

Form 3160-3
(June 2015)FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER 1b. Type of Well: <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other 1c. Type of Completion: <input type="checkbox"/> Hydraulic Fracturing <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		5. Lease Serial No. NMNM0000506A 6. If Indian, Allottee or Tribe Name 7. If Unit or CA Agreement, Name and No. POKER LAKE / NMNM 071016X 8. Lease Name and Well No. POKER LAKE UNIT 16 TWR 108H
2. Name of Operator XTO PERMIAN OPERATING LLC		9. API Well No. 30 015 47371
3a. Address 6401 Holiday Hill Road, Bldg 5, Midland, TX 79707	3b. Phone No. (include area code) (432) 682-8873	10. Field and Pool, or Exploratory PURPLE SAGE WOLFCAMP GAS
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface NWNE / 550 FNL / 1650 FEL / LAT 32.208579 / LONG -103.779567 At proposed prod. zone SESE / 200 FSL / 331 FEL / LAT 32.181609 / LONG -103.775253		11. Sec., T. R. M. or Blk. and Survey or Area SEC 21/T24S/R31E/NMP
14. Distance in miles and direction from nearest town or post office*		12. County or Parish EDDY
13. State NM		
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 330 feet	16. No of acres in lease 1845.12	17. Spacing Unit dedicated to this well 640.0
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 30 feet	19. Proposed Depth 11728 feet / 22212 feet	20. BLM/BIA Bond No. in file FED: COB000050
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3514 feet	22. Approximate date work will start* 07/01/2020	23. Estimated duration 30 days
24. Attachments		

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

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

25. Signature (Electronic Submission)	Name (Printed/Typed) KELLY KARDOS / Ph: (432) 682-8873	Date 03/24/2020
Title Regulatory Coordinator		
Approved by (Signature) (Electronic Submission)	Name (Printed/Typed) Cody Layton / Ph: (575) 234-5959	Date 06/30/2020
Title Assistant Field Manager Lands & Minerals		
Office Carlsbad Field Office		

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

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.



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

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

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

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-015-47371		² Pool Code 98220	³ Pool Name Purple Sage; Wolfcamp
⁴ Property Code 328301	⁵ Property Name POKER LAKE UNIT 16 TWR		⁶ Well Number 108H
⁷ OGRID No. 373075	⁸ Operator Name XTO PERMIAN OPERATING, LLC.		⁹ Elevation 3,514'

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
B	21	24 S	31 E		550	NORTH	1,650	EAST	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
P	28	24 S	31 E		200	SOUTH	331	EAST	EDDY

¹² Dedicated Acres 640	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.

<p>¹⁶</p>	<p>SHL (NAD83 NME)</p> <p>Y = 440,056.5 X = 712,609.9 LAT. = 32.208579 "N LONG. = 103.779567 "W</p> <p>FTP (NAD83 NME)</p> <p>Y = 440,283.9 X = 713,927.8 LAT. = 32.209186 "N LONG. = 103.775302 "W</p> <p>CORNER COORDINATES (NAD83 NME)</p> <p>A - Y = 440,615.7 N, X = 714,257.0 E B - Y = 440,608.3 N, X = 712,938.3 E C - Y = 437,975.6 N, X = 714,270.8 E D - Y = 437,968.6 N, X = 712,953.3 E E - Y = 435,336.0 N, X = 714,291.7 E F - Y = 435,328.1 N, X = 712,971.9 E G - Y = 432,694.6 N, X = 714,308.9 E H - Y = 432,686.9 N, X = 712,989.1 E I - Y = 430,053.9 N, X = 714,327.6 E J - Y = 430,046.0 N, X = 713,007.1 E</p>	<p>LTP (NAD83 NME)</p> <p>Y = 430,381.9 X = 713,994.3 LAT. = 32.181966 "N LONG. = 103.775253 "W</p> <p>BHL (NAD83 NME)</p> <p>Y = 430,251.9 X = 713,995.2 LAT. = 32.181609 "N LONG. = 103.775253 "W</p> <p>CORNER COORDINATES (NAD27 NME)</p> <p>SHL (NAD27 NME)</p> <p>Y = 439,997.6 X = 671,425.8 LAT. = 32.208456 "N LONG. = 103.779083 "W</p> <p>FTP (NAD27 NME)</p> <p>Y = 440,225.0 X = 672,743.8 LAT. = 32.209062 "N LONG. = 103.774819 "W</p> <p>CORNER COORDINATES (NAD27 NME)</p> <p>A - Y = 440,556.9 N, X = 673,073.0 E B - Y = 440,549.4 N, X = 671,754.3 E C - Y = 437,916.8 N, X = 673,086.7 E D - Y = 437,909.8 N, X = 671,769.2 E E - Y = 435,277.3 N, X = 673,107.5 E F - Y = 435,269.4 N, X = 671,787.7 E G - Y = 432,636.0 N, X = 673,124.6 E H - Y = 432,628.2 N, X = 671,804.8 E I - Y = 429,995.3 N, X = 673,143.2 E J - Y = 429,987.4 N, X = 671,822.7 E</p>	<p>¹⁷ OPERATOR CERTIFICATION</p> <p>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.</p> <p><i>Stephanie Rabadue</i> 03/03/2020 Signature Date</p> <p>Stephanie Rabadue Printed Name</p> <p>stephanie_rabadue@xtoenergy.com E-mail Address</p>
	<p>SEC. 16</p> <p>SEC. 21 T24S R31E</p> <p>SEC. 28</p> <p>SEC. 33</p>	<p>SHL (NAD27 NME)</p> <p>Y = 439,997.6 X = 671,425.8 LAT. = 32.208456 "N LONG. = 103.779083 "W</p> <p>FTP (NAD27 NME)</p> <p>Y = 440,225.0 X = 672,743.8 LAT. = 32.209062 "N LONG. = 103.774819 "W</p> <p>CORNER COORDINATES (NAD27 NME)</p> <p>A - Y = 440,556.9 N, X = 673,073.0 E B - Y = 440,549.4 N, X = 671,754.3 E C - Y = 437,916.8 N, X = 673,086.7 E D - Y = 437,909.8 N, X = 671,769.2 E E - Y = 435,277.3 N, X = 673,107.5 E F - Y = 435,269.4 N, X = 671,787.7 E G - Y = 432,636.0 N, X = 673,124.6 E H - Y = 432,628.2 N, X = 671,804.8 E I - Y = 429,995.3 N, X = 673,143.2 E J - Y = 429,987.4 N, X = 671,822.7 E</p>	<p>¹⁸ SURVEYOR CERTIFICATION</p> <p>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.</p> <p>03-03-2020 Date of Survey</p> <p>Signature and Seal of Professional Surveyor:</p> <p><i>Mark Dillon Harp</i> MARK DILLON HARP 23786 Certificate Number AR/AW 2019030739</p>

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

Submit Original
to Appropriate
District Office

GAS CAPTURE PLAN

Date: 01/15/2020

☒ Original Operator & OGRID No.: XTO Permian Operating [373075]
☐ 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 – Name of facility: Poker Lake Unit 16 TWR East

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 MCF/D	Flared or Vented	Comments
Poker Lake Unit 16 TWR 161H		D-21-24S-31E	492' FNL & 400' FWL	4800	Flared/Sold	
Poker Lake Unit 16 TWR 121H		D-21-24S-31E	522' FNL & 400' FWL	3000	Flared/Sold	
Poker Lake Unit 16 TWR 101H		D-21-24S-31E	552' FNL & 400' FWL	2800	Flared/Sold	
Poker Lake Unit 16 TWR 152H		D-21-24S-31E	492' FNL & 700' FWL	4300	Flared/Sold	
Poker Lake Unit 16 TWR 122H		D-21-24S-31E	522' FNL & 700' FWL	3000	Flared/Sold	
Poker Lake Unit 16 TWR 102H		D-21-24S-31E	552' FNL & 700' FWL	2800	Flared/Sold	
Poker Lake Unit 16 TWR 163H		C-21-24S-31E	485' FNL & 2040' FWL	4800	Flared/Sold	
Poker Lake Unit 16 TWR 123H		C-21-24S-31E	515' FNL & 2040' FWL	3000	Flared/Sold	
Poker Lake Unit 16 TWR 103H		C-21-24S-31E	544' FNL & 2040' FWL	2800	Flared/Sold	
Poker Lake Unit 16 TWR 154H		C-21-24S-31E	485' FNL & 2290' FWL	4300	Flared/Sold	
Poker Lake Unit 16 TWR 124H		C-21-24S-31E	515' FNL & 2290' FWL	3000	Flared/Sold	
Poker Lake Unit 16 TWR 104H		C-21-24S-31E	545' FNL & 2290' FWL	2800	Flared/Sold	
Poker Lake Unit 16 TWR 165H		C-21-24S-31E	485' FNL & 2590' FWL	4800	Flared/Sold	
Poker Lake Unit 16 TWR 125H		C-21-24S-31E	515' FNL & 2590' FWL	3000	Flared/Sold	
Poker Lake Unit 16 TWR 105H		C-21-24S-31E	545' FNL & 2590' FWL	2800	Flared/Sold	
Poker Lake Unit 16 TWR 156H		B-21-24S-31E	485' FNL & 2437' FEL	4300	Flared/Sold	
Poker Lake Unit 16 TWR 126H		B-21-24S-31E	515' FNL & 2437' FEL	3000	Flared/Sold	
Poker Lake Unit 16 TWR 106H		B-21-24S-31E	545' FNL & 2437' FEL	2800	Flared/Sold	
Poker Lake Unit 16 TWR 167H		B-21-24S-31E	490' FNL & 1950' FEL	4800	Flared/Sold	
Poker Lake Unit 16 TWR 127H		B-21-24S-31E	520' FNL & 1950' FEL	3000	Flared/Sold	
Poker Lake Unit 16 TWR 107H		B-21-24S-31E	550' FNL & 1950' FEL	2800	Flared/Sold	
Poker Lake Unit 16 TWR 158H		A-21-24S-31E	490' FNL & 1650' FEL	4300	Flared/Sold	
Poker Lake Unit 16 TWR 128H		A-21-24S-31E	520' FNL & 1650' FEL	3000	Flared/Sold	
Poker Lake Unit 16 TWR 108H		A-21-24S-31E	550' FNL & 1650' FEL	2800	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 271.84' of pipeline to connect the facility to low/high pressure gathering system. XTO 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 and Lucid have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at Red Hills Plant, Sec. 13, T24S, R33E or Roadrunner, Sec. 32, T32S, R28E, Eddy County. 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 system at that time. Based on current information, it is XTO'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

Intent ☒ As Drilled ☐

API #								
Operator Name: XTO PERMIAN OPERATING, LLC			Property Name: POKER LAKE UNIT 16 TWR			Well Number 108H		

Kick Off Point (KOP)

UL B	Section 21	Township 24S	Range 31E	Lot	Feet 550	From N/S NORTH	Feet 1650	From E/W EAST	County EDDY
Latitude 32.208579					Longitude -103.779567				NAD 83

First Take Point (FTP)

UL A	Section 21	Township 24S	Range 31E	Lot	Feet 330	From N/S NORTH	Feet 331	From E/W EAST	County EDDY
Latitude 32.209186					Longitude -103.775302				NAD 83

Last Take Point (LTP)

UL P	Section 28	Township 24S	Range 31E	Lot	Feet 330	From N/S SOUTH	Feet 331	From E/W EAST	County EDDY
Latitude 32.181966					Longitude -103.775253				NAD 83

Is this well the defining well for the Horizontal Spacing Unit? ☐ NO

Is this well an infill well? ☐ YES

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

API #								
Operator Name: XTO PERMIAN OPERATING, LLC			Property Name: POKER LAKE UNIT 16 TWR			Well Number 125H		

KZ 06/29/2018

PECOS DISTRICT

DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	XTO Permian Operating, LLC
LEASE NO.:	NMNM-0000506A
WELL NAME & NO.:	Poker Lake Unit 16 TWR 108H
SURFACE HOLE FOOTAGE:	0550' FNL & 1650' FEL
BOTTOM HOLE FOOTAGE:	0200' FSL & 0331' FEL Sec. 28, T.24 S., R.31 E.
LOCATION:	Section 21, T.24 S., R.31 E., NMPM
COUNTY:	Eddy County, New Mexico

COA

H2S	<input type="radio"/> Yes	<input checked="" type="radio"/> No	
Potash	<input checked="" type="radio"/> None	<input type="radio"/> Secretary	<input type="radio"/> R-111-P
Cave/Karst Potential	<input checked="" type="radio"/> Low	<input type="radio"/> Medium	<input type="radio"/> High
Cave/Karst Potential	<input type="radio"/> Critical		
Variance	<input type="radio"/> None	<input checked="" type="radio"/> Flex Hose	<input type="radio"/> Other
Wellhead	<input type="radio"/> Conventional	<input checked="" type="radio"/> Multibowl	<input type="radio"/> Both
Other	<input type="checkbox"/> 4 String Area	<input type="checkbox"/> Capitan Reef	<input type="checkbox"/> WIPP
Other	<input checked="" type="checkbox"/> Fluid Filled	<input type="checkbox"/> Cement Squeeze	<input type="checkbox"/> Pilot Hole
Special Requirements	<input type="checkbox"/> Water Disposal	<input type="checkbox"/> COM	<input checked="" type="checkbox"/> Unit

Possibility of water flows in the Salado and Castile.

Possibility of lost circulation in the Red Beds, Rustler, and Delaware.

Abnormal pressure may be encountered in the 3rd Bone Spring and all subsequent formations.

A. HYDROGEN SULFIDE

Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.

B. CASING

1. The **13-3/8** inch surface casing shall be set at approximately **820** feet (a minimum of 70 feet (Eddy County) into the Rustler Anhydrite and above the salt) and cemented to the surface.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
 - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
 - d. If cement falls back, remedial cementing will be done prior to drilling out that string.

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

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:

Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.

- a. First stage to DV tool:
 - Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.
 - b. Second stage above DV tool:
 - Cement to surface. If cement does not circulate, contact the appropriate BLM office.
3. The minimum required fill of cement behind the **5-1/2** inch production casing is:
 - Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification. **Excess calculates to 20% - Additional cement may be required.**

C. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).'
2. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi.
 - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
 - c. Manufacturer representative shall install the test plug for the initial BOP test.
 - d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
 - e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

D. SPECIAL REQUIREMENT (S)

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.

GENERAL REQUIREMENTS

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

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

☒ Eddy County

Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,
(575) 361-2822

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
 - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
 - b. When the operator proposes to set surface casing with Spudder Rig
 - Notify the BLM when moving in and removing the Spudder Rig.
 - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
 - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.
2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.
3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.
2. Wait on cement (WOC) for 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.
3. 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.
4. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
5. 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.
6. 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.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.

2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.
3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.
5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
 - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).
 - b. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer.
 - c. 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.
 - d. The results of the test shall be reported to the appropriate BLM office.
 - e. 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.

- f. 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.
- g. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

C. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

D. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

JAM 06242020



APD ID: 10400055357

Submission Date: 03/24/2020

Highlighted data
reflects the most
recent changes

Operator Name: XTO PERMIAN OPERATING LLC

Well Name: POKER LAKE UNIT 16 TWR

Well Number: 108H

[Show Final Text](#)

Well Type: CONVENTIONAL GAS WELL

Well Work Type: Drill

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
694456	PERMIAN	3514	0	0	OTHER : Quaternary	NONE	N
694447	RUSTLER	2874	640	640	SILTSTONE	USEABLE WATER	N
694448	TOP SALT	2544	970	970	SALT	OTHER : Produced Water	N
694449	BASE OF SALT	-676	4190	4190	SALT	OTHER : Produced Water	N
694445	DELAWARE	-919	4433	4433	SANDSTONE	NATURAL GAS, OIL, OTHER : Produced Water	N
694446	BONE SPRING	-4746	8260	8260	SANDSTONE	NATURAL GAS, OIL, OTHER : Produced Water	N
694444	BONE SPRING 1ST	-5816	9330	9330	SANDSTONE	NATURAL GAS, OIL, OTHER : Produced Water	N
694443	BONE SPRING 2ND	-6516	10030	10030	SANDSTONE	NATURAL GAS, OIL, OTHER : Produced Water	N
694462	BONE SPRING 3RD	-7658	11172	11172	SANDSTONE	NATURAL GAS, OIL, OTHER : Produced Water	N
694464	WOLFCAMP	-8119	11633	11633	SHALE	NATURAL GAS, OIL, OTHER : Produced Water	Y

Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M

Rating Depth: 11728

Equipment: the blow out preventer equipment (BOP) will consist of a 13-5/8 minimum 5M Hydril and a 13-5/8 minimum 5M 3-Ram BOP. MASP should not exceed 4311 psi.

Requesting Variance? YES

Variance request: 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. 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. Permanent Wellhead – GE RSH Multibowl System

A. Starting Head (RSH System): 13-3/8" SOW bottom x 13-5/8" 5M top flange B. Tubing Head: 13-5/8" 5M bottom flange x 7-1/16" 10M 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 9-5/8" casing per Onshore Order 2.

Operator Name: XTO PERMIAN OPERATING LLC

Well Name: POKER LAKE UNIT 16 TWR

Well Number: 108H

Wellhead manufacturer representative may not be present for BOP test plug installation XTO requests a variance to be able to 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 on each rig skid on the pad. Once surface and intermediate strings are all completed, XTO will begin drilling the production hole on each of the wells.

Testing Procedure: All BOP testing will be done by an independent service company. Annular pressure tests will be limited to 70% of the working pressure. When nipping up on the 13-3/8", 5M bradenhead and flange, the BOP test will be limited to 5000 psi. All BOP tests will include a low pressure test as per BLM regulations. The 5M BOP diagrams are attached. Blind rams will be functioned tested each trip, pipe rams will be functioned tested each day.

Choke Diagram Attachment:

PLU_16_TWR_5MCM_20200311113937.pdf

PLU_16_TWR_10MCM_20200311113951.pdf

BOP Diagram Attachment:

PLU_16_TWR_5M10MBOP_20200304111945.pdf

PLU_16_TWR_5MBOP_20200311114003.pdf

Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	17.5	13.375	NEW	API	N	0	820	0	820	3514	2694	820	J-55	68	BUTT	5.26	1.25	BUOY	19.17	DRY	19.17
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	10435	0	10435	3506	-6921	10435	HCL-80	40	BUTT	1.38	1.25	DRY	2.19	DRY	2.19
3	PRODUCTION	8.75	5.5	NEW	API	N	0	22212	0	11728	3370	-8214	22212	P-110	20	BUTT	1.61	1.18	DRY	2.04	DRY	2.04

Casing Attachments

Operator Name: XTO PERMIAN OPERATING LLC

Well Name: POKER LAKE UNIT 16 TWR

Well Number: 108H

Casing Attachments

Casing ID: 1 **String Type:** SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

PLU_16_TWR_108H_Csg_20200320082359.pdf

Casing ID: 2 **String Type:** INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

PLU_16_TWR_108H_Csg_20200320082426.pdf

Casing ID: 3 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

PLU_16_TWR_108H_Csg_20200320082508.pdf

Section 4 - Cement

Operator Name: XTO PERMIAN OPERATING LLC

Well Name: POKER LAKE UNIT 16 TWR

Well Number: 108H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	820	380	1.87	12.8	710.6	100	Halcem-C	2% CaCl
SURFACE	Tail				300	1.35	14.8	405	100	Halcem-C	2% CaCl
INTERMEDIATE	Lead		4320	1043 5	620	3.45	11	2139	100	Halcem-C	2% CaCl
INTERMEDIATE	Tail				410	1.32	14.8	541.2	100	Halcem-C	2% CaCl
INTERMEDIATE	Lead	4320	0	1043 5	920	3.45	11	3174	100	Halcem-C	2%CaCl
INTERMEDIATE	Tail				470	1.32	14.8	620.4	100	Halcem-C	2%CaCl
PRODUCTION	Lead		0	2221 2	90	1.88	11.5	169.2	20	Halcem-C	2% CaCl
PRODUCTION	Tail				2620	1.33	11.5	3484. 6	20	VersaCem	none

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

Description of the equipment for the circulating system in accordance with Onshore Order #2:

Diagram of the equipment for the circulating system in accordance with Onshore Order #2:

Describe what will be on location to control well or mitigate other conditions: The necessary mud products for weight addition and fluid loss control will be on location at all times.

Describe the mud monitoring system utilized: A Pason or Totco will be used to detect changes in loss or gain of mud volume.

Circulating Medium Table

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
1043 5	1172 8	OTHER : FW / Cut Brine / Poly /	11	11.8							A mud test will be performed every 24 hours to determine:

Operator Name: XTO PERMIAN OPERATING LLC**Well Name:** POKER LAKE UNIT 16 TWR**Well Number:** 108H

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
		OBM									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
0	820	OTHER : FW/Native	8.4	8.8							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
820	1043.5	OTHER : FW / Cut Brine / Direct Emulsion	8.8	9.8							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

Section 6 - Test, Logging, Coring

List of production tests including testing procedures, equipment and safety measures:

Open hole logging to include Density/Neutron/PE/Dual Laterlog/Spectral Gamma from kick-off point to intermediate casing shoe.

List of open and cased hole logs run in the well:

CEMENT BOND LOG,COMPENSATED NEUTRON LOG,DIRECTIONAL SURVEY,GAMMA RAY LOG,MUD LOG/GEOLOGIC LITHOLOGY LOG,MUD LOG/GEOLOGICAL LITHOLOGY LOG,

Coring operation description for the well:

No coring will take place on this well.

Operator Name: XTO PERMIAN OPERATING LLC

Well Name: POKER LAKE UNIT 16 TWR

Well Number: 108H

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 6891

Anticipated Surface Pressure: 4310

Anticipated Bottom Hole Temperature(F): 165

Anticipated abnormal pressures, temperatures, or potential geologic hazards? NO

Describe:

Potential loss of circulation through the Capitan Reef.

Contingency Plans geohazards description:

The necessary mud products for weight addition and fluid loss control will be on location at all times. A Pason or Totco will be used to detect changes in loss or gain of mud volume. A mud test will be performed every 24 hours to determine: density, viscosity, strength, filtration and pH as necessary. Use available solids controls equipment to help keep mud weight down after mud up. Rig up solids control equipment to operate as a closed loop system. 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.

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

PLU_16_TWR_H2S_Dia_Pad_3E_20200320072326.pdf

PLU_16_TWR_H2S_Dia_Pad_3W_20200320072345.pdf

PLU_16_TWR_H2S_Plan_20200304122105.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

PLU_16_TWR_108H_DD_20200320082747.pdf

Other proposed operations facets description:

The surface fresh water sands will be protected by setting 13-3/8 inch casing @ 820' (156' above the salt) and circulating cement back to surface. A 12-1/4 inch vertical hole will be drilled to 10435' and 9-5/8 inch casing ran and cemented 200' into the 13-3/8 inch casing. An 8-3/4 inch / 8-1/2 inch curve and lateral hole will be drilled to MD/TD and 5-1/2 casing will be set at TD and cemented back 300' into the 9-5/8 inch casing shoe.

9-5/8" Collapse analyzed using 50% 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

Other proposed operations facets attachment:

PLU_16_TWR_GCPE_20200304122649.pdf

PLU_16_TWR_GCPW_20200304122702.pdf

Other Variance attachment:

PLU_16_TWR_FH_20200304122358.pdf

PLU_16_TWR_MBD_20200304122432.pdf

PLU_16_TWR_WWC_20200304122416.pdf

Casing Assumption Worksheet

Hole Size	Depth	OD Csg	Weight	Collar	Grade	New/Used	SF Burst	SF Collapse	SF Tension
17-1/2"	0' – 820'	13-3/8"	68	BTC	J-55	New	1.25	5.26	19.17
12-1/4"	0' – 10435'	9-5/8"	40	BTC	HCL-80	New	1.25	1.38	2.19
8-3/4"	0' – 22212'	5-1/2"	20	BTC	P-110	New	1.18	1.61	2.04

XTO requests to utilize centralizers after KOP and only a minimum of one every 4th joint.

9-5/8" Collapse analyzed using 50% 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

Permanent Wellhead – GE RSH Multibowl System

A. Starting Head (RSH System): 13-3/8" SOW bottom x 13-5/8" 5M top flange

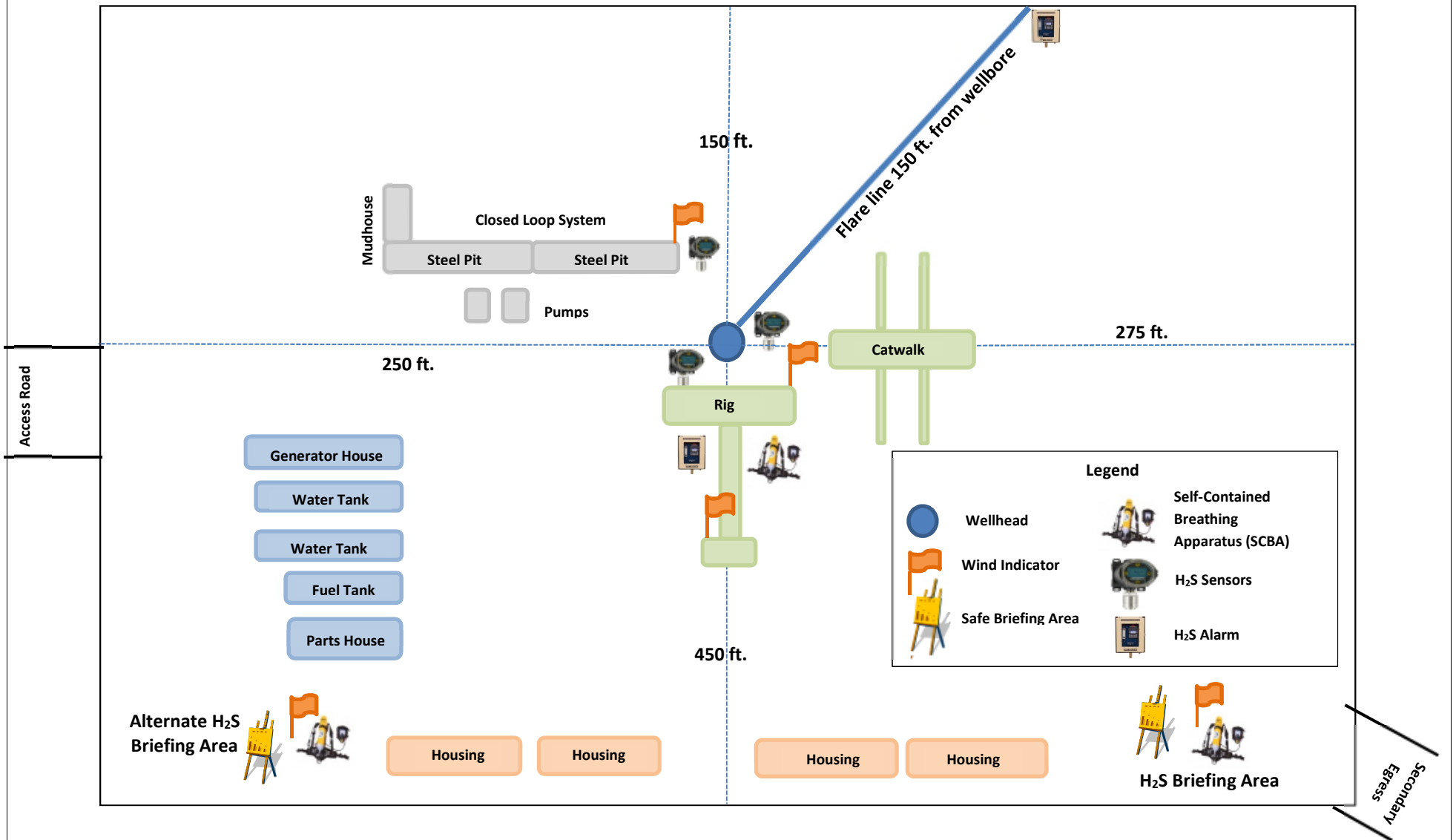
B. Tubing Head: 13-5/8" 5M bottom flange x 7-1/16" 10M top flange

- Wellhead will be installed by manufacturer's representatives.
- Manufacturer will monitor welding process to ensure appropriate temperature of seal.
- Operator will test the 9-5/8" casing per Onshore Order 2.
- Wellhead manufacturer representative may not be present for BOP test plug installation

↑
E

↖
Prevailing Winds
Direction SW

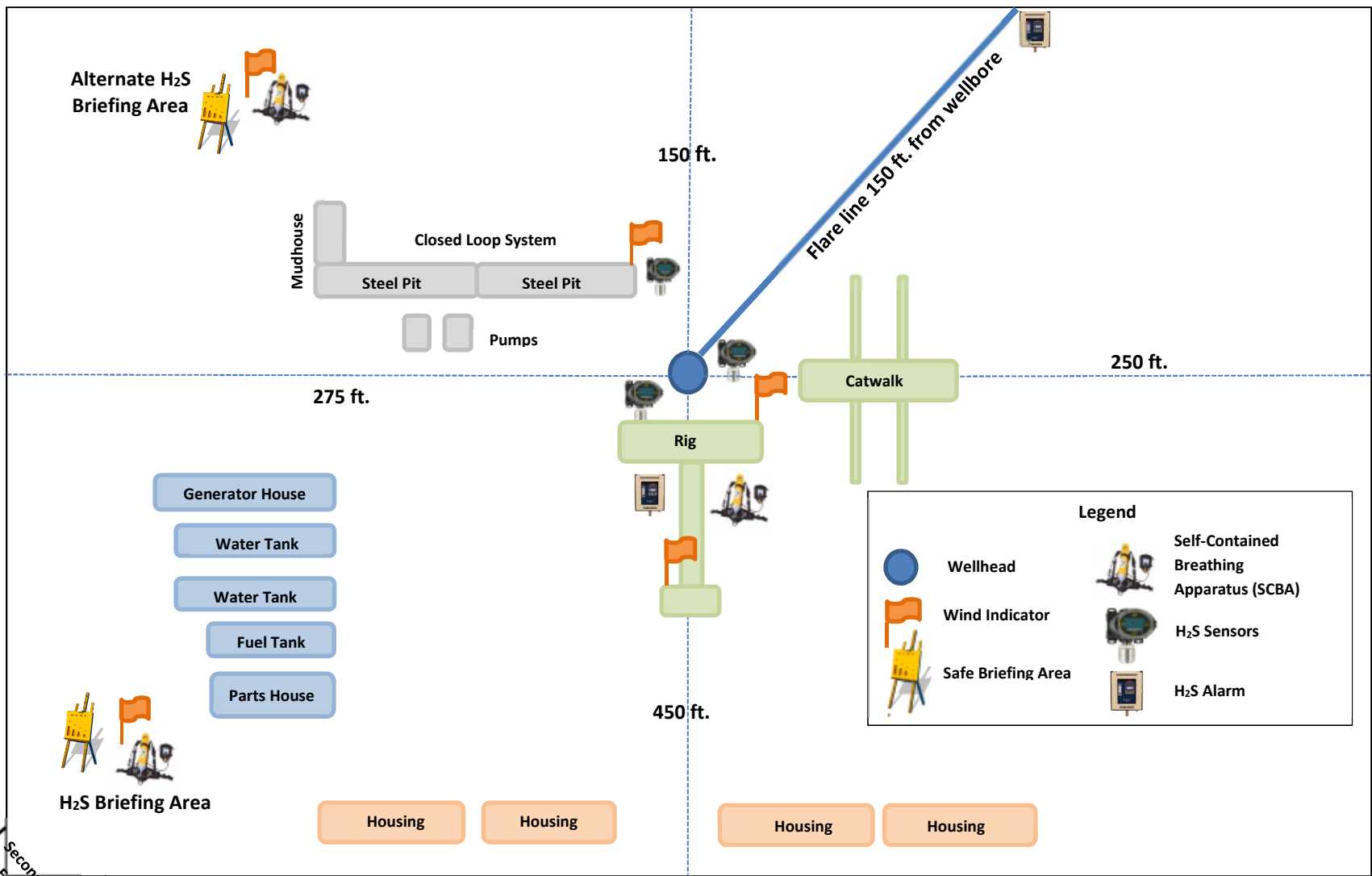
H₂S Briefing Areas and Alarm Locations





Prevailing Winds
Direction SW

H₂S Briefing Areas and Alarm Locations





HYDROGEN SULFIDE (H₂S) CONTINGENCY PLAN

Assumed 100 ppm ROE = 3000'

100 ppm H₂S concentration shall trigger activation of this plan.

Emergency Procedures

In the event of a release of gas containing H₂S, the first responder(s) must

- Isolate the area and prevent entry by other persons into the 100 ppm ROE.
- Evacuate any public places encompassed by the 100 ppm ROE.
- Be equipped with H₂S monitors and air packs in order to control the release.
- Use the "buddy system" to ensure no injuries occur during the response
- Take precautions to avoid personal injury during this operation.
- Contact operator and/or local officials to aid in operation. See list of phone numbers attached.
- Have received training in the
 - o Detection of H₂S, and
 - o Measures for protection against the gas,
 - o Equipment used for protection and emergency response.

Ignition of Gas source

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO₂). Intentional ignition must be coordinated with the NMOCD and local officials. Additionally, the NM State Police may become involved. NM State Police shall be the Incident Command on scene of any major release. Take care to protect downwind whenever this is an ignition of the gas.

Characteristics of H₂S and SO₂

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H ₂ S	1.189 Air = 1	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO ₂	2.21 Air = 1	2 ppm	N/A	1000 ppm

Contacting Authorities

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

CARLSBAD OFFICE – EDDY & LEA COUNTIES

3104 E. Greene St., Carlsbad, NM 88220
Carlsbad, NM

575-887-7329

XTO PERSONNEL:

Kendall Decker, Drilling Manager	903-521-6477
Milton Turman, Drilling Superintendent	817-524-5107
Jeff Raines, Construction Foreman	432-557-3159
Toady Sanders, EH & S Manager	903-520-1601
Wes McSpadden, Production Foreman	575-441-1147

SHERIFF DEPARTMENTS:

Eddy County	575-887-7551
Lea County	575-396-3611

NEW MEXICO STATE POLICE:

575-392-5588

FIRE DEPARTMENTS:

	911
Carlsbad	575-885-2111
Eunice	575-394-2111
Hobbs	575-397-9308
Jal	575-395-2221
Lovington	575-396-2359

HOSPITALS:

	911
Carlsbad Medical Emergency	575-885-2111
Eunice Medical Emergency	575-394-2112
Hobbs Medical Emergency	575-397-9308
Jal Medical Emergency	575-395-2221
Lovington Medical Emergency	575-396-2359

AGENT NOTIFICATIONS:

For Lea County:

Bureau of Land Management – Hobbs	575-393-3612
New Mexico Oil Conservation Division – Hobbs	575-393-6161

For Eddy County:

Bureau of Land Management - Carlsbad	575-234-5972
New Mexico Oil Conservation Division - Artesia	575-748-1283



XTO Energy

Eddy County, NM (NAD-27)

Poker Lake Unit 16 TWR

#108H

OH

Plan: PERMIT v3

Standard Planning Report

09 March, 2020



Project: Eddy County, NM (NAD-27)
Site: Poker Lake Unit 16 TWR
Well: #108H
Wellbore: OH
Design: PERMIT v3

PROJECT DETAILS: Eddy County, NM (NAD-27)
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level

WELL DETAILS: #108H

Rig Name:		RKB = 33' @ 3558.00usft		Ground Level: 3525.00	
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	439997.60	671425.80	32.2084556	-103.7790836

DESIGN TARGET DETAILS

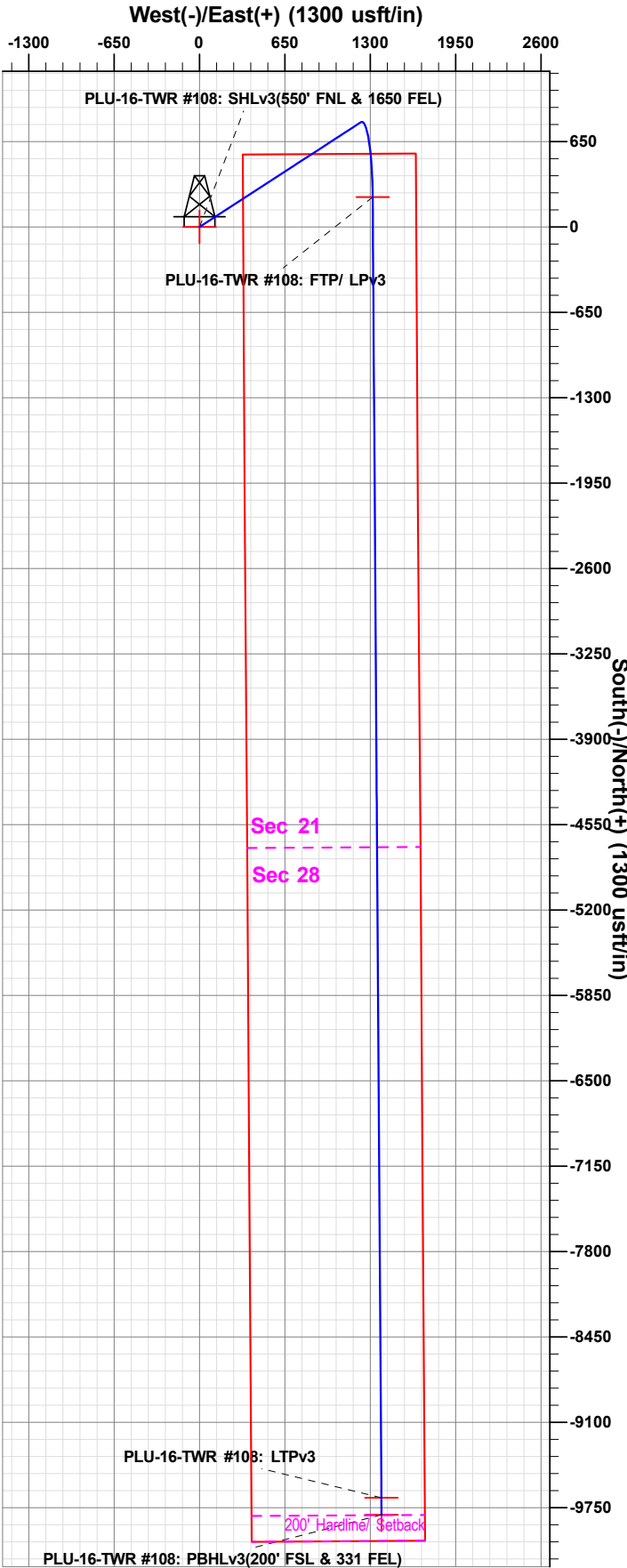
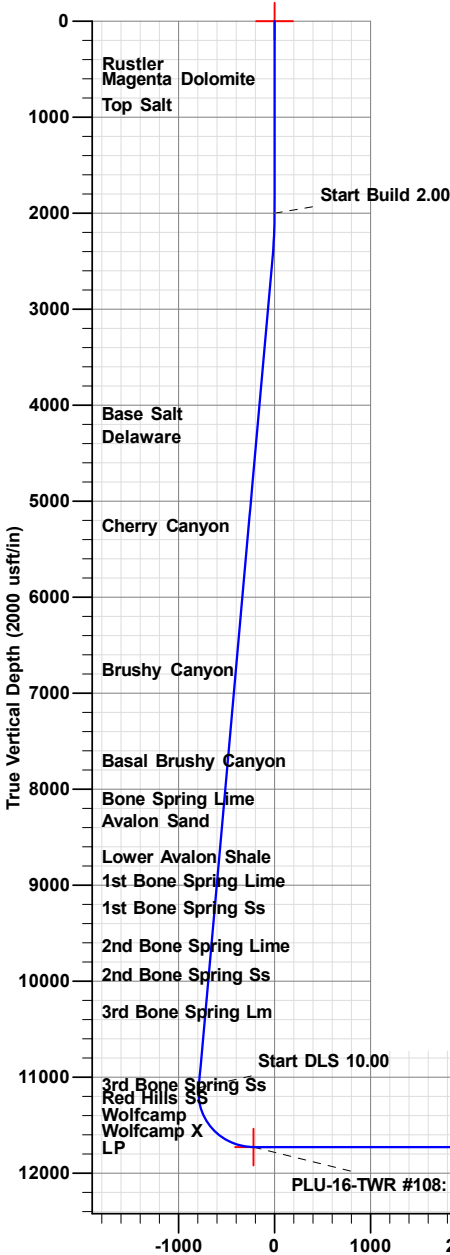
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PLU-16-TWR #108: SHLv3(550' FNL & 1650 FEL)	0.00	0.00	0.00	439997.60	671425.80	32.2084556	-103.7790836	Point
PLU-16-TWR #108: FTP/ LPv3	11728.00	227.60	1318.00	440225.20	672743.80	32.2090625	-103.7748186	Point
PLU-16-TWR #108: LTPv3	11728.00	-9674.30	1384.10	430323.30	672809.90	32.1818424	-103.7747712	Point
PLU-16-TWR #108: PBHLv3(200' FSL & 331 FEL)	11728.00	-9804.30	1385.00	430193.30	672810.80	32.1814851	-103.7747705	Point

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	2000.00	0.00	0.00	2000.00	0.00	0.00	0.00	0.00	0.00
3	2468.53	9.37	57.00	2466.44	20.82	32.06	2.00	57.00	-20.61
4	11229.68	9.37	57.00	11110.69	797.76	1228.39	0.00	0.00	-789.60
5	12180.04	90.00	179.62	11728.00	227.60	1318.00	10.00	122.27	-218.85
6	22212.16	90.00	179.62	11728.00	-9804.30	1385.00	0.00	0.00	9813.27

FORMATION TOP DETAILS

TVDPATH	FORMATION
648.00	Rustler
708.00	Magenta Dolomite
978.00	Top Salt
4198.00	Base Salt
4433.00	Delaware
5358.00	Cherry Canyon
6858.00	Brushy Canyon
7808.00	Basal Brushy Canyon
8268.00	Bone Spring Lime
8338.00	Avalon Sand
8358.00	Upper Avalon Shale
8808.00	Lower Avalon Shale
9058.00	1st Bone Spring Lime
9338.00	1st Bone Spring Ss
9738.00	2nd Bone Spring Lime
10038.00	2nd Bone Spring Ss
10418.00	3rd Bone Spring Lm
11183.00	3rd Bone Spring Ss
11533.00	Red Hills SS
11633.00	Wolfcamp
11643.00	Wolfcamp X
11728.00	LP
11728.00	Wolfcamp Y



Vertical Section at 179.62° (2000 usft/in)

The customer should only rely on this document after independently verifying all paths, targets, coordinates, lease and hard lines represented. Any decisions made or wells drilled utilizing this or any other information supplied by Prototype are at the sole risk and responsibility of the user.

Plan: PERMIT v3 (#108H/OH)

Created By: Matthew May Date: 12:17, March 09 2020



Planning Report

Database:	EDM 5000.1.13 Single User Db	Local Co-ordinate Reference:	Well #108H
Company:	XTO Energy	TVD Reference:	RKB = 33' @ 3558.00usft
Project:	Eddy County, NM (NAD-27)	MD Reference:	RKB = 33' @ 3558.00usft
Site:	Poker Lake Unit 16 TWR	North Reference:	Grid
Well:	#108H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PERMIT v3		

Project	Eddy County, NM (NAD-27)		
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		Poker Lake Unit 16 TWR			
Site Position:		Northing:	440,861.50 usft	Latitude:	32.2108713
From:	Map	Easting:	668,513.80 usft	Longitude:	-103.7884840
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.29 °

Well	#108H					
Well Position	+N/-S	-863.90 usft	Northing:	439,997.60 usft	Latitude:	32.2084556
	+E/-W	2,912.00 usft	Easting:	671,425.80 usft	Longitude:	-103.7790836
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,525.00 usft

Wellbore	OH			
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	04/16/18	6.96	60.00	47,821

Design	PERMIT v3			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	179.62

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,468.53	9.37	57.00	2,466.44	20.82	32.06	2.00	2.00	0.00	57.00	
11,229.68	9.37	57.00	11,110.69	797.76	1,228.39	0.00	0.00	0.00	0.00	
12,180.04	90.00	179.62	11,728.00	227.60	1,318.00	10.00	8.48	12.90	122.27	PLU-16-TWR #108
22,212.16	90.00	179.62	11,728.00	-9,804.30	1,385.00	0.00	0.00	0.00	0.00	PLU-16-TWR #108



Planning Report

Database:	EDM 5000.1.13 Single User Db	Local Co-ordinate Reference:	Well #108H
Company:	XTO Energy	TVD Reference:	RKB = 33' @ 3558.00usft
Project:	Eddy County, NM (NAD-27)	MD Reference:	RKB = 33' @ 3558.00usft
Site:	Poker Lake Unit 16 TWR	North Reference:	Grid
Well:	#108H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PERMIT v3		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
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
648.00	0.00	0.00	648.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler									
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
708.00	0.00	0.00	708.00	0.00	0.00	0.00	0.00	0.00	0.00
Magenta Dolomite									
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
978.00	0.00	0.00	978.00	0.00	0.00	0.00	0.00	0.00	0.00
Top Salt									
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	2.00	57.00	2,099.98	0.95	1.46	-0.94	2.00	2.00	0.00
2,200.00	4.00	57.00	2,199.84	3.80	5.85	-3.76	2.00	2.00	0.00
2,300.00	6.00	57.00	2,299.45	8.55	13.16	-8.46	2.00	2.00	0.00
2,400.00	8.00	57.00	2,398.70	15.18	23.38	-15.03	2.00	2.00	0.00
2,468.53	9.37	57.00	2,466.44	20.82	32.06	-20.61	2.00	2.00	0.00
2,500.00	9.37	57.00	2,497.49	23.61	36.36	-23.37	0.00	0.00	0.00
2,600.00	9.37	57.00	2,596.16	32.48	50.01	-32.15	0.00	0.00	0.00
2,700.00	9.37	57.00	2,694.83	41.35	63.67	-40.92	0.00	0.00	0.00
2,800.00	9.37	57.00	2,793.49	50.22	77.32	-49.70	0.00	0.00	0.00
2,900.00	9.37	57.00	2,892.16	59.08	90.98	-58.48	0.00	0.00	0.00
3,000.00	9.37	57.00	2,990.82	67.95	104.63	-67.26	0.00	0.00	0.00
3,100.00	9.37	57.00	3,089.49	76.82	118.29	-76.03	0.00	0.00	0.00
3,200.00	9.37	57.00	3,188.15	85.69	131.94	-84.81	0.00	0.00	0.00
3,300.00	9.37	57.00	3,286.82	94.56	145.60	-93.59	0.00	0.00	0.00
3,400.00	9.37	57.00	3,385.48	103.42	159.25	-102.37	0.00	0.00	0.00
3,500.00	9.37	57.00	3,484.15	112.29	172.91	-111.14	0.00	0.00	0.00
3,600.00	9.37	57.00	3,582.82	121.16	186.56	-119.92	0.00	0.00	0.00
3,700.00	9.37	57.00	3,681.48	130.03	200.22	-128.70	0.00	0.00	0.00
3,800.00	9.37	57.00	3,780.15	138.90	213.87	-137.47	0.00	0.00	0.00
3,900.00	9.37	57.00	3,878.81	147.76	227.53	-146.25	0.00	0.00	0.00
4,000.00	9.37	57.00	3,977.48	156.63	241.18	-155.03	0.00	0.00	0.00
4,100.00	9.37	57.00	4,076.14	165.50	254.84	-163.81	0.00	0.00	0.00
4,200.00	9.37	57.00	4,174.81	174.37	268.49	-172.58	0.00	0.00	0.00
4,223.50	9.37	57.00	4,198.00	176.45	271.70	-174.65	0.00	0.00	0.00
Base Salt									
4,300.00	9.37	57.00	4,273.48	183.24	282.15	-181.36	0.00	0.00	0.00
4,400.00	9.37	57.00	4,372.14	192.10	295.80	-190.14	0.00	0.00	0.00



Planning Report

Database:	EDM 5000.1.13 Single User Db	Local Co-ordinate Reference:	Well #108H
Company:	XTO Energy	TVD Reference:	RKB = 33' @ 3558.00usft
Project:	Eddy County, NM (NAD-27)	MD Reference:	RKB = 33' @ 3558.00usft
Site:	Poker Lake Unit 16 TWR	North Reference:	Grid
Well:	#108H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PERMIT v3		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,461.68	9.37	57.00	4,433.00	197.57	304.22	-195.55	0.00	0.00	0.00
Delaware									
4,500.00	9.37	57.00	4,470.81	200.97	309.46	-198.92	0.00	0.00	0.00
4,600.00	9.37	57.00	4,569.47	209.84	323.11	-207.69	0.00	0.00	0.00
4,700.00	9.37	57.00	4,668.14	218.71	336.77	-216.47	0.00	0.00	0.00
4,800.00	9.37	57.00	4,766.80	227.58	350.42	-225.25	0.00	0.00	0.00
4,900.00	9.37	57.00	4,865.47	236.44	364.08	-234.02	0.00	0.00	0.00
5,000.00	9.37	57.00	4,964.13	245.31	377.73	-242.80	0.00	0.00	0.00
5,100.00	9.37	57.00	5,062.80	254.18	391.39	-251.58	0.00	0.00	0.00
5,200.00	9.37	57.00	5,161.47	263.05	405.04	-260.36	0.00	0.00	0.00
5,300.00	9.37	57.00	5,260.13	271.92	418.70	-269.13	0.00	0.00	0.00
5,399.19	9.37	57.00	5,358.00	280.71	432.24	-277.84	0.00	0.00	0.00
Cherry Canyon									
5,400.00	9.37	57.00	5,358.80	280.78	432.35	-277.91	0.00	0.00	0.00
5,500.00	9.37	57.00	5,457.46	289.65	446.01	-286.69	0.00	0.00	0.00
5,600.00	9.37	57.00	5,556.13	298.52	459.66	-295.47	0.00	0.00	0.00
5,700.00	9.37	57.00	5,654.79	307.39	473.31	-304.24	0.00	0.00	0.00
5,800.00	9.37	57.00	5,753.46	316.26	486.97	-313.02	0.00	0.00	0.00
5,900.00	9.37	57.00	5,852.12	325.12	500.62	-321.80	0.00	0.00	0.00
6,000.00	9.37	57.00	5,950.79	333.99	514.28	-330.57	0.00	0.00	0.00
6,100.00	9.37	57.00	6,049.46	342.86	527.93	-339.35	0.00	0.00	0.00
6,200.00	9.37	57.00	6,148.12	351.73	541.59	-348.13	0.00	0.00	0.00
6,300.00	9.37	57.00	6,246.79	360.60	555.24	-356.91	0.00	0.00	0.00
6,400.00	9.37	57.00	6,345.45	369.46	568.90	-365.68	0.00	0.00	0.00
6,500.00	9.37	57.00	6,444.12	378.33	582.55	-374.46	0.00	0.00	0.00
6,600.00	9.37	57.00	6,542.78	387.20	596.21	-383.24	0.00	0.00	0.00
6,700.00	9.37	57.00	6,641.45	396.07	609.86	-392.01	0.00	0.00	0.00
6,800.00	9.37	57.00	6,740.12	404.94	623.52	-400.79	0.00	0.00	0.00
6,900.00	9.37	57.00	6,838.78	413.80	637.17	-409.57	0.00	0.00	0.00
6,919.48	9.37	57.00	6,858.00	415.53	639.83	-411.28	0.00	0.00	0.00
Brushy Canyon									
7,000.00	9.37	57.00	6,937.45	422.67	650.83	-418.35	0.00	0.00	0.00
7,100.00	9.37	57.00	7,036.11	431.54	664.48	-427.12	0.00	0.00	0.00
7,200.00	9.37	57.00	7,134.78	440.41	678.14	-435.90	0.00	0.00	0.00
7,300.00	9.37	57.00	7,233.44	449.28	691.79	-444.68	0.00	0.00	0.00
7,400.00	9.37	57.00	7,332.11	458.14	705.45	-453.46	0.00	0.00	0.00
7,500.00	9.37	57.00	7,430.77	467.01	719.10	-462.23	0.00	0.00	0.00
7,600.00	9.37	57.00	7,529.44	475.88	732.76	-471.01	0.00	0.00	0.00
7,700.00	9.37	57.00	7,628.11	484.75	746.41	-479.79	0.00	0.00	0.00
7,800.00	9.37	57.00	7,726.77	493.62	760.07	-488.56	0.00	0.00	0.00
7,882.33	9.37	57.00	7,808.00	500.92	771.31	-495.79	0.00	0.00	0.00
Basal Brushy Canyon									
7,900.00	9.37	57.00	7,825.44	502.48	773.72	-497.34	0.00	0.00	0.00
8,000.00	9.37	57.00	7,924.10	511.35	787.38	-506.12	0.00	0.00	0.00
8,100.00	9.37	57.00	8,022.77	520.22	801.03	-514.90	0.00	0.00	0.00
8,200.00	9.37	57.00	8,121.43	529.09	814.69	-523.67	0.00	0.00	0.00
8,300.00	9.37	57.00	8,220.10	537.96	828.34	-532.45	0.00	0.00	0.00
8,348.55	9.37	57.00	8,268.00	542.26	834.97	-536.71	0.00	0.00	0.00
Bone Spring Lime									
8,400.00	9.37	57.00	8,318.77	546.82	842.00	-541.23	0.00	0.00	0.00
8,419.50	9.37	57.00	8,338.00	548.55	844.66	-542.94	0.00	0.00	0.00
Avalon Sand									
8,439.77	9.37	57.00	8,358.00	550.35	847.43	-544.72	0.00	0.00	0.00



Planning Report

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Company:	XTO Energy	TVD Reference:	RKB = 33' @ 3558.00usft
Project:	Eddy County, NM (NAD-27)	MD Reference:	RKB = 33' @ 3558.00usft
Site:	Poker Lake Unit 16 TWR	North Reference:	Grid
Well:	#108H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PERMIT v3		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
Upper Avalon Shale									
8,500.00	9.37	57.00	8,417.43	555.69	855.65	-550.01	0.00	0.00	0.00
8,600.00	9.37	57.00	8,516.10	564.56	869.31	-558.78	0.00	0.00	0.00
8,700.00	9.37	57.00	8,614.76	573.43	882.96	-567.56	0.00	0.00	0.00
8,800.00	9.37	57.00	8,713.43	582.30	896.62	-576.34	0.00	0.00	0.00
8,895.85	9.37	57.00	8,808.00	590.80	909.71	-584.75	0.00	0.00	0.00
Lower Avalon Shale									
8,900.00	9.37	57.00	8,812.09	591.16	910.27	-585.11	0.00	0.00	0.00
9,000.00	9.37	57.00	8,910.76	600.03	923.93	-593.89	0.00	0.00	0.00
9,100.00	9.37	57.00	9,009.42	608.90	937.58	-602.67	0.00	0.00	0.00
9,149.23	9.37	57.00	9,058.00	613.27	944.30	-606.99	0.00	0.00	0.00
1st Bone Spring Lime									
9,200.00	9.37	57.00	9,108.09	617.77	951.24	-611.45	0.00	0.00	0.00
9,300.00	9.37	57.00	9,206.76	626.64	964.89	-620.22	0.00	0.00	0.00
9,400.00	9.37	57.00	9,305.42	635.50	978.55	-629.00	0.00	0.00	0.00
9,433.02	9.37	57.00	9,338.00	638.43	983.06	-631.90	0.00	0.00	0.00
1st Bone Spring Ss									
9,500.00	9.37	57.00	9,404.09	644.37	992.20	-637.78	0.00	0.00	0.00
9,600.00	9.37	57.00	9,502.75	653.24	1,005.86	-646.56	0.00	0.00	0.00
9,700.00	9.37	57.00	9,601.42	662.11	1,019.51	-655.33	0.00	0.00	0.00
9,800.00	9.37	57.00	9,700.08	670.98	1,033.17	-664.11	0.00	0.00	0.00
9,838.43	9.37	57.00	9,738.00	674.38	1,038.41	-667.48	0.00	0.00	0.00
2nd Bone Spring Lime									
9,900.00	9.37	57.00	9,798.75	679.84	1,046.82	-672.89	0.00	0.00	0.00
10,000.00	9.37	57.00	9,897.41	688.71	1,060.48	-681.66	0.00	0.00	0.00
10,100.00	9.37	57.00	9,996.08	697.58	1,074.13	-690.44	0.00	0.00	0.00
10,142.49	9.37	57.00	10,038.00	701.35	1,079.93	-694.17	0.00	0.00	0.00
2nd Bone Spring Ss									
10,200.00	9.37	57.00	10,094.75	706.45	1,087.79	-699.22	0.00	0.00	0.00
10,300.00	9.37	57.00	10,193.41	715.32	1,101.44	-708.00	0.00	0.00	0.00
10,400.00	9.37	57.00	10,292.08	724.18	1,115.10	-716.77	0.00	0.00	0.00
10,500.00	9.37	57.00	10,390.74	733.05	1,128.75	-725.55	0.00	0.00	0.00
10,527.63	9.37	57.00	10,418.00	735.50	1,132.52	-727.98	0.00	0.00	0.00
3rd Bone Spring Lm									
10,600.00	9.37	57.00	10,489.41	741.92	1,142.41	-734.33	0.00	0.00	0.00
10,700.00	9.37	57.00	10,588.07	750.79	1,156.06	-743.10	0.00	0.00	0.00
10,800.00	9.37	57.00	10,686.74	759.66	1,169.72	-751.88	0.00	0.00	0.00
10,900.00	9.37	57.00	10,785.41	768.52	1,183.37	-760.66	0.00	0.00	0.00
11,000.00	9.37	57.00	10,884.07	777.39	1,197.03	-769.44	0.00	0.00	0.00
11,100.00	9.37	57.00	10,982.74	786.26	1,210.68	-778.21	0.00	0.00	0.00
11,200.00	9.37	57.00	11,081.40	795.13	1,224.34	-786.99	0.00	0.00	0.00
11,229.68	9.37	57.00	11,110.69	797.76	1,228.39	-789.60	0.00	0.00	0.00
11,250.00	8.46	68.75	11,130.76	799.20	1,231.17	-791.02	10.00	-4.48	57.86
11,300.00	8.16	103.83	11,180.27	799.69	1,238.05	-791.46	10.00	-0.60	70.14
11,302.76	8.23	105.70	11,183.00	799.59	1,238.43	-791.36	10.00	2.59	67.77
3rd Bone Spring Ss									
11,350.00	10.55	131.33	11,229.62	795.82	1,244.93	-787.54	10.00	4.90	54.27
11,400.00	14.34	146.68	11,278.45	787.61	1,251.77	-779.30	10.00	7.58	30.69
11,450.00	18.70	155.37	11,326.39	775.15	1,258.52	-766.78	10.00	8.72	17.38
11,500.00	23.31	160.80	11,373.06	758.51	1,265.12	-750.10	10.00	9.22	10.85
11,550.00	28.05	164.50	11,418.11	737.83	1,271.52	-729.38	10.00	9.48	7.39
11,600.00	32.86	167.19	11,461.20	713.26	1,277.67	-704.77	10.00	9.62	5.39
11,650.00	37.71	169.26	11,502.00	684.99	1,283.53	-676.46	10.00	9.71	4.14



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Company:	XTO Energy	TVD Reference:	RKB = 33' @ 3558.00usft
Project:	Eddy County, NM (NAD-27)	MD Reference:	RKB = 33' @ 3558.00usft
Site:	Poker Lake Unit 16 TWR	North Reference:	Grid
Well:	#108H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
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Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,690.29	41.65	170.63	11,533.00	659.66	1,288.01	-651.10	10.00	9.76	3.38
Red Hills SS									
11,700.00	42.60	170.92	11,540.20	653.23	1,289.05	-644.67	10.00	9.79	3.06
11,750.00	47.50	172.30	11,575.52	618.23	1,294.20	-609.64	10.00	9.81	2.76
11,800.00	52.42	173.48	11,607.67	580.26	1,298.92	-571.63	10.00	9.84	2.35
11,843.70	56.73	174.38	11,633.00	544.85	1,302.68	-536.20	10.00	9.86	2.08
Wolfcamp									
11,850.00	57.35	174.51	11,636.43	539.59	1,303.19	-530.94	10.00	9.86	1.96
11,862.39	58.57	174.75	11,643.00	529.13	1,304.17	-520.47	10.00	9.87	1.92
Wolfcamp X									
11,900.00	62.29	175.43	11,661.56	496.55	1,306.97	-487.87	10.00	9.87	1.82
11,950.00	67.23	176.27	11,682.87	451.46	1,310.23	-442.76	10.00	9.88	1.68
12,000.00	72.17	177.06	11,700.21	404.66	1,312.96	-395.94	10.00	9.89	1.57
12,050.00	77.12	177.80	11,713.45	356.51	1,315.12	-347.78	10.00	9.90	1.48
12,100.00	82.07	178.51	11,722.47	307.37	1,316.70	-298.63	10.00	9.90	1.42
12,150.00	87.03	179.20	11,727.22	257.62	1,317.69	-248.88	10.00	9.90	1.39
12,180.04	90.00	179.62	11,728.00	227.60	1,318.00	-218.85	10.00	9.90	1.38
LP - Wolfcamp Y									
12,200.00	90.00	179.62	11,728.00	207.64	1,318.13	-198.89	0.00	0.00	0.00
12,300.00	90.00	179.62	11,728.00	107.64	1,318.80	-98.89	0.00	0.00	0.00
12,400.00	90.00	179.62	11,728.00	7.64	1,319.47	1.11	0.00	0.00	0.00
12,500.00	90.00	179.62	11,728.00	-92.36	1,320.14	101.11	0.00	0.00	0.00
12,600.00	90.00	179.62	11,728.00	-192.36	1,320.80	201.11	0.00	0.00	0.00
12,700.00	90.00	179.62	11,728.00	-292.35	1,321.47	301.11	0.00	0.00	0.00
12,800.00	90.00	179.62	11,728.00	-392.35	1,322.14	401.11	0.00	0.00	0.00
12,900.00	90.00	179.62	11,728.00	-492.35	1,322.81	501.11	0.00	0.00	0.00
13,000.00	90.00	179.62	11,728.00	-592.35	1,323.48	601.11	0.00	0.00	0.00
13,100.00	90.00	179.62	11,728.00	-692.34	1,324.14	701.11	0.00	0.00	0.00
13,200.00	90.00	179.62	11,728.00	-792.34	1,324.81	801.11	0.00	0.00	0.00
13,300.00	90.00	179.62	11,728.00	-892.34	1,325.48	901.11	0.00	0.00	0.00
13,400.00	90.00	179.62	11,728.00	-992.34	1,326.15	1,001.11	0.00	0.00	0.00
13,500.00	90.00	179.62	11,728.00	-1,092.33	1,326.82	1,101.11	0.00	0.00	0.00
13,600.00	90.00	179.62	11,728.00	-1,192.33	1,327.48	1,201.11	0.00	0.00	0.00
13,700.00	90.00	179.62	11,728.00	-1,292.33	1,328.15	1,301.11	0.00	0.00	0.00
13,800.00	90.00	179.62	11,728.00	-1,392.33	1,328.82	1,401.11	0.00	0.00	0.00
13,900.00	90.00	179.62	11,728.00	-1,492.33	1,329.49	1,501.11	0.00	0.00	0.00
14,000.00	90.00	179.62	11,728.00	-1,592.32	1,330.15	1,601.11	0.00	0.00	0.00
14,100.00	90.00	179.62	11,728.00	-1,692.32	1,330.82	1,701.11	0.00	0.00	0.00
14,200.00	90.00	179.62	11,728.00	-1,792.32	1,331.49	1,801.11	0.00	0.00	0.00
14,300.00	90.00	179.62	11,728.00	-1,892.32	1,332.16	1,901.11	0.00	0.00	0.00
14,400.00	90.00	179.62	11,728.00	-1,992.31	1,332.83	2,001.11	0.00	0.00	0.00
14,500.00	90.00	179.62	11,728.00	-2,092.31	1,333.49	2,101.11	0.00	0.00	0.00
14,600.00	90.00	179.62	11,728.00	-2,192.31	1,334.16	2,201.11	0.00	0.00	0.00
14,700.00	90.00	179.62	11,728.00	-2,292.31	1,334.83	2,301.11	0.00	0.00	0.00
14,800.00	90.00	179.62	11,728.00	-2,392.31	1,335.50	2,401.11	0.00	0.00	0.00
14,900.00	90.00	179.62	11,728.00	-2,492.30	1,336.17	2,501.11	0.00	0.00	0.00
15,000.00	90.00	179.62	11,728.00	-2,592.30	1,336.83	2,601.11	0.00	0.00	0.00
15,100.00	90.00	179.62	11,728.00	-2,692.30	1,337.50	2,701.11	0.00	0.00	0.00
15,200.00	90.00	179.62	11,728.00	-2,792.30	1,338.17	2,801.11	0.00	0.00	0.00
15,300.00	90.00	179.62	11,728.00	-2,892.29	1,338.84	2,901.11	0.00	0.00	0.00
15,400.00	90.00	179.62	11,728.00	-2,992.29	1,339.50	3,001.11	0.00	0.00	0.00
15,500.00	90.00	179.62	11,728.00	-3,092.29	1,340.17	3,101.11	0.00	0.00	0.00
15,600.00	90.00	179.62	11,728.00	-3,192.29	1,340.84	3,201.11	0.00	0.00	0.00



Planning Report

Database:	EDM 5000.1.13 Single User Db	Local Co-ordinate Reference:	Well #108H
Company:	XTO Energy	TVD Reference:	RKB = 33' @ 3558.00usft
Project:	Eddy County, NM (NAD-27)	MD Reference:	RKB = 33' @ 3558.00usft
Site:	Poker Lake Unit 16 TWR	North Reference:	Grid
Well:	#108H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PERMIT v3		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
15,700.00	90.00	179.62	11,728.00	-3,292.29	1,341.51	3,301.11	0.00	0.00	0.00
15,800.00	90.00	179.62	11,728.00	-3,392.28	1,342.18	3,401.11	0.00	0.00	0.00
15,900.00	90.00	179.62	11,728.00	-3,492.28	1,342.84	3,501.11	0.00	0.00	0.00
16,000.00	90.00	179.62	11,728.00	-3,592.28	1,343.51	3,601.11	0.00	0.00	0.00
16,100.00	90.00	179.62	11,728.00	-3,692.28	1,344.18	3,701.11	0.00	0.00	0.00
16,200.00	90.00	179.62	11,728.00	-3,792.27	1,344.85	3,801.11	0.00	0.00	0.00
16,300.00	90.00	179.62	11,728.00	-3,892.27	1,345.52	3,901.11	0.00	0.00	0.00
16,400.00	90.00	179.62	11,728.00	-3,992.27	1,346.18	4,001.11	0.00	0.00	0.00
16,500.00	90.00	179.62	11,728.00	-4,092.27	1,346.85	4,101.11	0.00	0.00	0.00
16,600.00	90.00	179.62	11,728.00	-4,192.27	1,347.52	4,201.11	0.00	0.00	0.00
16,700.00	90.00	179.62	11,728.00	-4,292.26	1,348.19	4,301.11	0.00	0.00	0.00
16,800.00	90.00	179.62	11,728.00	-4,392.26	1,348.85	4,401.11	0.00	0.00	0.00
16,900.00	90.00	179.62	11,728.00	-4,492.26	1,349.52	4,501.11	0.00	0.00	0.00
17,000.00	90.00	179.62	11,728.00	-4,592.26	1,350.19	4,601.11	0.00	0.00	0.00
17,100.00	90.00	179.62	11,728.00	-4,692.25	1,350.86	4,701.11	0.00	0.00	0.00
17,200.00	90.00	179.62	11,728.00	-4,792.25	1,351.53	4,801.11	0.00	0.00	0.00
17,300.00	90.00	179.62	11,728.00	-4,892.25	1,352.19	4,901.11	0.00	0.00	0.00
17,400.00	90.00	179.62	11,728.00	-4,992.25	1,352.86	5,001.11	0.00	0.00	0.00
17,500.00	90.00	179.62	11,728.00	-5,092.25	1,353.53	5,101.11	0.00	0.00	0.00
17,600.00	90.00	179.62	11,728.00	-5,192.24	1,354.20	5,201.11	0.00	0.00	0.00
17,700.00	90.00	179.62	11,728.00	-5,292.24	1,354.87	5,301.11	0.00	0.00	0.00
17,800.00	90.00	179.62	11,728.00	-5,392.24	1,355.53	5,401.11	0.00	0.00	0.00
17,900.00	90.00	179.62	11,728.00	-5,492.24	1,356.20	5,501.11	0.00	0.00	0.00
18,000.00	90.00	179.62	11,728.00	-5,592.23	1,356.87	5,601.11	0.00	0.00	0.00
18,100.00	90.00	179.62	11,728.00	-5,692.23	1,357.54	5,701.11	0.00	0.00	0.00
18,200.00	90.00	179.62	11,728.00	-5,792.23	1,358.20	5,801.11	0.00	0.00	0.00
18,300.00	90.00	179.62	11,728.00	-5,892.23	1,358.87	5,901.11	0.00	0.00	0.00
18,400.00	90.00	179.62	11,728.00	-5,992.23	1,359.54	6,001.11	0.00	0.00	0.00
18,500.00	90.00	179.62	11,728.00	-6,092.22	1,360.21	6,101.11	0.00	0.00	0.00
18,600.00	90.00	179.62	11,728.00	-6,192.22	1,360.88	6,201.11	0.00	0.00	0.00
18,700.00	90.00	179.62	11,728.00	-6,292.22	1,361.54	6,301.11	0.00	0.00	0.00
18,800.00	90.00	179.62	11,728.00	-6,392.22	1,362.21	6,401.11	0.00	0.00	0.00
18,900.00	90.00	179.62	11,728.00	-6,492.21	1,362.88	6,501.11	0.00	0.00	0.00
19,000.00	90.00	179.62	11,728.00	-6,592.21	1,363.55	6,601.11	0.00	0.00	0.00
19,100.00	90.00	179.62	11,728.00	-6,692.21	1,364.22	6,701.11	0.00	0.00	0.00
19,200.00	90.00	179.62	11,728.00	-6,792.21	1,364.88	6,801.11	0.00	0.00	0.00
19,300.00	90.00	179.62	11,728.00	-6,892.21	1,365.55	6,901.11	0.00	0.00	0.00
19,400.00	90.00	179.62	11,728.00	-6,992.20	1,366.22	7,001.11	0.00	0.00	0.00
19,500.00	90.00	179.62	11,728.00	-7,092.20	1,366.89	7,101.11	0.00	0.00	0.00
19,600.00	90.00	179.62	11,728.00	-7,192.20	1,367.55	7,201.11	0.00	0.00	0.00
19,700.00	90.00	179.62	11,728.00	-7,292.20	1,368.22	7,301.11	0.00	0.00	0.00
19,800.00	90.00	179.62	11,728.00	-7,392.19	1,368.89	7,401.11	0.00	0.00	0.00
19,900.00	90.00	179.62	11,728.00	-7,492.19	1,369.56	7,501.11	0.00	0.00	0.00
20,000.00	90.00	179.62	11,728.00	-7,592.19	1,370.23	7,601.11	0.00	0.00	0.00
20,100.00	90.00	179.62	11,728.00	-7,692.19	1,370.89	7,701.11	0.00	0.00	0.00
20,200.00	90.00	179.62	11,728.00	-7,792.19	1,371.56	7,801.11	0.00	0.00	0.00
20,300.00	90.00	179.62	11,728.00	-7,892.18	1,372.23	7,901.11	0.00	0.00	0.00
20,400.00	90.00	179.62	11,728.00	-7,992.18	1,372.90	8,001.11	0.00	0.00	0.00
20,500.00	90.00	179.62	11,728.00	-8,092.18	1,373.57	8,101.11	0.00	0.00	0.00
20,600.00	90.00	179.62	11,728.00	-8,192.18	1,374.23	8,201.11	0.00	0.00	0.00
20,700.00	90.00	179.62	11,728.00	-8,292.17	1,374.90	8,301.11	0.00	0.00	0.00
20,800.00	90.00	179.62	11,728.00	-8,392.17	1,375.57	8,401.11	0.00	0.00	0.00
20,900.00	90.00	179.62	11,728.00	-8,492.17	1,376.24	8,501.11	0.00	0.00	0.00
21,000.00	90.00	179.62	11,728.00	-8,592.17	1,376.90	8,601.11	0.00	0.00	0.00



Planning Report

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Project:	Eddy County, NM (NAD-27)	MD Reference:	RKB = 33' @ 3558.00usft
Site:	Poker Lake Unit 16 TWR	North Reference:	Grid
Well:	#108H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PERMIT v3		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
21,100.00	90.00	179.62	11,728.00	-8,692.17	1,377.57	8,701.11	0.00	0.00	0.00
21,200.00	90.00	179.62	11,728.00	-8,792.16	1,378.24	8,801.11	0.00	0.00	0.00
21,300.00	90.00	179.62	11,728.00	-8,892.16	1,378.91	8,901.11	0.00	0.00	0.00
21,400.00	90.00	179.62	11,728.00	-8,992.16	1,379.58	9,001.11	0.00	0.00	0.00
21,500.00	90.00	179.62	11,728.00	-9,092.16	1,380.24	9,101.11	0.00	0.00	0.00
21,600.00	90.00	179.62	11,728.00	-9,192.15	1,380.91	9,201.11	0.00	0.00	0.00
21,700.00	90.00	179.62	11,728.00	-9,292.15	1,381.58	9,301.11	0.00	0.00	0.00
21,800.00	90.00	179.62	11,728.00	-9,392.15	1,382.25	9,401.11	0.00	0.00	0.00
21,900.00	90.00	179.62	11,728.00	-9,492.15	1,382.92	9,501.11	0.00	0.00	0.00
22,000.00	90.00	179.62	11,728.00	-9,592.15	1,383.58	9,601.11	0.00	0.00	0.00
22,100.00	90.00	179.62	11,728.00	-9,692.14	1,384.25	9,701.11	0.00	0.00	0.00
22,200.00	90.00	179.62	11,728.00	-9,792.14	1,384.92	9,801.11	0.00	0.00	0.00
22,212.16	90.00	179.62	11,728.00	-9,804.30	1,385.00	9,813.27	0.00	0.00	0.00

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
PLU-16-TWR #108: S - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	439,997.60	671,425.80	32.2084556	-103.7790836
PLU-16-TWR #108: L - plan misses target center by 0.03usft at 22082.16usft MD (11728.00 TVD, -9674.30 N, 1384.13 E) - Point	0.00	0.00	11,728.00	-9,674.30	1,384.10	430,323.30	672,809.90	32.1818425	-103.7747712
PLU-16-TWR #108: F - plan hits target center - Point	0.00	0.00	11,728.00	227.60	1,318.00	440,225.20	672,743.80	32.2090625	-103.7748186
PLU-16-TWR #108: P - plan hits target center - Point	0.00	0.00	11,728.00	-9,804.30	1,385.00	430,193.30	672,810.80	32.1814851	-103.7747704



Planning Report

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Company:	XTO Energy	TVD Reference:	RKB = 33' @ 3558.00usft
Project:	Eddy County, NM (NAD-27)	MD Reference:	RKB = 33' @ 3558.00usft
Site:	Poker Lake Unit 16 TWR	North Reference:	Grid
Well:	#108H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PERMIT v3		

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
648.00	648.00	Rustler			
708.00	708.00	Magenta Dolomite			
978.00	978.00	Top Salt			
4,223.50	4,198.00	Base Salt			
4,461.68	4,433.00	Delaware			
5,399.19	5,358.00	Cherry Canyon			
6,919.48	6,858.00	Brushy Canyon			
7,882.33	7,808.00	Basal Brushy Canyon			
8,348.55	8,268.00	Bone Spring Lime			
8,419.50	8,338.00	Avalon Sand			
8,439.77	8,358.00	Upper Avalon Shale			
8,895.85	8,808.00	Lower Avalon Shale			
9,149.23	9,058.00	1st Bone Spring Lime			
9,433.02	9,338.00	1st Bone Spring Ss			
9,838.43	9,738.00	2nd Bone Spring Lime			
10,142.49	10,038.00	2nd Bone Spring Ss			
10,527.63	10,418.00	3rd Bone Spring Lm			
11,302.76	11,183.00	3rd Bone Spring Ss			
11,690.29	11,533.00	Red Hills SS			
11,843.70	11,633.00	Wolfcamp			
11,862.39	11,643.00	Wolfcamp X			
12,180.04	11,728.00	LP			
12,180.04	11,728.00	Wolfcamp Y			

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

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

Submit Original
to Appropriate
District Office

GAS CAPTURE PLAN

Date: 01/15/2020

☒ Original Operator & OGRID No.: XTO Permian Operating [373075]
☐ 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 – Name of facility: Poker Lake Unit 16 TWR West

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 MCF/D	Flared or Vented	Comments
Poker Lake Unit 16 TWR 161H		D-21-24S-31E	492' FNL & 400' FWL	4800	Flared/Sold	
Poker Lake Unit 16 TWR 121H		D-21-24S-31E	522' FNL & 400' FWL	3000	Flared/Sold	
Poker Lake Unit 16 TWR 101H		D-21-24S-31E	552' FNL & 400' FWL	2800	Flared/Sold	
Poker Lake Unit 16 TWR 152H		D-21-24S-31E	492' FNL & 700' FWL	4300	Flared/Sold	
Poker Lake Unit 16 TWR 122H		D-21-24S-31E	522' FNL & 700' FWL	3000	Flared/Sold	
Poker Lake Unit 16 TWR 102H		D-21-24S-31E	552' FNL & 700' FWL	2800	Flared/Sold	
Poker Lake Unit 16 TWR 163H		C-21-24S-31E	485' FNL & 2040' FWL	4800	Flared/Sold	
Poker Lake Unit 16 TWR 123H		C-21-24S-31E	515' FNL & 2040' FWL	3000	Flared/Sold	
Poker Lake Unit 16 TWR 103H		C-21-24S-31E	544' FNL & 2040' FWL	2800	Flared/Sold	
Poker Lake Unit 16 TWR 154H		C-21-24S-31E	485' FNL & 2290' FWL	4300	Flared/Sold	
Poker Lake Unit 16 TWR 124H		C-21-24S-31E	515' FNL & 2290' FWL	3000	Flared/Sold	
Poker Lake Unit 16 TWR 104H		C-21-24S-31E	545' FNL & 2290' FWL	2800	Flared/Sold	
Poker Lake Unit 16 TWR 165H		C-21-24S-31E	485' FNL & 2590' FWL	4800	Flared/Sold	
Poker Lake Unit 16 TWR 125H		C-21-24S-31E	515' FNL & 2590' FWL	3000	Flared/Sold	
Poker Lake Unit 16 TWR 105H		C-21-24S-31E	545' FNL & 2590' FWL	2800	Flared/Sold	
Poker Lake Unit 16 TWR 156H		B-21-24S-31E	485' FNL & 2437' FEL	4300	Flared/Sold	
Poker Lake Unit 16 TWR 126H		B-21-24S-31E	515' FNL & 2437' FEL	3000	Flared/Sold	
Poker Lake Unit 16 TWR 106H		B-21-24S-31E	545' FNL & 2437' FEL	2800	Flared/Sold	
Poker Lake Unit 16 TWR 167H		B-21-24S-31E	490' FNL & 1950' FEL	4800	Flared/Sold	
Poker Lake Unit 16 TWR 127H		B-21-24S-31E	520' FNL & 1950' FEL	3000	Flared/Sold	
Poker Lake Unit 16 TWR 107H		B-21-24S-31E	550' FNL & 1950' FEL	2800	Flared/Sold	
Poker Lake Unit 16 TWR 158H		A-21-24S-31E	490' FNL & 1650' FEL	4300	Flared/Sold	
Poker Lake Unit 16 TWR 128H		A-21-24S-31E	520' FNL & 1650' FEL	3000	Flared/Sold	
Poker Lake Unit 16 TWR 108H		A-21-24S-31E	550' FNL & 1650' FEL	2800	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 734.14' of pipeline to connect the facility to low/high pressure gathering system. XTO 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 and Lucid have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at Red Hills Plant, Sec. 13, T24S, R33E or Roadrunner, Sec. 32, T32S, R28E, Eddy County. 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 system at that time. Based on current information, it is XTO'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

10,000 PSI Annular BOP Variance Request

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

1. Component and Preventer Compatibility Tables

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

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

2. Well Control Procedures

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

General Procedure While Drilling

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

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

General Procedure While Tripping

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

General Procedure While Running Production Casing

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

General Procedure With No Pipe In Hole (Open Hole)

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

General Procedures While Pulling BHA Through Stack

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

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