



XTO Energy

Eddy County, NM (NAD27 NME)

PLU 23 DTD

Poker Lake Unit 23 DTD #108H

API: 30-015-42452

OH / NAV-001-118

30.015-42452

Design: As-Drilled Surveys

Standard Survey Report

31 July, 2018



Windows User

Survey Report

Company: XTO Energy
 Project: Eddy County, NM (NAD27 NME)
 Site: PLU 23 DTD
 Well: Poker Lake Unit 23 DTD #108H
 Wellbore: OH / NAV-001-118
 Design: As-Drilled Surveys

Local Co-ordinate Reference: Well Poker Lake Unit 23 DTD #108H
 TVD Reference: RKB 31.5' @ 3464.50usft (Patterson 793)
 MD Reference: RKB 31.5' @ 3464.50usft (Patterson 793)
 North Reference: True
 Survey Calculation Method: Minimum Curvature
 Database: EDM 5000.14 Single User Db

Project	Eddy County, NM (NAD27 NME)		
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 23 DTD				
Site Position:		Northing:	440,056.60 usft	Latitude:	32° 12' 32.013 N
From:	Map	Easting:	650,794.10 usft	Longitude:	103° 50' 44.831 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.26 °

Well	Poker Lake Unit 23 DTD #108H					
Well Position	+N/-S	0.00 usft	Northing:	440,056.60 usft	Latitude:	32° 12' 32.013 N
	+E/-W	0.00 usft	Easting:	650,794.10 usft	Longitude:	103° 50' 44.831 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,433.00 usft

Wellbore	OH / NAV-001-118				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	06/07/18	6.98	59.99	47,800.07260295

Design	As-Drilled Surveys				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	0.01	

Survey Program	Date 07/31/18				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
122.00	24,361.00	Explora MWD Surveys (OH / NAV-001-118)	MWD	MWD - Standard	

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
122.00	0.00	0.00	122.00	0.00	0.00	0.00	0.00	0.00	0.00
122' MD First Explora MWD Survey									
147.00	0.80	55.00	147.00	0.10	0.14	0.10	3.20	3.20	0.00
205.00	0.90	110.00	204.99	0.18	0.90	0.18	1.36	0.17	94.83
294.00	1.10	128.00	293.98	-0.59	2.23	-0.59	0.42	0.22	20.22
357.00	1.00	121.00	356.97	-1.24	3.18	-1.24	0.26	-0.16	-11.11
419.00	1.40	128.00	418.96	-1.99	4.24	-1.99	0.69	0.65	11.29
485.00	1.40	130.00	484.94	-3.00	5.49	-3.00	0.07	0.00	3.03
507.57	1.39	129.14	507.50	-3.35	5.92	-3.35	0.11	-0.06	-3.80



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Rustler									
677.00	1.30	122.20	676.88	-5.67	9.13	-5.67	0.11	-0.05	-4.10
772.00	1.40	118.70	771.86	-6.80	11.06	-6.80	0.14	0.11	-3.68
866.00	1.40	124.70	865.83	-8.01	13.01	-8.01	0.16	0.00	6.38
883.88	1.38	125.15	883.50	-8.25	13.37	-8.25	0.12	-0.11	2.53
Top Salt									
959.00	1.30	127.20	958.80	-9.29	14.79	-9.29	0.12	-0.11	2.73
1,054.00	1.10	112.80	1,053.78	-10.30	16.49	-10.30	0.38	-0.21	-15.16
1,148.00	1.20	94.60	1,147.76	-10.73	18.30	-10.72	0.40	0.11	-19.36
1,242.00	1.10	90.20	1,241.74	-10.81	20.18	-10.81	0.14	-0.11	-4.68
1,336.00	0.80	89.10	1,335.73	-10.80	21.74	-10.80	0.32	-0.32	-1.17
1,431.00	0.70	321.70	1,430.73	-10.34	22.05	-10.33	1.42	-0.11	-134.11
1,525.00	1.80	304.40	1,524.70	-9.05	20.47	-9.05	1.22	1.17	-18.40
1,619.00	0.70	287.10	1,618.68	-8.05	18.71	-8.04	1.22	-1.17	-18.40
1,713.00	0.50	189.30	1,712.68	-8.28	18.09	-8.28	0.97	-0.21	-104.04
1,807.00	0.60	219.20	1,806.67	-9.07	17.71	-9.07	0.32	0.11	31.81
1,902.00	0.60	229.50	1,901.67	-9.78	17.02	-9.78	0.11	0.00	10.84
1,996.00	0.70	240.80	1,995.66	-10.38	16.14	-10.38	0.17	0.11	12.02
2,091.00	0.80	227.80	2,090.65	-11.11	15.15	-11.10	0.21	0.11	-13.68
2,185.00	1.00	286.60	2,184.64	-11.31	13.87	-11.31	0.96	0.21	62.55
2,280.00	1.70	309.20	2,279.62	-10.19	11.99	-10.18	0.91	0.74	23.79
2,374.00	1.50	292.20	2,373.58	-8.84	9.77	-8.84	0.55	-0.21	-18.09
2,468.00	0.80	272.10	2,467.56	-8.35	7.97	-8.35	0.85	-0.74	-21.38
2,563.00	0.80	285.00	2,562.55	-8.15	6.67	-8.15	0.19	0.00	13.58
2,656.00	0.70	315.90	2,655.55	-7.58	5.65	-7.58	0.44	-0.11	33.23
2,751.00	2.10	35.30	2,750.52	-5.74	6.25	-5.74	2.20	1.47	83.58
2,846.00	2.80	43.80	2,845.43	-2.65	8.86	-2.64	0.83	0.74	8.95
2,940.00	3.50	46.80	2,939.29	0.98	12.54	0.98	0.76	0.74	3.19
3,035.00	4.20	50.20	3,034.08	5.19	17.33	5.19	0.77	0.74	3.58
3,129.00	6.10	51.40	3,127.69	10.51	23.88	10.51	2.02	2.02	1.28
3,223.00	7.30	62.50	3,221.05	16.38	33.08	16.39	1.87	1.28	11.81
3,317.00	6.40	71.00	3,314.38	20.84	43.33	20.85	1.44	-0.96	9.04
3,411.00	5.00	68.20	3,407.92	24.07	52.09	24.08	1.52	-1.49	-2.98
3,505.00	4.90	71.30	3,501.57	26.88	59.69	26.89	0.30	-0.11	3.30
3,599.00	4.60	60.80	3,595.25	30.01	66.79	30.02	0.98	-0.32	-11.17
3,693.00	4.40	51.30	3,688.96	34.10	72.89	34.11	0.82	-0.21	-10.11
3,787.00	3.60	60.10	3,782.73	37.83	78.26	37.84	1.07	-0.85	9.36
3,882.00	4.10	61.90	3,877.51	40.91	83.85	40.93	0.54	0.53	1.89
3,884.99	4.14	61.30	3,880.50	41.01	84.03	41.03	1.87	1.21	-19.92
Base Salt									
3,976.00	5.40	47.40	3,971.19	45.49	90.07	45.50	1.87	1.39	-15.28
4,070.00	5.60	39.40	4,064.76	52.03	96.23	52.04	0.84	0.21	-8.51
4,105.91	5.40	42.21	4,100.50	54.63	98.48	54.65	0.94	-0.56	7.82
Delaware									



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Survey

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4,164.00	5.10	47.20	4,158.35	58.41	102.21	58.43	0.94	-0.51	8.59
4,258.00	5.30	53.90	4,251.97	63.81	108.78	63.82	0.68	0.21	7.13
4,353.00	4.90	52.10	4,346.59	68.88	115.53	68.90	0.45	-0.42	-1.89
4,447.00	4.30	56.50	4,440.29	73.29	121.64	73.32	0.74	-0.64	4.68
4,542.00	3.80	59.30	4,535.05	76.87	127.31	76.89	0.57	-0.53	2.95
4,636.00	4.30	60.90	4,628.81	80.17	133.07	80.19	0.55	0.53	1.70
4,731.00	5.10	63.00	4,723.49	83.82	139.95	83.85	0.86	0.84	2.21
4,826.00	5.20	64.40	4,818.11	87.60	147.59	87.62	0.17	0.11	1.47
4,920.00	5.00	63.60	4,911.74	91.26	155.10	91.29	0.23	-0.21	-0.85
4,987.00	4.57	63.81	4,978.50	93.74	160.11	93.76	0.64	-0.64	0.31
Cherry Canyon									
5,014.00	4.40	63.90	5,005.42	94.67	162.01	94.70	0.64	-0.64	0.35
5,109.00	4.10	64.90	5,100.16	97.71	168.36	97.74	0.33	-0.32	1.05
5,203.00	4.00	67.30	5,193.93	100.40	174.42	100.43	0.21	-0.11	2.55
5,297.00	4.90	60.50	5,287.64	103.64	180.94	103.68	1.11	0.96	-7.23
5,392.00	6.00	56.00	5,382.21	108.42	188.59	108.45	1.24	1.16	-4.74
5,485.00	5.80	55.00	5,474.72	113.83	196.47	113.87	0.24	-0.22	-1.08
5,580.00	5.30	54.60	5,569.27	119.13	203.98	119.16	0.53	-0.53	-0.42
5,674.00	4.80	56.30	5,662.91	123.82	210.79	123.86	0.56	-0.53	1.81
5,768.00	4.30	55.70	5,756.61	127.99	216.97	128.03	0.53	-0.53	-0.64
5,863.00	4.40	55.90	5,851.34	132.04	222.93	132.08	0.11	0.11	0.21
5,957.00	5.80	56.50	5,944.96	136.69	229.88	136.73	1.49	1.49	0.64
6,052.00	6.20	55.80	6,039.44	142.22	238.12	142.26	0.43	0.42	-0.74
6,146.00	5.80	57.30	6,132.93	147.64	246.32	147.68	0.46	-0.43	1.60
6,241.00	5.50	58.90	6,227.47	152.58	254.26	152.63	0.36	-0.32	1.68
6,335.00	5.00	60.10	6,321.07	156.95	261.67	157.00	0.54	-0.53	1.28
6,429.00	4.50	62.30	6,414.75	160.71	268.48	160.75	0.57	-0.53	2.34
6,523.00	4.40	58.90	6,508.47	164.28	274.83	164.33	0.30	-0.11	-3.62
6,617.00	5.20	53.20	6,602.14	168.70	281.33	168.75	0.99	0.85	-6.08
6,651.51	5.34	51.12	6,636.50	170.64	283.84	170.69	0.69	0.41	-6.01
Brushy Canyon									
6,711.00	5.60	47.80	6,695.72	174.33	288.14	174.38	0.69	0.43	-5.59
6,805.00	5.30	48.70	6,789.29	180.28	294.80	180.33	0.33	-0.32	0.96
6,900.00	5.20	53.90	6,883.90	185.71	301.57	185.76	0.51	-0.11	5.47
6,994.00	5.00	57.10	6,977.52	190.44	308.46	190.50	0.37	-0.21	3.40
7,088.00	4.50	56.60	7,071.20	194.70	314.97	194.75	0.53	-0.53	-0.53
7,183.00	4.40	55.80	7,165.91	198.80	321.10	198.85	0.12	-0.11	-0.84
7,278.00	4.40	57.10	7,260.63	202.83	327.17	202.88	0.10	0.00	1.37
7,372.00	4.00	59.50	7,354.38	206.45	333.03	206.51	0.46	-0.43	2.55
7,466.00	3.50	61.60	7,448.18	209.48	338.37	209.54	0.55	-0.53	2.23
7,561.00	3.10	60.10	7,543.02	212.14	343.15	212.20	0.43	-0.42	-1.58
7,655.00	2.80	57.90	7,636.90	214.63	347.30	214.69	0.34	-0.32	-2.34
7,749.00	2.50	60.10	7,730.80	216.87	351.02	216.93	0.34	-0.32	2.34



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Survey									
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7,843.00	2.30	58.80	7,824.71	218.87	354.41	218.93	0.22	-0.21	-1.38
7,971.88	2.15	58.07	7,953.50	221.48	358.68	221.55	0.12	-0.12	-0.57
Bone Spring									
8,002.90	2.11	57.88	7,984.50	222.10	359.66	222.16	0.12	-0.12	-0.62
Bone Spring Lm									
8,015.00	2.10	57.80	7,996.59	222.33	360.03	222.40	0.12	-0.12	-0.63
8,109.00	2.90	49.60	8,090.50	224.79	363.30	224.86	0.93	0.85	-8.72
8,204.00	3.90	50.90	8,185.33	228.39	367.64	228.45	1.06	1.05	1.37
8,298.00	4.70	51.60	8,279.06	232.80	373.14	232.86	0.85	0.85	0.74
8,392.00	5.10	50.20	8,372.72	237.86	379.36	237.93	0.44	0.43	-1.49
8,486.00	5.30	48.80	8,466.33	243.40	385.84	243.46	0.25	0.21	-1.49
8,580.00	5.50	48.40	8,559.92	249.25	392.48	249.31	0.22	0.21	-0.43
8,674.00	6.20	45.60	8,653.43	255.79	399.47	255.86	0.80	0.74	-2.98
8,768.00	6.90	46.80	8,746.81	263.21	407.21	263.28	0.76	0.74	1.28
8,862.00	7.30	47.80	8,840.09	271.08	415.75	271.15	0.45	0.43	1.06
8,957.00	7.90	48.90	8,934.26	279.43	425.15	279.50	0.65	0.63	1.16
8,994.61	8.06	48.86	8,971.50	282.86	429.08	282.94	0.43	0.43	-0.11
1st Bone Spring Ss									
9,051.00	8.30	48.80	9,027.32	288.14	435.12	288.22	0.43	0.43	-0.10
9,143.00	8.70	47.60	9,118.31	297.21	445.25	297.29	0.48	0.43	-1.30
9,237.00	9.00	49.20	9,211.19	306.81	456.07	306.89	0.41	0.32	1.70
9,332.00	9.40	52.80	9,304.97	316.35	467.87	316.44	0.74	0.42	3.79
9,424.00	9.60	54.60	9,395.71	325.34	480.11	325.42	0.39	0.22	1.96
9,518.00	9.20	50.70	9,488.44	334.64	492.32	334.73	0.80	-0.43	-4.15
9,612.00	9.10	53.60	9,581.25	343.81	504.11	343.90	0.50	-0.11	3.09
9,706.00	8.70	56.30	9,674.12	352.17	516.01	352.26	0.62	-0.43	2.87
9,739.77	8.61	59.34	9,707.50	354.87	520.31	354.96	1.38	-0.28	9.01
2nd Bone Spring Ss									
9,800.00	8.50	64.90	9,767.06	359.06	528.22	359.15	1.38	-0.18	9.23
9,895.00	8.00	70.50	9,861.08	364.24	540.81	364.34	1.00	-0.53	5.89
9,991.00	8.10	74.60	9,956.14	368.27	553.62	368.37	0.61	0.10	4.27
10,085.00	8.70	76.10	10,049.13	371.74	566.91	371.83	0.68	0.64	1.60
10,100.55	8.83	75.71	10,064.50	372.31	569.21	372.41	0.92	0.83	-2.52
3rd Bone Spring Lm									
10,109.00	8.90	75.50	10,072.85	372.64	570.47	372.74	0.92	0.83	-2.46
10,207.00	8.90	74.80	10,169.67	376.52	585.12	376.62	0.11	0.00	-0.71
10,302.00	6.50	78.40	10,263.80	379.53	597.49	379.63	2.58	-2.53	3.79
10,396.00	4.40	87.40	10,357.37	380.77	606.30	380.87	2.41	-2.23	9.57
10,490.00	2.80	89.30	10,451.19	380.96	612.20	381.06	1.71	-1.70	2.02
10,585.00	0.70	101.80	10,546.14	380.87	615.09	380.97	2.23	-2.21	13.16
10,679.00	0.30	73.20	10,640.13	380.82	615.89	380.93	0.49	-0.43	-30.43
10,741.00	0.10	116.70	10,702.13	380.84	616.09	380.95	0.38	-0.32	70.16
10,779.00	0.00	101.60	10,740.13	380.83	616.12	380.93	0.26	-0.26	0.00
10,842.00	2.10	345.10	10,803.12	381.94	615.82	382.05	3.33	3.33	0.00
10,873.00	4.80	346.90	10,834.06	383.76	615.38	383.86	8.72	8.71	5.81



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10,905.00	7.70	349.60	10,865.87	387.17	614.69	387.28	9.11	9.06	8.44
10,916.76	9.07	349.88	10,877.50	388.86	614.39	388.96	11.62	11.61	2.41
3rd Bone Spring Ss									
10,936.00	11.30	350.20	10,896.44	392.21	613.80	392.31	11.62	11.61	1.65
10,968.00	15.30	350.60	10,927.57	399.46	612.58	399.57	12.50	12.50	1.25
10,999.00	19.10	354.60	10,957.18	408.55	611.43	408.66	12.83	12.26	12.90
11,031.00	22.00	357.80	10,987.14	419.76	610.71	419.86	9.72	9.06	10.00
11,062.00	25.00	359.60	11,015.57	432.11	610.44	432.22	9.95	9.68	5.81
11,094.00	28.10	359.30	11,044.19	446.41	610.30	446.52	9.70	9.69	-0.94
11,125.00	31.30	359.20	11,071.11	461.77	610.10	461.87	10.32	10.32	-0.32
11,156.00	33.90	359.70	11,097.23	478.47	609.94	478.57	8.43	8.39	1.61
11,188.00	35.60	1.10	11,123.52	496.71	610.07	496.81	5.87	5.31	4.38
11,219.00	37.50	2.20	11,148.42	515.16	610.61	515.26	6.48	6.13	3.55
11,250.00	40.80	2.80	11,172.46	534.71	611.46	534.81	10.71	10.65	1.94
11,274.53	44.48	2.64	11,190.50	551.30	612.25	551.41	15.01	15.00	-0.64
Wolfcamp									
11,282.00	45.60	2.60	11,195.78	556.58	612.49	556.69	15.01	15.00	-0.58
11,313.00	50.10	2.80	11,216.58	579.53	613.58	579.64	14.52	14.52	0.65
11,345.00	53.40	2.30	11,236.39	604.64	614.69	604.74	10.39	10.31	-1.56
11,377.00	55.10	2.30	11,255.08	630.58	615.74	630.69	5.31	5.31	0.00
11,408.00	58.40	2.90	11,272.08	656.48	616.91	656.59	10.77	10.65	1.94
11,440.00	62.00	3.30	11,287.98	684.20	618.42	684.31	11.30	11.25	1.25
11,471.00	65.40	4.20	11,301.71	711.93	620.24	712.04	11.27	10.97	2.90
11,502.00	68.20	3.50	11,313.92	740.36	622.15	740.46	9.27	9.03	-2.26
11,534.00	71.20	2.60	11,325.02	770.32	623.74	770.43	9.74	9.38	-2.81
11,565.00	73.80	1.90	11,334.34	799.86	624.90	799.97	8.66	8.39	-2.26
11,596.00	74.70	1.30	11,342.76	829.69	625.73	829.79	3.45	2.90	-1.94
11,628.00	76.30	1.30	11,350.77	860.66	626.44	860.76	5.00	5.00	0.00
11,673.00	80.70	2.20	11,359.74	904.72	627.79	904.83	9.97	9.78	2.00
11,690.00	82.89	3.16	11,362.16	921.53	628.57	921.64	14.07	12.91	5.67
FTP @ 11690' MD, 113362.16' TVD									
11,714.18	86.02	4.52	11,364.50	945.53	630.19	945.64	14.07	12.92	5.61
LP: 12364.5' TVD @ 0° VS @ 90°									
11,721.00	86.90	4.90	11,364.92	952.32	630.75	952.43	14.07	12.93	5.58
11,815.00	90.80	4.90	11,366.81	1,045.94	638.77	1,046.05	4.15	4.15	0.00
11,909.00	88.60	359.10	11,367.30	1,139.84	642.05	1,139.95	6.60	-2.34	-6.17
12,003.00	87.60	356.20	11,370.42	1,233.69	638.20	1,233.80	3.26	-1.06	-3.09
12,098.00	91.50	359.60	11,371.16	1,328.60	634.72	1,328.70	5.45	4.11	3.58
12,192.00	91.30	358.70	11,368.87	1,422.56	633.33	1,422.67	0.98	-0.21	-0.96
12,286.00	89.50	359.20	11,368.21	1,516.53	631.61	1,516.64	1.99	-1.91	0.53
12,381.00	87.40	0.50	11,370.78	1,611.49	631.36	1,611.60	2.60	-2.21	1.37
12,475.00	87.80	359.30	11,374.72	1,705.41	631.19	1,705.52	1.34	0.43	-1.28
12,568.00	88.90	359.90	11,377.40	1,798.36	630.54	1,798.47	1.35	1.18	0.65
12,662.00	90.10	359.80	11,378.22	1,892.36	630.30	1,892.47	1.28	1.28	-0.11



Windows User Survey Report

Company: XTO Energy
Project: Eddy County, NM (NAD27 NME)
Site: PLU 23 DTD
Well: Poker Lake Unit 23 DTD #108H
Wellbore: OH / NAV-001-118
Design: As-Drilled Surveys

Local Co-ordinate Reference: Well Poker Lake Unit 23 DTD #108H
TVD Reference: RKB 31.5' @ 3464.50usft (Patterson 793)
MD Reference: RKB 31.5' @ 3464.50usft (Patterson 793)
North Reference: True
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.14 Single User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,756.00	90.40	0.90	11,377.81	1,986.35	630.87	1,986.46	1.21	0.32	1.17
12,851.00	87.20	355.70	11,379.80	2,081.25	628.06	2,081.36	6.43	-3.37	-5.47
12,944.00	87.50	356.60	11,384.10	2,173.94	621.82	2,174.04	1.02	0.32	0.97
13,039.00	89.50	359.20	11,386.58	2,268.83	618.34	2,268.93	3.45	2.11	2.74
13,159.00	90.90	359.40	11,386.16	2,388.81	616.88	2,388.92	1.18	1.17	0.17
13,254.00	89.90	1.50	11,385.50	2,483.80	617.62	2,483.91	2.45	-1.05	2.21
13,348.00	90.40	1.20	11,385.25	2,577.78	619.84	2,577.88	0.62	0.53	-0.32
13,442.00	91.40	1.20	11,383.78	2,671.74	621.80	2,671.85	1.06	1.06	0.00
13,536.00	88.80	359.10	11,383.61	2,765.73	622.05	2,765.84	3.56	-2.77	-2.23
13,630.00	89.10	0.30	11,385.34	2,859.71	621.56	2,859.82	1.32	0.32	1.28
13,724.00	88.70	0.30	11,387.14	2,953.69	622.05	2,953.80	0.43	-0.43	0.00
13,818.00	87.70	359.50	11,390.09	3,047.64	621.89	3,047.75	1.36	-1.06	-0.85
13,913.00	88.70	359.70	11,393.08	3,142.59	621.22	3,142.70	1.07	1.05	0.21
14,007.00	91.60	1.30	11,392.83	3,236.58	622.04	3,236.68	3.52	3.09	1.70
14,102.00	92.40	2.00	11,389.52	3,331.48	624.78	3,331.58	1.12	0.84	0.74
14,196.00	89.80	0.40	11,387.71	3,425.43	626.74	3,425.54	3.25	-2.77	-1.70
14,291.00	89.50	0.10	11,388.29	3,520.42	627.16	3,520.53	0.45	-0.32	-0.32
14,384.00	89.50	359.80	11,389.10	3,613.42	627.08	3,613.53	0.32	0.00	-0.32
14,478.00	90.90	0.50	11,388.78	3,707.42	627.32	3,707.53	1.67	1.49	0.74
14,572.00	92.00	1.30	11,386.40	3,801.37	628.80	3,801.48	1.45	1.17	0.85
14,666.00	92.40	2.70	11,382.79	3,895.24	632.08	3,895.35	1.55	0.43	1.49
14,760.00	90.10	2.50	11,380.74	3,989.12	636.34	3,989.23	2.46	-2.45	-0.21
14,854.00	89.60	2.50	11,380.98	4,083.03	640.44	4,083.14	0.53	-0.53	0.00
14,949.00	89.30	0.60	11,381.90	4,177.99	643.01	4,178.10	2.02	-0.32	-2.00
15,042.00	91.80	1.80	11,381.00	4,270.95	644.96	4,271.06	2.98	2.69	1.29
15,136.00	92.00	2.30	11,377.89	4,364.84	648.32	4,364.95	0.57	0.21	0.53
15,230.00	90.70	1.50	11,375.67	4,458.76	651.43	4,458.87	1.62	-1.38	-0.85
15,325.00	90.90	1.80	11,374.35	4,553.71	654.17	4,553.82	0.38	0.21	0.32
15,419.00	91.30	2.40	11,372.54	4,647.63	657.61	4,647.74	0.77	0.43	0.64
15,523.00	88.20	359.00	11,372.99	4,751.59	658.88	4,751.71	4.42	-2.98	-3.27
15,617.00	87.60	357.70	11,376.44	4,845.49	656.18	4,845.60	1.52	-0.64	-1.38
15,711.00	88.00	357.60	11,380.05	4,939.34	652.33	4,939.45	0.44	0.43	-0.11
15,805.00	88.00	356.70	11,383.33	5,033.16	647.66	5,033.28	0.96	0.00	-0.96
15,899.00	87.60	356.20	11,386.94	5,126.91	641.84	5,127.03	0.68	-0.43	-0.53
15,993.00	92.10	0.30	11,387.18	5,220.83	638.97	5,220.94	6.48	4.79	4.36
16,087.00	90.90	359.90	11,384.72	5,314.79	639.14	5,314.90	1.35	-1.28	-0.43
16,182.00	89.20	359.20	11,384.64	5,409.78	638.39	5,409.90	1.94	-1.79	-0.74
16,276.00	91.60	0.20	11,383.98	5,503.77	637.90	5,503.88	2.77	2.55	1.06
16,371.00	90.70	0.40	11,382.08	5,598.75	638.39	5,598.86	0.97	-0.95	0.21
16,466.00	90.50	0.90	11,381.08	5,693.74	639.47	5,693.85	0.57	-0.21	0.53
16,560.00	90.30	0.80	11,380.43	5,787.73	640.87	5,787.84	0.24	-0.21	-0.11
16,654.00	88.40	359.30	11,381.49	5,881.71	640.95	5,881.82	2.58	-2.02	-1.60
16,748.00	91.50	0.50	11,381.57	5,975.70	640.78	5,975.81	3.54	3.30	1.28



Windows User

Survey Report

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Site: PLU 23 DTD
Well: Poker Lake Unit 23 DTD #108H
Wellbore: OH / NAV-001-118
Design: As-Drilled Surveys

Local Co-ordinate Reference: Well Poker Lake Unit 23 DTD #108H
TVD Reference: RKB 31.5' @ 3464.50usft (Patterson 793)
MD Reference: RKB 31.5' @ 3464.50usft (Patterson 793)
North Reference: True
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.14 Single User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
16,841.00	89.80	1.50	11,380.52	6,068.68	642.41	6,068.79	2.12	-1.83	1.08
16,935.00	88.00	359.70	11,382.32	6,162.65	643.39	6,162.76	2.71	-1.91	-1.91
17,029.00	90.50	0.80	11,383.55	6,256.63	643.80	6,256.74	2.91	2.66	1.17
17,123.00	89.10	359.60	11,383.88	6,350.62	644.13	6,350.73	1.96	-1.49	-1.28
17,217.00	88.70	358.80	11,385.69	6,444.60	642.82	6,444.71	0.95	-0.43	-0.85
17,309.00	88.92	358.28	11,387.60	6,536.55	640.47	6,536.66	0.61	0.24	-0.57
17,403.00	89.63	358.72	11,388.79	6,630.50	638.01	6,630.62	0.89	0.76	0.47
17,497.00	89.70	358.30	11,389.34	6,724.47	635.57	6,724.58	0.45	0.07	-0.45
17,587.00	90.90	359.16	11,388.87	6,814.45	633.58	6,814.55	1.64	1.33	0.96
17,681.00	89.05	356.61	11,388.91	6,908.37	630.11	6,908.48	3.35	-1.97	-2.71
17,776.00	88.84	356.17	11,390.66	7,003.16	624.13	7,003.27	0.51	-0.22	-0.46
17,869.00	88.88	358.81	11,392.51	7,096.05	620.05	7,096.16	2.84	0.04	2.84
17,964.00	90.11	359.51	11,393.34	7,191.03	618.66	7,191.14	1.49	1.29	0.74
18,058.00	90.02	359.77	11,393.24	7,285.03	618.07	7,285.14	0.29	-0.10	0.28
18,152.00	90.73	0.39	11,392.62	7,379.03	618.20	7,379.13	1.00	0.76	0.66
18,247.00	90.64	0.56	11,391.49	7,474.02	618.99	7,474.12	0.20	-0.09	0.18
18,341.00	91.87	1.09	11,389.43	7,567.98	620.34	7,568.09	1.42	1.31	0.56
18,435.00	90.81	1.09	11,387.23	7,661.94	622.13	7,662.05	1.13	-1.13	0.00
18,530.00	91.87	1.27	11,385.01	7,756.89	624.09	7,757.00	1.13	1.12	0.19
18,624.00	92.88	1.27	11,381.11	7,850.79	626.17	7,850.89	1.07	1.07	0.00
18,717.00	89.41	0.83	11,379.25	7,943.74	627.87	7,943.85	3.76	-3.73	-0.47
18,812.00	88.84	0.30	11,380.70	8,038.72	628.81	8,038.83	0.82	-0.60	-0.56
18,906.00	91.12	0.48	11,380.74	8,132.71	629.45	8,132.82	2.43	2.43	0.19
19,001.00	90.64	0.48	11,379.28	8,227.70	630.24	8,227.81	0.51	-0.51	0.00
19,096.00	89.80	1.79	11,378.91	8,322.68	632.13	8,322.78	1.64	-0.88	1.38
19,190.00	90.73	0.74	11,378.48	8,416.65	634.20	8,416.76	1.49	0.99	-1.12
19,284.00	88.26	1.62	11,379.31	8,510.62	636.14	8,510.73	2.79	-2.63	0.94
19,379.00	87.43	1.27	11,382.88	8,605.52	638.53	8,605.63	0.95	-0.87	-0.37
19,473.00	87.96	0.92	11,386.66	8,699.43	640.32	8,699.54	0.68	0.56	-0.37
19,568.00	90.20	1.18	11,388.19	8,794.39	642.07	8,794.50	2.37	2.36	0.27
19,662.00	90.77	1.88	11,387.39	8,888.35	644.58	8,888.46	0.96	0.61	0.74
19,757.00	91.20	1.30	11,385.76	8,983.30	647.21	8,983.41	0.76	0.45	-0.61
19,851.00	92.60	1.60	11,382.64	9,077.22	649.59	9,077.33	1.52	1.49	0.32
19,945.00	90.46	1.18	11,380.13	9,171.15	651.87	9,171.26	2.32	-2.28	-0.45
20,039.00	88.79	1.09	11,380.75	9,265.13	653.73	9,265.24	1.78	-1.78	-0.10
20,134.00	89.01	1.44	11,382.57	9,360.09	655.83	9,360.20	0.44	0.23	0.37
20,229.00	87.60	359.77	11,385.38	9,455.03	656.83	9,455.15	2.30	-1.48	-1.76
20,323.00	87.52	359.60	11,389.38	9,548.95	656.31	9,549.06	0.20	-0.09	-0.18
20,418.00	91.65	0.65	11,390.07	9,643.92	656.52	9,644.04	4.49	4.35	1.11
20,512.00	92.48	1.36	11,386.68	9,737.85	658.17	9,737.96	1.16	0.88	0.76
20,607.00	89.58	0.30	11,384.97	9,832.81	659.54	9,832.92	3.25	-3.05	-1.12
20,702.00	89.45	0.04	11,385.78	9,927.81	659.82	9,927.92	0.31	-0.14	-0.27
20,795.00	89.45	359.33	11,386.67	10,020.80	659.31	10,020.91	0.76	0.00	-0.76



Windows User Survey Report

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Design: As-Drilled Surveys

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MD Reference: RKB 31.5' @ 3464.50usft (Patterson 793)
North Reference: True
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.14 Single User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
20,890.00	89.41	359.16	11,387.62	10,115.79	658.06	10,115.90	0.18	-0.04	-0.18
20,985.00	90.07	359.16	11,388.05	10,210.77	656.67	10,210.89	0.69	0.69	0.00
21,080.00	90.59	359.86	11,387.50	10,305.77	655.86	10,305.88	0.92	0.55	0.74
21,174.00	91.34	0.39	11,385.92	10,399.75	656.06	10,399.87	0.98	0.80	0.56
21,269.00	92.09	0.21	11,383.07	10,494.71	656.56	10,494.82	0.81	0.79	-0.19
21,363.00	90.11	359.60	11,381.27	10,588.69	656.40	10,588.80	2.20	-2.11	-0.65
21,457.00	90.55	359.86	11,380.73	10,682.68	655.96	10,682.80	0.54	0.47	0.28
21,551.00	92.35	0.12	11,378.35	10,776.65	655.94	10,776.76	1.93	1.91	0.28
21,645.00	90.68	359.42	11,375.86	10,870.61	655.57	10,870.73	1.93	-1.78	-0.74
21,740.00	91.60	0.74	11,373.97	10,965.59	655.70	10,965.70	1.69	0.97	1.39
21,835.00	90.15	358.72	11,372.52	11,060.57	655.25	11,060.68	2.62	-1.53	-2.13
21,927.00	86.37	357.66	11,375.32	11,152.46	652.35	11,152.58	4.27	-4.11	-1.15
22,022.00	87.74	357.31	11,380.20	11,247.24	648.18	11,247.36	1.49	1.44	-0.37
22,115.00	90.15	357.58	11,381.91	11,340.13	644.04	11,340.24	2.61	2.59	0.29
22,210.00	90.29	359.07	11,381.54	11,435.09	641.26	11,435.20	1.58	0.15	1.57
22,305.00	91.47	359.42	11,380.09	11,530.06	640.01	11,530.17	1.30	1.24	0.37
22,400.00	91.21	358.19	11,377.86	11,625.02	638.03	11,625.13	1.32	-0.27	-1.29
22,494.00	89.14	358.98	11,377.58	11,718.98	635.71	11,719.09	2.36	-2.20	0.84
22,589.00	87.52	358.19	11,380.35	11,813.91	633.36	11,814.02	1.90	-1.71	-0.83
22,682.00	88.00	357.66	11,383.98	11,906.78	630.00	11,906.88	0.77	0.52	-0.57
22,776.00	88.09	357.05	11,387.19	12,000.62	625.66	12,000.73	0.66	0.10	-0.65
22,870.00	88.53	359.16	11,389.96	12,094.52	622.56	12,094.63	2.29	0.47	2.24
22,964.00	90.64	1.18	11,390.64	12,188.51	622.84	12,188.62	3.11	2.24	2.15
23,058.00	88.35	359.42	11,391.47	12,282.49	623.33	12,282.60	3.07	-2.44	-1.87
23,152.00	88.92	0.12	11,393.71	12,376.47	622.95	12,376.57	0.96	0.61	0.74
23,206.12	89.40	0.83	11,394.50	12,430.58	623.40	12,430.69	1.59	0.89	1.32
Wolfcamp A									
23,246.00	89.76	1.36	11,394.79	12,470.45	624.17	12,470.56	1.59	0.89	1.32
23,340.00	87.47	359.60	11,397.06	12,564.41	624.95	12,564.52	3.07	-2.44	-1.87
23,434.00	89.93	1.18	11,399.20	12,658.37	625.59	12,658.48	3.11	2.62	1.68
23,528.00	90.20	0.48	11,399.09	12,752.36	626.96	12,752.47	0.80	0.29	-0.74
23,622.00	91.12	0.56	11,398.01	12,846.35	627.81	12,846.46	0.98	0.98	0.09
23,716.00	93.85	0.21	11,393.93	12,940.25	628.44	12,940.36	2.93	2.90	-0.37
23,811.00	95.69	1.00	11,386.03	13,034.91	629.44	13,035.02	2.11	1.94	0.83
23,905.00	95.21	1.62	11,377.10	13,128.46	631.58	13,128.57	0.83	-0.51	0.66
23,998.00	93.41	1.00	11,370.11	13,221.17	633.70	13,221.28	2.05	-1.94	-0.67
24,093.00	93.80	1.18	11,364.14	13,315.96	635.50	13,316.07	0.45	0.41	0.19
24,186.00	94.59	1.00	11,357.34	13,408.70	637.27	13,408.81	0.87	0.85	-0.19
24,233.50	94.03	0.82	11,353.77	13,456.06	638.02	13,456.17	1.23	-1.17	-0.37
LTP @ 24233.50' MD, 11363.77' TVD									
24,280.00	93.49	0.65	11,350.72	13,502.45	638.62	13,502.56	1.23	-1.17	-0.37
24,348.00	93.49	0.65	11,346.58	13,570.32	639.39	13,570.43	0.00	0.00	0.00
24348' MD Last Explora MWD Survey									
24,361.00	93.49	0.65	11,345.79	13,583.30	639.53	13,583.41	0.00	0.00	0.00



Windows User Survey Report

Company: XTO Energy
Project: Eddy County, NM (NAD27 NME)
Site: PLU 23 DTD
Well: Poker Lake Unit 23 DTD #108H
Wellbore: OH / NAV-001-118
Design: As-Drilled Surveys

Local Co-ordinate Reference: Well Poker Lake Unit 23 DTD #108H
TVD Reference: RKB 31.5' @ 3464.50usft (Patterson 793)
MD Reference: RKB 31.5' @ 3464.50usft (Patterson 793)
North Reference: True
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.14 Single User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
24361' MD Projection to TD									

Design Targets

Target Name

- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- Shape									
PBHL(PLU 23 DTD #108H)	0.00	0.26	11,364.50	13,586.00	645.93	453,645.39	651,378.41	32° 14' 46.462 N	103° 50' 37.310 W
- actual wellpath misses target center by 19.96usft at 24361.00usft MD (11345.78 TVD, 13583.30 N, 639.53 E)									
- Point									
FTP(PLU 23 DTD #108H)	0.00	0.26	11,364.50	921.19	642.89	440,980.70	651,432.80	32° 12' 41.130 N	103° 50' 37.348 W
- actual wellpath misses target center by 14.49usft at 11690.85usft MD (11362.27 TVD, 922.37 N, 628.62 E)									
- Point									
LTP(PLU 23 DTD #108H)	0.00	0.26	11,364.50	13,456.00	645.98	453,515.39	651,379.05	32° 14' 45.175 N	103° 50' 37.309 W
- actual wellpath misses target center by 13.35usft at 24232.76usft MD (11353.82 TVD, 13455.32 N, 638.01 E)									
- Point									

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
507.57	507.50	Rustler		0.00	0.01
883.68	883.50	Top Salt		0.00	0.01
3,884.99	3,880.50	Base Salt		0.00	0.01
4,105.91	4,100.50	Delaware		0.00	0.01
4,987.00	4,978.50	Cherry Canyon		0.00	0.01
6,651.51	6,636.50	Brushy Canyon		0.00	0.01
7,971.88	7,953.50	Bone Spring		0.00	0.01
8,002.90	7,984.50	Bone Spring Lm		0.00	0.01
8,994.61	8,971.50	1st Bone Spring Ss		0.00	0.01
9,739.77	9,707.50	2nd Bone Spring Ss		0.00	0.01
10,100.55	10,064.50	3rd Bone Spring Lm		0.00	0.01
10,916.76	10,877.50	3rd Bone Spring Ss		0.00	0.01
11,274.53	11,190.50	Wolfcamp		0.00	0.01
11,714.18	11,364.50	LP: 12364.5' TVD @ 0° VS @ 90°		0.00	0.01
23,206.12	11,394.50	Wolfcamp A		0.00	0.01

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates	+N/-S (usft)	+E/-W (usft)	Comment
122.00	122.00	0.00	0.00	122' MD First Explora MWD Survey	
11,690.00	11,362.16	921.53	628.57	FTP @ 11690' MD, 113362.16' TVD	
24,233.50	11,353.77	13,456.06	638.02	LTP @ 24233.50' MD, 11353.77' TVD	
24,348.00	11,346.58	13,570.32	639.39	24348' MD Last Explora MWD Survey	
24,361.00	11,345.79	13,583.30	639.53	24361' MD Projection to TD	



Windows User
Survey Report

Company:	XTO Energy	Local Co-ordinate Reference:	Well Poker Lake Unit 23 DTD #108H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	RKB 31.5' @ 3464.50usft (Patterson 793)
Site:	PLU 23 DTD	MD Reference:	RKB 31.5' @ 3464.50usft (Patterson 793)
Well:	Poker Lake Unit 23 DTD #108H	North Reference:	True
Wellbore:	OH / NAV-001-118	Survey Calculation Method:	Minimum Curvature
Design:	As-Drilled Surveys	Database:	EDM 5000.14 Single User Db

Checked By: _____	Approved By: _____	Date: _____
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