U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

# Sundry Print Report

01/25/2021

**Well Name:** SHIRE 22-15 FED COM

**Well Location:** T25S / R31E / SEC 22 / SWSE / 32.109517 / -103.7631719

**County or Parish/State:** EDDY / NM

**Well Number:** 613H

**Type of Well:** OIL WELL

**Allottee or Tribe Name:**

**Lease Number:** NMNM016131, NMNM16131

**Unit or CA Name:**

**Unit or CA Number:**

**US Well Number:** 3001547328

**Well Status:** Approved Application for Permit to Drill

**Operator:** DEVON ENERGY PRODUCTION COMPANY LP

## Notice of Intent

**Type of Submission:** Notice of Intent

**Type of Action** Deepen Well

**Date Sundry Submitted:** 01/25/2021

**Time Sundry Submitted:** 06:19

**Date proposed operation will begin:** 01/24/2021

**Procedure Description:** Attention Long: Pilot Hole Request Devon Energy Production Co., L.P. (Devon) respectfully requests to run a pilot hole on the subject well. Planned pilot hole TD is 14,198' with our intermediate now being planned to set at 11,798'. We will spot a 450' cement plug from 25' below intermediate casing at 11,823' up to 11,498'. Whole core will be taken in the pilot hole. Please see attachments for drilling/directional plan. Attached is the pilot hole drilling document for the Shire 22-15 Fed Com 613H. Pilot hole/abandonment information is listed under item 9 on page 6.

## Surface Disturbance

**Is any additional surface disturbance proposed?:** No

## NOI Attachments

**Procedure Description**

Shire_22_15_Fed_Com_613H_Directional_Plan_11_13_20_20210125061729.pdf

Sundry_PILOT_HOLE_Drilling_Plan_Shire_22_15_Fed_Com_613H_1_21_21_20210125061729.pdf

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## Conditions of Approval

**Specialist Review**

MB_Wellhd_10M_13.375_8.625_5.5_20210125083853.PDF

10M_BOPE_CHK_DR_CLS_RKL_20210125083853.pdf

Shire_22_15_Fed_Com_613H_Pilot_Hole_Sundry_20210125083853.pdf

MB_Verb_10M_20210125083853.pdf

## Operator Certification

*I certify that the foregoing is true and correct. Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction. Electronic submission of Sundry Notices through this system satisfies regulations requiring a submission of Form 3160-5 or a Sundry Notice.*

**Operator Electronic Signature:** HARMS

**Signed on:** JAN 25, 2021 06:17 AM

**Name:** DEVON ENERGY PRODUCTION COMPANY LP

**Title:** Regulatory Compliance Professional

**Street Address:** 333 WEST SHERIDAN AVE

**City:** OKLAHOMA CITY **State:** OK

**Phone:** (405) 235-3611

**Email address:**

## Field Representative

**Representative Name:**

**Street Address:**

**City:** **State:** **Zip:**

**Phone:**

**Email address:**

## BLM Point of Contact

**BLM POC Name:** Long Vo

**BLM POC Title:** Petroleum Engineer

**BLM POC Phone:** 5752345972

**BLM POC Email Address:** lvo@blm.gov

**Disposition:** Approved

**Disposition Date:** 01/25/2021

**Signature:** Long Vo

# Shire 22-15 Fed Com 613H

## 1. Geologic Formations

| | | | |
|---|---|---|---|
| TVD of target | 11730 | Pilot hole depth | 14,198’ |
| MD at TD: | 22119 | Deepest expected fresh water: | |

**Basin**

| Formation | Depth (TVD) from KB | Water/Mineral Bearing/ Target Zone? | Hazards* |
|---|---|---|---|
| Rustler | 1153 | | |
| Salado | 1453 | | |
| Base of Salt | 4088 | | |
| Delaware | 4318 | | |
| LWR Brushy Canyon | 8013 | | |
| 1st BSPG Lime | 8233 | | |
| 1st BSPG Sand | 9263 | | |
| 2nd BSPG Lime | 9493 | | |
| 2nd BSPG Sand | 9923 | | |
| 3rd BSPG Lime | 10388 | | |
| 3rd BSPG Sand | 11173 | | |
| Wolfcamp | 11623 | | |
| WFMP 100 | 11788 | | |
| WFMP 200 | 12173 | | |
| WFMP 300 | 12593 | | |
| WFMP 400 | 12913 | | |
| UPS | 13573 | | |
| Strawn | 14098 | | |
| PILOT HOLE TD | 14198 | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

*H2S, water flows, loss of circulation, abnormal pressures, etc.

# Shire 22-15 Fed Com 613H

## 2. Casing Program

| Hole Size | Casing Interval | | Csg. Size | Weight (PPF) | Grade | Conn. |
|---|---|---|---|---|---|---|
| | From | To | | | | |
| 17.5” | 0 | 1185 | 13.375” | 48 | H-40 | STC |
| 9.875’’ | 0 | 11798 | 8.625’’ | 32 | P-110 | BTC |
| 7.875” | 0 | TD | 5.5” | 17 | P-110 | BTC |
| BLM Minimum Safety Factor | | | | Collapse: 1.125 | Burst: 1.00 | Tension: 1.6 Dry 1.8 Wet |

- All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h Must have table for contingency casing

## 3. Cementing Program (Primary Design)

| Casing | # Sks | TOC | Wt. (lb/gal) | $H_20$ (gal/sk) | Yld (ft3/sack) | Slurry Description |
|---|---|---|---|---|---|---|
| Surface | 896 | Surf | 13.2 | 6.33 | 1.44 | Lead: Class A/C Cement + additives |
| Int 1 | 580 | Surf | 9 | 20.6 | 3.27 | Lead: Class A/C Cement + additives |
| | 465 | 4000’ above shoe | 13.2 | 6.42 | 1.44 | Tail: Class A/H/C + additives |
| Int 1 Intermediate Squeeze | As Needed | Surf | 14.8 | 4.67 | 1.33 | Squeeze: Class A/H/C + additives |
| Production | 117 | 500’ tieback | 9 | 20.6 | 3.27 | Lead: Class A/H/C + additives |
| | 1438 | KOP | 13.2 | 5.31 | 1.44 | Tail: Class A/H/C + additives |

| Casing String | % Excess |
|---|---|
| Surface | 50% |
| Intermediate | 30% |
| Production | 10% |

**Shire 22-15 Fed Com 613H**

**4. Pressure Control Equipment**

| BOP installed and tested before drilling which hole? | Size? | Min. Required WP | Type | ✓ | Tested to: |
|---|---|---|---|---|---|
| Int 1 | 13-5/8” | 5M | Annular | X | 50% of rated working pressure |
| | | | Blind Ram | X | 5M |
| | | | Pipe Ram | | |
| | | | Double Ram | X | |
| | | | Other* | | |
| Production | 13-5/8” | 5M | Annular | X | 50% of rated working pressure |
| | | | Blind Ram | X | 10M |
| | | | Pipe Ram | | |
| | | | Double Ram | X | |
| | | | Other * | | |
| | | | Annular | | |
| | | | Blind Ram | | |
| | | | Pipe Ram | | |
| | | | Double Ram | | |
| | | | Other * | | |

# Shire 22-15 Fed Com 613H

## 5. Mud Program

| Section | 6. Depth | | Type | Weight (ppg) | Vis | Water Loss |
|---|---|---|---|---|---|---|
| | From | To | | | | |
| Surface | 0 | 1,390 | FW | 8.5 – 9.0 | 28-34 | N/C |
| Intermediate | 1,390 | 11,798 | Brine/DBE | 9 – 10.5 | 28-34 | N/C |
| Pilot | 11,798 | 14,198 | WBM | 13 - 15 | 50-70 | 15 |
| Production | 11,111 | TD | OBM | 10-11 | 28-34 | N/C |

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

| | |
|---|---|
| What will be used to monitor the loss or gain of fluid? | PVT/Pason/Visual Monitoring |

## 6. Logging and Testing Procedures

| Logging, Coring and Testing. | |
|---|---|
| X | Will run GR/CNL from TD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM. |
| | No Logs are planned based on well control or offset log information. |
| | Drill stem test? If yes, explain |
| X | Coring? If yes, explain<br>Whole Core will be taken in the Pilot Hole. |

| Additional logs planned | | Interval |
|---|---|---|
| X | Resistivity | Intermediate & Pilot Hole |
| X | Density | Intermediate & Pilot Hole |
| X | CBL | Production casing |
| X | Mud log | Intermediate Shoe to TD |
| | | |

## 7. Drilling Conditions

| Condition | Specify what type and where? |
|---|---|
| BH Pressure at deepest TVD | 6879 psi |
| Abnormal Temperature | No |

Mitigation measure for abnormal conditions. Describe. Lost circulation material/sweeps/mud scavengers.

| Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM. | |
|---|---|
| N | H2S is present |
| Y | H2S Plan attached |

# Shire 22-15 Fed Com 613H

## 8. Other facets of operation

Is this a walking operation? Potentially

1. If operator elects, drilling rig will batch drill the surface holes and run/cement surface casing; walking the rig to next wells on the pad.
2. The drilling rig will then batch drill the intermediate sections and run/cement intermediate casing; the wellbore will be isolated with a blind flange and pressure gauge installed for monitoring the well before walking to the next well.
3. The drilling rig will then batch drill the production hole sections on the wells with OBM, run/cement production casing, and install TA caps or tubing heads for completions.

NOTE: During batch operations the drilling rig will be moved from well to well however, it will not be removed from the pad until all wells have production casing run/cemented.

Will be pre-setting casing? Potentially

1. Spudder rig will move in and drill surface hole.
    a. Rig will utilize fresh water based mud to drill surface hole to TD. Solids control will be handled entirely on a closed loop basis.
2. After drilling the surface hole section, the spudder rig will run casing and cement following all of the applicable rules and regulations (OnShore Order 2, all COAs and NMOCD regulations).
3. The wellhead will be installed and tested once the surface casing is cut off and the WOC time has been reached.
4. A blind flange with the same pressure rating as the wellhead will be installed to seal the wellbore. Pressure will be monitored with a pressure gauge installed on the wellhead.
5. Spudder rig operations is expected to take 4-5 days per well on a multi well pad.
6. The NMOCD will be contacted and notified 24 hours prior to commencing spudder rig operations.
7. Drilling operations will be performed with the drilling rig. At that time an approved BOP stack will be nippled up and tested on the wellhead before drilling operations commences on each well.
    a. The NMOCD will be contacted / notified 24 hours before the drilling rig moves back on to the pad with the pre-set surface casing.

Attachments

_x_ Directional Plan

___ Other, describe

# Shire 22-15 Fed Com 613H

## 9. Pilot Hole

| Hole Size 7 7/8” | |
|---|---|
| **From** | **To** |
| 11,798 (Pilot Begin) | 14,198 (Pilot end) |

- Pilot hole will be plugged back per NMOCD P&A requirements with a **cement plug**.
- Plug depths will be verified and tagged on the plug back.
- Devon will contact the NMOCD and give notice before performing any of the aforementioned procedures including the tagging of the cement plug.

| **PILOT HOLE ABDMNT:** | |
|---|---|
| **Intermediate ABDMNT plug** | |
| Slurry Top: | 11,373 |
| Slurry Base: | 11,848 |
| Slurry Weight: | 15.6 |
| Cement Plug Height: | 475’ |
| **Strawn ABDMNT plug** | |
| Slurry Top: | 13,798 |
| Slurry Base: | 14,148 |
| Slurry Weight: | 15.6 |
| Cement Plug Height: | 350’ |
| **BP/Whipstock Set Depths** | |
| BP Set Depth | 11,121 |
| WHIP WINDOW | 11,111-11,121 |

| | TOC | Wt. (lb/gal) | $H_20$ (gal/sk) | Sacks | Yld (ft3/sack) | Slurry Description |
|---|---|---|---|---|---|---|
| Abandonment Plug (8.625” Casing Shoe) | 11,373 | 15.6 | 5.24 | 136 | 1.18 | • Lead: Class H Cement + Retarder – HR-601 – 0.1% BWOC<br>• Suspension Agent – SA-1015 – 0.05% BWOC<br>• Fluid Loss Additive – Halad-322 – 0.5% BWOC |

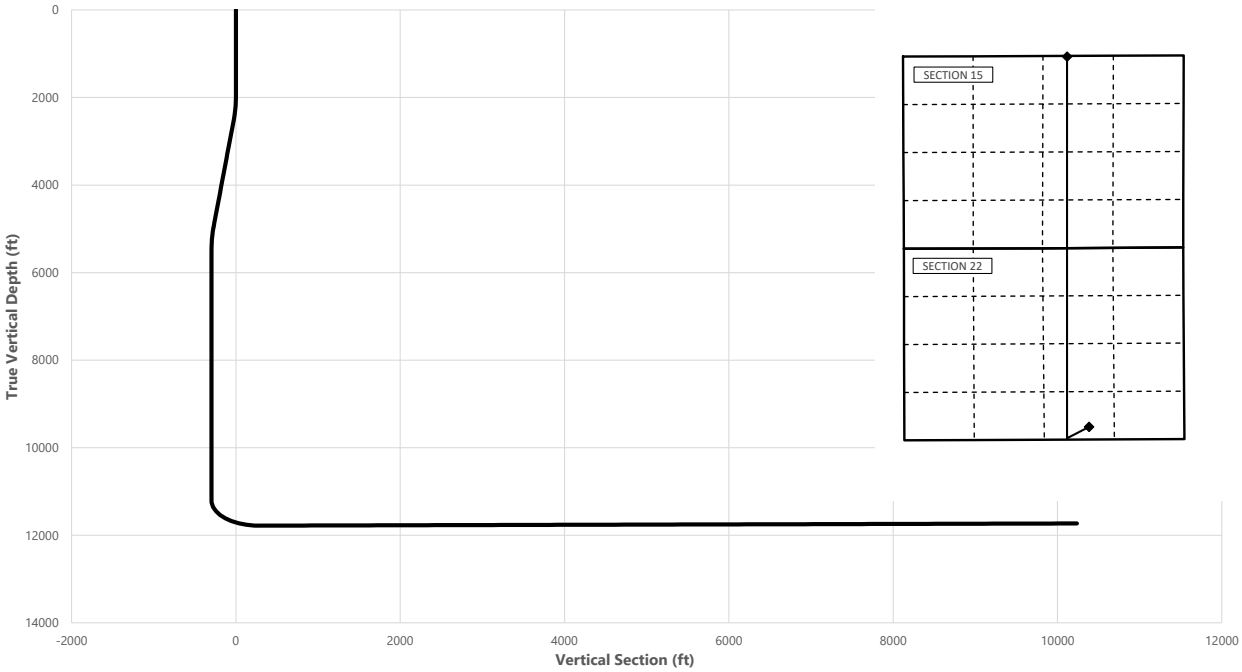
| | TOC | Wt. (lb/gal) | $H_20$ (gal/sk) | Sacks | Yld (ft3/sack) | Slurry Description |
|---|---|---|---|---|---|---|
| Abandonment Plug (Strawn Top) | 13,798 | 15.6 | 5.24 | 100 | 1.18 | • Lead: Class H Cement + Retarder – HR-601 – 0.1% BWOC<br>• Suspension Agent – SA-1015 – 0.05% BWOC<br>• Fluid Loss Additive – Halad-322 – 0.5% BWOC |

**Shire 22-15 Fed Com 613H**

**Well:** Shire 22-15 Fed Com 613H
**County:** Eddy
**Wellbore:** Permit Plan
**Design:** Permit Plan #1

**Geodetic System:** US State Plane 1983
**Datum:** North American Datum 1927
**Ellipsoid:** Clarke 1866
**Zone:** 3001 - NM East (NAD83)

| MD (ft) | INC (°) | AZI (°) | TVD (ft) | NS (ft) | EW (ft) | VS (ft) | DLS (°/100ft) | Comment |
|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | SHL |
| 2000.00 | 0.00 | 233.00 | 2000.00 | 0.00 | 0.00 | 0.00 | 0.00 | Start Tangent |
| 2500.00 | 10.00 | 233.00 | 2497.47 | -26.19 | -34.76 | -24.76 | 1.00 | Hold Tangent |
| 5004.19 | 10.00 | 233.00 | 4963.61 | -287.89 | -382.04 | -272.10 | 0.00 | Drop to Vertical |
| 5504.19 | 0.00 | 233.00 | 5461.08 | -314.08 | -416.80 | -296.85 | 2.00 | Hold Vertical |
| 11250.16 | 0.00 | 0.00 | 11207.05 | -314.08 | -416.80 | -296.85 | 0.00 | KOP |
| 12153.04 | 90.29 | 0.00 | 11780.00 | 261.75 | -416.80 | 278.50 | 10.00 | Landing Point |
| 22118.87 | 90.29 | 0.00 | 11730.00 | 10227.45 | -416.80 | 10235.94 | 0.00 | BHL |




| Key Depths | MD (ft) | TVD (ft) |
|---|---|---|
| Rustler | 0.00 | 0.00 |
| Salt | 1460.00 | 1460.00 |
| Base of Salt | 4360.80 | 4330.00 |
| Cherry Canyon | 5338.02 | 5295.00 |
| Brushy Canyon | 6693.11 | 6650.00 |
| 1st Bone Spring Lime | 8293.11 | 8250.00 |
| 1st Bone Spring Sand | 9373.11 | 9330.00 |
| Bone Spring 2nd | 9993.11 | 9950.00 |
| 3rd Bone Spring Lime | 10483.11 | 10440.00 |
| Bone Spring 3rd | 11258.11 | 11215.00 |
| Wolfcamp / Point of Penetration | 11789.17 | 11670.00 |
| EXIT | 22038.87 | 11730.41 |

| | MD (ft) | TVD (ft) | Lat (°) | Long (°) | Section Footages |
|---|---|---|---|---|---|
| **SHL** | 0.00 | 0.00 | 32.1094 | -103.7633 | 350' FSL, 1805' FEL of Sec 22 in T25S, R31E |
| **KOP** | 11250.16 | 11207.05 | 32.1085 | -103.7646 | 39' FSL, 2210' FEL of Sec 22 in T25S, R31E |
| **Point of Penetration** | 11789.17 | 11670.00 | 32.1088 | -103.7645 | 100' FSL, 2210' FEL of Sec 22 in T25S, R31E |
| **Exit** | 22038.87 | 11730.41 | 32.1374 | -103.7644 | 100' FNL, 2210' FEL of Sec 15 in T25S, R31E |
| **BHL** | 22118.87 | 11730.00 | 32.1375 | -103.7644 | 20' FNL, 2210' FEL of Sec 15 in T25S, R31E |

devon

**Well:** Shire 22-15 Fed Com 613H
**County:** Eddy
**Wellbore:** Permit Plan
**Design:** Permit Plan #1

**Geodetic System:** US State Plane 1983
**Datum:** North American Datum 1927
**Ellipsoid:** Clarke 1866
**Zone:** 3001 - NM East (NAD83)

| MD (ft) | INC (°) | AZI (°) | TVD (ft) | NS (ft) | EW (ft) | VS (ft) | DLS (°/100ft) | Comment |
|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | SHL |
| 100.00 | 0.00 | 233.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 200.00 | 0.00 | 233.00 | 200.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 300.00 | 0.00 | 233.00 | 300.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 400.00 | 0.00 | 233.00 | 400.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 500.00 | 0.00 | 233.00 | 500.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 600.00 | 0.00 | 233.00 | 600.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 700.00 | 0.00 | 233.00 | 700.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 800.00 | 0.00 | 233.00 | 800.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 900.00 | 0.00 | 233.00 | 900.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1000.00 | 0.00 | 233.00 | 1000.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1100.00 | 0.00 | 233.00 | 1100.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1160.00 | 0.00 | 233.00 | 1160.00 | 0.00 | 0.00 | 0.00 | 0.00 | Rustler |
| 1200.00 | 0.00 | 233.00 | 1200.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1300.00 | 0.00 | 233.00 | 1300.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1400.00 | 0.00 | 233.00 | 1400.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1460.00 | 0.00 | 233.00 | 1460.00 | 0.00 | 0.00 | 0.00 | 0.00 | Salt |
| 1500.00 | 0.00 | 233.00 | 1500.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1600.00 | 0.00 | 233.00 | 1600.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1700.00 | 0.00 | 233.00 | 1700.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1800.00 | 0.00 | 233.00 | 1800.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1900.00 | 0.00 | 233.00 | 1900.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 2000.00 | 0.00 | 233.00 | 2000.00 | 0.00 | 0.00 | 0.00 | 0.00 | Start Tangent |
| 2100.00 | 2.00 | 233.00 | 2099.98 | -1.05 | -1.39 | -0.99 | 2.00 | |
| 2200.00 | 4.00 | 233.00 | 2199.84 | -4.20 | -5.57 | -3.97 | 2.00 | |
| 2300.00 | 6.00 | 233.00 | 2299.45 | -9.44 | -12.53 | -8.93 | 2.00 | |
| 2400.00 | 8.00 | 233.00 | 2398.70 | -16.78 | -22.27 | -15.86 | 2.00 | |
| 2500.00 | 10.00 | 233.00 | 2497.47 | -26.19 | -34.76 | -24.76 | 1.00 | Hold Tangent |
| 2600.00 | 10.00 | 233.00 | 2595.95 | -36.64 | -48.63 | -34.63 | 0.00 | |
| 2700.00 | 10.00 | 233.00 | 2694.43 | -47.09 | -62.49 | -44.51 | 0.00 | |
| 2800.00 | 10.00 | 233.00 | 2792.91 | -57.54 | -76.36 | -54.39 | 0.00 | |
| 2900.00 | 10.00 | 233.00 | 2891.39 | -67.99 | -90.23 | -64.26 | 0.00 | |
| 3000.00 | 10.00 | 233.00 | 2989.87 | -78.44 | -104.10 | -74.14 | 0.00 | |
| 3100.00 | 10.00 | 233.00 | 3088.35 | -88.90 | -117.97 | -84.02 | 0.00 | |
| 3200.00 | 10.00 | 233.00 | 3186.83 | -99.35 | -131.84 | -93.89 | 0.00 | |
| 3300.00 | 10.00 | 233.00 | 3285.31 | -109.80 | -145.70 | -103.77 | 0.00 | |
| 3400.00 | 10.00 | 233.00 | 3383.79 | -120.25 | -159.57 | -113.65 | 0.00 | |
| 3500.00 | 10.00 | 233.00 | 3482.27 | -130.70 | -173.44 | -123.53 | 0.00 | |
| 3600.00 | 10.00 | 233.00 | 3580.75 | -141.15 | -187.31 | -133.40 | 0.00 | |
| 3700.00 | 10.00 | 233.00 | 3679.23 | -151.60 | -201.18 | -143.28 | 0.00 | |
| 3800.00 | 10.00 | 233.00 | 3777.72 | -162.05 | -215.04 | -153.16 | 0.00 | |
| 3900.00 | 10.00 | 233.00 | 3876.20 | -172.50 | -228.91 | -163.03 | 0.00 | |
| 4000.00 | 10.00 | 233.00 | 3974.68 | -182.95 | -242.78 | -172.91 | 0.00 | |
| 4100.00 | 10.00 | 233.00 | 4073.16 | -193.40 | -256.65 | -182.79 | 0.00 | |
| 4200.00 | 10.00 | 233.00 | 4171.64 | -203.85 | -270.52 | -192.67 | 0.00 | |
| 4300.00 | 10.00 | 233.00 | 4270.12 | -214.30 | -284.38 | -202.54 | 0.00 | |
| 4360.80 | 10.00 | 233.00 | 4330.00 | -220.65 | -292.82 | -208.55 | 0.00 | Base of Salt |
| 4400.00 | 10.00 | 233.00 | 4368.60 | -224.75 | -298.25 | -212.42 | 0.00 | |
| 4500.00 | 10.00 | 233.00 | 4467.08 | -235.20 | -312.12 | -222.30 | 0.00 | |
| 4600.00 | 10.00 | 233.00 | 4565.56 | -245.65 | -325.99 | -232.17 | 0.00 | |
| 4700.00 | 10.00 | 233.00 | 4664.04 | -256.10 | -339.86 | -242.05 | 0.00 | |
| 4800.00 | 10.00 | 233.00 | 4762.52 | -266.55 | -353.73 | -251.93 | 0.00 | |
| 4900.00 | 10.00 | 233.00 | 4861.00 | -277.00 | -367.59 | -261.80 | 0.00 | |
| 5000.00 | 10.00 | 233.00 | 4959.48 | -287.45 | -381.46 | -271.68 | 0.00 | |
| 5004.19 | 10.00 | 233.00 | 4963.61 | -287.89 | -382.04 | -272.10 | 0.00 | Drop to Vertical |
| 5100.00 | 8.08 | 233.00 | 5058.23 | -296.95 | -394.07 | -280.66 | 2.00 | |
| 5200.00 | 6.08 | 233.00 | 5157.46 | -304.37 | -403.92 | -287.67 | 2.00 | |
| 5300.00 | 4.08 | 233.00 | 5257.06 | -309.71 | -410.99 | -292.71 | 2.00 | |
| 5338.02 | 3.32 | 233.00 | 5295.00 | -311.18 | -412.95 | -294.11 | 2.00 | Cherry Canyon |
| 5400.00 | 2.08 | 233.00 | 5356.91 | -312.94 | -415.29 | -295.77 | 2.00 | |
| 5500.00 | 0.08 | 233.00 | 5456.89 | -314.08 | -416.80 | -296.85 | 2.00 | |
| 5504.19 | 0.00 | 233.00 | 5461.08 | -314.08 | -416.80 | -296.85 | 2.00 | Hold Vertical |
| 5600.00 | 0.00 | 0.00 | 5556.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 5700.00 | 0.00 | 0.00 | 5656.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 5800.00 | 0.00 | 0.00 | 5756.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 5900.00 | 0.00 | 0.00 | 5856.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 6000.00 | 0.00 | 0.00 | 5956.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 6100.00 | 0.00 | 0.00 | 6056.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 6200.00 | 0.00 | 0.00 | 6156.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 6300.00 | 0.00 | 0.00 | 6256.89 | -314.08 | -416.80 | -296.85 | 0.00 | |

devon

**Well:** Shire 22-15 Fed Com 613H
**County:** Eddy
**Wellbore:** Permit Plan
**Design:** Permit Plan #1

**Geodetic System:** US State Plane 1983
**Datum:** North American Datum 1927
**Ellipsoid:** Clarke 1866
**Zone:** 3001 - NM East (NAD83)

| MD (ft) | INC (°) | AZI (°) | TVD (ft) | NS (ft) | EW (ft) | VS (ft) | DLS (°/100ft) | Comment |
|---|---|---|---|---|---|---|---|---|
| 6400.00 | 0.00 | 0.00 | 6356.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 6500.00 | 0.00 | 0.00 | 6456.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 6600.00 | 0.00 | 0.00 | 6556.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 6693.11 | 0.00 | 0.00 | 6650.00 | -314.08 | -416.80 | -296.85 | 0.00 | Brushy Canyon |
| 6700.00 | 0.00 | 0.00 | 6656.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 6800.00 | 0.00 | 0.00 | 6756.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 6900.00 | 0.00 | 0.00 | 6856.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 7000.00 | 0.00 | 0.00 | 6956.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 7100.00 | 0.00 | 0.00 | 7056.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 7200.00 | 0.00 | 0.00 | 7156.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 7300.00 | 0.00 | 0.00 | 7256.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 7400.00 | 0.00 | 0.00 | 7356.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 7500.00 | 0.00 | 0.00 | 7456.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 7600.00 | 0.00 | 0.00 | 7556.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 7700.00 | 0.00 | 0.00 | 7656.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 7800.00 | 0.00 | 0.00 | 7756.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 7900.00 | 0.00 | 0.00 | 7856.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 8000.00 | 0.00 | 0.00 | 7956.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 8100.00 | 0.00 | 0.00 | 8056.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 8200.00 | 0.00 | 0.00 | 8156.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 8293.11 | 0.00 | 0.00 | 8250.00 | -314.08 | -416.80 | -296.85 | 0.00 | 1st Bone Spring Lime |
| 8300.00 | 0.00 | 0.00 | 8256.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 8400.00 | 0.00 | 0.00 | 8356.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 8500.00 | 0.00 | 0.00 | 8456.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 8600.00 | 0.00 | 0.00 | 8556.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 8700.00 | 0.00 | 0.00 | 8656.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 8800.00 | 0.00 | 0.00 | 8756.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 8900.00 | 0.00 | 0.00 | 8856.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 9000.00 | 0.00 | 0.00 | 8956.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 9100.00 | 0.00 | 0.00 | 9056.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 9200.00 | 0.00 | 0.00 | 9156.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 9300.00 | 0.00 | 0.00 | 9256.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 9373.11 | 0.00 | 0.00 | 9330.00 | -314.08 | -416.80 | -296.85 | 0.00 | 1st Bone Spring Sand |
| 9400.00 | 0.00 | 0.00 | 9356.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 9500.00 | 0.00 | 0.00 | 9456.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 9600.00 | 0.00 | 0.00 | 9556.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 9700.00 | 0.00 | 0.00 | 9656.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 9800.00 | 0.00 | 0.00 | 9756.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 9900.00 | 0.00 | 0.00 | 9856.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 9993.11 | 0.00 | 0.00 | 9950.00 | -314.08 | -416.80 | -296.85 | 0.00 | Bone Spring 2nd |
| 10000.00 | 0.00 | 0.00 | 9956.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 10100.00 | 0.00 | 0.00 | 10056.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 10200.00 | 0.00 | 0.00 | 10156.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 10300.00 | 0.00 | 0.00 | 10256.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 10400.00 | 0.00 | 0.00 | 10356.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 10483.11 | 0.00 | 0.00 | 10440.00 | -314.08 | -416.80 | -296.85 | 0.00 | 3rd Bone Spring Lime |
| 10500.00 | 0.00 | 0.00 | 10456.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 10600.00 | 0.00 | 0.00 | 10556.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 10700.00 | 0.00 | 0.00 | 10656.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 10800.00 | 0.00 | 0.00 | 10756.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 10900.00 | 0.00 | 0.00 | 10856.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 11000.00 | 0.00 | 0.00 | 10956.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 11100.00 | 0.00 | 0.00 | 11056.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 11200.00 | 0.00 | 0.00 | 11156.89 | -314.08 | -416.80 | -296.85 | 0.00 | |
| 11250.16 | 0.00 | 0.00 | 11207.05 | -314.08 | -416.80 | -296.85 | 0.00 | KOP |
| 11258.11 | 0.80 | 0.00 | 11215.00 | -314.03 | -416.80 | -296.80 | 10.00 | Bone Spring 3rd |
| 11300.00 | 4.98 | 0.00 | 11256.82 | -311.92 | -416.80 | -294.69 | 10.00 | |
| 11400.00 | 14.98 | 0.00 | 11355.18 | -294.60 | -416.80 | -277.39 | 10.00 | |
| 11500.00 | 24.98 | 0.00 | 11449.04 | -260.47 | -416.80 | -243.28 | 10.00 | |
| 11600.00 | 34.98 | 0.00 | 11535.55 | -210.56 | -416.80 | -193.41 | 10.00 | |
| 11700.00 | 44.98 | 0.00 | 11612.08 | -146.38 | -416.80 | -129.29 | 10.00 | |
| 11789.17 | 53.90 | 0.00 | 11670.00 | -78.70 | -416.80 | -61.66 | 10.00 | Wolfcamp / Point of Penetration |
| 11800.00 | 54.98 | 0.00 | 11676.30 | -69.89 | -416.80 | -52.86 | 10.00 | |
| 11900.00 | 64.98 | 0.00 | 11726.26 | 16.58 | -416.80 | 33.54 | 10.00 | |
| 12000.00 | 74.98 | 0.00 | 11760.44 | 110.42 | -416.80 | 127.31 | 10.00 | |
| 12100.00 | 84.98 | 0.00 | 11777.81 | 208.78 | -416.80 | 225.57 | 10.00 | |
| 12153.04 | 90.29 | 0.00 | 11780.00 | 261.75 | -416.80 | 278.50 | 10.00 | Landing Point |
| 12200.00 | 90.29 | 0.00 | 11779.76 | 308.71 | -416.80 | 325.43 | 0.00 | |
| 12300.00 | 90.29 | 0.00 | 11779.26 | 408.71 | -416.80 | 425.34 | 0.00 | |
| 12400.00 | 90.29 | 0.00 | 11778.76 | 508.71 | -416.80 | 525.26 | 0.00 | |

devon

**Well:** Shire 22-15 Fed Com 613H
**County:** Eddy
**Wellbore:** Permit Plan
**Design:** Permit Plan #1

**Geodetic System:** US State Plane 1983
**Datum:** North American Datum 1927
**Ellipsoid:** Clarke 1866
**Zone:** 3001 - NM East (NAD83)

| MD (ft) | INC (°) | AZI (°) | TVD (ft) | NS (ft) | EW (ft) | VS (ft) | DLS (°/100ft) | Comment |
|---|---|---|---|---|---|---|---|---|
| 12500.00 | 90.29 | 0.00 | 11778.26 | 608.71 | -416.80 | 625.17 | 0.00 | |
| 12600.00 | 90.29 | 0.00 | 11777.76 | 708.71 | -416.80 | 725.09 | 0.00 | |
| 12700.00 | 90.29 | 0.00 | 11777.26 | 808.70 | -416.80 | 825.01 | 0.00 | |
| 12800.00 | 90.29 | 0.00 | 11776.75 | 908.70 | -416.80 | 924.92 | 0.00 | |
| 12900.00 | 90.29 | 0.00 | 11776.25 | 1008.70 | -416.80 | 1024.84 | 0.00 | |
| 13000.00 | 90.29 | 0.00 | 11775.75 | 1108.70 | -416.80 | 1124.75 | 0.00 | |
| 13100.00 | 90.29 | 0.00 | 11775.25 | 1208.70 | -416.80 | 1224.67 | 0.00 | |
| 13200.00 | 90.29 | 0.00 | 11774.75 | 1308.70 | -416.80 | 1324.59 | 0.00 | |
| 13300.00 | 90.29 | 0.00 | 11774.25 | 1408.70 | -416.80 | 1424.50 | 0.00 | |
| 13400.00 | 90.29 | 0.00 | 11773.75 | 1508.70 | -416.80 | 1524.42 | 0.00 | |
| 13500.00 | 90.29 | 0.00 | 11773.24 | 1608.69 | -416.80 | 1624.33 | 0.00 | |
| 13600.00 | 90.29 | 0.00 | 11772.74 | 1708.69 | -416.80 | 1724.25 | 0.00 | |
| 13700.00 | 90.29 | 0.00 | 11772.24 | 1808.69 | -416.80 | 1824.16 | 0.00 | |
| 13800.00 | 90.29 | 0.00 | 11771.74 | 1908.69 | -416.80 | 1924.08 | 0.00 | |
| 13900.00 | 90.29 | 0.00 | 11771.24 | 2008.69 | -416.80 | 2024.00 | 0.00 | |
| 14000.00 | 90.29 | 0.00 | 11770.74 | 2108.69 | -416.80 | 2123.91 | 0.00 | |
| 14100.00 | 90.29 | 0.00 | 11770.23 | 2208.69 | -416.80 | 2223.83 | 0.00 | |
| 14200.00 | 90.29 | 0.00 | 11769.73 | 2308.69 | -416.80 | 2323.74 | 0.00 | |
| 14300.00 | 90.29 | 0.00 | 11769.23 | 2408.68 | -416.80 | 2423.66 | 0.00 | |
| 14400.00 | 90.29 | 0.00 | 11768.73 | 2508.68 | -416.80 | 2523.58 | 0.00 | |
| 14500.00 | 90.29 | 0.00 | 11768.23 | 2608.68 | -416.80 | 2623.49 | 0.00 | |
| 14600.00 | 90.29 | 0.00 | 11767.73 | 2708.68 | -416.80 | 2723.41 | 0.00 | |
| 14700.00 | 90.29 | 0.00 | 11767.22 | 2808.68 | -416.80 | 2823.32 | 0.00 | |
| 14800.00 | 90.29 | 0.00 | 11766.72 | 2908.68 | -416.80 | 2923.24 | 0.00 | |
| 14900.00 | 90.29 | 0.00 | 11766.22 | 3008.68 | -416.80 | 3023.15 | 0.00 | |
| 15000.00 | 90.29 | 0.00 | 11765.72 | 3108.68 | -416.80 | 3123.07 | 0.00 | |
| 15100.00 | 90.29 | 0.00 | 11765.22 | 3208.67 | -416.80 | 3222.99 | 0.00 | |
| 15200.00 | 90.29 | 0.00 | 11764.72 | 3308.67 | -416.80 | 3322.90 | 0.00 | |
| 15300.00 | 90.29 | 0.00 | 11764.22 | 3408.67 | -416.80 | 3422.82 | 0.00 | |
| 15400.00 | 90.29 | 0.00 | 11763.71 | 3508.67 | -416.80 | 3522.73 | 0.00 | |
| 15500.00 | 90.29 | 0.00 | 11763.21 | 3608.67 | -416.80 | 3622.65 | 0.00 | |
| 15600.00 | 90.29 | 0.00 | 11762.71 | 3708.67 | -416.80 | 3722.56 | 0.00 | |
| 15700.00 | 90.29 | 0.00 | 11762.21 | 3808.67 | -416.80 | 3822.48 | 0.00 | |
| 15800.00 | 90.29 | 0.00 | 11761.71 | 3908.67 | -416.80 | 3922.40 | 0.00 | |
| 15900.00 | 90.29 | 0.00 | 11761.21 | 4008.66 | -416.80 | 4022.31 | 0.00 | |
| 16000.00 | 90.29 | 0.00 | 11760.70 | 4108.66 | -416.80 | 4122.23 | 0.00 | |
| 16100.00 | 90.29 | 0.00 | 11760.20 | 4208.66 | -416.80 | 4222.14 | 0.00 | |
| 16200.00 | 90.29 | 0.00 | 11759.70 | 4308.66 | -416.80 | 4322.06 | 0.00 | |
| 16300.00 | 90.29 | 0.00 | 11759.20 | 4408.66 | -416.80 | 4421.98 | 0.00 | |
| 16400.00 | 90.29 | 0.00 | 11758.70 | 4508.66 | -416.80 | 4521.89 | 0.00 | |
| 16500.00 | 90.29 | 0.00 | 11758.20 | 4608.66 | -416.80 | 4621.81 | 0.00 | |
| 16600.00 | 90.29 | 0.00 | 11757.69 | 4708.66 | -416.80 | 4721.72 | 0.00 | |
| 16700.00 | 90.29 | 0.00 | 11757.19 | 4808.65 | -416.80 | 4821.64 | 0.00 | |
| 16800.00 | 90.29 | 0.00 | 11756.69 | 4908.65 | -416.80 | 4921.55 | 0.00 | |
| 16900.00 | 90.29 | 0.00 | 11756.19 | 5008.65 | -416.80 | 5021.47 | 0.00 | |
| 17000.00 | 90.29 | 0.00 | 11755.69 | 5108.65 | -416.80 | 5121.39 | 0.00 | |
| 17100.00 | 90.29 | 0.00 | 11755.19 | 5208.65 | -416.80 | 5221.30 | 0.00 | |
| 17200.00 | 90.29 | 0.00 | 11754.69 | 5308.65 | -416.80 | 5321.22 | 0.00 | |
| 17300.00 | 90.29 | 0.00 | 11754.18 | 5408.65 | -416.80 | 5421.13 | 0.00 | |
| 17400.00 | 90.29 | 0.00 | 11753.68 | 5508.65 | -416.80 | 5521.05 | 0.00 | |
| 17500.00 | 90.29 | 0.00 | 11753.18 | 5608.64 | -416.80 | 5620.96 | 0.00 | |
| 17600.00 | 90.29 | 0.00 | 11752.68 | 5708.64 | -416.80 | 5720.88 | 0.00 | |
| 17700.00 | 90.29 | 0.00 | 11752.18 | 5808.64 | -416.80 | 5820.80 | 0.00 | |
| 17800.00 | 90.29 | 0.00 | 11751.68 | 5908.64 | -416.80 | 5920.71 | 0.00 | |
| 17900.00 | 90.29 | 0.00 | 11751.17 | 6008.64 | -416.80 | 6020.63 | 0.00 | |
| 18000.00 | 90.29 | 0.00 | 11750.67 | 6108.64 | -416.80 | 6120.54 | 0.00 | |
| 18100.00 | 90.29 | 0.00 | 11750.17 | 6208.64 | -416.80 | 6220.46 | 0.00 | |
| 18200.00 | 90.29 | 0.00 | 11749.67 | 6308.64 | -416.80 | 6320.38 | 0.00 | |
| 18300.00 | 90.29 | 0.00 | 11749.17 | 6408.63 | -416.80 | 6420.29 | 0.00 | |
| 18400.00 | 90.29 | 0.00 | 11748.67 | 6508.63 | -416.80 | 6520.21 | 0.00 | |
| 18500.00 | 90.29 | 0.00 | 11748.16 | 6608.63 | -416.80 | 6620.12 | 0.00 | |
| 18600.00 | 90.29 | 0.00 | 11747.66 | 6708.63 | -416.80 | 6720.04 | 0.00 | |
| 18700.00 | 90.29 | 0.00 | 11747.16 | 6808.63 | -416.80 | 6819.95 | 0.00 | |
| 18800.00 | 90.29 | 0.00 | 11746.66 | 6908.63 | -416.80 | 6919.87 | 0.00 | |
| 18900.00 | 90.29 | 0.00 | 11746.16 | 7008.63 | -416.80 | 7019.79 | 0.00 | |
| 19000.00 | 90.29 | 0.00 | 11745.66 | 7108.63 | -416.80 | 7119.70 | 0.00 | |
| 19100.00 | 90.29 | 0.00 | 11745.16 | 7208.62 | -416.80 | 7219.62 | 0.00 | |
| 19200.00 | 90.29 | 0.00 | 11744.65 | 7308.62 | -416.80 | 7319.53 | 0.00 | |
| 19300.00 | 90.29 | 0.00 | 11744.15 | 7408.62 | -416.80 | 7419.45 | 0.00 | |
| 19400.00 | 90.29 | 0.00 | 11743.65 | 7508.62 | -416.80 | 7519.37 | 0.00 | |

devon

**Well:** Shire 22-15 Fed Com 613H
**County:** Eddy
**Wellbore:** Permit Plan
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**Geodetic System:** US State Plane 1983
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**Zone:** 3001 - NM East (NAD83)

| MD (ft) | INC (°) | AZI (°) | TVD (ft) | NS (ft) | EW (ft) | VS (ft) | DLS (°/100ft) | Comment |
|---|---|---|---|---|---|---|---|---|
| 19500.00 | 90.29 | 0.00 | 11743.15 | 7608.62 | -416.80 | 7619.28 | 0.00 | |
| 19600.00 | 90.29 | 0.00 | 11742.65 | 7708.62 | -416.80 | 7719.20 | 0.00 | |
| 19700.00 | 90.29 | 0.00 | 11742.15 | 7808.62 | -416.80 | 7819.11 | 0.00 | |
| 19800.00 | 90.29 | 0.00 | 11741.64 | 7908.62 | -416.80 | 7919.03 | 0.00 | |
| 19900.00 | 90.29 | 0.00 | 11741.14 | 8008.61 | -416.80 | 8018.94 | 0.00 | |
| 20000.00 | 90.29 | 0.00 | 11740.64 | 8108.61 | -416.80 | 8118.86 | 0.00 | |
| 20100.00 | 90.29 | 0.00 | 11740.14 | 8208.61 | -416.80 | 8218.78 | 0.00 | |
| 20200.00 | 90.29 | 0.00 | 11739.64 | 8308.61 | -416.80 | 8318.69 | 0.00 | |
| 20300.00 | 90.29 | 0.00 | 11739.14 | 8408.61 | -416.80 | 8418.61 | 0.00 | |
| 20400.00 | 90.29 | 0.00 | 11738.63 | 8508.61 | -416.80 | 8518.52 | 0.00 | |
| 20500.00 | 90.29 | 0.00 | 11738.13 | 8608.61 | -416.80 | 8618.44 | 0.00 | |
| 20600.00 | 90.29 | 0.00 | 11737.63 | 8708.61 | -416.80 | 8718.35 | 0.00 | |
| 20700.00 | 90.29 | 0.00 | 11737.13 | 8808.60 | -416.80 | 8818.27 | 0.00 | |
| 20800.00 | 90.29 | 0.00 | 11736.63 | 8908.60 | -416.80 | 8918.19 | 0.00 | |
| 20900.00 | 90.29 | 0.00 | 11736.13 | 9008.60 | -416.80 | 9018.10 | 0.00 | |
| 21000.00 | 90.29 | 0.00 | 11735.63 | 9108.60 | -416.80 | 9118.02 | 0.00 | |
| 21100.00 | 90.29 | 0.00 | 11735.12 | 9208.60 | -416.80 | 9217.93 | 0.00 | |
| 21200.00 | 90.29 | 0.00 | 11734.62 | 9308.60 | -416.80 | 9317.85 | 0.00 | |
| 21300.00 | 90.29 | 0.00 | 11734.12 | 9408.60 | -416.80 | 9417.77 | 0.00 | |
| 21400.00 | 90.29 | 0.00 | 11733.62 | 9508.60 | -416.80 | 9517.68 | 0.00 | |
| 21500.00 | 90.29 | 0.00 | 11733.12 | 9608.59 | -416.80 | 9617.60 | 0.00 | |
| 21600.00 | 90.29 | 0.00 | 11732.62 | 9708.59 | -416.80 | 9717.51 | 0.00 | |
| 21700.00 | 90.29 | 0.00 | 11732.11 | 9808.59 | -416.80 | 9817.43 | 0.00 | |
| 21800.00 | 90.29 | 0.00 | 11731.61 | 9908.59 | -416.80 | 9917.34 | 0.00 | |
| 21900.00 | 90.29 | 0.00 | 11731.11 | 10008.59 | -416.80 | 10017.26 | 0.00 | |
| 22000.00 | 90.29 | 0.00 | 11730.61 | 10108.59 | -416.80 | 10117.18 | 0.00 | |
| 22038.87 | 90.29 | 0.00 | 11730.41 | 10147.46 | -416.80 | 10156.01 | 0.00 | EXIT |
| 22100.00 | 90.29 | 0.00 | 11730.11 | 10208.59 | -416.80 | 10217.09 | 0.00 | |
| 22118.87 | 90.29 | 0.00 | 11730.00 | 10227.45 | -416.80 | 10235.94 | 0.00 | BHL |

# PECOS DISTRICT
# DRILLING CONDITIONS OF APPROVAL

| | |
|---|---|
| **OPERATOR'S NAME:** | **Devon Energy Production Company LP** |
| **LEASE NO.:** | **NMNM016131** |
| **WELL NAME & NO.:** | Shire 22-15 Fed Com 613H |
| **SURFACE HOLE FOOTAGE:** | 350'/S & 1805'/E |
| **BOTTOM HOLE FOOTAGE** | 330'/N & 1750'/E |
| **LOCATION:** | Section 22, T.25 S., R.31 E., NMPM |
| **COUNTY:** | Eddy County, New Mexico |

COA

| | | | |
|---|---|---|---|
| H2S | ☐ Yes | ☒ No | |
| Potash | ☒ None | ☐ Secretary | ☐ R-111-P |
| Cave/Karst Potential | ☐ Low | ☒ Medium | ☐ High |
| Cave/Karst Potential | ☐ Critical | | |
| Variance | ☐ None | ☒ Flex Hose | ☐ Other |
| Wellhead | ☐ Conventional | ☐ Multibowl | ☒ Both |
| Other | ☐ 4 String Area | ☐ Capitan Reef | ☐ WIPP |
| Other | ☑ Fluid Filled | ☑ Cement Squeeze | ☑ Pilot Hole |
| Special Requirements | ☐ Water Disposal | ☑ COM | ☐ Unit |

## A. HYDROGEN SULFIDE

Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.

## B. CASING

1. The **13-3/8** inch surface casing shall be set at approximately **1100 feet** (a minimum of **70 feet (Eddy County)** into the Rustler Anhydrite and above the salt) and cemented to the surface.

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
    b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8**

**hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)

c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
d. If cement falls back, remedial cementing will be done prior to drilling out that string.

**Intermediate casing must be kept fluid filled to meet BLM minimum collapse requirement.**

2. The minimum required fill of cement behind the **8-5/8** inch intermediate casing is:

- Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.** **Cement excess is less than 25%, more cement might be required.**

❖ In Medium Cave/Karst Areas if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.

**Operator has proposed to pump down 13-3/8" X 8-5/8" annulus. Operator must run a CBL from TD of the 8-5/8" casing to surface. Submit results to BLM.**

The pilot hole plugging procedure is approved as written. Note plug tops on subsequent drilling report. The BLM is to be contacted **(575-361-2822 Eddy County)** when tagging the plugs.

3. The minimum required fill of cement behind the **5-1/2** inch production casing is:

- Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification. **Cement excess is less than 25%, more cement might be required.**

## C. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).'

2.

**Option 1:**

a. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi.

b. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the intermediate casing shoe shall be **10,000 (10M)** psi. **Variance is approved to use a 5000 (5M) Annular which shall be tested to 5000 (5M) psi.**

**Option 2:**

1. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **10,000 (10M)** psi. **Variance is approved to use a 5000 (5M) Annular which shall be tested to 5000 (5M) psi.**

    a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
    b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
    c. Manufacturer representative shall install the test plug for the initial BOP test.
    d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
    e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

## D. SPECIAL REQUIREMENT (S)

**Communitization Agreement**

- The operator will submit a Communitization Agreement to the Santa Fe Office, 301 Dinosaur Trail Santa Fe, New Mexico 87508, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New

Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.

- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

# GENERAL REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

a. Spudding well (minimum of 24 hours)
b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
c. BOPE tests (minimum of 4 hours)

☒ Eddy County
Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, (575) 361-2822

☒ Lea County
Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575) 393-3612

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.

   a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
   b. When the operator proposes to set surface casing with Spudder Rig
      - Notify the BLM when moving in and removing the Spudder Rig.
      - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
      - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.

2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.

2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.

5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.

7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.

2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.

3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.

4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:

    a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
    b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
    c. Manufacturer representative shall install the test plug for the initial BOP test.
    d. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
    e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.

5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

    a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not

hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).

c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

e. The results of the test shall be reported to the appropriate BLM office.

f. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.

g. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

C. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

D. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

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**District II**
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**District III**
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
**District IV**
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

# State of New Mexico
# Energy, Minerals and Natural Resources
# Oil Conservation Division
# 1220 S. St Francis Dr.
# Santa Fe, NM 87505

COMMENTS

Action 15521

## COMMENTS

| Operator: | | | OGRID: | Action Number: | Action Type: |
|---|---|---|---|---|---|
| DEVON ENERGY PRODUCTION COMPAN | 333 West Sheridan Ave. | Oklahoma City, OK73102 | 6137 | 15521 | C-103X |

| Created By | Comment | Comment Date |
|---|---|---|
| jagarcia | Accepted for Record - JAG | 02/02/2021 |

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# State of New Mexico
# Energy, Minerals and Natural Resources
# Oil Conservation Division
# 1220 S. St Francis Dr.
# Santa Fe, NM 87505

CONDITIONS

Action 15521

## CONDITIONS OF APPROVAL

| Operator: | | | OGRID: | Action Number: | Action Type: |
|---|---|---|---|---|---|
| DEVON ENERGY PRODUCTION COMPAN | 333 West Sheridan Ave. | Oklahoma City, OK73102 | 6137 | 15521 | C-103X |

| OCD Reviewer | Condition |
|---|---|
| jagarcia | None |