

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTRECEIVED NMOC
FEB 12 2020 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 re-work an abandoned well. Use form 3160-3 (APD) for such proposals.5. Lease Serial No.
NMNM030453

6. If Indian, Allottee or Tribe Name

SUBMIT IN TRIPLICATE - Other instructions on page 27. If Unit or CA/Agreement, Name and/or No.
891000303X

1. Type of Well

☐ Oil Well ☒ Gas Well ☐ Other8. Well Name and No.
POKER LAKE UNIT 13 DTD 128H

2. Name of Operator

XTO PERMIAN OPERATING LLC

Contact: KELLY KARDOS

E-Mail: kelly_kardos@xtoenergy.com

9. API Well No.
30-015-45824-00-X1

3a. Address

6401 HOLIDAY HILL ROAD BLDG 5
MIDLAND, TX. 79707

3b. Phone No. (include area code)

Ph: 432-620-4374

10. Field and Pool or Exploratory Area
PURPLE SAGE-WOLFCAMP (GAS)

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

Sec 24 T24S R30E NENE 442FNL 929FEL
32.209404 N Lat, 103.828682 W Lon

11. County or Parish, State

EDDY COUNTY, NM

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

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

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

Change the BHL from 2440' FNL & 330' FEL in Sec. 36-T24S-R30E to 200' FSL & 330' FEL in Sec. 25-T24S-R30E.

Change the casing/cement design per the attached drilling program.

XTO requests to utilize centralizers from KOP to TOC only a minimum of one every other joint.

In addition, XTO requests a variance to be able to batch drill these wells if necessary. In doing so, XTO will set intermediate casing and ensure that the well is cemented properly and the well is dead. With floats holding, no pressure on the intermediate csg annulus, and the installation of a

ATTACHED FOR
CONDITIONS OF APPROVAL

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

Electronic Submission #492937 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 11/19/2019 (20PP0462SE)

Name (Printed/Typed) KELLY KARDOS

Title REGULATORY COORDINATOR

Signature

(Electronic Submission)

Date 11/19/2019

APPROVED

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By

Title

DEC 04 2019

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 **

LS 2-14-20

Additional data for EC transaction #492937 that would not fit on the form

32. Additional remarks, continued

TA cap as per GE recommendations, XTO will contact the BLM to skid the rig to drill the surface and intermediate for the remaining wells on the pad. Once surface and intermediate are all completed, XTO will begin drilling the production hole on each of the wells.

Poker Lake Unit 13 DTD 128H - 30-015-45824

Poker Lake Unit 13 DTD 108H - 30-015-45839

Poker Lake Unit 13 DTD 208H - 30-015-46252

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

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

WELL LOCATION AND ACREAGE DEDICATION PLAT

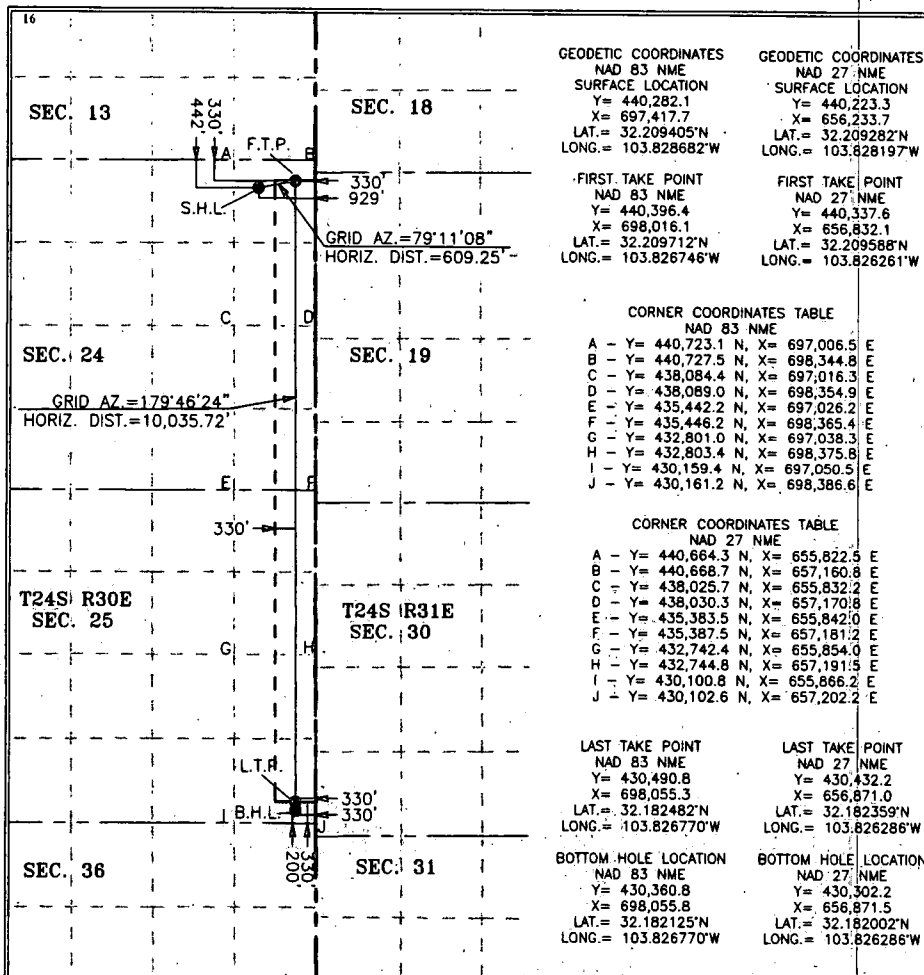
¹ API Number 30-015 -45824		² Pool Code 98220		³ Pool Name PURPLE SAGE; WOLFCAMP	
⁴ Property Code		⁵ Property Name POKER LAKE UNIT 13 DTD		⁶ Well Number 128H	
⁷ OGRID No. 373075		⁸ Operator Name XTO PERMIAN OPERATING, LLC		⁹ Elevation 3,476'	

¹⁰ Surface Location									
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	24	24 S	30 E		442	NORTH	929	EAST	EDDY

¹¹ Bottom Hole Location If Different From Surface									
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	25	24 S	30 E		200	SOUTH	330	EAST	EDDY

¹² Dedicated Acres 640	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



¹⁷ OPERATOR CERTIFICATION	
I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or in a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.	
Kelly Kardos	11/15/19
Signature	Date
Kelly Kardos	
Printed Name	
kelly_kardos@xtoenergy.com	
E-mail Address	

¹⁸ SURVEYOR CERTIFICATION	
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.	
04-29-2019	Date of Survey
Signature and Seal of Professional Surveyor:	
MARK DILLON HARP 23786	Certificate Number
RR	2018010159

Intent ☒ As Drilled ☐

API #
30-015-45824

Operator Name: XTO Permian Operating, LLC	Property Name: Poker Lake Unit 13 DTD	Well Number 128H
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Kick Off Point (KOP)

UL A	Section 24	Township 24S	Range 30E	Lot	Feet 442	From N/S North	Feet 929	From E/W East	County Eddy
Latitude 32.209405					Longitude -103.828682			NAD NAD83	

First Take Point (FTP)

UL A	Section 24	Township 24S	Range 30E	Lot	Feet 330	From N/S North	Feet 330	From E/W East	County Eddy
Latitude 32.209712					Longitude -103.826746			NAD NAD83	

Last Take Point (LTP)

UL P	Section 25	Township 24S	Range 30E	Lot	Feet 330	From N/S South	Feet 330	From E/W East	County Eddy
Latitude 32.182482					Longitude -103.826770			NAD NAD83	

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

Is this well an infill well? ☐ Y

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

API #
30-015-46251

Operator Name: XTO Permian Operating, LLC	Property Name: Poker Lake Unit 13 DTD	Well Number 206H
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KZ 06/29/2018

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

XTO Energy Inc.
PLU 13 Dog Town Draw 128H
Projected TD: 22561' MD / 12444' TVD
SHL: 442' FNL & 929' FEL , Section 24, T24S, R30E
BHL: 200' FSL & 330' FEL , Section 25, T24S, R30E
Eddy County, NM

1. Geologic Name of Surface Formation

A. Permian

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

Formation	Well Depth (TVD)	Water/Oil/Gas
Rustler	484'	Water
Top of Salt	934'	Water
Base of Salt	4064'	Water
Delaware	4229'	Water
Bone Spring	8074'	Water/Oil/Gas
1st Bone Spring Ss	9039'	Water/Oil/Gas
2nd Bone Spring Ss	9854'	Water/Oil/Gas
3rd Bone Spring Ss	10979'	Water/Oil/Gas
Wolfcamp	11424'	Water/Oil/Gas
Wolfcamp A	11534'	Water/Oil/Gas
Wolfcamp B	11934'	Water/Oil/Gas
Wolfcamp D	12369'	Water/Oil/Gas
Target/Land Curve	12444'	Water/Oil/Gas

*** Hydrocarbons @ Brushy Canyon

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

No other formations are expected to yield oil, gas or fresh water in measurable volumes. The surface fresh water sands will be protected by setting 16 inch casing @ 780' (154' above the salt) and circulating cement back to surface. The salt will be isolated by setting 11-3/4 inch casing at 4130' and circulating cement to surface. A 10-5/8 inch vertical hole will be drilled to 11726' and 8-5/8 inch casing ran and cemented 200' 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

Hole Size	Depth	OD Csg	Weight	Collar	Grade	New/Used	SF Burst	SF Collapse	SF Tension
18-1/2"	0' - 780'	16	65	STC	H-40	New	1.32	1.79	8.66
14-3/4"	0' - 4130'	11-3/4"	47	BTC	J-55	New	1.06	1.20	2.46
10-5/8"	0' - 4330'	8-5/8"	32	BTC	CYP-110	New	1.30	1.16	2.68
10-5/8"	4330' - 11726'	8-5/8"	32	BTC	HCL-80	New	0.95	1.29	1.95
7-7/8"	0' - 22561'	5-1/2"	20	BTC	P-110	New	1.18	1.29	2.06

XTO requests to utilize centralizers from KOP to TOC 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.

8-5/8" casing will be split string with CYP-1110 run from surface to 4260' & HCL-80' from 4260' to TD. The 8-5/8" casing fails SF burst at surface but will be crossed over to CYP-110 at 4330'. The split string design passes our internal requirements.

5-1/2" tension calculated using vertical hanging weight plus the lateral weight multiplied by a friction factor of 0.35

Test on 2M Annular, Choke & Casing will be limited to 70% burst of the casing or 1500 psi, whichever is less

WELLHEAD:

Temporary Wellhead

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

Permanent Wellhead – GE RSH Multibowl System

- A. Starting Head (RSH System): 11-3/4" SOW bottom x 13-5/8" 10M top flange
- B. Tubing Head: 13-5/8" 10M bottom flange x 7-1/16" 15M top flange

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

4. Cement Program

Surface Casing: 16, 65 New H-40, STC casing to be set at +/- 780'

Lead: 240 sxs EconoCem-HLTRRC (mixed at 12.8 ppg, 1.87 ft³/sx, 10.13 gal/sx water)

Tail: 200 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

Top of Cement: Surface

1st Intermediate Casing: 11-3/4", 47 New J-55, BTC casing to be set at +/- 4130'

Lead: 1520 sxs Halcem-C + 2% CaCl (mixed at 12.8 ppg, 1.88 ft³/sx, 9.61 gal/sx water)

Tail: 530 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

Top of Cement: Surface

2nd Intermediate Casing (Stage 2): 8-5/8", 32 New CYP-110, BTC casing to be set at +/- 11726'
ECP/DV Tool to be set at 4180'

1st Stage

Lead: 50 sxs Halcem-C + 2% CaCl (mixed at 12.8 ppg, 1.87 ft³/sx, 9.61 gal/sx water)

Tail: 260 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: 1450 sxs Halcem-C + 2% CaCl (mixed at 12.8 ppg, 1.88 ft³/sx, 9.61 gal/sx water)

Tail: 310 sxs Halcem-C + 2% CaCl (mixed at 14.8 ppg, 1.33 ft³/sx, 6.39 gal/sx water)

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

Top of Cement: 200' inside previous casing shoe

Production Casing: 5-1/2", 20 New P-110, BTC casing to be set at +/- 22561'

Lead: 1740 sxs Halcem-C + 2% CaCl (mixed at 11.5 ppg, 1.88 ft³/sx, 9.61 gal/sx water)

Tail: 1740 sxs VersaCem (mixed at 13.2 ppg, 11413 ft³/sx, 8.38 gal/sx water)

Compressives: 12-hr = 1375 psi 24 hr = 2285 psi

Top of Cement: 300' inside previous casing shoe

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 1239 psi.

Once the permanent wellhead is installed the blow out preventer equipment (BOP) for this well consists of a 13-5/8" minimum 10M Hydril and a 13-5/8" minimum 10M Double Ram BOP. MASP should not exceed 5869 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" 10M bradenhead and flange, the BOP test will be limited to 10000 psi. When the 11-3/4" and 8-5/8" casing is set, the packoff seals will be tested to a minimum of 10000 psi. All BOP tests will include a low pressure test as per BLM regulations. The 10M BOP diagrams are attached. Blind rams will be functioned tested each trip, pipe rams will be functioned tested each day.

A variance is requested to allow use of a flex hose as the choke line from the BOP to the Choke Manifold. If this hose is used, a copy of the manufacturer's certification and pressure test chart will be

kept on the rig. Attached is an example of a certification and pressure test chart. The manufacturer does not require anchors.

6. Proposed Mud Circulation System

INTERVAL	Hole Size	Mud Type	MW (ppg)	Viscosity (sec/qt)	Fluid Loss (cc)
0' to 780'	18-1/2"	FW/Native	8.4-8.8	35-40	NC
780' to 4130'	14-3/4"	Brine/Gel Sweeps	9.8-10.2	30-32	NC
4130' to 11726'	10-5/8"	FW / Cut Brine	8.7-9.3	29-32	NC - 20
11726' to 22561'	7-7/8"	FW / Cut Brine / Polymer/ OBM	13-13.8	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 11-3/4" 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 160 to 180 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 8606 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.

XTO Energy



Project: Eddy County, NM (NAD27) NMEZ Grid
Site: PLU 13 Dog Town Draw
Well: 13-128H
Wellbore: 128H Lateral
Design: Plan #1

SECTION DETAILS

	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect
3477+27 @ 3504.00usft (HP467)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NAD 1927 (NADCON CONUS)	2500.00	0.00	0.00	2500.00	0.00	0.00	0.00	0.00	0.00
	3015.48	7.73	51.74	3013.92	21.51	27.27	1.50	51.74	-21.40
	7232.08	7.73	51.74	7192.18	372.81	472.73	0.00	0.00	-371.00
	7747.57	0.00	0.00	7706.10	394.32	500.00	1.50	180.00	-392.40
	11912.51	0.00	0.00	11871.04	394.32	500.00	0.00	0.00	-392.40
	12812.50	90.00	172.30	12444.00	-173.47	576.77	10.00	172.30	175.68
	13186.74	90.00	179.78	12444.00	-546.55	602.58	2.00	90.00	548.86
	22561.36	90.00	179.78	12444.00	-9921.10	637.80	0.00	0.00	9923.48

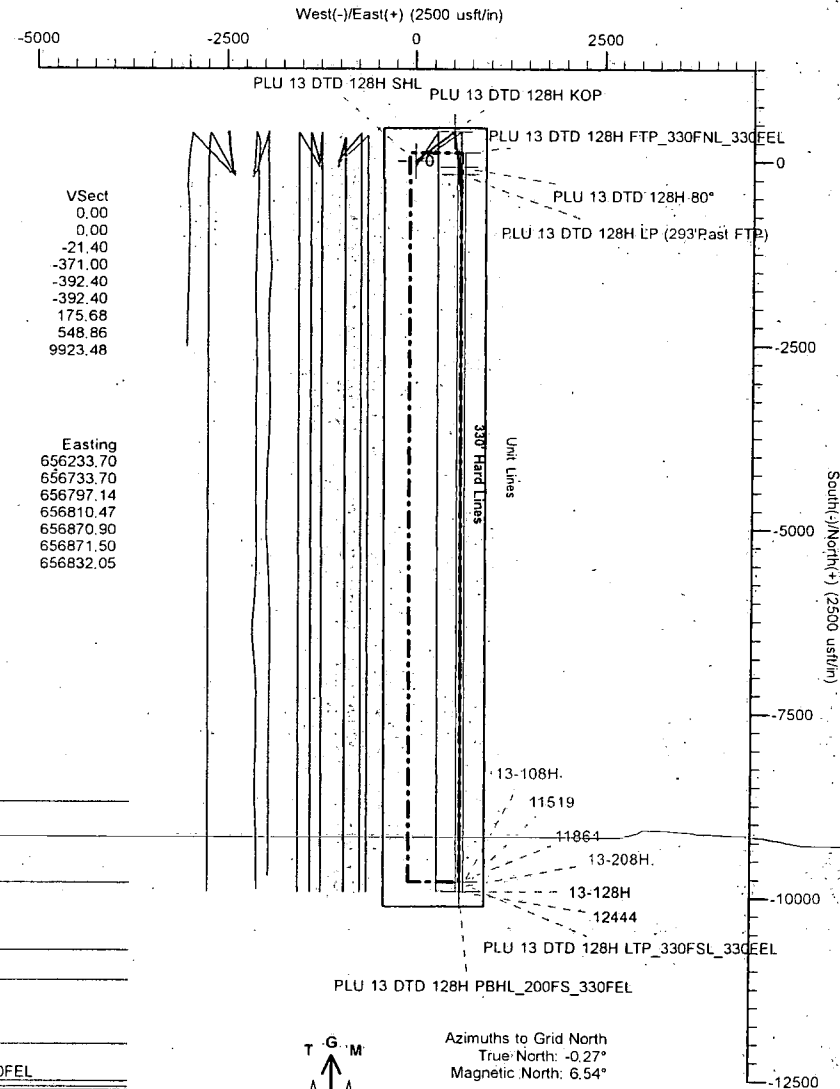
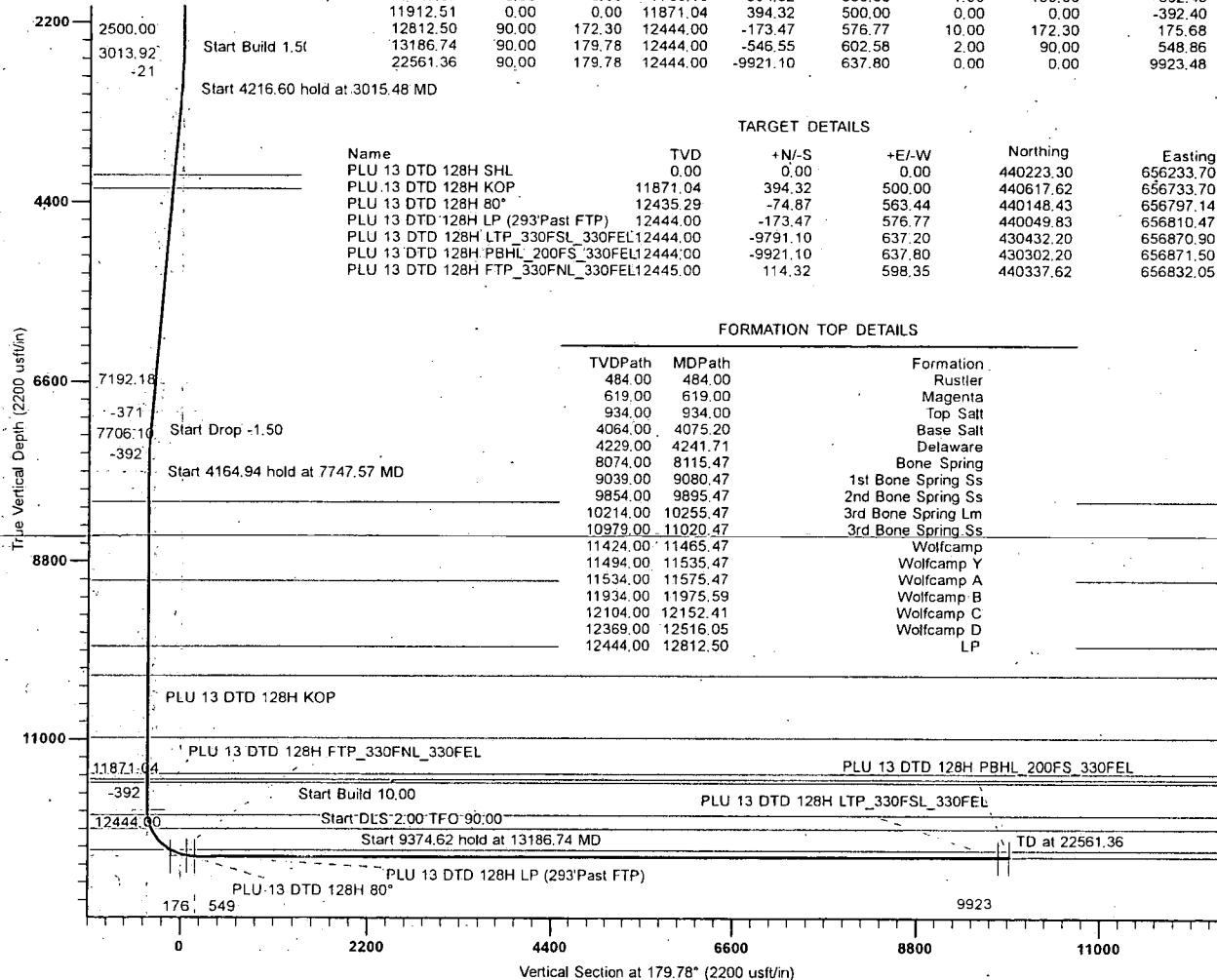
Start Build 1.5f
Start 4216.60 hold at 3015.48 MD

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
PLU 13 DTD 128H SHL	0.00	0.00	0.00	440223.30	656233.70
PLU 13 DTD 128H KOP	11871.04	394.32	500.00	440617.62	656733.70
PLU 13 DTD 128H 80°	12435.29	-74.87	563.44	440148.43	656797.14
PLU 13 DTD 128H LP (293°Past FTP)	12444.00	-173.47	576.77	440049.83	656810.47
PLU 13 DTD 128H LTP_330FSL_330FEL12444.00	-9791.10	637.20	430432.20	656870.90	
PLU 13 DTD 128H PBHL_200FS_330FEL12444.00	-9921.10	637.80	430302.20	656871.50	
PLU 13 DTD 128H FTP_330FNL_330FEL12445.00	114.32	598.35	440337.62	656832.05	

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
484.00	484.00	Rustler
619.00	619.00	Magenta
934.00	934.00	Top Salt
4064.00	4075.20	Base Salt
4229.00	4241.71	Delaware
8074.00	8115.47	Bone Spring
9039.00	9080.47	1st Bone Spring Ss
9854.00	9895.47	2nd Bone Spring Ss
10214.00	10255.47	3rd Bone Spring Lm
10979.00	11020.47	3rd Bone Spring Ss
11424.00	11465.47	Wolfcamp
11494.00	11535.47	Wolfcamp Y
11534.00	11575.47	Wolfcamp A
11934.00	11975.59	Wolfcamp B
12104.00	12152.41	Wolfcamp C
12369.00	12516.05	Wolfcamp D
12444.00	12812.50	LP



Azimuths to Grid North
True North: -0.27°
Magnetic North: 6.54°

Magnetic Field
Strength: 47654.1nT
Dip Angle: 59.98°
Date: 11/15/2019
Model: IGRF2015

To convert a Magnetic Direction to a Grid Direction, Add 6.54°
To convert a Magnetic Direction to a True Direction, Add 6.81° East
Magnetic North is 6.54° East of Grid North (Magnetic Convergence)
Magnetic North is 6.81° East of True North (Magnetic Declination)

Plan: Plan #1 (13-128H/128H Lateral)
Created By: Mekka Williams
eSomina Well Design
mekka@esominawelldesign.com
21:58, November 15 2019

PREDATOR DIRECTIONAL
11323 MONARCHS WAY
Montgomery TX, 77316



Planning Report

Database:	PREDATOR_EDM	Local Co-ordinate Reference:	Well 13-128H - Slot PLU 13 DTD 128H SHL
Company:	XTO Energy	TVD Reference:	3477+27 @ 3504.00usft (HP467)
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3477+27 @ 3504.00usft (HP467)
Site:	PLU 13 Dog Town Draw	North Reference:	Grid
Well:	13-128H	Survey Calculation Method:	Minimum Curvature
Wellbore:	128H Lateral		
Design:	Plan #1		

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

Site	PLU 13 Dog Town Draw				
Site Position:		Northing:	440,075.00 usft	Latitude:	32.20890166
From:	Map	Easting:	654,089.10 usft	Longitude:	-103.83513310
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence:	0.27 °

Well	13-128H - Slot PLU 13 DTD 128H SHL					
Well Position	+N/-S	148.30 usft	Northings:	440,223.30 usft	Latitude:	32.20928181
	+E/-W	2,144.60 usft	Easting:	656,233.70 usft	Longitude:	-103.82819716
Position Uncertainty	0.00 usft	Wellhead Elevation:		Ground Level:	3,477.00 usft	

Wellbore	128H Lateral				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	11/15/19	6.81	59.98	47,654.10453424

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	179.78

Plan Survey Tool Program		Date 11/15/19		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	22,561.36	Plan #1 (128H Lateral)	
			MWD+IFR1+MS	
			OWSG MWD + IFR1 + Multi-St	

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,015.48	7.73	51.74	3,013.92	21.51	27.27	1.50	1.50	0.00	51.74	
7,232.08	7.73	51.74	7,192.18	372.81	472.73	0.00	0.00	0.00	0.00	
7,747.57	0.00	0.00	7,706.10	394.32	500.00	1.50	-1.50	0.00	180.00	
11,912.51	0.00	0.00	11,871.04	394.32	500.00	0.00	0.00	0.00	0.00	
12,812.50	90.00	172.30	12,444.00	-173.47	576.77	10.00	10.00	0.00	172.30	
13,186.74	90.00	179.78	12,444.00	-546.55	602.58	2.00	0.00	2.00	90.00	
22,561.36	90.00	179.78	12,444.00	-9,921.10	637.80	0.00	0.00	0.00	0.00	PLU 13 DTD 128H PE

Planning Report

Database:	PREDATOR_EDM	Local Co-ordinate Reference:	Well 13-128H - Slot PLU 13 DTD 128H SHL
Company:	XTO Energy	TVD Reference:	3477+27 @ 3504.00usft (HP467)
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3477+27 @ 3504.00usft (HP467)
Site:	PLU 13 Dog Town Draw	North Reference:	Grid
Well:	13-128H	Survey Calculation Method:	Minimum Curvature
Wellbore:	128H 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
484.00	0.00	0.00	484.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler									
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
619.00	0.00	0.00	619.00	0.00	0.00	0.00	0.00	0.00	0.00
Magenta									
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
934.00	0.00	0.00	934.00	0.00	0.00	0.00	0.00	0.00	0.00
Top Salt									
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	1.50	51.74	2,599.99	0.81	1.03	-0.81	1.50	1.50	0.00
2,700.00	3.00	51.74	2,699.91	3.24	4.11	-3.23	1.50	1.50	0.00
2,800.00	4.50	51.74	2,799.89	7.29	9.25	-7.26	1.50	1.50	0.00
2,900.00	6.00	51.74	2,899.27	12.96	16.43	-12.89	1.50	1.50	0.00
3,000.00	7.50	51.74	2,998.57	20.24	25.66	-20.14	1.50	1.50	0.00
3,015.48	7.73	51.74	3,013.92	21.51	27.27	-21.40	1.50	1.50	0.00
3,100.00	7.73	51.74	3,097.67	28.55	36.20	-28.41	0.00	0.00	0.00
3,200.00	7.73	51.74	3,196.76	36.88	46.76	-36.70	0.00	0.00	0.00
3,300.00	7.73	51.74	3,295.85	45.21	57.33	-44.99	0.00	0.00	0.00
3,400.00	7.73	51.74	3,394.94	53.54	67.89	-53.28	0.00	0.00	0.00
3,500.00	7.73	51.74	3,494.03	61.87	78.46	-61.57	0.00	0.00	0.00
3,600.00	7.73	51.74	3,593.12	70.21	89.02	-69.86	0.00	0.00	0.00
3,700.00	7.73	51.74	3,692.21	78.54	99.59	-78.15	0.00	0.00	0.00
3,800.00	7.73	51.74	3,791.30	86.87	110.15	-86.45	0.00	0.00	0.00
3,900.00	7.73	51.74	3,890.39	95.20	120.71	-94.74	0.00	0.00	0.00
4,000.00	7.73	51.74	3,989.49	103.53	131.28	-103.03	0.00	0.00	0.00
4,075.20	7.73	51.74	4,064.00	109.80	139.22	-109.26	0.00	0.00	0.00
Base Salt									
4,100.00	7.73	51.74	4,088.58	111.86	141.84	-111.32	0.00	0.00	0.00
4,200.00	7.73	51.74	4,187.67	120.19	152.41	-119.61	0.00	0.00	0.00
4,241.71	7.73	51.74	4,229.00	123.67	156.81	-123.07	0.00	0.00	0.00

Planning Report

Database:	PREDATOR_EDM	Local Co-ordinate Reference:	Well 13-128H - Slot PLU 13 DTD 128H SHL
Company:	XTO Energy	TVD Reference:	3477+27 @ 3504.00usft (HP467)
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3477+27 @ 3504.00usft (HP467)
Site:	PLU 13 Dog Town Draw	North Reference:	Grid
Well:	13-128H	Survey Calculation Method:	Minimum Curvature
Wellbore:	128H 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)
Delaware									
4,300.00	7.73	51.74	4,286.76	128.53	162.97	-127.90	0.00	0.00	0.00
4,400.00	7.73	51.74	4,385.85	136.86	173.54	-136.19	0.00	0.00	0.00
4,500.00	7.73	51.74	4,484.94	145.19	184.10	-144.48	0.00	0.00	0.00
4,600.00	7.73	51.74	4,584.03	153.52	194.67	-152.77	0.00	0.00	0.00
4,700.00	7.73	51.74	4,683.12	161.85	205.23	-161.06	0.00	0.00	0.00
4,800.00	7.73	51.74	4,782.21	170.18	215.79	-169.35	0.00	0.00	0.00
4,900.00	7.73	51.74	4,881.30	178.52	226.36	-177.65	0.00	0.00	0.00
5,000.00	7.73	51.74	4,980.39	186.85	236.92	-185.94	0.00	0.00	0.00
5,100.00	7.73	51.74	5,079.48	195.18	247.49	-194.23	0.00	0.00	0.00
5,200.00	7.73	51.74	5,178.57	203.51	258.05	-202.52	0.00	0.00	0.00
5,300.00	7.73	51.74	5,277.67	211.84	268.62	-210.81	0.00	0.00	0.00
5,400.00	7.73	51.74	5,376.76	220.17	279.18	-219.10	0.00	0.00	0.00
5,500.00	7.73	51.74	5,475.85	228.50	289.75	-227.39	0.00	0.00	0.00
5,600.00	7.73	51.74	5,574.94	236.84	300.31	-235.68	0.00	0.00	0.00
5,700.00	7.73	51.74	5,674.03	245.17	310.87	-243.97	0.00	0.00	0.00
5,800.00	7.73	51.74	5,773.12	253.50	321.44	-252.26	0.00	0.00	0.00
5,900.00	7.73	51.74	5,872.21	261.83	332.00	-260.55	0.00	0.00	0.00
6,000.00	7.73	51.74	5,971.30	270.16	342.57	-268.84	0.00	0.00	0.00
6,100.00	7.73	51.74	6,070.39	278.49	353.13	-277.14	0.00	0.00	0.00
6,200.00	7.73	51.74	6,169.48	286.83	363.70	-285.43	0.00	0.00	0.00
6,300.00	7.73	51.74	6,268.57	295.16	374.26	-293.72	0.00	0.00	0.00
6,400.00	7.73	51.74	6,367.66	303.49	384.82	-302.01	0.00	0.00	0.00
6,500.00	7.73	51.74	6,466.75	311.82	395.39	-310.30	0.00	0.00	0.00
6,600.00	7.73	51.74	6,565.84	320.15	405.95	-318.59	0.00	0.00	0.00
6,700.00	7.73	51.74	6,664.94	328.48	416.52	-326.88	0.00	0.00	0.00
6,800.00	7.73	51.74	6,764.03	336.81	427.08	-335.17	0.00	0.00	0.00
6,900.00	7.73	51.74	6,863.12	345.15	437.65	-343.46	0.00	0.00	0.00
7,000.00	7.73	51.74	6,962.21	353.48	448.21	-351.75	0.00	0.00	0.00
7,100.00	7.73	51.74	7,061.30	361.81	458.78	-360.04	0.00	0.00	0.00
7,200.00	7.73	51.74	7,160.39	370.14	469.34	-368.34	0.00	0.00	0.00
7,232.08	7.73	51.74	7,192.18	372.81	472.73	-371.00	0.00	0.00	0.00
7,300.00	6.71	51.74	7,259.56	378.10	479.43	-376.26	1.50	-1.50	0.00
7,400.00	5.21	51.74	7,359.01	384.53	487.59	-382.66	1.50	-1.50	0.00
7,500.00	3.71	51.74	7,458.71	389.35	493.70	-387.46	1.50	-1.50	0.00
7,600.00	2.21	51.74	7,558.57	392.56	497.76	-390.64	1.50	-1.50	0.00
7,700.00	0.71	51.74	7,658.54	394.14	499.77	-392.21	1.50	-1.50	0.00
7,747.57	0.00	0.00	7,706.10	394.32	500.00	-392.40	1.50	-1.50	0.00
7,800.00	0.00	0.00	7,758.53	394.32	500.00	-392.40	0.00	0.00	0.00
7,900.00	0.00	0.00	7,858.53	394.32	500.00	-392.40	0.00	0.00	0.00
8,000.00	0.00	0.00	7,958.53	394.32	500.00	-392.40	0.00	0.00	0.00
8,100.00	0.00	0.00	8,058.53	394.32	500.00	-392.40	0.00	0.00	0.00
8,115.47	0.00	0.00	8,074.00	394.32	500.00	-392.40	0.00	0.00	0.00
Bone Spring									
8,200.00	0.00	0.00	8,158.53	394.32	500.00	-392.40	0.00	0.00	0.00
8,300.00	0.00	0.00	8,258.53	394.32	500.00	-392.40	0.00	0.00	0.00
8,400.00	0.00	0.00	8,358.53	394.32	500.00	-392.40	0.00	0.00	0.00
8,500.00	0.00	0.00	8,458.53	394.32	500.00	-392.40	0.00	0.00	0.00
8,600.00	0.00	0.00	8,558.53	394.32	500.00	-392.40	0.00	0.00	0.00
8,700.00	0.00	0.00	8,658.53	394.32	500.00	-392.40	0.00	0.00	0.00
8,800.00	0.00	0.00	8,758.53	394.32	500.00	-392.40	0.00	0.00	0.00
8,900.00	0.00	0.00	8,858.53	394.32	500.00	-392.40	0.00	0.00	0.00
9,000.00	0.00	0.00	8,958.53	394.32	500.00	-392.40	0.00	0.00	0.00

Planning Report

Database:	PREDATOR_EDM	Local Co-ordinate Reference:	Well 13-128H - Slot PLU 13 DTD 128H SHL
Company:	XTO Energy	TVD Reference:	3477+27 @ 3504.00usft (HP467)
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3477+27 @ 3504.00usft (HP467)
Site:	PLU 13.Dog Town Draw	North Reference:	Grid
Well:	13-128H	Survey Calculation Method:	Minimum Curvature
Wellbore:	128H 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)	
9,080.47	0.00	0.00	9,039.00	394.32	500.00	-392.40	0.00	0.00	0.00	
1st Bone Spring Ss										
9,100.00	0.00	0.00	9,058.53	394.32	500.00	-392.40	0.00	0.00	0.00	
9,200.00	0.00	0.00	9,158.53	394.32	500.00	-392.40	0.00	0.00	0.00	
9,300.00	0.00	0.00	9,258.53	394.32	500.00	-392.40	0.00	0.00	0.00	
9,400.00	0.00	0.00	9,358.53	394.32	500.00	-392.40	0.00	0.00	0.00	
9,500.00	0.00	0.00	9,458.53	394.32	500.00	-392.40	0.00	0.00	0.00	
9,600.00	0.00	0.00	9,558.53	394.32	500.00	-392.40	0.00	0.00	0.00	
9,700.00	0.00	0.00	9,658.53	394.32	500.00	-392.40	0.00	0.00	0.00	
9,800.00	0.00	0.00	9,758.53	394.32	500.00	-392.40	0.00	0.00	0.00	
9,895.47	0.00	0.00	9,854.00	394.32	500.00	-392.40	0.00	0.00	0.00	
2nd Bone Spring Ss										
9,900.00	0.00	0.00	9,858.53	394.32	500.00	-392.40	0.00	0.00	0.00	
10,000.00	0.00	0.00	9,958.53	394.32	500.00	-392.40	0.00	0.00	0.00	
10,100.00	0.00	0.00	10,058.53	394.32	500.00	-392.40	0.00	0.00	0.00	
10,200.00	0.00	0.00	10,158.53	394.32	500.00	-392.40	0.00	0.00	0.00	
10,255.47	0.00	0.00	10,214.00	394.32	500.00	-392.40	0.00	0.00	0.00	
3rd Bone Spring Lm										
10,300.00	0.00	0.00	10,258.53	394.32	500.00	-392.40	0.00	0.00	0.00	
10,400.00	0.00	0.00	10,358.53	394.32	500.00	-392.40	0.00	0.00	0.00	
10,500.00	0.00	0.00	10,458.53	394.32	500.00	-392.40	0.00	0.00	0.00	
10,600.00	0.00	0.00	10,558.53	394.32	500.00	-392.40	0.00	0.00	0.00	
10,700.00	0.00	0.00	10,658.53	394.32	500.00	-392.40	0.00	0.00	0.00	
10,800.00	0.00	0.00	10,758.53	394.32	500.00	-392.40	0.00	0.00	0.00	
10,900.00	0.00	0.00	10,858.53	394.32	500.00	-392.40	0.00	0.00	0.00	
11,000.00	0.00	0.00	10,958.53	394.32	500.00	-392.40	0.00	0.00	0.00	
11,020.47	0.00	0.00	10,979.00	394.32	500.00	-392.40	0.00	0.00	0.00	
3rd Bone Spring Ss										
11,100.00	0.00	0.00	11,058.53	394.32	500.00	-392.40	0.00	0.00	0.00	
11,200.00	0.00	0.00	11,158.53	394.32	500.00	-392.40	0.00	0.00	0.00	
11,300.00	0.00	0.00	11,258.53	394.32	500.00	-392.40	0.00	0.00	0.00	
11,400.00	0.00	0.00	11,358.53	394.32	500.00	-392.40	0.00	0.00	0.00	
11,465.47	0.00	0.00	11,424.00	394.32	500.00	-392.40	0.00	0.00	0.00	
Wolfcamp										
11,500.00	0.00	0.00	11,458.53	394.32	500.00	-392.40	0.00	0.00	0.00	
11,535.47	0.00	0.00	11,494.00	394.32	500.00	-392.40	0.00	0.00	0.00	
Wolfcamp Y										
11,575.47	0.00	0.00	11,534.00	394.32	500.00	-392.40	0.00	0.00	0.00	
Wolfcamp A										
11,600.00	0.00	0.00	11,558.53	394.32	500.00	-392.40	0.00	0.00	0.00	
11,700.00	0.00	0.00	11,658.53	394.32	500.00	-392.40	0.00	0.00	0.00	
11,800.00	0.00	0.00	11,758.53	394.32	500.00	-392.40	0.00	0.00	0.00	
11,900.00	0.00	0.00	11,858.53	394.32	500.00	-392.40	0.00	0.00	0.00	
11,912.51	0.00	0.00	11,871.04	394.32	500.00	-392.40	0.00	0.00	0.00	
11,950.00	3.75	172.30	11,908.51	393.10	500.16	-391.18	10.00	10.00	0.00	
11,975.59	6.31	172.30	11,934.00	390.88	500.46	-388.96	10.00	10.00	0.00	
Wolfcamp B										
12,000.00	8.75	172.30	11,958.20	387.71	500.89	-385.79	10.00	10.00	0.00	
12,050.00	13.75	172.30	12,007.22	378.05	502.20	-376.12	10.00	10.00	0.00	
12,100.00	18.75	172.30	12,055.21	364.19	504.07	-362.25	10.00	10.00	0.00	
12,150.00	23.75	172.30	12,101.79	346.24	506.50	-344.29	10.00	10.00	0.00	
12,152.42	23.99	172.30	12,104.00	345.27	506.63	-343.32	10.00	10.00	0.00	
Wolfcamp C										

Planning Report

Database:	PREDATOR_EDM	Local Co-ordinate Reference:	Well 13-128H - Slot PLU 13 DTD 128H SHL
Company:	XTO Energy	TVD Reference:	3477+27 @ 3504.00usft (HP467)
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3477+27 @ 3504.00usft (HP467)
Site:	PLU 13 Dog Town Draw	North Reference:	Grid
Well:	13-128H	Survey Calculation Method:	Minimum Curvature
Wellbore:	128H 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)
12,200.00	28.75	172.30	12,146.62	324.33	509.46	-322.37	10.00	10.00	0.00
12,250.00	33.75	172.30	12,189.35	298.63	512.94	-296.66	10.00	10.00	0.00
12,300.00	38.75	172.30	12,229.66	269.34	516.90	-267.36	10.00	10.00	0.00
12,350.00	43.75	172.30	12,267.24	236.68	521.31	-234.68	10.00	10.00	0.00
12,400.00	48.75	172.30	12,301.81	200.90	526.15	-198.88	10.00	10.00	0.00
12,450.00	53.75	172.30	12,333.10	162.27	531.37	-160.23	10.00	10.00	0.00
12,500.00	58.75	172.30	12,360.87	121.09	536.94	-119.03	10.00	10.00	0.00
12,516.05	60.35	172.30	12,369.00	107.37	538.80	-105.30	10.00	10.00	0.00
Wolfcamp D									
12,550.00	63.75	172.30	12,384.91	77.66	542.81	-75.58	10.00	10.00	0.00
12,600.00	68.75	172.30	12,405.04	32.32	548.94	-30.21	10.00	10.00	0.00
12,650.00	73.75	172.30	12,421.11	-14.58	555.29	16.71	10.00	10.00	0.00
12,700.00	78.75	172.30	12,432.99	-62.70	561.79	64.85	10.00	10.00	0.00
12,750.00	83.75	172.30	12,440.59	-111.65	568.41	113.83	10.00	10.00	0.00
12,800.00	88.75	172.30	12,443.86	-161.08	575.09	163.29	10.00	10.00	0.00
12,812.50	90.00	172.30	12,444.00	-173.47	576.77	175.68	10.00	10.00	0.00
LP									
12,900.00	90.00	174.05	12,444.00	-260.34	587.17	262.60	2.00	0.00	2.00
13,000.00	90.00	176.05	12,444.00	-359.97	595.79	362.25	2.00	0.00	2.00
13,100.00	90.00	178.05	12,444.00	-459.83	600.94	462.13	2.00	0.00	2.00
13,186.74	90.00	179.78	12,444.00	-546.55	602.58	548.86	2.00	0.00	2.00
13,200.00	90.00	179.78	12,444.00	-559.81	602.63	562.12	0.00	0.00	0.00
13,300.00	90.00	179.78	12,444.00	-659.81	603.00	662.12	0.00	0.00	0.00
13,400.00	90.00	179.78	12,444.00	-759.81	603.38	762.12	0.00	0.00	0.00
13,500.00	90.00	179.78	12,444.00	-859.81	603.76	862.12	0.00	0.00	0.00
13,600.00	90.00	179.78	12,444.00	-959.81	604.13	962.12	0.00	0.00	0.00
13,700.00	90.00	179.78	12,444.00	-1,059.81	604.51	1,062.12	0.00	0.00	0.00
13,800.00	90.00	179.78	12,444.00	-1,159.80	604.88	1,162.12	0.00	0.00	0.00
13,900.00	90.00	179.78	12,444.00	-1,259.80	605.26	1,262.12	0.00	0.00	0.00
14,000.00	90.00	179.78	12,444.00	-1,359.80	605.63	1,362.12	0.00	0.00	0.00
14,100.00	90.00	179.78	12,444.00	-1,459.80	606.01	1,462.12	0.00	0.00	0.00
14,200.00	90.00	179.78	12,444.00	-1,559.80	606.39	1,562.12	0.00	0.00	0.00
14,300.00	90.00	179.78	12,444.00	-1,659.80	606.76	1,662.12	0.00	0.00	0.00
14,400.00	90.00	179.78	12,444.00	-1,759.80	607.14	1,762.12	0.00	0.00	0.00
14,500.00	90.00	179.78	12,444.00	-1,859.80	607.51	1,862.12	0.00	0.00	0.00
14,600.00	90.00	179.78	12,444.00	-1,959.80	607.89	1,962.12	0.00	0.00	0.00
14,700.00	90.00	179.78	12,444.00	-2,059.80	608.26	2,062.12	0.00	0.00	0.00
14,800.00	90.00	179.78	12,444.00	-2,159.80	608.64	2,162.12	0.00	0.00	0.00
14,900.00	90.00	179.78	12,444.00	-2,259.80	609.02	2,262.12	0.00	0.00	0.00
15,000.00	90.00	179.78	12,444.00	-2,359.80	609.39	2,362.12	0.00	0.00	0.00
15,100.00	90.00	179.78	12,444.00	-2,459.80	609.77	2,462.12	0.00	0.00	0.00
15,200.00	90.00	179.78	12,444.00	-2,559.79	610.14	2,562.12	0.00	0.00	0.00
15,300.00	90.00	179.78	12,444.00	-2,659.79	610.52	2,662.12	0.00	0.00	0.00
15,400.00	90.00	179.78	12,444.00	-2,759.79	610.89	2,762.12	0.00	0.00	0.00
15,500.00	90.00	179.78	12,444.00	-2,859.79	611.27	2,862.12	0.00	0.00	0.00
15,600.00	90.00	179.78	12,444.00	-2,959.79	611.65	2,962.12	0.00	0.00	0.00
15,700.00	90.00	179.78	12,444.00	-3,059.79	612.02	3,062.12	0.00	0.00	0.00
15,800.00	90.00	179.78	12,444.00	-3,159.79	612.40	3,162.12	0.00	0.00	0.00
15,900.00	90.00	179.78	12,444.00	-3,259.79	612.77	3,262.12	0.00	0.00	0.00
16,000.00	90.00	179.78	12,444.00	-3,359.79	613.15	3,362.12	0.00	0.00	0.00
16,100.00	90.00	179.78	12,444.00	-3,459.79	613.52	3,462.12	0.00	0.00	0.00
16,200.00	90.00	179.78	12,444.00	-3,559.79	613.90	3,562.12	0.00	0.00	0.00
16,300.00	90.00	179.78	12,444.00	-3,659.79	614.28	3,662.12	0.00	0.00	0.00

Planning Report

Database: PREDATOR_EDM
 Company: XTO Energy
 Project: Eddy County, NM (NAD27) NMEZ Grid
 Site: PLU 13 Dog Town Draw
 Well: 13-128H
 Wellbore: 128H Lateral
 Design: Plan #1

Local Co-ordinate Reference: Well 13-128H - Slot PLU 13 DTD 128H SHL
 TVD Reference: 3477+27 @ 3504.00usft (HP467)
 MD Reference: 3477+27 @ 3504.00usft (HP467)
 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)
16,400.00	90.00	179.78	12,444.00	-3,759.79	614.65	3,762.12	0.00	0.00	0.00
16,500.00	90.00	179.78	12,444.00	-3,859.79	615.03	3,862.12	0.00	0.00	0.00
16,600.00	90.00	179.78	12,444.00	-3,959.78	615.40	3,962.12	0.00	0.00	0.00
16,700.00	90.00	179.78	12,444.00	-4,059.78	615.78	4,062.12	0.00	0.00	0.00
16,800.00	90.00	179.78	12,444.00	-4,159.78	616.15	4,162.12	0.00	0.00	0.00
16,900.00	90.00	179.78	12,444.00	-4,259.78	616.53	4,262.12	0.00	0.00	0.00
17,000.00	90.00	179.78	12,444.00	-4,359.78	616.91	4,362.12	0.00	0.00	0.00
17,100.00	90.00	179.78	12,444.00	-4,459.78	617.28	4,462.12	0.00	0.00	0.00
17,200.00	90.00	179.78	12,444.00	-4,559.78	617.66	4,562.12	0.00	0.00	0.00
17,300.00	90.00	179.78	12,444.00	-4,659.78	618.03	4,662.12	0.00	0.00	0.00
17,400.00	90.00	179.78	12,444.00	-4,759.78	618.41	4,762.12	0.00	0.00	0.00
17,500.00	90.00	179.78	12,444.00	-4,859.78	618.78	4,862.12	0.00	0.00	0.00
17,600.00	90.00	179.78	12,444.00	-4,959.78	619.16	4,962.12	0.00	0.00	0.00
17,700.00	90.00	179.78	12,444.00	-5,059.78	619.54	5,062.12	0.00	0.00	0.00
17,800.00	90.00	179.78	12,444.00	-5,159.78	619.91	5,162.12	0.00	0.00	0.00
17,900.00	90.00	179.78	12,444.00	-5,259.78	620.29	5,262.12	0.00	0.00	0.00
18,000.00	90.00	179.78	12,444.00	-5,359.77	620.66	5,362.12	0.00	0.00	0.00
18,100.00	90.00	179.78	12,444.00	-5,459.77	621.04	5,462.12	0.00	0.00	0.00
18,200.00	90.00	179.78	12,444.00	-5,559.77	621.41	5,562.12	0.00	0.00	0.00
18,300.00	90.00	179.78	12,444.00	-5,659.77	621.79	5,662.12	0.00	0.00	0.00
18,400.00	90.00	179.78	12,444.00	-5,759.77	622.17	5,762.12	0.00	0.00	0.00
18,500.00	90.00	179.78	12,444.00	-5,859.77	622.54	5,862.12	0.00	0.00	0.00
18,600.00	90.00	179.78	12,444.00	-5,959.77	622.92	5,962.12	0.00	0.00	0.00
18,700.00	90.00	179.78	12,444.00	-6,059.77	623.29	6,062.12	0.00	0.00	0.00
18,800.00	90.00	179.78	12,444.00	-6,159.77	623.67	6,162.12	0.00	0.00	0.00
18,900.00	90.00	179.78	12,444.00	-6,259.77	624.04	6,262.12	0.00	0.00	0.00
19,000.00	90.00	179.78	12,444.00	-6,359.77	624.42	6,362.12	0.00	0.00	0.00
19,100.00	90.00	179.78	12,444.00	-6,459.77	624.80	6,462.12	0.00	0.00	0.00
19,200.00	90.00	179.78	12,444.00	-6,559.77	625.17	6,562.12	0.00	0.00	0.00
19,300.00	90.00	179.78	12,444.00	-6,659.77	625.55	6,662.12	0.00	0.00	0.00
19,400.00	90.00	179.78	12,444.00	-6,759.77	625.92	6,762.12	0.00	0.00	0.00
19,500.00	90.00	179.78	12,444.00	-6,859.76	626.30	6,862.12	0.00	0.00	0.00
19,600.00	90.00	179.78	12,444.00	-6,959.76	626.67	6,962.12	0.00	0.00	0.00
19,700.00	90.00	179.78	12,444.00	-7,059.76	627.05	7,062.12	0.00	0.00	0.00
19,800.00	90.00	179.78	12,444.00	-7,159.76	627.43	7,162.12	0.00	0.00	0.00
19,900.00	90.00	179.78	12,444.00	-7,259.76	627.80	7,262.12	0.00	0.00	0.00
20,000.00	90.00	179.78	12,444.00	-7,359.76	628.18	7,362.12	0.00	0.00	0.00
20,100.00	90.00	179.78	12,444.00	-7,459.76	628.55	7,462.12	0.00	0.00	0.00
20,200.00	90.00	179.78	12,444.00	-7,559.76	628.93	7,562.12	0.00	0.00	0.00
20,300.00	90.00	179.78	12,444.00	-7,659.76	629.30	7,662.12	0.00	0.00	0.00
20,400.00	90.00	179.78	12,444.00	-7,759.76	629.68	7,762.12	0.00	0.00	0.00
20,500.00	90.00	179.78	12,444.00	-7,859.76	630.06	7,862.12	0.00	0.00	0.00
20,600.00	90.00	179.78	12,444.00	-7,959.76	630.43	7,962.12	0.00	0.00	0.00
20,700.00	90.00	179.78	12,444.00	-8,059.76	630.81	8,062.12	0.00	0.00	0.00
20,800.00	90.00	179.78	12,444.00	-8,159.76	631.18	8,162.12	0.00	0.00	0.00
20,900.00	90.00	179.78	12,444.00	-8,259.75	631.56	8,262.12	0.00	0.00	0.00
21,000.00	90.00	179.78	12,444.00	-8,359.75	631.93	8,362.12	0.00	0.00	0.00
21,100.00	90.00	179.78	12,444.00	-8,459.75	632.31	8,462.12	0.00	0.00	0.00
21,200.00	90.00	179.78	12,444.00	-8,559.75	632.69	8,562.12	0.00	0.00	0.00
21,300.00	90.00	179.78	12,444.00	-8,659.75	633.06	8,662.12	0.00	0.00	0.00
21,400.00	90.00	179.78	12,444.00	-8,759.75	633.44	8,762.12	0.00	0.00	0.00
21,500.00	90.00	179.78	12,444.00	-8,859.75	633.81	8,862.12	0.00	0.00	0.00
21,600.00	90.00	179.78	12,444.00	-8,959.75	634.19	8,962.12	0.00	0.00	0.00
21,700.00	90.00	179.78	12,444.00	-9,059.75	634.56	9,062.12	0.00	0.00	0.00

Planning Report

Database:	PREDATOR_EDM	Local Co-ordinate Reference:	Well 13-128H - Slot PLU 13 DTD 128H SHL
Company:	XTO Energy	TVD Reference:	3477+27 @ 3504.00usft (HP467)
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3477+27 @ 3504.00usft (HP467)
Site:	PLU 13 Dog Town Draw	North Reference:	Grid
Well:	13-128H	Survey Calculation Method:	Minimum Curvature
Wellbore:	128H 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)	
21,800.00	90.00	179.78	12,444.00	-9,159.75	634.94	9,162.12	0.00	0.00	0.00	
21,900.00	90.00	179.78	12,444.00	-9,259.75	635.32	9,262.12	0.00	0.00	0.00	
22,000.00	90.00	179.78	12,444.00	-9,359.75	635.69	9,362.12	0.00	0.00	0.00	
22,100.00	90.00	179.78	12,444.00	-9,459.75	636.07	9,462.12	0.00	0.00	0.00	
22,200.00	90.00	179.78	12,444.00	-9,559.75	636.44	9,562.12	0.00	0.00	0.00	
22,300.00	90.00	179.78	12,444.00	-9,659.74	636.82	9,662.12	0.00	0.00	0.00	
22,400.00	90.00	179.78	12,444.00	-9,759.74	637.19	9,762.12	0.00	0.00	0.00	
22,500.00	90.00	179.78	12,444.00	-9,859.74	637.57	9,862.12	0.00	0.00	0.00	
22,561.36	90.00	179.78	12,444.00	-9,921.10	637.80	9,923.48	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	
PLU 13 DTD 128H SHL - hit/miss target - Shape - Point	0.00	0.00	0.00	0.00	0.00	440,223.30	656,233.70	32.20928181	-103.82819716	
PLU 13 DTD 128H KOP - plan hits target center - Point	0.00	0.01	11,871.04	394.32	500.00	440,617.62	656,733.70	32.21035928	-103.82657460	
PLU 13 DTD 128H 80° - plan hits target center - Point	0.00	0.01	12,435.29	-74.87	563.44	440,148.43	656,797.14	32.20906870	-103.82637664	
PLU 13 DTD 128H LP (L) - plan hits target center - Point	0.00	0.00	12,444.00	-173.47	576.77	440,049.83	656,810.47	32.20879749	-103.82633505	
PLU 13 DTD 128H LTP - plan misses target center by 0.11usft at 22431.36usft MD (12444.00 TVD, -9791.10 N, 637.31 E) - Point	0.00	0.00	12,444.00	-9,791.10	637.20	430,432.20	656,870.90	32.18235881	-103.82628630	
PLU 13 DTD 128H PBH - plan hits target center - Rectangle (sides W100.00 H10.035.00 D0.00)	0.00	0.00	12,444.00	-9,921.10	637.80	430,302.20	656,871.50	32.18200144	-103.82628634	
PLU 13 DTD 128H FTP - plan misses target center by 89.66usft at 12550.00usft MD (12384.91 TVD, 77.66 N, 542.81 E) - Point	0.00	0.00	12,445.00	114.32	598.35	440,337.62	656,832.06	32.20958831	-103.82626088	

Planning Report

Database:	PREDATOR_EDM	Local Co-ordinate Reference:	Well 13-128H - Slot PLU 13 DTD 128H SHL
Company:	XTO Energy	TVD Reference:	3477+27 @ 3504.00usft (HP467)
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3477+27 @ 3504.00usft (HP467)
Site:	PLU 13 Dog Town Draw	North Reference:	Grid
Well:	13-128H	Survey Calculation Method:	Minimum Curvature
Wellbore:	128H Lateral		
Design:	Plan #1		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
484.00	484.00	Rustler				
619.00	619.00	Magenta				
934.00	934.00	Top Salt				
4,075.20	4,064.00	Base Salt				
4,241.71	4,229.00	Delaware				
8,115.47	8,074.00	Bone Spring				
9,080.47	9,039.00	1st Bone Spring Ss				
9,895.47	9,854.00	2nd Bone Spring Ss				
10,255.47	10,214.00	3rd Bone Spring Lm				
11,020.47	10,979.00	3rd Bone Spring Ss				
11,465.47	11,424.00	Wolfcamp				
11,535.47	11,494.00	Wolfcamp Y				
11,575.47	11,534.00	Wolfcamp A				
11,975.59	11,934.00	Wolfcamp B				
12,152.42	12,104.00	Wolfcamp C				
12,516.05	12,369.00	Wolfcamp D				
12,812.50	12,444.00	LP				

Anticollision Report

Company:	XTO Energy	Local Co-ordinate Reference:	Well 13-128H - Slot PLU 13 DTD 128H SHL
Project:	Eddy County, NM (NAD27) NMEZ Grid	TVD Reference:	3477+27 @ 3504.00usft (HP467)
Reference Site:	PLU 13 Dog Town Draw	MD Reference:	3477+27 @ 3504.00usft (HP467)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	13-128H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	128H Lateral	Database:	PREDATOR_EDM
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

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

Survey Tool Program	Date	11/15/19		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	22,561.36	Plan #1 (128H Lateral)	MWD+IFR1+MS	OWSG MWD + IFR1 + Multi-Station Correction

Summary						
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 13 Dog Town Draw						
13-104H - 104H Lateral - 104H Lateral AsDrilled						Out of range
13-106H - 106H Lateral - Plan #1						Out of range
13-108H - 108H Lateral - Plan #1	3,102.36	3,103.93	30.38	8.49	1.388	Level 3, CC
13-108H - 108H Lateral - Plan #1	3,250.00	3,251.46	30.95	7.95	1.346	Level 3, ES
13-108H - 108H Lateral - Plan #1	11,050.00	11,068.66	98.47	18.21	1.227	Level 2, SF
13-123H (Offset) - 123H Lateral - 123H Lateral AsDrilled						Out of range
13-124H - 124H Lateral - 124H Lateral As Drilled						Out of range
13-125H - 125H Lateral - Plan #1						Out of range
13-126H - 126H Lateral - Plan #1						Out of range
13-204H - 204H Lateral - 204H Lateral AsDrilled						Out of range
13-206H - 206H Lateral - Plan #1						Out of range
13-208H - 208H Lateral - Plan #1	3,442.16	3,447.67	59.46	33.48	2.289	CC
13-208H - 208H Lateral - Plan #1	3,700.00	3,705.24	60.60	32.53	2.159	ES
13-208H - 208H Lateral - Plan #1	3,950.00	3,954.98	63.74	33.76	2.126	SF
13-703H (Offset) - 703H Lateral - Plan #1(Offset)						Out of range
13-705H - 705H Lateral - Plan #1						Out of range
13-903H (Offset) - 903H Lateral - 903H Lateral AsDrilled						Out of range
13-905H - 905H Lateral - Plan #1						Out of range

Offset Design										PLU 13 Dog Town Draw - 13-108H - 108H Lateral - Plan #1		Offset Site Error:		0.00 usft	
Survey Program:										0-MWD+IFR1+MS		Offset Well Error:		0.00 usft	
Reference		Offset		Semi Major Axis		Distance									
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	Warning		
1,150.00	1,150.00	1,149.00	1,149.00	4.75	4.75	179.83	-34.20	0.10	34.20	25.56	8.64	3.957			
1,200.00	1,200.00	1,199.00	1,199.00	4.94	4.94	179.83	-34.20	0.10	34.20	25.20	9.00	3.798			
1,250.00	1,250.00	1,249.00	1,249.00	5.13	5.12	179.83	-34.20	0.10	34.20	24.83	9.37	3.651			
1,300.00	1,300.00	1,299.00	1,299.00	5.31	5.31	179.83	-34.20	0.10	34.20	24.47	9.73	3.516			
1,350.00	1,350.00	1,349.00	1,349.00	5.49	5.49	179.83	-34.20	0.10	34.20	24.11	10.09	3.390			
1,400.00	1,400.00	1,399.00	1,399.00	5.68	5.67	179.83	-34.20	0.10	34.20	23.75	10.45	3.273			
1,450.00	1,450.00	1,449.00	1,449.00	5.86	5.86	179.83	-34.20	0.10	34.20	23.39	10.81	3.163			
1,500.00	1,500.00	1,499.00	1,499.00	6.04	6.04	179.83	-34.20	0.10	34.20	23.03	11.17	3.061			
1,550.00	1,550.00	1,549.00	1,549.00	6.22	6.22	179.83	-34.20	0.10	34.20	22.67	11.53	2.966			
1,600.00	1,600.00	1,599.00	1,599.00	6.41	6.40	179.83	-34.20	0.10	34.20	22.31	11.89	2.876			

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

Anticollision Report

Company:	XTO Energy	Local Co-ordinate Reference:	Well 13-128H - Slot PLU 13 DTD 128H SHL
Project:	Eddy County, NM (NAD27) NMEZ Grid	TVD Reference:	3477+27 @ 3504.00usft (HP467)
Reference Site:	PLU 13 Dog Town Draw	MD Reference:	3477+27 @ 3504.00usft (HP467)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	13-128H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore:	128H Lateral	Database:	PREDATOR_EDM
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design PLU 13 Dog Town Draw - 13-108H - 108H Lateral - Plan #1														Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS														Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Tooface (")	Offset Wellbore Centre		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)		+N/-S (usft)	+E/-W (usft)							
1,650.00	1,650.00	1,649.00	1,649.00	6.59	6.59	179.83	-34.20	0.10	34.20	21.95	12.25	2.791			
1,700.00	1,700.00	1,699.00	1,699.00	6.77	6.77	179.83	-34.20	0.10	34.20	21.59	12.61	2.711			
1,750.00	1,750.00	1,749.00	1,749.00	6.95	6.95	179.83	-34.20	0.10	34.20	21.23	12.97	2.636			
1,800.00	1,800.00	1,799.00	1,799.00	7.13	7.13	179.83	-34.20	0.10	34.20	20.87	13.33	2.565			
1,850.00	1,850.00	1,849.00	1,849.00	7.32	7.31	179.83	-34.20	0.10	34.20	20.51	13.69	2.498			
1,900.00	1,900.00	1,899.00	1,899.00	7.50	7.49	179.83	-34.20	0.10	34.20	20.15	14.05	2.434			
1,950.00	1,950.00	1,949.00	1,949.00	7.68	7.68	179.83	-34.20	0.10	34.20	19.79	14.41	2.373			
2,000.00	2,000.00	1,999.00	1,999.00	7.86	7.86	179.83	-34.20	0.10	34.20	19.43	14.77	2.315			
2,050.00	2,050.00	2,049.00	2,049.00	8.04	8.04	179.83	-34.20	0.10	34.20	19.07	15.13	2.260			
2,100.00	2,100.00	2,099.00	2,099.00	8.22	8.22	179.83	-34.20	0.10	34.20	18.71	15.49	2.208			
2,150.00	2,150.00	2,149.00	2,149.00	8.40	8.40	179.83	-34.20	0.10	34.20	18.35	15.85	2.158			
2,200.00	2,200.00	2,199.00	2,199.00	8.59	8.58	179.83	-34.20	0.10	34.20	17.99	16.21	2.110			
2,250.00	2,250.00	2,249.00	2,249.00	8.77	8.76	179.83	-34.20	0.10	34.20	17.63	16.57	2.064			
2,300.00	2,300.00	2,299.00	2,299.00	8.95	8.94	179.83	-34.20	0.10	34.20	17.27	16.93	2.020			
2,350.00	2,350.00	2,349.00	2,349.00	9.13	9.12	179.83	-34.20	0.10	34.20	16.91	17.29	1.978			
2,400.00	2,400.00	2,399.00	2,399.00	9.31	9.30	179.83	-34.20	0.10	34.20	16.55	17.65	1.938			
2,450.00	2,450.00	2,449.00	2,449.00	9.49	9.49	179.83	-34.20	0.10	34.20	16.19	18.01	1.899			
2,500.00	2,500.00	2,499.00	2,499.00	9.67	9.67	179.83	-34.20	0.10	34.20	15.83	18.37	1.862			
2,550.00	2,550.00	2,549.34	2,549.34	9.87	9.89	127.95	-33.95	0.45	34.16	15.44	18.72	1.825			
2,600.00	2,599.99	2,599.68	2,599.68	10.07	10.11	127.46	-33.19	1.51	34.01	14.95	19.06	1.785			
2,650.00	2,649.96	2,650.02	2,649.95	10.30	10.39	126.63	-31.91	3.29	33.77	14.39	19.38	1.743			
2,700.00	2,699.91	2,700.34	2,700.17	10.53	10.67	125.43	-30.12	5.79	33.43	13.75	19.68	1.699			
2,750.00	2,749.82	2,750.64	2,750.32	10.76	10.95	123.85	-27.82	9.01	33.02	13.06	19.96	1.654			
2,800.00	2,799.69	2,800.91	2,800.36	10.99	11.23	121.86	-25.01	12.94	32.55	12.32	20.23	1.609			
2,850.00	2,849.51	2,851.16	2,850.28	11.21	11.50	119.43	-21.68	17.58	32.05	11.57	20.48	1.565			
2,900.00	2,899.27	2,901.37	2,900.06	11.44	11.77	116.54	-17.86	22.92	31.54	10.81	20.73	1.522			
2,950.00	2,948.96	2,951.54	2,949.67	11.65	12.04	113.17	-13.52	28.97	31.06	10.09	20.98	1.481 Level 3			
3,000.00	2,998.57	3,001.66	2,999.10	11.88	12.30	109.29	-8.69	35.72	30.66	9.42	21.24	1.444 Level 3			
3,050.00	3,048.12	3,051.62	3,048.30	12.04	12.49	105.48	-3.64	42.77	30.45	8.90	21.55	1.413 Level 3			
3,100.00	3,097.67	3,101.58	3,097.50	12.20	12.68	101.70	1.41	49.82	30.38	8.50	21.87	1.389 Level 3			
3,102.36	3,100.00	3,103.93	3,099.82	12.21	12.69	101.52	1.65	50.16	30.38	8.49	21.89	1.388 Level 3, CC			
3,150.00	3,147.21	3,151.54	3,148.70	12.35	12.84	97.92	6.46	56.88	30.44	8.21	22.23	1.369 Level 3			
3,200.00	3,196.76	3,201.50	3,195.90	12.53	13.00	94.17	11.52	63.93	30.63	8.03	22.60	1.355 Level 3			
3,250.00	3,246.30	3,251.46	3,245.10	12.69	13.16	90.48	16.57	70.98	30.95	7.95	23.00	1.346 Level 3, ES			
3,300.00	3,295.85	3,301.42	3,294.30	12.86	13.32	86.88	21.62	78.04	31.40	7.99	23.41	1.341 Level 3			
3,350.00	3,345.40	3,351.38	3,343.50	13.03	13.48	83.39	26.67	85.09	31.96	8.13	23.84	1.341 Level 3			
3,400.00	3,394.94	3,401.34	3,392.70	13.19	13.64	80.04	31.72	92.14	32.65	8.37	24.27	1.345 Level 3			
3,450.00	3,444.49	3,451.30	3,441.91	13.35	13.80	76.84	36.77	99.20	33.44	8.72	24.72	1.353 Level 3			
3,500.00	3,494.03	3,501.26	3,491.11	13.53	13.96	73.79	41.82	106.25	34.32	9.16	25.17	1.364 Level 3			
3,550.00	3,543.58	3,551.22	3,540.31	13.70	14.12	70.90	46.87	113.30	35.30	9.68	25.62	1.378 Level 3			
3,600.00	3,593.12	3,601.17	3,589.51	13.87	14.29	68.18	51.93	120.36	36.37	10.30	26.07	1.395 Level 3			
3,650.00	3,642.67	3,651.13	3,638.71	14.04	14.45	65.62	56.98	127.41	37.51	10.99	26.53	1.414 Level 3			
3,700.00	3,692.21	3,701.09	3,687.91	14.21	14.62	63.21	62.03	134.46	38.73	11.75	26.98	1.435 Level 3			
3,750.00	3,741.76	3,751.05	3,737.11	14.38	14.78	60.95	67.08	141.51	40.00	12.58	27.43	1.459 Level 3			
3,800.00	3,791.30	3,801.01	3,786.31	14.55	14.95	58.84	72.13	148.57	41.34	13.47	27.87	1.483 Level 3			
3,850.00	3,840.85	3,850.97	3,835.51	14.72	15.12	56.85	77.18	155.62	42.73	14.42	28.31	1.509			
3,900.00	3,890.39	3,900.93	3,884.71	14.89	15.28	55.00	82.23	162.67	44.17	15.42	28.75	1.536			
3,950.00	3,939.94	3,950.89	3,933.91	15.06	15.45	53.27	87.29	169.73	45.65	16.47	29.18	1.564			
4,000.00	3,989.49	4,000.85	3,983.11	15.23	15.62	51.64	92.34	176.78	47.16	17.56	29.60	1.593			
4,050.00	4,039.03	4,050.81	4,032.31	15.41	15.79	50.12	97.39	183.83	48.72	18.70	30.02	1.623			
4,100.00	4,088.58	4,100.77	4,081.51	15.58	15.95	48.69	102.44	190.89	50.31	19.87	30.44	1.653			
4,150.00	4,138.12	4,150.73	4,130.71	15.75	16.12	47.35	107.49	197.94	51.92	21.07	30.85	1.683			

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

Anticollision Report

Company:	XTO Energy	Local Co-ordinate Reference:	Well 13-128H - Slot PLU 13 DTD 128H SHL
Project:	Eddy County, NM (NAD27) NMEZ Grid	TVD Reference:	3477+27 @ 3504.00usft (HP467)
Reference Site:	PLU 13 Dog Town Draw	MD Reference:	3477+27 @ 3504.00usft (HP467)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	13-128H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	128H Lateral	Database:	PREDATOR_EDM
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design PLU 13 Dog Town Draw - 13-108H - 108H Lateral - Plan #1														Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS														Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance									
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
4,200.00	4,187.67	4,200.89	4,179.91	15.93	16.29	48.09	112.54	204.99	53.57	22.31	31.26	1.714			
4,250.00	4,237.21	4,250.65	4,229.11	16.10	16.46	44.91	117.59	212.05	55.23	23.57	31.66	1.744			
4,300.00	4,286.76	4,300.61	4,278.32	16.27	16.63	43.80	122.65	219.10	56.92	24.86	32.06	1.775			
4,350.00	4,336.30	4,350.57	4,327.52	16.45	16.80	42.75	127.70	226.15	58.63	26.17	32.46	1.806			
4,400.00	4,385.85	4,400.53	4,376.72	16.62	16.98	41.76	132.75	233.20	60.36	27.51	32.85	1.837			
4,450.00	4,435.39	4,450.49	4,425.92	16.80	17.15	40.83	137.80	240.26	62.10	28.86	33.24	1.868			
4,500.00	4,484.94	4,500.45	4,475.12	16.97	17.32	39.94	142.85	247.31	63.86	30.23	33.63	1.899			
4,550.00	4,534.48	4,550.41	4,524.32	17.15	17.49	39.11	147.90	254.36	65.64	31.62	34.02	1.930			
4,600.00	4,584.03	4,600.37	4,573.52	17.32	17.66	38.32	152.95	261.42	67.43	33.03	34.40	1.960			
4,650.00	4,633.58	4,650.33	4,622.72	17.50	17.84	37.57	158.01	268.47	69.23	34.45	34.78	1.990			
4,700.00	4,683.12	4,700.29	4,671.92	17.67	18.01	36.86	163.06	275.52	71.04	35.88	35.16	2.020			
4,750.00	4,732.67	4,750.25	4,721.12	17.85	18.18	36.18	168.11	282.58	72.86	37.32	35.54	2.050			
4,800.00	4,782.21	4,800.21	4,770.32	18.03	18.36	35.54	173.16	289.63	74.69	38.78	35.92	2.080			
4,850.00	4,831.76	4,850.16	4,819.52	18.20	18.53	34.93	178.21	296.68	76.53	40.24	36.29	2.109			
4,900.00	4,881.30	4,900.12	4,868.72	18.38	18.70	34.34	183.26	303.74	78.38	41.72	36.67	2.138			
4,950.00	4,930.85	4,950.08	4,917.92	18.55	18.88	33.79	188.31	310.79	80.24	43.20	37.04	2.166			
5,000.00	4,980.39	5,000.04	4,967.12	18.73	19.05	33.25	193.37	317.84	82.10	44.69	37.41	2.195			
5,050.00	5,029.94	5,050.00	5,016.32	18.91	19.23	32.75	198.42	324.89	83.97	46.19	37.78	2.222			
5,100.00	5,079.48	5,099.96	5,055.52	19.09	19.40	32.26	203.47	331.95	85.85	47.70	38.15	2.250			
5,150.00	5,129.03	5,149.92	5,114.73	19.26	19.58	31.80	208.52	339.00	87.73	49.21	38.52	2.277			
5,200.00	5,178.57	5,199.88	5,163.93	19.44	19.75	31.35	213.57	346.05	89.62	50.73	38.89	2.304			
5,250.00	5,228.12	5,249.84	5,213.13	19.62	19.93	30.92	218.62	353.11	91.51	52.25	39.26	2.331			
5,300.00	5,277.67	5,299.80	5,262.33	19.80	20.11	30.52	223.67	360.16	93.41	53.78	39.63	2.357			
5,350.00	5,327.21	5,349.76	5,311.53	19.97	20.28	30.12	228.72	367.21	95.31	55.32	40.00	2.383			
5,400.00	5,376.76	5,399.72	5,360.73	20.15	20.46	29.74	233.78	374.27	97.22	56.86	40.37	2.409			
5,450.00	5,426.30	5,449.68	5,409.93	20.33	20.64	29.38	238.83	381.32	99.13	58.40	40.73	2.434			
5,500.00	5,475.85	5,499.64	5,459.13	20.51	20.81	29.03	243.88	388.37	101.05	59.95	41.10	2.459			
5,550.00	5,525.39	5,549.60	5,508.33	20.69	20.99	28.70	248.93	395.43	102.97	61.50	41.47	2.483			
5,600.00	5,574.94	5,599.56	5,557.53	20.86	21.17	28.37	253.98	402.48	104.89	63.06	41.83	2.507			
5,650.00	5,624.48	5,649.52	5,606.73	21.04	21.34	28.06	259.03	409.53	106.81	64.61	42.20	2.531			
5,700.00	5,674.03	5,699.48	5,655.93	21.22	21.52	27.76	264.08	416.58	108.74	66.18	42.56	2.555			
5,750.00	5,723.57	5,749.44	5,705.13	21.40	21.70	27.47	269.14	423.64	110.67	67.74	42.93	2.578			
5,800.00	5,773.12	5,799.40	5,754.33	21.58	21.88	27.19	274.19	430.69	112.61	69.31	43.30	2.601			
5,850.00	5,822.66	5,849.36	5,803.53	21.76	22.06	26.91	279.24	437.74	114.54	70.88	43.66	2.623			
5,900.00	5,872.21	5,899.32	5,852.73	21.94	22.23	26.65	284.29	444.80	116.48	72.46	44.03	2.646			
5,950.00	5,921.76	5,949.28	5,901.93	22.12	22.41	26.40	289.34	451.85	118.42	74.03	44.39	2.668			
6,000.00	5,971.30	5,999.24	5,951.14	22.29	22.59	26.15	294.39	458.90	120.37	75.61	44.76	2.689			
6,050.00	6,020.85	6,049.19	6,000.34	22.47	22.77	25.92	299.44	465.96	122.31	77.19	45.12	2.711			
6,100.00	6,070.39	6,099.15	6,049.54	22.65	22.95	25.68	304.50	473.01	124.25	78.77	45.49	2.732			
6,150.00	6,119.94	6,149.11	6,098.74	22.83	23.13	25.46	309.55	480.06	126.21	80.36	45.85	2.753			
6,200.00	6,169.48	6,199.07	6,147.94	23.01	23.31	25.25	314.60	487.12	128.16	81.95	46.22	2.773			
6,250.00	6,219.03	6,249.03	6,197.14	23.19	23.49	25.04	319.65	494.17	130.12	83.53	46.58	2.793			
6,300.00	6,268.57	6,298.99	6,246.34	23.37	23.67	24.83	324.70	501.22	132.07	85.12	46.95	2.813			
6,350.00	6,318.12	6,348.95	6,295.54	23.55	23.85	24.63	329.75	508.27	134.03	86.72	47.31	2.833			
6,400.00	6,367.66	6,398.91	6,344.74	23.73	24.02	24.44	334.80	515.33	135.99	88.31	47.68	2.852			
6,450.00	6,417.21	6,448.87	6,393.94	23.91	24.20	24.26	339.86	522.38	137.95	89.90	48.04	2.871			
6,500.00	6,466.75	6,498.83	6,443.14	24.09	24.38	24.07	344.91	529.43	139.91	91.50	48.41	2.890			
6,550.00	6,516.30	6,548.79	6,492.34	24.27	24.56	23.90	349.96	536.49	141.87	93.10	48.77	2.909			
6,600.00	6,565.84	6,598.75	6,541.54	24.45	24.74	23.73	355.01	543.54	143.83	94.70	49.14	2.927			
6,650.00	6,615.39	6,648.71	6,590.74	24.63	24.92	23.56	360.06	550.59	145.80	96.30	49.50	2.945			
6,700.00	6,664.94	6,700.37	6,641.67	24.81	25.10	23.43	365.12	557.65	147.90	97.59	49.92	2.955			
6,750.00	6,714.48	6,752.24	6,692.92	24.99	25.30	23.40	369.79	564.18	148.57	98.23	50.34	2.951			

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 13 Dog Town Draw
 Site Error: 0.00 usft
 Reference Well: 13-128H
 Well Error: 0.00 usft
 Reference Wellbore: 128H Lateral
 Reference Design: Plan #1

Local Co-ordinate Reference: Well 13-128H - Slot PLU 13 DTD 128H SHL
 TVD Reference: 3477+27 @ 3504.00usft (HP467)
 MD Reference: 3477+27 @ 3504.00usft (HP467)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 2.00 sigma
 Database: PREDATOR_EDM
 Offset TVD Reference: Offset Datum

Offset Design PLU 13 Dog Town Draw - 13-108H - 108H Lateral - Plan #1														Offset Site Error: 0.00 usft
Survey Program: 0-MWD+IFR1+MS														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 Tooface (")	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
6,800.00	6,764.03	6,804.13	6,744.28	25.17	25.50	23.47	374.06	570.14	149.01	98.25	50.76	2.935		
6,850.00	6,813.57	6,856.02	6,795.74	25.35	25.72	23.63	377.92	575.53	148.81	97.63	51.19	2.907		
6,900.00	6,863.12	6,907.89	6,847.27	25.53	25.93	23.89	381.38	580.36	147.99	96.39	51.60	2.868		
6,950.00	6,912.66	6,959.72	6,898.64	25.71	26.14	24.26	384.42	584.61	146.53	94.53	52.00	2.818		
7,000.00	6,962.21	7,011.49	6,950.41	25.89	26.35	24.74	387.06	588.29	144.45	92.07	52.38	2.758		
7,050.00	7,011.75	7,063.19	7,001.97	26.07	26.56	25.34	389.28	591.39	141.75	89.00	52.76	2.687		
7,100.00	7,061.30	7,114.79	7,053.48	26.25	26.77	26.07	391.10	593.93	138.46	85.34	53.12	2.607		
7,150.00	7,110.84	7,166.28	7,104.91	26.44	26.97	26.97	392.50	595.89	134.57	81.10	53.46	2.517		
7,200.00	7,160.39	7,217.64	7,156.24	26.62	27.18	28.04	393.50	597.29	130.10	76.31	53.80	2.418		
7,250.00	7,209.94	7,268.86	7,207.45	26.79	27.38	29.31	394.10	598.12	125.12	71.02	54.11	2.312		
7,300.00	7,259.56	7,319.98	7,258.56	26.97	27.57	30.68	394.30	598.40	120.06	65.67	54.39	2.207		
7,350.00	7,309.25	7,369.67	7,308.25	27.17	27.73	32.04	394.30	598.40	115.34	60.61	54.73	2.107		
7,400.00	7,359.01	7,419.43	7,358.01	27.35	27.90	33.33	394.30	598.40	111.24	56.17	55.07	2.020		
7,450.00	7,408.84	7,469.25	7,407.84	27.57	28.07	34.53	394.30	598.40	107.73	52.32	55.41	1.944		
7,500.00	7,458.71	7,519.12	7,457.71	27.77	28.24	35.61	394.30	598.40	104.81	49.05	55.76	1.880		
7,550.00	7,508.62	7,569.04	7,507.62	27.97	28.40	36.54	394.30	598.40	102.46	46.35	56.11	1.826		
7,600.00	7,558.57	7,618.99	7,557.57	28.18	28.57	37.29	394.30	598.40	100.65	44.20	56.46	1.783		
7,650.00	7,608.55	7,668.96	7,607.55	28.38	28.74	37.84	394.30	598.40	99.38	42.57	56.81	1.749		
7,700.00	7,658.54	7,718.95	7,657.54	28.58	28.91	38.17	394.30	598.40	98.63	41.47	57.17	1.725		
7,750.00	7,708.53	7,768.95	7,707.53	28.75	29.08	39.01	394.30	598.40	98.40	40.89	57.51	1.711		
7,800.00	7,758.53	7,818.95	7,757.53	28.92	29.25	39.01	394.30	598.40	98.40	40.55	57.84	1.701		
7,850.00	7,808.53	7,868.95	7,807.53	29.09	29.42	39.01	394.30	598.40	98.40	40.22	58.18	1.691		
7,900.00	7,858.53	7,918.95	7,857.53	29.25	29.60	39.01	394.30	598.40	98.40	39.88	58.52	1.681		
7,950.00	7,908.53	7,968.95	7,907.53	29.43	29.77	39.01	394.30	598.40	98.40	39.54	58.86	1.672		
8,000.00	7,958.53	8,018.95	7,957.53	29.61	29.94	39.01	394.30	598.40	98.40	39.20	59.20	1.662		
8,050.00	8,008.53	8,068.95	8,007.53	29.78	30.11	39.01	394.30	598.40	98.40	38.85	59.55	1.653		
8,100.00	8,058.53	8,118.95	8,057.53	29.95	30.28	39.01	394.30	598.40	98.40	38.51	59.89	1.643		
8,150.00	8,108.53	8,168.95	8,107.53	30.13	30.45	39.01	394.30	598.40	98.40	38.17	60.23	1.634		
8,200.00	8,158.53	8,218.95	8,157.53	30.30	30.62	39.01	394.30	598.40	98.40	37.83	60.57	1.625		
8,250.00	8,208.53	8,268.95	8,207.53	30.47	30.79	39.01	394.30	598.40	98.40	37.49	60.91	1.615		
8,300.00	8,258.53	8,318.95	8,257.53	30.65	30.96	39.01	394.30	598.40	98.40	37.14	61.26	1.606		
8,350.00	8,308.53	8,368.95	8,307.53	30.82	31.13	39.01	394.30	598.40	98.40	36.80	61.60	1.597		
8,400.00	8,358.53	8,418.95	8,357.53	30.99	31.31	39.01	394.30	598.40	98.40	36.46	61.94	1.589		
8,450.00	8,408.53	8,468.95	8,407.53	31.17	31.48	39.01	394.30	598.40	98.40	36.12	62.28	1.580		
8,500.00	8,458.53	8,518.95	8,457.53	31.34	31.65	39.01	394.30	598.40	98.40	35.77	62.63	1.571		
8,550.00	8,508.53	8,568.95	8,507.53	31.51	31.82	39.01	394.30	598.40	98.40	35.43	62.97	1.563		
8,600.00	8,558.53	8,618.95	8,557.53	31.69	31.99	39.01	394.30	598.40	98.40	35.09	63.31	1.554		
8,650.00	8,608.53	8,668.95	8,607.53	31.86	32.17	39.01	394.30	598.40	98.40	34.74	63.66	1.546		
8,700.00	8,658.53	8,718.95	8,657.53	32.04	32.34	39.01	394.30	598.40	98.40	34.40	64.00	1.537		
8,750.00	8,708.53	8,768.95	8,707.53	32.21	32.51	39.01	394.30	598.40	98.40	34.05	64.34	1.529		
8,800.00	8,758.53	8,818.95	8,757.53	32.38	32.68	39.01	394.30	598.40	98.40	33.71	64.69	1.521		
8,850.00	8,808.53	8,868.95	8,807.53	32.55	32.85	39.01	394.30	598.40	98.40	33.37	65.03	1.513		
8,900.00	8,858.53	8,918.95	8,857.53	32.73	33.03	39.01	394.30	598.40	98.40	33.02	65.38	1.505		
8,950.00	8,908.53	8,968.95	8,907.53	32.91	33.20	39.01	394.30	598.40	98.40	32.69	65.72	1.497 Level 3		
9,000.00	8,958.53	9,018.95	8,957.53	33.08	33.37	39.01	394.30	598.40	98.40	32.33	66.07	1.489 Level 3		
9,050.00	9,008.53	9,068.95	9,007.53	33.26	33.54	39.01	394.30	598.40	98.40	31.99	66.41	1.482 Level 3		
9,100.00	9,058.53	9,118.95	9,057.53	33.43	33.71	39.01	394.30	598.40	98.40	31.65	66.75	1.474 Level 3		
9,150.00	9,108.53	9,168.95	9,107.53	33.60	33.88	39.01	394.30	598.40	98.40	31.30	67.10	1.467 Level 3		
9,200.00	9,158.53	9,218.95	9,157.53	33.78	34.05	39.01	394.30	598.40	98.40	30.95	67.44	1.459 Level 3		
9,250.00	9,208.53	9,268.95	9,207.53	33.95	34.22	39.01	394.30	598.40	98.40	30.61	67.79	1.452 Level 3		
9,300.00	9,258.53	9,318.95	9,257.53	34.13	34.40	39.01	394.30	598.40	98.40	30.27	68.13	1.444 Level 3		
9,350.00	9,308.53	9,368.95	9,307.53	34.30	34.57	39.01	394.30	598.40	98.40	29.92	68.48	1.437 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 13 Dog Town Draw
 Site Error: 0.00 usft
 Reference Well: 13-128H
 Well Error: 0.00 usft
 Reference Wellbore: 128H Lateral
 Reference Design: Plan #1

Local Co-ordinate Reference: Well 13-128H - Slot PLU 13 DTD 128H SHL
 TVD Reference: 3477+27 @ 3504.00usft (HP467)
 MD Reference: 3477+27 @ 3504.00usft (HP467)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 2.00 sigma
 Database: PREDATOR_EDM
 Offset TVD Reference: Offset Datum

Offset Design: PLU 13 Dog Town Draw - 13-108H - 108H Lateral - Plan #1														Offset Site Error: 0.00 usft	
Survey Program: 0-MWD-HFR1+MS														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			
9,400.00	9,358.53	9,418.95	9,357.53	34.48	34.74	90.01	394.30	598.40	98.40	29.58	68.82	1.430 Level 3			
9,450.00	9,406.53	9,468.95	9,407.53	34.65	34.92	90.01	394.30	598.40	98.40	29.23	69.17	1.423 Level 3			
9,500.00	9,458.53	9,518.95	9,457.53	34.83	35.09	90.01	394.30	598.40	98.40	28.89	69.51	1.416 Level 3			
9,550.00	9,508.53	9,568.95	9,507.53	35.00	35.26	90.01	394.30	598.40	98.40	28.54	69.86	1.409 Level 3			
9,600.00	9,558.53	9,618.95	9,557.53	35.18	35.44	90.01	394.30	598.40	98.40	28.19	70.21	1.402 Level 3			
9,650.00	9,608.53	9,668.95	9,607.53	35.35	35.61	90.01	394.30	598.40	98.40	27.85	70.55	1.395 Level 3			
9,700.00	9,658.53	9,718.95	9,657.53	35.53	35.78	90.01	394.30	598.40	98.40	27.50	70.90	1.388 Level 3			
9,750.00	9,708.53	9,768.95	9,707.53	35.70	35.96	90.01	394.30	598.40	98.40	27.15	71.25	1.381 Level 3			
9,800.00	9,758.53	9,818.95	9,757.53	35.88	36.13	90.01	394.30	598.40	98.40	26.81	71.59	1.374 Level 3			
9,850.00	9,808.53	9,868.95	9,807.53	36.05	36.31	90.01	394.30	598.40	98.40	26.46	71.94	1.368 Level 3			
9,900.00	9,858.53	9,918.95	9,857.53	36.23	36.48	90.01	394.30	598.40	98.40	26.11	72.29	1.361 Level 3			
9,950.00	9,908.53	9,968.95	9,907.53	36.41	36.65	90.01	394.30	598.40	98.40	25.76	72.64	1.355 Level 3			
10,000.00	9,958.53	10,018.95	9,957.53	36.58	36.83	90.01	394.30	598.40	98.40	25.42	72.98	1.348 Level 3			
10,050.00	10,008.53	10,068.95	10,007.53	36.76	37.00	90.01	394.30	598.40	98.40	25.07	73.33	1.342 Level 3			
10,100.00	10,058.53	10,118.95	10,057.53	36.93	37.18	90.01	394.30	598.40	98.40	24.72	73.68	1.336 Level 3			
10,150.00	10,108.53	10,168.95	10,107.53	37.11	37.35	90.01	394.30	598.40	98.40	24.37	74.03	1.329 Level 3			
10,200.00	10,158.53	10,218.95	10,157.53	37.28	37.52	90.01	394.30	598.40	98.40	24.03	74.37	1.323 Level 3			
10,250.00	10,208.53	10,268.95	10,207.53	37.46	37.70	90.01	394.30	598.40	98.40	23.68	74.72	1.317 Level 3			
10,300.00	10,258.53	10,318.95	10,257.53	37.63	37.87	90.01	394.30	598.40	98.40	23.33	75.07	1.311 Level 3			
10,350.00	10,308.53	10,368.95	10,307.53	37.81	38.05	90.01	394.30	598.40	98.40	22.98	75.42	1.305 Level 3			
10,400.00	10,358.53	10,418.95	10,357.53	37.99	38.22	90.01	394.30	598.40	98.40	22.64	75.76	1.299 Level 3			
10,450.00	10,408.53	10,468.95	10,407.53	38.16	38.40	90.01	394.30	598.40	98.40	22.29	76.11	1.293 Level 3			
10,500.00	10,458.53	10,518.95	10,457.53	38.34	38.57	90.01	394.30	598.40	98.40	21.94	76.46	1.287 Level 3			
10,550.00	10,508.53	10,568.95	10,507.53	38.51	38.74	90.01	394.30	598.40	98.40	21.59	76.81	1.281 Level 3			
10,600.00	10,558.53	10,618.95	10,557.53	38.69	38.92	90.01	394.30	598.40	98.40	21.24	77.16	1.275 Level 3			
10,650.00	10,608.53	10,668.95	10,607.53	38.87	39.09	90.01	394.30	598.40	98.40	20.89	77.51	1.270 Level 3			
10,700.00	10,658.53	10,718.95	10,657.53	39.04	39.27	90.01	394.30	598.40	98.40	20.54	77.86	1.264 Level 3			
10,750.00	10,708.53	10,768.95	10,707.53	39.22	39.44	90.01	394.30	598.40	98.40	20.20	78.20	1.258 Level 3			
10,800.00	10,758.53	10,818.95	10,757.53	39.39	39.62	90.01	394.30	598.40	98.40	19.85	78.55	1.253 Level 3			
10,850.00	10,808.53	10,868.95	10,807.53	39.57	39.79	90.01	394.30	598.40	98.40	19.50	78.90	1.247 Level 2			
10,900.00	10,858.53	10,918.95	10,857.53	39.75	39.97	90.01	394.30	598.40	98.40	19.15	79.25	1.242 Level 2			
10,950.00	10,908.53	10,968.95	10,907.53	39.92	40.14	90.01	394.30	598.40	98.40	18.80	79.60	1.236 Level 2			
10,953.59	10,912.22	10,972.64	10,911.22	39.94	40.16	90.01	394.30	598.40	98.40	18.77	79.63	1.236 Level 2			
11,000.00	10,958.53	11,018.94	10,957.52	40.10	40.32	90.09	394.16	598.40	98.40	18.45	79.95	1.231 Level 2			
11,050.00	11,008.53	11,068.66	11,007.12	40.27	40.48	91.97	390.93	598.41	98.47	18.21	80.26	1.227 Level 2, SF			
11,100.00	11,058.53	11,117.46	11,055.35	40.45	40.66	96.23	383.58	598.44	99.05	18.48	80.57	1.229 Level 2			
11,150.00	11,108.53	11,164.69	11,101.27	40.63	40.82	102.44	372.59	598.48	101.05	20.32	80.73	1.252 Level 3			
11,200.00	11,158.53	11,209.81	11,144.15	40.80	40.98	109.93	358.59	598.54	105.67	25.27	80.59	1.314 Level 3			
11,250.00	11,208.53	11,252.45	11,183.55	40.98	41.12	117.82	342.30	598.60	114.03	34.75	79.28	1.438 Level 3			
11,300.00	11,258.53	11,292.37	11,219.24	41.15	41.25	125.31	324.43	598.67	126.83	49.32	77.52	1.636			
11,350.00	11,308.53	11,329.48	11,251.22	41.33	41.36	131.93	305.63	598.74	144.18	68.72	75.45	1.911			
11,400.00	11,358.53	11,363.78	11,279.65	41.51	41.46	137.51	286.44	598.81	165.73	92.36	73.36	2.259			
11,450.00	11,408.53	11,400.00	11,308.36	41.69	41.56	142.73	264.37	598.90	191.05	118.91	72.15	2.648			
11,500.00	11,458.53	11,424.37	11,326.88	41.86	41.62	145.83	248.52	598.96	219.37	149.68	69.69	3.148			
11,550.00	11,508.53	11,450.00	11,345.59	42.04	41.69	148.77	231.02	599.02	250.39	182.39	68.00	3.682			

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

Anticollision Report

Company:	XTO Energy	Local Co-ordinate Reference:	Well 13-128H - Slot PLU 13 DTD 128H SHL
Project:	Eddy County, NM (NAD27) NMEZ Grid	TVD Reference:	3477+27 @ 3504.00usft (HP467)
Reference Site:	PLU 13 Dog Town Draw	MD Reference:	3477+27 @ 3504.00usft (HP467)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	13-128H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	128H Lateral	Database:	PREDATOR_EDM
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design PLU 13 Dog Town Draw - 13-208H - 208H Lateral - Plan #1														Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS														Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance									
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Tooface (")	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
2,400.00	2,400.00	2,399.00	2,399.00	9.31	9.30	179.75	-69.80	0.30	69.80	52.13	17.67	3.950			
2,450.00	2,450.00	2,449.00	2,449.00	9.49	9.49	179.75	-69.80	0.30	69.80	51.77	18.03	3.871			
2,500.00	2,500.00	2,499.00	2,499.00	9.67	9.67	179.75	-69.80	0.30	69.80	51.41	18.39	3.795			
2,550.00	2,550.00	2,549.77	2,549.77	9.87	9.88	128.09	-69.53	0.47	69.73	50.97	18.76	3.717			
2,600.00	2,599.99	2,600.55	2,600.54	10.07	10.09	128.30	-68.68	1.01	69.51	50.37	19.13	3.633			
2,650.00	2,649.96	2,651.33	2,651.29	10.30	10.33	128.64	-67.26	1.90	69.13	49.61	19.52	3.542			
2,700.00	2,699.91	2,702.10	2,702.01	10.53	10.58	129.13	-65.28	3.15	68.60	48.69	19.91	3.446			
2,750.00	2,749.82	2,752.87	2,752.68	10.76	10.82	129.77	-62.72	4.76	67.92	47.62	20.29	3.347			
2,800.00	2,799.69	2,803.62	2,803.31	10.99	11.06	130.56	-59.60	6.73	67.10	46.41	20.69	3.243			
2,850.00	2,849.51	2,854.37	2,853.87	11.21	11.29	131.52	-55.91	9.06	66.14	45.06	21.08	3.137			
2,900.00	2,899.27	2,905.11	2,904.35	11.44	11.52	132.66	-51.65	11.75	65.06	43.57	21.48	3.028			
2,950.00	2,948.96	2,955.84	2,954.75	11.66	11.72	134.00	-46.82	14.79	63.86	41.99	21.87	2.920			
3,000.00	2,998.57	3,005.95	3,004.50	11.88	11.88	135.61	-41.67	18.04	62.75	40.47	22.28	2.816			
3,050.00	3,048.12	3,055.90	3,054.08	12.04	12.04	137.57	-36.52	21.29	62.05	39.35	22.70	2.734			
3,100.00	3,097.67	3,105.85	3,103.65	12.20	12.21	139.59	-31.37	24.54	61.44	38.32	23.12	2.658			
3,150.00	3,147.21	3,155.80	3,153.23	12.36	12.38	141.64	-26.22	27.79	60.91	37.37	23.54	2.586			
3,200.00	3,196.76	3,205.75	3,202.81	12.53	12.54	143.73	-21.07	31.03	60.46	36.50	23.96	2.524			
3,250.00	3,246.30	3,255.70	3,252.36	12.69	12.71	145.85	-15.93	34.28	60.09	35.72	24.38	2.465			
3,300.00	3,295.85	3,305.65	3,301.96	12.85	12.88	147.99	-10.78	37.53	59.81	35.01	24.80	2.412			
3,350.00	3,345.40	3,355.60	3,351.54	13.03	13.05	150.15	-5.63	40.78	59.61	34.39	25.21	2.364			
3,400.00	3,394.94	3,405.55	3,401.11	13.19	13.23	152.32	-0.48	44.02	59.49	33.86	25.63	2.321			
3,442.16	3,436.72	3,447.67	3,442.92	13.33	13.37	154.15	3.86	46.76	59.46	33.48	25.98	2.289 CC			
3,450.00	3,444.49	3,455.49	3,450.69	13.36	13.40	154.49	4.67	47.27	59.47	33.42	26.04	2.283			
3,500.00	3,494.03	3,505.44	3,500.27	13.53	13.57	156.67	9.82	50.52	59.52	33.07	26.45	2.250			
3,550.00	3,543.58	3,555.39	3,549.84	13.70	13.74	158.83	14.97	53.77	59.66	32.80	26.86	2.221			
3,600.00	3,593.12	3,605.34	3,599.42	13.87	13.91	160.99	20.11	57.01	59.89	32.62	27.27	2.197			
3,650.00	3,642.67	3,655.29	3,649.00	14.04	14.08	163.12	25.26	60.26	60.20	32.53	27.67	2.176			
3,700.00	3,692.21	3,705.24	3,698.57	14.21	14.26	165.23	30.41	63.51	60.60	32.53	28.06	2.159 ES			
3,750.00	3,741.76	3,755.19	3,748.15	14.38	14.43	167.31	35.56	66.76	61.07	32.61	28.46	2.146			
3,800.00	3,791.30	3,805.14	3,797.73	14.55	14.60	169.35	40.71	70.00	61.62	32.78	28.84	2.137			
3,850.00	3,840.85	3,855.09	3,847.30	14.72	14.78	171.36	45.86	73.25	62.26	33.03	29.23	2.130			
3,900.00	3,890.39	3,905.03	3,896.88	14.89	14.95	173.32	51.01	76.50	62.96	33.35	29.61	2.127			
3,950.00	3,939.94	3,954.98	3,946.46	15.06	15.12	175.24	56.16	79.75	63.74	33.76	29.98	2.126 SF			
4,000.00	3,989.49	4,004.93	3,996.03	15.23	15.30	177.11	61.30	82.99	64.59	34.23	30.36	2.128			
4,050.00	4,039.03	4,054.88	4,045.61	15.41	15.47	178.93	66.45	86.24	65.50	34.78	30.72	2.132			
4,100.00	4,088.58	4,104.83	4,095.19	15.58	15.65	179.31	71.60	89.49	66.48	35.39	31.09	2.138			
4,150.00	4,138.12	4,154.78	4,144.76	15.75	15.82	177.59	76.75	92.74	67.52	36.07	31.45	2.147			
4,200.00	4,187.67	4,204.73	4,194.34	15.93	16.00	175.93	81.90	95.98	68.62	36.81	31.81	2.157			
4,250.00	4,237.21	4,254.68	4,243.92	16.10	16.17	174.32	87.05	99.23	69.78	37.61	32.17	2.169			
4,300.00	4,286.75	4,304.63	4,293.49	16.27	16.35	172.77	92.20	102.48	70.99	38.46	32.52	2.183			
4,350.00	4,336.30	4,354.58	4,343.07	16.45	16.52	171.27	97.34	105.73	72.25	39.37	32.88	2.197			
4,400.00	4,385.85	4,404.52	4,392.65	16.62	16.70	169.82	102.49	108.97	73.55	40.32	33.23	2.214			
4,450.00	4,435.39	4,454.47	4,442.22	16.80	16.88	168.42	107.64	112.22	74.91	41.33	33.58	2.231			
4,500.00	4,484.94	4,504.42	4,491.80	16.97	17.05	167.08	112.79	115.47	76.30	42.37	33.93	2.249			
4,550.00	4,534.48	4,554.37	4,541.38	17.15	17.23	165.78	117.94	118.72	77.74	43.46	34.28	2.268			
4,600.00	4,584.03	4,604.32	4,590.95	17.32	17.40	164.53	123.09	121.96	79.21	44.59	34.62	2.288			
4,650.00	4,633.58	4,654.27	4,640.53	17.50	17.58	163.32	128.24	125.21	80.72	45.75	34.97	2.308			
4,700.00	4,683.12	4,704.22	4,690.11	17.67	17.76	162.16	133.38	128.46	82.27	46.95	35.32	2.329			
4,750.00	4,732.67	4,754.17	4,739.68	17.85	17.93	161.05	138.53	131.71	83.85	48.18	35.66	2.351			
4,800.00	4,782.21	4,804.12	4,789.26	18.03	18.11	159.97	143.68	134.95	85.45	49.45	36.01	2.373			
4,850.00	4,831.76	4,854.06	4,838.84	18.20	18.29	158.94	148.83	138.20	87.09	50.74	36.35	2.396			
4,900.00	4,881.30	4,904.01	4,888.41	18.38	18.47	157.94	153.98	141.45	88.76	52.06	36.70	2.419			

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

Anticollision Report

Company:	XTO Energy	Local Co-ordinate Reference:	Well 13-128H - Slot PLU 13 DTD 128H SHL
Project:	Eddy County, NM (NAD27) NMEZ Grid	TVD Reference:	3477+27 @ 3504.00usft (HP467)
Reference Site:	PLU 13 Dog Town Draw	MD Reference:	3477+27 @ 3504.00usft (HP467)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	13-128H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	128H Lateral	Database:	PREDATOR_EDM
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design										Offset Site Error:		0.00 usft	
Survey Program: 0-MWD+IFR1+MS										Offset Well Error:		0.00 usft	
Reference		Offset		Semi Major Axis		Distance							
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	Warning
4,950.00	4,930.85	4,953.96	4,937.99	18.55	18.64	-156.98	159.13	144.70	90.45	53.40	37.04	2.442	
5,000.00	4,980.39	5,003.91	4,987.57	18.73	18.82	-156.06	164.28	147.94	92.16	54.77	37.39	2.465	
5,050.00	5,029.94	5,053.86	5,037.14	18.91	19.00	-155.17	169.42	151.19	93.90	56.16	37.73	2.488	
5,100.00	5,079.48	5,103.81	5,086.72	19.09	19.18	-154.31	174.57	154.44	95.66	57.58	38.08	2.512	
5,150.00	5,129.03	5,153.76	5,136.30	19.26	19.35	-153.48	179.72	157.69	97.44	59.01	38.43	2.536	
5,200.00	5,178.57	5,203.71	5,185.87	19.44	19.53	-152.69	184.87	160.93	99.24	60.47	38.77	2.560	
5,250.00	5,228.12	5,253.66	5,235.45	19.52	19.71	-151.92	190.02	164.18	101.06	61.94	39.12	2.583	
5,300.00	5,277.67	5,303.60	5,285.02	19.80	19.89	-151.18	195.17	167.43	102.89	63.43	39.47	2.607	
5,350.00	5,327.21	5,353.55	5,334.60	19.97	20.07	-150.46	200.32	170.68	104.75	64.93	39.81	2.631	
5,400.00	5,376.76	5,403.50	5,384.16	20.15	20.24	-149.78	205.47	173.92	106.61	66.45	40.16	2.655	
5,450.00	5,426.30	5,453.45	5,433.75	20.33	20.42	-149.11	210.61	177.17	108.50	67.99	40.51	2.678	
5,500.00	5,475.85	5,503.40	5,483.33	20.51	20.60	-148.47	215.76	180.42	110.39	69.54	40.86	2.702	
5,550.00	5,525.39	5,553.35	5,532.91	20.69	20.78	-147.84	220.91	183.67	112.30	71.10	41.21	2.725	
5,600.00	5,574.94	5,603.30	5,582.46	20.86	20.96	-147.24	226.06	186.91	114.23	72.67	41.56	2.749	
5,650.00	5,624.48	5,653.25	5,632.06	21.04	21.14	-146.66	231.21	190.16	116.16	74.26	41.91	2.772	
5,700.00	5,674.03	5,703.20	5,681.64	21.22	21.32	-146.10	236.36	193.41	118.11	75.85	42.26	2.795	
5,750.00	5,723.57	5,753.14	5,731.21	21.40	21.49	-145.56	241.51	196.66	120.07	77.46	42.61	2.818	
5,800.00	5,773.12	5,803.09	5,780.79	21.58	21.67	-145.03	246.65	199.90	122.04	79.08	42.96	2.841	
5,850.00	5,822.66	5,853.04	5,830.37	21.76	21.85	-144.52	251.80	203.15	124.01	80.71	43.31	2.864	
5,900.00	5,872.21	5,902.99	5,879.94	21.94	22.03	-144.03	256.95	206.40	126.00	82.34	43.66	2.886	
5,950.00	5,921.76	5,952.94	5,929.52	22.12	22.21	-143.55	262.10	209.65	128.00	83.99	44.01	2.908	
6,000.00	5,971.30	6,002.89	5,979.10	22.29	22.39	-143.09	267.25	212.89	130.00	85.64	44.36	2.931	
6,050.00	6,020.85	6,052.84	6,028.67	22.47	22.57	-142.64	272.40	216.14	132.02	87.30	44.71	2.952	
6,100.00	6,070.39	6,102.79	6,078.25	22.65	22.75	-142.21	277.55	219.39	134.04	88.97	45.07	2.974	
6,150.00	6,119.94	6,152.74	6,127.83	22.83	22.93	-141.78	282.69	222.64	136.07	90.65	45.42	2.996	
6,200.00	6,169.48	6,202.68	6,177.40	23.01	23.11	-141.37	287.84	225.88	138.11	92.33	45.77	3.017	
6,250.00	6,219.03	6,252.63	6,226.98	23.19	23.29	-140.98	292.99	229.13	140.15	94.02	46.13	3.038	
6,300.00	6,268.57	6,302.58	6,276.56	23.37	23.47	-140.59	298.14	232.38	142.20	95.72	46.48	3.059	
6,350.00	6,318.12	6,352.53	6,326.13	23.55	23.64	-140.21	303.29	235.63	144.25	97.42	46.84	3.080	
6,400.00	6,367.66	6,402.48	6,375.71	23.73	23.82	-139.85	308.44	238.87	146.32	99.13	47.19	3.101	
6,450.00	6,417.21	6,452.43	6,425.29	23.91	24.00	-139.49	313.59	242.12	148.38	100.84	47.54	3.121	
6,500.00	6,466.75	6,502.38	6,474.86	24.09	24.18	-139.15	318.73	245.37	150.46	102.56	47.90	3.141	
6,550.00	6,516.30	6,552.33	6,524.44	24.27	24.36	-138.81	323.88	248.62	152.54	104.28	48.25	3.161	
6,600.00	6,565.84	6,602.28	6,574.02	24.45	24.54	-138.49	329.03	251.86	154.62	106.01	48.61	3.181	
6,650.00	6,615.39	6,652.22	6,623.59	24.63	24.72	-138.17	334.18	255.11	156.71	107.74	48.97	3.200	
6,700.00	6,664.94	6,702.17	6,673.17	24.81	24.90	-137.86	339.33	258.36	158.80	109.48	49.32	3.220	
6,750.00	6,714.48	6,752.12	6,722.75	24.99	25.08	-137.56	344.48	261.61	160.90	111.22	49.68	3.239	
6,800.00	6,764.03	6,802.07	6,772.32	25.17	25.26	-137.26	349.63	264.85	163.00	112.97	50.03	3.258	
6,850.00	6,813.57	6,852.02	6,821.90	25.35	25.44	-136.98	354.78	268.10	165.11	114.72	50.39	3.276	
6,900.00	6,863.12	6,901.97	6,871.48	25.53	25.52	-136.70	359.92	271.35	167.22	116.47	50.75	3.295	
6,950.00	6,912.66	6,951.92	6,921.05	25.71	25.80	-136.43	365.07	274.60	169.33	118.23	51.10	3.313	
7,000.00	6,962.21	7,001.67	6,970.44	25.89	25.98	-136.16	370.19	277.82	171.45	119.99	51.46	3.332	
7,050.00	7,011.75	7,050.62	7,019.07	26.07	26.16	-136.04	374.87	280.78	173.77	121.96	51.82	3.354	
7,100.00	7,061.30	7,100.00	7,068.20	26.26	26.34	-136.10	379.06	283.42	176.38	124.20	52.18	3.380	
7,150.00	7,110.84	7,148.43	7,116.45	26.44	26.54	-136.34	382.64	285.68	179.28	126.73	52.55	3.412	
7,200.00	7,160.39	7,197.26	7,165.13	26.62	26.74	-136.74	385.73	287.62	182.47	129.55	52.93	3.448	
7,250.00	7,209.94	7,246.01	7,213.79	26.79	26.94	-137.31	388.29	289.24	185.94	132.54	53.30	3.489	
7,300.00	7,259.56	7,294.72	7,262.45	26.97	27.13	-137.94	390.32	290.52	189.35	135.68	53.67	3.528	
7,350.00	7,309.25	7,343.40	7,311.09	27.17	27.33	-138.58	391.83	291.47	192.60	138.54	54.06	3.563	
7,400.00	7,359.01	7,392.04	7,359.72	27.35	27.53	-139.23	392.81	292.09	195.69	141.25	54.44	3.595	
7,450.00	7,408.84	7,440.64	7,408.31	27.57	27.70	-139.90	393.26	292.38	198.62	143.81	54.81	3.624	
7,500.00	7,458.71	7,490.03	7,457.71	27.77	27.87	-140.56	393.30	292.40	201.34	146.15	55.19	3.648	

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

Anticollision Report

Company:	XTO Energy	Local Co-ordinate Reference:	Well 13-128H - Slot PLU 13 DTD 128H SHL
Project:	Eddy County, NM (NAD27) NMEZ Grid	TVD Reference:	3477+27 @ 3504.00usft (HP467)
Reference Site:	PLU 13 Dog Town Draw	MD Reference:	3477+27 @ 3504.00usft (HP467)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	13-128H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore:	128H Lateral	Database:	PREDATOR_EDM
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design PLU 13 Dog Town Draw - 13-208H - 208H Lateral - Plan #1														Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS														Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance									
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	Warning		
7,550.00	7,508.62	7,539.95	7,507.62	27.97	28.04	-141.10	393.30	292.40	203.60	148.02	55.58	3.663			
7,600.00	7,558.57	7,589.90	7,557.57	28.18	28.22	-141.51	393.30	292.40	205.36	149.40	55.96	3.670			
7,650.00	7,608.55	7,639.87	7,607.55	28.38	28.39	-141.80	393.30	292.40	206.62	150.28	56.34	3.668			
7,700.00	7,658.54	7,689.86	7,657.54	28.58	28.57	-141.97	393.30	292.40	207.37	150.66	56.71	3.656			
7,750.00	7,708.53	7,739.86	7,707.53	28.75	28.74	-90.28	393.30	292.40	207.60	150.54	57.06	3.638			
7,800.00	7,758.53	7,789.86	7,757.53	28.92	28.92	-90.28	393.30	292.40	207.60	150.20	57.40	3.617			
7,850.00	7,808.53	7,839.86	7,807.53	29.09	29.09	-90.28	393.30	292.40	207.60	149.85	57.75	3.595			
7,900.00	7,858.53	7,889.86	7,857.53	29.26	29.27	-90.28	393.30	292.40	207.60	149.51	58.09	3.574			
7,950.00	7,908.53	7,939.86	7,907.53	29.43	29.44	-90.28	393.30	292.40	207.60	149.16	58.44	3.553			
8,000.00	7,958.53	7,989.86	7,957.53	29.61	29.62	-90.28	393.30	292.40	207.60	148.82	58.78	3.532			
8,050.00	8,008.53	8,039.86	8,007.53	29.78	29.79	-90.28	393.30	292.40	207.60	148.47	59.13	3.511			
8,100.00	8,058.53	8,089.86	8,057.53	29.95	29.97	-90.28	393.30	292.40	207.60	148.13	59.48	3.490			
8,150.00	8,108.53	8,139.86	8,107.53	30.13	30.14	-90.28	393.30	292.40	207.60	147.78	59.82	3.470			
8,200.00	8,158.53	8,189.86	8,157.53	30.30	30.32	-90.28	393.30	292.40	207.60	147.43	60.17	3.450			
8,250.00	8,208.53	8,239.86	8,207.53	30.47	30.49	-90.28	393.30	292.40	207.60	147.09	60.52	3.431			
8,300.00	8,258.53	8,289.86	8,257.53	30.65	30.67	-90.28	393.30	292.40	207.60	146.74	60.86	3.411			
8,350.00	8,308.53	8,339.86	8,307.53	30.82	30.84	-90.28	393.30	292.40	207.60	146.39	61.21	3.392			
8,400.00	8,358.53	8,389.86	8,357.53	30.99	31.02	-90.28	393.30	292.40	207.60	146.04	61.56	3.372			
8,450.00	8,408.53	8,439.86	8,407.53	31.17	31.20	-90.28	393.30	292.40	207.60	145.70	61.90	3.354			
8,500.00	8,458.53	8,489.86	8,457.53	31.34	31.37	-90.28	393.30	292.40	207.60	145.35	62.25	3.335			
8,550.00	8,508.53	8,539.86	8,507.53	31.51	31.55	-90.28	393.30	292.40	207.60	145.00	62.60	3.316			
8,600.00	8,558.53	8,589.86	8,557.53	31.69	31.72	-90.28	393.30	292.40	207.60	144.65	62.95	3.298			
8,650.00	8,608.53	8,639.86	8,607.53	31.86	31.90	-90.28	393.30	292.40	207.60	144.31	63.30	3.280			
8,700.00	8,658.53	8,689.86	8,657.53	32.04	32.08	-90.28	393.30	292.40	207.60	143.96	63.64	3.262			
8,750.00	8,708.53	8,739.86	8,707.53	32.21	32.25	-90.28	393.30	292.40	207.60	143.61	63.99	3.244			
8,800.00	8,758.53	8,789.86	8,757.53	32.38	32.43	-90.28	393.30	292.40	207.60	143.26	64.34	3.227			
8,850.00	8,808.53	8,839.86	8,807.53	32.56	32.60	-90.28	393.30	292.40	207.60	142.91	64.69	3.209			
8,900.00	8,858.53	8,889.86	8,857.53	32.73	32.78	-90.28	393.30	292.40	207.60	142.57	65.04	3.192			
8,950.00	8,908.53	8,939.86	8,907.53	32.91	32.96	-90.28	393.30	292.40	207.60	142.22	65.38	3.175			
9,000.00	8,958.53	8,989.86	8,957.53	33.08	33.13	-90.28	393.30	292.40	207.60	141.87	65.73	3.158			
9,050.00	9,008.53	9,039.86	9,007.53	33.26	33.31	-90.28	393.30	292.40	207.60	141.52	66.08	3.142			
9,100.00	9,058.53	9,089.86	9,057.53	33.43	33.48	-90.28	393.30	292.40	207.60	141.17	66.43	3.125			
9,150.00	9,108.53	9,139.86	9,107.53	33.60	33.66	-90.28	393.30	292.40	207.60	140.82	66.78	3.109			
9,200.00	9,158.53	9,189.86	9,157.53	33.78	33.84	-90.28	393.30	292.40	207.60	140.47	67.13	3.093			
9,250.00	9,208.53	9,239.86	9,207.53	33.95	34.01	-90.28	393.30	292.40	207.60	140.12	67.48	3.077			
9,300.00	9,258.53	9,289.86	9,257.53	34.13	34.19	-90.28	393.30	292.40	207.60	139.78	67.83	3.061			
9,350.00	9,308.53	9,339.86	9,307.53	34.30	34.37	-90.28	393.30	292.40	207.60	139.43	68.18	3.045			
9,400.00	9,358.53	9,389.86	9,357.53	34.48	34.54	-90.28	393.30	292.40	207.60	139.08	68.53	3.030			
9,450.00	9,408.53	9,439.86	9,407.53	34.65	34.72	-90.28	393.30	292.40	207.60	138.73	68.87	3.014			
9,500.00	9,458.53	9,489.86	9,457.53	34.83	34.89	-90.28	393.30	292.40	207.60	138.38	69.22	2.999			
9,550.00	9,508.53	9,539.86	9,507.53	35.00	35.07	-90.28	393.30	292.40	207.60	138.03	69.57	2.984			
9,600.00	9,558.53	9,589.86	9,557.53	35.18	35.25	-90.28	393.30	292.40	207.60	137.68	69.92	2.969			
9,650.00	9,608.53	9,639.86	9,607.53	35.35	35.42	-90.28	393.30	292.40	207.60	137.33	70.27	2.954			
9,700.00	9,658.53	9,689.86	9,657.53	35.53	35.60	-90.28	393.30	292.40	207.60	136.98	70.62	2.940			
9,750.00	9,708.53	9,739.86	9,707.53	35.70	35.78	-90.28	393.30	292.40	207.60	136.63	70.97	2.925			
9,800.00	9,758.53	9,789.86	9,757.53	35.88	35.95	-90.28	393.30	292.40	207.60	136.28	71.32	2.911			
9,850.00	9,808.53	9,839.86	9,807.53	36.05	36.13	-90.28	393.30	292.40	207.60	135.93	71.67	2.896			
9,900.00	9,858.53	9,889.86	9,857.53	36.23	36.31	-90.28	393.30	292.40	207.60	135.58	72.02	2.882			
9,950.00	9,908.53	9,939.86	9,907.53	36.41	36.48	-90.28	393.30	292.40	207.60	135.23	72.37	2.868			
10,000.00	9,958.53	9,989.86	9,957.53	36.58	36.66	-90.28	393.30	292.40	207.60	134.88	72.72	2.855			
10,050.00	10,008.53	10,039.86	10,007.53	36.76	36.84	-90.28	393.30	292.40	207.60	134.53	73.08	2.841			
10,100.00	10,058.53	10,089.86	10,057.53	36.93	37.01	-90.28	393.30	292.40	207.60	134.18	73.43	2.827			

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

Anticollision Report

Company:	XTO Energy	Local Co-ordinate Reference:	Well 13-128H - Slot PLU 13 DTD 128H SHL
Project:	Eddy County, NM (NAD27) NMEZ Grid	TVD Reference:	3477+27 @ 3504.00usft (HP467)
Reference Site:	PLU 13 Dog Town Draw	MD Reference:	3477+27 @ 3504.00usft (HP467)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	13-128H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore:	128H Lateral	Database:	PREDATOR_EDM
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design PLU 13 Dog Town Draw - 13-208H -208H Lateral - Plan #1														Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS														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 Tooface (")	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
10,150.00	10,108.53	10,139.86	10,107.53	37.11	37.19	-90.28	393.30	292.40	207.60	133.83	73.78	2.814			
10,200.00	10,158.53	10,189.86	10,157.53	37.28	37.37	-90.28	393.30	292.40	207.60	133.48	74.13	2.801			
10,250.00	10,208.53	10,239.86	10,207.53	37.45	37.54	-90.28	393.30	292.40	207.60	133.12	74.48	2.787			
10,300.00	10,258.53	10,289.86	10,257.53	37.63	37.72	-90.28	393.30	292.40	207.60	132.77	74.83	2.774			
10,350.00	10,308.53	10,339.86	10,307.53	37.81	37.90	-90.28	393.30	292.40	207.60	132.42	75.18	2.761			
10,400.00	10,358.53	10,389.86	10,357.53	37.99	38.08	-90.28	393.30	292.40	207.60	132.07	75.53	2.749			
10,450.00	10,408.53	10,439.86	10,407.53	38.16	38.25	-90.28	393.30	292.40	207.60	131.72	75.88	2.736			
10,500.00	10,458.53	10,489.86	10,457.53	38.34	38.43	-90.28	393.30	292.40	207.60	131.37	76.23	2.723			
10,550.00	10,508.53	10,539.86	10,507.53	38.51	38.61	-90.28	393.30	292.40	207.60	131.02	76.58	2.711			
10,600.00	10,558.53	10,589.86	10,557.53	38.69	38.78	-90.28	393.30	292.40	207.60	130.67	76.94	2.698			
10,650.00	10,608.53	10,639.86	10,607.53	38.87	38.96	-90.28	393.30	292.40	207.60	130.32	77.29	2.686			
10,700.00	10,658.53	10,689.86	10,657.53	39.04	39.14	-90.28	393.30	292.40	207.60	129.95	77.64	2.674			
10,750.00	10,708.53	10,739.86	10,707.53	39.22	39.31	-90.28	393.30	292.40	207.60	129.61	77.99	2.662			
10,800.00	10,758.53	10,789.86	10,757.53	39.39	39.49	-90.28	393.30	292.40	207.60	129.26	78.34	2.650			
10,850.00	10,808.53	10,839.86	10,807.53	39.57	39.67	-90.28	393.30	292.40	207.60	128.91	78.69	2.638			
10,900.00	10,858.53	10,889.86	10,857.53	39.75	39.85	-90.28	393.30	292.40	207.60	128.55	79.04	2.626			
10,950.00	10,908.53	10,939.86	10,907.53	39.92	40.02	-90.28	393.30	292.40	207.60	128.21	79.40	2.615			
11,000.00	10,958.53	10,989.86	10,957.53	40.10	40.20	-90.28	393.30	292.40	207.60	127.85	79.75	2.603			
11,050.00	11,008.53	11,039.86	11,007.53	40.27	40.38	-90.28	393.30	292.40	207.60	127.50	80.10	2.592			
11,100.00	11,058.53	11,089.86	11,057.53	40.45	40.56	-90.28	393.30	292.40	207.60	127.15	80.45	2.580			
11,150.00	11,108.53	11,139.86	11,107.53	40.63	40.73	-90.28	393.30	292.40	207.60	126.80	80.80	2.569			
11,200.00	11,158.53	11,189.86	11,157.53	40.80	40.91	-90.28	393.30	292.40	207.60	126.45	81.16	2.558			
11,250.00	11,208.53	11,239.86	11,207.53	40.98	41.09	-90.28	393.30	292.40	207.60	126.09	81.51	2.547			
11,300.00	11,258.53	11,289.86	11,257.53	41.16	41.26	-90.28	393.30	292.40	207.60	125.74	81.86	2.536			
11,302.62	11,261.15	11,292.48	11,260.15	41.17	41.27	-90.28	393.30	292.40	207.60	125.72	81.88	2.535			
11,350.00	11,308.53	11,339.86	11,307.53	41.33	41.44	-90.36	393.03	292.40	207.60	125.39	82.21	2.525			
11,400.00	11,358.53	11,389.86	11,357.05	41.51	41.61	-91.37	389.37	292.42	207.64	125.08	82.56	2.515			
11,450.00	11,408.53	11,438.21	11,405.10	41.69	41.80	-93.50	381.63	292.44	207.96	125.05	82.91	2.508			
11,500.00	11,458.53	11,485.26	11,450.75	41.85	41.96	-96.60	370.30	292.49	209.01	125.80	83.20	2.512			
11,550.00	11,508.53	11,530.16	11,493.31	42.04	42.14	-100.46	356.03	292.54	211.44	128.09	83.35	2.537			
11,600.00	11,558.53	11,572.54	11,532.34	42.22	42.29	-104.79	339.55	292.61	215.98	132.75	83.24	2.595			
11,650.00	11,608.53	11,612.19	11,567.66	42.39	42.43	-109.34	321.55	292.67	223.31	140.59	82.72	2.700			
11,700.00	11,658.53	11,650.00	11,600.11	42.57	42.55	-113.98	302.15	292.75	233.98	152.15	81.83	2.859			
11,750.00	11,708.53	11,683.05	11,627.37	42.75	42.65	-118.15	283.47	292.82	248.27	167.90	80.37	3.089			
11,800.00	11,758.53	11,714.38	11,652.18	42.92	42.74	-122.11	264.35	292.89	266.25	187.56	78.68	3.384			
11,850.00	11,808.53	11,743.14	11,674.00	43.10	42.81	-125.69	245.62	292.96	287.76	210.92	76.84	3.745			
22,250.00	12,444.00	21,653.70	11,863.00	86.58	84.96	27.82	-9,610.91	330.61	655.78	491.27	164.51	3.986			
22,300.00	12,444.00	21,703.70	11,863.00	86.91	85.29	27.82	-9,660.91	330.80	655.78	490.55	165.23	3.969			
22,350.00	12,444.00	21,753.70	11,863.00	87.23	85.62	27.82	-9,710.91	331.00	655.78	489.82	165.95	3.952			
22,400.00	12,444.00	21,803.70	11,863.00	87.55	85.96	27.82	-9,760.91	331.19	655.78	489.10	166.68	3.934			
22,450.00	12,444.00	21,853.70	11,863.00	87.89	86.29	27.82	-9,810.91	331.38	655.77	488.37	167.40	3.917			
22,500.00	12,444.00	21,903.70	11,863.00	88.22	86.62	27.82	-9,860.91	331.57	655.77	487.65	168.12	3.901			
22,550.00	12,444.00	21,953.70	11,863.00	88.55	86.95	27.82	-9,910.91	331.76	655.77	486.93	168.85	3.884			
22,560.23	12,444.00	21,963.93	11,863.00	88.61	87.02	27.82	-9,921.14	331.80	655.77	486.78	168.99	3.880			
22,561.35	12,444.00	21,964.39	11,863.00	88.62	87.02	27.82	-9,921.60	331.80	655.77	486.75	169.02	3.880			

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

PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	XTO Permian Operating, LLC
LEASE NO.:	NMNM-0030453
WELL NAME & NO.:	Poker Lake Unit 13 DTD 128H
SURFACE HOLE FOOTAGE:	0442' FNL & 0929' FEL
BOTTOM HOLE FOOTAGE:	0200' FSL & 0330' FEL Sec. 25, T. 24 S., R 30 E.
LOCATION:	Section 24, T. 24 S., R 30 E., NMPM
COUNTY:	Eddy County, New Mexico

Commercial Well Determination

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

Unit Wells

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

A. DRILLING OPERATIONS REQUIREMENTS

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

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

☒ **Eddy County**

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

1. **Hydrogen Sulfide (H₂S) monitors shall be installed prior to drilling out the surface shoe. If H₂S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.**
2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a “Major” violation.**

3. The operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well.
4. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works is located, this does not include the dog house or stairway area.
5. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

B. CASING

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

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

Wait on cement (WOC) for Water Basin:

After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements.

Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.

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

Possibility of water flows in the Salado and Castile.

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

Abnormal pressure may be encountered in the 3rd Bone Spring and all subsequent formations.

1. The 16 inch surface casing shall be set at approximately 780 feet (in a competent bed below the Magenta Dolomite, which is a Member of the Rustler, and if salt is encountered, set casing at least 25 feet above the salt) and cemented to the surface.

- a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
- b. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.
- c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
- d. If cement falls back, remedial cementing will be done prior to drilling out that string.

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

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

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

Formation below the 11-3/4" shoe to be tested according to Onshore Order

2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the bottom of the hole. Report results to BLM office.

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

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

Operator has proposed DV tool at depth of 4180', but will adjust cement proportionately if moved. DV tool shall be set a minimum of 50' below previous shoe and a minimum of 200' above current shoe. Operator shall submit sundry if DV tool depth cannot be set in this range. If an ECP is used, it is to be set a minimum of 50' below the shoe to provide cement across the shoe. If it cannot be set below the shoe, a CBL shall be run to verify cement coverage.

a. First stage to DV tool:

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

b. Second stage above DV tool:

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

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

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

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

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

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

C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API 53.
2. Variance approved to use flex line from BOP to choke manifold. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. **Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 2000 (2M) psi.
4. **Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the 11-3/4 1st intermediate casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the 11-3/4 1st intermediate casing shoe shall be 10,000 (10M) psi.**
 - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
 - c. Manufacturer representative shall install the test plug for the initial BOP test.
 - d. Operator shall perform the 8-5/8" 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.

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

10M system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.

5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
- a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).
 - b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**.
 - 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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