Tucker ENERGY SERVICES

COMPOSITE LOG

File No	TUL-61356
Company	VAL ENERGY, INC
Well	HAMMER D V3-4
Field	WILSON
County	COWLEY
State	KANSAS
Country	USA
API No	15-035-24680

Location :
990' FSL & 660' FWL
N/2 SW SW

LSD : **Sect :** **Twp :** **Rge :**

Permanent Datum:	GL	**Elevations:**		**Services:**	
Drilling Measured From:	KB	**KB**	1346.00 Ft	CNT	PIT
Log Measured From:	KB	**DF**	1345.00 Ft	LDT	
Above Permanent Datum:	9.00 Ft	**GL**	1337.00 Ft	MLT	

Date	11-20-2017						
Run Number	0						
Depth--Driller	3585.0 Ft						
Depth--Logger	3584.0 Ft						
First Reading	3583.0 Ft						
Last Reading	304.0 Ft						
Casing--Driller	304.0 Ft						
Casing--Logger	304.0 Ft						
Bit Size	7.875 In						
Casing Size	8.625 In						
Hole Fluid Type	OBM						
Density	9.5						
Fluid Loss	6.1						
PH/Viscosity	9.5	49.0					
Sample Source	MEASUED						
RM@Measured Temp.	2.000 @ 65 F						
RMF@Measured Temp	1.700 @ 65 F						
RMC@Measured Temp.	2.300 @ 65 F						
Source RMF/RMC	CALCULATED	CALCULATED					
RM@BHT	1.180 @ 115 F						
Time Circulation Stopped	11-20-2017 11:00 am						
Max Recorded Temp.	115 F						
Equipment/Base	TRK-126	TULSA					
Recorded By	B.BAILEY						
Witnessed By	JOE BAKER						

Company VAL ENERGY, INC
Well HAMMER D V3-4
Field WILSON
County COWLEY
State KANSAS
Country USA
API No. 15-035-24680

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

Size (In)	Bottom (Ft)
7.875	3585.00

Casing Strings

Size (In)	Weight (Lbs)	Bottom (Ft)	Top (Ft)
8.625	32.00	304.00	0.00

Run Number	0
Date	11-20-2017
Date/Time On Bottom	11-20-2017 10:30 am
Depth to Fluid	0.0 Ft
Salinity	0.000
RMF@BHT	1.000 @ 115 F
RMC@BHT	1.380 @ 115 F

Run Number 0

Comments

ALL PRESENTATIONS AS PER CUSTOMER REQUEST.

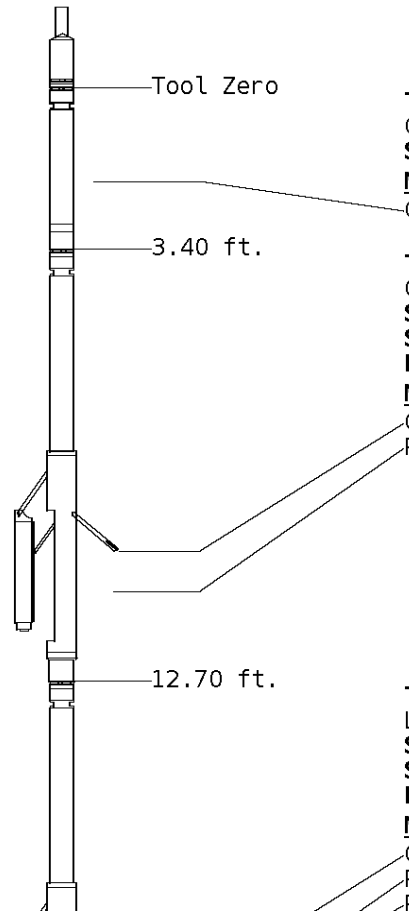
GRT, CNT, LDT, MLT, AND PIT RUN IN COMBINATION.
2.71 G/CC DENSITY MATRIX USED TO CALCULATE POROSITY.
5.50" PRODUCTION CASING USED TO CALCULATE ANNULAR HOLE VOLUME.
CALIPERS ORIENTED ON X-Y AXIS.
PHIN IS CALIPER CORRECTED

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

OPERATORS:
R.FRANKLIN
B.BROWN

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-009

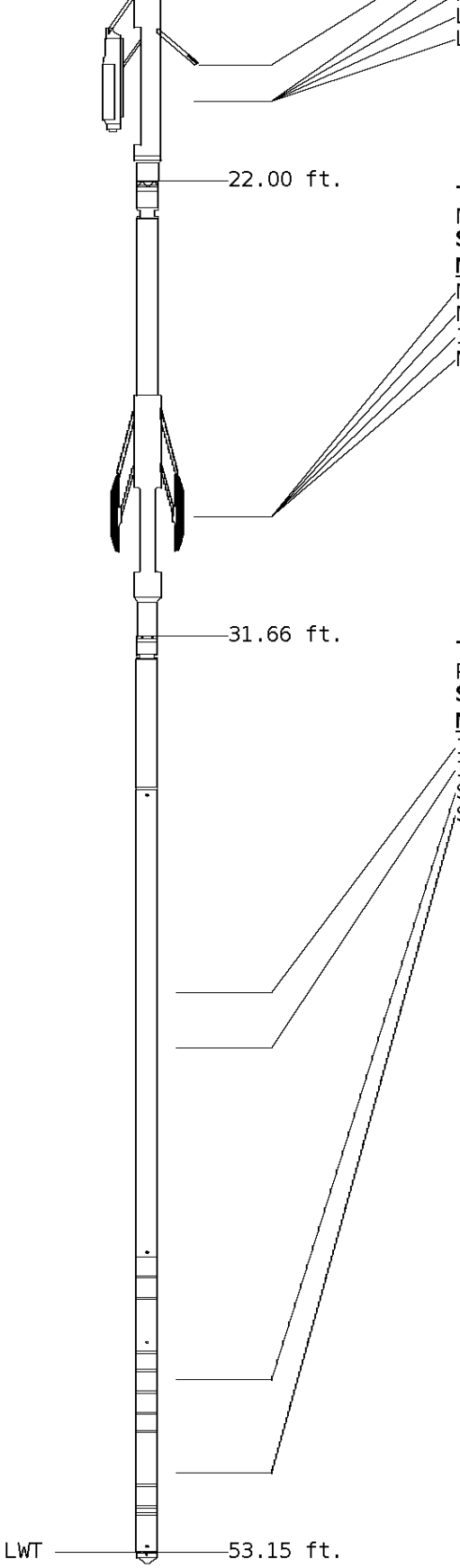
Measure Point	Tool Offset	Stack Offset	Bottom Offset
GRP	2.00	2.00	51.15

Tool: CNT-AA **Length:** 9.30 **ft.** **O.D.** 4.36 **in.**
Compensated Neutron A Pad on NDT-A
Sonde ID :NDT-BB-123
Source ID :N-1045
Pad ID :CNP-AA-110

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 :PDT-GA-426
Source ID :2991GW
Pad ID :LDP-DA-051

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



LDEN	7.20	19.90	33.25
LCOR	7.20	19.90	33.25

Tool: MST-DA **Length:** 9.66 **ft.** **O.D.** 6.00 **in.**
Micro Spherically Focused (IC,D)
Sonde ID :MST-DA-025

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-AC-043

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: val_hammer_dv_3-4_nov-20_mst **Scale:** 1:240 **Format:** COMSAT
Segment: V1.D1.S3 MAIN **Acquired:** 2017-11/20 15:20 3.4.0-13756
Reference: 0 **Processed:** 2017-11/20 16:25 3.4.0-13756

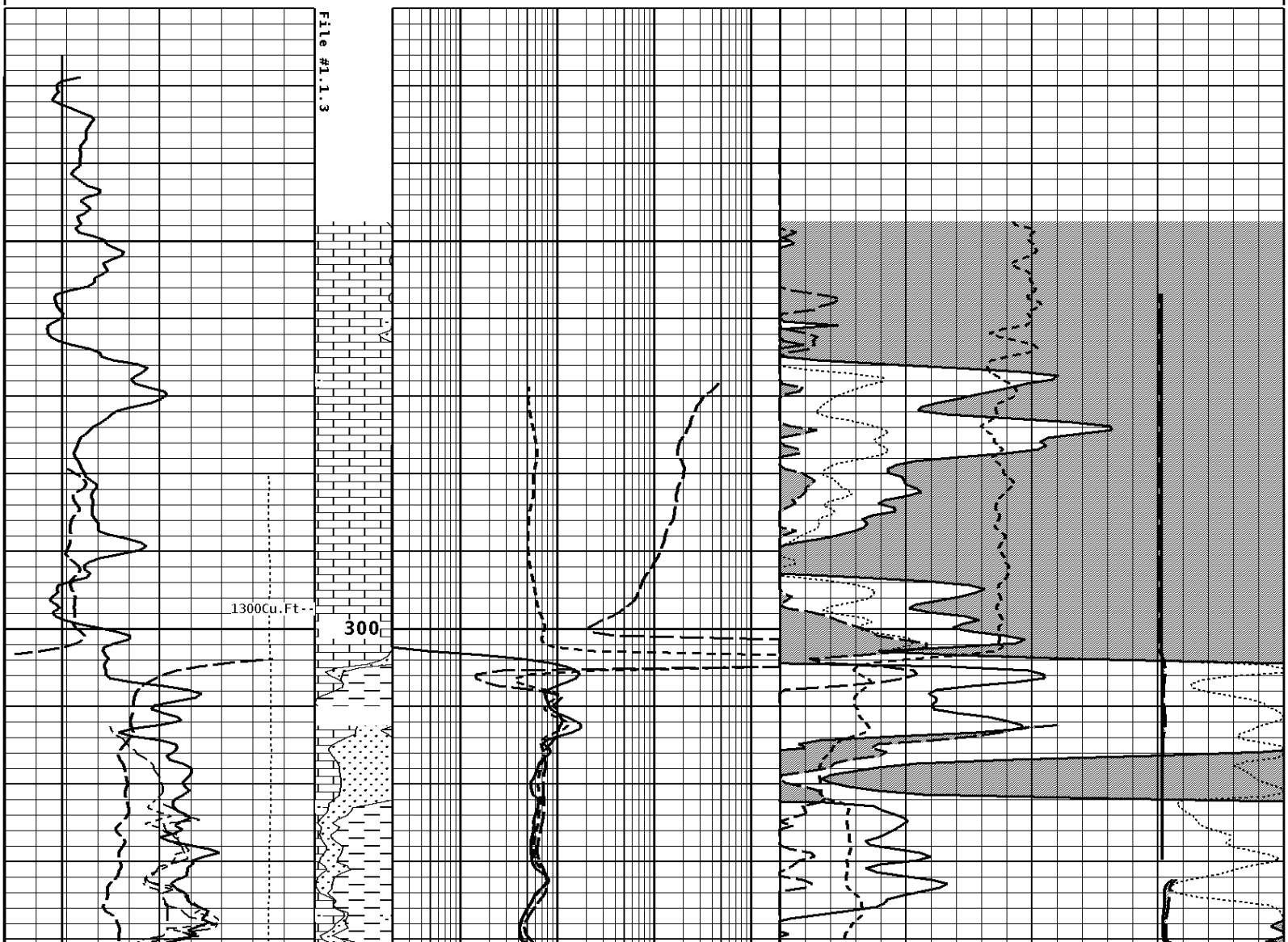
CALIPER MICRO
INCHES (IN)
16 26
6 16

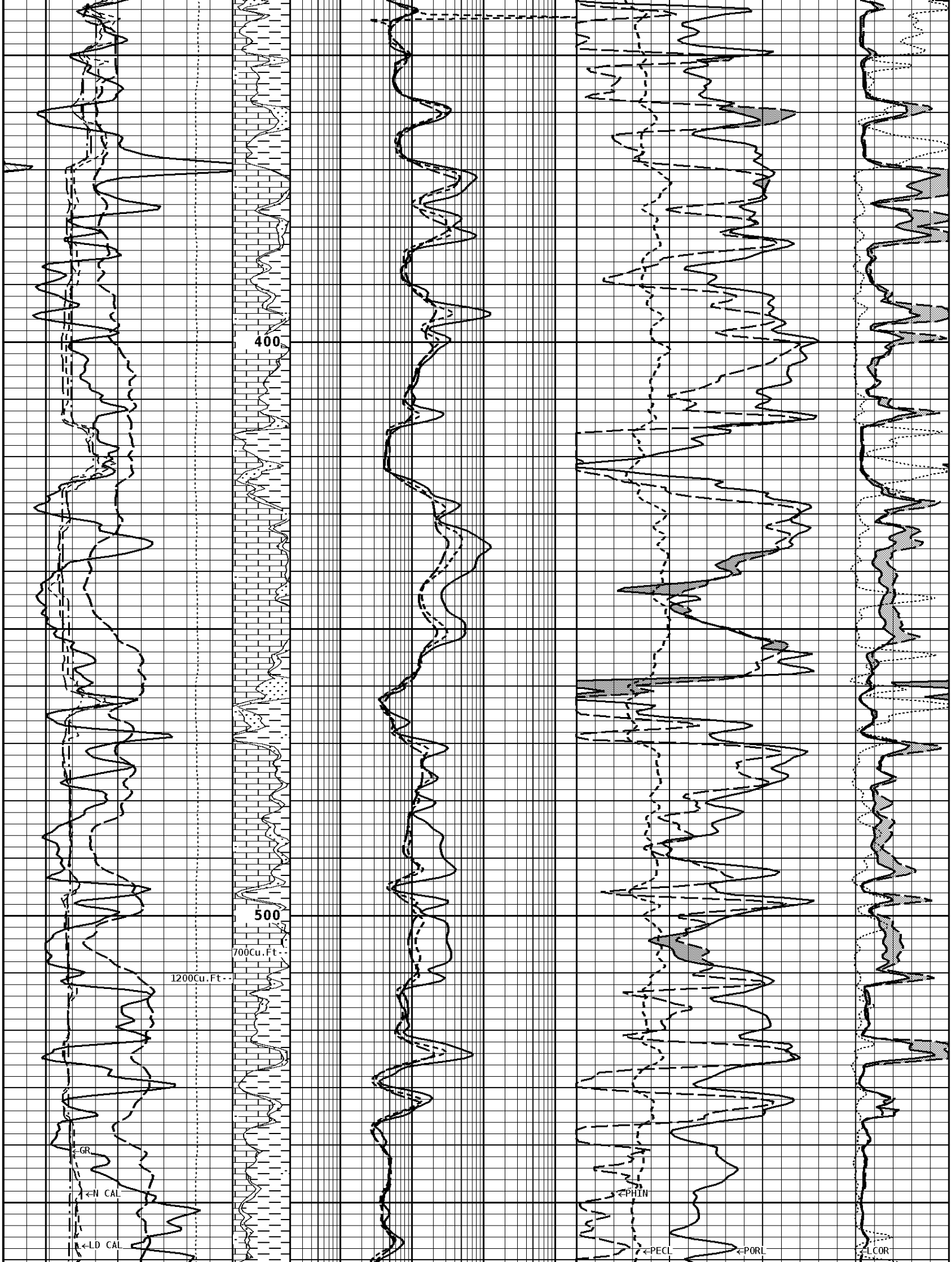
BIT SIZE
INCHES (IN)

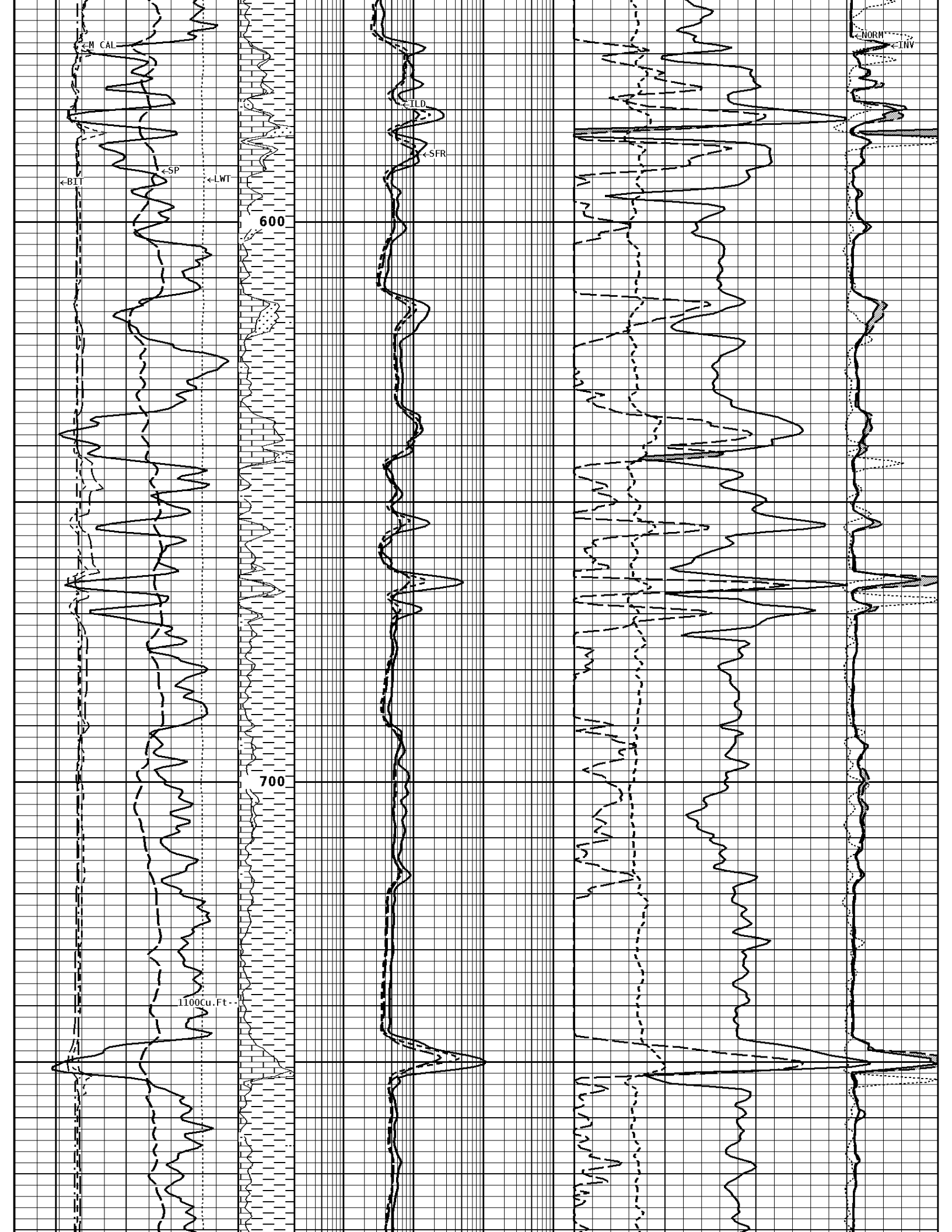
NORMAL
OHMM

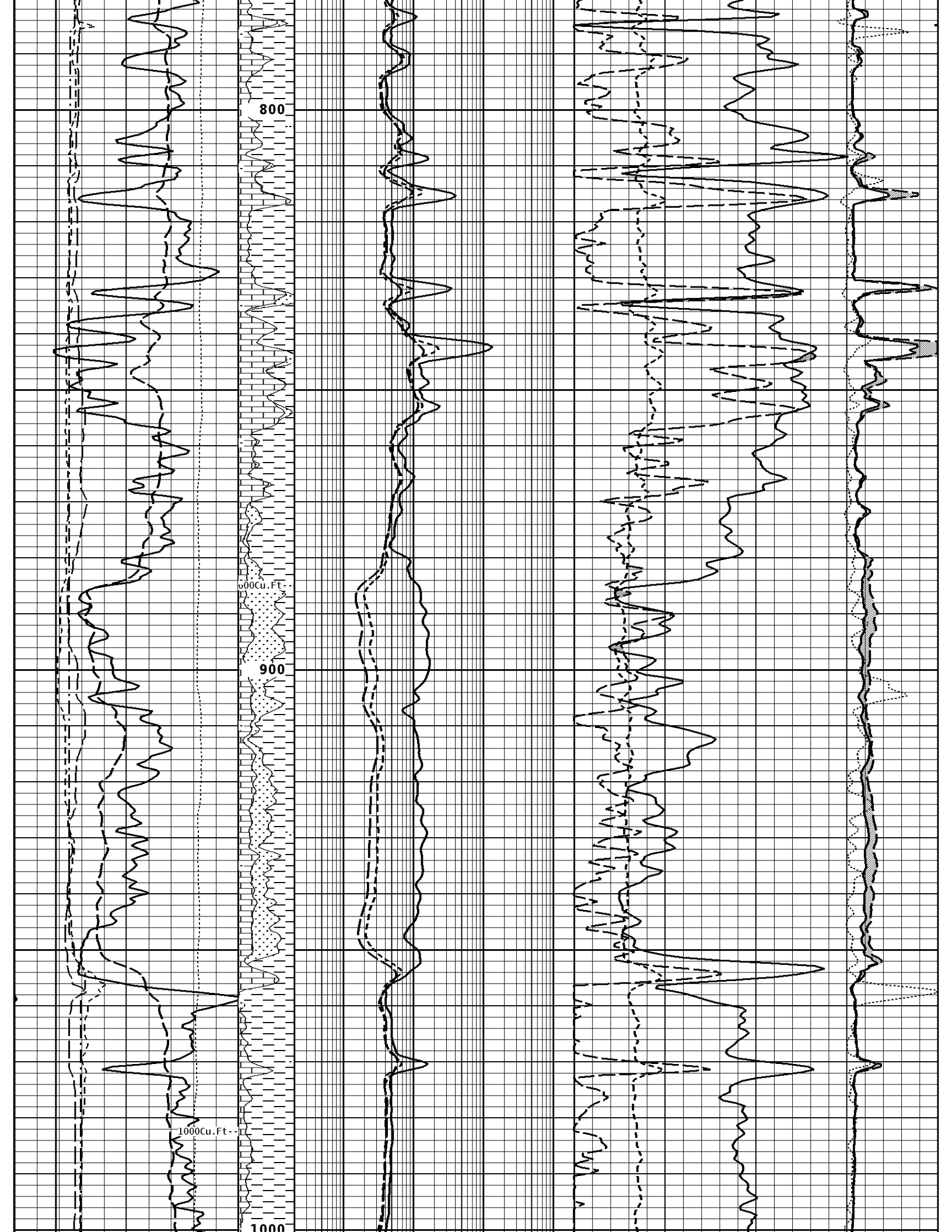
6 16			0 40
NEUTRON (Y) CALIPER INCHES (IN) 16 26 / 6 16			INVERSE OHMM 0 40
DENSITY (X) CALIPER INCHES (IN) 16 26 / 6 16	Volume Quartz		DENSITY CORRECTION G/CC -0.75 0.25
TENSION LBS 10000 0	Volume Calcite	SHALLOW FOCUSED RESISTIVITY OHMM 0.2 2000.0	PE CROSS-SECTION BARNS/ELECTRON 0 20
SPONTANEOUS POTENTIAL mV →||←20	Volume Dolo/Shale	DEEP INDUCTION OHMM 0.2 2000.0	DENSITY POROSITY (2.71g/cc) PERCENT 70 30 / 30 -10 / -10 -50
GAMMA RAY API UNITS 150 300 / 0 150	-BHV AHV- CU.FT	MEDIUM INDUCTION OHMM 0.2 2000.0	NEUTRON POROSITY (LIMESTONE) PERCENT 30 -10

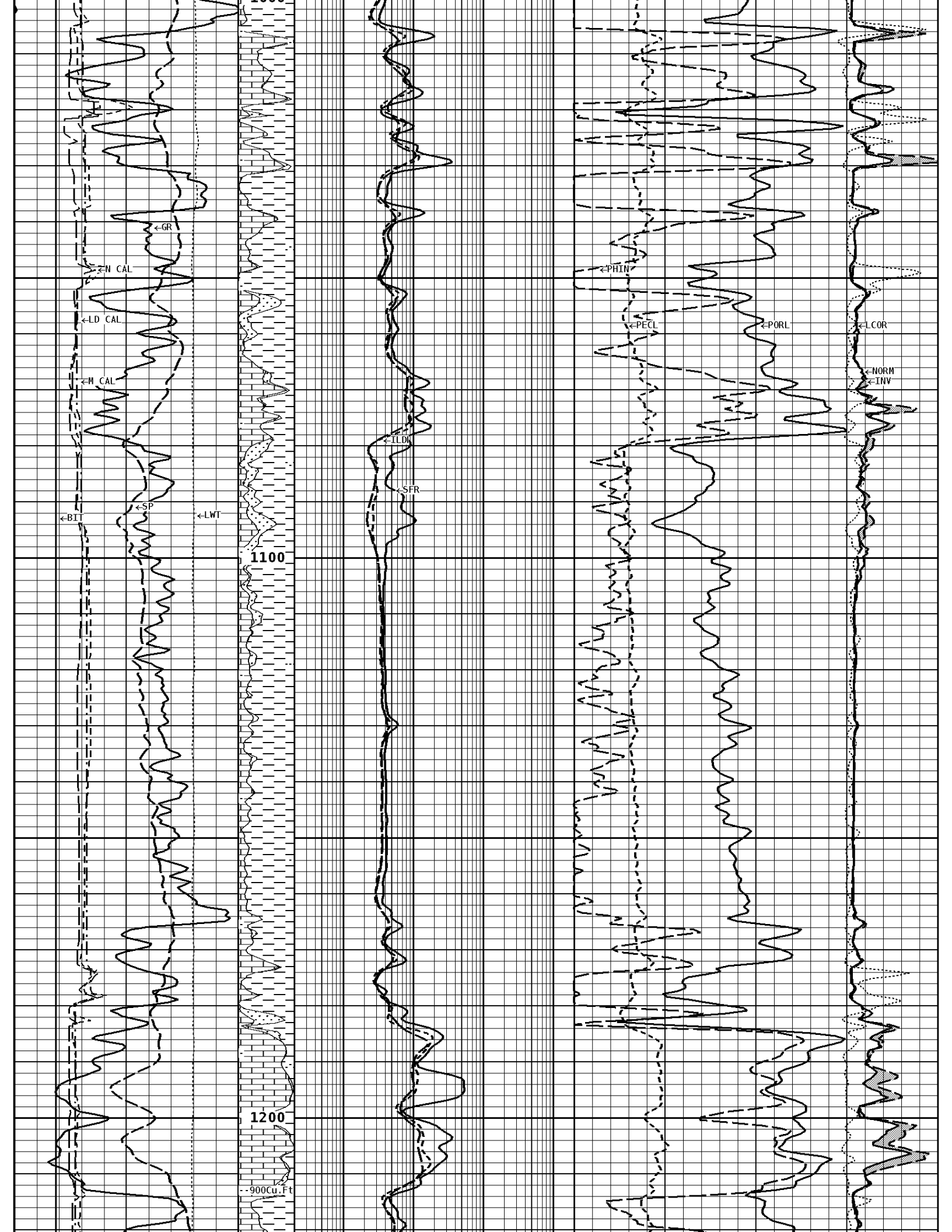
1:240 MAIN SECTION




400
500
700Cu.Ft
1200Cu.Ft
←GR
←N CAL
←LD CAL
←PHIN
←PECL
←PORL
←LCOR


M CAL
BIT
SP
LWT
600
700
1100Cu.Ft
ILD
SFR
NORM
INV


800
900
1000
000Cu.Ft
1000Cu.Ft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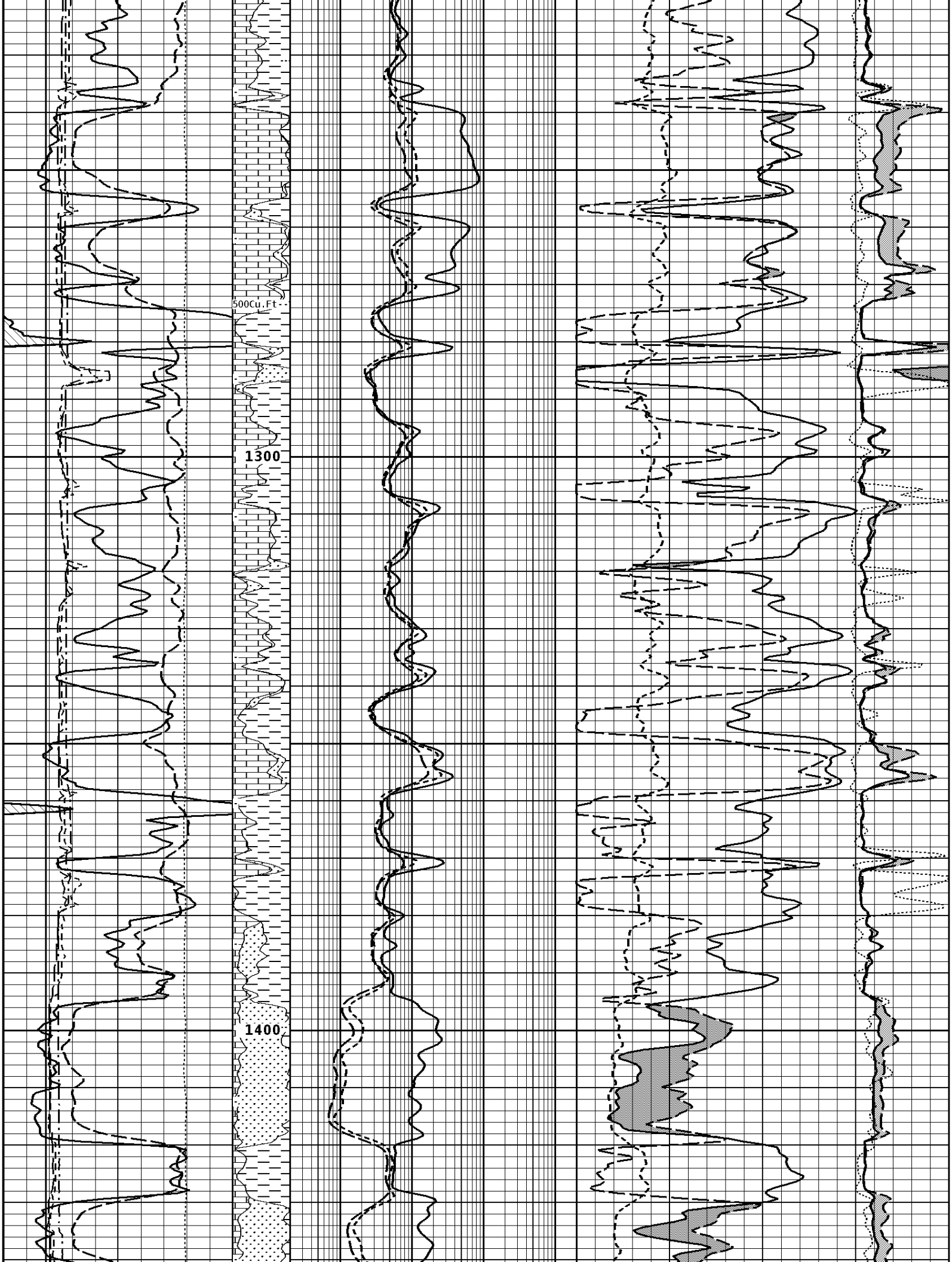
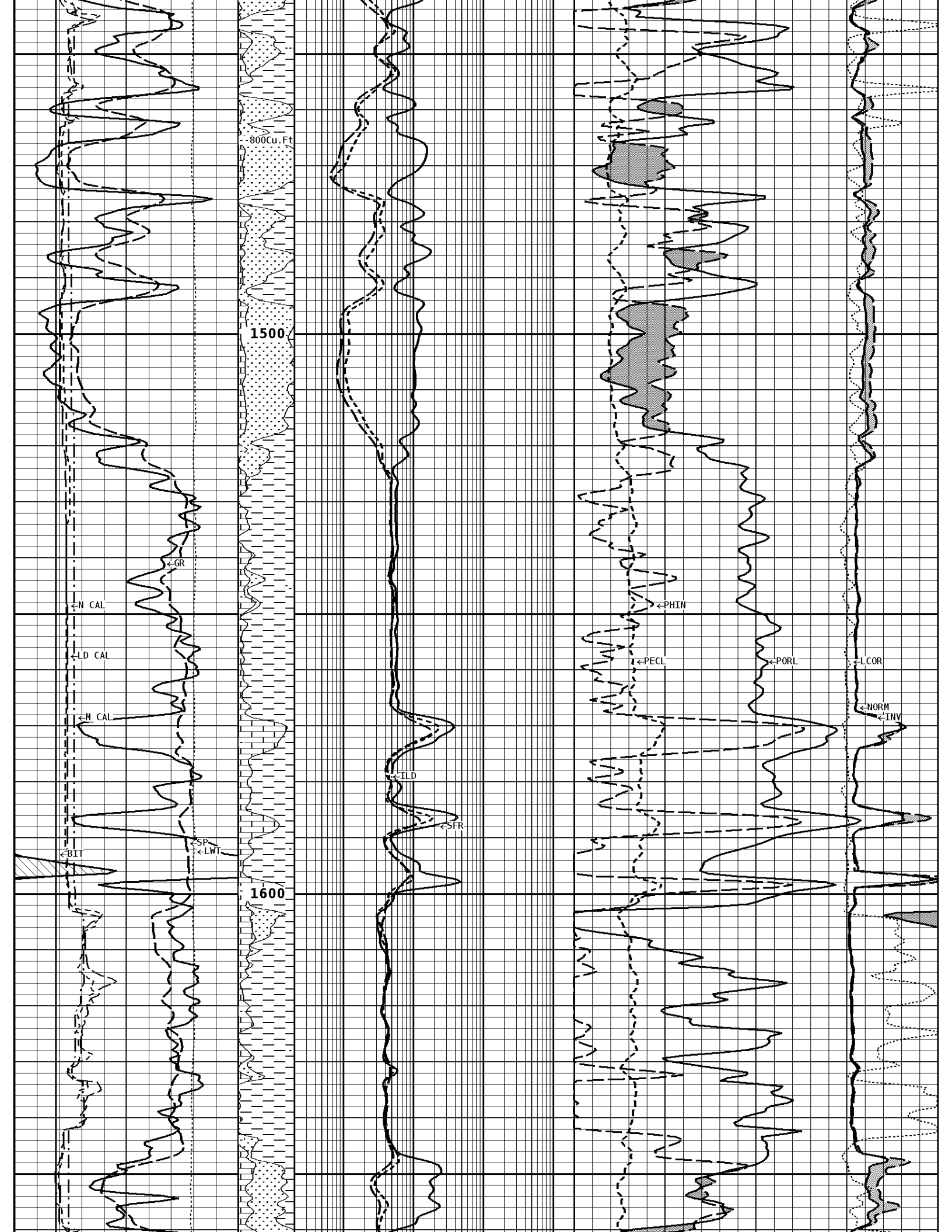
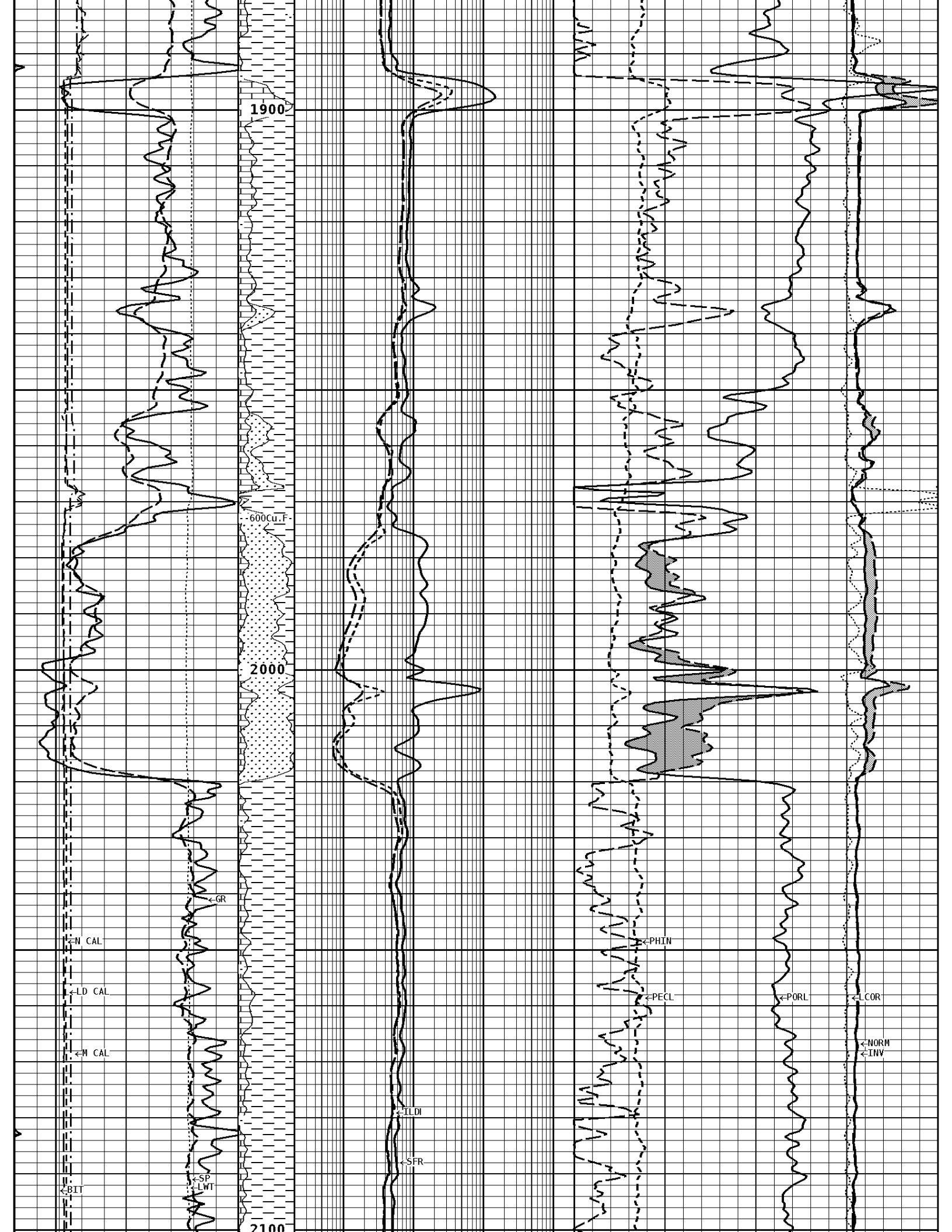
←LD CAL
←M CAL
←SP
←BIT
←LWT
←ILDC
←SFR
←PHIN
←PECL
←PORL
←LCOR
←NORM
←INV
1100
1200
-900Cu.Ft

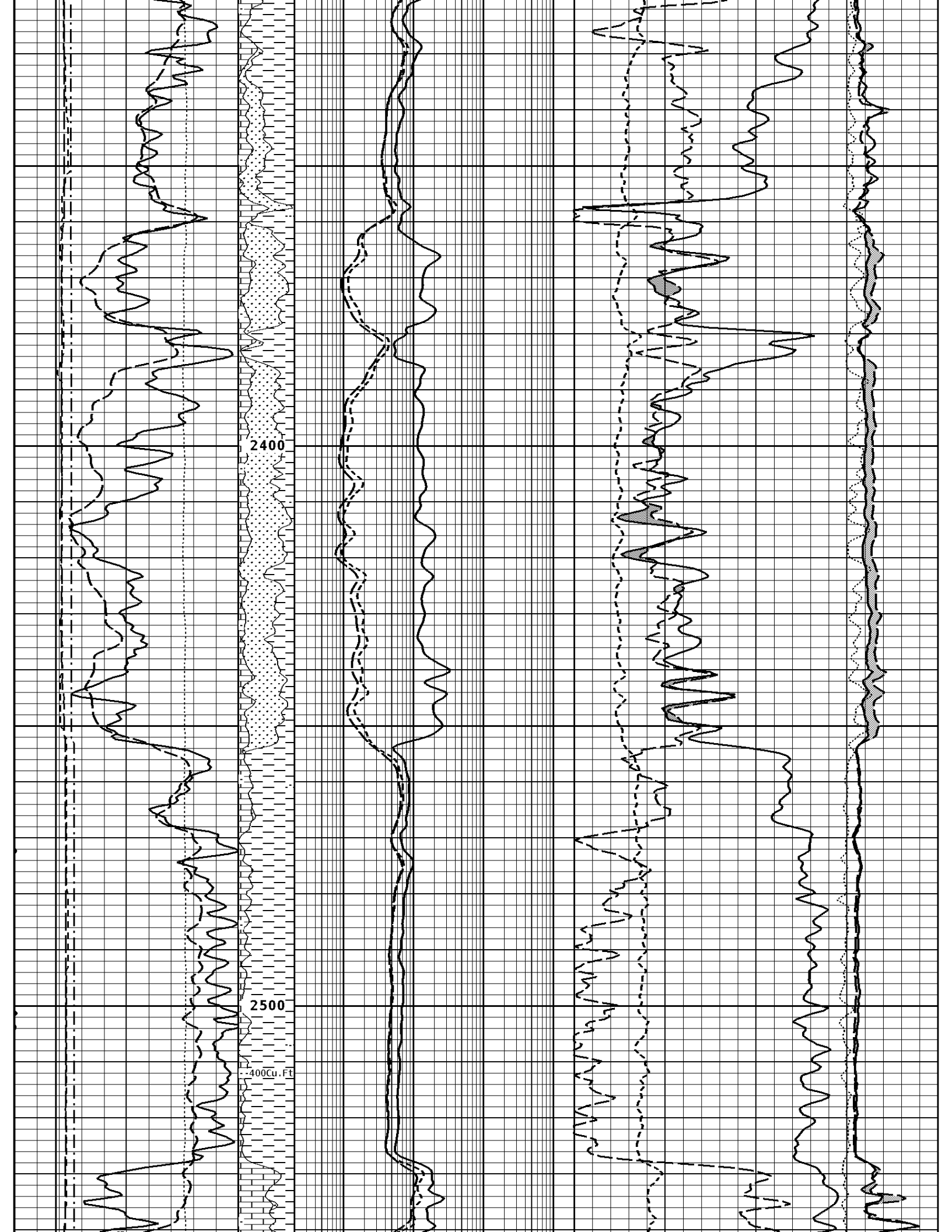

500Cu.Ft
1300
1400

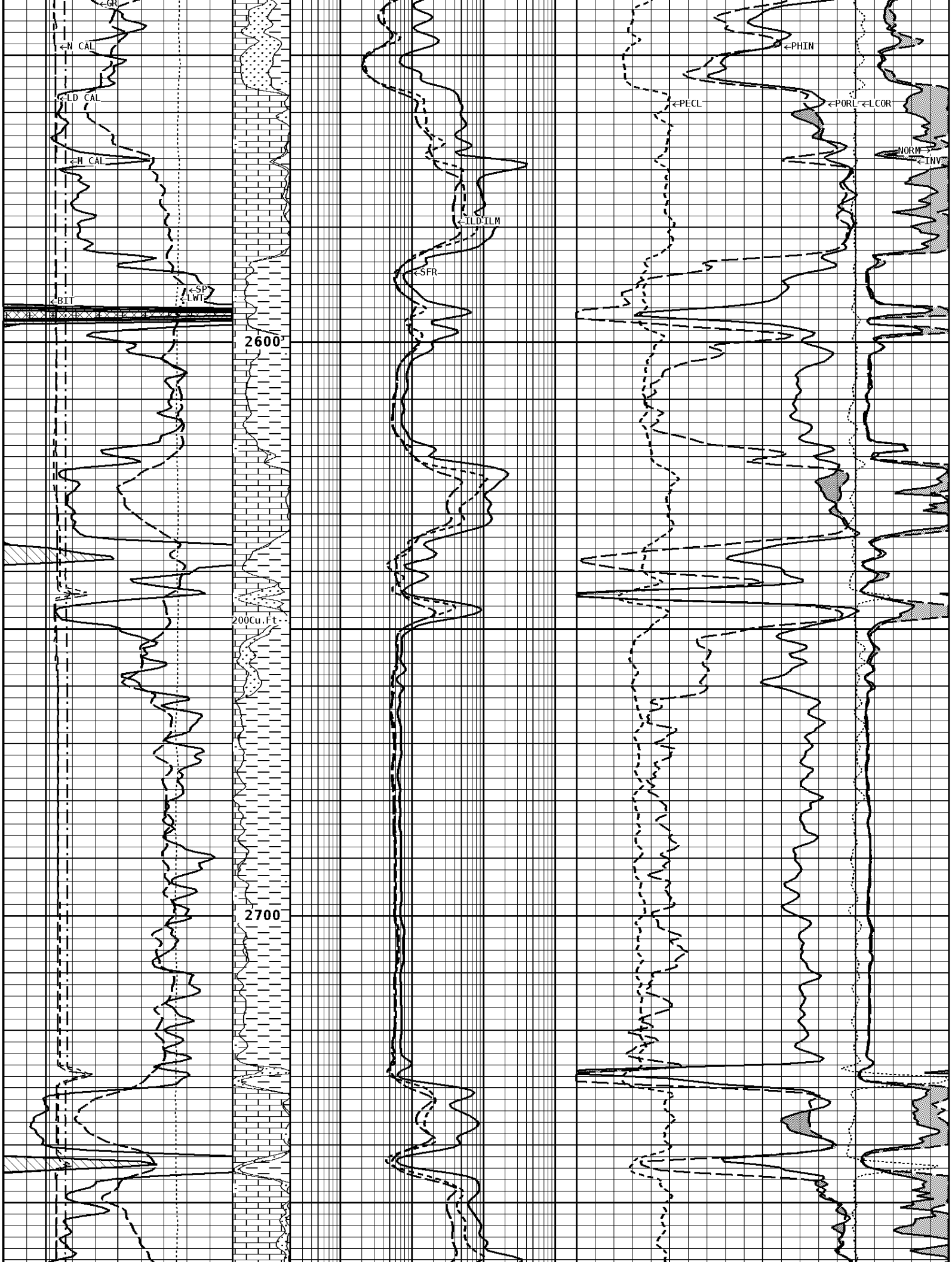

800Cu.Ft
1500
1600
GR
N CAL
LD CAL
M CAL
BIT
SP
LWT
ILD
SFR
PHIN
PECL
PORL
LCOR
NORM
INV


1700
400Cu.Ft
700Cu.Ft
1800


1900
600Cu.F
2000
GR
N CAL
LD CAL
M CAL
BIT
SP
LWT
ILDI
SFR
PHIN
PECL
PORL
LCOR
NORM
INV
2100


300Cu.Ft--
2200
500Cu.Ft
2300


2400
2500
-400Cu.Ft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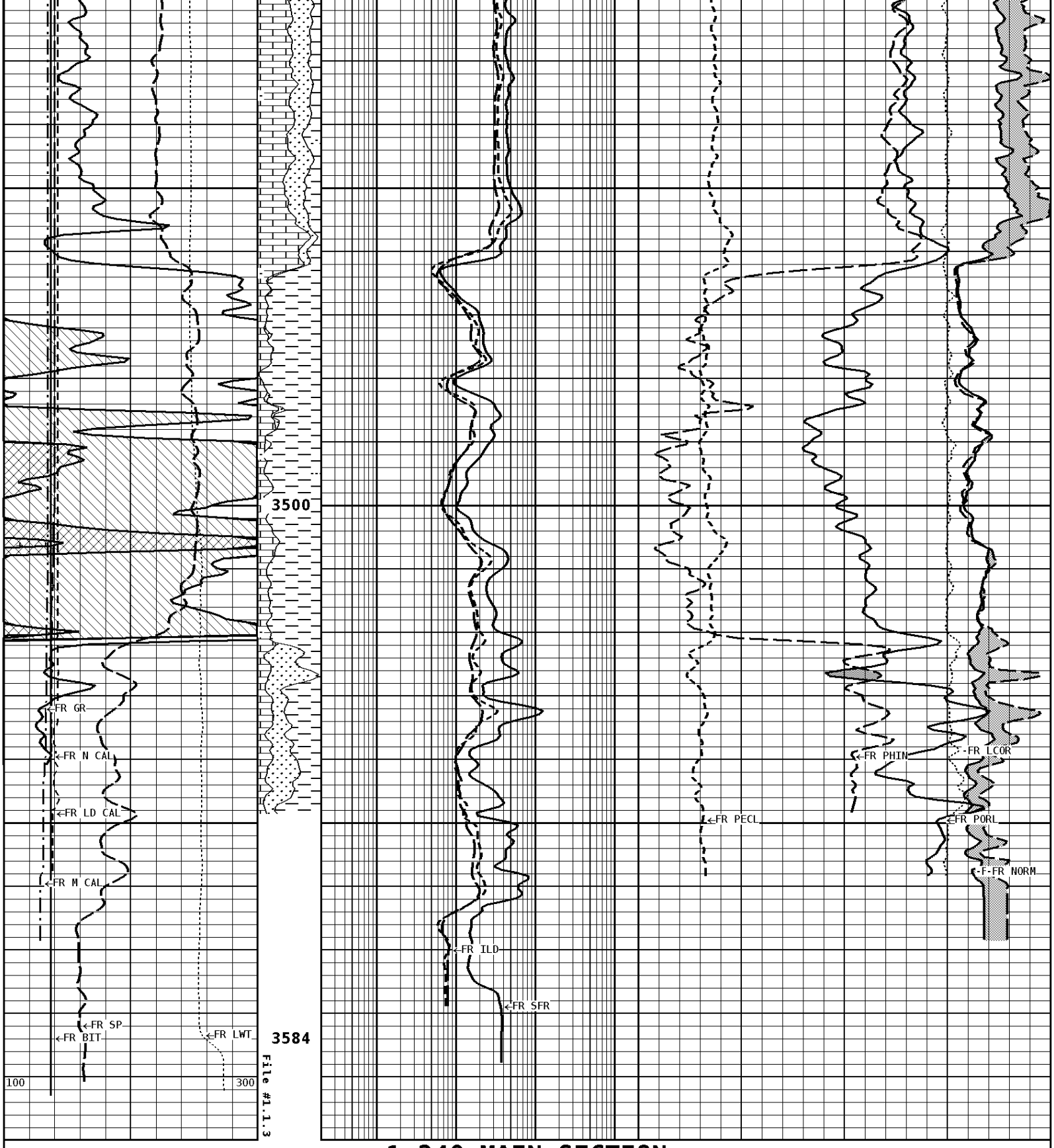
←N CAL
←LD CAL
←M CAL
←BIT
←SP
←LWT
2600
200Cu.Ft
2700
←ILD ILM
←SFR
←PHIN
←PECL
←PORL
←LCOR
NORM→
←INV


300Cu.Ft
2800
2900

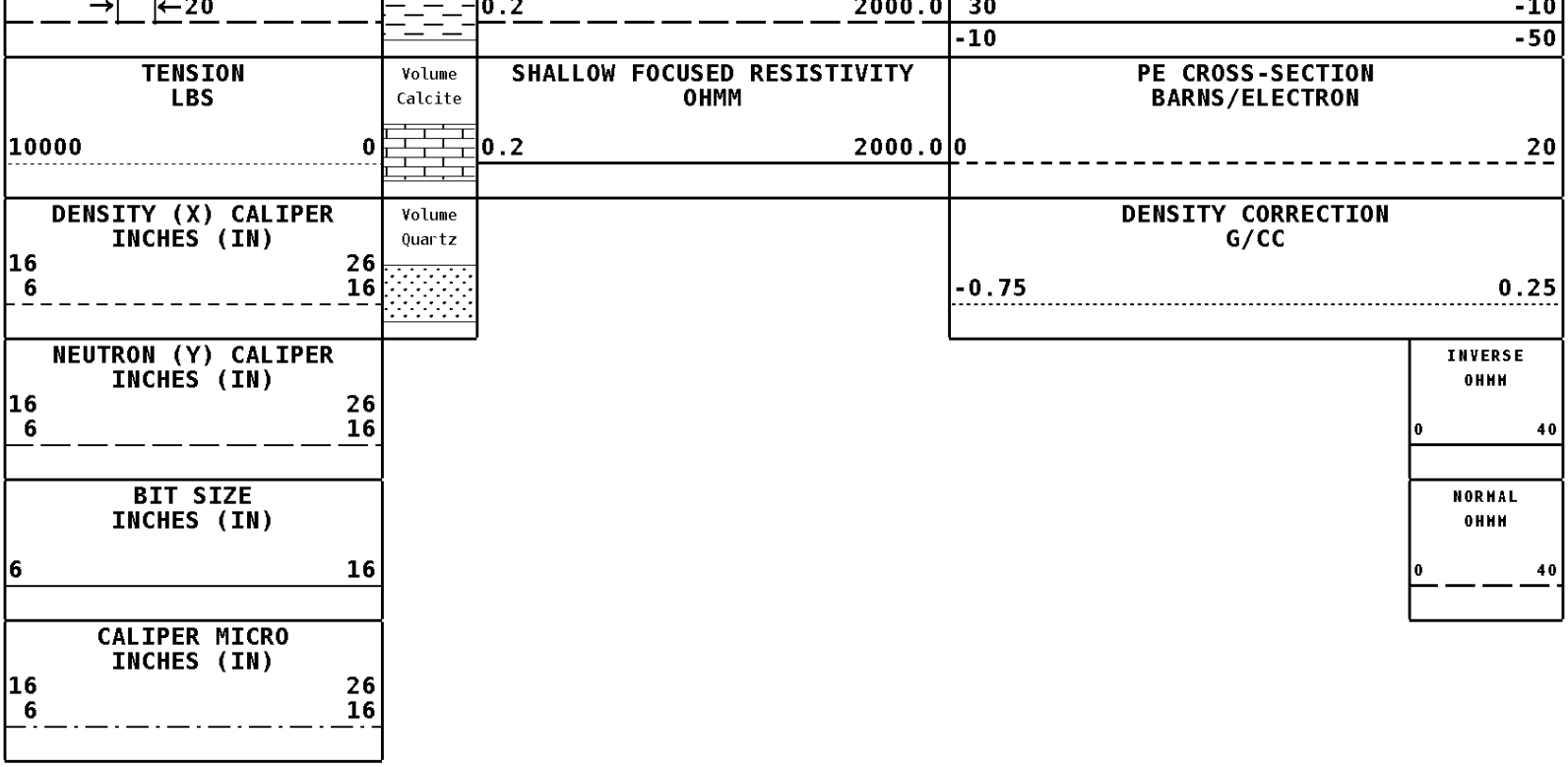

3000
200Cu.Ft
GR
N CAL
LD CAL
M CAL
100Cu.Ft
ILDI
SFR
SP
LWT
BIT
3100
3200
PHIN
PECL
PORL
LCOR
NORM
INV


100Cu.Ft
3300
3400



1:240 MAIN SECTION

GAMMA RAY API UNITS	BHV AHV CU.FT	MEDIUM INDUCTION OHMM	NEUTRON POROSITY (LIMESTONE) PERCENT
150 300 0 150		0.2 2000.0	30 -10
SPONTANEOUS POTENTIAL mV	Volume Dolo/Shale	**DEEP INDUCTION** OHMM	**DENSITY POROSITY (2.71g/cc)** PERCENT
			70 30

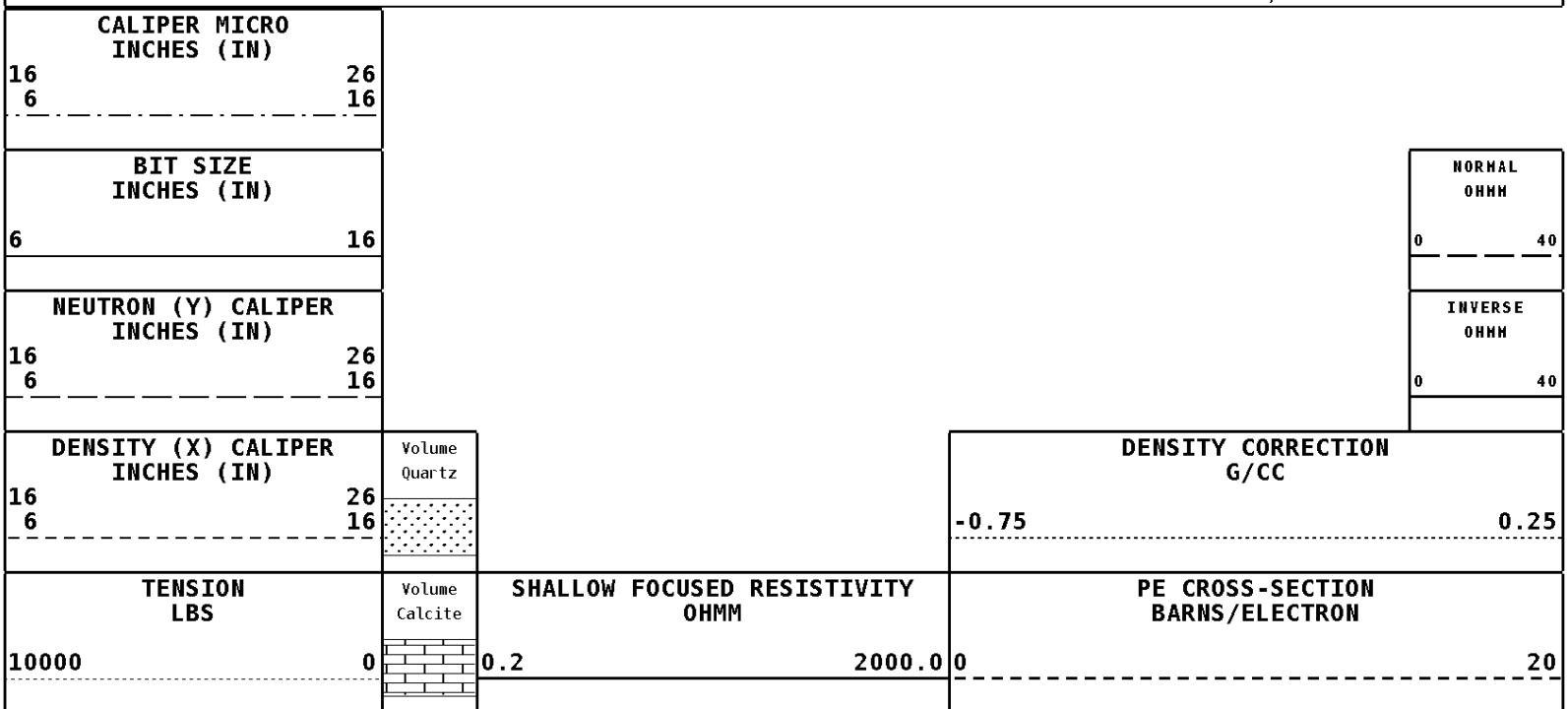


*** Borehole Zone Factors ***

Zone 1 99999.0 to 0.0 Feet

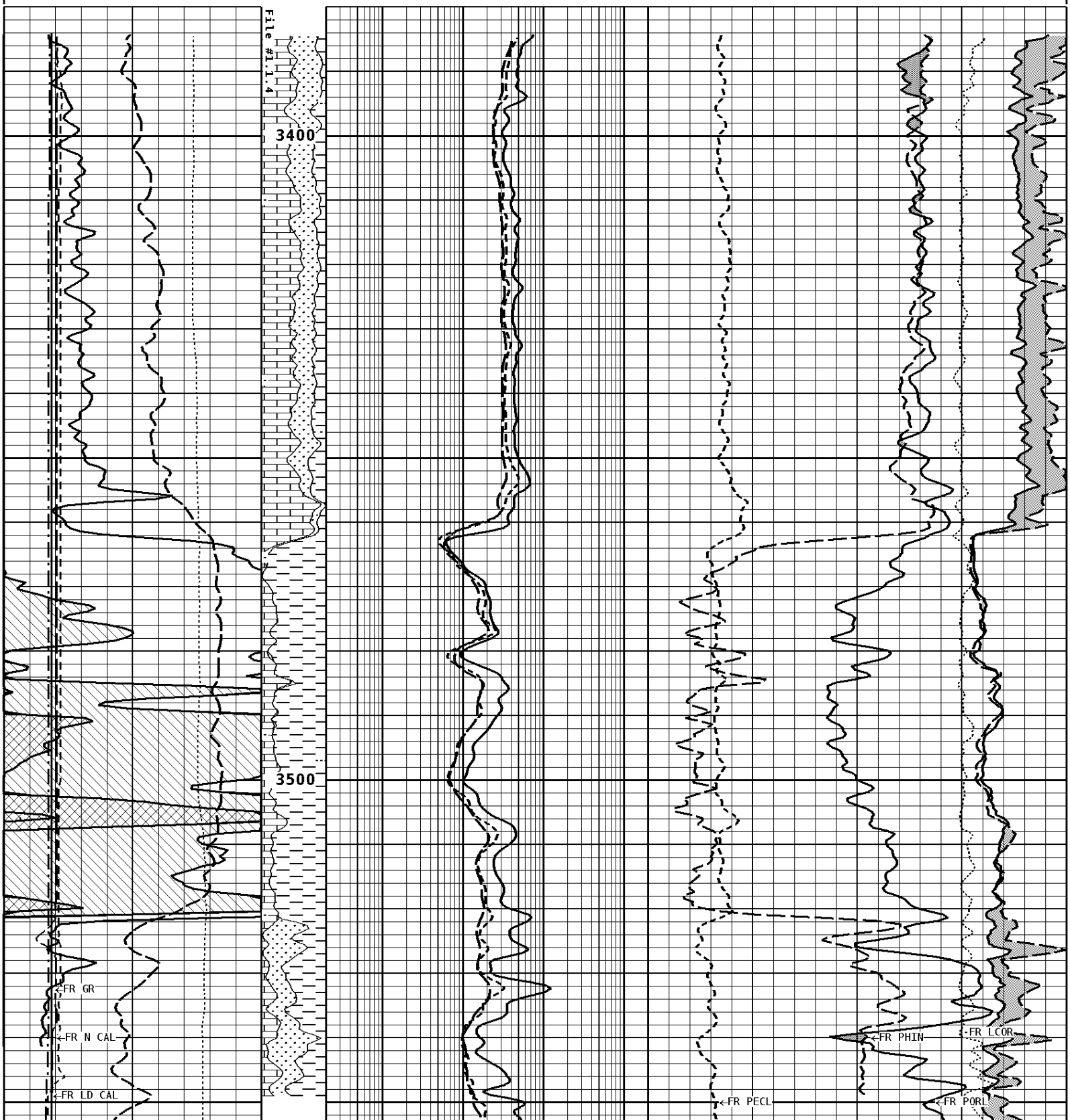
Matrix Density	2.71	g/cc
Fluid Density	1.00	g/cc
Formation Matrix	Limestone	
Drill Bit Size	7.875	in
Casing Diameter	5.500	in
Casing Thickness	0.250	in
Casing Correction (PHI N)	Disable	
Hole Substance	Fluid	
BHT Depth	3585.000	ft
Borehole Temperature	115.0	degF
Temperature Gradient	1.00	DFHF
Resistivity Of Mud	2.000	ohmm
MSTNG Normal Correction	-0.50	ohmm
MSTNG Inverse Correction	0.00	ohmm

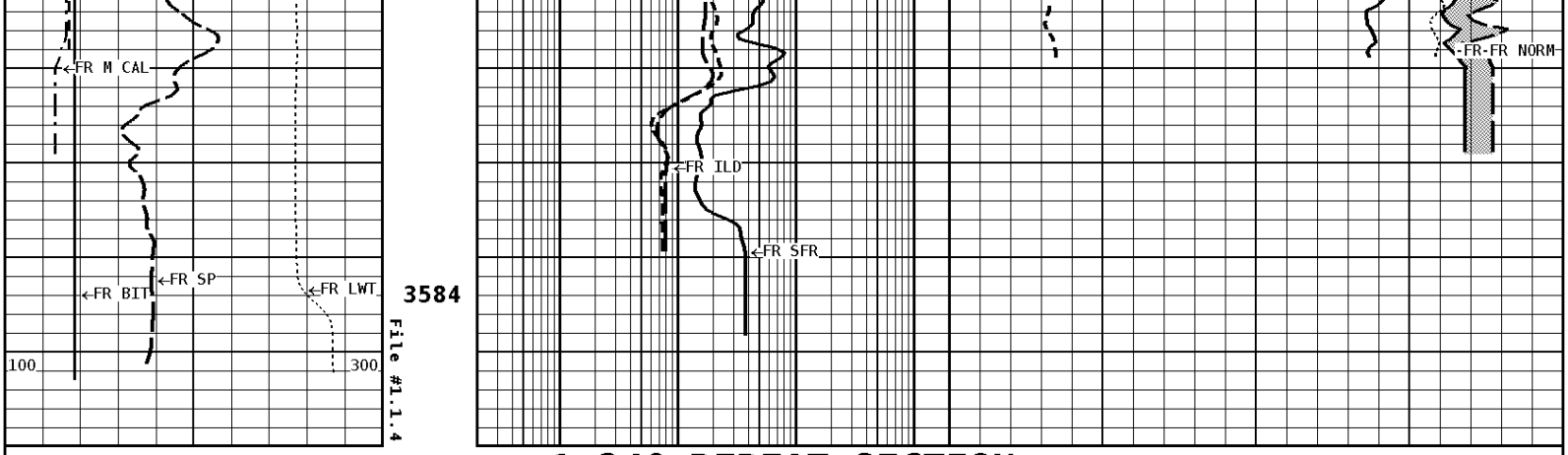
Well File: val_hammer_dv_3-4_nov-20_mst **Scale:** 1:240 **Format:** COMSAT
Segment: V1.D1.S4 CRE REPEAT **Acquired:** Not Available
Reference: 0 **Processed:** 2017-11/20 16:26 3.4.0-13756



SPONTANEOUS POTENTIAL mV	Volume Dolo/Shale	DEEP INDUCTION OHMM	DENSITY POROSITY (2.71g/cc) PERCENT
→| |←20		0.2 — 2000.0	70 — 30 30 — -10 -10 — -50
GAMMA RAY API UNITS	-BHV AHV- CU.FT	**MEDIUM INDUCTION OHMM**	**NEUTRON POROSITY (LIMESTONE) PERCENT**
150 — 300 0 — 150		0.2 — 2000.0	30 — -10

1:240 REPEAT SECTION





1:240 REPEAT SECTION

GAMMA RAY API UNITS	BHV AHV CU.FT	MEDIUM INDUCTION OHMM	NEUTRON POROSITY (LIMESTONE) PERCENT
150 300 0 150		0.2 2000.0	30 -10
SPONTANEOUS POTENTIAL mV	Volume Dolo/Shale	**DEEP INDUCTION OHMM**	**DENSITY POROSITY (2.71g/cc) PERCENT**
→| |←20		0.2 2000.0	70 30 30 -10 -10 -50
TENSION LBS	Volume Calcite	**SHALLOW FOCUSED RESISTIVITY OHMM**	**PE CROSS-SECTION BARNS/ELECTRON**
10000 0		0.2 2000.0	0 20
DENSITY (X) CALIPER INCHES (IN)	Volume Quartz		**DENSITY CORRECTION G/CC**
16 26 6 16			-0.75 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	
Hole Substance	Fluid	
BHT Depth	3585.000	ft
Borehole Temperature	115.0	degF
Temperature Gradient	1.00	DFHF
Resistivity Of Mud	2.000	ohmm
MSTNG Normal Correction	-0.50	ohmm
MSTNG Inverse Correction	0.00	ohmm

* Calibration Summary *

Shop Calibration
GRT-B

Performed : 02-OCT-2017 Time : 10:27
Sensor Suite : GR-GR5 ID : GRT-BB-009

	Measured Background	Measured Jig	Units	Calibrated Jig	Units
GR	46	362	CPS	175	GRAPI

Shop Calibration
CNT-AA

Performed : 02-NOV-2017 Time : 12:00
Sensor Suite : CALI-BCN ID : NDT-BB-123

	Jig - Measured Ring#1	Jig - Measured Ring#2	Jig - Calibrated Ring#1	Jig - Calibrated Ring#2	Units
CL # 1	9.6	14.5	6.0	12.0	IN.

Performed : 02-Nov-2017 Time : 12:07
Sensor Suite : BHC NEUT ID : CNP-AA-110
Source ID : N-1045

	Tank Measured	Tank Calibrated	Verification Jig	Units
N/F	3.7243	3.6893	3.6987	
Porosity	21.0	20.5	20.6	%

Shop Calibration
LDT-DA

Performed : 02-NOV-2017 Time : 12:23
Sensor Suite : CALI-LTH ID : PDT-GA-426

	Jig - Measured Ring#1	Jig - Measured Ring#2	Jig - Calibrated Ring#1	Jig - Calibrated Ring#2	Units
CL # 1	6.7	10.9	6.0	12.0	IN.

Performed : 02-Nov-2017 Time : 11:29
Sensor Suite : BHCPELNG ID : LDP-DA-051
Source ID : 2991GW

Short Space

	BKGD	Al	Mg	Al+Fe	Units
LSW1	64	976	1588	634	CPS
LSW2	70	1108	1770	815	CPS
LSW3	253	2532	4091	2173	CPS
LSW4	307	2297	3296	2019	CPS
LSW5	30	49	55	46	CPS
LSW6	85	87	88	87	CPS
LSW7	52	57	56	57	CPS
LSW8	1	4	5	3	CPS
QS	0.243	0.209	0.228	0.211	
PES			2.778	5.967	
SSDN		2.600	1.680		G/CC

Long Space

	BKGD	Al	Mg	Al+Fe	Units
LLW1	89	1167	4904	717	CPS
LLW2	102	1858	7422	1407	CPS
LLW3	383	3416	13037	2967	CPS
LLW4	495	1683	5210	1529	CPS
LLW5	55	65	109	63	CPS
LLW6	160	155	148	154	CPS
LLW7	104	102	95	100	CPS
LLW8	4	6	16	6	CPS
QL	0.213	0.209	0.217	0.214	
PEL			2.697	5.458	
LSDN		2.600	1.680		G/CC

Shop Calibration
MST-DA

Performed : 02-MAY-2017 Time : 10:17
Sensor Suite : CALI-MSN ID : MST-DA-025

	Jig - Measured Ring#1	Jig - Measured Ring#2	Jig - Calibrated Ring#1	Jig - Calibrated Ring#2	Units
CL # 1	7.9	13.2	6.0	12.0	IN.

Performed : 02-May-2017 Time : 10:11
Sensor Suite : MSTDA-NI ID : MST-DA-025

Internal

	Measured			Calibrated		
	Zero	Reference	Units	Zero	Reference	Units
INV-V	0.0	30518.3		0.00	1546.00	MV
NOR-V	2.7	30492.5		0.00	1546.00	MV
IN-C	1.6	58932.3		0.00	15.46	UA
INV-R					32.34	OHMM
NOR-R					55.11	OHMM

Shop Calibration
PIT-CA

Performed : 26-Sep-2017 Time : 09:42
Sensor Suite : P-IND-T ID : PIT-AC-043

Medium

	Measured		Calibrated		
	R	X	R	X	Units
Air	131497	129662	0.5	0.6	MMHOS
Zero	131065	131063	-18.2	60.1	MMHOS
Reference	244627	244503	4981.8	5060.1	MMHOS
Loop	130435	210091	3498.7	3592.2	MMHOS
Sonde Error			-1.3	-3.0	MMHOS
Cond			4981.8	5060.1	MMHOS

Deep

	Measured		Calibrated		
	R	X	R	X	Units
Air	131956	129220	0.3	-0.7	MMHOS
Zero	131074	131072	-15.2	35.1	MMHOS
Reference	220263	224181	1984.8	2035.1	MMHOS
Loop	129286	205754	1584.4	1703.2	MMHOS
Sonde Error			-0.4	-8.6	MMHOS
Cond			1984.8	2035.1	MMHOS

Temperature

	Measured		Calibrated		
	Low	High	Low	High	Units
	16980.0	56920.0	70.0	350.0	DEGF

Performed : 26-Sep-2017 Time : 09:35
Sensor Suite : SFL ID : PIT-AC-043

Internal

	Measured		Calibrated		
	Zero	Reference	Zero	Reference	Units
Im	32732.5	48898.9	0.0	7028.0	uA
Ib	32768.3	49649.9	0.0	1750.0	mA
MOM1	32730.8	56254.3	0.0	175.0	mV
Equivalent SFL				43.97	OHMM

Performed : 26-Sep-2017 Time : 09:31
Sensor Suite : P-SP ID : PIT-AC-043

Internal

	Measured		Calibrated		
	Zero	Reference	Zero	Reference	Units
	32772.9	58924.4	0.0	1000.0	mV

Tucker ENERGY SERVICES

Company: VAL ENERGY, INC

Well: HAMMER D V3-4

Location: 990' FSL & 660' FWL

Logged: 11-20-2017

K.B. Elev: 1346.0 Ft