

Tucker
ENERGY SERVICES

COMPENSATED NEUTRON

PEL DENSITY LOG

File No : TUL-57359
 Company : RUNNING FOXES
 Well : EMMERSON FARMS #16-15A-3
 Field : OSAGE
 County : BOURBON
 State : KANSAS
 Country : USA
 API No : 15-011-24032

Location :
 700' FSL \$ 630' FEL

LSD : Sect : 15 Twp : 24 Rge : 25

Company : RUNNING FOXES
 Well : EMMERSON FARMS #16-15A-3
 Field : OSAGE
 County : BOURBON
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 Country : USA
 API No. : 15-011-24032

Permanent Datum: GL Elevations: KB 0.00 Ft GRT PIT
 Drilling Measured From: GL DF 0.00 Ft CNT
 Log Measured From: GL GL 894.00 Ft LDT
 Above Permanent Datum: 0.00 Ft

Date	2012-07-06	
Run Number	1	
Depth--Driller	488.0	Ft
Depth--Logger	484.0	Ft
First Reading	461.0	Ft
Last Reading	20.0	Ft
Casing--Driller	20.0	Ft
Casing--Logger	20.0	Ft
Bit Size	6.250	In
Casing Size	8.625	In
Hole Fluid Type	FRESH WATER	
Density	0.0	LBS/GAL
Fluid Loss	0.0	CC
PH/Viscosity	0.0	0.0 SEC
Sample Source	MEASURED	
RM@Measured Temp.	0.500	@ 92 F
RMF@Measured Temp	0.620	@ 92 F
RMC@Measured Temp.	0.380	@ 92 F
Source RMF/RMC	CALCULATED/CALCULATED	
RM@BHT	0.480	@ 102 F
Time Circulation Stopped	2012-07-06 08:00	
Max Recorded Temp.	102	F
Equipment/Base	TRUCK 119	TULSA
Recorded By	B.BAILEY/ C.PAYNE	
Witnessed By	K.HODGES	

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)
6.250	488.00	8.625	24.00	20.00

Run Number	1	
Date	2012-07-06	
Date/Time On Bottom	2012-07-06 11:00	
Depth to Fluid	0.0	Ft
Salinity	0.000	PPM
RMF@BHT	0.580	@ 102 F
RMC@BHT	0.350	@ 102 F

Run Number 1

Comments

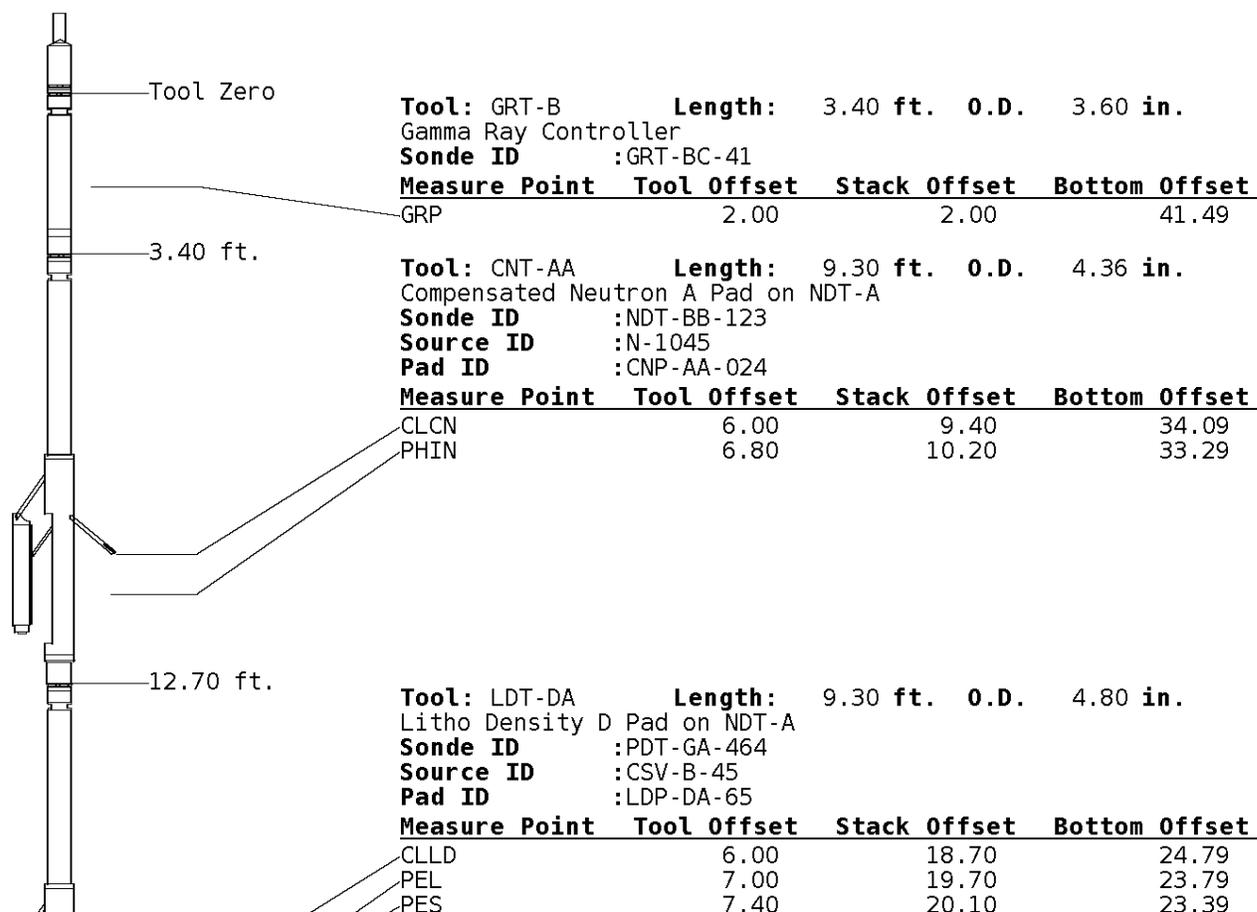
ALL PRESENTATIONS AS PER CUSTOMER REQUEST.
 GRT, CNT, LDT, AND PIT RUN IN COMBINATION.
 CALIPERS ORIENTED ON X-Y AXIS.
 2.71 G/CC USED TO CALCULATED POROSITY.
 ANNULAR HOLE VOLUME CALCULATED USING 2.875" PRODUCTION CASING.
 PHIN IS CALIPER CORRECTED.

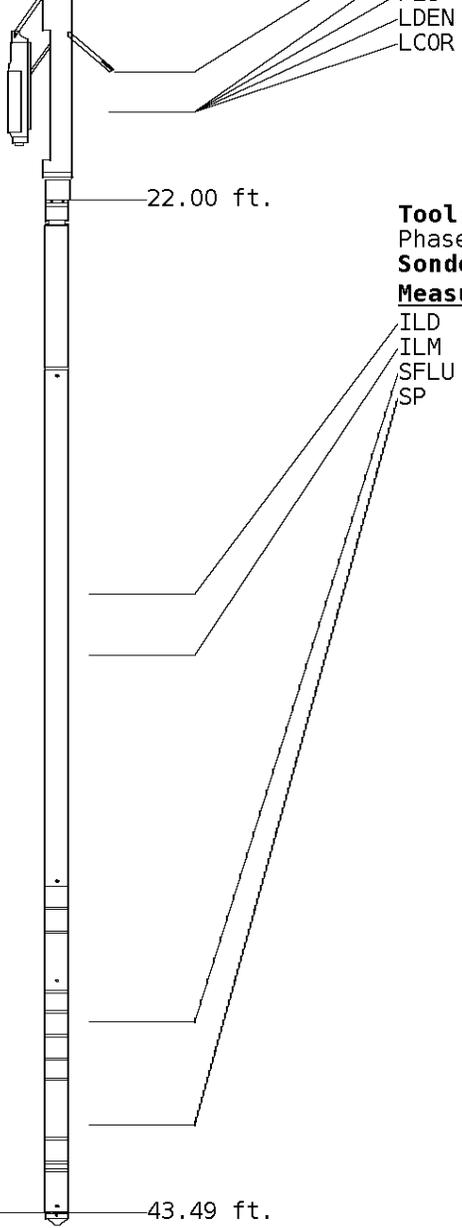
GRT: GRP.
 CNT: PHIN, CLCNIN
 LDT: PORL, LCORN, PECLN, LDENN, PORLLS, CLLDIN.
 PIT: ILD, ILM, SPU, SFLAEC.

OPERATORS:
 j. THOMAS
 M. RUBY

Tool String Schematic

Total Tool Length - 43.49 ft.
Maximum Outside diameter - 4.80 in.
Net Weight in Air - 743.00 lbs.





7.20 19.90 23.59
 7.20 19.90 23.59

Tool: PIT-CA **Length:** 21.49 ft. **O.D.** 3.62 in.
 Phased Dual Induction w/ RM & D
Sonde ID :PIT-AC-022

Measure Point	Tool Offset	Stack Offset	Bottom Offset
ILD	8.92	30.92	12.56
ILM	10.10	32.10	11.39
SFLU	17.49	39.49	4.00
SP	20.60	42.60	0.88

Well File: RUNNINGFOXES_EMMERSON16_15A3_JULY6_STK **Scale:** 1:240
Segment: V1.D1.S5 MP **Acquired:** 2012-07/06 11:08 3.2.0-10932
Reference: 0 **Processed:** 2012-07/06 11:08 3.2.0-10932

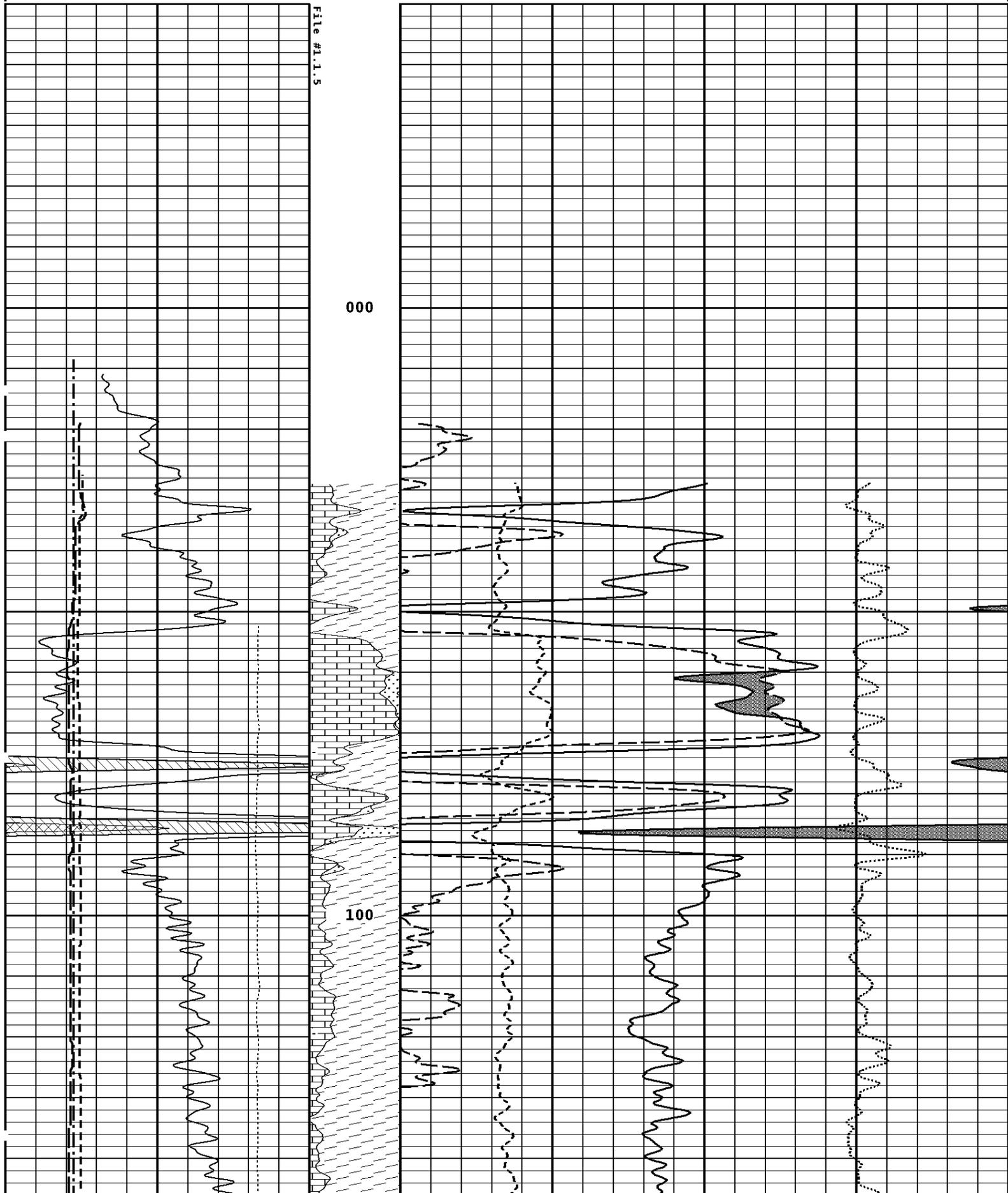
TENSION LBS					
10000	0				
BIT SIZE INCHES (IN)		Volume Dolo/Shale			
4	14				
DENSITY (X) CALIPER INCHES (IN)		Volume Quartz	PE CROSS-SECTION BARNs/ELECTRON	DENSITY CORRECTION G/CC	
14	24		0	10	-0.25
4	14				0.25
NEUTRON (Y) CALIPER INCHES (IN)		Volume Calcite	NEUTRON POROSITY PERCENT (LIMESTONE MATRIX)		
14	24		30		
4	14			-10	
GAMMA RAY API UNITS		- BHV AHV - CU. FT	DENSITY POROSITY PERCENT (2.71 g/cc)		
200	400		70	30	
0	200		30	-10	
			-10	-50	

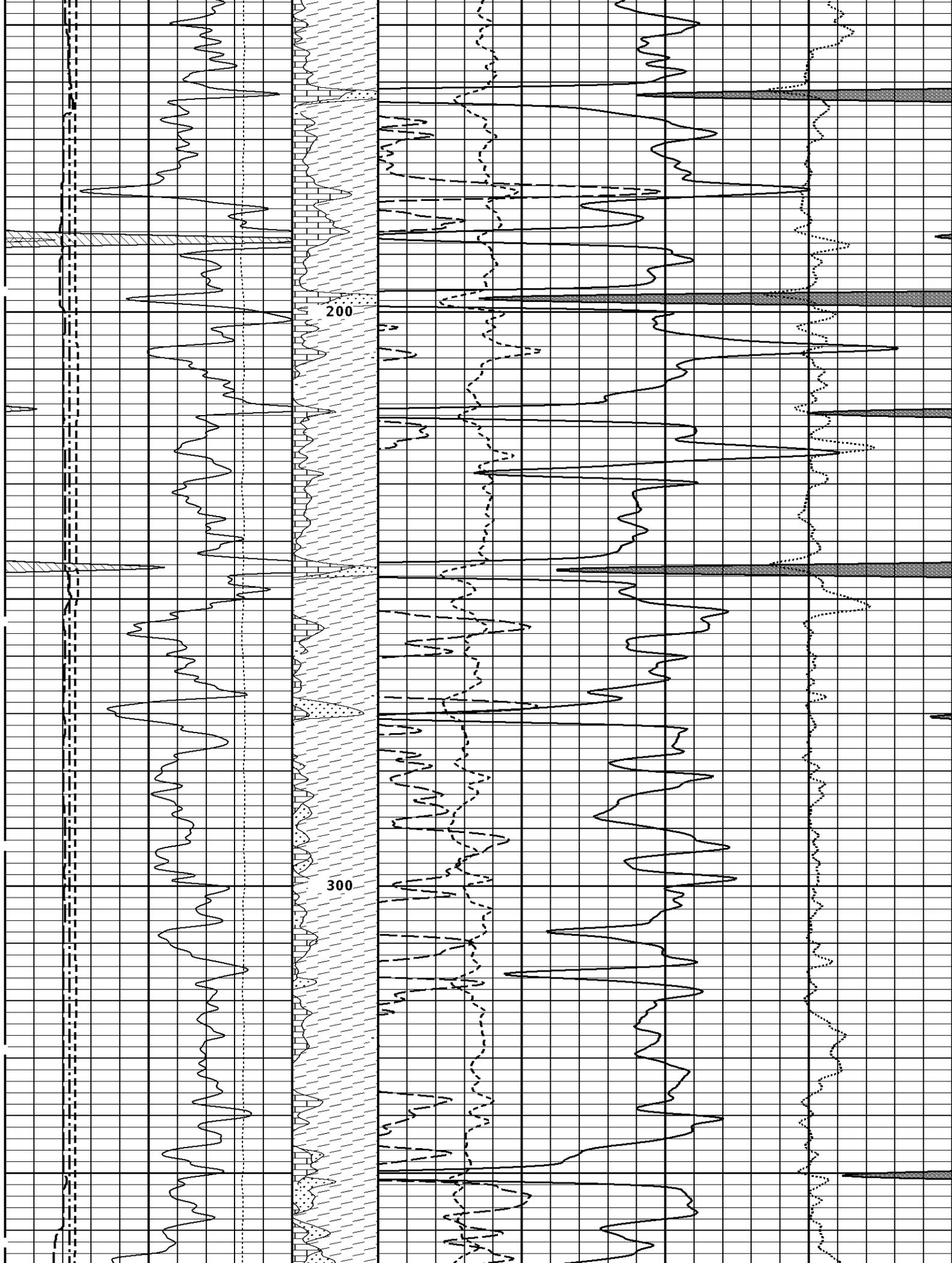
1:240 MAIN SECTION

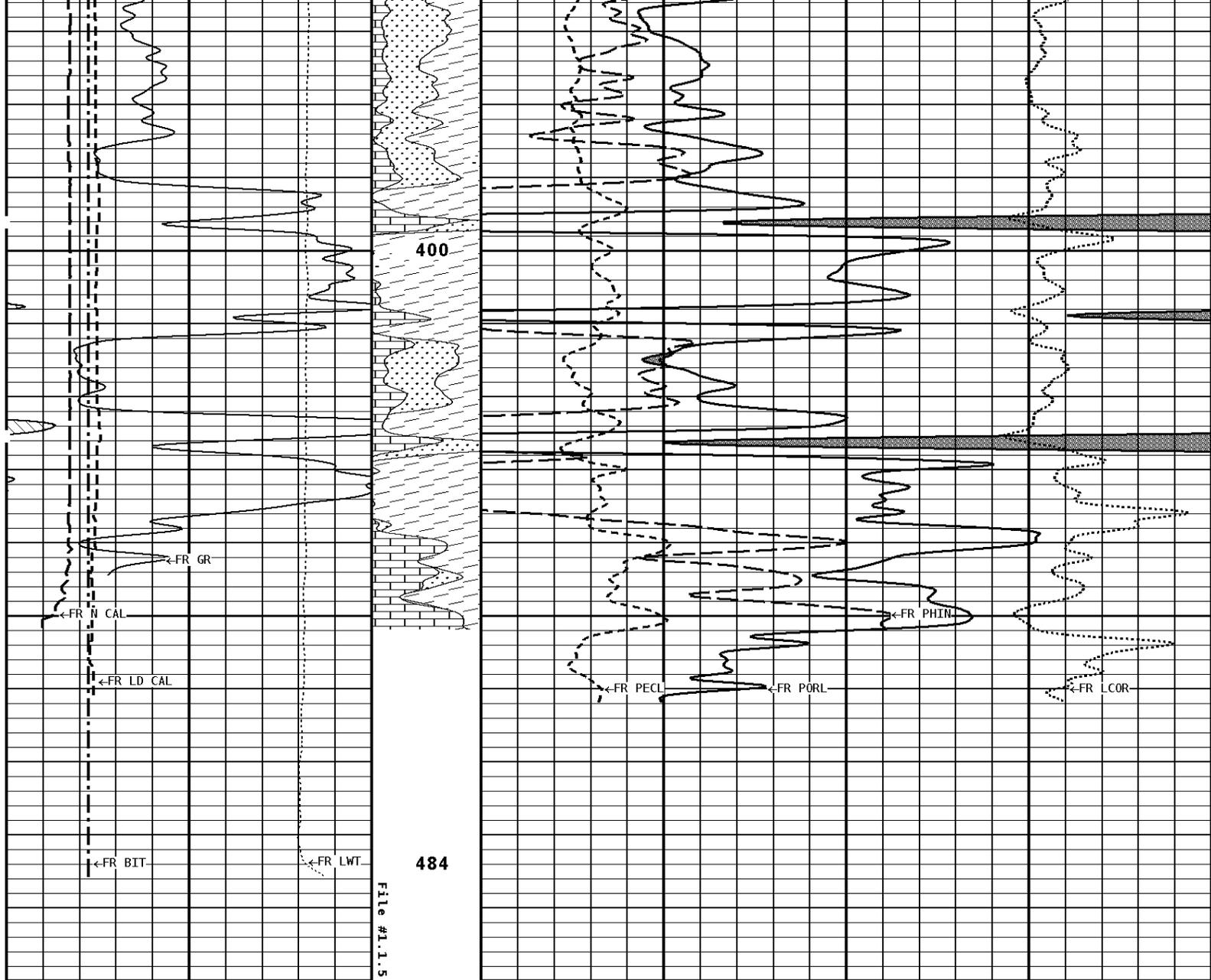
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1:240 MAIN SECTION

GAMMA RAY API UNITS 200 0 400 200		-BHV AHV- CU. FT 70 30 -10		DENSITY POROSITY PERCENT (2.71 g/cc) 30 -10 -50	
NEUTRON (Y) CALIPER INCHES (IN) 14 4 24 14		Volume Calcite 30		NEUTRON POROSITY PERCENT (LIMESTONE MATRIX) -10	
DENSITY (X) CALIPER INCHES (IN) 14 4 24 14		Volume Quartz 0		PE CROSS-SECTION BARNS/ELECTRON 10 -0.25	
BIT SIZE INCHES (IN) 4 14		Volume Dolo/Shale		DENSITY CORRECTION G/CC 0.25	
TENSTON					

LBS

10000

0

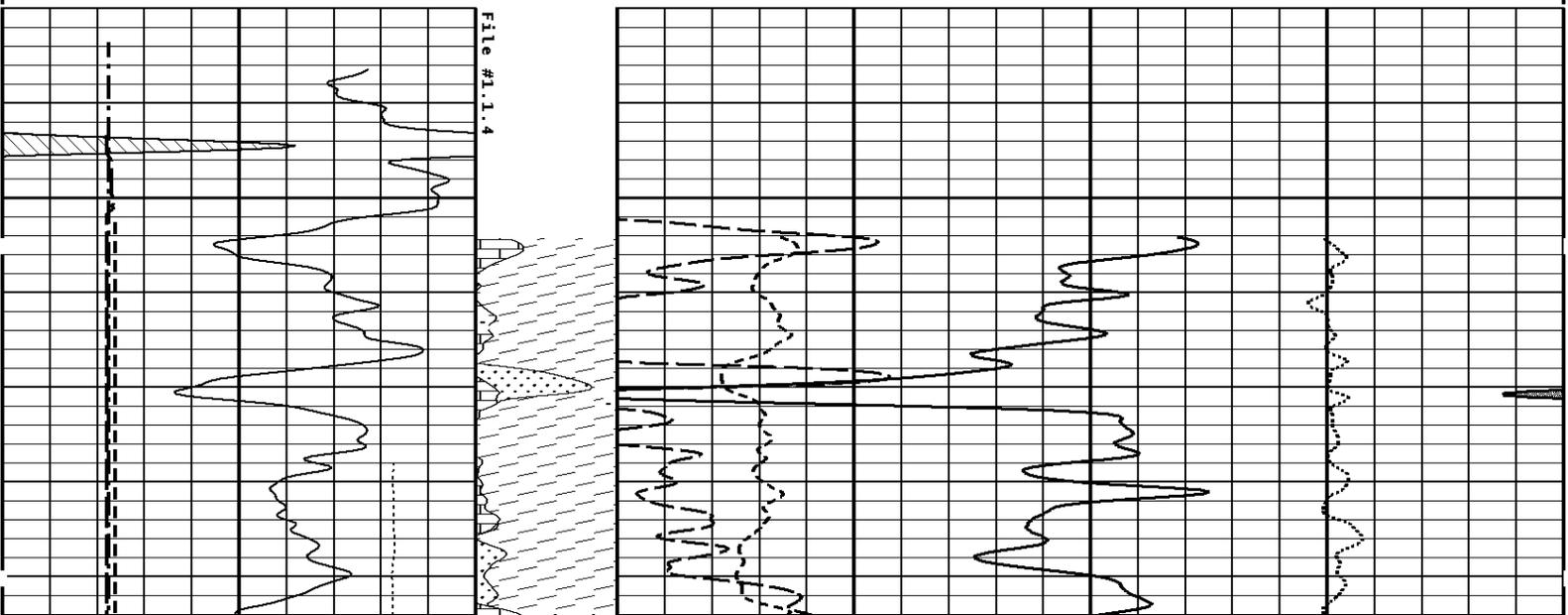
* Borehole Zone Factors *

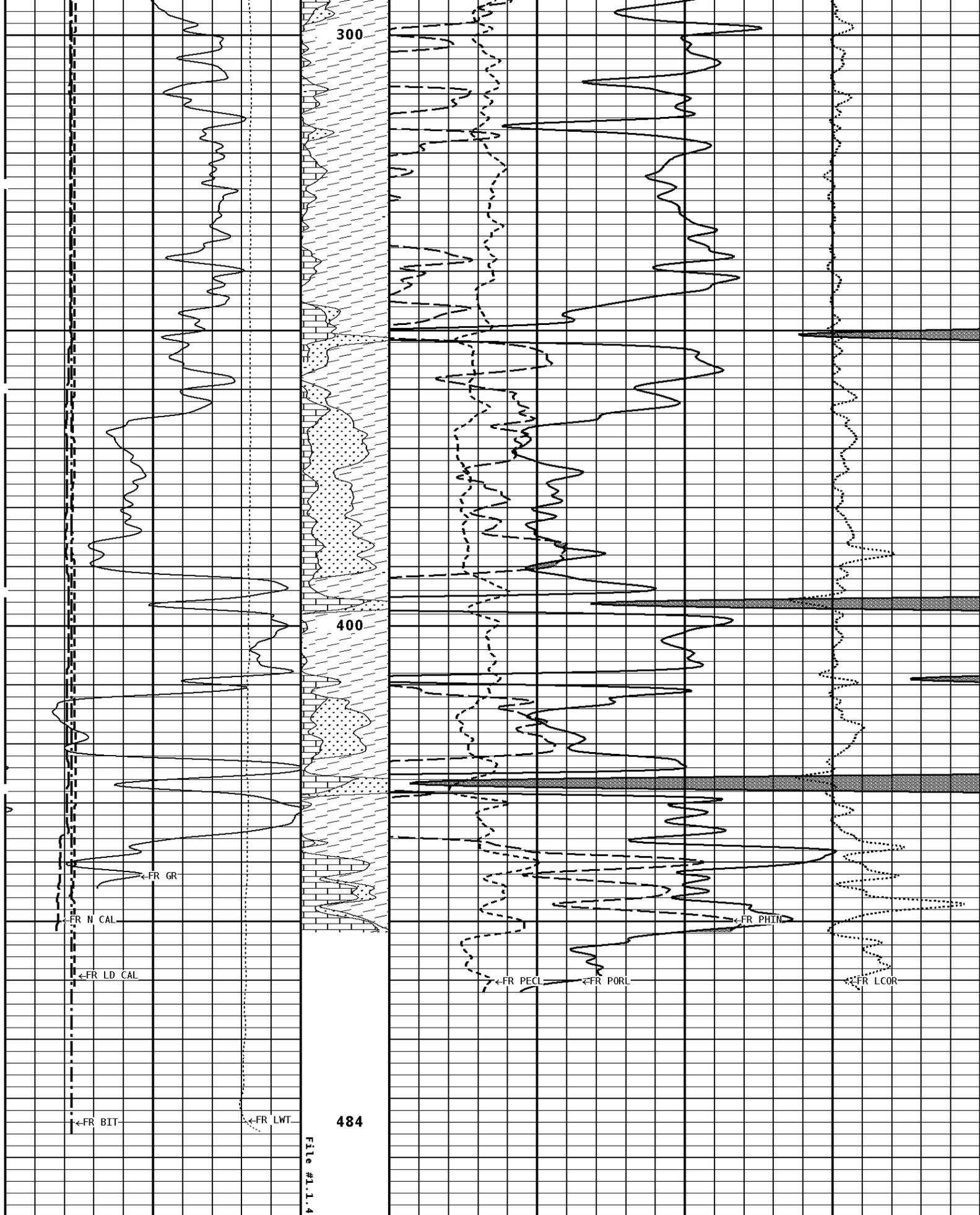
Zone 1 99999.0 to 0.0 Feet		
Matrix Density _____	2.71	g/cc
Fluid Density _____	1.00	g/cc
Formation Matrix _____	Limestone	
Drill Bit Size _____	6.250	in
Casing Diameter _____	2.875	in
Casing Correction (PHI N) _____	Disable	

Well File: RUNNINGFOXES EMMERSON16_15A3_JULY6_STK Scale: 1:240
 Segment: V1.D1.S4 RP MN Acquired: 2012-07/06 10:50 3.2.0-10932
 Reference: 0 Processed: 2012-07/06 11:08 3.2.0-10932

TENSION LBS								
10000	0							
BIT SIZE INCHES (IN)		Volume Dolo/Shale						
4	14							
DENSITY (X) CALIPER INCHES (IN)		Volume Quartz	PE CROSS-SECTION BARNs/ELECTRON		DENSITY CORRECTION G/CC			
14	24		0	10	-0.25	0.25		
4	14							
NEUTRON (Y) CALIPER INCHES (IN)		Volume Calcite	NEUTRON POROSITY PERCENT (LIMESTONE MATRIX)					
14	24		30				-10	
4	14							
GAMMA RAY API UNITS		- BHV AHV - CU. FT	DENSITY POROSITY PERCENT (2.71 g/cc)					
200	400		70				30	
0	200		30				-10	
			-10				-50	

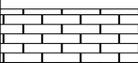
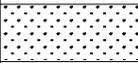
1:240 REPEAT SECTION





File #1.1.4

1:240 REPEAT SECTION

GAMMA RAY API UNITS 		- BHV AHV - CU. FT	DENSITY POROSITY PERCENT (2.71 g/cc) 70 30 -10		30 -10 -50
NEUTRON (Y) CALIPER INCHES (IN) 14 4 ----- 14		Volume Calcite 	NEUTRON POROSITY PERCENT (LIMESTONE MATRIX) 30 ----- -10		
DENSITY (X) CALIPER INCHES (IN) 14 4 ----- 14		Volume Quartz 	PE CROSS-SECTION BARN/ELECTRON 0 ----- 10	DENSITY CORRECTION G/CC -0.25 ----- 0.25	
BIT SIZE INCHES (IN) 4 ----- 14		Volume DoLo/Shale 			
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	_____	6.250 in
Casing Diameter	_____	2.875 in
Casing Correction (PHI N)	_____	Disable

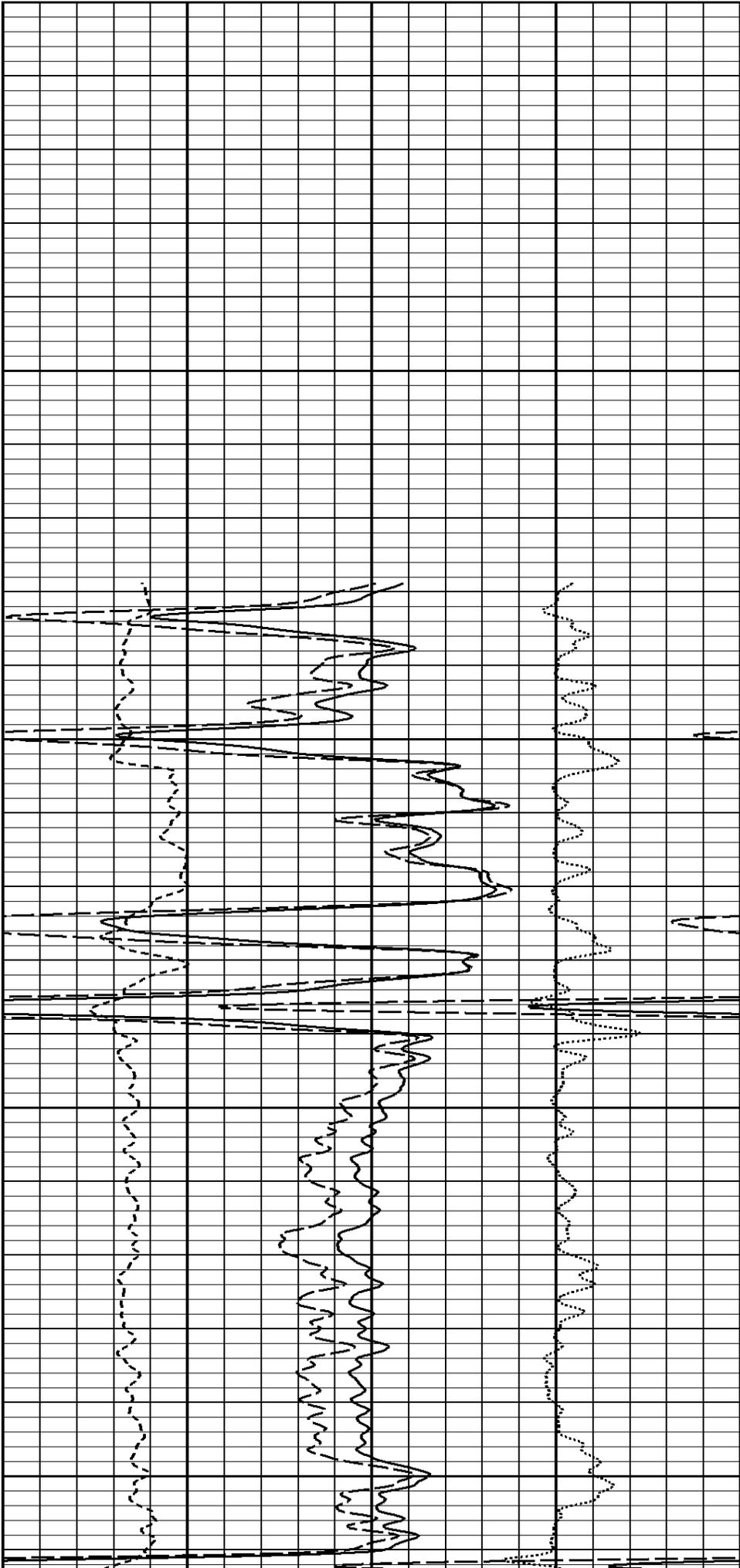
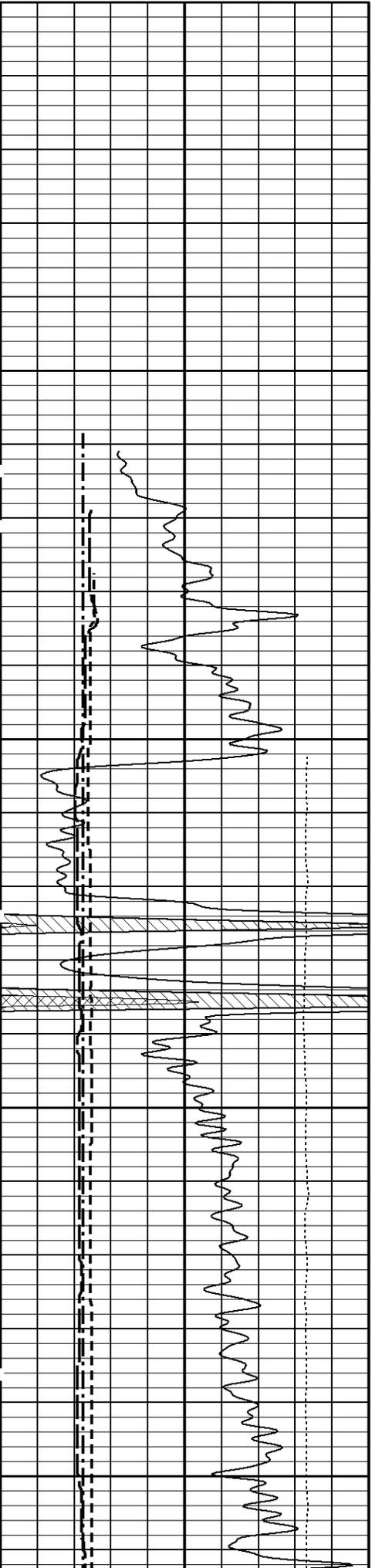
Well File: RUNNINGFOXES_EMMERSON16_15A3_JULY6_STK	Scale: 1:240
Segment: V1.D1.S5 MP	Acquired: 2012-07/06 11:08 3.2.0-10932
Reference: 0	Processed: 2012-07/06 11:08 3.2.0-10932

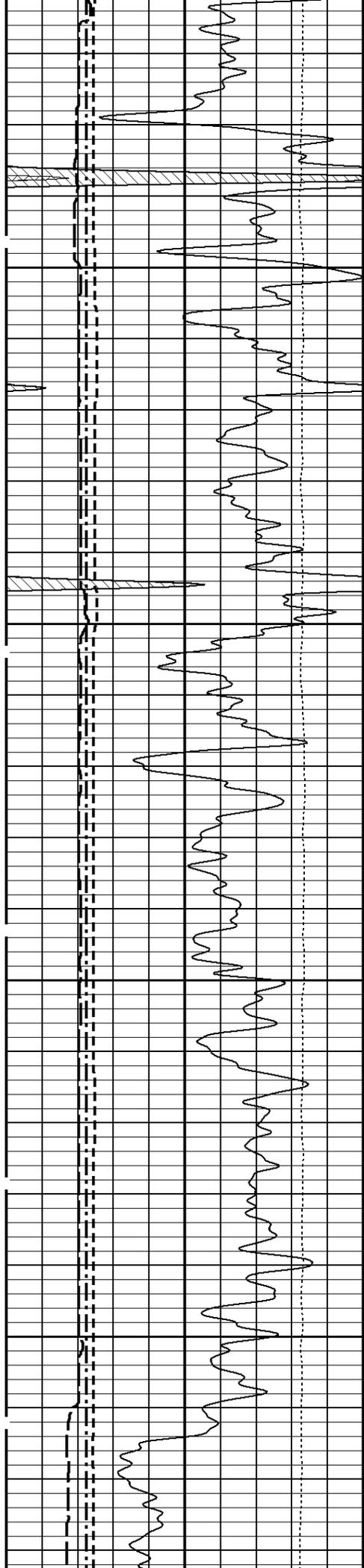
TENSION LBS 10000 ----- 0					
BIT SIZE INCHES (IN) 4 ----- 14					
DENSITY (X) CALIPER INCHES (IN) 14 4 ----- 14		PE CROSS-SECTION BARN/ELECTRON 0 ----- 10	DENSITY CORRECTION G/CC -0.25 ----- 0.25		
NEUTRON (Y) CALIPER INCHES (IN) 14 4 ----- 14		DENSITY POROSITY PERCENT (2.71 g/cc) 70 30 -10 ----- -50			
GAMMA RAY API UNITS 		- BHV AHV - CU. FT	COMPENSATED BULK DENSITY G/CC 3.0 2.0 1.0 ----- 4.0 3.0 2.0		

**1:240 MAIN SECTION
BULK DENSITY**

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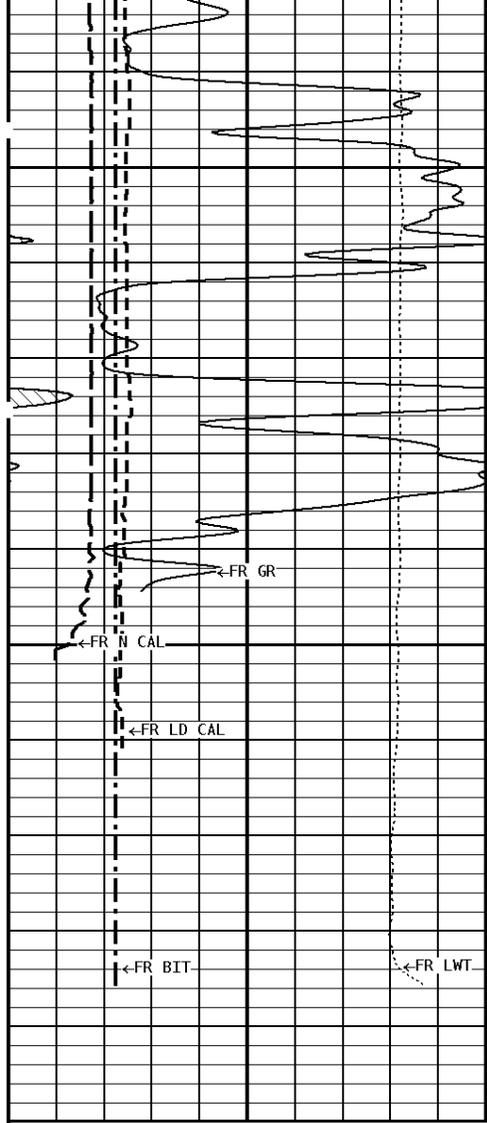




200

300

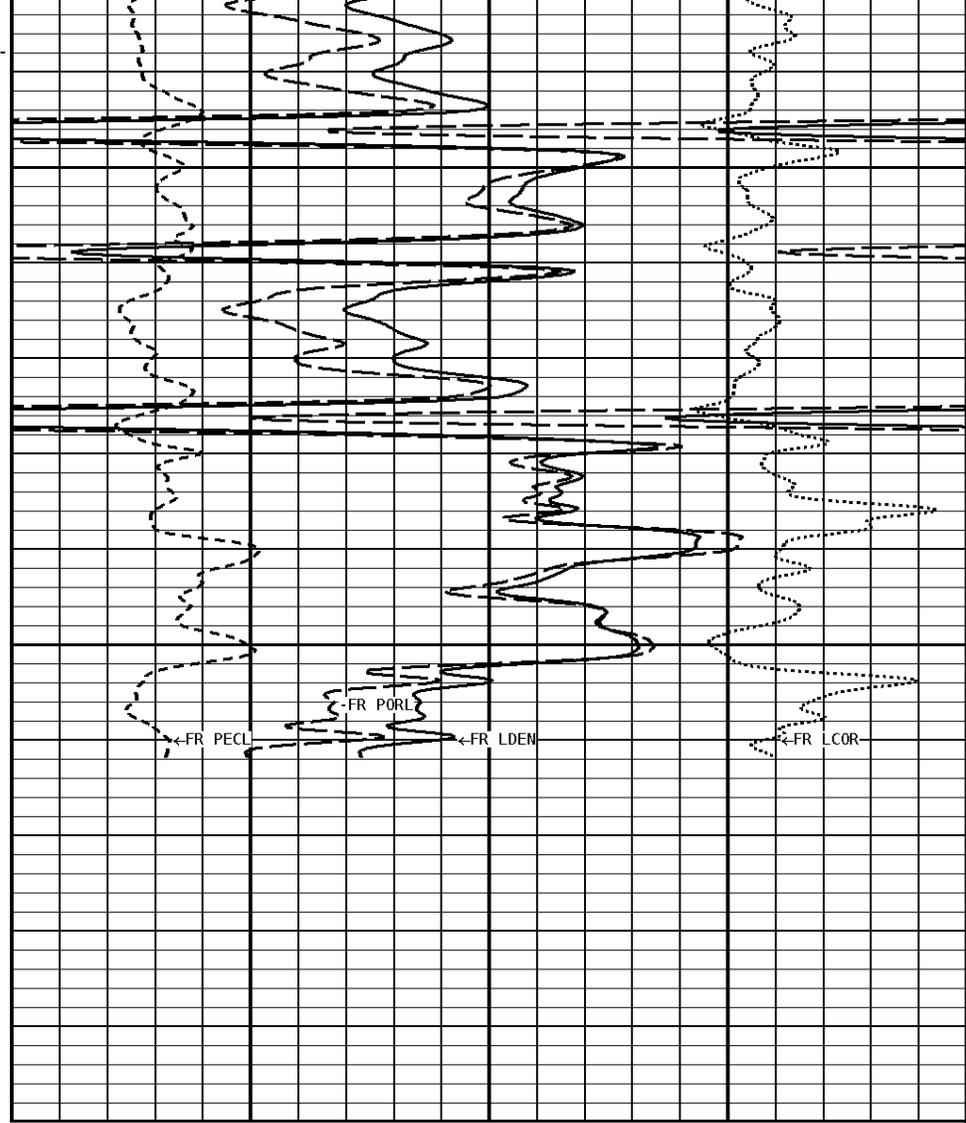




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**1:240 MAIN SECTION
BULK DENSITY**

GAMMA RAY API UNITS 200 0 400 200	
NEUTRON (Y) CALIPER INCHES (IN) 14 4 24 14	
DENSITY (X) CALIPER INCHES (IN) 14 4 24 14	
BIT SIZE INCHES (IN) 4 14	
TENSION LBS 10000 0	

- BHV AHV - CU. FT	COMPENSATED BULK DENSITY G/CC	
	3.0	4.0
	2.0	3.0
	1.0	2.0
	DENSITY POROSITY PERCENT (2.71 g/cc)	
	70	30
	30	-10
	-10	-50
	PE CROSS-SECTION BARNS/ELECTRON	DENSITY CORRECTION G/CC
	0	10 -0.25 0.25

*** 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_____	6.250	in
Casing Diameter_____	2.875	in
Casing Correction (PHI N)_____	Disable	

*** Calibration Summary ***

Shop Calibration					
GRT-B					
Performed : 04-APR-2011		Time : 19:28			
Sensor Suite : GR-GR5		ID : GRT-BC-41			
	Measured	Units	Calibrated	Units	
	Background	Jig	Jig		
GR	46	346	175	CPS	GRAPI
Shop Calibration					
CNT-AA					
Performed : 24-OCT-2011		Time : 08:41			
Sensor Suite : CALI-BCN		ID : NDT-BB-123			
	Jig - Measured	Units	Jig - Calibrated	Units	
	Ring#1 Ring#2		Ring#1 Ring#2		
CL # 1	6.5 12.5		6.0 12.0		IN.
Shop Calibration					
LDT-DA					
Performed : 17-May-2012		Time : 12:59			
Sensor Suite : BHC NEUT		ID : CNP-AA-024			
Source ID : N-1045					
	Measured	Tank	Verification	Units	
	3.8748	Calibrated	Jig		
N/F		3.6893	3.6852		
Porosity	23.4	20.5	20.4		%
Shop Calibration					
LDT-DA					
Performed : 01-MAR-2011		Time : 04:24			
Sensor Suite : CALI-LTH		ID : PDT-GA-464			
	Jig - Measured	Units	Jig - Calibrated	Units	
	Ring#1 Ring#2		Ring#1 Ring#2		
CL # 1	7.4 13.4		6.0 12.0		IN.
Shop Calibration					
LDP-DA-65					
Performed : 02-JUL-2012		Time : 14:19			
Sensor Suite : BHCPENLNG		ID : LDP-DA-65			
Source ID : CSV-B-45					
	BKGD	Al	Mg	Al+Fe	Units
	70	878	1410	571	CPS
LSW1	76	1040	1639	761	CPS
LSW2	275	2390	3819	2058	CPS
LSW3	334	2057	2918	1843	CPS
LSW4	31	45	48	43	CPS
LSW5	93	93	92	95	CPS
LSW6	57	61	61	61	CPS
LSW7	2	3	4	3	CPS
LSW8	0.240	0.210	0.200	0.219	
QS			2.778	5.967	
PES					
SSDN		2.600	1.680		G/CC
	BKGD	Al	Mg	Al+Fe	Units
	98	983	4144	619	CPS
LLW1	108	1594	6434	1200	CPS
LLW2	414	2981	11256	2605	CPS
LLW3	530	1521	4488	1400	CPS
LLW4	61	69	98	67	CPS
LLW5	164	163	153	165	CPS
LLW6	109	108	104	107	CPS
LLW7	5	7	15	7	CPS
LLW8	0.203	0.204	0.194	0.211	
QL			2.697	5.458	
PEL					
LSDN		2.600	1.680		G/CC