

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTNMOCD
ArtesiaFORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018**SUNDRY NOTICES AND REPORTS ON WELLS**
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.***SUBMIT IN TRIPLICATE - Other instructions on page 2**5. Lease Serial No.
NNNM0506A
6. If Indian, Allottee or Tribe Name
7. If Unit or CA/Agreement, Name and/or No.
891000303X8. Well Name and No.
POKER LAKE UNIT 15 TWR 901H9. API Well No.
30-015-45025-00-X110. Field and Pool or Exploratory Area
WILDCAT - BONE SPRING11. County or Parish, State
EDDY COUNTY, NM1. Type of Well
☒ Oil Well ☐ Gas Well ☐ Other2. Name of Operator
XTO PERMIAN OPERATING LLC
Contact: KELLY KARDOS
E-Mail: kelly_kardos@xtoenergy.com3a. Address
6401 HOLIDAY HILL ROAD BLDG 5
MIDLAND, TX 797073b. Phone No. (include area code)
Ph: 432-620-43744. Location of Well (Footage, Sec., T., R., M., or Survey Description)
Sec 15 T24S R31E SWSW 330FSL 1130FWL
32.211006 N Lat, 103.770576 W Lon

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

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

13. Describe Proposed or Completed Operation. Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomple 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 recompletion 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 change the formation from Cotton Draw Bone Spring South (Oil) to Purple Sage Wolfcamp (Gas).

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

RECEIVED

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

APR 25 2019

DISTRICT II-ARTESIA O.C.D.

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

Electronic Submission #461586 verified by the BLM Well Information System
For XTO PERMIAN OPERATING LLC, sent to the Carlsbad
Committed to AFMSS for processing by PRISCILLA PEREZ on 04/17/2019 (19PP1693SE)

Name (Printed/Typed) KELLY KARDOS

Title REGULATORY COORDINATOR

Signature (Electronic Submission)

Date 04/16/2019

THIS SPACE FOR FEDERAL OR STATE OFFICE USE APR 18 2019

Approved By

Title

Date

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

BUREAU OF LAND MANAGEMENT
ROSWELL FIELD OFFICE

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

(Instructions on page 2)

** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED **

RWP 5-24-19

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

XTO Energy Inc.
PLU 15 Twin Wells Ranch #901H
Projected TD: 24851' MD / 11802' TVD
SHL: 330' FSL & 1130' FWL , Section 15, T24S, R31E
BHL: 2440' FNL & 330' FWL , Section 34, T24S, R31E
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	695'	Water
Top of Salt	1053'	Water
Base of Salt	4239'	Water
Delaware	4462'	Water
Bone Spring	8315'	Water/Oil/Gas
1st Bone Spring Ss	9383'	Water/Oil/Gas
2nd Bone Spring Ss	9969'	Water/Oil/Gas
3rd Bone Spring Ss	11216'	Water/Oil/Gas
Wolfcamp Shale	11654'	Water/Oil/Gas
Wolfcamp A Shale	11788'	Water/Oil/Gas
Target/Land Curve	11802'	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 @ 850' (203' above the salt) and circulating cement back to surface. The salt will be isolated by setting 13-3/8 inch casing at 4350' and circulating cement to surface. A 12-1/4 inch vertical hole will be drilled to 10600' and 9-5/8 inch casing ran and cemented 500' into the 13-3/8 inch casing. An 8-3/4 inch curve and lateral hole will be drilled to MD/TD and 5-1/2 casing will be set at TD and cemented back 300' into the 9-5/8 inch casing shoe.

3. Casing Design

Hole Size	Depth	OD Csg	Weight	Collar	Grade	New/Used	SF Burst	SF Collapse	SF Tension
24"	0' - 850'	18-5/8"	87.5	BTC	J-55	New	1.72	1.64	18.48
17-1/2"	0' - 4350'	13-3/8"	68	BTC	HCL-80	New	1.80	2.20	9.94
12-1/4"	0' - 10600'	9-5/8"	40	BTC	HCL-80	New	1.40	1.36	2.98
8-3/4-8-1/2"	0' - 24851'	5-1/2"	20	BTC	P-110	New	1.20	2.84	1.93

XTO requests to utilize centralizers only in the curve after the 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" 3M top flange

Permanent Wellhead - GE RSH Multibowl System

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

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

- Wellhead will be installed by manufacturer's representatives.
- Manufacturer will monitor welding process to ensure appropriate temperature of seal.

- Operator will test the 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 +/- 850'

Lead: 730 sxs EconoCem-HLTRC (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 +/- 4350'

Lead: 2570 sxs Halcem-C + 2% CaCl (mixed at 12.8 ppg, 1.88 ft³/sx, 9.61 gal/sx water)

Tail: 890 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 +/- 10600'

ECP/DV Tool to be set at 4400'

1st Stage

Lead: 1190 sxs Halcem-C + 2% CaCl (mixed at 12.8 ppg, 1.87 ft³/sx, 9.61 gal/sx water)

Tail: 410 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 +/- 24851'

Lead: 1720 sxs Halcem-C + 2% CaCl (mixed at 11.5 ppg, 1.88 ft³/sx, 9.61 gal/sx water)

Tail: 3230 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 1305 psi.

Once the permanent wellhead is installed the blow out preventer equipment (BOP) for this well consists of a 13-5/8" minimum 5M Hydril and a 13-5/8" minimum 5M Double Ram BOP. MASP should not exceed 3847 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 11-3/4" and 8-5/8" 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 850'	24"	FW/Native	8.4-8.8	35-40	NC
850' to 4350'	17-1/2"	Brine/Gel Sweeps	9.8-10.2	30-32	NC
4350' to 10600'	12-1/4"	FW / Cut Brine	9.1-9.5	29-32	NC - 20
10600' to 24851'	8-3/4-8-1/2"	FW / Cut Brine / Polymer/ OBM	10.2-10.8	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

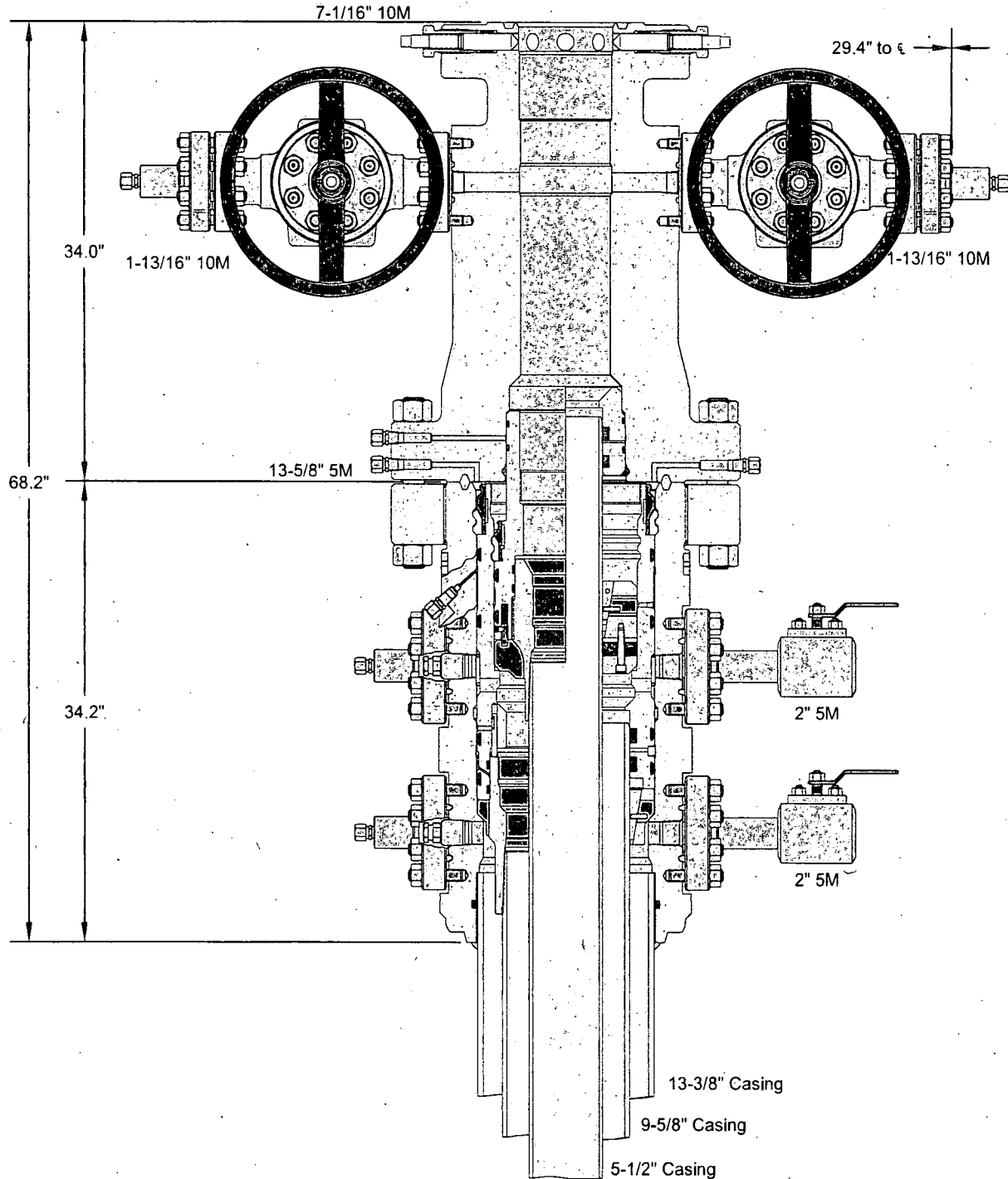
None Anticipated. BHT of 155 to 175 F is anticipated. No H2S is expected but monitors will be in place to detect any H2S occurrences. Should these circumstances be encountered the operator and drilling contractor are prepared to take all necessary steps to ensure safety of all personnel and environment. 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 6444 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.



GE Oil & Gas



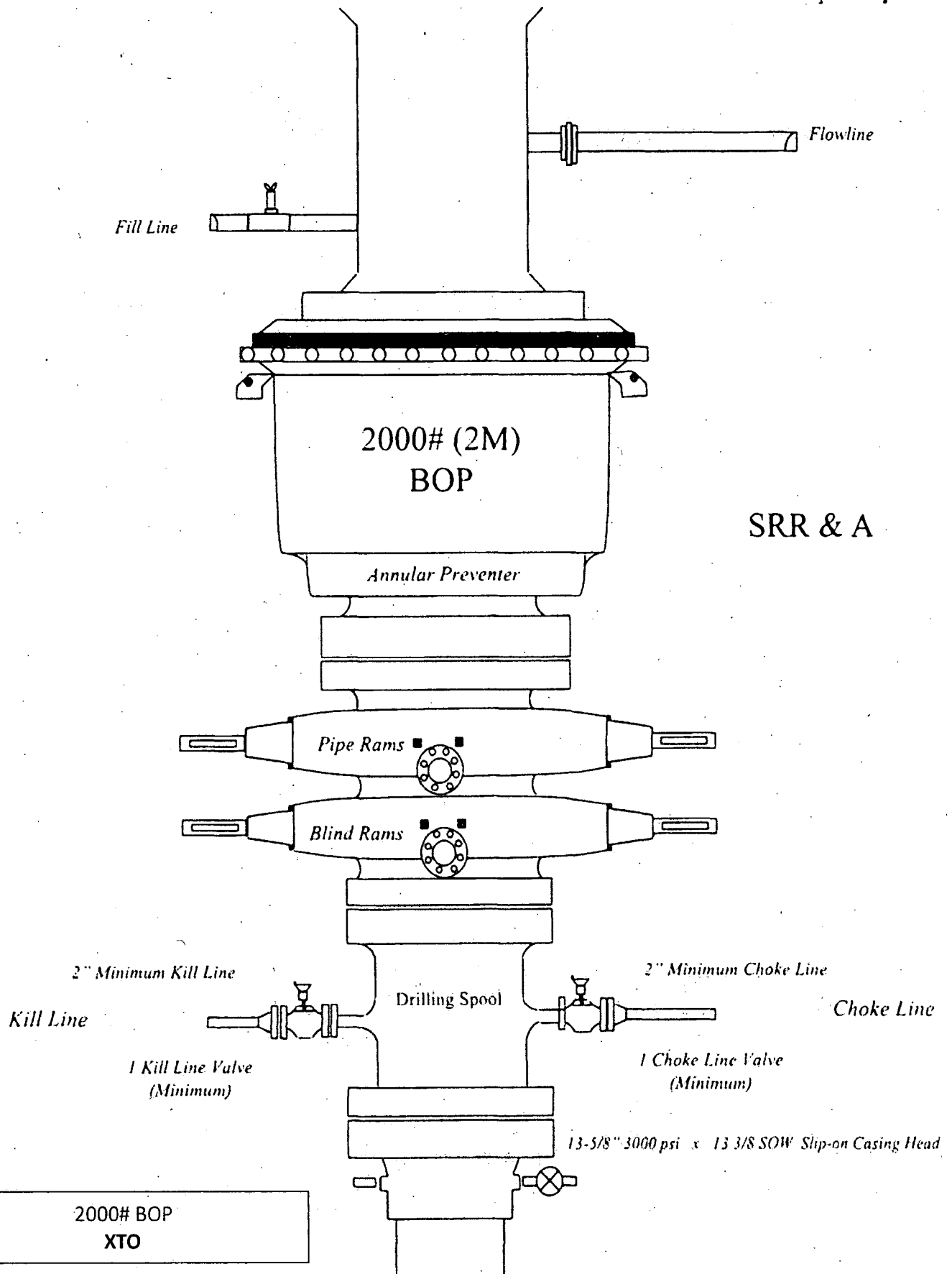
ALL DIMENSIONS ARE APPROXIMATE

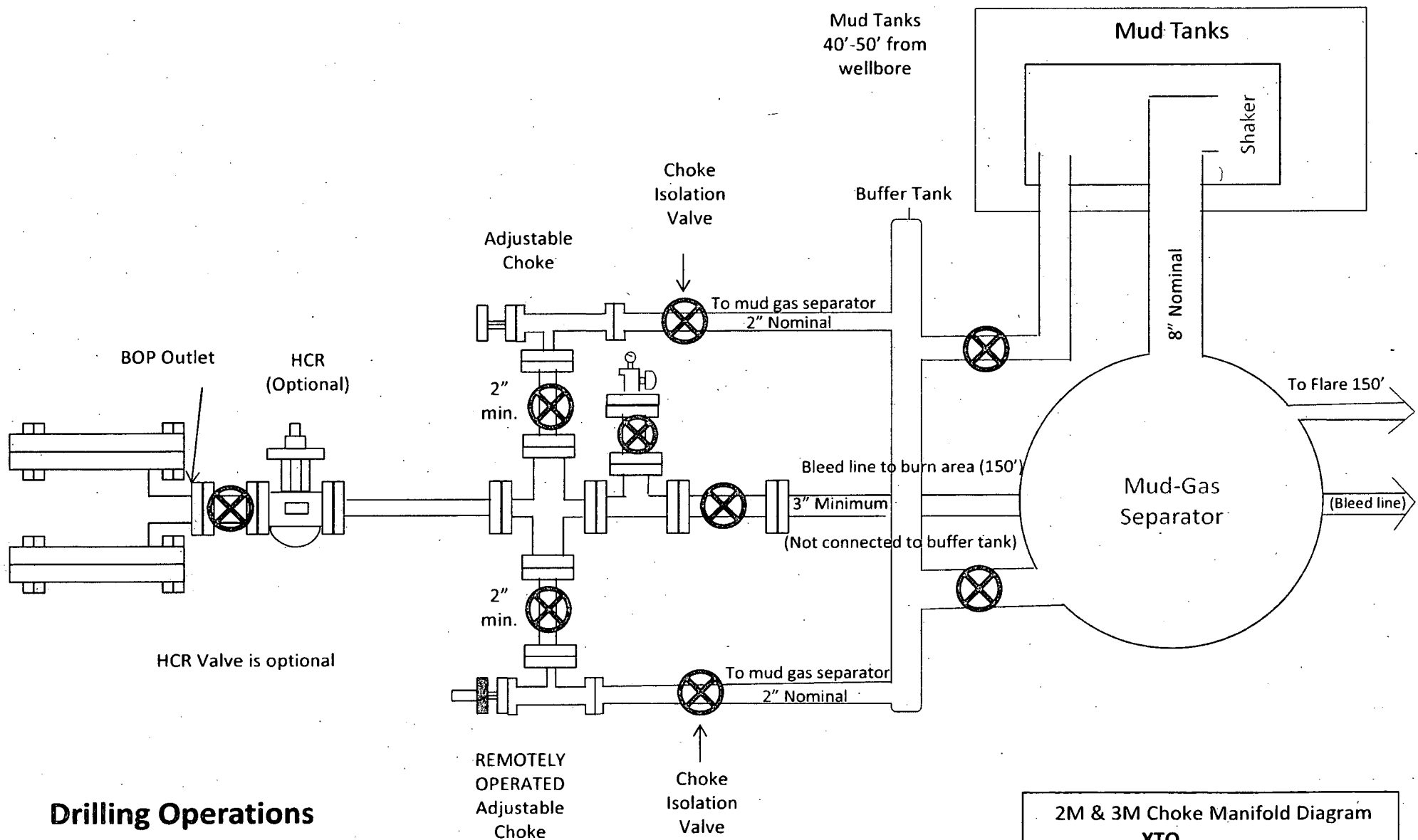
This drawing is the property of GE Oil & Gas Pressure Control LP and is considered confidential. Unless otherwise approved in writing, neither it nor its contents may be used, copied, transmitted or reproduced except for the sole purpose of GE Oil & Gas Pressure Control LP.

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

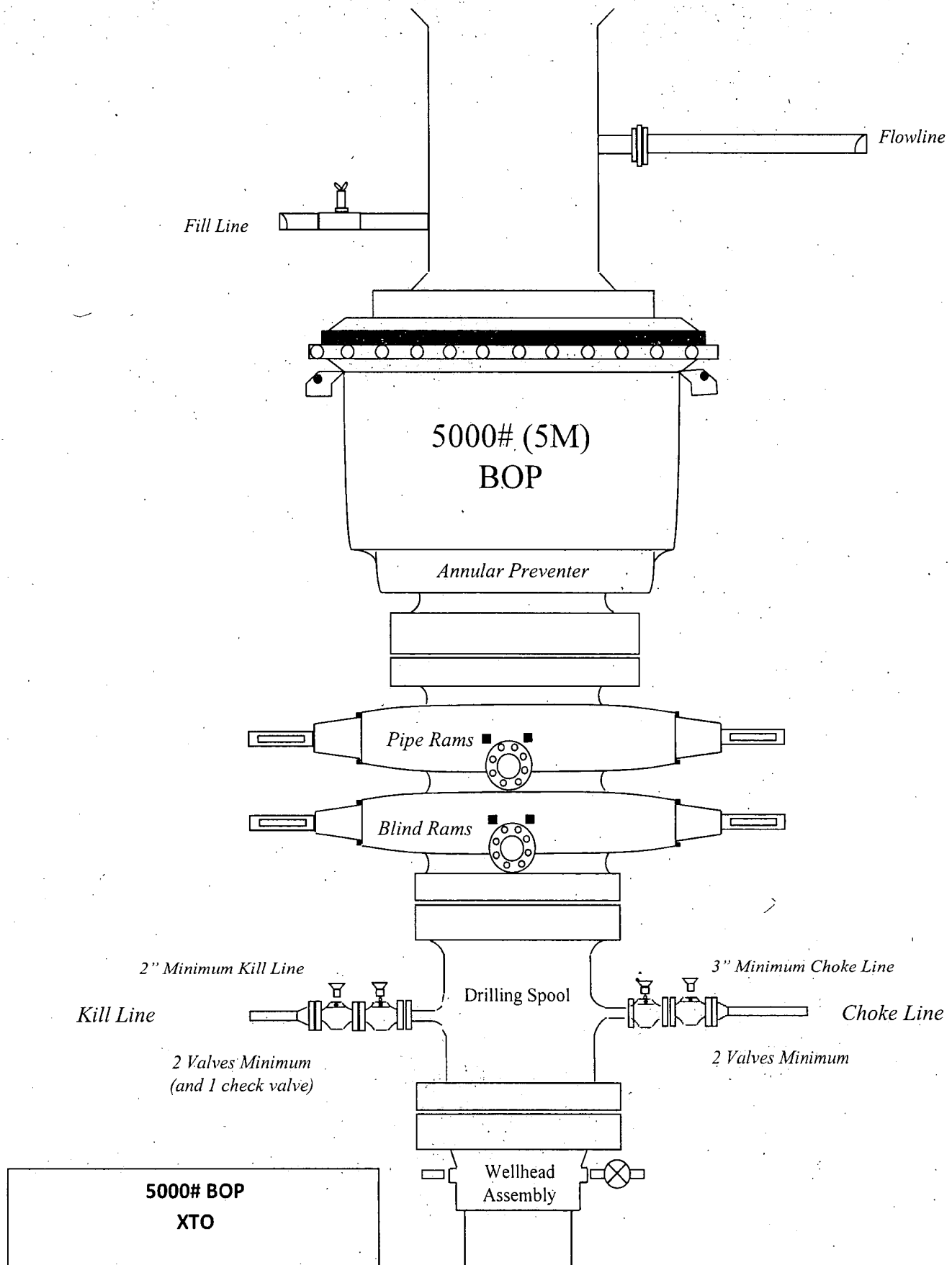
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APPRV	KN	16FEB17
FOR REFERENCE ONLY		
DRAWING NO.		10012842

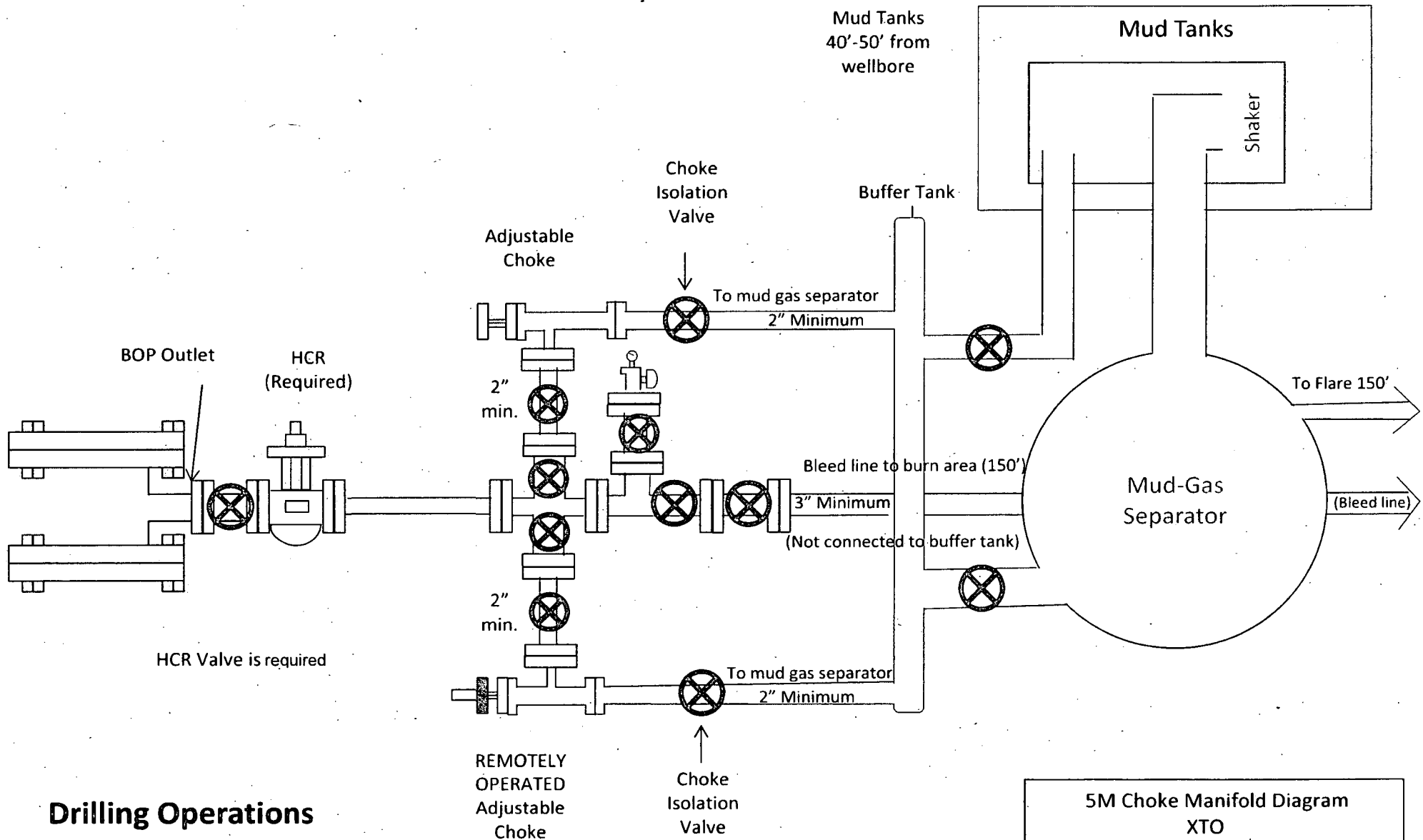




Drilling Operations Choke Manifold 2M & 3M Service

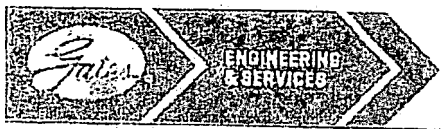
2M & 3M Choke Manifold Diagram
XTO





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

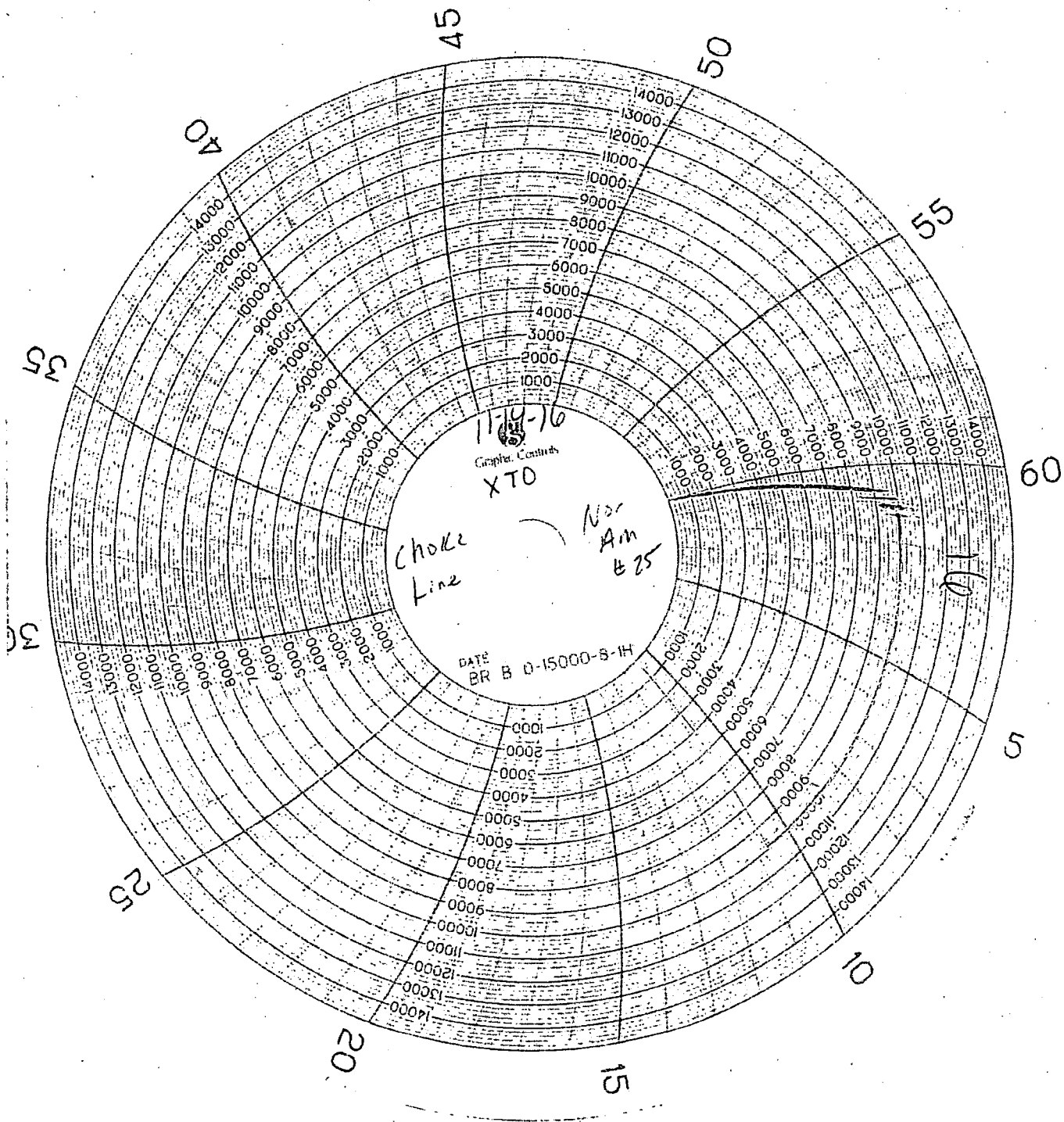
PHONE: 361-887-9807
FAX: 361-887-0812
EMAIL: crpe@s@gates.com
WEB: www.gates.com

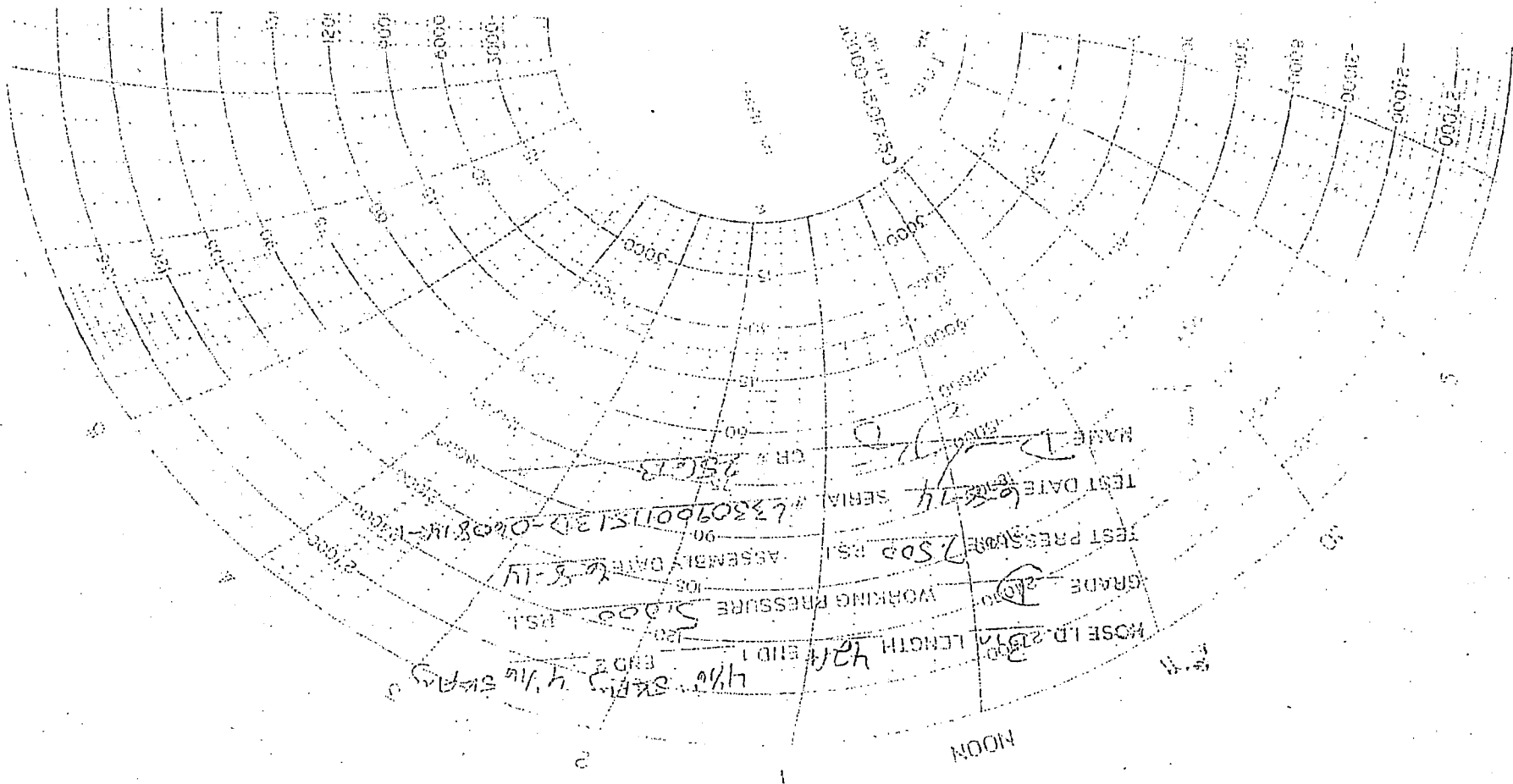
GRADE D PRESSURE TEST CERTIFICATE

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:	FD3.0-12.0R41/16.5KFLGE/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:		Signature:	





NAME 1775
TEST DATE 6-14-74 SERIAL # 6380960115130-060814-10000
TEST PRESSURE 2500 PSI
GRADE 2500
NOSE I.D. 3/4 LENGTH 4 1/2 END 1
WORKING PRESSURE 2500 PSI
ASSEMBLY DATE 6-14-74
CR # 25613

NOON



XTO Energy

Eddy County, NM (Nad-27 / East Zone)

PLU 15 Twin Wells Ranch

#901H

Wellbore #1

Plan: Plan #2

Standard Planning Report

15 April, 2019

WELLBENDERS
DIRECTIONAL SERVICES





Planning Report



Database:	WBDS_SQL_2	Local Co-ordinate Reference:	Well #901H
Company:	XTO Energy	TVD Reference:	RKB = 26' @ 3556.00usft (Patterson 225)
Project:	Eddy County, NM (Nad-27 / East Zone)	MD Reference:	RKB = 26' @ 3556.00usft (Patterson 225)
Site:	PLU 15 Twin Wells Ranch	North Reference:	Grid
Well:	#901H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2		

Project	Eddy County, NM (Nad-27 / East Zone)		
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 15 Twin Wells Ranch			
Site Position:		Northing:	440,939.70 usft	Latitude: 32.210974
From: Map		Easting:	676,390.50 usft	Longitude: -103.763017
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence: 0.304 °

Well	#901H			
Well Position	+N-S	-44.80 usft	Northing:	440,894.90 usft
	+E-W	-2,189.50 usft	Easting:	674,201.00 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:		Ground Level: 3,530.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	03/20/19	6.855	59.996	47,728.22649255

Design	Plan #2				
Audit Notes:					
Version:		Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N-S (usft)	+E-W (usft)	Direction (°)	
	0.00	0.00	0.00	183.05	

Plan Survey Tool Program	Date: 04/15/19				
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	24,854.05	Plan #2 (Wellbore #1)	WBDS_IGRF	
				OWSG MWD + IGRF or WM	



Planning Report



Database:	WBDS_SQL_2	Local Co-ordinate Reference:	Well #901H
Company:	XTO Energy	TVD Reference:	RKB = 26' @ 3556.00usft (Patterson 225)
Project:	Eddy County, NM (Nad-27 / East Zone)	MD Reference:	RKB = 26' @ 3556.00usft (Patterson 225)
Site:	PLU 15 Twin Wells Ranch	North Reference:	Grid
Well:	#901H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2		

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	
3,800.00	0.00	359.70	3,800.00	0.00	0.00	0.00	0.00	0.00	359.700	
4,245.77	6.69	265.78	4,244.76	-1.91	-25.91	1.50	1.50	0.00	265.781	
10,747.64	6.69	265.78	10,702.40	-57.61	-780.92	0.00	0.00	0.00	0.000	
11,081.97	0.00	179.62	11,035.97	-59.05	-800.35	2.00	-2.00	0.00	180.000	
11,181.97	0.00	179.62	11,135.97	-59.05	-800.35	0.00	0.00	0.00	0.000	
11,681.97	40.00	179.62	11,596.33	-226.60	-799.23	8.00	8.00	0.00	0.000	
12,181.96	90.00	179.62	11,801.00	-665.50	-796.30	10.00	10.00	0.00	0.000	PLU-15-TWR#901H
24,724.15	90.00	179.62	11,801.00	-13,207.40	-712.47	0.00	0.00	0.00	0.000	PLU-15-TWR#901H
24,854.05	90.00	179.62	11,801.00	-13,337.30	-711.60	0.00	0.00	0.00	0.000	PLU-15-TWR#901H



Planning Report



Database:	WBDS_SQL_2	Local Co-ordinate Reference:	Well #901H
Company:	XTO Energy	TVD Reference:	RKB = 26' @ 3556.00usft (Patterson 225)
Project:	Eddy County, NM (Nad-27 / East Zone)	MD Reference:	RKB = 26' @ 3556.00usft (Patterson 225)
Site:	PLU 15 Twin Wells Ranch	North Reference:	Grid
Well:	#901H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2		

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
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
694.00	0.00	0.00	694.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler									
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,052.00	0.00	0.00	1,052.00	0.00	0.00	0.00	0.00	0.00	0.00
Top Salt*									
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	359.70	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	1.50	265.78	3,899.99	-0.10	-1.31	0.17	1.50	1.50	0.00
4,000.00	3.00	265.78	3,999.91	-0.39	-5.22	0.66	1.50	1.50	0.00
4,100.00	4.50	265.78	4,099.69	-0.87	-11.74	1.49	1.50	1.50	0.00
4,200.00	6.00	265.78	4,199.27	-1.54	-20.87	2.65	1.50	1.50	0.00
4,238.97	6.58	265.78	4,238.00	-1.85	-25.13	3.19	1.50	1.50	0.00
Base of Salt (Anhydrite)									
4,245.77	6.69	265.78	4,244.76	-1.91	-25.91	3.29	1.50	1.50	0.00
4,300.00	6.69	265.78	4,298.62	-2.38	-32.21	4.09	0.00	0.00	0.00
4,400.00	6.69	265.78	4,397.94	-3.23	-43.82	5.56	0.00	0.00	0.00
4,463.49	6.69	265.78	4,461.00	-3.78	-51.19	6.50	0.00	0.00	0.00
Bell Canyon Ss./ Delaware									



Planning Report



Database:	WBDS_SQL_2	Local Co-ordinate Reference:	Well #901H
Company:	XTO Energy	TVD Reference:	RKB = 26' @ 3556.00usft (Patterson 225)
Project:	Eddy County, NM (Nad-27 / East Zone)	MD Reference:	RKB = 26' @ 3556.00usft (Patterson 225)
Site:	PLU 15 Twin Wells Ranch	North Reference:	Grid
Well:	#901H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2		

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)
4,500.00	6.69	265.78	4,497.26	-4.09	-55.43	7.04	0.00	0.00	0.00
4,600.00	6.69	265.78	4,596.58	-4.95	-67.05	8.51	0.00	0.00	0.00
4,700.00	6.69	265.78	4,695.90	-5.80	-78.66	9.99	0.00	0.00	0.00
4,800.00	6.69	265.78	4,795.22	-6.66	-90.27	11.46	0.00	0.00	0.00
4,900.00	6.69	265.78	4,894.54	-7.52	-101.88	12.93	0.00	0.00	0.00
5,000.00	6.69	265.78	4,993.86	-8.37	-113.49	14.41	0.00	0.00	0.00
5,100.00	6.69	265.78	5,093.18	-9.23	-125.11	15.88	0.00	0.00	0.00
5,200.00	6.69	265.78	5,192.50	-10.09	-136.72	17.36	0.00	0.00	0.00
5,300.00	6.69	265.78	5,291.82	-10.94	-148.33	18.83	0.00	0.00	0.00
5,381.74	6.69	265.78	5,373.00	-11.64	-157.82	20.04	0.00	0.00	0.00
Cherry Canyon Ss.									
5,400.00	6.69	265.78	5,391.14	-11.80	-159.94	20.30	0.00	0.00	0.00
5,500.00	6.69	265.78	5,490.46	-12.66	-171.55	21.78	0.00	0.00	0.00
5,600.00	6.69	265.78	5,589.78	-13.51	-183.17	23.25	0.00	0.00	0.00
5,700.00	6.69	265.78	5,689.10	-14.37	-194.78	24.73	0.00	0.00	0.00
5,800.00	6.69	265.78	5,788.42	-15.23	-206.39	26.20	0.00	0.00	0.00
5,900.00	6.69	265.78	5,887.74	-16.08	-218.00	27.68	0.00	0.00	0.00
6,000.00	6.69	265.78	5,987.06	-16.94	-229.62	29.15	0.00	0.00	0.00
6,100.00	6.69	265.78	6,086.38	-17.80	-241.23	30.62	0.00	0.00	0.00
6,200.00	6.69	265.78	6,185.70	-18.65	-252.84	32.10	0.00	0.00	0.00
6,300.00	6.69	265.78	6,285.02	-19.51	-264.45	33.57	0.00	0.00	0.00
6,400.00	6.69	265.78	6,384.34	-20.37	-276.06	35.05	0.00	0.00	0.00
6,500.00	6.69	265.78	6,483.66	-21.22	-287.68	36.52	0.00	0.00	0.00
6,600.00	6.69	265.78	6,582.98	-22.08	-299.29	37.99	0.00	0.00	0.00
6,700.00	6.69	265.78	6,682.30	-22.94	-310.90	39.47	0.00	0.00	0.00
6,800.00	6.69	265.78	6,781.62	-23.79	-322.51	40.94	0.00	0.00	0.00
6,900.00	6.69	265.78	6,880.93	-24.65	-334.13	42.42	0.00	0.00	0.00
7,000.00	6.69	265.78	6,980.25	-25.51	-345.74	43.89	0.00	0.00	0.00
7,016.86	6.69	265.78	6,997.00	-25.65	-347.70	44.14	0.00	0.00	0.00
Brushy Canyon Ss.									
7,100.00	6.69	265.78	7,079.57	-26.36	-357.35	45.36	0.00	0.00	0.00
7,200.00	6.69	265.78	7,178.89	-27.22	-368.96	46.84	0.00	0.00	0.00
7,300.00	6.69	265.78	7,278.21	-28.08	-380.57	48.31	0.00	0.00	0.00
7,400.00	6.69	265.78	7,377.53	-28.93	-392.19	49.79	0.00	0.00	0.00
7,500.00	6.69	265.78	7,476.85	-29.79	-403.80	51.26	0.00	0.00	0.00
7,600.00	6.69	265.78	7,576.17	-30.65	-415.41	52.74	0.00	0.00	0.00
7,700.00	6.69	265.78	7,675.49	-31.50	-427.02	54.21	0.00	0.00	0.00
7,800.00	6.69	265.78	7,774.81	-32.36	-438.63	55.68	0.00	0.00	0.00
7,900.00	6.69	265.78	7,874.13	-33.22	-450.25	57.16	0.00	0.00	0.00
8,000.00	6.69	265.78	7,973.45	-34.07	-461.86	58.63	0.00	0.00	0.00
8,100.00	6.69	265.78	8,072.77	-34.93	-473.47	60.11	0.00	0.00	0.00
8,200.00	6.69	265.78	8,172.09	-35.79	-485.08	61.58	0.00	0.00	0.00
8,300.00	6.69	265.78	8,271.41	-36.64	-496.70	63.05	0.00	0.00	0.00
8,342.88	6.69	265.78	8,314.00	-37.01	-501.68	63.69	0.00	0.00	0.00
Bone Spring Lm.									
8,400.00	6.69	265.78	8,370.73	-37.50	-508.31	64.53	0.00	0.00	0.00
8,424.43	6.69	265.78	8,395.00	-37.71	-511.15	64.89	0.00	0.00	0.00
Avalon Ss.									
8,445.58	6.69	265.78	8,416.00	-37.89	-513.60	65.20	0.00	0.00	0.00
Bone Spg. Upper Avalon Shale									
8,500.00	6.69	265.78	8,470.05	-38.36	-519.92	66.00	0.00	0.00	0.00
8,600.00	6.69	265.78	8,569.37	-39.21	-531.53	67.48	0.00	0.00	0.00
8,700.00	6.69	265.78	8,668.69	-40.07	-543.14	68.95	0.00	0.00	0.00



Planning Report



Database:	WBDS_SQL_2	Local Co-ordinate Reference:	Well #901H
Company:	XTO Energy	TVD Reference:	RKB = 26' @ 3556.00usft (Patterson 225)
Project:	Eddy County, NM (Nad-27 / East Zone)	MD Reference:	RKB = 26' @ 3556.00usft (Patterson 225)
Site:	PLU 15 Twin Wells Ranch	North Reference:	Grid
Well:	#901H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2		

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)
8,800.00	6.69	265.78	8,768.01	-40.93	-554.76	70.43	0.00	0.00	0.00
8,883.56	6.69	265.78	8,851.00	-41.64	-564.46	71.66	0.00	0.00	0.00
Bone Spg. Lower Avalon Shale									
8,900.00	6.69	265.78	8,867.33	-41.78	-566.37	71.90	0.00	0.00	0.00
9,000.00	6.69	265.78	8,966.65	-42.64	-577.98	73.37	0.00	0.00	0.00
9,100.00	6.69	265.78	9,065.97	-43.50	-589.59	74.85	0.00	0.00	0.00
9,200.00	6.69	265.78	9,165.29	-44.35	-601.21	76.32	0.00	0.00	0.00
9,225.89	6.69	265.78	9,191.00	-44.58	-604.21	76.70	0.00	0.00	0.00
1st Bone Spring Lime.									
9,300.00	6.69	265.78	9,264.61	-45.21	-612.82	77.80	0.00	0.00	0.00
9,400.00	6.69	265.78	9,363.93	-46.07	-624.43	79.27	0.00	0.00	0.00
9,418.19	6.69	265.78	9,382.00	-46.22	-626.54	79.54	0.00	0.00	0.00
1st Bone Spring Ss.									
9,500.00	6.69	265.78	9,463.25	-46.92	-636.04	80.74	0.00	0.00	0.00
9,600.00	6.69	265.78	9,562.57	-47.78	-647.65	82.22	0.00	0.00	0.00
9,700.00	6.69	265.78	9,661.89	-48.64	-659.27	83.69	0.00	0.00	0.00
9,800.00	6.69	265.78	9,761.21	-49.49	-670.88	85.17	0.00	0.00	0.00
9,809.86	6.69	265.78	9,771.00	-49.58	-672.02	85.31	0.00	0.00	0.00
2nd Bone Spring Carb.									
9,900.00	6.69	265.78	9,860.53	-50.35	-682.49	86.64	0.00	0.00	0.00
10,000.00	6.69	265.78	9,959.85	-51.21	-694.10	88.11	0.00	0.00	0.00
10,008.21	6.69	265.78	9,968.00	-51.28	-695.06	88.24	0.00	0.00	0.00
2nd Bone Spring Ss.									
10,100.00	6.69	265.78	10,059.17	-52.06	-705.72	89.59	0.00	0.00	0.00
10,200.00	6.69	265.78	10,158.49	-52.92	-717.33	91.06	0.00	0.00	0.00
10,300.00	6.69	265.78	10,257.81	-53.78	-728.94	92.54	0.00	0.00	0.00
10,400.00	6.69	265.78	10,357.13	-54.63	-740.55	94.01	0.00	0.00	0.00
10,500.00	6.69	265.78	10,456.45	-55.49	-752.16	95.49	0.00	0.00	0.00
10,520.69	6.69	265.78	10,477.00	-55.67	-754.57	95.79	0.00	0.00	0.00
3rd Bone Spring Carb.									
10,600.00	6.69	265.78	10,555.77	-56.35	-763.78	96.96	0.00	0.00	0.00
10,700.00	6.69	265.78	10,655.09	-57.20	-775.39	98.43	0.00	0.00	0.00
10,747.64	6.69	265.78	10,702.40	-57.61	-780.92	99.14	0.00	0.00	0.00
10,800.00	5.64	265.78	10,754.46	-58.03	-786.53	99.85	2.00	-2.00	0.00
10,900.00	3.64	265.78	10,854.13	-58.62	-794.59	100.87	2.00	-2.00	0.00
11,000.00	1.64	265.78	10,954.02	-58.96	-799.18	101.45	2.00	-2.00	0.00
11,081.97	0.00	179.62	11,035.97	-59.05	-800.35	101.60	2.00	-2.00	0.00
11,100.00	0.00	0.00	11,054.01	-59.05	-800.35	101.60	0.00	0.00	0.00
11,181.97	0.00	179.62	11,135.97	-59.05	-800.35	101.60	0.00	0.00	0.00
11,200.00	1.44	179.62	11,154.00	-59.27	-800.35	101.83	8.00	8.00	0.00
11,250.00	5.44	179.62	11,203.90	-62.27	-800.33	104.83	8.00	8.00	0.00
11,261.16	6.34	179.62	11,215.00	-63.42	-800.32	105.97	8.00	8.00	0.00
3rd Bone Spring Ss.									
11,300.00	9.44	179.62	11,253.47	-68.75	-800.29	111.29	8.00	8.00	0.00
11,350.00	13.44	179.62	11,302.47	-78.67	-800.22	121.19	8.00	8.00	0.00
11,400.00	17.44	179.62	11,350.65	-91.98	-800.13	134.48	8.00	8.00	0.00
11,450.00	21.44	179.62	11,397.79	-108.62	-800.02	151.09	8.00	8.00	0.00
11,499.27	25.38	179.62	11,443.00	-128.19	-799.89	170.63	8.00	8.00	0.00
War Wink Ss.									
11,500.00	25.44	179.62	11,443.66	-128.50	-799.89	170.94	8.00	8.00	0.00
11,550.00	29.44	179.62	11,488.02	-151.54	-799.74	193.94	8.00	8.00	0.00
11,600.00	33.44	179.62	11,530.67	-177.62	-799.56	219.97	8.00	8.00	0.00
11,646.99	37.20	179.62	11,569.00	-204.78	-799.38	247.08	8.00	8.00	0.00



Planning Report



Database: WBDS_SQL_2
Company: XTO Energy
Project: Eddy County, NM (Nad-27 / East Zone)
Site: PLU 15 Twin Wells Ranch
Well: #901H
Wellbore: Wellbore #1
Design: Plan #2

Local Co-ordinate Reference: Well #901H
TVD Reference: RKB = 26' @ 3556.00usft (Patterson 225)
MD Reference: RKB = 26' @ 3556.00usft (Patterson 225)
North Reference: Grid
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 (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
Red Hills Ss.									
11,650.00	37.44	179.62	11,571.40	-206.61	-799.37	248.90	8.00	8.00	0.00
11,681.97	40.00	179.62	11,596.33	-226.60	-799.23	268.86	8.00	8.00	0.00
11,700.00	41.80	179.62	11,609.96	-238.41	-799.15	280.65	10.00	10.00	0.00
11,750.00	46.80	179.62	11,645.74	-273.32	-798.92	315.50	10.00	10.00	0.00
11,760.72	47.88	179.62	11,653.00	-281.20	-798.87	323.37	10.00	10.00	0.00
Wolfcamp Sh									
11,791.47	50.95	179.62	11,673.00	-304.55	-798.71	346.67	10.00	10.00	0.00
Wolfcamp X Sd									
11,800.00	51.80	179.62	11,678.33	-311.21	-798.67	353.32	10.00	10.00	0.00
11,850.00	56.80	179.62	11,707.49	-351.81	-798.40	393.84	10.00	10.00	0.00
11,900.00	61.80	179.62	11,733.01	-394.79	-798.11	436.75	10.00	10.00	0.00
11,940.82	65.89	179.62	11,751.00	-431.42	-797.86	473.32	10.00	10.00	0.00
Wolfcamp Y Sd									
11,950.00	66.80	179.62	11,754.68	-439.83	-797.81	481.71	10.00	10.00	0.00
12,000.00	71.80	179.62	11,772.35	-486.58	-797.50	528.38	10.00	10.00	0.00
12,050.00	76.80	179.62	11,785.87	-534.70	-797.17	576.42	10.00	10.00	0.00
12,055.04	77.31	179.62	11,787.00	-539.62	-797.14	581.32	10.00	10.00	0.00
Wolfcamp A Sh.									
12,100.00	81.80	179.62	11,795.15	-583.82	-796.85	625.44	10.00	10.00	0.00
12,150.00	86.80	179.62	11,800.11	-633.55	-796.51	675.09	10.00	10.00	0.00
12,181.96	90.00	179.62	11,801.00	-665.50	-796.30	706.98	10.00	10.00	0.00
LP									
12,200.00	90.00	179.62	11,801.00	-683.54	-796.18	724.98	0.00	0.00	0.00
12,300.00	90.00	179.62	11,801.00	-783.53	-795.51	824.80	0.00	0.00	0.00
12,400.00	90.00	179.62	11,801.00	-883.53	-794.84	924.62	0.00	0.00	0.00
12,500.00	90.00	179.62	11,801.00	-983.53	-794.17	1,024.44	0.00	0.00	0.00
12,600.00	90.00	179.62	11,801.00	-1,083.53	-793.51	1,124.26	0.00	0.00	0.00
12,700.00	90.00	179.62	11,801.00	-1,183.52	-792.84	1,224.08	0.00	0.00	0.00
12,800.00	90.00	179.62	11,801.00	-1,283.52	-792.17	1,323.90	0.00	0.00	0.00
12,900.00	90.00	179.62	11,801.00	-1,383.52	-791.50	1,423.72	0.00	0.00	0.00
13,000.00	90.00	179.62	11,801.00	-1,483.52	-790.83	1,523.54	0.00	0.00	0.00
13,100.00	90.00	179.62	11,801.00	-1,583.52	-790.16	1,623.37	0.00	0.00	0.00
13,200.00	90.00	179.62	11,801.00	-1,683.51	-789.50	1,723.19	0.00	0.00	0.00
13,300.00	90.00	179.62	11,801.00	-1,783.51	-788.83	1,823.01	0.00	0.00	0.00
13,400.00	90.00	179.62	11,801.00	-1,883.51	-788.16	1,922.83	0.00	0.00	0.00
13,500.00	90.00	179.62	11,801.00	-1,983.51	-787.49	2,022.65	0.00	0.00	0.00
13,600.00	90.00	179.62	11,801.00	-2,083.50	-786.82	2,122.47	0.00	0.00	0.00
13,700.00	90.00	179.62	11,801.00	-2,183.50	-786.15	2,222.29	0.00	0.00	0.00
13,800.00	90.00	179.62	11,801.00	-2,283.50	-785.49	2,322.11	0.00	0.00	0.00
13,900.00	90.00	179.62	11,801.00	-2,383.50	-784.82	2,421.93	0.00	0.00	0.00
14,000.00	90.00	179.62	11,801.00	-2,483.50	-784.15	2,521.75	0.00	0.00	0.00
14,100.00	90.00	179.62	11,801.00	-2,583.49	-783.48	2,621.57	0.00	0.00	0.00
14,200.00	90.00	179.62	11,801.00	-2,683.49	-782.81	2,721.39	0.00	0.00	0.00
14,300.00	90.00	179.62	11,801.00	-2,783.49	-782.14	2,821.21	0.00	0.00	0.00
14,400.00	90.00	179.62	11,801.00	-2,883.49	-781.47	2,921.03	0.00	0.00	0.00
14,500.00	90.00	179.62	11,801.00	-2,983.48	-780.81	3,020.85	0.00	0.00	0.00
14,600.00	90.00	179.62	11,801.00	-3,083.48	-780.14	3,120.67	0.00	0.00	0.00
14,700.00	90.00	179.62	11,801.00	-3,183.48	-779.47	3,220.49	0.00	0.00	0.00
14,800.00	90.00	179.62	11,801.00	-3,283.48	-778.80	3,320.31	0.00	0.00	0.00
14,900.00	90.00	179.62	11,801.00	-3,383.48	-778.13	3,420.13	0.00	0.00	0.00
15,000.00	90.00	179.62	11,801.00	-3,483.47	-777.46	3,519.95	0.00	0.00	0.00
15,100.00	90.00	179.62	11,801.00	-3,583.47	-776.80	3,619.77	0.00	0.00	0.00



Planning Report



Database:	WBDS_SQL_2	Local Co-ordinate Reference:	Well #901H
Company:	XTO Energy	TVD Reference:	RKB = 26' @ 3556.00usft (Patterson 225)
Project:	Eddy County, NM (Nad-27 / East Zone)	MD Reference:	RKB = 26' @ 3556.00usft (Patterson 225)
Site:	PLU 15 Twin Wells Ranch	North Reference:	Grid
Well:	#901H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2		

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)
15,200.00	90.00	179.62	11,801.00	-3,683.47	-776.13	3,719.59	0.00	0.00	0.00
15,300.00	90.00	179.62	11,801.00	-3,783.47	-775.46	3,819.41	0.00	0.00	0.00
15,400.00	90.00	179.62	11,801.00	-3,883.46	-774.79	3,919.23	0.00	0.00	0.00
15,500.00	90.00	179.62	11,801.00	-3,983.46	-774.12	4,019.05	0.00	0.00	0.00
15,600.00	90.00	179.62	11,801.00	-4,083.46	-773.45	4,118.87	0.00	0.00	0.00
15,700.00	90.00	179.62	11,801.00	-4,183.46	-772.79	4,218.69	0.00	0.00	0.00
15,800.00	90.00	179.62	11,801.00	-4,283.46	-772.12	4,318.51	0.00	0.00	0.00
15,900.00	90.00	179.62	11,801.00	-4,383.45	-771.45	4,418.33	0.00	0.00	0.00
16,000.00	90.00	179.62	11,801.00	-4,483.45	-770.78	4,518.15	0.00	0.00	0.00
16,100.00	90.00	179.62	11,801.00	-4,583.45	-770.11	4,617.97	0.00	0.00	0.00
16,200.00	90.00	179.62	11,801.00	-4,683.45	-769.44	4,717.79	0.00	0.00	0.00
16,300.00	90.00	179.62	11,801.00	-4,783.44	-768.78	4,817.61	0.00	0.00	0.00
16,400.00	90.00	179.62	11,801.00	-4,883.44	-768.11	4,917.43	0.00	0.00	0.00
16,500.00	90.00	179.62	11,801.00	-4,983.44	-767.44	5,017.25	0.00	0.00	0.00
16,600.00	90.00	179.62	11,801.00	-5,083.44	-766.77	5,117.07	0.00	0.00	0.00
16,700.00	90.00	179.62	11,801.00	-5,183.44	-766.10	5,216.89	0.00	0.00	0.00
16,800.00	90.00	179.62	11,801.00	-5,283.43	-765.43	5,316.71	0.00	0.00	0.00
16,900.00	90.00	179.62	11,801.00	-5,383.43	-764.76	5,416.53	0.00	0.00	0.00
17,000.00	90.00	179.62	11,801.00	-5,483.43	-764.10	5,516.35	0.00	0.00	0.00
17,100.00	90.00	179.62	11,801.00	-5,583.43	-763.43	5,616.17	0.00	0.00	0.00
17,200.00	90.00	179.62	11,801.00	-5,683.42	-762.76	5,715.99	0.00	0.00	0.00
17,300.00	90.00	179.62	11,801.00	-5,783.42	-762.09	5,815.81	0.00	0.00	0.00
17,400.00	90.00	179.62	11,801.00	-5,883.42	-761.42	5,915.63	0.00	0.00	0.00
17,500.00	90.00	179.62	11,801.00	-5,983.42	-760.75	6,015.45	0.00	0.00	0.00
17,600.00	90.00	179.62	11,801.00	-6,083.42	-760.09	6,115.27	0.00	0.00	0.00
17,700.00	90.00	179.62	11,801.00	-6,183.41	-759.42	6,215.09	0.00	0.00	0.00
17,800.00	90.00	179.62	11,801.00	-6,283.41	-758.75	6,314.91	0.00	0.00	0.00
17,900.00	90.00	179.62	11,801.00	-6,383.41	-758.08	6,414.73	0.00	0.00	0.00
18,000.00	90.00	179.62	11,801.00	-6,483.41	-757.41	6,514.55	0.00	0.00	0.00
18,100.00	90.00	179.62	11,801.00	-6,583.40	-756.74	6,614.37	0.00	0.00	0.00
18,200.00	90.00	179.62	11,801.00	-6,683.40	-756.08	6,714.19	0.00	0.00	0.00
18,300.00	90.00	179.62	11,801.00	-6,783.40	-755.41	6,814.01	0.00	0.00	0.00
18,400.00	90.00	179.62	11,801.00	-6,883.40	-754.74	6,913.83	0.00	0.00	0.00
18,500.00	90.00	179.62	11,801.00	-6,983.39	-754.07	7,013.65	0.00	0.00	0.00
18,600.00	90.00	179.62	11,801.00	-7,083.39	-753.40	7,113.47	0.00	0.00	0.00
18,700.00	90.00	179.62	11,801.00	-7,183.39	-752.73	7,213.29	0.00	0.00	0.00
18,800.00	90.00	179.62	11,801.00	-7,283.39	-752.07	7,313.11	0.00	0.00	0.00
18,900.00	90.00	179.62	11,801.00	-7,383.39	-751.40	7,412.93	0.00	0.00	0.00
19,000.00	90.00	179.62	11,801.00	-7,483.38	-750.73	7,512.75	0.00	0.00	0.00
19,100.00	90.00	179.62	11,801.00	-7,583.38	-750.06	7,612.57	0.00	0.00	0.00
19,200.00	90.00	179.62	11,801.00	-7,683.38	-749.39	7,712.39	0.00	0.00	0.00
19,300.00	90.00	179.62	11,801.00	-7,783.38	-748.72	7,812.21	0.00	0.00	0.00
19,400.00	90.00	179.62	11,801.00	-7,883.37	-748.05	7,912.03	0.00	0.00	0.00
19,500.00	90.00	179.62	11,801.00	-7,983.37	-747.39	8,011.85	0.00	0.00	0.00
19,600.00	90.00	179.62	11,801.00	-8,083.37	-746.72	8,111.67	0.00	0.00	0.00
19,700.00	90.00	179.62	11,801.00	-8,183.37	-746.05	8,211.49	0.00	0.00	0.00
19,800.00	90.00	179.62	11,801.00	-8,283.37	-745.38	8,311.31	0.00	0.00	0.00
19,900.00	90.00	179.62	11,801.00	-8,383.36	-744.71	8,411.13	0.00	0.00	0.00
20,000.00	90.00	179.62	11,801.00	-8,483.36	-744.04	8,510.95	0.00	0.00	0.00
20,100.00	90.00	179.62	11,801.00	-8,583.36	-743.38	8,610.77	0.00	0.00	0.00
20,200.00	90.00	179.62	11,801.00	-8,683.36	-742.71	8,710.59	0.00	0.00	0.00
20,300.00	90.00	179.62	11,801.00	-8,783.35	-742.04	8,810.41	0.00	0.00	0.00
20,400.00	90.00	179.62	11,801.00	-8,883.35	-741.37	8,910.23	0.00	0.00	0.00
20,500.00	90.00	179.62	11,801.00	-8,983.35	-740.70	9,010.05	0.00	0.00	0.00



Planning Report



Database:	WBDS_SQL_2	Local Co-ordinate Reference:	Well #901H
Company:	XTO Energy	TVD Reference:	RKB = 26' @ 3556.00usft (Patterson 225)
Project:	Eddy County, NM (Nad-27 / East Zone)	MD Reference:	RKB = 26' @ 3556.00usft (Patterson 225)
Site:	PLU 15 Twin Wells Ranch	North Reference:	Grid
Well:	#901H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2		

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)
20,600.00	90.00	179.62	11,801.00	-9,083.35	-740.03	9,109.87	0.00	0.00	0.00
20,700.00	90.00	179.62	11,801.00	-9,183.35	-739.37	9,209.69	0.00	0.00	0.00
20,800.00	90.00	179.62	11,801.00	-9,283.34	-738.70	9,309.52	0.00	0.00	0.00
20,900.00	90.00	179.62	11,801.00	-9,383.34	-738.03	9,409.34	0.00	0.00	0.00
21,000.00	90.00	179.62	11,801.00	-9,483.34	-737.36	9,509.16	0.00	0.00	0.00
21,100.00	90.00	179.62	11,801.00	-9,583.34	-736.69	9,608.98	0.00	0.00	0.00
21,200.00	90.00	179.62	11,801.00	-9,683.33	-736.02	9,708.80	0.00	0.00	0.00
21,300.00	90.00	179.62	11,801.00	-9,783.33	-735.36	9,808.62	0.00	0.00	0.00
21,400.00	90.00	179.62	11,801.00	-9,883.33	-734.69	9,908.44	0.00	0.00	0.00
21,500.00	90.00	179.62	11,801.00	-9,983.33	-734.02	10,008.26	0.00	0.00	0.00
21,600.00	90.00	179.62	11,801.00	-10,083.33	-733.35	10,108.08	0.00	0.00	0.00
21,700.00	90.00	179.62	11,801.00	-10,183.32	-732.68	10,207.90	0.00	0.00	0.00
21,800.00	90.00	179.62	11,801.00	-10,283.32	-732.01	10,307.72	0.00	0.00	0.00
21,900.00	90.00	179.62	11,801.00	-10,383.32	-731.34	10,407.54	0.00	0.00	0.00
22,000.00	90.00	179.62	11,801.00	-10,483.32	-730.68	10,507.36	0.00	0.00	0.00
22,100.00	90.00	179.62	11,801.00	-10,583.31	-730.01	10,607.18	0.00	0.00	0.00
22,200.00	90.00	179.62	11,801.00	-10,683.31	-729.34	10,707.00	0.00	0.00	0.00
22,300.00	90.00	179.62	11,801.00	-10,783.31	-728.67	10,806.82	0.00	0.00	0.00
22,400.00	90.00	179.62	11,801.00	-10,883.31	-728.00	10,906.64	0.00	0.00	0.00
22,500.00	90.00	179.62	11,801.00	-10,983.31	-727.33	11,006.46	0.00	0.00	0.00
22,600.00	90.00	179.62	11,801.00	-11,083.30	-726.67	11,106.28	0.00	0.00	0.00
22,700.00	90.00	179.62	11,801.00	-11,183.30	-726.00	11,206.10	0.00	0.00	0.00
22,800.00	90.00	179.62	11,801.00	-11,283.30	-725.33	11,305.92	0.00	0.00	0.00
22,900.00	90.00	179.62	11,801.00	-11,383.30	-724.66	11,405.74	0.00	0.00	0.00
23,000.00	90.00	179.62	11,801.00	-11,483.29	-723.99	11,505.56	0.00	0.00	0.00
23,100.00	90.00	179.62	11,801.00	-11,583.29	-723.32	11,605.38	0.00	0.00	0.00
23,200.00	90.00	179.62	11,801.00	-11,683.29	-722.66	11,705.20	0.00	0.00	0.00
23,300.00	90.00	179.62	11,801.00	-11,783.29	-721.99	11,805.02	0.00	0.00	0.00
23,400.00	90.00	179.62	11,801.00	-11,883.29	-721.32	11,904.84	0.00	0.00	0.00
23,500.00	90.00	179.62	11,801.00	-11,983.28	-720.65	12,004.66	0.00	0.00	0.00
23,600.00	90.00	179.62	11,801.00	-12,083.28	-719.98	12,104.48	0.00	0.00	0.00
23,700.00	90.00	179.62	11,801.00	-12,183.28	-719.31	12,204.30	0.00	0.00	0.00
23,800.00	90.00	179.62	11,801.00	-12,283.28	-718.65	12,304.12	0.00	0.00	0.00
23,900.00	90.00	179.62	11,801.00	-12,383.27	-717.98	12,403.94	0.00	0.00	0.00
24,000.00	90.00	179.62	11,801.00	-12,483.27	-717.31	12,503.76	0.00	0.00	0.00
24,100.00	90.00	179.62	11,801.00	-12,583.27	-716.64	12,603.58	0.00	0.00	0.00
24,200.00	90.00	179.62	11,801.00	-12,683.27	-715.97	12,703.40	0.00	0.00	0.00
24,300.00	90.00	179.62	11,801.00	-12,783.27	-715.30	12,803.22	0.00	0.00	0.00
24,400.00	90.00	179.62	11,801.00	-12,883.26	-714.63	12,903.04	0.00	0.00	0.00
24,500.00	90.00	179.62	11,801.00	-12,983.26	-713.97	13,002.86	0.00	0.00	0.00
24,600.00	90.00	179.62	11,801.00	-13,083.26	-713.30	13,102.68	0.00	0.00	0.00
24,700.00	90.00	179.62	11,801.00	-13,183.26	-712.63	13,202.50	0.00	0.00	0.00
24,724.15	90.00	179.62	11,801.00	-13,207.40	-712.47	13,226.60	0.00	0.00	0.00
24,800.00	90.00	179.62	11,801.00	-13,283.25	-711.96	13,302.32	0.00	0.00	0.00
24,854.05	90.00	179.62	11,801.00	-13,337.30	-711.60	13,356.27	0.00	0.00	0.00



Planning Report



Database: WBDS_SQL_2
Company: XTO Energy
Project: Eddy County, NM (Nad-27 / East Zone)
Site: PLU 15 Twin Wells Ranch
Well: #901H
Wellbore: Wellbore #1
Design: Plan #2

Local Co-ordinate Reference: Well #901H
TVD Reference: RKB = 26' @ 3556.00usft (Patterson 225)
MD Reference: RKB = 26' @ 3556.00usft (Patterson 225)
North Reference: Grid
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									
PLU-15-TWR#901H: I	0.00	359.70	0.00	0.00	0.00	440,894.90	674,201.00	32.210883	-103.770096
- plan hits target center									
- Point									
PLU-15-TWR#901H: I	0.00	359.70	11,801.00	-665.50	-796.30	440,229.40	673,404.70	32.209065	-103.772682
- plan hits target center									
- Point									
PLU-15-TWR#901H: I	0.00	359.70	11,801.00	-13,337.30	-711.60	427,557.60	673,489.40	32.174230	-103.772622
- plan hits target center									
- Point									
PLU-15-TWR#901H: I	0.00	359.70	11,801.00	-13,207.40	-712.50	427,687.50	673,488.50	32.174587	-103.772623
- plan misses target center by 0.03usft at 24724.14usft MD (11801.00 TVD, -13207.40 N, -712.47 E)									
- Point									

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
694.00	694.00	Rustler			
1,052.00	1,052.00	Top Salt*			
4,238.97	4,238.00	Base of Salt (Anhydrite)			
4,463.49	4,461.00	Bell Canyon Ss./ Delaware			
5,381.74	5,373.00	Cherry Canyon Ss.			
7,016.86	6,997.00	Brushy Canyon Ss.			
8,342.88	8,314.00	Bone Spring Lm.			
8,424.43	8,395.00	Avalon Ss.			
8,445.58	8,416.00	Bone Spg. Upper Avalon Shale			
8,883.56	8,851.00	Bone Spg. Lower Avalon Shale			
9,225.89	9,191.00	1st Bone Spring Lime.			
9,418.19	9,382.00	1st Bone Spring Ss.			
9,809.86	9,771.00	2nd Bone Spring Carb.			
10,008.21	9,968.00	2nd Bone Spring Ss.			
10,520.69	10,477.00	3rd Bone Spring Carb.			
11,261.16	11,215.00	3rd Bone Spring Ss.			
11,499.27	11,443.00	War Wink Ss.			
11,646.99	11,569.00	Red Hills Ss.			
11,760.72	11,653.00	Wolfcamp Sh			
11,791.47	11,673.00	Wolfcamp X Sd			
11,940.82	11,751.00	Wolfcamp Y Sd			
12,055.04	11,787.00	Wolfcamp A Sh.			
12,181.96	11,801.00	LP			



Company: XTO Energy
Project: Eddy County, NM (Nad-27 / East Zone)
Site: PLU 15 Twin Wells Ranch
Well: #901H
Wellbore: Wellbore #1
Rig: Patterson 225
Design: Plan #2 / 15:32, April 15 2019

TOTAL CORRECTION
To convert a Magnetic Direction to a Grid Direction, Add 6.546°

WELL DETAILS: #901H

RKB = 28' @ 3058.00usft (Patterson 225)		3030.00			
		North	East	Latitude	Longitude
+N-S	+E-W	440594.90	874291.00	32.210883	-103.770086
0.00	0.00				

DESIGN TARGET DETAILS

Name	TVD	+N-S	+E-W	North	East	Latitude	Longitude
PLU-15-TWR#901H: SHL (330° FNL & 1130° FNL)	0.00	0.00	0.00	440594.90	874291.00	32.210883	-103.770086
PLU-15-TWR#901H: FTP LP	11801.00	-685.50	-798.30	440229.40	873404.70	32.209085	-103.772822
PLU-15-TWR#901H: LTP	11801.00	-13337.30	-711.80	427557.60	873488.40	32.174230	-103.772822
PLU-15-TWR#901H: PBHL (2440° FNL & 330° FNL)	11801.00	-13337.30	-711.80	427557.60	873488.40	32.174230	-103.772822

SECTION DETAILS

Sec	MD	Inc	Ad	TVD	+N-S	+E-W	Diag	Vsect
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	3600.00	0.00	359.70	3200.00	0.00	0.00	0.00	0.00
3	4245.77	8.89	285.78	4244.78	-1.91	-25.91	1.50	3.29
4	10747.84	8.89	285.78	10702.40	-57.91	-760.82	0.00	86.14
5	11081.97	0.00	178.82	11036.87	-59.05	-820.35	0.00	101.80
6	11081.97	0.00	178.82	11036.87	-59.05	-820.35	0.00	101.80
7	11081.97	40.00	178.82	11586.33	-228.60	-786.30	8.00	288.86
8	12181.98	80.00	178.82	11801.00	-685.50	-798.30	10.00	708.88
9	24724.15	80.00	178.82	11801.00	-13207.40	-712.47	0.00	13226.80
10	24854.05	80.00	178.82	11801.00	-13337.30	-711.80	0.00	13359.27

FORMATION TOP DETAILS

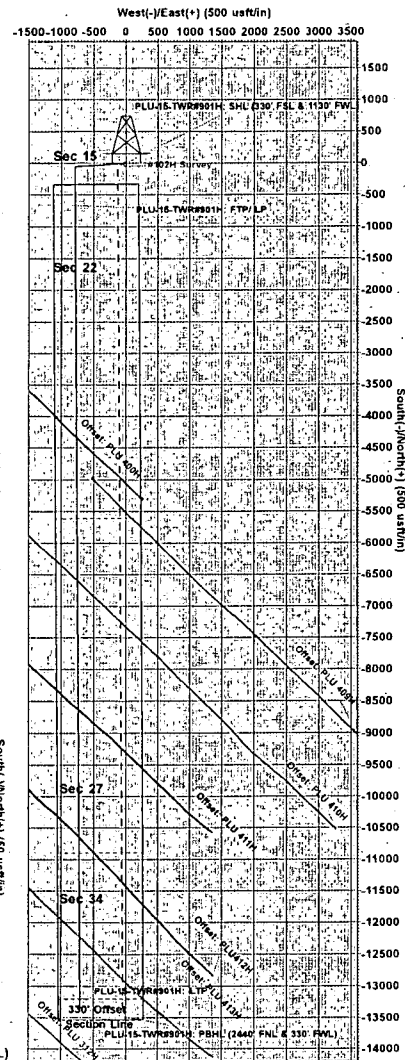
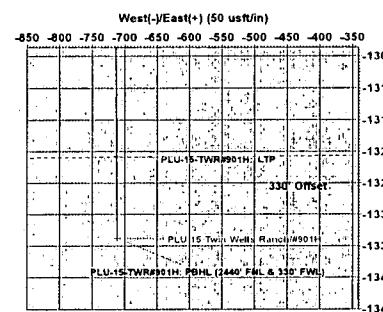
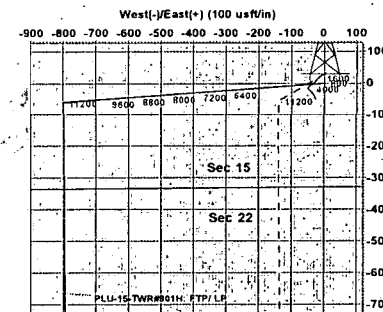
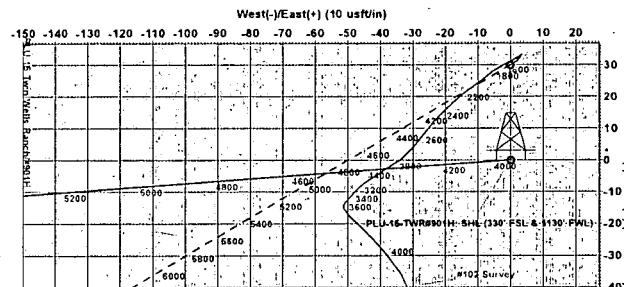
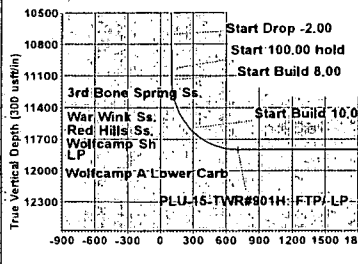
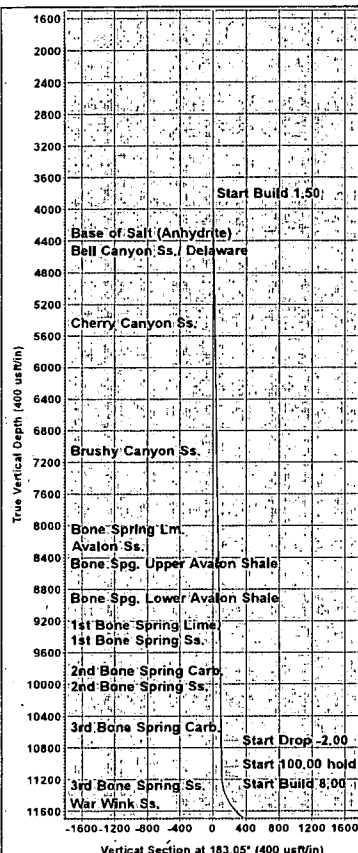
TVDPush	Formation
694.00	Fluvial
1052.00	Top Soil
4238.00	Base of Salt (Anhydrite)
4461.00	Bull Canyon Sh. (Dolomite)
5373.00	Cherry Canyon Sh.
6397.00	Brushy Canyon Sh.
8314.00	Bone Spring Lm.
8395.00	Avalon Sh.
8418.00	Bone Spg. Upper Avalon Shale
8451.00	Bone Spg. Lower Avalon Shale
9181.00	1st Bone Spring Lime
9382.00	2nd Bone Spring Carb.
9771.00	3rd Bone Spring Carb.
9908.00	2nd Bone Spring Sh.
10477.00	3rd Bone Spring Carb.
11215.00	War Wink Sh.
11443.00	Red Hills Sh.
11569.00	Wolfcamp Sh.
11653.00	Wolfcamp Y Sh.
11873.00	Wolfcamp A Sh.
11751.00	LP
11801.00	LP



Azimuths to Grid North
True North: -0.30°
Magnetic North: 6.55°
Magnetic Field
Strength: 47719.5uT
Dip Angle: 60.00°
Date: 04/09/2019
Model: IGRF2015

PROJECT DETAILS: Eddy County, NM (Nad-27 / East Zone)
Geoid: System: US State Plane 1977 (East Addition)
Datum: NAD 1977 (EADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System: Datum: Mean Sea Level

Disclaimer:
All Plan data is based on survey data and is not a warranty of accuracy. The user is responsible for verifying the accuracy of the data and for obtaining the necessary permits and approvals for the project.



Vertical Section at 183.05° (300 usf/in)

Plan: Plan #2 (#901H/Wellbore #1) Patterson 225

Created By: Derek Stephens Date: 15:32, April 15 2019

PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	XTO Permian Operating, LLC
LEASE NO.:	NMMN-71016X
WELL NAME & NO.:	Poker Lake Unit 15 TWR 901H
SURFACE HOLE FOOTAGE:	0330' FSL & 1130' FWL
BOTTOM HOLE FOOTAGE:	2440' FNL & 0330' FWL Sec. 34, T. 24 S., R 31 E.
LOCATION:	Section 15, T. 24 S., R 31 E., NMPM
COUNTY:	Eddy County, New Mexico

The original COAs still stand with the following drilling modifications:

Commercial Well Determination

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

Unit Wells

The well sign for a unit well shall include the unit number in addition to the surface and bottom hole lease numbers. This also applies to participating area numbers. If a participating area has not been established, the operator can use the general unit designation, but will replace the unit number with the participating area number when the sign is replaced.

A. DRILLING OPERATIONS REQUIREMENTS

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

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

☒ **Eddy County**

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

1. **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. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works is located, this does not include the dog house or stairway area.
4. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

B. CASING

Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.

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

Wait on cement (WOC) for 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.

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.

Secretary's Potash

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 **850 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.

13-3/8 inch 1st Intermediate casing shall be kept fluid filled while running into hole to meet BLM minimum collapse requirements.

2. The minimum required fill of cement behind the **13-3/8 inch 1st intermediate casing** 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 potash.**

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 inch 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 4400', 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 circulation on the next stage.

b. Second stage above DV tool:

- ☒ Cement to surface. If cement does not circulate, contact the appropriate BLM office. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to potash.**

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 on horizontal leg, must be type for horizontal service and a minimum of one every other joint.

Production casing shall be kept fluid filled while running into hole to meet BLM minimum collapse requirements.

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

- ☒ Cement should tie-back at least 500 feet into previous casing string. Operator shall provide method of verification.

5. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API 53.
2. Variance approved to use flex line from BOP to choke manifold. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. **Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M) psi.**
4. **Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the 13-3/8 inch 1st intermediate casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the 13-3/8 inch 1st intermediate casing shoe shall be 5000 (5M) psi.**
 - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
 - c. Manufacturer representative shall install the test plug for the initial BOP test.
 - d. Operator shall perform the 9-5/8 inch 2nd intermediate casing integrity test to 70% of the casing burst. This will test the multi-bowl seals.
 - e. 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.

5M system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.

5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
- a. In 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.
 - b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**.
 - c. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
 - d. The results of the test shall be reported to the appropriate BLM office.
 - e. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**
 - f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.
 - g. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the **Wolfcamp** formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

D. DRILLING MUD

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

E. DRILL STEM TEST

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

F. WASTE MATERIAL AND FLUIDS

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

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

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