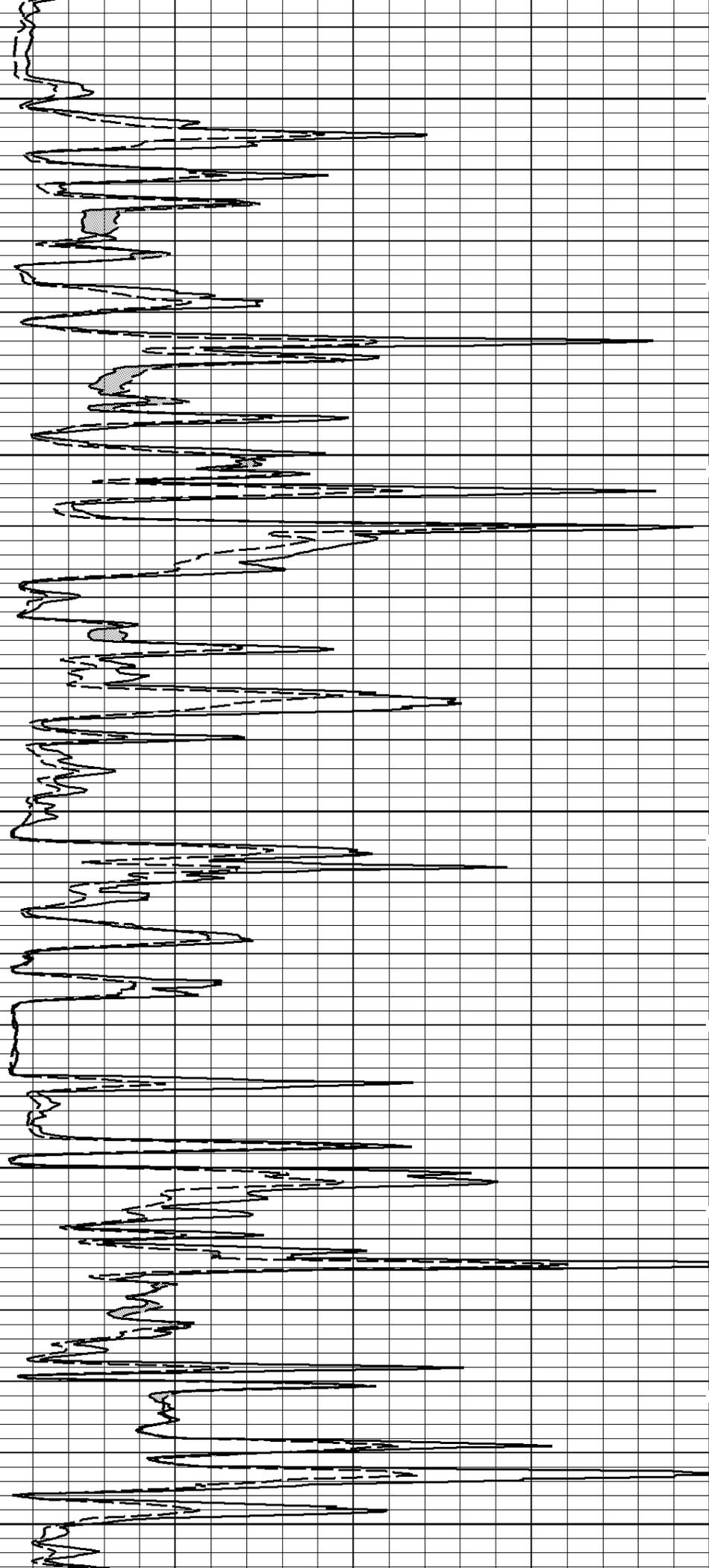


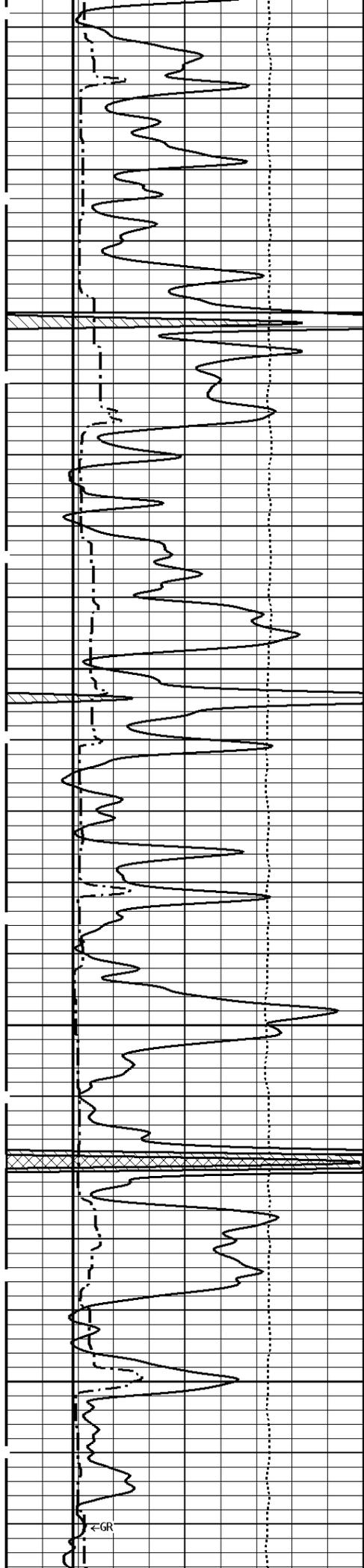


3100

3200

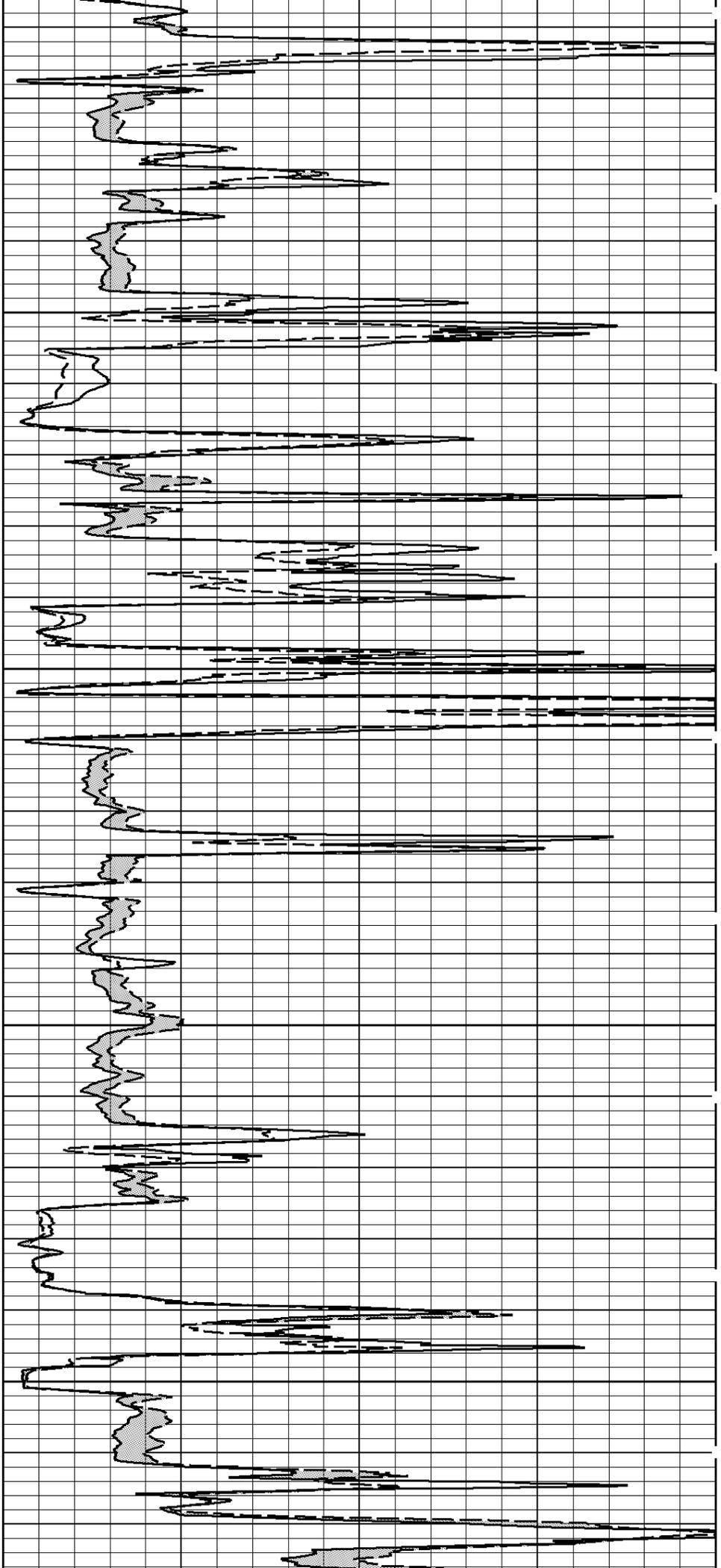
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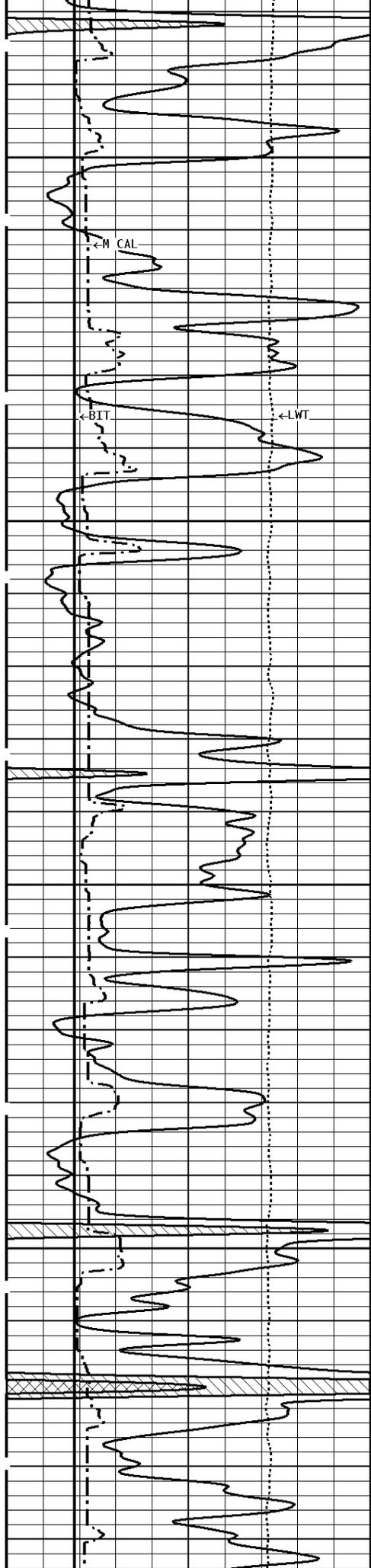




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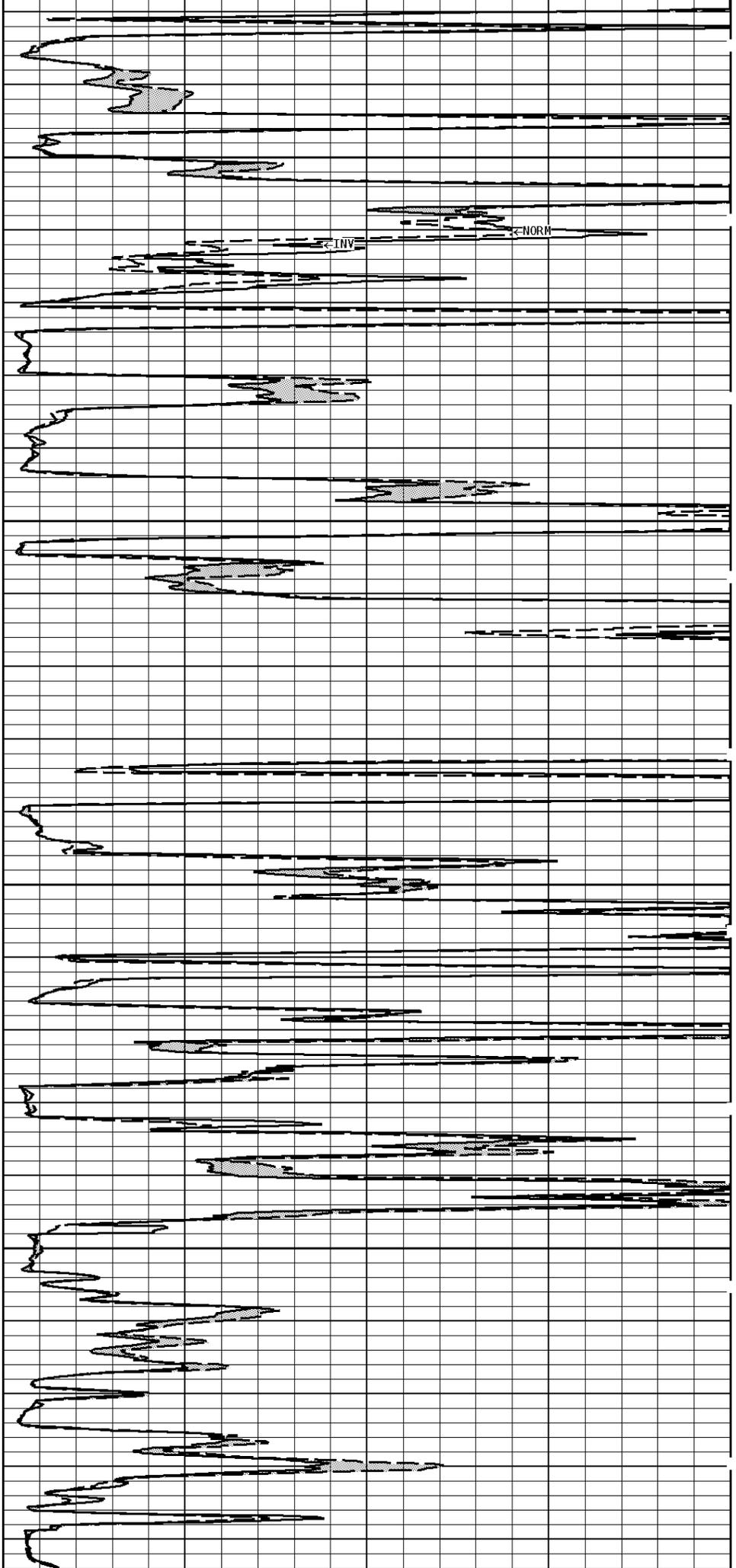
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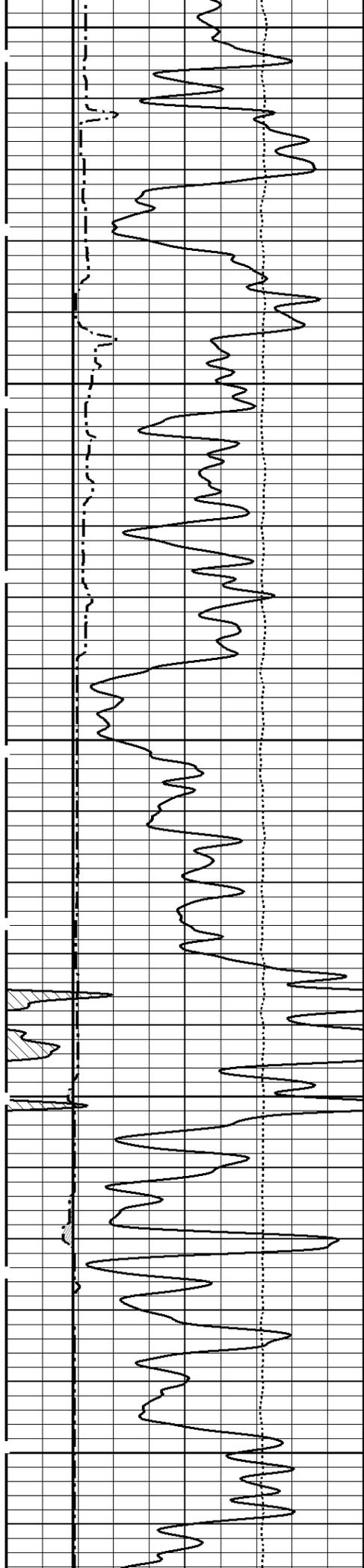




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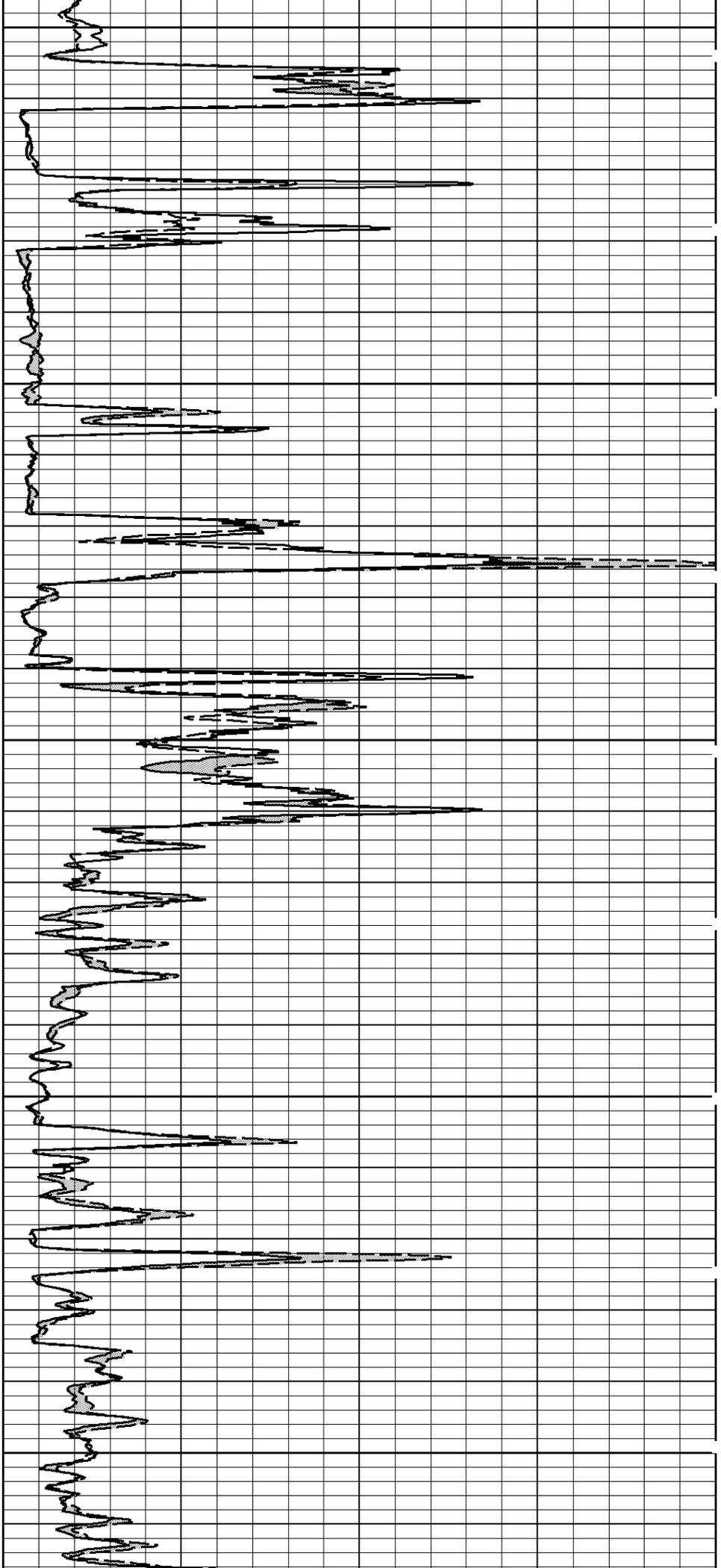
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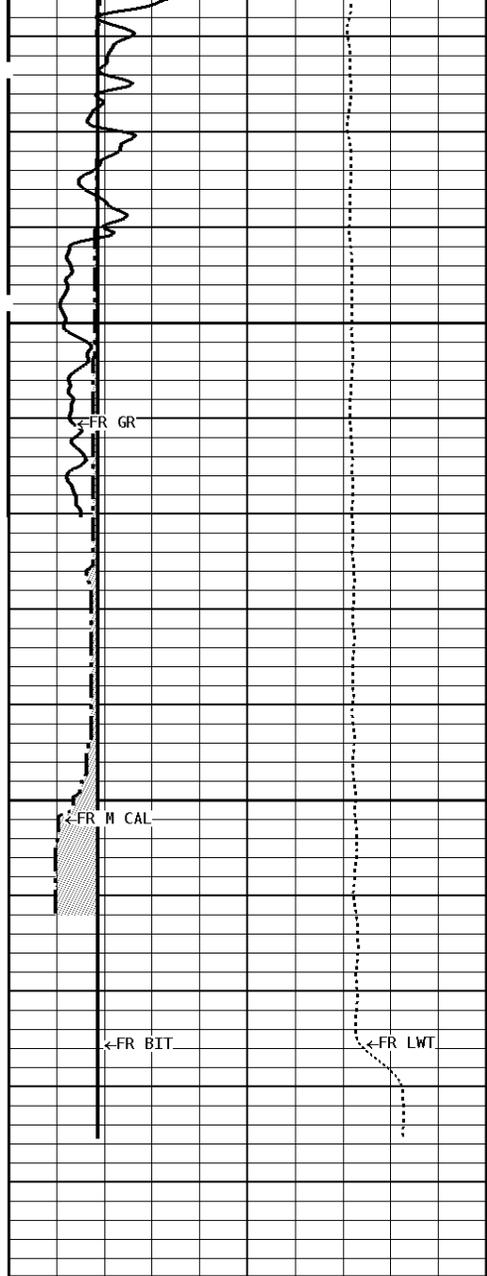




3800

3900

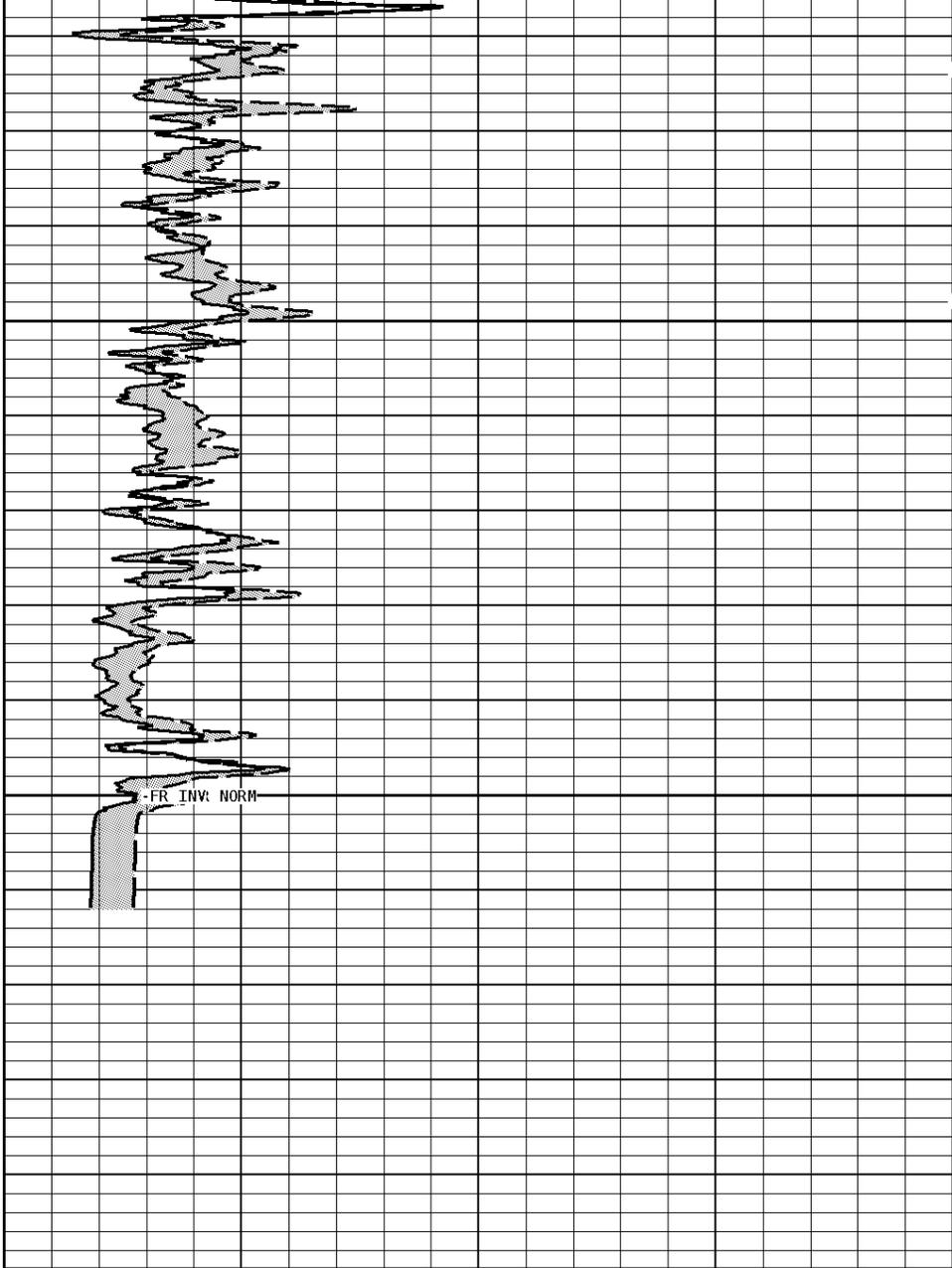




File #1.1.4

4000

4076



### 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 \*

Zone 1 - 00000.0 to 0.0 Feet

Drill Bit Size	7.875 in
MSTNG Normal Correction	0.00 ohmm
MSTNG Inverse Correction	0.00 ohmm

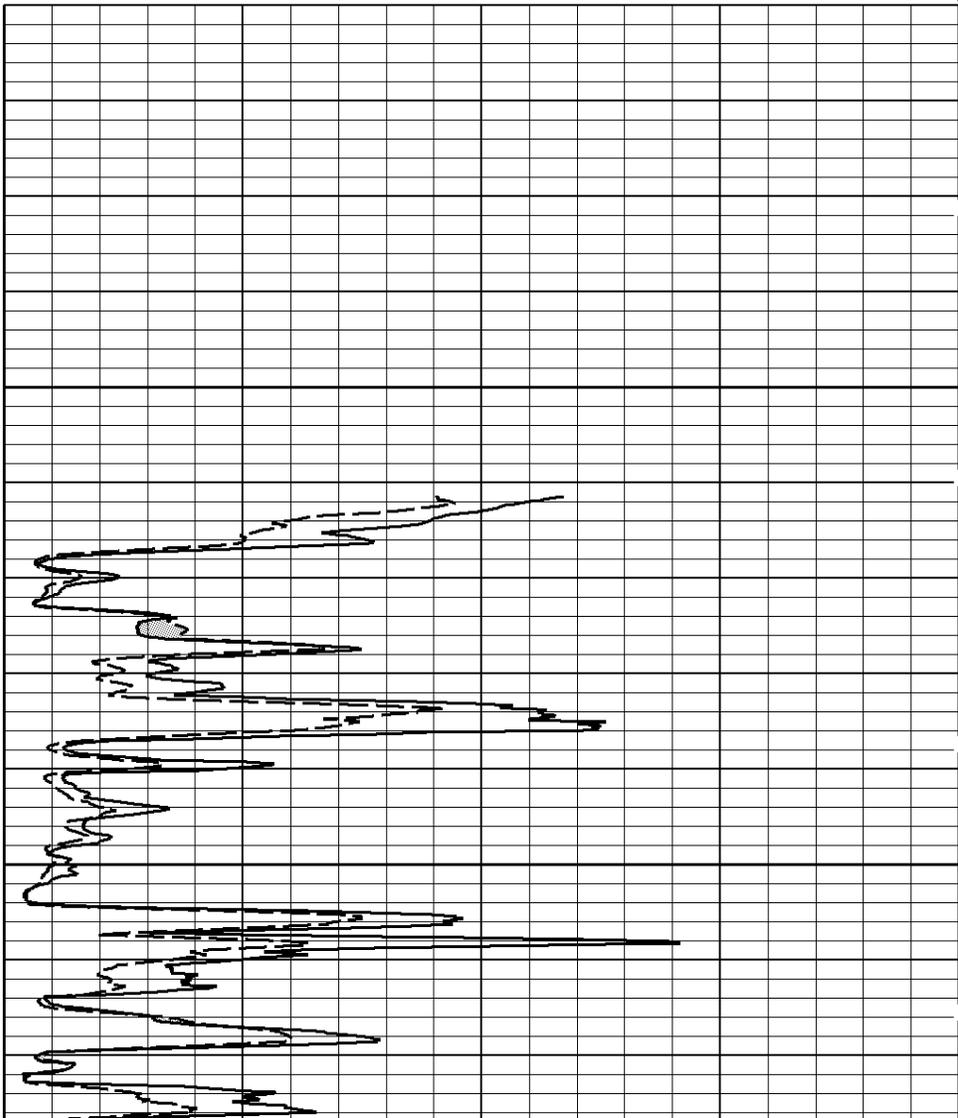
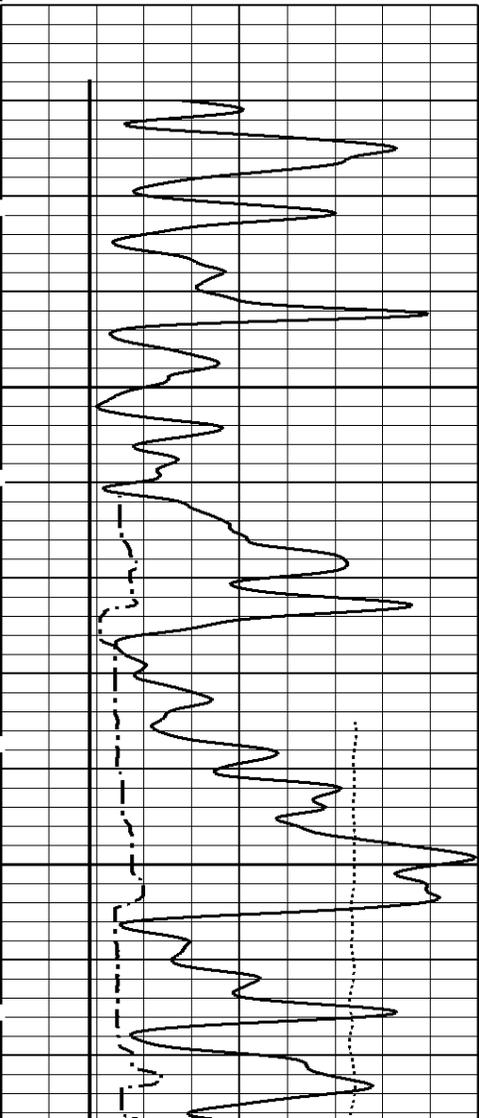
Well File: Berexco Lemke A 3 Mar16 Quint  
 Segment: V1.D1.S5 Reprocess REPEAT  
 Reference: 0

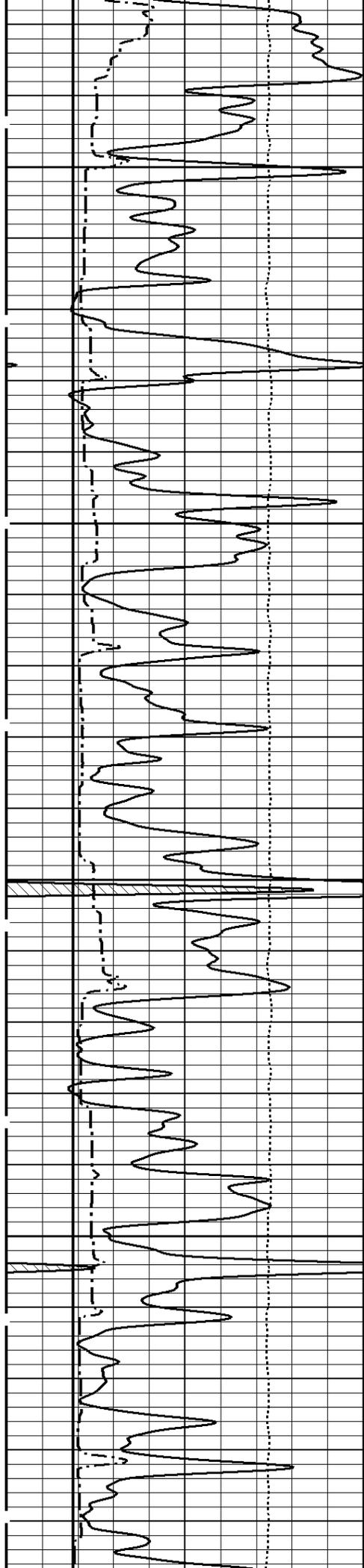
Scale: 1:240 Format: MST-240  
 Acquired: 2020-03/16 17:39 3.4.1-13972  
 Processed: 2020-03/16 19:59 3.4.1-13972

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

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

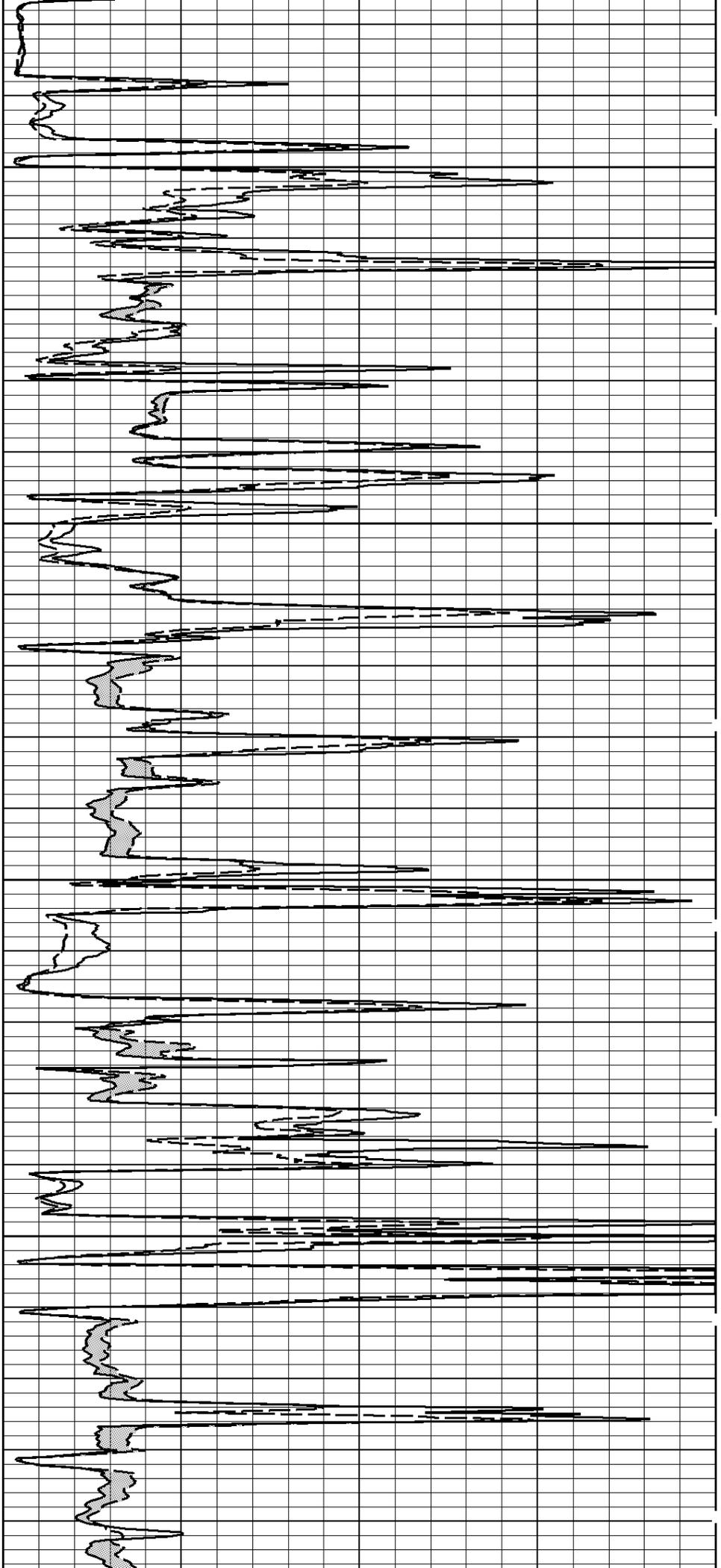
**1:240 REPEAT SECTION**

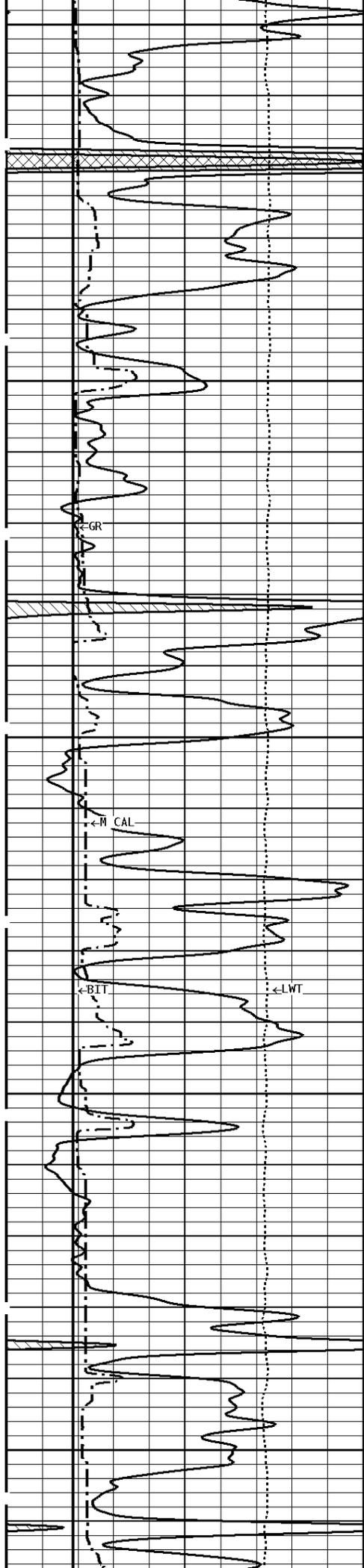




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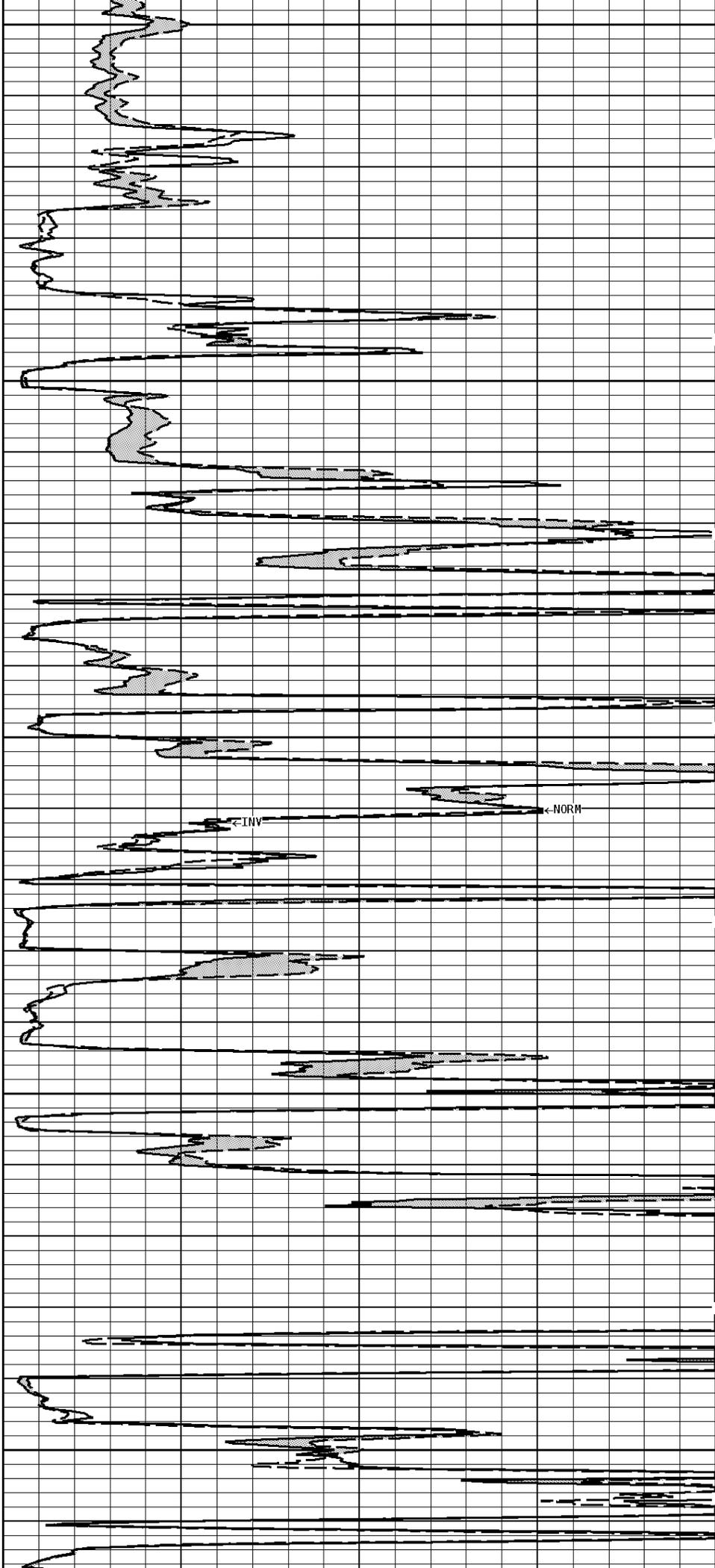
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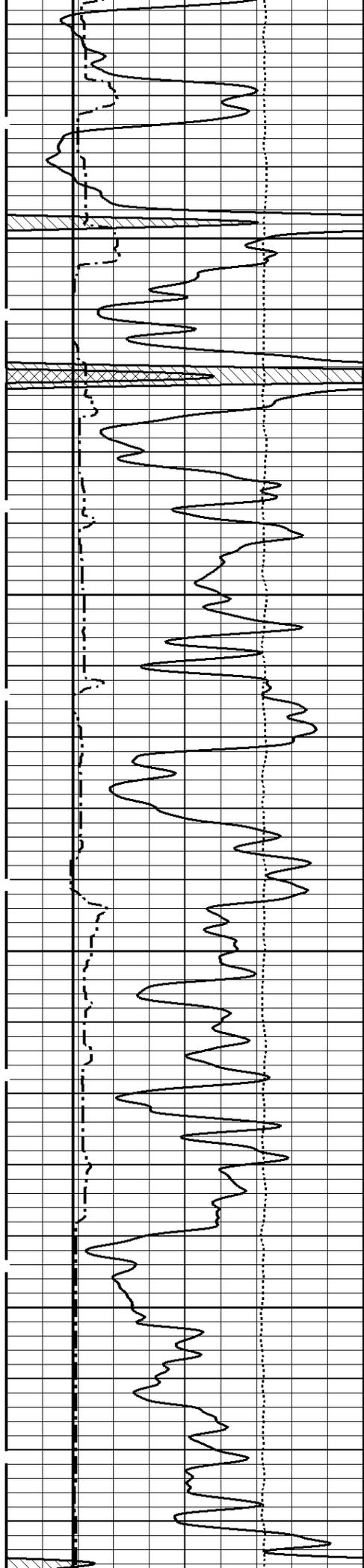




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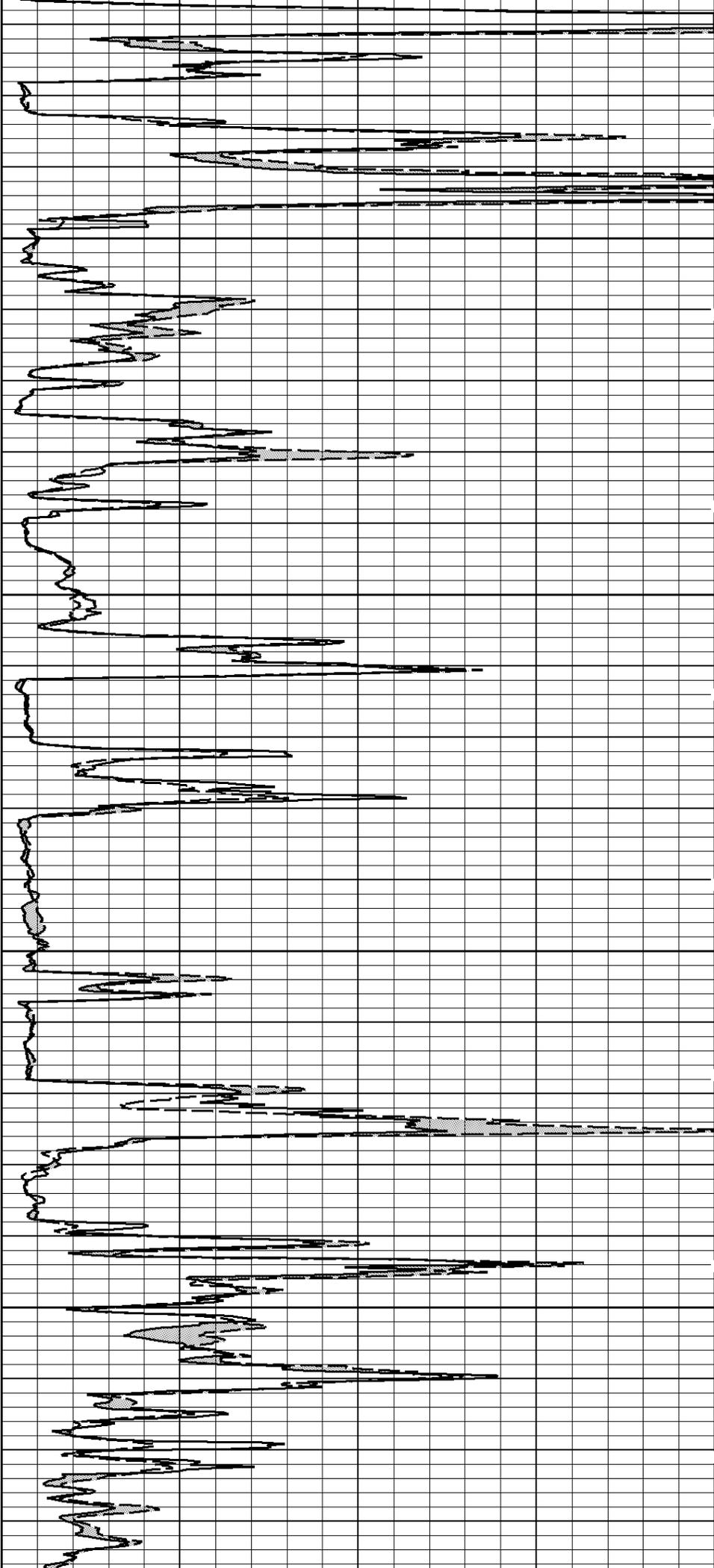
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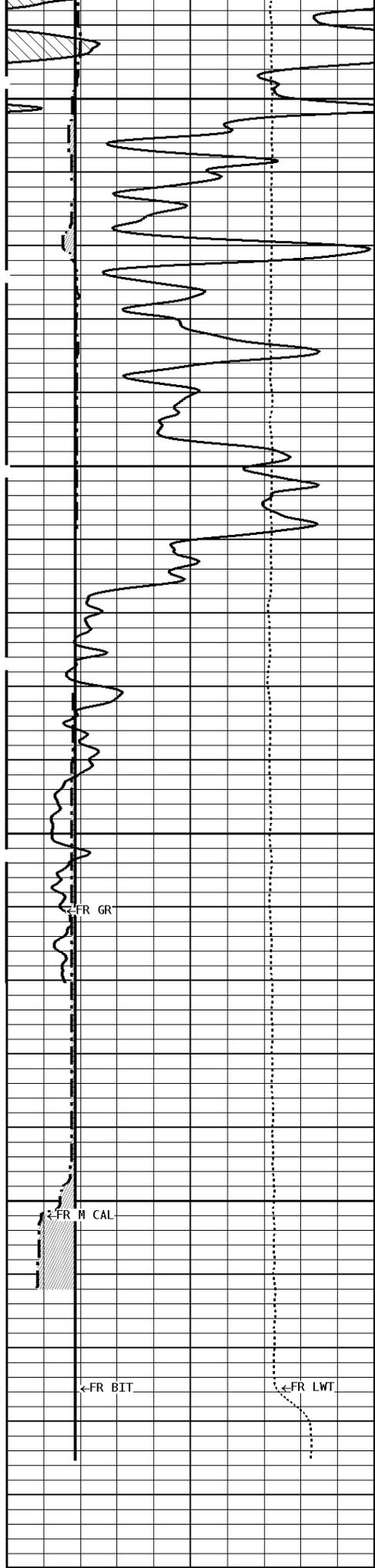




3700

3800



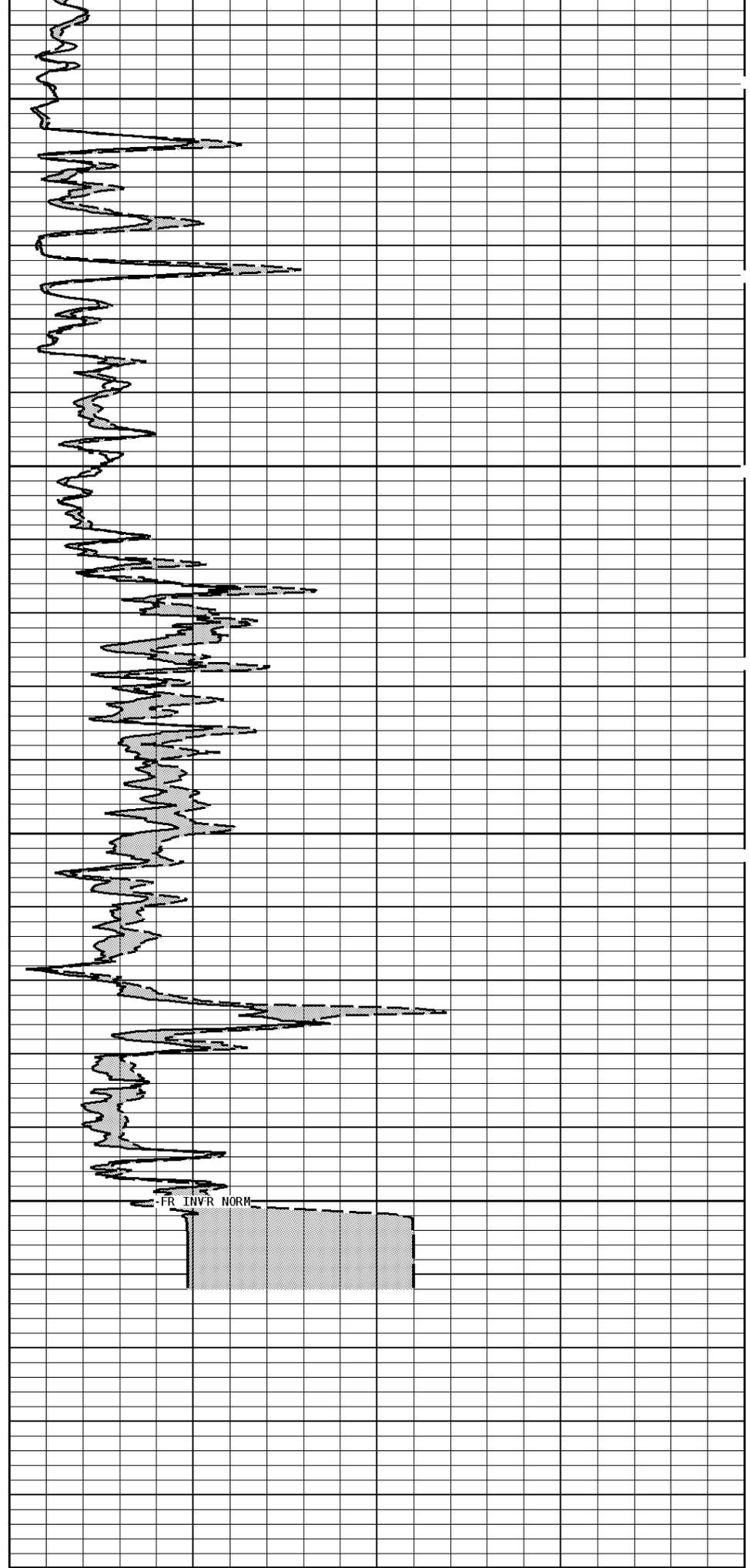


File #1.1.5

3900

4000

4076



1:240 REPEAT 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</b>	<b>99999.0</b>	<b>to</b>	<b>0.0</b>	<b>Feet</b>
Drill Bit Size	_____		7.875	in
MSTNG Normal Correction	_____		0.00	ohmm
MSTNG Inverse Correction	_____		0.00	ohmm

**\* Calibration Summary \***

<b>Shop Calibration GRT-B</b>						
Performed : 24-JUN-2019			Time : 12:20			
Sensor Suite : GR-GR5			ID : GRT-BC-038			
	Measured	Units	Calibrated	Units		
GR	Background	Jig	Jig	GRAPI		
	36	266	160			
<b>Shop Calibration MST-DA</b>						
Performed : 22-JAN-2020			Time : 09:27			
Sensor Suite : CALI-MSN			ID : MST-DA-13			
	Jig - Measured		Jig - Calibrated		Units	
CL # 1	Ring#1	Ring#2	Ring#1	Ring#2	IN.	
	6.8	11.8	6.0	12.0		
Performed : 07-FEB-2020			Time : 09:52			
Sensor Suite : MSTDA-NI			ID : MST-DA-13			
	Measured		Calibrated		Units	
	Zero	Reference	Units	Zero	Reference	Units
INV-V	0.0	29663.4		0.00	1276.00	MV
NOR-V	5.5	29968.6		0.00	1020.00	MV
IN-C	0.0	60262.5		0.00	15.46	UA
INV-R				26.70	OHMM	
NOR-R				36.36	OHMM	



Company: BEREXCO, LLC.  
 Well: LEMKE 'A' #3  
 Location: 330' FSL & 1320' FWL  
 Logged: 03-16-2020  
 K.B. Elev: 2271.0 Ft

