



Tucker

ENERGY SERVICES

COMPENSATED NEUTRON
PEL DENSITY MICRO LOG

Company	CASTLE RESOURCES LLC
Well	RICE TANNER #1
Field	EL DORADO
County	BUTLER
State	KANSAS
Country	USA
API No.	15-015-24025
File No	TUL-59589
Company	CASTLE RESOURCES LLC
Well	RICE TANNER #1
Field	EL DORADO
County	BUTLER
State	KANSAS
Country	USA
API No	15-015-24025
Location	E2 SW SW 660' FSL & 990' FWL
LSD	
Sect	35
Twp	25S
Rge	4E

Date	05-04-2014		
Run Number	1		
Depth--Driller	2470.0	Ft	
Depth--Logger	2467.0	Ft	
First Reading	2443.0	Ft	
Last Reading	211.0	Ft	
Casing--Driller	211.0	Ft	
Casing--Logger	211.0	Ft	
Bit Size	6.750	In	
Casing Size	8.625	In	
Hole Fluid Type	WBM		
Density	9.2		
Fluid Loss	0.0		
PH/Viscosity	11.0	36.0	
Sample Source	MEASURED		
RMF@Measured Temp.	1.900	@ 70 F	
RMF@Measured Temp	1.620	@ 70 F	
RMF@Measured Temp.	2.190	@ 70 F	
Source RMF/RMC	CALCULATED	CALCULATED	
RM@BHT	1.330	@ 103 F	
Time Circulation Stopped			
Max Recorded Temp.	104	F	
Equipment/Base	T-123	TULSA	
Recorded By	S. DAVIS		
Witnessed By	W. JACKSON / J. GREEN		

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)
6.750	2467.00	8.625	24.00	211.00	0.00

Run Number	1	
Date	05-04-2014	
Date/Time On Bottom	05-04-2014 7:45 pm	
Depth to Fluid	0.0 Ft	
Salinity	0.000	
RMF@BHT	1.130 @ 103 F	
RMC@BHT	1.530 @ 103 F	

Run Number 1

Comments

ALL PRESENTATION PER CUSTOMER REQUEST
 GRT,CNT,LDT,PIT RUN IN COMBINATION
 CALIPERS ORIENTED ON X-Y AXIS
 2.71 G/CC USED TO CALCULATE POROSITY
 ANNULAR & BOREHOLE VOLUME CALCULATED USING 4.5 PRODUCTION CASING
 PHIN IS CALIPER CORRECTED
 NO REPEAT PER CUSTOMER REQUEST

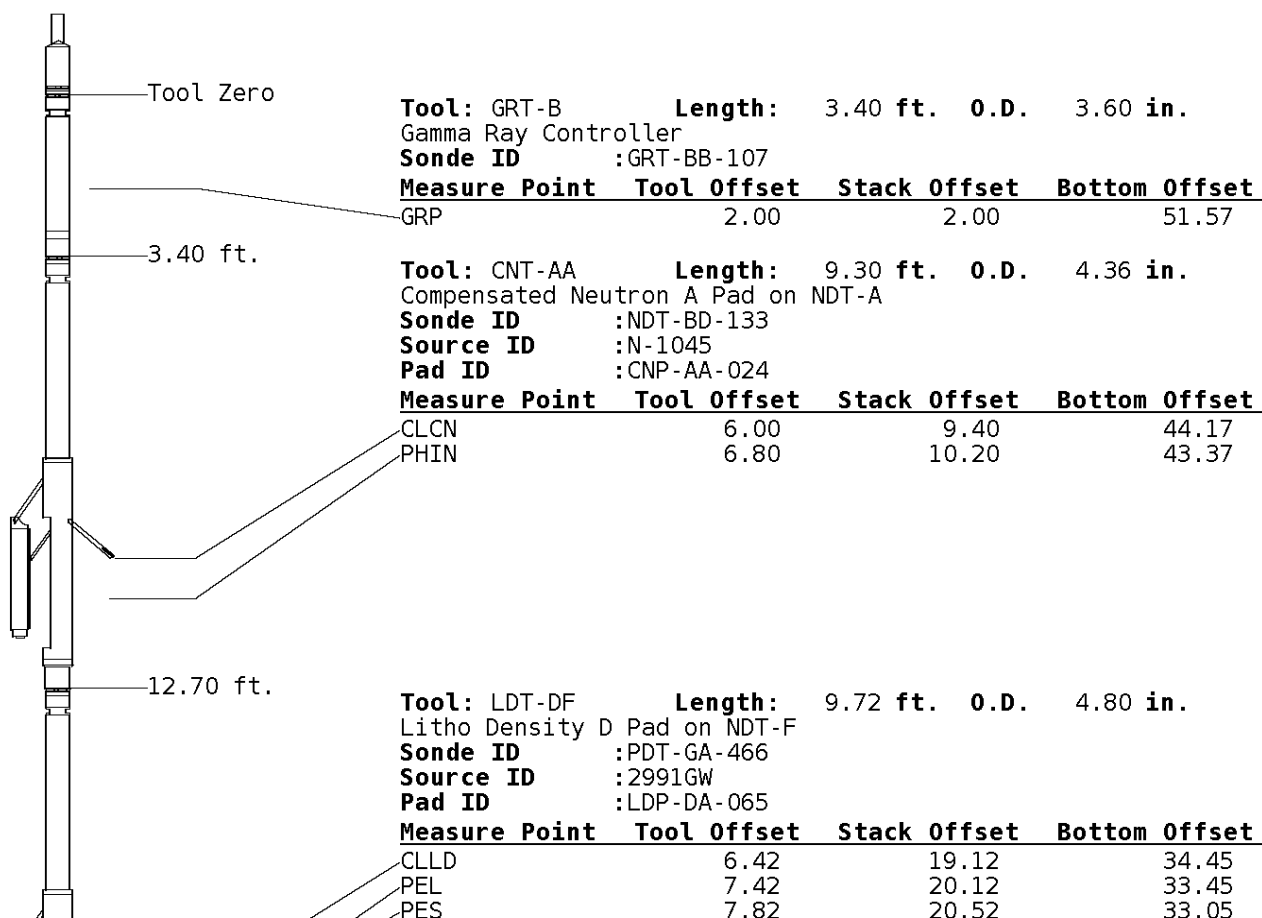
GRT; GRP,
 CNT; PHIN, CLCNIN
 LDT; PORL, LCORN, PECLN, LDENN, CLLDIN
 MLT; NOR.RF, INV.RF, MSCLPIN.
 PIT; ILD, ILM, SPU, SFLAEC, CIRD

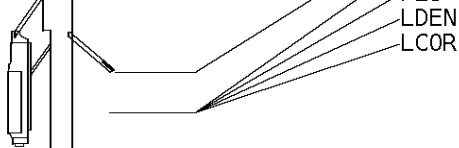
OPERATORS;

C. GONZALES
 J. THOMAS

Tool String Schematic

Total Tool Length - 53.57 ft.
Maximum Outside diameter - 6.00 in.
Net Weight in Air - 943.00 lbs.



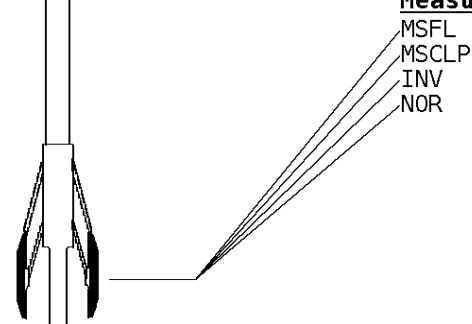


LDEN	7.62	20.32	33.25
LCOR	7.62	20.32	33.25

22.42 ft.

Tool: MST-DA **Length:** 9.66 ft. **O.D.** 6.00 in.
 Micro Spherically Focused (IC)
Sonde ID :MST-DA-30

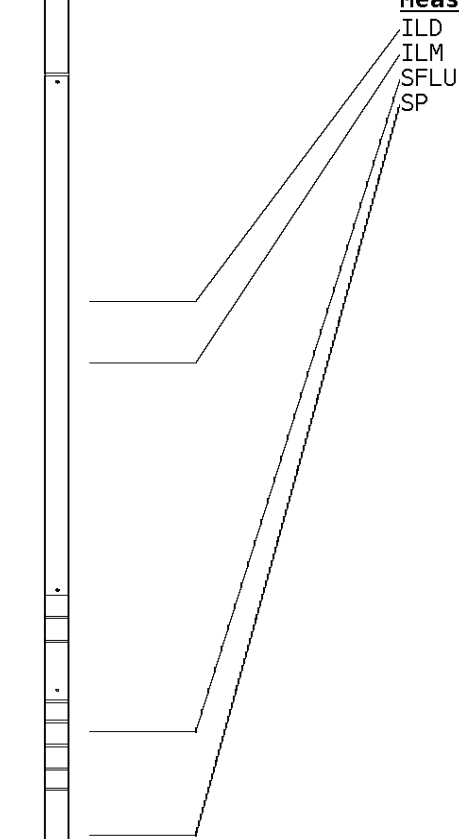
Measure Point	Tool Offset	Stack Offset	Bottom Offset
MSFL	7.60	30.02	23.55
MSCLP	7.60	30.02	23.55
INV	7.60	30.02	23.55
NOR	7.60	30.02	23.55



32.08 ft.

Tool: PIT-CA **Length:** 21.49 ft. **O.D.** 3.62 in.
 Phased Dual Induction w/ RM & D
Sonde ID :PIT-AB-005

Measure Point	Tool Offset	Stack Offset	Bottom Offset
ILD	8.92	41.00	12.56
ILM	10.10	42.18	11.39
SFLU	17.49	49.57	4.00
SP	20.60	52.68	0.88



LWT 53.57 ft.

Well File: cast-rice-1-mstk-may-4

Scale: 1:240 **Format:** NLD-240

Segment: V1.D1.S3 MN

Acquired: 2014-05/04 19:38 3.3.0-12594

Reference: 0

Processed: 2014-05/04 20:39 3.3.0-12594

**CALIPER MICRO
INCHES (IN)**

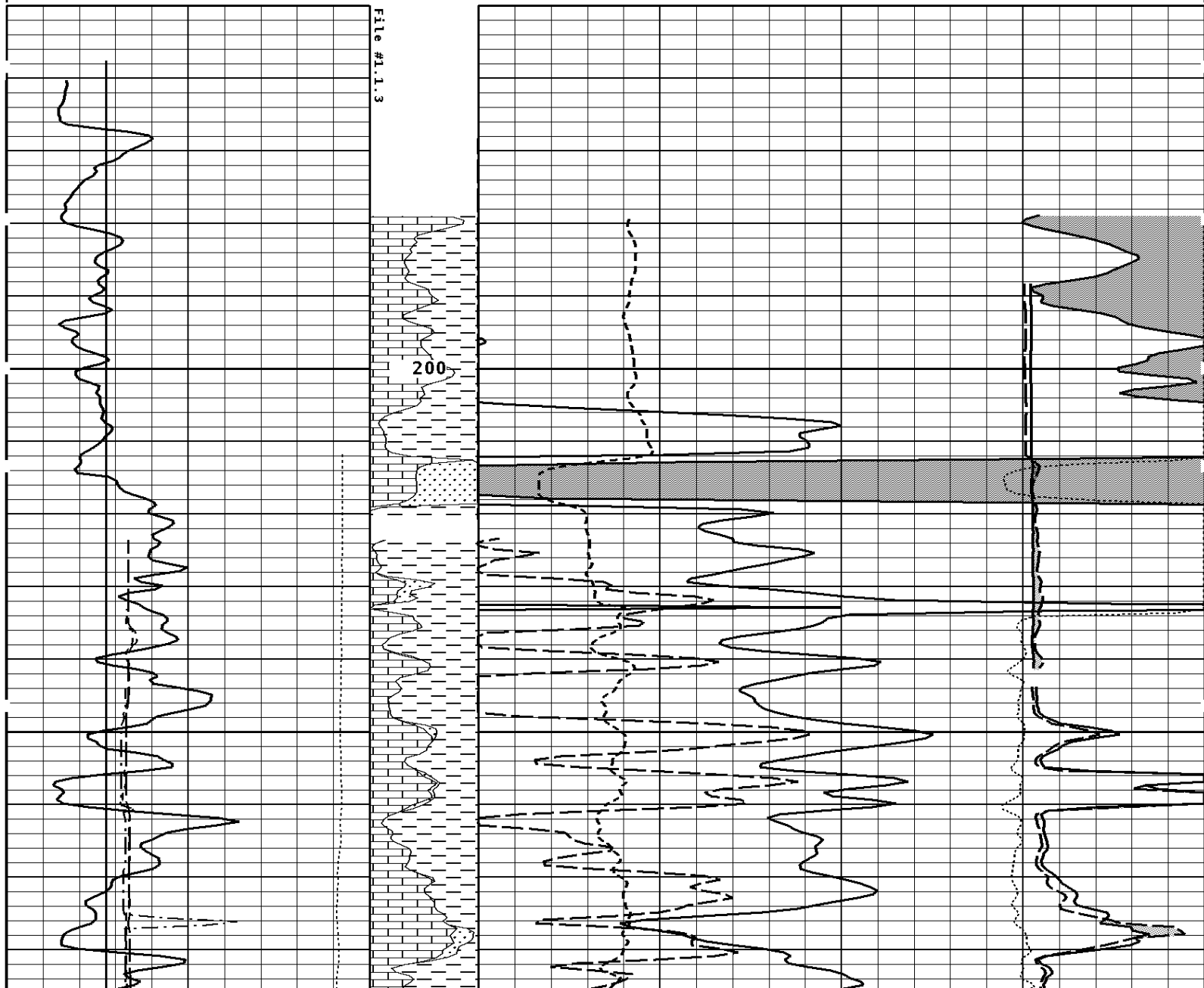
14	24
4	14

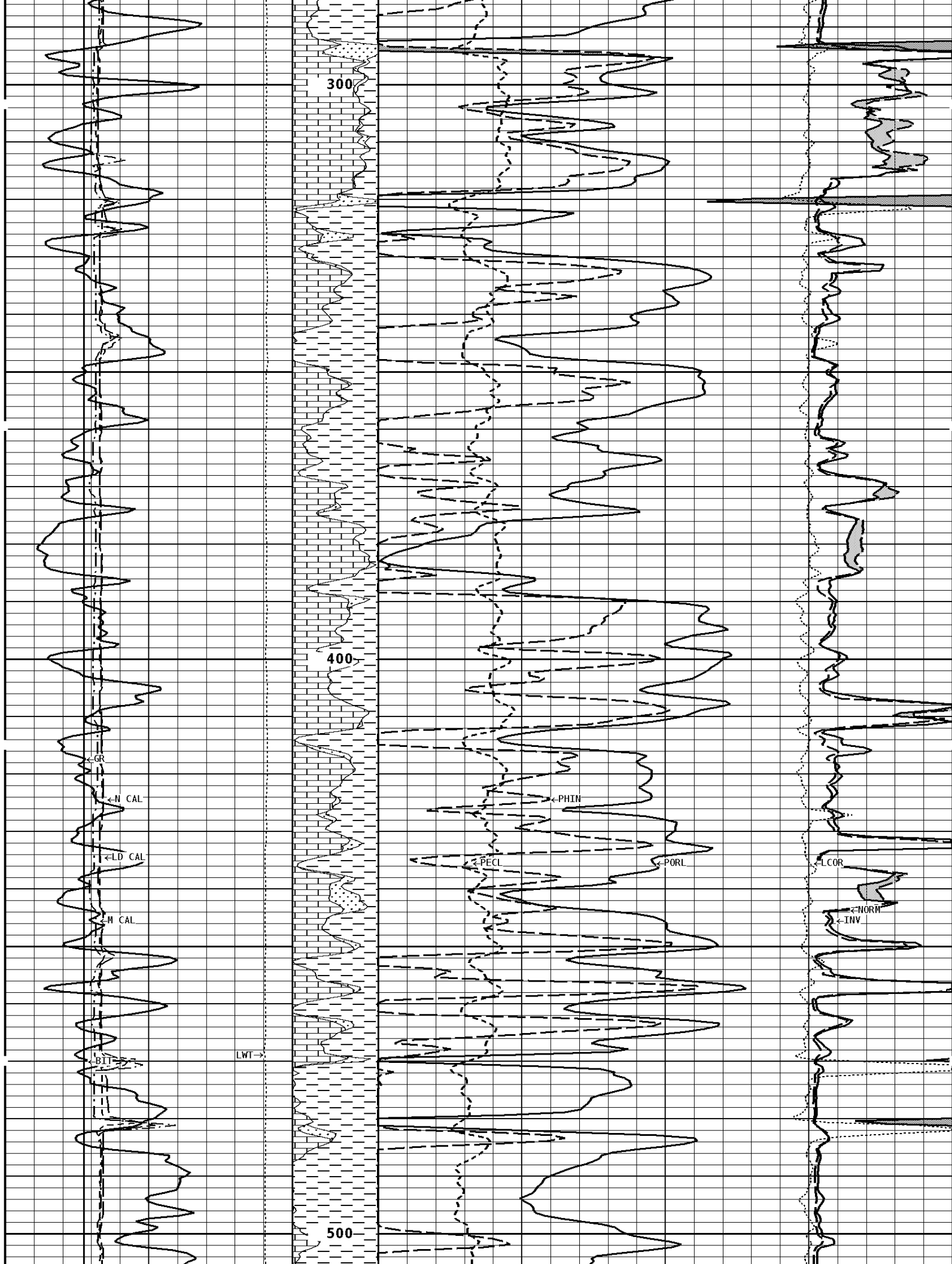
**BIT SIZE
INCHES (IN)**

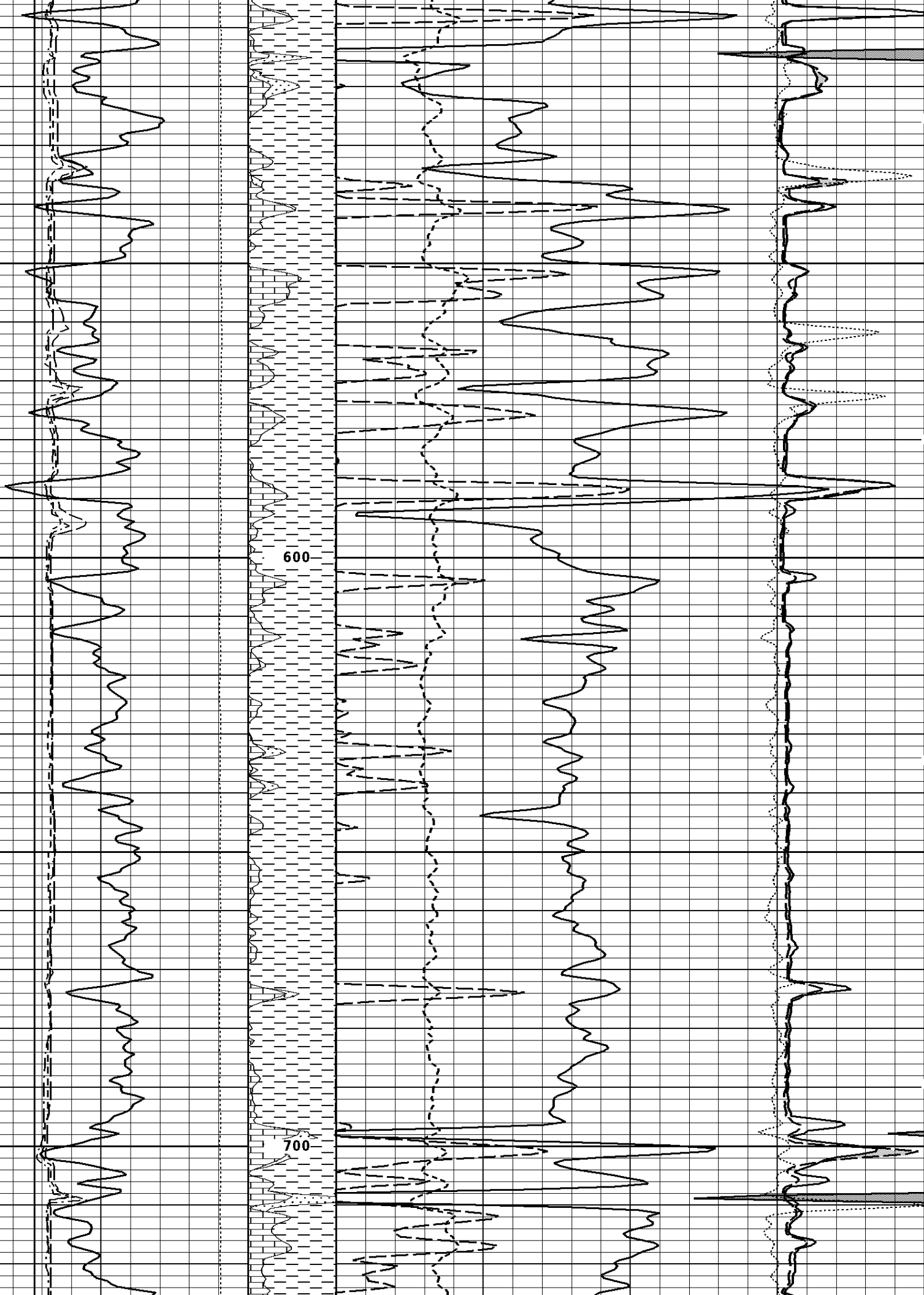
**NORMAL
OHMM**

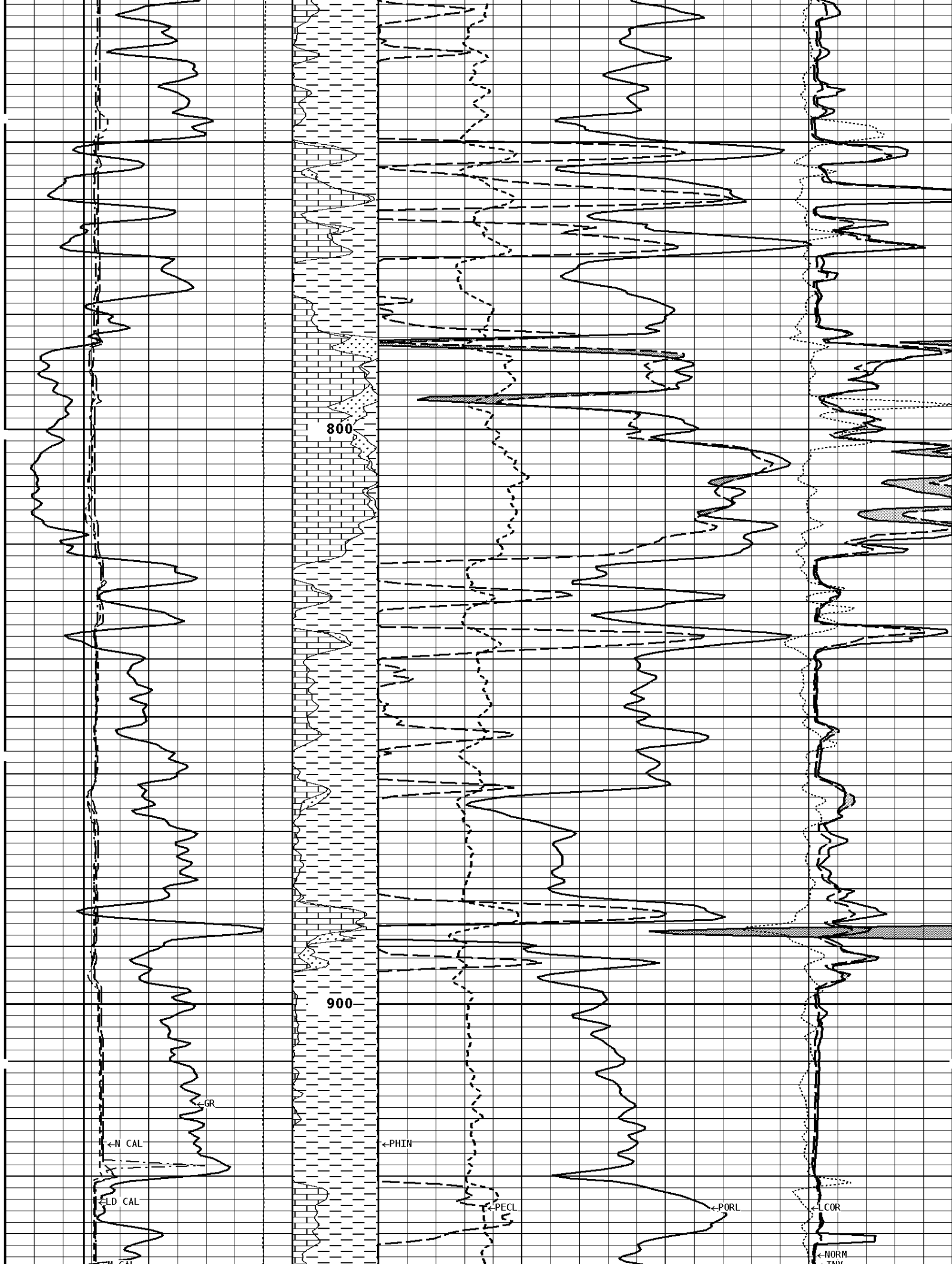
4	14			0	40
NEUTRON (Y) CALIPER INCHES (IN)				INVERSE OHMM	
14	24			0	40
4	14				
DENSITY (X) CALIPER INCHES (IN)		Volume Quartz	PE CROSS-SECTION BARNs/ELECTRON	DENSITY CORRECTION G/CC	
14	24				
4	14		0	10	-0.25
					0.25
TENSION LBS		Volume Calcite	DENSITY POROSITY (2.71g/cc) PERCENT		
10000	0		70		30
			30		-10
			-10		-50
GAMMA RAY API UNITS		Volume Dolo/Shale	NEUTRON POROSITY (LIMESTONE) PERCENT		
200	400				
0	200		30		-10

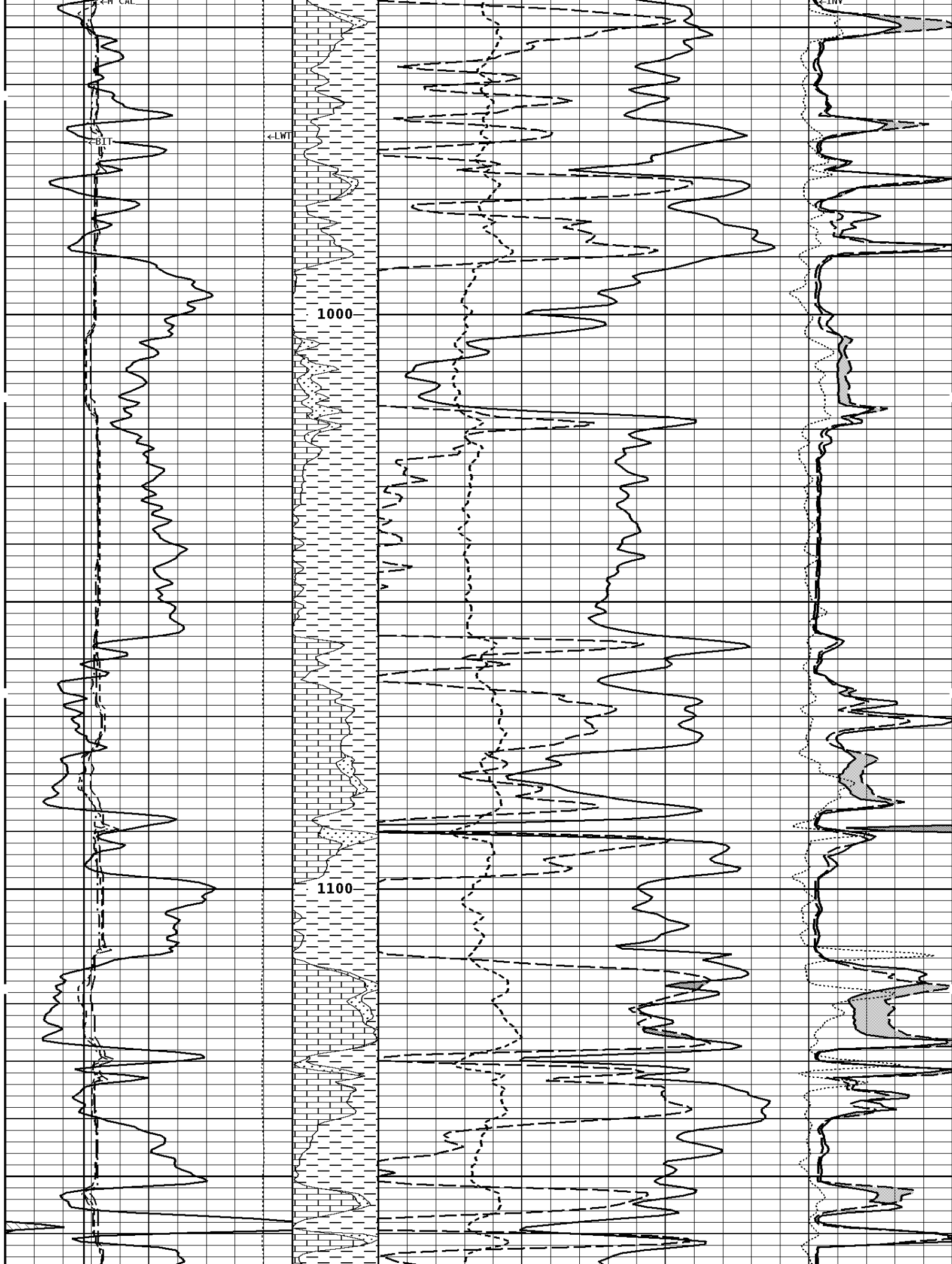
1:240 MAIN SECTION

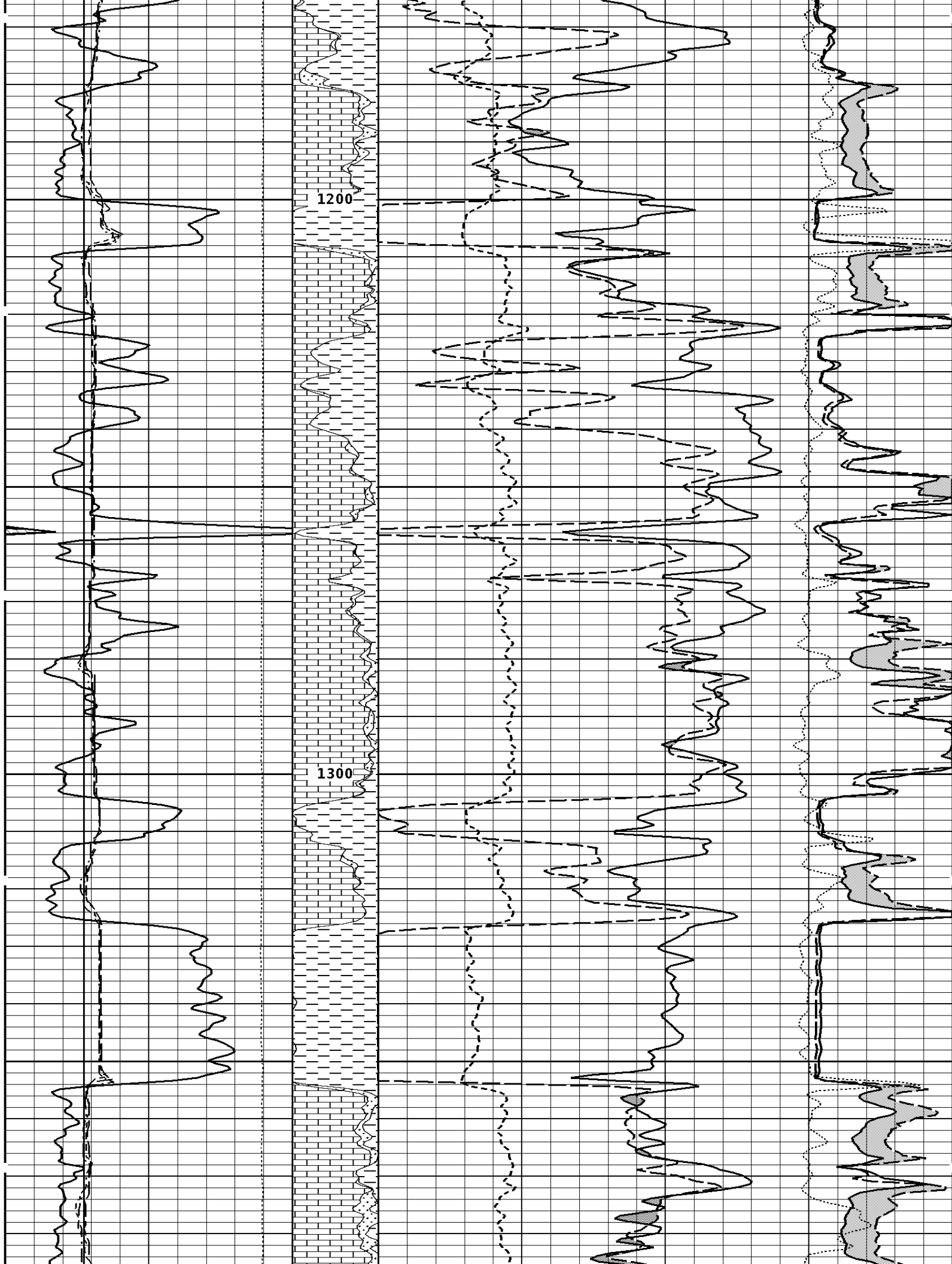


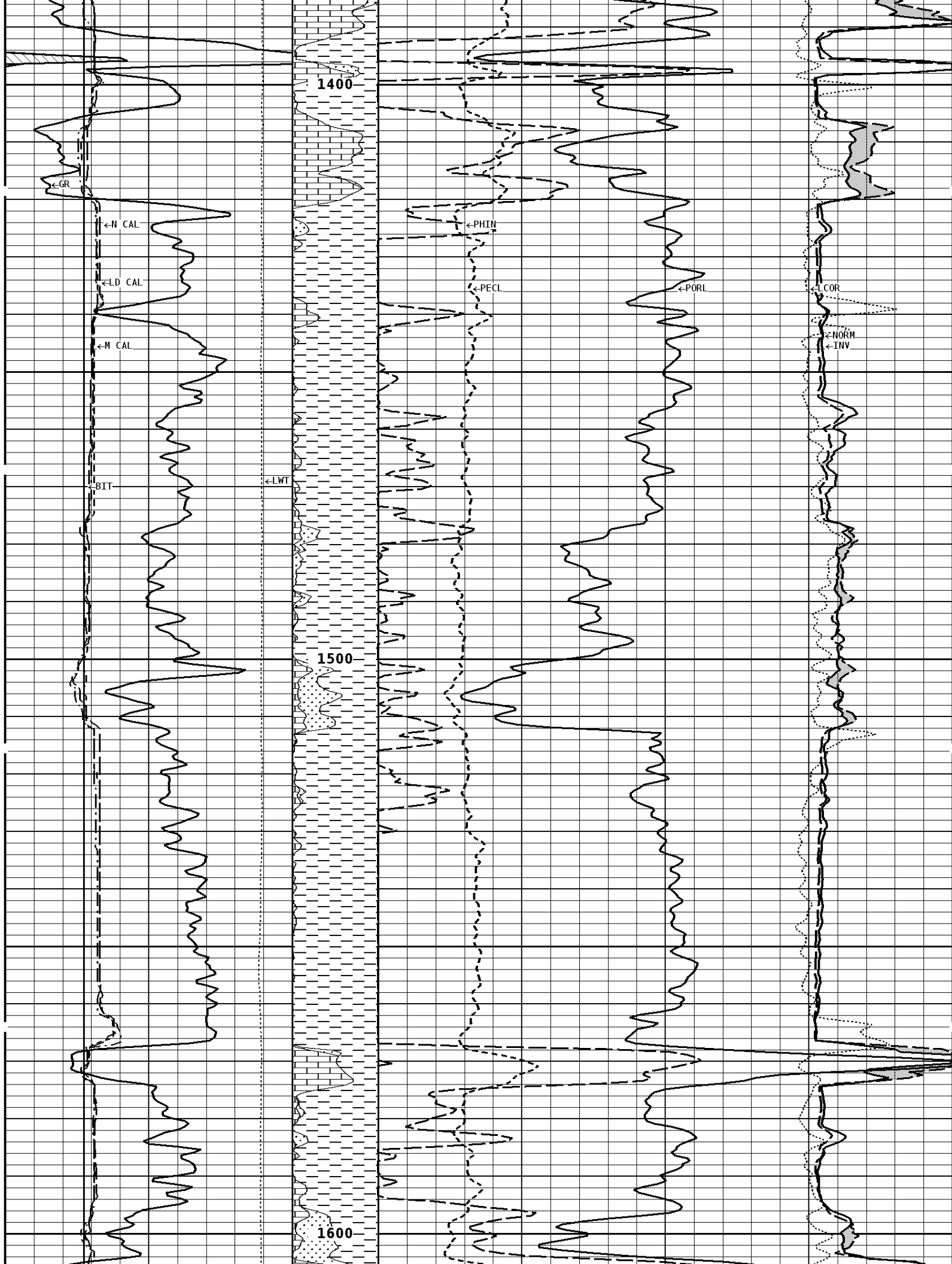


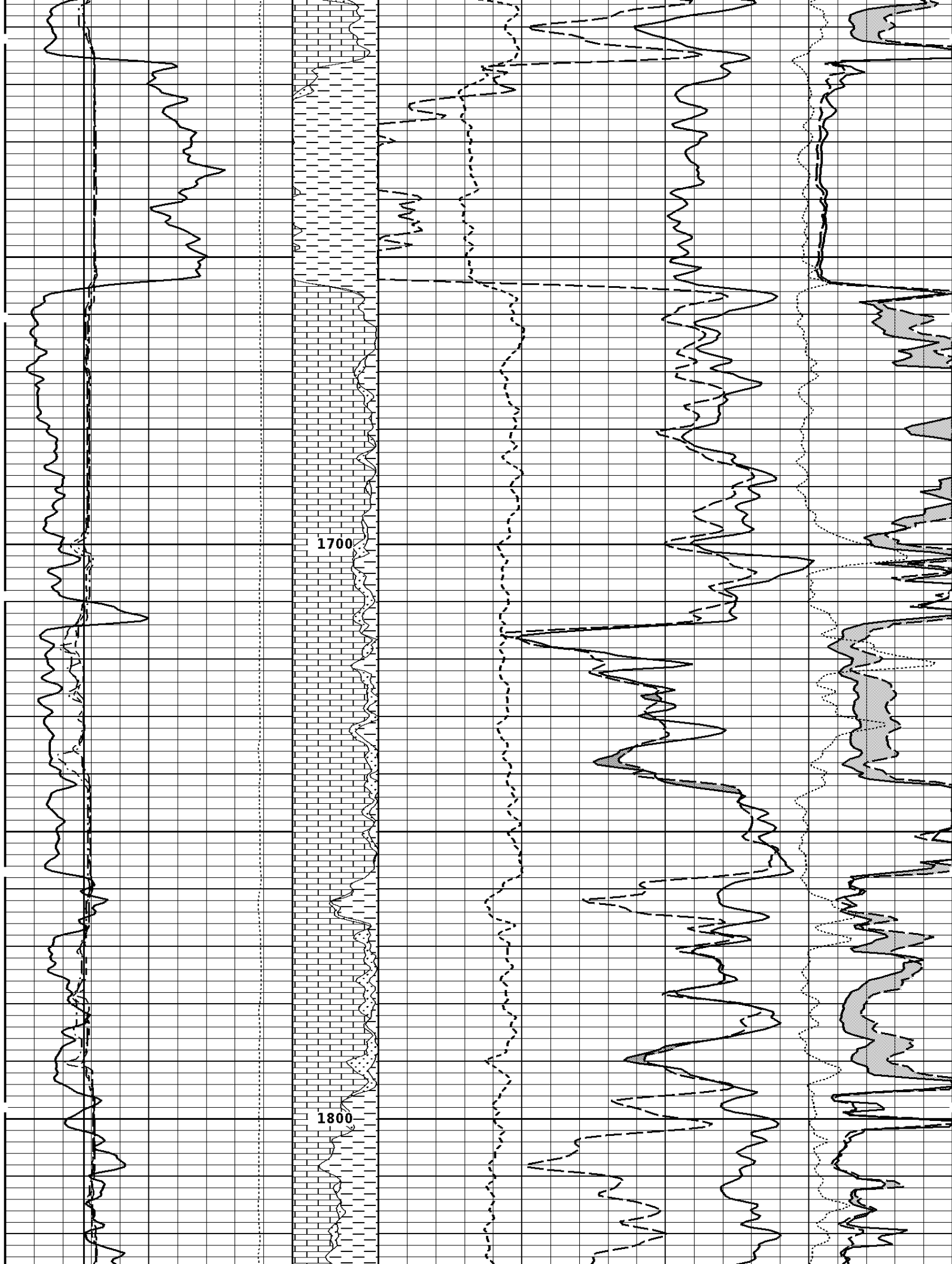


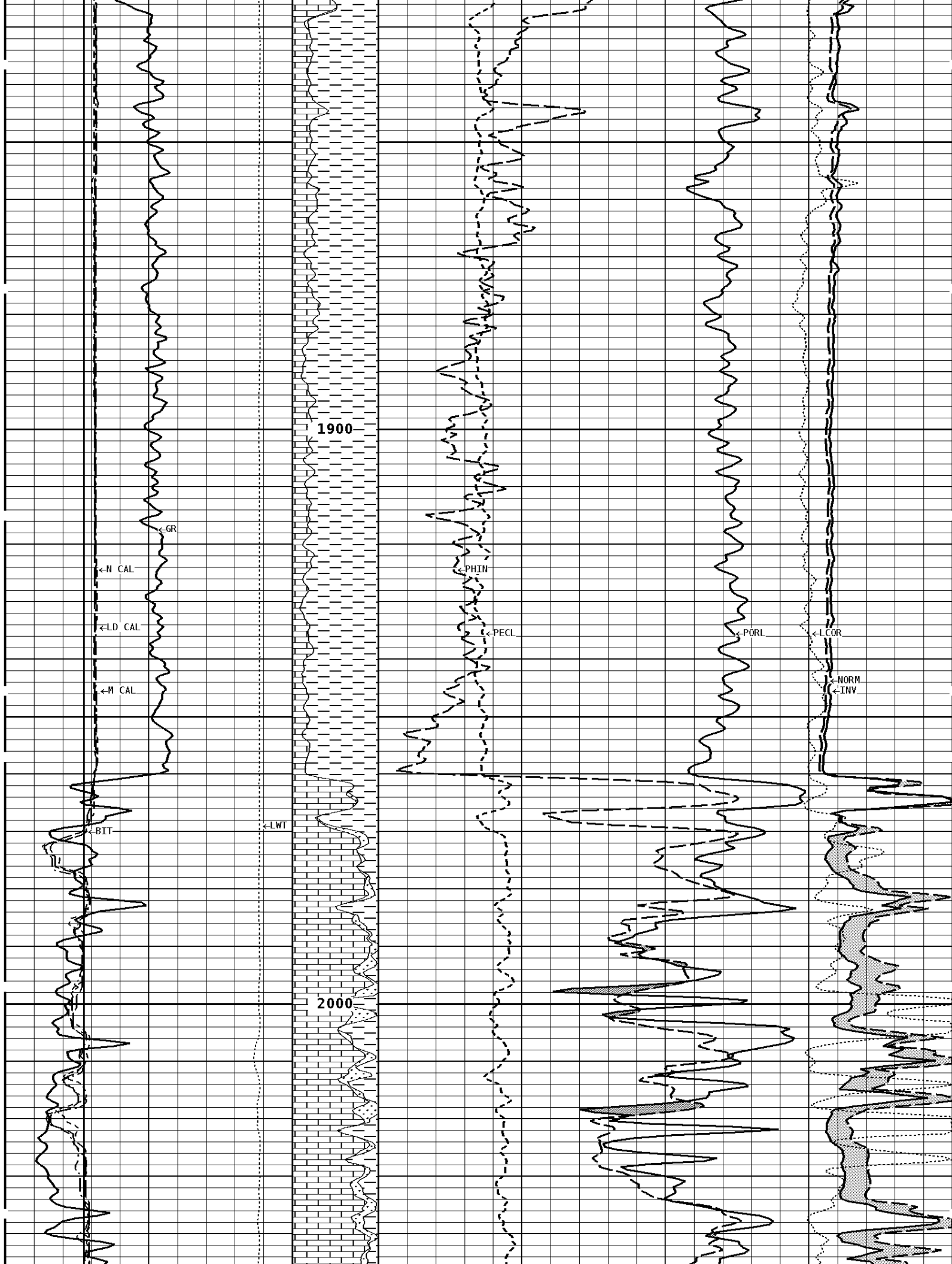


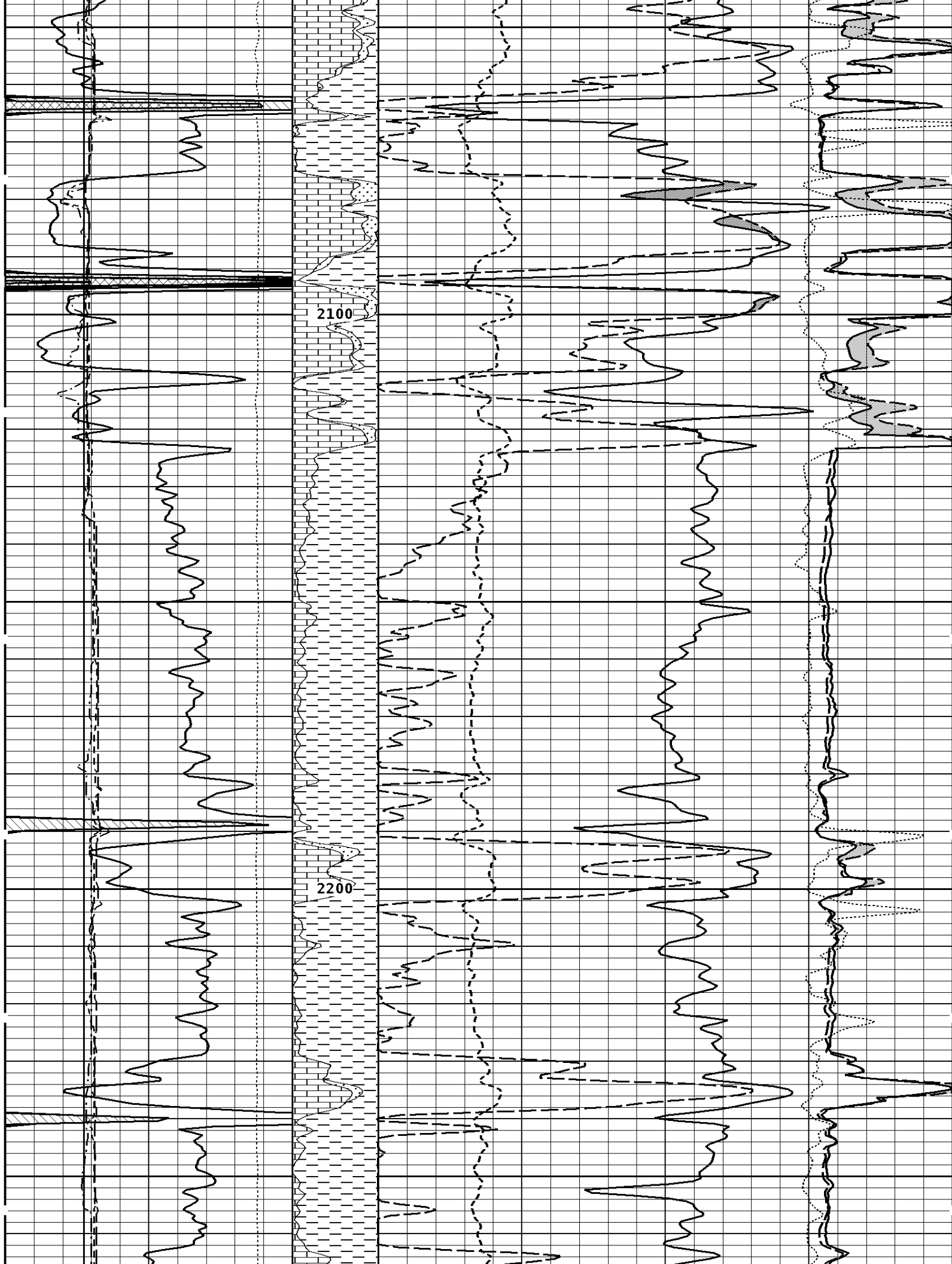


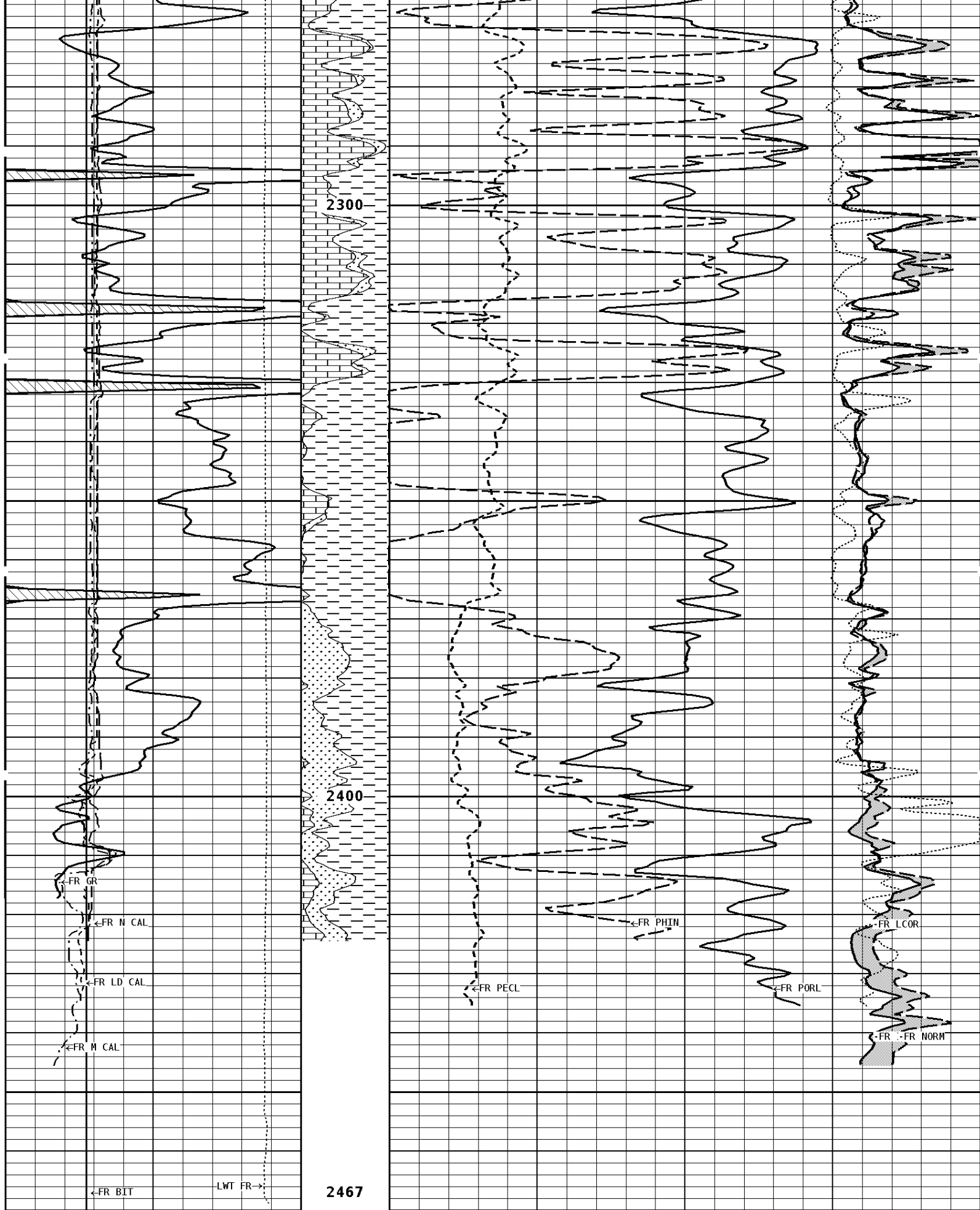












2300

2400

←FR GR

←FR N CAL

←FR LD CAL

←FR M CAL

←FR BIT

LWT FR→

2467

←FR PECL

←FR PHIN

←FR PORL

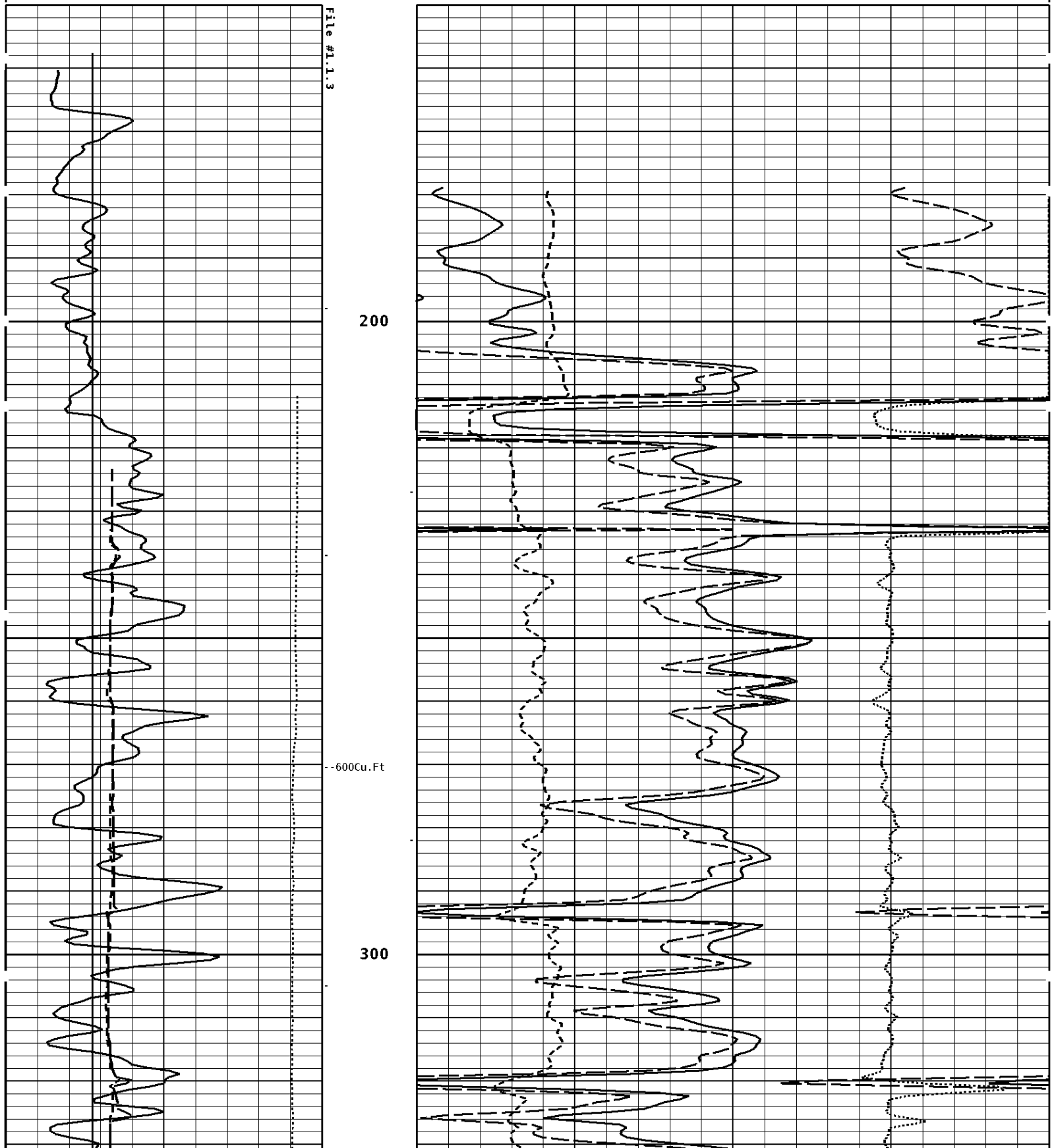
←FR L COR

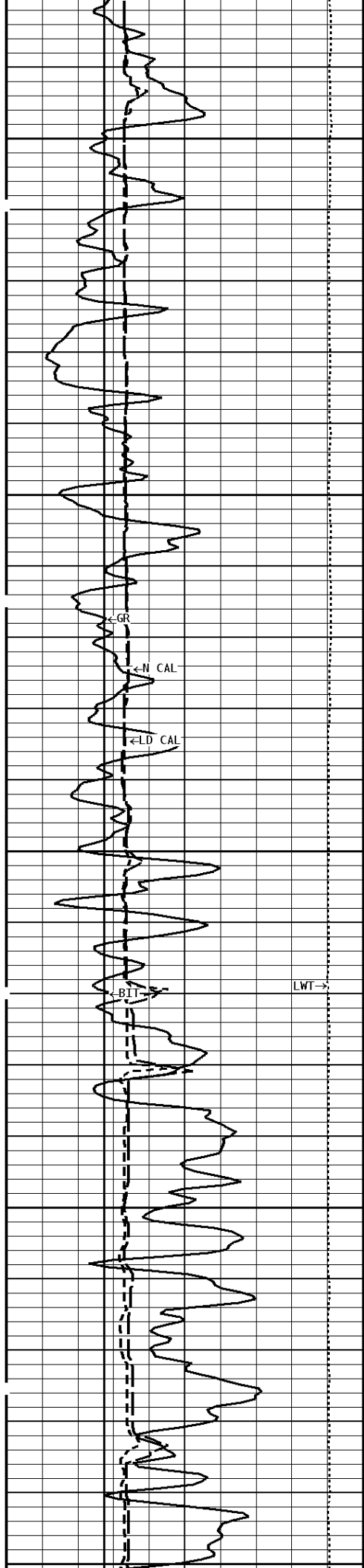
←FR -FR NORM

10000	0	2.0	3.0
		1.0	2.0
GAMMA RAY API UNITS 200 0 400 200		DENSITY POROSITY (2.71g/cc) PERCENT 70 30 -10 30 -10 -50	
		- BHV AHV - CU. FT	

1:240 MAIN SECTION

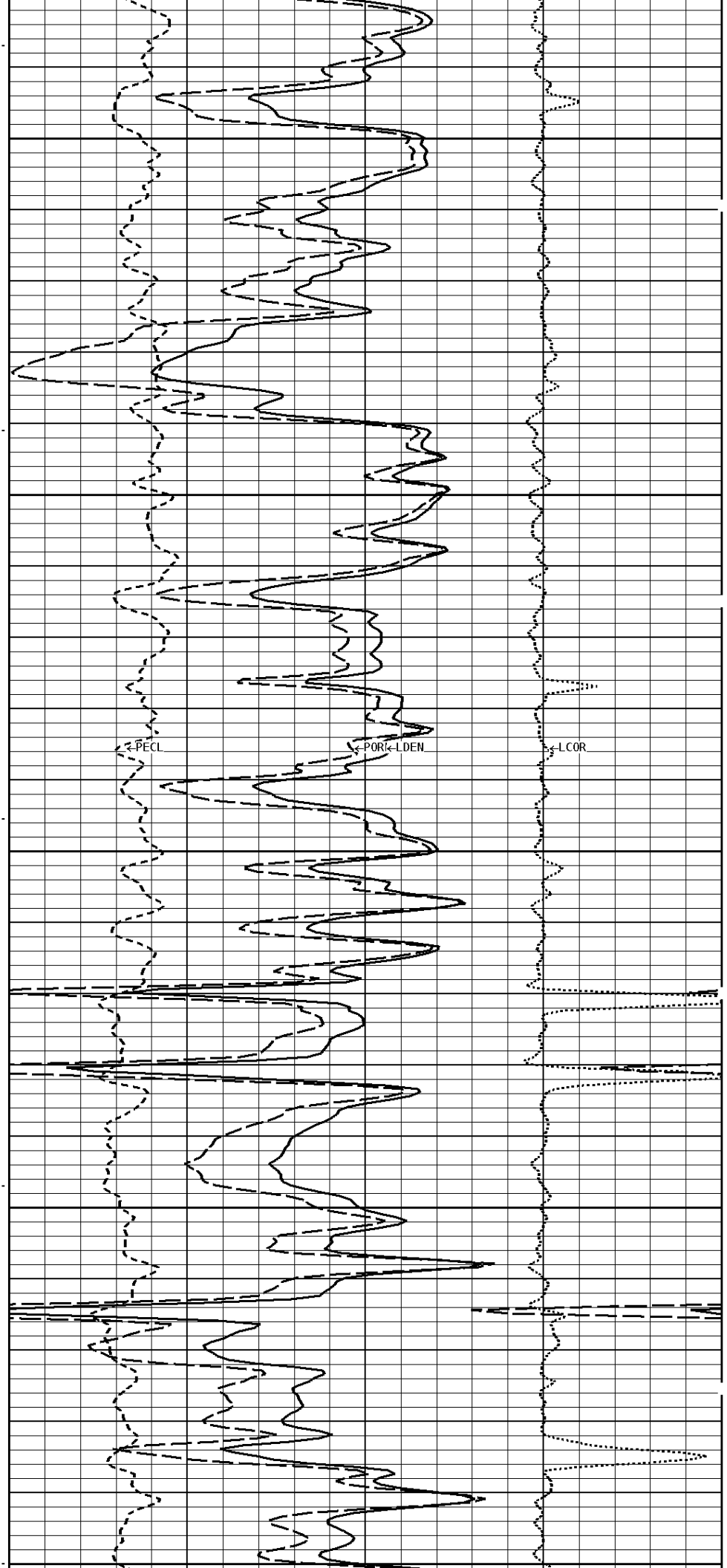
BULK DENSITY

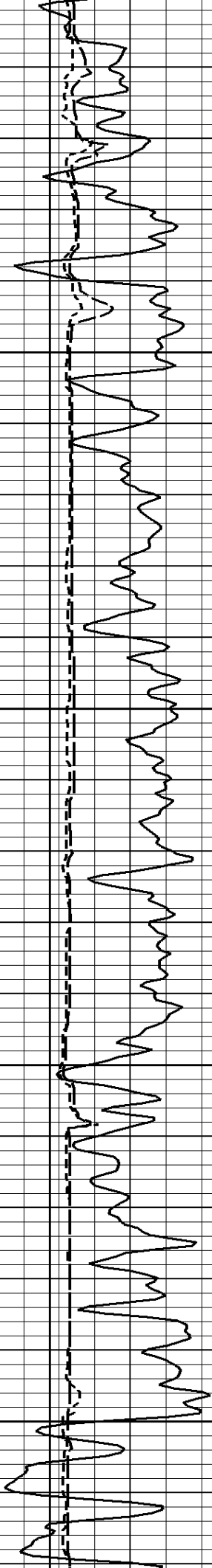




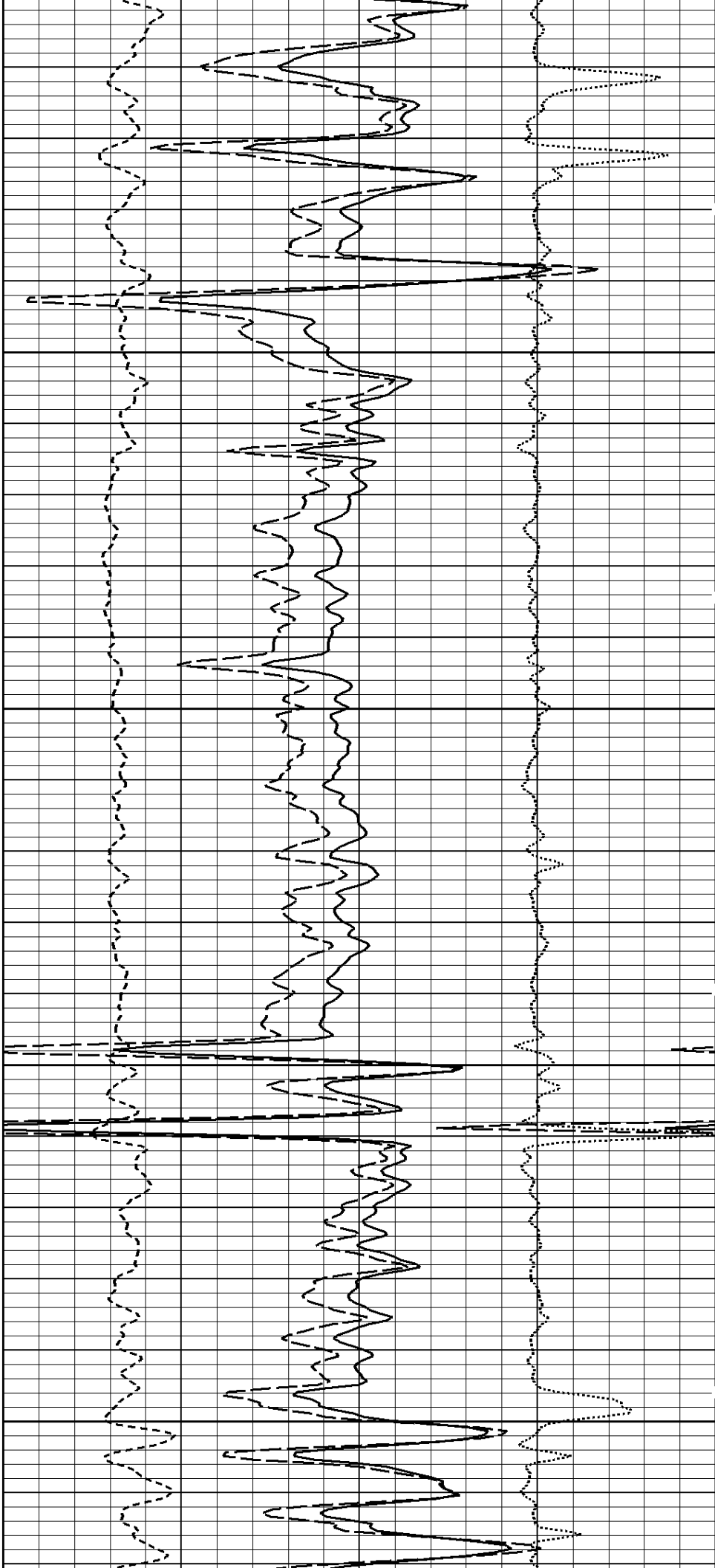
400

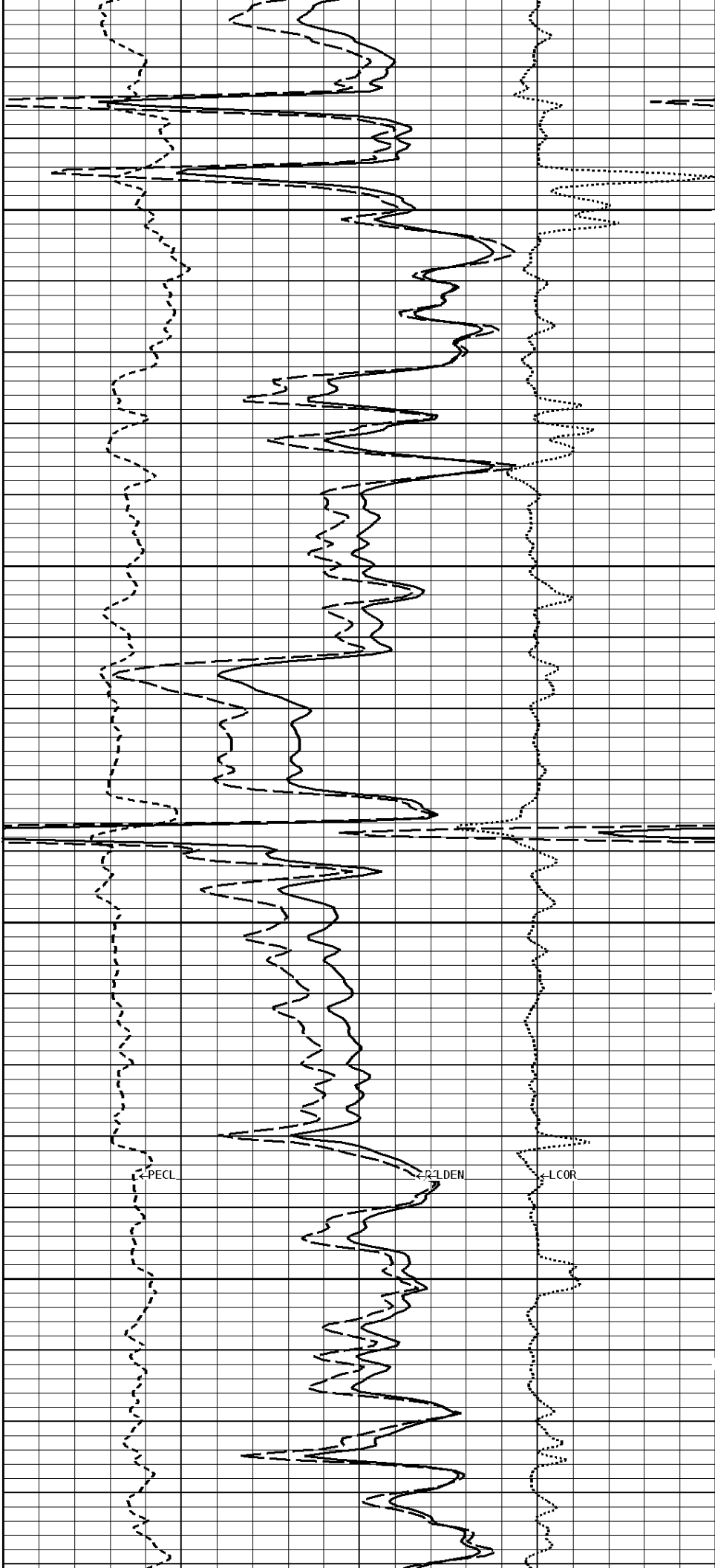
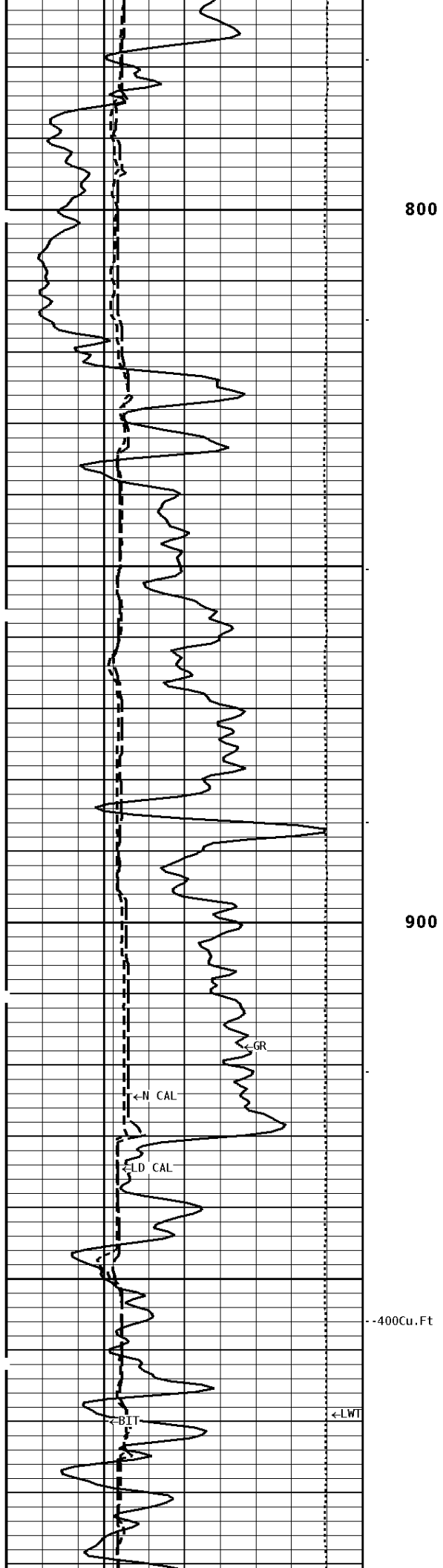
500



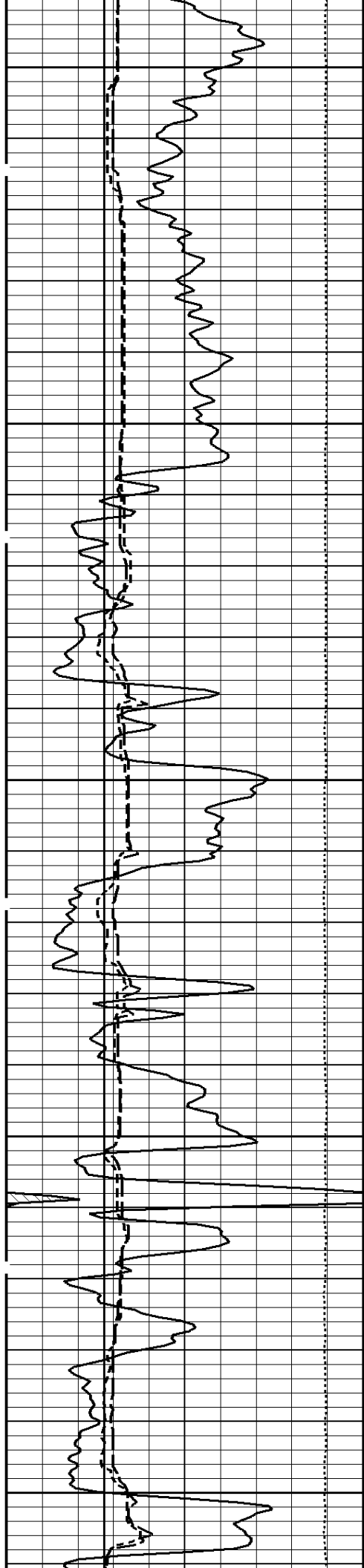


600
300Cu.Ft--
--500Cu.Ft





-400Cu.Ft

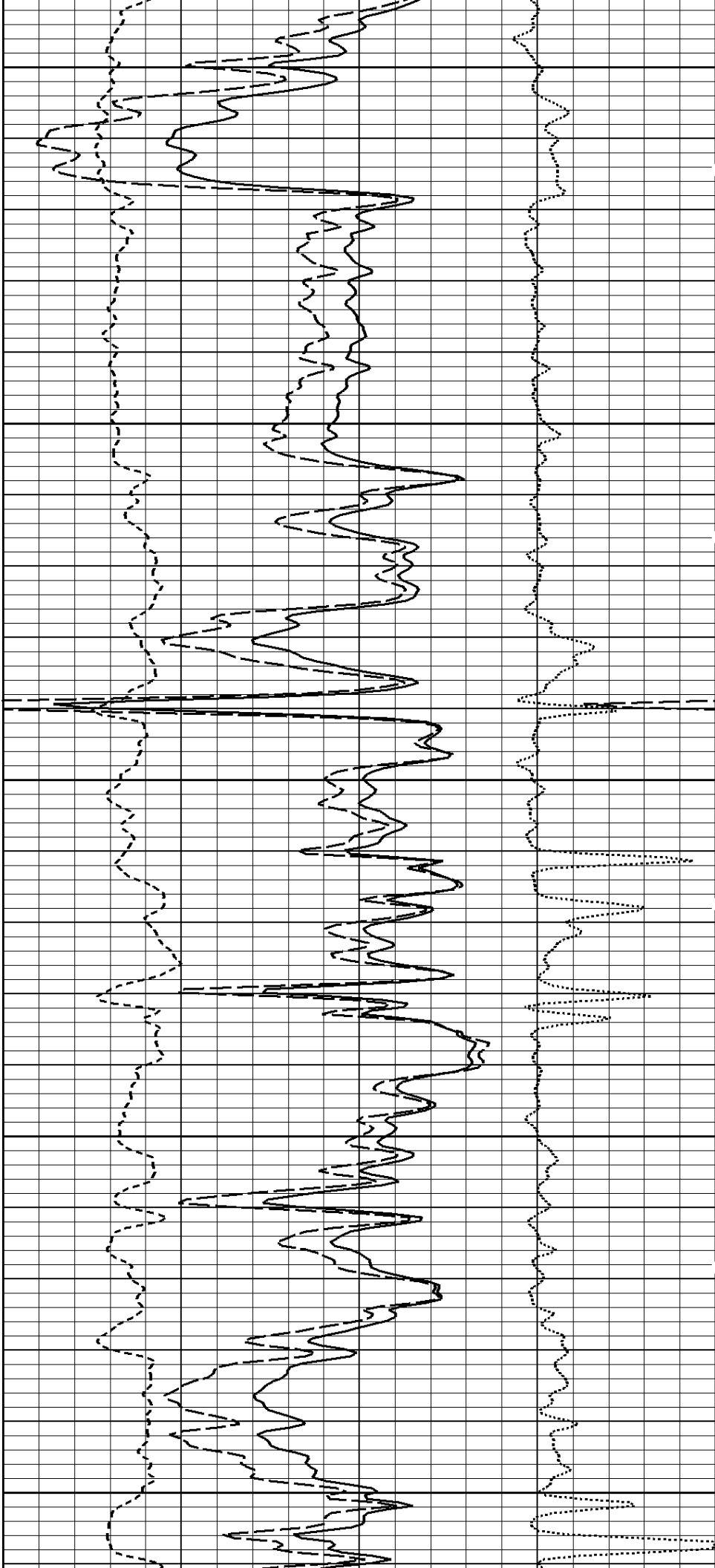


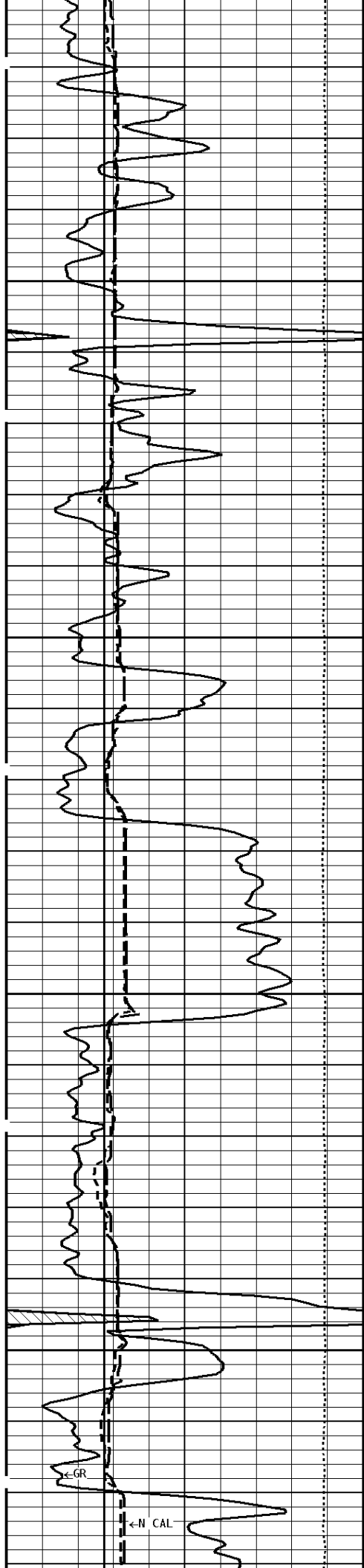
1000

1100

200Cu.Ft--

1200

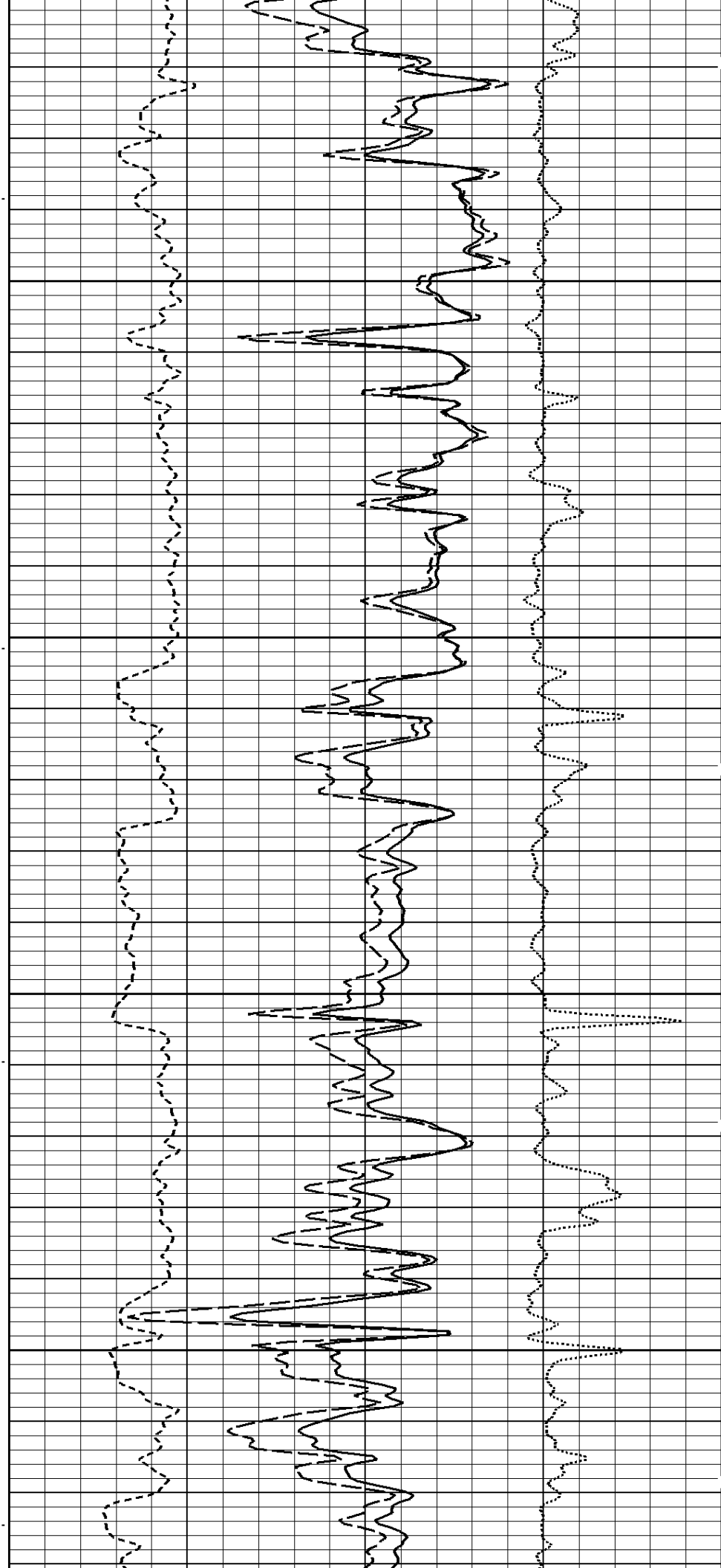


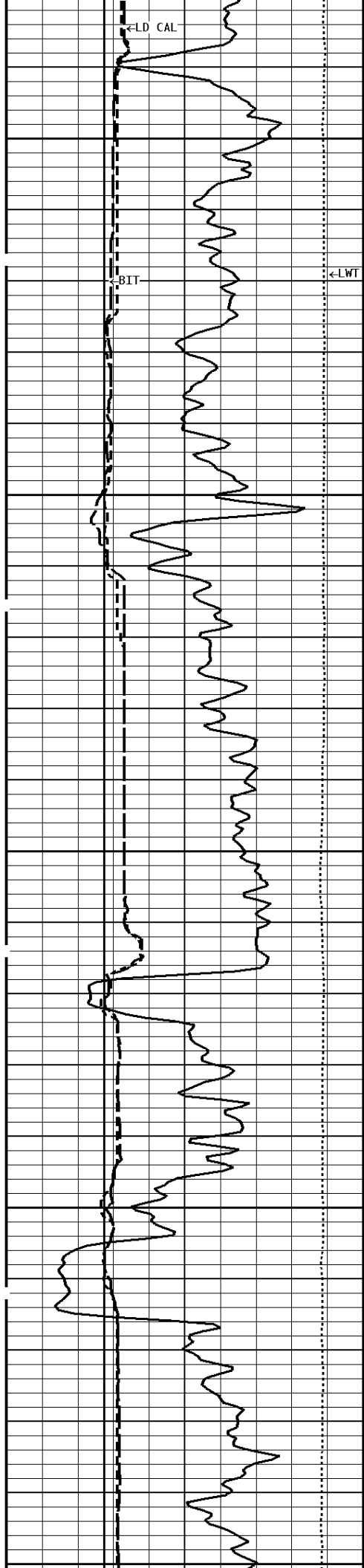


1300

--300Cu.Ft

1400

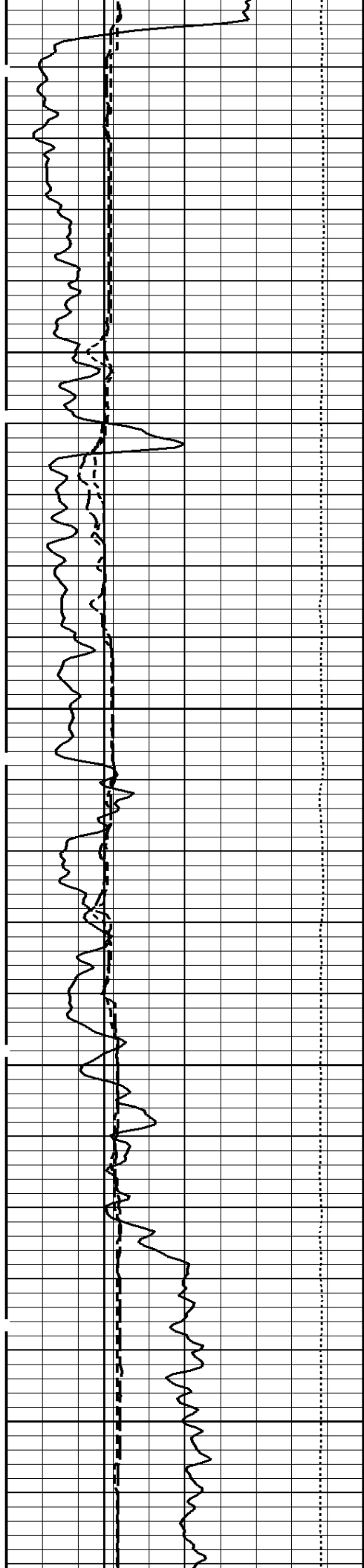




1500

1600



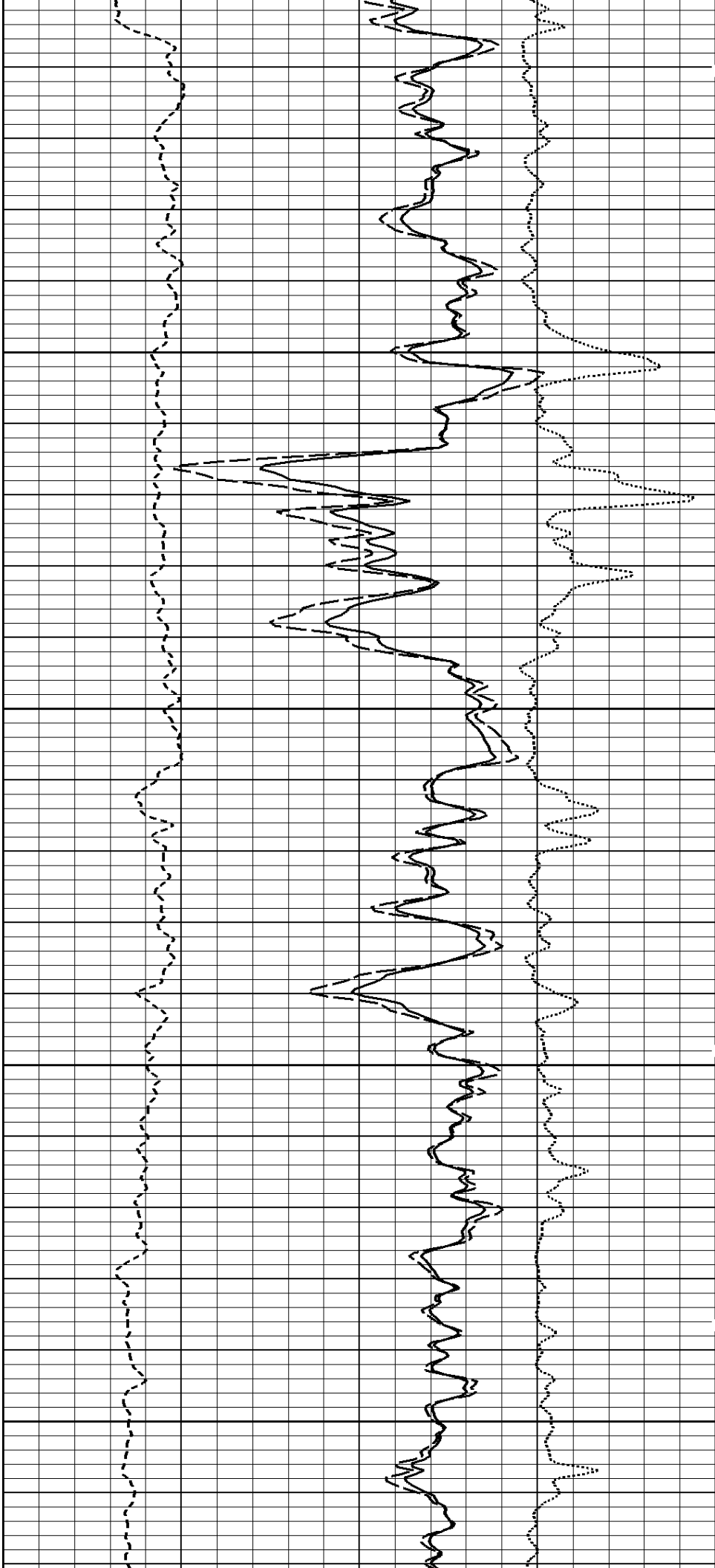


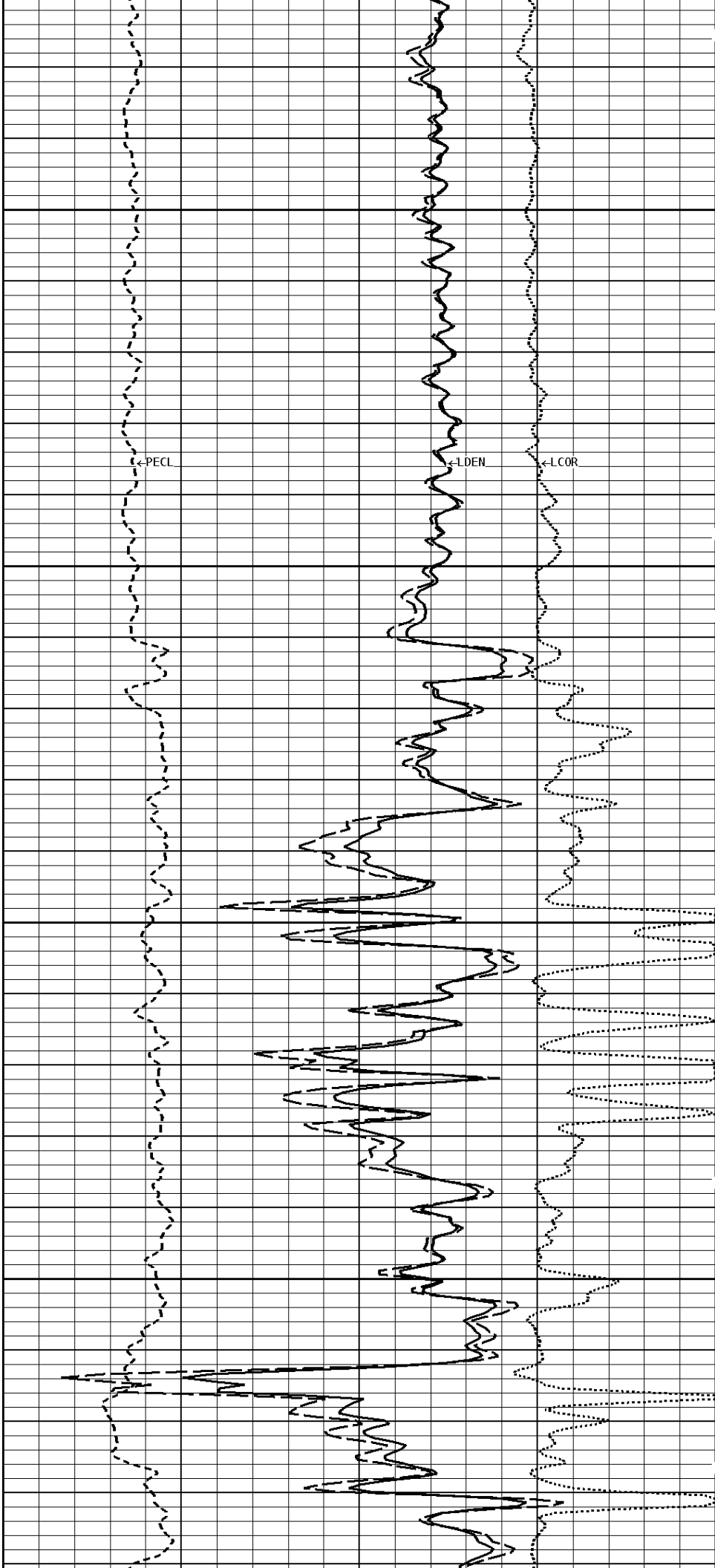
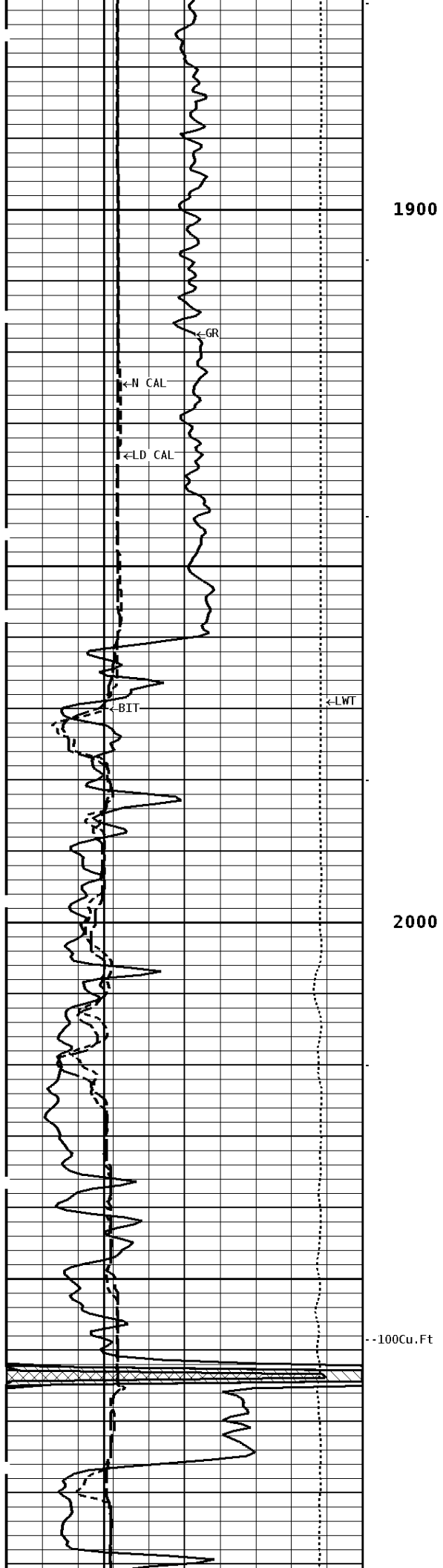
--200Cu.Ft

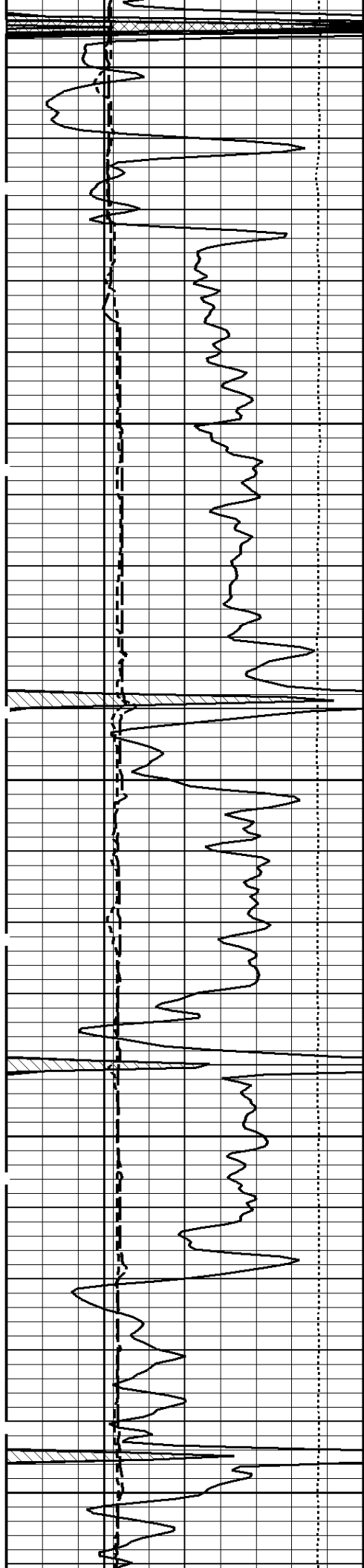
1700

1800

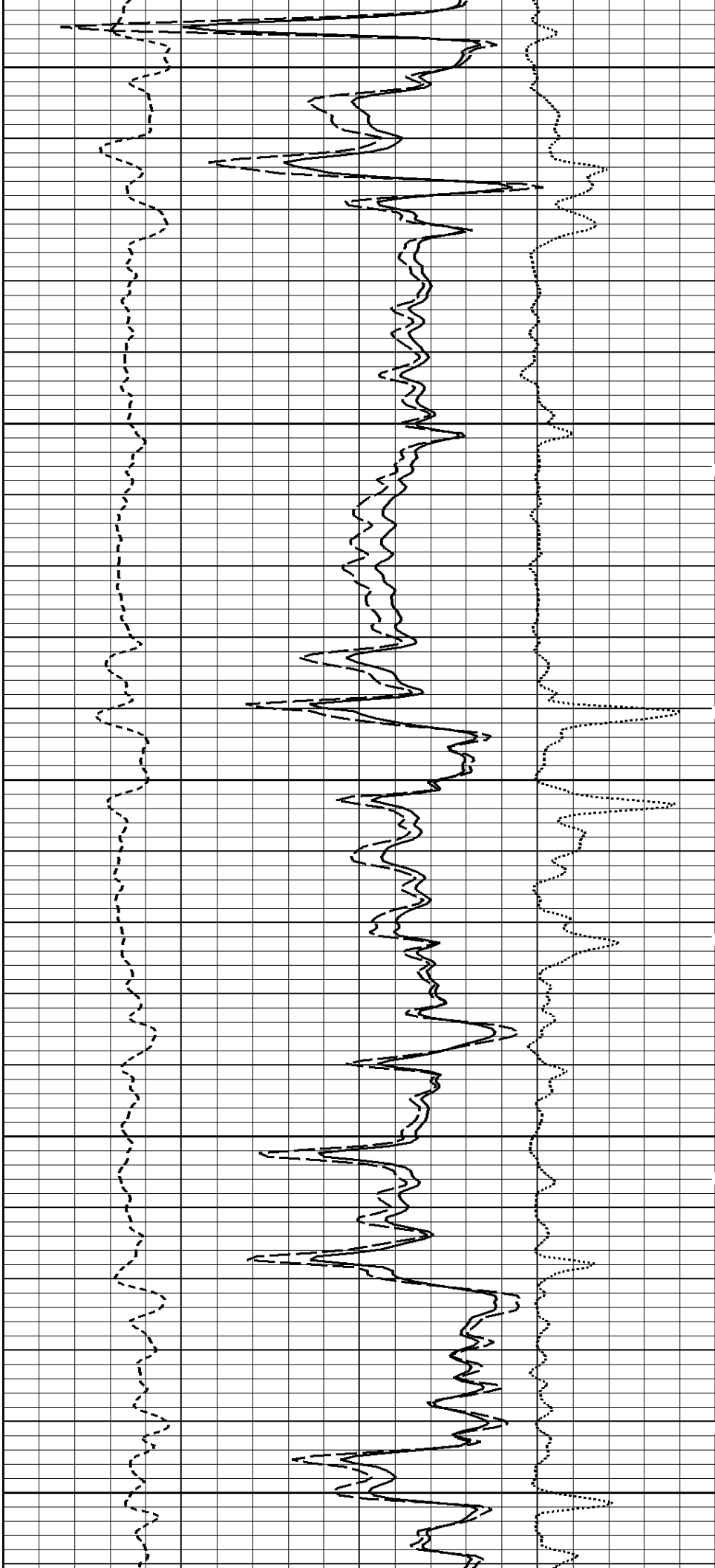
100Cu.Ft--





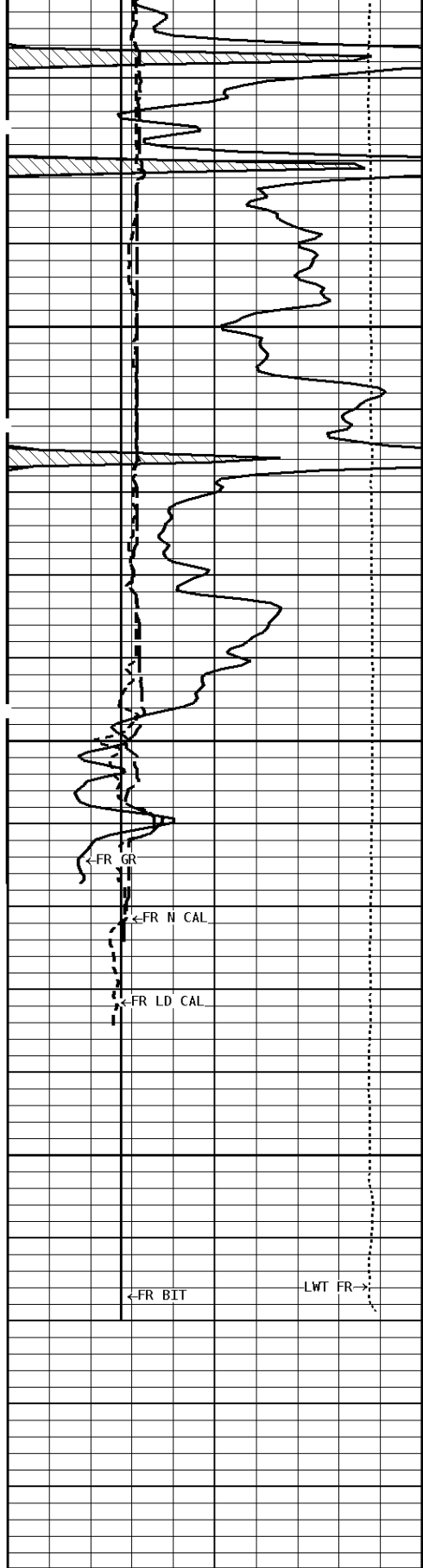


2100



2200

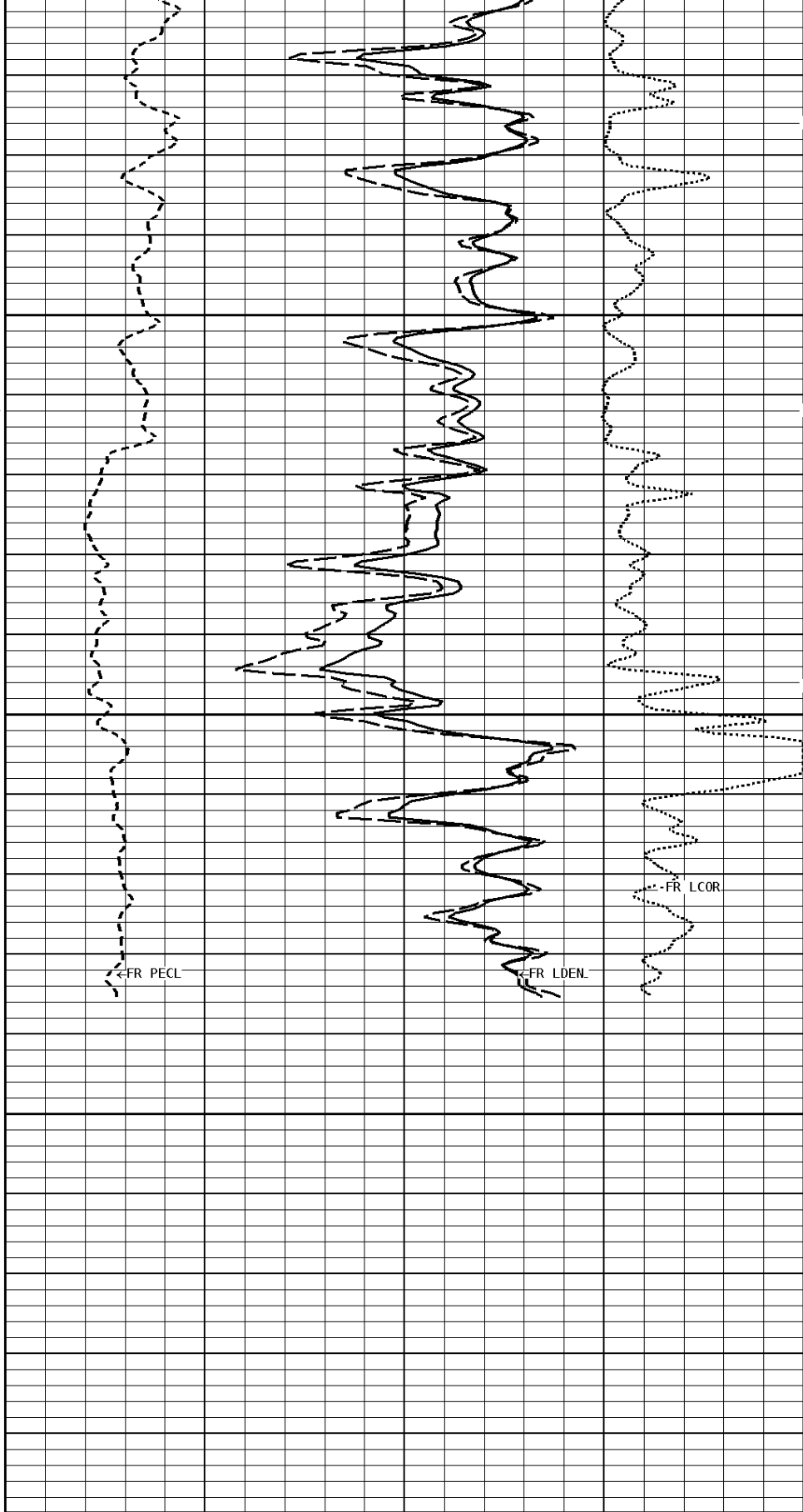
2300



2400

2467

1:240 MAIN SECTION BULK DENSITY



- BHV AHV -
CU. FT

DENSITY POROSITY (2.71g/cc)
PERCENT

70

30

-10

30

-10

-50

TENSION LBS		COMPENSATED BULK DENSITY G/CC			
10000	0	3.0			4.0
		2.0			3.0
		1.0			2.0
DENSITY (X) CALIPER INCHES (IN)		PE CROSS-SECTION BARNs/ELECTRON		DENSITY CORRECTION G/CC	
14	24				
4	14	0	10	-0.25	0.25
NEUTRON (Y) CALIPER INCHES (IN)					
14	24				
4	14				
BIT SIZE INCHES (IN)					
4	14				

*** Borehole Zone Factors ***

Zone 1 99999.0 to 0.0 Feet					
Matrix Density		2.71	g/cc		
Fluid Density		1.00	g/cc		
Formation Matrix		Limestone			
Drill Bit Size		6.750	in		
Casing Diameter		4.500	in		
Casing Correction (PHI N)		Disable			

*** 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	
GR	Background	Jig	Jig		
	75	381	175	GRAPI	
Shop Calibration CNT-AA					
Performed : 28-APR-2014			Time : 11:56		
Sensor Suite : CALI-BCN			ID : NDT-BD-133		
	Jig - Measured		Jig - Calibrated	Units	
	Ring#1 Ring#2		Ring#1 Ring#2		
CL # 1	9.0 13.6		6.0 12.0	IN.	
Shop Calibration LDT-DF					
Performed : 21-Apr-2014			Time : 10:00		
Sensor Suite : BHC NEUT			ID : CNP-AA-024		
Source ID : N-1045					
	Tank		Verification	Units	
	Measured	Calibrated	Jig		
N/F	3.7923	3.6893	3.6669		
Porosity	22.1	20.5	20.2	%	
Shop Calibration LDT-DF					
Performed : 29-APR-2014			Time : 09:48		
Sensor Suite : CALI-LTH			ID : PDT-GA-466		
	Jig - Measured		Jig - Calibrated	Units	
	Ring#1 Ring#2		Ring#1 Ring#2		
CL # 1	6.7 9.9		6.0 12.0	IN.	
Shop Calibration LDP-DA					
Performed : 29-Apr-2014			Time : 09:32		
Sensor Suite : BHCPELNG			ID : LDP-DA-065		
Source ID : 2991GW					
	Short Space				
	BKGD	Al	Mg	Al+Fe	Units
LSW1	67	1135	1803	726	CPS
LSW2	70	1369	2164	970	CPS
LSW3	263	3128	5001	2644	CPS

LSW4	324	2784	3989	2435	CPS
LSW5	29	55	63	53	CPS
LSW6	91	91	91	91	CPS
LSW7	55	58	60	60	CPS
LSW8	1	4	5	4	CPS
QS	0.246	0.218	0.204	0.208	
PES			2.778	5.967	
SSDN		2.600	1.680		G/CC
Long Space					
	BKGD	Al	Mg	Al+Fe	Units
LLW1	93	1299	5288	780	CPS
LLW2	102	2274	8834	1639	CPS
LLW3	396	4083	15315	3480	CPS
LLW4	510	1958	6261	1761	CPS
LLW5	60	73	134	71	CPS
LLW6	159	153	146	154	CPS
LLW7	106	103	98	102	CPS
LLW8	5	8	20	8	CPS
QL	0.200	0.195	0.198	0.202	
PEL			2.697	5.458	
LSDN		2.600	1.680		G/CC

Shop Calibration MST-DA

Performed : 11-MAR-2014 Time : 14:52
Sensor Suite : CALI-MSN ID : MST-DA-30

		Jig - Measured		Jig - Calibrated		Units
		Ring#1	Ring#2	Ring#1	Ring#2	
CL # 1		6.9	11.5	6.0	12.0	IN.

Performed : 11-Mar-2014 Time : 15:15
Sensor Suite : MSTDA-NI ID : MST-DA-30

Internal						
		Measured		Calibrated		
	Zero	Reference	Units	Zero	Reference	Units
INV-V	219.0	30278.9		0.00	1546.00	MV
NOR-V	162.2	30107.4		0.00	1546.00	MV
IN-C	154.4	30432.4		0.00	15.46	UA
INV-R					32.34	OHMM
NOR-R					55.11	OHMM

Performed : 11-Mar-2014 Time : 15:19
Sensor Suite : MSTDAMSF ID : MST-DA-30

Internal						
		Measured		Calibrated		
	Zero	Reference	Units	Zero	Reference	Units
MSFC	18.3	61074.9		0.00	1522.00	UA
MSFB	32761.0	63091.7		0.00	1522.00	MA
MOM1	0.0	60659.9		0.00	1522.00	MV
MSFRA					43.30	OHMM



Company: CASTLE RESOURCES LLC
Well: RICE TANNER #1
Location: E2 SW SW
Logged: 05-04-2014
K.B. Elev: 0.0 Ft