

Submit 1 Copy To Appropriate District Office
District I – (575) 393-6161
1625 N. French Dr., Hobbs, NM 88240
District II – (575) 748-1283
811 S. First St., Artesia, NM 88210
District III – (505) 334-6178
1000 Rio Brazos Rd., Aztec, NM 87410
District IV – (505) 476-3460
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico **Rec'd 05/26/2020 - NMOCD**
Energy, Minerals and Natural Resources

Form C-103
Revised July 18, 2013

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

SUNDRY NOTICES AND REPORTS ON WELLS (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.) 1. Type of Well: Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other <input type="checkbox"/>	WELL API NO. 30-015-46434
	5. Indicate Type of Lease STATE <input checked="" type="checkbox"/> FEE <input type="checkbox"/>
2. Name of Operator XTO ENERGY, INC	6. State Oil & Gas Lease No. STATE
3. Address of Operator 6401 HOLIDAY HILL RD, BLDG 5, MIDLAND TX 79705	7. Lease Name or Unit Agreement Name REMUDA SOUTH 25 STATE
4. Well Location Unit Letter <u>E</u> : <u>2310</u> feet from the <u>NORTH</u> line and <u>630</u> feet from the <u>WEST</u> line Section <u>25</u> Township <u>23S</u> Range <u>29E</u> NMPM County <u>EDDY</u>	8. Well Number 501H
	9. OGRID Number 5380
	10. Pool name or Wildcat FORTY NINER RIDGE BONE SPRING WEST
11. Elevation (Show whether DR, RKB, RT, GR, etc.) 3065' GL	

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:

PERFORM REMEDIAL WORK ☐ PLUG AND ABANDON ☐
TEMPORARILY ABANDON ☐ CHANGE PLANS ☒
PULL OR ALTER CASING ☐ MULTIPLE COMPL ☐
DOWNHOLE COMMINGLE ☐
CLOSED-LOOP SYSTEM ☐
OTHER: ☐

SUBSEQUENT REPORT OF:

REMEDIAL WORK ☐ ALTERING CASING ☐
COMMENCE DRILLING OPNS. ☐ P AND A ☐
CASING/CEMENT JOB ☐
OTHER: ☐

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 19.15.7.14 NMAC. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

XTO Energy, Inc requests permission to make the following changes:

Change the SHL from 2310'FNL & 630'FWL to 2354'FNL & 660'FWL *NO SURFACE DISTURBANCE

In addition, XTO Energy Inc. requests the following variances:

Approval to utilize a spudder rig to pre-set surface casing per the attached Description of Operations.

Batch drill this well if necessary. In doing so, XTO will set each casing string and ensure that the well is cemented properly and the well is static. With floats holding, no pressure on the csg annulus, and the installation of a 10K TA cap as per GE recommendations, XTO will contact the BLM to skid the rig to drill the remaining wells on the pad. Once surface and intermediate strings are all completed, XTO will begin drilling the production hole on each of the wells.

ONLY test broken pressure seals on the BOP equipment per the attached procedure.

Attachments:

C102 & Supplement
GCP
Drilling Program
Directional Plan
Spudder Rig Description of Operations / BOP Variance Procedure

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE Kelly Kardos TITLE Regulatory Coordinator DATE 05/26/2020

Type or print name Kelly Kardos E-mail address: kelly_kardos@xtoenergy.com PHONE: 432-620-4374

For State Use Only

APPROVED BY: Raymond W. Sudary TITLE Geologist DATE 5/27/2020

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

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

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-015- 46434		² Pool Code		³ Pool Name	
⁴ Property Code		⁵ Property Name REMUDA SOUTH 25 STATE			⁶ Well Number 501H
⁷ OGRID No. 005380		⁸ Operator Name XTO ENERGY, INC.			⁹ Elevation 3,065'

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	25	23 S	29 E		2,354	NORTH	660	WEST	EDDY

¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	36	23 S	29 E		200	SOUTH	430	WEST	EDDY

¹² Dedicated Acres 240	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

	SHL (NAD83 NME) Y = 464,624.3 X = 661,477.0 LAT. = 32.276728 °N LONG. = 103.944601 °W FTP (NAD83 NME) Y = 463,991.1 X = 661,246.8 LAT. = 32.274990 °N LONG. = 103.945353 °W CORNER COORDINATES (NAD83 NME) A - Y = 464,320.4 N , X = 660,816.8 E B - Y = 464,319.7 N , X = 662,143.0 E C - Y = 461,665.9 N , X = 660,817.1 E D - Y = 461,666.6 N , X = 662,145.6 E E - Y = 459,002.1 N , X = 660,832.0 E F - Y = 459,004.0 N , X = 662,159.8 E G - Y = 456,341.5 N , X = 660,848.3 E H - Y = 456,344.3 N , X = 662,174.7 E	LTP (NAD83 NME) Y = 456,672.4 X = 661,276.2 LAT. = 32.254872 °N LONG. = 103.945343 °W BHL (NAD83 NME) Y = 456,542.4 X = 661,277.0 LAT. = 32.254515 °N LONG. = 103.945342 °W	¹⁷ OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. Cassie Evans 05/04/2020 Signature Date Cassie Evans Printed Name cassie.evans@xtoenergy.com E-mail Address
	SHL (NAD27 NME) Y = 464,564.4 X = 620,294.2 LAT. = 32.276605 °N LONG. = 103.944109 °W FTP (NAD27 NME) Y = 463,931.2 X = 620,064.0 LAT. = 32.274866 °N LONG. = 103.944861 °W CORNER COORDINATES (NAD27 NME) A - Y = 464,260.5 N , X = 619,634.0 E B - Y = 464,259.9 N , X = 620,960.2 E C - Y = 461,606.0 N , X = 619,634.3 E D - Y = 461,606.7 N , X = 620,962.7 E E - Y = 458,942.4 N , X = 619,649.0 E F - Y = 458,944.3 N , X = 620,976.8 E G - Y = 456,281.8 N , X = 619,665.2 E H - Y = 456,284.6 N , X = 620,991.6 E	LTP (NAD27 NME) Y = 456,612.7 X = 620,093.2 LAT. = 32.254748 °N LONG. = 103.944853 °W BHL (NAD27 NME) Y = 456,482.7 X = 620,094.0 LAT. = 32.254391 °N LONG. = 103.944852 °W	¹⁸ SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief. 04-15-2020 Date of Survey MARK DILLON HARP 23786 Signature and Seal of Professional Surveyor: MARK DILLON HARP 23786 Certificate Number AR 2019103423

RWP 5/27/2020

Intent ☐ As Drilled ☐

API #		
Operator Name:	Property Name:	Well Number

Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
Latitude					Longitude				NAD

First Take Point (FTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
Latitude					Longitude				NAD

Last Take Point (LTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
Latitude					Longitude				NAD

Is this well the defining well for the Horizontal Spacing Unit? ☐

Is this well an infill well? ☐

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

API #		
Operator Name:	Property Name:	Well Number

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Submit Original
to Appropriate
District Office

GAS CAPTURE PLAN

Date: 05/13/20

☒ Original

Operator & OGRID No.: XTO Energy Inc [005380]

☐ Amended - Reason for Amendment: _____

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

Note: Form C-129 must be submitted and approved prior to exceeding 60 days allowed by Rule (Subsection A of 19.15.18.12 NMAC).

Well(s)/Production Facility – Remuda CTB

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

Well Name	API	Well Location (ULSTR)	Footages	Expected MMCF/D	Flared or Vented	Comments
Remuda South 25 State 501H	30-015-46434	E-25-23S-29E	2354'FNL & 660'FWL	1.9 MMCF/D	Flared/Sold	

Gathering System and Pipeline Notification

Well(s) will be connected to a production facility after flowback operations are complete, if gas transporter system is in place. The gas produced from production facility is dedicated to Lucid and will be connected to Lucid low/high pressure gathering system located in Eddy County, New Mexico. It will require 0' of pipeline to connect the facility to low/high pressure gathering system. XTO Energy, Inc. provides (periodically) to Lucid a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. In addition, XTO Energy, Inc. and Lucid have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at Lucid's Red Hills Plant located in Sec.13, Twn.24S, Rng. 33E, Eddy County, New Mexico or Lucid's Roadrunner Plant located in Sec.32, Twn.23S, Rng. 28E, Eddy County, New Mexico The actual flow of the gas will be based on compression operating parameters and gathering system pressures.

Flowback Strategy

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

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

Alternatives to Reduce Flaring

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

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

DRILLING PLAN: NMOCD COMPLIANCE
(Supplement to R-111-P)

XTO Energy Inc.

Remuda South 25 State 501H

Projected TD: 15692' MD / 8063' TVD

SHL: 2354' FNL & 660' FWL , Section 25, T23S, R29E

BHL: 200' FSL & 430' FWL , Section 36, T23S, R29E

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	84'	Water
Top of Salt	427'	Water
Base of Salt	3029'	Water
Delaware	3231'	Water/Oil/Gas
Bell Canyon	3287'	Water/Oil/Gas
Cherry Canyon	4144'	Water/Oil/Gas
Brushy Canyon	5683'	Water/Oil/Gas
Basal Brushy Canyon	6688'	Water/Oil/Gas
Bone Spring Lm.	6932'	Water/Oil/Gas
1st Bone Spring Ss	8000'	Water/Oil/Gas
Target/Land Curve	8063'	Water/Oil/Gas

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 16" inch casing @ 402' (25' above the salt) and circulating cement back to surface. The salt will be isolated by setting 11-3/4" inch casing at 3129' and circulating cement to surface. The second intermediate will isolate from the salt down to the next casing seat by setting 8-5/8" inch casing at 7466.2' and cementing 200' into the 11-3/4 inch casing. A 7-7/8" inch curve and lateral hole will be drilled to MD/TD and 5-1/2 inch casing will be set at TD and cemented back up to the 2nd intermediate (estimated TOC 6966.2 feet) per Potash regulations.

Casing Design

Hole Size	Depth	OD Csg	Weight	Collar	Grade	New/Used	SF Burst	SF Collapse	SF Tension
20"	0' – 402'	16"	75	BTC	J-55	New	2.80	5.61	39.07
14-3/4"	0' – 3129'	11-3/4"	47	BTC	J-55	New	1.59	1.59	5.01
10-5/8"	0' – 7466.2'	8-5/8"	32	BTC	HCL-80	New	1.54	1.95	3.06
7-7/8"	0' – 15692'	5-1/2"	20	C7S	CYP-110	New	1.20	2.02	2.92

- XTO requests to not utilize centralizers in the curve and lateral
- 16" Collapse analyzed using 75% evacuation. Casing to be filled while running.
- 11-3/4" Collapse analyzed using 50% evacuation based on regional experience.
- 8-5/8" Collapse analyzed using 33% evacuation based on regional experience.
- 5-1/2" Tension calculated using vertical hanging weight plus the lateral weight multiplied by a friction factor of 0.35
- Test on 2M Annular & Casing will be limited to 70% burst of the casing or 1500 psi, whichever is less

Wellhead:

Temporary Wellhead

- 16" SOW bottom x 16-3/4" 3M top flange

• Permanent Wellhead – GE RSH Multibowl System

A. Starting Head: 13-5/8" 10M top flange x 11-3/4" SOW bottom

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

- Wellhead will be installed by manufacturer's representatives.
- Manufacturer will monitor welding process to ensure appropriate temperature of seal.
- Operator will test the 8-5/8" casing per BLM Onshore Order 2
- Wellhead Manufacturer representative will not be present for BOP test plug installation

4. Cement Program

Surface Casing: 16", 75 New J-55, BTC casing to be set at +/- 402'

Tail: 590 sxs Halcem-C + 2% CaCl (mixed at 14.8 ppg, 1.33 ft³/sx, 6.32 gal/sx water)
Compressives: 12-hr = 900 psi 24 hr = 1500 psi

Top of Cement: Surface

Two additional 1" top out jobs will be attempted after the surface cement job. If the top of cement is not affected by the two top out jobs, ~10-20 ppb gravel will be added on the backside of the 1" to attempt to get cement to surface.

1st Intermediate Casing: 11-3/4", 47 New J-55, BTC casing to be set at +/- 3129'

Lead: 1760 sxs EconoCem-HLTRRC (mixed at 12.4 ppg, 1.39 ft³/sx, 6.32 gal/sx water)
Tail: 180 sxs Halcem-C + 2% CaCl (mixed at 14.8 ppg, 1.39 ft³/sx, 6.33 gal/sx water)
Compressives: 12-hr = 900 psi 24 hr = 1500 psi

Top of Cement: Surface

*2nd Intermediate Casing: 8-5/8", 32 New HCL-80, BTC casing to be set at +/- 7466.2'
ECP/DV Tool to be set at 3229'*

1st Stage

Lead: 740 sxs Halcem-C + 2% CaCl (mixed at 11.5 ppg, 2.11 ft³/sx, 12.58 gal/sx water)
Tail: 170 sxs Halcem-C + 2% CaCl (mixed at 14.2 ppg, 1.2 ft³/sx, 4.95 gal/sx water)
Compressives: 12-hr = 900 psi 24 hr = 1500 psi

2nd Stage

Lead: 10 sxs Halcem-C + 2% CaCl (mixed at 12.2 ppg, 2.16 ft³/sx, 11.77 gal/sx water)
Tail: 150 sxs Halcem-C + 2% CaCl (mixed at 14.8 ppg, 1.33 ft³/sx, 6.32 gal/sx water)
Compressives: 12-hr = 900 psi 24 hr = 1500 psi

Top of Cement: 200' inside previous casing shoe

Production Casing: 5-1/2", 20 New CYP-110, C7S casing to be set at +/- 15692'

Tail: 2490 sxs VersaCem (mixed at 14.8 ppg, 1.14 ft³/sx, 6.32 gal/sx water) Top of Cement: 6966.2 feet
Compressives: 12-hr = 1375 psi 24 hr = 2285 psi

5. Pressure Control Equipment

The blow out preventer equipment (BOP) on surface casing temporary wellhead will consist of a 21-1/4" minimum 2M Hydril with a 16-3/4 3M x 21-1/4 2M DSA. MASP should not exceed 939 psi.

Once the permanent WH is installed on the 11-3/4" casing, the blow out preventer equipment (BOP) will consist of a 13-5/8" minimum 5M Hydril and a 13-5/8" minimum 5M Double Ram BOP. MASP should not exceed 3719 psi. In any instance where 10M BOP is required by BLM, XTO requests a variance to utilize 5M annular with 10M ram preventers (a common BOP configuration, which allows use of 10M rams in unlikely event that pressures exceed 5M). Also a variance is requested to test the 5M annular to 70% of working pressure at 3500 psi.

All BOP testing will be done by an independent service company. Annular pressure tests will be limited to 50% of the working pressure. When nipping up on the 11-3/4", 5M bradenhead and flange, the BOP test will be limited to 5M psi. When nipping up on the 8-5/8", the BOP will be tested to a minimum of 5M psi. All BOP tests will include a low pressure test as per BLM regulations. The 5M BOP diagrams are attached. Blind rams will be functioned tested each trip, pipe rams will be functioned tested each day.

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

XTO requests a variance to be able to batch drill this well if necessary. In doing so, XTO will set casing and ensure that the well is cemented properly and the well is static. With floats holding, no pressure on the csg annulus, and the installation of a 10K TA cap as per GE 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.

6. Proposed Mud Circulation System

INTERVAL	Hole Size	Mud Type	MW (ppg)	Viscosity (sec/qt)	Fluid Loss (cc)
0' - 402'	20"	FW/Native	8.4-8.8	34-40	NC
402' - 3129'	14-3/4"	Brine	9.8-10.2	28-32	NC
3129' to 7466.2'	10-5/8"	FW / Cut Brine	8.8-10.0	30-32	NC
7466.2' to 15692'	7-7/8"	OBM	12.5-13.5	45-55	NC - 20

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

Spud with fresh water/native mud. Drill out from under 16" surface casing with brine solution. A 9.8 ppg -10.2 ppg brine mud will be used while drilling through the salt formation. Use fibrous materials as needed to control seepage and lost circulation. Pump viscous sweeps as needed for hole cleaning. Pump speed will be recorded on a daily drilling report after mudding up. A Pason or Totco EDR 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 11-3/4" casing.

8. Logging, Coring and Testing Program

Mud Logger: Mud Logging Unit (2 man) below intermediate casing.

Open hole logging will not be done on this well.

9. Abnormal Pressures and Temperatures / Potential Hazards

None Anticipated. BHT of 150 to 170 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 5493 psi.

10. Anticipated Starting Date and Duration of Operations

Road and location construction will begin after NMOCD has approved the APD. Anticipated spud date will be soon after the NMOCD approval and as soon as a rig will be available. Move in operations and drilling is expected to take up to 45 days for this well. If production casing is run, an additional 30 days will be needed to complete well and construct surface facilities and/or lay flow lines in order to place well on production.



XTO Permian Operating, LLC

**Eddy Co., NM
Remuda South 25 State
501H**

Wellbore #1

Plan: Design #1

Standard Planning Report

20 May, 2020





Database:	RyanUSA_32Bit	Local Co-ordinate Reference:	Well 501H
Company:	XTO Permian Operating, LLC	TVD Reference:	RT=32(Nabors X09) @ 3097.00ft (Nabors X09)
Project:	Eddy Co., NM	MD Reference:	RT=32(Nabors X09) @ 3097.00ft (Nabors X09)
Site:	Remuda South 25 State	North Reference:	Grid
Well:	501H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Project	Eddy Co., NM		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site		Remuda South 25 State			
Site Position:		Northing:	464,564.400 usft	Latitude:	32° 16' 35.730724 N
From:	Map	Easting:	621,554.200 usft	Longitude:	103° 56' 24.116704 W
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.21 °

Well	501H					
Well Position	+N/-S	0.00 ft	Northing:	464,564.400 usft	Latitude:	32° 16' 35.776195 N
	+E/-W	-1,260.00 ft	Easting:	620,294.200 usft	Longitude:	103° 56' 38.793099 W
Position Uncertainty		2.00 ft	Wellhead Elevation:		Ground Level:	3,065.00 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM_FILE	5/20/2020	6.87	59.98	47,840.60000000

Design	Design #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	179.77

Plan Survey Tool Program		Date	5/20/2020		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	7,516.20	Design #1 (Wellbore #1)	MWD+HRGM	
				OWSG MWD + HRGM	
2	7,516.20	15,691.84	Design #1 (Wellbore #1)	MWD+IFR1+MS	
				OWSG MWD + IFR1 + Multi-St	



Database:	RyanUSA_32Bit	Local Co-ordinate Reference:	Well 501H
Company:	XTO Permian Operating, LLC	TVD Reference:	RT=32(Nabors X09) @ 3097.00ft (Nabors X09)
Project:	Eddy Co., NM	MD Reference:	RT=32(Nabors X09) @ 3097.00ft (Nabors X09)
Site:	Remuda South 25 State	North Reference:	Grid
Well:	501H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,129.00	0.00	0.00	3,129.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,828.35	10.49	224.63	3,824.45	-45.43	-44.85	1.50	1.50	0.00	224.63	
4,926.81	10.49	224.63	4,904.55	-187.77	-185.35	0.00	0.00	0.00	0.00	
5,626.16	0.00	0.01	5,600.00	-233.20	-230.20	1.50	-1.50	0.00	180.00	
7,516.20	0.00	0.01	7,490.04	-233.20	-230.20	0.00	0.00	0.00	0.00	
8,414.63	89.84	179.78	8,063.00	-804.58	-228.02	10.00	10.00	20.01	179.78	
15,691.84	89.84	179.78	8,083.00	-8,081.72	-200.20	0.00	0.00	0.00	0.00	RS 25 S 501H - BHL



Database:	RyanUSA_32Bit	Local Co-ordinate Reference:	Well 501H
Company:	XTO Permian Operating, LLC	TVD Reference:	RT=32(Nabors X09) @ 3097.00ft (Nabors X09)
Project:	Eddy Co., NM	MD Reference:	RT=32(Nabors X09) @ 3097.00ft (Nabors X09)
Site:	Remuda South 25 State	North Reference:	Grid
Well:	501H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,129.00	0.00	0.00	3,129.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	1.07	224.63	3,200.00	-0.47	-0.46	0.47	1.50	1.50	0.00
3,300.00	2.57	224.63	3,299.94	-2.72	-2.69	2.71	1.50	1.50	0.00
3,400.00	4.07	224.63	3,399.77	-6.84	-6.75	6.81	1.50	1.50	0.00
3,500.00	5.57	224.63	3,499.42	-12.81	-12.65	12.76	1.50	1.50	0.00
3,600.00	7.07	224.63	3,598.81	-20.64	-20.37	20.56	1.50	1.50	0.00
3,700.00	8.57	224.63	3,697.88	-30.32	-29.93	30.20	1.50	1.50	0.00
3,800.00	10.07	224.63	3,796.55	-41.84	-41.30	41.67	1.50	1.50	0.00
3,828.35	10.49	224.63	3,824.45	-45.43	-44.85	45.25	1.50	1.50	0.00
3,900.00	10.49	224.63	3,894.90	-54.72	-54.02	54.50	0.00	0.00	0.00
4,000.00	10.49	224.63	3,993.23	-67.68	-66.81	67.41	0.00	0.00	0.00
4,100.00	10.49	224.63	4,091.56	-80.63	-79.60	80.31	0.00	0.00	0.00
4,200.00	10.49	224.63	4,189.89	-93.59	-92.39	93.22	0.00	0.00	0.00
4,300.00	10.49	224.63	4,288.22	-106.55	-105.18	106.12	0.00	0.00	0.00
4,400.00	10.49	224.63	4,386.54	-119.50	-117.97	119.03	0.00	0.00	0.00
4,500.00	10.49	224.63	4,484.87	-132.46	-130.76	131.94	0.00	0.00	0.00
4,600.00	10.49	224.63	4,583.20	-145.42	-143.55	144.84	0.00	0.00	0.00
4,700.00	10.49	224.63	4,681.53	-158.38	-156.34	157.75	0.00	0.00	0.00
4,800.00	10.49	224.63	4,779.86	-171.33	-169.13	170.65	0.00	0.00	0.00
4,900.00	10.49	224.63	4,878.19	-184.29	-181.92	183.56	0.00	0.00	0.00



Database:	RyanUSA_32Bit	Local Co-ordinate Reference:	Well 501H
Company:	XTO Permian Operating, LLC	TVD Reference:	RT=32(Nabors X09) @ 3097.00ft (Nabors X09)
Project:	Eddy Co., NM	MD Reference:	RT=32(Nabors X09) @ 3097.00ft (Nabors X09)
Site:	Remuda South 25 State	North Reference:	Grid
Well:	501H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,926.81	10.49	224.63	4,904.55	-187.77	-185.35	187.02	0.00	0.00	0.00
5,000.00	9.39	224.63	4,976.64	-196.76	-194.23	195.98	1.50	-1.50	0.00
5,100.00	7.89	224.63	5,075.50	-207.45	-204.78	206.63	1.50	-1.50	0.00
5,200.00	6.39	224.63	5,174.72	-216.30	-213.52	215.44	1.50	-1.50	0.00
5,300.00	4.89	224.63	5,274.24	-223.30	-220.42	222.41	1.50	-1.50	0.00
5,400.00	3.39	224.63	5,373.97	-228.44	-225.50	227.53	1.50	-1.50	0.00
5,500.00	1.89	224.63	5,473.86	-231.72	-228.74	230.80	1.50	-1.50	0.00
5,600.00	0.39	224.63	5,573.84	-233.14	-230.14	232.21	1.50	-1.50	0.00
5,626.16	0.00	0.01	5,600.00	-233.20	-230.20	232.27	1.50	-1.50	0.00
5,700.00	0.00	0.00	5,673.84	-233.20	-230.20	232.27	0.00	0.00	0.00
5,800.00	0.00	0.00	5,773.84	-233.20	-230.20	232.27	0.00	0.00	0.00
5,900.00	0.00	0.00	5,873.84	-233.20	-230.20	232.27	0.00	0.00	0.00
6,000.00	0.00	0.00	5,973.84	-233.20	-230.20	232.27	0.00	0.00	0.00
6,100.00	0.00	0.00	6,073.84	-233.20	-230.20	232.27	0.00	0.00	0.00
6,200.00	0.00	0.00	6,173.84	-233.20	-230.20	232.27	0.00	0.00	0.00
6,300.00	0.00	0.00	6,273.84	-233.20	-230.20	232.27	0.00	0.00	0.00
6,400.00	0.00	0.00	6,373.84	-233.20	-230.20	232.27	0.00	0.00	0.00
6,500.00	0.00	0.00	6,473.84	-233.20	-230.20	232.27	0.00	0.00	0.00
6,600.00	0.00	0.00	6,573.84	-233.20	-230.20	232.27	0.00	0.00	0.00
6,700.00	0.00	0.00	6,673.84	-233.20	-230.20	232.27	0.00	0.00	0.00
6,800.00	0.00	0.00	6,773.84	-233.20	-230.20	232.27	0.00	0.00	0.00
6,900.00	0.00	0.00	6,873.84	-233.20	-230.20	232.27	0.00	0.00	0.00
7,000.00	0.00	0.00	6,973.84	-233.20	-230.20	232.27	0.00	0.00	0.00
7,100.00	0.00	0.00	7,073.84	-233.20	-230.20	232.27	0.00	0.00	0.00
7,200.00	0.00	0.00	7,173.84	-233.20	-230.20	232.27	0.00	0.00	0.00
7,300.00	0.00	0.00	7,273.84	-233.20	-230.20	232.27	0.00	0.00	0.00
7,400.00	0.00	0.00	7,373.84	-233.20	-230.20	232.27	0.00	0.00	0.00
7,500.00	0.00	0.00	7,473.84	-233.20	-230.20	232.27	0.00	0.00	0.00
7,516.20	0.00	0.01	7,490.04	-233.20	-230.20	232.27	0.00	0.00	0.00
7,550.00	3.38	179.78	7,523.82	-234.20	-230.20	233.27	10.00	10.00	0.00
7,600.00	8.38	179.78	7,573.54	-239.32	-230.18	238.39	10.00	10.00	0.00
7,650.00	13.38	179.78	7,622.63	-248.75	-230.14	247.83	10.00	10.00	0.00
7,700.00	18.38	179.78	7,670.70	-262.43	-230.09	261.50	10.00	10.00	0.00
7,750.00	23.38	179.78	7,717.40	-280.24	-230.02	279.32	10.00	10.00	0.00
7,800.00	28.38	179.78	7,762.38	-302.06	-229.94	301.13	10.00	10.00	0.00
7,850.00	33.38	179.78	7,805.27	-327.71	-229.84	326.79	10.00	10.00	0.00
7,900.00	38.38	179.78	7,845.77	-357.01	-229.73	356.08	10.00	10.00	0.00
7,950.00	43.38	179.78	7,883.57	-389.72	-229.60	388.80	10.00	10.00	0.00
8,000.00	48.38	179.78	7,918.36	-425.60	-229.47	424.68	10.00	10.00	0.00
8,050.00	53.38	179.78	7,949.90	-464.38	-229.32	463.46	10.00	10.00	0.00
8,100.00	58.38	179.78	7,977.94	-505.76	-229.16	504.84	10.00	10.00	0.00
8,150.00	63.38	179.78	8,002.26	-549.43	-228.99	548.50	10.00	10.00	0.00
8,200.00	68.38	179.78	8,022.69	-595.05	-228.82	594.13	10.00	10.00	0.00
8,250.00	73.38	179.78	8,039.06	-642.27	-228.64	641.35	10.00	10.00	0.00
8,300.00	78.38	179.78	8,051.25	-690.75	-228.45	689.83	10.00	10.00	0.00
8,350.00	83.38	179.78	8,059.18	-740.10	-228.26	739.18	10.00	10.00	0.00
8,400.00	88.38	179.78	8,062.77	-789.95	-228.07	789.03	10.00	10.00	0.00
8,414.63	89.84	179.78	8,063.00	-804.58	-228.02	803.66	10.00	10.00	0.00
8,500.00	89.84	179.78	8,063.23	-889.95	-227.69	889.03	0.00	0.00	0.00
8,600.00	89.84	179.78	8,063.51	-989.95	-227.31	989.03	0.00	0.00	0.00
8,700.00	89.84	179.78	8,063.78	-1,089.95	-226.93	1,089.03	0.00	0.00	0.00
8,800.00	89.84	179.78	8,064.06	-1,189.95	-226.54	1,189.03	0.00	0.00	0.00



Database:	RyanUSA_32Bit	Local Co-ordinate Reference:	Well 501H
Company:	XTO Permian Operating, LLC	TVD Reference:	RT=32(Nabors X09) @ 3097.00ft (Nabors X09)
Project:	Eddy Co., NM	MD Reference:	RT=32(Nabors X09) @ 3097.00ft (Nabors X09)
Site:	Remuda South 25 State	North Reference:	Grid
Well:	501H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,900.00	89.84	179.78	8,064.33	-1,289.95	-226.16	1,289.03	0.00	0.00	0.00
9,000.00	89.84	179.78	8,064.60	-1,389.95	-225.78	1,389.03	0.00	0.00	0.00
9,100.00	89.84	179.78	8,064.88	-1,489.94	-225.40	1,489.03	0.00	0.00	0.00
9,200.00	89.84	179.78	8,065.15	-1,589.94	-225.01	1,589.03	0.00	0.00	0.00
9,300.00	89.84	179.78	8,065.43	-1,689.94	-224.63	1,689.03	0.00	0.00	0.00
9,400.00	89.84	179.78	8,065.70	-1,789.94	-224.25	1,789.03	0.00	0.00	0.00
9,500.00	89.84	179.78	8,065.98	-1,889.94	-223.87	1,889.03	0.00	0.00	0.00
9,600.00	89.84	179.78	8,066.25	-1,989.94	-223.49	1,989.03	0.00	0.00	0.00
9,700.00	89.84	179.78	8,066.53	-2,089.94	-223.10	2,089.03	0.00	0.00	0.00
9,800.00	89.84	179.78	8,066.80	-2,189.94	-222.72	2,189.03	0.00	0.00	0.00
9,900.00	89.84	179.78	8,067.08	-2,289.94	-222.34	2,289.03	0.00	0.00	0.00
10,000.00	89.84	179.78	8,067.35	-2,389.93	-221.96	2,389.02	0.00	0.00	0.00
10,100.00	89.84	179.78	8,067.63	-2,489.93	-221.57	2,489.02	0.00	0.00	0.00
10,200.00	89.84	179.78	8,067.90	-2,589.93	-221.19	2,589.02	0.00	0.00	0.00
10,300.00	89.84	179.78	8,068.18	-2,689.93	-220.81	2,689.02	0.00	0.00	0.00
10,400.00	89.84	179.78	8,068.45	-2,789.93	-220.43	2,789.02	0.00	0.00	0.00
10,500.00	89.84	179.78	8,068.73	-2,889.93	-220.05	2,889.02	0.00	0.00	0.00
10,600.00	89.84	179.78	8,069.00	-2,989.93	-219.66	2,989.02	0.00	0.00	0.00
10,700.00	89.84	179.78	8,069.28	-3,089.93	-219.28	3,089.02	0.00	0.00	0.00
10,800.00	89.84	179.78	8,069.55	-3,189.93	-218.90	3,189.02	0.00	0.00	0.00
10,900.00	89.84	179.78	8,069.83	-3,289.93	-218.52	3,289.02	0.00	0.00	0.00
11,000.00	89.84	179.78	8,070.10	-3,389.92	-218.13	3,389.02	0.00	0.00	0.00
11,100.00	89.84	179.78	8,070.38	-3,489.92	-217.75	3,489.02	0.00	0.00	0.00
11,200.00	89.84	179.78	8,070.65	-3,589.92	-217.37	3,589.02	0.00	0.00	0.00
11,300.00	89.84	179.78	8,070.93	-3,689.92	-216.99	3,689.02	0.00	0.00	0.00
11,400.00	89.84	179.78	8,071.20	-3,789.92	-216.61	3,789.02	0.00	0.00	0.00
11,500.00	89.84	179.78	8,071.48	-3,889.92	-216.22	3,889.02	0.00	0.00	0.00
11,600.00	89.84	179.78	8,071.75	-3,989.92	-215.84	3,989.02	0.00	0.00	0.00
11,700.00	89.84	179.78	8,072.03	-4,089.92	-215.46	4,089.02	0.00	0.00	0.00
11,800.00	89.84	179.78	8,072.30	-4,189.92	-215.08	4,189.02	0.00	0.00	0.00
11,900.00	89.84	179.78	8,072.58	-4,289.91	-214.69	4,289.02	0.00	0.00	0.00
12,000.00	89.84	179.78	8,072.85	-4,389.91	-214.31	4,389.02	0.00	0.00	0.00
12,100.00	89.84	179.78	8,073.13	-4,489.91	-213.93	4,489.02	0.00	0.00	0.00
12,200.00	89.84	179.78	8,073.40	-4,589.91	-213.55	4,589.02	0.00	0.00	0.00
12,300.00	89.84	179.78	8,073.68	-4,689.91	-213.17	4,689.02	0.00	0.00	0.00
12,400.00	89.84	179.78	8,073.95	-4,789.91	-212.78	4,789.02	0.00	0.00	0.00
12,500.00	89.84	179.78	8,074.23	-4,889.91	-212.40	4,889.02	0.00	0.00	0.00
12,600.00	89.84	179.78	8,074.50	-4,989.91	-212.02	4,989.01	0.00	0.00	0.00
12,700.00	89.84	179.78	8,074.78	-5,089.91	-211.64	5,089.01	0.00	0.00	0.00
12,800.00	89.84	179.78	8,075.05	-5,189.90	-211.25	5,189.01	0.00	0.00	0.00
12,900.00	89.84	179.78	8,075.33	-5,289.90	-210.87	5,289.01	0.00	0.00	0.00
13,000.00	89.84	179.78	8,075.60	-5,389.90	-210.49	5,389.01	0.00	0.00	0.00
13,100.00	89.84	179.78	8,075.88	-5,489.90	-210.11	5,489.01	0.00	0.00	0.00
13,200.00	89.84	179.78	8,076.15	-5,589.90	-209.73	5,589.01	0.00	0.00	0.00
13,300.00	89.84	179.78	8,076.43	-5,689.90	-209.34	5,689.01	0.00	0.00	0.00
13,400.00	89.84	179.78	8,076.70	-5,789.90	-208.96	5,789.01	0.00	0.00	0.00
13,500.00	89.84	179.78	8,076.98	-5,889.90	-208.58	5,889.01	0.00	0.00	0.00
13,600.00	89.84	179.78	8,077.25	-5,989.90	-208.20	5,989.01	0.00	0.00	0.00
13,700.00	89.84	179.78	8,077.52	-6,089.89	-207.81	6,089.01	0.00	0.00	0.00
13,800.00	89.84	179.78	8,077.80	-6,189.89	-207.43	6,189.01	0.00	0.00	0.00
13,900.00	89.84	179.78	8,078.07	-6,289.89	-207.05	6,289.01	0.00	0.00	0.00
14,000.00	89.84	179.78	8,078.35	-6,389.89	-206.67	6,389.01	0.00	0.00	0.00



Database:	RyanUSA_32Bit	Local Co-ordinate Reference:	Well 501H
Company:	XTO Permian Operating, LLC	TVD Reference:	RT=32(Nabors X09) @ 3097.00ft (Nabors X09)
Project:	Eddy Co., NM	MD Reference:	RT=32(Nabors X09) @ 3097.00ft (Nabors X09)
Site:	Remuda South 25 State	North Reference:	Grid
Well:	501H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
14,100.00	89.84	179.78	8,078.62	-6,489.89	-206.28	6,489.01	0.00	0.00	0.00
14,200.00	89.84	179.78	8,078.90	-6,589.89	-205.90	6,589.01	0.00	0.00	0.00
14,300.00	89.84	179.78	8,079.17	-6,689.89	-205.52	6,689.01	0.00	0.00	0.00
14,400.00	89.84	179.78	8,079.45	-6,789.89	-205.14	6,789.01	0.00	0.00	0.00
14,500.00	89.84	179.78	8,079.72	-6,889.89	-204.76	6,889.01	0.00	0.00	0.00
14,600.00	89.84	179.78	8,080.00	-6,989.88	-204.37	6,989.01	0.00	0.00	0.00
14,700.00	89.84	179.78	8,080.27	-7,089.88	-203.99	7,089.01	0.00	0.00	0.00
14,800.00	89.84	179.78	8,080.55	-7,189.88	-203.61	7,189.01	0.00	0.00	0.00
14,900.00	89.84	179.78	8,080.82	-7,289.88	-203.23	7,289.01	0.00	0.00	0.00
15,000.00	89.84	179.78	8,081.10	-7,389.88	-202.84	7,389.01	0.00	0.00	0.00
15,100.00	89.84	179.78	8,081.37	-7,489.88	-202.46	7,489.01	0.00	0.00	0.00
15,200.00	89.84	179.78	8,081.65	-7,589.88	-202.08	7,589.01	0.00	0.00	0.00
15,300.00	89.84	179.78	8,081.92	-7,689.88	-201.70	7,689.00	0.00	0.00	0.00
15,400.00	89.84	179.78	8,082.20	-7,789.88	-201.32	7,789.00	0.00	0.00	0.00
15,500.00	89.84	179.78	8,082.47	-7,889.87	-200.93	7,889.00	0.00	0.00	0.00
15,600.00	89.84	179.78	8,082.75	-7,989.87	-200.55	7,989.00	0.00	0.00	0.00
15,691.84	89.84	179.78	8,083.00	-8,081.72	-200.20	8,080.85	0.00	0.00	0.00

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
RS 25 S 501H - FTP	0.00	0.01	8,063.00	-633.20	-230.20	463,931.200	620,064.000	32° 16' 29.518258 N	103° 56' 41.501157 W
- plan misses target center by 25.61ft at 8249.26ft MD (8038.85 TVD, -641.57 N, -228.64 E)									
- Point									
RS 25 S 501H - LTP	0.00	0.00	8,082.00	-7,951.72	-201.00	456,612.700	620,093.200	32° 15' 17.092674 N	103° 56' 41.469592 W
- plan misses target center by 0.71ft at 15561.84ft MD (8082.64 TVD, -7951.71 N, -200.70 E)									
- Point									
RS 25 S 501H - BHL	0.00	0.00	8,083.00	-8,081.72	-200.20	456,482.700	620,094.000	32° 15' 15.806152 N	103° 56' 41.465753 W
- plan hits target center									
- Point									



Database:	RyanUSA_32Bit	Local Co-ordinate Reference:	Well 501H
Company:	XTO Permian Operating, LLC	TVD Reference:	RT=32(Nabors X09) @ 3097.00ft (Nabors X09)
Project:	Eddy Co., NM	MD Reference:	RT=32(Nabors X09) @ 3097.00ft (Nabors X09)
Site:	Remuda South 25 State	North Reference:	Grid
Well:	501H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
0.00	0.00	Dewey Lake (Alluvium)				
84.00	84.00	Rustler				
222.00	222.00	Salado				
427.00	427.00	Estimated Top of Salt				
3,029.00	3,029.00	Base of Salt				
3,231.01	3,231.00	Delaware Mountain Group				
3,287.05	3,287.00	Bell Canyon Sandstone				
4,153.33	4,144.00	Cherry Canyon Sandstone				
5,709.16	5,683.00	Brushy Canyon Sandstone				
6,714.16	6,688.00	Basal Brushy Canyon Sandstone				
6,958.16	6,932.00	Bone Spring				
7,138.16	7,112.00	Avalon Shale				
7,482.16	7,456.00	Avalon Limestone				
7,715.13	7,685.00	Lower Avalon Shale				
8,144.99	8,000.00	1st Bone Spring Sandstone				
8,416.22	8,063.00	LP				
15,691.84	8,083.00	TD				

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 (OOGO) No. 2, 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. OOGO No. 2, Section I.D.2 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 OOGO No. 2, Section IV., XTO Energy submits this request for the variance.

Supporting Documentation

OOGO No. 2 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 OOGO No. 2 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. OOGO No. 2 recognizes API recommended Practices (RP) 53 in its original development. API Standard 53, *Well Control Equipment Systems for Drilling Wells* (Fifth Edition, December 2018, Annex C, Table C.4) recognizes break testing as an acceptable practice. Specifically, API Standard 53, Section 5.3.7.1 states “A pressure test of the pressure containing component shall be performed following the disconnection or repair, limited to the affected component.” See Table C.4 below for reference.

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API STANDARD 53

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

Component to be Pressure Tested	Pressure Test—Low Pressure ^{ac} psig (MPa)	Pressure Test—High Pressure ^{ac}	
		Change Out of Component, Elastomer, or Ring Gasket	No Change Out of Component, Elastomer, or Ring Gasket
Annular preventer ^b	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 ^{bd}	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 ^e	250 to 350 (1.72 to 2.41)	RWP of ram preventers or wellhead system, whichever is lower	ITP
Choke manifold—downstream of chokes ^e	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	

^a 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.

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

^c 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.

^d 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.

^e 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.

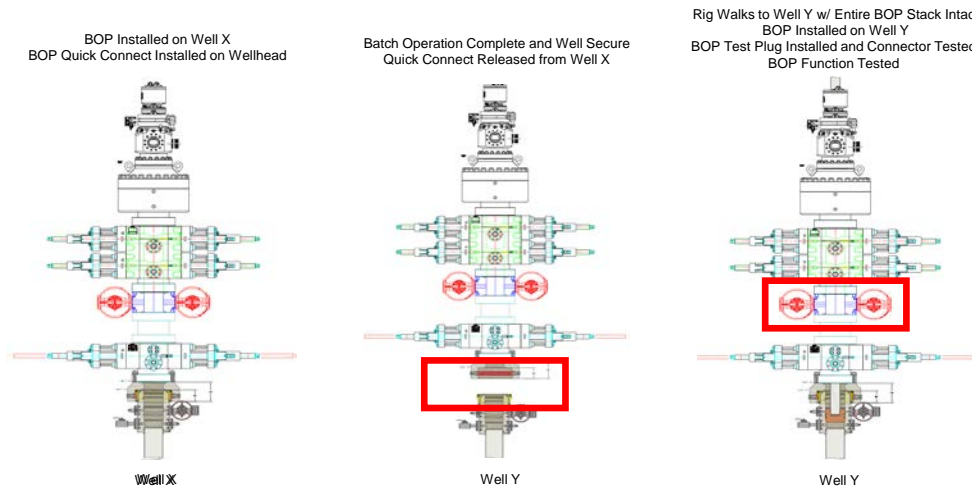
XTO Energy feels break testing and our current procedures meet the intent of OOGO No. 2 and often exceed it. There has been no evidence that break testing results in more components failing than seen on full BOP tests. XTO Energy's internal standards requires complete BOPE tests more often than that of OOGO No. 2 (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 OOGO No.2.

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.

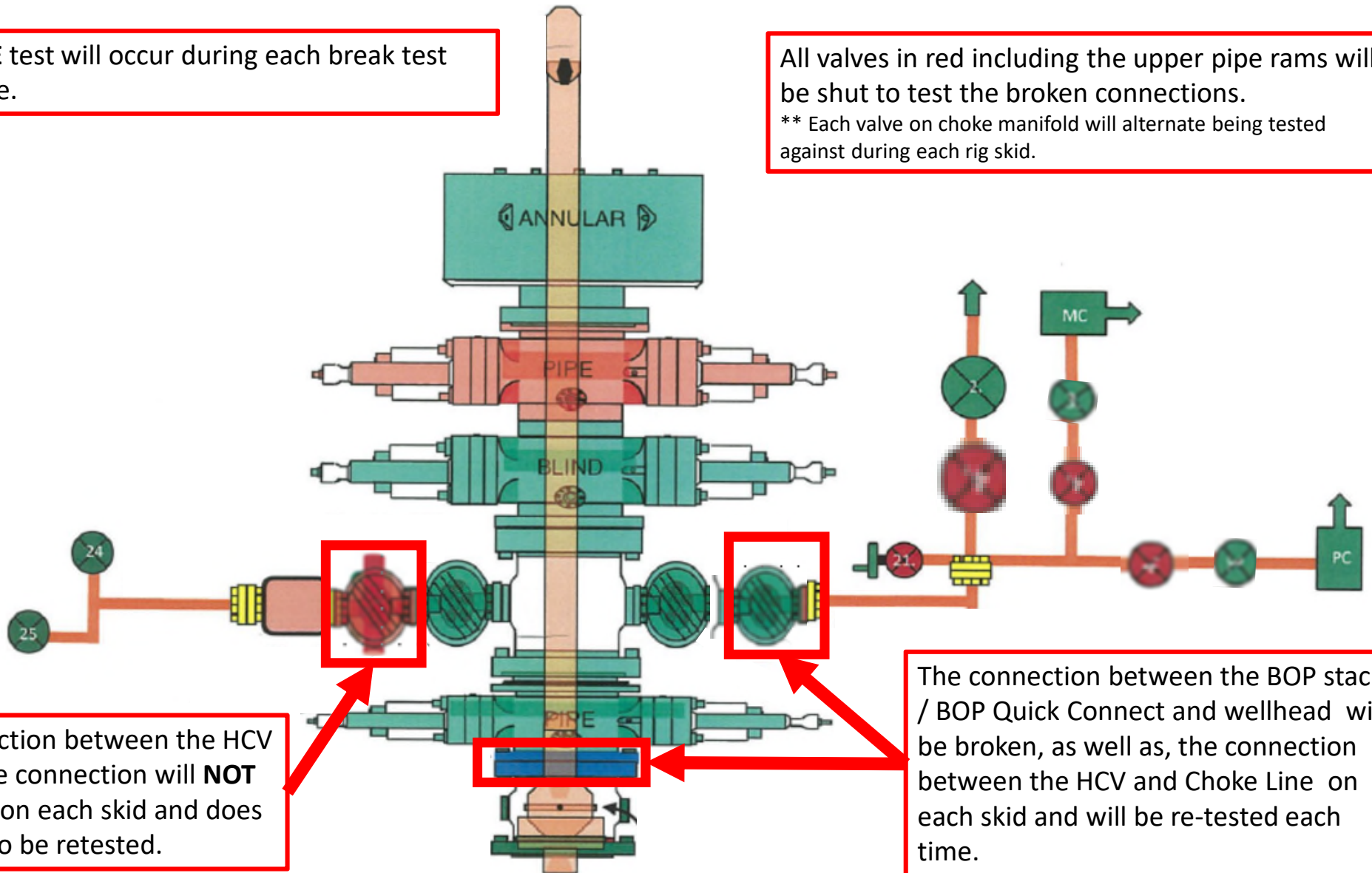
The BOP will be secured by a hydraulic carrier or cradle. The BLM will be contacted if a Well Control event occurs prior to the commencement of a BOPE Break Testing operation.

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 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 180 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.