

Caravan 28 State Com #701H  
Lea County, New Mexico

546' FNL  
2,153' FWL  
Section 28  
T-24-S, R-33-E

Proposed Wellbore Design A

API: 30-025-\*\*\*\*\*

KB: 3,544'  
GL: 3,519'

HOBES OGD  
NOV 27 2018  
RECEIVED

Bit Size: 12-1/4"

9-5/8", 40#, J-55, LTC 0' - 1,230'

Bit Size: 8-3/4"

7-5/8", 29.7#, HCP-110, FXL @ 0' - 11,380'

TOC: 10,880'

KOP: 12,011'

Bit Size: 6-3/4"

Bit Size: 6-3/4"

5-1/2", 17#, HCP-110, LTC @ 0' - 22,690'

Lateral: 22,690' MD, 12,468' TVD

BH Location: 100' FSL & 2,490' FWL  
Section 33  
T-24-S, R-33-E

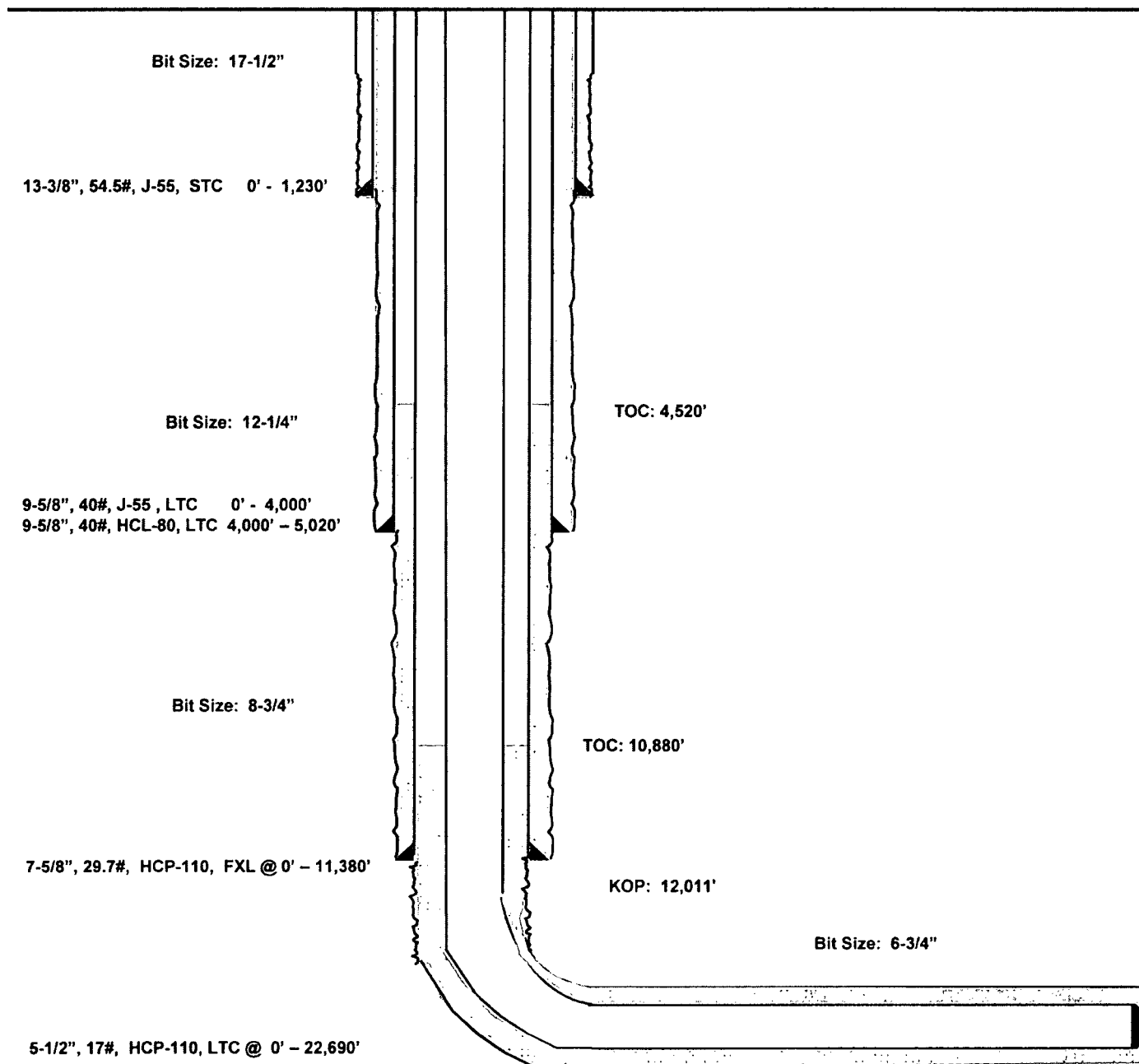
Caravan 28 State Com #701H  
Lea County, New Mexico

546' FNL  
2,153' FWL  
Section 28  
T-24-S, R-33-E

Proposed Wellbore Design B

API: 30-025-\*\*\*\*\*

KB: 3,544'  
GL: 3,519'



Lateral: 22,690' MD, 12,468' TVD

BH Location: 100' FSL & 2,490' FWL  
Section 33  
T-24-S, R-33-E

**Permit Information:**

Well Name: Caravan 28 State Com No. 701H

Location:

SHL: 546' FNL &amp; 2,153' FWL, Section 28, T-24-S, R-33-E, Lea Co., N.M.

BHL: 100' FSL &amp; 2,490' FWL, Section 33, T-24-S, R-33-E, Lea Co., N.M.

**Design A****Casing Program:**

| Hole Size | Interval     | Csg OD | Weight | Grade   | Conn | DF <sub>min</sub> Collapse | DF <sub>min</sub> Burst | DF <sub>min</sub> Tension |
|-----------|--------------|--------|--------|---------|------|----------------------------|-------------------------|---------------------------|
| 12.25"    | 0' - 1,230'  | 9.625" | 40#    | J-55    | LTC  | 1.125                      | 1.25                    | 1.60                      |
| 8.75"     | 0' - 11,380' | 7.625" | 29.7#  | HCP-110 | FXL  | 1.125                      | 1.25                    | 1.60                      |
| 6.75"     | 0' - 22,690' | 5.5"   | 17#    | HCP-110 | LTC  | 1.125                      | 1.25                    | 1.60                      |

**Cement Program:**

| Depth   | No. Sacks | Wt. ppg | Yld Ft <sup>3</sup> /sk | Slurry Description                                                                                      |
|---------|-----------|---------|-------------------------|---------------------------------------------------------------------------------------------------------|
| 1,230'  | 400       | 13.5    | 1.73                    | Class C + 4.0% Bentonite + 0.6% CD-32 + 0.5% CaCl <sub>2</sub> + 0.25 lb/sk Cello-Flake (TOC @ Surface) |
|         | 300       | 14.8    | 1.34                    | Class C + 0.6% FL-62 + 0.25 lb/sk Cello-Flake + 0.2% Sodium Metasilicate                                |
| 11,380' | 300       | 9.0     | 3.5                     | Class C + 5% Gypsum + 3% CaCl <sub>2</sub> (TOC @ Surface)                                              |
|         | 550       | 14.4    | 1.20                    | 50:50 Class H: Poz + 0.25% CPT20A + 0.40% CPT49 + 0.20% CPT35 + 0.80% CPT16A + 0.25% CPT503P            |
| 22,690' | 800       | 14.2    | 1.31                    | Class H + 0.1% C-20 + 0.05% CSA-1000 + 0.20% C-49 + 0.40% C-17 (TOC @ 10,880)                           |

**Mud Program:**

| Depth                        | Type        | Weight (ppg) | Viscosity | Water Loss |
|------------------------------|-------------|--------------|-----------|------------|
| 0' - 1,230'                  | Fresh - Gel | 8.6-8.8      | 28-34     | N/c        |
| 1,230' - 11,380'             | Brine       | 8.8-10.0     | 28-34     | N/c        |
| 11,380' - 12,011'            | Oil Base    | 10.0-11.5    | 58-68     | 3 - 6      |
| 12,011' - 22,690'<br>Lateral | Oil Base    | 10.0-11.5    | 58-68     | 3 - 6      |

## **Design B**

### **Casing Program:**

| Hole Size | Interval        | Csg OD  | Weight | Grade   | Conn | DF <sub>min</sub> Collapse | DF <sub>min</sub> Burst | DF <sub>min</sub> Tension |
|-----------|-----------------|---------|--------|---------|------|----------------------------|-------------------------|---------------------------|
| 17.5"     | 0' – 1,230'     | 13.375" | 54.5#  | J-55    | STC  | 1.125                      | 1.25                    | 1.60                      |
| 12.25"    | 0' – 4,000'     | 9.625"  | 40#    | J-55    | LTC  | 1.125                      | 1.25                    | 1.60                      |
| 12.25"    | 4,000' – 5,020' | 9.625"  | 40#    | HCL-80  | LTC  | 1.125                      | 1.25                    | 1.60                      |
| 8.75"     | 0' – 11,380'    | 7.625"  | 29.7#  | HCP-110 | FXL  | 1.125                      | 1.25                    | 1.60                      |
| 6.75"     | 0' – 22,690'    | 5.5"    | 17#    | HCP-110 | LTC  | 1.125                      | 1.25                    | 1.60                      |

### **Cement Program:**

| Depth   | No. Sacks | Wt. lb/gal | Yld Ft <sup>3</sup> /sk | Slurry Description                                                                                       |
|---------|-----------|------------|-------------------------|----------------------------------------------------------------------------------------------------------|
| 1,230'  | 697       | 13.5       | 1.74                    | Lead: Class 'C' + 4.00% Bentonite + 2.00% CaCl <sub>2</sub> (TOC @ Surface)                              |
|         | 333       | 14.8       | 1.35                    | Tail: Class 'C' + 0.6% FL-62 + 0.25 lb/sk Cello-Flake + 0.2% Sodium Metasilicate + 2.0% KCl (1.06 lb/sk) |
| 5,020'  | 692       | 12.7       | 2.22                    | Lead: Class C + 0.15% C-20 + 11.63 pps Salt + 0.1% C-51 + 0.75% C-41P (TOC @ Surface)                    |
|         | 303       | 14.8       | 1.32                    | Tail: Class C + 0.13% C-20                                                                               |
| 11,380' | 375       | 10.8       | 3.67                    | Lead: Class C + 0.40% D013 + 0.20% D046 + 0.10% D065 + 0.20% D167 (TOC @ 4,520')                         |
|         | 400       | 14.8       | 2.38                    | Tail: Class H + 94.0 pps D909 + 0.25% D065 + 0.30% D167 + 0.02% D208 + 0.15% D800                        |
| 22,690' | 950       | 14.8       | 1.31                    | Class H + 0.1% C-20 + 0.05% CSA-1000 + 0.20% C-49 + 0.40% C-17 (TOC @ 10,880')                           |

### **Mud Program:**

| Depth                        | Type        | Weight (ppg) | Viscosity | Water Loss |
|------------------------------|-------------|--------------|-----------|------------|
| 0' – 1,230'                  | Fresh - Gel | 8.6-8.8      | 28-34     | N/c        |
| 1,230' – 5,020'              | Brine       | 10.0-10.2    | 28-34     | N/c        |
| 5,020' – 11,380'             | Oil Base    | 8.7-9.4      | 58-68     | N/c - 6    |
| 11,380' – 22,690'<br>Lateral | Oil Base    | 10.0-11.5    | 58-68     | 3 - 6      |