Tucker ENERGY SERVICES

COMPENSATED NEUTRON

PEL DENSITY MICRO LOG

Company TOTO ENERGY LLC
Well GREENE #24-1
Field CARPENTER
County PAWNEE
State KANSAS
Country USA
API No. 15-145-21721

File No : TUL-
Company : TOTO ENERGY LLC
Well : GREENE #24-1
Field : CARPENTER
County : PAWNEE
State : KANSAS
Country : USA
API No : 15-145-21721

Location :
2290' FSL & 1650' FWL
S2 NW NE SW

LSD : **Sect :** 24 **Twp :** 23S **Rge :** 17W

Permanent Datum:	GL	**Elevations:**		**Services:**	
Drilling Measured From:	KB	**KB**	2085.00 Ft	CNT	PIT
Log Measured From:	KB	**DF**	2084.00 Ft	LDT	
Above Permanent Datum:	11.00 Ft	**GL**	2074.00 Ft	MLT	

Date	05-31-2013						
Run Number	1						
Depth--Driller	4570.0	Ft					
Depth--Logger	4566.0	Ft					
First Reading	4543.0	Ft					
Last Reading	432.0	Ft					
Casing--Driller	432.0	Ft					
Casing--Logger	432.0	Ft					
Bit Size	7.875	In					
Casing Size	8.625	In					
Hole Fluid Type	WBM						
Density	9.3	LBS/GAL					
Fluid Loss	17.2	CC					
PH/Viscosity	8.5	54.0 SEC					
Sample Source	MEASURED						
RM@Measured Temp.	0.900	@ 75 F					
RMF@Measured Temp	0.770	@ 75 F					
RMC@Measured Temp.	1.040	@ 75 F					
Source RMF/RMC	CALCULATED	CALCULATED					
RM@BHT	0.550	@ 0 F					
Time Circulation Stopped							
Max Recorded Temp.	0	F					
Equipment/Base	TRK 119	TULSA					
Recorded By	S. DAVIS						
Witnessed By	T. MADDEN						

Bitsize Intervals

Size (In)	Bottom (Ft)
7.875	4570.00

Casing Strings

Size (In)	Weight (Lbs)	Bottom (Ft)
8.625	24.00	432.00

Run Number	1	
Date	05-31-2013	
Date/Time On Bottom	05-31-2013 5:30 am	
Depth to Fluid	0.0 Ft	
Salinity	14900.000 PPM	
RMF@BHT	0.470 @ 0 F	
RMC@BHT	0.630 @ 0 F	

Run Number 1

Comments

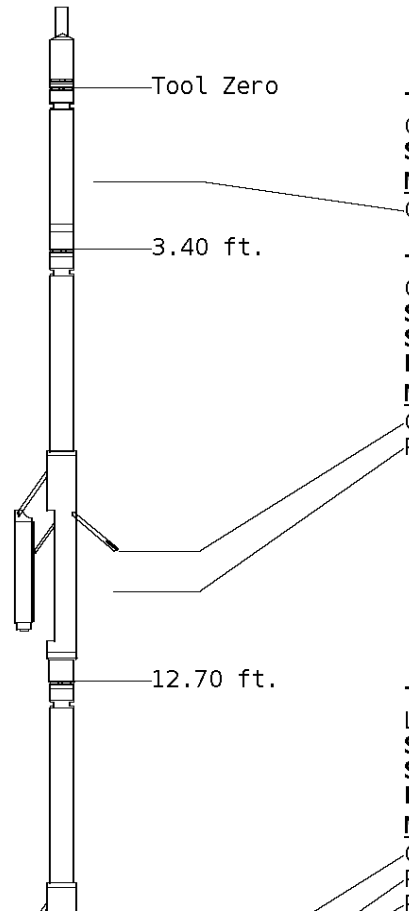
ALL PRESENTATIONS AS PER CUSTOMER REQUEST.
GRT, CNT, LDT, MLT, AND PIT RUN IN COMBINATION.
CALIPERS ORIENTED ON X-Y AXIS.
2.71 G/CC USED TO CALCULATED POROSITY.
ANNULAR HOLE VOLUME CALCULATED USING 5.50" PRODUCTION CASING.
PHIN IS CALIPER CORRECTED

GRT: GRP.
CNT: PHIN, CLCNIN.
LDT: PORL, LCORN, PECLN, LDENN, PORLLS, CLLDIN.
MLT: NOR_RF, INV_RF, MSCLPIN.
PIT: ILD, ILM, SPU, SFLAEC, CIRD.

OPERATORS:
J. KLINE
A. DJAHO

Tool String Schematic

Total Tool Length - 53.57 **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-BC-41

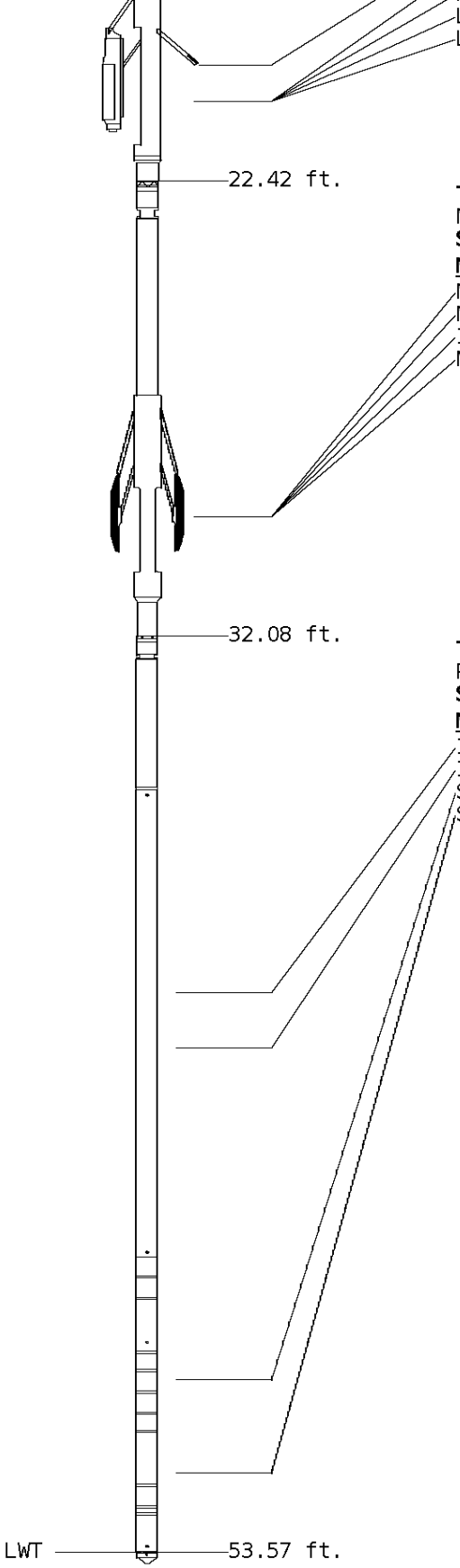
Measure Point	Tool Offset	Stack Offset	Bottom Offset
GRP	2.00	2.00	51.57

Tool: CNT-AA **Length:** 9.30 **ft.** **O.D.** 4.36 **in.**
Compensated Neutron A Pad on NDT-A
Sonde ID :NDT-BD-133
Source ID :N-1045
Pad ID :CNP-AA-024

Measure Point	Tool Offset	Stack Offset	Bottom Offset
CLCN	6.00	9.40	44.17
PHIN	6.80	10.20	43.37

Tool: LDT-DF **Length:** 9.72 **ft.** **O.D.** 4.80 **in.**
Litho Density D Pad on NDT-F
Sonde ID :PDT-GA-464
Source ID :2991GW
Pad ID :LDP-DA-065

Measure Point	Tool Offset	Stack Offset	Bottom Offset
CLLD	6.42	19.12	34.45
PEL	7.42	20.12	33.45
PES	7.82	20.52	33.05



LDEN	7.62	20.32	33.25
LCOR	7.62	20.32	33.25

Tool: MST-DA **Length:** 9.66 **ft.** **O.D.** 6.00 **in.**
Micro Spherically Focused (IC)
Sonde ID :MST-DA-36

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

Tool: PIT-CA **Length:** 21.49 **ft.** **O.D.** 3.62 **in.**
Phased Dual Induction w/ RM & D
Sonde ID :PIT-AB-12

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

Well File: toto-gre-24-1-mstk-may-31 **Scale:** 1:240
Segment: V1.D1.S7 MAIN **Acquired:** 2013-05/31 05:48 3.2.0-11855
Reference: 0 **Processed:** 2013-05/31 07:15 3.2.0-11855

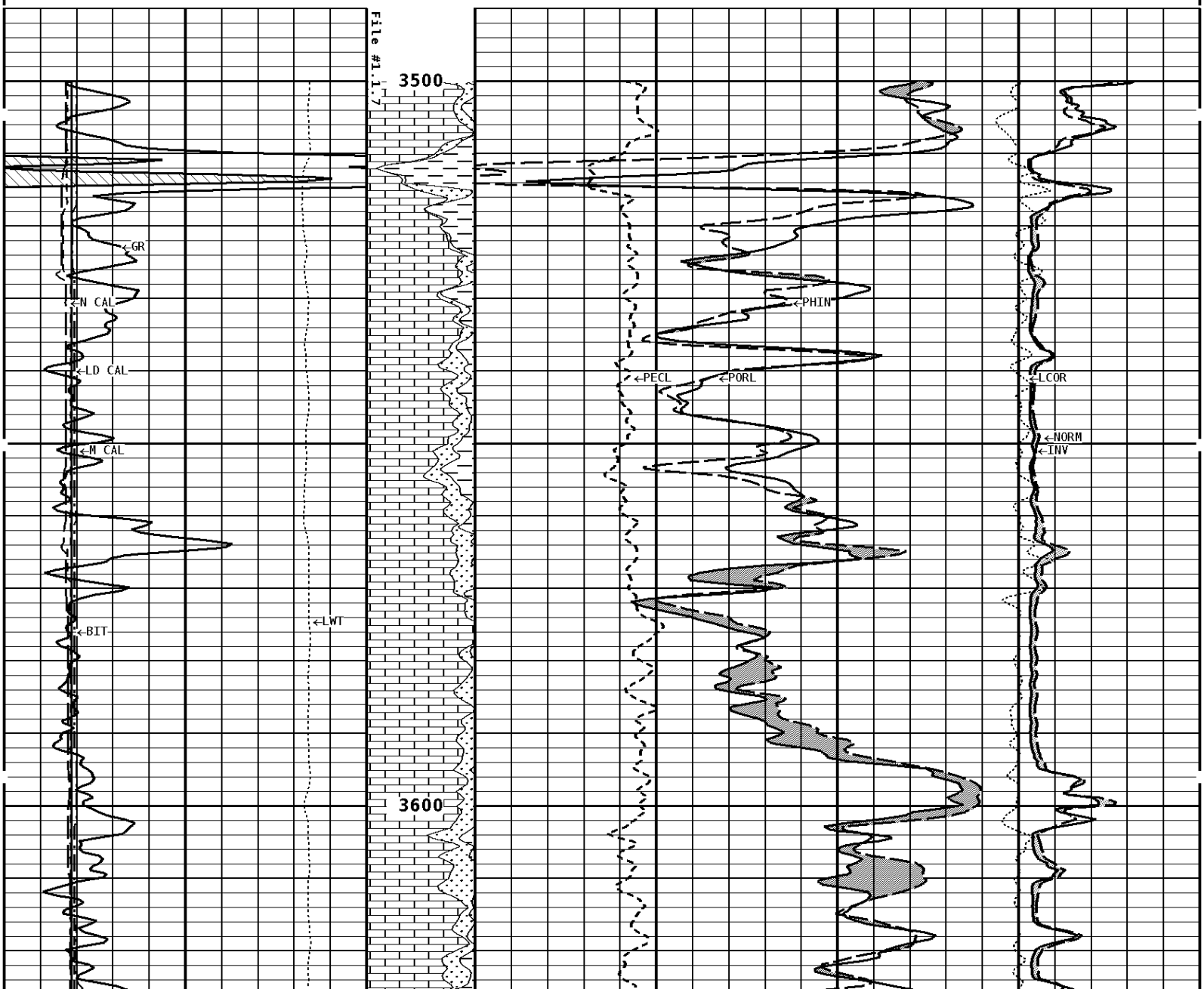
CALIPER MICRO
INCHES (IN)
16 **26**
6 **16**

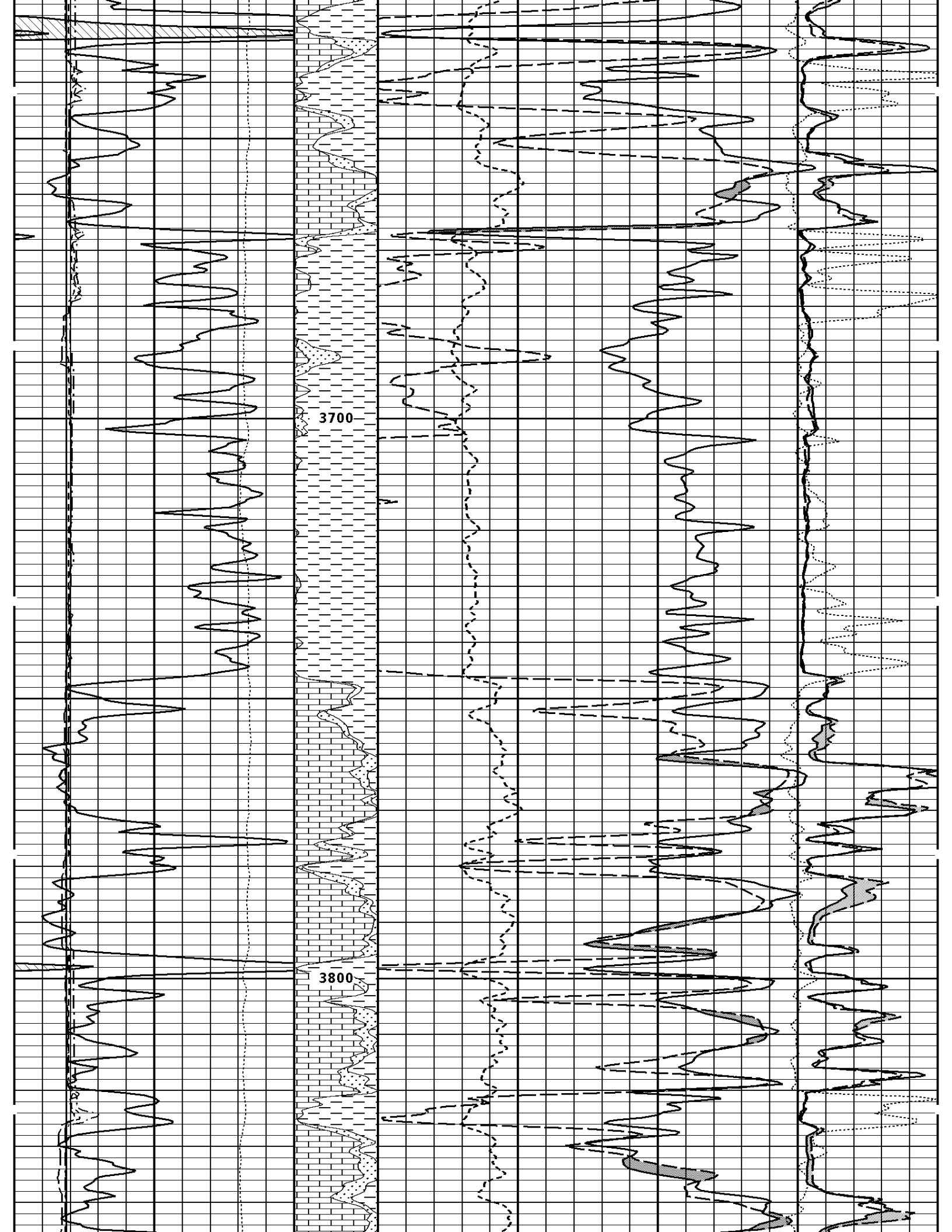
BIT SIZE
INCHES (IN)

NORMAL
OHMM

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

1:240 MAIN SECTION

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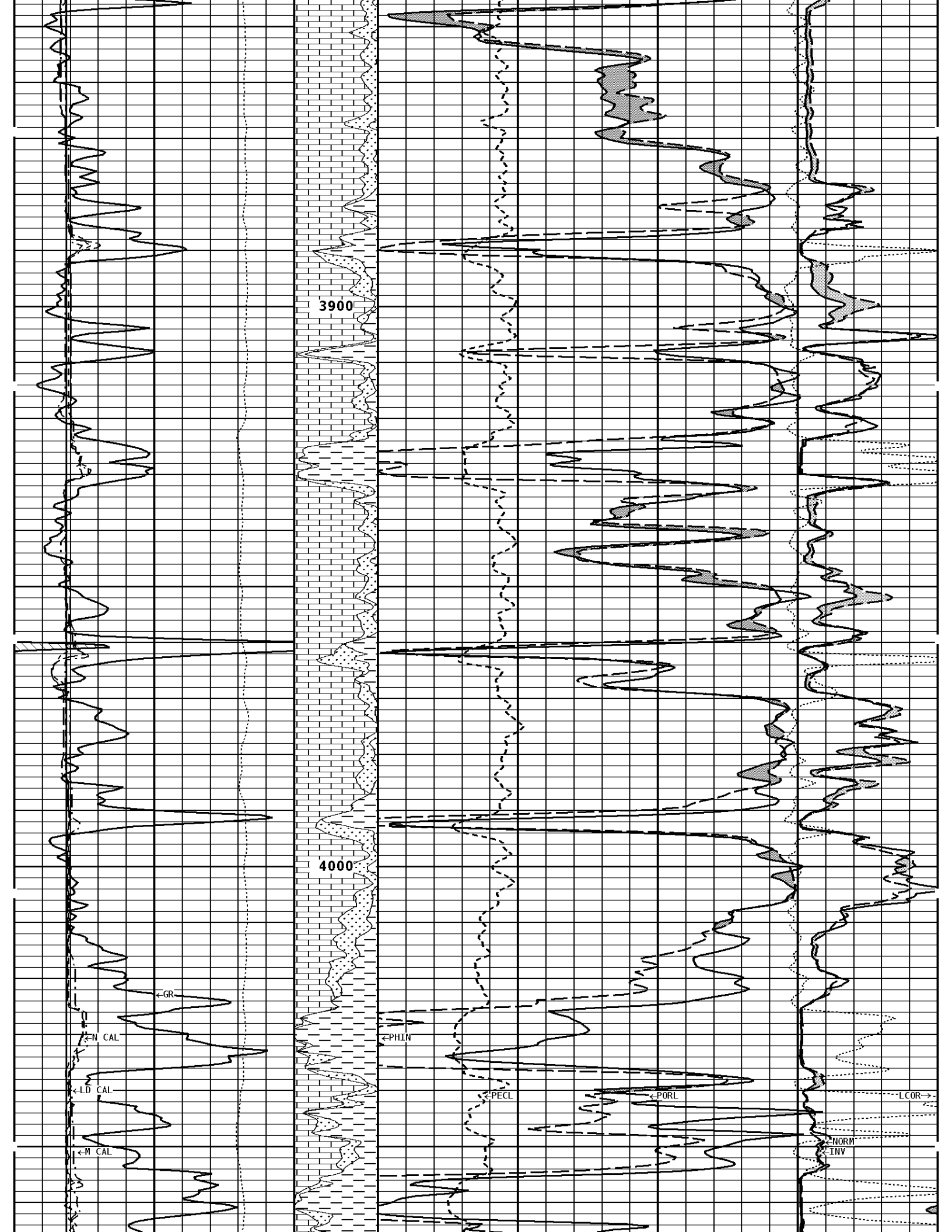
3800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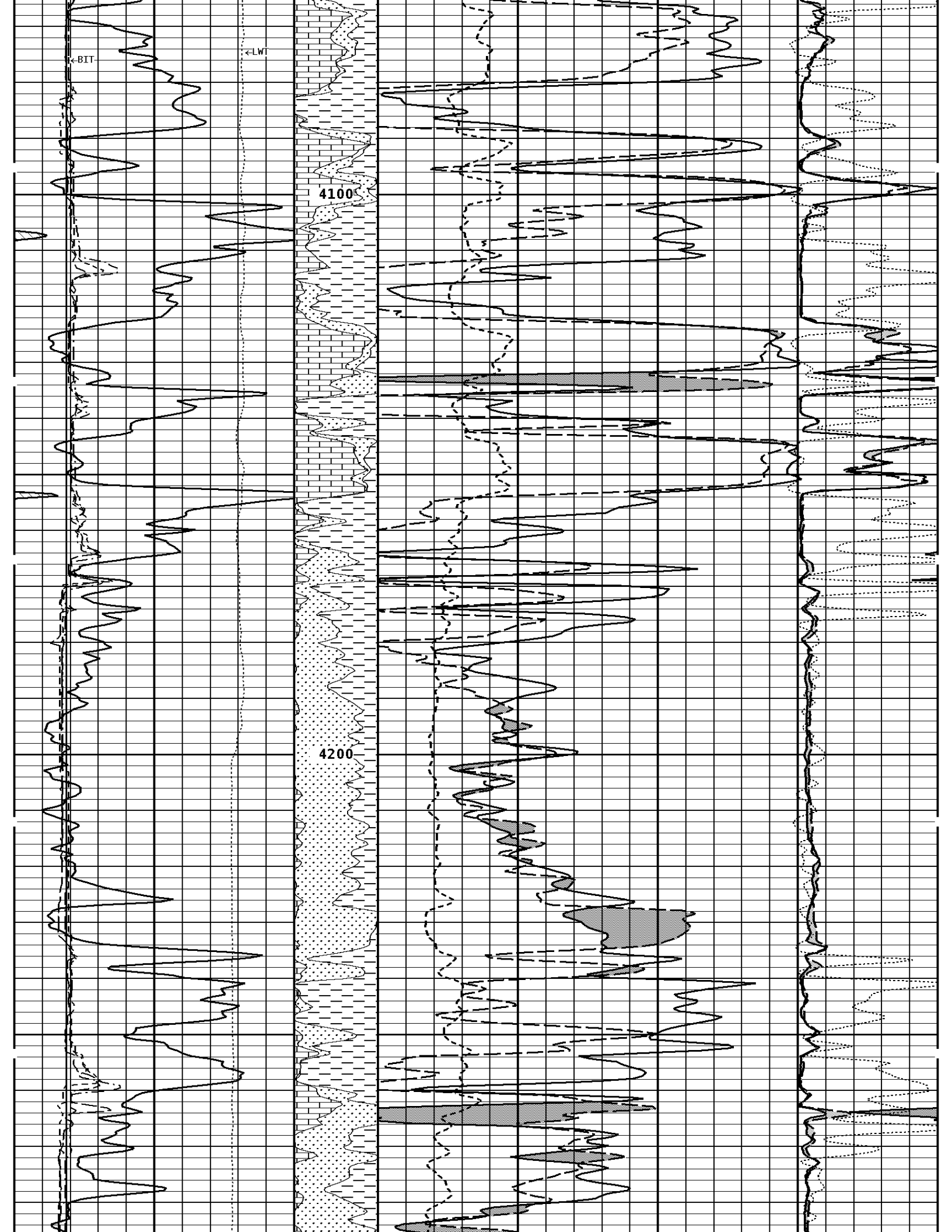
←LD CAL
←M CAL
←PHIN
←PECL
←PORL
LCOR→
←NORM
←INV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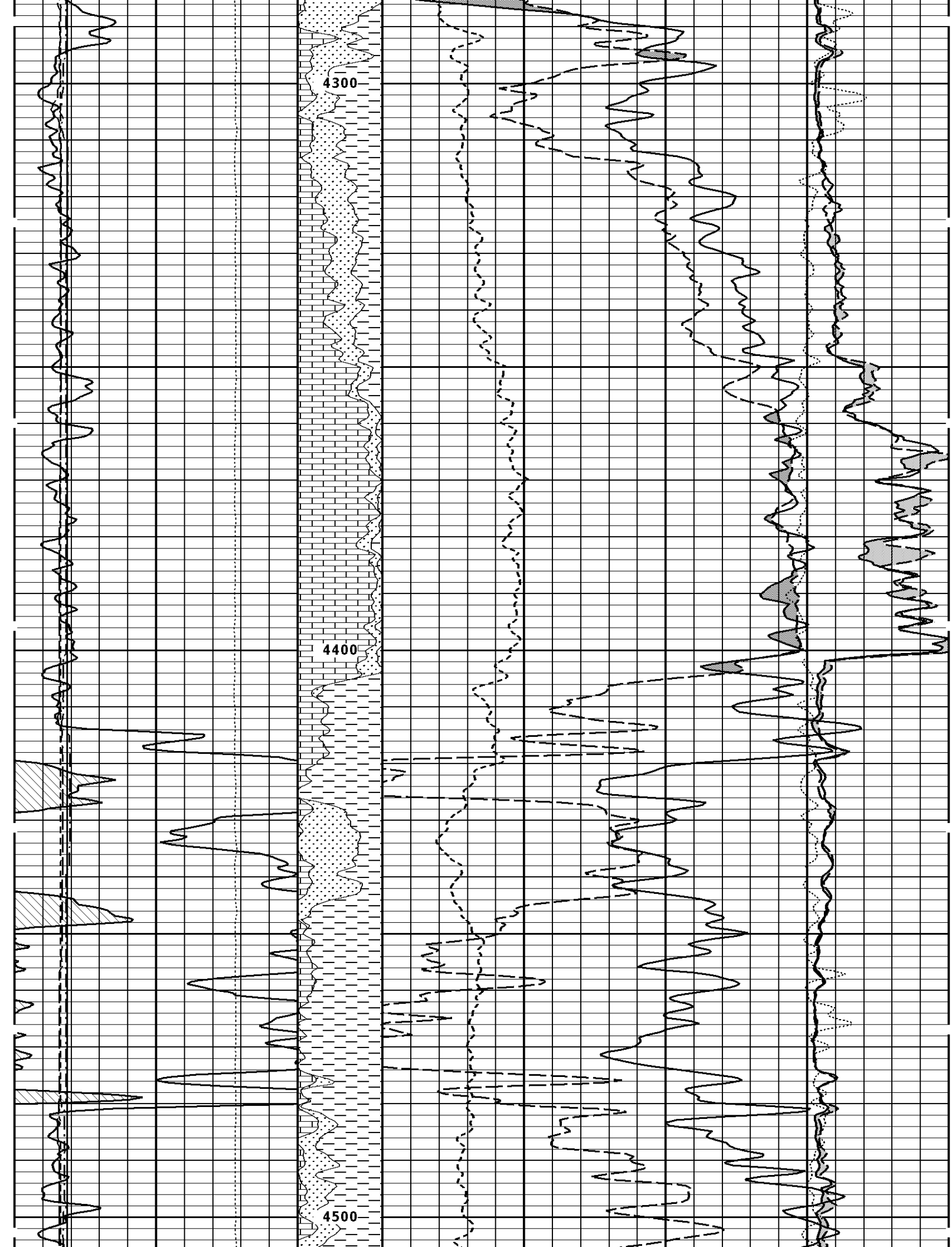
←LWT
4100
4200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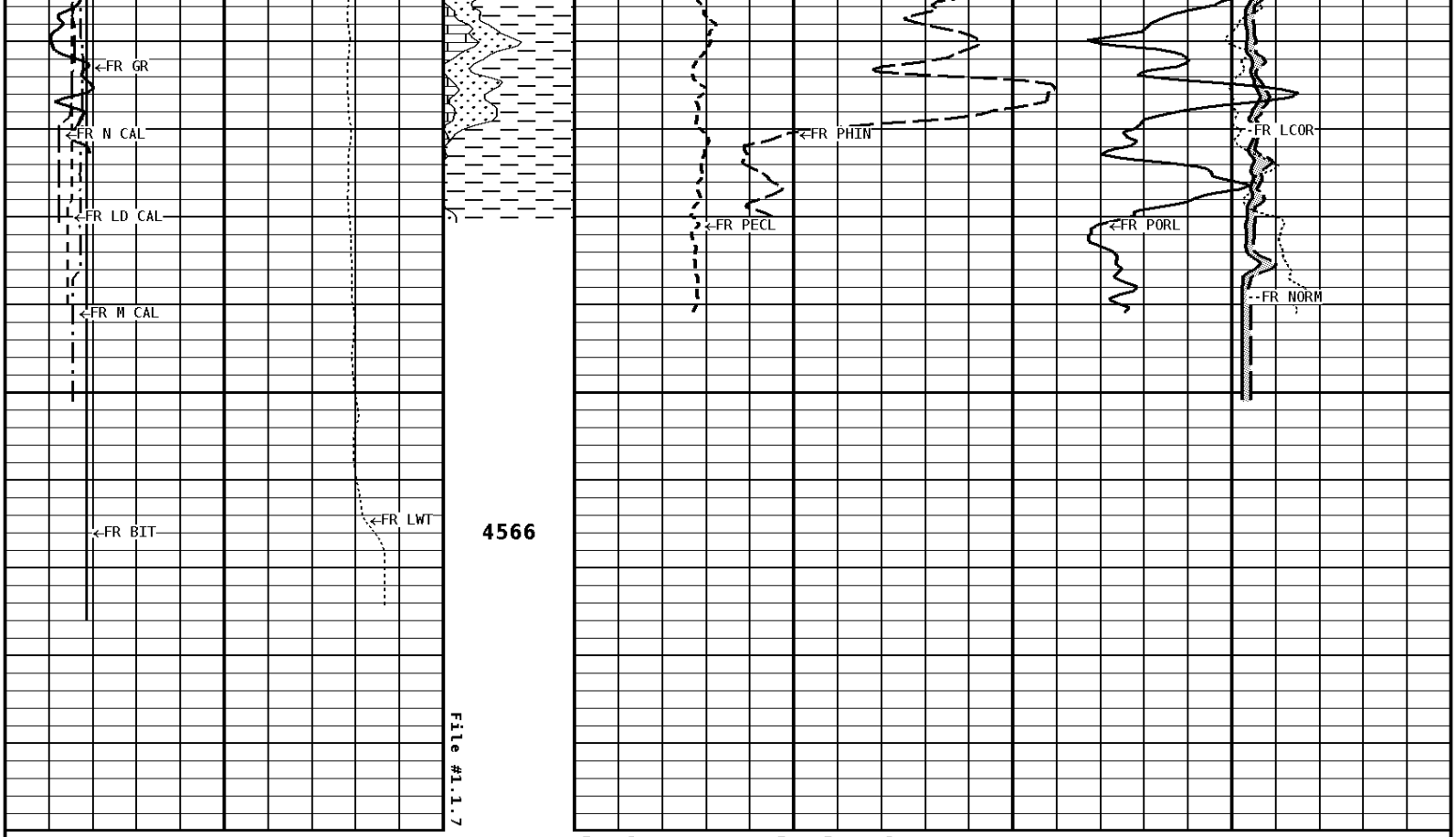


1:240 MAIN SECTION

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
BARNS/ELECTRON
0 — 10

DENSITY CORRECTION
G/CC
-0.25 — 0.25

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

INVERSE
OHMM
0 — 40

BIT SIZE
INCHES (IN)
6 — 16

NORMAL
OHMM
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: toto-gre-24-1-mstk-may-31 **Scale:** 1:240
Segment: V1.D1.S8 REPEAT **Acquired:** 2013-05/31 05:31 3.2.0-11855
Reference: 0 **Processed:** 2013-05/31 07:15 3.2.0-11855

CALIPER MICRO
INCHES (IN)
16 — 26
6 — 16

BIT SIZE
INCHES (IN)
6 — 16

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

NORMAL
OHMM
0 — 40

INVERSE
OHMM
0 — 40

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

Volume
Quartz

PE CROSS-SECTION
BARNS/ELECTRON
0 — 10

DENSITY CORRECTION
G/CC
-0.25 — 0.25

TENSION
LBS
10000 — 0

Volume
Calcite

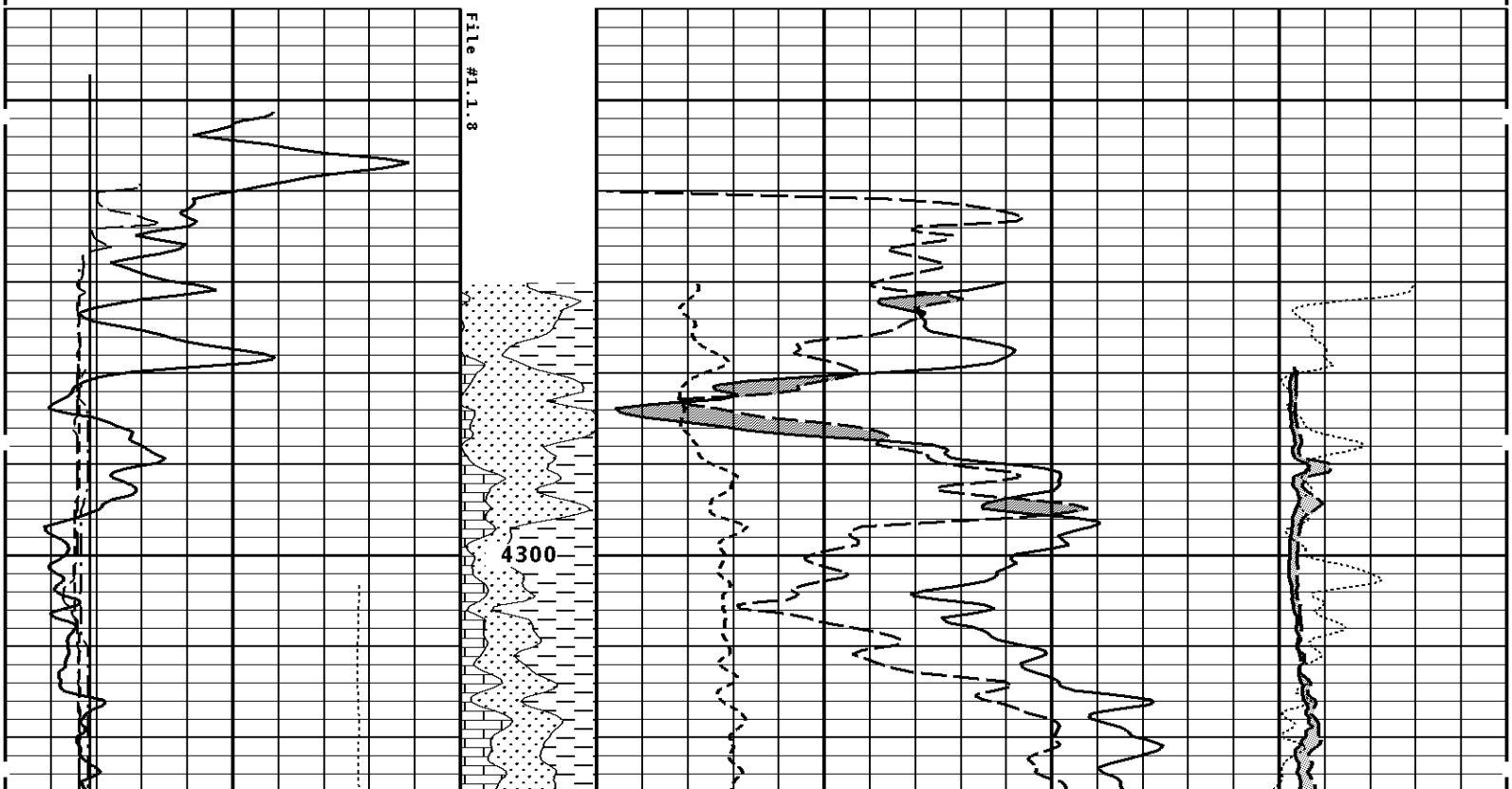
DENSITY POROSITY (2.71g/cc)
PERCENT
70 — 30
30 — -10
-10 — -50

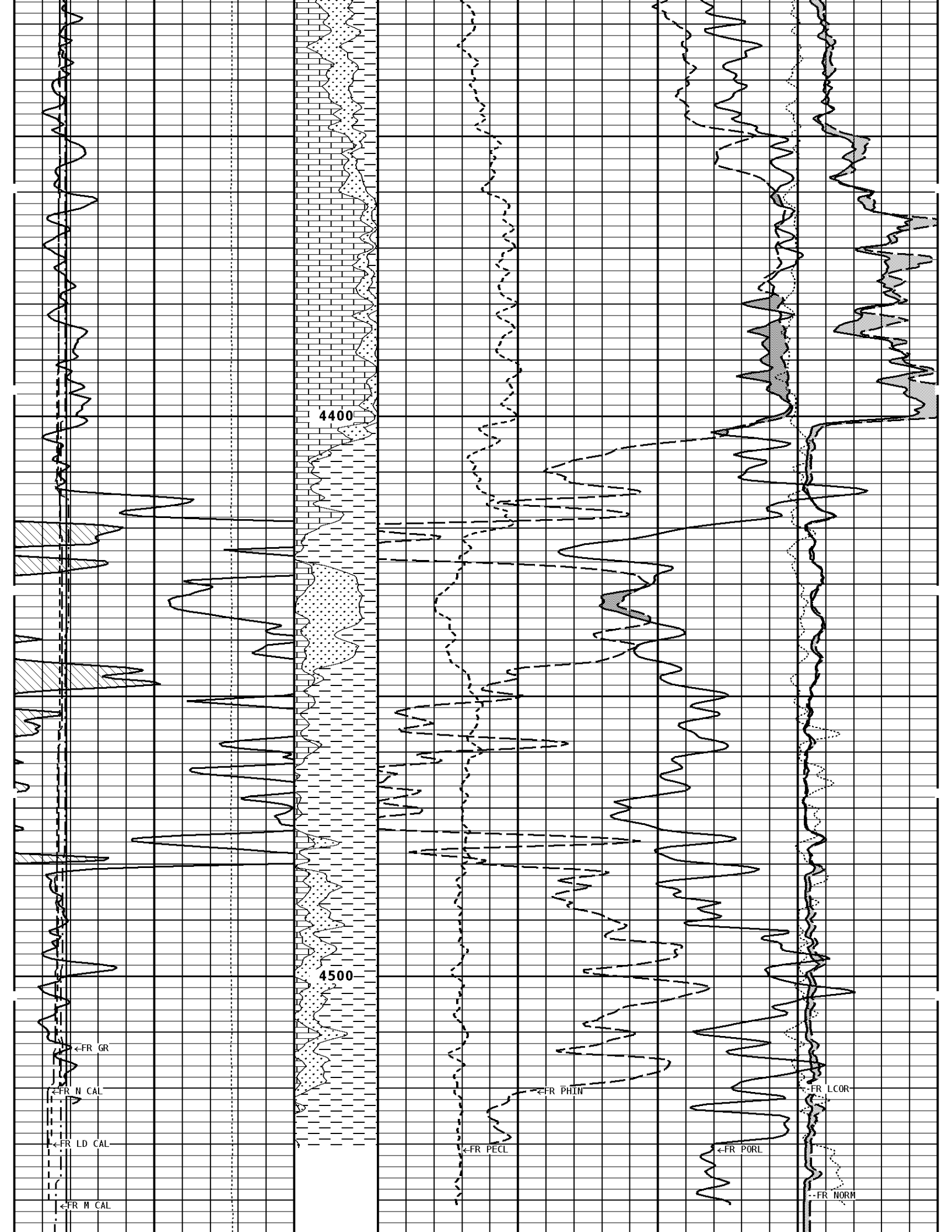
GAMMA RAY
API UNITS
150 — 300
0 — 150

Volume
Dolo/Shale

NEUTRON POROSITY (LIMESTONE)
PERCENT
30 — -10

1:240 REPEAT SECTION

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4500
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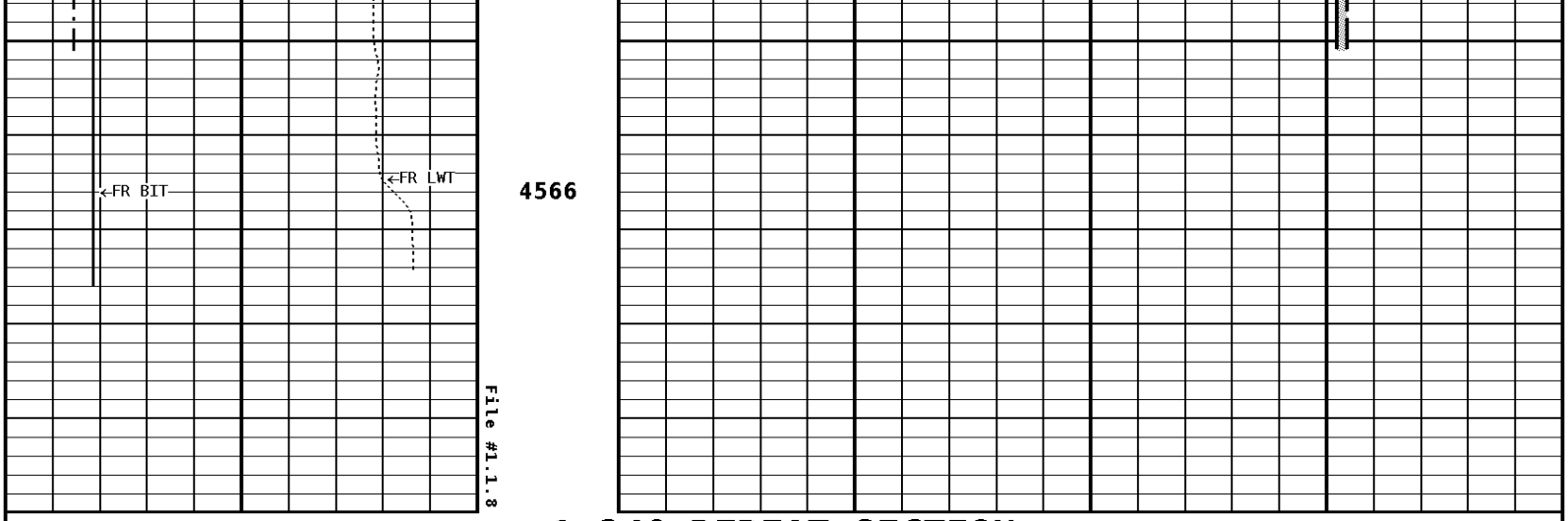
←FR N CAL
←FR LD CAL
←FR M CAL
←FR PHIN
←FR PECL
←FR PORL
←FR LCOR
←FR NORM



1:240 REPEAT SECTION

GAMMA RAY API UNITS	Volume Dolo/Shale	NEUTRON POROSITY (LIMESTONE) PERCENT
150 300 0 150		30 -10

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 6 16		0 10	-0.25 0.25

NEUTRON (Y) CALIPER INCHES (IN)	INVERSE OHMM
16 26 6 16	0 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	

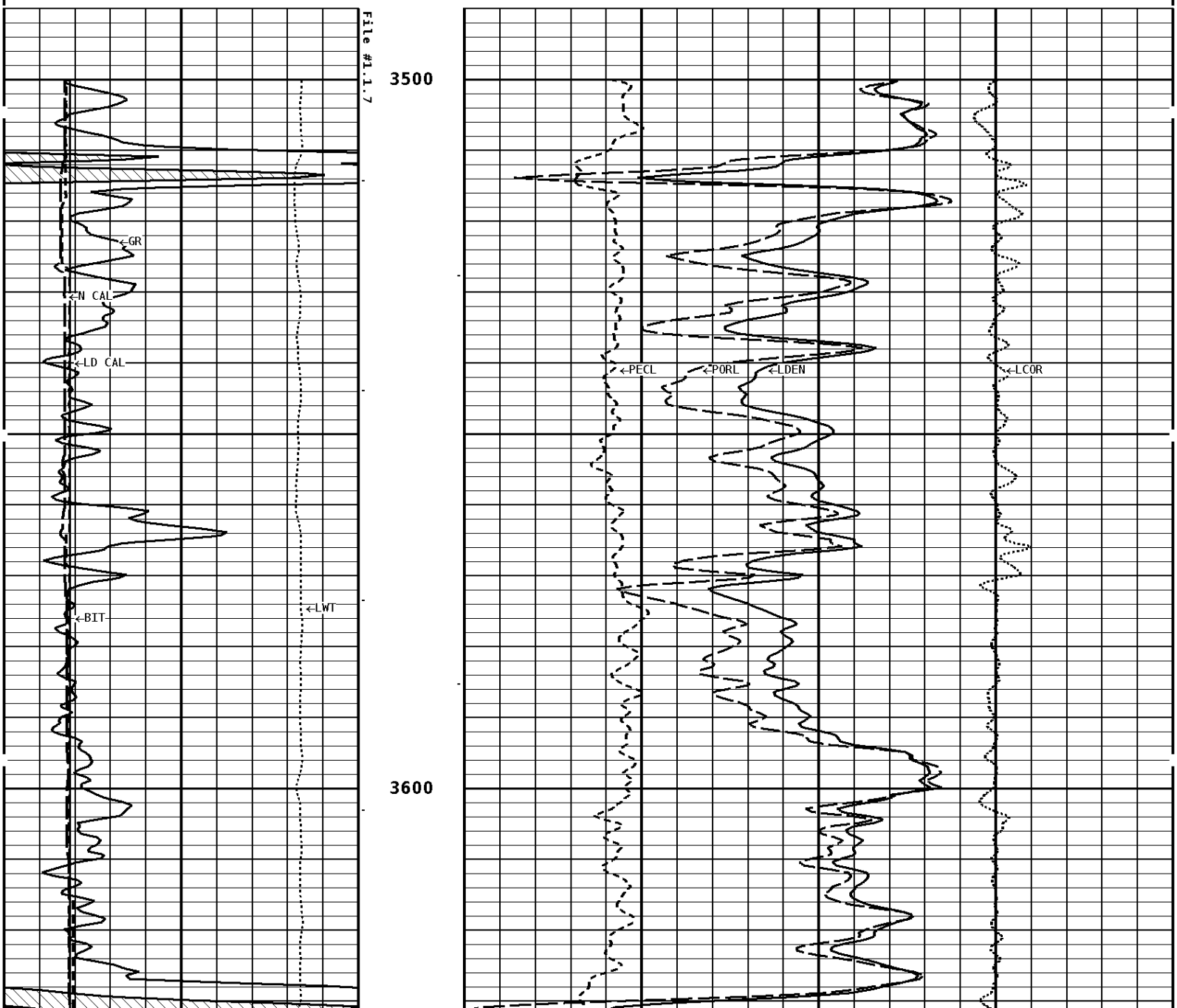
Well File: toto-gre-24-1-mstk-may-31 **Scale:** 1:240
Segment: V1.D1.S7 MAIN **Acquired:** 2013-05/31 05:48 3.2.0-11855
Reference: 0 **Processed:** 2013-05/31 07:15 3.2.0-11855

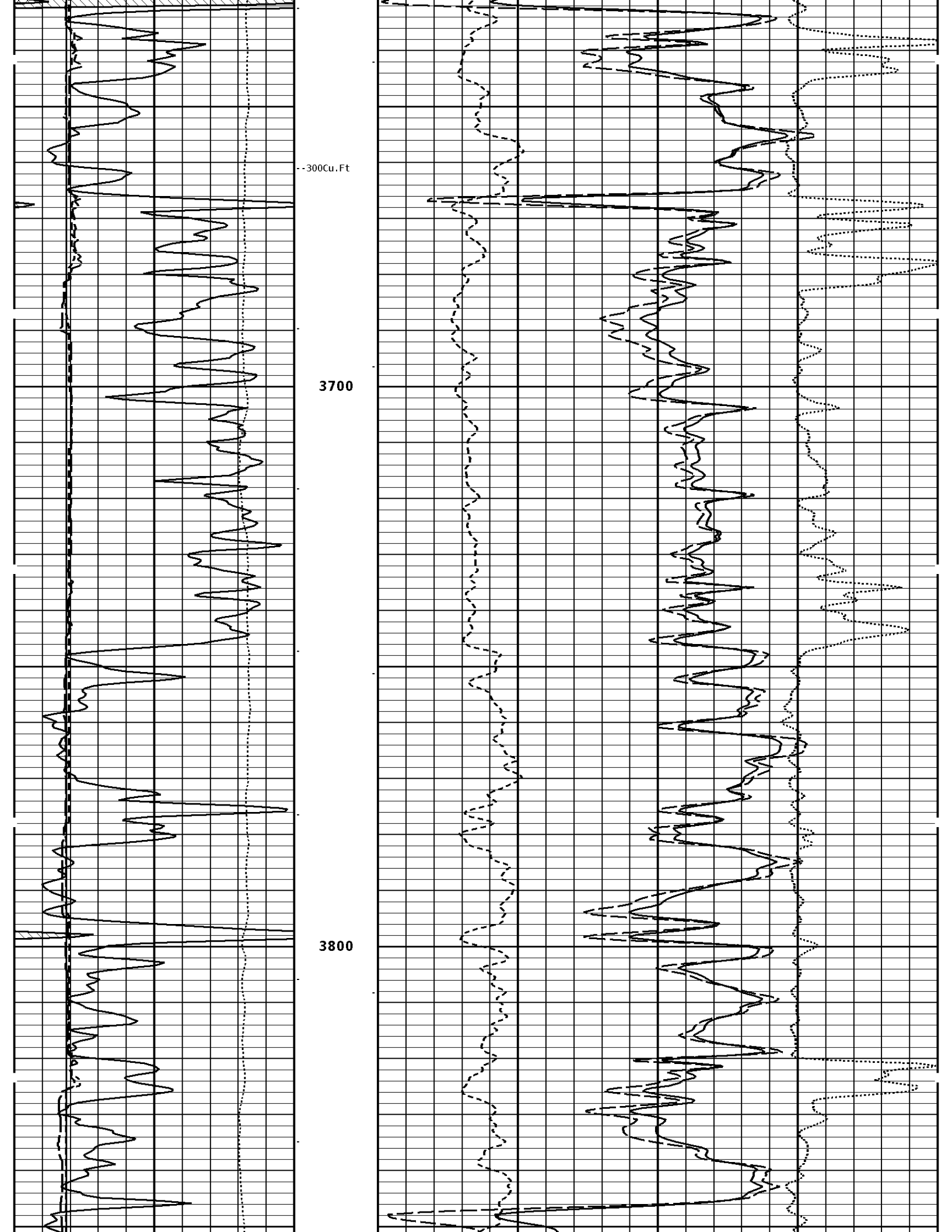
BIT SIZE INCHES (IN)
6 16

NEUTRON (Y) CALIPER INCHES (IN)			PE CROSS-SECTION BARNS/ELECTRON	DENSITY CORRECTION G/CC
16		26	0	-0.25
6		16	10	0.25
DENSITY (X) CALIPER INCHES (IN)				
16		26		
6		16		
TENSION LBS			**COMPENSATED BULK DENSITY G/CC**	
10000		0	3.0	4.0
			2.0	3.0
			1.0	2.0
GAMMA RAY API UNITS	-BHV AHV- CU.FT		**DENSITY POROSITY (2.71g/cc) PERCENT**	
150		300	70	30
0		150	30	-10
			-10	-50

1:240 MAIN SECTION

BULK DENSITY

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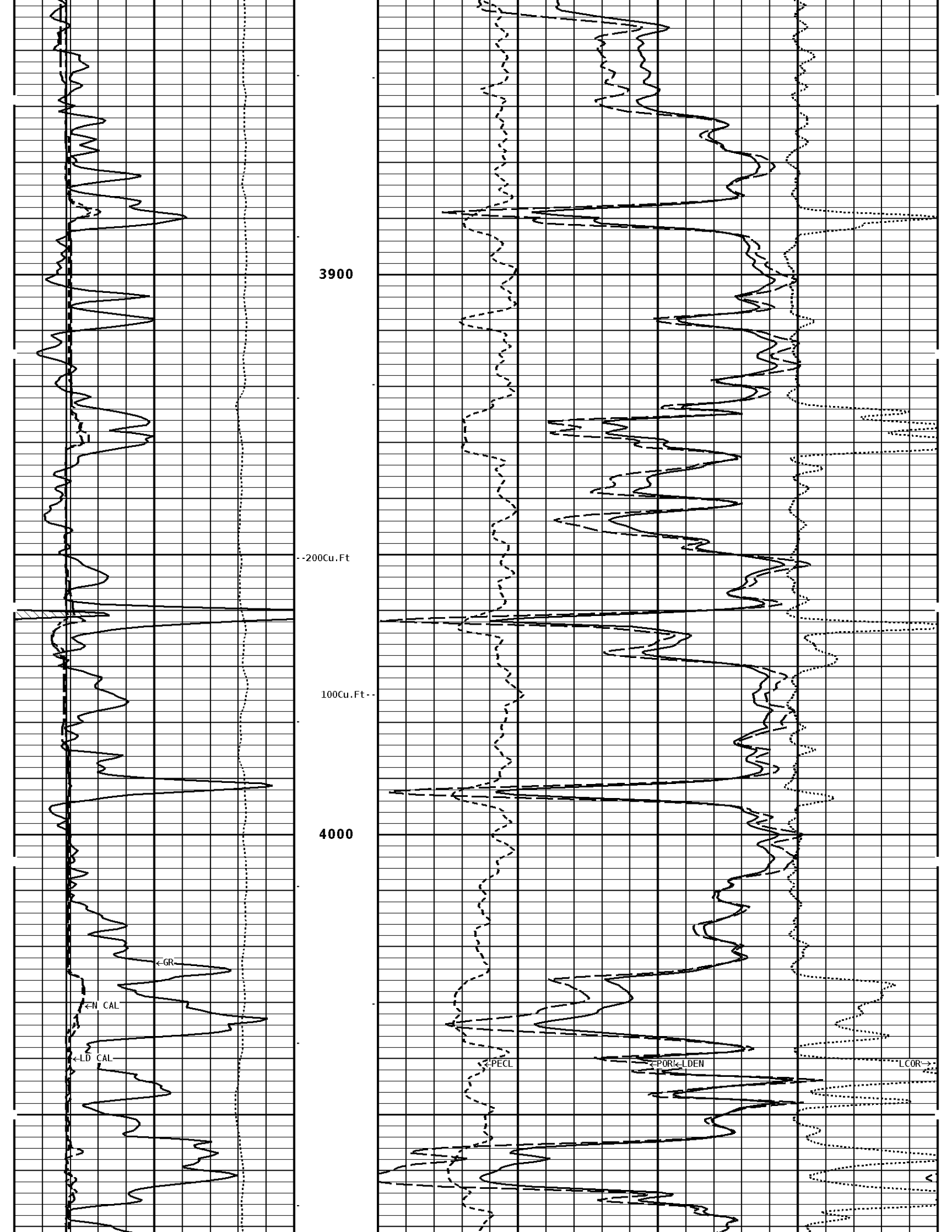
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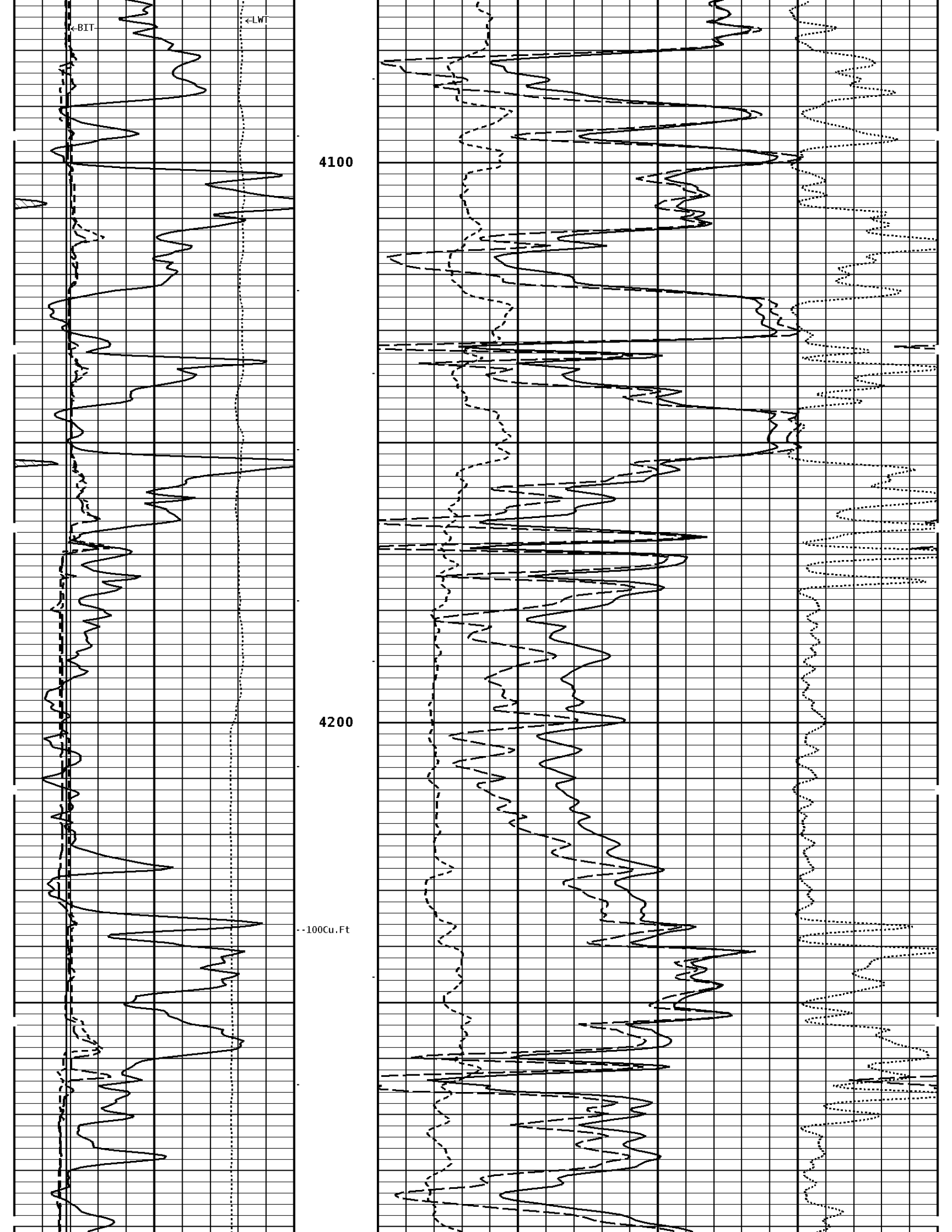
←N CAL
←LD CAL
←PECL
←PORI
←LDEN
LCOR→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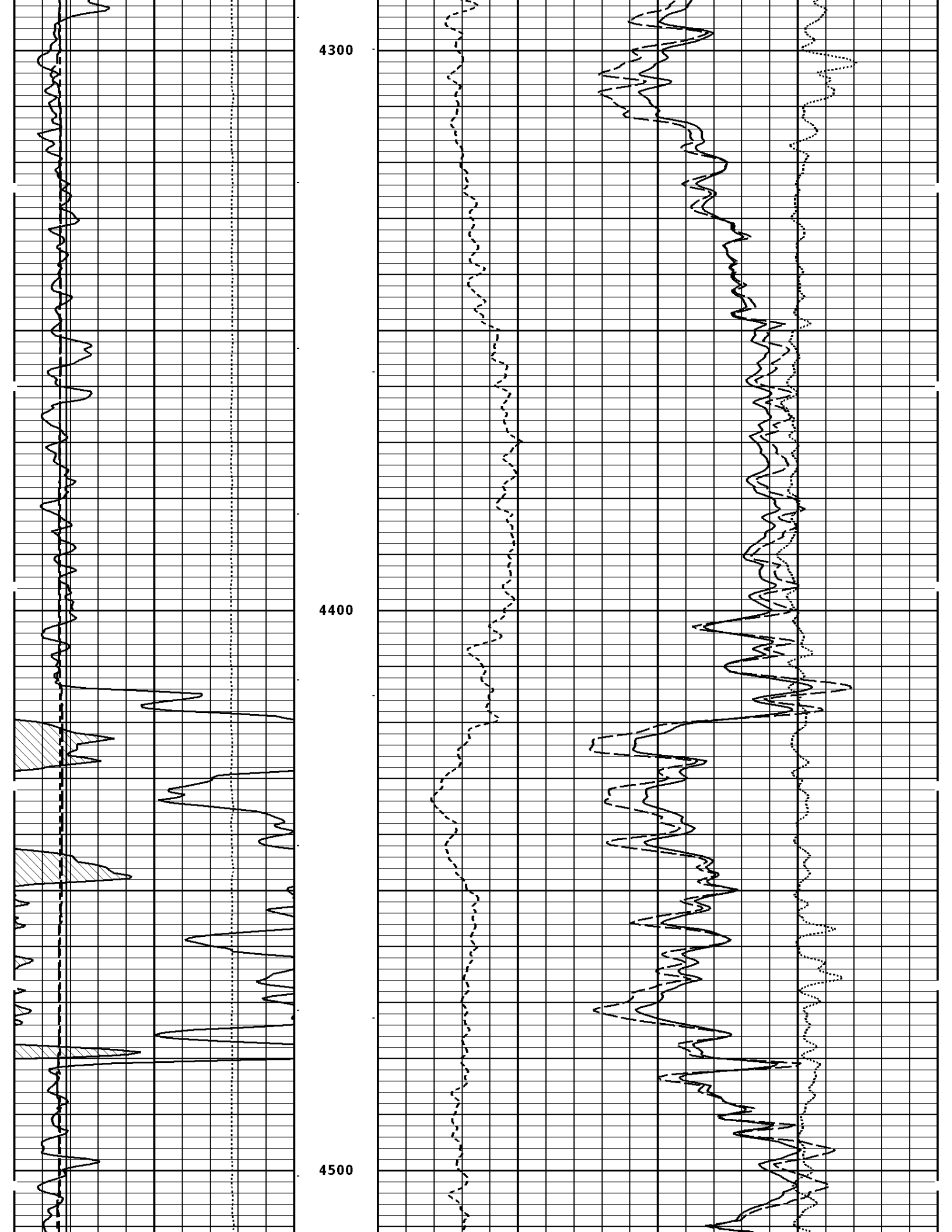
←LWT
4100
4200
--100Cu.Ft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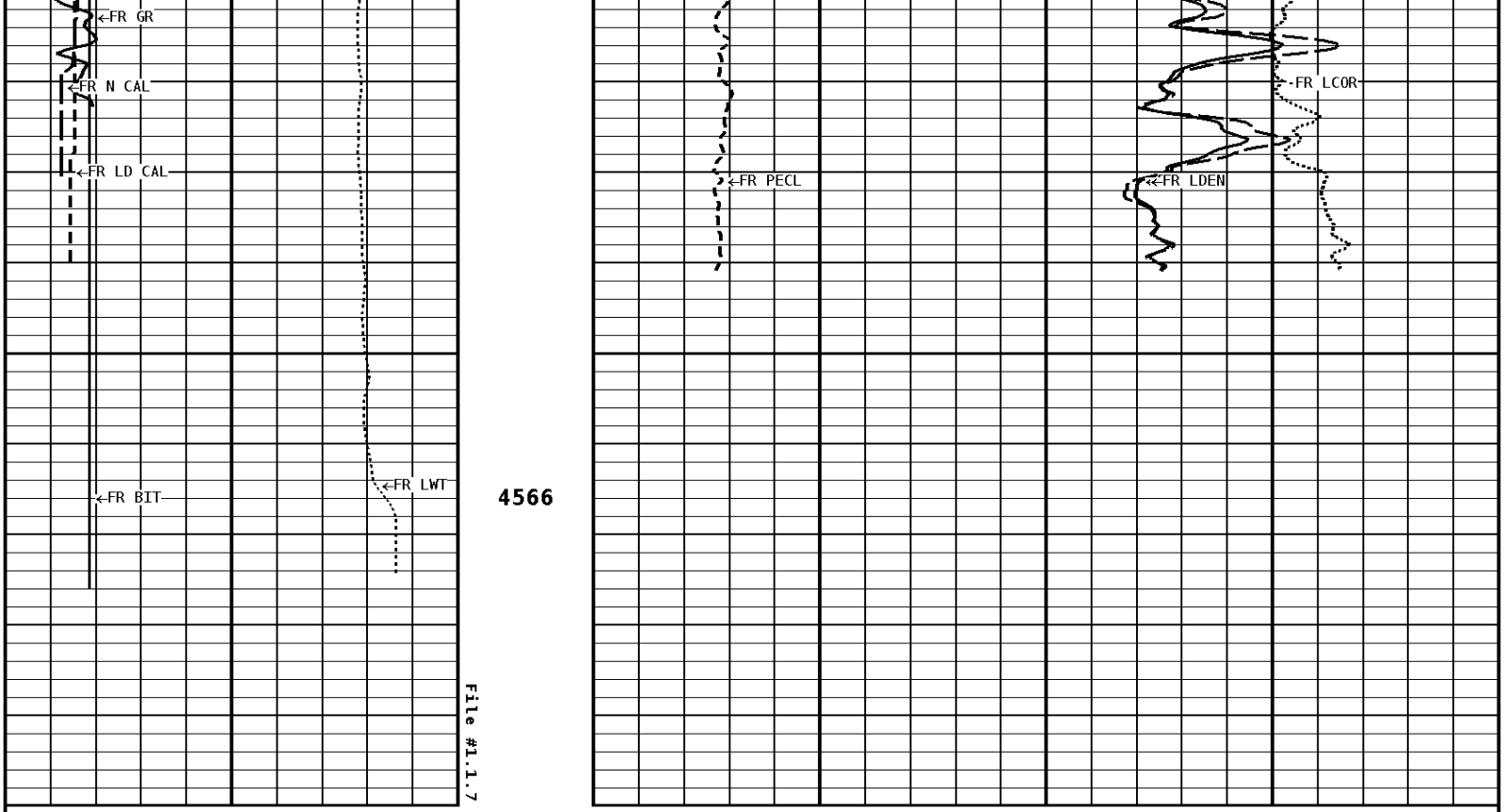

1:240 MAIN SECTION

BULK DENSITY

GAMMA RAY API UNITS	-BHV AHV- CU.FT	DENSITY POROSITY (2.71g/cc) PERCENT
150 300 0 150		70 30 30 -10 -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
16 26 6 16	0 10	-0.25 0.25

NEUTRON (Y) CALIPER INCHES (IN)
16 26 6 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 : 15-Mar-2013 Time : 11:26
Sensor Suite : GR-GR5 ID : GRT-BC-41

	Measured Background	Measured Jig	Units	Calibrated Jig	Units
GR	54	360	CPS	175	GRAPI

Shop Calibration
CNT-AA

Performed : 20-May-2013 Time : 11:12
Sensor Suite : CALI-BCN ID : NDT-BD-133

	Jig - Measured Ring#1	Jig - Measured Ring#2	Jig - Calibrated Ring#1	Jig - Calibrated Ring#2	Units
CL # 1	9.1	13.8	6.0	12.0	IN.

Performed : 20-May-2013 Time : 10:59
Sensor Suite : BHC NEUT ID : CNP-AA-024
Source ID : N-1045

	Tank Measured	Tank Calibrated	Verification Jig	Units
N/F	3.9120	3.6893	3.6868	
Porosity	24.0	20.5	20.5	%

Shop Calibration
LDT-DF

Performed : 13-May-2013 Time : 11:41
Sensor Suite : CALI-LTH ID : PDT-GA-464

	Jig - Measured Ring#1	Jig - Measured Ring#2	Jig - Calibrated Ring#1	Jig - Calibrated Ring#2	Units
CL # 1	8.1	10.9	6.0	12.0	IN.

Performed : 13-May-2013 Time : 11:23
Sensor Suite : BHCPELNG ID : LDP-DA-065
Source ID : 2991GW

Short Space

	BKGD	Al	Mg	Al+Fe	Units
LSW1	69	1114	1789	725	CPS
LSW2	74	1366	2154	977	CPS
LSW3	271	3132	5024	2656	CPS
LSW4	339	2776	4021	2454	CPS
LSW5	31	57	63	53	CPS
LSW6	88	93	92	93	CPS
LSW7	56	59	61	59	CPS
LSW8	1	4	6	4	CPS
QS	0.221	0.222	0.201	0.223	
PES			2.778	5.967	
SSDN		2.600	1.680		G/CC

Long Space

	BKGD	Al	Mg	Al+Fe	Units
LLW1	126	1259	5119	763	CPS
LLW2	163	2211	8595	1599	CPS
LLW3	502	4053	15267	3489	CPS
LLW4	544	1965	6291	1781	CPS
LLW5	63	73	132	70	CPS
LLW6	164	159	149	159	CPS
LLW7	107	104	101	104	CPS
LLW8	5	8	20	7	CPS
QL	0.211	0.208	0.194	0.210	
PEL			2.697	5.458	
LSDN		2.600	1.680		G/CC

Shop Calibration
MST-DA

Performed : 15-MAR-2013 Time : 09:52
Sensor Suite : CALI-MSN ID : MST-DA-36

	Jig - Measured Ring#1	Jig - Measured Ring#2	Jig - Calibrated Ring#1	Jig - Calibrated Ring#2	Units
CL # 1	7.6	11.9	6.0	12.0	IN.

Performed : 15-Mar-2013 Time : 09:48
Sensor Suite : MSTDA-NI ID : MST-DA-36

Internal

	Measured Zero	Measured Reference	Units	Calibrated Zero	Calibrated Reference	Units
INV-V	218.0	30277.7		0.00	1460.00	MV

INV-V	218.0	30277.7		0.00	1460.00	MV
NOR-V	160.5	30105.0		0.00	1546.00	MV
IN-C	156.0	30432.1		0.00	15.46	UA
INV-R					30.55	OHMM
NOR-R					55.11	OHMM

Performed : 01-OCT-2012 Time : 14:53
Sensor Suite : MSTDAMSF ID : MST-DA-36

Internal

	Measured			Calibrated		
	Zero	Reference	Units	Zero	Reference	Units
MSFC	150.0	58600.0		0.00	1522.00	UA
MSFB	32800.0	62500.0		0.00	1522.00	MA
MOM1	150.0	5950.0		0.00	1522.00	MV
MSFRA					43.30	OHMM

Tucker ENERGY SERVICES

Company: TOTO ENERGY LLC

Well: GREENE #24-1

Location: 2290' FSL & 1650' FWL

Logged: 05-31-2013

K.B. Elev: 2085.0 Ft