



Tucker

ENERGY SERVICES

COMPOSITE LOG

Company CHIEFTAIN OIL CO., INC. Well AHS CATTLE CO. #10 Field NA County BARBER State KANSAS Country USA API No. 15-007-24255-0000		File No : TUL-60377 Company : CHIEFTAIN OIL CO., INC. Well : AHS CATTLE CO. #10 Field : NA County : BARBER State : KANSAS Country : USA API No : 15-007-24255-0000	
Location : 2490' FSL & 660' FEL N/2 N/2 NE SE		LSD : Sect : 12 Twp : 35S Rge : 12W	
Permanent Datum:	GL	Elevations:	Services:
Drilling Measured From:	KB	KB 1392.00	CNT
Log Measured From:	KB	DF 1391.00	PIT
Above Permanent Datum:	10.00 Ft	GL 1392.00	MLT
Date	01-04-2015		
Run Number	1		
Depth--Driller	5467.0	Ft	
Depth--Logger	5476.0	Ft	
First Reading	5476.0	Ft	
Last Reading	936.0	Ft	
Casing--Driller	936.0	Ft	
Casing--Logger	936.0	Ft	
Bit Size	7.875	In	
Casing Size	8.625	In	
Hole Fluid Type	CHEM-GEL		
Density	9.4		
Fluid Loss	9.6		
PH/Viscosity	9.5	53.0	
Sample Source	MEASURED		
RM@Measured Temp.	2.000	@ 50 F	
RMF@Measured Temp	1.600	@ 50 F	
RMG@Measured Temp.	2.400	@ 50 F	
Source RMF/RMC	CALCULATED	CALCULATED	
RM@BHT	0.820	@ 132 F	
Time Circulation Stopped	01-04-2015 10:00 pm		
Max Recorded Temp.	132	F	
Equipment/Base	127	TULSA	
Recorded By	SHELDON TYELR		
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	5467.00	8.625	32.00	936.00	0.00

Run Number	1	
Date	01-04-2015	
Date/Time On Bottom	01-05-2015 1:00 am	
Depth to Fluid	0.0 Ft	
Salinity	3400.000	
RMF@BHT	0.660 @ 132 F	
RMC@BHT	0.980 @ 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

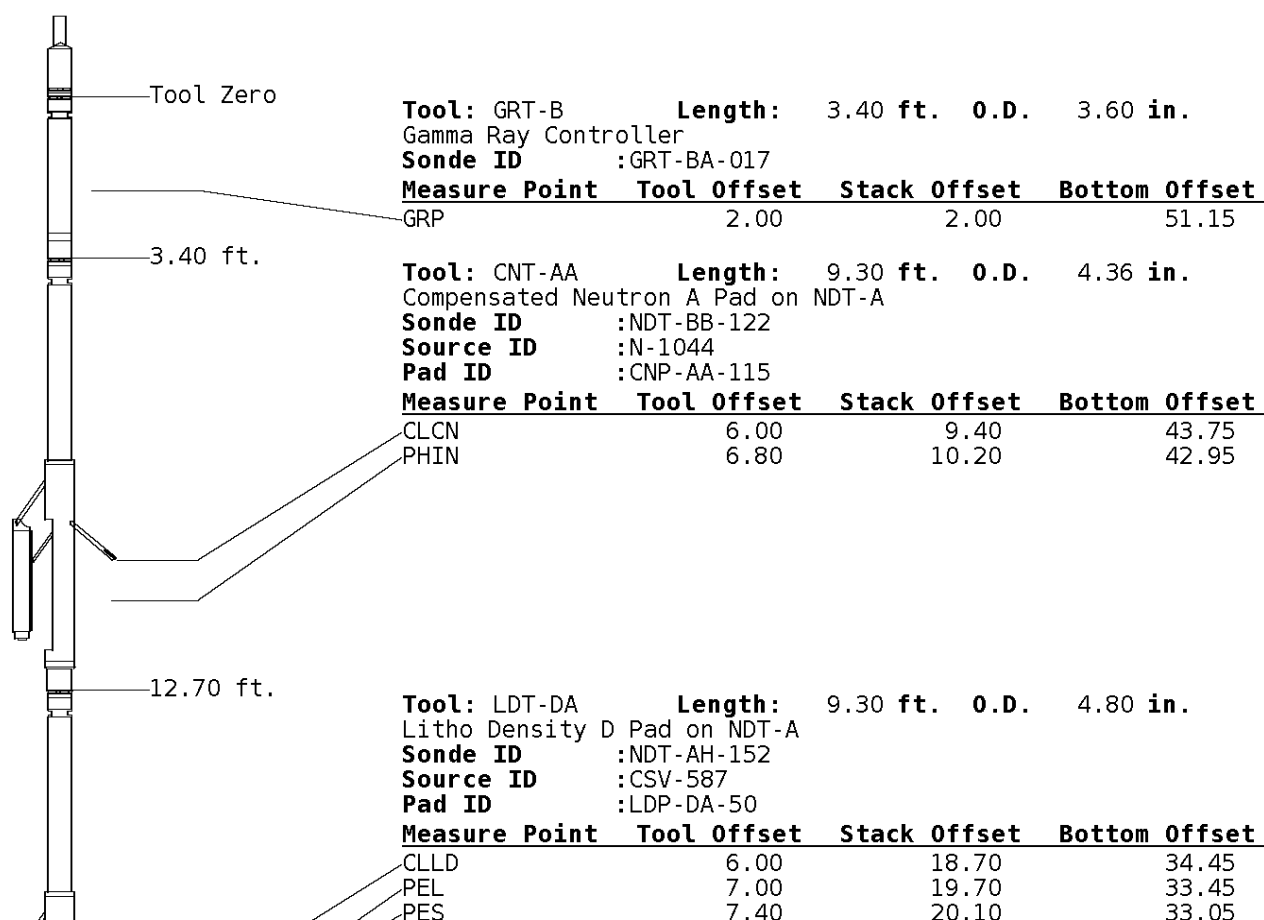
CUSTOMER REQUESTED DETAIL PULLED TO 3700'
 PULLED TIGHT AT 5270' CLOSED CALIPERS REOPENED AT 5200'

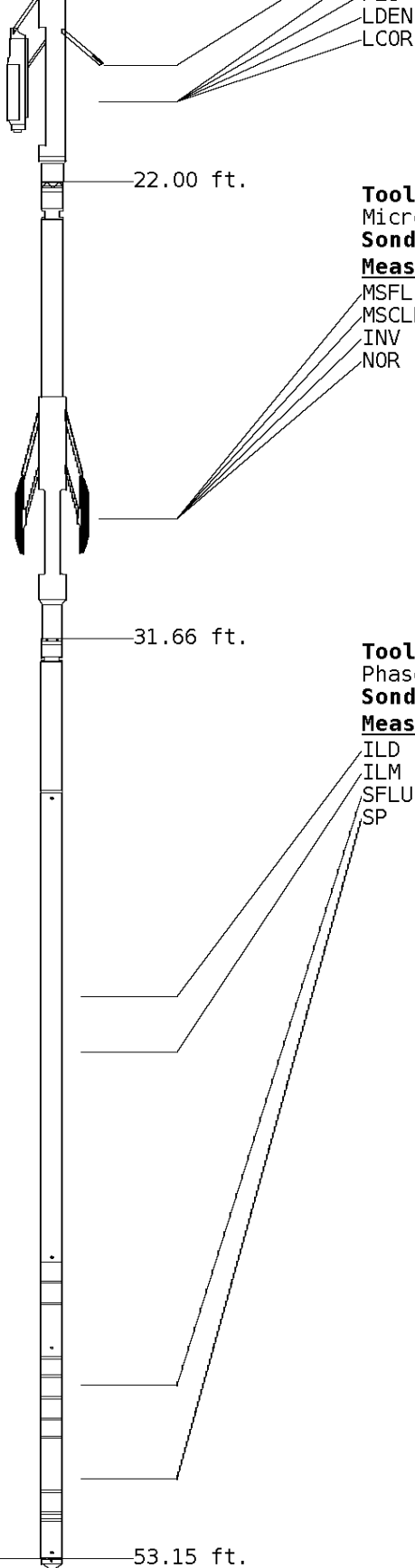
NO REPEAT DUE TO BAD HOLE CONDITIONS
 DRAGGING MUD BALL FROM 5200' TO 5050'
 GRT: GRP, GRX
 CNT: PHIN, CLCNIN, PHXN
 LDT: PORL, LCORN, PECLN, LDENN, PORLLS, CLLDIN, PRXL, PECLX, LDENNX, LCORX
 MLT: NOR_RF, INV_RF, MSCLPIN
 PIT: ILD, ILM, SPU, SFLAEC, CIRD

OPERATORS:+4
 J.JOHNSON
 C.GONZALES

Tool String Schematic

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





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	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_AHS_CATTLE_CO_10_JAN4_MSTK

Scale: 1:240 Format: COMSAT

Segment: V1.D1.S3 AS FINAL MAIN

Acquired: 2015-01/05 01:09 3.4.0-13284

Reference: 0

Processed: 2015-01/05 03:01 3.4.0-13284

CALIPER MICRO
INCHES (IN)

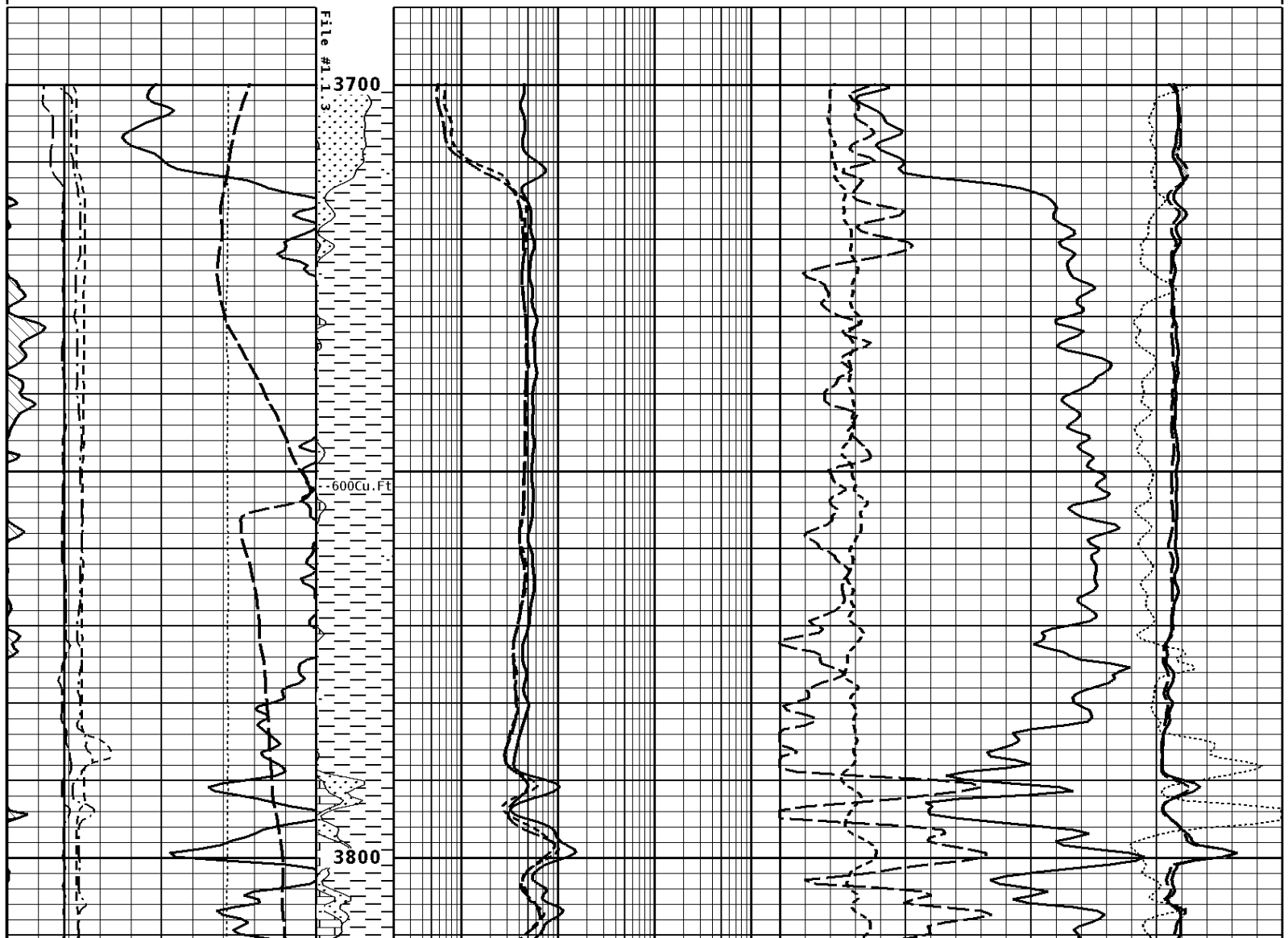
16 26
6 16

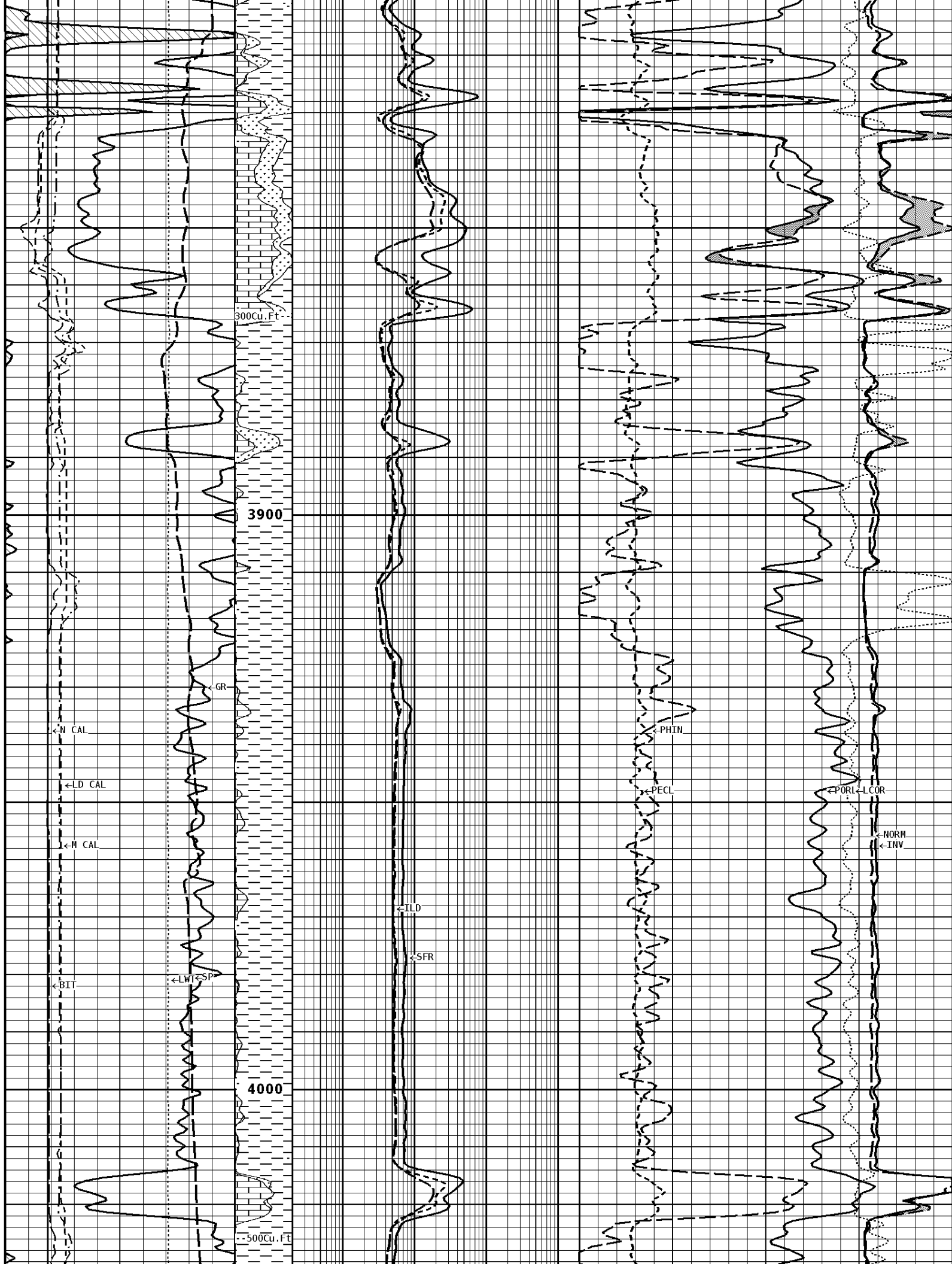
BIT SIZE
INCHES (IN)

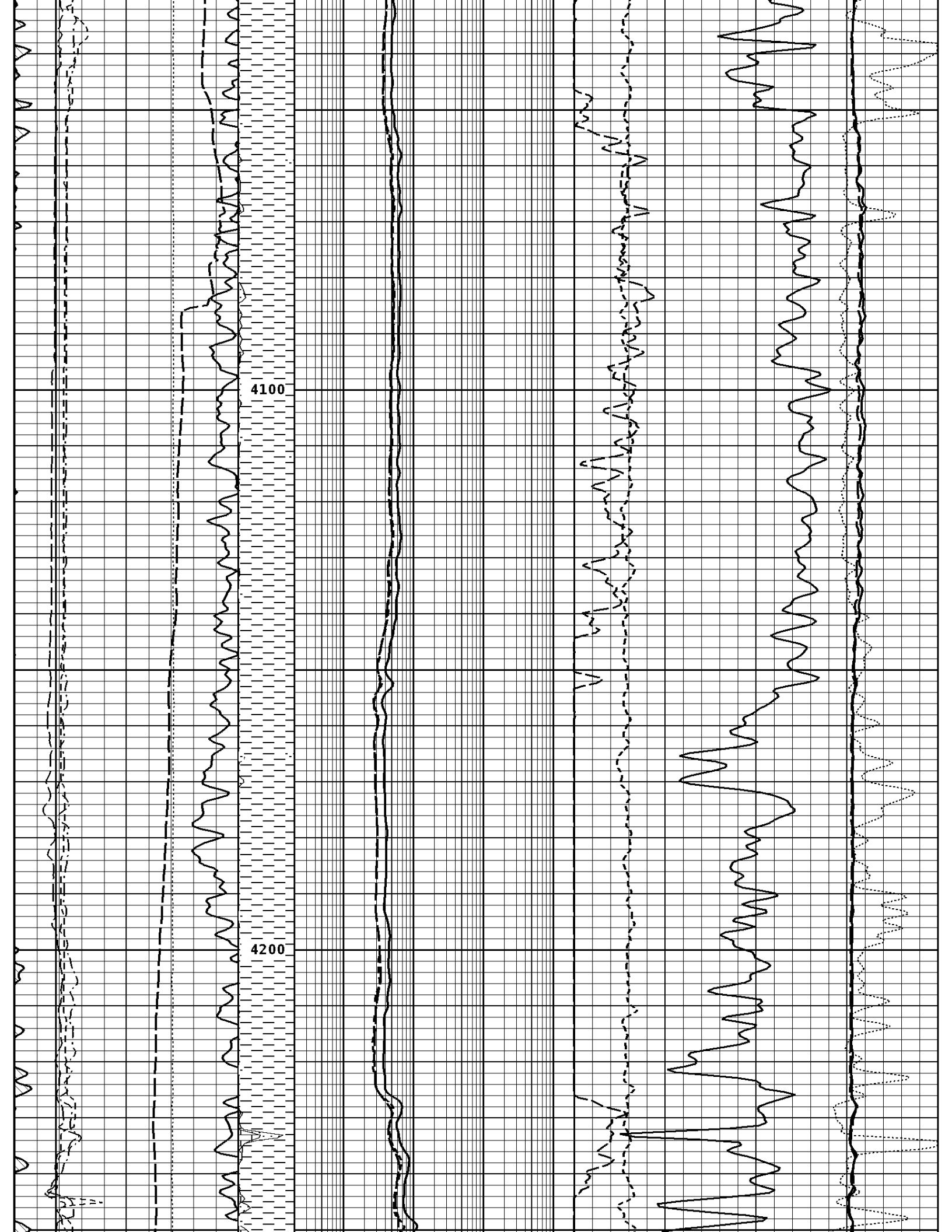
NORHAL
OHMM

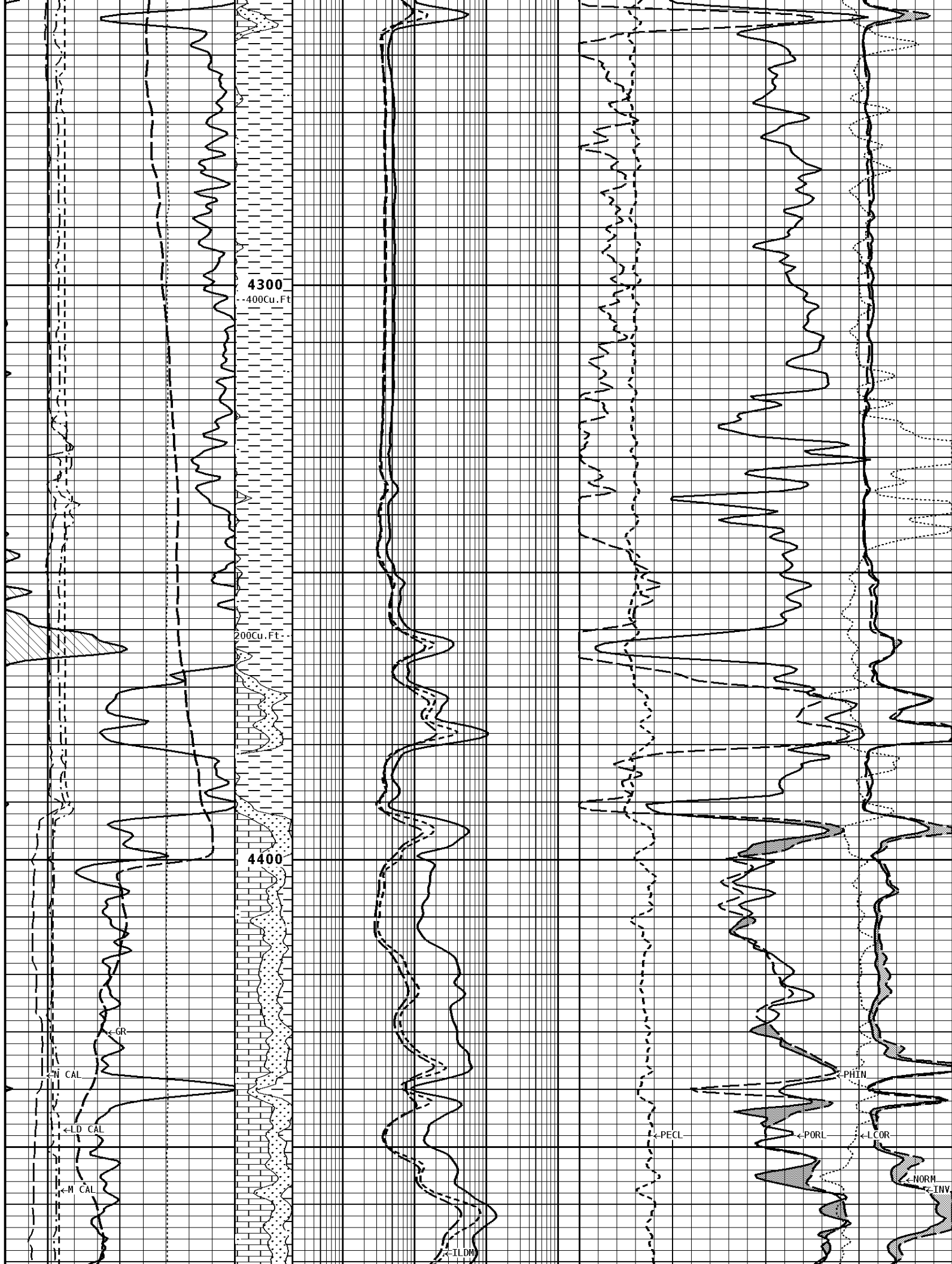
6	16			0	40
NEUTRON (Y) CALIPER INCHES (IN)				INVERSE OHMM	
16	26			0	40
6	16				
DENSITY (X) CALIPER INCHES (IN)		Volume Quartz		DENSITY CORRECTION G/CC	
16	26				
6	16			-0.75	0.25
TENSION LBS		Volume Calcite	SHALLOW FOCUSED RESISTIVITY OHMM	PE CROSS-SECTION BARNs/ELECTRON	
10000	0		0.2	2000.0	0
SPONTANEOUS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

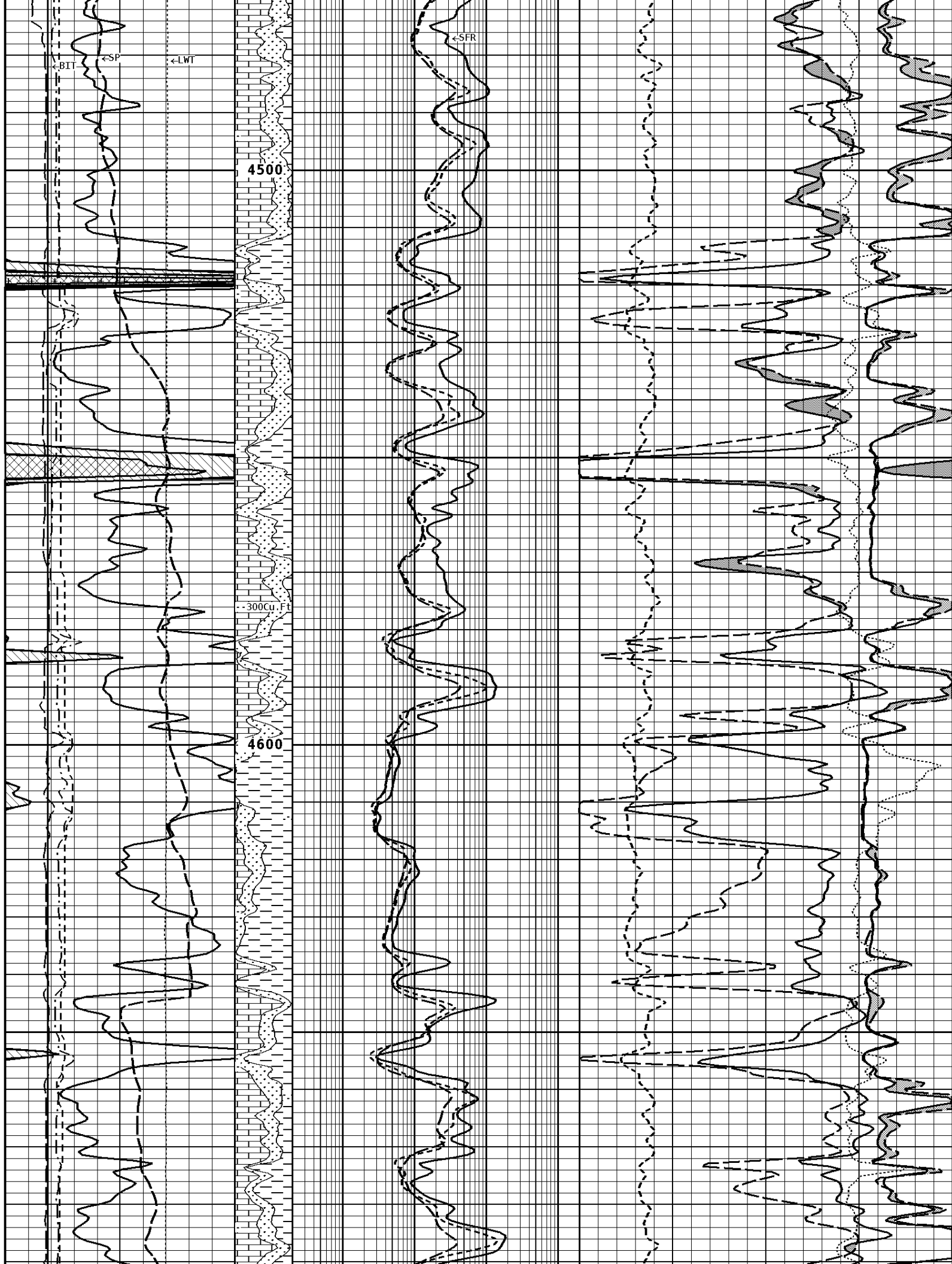
1:240 MAIN SECTION

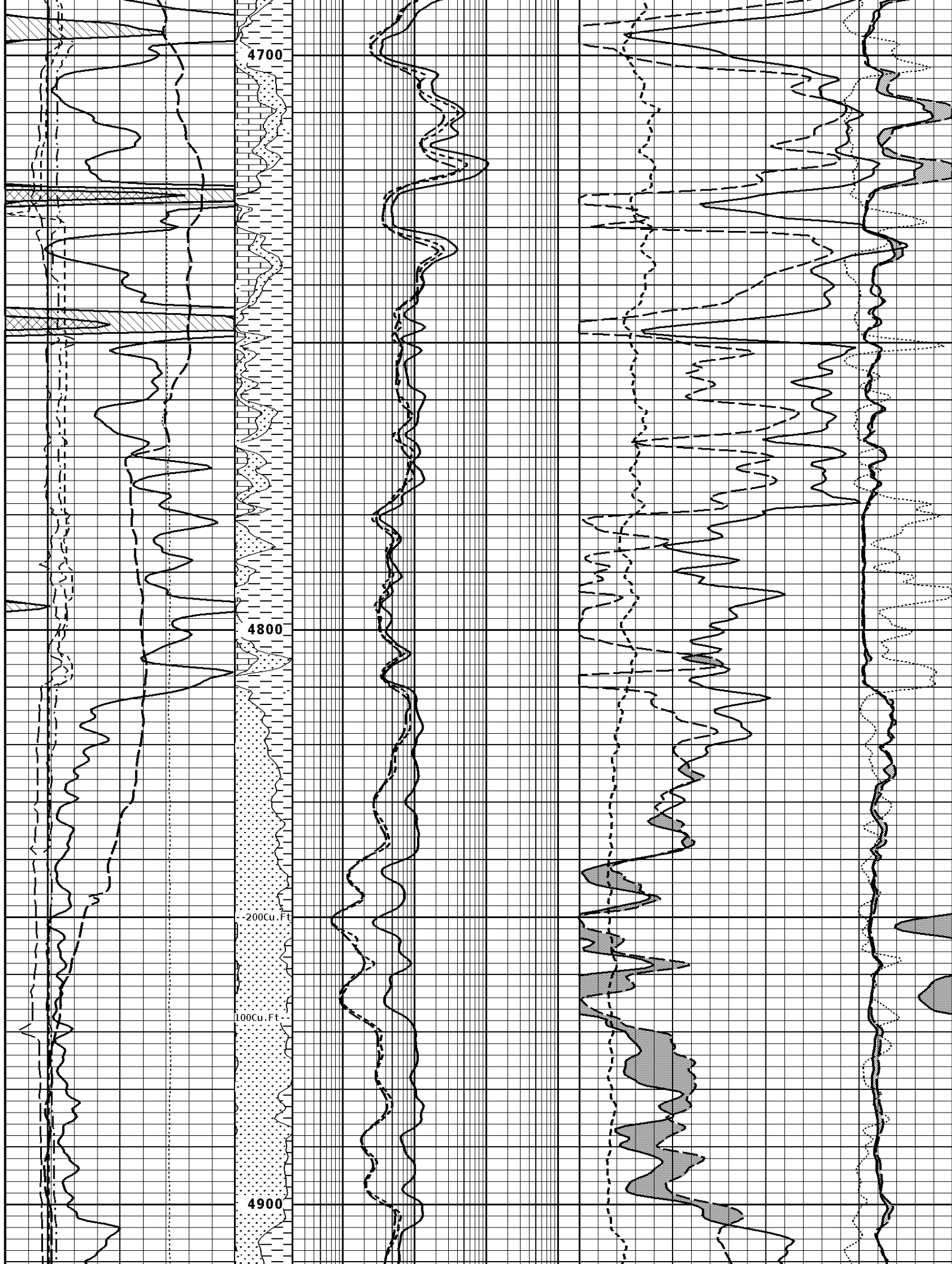


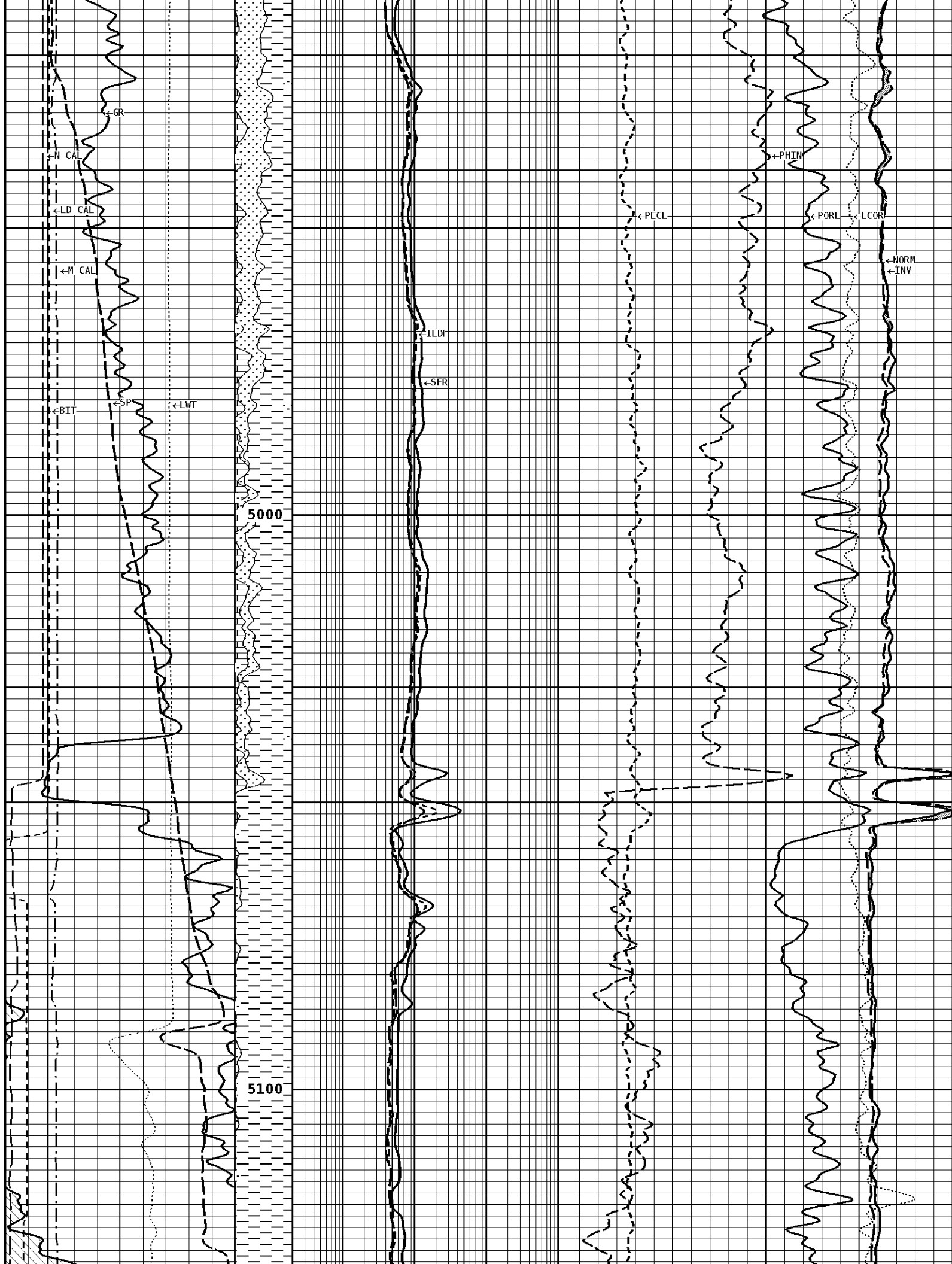


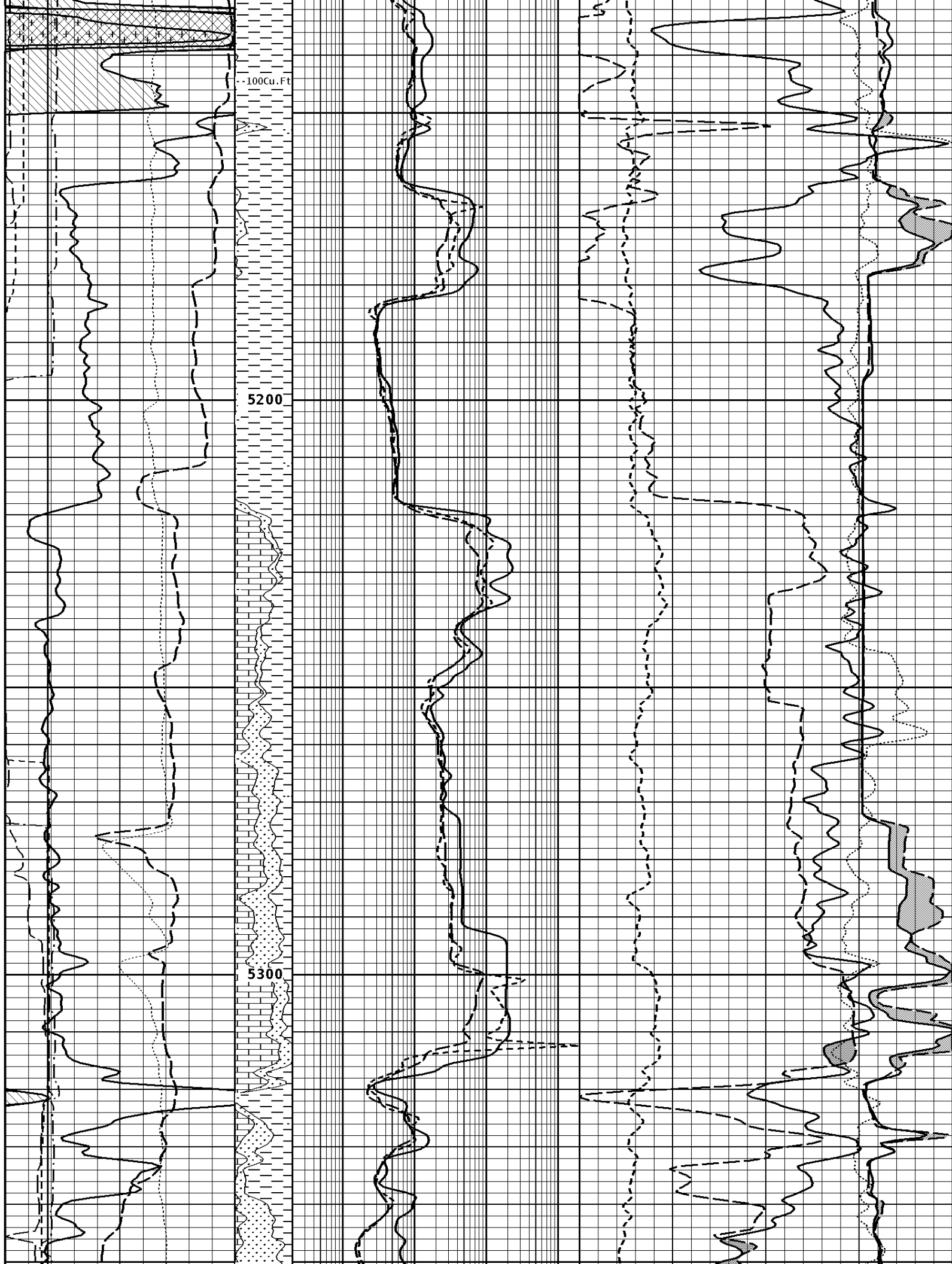


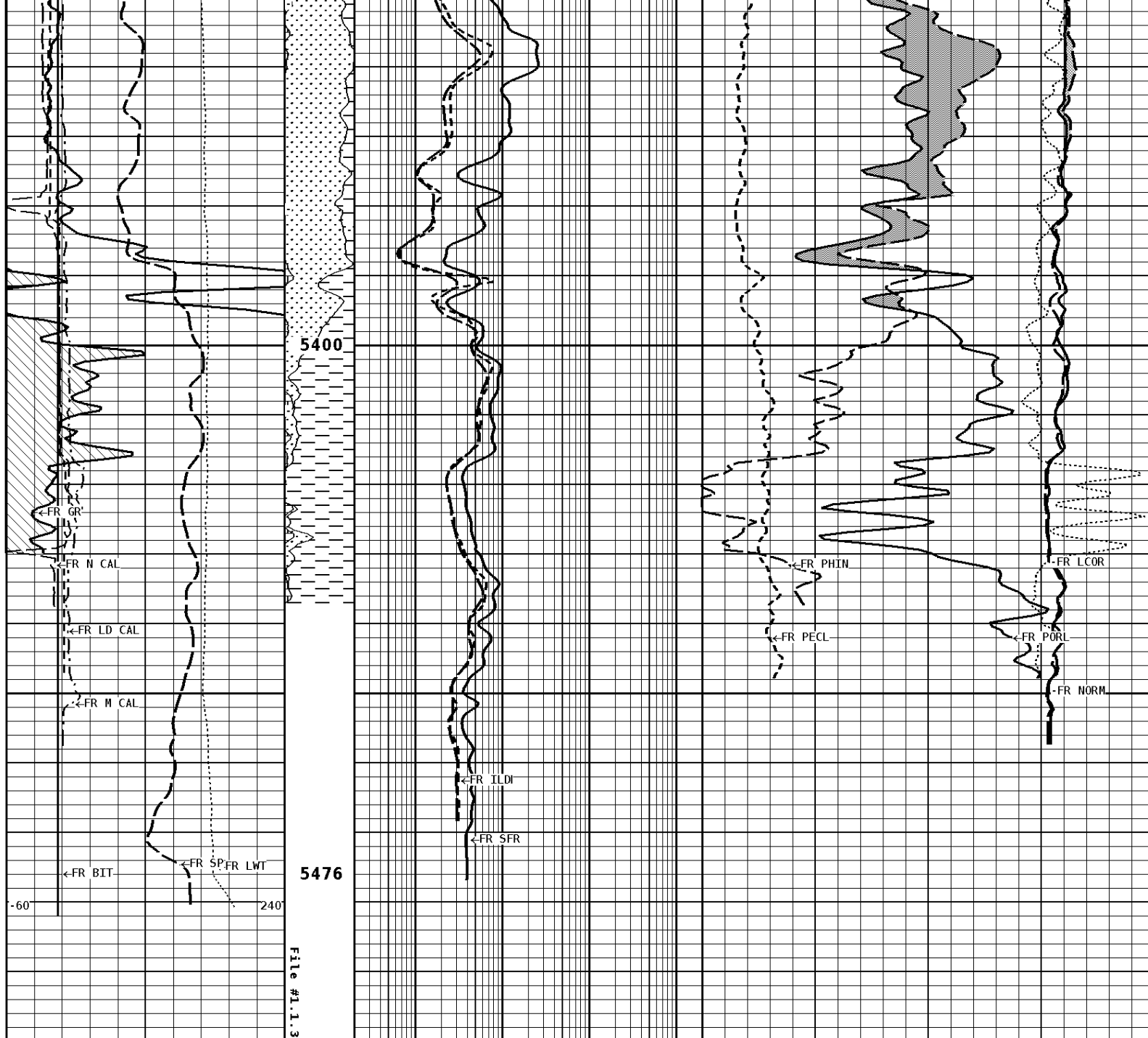












GAMMA RAY API UNITS 150 0 300 150	BHV ANV CU. FT	MEDIUM INDUCTION OHMM 0.2 2000.0 30	NEUTRON POROSITY (LIMESTONE) PERCENT -10
SPONTANEOUS POTENTIAL mV → ← 30	Volume Dolo/Shale	DEEP INDUCTION OHMM 0.2 2000.0 30	DENSITY POROSITY (2.71g/cc) PERCENT 70 30 -10 -50
TENSION LBS 10000 0	Volume Calcite	SHALLOW FOCUSED RESISTIVITY OHMM 0.2 2000.0 0	PE CROSS-SECTION BARN/ELECTRON 20
DENSITY (X) CALIPER INCHES (IN) 16 26	Volume Quartz		DENSITY CORRECTION G/CC 2.75 2.25

6	16		-0.75	0.25
NEUTRON (Y) CALIPER INCHES (IN)			INVERSE OHMM	
16	26		0	40
6	16			
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	5445.000	ft	
Borehole Temperature	132.0	degF	
Temperature Gradient	1.00	DFHF	
Resistivity Of Mud	2.000	ohm/m	
MSTNG Normal Correction	0.00	ohm/m	
MSTNG Inverse Correction	1.00	ohm/m	

* Calibration Summary *

Shop Calibration GRT-B					
Performed : 02-Jan-2015			Time : 13:01		
Sensor Suite : GR-GR5			ID : GRT-BA-017		
	Measured	Units	Calibrated	Units	
GR	Background	Jig	Jig		
	61	378	175	GRAPI	
Shop Calibration CNT-AA					
Performed : 02-Jan-2015			Time : 13:12		
Sensor Suite : CALI-BCN			ID : NDT-BB-122		
	Jig - Measured		Jig - Calibrated		Units
	Ring#1	Ring#2	Ring#1	Ring#2	
CL # 1	9.0	13.7	6.0	12.0	IN.
Performed : 02-Jan-2015			Time : 12:24		
Sensor Suite : BHC NEUT			ID : CNP-AA-115		
Source ID : N-1044					
	Tank		Verification	Units	
	Measured	Calibrated	Jig		
N/F	3.9759	3.6893	3.7035		
Porosity	25.1	20.5	20.7	%	
Shop Calibration LDT-DA					
Performed : 02-Jan-2015			Time : 13:18		
Sensor Suite : CALI-LTH			ID : NDT-AH-152		
	Jig - Measured		Jig - Calibrated		Units
	Ring#1	Ring#2	Ring#1	Ring#2	
CL # 1	8.5	11.9	6.0	12.0	IN.
Performed : 02-Jan-2015			Time : 11:54		
Sensor Suite : BHCPELNG			ID : LDP-DA-50		
Source ID : CSV-587					
Short Space					

	BKGD	Al	Mg	Al+Fe	Units
LSW1	70	460	750	315	CPS
LSW2	76	541	861	401	CPS
LSW3	281	1319	2062	1141	CPS
LSW4	342	1253	1735	1125	CPS
LSW5	32	39	41	38	CPS
LSW6	94	94	95	94	CPS
LSW7	56	59	58	60	CPS
LSW8	2	2	3	2	CPS
QS	0.254	0.231	0.244	0.216	
PES			2.778	5.967	
SSDN		2.600	1.680		G/CC

	BKGD	Al	Mg	Al+Fe	Units
LLW1	102	530	2172	347	CPS
LLW2	112	892	3653	668	CPS
LLW3	424	1771	6474	1567	CPS
LLW4	548	1078	2700	1008	CPS
LLW5	64	67	80	66	CPS
LLW6	168	166	162	167	CPS
LLW7	117	113	107	112	CPS
LLW8	5	6	11	6	CPS
QL	0.180	0.190	0.204	0.197	
PEL			2.697	5.458	
LSDN		2.600	1.680		G/CC

Shop Calibration MST-DA

Performed : 04-DEC-2014 Time : 14:45
Sensor Suite : CALI-MSN ID : MLT-DA-21

	Jig - Measured	Jig - Calibrated	Units
CL # 1	Ring#1 Ring#2	Ring#1 Ring#2	IN.
	7.7 12.1	6.0 12.0	

Performed : 04-DEC-2014 Time : 02:18
Sensor Suite : MSTDA-NI ID : MLT-DA-21

	Measured		Units	Calibrated		Units
	Zero	Reference		Zero	Reference	
INV-V	0.0	29815.7		0.00	1746.00	MV
NOR-V	49.2	30179.6		0.00	1546.00	MV
IN-C	0.0	60547.2		0.00	15.46	UA
INV-R					36.53	OHMM
NOR-R					55.11	OHMM

Shop Calibration PIT-CA

Performed : 10-Nov-2014 Time : 10:45
Sensor Suite : P-IND-T ID : PIT-CA-062

	Measured		Units	Calibrated		Units
	R	X		R	X	
Air	130581	130719		-1.4	-1.4	MMHOS
Zero	131070	131071		25.8	5.1	MMHOS
Reference	253678	249876		5025.8	5005.1	MMHOS
Loop	131482	220909		3831.0	3757.5	MMHOS
Sonde Error				-1.0	-15.6	MMHOS
Cond				5025.8	5005.1	MMHOS

	Measured		Units	Calibrated		Units
	R	X		R	X	
Air	129104	131422		1.0	0.9	MMHOS
Zero	131066	131070		40.8	-16.1	MMHOS
Reference	234020	231481		2040.8	1983.9	MMHOS
Loop	130025	221327		1809.7	1773.8	MMHOS
Sonde Error				-8.4	-11.7	MMHOS
Cond				2040.8	1983.9	MMHOS

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

Performed : 10-Nov-2014 Time : 10:35
Sensor Suite : SFL ID : PIT-CA-062

	Measured		Units	Calibrated		Units
	Low	High		Low	High	

	Zero	Reference	Zero	Reference	Units	
Im	32763.6	48943.6	0.0	7028.0	uA	
Ib	32767.1	48748.6	0.0	1750.0	mA	
MOM1	32729.9	57504.3	0.0	175.0	mV	
Equivalent SFL				43.97	OHMM	
Performed : 10-Nov-2014			Time : 10:33			
Sensor Suite : P-SP			ID : PIT-CA-062			
Internal						
	Measured			Calibrated		
	Zero	Reference		Zero	Reference	Units
	32765.9	58978.1		0.0	1000.0	mV