Form 3160-3
(June 2015)

OCD – HOBBS
08/18/2020
RECEIVED

FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

# APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NMNM114992

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☑ DRILL ☐ REENTER

1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other

1c. Type of Completion: ☐ Hydraulic Fracturing ☑ Single Zone ☐ Multiple Zone

7. If Unit or CA Agreement, Name and No.

8. Lease Name and Well No.
FIGHTING OKRA 18-19 FED
[315691]
18H

2. Name of Operator
DEVON ENERGY PRODUCTION COMPANY LP [6137]

9. API Well No. 30-02547575

3a. Address
333 West Sheridan Avenue, Oklahoma City, OK 73102

3b. Phone No. *(include area code)*
(800) 583-3866

10. Field and Pool, or Exploratory [98347]
WILDCAT/LOWER WOLFCAMP OIL

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface NENE / 400 FNL / 1300 FEL / LAT 32.0495993 / LONG -103.5046387
At proposed prod. zone SWSE / 20 FSL / 2122 FEL / LAT 32.0217219 / LONG -103.50726

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 18/T26S/R34E/NMP

14. Distance in miles and direction from nearest town or post office*

12. County or Parish
LEA

13. State
NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)
400 feet

16. No of acres in lease
1283.96

17. Spacing Unit dedicated to this well
320.0

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.
236 feet

19. Proposed Depth
13524 feet / 23821 feet

20. BLM/BIA Bond No. in file
FED: NMB000801

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3370 feet

22. Approximate date work will start*
03/01/2021

23. Estimated duration
45 days

## 24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)

1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification.
6. Such other site specific information and/or plans as may be requested by the BLM.

| 25. Signature | Name *(Printed/Typed)* | Date |
|---|---|---|
| (Electronic Submission) | REBECCA DEAL / Ph: (800) 583-3866 | 06/09/2020 |

Title
Regulatory Compliance Professional

| Approved by *(Signature)* | Name *(Printed/Typed)* | Date |
|---|---|---|
| (Electronic Submission) | Cody Layton / Ph: (575) 234-5959 | 08/11/2020 |

| Title | Office |
|---|---|
| Assistant Field Manager Lands & Minerals | Carlsbad Field Office |

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

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.

**GCP Rec 08/18/2020**

**SL**

APPROVED WITH CONDITIONS

KZ
08/24/2020

**Approval Date: 08/11/2020**

(Continued on page 2)

*(Instructions on page 2)

## INSTRUCTIONS

GENERAL: This form is designed for submitting proposals to perform certain well operations, as indicated on Federal and Indian lands and leases for action by appropriate Federal agencies, pursuant to applicable Federal laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from local Federal offices.

ITEM I: If the proposal is to redrill to the same reservoir at a different subsurface location or to a new reservoir, use this form with appropriate notations. Consult applicable Federal regulations concerning subsequent work proposals or reports on the well.

ITEM 4: Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local Federal offices for specific instructions.

ITEM 14: Needed only when location of well cannot readily be found by road from the land or lease description. A plat, or plats, separate or on the reverse side, showing the roads to, and the surveyed location of, the wen, and any other required information, should be furnished when required by Federal agency offices.

ITEMS 15 AND 18: If well is to be, or has been directionany drilled, give distances for subsurface location of hole in any present or objective productive zone.

ITEM 22: Consult applicable Federal regulations, or appropriate officials, concerning approval of the proposal before operations are started.

ITEM 24: If the proposal will involve hydraulic fracturing operations, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.

## NOTICES

The Privacy Act of 1974 and regulation in 43 CFR 2.48( d) provide that you be furnished the following information in connection with information required by this application.

AUTHORITY: 30 U.S.C. 181 et seq., 25 U.S.C. 396; 43 CFR 3160

PRINCIPAL PURPOSES: The information will be used to: (1) process and evaluate your application for a permit to drill a new oil, gas, or service wen or to reenter a plugged and abandoned well; and (2) document, for administrative use, information for the management, disposal and use of National Resource Lands and resources including (a) analyzing your proposal to discover and extract the Federal or Indian resources encountered; (b) reviewing procedures and equipment and the projected impact on the land involved; and (c) evaluating the effects of the proposed operation on the surface and subsurface water and other environmental impacts.

ROUTINE USE: Information from the record and/or the record win be transferred to appropriate Federal, State, and local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecution, in connection with congressional inquiries and for regulatory responsibilities.

EFFECT OF NOT PROVIDING INFORMATION: Filing of this application and disclosure of the information is mandatory only if you elect to initiate a drilling or reentry operation on an oil and gas lease.

The Paperwork Reduction Act of 1995 requires us to inform you that:

The BLM conects this information to anow evaluation of the technical, safety, and environmental factors involved with drilling for oil and/or gas on Federal and Indian oil and gas leases. This information will be used to analyze and approve applications. Response to this request is mandatory only if the operator elects to initiate drilling or reentry operations on an oil and gas lease. The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

**BURDEN HOURS STATEMENT:** Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Conection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.



(Continued on page 3)

## Additional Operator Remarks

### Location of Well

0. SHL: NENE / 400 FNL / 1300 FEL / TWSP: 26S / RANGE: 34E / SECTION: 18 / LAT: 32.0495993 / LONG: -103.5046387 ( TVD: 0 feet, MD: 0 feet )

PPP: NWNE / 100 FNL / 2122 FEL / TWSP: 26S / RANGE: 34E / SECTION: 18 / LAT: 32.0504233 / LONG: -103.5072924 ( TVD: 13187 feet, MD: 13237 feet )

BHL: SWSE / 20 FSL / 2122 FEL / TWSP: 26S / RANGE: 34E / SECTION: 19 / LAT: 32.0217219 / LONG: -103.50726 ( TVD: 13524 feet, MD: 23821 feet )

## BLM Point of Contact

Name: Candy Vigil

Title: LIE

Phone: (575) 234-5982

Email: cvigil@blm.gov

**Review and Appeal Rights**

A person contesting a decision shall request a State Director review. This request must be filed within 20 working days of receipt of the Notice with the appropriate State Director (see 43 CFR 3165.3). The State Director review decision may be appealed to the Interior Board of Land Appeals, 801 North Quincy Street, Suite 300, Arlington, VA 22203 (see 43 CFR 3165.4). Contact the above listed Bureau of Land Management office for further information.

**1. Geologic Formations**

| | | | |
|---|---|---|---|
| TVD of target | 13524 | Pilot hole depth | N/A |
| MD at TD: | 23821 | Deepest expected fresh water | |

**Basin**

| Formation | Depth (TVD) from KB | Water/Mineral Bearing/Target Zone? | Hazards* |
|---|---|---|---|
| Rustler | 785 | | |
| Salt | 1060 | | |
| Base of Salt | 5250 | | |
| Delaware | 5300 | | |
| Bone Spring 1st | 10475 | | |
| Bone Spring 2nd | 11421 | | |
| Bone Spring 3rd | 12100 | | |
| Wolfcamp | 12560 | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

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

**2. Casing Program (Primary Design)**

| Hole Size | Csg. Size | Wt (PPF) | Grade | Conn | Casing Interval | | Casing Interval | |
|---|---|---|---|---|---|---|---|---|
| | | | | | From (MD) | To (MD) | From (TVD) | To (TVD) |
| 17 1/2 | 13 3/8 | 48.0 | H40 | STC | 0 | 810 | 0 | 810 |
| 9 7/8 | 8 5/8 | 32.0 | P110 | TLW | 0 | 12560 | 0 | 12560 |
| 7 7/8 | 5 1/2 | 17.0 | P110 | BTC | 0 | 23821 | 0 | 13524 |

• All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 IILB.1.h Must have table for continengcy casing.

**3. Cementing Program (Primary Design)**

| Casing | # Sks | TOC | Wt. ppg | Yld (ft3/sack) | Slurry Description |
|---|---|---|---|---|---|
| Surface | 625 | Surf | 13.2 | 1.44 | Lead: Class C Cement + additives |
| Int 1 | 507 | Surf | 9 | 3.27 | Lead: Class C Cement + additives |
| | 465 | 4000' above | 13.2 | 1.44 | Tail: Class H / C + additives |
| Int 1 Intermediate Squeeze | As Needed | Surf | 13.2 | 1.44 | Squeeze Lead: Class C Cement + additives |
| | 507 | Surf | 9 | 3.27 | Lead: Class C Cement + additives |
| | 465 | 4000' above | 13.2 | 1.44 | Tail: Class H / C + additives |
| Production | 117 | 10988 | 9.0 | 3.3 | Lead: Class H /C + additives |
| | 1434 | 12988 | 13.2 | 1.4 | Tail: Class H / C + additives |

| Casing String | % Excess |
|---|---|
| Surface | 50% |
| Intermediate 1 | 30% |
| Intermediate 1 (Two Stage) | 25% |
| Prod | 10% |

**4. Pressure Control Equipment (Three String Design)**

| BOP installed and tested before drilling which hole? | Size? | Min. Required WP | Type | ✓ | Tested to: |
|---|---|---|---|---|---|
| Int 1 | 13-58" | 5M | Annular | X | 50% of rated working pressure |
| | | | Blind Ram | X | 5M |
| | | | Pipe Ram | | |
| | | | Double Ram | X | |
| | | | Other* | | |
| Production | 13-5/8" | 10M | Annular (5M) | X | 100% of rated working pressure |
| | | | Blind Ram | X | 10M |
| | | | Pipe Ram | | |
| | | | Double Ram | X | |
| | | | Other* | | |
| | | | Annular (5M) | | |
| | | | Blind Ram | | |
| | | | Pipe Ram | | |
| | | | Double Ram | | |
| | | | Other* | | |

| | |
|---|---|
| N | A variance is requested for the use of a diverter on the surface casing. See attached for schematic. |
| Y | A variance is requested to run a 5 M annular on a 10M system |

**5. Mud Program (Three String Design)**

| Section | Type | Weight (ppg) |
|---|---|---|
| Surface | FW Gel | 8.5-9 |
| Intermediate | DBE / Cut Brine | 10-10.5 |
| Production | OBM | 10-10.5 |

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 Rpeort and sbumitted to the BLM. |
| | No logs are planned based on well control or offset log information. |
| | Drill stem test? If yes, explain. |
| | Coring? If yes, explain. |

| Additional logs planned | | Interval |
|---|---|---|
| | Resistivity | Int. shoe to KOP |
| | Density | Int. shoe to KOP |
| X | CBL | Production casing |
| X | Mud log | Intermediate shoe to TD |
| | PEX | |

**7. Drilling Conditions**

| Condition | Specfiy what type and where? |
|---|---|
| BH pressure at deepest TVD | 7384 |
| Abnormal temperature | No |

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

| | |
|---|---|
| Hydrogren 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. |

**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 batch 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 pa.
6. The NMOCD will be contacted and notified 24 hours prior to commencing spudder rig operations.
7. Drilling operations will be performed with drilling rig. A 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

# WCDSC Permian NM

**Lea County (NAD83 New Mexico East)**
**Sec 18-T26S-34E**
**Fighting Okra 18-19 Fed 18H**

**Wellbore #1**

**Plan: Permit Plan 1**

# Standard Planning Report - Geographic

**04 June, 2020**

| | | | |
|---|---|---|---|
| **Database:** | EDM r5000.141_Prod US | **Local Co-ordinate Reference:** | Well Fighting Okra 18-19 Fed 18H |
| **Company:** | WCDSC Permian NM | **TVD Reference:** | RKB @ 3395.20ft |
| **Project:** | Lea County (NAD83 New Mexico East) | **MD Reference:** | RKB @ 3395.20ft |
| **Site:** | Sec 18-T26S-34E | **North Reference:** | Grid |
| **Well:** | Fighting Okra 18-19 Fed 18H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Wellbore #1 | | |
| **Design:** | Permit Plan 1 | | |

**Project** Lea County (NAD83 New Mexico East)

| | | | |
|---|---|---|---|
| **Map System:** | US State Plane 1983 | **System Datum:** | Mean Sea Level |
| **Geo Datum:** | North American Datum 1983 | | |
| **Map Zone:** | New Mexico Eastern Zone | | |

**Site** Sec 18-T26S-34E

| | | | | | |
|---|---|---|---|---|---|
| **Site Position:** | | **Northing:** | 383,134.75 usft | **Latitude:** | 32.050692 |
| **From:** | Map | **Easting:** | 794,089.79 usft | **Longitude:** | -103.517535 |
| **Position Uncertainty:** | 0.00 ft | **Slot Radius:** | 13-3/16 " | **Grid Convergence:** | 0.43 ° |

**Well** Fighting Okra 18-19 Fed 18H

| | | | | | | |
|---|---|---|---|---|---|---|
| **Well Position** | **+N/-S** | 0.00 ft | **Northing:** | 382,767.58 usft | **Latitude:** | 32.049599 |
| | **+E/-W** | 0.00 ft | **Easting:** | 798,088.50 usft | **Longitude:** | -103.504639 |
| **Position Uncertainty** | | 0.50 ft | **Wellhead Elevation:** | | **Ground Level:** | 3,370.20 ft |

**Wellbore** Wellbore #1

| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
|---|---|---|---|---|---|
| | IGRF2015 | 6/2/2020 | 6.59 | 59.87 | 47,538.08587792 |

**Design** Permit Plan 1

**Audit Notes:**

| | | | | | |
|---|---|---|---|---|---|
| **Version:** | | **Phase:** | PROTOTYPE | **Tie On Depth:** | 0.00 |

| Vertical Section: | Depth From (TVD) (ft) | +N/-S (ft) | +E/-W (ft) | Direction (°) |
|---|---|---|---|---|
| | 0.00 | 0.00 | 0.00 | 184.14 |

**Plan Survey Tool Program** **Date** 6/4/2020

| | Depth From (ft) | Depth To (ft) | Survey (Wellbore) | Tool Name | Remarks |
|---|---|---|---|---|---|
| 1 | 0.00 | 23,820.78 | Permit Plan 1 (Wellbore #1) | MWD+HDGM<br>OWSG MWD + HDGM | |

**Plan Sections**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) | TFO (°) | Target |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 2,000.00 | 0.00 | 0.00 | 2,000.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 2,463.00 | 4.63 | 340.00 | 2,462.50 | 17.57 | -6.39 | 1.00 | 1.00 | 0.00 | 340.00 | |
| 5,463.00 | 4.63 | 340.00 | 5,452.71 | 245.13 | -89.22 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 5,807.46 | 5.31 | 277.78 | 5,796.10 | 260.36 | -109.79 | 1.50 | 0.20 | -18.06 | -114.50 | |
| 12,988.10 | 5.31 | 277.78 | 12,945.86 | 350.39 | -768.78 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 13,895.72 | 90.00 | 179.52 | 13,524.00 | -222.94 | -817.23 | 10.00 | 9.33 | -10.83 | -98.22 | |
| 23,820.78 | 90.00 | 179.52 | 13,524.00 | -10,147.66 | -734.60 | 0.00 | 0.00 | 0.00 | 0.00 | PBHL - Fighting Okra |

| | | | |
|---|---|---|---|
| **Database:** | EDM r5000.141_Prod US | **Local Co-ordinate Reference:** | Well Fighting Okra 18-19 Fed 18H |
| **Company:** | WCDSC Permian NM | **TVD Reference:** | RKB @ 3395.20ft |
| **Project:** | Lea County (NAD83 New Mexico East) | **MD Reference:** | RKB @ 3395.20ft |
| **Site:** | Sec 18-T26S-34E | **North Reference:** | Grid |
| **Well:** | Fighting Okra 18-19 Fed 18H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Wellbore #1 | | |
| **Design:** | Permit Plan 1 | | |

**Planned Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Map Northing (usft) | Map Easting (usft) | Latitude | Longitude |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 382,767.58 | 798,088.50 | 32.049599 | -103.504639 |
| 100.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 382,767.58 | 798,088.50 | 32.049599 | -103.504639 |
| 200.00 | 0.00 | 0.00 | 200.00 | 0.00 | 0.00 | 382,767.58 | 798,088.50 | 32.049599 | -103.504639 |
| 300.00 | 0.00 | 0.00 | 300.00 | 0.00 | 0.00 | 382,767.58 | 798,088.50 | 32.049599 | -103.504639 |
| 400.00 | 0.00 | 0.00 | 400.00 | 0.00 | 0.00 | 382,767.58 | 798,088.50 | 32.049599 | -103.504639 |
| 500.00 | 0.00 | 0.00 | 500.00 | 0.00 | 0.00 | 382,767.58 | 798,088.50 | 32.049599 | -103.504639 |
| 600.00 | 0.00 | 0.00 | 600.00 | 0.00 | 0.00 | 382,767.58 | 798,088.50 | 32.049599 | -103.504639 |
| 700.00 | 0.00 | 0.00 | 700.00 | 0.00 | 0.00 | 382,767.58 | 798,088.50 | 32.049599 | -103.504639 |
| 800.00 | 0.00 | 0.00 | 800.00 | 0.00 | 0.00 | 382,767.58 | 798,088.50 | 32.049599 | -103.504639 |
| 900.00 | 0.00 | 0.00 | 900.00 | 0.00 | 0.00 | 382,767.58 | 798,088.50 | 32.049599 | -103.504639 |
| 1,000.00 | 0.00 | 0.00 | 1,000.00 | 0.00 | 0.00 | 382,767.58 | 798,088.50 | 32.049599 | -103.504639 |
| 1,100.00 | 0.00 | 0.00 | 1,100.00 | 0.00 | 0.00 | 382,767.58 | 798,088.50 | 32.049599 | -103.504639 |
| 1,200.00 | 0.00 | 0.00 | 1,200.00 | 0.00 | 0.00 | 382,767.58 | 798,088.50 | 32.049599 | -103.504639 |
| 1,300.00 | 0.00 | 0.00 | 1,300.00 | 0.00 | 0.00 | 382,767.58 | 798,088.50 | 32.049599 | -103.504639 |
| 1,400.00 | 0.00 | 0.00 | 1,400.00 | 0.00 | 0.00 | 382,767.58 | 798,088.50 | 32.049599 | -103.504639 |
| 1,500.00 | 0.00 | 0.00 | 1,500.00 | 0.00 | 0.00 | 382,767.58 | 798,088.50 | 32.049599 | -103.504639 |
| 1,600.00 | 0.00 | 0.00 | 1,600.00 | 0.00 | 0.00 | 382,767.58 | 798,088.50 | 32.049599 | -103.504639 |
| 1,700.00 | 0.00 | 0.00 | 1,700.00 | 0.00 | 0.00 | 382,767.58 | 798,088.50 | 32.049599 | -103.504639 |
| 1,800.00 | 0.00 | 0.00 | 1,800.00 | 0.00 | 0.00 | 382,767.58 | 798,088.50 | 32.049599 | -103.504639 |
| 1,900.00 | 0.00 | 0.00 | 1,900.00 | 0.00 | 0.00 | 382,767.58 | 798,088.50 | 32.049599 | -103.504639 |
| 2,000.00 | 0.00 | 0.00 | 2,000.00 | 0.00 | 0.00 | 382,767.58 | 798,088.50 | 32.049599 | -103.504639 |
| 2,100.00 | 1.00 | 340.00 | 2,099.99 | 0.82 | -0.30 | 382,768.40 | 798,088.20 | 32.049602 | -103.504640 |
| 2,200.00 | 2.00 | 340.00 | 2,199.96 | 3.28 | -1.19 | 382,770.86 | 798,087.30 | 32.049608 | -103.504643 |
| 2,300.00 | 3.00 | 340.00 | 2,299.86 | 7.38 | -2.69 | 382,774.96 | 798,085.81 | 32.049620 | -103.504647 |
| 2,400.00 | 4.00 | 340.00 | 2,399.68 | 13.12 | -4.77 | 382,780.69 | 798,083.72 | 32.049636 | -103.504654 |
| 2,463.00 | 4.63 | 340.00 | 2,462.50 | 17.57 | -6.39 | 382,785.15 | 798,082.10 | 32.049648 | -103.504659 |
| 2,500.00 | 4.63 | 340.00 | 2,499.38 | 20.38 | -7.42 | 382,787.95 | 798,081.08 | 32.049656 | -103.504662 |
| 2,600.00 | 4.63 | 340.00 | 2,599.05 | 27.96 | -10.18 | 382,795.54 | 798,078.32 | 32.049676 | -103.504671 |
| 2,700.00 | 4.63 | 340.00 | 2,698.72 | 35.55 | -12.94 | 382,803.13 | 798,075.56 | 32.049697 | -103.504680 |
| 2,800.00 | 4.63 | 340.00 | 2,798.40 | 43.13 | -15.70 | 382,810.71 | 798,072.80 | 32.049718 | -103.504689 |
| 2,900.00 | 4.63 | 340.00 | 2,898.07 | 50.72 | -18.46 | 382,818.30 | 798,070.04 | 32.049739 | -103.504697 |
| 3,000.00 | 4.63 | 340.00 | 2,997.74 | 58.30 | -21.22 | 382,825.88 | 798,067.28 | 32.049760 | -103.504706 |
| 3,100.00 | 4.63 | 340.00 | 3,097.42 | 65.89 | -23.98 | 382,833.47 | 798,064.52 | 32.049781 | -103.504715 |
| 3,200.00 | 4.63 | 340.00 | 3,197.09 | 73.47 | -26.74 | 382,841.05 | 798,061.76 | 32.049802 | -103.504723 |
| 3,300.00 | 4.63 | 340.00 | 3,296.76 | 81.06 | -29.50 | 382,848.64 | 798,059.00 | 32.049823 | -103.504732 |
| 3,400.00 | 4.63 | 340.00 | 3,396.44 | 88.64 | -32.26 | 382,856.22 | 798,056.23 | 32.049844 | -103.504741 |
| 3,500.00 | 4.63 | 340.00 | 3,496.11 | 96.23 | -35.02 | 382,863.81 | 798,053.47 | 32.049865 | -103.504750 |
| 3,600.00 | 4.63 | 340.00 | 3,595.79 | 103.81 | -37.79 | 382,871.39 | 798,050.71 | 32.049886 | -103.504758 |
| 3,700.00 | 4.63 | 340.00 | 3,695.46 | 111.40 | -40.55 | 382,878.98 | 798,047.95 | 32.049906 | -103.504767 |
| 3,800.00 | 4.63 | 340.00 | 3,795.13 | 118.98 | -43.31 | 382,886.56 | 798,045.19 | 32.049927 | -103.504776 |
| 3,900.00 | 4.63 | 340.00 | 3,894.81 | 126.57 | -46.07 | 382,894.15 | 798,042.43 | 32.049948 | -103.504785 |
| 4,000.00 | 4.63 | 340.00 | 3,994.48 | 134.16 | -48.83 | 382,901.73 | 798,039.67 | 32.049969 | -103.504793 |
| 4,100.00 | 4.63 | 340.00 | 4,094.15 | 141.74 | -51.59 | 382,909.32 | 798,036.91 | 32.049990 | -103.504802 |
| 4,200.00 | 4.63 | 340.00 | 4,193.83 | 149.33 | -54.35 | 382,916.90 | 798,034.15 | 32.050011 | -103.504811 |
| 4,300.00 | 4.63 | 340.00 | 4,293.50 | 156.91 | -57.11 | 382,924.49 | 798,031.39 | 32.050032 | -103.504819 |
| 4,400.00 | 4.63 | 340.00 | 4,393.18 | 164.50 | -59.87 | 382,932.07 | 798,028.63 | 32.050053 | -103.504828 |
| 4,500.00 | 4.63 | 340.00 | 4,492.85 | 172.08 | -62.63 | 382,939.66 | 798,025.87 | 32.050074 | -103.504837 |
| 4,600.00 | 4.63 | 340.00 | 4,592.52 | 179.67 | -65.39 | 382,947.24 | 798,023.10 | 32.050095 | -103.504846 |
| 4,700.00 | 4.63 | 340.00 | 4,692.20 | 187.25 | -68.15 | 382,954.83 | 798,020.34 | 32.050116 | -103.504854 |
| 4,800.00 | 4.63 | 340.00 | 4,791.87 | 194.84 | -70.91 | 382,962.42 | 798,017.58 | 32.050136 | -103.504863 |
| 4,900.00 | 4.63 | 340.00 | 4,891.54 | 202.42 | -73.68 | 382,970.00 | 798,014.82 | 32.050157 | -103.504872 |
| 5,000.00 | 4.63 | 340.00 | 4,991.22 | 210.01 | -76.44 | 382,977.59 | 798,012.06 | 32.050178 | -103.504880 |
| 5,100.00 | 4.63 | 340.00 | 5,090.89 | 217.59 | -79.20 | 382,985.17 | 798,009.30 | 32.050199 | -103.504889 |
| 5,200.00 | 4.63 | 340.00 | 5,190.56 | 225.18 | -81.96 | 382,992.76 | 798,006.54 | 32.050220 | -103.504898 |
| 5,300.00 | 4.63 | 340.00 | 5,290.24 | 232.76 | -84.72 | 383,000.34 | 798,003.78 | 32.050241 | -103.504907 |

| | | | |
|---|---|---|---|
| **Database:** | EDM r5000.141_Prod US | **Local Co-ordinate Reference:** | Well Fighting Okra 18-19 Fed 18H |
| **Company:** | WCDSC Permian NM | **TVD Reference:** | RKB @ 3395.20ft |
| **Project:** | Lea County (NAD83 New Mexico East) | **MD Reference:** | RKB @ 3395.20ft |
| **Site:** | Sec 18-T26S-34E | **North Reference:** | Grid |
| **Well:** | Fighting Okra 18-19 Fed 18H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Wellbore #1 | | |
| **Design:** | Permit Plan 1 | | |

**Planned Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Map Northing (usft) | Map Easting (usft) | Latitude | Longitude |
|---|---|---|---|---|---|---|---|---|---|
| 5,400.00 | 4.63 | 340.00 | 5,389.91 | 240.35 | -87.48 | 383,007.93 | 798,001.02 | 32.050262 | -103.504915 |
| 5,463.00 | 4.63 | 340.00 | 5,452.71 | 245.13 | -89.22 | 383,012.71 | 797,999.28 | 32.050275 | -103.504921 |
| 5,500.00 | 4.43 | 333.45 | 5,489.59 | 247.81 | -90.37 | 383,015.39 | 797,998.13 | 32.050282 | -103.504924 |
| 5,600.00 | 4.21 | 313.64 | 5,589.31 | 253.80 | -94.75 | 383,021.38 | 797,993.74 | 32.050299 | -103.504938 |
| 5,700.00 | 4.52 | 294.23 | 5,689.03 | 257.95 | -101.00 | 383,025.53 | 797,987.49 | 32.050311 | -103.504959 |
| 5,800.00 | 5.25 | 278.75 | 5,788.67 | 260.26 | -109.11 | 383,027.84 | 797,979.38 | 32.050317 | -103.504985 |
| 5,807.46 | 5.31 | 277.78 | 5,796.10 | 260.36 | -109.79 | 383,027.94 | 797,978.70 | 32.050317 | -103.504987 |
| 5,900.00 | 5.31 | 277.78 | 5,888.24 | 261.52 | -118.29 | 383,029.10 | 797,970.21 | 32.050321 | -103.505014 |
| 6,000.00 | 5.31 | 277.78 | 5,987.81 | 262.78 | -127.46 | 383,030.35 | 797,961.03 | 32.050324 | -103.505044 |
| 6,100.00 | 5.31 | 277.78 | 6,087.38 | 264.03 | -136.64 | 383,031.61 | 797,951.86 | 32.050328 | -103.505073 |
| 6,200.00 | 5.31 | 277.78 | 6,186.95 | 265.28 | -145.82 | 383,032.86 | 797,942.68 | 32.050332 | -103.505103 |
| 6,300.00 | 5.31 | 277.78 | 6,286.52 | 266.54 | -155.00 | 383,034.12 | 797,933.50 | 32.050335 | -103.505133 |
| 6,400.00 | 5.31 | 277.78 | 6,386.09 | 267.79 | -164.17 | 383,035.37 | 797,924.33 | 32.050339 | -103.505162 |
| 6,500.00 | 5.31 | 277.78 | 6,485.66 | 269.04 | -173.35 | 383,036.62 | 797,915.15 | 32.050343 | -103.505192 |
| 6,600.00 | 5.31 | 277.78 | 6,585.23 | 270.30 | -182.53 | 383,037.88 | 797,905.97 | 32.050346 | -103.505221 |
| 6,700.00 | 5.31 | 277.78 | 6,684.80 | 271.55 | -191.70 | 383,039.13 | 797,896.79 | 32.050350 | -103.505251 |
| 6,800.00 | 5.31 | 277.78 | 6,784.37 | 272.81 | -200.88 | 383,040.38 | 797,887.62 | 32.050353 | -103.505281 |
| 6,900.00 | 5.31 | 277.78 | 6,883.94 | 274.06 | -210.06 | 383,041.64 | 797,878.44 | 32.050357 | -103.505310 |
| 7,000.00 | 5.31 | 277.78 | 6,983.51 | 275.31 | -219.24 | 383,042.89 | 797,869.26 | 32.050361 | -103.505340 |
| 7,100.00 | 5.31 | 277.78 | 7,083.08 | 276.57 | -228.41 | 383,044.15 | 797,860.08 | 32.050364 | -103.505369 |
| 7,200.00 | 5.31 | 277.78 | 7,182.65 | 277.82 | -237.59 | 383,045.40 | 797,850.91 | 32.050368 | -103.505399 |
| 7,300.00 | 5.31 | 277.78 | 7,282.22 | 279.07 | -246.77 | 383,046.65 | 797,841.73 | 32.050372 | -103.505428 |
| 7,400.00 | 5.31 | 277.78 | 7,381.79 | 280.33 | -255.95 | 383,047.91 | 797,832.55 | 32.050375 | -103.505458 |
| 7,500.00 | 5.31 | 277.78 | 7,481.36 | 281.58 | -265.12 | 383,049.16 | 797,823.38 | 32.050379 | -103.505488 |
| 7,600.00 | 5.31 | 277.78 | 7,580.93 | 282.84 | -274.30 | 383,050.41 | 797,814.20 | 32.050383 | -103.505517 |
| 7,700.00 | 5.31 | 277.78 | 7,680.50 | 284.09 | -283.48 | 383,051.67 | 797,805.02 | 32.050386 | -103.505547 |
| 7,800.00 | 5.31 | 277.78 | 7,780.07 | 285.34 | -292.65 | 383,052.92 | 797,795.84 | 32.050390 | -103.505576 |
| 7,900.00 | 5.31 | 277.78 | 7,879.64 | 286.60 | -301.83 | 383,054.18 | 797,786.67 | 32.050394 | -103.505606 |
| 8,000.00 | 5.31 | 277.78 | 7,979.21 | 287.85 | -311.01 | 383,055.43 | 797,777.49 | 32.050397 | -103.505636 |
| 8,100.00 | 5.31 | 277.78 | 8,078.78 | 289.11 | -320.19 | 383,056.68 | 797,768.31 | 32.050401 | -103.505665 |
| 8,200.00 | 5.31 | 277.78 | 8,178.35 | 290.36 | -329.36 | 383,057.94 | 797,759.14 | 32.050404 | -103.505695 |
| 8,300.00 | 5.31 | 277.78 | 8,277.92 | 291.61 | -338.54 | 383,059.19 | 797,749.96 | 32.050408 | -103.505724 |
| 8,400.00 | 5.31 | 277.78 | 8,377.49 | 292.87 | -347.72 | 383,060.44 | 797,740.78 | 32.050412 | -103.505754 |
| 8,500.00 | 5.31 | 277.78 | 8,477.06 | 294.12 | -356.89 | 383,061.70 | 797,731.60 | 32.050415 | -103.505784 |
| 8,600.00 | 5.31 | 277.78 | 8,576.63 | 295.37 | -366.07 | 383,062.95 | 797,722.43 | 32.050419 | -103.505813 |
| 8,700.00 | 5.31 | 277.78 | 8,676.20 | 296.63 | -375.25 | 383,064.21 | 797,713.25 | 32.050423 | -103.505843 |
| 8,800.00 | 5.31 | 277.78 | 8,775.77 | 297.88 | -384.43 | 383,065.46 | 797,704.07 | 32.050426 | -103.505872 |
| 8,900.00 | 5.31 | 277.78 | 8,875.34 | 299.14 | -393.60 | 383,066.71 | 797,694.89 | 32.050430 | -103.505902 |
| 9,000.00 | 5.31 | 277.78 | 8,974.91 | 300.39 | -402.78 | 383,067.97 | 797,685.72 | 32.050434 | -103.505931 |
| 9,100.00 | 5.31 | 277.78 | 9,074.48 | 301.64 | -411.96 | 383,069.22 | 797,676.54 | 32.050437 | -103.505961 |
| 9,200.00 | 5.31 | 277.78 | 9,174.05 | 302.90 | -421.14 | 383,070.47 | 797,667.36 | 32.050441 | -103.505991 |
| 9,300.00 | 5.31 | 277.78 | 9,273.62 | 304.15 | -430.31 | 383,071.73 | 797,658.19 | 32.050444 | -103.506020 |
| 9,400.00 | 5.31 | 277.78 | 9,373.19 | 305.40 | -439.49 | 383,072.98 | 797,649.01 | 32.050448 | -103.506050 |
| 9,500.00 | 5.31 | 277.78 | 9,472.76 | 306.66 | -448.67 | 383,074.24 | 797,639.83 | 32.050452 | -103.506079 |
| 9,600.00 | 5.31 | 277.78 | 9,572.33 | 307.91 | -457.84 | 383,075.49 | 797,630.65 | 32.050455 | -103.506109 |
| 9,700.00 | 5.31 | 277.78 | 9,671.90 | 309.17 | -467.02 | 383,076.74 | 797,621.48 | 32.050459 | -103.506139 |
| 9,800.00 | 5.31 | 277.78 | 9,771.47 | 310.42 | -476.20 | 383,078.00 | 797,612.30 | 32.050463 | -103.506168 |
| 9,900.00 | 5.31 | 277.78 | 9,871.04 | 311.67 | -485.38 | 383,079.25 | 797,603.12 | 32.050466 | -103.506198 |
| 10,000.00 | 5.31 | 277.78 | 9,970.61 | 312.93 | -494.55 | 383,080.51 | 797,593.95 | 32.050470 | -103.506227 |
| 10,100.00 | 5.31 | 277.78 | 10,070.18 | 314.18 | -503.73 | 383,081.76 | 797,584.77 | 32.050474 | -103.506257 |
| 10,200.00 | 5.31 | 277.78 | 10,169.75 | 315.43 | -512.91 | 383,083.01 | 797,575.59 | 32.050477 | -103.506286 |
| 10,300.00 | 5.31 | 277.78 | 10,269.32 | 316.69 | -522.08 | 383,084.27 | 797,566.41 | 32.050481 | -103.506316 |
| 10,400.00 | 5.31 | 277.78 | 10,368.89 | 317.94 | -531.26 | 383,085.52 | 797,557.24 | 32.050485 | -103.506346 |
| 10,500.00 | 5.31 | 277.78 | 10,468.46 | 319.20 | -540.44 | 383,086.77 | 797,548.06 | 32.050488 | -103.506375 |
| 10,600.00 | 5.31 | 277.78 | 10,568.03 | 320.45 | -549.62 | 383,088.03 | 797,538.88 | 32.050492 | -103.506405 |

| | | | |
|---|---|---|---|
| **Database:** | EDM r5000.141_Prod US | **Local Co-ordinate Reference:** | Well Fighting Okra 18-19 Fed 18H |
| **Company:** | WCDSC Permian NM | **TVD Reference:** | RKB @ 3395.20ft |
| **Project:** | Lea County (NAD83 New Mexico East) | **MD Reference:** | RKB @ 3395.20ft |
| **Site:** | Sec 18-T26S-34E | **North Reference:** | Grid |
| **Well:** | Fighting Okra 18-19 Fed 18H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Wellbore #1 | | |
| **Design:** | Permit Plan 1 | | |

**Planned Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Map Northing (usft) | Map Easting (usft) | Latitude | Longitude |
|---|---|---|---|---|---|---|---|---|---|
| 10,700.00 | 5.31 | 277.78 | 10,667.60 | 321.70 | -558.79 | 383,089.28 | 797,529.71 | 32.050495 | -103.506434 |
| 10,800.00 | 5.31 | 277.78 | 10,767.17 | 322.96 | -567.97 | 383,090.54 | 797,520.53 | 32.050499 | -103.506464 |
| 10,900.00 | 5.31 | 277.78 | 10,866.74 | 324.21 | -577.15 | 383,091.79 | 797,511.35 | 32.050503 | -103.506494 |
| 11,000.00 | 5.31 | 277.78 | 10,966.31 | 325.47 | -586.33 | 383,093.04 | 797,502.17 | 32.050506 | -103.506523 |
| 11,100.00 | 5.31 | 277.78 | 11,065.88 | 326.72 | -595.50 | 383,094.30 | 797,493.00 | 32.050510 | -103.506553 |
| 11,200.00 | 5.31 | 277.78 | 11,165.45 | 327.97 | -604.68 | 383,095.55 | 797,483.82 | 32.050514 | -103.506582 |
| 11,300.00 | 5.31 | 277.78 | 11,265.03 | 329.23 | -613.86 | 383,096.80 | 797,474.64 | 32.050517 | -103.506612 |
| 11,400.00 | 5.31 | 277.78 | 11,364.60 | 330.48 | -623.03 | 383,098.06 | 797,465.46 | 32.050521 | -103.506642 |
| 11,500.00 | 5.31 | 277.78 | 11,464.17 | 331.73 | -632.21 | 383,099.31 | 797,456.29 | 32.050525 | -103.506671 |
| 11,600.00 | 5.31 | 277.78 | 11,563.74 | 332.99 | -641.39 | 383,100.57 | 797,447.11 | 32.050528 | -103.506701 |
| 11,700.00 | 5.31 | 277.78 | 11,663.31 | 334.24 | -650.57 | 383,101.82 | 797,437.93 | 32.050532 | -103.506730 |
| 11,800.00 | 5.31 | 277.78 | 11,762.88 | 335.50 | -659.74 | 383,103.07 | 797,428.76 | 32.050535 | -103.506760 |
| 11,900.00 | 5.31 | 277.78 | 11,862.45 | 336.75 | -668.92 | 383,104.33 | 797,419.58 | 32.050539 | -103.506789 |
| 12,000.00 | 5.31 | 277.78 | 11,962.02 | 338.00 | -678.10 | 383,105.58 | 797,410.40 | 32.050543 | -103.506819 |
| 12,100.00 | 5.31 | 277.78 | 12,061.59 | 339.26 | -687.28 | 383,106.83 | 797,401.22 | 32.050546 | -103.506849 |
| 12,200.00 | 5.31 | 277.78 | 12,161.16 | 340.51 | -696.45 | 383,108.09 | 797,392.05 | 32.050550 | -103.506878 |
| 12,300.00 | 5.31 | 277.78 | 12,260.73 | 341.76 | -705.63 | 383,109.34 | 797,382.87 | 32.050554 | -103.506908 |
| 12,400.00 | 5.31 | 277.78 | 12,360.30 | 343.02 | -714.81 | 383,110.60 | 797,373.69 | 32.050557 | -103.506937 |
| 12,500.00 | 5.31 | 277.78 | 12,459.87 | 344.27 | -723.98 | 383,111.85 | 797,364.52 | 32.050561 | -103.506967 |
| 12,600.00 | 5.31 | 277.78 | 12,559.44 | 345.53 | -733.16 | 383,113.10 | 797,355.34 | 32.050565 | -103.506997 |
| 12,700.00 | 5.31 | 277.78 | 12,659.01 | 346.78 | -742.34 | 383,114.36 | 797,346.16 | 32.050568 | -103.507026 |
| 12,800.00 | 5.31 | 277.78 | 12,758.58 | 348.03 | -751.52 | 383,115.61 | 797,336.98 | 32.050572 | -103.507056 |
| 12,900.00 | 5.31 | 277.78 | 12,858.15 | 349.29 | -760.69 | 383,116.86 | 797,327.81 | 32.050575 | -103.507085 |
| 12,988.00 | 5.31 | 277.78 | 12,945.77 | 350.39 | -768.77 | 383,117.97 | 797,319.73 | 32.050579 | -103.507111 |
| **KOP @ 12988' MD, 50' FNL, 2122' FEL** | | | | | | | | | |
| 12,988.10 | 5.31 | 277.78 | 12,945.86 | 350.39 | -768.78 | 383,117.97 | 797,319.72 | 32.050579 | -103.507111 |
| 13,000.00 | 5.28 | 264.86 | 12,957.72 | 350.42 | -769.87 | 383,117.99 | 797,318.63 | 32.050579 | -103.507115 |
| 13,100.00 | 11.67 | 206.00 | 13,056.72 | 340.89 | -778.91 | 383,108.47 | 797,309.59 | 32.050553 | -103.507144 |
| 13,200.00 | 21.07 | 193.35 | 13,152.59 | 314.25 | -787.51 | 383,081.83 | 797,300.99 | 32.050480 | -103.507173 |
| 13,237.00 | 24.66 | 191.09 | 13,186.68 | 300.20 | -790.53 | 383,067.78 | 797,297.97 | 32.050441 | -103.507183 |
| **FTP @ 13237' MD, 100' FNL, 2122' FEL** | | | | | | | | | |
| 13,300.00 | 30.84 | 188.39 | 13,242.41 | 271.30 | -795.42 | 383,038.88 | 797,293.08 | 32.050362 | -103.507199 |
| 13,400.00 | 40.71 | 185.66 | 13,323.45 | 213.35 | -802.40 | 382,980.92 | 797,286.10 | 32.050203 | -103.507223 |
| 13,500.00 | 50.63 | 183.86 | 13,393.25 | 142.15 | -808.23 | 382,909.73 | 797,280.27 | 32.050007 | -103.507244 |
| 13,600.00 | 60.56 | 182.50 | 13,449.68 | 59.87 | -812.74 | 382,827.45 | 797,275.76 | 32.049781 | -103.507260 |
| 13,700.00 | 70.51 | 181.39 | 13,491.04 | -30.99 | -815.79 | 382,736.59 | 797,272.71 | 32.049531 | -103.507273 |
| 13,800.00 | 80.47 | 180.41 | 13,516.06 | -127.66 | -817.29 | 382,639.92 | 797,271.21 | 32.049266 | -103.507280 |
| 13,895.72 | 90.00 | 179.52 | 13,524.00 | -222.94 | -817.23 | 382,544.64 | 797,271.27 | 32.049004 | -103.507282 |
| 13,900.00 | 90.00 | 179.52 | 13,524.00 | -227.22 | -817.19 | 382,540.36 | 797,271.31 | 32.048992 | -103.507282 |
| 14,000.00 | 90.00 | 179.52 | 13,524.00 | -327.22 | -816.36 | 382,440.36 | 797,272.14 | 32.048717 | -103.507282 |
| 14,100.00 | 90.00 | 179.52 | 13,524.00 | -427.21 | -815.53 | 382,340.37 | 797,272.97 | 32.048442 | -103.507282 |
| 14,200.00 | 90.00 | 179.52 | 13,524.00 | -527.21 | -814.70 | 382,240.37 | 797,273.80 | 32.048167 | -103.507281 |
| 14,300.00 | 90.00 | 179.52 | 13,524.00 | -627.21 | -813.86 | 382,140.37 | 797,274.64 | 32.047893 | -103.507281 |
| 14,400.00 | 90.00 | 179.52 | 13,524.00 | -727.20 | -813.03 | 382,040.38 | 797,275.47 | 32.047618 | -103.507281 |
| 14,500.00 | 90.00 | 179.52 | 13,524.00 | -827.20 | -812.20 | 381,940.38 | 797,276.30 | 32.047343 | -103.507281 |
| 14,600.00 | 90.00 | 179.52 | 13,524.00 | -927.20 | -811.37 | 381,840.38 | 797,277.13 | 32.047068 | -103.507280 |
| 14,700.00 | 90.00 | 179.52 | 13,524.00 | -1,027.19 | -810.53 | 381,740.39 | 797,277.97 | 32.046793 | -103.507280 |
| 14,800.00 | 90.00 | 179.52 | 13,524.00 | -1,127.19 | -809.70 | 381,640.39 | 797,278.80 | 32.046518 | -103.507280 |
| 14,900.00 | 90.00 | 179.52 | 13,524.00 | -1,227.19 | -808.87 | 381,540.40 | 797,279.63 | 32.046243 | -103.507280 |
| 15,000.00 | 90.00 | 179.52 | 13,524.00 | -1,327.18 | -808.04 | 381,440.40 | 797,280.46 | 32.045968 | -103.507280 |
| 15,100.00 | 90.00 | 179.52 | 13,524.00 | -1,427.18 | -807.20 | 381,340.40 | 797,281.30 | 32.045694 | -103.507279 |
| 15,200.00 | 90.00 | 179.52 | 13,524.00 | -1,527.17 | -806.37 | 381,240.41 | 797,282.13 | 32.045419 | -103.507279 |
| 15,300.00 | 90.00 | 179.52 | 13,524.00 | -1,627.17 | -805.54 | 381,140.41 | 797,282.96 | 32.045144 | -103.507279 |
| 15,400.00 | 90.00 | 179.52 | 13,524.00 | -1,727.17 | -804.71 | 381,040.41 | 797,283.79 | 32.044869 | -103.507279 |

| | | | |
|---|---|---|---|
| **Database:** | EDM r5000.141_Prod US | **Local Co-ordinate Reference:** | Well Fighting Okra 18-19 Fed 18H |
| **Company:** | WCDSC Permian NM | **TVD Reference:** | RKB @ 3395.20ft |
| **Project:** | Lea County (NAD83 New Mexico East) | **MD Reference:** | RKB @ 3395.20ft |
| **Site:** | Sec 18-T26S-34E | **North Reference:** | Grid |
| **Well:** | Fighting Okra 18-19 Fed 18H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Wellbore #1 | | |
| **Design:** | Permit Plan 1 | | |

**Planned Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Map Northing (usft) | Map Easting (usft) | Latitude | Longitude |
|---|---|---|---|---|---|---|---|---|---|
| 15,500.00 | 90.00 | 179.52 | 13,524.00 | -1,827.16 | -803.87 | 380,940.42 | 797,284.63 | 32.044594 | -103.507278 |
| 15,600.00 | 90.00 | 179.52 | 13,524.00 | -1,927.16 | -803.04 | 380,840.42 | 797,285.46 | 32.044319 | -103.507278 |
| 15,700.00 | 90.00 | 179.52 | 13,524.00 | -2,027.16 | -802.21 | 380,740.43 | 797,286.29 | 32.044044 | -103.507278 |
| 15,800.00 | 90.00 | 179.52 | 13,524.00 | -2,127.15 | -801.38 | 380,640.43 | 797,287.12 | 32.043769 | -103.507278 |
| 15,900.00 | 90.00 | 179.52 | 13,524.00 | -2,227.15 | -800.54 | 380,540.43 | 797,287.96 | 32.043495 | -103.507278 |
| 16,000.00 | 90.00 | 179.52 | 13,524.00 | -2,327.15 | -799.71 | 380,440.44 | 797,288.79 | 32.043220 | -103.507277 |
| 16,100.00 | 90.00 | 179.52 | 13,524.00 | -2,427.14 | -798.88 | 380,340.44 | 797,289.62 | 32.042945 | -103.507277 |
| 16,200.00 | 90.00 | 179.52 | 13,524.00 | -2,527.14 | -798.05 | 380,240.44 | 797,290.45 | 32.042670 | -103.507277 |
| 16,300.00 | 90.00 | 179.52 | 13,524.00 | -2,627.14 | -797.21 | 380,140.45 | 797,291.29 | 32.042395 | -103.507277 |
| 16,400.00 | 90.00 | 179.52 | 13,524.00 | -2,727.13 | -796.38 | 380,040.45 | 797,292.12 | 32.042120 | -103.507276 |
| 16,500.00 | 90.00 | 179.52 | 13,524.00 | -2,827.13 | -795.55 | 379,940.45 | 797,292.95 | 32.041845 | -103.507276 |
| 16,600.00 | 90.00 | 179.52 | 13,524.00 | -2,927.13 | -794.72 | 379,840.46 | 797,293.78 | 32.041570 | -103.507276 |
| 16,700.00 | 90.00 | 179.52 | 13,524.00 | -3,027.12 | -793.88 | 379,740.46 | 797,294.62 | 32.041295 | -103.507276 |
| 16,800.00 | 90.00 | 179.52 | 13,524.00 | -3,127.12 | -793.05 | 379,640.47 | 797,295.45 | 32.041021 | -103.507276 |
| 16,900.00 | 90.00 | 179.52 | 13,524.00 | -3,227.12 | -792.22 | 379,540.47 | 797,296.28 | 32.040746 | -103.507275 |
| 17,000.00 | 90.00 | 179.52 | 13,524.00 | -3,327.11 | -791.39 | 379,440.47 | 797,297.11 | 32.040471 | -103.507275 |
| 17,100.00 | 90.00 | 179.52 | 13,524.00 | -3,427.11 | -790.55 | 379,340.48 | 797,297.95 | 32.040196 | -103.507275 |
| 17,200.00 | 90.00 | 179.52 | 13,524.00 | -3,527.11 | -789.72 | 379,240.48 | 797,298.78 | 32.039921 | -103.507275 |
| 17,300.00 | 90.00 | 179.52 | 13,524.00 | -3,627.10 | -788.89 | 379,140.48 | 797,299.61 | 32.039646 | -103.507275 |
| 17,400.00 | 90.00 | 179.52 | 13,524.00 | -3,727.10 | -788.06 | 379,040.49 | 797,300.44 | 32.039371 | -103.507274 |
| 17,500.00 | 90.00 | 179.52 | 13,524.00 | -3,827.10 | -787.22 | 378,940.49 | 797,301.28 | 32.039096 | -103.507274 |
| 17,600.00 | 90.00 | 179.52 | 13,524.00 | -3,927.09 | -786.39 | 378,840.49 | 797,302.11 | 32.038822 | -103.507274 |
| 17,700.00 | 90.00 | 179.52 | 13,524.00 | -4,027.09 | -785.56 | 378,740.50 | 797,302.94 | 32.038547 | -103.507274 |
| 17,800.00 | 90.00 | 179.52 | 13,524.00 | -4,127.08 | -784.73 | 378,640.50 | 797,303.77 | 32.038272 | -103.507273 |
| 17,900.00 | 90.00 | 179.52 | 13,524.00 | -4,227.08 | -783.89 | 378,540.51 | 797,304.61 | 32.037997 | -103.507273 |
| 18,000.00 | 90.00 | 179.52 | 13,524.00 | -4,327.08 | -783.06 | 378,440.51 | 797,305.44 | 32.037722 | -103.507273 |
| 18,100.00 | 90.00 | 179.52 | 13,524.00 | -4,427.07 | -782.23 | 378,340.51 | 797,306.27 | 32.037447 | -103.507273 |
| 18,200.00 | 90.00 | 179.52 | 13,524.00 | -4,527.07 | -781.40 | 378,240.52 | 797,307.10 | 32.037172 | -103.507273 |
| 18,300.00 | 90.00 | 179.52 | 13,524.00 | -4,627.07 | -780.56 | 378,140.52 | 797,307.94 | 32.036897 | -103.507272 |
| 18,400.00 | 90.00 | 179.52 | 13,524.00 | -4,727.06 | -779.73 | 378,040.52 | 797,308.77 | 32.036623 | -103.507272 |
| 18,500.00 | 90.00 | 179.52 | 13,524.00 | -4,827.06 | -778.90 | 377,940.53 | 797,309.60 | 32.036348 | -103.507272 |
| 18,557.00 | 90.00 | 179.52 | 13,524.00 | -4,884.06 | -778.42 | 377,883.53 | 797,310.08 | 32.036191 | -103.507272 |
| **Cross section @ 18557' MD, 0' FNL, 2122' FEL** | | | | | | | | | |
| 18,600.00 | 90.00 | 179.52 | 13,524.00 | -4,927.06 | -778.07 | 377,840.53 | 797,310.43 | 32.036073 | -103.507272 |
| 18,700.00 | 90.00 | 179.52 | 13,524.00 | -5,027.05 | -777.23 | 377,740.53 | 797,311.27 | 32.035798 | -103.507271 |
| 18,800.00 | 90.00 | 179.52 | 13,524.00 | -5,127.05 | -776.40 | 377,640.54 | 797,312.10 | 32.035523 | -103.507271 |
| 18,900.00 | 90.00 | 179.52 | 13,524.00 | -5,227.05 | -775.57 | 377,540.54 | 797,312.93 | 32.035248 | -103.507271 |
| 19,000.00 | 90.00 | 179.52 | 13,524.00 | -5,327.04 | -774.74 | 377,440.55 | 797,313.76 | 32.034973 | -103.507271 |
| 19,100.00 | 90.00 | 179.52 | 13,524.00 | -5,427.04 | -773.90 | 377,340.55 | 797,314.60 | 32.034698 | -103.507271 |
| 19,200.00 | 90.00 | 179.52 | 13,524.00 | -5,527.04 | -773.07 | 377,240.55 | 797,315.43 | 32.034424 | -103.507270 |
| 19,300.00 | 90.00 | 179.52 | 13,524.00 | -5,627.03 | -772.24 | 377,140.56 | 797,316.26 | 32.034149 | -103.507270 |
| 19,400.00 | 90.00 | 179.52 | 13,524.00 | -5,727.03 | -771.41 | 377,040.56 | 797,317.09 | 32.033874 | -103.507270 |
| 19,500.00 | 90.00 | 179.52 | 13,524.00 | -5,827.03 | -770.57 | 376,940.56 | 797,317.93 | 32.033599 | -103.507270 |
| 19,600.00 | 90.00 | 179.52 | 13,524.00 | -5,927.02 | -769.74 | 376,840.57 | 797,318.76 | 32.033324 | -103.507270 |
| 19,700.00 | 90.00 | 179.52 | 13,524.00 | -6,027.02 | -768.91 | 376,740.57 | 797,319.59 | 32.033049 | -103.507269 |
| 19,800.00 | 90.00 | 179.52 | 13,524.00 | -6,127.02 | -768.08 | 376,640.58 | 797,320.42 | 32.032774 | -103.507269 |
| 19,900.00 | 90.00 | 179.52 | 13,524.00 | -6,227.01 | -767.24 | 376,540.58 | 797,321.26 | 32.032499 | -103.507269 |
| 20,000.00 | 90.00 | 179.52 | 13,524.00 | -6,327.01 | -766.41 | 376,440.58 | 797,322.09 | 32.032225 | -103.507269 |
| 20,100.00 | 90.00 | 179.52 | 13,524.00 | -6,427.01 | -765.58 | 376,340.59 | 797,322.92 | 32.031950 | -103.507268 |
| 20,200.00 | 90.00 | 179.52 | 13,524.00 | -6,527.00 | -764.75 | 376,240.59 | 797,323.75 | 32.031675 | -103.507268 |
| 20,300.00 | 90.00 | 179.52 | 13,524.00 | -6,627.00 | -763.91 | 376,140.59 | 797,324.59 | 32.031400 | -103.507268 |
| 20,400.00 | 90.00 | 179.52 | 13,524.00 | -6,726.99 | -763.08 | 376,040.60 | 797,325.42 | 32.031125 | -103.507268 |
| 20,500.00 | 90.00 | 179.52 | 13,524.00 | -6,826.99 | -762.25 | 375,940.60 | 797,326.25 | 32.030850 | -103.507268 |
| 20,600.00 | 90.00 | 179.52 | 13,524.00 | -6,926.99 | -761.42 | 375,840.60 | 797,327.08 | 32.030575 | -103.507267 |

| | | | |
|---|---|---|---|
| **Database:** | EDM r5000.141_Prod US | **Local Co-ordinate Reference:** | Well Fighting Okra 18-19 Fed 18H |
| **Company:** | WCDSC Permian NM | **TVD Reference:** | RKB @ 3395.20ft |
| **Project:** | Lea County (NAD83 New Mexico East) | **MD Reference:** | RKB @ 3395.20ft |
| **Site:** | Sec 18-T26S-34E | **North Reference:** | Grid |
| **Well:** | Fighting Okra 18-19 Fed 18H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Wellbore #1 | | |
| **Design:** | Permit Plan 1 | | |

**Planned Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Map Northing (usft) | Map Easting (usft) | Latitude | Longitude |
|---|---|---|---|---|---|---|---|---|---|
| 20,700.00 | 90.00 | 179.52 | 13,524.00 | -7,026.98 | -760.58 | 375,740.61 | 797,327.92 | 32.030300 | -103.507267 |
| 20,800.00 | 90.00 | 179.52 | 13,524.00 | -7,126.98 | -759.75 | 375,640.61 | 797,328.75 | 32.030025 | -103.507267 |
| 20,900.00 | 90.00 | 179.52 | 13,524.00 | -7,226.98 | -758.92 | 375,540.62 | 797,329.58 | 32.029751 | -103.507267 |
| 21,000.00 | 90.00 | 179.52 | 13,524.00 | -7,326.97 | -758.09 | 375,440.62 | 797,330.41 | 32.029476 | -103.507266 |
| 21,100.00 | 90.00 | 179.52 | 13,524.00 | -7,426.97 | -757.25 | 375,340.62 | 797,331.25 | 32.029201 | -103.507266 |
| 21,200.00 | 90.00 | 179.52 | 13,524.00 | -7,526.97 | -756.42 | 375,240.63 | 797,332.08 | 32.028926 | -103.507266 |
| 21,300.00 | 90.00 | 179.52 | 13,524.00 | -7,626.96 | -755.59 | 375,140.63 | 797,332.91 | 32.028651 | -103.507266 |
| 21,400.00 | 90.00 | 179.52 | 13,524.00 | -7,726.96 | -754.76 | 375,040.63 | 797,333.74 | 32.028376 | -103.507266 |
| 21,500.00 | 90.00 | 179.52 | 13,524.00 | -7,826.96 | -753.92 | 374,940.64 | 797,334.58 | 32.028101 | -103.507265 |
| 21,600.00 | 90.00 | 179.52 | 13,524.00 | -7,926.95 | -753.09 | 374,840.64 | 797,335.41 | 32.027826 | -103.507265 |
| 21,700.00 | 90.00 | 179.52 | 13,524.00 | -8,026.95 | -752.26 | 374,740.64 | 797,336.24 | 32.027552 | -103.507265 |
| 21,800.00 | 90.00 | 179.52 | 13,524.00 | -8,126.95 | -751.42 | 374,640.65 | 797,337.07 | 32.027277 | -103.507265 |
| 21,900.00 | 90.00 | 179.52 | 13,524.00 | -8,226.94 | -750.59 | 374,540.65 | 797,337.91 | 32.027002 | -103.507264 |
| 22,000.00 | 90.00 | 179.52 | 13,524.00 | -8,326.94 | -749.76 | 374,440.66 | 797,338.74 | 32.026727 | -103.507264 |
| 22,100.00 | 90.00 | 179.52 | 13,524.00 | -8,426.94 | -748.93 | 374,340.66 | 797,339.57 | 32.026452 | -103.507264 |
| 22,200.00 | 90.00 | 179.52 | 13,524.00 | -8,526.93 | -748.09 | 374,240.66 | 797,340.40 | 32.026177 | -103.507264 |
| 22,300.00 | 90.00 | 179.52 | 13,524.00 | -8,626.93 | -747.26 | 374,140.67 | 797,341.24 | 32.025902 | -103.507264 |
| 22,400.00 | 90.00 | 179.52 | 13,524.00 | -8,726.93 | -746.43 | 374,040.67 | 797,342.07 | 32.025627 | -103.507263 |
| 22,500.00 | 90.00 | 179.52 | 13,524.00 | -8,826.92 | -745.60 | 373,940.67 | 797,342.90 | 32.025353 | -103.507263 |
| 22,600.00 | 90.00 | 179.52 | 13,524.00 | -8,926.92 | -744.76 | 373,840.68 | 797,343.73 | 32.025078 | -103.507263 |
| 22,700.00 | 90.00 | 179.52 | 13,524.00 | -9,026.92 | -743.93 | 373,740.68 | 797,344.57 | 32.024803 | -103.507263 |
| 22,800.00 | 90.00 | 179.52 | 13,524.00 | -9,126.91 | -743.10 | 373,640.69 | 797,345.40 | 32.024528 | -103.507262 |
| 22,900.00 | 90.00 | 179.52 | 13,524.00 | -9,226.91 | -742.27 | 373,540.69 | 797,346.23 | 32.024253 | -103.507262 |
| 23,000.00 | 90.00 | 179.52 | 13,524.00 | -9,326.90 | -741.43 | 373,440.69 | 797,347.06 | 32.023978 | -103.507262 |
| 23,100.00 | 90.00 | 179.52 | 13,524.00 | -9,426.90 | -740.60 | 373,340.70 | 797,347.90 | 32.023703 | -103.507262 |
| 23,200.00 | 90.00 | 179.52 | 13,524.00 | -9,526.90 | -739.77 | 373,240.70 | 797,348.73 | 32.023428 | -103.507262 |
| 23,300.00 | 90.00 | 179.52 | 13,524.00 | -9,626.89 | -738.94 | 373,140.70 | 797,349.56 | 32.023154 | -103.507261 |
| 23,400.00 | 90.00 | 179.52 | 13,524.00 | -9,726.89 | -738.10 | 373,040.71 | 797,350.39 | 32.022879 | -103.507261 |
| 23,500.00 | 90.00 | 179.52 | 13,524.00 | -9,826.89 | -737.27 | 372,940.71 | 797,351.23 | 32.022604 | -103.507261 |
| 23,600.00 | 90.00 | 179.52 | 13,524.00 | -9,926.88 | -736.44 | 372,840.71 | 797,352.06 | 32.022329 | -103.507261 |
| 23,700.00 | 90.00 | 179.52 | 13,524.00 | -10,026.88 | -735.61 | 372,740.72 | 797,352.89 | 32.022054 | -103.507261 |
| 23,741.00 | 90.00 | 179.52 | 13,524.00 | -10,067.88 | -735.27 | 372,699.72 | 797,353.23 | 32.021941 | -103.507260 |
| **LTP @ 23741' MD, 100' FSL, 2122' FEL** | | | | | | | | | |
| 23,800.00 | 90.00 | 179.52 | 13,524.00 | -10,126.88 | -734.77 | 372,640.72 | 797,353.72 | 32.021779 | -103.507260 |
| 23,820.77 | 90.00 | 179.52 | 13,524.00 | -10,147.65 | -734.60 | 372,619.95 | 797,353.90 | 32.021722 | -103.507260 |
| **PBHL; 20' FSL, 2122' FEL** | | | | | | | | | |
| 23,820.78 | 90.00 | 179.52 | 13,524.00 | -10,147.66 | -734.60 | 372,619.94 | 797,353.90 | 32.021722 | -103.507260 |

**Design Targets**

| Target Name - hit/miss target - Shape | Dip Angle (°) | Dip Dir. (°) | TVD (ft) | +N/-S (ft) | +E/-W (ft) | Northing (usft) | Easting (usft) | Latitude | Longitude |
|---|---|---|---|---|---|---|---|---|---|
| PBHL - Fighting Okra 18 | 0.00 | 0.00 | 0.00 | -10,147.66 | -734.60 | 372,619.94 | 797,353.90 | 32.021722 | -103.507260 |
| - plan misses target center by 10174.21ft at 0.00ft MD (0.00 TVD, 0.00 N, 0.00 E) | | | | | | | | | |
| - Point | | | | | | | | | |

| | | | |
|---|---|---|---|
| **Database:** | EDM r5000.141_Prod US | **Local Co-ordinate Reference:** | Well Fighting Okra 18-19 Fed 18H |
| **Company:** | WCDSC Permian NM | **TVD Reference:** | RKB @ 3395.20ft |
| **Project:** | Lea County (NAD83 New Mexico East) | **MD Reference:** | RKB @ 3395.20ft |
| **Site:** | Sec 18-T26S-34E | **North Reference:** | Grid |
| **Well:** | Fighting Okra 18-19 Fed 18H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Wellbore #1 | | |
| **Design:** | Permit Plan 1 | | |

**Plan Annotations**

| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates +N/-S (ft) | Local Coordinates +E/-W (ft) | Comment |
|---|---|---|---|---|
| 12,988.00 | 12,945.77 | 350.39 | -768.77 | KOP @ 12988' MD, 50' FNL, 2122' FEL |
| 13,237.00 | 13,186.68 | 300.20 | -790.53 | FTP @ 13237' MD, 100' FNL, 2122' FEL |
| 18,557.00 | 13,524.00 | -4,884.06 | -778.42 | Cross section @ 18557' MD, 0' FNL, 2122' FEL |
| 23,741.00 | 13,524.00 | -10,067.88 | -735.27 | LTP @ 23741' MD, 100' FSL, 2122' FEL |
| 23,820.77 | 13,524.00 | -10,147.65 | -734.60 | PBHL; 20' FSL, 2122' FEL |

# Devon Energy

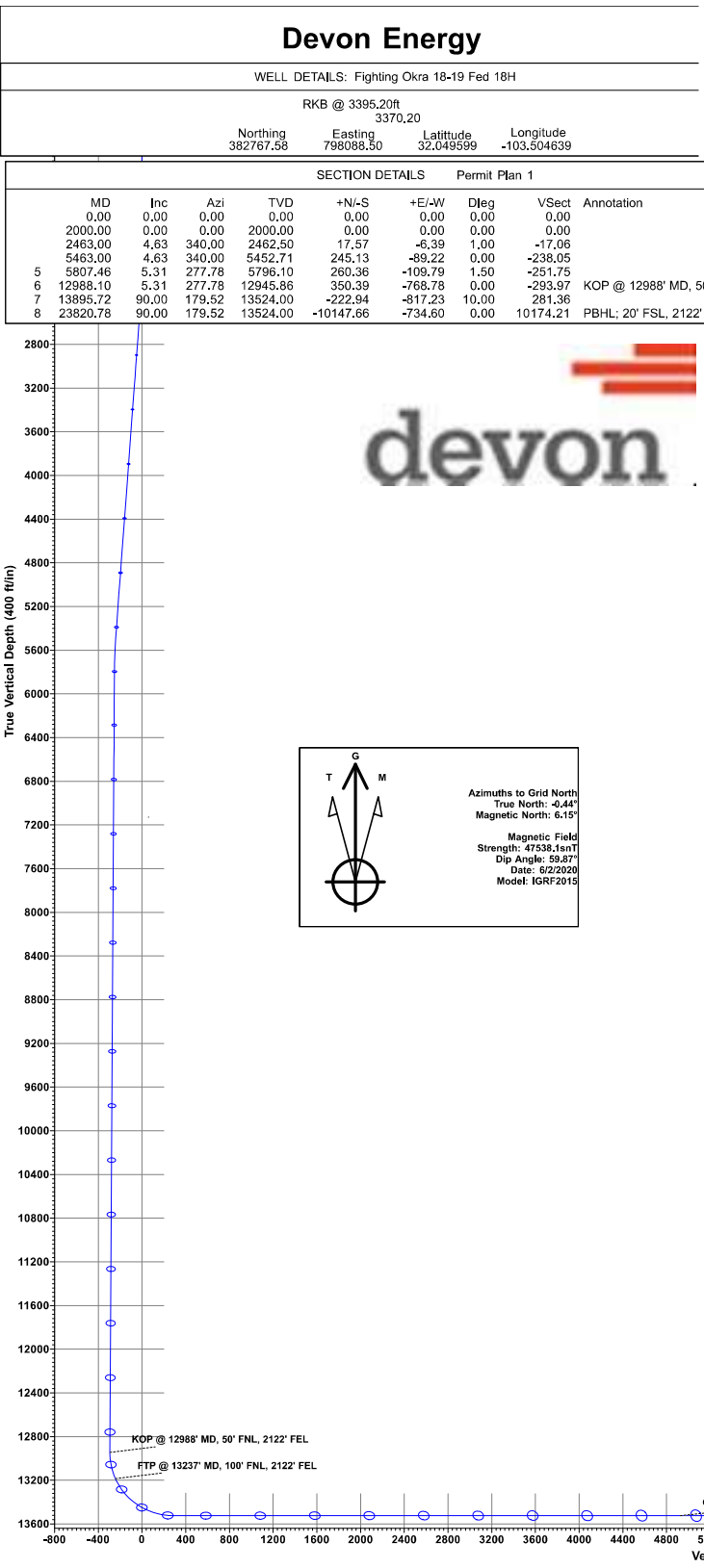
WELL DETAILS: Fighting Okra 18-19 Fed 18H

RKB @ 3395.20ft
3370.20

| Northing | Easting | Latitude | Longitude |
|---|---|---|---|
| 382767.58 | 798088.50 | 32.049599 | -103.504639 |

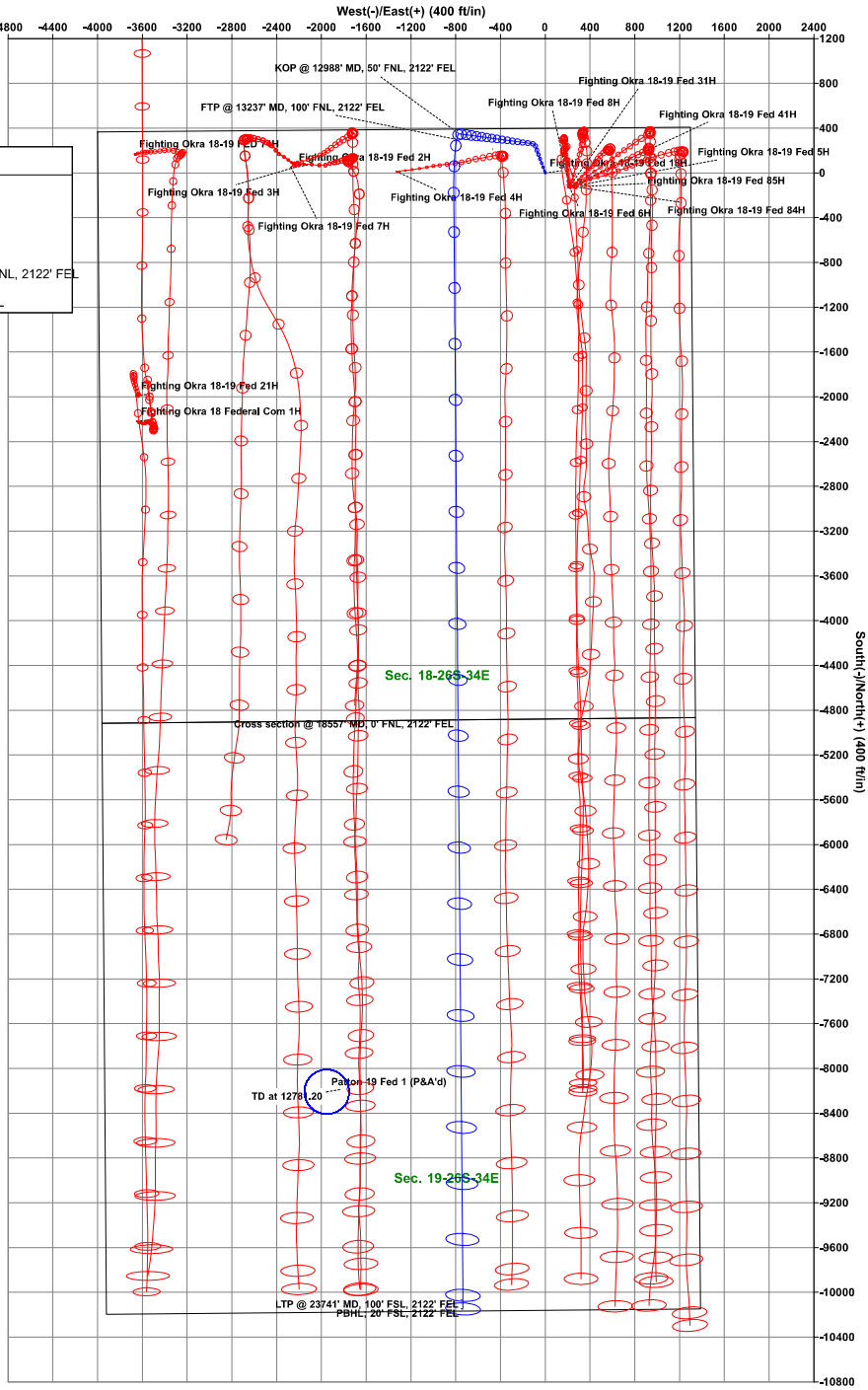
SECTION DETAILS Permit Plan 1

| | MD | Inc | Azi | TVD | +N/-S | +E/-W | Dleg | VSect | Annotation |
|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| | 2000.00 | 0.00 | 0.00 | 2000.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| | 2463.00 | 4.63 | 340.00 | 2462.50 | 17.57 | -6.39 | 1.00 | -17.06 | |
| | 5463.00 | 4.63 | 340.00 | 5452.71 | 245.13 | -89.22 | 0.00 | -238.05 | |
| 5 | 5807.46 | 5.31 | 277.78 | 5796.10 | 260.36 | -109.79 | 1.50 | -251.75 | |
| 6 | 12988.10 | 5.31 | 277.78 | 12945.86 | 350.39 | -768.78 | 0.00 | -293.97 | KOP @ 12988' MD, 50' FNL, 2122' FEL |
| 7 | 13895.72 | 90.00 | 179.52 | 13524.00 | -222.94 | -817.23 | 10.00 | 281.36 | |
| 8 | 23820.78 | 90.00 | 179.52 | 13524.00 | -10147.66 | -734.60 | 0.00 | 10174.21 | PBHL; 20' FSL, 2122' FEL |









# PECOS DISTRICT
# SURFACE USE
# CONDITIONS OF APPROVAL

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Fighting Okra 18-19 Fed 16H** | | | | | | | | **Fighting Okra 18 Well Pad 7** | |
| Surface | Section | 18 | T26S, | 34E | 230 | FNL, | 1540 | FWL, | Lea County |
| Bottom Hole | Section | 19 | T26S, | 34E | 20 | FSL, | 330 | FWL, | Lea County |
| **Fighting Okra 18-19 Fed 17H** | | | | | | | | **Fighting Okra 18 Well Pad 7** | |
| Surface | Section | 18 | T26S, | 34E | 230 | FNL, | 1570 | FWL, | Lea County |
| Bottom Hole | Section | 19 | T26S, | 34E | 20 | FsL, | 1744 | FWL, | Lea County |
| **Fighting Okra 18-19 Fed 22H** | | | | | | | | **Fighting Okra 18 Well Pad 7** | |
| Surface | Section | 18 | T26S, | 34E | 480 | FNL, | 1570 | FWL, | Lea County |
| Bottom Hole | Section | 19 | T26S, | 34E | 20 | FSL, | 2310 | FWL, | Lea County |
| **Fighting Okra 18-19 Fed 24H** | | | | | | | | **Fighting Okra 18 Well Pad 7** | |
| Surface | Section | 18 | T26S, | 34E | 480 | FNL, | 1600 | FWL, | Lea County |
| Bottom Hole | Section | 19 | T26S, | 34E | 20 | FSL, | 2300 | FEL, | Lea County |
| **Fighting Okra 18-19 Fed 18H** | | | | | | | | **Fighting Okra 18 Well Pad 5** | |
| Surface | Section | 18 | T26S, | 34E | 400 | FNL, | 1300 | FEL, | Lea County |
| Bottom Hole | Section | 19 | T26S, | 34E | 20 | FSL, | 2122 | FEL, | Lea County |
| **Fighting Okra 18-19 Fed 26H** | | | | | | | | **Fighting Okra 18 Well Pad 5** | |
| Surface | Section | 18 | T26S, | 34E | 650 | FNL, | 1240 | FEL, | Lea County |
| Bottom Hole | Section | 19 | T26S, | 34E | 20 | FSL, | 990 | FEL, | Lea County |
| **Fighting Okra 18-19 Fed 28H** | | | | | | | | **Fighting Okra 18 Well Pad 5** | |
| Surface | Section | 18 | T26S, | 34E | 650 | FNL, | 1210 | FEL, | Lea County |
| Bottom Hole | Section | 19 | T26S, | 34E | 20 | FSL, | 330 | FEL, | Lea County |
| **Fighting Okra 18-19 Fed 19H** | | | | | | | | **Fighting Okra 18 Well Pad 5** | |
| Surface | Section | 18 | T26S, | 34E | 400 | FNL, | 1270 | FEL, | Lea County |
| Bottom Hole | Section | 19 | T26S, | 34E | 20 | FSL, | 708 | FEL, | Lea County |
| **Fighting Okra 18-19 Fed 23H** | | | | | | | | **Fighting Okra 18 Well Pad 6** | |
| Surface | Section | 18 | T26S, | 34E | 500 | FNL, | 2450 | FWL, | Lea County |
| Bottom Hole | Section | 19 | T26S, | 34E | 20 | FSL, | 1650 | FEL, | Lea County |
| **Fighting Okra 18-19 Fed 25H** | | | | | | | | **Fighting Okra 18 Well Pad 6** | |
| Surface | Section | 18 | T26S, | 34E | 500 | FNL, | 2420 | FWL, | Lea County |
| Bottom Hole | Section | 19 | T26S, | 34E | 20 | FSL, | 2310 | FEL, | Lea County |
| **Fighting Okra 18-19 Fed 27H** | | | | | | | | **Fighting Okra 18 Well Pad 6** | |
| Surface | Section | 18 | T26S, | 34E | 500 | FNL, | 2390 | FWL, | Lea County |
| Bottom Hole | Section | 19 | T26S, | 34E | 20 | FSL, | 2300 | FWL, | Lea County |

## TABLE OF CONTENTS



**Approval Date: 08/11/2020**

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

☐ **General Provisions**
☐ **Permit Expiration**
☐ **Archaeology, Paleontology, and Historical Sites**
☐ **Noxious Weeds**
☒ **Special Requirements**
- Ground-level Abandoned Well Marker
- Aplomado Falcon
- Cave/Karst
- Watershed
- Range
- Cultural

☐ **Construction**
- Notification
- Topsoil
- Closed Loop System
- Federal Mineral Material Pits
- Well Pads
- Roads

☐ **Road Section Diagram**
☒ **Production (Post Drilling)**
- Well Structures & Facilities
- Pipelines
- Electric Lines

☐ **Interim Reclamation**
☐ **Final Abandonment & Reclamation**

## I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

## II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

## III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

## IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

## V. SPECIAL REQUIREMENT(S)

**Mitigations measures required for this project include having a contract archaeologist monitor all activities within archaeology site LA 141949. A reroute was conducted to avoid this site; however, a monitor is required to ensure that the construction crew adheres to the mitigation measure.**

During construction, Devon shall minimize disturbance to existing fences, water lines, troughs, windmills, and other improvements on public lands. Devon is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the grazing permittee/allottee prior to disturbing any range improvement projects. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

The operator will consult with the grazing permittee prior to disturbing any livestock watering or known fresh water pipelines used to provide water to livestock. Should the operator damage any livestock pipelines, known or unknown, the operator will repair lines immediately and consult with the grazing permittee about the possible relocation of the pipeline. Should pipeline relocation be necessary, the operator will provide all the clearances necessary for the relocation.

Power lines shall be constructed and designed in accordance to standards outlined in "Suggested Practices for Avian Protection on Power lines: The State of the Art in 2006" Edison Electric Institute, APLIC, and the California Energy Commission 2006. The holder shall assume the burden and expense of proving that pole designs not shown in the above publication deter raptor perching, roosting, and nesting. Such proof shall be provided by a raptor expert approved by the Authorized Officer. The BLM reserves the right to require modification or additions to all power line structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. The holder without liability or expense shall make such modifications and/or additions to the United States.

***Trenches-Escape Ramps***

Devon would need to construct and maintain escape ramps according to the following criteria:

- Earthen escape ramps would be required to be constructed to sufficiently support livestock at no more than a 30-degree slope and spaced no more than 500 feet apart.
- If trench is left open under an 8-hour time period, it would not be required to have an escape ramp; however, before the trench is backfilled, Lucid would inspect the trench for wildlife and remove any species that are trapped at a distance of at least 100 yards away from the trench.

**Watershed and Water Quality:**

Any water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion. Tank battery locations will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank. Automatic shut

off, check valves, or similar systems will be installed for tanks to minimize the effects of catastrophic line failures used in production or drilling.

## Cave/Karst Surface Mitigation

The following stipulations will be applied to minimize impacts during construction, drilling and production.

**Construction:**
In the advent that any underground voids are opened up during construction activities, construction activities will be halted and the BLM will be notified immediately.

**No Blasting:**
No blasting will be utilized for pad construction. The pad will be constructed and leveled by adding the necessary fill and caliche.

**Pad Berming:**
The entire perimeter of the well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad.

- The compacted berm shall be constructed at a minimum of 12 inches high with impermeable mineral material (e.g. caliche).
- No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad.
- The topsoil stockpile shall be located outside the bermed well pad.
- Topsoil, either from the well pad or surrounding area, shall not be used to construct the berm.
- No storm drains, tubing or openings shall be placed in the berm.
- If fluid collects within the bermed area, the fluid must be vacuumed into a safe container and disposed of properly at a state approved facility.
- The integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad after interim reclamation has been completed.
- Any access road entering the well pad shall be constructed so that the integrity of the berm height surrounding the well pad is not compromised. (Any access road crossing the berm cannot be lower than the berm height.)

**Tank Battery Liners and Berms:**
Tank battery locations and all facilities will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing, or equivalent, to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank.

**Leak Detection System:**
A method of detecting leaks is required. The method could incorporate gauges to measure loss, situating values and lines so they can be visually inspected, or installing electronic sensors to alarm when a leak is present. Leak detection plan will be submitted to BLM for approval.

**Automatic Shut-off Systems**:
Automatic shut off, check values, or similar systems will be installed for pipelines and tanks to minimize the effects of catastrophic line failures used in production or drilling.

EXHIBIT NO. **1**

Date of Issue:
7/24/17

**Bureau of Land Management, Carlsbad Field Office**
620 E. Greene Street Carlsbad, NM 88220

Cultural and Archaeological Resources

# NOTICE OF STIPULATIONS

BLM Report No.
17-0524

**Historic properties in the vicinity of this project are protected by federal law. In order to ensure that they are not damaged or destroyed by construction activities, the project proponent and construction supervisors shall ensure that the following stipulations are implemented.**

| Project Name: | Rattlesnake 1 Section 18 Master Development Plan |
|---|---|
| | ***1). A 3-day preconstruction call-in notification.*** Contact BLM Inspection and Enforcement at |
| **Required** | ***2. Professional archaeological monitoring***. Contact your BLM project archaeologist at (575) 234-5917 for assistance. |
| **A.** ☒ | These stipulations must be given to your monitor at least **5 days** prior to the start of construction. |
| **B.** ☒ | No construction, including vegetation removal or other site prep may begin prior to the arrival of the monitor. |
| | ***3. Cultural site barrier fencing.*** (Your monitor will assist you). |
| **A.** ☐ | **A temporary site protection barrier**(s) shall be erected prior to all ground-disturbing activities. The minimum barrier(s) shall consist of upright wooden survey lath spaced no more than ten (10) feet apart and marked with blue ribbon flagging or blue paint. There shall be no construction activities or vehicular traffic past the barrier(s) at any time. |
| **B.** ☐ | **A permanent, 4-strand barbed wire fence** strung on standard "T-posts" shall be erected prior to all ground-disturbing activities. No construction activities or vehicle traffic are allowed past the fence. |
| **Required** | ***4. The archaeological monitor shall:*** |
| **A.** ☐ | |
| **B.** ☒ | Observe all ground-disturbing activities within 100 feet of cultural site LA 141949. |
| **C.** ☐ | Ensure that the proposed |
| **D.** ☒ | Ensure the proposed reroute for LA 141949. is adhered to. |
| **E.** ☒ | Submit a brief monitoring report within 30 days of completion of monitoring. |
| **Other:** | If subsurface cultural resources are encountered during the monitoring, all activities shall cease and a BLM-CFO archaeologist shall be notified immediately.<br><br>**IF THE CONTRACT ARCHAEOLOGIST DOES NOT KNOW WHERE THE SITE(S) ARE LOCATED AT PLEASE COME BY THE CARLSBAD BLM AND MAPS AND OTHER DATA WILL BE PROVIDED UPON REQUEST TO THE CONTRACT ARCHAEOLOGIST** |

| | |
|---|---|
| | |

**<u>Site Protection and Employee Education</u>: It is the responsibility of the project proponent and his construction supervisor to inform all employees and subcontractors that cultural and archaeological sites are to be avoided by all personnel, vehicles, and equipment; and that it is illegal to collect, damage, or disturb cultural resources on Public Lands.**

For assistance contact: Bruce Boeke (575) 234-5917

# VI. CONSTRUCTION

## A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

## B. TOPSOIL

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

## C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

## D. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

## E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation. The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

## F. EXCLOSURE FENCING (CELLARS & PITS)

**Exclosure Fencing**
The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

## G. ON LEASE ACCESS ROADS

**Road Width**
The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

**Surfacing**
Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

**Crowning**
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

**Ditching**
Ditching shall be required on both sides of the road.

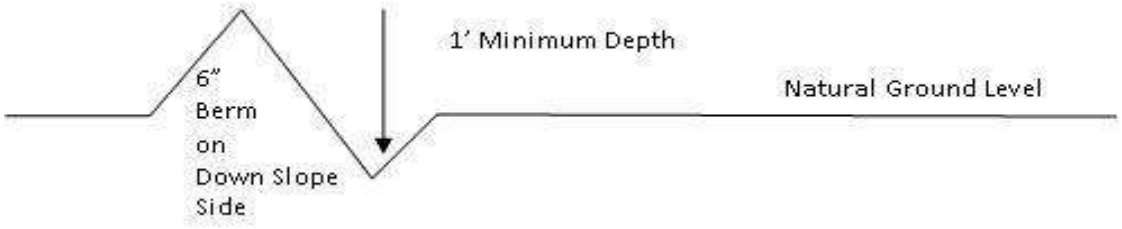
**Turnouts**
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

**Drainage**

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

**Cross Section of a Typical Lead-off Ditch**




All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

**Formula for Spacing Interval of Lead-off Ditches**

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

400 foot road with 4% road slope: $\frac{400'}{4\%} + 100' = 200'$ lead-off ditch interval

**Cattle guards**

An appropriately sized cattle guard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattle guards on the access road route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattle guards that are in place and are utilized during lease operations.

**Fence Requirement**

Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

**Public Access**

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

**Construction Steps**

1. Salvage topsoil
2. Construct road
3. Redistribute topsoil
4. Revegetate slopes

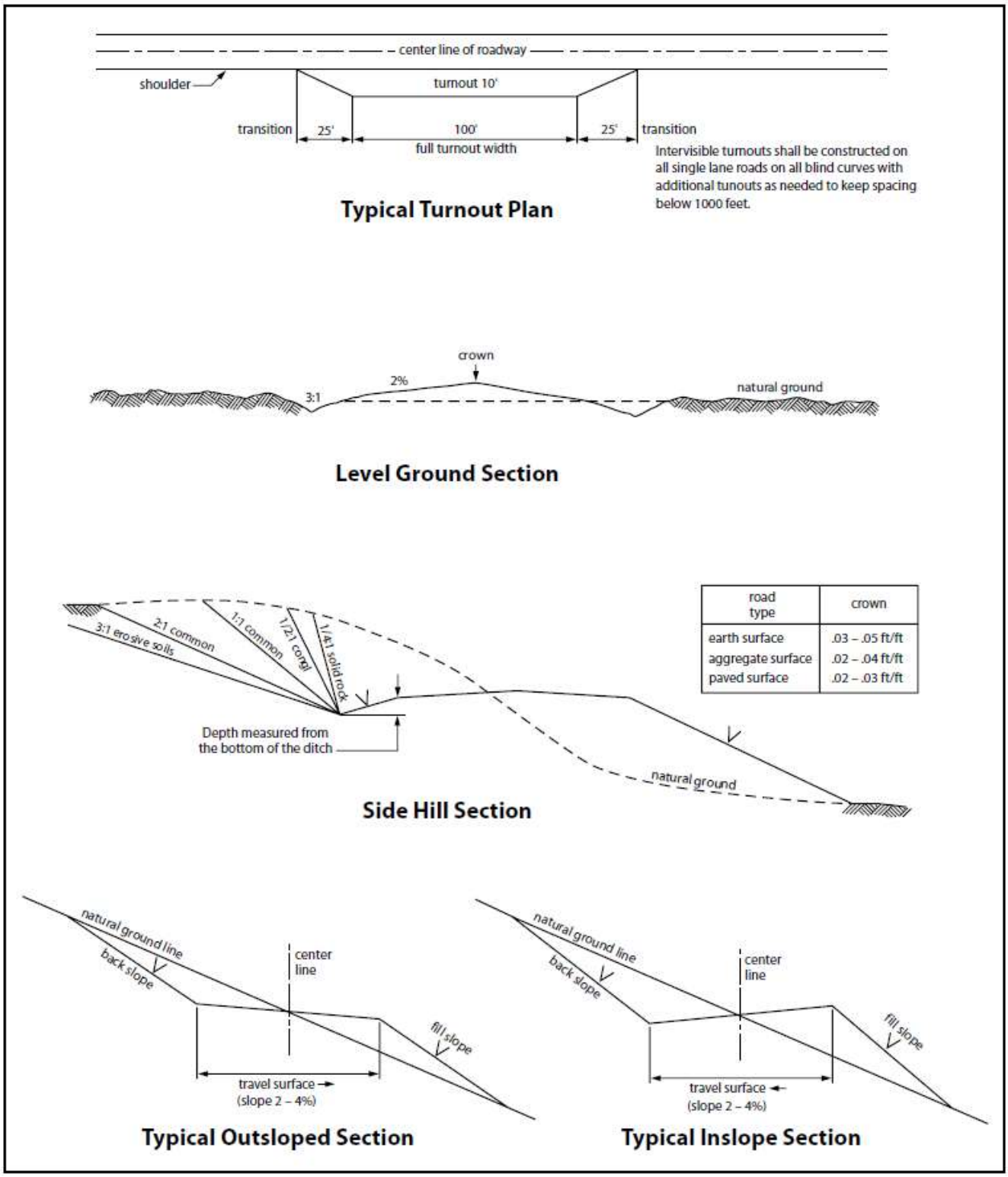



Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

# VII. PRODUCTION (POST DRILLING)

## A. WELL STRUCTURES & FACILITIES

**Placement of Production Facilities**
Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

**Exclosure Netting (Open-top Tanks)**
Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

**Chemical and Fuel Secondary Containment and Exclosure Screening**
The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

**Open-Vent Exhaust Stack Exclosures**
The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone*.) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

**Containment Structures**

Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

**Painting Requirement**
All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Shale Green** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

## B. PIPELINES

BURIED PIPELINE STIPULATIONS

A copy of the application (Grant, APD, or Sundry Notice) and attachments, including conditions of approval, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.

2. The Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C.6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil or other pollutant, wherever found, shall be the responsibility of holder, regardless of fault. Upon failure of holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve holder of any responsibility as provided herein.

5. All construction and maintenance activity will be confined to the authorized right-of-way.

6. The pipeline will be buried with a minimum cover of **36** inches between the top of the pipe and ground level.

7. The maximum allowable disturbance for construction in this right-of-way will be **30** feet:

- Blading of vegetation within the right-of-way will be allowed: maximum width of blading operations will not exceed **20** feet. The trench is included in this area. (*Blading is defined as the complete removal of brush and ground vegetation*.)

- Clearing of brush species within the right-of-way will be allowed: maximum width of clearing operations will not exceed **30** feet. The trench and bladed area are included in this area. (*Clearing is defined as the removal of brush while leaving ground vegetation (grasses, weeds, etc.) intact. Clearing is best accomplished by holding the blade 4 to 6 inches above the ground surface.*)

- The remaining area of the right-of-way (if any) shall only be disturbed by compressing the vegetation. (*Compressing can be caused by vehicle tires, placement of equipment, etc.*)

8. The holder shall stockpile an adequate amount of topsoil where blading is allowed. The topsoil to be stripped is approximately 6 inches in depth. The topsoil will be segregated from other spoil piles from trench construction. The topsoil will be evenly distributed over the bladed area for the preparation of seeding.

9. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

10. Vegetation, soil, and rocks left as a result of construction or maintenance activity will be randomly scattered on this right-of-way and will not be left in rows, piles, or berms, unless otherwise approved by the Authorized Officer. The entire right-of-way shall be recontoured to match the surrounding landscape. The backfilled soil shall be compacted and a 6 inch berm will be left over the ditch line to allow for settling back to grade.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. The holder will reseed all disturbed areas. Seeding will be done according to the attached seeding requirements, using the following seed mix.

| | |
|---|---|
| ( ) seed mixture 1 | ( ) seed mixture 3 |
| (X) seed mixture 2 | ( ) seed mixture 4 |
| ( ) seed mixture 2/LPC | ( ) Aplomado Falcon Mixture |

13. All above-ground structures not subject to safety requirements shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2.

14. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. All signs and information thereon will be posted in a permanent, conspicuous manner, and will be maintained in a legible condition for the life of the pipeline.

15. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder before maintenance begins. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway. As determined necessary during the life of the pipeline, the Authorized Officer may ask the holder to construct temporary deterrence structures.

16. Any cultural and/or paleontological resources (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the Authorized Officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

17. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes associated roads, pipeline corridor and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

18. Escape Ramps - The operator will construct and maintain pipeline/utility trenches that are not otherwise fenced, screened, or netted to prevent livestock, wildlife, and humans from becoming entrapped. At a minimum, the operator will construct and maintain escape ramps, ladders, or

other methods of avian and terrestrial wildlife escape in the trenches according to the following criteria:

a. Any trench left open for eight (8) hours or less is not required to have escape ramps; however, before the trench is backfilled, the contractor/operator shall inspect the trench for wildlife, remove all trapped wildlife, and release them at least 100 yards from the trench.
b. For trenches left open for eight (8) hours or more, earthen escape ramps (built at no more than a 30 degree slope and spaced no more than 500 feet apart) shall be placed in the trench.

STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES

**A copy of the application (Grant, Sundry Notice, APD) and attachments, including stipulations, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.**

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.

2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to activity of the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. The holder shall be liable for damage or injury to the United States to the extent provided by 43 CFR Sec. 2883.1-4. The holder shall be held to a standard of strict liability for damage or injury to the United States resulting from pipe rupture, fire, or spills caused or substantially aggravated by any of the following within the right-of-way or permit area:

a. Activities of the holder including, but not limited to construction, operation, maintenance, and termination of the facility.
b. Activities of other parties including, but not limited to:
    (1) Land clearing.
    (2) Earth-disturbing and earth-moving work.
    (3) Blasting.
    (4) Vandalism and sabotage.
c. Acts of God.

The maximum limitation for such strict liability damages shall not exceed one million dollars ($1,000,000) for any one event, and any liability in excess of such amount shall be determined by the ordinary rules of negligence of the jurisdiction in which the damage or injury occurred.

This section shall not impose strict liability for damage or injury resulting primarily from an act of war or from the negligent acts or omissions of the United States.

5. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil, salt water, or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil, salt water, or other pollutant, wherever found, shall be the responsibility of the holder, regardless of fault. Upon failure of the holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve the holder of any responsibility as provided herein.

6. All construction and maintenance activity will be confined to the authorized right-of-way width of **20** feet. If the pipeline route follows an existing road or buried pipeline right-of-way, the surface pipeline must be installed no farther than 10 feet from the edge of the road or buried pipeline right-of-way. If existing surface pipelines prevent this distance, the proposed surface pipeline must be installed immediately adjacent to the outer surface pipeline. All construction and maintenance activity will be confined to existing roads or right-of-ways.

7. No blading or clearing of any vegetation will be allowed unless approved in writing by the Authorized Officer.

8. The holder shall install the pipeline on the surface in such a manner that will minimize suspension of the pipeline across low areas in the terrain. In hummocky of duney areas, the pipeline will be "snaked" around hummocks and dunes rather then suspended across these features.

9. The pipeline shall be buried with a minimum of **24** inches under all roads, "two-tracks," and trails. Burial of the pipe will continue for 20 feet on each side of each crossing. The condition of the road, upon completion of construction, shall be returned to at least its former state with no bumps or dips remaining in the road surface.

10. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. Excluding the pipe, all above-ground structures not subject to safety requirement shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2; designated by the Rocky Mountain Five State Interagency Committee.

13. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. Signs will be maintained in a legible condition for the life of the pipeline.

14. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway.

15. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the authorized officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the authorized officer. An evaluation of the discovery will be made by the authorized officer to determine appropriate cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation

measures will be made by the authorized officer after consulting with the holder.

16. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, powerline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

17. Surface pipelines must be less than or equal to 4 inches and a working pressure below 125 psi.

## C. ELECTRIC LINES

STANDARD STIPULATIONS FOR OVERHEAD ELECTRIC DISTRIBUTION LINES

**A copy of the grant and attachments, including stipulations, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.**

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.

2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to

whether a release is caused by the holder, its agent, or unrelated third parties.

4. There will be no clearing or blading of the right-of-way unless otherwise agreed to in writing by the Authorized Officer.

5. Power lines shall be constructed and designed in accordance to standards outlined in "Suggested Practices for Avian Protection on Power lines: The State of the Art in 2006" Edison Electric Institute, APLIC, and the California Energy Commission 2006 . The holder shall assume the burden and expense of proving that pole designs not shown in the above publication deter raptor perching, roosting, and nesting. Such proof shall be provided by a raptor expert approved by the Authorized Officer. The BLM reserves the right to require modification or additions to all powerline structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. Such modifications and/or additions shall be made by the holder without liability or expense to the United States.

Raptor deterrence will consist of but not limited to the following: triangle perch discouragers shall be placed on each side of the cross arms and a nonconductive perching deterrence shall be placed on all vertical poles that extend past the cross arms.

6. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

7. The BLM serial number assigned to this authorization shall be posted in a permanent, conspicuous manner where the power line crosses roads and at all serviced facilities. Numbers will be at least two inches high and will be affixed to the pole nearest the road crossing and at the facilities served.

8. Upon cancellation, relinquishment, or expiration of this grant, the holder shall comply with those abandonment procedures as prescribed by the Authorized Officer.

9. All surface structures (poles, lines, transformers, etc.) shall be removed within 180 days of abandonment, relinquishment, or termination of use of the serviced facility or facilities or within 180 days of abandonment, relinquishment, cancellation, or expiration of this grant, whichever comes first. This will not apply where the power line extends service to an active, adjoining facility or facilities.

10. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the Authorized Officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed

is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

11. Special Stipulations:
    - For reclamation remove poles, lines, transformer, etc. and dispose of properly.
    - Fill in any holes from the poles removed.

## VIII. INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

## IX. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well.

Seed Mixture 2, for Sandy Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law (s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

| Species | lb/acre |
|---|---|
| Sand dropseed (Sporobolus cryptandrus) | 1.0 |
| Sand love grass (Eragrostis trichodes) | 1.0 |
| Plains bristlegrass (Setaria macrostachya) | 2.0 |

*Pounds of pure live seed:

Pounds of seed **x** percent purity **x** percent germination = pounds pure live seed

# PECOS DISTRICT
# DRILLING CONDITIONS OF APPROVAL

| | |
|---|---|
| **OPERATOR'S NAME:** | **Devon Energy Production Company LP** |
| **LEASE NO.:** | **NMNM114992** |
| **LOCATION:** | Section 18, T.26 S., R.34 E., NMPM |
| **COUNTY:** | Lea County, New Mexico |

| | |
|---|---|
| **WELL NAME & NO.:** | Fighting Okra 18-19 Fed 16H |
| **SURFACE HOLE FOOTAGE:** | 230'/N & 1540'/W |
| **BOTTOM HOLE FOOTAGE** | 20'/S & 330'/W |

| | |
|---|---|
| **WELL NAME & NO.:** | Fighting Okra 18-19 Fed 17H |
| **SURFACE HOLE FOOTAGE:** | 230'/N & 1570'/W |
| **BOTTOM HOLE FOOTAGE** | 20'/S & 1744'/W |

| | |
|---|---|
| **WELL NAME & NO.:** | Fighting Okra 18-19 Fed 18H |
| **SURFACE HOLE FOOTAGE:** | 400'/N & 1300'/E |
| **BOTTOM HOLE FOOTAGE** | 20'/S & 2122'/E |

| | |
|---|---|
| **WELL NAME & NO.:** | Fighting Okra 18-19 Fed 19H |
| **SURFACE HOLE FOOTAGE:** | 400'/N & 1270'/E |
| **BOTTOM HOLE FOOTAGE** | 20'/S & 708'/E |

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

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the **Wolfcamp** formation. As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.



**Approval Date: 08/11/2020**

## B. CASING

1. The **13-3/8** inch surface casing shall be set at approximately **810 feet** (a minimum of **25 feet (Lea 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.

**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.**

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.

# 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.

Devon Energy Center
333 West Sheridan Avenue
Oklahoma City, Oklahoma 73102-5015

# Hydrogen Sulfide ($H_2S$) Contingency Plan

## For

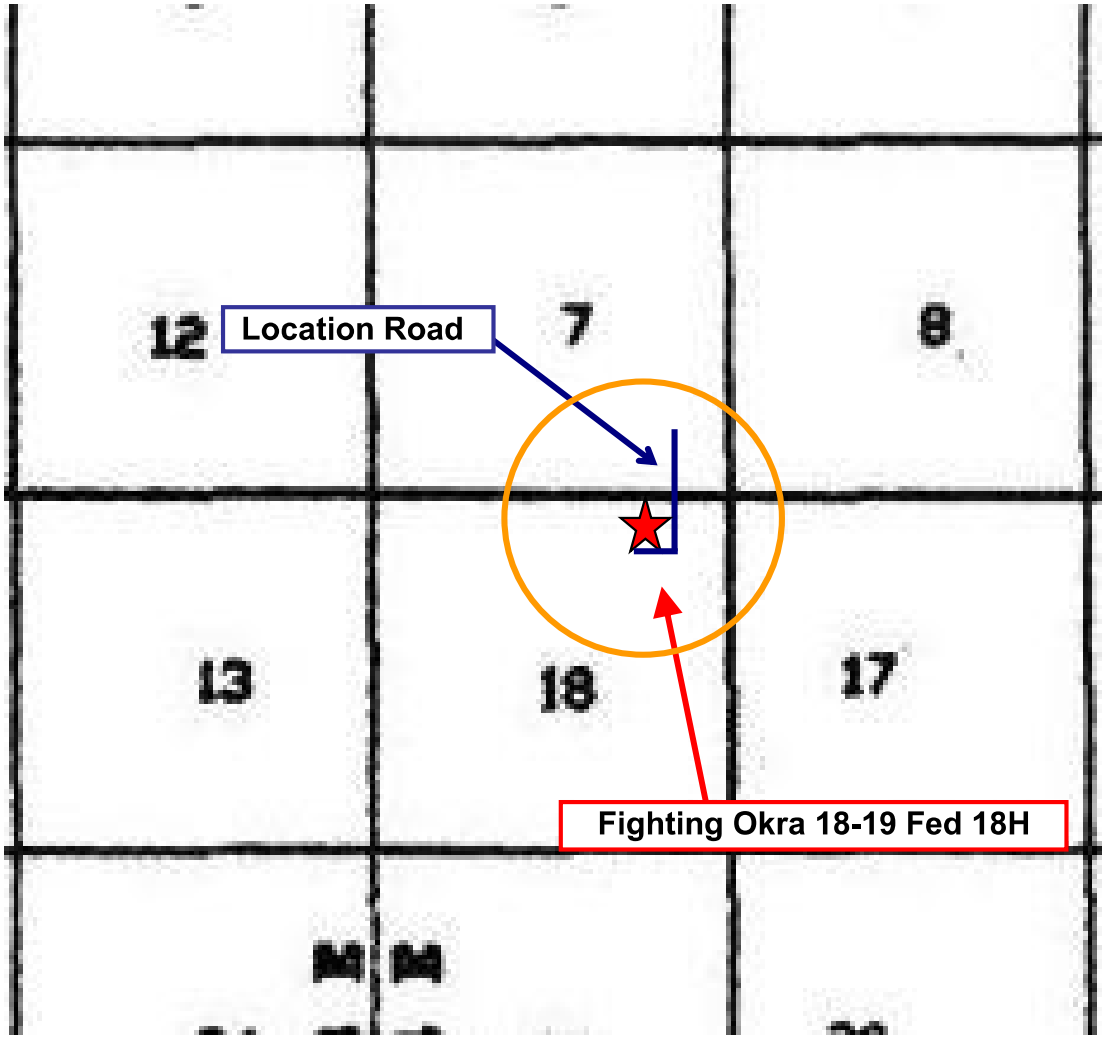
## Fighting Okra 18-19 Fed 18H

**Sec-18 T-26S R-34E**
**400 FNL & 1300' FEL**
**LAT. = 32.0495993' N (NAD83)**
**LONG = 103.5046387' W**

**Lea County NM**

# Fighting Okra 18-19 Fed 18H

This is an open drilling site. $H_2S$ monitoring equipment and emergency response equipment will be used within 500' of zones known to contain $H_2S$, including warning signs, wind indicators and $H_2S$ monitor.




**Assumed 100 ppm ROE = 3000' (Radius of Exposure)**
**100 ppm H2S concentration shall trigger activation of this plan.**

**Escape**

Crews shall escape upwind of escaping gas in the event of an emergency release of gas. Escape can be facilitated from the location entrance road. Crews should then block the entrance to the location from the lease road so as not to allow anyone traversing into a hazardous area. The blockade should be at a safe distance outside of the ROE. There are no homes or buildings in or near the ROE.

**Assumed 100 ppm ROE = 3000'**

**100 ppm $H_2S$ concentration shall trigger activation of this plan.**

**Emergency Procedures**

**In the event of a release of gas containing $H_2S$, the first responder(s) must**

- **Isolate the area and prevent entry by other persons into the 100 ppm ROE.**
- **Evacuate any public places encompassed by the 100 ppm ROE.**
- **Be equipped with $H_2S$ monitors and air packs in order to control the release.**
- **Use the "buddy system" to ensure no injuries occur during the response**
- **Take precautions to avoid personal injury during this operation.**
- **Contact operator and/or local officials to aid in operation. See list of phone numbers attached.**
- **Have received training in the**
  - **Detection of $H_2S$, and**
  - **Measures for protection against the gas,**
  - **Equipment used for protection and emergency response.**

**Ignition of Gas Source**

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide ($SO_2$). Intentional ignition must be coordinated with the NMOCD and local officials. Additionally the NM State Police may become involved. NM State Police shall be the Incident Command on scene of any major release. Take care to protect downwind whenever there is an ignition of the gas

**Characteristics of $H_2S$ and $SO_2$**

| Common Name | Chemical Formula | Specific Gravity | Threshold Limit | Hazardous Limit | Lethal Concentration |
|---|---|---|---|---|---|
| Hydrogen Sulfide | $H_2S$ | 1.189 Air = 1 | 10 ppm | 100 ppm/hr | 600 ppm |
| Sulfur Dioxide | $SO_2$ | 2.21 Air = 1 | 2 ppm | N/A | 1000 ppm |

## Contacting Authorities

Devon Energy Corp. personnel must liaison with local and state agencies to ensure a proper response to a major release. Additionally, the OCD must be notified of the release as soon as possible but no later than 4 hours. Agencies will ask for information such as type and volume of release, wind direction, location of release, etc. Be prepared with all information available. The following call list of essential and potential responders has been prepared for use during a release. Devon Energy Corp. Company response must be in coordination with the State of New Mexico's 'Hazardous Materials Emergency Response Plan' (HMER)

## Hydrogen Sulfide Drilling Operation Plan

## I. HYDROGEN SULFIDE ($H_2S$) TRAINING

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

1. The hazards and characteristics of hydrogen sulfide ($H_2S$)

2. The proper use and maintenance of personal protective equipment and life support systems.

3. The proper use of $H_2S$ detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.

4. The proper techniques for first aid and rescue procedures.

In addition, supervisory personnel will be trained in the following areas:

1. The effects of $H_2S$ metal components. If high tensile tubulars are to be used, personnel will be trained in their special maintenance requirements.

2. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.

3. The contents and requirements of the $H_2S$ Drilling Operations Plan and Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable $H_2S$ zone (within 3 days or 500 feet) and weekly $H_2S$ and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific $H_2S$ Drilling Operations Plan and the Public Protection Plan.

## II. HYDROGEN SULFIDE TRAINING

Note: All $H_2S$ safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonably expected to contain $H_2S$.

1. **Well Control Equipment**

   A. Flare line

   B. Choke manifold – Remotely Operated

   C. Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit

   D. Auxiliary equipment may include if applicable: annular preventer and rotating head.

   E. Mud/Gas Separator

2. **Protective equipment for essential personnel:**

   30-minute SCBA units located at briefing areas, as indicated on well site diagram, with escape units available in the top doghouse. As it may be difficult to communicate audibly while wearing these units, hand signals shall be utilized.

3. **$H_2S$ detection and monitoring equipment:**

   Portable $H_2S$ monitors positioned on location for best coverage and response. These units have warning lights which activate when $H_2S$ levels reach 10 ppm and audible sirens which activate at 15 ppm. Sensor locations:

   - **Bell nipple**
   - **Rig floor**
   - **Cellar**
   - **Possum Belly/Shale shaker**
   - **Choke manifold**

   **Visual warning systems:**

   A. Wind direction indicators as shown on well site diagram

   B. Caution/ Danger signs shall be posted on roads providing direct access to locations. Signs will be painted a high visibility yellow with black lettering of sufficient size to be reasonable distance from the immediate location. Bilingual signs will be used when appropriate.

4. **Mud program:**

   The mud program has been designed to minimize the volume of $H_2S$ circulated to surface. Proper mud weight, safe drilling practices and the use of $H_2S$ scavengers will minimize hazards when penetrating $H_2S$ bearing zones.

5. **Metallurgy:**

   A. All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold lines, and valves shall be $H_2S$ trim.

   B. All elastomers used for packing and seals shall be $H_2S$ trim.

6. **Communication:**

   A. Company personnel have/use cellular telephones in the field.

   B. Land line (telephone) communications at Office

7. **Well testing:**

   A. Drill stem testing will be performed with a minimum number of personnel in the immediate vicinity, which are necessary to safety and adequately conduct the test. The drill stem testing will be conducted during daylight hours and formation fluids will not be flowed to the surface. All drill-stem-testing operations conducted in an $H_2S$ environment will use the closed chamber method of testing.

   B. There will be no drill stem testing.

District I
1625 N French Dr , Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S First St , Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S St Francis Dr , Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate District Office

☐ AMENDED REPORT

OCD – HOBBS
08/18/2020
RECEIVED

# WELL LOCATION AND ACREAGE DEDICATION PLAT

| [1] API Number | [2] Pool Code | [3] Pool Name |
|---|---|---|
| 30-02547575 | 98347 | WC-025 G-10 S263418C;LWR WOLFCAMP<br>Wildcat; Lower Wolfcamp Oil |

| [4] Property Code | [5] Property Name | [6] Well Number |
|---|---|---|
| 315691 | FIGHTING OKRA 18-19 FED | 18H |

| [7] OGRID No. | [8] Operator Name | [9] Elevation |
|---|---|---|
| 6137 | DEVON ENERGY PRODUCTION COMPANY, L.P. | 3370.2 |

## [10] Surface Location

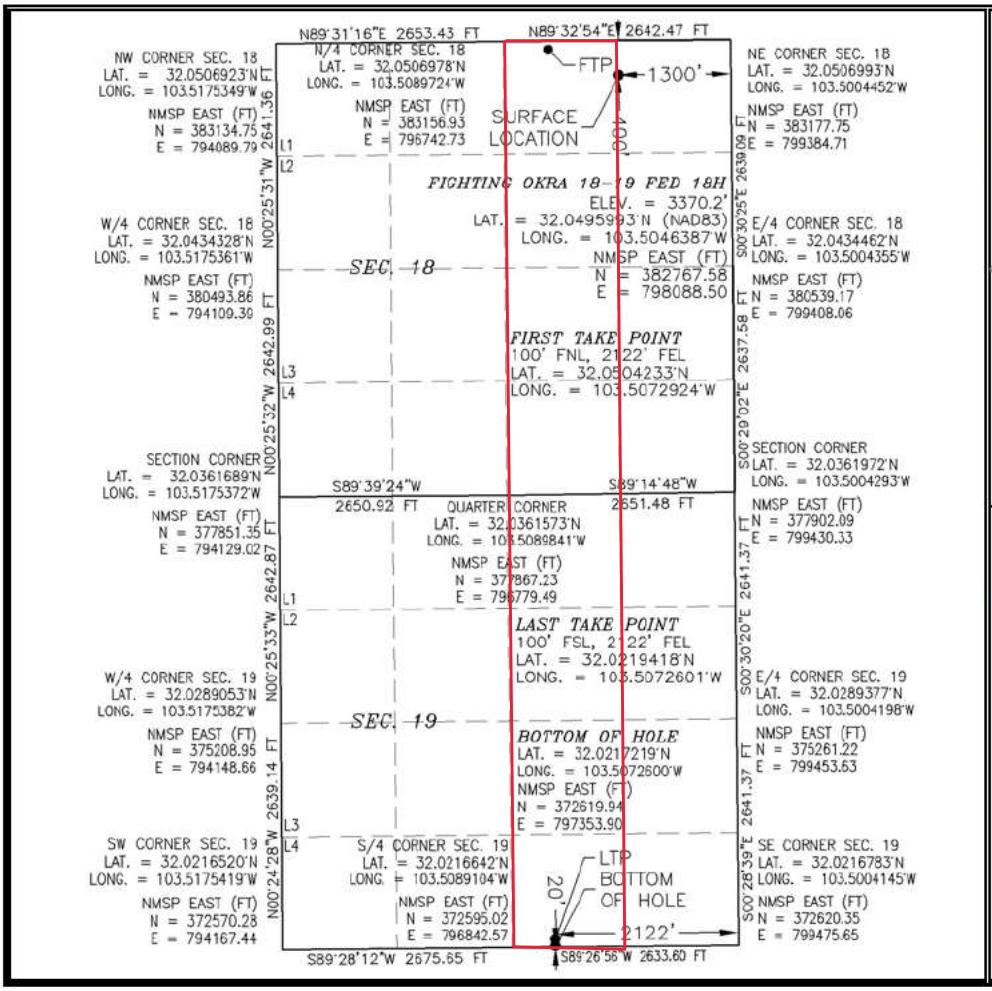
| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---|---|---|---|---|---|---|---|---|---|
| A | 18 | 26 S | 34 E | | 400 | NORTH | 1300 | EAST | LEA |

## [11] Bottom Hole Location If Different From Surface

| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---|---|---|---|---|---|---|---|---|---|
| O | 19 | 26 S | 34 E | | 20 | SOUTH | 2122 | EAST | LEA |

| [12] Dedicated Acres | [13] Joint or Infill | [14] Consolidation Code | [15] Order No. |
|---|---|---|---|
| 320 | | | |

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.




## [17] OPERATOR CERTIFICATION

*I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.*

Rebecca Deal — 6/8/2020
Signature — Date

**Rebecca Deal, Regulatory Analyst**
Printed Name

**rebecca.deal@dvn.com**
E-mail Address

## [18] SURVEYOR CERTIFICATION

*I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.*

APRIL 1, 2020
Date of Survey

Signature and Seal of Professional Surveyor:
Certificate Number: FIDENCIO J. JARAMILLO, PLS 12797
SURVEY NO. 8125

Intent [x] As Drilled [ ]

| API # |
|---|
| 30-02547575 |

| Operator Name: | Property Name: | Well Number |
|---|---|---|
| DEVON ENERGY PRODUCTION COMPANY, L.P. | FIGHTING OKRA 18-19 FED | 18H |

Kick Off Point (KOP)

| UL | Section | Township | Range | Lot | Feet | From N/S | Feet | From E/W | County |
|---|---|---|---|---|---|---|---|---|---|
| | 18 | 26S | 34E | | 50 | FNL | 2122 | FEL | LEA |

| Latitude | Longitude | NAD |
|---|---|---|
| 32.050579 | -103.507111 | 83 |

First Take Point (FTP)

| UL | Section | Township | Range | Lot | Feet | From N/S | Feet | From E/W | County |
|---|---|---|---|---|---|---|---|---|---|
| B | 18 | 26S | 34E | | 100 | NORTH | 2122 | EAST | LEA |

| Latitude | Longitude | NAD |
|---|---|---|
| 32.0504233 | 103.5072924 | 83 |

Last Take Point (LTP)

| UL | Section | Township | Range | Lot | Feet | From N/S | Feet | From E/W | County |
|---|---|---|---|---|---|---|---|---|---|
| O | 19 | 26S | 34E | | 100 | SOUTH | 2122 | EAST | LEA |

| Latitude | Longitude | NAD |
|---|---|---|
| 32.0219418 | 103.5072601 | 83 |

Is this well the defining well for the Horizontal Spacing Unit? [Y]

Is this well an infill well? [N]

If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

| API # |
|---|
| |

| Operator Name: | Property Name: | Well Number |
|---|---|---|
| | | |

KZ 06/29/2018

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

OCD – HOBBS
08/18/2020
RECEIVED

Submit Original
to Appropriate
District Office

# GAS CAPTURE PLAN

x Original
☐ Amended
Reason for Amendment:

Operator & OGRID No.: Devon Production Co., L.P. (6137)
Date: 6/9/2020

This Gas Capture Plan outlines actions to be taken by the Operator to reduce well/production facility flaring/venting for new completion (new drill, recomplete to new zone, re-frac) activity.

*Note: A C-129 must be submitted and approved prior to exceeding 60 days allowed by Rule 19.15.18.12.A*

## Well(s)/Production Facility – Fighting Okra 18 CTB 4

The well(s) that will be located at the production facility are shown in the table below.

| Well Name | API | Well Location (STR) | Footages | Expected MCF/D | Flared or Vented | Comments |
|---|---|---|---|---|---|---|
| FIGHTING OKRA 18-19 FED 18H | 30-02547575 | Sec 18-26S-34E | 400' FNL & 1300' FEL | | | Will connect to Fighting Okra 18 CTB 4 |
| FIGHTING OKRA 18-19 FED 19H | | Sec 18-26S-34E | 400' FNL & 1270' FEL | | | Will connect to Fighting Okra 18 CTB 4 |
| | | | | | | |
| | | | | | | |

## Gathering System and Pipeline Notification

Well(s) will be connected to a production facility after flowback operations are complete, if gas transporter system is in place. The gas produced from production facility is dedicated to Enterprise South Eddy and will be connected to Enterprise low/high pressure gathering system located in Eddy County, New Mexico. It will require 0' of pipeline to connect the facility to low/high pressure gathering system. Devon provides (periodically) to Enterprise a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. In addition, Devon and Enterprise have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at Enterprise Processing Plant located in Sec. 36, TWN 24S, RNG 30E, Eddy County, New Mexico. The actual flow of the gas will be based on compression operating parameters and gathering system pressures.

## Flowback Strategy

After the fracture treatment/completion operations, well(s) will be produced to temporary production tanks and gas will be flared or vented. During flowback, the fluids and sand content will be monitored. When the produced fluids contain minimal sand, the wells will be turned to production facilities. Gas sales should start as soon as the wells start flowing through the production facilities, unless there are operational issues on Enterprise's system at that time. Based on current information, it is Devon's belief the system can take this gas upon completion of the well(s).

Safety requirements during cleanout operations from the use of underbalanced air cleanout systems may necessitate that sand and non-pipeline quality gas be vented and/or flared rather than sold on a temporary basis.

## Alternatives to Reduce Flaring

Below are alternatives considered from a conceptual standpoint to reduce the amount of gas flared.

- Power Generation – On lease
  - Only a portion of gas is consumed operating the generator, remainder of gas will be flared
- Compressed Natural Gas – On lease
  - Gas flared would be minimal, but might be uneconomical to operate when gas volume declines
- NGL Removal – On lease
  - Plants are expensive, residue gas is still flared, and uneconomical to operate when gas volume declines