

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTNMOC
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**

1. Type of Well ☐ Oil Well ☒ Gas Well ☐ Other		5. Lease Serial No. NMNM0506A
2. Name of Operator XTO PERMIAN OPERATING LLC		6. If Indian, Allottee or Tribe Name
Contact: KELLY KARDOS E-Mail: kelly_kardos@xtoenergy.com		7. If Unit or CA/Agreement, Name and/or No. 891000303X
3a. Address 6401 HOLIDAY HILL ROAD BLDG 5 MIDLAND, TX 79707	3b. Phone No. (include area code) Ph: 432-620-4374	8. Well Name and No. POKER LAKE UNIT 15 TWR 108H
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 15 T24S R31E SESE 330FSL 1200FEL 32.211018 N Lat, 103.761024 W Lon.		9. API Well No.
		10. Field and Pool or Exploratory Area WILDCAT - BONE SPRING
		11. County or Parish, State EDDY COUNTY, NM

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

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

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or 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 recomple in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.

XTO Permian Operating, LLC requests permission to change from a 3 string casing design to a 4 string casing design. Updated drilling program attached.....

SEE ATTACHED FOR
CONDITIONS OF APPROVALNM OIL CONSERVATION
ARTESIA DISTRICT

AUG 21 2019

RECEIVED

14. I hereby certify that the foregoing is true and correct.		Electronic Submission #462123 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 04/23/2019 (19PP1744SE)	
Name (Printed/Typed)	KELLY KARDOS	Title	REGULATORY COORDINATOR
Signature	(Electronic Submission)	Date	04/19/2019
APPROVED			
THIS SPACE FOR FEDERAL OR STATE OFFICE USE			
Approved By		Title	BUREAU OF LAND MANAGEMENT
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	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 **

RW 10-29-18

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

XTO Energy Inc.
PLU 15 Twin Wells Ranch #108H
Projected TD: 22008' MD / 11734' TVD
SHL: 330' FSL & 1200' FEL , Section 15, T24S, R31E
BHL: 200' FSL & 330' FEL , Section 27, 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	729'	Water
Top of Salt	1087'	Water
Base of Salt	4279'	Water
Delaware	4496'	Water
Bone Spring	8349'	Water/Oil/Gas
1st Bone Spring Ss	9417'	Water/Oil/Gas
2nd Bone Spring Ss	10003'	Water/Oil/Gas
3rd Bone Spring Ss	11250'	Water/Oil/Gas
Wolfcamp	11688'	Water/Oil/Gas
Target/Land Curve	11734'	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 @ 880' (207' above the salt) and circulating cement back to surface. The salt will be isolated by setting 11-3/4 inch casing at 4410' and circulating cement to surface. A 10-5/8 inch vertical hole will be drilled to 10600' and 8-5/8 inch casing ran and cemented 500' into the 11-3/4 inch casing. An 7-7/8 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 8-5/8 inch casing shoe.

3. Casing Design

per Kelly Kardos 5/6/2015

Hole Size	Depth	OD Csg	Weight	Collar	Grade	New/Used	SF Burst	SF Collapse	SF Tension
18-1/2"	0' - 880'	16	65	STC	H-40	New	1.24	1.58	10.39
14-3/4"	0' - 4410'	11-3/4"	59	BTC	J-55	New	1.10	1.13	3.00
10-5/8"	0' - 10600'	8-5/8"	32	BTC	HCL-80	New	1.40	1.35	2.38
7-7/8"	0' - 22008'	5-1/2"	17	BTC	P-110	New	1.01	1.93	2.14

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

11-3/4" Collapse analyzed using 50% evacuation based on regional experience.

8-5/8" Collapse analyzed using 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 x 16-3/4" 3M top flange

Permanent Wellhead - GE RSH Multibowl System

A. Starting Head (RSH System): 11-3/4" SOW bottom x 13-5/8" 2M 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

6. Proposed Mud Circulation System

INTERVAL	Hole Size	Mud Type	MW (ppg)	Viscosity (sec/qt)	Fluid Loss (cc)
0' to 880'	18-1/2"	FW/Native	8.4-8.8	35-40	NC
880' to 4410'	14-3/4"	Brine/Gel Sweeps	9.8-10.2	30-32	NC
4410' to 10600'	10-5/8"	FW / Cut Brine	8.6-9	29-32	NC - 20
10600' to 22008'	7-7/8"	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

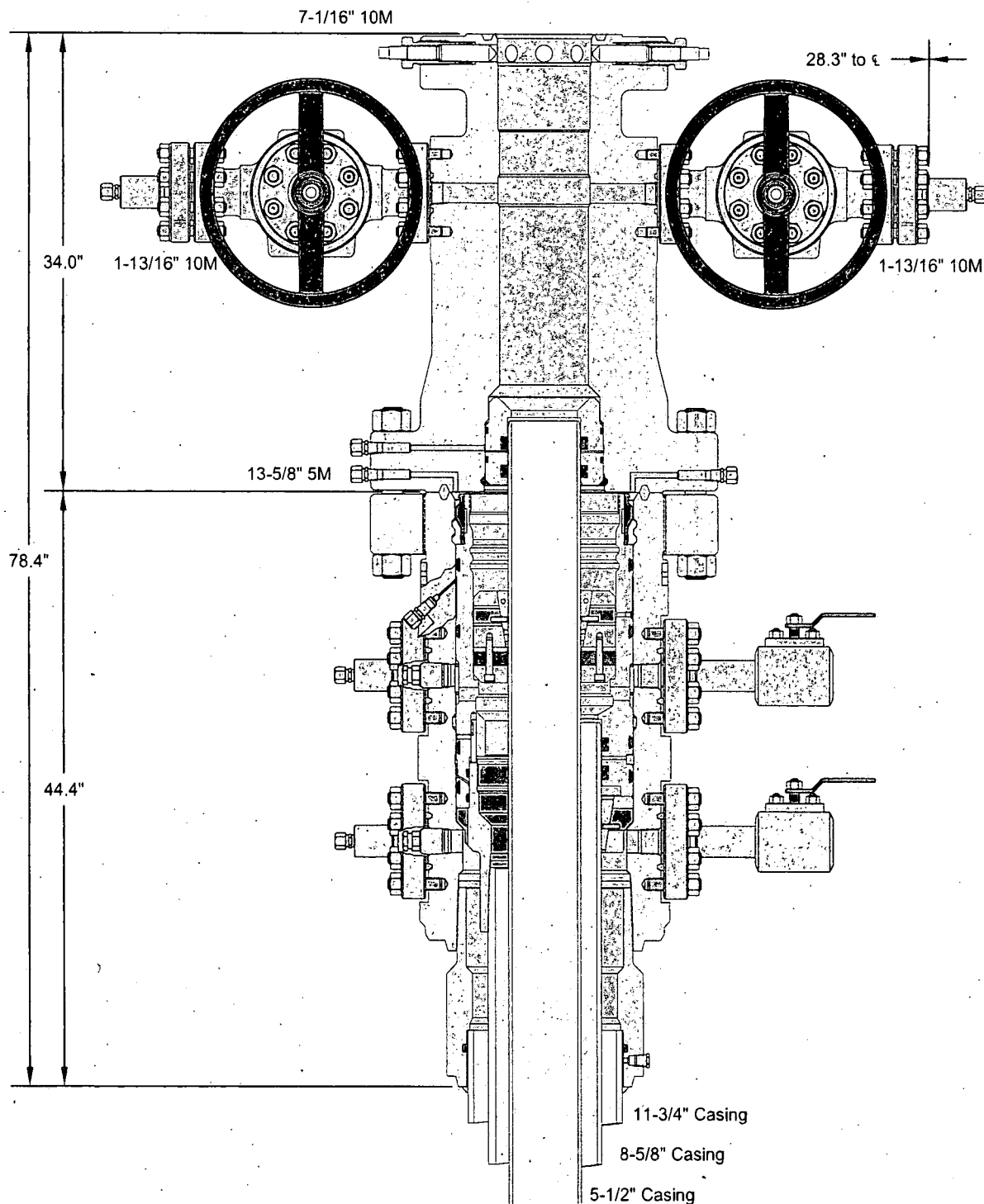
None Anticipated. BHT of 155 to 175 F is anticipated. No H2S is expected but monitors will be in place to detect any H2S occurrences. Should these circumstances be encountered the operator and drilling contractor are prepared to take all necessary steps to ensure safety of all personnel and environment. 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 6407 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.

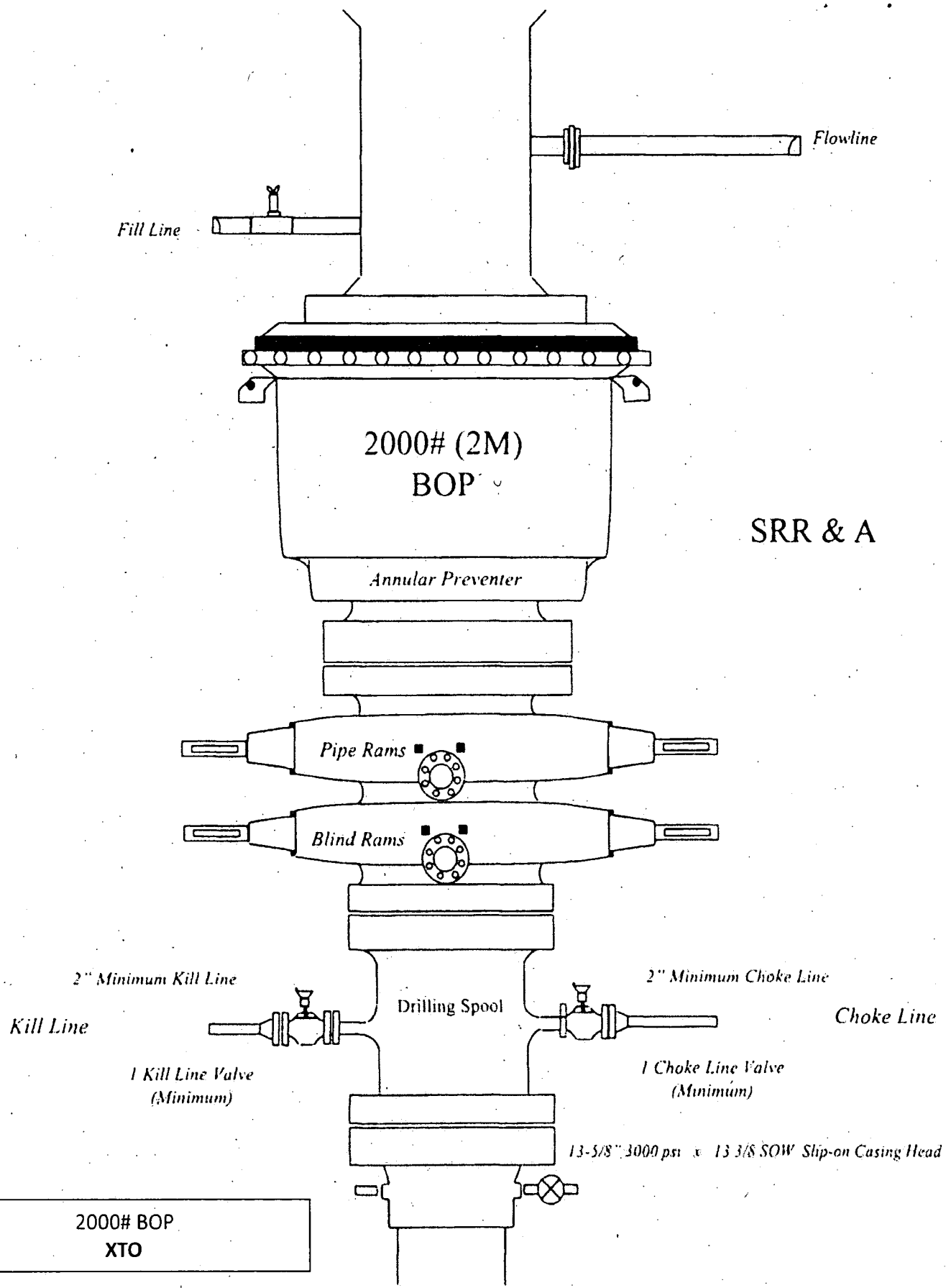
XTO ENERGY, INC.

11-3/4" x 8-5/8" x 5-1/2" 10M RSH-2 Wellhead
Assembly, With T-EBS-F Tubing Head

DRAWN VJK 31OCT16

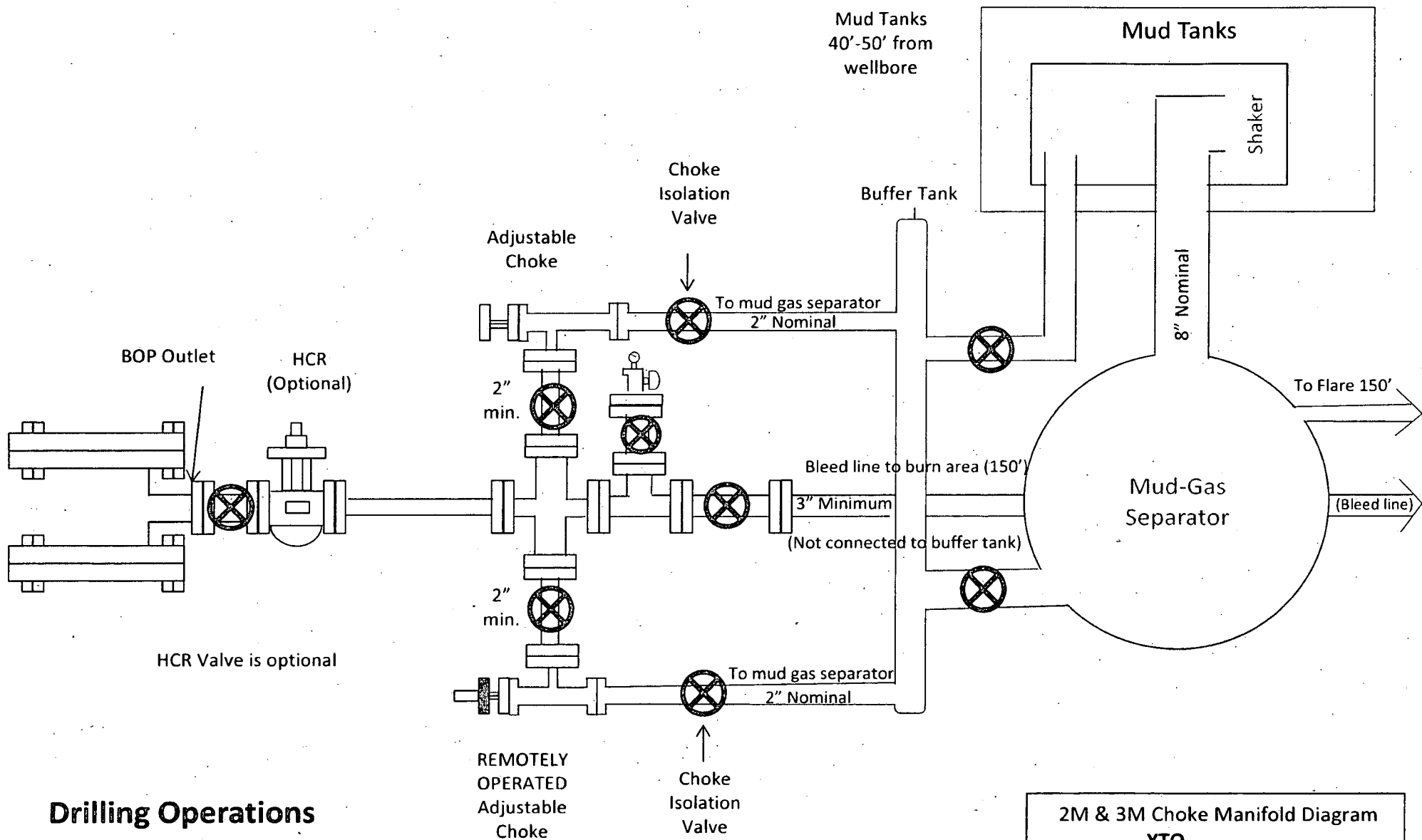
APPRV KN 31OCT16

FOR REFERENCE ONLY
DRAWING NO. 10012358



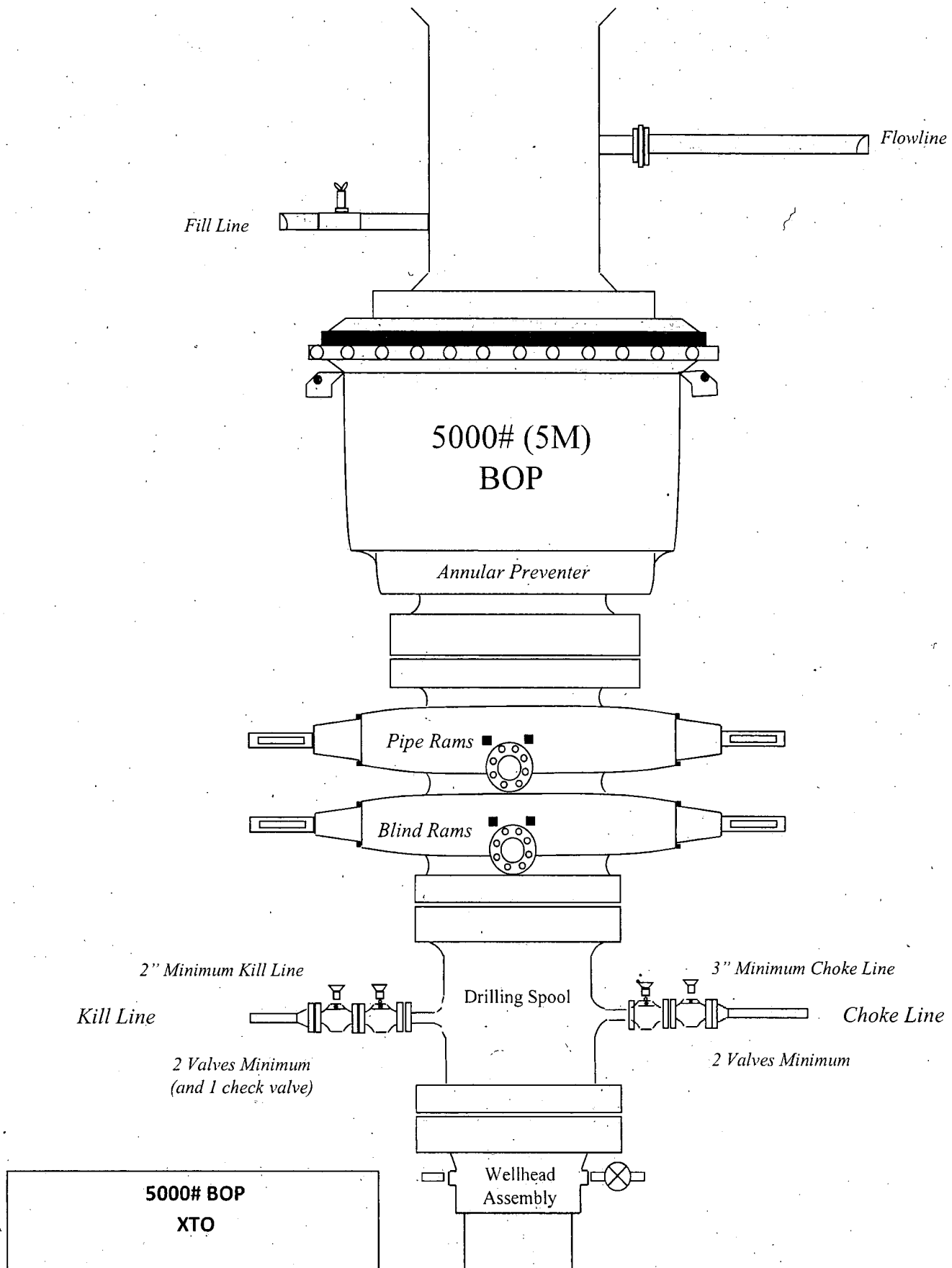
SRR & A

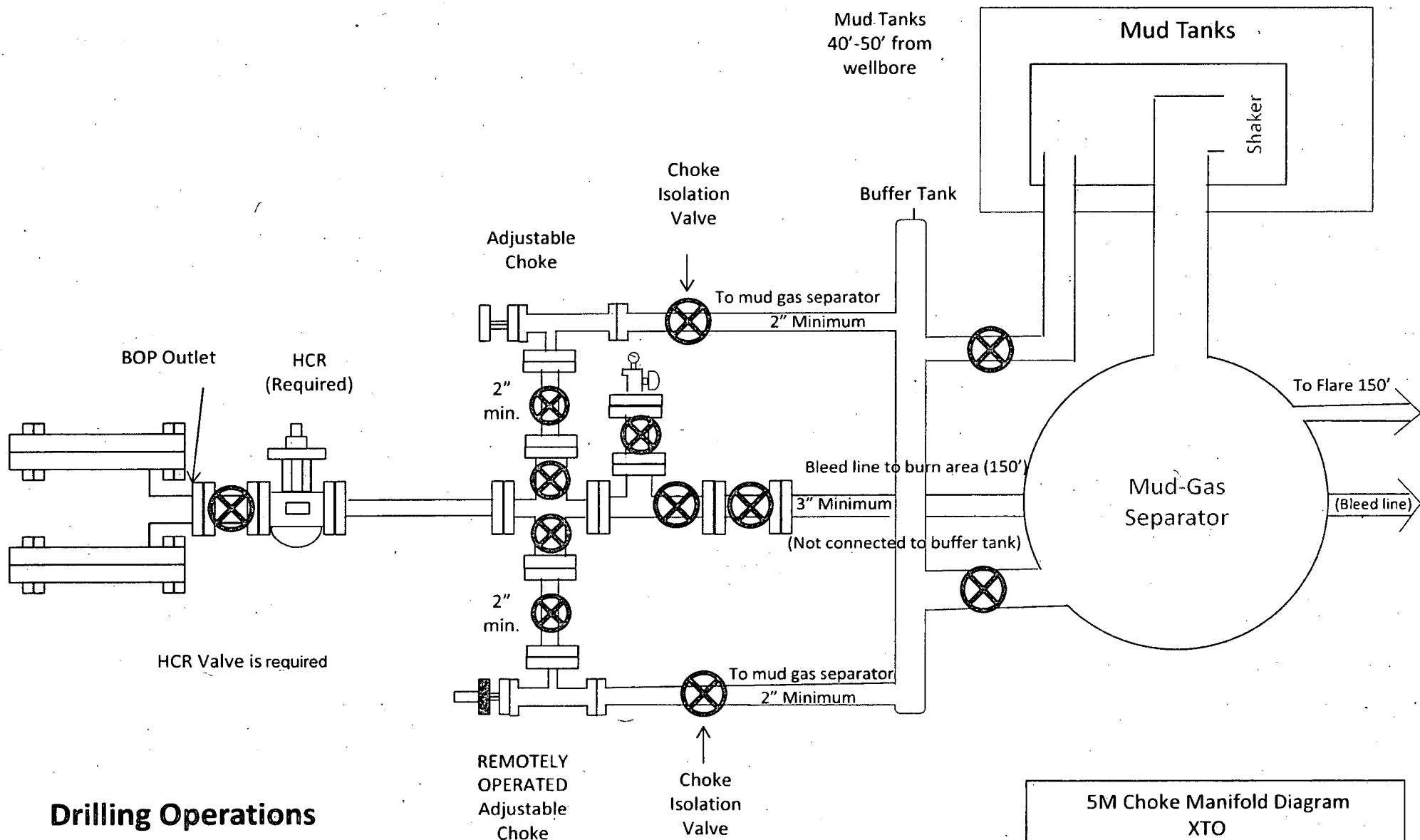
2000# BOP
XTO



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

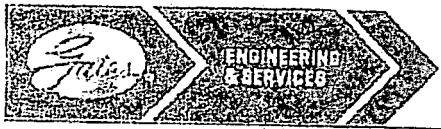
**2M & 3M Choke Manifold Diagram
XTO**





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

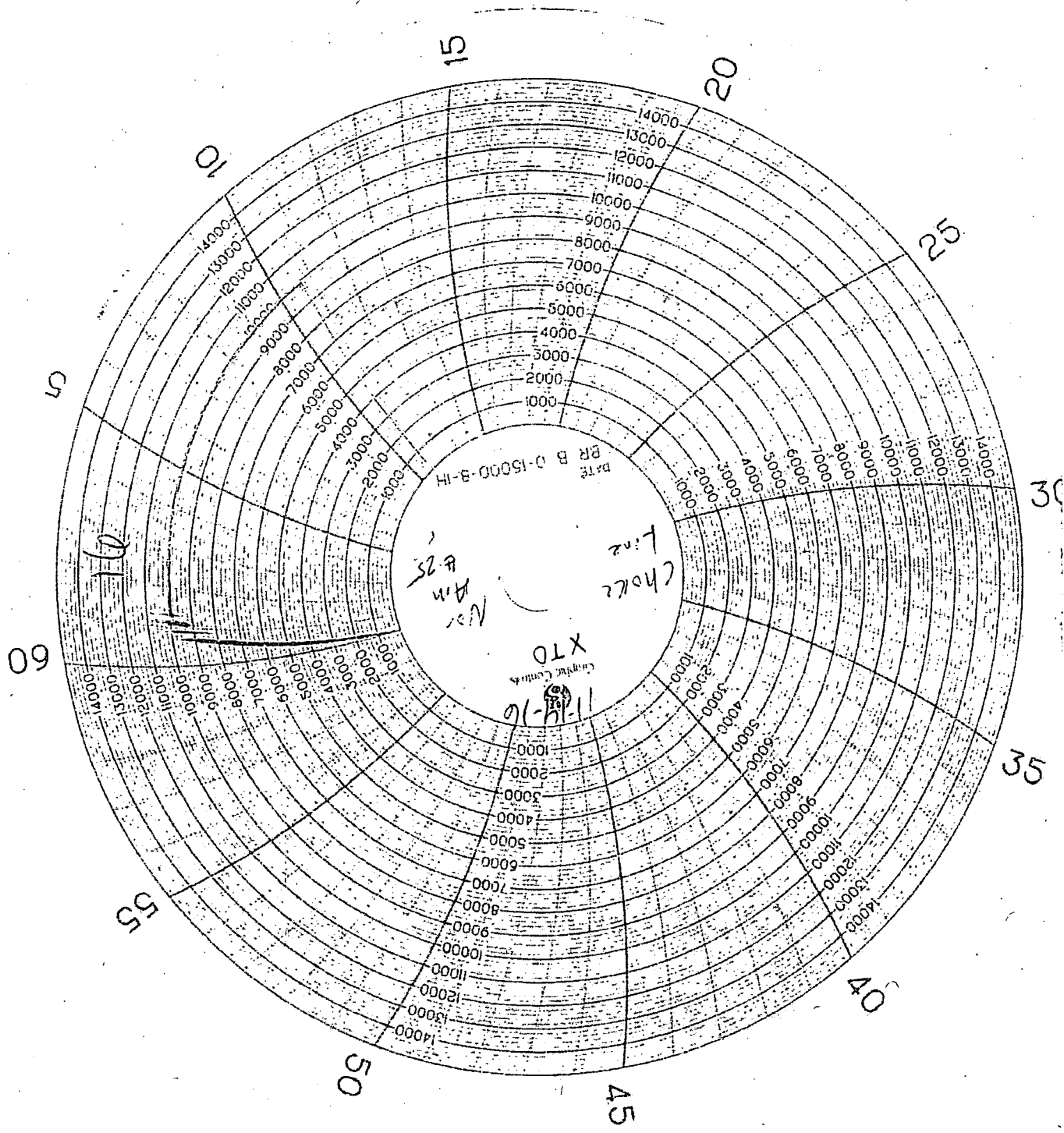
PHONE: 361-887-9807
FAX: 361-887-0812
EMAIL: crpe@s@gates.com
WEB: www.gates.com

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.5K FLG	End Fitting 2 :	4 1/16 in.5K FLG
Gates Part No. :	4774-6001	Assembly Code :	L33090011513D-060814-1
Working Pressure :	5,000 PSI	Test Pressure :	7,500 PSI

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

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



NOON

HOSE I.D. $2\frac{1}{2}$ " LENGTH 42 ft END 1 $4\frac{1}{16}$ " SAE J END 2 $4\frac{1}{16}$ " SAE J
GRADE D WORKING PRESSURE 5,000 P.S.I.
TEST PRESSURE 7,500 P.S.I. ASSEMBLY DATE 6-8-14
TEST DATE 6-8-14 SERIAL # 633090011513D-060814-P-1000
NAME D-3475 CR 25013

CS-3000-COLOUR

XTO Energy

Project: Eddy County, NM (NAD27) NMEZ Grid
 Site: PLU 15 TWIN WELLS RANCH
 Well: PLU 15 TWIN WELLS RANCH 108H
 Wellbore: 15-108H. Lateral
 Design: Plan #1

3559+32 @ 3591.00usft (Pat793)
 NAD 1927 (NADCON CONUS)

West(-)/East(+) (2500 usft/in)
 -5000 -2500 0 2500



Azimuths to Grid North
 True North: -0.31°
 Magnetic North: 6.56°

Magnetic Field
 Strength: 47741.4nT
 Dip Angle: 60.00°
 Date: 02/04/2019
 Model: IGRF2015

SECTION DETAILS

MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	Vsect
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3000.00	0.00	0.00	3000.00	0.00	0.00	0.00	0.00	0.00
3057.40	5.74	95.80	3057.30	-0.29	2.86	10.00	95.80	0.54
11210.98	5.74	95.80	11170.00	-82.70	814.16	0.00	0.00	154.23
12104.83	90.00	179.64	11734.00	-655.26	874.08	10.00	83.88	729.84
22008.56	90.00	179.64	11734.00	-10558.80	935.50	0.00	0.00	10600.16

PLU 15 TWR 108H LTP_330FSL_330FEL

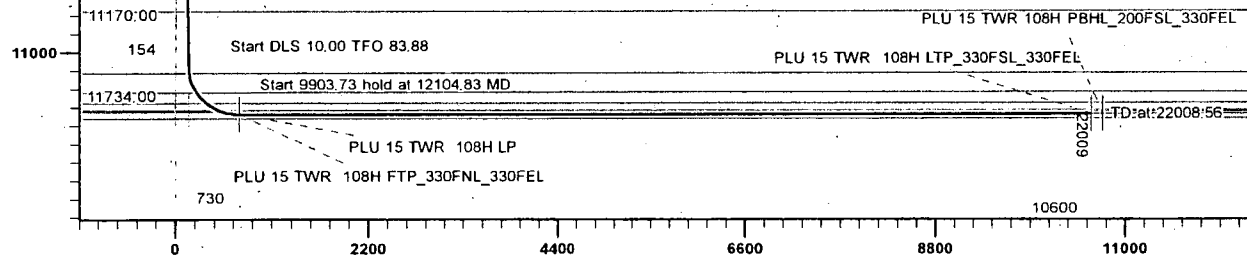
TARGET DETAILS

Name	TVD	+N-S	+E-W	Northing	Easting	Shape
PLU 15 TWR 108H SHL	0.00	0.00	0.00	440914.40	677155.70	Point
PLU 15 TWR 108H FTP_330FNL_330FEL	11734.00	-654.70	874.10	440259.70	678029.80	Point
PLU 15 TWR 108H LP	11734.00	-654.72	874.06	440259.68	678029.76	Point
PLU 15 TWR 108H LTP_330FSL_330FEL	11734.00	-10558.80	935.50	430355.60	678091.20	Point
PLU 15 TWR 108H PBHL_200FSL_330FEL	11734.00	-10688.70	936.30	430225.70	678092.00	Rectangle (Sides: L10034.19 W100.00)

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
729.00	729.00	Rustler
1087.00	1087.00	Top Salt*
4273.00	4279.22	Base of Salt (Anhydrite)
4496.00	4503.35	Bell Canyon Ss./ Delaware
5408.00	5419.94	Cherry Canyon Ss.
7032.00	7052.13	Brushy Canyon Ss.
8349.00	8375.76	Bone Spring Lm.
8430.00	8457.17	Avalon Ss.
8451.00	8478.28	Bone Spg. Upper Avalon Shale
8886.00	8915.47	Bone Spg. Lower Avalon Shale
9226.00	9257.18	1st Bone Spring Lime.
9417.00	9449.14	1st Bone Spring Ss.
9806.00	9840.10	2nd Bone Spring Carb.
10003.00	10038.10	2nd Bone Spring Ss.
10512.00	10549.66	3rd Bone Spring Carb.
11250.00	11291.71	3rd Bone Spring Ss.
11478.00	11539.16	War Wink Ss.
11604.00	11710.14	Red Hills Ss.
11688.00	11873.08	Wolfcamp Sh
11708.00	11931.12	Wolfcamp X Sd
11734.00	12102.57	LP

True Vertical Depth (2200 usft/in)



Vertical Section at 174.94° (2200 usft/in)

PLU 15 TWR 108H SHL
 PLU 15 TWR 108H LP
 PLU 15 TWR 108H FTP_330FNL_330FEL
 PLU 15 TWR 108H LTP_330FSL_330FEL
 PLU 15 TWR 108H PBHL_200FSL_330FEL

Unit Lines

South(-)/North(+) (2500 usft/in)

To convert a Magnetic Direction to a Grid Direction, Add 6.56°
 To convert a Magnetic Direction to a True Direction, Add 6.86° East
 Magnetic North is 6.56° East of Grid North (Magnetic Convergence)
 Magnetic North is 6.86° East of True North (Magnetic Declination)

Plan: Plan #1 (PLU 15 TWIN WELLS RANCH 108H/15-108H Lateral)
 Created By: Mekka Williams
 eSomina Well Design
 mekka@esominawelldesign.com
 13:07, February 20 2019

STRYKER DIRECTIONAL
 6701 FM 307
 Midland, Texas 79706 - 432-687-1121



Planning Report

Database:	STRYKER_EDM	Local Co-ordinate Reference:	Well PLU 15 TWIN WELLS RANCH 108H
Company:	XTO Energy	TVD Reference:	3559+32 @ 3591.00usft (Patt793)
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3559+32 @ 3591.00usft (Patt793)
Site:	PLU 15 TWIN WELLS RANCH	North Reference:	Grid
Well:	PLU 15 TWIN WELLS RANCH 108H	Survey Calculation Method:	Minimum Curvature
Wellbore:	15-108H Lateral		
Design:	Plan #1		

Project	Eddy County, NM (NAD27) NMEZ Grid		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	PLU 15 TWIN WELLS RANCH				
Site Position:		Northing:	440,894.90 usft	Latitude:	32.21088250
From:	Map	Easting:	674,201.00 usft	Longitude:	-103.77009603
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence:	0.30 °

Well	PLU 15 TWIN WELLS RANCH 108H					
Well Position	+N/-S	19.50 usft	Northing:	440,914.40 usft	Latitude:	32.21089318
	+E/-W	2,954.70 usft	Easting:	677,155.70 usft	Longitude:	-103.76054279
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	3,559.00 usft

Wellbore	15-108H Lateral				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2015	02/04/19	6.86	60.00	47,741.35473777

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0.00	0.00	0.00	174.94

Plan Survey Tool Program	Date	02/20/19		
Depth From	Depth To	Survey (Wellbore)	Tool Name	Remarks
(usft)	(usft)			
1 0.00	22,007.99	Plan #1 (15-108H Lateral)	MWD	
			OWSG MWD - Standard	

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(usft)	(usft)	Rate	Rate	Rate	(°)	
(usft)			(usft)			(°/100ft)	(°/100ft)	(°/100ft)		
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,057.40	5.74	95.80	3,057.30	-0.29	2.86	10.00	10.00	0.00	95.80	
11,210.98	5.74	95.80	11,170.00	-82.70	814.16	0.00	0.00	0.00	0.00	
12,104.83	90.00	179.64	11,734.00	-655.26	874.08	10.00	9.43	9.38	83.88	
22,008.56	90.00	179.64	11,734.00	-10,558.80	935.50	0.00	0.00	0.00	0.00	PLU 15 TWR 108H L

Planning Report

Database:	STRYKER_EDM	Local Co-ordinate Reference:	Well PLU 15 TWIN WELLS RANCH 108H
Company:	XTO Energy	TVD Reference:	3559+32 @ 3591.00usft (Patt793)
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3559+32 @ 3591.00usft (Patt793)
Site:	PLU 15 TWIN WELLS RANCH	North Reference:	Grid
Well:	PLU 15 TWIN WELLS RANCH 108H	Survey Calculation Method:	Minimum Curvature
Wellbore:	15-108H Lateral		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
729.00	0.00	0.00	729.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler									
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
1,087.00	0.00	0.00	1,087.00	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
3,050.00	5.00	95.80	3,049.94	-0.22	2.17	0.41	10.00	10.00	0.00
3,057.40	5.74	95.80	3,057.30	-0.29	2.86	0.54	10.00	10.00	0.00
3,100.00	5.74	95.80	3,099.69	-0.72	7.10	1.34	0.00	0.00	0.00
3,200.00	5.74	95.80	3,199.19	-1.73	17.05	3.23	0.00	0.00	0.00
3,300.00	5.74	95.80	3,298.69	-2.74	27.00	5.11	0.00	0.00	0.00
3,400.00	5.74	95.80	3,398.19	-3.75	36.95	7.00	0.00	0.00	0.00
3,500.00	5.74	95.80	3,497.68	-4.76	46.90	8.88	0.00	0.00	0.00
3,600.00	5.74	95.80	3,597.18	-5.77	56.85	10.77	0.00	0.00	0.00
3,700.00	5.74	95.80	3,696.68	-6.79	66.80	12.65	0.00	0.00	0.00
3,800.00	5.74	95.80	3,796.18	-7.80	76.75	14.54	0.00	0.00	0.00
3,900.00	5.74	95.80	3,895.68	-8.81	86.70	16.42	0.00	0.00	0.00
4,000.00	5.74	95.80	3,995.18	-9.82	96.65	18.31	0.00	0.00	0.00
4,100.00	5.74	95.80	4,094.68	-10.83	106.60	20.19	0.00	0.00	0.00
4,200.00	5.74	95.80	4,194.18	-11.84	116.55	22.08	0.00	0.00	0.00
4,279.22	5.74	95.80	4,273.00	-12.64	124.43	23.57	0.00	0.00	0.00
Base of Salt (Anhydrite)									
4,300.00	5.74	95.80	4,293.67	-12.85	126.50	23.96	0.00	0.00	0.00
4,400.00	5.74	95.80	4,393.17	-13.86	136.45	25.85	0.00	0.00	0.00

Planning Report

Database:	STRYKER_EDM	Local Co-ordinate Reference:	Well PLU 15 TWIN WELLS RANCH 108H
Company:	XTO Energy	TVD Reference:	3559+32 @ 3591.00usft (Patt793)
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3559+32 @ 3591.00usft (Patt793)
Site:	PLU 15 TWIN WELLS RANCH	North Reference:	Grid
Well:	PLU 15 TWIN WELLS RANCH 108H	Survey Calculation Method:	Minimum Curvature
Wellbore:	15-108H Lateral		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,500.00	5.74	95.80	4,492.67	-14.87	146.40	27.73	0.00	0.00	0.00
4,503.35	5.74	95.80	4,496.00	-14.90	146.73	27.80	0.00	0.00	0.00
Bell Canyon Ss./ Delaware									
4,600.00	5.74	95.80	4,592.17	-15.88	156.35	29.62	0.00	0.00	0.00
4,700.00	5.74	95.80	4,691.67	-16.89	166.30	31.50	0.00	0.00	0.00
4,800.00	5.74	95.80	4,791.17	-17.90	176.25	33.39	0.00	0.00	0.00
4,900.00	5.74	95.80	4,890.67	-18.91	186.20	35.27	0.00	0.00	0.00
5,000.00	5.74	95.80	4,990.16	-19.92	196.15	37.16	0.00	0.00	0.00
5,100.00	5.74	95.80	5,089.66	-20.94	206.10	39.04	0.00	0.00	0.00
5,200.00	5.74	95.80	5,189.16	-21.95	216.05	40.93	0.00	0.00	0.00
5,300.00	5.74	95.80	5,288.66	-22.96	226.00	42.81	0.00	0.00	0.00
5,400.00	5.74	95.80	5,388.16	-23.97	235.95	44.70	0.00	0.00	0.00
5,419.94	5.74	95.80	5,408.00	-24.17	237.94	45.07	0.00	0.00	0.00
Cherry Canyon Ss.									
5,500.00	5.74	95.80	5,487.66	-24.98	245.90	46.58	0.00	0.00	0.00
5,600.00	5.74	95.80	5,587.16	-25.99	255.85	48.47	0.00	0.00	0.00
5,700.00	5.74	95.80	5,686.65	-27.00	265.80	50.35	0.00	0.00	0.00
5,800.00	5.74	95.80	5,786.15	-28.01	275.75	52.24	0.00	0.00	0.00
5,900.00	5.74	95.80	5,885.65	-29.02	285.70	54.12	0.00	0.00	0.00
6,000.00	5.74	95.80	5,985.15	-30.03	295.65	56.01	0.00	0.00	0.00
6,100.00	5.74	95.80	6,084.65	-31.04	305.60	57.89	0.00	0.00	0.00
6,200.00	5.74	95.80	6,184.15	-32.05	315.55	59.78	0.00	0.00	0.00
6,300.00	5.74	95.80	6,283.65	-33.06	325.50	61.66	0.00	0.00	0.00
6,400.00	5.74	95.80	6,383.14	-34.07	335.45	63.55	0.00	0.00	0.00
6,500.00	5.74	95.80	6,482.64	-35.08	345.41	65.43	0.00	0.00	0.00
6,600.00	5.74	95.80	6,582.14	-36.10	355.36	67.32	0.00	0.00	0.00
6,700.00	5.74	95.80	6,681.64	-37.11	365.31	69.20	0.00	0.00	0.00
6,800.00	5.74	95.80	6,781.14	-38.12	375.26	71.08	0.00	0.00	0.00
6,900.00	5.74	95.80	6,880.64	-39.13	385.21	72.97	0.00	0.00	0.00
7,000.00	5.74	95.80	6,980.14	-40.14	395.16	74.85	0.00	0.00	0.00
7,052.13	5.74	95.80	7,032.00	-40.67	400.34	75.84	0.00	0.00	0.00
Brushy Canyon Ss.									
7,100.00	5.74	95.80	7,079.63	-41.15	405.11	76.74	0.00	0.00	0.00
7,200.00	5.74	95.80	7,179.13	-42.16	415.06	78.62	0.00	0.00	0.00
7,300.00	5.74	95.80	7,278.63	-43.17	425.01	80.51	0.00	0.00	0.00
7,400.00	5.74	95.80	7,378.13	-44.18	434.96	82.39	0.00	0.00	0.00
7,500.00	5.74	95.80	7,477.63	-45.19	444.91	84.28	0.00	0.00	0.00
7,600.00	5.74	95.80	7,577.13	-46.20	454.86	86.16	0.00	0.00	0.00
7,700.00	5.74	95.80	7,676.63	-47.21	464.81	88.05	0.00	0.00	0.00
7,800.00	5.74	95.80	7,776.12	-48.22	474.76	89.93	0.00	0.00	0.00
7,900.00	5.74	95.80	7,875.62	-49.23	484.71	91.82	0.00	0.00	0.00
8,000.00	5.74	95.80	7,975.12	-50.25	494.66	93.70	0.00	0.00	0.00
8,100.00	5.74	95.80	8,074.62	-51.26	504.61	95.59	0.00	0.00	0.00
8,200.00	5.74	95.80	8,174.12	-52.27	514.56	97.47	0.00	0.00	0.00
8,300.00	5.74	95.80	8,273.62	-53.28	524.51	99.36	0.00	0.00	0.00
8,375.76	5.74	95.80	8,349.00	-54.04	532.05	100.79	0.00	0.00	0.00
Bone Spring Lm.									
8,400.00	5.74	95.80	8,373.12	-54.29	534.46	101.24	0.00	0.00	0.00
8,457.17	5.74	95.80	8,430.00	-54.87	540.15	102.32	0.00	0.00	0.00
Avalon Ss.									
8,478.28	5.74	95.80	8,451.00	-55.08	542.25	102.72	0.00	0.00	0.00
Bone Spg. Upper Avalon Shale									
8,500.00	5.74	95.80	8,472.61	-55.30	544.41	103.13	0.00	0.00	0.00

Planning Report

Database:	STRYKER_EDM	Local Co-ordinate Reference:	Well PLU 15 TWIN WELLS RANCH 108H
Company:	XTO Energy	TVD Reference:	3559+32 @ 3591.00usft (Patt793)
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3559+32 @ 3591.00usft (Patt793)
Site:	PLU 15 TWIN WELLS RANCH	North Reference:	Grid
Well:	PLU 15 TWIN WELLS RANCH 108H	Survey Calculation Method:	Minimum Curvature
Wellbore:	15-108H Lateral		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,600.00	5.74	95.80	8,572.11	-56.31	554.36	105.01	0.00	0.00	0.00
8,700.00	5.74	95.80	8,671.61	-57.32	564.31	106.90	0.00	0.00	0.00
8,800.00	5.74	95.80	8,771.11	-58.33	574.26	108.78	0.00	0.00	0.00
8,900.00	5.74	95.80	8,870.61	-59.34	584.21	110.67	0.00	0.00	0.00
8,915.47	5.74	95.80	8,886.00	-59.50	585.75	110.96	0.00	0.00	0.00
Bone Spg. Lower Avalon Shale									
9,000.00	5.74	95.80	8,970.11	-60.35	594.16	112.55	0.00	0.00	0.00
9,100.00	5.74	95.80	9,069.61	-61.36	604.11	114.44	0.00	0.00	0.00
9,200.00	5.74	95.80	9,169.11	-62.37	614.06	116.32	0.00	0.00	0.00
9,257.18	5.74	95.80	9,226.00	-62.95	619.75	117.40	0.00	0.00	0.00
1st Bone Spring Lime.									
9,300.00	5.74	95.80	9,268.60	-63.38	624.01	118.21	0.00	0.00	0.00
9,400.00	5.74	95.80	9,368.10	-64.40	633.96	120.09	0.00	0.00	0.00
9,449.14	5.74	95.80	9,417.00	-64.89	638.85	121.02	0.00	0.00	0.00
1st Bone Spring Ss.									
9,500.00	5.74	95.80	9,467.60	-65.41	643.91	121.98	0.00	0.00	0.00
9,600.00	5.74	95.80	9,567.10	-66.42	653.86	123.86	0.00	0.00	0.00
9,700.00	5.74	95.80	9,666.60	-67.43	663.81	125.75	0.00	0.00	0.00
9,800.00	5.74	95.80	9,766.10	-68.44	673.76	127.63	0.00	0.00	0.00
9,840.10	5.74	95.80	9,806.00	-68.84	677.75	128.39	0.00	0.00	0.00
2nd Bone Spring Carb.									
9,900.00	5.74	95.80	9,865.60	-69.45	683.71	129.52	0.00	0.00	0.00
10,000.00	5.74	95.80	9,965.09	-70.46	693.66	131.40	0.00	0.00	0.00
10,038.10	5.74	95.80	10,003.00	-70.84	697.45	132.12	0.00	0.00	0.00
2nd Bone Spring Ss.									
10,100.00	5.74	95.80	10,064.59	-71.47	703.61	133.29	0.00	0.00	0.00
10,200.00	5.74	95.80	10,164.09	-72.48	713.56	135.17	0.00	0.00	0.00
10,300.00	5.74	95.80	10,263.59	-73.49	723.51	137.06	0.00	0.00	0.00
10,400.00	5.74	95.80	10,363.09	-74.50	733.46	138.94	0.00	0.00	0.00
10,500.00	5.74	95.80	10,462.59	-75.51	743.41	140.83	0.00	0.00	0.00
10,549.66	5.74	95.80	10,512.00	-76.02	748.36	141.76	0.00	0.00	0.00
3rd Bone Spring Carb.									
10,600.00	5.74	95.80	10,562.09	-76.52	753.36	142.71	0.00	0.00	0.00
10,700.00	5.74	95.80	10,661.58	-77.53	763.32	144.59	0.00	0.00	0.00
10,800.00	5.74	95.80	10,761.08	-78.55	773.27	146.48	0.00	0.00	0.00
10,900.00	5.74	95.80	10,860.58	-79.56	783.22	148.36	0.00	0.00	0.00
11,000.00	5.74	95.80	10,960.08	-80.57	793.17	150.25	0.00	0.00	0.00
11,100.00	5.74	95.80	11,059.58	-81.58	803.12	152.13	0.00	0.00	0.00
11,200.00	5.74	95.80	11,159.08	-82.59	813.07	154.02	0.00	0.00	0.00
11,210.98	5.74	95.80	11,170.00	-82.70	814.16	154.23	0.00	0.00	0.00
11,250.00	7.27	128.11	11,208.78	-84.42	818.05	156.28	10.00	3.93	82.79
11,291.71	10.38	146.59	11,250.00	-89.19	822.19	161.40	10.00	7.45	44.31
3rd Bone Spring Ss.									
11,300.00	11.08	148.97	11,258.15	-90.50	823.02	162.77	10.00	8.45	28.71
11,350.00	15.58	158.63	11,306.79	-100.87	827.94	173.55	10.00	8.99	19.33
11,400.00	20.30	163.97	11,354.35	-115.47	832.79	188.51	10.00	9.45	10.68
11,450.00	25.13	167.34	11,400.46	-134.18	837.51	207.57	10.00	9.66	6.74
11,500.00	30.01	169.68	11,444.77	-156.86	842.08	230.56	10.00	9.76	4.68
11,539.16	33.86	171.08	11,478.00	-177.28	845.53	251.21	10.00	9.82	3.57
War Wink Ss.									
11,550.00	34.93	171.42	11,486.94	-183.33	846.46	257.31	10.00	9.84	3.12
11,600.00	39.86	172.77	11,526.65	-213.40	850.61	287.63	10.00	9.86	2.71
11,650.00	44.80	173.87	11,563.61	-246.83	854.51	321.28	10.00	9.89	2.20

Planning Report

Database: STRYKER_EDM
 Company: XTO Energy
 Project: Eddy County, NM (NAD27) NMEZ Grid
 Site: PLU 15 TWIN WELLS RANCH
 Well: PLU 15 TWIN WELLS RANCH 108H
 Wellbore: 15-108H Lateral
 Design: Plan #1

Local Co-ordinate Reference: Well PLU 15 TWIN WELLS RANCH 108H
 TVD Reference: 3559+32 @ 3591.00usft (Patt793)
 MD Reference: 3559+32 @ 3591.00usft (Patt793)
 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)
11,700.00	49.76	174.79	11,597.52	-283.37	858.13	358.00	10.00	9.91	1.85
11,710.14	50.76	174.96	11,604.00	-291.14	858.83	365.80	10.00	9.92	1.68
Red Hills Ss.									
11,750.00	54.72	175.59	11,628.12	-322.75	861.43	397.51	10.00	9.92	1.57
11,800.00	59.68	176.29	11,655.20	-364.66	864.40	439.52	10.00	9.93	1.41
11,850.00	64.65	176.93	11,678.54	-408.79	867.00	483.71	10.00	9.94	1.27
11,873.08	66.95	177.21	11,688.00	-429.81	868.08	504.74	10.00	9.94	1.20
Wolfcamp Sh									
11,900.00	69.62	177.52	11,697.96	-454.79	869.23	529.73	10.00	9.94	1.15
11,931.12	72.72	177.86	11,708.00	-484.21	870.42	559.14	10.00	9.94	1.11
Wolfcamp X Sd									
11,950.00	74.60	178.07	11,713.31	-502.32	871.06	577.23	10.00	9.95	1.08
12,000.00	79.57	178.59	11,724.49	-551.02	872.48	625.87	10.00	9.95	1.05
12,050.00	84.54	179.10	11,731.40	-600.52	873.48	675.26	10.00	9.95	1.01
12,102.57	89.77	179.62	11,734.00	-652.99	874.06	727.58	10.00	9.95	1.00
LP									
12,104.83	90.00	179.64	11,734.00	-655.26	874.08	729.84	10.00	9.95	0.99
12,200.00	90.00	179.64	11,734.00	-750.43	874.67	824.69	0.00	0.00	0.00
12,300.00	90.00	179.64	11,734.00	-850.43	875.29	924.35	0.00	0.00	0.00
12,400.00	90.00	179.64	11,734.00	-950.42	875.91	1,024.01	0.00	0.00	0.00
12,500.00	90.00	179.64	11,734.00	-1,050.42	876.53	1,123.68	0.00	0.00	0.00
12,600.00	90.00	179.64	11,734.00	-1,150.42	877.15	1,223.34	0.00	0.00	0.00
12,700.00	90.00	179.64	11,734.00	-1,250.42	877.77	1,323.00	0.00	0.00	0.00
12,800.00	90.00	179.64	11,734.00	-1,350.42	878.39	1,422.66	0.00	0.00	0.00
12,900.00	90.00	179.64	11,734.00	-1,450.41	879.01	1,522.33	0.00	0.00	0.00
13,000.00	90.00	179.64	11,734.00	-1,550.41	879.63	1,621.99	0.00	0.00	0.00
13,100.00	90.00	179.64	11,734.00	-1,650.41	880.25	1,721.65	0.00	0.00	0.00
13,200.00	90.00	179.64	11,734.00	-1,750.41	880.87	1,821.32	0.00	0.00	0.00
13,300.00	90.00	179.64	11,734.00	-1,850.41	881.49	1,920.98	0.00	0.00	0.00
13,400.00	90.00	179.64	11,734.00	-1,950.40	882.11	2,020.64	0.00	0.00	0.00
13,500.00	90.00	179.64	11,734.00	-2,050.40	882.73	2,120.30	0.00	0.00	0.00
13,600.00	90.00	179.64	11,734.00	-2,150.40	883.35	2,219.97	0.00	0.00	0.00
13,700.00	90.00	179.64	11,734.00	-2,250.40	883.97	2,319.63	0.00	0.00	0.00
13,800.00	90.00	179.64	11,734.00	-2,350.40	884.59	2,419.29	0.00	0.00	0.00
13,900.00	90.00	179.64	11,734.00	-2,450.39	885.21	2,518.95	0.00	0.00	0.00
14,000.00	90.00	179.64	11,734.00	-2,550.39	885.83	2,618.62	0.00	0.00	0.00
14,100.00	90.00	179.64	11,734.00	-2,650.39	886.45	2,718.28	0.00	0.00	0.00
14,200.00	90.00	179.64	11,734.00	-2,750.39	887.07	2,817.94	0.00	0.00	0.00
14,300.00	90.00	179.64	11,734.00	-2,850.39	887.69	2,917.60	0.00	0.00	0.00
14,400.00	90.00	179.64	11,734.00	-2,950.38	888.31	3,017.27	0.00	0.00	0.00
14,500.00	90.00	179.64	11,734.00	-3,050.38	888.93	3,116.93	0.00	0.00	0.00
14,600.00	90.00	179.64	11,734.00	-3,150.38	889.55	3,216.59	0.00	0.00	0.00
14,700.00	90.00	179.64	11,734.00	-3,250.38	890.17	3,316.25	0.00	0.00	0.00
14,800.00	90.00	179.64	11,734.00	-3,350.38	890.79	3,415.92	0.00	0.00	0.00
14,900.00	90.00	179.64	11,734.00	-3,450.38	891.41	3,515.58	0.00	0.00	0.00
15,000.00	90.00	179.64	11,734.00	-3,550.37	892.03	3,615.24	0.00	0.00	0.00
15,100.00	90.00	179.64	11,734.00	-3,650.37	892.65	3,714.91	0.00	0.00	0.00
15,200.00	90.00	179.64	11,734.00	-3,750.37	893.27	3,814.57	0.00	0.00	0.00
15,300.00	90.00	179.64	11,734.00	-3,850.37	893.89	3,914.23	0.00	0.00	0.00
15,400.00	90.00	179.64	11,734.00	-3,950.37	894.51	4,013.89	0.00	0.00	0.00
15,500.00	90.00	179.64	11,734.00	-4,050.36	895.13	4,113.56	0.00	0.00	0.00
15,600.00	90.00	179.64	11,734.00	-4,150.36	895.75	4,213.22	0.00	0.00	0.00
15,700.00	90.00	179.64	11,734.00	-4,250.36	896.37	4,312.88	0.00	0.00	0.00

Planning Report

Database:	STRYKER_EDM	Local Co-ordinate Reference:	Well PLU 15 TWIN WELLS RANCH 108H
Company:	XTO Energy	TVD Reference:	3559+32 @ 3591.00usft (Patt793)
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3559+32 @ 3591.00usft (Patt793)
Site:	PLU 15 TWIN WELLS RANCH	North Reference:	Grid
Well:	PLU 15 TWIN WELLS RANCH 108H	Survey Calculation Method:	Minimum Curvature
Wellbore:	15-108H Lateral		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
15,800.00	90.00	179.64	11,734.00	-4,350.36	896.99	4,412.54	0.00	0.00	0.00
15,900.00	90.00	179.64	11,734.00	-4,450.36	897.61	4,512.21	0.00	0.00	0.00
16,000.00	90.00	179.64	11,734.00	-4,550.35	898.23	4,611.87	0.00	0.00	0.00
16,100.00	90.00	179.64	11,734.00	-4,650.35	898.86	4,711.53	0.00	0.00	0.00
16,200.00	90.00	179.64	11,734.00	-4,750.35	899.48	4,811.19	0.00	0.00	0.00
16,300.00	90.00	179.64	11,734.00	-4,850.35	900.10	4,910.86	0.00	0.00	0.00
16,400.00	90.00	179.64	11,734.00	-4,950.35	900.72	5,010.52	0.00	0.00	0.00
16,500.00	90.00	179.64	11,734.00	-5,050.34	901.34	5,110.18	0.00	0.00	0.00
16,600.00	90.00	179.64	11,734.00	-5,150.34	901.96	5,209.85	0.00	0.00	0.00
16,700.00	90.00	179.64	11,734.00	-5,250.34	902.58	5,309.51	0.00	0.00	0.00
16,800.00	90.00	179.64	11,734.00	-5,350.34	903.20	5,409.17	0.00	0.00	0.00
16,900.00	90.00	179.64	11,734.00	-5,450.34	903.82	5,508.83	0.00	0.00	0.00
17,000.00	90.00	179.64	11,734.00	-5,550.33	904.44	5,608.50	0.00	0.00	0.00
17,100.00	90.00	179.64	11,734.00	-5,650.33	905.06	5,708.16	0.00	0.00	0.00
17,200.00	90.00	179.64	11,734.00	-5,750.33	905.68	5,807.82	0.00	0.00	0.00
17,300.00	90.00	179.64	11,734.00	-5,850.33	906.30	5,907.48	0.00	0.00	0.00
17,400.00	90.00	179.64	11,734.00	-5,950.33	906.92	6,007.15	0.00	0.00	0.00
17,500.00	90.00	179.64	11,734.00	-6,050.33	907.54	6,106.81	0.00	0.00	0.00
17,600.00	90.00	179.64	11,734.00	-6,150.32	908.16	6,206.47	0.00	0.00	0.00
17,700.00	90.00	179.64	11,734.00	-6,250.32	908.78	6,306.13	0.00	0.00	0.00
17,800.00	90.00	179.64	11,734.00	-6,350.32	909.40	6,405.80	0.00	0.00	0.00
17,900.00	90.00	179.64	11,734.00	-6,450.32	910.02	6,505.46	0.00	0.00	0.00
18,000.00	90.00	179.64	11,734.00	-6,550.32	910.64	6,605.12	0.00	0.00	0.00
18,100.00	90.00	179.64	11,734.00	-6,650.31	911.26	6,704.79	0.00	0.00	0.00
18,200.00	90.00	179.64	11,734.00	-6,750.31	911.88	6,804.45	0.00	0.00	0.00
18,300.00	90.00	179.64	11,734.00	-6,850.31	912.50	6,904.11	0.00	0.00	0.00
18,400.00	90.00	179.64	11,734.00	-6,950.31	913.12	7,003.77	0.00	0.00	0.00
18,500.00	90.00	179.64	11,734.00	-7,050.31	913.74	7,103.44	0.00	0.00	0.00
18,600.00	90.00	179.64	11,734.00	-7,150.30	914.36	7,203.10	0.00	0.00	0.00
18,700.00	90.00	179.64	11,734.00	-7,250.30	914.98	7,302.76	0.00	0.00	0.00
18,800.00	90.00	179.64	11,734.00	-7,350.30	915.60	7,402.42	0.00	0.00	0.00
18,900.00	90.00	179.64	11,734.00	-7,450.30	916.22	7,502.09	0.00	0.00	0.00
19,000.00	90.00	179.64	11,734.00	-7,550.30	916.84	7,601.75	0.00	0.00	0.00
19,100.00	90.00	179.64	11,734.00	-7,650.29	917.46	7,701.41	0.00	0.00	0.00
19,200.00	90.00	179.64	11,734.00	-7,750.29	918.08	7,801.07	0.00	0.00	0.00
19,300.00	90.00	179.64	11,734.00	-7,850.29	918.70	7,900.74	0.00	0.00	0.00
19,400.00	90.00	179.64	11,734.00	-7,950.29	919.32	8,000.40	0.00	0.00	0.00
19,500.00	90.00	179.64	11,734.00	-8,050.29	919.94	8,100.06	0.00	0.00	0.00
19,600.00	90.00	179.64	11,734.00	-8,150.28	920.56	8,199.72	0.00	0.00	0.00
19,700.00	90.00	179.64	11,734.00	-8,250.28	921.18	8,299.39	0.00	0.00	0.00
19,800.00	90.00	179.64	11,734.00	-8,350.28	921.80	8,399.05	0.00	0.00	0.00
19,900.00	90.00	179.64	11,734.00	-8,450.28	922.42	8,498.71	0.00	0.00	0.00
20,000.00	90.00	179.64	11,734.00	-8,550.28	923.04	8,598.38	0.00	0.00	0.00
20,100.00	90.00	179.64	11,734.00	-8,650.28	923.66	8,698.04	0.00	0.00	0.00
20,200.00	90.00	179.64	11,734.00	-8,750.27	924.28	8,797.70	0.00	0.00	0.00
20,300.00	90.00	179.64	11,734.00	-8,850.27	924.90	8,897.36	0.00	0.00	0.00
20,400.00	90.00	179.64	11,734.00	-8,950.27	925.52	8,997.03	0.00	0.00	0.00
20,500.00	90.00	179.64	11,734.00	-9,050.27	926.14	9,096.69	0.00	0.00	0.00
20,600.00	90.00	179.64	11,734.00	-9,150.27	926.76	9,196.35	0.00	0.00	0.00
20,700.00	90.00	179.64	11,734.00	-9,250.26	927.38	9,296.01	0.00	0.00	0.00
20,800.00	90.00	179.64	11,734.00	-9,350.26	928.00	9,395.68	0.00	0.00	0.00
20,900.00	90.00	179.64	11,734.00	-9,450.26	928.62	9,495.34	0.00	0.00	0.00
21,000.00	90.00	179.64	11,734.00	-9,550.26	929.24	9,595.00	0.00	0.00	0.00
21,100.00	90.00	179.64	11,734.00	-9,650.26	929.87	9,694.66	0.00	0.00	0.00

Planning Report

Database:	STRYKER_EDM	Local Co-ordinate Reference:	Well PLU 15 TWIN WELLS RANCH 108H
Company:	XTO Energy	TVD Reference:	3559+32 @ 3591.00usft (Patt793)
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3559+32 @ 3591.00usft (Patt793)
Site:	PLU 15 TWIN WELLS RANCH	North Reference:	Grid
Well:	PLU 15 TWIN WELLS RANCH 108H	Survey Calculation Method:	Minimum Curvature
Wellbore:	15-108H Lateral		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
21,200.00	90.00	179.64	11,734.00	-9,750.25	930.49	9,794.33	0.00	0.00	0.00
21,300.00	90.00	179.64	11,734.00	-9,850.25	931.11	9,893.99	0.00	0.00	0.00
21,400.00	90.00	179.64	11,734.00	-9,950.25	931.73	9,993.65	0.00	0.00	0.00
21,500.00	90.00	179.64	11,734.00	-10,050.25	932.35	10,093.32	0.00	0.00	0.00
21,600.00	90.00	179.64	11,734.00	-10,150.25	932.97	10,192.98	0.00	0.00	0.00
21,700.00	90.00	179.64	11,734.00	-10,250.24	933.59	10,292.64	0.00	0.00	0.00
21,800.00	90.00	179.64	11,734.00	-10,350.24	934.21	10,392.30	0.00	0.00	0.00
21,900.00	90.00	179.64	11,734.00	-10,450.24	934.83	10,491.97	0.00	0.00	0.00
22,008.56	90.00	179.64	11,734.00	-10,558.80	935.50	10,600.16	0.00	0.00	0.00

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
PLU 15 TWR 108H SHI	0.00	0.00	0.00	0.00	0.00	440,914.40	677,155.70	32.21089318	-103.76054279
- plan hits target center									
- Point									
PLU 15 TWR 108H LTP	0.00	0.00	11,734.00	-10,558.80	935.50	430,355.60	678,091.20	32.18185469	-103.75770095
- plan hits target center									
- Point									
PLU 15 TWR 108H FTF	0.00	0.00	11,734.00	-654.70	874.10	440,259.70	678,029.80	32.20908067	-103.75772805
- plan misses target center by 0.03usft at 12104.27usft MD (11734.00 TVD, -654.70 N, 874.07 E)									
- Point									
PLU 15 TWR 108H PBH	0.00	0.01	11,734.00	-10,688.70	936.30	430,225.70	678,092.00	32.18149760	-103.75770061
- plan misses target center by 129.90usft at 22008.56usft MD (11734.00 TVD, -10558.80 N, 935.50 E)									
- Rectangle (sides W100.00 H10,034.19 D0.00)									
PLU 15 TWR 108H LP	0.00	0.00	11,734.00	-654.72	874.06	440,259.68	678,029.76	32.20908061	-103.75772818
- plan misses target center by 0.01usft at 12104.29usft MD (11734.00 TVD, -654.72 N, 874.07 E)									
- Point									

Planning Report

Database: STRYKER_EDM
Company: XTO Energy
Project: Eddy County, NM (NAD27) NMEZ Grid
Site: PLU 15 TWIN WELLS RANCH
Well: PLU 15 TWIN WELLS RANCH 108H
Wellbore: 15-108H Lateral
Design: Plan #1

Local Co-ordinate Reference: Well PLU 15 TWIN WELLS RANCH 108H
TVD Reference: 3559+32 @ 3591.00usft (Patt793)
MD Reference: 3559+32 @ 3591.00usft (Patt793)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
729.00	729.00	Rustler			
1,087.00	1,087.00	Top Salt*			
4,279.22	4,273.00	Base of Salt (Anhydrite)			
4,503.35	4,496.00	Bell Canyon Ss./ Delaware			
5,419.94	5,408.00	Cherry Canyon Ss.			
7,052.13	7,032.00	Brushy Canyon Ss.			
8,375.76	8,349.00	Bone Spring Lm.			
8,457.17	8,430.00	Avalon Ss.			
8,478.28	8,451.00	Bone Spg. Upper Avalon Shale			
8,915.47	8,886.00	Bone Spg. Lower Avalon Shale			
9,257.18	9,226.00	1st Bone Spring Lime.			
9,449.14	9,417.00	1st Bone Spring Ss.			
9,840.10	9,806.00	2nd Bone Spring Carb.			
10,038.10	10,003.00	2nd Bone Spring Ss.			
10,549.66	10,512.00	3rd Bone Spring Carb.			
11,291.71	11,250.00	3rd Bone Spring Ss.			
11,539.16	11,478.00	War Wink Ss.			
11,710.14	11,604.00	Red Hills Ss.			
11,873.08	11,688.00	Wolfcamp Sh			
11,931.12	11,708.00	Wolfcamp X Sd			
12,102.57	11,734.00	LP			

Anticollision Report

Company:	XTO Energy	Local Co-ordinate Reference:	Well PLU 15 TWIN WELLS RANCH 108H
Project:	Eddy County, NM (NAD27) NMEZ Grid	TVD Reference:	3559+32 @ 3591.00usft (Patt793)
Reference Site:	PLU 15 TWIN WELLS RANCH	MD Reference:	3559+32 @ 3591.00usft (Patt793)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	PLU 15 TWIN WELLS RANCH 108H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	15-108H Lateral	Database:	STRYKER_EDM
Reference Design:	Plan #1	Offset TVD Reference:	Reference Datum

Reference	Plan #1
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method:	MD Interval 50.00usft
Depth Range:	Unlimited
Results Limited by:	Maximum separation factor of 4.00
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	ISCWSA
Scan Method:	Closest Approach 3D
Error Surface:	Ellipsoid Separation
Casing Method:	Not applied

Survey Tool Program	Date	02/20/19
From (usft)	To (usft)	Survey (Wellbore)
0.00	22,007.99	Plan #1 (15-108H Lateral)
Tool Name	Description	
MWD	OWSG MWD - Standard	

Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
PLU 15 TWIN WELLS RANCH						
PLU 15 TWIN WELLS RANCH 127H - 15-127H Lateral	3,000.00	3,000.00	60.00	38.96	2.852	CC, ES, SF
PLU 15 TWIN WELLS RANCH 128H - 15-128H Lateral	3,000.00	3,000.00	30.00	8.96	1.426	Level 3, CC, ES
PLU 15 TWIN WELLS RANCH 128H - 15-128H Lateral	11,300.00	11,310.89	109.50	29.42	1.367	Level 3; SF
PLU 15 TWIN WELLS RANCH 102H - PLU15 TWR 102H						Out of range
PLU 15 TWIN WELLS RANCH 901H - PLU15 TWR 901						Out of range

Offset Design													PLU 15 TWIN WELLS RANCH - PLU 15 TWIN WELLS RANCH 127H - 15-127H Lateral - Plan#3		Offset Site Error: 0.00 usft	
Survey Program: 0-MWD													Offset Well Error: 0.00 usft			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Semi Major Axis Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning			
2,200.00	2,200.00	2,200.00	2,200.00	7.65	7.65	-90.00	0.00	-60.00	60.00	44.70	15.30	3.922				
2,250.00	2,250.00	2,250.00	2,250.00	7.83	7.83	-90.00	0.00	-60.00	60.00	44.34	15.66	3.832				
2,300.00	2,300.00	2,300.00	2,300.00	8.01	8.01	-90.00	0.00	-60.00	60.00	43.98	16.02	3.746				
2,350.00	2,350.00	2,350.00	2,350.00	8.19	8.19	-90.00	0.00	-60.00	60.00	43.63	16.37	3.664				
2,400.00	2,400.00	2,400.00	2,400.00	8.37	8.37	-90.00	0.00	-60.00	60.00	43.27	16.73	3.586				
2,450.00	2,450.00	2,450.00	2,450.00	8.55	8.55	-90.00	0.00	-60.00	60.00	42.91	17.09	3.510				
2,500.00	2,500.00	2,500.00	2,500.00	8.73	8.73	-90.00	0.00	-60.00	60.00	42.55	17.45	3.438				
2,550.00	2,550.00	2,550.00	2,550.00	8.90	8.90	-90.00	0.00	-60.00	60.00	42.19	17.81	3.369				
2,600.00	2,600.00	2,600.00	2,600.00	9.08	9.08	-90.00	0.00	-60.00	60.00	41.83	18.17	3.303				
2,650.00	2,650.00	2,650.00	2,650.00	9.26	9.26	-90.00	0.00	-60.00	60.00	41.47	18.53	3.239				
2,700.00	2,700.00	2,700.00	2,700.00	9.44	9.44	-90.00	0.00	-60.00	60.00	41.12	18.88	3.177				
2,750.00	2,750.00	2,750.00	2,750.00	9.62	9.62	-90.00	0.00	-60.00	60.00	40.76	19.24	3.118				
2,800.00	2,800.00	2,800.00	2,800.00	9.80	9.80	-90.00	0.00	-60.00	60.00	40.40	19.60	3.061				
2,850.00	2,850.00	2,850.00	2,850.00	9.98	9.98	-90.00	0.00	-60.00	60.00	40.04	19.96	3.006				
2,900.00	2,900.00	2,900.00	2,900.00	10.16	10.16	-90.00	0.00	-60.00	60.00	39.68	20.32	2.953				
2,950.00	2,950.00	2,950.00	2,950.00	10.34	10.34	-90.00	0.00	-60.00	60.00	39.32	20.68	2.902				
3,000.00	3,000.00	3,000.00	3,000.00	10.52	10.52	-90.00	0.00	-60.00	60.00	38.96	21.04	2.852	CC, ES, SF			
3,050.00	3,049.94	3,049.94	3,049.94	10.69	10.70	174.38	0.00	-60.00	62.17	40.78	21.39	2.907				
3,100.00	3,099.69	3,099.69	3,099.69	10.86	10.87	174.79	0.00	-60.00	67.10	45.36	21.74	3.087				
3,150.00	3,149.44	3,149.44	3,149.44	11.03	11.05	175.15	0.00	-60.00	72.08	50.00	22.08	3.264				
3,200.00	3,199.19	3,199.19	3,199.19	11.21	11.23	175.46	0.00	-60.00	77.07	54.64	22.43	3.436				
3,250.00	3,248.94	3,248.94	3,248.94	11.38	11.41	175.74	0.00	-60.00	82.05	59.27	22.78	3.602				

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company: XTO Energy
Project: Eddy County, NM (NAD27) NMEZ Grid
Reference Site: PLU 15 TWIN WELLS RANCH
Site Error: 0.00 usft
Reference Well: PLU 15 TWIN WELLS RANCH 108H
Well Error: 0.00 usft
Reference Wellbore: 15-108H Lateral
Reference Design: Plan #1

Local Co-ordinate Reference: Well PLU 15 TWIN WELLS RANCH 108H
TVD Reference: 3559+32 @ 3591.00usft (Pati793)
MD Reference: 3559+32 @ 3591.00usft (Pati793)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: STRYKER_EDM
Offset TVD Reference: Reference Datum

Offset Design PLU 15 TWIN WELLS RANCH - PLU 15 TWIN WELLS RANCH 127H - 15-127H Lateral - Plan#3													Offset Site Error:	0.00 usft
Survey Program: 0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance				Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
3,300.00	3,298.69	3,298.69	3,298.69	11.55	11.59	175.99	0.00	-60.00	87.04	63.91	23.13	3.764		
3,350.00	3,348.44	3,348.44	3,348.44	11.73	11.77	176.20	0.00	-60.00	92.03	68.56	23.47	3.920		

Anticollision Report

Company: XTO Energy
 Project: Eddy County, NM (NAD27) NMEZ Grid
 Reference Site: PLU 15 TWIN WELLS RANCH
 Site Error: 0.00 usft
 Reference Well: PLU 15 TWIN WELLS RANCH 108H
 Well Error: 0.00 usft
 Reference Wellbore: 15-108H Lateral
 Reference Design: Plan #1

Local Co-ordinate Reference: Well PLU 15 TWIN WELLS RANCH 108H
 TVD Reference: 3559+32 @ 3591.00usft (Patt793)
 MD Reference: 3559+32 @ 3591.00usft (Patt793)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 2.00 sigma
 Database: STRYKER_EDM
 Offset TVD Reference: Reference Datum

Offset Design PLU 15 TWIN WELLS RANCH - PLU 15 TWIN WELLS RANCH 128H - 15-128H Lateral - Plan #1														Offset Site Error: 0.00 usft
Survey Program: 0-MWD														Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
1,150.00	1,150.00	1,150.00	1,150.00	3.89	3.89	-90.00	0.00	-30.00	30.00	22.23	7.77	3.860		
1,200.00	1,200.00	1,200.00	1,200.00	4.07	4.07	-90.00	0.00	-30.00	30.00	21.87	8.13	3.690		
1,250.00	1,250.00	1,250.00	1,250.00	4.24	4.24	-90.00	0.00	-30.00	30.00	21.51	8.49	3.534		
1,300.00	1,300.00	1,300.00	1,300.00	4.42	4.42	-90.00	0.00	-30.00	30.00	21.15	8.85	3.391		
1,350.00	1,350.00	1,350.00	1,350.00	4.60	4.60	-90.00	0.00	-30.00	30.00	20.79	9.21	3.259		
1,400.00	1,400.00	1,400.00	1,400.00	4.78	4.78	-90.00	0.00	-30.00	30.00	20.44	9.56	3.137		
1,450.00	1,450.00	1,450.00	1,450.00	4.96	4.96	-90.00	0.00	-30.00	30.00	20.08	9.92	3.023		
1,500.00	1,500.00	1,500.00	1,500.00	5.14	5.14	-90.00	0.00	-30.00	30.00	19.72	10.28	2.918		
1,550.00	1,550.00	1,550.00	1,550.00	5.32	5.32	-90.00	0.00	-30.00	30.00	19.36	10.64	2.820		
1,600.00	1,600.00	1,600.00	1,600.00	5.50	5.50	-90.00	0.00	-30.00	30.00	19.00	11.00	2.728		
1,650.00	1,650.00	1,650.00	1,650.00	5.68	5.68	-90.00	0.00	-30.00	30.00	18.64	11.36	2.642		
1,700.00	1,700.00	1,700.00	1,700.00	5.86	5.86	-90.00	0.00	-30.00	30.00	18.29	11.71	2.561		
1,750.00	1,750.00	1,750.00	1,750.00	6.04	6.04	-90.00	0.00	-30.00	30.00	17.93	12.07	2.485		
1,800.00	1,800.00	1,800.00	1,800.00	6.22	6.22	-90.00	0.00	-30.00	30.00	17.57	12.43	2.413		
1,850.00	1,850.00	1,850.00	1,850.00	6.40	6.40	-90.00	0.00	-30.00	30.00	17.21	12.79	2.346		
1,900.00	1,900.00	1,900.00	1,900.00	6.57	6.57	-90.00	0.00	-30.00	30.00	16.85	13.15	2.282		
1,950.00	1,950.00	1,950.00	1,950.00	6.75	6.75	-90.00	0.00	-30.00	30.00	16.49	13.51	2.221		
2,000.00	2,000.00	2,000.00	2,000.00	6.93	6.93	-90.00	0.00	-30.00	30.00	16.13	13.87	2.164		
2,050.00	2,050.00	2,050.00	2,050.00	7.11	7.11	-90.00	0.00	-30.00	30.00	15.78	14.22	2.109		
2,100.00	2,100.00	2,100.00	2,100.00	7.29	7.29	-90.00	0.00	-30.00	30.00	15.42	14.58	2.057		
2,150.00	2,150.00	2,150.00	2,150.00	7.47	7.47	-90.00	0.00	-30.00	30.00	15.06	14.94	2.008		
2,200.00	2,200.00	2,200.00	2,200.00	7.65	7.65	-90.00	0.00	-30.00	30.00	14.70	15.30	1.961		
2,250.00	2,250.00	2,250.00	2,250.00	7.83	7.83	-90.00	0.00	-30.00	30.00	14.34	15.66	1.916		
2,300.00	2,300.00	2,300.00	2,300.00	8.01	8.01	-90.00	0.00	-30.00	30.00	13.98	16.02	1.873		
2,350.00	2,350.00	2,350.00	2,350.00	8.19	8.19	-90.00	0.00	-30.00	30.00	13.63	16.37	1.832		
2,400.00	2,400.00	2,400.00	2,400.00	8.37	8.37	-90.00	0.00	-30.00	30.00	13.27	16.73	1.793		
2,450.00	2,450.00	2,450.00	2,450.00	8.55	8.55	-90.00	0.00	-30.00	30.00	12.91	17.09	1.755		
2,500.00	2,500.00	2,500.00	2,500.00	8.73	8.73	-90.00	0.00	-30.00	30.00	12.55	17.45	1.719		
2,550.00	2,550.00	2,550.00	2,550.00	8.90	8.90	-90.00	0.00	-30.00	30.00	12.19	17.81	1.685		
2,600.00	2,600.00	2,600.00	2,600.00	9.08	9.08	-90.00	0.00	-30.00	30.00	11.83	18.17	1.651		
2,650.00	2,650.00	2,650.00	2,650.00	9.26	9.26	-90.00	0.00	-30.00	30.00	11.47	18.53	1.619		
2,700.00	2,700.00	2,700.00	2,700.00	9.44	9.44	-90.00	0.00	-30.00	30.00	11.12	18.88	1.589		
2,750.00	2,750.00	2,750.00	2,750.00	9.62	9.62	-90.00	0.00	-30.00	30.00	10.76	19.24	1.559		
2,800.00	2,800.00	2,800.00	2,800.00	9.80	9.80	-90.00	0.00	-30.00	30.00	10.40	19.60	1.531		
2,850.00	2,850.00	2,850.00	2,850.00	9.98	9.98	-90.00	0.00	-30.00	30.00	10.04	19.96	1.503		
2,900.00	2,900.00	2,900.00	2,900.00	10.15	10.16	-90.00	0.00	-30.00	30.00	9.68	20.32	1.477 Level 3		
2,950.00	2,950.00	2,950.00	2,950.00	10.34	10.34	-90.00	0.00	-30.00	30.00	9.32	20.68	1.451 Level 3		
3,000.00	3,000.00	3,000.00	3,000.00	10.52	10.52	-90.00	0.00	-30.00	30.00	8.96	21.04	1.426 Level 3, CC, ES		
3,050.00	3,049.94	3,049.94	3,049.94	10.69	10.70	174.57	0.00	-30.00	32.17	10.78	21.39	1.504		
3,100.00	3,099.69	3,099.69	3,099.69	10.86	10.87	175.29	0.00	-30.00	37.10	15.37	21.74	1.707		
3,150.00	3,149.44	3,149.44	3,149.44	11.03	11.05	175.85	0.00	-30.00	42.09	20.01	22.08	1.906		
3,200.00	3,199.19	3,199.19	3,199.19	11.21	11.23	176.29	0.00	-30.00	47.08	24.65	22.43	2.099		
3,250.00	3,248.94	3,248.94	3,248.94	11.38	11.41	176.65	0.00	-30.00	52.07	29.29	22.78	2.286		
3,300.00	3,298.69	3,298.69	3,298.69	11.55	11.59	176.94	0.00	-30.00	57.06	33.94	23.13	2.468		
3,350.00	3,348.44	3,348.44	3,348.44	11.73	11.77	177.19	0.00	-30.00	62.06	38.58	23.47	2.644		
3,400.00	3,398.19	3,398.19	3,398.19	11.90	11.94	177.40	0.00	-30.00	67.05	43.23	23.82	2.815		
3,450.00	3,447.94	3,447.94	3,447.94	12.08	12.12	177.58	0.00	-30.00	72.05	47.88	24.17	2.981		
3,500.00	3,497.68	3,497.68	3,497.68	12.26	12.30	177.73	0.00	-30.00	77.05	52.52	24.52	3.142		
3,550.00	3,547.43	3,547.43	3,547.43	12.43	12.48	177.87	0.00	-30.00	82.04	57.17	24.87	3.299		
3,600.00	3,597.18	3,597.18	3,597.18	12.61	12.66	177.99	0.00	-30.00	87.04	61.82	25.22	3.451		
3,650.00	3,646.93	3,646.93	3,646.93	12.79	12.84	178.10	0.00	-30.00	92.04	66.47	25.57	3.599		
3,700.00	3,696.68	3,696.68	3,696.68	12.97	13.01	178.20	0.00	-30.00	97.04	71.12	25.92	3.744		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company: XTO Energy
 Project: Eddy County, NM (NAD27) NMEZ Grid
 Reference Site: PLU 15 TWIN WELLS RANCH
 Site Error: 0.00 usft
 Reference Well: PLU 15 TWIN WELLS RANCH 108H
 Well Error: 0.00 usft
 Reference Wellbore: 15-108H Lateral
 Reference Design: Plan #1

Local Co-ordinate Reference: Well PLU 15 TWIN WELLS RANCH 108H
 TVD Reference: 3559+32 @ 3591.00usft (Patt793)
 MD Reference: 3559+32 @ 3591.00usft (Patt793)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 2.00 sigma
 Database: STRYKER_EDM
 Offset TVD Reference: Reference Datum

Offset Design PLU 15 TWIN WELLS RANCH - PLU 15 TWIN WELLS RANCH 128H - 15-128H Lateral - Plan #1													Offset Site Error: 0.00 usft
Survey Program: 0-MWD													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
3,750.00	3,746.43	3,746.43	3,746.43	13.15	13.19	178.29	0.00	-30.00	102.03	75.75	26.27	3.884	
5,700.00	5,686.65	5,711.46	5,703.91	20.38	20.17	178.90	-14.09	108.71	158.56	118.71	39.85	3.979	
5,750.00	5,736.40	5,761.46	5,753.61	20.57	20.35	178.90	-14.64	114.13	158.12	117.92	40.20	3.933	
5,800.00	5,786.15	5,811.46	5,803.31	20.76	20.54	178.90	-15.19	119.54	157.67	117.12	40.56	3.888	
5,850.00	5,835.90	5,861.46	5,853.02	20.95	20.72	178.90	-15.74	124.96	157.23	116.32	40.91	3.843	
5,900.00	5,885.65	5,911.46	5,902.72	21.14	20.90	178.89	-16.29	130.37	156.78	115.52	41.26	3.800	
5,950.00	5,935.40	5,961.45	5,952.42	21.33	21.09	178.89	-16.84	135.79	156.34	114.72	41.62	3.757	
6,000.00	5,985.15	6,011.45	6,002.12	21.52	21.27	178.89	-17.39	141.20	155.89	113.92	41.97	3.714	
6,050.00	6,034.90	6,061.45	6,051.82	21.71	21.45	178.88	-17.94	146.62	155.45	113.12	42.32	3.673	
6,100.00	6,084.65	6,111.45	6,101.52	21.90	21.64	178.88	-18.49	152.03	155.00	112.33	42.68	3.632	
6,150.00	6,134.40	6,161.45	6,151.22	22.09	21.82	178.88	-19.04	157.45	154.56	111.53	43.03	3.592	
6,200.00	6,184.15	6,211.44	6,200.92	22.28	22.01	178.87	-19.59	162.86	154.11	110.73	43.39	3.552	
6,250.00	6,233.90	6,261.44	6,250.62	22.47	22.19	178.87	-20.14	168.28	153.67	109.93	43.74	3.513	
6,300.00	6,283.65	6,311.44	6,300.32	22.66	22.38	178.87	-20.69	173.69	153.22	109.13	44.10	3.475	
6,350.00	6,333.40	6,361.44	6,350.02	22.85	22.56	178.86	-21.24	179.11	152.78	108.33	44.45	3.437	
6,400.00	6,383.14	6,411.44	6,399.73	23.04	22.75	178.86	-21.79	184.53	152.33	107.53	44.81	3.400	
6,450.00	6,432.89	6,461.43	6,449.43	23.23	22.94	178.86	-22.34	189.94	151.89	106.72	45.16	3.363	
6,500.00	6,482.64	6,511.43	6,499.13	23.42	23.12	178.85	-22.89	195.36	151.44	105.92	45.52	3.327	
6,550.00	6,532.39	6,561.43	6,548.83	23.62	23.31	178.85	-23.44	200.77	151.00	105.12	45.88	3.291	
6,600.00	6,582.14	6,611.43	6,598.53	23.81	23.49	178.85	-23.99	206.19	150.55	104.32	46.23	3.257	
6,650.00	6,631.89	6,661.43	6,648.23	24.00	23.68	178.84	-24.54	211.60	150.11	103.52	46.59	3.222	
6,700.00	6,681.64	6,711.42	6,697.93	24.19	23.87	178.84	-25.09	217.02	149.66	102.72	46.94	3.188	
6,750.00	6,731.39	6,761.42	6,747.63	24.38	24.06	178.84	-25.64	222.43	149.22	101.92	47.30	3.155	
6,800.00	6,781.14	6,811.42	6,797.33	24.57	24.24	178.83	-26.19	227.85	148.77	101.12	47.66	3.122	
6,850.00	6,830.89	6,861.42	6,847.03	24.75	24.43	178.83	-26.74	233.26	148.33	100.31	48.01	3.089	
6,900.00	6,880.64	6,911.42	6,896.73	24.95	24.62	178.83	-27.29	238.68	147.88	99.51	48.37	3.057	
6,950.00	6,930.39	6,961.41	6,946.43	25.15	24.81	178.82	-27.84	244.09	147.44	98.71	48.73	3.026	
7,000.00	6,980.14	7,011.41	6,996.14	25.34	24.99	178.82	-28.39	249.51	146.99	97.91	49.09	2.995	
7,050.00	7,029.89	7,061.41	7,045.84	25.53	25.18	178.81	-28.94	254.92	146.55	97.11	49.44	2.964	
7,100.00	7,079.63	7,111.41	7,095.54	25.72	25.37	178.81	-29.49	260.34	146.10	96.30	49.80	2.934	
7,150.00	7,129.38	7,161.41	7,145.24	25.91	25.56	178.81	-30.04	265.75	145.66	95.50	50.16	2.904	
7,200.00	7,179.13	7,211.40	7,194.94	26.11	25.75	178.80	-30.59	271.17	145.21	94.70	50.52	2.875	
7,250.00	7,228.88	7,261.40	7,244.64	26.30	25.94	178.80	-31.14	276.58	144.77	93.90	50.87	2.846	
7,300.00	7,278.63	7,311.40	7,294.34	26.49	26.13	178.80	-31.69	282.00	144.32	93.09	51.23	2.817	
7,350.00	7,328.38	7,361.40	7,344.04	26.68	26.32	178.79	-32.24	287.42	143.88	92.29	51.59	2.789	
7,400.00	7,378.13	7,411.40	7,393.74	26.88	26.51	178.79	-32.79	292.83	143.43	91.49	51.95	2.761	
7,450.00	7,427.88	7,461.39	7,443.44	27.07	26.69	178.79	-33.34	298.25	142.99	90.68	52.31	2.734	
7,500.00	7,477.63	7,511.39	7,493.14	27.26	26.88	178.78	-33.89	303.66	142.54	89.88	52.66	2.707	
7,550.00	7,527.38	7,561.39	7,542.84	27.45	27.07	178.78	-34.44	309.08	142.10	89.08	53.02	2.680	
7,600.00	7,577.13	7,611.39	7,592.55	27.64	27.26	178.77	-34.99	314.49	141.65	88.27	53.38	2.654	
7,650.00	7,626.88	7,661.39	7,642.25	27.84	27.45	178.77	-35.54	319.91	141.21	87.47	53.74	2.628	
7,700.00	7,676.63	7,711.38	7,691.95	28.03	27.64	178.77	-36.09	325.32	140.76	86.67	54.10	2.602	
7,750.00	7,726.38	7,761.38	7,741.65	28.22	27.83	178.76	-36.64	330.74	140.32	85.86	54.46	2.577	
7,800.00	7,776.12	7,811.38	7,791.35	28.42	28.03	178.76	-37.19	336.15	139.88	85.06	54.82	2.552	
7,850.00	7,825.87	7,861.38	7,841.05	28.61	28.22	178.75	-37.74	341.57	139.43	84.25	55.18	2.527	
7,900.00	7,875.62	7,911.38	7,890.75	28.80	28.41	178.75	-38.29	346.98	138.99	83.45	55.54	2.503	
7,950.00	7,925.37	7,961.37	7,940.45	28.99	28.60	178.75	-38.84	352.40	138.54	82.65	55.89	2.479	
8,000.00	7,975.12	8,011.37	7,990.15	29.19	28.79	178.74	-39.39	357.81	138.10	81.84	56.25	2.455	
8,050.00	8,024.87	8,061.37	8,039.85	29.38	28.98	178.74	-39.94	363.23	137.65	81.04	56.61	2.431	
8,100.00	8,074.62	8,111.37	8,089.55	29.57	29.17	178.73	-40.49	368.64	137.21	80.23	56.97	2.408	
8,150.00	8,124.37	8,161.37	8,139.25	29.77	29.36	178.73	-41.04	374.06	136.76	79.43	57.33	2.385	
8,200.00	8,174.12	8,211.36	8,188.96	29.96	29.55	178.73	-41.59	379.47	136.32	78.62	57.69	2.363	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company: XTO Energy
 Project: Eddy County, NM (NAD27) NMEZ Grid
 Reference Site: PLU 15 TWIN WELLS RANCH
 Site Error: 0.00 usft
 Reference Well: PLU 15 TWIN WELLS RANCH 108H
 Well Error: 0.00 usft
 Reference Wellbore: 15-108H Lateral
 Reference Design: Plan #1

Local Co-ordinate Reference: Well PLU 15 TWIN WELLS RANCH 108H
 TVD Reference: 3559+32 @ 3591.00usft (Patt793)
 MD Reference: 3559+32 @ 3591.00usft (Patt793)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 2.00 sigma
 Database: STRYKER_EDM
 Offset TVD Reference: Reference Datum

Offset Design PLU 15 TWIN WELLS RANCH - PLU 15 TWIN WELLS RANCH 128H - 15-128H Lateral - Plan #1													Offset Site Error: 0.00 usft
Survey Program: 0-MWD													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
8,250.00	8,223.87	8,261.36	8,238.66	30.15	29.74	178.72	-42.14	384.89	135.87	77.82	58.05	2.341	
8,300.00	8,273.62	8,311.36	8,288.36	30.34	29.94	178.72	-42.69	390.31	135.43	77.01	58.41	2.318	
8,350.00	8,323.37	8,361.36	8,338.06	30.54	30.13	178.71	-43.24	395.72	134.98	76.21	58.77	2.297	
8,400.00	8,373.12	8,411.36	8,387.76	30.73	30.32	178.71	-43.79	401.14	134.54	75.40	59.13	2.275	
8,450.00	8,422.87	8,461.35	8,437.46	30.92	30.51	178.70	-44.34	406.55	134.09	74.60	59.49	2.254	
8,500.00	8,472.61	8,511.35	8,487.16	31.12	30.70	178.70	-44.89	411.97	133.65	73.79	59.85	2.233	
8,550.00	8,522.36	8,561.35	8,536.66	31.31	30.90	178.70	-45.44	417.38	133.20	72.99	60.21	2.212	
8,600.00	8,572.11	8,611.35	8,586.56	31.50	31.09	178.69	-45.99	422.80	132.76	72.18	60.57	2.192	
8,650.00	8,621.86	8,661.35	8,636.26	31.70	31.28	178.69	-46.54	428.21	132.31	71.38	60.93	2.171	
8,700.00	8,671.61	8,711.34	8,685.56	31.89	31.47	178.68	-47.09	433.63	131.87	70.57	61.29	2.151	
8,750.00	8,721.36	8,761.34	8,735.67	32.08	31.66	178.68	-47.64	439.04	131.42	69.77	61.65	2.132	
8,800.00	8,771.11	8,811.34	8,785.37	32.28	31.86	178.67	-48.19	444.46	130.98	68.96	62.01	2.112	
8,850.00	8,820.86	8,861.34	8,835.07	32.47	32.05	178.67	-48.74	449.87	130.53	68.16	62.37	2.093	
8,900.00	8,870.61	8,911.34	8,884.77	32.66	32.24	178.66	-49.29	455.29	130.09	67.35	62.73	2.074	
8,950.00	8,920.36	8,961.33	8,934.47	32.86	32.43	178.66	-49.84	460.70	129.64	66.55	63.10	2.055	
9,000.00	8,970.11	9,011.33	8,984.17	33.05	32.63	178.66	-50.39	466.12	129.20	65.74	63.46	2.036	
9,050.00	9,019.86	9,061.33	9,033.87	33.25	32.82	178.65	-50.94	471.53	128.75	64.93	63.82	2.018	
9,100.00	9,069.61	9,111.33	9,083.57	33.44	33.01	178.65	-51.49	476.95	128.31	64.13	64.18	1.999	
9,150.00	9,119.36	9,161.33	9,133.27	33.63	33.21	178.64	-52.04	482.36	127.86	63.32	64.54	1.981	
9,200.00	9,169.11	9,211.32	9,182.97	33.83	33.40	178.64	-52.59	487.78	127.42	62.52	64.90	1.963	
9,250.00	9,218.85	9,261.32	9,232.67	34.02	33.59	178.63	-53.14	493.20	126.97	61.71	65.26	1.946	
9,300.00	9,268.60	9,311.32	9,282.37	34.21	33.79	178.63	-53.69	498.61	126.53	60.91	65.62	1.928	
9,350.00	9,318.35	9,361.32	9,332.08	34.41	33.98	178.62	-54.24	504.03	126.08	60.10	65.98	1.911	
9,400.00	9,368.10	9,411.32	9,381.78	34.60	34.17	178.62	-54.79	509.44	125.64	59.29	66.34	1.894	
9,450.00	9,417.85	9,461.31	9,431.48	34.80	34.37	178.61	-55.34	514.86	125.19	58.49	66.70	1.877	
9,500.00	9,467.60	9,511.31	9,481.18	34.99	34.56	178.61	-55.89	520.27	124.75	57.68	67.07	1.860	
9,550.00	9,517.35	9,561.31	9,530.88	35.18	34.75	178.60	-56.44	525.69	124.30	56.87	67.43	1.844	
9,600.00	9,567.10	9,611.31	9,580.58	35.38	34.95	178.60	-56.99	531.10	123.86	56.07	67.79	1.827	
9,650.00	9,616.85	9,661.31	9,630.28	35.57	35.14	178.59	-57.54	536.52	123.41	55.26	68.15	1.811	
9,700.00	9,666.60	9,711.30	9,679.98	35.77	35.33	178.59	-58.09	541.93	122.97	54.46	68.51	1.795	
9,750.00	9,716.35	9,761.30	9,729.68	35.96	35.53	178.58	-58.64	547.35	122.52	53.65	68.87	1.779	
9,800.00	9,766.10	9,811.30	9,779.38	36.15	35.72	178.58	-59.19	552.76	122.08	52.84	69.23	1.763	
9,850.00	9,815.85	9,861.30	9,829.08	36.35	35.92	178.57	-59.74	558.18	121.63	52.04	69.60	1.748	
9,900.00	9,865.60	9,911.30	9,878.78	36.54	36.11	178.57	-60.30	563.59	121.19	51.23	69.96	1.732	
9,950.00	9,915.34	9,961.29	9,928.49	36.74	36.30	178.56	-60.85	569.01	120.74	50.42	70.32	1.717	
10,000.00	9,965.09	10,011.29	9,978.19	36.93	36.50	178.56	-61.40	574.42	120.30	49.62	70.68	1.702	
10,050.00	10,014.84	10,061.29	10,027.89	37.12	36.69	178.55	-61.95	579.84	119.85	48.81	71.04	1.687	
10,100.00	10,064.59	10,111.29	10,077.59	37.32	36.89	178.55	-62.50	585.25	119.41	48.00	71.40	1.672	
10,150.00	10,114.34	10,161.29	10,127.29	37.51	37.08	178.54	-63.05	590.67	118.96	47.20	71.77	1.658	
10,200.00	10,164.09	10,211.29	10,176.99	37.71	37.27	178.53	-63.60	596.09	118.52	46.39	72.13	1.643	
10,250.00	10,213.84	10,261.28	10,226.69	37.90	37.47	178.53	-64.15	601.50	118.07	45.58	72.49	1.629	
10,300.00	10,263.59	10,311.28	10,276.39	38.10	37.66	178.52	-64.70	606.92	117.63	44.78	72.85	1.615	
10,350.00	10,313.34	10,361.28	10,326.09	38.29	37.86	178.52	-65.25	612.33	117.18	43.97	73.21	1.601	
10,400.00	10,363.09	10,411.28	10,375.79	38.48	38.05	178.51	-65.80	617.75	116.74	43.16	73.58	1.587	
10,450.00	10,412.84	10,461.28	10,425.49	38.68	38.25	178.51	-66.35	623.16	116.29	42.36	73.94	1.573	
10,500.00	10,462.59	10,511.27	10,475.19	38.87	38.44	178.50	-66.90	628.58	115.85	41.55	74.30	1.559	
10,550.00	10,512.34	10,561.27	10,524.90	39.07	38.64	178.49	-67.45	633.99	115.40	40.74	74.66	1.546	
10,600.00	10,562.09	10,611.27	10,574.60	39.26	38.83	178.49	-68.00	639.41	114.96	39.94	75.02	1.532	
10,650.00	10,611.83	10,661.27	10,624.30	39.46	39.03	178.48	-68.55	644.82	114.51	39.13	75.39	1.519	
10,700.00	10,661.58	10,711.27	10,674.00	39.65	39.22	178.48	-69.10	650.24	114.07	38.32	75.75	1.506	
10,750.00	10,711.33	10,761.26	10,723.70	39.84	39.42	178.47	-69.65	655.65	113.62	37.51	76.11	1.493 Level 3	
10,800.00	10,761.08	10,811.26	10,773.40	40.04	39.61	178.47	-70.20	661.07	113.18	36.71	76.47	1.480 Level 3	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company: XTO Energy
Project: Eddy County, NM (NAD27) NMEZ Grid
Reference Site: PLU 15 TWIN WELLS RANCH
Site Error: 0.00 usft
Reference Well: PLU 15 TWIN WELLS RANCH 108H
Well Error: 0.00 usft
Reference Wellbore: 15-108H Lateral
Reference Design: Plan #1

Local Co-ordinate Reference: Well PLU 15 TWIN WELLS RANCH 108H
TVD Reference: 3559+32 @ 3591.00usft (Patt793)
MD Reference: 3559+32 @ 3591.00usft (Patt793)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: STRYKER_EDM
Offset TVD Reference: Reference Datum

Offset Design PLU 15 TWIN WELLS RANCH - PLU 15 TWIN WELLS RANCH 128H - 15-128H Lateral - Plan #1													Offset Site Error:	0.00 usft
Survey Program: Q-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	+N/-S (usft)		+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
10,850.00	10,810.83	10,861.26	10,823.10	40.23	39.80	178.46	-70.75	666.48	112.73	35.90	76.84	1.467	Level 3	
10,900.00	10,860.58	10,911.26	10,872.80	40.43	40.00	178.45	-71.30	671.90	112.29	35.09	77.20	1.455	Level 3	
10,950.00	10,910.33	10,961.26	10,922.50	40.62	40.19	178.45	-71.85	677.31	111.84	34.28	77.56	1.442	Level 3	
11,000.00	10,960.08	11,011.25	10,972.20	40.82	40.39	178.44	-72.40	682.73	111.40	33.48	77.92	1.430	Level 3	
11,050.00	11,009.83	11,061.25	11,021.90	41.01	40.58	178.43	-72.95	688.14	110.96	32.67	78.28	1.417	Level 3	
11,100.00	11,059.58	11,111.25	11,071.60	41.21	40.78	178.43	-73.50	693.56	110.51	31.86	78.65	1.405	Level 3	
11,150.00	11,109.33	11,161.25	11,121.31	41.40	40.98	178.42	-74.05	698.98	110.07	31.06	79.01	1.393	Level 3	
11,200.00	11,159.08	11,211.25	11,171.01	41.59	41.17	178.42	-74.60	704.39	109.62	30.25	79.37	1.381	Level 3	
11,250.00	11,208.78	11,261.21	11,220.68	41.79	41.37	147.01	-75.15	709.80	109.29	29.56	79.73	1.371	Level 3	
11,262.03	11,220.70	11,273.20	11,232.60	41.83	41.41	140.82	-75.28	711.10	109.27	29.46	79.81	1.369	Level 3	
11,300.00	11,258.15	11,310.89	11,270.06	41.98	41.56	129.26	-75.69	715.18	109.50	29.42	80.07	1.367	Level 3, SF	
11,350.00	11,306.79	11,359.90	11,318.77	42.17	41.75	124.68	-76.23	720.49	110.89	30.45	80.44	1.379	Level 3	
11,400.00	11,354.35	11,407.86	11,366.45	42.36	41.94	125.92	-76.76	725.69	114.52	33.65	80.88	1.416	Level 3	
11,450.00	11,400.46	11,454.41	11,412.73	42.54	42.12	129.89	-77.27	730.73	121.62	40.19	81.43	1.494	Level 3	
11,500.00	11,444.77	11,499.20	11,457.25	42.72	42.30	134.85	-77.76	735.58	133.24	51.16	82.09	1.623		
11,550.00	11,486.94	11,541.89	11,499.68	42.89	42.46	139.73	-78.23	740.20	149.99	67.20	82.79	1.812		
11,600.00	11,526.65	11,582.14	11,539.70	43.06	42.62	143.94	-78.68	744.56	171.95	88.49	83.46	2.060		
11,650.00	11,563.61	11,619.67	11,577.00	43.23	42.77	147.24	-79.09	748.63	198.82	114.76	84.06	2.365		
11,700.00	11,597.52	11,654.17	11,611.30	43.39	42.90	149.59	-79.47	752.36	230.12	145.55	84.57	2.721		
11,750.00	11,628.12	11,685.39	11,642.33	43.55	43.02	150.97	-79.81	755.74	265.31	180.33	84.98	3.122		
11,800.00	11,655.20	11,713.08	11,669.86	43.71	43.13	151.37	-80.12	758.74	303.88	218.56	85.32	3.562		

PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	XTO Permian Operating, LLC
LEASE NO.:	NMMN-0506A
WELL NAME & NO.:	Poker Lake Unit 15 TWR 108H
SURFACE HOLE FOOTAGE:	0330' FSL & 1200' FEL
BOTTOM HOLE FOOTAGE:	0200' FSL & 0330' FEL Sec. 27, 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 16 inch surface casing shall be set at approximately 880 feet **(in a competent bed below the Magenta Dolomite, which is a Member of the Rustler, and if salt is encountered, set casing at least 25 feet above the salt)** and cemented to the surface.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - b. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.**
 - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
 - d. If cement falls back, remedial cementing will be done prior to drilling out that string.

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

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

- ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to potash.**

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

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

Operator has proposed DV tool at depth of 4460', 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 potash.**

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

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

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

☒ Cement should tie-back at least 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 16" surface casing shoe shall be **2000 (2M)** psi.
4. **Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the 11-3/4 casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the 11-3/4" 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 8-5/8" casing integrity tests 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 a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).
 - b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**.
 - c. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
 - d. The results of the test shall be reported to the appropriate BLM office.
 - e. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**
 - f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

D. DRILL STEM TEST

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

E. 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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