

Tucker

ENERGY SERVICES

COMPOSITE LOG

Company CHIEFTAIN OIL CO, INC. Well RATHGERBER #3 Field NA County BARBER State KANSAS Country USA API No. 15-007-24169-0000		File No : TUL-59611 Company : CHIEFTAIN OIL CO, INC. Well : RATHGERBER #3 Field : NA County : BARBER State : KANSAS Country : USA API No : 15-007-24169-0000	
Location : 2702 FSL & 2344 FWL SE SE SE NW		LSD : Sect : 6 Twp : 35S Rge : 11W	
Permanent Datum:	GL	Elevations:	Services:
Drilling Measured From:	KB	KB 1387.00	CNT
Log Measured From:	KB	DF 1386.00	PIT
Above Permanent Datum:	1200 Ft	GL 1375.00	MLT
Date	05-12-2014		
Run Number	1		
Depth--Driller	5544.0 Ft		
Depth--Logger	5545.0 Ft		
First Reading	5545.0 Ft		
Last Reading	303.0 Ft		
Casing--Driller	303.0 Ft		
Casing--Logger	303.0 Ft		
Bit Size	7.875 In		
Casing Size	13.375 In		
Hole Fluid Type	CHEM-GEL		
Density	9.4		
Fluid Loss	9.2		
PH/Viscosity	9.5	60.0	
Sample Source	MEASURED		
RM@Measured Temp.	1.000 @ 75 F		
RMF@Measured Temp	0.800 @ 75 F		
RMC@Measured Temp.	1.200 @ 75 F		
Source RMF/RMC	CALCULATED/CALCULATED		
RM@BHT	0.590 @ 133 F		
Time Circulation Stopped	05-12-2014 6:30 pm		
Max Recorded Temp.	133 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	5544.00	13.375	42.00	303.00	0.00

Run Number	1	
Date	05-12-2014	
Date/Time On Bottom	05-12-2014 9:30 pm	
Depth to Fluid	0.0 Ft	
Salinity	4000.000	
RMF@BHT	0.470 @ 133 F	
RMC@BHT	0.710 @ 133 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

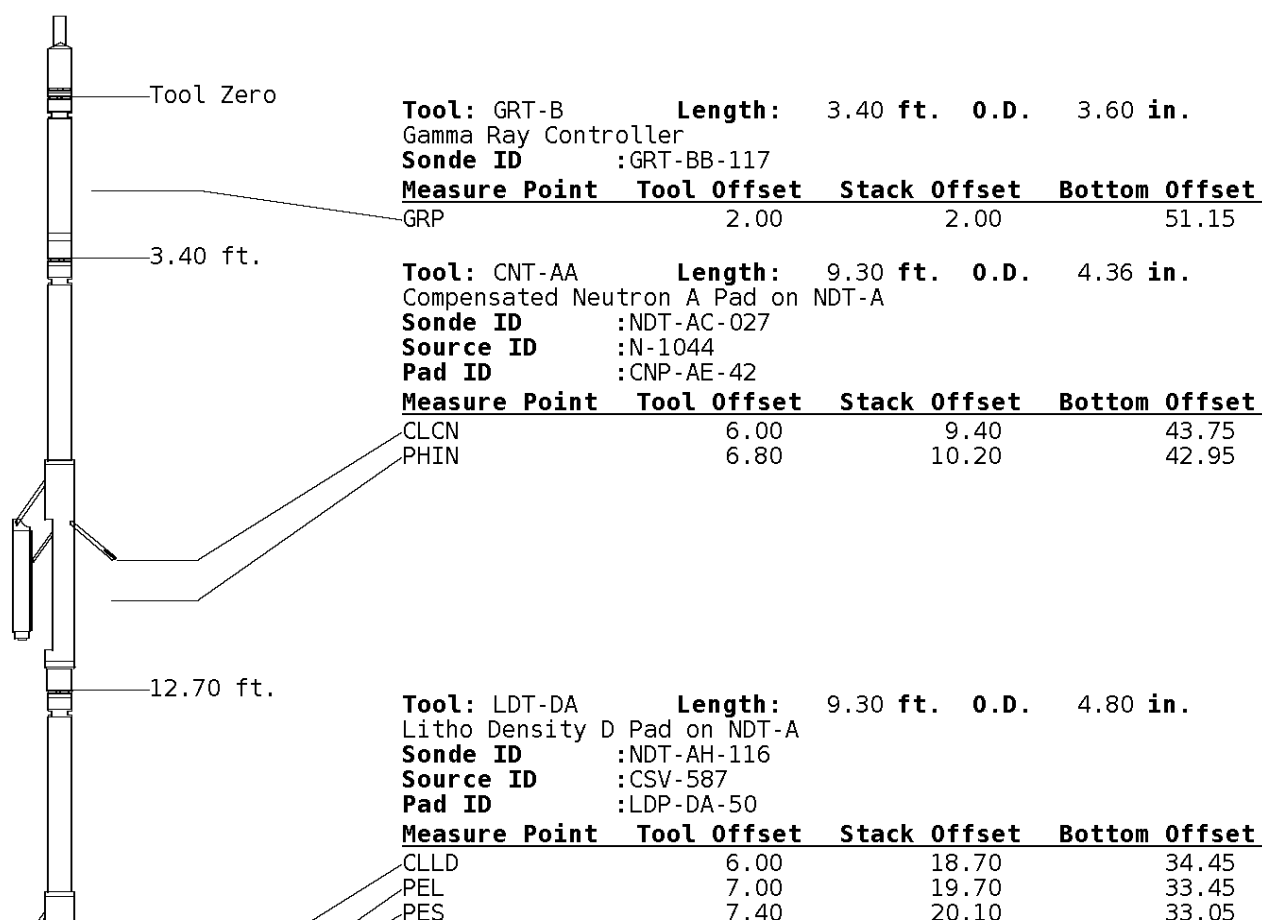
CUSTOMER REQUESTED DETAIL PULLED TO 3700'
 CUSTOMER REQUESTED MICRO PULLED TO 4750'

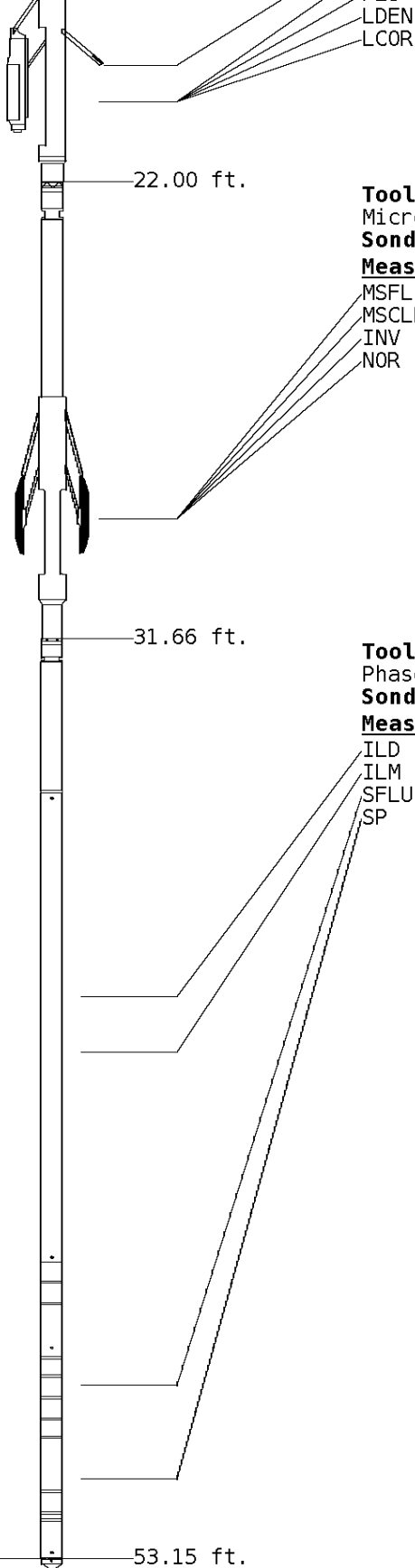
GRT: GRP, GRX
 CNT: PHIN, CLCNIN, PHXN
 LDT: PORL, LCORN, PECLN, LDENN, PORLLS, CLLDIN, PRXL, PECLX, LDENNX, LCORX
 MLT: NOR_RF, INV_RF, MSCLPIN
 PIT: ILD, ILM, SPU, SFLAEC, CIRD

OPERATORS:
 J.JOHNSON
 A.DJAH

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 :MST-DA-28

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 RATHGERBER 3 MAY12_MSTK

Scale: 1:240 **Format:** COMSAT

Segment: V1.D1.S6 Reprocess of MAIN

Acquired: Not Available

Reference: 0

Processed: 2014-05/12 23:06 3.5.0-12850

**CALIPER MICRO
INCHES (IN)**

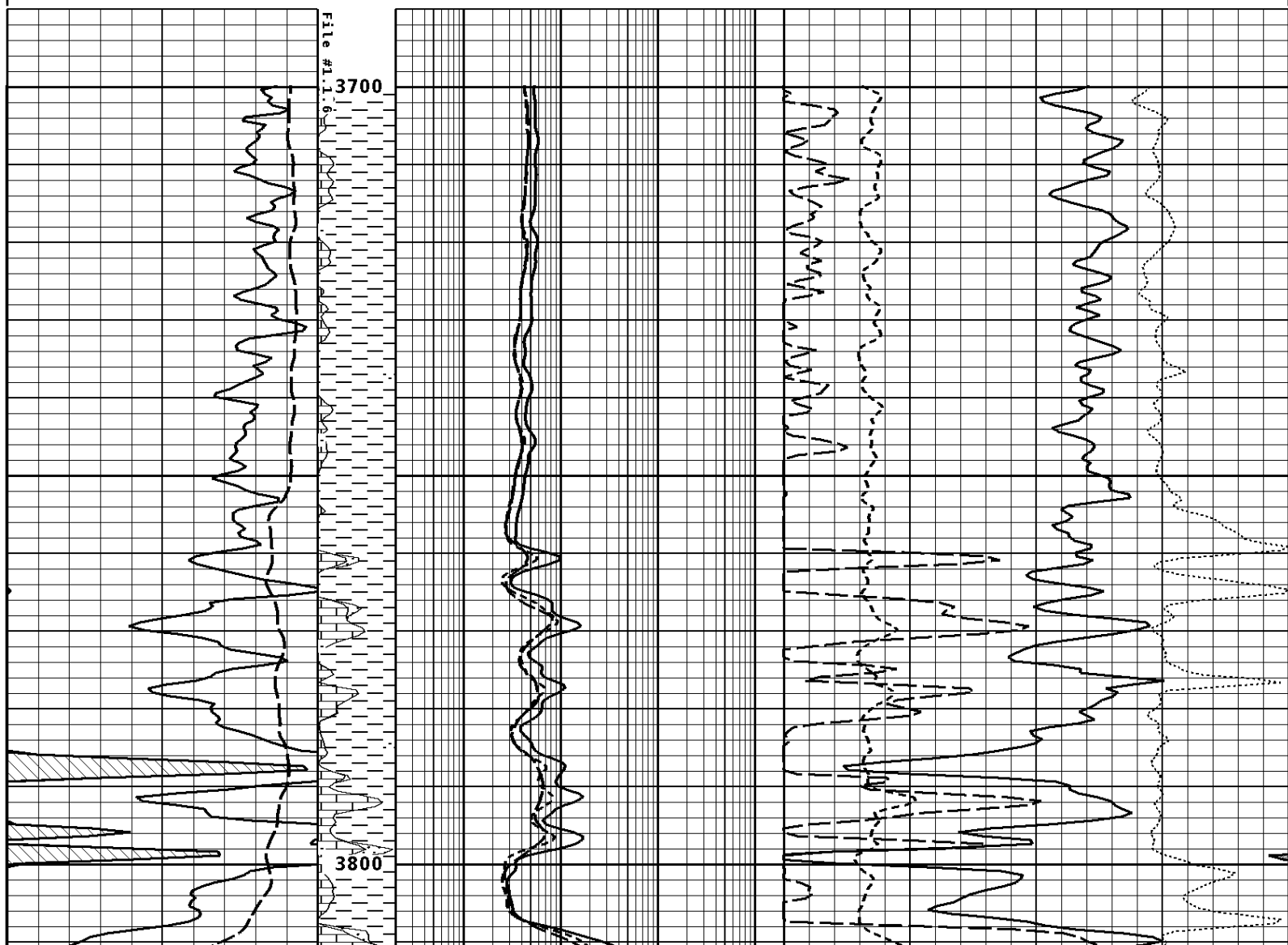
16 26
 6 16

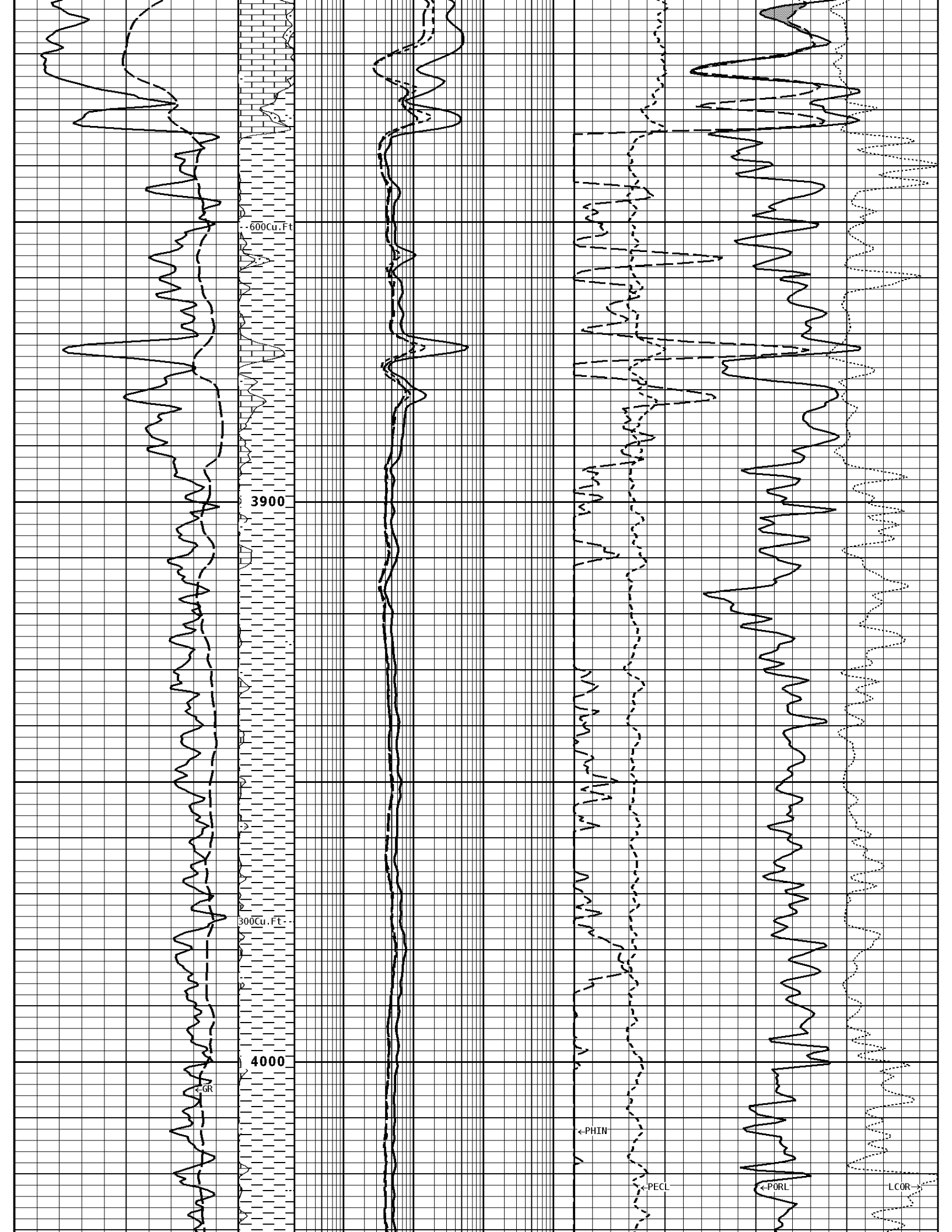
**BIT SIZE
INCHES (IN)**

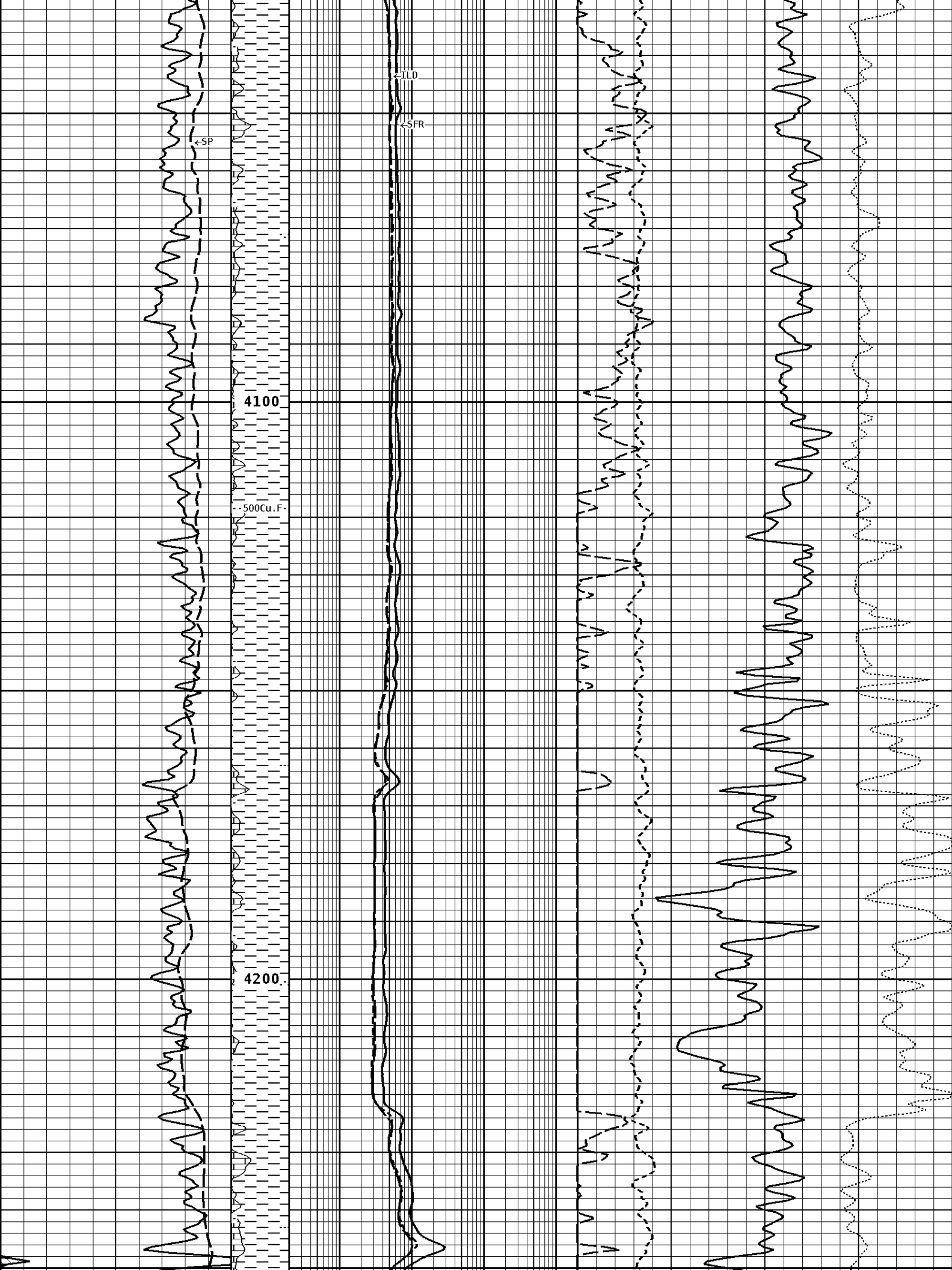
**NORMAL
OHMM**

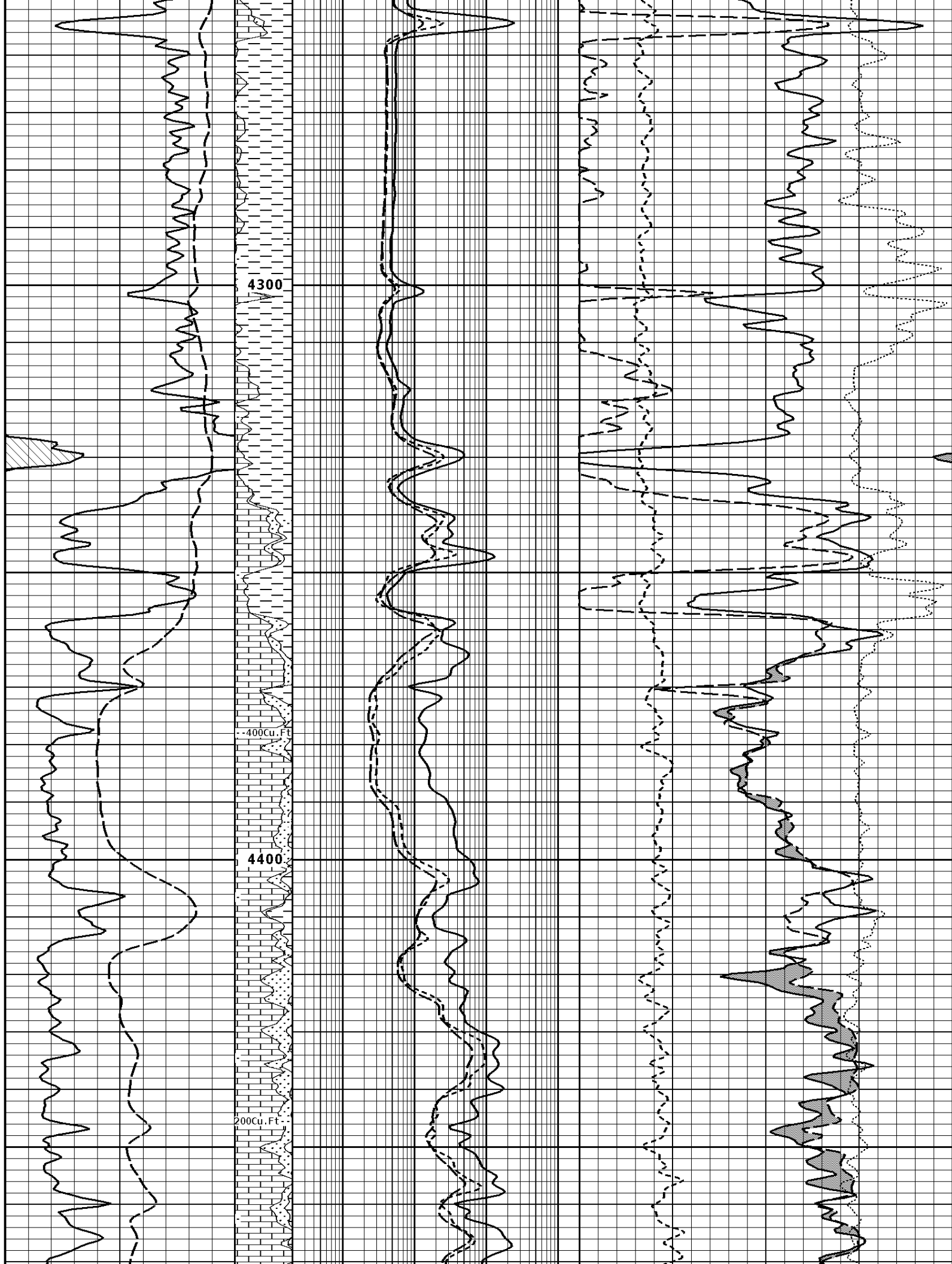
6	16			0	40
NEUTRON (Y) CALIPER INCHES (IN)				INVERSE OHMM	
16	26			0	40
6	16				
DENSITY (X) CALIPER INCHES (IN)		Volume Quartz	DENSITY CORRECTION G/CC		
16	26			-0.75	0.25
6	16				
TENSION LBS		Volume Calcite	SHALLOW FOCUSED RESISTIVITY OHMM	PE CROSS-SECTION BARNS/ELECTRON	
10000	0		0.2 2000.0 0	20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

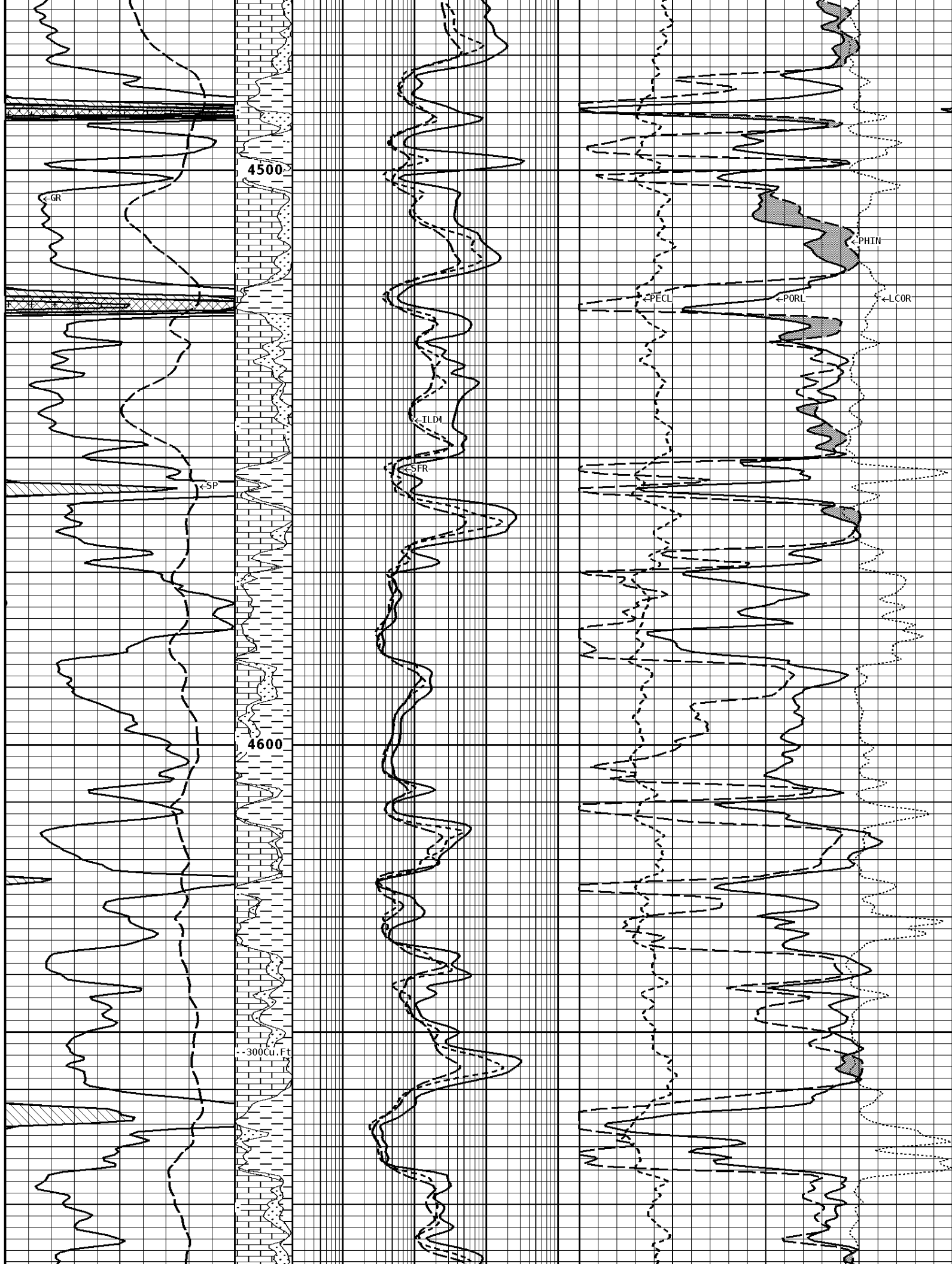
1:240 MAIN SECTION

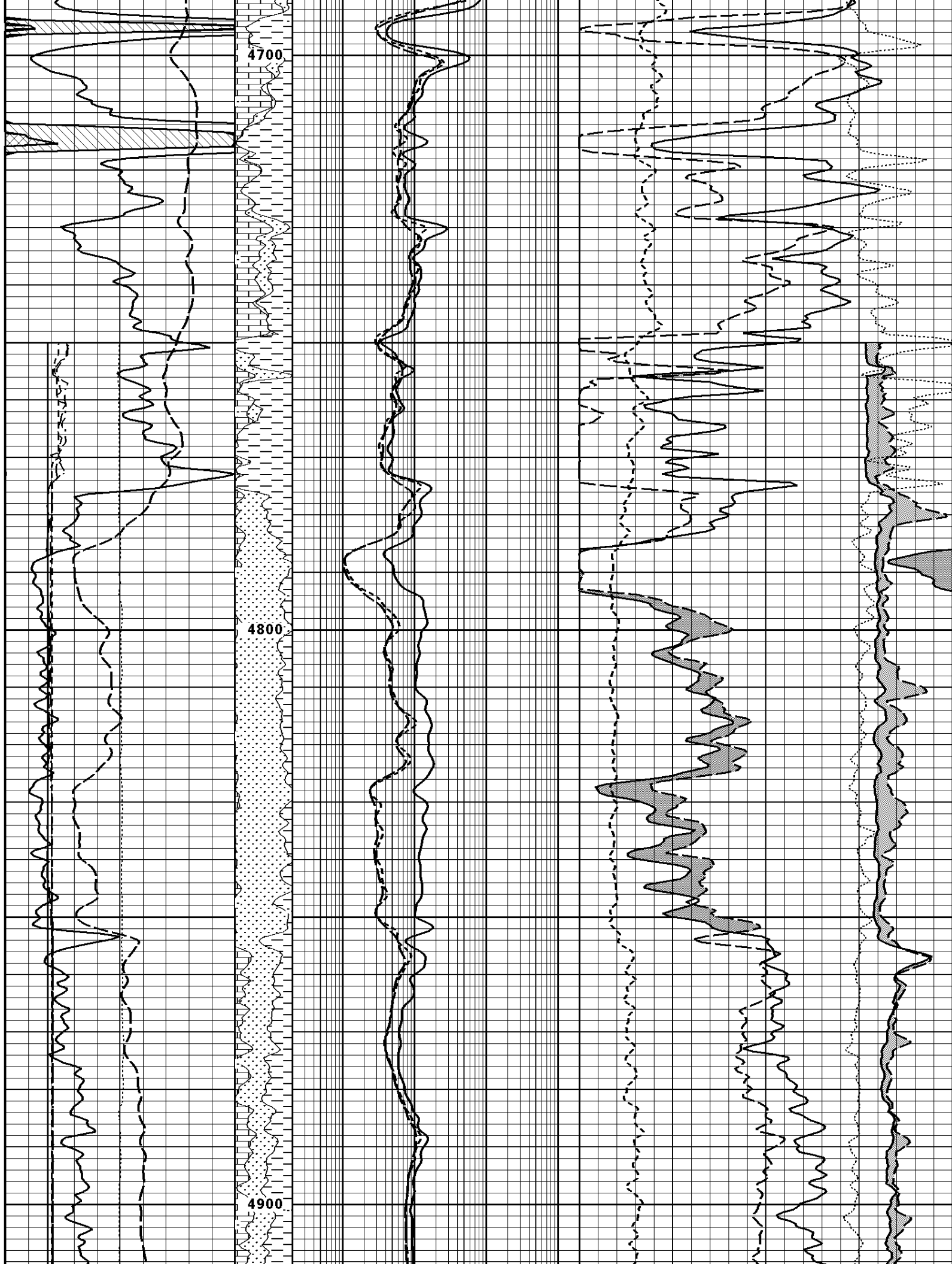


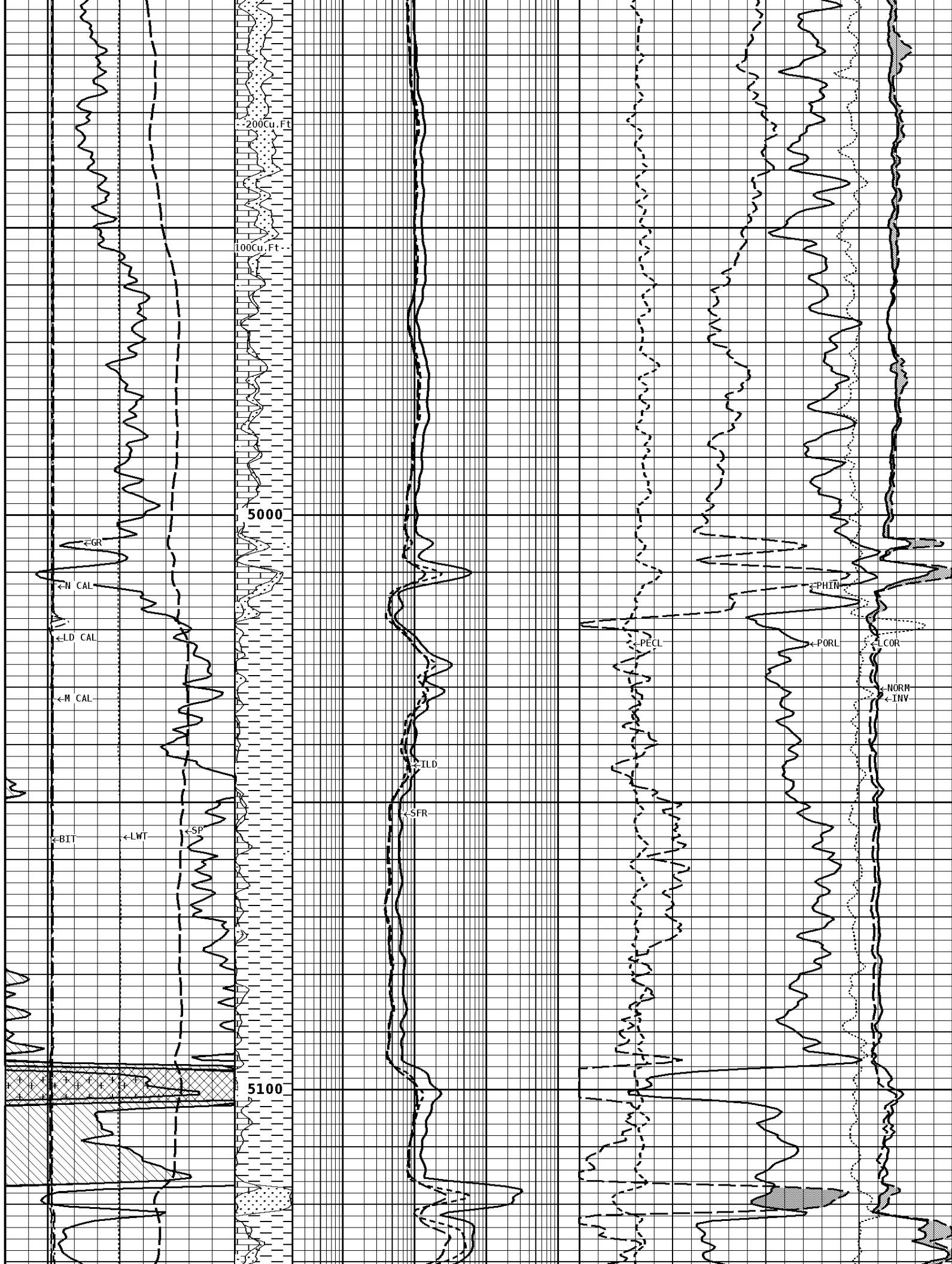




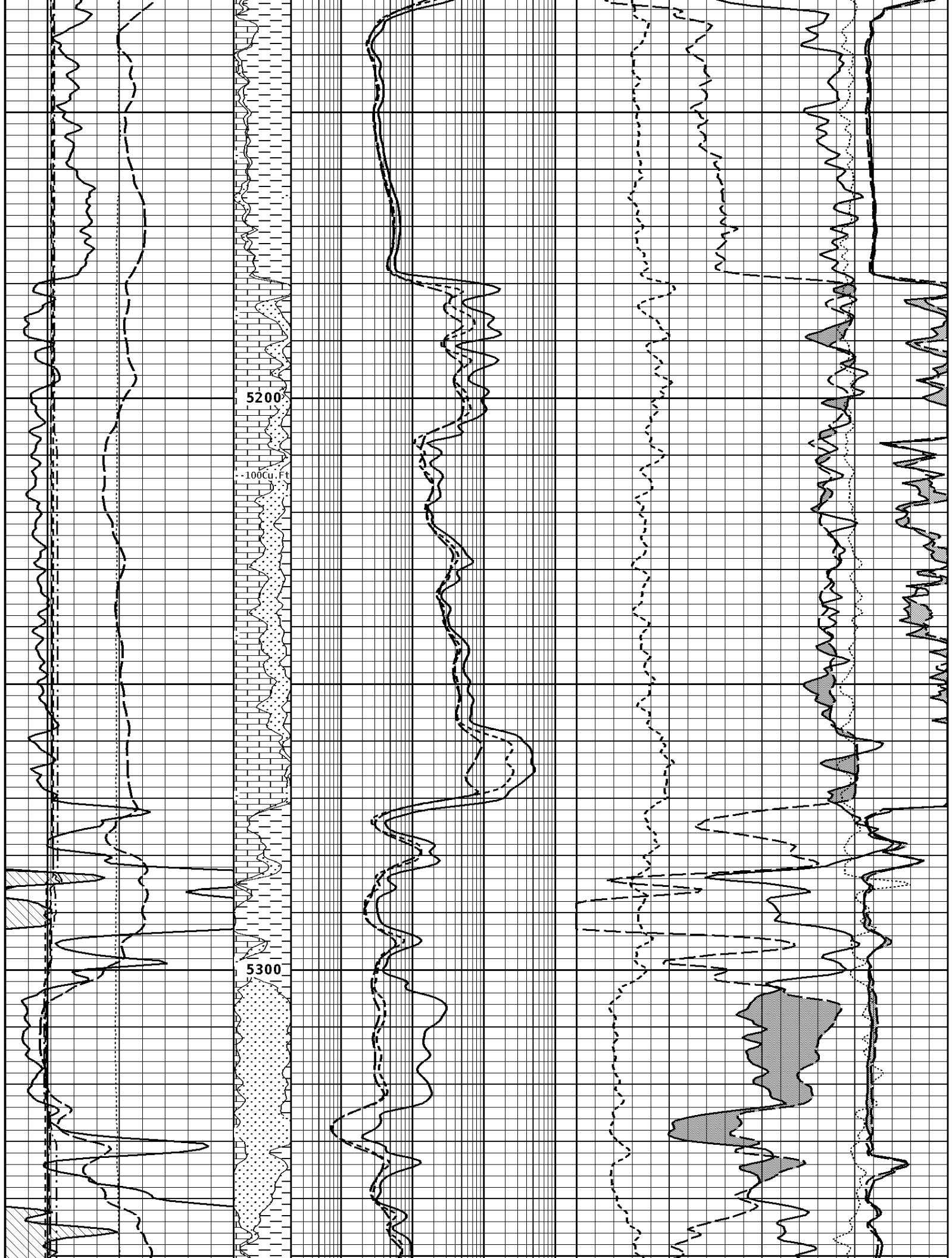


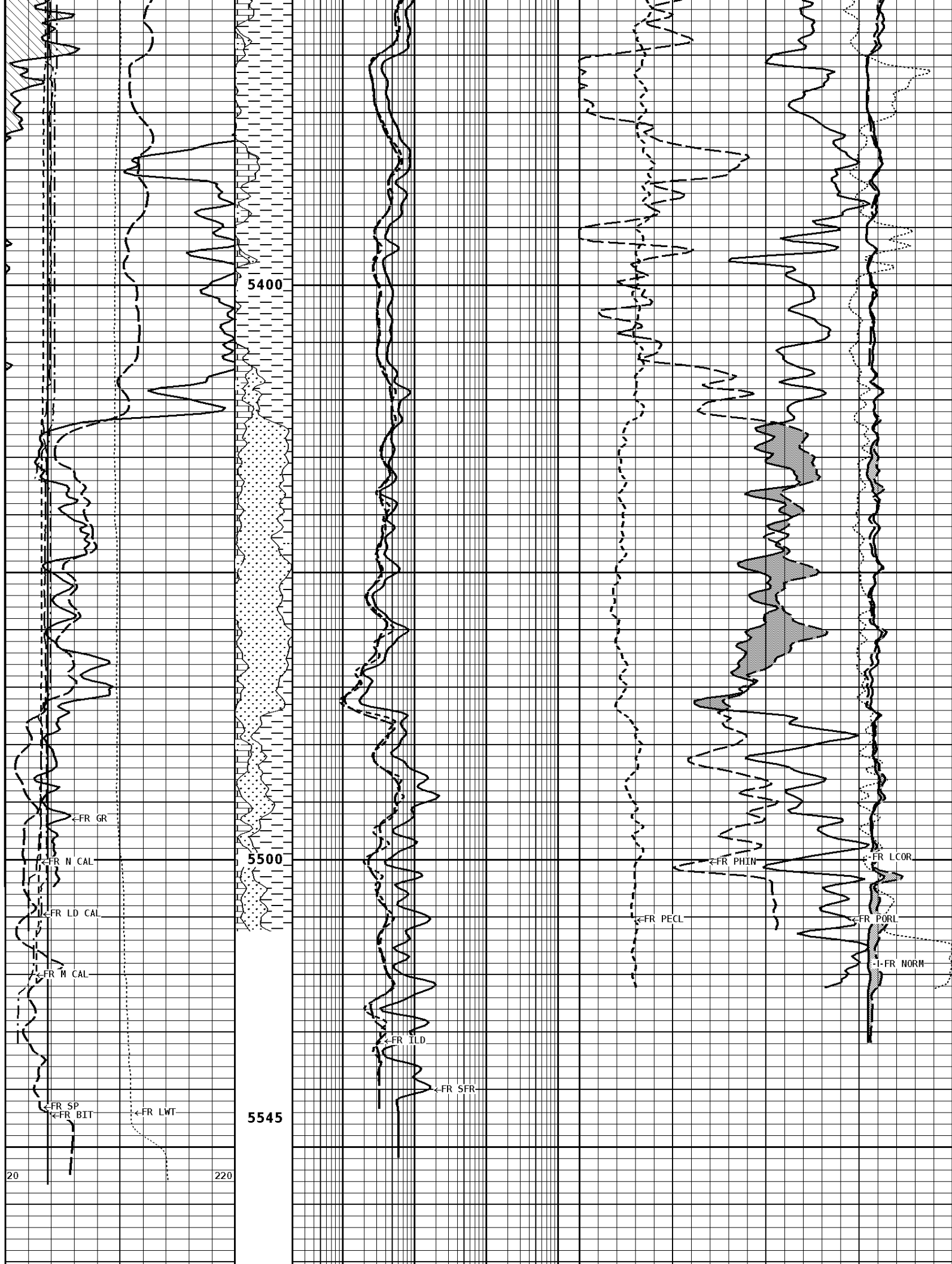






W. 1/4 Sec. 34, T. 1N, R. 1E





File #1.1.6

1:240 MAIN SECTION

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	
SPONTANEOUS POTENTIAL mV → ← 20	Volume Dolo/Shale ----- ----- -----	DEEP INDUCTION OHMM 0.2 ----- 2000.0		DENSITY POROSITY (2.71g/cc) PERCENT 70 30 -10 -10	
TENSION LBS 10000 ----- 0	Volume Calcite 	SHALLOW FOCUSED RESISTIVITY OHMM 0.2 ----- 2000.0		PE CROSS-SECTION BARNs/ELECTRON 0 ----- 20	
DENSITY (X) CALIPER INCHES (IN) 16 26 6 16	Volume Quartz 			DENSITY CORRECTION G/CC -0.75 ----- 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	
Hole Substance	Fluid	
BHT Depth	5544.000	ft
Borehole Temperature	133.0	degF
Temperature Gradient	1.00	DFHF
Resistivity Of Mud	1.000	ohm/m
MSTNG Normal Correction	0.00	ohm/m
MSTNG Inverse Correction	2.00	ohm/m

Well File: CHIEFTAIN RATHGERBER_3_MAY12_MSTK

Scale: 1:240

Format: COMSAT

Segment: V1.D1.S7 CREPEAT

Acquired: Not Available

Reference: 0

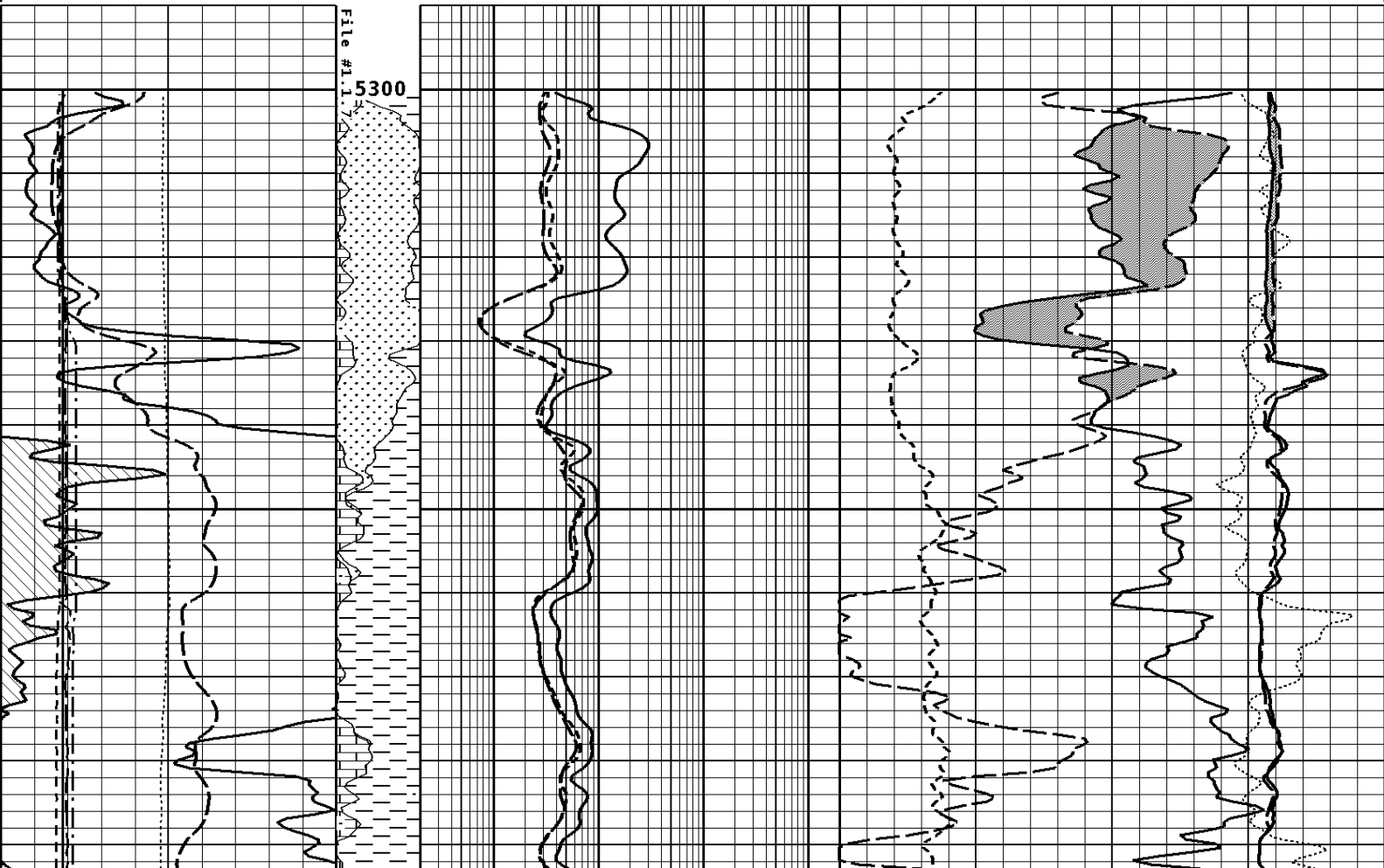
Processed: 2014-05/12 23:07 3.5.0-12850

CALIPER MICRO

INCHES (IN)

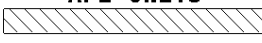
INCHES (IN)		16		26	
6		16			
BIT SIZE INCHES (IN)					
6		16			
NEUTRON (Y) CALIPER INCHES (IN)					
16		26			
6		16			
DENSITY (X) CALIPER INCHES (IN)		Volume Quartz	DENSITY CORRECTION G/CC		
16		26	-0.75 0.25		
6		16			
TENSION LBS		Volume Calcite	SHALLOW FOCUSED RESISTIVITY OHMM		
10000		0	0.2 2000.0 0 20		
SPONTANEOUS POTENTIAL mV		Volume Dolo/Shale	DEEP INDUCTION OHMM		
→ ← 20			0.2 2000.0 70 30 -10 30 -10 -50		
GAMMA RAY API UNITS		BHV AHV CU.FT	MEDIUM INDUCTION OHMM		
150 0 300 150			0.2 2000.0 30 -10		

1:240 REPEAT SECTION





1:240 REPEAT SECTION

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	
SPONTANEOUS POTENTIAL mV → ← 20	Volume Dolo/Shale	DEEP INDUCTION OHMM 0.2 ----- 2000.0		DENSITY POROSITY (2.71g/cc) PERCENT 70 30 -10 ----- -50	
TENSION LBS 10000 ----- 0	Volume Calcite	SHALLOW FOCUSED RESISTIVITY OHMM 0.2 ----- 2000.0		PE CROSS-SECTION BARNs/ELECTRON 0 ----- 20	
DENSITY (X) CALIPER INCHES (IN) 16 6 ----- 16	Volume Quartz			DENSITY CORRECTION G/CC -0.75 ----- 0.25	
NEUTRON (Y) CALIPER INCHES (IN) 16 6 ----- 16					INVERSE OHMM 0 ----- 40
BIT SIZE INCHES (IN) 6 ----- 16					NORMAL OHMM 0 ----- 40
CALIPER MICRO INCHES (IN) 16 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		5544.000	ft
Borehole Temperature		133.0	degF
Temperature Gradient		1.00	DFHF
Resistivity Of Mud		1.000	ohm/m
MSTNG Normal Correction		0.00	ohm/m
MSTNG Inverse Correction		2.00	ohm/m

*** Calibration Summary ***

Shop Calibration GRT-B					
Performed : 29-APR-2014			Time : 09:39		
Sensor Suite : GR-GR5			ID : GRT-BB-117		
	Measured	Units	Calibrated	Units	
GR	Background Jig		Jig		
	43 344	CPS	175	GRAPI	
Shop Calibration CNT-AA					
Performed : 29-APR-2014			Time : 10:47		
Sensor Suite : CALI-BCN			ID : NDT-AC-027		
	Jig - Measured		Jig - Calibrated	Units	
	Ring#1 Ring#2		Ring#1 Ring#2		
CL # 1	8.1 14.7		6.0 12.0	IN.	
Performed : 29-Apr-2014			Time : 10:37		

Performed : 29-Apr-2014		Time : 10:37		Sensor Suite : BHC NEUT		ID : CNP-AE-42	
Source ID : N-1044							
		Tank		Verification		Units	
		Measured	Calibrated	Jig			
N/F		3.6372	3.6893	3.7053			
Porosity		19.7	20.5	20.7		%	
Shop Calibration							
LDT-DA							
Performed : 29-MAR-2014				Time : 09:35			
Sensor Suite : CALI-LTH				ID : NDT-AH-116			
		Jig - Measured		Jig - Calibrated		Units	
		Ring#1	Ring#2	Ring#1	Ring#2		
CL # 1		8.3	11.3	6.0	12.0	IN.	
Performed : 30-Apr-2014				Time : 15:13			
Sensor Suite : BHCPELNG				ID : LDP-DA-50			
Source ID : CSV-587							
Short Space							
	BKGD	Al	Mg	Al+Fe	Units		
LSW1	72	440	711	304	CPS		
LSW2	76	529	847	390	CPS		
LSW3	284	1311	2063	1133	CPS		
LSW4	349	1258	1742	1123	CPS		
LSW5	32	42	41	39	CPS		
LSW6	95	96	98	95	CPS		
LSW7	58	59	57	60	CPS		
LSW8	2	2	3	2	CPS		
QS	0.243	0.234	0.267	0.226			
PES			2.778	5.967			
SSDN		2.600	1.680		G/CC		
Long Space							
	BKGD	Al	Mg	Al+Fe	Units		
LLW1	103	530	2155	345	CPS		
LLW2	113	900	3680	666	CPS		
LLW3	430	1805	6571	1571	CPS		
LLW4	559	1085	2756	1013	CPS		
LLW5	65	71	81	69	CPS		
LLW6	171	172	166	171	CPS		
LLW7	115	110	110	111	CPS		
LLW8	5	6	10	6	CPS		
QL	0.197	0.219	0.205	0.213			
PEL			2.697	5.458			
LSDN		2.600	1.680		G/CC		
Shop Calibration							
MST-DA							
Performed : 19-FEB-2014				Time : 09:54			
Sensor Suite : CALI-MSN				ID : MST-DA-28			
		Jig - Measured		Jig - Calibrated		Units	
		Ring#1	Ring#2	Ring#1	Ring#2		
CL # 1		7.4	11.7	6.0	12.0	IN.	
Performed : 19-Feb-2014				Time : 10:01			
Sensor Suite : MSTDA-NI				ID : MST-DA-28			
Internal							
		Measured		Calibrated			
	Zero	Reference	Units	Zero	Reference	Units	
INV-V	0.0	29139.4		0.00	1546.00	MV	
NOR-V	0.5	29707.3		0.00	1546.00	MV	
IN-C	0.0	60082.3		0.00	15.46	UA	
INV-R					32.34	OHMM	
NOR-R					55.11	OHMM	
Shop Calibration							
PIT-CA							
Performed : 15-APR-2014				Time : 14:04			
Sensor Suite : P-IND-T				ID : PIT-CA-062			
Medium							
		Measured		Calibrated			
	R	X		R	X	Units	
Air	130583	130713		-0.1	-0.1	MMHOS	
Zero	131074	131072		27.3	6.4	MMHOS	
Reference	253427	250043		5027.3	5006.4	MMHOS	
Loop	130592	221688		3823.7	3823.0	MMHOS	
Sonde Error				-1.3	-15.8	MMHOS	

Cond				5027.3	5006.4	MMHOS
Deep						
		Measured		Calibrated		
		R	X	R	X	Units
Air		129032	131483	-0.0	0.1	MMHOS
Zero		131074	131059	39.8	-17.0	MMHOS
Reference		233823	231658	2039.8	1983.0	MMHOS
Loop		129039	222242	1804.5	1804.3	MMHOS
Sonde Error				-8.5	-8.7	MMHOS
Cond				2039.8	1983.0	MMHOS
Temperature						
		Measured		Calibrated		
		Low	High	Low	High	Units
		16980.0	56920.0	70.0	350.0	DEGF
Performed : 15-Apr-2014 Time : 13:51 Sensor Suite : SFL ID : PIT-CA-062						
Internal						
		Measured		Calibrated		
		Zero	Reference	Zero	Reference	Units
Im		32763.3	48949.7	0.0	7028.0	uA
Ib		32767.3	48756.3	0.0	1750.0	mA
MOM1		32726.5	57507.3	0.0	175.0	mV
Equivalent SFL					43.97	OHMM
Performed : 15-Apr-2014 Time : 13:49 Sensor Suite : P-SP ID : PIT-CA-062						
Internal						
		Measured		Calibrated		
		Zero	Reference	Zero	Reference	Units
		32765.9	58980.4	0.0	1000.0	mV



Tucker
ENERGY SERVICES

Company: CHIEFTAIN OIL CO, INC.
 Well: RATHGERBER #3
 Location: 2702' FSL & 2344' FWL
 Logged: 05-12-2014
 K.B. Elev: 1387.0 Ft