



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

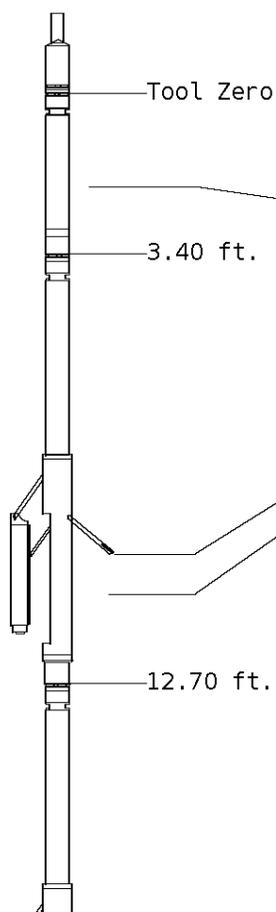
CUSTOMER REQUESTED DETAIL PULLED TO 1900'  
 2ND RUN TO GET GAMMA RAY CLOSER TO BOTTOM

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

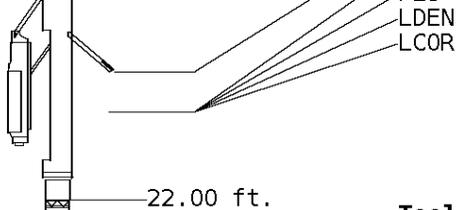
OPERATORS: +3  
 B.BROWN  
 J.OFFEIGHU

### 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-BA-121				
<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-BB-115				
<b>Source ID</b> :N-1044				
<b>Pad ID</b> :CNP-AA-101				
<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> :PDT-GA-426				
<b>Source ID</b> :CSV-587				
<b>Pad ID</b> :LDP-DA-50				
<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	

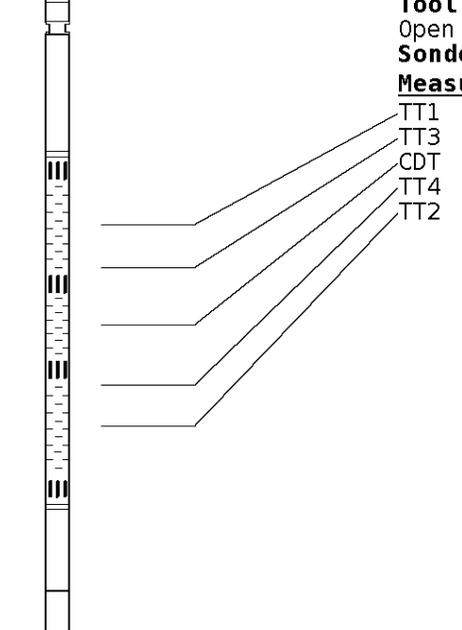


7.20 19.90 47.05  
 7.20 19.90 47.05

22.00 ft.

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

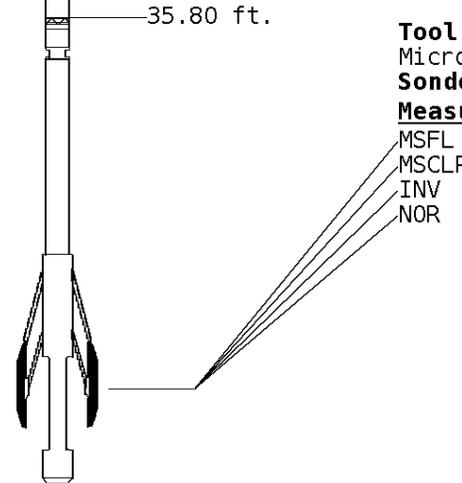
Measure Point	Tool Offset	Stack Offset	Bottom Offset
TT1	4.80	26.80	40.15
TT3	5.80	27.80	39.15
CDT	7.30	29.30	37.65
TT4	8.80	30.80	36.15
TT2	9.80	31.80	35.15



35.80 ft.

**Tool:** MST-DA      **Length:** 9.66 ft.   **O.D.** 6.00 in.  
 Micro Spherically Focused (IC)  
**Sonde ID** :MLT-DA-21

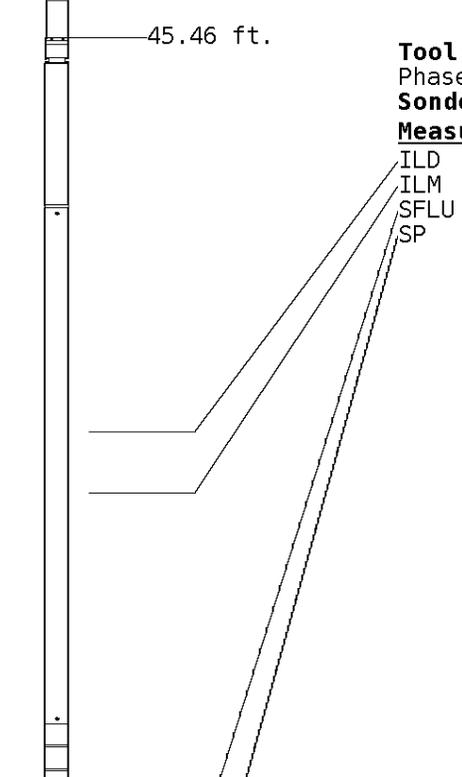
Measure Point	Tool Offset	Stack Offset	Bottom Offset
MSFL	7.60	43.40	23.55
MSCLP	7.60	43.40	23.55
INV	7.60	43.40	23.55
NOR	7.60	43.40	23.55



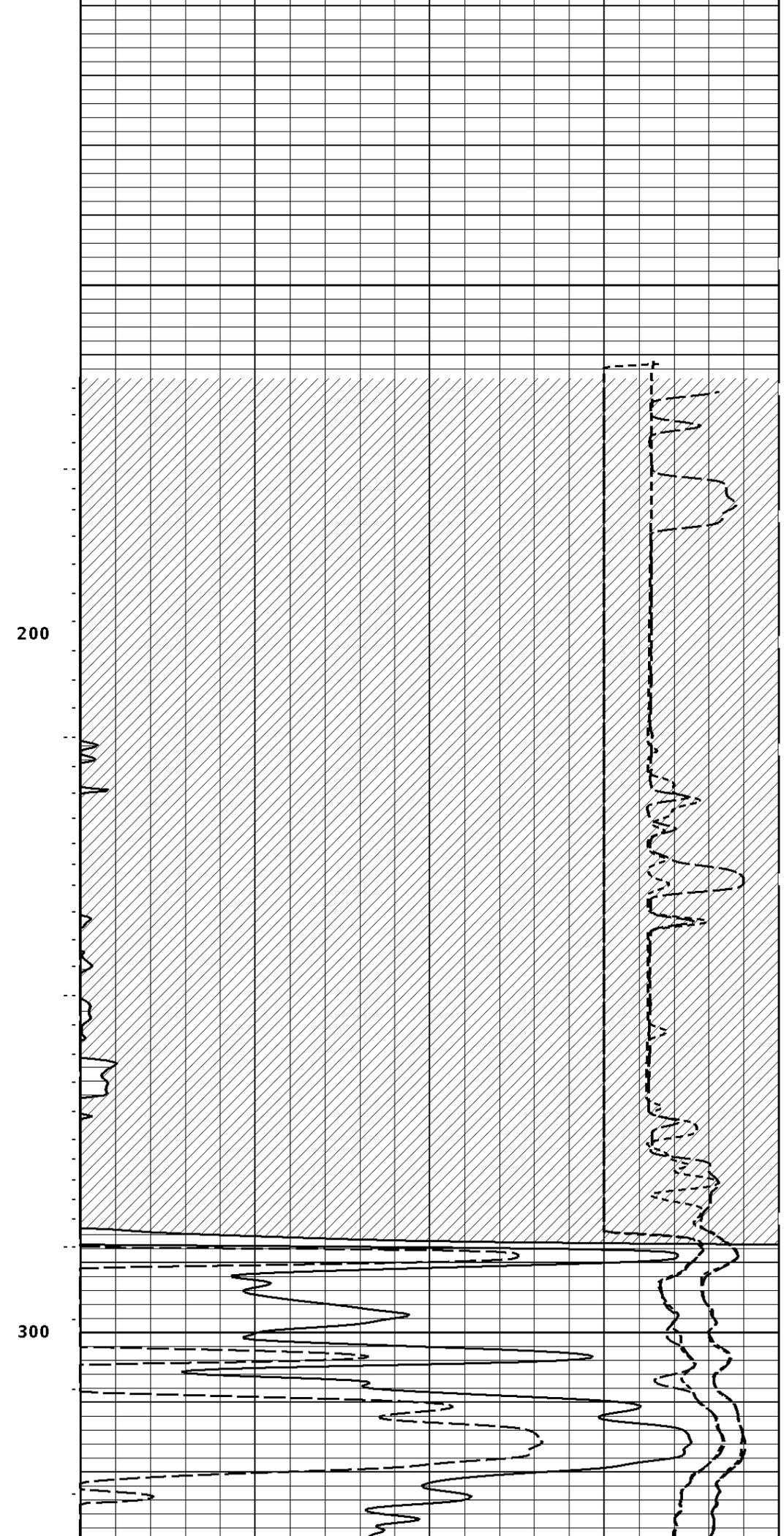
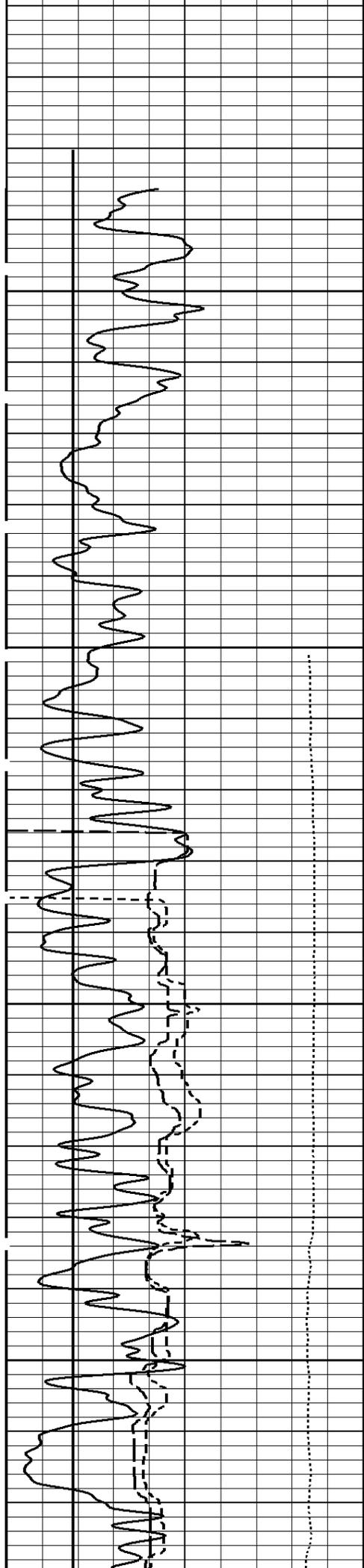
45.46 ft.

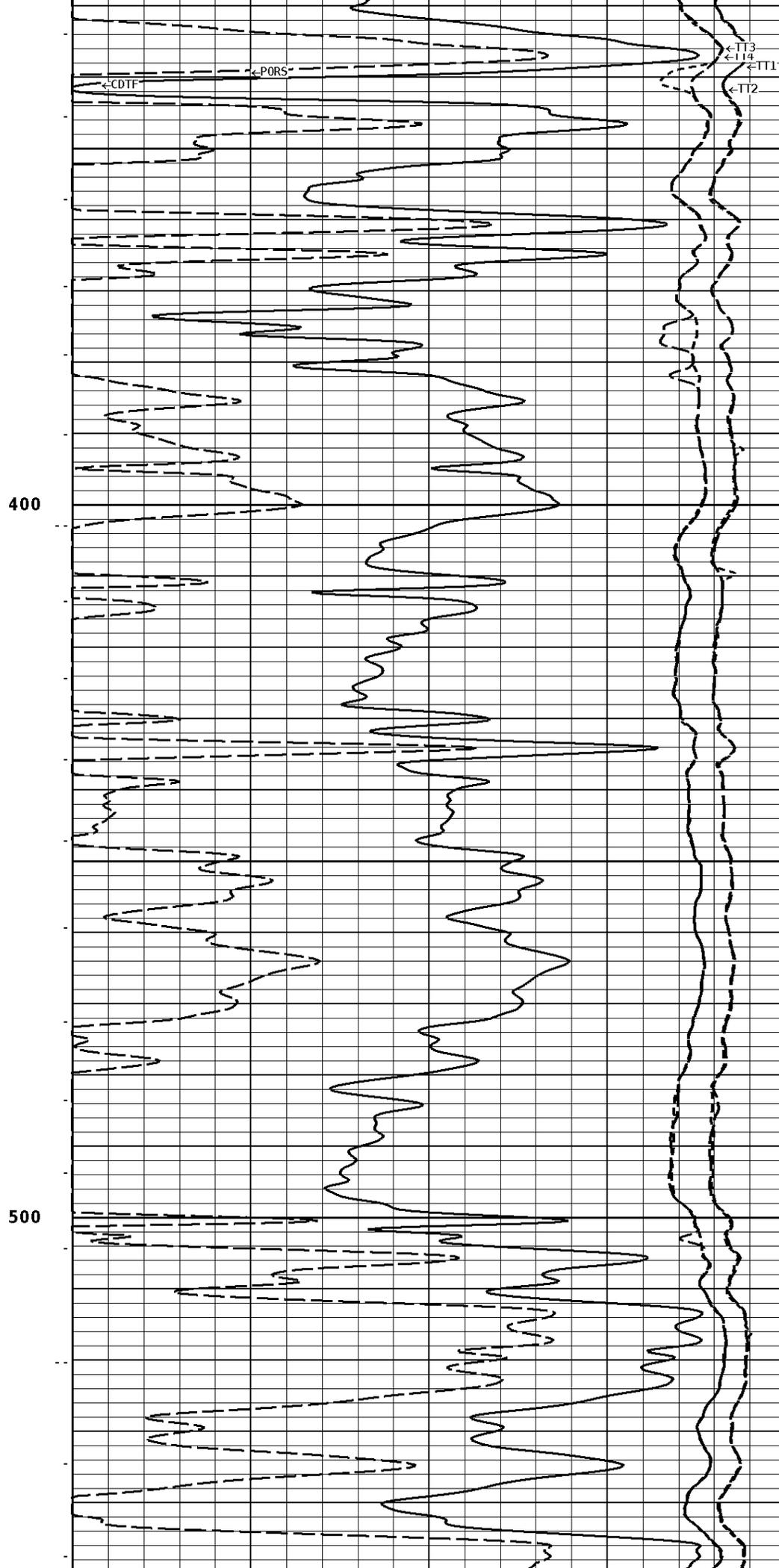
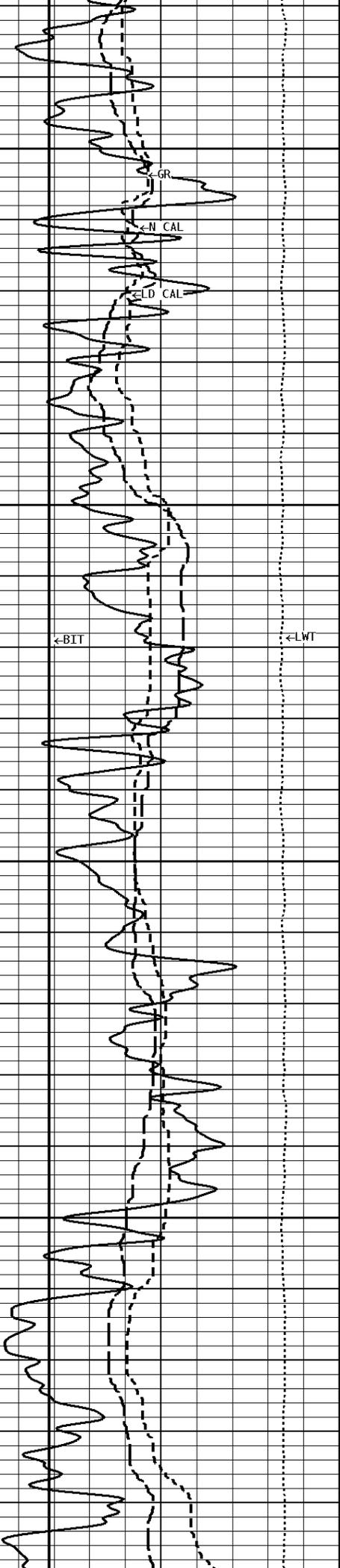
**Tool:** PIT-CA      **Length:** 21.49 ft.   **O.D.** 3.62 in.  
 Phased Dual Induction w/ RM & D  
**Sonde ID** :PIT-CA-075

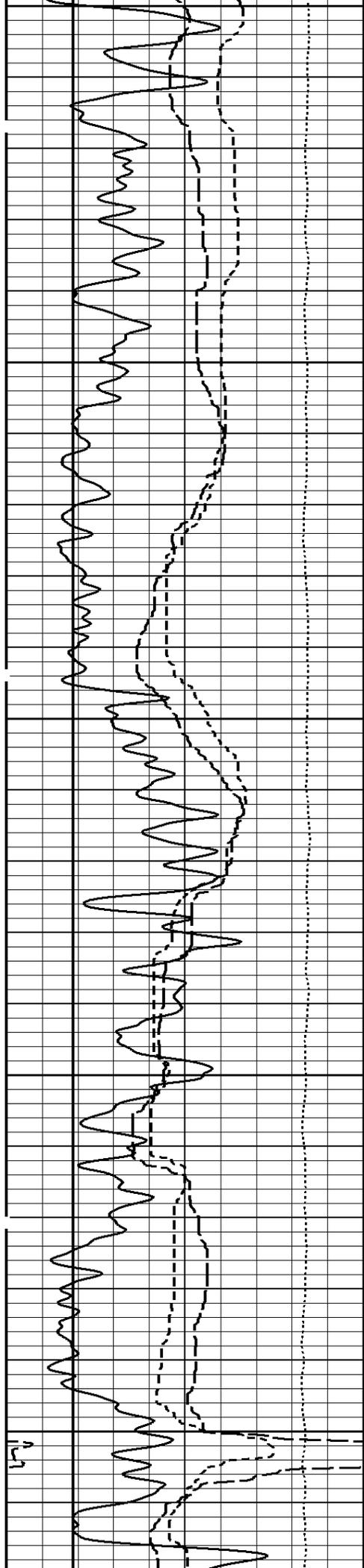
Measure Point	Tool Offset	Stack Offset	Bottom Offset
ILD	8.92	54.38	12.56
ILM	10.10	55.56	11.39
SFLU	17.49	62.95	4.00
SP	20.60	66.06	0.88





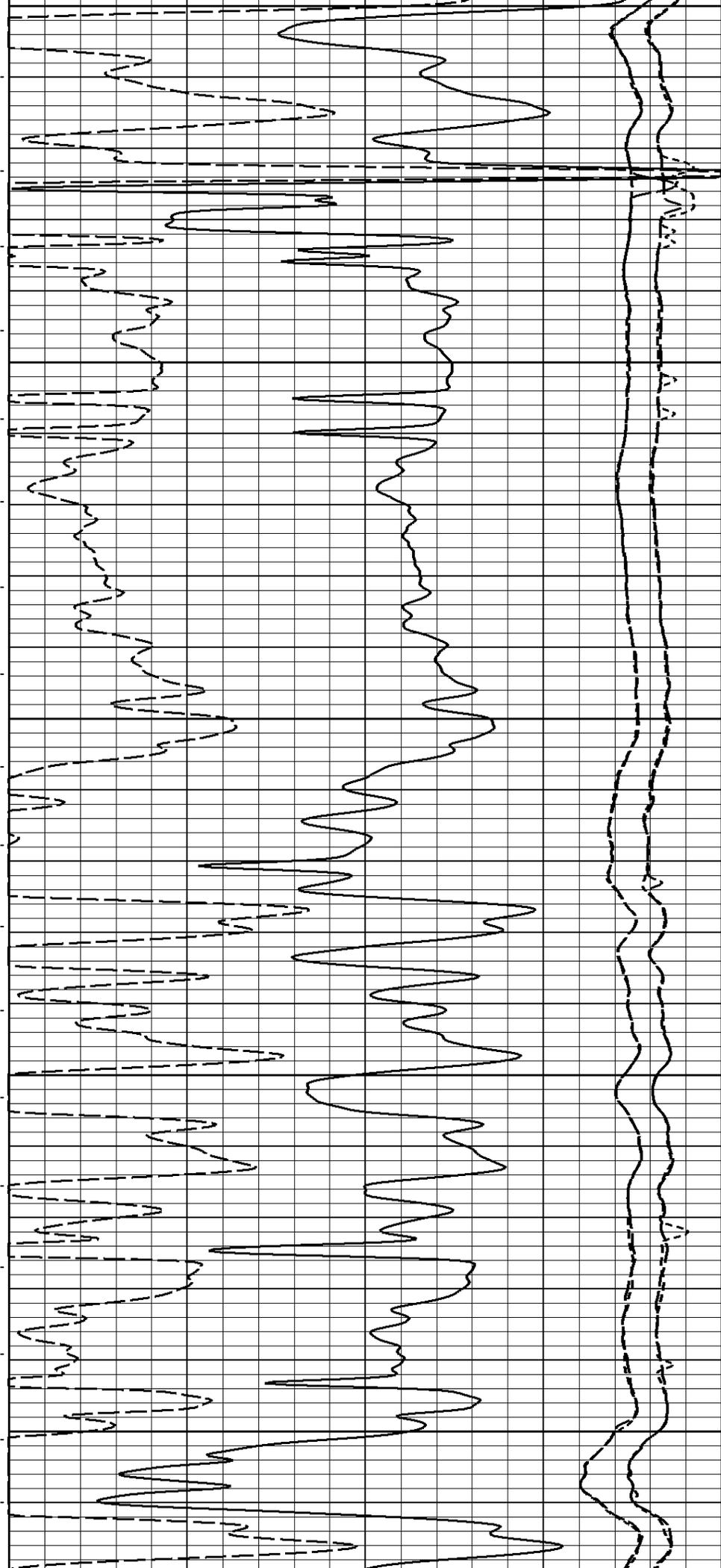


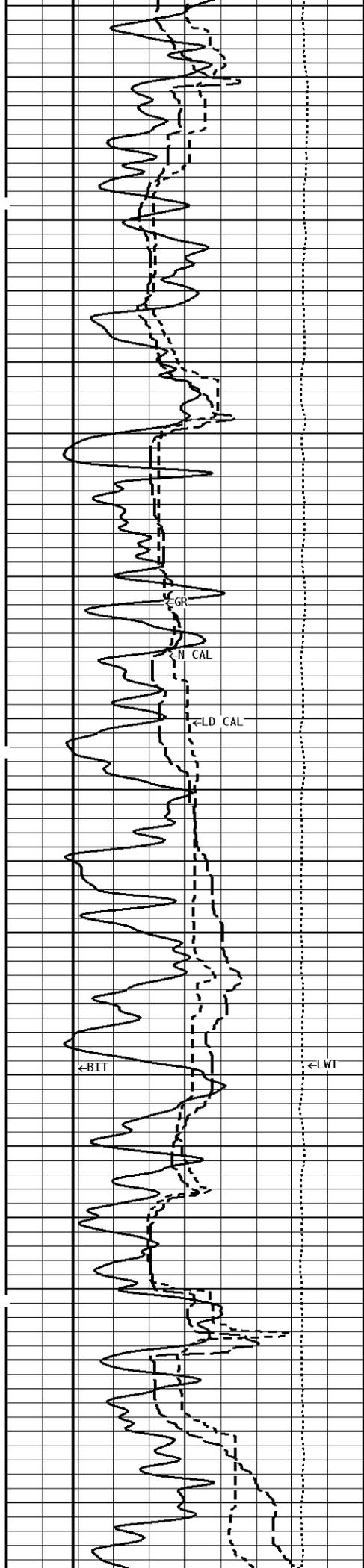




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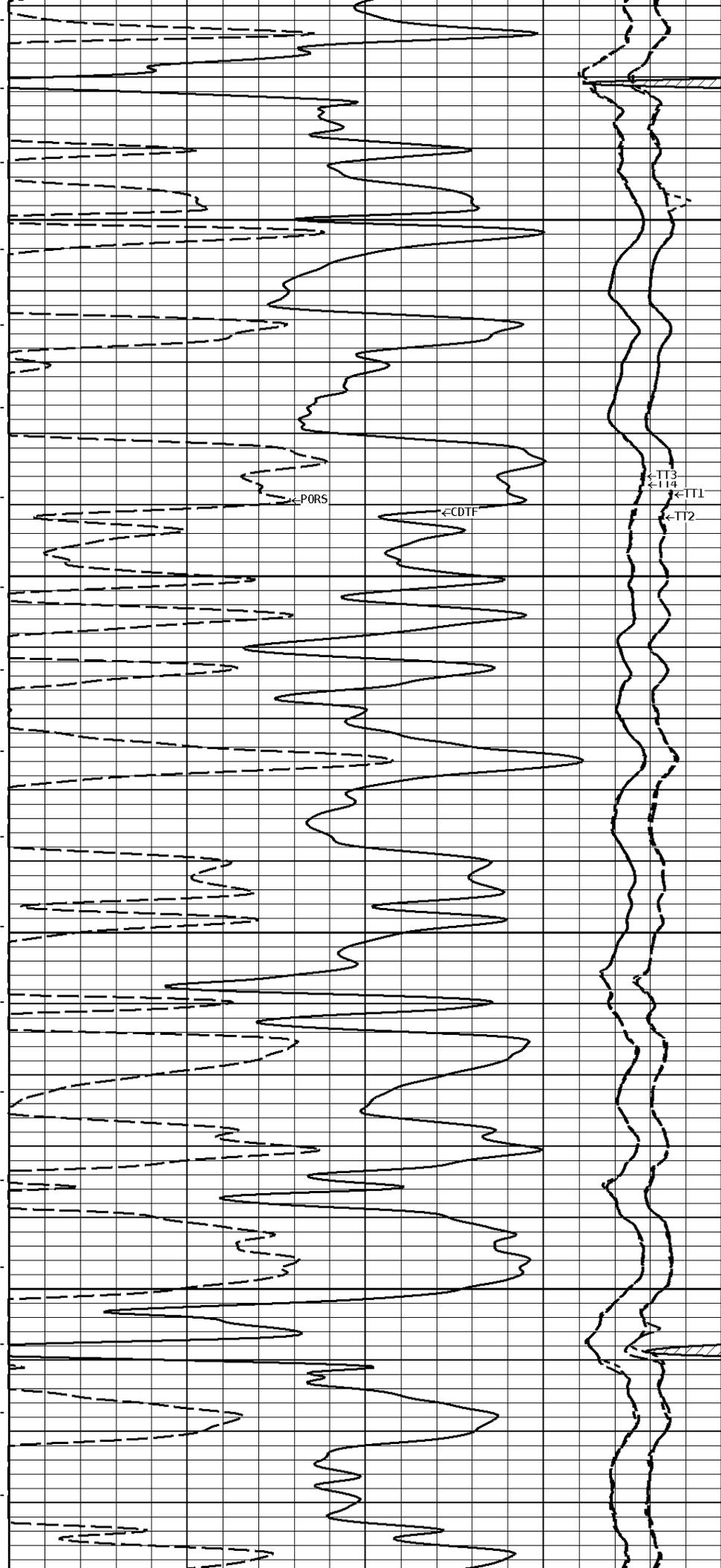
700

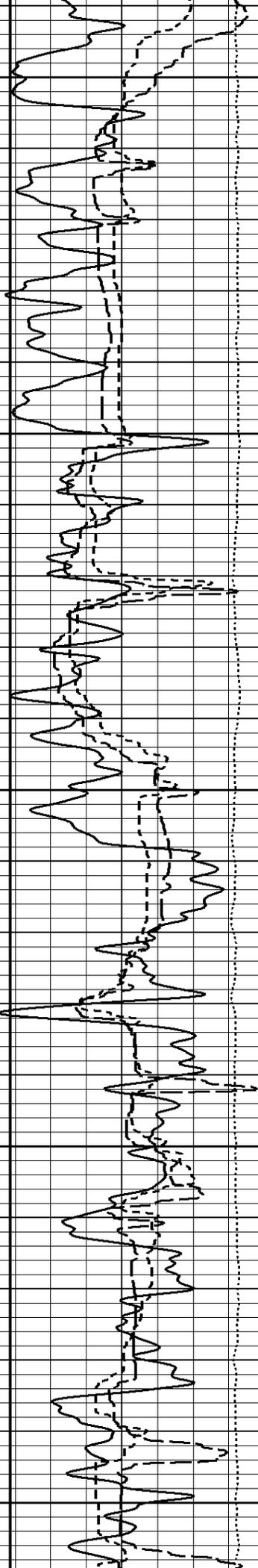




800

900

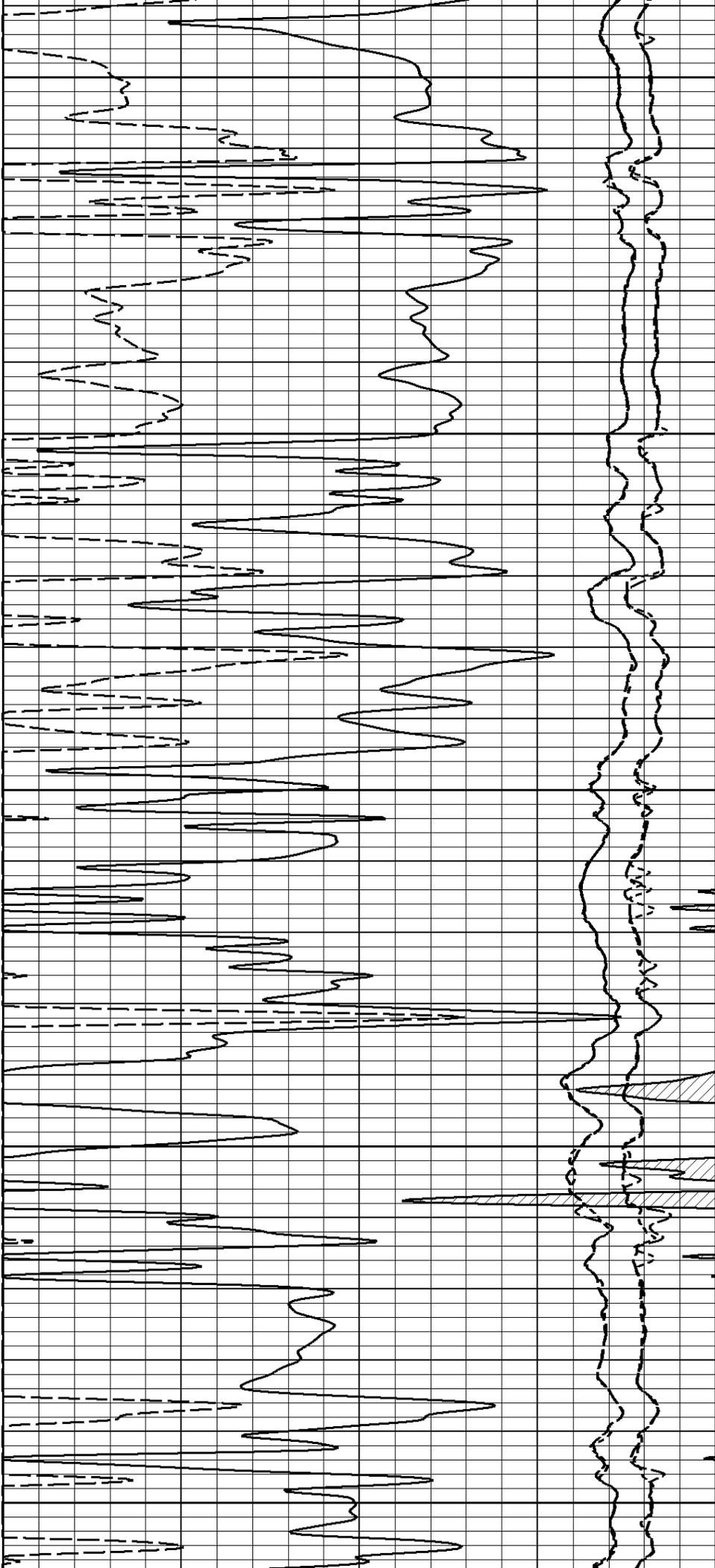


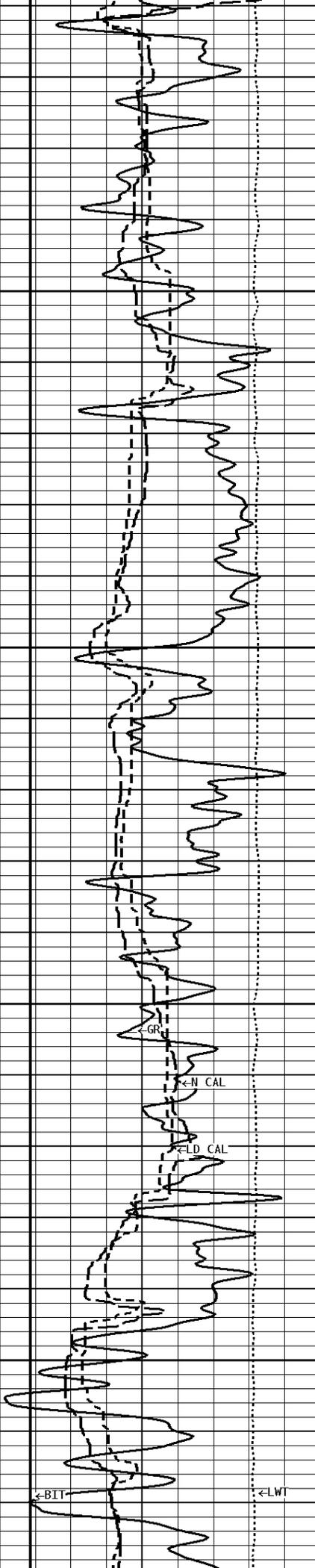


1000

1100

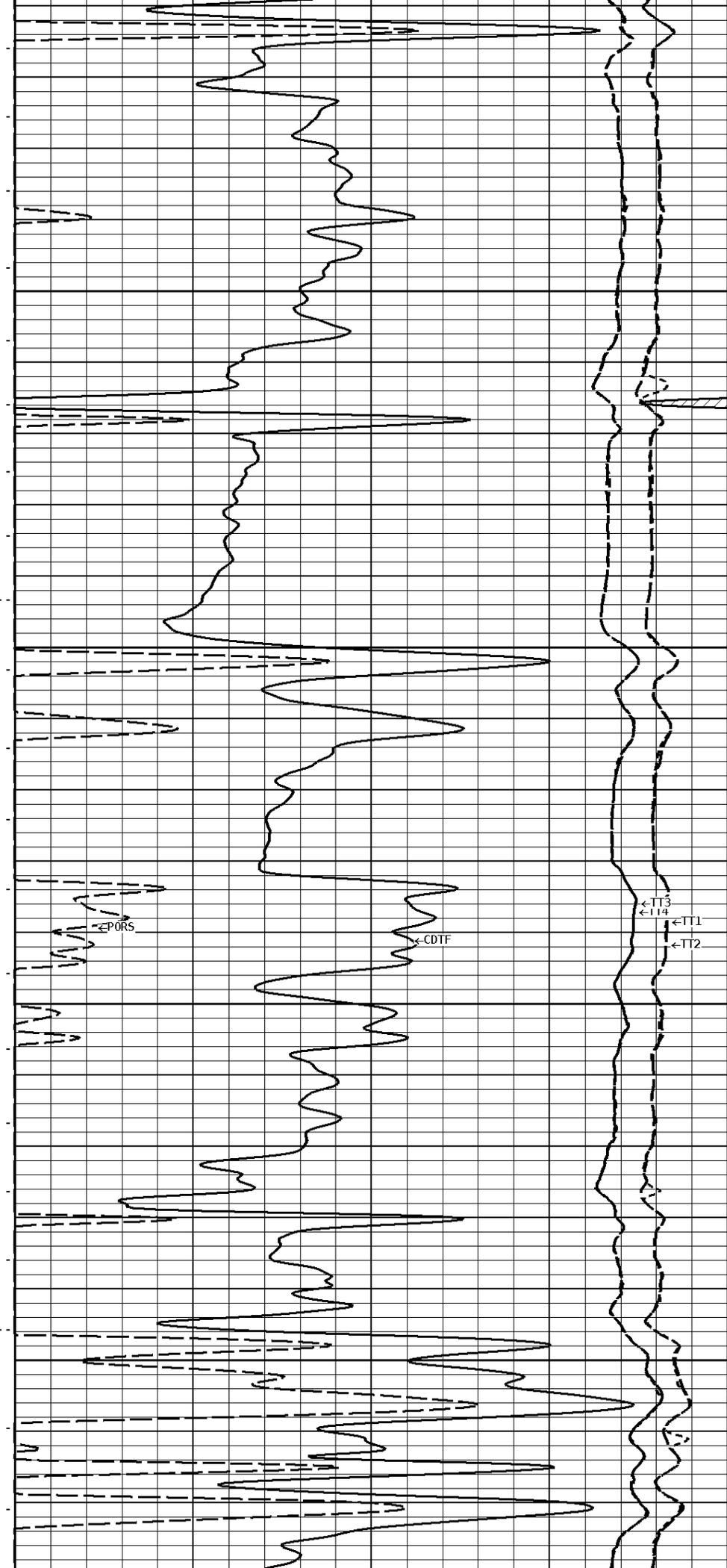
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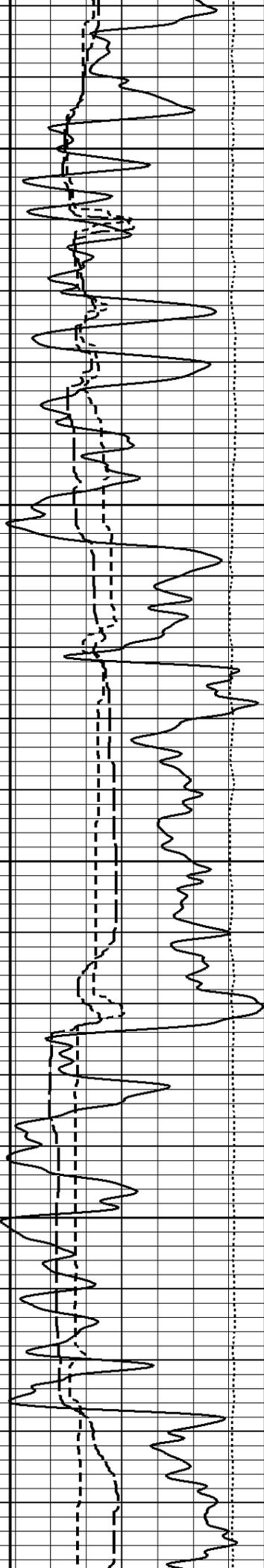




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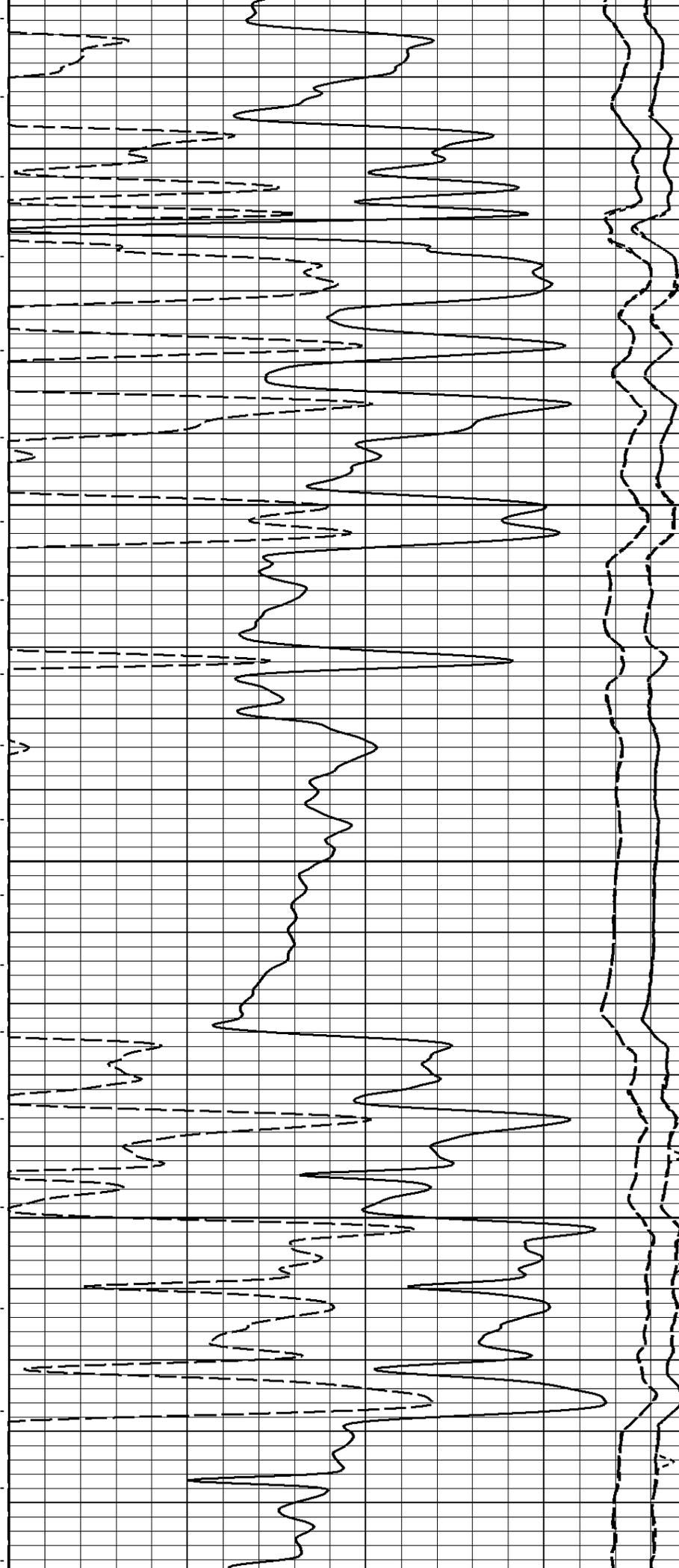
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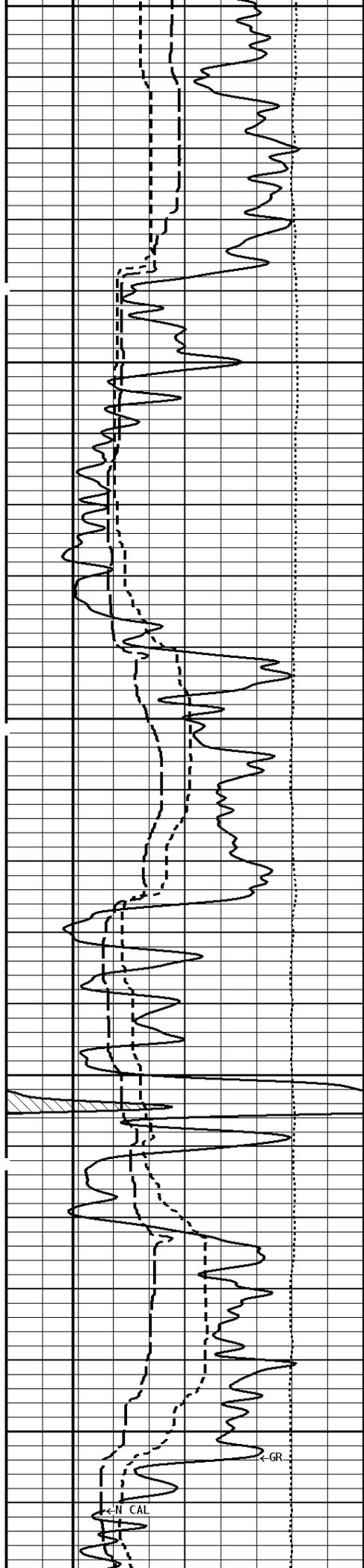




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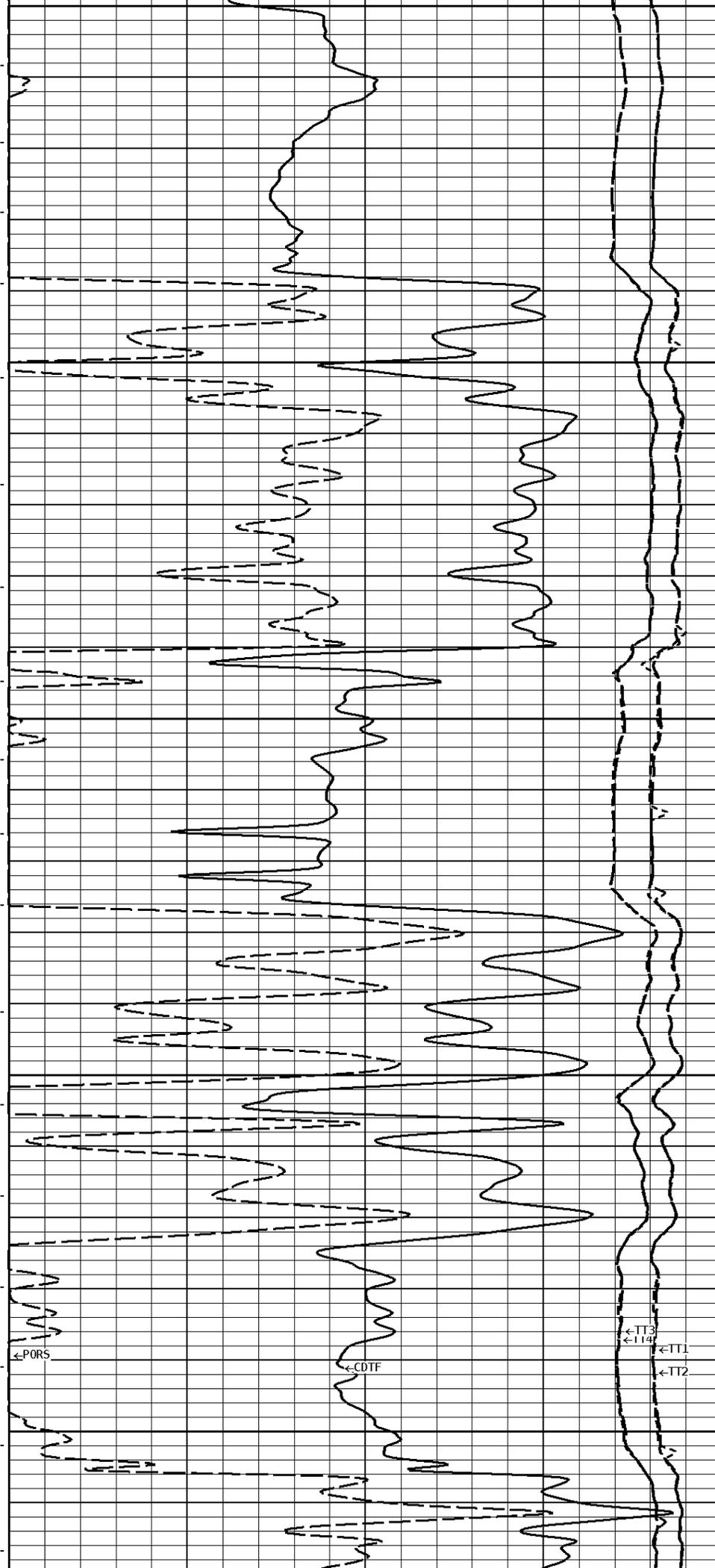
1600





1700

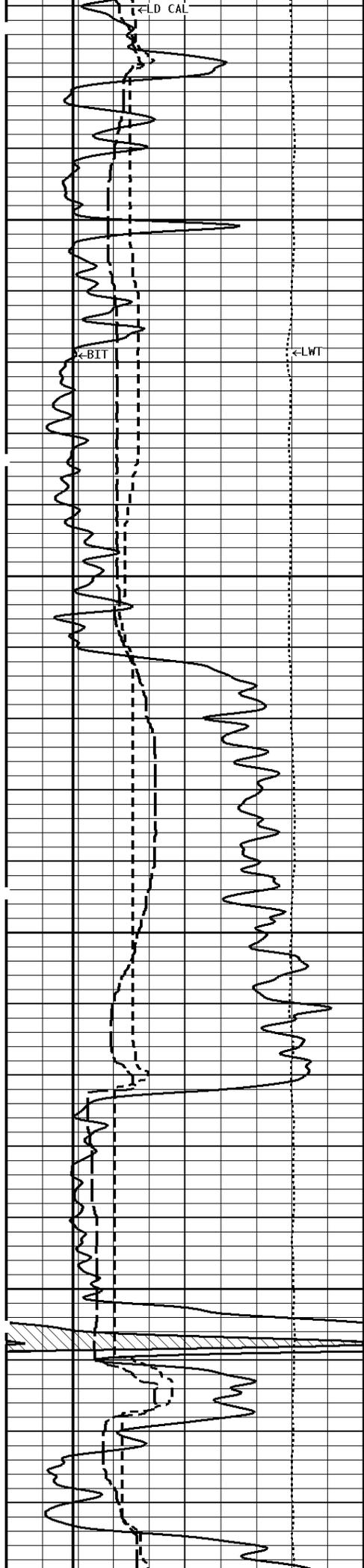
1800



PORS

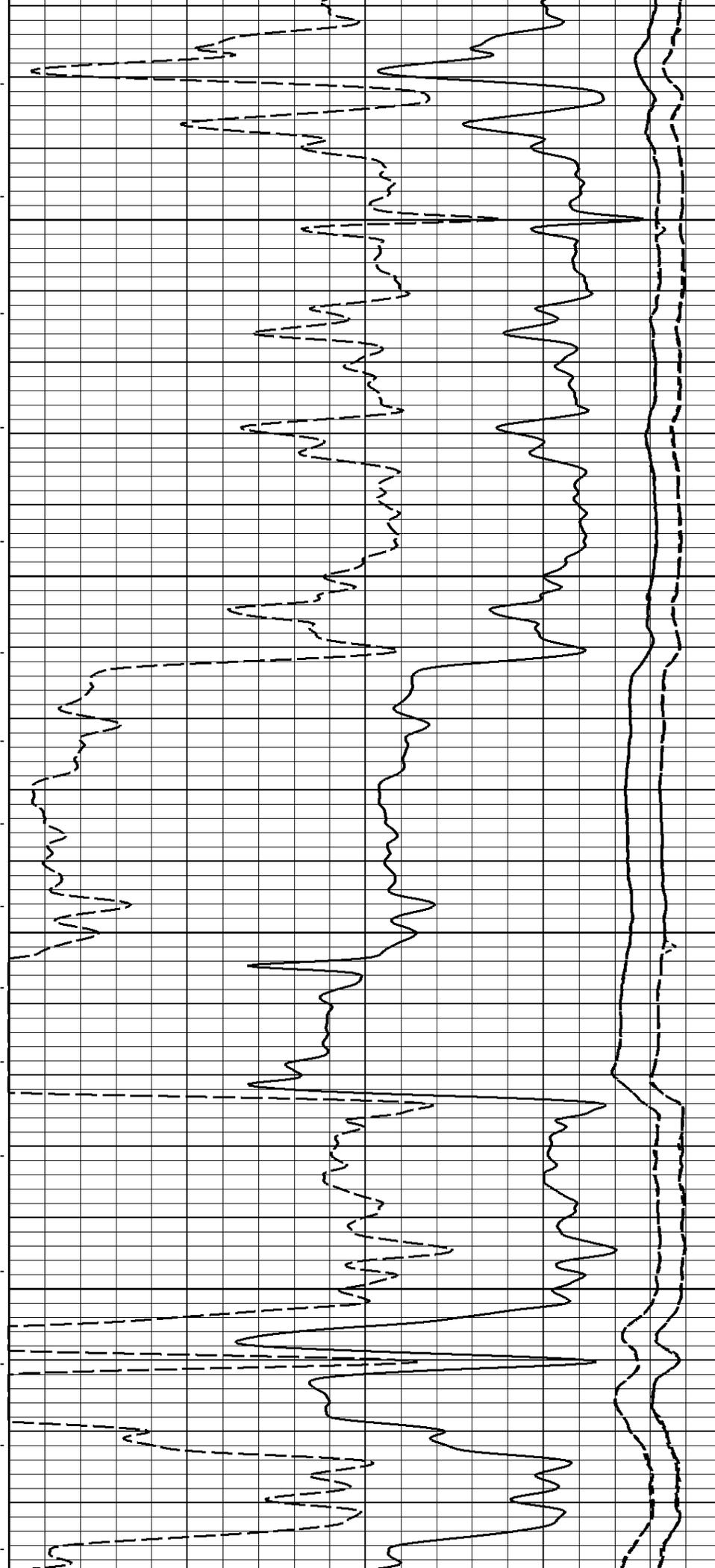
CDTF

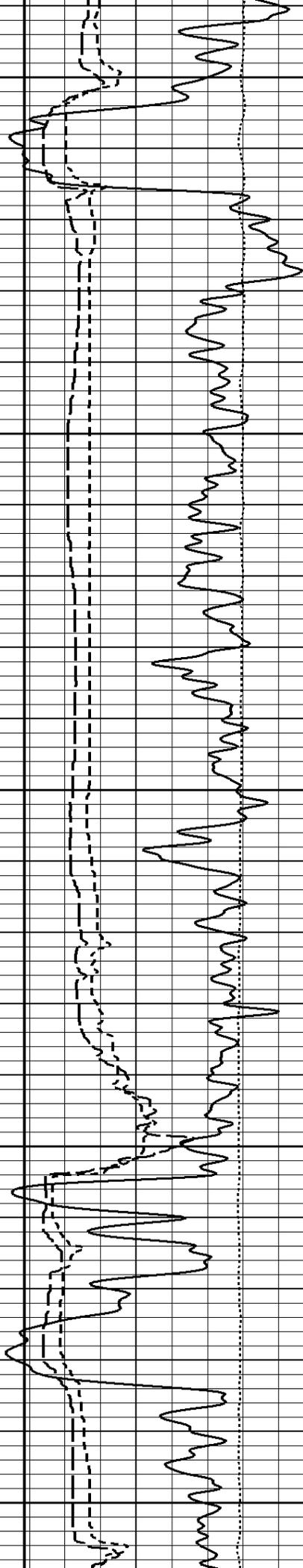
TT3  
TT1  
TT2



1900

2000

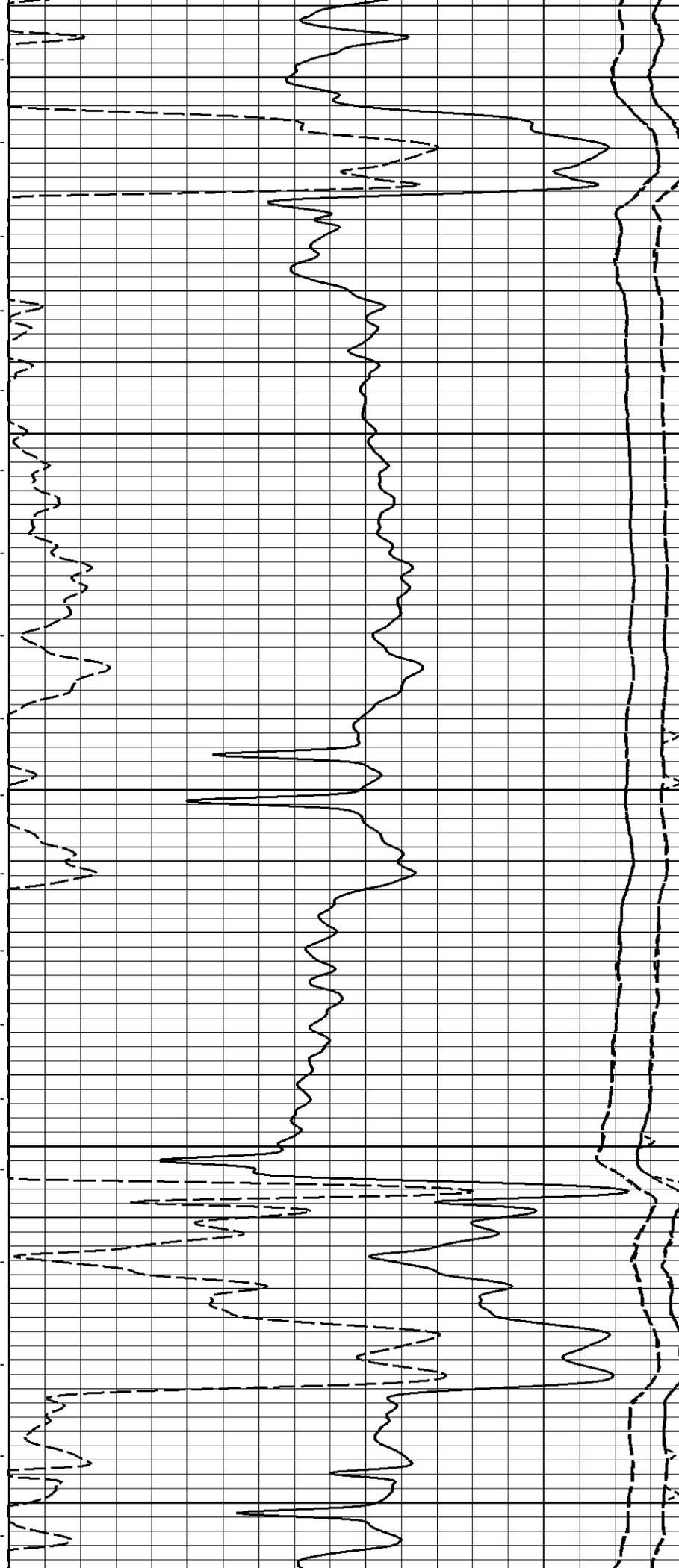


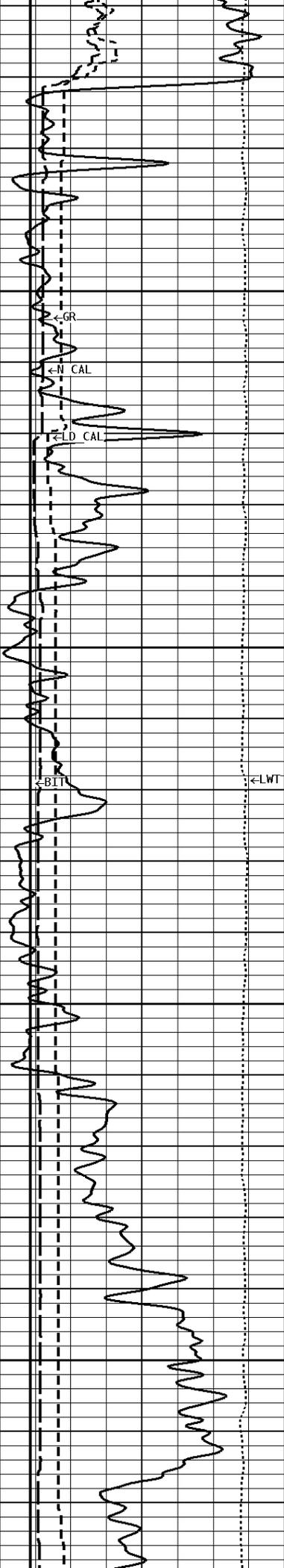


2100

2200

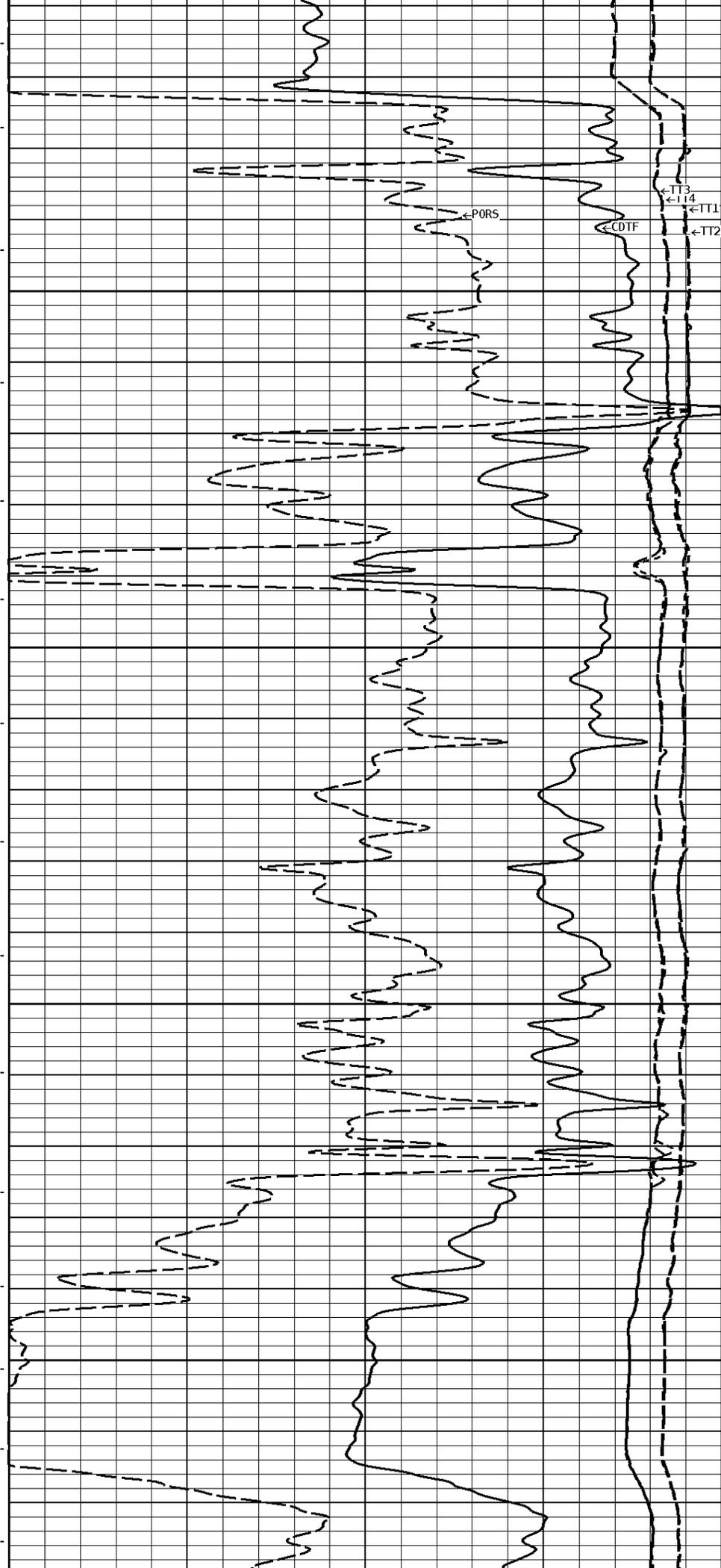
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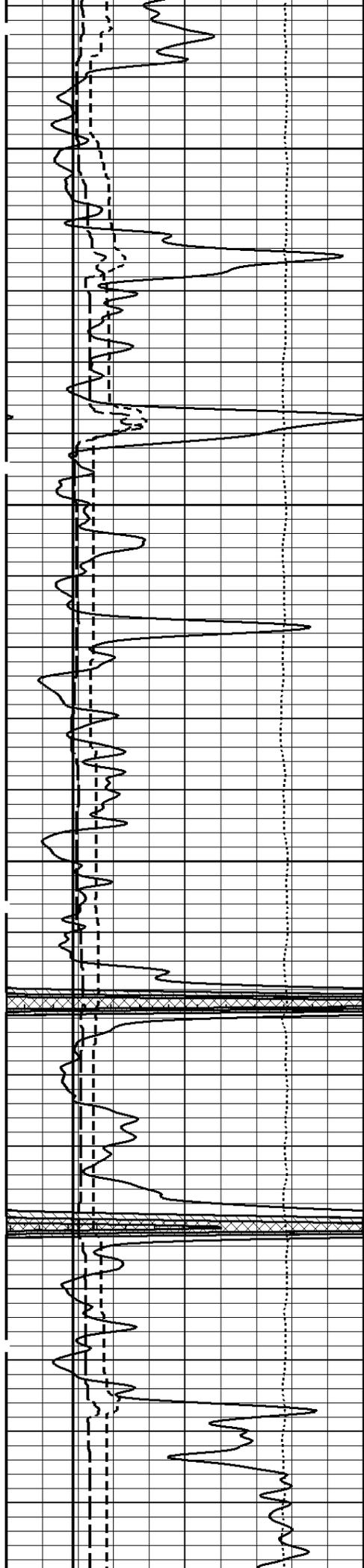




2400

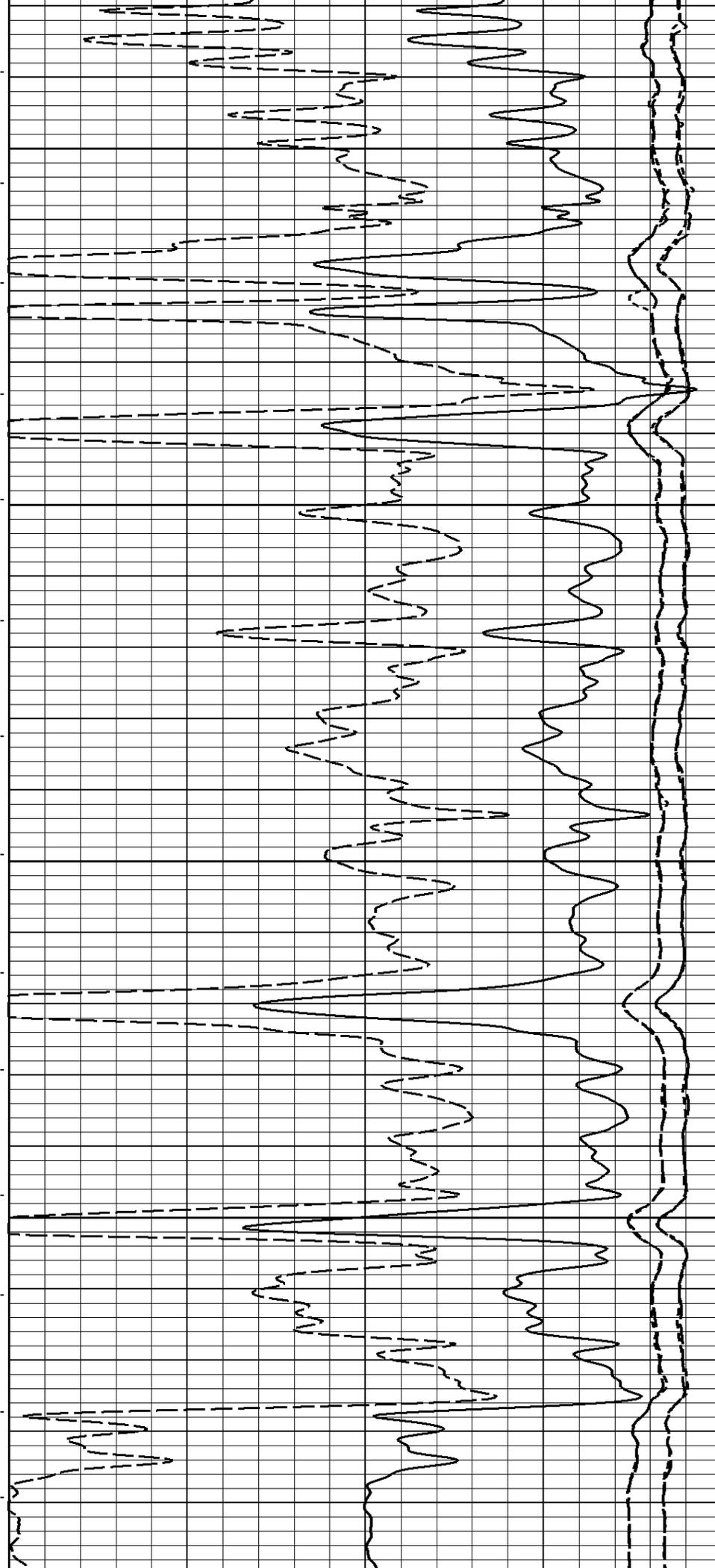
2500

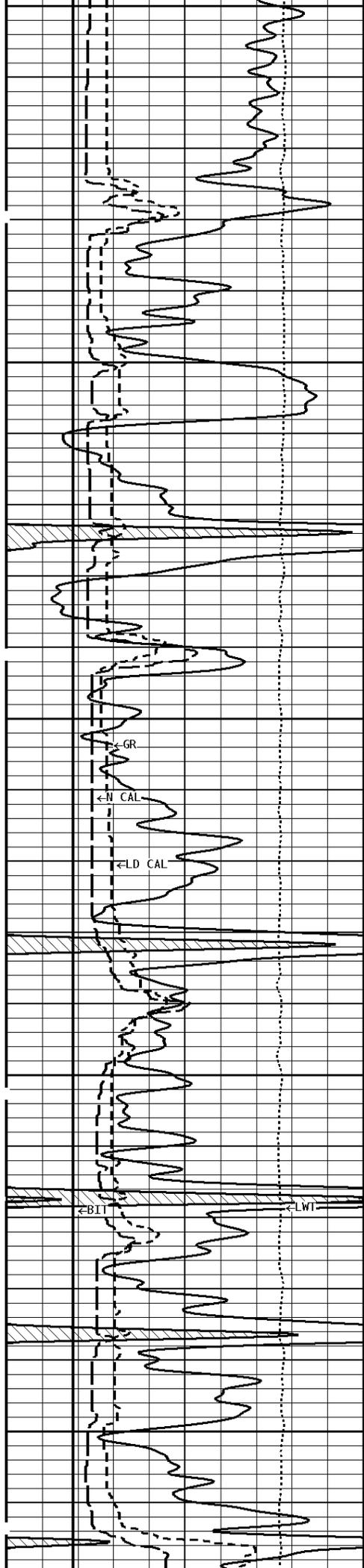




2600

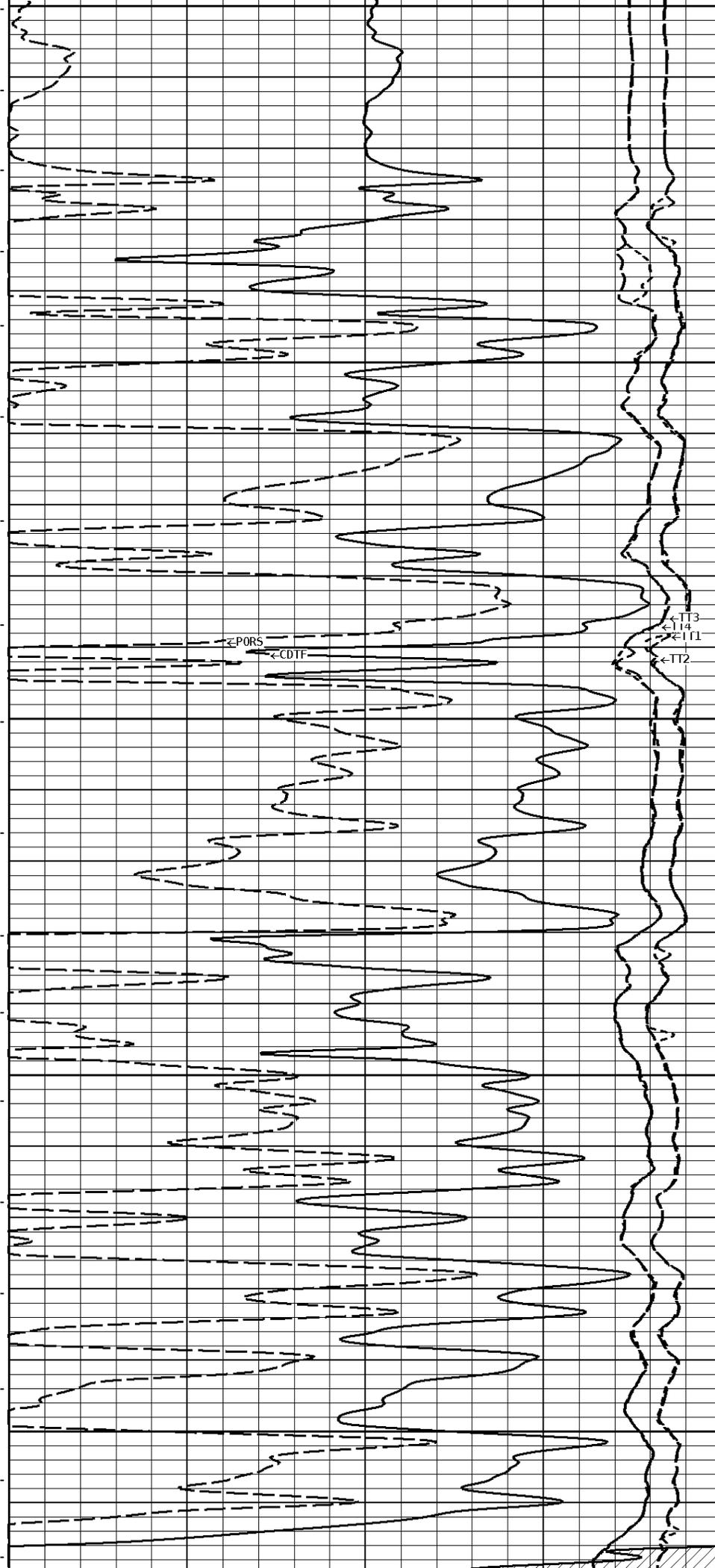
2700





2800

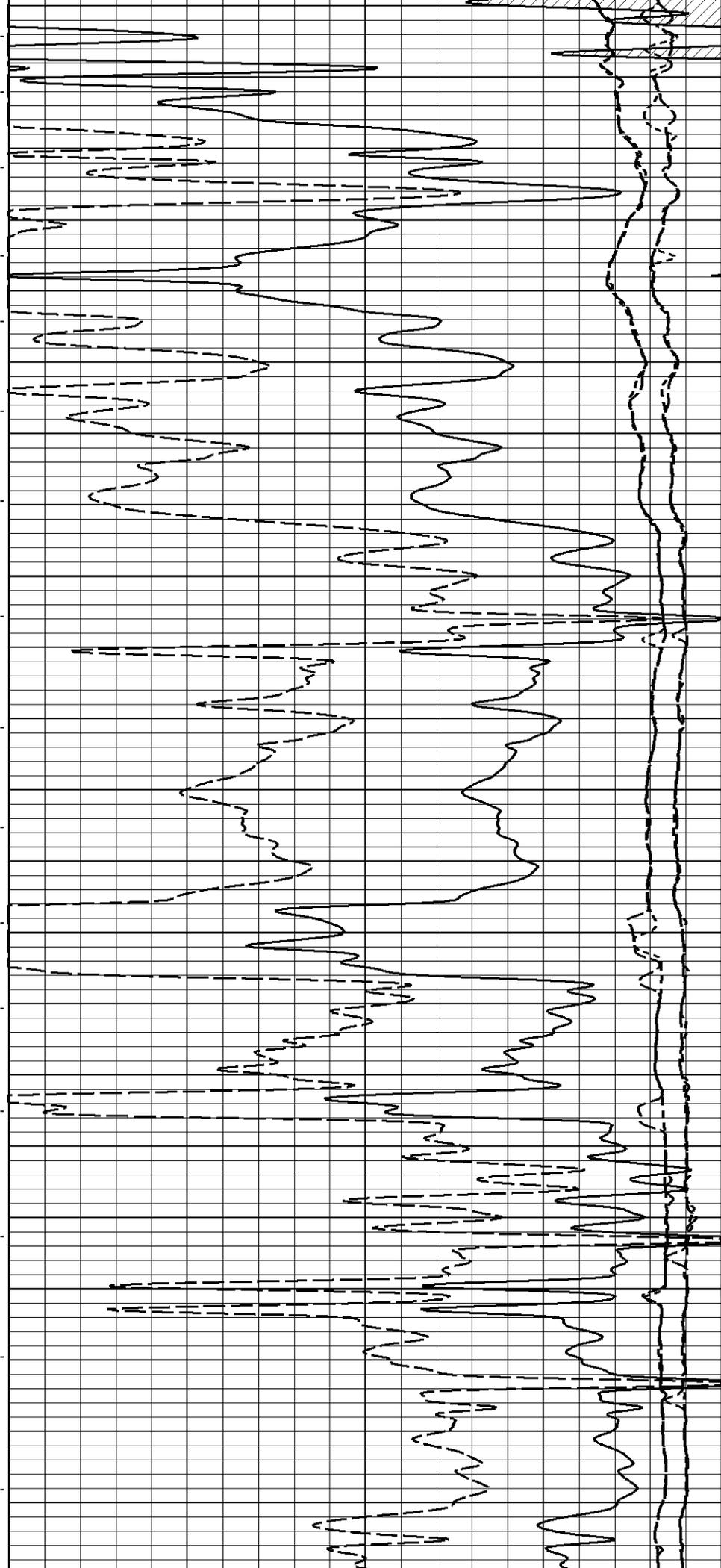
2900

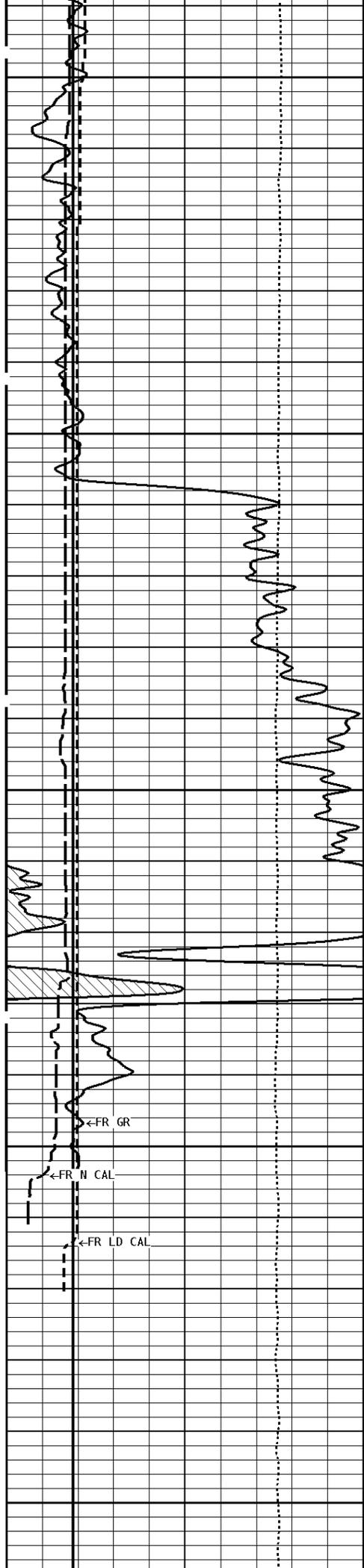




3000

3100

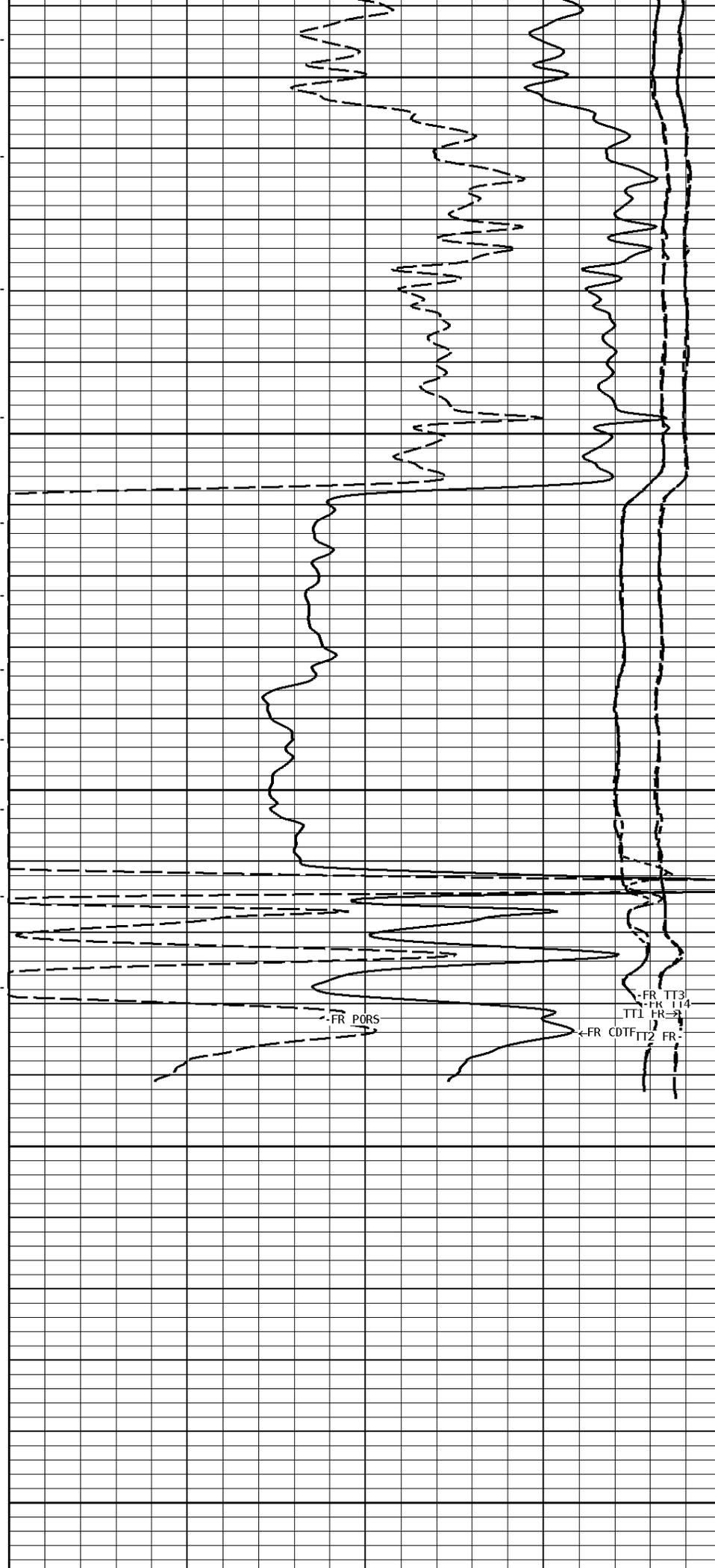




3200

3300

3400



←FR GR

←FR N CAL

←FR LD CAL

←FR PORS

←FR COTF

FR TT3  
FR TT4  
TT1 FR-2  
TT2 FR-

←FR BIT

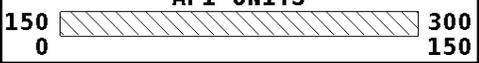
←FR LWT

3412

File #1.1.9

### 1:240 MAIN SECTION

GAMMA RAY  
API UNITS



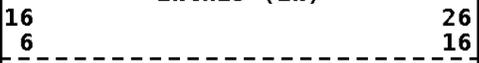
TENSION  
LBS



BIT SIZE  
INCHES (IN)



DENSITY (X) CALIPER  
INCHES (IN)



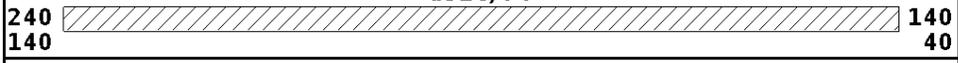
NEUTRON (Y) CALIPER  
INCHES (IN)



SONIC POROSITY  
PERCENT



COMPENSATED SONIC TRAVEL TIME  
uSEC/FT



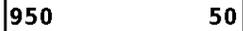
TT1  
uSEC



TT2  
uSEC



TT3  
uSEC



TT4  
uSEC



#### \* 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: LACHENMAYR GOODRICH L-1 MAY20\_QUINT

Scale: 1:240

Format: CST-240

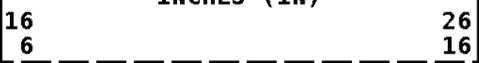
Segment: V1.D1.S10 FINAL REPEAT CST

Acquired: Not Available

Reference: 0

Processed: Not Available

NEUTRON (Y) CALIPER  
INCHES (IN)



DENSITY (X) CALIPER

TT4  
uSEC



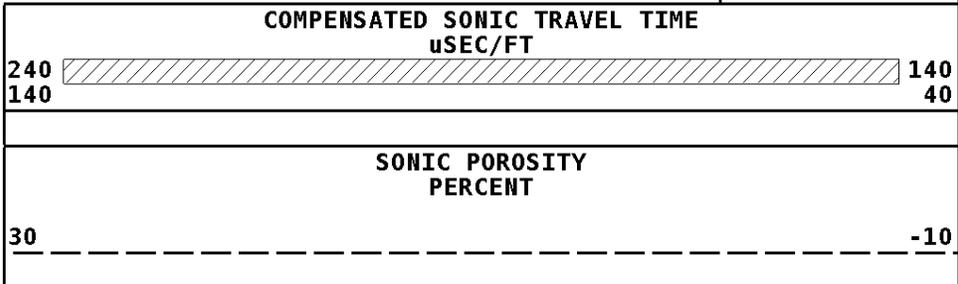
TT3  
uSEC



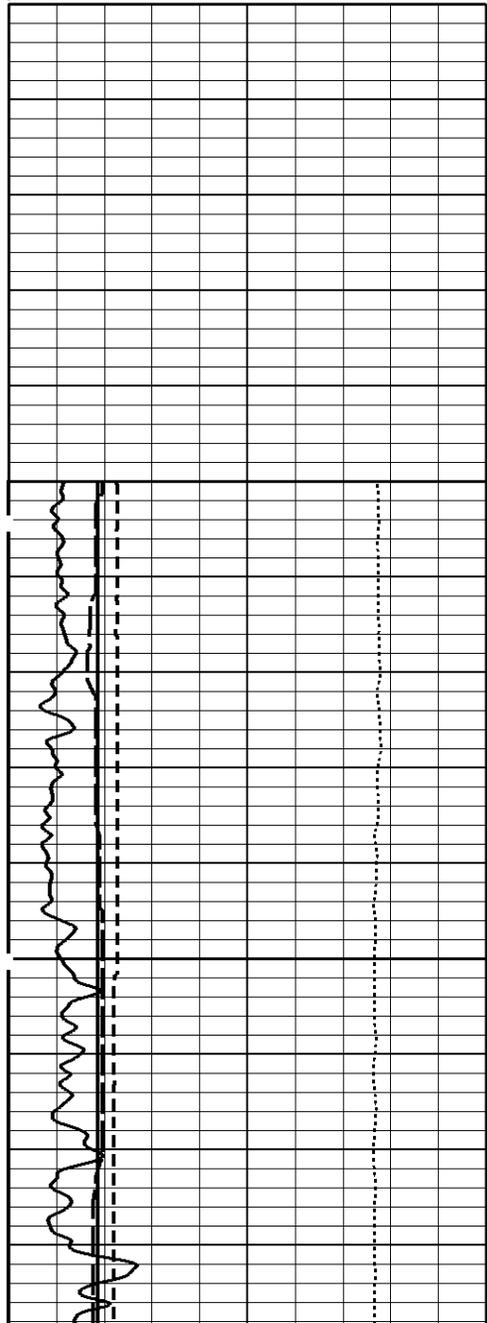
TT2

DENSITY (X) CALIBER INCHES (IN)	
16 6	26 16
BIT SIZE INCHES (IN)	
6	16
TENSION LBS	
10000	0
GAMMA RAY API UNITS	
150 0	300 150

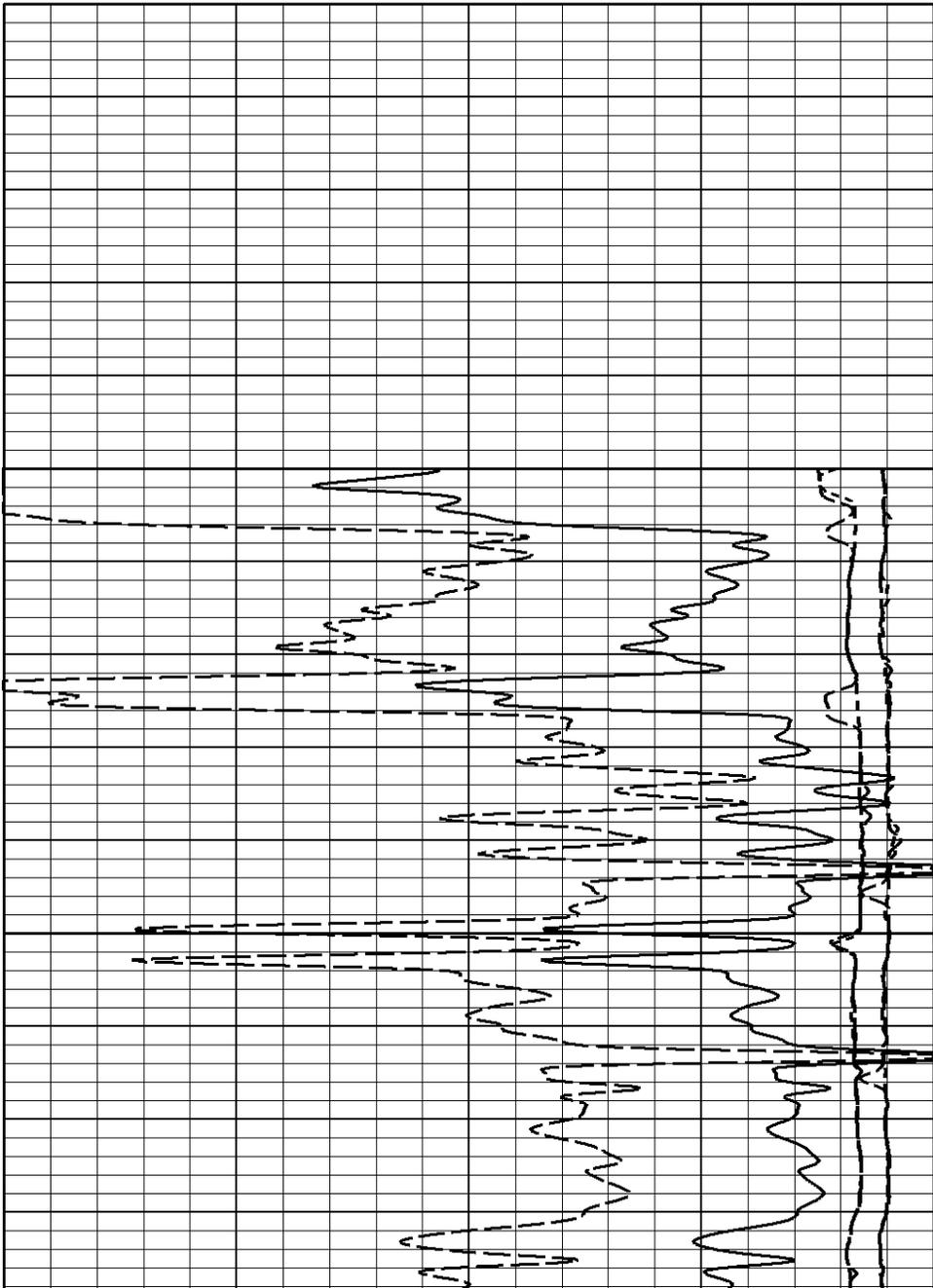
TT2 uSEC	
950	50
TT1 uSEC	
950	50

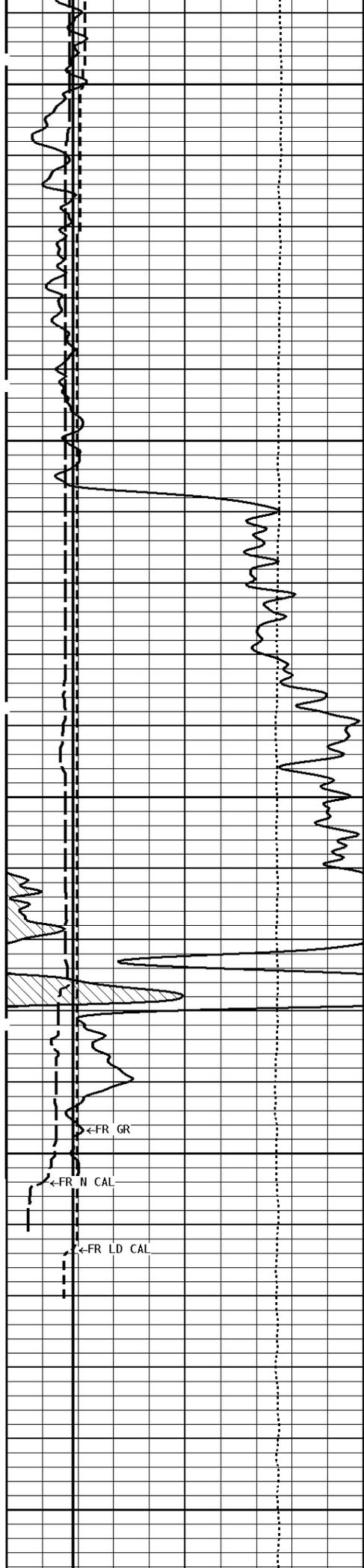


1:240 REPEAT SECTION



3100

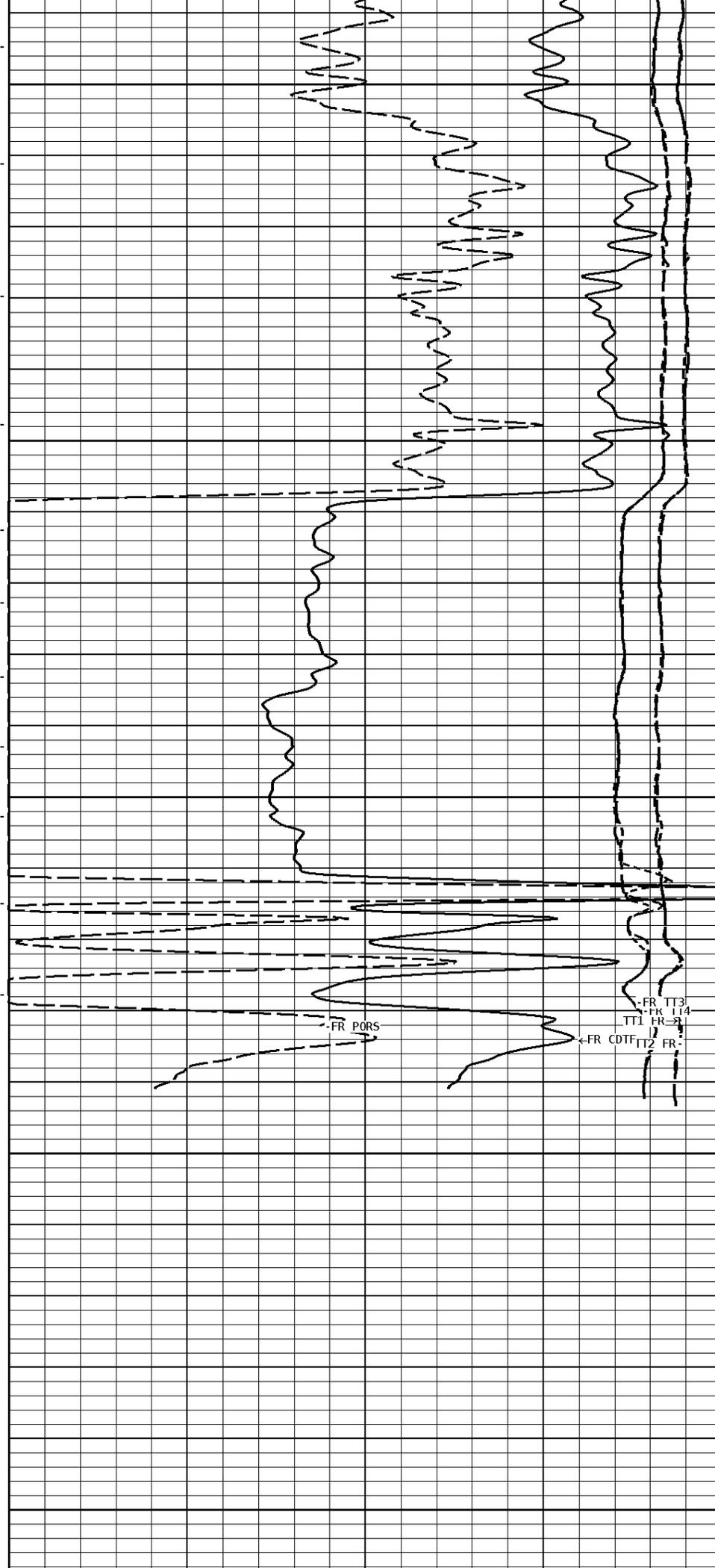




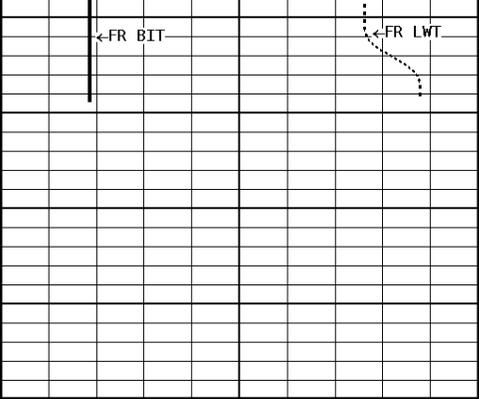
3200

3300

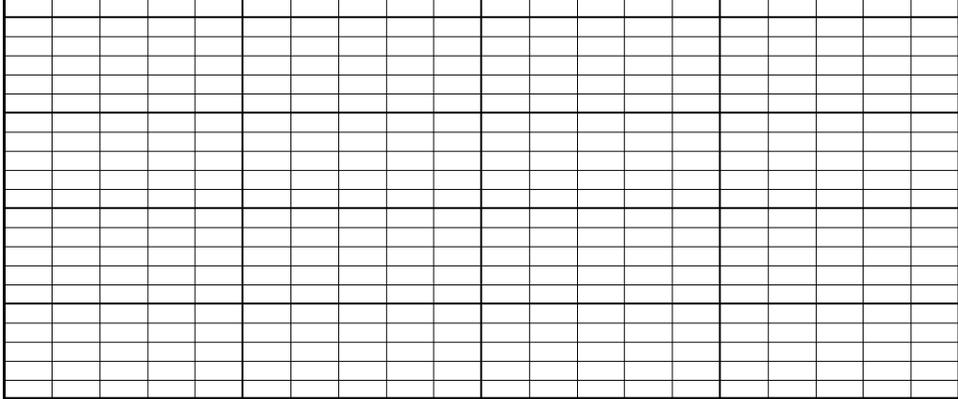
3400



<-FR TT3  
<-FR TT1  
<-FR TT2  
<-FR CDTF  
<-FR PORS  
<-FR TT4  
<-FR



3412



**1:240 REPEAT SECTION**

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

<b>SONIC POROSITY PERCENT</b> 30 -10	
<b>COMPENSATED SONIC TRAVEL TIME uSEC/FT</b> 240  140 140 40	

<b>TT1 uSEC</b> 950 50
<b>TT2 uSEC</b> 950 50
<b>TT3 uSEC</b> 950 50
<b>TT4 uSEC</b> 950 50

**\* Borehole Zone Factors \***

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

**\* Calibration Summary \***

<b>Shop Calibration GRT-B</b>					
Performed : 19-May-2015			Time : 11:16		
Sensor Suite : GR-GR5			ID : GRT-BA-121		
	Measured	Units	Calibrated	Units	
GR	Background	Jig	Jig	GRAPI	
	43	343	175		

<b>Shop Calibration CST-AD</b>					
Performed : 24-MAR-2015			Time : 21:06		
Sensor Suite : SONLAMA			ID : CST-AB-012		

		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	