

Tucker
ENERGY SERVICES

BOREHOLE VOLUME

CALIPER LOG

Company LANGSTON D.S.
Well REIF A & B #31-3
Field MARY IDA
County RICE
State KANSAS
Country USA
API No. 15-159-22781

File No : TUL-59596
Company : LANGSTON D.S.
Well : REIF A & B #31-3
Field : MARY IDA
County : RICE
State : KANSAS
Country : USA
API No : 15-159-22781

Location :
825' FSL & 2970' FEL
S2 NE SE SW

LSD : Sect : 31 Twp : 18S Rge : 10W

Permanent Datum: GL
Drilling Measured From: KB
Log Measured From: KB
Above Permanent Datum: 9.00 Ft
Date: 05-20-2014

Elevations:
KB 1765.00 Ft
DF 1764.00 Ft
GL 1756.00 Ft

Services:
CNT
LDT
MLT
CST
PIT

Run Number	1		
Depth--Driller	3470.0	Ft	
Depth--Logger	3470.0	Ft	
First Reading	3437.0	Ft	
Last Reading	486.0	Ft	
Casing--Driller	486.0	Ft	
Casing--Logger	486.0	Ft	
Bit Size	7.875	In	
Casing Size	8.625	In	
Hole Fluid Type	WBM		
Density	9.3		
Fluid Loss	8.8		
PH/Viscosity	11.0	58.0	
Sample Source	MEASURED		
RM@Measured Temp.	0.500	@ 80 F	
RMF@Measured Temp	0.430	@ 80 F	
RMC@Measured Temp.	0.580	@ 80 F	
Source RMF/RMC	CALCULATED	CALCULATED	
RM@BHT	0.360	@ 115 F	
Time Circulation Stopped	05-20-2014 1:30 pm		
Max Recorded Temp.	117	F	
Equipment/Base	T-123	TULSA	
Recorded By	S. DAVIS		
Witnessed By	D. LANGSTON		

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	3470.00	8.625	24.00	486.00	0.00

Run Number	1	
Date	05-20-2014	
Date/Time On Bottom	05-20-2014 4:15 pm	
Depth to Fluid	0.0 Ft	
Salinity	8800.000	
RMF@BHT	0.300 @ 115 F	
RMC@BHT	0.410 @ 115 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 CALCULATE POROSITY
 ANNULAR HOLE VOLUME CALCULATED USING 5.50" PRODUCTION CASING
 PHIN IS CALIPER CORRECTED
 DETAIL SECTION FROM TD TO 2600'
 ANHYDRATE SECTION FROM 1350' TO 950'

GRT: GRP.
 CNT: PHIN, CLCNIN.
 LDT: PORL, LCORN, PECLN, LDENN, CLLDIN.
 MLT: NOR_RF, INV_RF, MSCLPIN.
 CST: PORS, ITT, CDTF, TT1, TT2, TT3, TT4.
 PIT: ILD, ILM, SFLAEC, CIRD, SPU

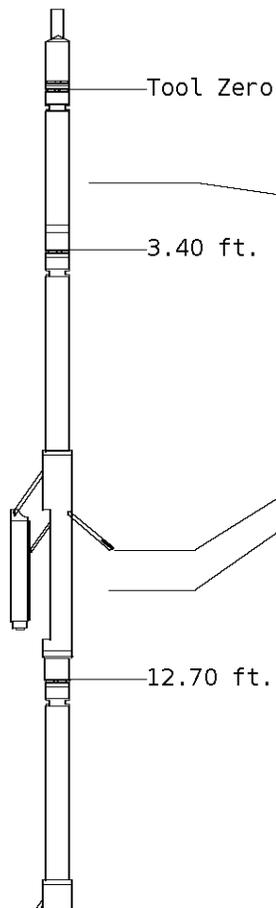
OPERATORS:

C. GONZALES

J. THOMAS

Tool String Schematic

Total Tool Length - 67.37 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-BB-107

Measure Point	Tool Offset	Stack Offset	Bottom Offset
GRP	2.00	2.00	65.37

Tool: CNT-AA **Length:** 9.30 ft. **O.D.** 4.36 in.
 Compensated Neutron A Pad on NDT-A

Sonde ID :NDT-BD-133

Source ID :N-1045

Pad ID :CNP-AA-024

Measure Point	Tool Offset	Stack Offset	Bottom Offset
CLCN	6.00	9.40	57.97
PHIN	6.80	10.20	57.17

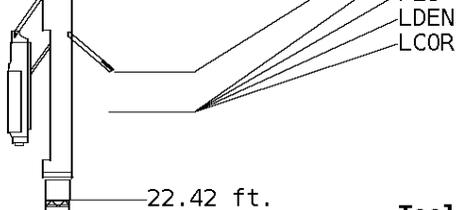
Tool: LDT-DF **Length:** 9.72 ft. **O.D.** 4.80 in.
 Litho Density D Pad on NDT-F

Sonde ID :PDT-GA-466

Source ID :2991GW

Pad ID :LDP-DA-065

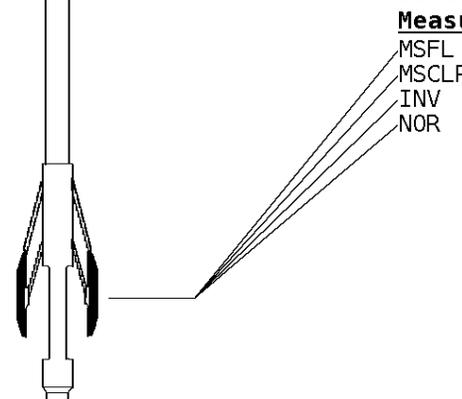
Measure Point	Tool Offset	Stack Offset	Bottom Offset
CLLD	6.42	19.12	48.25
PEL	7.42	20.12	47.25
PES	7.82	20.52	46.85



7.62 20.32 47.05
 7.62 20.32 47.05

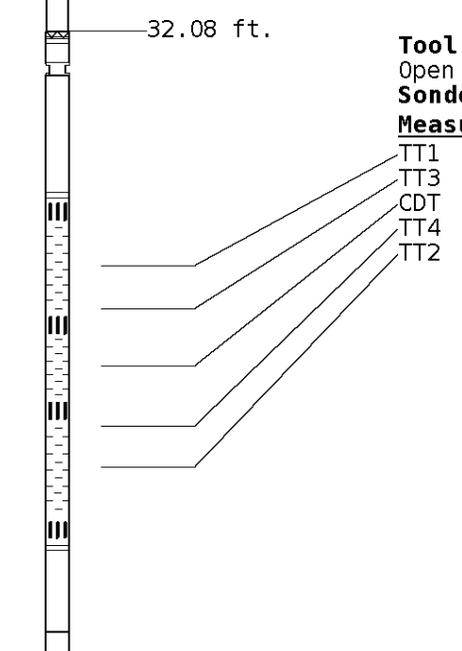
Tool: MST-DA **Length:** 9.66 ft. **O.D.** 6.00 in.
 Micro Spherically Focused (IC)
Sonde ID :MST-DA-057

Measure Point	Tool Offset	Stack Offset	Bottom Offset
MSFL	7.60	30.02	37.35
MSCLP	7.60	30.02	37.35
INV	7.60	30.02	37.35
NOR	7.60	30.02	37.35



Tool: CST-AD **Length:** 13.80 ft. **O.D.** 3.60 in.
 Open Hole Sonic
Sonde ID :CST-AB-25

Measure Point	Tool Offset	Stack Offset	Bottom Offset
TT1	4.80	36.88	30.49
TT3	5.80	37.88	29.49
CDT	7.30	39.38	27.99
TT4	8.80	40.88	26.49
TT2	9.80	41.88	25.49



Tool: PIT-CA **Length:** 21.49 ft. **O.D.** 3.62 in.
 Phased Dual Induction w/ RM & D
Sonde ID :PIT-AB-005

Measure Point	Tool Offset	Stack Offset	Bottom Offset
ILD	8.92	54.80	12.56
ILM	10.10	55.98	11.39
SFLU	17.49	63.37	4.00
SP	20.60	66.48	0.88

LWT ——— 67.37 ft.

Well File: lang-reif-31-3-quint-may-20

Scale: 1:240

Format: CAL-240

Segment: V1.D1.S6 MAIN

Acquired: 2014-05/20 16:23 3.3.0-12594

Reference: 0

Processed: 2014-05/20 17:54 3.3.0-12594

**BIT SIZE
INCHES (IN)**

6 16

**Y CALIPER
INCHES (IN)**

16 26
6 16

**X CALIPER
INCHES (IN)**

16 26
6 16

**TENSION
LBS**

10000 0

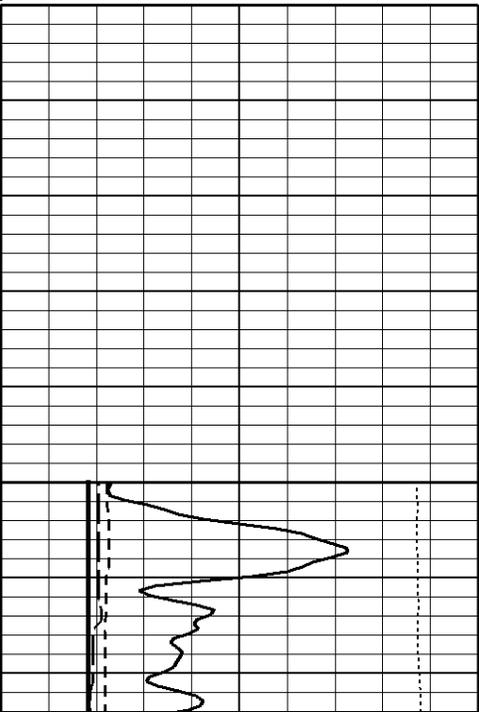
**GAMMA RAY
API UNITS**

150 300
0 150

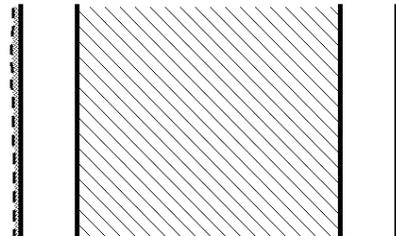
**BOREHOLE VOLUME
CU.FT**

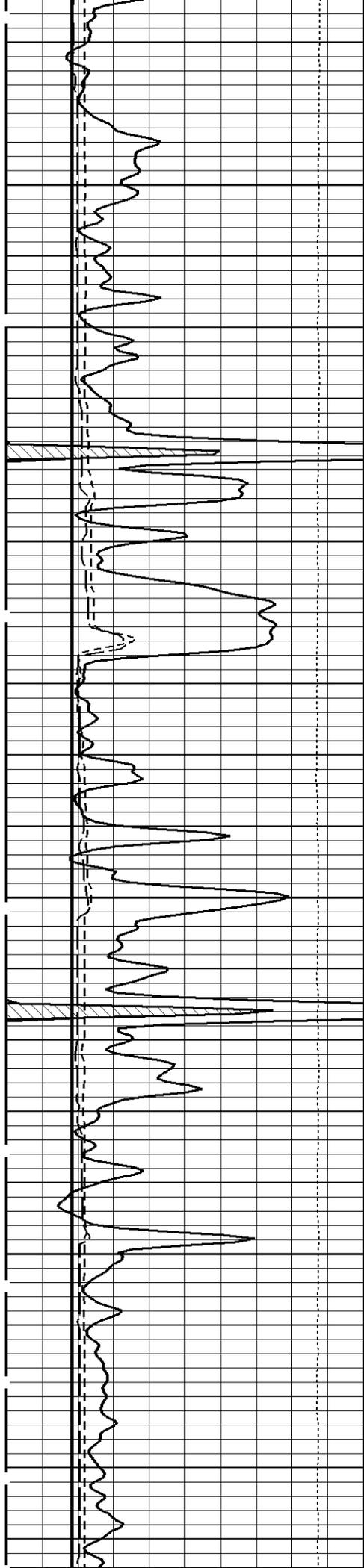
**ANNULAR HOLE VOLUME
CU.FT.**

1:240 MAIN SECTION



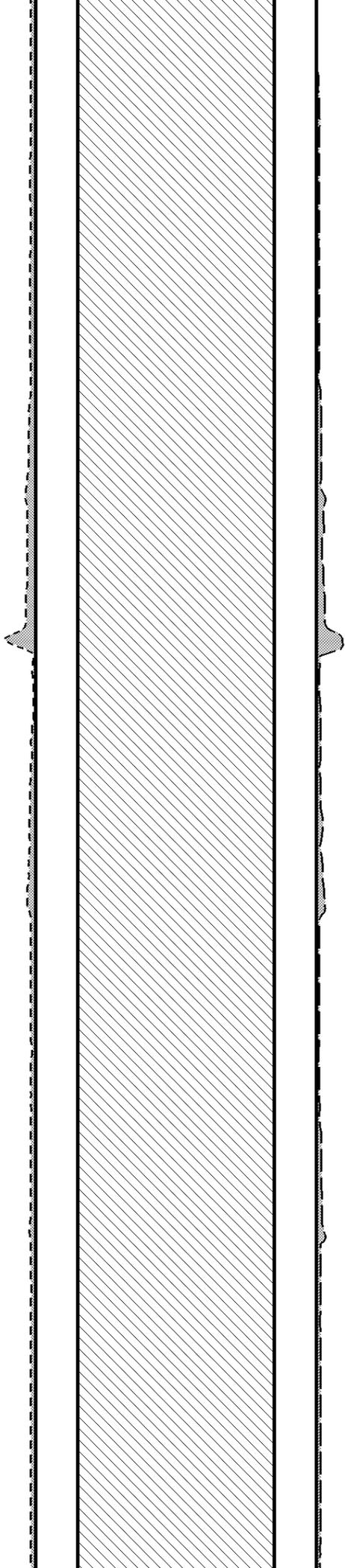
2600

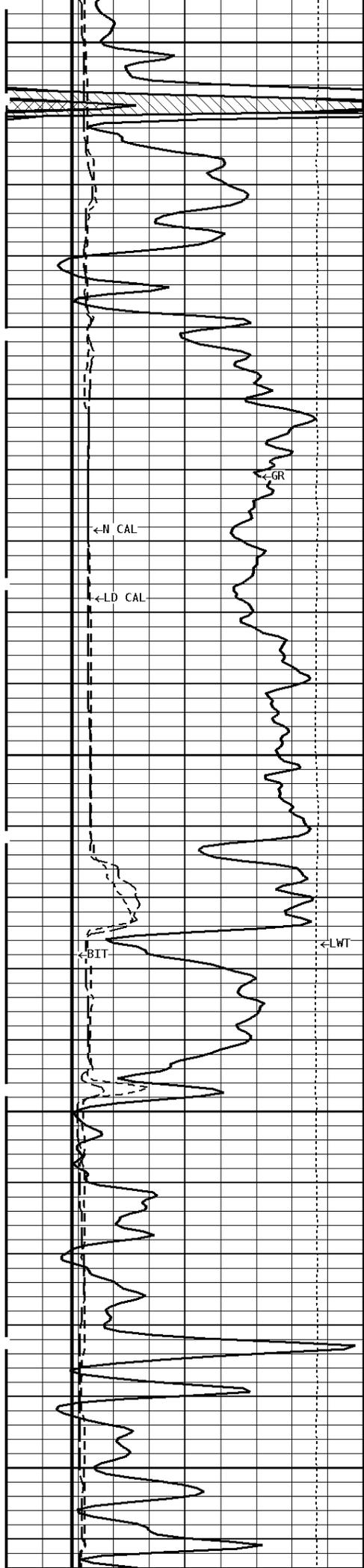




2700

2800



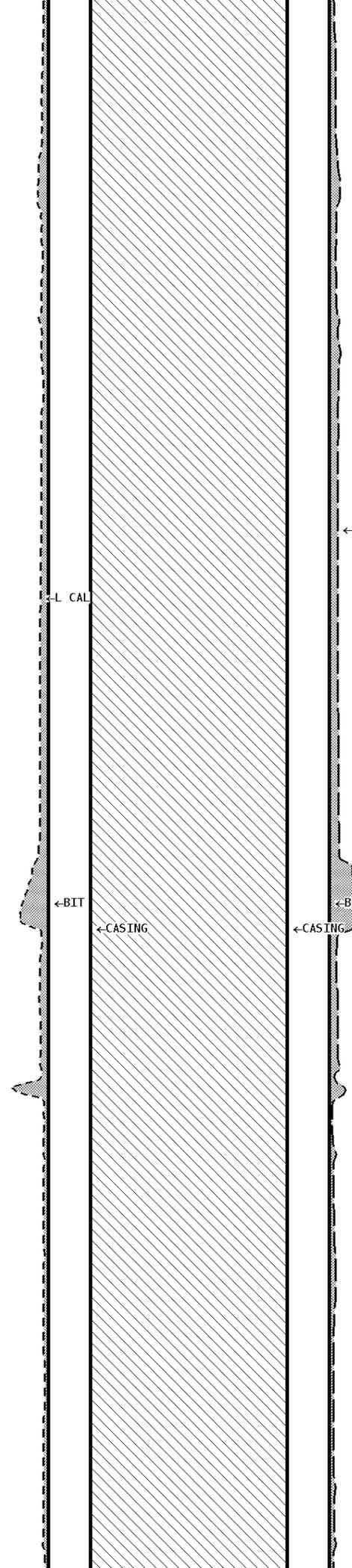


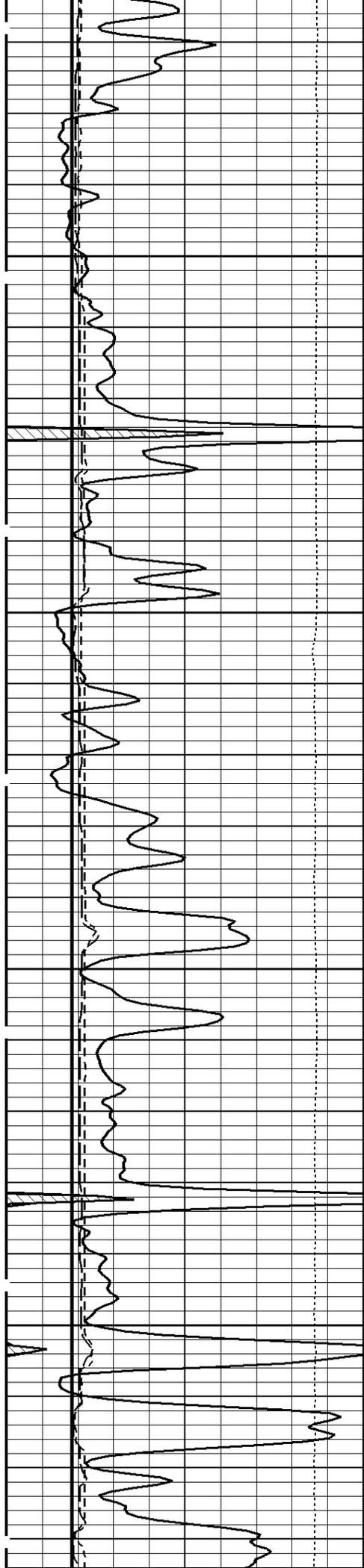
2900

3000

-200Cu.ft

100Cu.ft-

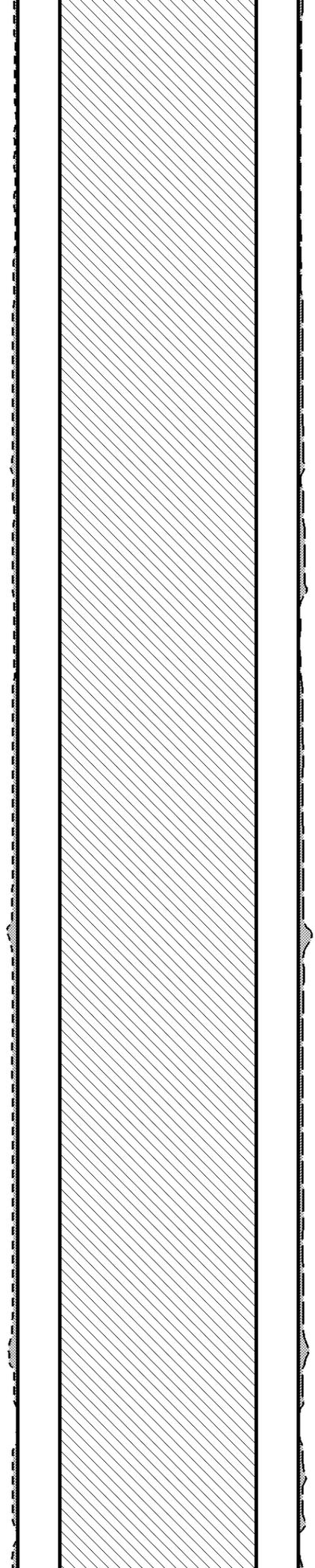


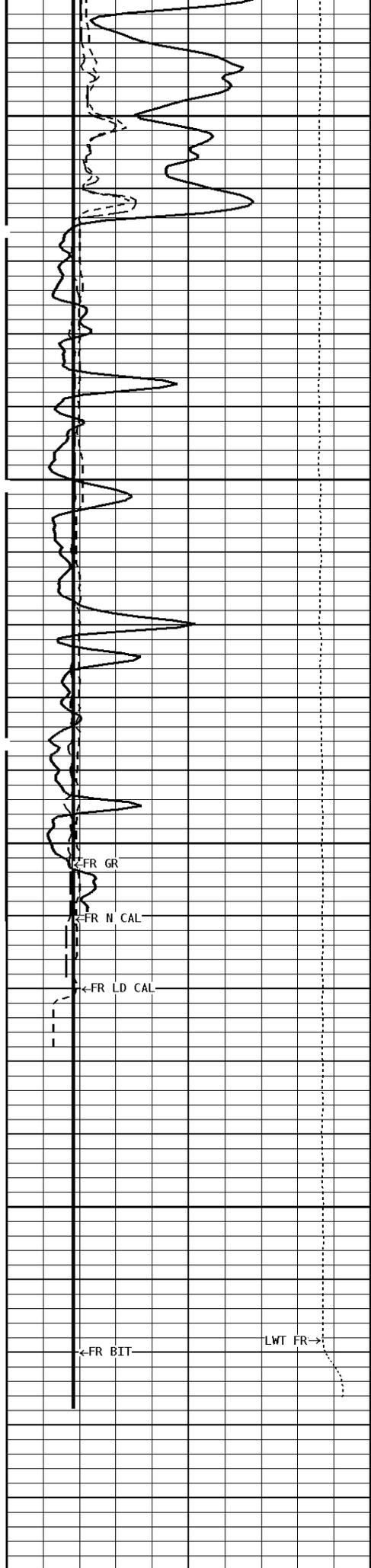


3100

-100Cu.ft

3200



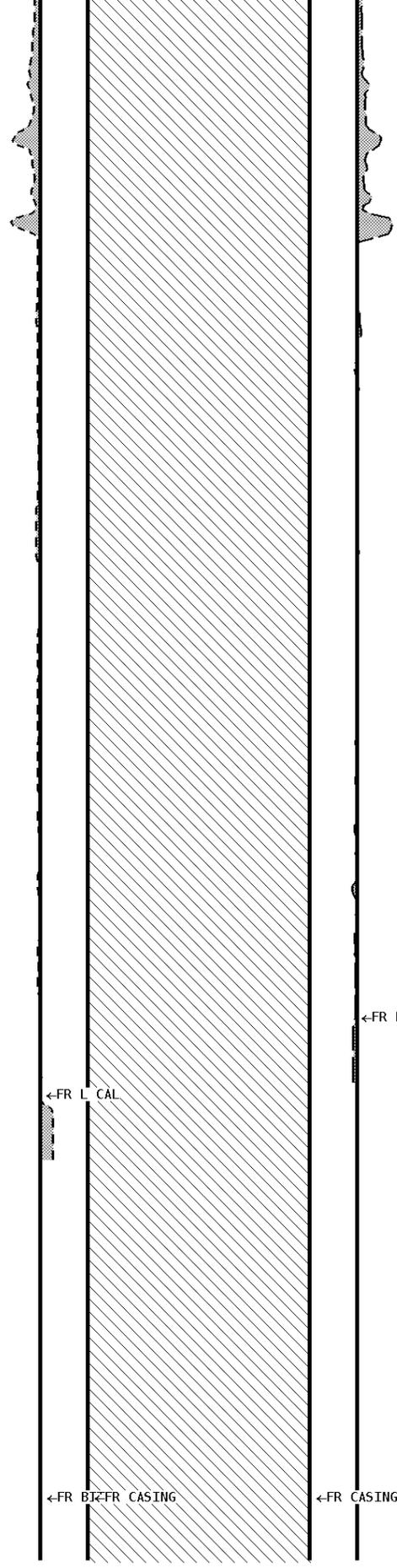


3300

3400

3470

File #1.1.6



←FR L CAL

←FR N CAL

←FR BIT' FR CASING

←FR CASINGBIT

1:240 MAIN SECTION

GAMMA RAY API UNITS	
150	300
0	150
TENSION LBS	
10000	0
X CALIPER INCHES (IN)	
16 6	26 16
Y CALIPER INCHES (IN)	
16 6	26 16
BIT SIZE INCHES (IN)	
6	16

BOREHOLE VOLUME CU.FT

ANNULAR HOLE VOLUME CU.FT.

*** Borehole Zone Factors ***

Zone 1 99999.0 to 0.0 Feet
Drill Bit Size _____ 7.875 in
Casing Diameter _____ 5.500 in

*** Calibration Summary ***

Shop Calibration GRT-B					
Performed : 21-APR-2014			Time : 11:21		
Sensor Suite : GR-GR5			ID : GRT-BB-107		
	Measured	Units	Calibrated	Units	
GR	Background	Jig	Jig	GRAPI	
	75	381	175		
		CPS			
Shop Calibration CNT-AA					
Performed : 28-APR-2014			Time : 11:56		
Sensor Suite : CALI-BCN			ID : NDT-BD-133		
	Jig - Measured		Jig - Calibrated	Units	
CL # 1	Ring#1	Ring#2	Ring#1	Ring#2	IN.
	9.3	13.9	6.0	12.0	
Shop Calibration LDT-DF					
Performed : 29-APR-2014			Time : 09:48		
Sensor Suite : CALI-LTH			ID : PDT-GA-466		
	Jig - Measured		Jig - Calibrated	Units	
CL # 1	Ring#1	Ring#2	Ring#1	Ring#2	IN.
	6.9	10.1	6.0	12.0	



Company: LANGSTON D.S.
 Well: REIF A & B #31-3
 Location: 825' FSL & 2970' FEL
 Logged: 05-20-2014
 K.B. Flow: 1765.0 Ft

ENGINEER'S SIGNATURE

K.B. Elev: 1765.0 Ft