



Tucker
ENERGY SERVICES

BOREHOLE COMPENSATED

SONIC LOG

Company MULL DRILLING COMPANY, INC. Well TJADEN "C" #4		File No : TUL 59797 Company : MULL DRILLING COMPANY, INC. Well : TJADEN "C" #4 Field : County : KINGMAN State : KANSAS Country : USA API No : 15-095-22288	
Location : 1980' FSL & 660' FWL NW/4 SW/4		LSD : Sect : 18 Twp : 30S Rge : 7W	
Permanent Datum:	GL	Elevations:	
Drilling Measured From:	KB	KB	1486.00
Log Measured From:	KB	DF	1485.00
Above Permanent Datum:	10.00 Ft	GL	1476.00
Date	09-25-2014		
Run Number	1		
Depth--Driller	4285.0	Ft	
Depth--Logger	4283.0	Ft	
First Reading	4260.0	Ft	
Last Reading	226.0	Ft	
Casing--Driller	223.0	Ft	
Casing--Logger	226.0	Ft	
Bit Size	7.875	In	
Casing Size	8.625	In	
Hole Fluid Type	CHEM GEL		
Density	9.6	lb/gl	
Fluid Loss	10.8		
PH/Viscosity	9.0	55.0 sec/qt	
Sample Source	MEASURED		
RM@Measured Temp.	0.600	@ 65 F	
RMF@Measured Temp	0.480	@ 65 F	
RM@Measured Temp.	0.720	@ 65 F	
Source RMF/RMC	CALCULATED/CALCULATED		
RM@BHT	0.440	@ 125 F	
Time Circulation Stopped	09-25-2014 11:30 pm		
Max Recorded Temp.	125	F	
Equipment/Base	126	TULSA	
Recorded By	S. K. DAVIS / A. S. DIAHO		
Witnessed By			

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	4285.00	8.625	32.00	226.00	0.00

Run Number	1	
Date	09-25-2014	
Date/Time On Bottom	09-26-2014 4:00 am	
Depth to Fluid	0.0 Ft	
Salinity	3000.000 ppm	
RMF@BHT	0.350 @ 125 F	
RMC@BHT	0.520 @ 125 F	

Run Number 1

Comments

ALL PRESENTATIONS AS PER CUSTOMER REQUEST
 GRT, CNT, LDT, MLT, CST, AND PIT RUN IN COMBINATION
 CALIPERS ORIENTED ON X-Y AXIS
 2.71 G/CC USED TO CALCULATE POROSITY
 ANNULAR HOLE VOLUME CALCULATED USING 5.50" PRODUCTION CASING
 PHIN IS CALIPER CORRECTED
 ANHYDRITE SECTION FROM 1150' TO 800'
 DETAIL SECTION FROM TD TO 2900'

GRT: GRP.
 CNT: PHIN, CLCNIN.
 LDT: PORL, LCORN, PECLN, LDENN, CLLDIN.
 MLT: NOR_RF, INV_RF, MSCLPIN.
 CST: PORS, ITT, CDTF, TT1, TT2, TT3, TT4.
 PIT: ILD, ILM, SFLAEC, CIRD, SPU

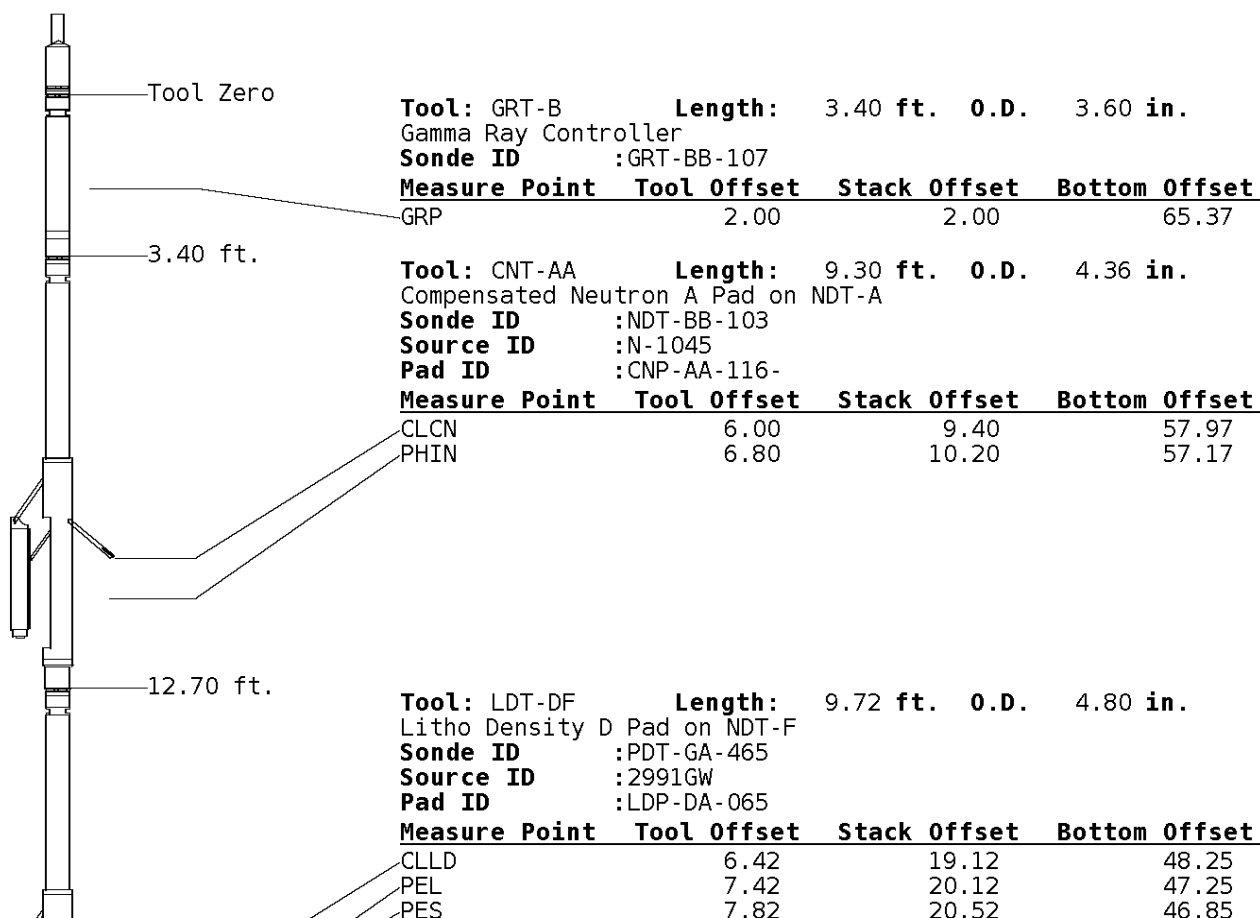
OPERATORS:

C. GONZALES

J OFFEIBGU

Tool String Schematic

Total Tool Length - 67.37 ft.
Maximum Outside diameter - 6.00 in.
Net Weight in Air - 1171.00 lbs.



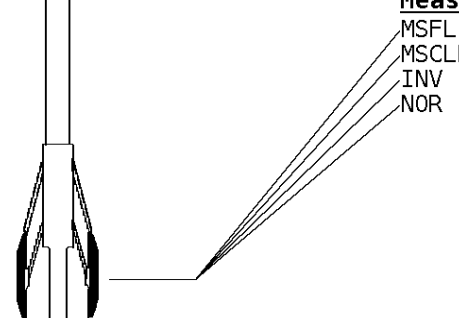


7.62	20.32	47.05
7.62	20.32	47.05

22.42 ft.

Tool: MST-DA **Length:** 9.66 ft. **O.D.** 6.00 in.
 Micro Spherically Focused (IC)
Sonde ID :MST-DA-26

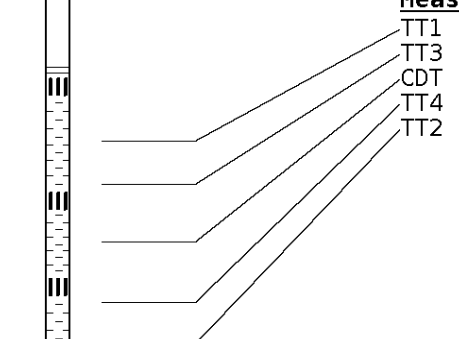
Measure Point	Tool Offset	Stack Offset	Bottom Offset
MSFL	7.60	30.02	37.35
MSCLP	7.60	30.02	37.35
INV	7.60	30.02	37.35
NOR	7.60	30.02	37.35



32.08 ft.

Tool: CST-AD **Length:** 13.80 ft. **O.D.** 3.60 in.
 Open Hole Sonic
Sonde ID :CST-AB-25

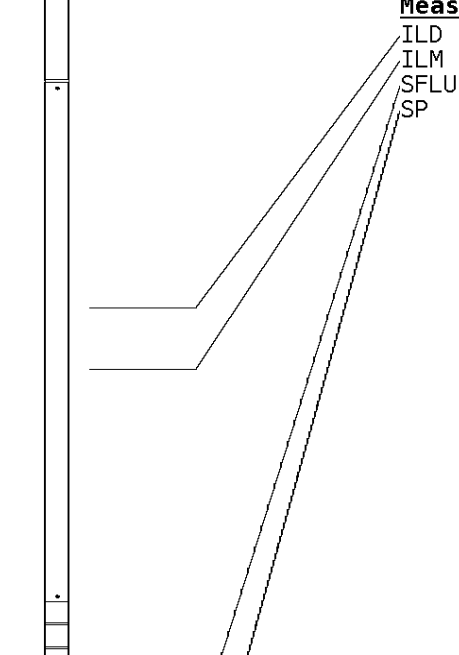
Measure Point	Tool Offset	Stack Offset	Bottom Offset
TT1	4.80	36.88	30.49
TT3	5.80	37.88	29.49
CDT	7.30	39.38	27.99
TT4	8.80	40.88	26.49
TT2	9.80	41.88	25.49

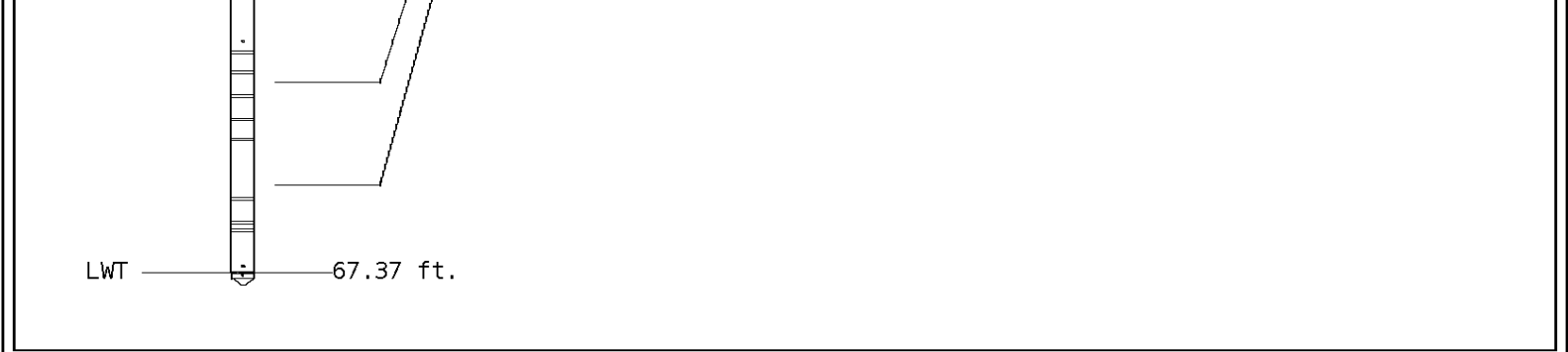


45.88 ft.

Tool: PIT-CA **Length:** 21.49 ft. **O.D.** 3.62 in.
 Phased Dual Induction w/ RM & D
Sonde ID :PIT-CA-075

Measure Point	Tool Offset	Stack Offset	Bottom Offset
ILD	8.92	54.80	12.56
ILM	10.10	55.98	11.39
SFLU	17.49	63.37	4.00
SP	20.60	66.48	0.88





Well File: MULL_TJADEN_C4_SEPT25_QUINT	Scale: 1:240	Format: CST-240
Segment: V1.D1.S5 MN	Acquired: 2014-09/26 04:07 3.3.0-12594	
Reference: 0	Processed: 2014-09/26 05:50 3.3.0-12594	

NEUTRON (Y) CALIPER INCHES (IN)	
16	26
6	16

DENSITY (X) CALIPER INCHES (IN)	
16	26
6	16

BIT SIZE INCHES (IN)	
6	16

TENSION LBS	
10000	0

GAMMA RAY API UNITS	
150	300
0	150

TT4 uSEC	
950	50

TT3 uSEC	
950	50

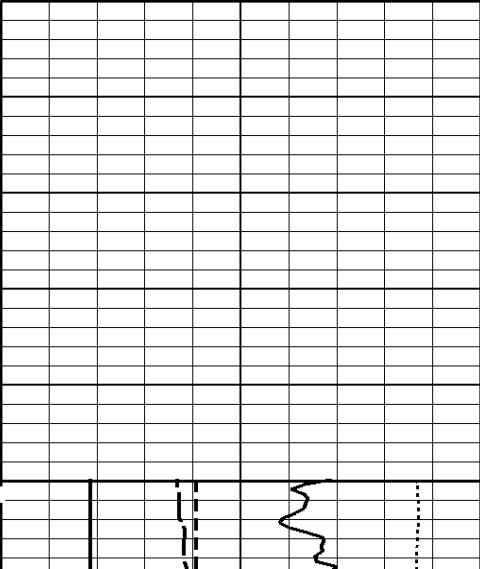
TT2 uSEC	
950	50

TT1 uSEC	
950	50

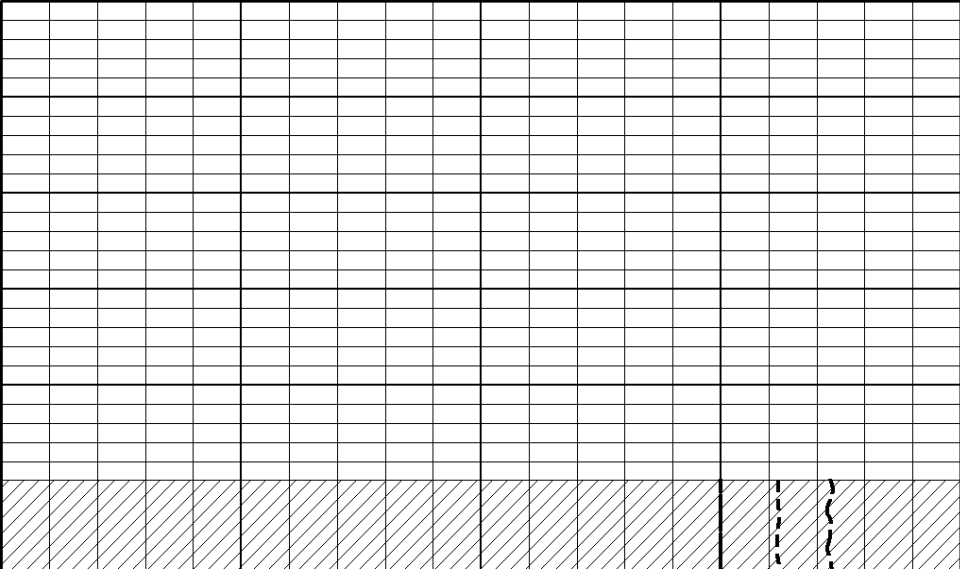
COMPENSATED SONIC TRAVEL TIME uSEC/FT	
240	140

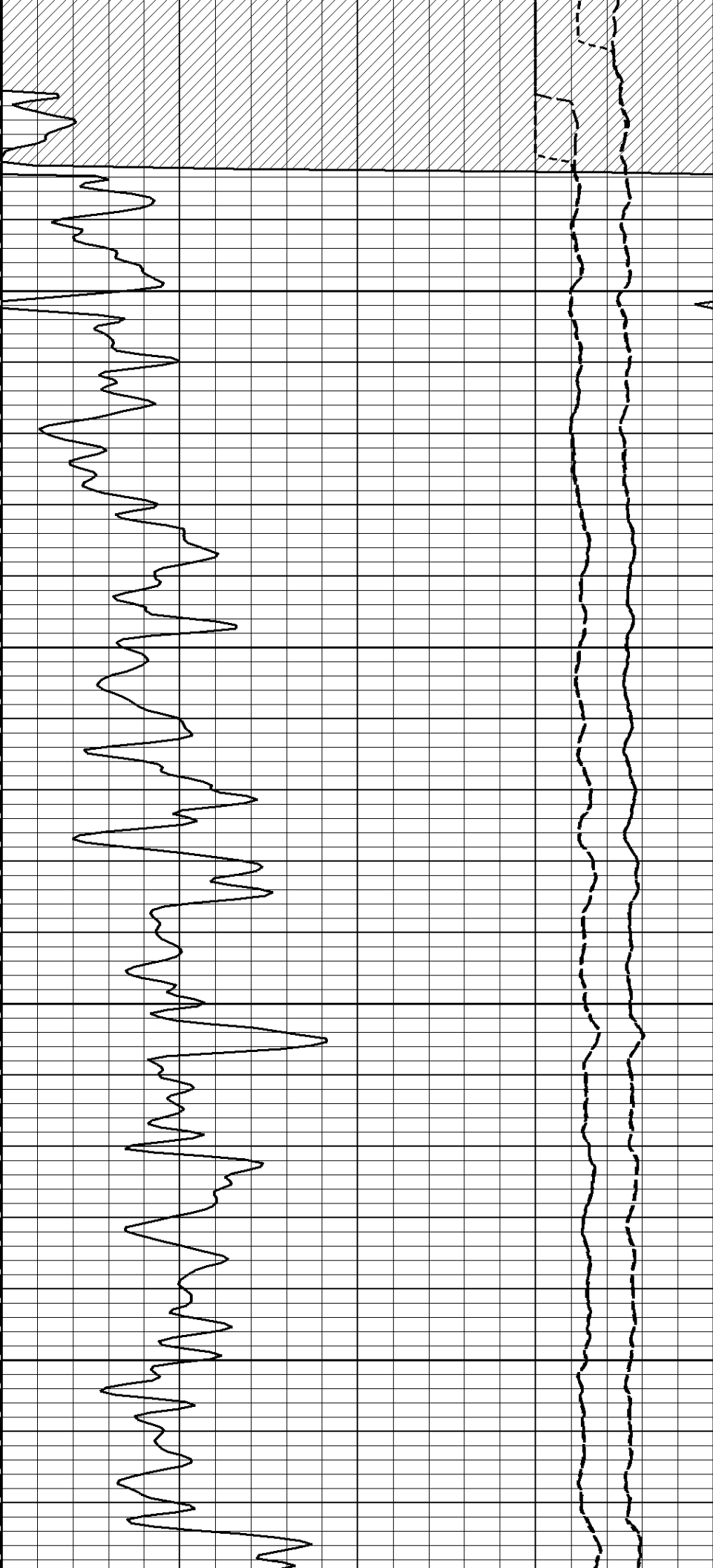
SONIC POROSITY PERCENT	
30	-10

1:240 MAIN SECTION



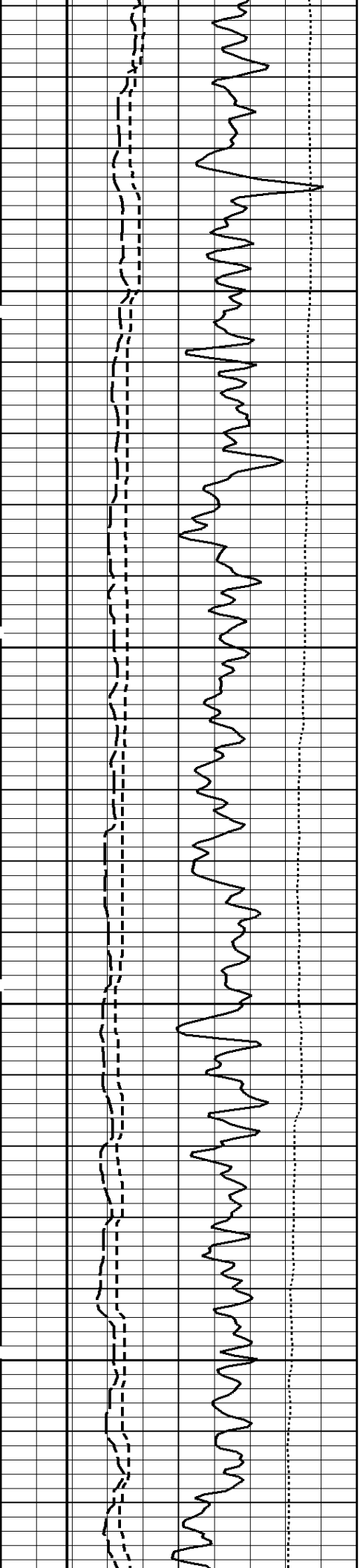
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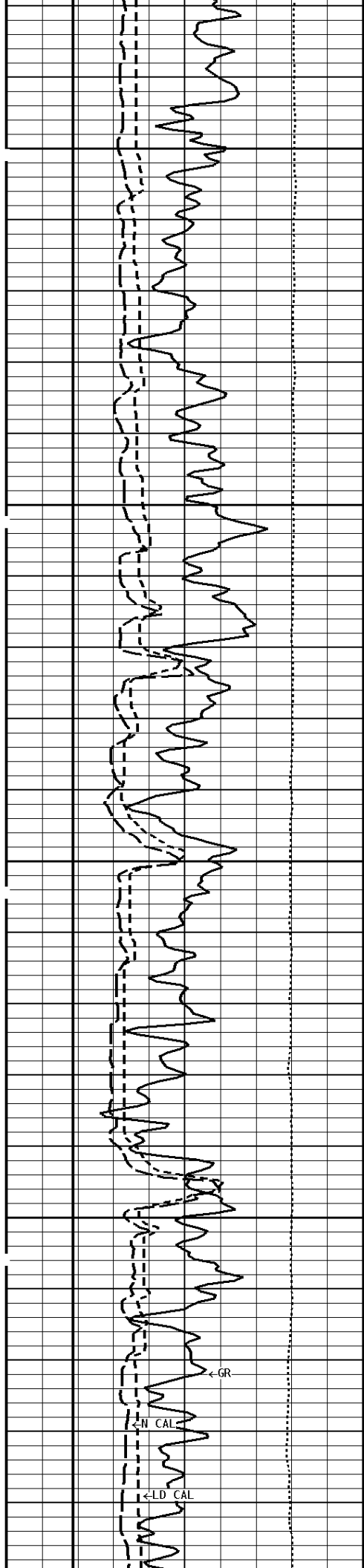




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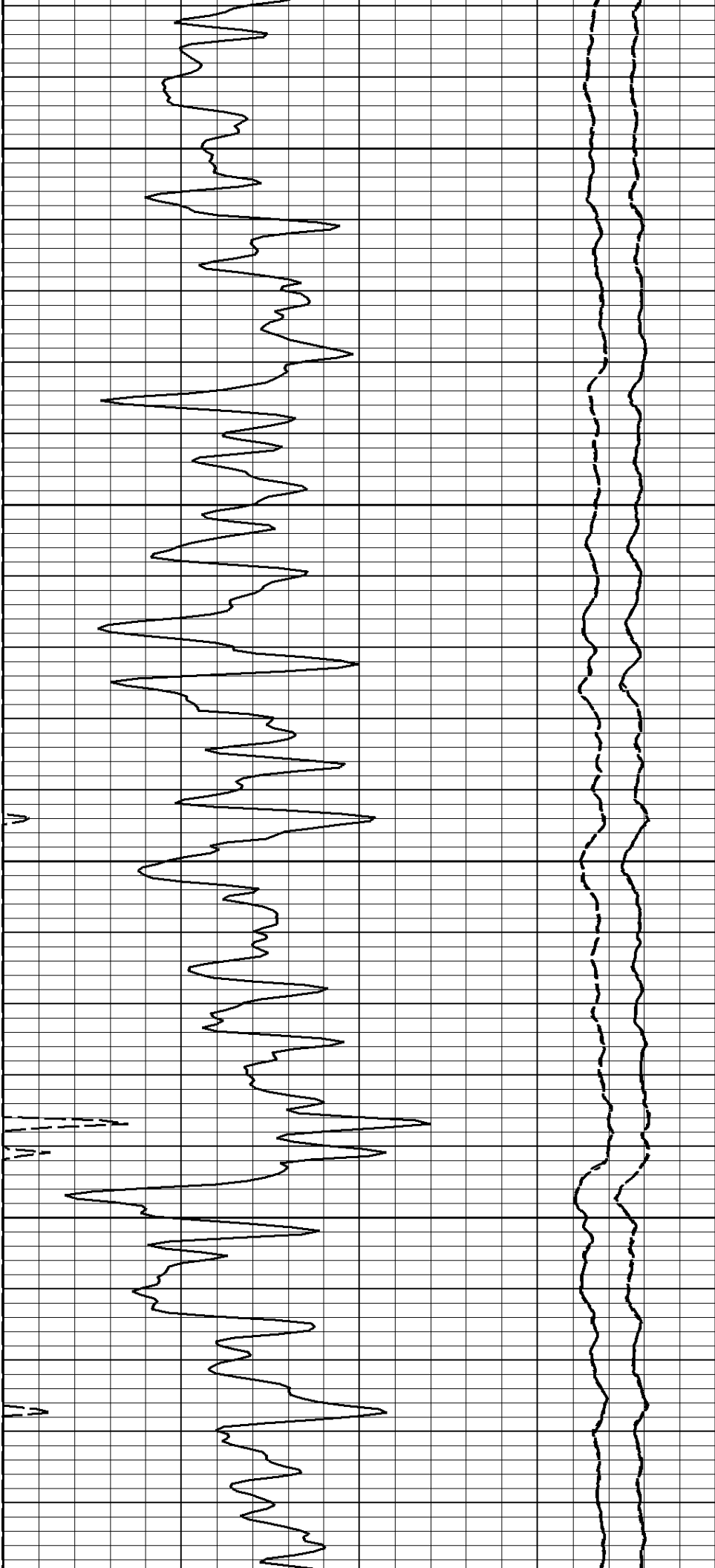
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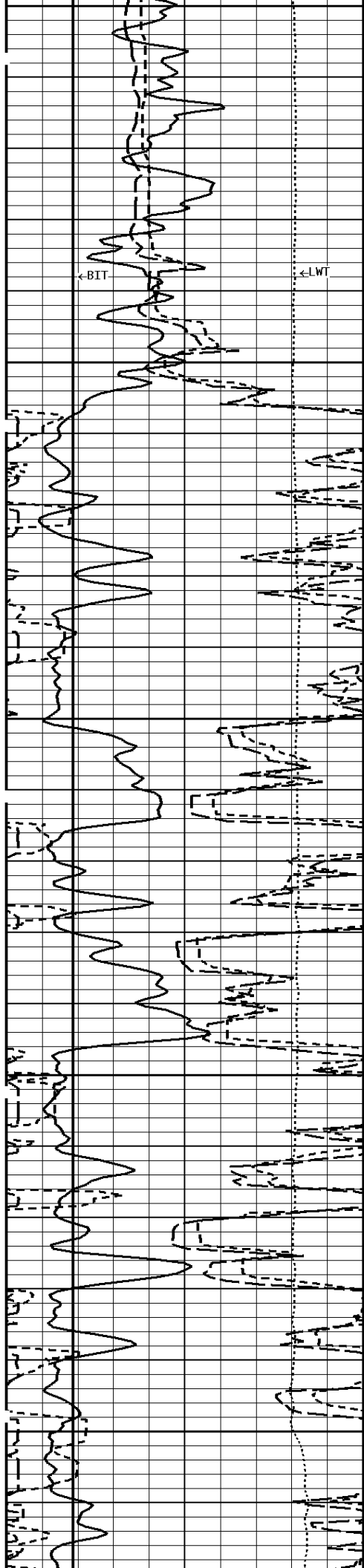




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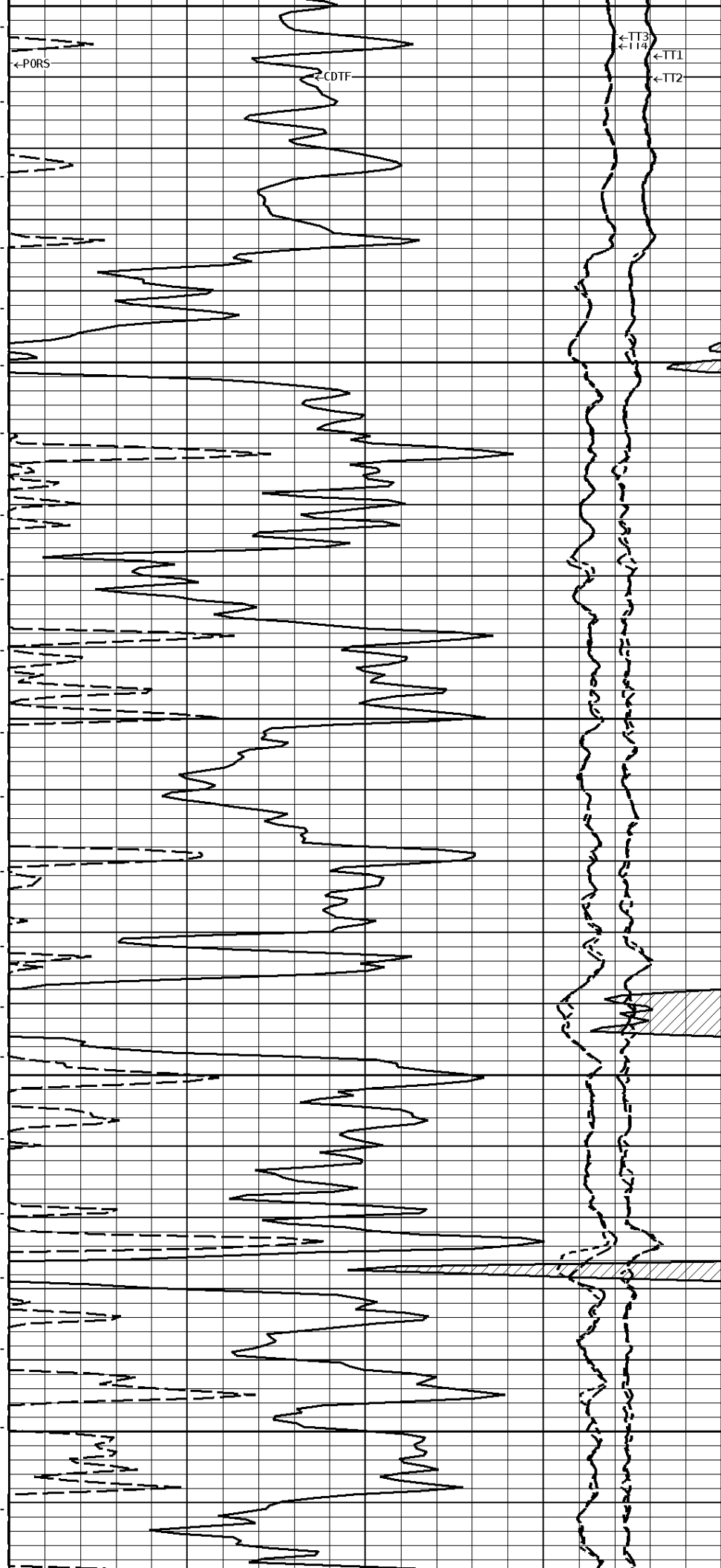
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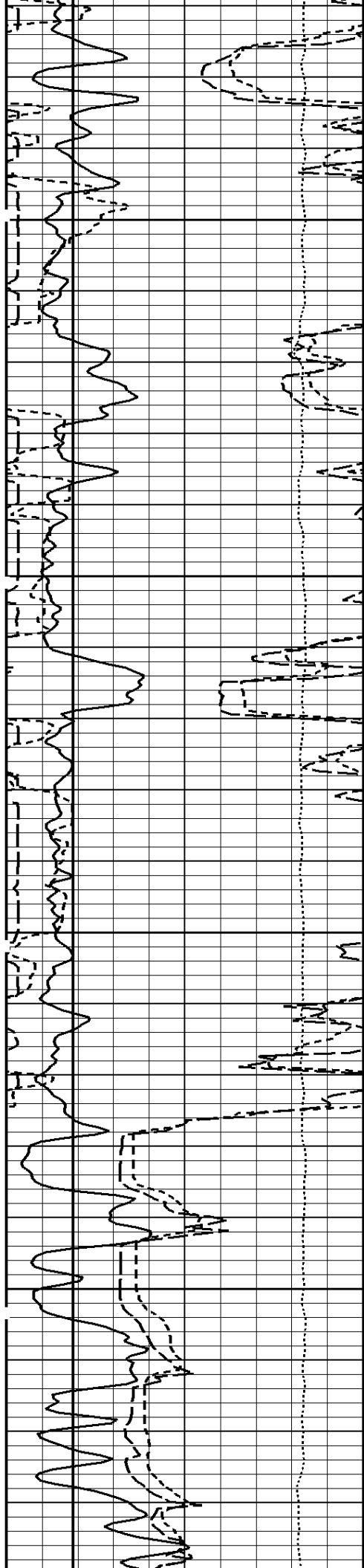




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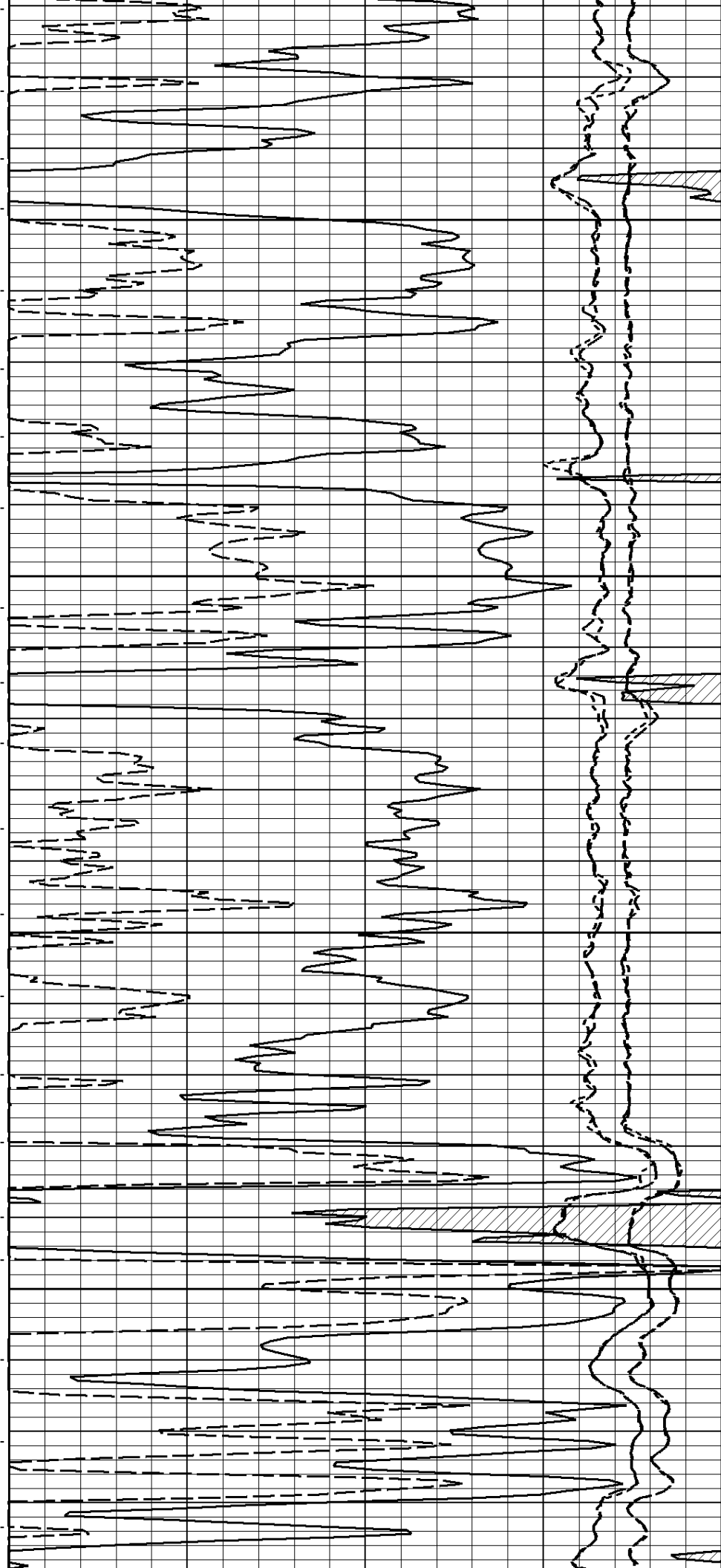
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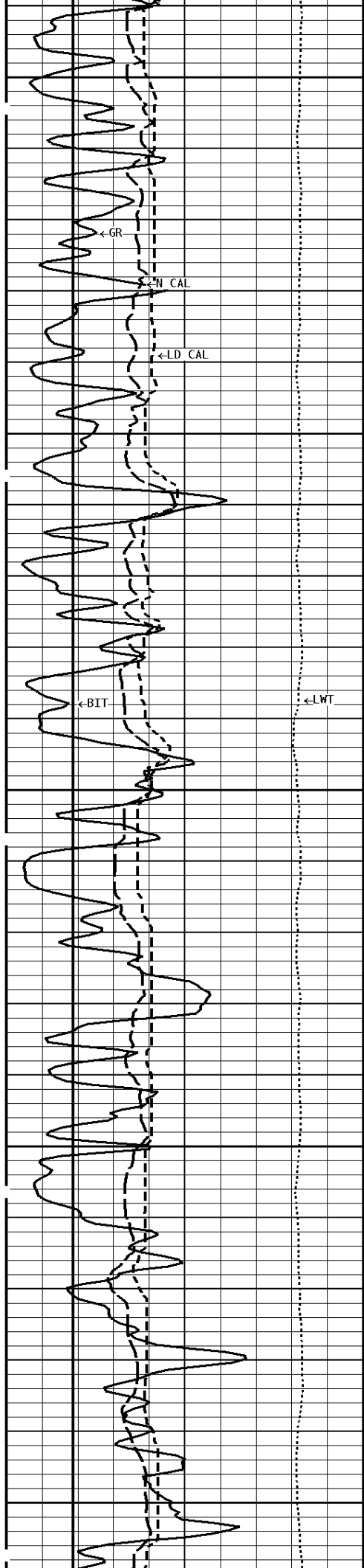




1000

1100

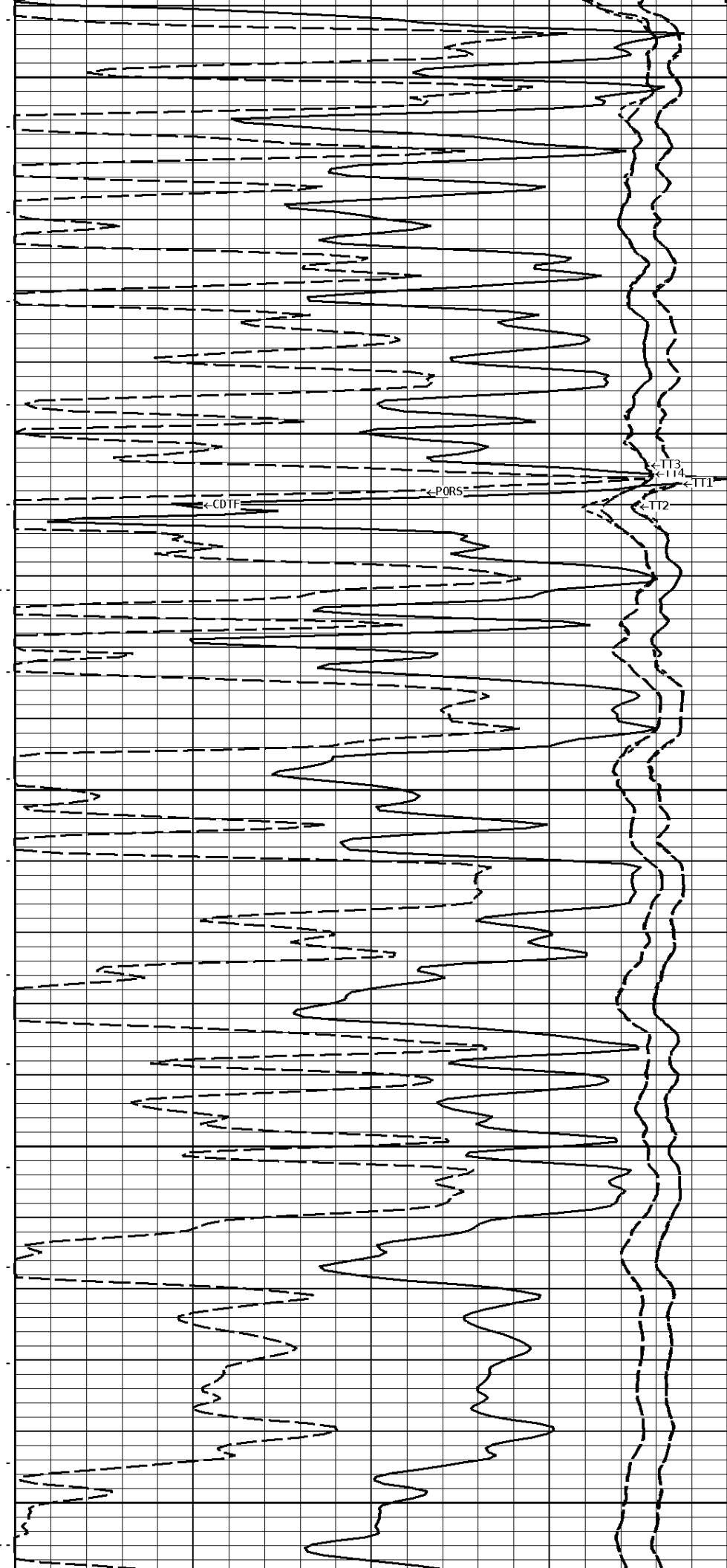


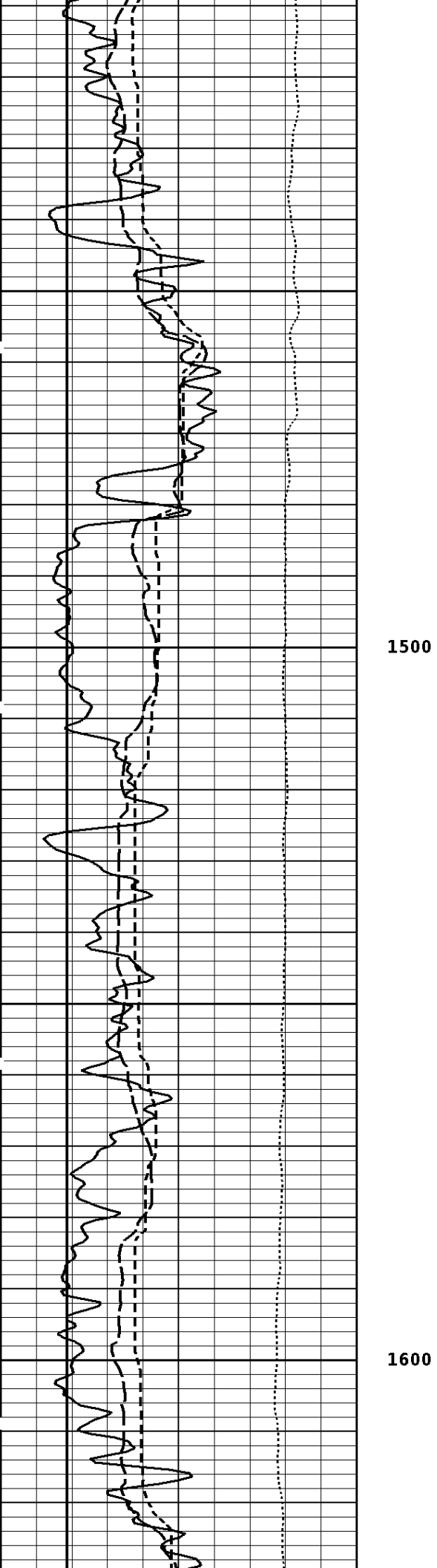
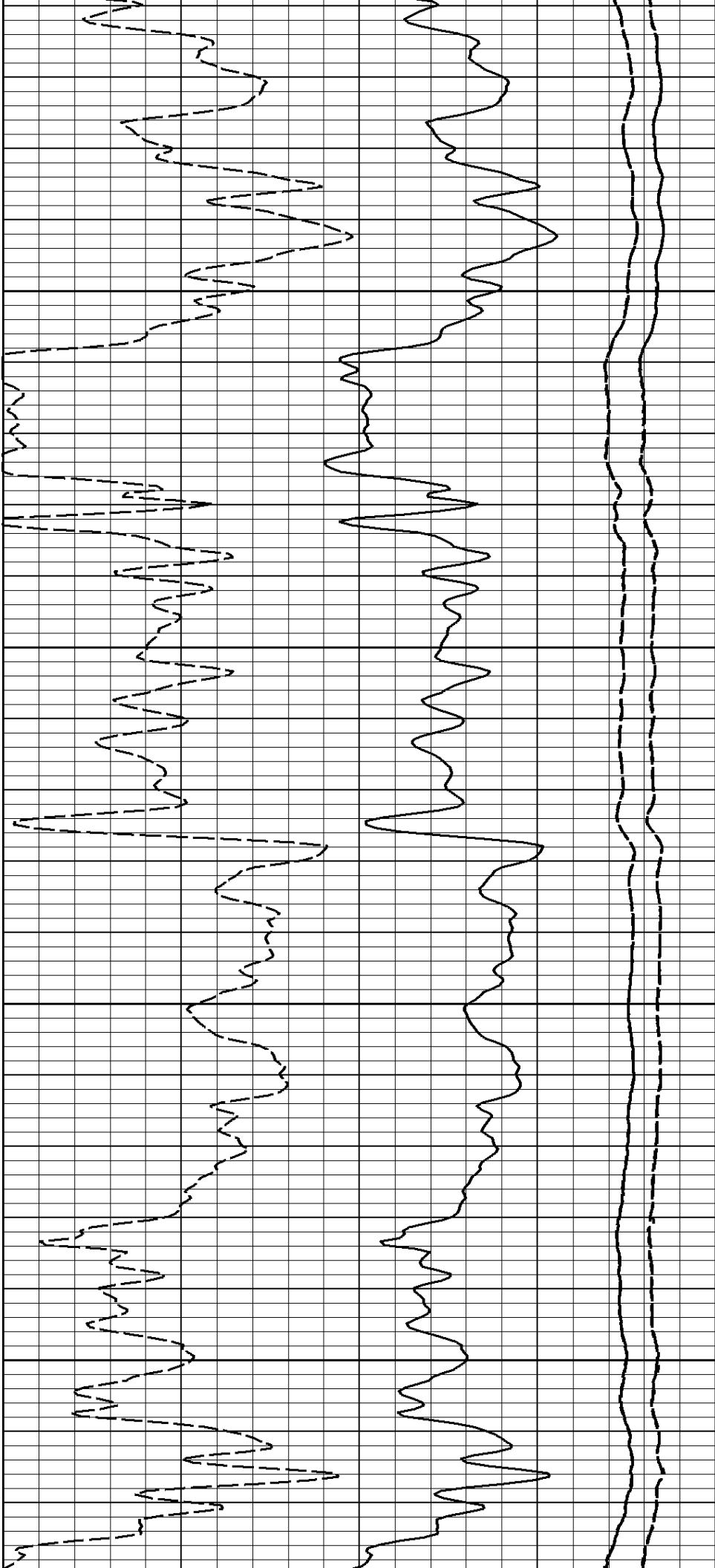


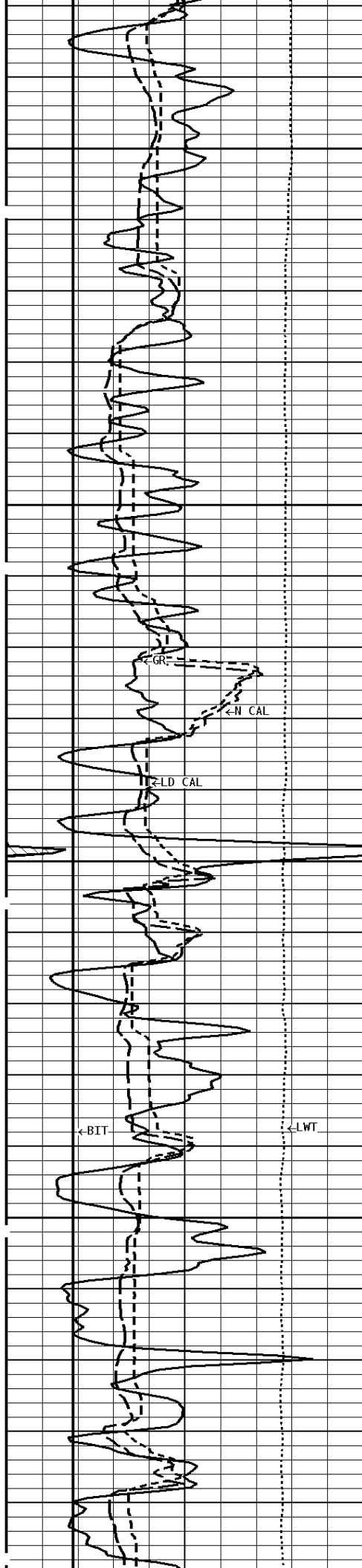
1200

1300

1400

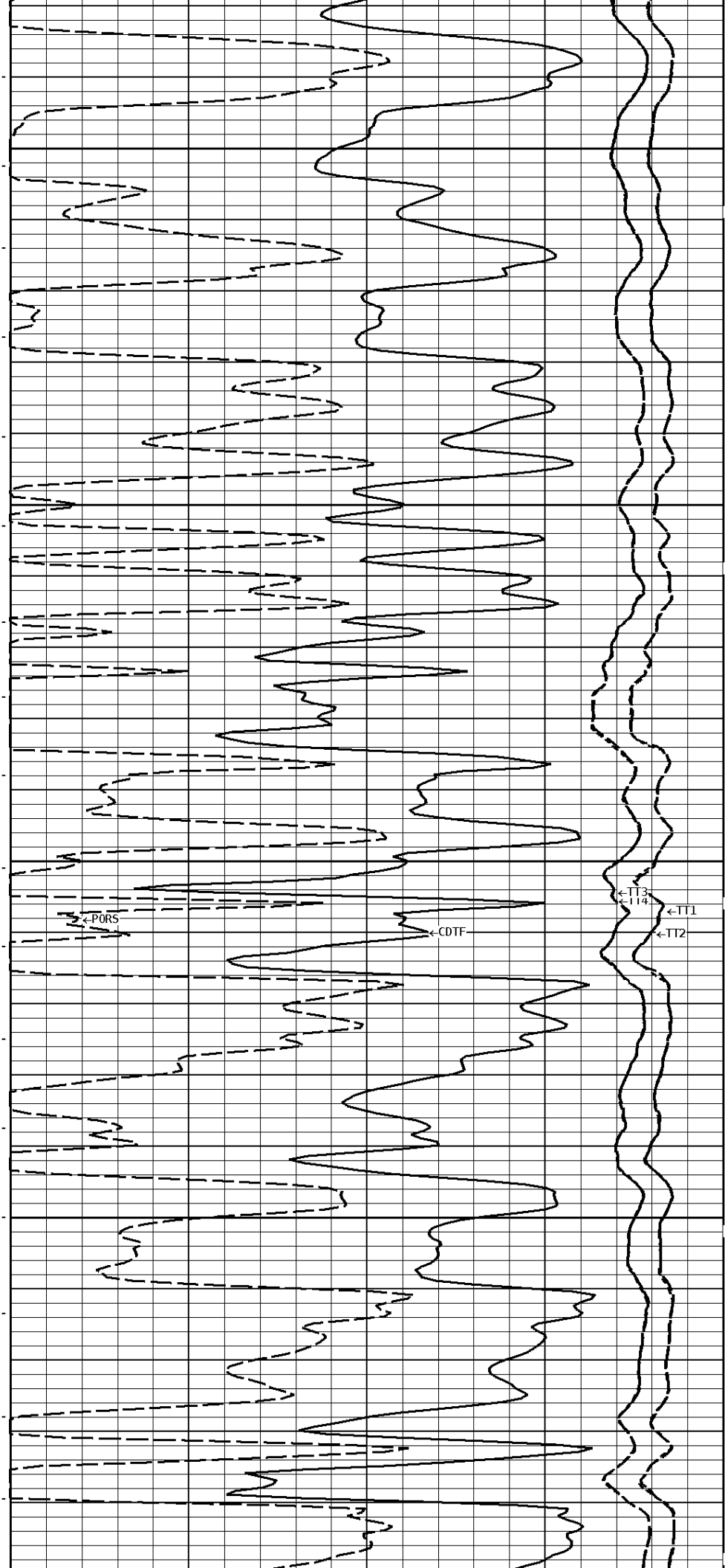


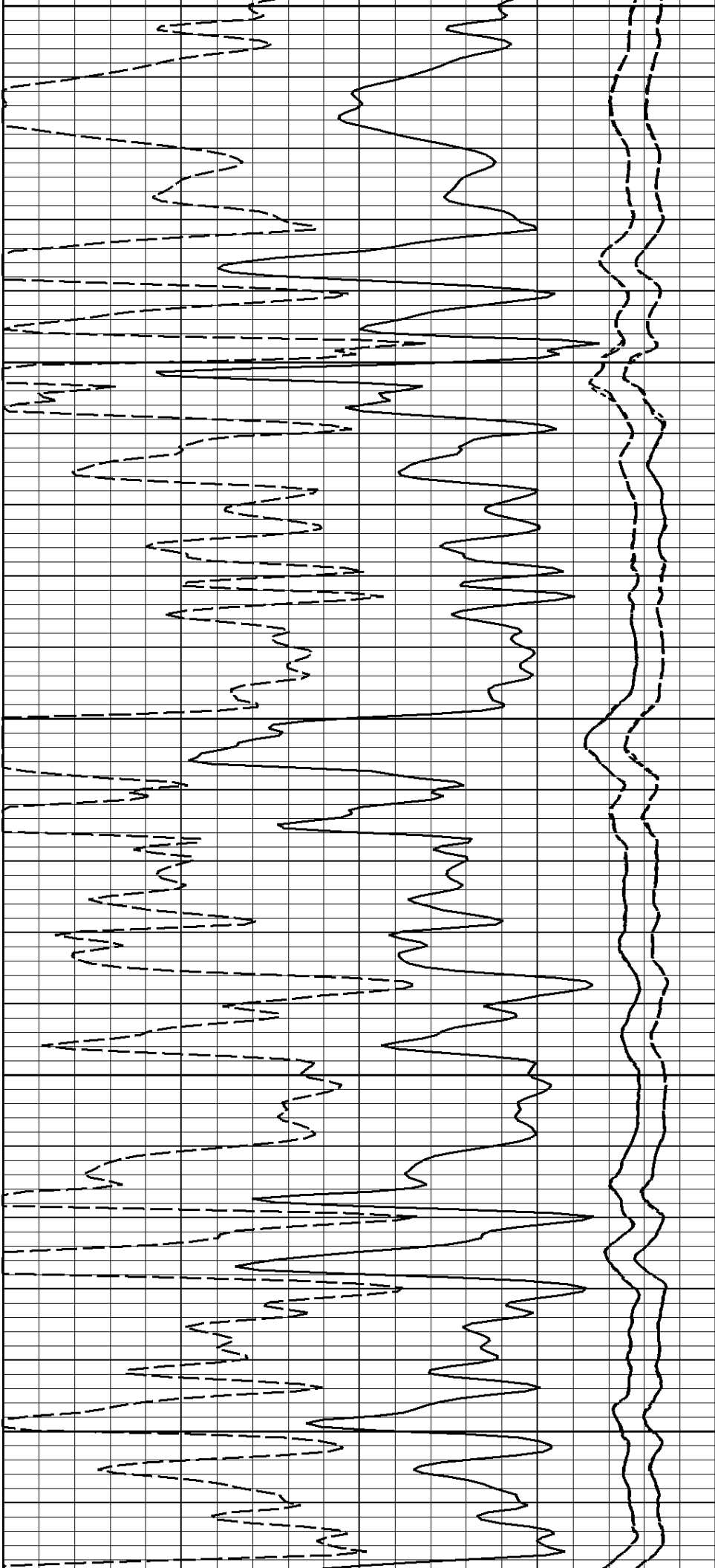




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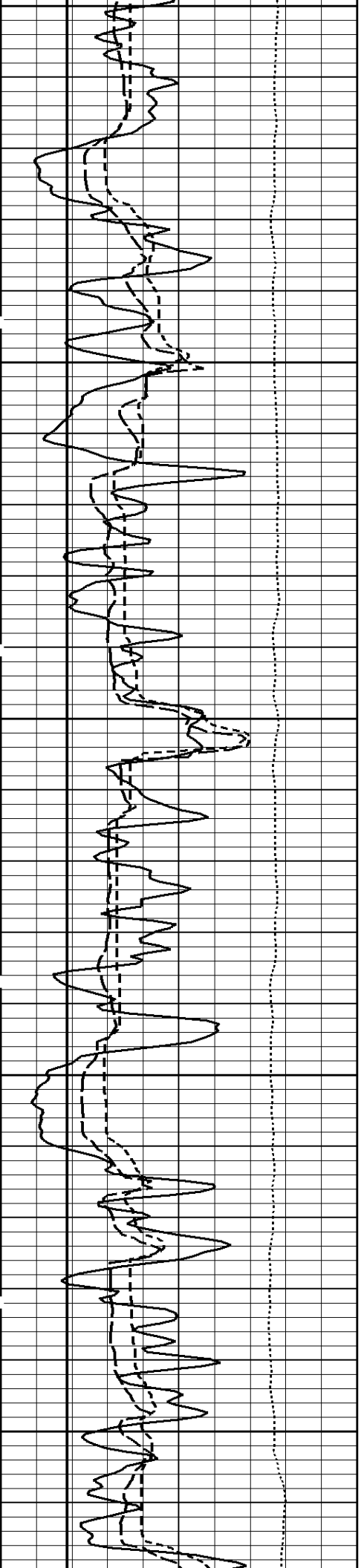
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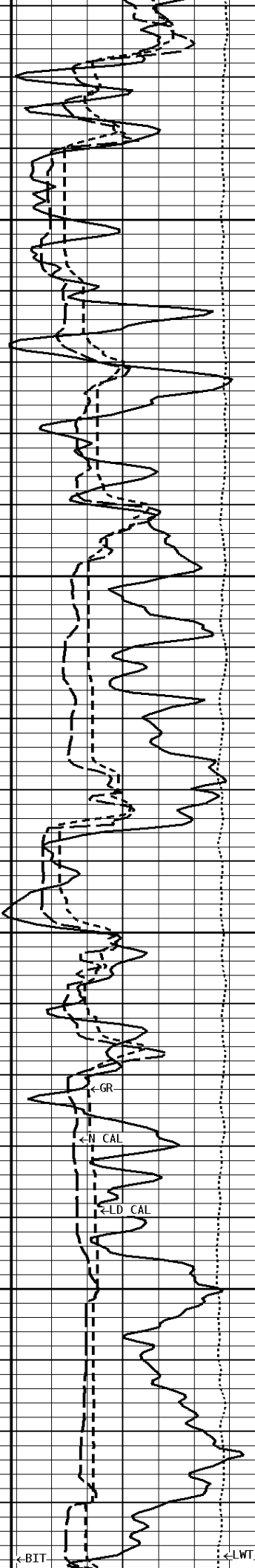




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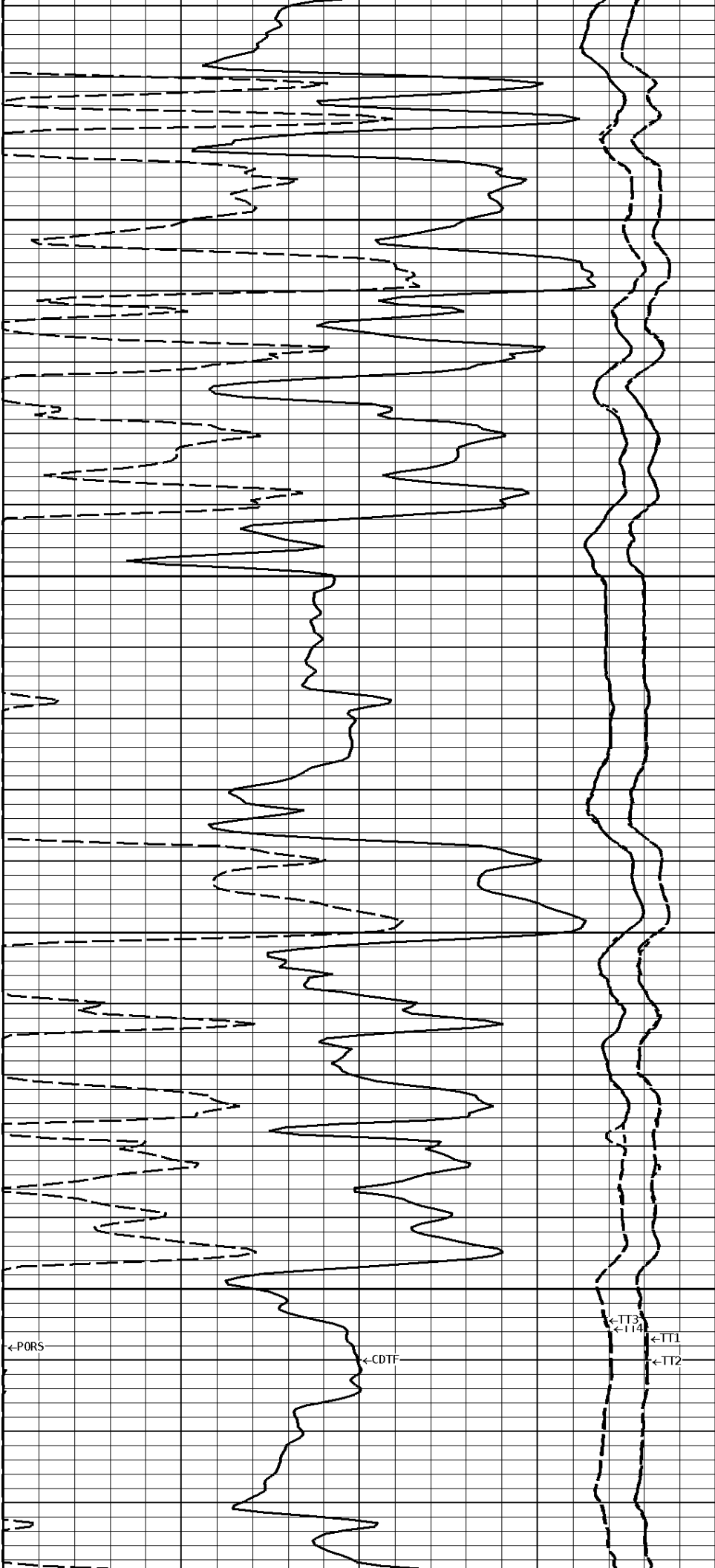
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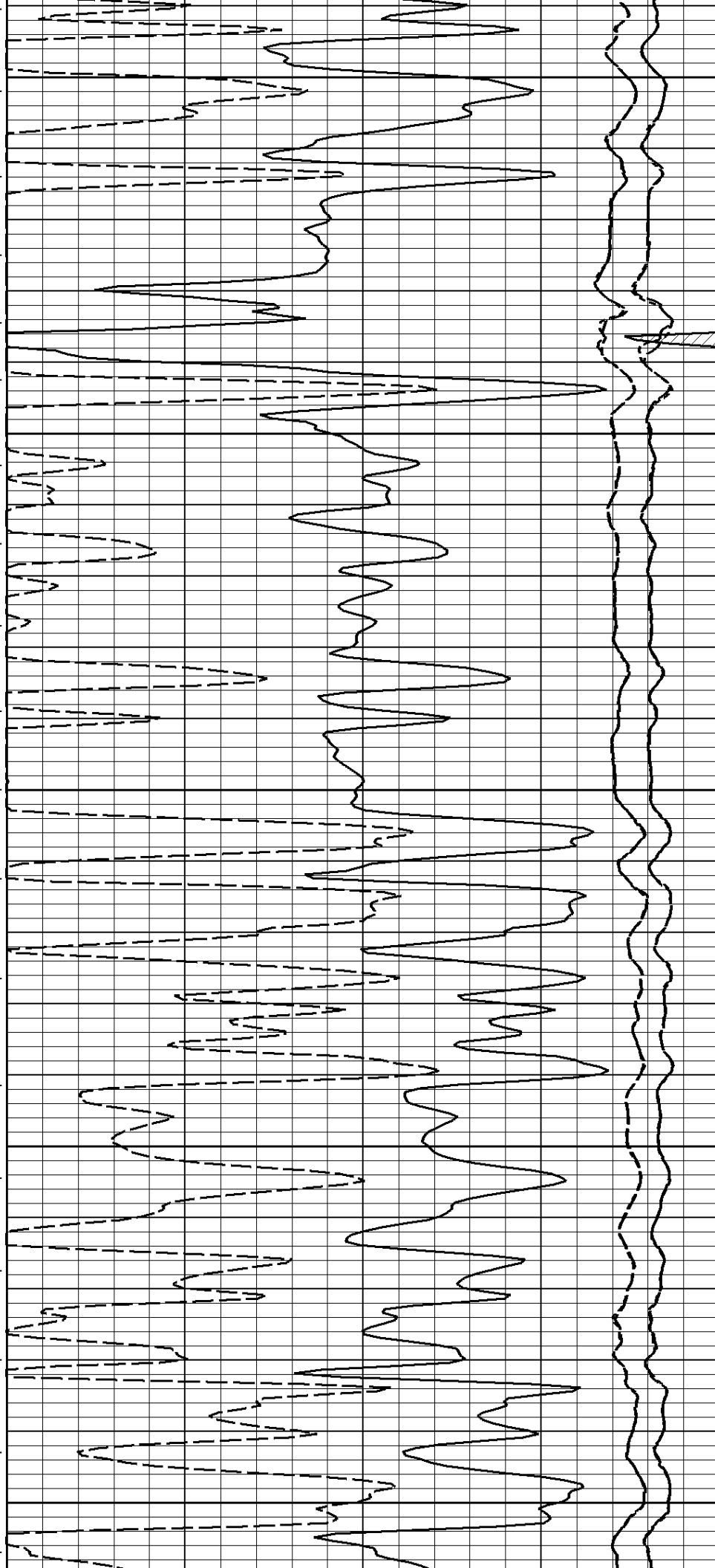
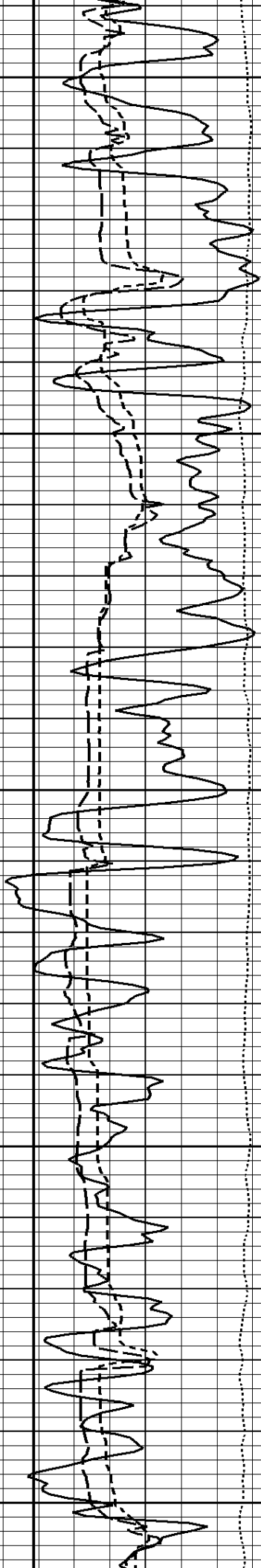
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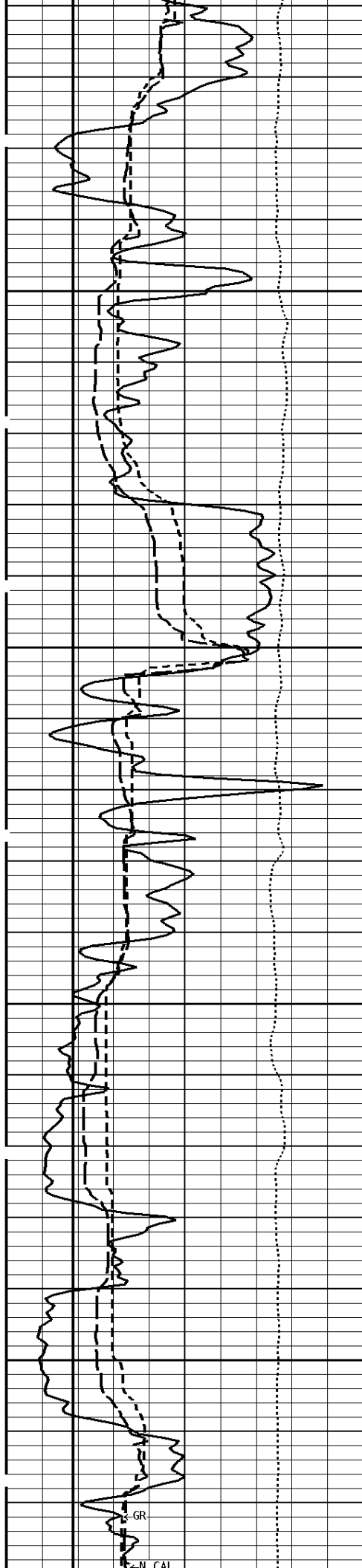


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2400

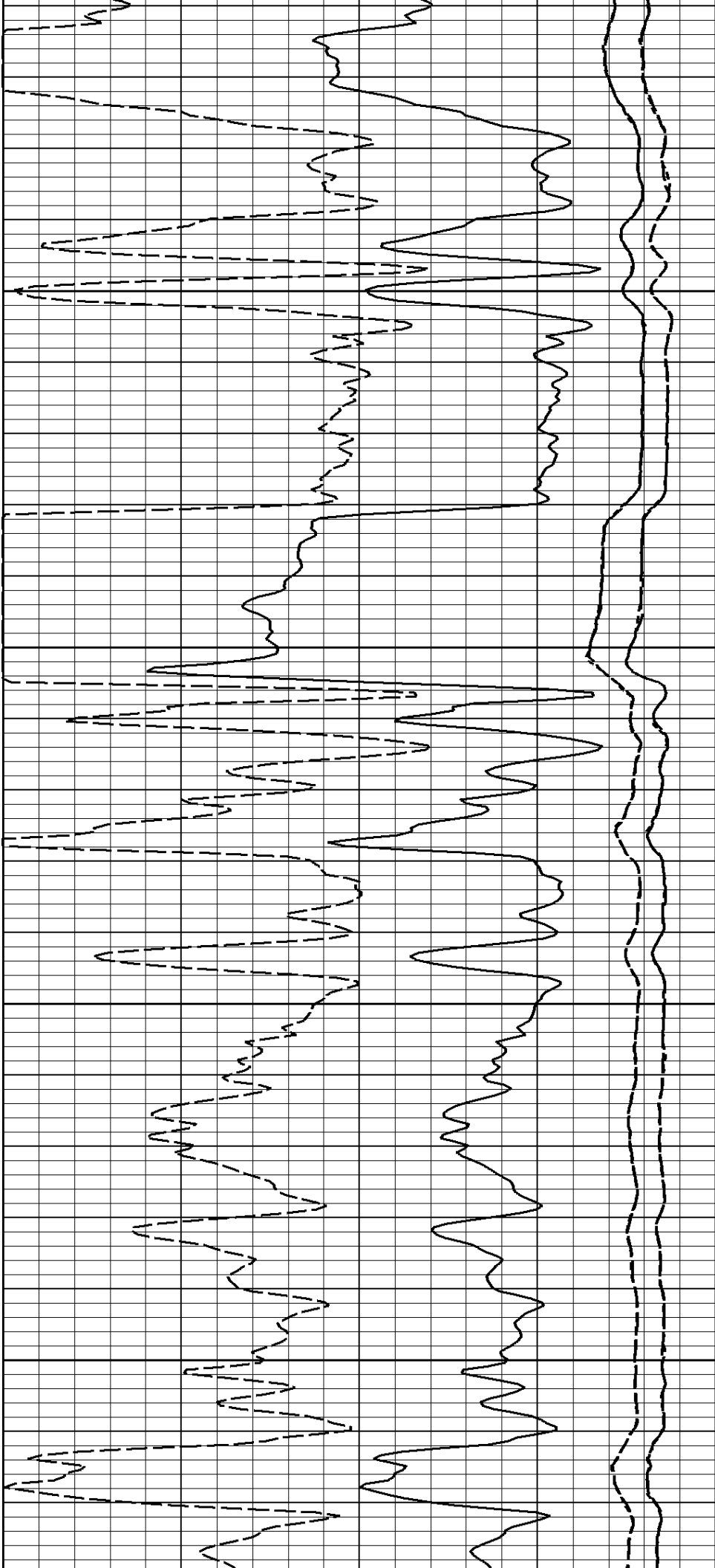
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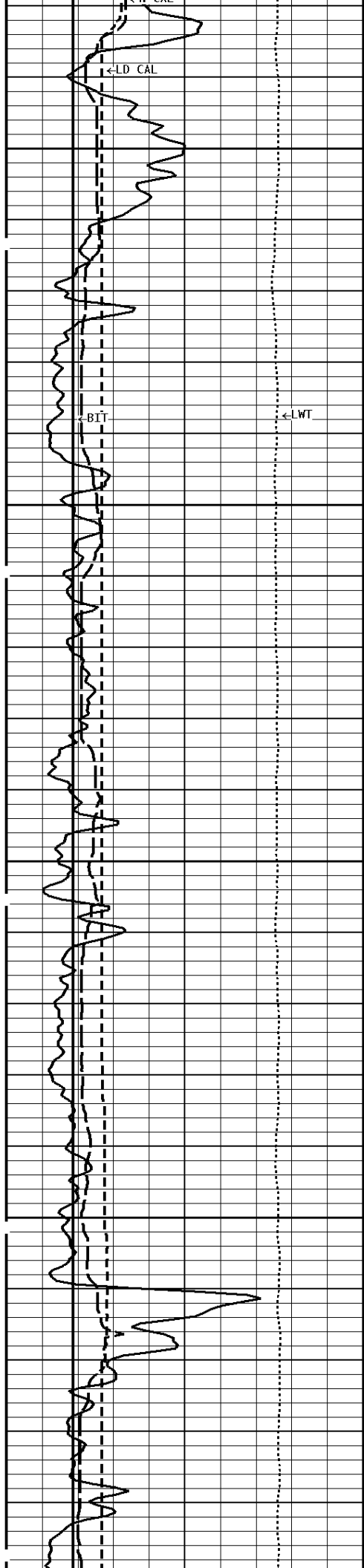




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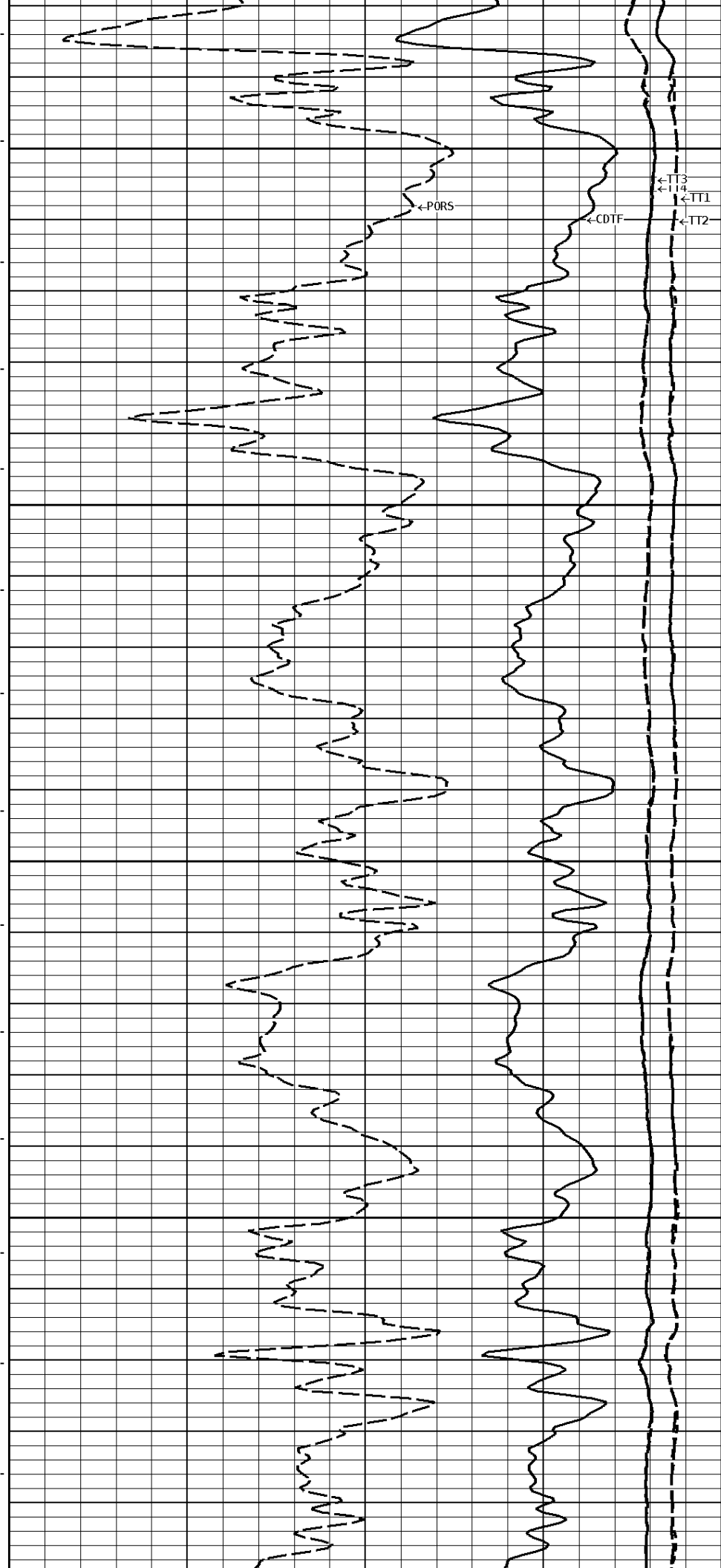
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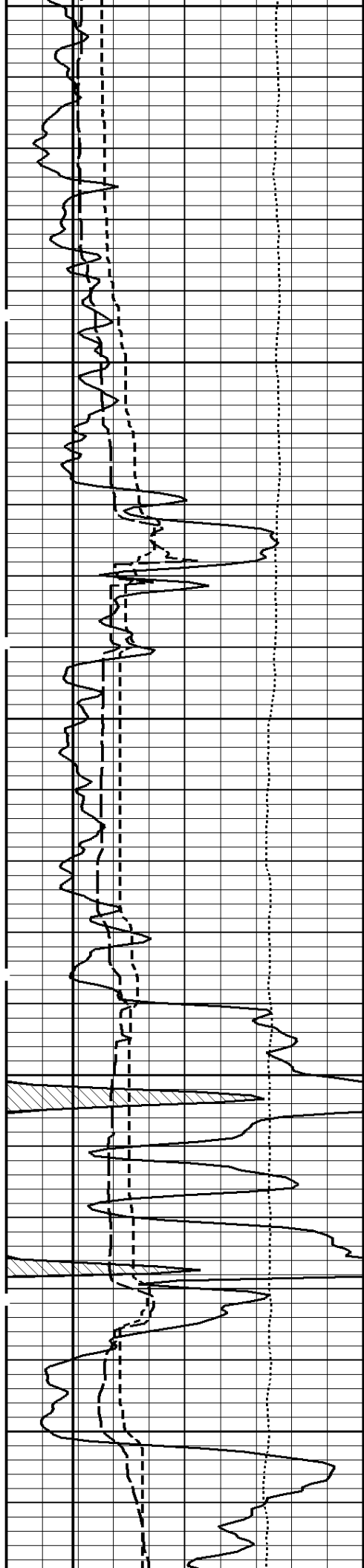




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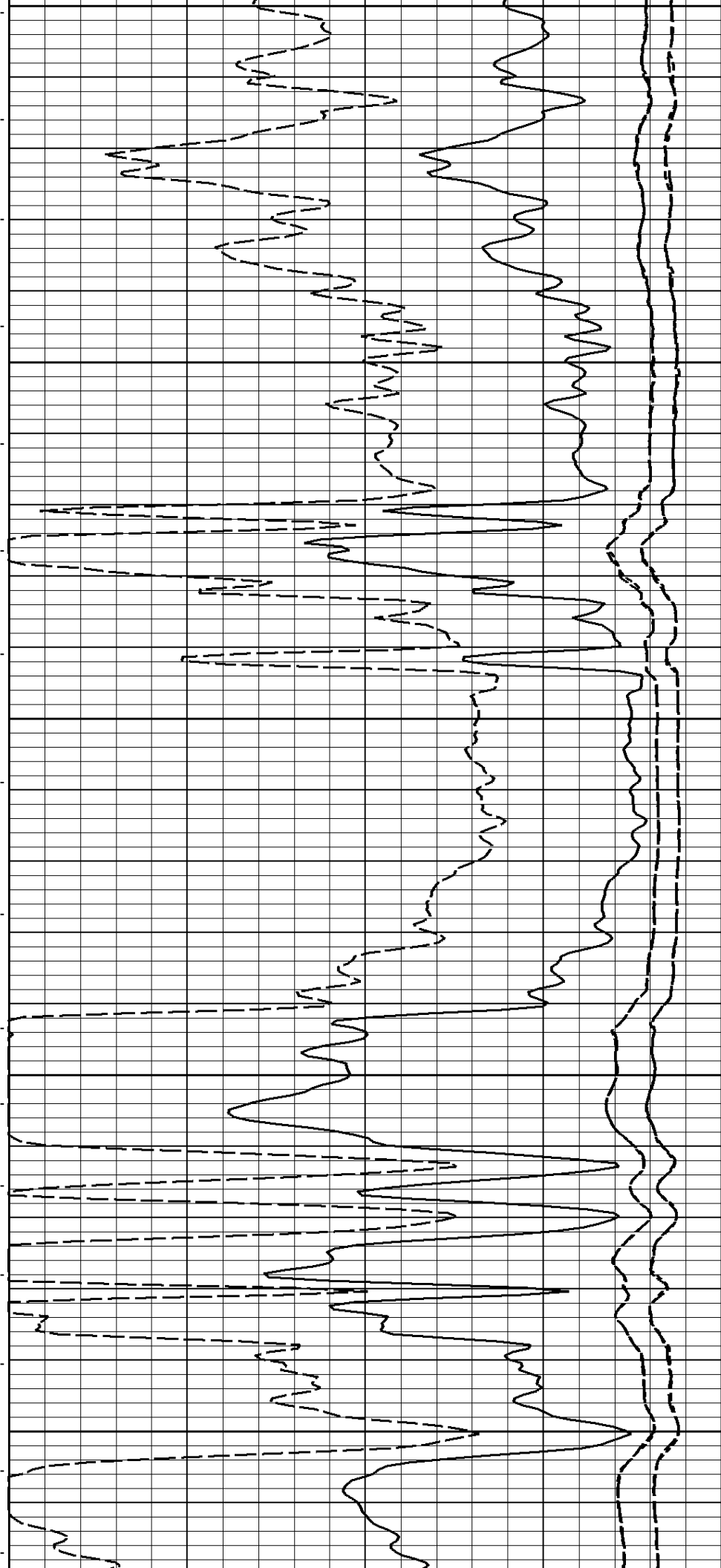
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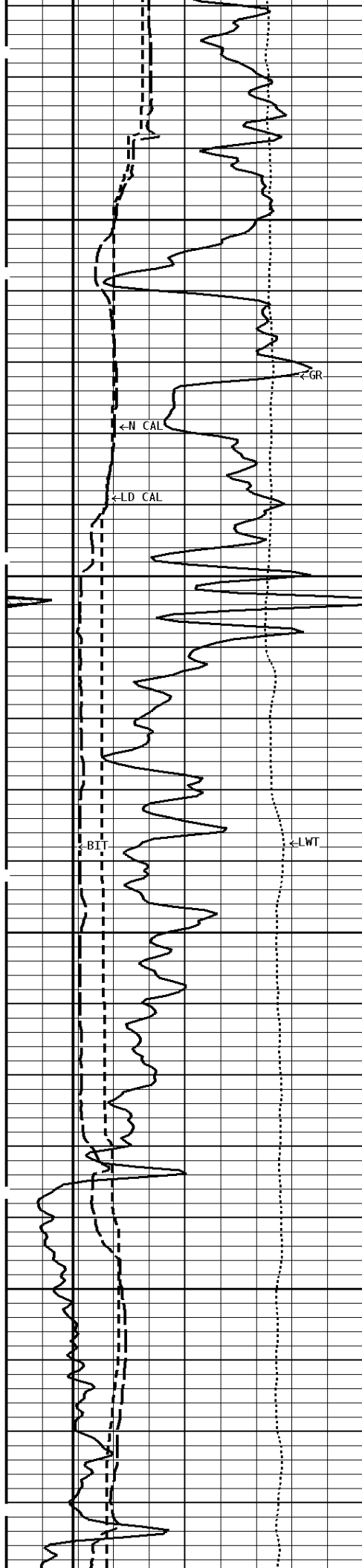




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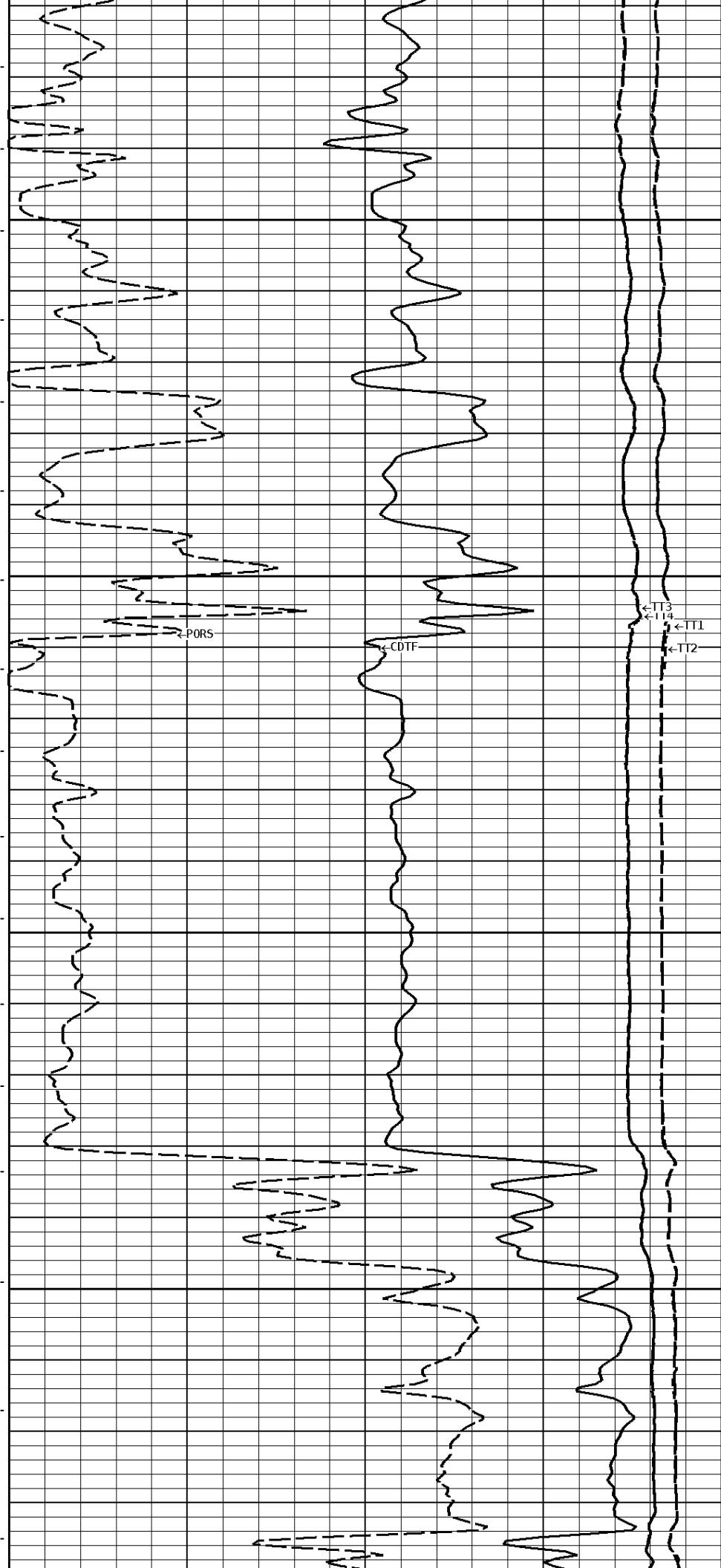
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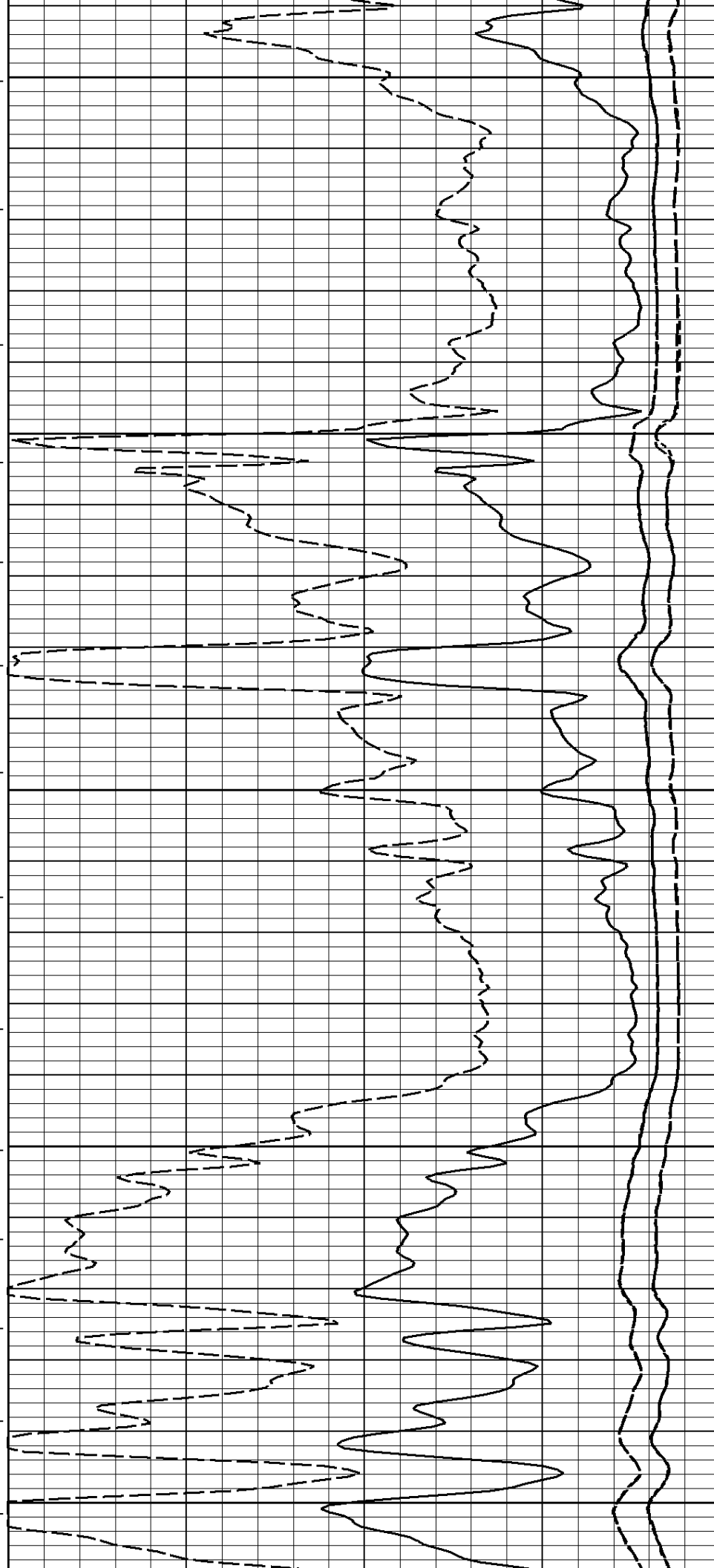
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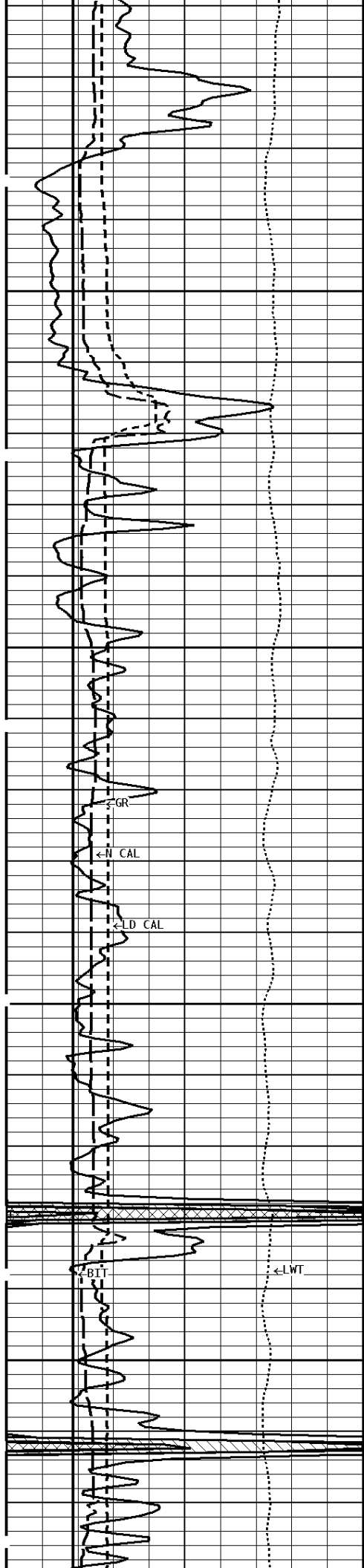


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3500

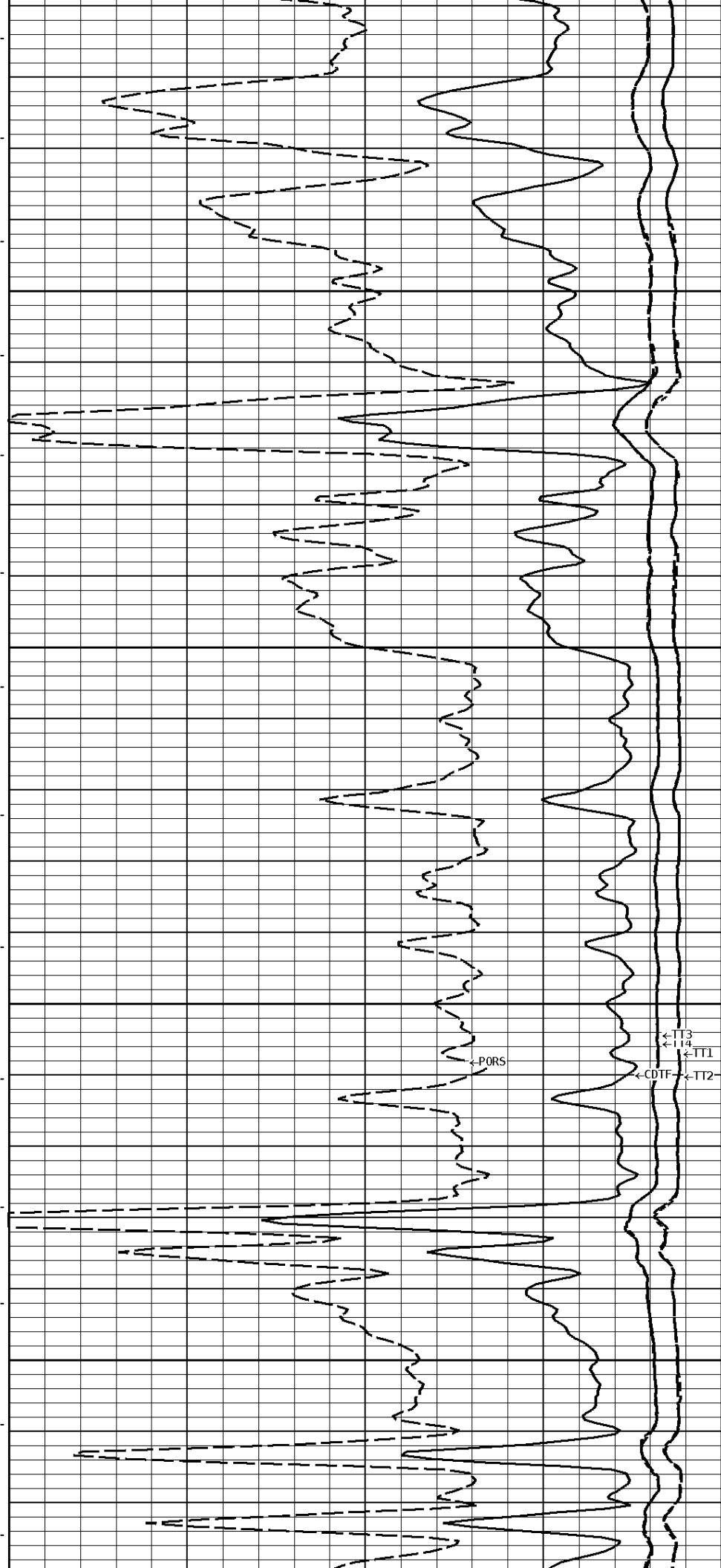
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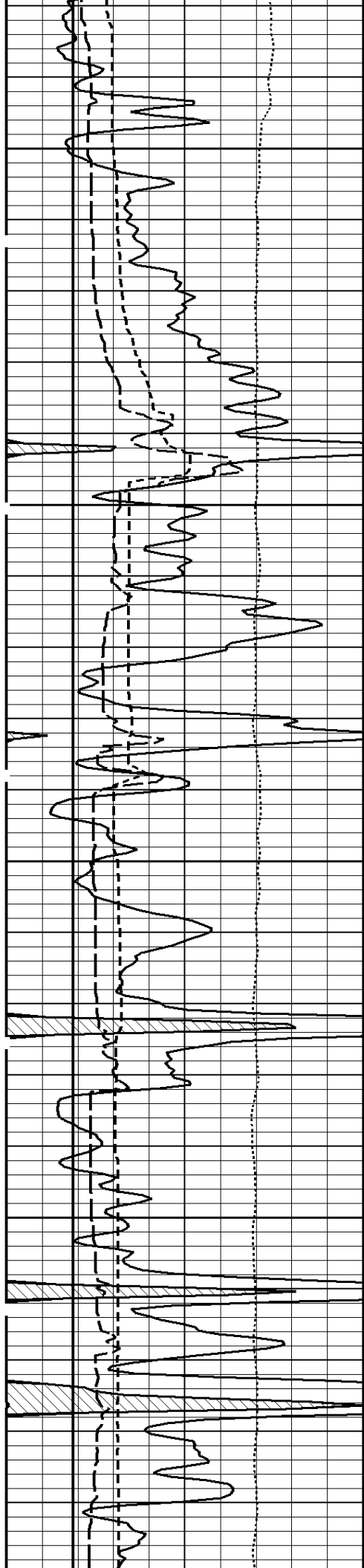




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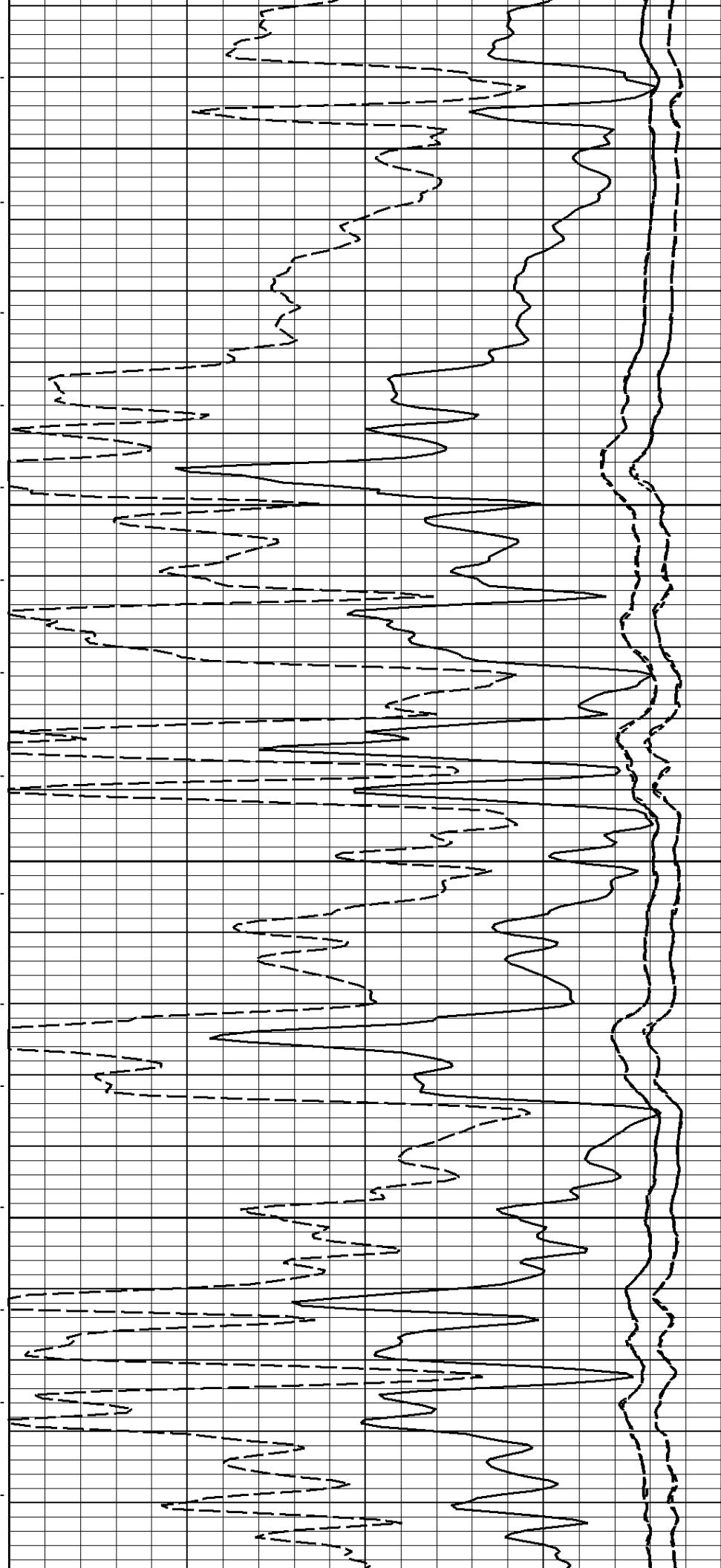
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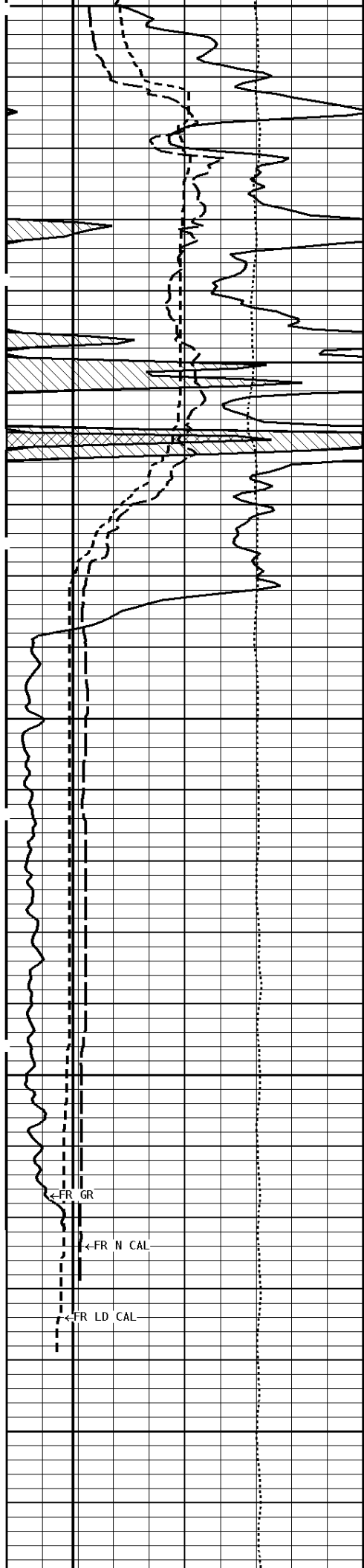




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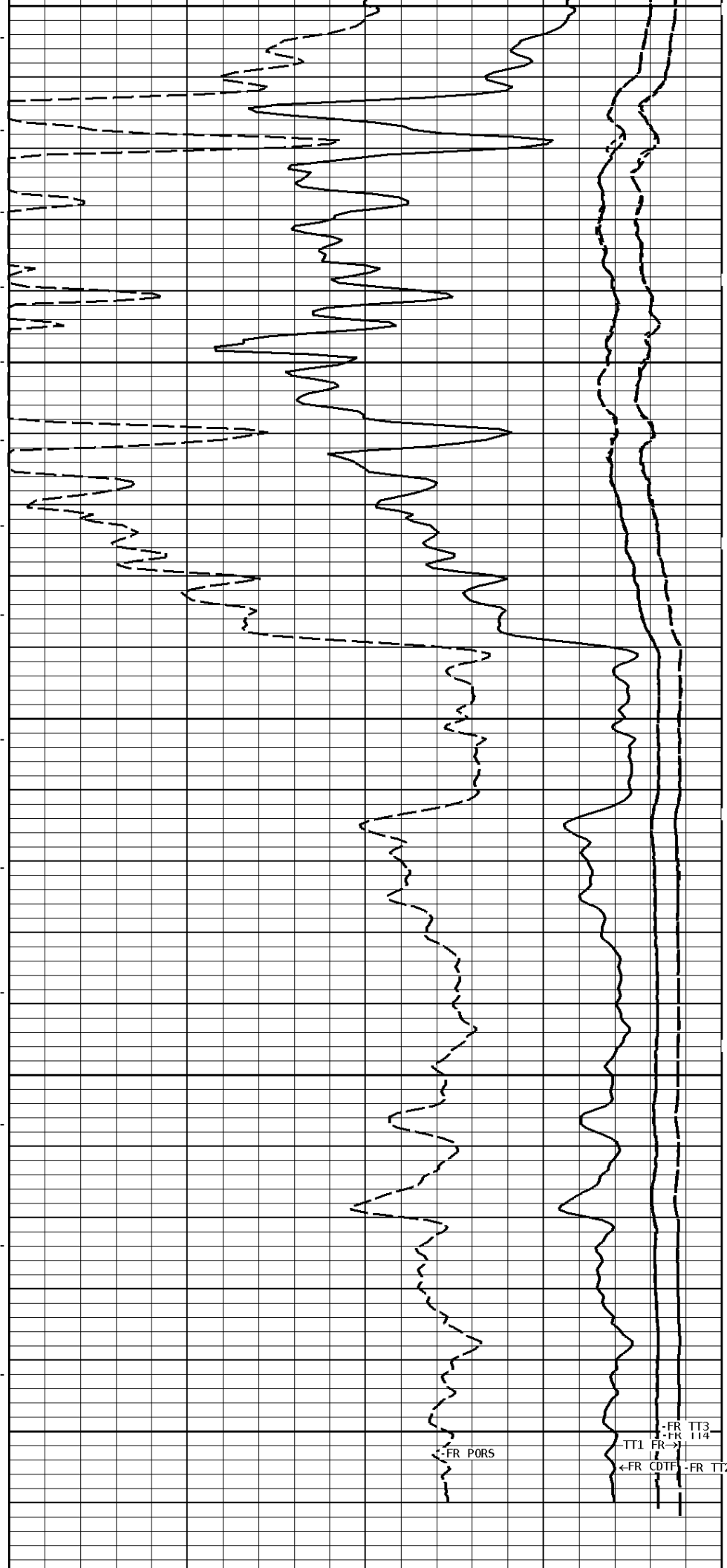
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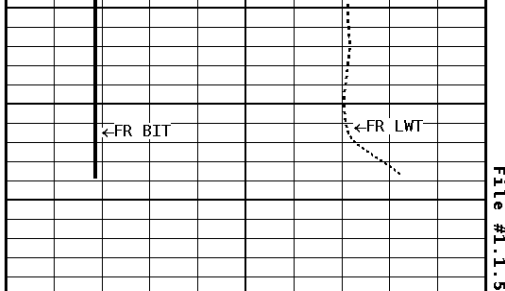




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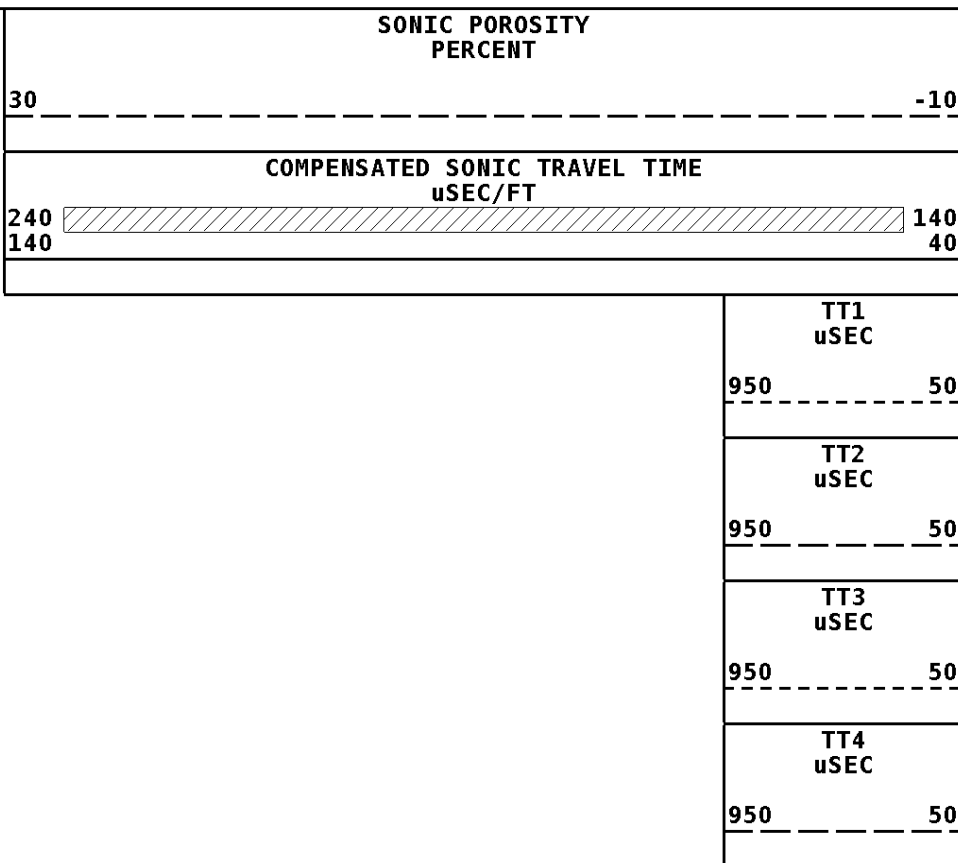
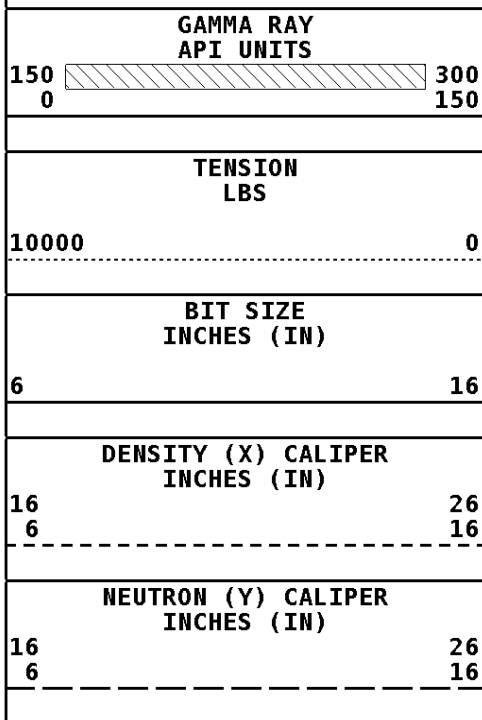
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4283

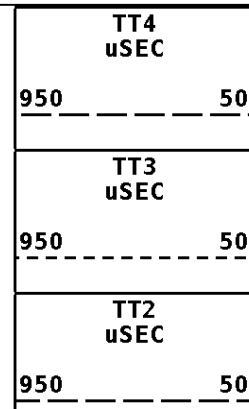
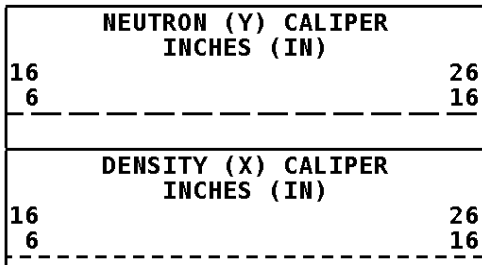
1:240 MAIN SECTION



*** Borehole Zone Factors ***

Zone 1	99999.0	to	0.0	Feet
Matrix Transit Time			47.5	us/ft
Fluid Transit Time			189.0	us/ft

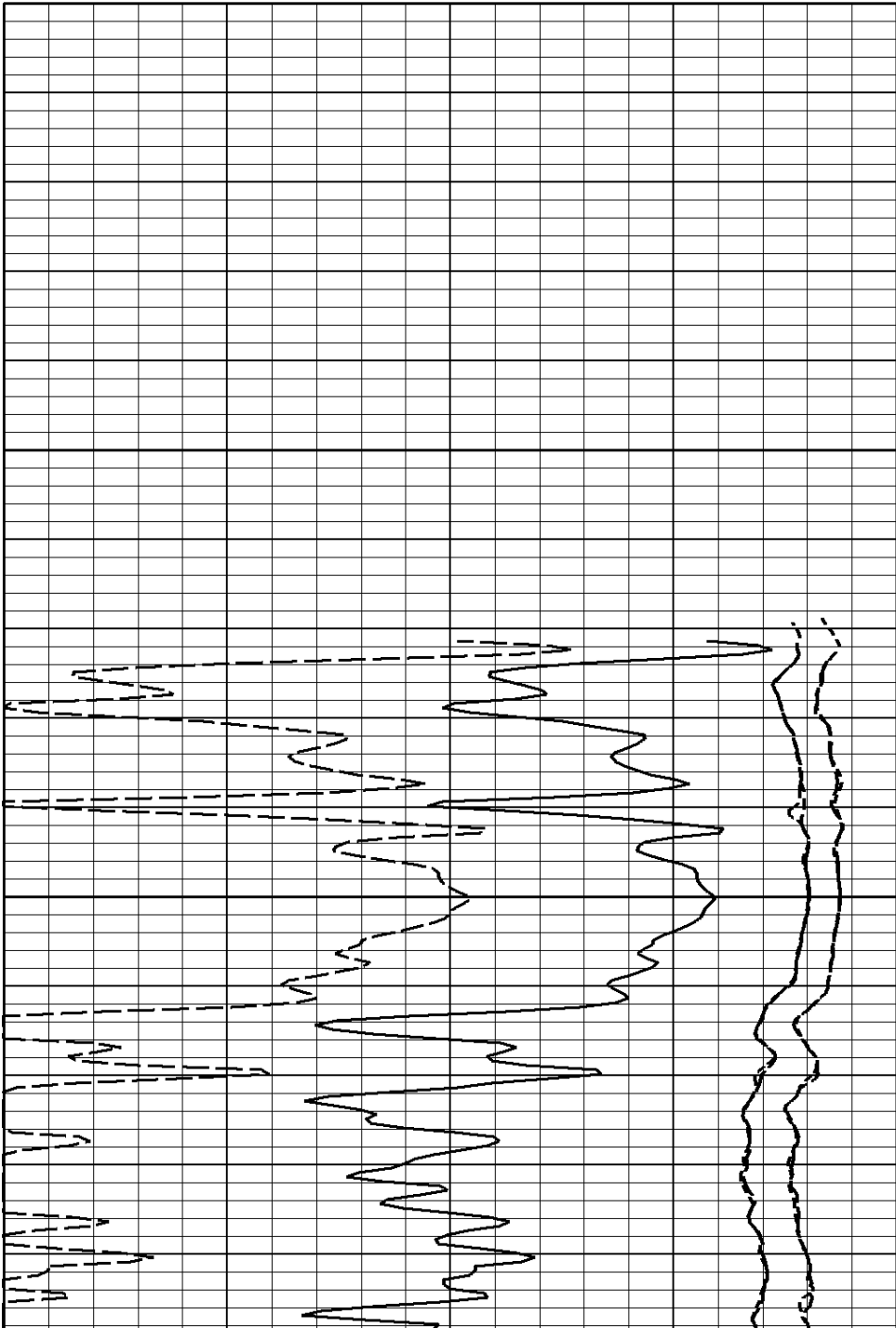
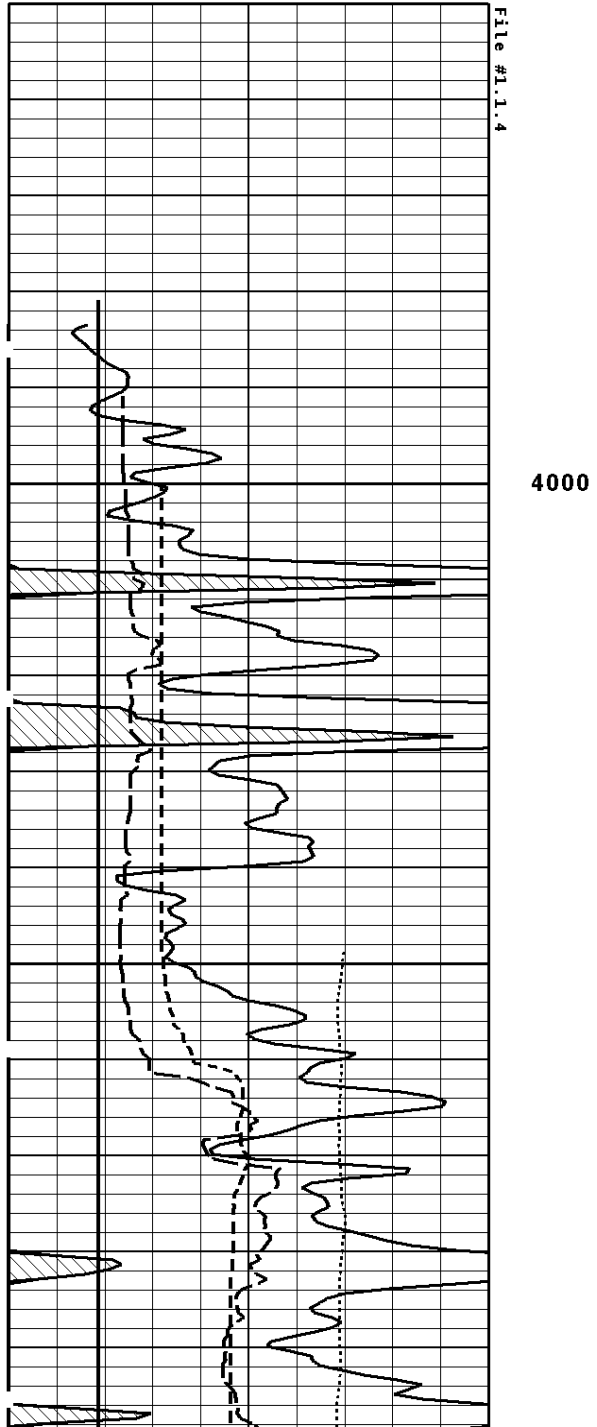
Well File: MULL_TJADEN_C4_SEPT25_QUINT	Scale: 1:240	Format: CST-240
Segment: V1.D1.S4 RP	Acquired: 2014-09/26 03:52 3.3.0-12594	
Reference: 0	Processed: 2014-09/26 05:45 3.3.0-12594	

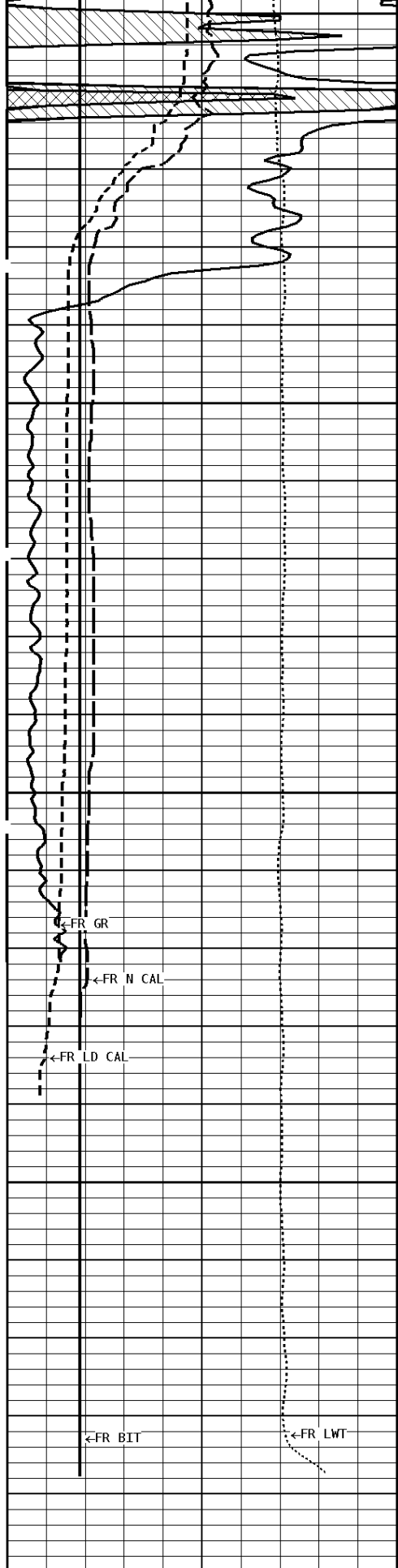


BIT SIZE INCHES (IN)	
6	16
TENSION LBS	
10000	0
GAMMA RAY API UNITS	
150 0	300 150

TT1 uSEC	
950	50
COMPENSATED SONIC TRAVEL TIME uSEC/FT	
240 140	140 40
SONIC POROSITY PERCENT	
30	-10

1:240 REPEAT SECTION



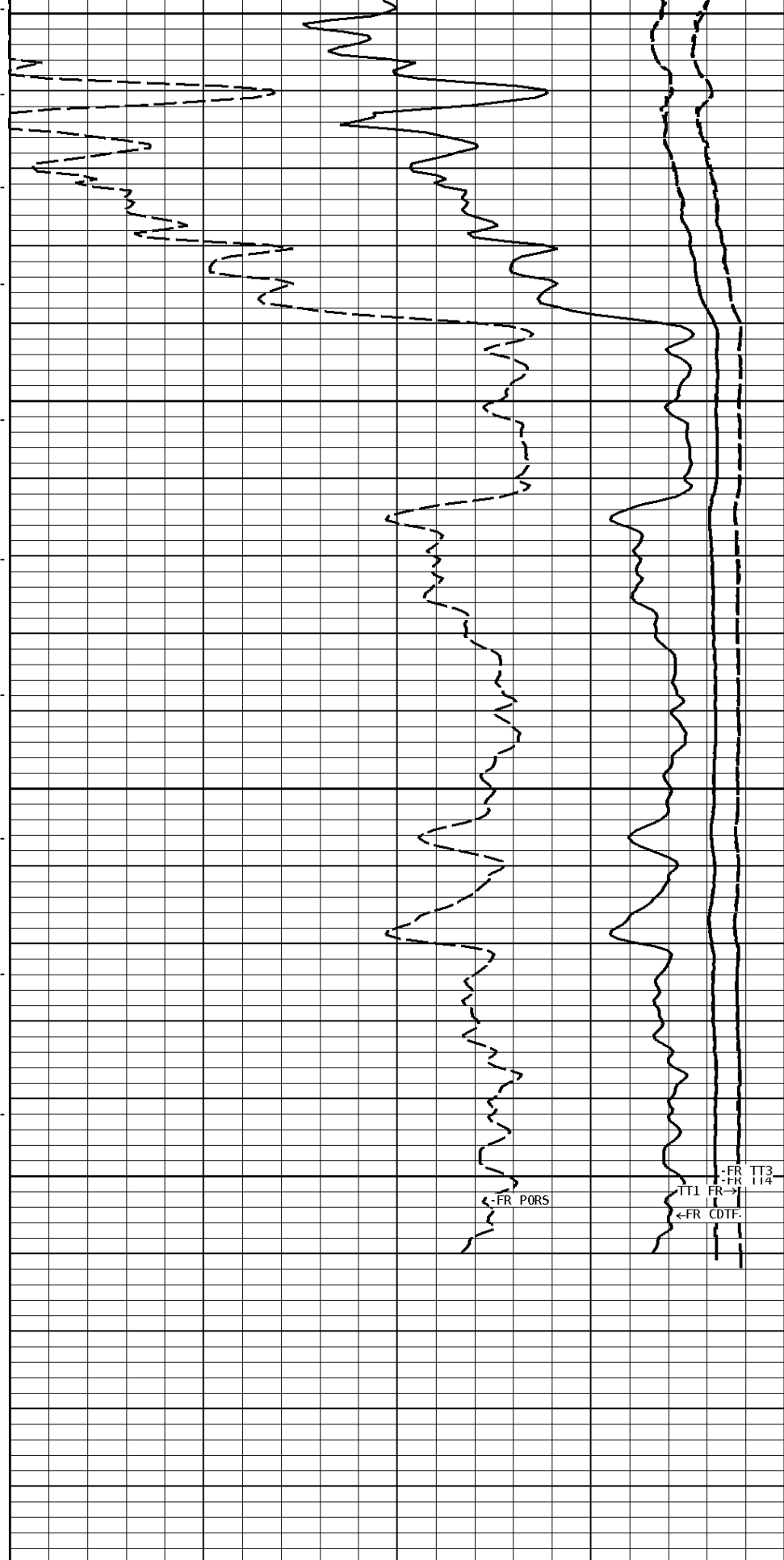


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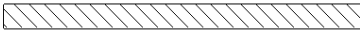
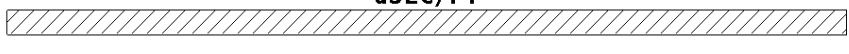
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4283

File #1.1.4



1:240 REPEAT SECTION

GAMMA RAY API UNITS 150  300 0 150		SONIC POROSITY PERCENT 30 ----- -10	
TENSION LBS 10000 ----- 0		COMPENSATED SONIC TRAVEL TIME uSEC/FT 240  140 140 40	
BIT SIZE INCHES (IN) 6 ----- 16		TT1 uSEC 950 ----- 50	
DENSITY (X) CALIPER INCHES (IN) 16 ----- 26 6 16		TT2 uSEC 950 ----- 50	
NEUTRON (Y) CALIPER INCHES (IN) 16 ----- 26 6 16		TT3 uSEC 950 ----- 50	
		TT4 uSEC 950 ----- 50	

*** Borehole Zone Factors ***

Zone 1 99999.0 to 0.0 Feet			
Matrix Transit Time	_____	47.5	us/ft
Fluid Transit Time	_____	189.0	us/ft

*** Calibration Summary ***

Shop Calibration					
GRT-B					
Performed : 21-APR-2014			Time : 11:21		
Sensor Suite : GR-GR5			ID : GRT-BB-107		
	Measured	Units	Calibrated	Units	
	Background	Jig	Jig		
GR	75	381	175	GRAPI	

Shop Calibration					
CST-AD					
Performed : 20-MAY-2014			Time : 18:11		
Sensor Suite : SON-ANA			ID : CST-AB-25		
Transit Time					
T/R Pair	Measured		Calibrated	Units	
T1R1	208.5		208.5	uS	
T2R2	208.5		208.5	uS	
T1R2	322.5		322.5	uS	
T2R1	322.5		322.5	uS	
Amplitude					
T/R Pair	Measured		Calibrated	Units	
T1R1	90.00		90.00	mV	
T2R2	90.00		90.00	mV	
T1R2	78.00		78.00	mV	
T2R1	78.00		78.00	mV	