

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED

NMOCD

FEB 12 2020

Artesia

EMNRDUCDARTESIA

FORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018**SUNDRY NOTICES AND REPORTS ON WELLS**
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such purposes.*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 108H

2. Name of Operator

XTO PERMIAN OPERATING LLC

Contact: KELLY KARDOS
E-Mail: kelly_kardos@xtoenergy.com9. API Well No.
30-015-45839-00-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 476FNL 929FEL
32.209312 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☐ Subsequent Report☐ Final Abandonment Notice☐ Acidize☐ Alter Casing☐ Casing Repair☐ Change Plans☐ Convert to Injection☐ Deepen☐ Hydraulic Fracturing☐ New Construction☐ Plug and Abandon☐ Plug Back☐ Production (Start/Resume)☐ Reclamation☐ Recomplete☐ Temporarily Abandon☐ Water Disposal☐ Water Shut-Off☐ Well Integrity☒ Other
Change to Original A
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 recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.

XTO Permian Operating, LLC requests permission to make the following changes to the original APD:

Change 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 TA cap as per GE recommendations, XTO will contact the BLM to skid the rig to drill the surface and

ATTACHED FOR
CONDITIONS OF APPROVAL

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

Electronic Submission #492936 verified by the BLM Well Information System
For XTO PERMIAN OPERATING LLC, sent to the Carlsbad
Committed to AFMS for processing by PRISCILLA PEREZ on 11/19/2019 (20PP0461SE)

Name (Printed/Typed) KELLY KARDOS

Title REGULATORY COORDINATOR

Signature (Electronic Submission)

Date 11/19/2019

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By

Title

BUREAU OF LAND MANAGEMENT

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

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 **

Accepted 2-14-20

Additional data for EC transaction #492936 that would not fit on the form

32. Additional remarks, continued

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: (505) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

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

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 30-015-45839		² Pool Code 98220	³ Pool Name PURPLE SAGE; WOLFCAMP
⁴ Property Code	⁵ Property Name POKER LAKE UNIT 13 DTD		⁶ Well Number 108H
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		476	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.

	GEODETIC COORDINATES NAD 83 NME SURFACE LOCATION Y = 440,247.9 X = 697,417.8 LAT. = 32.209311°N LONG. = 103.828682°W FIRST TAKE POINT NAD 83 NME Y = 440,396.4 X = 698,016.1 LAT. = 32.209712°N LONG. = 103.826746°W CORNER COORDINATES TABLE NAD 83 NME A - Y = 440,723.1 N, X = 697,006.5 E B - Y = 440,727.5 N, X = 698,344.8 E C - Y = 438,084.4 N, X = 697,016.3 E D - Y = 438,089.0 N, X = 698,354.9 E E - Y = 435,442.2 N, X = 697,026.2 E F - Y = 435,446.2 N, X = 698,365.4 E G - Y = 432,801.0 N, X = 697,038.3 E H - Y = 432,803.4 N, X = 698,375.8 E I - Y = 430,159.4 N, X = 697,050.5 E J - Y = 430,161.2 N, X = 698,386.6 E CORNER COORDINATES TABLE NAD 27 NME A - Y = 440,664.3 N, X = 655,822.5 E B - Y = 440,668.7 N, X = 657,160.8 E C - Y = 438,025.7 N, X = 655,832.2 E D - Y = 438,030.3 N, X = 657,170.8 E E - Y = 435,383.5 N, X = 655,842.0 E F - Y = 435,387.5 N, X = 657,181.2 E G - Y = 432,742.4 N, X = 655,854.0 E H - Y = 432,744.8 N, X = 657,191.5 E I - Y = 430,100.8 N, X = 655,866.2 E J - Y = 430,102.6 N, X = 657,202.2 E LAST TAKE POINT NAD 83 NME Y = 430,490.8 X = 698,055.3 LAT. = 32.182482°N LONG. = 103.826770°W BOTTOM HOLE LOCATION NAD 83 NME Y = 430,360.8 X = 698,055.8 LAT. = 32.182125°N LONG. = 103.826770°W	GEODETIC COORDINATES NAD 27 NME SURFACE LOCATION Y = 440,189.1 X = 656,233.8 LAT. = 32.209188°N LONG. = 103.828197°W FIRST TAKE POINT NAD 27 NME Y = 440,337.6 X = 656,832.1 LAT. = 32.209588°N LONG. = 103.826261°W CORNER COORDINATES TABLE NAD 27 NME A - Y = 440,664.3 N, X = 655,822.5 E B - Y = 440,668.7 N, X = 657,160.8 E C - Y = 438,025.7 N, X = 655,832.2 E D - Y = 438,030.3 N, X = 657,170.8 E E - Y = 435,383.5 N, X = 655,842.0 E F - Y = 435,387.5 N, X = 657,181.2 E G - Y = 432,742.4 N, X = 655,854.0 E H - Y = 432,744.8 N, X = 657,191.5 E I - Y = 430,100.8 N, X = 655,866.2 E J - Y = 430,102.6 N, X = 657,202.2 E LAST TAKE POINT NAD 27 NME Y = 430,432.2 X = 656,870.9 LAT. = 32.182359°N LONG. = 103.826286°W BOTTOM HOLE LOCATION NAD 27 NME Y = 430,302.2 X = 656,871.5 LAT. = 32.182002°N LONG. = 103.826286°W	¹⁷ OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. Kelly Kardos 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 2018010158		
	MARK DILLON HARP 23786 Certificate Number RR 2018010158		

Intent ☒ As Drilled ☐

API #
30-015-45839

Operator Name:
XTO Permian Operating, LLC

Property Name:
Poker Lake Unit 13 DTD

Well Number
108H

Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
A	24	24S	30E		476	North	929	East	Eddy
Latitude					Longitude			NAD	
32.209311					-103.828682			NAD83	

First Take Point (FTP)

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

Last Take Point (LTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
P	25	24S	30E		330	South	990	East	Eddy
Latitude					Longitude			NAD	
32.182482					-103.826770			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

KZ 06/29/2018

DRILLING PLAN: BLM COMPLIANCE

(Supplement to BLM 3160-3)

XTO Energy Inc.

PLU 13 Dog Town Draw 108H

Projected TD: 21649' MD / 11518' TVD

SHL: 476' 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	483'	Water
Top of Salt	933'	Water
Base of Salt	4063'	Water
Delaware	4228'	Water
Bone Spring	8073'	Water/Oil/Gas
1st Bone Spring Ss	9038'	Water/Oil/Gas
2nd Bone Spring Ss	9853'	Water/Oil/Gas
3rd Bone Spring Ss	10978'	Water/Oil/Gas
Wolfcamp	11423'	Water/Oil/Gas
Wolfcamp Y	11493'	Water/Oil/Gas
Target/Land Curve	11518'	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 @ 810' (123' 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 10303' and 8-5/8 inch casing ran and cemented 500' into the 11-3/4 inch casing. An 7-7/8 inch curve and lateral hole will be drilled to MD/TD and 5-1/2 casing will be set at TD and cemented back 300' into the 8-5/8 inch casing shoe.

3. Casing Design

Hole Size	Depth	OD Csg	Weight	Collar	Grade	New/Used	SF Burst	SF Collapse	SF Tension
18-1/2"	0' - 810'	16	65	STC	H-40	New	1.32	1.72	8.34
14-3/4"	0' - 4130'	11-3/4"	47	BTC	J-55	New	1.20	1.20	2.46
10-5/8"	0' - 10303'	8-5/8"	32	BTC	HCL-80	New	1.24	1.47	2.22
7-7/8"	0' - 21649'	5-1/2"	20	BTC	P-110	New	1.18	1.61	2.18

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.

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" 2M top flange

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

- Wellhead will be installed by manufacturer's representatives.

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

4. Cement Program

Surface Casing: 16, 65 New H-40, STC casing to be set at +/- 810'

Lead: 250 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 HCL-80, BTC casing to be set at +/- 10303'
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: 1130 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 +/- 21649'

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, 10506 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 5M Hydril and a 13-5/8" minimum 5M Double Ram BOP. MASP should not exceed 4354 psi.

All BOP testing will be done by an independent service company. Annular pressure tests will be limited to 50% of the working pressure. When nipping up on the 13-5/8" 5M bradenhead and flange, the BOP test will be limited to 5000 psi. When the 11-3/4" and 8-5/8" casing is set, the packoff seals will be tested to a minimum of 5000 psi. All BOP tests will include a low pressure test as per BLM regulations. The 5M BOP diagrams are attached. Blind rams will be functioned tested each trip, pipe rams will be functioned tested each day.

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

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

6. Proposed Mud Circulation System

INTERVAL	Hole Size	Mud Type	MW (ppg)	Viscosity (sec/qt)	Fluid Loss (cc)
0' to 810'	18-1/2"	FW/Native	8.4-8.8	35-40	NC
810' to 4130'	14-3/4"	Brine/Gel Sweeps	9.8-10.2	30-32	NC
4130' to 10303'	10-5/8"	FW / Cut Brine	8.7-9.3	29-32	NC - 20
10303' to 21649'	7-7/8"	FW / Cut Brine / Polymer / OBM	11.2-11.8	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 150 to 170 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 6888 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: 13-108H
 Wellbore: 108H Lateral
 Design: Plan #1

SECTION DETAILS

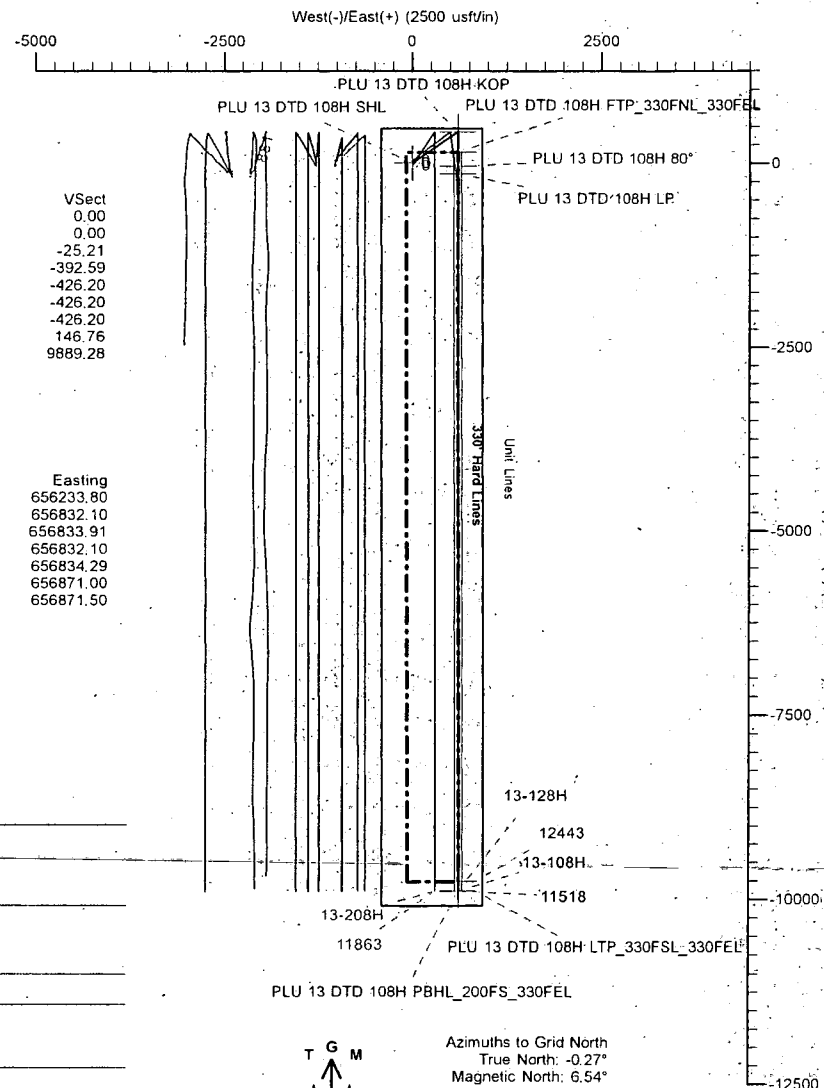
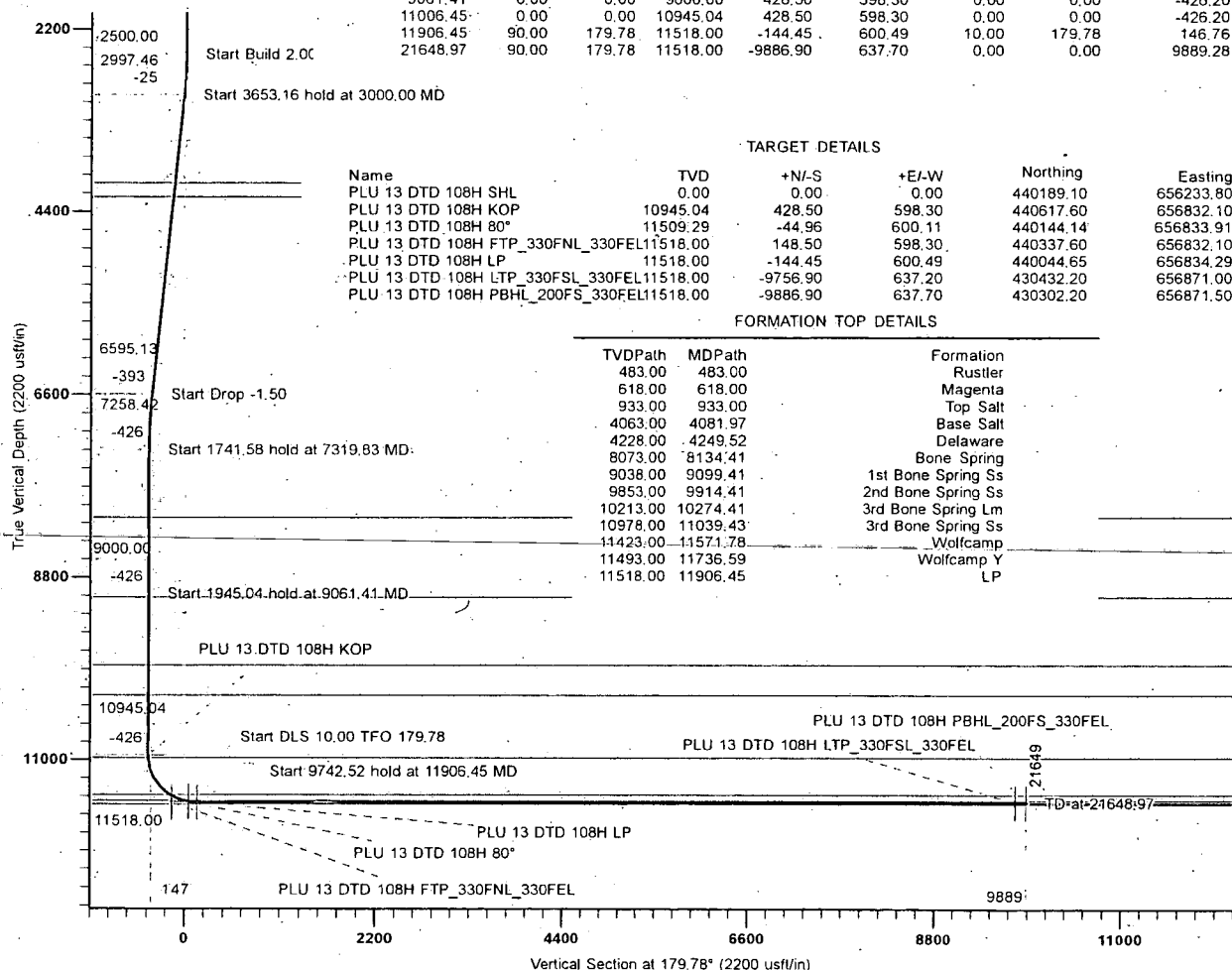
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect
3476+27 @ 3503.00usft (HP467)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NAD 1927 (NADCON CONUS)	2500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3000.00	10.00	54.39	2997.46	25.34	35.38	2.00	54.39
	6653.16	10.00	54.39	6595.13	394.71	551.12	0.00	0.00
	7319.83	0.00	0.00	7258.42	428.50	598.30	1.50	180.00
	9061.41	0.00	0.00	9000.00	428.50	598.30	0.00	0.00
	11006.45	0.00	0.00	10945.04	428.50	598.30	0.00	0.00
	11906.45	90.00	179.78	11518.00	-144.45	600.49	10.00	179.78
	21648.97	90.00	179.78	11518.00	-9886.90	637.70	0.00	0.00
								9889.28

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
PLU 13 DTD 108H SHL	0.00	0.00	0.00	440189.10	656233.80
PLU 13 DTD 108H KOP	10945.04	428.50	598.30	440617.60	656832.10
PLU 13 DTD 108H 80°	11509.29	-44.96	600.11	440144.14	656833.91
PLU 13 DTD 108H FTP_330FNL_330FEL	11518.00	148.50	598.30	440337.60	656832.10
PLU 13 DTD 108H LP	11518.00	-144.45	600.49	440044.65	656834.29
PLU 13 DTD 108H LTP_330FSL_330FEL	11518.00	-9756.90	637.20	430432.20	656871.00
PLU 13 DTD 108H PBHL_200FS_330FEL	11518.00	-9886.90	637.70	430302.20	656871.50

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
483.00	483.00	Rustler
618.00	618.00	Magenta
933.00	933.00	Top Salt
4063.00	4081.97	Base Salt
4228.00	4249.52	Delaware
8073.00	8134.41	Bone Spring
9038.00	9099.41	1st Bone Spring Ss
9853.00	9914.41	2nd Bone Spring Ss
10213.00	10274.41	3rd Bone Spring Lm
10978.00	11039.43	3rd Bone Spring Ss
11423.00	11571.78	Wolfcamp
11493.00	11736.59	Wolfcamp Y
11518.00	11906.45	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 (13-108H/108H Lateral)
 Created By: Mekka Williams
 eSomina Well Design
 mekka@esominawell.com
 22:02, November 15 2019

PREDATOR DIRECTIONAL
 11323 MONARCHS WAY
 Montgomery TX, 77316



Planning Report

Database:	PREDATOR_EDM	Local Co-ordinate Reference:	Well 13-108H - Slot PLU 13 DTD 108H SHL
Company:	XTO Energy	TVD Reference:	3476+27 @ 3503.00usft (HP467)
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3476+27 @ 3503.00usft (HP467)
Site:	PLU 13 Dog Town Draw	North Reference:	Grid
Well:	13-108H	Survey Calculation Method:	Minimum Curvature
Wellbore:	108H Lateral		
Design:	Plan #1		

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

Site	PLU 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	13-108H - Slot PLU 13 DTD 108H SHL					
Well Position	+N/-S	114.10 usft	Northing:	440,189.10 usft	Latitude:	32.20918779
	+E/-W	2,144.70 usft	Easting:	656,233.80 usft	Longitude:	-103.82819736
Position Uncertainty	0.00 usft	Wellhead Elevation:		Ground Level:	3,476.00 usft	

Wellbore	108H Lateral				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	11/15/19	6.81	59.98	47,654.05629136

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	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	21,648.97	Plan #1 (108H 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	
3,000.00	10.00	54.39	2,997.46	25.34	35.38	2.00	2.00	0.00	54.39	
6,653.16	10.00	54.39	6,595.13	394.71	551.12	0.00	0.00	0.00	0.00	
7,319.83	0.00	0.00	7,258.42	428.50	598.30	1.50	-1.50	0.00	180.00	
9,061.41	0.00	0.00	9,000.00	428.50	598.30	0.00	0.00	0.00	0.00	
11,006.45	0.00	0.00	10,945.04	428.50	598.30	0.00	0.00	0.00	0.00	
11,906.45	90.00	179.78	11,518.00	-144.45	600.49	10.00	10.00	19.98	179.78	
21,648.97	90.00	179.78	11,518.00	-9,886.90	637.70	0.00	0.00	0.00	0.00	PLU 13 DTD 108H PE

Planning Report

Database:	PREDATOR_EDM	Local Co-ordinate Reference:	Well 13-108H - Slot PLU 13 DTD 108H SHL
Company:	XTO Energy	TVD Reference:	3476+27 @ 3503.00usft (HP467)
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3476+27 @ 3503.00usft (HP467)
Site:	PLU 13 Dog Town Draw	North Reference:	Grid
Well:	13-108H	Survey Calculation Method:	Minimum Curvature
Wellbore:	108H Lateral		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
483.00	0.00	0.00	483.00	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
618.00	0.00	0.00	618.00	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
933.00	0.00	0.00	933.00	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	2.00	54.39	2,599.98	1.02	1.42	-1.01	2.00	2.00	0.00
2,700.00	4.00	54.39	2,699.84	4.06	5.67	-4.04	2.00	2.00	0.00
2,800.00	6.00	54.39	2,799.45	9.14	12.76	-9.09	2.00	2.00	0.00
2,900.00	8.00	54.39	2,898.70	16.23	22.67	-16.15	2.00	2.00	0.00
3,000.00	10.00	54.39	2,997.46	25.34	35.38	-25.21	2.00	2.00	0.00
3,100.00	10.00	54.39	3,095.95	35.45	49.50	-35.26	0.00	0.00	0.00
3,200.00	10.00	54.39	3,194.43	45.56	63.62	-45.32	0.00	0.00	0.00
3,300.00	10.00	54.39	3,292.91	55.67	77.74	-55.38	0.00	0.00	0.00
3,400.00	10.00	54.39	3,391.39	65.79	91.85	-65.43	0.00	0.00	0.00
3,500.00	10.00	54.39	3,489.87	75.90	105.97	-75.49	0.00	0.00	0.00
3,600.00	10.00	54.39	3,588.35	86.01	120.09	-85.55	0.00	0.00	0.00
3,700.00	10.00	54.39	3,686.83	96.12	134.21	-95.60	0.00	0.00	0.00
3,800.00	10.00	54.39	3,785.31	106.23	148.32	-105.66	0.00	0.00	0.00
3,900.00	10.00	54.39	3,883.79	116.34	162.44	-115.72	0.00	0.00	0.00
4,000.00	10.00	54.39	3,982.27	126.45	176.56	-125.77	0.00	0.00	0.00
4,081.97	10.00	54.39	4,063.00	134.74	188.13	-134.02	0.00	0.00	0.00
Base Salt									
4,100.00	10.00	54.39	4,080.75	136.56	190.68	-135.83	0.00	0.00	0.00
4,200.00	10.00	54.39	4,179.23	146.67	204.79	-145.89	0.00	0.00	0.00
4,249.52	10.00	54.39	4,228.00	151.68	211.79	-150.87	0.00	0.00	0.00
Delaware									

Planning Report

Database:	PREDATOR_EDM	Local Co-ordinate Reference:	Well 13-108H - Slot PLU 13 DTD 108H SHL
Company:	XTO Energy	TVD Reference:	3476+27 @ 3503.00usft (HP467)
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3476+27 @ 3503.00usft (HP467)
Site:	PLU 13 Dog Town Draw	North Reference:	Grid
Well:	13-108H	Survey Calculation Method:	Minimum Curvature
Wellbore:	108H Lateral		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,300.00	10.00	54.39	4,277.72	156.78	218.91	-155.94	0.00	0.00	0.00
4,400.00	10.00	54.39	4,376.20	166.89	233.03	-166.00	0.00	0.00	0.00
4,500.00	10.00	54.39	4,474.68	177.01	247.15	-176.06	0.00	0.00	0.00
4,600.00	10.00	54.39	4,573.16	187.12	261.26	-186.11	0.00	0.00	0.00
4,700.00	10.00	54.39	4,671.64	197.23	275.38	-196.17	0.00	0.00	0.00
4,800.00	10.00	54.39	4,770.12	207.34	289.50	-206.23	0.00	0.00	0.00
4,900.00	10.00	54.39	4,868.60	217.45	303.62	-216.28	0.00	0.00	0.00
5,000.00	10.00	54.39	4,967.08	227.56	317.74	-226.34	0.00	0.00	0.00
5,100.00	10.00	54.39	5,065.56	237.67	331.85	-236.40	0.00	0.00	0.00
5,200.00	10.00	54.39	5,164.04	247.78	345.97	-246.45	0.00	0.00	0.00
5,300.00	10.00	54.39	5,262.52	257.89	360.09	-256.51	0.00	0.00	0.00
5,400.00	10.00	54.39	5,361.00	268.00	374.21	-266.57	0.00	0.00	0.00
5,500.00	10.00	54.39	5,459.48	278.12	388.32	-276.62	0.00	0.00	0.00
5,600.00	10.00	54.39	5,557.97	288.23	402.44	-286.68	0.00	0.00	0.00
5,700.00	10.00	54.39	5,656.45	298.34	416.56	-296.74	0.00	0.00	0.00
5,800.00	10.00	54.39	5,754.93	308.45	430.68	-306.79	0.00	0.00	0.00
5,900.00	10.00	54.39	5,853.41	318.56	444.79	-316.85	0.00	0.00	0.00
6,000.00	10.00	54.39	5,951.89	328.67	458.91	-326.91	0.00	0.00	0.00
6,100.00	10.00	54.39	6,050.37	338.78	473.03	-336.96	0.00	0.00	0.00
6,200.00	10.00	54.39	6,148.85	348.89	487.15	-347.02	0.00	0.00	0.00
6,300.00	10.00	54.39	6,247.33	359.00	501.26	-357.08	0.00	0.00	0.00
6,400.00	10.00	54.39	6,345.81	369.11	515.38	-367.13	0.00	0.00	0.00
6,500.00	10.00	54.39	6,444.29	379.22	529.50	-377.19	0.00	0.00	0.00
6,600.00	10.00	54.39	6,542.77	389.34	543.62	-387.25	0.00	0.00	0.00
6,653.16	10.00	54.39	6,595.13	394.71	551.12	-392.59	0.00	0.00	0.00
6,700.00	9.30	54.39	6,641.30	399.28	557.50	-397.14	1.50	-1.50	0.00
6,800.00	7.80	54.39	6,740.19	407.94	569.59	-405.75	1.50	-1.50	0.00
6,900.00	6.30	54.39	6,839.43	415.08	579.56	-412.85	1.50	-1.50	0.00
7,000.00	4.80	54.39	6,938.96	420.71	587.42	-418.45	1.50	-1.50	0.00
7,100.00	3.30	54.39	7,038.71	424.82	593.16	-422.54	1.50	-1.50	0.00
7,200.00	1.80	54.39	7,138.61	427.41	596.77	-425.11	1.50	-1.50	0.00
7,300.00	0.30	54.39	7,238.59	428.47	598.26	-426.17	1.50	-1.50	0.00
7,319.83	0.00	0.00	7,258.42	428.50	598.30	-426.20	1.50	-1.50	0.00
7,400.00	0.00	0.00	7,338.59	428.50	598.30	-426.20	0.00	0.00	0.00
7,500.00	0.00	0.00	7,438.59	428.50	598.30	-426.20	0.00	0.00	0.00
7,600.00	0.00	0.00	7,538.59	428.50	598.30	-426.20	0.00	0.00	0.00
7,700.00	0.00	0.00	7,638.59	428.50	598.30	-426.20	0.00	0.00	0.00
7,800.00	0.00	0.00	7,738.59	428.50	598.30	-426.20	0.00	0.00	0.00
7,900.00	0.00	0.00	7,838.59	428.50	598.30	-426.20	0.00	0.00	0.00
8,000.00	0.00	0.00	7,938.59	428.50	598.30	-426.20	0.00	0.00	0.00
8,100.00	0.00	0.00	8,038.59	428.50	598.30	-426.20	0.00	0.00	0.00
8,134.41	0.00	0.00	8,073.00	428.50	598.30	-426.20	0.00	0.00	0.00
Bone Spring									
8,200.00	0.00	0.00	8,138.59	428.50	598.30	-426.20	0.00	0.00	0.00
8,300.00	0.00	0.00	8,238.59	428.50	598.30	-426.20	0.00	0.00	0.00
8,400.00	0.00	0.00	8,338.59	428.50	598.30	-426.20	0.00	0.00	0.00
8,500.00	0.00	0.00	8,438.59	428.50	598.30	-426.20	0.00	0.00	0.00
8,600.00	0.00	0.00	8,538.59	428.50	598.30	-426.20	0.00	0.00	0.00
8,700.00	0.00	0.00	8,638.59	428.50	598.30	-426.20	0.00	0.00	0.00
8,800.00	0.00	0.00	8,738.59	428.50	598.30	-426.20	0.00	0.00	0.00
8,900.00	0.00	0.00	8,838.59	428.50	598.30	-426.20	0.00	0.00	0.00
9,000.00	0.00	0.00	8,938.59	428.50	598.30	-426.20	0.00	0.00	0.00
9,061.41	0.00	0.00	9,000.00	428.50	598.30	-426.20	0.00	0.00	0.00

Planning Report

Database:	PREDATOR_EDM	Local Co-ordinate Reference:	Well 13-108H - Slot PLU 13 DTD 108H SHL
Company:	XTO Energy	TVD Reference:	3476+27 @ 3503.00usft (HP467)
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3476+27 @ 3503.00usft (HP467)
Site:	PLU 13 Dog Town Draw	North Reference:	Grid
Well:	13-108H	Survey Calculation Method:	Minimum Curvature
Wellbore:	108H Lateral		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
9,099.41	0.00	0.00	9,038.00	428.50	598.30	-426.20	0.00	0.00	0.00
1st Bone Spring Ss									
9,100.00	0.00	0.00	9,038.59	428.50	598.30	-426.20	0.00	0.00	0.00
9,200.00	0.00	0.00	9,138.59	428.50	598.30	-426.20	0.00	0.00	0.00
9,300.00	0.00	0.00	9,238.59	428.50	598.30	-426.20	0.00	0.00	0.00
9,400.00	0.00	0.00	9,338.59	428.50	598.30	-426.20	0.00	0.00	0.00
9,500.00	0.00	0.00	9,438.59	428.50	598.30	-426.20	0.00	0.00	0.00
9,600.00	0.00	0.00	9,538.59	428.50	598.30	-426.20	0.00	0.00	0.00
9,700.00	0.00	0.00	9,638.59	428.50	598.30	-426.20	0.00	0.00	0.00
9,800.00	0.00	0.00	9,738.59	428.50	598.30	-426.20	0.00	0.00	0.00
9,900.00	0.00	0.00	9,838.59	428.50	598.30	-426.20	0.00	0.00	0.00
9,914.41	0.00	0.00	9,853.00	428.50	598.30	-426.20	0.00	0.00	0.00
2nd Bone Spring Ss									
10,000.00	0.00	0.00	9,938.59	428.50	598.30	-426.20	0.00	0.00	0.00
10,100.00	0.00	0.00	10,038.59	428.50	598.30	-426.20	0.00	0.00	0.00
10,200.00	0.00	0.00	10,138.59	428.50	598.30	-426.20	0.00	0.00	0.00
10,274.41	0.00	0.00	10,213.00	428.50	598.30	-426.20	0.00	0.00	0.00
3rd Bone Spring Lm									
10,300.00	0.00	0.00	10,238.59	428.50	598.30	-426.20	0.00	0.00	0.00
10,400.00	0.00	0.00	10,338.59	428.50	598.30	-426.20	0.00	0.00	0.00
10,500.00	0.00	0.00	10,438.59	428.50	598.30	-426.20	0.00	0.00	0.00
10,600.00	0.00	0.00	10,538.59	428.50	598.30	-426.20	0.00	0.00	0.00
10,700.00	0.00	0.00	10,638.59	428.50	598.30	-426.20	0.00	0.00	0.00
10,800.00	0.00	0.00	10,738.59	428.50	598.30	-426.20	0.00	0.00	0.00
10,900.00	0.00	0.00	10,838.59	428.50	598.30	-426.20	0.00	0.00	0.00
11,006.45	0.00	0.00	10,945.04	428.50	598.30	-426.20	0.00	0.00	0.00
11,039.43	3.30	179.78	10,978.00	427.55	598.30	-425.25	10.00	10.00	0.00
3rd Bone Spring Ss									
11,050.00	4.35	179.78	10,988.54	426.85	598.31	-424.55	10.00	10.00	0.00
11,100.00	9.35	179.78	11,038.17	420.88	598.33	-418.58	10.00	10.00	0.00
11,150.00	14.35	179.78	11,087.09	410.61	598.37	-408.31	10.00	10.00	0.00
11,200.00	19.35	179.78	11,134.93	396.12	598.42	-393.82	10.00	10.00	0.00
11,250.00	24.35	179.78	11,181.32	377.51	598.49	-375.21	10.00	10.00	0.00
11,300.00	29.35	179.78	11,225.91	354.93	598.58	-352.63	10.00	10.00	0.00
11,350.00	34.35	179.78	11,268.37	328.55	598.68	-326.25	10.00	10.00	0.00
11,400.00	39.35	179.78	11,308.36	298.57	598.80	-296.27	10.00	10.00	0.00
11,450.00	44.35	179.78	11,345.59	265.22	598.92	-262.92	10.00	10.00	0.00
11,500.00	49.35	179.78	11,379.77	228.75	599.06	-226.45	10.00	10.00	0.00
11,550.00	54.35	179.78	11,410.65	189.44	599.21	-187.14	10.00	10.00	0.00
11,571.78	56.53	179.78	11,423.00	171.51	599.28	-169.21	10.00	10.00	0.00
Wolfcamp									
11,600.00	59.35	179.78	11,437.98	147.59	599.37	-145.29	10.00	10.00	0.00
11,650.00	64.35	179.78	11,461.56	103.52	599.54	-101.22	10.00	10.00	0.00
11,700.00	69.35	179.78	11,481.20	57.56	599.72	-55.26	10.00	10.00	0.00
11,736.59	73.01	179.78	11,493.00	22.94	599.85	-20.63	10.00	10.00	0.00
Wolfcamp Y									
11,750.00	74.35	179.78	11,496.77	10.06	599.90	-7.76	10.00	10.00	0.00
11,800.00	79.35	179.78	11,508.14	-38.61	600.08	40.92	10.00	10.00	0.00
11,850.00	84.35	179.78	11,515.22	-88.09	600.27	90.40	10.00	10.00	0.00
11,900.00	89.35	179.78	11,517.96	-138.00	600.46	140.31	10.00	10.00	0.00
11,906.45	90.00	179.78	11,518.00	-144.45	600.49	146.76	10.00	10.00	0.00
LP									
12,000.00	90.00	179.78	11,518.00	-238.00	600.85	240.31	0.00	0.00	0.00

Planning Report

Database:	PREDATOR_EDM	Local Co-ordinate Reference:	Well 13-108H - Slot PLU 13 DTD 108H SHL
Company:	XTO Energy	TVD Reference:	3476+27 @ 3503.00usft (HP467)
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3476+27 @ 3503.00usft (HP467)
Site:	PLU 13 Dog Town Draw	North Reference:	Grid
Well:	13-108H	Survey Calculation Method:	Minimum Curvature
Wellbore:	108H Lateral		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
12,100.00	90.00	179.78	11,518.00	-338.00	601.23	340.31	0.00	0.00	0.00
12,200.00	90.00	179.78	11,518.00	-438.00	601.61	440.31	0.00	0.00	0.00
12,300.00	90.00	179.78	11,518.00	-538.00	601.99	540.31	0.00	0.00	0.00
12,400.00	90.00	179.78	11,518.00	-638.00	602.37	640.31	0.00	0.00	0.00
12,500.00	90.00	179.78	11,518.00	-738.00	602.76	740.31	0.00	0.00	0.00
12,600.00	90.00	179.78	11,518.00	-838.00	603.14	840.31	0.00	0.00	0.00
12,700.00	90.00	179.78	11,518.00	-937.99	603.52	940.31	0.00	0.00	0.00
12,800.00	90.00	179.78	11,518.00	-1,037.99	603.90	1,040.31	0.00	0.00	0.00
12,900.00	90.00	179.78	11,518.00	-1,137.99	604.28	1,140.31	0.00	0.00	0.00
13,000.00	90.00	179.78	11,518.00	-1,237.99	604.67	1,240.31	0.00	0.00	0.00
13,100.00	90.00	179.78	11,518.00	-1,337.99	605.05	1,340.31	0.00	0.00	0.00
13,200.00	90.00	179.78	11,518.00	-1,437.99	605.43	1,440.31	0.00	0.00	0.00
13,300.00	90.00	179.78	11,518.00	-1,537.99	605.81	1,540.31	0.00	0.00	0.00
13,400.00	90.00	179.78	11,518.00	-1,637.99	606.19	1,640.31	0.00	0.00	0.00
13,500.00	90.00	179.78	11,518.00	-1,737.99	606.57	1,740.31	0.00	0.00	0.00
13,600.00	90.00	179.78	11,518.00	-1,837.99	606.96	1,840.31	0.00	0.00	0.00
13,700.00	90.00	179.78	11,518.00	-1,937.99	607.34	1,940.31	0.00	0.00	0.00
13,800.00	90.00	179.78	11,518.00	-2,037.99	607.72	2,040.31	0.00	0.00	0.00
13,900.00	90.00	179.78	11,518.00	-2,137.99	608.10	2,140.31	0.00	0.00	0.00
14,000.00	90.00	179.78	11,518.00	-2,237.99	608.48	2,240.31	0.00	0.00	0.00
14,100.00	90.00	179.78	11,518.00	-2,337.98	608.87	2,340.31	0.00	0.00	0.00
14,200.00	90.00	179.78	11,518.00	-2,437.98	609.25	2,440.31	0.00	0.00	0.00
14,300.00	90.00	179.78	11,518.00	-2,537.98	609.63	2,540.31	0.00	0.00	0.00
14,400.00	90.00	179.78	11,518.00	-2,637.98	610.01	2,640.31	0.00	0.00	0.00
14,500.00	90.00	179.78	11,518.00	-2,737.98	610.39	2,740.31	0.00	0.00	0.00
14,600.00	90.00	179.78	11,518.00	-2,837.98	610.78	2,840.31	0.00	0.00	0.00
14,700.00	90.00	179.78	11,518.00	-2,937.98	611.16	2,940.31	0.00	0.00	0.00
14,800.00	90.00	179.78	11,518.00	-3,037.98	611.54	3,040.31	0.00	0.00	0.00
14,900.00	90.00	179.78	11,518.00	-3,137.98	611.92	3,140.31	0.00	0.00	0.00
15,000.00	90.00	179.78	11,518.00	-3,237.98	612.30	3,240.31	0.00	0.00	0.00
15,100.00	90.00	179.78	11,518.00	-3,337.98	612.69	3,340.31	0.00	0.00	0.00
15,200.00	90.00	179.78	11,518.00	-3,437.98	613.07	3,440.31	0.00	0.00	0.00
15,300.00	90.00	179.78	11,518.00	-3,537.98	613.45	3,540.31	0.00	0.00	0.00
15,400.00	90.00	179.78	11,518.00	-3,637.97	613.83	3,640.31	0.00	0.00	0.00
15,500.00	90.00	179.78	11,518.00	-3,737.97	614.21	3,740.31	0.00	0.00	0.00
15,600.00	90.00	179.78	11,518.00	-3,837.97	614.60	3,840.31	0.00	0.00	0.00
15,700.00	90.00	179.78	11,518.00	-3,937.97	614.98	3,940.31	0.00	0.00	0.00
15,800.00	90.00	179.78	11,518.00	-4,037.97	615.36	4,040.31	0.00	0.00	0.00
15,900.00	90.00	179.78	11,518.00	-4,137.97	615.74	4,140.31	0.00	0.00	0.00
16,000.00	90.00	179.78	11,518.00	-4,237.97	616.12	4,240.31	0.00	0.00	0.00
16,100.00	90.00	179.78	11,518.00	-4,337.97	616.51	4,340.31	0.00	0.00	0.00
16,200.00	90.00	179.78	11,518.00	-4,437.97	616.89	4,440.31	0.00	0.00	0.00
16,300.00	90.00	179.78	11,518.00	-4,537.97	617.27	4,540.31	0.00	0.00	0.00
16,400.00	90.00	179.78	11,518.00	-4,637.97	617.65	4,640.31	0.00	0.00	0.00
16,500.00	90.00	179.78	11,518.00	-4,737.97	618.03	4,740.31	0.00	0.00	0.00
16,600.00	90.00	179.78	11,518.00	-4,837.97	618.42	4,840.31	0.00	0.00	0.00
16,700.00	90.00	179.78	11,518.00	-4,937.97	618.80	4,940.31	0.00	0.00	0.00
16,800.00	90.00	179.78	11,518.00	-5,037.96	619.18	5,040.31	0.00	0.00	0.00
16,900.00	90.00	179.78	11,518.00	-5,137.96	619.56	5,140.31	0.00	0.00	0.00
17,000.00	90.00	179.78	11,518.00	-5,237.96	619.94	5,240.31	0.00	0.00	0.00
17,100.00	90.00	179.78	11,518.00	-5,337.96	620.33	5,340.31	0.00	0.00	0.00
17,200.00	90.00	179.78	11,518.00	-5,437.96	620.71	5,440.31	0.00	0.00	0.00
17,300.00	90.00	179.78	11,518.00	-5,537.96	621.09	5,540.31	0.00	0.00	0.00
17,400.00	90.00	179.78	11,518.00	-5,637.96	621.47	5,640.31	0.00	0.00	0.00

Planning Report

Database:	PREDATOR_EDM	Local Co-ordinate Reference:	Well 13-108H - Slot PLU 13 DTD 108H SHL
Company:	XTO Energy	TVD Reference:	3476+27 @ 3503.00usft (HP467)
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3476+27 @ 3503.00usft (HP467)
Site:	PLU 13 Dog Town Draw	North Reference:	Grid
Well:	13-108H	Survey Calculation Method:	Minimum Curvature
Wellbore:	108H Lateral		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
17,500.00	90.00	179.78	11,518.00	-5,737.96	621.85	5,740.31	0.00	0.00	0.00
17,600.00	90.00	179.78	11,518.00	-5,837.96	622.23	5,840.31	0.00	0.00	0.00
17,700.00	90.00	179.78	11,518.00	-5,937.96	622.62	5,940.31	0.00	0.00	0.00
17,800.00	90.00	179.78	11,518.00	-6,037.96	623.00	6,040.31	0.00	0.00	0.00
17,900.00	90.00	179.78	11,518.00	-6,137.96	623.38	6,140.31	0.00	0.00	0.00
18,000.00	90.00	179.78	11,518.00	-6,237.96	623.76	6,240.31	0.00	0.00	0.00
18,100.00	90.00	179.78	11,518.00	-6,337.96	624.14	6,340.31	0.00	0.00	0.00
18,200.00	90.00	179.78	11,518.00	-6,437.95	624.53	6,440.31	0.00	0.00	0.00
18,300.00	90.00	179.78	11,518.00	-6,537.95	624.91	6,540.31	0.00	0.00	0.00
18,400.00	90.00	179.78	11,518.00	-6,637.95	625.29	6,640.31	0.00	0.00	0.00
18,500.00	90.00	179.78	11,518.00	-6,737.95	625.67	6,740.31	0.00	0.00	0.00
18,600.00	90.00	179.78	11,518.00	-6,837.95	626.05	6,840.31	0.00	0.00	0.00
18,700.00	90.00	179.78	11,518.00	-6,937.95	626.44	6,940.31	0.00	0.00	0.00
18,800.00	90.00	179.78	11,518.00	-7,037.95	626.82	7,040.31	0.00	0.00	0.00
18,900.00	90.00	179.78	11,518.00	-7,137.95	627.20	7,140.31	0.00	0.00	0.00
19,000.00	90.00	179.78	11,518.00	-7,237.95	627.58	7,240.31	0.00	0.00	0.00
19,100.00	90.00	179.78	11,518.00	-7,337.95	627.96	7,340.31	0.00	0.00	0.00
19,200.00	90.00	179.78	11,518.00	-7,437.95	628.35	7,440.31	0.00	0.00	0.00
19,300.00	90.00	179.78	11,518.00	-7,537.95	628.73	7,540.31	0.00	0.00	0.00
19,400.00	90.00	179.78	11,518.00	-7,637.95	629.11	7,640.31	0.00	0.00	0.00
19,500.00	90.00	179.78	11,518.00	-7,737.95	629.49	7,740.31	0.00	0.00	0.00
19,600.00	90.00	179.78	11,518.00	-7,837.94	629.87	7,840.31	0.00	0.00	0.00
19,700.00	90.00	179.78	11,518.00	-7,937.94	630.26	7,940.31	0.00	0.00	0.00
19,800.00	90.00	179.78	11,518.00	-8,037.94	630.64	8,040.31	0.00	0.00	0.00
19,900.00	90.00	179.78	11,518.00	-8,137.94	631.02	8,140.31	0.00	0.00	0.00
20,000.00	90.00	179.78	11,518.00	-8,237.94	631.40	8,240.31	0.00	0.00	0.00
20,100.00	90.00	179.78	11,518.00	-8,337.94	631.78	8,340.31	0.00	0.00	0.00
20,200.00	90.00	179.78	11,518.00	-8,437.94	632.17	8,440.31	0.00	0.00	0.00
20,300.00	90.00	179.78	11,518.00	-8,537.94	632.55	8,540.31	0.00	0.00	0.00
20,400.00	90.00	179.78	11,518.00	-8,637.94	632.93	8,640.31	0.00	0.00	0.00
20,500.00	90.00	179.78	11,518.00	-8,737.94	633.31	8,740.31	0.00	0.00	0.00
20,600.00	90.00	179.78	11,518.00	-8,837.94	633.69	8,840.31	0.00	0.00	0.00
20,700.00	90.00	179.78	11,518.00	-8,937.94	634.08	8,940.31	0.00	0.00	0.00
20,800.00	90.00	179.78	11,518.00	-9,037.94	634.46	9,040.31	0.00	0.00	0.00
20,900.00	90.00	179.78	11,518.00	-9,137.94	634.84	9,140.31	0.00	0.00	0.00
21,000.00	90.00	179.78	11,518.00	-9,237.93	635.22	9,240.31	0.00	0.00	0.00
21,100.00	90.00	179.78	11,518.00	-9,337.93	635.60	9,340.31	0.00	0.00	0.00
21,200.00	90.00	179.78	11,518.00	-9,437.93	635.99	9,440.31	0.00	0.00	0.00
21,300.00	90.00	179.78	11,518.00	-9,537.93	636.37	9,540.31	0.00	0.00	0.00
21,400.00	90.00	179.78	11,518.00	-9,637.93	636.75	9,640.31	0.00	0.00	0.00
21,500.00	90.00	179.78	11,518.00	-9,737.93	637.13	9,740.31	0.00	0.00	0.00
21,600.00	90.00	179.78	11,518.00	-9,837.93	637.51	9,840.31	0.00	0.00	0.00
21,648.97	90.00	179.78	11,518.00	-9,886.90	637.70	9,889.28	0.00	0.00	0.00

Planning Report

Database:	PREDATOR_EDM	Local Co-ordinate Reference:	Well 13-108H - Slot PLU 13-DTD 108H SHL
Company:	XTO Energy	TVD Reference:	3476+27 @ 3503.00usft (HP467)
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3476+27 @ 3503.00usft (HP467)
Site:	PLU 13 Dog Town Draw	North Reference:	Grid
Well:	13-108H	Survey Calculation Method:	Minimum Curvature
Wellbore:	108H Lateral		
Design:	Plan #1		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
PLU 13 DTD 108H SHL - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	440,189.10	656,233.80	32.20918779	-103.82819736
PLU 13 DTD 108H KOP - plan hits target center - Point	0.00	0.00	10,945.04	428.50	598.30	440,617.60	656,832.10	32.21035795	-103.82625646
PLU 13 DTD 108H 80° - plan hits target center - Point	0.00	0.00	11,509.29	-44.96	600.11	440,144.14	656,833.91	32.20905644	-103.82625783
PLU 13 DTD 108H LP - plan hits target center - Point	0.00	0.00	11,518.00	-144.45	600.49	440,044.65	656,834.29	32.20878294	-103.82625812
PLU 13 DTD 108H PBH - plan hits target center - Rectangle (sides W100.00 H10,035.00 D0.00)	0.00	0.00	11,518.00	-9,886.90	637.70	430,302.20	656,871.50	32.18200144	-103.82628634
PLU 13 DTD 108H LTP - plan hits target center - Point	0.00	0.00	11,518.00	-9,756.90	637.20	430,432.20	656,871.00	32.18235880	-103.82628597
PLU 13 DTD 108H FTP - plan misses target center by 70.58usft at 11636.96usft MD (11455.78 TVD, 115.21 N, 599.50 E) - Point	0.00	0.00	11,518.00	148.50	598.30	440,337.60	656,832.10	32.20958826	-103.82626073

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(usft)	(usft)			(°)	(°)	
483.00	483.00	Rustler				
618.00	618.00	Magenta				
933.00	933.00	Top Salt				
4,081.97	4,063.00	Base Salt				
4,249.52	4,228.00	Delaware				
8,134.41	8,073.00	Bone Spring				
9,099.41	9,038.00	1st Bone Spring Ss				
9,914.41	9,853.00	2nd Bone Spring Ss				
10,274.41	10,213.00	3rd Bone Spring Lm				
11,039.43	10,978.00	3rd Bone Spring Ss				
11,571.78	11,423.00	Wolfcamp				
11,736.59	11,493.00	Wolfcamp Y				
11,906.45	11,518.00	LP				

Anticollision Report

Company:	XTO Energy	Local Co-ordinate Reference:	Well 13-108H - Slot PLU 13 DTD 108H SHL
Project:	Eddy County, NM (NAD27) NMEZ Grid	TVD Reference:	3476+27 @ 3503.00usft (HP467)
Reference Site:	PLU 13 Dog Town Draw	MD Reference:	3476+27 @ 3503.00usft (HP467)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	13-108H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2'00 sigma
Reference Wellbore	108H 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	21,648.97	Plan #1 (108H 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
13-123H (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
13-128H - 128H Lateral - Plan #1	3,103.93	3,102.35	30.38	8.49	1.388	Level 3, CC
13-128H - 128H Lateral - Plan #1	3,250.00	3,248.31	30.94	7.95	1.346	Level 3, ES
13-128H - 128H Lateral - Plan #1	11,100.00	11,080.64	98.73	18.34	1.228	Level 2, SF
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	2,765.03	2,767.12	35.23	14.59	1.707	CC
13-208H - 208H Lateral - Plan #1	2,900.00	2,903.11	35.83	13.72	1.621	ES
13-208H - 208H Lateral - Plan #1	2,950.00	2,953.48	36.51	13.84	1.611	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 - 13-128H - 128H Lateral - Plan #1				Offset Site Error:		0.00 usft	
Survey Program:										O-MWD+IFRT+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 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				
1,150.00	1,150.00	1,151.00	1,151.00	4.76	4.76	-0.17	34.20	-0.10	34.20	25.55	8.65	3.954					
1,200.00	1,200.00	1,201.00	1,201.00	4.94	4.95	-0.17	34.20	-0.10	34.20	25.19	9.01	3.795					
1,250.00	1,250.00	1,251.00	1,251.00	5.13	5.13	-0.17	34.20	-0.10	34.20	24.83	9.37	3.649					
1,300.00	1,300.00	1,301.00	1,301.00	5.31	5.31	-0.17	34.20	-0.10	34.20	24.47	9.74	3.513					
1,350.00	1,350.00	1,351.00	1,351.00	5.49	5.50	-0.17	34.20	-0.10	34.20	24.10	10.10	3.387					
1,400.00	1,400.00	1,401.00	1,401.00	5.68	5.68	-0.17	34.20	-0.10	34.20	23.74	10.46	3.270					
1,450.00	1,450.00	1,451.00	1,451.00	5.86	5.86	-0.17	34.20	-0.10	34.20	23.38	10.82	3.161					
1,500.00	1,500.00	1,501.00	1,501.00	6.04	6.05	-0.17	34.20	-0.10	34.20	23.02	11.18	3.059					
1,550.00	1,550.00	1,551.00	1,551.00	6.22	6.23	-0.17	34.20	-0.10	34.20	22.66	11.54	2.964					
1,600.00	1,600.00	1,601.00	1,601.00	6.41	6.41	-0.17	34.20	-0.10	34.20	22.30	11.90	2.874					

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 13-108H - Slot PLU 13 DTD 108H SHL
Project:	Eddy County, NM (NAD27) NMEZ Grid	TVD Reference:	3476+27 @ 3503.00usft (HP467)
Reference Site:	PLU 13 Dog Town Draw	MD Reference:	3476+27 @ 3503.00usft (HP467)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	13-108H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	108H Lateral	Database:	PREDATOR_EDM
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design - PLU 13 Dog Town Draw - 13-128H - 128H Lateral - Plan #1														Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS														Offset Well Error:	0.00 usft
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		
1,650.00	1,650.00	1,651.00	1,651.00	6.59	6.59	-0.17	34.20	-0.10	34.20	21.94	12.26	2.790			
1,700.00	1,700.00	1,701.00	1,701.00	6.77	6.77	-0.17	34.20	-0.10	34.20	21.58	12.62	2.710			
1,750.00	1,750.00	1,751.00	1,751.00	6.95	6.96	-0.17	34.20	-0.10	34.20	21.22	12.98	2.635			
1,800.00	1,800.00	1,801.00	1,801.00	7.13	7.14	-0.17	34.20	-0.10	34.20	20.86	13.34	2.564			
1,850.00	1,850.00	1,851.00	1,851.00	7.32	7.32	-0.17	34.20	-0.10	34.20	20.50	13.70	2.496			
1,900.00	1,900.00	1,901.00	1,901.00	7.50	7.50	-0.17	34.20	-0.10	34.20	20.14	14.06	2.432			
1,950.00	1,950.00	1,951.00	1,951.00	7.68	7.68	-0.17	34.20	-0.10	34.20	19.78	14.42	2.372			
2,000.00	2,000.00	2,001.00	2,001.00	7.86	7.86	-0.17	34.20	-0.10	34.20	19.42	14.78	2.314			
2,050.00	2,050.00	2,051.00	2,051.00	8.04	8.05	-0.17	34.20	-0.10	34.20	19.06	15.14	2.259			
2,100.00	2,100.00	2,101.00	2,101.00	8.22	8.23	-0.17	34.20	-0.10	34.20	18.70	15.50	2.207			
2,150.00	2,150.00	2,151.00	2,151.00	8.40	8.41	-0.17	34.20	-0.10	34.20	18.34	15.86	2.157			
2,200.00	2,200.00	2,201.00	2,201.00	8.59	8.59	-0.17	34.20	-0.10	34.20	17.98	16.22	2.109			
2,250.00	2,250.00	2,251.00	2,251.00	8.77	8.77	-0.17	34.20	-0.10	34.20	17.62	16.58	2.063			
2,300.00	2,300.00	2,301.00	2,301.00	8.95	8.95	-0.17	34.20	-0.10	34.20	17.26	16.94	2.019			
2,350.00	2,350.00	2,351.00	2,351.00	9.13	9.13	-0.17	34.20	-0.10	34.20	16.90	17.30	1.977			
2,400.00	2,400.00	2,401.00	2,401.00	9.31	9.31	-0.17	34.20	-0.10	34.20	16.54	17.66	1.937			
2,450.00	2,450.00	2,451.00	2,451.00	9.49	9.49	-0.17	34.20	-0.10	34.20	16.18	18.02	1.898			
2,457.99	2,457.99	2,458.99	2,458.99	9.52	9.52	-0.17	34.20	-0.10	34.20	16.13	18.07	1.892			
2,500.00	2,500.00	2,500.99	2,500.99	9.67	9.67	-0.17	34.20	-0.10	34.20	15.83	18.37	1.861			
2,550.00	2,550.00	2,550.72	2,550.72	9.89	9.87	-54.71	34.41	0.16	34.16	15.43	18.73	1.824			
2,600.00	2,599.98	2,600.45	2,600.44	10.11	10.07	-55.19	35.02	0.94	34.01	14.95	19.06	1.784			
2,650.00	2,649.93	2,650.18	2,650.14	10.39	10.30	-56.02	36.03	2.22	33.77	14.38	19.38	1.742			
2,700.00	2,699.84	2,700.00	2,699.91	10.67	10.53	-57.21	37.44	4.01	33.43	13.75	19.69	1.698			
2,750.00	2,749.68	2,749.66	2,749.46	10.95	10.76	-58.78	39.25	6.30	33.02	13.05	19.97	1.654			
2,800.00	2,799.45	2,799.41	2,799.10	11.22	10.98	-60.75	41.46	9.11	32.56	12.32	20.24	1.609			
2,850.00	2,849.13	2,849.18	2,848.69	11.49	11.21	-63.15	44.08	12.42	32.06	11.56	20.50	1.564			
2,900.00	2,898.70	2,898.95	2,898.23	11.76	11.43	-66.01	47.09	16.24	31.55	10.81	20.74	1.521			
2,950.00	2,948.15	2,948.74	2,947.71	12.03	11.65	-69.36	50.50	20.57	31.08	10.09	20.99	1.480 Level 3			
3,000.00	2,997.46	2,998.55	2,997.14	12.29	11.88	-73.21	54.32	25.41	30.67	9.43	21.25	1.444 Level 3			
3,050.00	3,046.71	3,048.47	3,046.60	12.48	12.04	-77.02	58.45	30.65	30.45	8.91	21.54	1.414 Level 3			
3,100.00	3,095.95	3,098.43	3,096.11	12.68	12.19	-80.80	62.62	35.93	30.38	8.51	21.86	1.390 Level 3			
3,103.93	3,099.82	3,102.35	3,100.00	12.69	12.21	-81.09	62.94	36.35	30.38	8.49	21.89	1.388 Level 3, CC			
3,150.00	3,145.19	3,148.39	3,145.61	12.83	12.36	-84.58	66.78	41.21	30.43	8.22	22.21	1.370 Level 3			
3,200.00	3,194.43	3,198.35	3,195.12	12.99	12.52	-88.33	70.94	46.49	30.62	8.03	22.59	1.356 Level 3			
3,250.00	3,243.67	3,248.31	3,244.62	13.15	12.69	-92.03	75.10	51.77	30.94	7.95	22.99	1.346 Level 3, ES			
3,300.00	3,292.91	3,298.25	3,294.13	13.31	12.85	-95.63	79.27	57.04	31.38	7.98	23.40	1.341 Level 3			
3,350.00	3,342.15	3,348.22	3,343.64	13.47	13.02	-99.12	83.43	62.32	31.95	8.11	23.83	1.340 Level 3			
3,400.00	3,391.39	3,398.18	3,393.14	13.63	13.19	-102.47	87.59	67.60	32.62	8.35	24.28	1.344 Level 3			
3,450.00	3,440.63	3,448.14	3,442.65	13.80	13.35	-105.68	91.75	72.88	33.41	8.68	24.73	1.351 Level 3			
3,500.00	3,489.87	3,498.10	3,492.15	13.95	13.52	-108.74	95.92	78.16	34.29	9.10	25.19	1.361 Level 3			
3,550.00	3,539.11	3,548.06	3,541.66	14.12	13.69	-111.63	100.08	83.43	35.27	9.62	25.65	1.375 Level 3			
3,600.00	3,588.35	3,598.02	3,591.16	14.28	13.86	-114.36	104.24	88.71	36.34	10.22	26.12	1.391 Level 3			
3,650.00	3,637.59	3,647.98	3,640.67	14.45	14.03	-116.92	108.40	93.99	37.48	10.89	26.58	1.410 Level 3			
3,700.00	3,686.83	3,697.94	3,690.17	14.61	14.20	-119.34	112.57	99.27	38.69	11.64	27.04	1.431 Level 3			
3,750.00	3,736.07	3,747.90	3,739.68	14.78	14.37	-121.60	116.73	104.55	39.96	12.46	27.50	1.453 Level 3			
3,800.00	3,785.31	3,797.86	3,789.18	14.95	14.54	-123.72	120.89	109.82	41.30	13.34	27.95	1.477 Level 3			
3,850.00	3,834.55	3,847.82	3,838.69	15.11	14.71	-125.70	125.05	115.10	42.68	14.28	28.40	1.503			
3,900.00	3,883.79	3,897.78	3,888.19	15.28	14.88	-127.56	129.22	120.38	44.12	15.28	28.84	1.530			
3,950.00	3,933.03	3,947.74	3,937.70	15.45	15.05	-129.30	133.38	125.66	45.60	16.32	29.28	1.557			
4,000.00	3,982.27	3,997.70	3,987.20	15.61	15.23	-130.93	137.54	130.94	47.12	17.41	29.71	1.586			
4,050.00	4,031.51	4,047.66	4,033.71	15.78	15.40	-132.45	141.70	136.21	48.67	18.54	30.13	1.615			
4,100.00	4,080.75	4,097.62	4,086.22	15.95	15.57	-133.89	145.86	141.49	50.26	19.70	30.55	1.645			

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: 13-108H
 Well Error: 0.00 usft
 Reference Wellbore: 108H Lateral
 Reference Design: Plan #1

Local Co-ordinate Reference: Well 13-108H - Slot PLU 13 DTD 108H SHL
 TVD Reference: 3476+27 @ 3503.00usft (HP467)
 MD Reference: 3476+27 @ 3503.00usft (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 - 13-128H - 128H Lateral - Plan #1														Offset Site Error: 0.00 usft
Survey Program: 0-MWD+FR1+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		
4,150.00	4,129.99	4,147.58	4,135.72	16.12	15.74	-135.23	150.03	146.77	51.87	20.90	30.97	1.675		
4,200.00	4,179.23	4,197.54	4,185.23	16.29	15.92	-136.49	154.19	152.05	53.51	22.13	31.38	1.705		
4,250.00	4,228.48	4,247.50	4,234.73	16.46	16.09	-137.67	158.35	157.33	55.18	23.39	31.78	1.736		
4,300.00	4,277.72	4,297.46	4,284.24	16.63	16.26	-138.79	162.51	162.60	56.87	24.68	32.19	1.767		
4,350.00	4,326.96	4,347.42	4,333.74	16.80	16.44	-139.84	166.68	167.88	58.58	25.99	32.58	1.798		
4,400.00	4,376.20	4,397.38	4,383.25	16.97	16.61	-140.83	170.84	173.16	60.30	27.33	32.98	1.829		
4,450.00	4,425.44	4,447.34	4,432.75	17.15	16.79	-141.76	175.00	178.44	62.05	28.68	33.37	1.859		
4,500.00	4,474.68	4,497.29	4,482.26	17.32	16.96	-142.65	179.16	183.72	63.81	30.05	33.76	1.890		
4,550.00	4,523.92	4,547.25	4,531.76	17.49	17.14	-143.48	183.33	188.99	65.58	31.44	34.15	1.921		
4,600.00	4,573.16	4,597.21	4,581.27	17.66	17.31	-144.28	187.49	194.27	67.37	32.84	34.53	1.951		
4,650.00	4,622.40	4,647.17	4,630.77	17.84	17.49	-145.03	191.65	199.55	69.17	34.25	34.91	1.981		
4,700.00	4,671.64	4,697.13	4,680.28	18.01	17.66	-145.74	195.81	204.83	70.98	35.69	35.29	2.011		
4,750.00	4,720.88	4,747.09	4,729.79	18.18	17.84	-146.42	199.98	210.10	72.80	37.13	35.67	2.041		
4,800.00	4,770.12	4,797.05	4,779.29	18.36	18.01	-147.06	204.14	215.38	74.63	38.59	36.05	2.070		
4,850.00	4,819.36	4,847.01	4,829.80	18.53	18.19	-147.68	208.30	220.66	76.48	40.05	36.43	2.100		
4,900.00	4,868.60	4,896.97	4,878.30	18.70	18.37	-148.26	212.46	225.94	78.32	41.52	36.80	2.128		
4,950.00	4,917.84	4,946.93	4,927.81	18.88	18.54	-148.82	216.63	231.22	80.18	43.01	37.17	2.157		
5,000.00	4,967.08	4,996.89	4,977.31	19.05	18.72	-149.35	220.79	236.49	82.04	44.50	37.55	2.185		
5,050.00	5,016.32	5,046.85	5,026.82	19.23	18.90	-149.86	224.95	241.77	83.91	46.00	37.92	2.213		
5,100.00	5,065.56	5,096.81	5,076.32	19.40	19.07	-150.34	229.11	247.05	85.79	47.50	38.29	2.241		
5,150.00	5,114.80	5,146.77	5,125.83	19.58	19.25	-150.81	233.28	252.33	87.67	49.02	38.66	2.268		
5,200.00	5,164.04	5,196.73	5,175.33	19.76	19.43	-151.25	237.44	257.61	89.56	50.53	39.03	2.295		
5,250.00	5,213.28	5,246.89	5,224.84	19.93	19.61	-151.68	241.60	262.88	91.45	52.06	39.40	2.321		
5,300.00	5,262.52	5,296.65	5,274.34	20.11	19.78	-152.09	245.76	268.16	93.35	53.59	39.76	2.348		
5,350.00	5,311.76	5,346.61	5,323.85	20.28	19.96	-152.49	249.92	273.44	95.25	55.12	40.13	2.374		
5,400.00	5,361.00	5,396.57	5,373.35	20.46	20.14	-152.86	254.09	278.72	97.16	56.66	40.50	2.399		
5,450.00	5,410.24	5,446.53	5,422.86	20.64	20.32	-153.23	258.25	284.00	99.07	58.21	40.87	2.424		
5,500.00	5,459.48	5,496.49	5,472.37	20.81	20.49	-153.58	262.41	289.27	100.99	59.76	41.23	2.449		
5,550.00	5,508.73	5,546.45	5,521.87	20.99	20.67	-153.91	266.57	294.55	102.91	61.31	41.60	2.474		
5,600.00	5,557.97	5,596.41	5,571.38	21.17	20.85	-154.24	270.74	299.83	104.83	62.86	41.96	2.498		
5,650.00	5,607.21	5,646.37	5,620.88	21.35	21.03	-154.55	274.90	305.11	106.75	64.42	42.33	2.522		
5,700.00	5,656.45	5,696.33	5,670.39	21.52	21.21	-154.85	279.06	310.39	108.68	65.99	42.70	2.545		
5,750.00	5,705.69	5,746.28	5,719.89	21.70	21.39	-155.14	283.22	315.66	110.61	67.55	43.06	2.569		
5,800.00	5,754.93	5,796.24	5,769.40	21.88	21.56	-155.42	287.39	320.94	112.55	69.12	43.43	2.592		
5,850.00	5,804.17	5,846.20	5,818.90	22.06	21.74	-155.70	291.55	326.22	114.48	70.69	43.79	2.614		
5,900.00	5,853.41	5,896.16	5,868.41	22.24	21.92	-155.96	295.71	331.50	116.42	72.25	44.16	2.637		
5,950.00	5,902.65	5,946.12	5,917.91	22.42	22.10	-156.21	299.87	336.78	118.36	73.84	44.52	2.659		
6,000.00	5,951.89	5,996.08	5,967.42	22.59	22.28	-156.46	304.04	342.05	120.31	75.42	44.89	2.680		
6,050.00	6,001.13	6,046.04	6,015.92	22.77	22.46	-156.70	308.20	347.33	122.25	77.00	45.25	2.702		
6,100.00	6,050.37	6,096.00	6,066.43	22.95	22.64	-156.93	312.36	352.61	124.20	78.58	45.62	2.723		
6,150.00	6,099.61	6,145.96	6,115.93	23.13	22.82	-157.15	316.52	357.89	126.15	80.17	45.98	2.744		
6,200.00	6,148.85	6,195.92	6,165.44	23.31	23.00	-157.37	320.69	363.17	128.10	81.75	46.35	2.764		
6,250.00	6,198.09	6,245.88	6,214.95	23.49	23.18	-157.58	324.85	368.44	130.05	83.34	46.71	2.784		
6,300.00	6,247.33	6,295.84	6,264.45	23.67	23.36	-157.78	329.01	373.72	132.01	84.93	47.08	2.804		
6,350.00	6,296.57	6,345.80	6,313.96	23.85	23.54	-157.98	333.17	379.00	133.97	86.53	47.44	2.824		
6,400.00	6,345.81	6,395.76	6,363.46	24.03	23.72	-158.17	337.34	384.28	135.92	88.12	47.80	2.843		
6,450.00	6,395.05	6,445.72	6,412.97	24.21	23.90	-158.36	341.50	389.55	137.88	89.71	48.17	2.862		
6,500.00	6,444.29	6,495.68	6,462.47	24.39	24.08	-158.54	345.66	394.83	139.85	91.31	48.53	2.881		
6,550.00	6,493.53	6,545.64	6,511.96	24.57	24.26	-158.72	349.82	400.11	141.81	92.91	48.90	2.900		
6,600.00	6,542.77	6,595.60	6,561.48	24.75	24.44	-158.89	353.98	405.39	143.77	94.51	49.26	2.918		
6,650.00	6,592.01	6,645.56	6,610.99	24.93	24.62	-159.06	358.15	410.67	145.74	96.11	49.62	2.937		
6,700.00	6,641.30	6,695.53	6,660.50	25.10	24.80	-159.19	362.31	415.95	147.43	97.45	49.99	2.950		

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 13-108H - Slot PLU 13 DTD 108H SHL
Project:	Eddy County, NM (NAD27) NMEZ Grid	TVD Reference:	3476+27 @ 3503.00usft (HP467)
Reference Site:	PLU 13 Dog Town Draw	MD Reference:	3476+27 @ 3503.00usft (HP467).
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	13-108H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2:00 sigma
Reference Wellbore:	108H Lateral	Database:	PREDATOR_EDM
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design: PLU 13 Dog Town Draw - 13-128H - 128H 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		
6,750.00	6,690.70	6,745.51	6,710.04	25.29	24.98	-159.22	366.48	421.23	148.52	98.16	50.36	2.949			
6,800.00	6,740.19	6,795.51	6,759.58	25.49	25.16	-159.17	370.64	426.51	149.00	98.26	50.74	2.937			
6,850.00	6,789.77	6,845.51	6,809.12	25.69	25.34	-159.02	374.81	431.79	148.86	97.74	51.12	2.912			
6,900.00	6,839.43	6,895.50	6,858.66	25.90	25.52	-158.78	378.97	437.07	148.12	96.61	51.51	2.876			
6,950.00	6,889.16	6,945.47	6,908.18	26.10	25.70	-158.43	383.13	442.35	146.77	94.87	51.89	2.828			
7,000.00	6,938.96	6,995.42	6,957.67	26.31	25.88	-157.98	387.30	447.63	144.82	92.54	52.28	2.770			
7,050.00	6,988.81	7,045.34	7,007.13	26.51	26.06	-157.42	391.45	452.90	142.27	89.61	52.66	2.702			
7,100.00	7,038.71	7,095.21	7,056.55	26.71	26.24	-156.72	395.61	458.17	139.14	86.10	53.03	2.624			
7,150.00	7,088.64	7,145.04	7,105.93	26.91	26.42	-155.88	399.76	463.43	135.43	82.02	53.41	2.536			
7,200.00	7,138.61	7,194.80	7,155.24	27.11	26.60	-154.87	403.91	468.69	131.15	77.38	53.78	2.439			
7,250.00	7,188.59	7,244.15	7,204.14	27.31	26.77	-153.66	408.01	473.89	126.36	72.21	54.14	2.334			
7,300.00	7,238.59	7,292.46	7,252.07	27.50	26.95	-152.36	411.75	478.64	121.43	66.91	54.51	2.227			
7,350.00	7,288.59	7,340.85	7,300.16	27.67	27.13	-96.61	415.12	482.91	116.64	61.78	54.86	2.126			
7,400.00	7,338.59	7,389.37	7,348.43	27.83	27.32	-95.31	418.13	486.72	112.41	57.21	55.20	2.037			
7,450.00	7,388.59	7,438.01	7,396.68	28.00	27.52	-94.09	420.76	490.06	108.77	53.23	55.53	1.959			
7,500.00	7,438.59	7,486.74	7,445.48	28.17	27.72	-92.98	423.01	492.91	105.70	49.84	55.86	1.892			
7,550.00	7,488.59	7,535.56	7,494.21	28.34	27.92	-92.01	424.88	495.28	103.19	47.00	56.18	1.837			
7,600.00	7,538.59	7,584.45	7,543.04	28.51	28.11	-91.21	426.36	497.17	101.22	44.72	56.50	1.792			
7,650.00	7,588.59	7,633.40	7,591.95	28.68	28.31	-90.60	427.46	498.56	99.77	42.97	56.81	1.756			
7,700.00	7,638.59	7,682.38	7,640.91	28.85	28.51	-90.19	428.18	499.46	98.85	41.73	57.11	1.731			
7,750.00	7,688.59	7,731.38	7,689.91	29.02	28.69	-90.00	428.50	499.87	98.43	41.03	57.40	1.715			
7,774.89	7,713.47	7,755.94	7,714.47	29.10	28.77	-89.99	428.52	499.90	98.40	40.85	57.55	1.710			
7,800.00	7,738.59	7,781.05	7,739.59	29.19	28.86	-89.99	428.52	499.90	98.40	40.68	57.72	1.705			
7,850.00	7,788.59	7,831.05	7,789.59	29.36	29.03	-89.99	428.52	499.90	98.40	40.35	58.05	1.695			
7,900.00	7,838.59	7,881.05	7,839.59	29.53	29.20	-89.99	428.52	499.90	98.40	40.01	58.39	1.685			
7,950.00	7,888.59	7,931.05	7,889.59	29.70	29.37	-89.99	428.52	499.90	98.40	39.67	58.73	1.675			
8,000.00	7,938.59	7,981.05	7,939.59	29.87	29.54	-89.99	428.52	499.90	98.40	39.32	59.08	1.666			
8,050.00	7,988.59	8,031.05	7,989.59	30.04	29.71	-89.99	428.52	499.90	98.40	38.98	59.42	1.656			
8,100.00	8,038.59	8,081.05	8,039.59	30.21	29.89	-89.99	428.52	499.90	98.40	38.64	59.76	1.647			
8,150.00	8,088.59	8,131.05	8,089.59	30.38	30.06	-89.99	428.52	499.90	98.40	38.30	60.10	1.637			
8,200.00	8,138.59	8,181.05	8,139.59	30.55	30.23	-89.99	428.52	499.90	98.40	37.96	60.44	1.628			
8,250.00	8,188.59	8,231.05	8,189.59	30.73	30.41	-89.99	428.52	499.90	98.40	37.62	60.78	1.619			
8,300.00	8,238.59	8,281.05	8,239.59	30.90	30.58	-89.99	428.52	499.90	98.40	37.27	61.13	1.610			
8,350.00	8,288.59	8,331.05	8,289.59	31.07	30.75	-89.99	428.52	499.90	98.40	36.93	61.47	1.601			
8,400.00	8,338.59	8,381.05	8,339.59	31.24	30.93	-89.99	428.52	499.90	98.40	36.59	61.81	1.592			
8,450.00	8,388.59	8,431.05	8,389.59	31.41	31.10	-89.99	428.52	499.90	98.40	36.25	62.15	1.583			
8,500.00	8,438.59	8,481.05	8,439.59	31.58	31.27	-89.99	428.52	499.90	98.40	35.90	62.50	1.574			
8,550.00	8,488.59	8,531.05	8,489.59	31.75	31.45	-89.99	428.52	499.90	98.40	35.55	62.84	1.566			
8,600.00	8,538.59	8,581.05	8,539.59	31.93	31.62	-89.99	428.52	499.90	98.40	35.22	63.18	1.557			
8,650.00	8,588.59	8,631.05	8,589.59	32.10	31.80	-89.99	428.52	499.90	98.40	34.87	63.53	1.549			
8,700.00	8,638.59	8,681.05	8,639.59	32.27	31.97	-89.99	428.52	499.90	98.40	34.53	63.87	1.541			
8,750.00	8,688.59	8,731.05	8,689.59	32.44	32.14	-89.99	428.52	499.90	98.40	34.19	64.21	1.532			
8,800.00	8,738.59	8,781.05	8,739.59	32.62	32.32	-89.99	428.52	499.90	98.40	33.84	64.56	1.524			
8,850.00	8,788.59	8,831.05	8,789.59	32.79	32.49	-89.99	428.52	499.90	98.40	33.50	64.90	1.516			
8,900.00	8,838.59	8,881.05	8,839.59	32.96	32.67	-89.99	428.52	499.90	98.40	33.15	65.25	1.508			
8,950.00	8,888.59	8,931.05	8,889.59	33.13	32.84	-89.99	428.52	499.90	98.40	32.81	65.59	1.500			
9,000.00	8,938.59	8,981.05	8,939.59	33.31	33.01	-89.99	428.52	499.90	98.40	32.46	65.94	1.492 Level 3			
9,050.00	8,988.59	9,031.05	8,989.59	33.48	33.19	-89.99	428.52	499.90	98.40	32.12	66.28	1.485 Level 3			
9,100.00	9,038.59	9,081.05	9,039.59	33.64	33.36	-89.99	428.52	499.90	98.40	31.78	66.62	1.477 Level 3			
9,150.00	9,088.59	9,131.05	9,089.59	33.82	33.54	-89.99	428.52	499.90	98.40	31.43	66.97	1.469 Level 3			
9,200.00	9,138.59	9,181.05	9,139.59	33.99	33.71	-89.99	428.52	499.90	98.40	31.09	67.31	1.462 Level 3			
9,250.00	9,188.59	9,231.05	9,189.59	34.16	33.89	-89.99	428.52	499.90	98.40	30.75	67.65	1.454 Level 3			

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 13-108H - Slot PLU 13 DTD 108H SHL
Project:	Eddy County, NM (NAD27) NMEZ Grid	TVD Reference:	3476+27 @ 3503.00usft (HP467)
Reference Site:	PLU 13 Dog Town Draw	MD Reference:	3476+27 @ 3503.00usft (HP467)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	13-108H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore:	108H Lateral	Database:	PREDATOR_EDM
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design: PLU 13 Dog Town Draw - 13-128H - 128H Lateral - Plan #1														Offset Site Error:	0.00 usft
Survey Program: 0-MWD+FR1+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)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
9,300.00	9,238.59	9,281.05	9,239.59	34.33	34.06	-89.99	428.52	499.90	98.40	30.40	68.00	1.447 Level 3			
9,350.00	9,288.59	9,331.05	9,289.59	34.50	34.24	-89.99	428.52	499.90	98.40	30.05	68.35	1.440 Level 3			
9,400.00	9,338.59	9,381.05	9,339.59	34.68	34.41	-89.99	428.52	499.90	98.40	29.71	68.69	1.432 Level 3			
9,450.00	9,388.59	9,431.05	9,389.59	34.85	34.59	-89.99	428.52	499.90	98.40	29.36	69.04	1.425 Level 3			
9,500.00	9,438.59	9,481.05	9,439.59	35.02	34.76	-89.99	428.52	499.90	98.40	29.02	69.38	1.418 Level 3			
9,550.00	9,488.59	9,531.05	9,489.59	35.20	34.94	-89.99	428.52	499.90	98.40	28.67	69.73	1.411 Level 3			
9,600.00	9,538.59	9,581.05	9,539.59	35.37	35.11	-89.99	428.52	499.90	98.40	28.32	70.08	1.404 Level 3			
9,650.00	9,588.59	9,631.05	9,589.59	35.54	35.29	-89.99	428.52	499.90	98.40	27.98	70.42	1.397 Level 3			
9,700.00	9,638.59	9,681.05	9,639.59	35.72	35.46	-89.99	428.52	499.90	98.40	27.63	70.77	1.390 Level 3			
9,750.00	9,688.59	9,731.05	9,689.59	35.89	35.64	-89.99	428.52	499.90	98.40	27.28	71.12	1.384 Level 3			
9,800.00	9,738.59	9,781.05	9,739.59	36.07	35.81	-89.99	428.52	499.90	98.40	26.94	71.46	1.377 Level 3			
9,850.00	9,788.59	9,831.05	9,789.59	36.24	35.99	-89.99	428.52	499.90	98.40	26.59	71.81	1.370 Level 3			
9,900.00	9,838.59	9,881.05	9,839.59	36.41	36.16	-89.99	428.52	499.90	98.40	26.24	72.16	1.364 Level 3			
9,950.00	9,888.59	9,931.05	9,889.59	36.59	36.34	-89.99	428.52	499.90	98.40	25.90	72.50	1.357 Level 3			
10,000.00	9,938.59	9,981.05	9,939.59	36.76	36.51	-89.99	428.52	499.90	98.40	25.55	72.85	1.351 Level 3			
10,050.00	9,988.59	10,031.05	9,989.59	36.94	36.69	-89.99	428.52	499.90	98.40	25.20	73.20	1.344 Level 3			
10,100.00	10,038.59	10,081.05	10,039.59	37.11	36.87	-89.99	428.52	499.90	98.40	24.85	73.55	1.338 Level 3			
10,150.00	10,088.59	10,131.05	10,089.59	37.28	37.04	-89.99	428.52	499.90	98.40	24.51	73.89	1.332 Level 3			
10,200.00	10,138.59	10,181.05	10,139.59	37.46	37.22	-89.99	428.52	499.90	98.40	24.16	74.24	1.325 Level 3			
10,250.00	10,188.59	10,231.05	10,189.59	37.63	37.39	-89.99	428.52	499.90	98.40	23.81	74.59	1.319 Level 3			
10,300.00	10,238.59	10,281.05	10,239.59	37.81	37.57	-89.99	428.52	499.90	98.40	23.46	74.94	1.313 Level 3			
10,350.00	10,288.59	10,331.05	10,289.59	37.98	37.74	-89.99	428.52	499.90	98.40	23.12	75.28	1.307 Level 3			
10,400.00	10,338.59	10,381.05	10,339.59	38.15	37.92	-89.99	428.52	499.90	98.40	22.77	75.63	1.301 Level 3			
10,450.00	10,388.59	10,431.05	10,389.59	38.33	38.09	-89.99	428.52	499.90	98.40	22.42	75.98	1.295 Level 3			
10,500.00	10,438.59	10,481.05	10,439.59	38.50	38.27	-89.99	428.52	499.90	98.40	22.07	76.33	1.289 Level 3			
10,550.00	10,488.59	10,531.05	10,489.59	38.68	38.45	-89.99	428.52	499.90	98.40	21.72	76.68	1.283 Level 3			
10,600.00	10,538.59	10,581.05	10,539.59	38.85	38.62	-89.99	428.52	499.90	98.40	21.37	77.03	1.277 Level 3			
10,650.00	10,588.59	10,631.05	10,589.59	39.03	38.80	-89.99	428.52	499.90	98.40	21.03	77.37	1.272 Level 3			
10,700.00	10,638.59	10,681.05	10,639.59	39.20	38.97	-89.99	428.52	499.90	98.40	20.68	77.72	1.266 Level 3			
10,750.00	10,688.59	10,731.05	10,689.59	39.38	39.15	-89.99	428.52	499.90	98.40	20.33	78.07	1.260 Level 3			
10,800.00	10,738.59	10,781.05	10,739.59	39.55	39.33	-89.99	428.52	499.90	98.40	19.98	78.42	1.255 Level 3			
10,850.00	10,788.59	10,831.05	10,789.59	39.73	39.50	-89.99	428.52	499.90	98.40	19.63	78.77	1.249 Level 2			
10,900.00	10,838.59	10,881.05	10,839.59	39.90	39.68	-89.99	428.52	499.90	98.40	19.28	79.12	1.244 Level 2			
10,950.00	10,888.59	10,931.05	10,889.59	40.08	39.86	-89.99	428.52	499.90	98.40	18.93	79.47	1.238 Level 2			
11,000.00	10,938.59	10,981.05	10,939.59	40.25	40.03	-89.99	428.52	499.90	98.40	18.58	79.82	1.233 Level 2			
11,000.04	10,938.62	10,981.09	10,939.62	40.25	40.03	-89.99	428.52	499.90	98.40	18.58	79.82	1.233 Level 2			
11,050.00	10,988.54	11,031.01	10,989.54	40.42	40.21	91.19	428.52	499.90	98.42	18.28	80.14	1.228 Level 2			
11,100.00	11,038.17	11,080.64	11,039.17	40.59	40.38	94.60	428.52	499.90	98.73	18.34	80.39	1.228 Level 2, SF			
11,150.00	11,087.09	11,129.55	11,088.09	40.77	40.56	100.20	428.52	499.90	100.08	19.52	80.57	1.242 Level 2			
11,200.00	11,134.93	11,177.39	11,135.93	40.95	40.72	107.45	428.52	499.90	103.71	23.02	80.69	1.285 Level 3			
11,250.00	11,181.32	11,223.78	11,182.32	41.11	40.89	115.44	428.52	499.90	111.01	30.21	80.80	1.374 Level 3			
11,300.00	11,225.91	11,268.38	11,226.91	41.27	41.04	123.23	428.52	499.90	123.10	42.15	80.94	1.521			
11,350.00	11,268.37	11,310.83	11,269.37	41.42	41.19	130.09	428.52	499.90	140.54	59.39	81.15	1.732			
11,400.00	11,308.36	11,350.83	11,309.36	41.56	41.34	135.68	428.52	499.90	163.30	81.90	81.40	2.006			
11,450.00	11,345.59	11,388.06	11,346.59	41.69	41.47	139.94	428.52	499.90	190.98	109.30	81.68	2.338			
11,500.00	11,379.77	11,422.24	11,380.77	41.80	41.59	142.96	428.52	499.90	223.02	141.08	81.95	2.722			
11,550.00	11,410.65	11,453.11	11,411.65	41.89	41.70	144.81	428.52	499.90	258.88	176.59	82.19	3.150			
11,600.00	11,437.98	11,480.44	11,438.98	41.98	41.79	145.54	428.52	499.90	298.02	215.61	82.41	3.616			

CC - Min centre to center distance or covergent 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: 13-108H
 Well Error: 0.00 usft
 Reference Wellbore: 108H Lateral
 Reference Design: Plan #1

Local Co-ordinate Reference: Well 13-108H - Slot PLU 13 DTD 108H SHL
 TVD Reference: 3476+27 @ 3503.00usft (HP467)
 MD Reference: 3476+27 @ 3503.00usft (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 - 13-208H - 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		
1,200.00	1,200.00	1,200.00	1,200.00	4.94	4.94	179.68	-35.60	0.20	35.60	26.60	9.01	3.953			
1,250.00	1,250.00	1,250.00	1,250.00	5.13	5.13	179.68	-35.60	0.20	35.60	26.23	9.37	3.801			
1,300.00	1,300.00	1,300.00	1,300.00	5.31	5.31	179.68	-35.60	0.20	35.60	25.87	9.73	3.659			
1,350.00	1,350.00	1,350.00	1,350.00	5.49	5.49	179.68	-35.60	0.20	35.60	25.51	10.09	3.528			
1,400.00	1,400.00	1,400.00	1,400.00	5.68	5.68	179.68	-35.60	0.20	35.60	25.15	10.45	3.406			
1,450.00	1,450.00	1,450.00	1,450.00	5.86	5.86	179.68	-35.60	0.20	35.60	24.79	10.81	3.293			
1,500.00	1,500.00	1,500.00	1,500.00	6.04	6.04	179.68	-35.60	0.20	35.60	24.43	11.17	3.186			
1,550.00	1,550.00	1,550.00	1,550.00	6.22	6.22	179.68	-35.60	0.20	35.60	24.07	11.53	3.087			
1,600.00	1,600.00	1,600.00	1,600.00	6.41	6.41	179.68	-35.60	0.20	35.60	23.71	11.89	2.993			
1,650.00	1,650.00	1,650.00	1,650.00	6.59	6.59	179.68	-35.60	0.20	35.60	23.35	12.25	2.906			
1,700.00	1,700.00	1,700.00	1,700.00	6.77	6.77	179.68	-35.60	0.20	35.60	22.99	12.61	2.822			
1,750.00	1,750.00	1,750.00	1,750.00	6.95	6.95	179.68	-35.60	0.20	35.60	22.63	12.97	2.744			
1,800.00	1,800.00	1,800.00	1,800.00	7.13	7.13	179.68	-35.60	0.20	35.60	22.27	13.33	2.670			
1,850.00	1,850.00	1,850.00	1,850.00	7.32	7.32	179.68	-35.60	0.20	35.60	21.91	13.69	2.600			
1,900.00	1,900.00	1,900.00	1,900.00	7.50	7.50	179.68	-35.60	0.20	35.60	21.55	14.05	2.533			
1,950.00	1,950.00	1,950.00	1,950.00	7.68	7.68	179.68	-35.60	0.20	35.60	21.19	14.41	2.470			
2,000.00	2,000.00	2,000.00	2,000.00	7.86	7.86	179.68	-35.60	0.20	35.60	20.83	14.77	2.410			
2,050.00	2,050.00	2,050.00	2,050.00	8.04	8.04	179.68	-35.60	0.20	35.60	20.47	15.13	2.352			
2,100.00	2,100.00	2,100.00	2,100.00	8.22	8.22	179.68	-35.60	0.20	35.60	20.11	15.49	2.298			
2,150.00	2,150.00	2,150.00	2,150.00	8.40	8.40	179.68	-35.60	0.20	35.60	19.75	15.85	2.246			
2,200.00	2,200.00	2,200.00	2,200.00	8.59	8.59	179.68	-35.60	0.20	35.60	19.39	16.21	2.196			
2,250.00	2,250.00	2,250.00	2,250.00	8.77	8.77	179.68	-35.60	0.20	35.60	19.03	16.57	2.148			
2,300.00	2,300.00	2,300.00	2,300.00	8.95	8.95	179.68	-35.60	0.20	35.60	18.67	16.93	2.103			
2,350.00	2,350.00	2,350.00	2,350.00	9.13	9.13	179.68	-35.60	0.20	35.60	18.31	17.29	2.059			
2,400.00	2,400.00	2,400.00	2,400.00	9.31	9.31	179.68	-35.60	0.20	35.60	17.95	17.65	2.017			
2,450.00	2,450.00	2,450.00	2,450.00	9.49	9.49	179.68	-35.60	0.20	35.60	17.59	18.01	1.977			
2,500.00	2,500.00	2,500.00	2,500.00	9.67	9.67	179.68	-35.60	0.20	35.60	17.23	18.37	1.938			
2,550.00	2,550.00	2,550.40	2,550.39	9.89	9.88	125.58	-35.32	0.38	35.58	16.83	18.75	1.898			
2,600.00	2,599.98	2,600.79	2,600.78	10.11	10.09	126.45	-34.48	0.91	35.50	16.36	19.14	1.855			
2,650.00	2,649.93	2,651.18	2,651.15	10.39	10.33	127.91	-33.07	1.80	35.40	15.84	19.57	1.809			
2,700.00	2,699.84	2,701.58	2,701.48	10.67	10.57	129.97	-31.10	3.04	35.30	15.28	20.02	1.763			
2,750.00	2,749.68	2,751.97	2,751.78	10.95	10.81	132.63	-28.57	4.63	35.24	14.74	20.50	1.719			
2,765.03	2,764.66	2,767.12	2,766.90	11.03	10.88	133.54	-27.70	5.18	35.23	14.59	20.65	1.707 CC			
2,800.00	2,799.45	2,802.35	2,802.04	11.22	11.05	135.88	-25.48	6.58	35.26	14.26	21.00	1.679			
2,850.00	2,849.13	2,852.73	2,852.23	11.49	11.28	139.69	-21.83	8.88	35.44	13.90	21.54	1.645			
2,900.00	2,898.70	2,903.11	2,902.36	11.75	11.52	144.02	-17.63	11.54	35.83	13.72	22.11	1.621 ES			
2,950.00	2,948.15	2,953.48	2,952.42	12.03	11.71	148.78	-12.86	14.54	36.51	13.84	22.67	1.611 SF			
3,000.00	2,997.46	3,003.49	3,002.05	12.29	11.87	153.83	-7.72	17.78	37.74	14.47	23.27	1.622			
3,050.00	3,046.71	3,053.34	3,051.53	12.48	12.04	158.76	-2.58	21.02	39.62	15.79	23.83	1.663			
3,100.00	3,095.95	3,103.19	3,101.02	12.68	12.20	163.21	2.55	24.27	41.77	17.43	24.34	1.716			
3,150.00	3,145.19	3,153.05	3,150.50	12.83	12.37	167.21	7.69	27.51	44.15	19.35	24.80	1.780			
3,200.00	3,194.43	3,202.90	3,199.98	12.99	12.54	170.78	12.83	30.75	46.72	21.50	25.22	1.853			
3,250.00	3,243.67	3,252.75	3,249.46	13.15	12.70	173.98	17.97	33.99	49.45	23.84	25.61	1.931			
3,300.00	3,292.91	3,302.61	3,298.94	13.31	12.87	176.83	23.11	37.23	52.32	26.33	25.99	2.013			
3,350.00	3,342.15	3,352.46	3,348.42	13.47	13.04	179.38	28.25	40.47	55.31	28.96	26.35	2.099			
3,400.00	3,391.39	3,402.31	3,397.91	13.63	13.21	178.34	33.39	43.71	58.39	31.70	26.70	2.187			
3,450.00	3,440.63	3,452.17	3,447.39	13.80	13.39	176.28	38.53	46.95	61.56	34.52	27.04	2.277			
3,500.00	3,489.87	3,502.02	3,496.67	13.95	13.56	174.43	43.66	50.20	64.80	37.42	27.38	2.367			
3,550.00	3,539.11	3,551.87	3,546.35	14.12	13.73	172.76	48.80	53.44	68.10	40.39	27.71	2.457			
3,600.00	3,588.35	3,601.73	3,595.63	14.28	13.90	171.24	53.94	56.68	71.45	43.41	28.04	2.548			
3,650.00	3,637.59	3,651.58	3,645.32	14.45	14.07	169.86	59.08	59.92	74.85	46.47	28.37	2.638			
3,700.00	3,686.83	3,701.43	3,694.80	14.61	14.24	168.60	64.22	63.16	78.28	49.58	28.71	2.727			

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 13-108H - Slot PLU 13 DTD 108H SHL
Project:	Eddy County, NM (NAD27) NMEZ Grid	TVD Reference:	3476+27 @ 3503.00usft (HP467)
Reference Site:	PLU 13 Dog Town Draw	MD Reference:	3476+27 @ 3503.00usft (HP467)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	13-108H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	108H 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		
3,750.00	3,736.07	3,751.29	3,744.28	14.78	14.42	-167.45	69.36	66.40	81.76	52.72	29.04	2.815			
3,800.00	3,785.31	3,801.14	3,793.76	14.95	14.59	-166.39	74.50	69.64	85.26	55.89	29.37	2.903			
3,850.00	3,834.55	3,850.99	3,843.24	15.11	14.76	-165.41	79.64	72.89	88.79	59.08	29.71	2.989			
3,900.00	3,883.79	3,900.85	3,892.72	15.28	14.94	-164.51	84.77	76.13	92.34	62.30	30.04	3.074			
3,950.00	3,933.03	3,950.70	3,942.21	15.45	15.11	-163.68	89.91	79.37	95.91	65.54	30.38	3.158			
4,000.00	3,982.27	4,000.55	3,991.69	15.51	15.28	-162.90	95.05	82.61	99.51	68.79	30.71	3.240			
4,050.00	4,031.51	4,050.41	4,041.17	15.78	15.46	-162.18	100.19	85.85	103.11	72.05	31.05	3.321			
4,100.00	4,080.75	4,100.26	4,090.65	15.95	15.63	-161.51	105.33	89.09	106.74	75.35	31.39	3.401			
4,150.00	4,129.99	4,150.11	4,140.13	16.12	15.81	-160.88	110.47	92.33	110.38	78.65	31.73	3.479			
4,200.00	4,179.23	4,199.97	4,189.62	16.29	15.98	-160.30	115.61	95.57	114.03	81.96	32.07	3.556			
4,250.00	4,228.48	4,249.82	4,239.10	16.45	16.16	-159.75	120.75	98.82	117.69	85.28	32.41	3.631			
4,300.00	4,277.72	4,299.68	4,288.58	16.63	16.33	-159.23	125.89	102.06	121.36	88.60	32.76	3.705			
4,350.00	4,326.96	4,349.53	4,338.06	16.80	16.51	-158.74	131.02	105.30	125.04	91.94	33.10	3.778			
4,400.00	4,376.20	4,399.38	4,387.54	16.97	16.68	-158.28	136.16	108.54	128.73	95.29	33.44	3.849			
4,450.00	4,425.44	4,449.24	4,437.02	17.15	16.86	-157.85	141.30	111.78	132.43	98.64	33.79	3.919			
4,500.00	4,474.68	4,499.09	4,486.51	17.32	17.03	-157.44	146.44	115.02	136.13	101.99	34.14	3.988			
10,550.00	10,488.59	10,520.91	10,488.59	38.63	38.54	-90.19	427.50	292.30	306.00	229.34	76.66	3.992			
10,600.00	10,538.59	10,570.91	10,538.59	38.85	38.72	-90.19	427.50	292.30	306.00	228.99	77.01	3.974			
10,650.00	10,588.59	10,620.91	10,588.59	39.03	38.89	-90.19	427.50	292.30	306.00	228.64	77.36	3.956			
10,700.00	10,638.59	10,670.91	10,638.59	39.20	39.07	-90.19	427.50	292.30	306.00	228.29	77.71	3.938			
10,750.00	10,688.59	10,720.91	10,688.59	39.38	39.25	-90.19	427.50	292.30	306.00	227.94	78.06	3.920			
10,800.00	10,738.59	10,770.91	10,738.59	39.55	39.42	-90.19	427.50	292.30	306.00	227.59	78.41	3.903			
10,850.00	10,788.59	10,820.91	10,788.59	39.73	39.60	-90.19	427.50	292.30	306.00	227.24	78.76	3.885			
10,900.00	10,838.59	10,870.91	10,838.59	39.90	39.78	-90.19	427.50	292.30	306.00	226.89	79.11	3.868			
10,950.00	10,888.59	10,920.91	10,888.59	40.08	39.96	-90.19	427.50	292.30	306.00	226.54	79.46	3.851			
11,000.00	10,938.59	10,970.91	10,938.59	40.25	40.13	-90.19	427.50	292.30	306.00	226.19	79.81	3.834			
11,000.44	10,939.03	10,971.35	10,939.03	40.25	40.14	90.03	427.50	292.30	306.00	226.19	79.82	3.834			
11,050.00	10,988.54	11,020.87	10,988.54	40.42	40.31	90.34	427.50	292.30	306.01	225.86	80.14	3.818			
11,100.00	11,038.17	11,070.50	11,038.17	40.59	40.49	91.44	427.50	292.30	306.10	225.65	80.44	3.805			
11,150.00	11,087.09	11,119.41	11,087.09	40.77	40.66	93.27	427.50	292.30	306.53	225.83	80.70	3.798			
11,200.00	11,134.93	11,167.25	11,134.93	40.95	40.83	95.73	427.50	292.30	307.73	226.80	80.93	3.802			
11,250.00	11,181.32	11,213.64	11,181.32	41.11	40.99	98.66	427.50	292.30	310.25	229.12	81.13	3.824			
11,300.00	11,225.91	11,258.24	11,225.91	41.27	41.15	101.86	427.50	292.30	314.76	233.46	81.30	3.872			
11,350.00	11,268.37	11,300.69	11,268.37	41.42	41.30	105.11	427.50	292.30	321.96	240.52	81.45	3.953			
17,300.00	11,518.00	17,616.08	11,863.00	59.93	60.29	138.43	-5,539.13	315.09	461.15	345.25	115.90	3.979			
17,350.00	11,518.00	17,666.08	11,863.00	60.21	60.56	138.43	-5,589.13	315.28	461.15	344.63	116.53	3.958			
17,400.00	11,518.00	17,716.08	11,863.00	60.49	60.83	138.43	-5,639.13	315.47	461.15	344.00	117.15	3.936			
17,450.00	11,518.00	17,766.08	11,863.00	60.75	61.11	138.43	-5,689.13	315.66	461.15	343.37	117.78	3.915			
17,500.00	11,518.00	17,816.08	11,863.00	61.03	61.38	138.43	-5,739.13	315.85	461.15	342.74	118.41	3.894			
17,550.00	11,518.00	17,866.08	11,863.00	61.31	61.65	138.43	-5,789.13	316.05	461.15	342.11	119.05	3.874			
17,600.00	11,518.00	17,916.08	11,863.00	61.59	61.93	138.43	-5,839.13	316.24	461.15	341.47	119.68	3.853			
17,650.00	11,518.00	17,966.08	11,863.00	61.87	62.21	138.43	-5,889.13	316.43	461.15	340.84	120.32	3.833			
17,700.00	11,518.00	18,016.08	11,863.00	62.15	62.49	138.43	-5,939.13	316.62	461.15	340.20	120.96	3.813			
17,750.00	11,518.00	18,066.08	11,863.00	62.44	62.77	138.43	-5,989.13	316.81	461.15	339.56	121.60	3.793			
17,800.00	11,518.00	18,116.08	11,863.00	62.72	63.05	138.43	-6,039.13	317.00	461.15	338.92	122.24	3.773			
17,850.00	11,518.00	18,166.08	11,863.00	63.01	63.33	138.43	-6,089.13	317.19	461.15	338.27	122.88	3.753			
17,900.00	11,518.00	18,216.08	11,863.00	63.29	63.61	138.43	-6,139.13	317.38	461.15	337.63	123.52	3.733			
17,950.00	11,518.00	18,266.08	11,863.00	63.58	63.89	138.43	-6,189.13	317.57	461.15	336.98	124.17	3.714			
18,000.00	11,518.00	18,316.08	11,863.00	63.87	64.18	138.43	-6,239.12	317.76	461.15	336.34	124.82	3.695			
18,050.00	11,518.00	18,366.08	11,863.00	64.15	64.46	138.43	-6,289.12	317.96	461.15	335.69	125.46	3.676			
18,100.00	11,518.00	18,416.08	11,863.00	64.44	64.75	138.43	-6,339.12	318.15	461.15	335.04	126.11	3.657			
18,150.00	11,518.00	18,466.08	11,863.00	64.74	65.04	138.43	-6,389.12	318.34	461.15	334.39	126.77	3.638			

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

Anticollision Report

Company:	XTO Energy	Local Co-ordinate Reference:	Well 13-108H - Slot PLU 13 DTD 108H SHL
Project:	Eddy County, NM (NAD27) NMEZ Grid	TVD Reference:	3476+27 @ 3503.00usft (HP467)
Reference Site:	PLU 13 Dog Town Draw	MD Reference:	3476+27 @ 3503.00usft (HP467)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	13-108H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	108H 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		
18,200.00	11,518.00	18,516.08	11,863.00	65.03	65.33	138.43	-6,439.12	318.53	461.15	333.73	127.42	3.619			
18,250.00	11,518.00	18,566.08	11,863.00	65.32	65.62	138.43	-6,489.12	318.72	461.15	333.08	128.07	3.601			
18,300.00	11,518.00	18,616.08	11,863.00	65.61	65.91	138.43	-6,539.12	318.91	461.15	332.43	128.73	3.582			
18,350.00	11,518.00	18,666.08	11,863.00	65.91	66.20	138.43	-6,589.12	319.10	461.15	331.77	129.38	3.564			
18,400.00	11,518.00	18,716.08	11,863.00	66.20	66.49	138.43	-6,639.12	319.29	461.15	331.11	130.04	3.546			
18,450.00	11,518.00	18,766.08	11,863.00	66.50	66.79	138.43	-6,689.12	319.48	461.15	330.45	130.70	3.528			
18,500.00	11,518.00	18,816.08	11,863.00	66.80	67.08	138.43	-6,739.12	319.67	461.15	329.79	131.36	3.511			
18,550.00	11,518.00	18,866.08	11,863.00	67.10	67.38	138.43	-6,789.12	319.87	461.15	329.13	132.02	3.493			
18,600.00	11,518.00	18,916.08	11,863.00	67.39	67.67	138.43	-6,839.12	320.06	461.15	328.47	132.69	3.475			
18,650.00	11,518.00	18,966.08	11,863.00	67.69	67.97	138.43	-6,889.12	320.25	461.15	327.80	133.35	3.458			
18,700.00	11,518.00	19,016.08	11,863.00	67.99	68.27	138.43	-6,939.12	320.44	461.15	327.14	134.02	3.441			
18,750.00	11,518.00	19,066.08	11,863.00	68.30	68.57	138.43	-6,989.12	320.63	461.15	326.47	134.68	3.424			
18,800.00	11,518.00	19,116.08	11,863.00	68.60	68.87	138.43	-7,039.12	320.82	461.15	325.80	135.35	3.407			
18,850.00	11,518.00	19,166.08	11,863.00	68.90	69.17	138.43	-7,089.12	321.01	461.15	325.13	136.02	3.390			
18,900.00	11,518.00	19,216.08	11,863.00	69.21	69.47	138.43	-7,139.12	321.20	461.15	324.46	136.69	3.374			
18,950.00	11,518.00	19,266.08	11,863.00	69.51	69.77	138.43	-7,189.12	321.39	461.15	323.79	137.36	3.357			
19,000.00	11,518.00	19,316.08	11,863.00	69.82	70.07	138.43	-7,239.12	321.58	461.15	323.12	138.03	3.341			
19,050.00	11,518.00	19,366.08	11,863.00	70.12	70.38	138.43	-7,289.12	321.78	461.15	322.45	138.71	3.325			
19,100.00	11,518.00	19,416.08	11,863.00	70.43	70.68	138.43	-7,339.12	321.97	461.15	321.77	139.38	3.309			
19,150.00	11,518.00	19,466.08	11,863.00	70.74	70.99	138.43	-7,389.12	322.16	461.15	321.10	140.06	3.293			
19,200.00	11,518.00	19,516.08	11,863.00	71.05	71.29	138.43	-7,439.12	322.35	461.15	320.42	140.73	3.277			
19,250.00	11,518.00	19,566.08	11,863.00	71.35	71.60	138.43	-7,489.12	322.54	461.15	319.74	141.41	3.261			
19,300.00	11,518.00	19,616.08	11,863.00	71.66	71.91	138.43	-7,539.12	322.73	461.15	319.06	142.09	3.246			
19,350.00	11,518.00	19,666.08	11,863.00	71.98	72.21	138.43	-7,589.12	322.92	461.15	318.38	142.77	3.230			
19,400.00	11,518.00	19,716.08	11,863.00	72.29	72.52	138.43	-7,639.11	323.11	461.15	317.70	143.45	3.215			
19,450.00	11,518.00	19,766.08	11,863.00	72.60	72.83	138.43	-7,689.11	323.30	461.15	317.02	144.13	3.200			
19,500.00	11,518.00	19,816.08	11,863.00	72.91	73.14	138.43	-7,739.11	323.49	461.15	316.34	144.81	3.184			
19,550.00	11,518.00	19,866.08	11,863.00	73.23	73.45	138.43	-7,789.11	323.69	461.15	315.66	145.50	3.170			
19,600.00	11,518.00	19,916.08	11,863.00	73.54	73.77	138.43	-7,839.11	323.88	461.15	314.97	146.18	3.155			
19,650.00	11,518.00	19,966.08	11,863.00	73.85	74.08	138.43	-7,889.11	324.07	461.15	314.29	146.87	3.140			
19,700.00	11,518.00	20,016.08	11,863.00	74.17	74.39	138.43	-7,939.11	324.26	461.15	313.60	147.55	3.125			
19,750.00	11,518.00	20,066.08	11,863.00	74.49	74.70	138.43	-7,989.11	324.45	461.15	312.91	148.24	3.111			
19,800.00	11,518.00	20,116.08	11,863.00	74.80	75.02	138.43	-8,039.11	324.64	461.15	312.23	148.92	3.097			
19,850.00	11,518.00	20,166.08	11,863.00	75.12	75.33	138.43	-8,089.11	324.83	461.15	311.54	149.61	3.082			
19,900.00	11,518.00	20,216.08	11,863.00	75.44	75.65	138.43	-8,139.11	325.02	461.15	310.85	150.30	3.068			
19,950.00	11,518.00	20,266.08	11,863.00	75.75	75.97	138.43	-8,189.11	325.21	461.15	310.16	150.99	3.054			
20,000.00	11,518.00	20,316.08	11,863.00	76.07	76.28	138.43	-8,239.11	325.40	461.15	309.47	151.68	3.040			
20,050.00	11,518.00	20,366.08	11,863.00	76.39	76.60	138.43	-8,289.11	325.59	461.15	308.78	152.38	3.026			
20,100.00	11,518.00	20,416.08	11,863.00	76.71	76.92	138.43	-8,339.11	325.79	461.15	308.08	153.07	3.013			
20,150.00	11,518.00	20,466.08	11,863.00	77.04	77.24	138.43	-8,389.11	325.98	461.15	307.39	153.76	2.999			
20,200.00	11,518.00	20,516.08	11,863.00	77.36	77.56	138.43	-8,439.11	326.17	461.15	306.70	154.46	2.986			
20,250.00	11,518.00	20,566.08	11,863.00	77.68	77.88	138.43	-8,489.11	326.36	461.15	306.00	155.15	2.972			
20,300.00	11,518.00	20,616.08	11,863.00	78.00	78.20	138.43	-8,539.11	326.55	461.15	305.30	155.85	2.959			
20,350.00	11,518.00	20,666.08	11,863.00	78.32	78.52	138.43	-8,589.11	326.74	461.15	304.61	156.54	2.946			
20,400.00	11,518.00	20,716.08	11,863.00	78.65	78.84	138.43	-8,639.11	326.93	461.15	303.91	157.24	2.933			
20,450.00	11,518.00	20,766.08	11,863.00	78.97	79.16	138.43	-8,689.11	327.12	461.15	303.21	157.94	2.920			
20,500.00	11,518.00	20,816.08	11,863.00	79.30	79.48	138.43	-8,739.11	327.31	461.15	302.51	158.64	2.907			
20,550.00	11,518.00	20,866.08	11,863.00	79.62	79.81	138.43	-8,789.11	327.50	461.15	301.82	159.34	2.894			
20,600.00	11,518.00	20,916.08	11,863.00	79.95	80.13	138.43	-8,839.11	327.70	461.15	301.12	160.04	2.882			
20,650.00	11,518.00	20,966.08	11,863.00	80.27	80.45	138.43	-8,889.11	327.89	461.15	300.41	160.74	2.869			
20,700.00	11,518.00	21,016.08	11,863.00	80.60	80.78	138.43	-8,939.11	328.08	461.15	299.71	161.44	2.857			
20,750.00	11,518.00	21,066.08	11,863.00	80.93	81.10	138.43	-8,989.10	328.27	461.15	299.01	162.14	2.844			

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 13-108H - Slot PLU 13 DTD 108H SHL
Project:	Eddy County, NM (NAD27) NMEZ Grid	TVD Reference:	3476+27 @ 3503.00usft (HP467)
Reference Site:	PLU 13 Dog Town Draw	MD Reference:	3476+27 @ 3503.00usft (HP467)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	13-108H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	108H 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			Offset Wellbore Centre		Distance				Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
20,800.00	11,518.00	21,116.08	11,863.00	81.25	81.43	138.43	-9,039.10	328.46	461.15	298.31	162.84	2.832		
20,850.00	11,518.00	21,166.08	11,863.00	81.58	81.75	138.43	-9,089.10	328.65	461.15	297.60	163.55	2.820		
20,900.00	11,518.00	21,216.08	11,863.00	81.91	82.08	138.43	-9,139.10	328.84	461.15	296.90	164.25	2.806		
20,950.00	11,518.00	21,266.08	11,863.00	82.24	82.41	138.43	-9,189.10	329.03	461.15	296.20	164.96	2.795		
21,000.00	11,518.00	21,316.08	11,863.00	82.57	82.74	138.43	-9,239.10	329.22	461.15	295.49	165.66	2.784		
21,050.00	11,518.00	21,366.08	11,863.00	82.90	83.06	138.43	-9,289.10	329.41	461.15	294.78	166.37	2.772		
21,100.00	11,518.00	21,416.08	11,863.00	83.23	83.39	138.43	-9,339.10	329.61	461.15	294.08	167.07	2.760		
21,150.00	11,518.00	21,466.08	11,863.00	83.55	83.72	138.43	-9,389.10	329.80	461.15	293.37	167.78	2.749		
21,200.00	11,518.00	21,516.08	11,863.00	83.89	84.05	138.43	-9,439.10	329.99	461.15	292.66	168.49	2.737		
21,250.00	11,518.00	21,566.08	11,863.00	84.23	84.38	138.43	-9,489.10	330.18	461.15	291.95	169.20	2.726		
21,300.00	11,518.00	21,616.08	11,863.00	84.56	84.71	138.43	-9,539.10	330.37	461.15	291.25	169.91	2.714		
21,350.00	11,518.00	21,666.08	11,863.00	84.89	85.04	138.43	-9,589.10	330.56	461.15	290.54	170.62	2.703		
21,400.00	11,518.00	21,716.08	11,863.00	85.22	85.37	138.43	-9,639.10	330.75	461.15	289.83	171.33	2.692		
21,450.00	11,518.00	21,766.08	11,863.00	85.56	85.71	138.43	-9,689.10	330.94	461.15	289.12	172.04	2.681		
21,500.00	11,518.00	21,816.08	11,863.00	85.89	86.04	138.43	-9,739.10	331.13	461.15	288.40	172.75	2.670		
21,550.00	11,518.00	21,866.08	11,863.00	86.23	86.37	138.43	-9,789.10	331.32	461.15	287.69	173.46	2.659		
21,600.00	11,518.00	21,916.08	11,863.00	86.56	86.70	138.43	-9,839.10	331.52	461.15	286.98	174.17	2.648		
21,647.12	11,518.00	21,963.20	11,863.00	86.87	87.02	138.43	-9,886.22	331.70	461.15	286.31	174.84	2.638		
21,648.97	11,518.00	21,964.39	11,863.00	86.89	87.02	138.43	-9,887.40	331.70	461.15	286.32	174.84	2.638		

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 108H
SURFACE HOLE FOOTAGE:	0476' 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 810 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 5000 (5M) psi.**
 - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
 - c. Manufacturer representative shall install the test plug for the initial BOP test.
 - d. Operator shall perform the 8-5/8" 2nd intermediate casing integrity test to 70% of the casing burst. This will test the multi-bowl seals.
 - e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.

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

5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
- a. In 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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