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

# Sundry Print Report

07/26/2022

**Well Name:** RIO BLANCO 4-33 FED COM

**Well Location:** T23S / R34E / SEC 4 / SWNE /

**County or Parish/State:**

**Well Number:** 9H

**Type of Well:** OIL WELL

**Allottee or Tribe Name:**

**Lease Number:** NMNM0019142

**Unit or CA Name:** RIO BLANCO 4-33 FED COM 39H

**Unit or CA Number:** NMNM140035

**US Well Number:** 3002550132

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

**Operator:** DEVON ENERGY PRODUCTION COMPANY LP



## Notice of Intent

**Sundry ID:** 2670761

**Type of Submission:** Notice of Intent

**Type of Action:** APD Change

**Date Sundry Submitted:** 05/10/2022

**Time Sundry Submitted:** 06:46

**Date proposed operation will begin:** 05/09/2022

**Procedure Description:** Devon Energy Production Company, L.P. respectfully requests approval for casing/drilling plan changes to add an extra intermediate casing string in order to case off a salt feature. Please see the attached plans. Devon is also requesting a break test variance. The variance request and chart is attached.

## NOI Attachments

**Procedure Description**

Rio_Blanco_4_33_Fed_Com_9H_Permit_Plan___rev1_20220721094519.pdf

13.375_48lb_H40_20220510064520.pdf

8.625_32lb_P110HSCY_TLW_20220509133629.PDF

10.750_45.50_HCL80_SCC_20220509133627.PDF

5.5_17lb_P110_BTC_20220509133622.pdf

break_test_variance_BOP_20220509132101.pdf

| | | |
|---|---|---|
| **Well Name:** RIO BLANCO 4-33 FED COM | **Well Location:** T23S / R34E / SEC 4 / SWNE / | **County or Parish/State:** |
| **Well Number:** 9H | **Type of Well:** OIL WELL | **Allottee or Tribe Name:** |
| **Lease Number:** NMNM0019142 | **Unit or CA Name:** RIO BLANCO 4-33 FED COM 39H | **Unit or CA Number:** NMNM140035 |
| **US Well Number:** 3002550132 | **Well Status:** Approved Application for Permit to Drill | **Operator:** DEVON ENERGY PRODUCTION COMPANY LP |

## Conditions of Approval

**Additional**

4_23_34_G_Sundry_ID_2670761_Rio_Blanco_4_33_Fed_Com_9H_Lea_NM19142_DEVON_ENERGY_PRODUCTION_COMPANY_LP_13_22d_1_25_22_LV_20220725103227.pdf

Rio_Blanco_4_33_Fed_Com_9H_Dr_COA_Sundry_ID_2670761_20220725103227.pdf

## Operator

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

**Operator Electronic Signature:** CHELSEY GREEN

**Signed on:** JUL 21, 2022 09:45 AM

**Name:** DEVON ENERGY PRODUCTION COMPANY LP

**Title:** Regulatory Compliance Professional

**Street Address:** 333 West Sheridan Avenue

**City:** Oklahoma City **State:** OK

**Phone:** (405) 228-8595

**Email address:** Chelsey.Green@dvn.com

## Field

**Representative Name:**

**Street Address:**

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

**Phone:**

**Email address:**

## BLM Point of Contact

**BLM POC Name:** CODY LAYTON

**BLM POC Title:** Assistant Field Manager Lands & Minerals

**BLM POC Phone:** 5752345959

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

**Disposition:** Approved

**Disposition Date:** 07/25/2022

**Signature:** Chris Walls

BORUSAN MANNESMANN

# API 5CT 10.750" 45.50lb/ft HCL80 Casing Performance Data Sheet

Manufactured to specifications of API 5CT 9th edition and bears the API monogram.

| | |
|---|---|
| Grade | HCL80 |
| | **Pipe Body Mechanical Properties** |
| Minimum Yield Strength | 80,000 psi |
| Maximum Yield Strength | 95,000 psi |
| Minimum Tensile Strength | 95,000 psi |
| Maximum Hardness | 23.0 HRC |
| | **Sizes** |
| OD | 10 3/4 |
| Nominal Wall Thickness | .400 in |
| Nominal Weight, T&C | 45.50 lb/ft |
| Nominal Weight, PE | 44.26 lb/ft |
| Nominal ID | 9.950 in |
| Standard Drift | 9.794 in |
| Alternate Drift | 9.875 in |
| **Coupling Special Clearance** | **Size** |
| OD | 11.25 in |
| Min. Length | 10.625 in |
| Diameter of Counter Bore | 10.890 in |
| Width of bearing face | .375 in |
| | **Minimum Performance** |
| Collapse Pressure | 2,940 psi |
| Internal Pressure Yield | 5,210 psi |
| Pipe body Tension Yield | 1,040,000 lbs |
| Joint Strength STC | 692,000 lbs |
| Joint Strength LTC | N/A |
| Joint Strength BTC | 1,063,000 lbs |
| | **Inspection and Testing** |
| Visual | OD Longitidunal and independent 3rd party SEA |
| NDT | Independent 3rd party full body EMI and End Area Inspection after hydrotest<br>Calibration notch sensitivity: 10% of specified wall thickness |
| | **Color code** |
| Pipe ends | One red, one brown and one blue band |
| Couplings | Red with one brown band |

# U. S. Steel Tubular Products

1/8/2019 12:38:52 PM

## 13.375" 48.00lbs/ft (0.330" Wall) H40

| MECHANICAL PROPERTIES | Pipe | BTC | LTC | STC | |
|---|---|---|---|---|---|
| Minimum Yield Strength | 40,000 | -- | -- | -- | psi |
| Maximum Yield Strength | 80,000 | -- | -- | -- | psi |
| Minimum Tensile Strength | 60,000 | -- | -- | -- | psi |
| **DIMENSIONS** | **Pipe** | **BTC** | **LTC** | **STC** | |
| Outside Diameter | 13.375 | -- | -- | 14.375 | in. |
| Wall Thickness | 0.330 | -- | -- | -- | in. |
| Inside Diameter | 12.715 | -- | -- | 12.715 | in. |
| Standard Drift | 12.559 | 12.559 | -- | 12.559 | in. |
| Alternate Drift | -- | -- | -- | -- | in. |
| Nominal Linear Weight, T&C | 48.00 | -- | -- | -- | lbs/ft |
| Plain End Weight | 46.02 | -- | -- | -- | lbs/ft |
| **PERFORMANCE** | **Pipe** | **BTC** | **LTC** | **STC** | |
| Minimum Collapse Pressure | 740 | 740 | -- | 740 | psi |
| Minimum Internal Yield Pressure | 1,730 | 1,730 | -- | 1,730 | psi |
| Minimum Pipe Body Yield Strength | 541 | -- | -- | -- | 1,000 lbs |
| Joint Strength | -- | -- | -- | 322 | 1,000 lbs |
| Reference Length | -- | -- | -- | 4,473 | ft |
| **MAKE-UP DATA** | **Pipe** | **BTC** | **LTC** | **STC** | |
| Make-Up Loss | -- | -- | -- | 3.50 | in. |
| Minimum Make-Up Torque | -- | -- | -- | 2,420 | ft-lbs |
| Maximum Make-Up Torque | -- | -- | -- | 4,030 | ft-lbs |



U. S. Steel Tubular Products
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Spring, Texas 77380

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connections@uss.com
www.usstubular.com

# U. S. Steel Tubular Products

2/21/2019 8:12:22 AM

## 5.500" 17.00lbs/ft (0.304" Wall) P110

| MECHANICAL PROPERTIES | Pipe | BTC | LTC | STC | |
|---|---|---|---|---|---|
| Minimum Yield Strength | 110,000 | -- | -- | -- | psi |
| Maximum Yield Strength | 140,000 | -- | -- | -- | psi |
| Minimum Tensile Strength | 125,000 | -- | -- | -- | psi |
| **DIMENSIONS** | **Pipe** | **BTC** | **LTC** | **STC** | |
| Outside Diameter | 5.500 | 6.050 | 6.050 | -- | in. |
| Wall Thickness | 0.304 | -- | -- | -- | in. |
| Inside Diameter | 4.892 | 4.892 | 4.892 | -- | in. |
| Standard Drift | 4.767 | 4.767 | 4.767 | -- | in. |
| Alternate Drift | -- | -- | -- | -- | in. |
| Nominal Linear Weight, T&C | 17.00 | -- | -- | -- | lbs/ft |
| Plain End Weight | 16.89 | -- | -- | -- | lbs/ft |
| **PERFORMANCE** | **Pipe** | **BTC** | **LTC** | **STC** | |
| Minimum Collapse Pressure | 7,480 | 7,480 | 7,480 | -- | psi |
| Minimum Internal Yield Pressure | 10,640 | 10,640 | 10,640 | -- | psi |
| Minimum Pipe Body Yield Strength | 546 | -- | -- | -- | 1,000 lbs |
| Joint Strength | -- | 568 | 445 | -- | 1,000 lbs |
| Reference Length | -- | 22,271 | 17,449 | -- | ft |
| **MAKE-UP DATA** | **Pipe** | **BTC** | **LTC** | **STC** | |
| Make-Up Loss | -- | 4.13 | 3.50 | -- | in. |
| Minimum Make-Up Torque | -- | -- | 3,470 | -- | ft-lbs |
| Maximum Make-Up Torque | -- | -- | 5,780 | -- | ft-lbs |



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# TEC-LOCK WEDGE

**8.625" 32.00 LB/FT (.352" Wall)**
**BORUSAN MANNESMANNP110 HSCY**

## Pipe Body Data

| | | |
|---|---|---|
| Nominal OD: | 8.625 | in |
| Nominal Wall: | .352 | in |
| Nominal Weight: | 32.00 | lb/ft |
| Plain End Weight: | 31.13 | lb/ft |
| Material Grade: | P110 HSCY | |
| Mill/Specification: | BORUSAN MANNESMANN | |
| Yield Strength: | 125,000 | psi |
| Tensile Strength: | 125,000 | psi |
| Nominal ID: | 7.921 | in |
| API Drift Diameter: | 7.796 | in |
| Special Drift Diameter: | 7.875 | in |
| RBW: | 87.5 % | |
| Body Yield: | 1,144,000 | lbf |
| Burst: | 8,930 | psi |
| Collapse: | 4,230 | psi |

## Connection Data

| | | |
|---|---|---|
| Standard OD: | 9.000 | in |
| Pin Bored ID: | 7.921 | in |
| Critical Section Area: | 8.61433 | in² |
| Tensile Efficiency: | 94.2 % | |
| Compressive Efficiency: | 100.0 % | |
| Longitudinal Yield Strength: | 1,077,000 | lbf |
| Compressive Limit: | 1,144,000 | lbf |
| Internal Pressure Rating: | 8,930 | psi |
| External Pressure Rating: | 4,230 | psi |
| Maximum Bend: | 62.6 | °/100 |

## Operational Data

| | | |
|---|---|---|
| Minimum Makeup Torque: | 29,900 | ft*lbf |
| Optimum Makeup Torque: | 37,375 | ft*lbf |
| Maximum Makeup Torque: | 80,900 | ft*lbf |
| Minimum Yield: | 89,900 | ft*lbf |
| Makeup Loss: | 5.97 | in |

## Notes

Operational Torque is equivalent to the Maximum Make-Up Torque.

HUNTING

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Please visit http://www.huntingplc.com for the latest technical information.

## Section 2 - Blowout Preventer Testing Procedure

Variance Request

Devon Energy requests to only test BOP connection breaks after drilling out of surface casing and while skidding between wells which conforms to API Standard 53 and industry standards. This test will include the Top Pipe Rams, HCR, Kill Line Check Valve, QDC (quick disconnect to wellhead) and Shell of the 10M BOPE to 5M for 10 minutes. If a break to the flex hose that runs to the choke manifold is required due to repositioning from a skid, the HCR will remain open during the shell test to include that additional break. The variance only pertains to intermediate hole-sections and no deeper than the Bone Springs Formation where 5M BOP tests are required. The initial BOP test will follow OOGO2.III.A.2.i, and subsequent tests following a skid will only test connections that are broken. The annular preventer will be tested to 100% working pressure. This variance will meet or exceed OOGO2.III.A.2.i per the following: Devon Energy will perform a full BOP test per OOGO2.III.A.2.i before drilling out of the intermediate casing string(s) and starting the production hole, before starting any hole section that requires a 10M test, before the expiration of the allotted 14-days for 5M intermediate batch drilling or when the drilling rig is fully mobilized to a new well pad, whichever is sooner. We will utilize a 200' TVD tolerance between intermediate shoes as the cutoff for a full BOP test. The BLM will be contacted 4hrs prior to a BOPE test. The BLM will be notified if and when a well control event is encountered. Break test will be a 14 day interval and not a 30 day full BOPE test interval. <u>If in the event break testing is not utilized, then a full BOPE test would be conducted.</u>

1. Well Control Response:

1. Primary barrier remains fluid
2. In the event of an influx due to being underbalanced and after a realized gain or flow, the order of closing BOPE is as follows:
    a) Annular first
    b) If annular were to not hold, Upper pipe rams second (which were tested on the skid BOP test)
    c) If the Upper Pipe Rams were to not hold, Lower Pipe Rams would be third

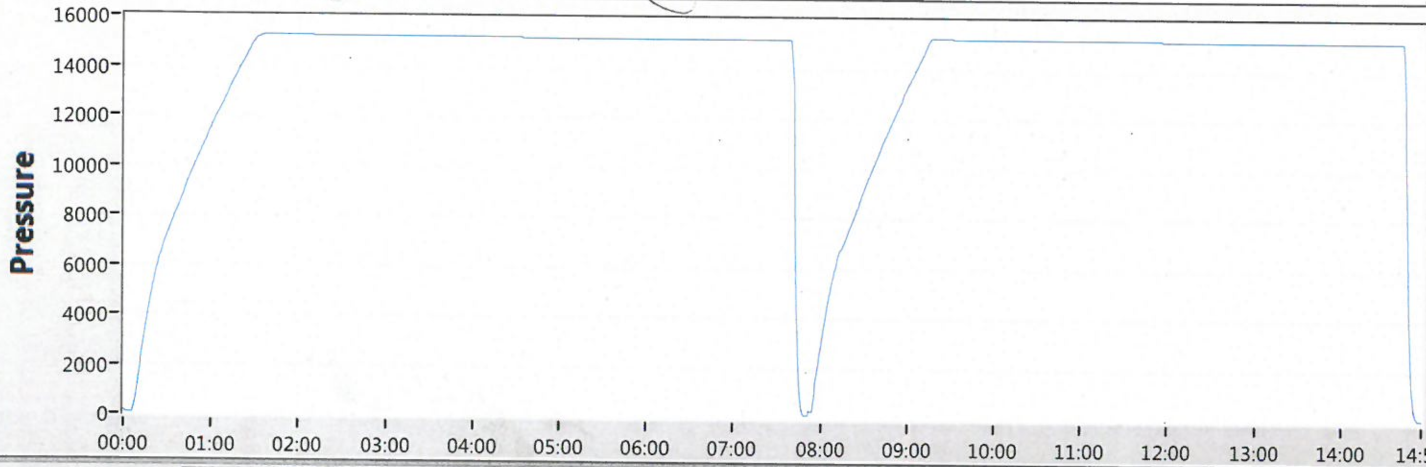
Cactus Wellhead

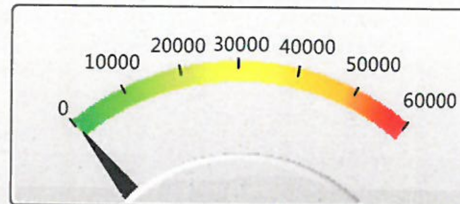
2-9-17

EBell

80.7 °F

15:49




50

Date 02-09-17

Tested By E.BELL

Transducer bay2

Transducer Serial 181504

Calibration Date 9/6/15

| | Job# | Part# | Serial# | Description | Test Pressure |
|---|---|---|---|---|---|
| 1 | TRJ0006341-0007 | 116966 | TRJ6341-7-1 | ADPT,DRLG,CW,MBU-3T,13-5/8 10M | 15000 |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | TRANSDUCER CALIBRATION DUE 03/13/2017 | |
| 6 | | | | | |
| 7 | | | | | |
| 8 | | | | | |

Start | Stop | Zero | Config | Save | Print | EXIT

**1. Geologic Formations**

| | | | |
|---|---|---|---|
| TVD of target | 11215 | Pilot hole depth | N/A |
| MD at TD: | 18955 | Deepest expected fresh water | |

**Basin**

| Formation | Depth (TVD) from KB | Water/Mineral Bearing/Target Zone? | Hazards* |
|---|---|---|---|
| Rustler | 2135 | | |
| Salt | 2515 | | |
| Base of Salt | 4935 | | |
| Delaware | 5105 | | |
| Cherry Canyon | 5985 | | |
| Brushy Canyon | 7115 | | |
| 1st Bone Spring Lime | 8455 | | |
| Bone Spring 1st | 9515 | | |
| Bone Spring 2nd | 10000 | | |
| 3rd Bone Spring Lime | 10425 | | |
| Bone Spring 3rd | 10925 | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

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



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

| Hole Size | Csg. Size | Wt (PPF) | Grade | Conn | Top (MD) | Bottom (MD) | Top (TVD) | Bottom (TVD) |
|---|---|---|---|---|---|---|---|---|
| 17 1/2 | 13 3/8 | 48.0 | H40 | STC | 0.0 | 2160 MD | 0 | 2160 TVD |
| 12 1/4 | 10 3/4 | 45.5 | HCL80 | BTC SCC | 0.0 | 3500 MD | 0 | 3500 TVD |
| 9 7/8 | 8 5/8 | 32.0 | P110 | TLW | 0 | 8455 MD | 0 | 8455 TVD |
| 7 7/8 | 5 1/2 | 17.0 | P110 | BTC | 0 | 18955 MD | 0 | 11215 TVD |

• All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 IILB.1.h Must have table for contingency casing.
• The Rustler top will be validated via drilling parameters (i.e. reduction in ROP), and the surface casing setting depth will be revised accordingly. In addition, surface casing will be set a minimum of 25' above the top of the salt.
• Assuming no returns are established while drilling, Devon requests to pump a two stage cement job on the 8-5/8'' intermediate casing string with the first stage being pumped conventionally with the calculated top of cement at the Brushy Canyon (7,115') and the second stage performed as a bradenhead squeeze with planned cement from the Brushy Canyon to surface. If necessary, a top out consisting of Class C cement + 3% Salt + 1% PreMag-M + 6% Bentonite Gel (2.30 yld, 12.91 ppg) will be executed as a contingency. The final cement top will be verified by Echo-meter.
• Devon will include the Echo-meter verified fluid top and the volume of displacement fluid above the cement slurry in the annulus in all post-drillsundries on wells utilizing this cement program.
Devon will report to the BLM the volume of fluid (limited to 1 bbls) used to flush intermediate casing valves followingbackside cementing procedures.

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

| Casing | # Sks | TOC | Wt. (lb/gal) | Yld (ft3/sack) | Slurry Description |
|---|---|---|---|---|---|
| Surface | 1602 | Surf | 13.2 | 1.44 | Lead: Class C Cement + additives |
| Int | 281 | Surf | 9 | 3.27 | Lead: Class C Cement + additives |
| | 101 | 500' above shoe | 13.2 | 1.44 | Tail: Class H / C + additives |
| Int 1 | 331 | Surf | 9 | 3.27 | Lead: Class C Cement + additives |
| | 162 | 7115'/Brushy 1340'above shoe | 13.2 | 1.44 | Tail: Class H / C + additives |
| Int 1 Intermediate Squeeze Option | As Needed | Surf | 9 | 1.44 | Squeeze: Class C Cement + additives |
| | 331 | Surf | 9 | 3.27 | Braden Head Lead: Class C Cement + additives |
| | 162 | 1340' above shoe | 13.2 | 1.44 | Tail: Class H / C + additives |
| Production | 141 | 8255 200' tie back | 9 | 3.27 | Lead: Class H /C + additives |
| | 1110 | 10632 | 13.2 | 1.44 | Tail: Class H / C + additives |

If a DV tool is ran the depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. Slurry weights will be adjusted based on estimated fracture gradient of the formation. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. If cement is not returned to surface during the primary cement job on the surface casing string, a planned top job will be conducted immediately after completion of the primary job.

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

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

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

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

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

| Section | Type | Weight (ppg) |
|---|---|---|
| Surface | WBM | 8.5-9 |
| Intermediate | DBE / Cut Brine | 10-10.5 |
| Intermediate 1 | WBM | 8.5-9 |
| Production | WBM | 8.5-9 |

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 | 5248 |
| 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

4-23-34-G Sundry ID 2670761 Rio Blanco 4-33 Fed Com 9H Lea NM19142 DEVON ENERGY PRODUCTION COMPANY LP 13-22d 1-25-22 LV.xlsm

**Rio Blanco 4-33 Fed Com 9H**

13 3/8 surface csg in a 17 1/2 inch hole. **Design Factors** Surface

| Segment | #/ft | Grade | Coupling | Joint | Collapse | Burst | Length | B@s | a-B | a-C | Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|
| "A" | 48.00 | h 40 | stc | 3.11 | 0.76 | 0.91 | 2,160 | 2 | 1.52 | 1.44 | 103,680 |
| "B" | | | stc | | | | 0 | | | | 0 |
| w/8.4#/g mud, 30min Sfc Csg Test psig: 268 | | | Tail Cmt | does not | circ to sfc. | Totals: | 2,160 | | | | 103,680 |

Comparison of Proposed to Minimum Required Cement Volumes

| Hole Size | Annular Volume | 1 Stage Cmt Sx | 1 Stage CuFt Cmt | Min Cu Ft | 1 Stage % Excess | Drilling Mud Wt | Calc MASP | Req'd BOPE | Min Dist Hole-Cplg |
|---|---|---|---|---|---|---|---|---|---|
| 17 1/2 | 0.6946 | 1602 | 2307 | 1500 | 54 | 9.00 | 1139 | 2M | 1.56 |

Site plat (pipe racks S or E) as per O.O.1.III.D.4.i. not found.

Burst Frac Gradient(s) for Segment(s) A, B = , b All > 0.70, OK.

10 3/4 casing inside the 13 3/8 **Design Factors** Int 1

| Segment | #/ft | Grade | Coupling | Joint | Collapse | Burst | Length | B@s | a-B | a-C | Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|
| "A" | 45.50 | hcl 80 | btc scc | 6.53 | 1.54 | 1.32 | 3,500 | 3 | 2.49 | 2.58 | 159,250 |
| "B" | | | | | | | 0 | | | | 0 |
| w/8.4#/g mud, 30min Sfc Csg Test psig: | | | | | | Totals: | 3,500 | | | | 159,250 |

The cement volume(s) are intended to achieve a top of 0 ft from surface or a 2160 overlap.

| Hole Size | Annular Volume | 1 Stage Cmt Sx | 1 Stage CuFt Cmt | Min Cu Ft | 1 Stage % Excess | Drilling Mud Wt | Calc MASP | Req'd BOPE | Min Dist Hole-Cplg |
|---|---|---|---|---|---|---|---|---|---|
| 12 1/4 | 0.1882 | 382 | 1064 | 795 | 34 | 10.50 | 2093 | 3M | 0.50 |

Class 'C' tail cmt yld > 1.35

8 5/8 casing inside the 10 3/4 **Design Factors** Int 2

| Segment | #/ft | Grade | Coupling | Joint | Collapse | Burst | Length | B@s | a-B | a-C | Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|
| "A" | 32.00 | p 110 | tlw | 3.98 | 1.07 | 1.7 | 8,455 | 2 | 3.22 | 2.02 | 270,560 |
| "B" | | | | | | | 0 | | | | 0 |
| w/8.4#/g mud, 30min Sfc Csg Test psig: 1,860 | | | | | | Totals: | 8,455 | | | | 270,560 |

The cement volume(s) are intended to achieve a top of 0 ft from surface or a 3500 overlap.

| Hole Size | Annular Volume | 1 Stage Cmt Sx | 1 Stage CuFt Cmt | Min Cu Ft | 1 Stage % Excess | Drilling Mud Wt | Calc MASP | Req'd BOPE | Min Dist Hole-Cplg |
|---|---|---|---|---|---|---|---|---|---|
| 9 7/8 | 0.1261 | 162 | 233 | 1095 | -79 | 9.00 | 2776 | 5M | 0.44 |
| Setting Depths for D V Tool(s): | | | 7115 | | | | sum of sx | Σ CuFt | Σ%excess |
| % excess cmt by stage: | | 38 | 17 | | | | 493 | 1316 | 20 |

Class 'C' tail cmt yld > 1.35

5 1/2 casing inside the 8 5/8 **Design Factors** Prod 1

| Segment | #/ft | Grade | Coupling | Body | Collapse | Burst | Length | B@s | a-B | a-C | Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|
| "A" | 17.00 | p 110 | btc | 2.86 | 1.43 | 2.03 | 18,955 | 2 | 3.83 | 2.69 | 322,235 |
| "B" | | | | | | | 0 | | | | 0 |
| w/8.4#/g mud, 30min Sfc Csg Test psig: 2,467 | | | | | | Totals: | 18,955 | | | | 322,235 |

The cement volume(s) are intended to achieve a top of 8255 ft from surface or a 200 overlap.

| Hole Size | Annular Volume | 1 Stage Cmt Sx | 1 Stage CuFt Cmt | Min Cu Ft | 1 Stage % Excess | Drilling Mud Wt | Calc MASP | Req'd BOPE | Min Dist Hole-Cplg |
|---|---|---|---|---|---|---|---|---|---|
| 7 7/8 | 0.1733 | 1251 | 2059 | 1855 | 11 | 9.00 | | | 0.91 |

Class 'H' tail cmt yld > 1.20 Capitan Reef est top XXXX.

# PECOS DISTRICT
# DRILLING CONDITIONS OF APPROVAL

| | |
|---|---|
| **OPERATOR'S NAME:** | **Devon Energy Production Company LP** |
| **LEASE NO.:** | **NMNM092199** |
| **LOCATION:** | Section 4, T.23 S., R.34 E., NMPM |
| **COUNTY:** | Lea County, New Mexico |

| | |
|---|---|
| **WELL NAME & NO.:** | **Rio Blanco 4-33 Fed Com 9H** |
| **SURFACE HOLE FOOTAGE:** | 2601'/N & 2140'/E |
| **BOTTOM HOLE FOOTAGE** | 20'/N & 1980'/E |
| **ATS/API ID:** | |
| **Sundry ID:** | **2670761** |

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 |
| Wellhead Variance | ○ Diverter | | |
| Other | ☑ 4 String | ☐ Capitan Reef | ☐ WIPP |
| Other | ☑ Fluid Filled | ☐ Pilot Hole | ☐ Open Annulus |
| Cementing | ☑ Cement Squeeze | ☑ EchoMeter | |
| Special Requirements | ☐ Water Disposal | ☑ COM | ☐ Unit |
| Special Requirements Variance | ☑ Break Testing | ☐ Offline Cementing | |

## A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the **Delaware** 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.

## B. CASING

1. The **13-3/8** inch surface casing shall be set at approximately **2160 feet** (a minimum of **25 feet (Lea County)** into the Rustler Anhydrite, above the salt, and below usable fresh water) 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 **<u>8 hours</u>** 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.

2. The minimum required fill of cement behind the **10-3/4** inch intermediate casing is:

    - Cement to surface. If cement does not circulate see B.1.a, c-d above.

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

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

**<u>Option 1 (Single Stage):</u>**

- Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.

**<u>Option 2:</u>**

Operator has proposed to cement in two stages by conventionally cementing the first stage and performing a bradenhead squeeze on the second stage, contingent upon no returns to surface.

a. First stage: Operator will cement with intent to reach the top of the Brushy Canyon.

b. Second stage:

    - Operator will perform bradenhead squeeze and top-out. Cement to surface. If cement does not reach surface, the appropriate BLM office shall be notified.

**Operator has proposed to pump down 10-3/4" X 8-5/8" annulus after primary cementing stage. Operator must run Echo-meter to verify Cement Slurry/Fluid top in the annulus Or operator shall run a CBL from TD of the 8-5/8" casing to surface after the second stage BH to verify TOC.**
**Submit results to the BLM. No displacement fluid/wash out shall be utilized at the top of the cement slurry between second stage BH and top out. Operator must run one CBL per Well Pad.**

**If cement does not reach surface, the next casing string must come to surface.**

**Operator must use a limited flush fluid volume of 1 bbl following backside cementing procedures.**

4. 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 is required if washout occurs. Adjust cement volume and excess based on a fluid caliper or similar method that reflects the as-drilled size of the wellbore.**

## 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 **3000 (3M)** psi.

b. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **10-3/4** intermediate casing shoe shall be **3000 (3M)** psi. **Annular which shall be tested to 2100 (70% Working Pressure) psi.**

a. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **8-5/8** inch intermediate casing shoe shall be **5000 (5M)** psi.

**<u>Option 2:</u>**

a. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the **13-3/8** inch surface casing. 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.

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

**D. SPECIAL REQUIREMENT (S)**

**<u>Communitization Agreement</u>**

- The operator will submit a Communitization Agreement to the Santa Fe Office, 301 Dinosaur Trail Santa Fe, New Mexico 87508, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. <u>When the Communitization Agreement number is known, it shall also be on the sign.</u>

**BOPE Break Testing Variance**

- BOPE Break Testing is ONLY permitted for 5M BOPE or less. **(Annular preventer must be tested to a minimum of 70% of BOPE working pressure and shall be higher than the MASP)**
- BOPE Break Testing is NOT permitted to drilling the production hole section.
- Variance only pertains to the intermediate hole-sections and no deeper than the Bone Springs formation.
- While in transfer between wells, the BOPE shall be secured by the hydraulic carrier or cradle.
- Any well control event while drilling require notification to the BLM Petroleum Engineer **(575-706-2779)** prior to the commencement of any BOPE Break Testing operations.
- A full BOPE test is required prior to drilling the first deep intermediate hole section. If any subsequent hole interval is deeper than the first, a full BOPE test will be required. (200’ TVD tolerance between intermediate shoes is allowable).
- The BLM is to be contacted **(575-689-5981 Lea County)** 4 hours prior to BOPE tests.
- As a minimum, a full BOPE test shall be performed at **14**-day intervals.
- In the event any repairs or replacement of the BOPE is required, the BOPE shall test as per Onshore Oil and Gas Order No. 2.
- If in the event break testing is not utilized, then a full BOPE test would be conducted.

# 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) 689-5981

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.

LVO 7/22/2022

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

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

CONDITIONS

Action 128589

## CONDITIONS

| Operator: | |
|---|---|
| DEVON ENERGY PRODUCTION COMPANY, LP<br>333 West Sheridan Ave.<br>Oklahoma City, OK 73102 | OGRID:<br>6137 |
| | Action Number:<br>128589 |
| | Action Type:<br>[C-103] NOI Change of Plans (C-103A) |

**CONDITIONS**

| Created By | Condition | Condition Date |
|---|---|---|
| pkautz | PREVIOUS COA'S APPLY | 8/2/2022 |