

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTNMOCD
ArtesiaFORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018**SUNDRY NOTICES AND REPORTS ON WELLS**
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.*5. Lease Serial No.
NMLC064894A

6. If Indian, Allottee or Tribe Name

SUBMIT IN TRIPLICATE - Other instructions on page 27. If Unit or CA/Agreement, Name and/or No.
NMNM71016X

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other8. Well Name and No.
POKER LAKE UNIT 20 BD 703H

2. Name of Operator

XTO PERMIAN OPERATING, LLC

Contact: KELLY KARDOS

E-Mail: kelly_kardos@xtoenergy.com

9. API Well No.

30-015-45472

3a. Address

6401 HOLIDAY HILL RD BLDG 5
MIDLAND, TX 79707

3b. Phone No. (include area code)

Ph: 432-620-4374

10. Field and Pool or Exploratory Area
CORRAL CANYON SOUTH BS

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

Sec 20 T25S R30E Mer NMP SESW 955FSL 1915FWL

11. County or Parish, State

EDDY COUNTY, NM

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	Change to Original A
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	PD

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

XTO Permian Operating, LLC respectfully requests permission to change the formation from Corral Canyon Bone Spring (oil) to Purple Sage Wolfcamp (Gas).

Attached:
Updated C102 & Supplement
Drilling Program/BOP/CK/FH
Directional Plan

RECEIVED

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

JUL 23 2019

DISTRICT-ARTESIA O.C.D.

14. I hereby certify that the foregoing is true and correct.	
Electronic Submission #463492 verified by the BLM Well Information System For XTO PERMIAN OPERATING, LLC, sent to the Carlsbad Committed to AFMSS for processing by PRISCILLA PEREZ on 04/30/2019 ()	
Name (Printed/Typed) KELLY KARDOS	Title REGULATORY COORDINATOR
Signature (Electronic Submission)	Date 04/30/2019 APPROVED
THIS SPACE FOR FEDERAL OR STATE OFFICE USE	
MAY 09 2019	
Approved By	Title
BUREAU OF LAND MANAGEMENT ROSWELL FIELD OFFICE	
Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.	

(Instructions on page 2)

** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED **

RW 10-29-19

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-9720
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 30-015-45472	² Pool Code 98220	³ Pool Name PURPLE SAGE; WOLFCAMP
⁴ Property Code	⁵ Property Name POKER LAKE UNIT 20 BD	⁶ Well Number 703H
⁷ OGRID No. 260737	⁸ Operator Name XTO PERMIAN OPERATING, LLC	⁹ Elevation 3,161'

¹⁰ Surface Location

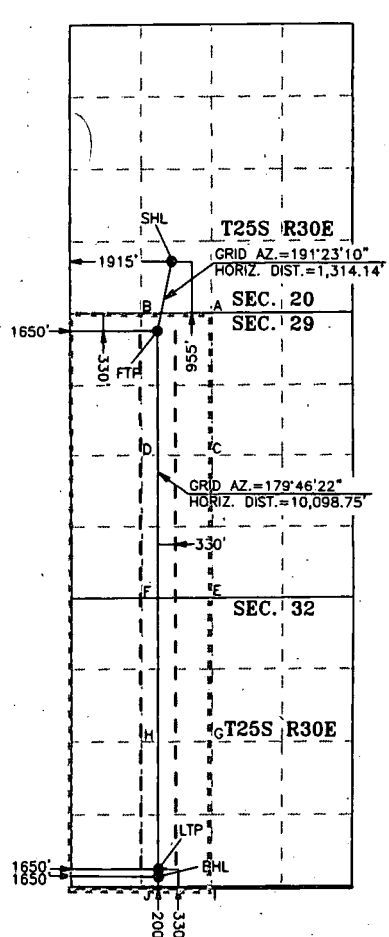
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	20	25 S	30 E		955	SOUTH	1,915	WEST	EDDY

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
N	32	25 S	30 E		200	SOUTH	1,650	WEST	EDDY

¹² Dedicated Acres 640	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No. 1651
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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.

¹⁶ GEODETIC COORDINATES NAD 27 NME SURFACE LOCATION Y= 404,287.1 X= 632,498.3 LAT.= 32.110778°N LONG.= 103.905399°W FIRST TAKE POINT NAD 27 NME Y= 402,998.8 X= 632,238.7 LAT.= 32.107240°N LONG.= 103.906253°W CORNER COORDINATES TABLE NAD 27 NME A - Y= 403,340.8 N, X= 633,259.4 E B - Y= 403,325.1 N, X= 631,923.1 E C - Y= 400,683.8 N, X= 633,276.4 E D - Y= 400,669.1 N, X= 631,940.0 E E - Y= 398,025.4 N, X= 633,293.5 E F - Y= 398,011.2 N, X= 631,958.0 E G - Y= 395,366.6 N, X= 633,290.8 E H - Y= 395,354.2 N, X= 631,958.0 E I - Y= 392,708.5 N, X= 633,288.1 E J - Y= 392,697.7 N, X= 631,958.4 E CORNER COORDINATES TABLE NAD 83 NME A - Y= 403,398.9 N, X= 674,444.4 E B - Y= 403,383.2 N, X= 673,108.1 E C - Y= 400,741.8 N, X= 674,461.5 E D - Y= 400,727.1 N, X= 673,125.0 E E - Y= 398,083.4 N, X= 674,478.7 E F - Y= 398,069.2 N, X= 673,143.1 E G - Y= 395,424.5 N, X= 674,478.0 E H - Y= 395,412.1 N, X= 673,143.2 E I - Y= 392,766.4 N, X= 674,473.4 E J - Y= 392,755.6 N, X= 673,143.7 E LAST TAKE POINT NAD 27 NME Y= 393,030.3 X= 632,278.3 LAT.= 32.079836°N LONG.= 103.906253°W BOTTOM HOLE LOCATION NAD 27 NME Y= 392,900.3 X= 632,278.4 LAT.= 32.079479°N LONG.= 103.906254°W GEODETIC COORDINATES NAD 83 NME SURFACE LOCATION Y= 404,345.2 X= 673,683.2 LAT.= 32.110903°N LONG.= 103.905882°W FIRST TAKE POINT NAD 83 NME Y= 403,056.9 X= 673,423.7 LAT.= 32.107364°N LONG.= 103.906736°W LAST TAKE POINT NAD 83 NME Y= 393,088.2 X= 673,463.6 LAT.= 32.079961°N LONG.= 103.906735°W BOTTOM HOLE LOCATION NAD 83 NME Y= 392,958.2 X= 673,463.7 LAT.= 32.079604°N LONG.= 103.906736°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. Kelly Kardos 4-30-19 Signature Date Kelly Kardos Printed Name kelly_kardos@xtoenergy.com E-mail Address 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. 4-5-2019 Date of Survey Signature and Seal of Professional Surveyor: MARK DILLON HARP 23786 Certificate Number RR 2017071051
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Intent ☒ As Drilled ☐

API #
30-015-45472

Operator Name: XTO Permian Operating, LLC	Property Name: Poker Lake Unit 20 BD	Well Number 703H
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Kick Off Point (KOP)

UL N	Section 20	Township 25S	Range 30E	Lot	Feet 955	From N/S South	Feet 1,915	From E/W West	County Eddy
Latitude 32.110903					Longitude -103.905882			NAD NAD83	

First Take Point (FTP)

UL D	Section 29	Township 25S	Range 30E	Lot	Feet 330	From N/S North	Feet 1,650	From E/W West	County Eddy
Latitude 32.107364					Longitude -103.906736			NAD NAD83	

Last Take Point (LTP)

UL M	Section 32	Township 25S	Range 30E	Lot	Feet 330	From N/S South	Feet 1,650	From E/W West	County Eddy
Latitude 32.079961					Longitude -103.906735			NAD NAD83	

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

Is this well an infill well? ☐ Y

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

API #
30-015-45492

Operator Name: XTO Permian Operating, LLC	Property Name: Poker Lake Unit 20 BD	Well Number 701H
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KZ 06/29/2018

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

XTO Energy Inc.
PLU 20 Brushy Draw 703H
Projected TD: 22911' MD / 11727' TVD
SHL: 955' FSL & 1915' FWL , Section 20, T25S, R30E
BHL: 200' FSL & 1650' FWL , Section 32, T25S, R30E
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	622'	Water
Top of Salt	814'	Water
Base of Salt	3427'	Water
Delaware	3621'	Water
Bone Spring	7449'	Water
1st Bone Spring Ss	8390'	Water/Oil/Gas
2nd Bone Spring Ss	9208'	Water/Oil/Gas
3rd Bone Spring Ss	10305'	Water/Oil/Gas
Wolfcamp	10696'	Water/Oil/Gas
Target/Land Curve	11727'	Water/Oil/Gas

*** Hydrocarbons @ Brushy Canyon

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

No other formations are expected to yield oil, gas or fresh water in measurable volumes. The surface fresh water sands will be protected by setting 16" inch casing @ 739' (75' above the salt) and circulating cement back to surface. The salt will be isolated by setting 11-3/4" inch casing at 3477' 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 9593' and cemented "500" 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 250' into the 8-5/8" casing.

3. Casing Design

Hole Size	Depth	OD Csg	Weight	Collar	Grade	New/Used	SF Burst	SF Collapse	SF Tension
18-3/4"	0' - 739'	16"	75	STC	J-55	New	2.52	3.02	12.81
14-3/4"	0' - 3477'	11-3/4"	47	STC	J-55	New	1.17	1.43	2.92
10-5/8"	0' - 9593'	8-5/8"	32	BTC	HCL-80	New	1.13	2.14	2.16
7-7/8"	0' - 22911'	5-1/2"	20	BTC	P-110	New	1.33	1.46	2.10

- XTO requests to utilize centralizers only in the curve after the KOP and only a minimum of one every other joint.
- 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.

Wellhead:

Temporary Wellhead

- 16" SOW bottom x 16-3/4" 2M top flange.

Permanent Wellhead - GE RSH Multibowl System

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

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 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, STC casing to be set at +/- 739'

Lead: 240 sxs EconoCem-HLTRRC (mixed at 12.9 ppg, 1.87 ft³/sx, 10.13 gal/sx water)

Tail: 230 sxs Halcem-C + 2% CaCl (mixed at 14.8 ppg, 1.35 ft³/sx, 6.39 gal/sx water)

Compressives: 12-hr = 900 psi 24 hr = 1500 psi

1st Intermediate Casing: 11-3/4", 47 New J-55, STC casing to be set at +/- 3477'

Lead: 1470 sxs EconoCem-HLTRRC (mixed at 12.9 ppg, 1.87 ft³/sx, 10.13 gal/sx water)

Tail: 190 sxs Halcem-C + 2% CaCl (mixed at 14.8 ppg, 1.35 ft³/sx, 6.39 gal/sx water)

Compressives: 12-hr = 900 psi 24 hr = 1500 psi

2nd Intermediate Casing: 8-5/8", 32 New HCL-80, BTC casing to be set at +/- 9593'

Lead: 2030 sxs Halcem-C + 2% CaCl (mixed at 12.9 ppg, 1.88 ft³/sx, 9.61 gal/sx water)

Tail: 150 sxs Halcem-C + 2% CaCl (mixed at 14.8 ppg, 1.33 ft³/sx, 6.39 gal/sx water)

Compressives: 12-hr = 900 psi 24 hr = 1500 psi

Production Casing: 5-1/2", 20 New P-110, BTC casing to be set at +/- 22911'

Lead: 890 sxs NeoCem (mixed at 10.5 ppg, 2.69 ft³/sx, 12.26 gal/sx water)

Tail: 1710 sxs VersaCem (mixed at 13.2 ppg, 1.61 ft³/sx, 8.38 gal/sx water)

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. MASP should not exceed 1043 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 10M Hydril and a 13-5/8" minimum 10M Double Ram BOP. MASP should not exceed 5043 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", 10M bradenhead and flange, the BOP test will be limited to \$10000 psi. When nipping up on the 8-5/8", the BOP will be tested to a minimum of \$10000 psi. All BOP tests will include a low pressure test as per BLM regulations. The 10M 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.

6. Proposed Mud Circulation System

INTERVAL	Hole Size	Mud Type	MW (ppg)	Viscosity (sec/qt)	Fluid Loss (cc)
0' - 739'	18-3/4"	FW/Native	8.4-8.8	35-40	NC
739' - 3477'	14-3/4"	Brine	9.8-10.2	30-32	NC
3477' to 9593'	10-5/8"	FW / Cut Brine	8.7-9.4	30-32	NC
9593' to 22911'	7-7/8"	Cut Brine / Polymer / OBM	12.2 - 12.5	29-32	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 ppg-10.0ppg brine mud will be used while drilling through the salt formation. Use fibrous materials as needed to control seepage and lost circulation. Pump viscous sweeps as needed for hole cleaning. Pump speed will be recorded on a daily drilling report after mudding up. A Pason or Totco will be used to detect changes in loss or gain of mud volume. A mud test will be performed every 24 hours to determine: density, viscosity, strength, filtration and pH as necessary. Use available solids controls equipment to help keep mud weight down after mud up. Rig up solids control equipment to operate as a closed loop system.

7. Auxiliary Well Control and Monitoring Equipment

- A. A Kelly cock will be in the drill string at all times.
- B. A full opening drill pipe stabbing valve having appropriate connections will be on the rig floor at all times.
- C. H2S monitors will be on location when drilling below the 11-3/4" casing.

8. Logging, Coring and Testing Program

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

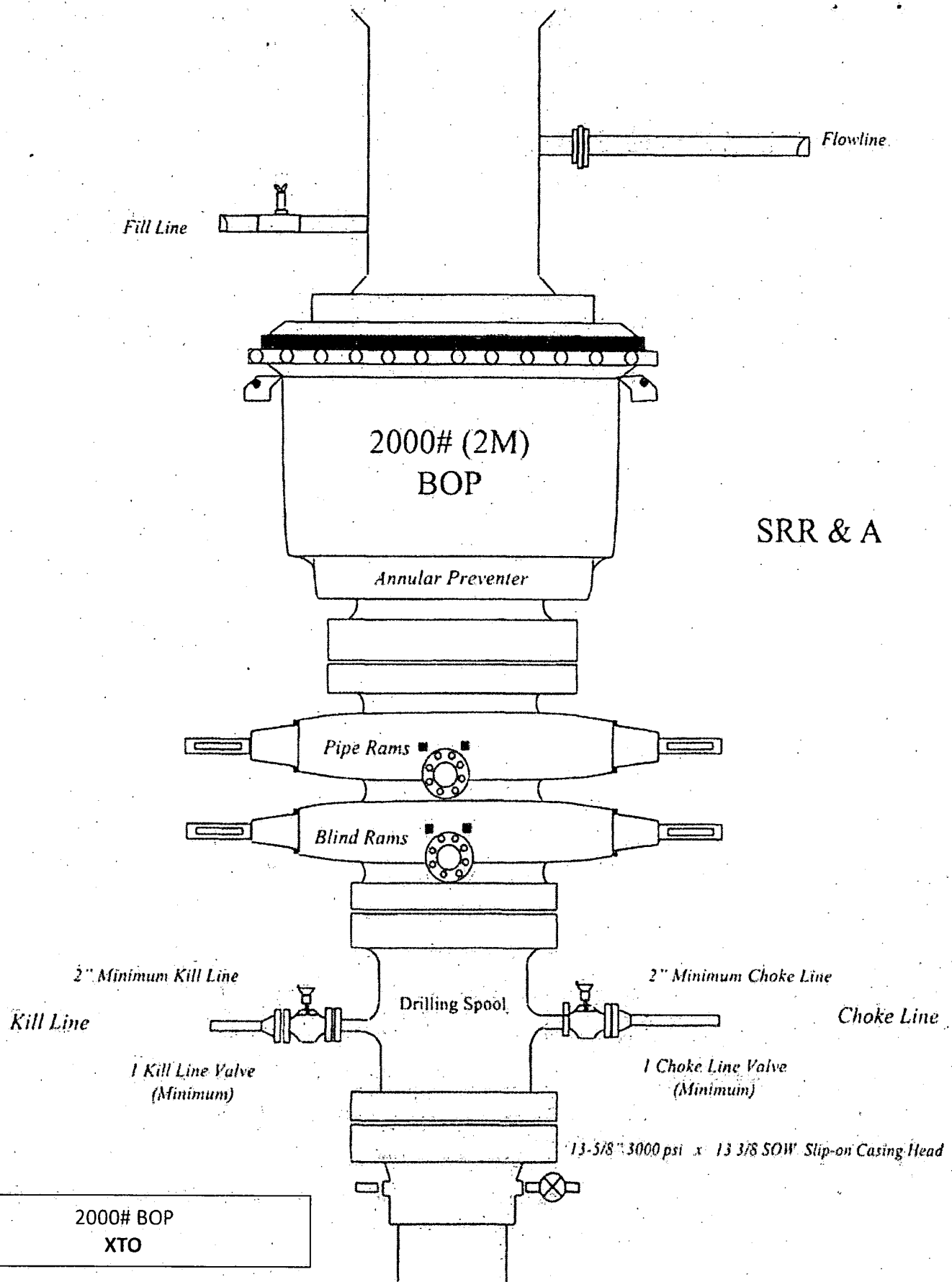
Open hole logging will not be done on this well.

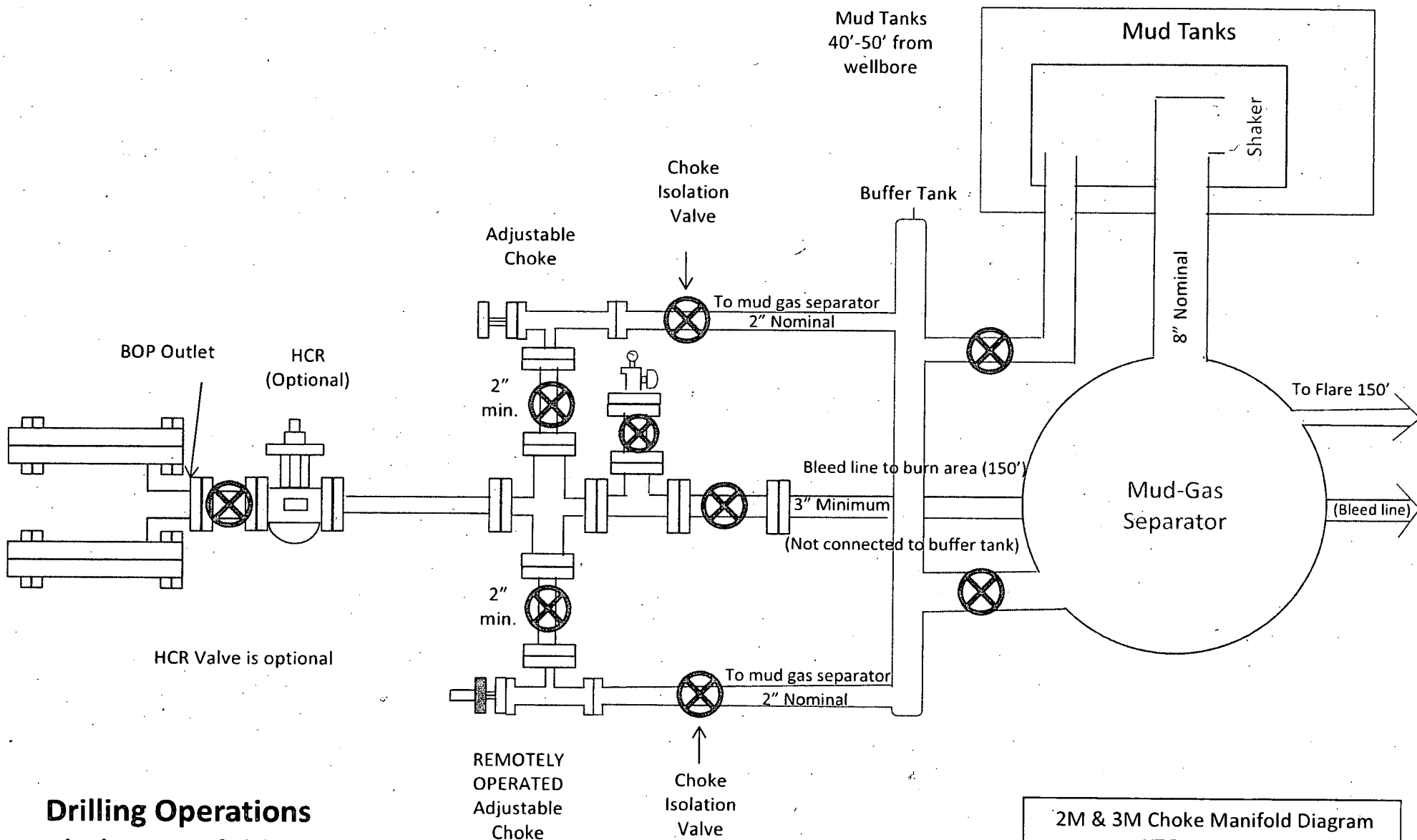
9. Abnormal Pressures and Temperatures / Potential Hazards

None Anticipated. BHT of 155 to 175 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 7623 psi.

10. Anticipated Starting Date and Duration of Operations

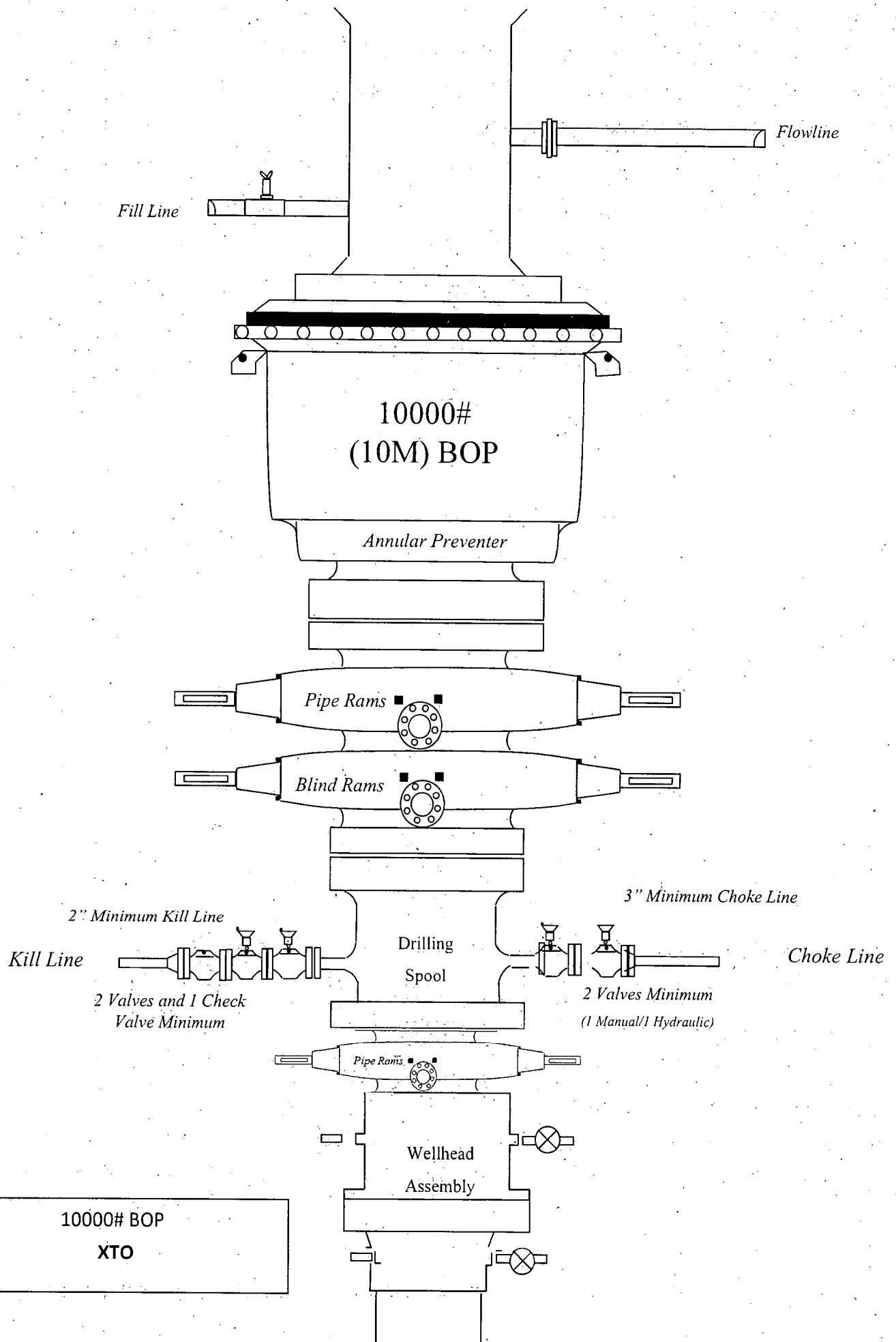
Road and location construction will begin after Santa Fe and BLM have approved the APD. Anticipated spud date will be as soon after Santa Fe and BLM approval and as soon as a rig will be available. Move in operations and drilling is expected to take 40 days. If production casing is run, an additional 30 days will be needed to complete well and construct surface facilities and/or lay flow lines in order to place well on production.

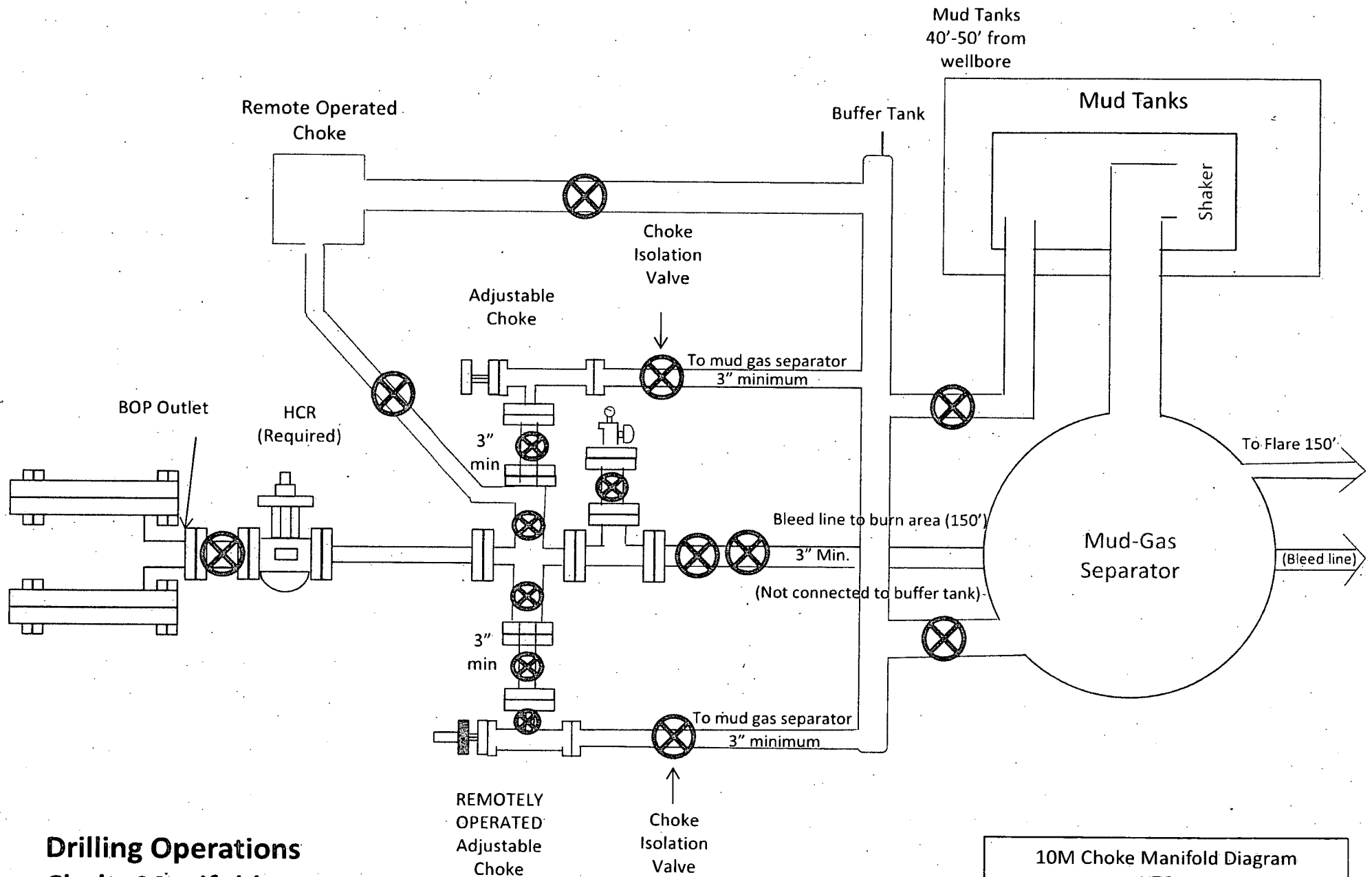




Drilling Operations **Choke Manifold** **2M & 3M Service**

2M & 3M Choke Manifold Diagram
 XTO





Drilling Operations Choke Manifold 10M Service

10M Choke Manifold Diagram
XTO

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.

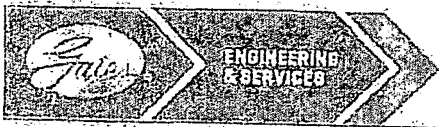
General Procedure With No Pipe In Hole (Open Hole)

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



GATES E & S NORTH AMERICA, INC
DU-TEX
134 44TH STREET
CORPUS CHRISTI, TEXAS 78405

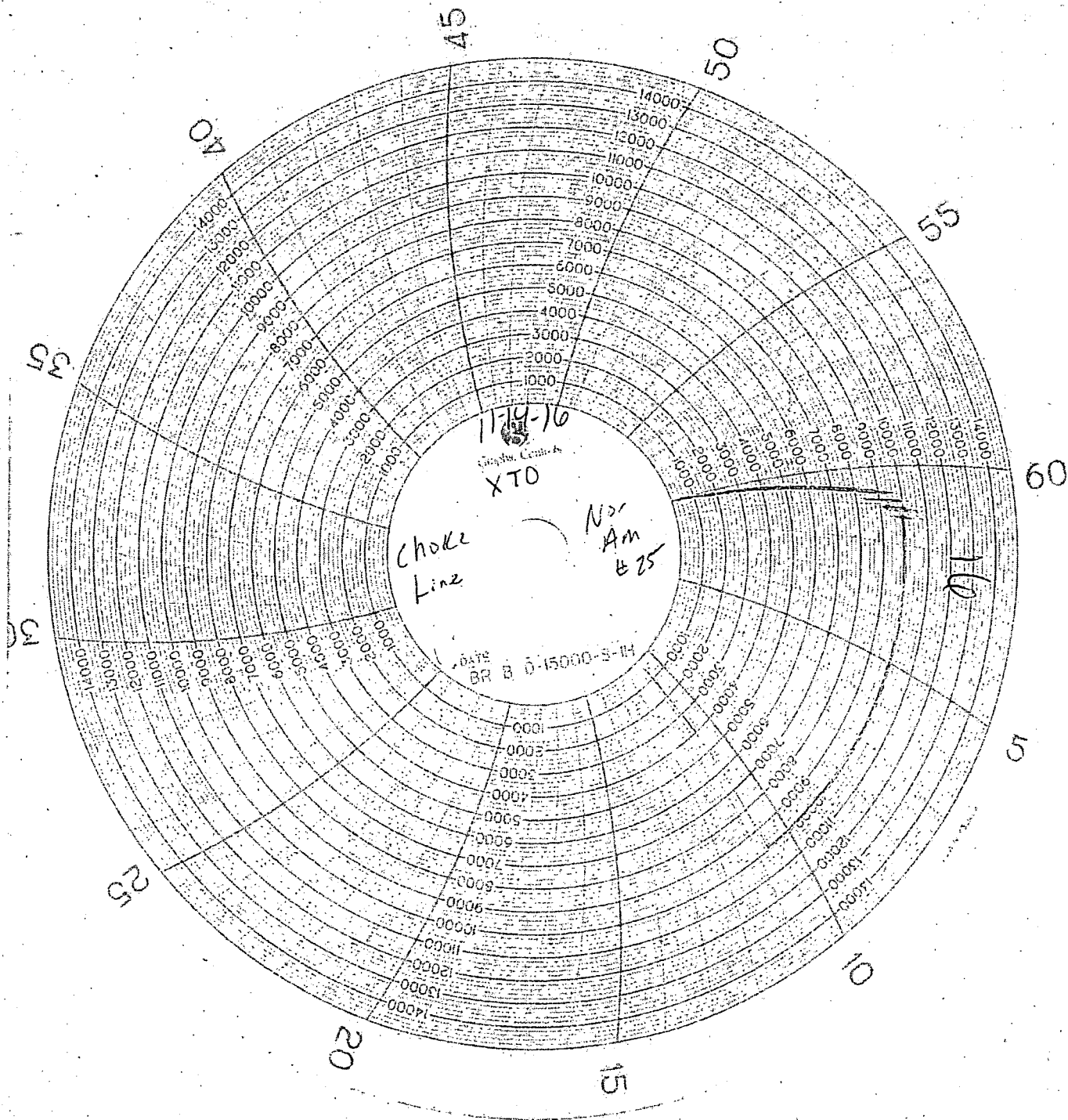
PHONE: 361-887-9807
FAX: 361-887-0812
EMAIL: crpe&s@gates.com
WEB: www.gates.com

GRADE D PRESSURE TEST CERTIFICATE

Customer :	AUSTIN DISTRIBUTING	Test Date:	6/8/2014
Customer Ref. :	PENDING	Hose Serial No.:	D-060814-1
Invoice No. :	201709	Created By:	NORMA
Product Description:	FD3.042.0R41/16.5KFLGE/E LE		
End Fitting 1 :	4 1/16 in.5K FLG	End Fitting 2 :	4 1/16 in.5K FLG
Gates Part No. :	4774-0001	Assembly Code :	L33090011513D-060814-1
Working Pressure :	5,000 PSI	Test Pressure :	7,500 PSI

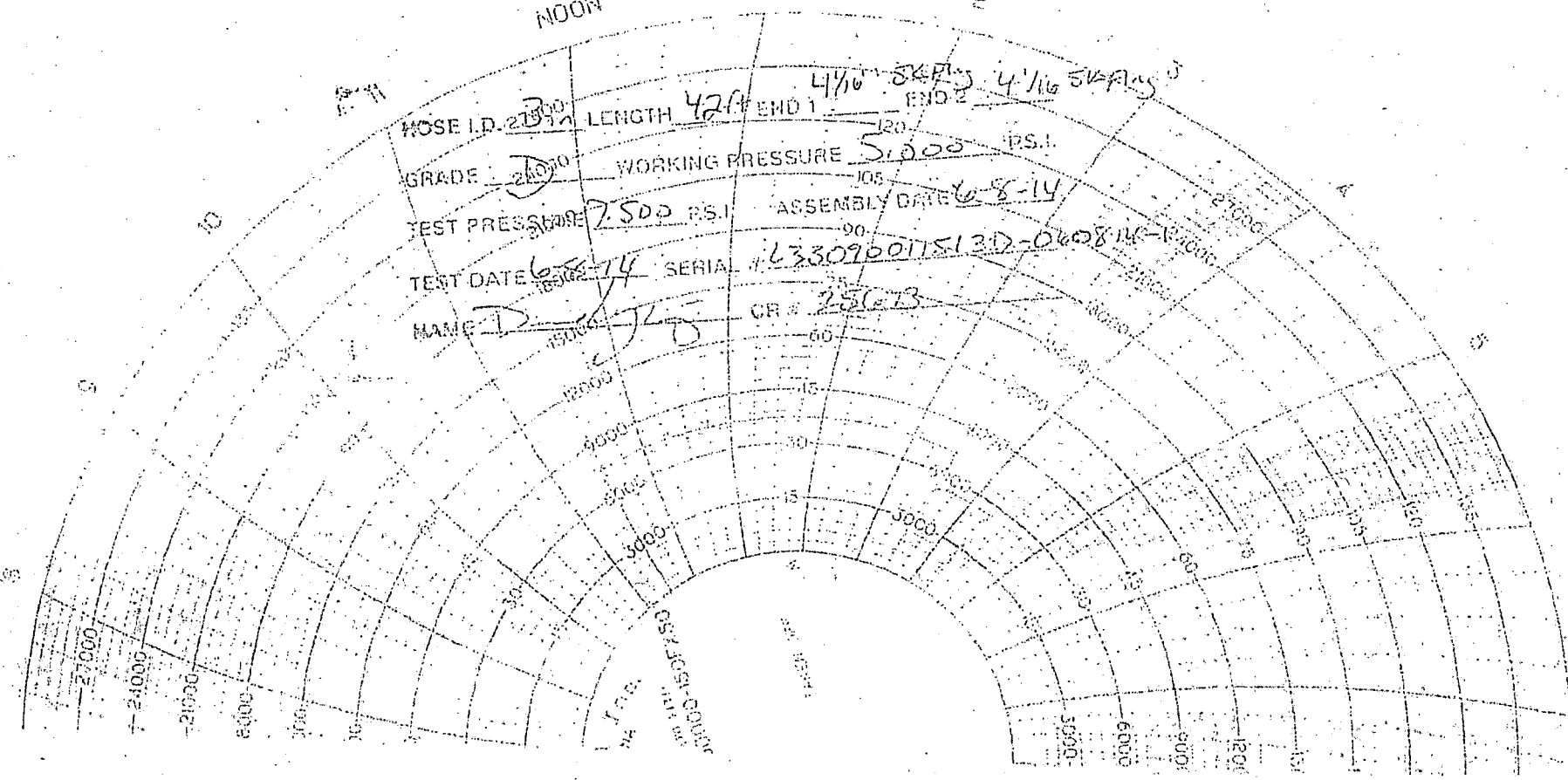
Gates E & S North America, Inc. certifies that the following hose assembly has been tested to the Gates Oilfield Roughneck Agreement/Specification requirements and passed the 15 minute hydrostatic test per API Spec 7K/Q1, Fifth Edition, June 2010, Test pressure 9.6.7 and per Table 9 to 7,500 psi in accordance with this product number. Hose burst pressure 9.6.7.2 exceeds the minimum of 2.5 times the working pressure per Table 9.

Quality:	QUALITY	Technical Supervisor :	PRODUCTION
Date :	6/8/2014	Date :	6/8/2014
Signature :		Signature :	



NOON

HOSE I.D. 3 1/4" LENGTH 42 ft END 1 4 1/16" S&P END 2 4 1/16" S&P
GRADE D WORKING PRESSURE 5,000 PSI.
TEST PRESSURE 7,500 PSI. ASSEMBLY DATE 6-8-14
TEST DATE 6-8-14 SERIAL # L33096011513D-060814-1
NAME D. J. L. CR # 25613



XTO Energy

3162+31 @ 3193.00usft (NabF26)
NAD 1927 (NADCON CONUS)

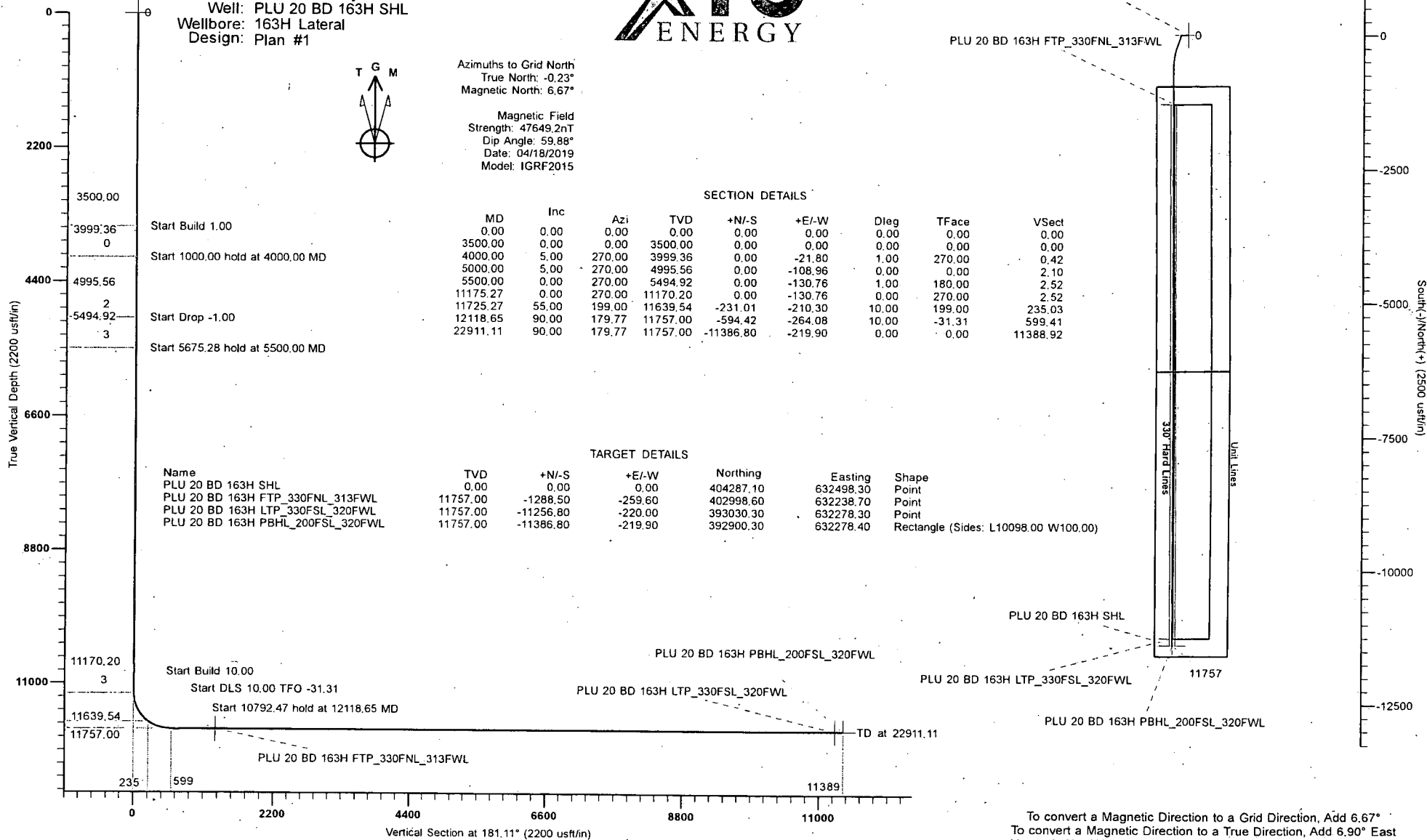
Project: Eddy County, NM (NAD27) NMEZ Grid
Site: PLU 20 Brushy Draw
Well: PLU 20 BD 163H SHL
Wellbore: 163H Lateral
Design: Plan #1



Azimuths to Grid North
True North: -0.23°
Magnetic North: 6.67°

Magnetic Field
Strength: 47649.2nT
Dip Angle: 59.88°
Date: 04/18/2019
Model: IGRF2015

West(-)/East(+) (2500 usft/in)



To convert a Magnetic Direction to a Grid Direction, Add 6.67°
To convert a Magnetic Direction to a True Direction, Add 6.90° East
Magnetic North is 6.67° East of Grid North (Magnetic Convergence)
Magnetic North is 6.90° East of True North (Magnetic Declination)

Plan: Plan #1 (PLU 20 BD 163H SHL/163H Lateral)
Created By: Mekka Williams
eSovina Well Design
mekka@esominawelldesign.com
16:54, April 25 2019

PREDATOR DIRECTIONAL
11323 MONARCHS WAY
Montgomery, Texas 77316

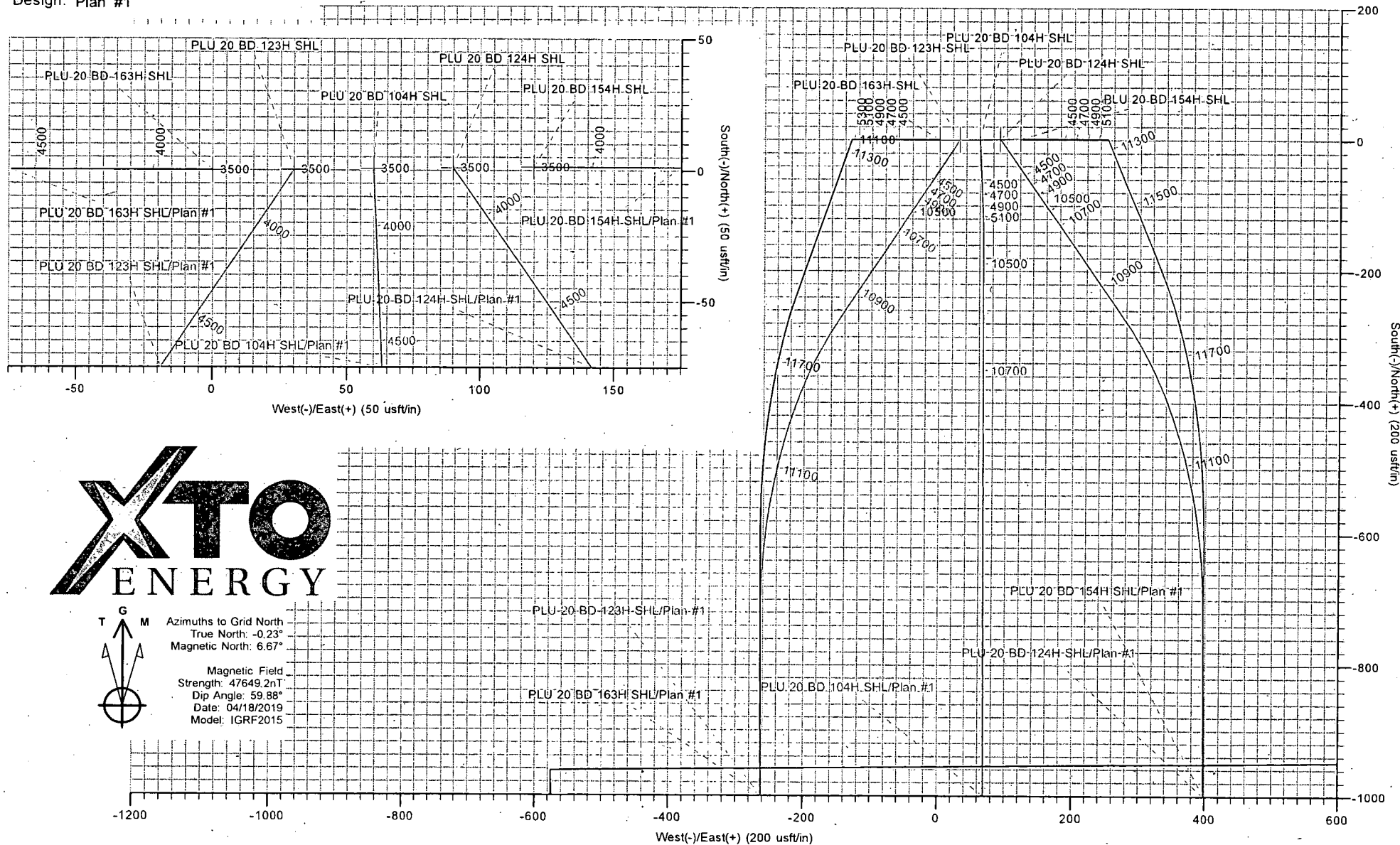


XTO Energy

Project: Eddy County, NM (NAD27) NMEZ Grid
 Site: PLU 20 Brushy Draw
 Well: PLU 20 BD 163H SHL
 Wellbore: 163H Lateral
 Design: Plan #1

To convert a Magnetic Direction to a Grid Direction, Add 6.67°
 Magnetic North is 6.67° East of Grid North (Magnetic Convergence)
 Magnetic North is 6.90° East of True North (Magnetic Declination)

3162+31 @ 3193.00usft (NabF26)
 NAD 1927 (NADCON CONUS)



Plan: Plan #1 (PLU 20 BD 163H SHL/163H Lateral)
 Created By: Mekka Williams
 eSomnia Well Design
 mekka@esominawelldesign.com
 17:02, April 25 2019

PREDATOR DIRECTIONAL
 11323 MONARCHS WAY
 Montgomery, TX 77316



Planning Report

Database:	PREDATOR_EDM	Local Co-ordinate Reference:	Well PLU 20 BD 163H SHL - Slot PLU 20 BD 163H SHL
Company:	XTO Energy	TVD Reference:	3162+31 @ 3193.00usft (NabF26)
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3162+31 @ 3193.00usft (NabF26)
Site:	PLU 20 Brushy Draw	North Reference:	Grid
Well:	PLU 20 BD 163H SHL	Survey Calculation Method:	Minimum Curvature
Wellbore:	163H Lateral		
Design:	Plan #1		

Project:	Eddy County, NM (NAD27) NMEZ Grid		
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:	PLU 20 Brushy Draw		
Site Position:		Northing:	404,287.80 usft
From:	Map	Easting:	632,558.20 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in
		Latitude:	32.11077971
		Longitude:	-103.90520511
		Grid Convergence:	0.23 °

Well	PLU 20 BD 163H SHL - Slot PLU 20 BD 163H SHL					
Well Position	+N/-S	-0.70 usft	Northing:	404,287.10 usft	Latitude:	32.11077844
	+E/-W	-59.90 usft	Easting:	632,498.30 usft	Longitude:	-103.90539858
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	3,162.00 usft

Wellbore	163H Lateral				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	04/18/19	6.90	59.83	47,649.17795490

Design:	Plan #1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0.00	0.00	0.00	181.11

Plan Survey Tool Program	Date	04/25/19		
Depth From	Depth To	Survey (Wellbore)	Tool Name	Remarks
(usft)	(usft)			
1	0.00	22,911.11 Plan #1 (163H Lateral)	MWD+IFR1+MS	
			OWSG MWD + IFR1 + Multi-St	

Planning Report

Database:	PREDATOR_EDM	Local Co-ordinate Reference:	Well PLU 20 BD 163H SHL - Slot PLU 20 BD 163H SHL
Company:	XTO Energy	TVD Reference:	3162+31 @ 3193.00usft (NabF26)
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3162+31 @ 3193.00usft (NabF26)
Site:	PLU 20 Brushy Draw	North Reference:	Grid
Well:	PLU 20 BD 163H SHL	Survey Calculation Method:	Minimum Curvature
Wellbore:	163H Lateral		
Design:	Plan #1		

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	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	
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,000.00	5.00	270.00	3,999.36	0.00	-21.80	1.00	1.00	0.00	270.00	
5,000.00	5.00	270.00	4,995.56	0.00	-108.96	0.00	0.00	0.00	0.00	
5,500.00	0.00	270.00	5,494.92	0.00	-130.76	1.00	-1.00	0.00	180.00	
11,175.27	0.00	270.00	11,170.20	0.00	-130.76	0.00	0.00	0.00	270.00	
11,725.27	55.00	199.00	11,639.54	-231.01	-210.30	10.00	10.00	0.00	199.00	
12,118.65	90.00	179.77	11,757.00	-594.42	-264.08	10.00	8.90	-4.89	-31.31	
22,911.11	90.00	179.77	11,757.00	-11,386.80	-219.90	0.00	0.00	0.00	0.00	PLU 20 BD 163H PBF

Planning Report

Database:	PREDATOR_EDM	Local Co-ordinate Reference:	Well PLU 20 BD 163H SHL - Slot PLU 20 BD 163H SHL
Company:	XTO Energy	TVD Reference:	3162+31 @ 3193.00usft (NabF26)
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3162+31 @ 3193.00usft (NabF26)
Site:	PLU 20 Brushy Draw	North Reference:	Grid
Well:	PLU 20 BD 163H SHL	Survey Calculation Method:	Minimum Curvature
Wellbore:	163H Lateral		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	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
PLU 20 BD 163H SHL									
1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
PLU 20 BD 123H SHL - PLU 20 BD 154H SHL - PLU 20 BD 124H SHL - PLU 20 BD 104H SHL									
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
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	1.00	270.00	3,600.00	0.00	-0.87	0.02	1.00	1.00	0.00
3,700.00	2.00	270.00	3,699.96	0.00	-3.49	0.07	1.00	1.00	0.00
3,800.00	3.00	270.00	3,799.86	0.00	-7.85	0.15	1.00	1.00	0.00
3,900.00	4.00	270.00	3,899.68	0.00	-13.96	0.27	1.00	1.00	0.00
4,000.00	5.00	270.00	3,999.36	0.00	-21.80	0.42	1.00	1.00	0.00
4,100.00	5.00	270.00	4,098.99	0.00	-30.52	0.59	0.00	0.00	0.00
4,200.00	5.00	270.00	4,198.60	0.00	-39.23	0.76	0.00	0.00	0.00
4,300.00	5.00	270.00	4,298.22	0.00	-47.95	0.93	0.00	0.00	0.00
4,400.00	5.00	270.00	4,397.84	0.00	-56.67	1.09	0.00	0.00	0.00
4,500.00	5.00	270.00	4,497.46	0.00	-65.38	1.26	0.00	0.00	0.00
4,600.00	5.00	270.00	4,597.08	0.00	-74.10	1.43	0.00	0.00	0.00
4,700.00	5.00	270.00	4,696.70	0.00	-82.81	1.60	0.00	0.00	0.00
4,800.00	5.00	270.00	4,796.32	0.00	-91.53	1.77	0.00	0.00	0.00
4,900.00	5.00	270.00	4,895.94	0.00	-100.24	1.94	0.00	0.00	0.00

Planning Report

Database:	PREDATOR_EDM	Local Co-ordinate Reference:	Well PLU 20 BD 163H SHL - Slot PLU 20 BD 163H SHL
Company:	XTO Energy	TVD Reference:	3162+31 @ 3193.00usft (NabF26)
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3162+31 @ 3193.00usft (NabF26)
Site:	PLU 20 Brushy Draw	North Reference:	Grid
Well:	PLU 20 BD 163H SHL	Survey Calculation Method:	Minimum Curvature
Wellbore:	163H Lateral		
Design:	Plan #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
5,000.00	5.00	270.00	4,995.56	0.00	-108.96	2.10	0.00	0.00	0.00	
5,100.00	4.00	270.00	5,095.25	0.00	-116.80	2.26	1.00	-1.00	0.00	
5,200.00	3.00	270.00	5,195.06	0.00	-122.91	2.37	1.00	-1.00	0.00	
5,300.00	2.00	270.00	5,294.97	0.00	-127.27	2.46	1.00	-1.00	0.00	
5,400.00	1.00	270.00	5,394.93	0.00	-129.89	2.51	1.00	-1.00	0.00	
5,500.00	0.00	270.00	5,494.92	0.00	-130.76	2.52	1.00	-1.00	0.00	
5,600.00	0.00	270.00	5,594.93	0.00	-130.76	2.52	0.00	0.00	0.00	
5,700.00	0.00	270.00	5,694.93	0.00	-130.76	2.52	0.00	0.00	0.00	
5,800.00	0.00	270.00	5,794.93	0.00	-130.76	2.52	0.00	0.00	0.00	
5,900.00	0.00	270.00	5,894.93	0.00	-130.76	2.52	0.00	0.00	0.00	
6,000.00	0.00	270.00	5,994.93	0.00	-130.76	2.52	0.00	0.00	0.00	
6,100.00	0.00	270.00	6,094.93	0.00	-130.76	2.52	0.00	0.00	0.00	
6,200.00	0.00	270.00	6,194.93	0.00	-130.76	2.52	0.00	0.00	0.00	
6,300.00	0.00	270.00	6,294.93	0.00	-130.76	2.52	0.00	0.00	0.00	
6,400.00	0.00	270.00	6,394.93	0.00	-130.76	2.52	0.00	0.00	0.00	
6,500.00	0.00	270.00	6,494.93	0.00	-130.76	2.52	0.00	0.00	0.00	
6,600.00	0.00	270.00	6,594.93	0.00	-130.76	2.52	0.00	0.00	0.00	
6,700.00	0.00	270.00	6,694.93	0.00	-130.76	2.52	0.00	0.00	0.00	
6,800.00	0.00	270.00	6,794.93	0.00	-130.76	2.52	0.00	0.00	0.00	
6,900.00	0.00	270.00	6,894.93	0.00	-130.76	2.52	0.00	0.00	0.00	
7,000.00	0.00	270.00	6,994.93	0.00	-130.76	2.52	0.00	0.00	0.00	
7,100.00	0.00	270.00	7,094.93	0.00	-130.76	2.52	0.00	0.00	0.00	
7,200.00	0.00	270.00	7,194.93	0.00	-130.76	2.52	0.00	0.00	0.00	
7,300.00	0.00	270.00	7,294.93	0.00	-130.76	2.52	0.00	0.00	0.00	
7,400.00	0.00	270.00	7,394.93	0.00	-130.76	2.52	0.00	0.00	0.00	
7,500.00	0.00	270.00	7,494.93	0.00	-130.76	2.52	0.00	0.00	0.00	
7,600.00	0.00	270.00	7,594.93	0.00	-130.76	2.52	0.00	0.00	0.00	
7,700.00	0.00	270.00	7,694.93	0.00	-130.76	2.52	0.00	0.00	0.00	
7,800.00	0.00	270.00	7,794.93	0.00	-130.76	2.52	0.00	0.00	0.00	
7,900.00	0.00	270.00	7,894.93	0.00	-130.76	2.52	0.00	0.00	0.00	
8,000.00	0.00	270.00	7,994.93	0.00	-130.76	2.52	0.00	0.00	0.00	
8,100.00	0.00	270.00	8,094.93	0.00	-130.76	2.52	0.00	0.00	0.00	
8,200.00	0.00	270.00	8,194.93	0.00	-130.76	2.52	0.00	0.00	0.00	
8,300.00	0.00	270.00	8,294.93	0.00	-130.76	2.52	0.00	0.00	0.00	
8,400.00	0.00	270.00	8,394.93	0.00	-130.76	2.52	0.00	0.00	0.00	
8,500.00	0.00	270.00	8,494.93	0.00	-130.76	2.52	0.00	0.00	0.00	
8,600.00	0.00	270.00	8,594.93	0.00	-130.76	2.52	0.00	0.00	0.00	
8,700.00	0.00	270.00	8,694.93	0.00	-130.76	2.52	0.00	0.00	0.00	
8,800.00	0.00	270.00	8,794.93	0.00	-130.76	2.52	0.00	0.00	0.00	
8,900.00	0.00	270.00	8,894.93	0.00	-130.76	2.52	0.00	0.00	0.00	
9,000.00	0.00	270.00	8,994.93	0.00	-130.76	2.52	0.00	0.00	0.00	
9,100.00	0.00	270.00	9,094.93	0.00	-130.76	2.52	0.00	0.00	0.00	
9,200.00	0.00	270.00	9,194.93	0.00	-130.76	2.52	0.00	0.00	0.00	
9,300.00	0.00	270.00	9,294.93	0.00	-130.76	2.52	0.00	0.00	0.00	
9,400.00	0.00	270.00	9,394.93	0.00	-130.76	2.52	0.00	0.00	0.00	
9,500.00	0.00	270.00	9,494.93	0.00	-130.76	2.52	0.00	0.00	0.00	
9,600.00	0.00	270.00	9,594.93	0.00	-130.76	2.52	0.00	0.00	0.00	
9,700.00	0.00	270.00	9,694.93	0.00	-130.76	2.52	0.00	0.00	0.00	
9,800.00	0.00	270.00	9,794.93	0.00	-130.76	2.52	0.00	0.00	0.00	
9,900.00	0.00	270.00	9,894.93	0.00	-130.76	2.52	0.00	0.00	0.00	
10,000.00	0.00	270.00	9,994.93	0.00	-130.76	2.52	0.00	0.00	0.00	
10,100.00	0.00	270.00	10,094.93	0.00	-130.76	2.52	0.00	0.00	0.00	
10,200.00	0.00	270.00	10,194.93	0.00	-130.76	2.52	0.00	0.00	0.00	

Planning Report

Database:	PREDATOR_EDM	Local Co-ordinate Reference:	Well PLU 20 BD 163H SHL - Slot PLU 20 BD 163H SHL
Company:	XTO Energy	TVD Reference:	3162+31 @ 3193.00usft (NabF26)
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3162+31 @ 3193.00usft (NabF26)
Site:	PLU 20 Brushy Draw	North Reference:	Grid
Well:	PLU 20 BD 163H SHL	Survey Calculation Method:	Minimum Curvature
Wellbore:	163H Lateral		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
10,300.00	0.00	270.00	10,294.93	0.00	-130.76	2.52	0.00	0.00	0.00
10,400.00	0.00	270.00	10,394.93	0.00	-130.76	2.52	0.00	0.00	0.00
10,500.00	0.00	270.00	10,494.93	0.00	-130.76	2.52	0.00	0.00	0.00
10,600.00	0.00	270.00	10,594.93	0.00	-130.76	2.52	0.00	0.00	0.00
10,700.00	0.00	270.00	10,694.93	0.00	-130.76	2.52	0.00	0.00	0.00
10,800.00	0.00	270.00	10,794.93	0.00	-130.76	2.52	0.00	0.00	0.00
10,900.00	0.00	270.00	10,894.93	0.00	-130.76	2.52	0.00	0.00	0.00
11,000.00	0.00	270.00	10,994.93	0.00	-130.76	2.52	0.00	0.00	0.00
11,100.00	0.00	270.00	11,094.93	0.00	-130.76	2.52	0.00	0.00	0.00
11,175.27	0.00	270.00	11,170.20	0.00	-130.76	2.52	0.00	0.00	0.00
11,200.00	2.47	199.00	11,194.92	-0.50	-130.93	3.03	10.00	10.00	-287.15
11,250.00	7.47	199.00	11,244.71	-4.60	-132.35	7.16	10.00	10.00	0.00
11,300.00	12.47	199.00	11,293.94	-12.79	-135.16	15.39	10.00	10.00	0.00
11,350.00	17.47	199.00	11,342.23	-25.00	-139.37	27.68	10.00	10.00	0.00
11,400.00	22.47	199.00	11,389.21	-41.14	-144.93	43.93	10.00	10.00	0.00
11,450.00	27.47	199.00	11,434.52	-61.09	-151.80	64.01	10.00	10.00	0.00
11,500.00	32.47	199.00	11,477.82	-84.70	-159.93	87.77	10.00	10.00	0.00
11,550.00	37.47	199.00	11,518.78	-111.79	-169.25	115.04	10.00	10.00	0.00
11,600.00	42.47	199.00	11,557.08	-142.15	-179.71	145.60	10.00	10.00	0.00
11,650.00	47.47	199.00	11,592.44	-175.56	-191.21	179.21	10.00	10.00	0.00
11,700.00	52.47	199.00	11,624.59	-211.75	-203.67	215.64	10.00	10.00	0.00
11,725.27	55.00	199.00	11,639.54	-231.01	-210.30	235.03	10.00	10.00	0.00
11,750.00	57.12	197.47	11,653.34	-250.49	-216.72	254.63	10.00	8.58	-6.19
11,800.00	61.47	194.59	11,678.87	-291.80	-228.56	296.16	10.00	8.69	-5.77
11,850.00	65.66	191.93	11,701.05	-335.41	-238.82	339.96	10.00	8.80	-5.31
11,900.00	70.31	189.46	11,719.71	-380.98	-247.41	385.68	10.00	8.88	-4.95
11,950.00	74.78	187.12	11,734.71	-428.16	-254.27	432.99	10.00	8.95	-4.68
12,000.00	79.28	184.88	11,745.93	-476.60	-259.35	481.52	10.00	8.99	-4.49
12,050.00	83.79	182.70	11,753.29	-525.93	-262.62	530.91	10.00	9.03	-4.35
12,100.00	88.31	180.56	11,756.73	-575.78	-264.03	580.77	10.00	9.04	-4.28
12,118.65	90.00	179.77	11,757.00	-594.42	-264.08	599.41	10.00	9.05	-4.26
12,200.00	90.00	179.77	11,757.00	-675.78	-263.75	680.74	0.00	0.00	0.00
12,300.00	90.00	179.77	11,757.00	-775.78	-263.34	780.72	0.00	0.00	0.00
12,400.00	90.00	179.77	11,757.00	-875.77	-262.93	880.69	0.00	0.00	0.00
12,500.00	90.00	179.77	11,757.00	-975.77	-262.52	980.66	0.00	0.00	0.00
12,600.00	90.00	179.77	11,757.00	-1,075.77	-262.11	1,080.63	0.00	0.00	0.00
12,700.00	90.00	179.77	11,757.00	-1,175.77	-261.70	1,180.61	0.00	0.00	0.00
12,800.00	90.00	179.77	11,757.00	-1,275.77	-261.29	1,280.58	0.00	0.00	0.00
12,807.44	90.00	179.77	11,757.00	-1,283.21	-261.26	1,288.01	0.00	0.00	0.00
PLU 20 BD 154H FTP_330FNL_363FEL - PLU 20 BD 124H FTP_330FNL_363FEL									
12,809.99	90.00	179.77	11,757.00	-1,285.76	-261.25	1,290.56	0.00	0.00	0.00
PLU 20 BD 104H FTP_330FNL_644FWL									
12,812.74	90.00	179.77	11,757.00	-1,288.51	-261.24	1,293.31	0.00	0.00	0.00
PLU 20 BD 163H FTP_330FNL_313FWL - PLU 20 BD 123H FTP_330FNL_313FWL									
12,900.00	90.00	179.77	11,757.00	-1,375.77	-260.88	1,380.55	0.00	0.00	0.00
13,000.00	90.00	179.77	11,757.00	-1,475.77	-260.48	1,480.52	0.00	0.00	0.00
13,100.00	90.00	179.77	11,757.00	-1,575.77	-260.07	1,580.50	0.00	0.00	0.00
13,200.00	90.00	179.77	11,757.00	-1,675.77	-259.66	1,680.47	0.00	0.00	0.00
13,300.00	90.00	179.77	11,757.00	-1,775.77	-259.25	1,780.44	0.00	0.00	0.00
13,400.00	90.00	179.77	11,757.00	-1,875.77	-258.84	1,880.41	0.00	0.00	0.00
13,500.00	90.00	179.77	11,757.00	-1,975.77	-258.43	1,980.39	0.00	0.00	0.00
13,600.00	90.00	179.77	11,757.00	-2,075.76	-258.02	2,080.36	0.00	0.00	0.00

Planning Report

Database:	PREDATOR_EDM	Local Co-ordinate Reference:	Well PLU 20 BD 163H SHL - Slot PLU 20 BD 163H SHL
Company:	XTO Energy	TVD Reference:	3162+31 @ 3193.00usft (NabF26)
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3162+31 @ 3193.00usft (NabF26)
Site:	PLU 20 Brushy Draw	North Reference:	Grid
Well:	PLU 20 BD 163H SHL	Survey Calculation Method:	Minimum Curvature
Wellbore:	163H Lateral		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
13,700.00	90.00	179.77	11,757.00	-2,175.76	-257.61	2,180.33	0.00	0.00	0.00
13,800.00	90.00	179.77	11,757.00	-2,275.76	-257.20	2,280.30	0.00	0.00	0.00
13,900.00	90.00	179.77	11,757.00	-2,375.76	-256.79	2,380.28	0.00	0.00	0.00
14,000.00	90.00	179.77	11,757.00	-2,475.76	-256.38	2,480.25	0.00	0.00	0.00
14,100.00	90.00	179.77	11,757.00	-2,575.76	-255.97	2,580.22	0.00	0.00	0.00
14,200.00	90.00	179.77	11,757.00	-2,675.76	-255.56	2,680.20	0.00	0.00	0.00
14,300.00	90.00	179.77	11,757.00	-2,775.76	-255.15	2,780.17	0.00	0.00	0.00
14,400.00	90.00	179.77	11,757.00	-2,875.76	-254.74	2,880.14	0.00	0.00	0.00
14,500.00	90.00	179.77	11,757.00	-2,975.76	-254.33	2,980.11	0.00	0.00	0.00
14,600.00	90.00	179.77	11,757.00	-3,075.76	-253.92	3,080.09	0.00	0.00	0.00
14,700.00	90.00	179.77	11,757.00	-3,175.76	-253.52	3,180.06	0.00	0.00	0.00
14,800.00	90.00	179.77	11,757.00	-3,275.75	-253.11	3,280.03	0.00	0.00	0.00
14,900.00	90.00	179.77	11,757.00	-3,375.75	-252.70	3,380.00	0.00	0.00	0.00
15,000.00	90.00	179.77	11,757.00	-3,475.75	-252.29	3,479.98	0.00	0.00	0.00
15,100.00	90.00	179.77	11,757.00	-3,575.75	-251.88	3,579.95	0.00	0.00	0.00
15,200.00	90.00	179.77	11,757.00	-3,675.75	-251.47	3,679.92	0.00	0.00	0.00
15,300.00	90.00	179.77	11,757.00	-3,775.75	-251.06	3,779.89	0.00	0.00	0.00
15,400.00	90.00	179.77	11,757.00	-3,875.75	-250.65	3,879.87	0.00	0.00	0.00
15,500.00	90.00	179.77	11,757.00	-3,975.75	-250.24	3,979.84	0.00	0.00	0.00
15,600.00	90.00	179.77	11,757.00	-4,075.75	-249.83	4,079.81	0.00	0.00	0.00
15,700.00	90.00	179.77	11,757.00	-4,175.75	-249.42	4,179.78	0.00	0.00	0.00
15,800.00	90.00	179.77	11,757.00	-4,275.75	-249.01	4,279.76	0.00	0.00	0.00
15,900.00	90.00	179.77	11,757.00	-4,375.75	-248.60	4,379.73	0.00	0.00	0.00
16,000.00	90.00	179.77	11,757.00	-4,475.74	-248.19	4,479.70	0.00	0.00	0.00
16,100.00	90.00	179.77	11,757.00	-4,575.74	-247.78	4,579.68	0.00	0.00	0.00
16,200.00	90.00	179.77	11,757.00	-4,675.74	-247.37	4,679.65	0.00	0.00	0.00
16,300.00	90.00	179.77	11,757.00	-4,775.74	-246.97	4,779.62	0.00	0.00	0.00
16,400.00	90.00	179.77	11,757.00	-4,875.74	-246.56	4,879.59	0.00	0.00	0.00
16,500.00	90.00	179.77	11,757.00	-4,975.74	-246.15	4,979.57	0.00	0.00	0.00
16,600.00	90.00	179.77	11,757.00	-5,075.74	-245.74	5,079.54	0.00	0.00	0.00
16,700.00	90.00	179.77	11,757.00	-5,175.74	-245.33	5,179.51	0.00	0.00	0.00
16,800.00	90.00	179.77	11,757.00	-5,275.74	-244.92	5,279.48	0.00	0.00	0.00
16,900.00	90.00	179.77	11,757.00	-5,375.74	-244.51	5,379.46	0.00	0.00	0.00
17,000.00	90.00	179.77	11,757.00	-5,475.74	-244.10	5,479.43	0.00	0.00	0.00
17,100.00	90.00	179.77	11,757.00	-5,575.74	-243.69	5,579.40	0.00	0.00	0.00
17,200.00	90.00	179.77	11,757.00	-5,675.73	-243.28	5,679.37	0.00	0.00	0.00
17,300.00	90.00	179.77	11,757.00	-5,775.73	-242.87	5,779.35	0.00	0.00	0.00
17,400.00	90.00	179.77	11,757.00	-5,875.73	-242.46	5,879.32	0.00	0.00	0.00
17,500.00	90.00	179.77	11,757.00	-5,975.73	-242.05	5,979.29	0.00	0.00	0.00
17,600.00	90.00	179.77	11,757.00	-6,075.73	-241.64	6,079.26	0.00	0.00	0.00
17,700.00	90.00	179.77	11,757.00	-6,175.73	-241.23	6,179.24	0.00	0.00	0.00
17,800.00	90.00	179.77	11,757.00	-6,275.73	-240.82	6,279.21	0.00	0.00	0.00
17,900.00	90.00	179.77	11,757.00	-6,375.73	-240.42	6,379.18	0.00	0.00	0.00
18,000.00	90.00	179.77	11,757.00	-6,475.73	-240.01	6,479.15	0.00	0.00	0.00
18,100.00	90.00	179.77	11,757.00	-6,575.73	-239.60	6,579.13	0.00	0.00	0.00
18,200.00	90.00	179.77	11,757.00	-6,675.73	-239.19	6,679.10	0.00	0.00	0.00
18,300.00	90.00	179.77	11,757.00	-6,775.73	-238.78	6,779.07	0.00	0.00	0.00
18,400.00	90.00	179.77	11,757.00	-6,875.72	-238.37	6,879.05	0.00	0.00	0.00
18,500.00	90.00	179.77	11,757.00	-6,975.72	-237.96	6,979.02	0.00	0.00	0.00
18,600.00	90.00	179.77	11,757.00	-7,075.72	-237.55	7,078.99	0.00	0.00	0.00
18,700.00	90.00	179.77	11,757.00	-7,175.72	-237.14	7,178.96	0.00	0.00	0.00
18,800.00	90.00	179.77	11,757.00	-7,275.72	-236.73	7,278.94	0.00	0.00	0.00
18,900.00	90.00	179.77	11,757.00	-7,375.72	-236.32	7,378.91	0.00	0.00	0.00

Planning Report

Database:	PREDATOR_EDM	Local Co-ordinate Reference:	Well PLU 20 BD 163H SHL - Slot PLU 20 BD 163H SHL
Company:	XTO Energy	TVD Reference:	3162+31 @ 3193.00usft (NabF26)
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3162+31 @ 3193.00usft (NabF26)
Site:	PLU 20 Brushy Draw	North Reference:	Grid
Well:	PLU 20 BD 163H SHL	Survey Calculation Method:	Minimum Curvature
Wellbore:	163H Lateral		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
19,000.00	90.00	179.77	11,757.00	-7,475.72	-235.91	7,478.88	0.00	0.00	0.00
19,100.00	90.00	179.77	11,757.00	-7,575.72	-235.50	7,578.85	0.00	0.00	0.00
19,200.00	90.00	179.77	11,757.00	-7,675.72	-235.09	7,678.83	0.00	0.00	0.00
19,300.00	90.00	179.77	11,757.00	-7,775.72	-234.68	7,778.80	0.00	0.00	0.00
19,400.00	90.00	179.77	11,757.00	-7,875.72	-234.27	7,878.77	0.00	0.00	0.00
19,500.00	90.00	179.77	11,757.00	-7,975.72	-233.86	7,978.74	0.00	0.00	0.00
19,600.00	90.00	179.77	11,757.00	-8,075.71	-233.46	8,078.72	0.00	0.00	0.00
19,700.00	90.00	179.77	11,757.00	-8,175.71	-233.05	8,178.69	0.00	0.00	0.00
19,800.00	90.00	179.77	11,757.00	-8,275.71	-232.64	8,278.66	0.00	0.00	0.00
19,900.00	90.00	179.77	11,757.00	-8,375.71	-232.23	8,378.63	0.00	0.00	0.00
20,000.00	90.00	179.77	11,757.00	-8,475.71	-231.82	8,478.61	0.00	0.00	0.00
20,100.00	90.00	179.77	11,757.00	-8,575.71	-231.41	8,578.58	0.00	0.00	0.00
20,200.00	90.00	179.77	11,757.00	-8,675.71	-231.00	8,678.55	0.00	0.00	0.00
20,300.00	90.00	179.77	11,757.00	-8,775.71	-230.59	8,778.53	0.00	0.00	0.00
20,400.00	90.00	179.77	11,757.00	-8,875.71	-230.18	8,878.50	0.00	0.00	0.00
20,500.00	90.00	179.77	11,757.00	-8,975.71	-229.77	8,978.47	0.00	0.00	0.00
20,600.00	90.00	179.77	11,757.00	-9,075.71	-229.36	9,078.44	0.00	0.00	0.00
20,700.00	90.00	179.77	11,757.00	-9,175.71	-228.95	9,178.42	0.00	0.00	0.00
20,800.00	90.00	179.77	11,757.00	-9,275.70	-228.54	9,278.39	0.00	0.00	0.00
20,900.00	90.00	179.77	11,757.00	-9,375.70	-228.13	9,378.36	0.00	0.00	0.00
21,000.00	90.00	179.77	11,757.00	-9,475.70	-227.72	9,478.33	0.00	0.00	0.00
21,100.00	90.00	179.77	11,757.00	-9,575.70	-227.31	9,578.31	0.00	0.00	0.00
21,200.00	90.00	179.77	11,757.00	-9,675.70	-226.91	9,678.28	0.00	0.00	0.00
21,300.00	90.00	179.77	11,757.00	-9,775.70	-226.50	9,778.25	0.00	0.00	0.00
21,400.00	90.00	179.77	11,757.00	-9,875.70	-226.09	9,878.22	0.00	0.00	0.00
21,500.00	90.00	179.77	11,757.00	-9,975.70	-225.68	9,978.20	0.00	0.00	0.00
21,600.00	90.00	179.77	11,757.00	-10,075.70	-225.27	10,078.17	0.00	0.00	0.00
21,700.00	90.00	179.77	11,757.00	-10,175.70	-224.86	10,178.14	0.00	0.00	0.00
21,800.00	90.00	179.77	11,757.00	-10,275.70	-224.45	10,278.11	0.00	0.00	0.00
21,900.00	90.00	179.77	11,757.00	-10,375.70	-224.04	10,378.09	0.00	0.00	0.00
22,000.00	90.00	179.77	11,757.00	-10,475.69	-223.63	10,478.06	0.00	0.00	0.00
22,100.00	90.00	179.77	11,757.00	-10,575.69	-223.22	10,578.03	0.00	0.00	0.00
22,200.00	90.00	179.77	11,757.00	-10,675.69	-222.81	10,678.00	0.00	0.00	0.00
22,300.00	90.00	179.77	11,757.00	-10,775.69	-222.40	10,777.98	0.00	0.00	0.00
22,400.00	90.00	179.77	11,757.00	-10,875.69	-221.99	10,877.95	0.00	0.00	0.00
22,500.00	90.00	179.77	11,757.00	-10,975.69	-221.58	10,977.92	0.00	0.00	0.00
22,600.00	90.00	179.77	11,757.00	-11,075.69	-221.17	11,077.90	0.00	0.00	0.00
22,700.00	90.00	179.77	11,757.00	-11,175.69	-220.76	11,177.87	0.00	0.00	0.00
22,778.42	90.00	179.77	11,757.00	-11,254.10	-220.44	11,256.26	0.00	0.00	0.00
PLU 20 BD 123H LTP_330FSL_320FWL - PLU 20 BD 154H LTP_330FSL_350FEL - PLU 20 BD 124H LTP_330FSL_350FEL									
22,779.76	90.00	179.77	11,757.00	-11,255.45	-220.44	11,257.61	0.00	0.00	0.00
PLU 20 BD 104H LTP_330FSL_650FWL									
22,781.11	90.00	179.77	11,757.00	-11,256.80	-220.43	11,258.96	0.00	0.00	0.00
PLU 20 BD 163H LTP_330FSL_320FWL									
22,800.00	90.00	179.77	11,757.00	-11,275.69	-220.35	11,277.84	0.00	0.00	0.00
22,900.00	90.00	179.77	11,757.00	-11,375.69	-219.95	11,377.81	0.00	0.00	0.00
22,908.42	90.00	179.77	11,757.00	-11,384.10	-219.91	11,386.23	0.00	0.00	0.00
PLU 20 BD 124H PBHL_200FSL_350FEL - PLU 20 BD 154H PBHL_200FSL_350FEL									
22,909.77	90.00	179.77	11,757.00	-11,385.45	-219.91	11,387.58	0.00	0.00	0.00
PLU 20 BD 104H PBHL_200FSL_650FWL									
22,911.11	90.00	179.77	11,757.00	-11,386.80	-219.90	11,388.92	0.00	0.00	0.00
PLU 20 BD 163H PBHL_200FSL_320FWL - PLU 20 BD 123H PBHL_200FSL_320FWL									

Planning Report

Database:	PREDATOR_EDM	Local Co-ordinate Reference:	Well PLU 20 BD 163H SHL - Slot PLU 20 BD 163H SHL
Company:	XTO Energy	TVD Reference:	3162+31 @ 3193.00usft (NabF26)
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3162+31 @ 3193.00usft (NabF26)
Site:	PLU 20 Brushy Draw	North Reference:	Grid
Well:	PLU 20 BD 163H SHL	Survey Calculation Method:	Minimum Curvature
Wellbore:	163H Lateral		
Design:	Plan #1		

Design Targets									
Target Name	hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	
Shape		(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)	
PLU 20 BD 163H SHL	- plan hits target center	0.00	0.00	0.00	0.00	0.00	404,287.10	632,498.30	32.11077844
	- Point								-103.90539858
PLU 20 BD 163H LTP_3	- plan misses target center by 0.43usft at 22781.11usft MD (11757.00 TVD, -11256.80 N, -220.43 E)	0.00	0.00	11,757.00	-11,256.80	-220.00	393,030.30	632,278.30	32.07983618
	- Point								-103.90625309
PLU 20 BD 163H FTP_3	- plan misses target center by 1.64usft at 12812.74usft MD (11757.00 TVD, -1283.51 N, -261.24 E)	0.00	0.00	11,757.00	-1,288.50	-259.60	402,998.60	632,238.70	32.10723922
	- Point								-103.90625349
PLU 20 BD 163H PBHL	- plan hits target center	0.00	0.00	11,757.00	-11,386.80	-219.90	392,900.30	632,278.40	32.07947881
	- Rectangle (sides W100.00 H10,098.00 D0.00)								-103.90625443

PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	XTO Permian Operating, LLC
LEASE NO.:	NMLC-0064894A
WELL NAME & NO.:	Poker Lake Unit 20 BD 703H
SURFACE HOLE FOOTAGE:	0955' FSL & 1915' FWL
BOTTOM HOLE FOOTAGE:	0200' FSL & 1650' FWL Sec. 32, T. 25 S., R 30 E.
LOCATION:	Section 20, T. 25 S., R 30 E., NMPM
COUNTY:	Eddy County, New Mexico

The original COAs still stand with the following drilling modifications:

Commercial Well Determination

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

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.

A. DRILLING OPERATIONS 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. A Hydrogen Sulfide (H₂S) Drilling Plan shall be activated 500 feet prior to drilling into the **Delaware** formation. **As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.**
2. 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. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a “Major” violation.**

3. 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 is located, this does not include the dog house or stairway area.
4. 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.

B. CASING

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.

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

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.

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.

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

Possibility of water flows in the Salado and Castile.

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

Abnormal pressures may be encountered upon penetrating the 3rd Bone Spring Sandstone and all subsequent formations.

1. The 16 inch surface casing shall be set at approximately 739 feet (**in a competent bed below the Magenta Dolomite, which is a Member of the Rustler, and if salt is encountered, set casing at least 25 feet 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 is to include the lead cement slurry.**
 - 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.

11-3/4 1st Intermediate casing shall be kept fluid filled while running into hole to meet BLM minimum collapse requirements.

2. The minimum required fill of cement behind the 11-3/4 inch 1st intermediate casing is:

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

Formation below the 11-3/4" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the bottom of the hole. Report results to BLM office.

8-5/8" 2nd Intermediate casing shall be kept fluid filled while running into hole to meet BLM minimum collapse requirements.

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

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

Formation below the 8-5/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe and the mud weight for the bottom of the hole. Report results to BLM office.

Centralizers required through the curve and a minimum of one every other joint.

4. The minimum required fill of cement behind the 5-1/2 inch production casing is:

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

5. 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.

C. 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 53.
2. Variance approved to use flex line from BOP to choke manifold. 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.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M) psi.**

4. **Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the 11-3/4" 1st intermediate casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the 11-3/4" 1st intermediate casing shoe shall be 10,000 (10M) 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. **Operator shall perform the intermediate casing integrity test to 70% of the casing burst. This will test the multi-bowl seals.**
 - e. **Operator shall perform the 10-5/8" casing integrity tests to 70% of the casing burst. This will test the multi-bowl seals.**
 - f. **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.**

Variance approved to use a 5M annular. The annular must be tested to full working pressure (5000 psi.)

10M 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**. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
- 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.

D. 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.

E. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

F. 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 050919