

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

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION

1220 South St. Francis Dr.
Santa Fe, NM 87505

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DEC 26 2019

DISTRICT IV-ARTESIA O.C.D.

Form C-102

Revised August 1, 2011

Submit one copy to appropriate

District Office

☒ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

AS-DRILLED PLAT

¹ API Number 30-015-45136	² Pool Code 97020	³ Pool Name HACKBERRY; BONE SPRING, NW
⁴ Property Code 322180	⁵ Property Name BUTTERCUP 27-34 FEDERAL	⁶ Well Number 4H
⁷ OGRID No. 005380	⁸ Operator Name XTO ENERGY, INC.	⁹ Elevation 3,294'

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from	East/West line	County
J	22	19 S	30 E		1,330	SOUTH	2,320	EAST	EDDY

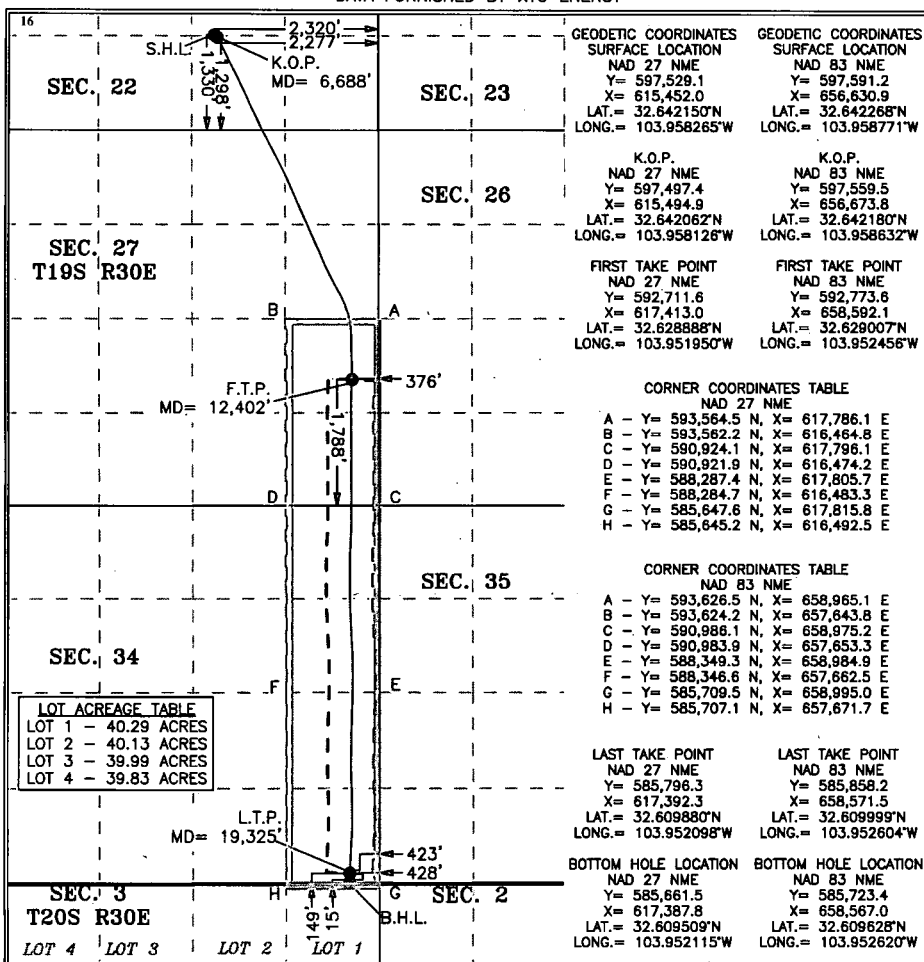
¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	34	19 S	30 E		15	SOUTH	428	EAST	EDDY

¹² Dedicated Acres 240	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.

NOTE: AS-DRILLED BOTTOM HOLE PLOTTED FROM
DATA FURNISHED BY XTO ENERGY



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.

Cheryl Rowell 12/19/19
Signature Date

Cheryl Rowell
Printed Name

cheryl_rowell@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.

12-18-2019

Date of Survey

Signature and Seal of
Professional Surveyor:

MARK DILLON HARP 23786
Certificate Number



JC

2019051678

SHL Revised For

PAD Drilling Island Shift

RECEIVED

Intent ☐ As Drilled ☒

DEC 26 2019

API #
30-015-45136

DISTRICT 7 - ARTESIA O.G.D.

Operator Name:
XTO ENERGY INC.Property Name:
BUTTE CUP 27-34 FEDERALWell Number
43H

Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
J	22	19S	30E		1298	FSL	2277	FEL	EDDY
Latitude					Longitude			NAD	
32.642180					103.958632			83	

First Take Point (FTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
J	27	19S	30E		1786	FSL	1840	FEL	EDDY
Latitude					Longitude			NAD	
32.629007					103.952456			83	

Last Take Point (LTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
O	34	19S	30E		342	FSL	1811	FEL	EDDY
Latitude					Longitude			NAD	
32.609999					103.952604			83	

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

☒ YES

Is this well an infill well?

☐

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

API #

Operator Name:

Property Name:

Well Number

KZ 06/29/2018

N-ZONE GUIDANCE LLC.

State of New Mexico
County of Eddy

I, Ty Reed, certify that; I am employed by N-Zone Guidance LLC.; that I did on the days of 05/12/2019 through 05/22/2019 conduct or supervise the taking of MWD surveys from a depth of 0' feet to a depth of 19460' feet that the data is true, correct, complete and within the limitations of the tool as set forth by N-Zone Guidance MWD, a division of N-Zone Guidance LLC.; that I am authorized and qualified to make this report; that this survey was conducted at the request of XTO Energy , API# 30-015-45136 in Eddy County, New Mexico; and that I have reviewed this report and find that it conforms to the principles and procedures as set forth by N-Zone Guidance MWD. A division of N-Zone Guidance LLC.

Ty Reed,
MWD Supervisor



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FEB 10 2020

Directional Survey Report

Company Name: XITCO
Well Name: Buttercup 27-34 Federal #4H

Field: Delaware

Rig ID: Nabors F-26

State/Prov: New Mexico

County: Eddy

Location: Potash, Capitan Reef

API/UWI: 30-015-45136

Survey Company: NZone Guidance

Job Number: PTR-19-2036

Latitude: 32.64214952

Longitude: -103.95826483

Proposed Azimuth: 170.47

Declination: 6.79

North Reference: Grid

KB: 30

Svy	Depth	Inc	Azm	TVD	NS	EW	VS	DLS	CL	Northing	Easting	Build	Turn	Temp	GTot	HTot	DipA
Tiein	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	127	1.19	79.92	126.99	0.23	1.30	-0.01	0.94	127	0.23	1.30	0.94	62.93	0	0	0	0
2	221	2.73	77.01	220.93	0.90	4.44	-0.16	1.64	94	0.90	4.44	1.64	-3.10	0	0	0	0
3	312	3.10	64.20	311.82	2.46	8.77	-0.98	0.82	91	2.46	8.77	0.41	-14.08	0	0	0	0
4	407	2.80	71.50	406.69	4.32	13.28	-2.06	0.51	95	4.32	13.28	-0.32	7.68	0	0	0	0
5	442	1.70	67.20	441.66	4.79	14.57	-2.31	3.18	35	4.79	14.57	-3.14	-12.29	0	0	0	0
6	526	2.20	65.10	525.61	5.95	17.18	-3.02	0.60	84	5.95	17.18	0.60	-2.50	0	0	0	0
7	580	2.20	60.10	579.57	6.90	19.02	-3.66	0.36	54	6.90	19.02	0	-9.26	0	0	0	0
8	675	0.70	82.10	674.54	7.89	21.18	-4.28	1.66	95	7.89	21.18	-1.58	23.16	0	0	0	0
9	771	0.70	61.60	770.53	8.25	22.27	-4.45	0.26	96	8.25	22.27	0	-21.35	0	0	0	0
10	822	0.80	67	821.53	8.54	22.87	-4.63	0.24	51	8.54	22.87	0.20	10.59	0	0	0	0
11	917	1.10	78.70	916.52	8.98	24.38	-4.82	0.37	95	8.98	24.38	0.32	12.32	0	0	0	0
12	1012	1.30	79.50	1011.50	9.35	26.33	-4.86	0.21	95	9.35	26.33	0.21	0.84	0	0	0	0
13	1107	1.40	81.30	1106.47	9.72	28.54	-4.87	0.11	95	9.72	28.54	0.11	1.89	0	0	0	0
14	1198	1.50	84.30	1197.44	10.01	30.82	-4.77	0.14	91	10.01	30.82	0.11	3.30	0	0	0	0
15	1296	1.50	81.90	1295.41	10.32	33.37	-4.65	0.06	98	10.32	33.37	0	-2.45	0	0	0	0
16	1391	1.50	79.50	1390.37	10.72	35.82	-4.64	0.07	95	10.72	35.82	0	-2.53	0	0	0	0
17	1444	1.40	80.40	1443.36	10.96	37.14	-4.65	0.19	53	10.96	37.14	-0.19	1.70	0	0	0	0
18	1571	2.30	78	1570.29	11.74	41.17	-4.77	0.71	127	11.74	41.17	0.71	-1.89	0	0	0	0
19	1665	1.20	85.50	1664.25	12.21	43.99	-4.76	1.19	94	12.21	43.99	-1.17	7.98	0	0	0	0
20	1759	0.80	118.10	1758.23	11.98	45.55	-4.27	0.72	94	11.98	45.55	-0.43	34.68	0	0	0	0
21	1853	-0.70	135.60	1852.22	11.26	46.53	-3.40	0.26	94	11.26	46.53	-0.11	18.62	0	0	0	0
22	1947	0.90	142.80	1946.21	10.26	47.38	-2.28	0.24	94	10.26	47.38	0.21	7.66	0	0	0	0
23	2041	0.90	143.40	2040.20	9.08	48.27	-0.97	0.01	94	9.08	48.27	0	0.64	0	0	0	0
24	2136	0.50	131.80	2135.20	8.21	49.02	0.02	0.44	95	8.21	49.02	-0.42	-12.21	0	0	0	0
25	2230	0.50	133.10	2229.19	7.65	49.63	0.67	0.01	94	7.65	49.63	0	1.38	0	0	0	0
26	2325	0.60	144.90	2324.19	6.96	50.22	1.45	0.16	95	6.96	50.22	0.11	12.42	0	0	0	0
27	2419	0.40	156.60	2418.18	6.26	50.63	2.21	0.24	94	6.26	50.63	-0.21	12.45	0	0	0	0
28	2513	0.50	161.80	2512.18	5.57	50.89	2.93	0.11	94	5.57	50.89	0.11	5.53	0	0	0	0
29	2608	0.60	158.10	2607.18	4.71	51.20	3.83	0.11	95	4.71	51.20	0.11	-3.89	0	0	0	0
30	2703	0.60	160	2702.17	3.79	51.56	4.80	0.02	95	3.79	51.56	0	2	0	0	0	0
31	2797	0.70	162.30	2796.17	2.78	51.90	5.86	0.11	94	2.78	51.90	0.11	2.45	0	0	0	0
32	2892	0.70	164.50	2891.16	1.66	52.23	7.01	0.03	95	1.66	52.23	0	2.32	0	0	0	0
33	2986	0.80	166.80	2985.15	0.47	52.54	8.23	0.11	94	0.47	52.54	0.11	2.45	0	0	0	0

Svy	Depth	Inc	Azm	TVD	NS	EW	VS	DLS	CL	Northing	Easting	Build	Turn	Temp	GTot	HTot	DipA
34	3080	0.90	166	3,079.14	-0.88	52.86	9.62	0.11	94	-0.88	52.86	0.11	-0.85	0	0	0	0
35	3175	0.90	168	3,174.13	-2.34	53.20	11.11	0.03	95	-2.34	53.20	0	2.11	0	0	0	0
36	3270	0.80	169.40	3,269.12	-3.72	53.48	12.52	0.11	95	-3.72	53.48	-0.11	1.47	0	0	0	0
37	3364	0.90	164.30	3,363.11	-5.07	53.80	13.91	0.13	94	-5.07	53.80	0.11	-5.43	0	0	0	0
38	3458	1	157.40	3,457.09	-6.54	54.31	15.44	0.16	94	-6.54	54.31	0.11	-7.34	0	0	0	0
39	3553	1	155.70	3,552.08	-8.06	54.97	17.05	0.03	95	-8.06	54.97	0	-1.79	0	0	0	0
40	3647	1	152.20	3,646.07	-9.54	55.69	18.63	0.06	94	-9.54	55.69	0	-3.72	0	0	0	0
41	3741	1	152.30	3,740.05	-10.99	56.46	20.18	0.00	94	-10.99	56.46	0	0.11	0	0	0	0
42	3835	1	150.10	3,834.04	-12.43	57.25	21.73	0.04	94	-12.43	57.25	0	-2.34	0	0	0	0
43	3930	1	149.10	3,929.02	-13.86	58.09	23.28	0.02	95	-13.86	58.09	0	-1.05	0	0	0	0
44	4010	1	151.10	4,009.01	-15.07	58.78	24.59	0.04	80	-15.07	58.78	0	2.50	0	0	0	0
45	4184	0.73	159.76	4,182.99	-17.44	59.90	27.11	0.17	174	-17.44	59.90	-0.16	4.98	0	0	0	0
46	4278	0.71	187.08	4,276.98	-18.57	60.03	28.26	0.36	94	-18.57	60.03	-0.02	29.06	0	0	0	0
47	4373	0.93	220.85	4,371.97	-19.74	59.46	29.31	0.55	95	-19.74	59.46	0.23	35.55	0	0	0	0
48	4468	0.52	240.78	4,466.97	-20.54	58.58	29.95	0.50	95	-20.54	58.58	-0.43	20.98	0	0	0	0
49	4567	0.61	221.50	4,565.96	-21.15	57.84	30.43	0.21	99	-21.15	57.84	0.09	-19.47	0	0	0	0
50	4656	0.45	246.43	4,654.96	-21.64	57.20	30.82	0.31	89	-21.64	57.20	-0.18	28.01	0	0	0	0
51	4750	0.29	218.99	4,748.96	-21.98	56.71	31.06	0.25	94	-21.98	56.71	-0.17	-29.19	0	0	0	0
52	4844	0.28	210.72	4,842.95	-22.36	56.45	31.40	0.04	94	-22.36	56.45	-0.01	-8.80	0	0	0	0
53	4938	0.23	252.85	4,936.95	-22.61	56.15	31.60	0.20	94	-22.61	56.15	-0.05	44.82	0	0	0	0
54	5032	0.48	264.60	5,030.95	-22.71	55.58	31.59	0.28	94	-22.71	55.58	0.27	12.50	0	0	0	0
55	5127	0.34	249.45	5,125.95	-22.84	54.92	31.62	0.19	95	-22.84	54.92	-0.15	-15.95	0	0	0	0
56	5221	0.45	307.13	5,219.95	-22.72	54.36	31.40	0.42	94	-22.72	54.36	0.12	61.36	0	0	0	0
57	5316	0.16	304.04	5,314.95	-22.42	53.95	31.04	0.31	95	-22.42	53.95	-0.31	-3.25	0	0	0	0
58	5410	0.54	283.25	5,408.94	-22.24	53.41	30.78	0.42	94	-22.24	53.41	0.40	-22.12	0	0	0	0
59	5505	0.58	312.99	5,503.94	-21.81	52.63	30.22	0.31	95	-21.81	52.63	0.04	31.31	0	0	0	0
60	5600	0.23	318.82	5,598.94	-21.34	52.15	29.68	0.37	95	-21.34	52.15	-0.37	6.14	0	0	0	0
61	5694	0.53	343.29	5,692.94	-20.78	51.90	29.09	0.36	94	-20.78	51.90	0.32	26.03	0	0	0	0
62	5789	0.30	307.40	5,787.93	-20.21	51.58	28.47	0.35	95	-20.21	51.58	-0.24	-37.78	0	0	0	0
63	5884	0.65	258.97	5,882.93	-20.16	50.85	28.30	0.53	95	-20.16	50.85	0.37	-50.98	0	0	0	0
64	5979	0.78	263.05	5,977.92	-20.34	49.68	28.29	0.15	95	-20.34	49.68	0.14	4.29	0	0	0	0
65	6073	1.26	264.55	6,071.91	-20.52	48.01	28.19	0.51	94	-20.52	48.01	0.51	1.60	0	0	0	0
66	6168	1.04	262.49	6,166.89	-20.73	46.12	28.08	0.24	95	-20.73	46.12	-0.23	-2.17	0	0	0	0
67	6263	1.17	265.89	6,261.87	-20.91	44.30	27.96	0.15	95	-20.91	44.30	0.14	3.58	0	0	0	0
68	6358	1.12	242.66	6,356.85	-21.41	42.51	28.15	0.49	95	-21.41	42.51	-0.05	-24.45	0	0	0	0
69	6452	1.27	243.80	6,450.83	-22.29	40.75	28.73	0.16	94	-22.29	40.75	0.16	1.21	0	0	0	0
70	6546	1.60	160.60	6,544.81	-23.99	40.26	30.32	2.04	94	-23.99	40.26	0.35	-88.51	0	0	0	0
71	6639	1.57	165.01	6,637.77	-26.44	41.02	32.87	0.14	93	-26.44	41.02	-0.03	4.74	0	0	0	0
72	6747	11.40	155.15	6,744.95	-37.59	45.90	44.67	9.13	108	-37.59	45.90	9.10	-9.13	0	0	0	0
73	6794	16.74	157.45	6,790.53	-48.06	50.45	55.75	11.42	47	-48.06	50.45	11.36	4.89	0	0	0	0
74	6841	20.40	154.81	6,835.07	-61.73	56.53	70.24	7.99	47	-61.73	56.53	7.79	-5.62	0	0	0	0
75	6888	25.35	149.41	6,878.37	-77.81	65.15	87.53	11.43	47	-77.81	65.15	10.53	-11.49	0	0	0	0
76	6935	29.14	147.75	6,920.15	-96.16	76.38	107.48	8.22	47	-96.16	76.38	8.06	-3.53	0	0	0	0
77	6982	32.05	149.67	6,960.60	-116.61	88.78	129.70	6.53	47	-116.61	88.78	6.19	4.09	0	0	0	0
78	7029	34.14	151.82	6,999.98	-139.00	101.31	153.85	5.10	47	-139.00	101.31	4.45	4.57	0	0	0	0

Svy	Depth	Inc	Azm	TVD	NS	EW	VS	DLS	CL	Northing	Easting	Build	Turn	Temp	GTot	HTot	DipA
79	7076	36.19	152.75	7,038.40	-162.96	113.89	179.57	4.51	47	-162.96	113.89	4.36	1.98	0	0	0	0
80	7123	38.07	153.33	7,075.87	-188.25	126.75	206.64	4.07	47	-188.25	126.75	4	1.23	0	0	0	0
81	7170	41.70	153.50	7,111.92	-215.20	140.24	235.45	7.73	47	-215.20	140.24	7.72	0.36	0	0	0	0
82	7218	45.58	155.08	7,146.66	-245.04	154.59	267.26	8.40	48	-245.04	154.59	8.08	3.29	0	0	0	0
83	7265	49.56	155.45	7,178.36	-276.55	169.10	300.73	8.49	47	-276.55	169.10	8.47	0.79	0	0	0	0
84	7312	54.43	155.15	7,207.29	-310.18	184.57	336.46	10.37	47	-310.18	184.57	10.36	-0.64	0	0	0	0
85	7359	60.36	153.88	7,232.61	-345.90	201.61	374.50	12.82	47	-345.90	201.61	12.62	-2.70	0	0	0	0
86	7406	66.65	153.14	7,253.56	-383.52	220.37	414.72	13.46	47	-383.52	220.37	13.38	-1.57	0	0	0	0
87	7500	74.06	150.57	7,285.15	-461.50	262.14	498.53	8.29	94	-461.50	262.14	7.88	-2.73	0	0	0	0
88	7593	76.10	153.82	7,309.10	-540.98	304.04	583.85	4.03	93	-540.98	304.04	2.19	3.49	0	0	0	0
89	7687	76.76	154.58	7,331.15	-623.24	343.80	671.57	1.05	94	-623.24	343.80	0.70	0.81	0	0	0	0
90	7781	76.33	154.72	7,353.03	-705.86	382.95	759.52	0.48	94	-705.86	382.95	-0.46	0.15	0	0	0	0
91	7876	75.71	154.86	7,375.98	-789.27	422.21	848.28	0.67	95	-789.27	422.21	-0.65	0.15	0	0	0	0
92	7971	74.76	154.39	7,400.19	-872.27	461.58	936.65	1.11	95	-872.27	461.58	-1	-0.49	0	0	0	0
93	8066	74.82	154.25	7,425.11	-954.88	501.30	1,024.70	0.16	95	-954.88	501.30	0.06	-0.15	0	0	0	0
94	8160	74.09	154.42	7,450.30	-1,036.51	540.53	1,111.70	0.80	94	-1,036.51	540.53	-0.78	0.18	0	0	0	0
95	8255	75.20	154.46	7,475.46	-1,119.15	580.05	1,199.74	1.17	95	-1,119.15	580.05	1.17	0.04	0	0	0	0
96	8350	74.76	154.58	7,500.08	-1,201.98	619.52	1,287.96	0.48	95	-1,201.98	619.52	-0.46	0.13	0	0	0	0
97	8445	73.22	154.03	7,526.28	-1,284.27	659.11	1,375.67	1.71	95	-1,284.27	659.11	-1.62	-0.58	0	0	0	0
98	8540	74.10	152.24	7,553.01	-1,365.58	700.31	1,462.68	2.03	95	-1,365.58	700.31	0.93	-1.88	0	0	0	0
99	8635	74.12	151.97	7,579.02	-1,446.34	743.06	1,549.40	0.27	95	-1,446.34	743.06	0.02	-0.28	0	0	0	0
100	8731	73.56	151.43	7,605.74	-1,527.52	786.77	1,636.70	0.80	96	-1,527.52	786.77	-0.58	-0.56	0	0	0	0
101	8824	75.36	151.90	7,630.65	-1,606.38	829.29	1,721.52	2.00	93	-1,606.38	829.29	1.94	0.51	0	0	0	0
102	8919	74.01	152.63	7,655.74	-1,687.48	871.93	1,808.55	1.60	95	-1,687.48	871.93	-1.42	0.77	0	0	0	0
103	9013	75.24	153.13	7,680.66	-1,768.15	913.25	1,894.95	1.41	94	-1,768.15	913.25	1.31	0.53	0	0	0	0
104	9107	74.24	153.20	7,705.41	-1,849.07	954.19	1,981.53	1.07	94	-1,849.07	954.19	-1.06	0.07	0	0	0	0
105	9202	75.11	154.23	7,730.51	-1,931.22	994.76	2,069.26	1.39	95	-1,931.22	994.76	0.92	1.08	0	0	0	0
106	9297	75.04	154.89	7,754.98	-2,014.11	1,034.19	2,157.54	0.68	95	-2,014.11	1,034.19	-0.07	0.69	0	0	0	0
107	9392	75.83	155.45	7,778.87	-2,097.56	1,072.80	2,246.22	1.01	95	-2,097.56	1,072.80	0.83	0.59	0	0	0	0
108	9486	73.67	156.29	7,803.60	-2,180.31	1,109.87	2,333.98	2.45	94	-2,180.31	1,109.87	-2.30	0.89	0	0	0	0
109	9580	74.77	155.90	7,829.16	-2,263.01	1,146.53	2,421.60	1.24	94	-2,263.01	1,146.53	1.17	-0.41	0	0	0	0
110	9674	73.36	156.32	7,854.96	-2,345.65	1,183.14	2,509.16	1.56	94	-2,345.65	1,183.14	-1.50	0.45	0	0	0	0
111	9769	72.65	156.11	7,882.73	-2,428.79	1,219.78	2,597.22	0.78	95	-2,428.79	1,219.78	-0.75	-0.22	0	0	0	0
112	9864	72.43	156.23	7,911.24	-2,511.68	1,256.39	2,685.03	0.26	95	-2,511.68	1,256.39	-0.23	0.13	0	0	0	0
113	9958	72	155.93	7,939.95	-2,593.50	1,292.68	2,771.73	0.55	94	-2,593.50	1,292.68	-0.46	-0.32	0	0	0	0
114	10053	74.10	155.24	7,967.64	-2,676.24	1,330.24	2,859.55	2.32	95	-2,676.24	1,330.24	2.21	-0.73	0	0	0	0
115	10147	76.24	155.81	7,991.70	-2,758.94	1,367.89	2,947.34	2.35	94	-2,758.94	1,367.89	2.28	0.61	0	0	0	0
116	10241	76.01	155.52	8,014.24	-2,842.09	1,405.49	3,035.57	0.39	94	-2,842.09	1,405.49	-0.24	-0.31	0	0	0	0
117	10335	77.18	155.62	8,036.03	-2,925.34	1,443.31	3,123.93	1.25	94	-2,925.34	1,443.31	1.24	0.11	0	0	0	0
118	10429	76.67	155.77	8,057.30	-3,008.79	1,480.99	3,212.46	0.56	94	-3,008.79	1,480.99	-0.54	0.16	0	0	0	0
119	10523	74.94	156.32	8,080.35	-3,092.07	1,517.99	3,300.72	1.93	94	-3,092.07	1,517.99	-1.84	0.59	0	0	0	0
120	10619	72.92	155.83	8,106.92	-3,176.38	1,555.40	3,390.07	2.16	96	-3,176.38	1,555.40	-2.10	-0.51	0	0	0	0
121	10713	72.72	154.38	8,134.69	-3,257.84	1,593.20	3,476.66	1.49	94	-3,257.84	1,593.20	-0.21	-1.54	0	0	0	0
122	10807	76.84	152.84	8,159.36	-3,339.07	1,633.52	3,563.44	4.66	94	-3,339.07	1,633.52	-4.38	-1.64	0	0	0	0
123	10900	76.79	152.26	8,180.58	-3,419.42	1,675.26	3,649.59	0.61	93	-3,419.42	1,675.26	-0.05	-0.62	0	0	0	0

Svy	Depth	Inc	Azm	TVD	NS	EW	VS	DLS	CL	Northing	Easting	Build	Turn	Temp	GTot	HTot	DipA
124	10994	75.82	151.31	8,202.83	-3,499.90	1,718.43	3,736.11	1.42	94	-3,499.90	1,718.43	-1.03	-1.01	0	0	0	0
125	11089	74.06	151.03	8,227.51	-3,580.26	1,762.67	3,822.68	1.87	95	-3,580.26	1,762.67	-1.85	-0.29	0	0	0	0
126	11184	72.82	151.67	8,254.59	-3,660.17	1,806.33	3,908.72	1.46	95	-3,660.17	1,806.33	-1.31	0.67	0	0	0	0
127	11279	72.55	155.98	8,282.88	-3,741.54	1,846.33	3,995.59	4.34	95	-3,741.54	1,846.33	-0.28	4.54	0	0	0	0
128	11373	74.27	159.84	8,309.72	-3,825.00	1,880.18	4,083.50	4.34	94	-3,825.00	1,880.18	1.83	4.11	0	0	0	0
129	11420	77.28	161.17	8,321.27	-3,867.94	1,895.38	4,128.36	6.97	47	-3,867.94	1,895.38	6.40	2.83	0	0	0	0
130	11468	77.19	163.91	8,331.88	-3,912.59	1,909.43	4,174.73	5.57	48	-3,912.59	1,909.43	-0.19	5.71	0	0	0	0
131	11562	76.96	169.46	8,352.92	-4,001.71	1,930.52	4,266.10	5.76	94	-4,001.71	1,930.52	-0.24	5.90	0	0	0	0
132	11657	76.48	176.06	8,374.77	-4,093.37	1,942.17	4,358.43	6.78	95	-4,093.37	1,942.17	-0.51	6.95	0	0	0	0
133	11752	77.43	177.82	8,396.21	-4,185.78	1,947.11	4,450.39	2.06	95	-4,185.78	1,947.11	1	1.85	0	0	0	0
134	11845	76.67	178.82	8,417.05	-4,276.38	1,949.77	4,540.17	1.33	93	-4,276.38	1,949.77	-0.82	1.08	0	0	0	0
135	11938	77.01	179.20	8,438.23	-4,366.92	1,951.33	4,629.72	0.54	93	-4,366.92	1,951.33	0.37	0.41	0	0	0	0
136	12032	76.01	178.94	8,460.15	-4,458.32	1,952.81	4,720.10	1.10	94	-4,458.32	1,952.81	-1.06	-0.28	0	0	0	0
137	12126	74.54	177.52	8,484.05	-4,549.18	1,955.62	4,810.18	2.14	94	-4,549.18	1,955.62	-1.56	-1.51	0	0	0	0
138	12221	74.80	177.44	8,509.16	-4,640.71	1,959.65	4,901.11	0.29	95	-4,640.71	1,959.65	0.27	-0.08	0	0	0	0
139	12315	76.67	178.92	8,532.33	-4,731.76	1,962.53	4,991.38	2.51	94	-4,731.76	1,962.53	1.99	1.57	0	0	0	0
140	12410	82.67	182.55	8,549.36	-4,825.15	1,961.31	5,083.28	7.35	95	-4,825.15	1,961.31	6.32	-3.82	0	0	0	0
141	12506	88.88	183.32	8,556.43	-4,920.72	1,956.41	5,176.72	6.52	96	-4,920.72	1,956.41	6.47	0.80	0	0	0	0
142	12599	91.60	182.84	8,556.04	-5,013.57	1,951.41	5,267.47	2.97	93	-5,013.57	1,951.41	2.92	-0.52	0	0	0	0
143	12693	88.40	180.92	8,556.04	-5,107.51	1,948.33	5,359.59	3.97	94	-5,107.51	1,948.33	-3.40	-2.04	0	0	0	0
144	12788	89.36	180.42	8,557.90	-5,202.48	1,947.22	5,453.07	1.14	95	-5,202.48	1,947.22	1.01	-0.53	0	0	0	0
145	12883	91.26	180.24	8,557.38	-5,297.47	1,946.67	5,546.66	2.01	95	-5,297.47	1,946.67	2	-0.19	0	0	0	0
146	12977	89.02	179.93	8,557.15	-5,391.47	1,946.53	5,639.34	2.41	94	-5,391.47	1,946.53	-2.38	-0.33	0	0	0	0
147	13072	89.24	179.19	8,558.59	-5,486.45	1,947.26	5,733.13	0.81	95	-5,486.45	1,947.26	0.23	-0.78	0	0	0	0
148	13166	89.36	178.12	8,559.74	-5,580.42	1,949.46	5,826.16	1.15	94	-5,580.42	1,949.46	0.13	-1.14	0	0	0	0
149	13260	89.36	179.11	8,560.79	-5,674.38	1,951.74	5,919.21	1.05	94	-5,674.38	1,951.74	0	1.05	0	0	0	0
150	13354	90.65	179.74	8,560.78	-5,768.38	1,952.68	6,012.06	1.53	94	-5,768.38	1,952.68	1.37	0.67	0	0	0	0
151	13448	93.17	179.89	8,557.65	-5,862.32	1,952.98	6,104.75	2.69	94	-5,862.32	1,952.98	2.68	0.16	0	0	0	0
152	13543	90.70	180.39	8,554.44	-5,957.25	1,952.75	6,198.34	2.65	95	-5,957.25	1,952.75	-2.60	0.53	0	0	0	0
153	13637	90.76	180.42	8,553.25	-6,051.24	1,952.09	6,290.93	0.07	94	-6,051.24	1,952.09	0.06	0.03	0	0	0	0
154	13731	92.19	180.34	8,550.83	-6,145.21	1,951.46	6,383.49	1.52	94	-6,145.21	1,951.46	1.52	-0.09	0	0	0	0
155	13826	90.11	179.92	8,548.92	-6,240.18	1,951.25	6,477.12	2.23	95	-6,240.18	1,951.25	-2.19	-0.44	0	0	0	0
156	13920	88.80	179.45	8,549.81	-6,334.18	1,951.76	6,569.90	1.48	94	-6,334.18	1,951.76	-1.39	-0.50	0	0	0	0
157	14014	88.85	179.07	8,551.74	-6,428.15	1,952.98	6,662.78	0.41	94	-6,428.15	1,952.98	0.05	-0.40	0	0	0	0
158	14109	91.77	180.33	8,551.23	-6,523.13	1,953.48	6,756.53	3.35	95	-6,523.13	1,953.48	3.07	1.33	0	0	0	0
159	14203	88.65	179.87	8,550.88	-6,617.12	1,953.31	6,849.20	3.36	94	-6,617.12	1,953.31	-3.32	-0.49	0	0	0	0
160	14297	89.50	180.06	8,552.40	-6,711.11	1,953.37	6,941.90	0.93	94	-6,711.11	1,953.37	0.90	0.20	0	0	0	0
161	14391	87.73	179.03	8,554.67	-6,805.07	1,954.12	7,034.69	2.18	94	-6,805.07	1,954.12	-1.88	-1.10	0	0	0	0
162	14485	90.92	181.46	8,555.78	-6,899.05	1,953.71	7,127.30	4.27	94	-6,899.05	1,953.71	3.39	2.59	0	0	0	0
163	14580	91.18	183.02	8,554.04	-6,993.95	1,950.00	7,220.28	1.66	95	-6,993.95	1,950.00	0.27	1.64	0	0	0	0
164	14675	89.80	183.41	8,553.23	-7,088.80	1,944.67	7,312.93	1.51	95	-7,088.80	1,944.67	-1.45	0.41	0	0	0	0
165	14767	90.36	182.48	8,553.10	-7,180.68	1,939.95	7,402.76	1.18	92	-7,180.68	1,939.95	0.61	-1.01	0	0	0	0
166	14862	91.77	182.31	8,551.33	-7,275.57	1,935.98	7,495.69	1.49	95	-7,275.57	1,935.98	1.48	-0.18	0	0	0	0
167	14956	89.86	179.87	8,550.00	-7,369.54	1,934.19	7,588.06	3.30	94	-7,369.54	1,934.19	-2.03	-2.60	0	0	0	0
168	15051	90.53	180.01	8,549.67	-7,464.53	1,934.29	7,681.77	0.72	95	-7,464.53	1,934.29	0.71	0.15	0	0	0	0

Svy	Depth	Inc	Azm	TVD	NS	EW	VS	DLS	CL	Northing	Easting	Build	Turn	Temp	GTot	HTot	DipA
169	15145	91.60	180.30	8,547.93	-7,558.52	1,934.03	7,774.41	1.18	94	-7,558.52	1,934.03	1.14	0.31	0	0	0	0
170	15239	90.11	179.69	8,546.52	-7,652.50	1,934.04	7,867.10	1.71	94	-7,652.50	1,934.04	-1.59	-0.65	0	0	0	0
171	15333	90.67	179.52	8,545.88	-7,746.50	1,934.69	7,959.90	0.62	94	-7,746.50	1,934.69	0.60	-0.18	0	0	0	0
172	15427	90.08	179.68	8,545.27	-7,840.49	1,935.35	8,052.71	0.65	94	-7,840.49	1,935.35	-0.63	0.17	0	0	0	0
173	15522	90.17	179.50	8,545.06	-7,935.49	1,936.03	8,146.51	0.21	95	-7,935.49	1,936.03	0.09	-0.19	0	0	0	0
174	15636	89.07	177.61	8,545.82	-8,049.45	1,938.90	8,259.37	1.92	114	-8,049.45	1,938.90	-0.96	-1.66	0	0	0	0
175	15731	89.13	177.31	8,547.31	-8,144.34	1,943.11	8,353.65	0.32	95	-8,144.34	1,943.11	0.06	-0.32	0	0	0	0
176	15825	89.50	177.76	8,548.43	-8,238.25	1,947.15	8,446.93	0.62	94	-8,238.25	1,947.15	-0.39	0.48	0	0	0	0
177	15920	89.55	177.23	8,549.22	-8,333.15	1,951.31	8,541.21	0.56	95	-8,333.15	1,951.31	0.05	-0.56	0	0	0	0
178	16014	89.64	177.14	8,549.88	-8,427.04	1,955.92	8,634.56	0.14	94	-8,427.04	1,955.92	0.10	-0.10	0	0	0	0
179	16109	89.10	176.39	8,550.93	-8,521.88	1,961.28	8,728.99	0.97	95	-8,521.88	1,961.28	-0.57	-0.79	0	0	0	0
180	16204	88.40	176.50	8,553.00	-8,616.67	1,967.17	8,823.45	0.75	95	-8,616.67	1,967.17	-0.74	0.12	0	0	0	0
181	16301	89.30	177.70	8,554.95	-8,713.53	1,972.08	8,919.78	1.55	97	-8,713.53	1,972.08	0.93	1.24	159	1	0.47	60.64
182	16395	89.60	179	8,555.85	-8,807.48	1,974.78	9,012.88	1.42	94	-8,807.48	1,974.78	0.32	1.38	159	1	0.48	60.77
183	16490	90.30	179.06	8,555.93	-8,902.47	1,976.39	9,106.82	0.74	95	-8,902.47	1,976.39	-0.74	0.06	149	1	0.48	60.73
184	16585	90.60	180.40	8,555.19	-8,997.46	1,976.84	9,200.58	1.45	95	-8,997.46	1,976.84	0.32	1.41	152.70	1.00	0.48	60.73
185	16679	90.80	180.50	8,554.04	-9,091.45	1,976.10	9,293.15	0.24	94	-9,091.45	1,976.10	0.21	0.11	158	1	0.48	60.46
186	16774	91.10	180.50	8,552.46	-9,186.43	1,975.27	9,386.69	0.32	95	-9,186.43	1,975.27	0.32	0	158	1.00	0.48	60.68
187	16869	92.10	182	8,549.81	-9,281.37	1,973.20	9,479.97	1.90	95	-9,281.37	1,973.20	1.05	1.58	161.60	1	0.48	60.77
188	16964	91.20	181.90	8,547.08	-9,376.27	1,969.97	9,573.03	0.95	95	-9,376.27	1,969.97	-0.95	-0.11	72	1.00	0.47	60.51
189	17058	91.50	182	8,544.86	-9,470.19	1,966.77	9,665.12	0.34	94	-9,470.19	1,966.77	0.32	0.11	72	1	0.48	60.51
190	17152	90.40	181	8,543.30	-9,564.15	1,964.31	9,757.37	1.58	94	-9,564.15	1,964.31	-1.17	-1.06	72	1	0.48	60.77
191	17246	90.10	182.40	8,542.89	-9,658.10	1,961.52	9,849.57	1.52	94	-9,658.10	1,961.52	-0.32	1.49	74	1	0.47	60.42
192	17341	88	181.30	8,544.47	-9,753.03	1,958.46	9,942.68	2.50	95	-9,753.03	1,958.46	-2.21	-1.16	73	1.00	0.48	60.42
193	17435	85.80	180.60	8,549.55	-9,846.87	1,956.90	10,034.97	2.46	94	-9,846.87	1,956.90	-2.34	-0.74	74	1.00	0.48	60.59
194	17530	86.50	181.10	8,555.93	-9,941.65	1,955.49	10,128.20	0.90	95	-9,941.65	1,955.49	0.74	0.53	-9999	1.00	0.48	60.55
195	17624	83.80	180.80	8,563.88	-10,035.29	1,953.94	10,220.30	2.89	94	-10,035.29	1,953.94	-2.87	-0.32	-9999	1.00	0.48	60.59
196	17719	83.80	181.40	8,574.14	-10,129.72	1,952.13	10,313.12	0.63	95	-10,129.72	1,952.13	0	0.63	0	1.00	0.48	60.73
197	17813	84.50	179	8,583.72	-10,223.22	1,951.80	10,405.28	2.65	94	-10,223.22	1,951.80	0.74	-2.55	-9999	1	0.48	60.55
198	17910	87.30	180.50	8,590.65	-10,319.96	1,952.22	10,500.75	3.27	97	-10,319.96	1,952.22	2.89	1.55	-9999	1.00	0.48	59.41
199	18005	90.10	177.50	8,592.81	-10,414.90	1,953.88	10,594.66	4.32	95	-10,414.90	1,953.88	2.95	-3.16	67	1.00	0.48	59.27
200	18100	91.40	178.10	8,591.57	-10,509.82	1,957.53	10,688.87	1.51	95	-10,509.82	1,957.53	1.37	0.63	70	1.00	0.49	59.41
201	18194	92.70	177	8,588.20	-10,603.67	1,961.54	10,782.09	1.81	94	-10,603.67	1,961.54	1.38	-1.17	70	1	0.48	59.14
202	18289	92.40	179.40	8,583.98	-10,698.52	1,964.52	10,876.12	2.54	95	-10,698.52	1,964.52	-0.32	2.53	71	1	0.48	59.54
203	18384	93.60	179.10	8,579.00	-10,793.38	1,965.77	10,969.88	1.30	95	-10,793.38	1,965.77	1.26	-0.32	71	1	0.49	59.32
204	18479	94.80	179.60	8,572.05	-10,888.12	1,966.84	11,063.49	1.37	95	-10,888.12	1,966.84	1.26	0.53	72	1	0.49	59.36
205	18574	94.60	179.40	8,564.26	-10,982.79	1,967.67	11,157.00	0.30	95	-10,982.79	1,967.67	-0.21	-0.21	70	1	0.48	59.05
206	18668	93.80	180.20	8,557.38	-11,076.54	1,967.99	11,249.50	1.20	94	-11,076.54	1,967.99	-0.85	0.85	71	1.00	0.48	59.23
207	18763	90.50	182.70	8,553.81	-11,171.42	1,965.59	11,342.68	4.36	95	-11,171.42	1,965.59	-3.47	2.63	73	1	0.48	59.23
208	18858	90.90	183.90	8,552.65	-11,266.25	1,960.12	11,435.30	1.33	95	-11,266.25	1,960.12	0.42	1.26	74	1	0.48	59.19
209	18952	90.30	182.10	8,551.67	-11,360.12	1,955.20	11,527.05	2.02	94	-11,360.12	1,955.20	-0.64	-1.91	74	1	0.48	59.14
210	19046	90.90	182.10	8,550.68	-11,454.05	1,951.76	11,619.11	0.64	94	-11,454.05	1,951.76	-0.64	0	75	1	0.48	59.14
211	19140	92	183.20	8,548.31	-11,547.91	1,947.41	11,710.96	1.65	94	-11,547.91	1,947.41	1.17	1.17	75	1.00	0.48	59.19
212	19235	92.60	181.40	8,544.49	-11,642.76	1,943.60	11,803.87	2.00	95	-11,642.76	1,943.60	0.63	-1.89	74	1.00	0.49	59.41
213	19329	92.20	182.50	8,540.56	-11,736.62	1,940.41	11,895.90	1.24	94	-11,736.62	1,940.41	-0.43	1.17	74	1.00	0.49	59.32

Svy	Depth	Inc	Azm	TVD	NS	EW	VS	DLS	CL	Northing	Easting	Build	Turn	Temp	GTot	HTot	DipA
214	19411	92.70	181.60	8,537.05	-11,818.49	1,937.48	11,976.16	1.25	82	-11,818.49	1,937.48	0.61	-1.10	75	1.00	0.48	59.05
PTB	19460	92.70	181.60	8,534.74	-11,867.42	1,936.11	12,024.19	0	49	-11,867.42	1,936.11	0	-0	0	0	0	0

DEC 26 2019

Survey Report

DISTRICT 7 - ARTESIA O.C.D.

Company:	XTO Energy	Local Co-ordinate Reference:	Well BUTTERCUP 27-34 FED 4H - Slot BUTTERCUP 27-34 FED 4H SHL
Project:	Eddy County, NM (NAD27) NMEZ Grid	TVD Reference:	3285+30 @ 3315.00usft (F26)
Site:	BUTTERCUP 27-34	MD Reference:	3285+30 @ 3315.00usft (F26)
Well:	BUTTERCUP 27-34 FED 4H	North Reference:	Grid
Wellbore:	4H Lateral	Survey Calculation Method:	Minimum Curvature
Design:	4H Lateral (AsDrilled)	Database:	PREDATOR_EDM

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	BUTTERCUP 27-34		
Site Position:	Map	Northing:	597,529.10 usft
From:		Easting:	615,452.00 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in
		Latitude:	32.64214952
		Longitude:	-103.95826483
		Grid Convergence:	0.20 °

Well	BUTTERCUP 27-34 FED 4H - Slot BUTTERCUP 27-34 FED 4H SHL		
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32.64214952
		Longitude:	-103.95826483
		Ground Level:	3,285.00 usft

Wellbore	4H Lateral		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2015	01/16/19	6.99
			Dip Angle
			(°)
			Field Strength
			(nT)
			47,982.41176408

Design	4H Lateral (AsDrilled)		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			(°)
			170.74

Survey Program	Date	05/22/19		
From	To	Survey (Wellbore)	Tool Name	Description
(usft)	(usft)			
127.00	4,184.00	Survey #1 (4H Lateral)	MWD	OWSG MWD - Standard
4,278.00	16,204.00	Survey #2 (4H Lateral)	MWD+IFR1+MS	OWSG MWD + IFR1 + Multi-Station Correction
16,301.00	19,411.00	Survey #3 (4H Lateral)	MWD+IFR1+MS	OWSG MWD + IFR1 + Multi-Station Correction
19,460.00	19,460.00	Survey #4 (4H Lateral)	Projection	Projection

Survey									
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Vertical	Dogleg	Build	Turn
Depth	(°)	(°)	Depth	(usft)	(usft)	Section	Rate	Rate	Rate
(usft)			(usft)			(usft)	(°/100ft)	(°/100ft)	(°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BUTTERCUP 27-34 FED 1H SHL - BUTTERCUP 27-34 FED 3H SHL - BUTTERCUP 27-34 FED 4H SHL - BUTTERCUP 27-34 FED 2H FTP_1									
127.00	1.19	79.92	126.99	0.23	1.30	-0.02	0.94	0.94	0.00
221.00	2.73	77.01	220.93	0.90	4.44	-0.18	1.64	1.64	-3.10
312.00	3.10	64.20	311.82	2.46	8.77	-1.02	0.82	0.41	-14.08
407.00	2.80	71.50	406.69	4.32	13.28	-2.12	0.51	-0.32	7.68
442.00	1.70	67.20	441.66	4.79	14.57	-2.38	3.18	-3.14	-12.29

Survey Report

Company:	XTO Energy	Local Co-ordinate Reference:	Well BUTTERCUP 27-34 FED 4H - Slot
Project:	Eddy County, NM (NAD27) NMEZ Grid	TVD Reference:	BUTTERCUP 27-34 FED 4H SHL
Site:	BUTTERCUP 27-34	MD Reference:	3285+30 @ 3315.00usft (F26)
Well:	BUTTERCUP 27-34 FED 4H	North Reference:	3285+30 @ 3315.00usft (F26)
Wellbore:	4H Lateral	Survey Calculation Method:	Grid
Design:	4H Lateral (AsDrilled)	Database:	Minimum Curvature
			PREDATOR_EDM

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)	
526.00	2.20	65.10	525.61	5.95	17.18	-3.11	0.60	0.60	-2.50	
580.00	2.20	60.10	579.57	6.90	19.02	-3.75	0.36	0.00	-9.26	
675.00	0.70	82.10	674.54	7.89	21.18	-4.38	1.66	-1.58	23.16	
771.00	0.70	61.60	770.53	8.25	22.27	-4.56	0.26	0.00	-21.35	
822.00	0.80	67.00	821.53	8.54	22.87	-4.75	0.24	0.20	10.59	
917.00	1.10	78.70	916.52	8.98	24.38	-4.94	0.37	0.32	12.32	
1,012.00	1.30	79.50	1,011.50	9.35	26.33	-4.99	0.21	0.21	0.84	
1,107.00	1.40	81.30	1,106.47	9.72	28.54	-5.00	0.11	0.11	1.89	
1,198.00	1.50	84.30	1,197.44	10.01	30.82	-4.92	0.14	0.11	3.30	
1,296.00	1.50	81.90	1,295.41	10.32	33.37	-4.81	0.06	0.00	-2.45	
1,391.00	1.50	79.50	1,390.37	10.72	35.82	-4.81	0.07	0.00	-2.53	
1,444.00	1.40	80.40	1,443.36	10.96	37.14	-4.83	0.19	-0.19	1.70	
1,571.00	2.30	78.00	1,570.29	11.74	41.17	-4.96	0.71	0.71	-1.89	
1,665.00	1.20	85.50	1,664.25	12.21	43.99	-4.97	1.19	-1.17	7.98	
1,759.00	0.80	118.10	1,758.23	11.98	45.55	-4.49	0.72	-0.43	34.68	
1,853.00	0.70	135.60	1,852.22	11.26	46.53	-3.62	0.26	-0.11	18.62	
1,947.00	0.90	142.80	1,946.21	10.26	47.38	-2.50	0.24	0.21	7.66	
2,041.00	0.90	143.40	2,040.20	9.08	48.27	-1.19	0.01	0.00	0.64	
2,136.00	0.50	131.80	2,135.20	8.21	49.02	-0.21	0.44	-0.42	-12.21	
2,230.00	0.50	133.10	2,229.19	7.65	49.63	0.43	0.01	0.00	1.38	
2,325.00	0.60	144.90	2,324.19	6.96	50.22	1.21	0.16	0.11	12.42	
2,419.00	0.40	156.60	2,418.18	6.26	50.63	1.97	0.24	-0.21	12.45	
2,513.00	0.50	161.80	2,512.18	5.57	50.89	2.70	0.11	0.11	5.53	
2,608.00	0.60	158.10	2,607.18	4.71	51.20	3.59	0.11	0.11	-3.89	
2,703.00	0.60	160.00	2,702.17	3.79	51.56	4.56	0.02	0.00	2.00	
2,797.00	0.70	162.30	2,796.17	2.78	51.90	5.62	0.11	0.11	2.45	
2,892.00	0.70	164.50	2,891.16	1.66	52.23	6.77	0.03	0.00	2.32	
2,986.00	0.80	166.80	2,985.15	0.47	52.54	7.99	0.11	0.11	2.45	
3,080.00	0.90	166.00	3,079.14	-0.88	52.86	9.38	0.11	0.11	-0.85	
3,175.00	0.90	168.00	3,174.13	-2.34	53.20	10.87	0.03	0.00	2.11	
3,270.00	0.80	169.40	3,269.12	-3.72	53.48	12.28	0.11	-0.11	1.47	
3,364.00	0.90	164.30	3,363.11	-5.07	53.80	13.67	0.13	0.11	-5.43	
3,458.00	1.00	157.40	3,457.09	-6.54	54.31	15.20	0.16	0.11	-7.34	
3,553.00	1.00	155.70	3,552.08	-8.06	54.97	16.81	0.03	0.00	-1.79	
3,647.00	1.00	152.20	3,646.07	-9.54	55.69	18.38	0.06	0.00	-3.72	
3,741.00	1.00	152.30	3,740.05	-10.99	56.46	19.93	0.00	0.00	0.11	
3,835.00	1.00	150.10	3,834.04	-12.43	57.25	21.48	0.04	0.00	-2.34	
3,930.00	1.00	149.10	3,929.02	-13.86	58.09	23.03	0.02	0.00	-1.05	
4,010.00	1.00	151.10	4,009.01	-15.07	58.78	24.33	0.04	0.00	2.50	
4,278.00	0.71	187.08	4,276.98	-18.76	59.71	28.13	0.22	-0.11	13.43	
4,373.00	0.93	220.85	4,371.97	-19.93	59.13	29.19	0.55	0.23	35.55	
4,468.00	0.52	240.78	4,466.97	-20.72	58.25	29.83	0.50	-0.43	20.98	
4,567.00	0.61	221.50	4,565.96	-21.34	57.51	30.32	0.21	0.09	-19.47	

Survey Report

Company:	XTO Energy	Local Co-ordinate Reference:	Well BUTTERCUP 27-34 FED 4H - Slot BUTTERCUP 27-34 FED 4H SHL
Project:	Eddy County, NM (NAD27) NMEZ Grid	TVD Reference:	3285+30 @ 3315.00usft (F26)
Site:	BUTTERCUP 27-34	MD Reference:	3285+30 @ 3315.00usft (F26)
Well:	BUTTERCUP 27-34 FED 4H	North Reference:	Grid
Wellbore:	4H Lateral	Survey Calculation Method:	Minimum Curvature
Design:	4H Lateral (AsDrilled)	Database:	PREDATOR_EDM

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)
4,656.00	0.45	246.43	4,654.96	-21.83	56.87	30.70	0.31	-0.18	28.01
4,750.00	0.29	218.99	4,748.95	-22.16	56.39	30.95	0.25	-0.17	-29.19
4,844.00	0.28	210.72	4,842.95	-22.55	56.12	31.29	0.04	-0.01	-8.80
4,938.00	0.23	252.85	4,936.95	-22.80	55.82	31.49	0.20	-0.05	44.82
5,032.00	0.48	264.60	5,030.95	-22.89	55.25	31.49	0.28	0.27	12.50
5,127.00	0.34	249.45	5,125.95	-23.03	54.59	31.52	0.19	-0.15	-15.95
5,221.00	0.45	307.13	5,219.95	-22.90	54.03	31.30	0.42	0.12	61.36
5,316.00	0.16	304.04	5,314.95	-22.60	53.63	30.94	0.31	-0.31	-3.25
5,410.00	0.54	283.25	5,408.94	-22.43	53.09	30.68	0.42	0.40	-22.12
5,505.00	0.58	312.99	5,503.94	-22.00	52.30	30.13	0.31	0.04	31.31
5,600.00	0.23	318.82	5,598.94	-21.53	51.82	29.59	0.37	-0.37	6.14
5,694.00	0.53	343.29	5,692.93	-20.97	51.57	29.00	0.36	0.32	26.03
5,789.00	0.30	307.40	5,787.93	-20.40	51.25	28.38	0.35	-0.24	-37.78
5,884.00	0.65	258.97	5,882.93	-20.35	50.52	28.22	0.53	0.37	-50.98
5,979.00	0.78	263.05	5,977.92	-20.53	49.35	28.21	0.15	0.14	4.29
6,073.00	1.26	264.55	6,071.91	-20.71	47.69	28.11	0.51	0.51	1.60
6,168.00	1.04	262.49	6,166.89	-20.92	45.79	28.02	0.24	-0.23	-2.17
6,263.00	1.17	265.89	6,261.87	-21.10	43.97	27.90	0.15	0.14	3.58
6,358.00	1.12	242.66	6,356.85	-21.60	42.18	28.10	0.49	-0.05	-24.45
6,452.00	1.27	243.80	6,450.83	-22.48	40.43	28.69	0.16	0.16	1.21
6,546.00	1.60	160.60	6,544.81	-24.17	39.93	30.29	2.04	0.35	-88.51
6,639.00	1.57	165.01	6,637.77	-26.63	40.69	32.83	0.14	-0.03	4.74
6,747.00	11.40	155.15	6,744.95	-37.77	45.57	44.62	9.13	9.10	-9.13
6,794.00	16.74	157.45	6,790.53	-48.25	50.12	55.69	11.42	11.36	4.89
6,841.00	20.40	154.81	6,835.07	-61.91	56.21	70.16	7.99	7.79	-5.62
6,888.00	25.35	149.41	6,878.37	-78.00	64.82	87.42	11.43	10.53	-11.49
6,935.00	29.14	147.75	6,920.15	-96.35	76.05	107.33	8.22	8.06	-3.53
6,982.00	32.05	149.67	6,960.60	-116.79	88.46	129.51	6.53	6.19	4.09
7,029.00	34.14	151.82	6,999.97	-139.18	100.98	153.63	5.10	4.45	4.57
7,076.00	36.19	152.75	7,038.39	-163.15	113.57	179.30	4.51	4.36	1.98
7,123.00	38.07	153.33	7,075.86	-188.44	126.42	206.33	4.07	4.00	1.23
7,170.00	41.70	153.50	7,111.92	-215.38	139.91	235.10	7.73	7.72	0.36
7,218.00	45.58	155.08	7,146.65	-245.23	154.26	266.87	8.40	8.08	3.29
7,265.00	49.56	155.45	7,178.36	-276.73	168.77	300.29	8.49	8.47	0.79
7,312.00	54.43	155.15	7,207.29	-310.37	184.24	335.98	10.37	10.36	-0.64
7,359.00	60.36	153.88	7,232.60	-346.08	201.28	373.97	12.82	12.62	-2.70
7,406.00	66.65	153.14	7,253.56	-383.71	220.04	414.13	13.46	13.38	-1.57
7,500.00	74.06	150.57	7,285.15	-461.69	261.81	497.81	8.29	7.88	-2.73
7,593.00	76.10	153.82	7,309.10	-541.16	303.71	583.00	4.03	2.19	3.49
7,687.00	76.76	154.58	7,331.15	-623.43	343.48	670.59	1.05	0.70	0.81
7,781.00	76.33	154.72	7,353.02	-706.05	382.62	758.44	0.48	-0.46	0.15
7,876.00	75.71	154.86	7,375.97	-789.45	421.88	847.07	0.67	-0.65	0.15

Survey Report

Company:	XTO Energy	Local Co-ordinate Reference:	Well BUTTERCUP 27-34 FED 4H - Slot
Project:	Eddy County, NM (NAD27) NMEZ Grid	TVD Reference:	BUTTERCUP 27-34 FED 4H SHL
Site:	BUTTERCUP 27-34	MD Reference:	3285+30 @ 3315.00usft (F26)
Well:	BUTTERCUP 27-34 FED 4H	North Reference:	Grid
Wellbore:	4H Lateral	Survey Calculation Method:	Minimum Curvature
Design:	4H Lateral (AsDrilled)	Database:	PREDATOR_EDM

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)
7,971.00	74.76	154.39	7,400.19	-872.45	461.25	935.33	1.11	-1.00	-0.49
8,066.00	74.82	154.25	7,425.11	-955.07	500.98	1,023.26	0.16	0.06	-0.15
8,160.00	74.09	154.42	7,450.30	-1,036.70	540.20	1,110.14	0.80	-0.78	0.18
8,255.00	75.20	154.46	7,475.46	-1,119.34	579.72	1,198.07	1.17	1.17	0.04
8,350.00	74.76	154.58	7,500.08	-1,202.17	619.20	1,286.17	0.48	-0.46	0.13
8,445.00	73.22	154.03	7,526.28	-1,284.45	658.79	1,373.75	1.71	-1.62	-0.58
8,540.00	74.10	152.24	7,553.01	-1,365.77	699.98	1,460.64	2.03	0.93	-1.88
8,635.00	74.12	151.97	7,579.02	-1,446.52	742.73	1,547.22	0.27	0.02	-0.28
8,731.00	73.56	151.43	7,605.73	-1,527.71	786.44	1,634.39	0.80	-0.58	-0.56
8,824.00	75.36	151.90	7,630.65	-1,606.57	828.97	1,719.07	2.00	1.94	0.51
8,919.00	74.01	152.63	7,655.74	-1,687.67	871.61	1,805.97	1.60	-1.42	0.77
9,013.00	75.24	153.13	7,680.66	-1,768.34	912.92	1,892.24	1.41	1.31	0.53
9,107.00	74.24	153.20	7,705.40	-1,849.25	953.86	1,978.69	1.07	-1.06	0.07
9,202.00	75.11	154.23	7,730.51	-1,931.40	994.43	2,066.30	1.39	0.92	1.08
9,297.00	75.04	154.89	7,754.98	-2,014.30	1,033.86	2,154.46	0.68	-0.07	0.69
9,392.00	75.83	155.45	7,778.87	-2,097.74	1,072.47	2,243.03	1.01	0.83	0.59
9,486.00	73.67	156.29	7,803.59	-2,180.50	1,109.55	2,330.68	2.45	-2.30	0.89
9,580.00	74.77	155.90	7,829.16	-2,263.20	1,146.20	2,418.20	1.24	1.17	-0.41
9,674.00	73.36	156.32	7,854.96	-2,345.84	1,182.81	2,505.66	1.56	-1.50	0.45
9,769.00	72.65	156.11	7,882.73	-2,428.97	1,219.45	2,593.61	0.78	-0.75	-0.22
9,864.00	72.43	156.23	7,911.23	-2,511.87	1,256.06	2,681.32	0.26	-0.23	0.13
9,958.00	72.00	155.93	7,939.95	-2,593.69	1,292.35	2,767.91	0.55	-0.46	-0.32
10,053.00	74.10	155.24	7,967.64	-2,676.43	1,329.92	2,855.62	2.32	2.21	-0.73
10,072.03	74.53	155.36	7,972.79	-2,693.08	1,337.57	2,873.28	2.35	2.28	0.61
BUTTERCUP 27-34 FED 1H FTP_330FNL_400FWL									
10,147.00	76.24	155.81	7,991.70	-2,759.13	1,367.56	2,943.30	2.35	2.28	0.61
10,241.00	76.01	155.52	8,014.24	-2,842.28	1,405.16	3,031.42	0.39	-0.24	-0.31
10,335.00	77.18	155.62	8,036.03	-2,925.53	1,442.98	3,119.67	1.25	1.24	0.11
10,429.00	76.67	155.77	8,057.30	-3,008.98	1,480.67	3,208.10	0.56	-0.54	0.16
10,523.00	74.94	156.32	8,080.35	-3,092.25	1,517.67	3,296.24	1.93	-1.84	0.59
10,619.00	72.92	155.83	8,106.92	-3,176.57	1,555.07	3,385.48	2.16	-2.10	-0.51
10,713.00	72.72	154.38	8,134.69	-3,258.03	1,592.88	3,471.97	1.49	-0.21	-1.54
10,807.00	76.84	152.84	8,159.36	-3,339.25	1,633.19	3,558.62	4.66	4.38	-1.64
10,900.00	76.79	152.26	8,180.57	-3,419.61	1,674.93	3,644.65	0.61	-0.05	-0.62
10,994.00	75.82	151.31	8,202.83	-3,500.08	1,718.11	3,731.02	1.42	-1.03	-1.01
11,089.00	74.06	151.03	8,227.51	-3,580.45	1,762.34	3,817.46	1.87	-1.85	-0.29
11,184.00	72.82	151.67	8,254.59	-3,660.35	1,806.00	3,903.35	1.46	-1.31	0.67
11,279.00	72.55	155.98	8,282.88	-3,741.73	1,846.00	3,990.10	4.34	-0.28	4.54
11,373.00	74.27	159.84	8,309.72	-3,825.18	1,879.86	4,077.92	4.34	1.83	4.11
11,420.00	77.28	161.17	8,321.27	-3,868.13	1,895.06	4,122.75	6.97	6.40	2.83
11,468.00	77.19	163.91	8,331.88	-3,912.78	1,909.10	4,169.08	5.57	-0.19	5.71
11,524.00	77.04	167.22	8,344.37	-3,965.64	1,922.71	4,223.44	5.76	-0.27	5.90
Wellpath Crosses Unit Line @ Heel									

Survey Report

Company:	XTO Energy	Local Co-ordinate Reference:	Well BUTTERCUP 27-34 FED 4H - Slot BUTTERCUP 27-34 FED 4H SHL
Project:	Eddy County, NM (NAD27) NMEZ Grid	TVD Reference:	3285+30 @ 3315.00usft (F26)
Site:	BUTTERCUP 27-34	MD Reference:	3285+30 @ 3315.00usft (F26)
Well:	BUTTERCUP 27-34 FED 4H	North Reference:	Grid
Wellbore:	4H Lateral	Survey Calculation Method:	Minimum Curvature
Design:	4H Lateral (AsDrilled)	Database:	PREDATOR_EDM

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
11,562.00	76.96	169.46	8,352.92	-4,001.89	1,930.19	4,260.43	5.76	-0.21	5.91
11,657.00	76.48	176.06	8,374.77	-4,093.56	1,941.84	4,352.78	6.78	-0.51	6.95
11,752.00	77.43	177.82	8,396.21	-4,185.97	1,946.78	4,444.78	2.06	1.00	1.85
11,845.00	76.67	178.82	8,417.05	-4,276.56	1,949.44	4,534.62	1.33	-0.82	1.08
11,867.00	76.75	178.91	8,422.11	-4,297.97	1,949.86	4,555.81	0.54	0.37	0.41
Wellpath Crosses FTP									
11,877.97	76.79	178.95	8,424.62	-4,308.65	1,950.06	4,566.39	0.54	0.37	0.41
BUTTERCUP 27-34 FED 3H FTP_330FNL_1820FEL									
11,895.74	76.86	179.03	8,428.67	-4,325.95	1,950.37	4,583.51	0.54	0.37	0.41
BUTTERCUP 27-34 FED 4H FTP_330FNL_400FEL									
11,938.00	77.01	179.20	8,438.23	-4,367.11	1,951.00	4,624.23	0.54	0.37	0.41
12,032.00	76.01	178.94	8,460.15	-4,458.50	1,952.49	4,714.67	1.10	-1.06	-0.28
12,126.00	74.54	177.52	8,484.05	-4,549.37	1,955.29	4,804.80	2.14	-1.56	-1.51
12,221.00	74.80	177.44	8,509.16	-4,640.90	1,959.32	4,895.79	0.29	0.27	-0.08
12,315.00	76.67	178.92	8,532.32	-4,731.95	1,962.21	4,986.12	2.51	1.99	1.57
12,410.00	82.67	182.55	8,549.36	-4,825.34	1,960.98	5,078.09	7.35	6.32	3.82
12,506.00	88.88	183.32	8,556.43	-4,920.90	1,956.08	5,171.62	6.52	6.47	0.80
12,599.00	91.60	182.84	8,556.04	-5,013.76	1,951.08	5,262.46	2.97	2.92	-0.52
12,693.00	88.40	180.92	8,556.04	-5,107.69	1,948.00	5,354.67	3.97	-3.40	-2.04
12,788.00	89.36	180.42	8,557.89	-5,202.67	1,946.89	5,448.23	1.14	1.01	-0.53
12,883.00	91.26	180.24	8,557.38	-5,297.66	1,946.34	5,541.90	2.01	2.00	-0.19
12,977.00	89.02	179.93	8,557.15	-5,391.65	1,946.20	5,634.64	2.41	-2.38	-0.33
13,072.00	89.24	179.19	8,558.59	-5,486.64	1,946.93	5,728.51	0.81	0.23	-0.78
13,166.00	89.36	178.12	8,559.74	-5,580.60	1,949.14	5,821.60	1.15	0.13	-1.14
13,260.00	89.36	179.11	8,560.79	-5,674.57	1,951.41	5,914.71	1.05	0.00	1.05
13,354.00	90.65	179.74	8,560.78	-5,768.56	1,952.35	6,007.63	1.53	1.37	0.67
13,448.00	93.17	179.89	8,557.65	-5,862.50	1,952.66	6,100.39	2.69	2.68	0.16
13,543.00	90.70	180.39	8,554.44	-5,957.44	1,952.42	6,194.05	2.65	-2.60	0.53
13,637.00	90.76	180.42	8,553.25	-6,051.43	1,951.76	6,286.71	0.07	0.06	0.03
13,731.00	92.19	180.34	8,550.83	-6,145.40	1,951.14	6,379.35	1.52	1.52	-0.09
13,826.00	90.11	179.92	8,548.92	-6,240.37	1,950.92	6,473.05	2.23	-2.19	-0.44
13,920.00	88.80	179.45	8,549.81	-6,334.36	1,951.44	6,565.90	1.48	-1.39	-0.50
14,014.00	88.85	179.07	8,551.74	-6,428.33	1,952.65	6,658.84	0.41	0.05	-0.40
14,109.00	91.77	180.33	8,551.23	-6,523.32	1,953.15	6,752.66	3.35	3.07	1.33
14,203.00	88.65	179.87	8,550.88	-6,617.31	1,952.98	6,845.40	3.36	-3.32	-0.49
14,297.00	89.50	180.06	8,552.40	-6,711.29	1,953.04	6,938.17	0.93	0.90	0.20
14,391.00	87.73	179.03	8,554.67	-6,805.26	1,953.79	7,031.03	2.18	-1.88	-1.10
14,485.00	90.92	181.46	8,555.78	-6,899.23	1,953.39	7,123.71	4.27	3.39	2.59
14,580.00	91.18	183.02	8,554.04	-6,994.14	1,949.67	7,216.78	1.66	0.27	1.64
14,675.00	89.80	183.41	8,553.23	-7,088.98	1,944.35	7,309.53	1.51	-1.45	0.41
14,767.00	90.36	182.48	8,553.10	-7,180.86	1,939.62	7,399.45	1.18	0.61	-1.01
14,862.00	91.77	182.31	8,551.33	-7,275.76	1,935.65	7,492.47	1.49	1.48	-0.18
14,956.00	89.86	179.87	8,549.99	-7,369.72	1,933.86	7,584.92	3.30	-2.03	-2.60

Survey Report

Company:	XTO Energy	Local Co-ordinate Reference:	Well BUTTERCUP 27-34 FED 4H - Slot
Project:	Eddy County, NM (NAD27) NMEZ Grid	TVD Reference:	BUTTERCUP 27-34 FED 4H SHL
Site:	BUTTERCUP 27-34	MD Reference:	3285+30 @ 3315.00usft (F26)
Well:	BUTTERCUP 27-34 FED 4H	North Reference:	3285+30 @ 3315.00usft (F26)
Wellbore:	4H Lateral	Survey Calculation Method:	Grid
Design:	4H Lateral (AsDrilled)	Database:	Minimum Curvature
			PREDATOR_EDM

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
15,051.00	90.53	180.01	8,549.67	-7,464.72	1,933.96	7,678.70	0.72	0.71	0.15
15,145.00	91.60	180.30	8,547.92	-7,558.70	1,933.71	7,771.41	1.18	1.14	0.31
15,239.00	90.11	179.69	8,546.52	-7,652.69	1,933.72	7,864.18	1.71	-1.59	-0.65
15,333.00	90.67	179.52	8,545.88	-7,746.68	1,934.36	7,957.05	0.62	0.60	-0.18
15,427.00	90.08	179.68	8,545.27	-7,840.68	1,935.02	8,049.92	0.65	-0.63	0.17
15,522.00	90.17	179.50	8,545.06	-7,935.68	1,935.70	8,143.79	0.21	0.09	-0.19
15,636.00	89.07	177.61	8,545.82	-8,049.63	1,938.57	8,256.72	1.92	-0.96	-1.66
15,731.00	89.13	177.31	8,547.31	-8,144.53	1,942.78	8,351.06	0.32	0.06	-0.32
15,825.00	89.50	177.76	8,548.43	-8,238.43	1,946.83	8,444.39	0.62	0.39	0.48
15,920.00	89.55	177.23	8,549.22	-8,333.34	1,950.98	8,538.72	0.56	0.05	-0.56
16,014.00	89.64	177.14	8,549.88	-8,427.22	1,955.59	8,632.13	0.14	0.10	-0.10
16,109.00	89.10	176.39	8,550.93	-8,522.06	1,960.96	8,726.60	0.97	-0.57	-0.79
16,204.00	88.40	176.50	8,553.00	-8,616.86	1,966.84	8,821.10	0.75	-0.74	0.12
16,301.00	89.30	177.70	8,554.95	-8,713.71	1,971.75	8,917.48	1.55	0.93	1.24
16,395.00	89.60	179.00	8,555.85	-8,807.67	1,974.46	9,010.65	1.42	0.32	1.38
16,490.00	90.30	179.06	8,555.93	-8,902.65	1,976.07	9,104.65	0.74	0.74	0.06
16,585.00	90.60	180.40	8,555.19	-8,997.65	1,976.51	9,198.48	1.45	0.32	1.41
16,679.00	90.80	180.50	8,554.04	-9,091.64	1,975.78	9,291.12	0.24	0.21	0.11
16,774.00	91.10	180.50	8,552.46	-9,186.62	1,974.95	9,384.73	0.32	0.32	0.00
16,869.00	92.10	182.00	8,549.81	-9,281.56	1,972.87	9,478.10	1.90	1.05	1.58
16,964.00	91.20	181.90	8,547.07	-9,376.46	1,969.64	9,571.25	0.95	-0.95	-0.11
17,058.00	91.50	182.00	8,544.86	-9,470.38	1,966.45	9,663.43	0.34	0.32	0.11
17,152.00	90.40	181.00	8,543.30	-9,564.33	1,963.99	9,755.76	1.58	-1.17	-1.06
17,246.00	90.10	182.40	8,542.89	-9,658.29	1,961.20	9,848.04	1.52	-0.32	1.49
17,341.00	88.00	181.30	8,544.47	-9,753.22	1,958.13	9,941.24	2.50	-2.21	-1.16
17,435.00	85.80	180.60	8,549.55	-9,847.06	1,956.57	10,033.60	2.46	-2.34	-0.74
17,530.00	86.50	181.10	8,555.93	-9,941.83	1,955.17	10,126.92	0.90	0.74	0.53
17,624.00	83.80	180.80	8,563.88	-10,035.48	1,953.61	10,219.09	2.89	-2.87	-0.32
17,719.00	83.80	181.40	8,574.14	-10,129.90	1,951.80	10,311.99	0.63	0.00	0.63
17,813.00	84.50	179.00	8,583.72	-10,223.41	1,951.48	10,404.22	2.65	0.74	-2.55
17,910.00	87.30	180.50	8,590.65	-10,320.14	1,951.90	10,499.76	3.27	2.89	1.55
18,005.00	90.10	177.50	8,592.81	-10,415.08	1,953.55	10,593.73	4.32	2.95	-3.16
18,100.00	91.40	178.10	8,591.56	-10,510.00	1,957.20	10,688.00	1.51	1.37	0.63
18,194.00	92.70	177.00	8,588.20	-10,603.85	1,961.22	10,781.27	1.81	1.38	-1.17
18,289.00	92.40	179.40	8,583.97	-10,698.71	1,964.20	10,875.37	2.54	-0.32	2.53
18,384.00	93.60	179.10	8,579.00	-10,793.57	1,965.44	10,969.19	1.30	1.26	-0.32
18,479.00	94.80	179.60	8,572.05	-10,888.30	1,966.51	11,062.87	1.37	1.26	0.53
18,574.00	94.60	179.40	8,564.26	-10,982.98	1,967.34	11,156.44	0.30	-0.21	-0.21
18,668.00	93.80	180.20	8,557.38	-11,076.73	1,967.67	11,249.02	1.20	-0.85	0.85
18,763.00	90.50	182.70	8,553.81	-11,171.61	1,965.26	11,342.27	4.36	-3.47	2.63
18,858.00	90.90	183.90	8,552.65	-11,266.44	1,959.80	11,434.99	1.33	0.42	1.26
18,952.00	90.30	182.10	8,551.67	-11,360.30	1,954.88	11,526.83	2.02	-0.64	-1.91
19,046.00	90.90	182.10	8,550.68	-11,454.23	1,951.43	11,618.99	0.64	0.64	0.00

Survey Report

Company:	XTO Energy	Local Co-ordinate Reference:	Well BUTTERCUP 27-34 FED 4H - Slot
Project:	Eddy County, NM (NAD27) NMEZ Grid	TVD Reference:	BUTTERCUP 27-34 FED 4H SHL
Site:	BUTTERCUP 27-34	MD Reference:	3285+30 @ 3315.00usft (F26)
Well:	BUTTERCUP 27-34 FED 4H	North Reference:	3285+30 @ 3315.00usft (F26)
Wellbore:	4H Lateral	Survey Calculation Method:	Grid
Design:	4H Lateral (AsDrilled)	Database:	Minimum Curvature
			PREDATOR_EDM

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)
19,140.00	92.00	183.20	8,548.30	-11,548.10	1,947.09	11,710.93	1.65	1.17	1.17
19,142.06	92.01	183.16	8,548.23	-11,550.16	1,946.97	11,712.94	2.00	0.63	-1.89
BUTTERCUP 27-34 FED 4H LTP_330FSL_400FEL									
19,235.00	92.60	181.40	8,544.49	-11,642.94	1,943.28	11,803.92	2.00	0.63	-1.89
19,273.65	92.44	181.85	8,542.79	-11,681.54	1,942.18	11,841.84	1.24	-0.43	1.17
BUTTERCUP 27-34 FED 4H PBHL_200FSL_400FEL									
19,273.83	92.43	181.85	8,542.79	-11,681.71	1,942.18	11,842.01	1.24	-0.43	1.17
BUTTERCUP 27-34 FED 4H PBHL_200FSL_400FEL p2									
19,275.00	92.43	181.87	8,542.74	-11,682.89	1,942.14	11,843.16	1.24	-0.43	1.17
Wellpath crosses LTP									
19,328.30	92.20	182.49	8,540.58	-11,736.10	1,940.11	11,895.36	1.24	-0.43	1.17
BUTTERCUP 27-34 FED 3H PBHL_200FSL_1820FEL									
19,329.00	92.20	182.50	8,540.56	-11,736.80	1,940.08	11,896.04	1.24	-0.43	1.17
BUTTERCUP 27-34 FED 1H LTP_330FSL_400FWL									
19,411.00	92.70	181.60	8,537.05	-11,818.68	1,937.15	11,976.38	1.25	0.61	-1.10
BUTTERCUP 27-34 FED 1H PBHL_200FSL_400FWL									
19,459.81	92.70	181.60	8,534.75	-11,867.41	1,935.79	12,024.26	0.00	0.00	0.00
BUTTERCUP 27-34 FED 4H BHL									
19,460.00	92.70	181.60	8,534.74	-11,867.60	1,935.78	12,024.44	0.00	0.00	0.00
TD @ 15'FSL,427FEL - BUTTERCUP 27-34 FED 2H PBHL_200FSL_1820FWL - BUTTERCUP 27-34 FED 2H LTP_330FSL_1820FWL									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
BUTTERCUP 27-34 FEI	0.00	0.01	0.00	0.00	0.00	597,529.10	615,452.00	32.64214952	-103.95826483
- actual wellpath hits target center									
- Point									
BUTTERCUP 27-34 FEI	0.00	0.00	8,534.74	-11,867.42	1,936.11	585,661.68	617,388.11	32.60950992	-103.95211341
- actual wellpath misses target center by 0.32usft at 19459.81usft MD (8534.75 TVD, -11867.41 N, 1935.79 E)									
- Point									
BUTTERCUP 27-34 FEI	0.00	0.01	8,554.00	-4,297.00	1,934.40	593,232.10	617,386.40	32.63031920	-103.95203077
- actual wellpath misses target center by 129.62usft at 11895.74usft MD (8428.67 TVD, -4325.95 N, 1950.37 E)									
- Point									
BUTTERCUP 27-34 FEI	0.00	0.00	8,554.00	-11,682.60	1,962.10	585,846.50	617,414.10	32.61001769	-103.95202686
- actual wellpath misses target center by 22.88usft at 19273.65usft MD (8542.79 TVD, -11681.54 N, 1942.18 E)									
- Point									
BUTTERCUP 27-34 FEI	0.00	0.00	8,594.41	-11,552.60	1,961.60	585,976.50	617,413.60	32.61037503	-103.95202697
- actual wellpath misses target center by 48.50usft at 19142.06usft MD (8548.23 TVD, -11550.16 N, 1946.97 E)									
- Point									

Survey Report

Company:	XTO Energy	Local Co-ordinate Reference:	Well BUTTERCUP 27-34 FED 4H - Slot BUTTERCUP 27-34 FED 4H SHL
Project:	Eddy County, NM (NAD27) NMEZ Grid	TVD Reference:	3285+30 @ 3315.00usft (F26)
Site:	BUTTERCUP 27-34	MD Reference:	3285+30 @ 3315.00usft (F26)
Well:	BUTTERCUP 27-34 FED 4H	North Reference:	Grid
Wellbore:	4H Lateral	Survey Calculation Method:	Minimum Curvature
Design:	4H Lateral (AsDrilled)	Database:	PREDATOR_EDM

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
11,524.00	8,344.37	-3,965.64	1,922.71	Wellpath Crosses Unit Line @ Heel
11,867.00	8,422.11	-4,297.97	1,949.86	Wellpath Crosses FTP
19,275.00	8,542.74	-11,682.89	1,942.14	Wellpath crosses LTP
19,460.00	8,534.74	-11,867.60	1,935.78	TD @ 15°FSL,427FEL

Checked By: _____	Approved By: _____	Date: _____
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