

Tucker
ENERGY SERVICES

BOREHOLE VOLUME

CALIPER LOG

Company : QUAIL OIL & GAS, LC
Well : AJ #1-23
Field : MORRISON NORTHEAST
County : CLARK
State : KANSAS
Country : USA
API No. : 15-025-21577-00-00

File No : TUL-59517
Company : QUAIL OIL & GAS, LC
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Field : MORRISON NORTHEAST
County : CLARK
State : KANSAS
Country : USA
API No : 15-025-21577-00-00

Location :
 860' FNL & 460' FWL
 NE SW NW NW

LSD : **Sect** : 23 **Twp** : 32S **Rge** : 21W

Permanent Datum:	GL	Elevations:		Services:	
Drilling Measured From:	KB	KB 1039.00	Ft	CNT	PIT
Log Measured From:	KB	DF 1038.00	Ft	LDT	
Above Permanent Datum:	10.00 Ft	GL 1029.00	Ft	MLT	
Date	08-15-2014				
Run Number	1				
Depth--Driller	6482.0	Ft			
Depth--Logger	6484.0	Ft			
First Reading	6451.0	Ft			
Last Reading	610.0	Ft			
Casing--Driller	610.0	Ft			
Casing--Logger	610.0	Ft			
Bit Size	7.875	In			
Casing Size	8.625	In			
Hole Fluid Type	CHEM-GEL				
Density	9.4	ppg			
Fluid Loss	11.6	ml/30min			
PH/Viscosity	9.0	60.0 sec/qt			
Sample Source	MEASURED				
RM@Measured Temp.	0.350	@ 70 F			
RMF@Measured Temp	0.300	@ 70 F			
RMG@Measured Temp.	0.400	@ 70 F			
Source RMF/RMC	CALCULATED/CALCULATED				
RM@BHT	0.200	@ 125 F			
Time Circulation Stopped	08-15-2014 4:00 pm				
Max Recorded Temp.	125	F			
Equipment/Base	TRK-126	TULSA			
Recorded By	J. ADAMS				
Witnessed By	A. YOUNG				

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	6482.00	8.625	23.00	610.00	0.00

Run Number	1
Date	08-15-2014
Date/Time On Bottom	08-15-2014 7:30 pm
Depth to Fluid	0.0 Ft
Salinity	4500.000 mg/L
RMF@BHT	0.170 @ 125 F
RMC@BHT	0.230 @ 125 F

Run Number 1

Comments

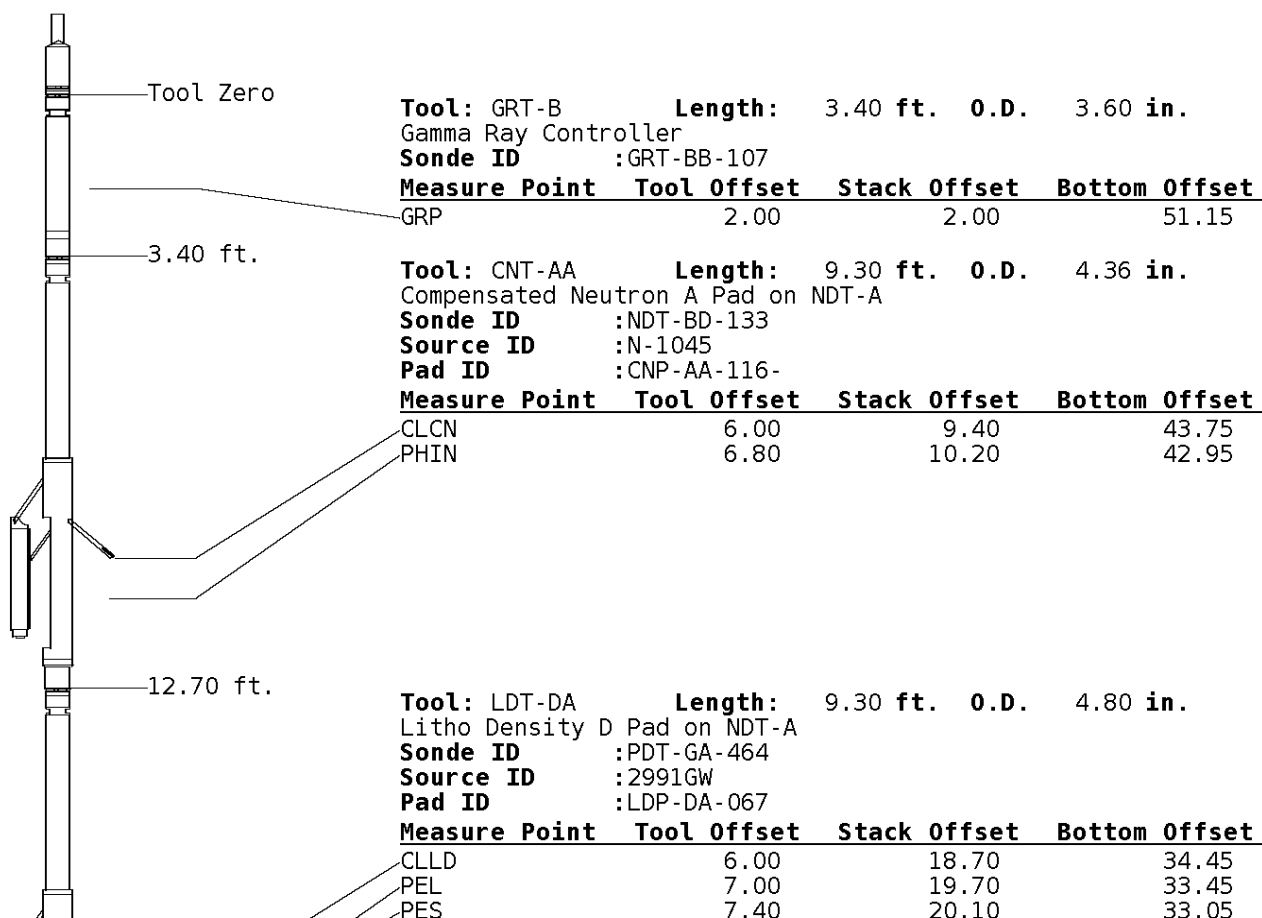
ALL PRESENTATION PER CUSTOMER REQUEST
 GRT,CNT,LDT,PIT RUN IN COMBINATION
 CALIPERS ORIENTED ON X-Y AXIS
 2.71 G/CC USED TO CALCULATE POROSITY
 ANNULAR & BOREHOLE VOLUME CALCULATED USING 5.5 PRODUCTION CASING
 PHIN IS CALIPER CORRECTED

GRT; GRP,
 CNT; PHIN, CLCNIN
 LDT; PORL, LCORN, PECLN, LDENN, CLLDIN
 MLT; NOR.RF, INV.RF, MSCLPIN.
 PIT; ILD, ILM, SPU, SFLAEC, CIRD

OPERATORS;
 M. DRUEPPEL
 J. THOMAS

Tool String Schematic

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





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)
Sonde ID :MST-DA-057

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-AB-005

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: QUAIL AJ 1-23 AUG15 MSTK **Scale:** 1:240 **Format:** CAL-240
Segment: V1.D1.S5 AS FINAL MAIN **Acquired:** 2014-08/15 19:43 3.3.0-12594
Reference: 0 **Processed:** 2014-08/15 21:20 3.3.0-12594

BIT SIZE INCHES (IN)	
6	16

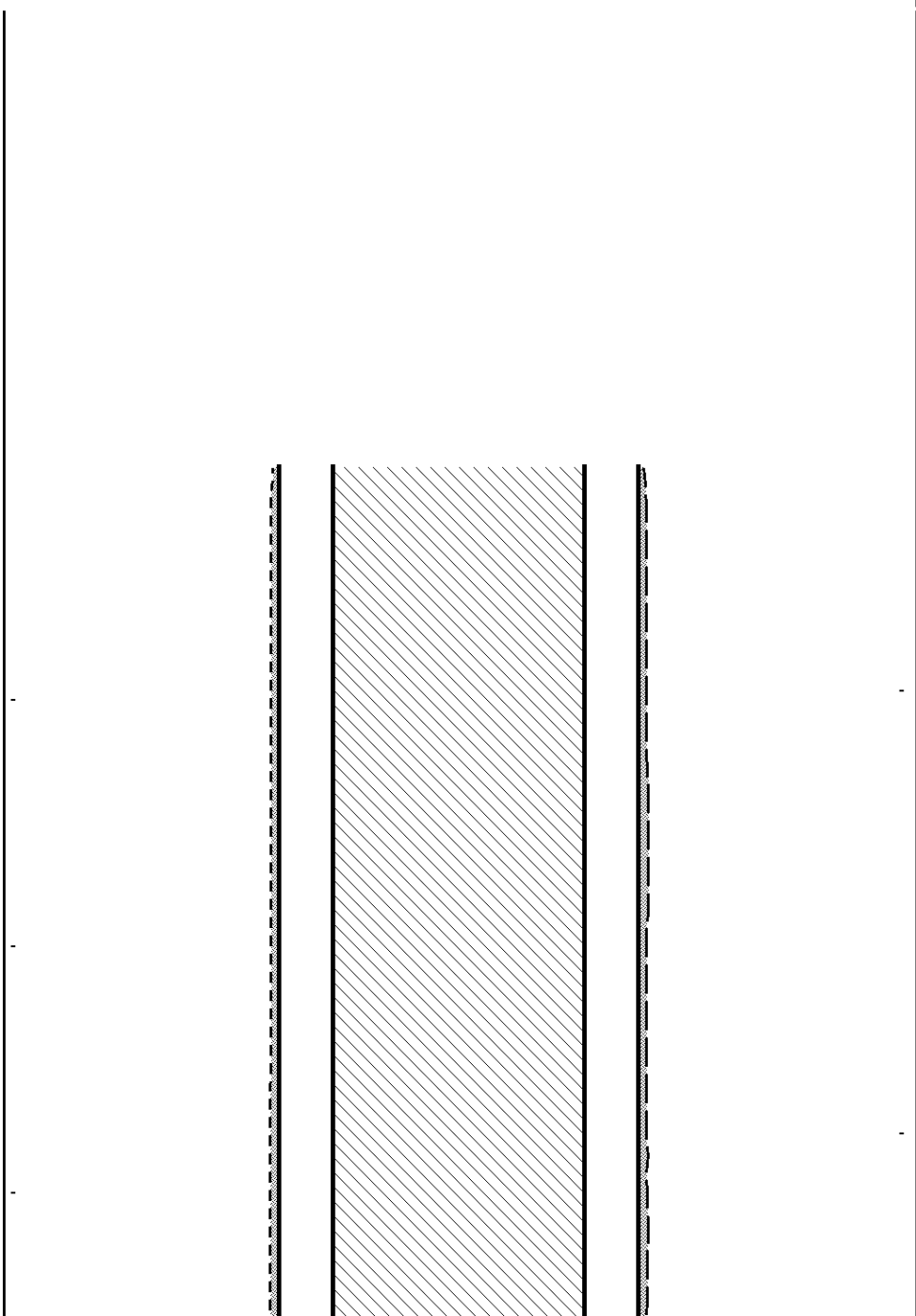
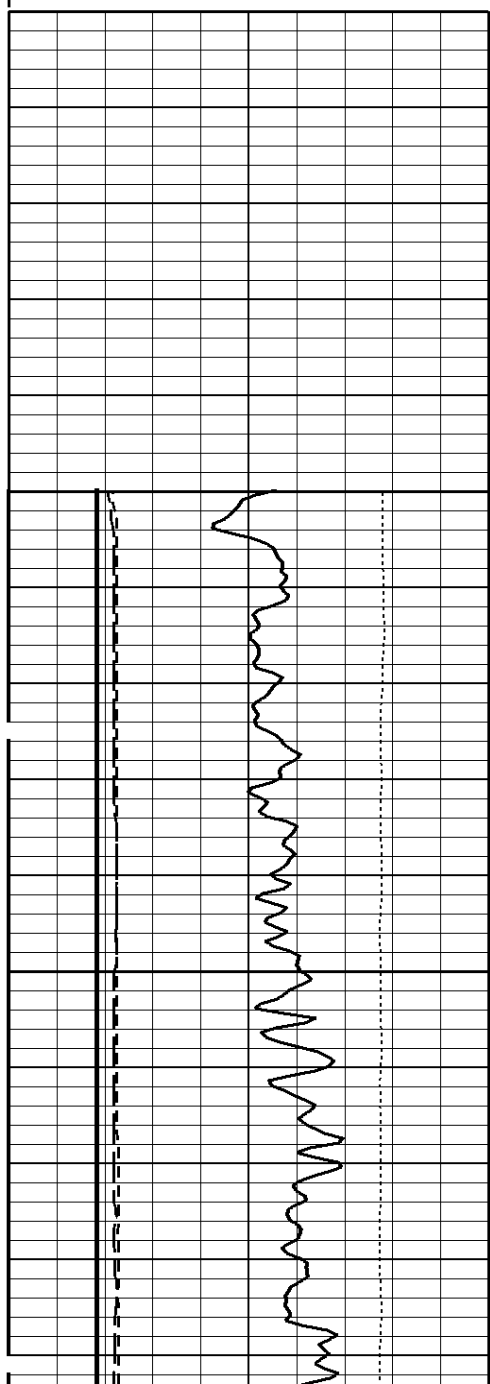
Y CALIPER INCHES (IN)	
16	26

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

**BOREHOLE VOLUME
CU.FT**

**ANNULAR HOLE VOLUME
CU.FT.**

1:240 MAIN SECTION

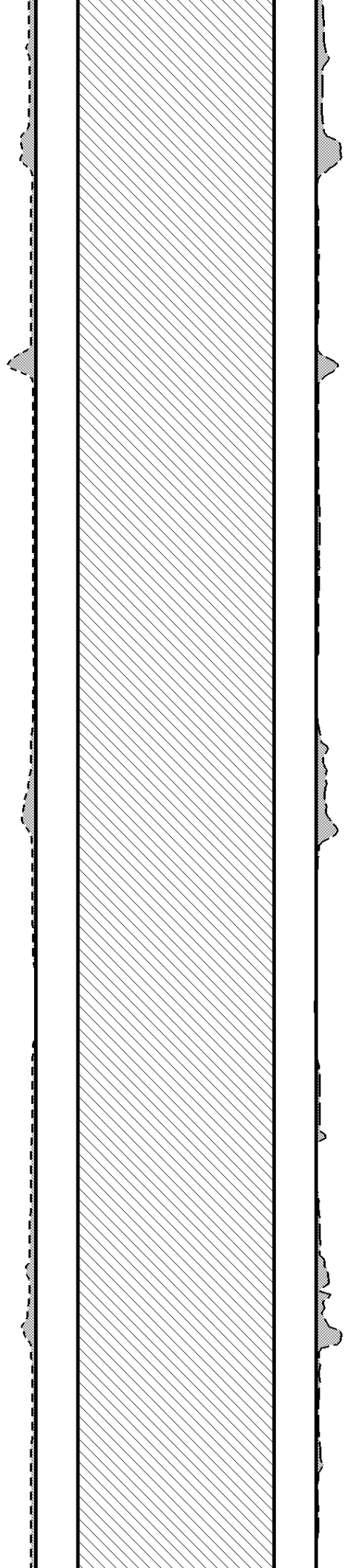
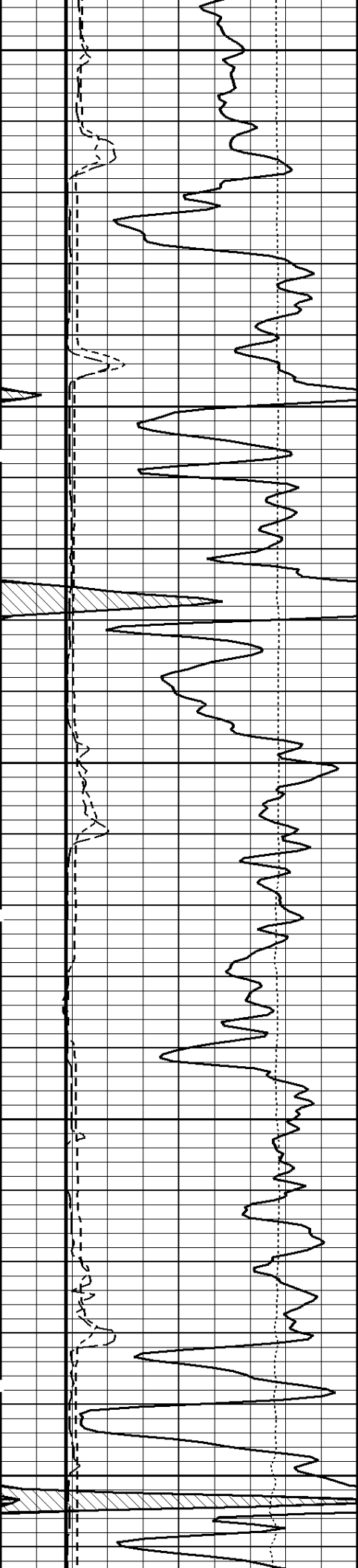


4100

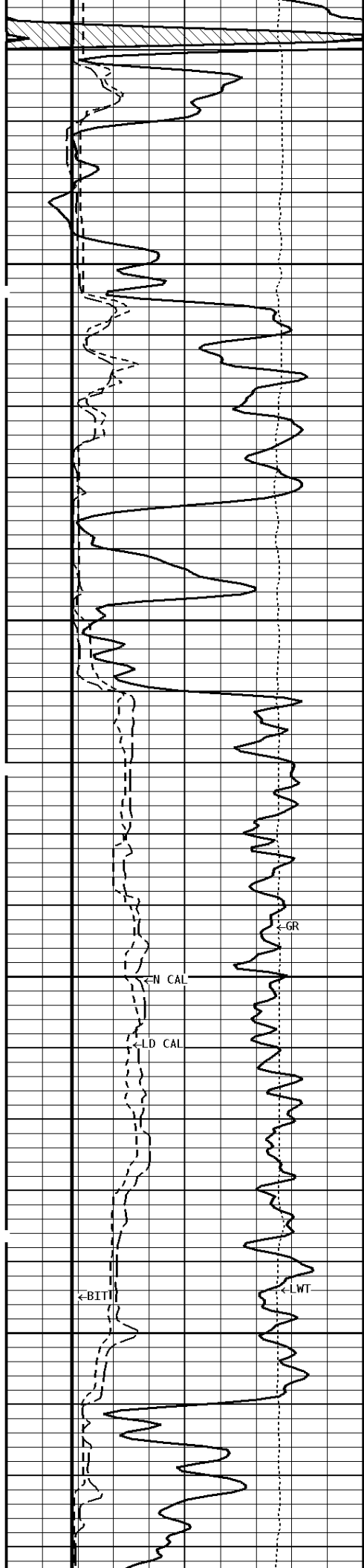
-800Cu.ft

4200

4300



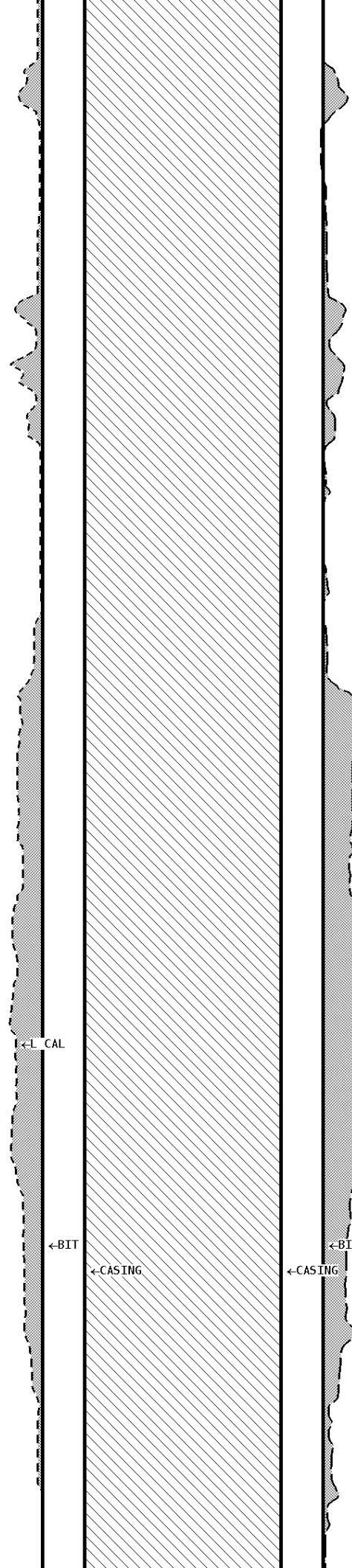
400Cu. ft.



4400

-700Cu. ft

4500



L CAL

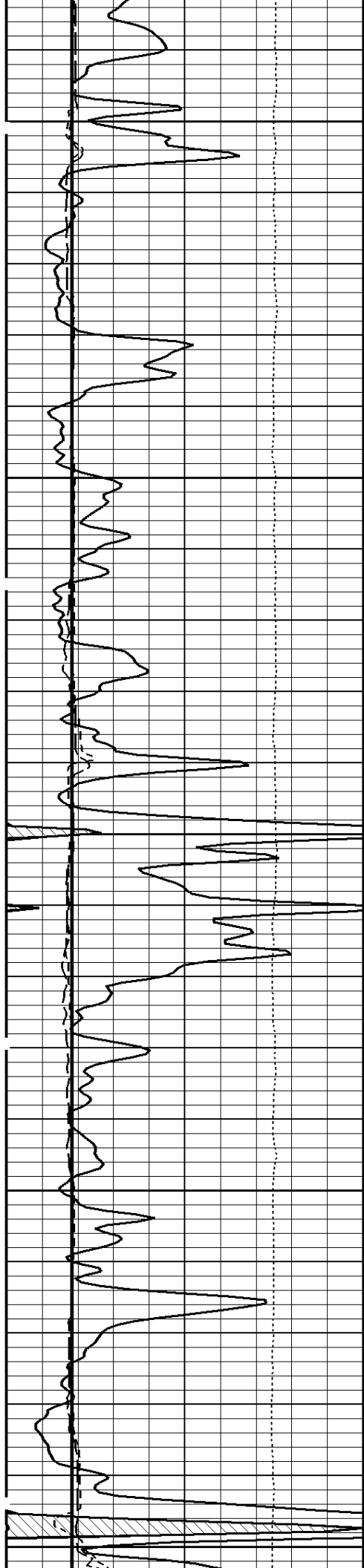
←BIT

←CASING

←BIT

←CASING

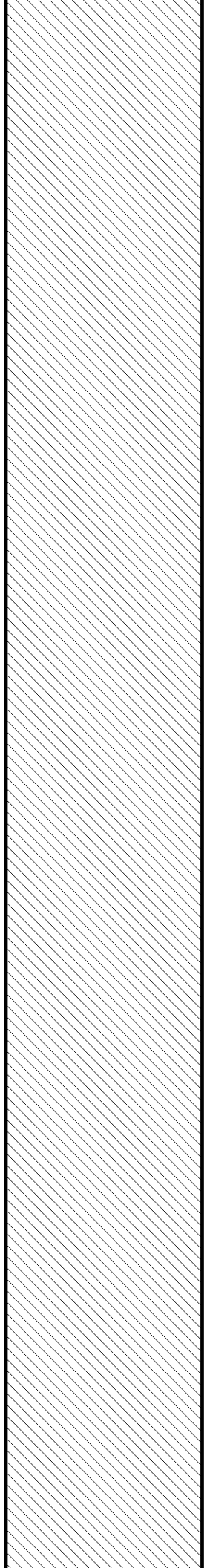
←N CAL

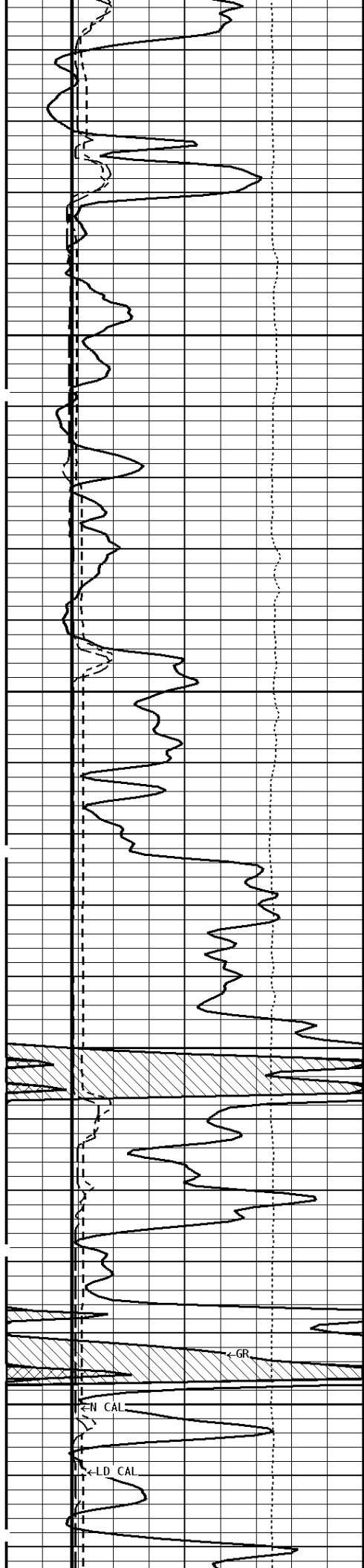


4600

4700

-600Cu.ft





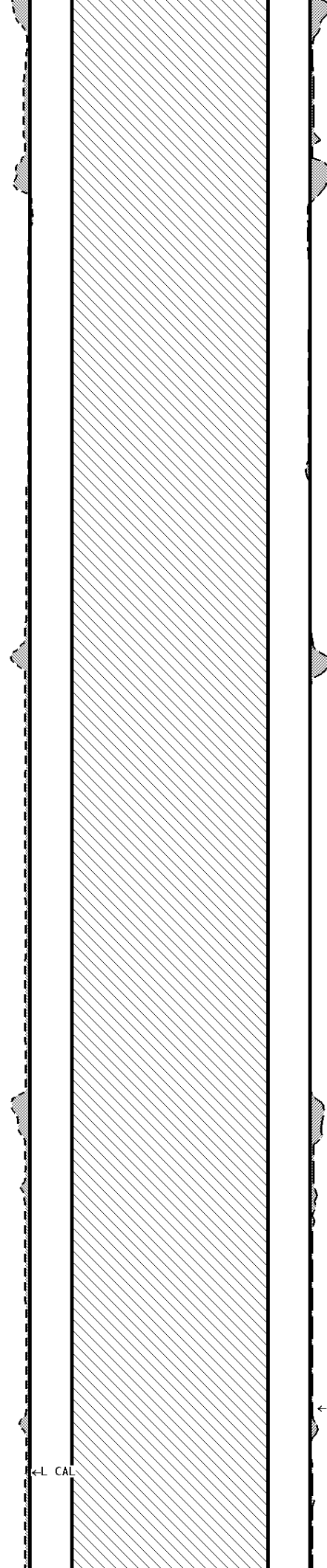
4800

4900

← GR

← N CAL

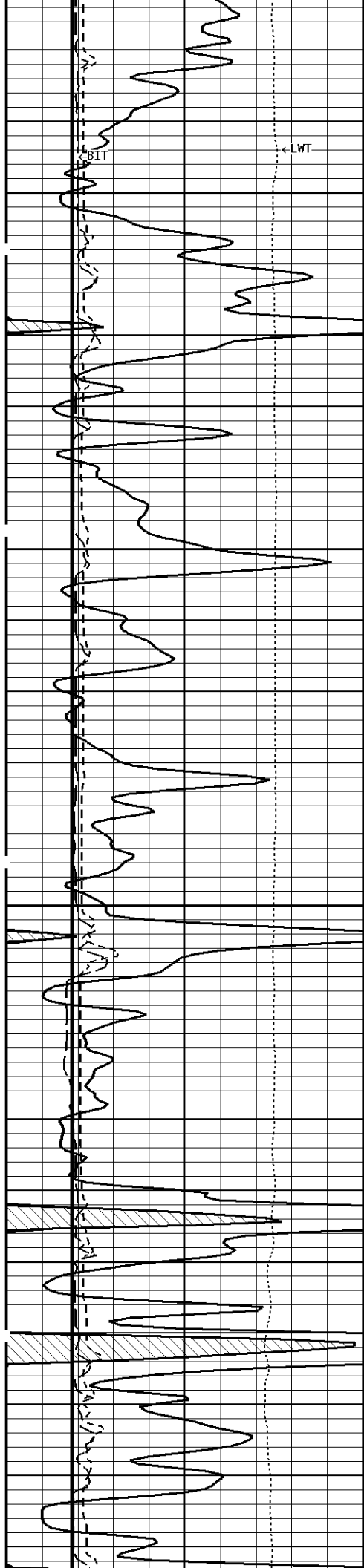
← LD CAL



300 Cu. ft.

← L CAL

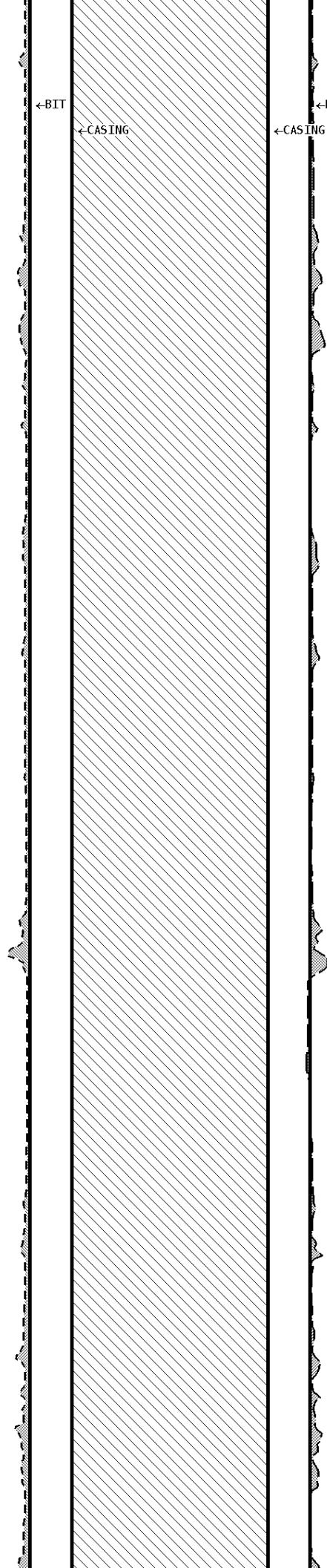
← N CAL



5000

-500Cu. ft

5100

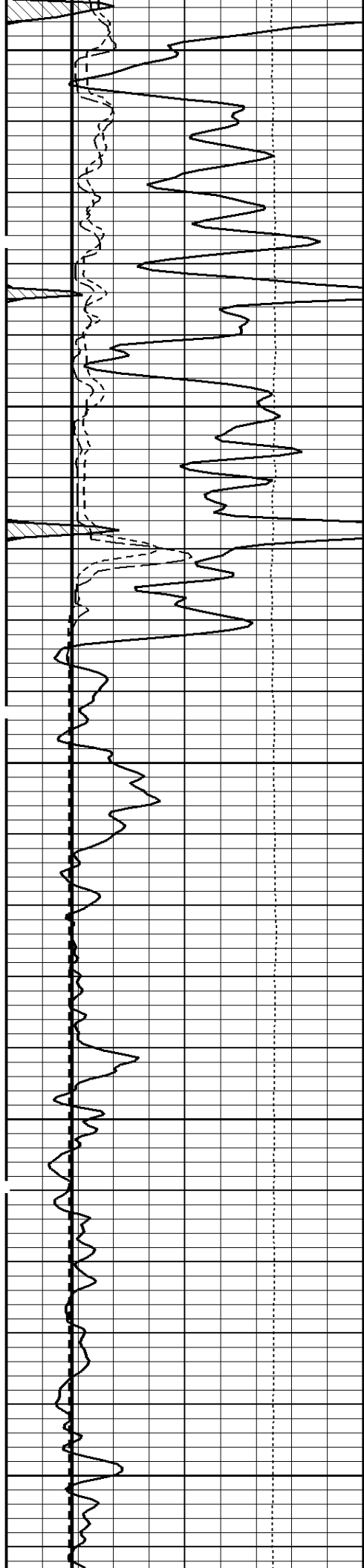


←BIT

←CASING

←BIT

←CASING



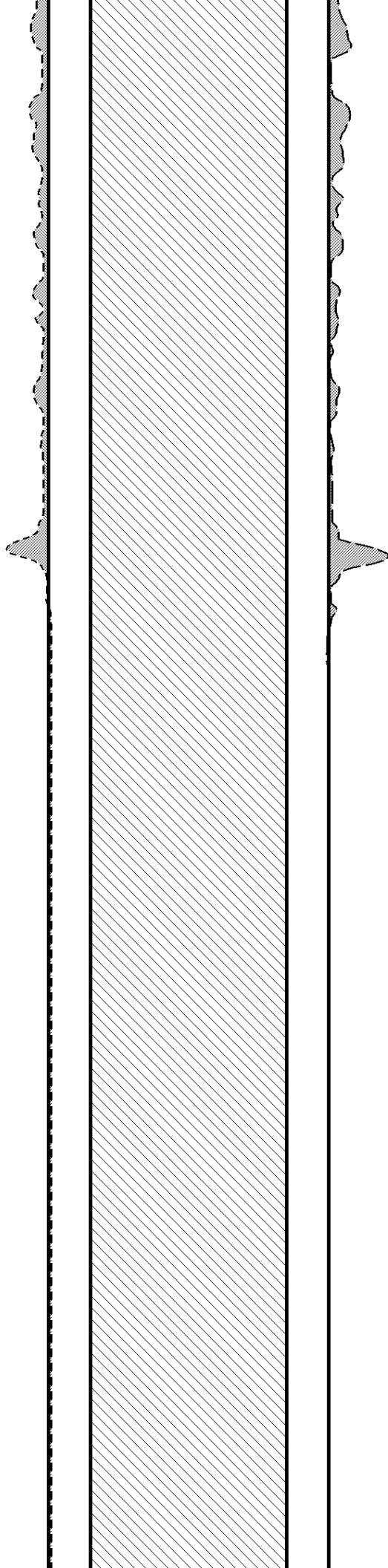
5200

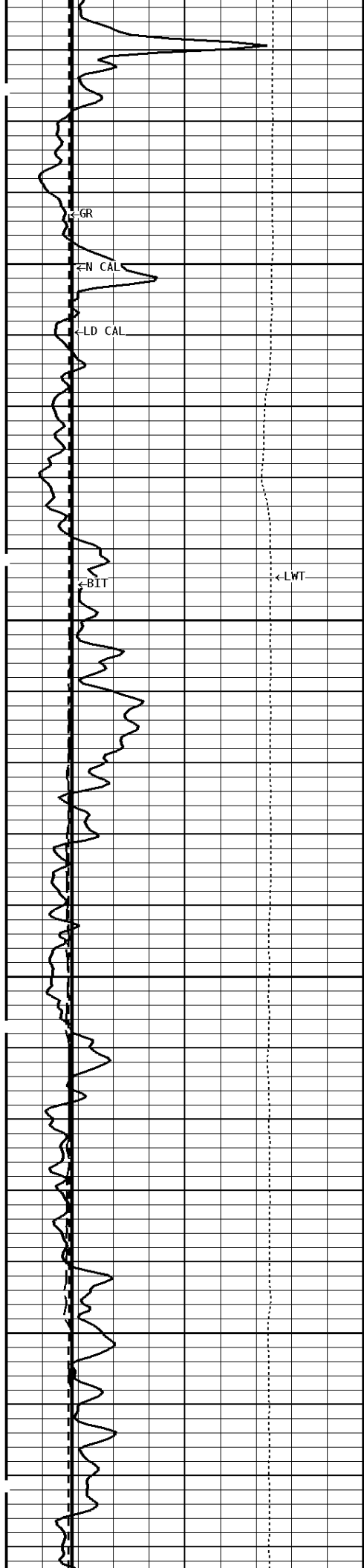
-400Cu. ft

5300

200Cu. ft-

5400

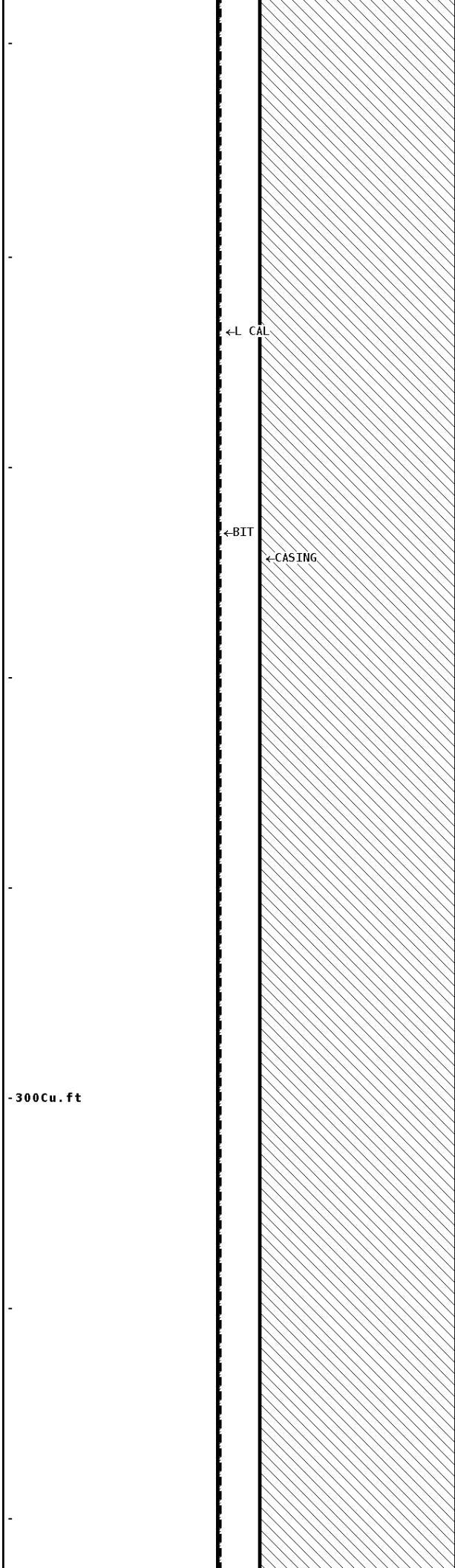




5500

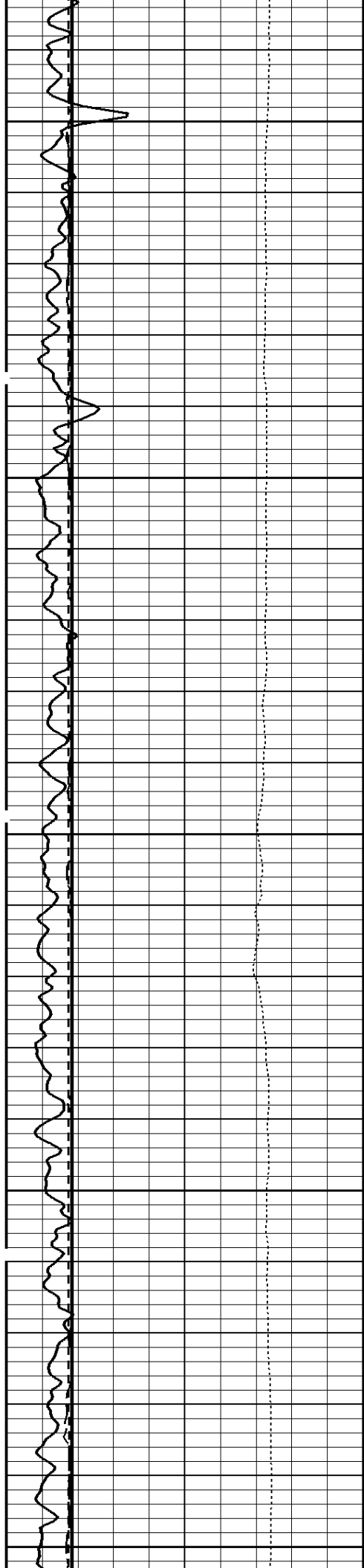
-300Cu.ft

5600



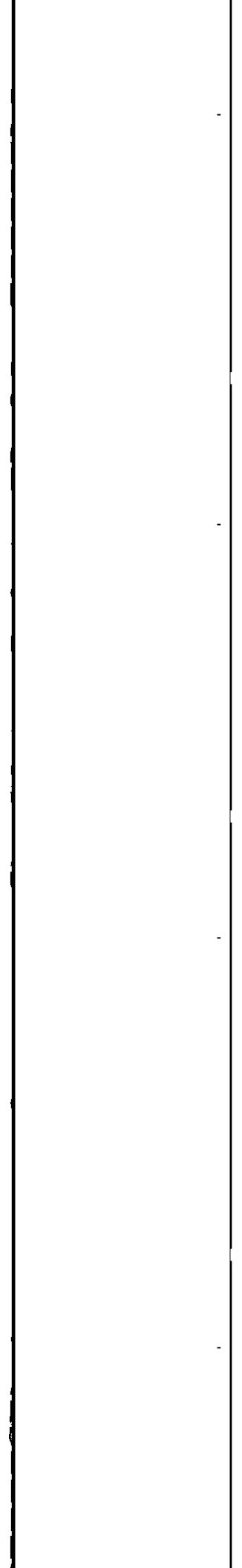
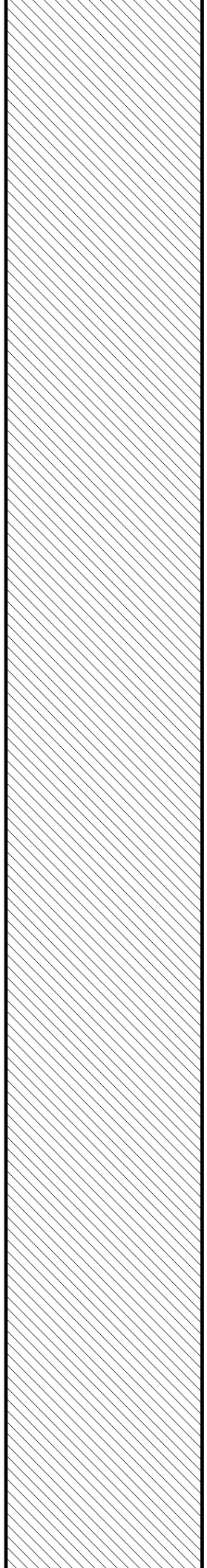
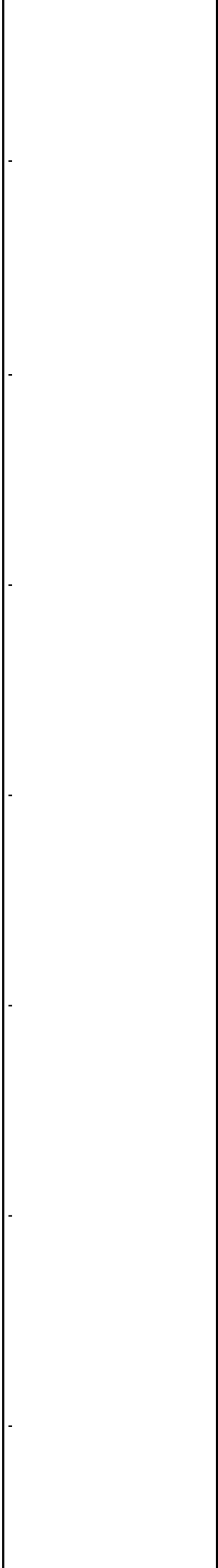
←L CAL
←BIT
←CASING

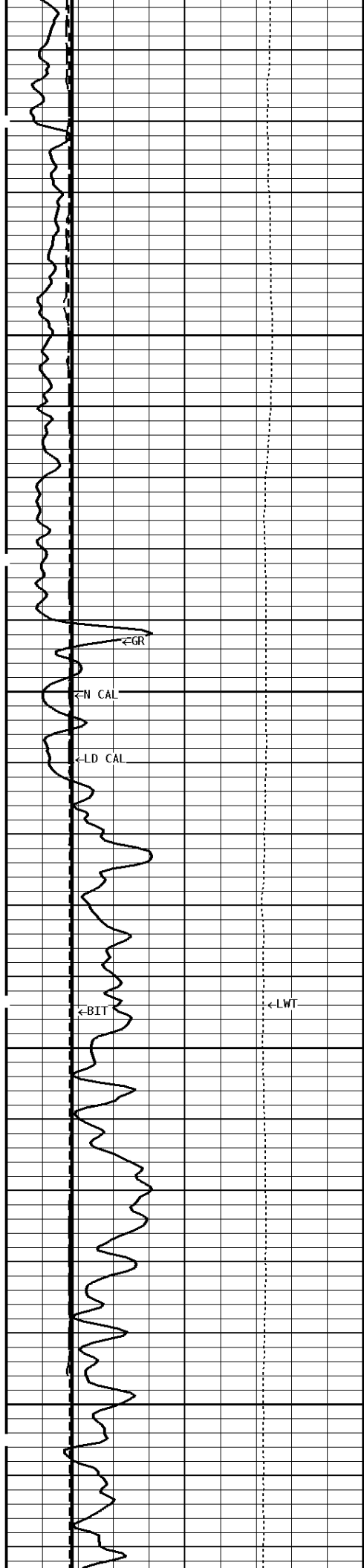
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←BIT
←CASING



5700

5800



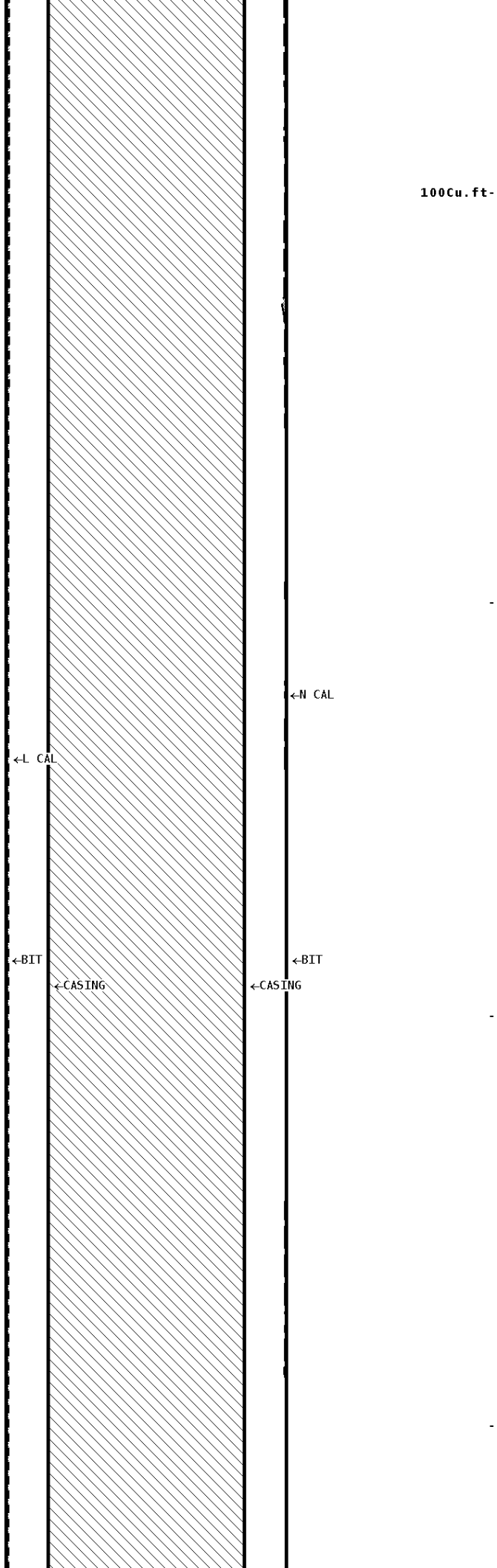


-200Cu.ft

5900

6000

100Cu.ft-



←L CAL

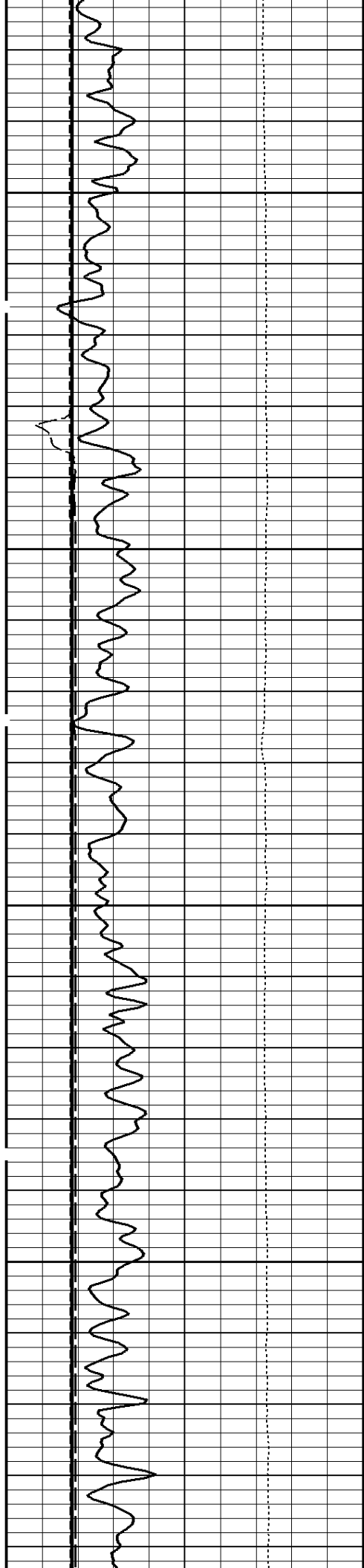
←BIT

←CASING

←N CAL

←BIT

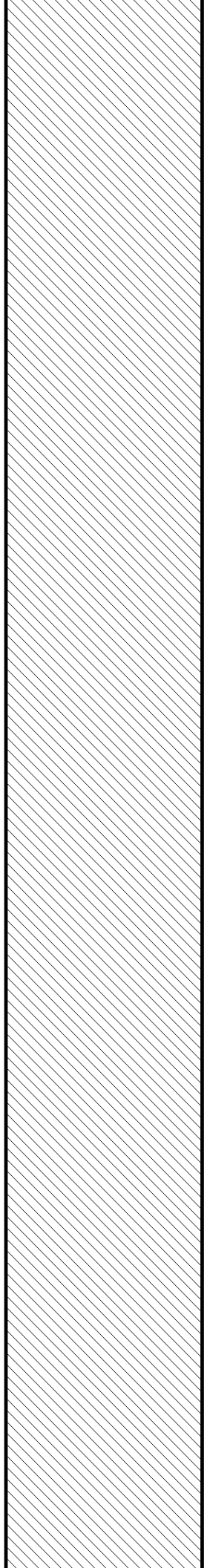
←CASING

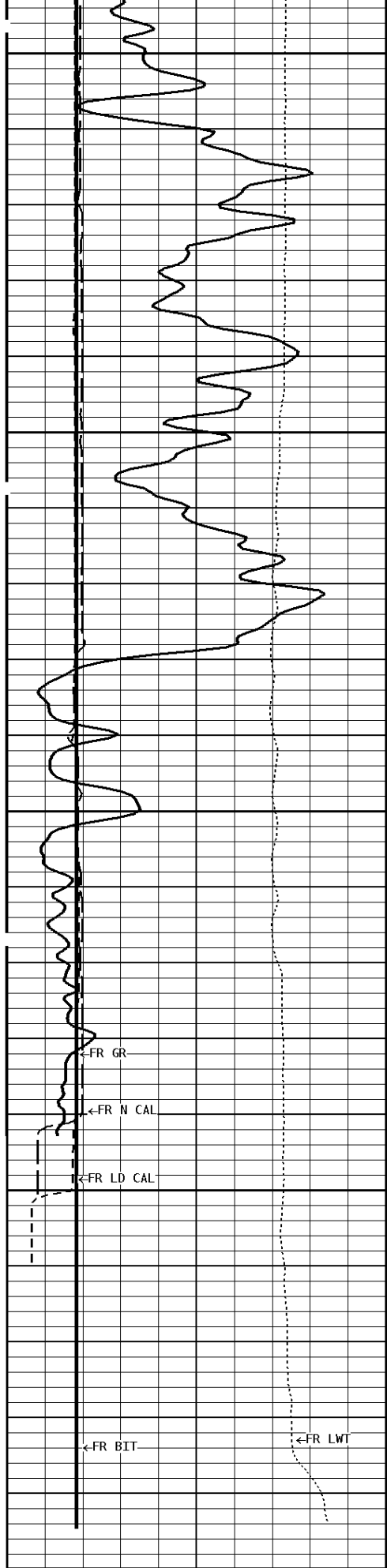


6100

-100Cu.ft

6200





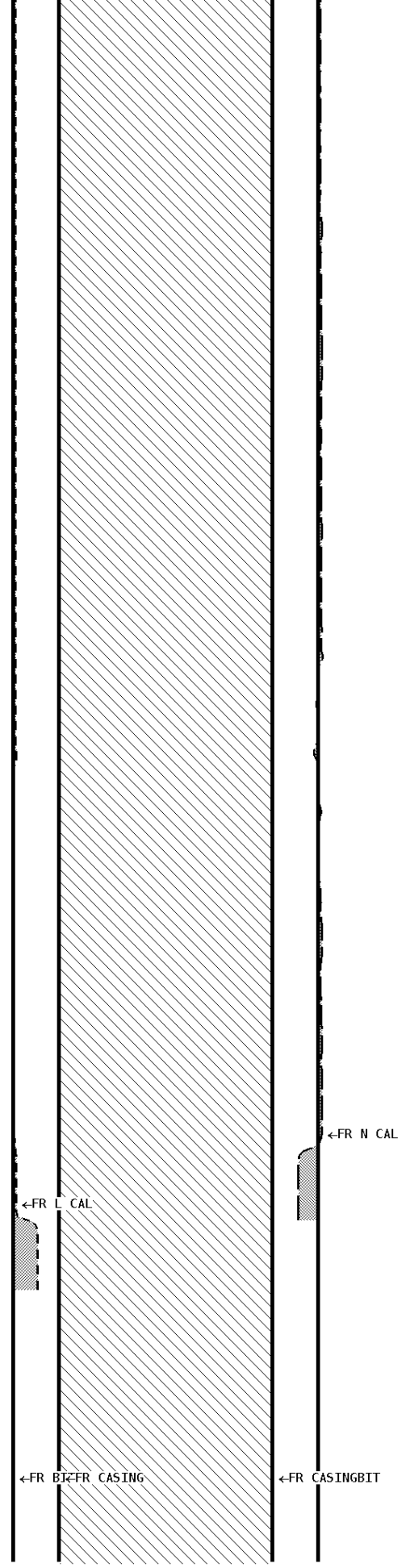
6300

6400

6484

File #1.1.5

1:240 MAIN SECTION



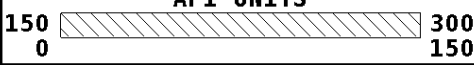
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GAMMA RAY API UNITS 	BOREHOLE VOLUME CU.FT	ANNULAR HOLE VOLUME CU.FT.
TENSION LBS 10000 ----- 0		
X CALIPER INCHES (IN) 16 ----- 26 6 ----- 16		
Y CALIPER INCHES (IN) 16 ----- 26 6 ----- 16		
BIT SIZE INCHES (IN) 6 ----- 16		

* Borehole Zone Factors *

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

Shop Calibration GRT-B					
Performed : 21-APR-2014			Time : 11:21		
Sensor Suite : GR-GR5			ID : GRT-BB-107		
	Background	Measured Jig	Units	Calibrated Jig	Units
GR	75	381	CPS	175	GRAPI
Shop Calibration CNT-AA					
Performed : 04-AUG-2014			Time : 11:39		
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	13.8	6.0	12.0	
Shop Calibration LDT-DA					
Performed : 04-AUG-2014			Time : 09:37		
Sensor Suite : CALI-LTH			ID : PDT-GA-464		
	Jig - Measured		Jig - Calibrated		Units
CL # 1	Ring#1	Ring#2	Ring#1	Ring#2	IN.
	7.8	11.2	6.0	12.0	



Company: QUAIL OIL & GAS, LC
 Well: AJ #1-23
 Location: 860' FNL & 460' FWL
 Logged: 08-15-2014
 K.B. Elev: 1039.0 Ft

