



XTO Energy

Eddy County, NM

PLU 15 Twin Wells Ranch

PLU 15 Twin Wells Ranch 907H

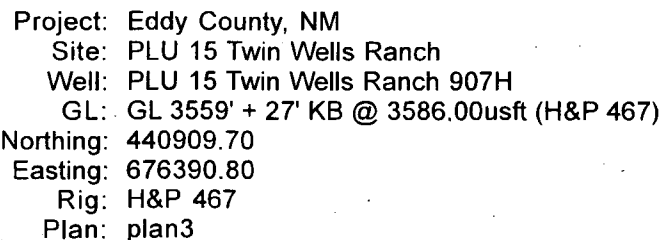
Wellbore #1

Plan: plan3

Standard Planning Report

04 March, 2019





MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
11255.68	0.00	0.00	11255.68	0.00	0.00	0.00	0.00	0.00	Start Build 10.00
12005.68	75.00	90.20	11809.11	-1.48	424.66	10.00	90.20	4.22	Start DLS 10.00 TFO 89.85
12900.21	90.00	179.63	11956.00	-570.89	976.46	10.00	89.85	577.19	Start 10117.31 hold at 12900.21 MD
23017.52	90.00	179.63	11956.00	-10688.00	1041.20	0.00	0.00	10694.50	TD @ 23017.52' MD

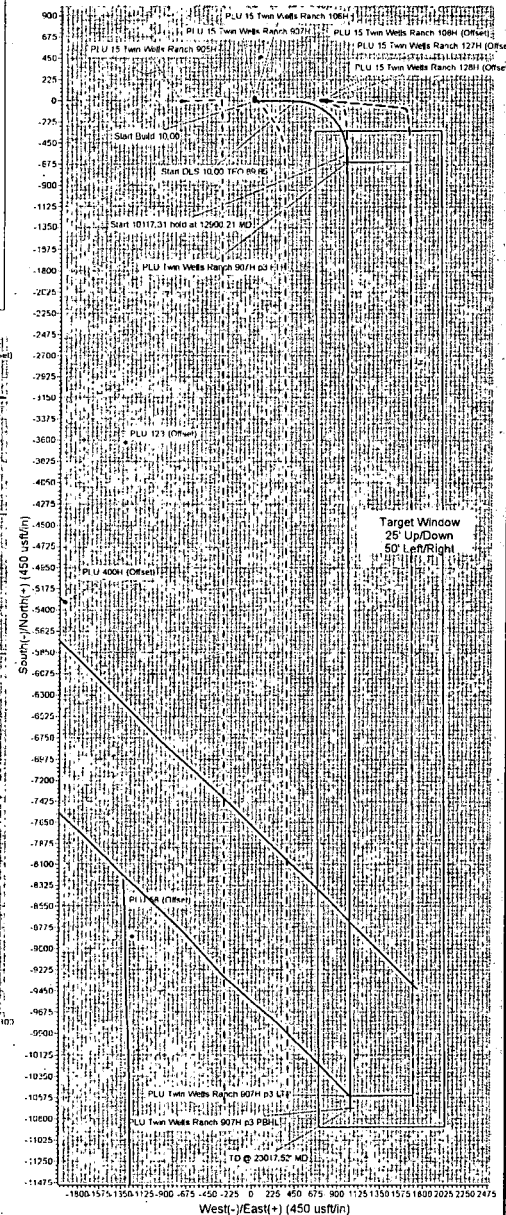
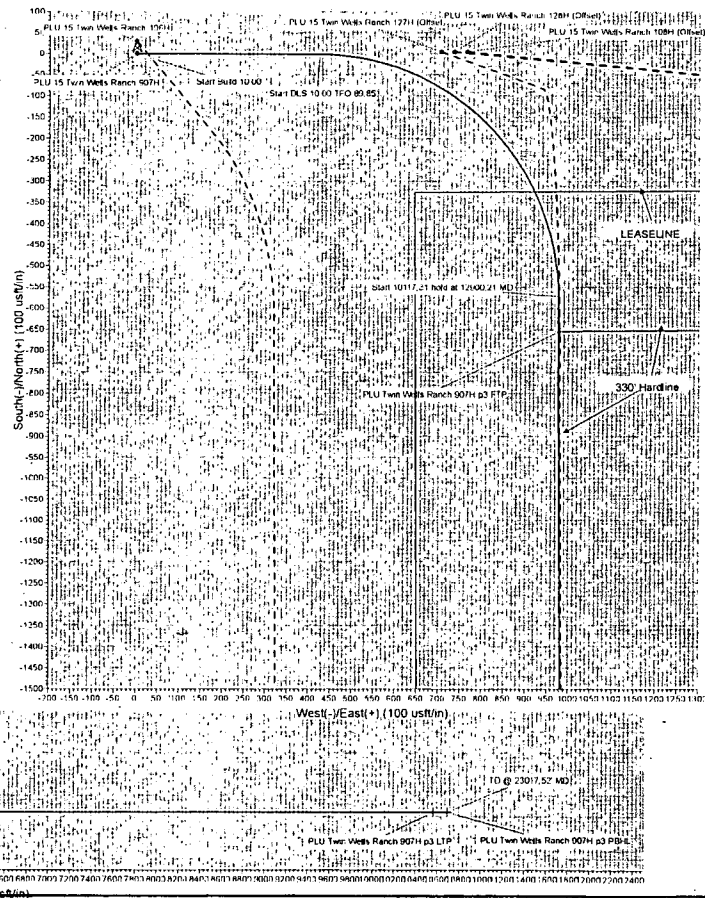
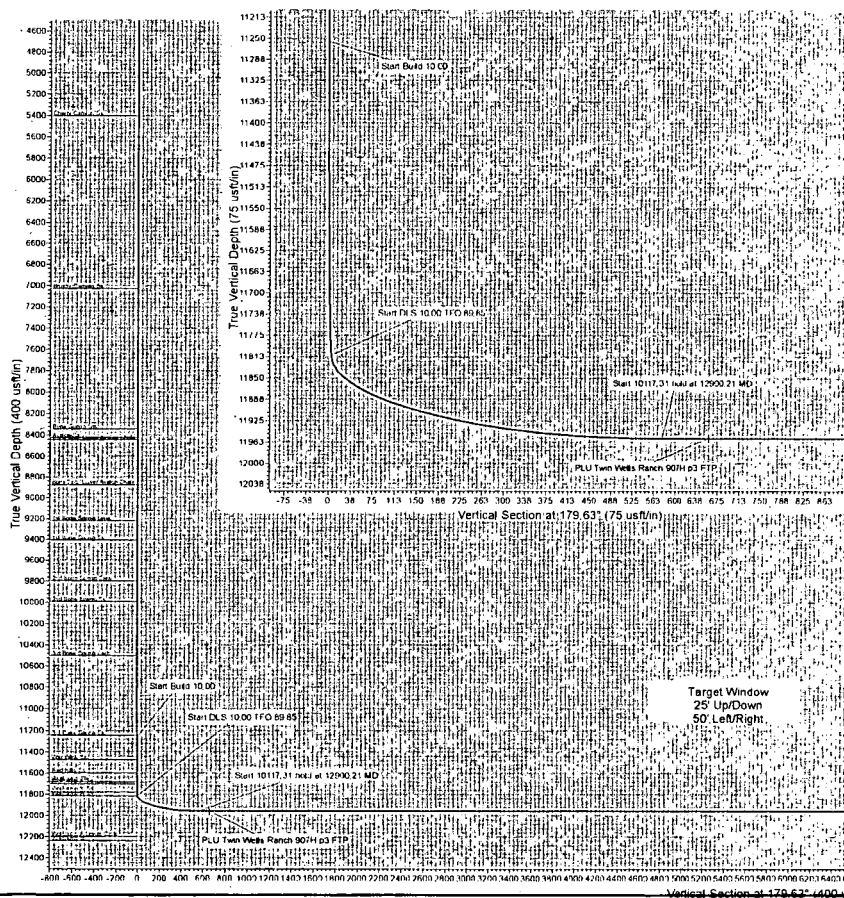
TVP/24h	MD/24h	Formation
724.00	724.00	Rustler
1082.00	1082.00	Top Salt
4268.00	4268.00	Base of Salt (Anhydrite)
4491.00	4491.00	Beil Canyon Ssp / Delaware
5403.00	5403.00	Chalk Canyon Ssp
7027.00	7027.00	Brushy Canyon Ssp
8344.00	8344.00	Bone Spring Lm
8446.00	8446.00	Bone Spring Lm
8446.00	8446.00	Bone Ssg Upper Avalon Sshale
8881.00	8881.00	Bone Ssg Lower Avalon Sshale
9221.00	9221.00	1st Bone Spring Lm
9598.00	9598.00	2nd Bone Spring Lm
9801.00	9801.00	3rd Bone Spring Lm
9998.00	9998.00	2nd Bone Spring Carb
11245.00	11245.00	3rd Bone Spring Carb
11473.00	11478.58	Var Wink Ssp
11563.00	11563.00	Red Hills Ssp
11689.00	11737.97	Wolfcamp Ssg
11703.00	11768.95	Wolfcamp X Sd
11781.00	11920.39	Wolfcamp X Sd
11939.00	11939.00	Wolfcamp X Sd

Name	TVD	+N/-S	+E/-W	Northing	Easting
PLU Twin Wells Ranch 907H p3 FTP	11956.00	-654.00	979.00	440255.70	677369.80
PLU Twin Wells Ranch 907H p3 LTP	11956.00	-10558.00	1040.50	430351.70	677431.30
PLU Twin Wells Ranch 907H p3 PBHL	11956.00	-10688.00	1041.20	430221.70	677432.00



Azimuths to Grid North
True North: -0.30°
Magnetic North: 6.46°

Magnetic Field
Length: 47924.0sn
Dip Angle: 59.90°
Date: 03/04/201
Model: HDGM





Planning Report



Database: EDM 5000.14 Single User Db
 Company: XTO Energy
 Project: Eddy County, NM
 Site: PLU 15 Twin Wells Ranch
 Well: PLU 15 Twin Wells Ranch 907H
 Wellbore: Wellbore #1
 Design: plan3

Local Co-ordinate Reference: Well PLU 15 Twin Wells Ranch 907H
 TVD Reference: GL 3559' + 27' KB @ 3586.00usft
 MD Reference: GL 3559' + 27' KB @ 3586.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

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

Site	PLU 15 Twin Wells Ranch			
Site Position:	From:	Map	Northing:	440,939.70 usft
			Easting:	676,390.50 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence: 0.30 °
			Latitude:	32° 12' 39.506 N
			Longitude:	103° 45' 46.859 W

Well	PLU 15 Twin Wells Ranch 907H			
Well Position	+N-S	-30.00 usft	Northing:	440,909.70 usft
	+E-W	0.30 usft	Easting:	676,390.80 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	Ground Level:	3,559.00 usft
			Latitude:	32° 12' 39.209 N
			Longitude:	103° 45' 46.857 W

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	03/04/19	6.77	59.90	47,924.00000000

Design	plan3				
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	179.63	

Plan Survey Tool Program	Date 03/04/19				
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	23,017.52 plan3 (Wellbore #1)	MWD	MWD - Standard	

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
11,255.68	0.00	0.00	11,255.68	0.00	0.00	0.00	0.00	0.00	0.00	
12,005.68	75.00	90.20	11,809.11	-1.48	424.66	10.00	10.00	0.00	90.20	
12,900.21	90.00	179.63	11,956.00	-570.89	976.46	10.00	1.68	10.00	89.85	
23,017.52	90.00	179.63	11,956.00	-10,688.00	1,041.20	0.00	0.00	0.00	0.00	



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MD Reference: GL 3559' + 27' KB @ 3586.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/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
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00



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Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,200.00	0.00	0.00	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,300.00	0.00	0.00	0.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,400.00	0.00	0.00	0.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,500.00	0.00	0.00	0.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,600.00	0.00	0.00	0.00	0.00	0.00	0.00
6,700.00	0.00	0.00	6,700.00	0.00	0.00	0.00	0.00	0.00	0.00
6,800.00	0.00	0.00	6,800.00	0.00	0.00	0.00	0.00	0.00	0.00
6,900.00	0.00	0.00	6,900.00	0.00	0.00	0.00	0.00	0.00	0.00
7,000.00	0.00	0.00	7,000.00	0.00	0.00	0.00	0.00	0.00	0.00
7,100.00	0.00	0.00	7,100.00	0.00	0.00	0.00	0.00	0.00	0.00
7,200.00	0.00	0.00	7,200.00	0.00	0.00	0.00	0.00	0.00	0.00
7,300.00	0.00	0.00	7,300.00	0.00	0.00	0.00	0.00	0.00	0.00
7,400.00	0.00	0.00	7,400.00	0.00	0.00	0.00	0.00	0.00	0.00
7,500.00	0.00	0.00	7,500.00	0.00	0.00	0.00	0.00	0.00	0.00
7,600.00	0.00	0.00	7,600.00	0.00	0.00	0.00	0.00	0.00	0.00
7,700.00	0.00	0.00	7,700.00	0.00	0.00	0.00	0.00	0.00	0.00
7,800.00	0.00	0.00	7,800.00	0.00	0.00	0.00	0.00	0.00	0.00
7,900.00	0.00	0.00	7,900.00	0.00	0.00	0.00	0.00	0.00	0.00
8,000.00	0.00	0.00	8,000.00	0.00	0.00	0.00	0.00	0.00	0.00
8,100.00	0.00	0.00	8,100.00	0.00	0.00	0.00	0.00	0.00	0.00
8,200.00	0.00	0.00	8,200.00	0.00	0.00	0.00	0.00	0.00	0.00
8,300.00	0.00	0.00	8,300.00	0.00	0.00	0.00	0.00	0.00	0.00
8,400.00	0.00	0.00	8,400.00	0.00	0.00	0.00	0.00	0.00	0.00
8,500.00	0.00	0.00	8,500.00	0.00	0.00	0.00	0.00	0.00	0.00
8,600.00	0.00	0.00	8,600.00	0.00	0.00	0.00	0.00	0.00	0.00
8,700.00	0.00	0.00	8,700.00	0.00	0.00	0.00	0.00	0.00	0.00
8,800.00	0.00	0.00	8,800.00	0.00	0.00	0.00	0.00	0.00	0.00
8,900.00	0.00	0.00	8,900.00	0.00	0.00	0.00	0.00	0.00	0.00
9,000.00	0.00	0.00	9,000.00	0.00	0.00	0.00	0.00	0.00	0.00
9,100.00	0.00	0.00	9,100.00	0.00	0.00	0.00	0.00	0.00	0.00
9,200.00	0.00	0.00	9,200.00	0.00	0.00	0.00	0.00	0.00	0.00
9,300.00	0.00	0.00	9,300.00	0.00	0.00	0.00	0.00	0.00	0.00
9,400.00	0.00	0.00	9,400.00	0.00	0.00	0.00	0.00	0.00	0.00
9,500.00	0.00	0.00	9,500.00	0.00	0.00	0.00	0.00	0.00	0.00
9,600.00	0.00	0.00	9,600.00	0.00	0.00	0.00	0.00	0.00	0.00
9,700.00	0.00	0.00	9,700.00	0.00	0.00	0.00	0.00	0.00	0.00
9,800.00	0.00	0.00	9,800.00	0.00	0.00	0.00	0.00	0.00	0.00
9,900.00	0.00	0.00	9,900.00	0.00	0.00	0.00	0.00	0.00	0.00
10,000.00	0.00	0.00	10,000.00	0.00	0.00	0.00	0.00	0.00	0.00
10,100.00	0.00	0.00	10,100.00	0.00	0.00	0.00	0.00	0.00	0.00
10,200.00	0.00	0.00	10,200.00	0.00	0.00	0.00	0.00	0.00	0.00
10,300.00	0.00	0.00	10,300.00	0.00	0.00	0.00	0.00	0.00	0.00
10,400.00	0.00	0.00	10,400.00	0.00	0.00	0.00	0.00	0.00	0.00
10,500.00	0.00	0.00	10,500.00	0.00	0.00	0.00	0.00	0.00	0.00
10,600.00	0.00	0.00	10,600.00	0.00	0.00	0.00	0.00	0.00	0.00
10,700.00	0.00	0.00	10,700.00	0.00	0.00	0.00	0.00	0.00	0.00



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10,800.00	0.00	0.00	10,800.00	0.00	0.00	0.00	0.00	0.00	0.00
10,900.00	0.00	0.00	10,900.00	0.00	0.00	0.00	0.00	0.00	0.00
11,000.00	0.00	0.00	11,000.00	0.00	0.00	0.00	0.00	0.00	0.00
11,100.00	0.00	0.00	11,100.00	0.00	0.00	0.00	0.00	0.00	0.00
11,200.00	0.00	0.00	11,200.00	0.00	0.00	0.00	0.00	0.00	0.00
11,255.68	0.00	0.00	11,255.68	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 10.00									
11,300.00	4.43	90.20	11,299.96	-0.01	1.71	0.02	10.00	10.00	0.00
11,400.00	14.43	90.20	11,398.48	-0.06	18.08	0.18	10.00	10.00	0.00
11,500.00	24.43	90.20	11,492.66	-0.18	51.31	0.51	10.00	10.00	0.00
11,600.00	34.43	90.20	11,579.65	-0.35	100.38	1.00	10.00	10.00	0.00
11,700.00	44.43	90.20	11,656.79	-0.57	163.82	1.63	10.00	10.00	0.00
11,800.00	54.43	90.20	11,721.74	-0.84	239.68	2.38	10.00	10.00	0.00
11,900.00	64.43	90.20	11,772.53	-1.14	325.68	3.24	10.00	10.00	0.00
12,000.00	74.43	90.20	11,807.62	-1.46	419.18	4.17	10.00	10.00	0.00
12,005.68	75.00	90.20	11,809.11	-1.48	424.66	4.22	10.00	10.00	0.00
Start DLS 10.00 TFO 89.85									
12,100.00	75.23	99.96	11,833.40	-9.54	515.34	12.87	10.00	0.25	10.34
12,200.00	75.92	110.26	11,858.37	-34.76	608.69	38.69	10.00	0.69	10.30
12,300.00	77.04	120.48	11,881.80	-76.38	696.40	80.87	10.00	1.12	10.22
12,400.00	78.56	130.59	11,902.98	-133.13	775.81	138.13	10.00	1.52	10.11
12,500.00	80.42	140.59	11,921.27	-203.28	844.50	208.73	10.00	1.86	9.99
12,600.00	82.56	150.47	11,936.10	-284.72	900.39	290.53	10.00	2.14	9.88
12,700.00	84.92	160.24	11,947.04	-374.96	941.77	381.03	10.00	2.36	9.78
12,800.00	87.42	169.95	11,953.74	-471.25	967.38	477.49	10.00	2.50	9.70
12,900.00	89.99	179.61	11,956.00	-570.69	976.46	576.98	10.00	2.58	9.67
12,900.21	90.00	179.63	11,956.00	-570.89	976.46	577.19	10.00	2.59	9.66
Start 10117.31 hold at 12900.21 MD									
12,983.33	90.00	179.63	11,956.00	-654.01	977.00	660.31	0.00	0.00	0.00
PLU Twin Wells Ranch 907H p3 FTP									
13,000.00	90.00	179.63	11,956.00	-670.69	977.10	676.98	0.00	0.00	0.00
13,100.00	90.00	179.63	11,956.00	-770.68	977.74	776.98	0.00	0.00	0.00
13,200.00	90.00	179.63	11,956.00	-870.68	978.38	876.98	0.00	0.00	0.00
13,300.00	90.00	179.63	11,956.00	-970.68	979.02	976.98	0.00	0.00	0.00
13,400.00	90.00	179.63	11,956.00	-1,070.68	979.66	1,076.98	0.00	0.00	0.00
13,500.00	90.00	179.63	11,956.00	-1,170.68	980.30	1,176.98	0.00	0.00	0.00
13,600.00	90.00	179.63	11,956.00	-1,270.67	980.94	1,276.98	0.00	0.00	0.00
13,700.00	90.00	179.63	11,956.00	-1,370.67	981.58	1,376.98	0.00	0.00	0.00
13,800.00	90.00	179.63	11,956.00	-1,470.67	982.22	1,476.98	0.00	0.00	0.00
13,900.00	90.00	179.63	11,956.00	-1,570.67	982.86	1,576.98	0.00	0.00	0.00
14,000.00	90.00	179.63	11,956.00	-1,670.67	983.50	1,676.98	0.00	0.00	0.00
14,100.00	90.00	179.63	11,956.00	-1,770.66	984.14	1,776.98	0.00	0.00	0.00
14,200.00	90.00	179.63	11,956.00	-1,870.66	984.78	1,876.98	0.00	0.00	0.00
14,300.00	90.00	179.63	11,956.00	-1,970.66	985.42	1,976.98	0.00	0.00	0.00
14,400.00	90.00	179.63	11,956.00	-2,070.66	986.06	2,076.98	0.00	0.00	0.00
14,500.00	90.00	179.63	11,956.00	-2,170.66	986.70	2,176.98	0.00	0.00	0.00
14,600.00	90.00	179.63	11,956.00	-2,270.65	987.34	2,276.98	0.00	0.00	0.00
14,700.00	90.00	179.63	11,956.00	-2,370.65	987.98	2,376.98	0.00	0.00	0.00
14,800.00	90.00	179.63	11,956.00	-2,470.65	988.62	2,476.98	0.00	0.00	0.00
14,900.00	90.00	179.63	11,956.00	-2,570.65	989.26	2,576.98	0.00	0.00	0.00
15,000.00	90.00	179.63	11,956.00	-2,670.65	989.90	2,676.98	0.00	0.00	0.00
15,100.00	90.00	179.63	11,956.00	-2,770.64	990.54	2,776.98	0.00	0.00	0.00
15,200.00	90.00	179.63	11,956.00	-2,870.64	991.18	2,876.98	0.00	0.00	0.00



Planning Report



Database: EDM 5000.14 Single User Db
Company: XTO Energy
Project: Eddy County, NM
Site: PLU 15 Twin Wells Ranch
Well: PLU 15 Twin Wells Ranch 907H
Wellbore: Wellbore #1
Design: plan3

Local Co-ordinate Reference: Well PLU 15 Twin Wells Ranch 907H
TVD Reference: GL 3559' + 27' KB @ 3586.00usft
MD Reference: GL 3559' + 27' KB @ 3586.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
15,300.00	90.00	179.63	11,956.00	-2,970.64	991.82	2,976.98	0.00	0.00	0.00
15,400.00	90.00	179.63	11,956.00	-3,070.64	992.46	3,076.98	0.00	0.00	0.00
15,500.00	90.00	179.63	11,956.00	-3,170.63	993.10	3,176.98	0.00	0.00	0.00
15,600.00	90.00	179.63	11,956.00	-3,270.63	993.74	3,276.98	0.00	0.00	0.00
15,700.00	90.00	179.63	11,956.00	-3,370.63	994.38	3,376.98	0.00	0.00	0.00
15,800.00	90.00	179.63	11,956.00	-3,470.63	995.02	3,476.98	0.00	0.00	0.00
15,900.00	90.00	179.63	11,956.00	-3,570.63	995.66	3,576.98	0.00	0.00	0.00
16,000.00	90.00	179.63	11,956.00	-3,670.62	996.30	3,676.98	0.00	0.00	0.00
16,100.00	90.00	179.63	11,956.00	-3,770.62	996.94	3,776.98	0.00	0.00	0.00
16,200.00	90.00	179.63	11,956.00	-3,870.62	997.58	3,876.98	0.00	0.00	0.00
16,300.00	90.00	179.63	11,956.00	-3,970.62	998.22	3,976.98	0.00	0.00	0.00
16,400.00	90.00	179.63	11,956.00	-4,070.62	998.86	4,076.98	0.00	0.00	0.00
16,500.00	90.00	179.63	11,956.00	-4,170.61	999.50	4,176.98	0.00	0.00	0.00
16,600.00	90.00	179.63	11,956.00	-4,270.61	1,000.14	4,276.98	0.00	0.00	0.00
16,700.00	90.00	179.63	11,956.00	-4,370.61	1,000.78	4,376.98	0.00	0.00	0.00
16,800.00	90.00	179.63	11,956.00	-4,470.61	1,001.42	4,476.98	0.00	0.00	0.00
16,900.00	90.00	179.63	11,956.00	-4,570.61	1,002.06	4,576.98	0.00	0.00	0.00
17,000.00	90.00	179.63	11,956.00	-4,670.60	1,002.70	4,676.98	0.00	0.00	0.00
17,100.00	90.00	179.63	11,956.00	-4,770.60	1,003.34	4,776.98	0.00	0.00	0.00
17,200.00	90.00	179.63	11,956.00	-4,870.60	1,003.98	4,876.98	0.00	0.00	0.00
17,300.00	90.00	179.63	11,956.00	-4,970.60	1,004.62	4,976.98	0.00	0.00	0.00
17,400.00	90.00	179.63	11,956.00	-5,070.60	1,005.26	5,076.98	0.00	0.00	0.00
17,500.00	90.00	179.63	11,956.00	-5,170.59	1,005.90	5,176.98	0.00	0.00	0.00
17,600.00	90.00	179.63	11,956.00	-5,270.59	1,006.54	5,276.98	0.00	0.00	0.00
17,700.00	90.00	179.63	11,956.00	-5,370.59	1,007.18	5,376.98	0.00	0.00	0.00
17,800.00	90.00	179.63	11,956.00	-5,470.59	1,007.82	5,476.98	0.00	0.00	0.00
17,900.00	90.00	179.63	11,956.00	-5,570.59	1,008.46	5,576.98	0.00	0.00	0.00
18,000.00	90.00	179.63	11,956.00	-5,670.58	1,009.10	5,676.98	0.00	0.00	0.00
18,100.00	90.00	179.63	11,956.00	-5,770.58	1,009.74	5,776.98	0.00	0.00	0.00
18,200.00	90.00	179.63	11,956.00	-5,870.58	1,010.37	5,876.98	0.00	0.00	0.00
18,300.00	90.00	179.63	11,956.00	-5,970.58	1,011.01	5,976.98	0.00	0.00	0.00
18,400.00	90.00	179.63	11,956.00	-6,070.58	1,011.65	6,076.98	0.00	0.00	0.00
18,500.00	90.00	179.63	11,956.00	-6,170.57	1,012.29	6,176.98	0.00	0.00	0.00
18,600.00	90.00	179.63	11,956.00	-6,270.57	1,012.93	6,276.98	0.00	0.00	0.00
18,700.00	90.00	179.63	11,956.00	-6,370.57	1,013.57	6,376.98	0.00	0.00	0.00
18,800.00	90.00	179.63	11,956.00	-6,470.57	1,014.21	6,476.98	0.00	0.00	0.00
18,900.00	90.00	179.63	11,956.00	-6,570.57	1,014.85	6,576.98	0.00	0.00	0.00
19,000.00	90.00	179.63	11,956.00	-6,670.56	1,015.49	6,676.98	0.00	0.00	0.00
19,100.00	90.00	179.63	11,956.00	-6,770.56	1,016.13	6,776.98	0.00	0.00	0.00
19,200.00	90.00	179.63	11,956.00	-6,870.56	1,016.77	6,876.98	0.00	0.00	0.00
19,300.00	90.00	179.63	11,956.00	-6,970.56	1,017.41	6,976.98	0.00	0.00	0.00
19,400.00	90.00	179.63	11,956.00	-7,070.56	1,018.05	7,076.98	0.00	0.00	0.00
19,500.00	90.00	179.63	11,956.00	-7,170.55	1,018.69	7,176.98	0.00	0.00	0.00
19,600.00	90.00	179.63	11,956.00	-7,270.55	1,019.33	7,276.98	0.00	0.00	0.00
19,700.00	90.00	179.63	11,956.00	-7,370.55	1,019.97	7,376.98	0.00	0.00	0.00
19,800.00	90.00	179.63	11,956.00	-7,470.55	1,020.61	7,476.98	0.00	0.00	0.00
19,900.00	90.00	179.63	11,956.00	-7,570.54	1,021.25	7,576.98	0.00	0.00	0.00
20,000.00	90.00	179.63	11,956.00	-7,670.54	1,021.89	7,676.98	0.00	0.00	0.00
20,100.00	90.00	179.63	11,956.00	-7,770.54	1,022.53	7,776.98	0.00	0.00	0.00
20,200.00	90.00	179.63	11,956.00	-7,870.54	1,023.17	7,876.98	0.00	0.00	0.00
20,300.00	90.00	179.63	11,956.00	-7,970.54	1,023.81	7,976.98	0.00	0.00	0.00
20,400.00	90.00	179.63	11,956.00	-8,070.53	1,024.45	8,076.98	0.00	0.00	0.00
20,500.00	90.00	179.63	11,956.00	-8,170.53	1,025.09	8,176.98	0.00	0.00	0.00
20,600.00	90.00	179.63	11,956.00	-8,270.53	1,025.73	8,276.98	0.00	0.00	0.00



Planning Report



Database: EDM 5000.14 Single User Db
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Site: PLU 15 Twin Wells Ranch
Well: PLU 15 Twin Wells Ranch 907H
Wellbore: Wellbore #1
Design: plan3

Local Co-ordinate Reference: Well PLU 15 Twin Wells Ranch 907H
TVD Reference: GL 3559' + 27' KB @ 3586.00usft
MD Reference: GL 3559' + 27' KB @ 3586.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
20,700.00	90.00	179.63	11,956.00	-8,370.53	1,026.37	8,376.98	0.00	0.00	0.00
20,800.00	90.00	179.63	11,956.00	-8,470.53	1,027.01	8,476.98	0.00	0.00	0.00
20,900.00	90.00	179.63	11,956.00	-8,570.52	1,027.65	8,576.98	0.00	0.00	0.00
21,000.00	90.00	179.63	11,956.00	-8,670.52	1,028.29	8,676.98	0.00	0.00	0.00
21,100.00	90.00	179.63	11,956.00	-8,770.52	1,028.93	8,776.98	0.00	0.00	0.00
21,200.00	90.00	179.63	11,956.00	-8,870.52	1,029.57	8,876.98	0.00	0.00	0.00
21,300.00	90.00	179.63	11,956.00	-8,970.52	1,030.21	8,976.98	0.00	0.00	0.00
21,400.00	90.00	179.63	11,956.00	-9,070.51	1,030.85	9,076.98	0.00	0.00	0.00
21,500.00	90.00	179.63	11,956.00	-9,170.51	1,031.49	9,176.98	0.00	0.00	0.00
21,600.00	90.00	179.63	11,956.00	-9,270.51	1,032.13	9,276.98	0.00	0.00	0.00
21,700.00	90.00	179.63	11,956.00	-9,370.51	1,032.77	9,376.98	0.00	0.00	0.00
21,800.00	90.00	179.63	11,956.00	-9,470.51	1,033.41	9,476.98	0.00	0.00	0.00
21,900.00	90.00	179.63	11,956.00	-9,570.50	1,034.05	9,576.98	0.00	0.00	0.00
22,000.00	90.00	179.63	11,956.00	-9,670.50	1,034.69	9,676.98	0.00	0.00	0.00
22,100.00	90.00	179.63	11,956.00	-9,770.50	1,035.33	9,776.98	0.00	0.00	0.00
22,200.00	90.00	179.63	11,956.00	-9,870.50	1,035.97	9,876.98	0.00	0.00	0.00
22,300.00	90.00	179.63	11,956.00	-9,970.50	1,036.61	9,976.98	0.00	0.00	0.00
22,400.00	90.00	179.63	11,956.00	-10,070.49	1,037.25	10,076.98	0.00	0.00	0.00
22,500.00	90.00	179.63	11,956.00	-10,170.49	1,037.89	10,176.98	0.00	0.00	0.00
22,600.00	90.00	179.63	11,956.00	-10,270.49	1,038.53	10,276.98	0.00	0.00	0.00
22,700.00	90.00	179.63	11,956.00	-10,370.49	1,039.17	10,376.98	0.00	0.00	0.00
22,800.00	90.00	179.63	11,956.00	-10,470.49	1,039.81	10,476.98	0.00	0.00	0.00
22,887.52	90.00	179.63	11,956.00	-10,558.00	1,040.37	10,564.50	0.00	0.00	0.00
PLU Twin Wells Ranch 907H p3 LTP									
22,900.00	90.00	179.63	11,956.00	-10,570.48	1,040.45	10,576.98	0.00	0.00	0.00
23,000.00	90.00	179.63	11,956.00	-10,670.48	1,041.09	10,676.98	0.00	0.00	0.00
23,017.52	90.00	179.63	11,956.00	-10,688.00	1,041.20	10,694.50	0.00	0.00	0.00
TD @ 23017.52' MD - PLU Twin Wells Ranch 907H p3 PBHL									

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
PLU Twin Wells Ranc	0.00	0.00	11,956.00	-10,558.00	1,040.50	430,351.70	677,431.30	32° 10' 54.673 N	103° 45' 35.402 W
- plan misses target center by 0.13usft at 22887.52usft MD (11956.00 TVD, -10558.00 N, 1040.37 E)									
- Point									
PLU Twin Wells Ranc	0.00	0.00	11,956.00	-10,688.00	1,041.20	430,221.70	677,432.00	32° 10' 53.387 N	103° 45' 35.402 W
- plan hits target center									
- Point									
PLU Twin Wells Ranc	0.00	0.00	11,956.00	-654.00	979.00	440,255.70	677,369.80	32° 12' 32.686 N	103° 45' 35.503 W
- plan misses target center by 2.00usft at 12983.33usft MD (11956.00 TVD, -654.01 N, 977.00 E)									
- Point									



Planning Report



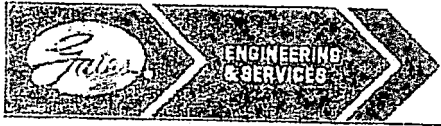
Database:	EDM 5000.14 Single User Db	Local Co-ordinate Reference:	Well PLU 15 Twin Wells Ranch 907H
Company:	XTO Energy	TVD Reference:	GL 3559' + 27' KB @ 3586.00usft
Project:	Eddy County, NM	MD Reference:	GL 3559' + 27' KB @ 3586.00usft
Site:	PLU 15 Twin Wells Ranch	North Reference:	Grid
Well:	PLU 15 Twin Wells Ranch 907H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	plan3		

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
724.00	724.00	Rustler			
1,082.00	1,082.00	Top Salt*			
4,268.00	4,268.00	Base of Salt (Anhydrite)			
4,491.00	4,491.00	Bell Canyon Ss./ Delaware			
5,403.00	5,403.00	Cherry Canyon Ss.			
7,027.00	7,027.00	Brushy Canyon Ss.			
8,344.00	8,344.00	Bone Spring Lm.			
8,425.00	8,425.00	Avalon Ss.			
8,446.00	8,446.00	Bone Spg. Upper Avalon Shale			
8,881.00	8,881.00	Bone Spg. Lower Avalon Shale			
9,221.00	9,221.00	1st Bone Spring Lime.			
9,412.00	9,412.00	1st Bone Spring Ss.			
9,801.00	9,801.00	2nd Bone Spring Carb.			
9,998.00	9,998.00	2nd Bone Spring Ss.			
10,507.00	10,507.00	3rd Bone Spring Carb.			
11,245.00	11,245.00	3rd Bone Spring Ss.			
11,478.58	11,473.00	War Wink Ss.			
11,623.81	11,599.00	Red Hills Ss.			
11,737.97	11,683.00	Wolfcamp Sh			
11,768.95	11,703.00	Wolfcamp X Sd			
11,920.39	11,781.00	Wolfcamp Y Sd			
12,036.17	11,817.00	Wolfcamp A Sh.			

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N-S (usft)	+E-W (usft)	
11,255.68	11,255.68	0.00	0.00	Start Build 10.00
12,005.68	11,809.11	-1.48	424.66	Start DLS 10.00 TFO 89.85
12,900.21	11,956.00	-570.89	976.46	Start 10117.31 hold at 12900.21 MD
23,017.52	11,956.00	-10,688.00	1,041.20	TD @ 23017.52' MD



GATES E & S NORTH AMERICA, INC
DU-TEX
134 44TH STREET
CORPUS CHRISTI, TEXAS 78405

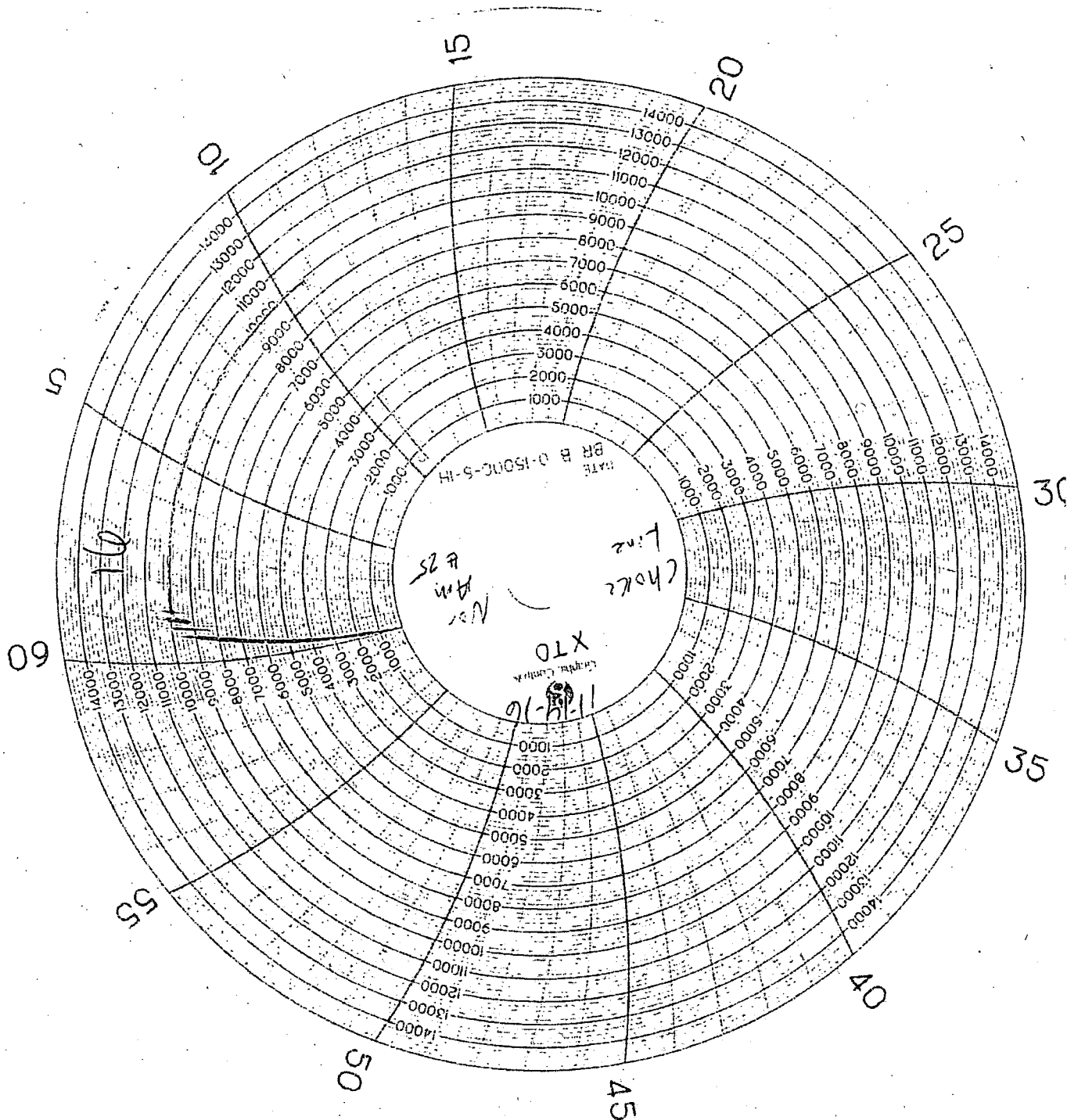
PHONE: 361-887-9807
FAX: 361-887-0812
EMAIL: crpe@s@gates.com
WEB: www.gates.com

GRADE D PRESSURE TEST CERTIFICATE

Customer :	AUSTIN DISTRIBUTING	Test Date:	6/8/2014
Customer Ref. :	PENDING	Hose Serial No.:	D-060814-1
Invoice No. :	201709	Created By:	NORMA
Product Description:	FD3.0+2.0R41/16.5KFLGE/E LE		
End Fitting 1 :	4 1/16 in.5K FLG	End Fitting 2 :	4 1/16 in.5K FLG
Gates Part No. :	4774-6001	Assembly Code :	L33090011513D-060814-1
Working Pressure :	5,000 PSI	Test Pressure :	7,500 PSI

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

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





**BORUSAN
MANNESMANN**

API 5CT Casing Performance Data Sheet

Manufactured to specifications of API 5CT 9th edition and bears the API monogram.
Designed for enhanced performance through increased collapse resistance.

Grade	L80HC
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Pipe Body Mechanical Properties

Minimum Yield Strength	80,000 psi
Maximum Yield Strength	95,000 psi
Minimum Tensile Strength	95,000 psi
Maximum Hardness	23.0 HRC

Sizes

OD	8 5/8 in
Nominal Wall Thickness	0.352 in
Nominal Weight, T&C	32 lb/ft
Nominal Weight, PE	31.13 lb/ft
Nominal ID	7.921 in
Standard Drift	7.796 in
Alternate Drift	7.875 in

Minimum Performance

Collapse Pressure	3,820 psi
Internal Pressure Yield	5,710 psi
Pipe body Tension Yield	732,000 lbs
Internal pressure leak resistance STC/LTC connections	10,380 psi
Internal pressure leak resistance BTC connections	11,230 psi

Inspection and Testing

Visual	OD Longitudinal and independent 3rd party SEA
NDT	Independent 3rd party full body EMI after hydrotest Calibration notch sensitivity: 10% of specified wall thickness

Color code

Pipe ends	One red, one brown and one blue band
Couplings	Red with one brown band

PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	XTO Permian Operating, LLC
LEASE NO.:	NMNM-0506A
WELL NAME & NO.:	Poker Lake Unit 15 TWR 907H
SURFACE HOLE FOOTAGE:	0330' FSL & 1965' FEL
BOTTOM HOLE FOOTAGE	0200' FSL & 0990' FEL Sec. 27, T. 24 S., R 31 E.
LOCATION:	Section 15, T. 24 S., R 31 E., NMPM
COUNTY:	Eddy County, New Mexico

The original COAs still stand with the following drilling modifications:

Commercial Well Determination

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

Unit Wells

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

A. DRILLING OPERATIONS REQUIREMENTS

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

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

☒ **Eddy County**

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

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

3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works is located, this does not include the dog house or stairway area.
4. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

B. CASING

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

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

Wait on cement (WOC) for Potash Areas:

After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log.

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

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

Secretary's Potash

Possibility of water flows in the Salado and Castile.

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

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

1. The 16 inch surface casing shall be set at approximately 880 feet (**in a competent bed below the Magenta Dolomite, which is a Member of the Rustler, and if salt is encountered, set casing at least 25 feet above the salt** and cemented to the surface.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - b. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.**
 - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
 - d. If cement falls back, remedial cementing will be done prior to drilling out that string.

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

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

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

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

8-5/8 inch 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 4370', but will adjust cement proportionately if moved. DV tool shall be set a minimum of 50' below previous shoe and a minimum of 200' above current shoe. Operator shall submit sundry if DV tool depth cannot be set in this range. If an ECP is used, it is to be set a minimum of 50' below the shoe to provide cement across the shoe. If it cannot be set below the shoe, a CBL shall be run to verify cement coverage.

a. First stage to DV tool:

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

b. Second stage above DV tool:

- ☒ Cement to surface. If cement does not circulate, contact the appropriate BLM office. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to potash.**

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

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

Production casing shall be kept fluid filled while running into hole to meet BLM minimum collapse requirements.

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

- ☒ Cement should tie-back at least 500 feet into previous casing string. Operator shall provide method of verification.

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

C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API 53.
2. Variance approved to use flex line from BOP to choke manifold. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. **Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the 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 inch 1st intermediate casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the 11-3/4 inch 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 inch 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 potash areas, 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. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time.
- 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.

JAM 032719