

Well Name: BIG EDDY UNIT DI 5 WEST 27-29	Well Location: T20S / R31E / SEC 27 / SWNE / 32.546191 / -103.855875	County or Parish/State: EDDY / NM
Well Number: 7H	Type of Well: OIL WELL	Allottee or Tribe Name:
Lease Number: NMLC065431	Unit or CA Name: BIG EDDY	Unit or CA Number: NMNM68294X
US Well Number:	Operator: XTO PERMIAN OPERATING LLC	

Notice of Intent

Sundry ID: 2830504

Type of Submission: Notice of Intent	Type of Action: APD Change
Date Sundry Submitted: 01/07/2025	Time Sundry Submitted: 02:01
Date proposed operation will begin: 01/17/2025	

**Procedure Description:** Big Eddy Unit DI 5 West 27-29 7H APD ID# 10400093633 SUNDRY LANGUAGE XTO Permian Operating, LLC. respectfully requests approval to make the following changes to the approved APD. Changes to include SHL, KOP, FTP, LTP, BHL, casing design, cement program, mud circulation system, proposed total depth and pool. FROM: TO: SHL: 1945' FNL & 2290' FEL OF SECTION 27-T20S-R31E 2145' FNL & 2290' FEL OF SECTION 27-T20S-R31E KOP: 1945' FNL & 2290' FEL OF SECTION 27-T20S-R31E 2203' FSL & 1970' FEL OF SECTION 27-T20S-R31E FTP: 1650' FNL & 2310' FWL OF SECTION 27-T20S-R31E 2200' FSL & 2585' FWL OF SECTION 27-T20S-R31E LTP: 1650' FNL & 100' FWL OF SECTION 29-T20S-R31E 2200' FSL & 100' FWL OF SECTION 29-T20S-R31E BHL: 1650' FNL & 50' FWL OF SECTION 29-T20S-R31E 2200' FSL & 50' FWL OF SECTION 29-T20S-R31E The proposed total depth is changing from 22933' MD/9730' TVD to 23379.73' MD/9660' TVD. The pool name is changing from WC-015 G-06 S203127G; Bone Spring to WC Williams Sink; Bone Spring. There are no changes requested to the facilities/surface usage that was approved along with the APD. See attached drilling program for the updated casing design, cement program and the mud circulation system.

NOI Attachments

Procedure Description

Sundry\_Attachments\_\_\_BEU\_DI\_5W\_27\_29\_7H\_20250217072715.pdf

**Well Name:** BIG EDDY UNIT DI 5  
WEST 27-29

**Well Location:** T20S / R31E / SEC 27 /  
SWNE / 32.546191 / -103.855875

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

**Well Number:** 7H

**Type of Well:** OIL WELL

**Allottee or Tribe Name:**

**Lease Number:** NMLC065431

**Unit or CA Name:** BIG EDDY

**Unit or CA Number:**  
NMNM68294X

**US Well Number:**

**Operator:** XTO PERMIAN OPERATING  
LLC

Conditions of Approval

Additional

BEU\_DI\_5\_West\_27\_29\_7H\_COA\_20250227140450.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:** SRINIVAS LAGHUVARAPU

**Signed on:** FEB 17, 2025 07:27 AM

**Name:** XTO PERMIAN OPERATING LLC

**Title:** REGULATORY ANALYST

**Street Address:** 22777 SPRINGWOODS VILLAGE PARKWAY

**City:** SPRING

**State:** TX

**Phone:** (720) 539-1673

**Email address:** SRINIVAS.N.LAGHUVARAPU@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:** 02/28/2025

**Signature:** Chris Walls

## PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

<b>OPERATOR'S NAME:</b> XTO <b>LEASE NO.:</b> NMLC065944 <b>LOCATION:</b> Sec. 27, T.20 S, R 31 E <b>COUNTY:</b> <span style="border: 1px solid black; padding: 2px;">Eddy County, New Mexico</span>
<b>WELL NAME &amp; NO.:</b> Big Eddy Unit DI 5 West 27-29 7H <b>SURFACE HOLE FOOTAGE:</b> 2145'/N & 2290'/E <b>BOTTOM HOLE FOOTAGE:</b> 2200'/S & 50'/W

Changes approved through engineering via **Sundry 2830504** on 2/27/2025. Any previous COAs not addressed within the updated COAs still apply.

COA

H <sub>2</sub> S	<input checked="" type="radio"/> No		<input type="radio"/> Yes	
<b>Potash / WIPP</b>	<input type="radio"/> None	<input type="radio"/> Secretary	<input checked="" type="radio"/> R-111-Q	<input checked="" type="checkbox"/> Open Annulus <b>4-String Design: Open 1st Int x Production Casing (ICP 2 above Relief Zone)</b> <input type="checkbox"/> WIPP
<b>Cave / Karst</b>	<input checked="" type="radio"/> Low	<input 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 type="checkbox"/> Cont. Squeeze	<input type="checkbox"/> EchoMeter	<input type="checkbox"/> DV Tool
<b>Special Req</b>	<input type="checkbox"/> Capitan Reef	<input type="checkbox"/> Water Disposal	<input type="checkbox"/> COM	<input checked="" type="checkbox"/> Unit
<b>Waste Prev.</b>	<input type="radio"/> Self-Certification	<input type="radio"/> Waste Min. Plan	<input checked="" type="radio"/> APD Submitted prior to 06/10/2024	
<b>Additional Language</b>	<input checked="" type="checkbox"/> Flex Hose	<input checked="" type="checkbox"/> Casing Clearance	<input type="checkbox"/> Pilot Hole	<input checked="" type="checkbox"/> Break Testing
	<input checked="" type="checkbox"/> Four-String	<input checked="" type="checkbox"/> Offline Cementing	<input type="checkbox"/> Fluid-Filled	

### A. HYDROGEN SULFIDE

Hydrogen Sulfide (H<sub>2</sub>S) monitors shall be installed prior to drilling out the surface shoe. If H<sub>2</sub>S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet 43 CFR 3176 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.

***APD is within the R-111-Q defined boundary. Operator must follow all procedures and requirements listed within the updated order.***

## B. CASING

1. The **13-3/8** inch surface casing shall be set at approximately **851** 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.
  - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
  - b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or **500 pounds compressive strength**, whichever is greater. (This is to include the lead cement)
  - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
  - d. If cement falls back, remedial cementing will be done prior to drilling out that string.
2. The minimum required fill of cement behind the **9-5/8** inch 1<sup>st</sup> 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.**
3. The minimum required fill of cement behind the **7-5/8** inch 2<sup>nd</sup> Intermediate casing is:
  - Cement to surface. If cement does not circulate see B.1.a, c-d above.

❖ In Capitan Reef Areas if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.

❖ **Special Capitan Reef requirements.** If lost circulation (50% or greater) occurs below the Base of the Salt, the operator shall do the following:  
**(Use this for 3 string wells in the Capitan Reef, if 4 string well ensure FW based mud used across the Capitan interval)**
  - Switch to freshwater mud to protect the Capitan Reef and use fresh water mud until setting the intermediate casing. The appropriate BLM office is to be notified for a PET to witness the switch to fresh water.
  - Daily drilling reports from the Base of the Salt to the setting of the intermediate casing are to be submitted to the BLM CFO engineering staff via e-mail by 0800 hours each morning. Any lost circulation encountered is to be recorded on these drilling reports. The daily drilling report should show mud volume per shift/tour. Failure to submit these reports will result in an Incidence of Non-Compliance being issued for failure to comply with the Conditions of Approval. If not already planned, the operator shall run a caliper survey for the intermediate well bore and submit to the appropriate BLM office.



4. The minimum required fill of cement behind the **5-1/2** inch production casing is:
  - Cement should tie-back **500 feet** into the previous casing but not higher than USGS Marker Bed No. 126. **Operator must verify top of cement per R-111-Q requirements.** Submit results to the BLM. If cement does not circulate, contact the appropriate BLM office. Operator shall provide method of verification. **Excess calculates to -11%. Additional cement maybe required.**
  - ❖ **A monitored open annulus will be incorporated during completion by leaving the Intermediate Casing x Production Casing annulus un-cemented and monitored inside the Intermediate String.** Operator must follow monitoring requirements listed within R-111-Q. Tieback requirements shall be met within **180 days**.

### 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).
1. 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. **(This is not necessary for secondary recovery unit wells)**

**BOPE Break Testing Variance**

- BOPE Break Testing is ONLY permitted for intervals utilizing a 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 **43 CFR 3172**.
- 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.

Engineer may elect to vary this language. Speak with Chris about implementing changes and whether that change seems reasonable.

**Casing Clearance**

String does not meet 0.422" clearance requirement per 43 CFR 3172. Cement tieback requirement increased 100' for Production casing tieback. Operator may contact approving engineer to discuss changing casing set depth or grade to meet clearance requirement.

## GENERAL REQUIREMENTS

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

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

**Contact Eddy County Petroleum Engineering Inspection Staff:**

Email or call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220;  
[BLM NM CFO DrillingNotifications@BLM.GOV](mailto:BLM_NM_CFO_DrillingNotifications@BLM.GOV); (575) 361-2822

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
  - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
  - b. When the operator proposes to set surface casing with Spudder Rig
    - i. Notify the BLM when moving in and removing the Spudder Rig.
    - ii. 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.
    - iii. BOP/BOPE test to be conducted per **43 CFR 3172** as soon as 2<sup>nd</sup> Rig is rigged up on well.
2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.
3. For intervals in which cement to surface is required, cement to surface should be verified with a visual check and density or pH check to differentiate cement from spacer and drilling mud. The results should be documented in the driller's log and daily reports.

## 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 of both lead and tail cement, 2) until cement has been in place at least 8 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-Q 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 3172**.
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:
  - i. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
  - ii. 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.
  - iii. Manufacturer representative shall install the test plug for the initial BOP test.
  - iv. Whenever any seal subject to test pressure is broken, all the tests in 43 CFR 3172.6(b)(9) must be followed.
  - v. 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.
  - i. 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).

- ii. 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.)
- iii. 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 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 8 hours or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
- iv. 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.
- v. The results of the test shall be reported to the appropriate BLM office.
- vi. 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.
- vii. 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.
- viii. 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 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.

**Approved by Zota Stevens on 2/27/2025**

575-234-5998 / zstevens@blm.gov



C-102  Sumbit electronically Via OCD Permitting	State of New Mexico Energy, Minerals & Natural Resources Department OIL CONVERSION DIVISION	Revised July, 09 2024	
		Submittal Type:	<input type="checkbox"/> Initial Submittal
			<input checked="" type="checkbox"/> Amended Report
		<input type="checkbox"/> As Drilled	

WELL LOCATION INFORMATION			
API Number <b>30-015-</b>	Pool Code <b>97650</b>	Pool Name <b>WC WILLIAMS SINK; BONE SPRING</b>	
Property Code	Property Name <b>BIG EDDY UNIT DI 5 WEST 27-29</b>	Well Number <b>7H</b>	
OGRID No. <b>373075</b>	Operator Name <b>XTO PERMIAN OPERATING, LLC.</b>	Ground Level Elevation <b>3,525'</b>	
Surface Owner: <input type="checkbox"/> State <input type="checkbox"/> Fee <input type="checkbox"/> Tribal <input checked="" type="checkbox"/> Federal		Mineral Owner: <input type="checkbox"/> State <input type="checkbox"/> Fee <input type="checkbox"/> Tribal <input checked="" type="checkbox"/> Federal	

Surface Hole Location									
UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
G	27	20S	31E		2,145 FNL	2,290 FEL	32.545641	-103.855875	EDDY

Bottom Hole Location									
UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
L	29	20S	31E		2,200 FSL	50 FWL	32.543072	-103.899803	EDDY



Dedicated Acres <b>800.00</b>	Infill or Defining Well <b>INFILL</b>	Defining Well API	Overlapping Spacing Unit (Y/N) <b>N</b>	Consolidation Code <b>U</b>
Order Numbers.			Well Setbacks are under Common Ownership: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Kick Off Point (KOP)									
UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
J	27	20S	31E		2,203 FSL	1,970 FEL	32.543054	-103.854840	EDDY

First Take Point (FTP)									
UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
K	27	20S	31E		2,200 FSL	2,585 FWL	32.543055	-103.857164	EDDY

Last Take Point (LTP)									
UL	Section	Township	Range	Lot	Ft. from N/S	Ft. from E/W	Latitude	Longitude	County
L	29	20S	31E		2,200 FSL	100 FWL	32.543072	-103.899641	EDDY

Unitized Area or Area of Interest <b>NMNM-105467880</b>	Spacing Unit Type : <input checked="" type="checkbox"/> Horizontal <input type="checkbox"/> Vertical	Ground Elevation <b>3,525'</b>
--	--	-----------------------------------

<div>OPERATOR CERTIFICATIONS</div> <div>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and, if the well is vertical or directional well, 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 at this location pursuant to a contract with an owner of a working interest or unleased mineral interest, or a voluntary pooling agreement or a compulsory pooling order of heretofore entered by the division.</div> <div>If this well is a horizontal well, I further certify that this organization has received the consent of at least one lessee or owner of a working interest or unleased mineral interest in each tract (in the target pool or information) in which any part of the well's completed interval will be located or obtained a compulsory pooling order from the division.</div> <div><div>Srinivas Naveen</div><div>1/6/25</div></div> <div>SignatureDate</div> <div>Srinivas Naveen Laghuvarapu</div> <div>Printed Name</div> <div>srinivas.n.laghuvarapu@exxonmobil.com</div> <div>Email Address</div>	<div>SURVEYOR CERTIFICATIONS</div> <div>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</div> <div><div></div><div></div></div> <div>Signature and Seal of Professional Surveyor</div> <div><div>MARK DILLON HARP 23786</div><div>1/3/2025</div></div> <div>Certificate NumberDate of Survey</div> <div><div>YH</div><div>618.013004.04-07</div></div>
--	--

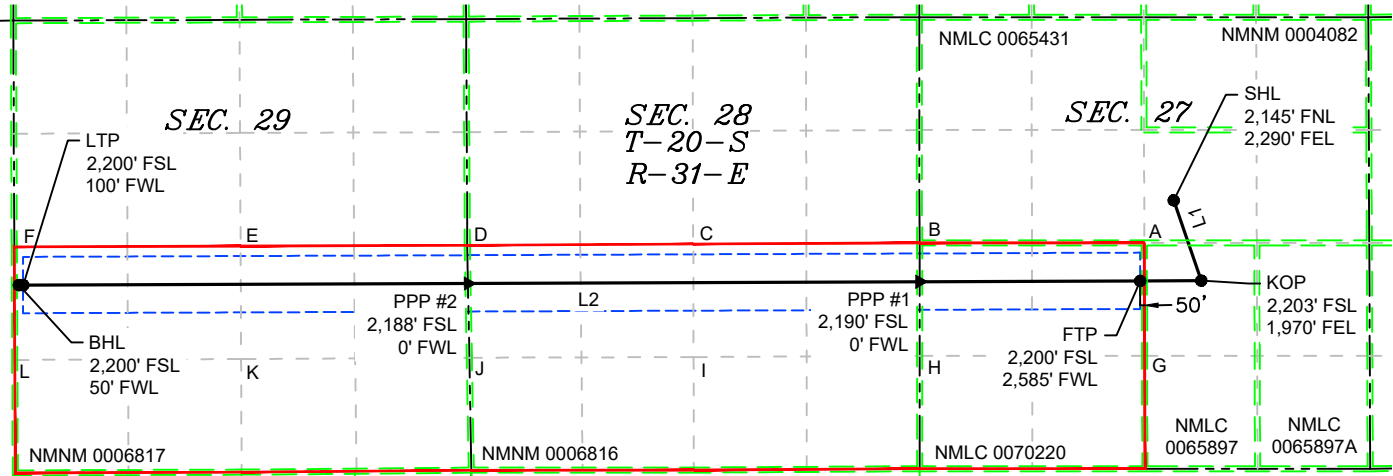
Note: No allowable will be assigned to this completion until all interest have been consolidated or a non-standard unit has been approved by the division.

P:\618.013 XTO Energy - NM\004 Big Eddy Unit - Eddy Lea\10 - BEU DI 30 - EDDY\Wells\08 WEST 15-17 5H\DWG\5H C-102.dwg

ACREAGE DEDICATION PLATS

This grid represents a standard section. You may superimpose a non-standard section, or larger area, over this grid. Operators must outline the dedicated acreage in a red box, clearly show the well surface location and bottom hole location, if it is a directionally drilled, with the dimensions from the section lines in the cardinal directions. If this is a horizontal wellbore show on this plat the location of the First Take Point and Last Take Point, and the point within the Completed interval (other then the First Take Point and Last Take Point) that is closest to any outer boundary of the tract.

Surveyor shall use the latest United States government survey or dependent resurvey. Well locations will be in reference to the New Mexico Principal Meridian. If the land in not surveyed, contact the OCD Engineering Bureau. Independent subdivision surveys will not be acceptable.



LEGEND

LINE TABLE		
LINE	AZIMUTH	LENGTH
L1	161°01'12"	994.01'
L2	269°46'55"	13,855.57'

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

COORDINATE TABLE														
SHL (NAD 83 NME)			KOP (NAD 83 NME)			FTP (NAD 83 NME)			PPP #1 (NAD 83 NME)			PPP #2 (NAD 83 NME)		
Y =	562,564.8	N	Y =	561,624.8	N	Y =	561,622.1	N	Y =	561,612.3	N	Y =	561,592.1	N
X =	688,461.4	E	X =	688,784.7	E	X =	688,068.5	E	X =	685,483.8	E	X =	680,193.4	E
LAT. =	32.545641	°N	LAT. =	32.543054	°N	LAT. =	32.543055	°N	LAT. =	32.543059	°N	LAT. =	32.543067	°N
LONG. =	103.855875	°W	LONG. =	103.854840	°W	LONG. =	103.857164	°W	LONG. =	103.865552	°W	LONG. =	103.882720	°W
			LTP (NAD 83 NME)						BHL (NAD 83 NME)					
			Y =	561,572.3	N				Y =	561,572.1	N			
			X =	674,979.2	E				X =	674,929.2	E			
			LAT. =	32.543072	°N				LAT. =	32.543072	°N			
			LONG. =	103.899641	°W				LONG. =	103.899803	°W			
SHL (NAD 27 NME)			KOP (NAD 27 NME)			FTP (NAD 27 NME)			PPP #1 (NAD 27 NME)			PPP #2 (NAD 27 NME)		
Y =	562,503.1	N	Y =	561,563.1	N	Y =	561,560.4	N	Y =	561,550.6	N	Y =	561,530.4	N
X =	647,281.8	E	X =	647,605.0	E	X =	646,888.9	E	X =	644,304.2	E	X =	639,013.8	E
LAT. =	32.545521	°N	LAT. =	32.542933	°N	LAT. =	32.542934	°N	LAT. =	32.542939	°N	LAT. =	32.542946	°N
LONG. =	103.855374	°W	LONG. =	103.854338	°W	LONG. =	103.856662	°W	LONG. =	103.865050	°W	LONG. =	103.882218	°W
			LTP (NAD 27 NME)						BHL (NAD 27 NME)					
			Y =	561,510.5	N				Y =	561,510.4	N			
			X =	633,799.5	E				X =	633,749.5	E			
			LAT. =	32.542951	°N				LAT. =	32.542951	°N			
			LONG. =	103.899138	°W				LONG. =	103.899301	°W			
CORNER COORDINATES (NAD 83 NME)						CORNER COORDINATES (NAD 27 NME)								
A - Y =	562,065.8	N	A - X =	688,117.3	E	A - Y = 562,004.1 N A - X = 646,937.7 E								
B - Y =	562,065.8	N	B - X =	685,483.4	E	B - Y = 562,004.1 N B - X = 644,303.8 E								
C - Y =	562,052.2	N	C - X =	682,832.5	E	C - Y = 561,990.5 N C - X = 641,653.0 E								
D - Y =	562,038.7	N	D - X =	680,185.6	E	D - Y = 561,976.9 N D - X = 639,005.9 E								
E - Y =	562,029.1	N	E - X =	677,528.7	E	E - Y = 561,967.3 N E - X = 636,349.1 E								
F - Y =	562,019.5	N	F - X =	674,877.1	E	F - Y = 561,957.8 N F - X = 633,697.5 E								
G - Y =	560,743.9	N	G - X =	688,120.8	E	G - Y = 560,682.3 N G - X = 646,941.1 E								
H - Y =	560,743.8	N	H - X =	685,484.5	E	H - Y = 560,682.1 N H - X = 644,304.9 E								
I - Y =	560,729.1	N	I - X =	682,836.3	E	I - Y = 560,667.4 N I - X = 641,656.7 E								
J - Y =	560,721.4	N	J - X =	680,208.8	E	J - Y = 560,659.7 N J - X = 639,029.1 E								
K - Y =	560,705.3	N	K - X =	677,534.9	E	K - Y = 560,643.5 N K - X = 636,355.2 E								
L - Y =	560,695.7	N	L - X =	674,883.3	E	L - Y = 560,634.0 N L - X = 633,703.6 E								

P:\618.013 XTO Energy - NM\004 Big Eddy Unit - Eddy Lea\04 - BEU DI 5 - EDDY\Wells\--07 - West 27-29 7H\DWG\DI 5 WEST 27-29 7H C-102.dwg

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

XTO Energy Inc.  
BIG EDDY UNIT DI 5 WEST 27-29 7H  
Projected TD: 23379.73' MD / 9660' TVD  
SHL: 2145' FNL & 2290' FEL , Section 27, T20S, R31E  
BHL: 2200' FSL & 50' FWL , Section 29, T20S, 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	675'	Water
Top of Salt	951'	Water
Base of Salt	2203'	Water
Capitan	2863'	Water
Delaware	3938'	Water
Brushy Canyon	5895'	Water/Oil/Gas
Bone Spring	7471'	Water
Avalon	7666'	Water/Oil/Gas
1st Bone Spring	8404'	Water/Oil/Gas
2nd Bone Spring	9106'	Water/Oil/Gas
Target/Land Curve	9660'	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 surface casing @ 851' (100' above the salt) and circulating cement back to surface. The salt will be isolated by setting first intermediate casing at 2303' and circulating cement to surface. The second intermediate will isolate Capitan Reef to ~50' inside Delaware formation and cemented to surface a. A 6.75 inch curve and 6.75 inch lateral hole will be drilled to 23379.73 MD/TD and 5.5 inch production casing will be set at TD and cemented to a estimated TOC 7471 feet

**3. Casing Design**

Hole Size	Depth	OD Csg	Weight	Grade	Collar	New/Used	SF Burst	SF Collapse	SF Tension
17.5	0' – 851'	13.375	54.5	J-55	BTC	New	3.97	3.04	19.60
12.25	0' – 2303'	9.625	40	J-55	BTC	New	4.17	3.93	6.84
8.75	0' – 2403'	7.625	29.7	HC L-80	Flush Joint	New	2.18	5.05	3.43
8.75	2403' – 3988'	7.625	29.7	HC L-80	Flush Joint	New	2.18	8.53	9.21
6.75	0' – 3888'	5.5	20	RY P-110	Semi-Premium / Freedom	New	1.05	5.23	2.16
6.75	3888' - 23379.73'	5.5	20	RY P-110	Semi-Flush / Talon	New	1.05	2.10	2.93

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

**Wellhead:***Permanent Wellhead*

Multibowl System for 4 String desing as per attachement.

**4. Cement Program**

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.

**Surface Casing: 13.375, 54.5 New BTC, J-55 casing to be set at +/- 851'**

Optional Lead: 570 sxs EconoCem-HLTRRC (mixed at 12.8 ppg, 1.33 ft3/sx, 10.13 gal/sx water)

Tail: 310 sxs Class C + 2% CaCl (mixed at 14.8 ppg, 1.33 ft3/sx, 6.39 gal/sx water)

Top of Cement: Surface

Compressives: 12-hr = 250 psi 24 hr = 500 psi

**1st Intermediate Casing: 9.625, 40 New BTC, J-55 casing to be set at +/- 2303'**

Lead: 450 sxs Class C (mixed at 14.8 ppg, 2.06 ft3/sx, 10.13 gal/sx water)

Tail: 60 sxs Class C + 2% CaCl (mixed at 15.6 ppg, 2.06 ft3/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 +/- 3988'**

Lead: 90 sxs Class C (mixed at 10.5 ppg, 2.77 ft3/sx, 15.59 gal/sx water)

TOC: 0

Tail: 210 sxs Class C (mixed at 14.8 ppg, 1.27 ft3/sx, 6.39 gal/sx water)

TOC: @ 2863

Compressives: 12-hr = 900 psi 24 hr = 1150 psi

XTO requests to pump a single stage cement job on the second intermediate casing string, with slurries pumped conventionally with the first slurry top of cement at Capitan Reef (2863') and the second slurry performed with planned cement from the Capitan Reef to surface.

**Production Casing: 5.5, 20 New Semi-Flush / Talon, RY P-110 casing to be set at +/- 23379.73'**

Lead: 50 sxs NeoCem (mixed at 11.5 ppg, 2.69 ft3/sx, 15.00 gal/sx water) Top of Cement: 7471 feet

Tail: 900 sxs VersaCem (mixed at 13.2 ppg, 1.51 ft3/sx, 8.38 gal/sx water) Top of Cement: 9115.24 feet

Compressives: 12-hr = 1375 psi 24 hr = 2285 psi

XTO requests to pump a single stage cement job on the 5.5" Production casing string with two slurries pumped conventionally, the first slurry with calculated top of cement at KOP @ 9115.24' MD, and the second slurry with planned cement from KOP base of brushy Canyon.

A post completion bradenhead squeeze will be performed to tied back the 2nd intermediate x production casing annulus TOC into the 2nd intermediate shoe but below of potash interval

**5. Pressure Control Equipment**

Once the permanent WH is installed on the casing, the blow out preventer equipment (BOP) will consist of a 5M Hydril and a 10M Triple Ram BOP.

All BOP testing will be done by an independent service company. Operator will test as per CFR 43-3172

A variance is requested to allow use of a flex hose as the choke line from the BOP to the Choke Manifold.

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 break testing 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.

**6. Proposed Mud Circulation System**

INTERVAL	Hole Size	Mud Type	MW	Viscosity	Fluid Loss	<b>Additional Comments.</b>
			(ppg)	(sec/qt)	(cc)	
0' - 851'	17.5	FW/Native	8.4-8.9	35-40	NC	Fresh water or native water
851' - 2303'	12.25	Sat Brine	10-10.5	30-32	NC	Fully saturated brine across salado / salt
2303' to 3988'	8.75	FW	8.8-9.3	30-32	NC	FW across Cap Reef
3988' to 23379.73'	6.75	OBM	10.5-11	50-60	NC - 20	OBM or Brine depending well conditions.

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 surface casing. A fully saturated brine 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 EDR system 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 160 to 180 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 5274 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.

## Well Plan Report - BEU DI 5 27-29 7H

Measured Depth: 23379.73 ft

TVD RKB: 9660.00 ft

### Location

Cartographic Reference System: New Mexico East - NAD 27

Northing: 562503.10 ft

Easting: 647281.80 ft

RKB: 3557.00 ft

Ground Level: 3525.00 ft

North Reference: Grid

Convergence Angle: 0.26 Deg

### Plan Sections BEU DI 5 27-29 7H

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		
2300.00	0.00	0.00	2300.00	0.00	0.00	0.00	0.00	0.00		
3456.10	23.12	161.02	3424.98	-217.62	74.85	2.00	0.00	2.00		
4815.34	23.12	161.02	4675.02	-722.35	248.45	0.00	0.00	0.00		
5971.44	0.00	0.00	5800.00	-939.97	323.29	-2.00	0.00	2.00		
9115.24	0.00	0.00	8943.80	-939.97	323.29	0.00	0.00	0.00		
10240.24	90.00	269.78	9660.00	-942.70	-392.90	8.00	0.00	8.00	FTP	8
23329.74	90.00	269.78	9660.00	-992.60	-13482.30	0.00	0.00	0.00	LTP	8
23379.73	90.00	269.78	9660.00	-992.79	-13532.29	0.00	0.00	0.00	BHL	8

### Position Uncertainty BEU DI 5 27-29 7H

Measured	TVD	Highside	Lateral	Vertical	Magnitude	Semi-major	Semi-minor	Semi-minor	Tool
----------	-----	----------	---------	----------	-----------	------------	------------	------------	------



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	XOMR2_OWSG MWD+IFR1+MS
100.000	0.000	0.000	100.000	0.358	0.000	0.179	0.000	2.300	0.000	0.000	0.358	0.179	90.000	XOMR2_OWSG MWD+IFR1+MS
200.000	0.000	0.000	200.000	0.717	0.000	0.538	0.000	2.310	0.000	0.000	0.717	0.538	90.000	XOMR2_OWSG MWD+IFR1+MS
300.000	0.000	0.000	300.000	1.075	0.000	0.896	0.000	2.326	0.000	0.000	1.075	0.896	90.000	XOMR2_OWSG MWD+IFR1+MS
400.000	0.000	0.000	400.000	1.434	0.000	1.255	0.000	2.348	0.000	0.000	1.434	1.255	90.000	XOMR2_OWSG MWD+IFR1+MS
500.000	0.000	0.000	500.000	1.792	0.000	1.613	0.000	2.375	0.000	0.000	1.792	1.613	90.000	XOMR2_OWSG MWD+IFR1+MS
600.000	0.000	0.000	600.000	2.151	0.000	1.972	0.000	2.408	0.000	0.000	2.151	1.972	90.000	XOMR2_OWSG MWD+IFR1+MS
700.000	0.000	0.000	700.000	2.509	0.000	2.330	0.000	2.446	0.000	0.000	2.509	2.330	90.000	XOMR2_OWSG MWD+IFR1+MS
800.000	0.000	0.000	800.000	2.868	0.000	2.689	0.000	2.488	0.000	0.000	2.868	2.689	90.000	XOMR2_OWSG MWD+IFR1+MS
900.000	0.000	0.000	900.000	3.226	0.000	3.047	0.000	2.534	0.000	0.000	3.226	3.047	90.000	XOMR2_OWSG MWD+IFR1+MS
1000.000	0.000	0.000	1000.000	3.585	0.000	3.405	0.000	2.585	0.000	0.000	3.585	3.405	90.000	XOMR2_OWSG MWD+IFR1+MS
1100.000	0.000	0.000	1100.000	3.943	0.000	3.764	0.000	2.639	0.000	0.000	3.943	3.764	90.000	XOMR2_OWSG MWD+IFR1+MS
1200.000	0.000	0.000	1200.000	4.302	0.000	4.122	0.000	2.696	0.000	0.000	4.302	4.122	90.000	XOMR2_OWSG MWD+IFR1+MS
1300.000	0.000	0.000	1300.000	4.660	0.000	4.481	0.000	2.756	0.000	0.000	4.660	4.481	90.000	XOMR2_OWSG MWD+IFR1+MS
1400.000	0.000	0.000	1400.000	5.019	0.000	4.839	0.000	2.819	0.000	0.000	5.019	4.839	90.000	XOMR2_OWSG MWD+IFR1+MS
1500.000	0.000	0.000	1500.000	5.377	0.000	5.198	0.000	2.884	0.000	0.000	5.377	5.198	90.000	XOMR2_OWSG MWD+IFR1+MS
1600.000	0.000	0.000	1600.000	5.736	0.000	5.556	0.000	2.952	0.000	0.000	5.736	5.556	90.000	XOMR2_OWSG MWD+IFR1+MS
1700.000	0.000	0.000	1700.000	6.094	0.000	5.915	0.000	3.022	0.000	0.000	6.094	5.915	90.000	XOMR2_OWSG MWD+IFR1+MS
1800.000	0.000	0.000	1800.000	6.452	0.000	6.273	0.000	3.094	0.000	0.000	6.452	6.273	90.000	XOMR2_OWSG MWD+IFR1+MS

1900.000	0.000	0.000	1900.000	6.811	0.000	6.632	0.000	3.167	0.000	0.000	6.811	6.632	90.000	XOMR2_OWSG MWD+IFR1+MS
2000.000	0.000	0.000	2000.000	7.169	0.000	6.990	0.000	3.243	0.000	0.000	7.169	6.990	90.000	XOMR2_OWSG MWD+IFR1+MS
2100.000	0.000	0.000	2100.000	7.528	0.000	7.349	0.000	3.320	0.000	0.000	7.528	7.349	90.000	XOMR2_OWSG MWD+IFR1+MS
2200.000	0.000	0.000	2200.000	7.886	0.000	7.707	0.000	3.399	0.000	0.000	7.886	7.707	90.000	XOMR2_OWSG MWD+IFR1+MS
2300.000	0.000	0.000	2300.000	8.245	0.000	8.066	0.000	3.479	0.000	0.000	8.245	8.066	90.000	XOMR2_OWSG MWD+IFR1+MS
2400.000	2.000	161.020	2399.980	8.562	0.000	8.425	-0.000	3.560	0.000	0.000	8.586	8.406	90.012	XOMR2_OWSG MWD+IFR1+MS
2500.000	4.000	161.020	2499.838	8.873	0.000	8.749	-0.000	3.641	0.000	0.000	8.911	8.730	90.010	XOMR2_OWSG MWD+IFR1+MS
2600.000	6.000	161.020	2599.452	9.177	0.000	9.075	-0.000	3.722	0.000	0.000	9.239	9.055	90.051	XOMR2_OWSG MWD+IFR1+MS
2700.000	8.000	161.020	2698.702	9.472	0.000	9.402	-0.000	3.803	0.000	0.000	9.568	9.382	90.178	XOMR2_OWSG MWD+IFR1+MS
2800.000	10.000	161.020	2797.465	9.759	0.000	9.732	-0.000	3.885	0.000	0.000	9.898	9.711	90.432	XOMR2_OWSG MWD+IFR1+MS
2900.000	12.000	161.020	2895.623	10.038	0.000	10.063	-0.000	3.967	0.000	0.000	10.230	10.042	90.854	XOMR2_OWSG MWD+IFR1+MS
3000.000	14.000	161.020	2993.055	10.309	0.000	10.398	-0.000	4.051	0.000	0.000	10.562	10.375	91.497	XOMR2_OWSG MWD+IFR1+MS
3100.000	16.000	161.020	3089.643	10.571	0.000	10.735	-0.000	4.138	0.000	0.000	10.895	10.711	92.431	XOMR2_OWSG MWD+IFR1+MS
3200.000	18.000	161.020	3185.268	10.826	0.000	11.076	-0.000	4.228	0.000	0.000	11.229	11.050	93.755	XOMR2_OWSG MWD+IFR1+MS
3300.000	20.000	161.020	3279.816	11.074	0.000	11.422	-0.000	4.323	0.000	0.000	11.564	11.392	95.625	XOMR2_OWSG MWD+IFR1+MS
3400.000	22.000	161.020	3373.169	11.314	0.000	11.772	-0.000	4.424	0.000	0.000	11.901	11.738	98.277	XOMR2_OWSG MWD+IFR1+MS
3456.102	23.122	161.020	3424.976	11.447	0.000	11.971	-0.000	4.481	0.000	0.000	12.091	11.934	99.975	XOMR2_OWSG MWD+IFR1+MS
3500.000	23.122	161.020	3465.348	11.604	0.000	12.127	-0.000	4.532	0.000	0.000	12.240	12.087	101.781	XOMR2_OWSG MWD+IFR1+MS
3600.000	23.122	161.020	3557.315	11.968	0.000	12.490	-0.000	4.662	0.000	0.000	12.582	12.440	107.278	XOMR2_OWSG MWD+IFR1+MS
3700.000	23.122	161.020	3649.282	12.338	0.000	12.858	-0.000	4.797	0.000	0.000	12.932	12.795	113.546	XOMR2_OWSG MWD+IFR1+MS

3800.000	23.122	161.020	3741.249	12.713	0.000	13.232	-0.000	4.937	0.000	0.000	13.291	13.153	120.129	XOMR2_OWSG MWD+IFR1+MS
3900.000	23.122	161.020	3833.217	13.093	0.000	13.611	-0.000	5.083	0.000	0.000	13.658	13.511	126.412	XOMR2_OWSG MWD+IFR1+MS
4000.000	23.122	161.020	3925.184	13.477	0.000	13.994	-0.000	5.233	0.000	0.000	14.032	13.871	131.923	XOMR2_OWSG MWD+IFR1+MS
4100.000	23.122	161.020	4017.151	13.866	0.000	14.382	-0.000	5.388	0.000	0.000	14.413	14.233	-43.508	XOMR2_OWSG MWD+IFR1+MS
4200.000	23.122	161.020	4109.118	14.259	0.000	14.774	-0.000	5.547	0.000	0.000	14.799	14.596	-39.820	XOMR2_OWSG MWD+IFR1+MS
4300.000	23.122	161.020	4201.085	14.655	0.000	15.169	-0.000	5.709	0.000	0.000	15.191	14.961	-36.864	XOMR2_OWSG MWD+IFR1+MS
4400.000	23.122	161.020	4293.052	15.054	0.000	15.568	-0.000	5.875	0.000	0.000	15.586	15.329	-34.482	XOMR2_OWSG MWD+IFR1+MS
4500.000	23.122	161.020	4385.019	15.457	0.000	15.969	-0.000	6.045	0.000	0.000	15.985	15.699	-32.543	XOMR2_OWSG MWD+IFR1+MS
4600.000	23.122	161.020	4476.986	15.862	0.000	16.374	-0.000	6.217	0.000	0.000	16.387	16.071	-30.943	XOMR2_OWSG MWD+IFR1+MS
4700.000	23.122	161.020	4568.953	16.270	0.000	16.781	-0.000	6.393	0.000	0.000	16.793	16.445	-29.606	XOMR2_OWSG MWD+IFR1+MS
4800.000	23.122	161.020	4660.920	16.680	0.000	17.191	-0.000	6.572	0.000	0.000	17.201	16.821	-28.476	XOMR2_OWSG MWD+IFR1+MS
4815.336	23.122	161.020	4675.024	16.743	0.000	17.254	-0.000	6.599	0.000	0.000	17.264	16.879	-28.322	XOMR2_OWSG MWD+IFR1+MS
4900.000	21.429	161.020	4753.367	17.183	0.000	17.601	-0.000	6.754	0.000	0.000	17.610	17.197	-27.528	XOMR2_OWSG MWD+IFR1+MS
5000.000	19.429	161.020	4847.073	17.682	0.000	18.007	-0.000	6.934	0.000	0.000	18.015	17.575	-26.774	XOMR2_OWSG MWD+IFR1+MS
5100.000	17.429	161.020	4941.940	18.156	0.000	18.410	-0.000	7.107	0.000	0.000	18.417	17.952	-26.191	XOMR2_OWSG MWD+IFR1+MS
5200.000	15.429	161.020	5037.852	18.604	0.000	18.807	-0.000	7.273	0.000	0.000	18.813	18.330	-25.731	XOMR2_OWSG MWD+IFR1+MS
5300.000	13.429	161.020	5134.693	19.026	0.000	19.197	-0.000	7.431	0.000	0.000	19.203	18.705	-25.362	XOMR2_OWSG MWD+IFR1+MS
5400.000	11.429	161.020	5232.345	19.418	0.000	19.581	-0.000	7.581	0.000	0.000	19.587	19.076	-25.061	XOMR2_OWSG MWD+IFR1+MS
5500.000	9.429	161.020	5330.688	19.782	0.000	19.957	-0.000	7.725	0.000	0.000	19.962	19.443	-24.811	XOMR2_OWSG MWD+IFR1+MS
5600.000	7.429	161.020	5429.603	20.116	0.000	20.326	-0.000	7.862	0.000	0.000	20.331	19.804	-24.598	XOMR2_OWSG MWD+IFR1+MS

5700.000	5.429	161.020	5528.969	20.420	0.000	20.686	-0.000	7.993	0.000	0.000	20.690	20.159	-24.415	XOMR2_OWSG MWD+IFR1+MS
5800.000	3.429	161.020	5628.665	20.693	0.000	21.038	-0.000	8.119	0.000	0.000	21.042	20.507	-24.252	XOMR2_OWSG MWD+IFR1+MS
5900.000	1.429	161.020	5728.570	20.934	0.000	21.381	-0.000	8.240	0.000	0.000	21.385	20.846	-24.103	XOMR2_OWSG MWD+IFR1+MS
5971.437	0.000	0.000	5800.000	21.172	0.000	21.531	0.000	8.325	0.000	0.000	21.620	21.081	-24.150	XOMR2_OWSG MWD+IFR1+MS
6000.000	0.000	0.000	5828.563	21.265	0.000	21.621	0.000	8.358	0.000	0.000	21.711	21.174	-24.227	XOMR2_OWSG MWD+IFR1+MS
6100.000	0.000	0.000	5928.563	21.590	0.000	21.939	0.000	8.476	0.000	0.000	22.030	21.498	-24.496	XOMR2_OWSG MWD+IFR1+MS
6200.000	0.000	0.000	6028.563	21.916	0.000	22.259	0.000	8.597	0.000	0.000	22.351	21.822	-24.761	XOMR2_OWSG MWD+IFR1+MS
6300.000	0.000	0.000	6128.563	22.243	0.000	22.579	0.000	8.721	0.000	0.000	22.672	22.148	-25.023	XOMR2_OWSG MWD+IFR1+MS
6400.000	0.000	0.000	6228.563	22.571	0.000	22.901	0.000	8.847	0.000	0.000	22.995	22.475	-25.282	XOMR2_OWSG MWD+IFR1+MS
6500.000	0.000	0.000	6328.563	22.900	0.000	23.224	0.000	8.975	0.000	0.000	23.319	22.803	-25.537	XOMR2_OWSG MWD+IFR1+MS
6600.000	0.000	0.000	6428.563	23.229	0.000	23.547	0.000	9.106	0.000	0.000	23.643	23.132	-25.789	XOMR2_OWSG MWD+IFR1+MS
6700.000	0.000	0.000	6528.563	23.560	0.000	23.872	0.000	9.240	0.000	0.000	23.969	23.461	-26.038	XOMR2_OWSG MWD+IFR1+MS
6800.000	0.000	0.000	6628.563	23.891	0.000	24.198	0.000	9.377	0.000	0.000	24.296	23.792	-26.284	XOMR2_OWSG MWD+IFR1+MS
6900.000	0.000	0.000	6728.563	24.224	0.000	24.524	0.000	9.516	0.000	0.000	24.624	24.123	-26.526	XOMR2_OWSG MWD+IFR1+MS
7000.000	0.000	0.000	6828.563	24.556	0.000	24.852	0.000	9.658	0.000	0.000	24.952	24.455	-26.766	XOMR2_OWSG MWD+IFR1+MS
7100.000	0.000	0.000	6928.563	24.890	0.000	25.180	0.000	9.803	0.000	0.000	25.281	24.787	-27.002	XOMR2_OWSG MWD+IFR1+MS
7200.000	0.000	0.000	7028.563	25.224	0.000	25.509	0.000	9.950	0.000	0.000	25.611	25.121	-27.235	XOMR2_OWSG MWD+IFR1+MS
7300.000	0.000	0.000	7128.563	25.559	0.000	25.839	0.000	10.101	0.000	0.000	25.942	25.455	-27.465	XOMR2_OWSG MWD+IFR1+MS
7400.000	0.000	0.000	7228.563	25.895	0.000	26.170	0.000	10.254	0.000	0.000	26.274	25.789	-27.692	XOMR2_OWSG MWD+IFR1+MS
7500.000	0.000	0.000	7328.563	26.231	0.000	26.501	0.000	10.410	0.000	0.000	26.606	26.125	-27.916	XOMR2_OWSG MWD+IFR1+MS

7600.000	0.000	0.000	7428.563	26.568	0.000	26.834	0.000	10.569	0.000	0.000	26.939	26.460	-28.137	XOMR2_OWSG MWD+IFR1+MS
7700.000	0.000	0.000	7528.563	26.905	0.000	27.166	0.000	10.731	0.000	0.000	27.273	26.797	-28.355	XOMR2_OWSG MWD+IFR1+MS
7800.000	0.000	0.000	7628.563	27.243	0.000	27.500	0.000	10.896	0.000	0.000	27.607	27.134	-28.570	XOMR2_OWSG MWD+IFR1+MS
7900.000	0.000	0.000	7728.563	27.581	0.000	27.834	0.000	11.064	0.000	0.000	27.942	27.471	-28.783	XOMR2_OWSG MWD+IFR1+MS
8000.000	0.000	0.000	7828.563	27.920	0.000	28.168	0.000	11.235	0.000	0.000	28.278	27.809	-28.992	XOMR2_OWSG MWD+IFR1+MS
8100.000	0.000	0.000	7928.563	28.259	0.000	28.504	0.000	11.408	0.000	0.000	28.614	28.148	-29.199	XOMR2_OWSG MWD+IFR1+MS
8200.000	0.000	0.000	8028.563	28.599	0.000	28.839	0.000	11.585	0.000	0.000	28.950	28.487	-29.402	XOMR2_OWSG MWD+IFR1+MS
8300.000	0.000	0.000	8128.563	28.940	0.000	29.176	0.000	11.765	0.000	0.000	29.288	28.826	-29.604	XOMR2_OWSG MWD+IFR1+MS
8400.000	0.000	0.000	8228.563	29.280	0.000	29.513	0.000	11.947	0.000	0.000	29.625	29.166	-29.802	XOMR2_OWSG MWD+IFR1+MS
8500.000	0.000	0.000	8328.563	29.621	0.000	29.850	0.000	12.133	0.000	0.000	29.963	29.507	-29.998	XOMR2_OWSG MWD+IFR1+MS
8600.000	0.000	0.000	8428.563	29.963	0.000	30.188	0.000	12.322	0.000	0.000	30.302	29.847	-30.191	XOMR2_OWSG MWD+IFR1+MS
8700.000	0.000	0.000	8528.563	30.305	0.000	30.526	0.000	12.514	0.000	0.000	30.641	30.188	-30.382	XOMR2_OWSG MWD+IFR1+MS
8800.000	0.000	0.000	8628.563	30.647	0.000	30.865	0.000	12.708	0.000	0.000	30.981	30.530	-30.570	XOMR2_OWSG MWD+IFR1+MS
8900.000	0.000	0.000	8728.563	30.990	0.000	31.204	0.000	12.906	0.000	0.000	31.321	30.872	-30.755	XOMR2_OWSG MWD+IFR1+MS
9000.000	0.000	0.000	8828.563	31.333	0.000	31.544	0.000	13.107	0.000	0.000	31.661	31.214	-30.938	XOMR2_OWSG MWD+IFR1+MS
9100.000	0.000	0.000	8928.563	31.676	0.000	31.884	0.000	13.312	0.000	0.000	32.002	31.557	-31.118	XOMR2_OWSG MWD+IFR1+MS
9115.240	0.000	0.000	8943.803	31.729	0.000	31.935	0.000	13.343	0.000	0.000	32.054	31.609	-31.146	XOMR2_OWSG MWD+IFR1+MS
9200.000	6.781	269.782	9028.365	31.907	-0.000	32.012	0.000	13.517	0.000	0.000	32.337	31.892	-31.372	XOMR2_OWSG MWD+IFR1+MS
9300.000	14.781	269.782	9126.520	31.390	-0.000	32.335	0.000	13.717	0.000	0.000	32.659	32.209	-32.077	XOMR2_OWSG MWD+IFR1+MS
9400.000	22.781	269.782	9221.119	30.374	-0.000	32.645	0.000	13.913	0.000	0.000	32.963	32.506	-33.650	XOMR2_OWSG MWD+IFR1+MS

9500.000	30.781	269.782	9310.320	28.899	-0.000	32.939	0.000	14.107	0.000	0.000	33.244	32.777	-36.227	XOMR2_OWSG MWD+IFR1+MS
9600.000	38.781	269.782	9392.388	27.028	-0.000	33.215	0.000	14.302	0.000	0.000	33.498	33.019	-39.875	XOMR2_OWSG MWD+IFR1+MS
9700.000	46.781	269.782	9465.724	24.851	-0.000	33.475	0.000	14.505	0.000	0.000	33.725	33.232	-44.650	XOMR2_OWSG MWD+IFR1+MS
9800.000	54.781	269.782	9528.901	22.497	-0.000	33.719	0.000	14.723	0.000	0.000	33.928	33.413	129.457	XOMR2_OWSG MWD+IFR1+MS
9900.000	62.781	269.782	9580.691	20.146	-0.000	33.952	0.000	14.962	0.000	0.000	34.114	33.560	122.683	XOMR2_OWSG MWD+IFR1+MS
10000.000	70.781	269.782	9620.084	18.048	-0.000	34.175	0.000	15.228	0.000	0.000	34.292	33.671	115.602	XOMR2_OWSG MWD+IFR1+MS
10100.000	78.781	269.782	9646.313	16.527	-0.000	34.389	0.000	15.523	0.000	0.000	34.466	33.748	108.931	XOMR2_OWSG MWD+IFR1+MS
10200.000	86.781	269.782	9658.870	15.919	-0.000	34.594	0.000	15.846	0.000	0.000	34.638	33.797	103.138	XOMR2_OWSG MWD+IFR1+MS
10240.240	90.000	269.782	9660.000	15.983	0.000	34.672	0.000	15.983	0.000	0.000	34.706	33.811	101.097	XOMR2_OWSG MWD+IFR1+MS
10300.000	90.000	269.782	9660.000	16.194	0.000	34.793	0.000	16.194	0.000	0.000	34.814	33.826	98.350	XOMR2_OWSG MWD+IFR1+MS
10400.000	90.000	269.782	9660.000	16.572	0.000	35.025	0.000	16.572	0.000	0.000	35.033	33.844	94.684	XOMR2_OWSG MWD+IFR1+MS
10500.000	90.000	269.782	9660.000	16.977	0.000	35.291	0.000	16.977	0.000	0.000	35.293	33.856	92.062	XOMR2_OWSG MWD+IFR1+MS
10600.000	90.000	269.782	9660.000	17.408	0.000	35.591	0.000	17.408	0.000	0.000	35.591	33.864	90.226	XOMR2_OWSG MWD+IFR1+MS
10700.000	90.000	269.782	9660.000	17.863	0.000	35.923	0.000	17.863	0.000	0.000	35.923	33.871	88.944	XOMR2_OWSG MWD+IFR1+MS
10800.000	90.000	269.782	9660.000	18.341	0.000	36.287	0.000	18.341	0.000	0.000	36.289	33.876	88.049	XOMR2_OWSG MWD+IFR1+MS
10900.000	90.000	269.782	9660.000	18.839	0.000	36.681	0.000	18.839	0.000	0.000	36.686	33.881	87.423	XOMR2_OWSG MWD+IFR1+MS
11000.000	90.000	269.782	9660.000	19.356	0.000	37.106	0.000	19.356	0.000	0.000	37.113	33.887	86.986	XOMR2_OWSG MWD+IFR1+MS
11100.000	90.000	269.782	9660.000	19.891	0.000	37.559	0.000	19.891	0.000	0.000	37.569	33.893	86.683	XOMR2_OWSG MWD+IFR1+MS
11200.000	90.000	269.782	9660.000	20.442	0.000	38.040	0.000	20.442	0.000	0.000	38.053	33.899	86.476	XOMR2_OWSG MWD+IFR1+MS
11300.000	90.000	269.782	9660.000	21.008	0.000	38.548	0.000	21.008	0.000	0.000	38.564	33.906	86.339	XOMR2_OWSG MWD+IFR1+MS



11400.000	90.000	269.782	9660.000	21.587	0.000	39.081	0.000	21.587	0.000	0.000	39.100	33.914	86.254	XOMR2_OWSG MWD+IFR1+MS
11500.000	90.000	269.782	9660.000	22.179	0.000	39.639	0.000	22.179	0.000	0.000	39.660	33.923	86.206	XOMR2_OWSG MWD+IFR1+MS
11600.000	90.000	269.782	9660.000	22.783	0.000	40.221	0.000	22.783	0.000	0.000	40.244	33.932	86.187	XOMR2_OWSG MWD+IFR1+MS
11700.000	90.000	269.782	9660.000	23.398	0.000	40.825	0.000	23.398	0.000	0.000	40.850	33.942	86.188	XOMR2_OWSG MWD+IFR1+MS
11800.000	90.000	269.782	9660.000	24.022	0.000	41.451	0.000	24.022	0.000	0.000	41.478	33.953	86.205	XOMR2_OWSG MWD+IFR1+MS
11900.000	90.000	269.782	9660.000	24.656	0.000	42.097	0.000	24.656	0.000	0.000	42.126	33.965	86.233	XOMR2_OWSG MWD+IFR1+MS
12000.000	90.000	269.782	9660.000	25.298	0.000	42.764	0.000	25.298	0.000	0.000	42.793	33.977	86.269	XOMR2_OWSG MWD+IFR1+MS
12100.000	90.000	269.782	9660.000	25.948	0.000	43.449	0.000	25.948	0.000	0.000	43.480	33.990	86.312	XOMR2_OWSG MWD+IFR1+MS
12200.000	90.000	269.782	9660.000	26.605	0.000	44.151	0.000	26.605	0.000	0.000	44.184	34.004	86.359	XOMR2_OWSG MWD+IFR1+MS
12300.000	90.000	269.782	9660.000	27.269	0.000	44.871	0.000	27.269	0.000	0.000	44.905	34.019	86.409	XOMR2_OWSG MWD+IFR1+MS
12400.000	90.000	269.782	9660.000	27.939	0.000	45.608	0.000	27.939	0.000	0.000	45.642	34.034	86.461	XOMR2_OWSG MWD+IFR1+MS
12500.000	90.000	269.782	9660.000	28.615	0.000	46.359	0.000	28.615	0.000	0.000	46.394	34.050	86.515	XOMR2_OWSG MWD+IFR1+MS
12600.000	90.000	269.782	9660.000	29.296	0.000	47.126	0.000	29.296	0.000	0.000	47.161	34.067	86.569	XOMR2_OWSG MWD+IFR1+MS
12700.000	90.000	269.782	9660.000	29.983	0.000	47.907	0.000	29.983	0.000	0.000	47.943	34.084	86.623	XOMR2_OWSG MWD+IFR1+MS
12800.000	90.000	269.782	9660.000	30.674	0.000	48.700	0.000	30.674	0.000	0.000	48.737	34.103	86.677	XOMR2_OWSG MWD+IFR1+MS
12900.000	90.000	269.782	9660.000	31.370	0.000	49.507	0.000	31.370	0.000	0.000	49.544	34.121	86.730	XOMR2_OWSG MWD+IFR1+MS
13000.000	90.000	269.782	9660.000	32.069	0.000	50.326	0.000	32.069	0.000	0.000	50.363	34.141	86.783	XOMR2_OWSG MWD+IFR1+MS
13100.000	90.000	269.782	9660.000	32.773	0.000	51.156	0.000	32.773	0.000	0.000	51.194	34.161	86.835	XOMR2_OWSG MWD+IFR1+MS
13200.000	90.000	269.782	9660.000	33.480	0.000	51.998	0.000	33.480	0.000	0.000	52.035	34.182	86.886	XOMR2_OWSG MWD+IFR1+MS
13300.000	90.000	269.782	9660.000	34.191	0.000	52.849	0.000	34.191	0.000	0.000	52.887	34.204	86.936	XOMR2_OWSG MWD+IFR1+MS



13400.000	90.000	269.782	9660.000	34.905	0.000	53.711	0.000	34.905	0.000	0.000	53.749	34.226	86.985	XOMR2_OWSG MWD+IFR1+MS
13500.000	90.000	269.782	9660.000	35.621	0.000	54.582	0.000	35.621	0.000	0.000	54.620	34.249	87.033	XOMR2_OWSG MWD+IFR1+MS
13600.000	90.000	269.782	9660.000	36.341	0.000	55.463	0.000	36.341	0.000	0.000	55.501	34.272	87.079	XOMR2_OWSG MWD+IFR1+MS
13700.000	90.000	269.782	9660.000	37.063	0.000	56.351	0.000	37.063	0.000	0.000	56.390	34.296	87.125	XOMR2_OWSG MWD+IFR1+MS
13800.000	90.000	269.782	9660.000	37.788	0.000	57.249	0.000	37.788	0.000	0.000	57.287	34.321	87.169	XOMR2_OWSG MWD+IFR1+MS
13900.000	90.000	269.782	9660.000	38.515	0.000	58.154	0.000	38.515	0.000	0.000	58.192	34.346	87.212	XOMR2_OWSG MWD+IFR1+MS
14000.000	90.000	269.782	9660.000	39.244	0.000	59.066	0.000	39.244	0.000	0.000	59.104	34.372	87.254	XOMR2_OWSG MWD+IFR1+MS
14100.000	90.000	269.782	9660.000	39.976	0.000	59.985	0.000	39.976	0.000	0.000	60.023	34.399	87.295	XOMR2_OWSG MWD+IFR1+MS
14200.000	90.000	269.782	9660.000	40.709	0.000	60.912	0.000	40.709	0.000	0.000	60.950	34.426	87.335	XOMR2_OWSG MWD+IFR1+MS
14300.000	90.000	269.782	9660.000	41.444	0.000	61.845	0.000	41.444	0.000	0.000	61.882	34.454	87.374	XOMR2_OWSG MWD+IFR1+MS
14400.000	90.000	269.782	9660.000	42.181	0.000	62.784	0.000	42.181	0.000	0.000	62.821	34.483	87.412	XOMR2_OWSG MWD+IFR1+MS
14500.000	90.000	269.782	9660.000	42.920	0.000	63.729	0.000	42.920	0.000	0.000	63.766	34.512	87.448	XOMR2_OWSG MWD+IFR1+MS
14600.000	90.000	269.782	9660.000	43.660	0.000	64.680	0.000	43.660	0.000	0.000	64.717	34.542	87.484	XOMR2_OWSG MWD+IFR1+MS
14700.000	90.000	269.782	9660.000	44.402	0.000	65.636	0.000	44.402	0.000	0.000	65.673	34.572	87.519	XOMR2_OWSG MWD+IFR1+MS
14800.000	90.000	269.782	9660.000	45.146	0.000	66.597	0.000	45.146	0.000	0.000	66.634	34.603	87.553	XOMR2_OWSG MWD+IFR1+MS
14900.000	90.000	269.782	9660.000	45.890	0.000	67.563	0.000	45.890	0.000	0.000	67.600	34.635	87.586	XOMR2_OWSG MWD+IFR1+MS
15000.000	90.000	269.782	9660.000	46.636	0.000	68.534	0.000	46.636	0.000	0.000	68.571	34.667	87.618	XOMR2_OWSG MWD+IFR1+MS
15100.000	90.000	269.782	9660.000	47.384	0.000	69.510	0.000	47.384	0.000	0.000	69.546	34.700	87.649	XOMR2_OWSG MWD+IFR1+MS
15200.000	90.000	269.782	9660.000	48.132	0.000	70.490	0.000	48.132	0.000	0.000	70.526	34.733	87.679	XOMR2_OWSG MWD+IFR1+MS
15300.000	90.000	269.782	9660.000	48.882	0.000	71.474	0.000	48.882	0.000	0.000	71.510	34.767	87.709	XOMR2_OWSG MWD+IFR1+MS

15400.000	90.000	269.782	9660.000	49.632	0.000	72.463	0.000	49.632	0.000	0.000	72.498	34.802	87.738	XOMR2_OWSG MWD+IFR1+MS
15500.000	90.000	269.782	9660.000	50.384	0.000	73.455	0.000	50.384	0.000	0.000	73.490	34.837	87.766	XOMR2_OWSG MWD+IFR1+MS
15600.000	90.000	269.782	9660.000	51.137	0.000	74.451	0.000	51.137	0.000	0.000	74.486	34.873	87.793	XOMR2_OWSG MWD+IFR1+MS
15700.000	90.000	269.782	9660.000	51.890	0.000	75.450	0.000	51.890	0.000	0.000	75.485	34.909	87.820	XOMR2_OWSG MWD+IFR1+MS
15800.000	90.000	269.782	9660.000	52.645	0.000	76.453	0.000	52.645	0.000	0.000	76.487	34.946	87.846	XOMR2_OWSG MWD+IFR1+MS
15900.000	90.000	269.782	9660.000	53.400	0.000	77.459	0.000	53.400	0.000	0.000	77.493	34.984	87.872	XOMR2_OWSG MWD+IFR1+MS
16000.000	90.000	269.782	9660.000	54.157	0.000	78.468	0.000	54.157	0.000	0.000	78.502	35.022	87.897	XOMR2_OWSG MWD+IFR1+MS
16100.000	90.000	269.782	9660.000	54.914	0.000	79.481	0.000	54.914	0.000	0.000	79.514	35.061	87.921	XOMR2_OWSG MWD+IFR1+MS
16200.000	90.000	269.782	9660.000	55.672	0.000	80.496	0.000	55.672	0.000	0.000	80.529	35.100	87.944	XOMR2_OWSG MWD+IFR1+MS
16300.000	90.000	269.782	9660.000	56.430	0.000	81.514	0.000	56.430	0.000	0.000	81.547	35.140	87.967	XOMR2_OWSG MWD+IFR1+MS
16400.000	90.000	269.782	9660.000	57.190	0.000	82.535	0.000	57.190	0.000	0.000	82.568	35.180	87.990	XOMR2_OWSG MWD+IFR1+MS
16500.000	90.000	269.782	9660.000	57.950	0.000	83.558	0.000	57.950	0.000	0.000	83.591	35.221	88.012	XOMR2_OWSG MWD+IFR1+MS
16600.000	90.000	269.782	9660.000	58.710	0.000	84.584	0.000	58.710	0.000	0.000	84.617	35.263	88.033	XOMR2_OWSG MWD+IFR1+MS
16700.000	90.000	269.782	9660.000	59.471	0.000	85.612	0.000	59.471	0.000	0.000	85.645	35.305	88.054	XOMR2_OWSG MWD+IFR1+MS
16800.000	90.000	269.782	9660.000	60.233	0.000	86.643	0.000	60.233	0.000	0.000	86.675	35.347	88.075	XOMR2_OWSG MWD+IFR1+MS
16900.000	90.000	269.782	9660.000	60.996	0.000	87.676	0.000	60.996	0.000	0.000	87.708	35.391	88.095	XOMR2_OWSG MWD+IFR1+MS
17000.000	90.000	269.782	9660.000	61.759	0.000	88.711	0.000	61.759	0.000	0.000	88.743	35.434	88.114	XOMR2_OWSG MWD+IFR1+MS
17100.000	90.000	269.782	9660.000	62.522	0.000	89.748	0.000	62.522	0.000	0.000	89.780	35.479	88.134	XOMR2_OWSG MWD+IFR1+MS
17200.000	90.000	269.782	9660.000	63.286	0.000	90.788	0.000	63.286	0.000	0.000	90.819	35.524	88.152	XOMR2_OWSG MWD+IFR1+MS
17300.000	90.000	269.782	9660.000	64.051	0.000	91.829	0.000	64.051	0.000	0.000	91.860	35.569	88.171	XOMR2_OWSG MWD+IFR1+MS

17400.000	90.000	269.782	9660.000	64.816	0.000	92.872	0.000	64.816	0.000	0.000	92.903	35.615	88.189	XOMR2_OWSG MWD+IFR1+MS
17500.000	90.000	269.782	9660.000	65.581	0.000	93.917	0.000	65.581	0.000	0.000	93.947	35.661	88.206	XOMR2_OWSG MWD+IFR1+MS
17600.000	90.000	269.782	9660.000	66.347	0.000	94.964	0.000	66.347	0.000	0.000	94.994	35.708	88.223	XOMR2_OWSG MWD+IFR1+MS
17700.000	90.000	269.782	9660.000	67.114	0.000	96.012	0.000	67.114	0.000	0.000	96.042	35.756	88.240	XOMR2_OWSG MWD+IFR1+MS
17800.000	90.000	269.782	9660.000	67.881	0.000	97.062	0.000	67.881	0.000	0.000	97.092	35.804	88.257	XOMR2_OWSG MWD+IFR1+MS
17900.000	90.000	269.782	9660.000	68.648	0.000	98.114	0.000	68.648	0.000	0.000	98.144	35.853	88.273	XOMR2_OWSG MWD+IFR1+MS
18000.000	90.000	269.782	9660.000	69.415	0.000	99.167	0.000	69.415	0.000	0.000	99.197	35.902	88.288	XOMR2_OWSG MWD+IFR1+MS
18100.000	90.000	269.782	9660.000	70.183	0.000	100.222	0.000	70.183	0.000	0.000	100.251	35.952	88.304	XOMR2_OWSG MWD+IFR1+MS
18200.000	90.000	269.782	9660.000	70.952	0.000	101.278	0.000	70.952	0.000	0.000	101.307	36.002	88.319	XOMR2_OWSG MWD+IFR1+MS
18300.000	90.000	269.782	9660.000	71.721	0.000	102.336	0.000	71.721	0.000	0.000	102.365	36.053	88.334	XOMR2_OWSG MWD+IFR1+MS
18400.000	90.000	269.782	9660.000	72.490	0.000	103.395	0.000	72.490	0.000	0.000	103.424	36.104	88.349	XOMR2_OWSG MWD+IFR1+MS
18500.000	90.000	269.782	9660.000	73.259	0.000	104.456	0.000	73.259	0.000	0.000	104.484	36.156	88.363	XOMR2_OWSG MWD+IFR1+MS
18600.000	90.000	269.782	9660.000	74.029	0.000	105.517	0.000	74.029	0.000	0.000	105.545	36.208	88.377	XOMR2_OWSG MWD+IFR1+MS
18700.000	90.000	269.782	9660.000	74.799	0.000	106.580	0.000	74.799	0.000	0.000	106.608	36.261	88.391	XOMR2_OWSG MWD+IFR1+MS
18800.000	90.000	269.782	9660.000	75.569	0.000	107.644	0.000	75.569	0.000	0.000	107.672	36.314	88.404	XOMR2_OWSG MWD+IFR1+MS
18900.000	90.000	269.782	9660.000	76.340	0.000	108.710	0.000	76.340	0.000	0.000	108.737	36.368	88.417	XOMR2_OWSG MWD+IFR1+MS
19000.000	90.000	269.782	9660.000	77.111	0.000	109.776	0.000	77.111	0.000	0.000	109.803	36.422	88.430	XOMR2_OWSG MWD+IFR1+MS
19100.000	90.000	269.782	9660.000	77.882	0.000	110.844	0.000	77.882	0.000	0.000	110.871	36.477	88.443	XOMR2_OWSG MWD+IFR1+MS
19200.000	90.000	269.782	9660.000	78.653	0.000	111.912	0.000	78.653	0.000	0.000	111.939	36.533	88.456	XOMR2_OWSG MWD+IFR1+MS
19300.000	90.000	269.782	9660.000	79.425	0.000	112.982	0.000	79.425	0.000	0.000	113.009	36.588	88.468	XOMR2_OWSG MWD+IFR1+MS

19400.000	90.000	269.782	9660.000	80.197	0.000	114.053	0.000	80.197	0.000	0.000	114.079	36.645	88.480	XOMR2_OWSG MWD+IFR1+MS
19500.000	90.000	269.782	9660.000	80.969	0.000	115.124	0.000	80.969	0.000	0.000	115.151	36.702	88.492	XOMR2_OWSG MWD+IFR1+MS
19600.000	90.000	269.782	9660.000	81.742	0.000	116.197	0.000	81.742	0.000	0.000	116.223	36.759	88.503	XOMR2_OWSG MWD+IFR1+MS
19700.000	90.000	269.782	9660.000	82.514	0.000	117.271	0.000	82.514	0.000	0.000	117.297	36.817	88.515	XOMR2_OWSG MWD+IFR1+MS
19800.000	90.000	269.782	9660.000	83.287	0.000	118.345	0.000	83.287	0.000	0.000	118.371	36.875	88.526	XOMR2_OWSG MWD+IFR1+MS
19900.000	90.000	269.782	9660.000	84.060	0.000	119.421	0.000	84.060	0.000	0.000	119.446	36.934	88.537	XOMR2_OWSG MWD+IFR1+MS
20000.000	90.000	269.782	9660.000	84.834	0.000	120.497	0.000	84.834	0.000	0.000	120.522	36.993	88.548	XOMR2_OWSG MWD+IFR1+MS
20100.000	90.000	269.782	9660.000	85.607	0.000	121.574	0.000	85.607	0.000	0.000	121.599	37.053	88.559	XOMR2_OWSG MWD+IFR1+MS
20200.000	90.000	269.782	9660.000	86.381	0.000	122.652	0.000	86.381	0.000	0.000	122.677	37.113	88.569	XOMR2_OWSG MWD+IFR1+MS
20300.000	90.000	269.782	9660.000	87.155	0.000	123.731	0.000	87.155	0.000	0.000	123.755	37.174	88.579	XOMR2_OWSG MWD+IFR1+MS
20400.000	90.000	269.782	9660.000	87.929	0.000	124.810	0.000	87.929	0.000	0.000	124.835	37.235	88.590	XOMR2_OWSG MWD+IFR1+MS
20500.000	90.000	269.782	9660.000	88.704	0.000	125.890	0.000	88.704	0.000	0.000	125.915	37.297	88.600	XOMR2_OWSG MWD+IFR1+MS
20600.000	90.000	269.782	9660.000	89.478	0.000	126.971	0.000	89.478	0.000	0.000	126.996	37.359	88.609	XOMR2_OWSG MWD+IFR1+MS
20700.000	90.000	269.782	9660.000	90.253	0.000	128.053	0.000	90.253	0.000	0.000	128.077	37.421	88.619	XOMR2_OWSG MWD+IFR1+MS
20800.000	90.000	269.782	9660.000	91.028	0.000	129.136	0.000	91.028	0.000	0.000	129.159	37.484	88.629	XOMR2_OWSG MWD+IFR1+MS
20900.000	90.000	269.782	9660.000	91.803	0.000	130.219	0.000	91.803	0.000	0.000	130.242	37.548	88.638	XOMR2_OWSG MWD+IFR1+MS
21000.000	90.000	269.782	9660.000	92.578	0.000	131.302	0.000	92.578	0.000	0.000	131.326	37.612	88.647	XOMR2_OWSG MWD+IFR1+MS
21100.000	90.000	269.782	9660.000	93.353	0.000	132.387	0.000	93.353	0.000	0.000	132.410	37.676	88.656	XOMR2_OWSG MWD+IFR1+MS
21200.000	90.000	269.782	9660.000	94.129	0.000	133.472	0.000	94.129	0.000	0.000	133.495	37.741	88.665	XOMR2_OWSG MWD+IFR1+MS
21300.000	90.000	269.782	9660.000	94.905	0.000	134.558	0.000	94.905	0.000	0.000	134.581	37.807	88.674	XOMR2_OWSG MWD+IFR1+MS

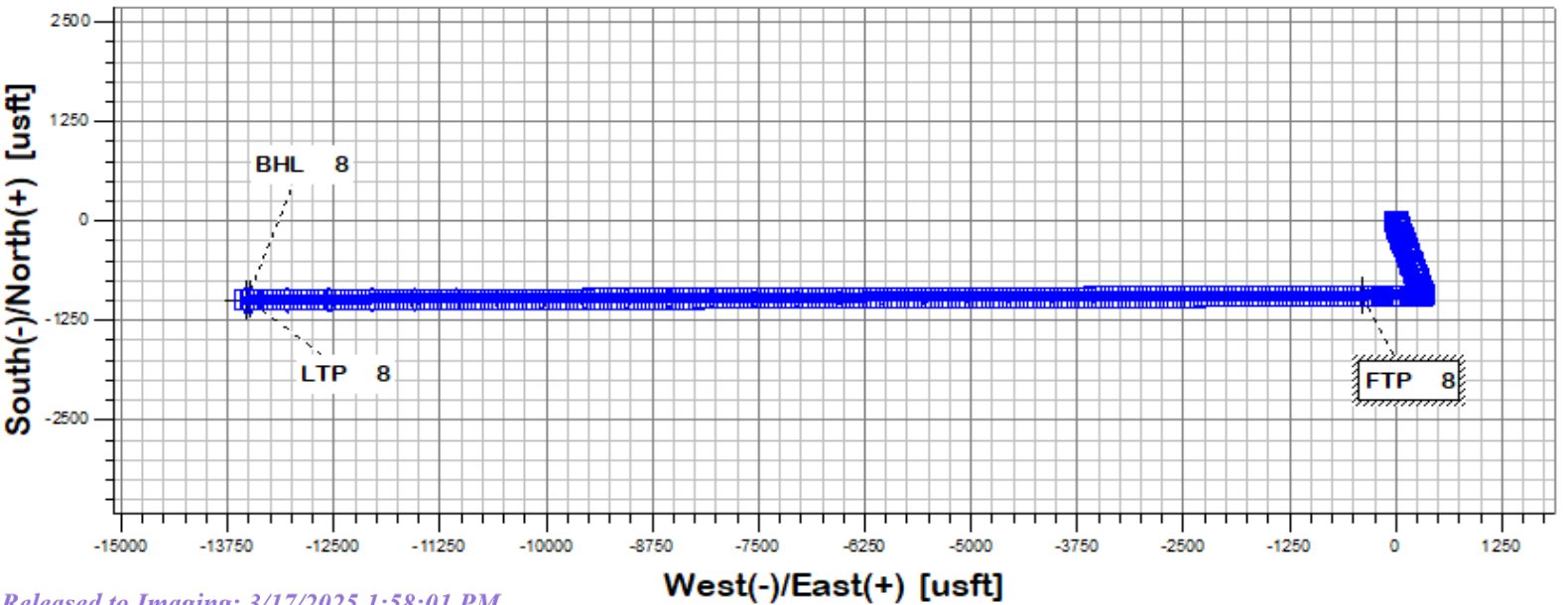
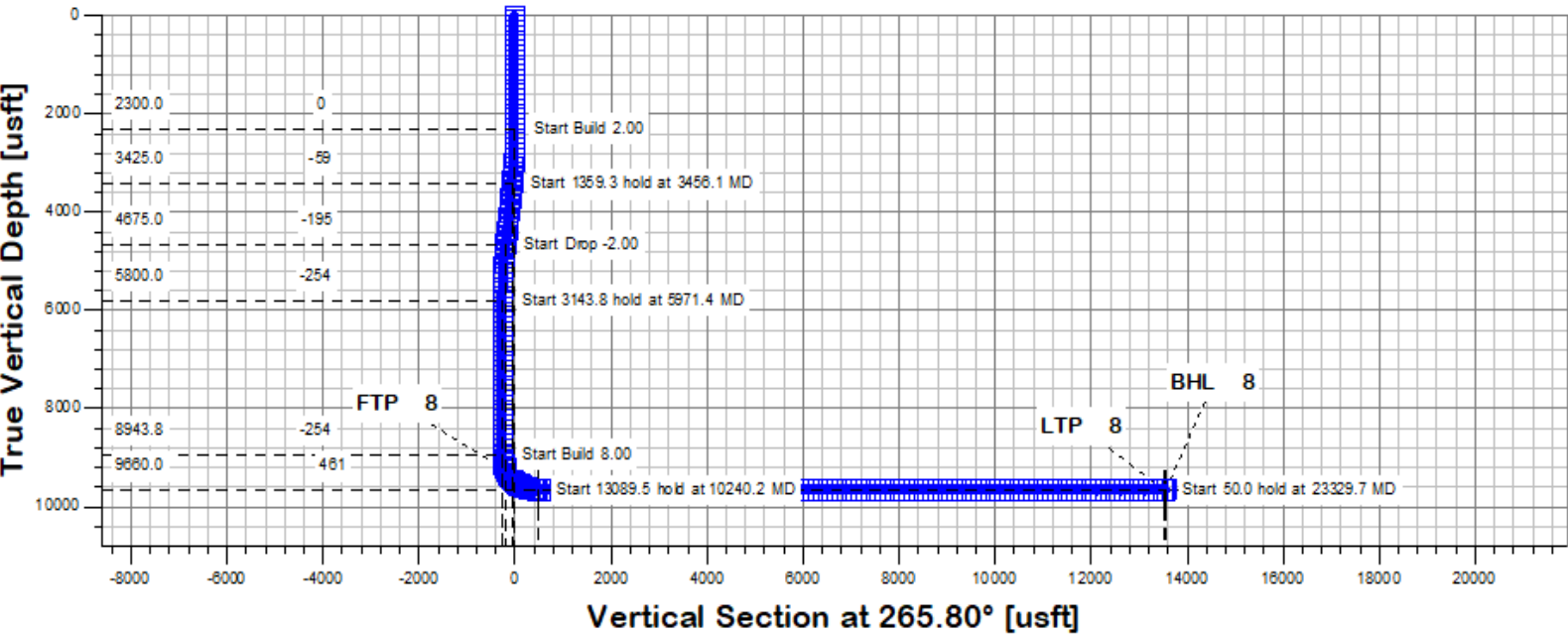
21400.000	90.000	269.782	9660.000	95.680	0.000	135.644	0.000	95.680	0.000	0.000	135.667	37.872	88.682	XOMR2_OWSG MWD+IFR1+MS
21500.000	90.000	269.782	9660.000	96.456	0.000	136.731	0.000	96.456	0.000	0.000	136.754	37.939	88.691	XOMR2_OWSG MWD+IFR1+MS
21600.000	90.000	269.782	9660.000	97.232	0.000	137.818	0.000	97.232	0.000	0.000	137.841	38.005	88.699	XOMR2_OWSG MWD+IFR1+MS
21700.000	90.000	269.782	9660.000	98.009	0.000	138.906	0.000	98.009	0.000	0.000	138.929	38.072	88.708	XOMR2_OWSG MWD+IFR1+MS
21800.000	90.000	269.782	9660.000	98.785	0.000	139.995	0.000	98.785	0.000	0.000	140.017	38.140	88.716	XOMR2_OWSG MWD+IFR1+MS
21900.000	90.000	269.782	9660.000	99.562	0.000	141.084	0.000	99.562	0.000	0.000	141.106	38.208	88.724	XOMR2_OWSG MWD+IFR1+MS
22000.000	90.000	269.782	9660.000	100.338	0.000	142.173	0.000	100.338	0.000	0.000	142.195	38.276	88.732	XOMR2_OWSG MWD+IFR1+MS
22100.000	90.000	269.782	9660.000	101.115	0.000	143.263	0.000	101.115	0.000	0.000	143.285	38.345	88.739	XOMR2_OWSG MWD+IFR1+MS
22200.000	90.000	269.782	9660.000	101.892	0.000	144.354	0.000	101.892	0.000	0.000	144.376	38.414	88.747	XOMR2_OWSG MWD+IFR1+MS
22300.000	90.000	269.782	9660.000	102.669	0.000	145.445	0.000	102.669	0.000	0.000	145.467	38.484	88.755	XOMR2_OWSG MWD+IFR1+MS
22400.000	90.000	269.782	9660.000	103.446	0.000	146.537	0.000	103.446	0.000	0.000	146.558	38.554	88.762	XOMR2_OWSG MWD+IFR1+MS
22500.000	90.000	269.782	9660.000	104.223	0.000	147.629	0.000	104.223	0.000	0.000	147.650	38.625	88.769	XOMR2_OWSG MWD+IFR1+MS
22600.000	90.000	269.782	9660.000	105.001	0.000	148.721	0.000	105.001	0.000	0.000	148.743	38.696	88.776	XOMR2_OWSG MWD+IFR1+MS
22700.000	90.000	269.782	9660.000	105.778	0.000	149.814	0.000	105.778	0.000	0.000	149.835	38.767	88.784	XOMR2_OWSG MWD+IFR1+MS
22800.000	90.000	269.782	9660.000	106.556	0.000	150.908	0.000	106.556	0.000	0.000	150.929	38.839	88.791	XOMR2_OWSG MWD+IFR1+MS
22900.000	90.000	269.782	9660.000	107.333	0.000	152.001	0.000	107.333	0.000	0.000	152.022	38.911	88.798	XOMR2_OWSG MWD+IFR1+MS
23000.000	90.000	269.782	9660.000	108.111	0.000	153.096	0.000	108.111	0.000	0.000	153.116	38.984	88.804	XOMR2_OWSG MWD+IFR1+MS
23100.000	90.000	269.782	9660.000	108.889	0.000	154.190	0.000	108.889	0.000	0.000	154.211	39.057	88.811	XOMR2_OWSG MWD+IFR1+MS
23200.000	90.000	269.782	9660.000	109.667	0.000	155.285	0.000	109.667	0.000	0.000	155.306	39.130	88.818	XOMR2_OWSG MWD+IFR1+MS
23300.000	90.000	269.782	9660.000	110.445	0.000	156.381	0.000	110.445	0.000	0.000	156.401	39.204	88.824	XOMR2_OWSG MWD+IFR1+MS

23329.735	90.000	269.782	9660.000	110.676	0.000	156.706	0.000	110.676	0.000	0.000	156.727	39.226	88.826	XOMR2_OWSG MWD+IFR1+MS
23379.729	90.000	269.782	9660.000	111.065	0.000	157.254	0.000	111.065	0.000	0.000	157.274	39.264	88.830	XOMR2_OWSG MWD+IFR1+MS

Plan Targets

BEU DI 5 27-29 7H

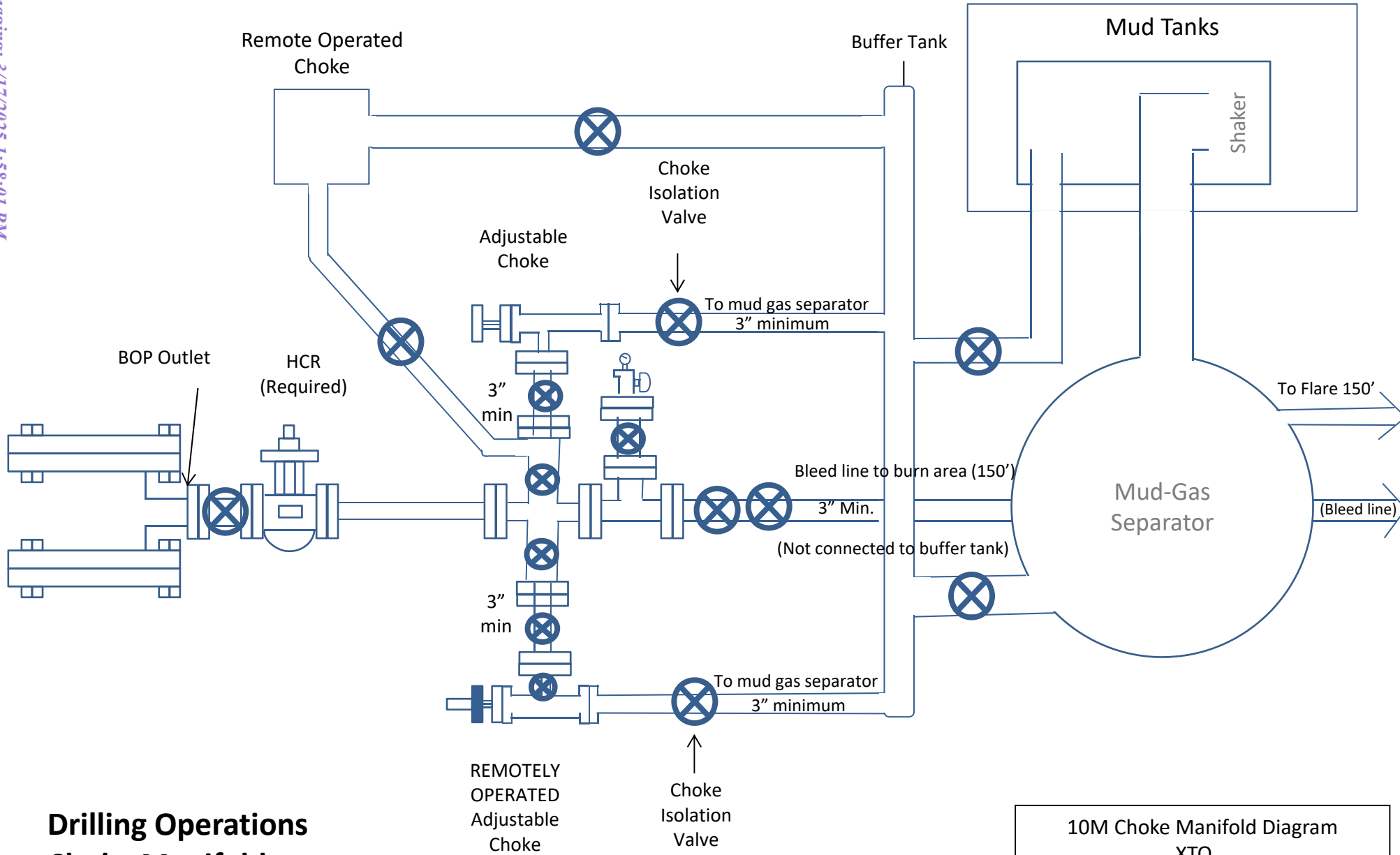
Target Name	Measured Depth (ft)	Grid Northing (ft)	Grid Easting (ft)	TVD MSL (ft)	Target Shape
FTP 8	10240.23	561560.40	646888.90	6103.00	CIRCLE
LTP 8	23329.74	561510.50	633799.50	6103.00	CIRCLE
BHL 8	23379.82	561510.40	633749.50	6103.00	CIRCLE



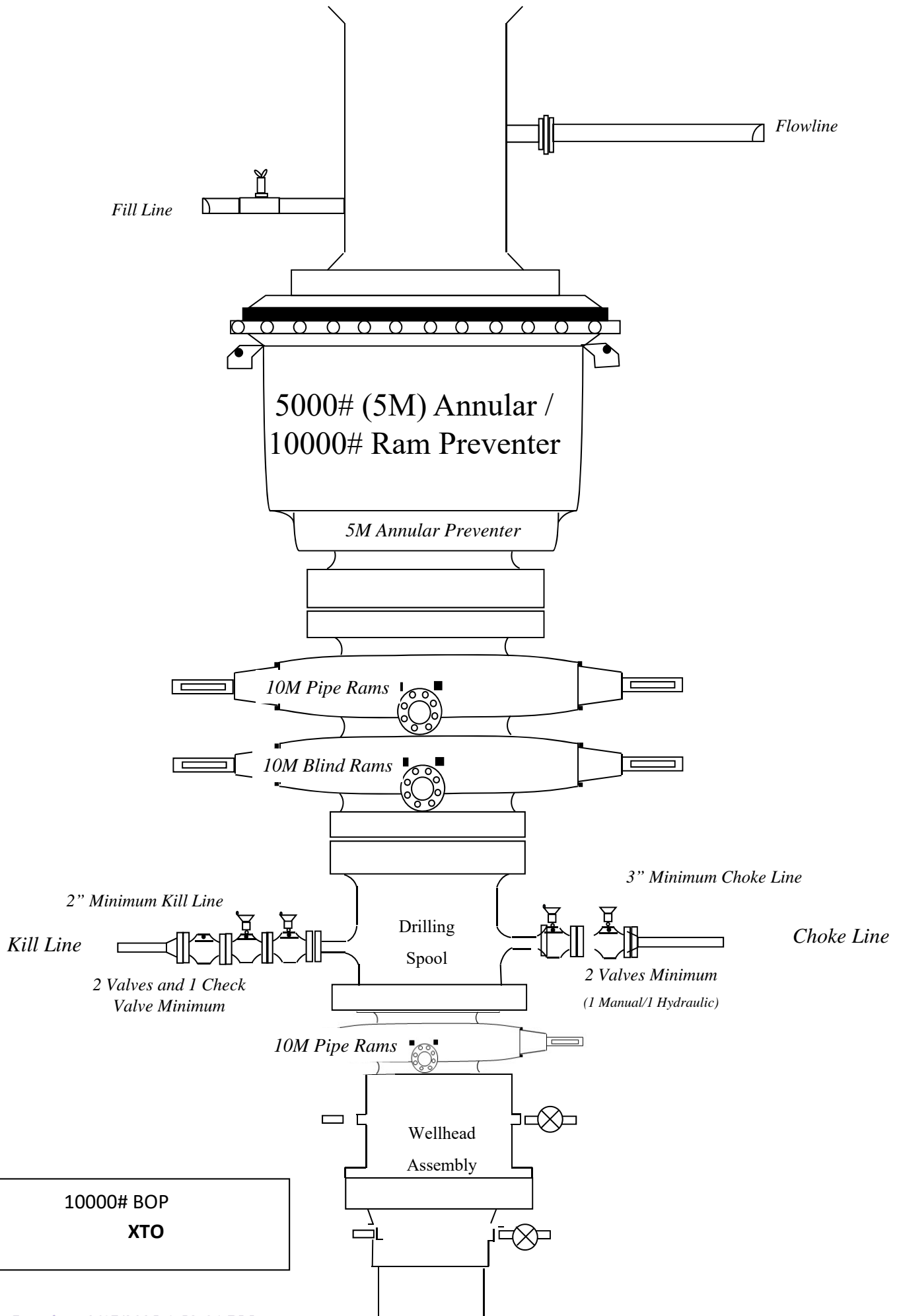
Formation	TVDSS (feet)	TVD (feet)
Rustler	2,882'	675'
Salado	2,606'	951'
Base Salt	1,354'	2,203'
Capitan Reef	694'	2,863'
Delaware Ss.	-381'	3,938'
Brushy Canyon Ss.	-2,338'	5,895'
Basal Brushy Canyon Ss.	-3,727'	7,284'
Bone Spring Lime	-3,914'	7,471'
Avalon Shale Upper SH	-4,109'	7,666'
Avalon Mid Carb	-4,453'	8,010'
Avalon Shale Lower SH	-4,612'	8,169'
1st Bone Spring Lime	-4,847'	8,404'
1st Bone Spring Sand	-5,188'	8,745'
2nd Bone Spring Lime	-5,549'	9,106'
2nd Bone Spring Sand	-5,649'	9,206'
2nd Bone Spring B Sand	-5,833'	9,390'
2nd Bone Spring C Sand	-6,044'	9,601'
Landing Point	-6,103'	9,660'
3rd Bone Spring Lime	-6,259'	9,816'



Bleed line will discharge 100' from wellhead for non-H2S situations and 150' from wellhead for H2S situations.



10M Choke Manifold Diagram  
XTO





U. S. Steel Tubular Products

5.500" 20.00lb/ft (0.361" Wall) P110 RY USS-FREEDOM HTQ®

11/8/2023 1:08:50 PM



MECHANICAL PROPERTIES	Pipe	USS-FREEDOM HTQ®		--
Minimum Yield Strength	110,000	--	psi	--
Maximum Yield Strength	125,000	--	psi	--
Minimum Tensile Strength	125,000	--	psi	--
DIMENSIONS	Pipe	USS-FREEDOM HTQ®		--
Outside Diameter	5.500	6.300	in.	--
Wall Thickness	0.361	--	in.	--
Inside Diameter	4.778	4.778	in.	--
Standard Drift	4.653	4.653	in.	--
Alternate Drift	--	--	in.	--
Nominal Linear Weight, T&C	20.00	--	lb/ft	--
Plain End Weight	19.83	--	lb/ft	--
SECTION AREA	Pipe	USS-FREEDOM HTQ®		--
Critical Area	5.828	5.828	sq. in.	--
Joint Efficiency	--	100.0	%	--
PERFORMANCE	Pipe	USS-FREEDOM HTQ®		--
Minimum Collapse Pressure	11,100	11,100	psi	--
Minimum Internal Yield Pressure	12,640	12,640	psi	--
Minimum Pipe Body Yield Strength	641,000	--	lb	--
Joint Strength	--	641,000	lb	--
Compression Rating	--	641,000	lb	--
Reference Length [4]	--	21,370	ft	--
Maximum Uniaxial Bend Rating [2]	--	91.7	deg/100 ft	--
MAKE-UP DATA	Pipe	USS-FREEDOM HTQ®		--
Make-Up Loss	--	4.13	in.	--
Minimum Make-Up Torque [3]	--	15,000	ft-lb	--
Maximum Make-Up Torque [3]	--	21,000	ft-lb	--
Maximum Operating Torque[3]	--	29,500	ft-lb	--

UNCONTROLLED

Notes

1.

Other than proprietary collapse and connection values, performance properties have been calculated using standard equations defined by API 5C3 and do not incorporate any additional design or safety factors. Calculations assume nominal pipe OD, nominal wall thickness, and Specified Minimum Yield Strength (SMYS).
2.

Uniaxial bending rating shown is structural only, and equal to compression efficiency.
3.

Torques have been calculated assuming a thread compound friction factor of 1.0 and are recommended only. Field make-up torques may require adjustment based on actual field conditions (e.g. make-up speed, temperature, thread compound, etc.).
4.

Reference length is calculated by joint strength divided by plain end weight with 1.5 safety factor.

Legal Notice

All material contained in this publication is for general information only. This material should not therefore be used or relied upon for any specific application without independent competent professional examination and verification of accuracy, suitability and applicability. Anyone making use of this material does so at their own risk and assumes any and all liability resulting from such use. U. S. Steel disclaims any and all expressed or implied warranties of fitness for any general or particular application.

U. S. Steel Tubular Products  
460 Wildwood Forest Drive, Suite 300S  
Spring, Texas 77380


1-877-893-9461  
connections@uss.com  
www.usstubular.com



## U. S. Steel Tubular Products

11/29/2021 4:16:04 PM

5.500" 20.00lb/ft (0.361" Wall) P110 RY USS-TALON HTQ™ RD

				
MECHANICAL PROPERTIES	Pipe	USS-TALON HTQ™ RD		[6]
Minimum Yield Strength	110,000	--	psi	--
Maximum Yield Strength	125,000	--	psi	--
Minimum Tensile Strength	125,000	--	psi	--
DIMENSIONS	Pipe	USS-TALON HTQ™ RD		--
Outside Diameter	5.500	5.900	in.	--
Wall Thickness	0.361	--	in.	--
Inside Diameter	4.778	4.778	in.	--
Standard Drift	4.653	4.653	in.	--
Alternate Drift	--	--	in.	--
Nominal Linear Weight, T&C	20.00	--	lb/ft	--
Plain End Weight	19.83	--	lb/ft	--
SECTION AREA	Pipe	USS-TALON HTQ™ RD		--
Critical Area	5.828	5.828	sq. in.	--
Joint Efficiency	--	100.0	%	[2]
PERFORMANCE	Pipe	USS-TALON HTQ™ RD		--
Minimum Collapse Pressure	11,100	11,100	psi	--
Minimum Internal Yield Pressure	12,640	12,640	psi	--
Minimum Pipe Body Yield Strength	641,000	--	lb	--
Joint Strength	--	641,000	lb	--
Compression Rating	--	641,000	lb	--
Reference Length	--	21,370	ft	[5]
Maximum Uniaxial Bend Rating	--	91.7	deg/100 ft	[3]
MAKE-UP DATA	Pipe	USS-TALON HTQ™ RD		--
Make-Up Loss	--	5.58	in.	--
Minimum Make-Up Torque	--	17,000	ft-lb	[4]
Maximum Make-Up Torque	--	20,000	ft-lb	[4]
Maximum Operating Torque	--	39,500	ft-lb	[4]

UNCONTROLLED

## Notes

- Other than proprietary collapse and connection values, performance properties have been calculated using standard equations defined by API 5C3 and do not incorporate any additional design or safety factors. Calculations assume nominal pipe OD, nominal wall thickness, and Specified Minimum Yield Strength (SMYS).
- Joint efficiencies are calculated by dividing the connection critical area by the pipe body area.
- Uniaxial bend rating shown is structural only.
- Torques have been calculated assuming a thread compound friction factor of 1.0 and are recommended only. Field make-up torques may require adjustment based on actual field conditions (e.g. make-up speed, temperature, thread compound, etc.).
- Reference length is calculated by Joint Strength divided by Nominal Linear Weight, T&C with a 1.5 Safety factor.
- Coupling must meet minimum mechanical properties of the pipe.

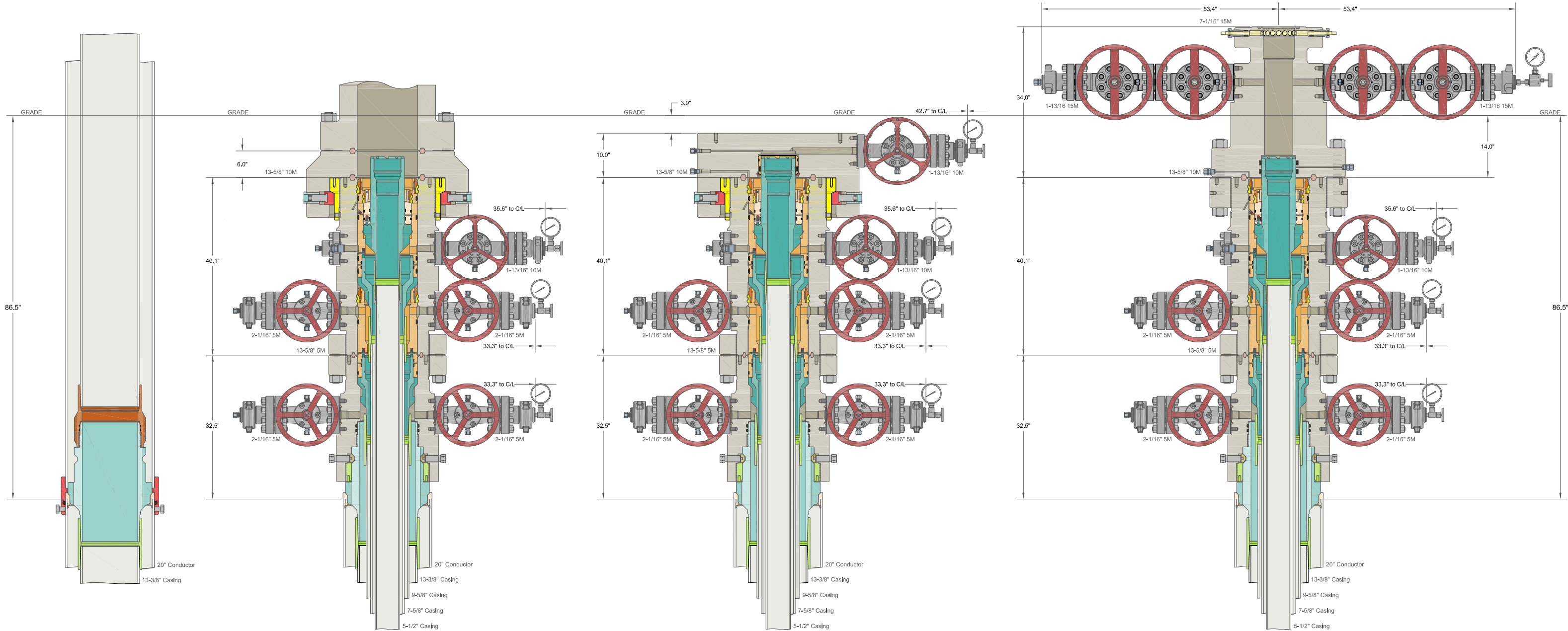
## Legal Notice

All material contained in this publication is for general information only. This material should not therefore be used or relied upon for any specific application without independent competent professional examination and verification of accuracy, suitability and applicability. Anyone making use of this material does so at their own risk and assumes any and all liability resulting from such use. U. S. Steel disclaims any and all expressed or implied warranties of fitness for any general or particular application.

U. S. Steel Tubular Products  
460 Wildwood Forest Drive, Suite 300S  
Spring, Texas 77380

1-877-893-9461  
connections@uss.com  
www.usstubular.com

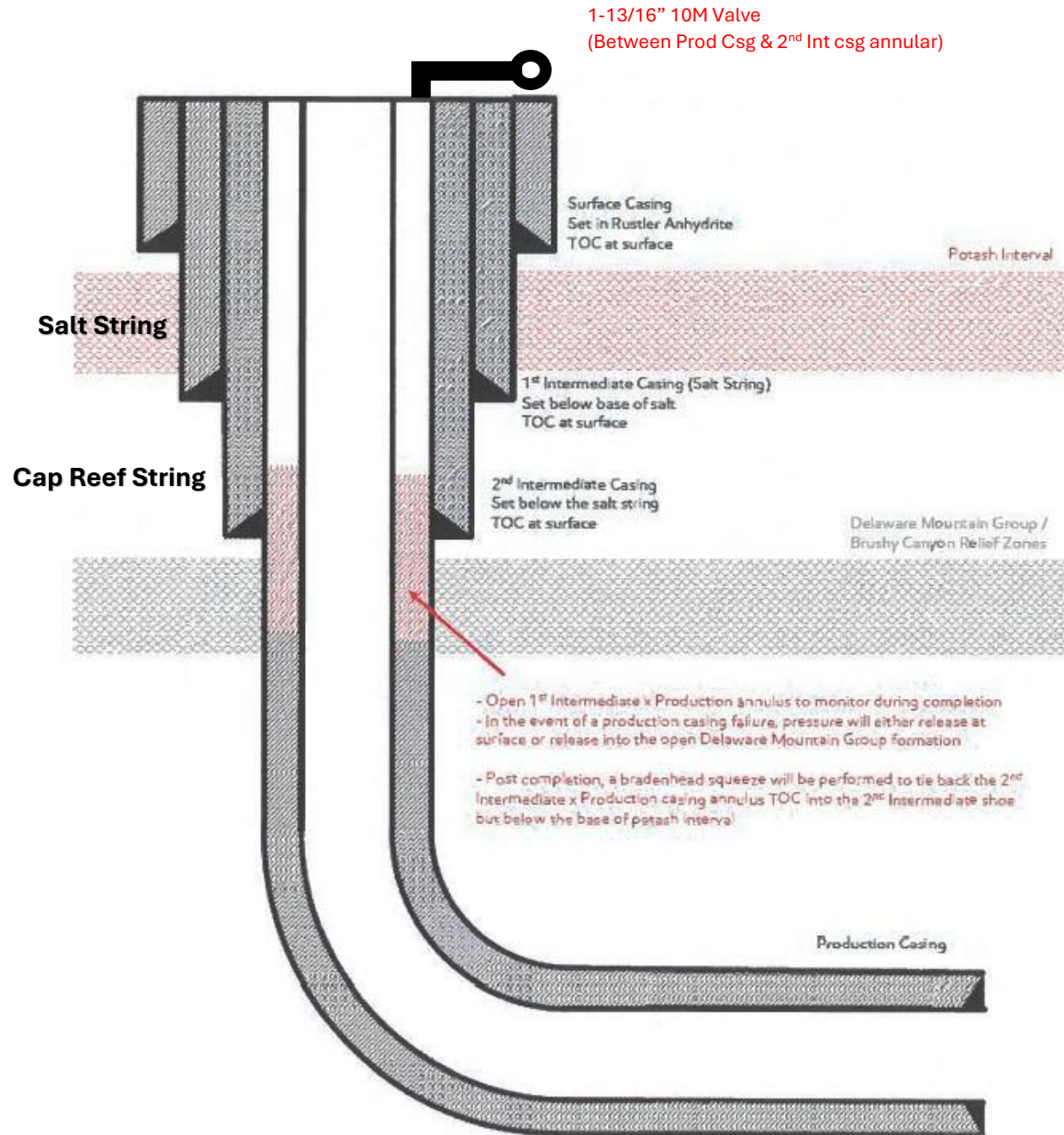
INFORMATION CONTAINED HEREIN IS THE PROPERTY OF CACTUS WELLHEAD, LLC. REPRODUCTION, DISCLOSURE, OR USE THEREOF IS PERMISSIBLE ONLY AS PROVIDED BY CONTRACT OR AS EXPRESSLY AUTHORIZED BY CACTUS WELLHEAD, LLC.



ALL DIMENSIONS APPROXIMATE

CACTUS WELLHEAD LLC			
(20") x 13-3/8" x 9-5/8" x 7-5/8" x 5-1/2" MBU-4T-CFL-R-DBLO With 13-5/8" 10M x 7-1/16" 15M CTH-DBLHPS-SB Tubing Head And Drilling & Skid Configurations			
XTO ENERGY INC DELAWARE BASIN			
DRAWN	VJK	31MAR22	
APPRV			
DRAWING NO.		SDT-3301	



**Figure E**

Updated May 2024:

XTO is aware of the R-111-Q update and will comply with these requirements including (but not limited to):

1. Alignment with KPLA requirements per schematic above, leaving open annulus for pressure monitoring during frac and utilizing new casing that meets API standards.
2. Contingency plans in place to divert formation fluids away from salt interval in even of production casing failure.
3. Bradenhead squeeze to be completed within 180 days to tie back TOC to salt string at least 500ft but with top below Marker Bed 126.
4. Production Cement to be tied back no less than 500ft inside previous casing shoe

**BLACK GOLD®**

**GATES ENGINEERING & SERVICES NORTH AMERICA**  
**7603 Prairie Oak Dr.**  
**Houston, TX. 77086**

**PHONE: +1 (281) 602-4100****FAX: +1 (281) 602-4147****EMAIL: gesna.quality@gates.com****WEB: www.gates.com/oilandgas**

*NEW CHOKE HOSE  
INSTALLED 02-10-2024*

## CERTIFICATE OF CONFORMANCE

This is to verify that the items detailed below meet the requirements of the Customer's Purchase Order referenced herein, and are in Conformance with applicable specifications, and that Records of Required Tests are on file and subject to examination. The following items were inspected and hydrostatically tested at **Gates Engineering & Services North America** facilities in Houston, TX, USA.

**CUSTOMER:** NABORS DRILLING TECHNOLOGIES USA DBA NABORS DRILLING USA  
**CUSTOMER P.O.#:** 15582803 (TAG NABORS PO #15582803 SN 74621 ASSET 66-1531)  
**CUSTOMER P/N:** IMR RETEST SN 74621 ASSET #66-1531

**PART DESCRIPTION:** RETEST OF CUSTOMER 3" X 45 FT 16C CHOKE & KILL HOSE ASSEMBLY C/W 4 1/16" 10K FLANGES

**SALES ORDER #:** 529480  
**QUANTITY:** 1  
**SERIAL #:** 74621 H3-012524-1

**SIGNATURE:***F. Cismos***TITLE:****QUALITY ASSURANCE****DATE:****1/25/2024**





H3-15/16

1/25/2024 11:48:06 AM

# TEST REPORT

**CUSTOMER**

Company: Nabors Industries Inc.

Production description: 74621/66-1531

Sales order #: 529480

Customer reference: FG1213

**TEST OBJECT**

Serial number: H3-012524-1

Lot number:

Description: 74621/66-1531

Hose ID: 3" 16C CK

Part number:

**TEST INFORMATION**

Test procedure: GTS-04-053

Test pressure: 15000.00 psi

Test pressure hold: 3600.00 sec

Work pressure: 10000.00 psi

Work pressure hold: 900.00 sec

Length difference: 0.00 %

Length difference: 0.00 inch

Fitting 1: 3.0 x 4-1/16 10K

Part number:

Description:

Fitting 2: 3.0 x 4-1/16 10K

Part number:

Description:

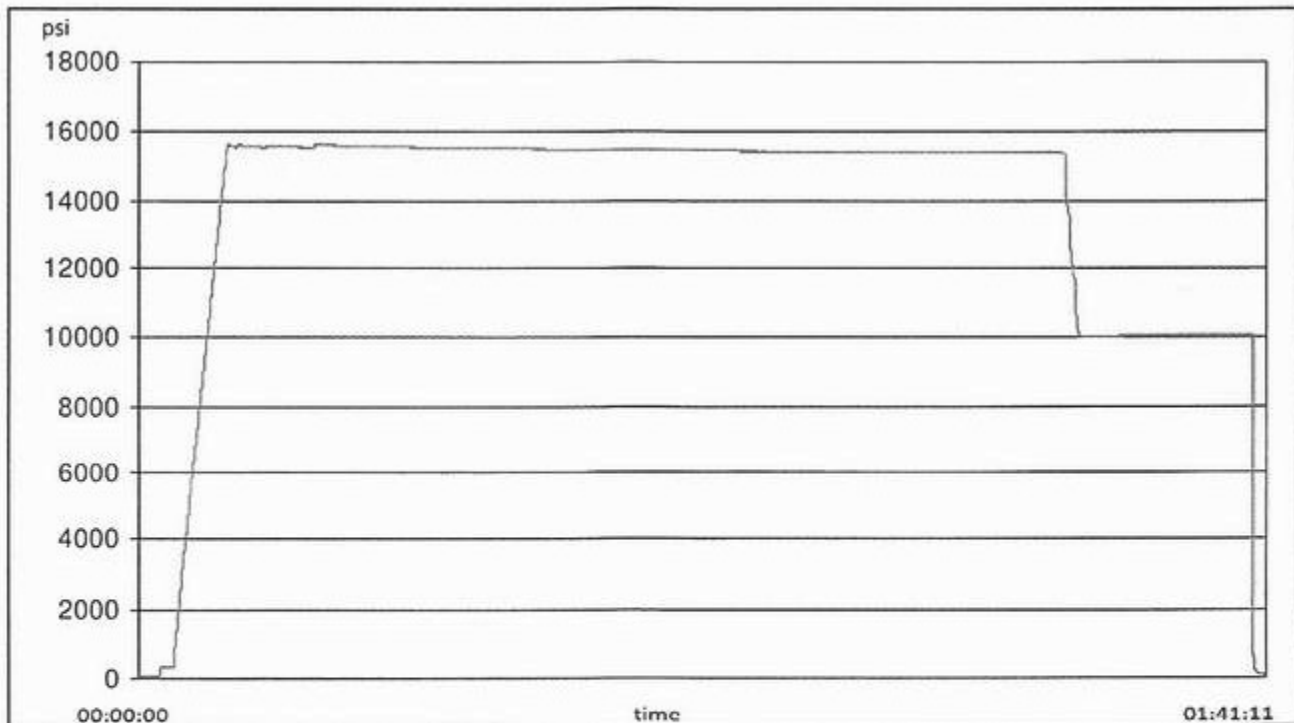
Visual check:

Pressure test result: PASS

Length measurement result:

Length: 45 feet

Test operator: Travis





H3-15/16

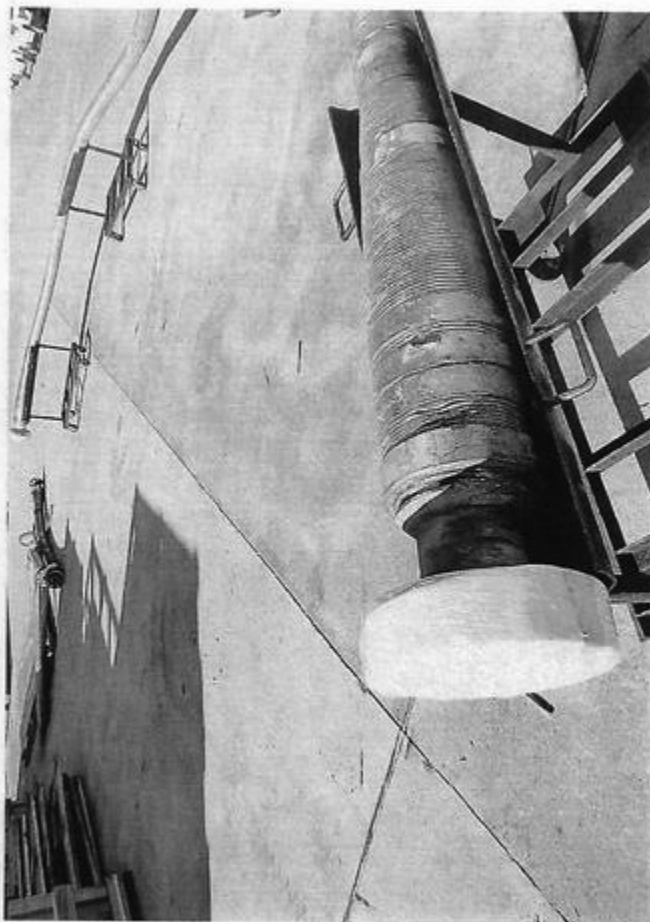
1/25/2024 11:48:06 AM

# TEST REPORT

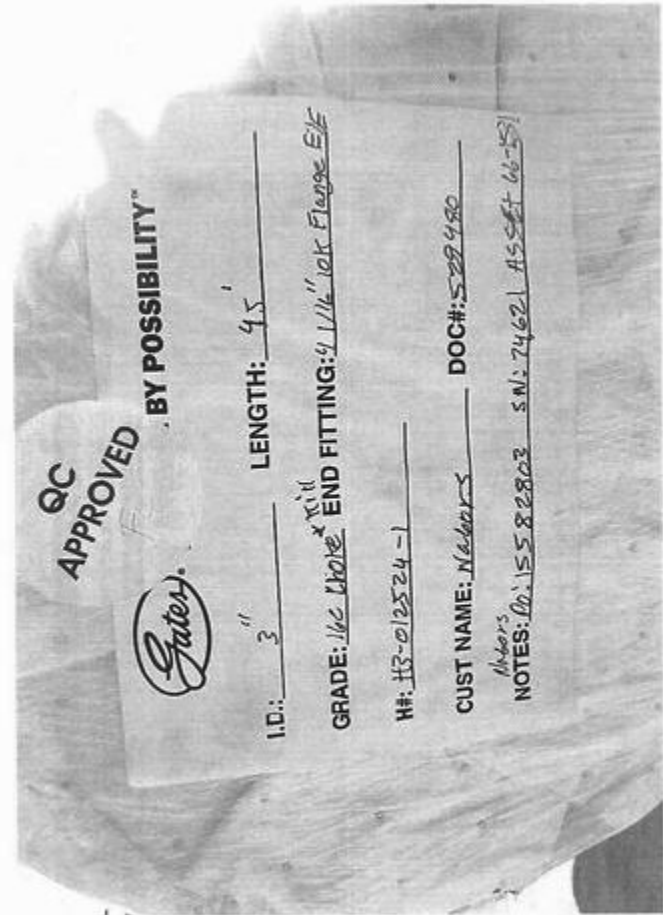
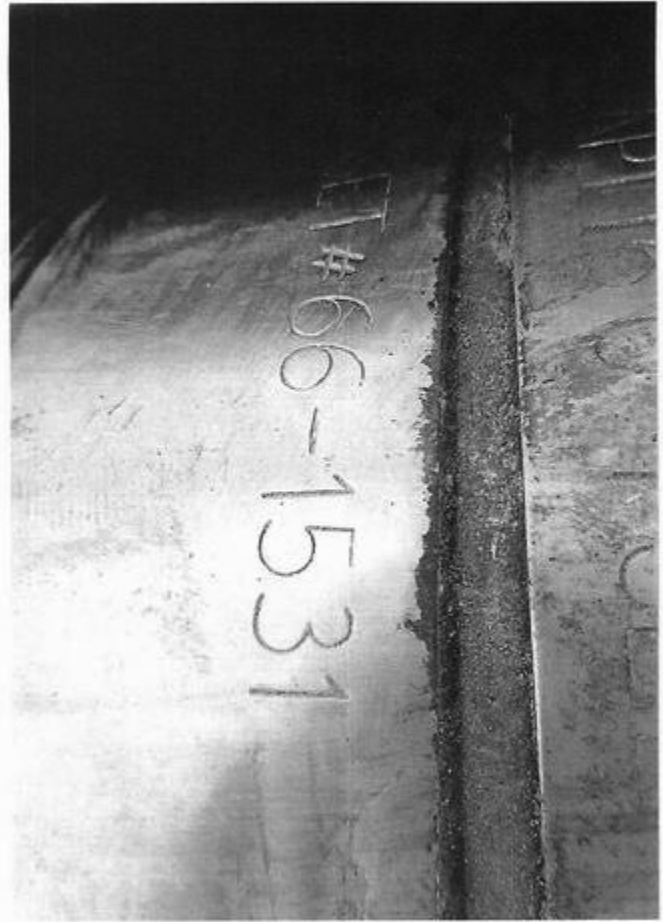
Description	Serial number	Calibration date	Calibration due date
S-25-A-W	110D3PHO	2023-06-06	2024-06-06
S-25-A-W	110IQWDG	2023-05-16	2024-05-16

**Comment**

--







XTO respectfully requests approval to utilize a spudder rig to pre-set surface casing.

Description of Operations:

1. Spudder rig will move in to drill the surface hole and pre-set surface casing on the well.
  - a. After drilling the surface hole section, the spudder rig will run casing and cement following all of the applicable rules and regulations (OnShore Order 2, all COAs and NMOCD regulations).
  - b. The spudder rig will utilize fresh water-based mud to drill the surface hole to TD. Solids control will be handled entirely on a closed loop basis. No earth pits will be used.
2. The wellhead will be installed and tested as soon as the surface casing is cut off and WOC time has been reached.
3. A blind flange at the same pressure rating as the wellhead will be installed to seal the wellbore. Pressure will be monitored with needle valves installed on two wing valves.
  - a. A means for intervention will be maintained while the drilling rig is not over the well.
4. Spudder rig operations are expected to take 2-3 days per well on the pad.
5. The BLM will be contacted and notified 24 hours prior to commencing spudder rig operations.
6. Drilling Operations will begin with a larger rig and a BOP stack equal to or greater than the pressure rating that was permitted will be nipped up and tested on the wellhead before drilling operations resume on each well.
  - a. The larger rig will move back onto the location within 90 days from the point at which the wells are secured and the spudder rig is moved off location.
  - b. The BLM will be notified 24 hours before the larger rig moves back on the pre-set locations
7. XTO will have supervision on the rig to ensure compliance with all BLM and NMOCD regulations and to oversee operations.
8. Once the rig is removed, XTO will secure the wellhead area by placing a guard rail around the cellar area.

**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



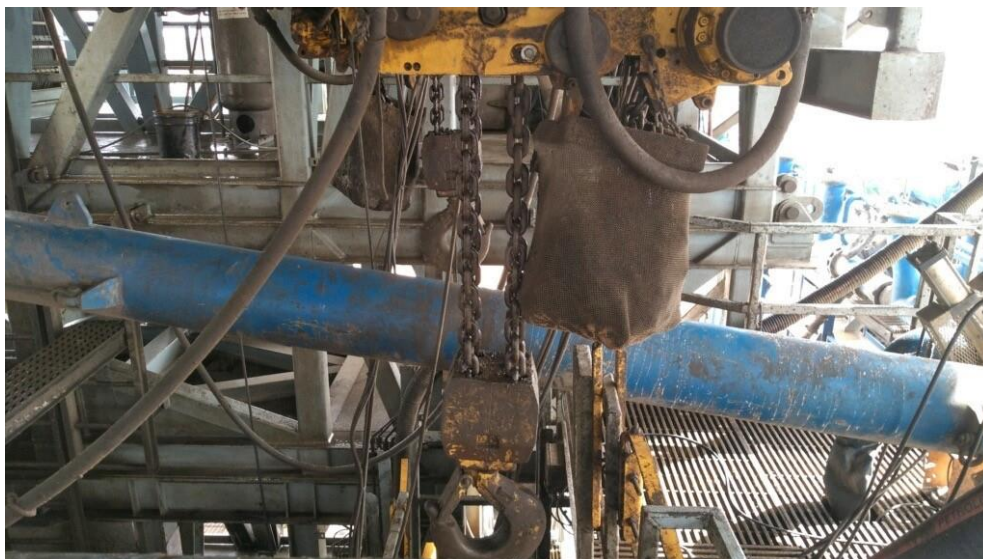


Figure 2: BOP Winch System

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.

62

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>a</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>e</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>e</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

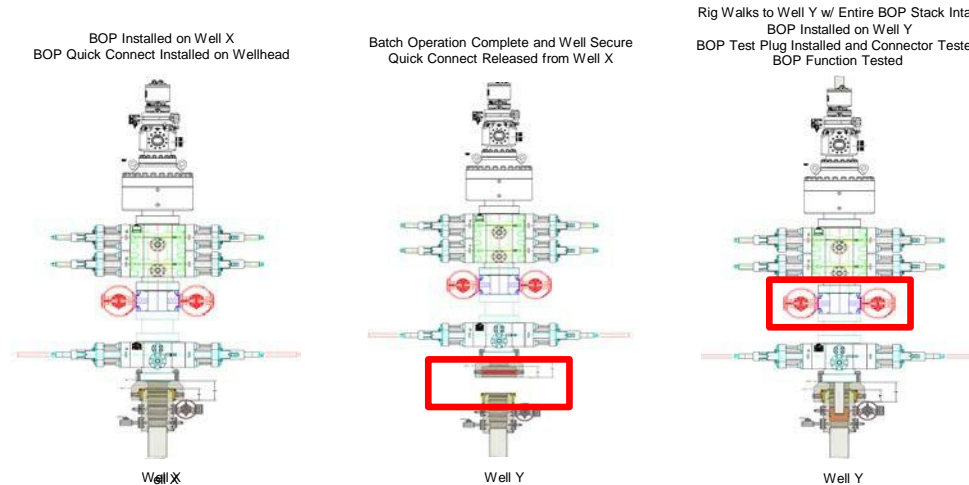
each BOP nipple up, XTO Energy performs a choke drill with the rig crew prior to drilling out every casing shoe. This is additional training for the rig crew that exceeds the requirements of the CFR Title 43 Part 3170.

### **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.

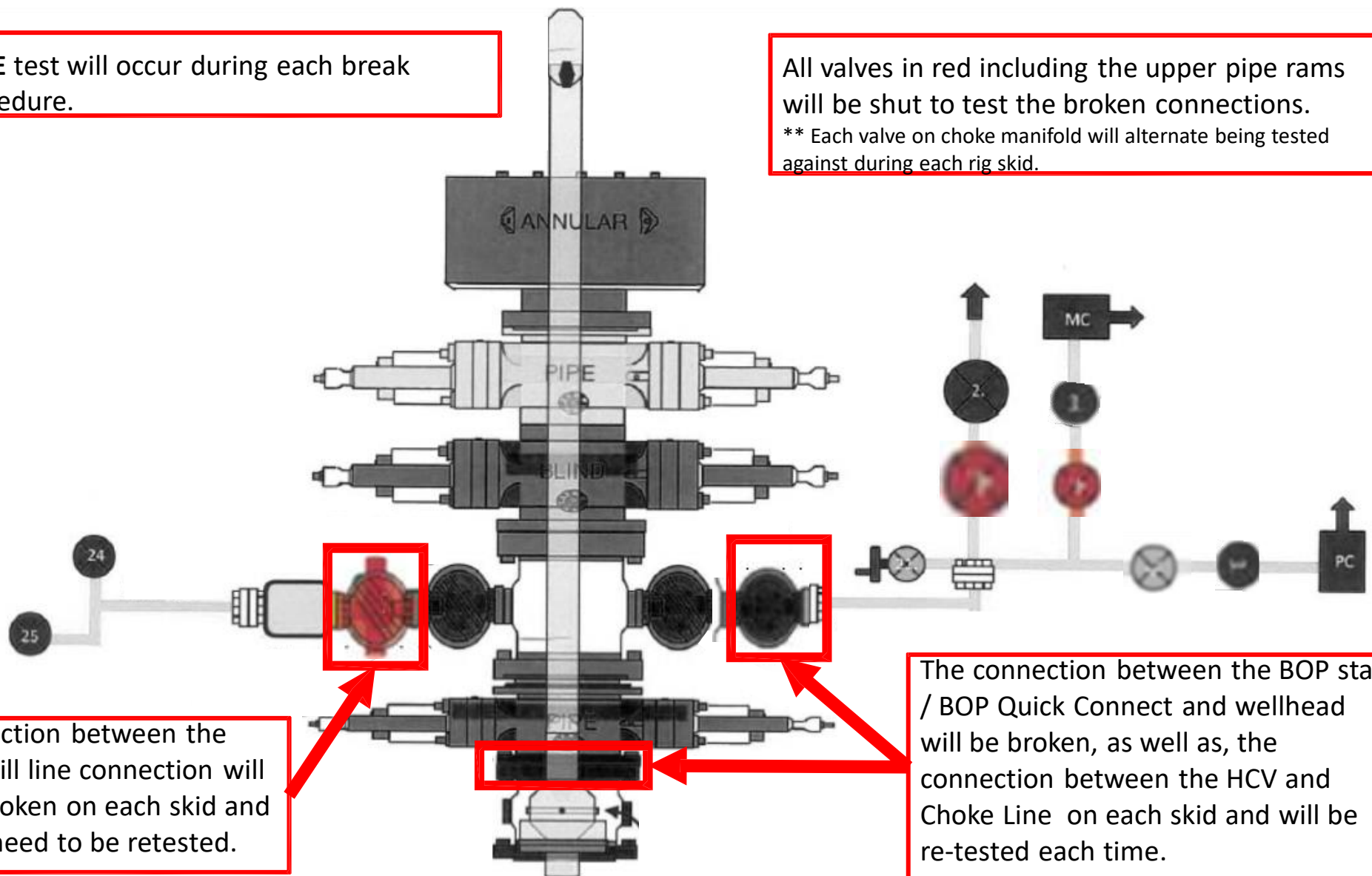
The BOP will be secured by a hydraulic carrier or cradle. The BLM will be contacted if a Well Control event occurs prior to the commencement of a BOPE Break Testing operation.

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.

**XTO Permian Operating, LLC Offline Cementing Variance Request**

XTO requests the option to cement the surface and intermediate casing strings offline as a prudent batch drilling efficiency of acreage development.

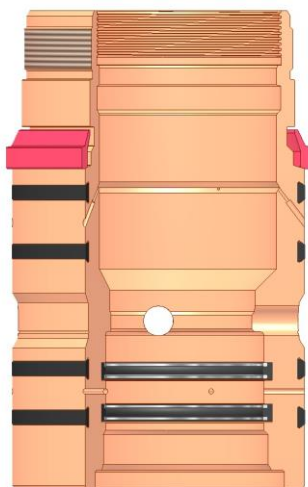
**1. Cement Program**

No changes to the cement program will take place for offline cementing.

**2. Offline Cementing Procedure**

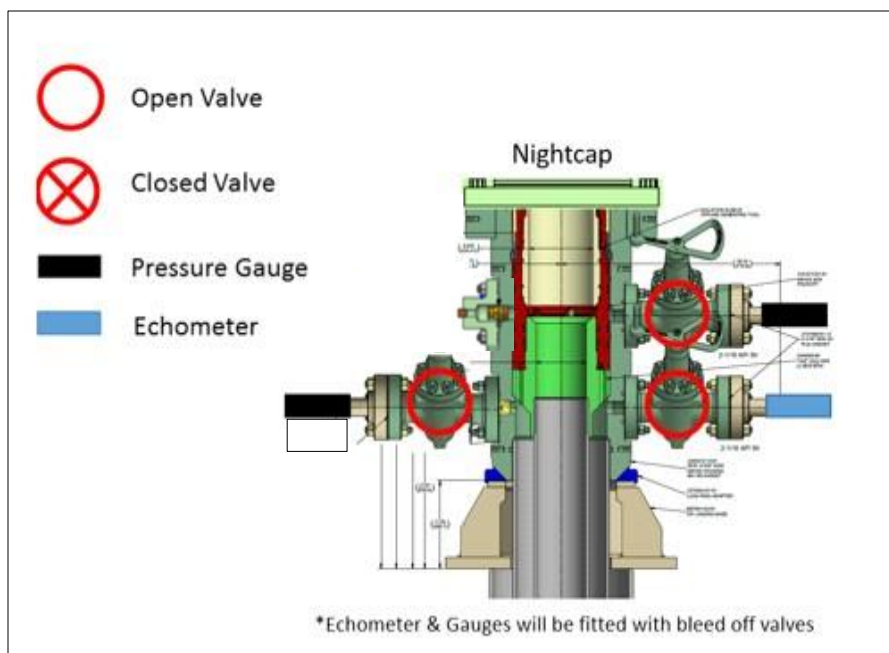
The operational sequence will be as follows. If a well control event occurs, the BLM will be contacted for approval prior to conducting offline cementing operations.

1. Run casing as per normal operations. While running casing, conduct negative pressure test and confirm integrity of the float equipment (float collar and shoe)
2. Land casing with mandrel
3. Fill pipe with kill weight fluid, do not circulate through floats and confirm well is static
4. Set annular packoff shown below and pressure test to confirm integrity of the seal. Pressure ratings of wellhead components and valves is 5,000 psi.
5. After confirmation of both annular barriers and internal barriers, nipple down BOP and install cap flange.
  - a. If any barrier fails to test, the BOP stack will not be nippedled down until after the cement job is completed with cement 500ft above the highest formation capable of flow with kill weight mud above or after it has achieved 50-psi compressive strength if kill weight fluid cannot be verified.



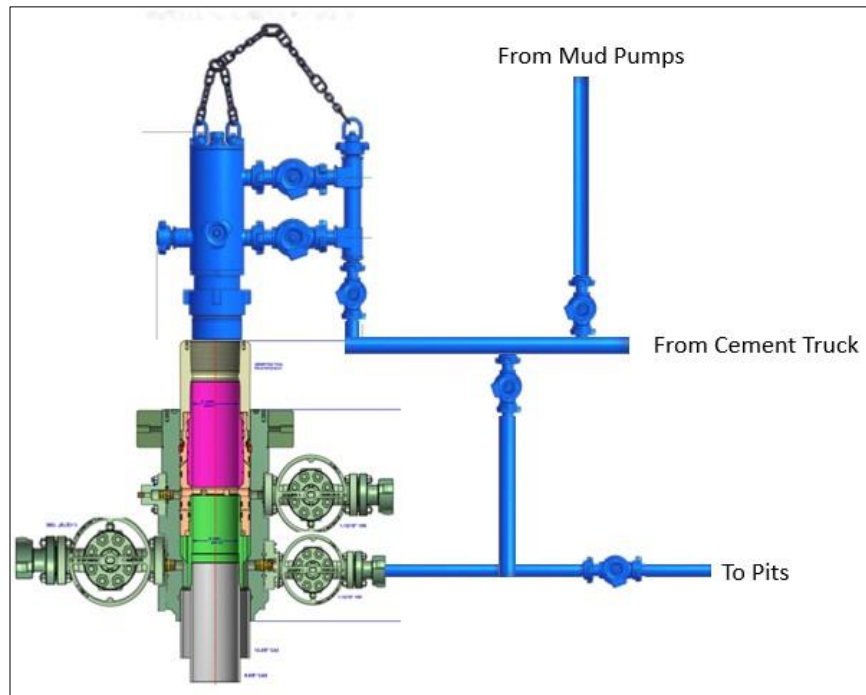
Annular packoff with both external and internal seals

## XTO Permian Operating, LLC Offline Cementing Variance Request



Wellhead diagram during skidding operations

6. Skid rig to next well on pad.
7. Confirm well is static before removing cap flange, flange will not be removed and offline cementing operations will not commence until well is under control. If well is not static, casing outlet valves will provide access to both the casing ID and annulus. Rig or third party pump truck will kill well prior to cementing or nipping up for further remediation.
  - a. Well Control Plan
    - i. The Drillers Method will be the primary well control method to regain control of the wellbore prior to cementing, if wellbore conditions do not permit the drillers method other methods of well control may be used
    - ii. Rig pumps or a 3<sup>rd</sup> party pump will be tied into the upper casing valve to pump down the casing ID
    - iii. A high pressure return line will be rigged up to lower casing valve and run to choke manifold to control annular pressure
    - iv. Once influx is circulated out of the hole, kill weight mud will be circulated
    - v. Well will be confirmed static
    - vi. Once confirmed static, cap flange will be removed to allow for offline cementing operations to commence
8. Install offline cement tool
9. Rig up cement equipment

**XTO Permian Operating, LLC Offline Cementing Variance Request**

Wellhead diagram during offline cementing operations

10. Circulate bottoms up with cement truck
  - a. If gas is present on bottoms up, well will be shut in and returns rerouted through gas buster to handle entrained gas
  - b. Max anticipated time before circulating with cement truck is 6 hrs
11. Perform cement job taking returns from the annulus wellhead valve
12. Confirm well is static and floats are holding after cement job
13. Remove cement equipment, offline cement tools and install night cap with pressure gauge for monitoring.

Sante Fe Main Office  
Phone: (505) 476-3441

General Information  
Phone: (505) 629-6116

Online Phone Directory  
<https://www.emnrd.nm.gov/oecd/contact-us>

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

CONDITIONS

Action 437882

CONDITIONS

Operator: XTO PERMIAN OPERATING LLC. 6401 HOLIDAY HILL ROAD MIDLAND, TX 79707	OGRID: 373075
	Action Number: 437882
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

Created By	Condition	Condition Date
ward.rikala	Any previous COA's not addressed within the updated COA's still apply.	3/17/2025