

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

NMOCD
Artesia

FORM 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.

SUBMIT IN TRIPLICATE - Other instructions on page 2

1. Type of Well ☐ Oil Well ☒ Gas Well ☐ Other		5. Lease Serial No. NMNM030453
2. Name of Operator XTO PERMIAN OPERATING LLC		6. If Indian, Allottee or Tribe Name
3a. Address 6401 HOLIDAY HILL RD BLDG 5 MIDLAND, TX 79707		7. If Unit or CA/Agreement, Name and/or No. NMNM71016X
3b. Phone No. (include area code) Ph: 432-620-4374		8. Well Name and No. POKER LAKE UNIT 13 DTD 102H
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 24 T24S R30E Mer NMP NWNW 185FNL 285FWL		9. API Well No. 30-015-45816
		10. Field and Pool or Exploratory Area PURPLE SAGE WOLFCAMP
		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 APD
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or 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 requests permission to make the following changes to the original APD:

Change BHL fr/2440'FNL & 990'FWL in Sec. 36-T24S-R30E to 200'FSL & 866'FWL in Sec. 25-T24S-R30E ✓

Change from 3-string casing design to 4-string casing design per attached program.

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

Batch drill was approved 5/22/19 (WIS: 466284).

**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**

**NM OIL CONSERVATION
ARTESIA DISTRICT**

AUG 21 2019

RECEIVED

APPROVED

AUG 31 2019

**BUREAU OF LAND MANAGEMENT
ROSWELL FIELD OFFICE**

14. I hereby certify that the foregoing is true and correct.

Electronic Submission #475713 verified by the BLM Well Information System
For XTO PERMIAN OPERATING LLC, sent to the Carlsbad
Committed to AFMSS for processing by JENNIFER SANCHEZ on 07/31/2019 ()

Name (Printed/Typed)	KELLY KARDOS	Title	REGULATORY COORDINATOR
Signature	(Electronic Submission)	Date	07/30/2019
THIS SPACE FOR FEDERAL OR STATE OFFICE USE			
Approved By		Title	
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.			
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 ****

RW10-2879

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 **NM OIL CONSERVATION**
ARTESIA DISTRICT
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

RECEIVED
AUG 21 2019

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-015-45816	² Pool Code 98220	³ Pool Name PURPLE SAGE; WOLFCAMP
⁴ Property Code	⁵ Property Name POKER LAKE UNIT 13 DTD	
⁷ OGRID No. 373075	⁸ Operator Name XTO PERMIAN OPERATING, LLC	
		⁶ Well Number 102H
		⁹ Elevation 3,443'

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
D	24	24 S	30 E		185	NORTH	285	WEST	EDDY

¹¹ Bottom Hole Location If Different From Surface									
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	25	24 S	30 E		200	SOUTH	866	WEST	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.

		GEODETIC COORDINATES NAD 27 NME SURFACE LOCATION Y= 440,468.5 X= 652,098.5 LAT.= 32.210009°N LONG.= 103.841563°W FIRST TAKE POINT NAD 27 NME Y= 440,324.9 X= 652,679.6 LAT.= 32.209606°N LONG.= 103.839686°W CORNER COORDINATES TABLE NAD 27 NME <table border="1"> <tr><td>A</td><td>Y= 440,652.6 N, X= 651,813.2 E</td></tr> <tr><td>B</td><td>Y= 440,656.2 N, X= 653,148.7 E</td></tr> <tr><td>C</td><td>Y= 438,011.8 N, X= 651,817.2 E</td></tr> <tr><td>D</td><td>Y= 438,016.4 N, X= 653,155.4 E</td></tr> <tr><td>E</td><td>Y= 435,380.7 N, X= 651,818.1 E</td></tr> <tr><td>F</td><td>Y= 435,380.1 N, X= 653,160.5 E</td></tr> <tr><td>G</td><td>Y= 432,735.1 N, X= 651,836.7 E</td></tr> <tr><td>H</td><td>Y= 432,737.5 N, X= 653,176.6 E</td></tr> <tr><td>I</td><td>Y= 430,095.4 N, X= 651,855.5 E</td></tr> <tr><td>J</td><td>Y= 430,097.1 N, X= 653,192.8 E</td></tr> </table> CORNER COORDINATES TABLE NAD 83 NME <table border="1"> <tr><td>A</td><td>Y= 440,711.4 N, X= 692,997.1 E</td></tr> <tr><td>B</td><td>Y= 440,715.0 N, X= 694,332.7 E</td></tr> <tr><td>C</td><td>Y= 438,070.5 N, X= 693,001.3 E</td></tr> <tr><td>D</td><td>Y= 438,075.2 N, X= 694,339.5 E</td></tr> <tr><td>E</td><td>Y= 435,439.4 N, X= 693,002.2 E</td></tr> <tr><td>F</td><td>Y= 435,438.8 N, X= 694,344.6 E</td></tr> <tr><td>G</td><td>Y= 432,793.8 N, X= 693,020.9 E</td></tr> <tr><td>H</td><td>Y= 432,796.2 N, X= 694,360.8 E</td></tr> <tr><td>I</td><td>Y= 430,154.0 N, X= 693,039.8 E</td></tr> <tr><td>J</td><td>Y= 430,155.7 N, X= 694,377.1 E</td></tr> </table> LAST TAKE POINT NAD 27 NME Y= 430,426.5 X= 652,719.1 LAT.= 32.182396°N LONG.= 103.839706°W BOTTOM HOLE LOCATION NAD 27 NME Y= 430,296.5 X= 652,720.1 LAT.= 32.182039°N LONG.= 103.839704°W	A	Y= 440,652.6 N, X= 651,813.2 E	B	Y= 440,656.2 N, X= 653,148.7 E	C	Y= 438,011.8 N, X= 651,817.2 E	D	Y= 438,016.4 N, X= 653,155.4 E	E	Y= 435,380.7 N, X= 651,818.1 E	F	Y= 435,380.1 N, X= 653,160.5 E	G	Y= 432,735.1 N, X= 651,836.7 E	H	Y= 432,737.5 N, X= 653,176.6 E	I	Y= 430,095.4 N, X= 651,855.5 E	J	Y= 430,097.1 N, X= 653,192.8 E	A	Y= 440,711.4 N, X= 692,997.1 E	B	Y= 440,715.0 N, X= 694,332.7 E	C	Y= 438,070.5 N, X= 693,001.3 E	D	Y= 438,075.2 N, X= 694,339.5 E	E	Y= 435,439.4 N, X= 693,002.2 E	F	Y= 435,438.8 N, X= 694,344.6 E	G	Y= 432,793.8 N, X= 693,020.9 E	H	Y= 432,796.2 N, X= 694,360.8 E	I	Y= 430,154.0 N, X= 693,039.8 E	J	Y= 430,155.7 N, X= 694,377.1 E
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		GEODETIC COORDINATES NAD 83 NME SURFACE LOCATION Y= 440,527.3 X= 693,282.4 LAT.= 32.210132°N LONG.= 103.842049°W FIRST TAKE POINT NAD 83 NME Y= 440,383.7 X= 693,863.6 LAT.= 32.209730°N LONG.= 103.840171°W CORNER COORDINATES TABLE NAD 83 NME <table border="1"> <tr><td>A</td><td>Y= 440,652.6 N, X= 651,813.2 E</td></tr> <tr><td>B</td><td>Y= 440,656.2 N, X= 653,148.7 E</td></tr> <tr><td>C</td><td>Y= 438,011.8 N, X= 651,817.2 E</td></tr> <tr><td>D</td><td>Y= 438,016.4 N, X= 653,155.4 E</td></tr> <tr><td>E</td><td>Y= 435,380.7 N, X= 651,818.1 E</td></tr> <tr><td>F</td><td>Y= 435,380.1 N, X= 653,160.5 E</td></tr> <tr><td>G</td><td>Y= 432,735.1 N, X= 651,836.7 E</td></tr> <tr><td>H</td><td>Y= 432,737.5 N, X= 653,176.6 E</td></tr> <tr><td>I</td><td>Y= 430,095.4 N, X= 651,855.5 E</td></tr> <tr><td>J</td><td>Y= 430,097.1 N, X= 653,192.8 E</td></tr> </table> LAST TAKE POINT NAD 83 NME Y= 430,845.1 X= 693,903.4 LAT.= 32.182520°N LONG.= 103.840189°W BOTTOM HOLE LOCATION NAD 83 NME Y= 430,355.1 X= 694,904.4 LAT.= 32.182163°N LONG.= 103.840188°W	A	Y= 440,652.6 N, X= 651,813.2 E	B	Y= 440,656.2 N, X= 653,148.7 E	C	Y= 438,011.8 N, X= 651,817.2 E	D	Y= 438,016.4 N, X= 653,155.4 E	E	Y= 435,380.7 N, X= 651,818.1 E	F	Y= 435,380.1 N, X= 653,160.5 E	G	Y= 432,735.1 N, X= 651,836.7 E	H	Y= 432,737.5 N, X= 653,176.6 E	I	Y= 430,095.4 N, X= 651,855.5 E	J	Y= 430,097.1 N, X= 653,192.8 E																				
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		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 7/30/19 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. 4-26-2019 Date of Survey Signature and Seal of Professional Surveyor: MARK DILLON HARP 23786 Certificate Number JC 2018010147																																								

RW10-28-19

AUG 21 2019

Intent ☒ As Drilled ☐

API #
30-015-45816

RECEIVED

Operator Name: XTO Permian Operating, LLC	Property Name: Poker Lake Unit 13 DTD	Well Number 102H
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Kick Off Point (KOP)

UL D	Section 24	Township 24S	Range 30E	Lot	Feet 185	From N/S North	Feet 285	From E/W West	County Eddy
Latitude 32.210132					Longitude -103.842049			NAD NAD83	

First Take Point (FTP)

UL D	Section 24	Township 24S	Range 30E	Lot	Feet 330	From N/S North	Feet 866	From E/W West	County Eddy
Latitude 32.209730					Longitude -103.840171			NAD NAD83	

Last Take Point (LTP)

UL M	Section 25	Township 24S	Range 30E	Lot	Feet 330	From N/S South	Feet 866	From E/W West	County Eddy
Latitude 32.182520					Longitude -103.840189			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 #	Operator Name: XTO Permian Operating, LLC	Property Name: Poker Lake Unit 13 DTD	Well Number 202H
-------	--	--	---------------------

KZ 06/29/2018

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

XTO Energy Inc.
PLU 13 Dog Town Draw 102H
Projected TD: 21719' MD / 11600' TVD
SHL: 185' FNL & 285' FWL , Section 24, T24S, R30E
BHL: 200' FSL & 866' FWL , Section 25, T24S, R30E
Eddy County, NM

1. Geologic Name of Surface Formation

A. Permian

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

Formation	Well Depth (TVD)	Water/Oil/Gas
Rustler	488'	Water
Top of Salt	818'	Water
Base of Salt	3868'	Water
Delaware	4098'	Water
Bone Spring	7983'	Water/Oil/Gas
1st Bone Spring Ss	8903'	Water/Oil/Gas
2nd Bone Spring Ss	9673'	Water/Oil/Gas
3rd Bone Spring Ss	10808'	Water/Oil/Gas
Wolfcamp Shale	11228'	Water/Oil/Gas
Wolfcamp A Shale	11418'	Water/Oil/Gas
Wolfcamp B Shale	11773'	Water/Oil/Gas
Wolfcamp A Target/Land Curve	11600'	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 18-5/8 inch casing @ 610' (208' above the salt) and circulating cement back to surface. The salt will be isolated by setting 13-3/8 inch casing at 3943' and circulating cement to surface. A 12-1/4 inch vertical hole will be drilled to 10135' and 9-5/8 inch casing ran and cemented 500' into the 13-3/8 inch casing. An 8-3/4 inch curve and 8-1/2 inch lateral hole will be drilled to MD/TD and 5-1/2 casing will be set at TD and cemented back 200' into the 9-5/8 inch casing shoe.

3. Casing Design

Hole Size	Depth	OD Csg	Weight	Collar	Grade	New/Used	SF Burst	SF Collapse	SF Tension
24"	0' - 610'	18-5/8"	87.5	BTC	J-55	New	1.84	2.28	14.13
17-1/2"	0' - 3943'	13-3/8"	68	BTC	HCL-80	New	1.88	2.17	5.80
12-1/4"	0' - 10135'	9-5/8"	40	BTC	HCL-80	New	1.23	1.43	2.26
8-3/4" - 8-1/2"	0' - 21719' 21,392' <i>per drilling plan</i>	5-1/2"	20	BTC	P-110	New	1.18	1.53	2.08

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

13-3/8" Collapse analyzed using 50% evacuation based on regional experience.

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

WELLHEAD:

Temporary Wellhead

- 18-5/8" SOW x 21-1/4" 2M top flange

Permanent Wellhead - GE RSH Multibowl System

- A. Starting Head (RSH System): 13-3/8" SOW bottom x 13-5/8" 10M top flange
- B. Tubing Head: 13-5/8" 10M bottom flange x 7-1/16" 15M top flange
 - Wellhead will be installed by manufacturer's representatives.

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

4. Cement Program

Surface Casing: 18-5/8", 87.5 New J-55, BTC casing to be set at +/- 610'

Lead: 410 sxs EconoCem-HLTRRC (mixed at 12.8 ppg, 1.87 ft³/sx, 10.13 gal/sx water)

Tail: 550 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: 13-3/8", 68 New HCL-80, BTC casing to be set at +/- 3943'

Lead: 2330 sxs Halcem-C + 2% CaCl (mixed at 12.8 ppg, 1.88 ft³/sx, 9.61 gal/sx water)

Tail: 810 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 (Stage 2): 9-5/8", 40 New HCL-80, BTC casing to be set at +/- 10135'

ECP/DV Tool to be set at 3993'

1st Stage

Lead: 1070 sxs Halcem-C + 2% CaCl (mixed at 12.8 ppg, 1.87 ft³/sx, 9.61 gal/sx water)

Tail: 370 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 Stage

Lead: 1710 sxs Halcem-C + 2% CaCl (mixed at 12.8 ppg, 1.88 ft³/sx, 9.61 gal/sx water)

Tail: 470 sxs Halcem-C + 2% CaCl (mixed at 14.8 ppg, 1.33 ft³/sx, 6.39 gal/sx water)

Compressives:

Production Casing: 5-1/2", 20 New P-110, BTC casing to be set at +/- 21719'

Lead: 150 sxs Halcem-C + 2% CaCl (mixed at 11.5 ppg, 1.88 ft³/sx, 9.61 gal/sx water)

Tail: 2540 sxs VersaCem (mixed at 13.2 ppg, 1.33 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 1224 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 13-5/8" 5M bradenhead and flange, the BOP test will be limited to 5000 psi. When the 13-3/8" and 9-5/8" casing is set, the packoff seals will be tested to a minimum of 5000 psi. All BOP tests will include a low pressure test as per BLM regulations. The 5M BOP diagrams are attached. Blind rams will be functioned tested each trip, pipe rams will be functioned tested each day.

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

6. Proposed Mud Circulation System

INTERVAL	Hole Size	Mud Type	MW (ppg)	Viscosity (sec/qt)	Fluid Loss (cc)
0' to 610'	24"	FW/Native	8.4-8.8	35-40	NC
610' to 3943'	17-1/2"	Brine/Gel Sweeps	9.8-10.2	30-32	NC
3943' to 10135'	12-1/4"	FW / Cut Brine	9.1-9.5	29-32	NC - 20
10135' to 21719'	8-3/4" - 8-1/2"	FW / Cut Brine / Polymer / OBM	11.7-12.5	32-50	NC - 20

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

Spud with fresh water/native mud. Drill out from under 16" surface casing with brine solution. A 9.8ppg-10.2ppg brine mud will be used while drilling through the salt formation. Use fibrous materials as needed to control seepage and lost circulation. Pump viscous sweeps as needed for hole cleaning. Pump speed will be recorded on a daily drilling report after mudding up. A Pason or Totco will be used to detect changes in loss or gain of mud volume. A mud test will be performed every 24 hours to determine: density, viscosity, strength, filtration and pH as necessary. Use available solids controls equipment to help keep mud weight down after mud up. Rig up solids control equipment to operate as a closed loop system.

7. Auxiliary Well Control and Monitoring Equipment

- A. A Kelly cock will be in the drill string at all times.
- B. A full opening drill pipe stabbing valve having appropriate connections will be on the rig floor at all times.
- C. H2S monitors will be on location when drilling below the 13-3/8" casing.

8. Logging, Coring and Testing Program

Mud Logger: Mud Logging Unit (2 man) below 1st 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 7238 psi.

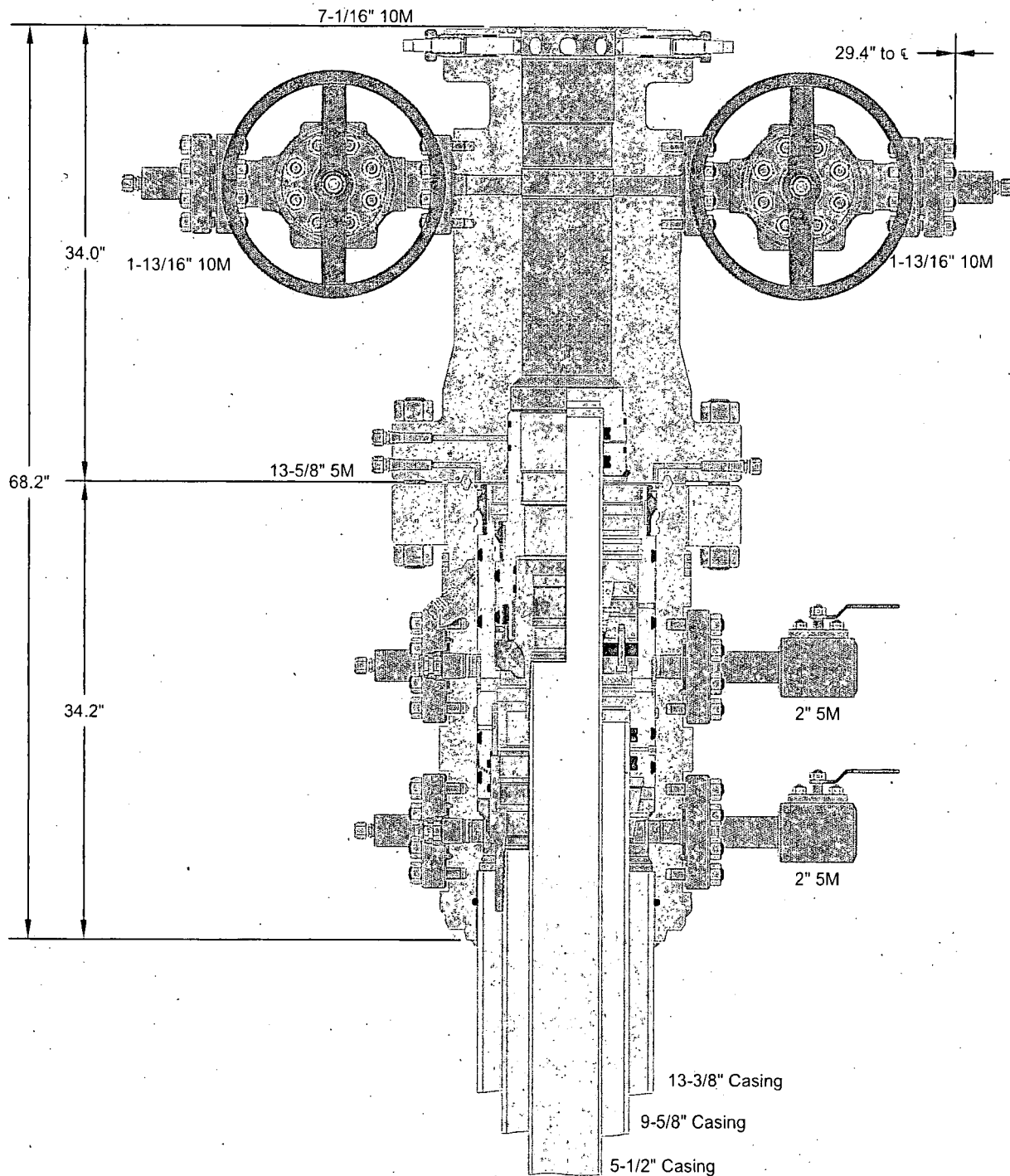
10. Anticipated Starting Date and Duration of Operations

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.

Batch drill approved on 5/22/19 (WIS: 466284)



GE Oil & Gas



ALL DIMENSIONS ARE APPROXIMATE

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XTO ENERGY, INC.

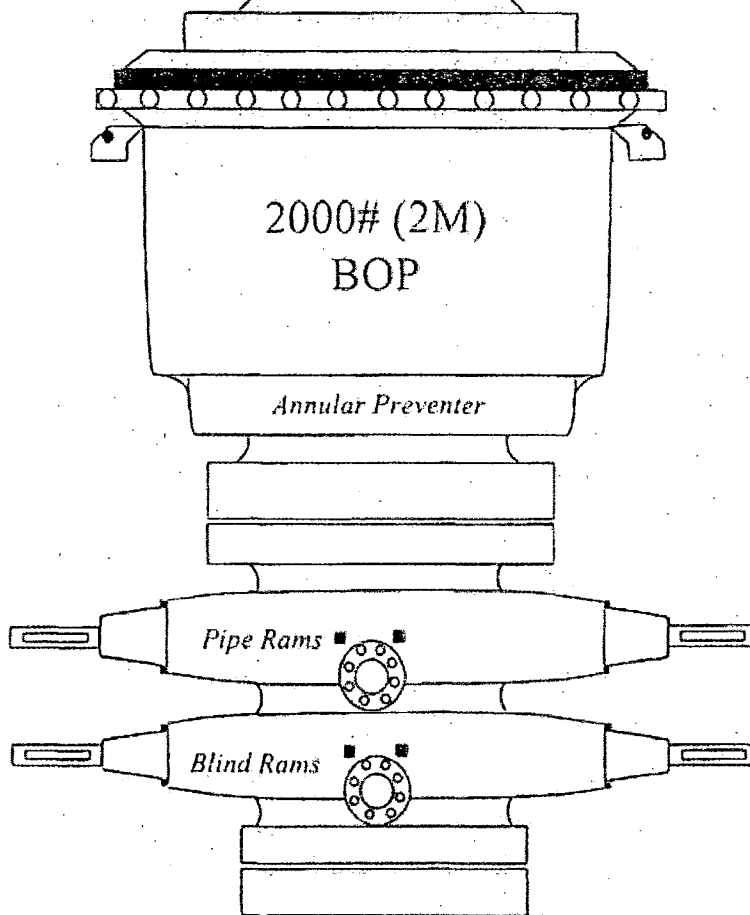
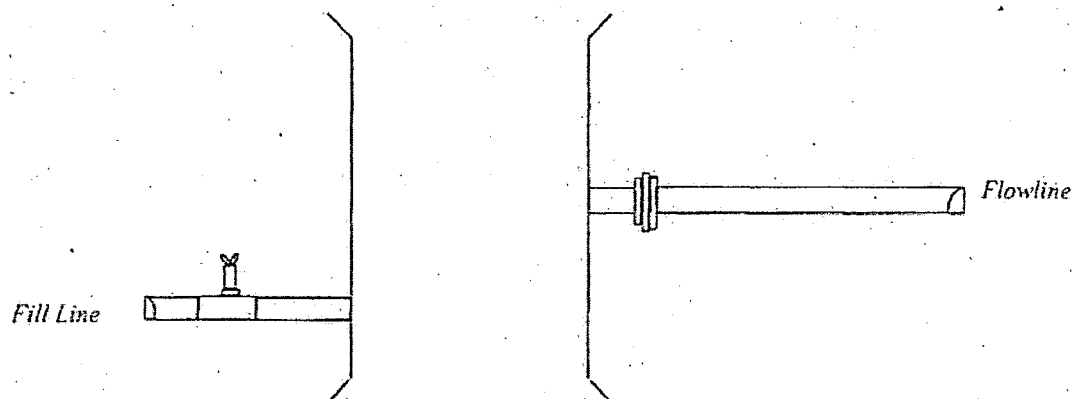
13-3/8" x 9-5/8" x 5-1/2" 10M RSH-2 Wellhead
Assembly, With T-EBS-F Tubing Head

DRAWN VJK 16FEB17

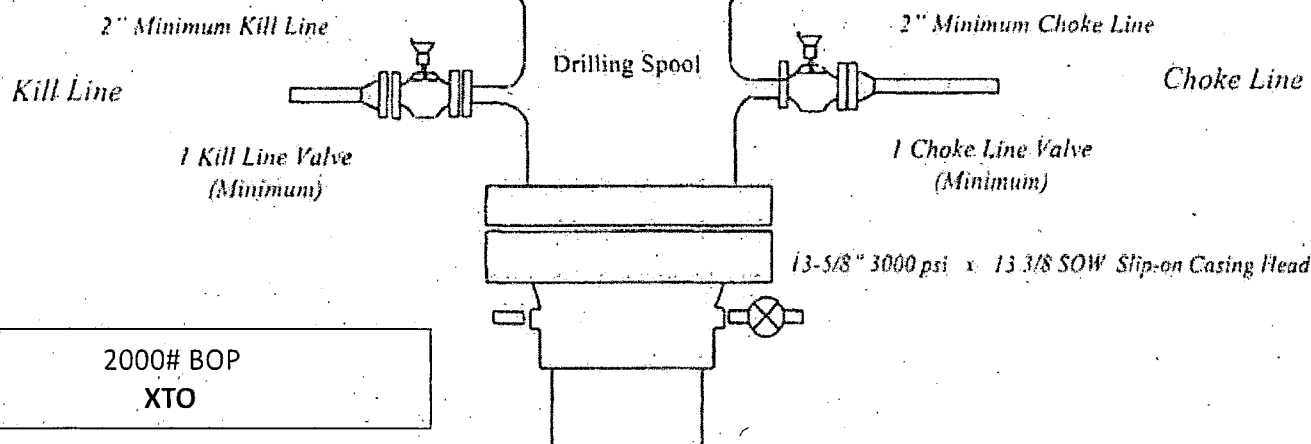
APPRV KN 16FEB17

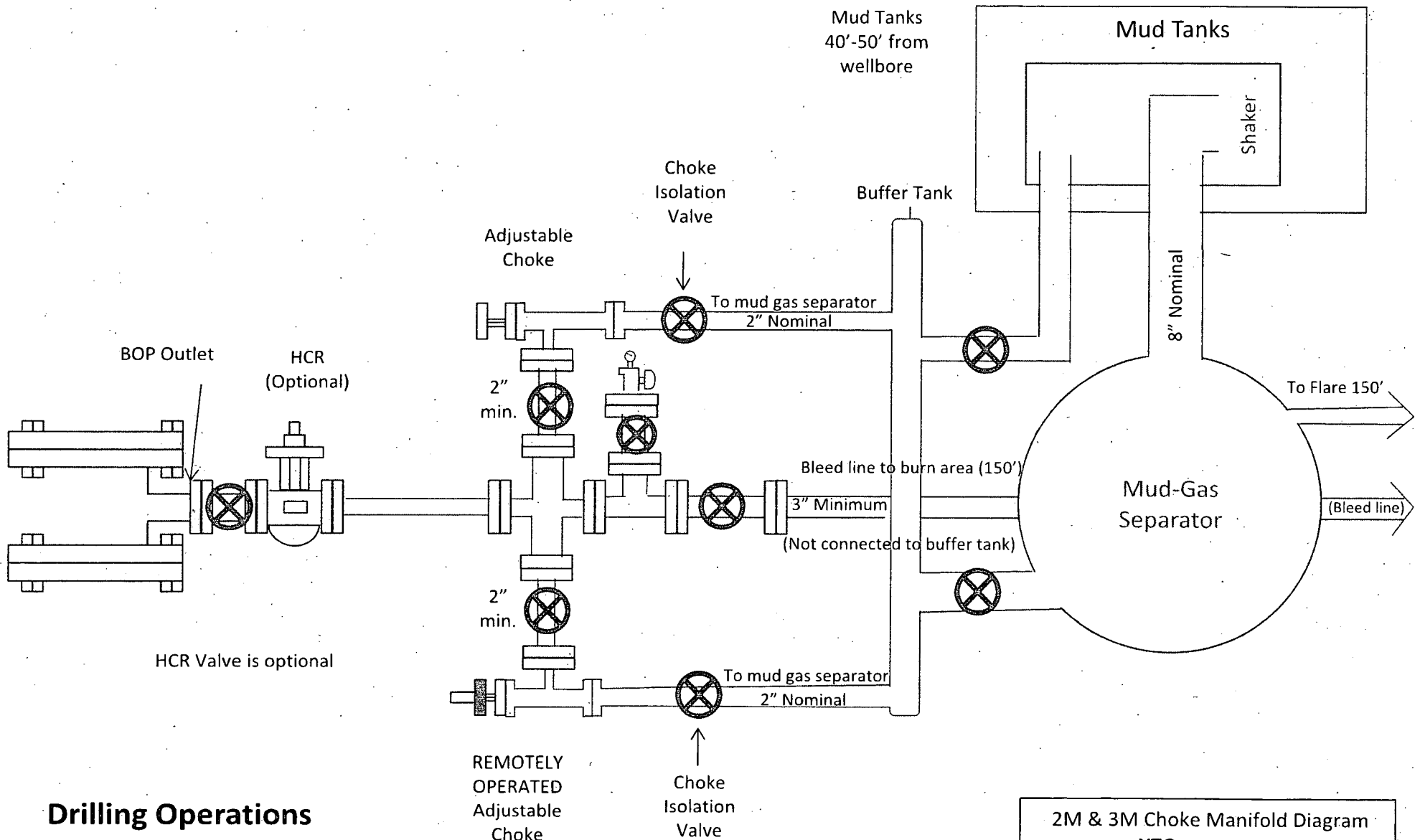
FOR REFERENCE ONLY

DRAWING NO. 10012842



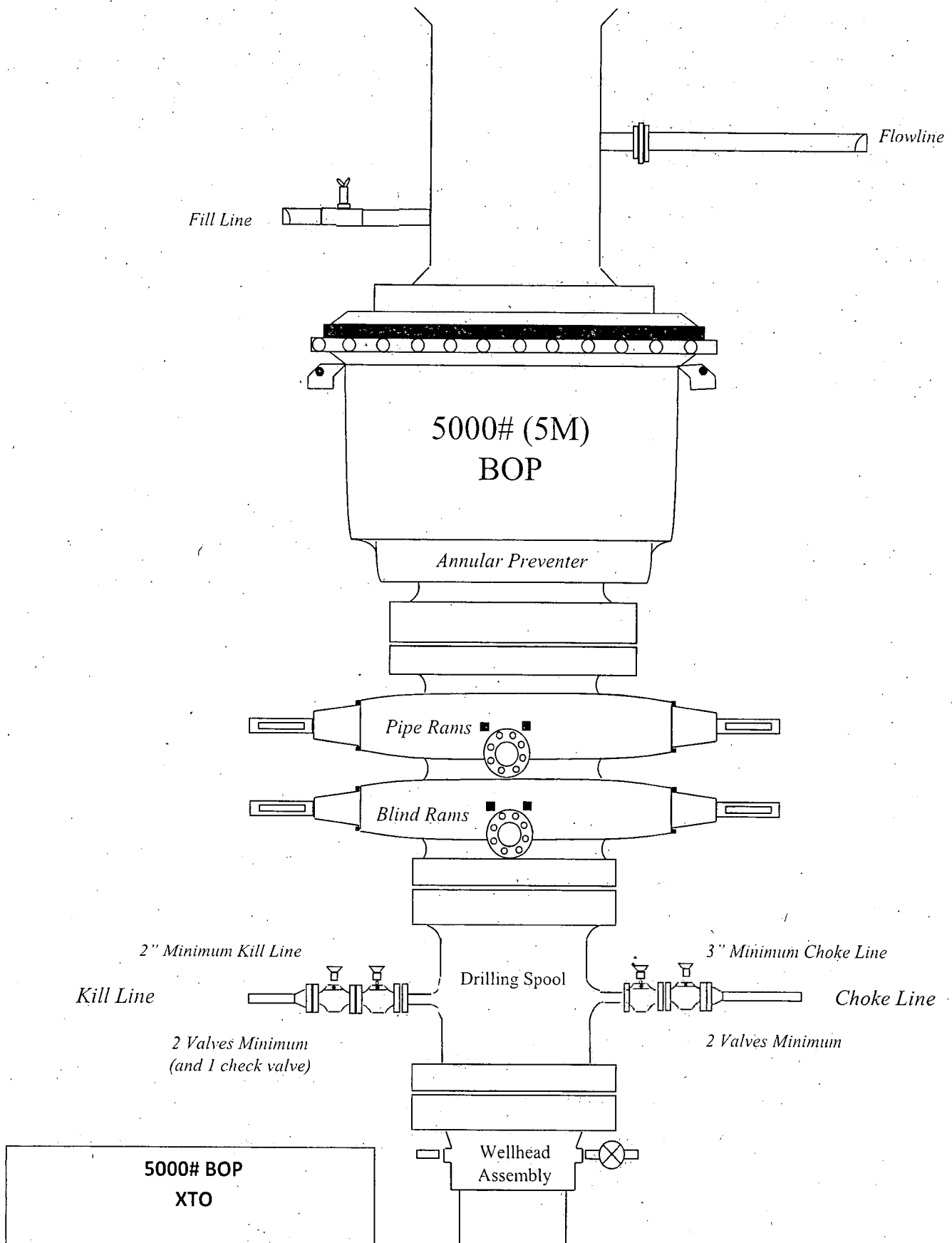
SRR & A

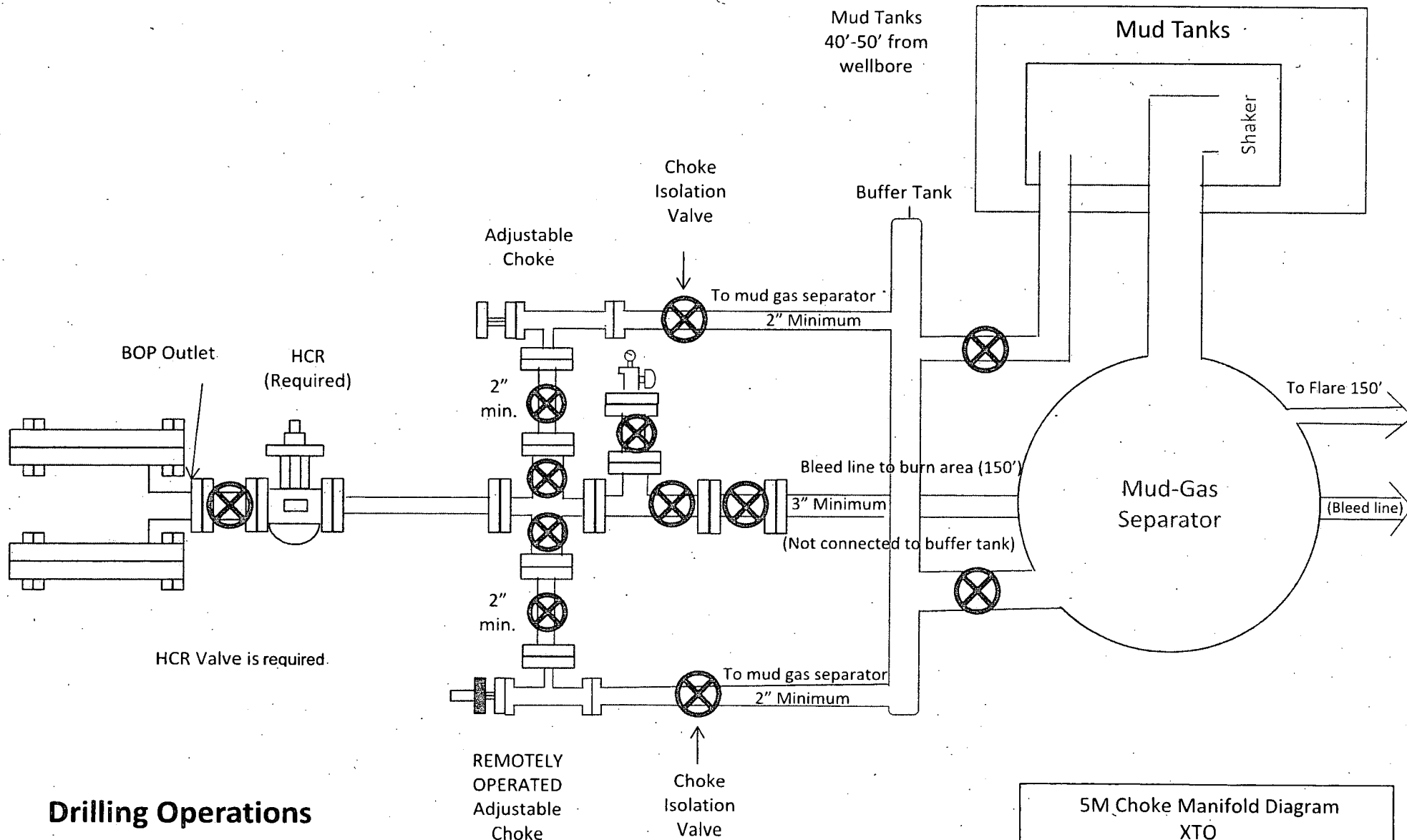




Drilling Operations **Choke Manifold** **2M & 3M Service**

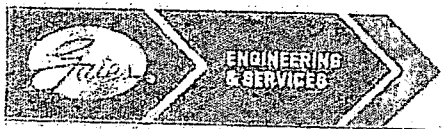
2M & 3M Choke Manifold Diagram
 XTO





Drilling Operations **Choke Manifold** **5M Service**

5M Choke Manifold Diagram
 XTO



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

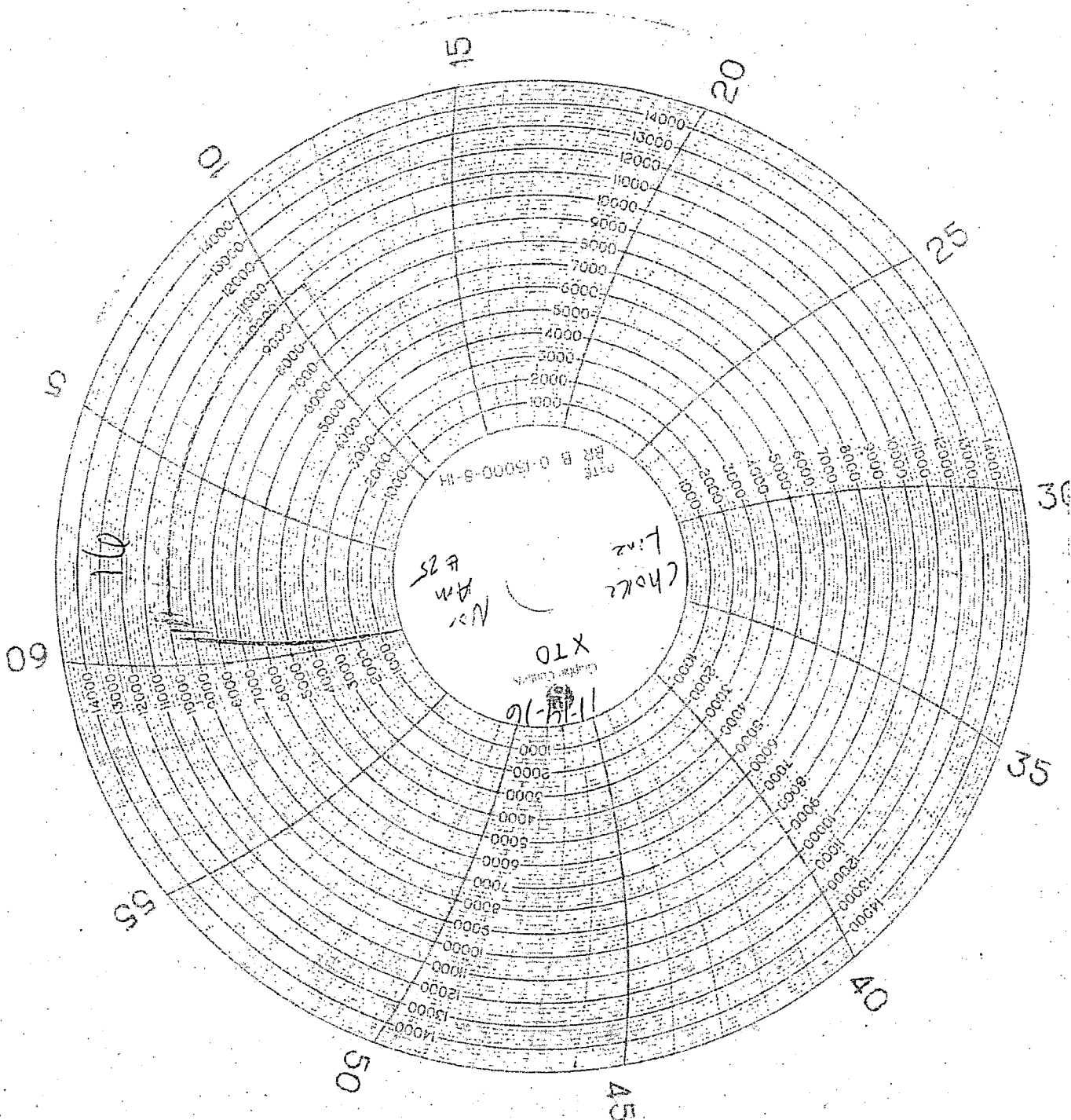
PHONE: 361-887-9807
FAX: 361-887-0812
EMAIL: crpe&s@gates.com
WEB: www.gates.com

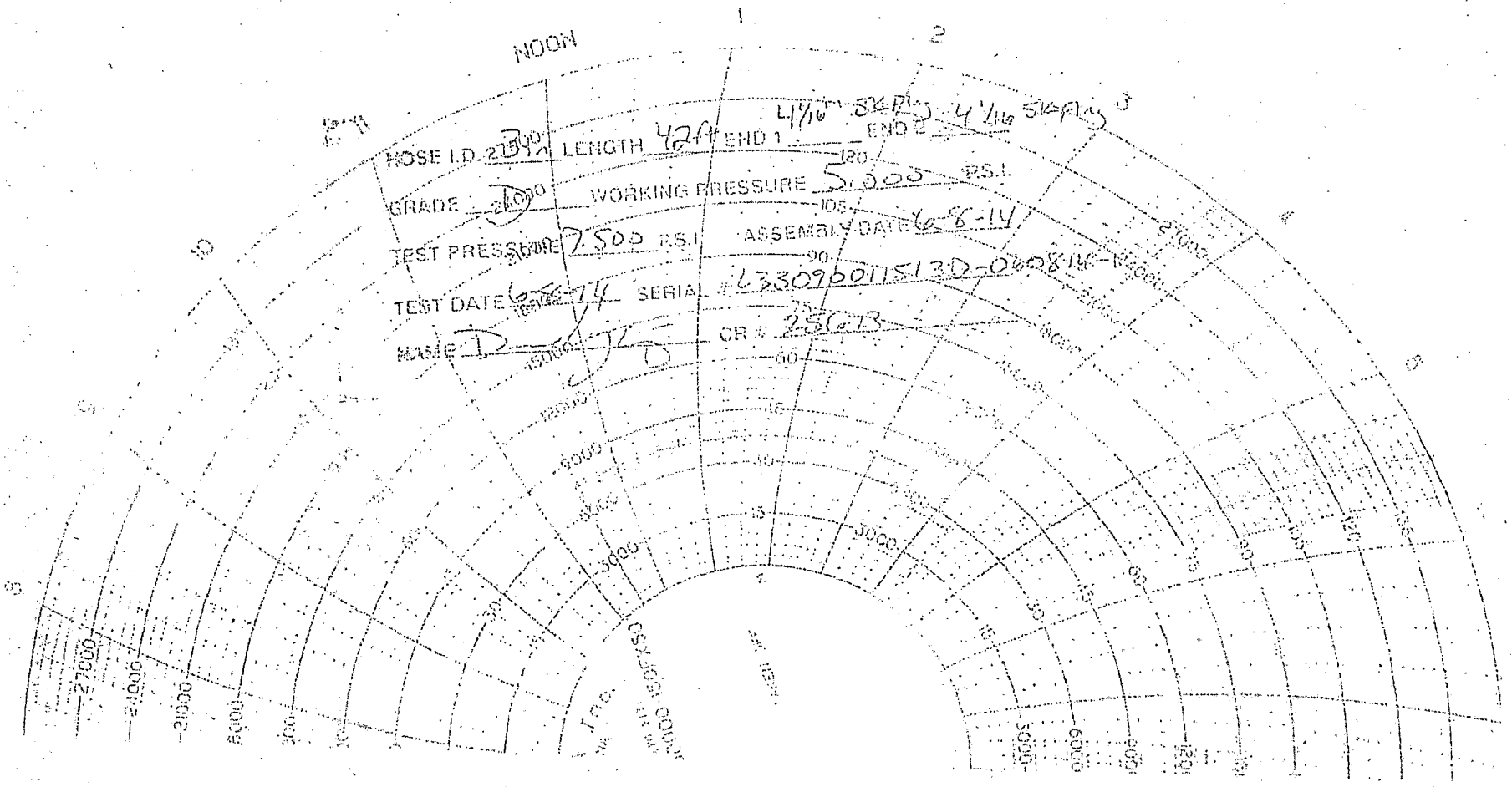
GRADE D PRESSURE TEST CERTIFICATE

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. :	4774-6001	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:	





NOSE I.D. 2 1/2" LENGTH 42' END 1 4 1/2" SK-FLY END 2 4 1/2" SK-FLY 3
GRADE 2000 WORKING PRESSURE 5000 PSI
TEST PRESSURE 7500 PSI ASSEMBLY DATE 6-8-14
TEST DATE 6-8-14 SERIAL # 6330900115130-060814-15000
NAME D-72 CR # 25613

XTO Energy

Project: Eddy County, NM (NAD27) NMEZ Grid
 Site: PLU 13 DTD
 Well: 102H/122H
 Wellbore: 102H/122H Lateral
 Design: Plan #1

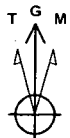
FORMATION TOP DETAILS

TVDPth	MDPth	Formation
476.00	476.00	Rustler
846.00	846.00	Top Salt
3896.00	3896.00	Base Salt
4126.00	4126.00	Delaware
8011.00	8023.86	Bone Spring
8931.00	8947.73	1st Bone Spring Ss
9701.00	9720.98	2nd Bone Spring Ss
10111.00	10132.70	3rd Bone Spring Lm
10836.00	10860.76	3rd Bone Spring Ss
11256.00	11286.74	Wolfcamp
11291.00	11324.72	Wolfcamp X
11366.00	11410.45	Wolfcamp Y
11446.00	11512.28	Wolfcamp A
11628.00	11982.94	LP

3443+28 @ 3471.00usft (Patt243)
 NAD 1927 (NADCON CONUS)

Azimuths to Grid North
 True North: -0.26°
 Magnetic North: 6.59°

Magnetic Field
 Strength: 47685.7nT
 Dip Angle: 59.98°
 Date: 07/23/2019
 Model: IGRF2015

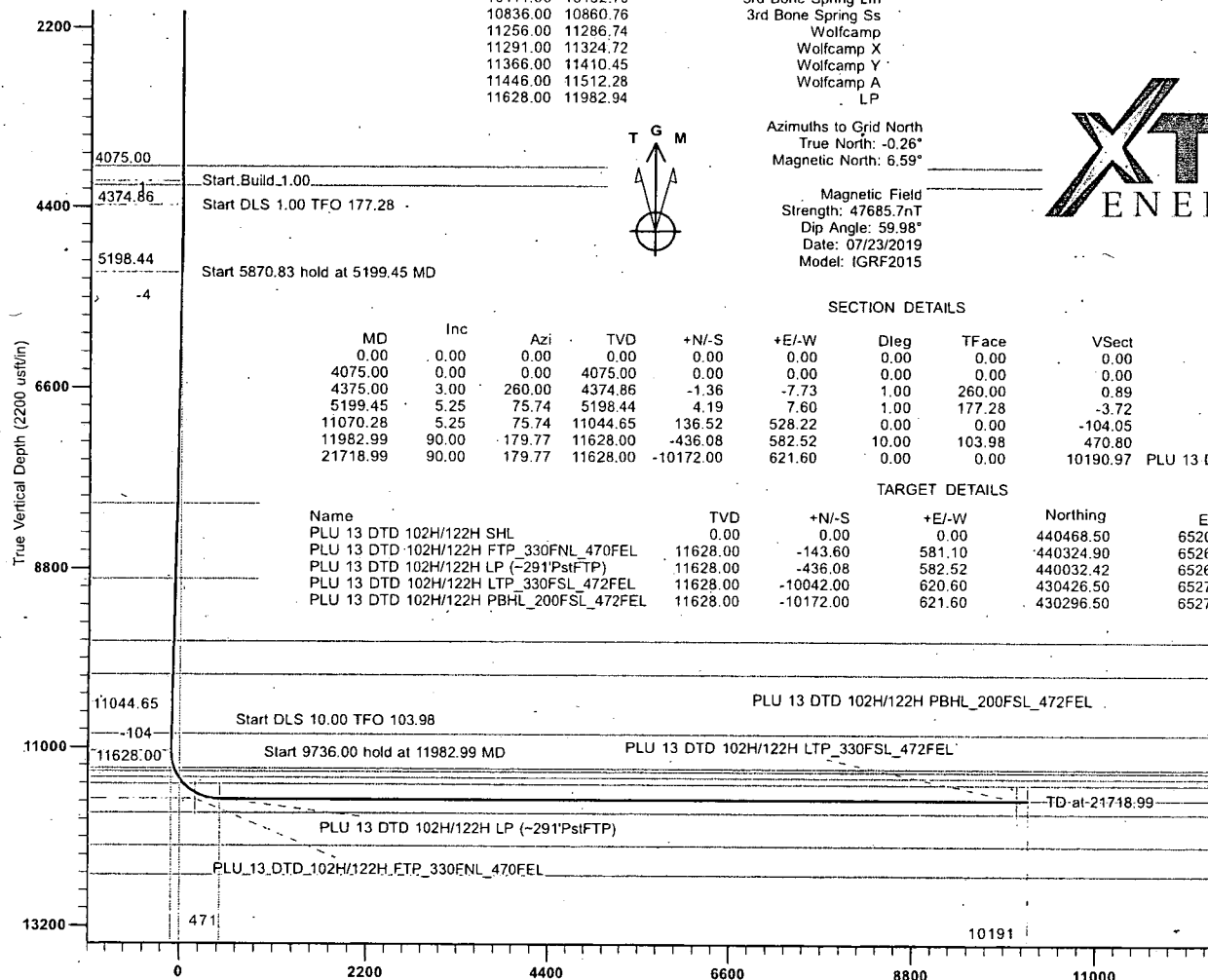


SECTION DETAILS

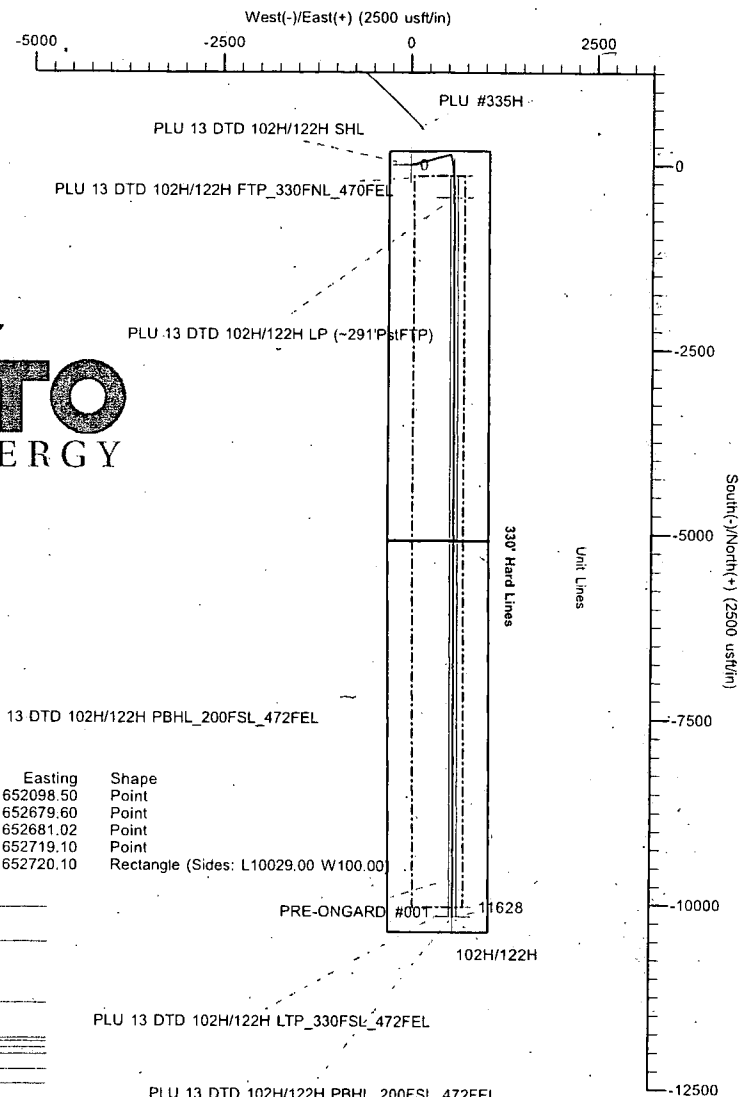
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4075.00	0.00	0.00	4075.00	0.00	0.00	0.00	0.00	0.00
4375.00	3.00	260.00	4374.86	-1.36	-7.73	1.00	260.00	0.89
5199.45	5.25	75.74	5198.44	4.19	7.60	1.00	177.28	-3.72
11070.28	5.25	75.74	11044.65	136.52	528.22	0.00	0.00	-104.05
11982.99	90.00	179.77	11628.00	-436.08	582.52	10.00	103.98	470.80
21718.99	90.00	179.77	11628.00	-10172.00	621.60	0.00	0.00	10190.97

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
PLU 13 DTD 102H/122H SHL	0.00	0.00	0.00	440468.50	652098.50	Point
PLU 13 DTD 102H/122H FTP_330FNL_470FEL	11628.00	-143.60	581.10	440324.90	652679.60	Point
PLU 13 DTD 102H/122H LP (-291°PstFTP)	11628.00	-436.08	582.52	440032.42	652681.02	Point
PLU 13 DTD 102H/122H LTP_330FSL_472FEL	11628.00	-10042.00	620.60	430426.50	652719.10	Point
PLU 13 DTD 102H/122H PBHL_200FSL_472FEL	11628.00	-10172.00	621.60	430296.50	652720.10	Rectangle (Sides: L10029.00 W100.00)



Vertical Section at 176.50° (2200 usft/in)



To convert a Magnetic Direction to a Grid Direction, Add 6.59°
 To convert a Magnetic Direction to a True Direction, Add 6.85° East
 Magnetic North is 6.59° East of Grid North (Magnetic Convergence)
 Magnetic North is 6.85° East of True North (Magnetic Declination)

Plan: Plan #1 (102H/122H/102H/122H Lateral)
 Created By: Mekka Williams
 eSovina Well Design
 mekka@esominawelldesign.com
 17:19, July 23 2019

PREDATOR DIRECTIONAL
 11323 MONARCHS WAY
 Montgomery TX, 77316



Planning Report

Database:	PREDATOR_EDM	Local Co-ordinate Reference:	Well 202H/102H - Slot PLU 13 DTD 202H/102H SHL
Company:	XTO Energy	TVD Reference:	3443+28 @ 3471.00usft (Patt243)
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3443+28 @ 3471.00usft (Patt243)
Site:	PLU 13 DTD	North Reference:	Grid
Well:	202H/102H	Survey Calculation Method:	Minimum Curvature
Wellbore:	202H/102H 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 13 DTD		
Site Position:		Northing:	440,503.40 usft
From:	Map	Easting:	652,098.30 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in
		Latitude:	32.21010449
		Longitude:	-103.84156320
		Grid Convergence:	0.26 °

Well:	202H/102H - Slot PLU 13 DTD 202H/102H SHL		
Well Position	+N/-S	-69.80 usft	Northing:
	+E/-W	0.20 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	Ground Level:
			3,443.00 usft

Wellbore	202H/102H Lateral				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	07/23/19	6.85	59.98	47.685.60788459

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	174.98	

Plan Survey Tool Program	Date	07/23/19		
Depth From	Depth To	Survey (Wellbore)	Tool Name	Remarks
(usft)	(usft)			
1	0.00	21,392.60 Plan #1 (202H/102H Lateral)	MWD+IFR1+MS	
			OWSG MWD + IFR1 + Multi-SI	

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(usft)	(usft)	Rate	Rate	Rate	(°)	
(usft)			(usft)			(°/100ft)	(°/100ft)	(°/100ft)		
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,075.00	0.00	0.00	4,075.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,375.00	3.00	180.00	4,374.86	-7.85	0.00	1.00	1.00	0.00	180.00	
5,209.23	7.41	82.54	5,206.51	-22.72	53.41	1.00	0.53	-11.68	-118.23	
10,847.30	7.41	82.54	10,797.53	71.70	774.14	0.00	0.00	0.00	0.00	
11,756.60	90.00	179.77	11,375.00	-500.88	850.92	10.00	9.08	10.69	97.17	
21,392.60	90.00	179.77	11,375.00	-10,136.80	889.60	0.00	0.00	0.00	0.00	PLU 13 DTD 202H/10

Planning Report

Database:	PREDATOR_EDM	Local Co-ordinate Reference:	Well 202H/102H - Slot PLU 13 DTD
Company:	XTO Energy	TVD Reference:	202H/102H SHL
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3443+28 @ 3471.00usft (Patt243)
Site:	PLU 13 DTD	North Reference:	3443+28 @ 3471.00usft (Patt243)
Well:	202H/102H	Survey Calculation Method:	Grid
Wellbore:	202H/102H Lateral		Minimum Curvature
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 13 DTD 102H/122H SHL - PLU 13 DTD 202H/102H 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
456.00	0.00	0.00	456.00	0.00	0.00	0.00	0.00	0.00	0.00
RSLR									
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
846.00	0.00	0.00	846.00	0.00	0.00	0.00	0.00	0.00	0.00
T/SALT									
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	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,896.00	0.00	0.00	3,896.00	0.00	0.00	0.00	0.00	0.00	0.00
B/SALT									
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,075.00	0.00	0.00	4,075.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.25	180.00	4,100.00	-0.05	0.00	0.05	1.00	1.00	0.00
4,141.00	0.66	180.00	4,141.00	-0.38	0.00	0.38	1.00	1.00	0.00
DLWR									

Planning Report

Database:	PREDATOR_EDM	Local Co-ordinate Reference:	Well 202H/102H - Slot PLU 13 DTD
Company:	XTO Energy	TVD Reference:	202H/102H SHL
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3443+28 @ 3471.00usft (Patt243)
Site:	PLU 13 DTD	North Reference:	3443+28 @ 3471.00usft (Patt243)
Well:	202H/102H	Survey Calculation Method:	Grid
Wellbore:	202H/102H Lateral		Minimum Curvature
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)
4,200.00	1.25	180.00	4,199.99	-1.36	0.00	1.36	1.00	1.00	0.00
4,300.00	2.25	180.00	4,299.94	-4.42	0.00	4.40	1.00	1.00	0.00
4,375.00	3.00	180.00	4,374.86	-7.85	0.00	7.82	1.00	1.00	0.00
4,400.00	2.89	175.63	4,399.83	-9.13	0.05	9.10	1.00	-0.44	-17.49
4,500.00	2.65	155.42	4,499.72	-13.75	1.20	13.80	1.00	-0.24	-20.21
4,600.00	2.77	134.30	4,599.61	-17.54	3.89	17.81	1.00	0.12	-21.12
4,700.00	3.21	117.02	4,699.47	-20.50	8.12	21.13	1.00	0.44	-17.28
4,800.00	3.87	104.75	4,799.28	-22.63	13.88	23.76	1.00	0.66	-12.27
4,900.00	4.65	96.30	4,899.01	-23.94	21.18	25.70	1.00	0.78	-8.45
5,000.00	5.50	90.36	4,998.61	-24.41	30.00	26.94	1.00	0.85	-5.94
5,100.00	6.40	86.04	5,098.07	-24.06	40.36	27.49	1.00	0.89	-4.32
5,209.23	7.41	82.54	5,206.51	-22.72	53.41	27.31	1.00	0.92	-3.21
5,300.00	7.41	82.54	5,296.52	-21.20	65.02	26.81	0.00	0.00	0.00
5,400.00	7.41	82.54	5,395.69	-19.53	77.80	26.25	0.00	0.00	0.00
5,500.00	7.41	82.54	5,494.85	-17.85	90.58	25.70	0.00	0.00	0.00
5,600.00	7.41	82.54	5,594.02	-16.18	103.37	25.15	0.00	0.00	0.00
5,700.00	7.41	82.54	5,693.18	-14.50	116.15	24.60	0.00	0.00	0.00
5,800.00	7.41	82.54	5,792.35	-12.83	128.93	24.05	0.00	0.00	0.00
5,900.00	7.41	82.54	5,891.52	-11.15	141.72	23.50	0.00	0.00	0.00
6,000.00	7.41	82.54	5,990.68	-9.48	154.50	22.95	0.00	0.00	0.00
6,100.00	7.41	82.54	6,089.85	-7.80	167.28	22.40	0.00	0.00	0.00
6,200.00	7.41	82.54	6,189.01	-6.13	180.07	21.85	0.00	0.00	0.00
6,300.00	7.41	82.54	6,288.18	-4.46	192.85	21.30	0.00	0.00	0.00
6,400.00	7.41	82.54	6,387.34	-2.78	205.63	20.75	0.00	0.00	0.00
6,500.00	7.41	82.54	6,486.51	-1.11	218.42	20.20	0.00	0.00	0.00
6,600.00	7.41	82.54	6,585.67	0.57	231.20	19.65	0.00	0.00	0.00
6,650.75	7.41	82.54	6,636.00	1.42	237.69	19.37	0.00	0.00	0.00
BYCN									
6,700.00	7.41	82.54	6,684.84	2.24	243.98	19.09	0.00	0.00	0.00
6,800.00	7.41	82.54	6,784.00	3.92	256.77	18.54	0.00	0.00	0.00
6,900.00	7.41	82.54	6,883.17	5.59	269.55	17.99	0.00	0.00	0.00
7,000.00	7.41	82.54	6,982.34	7.27	282.33	17.44	0.00	0.00	0.00
7,100.00	7.41	82.54	7,081.50	8.94	295.12	16.89	0.00	0.00	0.00
7,200.00	7.41	82.54	7,180.67	10.62	307.90	16.34	0.00	0.00	0.00
7,300.00	7.41	82.54	7,279.83	12.29	320.68	15.79	0.00	0.00	0.00
7,400.00	7.41	82.54	7,379.00	13.97	333.47	15.24	0.00	0.00	0.00
7,500.00	7.41	82.54	7,478.16	15.64	346.25	14.69	0.00	0.00	0.00
7,600.00	7.41	82.54	7,577.33	17.32	359.03	14.14	0.00	0.00	0.00
7,700.00	7.41	82.54	7,676.49	18.99	371.82	13.59	0.00	0.00	0.00
7,800.00	7.41	82.54	7,775.66	20.67	384.60	13.04	0.00	0.00	0.00
7,900.00	7.41	82.54	7,874.82	22.34	397.38	12.49	0.00	0.00	0.00
7,971.78	7.41	82.54	7,946.00	23.54	406.56	12.09	0.00	0.00	0.00
BSPG_LM									
8,000.00	7.41	82.54	7,973.99	24.02	410.16	11.93	0.00	0.00	0.00
8,100.00	7.41	82.54	8,073.16	25.69	422.95	11.38	0.00	0.00	0.00
8,200.00	7.41	82.54	8,172.32	27.36	435.73	10.83	0.00	0.00	0.00
8,300.00	7.41	82.54	8,271.49	29.04	448.51	10.28	0.00	0.00	0.00
8,400.00	7.41	82.54	8,370.65	30.71	461.30	9.73	0.00	0.00	0.00
8,500.00	7.41	82.54	8,469.82	32.39	474.08	9.18	0.00	0.00	0.00
8,600.00	7.41	82.54	8,568.98	34.06	486.86	8.63	0.00	0.00	0.00
8,700.00	7.41	82.54	8,668.15	35.74	499.65	8.08	0.00	0.00	0.00
8,800.00	7.41	82.54	8,767.31	37.41	512.43	7.53	0.00	0.00	0.00
8,900.00	7.41	82.54	8,866.48	39.09	525.21	6.98	0.00	0.00	0.00

Planning Report

Database:	PREDATOR_EDM	Local Co-ordinate Reference:	Well 202H/102H - Slot PLU 13 DTD
Company:	XTO Energy	TVD Reference:	202H/102H SHL
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3443+28 @ 3471.00usft (Patt243)
Site:	PLU 13 DTD	North Reference:	3443+28 @ 3471.00usft (Patt243)
Well:	202H/102H	Survey Calculation Method:	Grid
Wellbore:	202H/102H Lateral		Minimum Curvature
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)
8,980.19	7.41	82.54	8,946.00	40.43	535.46	6.54	0.00	0.00	0.00
BSPG1									
9,000.00	7.41	82.54	8,965.64	40.76	538.00	6.43	0.00	0.00	0.00
9,100.00	7.41	82.54	9,064.81	42.44	550.78	5.88	0.00	0.00	0.00
9,200.00	7.41	82.54	9,163.97	44.11	563.56	5.33	0.00	0.00	0.00
9,300.00	7.41	82.54	9,263.14	45.79	576.35	4.77	0.00	0.00	0.00
9,333.14	7.41	82.54	9,296.00	46.34	580.58	4.59	0.00	0.00	0.00
BSPG2_LM									
9,400.00	7.41	82.54	9,362.31	47.46	589.13	4.22	0.00	0.00	0.00
9,500.00	7.41	82.54	9,461.47	49.14	601.91	3.67	0.00	0.00	0.00
9,600.00	7.41	82.54	9,560.64	50.81	614.70	3.12	0.00	0.00	0.00
9,700.00	7.41	82.54	9,659.80	52.49	627.48	2.57	0.00	0.00	0.00
9,800.00	7.41	82.54	9,758.97	54.16	640.26	2.02	0.00	0.00	0.00
9,852.47	7.41	82.54	9,811.00	55.04	646.97	1.73	0.00	0.00	0.00
BSPG2									
9,900.00	7.41	82.54	9,858.13	55.84	653.05	1.47	0.00	0.00	0.00
10,000.00	7.41	82.54	9,957.30	57.51	665.83	0.92	0.00	0.00	0.00
10,100.00	7.41	82.54	10,056.46	59.18	678.61	0.37	0.00	0.00	0.00
10,165.08	7.41	82.54	10,121.00	60.27	686.93	0.01	0.00	0.00	0.00
BSPG3_LM									
10,200.00	7.41	82.54	10,155.63	60.86	691.39	-0.18	0.00	0.00	0.00
10,300.00	7.41	82.54	10,254.79	62.53	704.18	-0.73	0.00	0.00	0.00
10,400.00	7.41	82.54	10,353.96	64.21	716.96	-1.28	0.00	0.00	0.00
10,500.00	7.41	82.54	10,453.13	65.88	729.74	-1.83	0.00	0.00	0.00
10,600.00	7.41	82.54	10,552.29	67.56	742.53	-2.39	0.00	0.00	0.00
10,700.00	7.41	82.54	10,651.46	69.23	755.31	-2.94	0.00	0.00	0.00
10,800.00	7.41	82.54	10,750.62	70.91	768.09	-3.49	0.00	0.00	0.00
10,847.30	7.41	82.54	10,797.53	71.70	774.14	-3.75	0.00	0.00	0.00
10,850.00	7.38	84.62	10,800.20	71.74	774.49	-3.76	10.00	-1.07	77.27
10,896.21	8.34	118.20	10,846.00	70.43	780.40	-1.94	10.00	2.09	72.66
BSPG3									
10,900.00	8.53	120.45	10,849.75	70.16	780.88	-1.62	10.00	4.89	59.45
10,950.00	11.86	141.90	10,898.97	64.23	787.25	4.84	10.00	6.67	42.89
11,000.00	16.08	153.19	10,947.49	54.00	793.55	15.58	10.00	8.43	22.58
11,050.00	20.64	159.75	10,994.94	39.55	799.73	30.52	10.00	9.12	13.12
11,100.00	25.36	163.98	11,040.96	20.97	805.74	49.55	10.00	9.44	8.47
11,150.00	30.17	166.95	11,085.19	-1.57	811.54	72.51	10.00	9.61	5.94
11,200.00	35.02	169.17	11,127.30	-27.92	817.07	99.24	10.00	9.71	4.43
11,250.00	39.91	170.90	11,166.98	-57.87	822.31	129.53	10.00	9.78	3.47
11,300.00	44.82	172.31	11,203.91	-91.19	827.21	163.16	10.00	9.82	2.83
11,350.00	49.74	173.50	11,237.82	-127.63	831.73	199.86	10.00	9.85	2.38
11,400.00	54.68	174.53	11,268.45	-166.92	835.84	239.35	10.00	9.87	2.05
11,413.28	55.99	174.78	11,276.00	-177.79	836.85	250.27	10.00	9.88	1.89
WFMP - PLU 13 DTD 202H/102H FTP_330FNL_202FEL									
11,450.00	59.62	175.43	11,295.56	-208.75	839.50	281.34	10.00	9.89	1.79
11,482.05	62.79	175.97	11,311.00	-236.75	841.60	309.42	10.00	9.89	1.67
WFMP_X									
11,492.27	63.80	176.13	11,315.59	-245.86	842.23	318.55	10.00	9.90	1.60
PLU 13 DTD 102H/122H FTP_330FNL_470FEL									
11,500.00	64.57	176.25	11,318.96	-252.80	842.70	325.51	10.00	9.90	1.58
11,550.00	69.52	177.01	11,338.46	-298.75	845.39	371.51	10.00	9.90	1.51
11,600.00	74.47	177.72	11,353.91	-346.23	847.58	419.01	10.00	9.91	1.42

Planning Report

Database:	PREDATOR_EDM	Local Co-ordinate Reference:	Well 202H/102H - Slot PLU 13 DTD
Company:	XTO Energy	TVD Reference:	202H/102H SHL
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3443+28 @ 3471.00usft (Patt243)
Site:	PLU 13 DTD	North Reference:	3443+28 @ 3471.00usft (Patt243)
Well:	202H/102H	Survey Calculation Method:	Grid
Wellbore:	202H/102H Lateral		Minimum Curvature
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)
11,650.00	79.43	178.39	11,365.19	-394.90	849.23	467.63	10.00	9.91	1.35
11,700.00	84.39	179.04	11,372.23	-444.37	850.33	517.01	10.00	9.92	1.31
11,746.61	89.01	179.64	11,374.91	-490.89	850.87	563.39	10.00	9.92	1.28
PLU 13 DTD 202H/102H LP (~392'PastFTP)									
11,750.00	89.35	179.69	11,374.96	-494.28	850.89	566.77	10.00	9.92	1.28
11,756.57	90.00	179.77	11,375.00	-500.85	850.92	573.32	10.00	9.92	1.28
LP									
11,756.60	90.00	179.77	11,375.00	-500.88	850.92	573.35	10.00	9.92	1.28
11,800.00	90.00	179.77	11,375.00	-544.28	851.09	616.60	0.00	0.00	0.00
11,900.00	90.00	179.77	11,375.00	-644.28	851.49	716.25	0.00	0.00	0.00
12,000.00	90.00	179.77	11,375.00	-744.28	851.90	815.90	0.00	0.00	0.00
12,100.00	90.00	179.77	11,375.00	-844.28	852.30	915.56	0.00	0.00	0.00
12,200.00	90.00	179.77	11,375.00	-944.28	852.70	1,015.21	0.00	0.00	0.00
12,300.00	90.00	179.77	11,375.00	-1,044.28	853.10	1,114.86	0.00	0.00	0.00
12,400.00	90.00	179.77	11,375.00	-1,144.27	853.50	1,214.51	0.00	0.00	0.00
12,500.00	90.00	179.77	11,375.00	-1,244.27	853.90	1,314.16	0.00	0.00	0.00
12,600.00	90.00	179.77	11,375.00	-1,344.27	854.30	1,413.81	0.00	0.00	0.00
12,700.00	90.00	179.77	11,375.00	-1,444.27	854.71	1,513.46	0.00	0.00	0.00
12,800.00	90.00	179.77	11,375.00	-1,544.27	855.11	1,613.12	0.00	0.00	0.00
12,900.00	90.00	179.77	11,375.00	-1,644.27	855.51	1,712.77	0.00	0.00	0.00
13,000.00	90.00	179.77	11,375.00	-1,744.27	855.91	1,812.42	0.00	0.00	0.00
13,100.00	90.00	179.77	11,375.00	-1,844.27	856.31	1,912.07	0.00	0.00	0.00
13,200.00	90.00	179.77	11,375.00	-1,944.27	856.71	2,011.72	0.00	0.00	0.00
13,300.00	90.00	179.77	11,375.00	-2,044.27	857.11	2,111.37	0.00	0.00	0.00
13,400.00	90.00	179.77	11,375.00	-2,144.27	857.52	2,211.02	0.00	0.00	0.00
13,500.00	90.00	179.77	11,375.00	-2,244.27	857.92	2,310.67	0.00	0.00	0.00
13,600.00	90.00	179.77	11,375.00	-2,344.26	858.32	2,410.33	0.00	0.00	0.00
13,700.00	90.00	179.77	11,375.00	-2,444.26	858.72	2,509.98	0.00	0.00	0.00
13,800.00	90.00	179.77	11,375.00	-2,544.26	859.12	2,609.63	0.00	0.00	0.00
13,900.00	90.00	179.77	11,375.00	-2,644.26	859.52	2,709.28	0.00	0.00	0.00
14,000.00	90.00	179.77	11,375.00	-2,744.26	859.92	2,808.93	0.00	0.00	0.00
14,100.00	90.00	179.77	11,375.00	-2,844.26	860.33	2,908.58	0.00	0.00	0.00
14,200.00	90.00	179.77	11,375.00	-2,944.26	860.73	3,008.23	0.00	0.00	0.00
14,300.00	90.00	179.77	11,375.00	-3,044.26	861.13	3,107.89	0.00	0.00	0.00
14,400.00	90.00	179.77	11,375.00	-3,144.26	861.53	3,207.54	0.00	0.00	0.00
14,500.00	90.00	179.77	11,375.00	-3,244.26	861.93	3,307.19	0.00	0.00	0.00
14,600.00	90.00	179.77	11,375.00	-3,344.26	862.33	3,406.84	0.00	0.00	0.00
14,700.00	90.00	179.77	11,375.00	-3,444.26	862.73	3,506.49	0.00	0.00	0.00
14,800.00	90.00	179.77	11,375.00	-3,544.26	863.14	3,606.14	0.00	0.00	0.00
14,900.00	90.00	179.77	11,375.00	-3,644.25	863.54	3,705.79	0.00	0.00	0.00
15,000.00	90.00	179.77	11,375.00	-3,744.25	863.94	3,805.45	0.00	0.00	0.00
15,100.00	90.00	179.77	11,375.00	-3,844.25	864.34	3,905.10	0.00	0.00	0.00
15,200.00	90.00	179.77	11,375.00	-3,944.25	864.74	4,004.75	0.00	0.00	0.00
15,300.00	90.00	179.77	11,375.00	-4,044.25	865.14	4,104.40	0.00	0.00	0.00
15,400.00	90.00	179.77	11,375.00	-4,144.25	865.54	4,204.05	0.00	0.00	0.00
15,500.00	90.00	179.77	11,375.00	-4,244.25	865.95	4,303.70	0.00	0.00	0.00
15,600.00	90.00	179.77	11,375.00	-4,344.25	866.35	4,403.35	0.00	0.00	0.00
15,700.00	90.00	179.77	11,375.00	-4,444.25	866.75	4,503.01	0.00	0.00	0.00
15,800.00	90.00	179.77	11,375.00	-4,544.25	867.15	4,602.66	0.00	0.00	0.00
15,900.00	90.00	179.77	11,375.00	-4,644.25	867.55	4,702.31	0.00	0.00	0.00
16,000.00	90.00	179.77	11,375.00	-4,744.25	867.95	4,801.96	0.00	0.00	0.00
16,100.00	90.00	179.77	11,375.00	-4,844.24	868.35	4,901.61	0.00	0.00	0.00
16,200.00	90.00	179.77	11,375.00	-4,944.24	868.76	5,001.26	0.00	0.00	0.00

Planning Report

Database:	PREDATOR_EDM	Local Co-ordinate Reference:	Well 202H/102H - Slot PLU 13 DTD
Company:	XTO Energy	TVD Reference:	202H/102H SHL
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3443+28 @ 3471.00usft (Patt243)
Site:	PLU 13 DTD	North Reference:	3443+28 @ 3471.00usft (Patt243)
Well:	202H/102H	Survey Calculation Method:	Grid
Wellbore:	202H/102H Lateral		Minimum Curvature
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)	
16,300.00	90.00	179.77	11,375.00	-5,044.24	869.16	5,100.91	0.00	0.00	0.00	
16,400.00	90.00	179.77	11,375.00	-5,144.24	869.56	5,200.57	0.00	0.00	0.00	
16,500.00	90.00	179.77	11,375.00	-5,244.24	869.96	5,300.22	0.00	0.00	0.00	
16,600.00	90.00	179.77	11,375.00	-5,344.24	870.36	5,399.87	0.00	0.00	0.00	
16,700.00	90.00	179.77	11,375.00	-5,444.24	870.76	5,499.52	0.00	0.00	0.00	
16,800.00	90.00	179.77	11,375.00	-5,544.24	871.16	5,599.17	0.00	0.00	0.00	
16,900.00	90.00	179.77	11,375.00	-5,644.24	871.57	5,698.82	0.00	0.00	0.00	
17,000.00	90.00	179.77	11,375.00	-5,744.24	871.97	5,798.47	0.00	0.00	0.00	
17,100.00	90.00	179.77	11,375.00	-5,844.24	872.37	5,898.13	0.00	0.00	0.00	
17,200.00	90.00	179.77	11,375.00	-5,944.24	872.77	5,997.78	0.00	0.00	0.00	
17,300.00	90.00	179.77	11,375.00	-6,044.24	873.17	6,097.43	0.00	0.00	0.00	
17,400.00	90.00	179.77	11,375.00	-6,144.23	873.57	6,197.08	0.00	0.00	0.00	
17,500.00	90.00	179.77	11,375.00	-6,244.23	873.97	6,296.73	0.00	0.00	0.00	
17,600.00	90.00	179.77	11,375.00	-6,344.23	874.38	6,396.38	0.00	0.00	0.00	
17,700.00	90.00	179.77	11,375.00	-6,444.23	874.78	6,496.03	0.00	0.00	0.00	
17,800.00	90.00	179.77	11,375.00	-6,544.23	875.18	6,595.69	0.00	0.00	0.00	
17,900.00	90.00	179.77	11,375.00	-6,644.23	875.58	6,695.34	0.00	0.00	0.00	
18,000.00	90.00	179.77	11,375.00	-6,744.23	875.98	6,794.99	0.00	0.00	0.00	
18,100.00	90.00	179.77	11,375.00	-6,844.23	876.38	6,894.64	0.00	0.00	0.00	
18,200.00	90.00	179.77	11,375.00	-6,944.23	876.78	6,994.29	0.00	0.00	0.00	
18,300.00	90.00	179.77	11,375.00	-7,044.23	877.19	7,093.94	0.00	0.00	0.00	
18,400.00	90.00	179.77	11,375.00	-7,144.23	877.59	7,193.59	0.00	0.00	0.00	
18,500.00	90.00	179.77	11,375.00	-7,244.23	877.99	7,293.25	0.00	0.00	0.00	
18,600.00	90.00	179.77	11,375.00	-7,344.22	878.39	7,392.90	0.00	0.00	0.00	
18,700.00	90.00	179.77	11,375.00	-7,444.22	878.79	7,492.55	0.00	0.00	0.00	
18,800.00	90.00	179.77	11,375.00	-7,544.22	879.19	7,592.20	0.00	0.00	0.00	
18,900.00	90.00	179.77	11,375.00	-7,644.22	879.59	7,691.85	0.00	0.00	0.00	
19,000.00	90.00	179.77	11,375.00	-7,744.22	880.00	7,791.50	0.00	0.00	0.00	
19,100.00	90.00	179.77	11,375.00	-7,844.22	880.40	7,891.15	0.00	0.00	0.00	
19,200.00	90.00	179.77	11,375.00	-7,944.22	880.80	7,990.81	0.00	0.00	0.00	
19,300.00	90.00	179.77	11,375.00	-8,044.22	881.20	8,090.46	0.00	0.00	0.00	
19,400.00	90.00	179.77	11,375.00	-8,144.22	881.60	8,190.11	0.00	0.00	0.00	
19,500.00	90.00	179.77	11,375.00	-8,244.22	882.00	8,289.76	0.00	0.00	0.00	
19,600.00	90.00	179.77	11,375.00	-8,344.22	882.40	8,389.41	0.00	0.00	0.00	
19,700.00	90.00	179.77	11,375.00	-8,444.22	882.81	8,489.06	0.00	0.00	0.00	
19,800.00	90.00	179.77	11,375.00	-8,544.21	883.21	8,588.71	0.00	0.00	0.00	
19,900.00	90.00	179.77	11,375.00	-8,644.21	883.61	8,688.37	0.00	0.00	0.00	
20,000.00	90.00	179.77	11,375.00	-8,744.21	884.01	8,788.02	0.00	0.00	0.00	
20,100.00	90.00	179.77	11,375.00	-8,844.21	884.41	8,887.67	0.00	0.00	0.00	
20,200.00	90.00	179.77	11,375.00	-8,944.21	884.81	8,987.32	0.00	0.00	0.00	
20,300.00	90.00	179.77	11,375.00	-9,044.21	885.21	9,086.97	0.00	0.00	0.00	
20,400.00	90.00	179.77	11,375.00	-9,144.21	885.62	9,186.62	0.00	0.00	0.00	
20,500.00	90.00	179.77	11,375.00	-9,244.21	886.02	9,286.27	0.00	0.00	0.00	
20,600.00	90.00	179.77	11,375.00	-9,344.21	886.42	9,385.93	0.00	0.00	0.00	
20,700.00	90.00	179.77	11,375.00	-9,444.21	886.82	9,485.58	0.00	0.00	0.00	
20,800.00	90.00	179.77	11,375.00	-9,544.21	887.22	9,585.23	0.00	0.00	0.00	
20,900.00	90.00	179.77	11,375.00	-9,644.21	887.62	9,684.88	0.00	0.00	0.00	
21,000.00	90.00	179.77	11,375.00	-9,744.21	888.02	9,784.53	0.00	0.00	0.00	
21,100.00	90.00	179.77	11,375.00	-9,844.20	888.43	9,884.18	0.00	0.00	0.00	
21,200.00	90.00	179.77	11,375.00	-9,944.20	888.83	9,983.83	0.00	0.00	0.00	
21,261.82	90.00	179.77	11,375.00	-10,006.02	889.08	10,045.44	0.00	0.00	0.00	
PLU 13 DTD 102H/122H LTP_330FSL_472FEL										
21,262.60	90.00	179.77	11,375.00	-10,006.80	889.08	10,046.21	0.00	0.00	0.00	

Planning Report

Database:	PREDATOR_EDM	Local Co-ordinate Reference:	Well 202H/102H - Slot PLU 13 DTD 202H/102H SHL
Company:	XTQ Energy	TVD Reference:	3443+28 @ 3471.00usft (Patt243)
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3443+28 @ 3471.00usft (Patt243)
Site:	PLU 13 DTD	North Reference:	Grid
Well:	202H/102H	Survey Calculation Method:	Minimum Curvature
Wellbore:	202H/102H 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)
PLU 13 DTD 202H/102H LTP_330FSL_204FEL									
21,300.00	90.00	179.77	11,375.00	-10,044.20	889.23	10,083.49	0.00	0.00	0.00
21,391.82	90.00	179.77	11,375.00	-10,136.02	889.60	10,174.99	0.00	0.00	0.00
PLU 13 DTD 102H/122H PBHL_200FSL_472FEL									
21,392.60	90.00	179.77	11,375.00	-10,136.80	889.60	10,175.76	0.00	0.00	0.00
PLU 13 DTD 202H/102H PBHL_200FSL_204FEL									

Design Targets									
Target Name hit/miss target Shape	Dip Angle (°)	Dip Dir (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PLU 13 DTD 202H/102H - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	440,433.60	652,098.50	32.20991261	-103.84156359
PLU 13 DTD 202H/102H - plan misses target center by 0.09usft at 21262.60usft MD (11374.91 TVD, -490.89 N, 850.87 E) - Point	0.00	0.00	11,375.00	-490.88	850.88	439,942.72	652,949.38	32.20855250	-103.83881988
PLU 13 DTD 202H/102H - plan misses target center by 0.48usft at 21262.60usft MD (11375.00 TVD, -10006.80 N, 889.08 E) - Point	0.00	0.00	11,375.00	-10,006.80	888.60	430,426.80	652,987.10	32.18239366	-103.83883941
PLU 13 DTD 202H/102H - plan misses target center by 121.80usft at 11413.28usft MD (11276.00 TVD, -177.79 N, 836.85 E) - Point	0.00	0.00	11,375.00	-107.90	849.10	440,325.70	652,947.60	32.20960530	-103.83881994
PLU 13 DTD 202H/102H - plan hits target center - Rectangle (sides W100.00 H10,029.00 D0.00)	0.00	0.00	11,375.00	-10,136.80	889.60	430,296.80	652,988.10	32.18203629	-103.83883811

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction	
456.00	456.00	RSLR				
846.00	846.00	T/SALT				
3,896.00	3,896.00	B/SALT				
4,141.00	4,141.00	DLWR				
6,650.75	6,636.00	BYCN				
7,971.78	7,946.00	BSPG_LM				
8,980.19	8,946.00	BSPG1				
9,333.14	9,296.00	BSPG2_LM				
9,852.47	9,811.00	BSPG2				
10,165.08	10,121.00	BSPG3_LM				
10,896.21	10,846.00	BSPG3				
11,413.28	11,276.00	WFMP				
11,482.05	11,311.00	WFMP_X				
11,756.57	11,375.00	LP				

Planning Report

Database:	PREDATOR_EDM	Local Co-ordinate Reference:	Well 202H/102H - Slot PLU 13 DTD
Company:	XTO Energy	TVD Reference:	202H/102H SHL
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3443+28 @ 3471.00usft (Patt243)
Site:	PLU 13 DTD	North Reference:	3443+28 @ 3471.00usft (Patt243)
Well:	202H/102H	Survey Calculation Method:	Grid
Wellbore:	202H/102H Lateral		Minimum Curvature
Design:	Plan #1		

PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	XTO Permian Operating, LLC
LEASE NO.:	NMNM-0030453
WELL NAME & NO.:	Poker Lake Unit 13 DTD 102H
SURFACE HOLE FOOTAGE:	0185' FNL & 0285' FWL
BOTTOM HOLE FOOTAGE:	0200' FSL & 0866' FWL Sec. 25, T. 24 S., R 30 E.
LOCATION:	Section 24, T. 24 S., R 30 E., NMPM
COUNTY:	Eddy County, New Mexico

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. **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.**
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. 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 wells.
4. 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.
5. 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 pressure may be encountered in the 3rd Bone Spring and all subsequent formations.

1. The **18-5/8** inch surface casing shall be set at approximately **610** 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.
2. The minimum required fill of cement behind the **13-3/8** inch 1st intermediate casing is:

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

Formation below the 13-3/8" 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 (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.

9-5/8" 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 9-5/8 inch 2nd intermediate casing is:

Operator has proposed DV tool at depth of 3993', but will adjust cement proportionately if moved. DV tool shall be set a minimum of 50' below previous shoe and a minimum of 200' above current shoe. Operator shall submit sundry if DV tool depth cannot be set in this range. If an ECP is used, it is to be set a minimum of 50' below the shoe to provide cement across the shoe. If it cannot be set below the shoe, a CBL shall be run to verify cement coverage.

a. First stage to DV tool:

- ☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve approved top of cement on the next stage.

b. Second stage above DV tool:

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

Formation below the 9-5/8" 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.