

Tucker
ENERGY SERVICES

COMPENSATED NEUTRON
PEL DENSITY MICRO LOG

Company: CHIEFTAIN OIL CO., INC
Well: BLEVINS A SWD #1
Field: MAYBERRY
County: BARBER
State: KANSAS
Country: USA
API No.: 15-007-24177-0000

File No.: TUL-59635
Company: CHIEFTAIN OIL CO., INC
Well: BLEVINS A SWD #1
Field: MAYBERRY
County: BARBER
State: KANSAS
Country: USA
API No.: 15-007-24177-0000

Location:
1970' FSL & 450' FWL
NE SW NW SW

LSD: Sect: 25 Twp: 34S Rge: 11W

Permanent Datum: GL Elevations:
Drilling Measured From: KB KB 1367.00 Ft
Log Measured From: KB DF 1366.00 Ft
Above Permanent Datum: 1200 Ft GL 1355.00 Ft

Services:
CNT
LDT
MLT
PIT

Date	06-29-2014	
Run Number	1	
Depth--Driller	5451.0	Ft
Depth--Logger	5451.0	Ft
First Reading	5428.0	Ft
Last Reading	1029.0	Ft
Casing--Driller	1029.0	Ft
Casing--Logger	1029.0	Ft
Bit Size	7.875	In
Casing Size	8.625	In
Hole Fluid Type	CHEM-GEL	
Density	9.0	
Fluid Loss	10.5	
PH/Viscosity	9.5	53.0
Sample Source	MEASURED	
RM@Measured Temp.	2.000	@ 75 F
RMF@Measured Temp	1.600	@ 75 F
RMG@Measured Temp.	2.400	@ 75 F
Source RMF/RMG	CALCULATED/CALCULATED	
RM@BHT	1.180	@ 132 F
Time Circulation Stopped	06-29-2014 12:00 pm	
Max Recorded Temp.	132	F
Equipment/Base	127	TULSA
Recorded By	SHELDON TYLER	
Witnessed By	DAVID BARKER	

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	5451.00	8.625	32.00	1029.00	0.00

Run Number	1	
Date	06-29-2014	
Date/Time On Bottom	06-29-2014 3:00 pm	
Depth to Fluid	0.0	Ft
Salinity	6800.000	
RMF@BHT	0.940	@ 132 F
RMC@BHT	1.420	@ 132 F

Run Number 1

Comments

ALL PRESENTATIONS AS PER CUSTOMER REQUEST
 GRT, CNT, LDT, 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

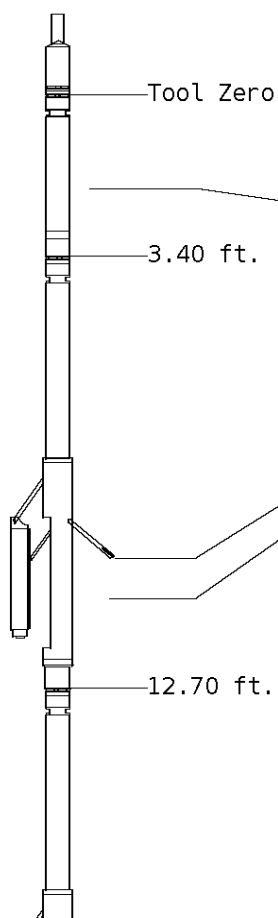
CUSTOMER REQUESTED DETAIL PULLED TO 3300'

GRT: GRP, GRX
 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

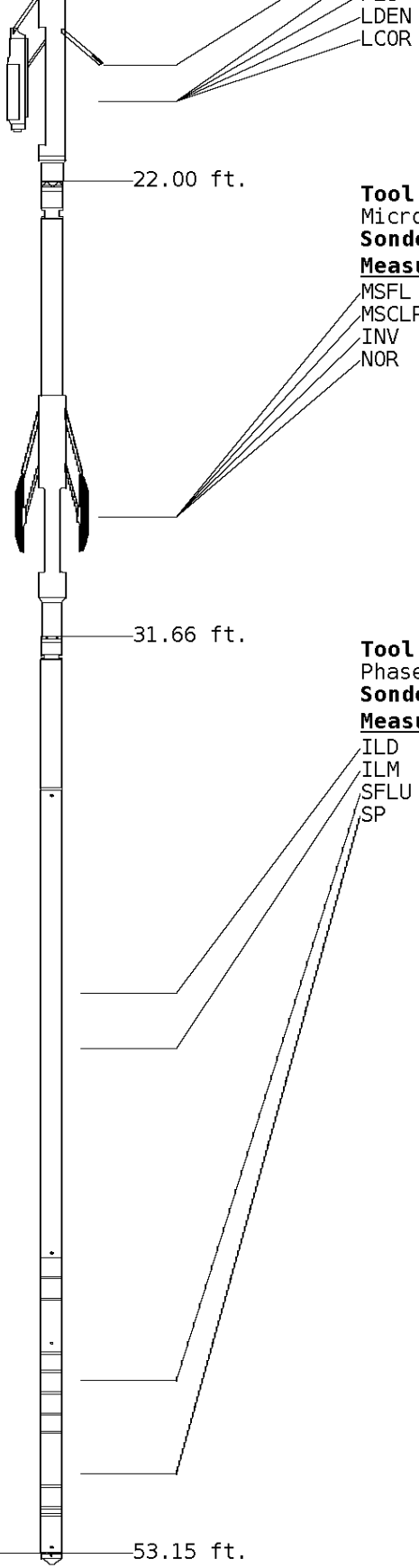
OPERATORS: +4
 J.JOHNSON
 A.DJAHO

Tool String Schematic

Total Tool Length - 53.15 ft.
Maximum Outside diameter - 6.00 in.
Net Weight in Air - 943.00 lbs.



Tool: GRT-B		Length:	3.40 ft.	O.D.	3.60 in.
Gamma Ray Controller					
Sonde ID		:GRT-BB-117			
Measure Point	Tool Offset	Stack Offset	Bottom Offset		
GRP	2.00	2.00	51.15		
Tool: CNT-AA		Length:	9.30 ft.	O.D.	4.36 in.
Compensated Neutron A Pad on NDT-A					
Sonde ID		:NDT-AC-027			
Source ID		:N-1044			
Pad ID		:CNP-AE-42			
Measure Point	Tool Offset	Stack Offset	Bottom Offset		
CLCN	6.00	9.40	43.75		
PHIN	6.80	10.20	42.95		
Tool: LDT-DA		Length:	9.30 ft.	O.D.	4.80 in.
Litho Density D Pad on NDT-A					
Sonde ID		:NDT-BB-129			
Source ID		:CSV-587			
Pad ID		:LDP-DA-50			
Measure Point	Tool Offset	Stack Offset	Bottom Offset		
CLLD	6.00	18.70	34.45		
PEL	7.00	19.70	33.45		
PES	7.40	20.10	33.05		



7.20	19.90	33.25
7.20	19.90	33.25

Tool: MST-DA **Length:** 9.66 ft. **O.D.** 6.00 in.
 Micro Spherically Focused (IC)
Sonde ID :MST-DA-25

Measure Point	Tool Offset	Stack Offset	Bottom Offset
MSFL	7.60	29.60	23.55
MSCLP	7.60	29.60	23.55
INV	7.60	29.60	23.55
NOR	7.60	29.60	23.55

Tool: PIT-CA **Length:** 21.49 ft. **O.D.** 3.62 in.
 Phased Dual Induction w/ RM & D
Sonde ID :PIT-CA-062

Measure Point	Tool Offset	Stack Offset	Bottom Offset
ILD	8.92	40.58	12.56
ILM	10.10	41.76	11.39
SFLU	17.49	49.15	4.00
SP	20.60	52.26	0.88

Well File: CHIEFTAIN OIL BLEVINS A SWD 1_JUNE29_MSTK	Scale: 1:240	Format: NLD-240
Segment: V1.D1.S5 Reprocess of MAIN	Acquired: 2014-06/29 18:59 3.5.0-12850	
Reference: 0	Processed: 2014-06/29 20:13 3.5.0-12850	

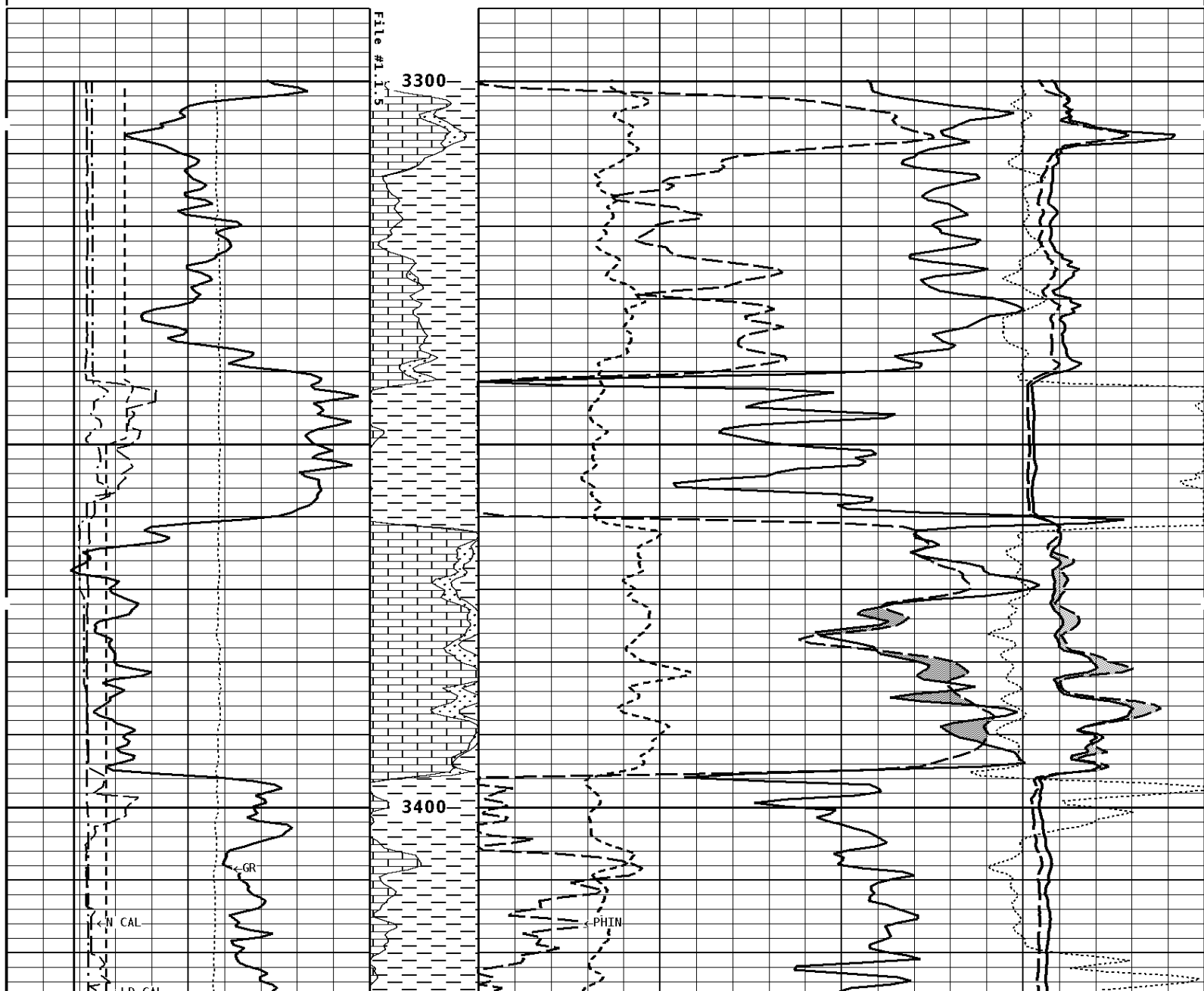
CALIPER MICRO INCHES (IN)	
16	26
6	16

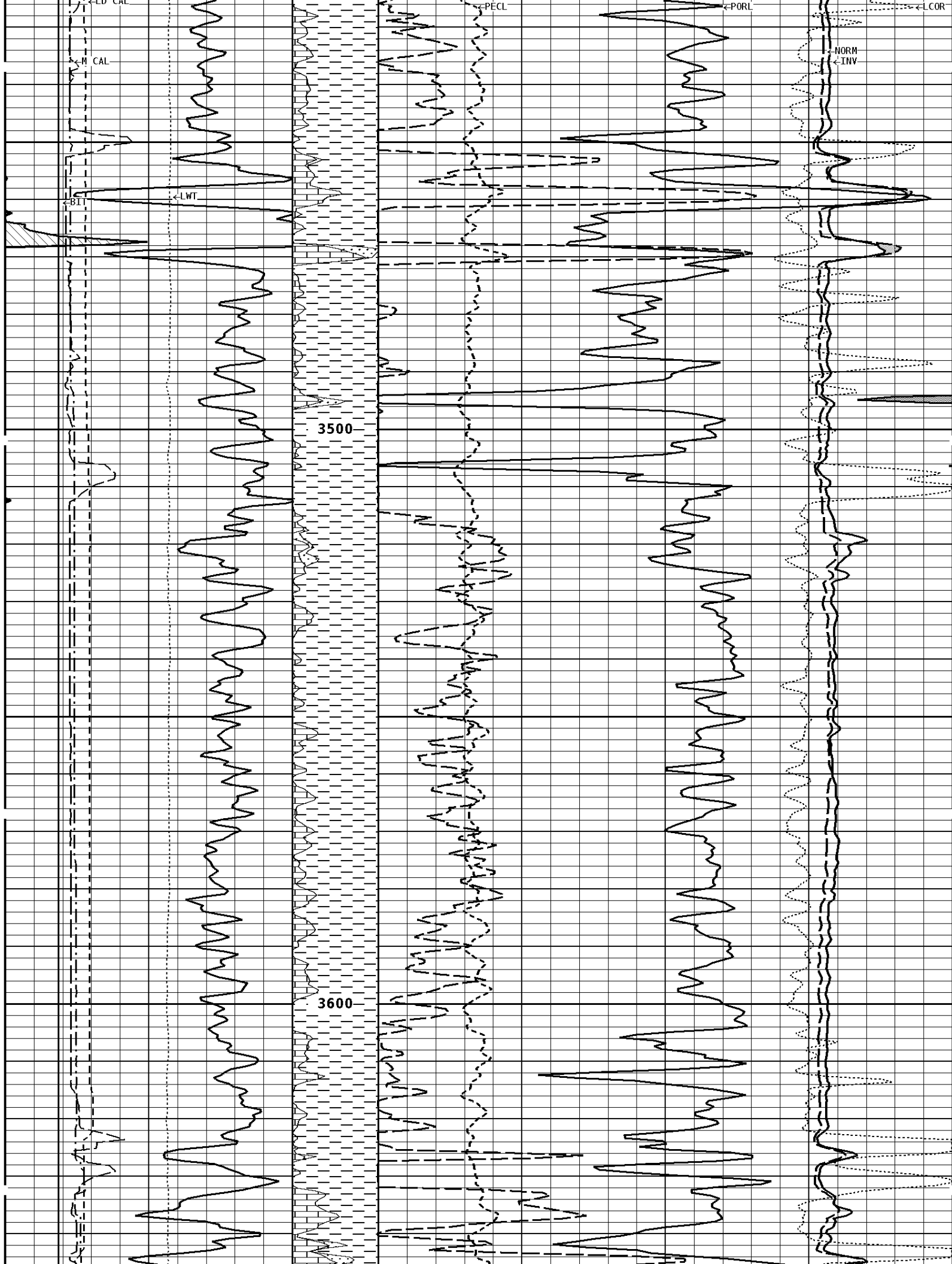
BIT SIZE INCHES (IN)

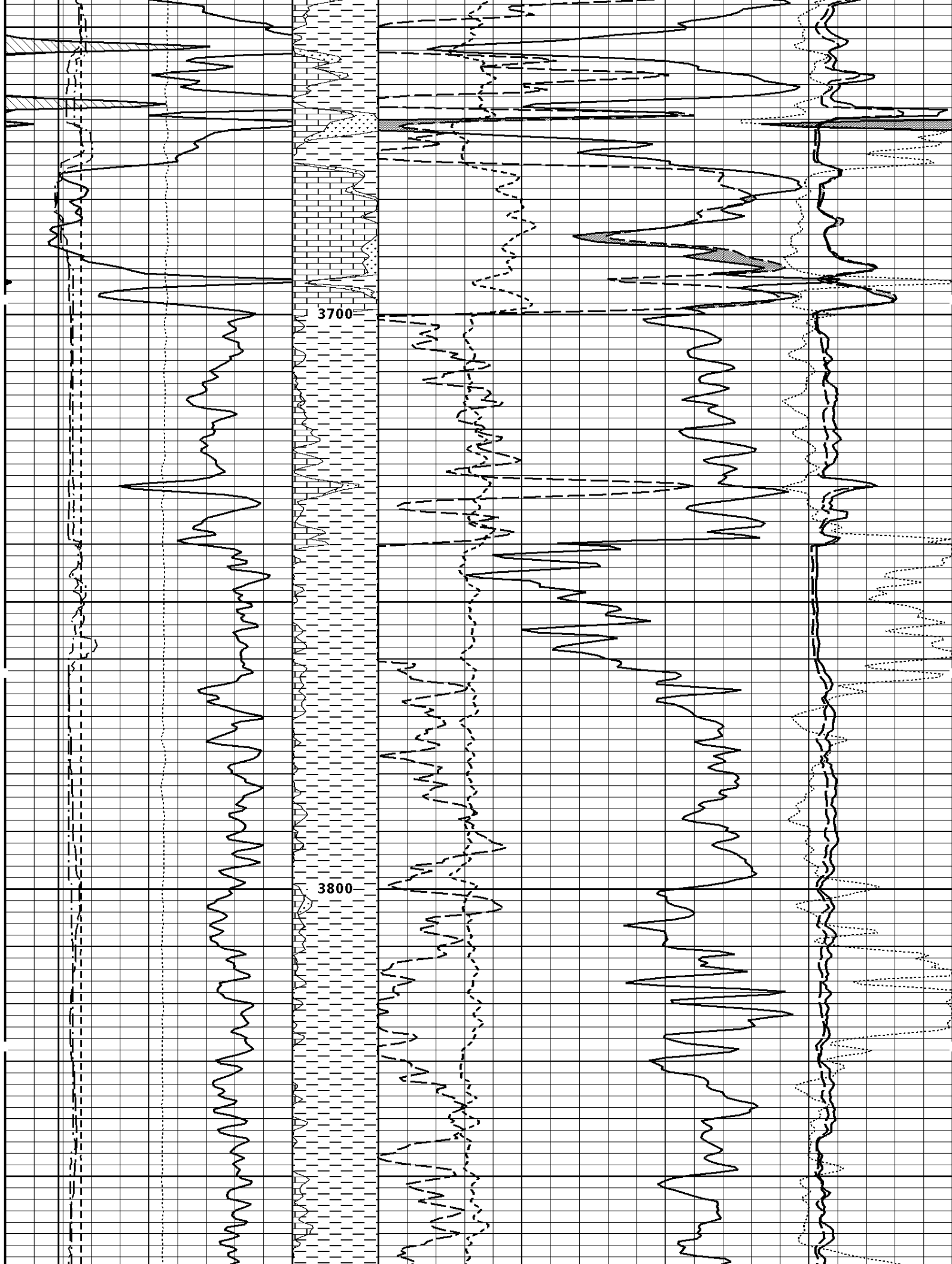
NORMAL OHMH

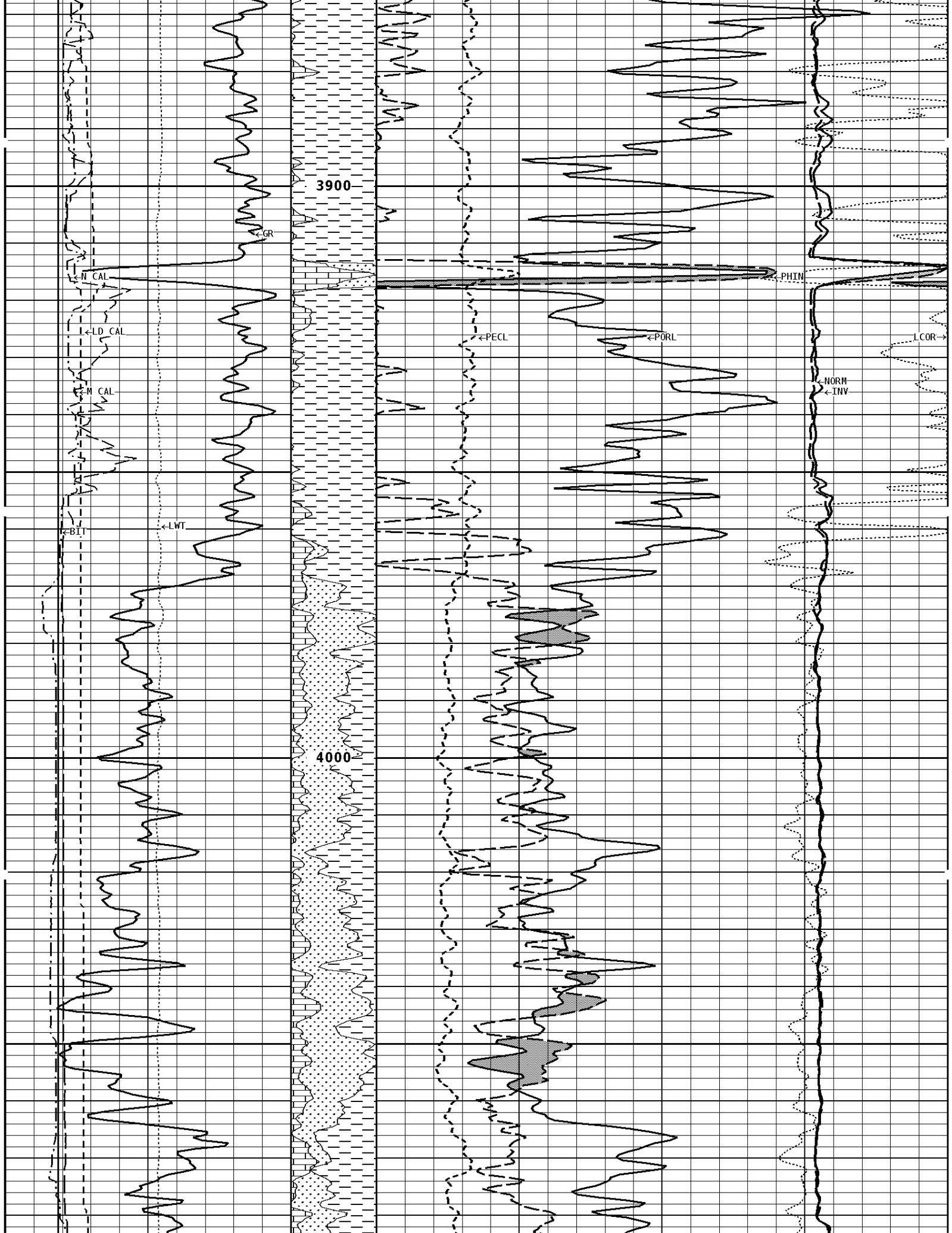
6	16			0	40
NEUTRON (Y) CALIPER INCHES (IN)				INVERSE OHM	
16	26			0	40
6	16				
DENSITY (X) CALIPER INCHES (IN)		Volume Quartz	PE CROSS-SECTION BARN/ELECTRON	DENSITY CORRECTION G/CC	
16	26				
6	16	0	10	-0.25	0.25
TENSION LBS		Volume Calcite	DENSITY POROSITY (2.71g/cc) PERCENT		
10000	0		70		30
		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

1:240 MAIN SECTION









3900

4000

N CAL

LD CAL

M CAL

B LT

LWT

CR

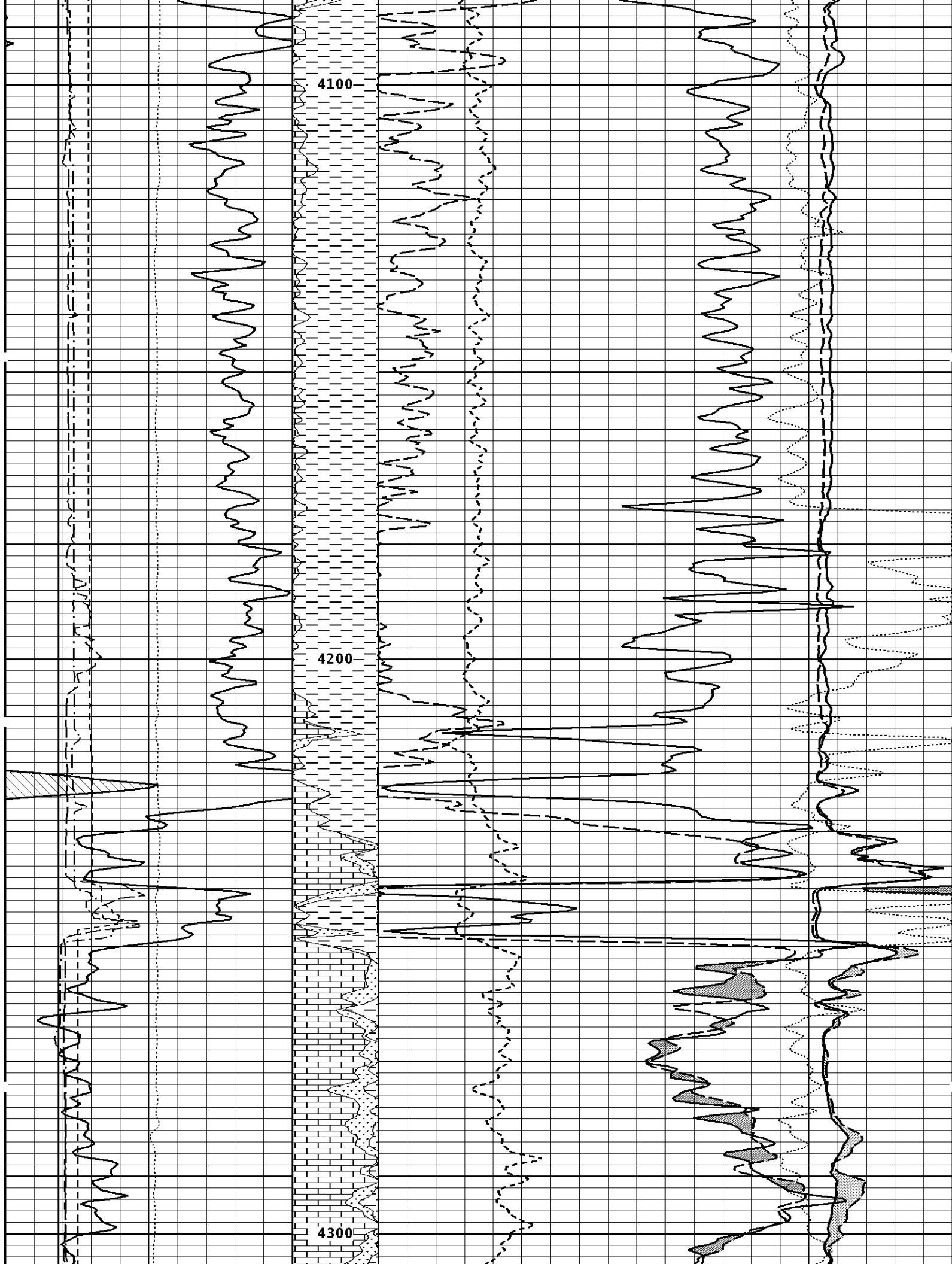
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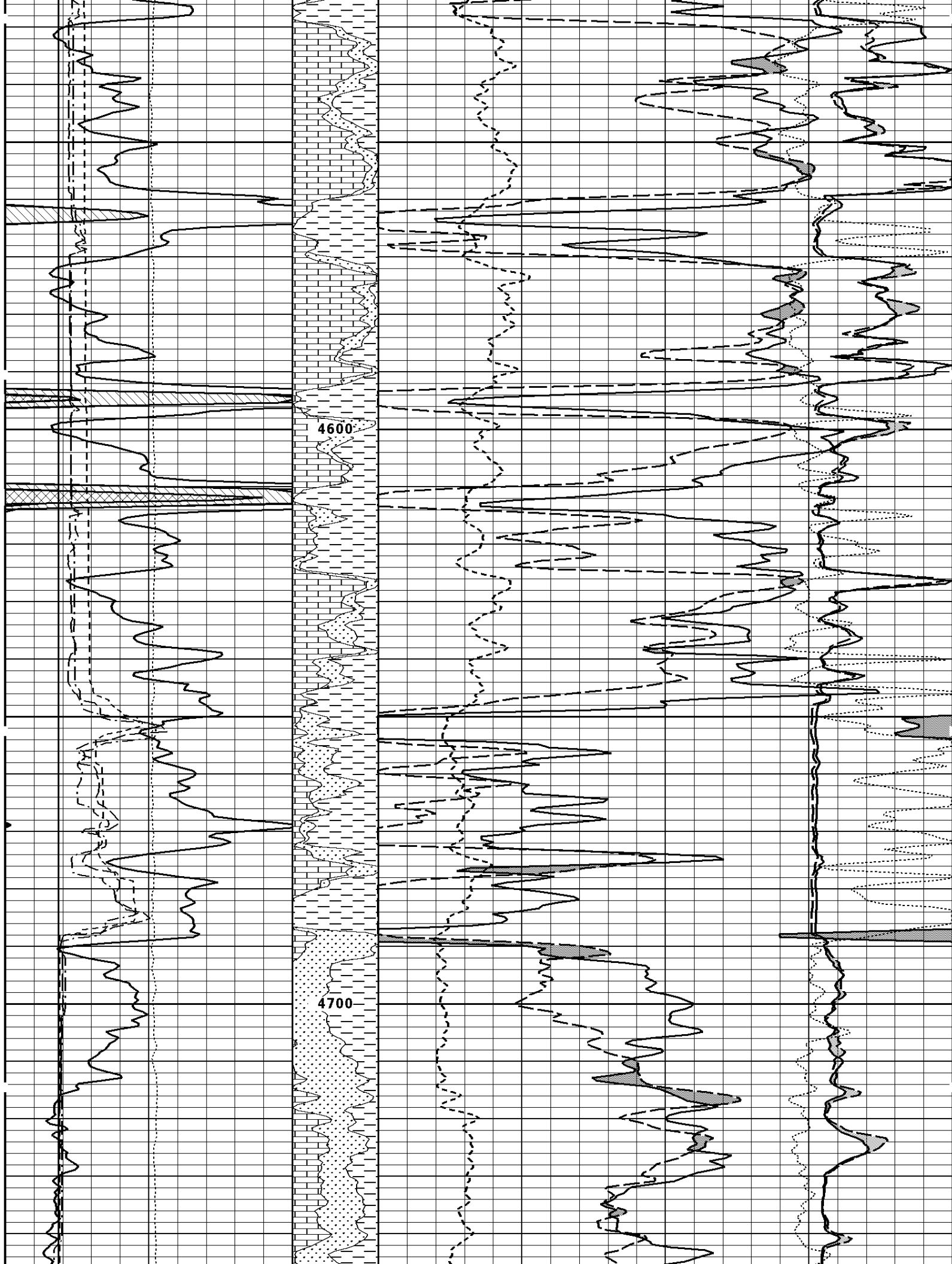
PORL

PHIN

NORM
INV

L COR







4800

4900

<N CAL

<LD CAL

<M CAL

<BIT

<GR

<LWT

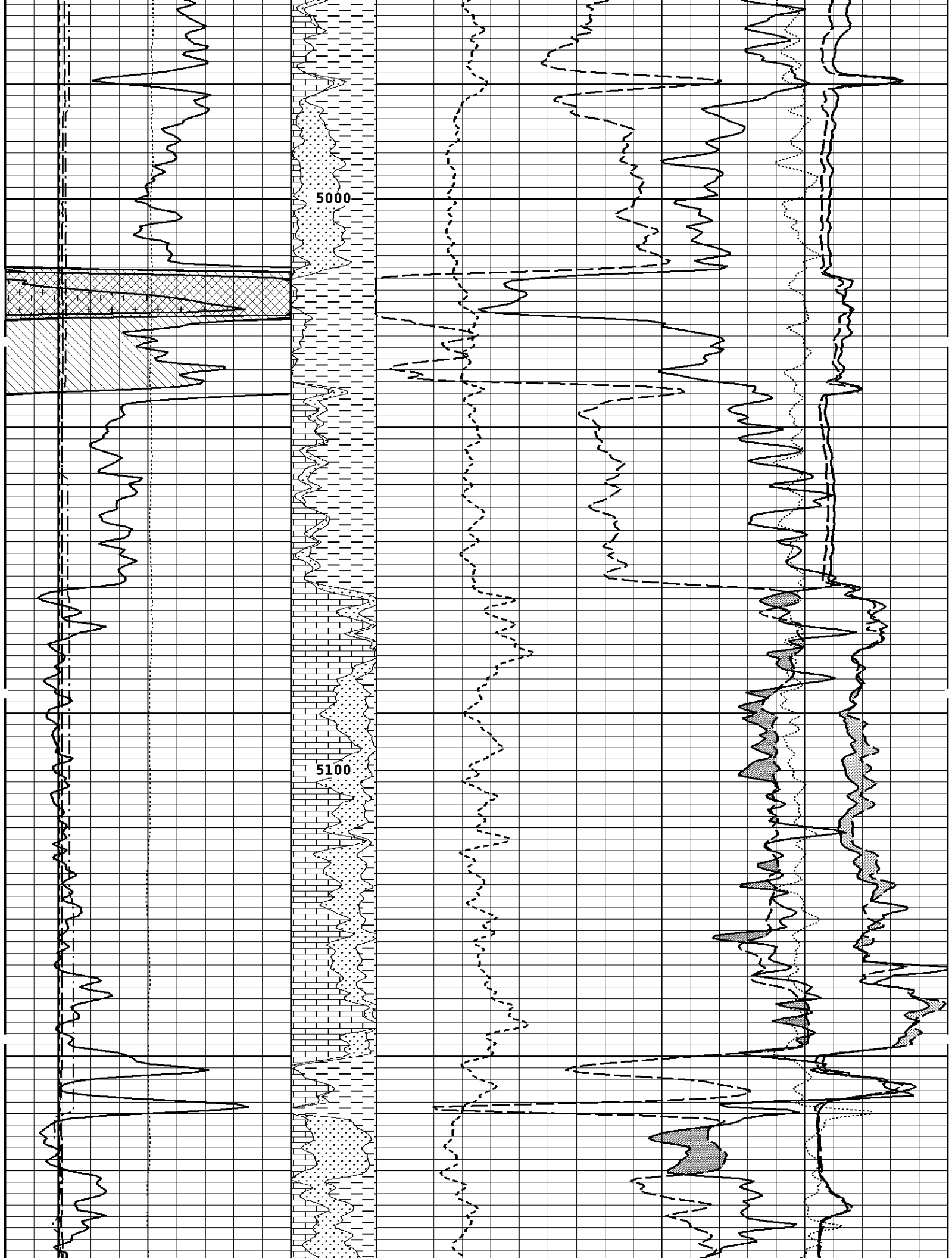
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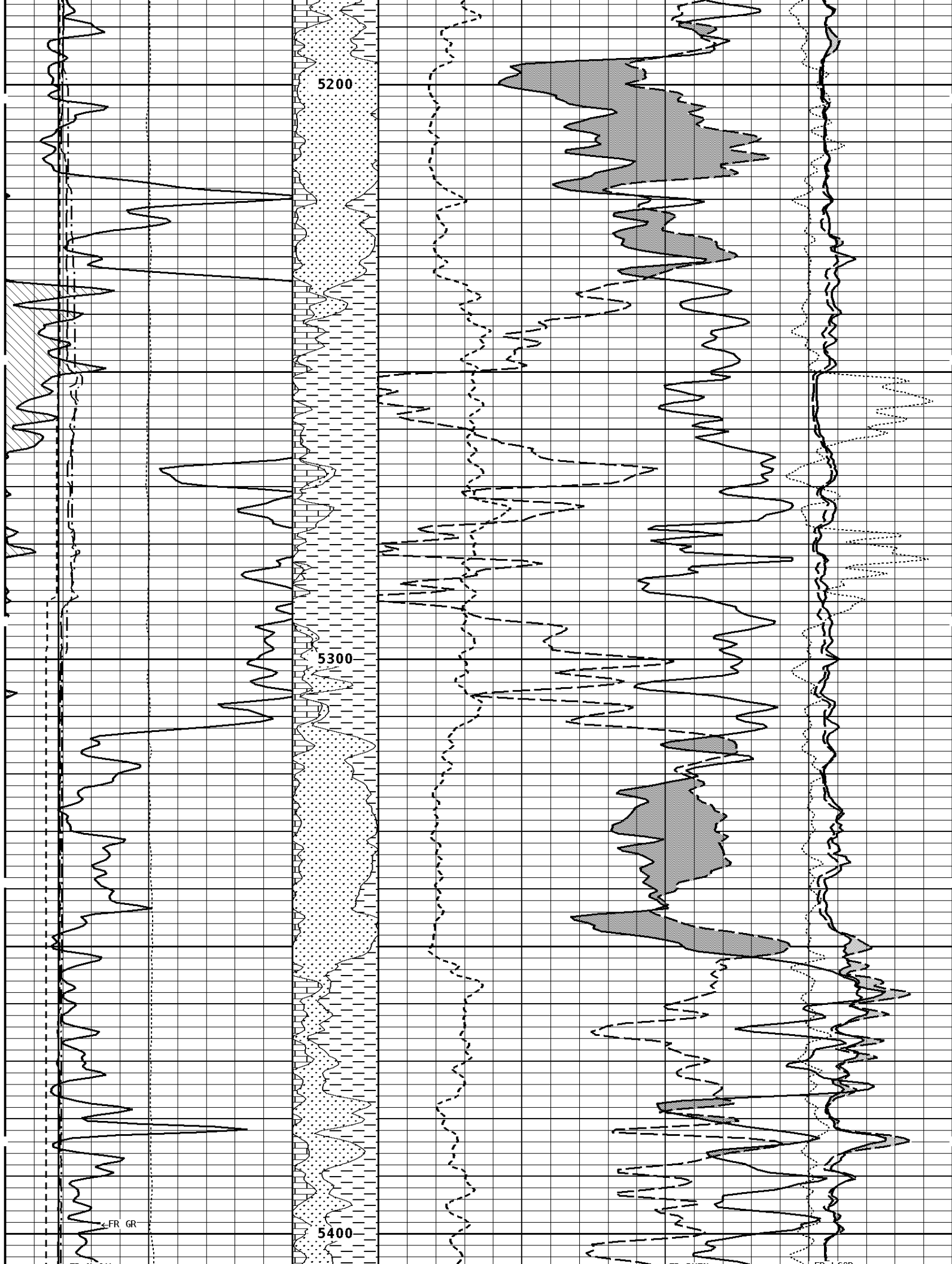
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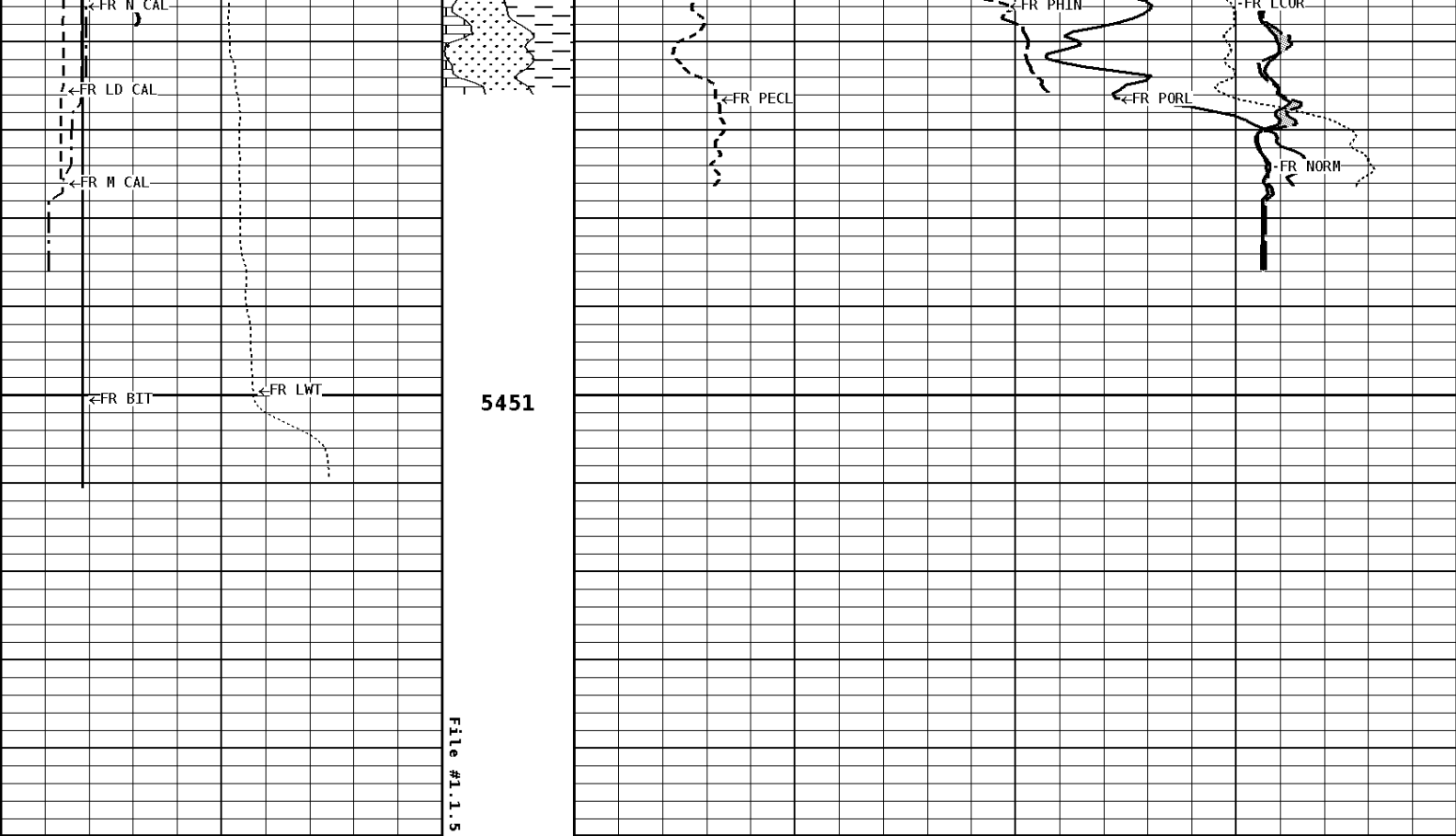
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<LCOR

<NORM
<INV







1:240 MAIN SECTION

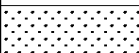
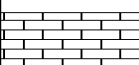
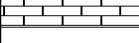
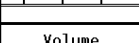
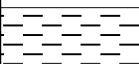
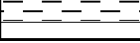
GAMMA RAY API UNITS 150 0 300 150		Volume Dolo/Shale 	NEUTRON POROSITY (LIMESTONE) PERCENT 30 -10	
TENSION LBS 10000 0		Volume Calcite 	DENSITY POROSITY (2.71g/cc) PERCENT 70 30 -10 30 -10 -50	
DENSITY (X) CALIPER INCHES (IN) 16 6 26 16		Volume Quartz 	PE CROSS-SECTION BARN/ELECTRON 10	DENSITY CORRECTION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

*** Borehole Zone Factors ***

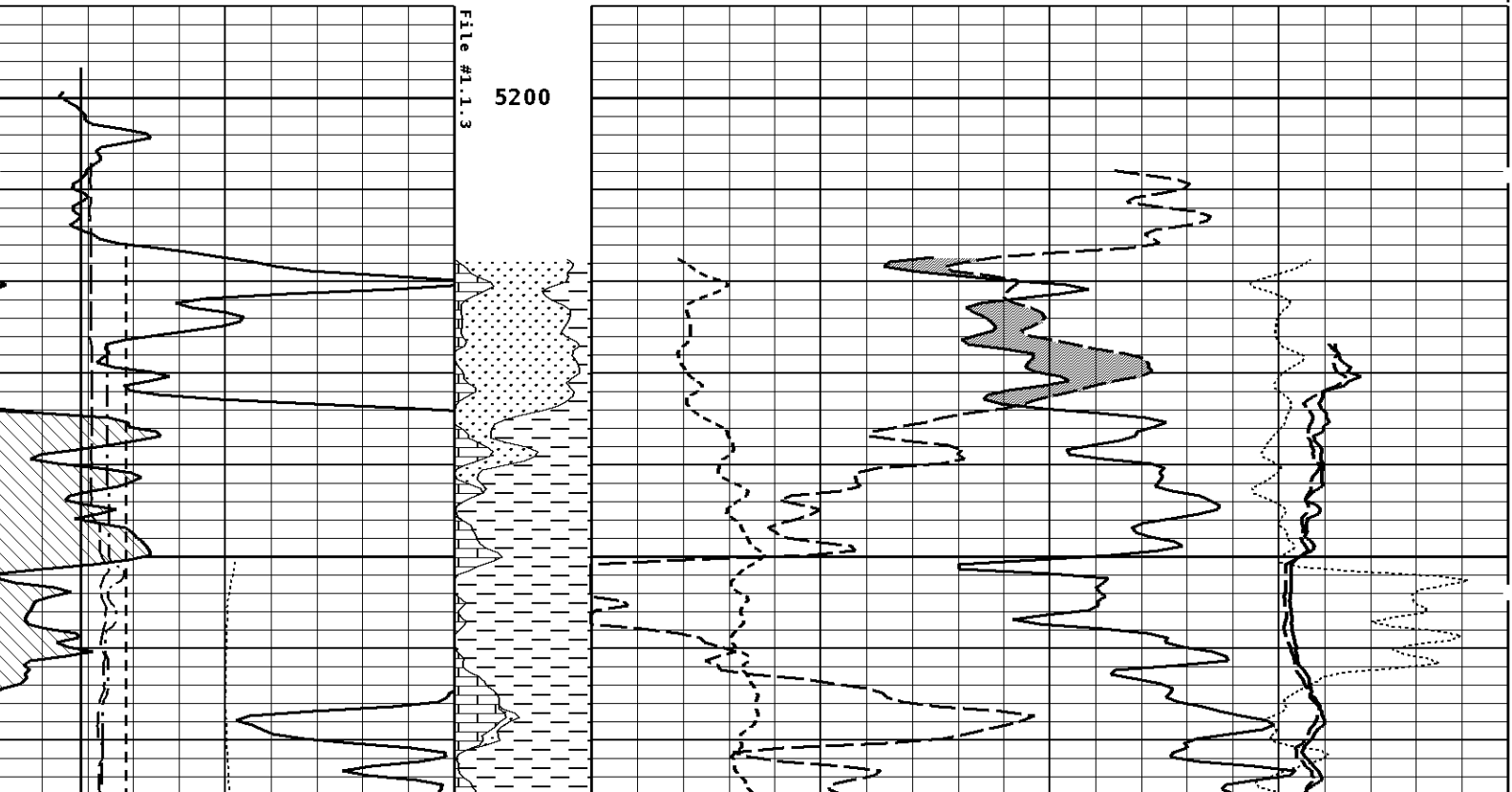
Zone 1 99999.0 to 0.0 Feet			
Matrix Density	_____	2.71	g/cc
Fluid Density	_____	1.00	g/cc

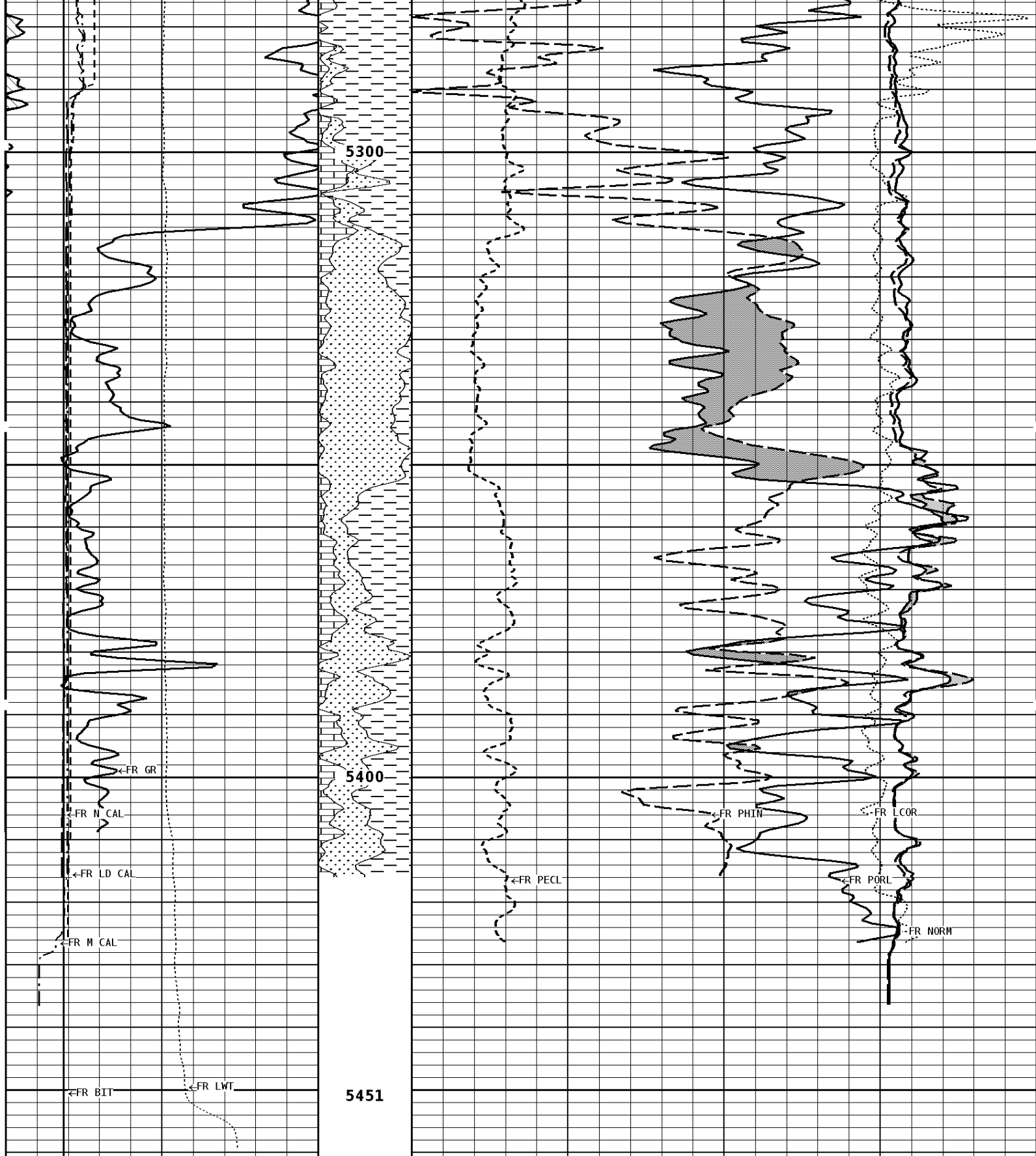
Formation Matrix	Limestone
Drill Bit Size	7.875 in
Casing Diameter	5.500 in
Casing Thickness	0.250 in
Casing Correction (PHI N)	Disable

Well File: CHIEFTAIN OIL BLEVINS A SWD 1 JUNE29 MSTK Scale: 1:240 Format: NLD-240
 Segment: V1.D1.S3 Reprocess of REPEAT Acquired: 2014-06/29 18:48 3.5.0-12850
 Reference: 0 Processed: 2014-06/29 18:56 3.5.0-12850

CALIPER MICRO INCHES (IN)							
16	26						
6	16						
BIT SIZE INCHES (IN)						NORMAL OHM	
6	16					0	40
NEUTRON (Y) CALIPER INCHES (IN)						INVERSE OHM	
16	26					0	40
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	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 REPEAT SECTION





5300

5400

5451

←FR GR

←FR N CAL

←FR LD CAL

←FR M CAL

←FR BIT

←FR LWT

←FR PECL

←FR PHIN

←FR LCOR

←FR PORL

←FR NORM

File #1.

1:240 REPEAT SECTION

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

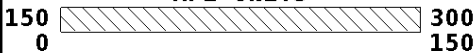
*** Borehole Zone Factors ***

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

Well File: CHIEFTAIN OIL BLEVINS A SWD 1 JUNE29 MSTK	Scale: 1:240	Format: LDT-240
Segment: V1.D1.S5 Reprocess of MAIN	Acquired: 2014-06/29 18:59 3.5.0-12850	
Reference: 0	Processed: 2014-06/29 20:13 3.5.0-12850	

BIT SIZE INCHES (IN) 6 16			
NEUTRON (Y) CALIPER INCHES (IN) 16 26 6 16			
DENSITY (X) CALIPER INCHES (IN) 16 26 6 16	PE CROSS-SECTION BARN/ELECTRON 0 10	DENSITY CORRECTION G/CC -0.25 0.25	
TENSION LBS 10000 0	COMPENSATED BULK DENSITY G/CC 3.0 4.0 2.0 3.0 1.0 2.0		
GAMMA RAY	- BHV AHV -	DENSITY POROSITY (2.71g/cc)	

API UNITS



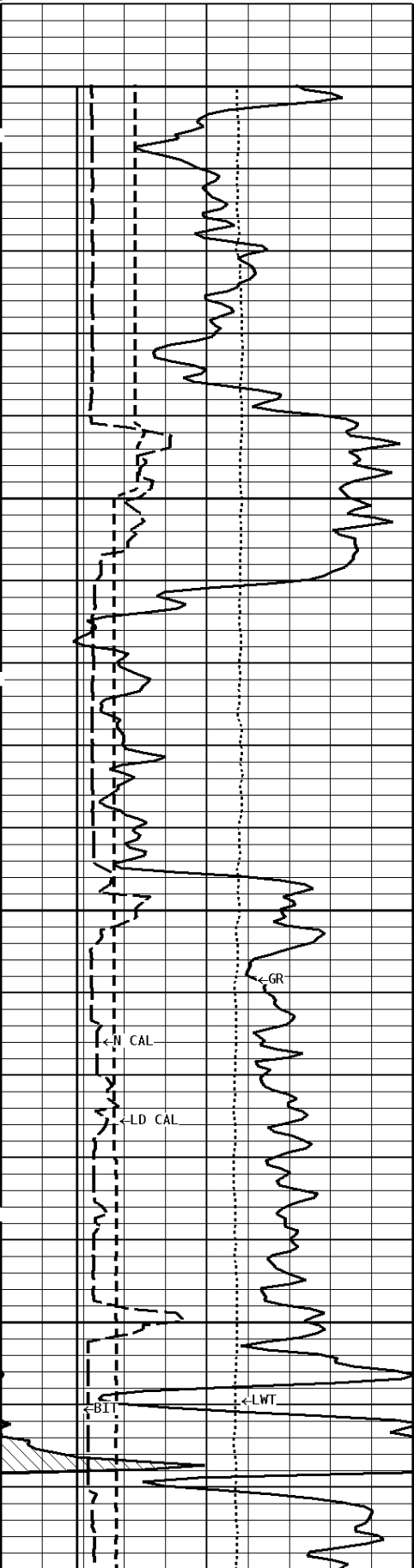
CU. FT

70
30
-10

PERCENT

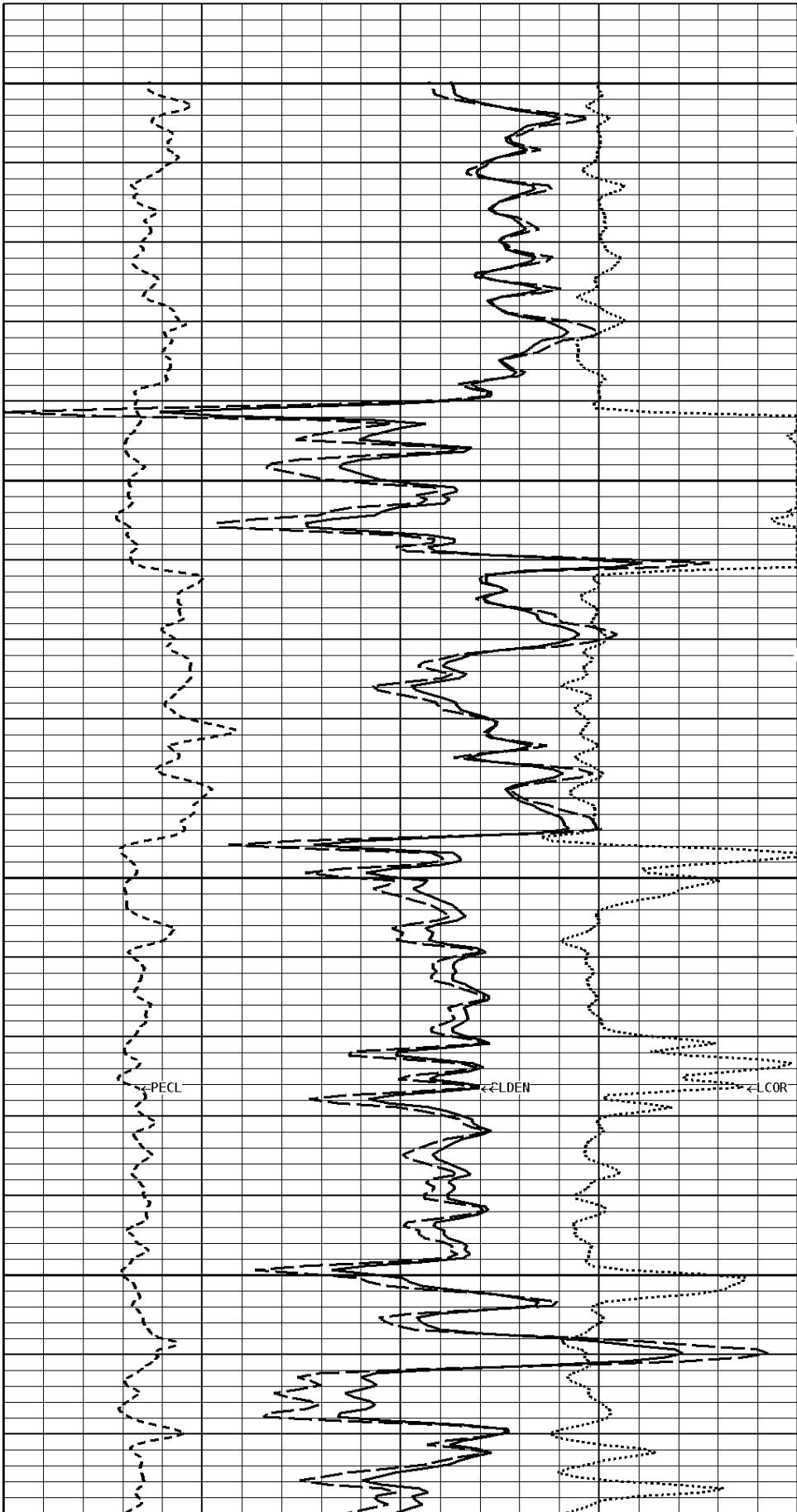
30
-10
-50

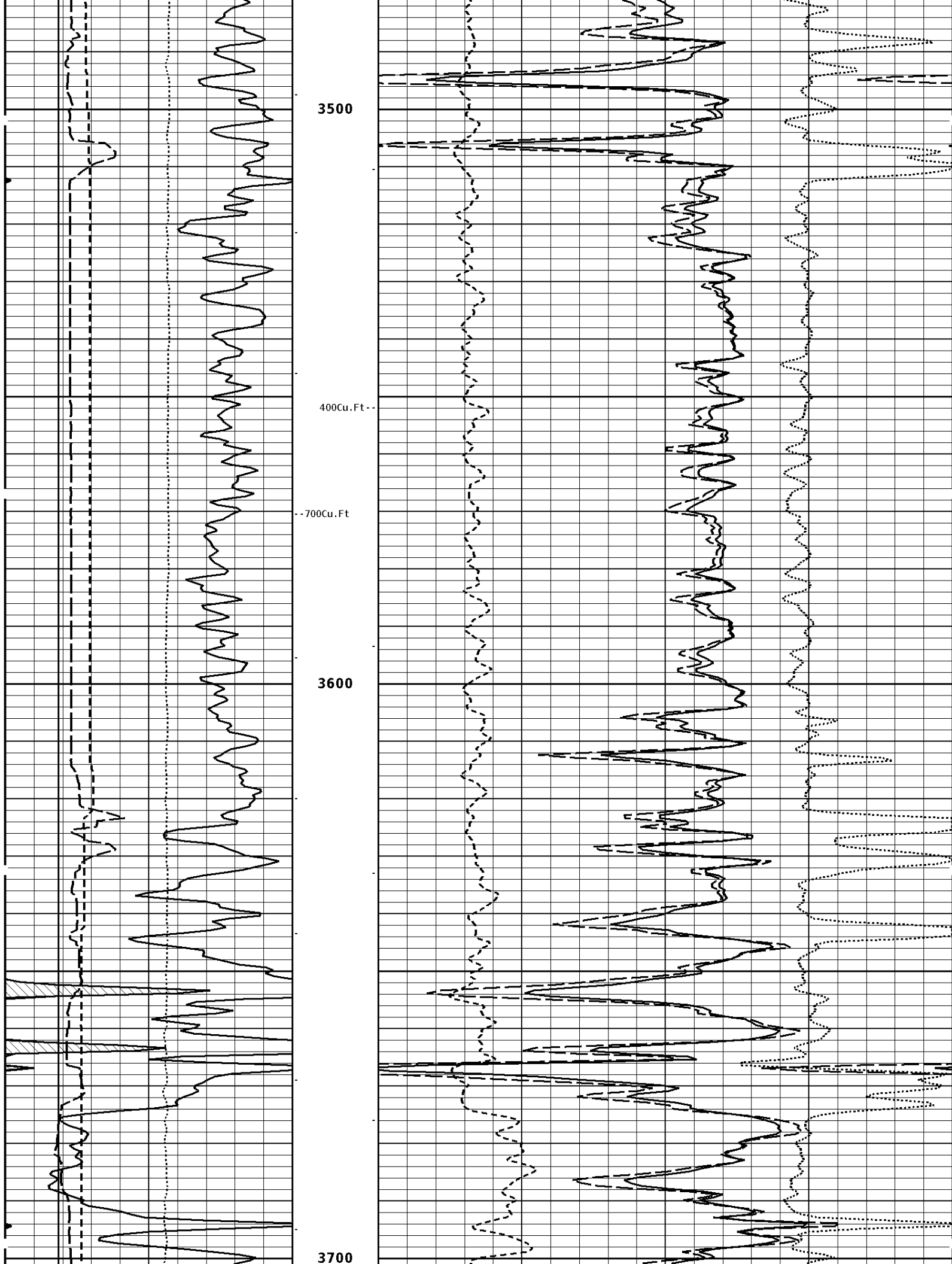
1:240 MAIN SECTION
BULK DENSITY



3300
-800Cu.Ft

3400





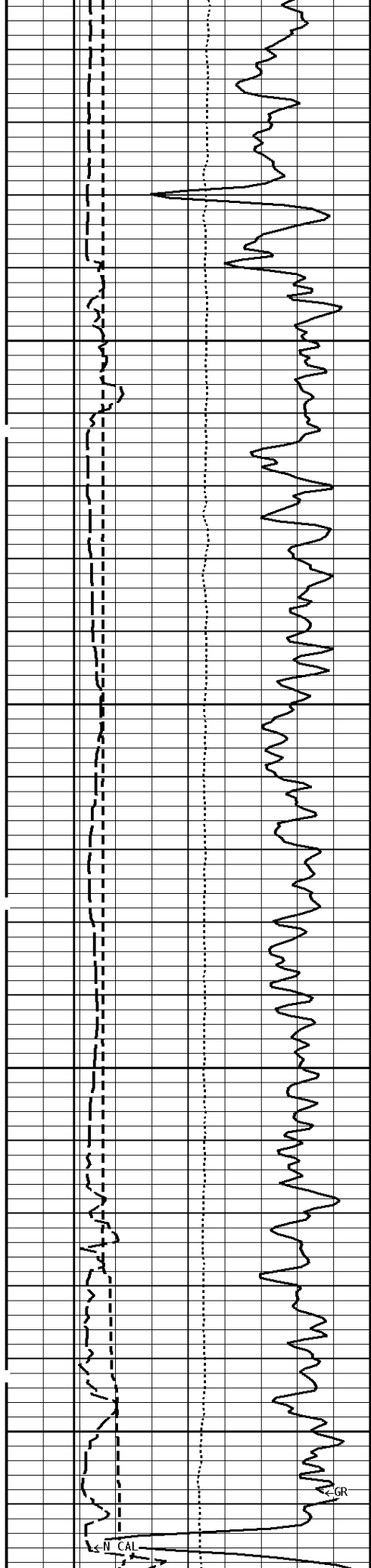
3500

400Cu.Ft.

700Cu.Ft.

3600

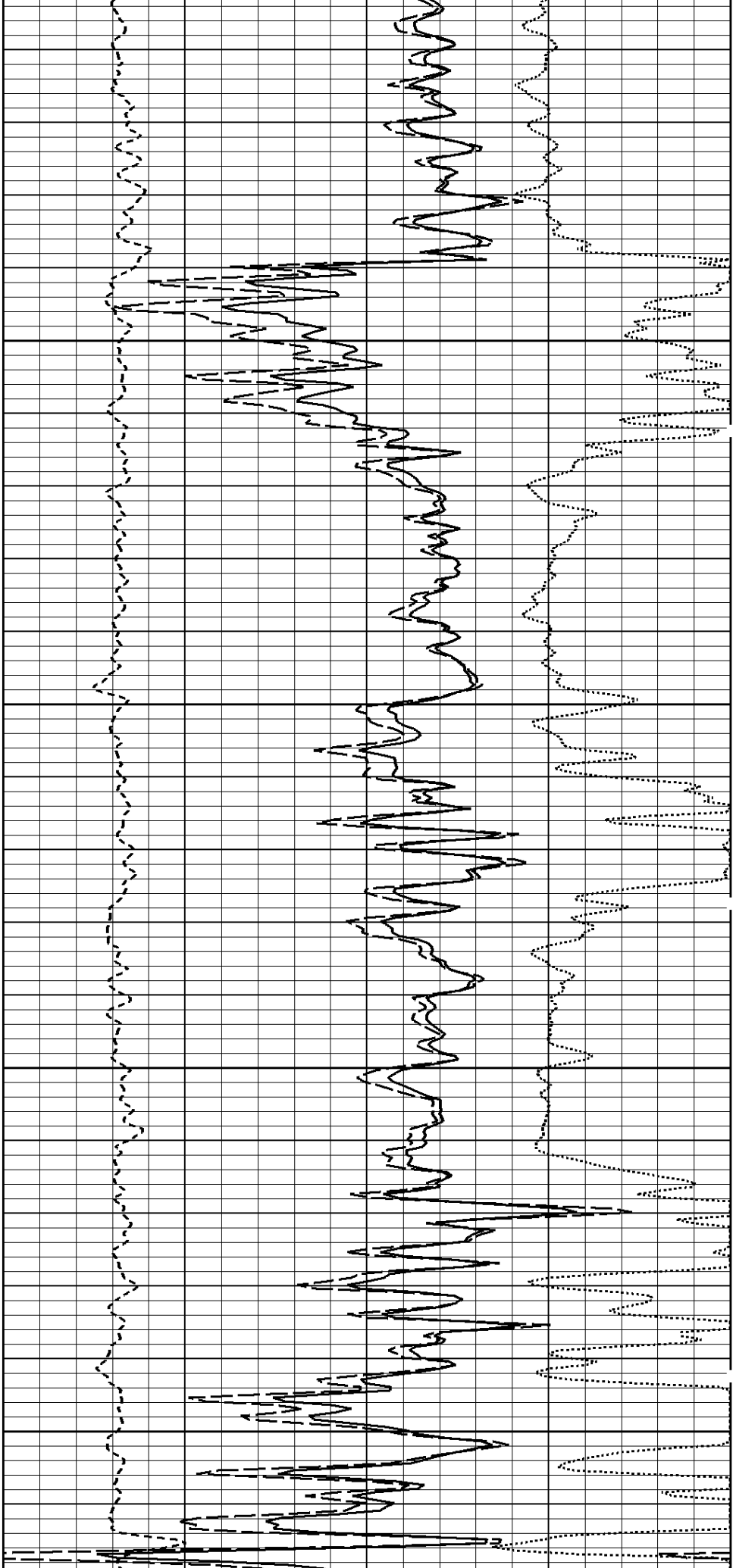
3700

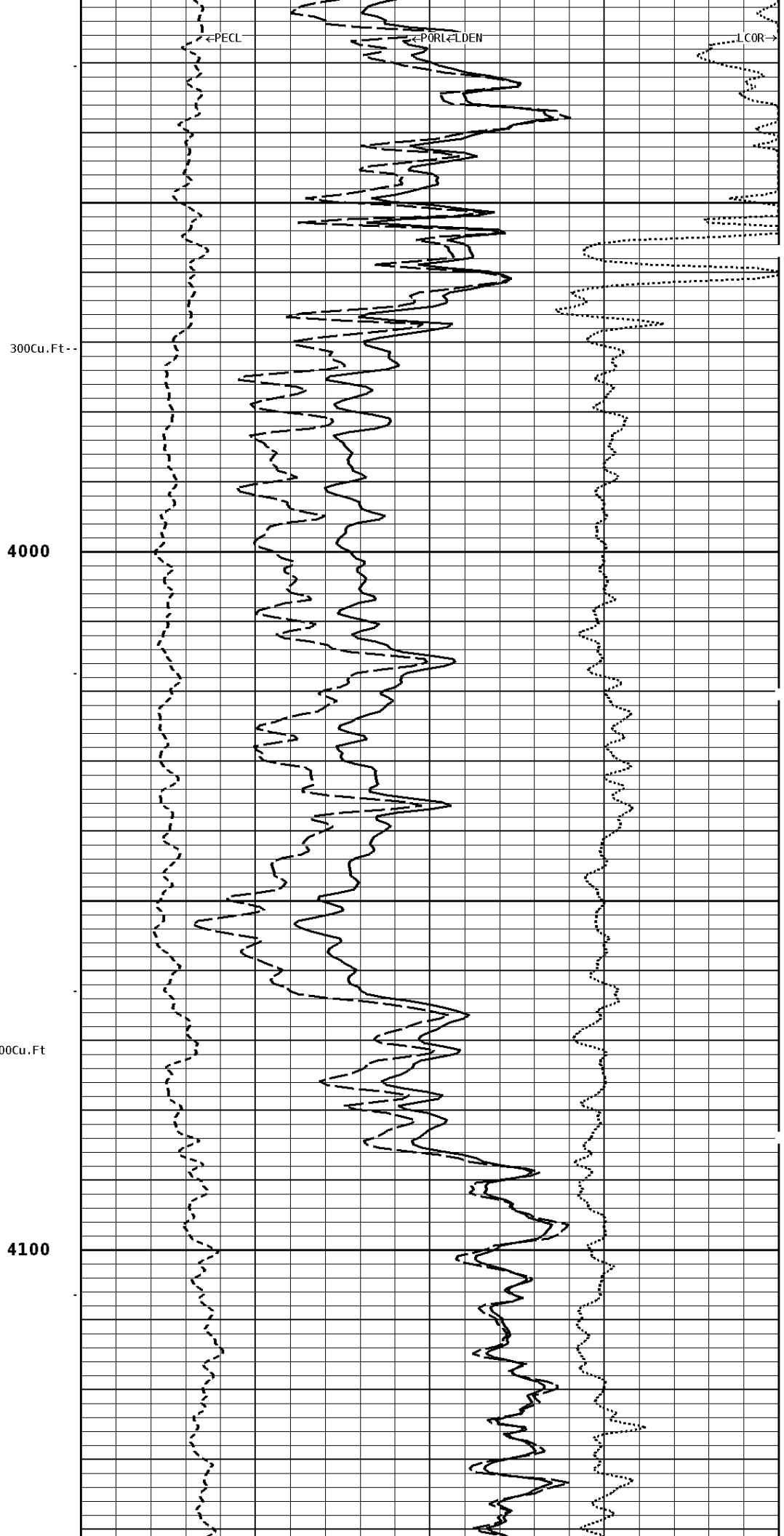
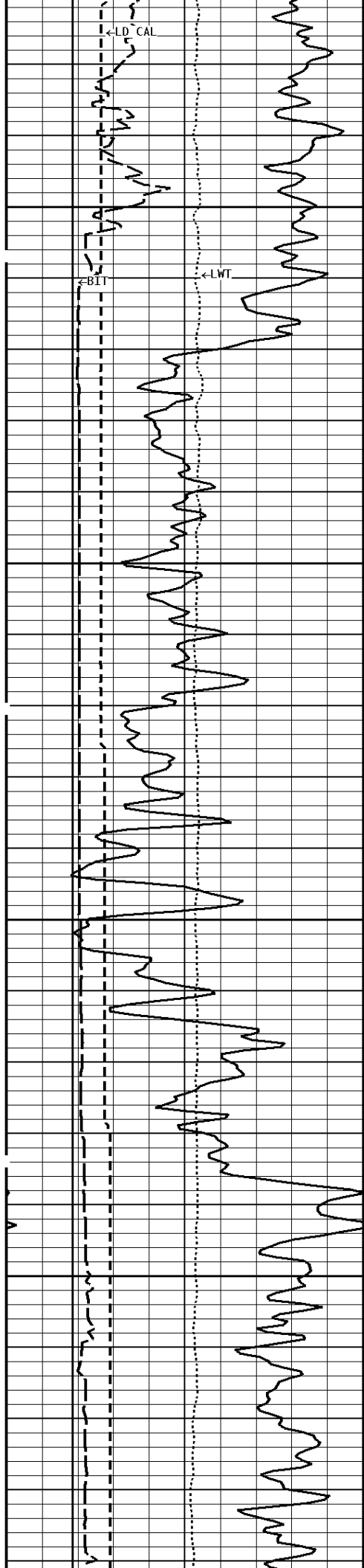


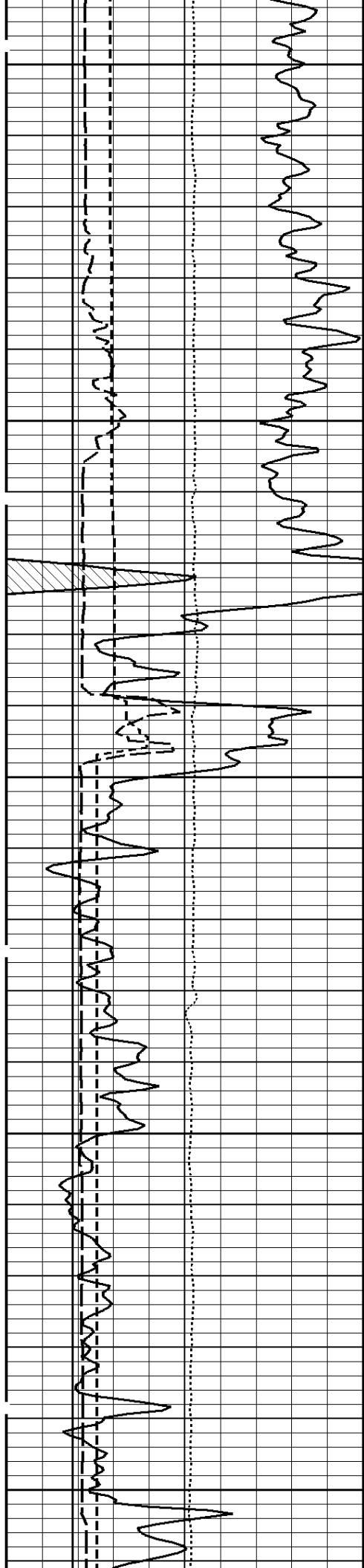
3800

--600Cu.Ft

3900



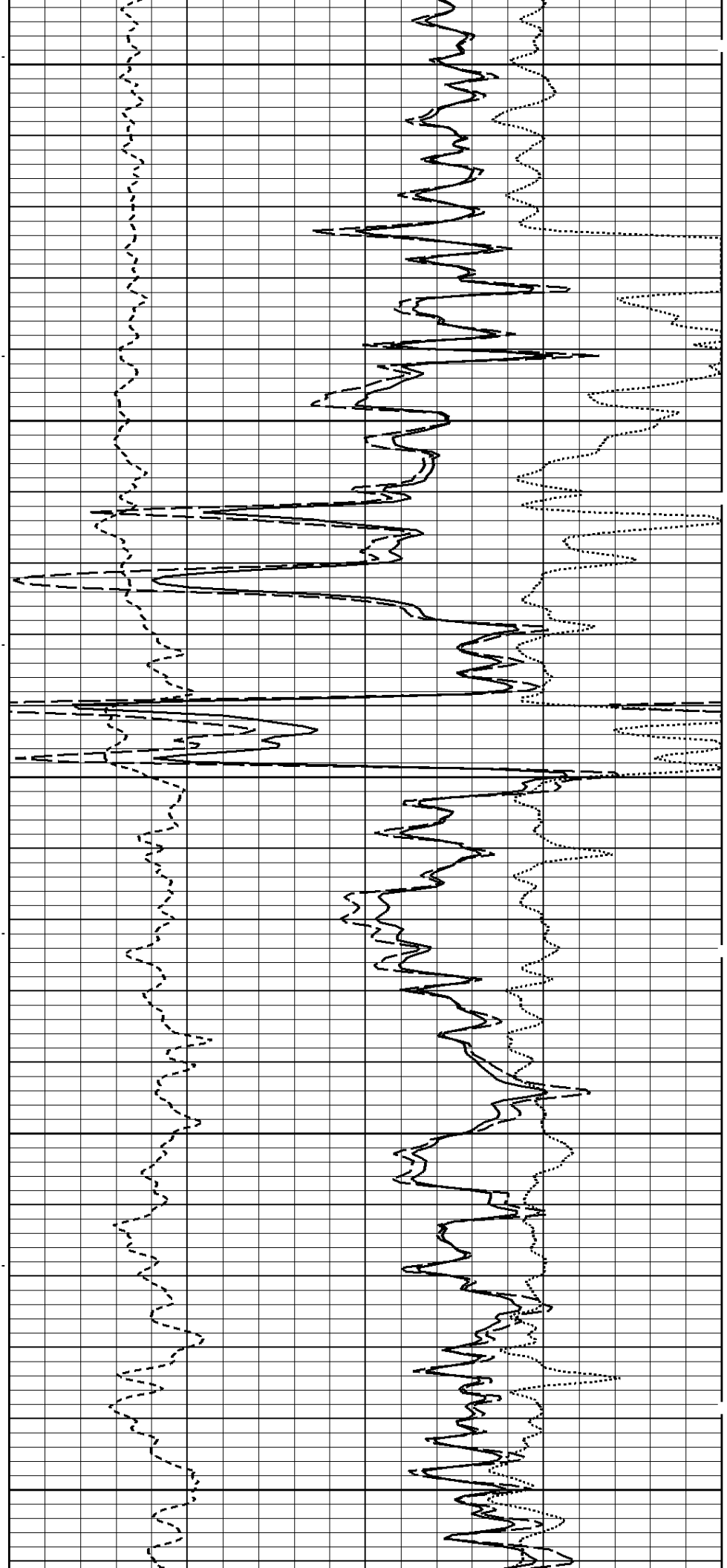


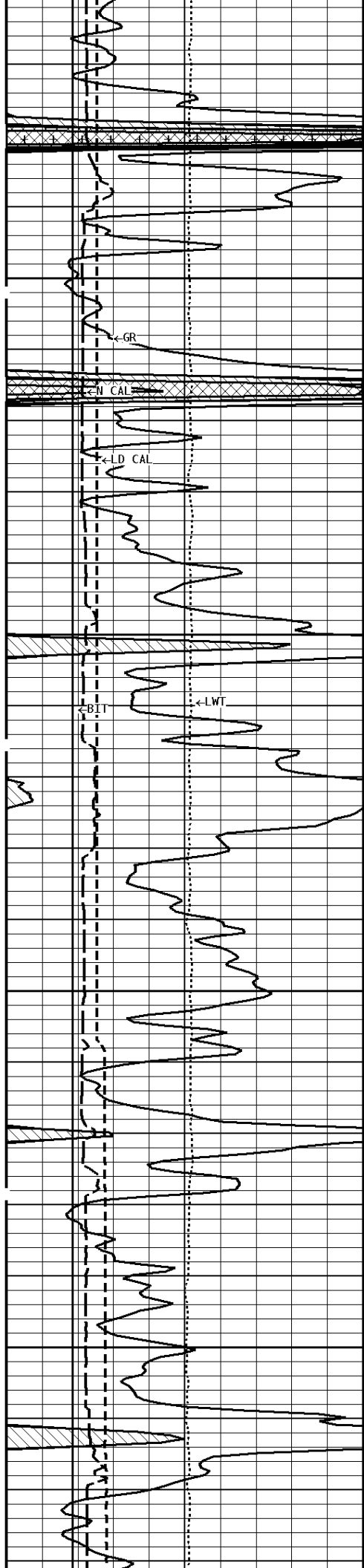


4200

4300

-400Cu.Ft



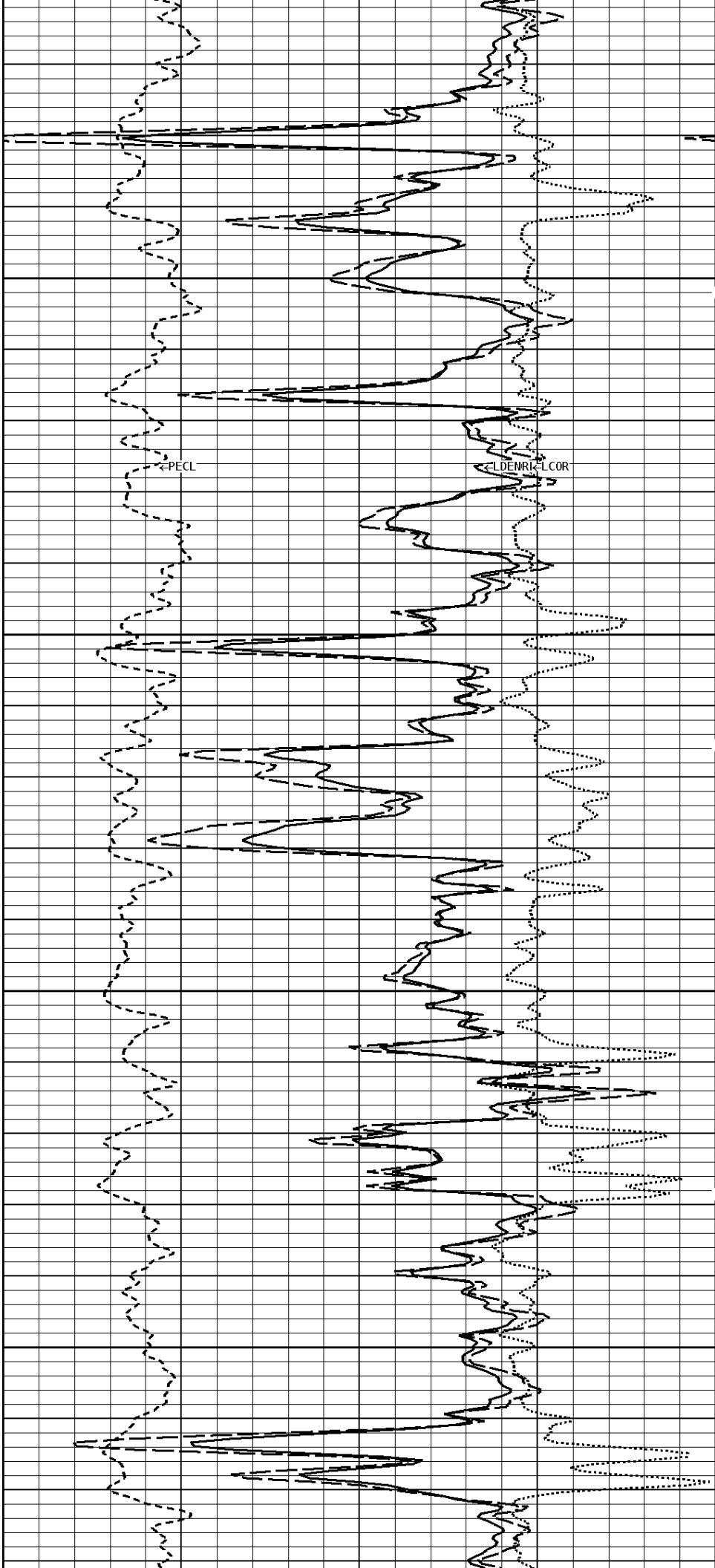


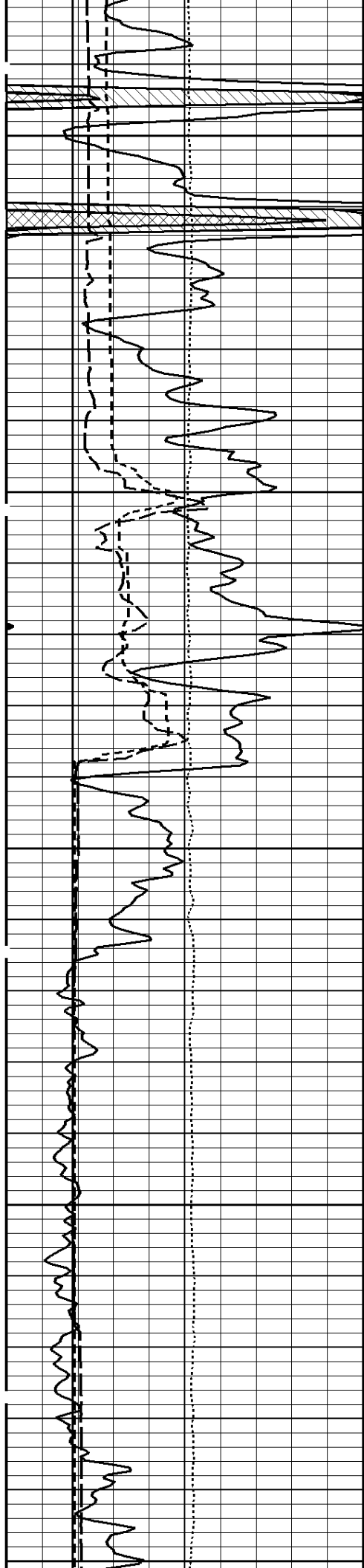
4400

200Cu.Ft.

4500

300Cu.Ft

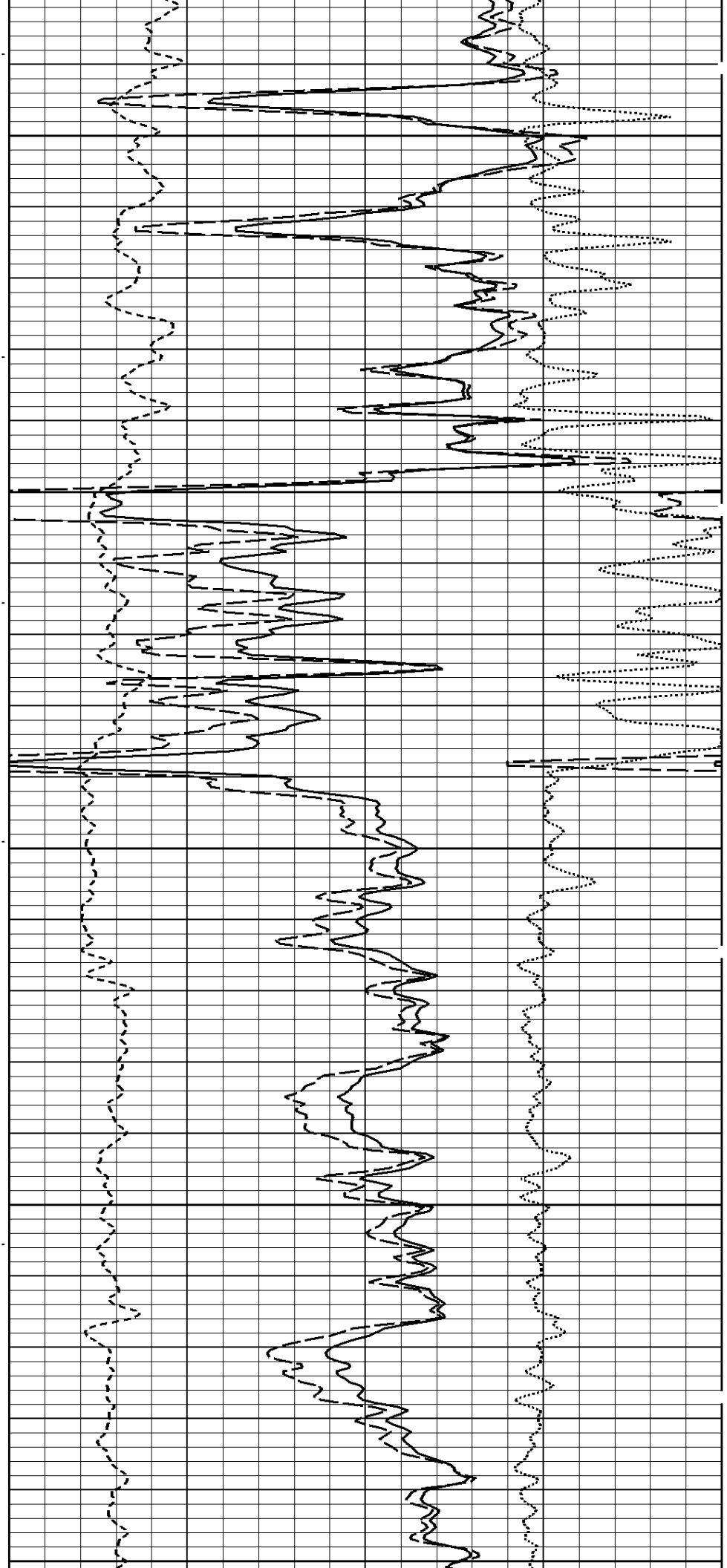


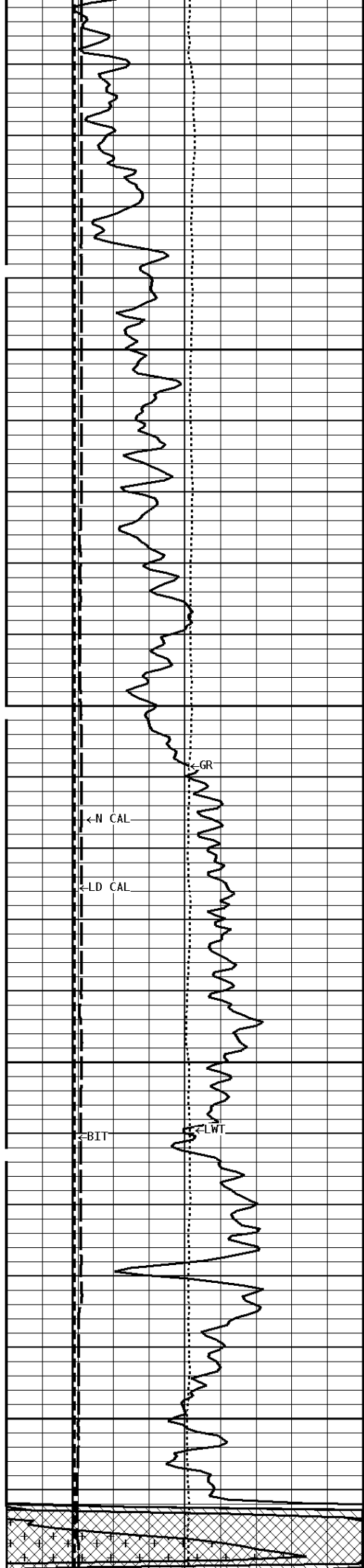


4600

4700

4800



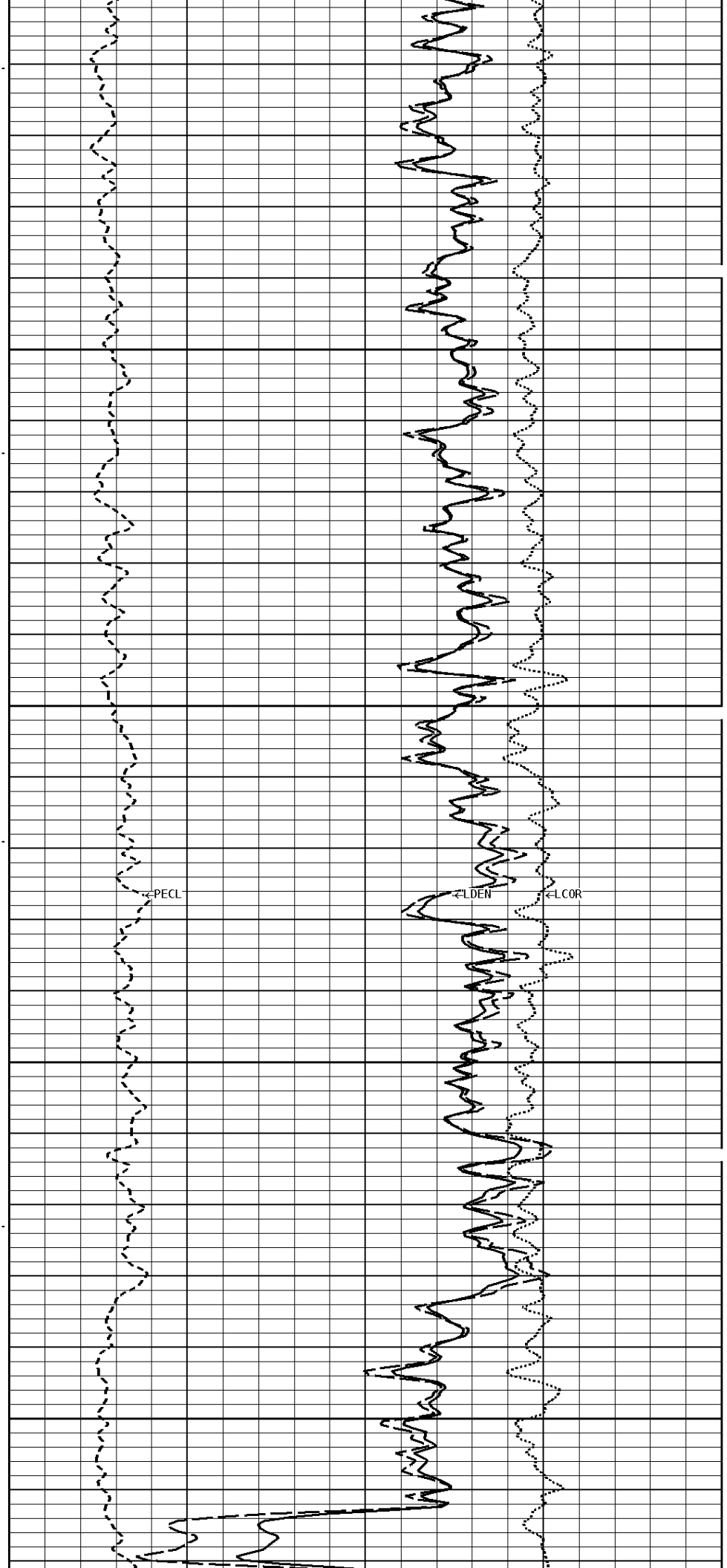


--200Cu.Ft

100Cu.Ft--

4900

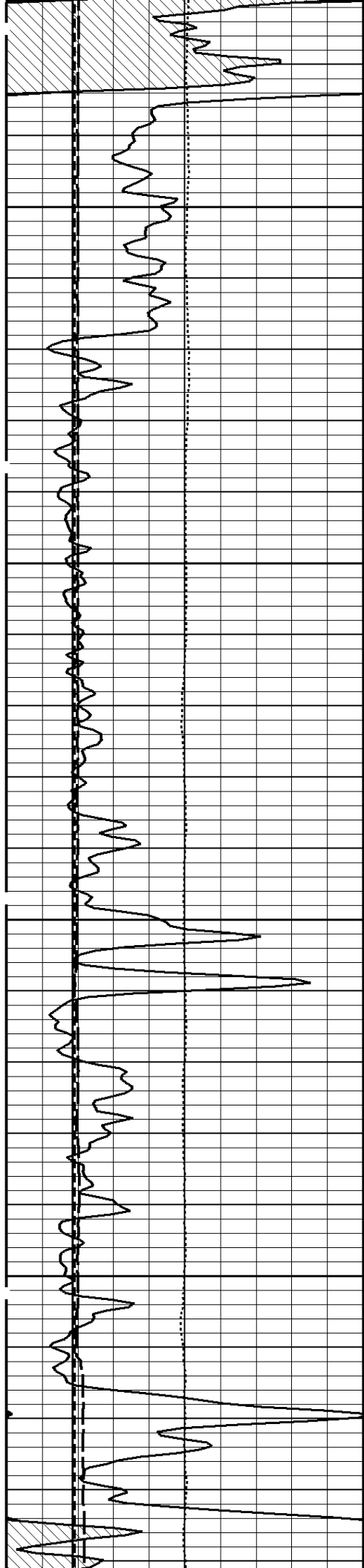
5000



←PECL

←LDEN

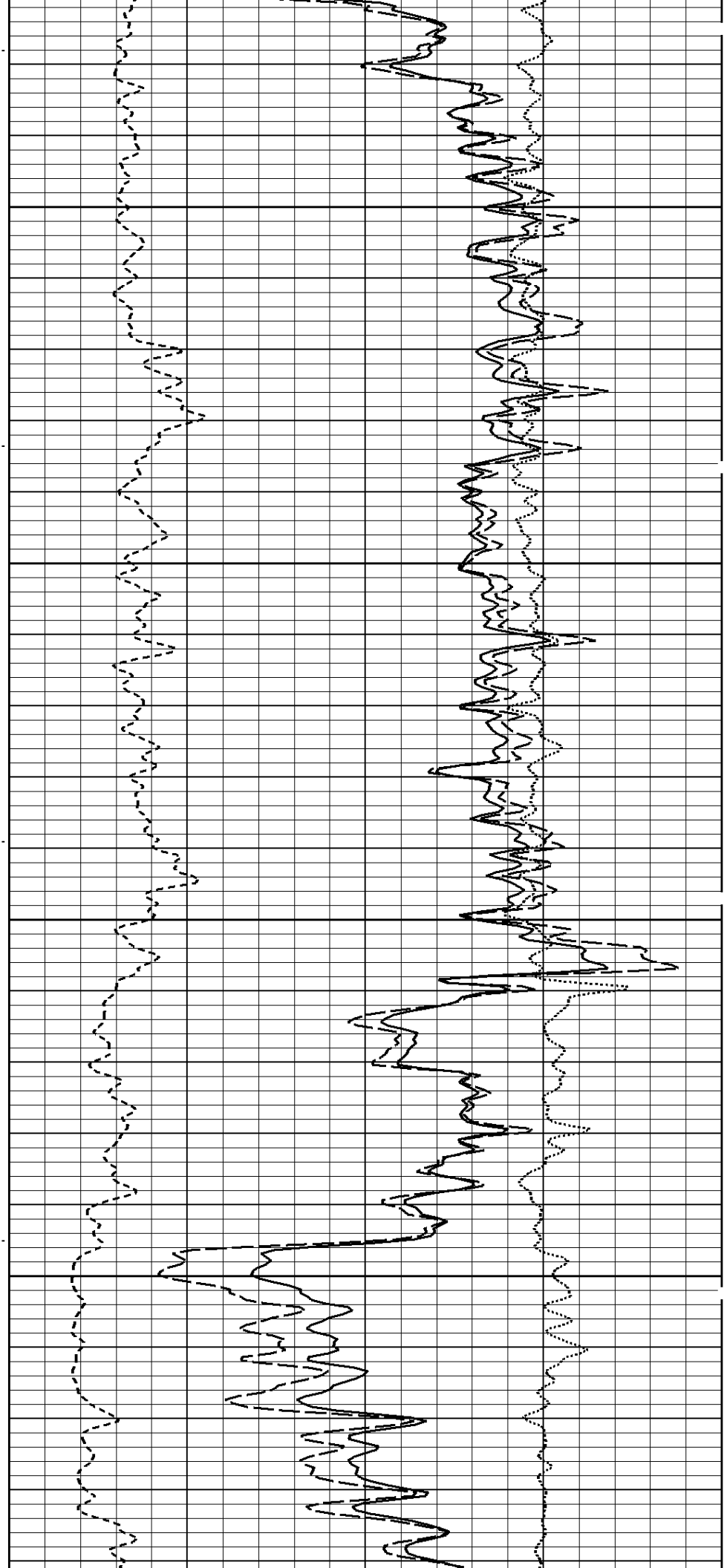
←LCOR

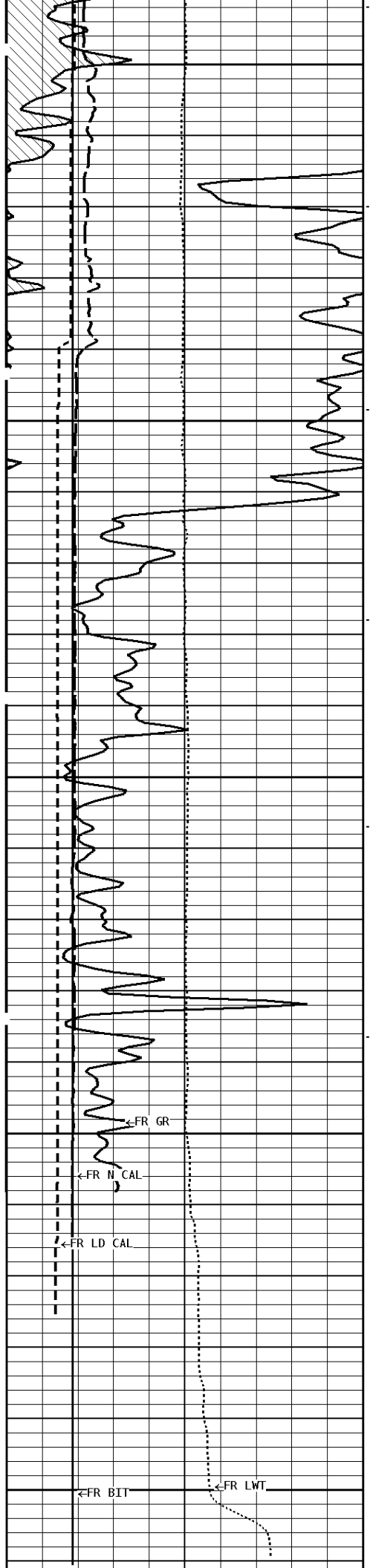


5100

-100Cu.Ft

5200

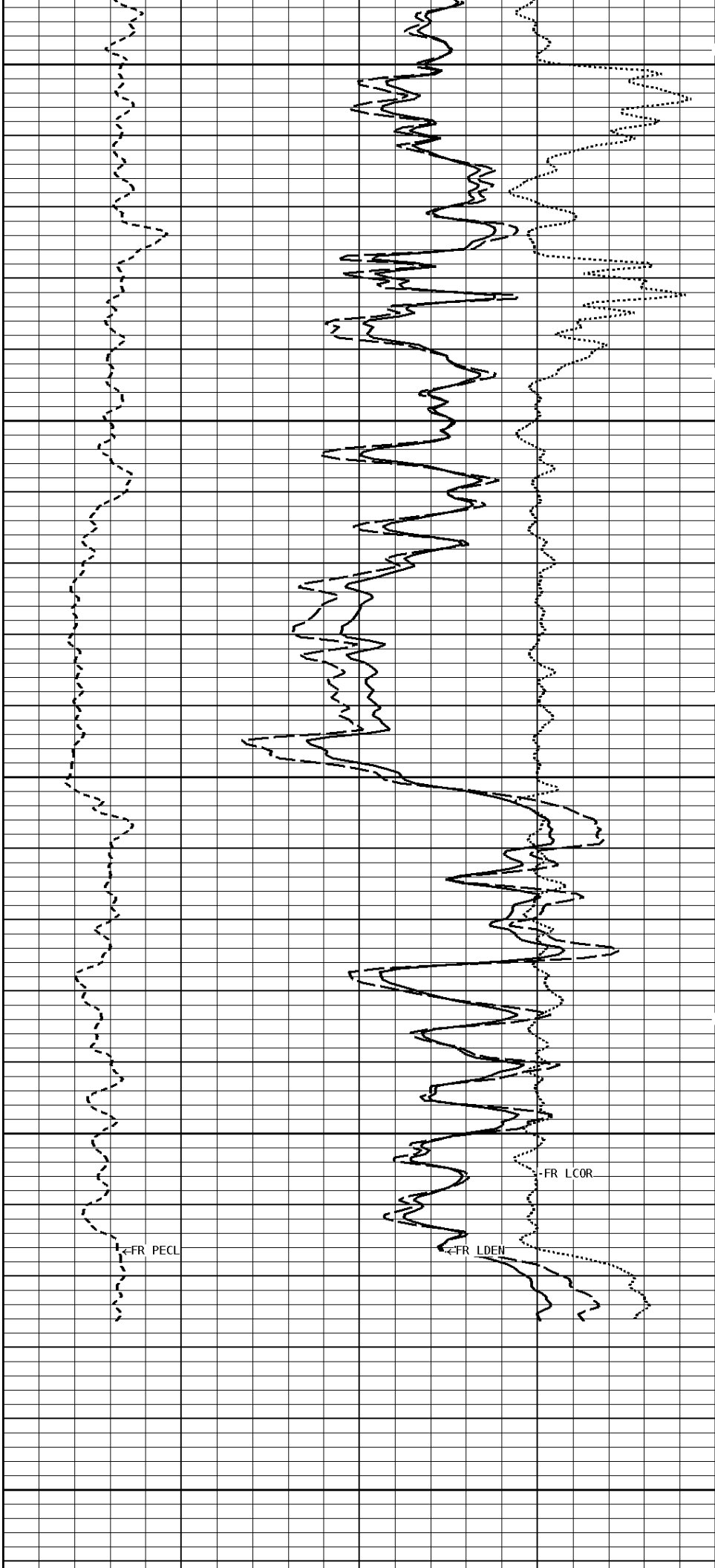




5300

5400

5451



File #1.1.5

1:240 MAIN SECTION BULK DENSITY

<p style="text-align: center;">GAMMA RAY API UNITS</p> <p>150 300 0 150</p>	<p>- BHV AHV - CU. FT</p>	<p style="text-align: center;">DENSITY POROSITY (2.71g/cc) PERCENT</p> <p>70 30 30 -10 ----- -10 -50</p>				
<p style="text-align: center;">TENSION LBS</p> <p>10000 0</p>		<p style="text-align: center;">COMPENSATED BULK DENSITY G/CC</p> <p>3.0 4.0 2.0 3.0 1.0 2.0</p>				
<p style="text-align: center;">DENSITY (X) CALIPER INCHES (IN)</p> <p>16 26 6 16</p>		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">PE CROSS-SECTION BARNs/ELECTRON</td> <td style="width: 50%; text-align: center;">DENSITY CORRECTION G/CC</td> </tr> <tr> <td>0 10</td> <td>-0.25 0.25</td> </tr> </table>	PE CROSS-SECTION BARNs/ELECTRON	DENSITY CORRECTION G/CC	0 10	-0.25 0.25
PE CROSS-SECTION BARNs/ELECTRON	DENSITY CORRECTION G/CC					
0 10	-0.25 0.25					
<p style="text-align: center;">NEUTRON (Y) CALIPER INCHES (IN)</p> <p>16 26 6 16</p>						
<p style="text-align: center;">BIT SIZE INCHES (IN)</p> <p>6 16</p>						

*** 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 : 27-JUN-2014			Time : 09:08		
Sensor Suite : GR-GR5			ID : GRT-BB-117		
	Measured	Units	Calibrated	Units	
GR	Background 43	Jig 344	Jig 175	GR-API	
Shop Calibration CNT-AA					
Performed : 27-JUN-2014			Time : 10:08		
Sensor Suite : CALI-BCN			ID : NDT-AC-027		
	Jig - Measured		Jig - Calibrated		Units
CL # 1	Ring#1 8.1	Ring#2 14.7	Ring#1 6.0	Ring#2 12.0	IN.

Performed : 27-Jun-2014 Time : 10:23
 Sensor Suite : BHC NEUT ID : CNP-AE-42
 Source ID : N-1044

	Tank		Verification		Units
	Measured	Calibrated	Jig		
N/F	3.6222	3.6893	3.7132		
Porosity	19.5	20.5	20.9		%

**Shop Calibration
LDT-DA**

Performed : 27-JUN-2014 Time : 09:30
 Sensor Suite : CALI-LTH ID : NDT-BB-129

CL # 1	Jig - Measured		Jig - Calibrated		Units
	Ring#1	Ring#2	Ring#1	Ring#2	
	7.2	12.6	6.0	12.0	IN.

Performed : 27-Jun-2014 Time : 09:25
 Sensor Suite : BHCPENGL ID : LDP-DA-50
 Source ID : CSV-587

Short Space					
	BKGD	Al	Mg	Al+Fe	Units
LSW1	70	453	727	313	CPS
LSW2	77	540	856	401	CPS
LSW3	287	1334	2063	1158	CPS
LSW4	346	1274	1752	1140	CPS
LSW5	32	41	40	40	CPS
LSW6	96	96	96	95	CPS
LSW7	57	60	58	60	CPS
LSW8	2	2	3	2	CPS
QS	0.257	0.232	0.248	0.231	
PES			2.778	5.967	
SSDN		2.600	1.680		G/CC

Long Space					
	BKGD	Al	Mg	Al+Fe	Units
LLW1	104	534	2162	346	CPS
LLW2	115	909	3677	674	CPS
LLW3	426	1813	6565	1589	CPS
LLW4	567	1102	2744	1024	CPS
LLW5	65	69	82	68	CPS
LLW6	172	169	163	168	CPS
LLW7	115	113	108	114	CPS
LLW8	5	6	10	6	CPS
QL	0.199	0.199	0.206	0.193	
PEL			2.697	5.458	
LSDN		2.600	1.680		G/CC

**Shop Calibration
MST-DA**

Performed : 28-MAY-2014 Time : 11:44
 Sensor Suite : CALI-MSN ID : MST-DA-25

CL # 1	Jig - Measured		Jig - Calibrated		Units
	Ring#1	Ring#2	Ring#1	Ring#2	
	6.9	12.6	6.0	12.0	IN.

Performed : 28-MAY-2014 Time : 11:44
 Sensor Suite : MSTDA-NI ID : MST-DA-25

Internal						
	Measured			Calibrated		
	Zero	Reference	Units	Zero	Reference	Units
INV-V	0.0	30010.6		0.00	1546.00	MV
NOR-V	0.1	30159.6		0.00	1546.00	MV
IN-C	0.0	57334.5		0.00	15.46	UA
INV-R					32.34	OHMM
NOR-R					55.11	OHMM

Performed : 28-MAY-2014 Time : 11:45
 Sensor Suite : MSTDAMSF ID : MST-DA-25

Internal						
	Measured			Calibrated		
	Zero	Reference	Units	Zero	Reference	Units
MSFC	6.9	42184.2		0.00	1522.00	UA
MSFB	32757.2	32562.9		0.00	1522.00	MA
MOM1	0.0	43971.1		0.00	1522.00	MV
MSFRA					43.30	OHMM



Tucker
ENERGY SERVICES

Company: CHIEFTAIN OIL CO., INC
Well: BLEVINS A SWD #1
Location: 1970' FSL & 450' FWL
Logged: 06-29-2014
K.B. Elev: 1367.0 Ft