



Tucker
ENERGY SERVICES

COMPENSATED NEUTRON
PEL DENSITY MICRO LOG

Company MTM PETROLEUM INC.
Well HUFFORD #1-23
Field
County KINGMAN
State KANSAS
Country USA
API No. 15-095-22287

File No : TUL-59782
Company : MTM PETROLEUM INC.
Well : HUFFORD #1-23
Field :
County : KINGMAN
State : KANSAS
Country : USA
API No : 15-095-22287

Location :
2310' FSL & 330' FEL
NE NE SE

LSD : Sect : 23 Twp : 30S Rge : 7W

Permanent Datum: GL Elevations:
Drilling Measured From: KB KB 1488.00 Ft
Log Measured From: KB DF 1487.00 Ft
Above Permanent Datum: 10.00 Ft GL 1478.00 Ft
Services: CNT PIT LDT MLT

Date	2014-08-19		
Run Number	1		
Depth--Driller	4282.0	Ft	
Depth--Logger	4282.0	Ft	
First Reading	4259.0	Ft	
Last Reading	3000.0	Ft	
Casing--Driller	225.0	Ft	
Casing--Logger	225.0	Ft	
Bit Size	7.875	In	
Casing Size	8.625	In	
Hole Fluid Type	WBM		
Density	9.2		
Fluid Loss	8.8		
PH/Viscosity	10.5	50.0	
Sample Source	MEASURED		
RM@Measured Temp.	1.500	@ 80 F	
RMF@Measured Temp	1.280	@ 80 F	
RMC@Measured Temp.	1.730	@ 80 F	
Source RMF/RMC	CALCULATED/CALCULATED		
RM@BHT	0.990	@ 125 F	
Time Circulation Stopped	2014-08-19 05:00		
Max Recorded Temp.	127	F	
Equipment/Base	T-126	TULSA	
Recorded By	S.K. DAVIS		
Witnessed By	A. YOUNG / N. MILLER		

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	4282.00	8.625	24.00	225.00	0.00

Run Number	1	
Date	2014-08-19	
Date/Time On Bottom	2014-08-19 09:00	
Depth to Fluid	0.0 Ft	
Salinity	4000.000	
RMF@BHT	0.840 @ 125 F	
RMC@BHT	1.140 @ 125 F	

Run Number 1

Comments

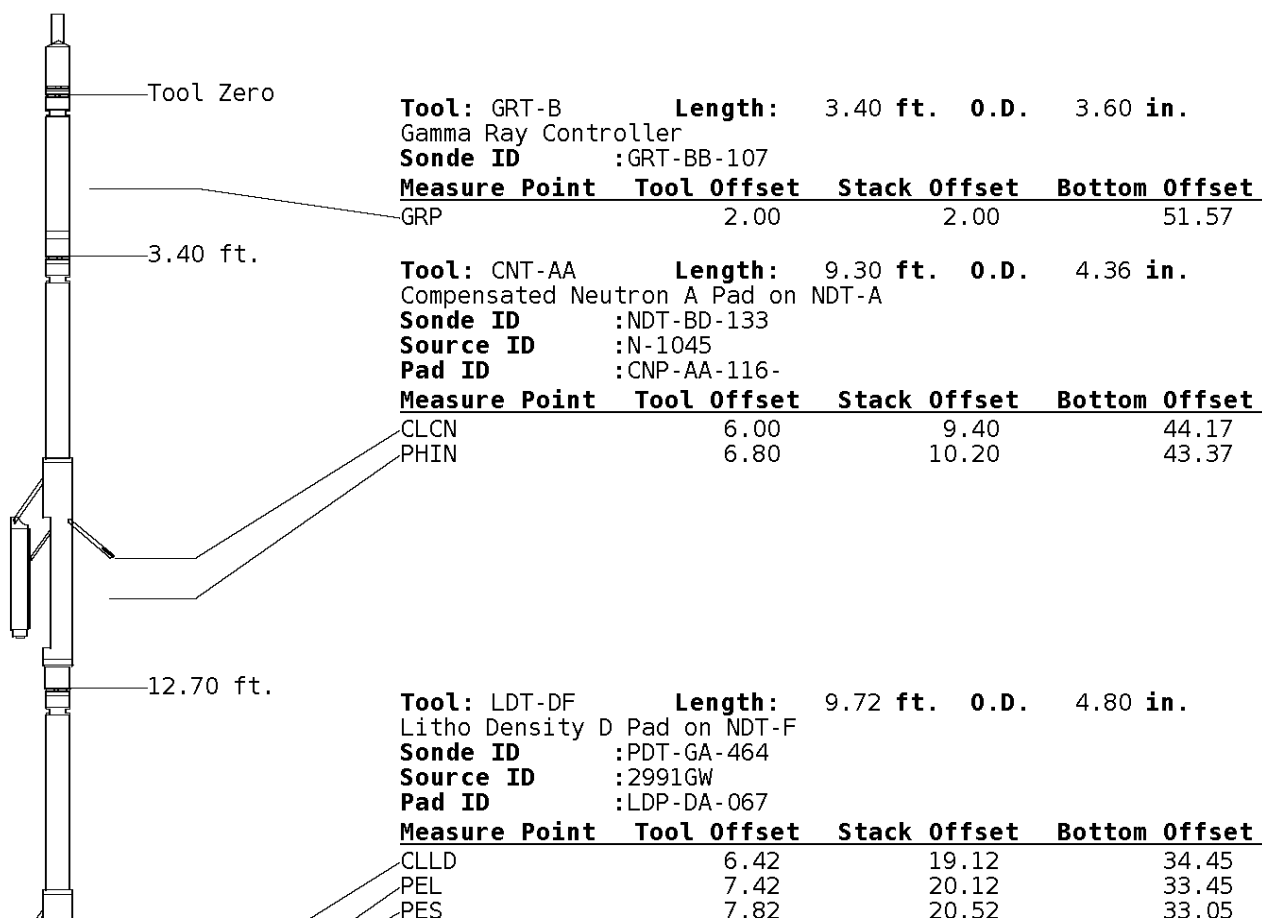
ALL PRESENTATION PER CUSTOMER REQUEST
 GRT,CNT,LDT,PIT RUN IN COMBINATION
 CALIPERS ORIENTED ON X-Y AXIS
 2.71 G/CC USED TO CALCULATE POROSITY
 ANNULAR & BOREHOLE VOLUME CALCULATED USING 5.5 PRODUCTION CASING
 PHIN IS CALIPER CORRECTED
 DETAIL SECTION FROM TD TO 3000'
 ANHYDRITE SECTION FROM 1150' TO 750'

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

OPERATORS;
 M. DRUEPPEL
 C. GONZALES

Tool String Schematic

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



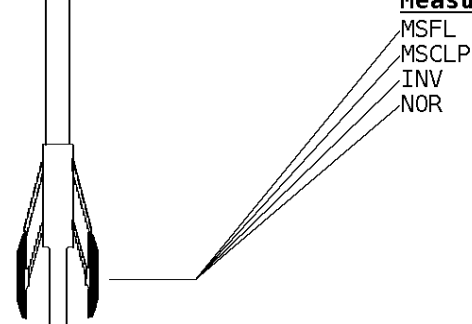


7.62	20.32	33.25
7.62	20.32	33.25

22.42 ft.

Tool: MST-DA **Length:** 9.66 ft. **O.D.** 6.00 in.
 Micro Spherically Focused (IC)
Sonde ID :MST-DA-057

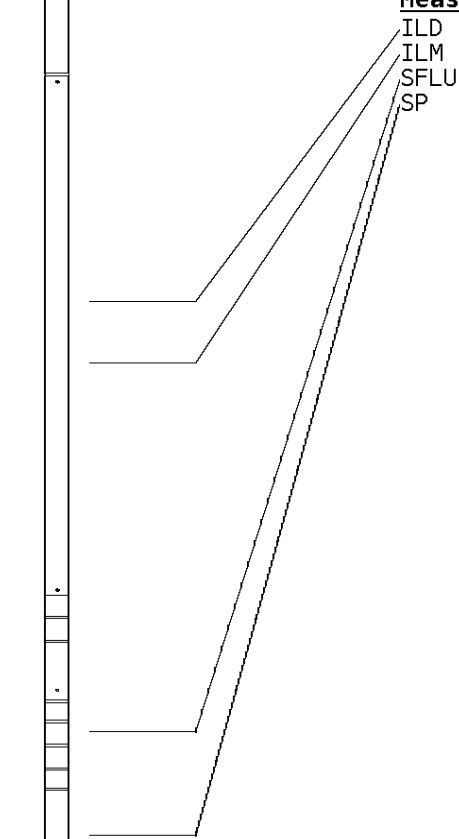
Measure Point	Tool Offset	Stack Offset	Bottom Offset
MSFL	7.60	30.02	23.55
MSCLP	7.60	30.02	23.55
INV	7.60	30.02	23.55
NOR	7.60	30.02	23.55



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: mtm-huff-1-23-mstk-aug-19

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

Segment: V1.D1.S7 Accordion Shift main 10 td

Acquired: 2014-08/19 09:07 3.3.0-12594

Reference: 0

Processed: 2014-08/19 10:22 3.3.0-12594

**CALIPER MICRO
INCHES (IN)**

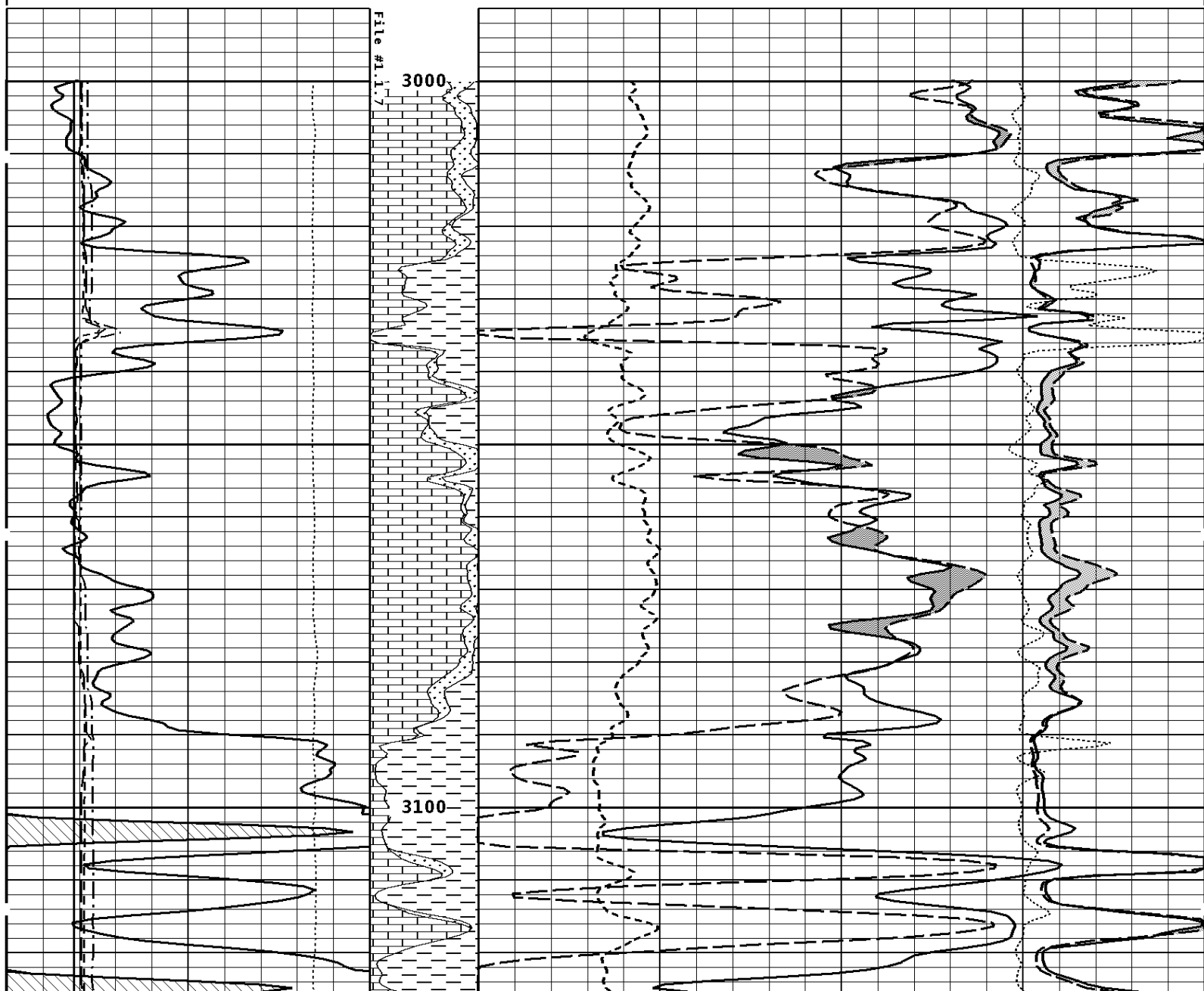
16	26
6	16

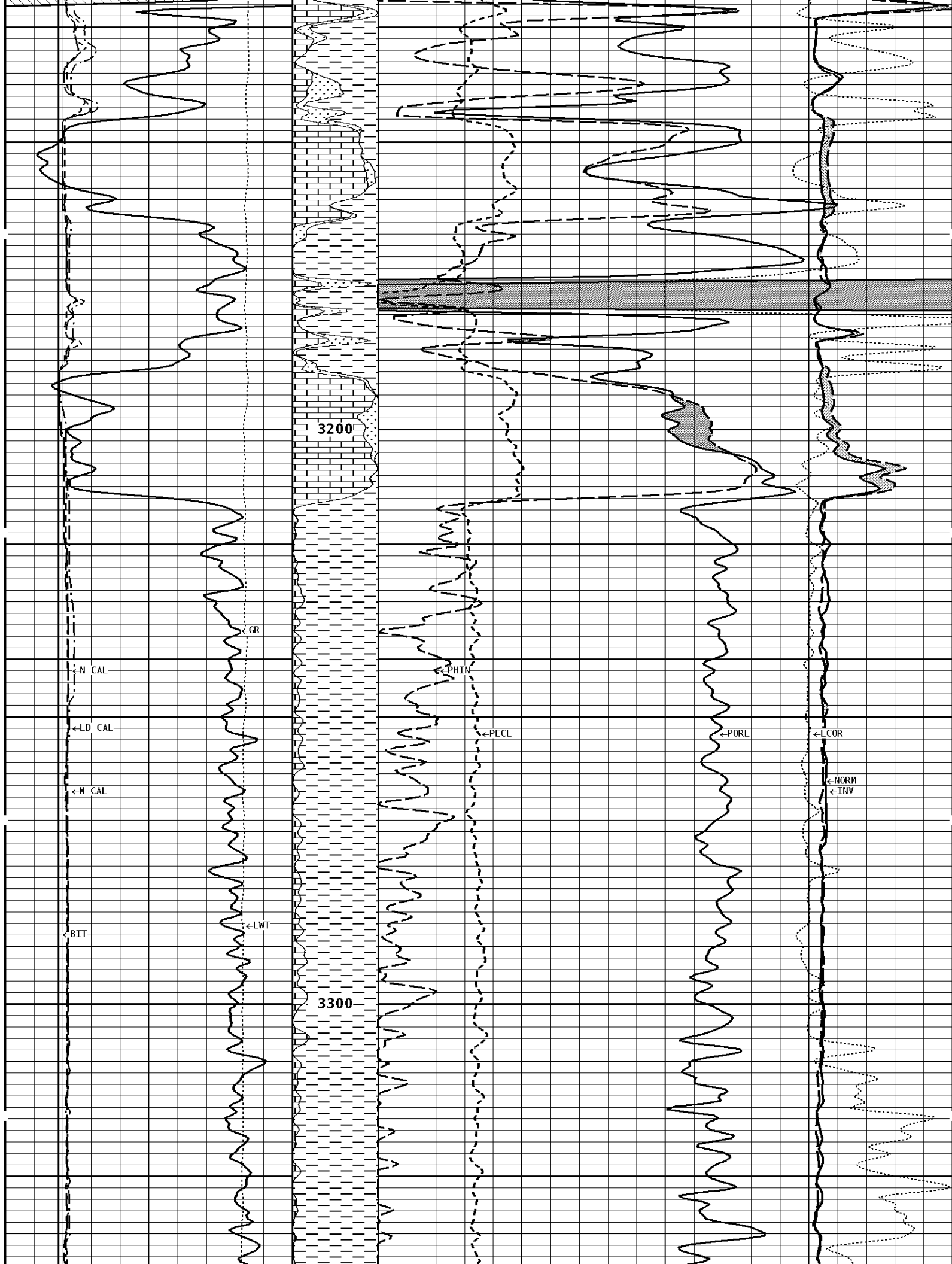
**BIT SIZE
INCHES (IN)**

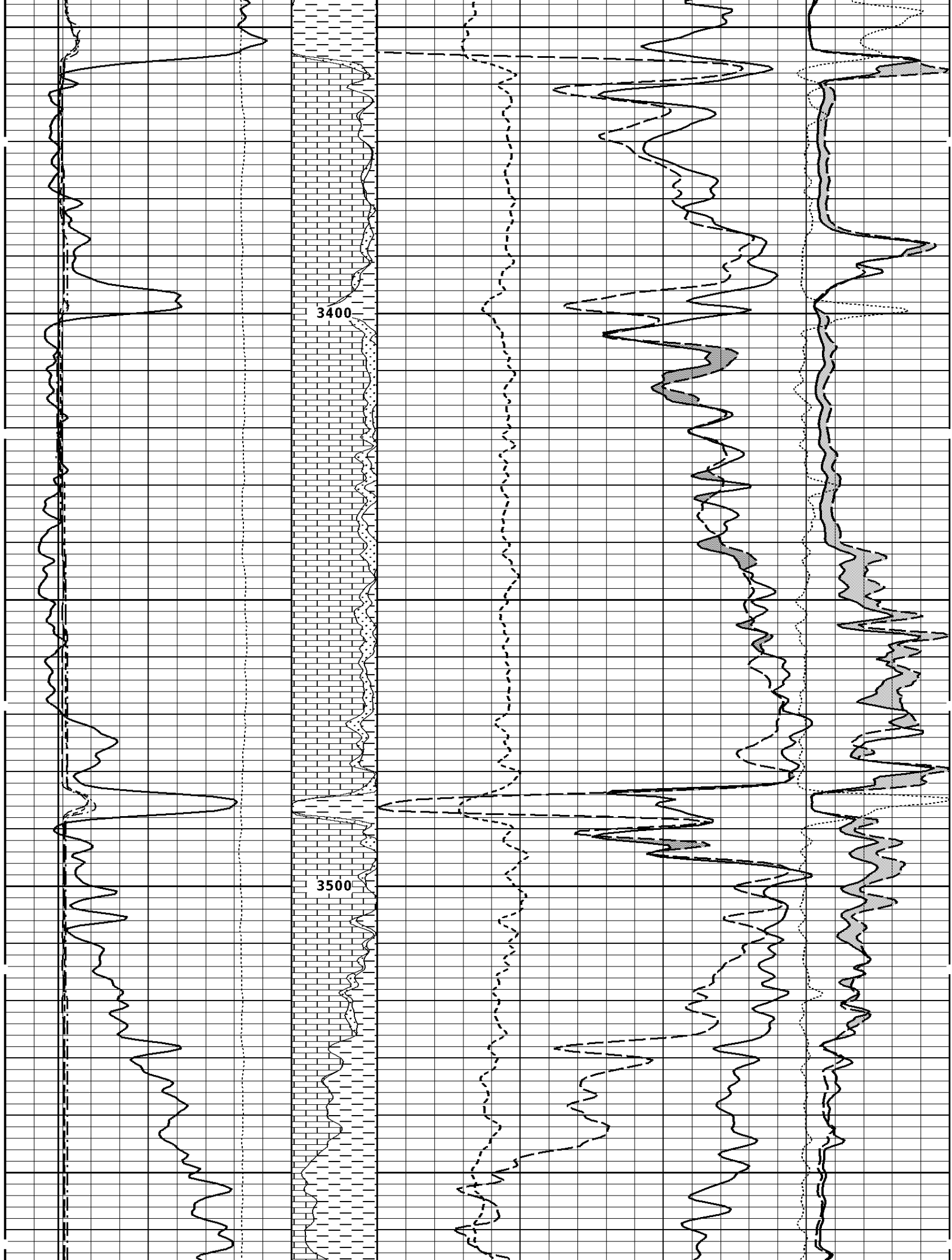
**NORMAL
OHMM**

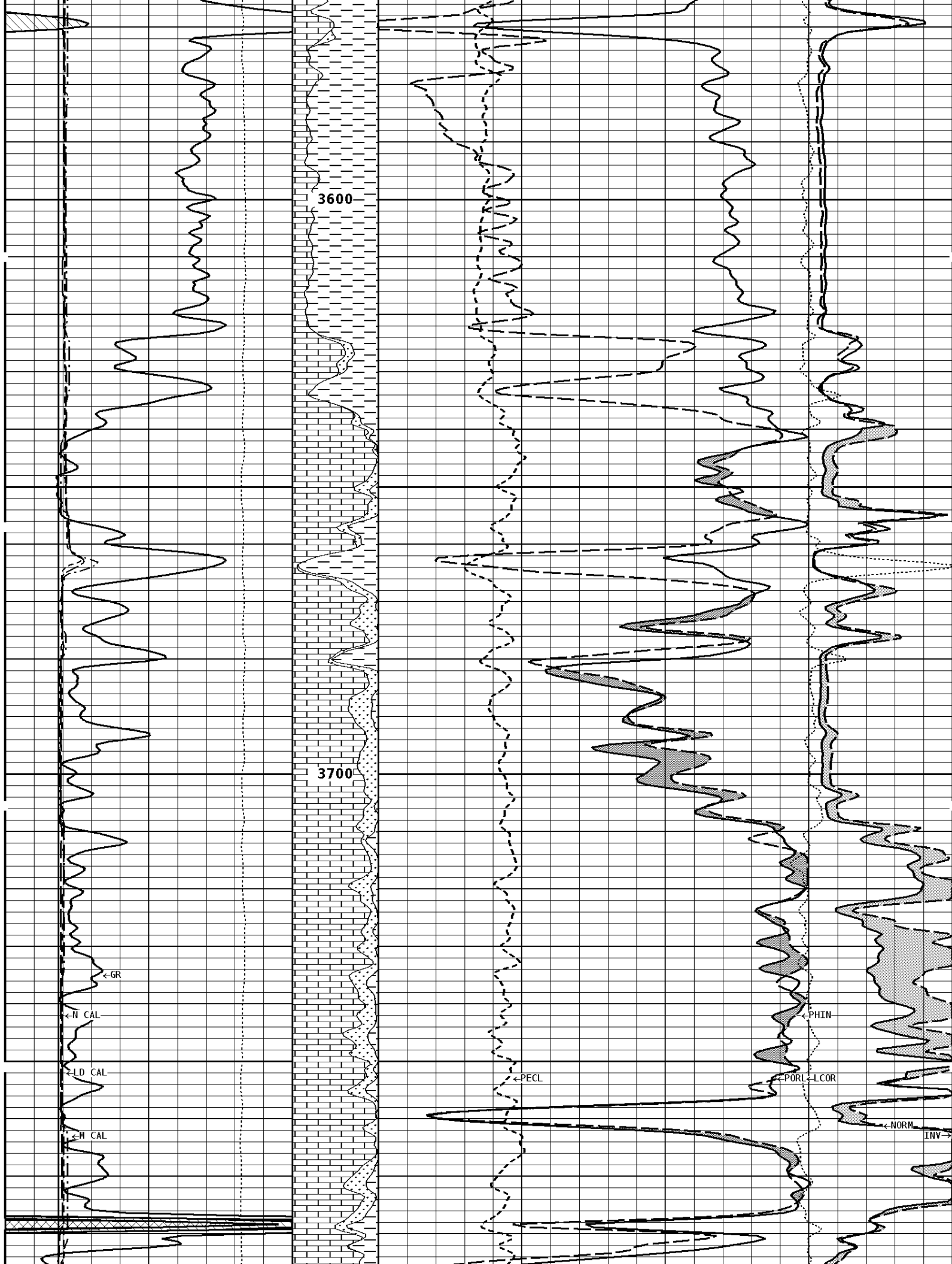
6	16			0	40
NEUTRON (Y) CALIPER INCHES (IN)				INVERSE OHMM	
16	26			0	40
6	16				
DENSITY (X) CALIPER INCHES (IN)		Volume Quartz	PE CROSS-SECTION BARNs/ELECTRON	DENSITY CORRECTION G/CC	
16	26		0	10	-0.25
6	16				0.25
TENSION LBS		Volume Calcite	DENSITY POROSITY (2.71g/cc) PERCENT		
10000	0		70		30
			30		-10
			-10		-50
GAMMA RAY API UNITS		Volume Dolo/Shale	NEUTRON POROSITY (LIMESTONE) PERCENT		
150	300		30		-10
0	150				

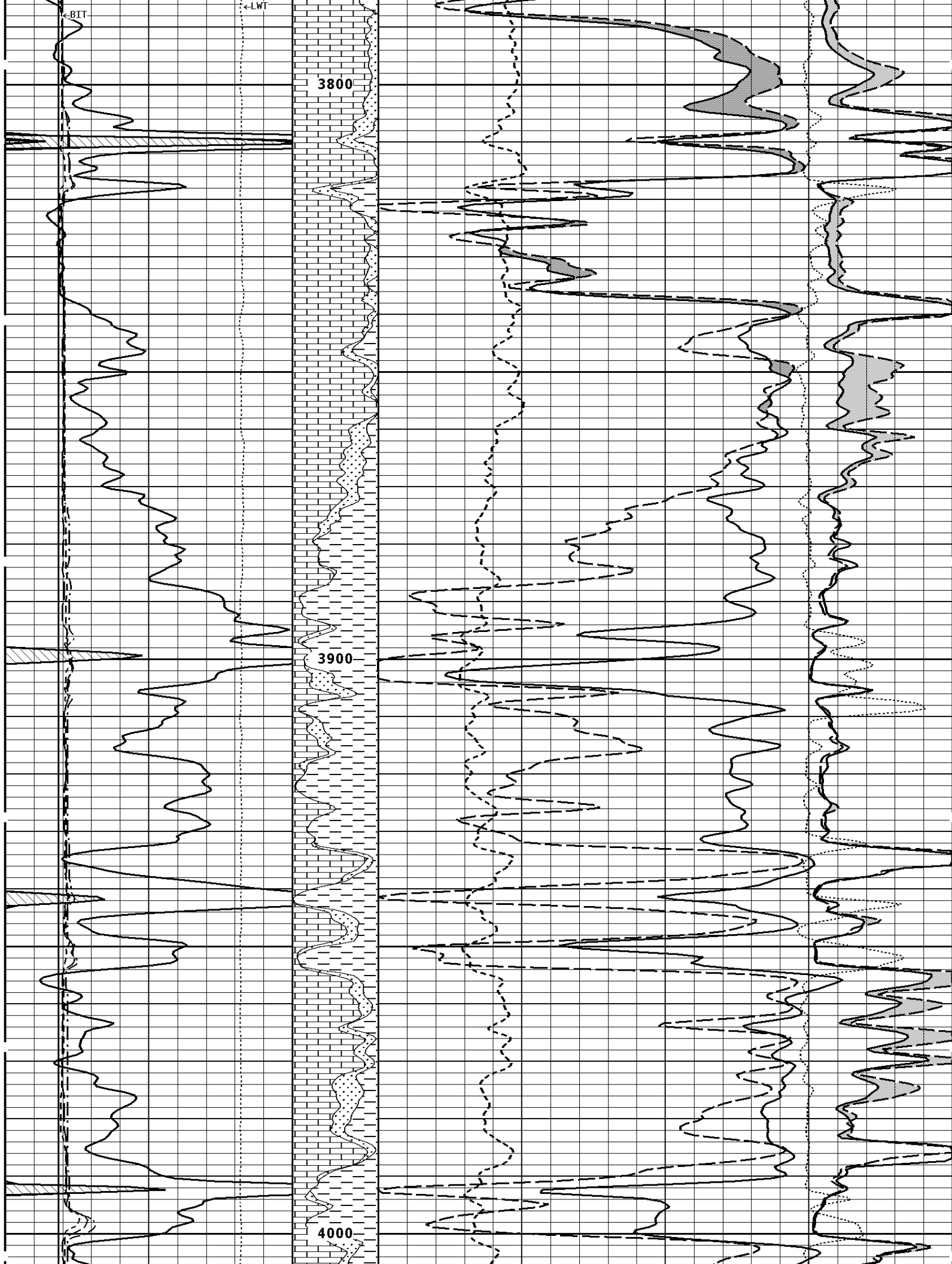
1:240 MAIN SECTION

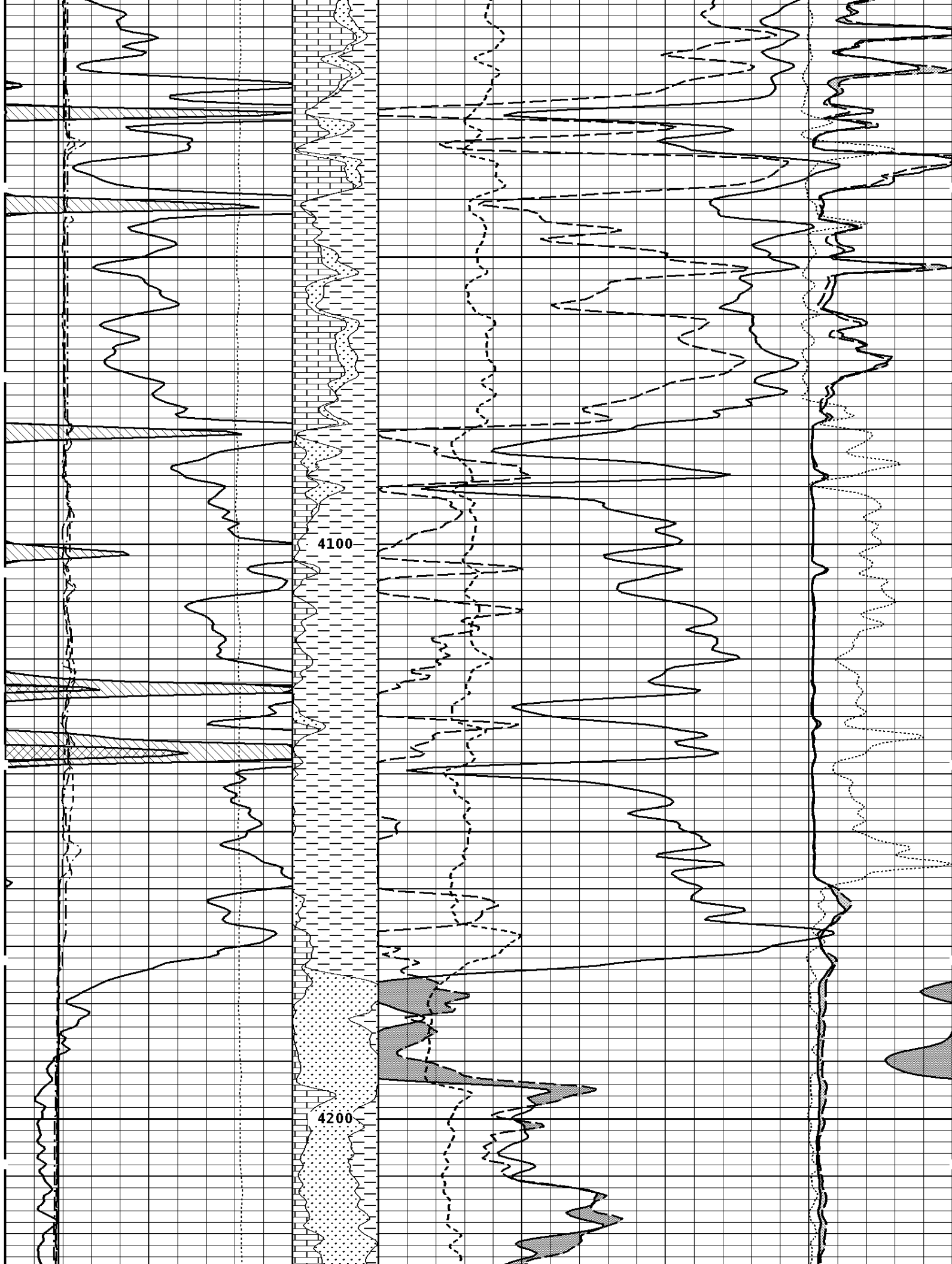


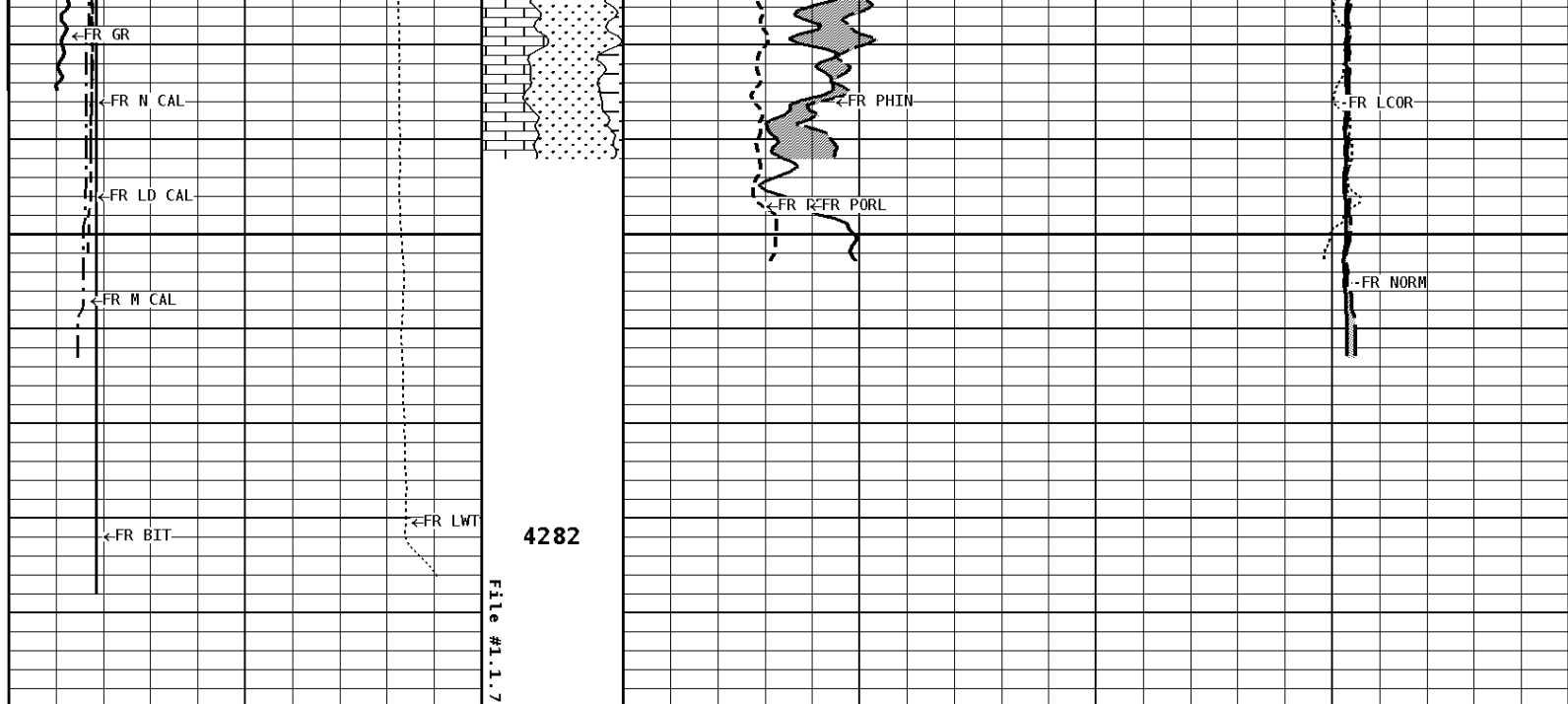












1:240 MAIN SECTION

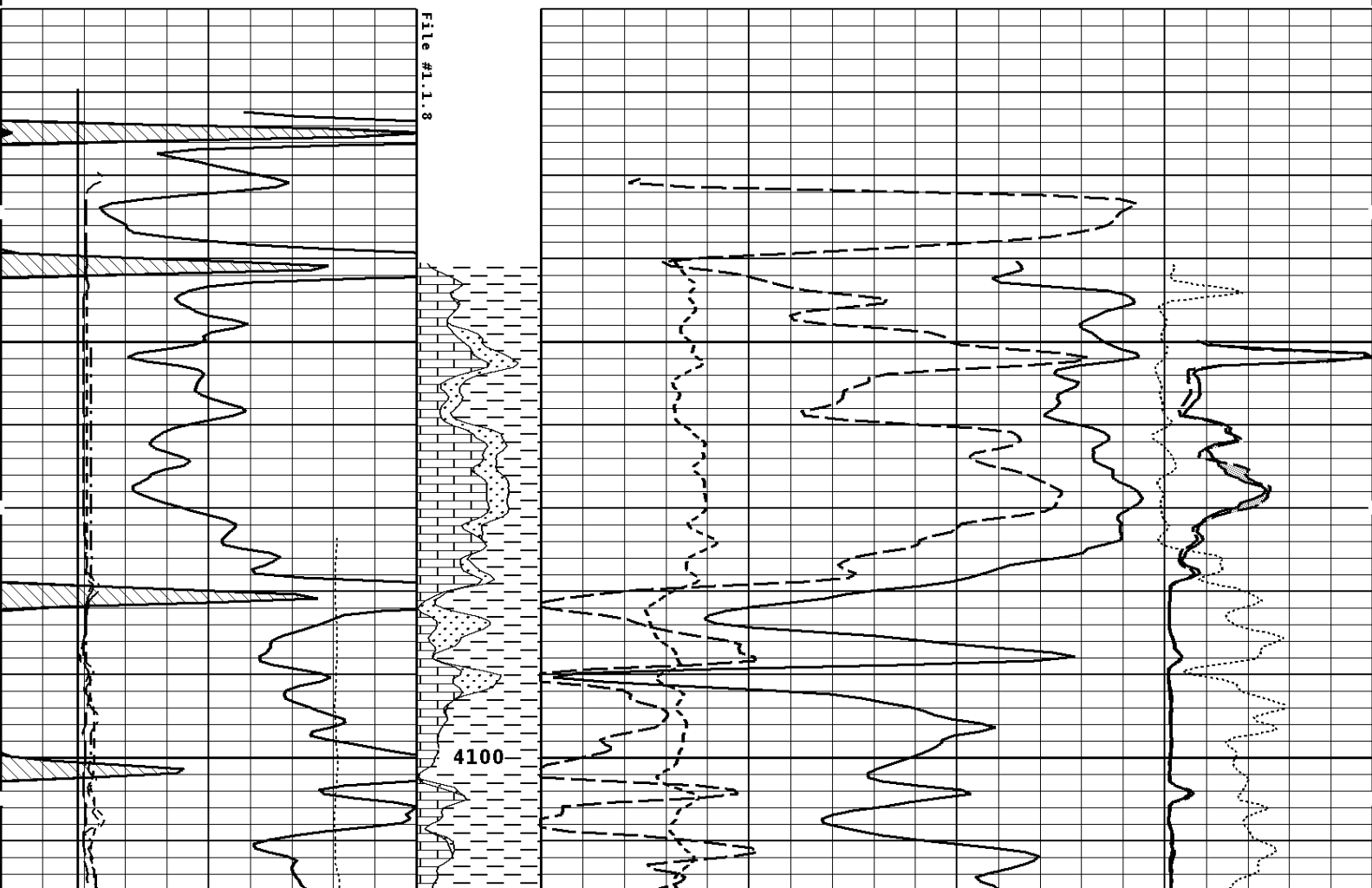
GAMMA RAY API UNITS		Volume Dolo/Shale	NEUTRON POROSITY (LIMESTONE) PERCENT	
150	300		30	-10
0	150			
TENSION LBS		Volume Calcite	DENSITY POROSITY (2.71g/cc) PERCENT	
10000	0		70	30
			30	-10
			-10	-50
DENSITY (X) CALIPER INCHES (IN)		Volume Quartz	PE CROSS-SECTION BARNs/ELECTRON	DENSITY CORRECTION G/CC
16	26		0	-0.25
6	16		10	0.25
NEUTRON (Y) CALIPER INCHES (IN)				INVERSE OHMM
16	26			0
6	16			40
BIT SIZE INCHES (IN)				NORMAL OHMM
6	16			0
				40
CALIPER MICRO INCHES (IN)				
16	26			
6	16			

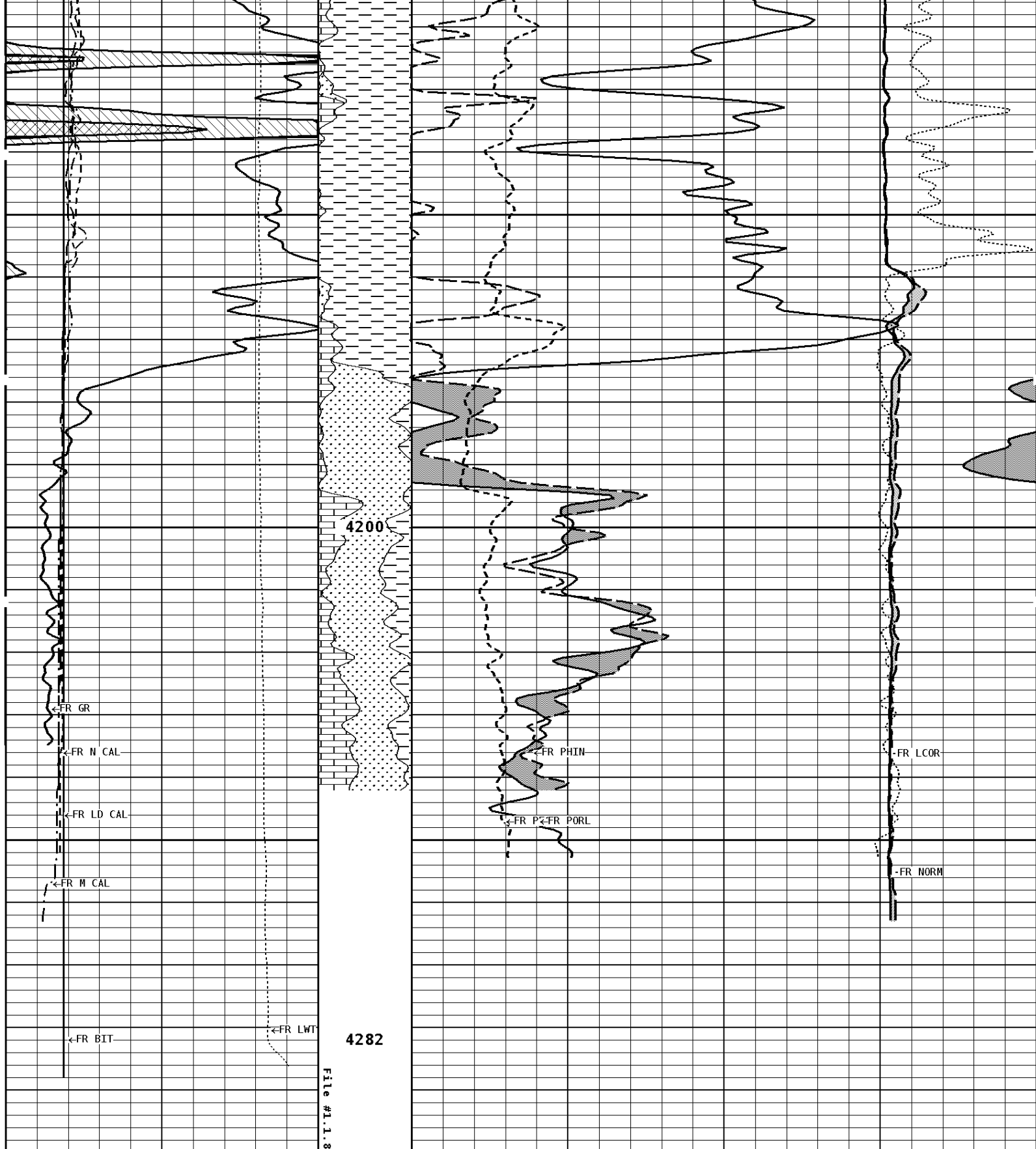
* Borehole Zone Factors *

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	7.875	in
Casing Diameter	5.500	in
Casing Thickness	0.250	in
Casing Correction (PHI N)	Disable	

CALIPER MICRO INCHES (IN)					
16	26				
6	16				
BIT SIZE INCHES (IN)					
6	16				
NEUTRON (Y) CALIPER INCHES (IN)					
16	26				
6	16				
DENSITY (X) CALIPER INCHES (IN)		Volume Quartz	PE CROSS-SECTION BARNS/ELECTRON	DENSITY CORRECTION G/CC	
16	26				
6	16		0	10	-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		
150	300				
0	150		30	-10	

1:240 REPEAT SECTION





1:240 REPEAT SECTION

GAMMA RAY API UNITS 150 0 300 150	Volume DoLo/Shale 30	NEUTRON POROSITY (LIMESTONE) PERCENT -10
TENSION LBS	Volume Calcite	DENSITY POROSITY (2.71g/cc) PERCENT

*** 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

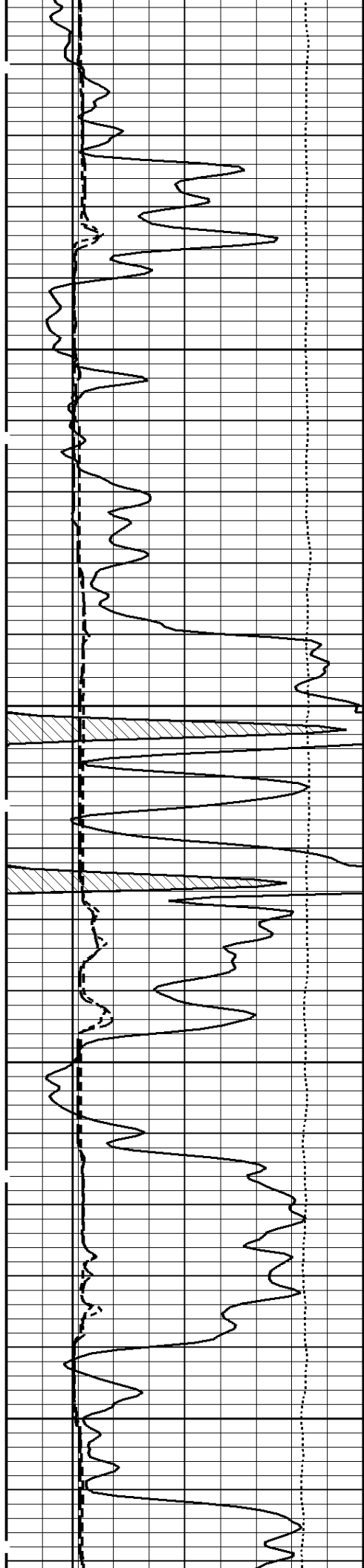
Drill Bit Size_____ 7.875 in

Casing Diameter_____ 5.500 in

Casing Thickness_____ 0.250 in

Casing Correction (PHI N)_____ Disable

BIT SIZE INCHES (IN)				
6	16			
NEUTRON (Y) CALIPER INCHES (IN)				
16 6	26 16			
DENSITY (X) CALIPER INCHES (IN)			PE CROSS-SECTION BARNs/ELECTRON	DENSITY CORRECTION G/CC
16 6	26 16		010	-0.250.25
TENSION LBS			COMPENSATED BULK DENSITY G/CC	
10000	0		3.0 2.0 1.0	4.0 3.0 2.0
GAMMA RAY API UNITS		-BNV AHV- CU. FT	DENSITY POROSITY (2.71g/cc) PERCENT	
150 0	300 150		7030-10-50	

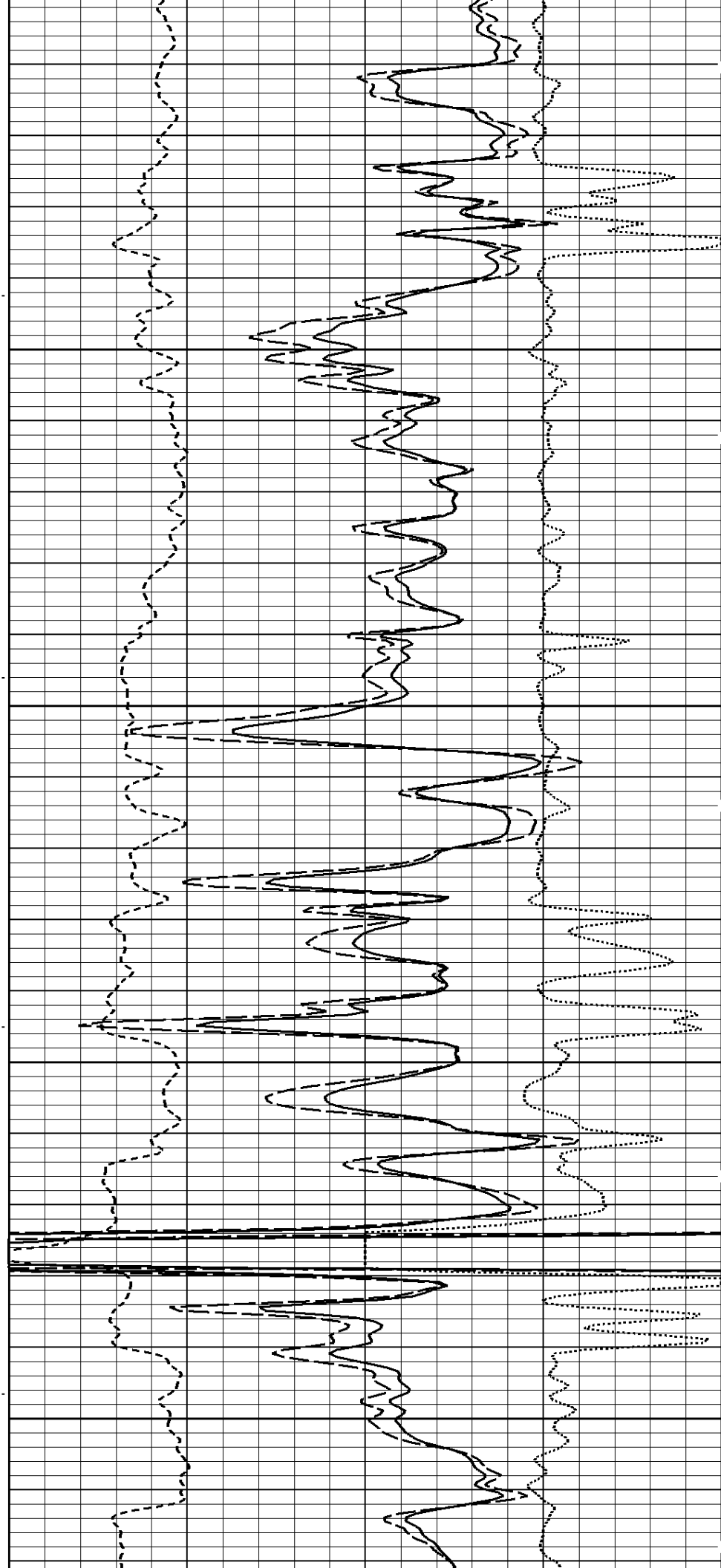


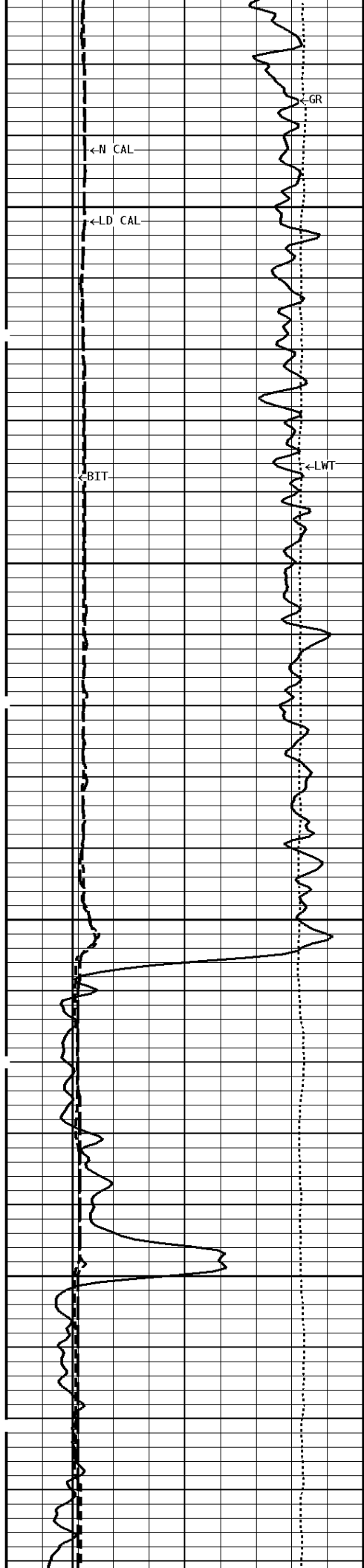
3100

--400Cu.Ft--

200Cu.Ft--

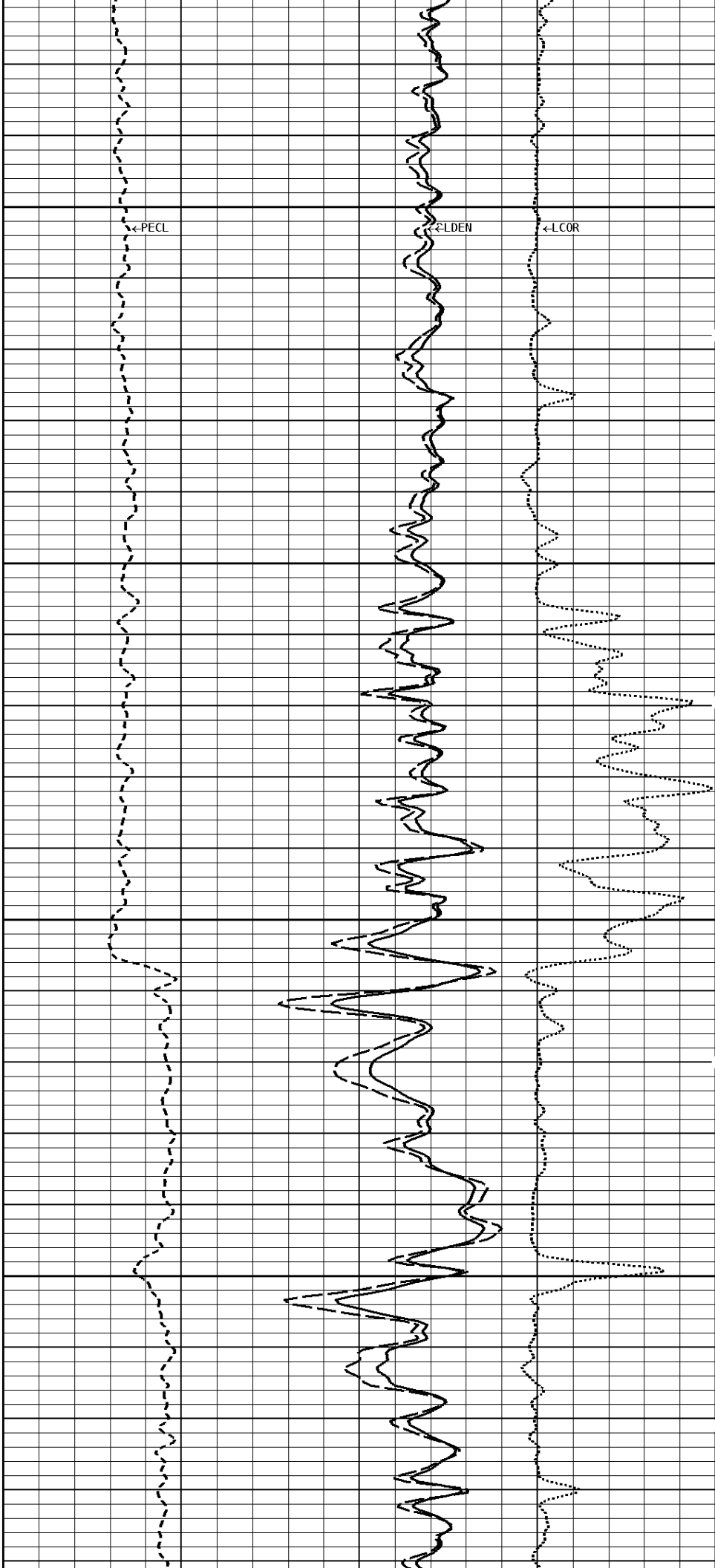
3200

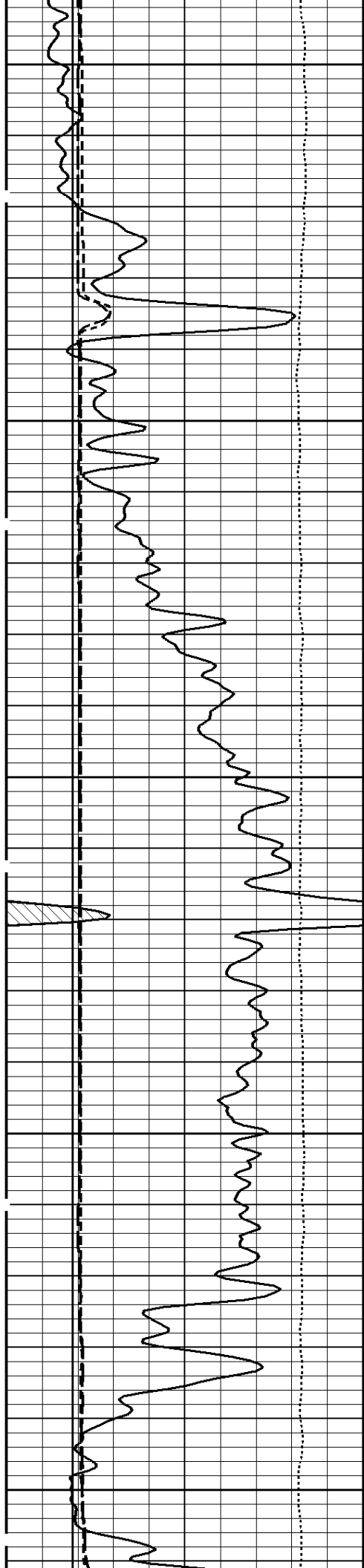




3300

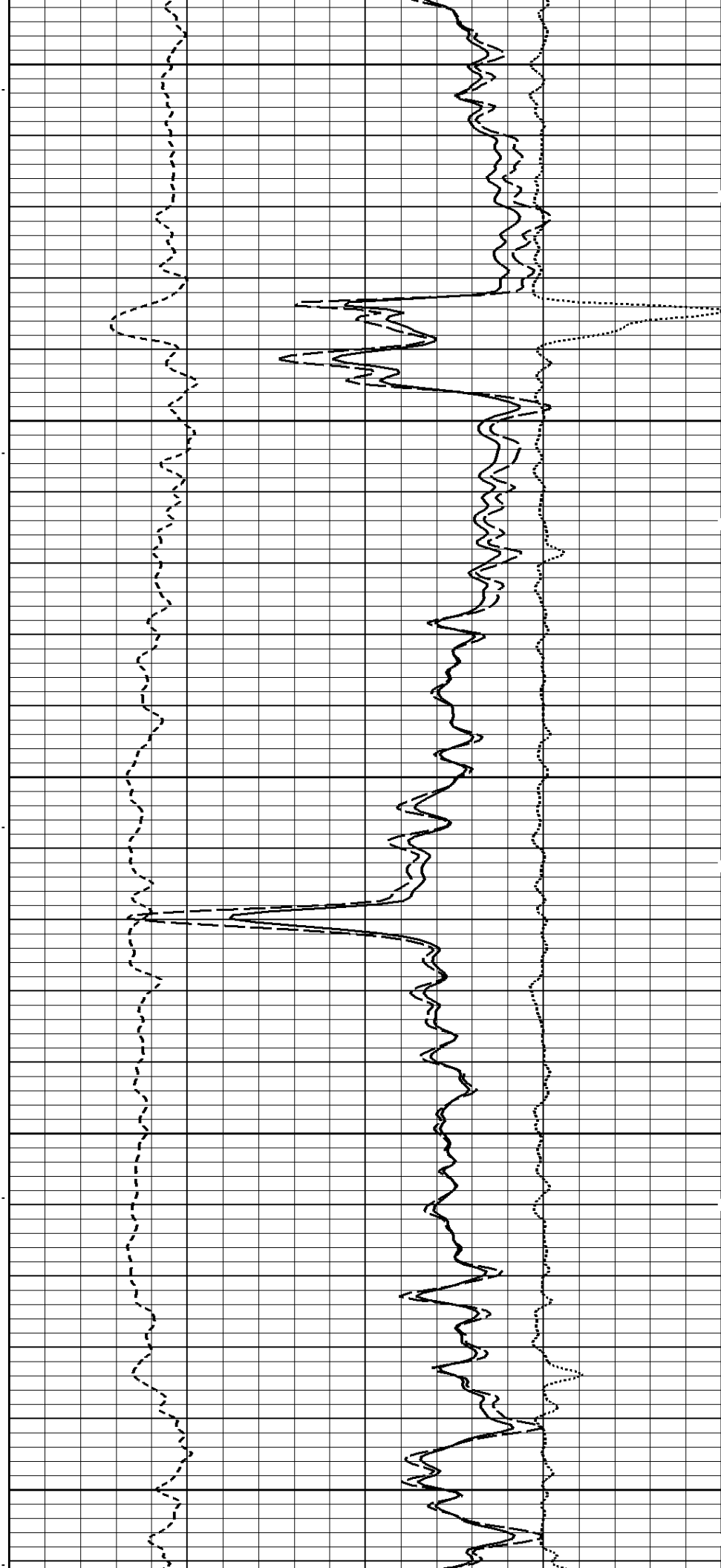
--300Cu.Ft.
3400

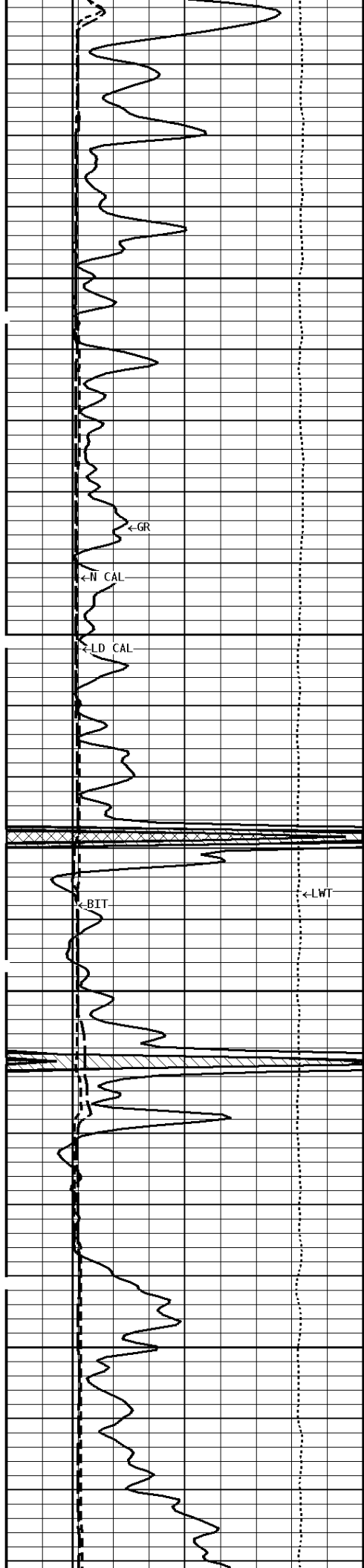




3500

3600



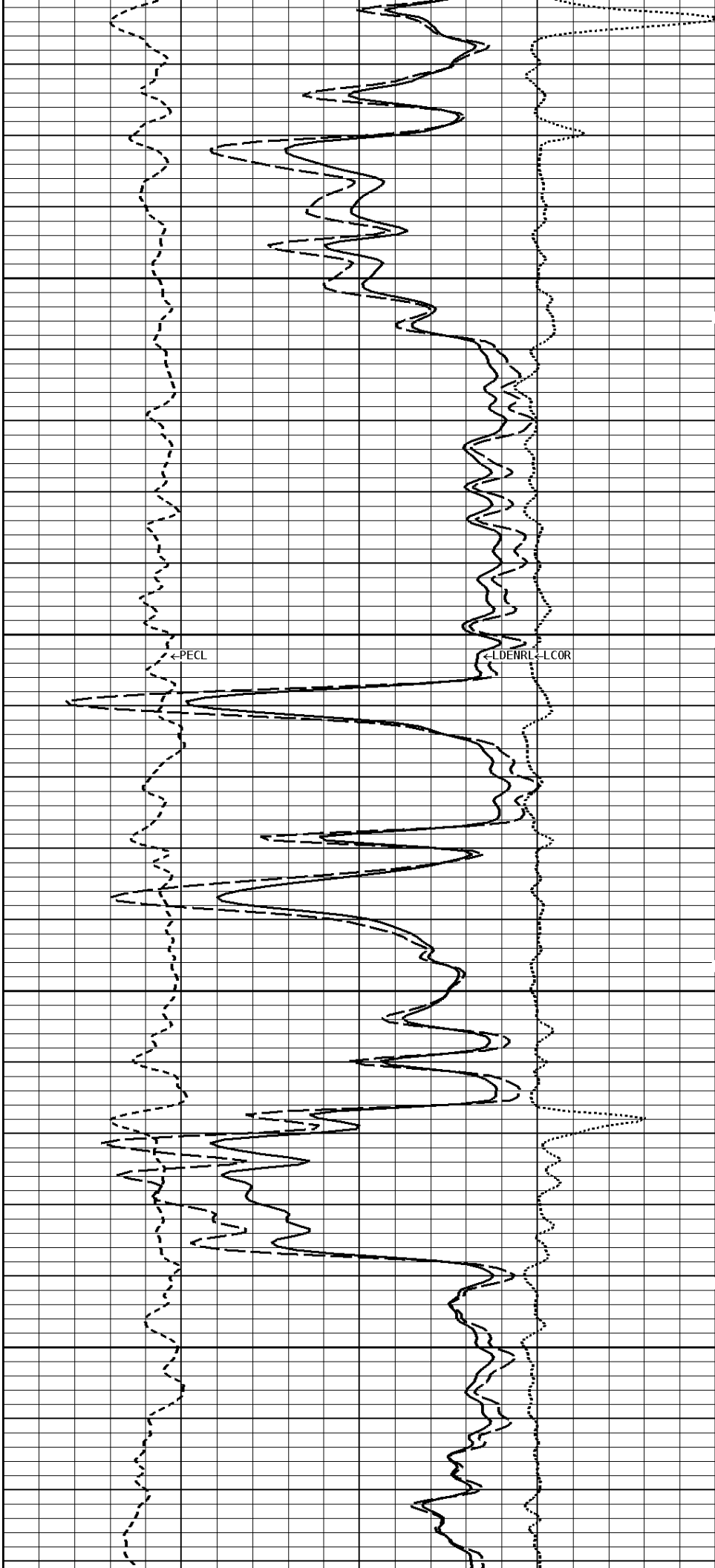


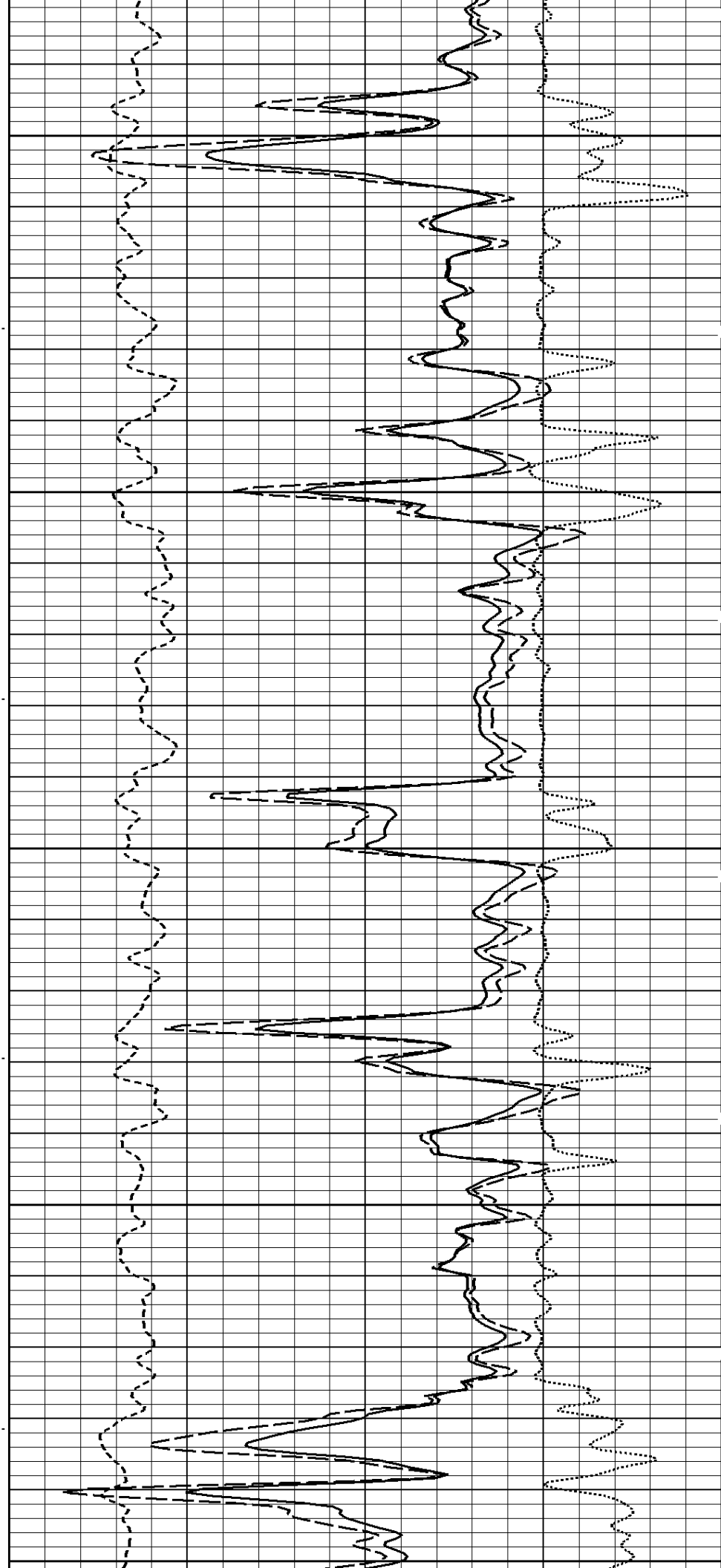
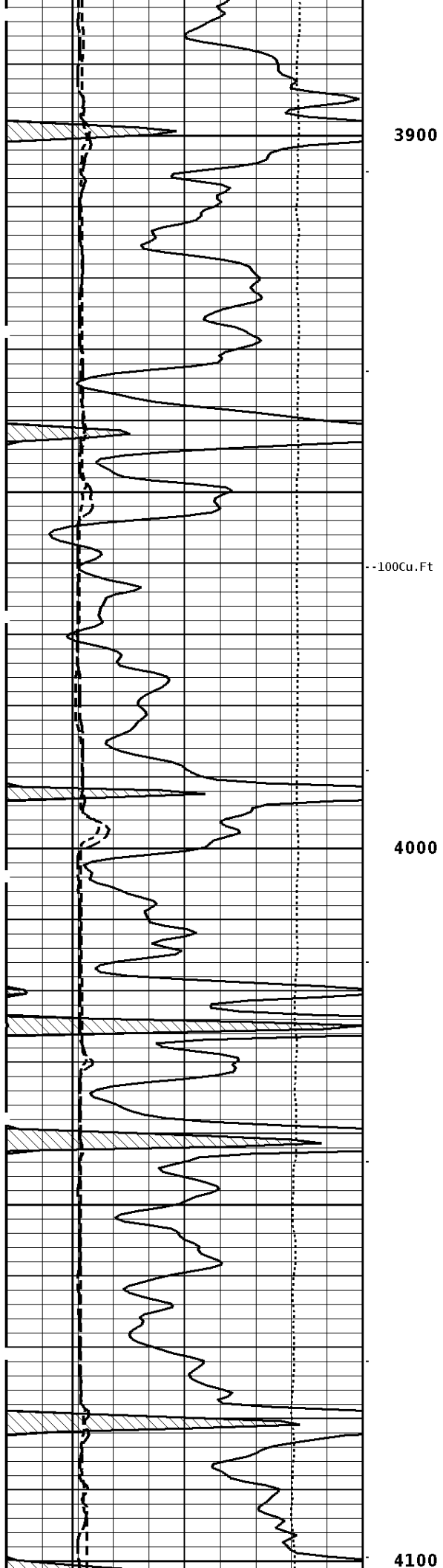
--200Cu.Ft

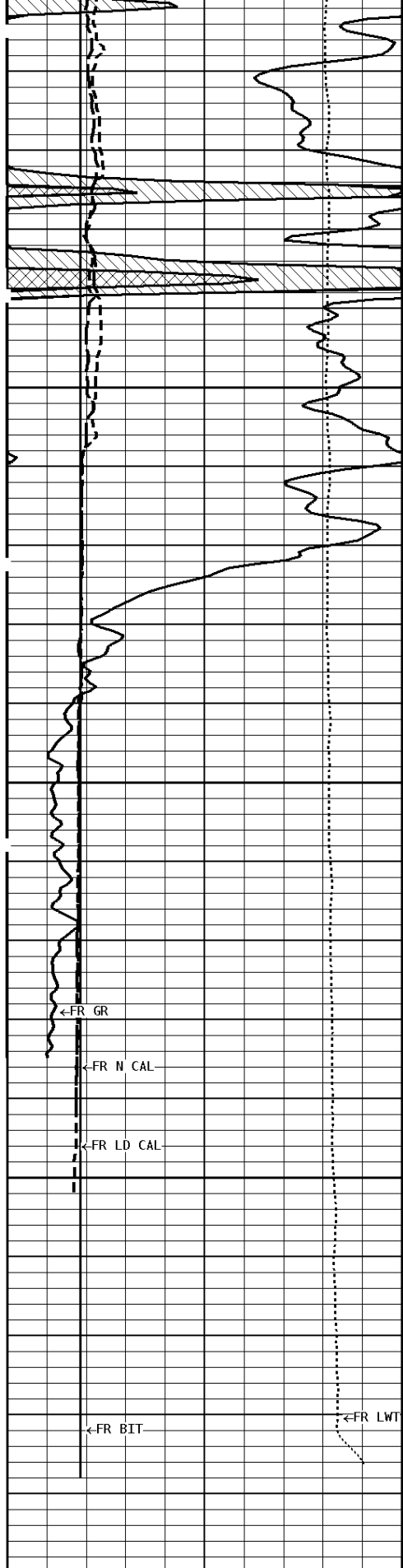
3700

100Cu.Ft--

3800



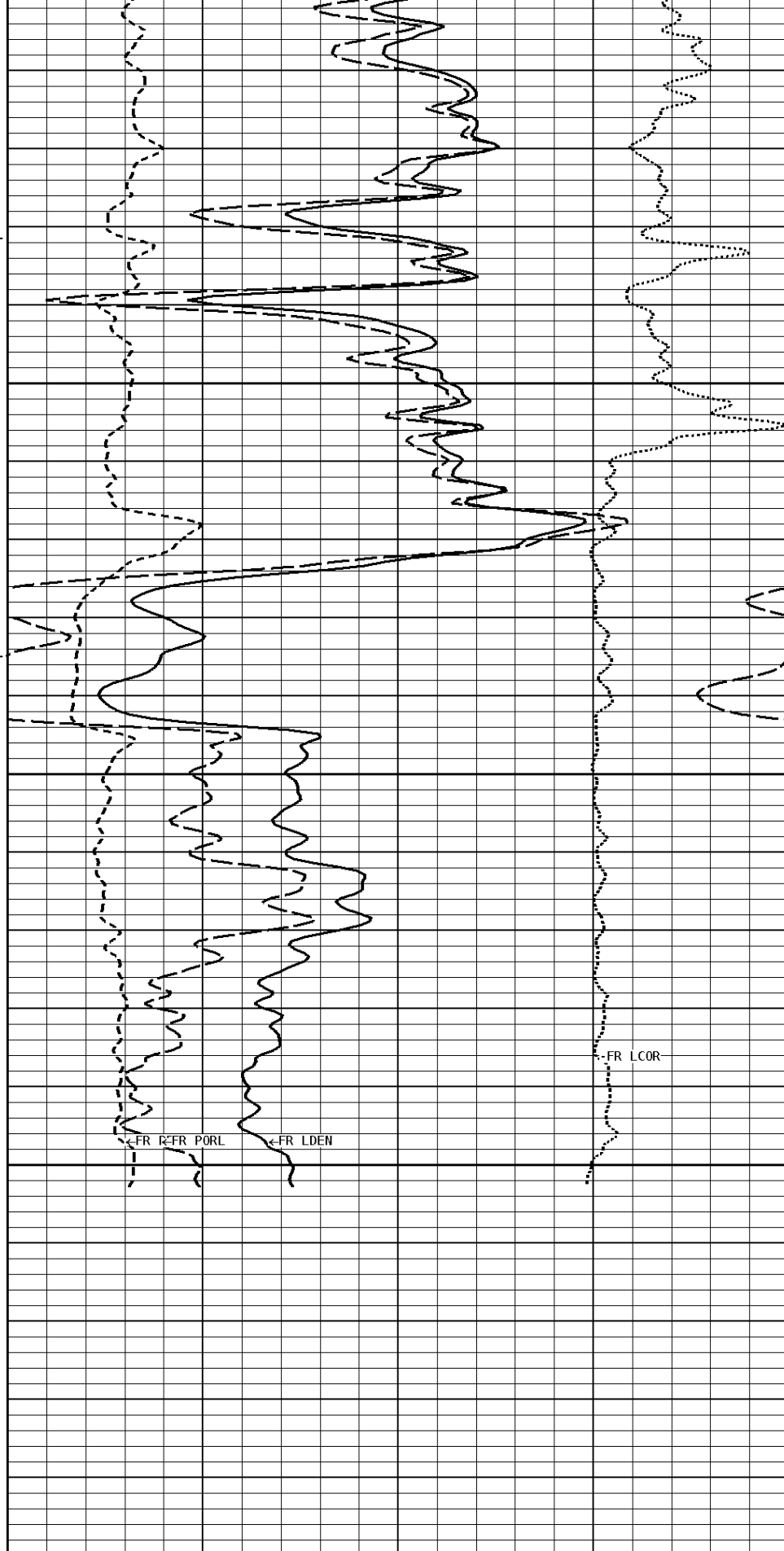




4200

4282

1:240 MAIN SECTION BULK DENSITY



GAMMA RAY
API UNITS

-BNV ANV-
CAL ET

DENSITY POROSITY (2.71g/cc)
PERCENT

API UNITS		PERCENT	
150 0	300 150	70 30	30 -10
		-10	-50
TENSION LBS		COMPENSATED BULK DENSITY G/CC	
10000	0	3.0 2.0	4.0 3.0
		1.0	2.0
DENSITY (X) CALIPER INCHES (IN)		PE CROSS-SECTION BARNs/ELECTRON	DENSITY CORRECTION G/CC
16 6	26 16	010	-0.250.25
NEUTRON (Y) CALIPER INCHES (IN)			
16 6	26 16		
BIT SIZE INCHES (IN)			
6	16		

*** 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	_____	7.875	in
Casing Diameter	_____	5.500	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	
	Background Jig		Jig		
GR	75 381	CPS	175	GRAPI	
Shop Calibration CNT-AA					
Performed : 04-AUG-2014			Time : 11:39		
Sensor Suite : CALI-BCN			ID : NDT-BD-133		
	Jig - Measured		Jig - Calibrated	Units	
	Ring#1 Ring#2		Ring#1 Ring#2		
CL # 1	9.3 13.8		6.0 12.0	IN.	
Performed : 04-Aug-2014			Time : 11:49		
Sensor Suite : BHC NEUT			ID : CNP-AA-116-		
Source ID : N-1045					
	Tank		Verification	Units	
	Measured	Calibrated	Jig		
N/F	3.8438	3.6893	3.6954		
Porosity	22.9	20.5	20.6	%	
Shop Calibration LDT-DF					
Performed : 04-AUG-2014			Time : 09:37		
Sensor Suite : CALI-LTH			ID : PDT-GA-464		
	Jig - Measured		Jig - Calibrated	Units	
	Ring#1 Ring#2		Ring#1 Ring#2		
CL # 1	7.8 11.2		6.0 12.0	IN.	
Performed : 04-Aug-2014			Time : 09:57		
Sensor Suite : BHCPELNG			ID : LDP-DA-067		
Source ID : 2991GW					
Short Space					

	BKGD	Al	Mg	Al+Fe	Units
LSW1	63	1046	1691	691	CPS
LSW2	68	1207	1925	882	CPS
LSW3	241	2775	4479	2374	CPS
LSW4	294	2582	3786	2296	CPS
LSW5	44	74	79	70	CPS
LSW6	59	66	66	66	CPS
LSW7	47	50	51	51	CPS
LSW8	11	14	16	14	CPS
QS	0.122	0.139	0.125	0.133	
PES			2.778	5.967	
SSDN		2.600	1.680		G/CC

Long Space

	BKGD	Al	Mg	Al+Fe	Units
LLW1	89	1212	5025	742	CPS
LLW2	101	2059	8176	1531	CPS
LLW3	376	3788	14527	3290	CPS
LLW4	484	1807	5811	1640	CPS
LLW5	52	62	111	61	CPS
LLW6	160	157	149	159	CPS
LLW7	103	98	95	99	CPS
LLW8	3	5	15	5	CPS
QL	0.216	0.229	0.222	0.233	
PEL			2.697	5.458	
LSDN		2.600	1.680		G/CC

**Shop Calibration
MST-DA**

Performed : 12-May-2014 Time : 11:19
Sensor Suite : CALI-MSN ID : MST-DA-057

	Jig - Measured	Jig - Calibrated	Units
	Ring#1 Ring#2	Ring#1 Ring#2	
CL # 1	7.1 11.4	6.0 12.0	IN.

Performed : 12-May-2014 Time : 11:13
Sensor Suite : MSTDA-NI ID : MST-DA-057

	Measured			Calibrated		
	Zero	Reference	Units	Zero	Reference	Units
INV-V	288.8	30429.7		0.00	1536.00	MV
NOR-V	165.4	30363.3		0.00	1636.00	MV
IN-C	163.6	30670.3		0.00	15.46	UA
INV-R					32.14	OHMM
NOR-R					58.31	OHMM

Performed : 12-May-2014 Time : 11:15
Sensor Suite : MSTDAMSF ID : MST-DA-057

	Measured			Calibrated		
	Zero	Reference	Units	Zero	Reference	Units
MSFC	20.2	42595.3		0.00	1522.00	UA
MSFB	32762.1	52824.9		0.00	1522.00	MA
MOM1	0.0	42313.5		0.00	1522.00	MV
MSFRA					43.30	OHMM



Company: MTM PETROLEUM INC.
Well: HUFFORD #1-23
Location: 2310' FSL & 330' FEL
Logged: 2014-08-19
K.B. Elev: 1488.0 Ft