Tucker WIRELINE SERVICES

COMPENSATED NEUTRON

PEL DENSITY LOG

Company ANDERSON ENERGY, INC
Well NORTH TRUST #1
Field BRENNER SOUTH
County TREGO
State KANSAS
Country USA
API No. 15-195-22815-0000

File No : TUL-58693
Company : ANDERSON ENERGY, INC
Well : NORTH TRUST #1
Field : BRENNER SOUTH
County : TREGO
State : KANSAS
Country : USA
API No : 15-195-22815-0000

Location :
385' FNL & 330' FWL
S/2 NW NW NW

LSD : **Sect :** 24 **Twp :** 15S **Rge :** 21W

Permanent Datum:	GL	**Elevations:**		**Services:**	
Drilling Measured From:	KB	**KB** 2170.00	Ft	CNT	CST
Log Measured From:	KB	**DF** 2169.00	Ft	LDT	PIT
Above Permanent Datum:	9.00 Ft	**GL** 2161.00	Ft	MLT	DIPLOG

Date	2012-09-17			
Run Number	1			
Depth--Driller	4270.0 Ft			
Depth--Logger	4265.0 Ft			
First Reading	4220.0 Ft			
Last Reading	294.0 Ft			
Casing--Driller	294.0 Ft			
Casing--Logger	294.0 Ft			
Bit Size	7.875 In			
Casing Size	8.625 In			
Hole Fluid Type	CHEM-GEL			
Density	9.2 LBS/GAL			
Fluid Loss	8.0 CC			
PH/Viscosity	9.5	52.0 SEC		
Sample Source	MEASURED			
RM@Measured Temp.	2.000 @ 75 F			
RMF@Measured Temp	1.600 @ 75 F			
RMC@Measured Temp.	2.400 @ 75 F			
Source RMF/RMC	CALCULATED	CALCULATED		
RM@BHT	1.300 @ 119 F			
Time Circulation Stopped	2012-09-17 01:40			
Max Recorded Temp.	119 F			
Equipment/Base	TRK 127	TULSA		
Recorded By	SHELDON TYLER			
Witnessed By	R. FISHER			

Bitsize Intervals

Size (In)	Bottom (Ft)
7.875	4270.00

Casing Strings

Size (In)	Weight (Lbs)	Bottom (Ft)
8.625	32.00	294.00

Run Number	1		
Date	2012-09-17		
Date/Time On Bottom	2012-09-17 03:40		
Depth to Fluid	0.0	Ft	
Salinity	0.000	PPM	
RMF@BHT	1.040 @ 119 F		
RMC@BHT	1.560 @ 119 F		

Run Number 1

Comments

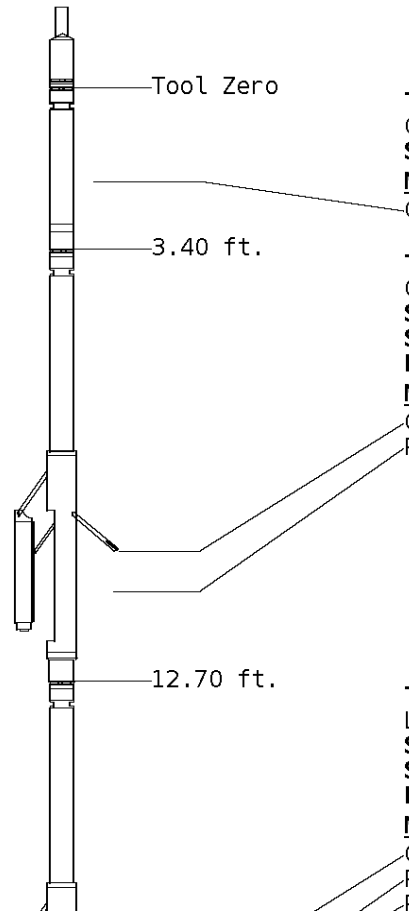
ALL PRESENTATIONS AS PER CUSTOMER REQUEST
GRT, CNT, LDT, MLT, CST AND PIT RUN IN COMBINATION.
CALIPERS ORIENTED ON X-Y AXIS.
2.71 G/CC USED TO CALCULATED POROSITY.
ANNULAR HOLE VOLUME CALCULATED UISING 5.500" PRODUCTION CASING.

GRT: GRP.
CNT: PHIN, CLCNIN
LDT: PORL, LCORN, PECLN, LDENN, PORLLS, CLLDIN.
MLT: NOR_R, INV_R, MSCLPIN.
CST: PORS, DDCDTF, TT1PF, TT3PF, ITT.
PIT: ILD, ILM, SPU, SFLAEC

OPERATORS:
J.T
A.DJAHO
B.SMITH

Tool String Schematic

Total Tool Length - 66.95 **ft.**
Maximum Outside diameter - 6.00 **in.**
Net Weight in Air - 1171.00 **lbs.**



Tool: GRT-B **Length:** 3.40 **ft.** **O.D.** 3.60 **in.**
Gamma Ray Controller
Sonde ID :GRT-BC-43

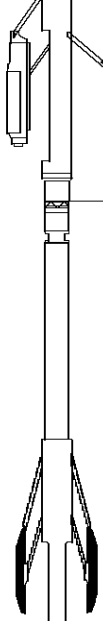
Measure Point	Tool Offset	Stack Offset	Bottom Offset
GRP	2.00	2.00	64.95

Tool: CNT-AA **Length:** 9.30 **ft.** **O.D.** 4.36 **in.**
Compensated Neutron A Pad on NDT-A
Sonde ID :NDT-BB-134
Source ID :N-1044
Pad ID :CNP-AE-42

Measure Point	Tool Offset	Stack Offset	Bottom Offset
CLCN	6.00	9.40	57.55
PHIN	6.80	10.20	56.75

Tool: LDT-DA **Length:** 9.30 **ft.** **O.D.** 4.80 **in.**
Litho Density D Pad on NDT-A
Sonde ID :PDT-GA-466
Source ID :CSV-587
Pad ID :LDP-DA-02

Measure Point	Tool Offset	Stack Offset	Bottom Offset
CLLD	6.00	18.70	48.25
PEL	7.00	19.70	47.25
PES	7.40	20.10	46.85



LDEN	7.20	19.90	47.05
LCOR	7.20	19.90	47.05

22.00 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	29.60	37.35
MSCLP	7.60	29.60	37.35
INV	7.60	29.60	37.35
NOR	7.60	29.60	37.35

31.66 ft.

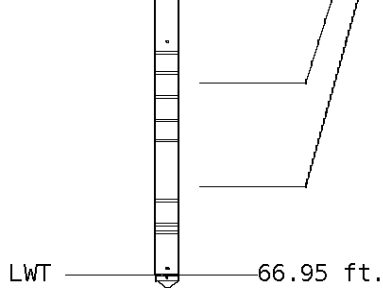
Tool: CST-AD **Length:** 13.80 **ft.** **O.D.** 3.60 **in.**
Open Hole Sonic
Sonde ID :CST-AB-38

Measure Point	Tool Offset	Stack Offset	Bottom Offset
TT1	4.80	36.46	30.49
TT3	5.80	37.46	29.49
CDT	7.30	38.96	27.99
TT4	8.80	40.46	26.49
TT2	9.80	41.46	25.49

45.46 ft.

Tool: PIT-CA **Length:** 21.49 **ft.** **O.D.** 3.62 **in.**
Phased Dual Induction w/ RM & D
Sonde ID :PIT-AC-13

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



Well File: ANDERSON_NORTHTRUST_1_SEP17_QUINT_DIPMETER **Scale:** 1:240
Segment: V1.D1.S5 Reprocess of MAIN **Acquired:** 2012-09/17 04:53 3.2.0-11172
Reference: 0 **Processed:** 2012-09/17 06:15 3.2.0-11172

TENSION
LBS
10000 0

BIT SIZE
INCHES (IN)
6 16

Volume
Dolo/Shale

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

Volume
Calcite

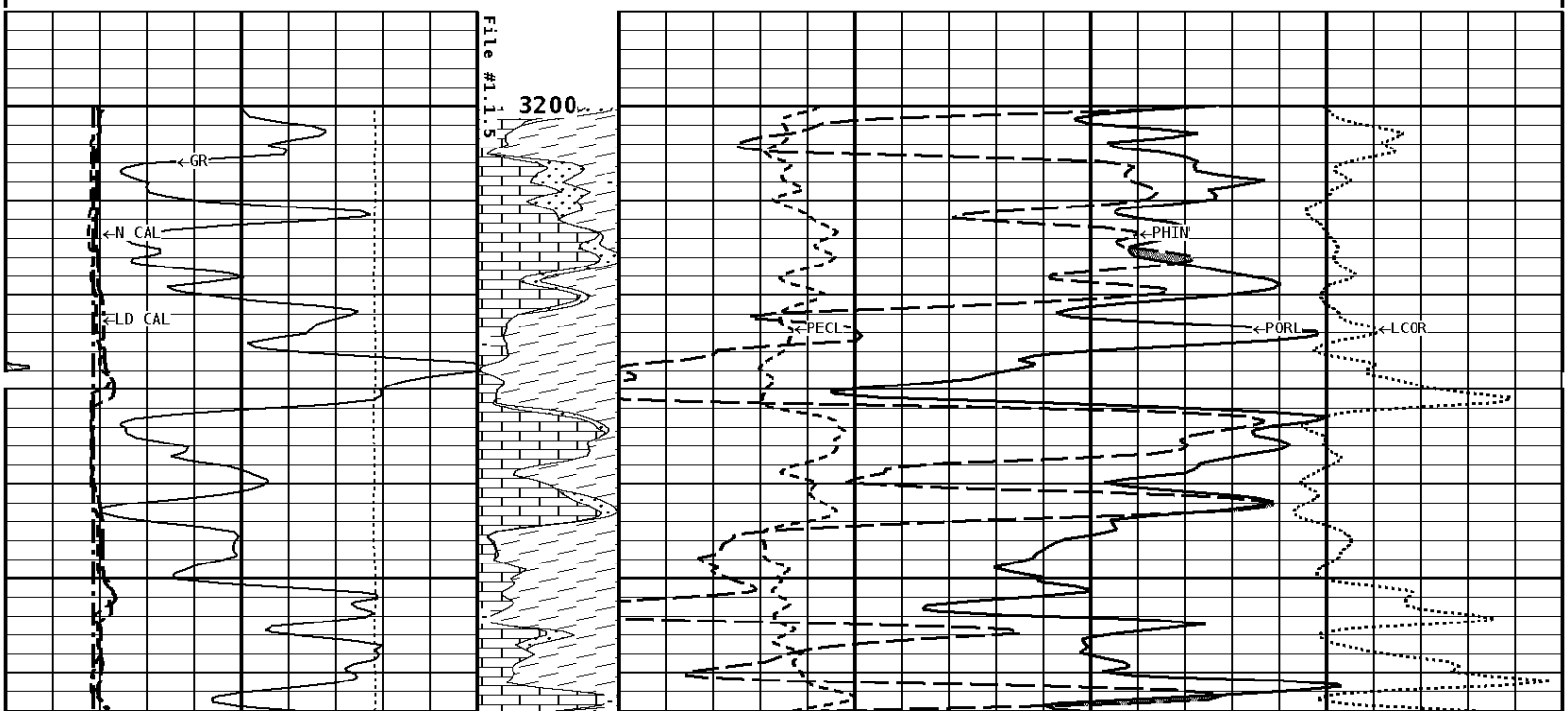
NEUTRON POROSITY
PERCENT (LIMESTONE MATRIX)
30 -10

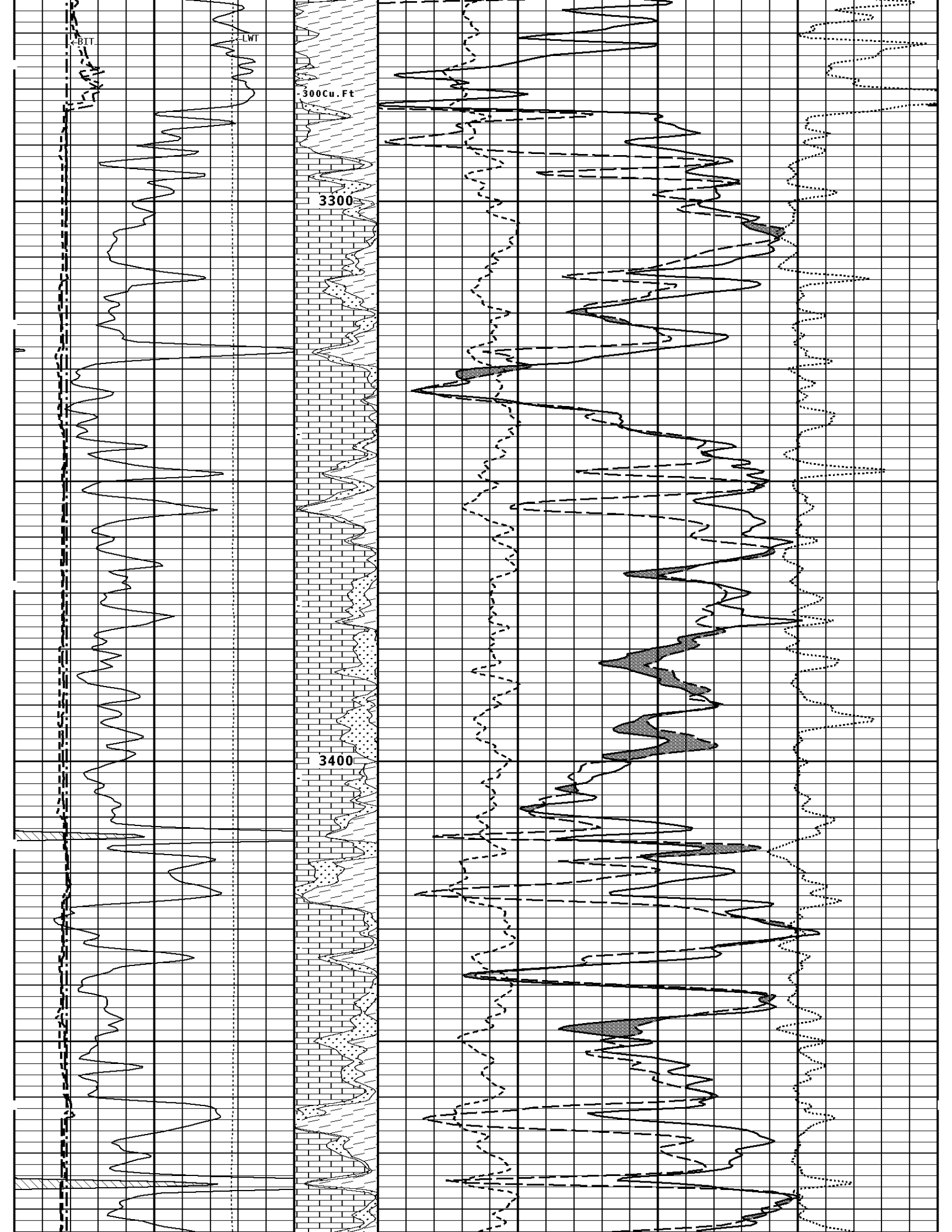
GAMMA RAY
API UNITS
150 300
0 150

-BHV AHV-
CU.FT

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

1:240 MAIN SECTION

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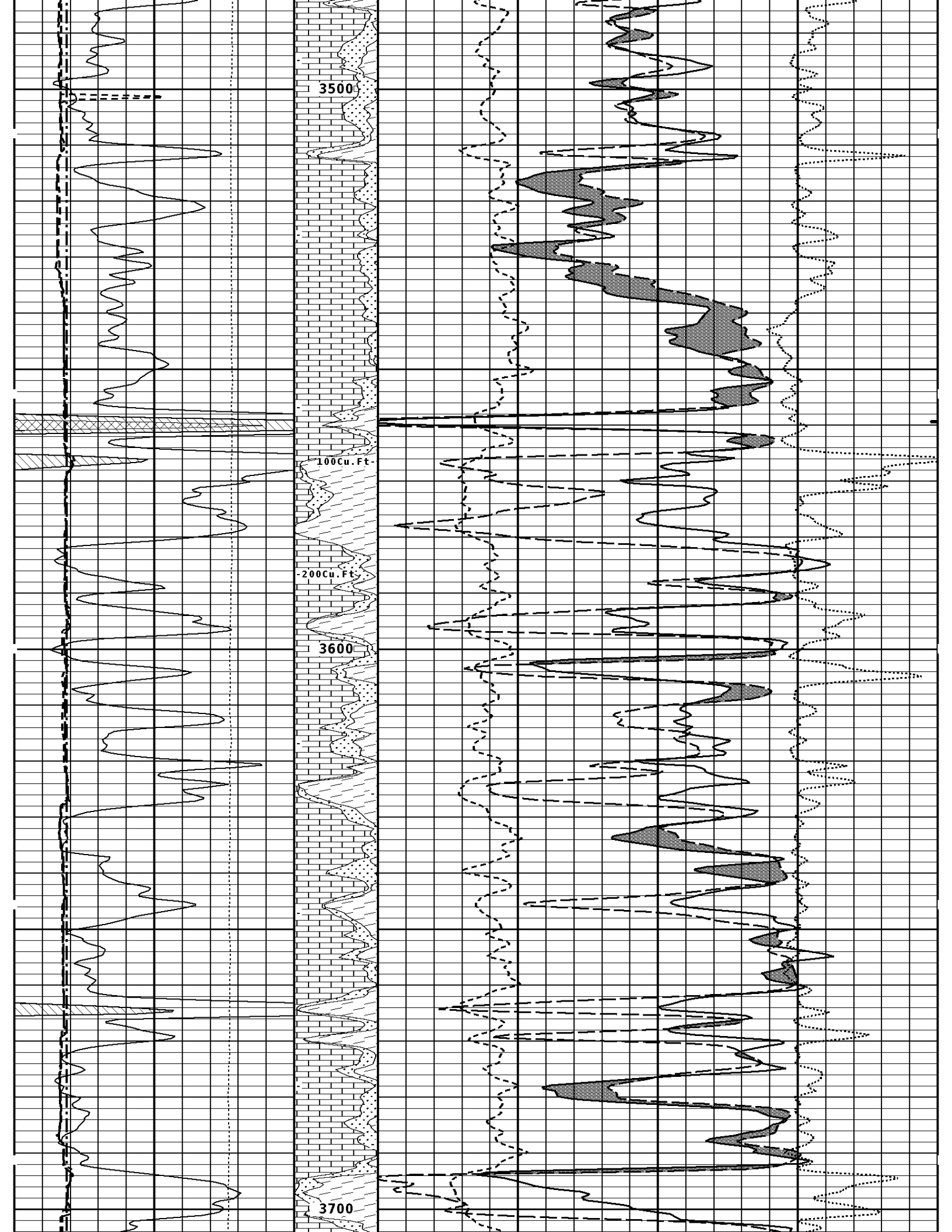
←LWT
300Cu.Ft
3300
3400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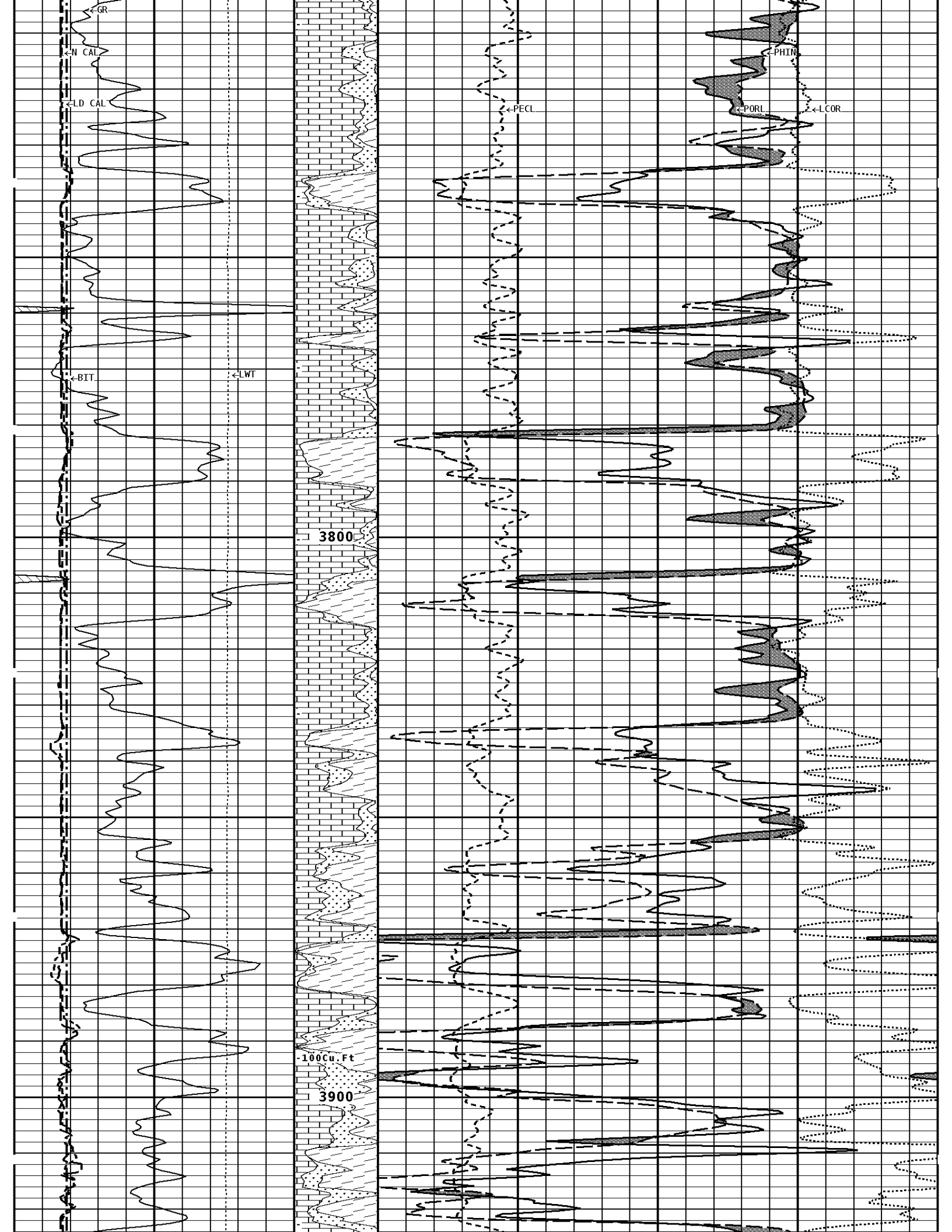
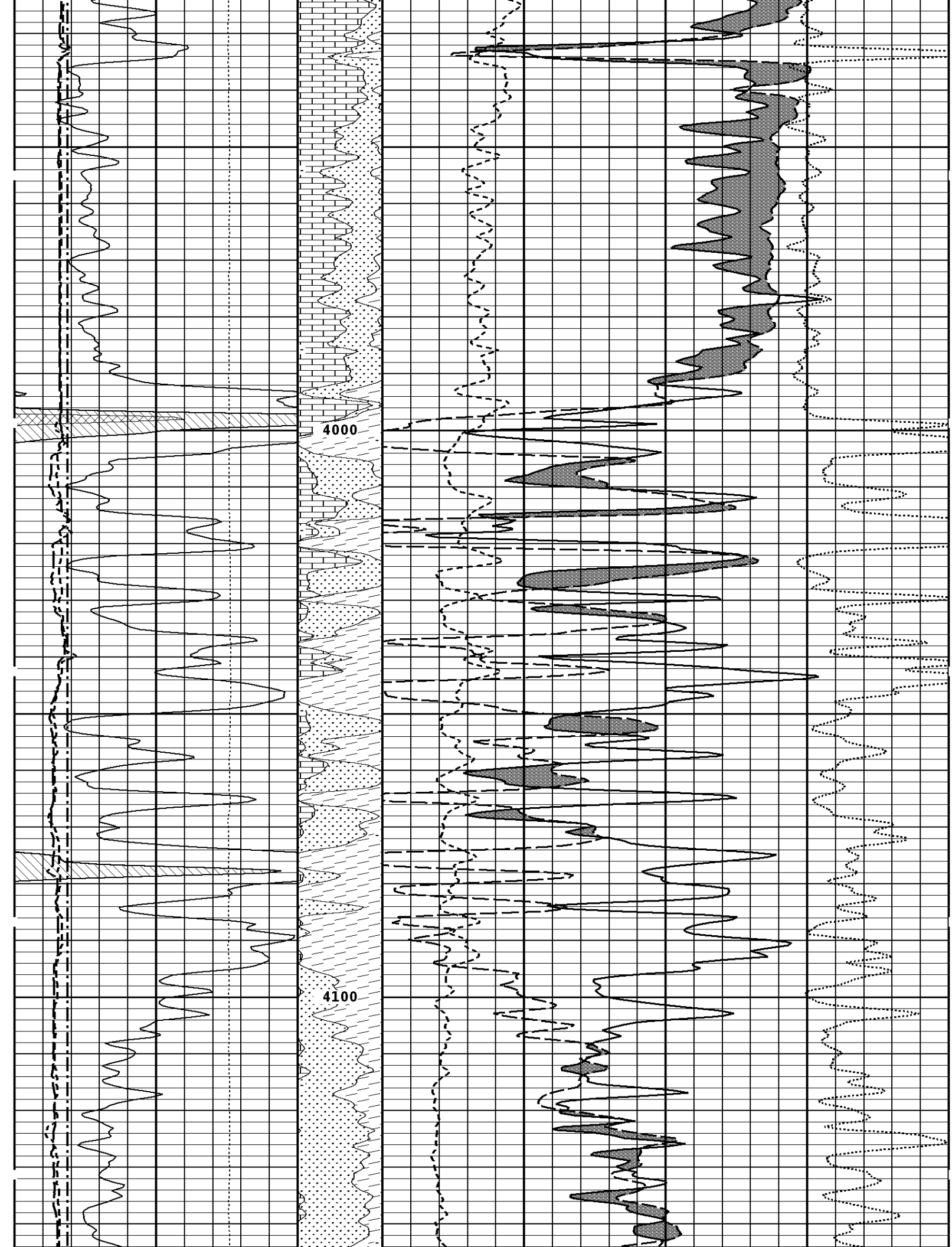
3600
3700


GR
N CAL
LD CAL
BIT
LWT
PECL
PHIN
PORL
LCOR
3800
-100Cu.Ft
3900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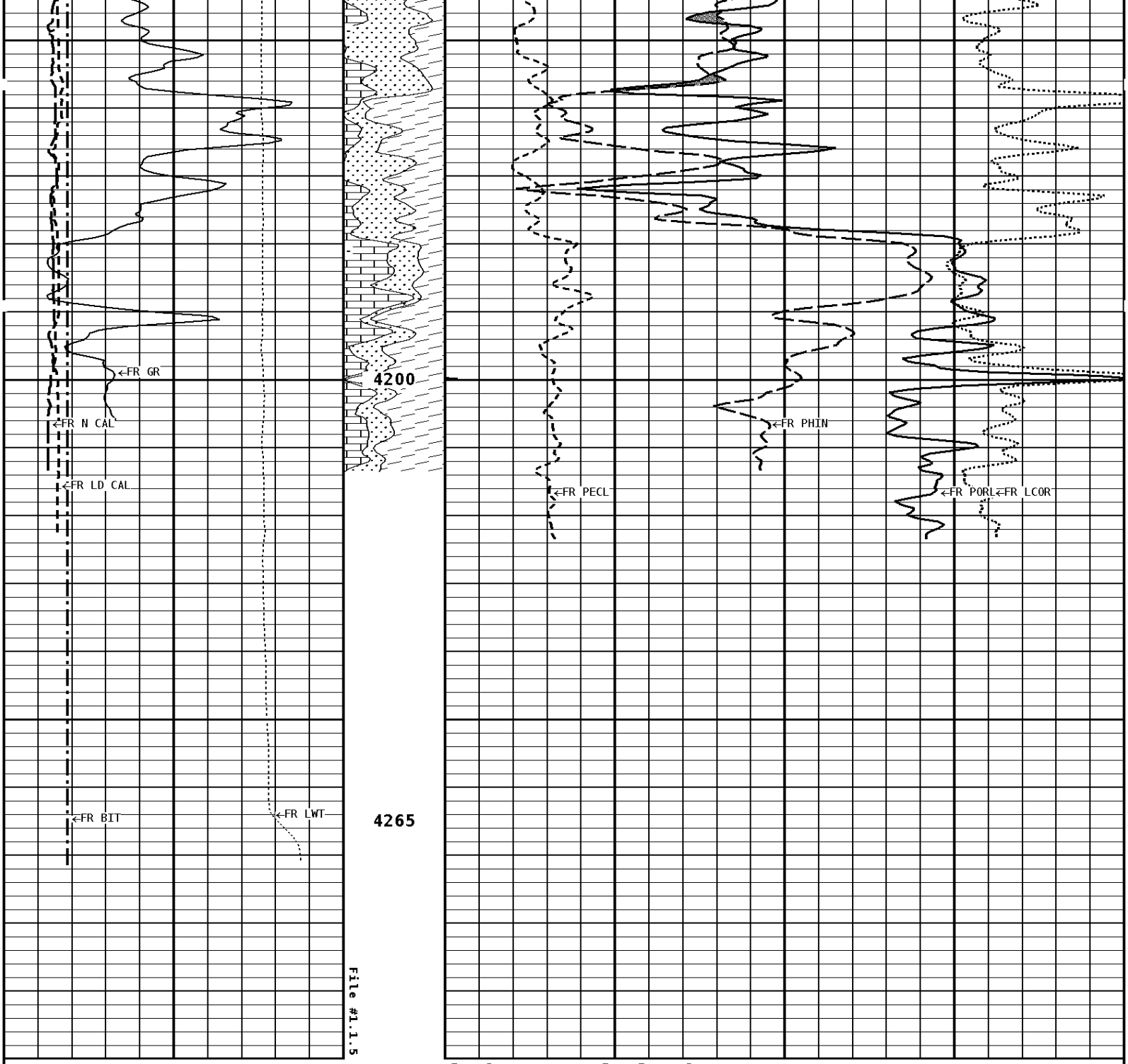


1:240 MAIN SECTION

GAMMA RAY API UNITS	-BHV AHV- CU.FT	DENSITY POROSITY PERCENT (2.71 g/cc)
150 300 0 150		70 30 30 -10 -10 -50
NEUTRON (Y) CALIPER INCHES (IN)	Volume Calcite	**NEUTRON POROSITY PERCENT (LIMESTONE MATRIX)**
16 26 6 16		30 -10
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

BIT SIZE INCHES (IN)	Volume Dolo/Shale
6 — 16	

TENSION LBS
10000 — 0

*** Borehole Zone Factors ***

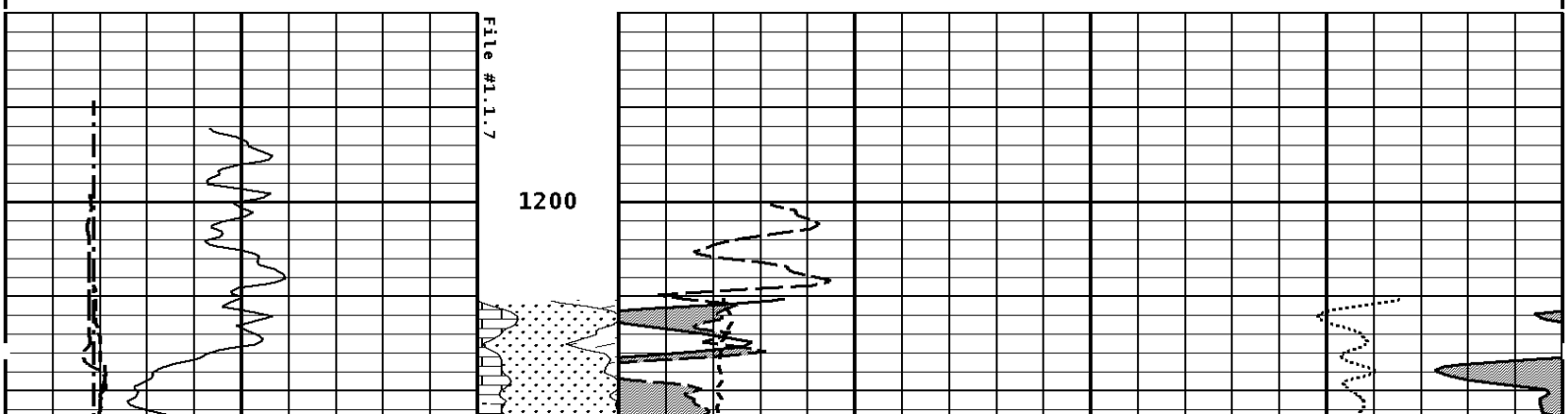
Zone 1 99999.0 to 0.0 Feet

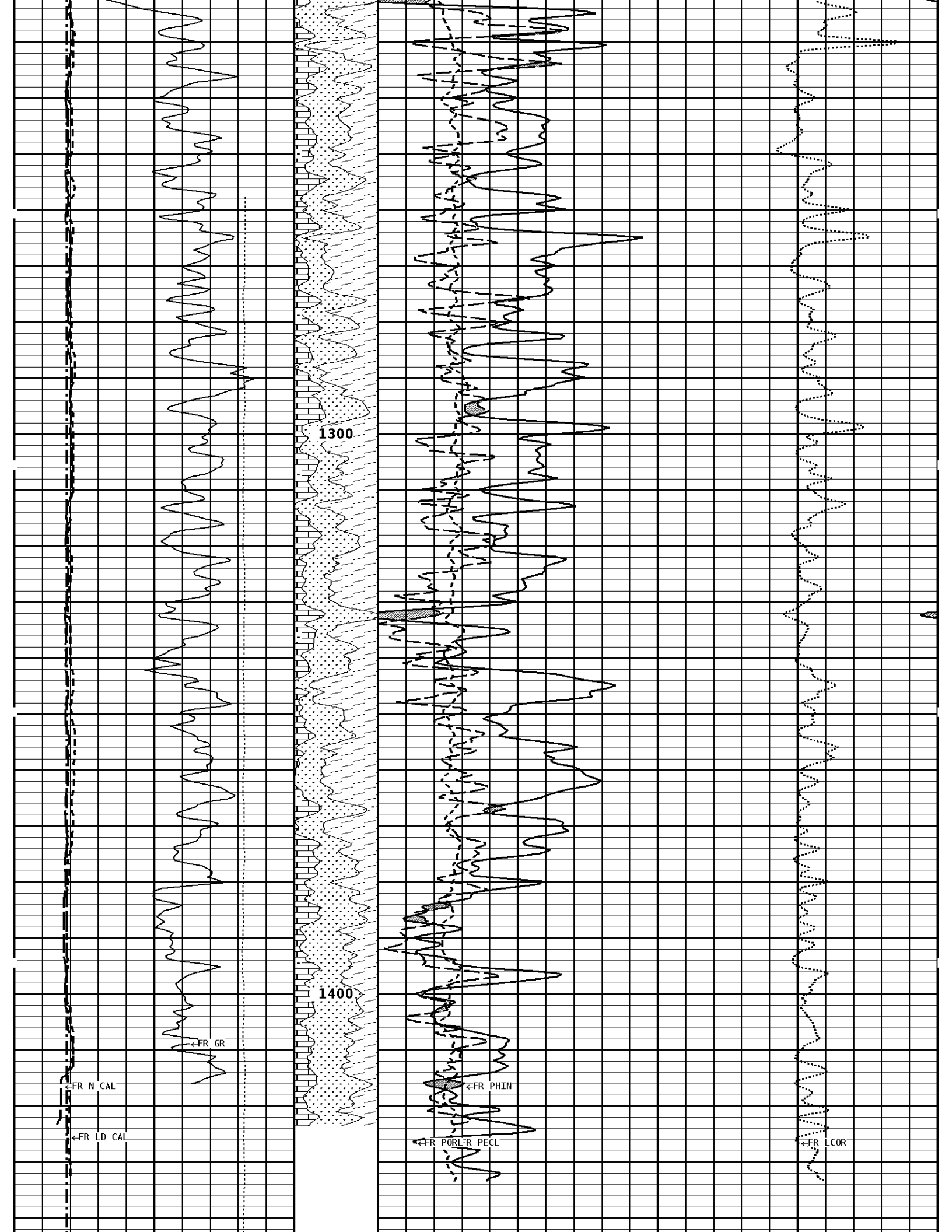
Matrix Density	2.71	g/cc
Fluid Density	1.00	g/cc
Formation Matrix	Limestone	
Drill Bit Size	7.875	in
Casing Diameter	5.500	in
Casing Correction (PHI N)	Disable	

Well File: ANDERSON_NORTHTRUST_1_SEP17_QUINT_DIPMETER **Scale:** 1:240
Segment: V1.D1.S7 Reprocess of REPEAT **Acquired:** 2012-09/17 06:27 3.2.0-11172
Reference: 0 **Processed:** 2012-09/17 06:38 3.2.0-11172

TENSION LBS		
10000 — 0		
BIT SIZE INCHES (IN)	Volume Dolo/Shale	
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
NEUTRON (Y) CALIPER INCHES (IN)	Volume Calcite	**NEUTRON POROSITY PERCENT (LIMESTONE MATRIX)**
16 — 26 6 — 16		30 — -10
GAMMA RAY API UNITS	-BHV AHV- CU.FT	**DENSITY POROSITY PERCENT (2.71 g/cc)**
150 — 300 0 — 150		70 — 30 30 — -10 -10 — -50

1:240 REPEAT SECTION




1300
1400
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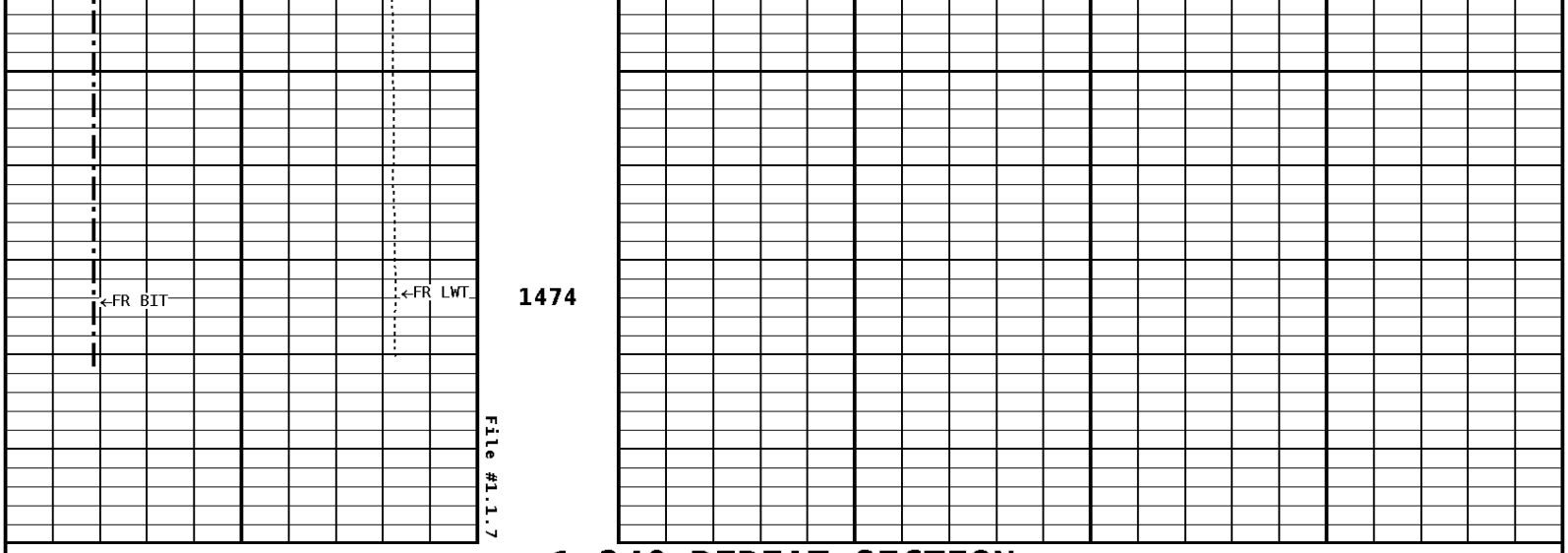
←FR N CAL
←FR LD CAL
←FR PHIN
←FR PORLR PECL
←FR LCOR



1:240 REPEAT SECTION

GAMMA RAY API UNITS	-BHV AHV- CU.FT	DENSITY POROSITY PERCENT (2.71 g/cc)
150 300		70 30
0 150		30 -10
		-10 -50

NEUTRON (Y) CALIPER INCHES (IN)	Volume Calcite	NEUTRON POROSITY PERCENT (LIMESTONE MATRIX)
16 26		
6 16		30 -10

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

BIT SIZE INCHES (IN)	Volume Dolo/Shale
6 16	

TENSION LBS
10000 0

*** 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	

Well File: ANDERSON_NORTHTRUST_1_SEP17_QUINT_DIPMETER	**Scale:** 1:240
Segment: V1.D1.S5 Reprocess of MAIN	**Acquired:** 2012-09/17 04:53 3.2.0-11172
Reference: 0	**Processed:** 2012-09/17 06:15 3.2.0-11172

TENSION LBS
10000 0

BIT SIZE INCHES (IN)

INCHES (IN)
6 16

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

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

GAMMA RAY
API UNITS
150 300
0 150

-BHV AHV-
CU.FT

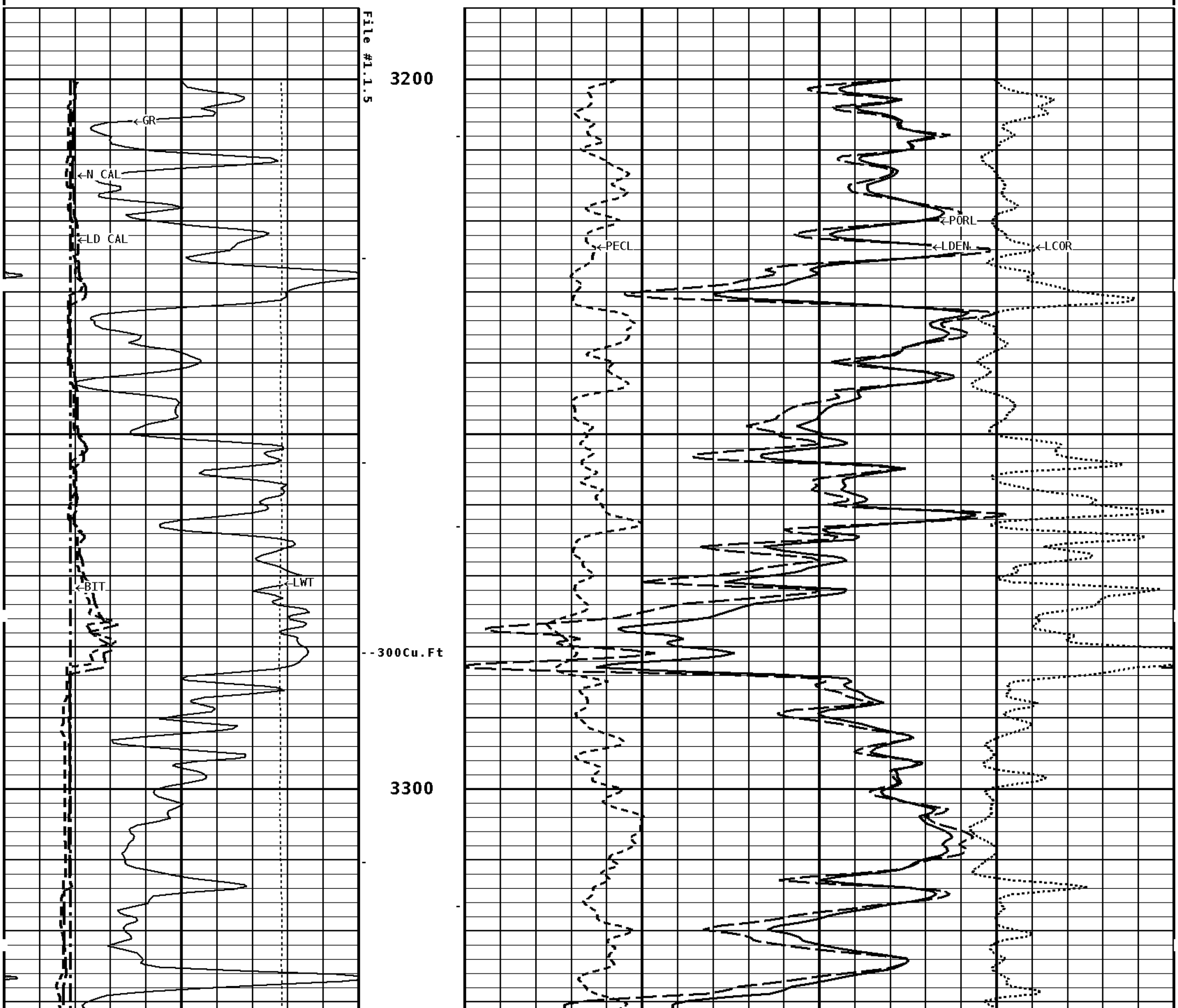
PE CROSS-SECTION
BARNS/ELECTRON
0 10

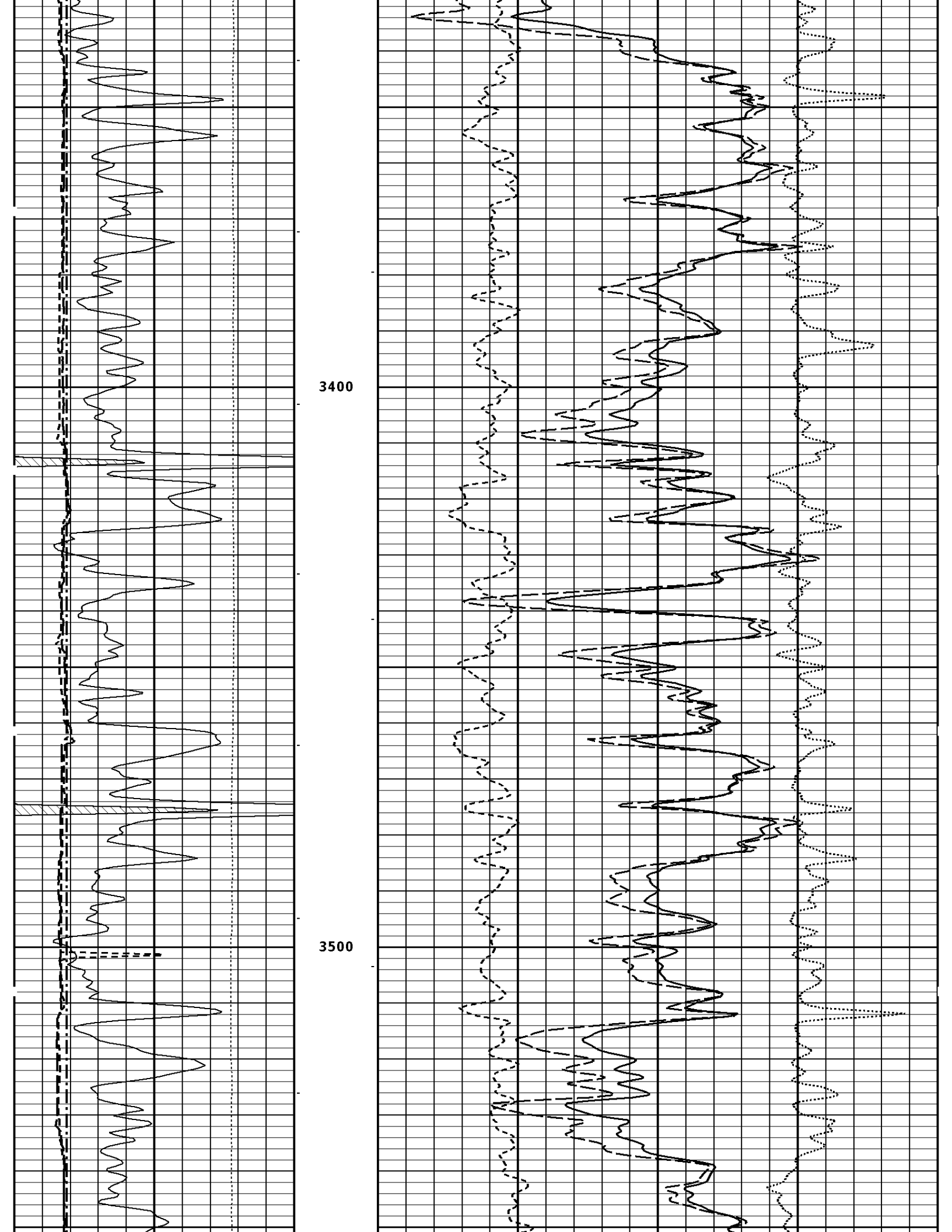
DENSITY CORRECTION
G/CC
-0.25 0.25

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

COMPENSATED BULK DENSITY
G/CC
3.0 4.0
2.0 3.0
1.0 2.0

1:240 MAIN SECTION
BULK DENSITY

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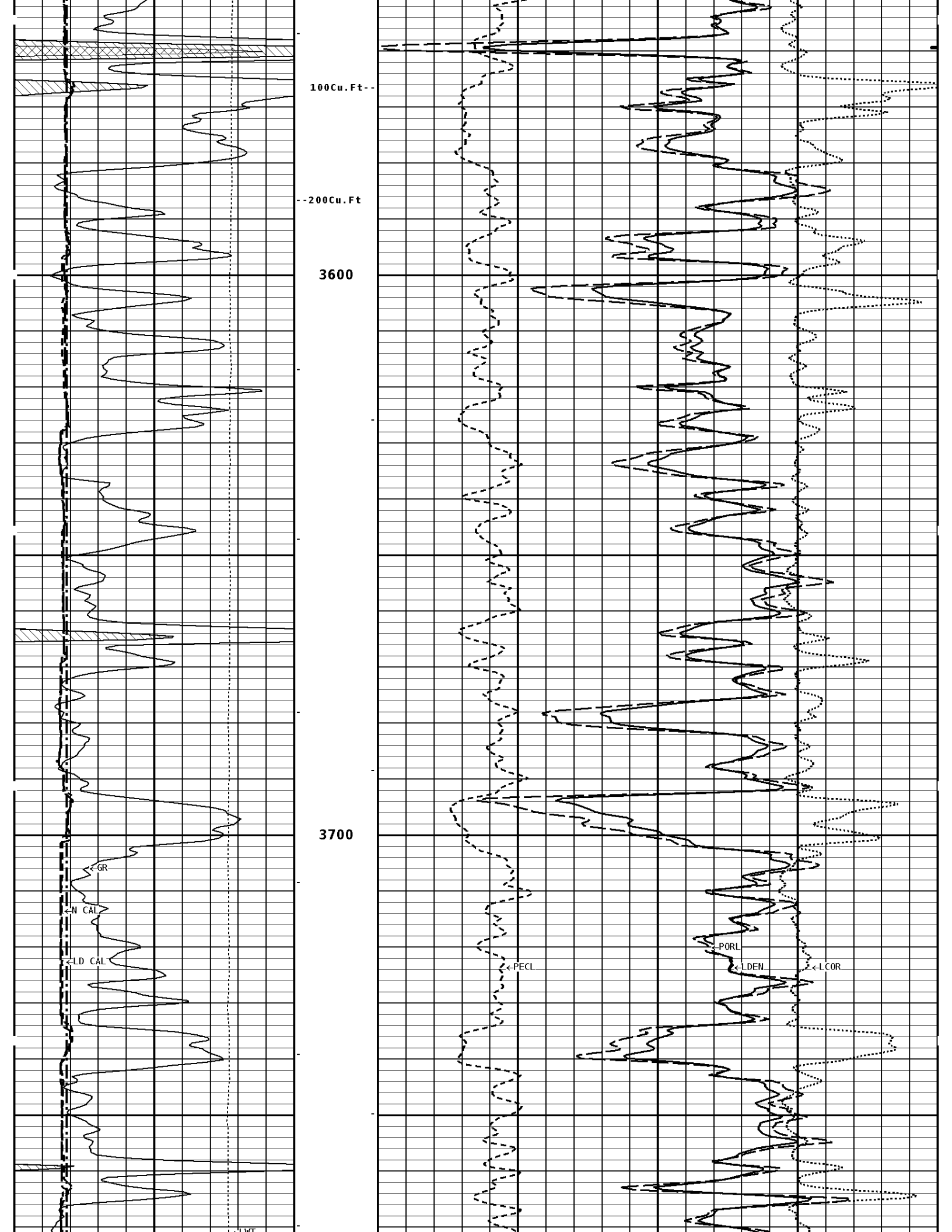
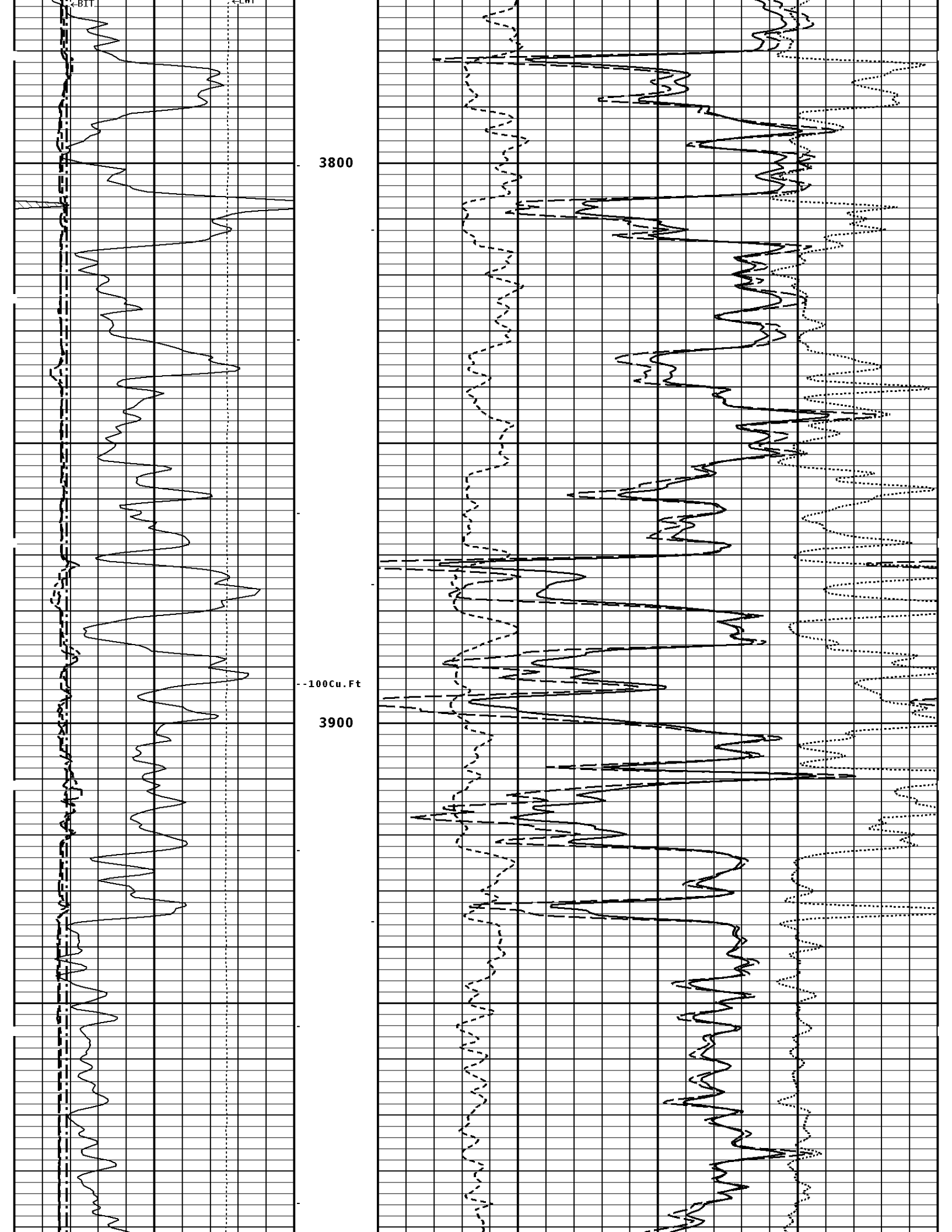
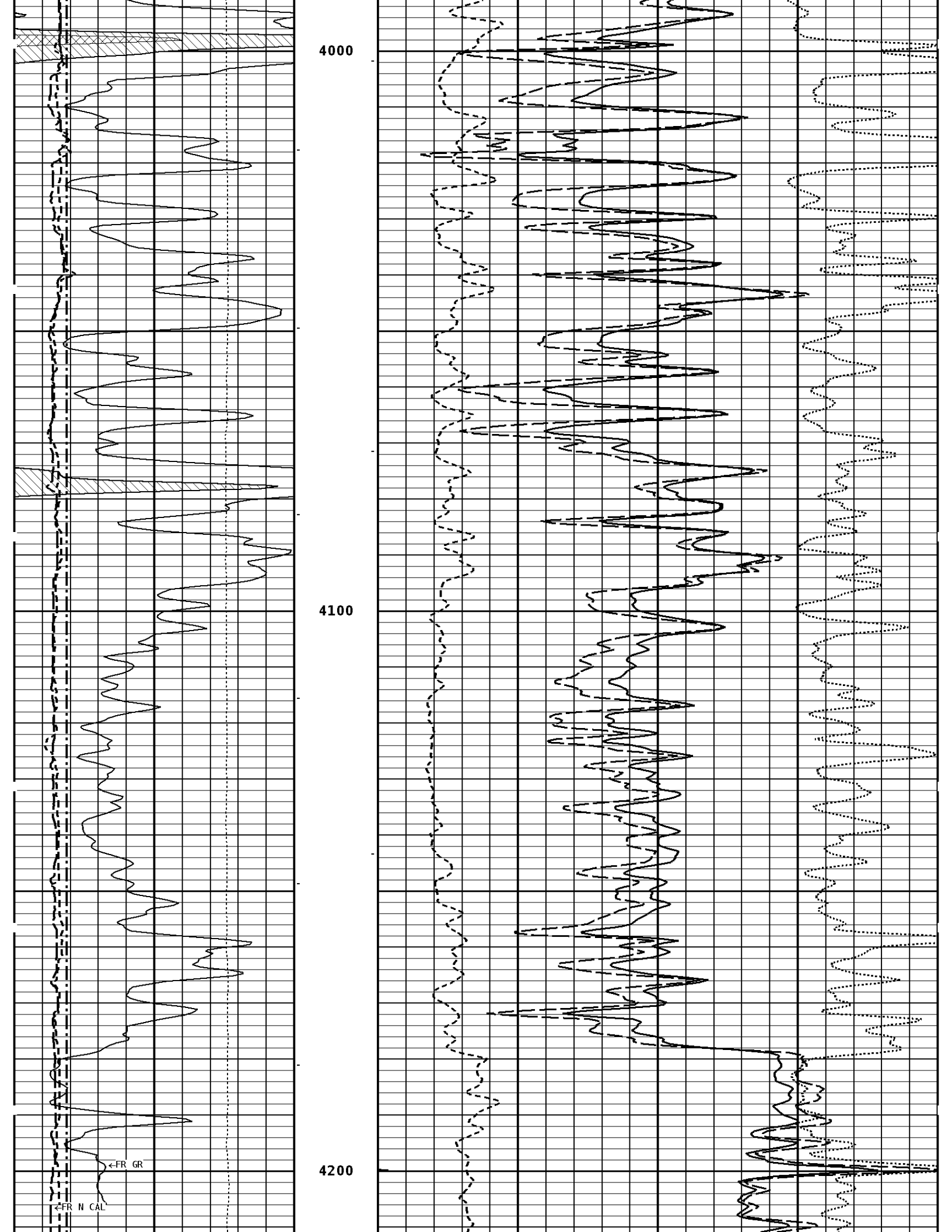
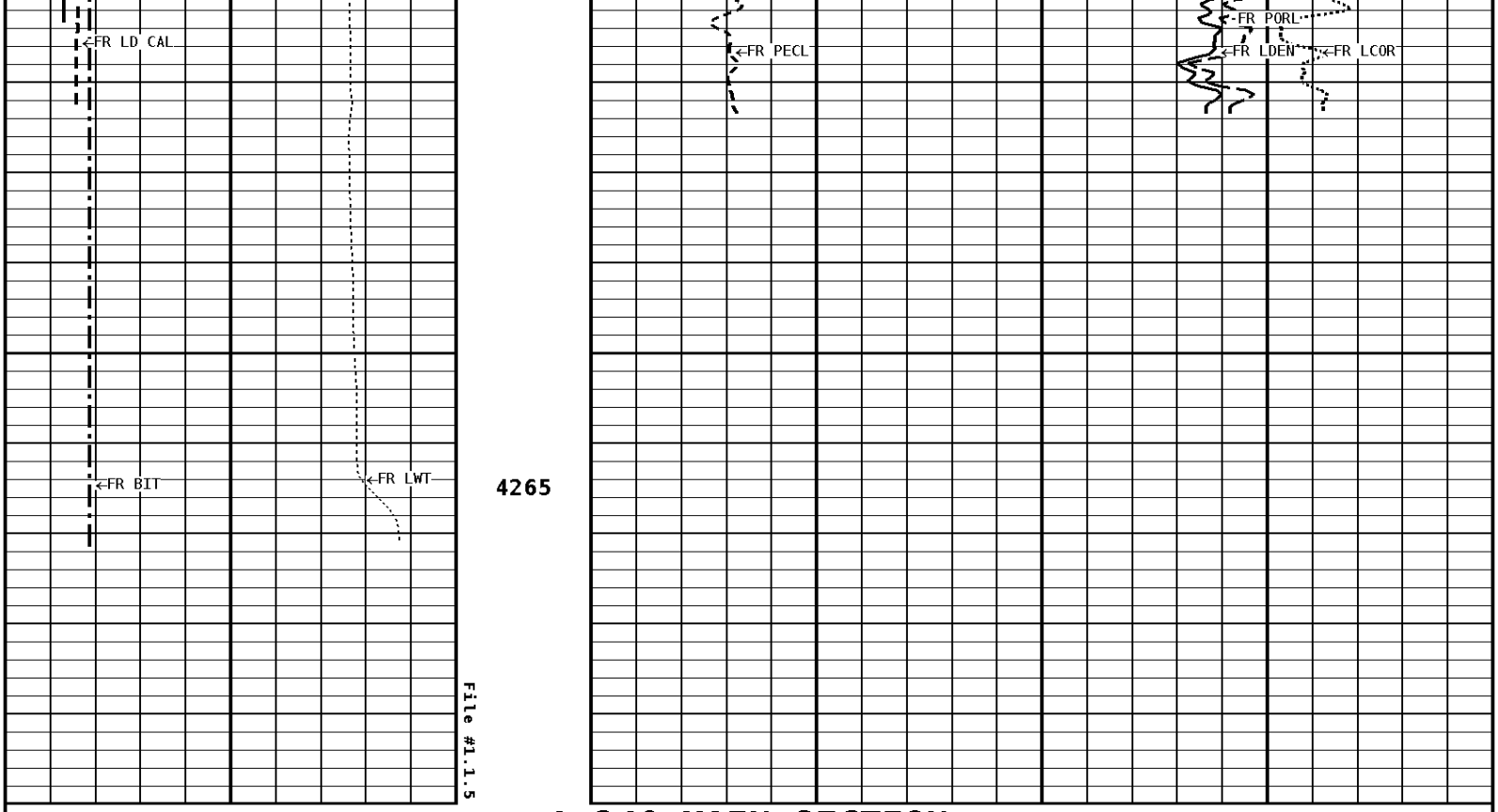
3500


100Cu.Ft--
--200Cu.Ft
3600
3700
←GR
←N CAL
←LD CAL
←PECL
←PORL
←LDEN
←LCOR


BIT
CLW1
3800
100Cu.Ft
3900


4000
4100
4200
←FR GR
←FR N CAL



1:240 MAIN SECTION
BULK DENSITY

GAMMA RAY API UNITS	-BHV AHV- CU.FT	COMPENSATED BULK DENSITY G/CC
150 300 0 150		3.0 4.0 2.0 3.0 1.0 2.0

NEUTRON (Y) CALIPER INCHES (IN)	DENSITY POROSITY PERCENT (2.71 g/cc)
16 26 6 16	70 30 30 -10 -10 -50

DENSITY (X) CALIPER INCHES (IN)	PE CROSS-SECTION BARNS/ELECTRON	DENSITY CORRECTION G/CC
16 26 6 16	0 10	-0.25 0.25

BIT SIZE INCHES (IN)
6 16

TENSION LBS
10000 0

*** 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 : 12-Jul-2012 Time : 09:53
Sensor Suite : GR-GR5 ID : GRT-BC-43

	Measured Background	Measured Jig	Units	Calibrated Jig	Units
GR	46	309	CPS	175	GRAPI

Shop Calibration
CNT-AA

Performed : 29-AUG-2012 Time : 11:56
Sensor Suite : CALI-BCN ID : NDT-BB-134

	Jig - Measured Ring#1	Jig - Measured Ring#2	Jig - Calibrated Ring#1	Jig - Calibrated Ring#2	Units
CL # 1	11.5	17.5	6.0	12.0	IN.

Performed : 29-Aug-2012 Time : 11:55
Sensor Suite : BHC NEUT ID : CNP-AE-42
Source ID : N-1044

	Tank Measured	Tank Calibrated	Verification Jig	Units
N/F	3.5694	3.6893	3.7005	
Porosity	18.7	20.5	20.7	%

Shop Calibration
LDT-DA

Performed : 10-APR-2011 Time : 19:51
Sensor Suite : CALI-LTH ID : PDT-GA-466

	Jig - Measured Ring#1	Jig - Measured Ring#2	Jig - Calibrated Ring#1	Jig - Calibrated Ring#2	Units
CL # 1	6.7	12.7	6.0	12.0	IN.

Performed : 29-Aug-2012 Time : 10:37
Sensor Suite : BHCPELNG ID : LDP-DA-02
Source ID : CSV-587

Short Space

	BKGD	Al	Mg	Al+Fe	Units
LSW1	67	435	700	302	CPS
LSW2	70	533	844	389	CPS
LSW3	274	1337	2082	1154	CPS
LSW4	353	1289	1782	1160	CPS
LSW5	33	42	43	41	CPS
LSW6	92	91	92	91	CPS
LSW7	56	59	58	59	CPS
LSW8	2	3	3	3	CPS
QS	0.246	0.208	0.228	0.212	
PES			2.778	5.967	
SSDN		2.600	1.680		G/CC

Long Space

	BKGD	Al	Mg	Al+Fe	Units
LLW1	107	568	2305	368	CPS
LLW2	115	969	4007	722	CPS
LLW3	436	1932	7062	1690	CPS
LLW4	566	1145	2899	1073	CPS
LLW5	66	66	79	67	CPS
LLW6	189	180	175	181	CPS
LLW7	107	114	110	114	CPS
LLW8	3	5	10	5	CPS
QL	0.279	0.224	0.225	0.224	
PEL			2.697	5.458	
LSDN		2.600	1.680		G/CC

Shop Calibration
MST-DA

Performed : 30-JUL-2012 Time : 14:56
Sensor Suite : CALI-MSN ID : MLT-DA-21

	Jig - Measured Ring#1	Jig - Measured Ring#2	Jig - Calibrated Ring#1	Jig - Calibrated Ring#2	Units
CL # 1	6.9	11.3	6.0	12.0	IN.

Performed : 12-Jul-2012 Time : 10:32
Sensor Suite : MSTDA-NI ID : MLT-DA-21

Internal

Internal

	Measured			Calibrated		
	Zero	Reference	Units	Zero	Reference	Units
INV-V	0.0	29787.6		0.00	1946.00	MV
NOR-V	18.9	30109.6		0.00	1546.00	MV
IN-C	0.0	60619.2		0.00	15.46	UA
INV-R					40.71	OHMM
NOR-R					55.11	OHMM

Performed : 12-Jul-2012 Time : 10:35
Sensor Suite : MSTDAMSF ID : MLT-DA-21

Internal

	Measured			Calibrated		
	Zero	Reference	Units	Zero	Reference	Units
MSFC	15.0	42170.2		0.00	1522.00	UA
MSFB	32729.5	54955.1		0.00	1522.00	MA
MOM1	0.0	43114.6		0.00	1522.00	MV
MSFRA					43.30	OHMM

Tucker WIRELINE SERVICES

Company: ANDERSON ENERGY, INC

Well: NORTH TRUST #1

Location: 385' FNL & 330' FWL

Logged: 2012-09-17

K.B. Elev: 2170.0