

Well Name: JAMES RANCH UNIT DI 7 SAWTOOTH	Well Location: T23S / R31E / SEC 6 / LOT 4 / 32.340052 / -103.82215	County or Parish/State: EDDY / NM
Well Number: 704H	Type of Well: OIL WELL	Allottee or Tribe Name:
Lease Number: NMNM02953C	Unit or CA Name: JAMES RANCH UNIT	Unit or CA Number: NMNM70965X
US Well Number:	Operator: XTO PERMIAN OPERATING LLC	

Notice of Intent

Sundry ID: 2782125

Type of Submission: Notice of Intent      Type of Action: APD Change

Date Sundry Submitted: 03/28/2024      Time Sundry Submitted: 05:28

Date proposed operation will begin: 04/18/2024

**Procedure Description:** XTO Permian Operating, LLC. respectfully requests approval to make changes to the approved APD as follows: SHL, FTP, LTP, BHL, change the proposed TD and update the casing and cement program as follows: FROM: TO: SHL: 260' FNL & 1069' FWL of Section 6-T23S-R31E 155' FNL & 1100' FWL of Section 6-T23S-R31E FTP: 700' FSL & 2310' FWL of Section 31-T22S-R31E 330' FNL & 2530' FWL of Section 6-T23S-R31E LTP: 2539' FNL & 2310' FWL of Section 18-T23S-R31E 2540' FNL & 2530' FWL of Section 18-T23S-R31E BHL: 2589' FNL & 2310' FWL of Section 18-T23S-R31E 2590' FNL & 2530' FWL of Section 18-T23S-R31E The proposed TD will change from 24317' MD; 9976' TVD (Bone Springs) to 22259' MD; 9827' TVD (Bone Springs). The casing and cement program will be updated as outlined in the attached drilling program. ATTACHMENTS: C-102, Drilling Plan, Directional Plan, MBS, BOP Variance, Well Control Plan.

NOI Attachments

Procedure Description

- Wild\_Well\_Control\_Plan\_WWCP\_20240328052759.pdf
- BOP\_Variance\_new\_Language\_BOP\_BTV\_20240328052742.pdf
- 4\_String\_Slimhole\_SDT\_3301\_1\_20240328052720.pdf
- Wellplan\_Report\_704H\_20240328052627.pdf
- JRU\_DI7\_Sawtooth\_704H\_2BSSand\_Drilling\_Plan\_\_03\_13\_2024\_20240328052542.pdf
- JRU\_DI\_7\_SAWTOOTH\_704H\_C\_102\_signed\_3\_19\_2024\_20240328052524.pdf

Received by OCD: 4/25/2024 6:49:43 AMPage 2 of 40

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US Well Number:	Operator: XTO PERMIAN OPERATING LLC	

Conditions of Approval

Additional

Sec\_06\_23S\_31E\_NMP\_Sundry\_2782125\_James\_Ranch\_Unit\_DI\_7\_Sawtooth\_704H\_COAs\_20240408102215.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: RANELL (RUSTY) KLEIN	Signed on: MAR 28, 2024 05:28 AM
Name: XTO PERMIAN OPERATING LLC	
Title: Regulatory Analyst	
Street Address: 6401 HOLIDAY HILL ROAD BLDG 5	
City: MIDLAND	State: TX
Phone: (432) 620-6700	
Email address: RANELL.KLEIN@EXXONMOBIL.COM	

Field

Representative Name:		
Street Address:		
City:	State:	Zip:
Phone:		
Email address:		

BLM Point of Contact

BLM POC Name: CHRISTOPHER WALLS	BLM POC Title: Petroleum Engineer
BLM POC Phone: 5752342234	BLM POC Email Address: cwalls@blm.gov
Disposition: Approved	Disposition Date: 04/24/2024
Signature: Chris Walls	

Form 3160-5 (June 2019)	UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT	FORM APPROVED OMB No. 1004-0137 Expires: October 31, 2021
<b>SUNDRY NOTICES AND REPORTS ON WELLS</b> <i>Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.</i>		5. Lease Serial No. NMNM02953C
		6. If Indian, Allottee or Tribe Name

<b>SUBMIT IN TRIPLICATE - Other instructions on page 2</b>		7. If Unit of CA/Agreement, Name and/or No. JAMES RANCH UNIT/NMNM70965X
1. Type of Well <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other	8. Well Name and No. JAMES RANCH UNIT DI 7 SAWTOC	
2. Name of Operator XTO PERMIAN OPERATING LLC	9. API Well No.	
3a. Address 6401 HOLIDAY HILL ROAD BLDG 5, MIDLAND,	3b. Phone No. (include area code) (432) 683-2277	10. Field and Pool or Exploratory Area LOS MEDANOS/BONE SPRING
4. Location of Well (Footage, Sec., T.,R.,M., or Survey Description) SEC 6/T23S/R31E/NMP		11. Country or Parish, State EDDY/NM

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA				
TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Hydraulic Fracturing	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input type="checkbox"/> Other
	<input checked="" type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleate horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be perfonned or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has detennined that the site is ready for final inspection.)

XTO Permian Operating, LLC. respectfully requests approval to make changes to the approved APD as follows: SHL, FTP, LTP, BHL, change the proposed TD and update the casing and cement program as follows:

FROM: TO:  
SHL: 260' FNL & 1069' FWL of Section 6-T23S-R31E 155' FNL & 1100' FWL of Section 6-T23S-R31E  
FTP: 700' FSL & 2310' FWL of Section 31-T22S-R31E 330' FNL & 2530' FWL of Section 6-T23S-R31E  
LTP: 2539' FNL & 2310' FWL of Section 18-T23S-R31E 2540' FNL & 2530' FWL of Section 18-T23S-R31E  
BHL: 2589' FNL & 2310' FWL of Section 18-T23S-R31E 2590' FNL & 2530' FWL of Section 18-T23S-R31E

The proposed TD will change from 24317 MD; 9976 TVD (Bone Springs) to 22259 MD; 9827 TVD (Bone Springs).

The casing and cement program will be updated as outlined in the attached drilling program.

Continued on page 3 additional information

14. I hereby certify that the foregoing is true and correct. Name (Printed/Typed) RANELL (RUSTY) KLEIN / Ph: (432) 620-6700	Title Regulatory Analyst
(Electronic Submission) Signature	Date 03/28/2024

<b>THE SPACE FOR FEDERAL OR STATE OFFICE USE</b>		
Approved by CHRISTOPHER WALLS / Ph: (575) 234-2234 / Approved	Title Petroleum Engineer	Date 04/24/2024
Conditions of approval, if any, are attached. Approval of this notice 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.	Office CARLSBAD	

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.

(Instructions on page 2)

## GENERAL INSTRUCTIONS

This form is designed for submitting proposals to perform certain well operations and reports of such operations when completed as indicated on Federal and Indian lands pursuant to applicable Federal law 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, are either shown below, will be issued by or may be obtained from the local Federal office.

## SPECIFIC INSTRUCTIONS

*Item 4* - Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult the local Federal office for specific instructions.

*Item 13*: Proposals to abandon a well and subsequent reports of abandonment should include such special information as is required by the local Federal office. In addition, such proposals and reports should include reasons for the abandonment; data on any former or present productive zones or other zones with present significant fluid contents not sealed off by cement or otherwise; depths (top and bottom) and method of placement of cement plugs; mud or other material placed below, between and above plugs; amount, size, method of parting of any casing, liner or tubing pulled and the depth to the top of any tubing left in the hole; method of closing top of well and date well site conditioned for final inspection looking for approval of the abandonment. 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 the 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., 351 et seq., 25 U.S.C. 396; 43 CFR 3160.

PRINCIPAL PURPOSE: The information is used to: (1) Evaluate, when appropriate, approve applications, and report completion of subsequent well operations, on a Federal or Indian lease; and (2) document for administrative use, information for the management, disposal and use of National Resource lands and resources, such as: (a) evaluating the equipment and procedures to be used during a proposed subsequent well operation and reviewing the completed well operations for compliance with the approved plan; (b) requesting and granting approval to perform those actions covered by 43 CFR 3162.3-2, 3162.3-3, and 3162.3-4; (c) reporting the beginning or resumption of production, as required by 43 CFR 3162.4-1(c) and (d) analyzing future applications to drill or modify operations in light of data obtained and methods used.

ROUTINE USES: Information from the record and/or the record will be transferred to appropriate Federal, State, local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecutions in connection with congressional inquiries or to consumer reporting agencies to facilitate collection of debts owed the Government.

EFFECT OF NOT PROVIDING THE INFORMATION: Filing of this notice and report and disclosure of the information is mandatory for those subsequent well operations specified in 43 CFR 3162.3-2, 3162.3-3, 3162.3-4.

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

The BLM collects this information to evaluate proposed and/or completed subsequent well operations on Federal or Indian oil and gas leases.

Response to this request is mandatory.

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 Collection Clearance Officer (WO-630), 1849 C St., N.W., Mail Stop 401 LS, Washington, D.C. 20240

## Additional Information

## Additional Remarks

ATTACHMENTS: C-102, Drilling Plan, Directional Plan, MBS, BOP Variance, Well Control Plan.

## Location of Well

0. SHL: LOT 4 / 260 FNL / 1069 FWL / TWSP: 23S / RANGE: 31E / SECTION: 6 / LAT: 32.340052 / LONG: -103.82215 ( TVD: 0 feet, MD: 0 feet )

PPP: SWSW / 2636 FNL / 2310 FWL / TWSP: 23S / RANGE: 31E / SECTION: 6 / LAT: 32.333512 / LONG: -103.818137 ( TVD: 9976 feet, MD: 14500 feet )

PPP: NENW / 700 FSL / 2310 FWL / TWSP: 22S / RANGE: 31E / SECTION: 31 / LAT: 32.342681 / LONG: -103.818132 ( TVD: 9976 feet, MD: 10467 feet )

PPP: SENW / 2636 FNL / 2310 FWL / TWSP: 23S / RANGE: 31E / SECTION: 6 / LAT: 32.333512 / LONG: -103.818137 ( TVD: 9976 feet, MD: 10500 feet )

BHL: SENW / 2589 FNL / 2310 FWL / TWSP: 23S / RANGE: 31E / SECTION: 18 / LAT: 32.304488 / LONG: -103.817663 ( TVD: 9976 feet, MD: 24317 feet )

## PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

<b>OPERATOR'S NAME:</b>	XTO Permian Operating LLC
<b>WELL NAME &amp; NO.:</b>	James Ranch Unit DI 7 Sawtooth 704H
<b>LOCATION:</b>	Sec 06-23S-31E-NMP
<b>COUNTY:</b>	Eddy County, New Mexico

*Changes approved through engineering via **Sundry 2782125** on 04/08/2024. Any previous COAs not addressed within the updated COAs still apply.*

COA

<b>H<sub>2</sub>S</b>	<input type="radio"/> No	<input checked="" type="radio"/> Yes		
<b>Potash / WIPP</b>	<input type="radio"/> None	<input type="radio"/> Secretary	<input checked="" type="radio"/> R-111-P	<input checked="" type="checkbox"/> WIPP
<b>Cave / Karst</b>	<input type="radio"/> Low	<input checked="" type="radio"/> Medium	<input type="radio"/> High	<input type="radio"/> Critical
<b>Wellhead</b>	<input type="radio"/> Conventional	<input checked="" type="radio"/> Multibowl	<input type="radio"/> Both	<input type="radio"/> Diverter
<b>Cementing</b>	<input type="checkbox"/> Primary Squeeze	<input checked="" type="checkbox"/> Cont. Squeeze	<input checked="" type="checkbox"/> EchoMeter	<input type="checkbox"/> DV Tool
<b>Special Req</b>	<input checked="" type="checkbox"/> Break Testing	<input type="checkbox"/> Water Disposal	<input type="checkbox"/> COM	<input checked="" type="checkbox"/> Unit
<b>Variance</b>	<input checked="" type="checkbox"/> Flex Hose	<input checked="" type="checkbox"/> Casing Clearance	<input type="checkbox"/> Pilot Hole	<input type="checkbox"/> Capitan Reef
<b>Variance</b>	<input checked="" type="checkbox"/> Four-String	<input checked="" type="checkbox"/> Offline Cementing	<input type="checkbox"/> Fluid-Filled	<input type="checkbox"/> Open Annulus
<input type="checkbox"/> <b>Batch APD / Sundry</b>				

### A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H<sub>2</sub>S) Drilling Plan shall be activated 500 feet prior to drilling into the **Base of Salt**. As a result, the Hydrogen Sulfide area must meet all requirements from 43 CFR 3176, 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 571 feet (a minimum of 70 feet (Eddy County) into the Rustler Anhydrite, above the salt, and below usable fresh water) and cemented to the surface. ***Comments from the BLM Geologist:** Operator's proposed surface casing at 571 feet is very near the top of the salt or in the salt. Operator has extensive drilling experience in this area and has encountered lost circulation in BLM's preferred setpoint for the surface casing just below the Magenta Dolomite. BLM accepts the base of the Rustler Formation and Top of the Salt as surface casing setpoint. Operator must set surface casing at this depth and not deeper in the salt. If operator's proposed setpoint is deeper than top of salt, Operator will set surface casing at top of salt.*
  - 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 **24 hours in the Potash Area** 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 **9-5/8** inch intermediate casing is:
- Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst, Capitan Reef, or potash.**

❖ In R111 Potash Areas if cement does not circulate to surface on the first two salt protection casing strings, the cement on the 3rd casing salt string must come to surface.

3. The minimum required fill of cement behind the **7-5/8** inch intermediate casing is:

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 at 6452'**
- 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. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst, Capitan Reef, or potash.**

❖ In R111 Potash Areas if cement does not circulate to surface on the first two salt protection casing strings, the cement on the 3rd casing salt string must come to surface.

**Operator has proposed to pump down 7-5/8" X 9-5/8" 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 7-5/8" 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.**

**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 **700 feet** into previous casing string (casing tieback increased due to not meeting the minimum 0.422" clearance requirement per 43 CFR 3172.) Operator shall provide method of verification. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst, Capitan Reef, or potash.**

### **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. Operator has proposed a multi-bowl wellhead assembly. 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 43 CFR 3172 must be followed.

### **D. SPECIAL REQUIREMENT (S)**

#### **Unit Wells**

The well sign for a unit well shall include the unit number in addition to the surface and bottom hole lease numbers. This also applies to participating area numbers. If a participating area has not been established, the operator can use the general unit designation, but will replace the unit number with the participating area number when the sign is replaced.

#### **Commercial Well Determination**

A commercial well determination shall be submitted after production has been established for at least six months.

#### **WIPP Requirements**

The proposed surface well or bottom hole is located within 330 feet of the WIPP Land Withdrawal Area boundary. As a result, **XTO Permian Operating** is required to submit daily drilling reports, logs and deviation survey information to the Bureau of Land Management Engineering Department and the U.S. Department of Energy per requirements of the Joint Powers Agreement until a total vertical depth of 7,000 feet is reached. These reports will have at a minimum the rate of penetration and a clearly marked section showing the deviation for each 500-foot interval. Operator may be required to do more frequent deviation surveys based on the daily information submitted and may be required to take other corrective measures. Information will also be provided to the New Mexico Oil Conservation Division after drilling activities have been completed. Upon completion of the well, the operator shall submit a complete directional survey. Any future entry into the well for purposes of completing additional drilling will require supplemental information.

Any oil and gas well operator drilling within one mile of the WIPP Boundary must notify WIPP as soon as possible if any of the following conditions are encountered during oil and gas operations: (R R-111-P Amendment) Notification to Operators (Potash)

- (1) Indication of any well collision event,
- (2) Suspected well fluid flow (oil, gas, or produced water) outside of casing,
- (3) Sustained annulus pressure between the 1st intermediate and next innermost casing string in excess of 500 psi above the baseline pressure of the well, or above 1500 psi total,
- (4) Increasing pressure buildup rates (psi/day) across multiple successive bleed-off cycles on the annulus between the 1st intermediate and next innermost casing during well production, or
- (5) Sustained losses in excess of 50% through the salt formation during drilling.

**XTO Permian Operating** can email the required information to [OilGasReports@wipp.ws](mailto:OilGasReports@wipp.ws). Attached files must not be greater than 20 MB. Call WIPP Tech Support at 575-234-7422, during the hours 7:00am to 4:30pm, if there are any issues sending to this address.

#### **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 (575-361-2822 Eddy County) 4 hours prior to BOPE tests.
- As a minimum, a full BOPE test shall be performed at 21-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.

### Offline Cementing

Contact the BLM prior to the commencement of any offline cementing procedure.

## GENERAL REQUIREMENTS

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

- Spudding well (minimum of 24 hours)
  - Setting and/or Cementing of all casing strings (minimum of 4 hours)
  - BOPE tests (minimum of 4 hours)
    - **Eddy County (API No. / US Well No. contains 30-015-#####)**  
Email or call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,  
**BLM\_NM\_CFO\_DrillingNotifications@BLM.GOV**  
(575) 361-2822
    - **Lea County (API No. / US Well No. contains 30-025-#####)**  
Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240,  
(575) 689-5981
- 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.
    - 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).
    - 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 2<sup>nd</sup> 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 **43 CFR part 3170 Subpart 3172** as soon as 2nd Rig is rigged up on well.
  - 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.
  - 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 integrity 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 integrity 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 **43 CFR part 3170 Subpart 3172** and **API STD 53 Sec. 5.3**.
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 **43 CFR part 3170 Subpart 3172** 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 cement), 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 cement plug. The BOPE test can be initiated after bumping the cement plug with the casing valve open. (only applies to single stage cement jobs, prior to the cement setting up.)
- c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer and can be initiated immediately with the casing valve open. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to **43 CFR part 3170 Subpart 3172** 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 **43 CFR part 3170 Subpart 3172**.

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.

## 10,000 PSI Annular BOP Variance Request

XTO Energy/XTO Permian Op. request a variance to use a 5000 psi annular BOP with a 10,000 psi BOP stack. The component and compatibility tables along with the general well control plans demonstrate how the 5000 psi annular BOP will be protected from pressures that exceed its rated working pressure (RWP). The pressure at which the control of the wellbore is transferred from the annular preventer to another available preventer will not exceed 3500 psi (70% of the RWP of the 5000 psi annular BOPL).

### 1. Component and Preventer Compatibility Tables

The tables below outline the tubulars and the compatible preventers in use. This table, combined with the drilling fluid, documents that two barriers to flow will be maintained at all times.

8-1/2" Production Hole Section 10M psi Requirement					
Component	OD	Primary Preventer	RWP	Alternate Preventer(s)	RWP
Drillpipe	5.000" or 4.500"	Annular	5M	Upper 3.5"-5.5" VBR Lower 3.5"-5.5" VBR	10M 10M
HWDP	5.000" or 4.500"	Annular	5M	Upper 3.5"-5.5" VBR Lower 3.5"-5.5" VBR	10M 10M
Jars	6.500"	Annular	5M	-	-
DCs and MWD tools	6.500"-8.000"	Annular	5M	-	-
Mud Motor	6.750"-8.000"	Annular	5M	-	-
Production Casing	5-1/2"	Annular	5M	-	-
Open-Hole	-	Blind Rams	10M	-	-

## 2. Well Control Procedures

Below are the minimal high-level tasks prescribed to assure a proper shut-in while drilling, tripping, running casing, pipe out of the hole (open hole), and moving the BHA through the BOPs. At least one well control drill will be performed weekly per crew to demonstrate compliance with the procedure and well control plan. The well control drill will be recorded in the daily drilling log. The type of drill will be determined by the ongoing operations, but reasonable attempts will be made to vary the type of drill conducted (pit, trip, open hole, choke, etc.). This well control plan will be available for review by rig personnel in the XTO Energy/Permian Operating drilling supervisor's office on location and on the rig floor. All BOP equipment will be tested as per Onshore O&G Order No. 2 with the exception of the 5000 psi annular which will be tested to 70% of its RWP.

### General Procedure While Drilling

1. Sound alarm (alert crew)
2. Space out drill string
3. Shut down pumps (stop pumps and rotary)
4. Shut-in well (uppermost applicable BOP, typically annular preventer, first. HCR & choke will already be in the closed position.)
5. Confirm shut-in
6. Notify toolpusher/company representative
7. Read and record the following:
  - a. SIDPP & SICP
  - b. Pit gain
  - c. Time
8. Regroup and identify forward plan

9. If pressure has built or is anticipated during the kill to reach 70% or greater of the RWP of the annular preventer, confirm spacing and close the upper variable bore rams.

#### General Procedure While Tripping

1. Sound alarm (alert crew)
2. Stab full-opening safety valve & close
3. Space out drill string
4. Shut-in well (uppermost applicable BOP, typically annular preventer, first. HCR & choke will already be in the closed position.)
5. Confirm shut-in
6. Notify toolpusher/company representative
7. Read and record the following:
  - a. SIDPP & SICP
  - b. Pit gain
  - c. Time
8. Regroup and identify forward plan
9. If pressure has built or is anticipated during the kill to reach 70% of the RWP of the annular preventer, confirm spacing and close the upper variable bore rams.

#### General Procedure While Running Production Casing

1. Sound alarm (alert crew)
2. Stab crossover and full-opening safety valve and close
3. Space out string
4. Shut-in well (uppermost applicable BOP, typically annular preventer, first. HCR & choke will already be in the closed position.)
5. Confirm shut-in
6. Notify toolpusher/company representative
7. Read and record the following:
  - a. SIDPP & SICP
  - b. Pit gain
  - c. Time
8. Regroup and identify forward plan
9. If pressure has built or is anticipated during the kill to reach 70% or greater of the RWP of the annular preventer, confirm spacing and close the upper variable bore rams.

General Procedure With No Pipe In Hole (Open Hole)

1. Sound alarm (alert crew)
2. Shut-in with blind rams (HCR & choke will already be in the closed position)
3. Confirm shut-in
4. Notify toolpusher/company representative
5. Read and record the following:
  - a. SICP
  - b. Pit gain
  - c. Time
6. Regroup and identify forward plan

General Procedures While Pulling BHA Through Stack

1. PRIOR to pulling last joint of drillpipe through stack:
  - a. Perform flow check. If flowing, continue to (b).
  - b. Sound alarm (alert crew)
  - c. Stab full-opening safety valve and close
  - d. Space out drill string with tool joint just beneath the upper variable bore rams
  - e. Shut-in using upper variable bore rams (HCR & choke will already be in the closed position)
  - f. Confirm shut-in
  - g. Notify toolpusher/company representative
  - h. Read and record the following:
    - i. SIDPP & SICP
    - ii. Pit gain
    - iii. Time
  - i. Regroup and identify forward plan
2. With BHA in the stack and compatible ram preventer and pipe combination immediately available:
  - a. Sound alarm (alert crew)
  - b. Stab crossover and full-opening safety valve and close
  - c. Space out drill string with upset just beneath the upper variable bore rams
  - d. Shut-in using upper variable bore rams (HCR & choke will already be in the closed position)
  - e. Confirm shut-in
  - f. Notify toolpusher/company representative
  - g. Read and record the following:
    - i. SIDPP & SICP

- ii. Pit gain
    - iii. Time
  - h. Regroup and identify forward plan
- 3. With BHA in the stack and NO compatible ram preventer and pipe combination immediately available:
  - a. Sound alarm (alert crew)
  - b. If possible, pull string clear of the stack and follow "Open Hole" procedure.
  - c. If impossible to pull string clear of the stack:
  - d. Stab crossover, make up one joint/stand of drillpipe and full-opening safety valve and close
  - e. Space out drill string with tooljoint just beneath the upper variable bore ram
  - f. Shut-in using upper variable bore ram (HCR & choke will already be in the closed position)
  - g. Confirm shut-in
  - h. Notify toolpusher/company representative
  - i. Read and record the following:
    - i. SIDPP & SICP
    - ii. Pit gain
    - iii. Time
  - j. Regroup and identify forward plan

**Subject:** Request for a Variance Allowing break Testing of the Blowout Preventer Equipment (BOPE)

XTO Energy requests a variance to ONLY test broken pressure seals on the BOPE and function test BOP when skidding a drilling rig between multiple wells on a pad.

**Background**

Onshore Oil and Gas Order CFR Title 43 Part 3170, Drilling Operations, Sections III.A.2.i.iv.B states that the BOP test must be performed whenever any seal subject to test pressure is broken. The current interpretation of the Bureau of Land Management (BLM) requires a complete BOP test and not just a test of the affected component. CFR Title 43 Part 3170 states, "Some situation may exist either on a well-by-well basis or field-wide basis whereby it is commonly accepted practice to vary a particular minimum standard(s) established in this order. This situation can be resolved by requesting a variance...". XTO Energy feels the break testing the BOPE is such a situation. Therefore, as per CFR Title 43 Part 3170, XTO Energy submits this request for the variance.

**Supporting Documentation**

CFR Title 43 Part 3170 became effective on December 19, 1988 and has remained the standard for regulating BLM onshore drilling operations for over 30 years. During this time there have been significant changes in drilling technology. BLM continues to use the variance request process to allow for the use of modern technology and acceptable engineering practices that have arisen since CFR Title 43 Part 3170 was originally released. The XTO Energy drilling rig fleet has many modern upgrades that allow the intact BOP stack to be moved between well slots on a multi-well pad, as well as, wellhead designs that incorporate quick connects facilitating release of the BOP from the wellhead without breaking any BOP stack components apart. These technologies have been used extensively offshore, and other regulators, API, and many operators around the world have endorsed break testing as safe and reliable.



Figure 1: Winch System attached to BOP Stack



Figure 2: BOP Winch System

American Petroleum Institute (API) standards, specification and recommended practices are considered the industry standard and are consistently utilized and referenced by the industry. CFR Title 43 Part 3170 recognizes API recommended Practices (RP) 53 in its original development. API Standard 53, *Well Control Equipment Systems for Drilling Wells* (Fifth Edition, December 2018, Annex C, Table C.4) recognizes break testing as an acceptable practice. Specifically, API Standard 53, Section 5.3.7.1 states “A pressure test of the pressure containing component shall be performed following the disconnection or repair, limited to the affected component.” See Table C.4 below for reference.

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API STANDARD 53

Table C.4—Initial Pressure Testing, Surface BOP Stacks

Component to be Pressure Tested	Pressure Test—Low Pressure <sup>ac</sup> psig (MPa)	Pressure Test—High Pressure <sup>ac</sup>	
		Change Out of Component, Elastomer, or Ring Gasket	No Change Out of Component, Elastomer, or Ring Gasket
Annular preventer <sup>b</sup>	250 to 350 (1.72 to 2.41)	RWP of annular preventer	MASP or 70% annular RWP, whichever is lower.
Fixed pipe, variable bore, blind, and BSR preventers <sup>bd</sup>	250 to 350 (1.72 to 2.41)	RWP of ram preventer or wellhead system, whichever is lower	ITP
Choke and kill line and BOP side outlet valves below ram preventers (both sides)	250 to 350 (1.72 to 2.41)	RWP of side outlet valve or wellhead system, whichever is lower	ITP
Choke manifold—upstream of chokes <sup>a</sup>	250 to 350 (1.72 to 2.41)	RWP of ram preventers or wellhead system, whichever is lower	ITP
Choke manifold—downstream of chokes <sup>a</sup>	250 to 350 (1.72 to 2.41)	RWP of valve(s), line(s), or MASP for the well program, whichever is lower	
Kelly, kelly valves, drill pipe safety valves, IBOPs	250 to 350 (1.72 to 2.41)	MASP for the well program	

<sup>a</sup> Pressure test evaluation periods shall be a minimum of five minutes.

No visible leaks.

The pressure shall remain stable during the evaluation period. The pressure shall not decrease below the intended test pressure.

<sup>b</sup> Annular(s) and VBR(s) shall be pressure tested on the largest and smallest OD drill pipe to be used in well program.

<sup>c</sup> For pad drilling operations, moving from one wellhead to another within the 21 days, pressure testing is required for pressure-containing and pressure-controlling connections when the integrity of a pressure seal is broken.

<sup>d</sup> For surface offshore operations, the ram BOPs shall be pressure tested with the ram locks engaged and the closing and locking pressure vented during the initial test. For land operations, the ram BOPs shall be pressure tested with the ram locks engaged and the closing and locking pressure vented at commissioning and annually.

<sup>e</sup> Adjustable chokes are not required to be full sealing devices. Pressure testing against a closed choke is not required.

The Bureau of Safety and Environmental Enforcement (BSEE), Department of Interior, has also utilized the API standards, specification and best practices in the development of its offshore oil and gas regulations and incorporates them by reference within its regulations.

Break testing has been approved by the BLM in the past with other operators based on the detailed information provided in this document.

XTO Energy feels break testing and our current procedures meet the intent of CFR Title 43 Part 317 0and often exceed it. There has been no evidence that break testing results in more components failing than seen on full BOP tests. XTO Energy's internal standards requires complete BOPE tests more often than that of CFR Title 43 Part 3170 (Every 21 days). In addition to function testing the annular, pipe rams and blind rams after

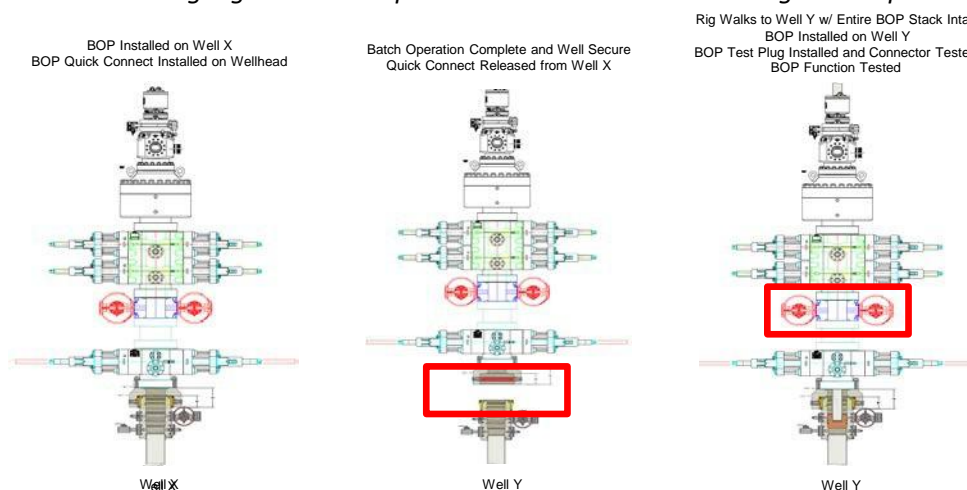
each BOP nipple up, XTO Energy performs a choke drill with the rig crew prior to drilling out every casing shoe. This is additional training for the rig crew that exceeds the requirements of the CFR Title 43 Part 3170.

### **Procedures**

1. XTO Energy will use this document for our break testing plan for New Mexico Delaware basin. The summary below will be referenced in the APD or Sundry Notice and receive approval prior to implementing this variance.
2. XTO Energy will perform BOP break testing on multi-wells pads where multiple intermediate sections can be drilled and cased within the 21-day BOP test window.
  - a. A full BOP test will be conducted on the first well on the pad.
  - b. The first intermediate hole section drilled on the pad will be the deepest. All of the remaining hole sections will be the same depth or shallower.
    - i. Our Lower WC targets set the intermediate casing shoe no deeper than the Wolfcamp B.
    - ii. Our Upper WC targets set the intermediate casing shoe shallower than the Wolfcamp B.
  - c. A Full BOP test will be required if the intermediate hole section being drilled has a MASP over 5M.
  - d. A full BOP test will be required prior to drilling any production hole.
3. After performing a complete BOP test on the first well, the intermediate hole section will be drilled and cased, two breaks would be made on the BOP equipment.
  - a. Between the HCV valve and choke line connection
  - b. Between the BOP quick connect and the wellhead
4. The BOP is then lifted and removed from the wellhead by a hydraulic system.
5. After skidding to the next well, the BOP is moved to the wellhead by the same hydraulic system and installed.
6. The connections mentioned in 3a and 3b will then be reconnected.
7. Install test plug into the wellhead using test joint or drill pipe.
8. A shell test is performed against the upper pipe rams testing the two breaks.
9. The shell test will consist of a 250 psi low test and a high test to the value submitted in the APD or Sundry (e.g. 5,000 psi or 10,000psi).
10. Function test will be performed on the following components: lower pipe rams, blind rams, and annular.

11. For a multi-well pad the same two breaks on the BOP would be made and on the next wells and steps 4 through 10 would be repeated.
12. A second break test would only be done if the intermediate hole section being drilled could not be completed within the 21 day BOP test window.

*Note: Picture below highlights BOP components that will be tested during batch operations*



### Summary

A variance is requested to **ONLY** test broken pressure seals on the BOP equipment when moving from wellhead to wellhead which is in compliance with API Standard 53. API Standard 53 states, that for pad drilling operation, moving from one wellhead to another within 21 days, pressure testing is required for pressure-containing and pressure-controlling connections when the integrity of a pressure seal is broken.

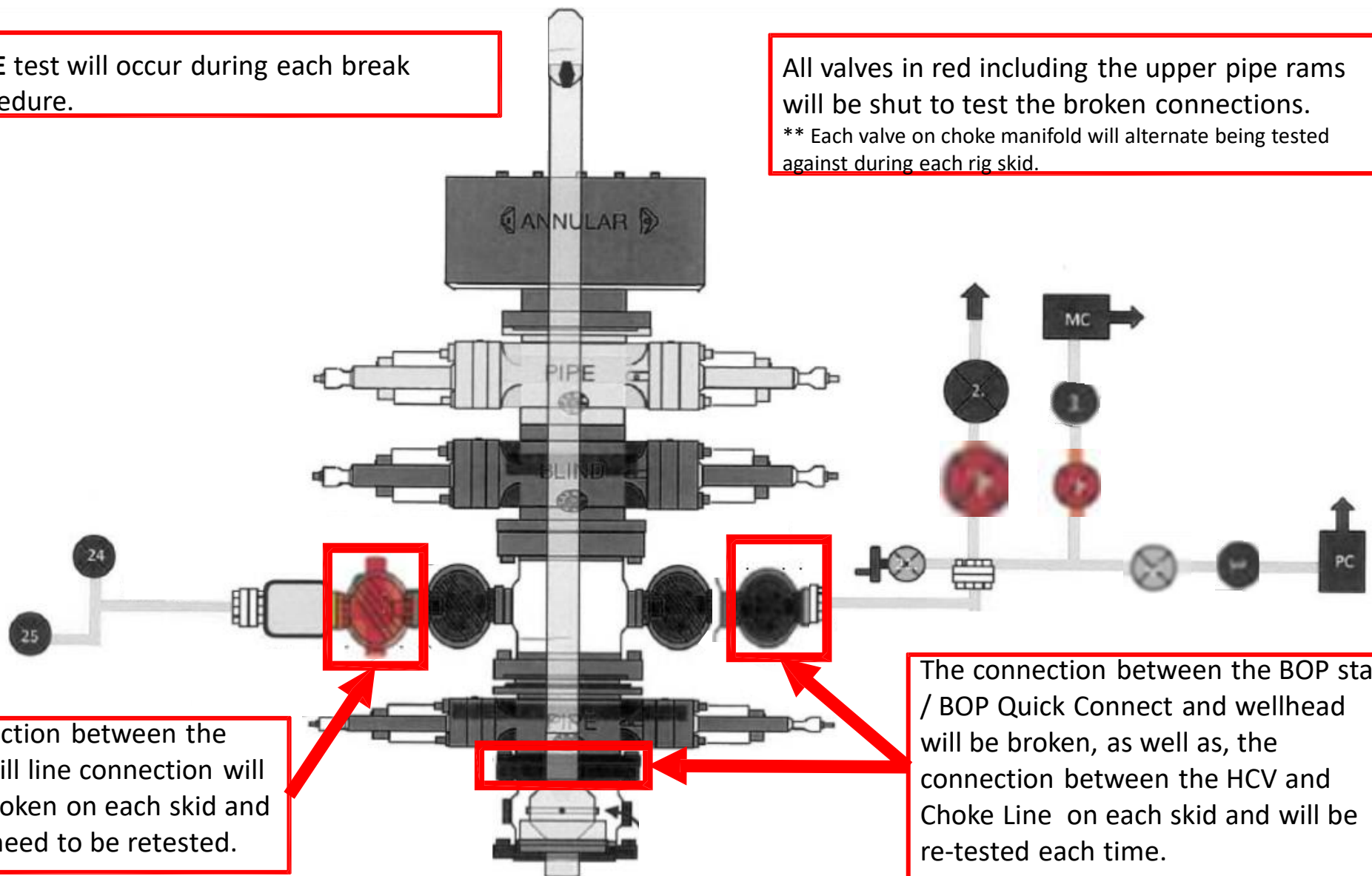
The BOP will be secured by a hydraulic carrier or cradle. The BLM will be contacted if a Well Control event occurs prior to the commencement of a BOPE Break Testing operation.

Based on discussions with the BLM on February 27th 2020 and the supporting documentation submitted to the BLM, we will request permission to **ONLY** retest broken pressure seals if the following conditions are met:

1. After a full BOP test is conducted on the first well on the pad.
2. The first intermediate hole section drilled on the pad will be the deepest. All of the remaining hole sections will be the same depth or shallower.
3. Full BOP test will be required if the intermediate hole section being drilled has a MASP over 5M.
4. Full BOP test will be required prior to drilling the production hole.

Only **ONE** test will occur during each break test procedure.

All valves in red including the upper pipe rams will be shut to test the broken connections.  
\*\* Each valve on choke manifold will alternate being tested against during each rig skid.



The connection between the HCV and kill line connection will **NOT** be broken on each skid and does not need to be retested.

The connection between the BOP stack / BOP Quick Connect and wellhead will be broken, as well as, the connection between the HCV and Choke Line on each skid and will be re-tested each time.



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## Well Plan Report - JRU DI 7 Sawtooth 704H

Measured Depth: 23304.00 ft

TVD RKB: 9827.00 ft

### Location

Cartographic Reference System: New Mexico East - NAD 27

Northing: 487864.80 ft

Easting: 658059.20 ft

RKB: 3347.00 ft

Ground Level: 3315.00 ft

North Reference: Grid

Convergence Angle: 0.27 Deg

Site: Pad A

Slot: JRU DI 7 Sawtooth 704H

### Plan Sections JRU DI 7 Sawtooth 704H

Measured			TVD			Build	Turn	Dogleg	
Depth	Inclination	Azimuth	RKB	Y Offset	X Offset	Rate	Rate	Rate	Target
(ft)	(Deg)	(Deg)	(ft)	(ft)	(ft)	(Deg/100ft)	(Deg/100ft)	(Deg/100ft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1200.00	0.00	0.00	1200.00	0.00	0.00	0.00	0.00	0.00	
2202.41	20.05	69.16	2182.08	61.77	162.23	2.00	0.00	2.00	
5646.98	20.05	69.16	5417.92	481.92	1265.79	0.00	0.00	0.00	
6649.39	0.00	0.00	6400.00	543.69	1428.02	-2.00	0.00	2.00	
9360.19	0.00	0.00	9110.80	543.69	1428.02	0.00	0.00	0.00	
10485.19	90.00	179.75	9827.00	-172.50	1431.10	8.00	0.00	8.00	FTP 1
23254.01	90.00	179.75	9827.00	-12941.20	1486.00	0.00	0.00	0.00	LTP 1
23304.00	90.00	179.75	9827.00	-12991.20	1486.21	0.00	0.00	0.00	BHL 1

### Position Uncertainty JRU DI 7 Sawtooth 704H

Measured	TVD	Highside	Lateral	Vertical	Magnitude	Semi-major	Semi-minor	Semi-minor	Tool
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Depth	Inclination	Azimuth	RKB	Error	Bias	Error	Bias	Error	Bias	of Bias	Error	Error	Azimuth	Used
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3_Blind
100.000	0.000	0.000	100.000	70.000	0.000	35.000	0.000	2.300	0.000	0.000	70.000	35.000	90.000	3_Blind
200.000	0.000	0.000	200.000	140.000	0.000	105.000	0.000	2.309	0.000	0.000	140.000	105.000	90.000	3_Blind
300.000	0.000	0.000	300.000	210.000	0.000	175.000	0.000	2.325	0.000	0.000	210.000	175.000	90.000	3_Blind
400.000	0.000	0.000	400.000	280.000	0.000	245.000	0.000	2.347	0.000	0.000	280.000	245.000	90.000	3_Blind
500.000	0.000	0.000	500.000	350.000	0.000	315.000	0.000	2.374	0.000	0.000	350.000	315.000	90.000	3_Blind
600.000	0.000	0.000	600.000	420.000	0.000	385.000	0.000	2.406	0.000	0.000	420.000	385.000	90.000	3_Blind
700.000	0.000	0.000	700.000	490.000	0.000	455.000	0.000	2.443	0.000	0.000	490.000	455.000	90.000	3_Blind
800.000	0.000	0.000	800.000	560.000	0.000	525.000	0.000	2.485	0.000	0.000	560.000	525.000	90.000	3_Blind
900.000	0.000	0.000	900.000	630.000	0.000	595.000	0.000	2.530	0.000	0.000	630.000	595.000	90.000	3_Blind
1000.000	0.000	0.000	1000.000	700.000	0.000	665.000	0.000	2.580	0.000	0.000	700.000	665.000	90.000	3_Blind
1100.000	0.000	0.000	1100.000	770.000	0.000	735.000	0.000	2.633	0.000	0.000	770.000	735.000	90.000	3_Blind
1200.000	0.000	0.000	1200.000	840.000	0.000	805.000	0.000	2.690	0.000	0.000	840.000	805.000	90.000	3_Blind
1300.000	2.000	69.157	1299.980	857.517	0.000	883.278	0.000	3.008	0.000	0.000	888.064	853.068	91.058	3_Blind
1400.000	4.000	69.157	1399.838	886.533	0.000	912.107	0.000	5.634	0.000	0.000	917.729	882.730	92.988	3_Blind
1500.000	6.000	69.157	1499.452	918.802	0.000	945.451	0.000	11.353	0.000	0.000	951.785	916.724	94.514	3_Blind
1600.000	8.000	69.157	1598.702	953.845	0.000	983.085	0.000	19.733	0.000	0.000	989.889	954.627	95.419	3_Blind
1700.000	10.000	69.157	1697.465	991.209	0.000	1024.843	0.000	30.609	0.000	0.000	1031.761	996.030	95.461	3_Blind
1800.000	12.000	69.157	1795.623	1030.467	0.000	1070.622	0.000	43.923	0.000	0.000	1077.220	1040.513	94.432	3_Blind
1900.000	14.000	69.157	1893.055	1071.232	0.000	1120.364	0.000	59.643	0.000	0.000	1126.214	1087.611	92.244	3_Blind
2000.000	16.000	69.157	1989.643	1113.151	0.000	1174.053	0.000	77.741	0.000	0.000	1178.845	1136.788	89.048	3_Blind
2100.000	18.000	69.157	2085.268	1155.905	0.000	1231.699	0.000	98.192	0.000	0.000	1235.325	1187.465	85.282	3_Blind
2202.410	20.048	69.157	2182.080	1200.255	0.000	1294.867	0.000	121.547	0.000	0.000	1297.392	1240.358	81.433	3_Blind
2300.000	20.048	69.157	2273.756	1254.855	0.000	1358.398	0.000	144.960	0.000	0.000	1360.136	1291.556	78.430	3_Blind
2400.000	20.048	69.157	2367.697	1312.137	0.000	1426.004	0.000	168.953	0.000	0.000	1427.205	1344.962	76.199	3_Blind
2500.000	20.048	69.157	2461.637	1370.600	0.000	1495.804	0.000	192.947	0.000	0.000	1496.648	1399.279	74.587	3_Blind
2600.000	20.048	69.157	2555.578	1430.099	0.000	1567.506	0.000	216.941	0.000	0.000	1568.108	1454.451	73.406	3_Blind
2700.000	20.048	69.157	2649.518	1490.512	0.000	1640.861	0.000	240.936	0.000	0.000	1641.295	1510.412	72.527	3_Blind
2800.000	20.048	69.157	2743.459	1551.730	0.000	1715.656	0.000	264.932	0.000	0.000	1715.973	1567.094	71.860	3_Blind
2900.000	20.048	69.157	2837.399	1613.662	0.000	1791.711	0.000	288.927	0.000	0.000	1791.944	1624.435	71.346	3_Blind
3000.000	20.048	69.157	2931.340	1676.230	0.000	1868.872	0.000	312.923	0.000	0.000	1869.045	1682.373	70.944	3_Blind

3100.000	20.048	69.157	3025.280	1739.364	0.000	1947.008	0.000	336.919	0.000	0.000	1947.137	1740.854	70.625	3_Blind
3200.000	20.048	69.157	3119.220	1803.006	0.000	2026.006	0.000	360.915	0.000	0.000	2026.102	1799.828	70.369	3_Blind
3300.000	20.048	69.157	3213.161	1867.102	0.000	2105.769	0.000	384.911	0.000	0.000	2105.841	1859.250	70.161	3_Blind
3400.000	20.048	69.157	3307.101	1931.608	0.000	2186.214	0.000	408.908	0.000	0.000	2186.267	1919.081	69.990	3_Blind
3500.000	20.048	69.157	3401.042	1996.485	0.000	2267.267	0.000	432.904	0.000	0.000	2267.306	1979.284	69.849	3_Blind
3600.000	20.048	69.157	3494.982	2061.696	0.000	2348.865	0.000	456.901	0.000	0.000	2348.894	2039.828	69.731	3_Blind
3700.000	20.048	69.157	3588.923	2127.212	0.000	2430.955	0.000	480.897	0.000	0.000	2430.976	2100.683	69.632	3_Blind
3800.000	20.048	69.157	3682.863	2193.006	0.000	2513.487	0.000	504.894	0.000	0.000	2513.502	2161.824	69.548	3_Blind
3900.000	20.048	69.157	3776.804	2259.052	0.000	2596.419	0.000	528.890	0.000	0.000	2596.430	2223.227	69.477	3_Blind
4000.000	20.048	69.157	3870.744	2325.329	0.000	2679.715	0.000	552.887	0.000	0.000	2679.722	2284.871	69.416	3_Blind
4100.000	20.048	69.157	3964.685	2391.819	0.000	2763.341	0.000	576.884	0.000	0.000	2763.346	2346.738	69.364	3_Blind
4200.000	20.048	69.157	4058.625	2458.503	0.000	2847.269	0.000	600.880	0.000	0.000	2847.272	2408.811	69.319	3_Blind
4300.000	20.048	69.157	4152.566	2525.367	0.000	2931.472	0.000	624.877	0.000	0.000	2931.474	2471.073	69.280	3_Blind
4400.000	20.048	69.157	4246.506	2592.396	0.000	3015.927	0.000	648.874	0.000	0.000	3015.928	2533.512	69.246	3_Blind
4500.000	20.048	69.157	4340.446	2659.579	0.000	3100.614	0.000	672.871	0.000	0.000	3100.615	2596.115	69.216	3_Blind
4600.000	20.048	69.157	4434.387	2726.903	0.000	3185.514	0.000	696.867	0.000	0.000	3185.515	2658.869	69.190	3_Blind
4700.000	20.048	69.157	4528.327	2794.359	0.000	3270.611	0.000	720.864	0.000	0.000	3270.611	2721.766	69.168	3_Blind
4800.000	20.048	69.157	4622.268	2861.937	0.000	3355.890	0.000	744.861	0.000	0.000	3355.890	2784.794	69.148	3_Blind
4900.000	20.048	69.157	4716.208	2929.628	0.000	3441.337	0.000	768.858	0.000	0.000	3441.337	2847.946	69.130	3_Blind
5000.000	20.048	69.157	4810.149	2997.426	0.000	3526.940	0.000	792.855	0.000	0.000	3526.940	2911.213	69.115	3_Blind
5100.000	20.048	69.157	4904.089	3065.323	0.000	3612.687	0.000	816.852	0.000	0.000	3612.688	2974.588	69.101	3_Blind
5200.000	20.048	69.157	4998.030	3133.312	0.000	3698.570	0.000	840.849	0.000	0.000	3698.571	3038.064	69.089	3_Blind
5300.000	20.048	69.157	5091.970	3201.388	0.000	3784.578	0.000	864.846	0.000	0.000	3784.579	3101.635	69.078	3_Blind
5400.000	20.048	69.157	5185.911	3269.545	0.000	3870.703	0.000	888.842	0.000	0.000	3870.705	3165.296	69.069	3_Blind
5500.000	20.048	69.157	5279.851	3337.779	0.000	3956.938	0.000	912.839	0.000	0.000	3956.940	3229.040	69.060	3_Blind
5600.000	20.048	69.157	5373.792	3406.084	0.000	4043.276	0.000	936.836	0.000	0.000	4043.278	3292.864	69.053	3_Blind
5646.975	20.048	69.157	5417.920	3438.194	0.000	4083.867	0.000	948.109	0.000	0.000	4083.869	3322.872	69.050	3_Blind
5700.000	18.988	69.157	5467.897	3478.835	0.000	4129.323	0.000	960.510	0.000	0.000	4129.326	3356.874	69.047	3_Blind
5800.000	16.988	69.157	5563.005	3552.233	0.000	4212.996	0.000	982.124	0.000	0.000	4212.999	3421.632	69.047	3_Blind
5900.000	14.988	69.157	5659.132	3621.318	0.000	4293.942	0.000	1001.401	0.000	0.000	4293.945	3487.154	69.052	3_Blind
6000.000	12.988	69.157	5756.162	3686.004	0.000	4372.127	0.000	1018.319	0.000	0.000	4372.129	3553.358	69.060	3_Blind
6100.000	10.988	69.157	5853.976	3746.213	0.000	4447.533	0.000	1032.857	0.000	0.000	4447.535	3620.161	69.072	3_Blind
6200.000	8.988	69.157	5952.456	3801.871	0.000	4520.161	0.000	1044.996	0.000	0.000	4520.162	3687.481	69.086	3_Blind

6300.000	6.988	69.157	6051.480	3852.908	0.000	4590.028	0.000	1054.723	0.000	0.000	4590.029	3755.232	69.101	3_Blind
6400.000	4.988	69.157	6150.930	3899.263	0.000	4657.167	0.000	1062.025	0.000	0.000	4657.167	3823.329	69.118	3_Blind
6500.000	2.988	69.157	6250.683	3940.878	0.000	4721.626	0.000	1066.893	0.000	0.000	4721.626	3891.688	69.135	3_Blind
6600.000	0.988	69.157	6350.617	3977.703	0.000	4783.469	0.000	1069.322	0.000	0.000	4783.469	3960.223	69.153	3_Blind
6649.385	0.000	0.000	6400.000	4710.337	0.000	4099.486	0.000	1069.620	0.000	0.000	4806.413	3986.408	69.139	3_Blind
6700.000	0.000	0.000	6450.615	4726.754	0.000	4118.573	0.000	1069.621	0.000	0.000	4822.929	4005.523	69.099	3_Blind
6800.000	0.000	0.000	6550.615	4759.800	0.000	4156.915	0.000	1069.622	0.000	0.000	4856.156	4043.933	69.022	3_Blind
6900.000	0.000	0.000	6650.615	4793.641	0.000	4196.074	0.000	1069.623	0.000	0.000	4890.162	4083.179	68.944	3_Blind
7000.000	0.000	0.000	6750.615	4828.259	0.000	4236.028	0.000	1069.624	0.000	0.000	4924.930	4123.236	68.867	3_Blind
7100.000	0.000	0.000	6850.615	4863.638	0.000	4276.754	0.000	1069.626	0.000	0.000	4960.446	4164.081	68.791	3_Blind
7200.000	0.000	0.000	6950.615	4899.762	0.000	4318.231	0.000	1069.627	0.000	0.000	4996.693	4205.692	68.714	3_Blind
7300.000	0.000	0.000	7050.615	4936.614	0.000	4360.437	0.000	1069.628	0.000	0.000	5033.654	4248.046	68.638	3_Blind
7400.000	0.000	0.000	7150.615	4974.178	0.000	4403.352	0.000	1069.630	0.000	0.000	5071.315	4291.121	68.562	3_Blind
7500.000	0.000	0.000	7250.615	5012.439	0.000	4446.954	0.000	1069.631	0.000	0.000	5109.660	4334.895	68.486	3_Blind
7600.000	0.000	0.000	7350.615	5051.379	0.000	4491.224	0.000	1069.633	0.000	0.000	5148.674	4379.348	68.411	3_Blind
7700.000	0.000	0.000	7450.615	5090.985	0.000	4536.143	0.000	1069.635	0.000	0.000	5188.341	4424.459	68.336	3_Blind
7800.000	0.000	0.000	7550.615	5131.239	0.000	4581.690	0.000	1069.636	0.000	0.000	5228.647	4470.208	68.261	3_Blind
7900.000	0.000	0.000	7650.615	5172.128	0.000	4627.848	0.000	1069.638	0.000	0.000	5269.577	4516.575	68.186	3_Blind
8000.000	0.000	0.000	7750.615	5213.636	0.000	4674.599	0.000	1069.640	0.000	0.000	5311.116	4563.543	68.112	3_Blind
8100.000	0.000	0.000	7850.615	5255.748	0.000	4721.924	0.000	1069.642	0.000	0.000	5353.251	4611.092	68.037	3_Blind
8200.000	0.000	0.000	7950.615	5298.451	0.000	4769.808	0.000	1069.644	0.000	0.000	5395.967	4659.205	67.964	3_Blind
8300.000	0.000	0.000	8050.615	5341.730	0.000	4818.232	0.000	1069.646	0.000	0.000	5439.250	4707.865	67.890	3_Blind
8400.000	0.000	0.000	8150.615	5385.570	0.000	4867.181	0.000	1069.648	0.000	0.000	5483.088	4757.054	67.817	3_Blind
8500.000	0.000	0.000	8250.615	5429.959	0.000	4916.640	0.000	1069.650	0.000	0.000	5527.467	4806.757	67.744	3_Blind
8600.000	0.000	0.000	8350.615	5474.884	0.000	4966.593	0.000	1069.652	0.000	0.000	5572.374	4856.957	67.671	3_Blind
8700.000	0.000	0.000	8450.615	5520.330	0.000	5017.025	0.000	1069.654	0.000	0.000	5617.797	4907.640	67.598	3_Blind
8800.000	0.000	0.000	8550.615	5566.285	0.000	5067.922	0.000	1069.657	0.000	0.000	5663.723	4958.791	67.526	3_Blind
8900.000	0.000	0.000	8650.615	5612.738	0.000	5119.270	0.000	1069.659	0.000	0.000	5710.139	5010.396	67.454	3_Blind
9000.000	0.000	0.000	8750.615	5659.675	0.000	5171.056	0.000	1069.662	0.000	0.000	5757.034	5062.439	67.382	3_Blind
9100.000	0.000	0.000	8850.615	5707.084	0.000	5223.267	0.000	1069.664	0.000	0.000	5804.397	5114.909	67.311	3_Blind
9200.000	0.000	0.000	8950.615	5754.954	0.000	5275.889	0.000	1069.667	0.000	0.000	5852.216	5167.793	67.239	3_Blind
9300.000	0.000	0.000	9050.615	5803.274	0.000	5328.912	0.000	1069.669	0.000	0.000	5900.479	5221.076	67.168	3_Blind
9360.188	0.000	0.000	9110.803	5832.569	0.000	5361.013	0.000	1069.671	0.000	0.000	5929.738	5253.335	67.126	3_Blind

9400.000	3.185	179.754	9150.594	5784.456	0.000	5358.608	-0.000	1070.446	0.000	0.000	5929.507	5253.407	67.156	3_Blind
9500.000	11.185	179.754	9249.729	5534.820	0.000	5302.394	-0.000	1079.182	0.000	0.000	5878.342	5200.625	67.587	3_Blind
9600.000	19.185	179.754	9346.159	5182.482	0.000	5243.288	-0.000	1097.474	0.000	0.000	5825.092	5149.188	68.463	3_Blind
9700.000	27.185	179.754	9438.008	4735.415	0.000	5181.821	-0.000	1124.966	0.000	0.000	5770.803	5099.446	69.836	3_Blind
9800.000	35.185	179.754	9523.488	4204.267	0.000	5118.822	-0.000	1161.124	0.000	0.000	5716.903	5051.540	71.752	3_Blind
9900.000	43.185	179.754	9600.937	3602.934	0.000	5055.357	-0.000	1205.242	0.000	0.000	5665.226	5005.303	74.243	3_Blind
10000.000	51.185	179.754	9668.845	2950.201	0.000	4992.658	-0.000	1256.464	0.000	0.000	5617.995	4960.191	77.309	3_Blind
10100.000	59.185	179.754	9725.891	2274.848	0.000	4932.024	-0.000	1313.791	0.000	0.000	5577.705	4915.301	80.899	3_Blind
10200.000	67.185	179.754	9770.966	1633.483	0.000	4874.718	-0.000	1376.109	0.000	0.000	5546.882	4869.512	84.890	3_Blind
10300.000	75.185	179.754	9803.191	1173.838	0.000	4821.855	-0.000	1442.204	0.000	0.000	5527.721	4821.751	89.083	3_Blind
10400.000	83.185	179.754	9821.940	1184.818	0.000	4774.296	-0.000	1510.790	0.000	0.000	5521.712	4771.293	93.246	3_Blind
10485.188	90.000	179.754	9827.000	1570.208	0.000	4738.369	-0.000	1570.208	0.000	0.000	5527.410	4726.011	96.606	3_Blind
10500.000	90.000	179.754	9827.000	1580.576	0.000	4732.566	-0.000	1580.576	0.000	0.000	5529.336	4717.938	97.162	3_Blind
10600.000	90.000	179.754	9827.000	1650.573	0.000	4696.875	-0.000	1650.573	0.000	0.000	5545.804	4662.617	100.624	3_Blind
10700.000	90.000	179.754	9827.000	1720.571	0.000	4667.345	-0.000	1720.571	0.000	0.000	5567.556	4606.705	103.631	3_Blind
10800.000	90.000	179.754	9827.000	1790.568	0.000	4644.094	-0.000	1790.568	0.000	0.000	5593.755	4551.133	106.269	3_Blind
10900.000	90.000	179.754	9827.000	1860.566	0.000	4627.217	-0.000	1860.566	0.000	0.000	5623.801	4496.588	108.612	3_Blind
11000.000	90.000	179.754	9827.000	1930.564	0.000	4616.784	-0.000	1930.564	0.000	0.000	5657.268	4443.569	110.718	3_Blind
11100.000	90.000	179.754	9827.000	2000.562	0.000	4612.837	-0.000	2000.562	0.000	0.000	5693.859	4392.441	112.636	3_Blind
11200.000	90.000	179.754	9827.000	2070.560	0.000	4615.395	-0.000	2070.560	0.000	0.000	5733.367	4343.464	114.403	3_Blind
11300.000	90.000	179.754	9827.000	2140.559	0.000	4624.446	-0.000	2140.559	0.000	0.000	5775.651	4296.820	116.047	3_Blind
11400.000	90.000	179.754	9827.000	2210.557	0.000	4639.952	-0.000	2210.557	0.000	0.000	5820.616	4252.633	117.592	3_Blind
11500.000	90.000	179.754	9827.000	2280.556	0.000	4661.848	-0.000	2280.556	0.000	0.000	5868.202	4210.979	119.054	3_Blind
11600.000	90.000	179.754	9827.000	2350.554	0.000	4690.046	-0.000	2350.554	0.000	0.000	5918.370	4171.899	120.448	3_Blind
11700.000	90.000	179.754	9827.000	2420.553	0.000	4724.433	-0.000	2420.553	0.000	0.000	5971.099	4135.401	121.784	3_Blind
11800.000	90.000	179.754	9827.000	2490.552	0.000	4764.873	-0.000	2490.552	0.000	0.000	6026.380	4101.471	123.072	3_Blind
11900.000	90.000	179.754	9827.000	2560.550	0.000	4811.216	-0.000	2560.550	0.000	0.000	6084.211	4070.072	124.316	3_Blind
12000.000	90.000	179.754	9827.000	2630.549	0.000	4863.291	-0.000	2630.549	0.000	0.000	6144.593	4041.149	125.524	3_Blind
12100.000	90.000	179.754	9827.000	2700.548	0.000	4920.918	-0.000	2700.548	0.000	0.000	6207.531	4014.636	126.699	3_Blind
12200.000	90.000	179.754	9827.000	2770.547	0.000	4983.903	-0.000	2770.547	0.000	0.000	6273.030	3990.451	127.844	3_Blind
12300.000	90.000	179.754	9827.000	2840.546	0.000	5052.046	-0.000	2840.546	0.000	0.000	6341.093	3968.504	128.961	3_Blind
12400.000	90.000	179.754	9827.000	2910.545	0.000	5125.141	-0.000	2910.545	0.000	0.000	6411.721	3948.698	130.053	3_Blind
12500.000	90.000	179.754	9827.000	2980.545	0.000	5202.981	-0.000	2980.545	0.000	0.000	6484.915	3930.929	131.121	3_Blind

12600.000	90.000	179.754	9827.000	3050.544	0.000	5285.354	-0.000	3050.544	0.000	0.000	6560.667	3915.089	132.166	3_Blind
12700.000	90.000	179.754	9827.000	3120.543	0.000	5372.052	-0.000	3120.543	0.000	0.000	6638.971	3901.068	133.188	3_Blind
12800.000	90.000	179.754	9827.000	3190.542	0.000	5462.870	-0.000	3190.542	0.000	0.000	6719.811	3888.754	134.189	3_Blind
12900.000	90.000	179.754	9827.000	3260.542	0.000	5557.606	-0.000	3260.542	0.000	0.000	6803.171	3878.037	-44.832	3_Blind
13000.000	90.000	179.754	9827.000	3330.541	0.000	5656.063	-0.000	3330.541	0.000	0.000	6889.029	3868.805	-43.874	3_Blind
13100.000	90.000	179.754	9827.000	3400.540	0.000	5758.049	-0.000	3400.540	0.000	0.000	6977.357	3860.950	-42.937	3_Blind
13200.000	90.000	179.754	9827.000	3470.540	0.000	5863.381	-0.000	3470.540	0.000	0.000	7068.126	3854.368	-42.021	3_Blind
13300.000	90.000	179.754	9827.000	3540.539	0.000	5971.882	-0.000	3540.539	0.000	0.000	7161.301	3848.957	-41.125	3_Blind
13400.000	90.000	179.754	9827.000	3610.538	0.000	6083.381	-0.000	3610.538	0.000	0.000	7256.843	3844.619	-40.251	3_Blind
13500.000	90.000	179.754	9827.000	3680.538	0.000	6197.719	-0.000	3680.538	0.000	0.000	7354.710	3841.261	-39.397	3_Blind
13600.000	90.000	179.754	9827.000	3750.537	0.000	6314.739	-0.000	3750.537	0.000	0.000	7454.857	3838.796	-38.563	3_Blind
13700.000	90.000	179.754	9827.000	3820.537	0.000	6434.296	-0.000	3820.537	0.000	0.000	7557.238	3837.140	-37.751	3_Blind
13800.000	90.000	179.754	9827.000	3890.536	0.000	6556.251	-0.000	3890.536	0.000	0.000	7661.801	3836.216	-36.958	3_Blind
13900.000	90.000	179.754	9827.000	3960.536	0.000	6680.472	-0.000	3960.536	0.000	0.000	7768.495	3835.951	-36.186	3_Blind
14000.000	90.000	179.754	9827.000	4030.535	0.000	6806.836	-0.000	4030.535	0.000	0.000	7877.267	3836.277	-35.434	3_Blind
14100.000	90.000	179.754	9827.000	4100.535	0.000	6935.226	-0.000	4100.535	0.000	0.000	7988.061	3837.131	-34.702	3_Blind
14200.000	90.000	179.754	9827.000	4170.534	0.000	7065.530	-0.000	4170.534	0.000	0.000	8100.822	3838.456	-33.989	3_Blind
14300.000	90.000	179.754	9827.000	4240.534	0.000	7197.646	-0.000	4240.534	0.000	0.000	8215.493	3840.197	-33.296	3_Blind
14400.000	90.000	179.754	9827.000	4310.534	0.000	7331.474	-0.000	4310.534	0.000	0.000	8332.019	3842.308	-32.622	3_Blind
14500.000	90.000	179.754	9827.000	4380.533	0.000	7466.924	-0.000	4380.533	0.000	0.000	8450.341	3844.741	-31.966	3_Blind
14600.000	90.000	179.754	9827.000	4450.533	0.000	7603.908	-0.000	4450.533	0.000	0.000	8570.404	3847.458	-31.329	3_Blind
14700.000	90.000	179.754	9827.000	4520.532	0.000	7742.345	-0.000	4520.532	0.000	0.000	8692.153	3850.421	-30.710	3_Blind
14800.000	90.000	179.754	9827.000	4590.532	0.000	7882.158	-0.000	4590.532	0.000	0.000	8815.530	3853.596	-30.109	3_Blind
14900.000	90.000	179.754	9827.000	4660.532	0.000	8023.276	-0.000	4660.532	0.000	0.000	8940.483	3856.952	-29.524	3_Blind
15000.000	90.000	179.754	9827.000	4730.531	0.000	8165.631	-0.000	4730.531	0.000	0.000	9066.957	3860.463	-28.957	3_Blind
15100.000	90.000	179.754	9827.000	4800.531	0.000	8309.158	-0.000	4800.531	0.000	0.000	9194.899	3864.104	-28.406	3_Blind
15200.000	90.000	179.754	9827.000	4870.531	0.000	8453.800	-0.000	4870.531	0.000	0.000	9324.259	3867.853	-27.870	3_Blind
15300.000	90.000	179.754	9827.000	4940.530	0.000	8599.498	-0.000	4940.530	0.000	0.000	9454.986	3871.688	-27.351	3_Blind
15400.000	90.000	179.754	9827.000	5010.530	0.000	8746.201	-0.000	5010.530	0.000	0.000	9587.032	3875.594	-26.846	3_Blind
15500.000	90.000	179.754	9827.000	5080.530	0.000	8893.859	-0.000	5080.530	0.000	0.000	9720.348	3879.553	-26.356	3_Blind
15600.000	90.000	179.754	9827.000	5150.530	0.000	9042.425	-0.000	5150.530	0.000	0.000	9854.889	3883.552	-25.880	3_Blind
15700.000	90.000	179.754	9827.000	5220.529	0.000	9191.854	-0.000	5220.529	0.000	0.000	9990.611	3887.577	-25.418	3_Blind
15800.000	90.000	179.754	9827.000	5290.529	0.000	9342.106	-0.000	5290.529	0.000	0.000	10127.469	3891.619	-24.969	3_Blind

15900.000	90.000	179.754	9827.000	5360.529	0.000	9493.142	-0.000	5360.529	0.000	0.000	10265.423	3895.666	-24.533	3_Blind
16000.000	90.000	179.754	9827.000	5430.528	0.000	9644.924	-0.000	5430.528	0.000	0.000	10404.432	3899.710	-24.109	3_Blind
16100.000	90.000	179.754	9827.000	5500.528	0.000	9797.418	-0.000	5500.528	0.000	0.000	10544.457	3903.744	-23.698	3_Blind
16200.000	90.000	179.754	9827.000	5570.528	0.000	9950.592	-0.000	5570.528	0.000	0.000	10685.461	3907.760	-23.298	3_Blind
16300.000	90.000	179.754	9827.000	5640.528	0.000	10104.413	-0.000	5640.528	0.000	0.000	10827.407	3911.753	-22.910	3_Blind
16400.000	90.000	179.754	9827.000	5710.527	0.000	10258.854	-0.000	5710.527	0.000	0.000	10970.261	3915.718	-22.532	3_Blind
16500.000	90.000	179.754	9827.000	5780.527	0.000	10413.886	-0.000	5780.527	0.000	0.000	11113.990	3919.650	-22.165	3_Blind
16600.000	90.000	179.754	9827.000	5850.527	0.000	10569.484	-0.000	5850.527	0.000	0.000	11258.561	3923.546	-21.809	3_Blind
16700.000	90.000	179.754	9827.000	5920.527	0.000	10725.623	-0.000	5920.527	0.000	0.000	11403.943	3927.401	-21.462	3_Blind
16800.000	90.000	179.754	9827.000	5990.527	0.000	10882.280	-0.000	5990.527	0.000	0.000	11550.107	3931.214	-21.125	3_Blind
16900.000	90.000	179.754	9827.000	6060.526	0.000	11039.432	-0.000	6060.526	0.000	0.000	11697.025	3934.982	-20.797	3_Blind
17000.000	90.000	179.754	9827.000	6130.526	0.000	11197.059	-0.000	6130.526	0.000	0.000	11844.668	3938.703	-20.478	3_Blind
17100.000	90.000	179.754	9827.000	6200.526	0.000	11355.141	-0.000	6200.526	0.000	0.000	11993.011	3942.376	-20.167	3_Blind
17200.000	90.000	179.754	9827.000	6270.526	0.000	11513.659	-0.000	6270.526	0.000	0.000	12142.029	3945.999	-19.865	3_Blind
17300.000	90.000	179.754	9827.000	6340.526	0.000	11672.596	-0.000	6340.526	0.000	0.000	12291.697	3949.571	-19.571	3_Blind
17400.000	90.000	179.754	9827.000	6410.525	0.000	11831.934	-0.000	6410.525	0.000	0.000	12441.992	3953.091	-19.284	3_Blind
17500.000	90.000	179.754	9827.000	6480.525	0.000	11991.658	-0.000	6480.525	0.000	0.000	12592.892	3956.560	-19.005	3_Blind
17600.000	90.000	179.754	9827.000	6550.525	0.000	12151.753	-0.000	6550.525	0.000	0.000	12744.376	3959.975	-18.733	3_Blind
17700.000	90.000	179.754	9827.000	6620.525	0.000	12312.203	-0.000	6620.525	0.000	0.000	12896.423	3963.339	-18.469	3_Blind
17800.000	90.000	179.754	9827.000	6690.525	0.000	12472.995	-0.000	6690.525	0.000	0.000	13049.013	3966.649	-18.211	3_Blind
17900.000	90.000	179.754	9827.000	6760.525	0.000	12634.117	-0.000	6760.525	0.000	0.000	13202.128	3969.907	-17.959	3_Blind
18000.000	90.000	179.754	9827.000	6830.524	0.000	12795.555	-0.000	6830.524	0.000	0.000	13355.750	3973.112	-17.714	3_Blind
18100.000	90.000	179.754	9827.000	6900.524	0.000	12957.299	-0.000	6900.524	0.000	0.000	13509.861	3976.266	-17.475	3_Blind
18200.000	90.000	179.754	9827.000	6970.524	0.000	13119.335	-0.000	6970.524	0.000	0.000	13664.445	3979.367	-17.242	3_Blind
18300.000	90.000	179.754	9827.000	7040.524	0.000	13281.655	-0.000	7040.524	0.000	0.000	13819.485	3982.418	-17.015	3_Blind
18400.000	90.000	179.754	9827.000	7110.524	0.000	13444.247	-0.000	7110.524	0.000	0.000	13974.967	3985.417	-16.793	3_Blind
18500.000	90.000	179.754	9827.000	7180.524	0.000	13607.102	-0.000	7180.524	0.000	0.000	14130.875	3988.366	-16.576	3_Blind
18600.000	90.000	179.754	9827.000	7250.523	0.000	13770.211	-0.000	7250.523	0.000	0.000	14287.196	3991.266	-16.365	3_Blind
18700.000	90.000	179.754	9827.000	7320.523	0.000	13933.564	-0.000	7320.523	0.000	0.000	14443.916	3994.117	-16.159	3_Blind
18800.000	90.000	179.754	9827.000	7390.523	0.000	14097.154	-0.000	7390.523	0.000	0.000	14601.022	3996.919	-15.957	3_Blind
18900.000	90.000	179.754	9827.000	7460.523	0.000	14260.971	-0.000	7460.523	0.000	0.000	14758.502	3999.675	-15.760	3_Blind
19000.000	90.000	179.754	9827.000	7530.523	0.000	14425.008	-0.000	7530.523	0.000	0.000	14916.343	4002.383	-15.568	3_Blind
19100.000	90.000	179.754	9827.000	7600.523	0.000	14589.259	-0.000	7600.523	0.000	0.000	15074.534	4005.045	-15.380	3_Blind

19200.000	90.000	179.754	9827.000	7670.523	0.000	14753.715	-0.000	7670.523	0.000	0.000	15233.064	4007.662	-15.196	3_Blind
19300.000	90.000	179.754	9827.000	7740.523	0.000	14918.370	-0.000	7740.523	0.000	0.000	15391.922	4010.235	-15.017	3_Blind
19400.000	90.000	179.754	9827.000	7810.522	0.000	15083.217	-0.000	7810.522	0.000	0.000	15551.098	4012.764	-14.841	3_Blind
19500.000	90.000	179.754	9827.000	7880.522	0.000	15248.250	-0.000	7880.522	0.000	0.000	15710.583	4015.250	-14.670	3_Blind
19600.000	90.000	179.754	9827.000	7950.522	0.000	15413.464	-0.000	7950.522	0.000	0.000	15870.366	4017.694	-14.502	3_Blind
19700.000	90.000	179.754	9827.000	8020.522	0.000	15578.852	-0.000	8020.522	0.000	0.000	16030.438	4020.097	-14.338	3_Blind
19800.000	90.000	179.754	9827.000	8090.522	0.000	15744.409	-0.000	8090.522	0.000	0.000	16190.792	4022.459	-14.177	3_Blind
19900.000	90.000	179.754	9827.000	8160.522	0.000	15910.129	-0.000	8160.522	0.000	0.000	16351.418	4024.781	-14.020	3_Blind
20000.000	90.000	179.754	9827.000	8230.522	0.000	16076.008	-0.000	8230.522	0.000	0.000	16512.308	4027.065	-13.866	3_Blind
20100.000	90.000	179.754	9827.000	8300.522	0.000	16242.041	-0.000	8300.522	0.000	0.000	16673.454	4029.310	-13.715	3_Blind
20200.000	90.000	179.754	9827.000	8370.522	0.000	16408.223	-0.000	8370.522	0.000	0.000	16834.850	4031.518	-13.567	3_Blind
20300.000	90.000	179.754	9827.000	8440.521	0.000	16574.549	-0.000	8440.521	0.000	0.000	16996.487	4033.689	-13.423	3_Blind
20400.000	90.000	179.754	9827.000	8510.521	0.000	16741.016	-0.000	8510.521	0.000	0.000	17158.359	4035.825	-13.281	3_Blind
20500.000	90.000	179.754	9827.000	8580.521	0.000	16907.619	-0.000	8580.521	0.000	0.000	17320.458	4037.925	-13.142	3_Blind
20600.000	90.000	179.754	9827.000	8650.521	0.000	17074.354	-0.000	8650.521	0.000	0.000	17482.780	4039.990	-13.006	3_Blind
20700.000	90.000	179.754	9827.000	8720.521	0.000	17241.217	-0.000	8720.521	0.000	0.000	17645.316	4042.022	-12.873	3_Blind
20800.000	90.000	179.754	9827.000	8790.521	0.000	17408.205	-0.000	8790.521	0.000	0.000	17808.061	4044.021	-12.742	3_Blind
20900.000	90.000	179.754	9827.000	8860.521	0.000	17575.314	-0.000	8860.521	0.000	0.000	17971.010	4045.987	-12.614	3_Blind
21000.000	90.000	179.754	9827.000	8930.521	0.000	17742.540	-0.000	8930.521	0.000	0.000	18134.157	4047.922	-12.489	3_Blind
21100.000	90.000	179.754	9827.000	9000.521	0.000	17909.881	-0.000	9000.521	0.000	0.000	18297.495	4049.825	-12.366	3_Blind
21200.000	90.000	179.754	9827.000	9070.521	0.000	18077.333	-0.000	9070.521	0.000	0.000	18461.021	4051.698	-12.245	3_Blind
21300.000	90.000	179.754	9827.000	9140.520	0.000	18244.893	-0.000	9140.520	0.000	0.000	18624.729	4053.541	-12.126	3_Blind
21400.000	90.000	179.754	9827.000	9210.520	0.000	18412.559	-0.000	9210.520	0.000	0.000	18788.614	4055.355	-12.010	3_Blind
21500.000	90.000	179.754	9827.000	9280.520	0.000	18580.327	-0.000	9280.520	0.000	0.000	18952.671	4057.141	-11.896	3_Blind
21600.000	90.000	179.754	9827.000	9350.520	0.000	18748.194	-0.000	9350.520	0.000	0.000	19116.896	4058.898	-11.784	3_Blind
21700.000	90.000	179.754	9827.000	9420.520	0.000	18916.158	-0.000	9420.520	0.000	0.000	19281.285	4060.628	-11.674	3_Blind
21800.000	90.000	179.754	9827.000	9490.520	0.000	19084.216	-0.000	9490.520	0.000	0.000	19445.832	4062.331	-11.566	3_Blind
21900.000	90.000	179.754	9827.000	9560.520	0.000	19252.367	-0.000	9560.520	0.000	0.000	19610.535	4064.008	-11.460	3_Blind
22000.000	90.000	179.754	9827.000	9630.520	0.000	19420.607	-0.000	9630.520	0.000	0.000	19775.389	4065.659	-11.356	3_Blind
22100.000	90.000	179.754	9827.000	9700.520	0.000	19588.934	-0.000	9700.520	0.000	0.000	19940.390	4067.285	-11.254	3_Blind
22200.000	90.000	179.754	9827.000	9770.520	0.000	19757.346	-0.000	9770.520	0.000	0.000	20105.534	4068.886	-11.153	3_Blind
22300.000	90.000	179.754	9827.000	9840.520	0.000	19925.841	-0.000	9840.520	0.000	0.000	20270.819	4070.463	-11.055	3_Blind
22400.000	90.000	179.754	9827.000	9910.520	0.000	20094.416	-0.000	9910.520	0.000	0.000	20436.240	4072.017	-10.958	3_Blind

22500.000	90.000	179.754	9827.000	9980.519	0.000	20263.071	-0.000	9980.519	0.000	0.000	20601.794	4073.547	-10.862	3_Blind
22600.000	90.000	179.754	9827.000	10050.519	0.000	20431.802	-0.000	10050.519	0.000	0.000	20767.477	4075.054	-10.769	3_Blind
22700.000	90.000	179.754	9827.000	10120.519	0.000	20600.608	-0.000	10120.519	0.000	0.000	20933.287	4076.539	-10.677	3_Blind
22800.000	90.000	179.754	9827.000	10190.519	0.000	20769.487	-0.000	10190.519	0.000	0.000	21099.221	4078.002	-10.586	3_Blind
22900.000	90.000	179.754	9827.000	10260.519	0.000	20938.437	-0.000	10260.519	0.000	0.000	21265.276	4079.444	-10.497	3_Blind
23000.000	90.000	179.754	9827.000	10330.519	0.000	21107.457	-0.000	10330.519	0.000	0.000	21431.448	4080.865	-10.410	3_Blind
23100.000	90.000	179.754	9827.000	10400.519	0.000	21276.544	-0.000	10400.519	0.000	0.000	21597.735	4082.265	-10.323	3_Blind
23200.000	90.000	179.754	9827.000	10470.519	0.000	21445.698	-0.000	10470.519	0.000	0.000	21764.134	4083.645	-10.239	3_Blind
23254.006	90.000	179.754	9827.000	10508.323	0.000	21537.079	-0.000	10508.323	0.000	0.000	21854.045	4084.382	-10.194	3_Blind
23304.005	90.000	179.754	9827.000	10543.322	0.000	21621.695	-0.000	10543.322	0.000	0.000	21937.313	4085.060	-10.152	3_Blind

## Plan Targets

JRU DI 7 Sawtooth 704H

Target Name	Measured Depth (ft)	Grid Northing (ft)	Grid Easting (ft)	TVD MSL (ft)	Target Shape
FTP 1	10485.14	487692.30	659490.30	6480.00	RECTANGLE
LTP 1	23254.01	474923.60	659545.20	6480.00	RECTANGLE
BHL 1	23304.02	474873.60	659545.40	6480.00	RECTANGLE

**DRILLING PLAN: BLM COMPLIANCE**  
(Supplement to BLM 3160-3)

XTO Energy Inc.  
JRU DI 7 Sawtooth FED COM 704H  
Projected TD: 22559' MD / 9827' TVD  
SHL: 155' FNL & 1100' FWL , Section 6, T23S, R31E  
BHL: 2590' FNL & 2530' FWL , Section 18, T23S, R31E  
Eddy County, NM

**1. Geologic Name of Surface Formation**

A. Quaternary

**2. Estimated Tops of Geological Markers & Depths of Anticipated Fresh Water, Oil or Gas**

Formation	Well Depth (TVD)	Water/Oil/Gas
Rustler	230'	Water
Top of Salt	577'	Water
Base of Salt	3684'	Water
Delaware	3917'	Water
Brushy Canyon	6452'	Water/Oil/Gas
Bone Spring	7745'	Water
1st Bone Spring Ss	8787'	Water/Oil/Gas
2nd Bone Spring Ss	9625'	Water/Oil/Gas
Target/Land Curve	9827'	Water/Oil/Gas

\*\*\* Hydrocarbons @ Brushy Canyon

\*\*\* Groundwater depth 40' (per NM State Engineers Office).

No other formations are expected to yield oil, gas or fresh water in measurable volumes. The surface fresh water sands will be protected by setting 13.375 inch casing @ 552' (25' above the salt) and circulating cement back to surface. The salt will be isolated by setting 9.625 inch casing at 3784' and circulating cement to surface. The second intermediate will isolate from the salt down to the next casing seat by setting 7.625 inch casing at 9860' and cementing to surface. A 6.75 inch curve and 6.75 inch lateral hole will be drilled to 22559 MD/TD and 5.5 inch production casing will be set at TD and cemented back up to 2nd intermediate (estimated TOC 9360 feet) per Potash regulations.

**3. Casing Design**

Hole Size	MD	TVD	OD Csg	Weight	Grade	Collar	New/Used	SF Burst	SF Collapse	SF Tension
17.5	0' – 552'	571'	13.375	54.5	J-55	BTC	New	2.41	4.63	30.22
12.25	0' – 3784'	3688'	9.625	40	J-55	BTC	New	1.76	2.39	4.16
8.75	0' – 3884'	3788'	7.625	29.7	RY P-110	Flush Joint	New	3.21	3.08	1.91
8.75	3884' – 9860'	9502'	7.625	29.7	HC L-80	Flush Joint	New	2.33	3.68	2.29
6.75	0' – 9760'	9409'	5.5	20	RY P-110	Semi-Premium	New	1.05	2.19	2.18
6.75	9760' - 22559'	10451'	5.5	20	RY P-110	Semi-Flush	New	1.05	2.17	6.50

• Production casing meets the clearance requirements as tapered string crosses over before encountering the intermediate shoe, per Onshore Order 2.3.B.1

• XTO requests the option to utilize a spudder rig (Atlas Copco RD20 or Equivalent) to set and cement surface and intermediate 1 casing per this Sundry

• 13.375 Collapse analyzed using 50% evacuation based on regional experience.

• 7.625 Collapse analyzed using 50% evacuation based on regional experience.

• 7.625 Tension calculated using vertical hanging weight plus the lateral weight multiplied by a friction factor of 0.35

**Wellhead:**

*Permanent Wellhead – Multibowl System*

A. Starting Head: 13-5/8" 10M top flange x 13-3/8" bottom

B. Tubing Head: 13-5/8" 10M bottom flange x 7-1/16" 15M top flange

• Wellhead will be installed by manufacturer's representatives.

• Manufacturer will monitor welding process to ensure appropriate temperature of seal.

**4. Cement Program****Surface Casing: 13.375, 54.5 New BTC, J-55 casing to be set at +/- 552'**

Lead: 180 sxs EconoCem-HLTRRC (mixed at 12.9 ppg, 1.87 ft<sup>3</sup>/sx, 10.13 gal/sx water)  
 Tail: 300 sxs Class C + 2% CaCl (mixed at 14.8 ppg, 1.35 ft<sup>3</sup>/sx, 6.39 gal/sx water)  
 Top of Cement: Surface  
 Compressives: 12-hr = 250 psi 24 hr = 500 psi

Due to the high probability of not getting cement to surface during conventional top-out jobs in the area, ~10-20 ppb gravel will be added on the backside of the 1" to get cement to surface, if required.

**1st Intermediate Casing: 9.625, 40 New BTC, J-55 casing to be set at +/- 3784'**

Lead: 1570 sxs Class C (mixed at 12.9 ppg, 1.39 ft<sup>3</sup>/sx, 10.13 gal/sx water)  
 Tail: 130 sxs Class C + 2% CaCl (mixed at 14.8 ppg, 1.35 ft<sup>3</sup>/sx, 6.39 gal/sx water)  
 Top of Cement: Surface  
 Compressives: 12-hr = 900 psi 24 hr = 1500 psi

**2nd Intermediate Casing: 7.625, 29.7 New casing to be set at +/- 9860'**1st Stage

Optional Lead: 150 sxs Class C (mixed at 10.5 ppg, 2.77 ft<sup>3</sup>/sx, 15.59 gal/sx water)  
 TOC: 3584  
 Tail: 310 sxs Class C (mixed at 14.8 ppg, 1.35 ft<sup>3</sup>/sx, 6.39 gal/sx water)  
 TOC: Brushy Canyon @ 6452  
 Compressives: 12-hr = 900 psi 24 hr = 1150 psi

2nd Stage

Lead: 0 sxs Class C (mixed at 12.9 ppg, 2.16 ft<sup>3</sup>/sx, 9.61 gal/sx water)  
 Tail: 400 sxs Class C (mixed at 14.8 ppg, 1.33 ft<sup>3</sup>/sx, 6.39 gal/sx water)  
 Top of Cement: 0  
 Compressives: 12-hr = 900 psi 24 hr = 1150 psi

XTO requests to pump a two stage cement job on the 7-5/8" intermediate casing string with the first stage being pumped conventionally with the calculated top of cement at the Brush Canyon (6452) and the second stage performed as a bradenhead squeeze with planned cement from the Brushy Canyon to surface. If cement is not visually confirmed to circulate to surface, the final cement top after the second stage job will be verified by Echo-meter. If necessary, a top out consisting of 1,500 sack of Class C cement + 3% Salt + 1% PreMag-M + 6% Bentonite Gel (2.30 yld, 12.91 ppg) will be executed as a contingency. If cement is still unable to circulate to surface, another Echo-meter run will be performed for cement top verification.

XTO will include the Echo-meter verified fluid top and the volume of displacement fluid above the cement slurry in the annulus in all post-drill sundries on wells utilizing this cement program.

XTO will report to the BLM the volume of fluid (limited to 5 bbls) used to flush intermediate casing valves following backside cementing procedures.

XTO requests to pump an Optional Lead if well conditions dictate in an attempt to bring cement to surface. If cement reaches the desired height, the BLM will be notified and the second stage bradenhead squeeze and subsequent TOC verification will be negated.

XTO requests the option to conduct the bradenhead squeeze and TOC verification offline as per standard approval from BLM when unplanned remediation is needed and batch drilling is approved. In the event the bradenhead is conducted, we will ensure the first stage cement job is cemented properly and the well is static with floats holding and no pressure on the csg annulus as with all other casing strings where batch drilling operations occur before moving off the rig. The TA cap will also be installed per Cactus procedure and pressure inside the casing will be monitored via the valve on the TA cap as per standard batch drilling ops.

**Production Casing: 5.5, 20 New Semi-Flush, RY P-110 casing to be set at +/- 22559'**

Lead: 0 sxs NeoCem (mixed at 11.5 ppg, 2.69 ft<sup>3</sup>/sx, 15.00 gal/sx water) Top of Cement: 9360 feet  
 Tail: 950 sxs VersaCem (mixed at 13.2 ppg, 1.51 ft<sup>3</sup>/sx, 8.38 gal/sx water) Top of Cement: 9331 feet  
 Compressives: 12-hr = 1375 psi 24 hr = 2285 psi

XTO requests the option to offline cement and remediate (if needed) surface and intermediate casing strings where batch drilling is approved and if unplanned remediation is needed. XTO will ensure well is static with no pressure on the csg annulus, as with all other casing strings where batch drilling operations occur before moving off the rig. The TA cap will also be installed when applicable per Cactus procedure and pressure inside the casing will be monitored via the valve on the TA cap as per standard batch drilling ops. Offline cement operations will then be conducted after the rig is moved off the current well to the next well in the batch sequence.

## 5. Pressure Control Equipment

Once the permanent WH is installed on the 13.375 casing, the blow out preventer equipment (BOP) will consist of a 13-5/8" minimum 5M Hydril and a 13-5/8" minimum 10M Double Ram BOP. MASP should not exceed 2948 psi. In any instance where 10M BOP is required by BLM, XTO requests a variance to utilize 5M annular with 10M ram preventers (a common BOP configuration, which allows use of 10M rams in unlikely event that pressures exceed 5M).

All BOP testing will be done by an independent service company. Annular pressure tests will be limited to 50% of the working pressure. When nipping up on the 13.375, 5M bradenhead and flange, the BOP test will be limited to 5000 psi. When nipping up on the 7.625, the BOP will be tested to a minimum of 5000 psi. All BOP tests will include a low pressure test as per BLM regulations. The 5M BOP diagrams are attached. Blind rams will be functioned tested each trip, pipe rams will be functioned tested each day.

A variance is requested to allow use of a flex hose as the choke line from the BOP to the Choke Manifold. If this hose is used, a copy of the manufacturer's certification and pressure test chart will be kept on the rig. Attached is an example of a certification and pressure test chart. The manufacturer does not require anchors.

XTO requests a variance to be able to batch drill this well if necessary. In doing so, XTO will set casing and ensure that the well is cemented properly (unless approval is given for offline cementing) and the well is static. With floats holding, no pressure on the csg annulus, and the installation of a 10K TA cap as per Cactus recommendations, XTO will contact the BLM to skid the rig to drill the remaining wells on the pad. Once surface and both intermediate strings are all completed, XTO will begin drilling the production hole on each of the wells.

A variance is requested to **ONLY** test broken pressure seals on the BOP equipment when moving from wellhead to wellhead which is in compliance with API Standard 53. API standard 53 states, that for pad drilling operation, moving from one wellhead to another within 21 days, pressure testing is required for pressure-containing and pressure-controlling connections when the integrity of a pressure seal is broken. Based on discussions with the BLM on February 27th 2020, we will request permission to **ONLY** retest broken pressure seals if the following conditions are met: 1. After a full BOP test is conducted on the first well on the pad 2. When skidding to drill an intermediate section that does not penetrate into the Wolfcamp.

#### 6. Proposed Mud Circulation System

INTERVAL	Hole Size	Mud Type	MW (ppg)	Viscosity (sec/qt)	Fluid Loss (cc)
0' - 552'	17.5	FW/Native	8.5-9	35-40	NC
552' - 3784'	12.25	Brine	10-10.5	30-32	NC
3784' to 9860'	8.75	BDE/OBM or FW/Brine	8.6-9.1	30-32	NC
9860' to 22559'	6.75	OBM	10-10.5	50-60	NC - 20

The necessary mud products for weight addition and fluid loss control will be on location at all times.

Spud with fresh water/native mud. Drill out from under 13-3/8" surface casing with brine solution. A 10.0 ppg -10.5 ppg brine mud will be used while drilling through the salt formation. Use fibrous materials as needed to control seepage and lost circulation. Pump viscous sweeps as needed for hole cleaning. Pump speed will be recorded on a daily drilling report after mudding up. A Pason or Totco will be used to detect changes in loss or gain of mud volume. A mud test will be performed every 24 hours to determine: density, viscosity, strength, filtration and pH as necessary. Use available solids controls equipment to help keep mud weight down after mud up. Rig up solids control equipment to operate as a closed loop system.

#### 7. Auxiliary Well Control and Monitoring Equipment

- A. A Kelly cock will be in the drill string at all times.
- B. A full opening drill pipe stabbing valve having appropriate connections will be on the rig floor at all times.
- C. H2S monitors will be on location when drilling below the 13.375 casing.

#### 8. Logging, Coring and Testing Program

Open hole logging will not be done on this well.

#### 9. Abnormal Pressures and Temperatures / Potential Hazards

None Anticipated. BHT of 165 to 185 F is anticipated. No H2S is expected but monitors will be in place to detect any H2S occurrences. Should these circumstances be encountered the operator and drilling contractor are prepared to take all necessary steps to ensure safety of all personnel and environment. Lost circulation could occur but is not expected to be a serious problem in this area and hole seepage will be compensated for by additions of small amounts of LCM in the drilling fluid. The maximum anticipated bottom hole pressure for this well is 5110 psi.

#### 10. Anticipated Starting Date and Duration of Operations

Anticipated spud date will be after BLM approval. Move in operations and drilling is expected to take 40 days.

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  
APD ID 10400093214

WELL LOCATION AND ACREAGE DEDICATION PLAT

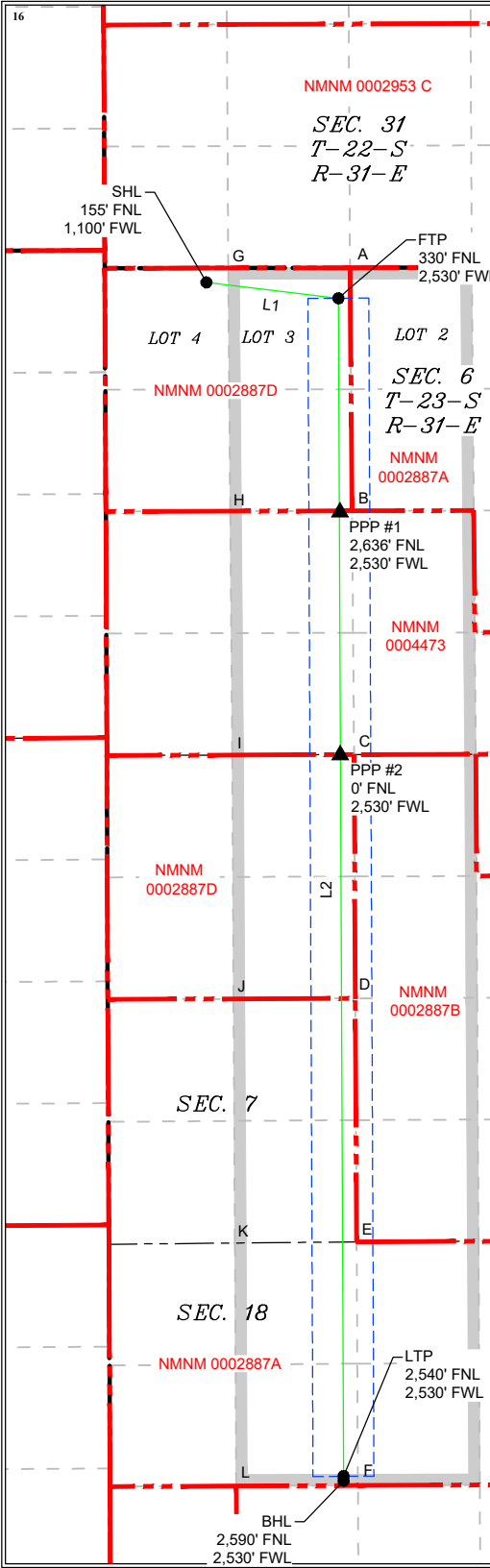
<sup>1</sup> API Number <b>30-015-</b> 54877	<sup>2</sup> Pool Code <b>40295</b>	<sup>3</sup> Pool Name <b>LOS MEDANOS; BONE SPRING</b>
<sup>4</sup> Property Code <b>333473</b>	<sup>5</sup> Property Name <b>JRU DI 7 SAWTOOTH</b>	<sup>6</sup> Well Number <b>704H</b>
<sup>7</sup> OGRID No. <b>373075</b>	<sup>8</sup> Operator Name <b>XTO PERMIAN OPERATING, LLC</b>	<sup>9</sup> Elevation <b>3,315'</b>

<sup>10</sup> Surface Location									
UL or lot no. <b>4</b>	Section <b>6</b>	Township <b>23 S</b>	Range <b>31 E</b>	Lot Idn	Feet from the <b>155</b>	North/South line <b>NORTH</b>	Feet from the <b>1,100</b>	East/West line <b>WEST</b>	County <b>EDDY</b>

<sup>11</sup> Bottom Hole Location If Different From Surface									
UL or lot no. <b>F</b>	Section <b>18</b>	Township <b>23 S</b>	Range <b>31 E</b>	Lot Idn	Feet from the <b>2,590</b>	North/South line <b>NORTH</b>	Feet from the <b>2,530</b>	East/West line <b>WEST</b>	County <b>EDDY</b>

<sup>12</sup> Dedicated Acres <b>799.84</b>	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> Order No.
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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.



LINE TABLE		
LINE	AZUMITH	LENGTH
L1	276°52'14"	1,441.48'
L2	179°45'05"	12,819.13'

LOT ACREAGE TABLE	
SECTION 6, T-23-S, R-31-E	
LOT 2 =	39.94 ACRES
LOT 3 =	39.90 ACRES
LOT 4 =	40.45 ACRES

LEGEND	
	SECTION LINE
	WELL BORE
	NEW MEXICO MINERAL LEASE
	330' BUFFER
	ALLOCATION AREA

COORDINATE TABLE		
<b>SHL (NAD 83 NME)</b> Y = 487,924.9 N X = 699,241.3 E LAT. = 32.340341 °N LONG. = 103.822052 °W	<b>FTP (NAD 83 NME)</b> Y = 487,752.5 N X = 700,672.4 E LAT. = 32.339848 °N LONG. = 103.817421 °W	<b>PPP #1 (NAD 83 NME)</b> Y = 485,446.9 N X = 700,682.4 E LAT. = 32.333511 °N LONG. = 103.817424 °W
<b>PPP #2 (NAD 83 NME)</b> Y = 482,805.4 N X = 700,693.9 E LAT. = 32.326250 °N LONG. = 103.817429 °W	<b>LTP (NAD 83 NME)</b> Y = 474,983.5 N X = 700,727.8 E LAT. = 32.304749 °N LONG. = 103.817441 °W	<b>BHL (NAD 83 NME)</b> Y = 474,933.5 N X = 700,728.0 E LAT. = 32.304611 °N LONG. = 103.817441 °W
<b>SHL (NAD 27 NME)</b> Y = 487,864.8 N X = 658,059.2 E LAT. = 32.340218 °N LONG. = 103.821561 °W	<b>FTP (NAD 27 NME)</b> Y = 487,692.3 N X = 659,490.3 E LAT. = 32.339725 °N LONG. = 103.816930 °W	<b>PPP #1 (NAD 27 NME)</b> Y = 485,386.8 N X = 659,500.2 E LAT. = 32.333387 °N LONG. = 103.816934 °W
<b>PPP #2 (NAD 27 NME)</b> Y = 482,745.4 N X = 659,511.6 E LAT. = 32.326126 °N LONG. = 103.816938 °W	<b>LTP (NAD 27 NME)</b> Y = 474,923.6 N X = 659,545.2 E LAT. = 32.304625 °N LONG. = 103.816951 °W	<b>BHL (NAD 27 NME)</b> Y = 474,873.6 N X = 659,545.4 E LAT. = 32.304488 °N LONG. = 103.816951 °W

CORNER COORDINATES (NAD 83 NME)		CORNER COORDINATES (NAD 27 NME)	
A - Y = 488,082.7 N	A - X = 700,798.9 E	A - Y = 488,022.6 N	A - X = 659,616.8 E
B - Y = 485,447.3 N	B - X = 700,820.4 E	B - Y = 485,387.2 N	B - X = 659,638.2 E
C - Y = 482,806.0 N	C - X = 700,841.9 E	C - Y = 482,746.0 N	C - X = 659,659.6 E
D - Y = 480,163.7 N	D - X = 700,856.2 E	D - Y = 480,103.7 N	D - X = 659,673.8 E
E - Y = 477,524.9 N	E - X = 700,870.5 E	E - Y = 477,465.0 N	E - X = 659,688.0 E
F - Y = 474,884.2 N	F - X = 700,884.2 E	F - Y = 474,824.3 N	F - X = 659,701.6 E
G - Y = 488,080.3 N	G - X = 699,478.5 E	G - Y = 488,020.1 N	G - X = 658,296.4 E
H - Y = 485,443.7 N	H - X = 699,500.8 E	H - Y = 485,383.5 N	H - X = 658,318.6 E
I - Y = 482,801.1 N	I - X = 699,522.9 E	I - Y = 482,741.1 N	I - X = 658,340.6 E
J - Y = 480,158.2 N	J - X = 699,536.4 E	J - Y = 480,098.2 N	J - X = 658,354.0 E
K - Y = 477,512.1 N	K - X = 699,551.6 E	K - Y = 477,452.2 N	K - X = 658,369.2 E
L - Y = 474,878.3 N	L - X = 699,565.5 E	L - Y = 474,818.4 N	L - X = 658,382.9 E

<sup>17</sup> 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.

Rusty Klein

3-19-24

Signature

Date

RUSTY KLEIN

Printed Name

ranell.klein@exxonmobil.com

E-mail Address

<sup>18</sup> 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.

08-02-2023

Date of Survey

Signature and Seal of  
Professional Surveyor:

MARK DILLON HARP 23786

Certificate Number

RP

618.013002.06-30

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1625 N. French Dr., Hobbs, NM 88240  
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State of New Mexico  
Energy, Minerals and Natural Resources  
Oil Conservation Division  
1220 S. St Francis Dr.  
Santa Fe, NM 87505

CONDITIONS  
  
Action 337474

CONDITIONS

Operator: XTO PERMIAN OPERATING LLC. 6401 HOLIDAY HILL ROAD MIDLAND, TX 79707	OGRID: 373075
	Action Number: 337474
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

Created By	Condition	Condition Date
ward.rikala	All original COA's still apply. Additionally, if cement is not circulated to surface during cementing operations, then a CBL is required.	4/26/2024