# Tucker ENERGY SERVICES

# BOREHOLE VOLUME

# CALIPER LOG

Company ENTRANSCO ENERGY, LLC
Well T. WIEBE INJ 30-1
Field HAZLETT
County BUTLER
State KANSAS
Country USA
API No. 15-015-24102

**File No** : TUL-61365
**Company** : ENTRANSCO ENERGY, LLC
**Well** : T. WIEBE INJ 30-1
**Field** : HAZLETT
**County** : BUTLER
**State** : KANSAS
**Country** : USA
**API No** : 15-015-24102

**Location :**
1650' FSL & 825' FEL
E2 SW NE SE

**LSD :** **Sect :** 30 **Twp :** 23S **Rge :** 5E

| | | | | | |
|---|---|---|---|---|---|
| **Permanent Datum:** | GL | **Elevations:** | | **Services:** | |
| **Drilling Measured From:** | KB | **KB** | 1476.00 Ft | CNT | PIT |
| **Log Measured From:** | KB | **DF** | 1475.00 Ft | LDT | |
| **Above Permanent Datum:** | 6.00 Ft | **GL** | 1470.00 Ft | MLT | |

| | | | | |
|---|---|---|---|---|
| **Date** | 09-07-2018 | | | |
| **Run Number** | 0 | | | |
| **Depth--Driller** | 2600.0 Ft | | | |
| **Depth--Logger** | 2600.0 Ft | | | |
| **First Reading** | 2567.0 Ft | | | |
| **Last Reading** | 218.0 Ft | | | |
| **Casing--Driller** | 211.0 Ft | | | |
| **Casing--Logger** | 218.0 Ft | | | |
| **Bit Size** | 7.875 In | | | |
| **Casing Size** | 8.625 In | | | |
| **Hole Fluid Type** | WBM | | | |
| **Density** | 9.0 | | | |
| **Fluid Loss** | 0.0 | | | |
| **PH/Viscosity** | 0.0 | 48.0 | | |
| **Sample Source** | CALCULATED | | | |
| **RM@Measured Temp.** | 2.000 @ 76 F | | | |
| **RMF@Measured Temp** | 1.700 @ 76 F | | | |
| **RMC@Measured Temp.** | 2.300 @ 76 F | | | |
| **Source RMF/RMC** | MEASURED | MEASURED | | |
| **RM@BHT** | 1.420 @ 110 F | | | |
| **Time Circulation Stopped** | 09-07-2018 2:00 pm | | | |
| **Max Recorded Temp.** | 110 F | | | |
| **Equipment/Base** | TRK-126 | TULSA | | |
| **Recorded By** | B.BAILEY | | | |
| **Witnessed By** | R.GILBERT, J.KITCHEL | | | |



**Bitsize Intervals**

| Size (In) | Bottom (Ft) |
|---|---|
| 7.875 | 2600.00 |

**Casing Strings**

| Size (In) | Weight (Lbs) | Bottom (Ft) | Top (Ft) |
|---|---|---|---|
| 8.625 | 17.00 | 211.00 | 0.00 |

| | |
|---|---|
| **Run Number** | 0 |
| **Date** | 09-07-2018 |
| **Date/Time On Bottom** | 09-07-2018 5:48 pm |
| **Depth to Fluid** | 0.0 Ft |
| **Salinity** | 0.000 |
| **RMF@BHT** | 1.210 @ 110 F |
| **RMC@BHT** | 1.630 @ 110 F |

**Run Number 0**

**Comments**

ALL PRESENTATIONS AS PER CUSTOMER REQUEST.

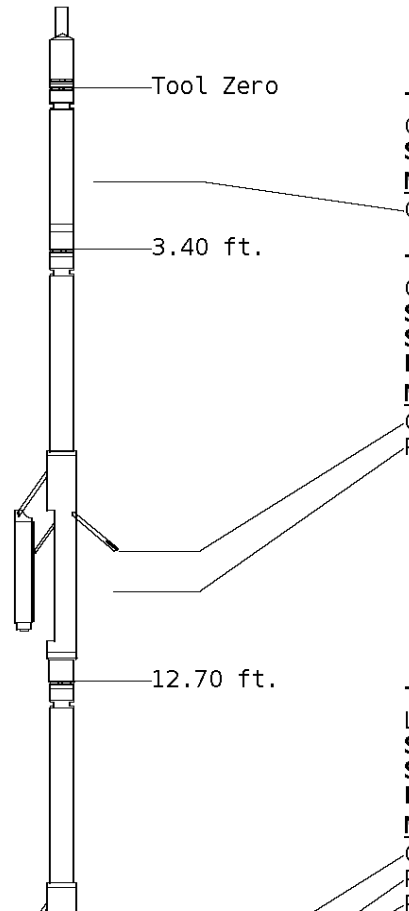
GRT, CNT, LDT, MLT & PIT RUN IN COMBINATION.
2.71 G/CC DENSITY MATRIX USED TO CALCULATED DENSITY POROSITY.
5.50" PRODUCTION CASING USED TO CALCULATED ANNULAR HOLE VOLUME.
CALIPERS ORIENTED 90 DEGREES OUT OF PHASE.
NO STANDOFF DEPLOYED ON PIT TOOL.
PHIN IS CALIPER CORRECTED.

GRT: GRP
CNT: PHIN, CLCNIN
LDT: LDENN, PECL, LCORN, PORL, CLLDIN
MLT: MSCLPIN, NOR_RF, INV_RF
PIT: ILD, ILM, SFLAEC, SPU, CIRD

OPERATORS:
R.NITZ
K.WARREN

# Tool String Schematic

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




**Tool:** GRT-B **Length:** 3.40 **ft.** **O.D.** 3.60 **in.**
Gamma Ray Controller
**Sonde ID** :GRT-BB-009

| Measure Point | Tool Offset | Stack Offset | Bottom Offset |
|---|---|---|---|
| GRP | 2.00 | 2.00 | 51.15 |

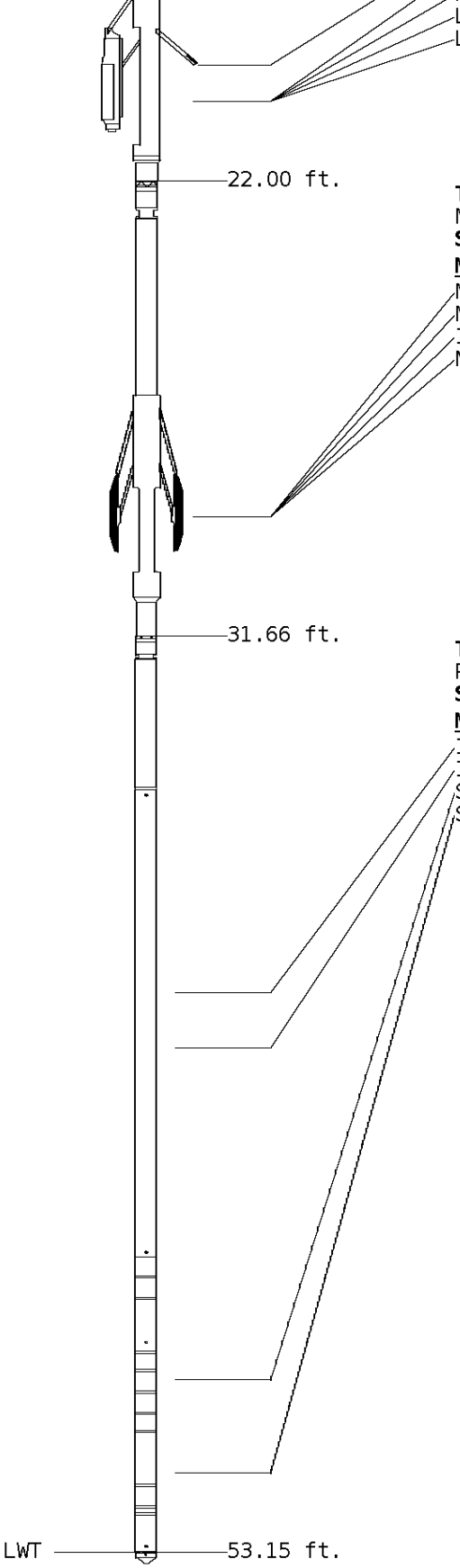
**Tool:** CNT-AA **Length:** 9.30 **ft.** **O.D.** 4.36 **in.**
Compensated Neutron A Pad on NDT-A
**Sonde ID** :NDT-BB-103
**Source ID** :N-1045
**Pad ID** :CNP-AA-116-

| Measure Point | Tool Offset | Stack Offset | Bottom Offset |
|---|---|---|---|
| CLCN | 6.00 | 9.40 | 43.75 |
| PHIN | 6.80 | 10.20 | 42.95 |

**Tool:** LDT-DA **Length:** 9.30 **ft.** **O.D.** 4.80 **in.**
Litho Density D Pad on NDT-A
**Sonde ID** :PDT-GA-426
**Source ID** :2991GW
**Pad ID** :LDP-DA-066

| Measure Point | Tool Offset | Stack Offset | Bottom Offset |
|---|---|---|---|
| CLLD | 6.00 | 18.70 | 34.45 |
| PEL | 7.00 | 19.70 | 33.45 |
| PES | 7.40 | 20.10 | 33.05 |

| | | | |
|---|---|---|---|
| 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,D)
**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-AC-043

| 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:** entransco_energy_t-wiebe-inj_30-1_sept_7_mst **Scale:** 1:600 **Format:** CAL-600
**Segment:** V1.D1.S5 Reprocess MAIN **Acquired:** 2018-09/07 18:28 3.4.0-13756
**Reference:** 0 **Processed:** 2018-09/07 19:18 3.4.0-13756

| BIT SIZE INCHES (IN) | |
|---|---|
| 6 | 16 |

| Y CALIPER INCHES (IN) | |
|---|---|
| 16 | 26 |

16 26
6 16

X CALIPER
INCHES (IN)
16 26
6 16

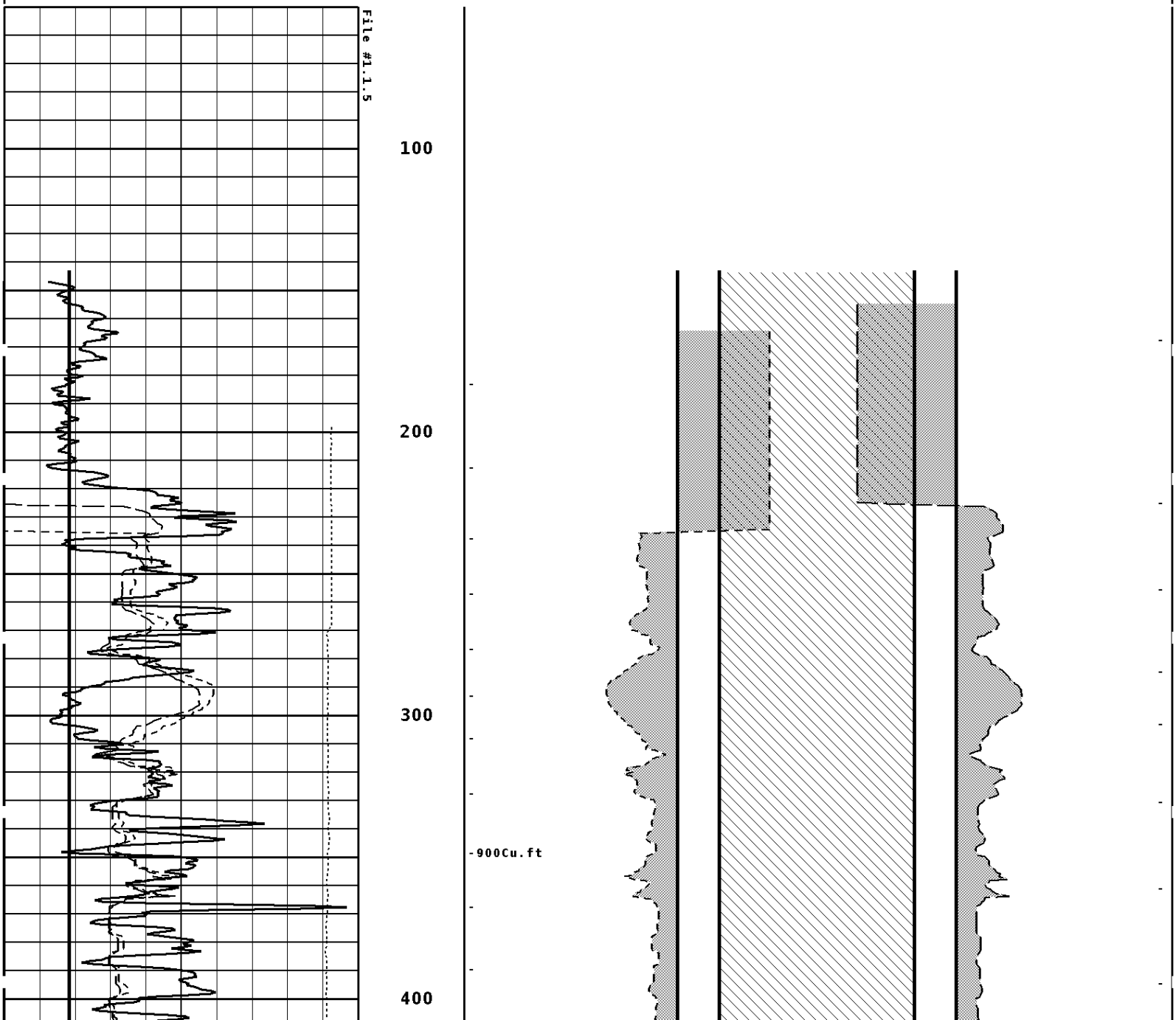
TENSION
LBS
10000 0

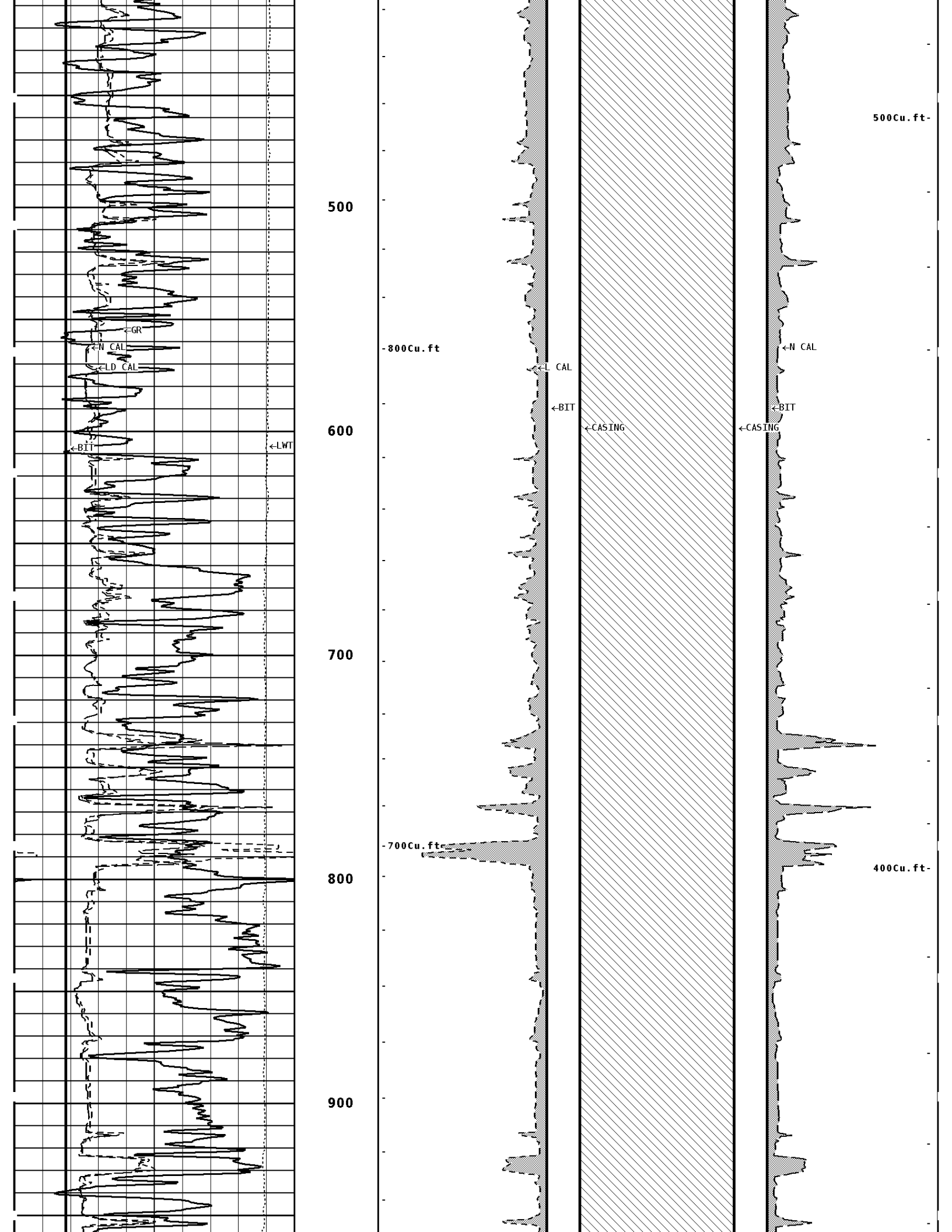
GAMMA RAY
API UNITS
150 300
0 150

BOREHOLE VOLUME
CU.FT

ANNULAR HOLE VOLUME
CU.FT.

# 1:600 MAIN SECTION

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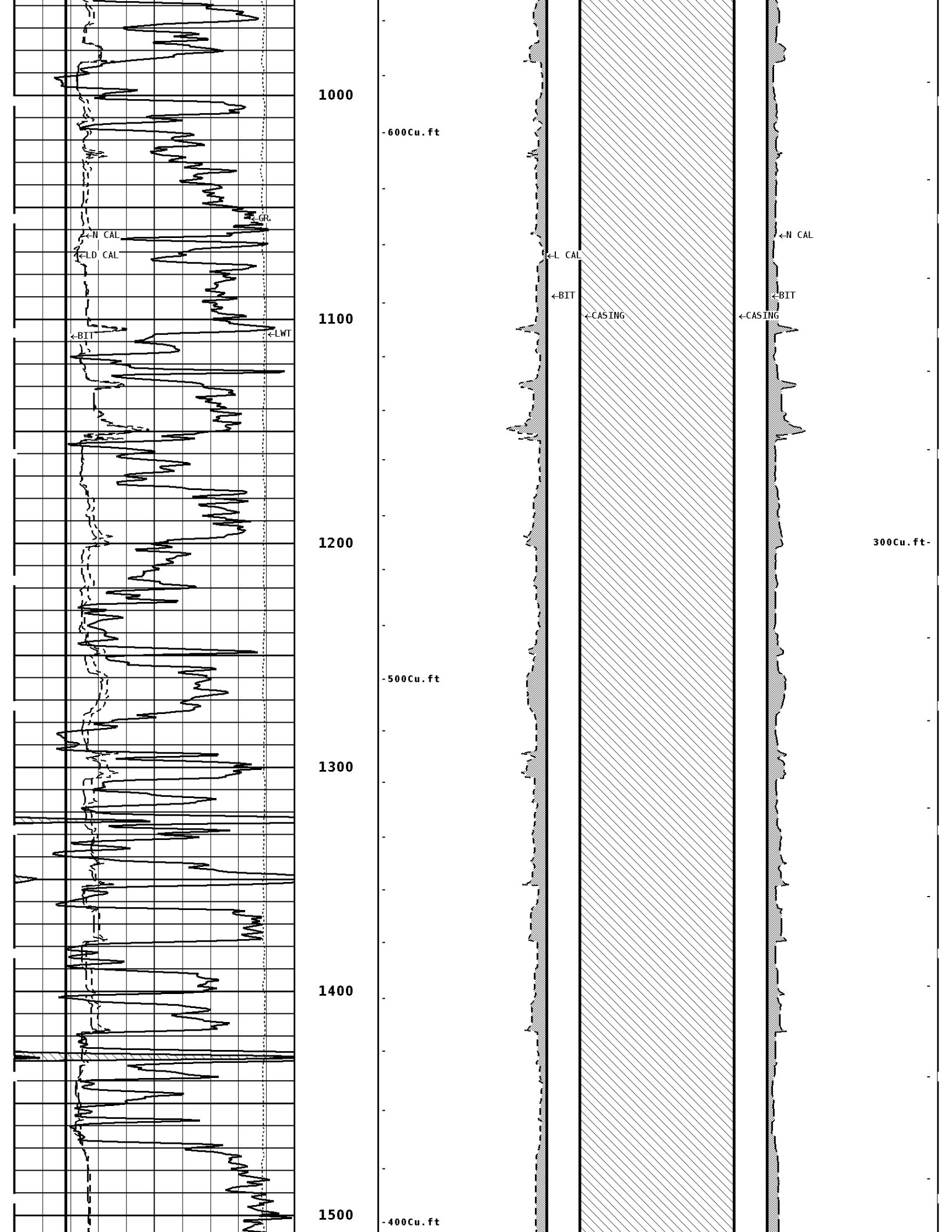
600
700
800
900
←GR
←N CAL
←LD CAL
←BIT
←LWT
-800Cu.ft
←L CAL
←BIT
←CASING
500Cu.ft-
←N CAL
←BIT
←CASING
-700Cu.ft
400Cu.ft-


1000
1100
1200
1300
1400
1500
-600Cu.ft
-500Cu.ft
-400Cu.ft
300Cu.ft-
←GR.
←N CAL
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←CASING
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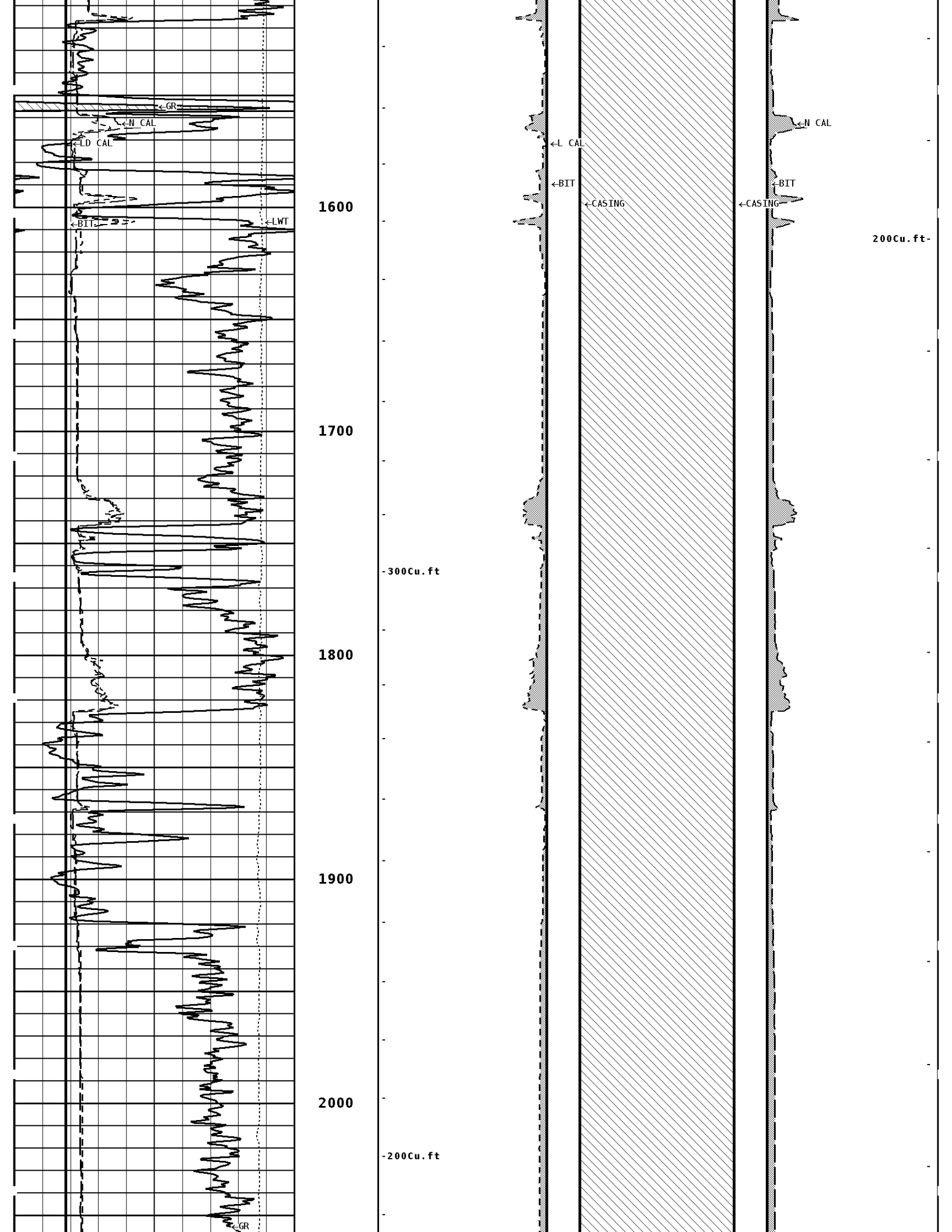
←BIT
←CASING


GR
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LD CAL
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LWT
1600
1700
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1900
2000
-300Cu.ft
-200Cu.ft
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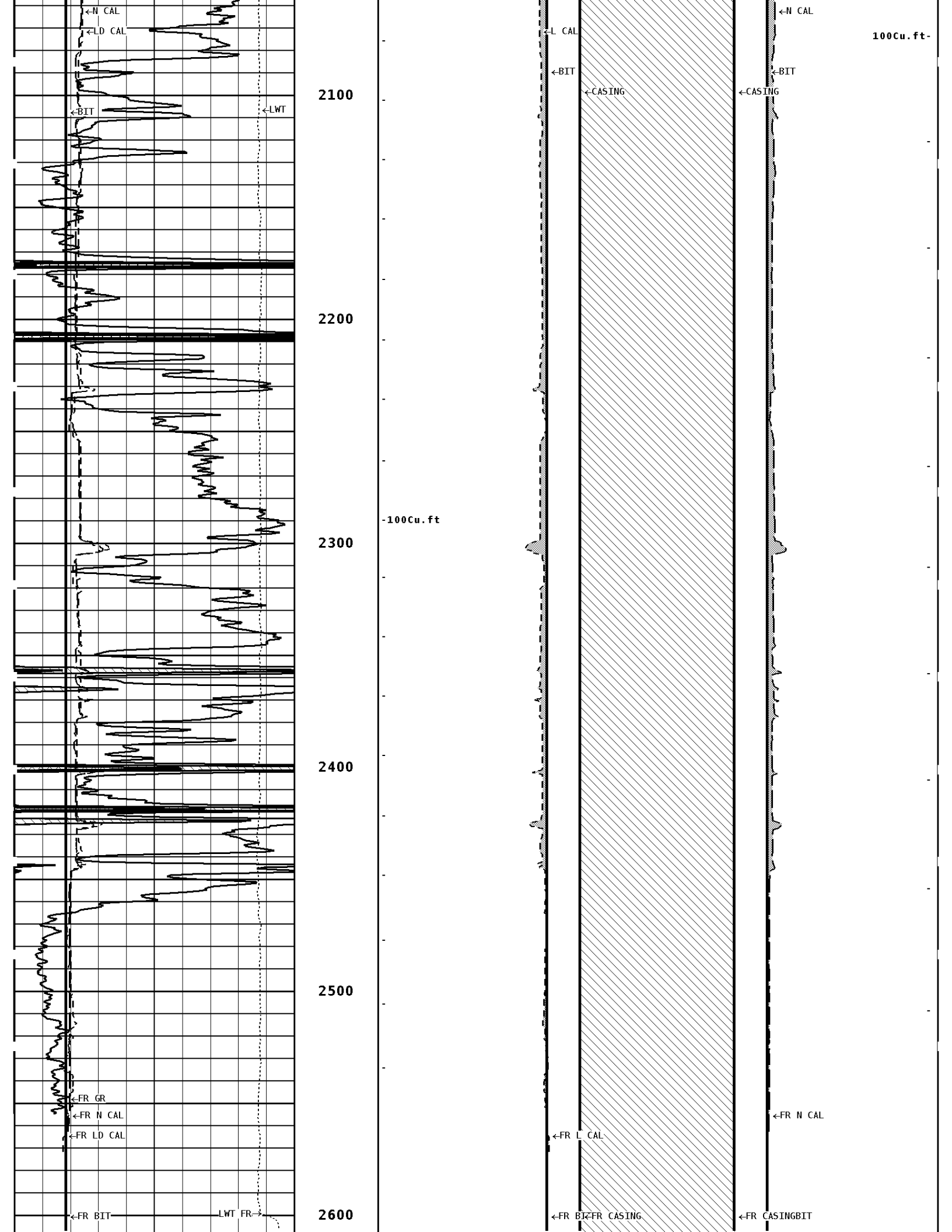
L CAL
BIT
CASING
N CAL
BIT
CASING
200Cu.ft-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←LD CAL
←BIT
←LWT
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2200
2300
2400
2500
2600
-100Cu.ft
←FR GR
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←FR LD CAL
←FR BIT
LWT FR→
←L CAL
←BIT
←CASING
←N CAL
100Cu.ft-
←BIT
←CASING
←FR L CAL
←FR BIT
←FR CASING
←FR N CAL
←FR CASINGBIT

File #1.1.5

# 1:600 MAIN SECTION

| GAMMA RAY API UNITS | BOREHOLE VOLUME CU.FT | ANNULAR HOLE VOLUME CU.FT. |
|---|---|---|
| 150 300<br>0 150 | | |

| TENSION LBS |
|---|
| 10000 0 |

| X CALIPER INCHES (IN) |
|---|
| 16 26<br>6 16 |

| Y CALIPER INCHES (IN) |
|---|
| 16 26<br>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 |

*** Calibration Summary ***

**Shop Calibration**
**GRT-B**

Performed : 08-Feb-2018 Time : 13:47
Sensor Suite : GR-GR5 ID : GRT-BB-009

| | Measured Background | Measured Jig | Units | Calibrated Jig | Units |
|---|---|---|---|---|---|
| GR | 58 | 336 | CPS | 160 | GRAPI |

**Shop Calibration**
**CNT-AA**

Performed : 08-FEB-2018 Time : 12:46
Sensor Suite : CALI-BCN ID : NDT-BB-103

| | Jig - Measured Ring#1 | Jig - Measured Ring#2 | Jig - Calibrated Ring#1 | Jig - Calibrated Ring#2 | Units |
|---|---|---|---|---|---|
| CL # 1 | 9.2 | 14.1 | 6.0 | 12.0 | IN. |

**Shop Calibration**
**LDT-DA**

Performed : 12-JAN-2018 Time : 13:36
Sensor Suite : CALI-LTH ID : PDT-GA-426

| | Jig - Measured Ring#1 | Jig - Measured Ring#2 | Jig - Calibrated Ring#1 | Jig - Calibrated Ring#2 | Units |
|---|---|---|---|---|---|
| CL # 1 | 6.7 | 10.9 | 6.0 | 12.0 | IN. |

Tucker ENERGY SERVICES

Company: ENTRANSCO ENERGY, LLC

Well: T. WIEBE INJ 30-1

Location: 1650' FSL & 825' FEL

Logged: 09-07-2018

K.B. Elev: 1476.0 Ft