

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

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 <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other	8. Well Name and No. BIG EDDY UNIT D14B 274H
2. Name of Operator BOPCO LP Contact: KELLY KARDOS E-Mail: kelly_kardos@xtoenergy.com	9. API Well No. 30-015-43647-00-X1
3a. Address 6401 HOLIDAY HILL RD BLDG 5 SUITE 200 MIDLAND, TX 79707	10. Field and Pool or Exploratory Area WILLIAMS SINK
3b. Phone No. (include area code) Ph: 432-620-4374	11. County or Parish, State EDDY COUNTY, NM
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 5 T20S R31E SWSE 720FSL 2065FEL	

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

TYPE OF SUBMISSION	TYPE OF ACTION
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Deepen
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Hydraulic Fracturing
	<input type="checkbox"/> Production (Start/Resume)
	<input type="checkbox"/> Reclamation
	<input type="checkbox"/> Water Shut-Off
	<input type="checkbox"/> Well Integrity
	<input checked="" type="checkbox"/> Other
	Change to Original APD
	<input type="checkbox"/> Alter Casing
	<input type="checkbox"/> New Construction
	<input type="checkbox"/> Recombine
	<input type="checkbox"/> Temporarily Abandon
	<input type="checkbox"/> Convert to Injection
	<input type="checkbox"/> Plug and Abandon
	<input type="checkbox"/> Plug Back
	<input type="checkbox"/> 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.

BOPCO, L.P. requests permission to make the following changes to the approved APD:

1. Change BHL from 660?FSL & 330?FEL to 660?FSL & 200?FEL ✓
2. Drilling Program
3. Directional Program

- Attachments:
1. C-102 & Supplement
  2. Drilling Program
  3. Directional Survey
  4. BOP/CM/FH

RECEIVED

OCT 25 2018

SEE ATTACHED FOR  
CONDITIONS OF APPROVAL

DISTRICT II-ARTESIA O.C.D.

14. I hereby certify that the foregoing is true and correct.	
Electronic Submission #436420 verified by the BLM Well Information System For BOPCO LP, sent to the Carlsbad Committed to AFMS for processing by PRISCILLA PEREZ on 09/27/2018 (18PP2751SE)	
Name (Printed/Typed) KELLY KARDOS	Title REGULATORY COORDINATOR
Signature (Electronic Submission)	Date 09/21/2018

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By <u>ZOTA STEVENS</u>	Title <u>PETROLEUM ENGINEER</u>	Date <u>10/17/2018</u>
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.		Office <u>Carlsbad</u>

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)

\*\* BLM REVISED \*\*

RWP 10-25-18

RECEIVED

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: (505) 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  
DISTRICT II-ARTESIA O.C.D.

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

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

<sup>1</sup> API Number 30-015-43647	<sup>2</sup> Pool Code 97650	<sup>3</sup> Pool Name WC WILLIAM SINK (BONE SPRING)
<sup>4</sup> Property Code 315998	<sup>5</sup> Property Name BIG EDDY UNIT DI 4B	<sup>6</sup> Well Number 274H
<sup>7</sup> OGRID No. 260737	<sup>8</sup> Operator Name BOPCO, L.P.	<sup>9</sup> Elevation 3,464'

<sup>10</sup> Surface Location

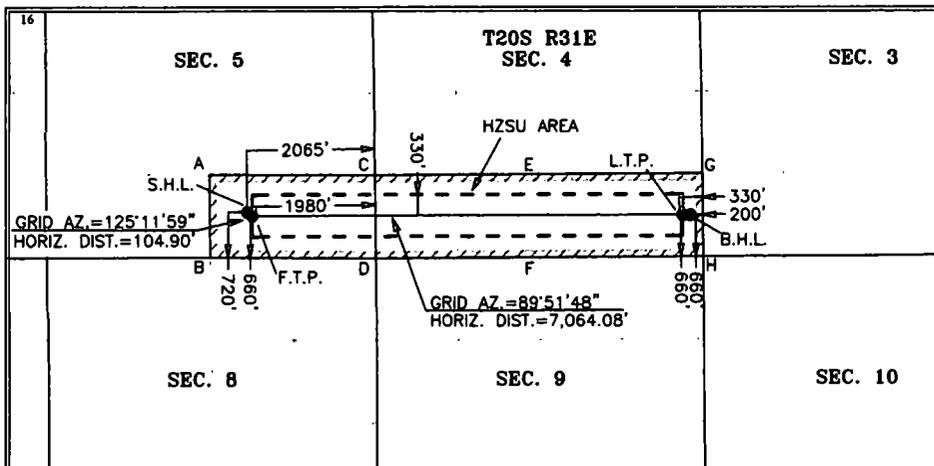
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
O	5	20 S	31 E		720	SOUTH	2,065	EAST	EDDY

<sup>11</sup> Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	4	20 S	31 E		660	SOUTH	200	EAST	EDDY

<sup>12</sup> Dedicated Acres 240	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> 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.



**<sup>17</sup> 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.*  
Signature: Kelly Kardos  
Date: 9/19/18  
Printed Name: Kelly Kardos  
E-mail Address: kelly\_kardos@xtoenergy.com

**<sup>18</sup> 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.*  
Date of Survey: 09-05-2018  
Signature and Seal of Professional Surveyor: [Signature]  
Certificate Number: MARK DILLON HARP 23786  
JC/AW 2018040913

CORNER COORDINATES TABLE  
NAD 83 NME

A - Y= 581,884.3 N, X= 677,421.7 E
B - Y= 580,565.4 N, X= 677,433.1 E
C - Y= 581,873.4 N, X= 680,094.5 E
D - Y= 580,550.7 N, X= 680,108.6 E
E - Y= 581,887.7 N, X= 682,734.1 E
F - Y= 580,565.2 N, X= 682,753.7 E
G - Y= 581,901.9 N, X= 685,378.3 E
H - Y= 580,579.6 N, X= 685,392.4 E

CORNER COORDINATES TABLE  
NAD 27 NME

A - Y= 581,822.5 N, X= 636,242.3 E
B - Y= 580,503.6 N, X= 636,253.7 E
C - Y= 581,811.6 N, X= 638,915.1 E
D - Y= 580,488.9 N, X= 638,929.2 E
E - Y= 581,825.9 N, X= 641,554.7 E
F - Y= 580,503.4 N, X= 641,574.3 E
G - Y= 581,840.1 N, X= 644,198.9 E
H - Y= 580,517.8 N, X= 644,213.0 E

GEODETIC COORDINATES  
NAD 83 NME

SURFACE LOCATION
Y= 581,282.1
X= 678,035.6
LAT.= 32.597213°N
LONG.= 103.889455°W
FIRST TAKE POINT
NAD 83 NME
Y= 581,221.7
X= 678,121.3
LAT.= 32.597046°N
LONG.= 103.889178°W

LAST TAKE POINT  
NAD 83 NME

Y= 581,237.8
X= 685,055.3
LAT.= 32.597009°N
LONG.= 103.866663°W
BOTTOM HOLE LOCATION
NAD 83 NME
Y= 581,238.5
X= 685,185.3
LAT.= 32.597009°N
LONG.= 103.866240°W

GEODETIC COORDINATES  
NAD 27 NME

SURFACE LOCATION
Y= 581,220.3
X= 636,856.2
LAT.= 32.597094°N
LONG.= 103.888952°W
FIRST TAKE POINT
NAD 27 NME
Y= 581,159.9
X= 636,941.9
LAT.= 32.596927°N
LONG.= 103.888675°W

LAST TAKE POINT  
NAD 27 NME

Y= 581,176.0
X= 643,875.9
LAT.= 32.596889°N
LONG.= 103.866160°W
BOTTOM HOLE LOCATION
NAD 27 NME
Y= 581,176.7
X= 644,005.9
LAT.= 32.596890°N
LONG.= 103.865738°W



Intent  As Drilled

OCT 25 2018

DISTRICT II-ARTESIA O.C.D.

API #  
30-015-43647

Operator Name: BOPCO, L.P.	Property Name: Big Eddy Unit DI 4B	Well Number 274H
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Kick Off Point (KOP)

UL O	Section 5	Township 20S	Range 31E	Lot	Feet 720	From N/S South	Feet 2065	From E/W East	County Eddy
Latitude 32.597213					Longitude -103.889455			NAD NAD83	

First Take Point (FTP)

UL O	Section 5	Township 20S	Range 31E	Lot	Feet 660	From N/S South	Feet 1980	From E/W East	County Eddy
Latitude 32.597046					Longitude -103.889178			NAD NAD83	

Last Take Point (LTP)

UL P	Section 4	Township 20S	Range 31E	Lot	Feet 660	From N/S South	Feet 330	From E/W East	County Eddy
Latitude 32.597009					Longitude -103.866663			NAD NAD83	

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

Is this well an infill well?  N

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

API #	Operator Name:	Property Name:	Well Number

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

XTO Energy Inc.  
Big Eddy Unit DI 4B 274H  
Projected TD: 15987' MD / 9106' TVD  
SHL: 720' FSL & 2065' FEL , Section 5, T20S, R31E  
BHL: 660' FSL & 200' FEL , Section 4, T20S, R31E  
Eddy County, NM

**1. Geologic Name of Surface Formation**

A. Quaternary

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

Formation	Well Depth (TVD)	Water/Oil/Gas
Rustler	564'	Water
Top of Salt	810'	Water
Base of Salt	2306'	Water
Capitan	2912'	Water
Delaware	4225'	Water
Bone Spring	6972'	Water/Oil/Gas
1st Bone Spring Ss	8197'	Water/Oil/Gas
2nd Bone Spring Ss	8826'	Water/Oil/Gas
Target/Land Curve	9106'	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 @ 780' (30' above the salt) and circulating cement back to surface. The salt will be isolated by setting 11-3/4 inch casing at 2330' and circulating cement to surface. 8-5/8 inch intermediate casing will be set at 4325'. A 7-7/8 inch curve and lateral hole will be drilled to TD, where 5-1/2 inch casing will be set and cemented back up to the 8-5/8 inch casing shoe.

**3. Casing Design**

Hole Size	Depth	OD Csg	Weight	Collar	Grade	New/Used	SF Burst	SF Collapse	SF Tension
20"	0' - 780'	16"	75	STC	J-55	New	3.64	3.91	12.14
14-3/4"	0' - <del>2330'</del> 2819'	11-3/4"	42	STC	H40	New	1.64	1.46	3.14
10-5/8"	0' - 4325'	8-5/8"	32	STC	J-55	New	1.82	2.06	2.69
7-7/8"	0' - 15987'	5-1/2"	20	LTC	P-110	New	1.33	2.66	2.34

- XTO requests to utilize centralizers only in the curve after the KOP and only a minimum of one every other joint.
- 16" Collapse analyzed using 75% evacuation. Casing to be filled while running.
- 11-3/4" & 8-5/8" 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*

- 16" SOW bottom x 16-3/4" 3M 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" 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 +/- 780'*

Lead: 930 sxs Class C + Salt (mixed at 12.8 ppg, 1.88 ft3/sx, 11.45 gal/sx water)

Tail: 190 sxs Class C (mixed at 14.8 ppg, 1.33 ft3/sx, 6.39 gal/sx water)

Compressives: 12-hr = 1000 psi 24 hr = 2000 psi

*1st Intermediate Casing: 11-3/4", 42 New H40, STC casing to be set at +/- 2330'*

Lead: 930 sxs Class C + Poz + Fluid Loss FL-25 + Retarder R-3 + Salt + Bentonite (mixed at 12.8 ppg, 1.88 ft3/sx, 9.93 gal/sx water)

Tail: 190 sxs Class C + Retarder R-3 (mixed at 14.8 ppg, 1.33 ft3/sx, 6.30 gal/sx water)

Compressives: 12-hr = 1000 psi 24 hr = 2000 psi

*2nd Intermediate Casing: 8-5/8", 32 New J-55, STC casing to be set at +/- 4325'*

*ECP/DV Tool to be set at 2430'*

*1st Stage*

Lead 1: 510 sxs Class C + Glass Beads + IntegraSeal + Bonding Agent BA-90 + Foam Preventer FP-6L + Sodium Metasilicate A-2 + Anti Settling ASA-301 + Retarder R-21 + Extender LW-5E (mixed at 9.5 ppg, 3.8 ft3/sx, 18.7 gal/sx water)

Lead 2: 210 sxs Class C + Poz + IntegraSeal Cello + IntegraSeal Kol + Salt + Sodium Metasilicate A-2 + Retarder R-21 + Fluid Loss FL-52 + Bentonite (mixed at 11.5 ppg, 2.68 ft3/sx, 15.46 gal/sx water)

Tail: 150 sxs Class C + Foam Preventer FP-6L + Retarder R-21 + Fluid Loss FL-52 (mixed at 14.8 ppg, 1.33 ft3/sx, 6.39 gal/sx water)

Compressives: 12-hr = 1000 psi 24 hr = 2000 psi

*2nd Stage*

Lead: 430 sxs Class C + Poz + IntegraSeal Cello + IntegraSeal Kol + Salt + Retarder R-3 + Sodium Metasilicate A-2 + Fluid Loss FL-52 + Bentonite (mixed at 12.8 ppg, 1.88 ft3/sx, 9.61 gal/sx water)

Tail: 150 sxs Class C + Fluid Loss FL-52 (mixed at 14.8 ppg, 1.33 ft3/sx, 6.39 gal/sx water)

Compressives: 12-hr = 1000 psi 24 hr = 2000 psi

*Production Casing: 5-1/2", 20 New P-110, LTC casing to be set at +/- 15987'*

Lead 1: 10 sxs Class C + Glass Beads + IntegraSeal Kol + Bonding Agent BA-90 + Foam Preventer FP-6L + Sodium Metasilicate A-2 + Anti Settling ASA-301 + Retarder R-21 + Bentonite (mixed at 9.5 ppg, 3.8 ft3/sx, 18.7 gal/sx water)

Lead 2: 340 sxs Class C + Poz + IntegraSeal Cello + IntegraSeal Kol + Foam Preventer FP-6L + Salt + Sodium Metasilicate A-2 + Bentonite (mixed at 11.5 ppg, 2.72 ft3/sx, 15.9 gal/sx water)

Tail: 1110 sxs Class C + IntegraSeal Kol + Foam Preventer FP-6L + Salt + Fluid Loss FL-52 + Dispersant CS-32 + Retarder R-21 + Bonding Agent BA-90 (mixed at 13.2 ppg, 1.61 ft3/sx, 9.36 gal/sx water)

Compressives: 12-hr = 9 psi 24 hr = 1800 psi

#### 5. Pressure Control Equipment

The blow out preventer equipment (BOP) on surface casing/temp. wellhead will consist of a 20" minimum 2M Hydril. MASP should not exceed 723 psi.

Once the permanent WH is installed on the 11-3/4" casing, the blow out preventer equipment (BOP) will consist of a 13-5/8" minimum 5M Hydril and a 13-5/8" minimum 3M 2-Ram BOP. MASP should not exceed 2164 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" 3M bradenhead and flange, the BOP test will be limited to 3000 psi. Since a multibowl system will be used, subsequent BOP pressure tests will be performed as necessary based on required testing schedule (i.e., at least every 30 days). All BOP tests will include a low pressure test as per BLM regulations. The 3M BOP diagrams are attached. Blind rams will be functioned tested each trip, pipe rams will be functioned tested each day.

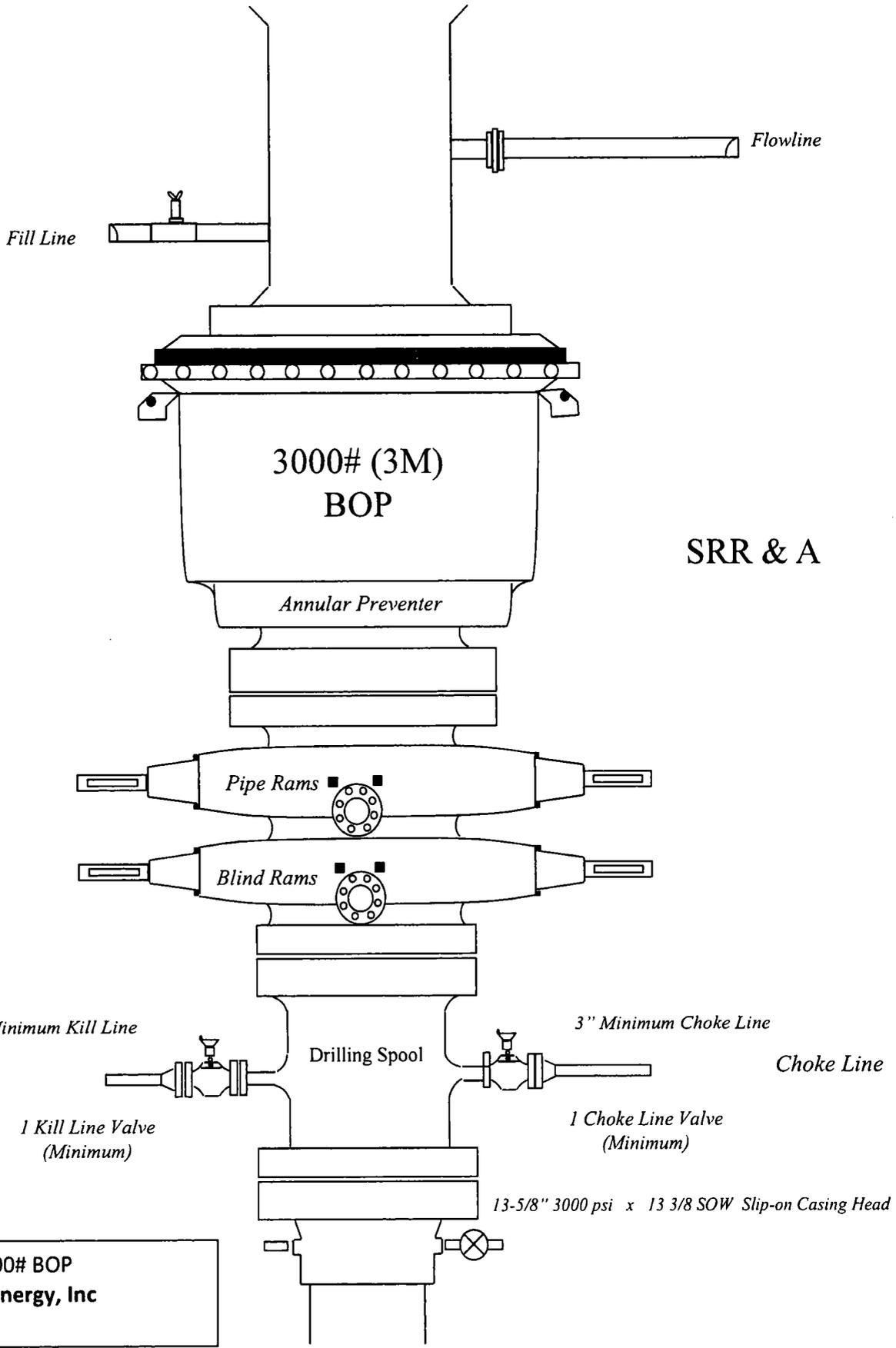
A variance is requested to allow use of a flex hose as the choke line from the BOP to the Choke Manifold. If this hose is used, a copy of the manufacturer's certification and pressure test chart will be kept on the rig. Attached is an example of a certification and pressure test chart. The manufacturer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

**6. Proposed Mud Circulation System**

INTERVAL	Hole Size	Mud Type	MW (ppg)	Viscosity (sec/qt)	Fluid Loss (cc)
0' - 780'	20"	FW/Native	8.3-9.5	35-50	NC
780' - 2330'	14-3/4"	Brine	9.5-10.2	30-35	NC
2330' to 4325'	10-5/8"	FW	8.3-9.5	30-32	NC
4325' to 15987'	7-7/8"	FW / Cut Brine / Polymer	8.6-9.4	29-32	NC - 20

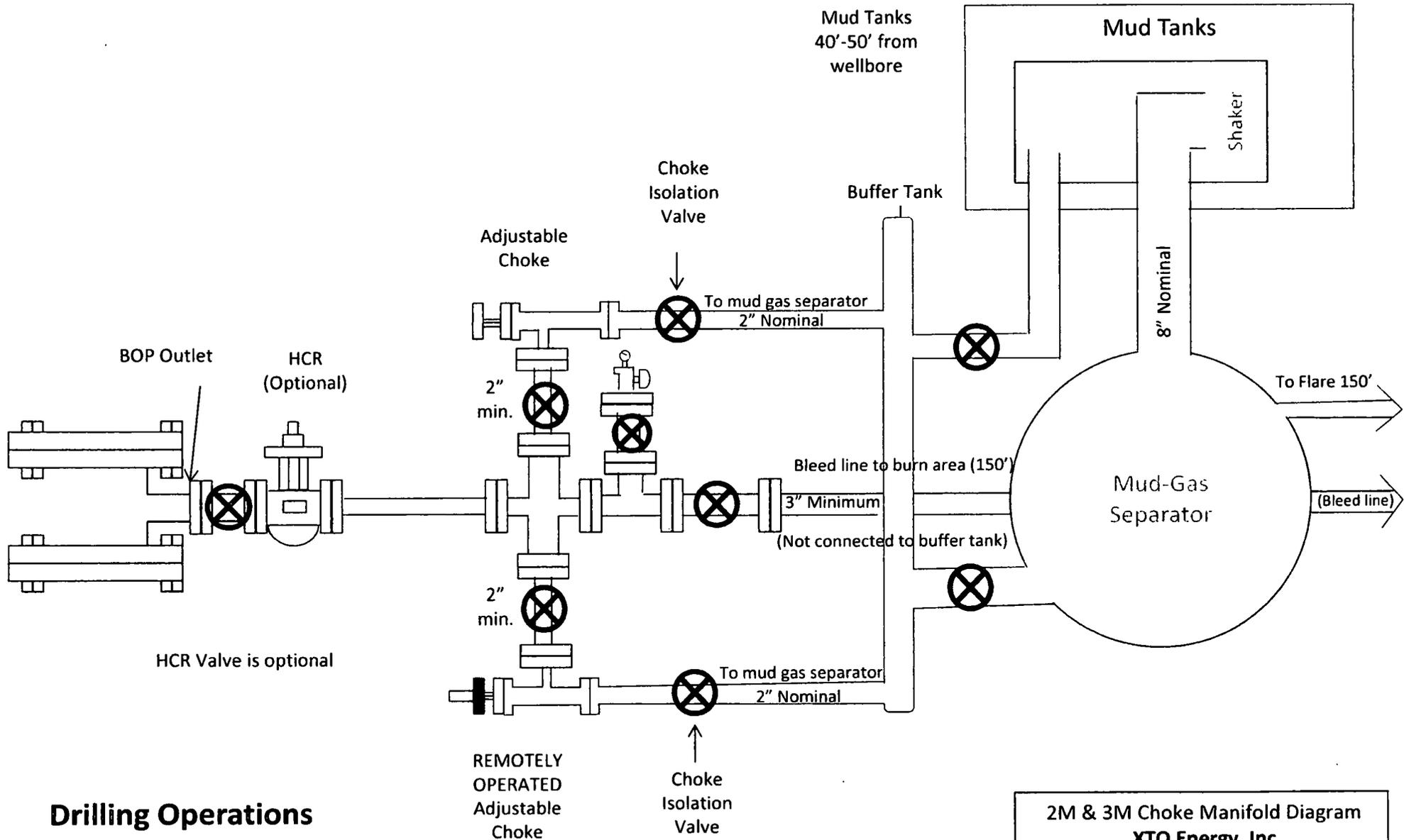
The necessary mud products for weight addition and fluid loss control will be on location at all times.

Spud with fresh water/native mud. Drill out from under 16" surface casing with brine solution. A 9.5ppg-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.



SRR & A

**3000# BOP**  
**XTO Energy, Inc**



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

**2M & 3M Choke Manifold Diagram  
XTO Energy, Inc**



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

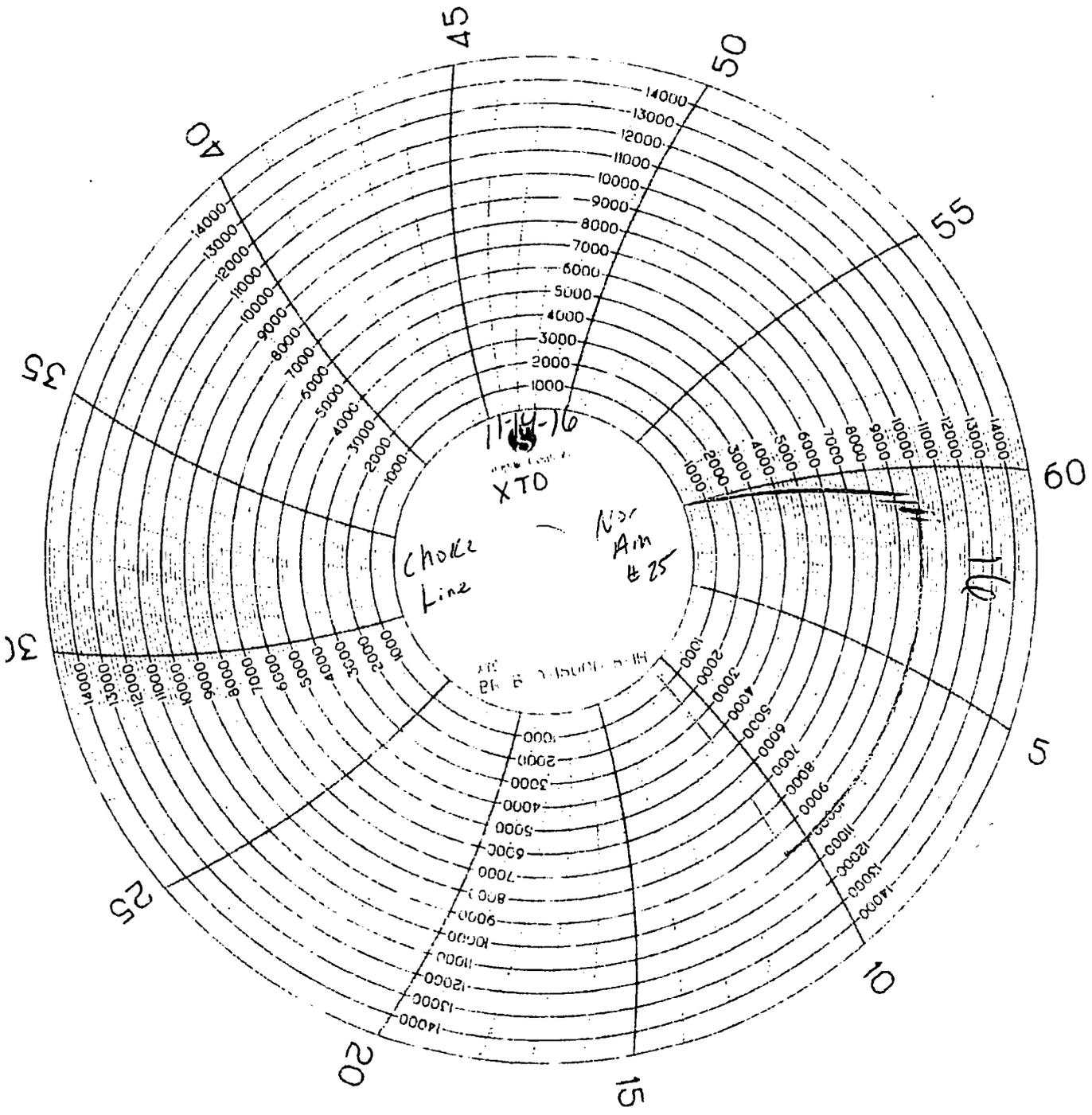
PHONE: 361-887-9807  
 FAX: 361-887-0812  
 EMAIL: crpe@s@gates.com  
 WEB: www.gates.com

### 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:	NORI4A
Product Description:	FD3.0-2.0R-1/16.5KFLGE;E LE		
End Fitting 1 :	4 1/16 in. SK FLG	End Fitting 2 :	4 1/16 in. SK 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 :	<i>[Signature]</i>	Signature :	<i>[Signature]</i>







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OCT 25 2018

DISTRICT II-ARTESIA O.C.D.

## **XTO ENERGY, INC.**

Eddy County, NM

Sec 5, T25S, R29E (TRUE NORTH)

Big Eddy Unit DI4B #274H

Wellbore #1

Plan: Design #1

## **QES Well Planning Report**

11 September, 2018





Well Planning Report



Database: EDM 5000.1 Single User Db  
 Company: XTO ENERGY, INC.  
 Project: Eddy County, NM  
 Site: Sec 5, T25S, R29E (TRUE NORTH)  
 Well: Big Eddy Unit DI4B #274H  
 Wellbore: Wellbore #1  
 Design: Design #1

Local Co-ordinate Reference: Well Big Eddy Unit DI4B #274H  
 TVD Reference: RKB @ 3480.5usft (Trinidad #445)  
 MD Reference: RKB @ 3480.5usft (Trinidad #445)  
 North Reference: True  
 Survey Calculation Method: Minimum Curvature

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

<b>Site</b>	Sec 5, T25S, R29E (TRUE NORTH)		
<b>Site Position:</b>	<b>Northing:</b>	581,215.60 usft	<b>Latitude:</b> 32° 35' 49.493 N
<b>From:</b> Map	<b>Easting:</b>	636,818.40 usft	<b>Longitude:</b> 103° 53' 20.670 W
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b> 13-3/16 "	<b>Grid Convergence:</b> 0.24 °

<b>Well</b>	Big Eddy Unit DI4B #274H		
<b>Well Position</b>	<b>+N/-S</b>	4.5 usft	<b>Northing:</b> 581,220.30 usft
	<b>+E/-W</b>	37.8 usft	<b>Easting:</b> 636,856.20 usft
<b>Position Uncertainty</b>	0.0 usft	<b>Wellhead Elevation:</b>	<b>Latitude:</b> 32° 35' 49.538 N
			<b>Longitude:</b> 103° 53' 20.228 W
			<b>Ground Level:</b> 3,464.0 usft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2015	9/11/2018	7.00	60.34	47,997.94851840

<b>Design</b>	Design #1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	90.59

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
8,506.7	0.00	0.00	8,506.7	0.0	0.0	0.00	0.00	0.00	0.00	
9,419.1	91.24	95.00	9,079.5	-51.0	583.1	10.00	10.00	0.00	95.00	
9,663.8	91.24	90.10	9,074.2	-61.9	827.5	2.00	0.00	-2.00	-89.96	
15,987.3	91.24	90.10	8,937.5	-73.5	7,149.5	0.00	0.00	0.00	0.00	Big Eddy DI4B #274H



Database: EDM 5000.1 Single User Db  
 Company: XTO ENERGY, INC.  
 Project: Eddy County, NM  
 Site: Sec 5, T25S, R29E (TRUE NORTH)  
 Well: Big Eddy Unit D14B #274H  
 Wellbore: Wellbore #1  
 Design: Design #1

Local Co-ordinate Reference: Well Big Eddy Unit D14B #274H  
 TVD Reference: RKB @ 3480.5usft (Trinidad #445)  
 MD Reference: RKB @ 3480.5usft (Trinidad #445)  
 North Reference: True  
 Survey Calculation Method: Minimum Curvature

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00	
<b>Rustler</b>										
555.5	0.00	0.00	555.5	0.0	0.0	0.0	0.00	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00	
<b>Salado</b>										
801.5	0.00	0.00	801.5	0.0	0.0	0.0	0.00	0.00	0.00	
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00	
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00	
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00	
<b>Base Salt</b>										
2,297.5	0.00	0.00	2,297.5	0.0	0.0	0.0	0.00	0.00	0.00	
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00	
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00	
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00	
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00	
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00	
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00	
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00	
<b>Capitan</b>										
2,903.5	0.00	0.00	2,903.5	0.0	0.0	0.0	0.00	0.00	0.00	
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00	
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00	
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00	
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00	
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00	
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00	
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00	
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00	
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00	
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00	
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00	
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00	
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00	
<b>Delaware Sand</b>										
4,216.5	0.00	0.00	4,216.5	0.0	0.0	0.0	0.00	0.00	0.00	
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00	



Well Planning Report



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 Wellbore: Wellbore #1  
 Design: Design #1

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 North Reference: True  
 Survey Calculation Method: Minimum Curvature

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00	
<b>Base Manzanita [Lower Cherry Canyon]</b>										
4,469.5	0.00	0.00	4,469.5	0.0	0.0	0.0	0.00	0.00	0.00	
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00	
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00	
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00	
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00	
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00	
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00	
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00	
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00	
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00	
<b>Brushy Canyon</b>										
5,379.5	0.00	0.00	5,379.5	0.0	0.0	0.0	0.00	0.00	0.00	
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00	
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00	
5,600.0	0.00	0.00	5,600.0	0.0	0.0	0.0	0.00	0.00	0.00	
5,700.0	0.00	0.00	5,700.0	0.0	0.0	0.0	0.00	0.00	0.00	
5,800.0	0.00	0.00	5,800.0	0.0	0.0	0.0	0.00	0.00	0.00	
5,900.0	0.00	0.00	5,900.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,000.0	0.00	0.00	6,000.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,100.0	0.00	0.00	6,100.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,200.0	0.00	0.00	6,200.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,300.0	0.00	0.00	6,300.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,400.0	0.00	0.00	6,400.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,500.0	0.00	0.00	6,500.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,600.0	0.00	0.00	6,600.0	0.0	0.0	0.0	0.00	0.00	0.00	
<b>Basal Brushy Canyon</b>										
6,684.5	0.00	0.00	6,684.5	0.0	0.0	0.0	0.00	0.00	0.00	
6,700.0	0.00	0.00	6,700.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,800.0	0.00	0.00	6,800.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,900.0	0.00	0.00	6,900.0	0.0	0.0	0.0	0.00	0.00	0.00	
<b>Base Brushy Canyon Sands / Leonard Shale</b>										
6,950.5	0.00	0.00	6,950.5	0.0	0.0	0.0	0.00	0.00	0.00	
<b>Bone Spring</b>										
6,963.5	0.00	0.00	6,963.5	0.0	0.0	0.0	0.00	0.00	0.00	
7,000.0	0.00	0.00	7,000.0	0.0	0.0	0.0	0.00	0.00	0.00	
7,100.0	0.00	0.00	7,100.0	0.0	0.0	0.0	0.00	0.00	0.00	
<b>Avalon Sand/Upper Avalon Shale</b>										
7,134.5	0.00	0.00	7,134.5	0.0	0.0	0.0	0.00	0.00	0.00	
7,200.0	0.00	0.00	7,200.0	0.0	0.0	0.0	0.00	0.00	0.00	
7,300.0	0.00	0.00	7,300.0	0.0	0.0	0.0	0.00	0.00	0.00	
7,400.0	0.00	0.00	7,400.0	0.0	0.0	0.0	0.00	0.00	0.00	
7,500.0	0.00	0.00	7,500.0	0.0	0.0	0.0	0.00	0.00	0.00	
7,600.0	0.00	0.00	7,600.0	0.0	0.0	0.0	0.00	0.00	0.00	
7,700.0	0.00	0.00	7,700.0	0.0	0.0	0.0	0.00	0.00	0.00	
<b>Lower Avalon Shale</b>										
7,718.5	0.00	0.00	7,718.5	0.0	0.0	0.0	0.00	0.00	0.00	
7,800.0	0.00	0.00	7,800.0	0.0	0.0	0.0	0.00	0.00	0.00	
7,900.0	0.00	0.00	7,900.0	0.0	0.0	0.0	0.00	0.00	0.00	
8,000.0	0.00	0.00	8,000.0	0.0	0.0	0.0	0.00	0.00	0.00	
8,100.0	0.00	0.00	8,100.0	0.0	0.0	0.0	0.00	0.00	0.00	
<b>First Bone Spring Sand</b>										



Well Planning Report



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 MD Reference: RKB @ 3480.5usft (Trinidad #445)  
 North Reference: True  
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
8,188.5	0.00	0.00	8,188.5	0.0	0.0	0.0	0.00	0.00	0.00	
8,200.0	0.00	0.00	8,200.0	0.0	0.0	0.0	0.00	0.00	0.00	
8,300.0	0.00	0.00	8,300.0	0.0	0.0	0.0	0.00	0.00	0.00	
8,400.0	0.00	0.00	8,400.0	0.0	0.0	0.0	0.00	0.00	0.00	
<b>Second Bone Spring Shale</b>										
8,412.5	0.00	0.00	8,412.5	0.0	0.0	0.0	0.00	0.00	0.00	
<b>Build 10°/100'</b>										
8,506.7	0.00	0.00	8,506.7	0.0	0.0	0.0	0.00	0.00	0.00	
8,550.0	4.33	95.00	8,550.0	-0.1	1.6	1.6	10.00	10.00	0.00	
8,600.0	9.33	95.00	8,599.6	-0.7	7.6	7.6	10.00	10.00	0.00	
8,650.0	14.33	95.00	8,648.5	-1.6	17.8	17.8	10.00	10.00	0.00	
8,700.0	19.33	95.00	8,696.4	-2.8	32.2	32.2	10.00	10.00	0.00	
8,750.0	24.33	95.00	8,742.8	-4.4	50.7	50.7	10.00	10.00	0.00	
8,800.0	29.33	95.00	8,787.4	-6.4	73.2	73.2	10.00	10.00	0.00	
<b>Second Bone Spring Sand</b>										
8,831.6	32.49	95.00	8,814.5	-7.8	89.4	89.4	10.00	10.00	0.00	
8,850.0	34.33	95.00	8,829.8	-8.7	99.4	99.5	10.00	10.00	0.00	
8,900.0	39.33	95.00	8,869.8	-11.3	129.3	129.4	10.00	10.00	0.00	
8,950.0	44.33	95.00	8,907.1	-14.2	162.5	162.6	10.00	10.00	0.00	
9,000.0	49.33	95.00	8,941.3	-17.4	198.8	199.0	10.00	10.00	0.00	
<b>Second Bone Spring "A" Sand</b>										
9,030.5	52.38	95.00	8,960.5	-19.5	222.3	222.5	10.00	10.00	0.00	
9,050.0	54.33	95.00	8,972.2	-20.8	237.9	238.1	10.00	10.00	0.00	
9,100.0	59.33	95.00	8,999.5	-24.5	279.6	279.9	10.00	10.00	0.00	
9,150.0	64.33	95.00	9,023.1	-28.3	323.5	323.8	10.00	10.00	0.00	
<b>Second Bone Spring "B" Sand</b>										
9,165.2	65.85	95.00	9,029.5	-29.5	337.2	337.5	10.00	10.00	0.00	
9,200.0	69.33	95.00	9,042.8	-32.3	369.3	369.6	10.00	10.00	0.00	
9,250.0	74.33	95.00	9,058.4	-36.4	416.6	417.0	10.00	10.00	0.00	
9,300.0	79.33	95.00	9,069.8	-40.7	465.1	465.5	10.00	10.00	0.00	
9,350.0	84.33	95.00	9,076.9	-45.0	514.4	514.8	10.00	10.00	0.00	
9,400.0	89.33	95.00	9,079.6	-49.4	564.1	564.6	10.00	10.00	0.00	
<b>EOC @ 91.24° Inc / 95.00° Azm / 9079.5' TVD - Turn 2°/100'</b>										
9,419.1	91.24	95.00	9,079.5	-51.0	583.1	583.6	10.00	10.00	0.00	
9,500.0	91.24	93.38	9,077.8	-56.9	663.8	664.3	2.00	0.00	-2.00	
9,600.0	91.24	91.38	9,075.6	-61.1	763.7	764.3	2.00	0.00	-2.00	
<b>EOT @ 90.10° Azm</b>										
9,663.8	91.24	90.10	9,074.2	-61.9	827.5	828.0	2.00	0.00	-2.00	
9,700.0	91.24	90.10	9,073.4	-62.0	863.6	864.2	0.00	0.00	0.00	
9,800.0	91.24	90.10	9,071.3	-62.2	963.6	964.2	0.00	0.00	0.00	
9,900.0	91.24	90.10	9,069.1	-62.3	1,063.6	1,064.2	0.00	0.00	0.00	
10,000.0	91.24	90.10	9,067.0	-62.5	1,163.6	1,164.2	0.00	0.00	0.00	
10,100.0	91.24	90.10	9,064.8	-62.7	1,263.6	1,264.1	0.00	0.00	0.00	
10,200.0	91.24	90.10	9,062.6	-62.9	1,363.5	1,364.1	0.00	0.00	0.00	
10,300.0	91.24	90.10	9,060.5	-63.1	1,463.5	1,464.1	0.00	0.00	0.00	
10,400.0	91.24	90.10	9,058.3	-63.3	1,563.5	1,564.0	0.00	0.00	0.00	
10,500.0	91.24	90.10	9,056.1	-63.4	1,663.5	1,664.0	0.00	0.00	0.00	
10,600.0	91.24	90.10	9,054.0	-63.6	1,763.4	1,764.0	0.00	0.00	0.00	
10,700.0	91.24	90.10	9,051.8	-63.8	1,863.4	1,864.0	0.00	0.00	0.00	
10,800.0	91.24	90.10	9,049.7	-64.0	1,963.4	1,963.9	0.00	0.00	0.00	
10,900.0	91.24	90.10	9,047.5	-64.2	2,063.4	2,063.9	0.00	0.00	0.00	
11,000.0	91.24	90.10	9,045.3	-64.4	2,163.3	2,163.9	0.00	0.00	0.00	
11,100.0	91.24	90.10	9,043.2	-64.5	2,263.3	2,263.9	0.00	0.00	0.00	



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 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,200.0	91.24	90.10	9,041.0	-64.7	2,363.3	2,363.8	0.00	0.00	0.00
11,300.0	91.24	90.10	9,038.8	-64.9	2,463.3	2,463.8	0.00	0.00	0.00
11,400.0	91.24	90.10	9,036.7	-65.1	2,563.2	2,563.8	0.00	0.00	0.00
11,500.0	91.24	90.10	9,034.5	-65.3	2,663.2	2,663.8	0.00	0.00	0.00
11,600.0	91.24	90.10	9,032.4	-65.5	2,763.2	2,763.7	0.00	0.00	0.00
11,700.0	91.24	90.10	9,030.2	-65.6	2,863.2	2,863.7	0.00	0.00	0.00
11,800.0	91.24	90.10	9,028.0	-65.8	2,963.2	2,963.7	0.00	0.00	0.00
11,900.0	91.24	90.10	9,025.9	-66.0	3,063.1	3,063.6	0.00	0.00	0.00
12,000.0	91.24	90.10	9,023.7	-66.2	3,163.1	3,163.6	0.00	0.00	0.00
12,100.0	91.24	90.10	9,021.6	-66.4	3,263.1	3,263.6	0.00	0.00	0.00
12,200.0	91.24	90.10	9,019.4	-66.5	3,363.1	3,363.6	0.00	0.00	0.00
12,300.0	91.24	90.10	9,017.2	-66.7	3,463.0	3,463.5	0.00	0.00	0.00
12,400.0	91.24	90.10	9,015.1	-66.9	3,563.0	3,563.5	0.00	0.00	0.00
12,500.0	91.24	90.10	9,012.9	-67.1	3,663.0	3,663.5	0.00	0.00	0.00
12,600.0	91.24	90.10	9,010.7	-67.3	3,763.0	3,763.5	0.00	0.00	0.00
12,700.0	91.24	90.10	9,008.6	-67.5	3,862.9	3,863.4	0.00	0.00	0.00
12,800.0	91.24	90.10	9,006.4	-67.6	3,962.9	3,963.4	0.00	0.00	0.00
12,900.0	91.24	90.10	9,004.3	-67.8	4,062.9	4,063.4	0.00	0.00	0.00
13,000.0	91.24	90.10	9,002.1	-68.0	4,162.9	4,163.3	0.00	0.00	0.00
13,100.0	91.24	90.10	8,999.9	-68.2	4,262.8	4,263.3	0.00	0.00	0.00
13,200.0	91.24	90.10	8,997.8	-68.4	4,362.8	4,363.3	0.00	0.00	0.00
13,300.0	91.24	90.10	8,995.6	-68.6	4,462.8	4,463.3	0.00	0.00	0.00
13,400.0	91.24	90.10	8,993.4	-68.7	4,562.8	4,563.2	0.00	0.00	0.00
13,500.0	91.24	90.10	8,991.3	-68.9	4,662.8	4,663.2	0.00	0.00	0.00
13,600.0	91.24	90.10	8,989.1	-69.1	4,762.7	4,763.2	0.00	0.00	0.00
13,700.0	91.24	90.10	8,987.0	-69.3	4,862.7	4,863.2	0.00	0.00	0.00
13,800.0	91.24	90.10	8,984.8	-69.5	4,962.7	4,963.1	0.00	0.00	0.00
13,900.0	91.24	90.10	8,982.6	-69.7	5,062.7	5,063.1	0.00	0.00	0.00
14,000.0	91.24	90.10	8,980.5	-69.8	5,162.6	5,163.1	0.00	0.00	0.00
14,100.0	91.24	90.10	8,978.3	-70.0	5,262.6	5,263.1	0.00	0.00	0.00
14,200.0	91.24	90.10	8,976.1	-70.2	5,362.6	5,363.0	0.00	0.00	0.00
14,300.0	91.24	90.10	8,974.0	-70.4	5,462.6	5,463.0	0.00	0.00	0.00
14,400.0	91.24	90.10	8,971.8	-70.6	5,562.5	5,563.0	0.00	0.00	0.00
14,500.0	91.24	90.10	8,969.7	-70.8	5,662.5	5,662.9	0.00	0.00	0.00
14,600.0	91.24	90.10	8,967.5	-70.9	5,762.5	5,762.9	0.00	0.00	0.00
14,700.0	91.24	90.10	8,965.3	-71.1	5,862.5	5,862.9	0.00	0.00	0.00
14,800.0	91.24	90.10	8,963.2	-71.3	5,962.4	5,962.9	0.00	0.00	0.00
14,900.0	91.24	90.10	8,961.0	-71.5	6,062.4	6,062.8	0.00	0.00	0.00
15,000.0	91.24	90.10	8,958.8	-71.7	6,162.4	6,162.8	0.00	0.00	0.00
15,100.0	91.24	90.10	8,956.7	-71.9	6,262.4	6,262.8	0.00	0.00	0.00
15,200.0	91.24	90.10	8,954.5	-72.0	6,362.4	6,362.8	0.00	0.00	0.00
15,300.0	91.24	90.10	8,952.4	-72.2	6,462.3	6,462.7	0.00	0.00	0.00
15,400.0	91.24	90.10	8,950.2	-72.4	6,562.3	6,562.7	0.00	0.00	0.00
15,500.0	91.24	90.10	8,948.0	-72.6	6,662.3	6,662.7	0.00	0.00	0.00
15,600.0	91.24	90.10	8,945.9	-72.8	6,762.3	6,762.6	0.00	0.00	0.00
15,700.0	91.24	90.10	8,943.7	-73.0	6,862.2	6,862.6	0.00	0.00	0.00
15,800.0	91.24	90.10	8,941.5	-73.1	6,962.2	6,962.6	0.00	0.00	0.00
15,900.0	91.24	90.10	8,939.4	-73.3	7,062.2	7,062.6	0.00	0.00	0.00
TD @ 15987.3' MD / 8937.5' TVD									
15,987.3	91.24	90.10	8,937.5	-73.5	7,149.5	7,149.8	0.00	0.00	0.00



**Database:** EDM 5000.1 Single User Db  
**Company:** XTO ENERGY, INC.  
**Project:** Eddy County, NM  
**Site:** Sec 5, T25S, R29E (TRUE NORTH)  
**Well:** Big Eddy Unit D14B #274H  
**Wellbore:** Wellbore #1  
**Design:** Design #1

**Local Co-ordinate Reference:** Well Big Eddy Unit D14B #274H  
**TVD Reference:** RKB @ 3480.5usft (Trinidad #445)  
**MD Reference:** RKB @ 3480.5usft (Trinidad #445)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
Big Eddy D14B #274H - I - plan hits target center - Rectangle (sides W100.0 H6,323.0 D0.0)	-1.24	90.10	8,937.5	-73.5	7,149.5	581,176.70	644,005.90	32° 35' 48.803 N	103° 51' 56.657 W
Big Eddy D14B #274H - I - plan misses target center by 2.8usft at 15857.3usft MD (8940.3 TVD, -73.2 N, 7019.5 E) - Point	0.00	0.00	8,937.5	-73.6	7,019.5	581,176.00	643,875.90	32° 35' 48.802 N	103° 51' 58.176 W
Big Eddy D14B #274H - I - plan misses target center by 183.9usft at 9002.6usft MD (8943.0 TVD, -17.6 N, 200.8 E) - Point	0.00	0.00	9,079.5	-60.8	85.4	581,159.90	636,941.90	32° 35' 48.937 N	103° 53' 19.229 W

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(usft)	(usft)			(°)	(°)	
555.5	555.5	Rustler				
801.5	801.5	Salado				
2,297.5	2,297.5	Base Salt				
2,903.5	2,903.5	Capitan				
4,216.5	4,216.5	Delaware Sand				
4,469.5	4,469.5	Base Manzanita [Lower Cherry Canyon]				
5,379.5	5,379.5	Brushy Canyon				
6,684.5	6,684.5	Basal Brushy Canyon				
6,950.5	6,950.5	Base Brushy Canyon Sands / Leonard S				
6,963.5	6,963.5	Bone Spring				
7,134.5	7,134.5	Avalon Sand/Upper Avalon Shale				
7,718.5	7,718.5	Lower Avalon Shale				
8,188.5	8,188.5	First Bone Spring Sand				
8,412.5	8,412.5	Second Bone Spring Shale				
8,831.6	8,814.5	Second Bone Spring Sand				
9,030.5	8,960.5	Second Bone Spring "A" Sand				
9,165.2	9,029.5	Second Bone Spring "B" Sand				

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates		Comment	
(usft)	(usft)	+N/-S	+E/-W		
		(usft)	(usft)		
8,506.7	8,506.7	0.0	0.0	Build 10°/100'	
9,419.1	9,079.5	-51.0	583.1	EOC @ 91.24° Inc / 95.00° Azm / 9079.5' TVD - Turn 2°/100'	
9,663.8	9,074.2	-61.9	827.5	EOT @ 90.10° Azm	
15,987.3	8,937.5	-73.5	7,149.5	TD @ 15987.3' MD / 8937.5' TVD	

## PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

<b>OPERATOR'S NAME:</b>	<b>BOPCO, LP</b>
<b>LEASE NO.:</b>	<b>NMNM04557</b>
<b>WELL NAME &amp; NO.:</b>	<b>BIG EDDY UNIT DI 4B 274H</b>
<b>SURFACE HOLE FOOTAGE:</b>	<b>720' FSL &amp; 2065' FEL</b>
<b>BOTTOM HOLE FOOTAGE:</b>	<b>660' FSL &amp; 200' FEL</b>
<b>LOCATION:</b>	<b>Section 5, T. 20 S., R 31 E., NMPM</b>
<b>COUNTY:</b>	<b>Eddy County, New Mexico</b>

COA

**All previous COAs still apply expect the following:**

H2S	<input type="radio"/> Yes	<input checked="" type="radio"/> No	
Potash	<input type="radio"/> None	<input type="radio"/> Secretary	<input checked="" type="radio"/> R-111-P
Cave/Karst Potential	<input checked="" type="radio"/> Low	<input type="radio"/> Medium	<input type="radio"/> High
Variance	<input type="radio"/> None	<input checked="" type="radio"/> Flex Hose	<input type="radio"/> Other
Wellhead	<input type="radio"/> Conventional	<input checked="" type="radio"/> Multibowl	<input type="radio"/> Both
Other	<input type="checkbox"/> 4 String Area	<input type="checkbox"/> Capitan Reef	<input type="checkbox"/> WIPP

### A. Hydrogen Sulfide

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

### B. CASING

1. The **16** inch surface casing shall be set at approximately **780** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface.
  - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
  - b. Wait on cement (WOC) time for a primary cement job will be a minimum of **24 hours in the Potash Area** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)

- c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
  - d. If cement falls back, remedial cementing will be done prior to drilling out that string.
2. The minimum required fill of cement behind the 11 3/4 inch intermediate casing set at **2849 ft** is:
  - Cement to surface. If cement does not circulate see B.1.a, c-d above.Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.

3. The minimum required fill of cement behind the 8 5/8 inch production casing is:

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

- a. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.
  - b. Second stage above DV tool: Cement to surface. If cement does not circulate, contact the appropriate BLM office.
4. The minimum required fill of cement behind the 5-1/2 inch production liner is:
  - Cement should tie-back at **2862'** (**50ft above the Top of Capitan Reef which is at 2912ft**). Operator shall provide method of verification.

### **C. PRESSURE CONTROL**

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).
2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **3000 (3M) psi**.

## GENERAL REQUIREMENTS

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

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

Chaves and Roosevelt Counties

Call the Roswell Field Office, 2909 West Second St., Roswell NM 88201.

During office hours call (575) 627-0272.

After office hours call (575)

Eddy County

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

Lea County

Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575)  
393-3612

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

be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

#### A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.
2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.
5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.
7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a

larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

## B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.
3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.
4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
  - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
  - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
  - c. Manufacturer representative shall install the test plug for the initial BOP test.
  - d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
  - e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
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. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).
- c. The tests shall be done by an independent service company utilizing a test plug. The results of the test shall be reported to the appropriate BLM office.
- d. 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.
- 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. This test shall be performed prior to the test at full stack pressure.
- g. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

### C. DRILLING MUD

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

### D. WASTE MATERIAL AND FLUIDS

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

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

#### **Waste Minimization Plan (WMP)**

In the interest of resource development, submission of additional well gas capture development plan information is deferred but may be required by the BLM Authorized Officer at a later date.

**ZS 101718**

Secretary Potash Section: 3 csgs, 2 circ cement, production cement overlap intermediate 500'. Capitan Reef Section:  
4 casing strings, production cement to cover casing 50 feet above Capitan Reef top.

16	surface csg in a	20	inch hole.	Design Factors				SURFACE	
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	Weight	
"A"	75.00	J 55	ST&C	12.14	3.66	1.74	780	58,500	
"B"							0	0	
w/8.4#/g mud, 30min Sfc Csg Test psig: 1,500				Tail Cmt	does not	circ to sfc.	Totals:	780	58,500
<b>Comparison of Proposed to Minimum Required Cement Volumes</b>									
Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
20	0.7854	1120	2001	807	148	9.50	883	2M	1.50

11 3/4	casing inside the	16	Design Factors				INTERMEDIATE		
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	Weight	
"A"	42.00	H 40	ST&C	2.57	1.93	0.93	2,849	119,658	
"B"							0	0	
w/8.4#/g mud, 30min Sfc Csg Test psig:							Totals:	2,849	119,658
The cement volume(s) are intended to achieve a top of				0	ft from surface or a		780	overlap.	
Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
14 3/4	0.4336	1120	2001	1312	52	10.20	1183	2M	1.00

Burst Frac Gradient(s) for Segment(s): A, B, C, D = 0.69, b, c, d

8 5/8	casing inside the	11 3/4	Design Factors				INTERMEDIATE		
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	Weight	
"A"	32.00	J 55	ST&C	2.69	1.2	0.89	4,325	138,400	
"B"							0	0	
w/8.4#/g mud, 30min Sfc Csg Test psig: 864							Totals:	4,325	138,400
The cement volume(s) are intended to achieve a top of				0	ft from surface or a		2849	overlap.	
Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
10 5/8	0.2100	look ↘	0	1078		9.50	2435	3M	0.50
Setting Depths for D V Tool(s):			2430				sum of sx	Σ CuFt	Σ% excess
% excess cmt by stage:			1514	57			1450	8040	646

Class 'C' tail cmt yld > 1.35

Burst Frac Gradient(s) for Segment(s): A, B, C, D = 0.91, b, c, d All > 0.70, OK.

5 1/2	casing inside the	8 5/8	Design Factors				PRODUCTION			
Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	Weight		
"A"	20.00	P 110	LT&C	3.07	1.88	2.85	8,507	170,140		
"B"	20.00	P 110	LT&C	7.03	1.58	2.85	7,480	149,600		
w/8.4#/g mud, 30min Sfc Csg Test psig: 1,872							Totals:	15,987	319,740	
B Segment Design Factors would be:				63.57	1.79	if it were a vertical wellbore.				
0567				MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°	MEOC
				15987	9074	8938	8507	91	10	9419
The cement volume(s) are intended to achieve a top of				2862	ft from surface or a		1463	overlap.		
Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg	
7 7/8	0.1733	1460	2928	2285	28	9.40			0.91	
ting Depths for D V Tool(s):			5000				sum of sx	sum of CuFt	Σ% excess	
% excess cmt by stage:			124	87			2330	5235	129	
Class 'C' tail cmt yld > 1.35			Capitan Reef est top 2900'.							