

TITUS

OIL GAS LLC

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DISTRICT II-ARTESIA O.C.D.

Titus Oil & Gas Production, LLC

Eddy County, NM (NAD83-NME)

A01 Todd DSU

Todd 2-24S-31E State 405H

405H

Plan #1-Rev0

Anticollision Report

31 May, 2019

Company:	Titus Oil & Gas Production, LLC	Local Co-ordinate Reference:	Well Todd 2-24S-31E State 405H - Slot 405H
Project:	Eddy County, NM (NAD83-NME)	TVD Reference:	3508+25 @ 3533.00usft (KB=25)
Reference Site:	A01 Todd DSU	MD Reference:	3508+25 @ 3533.00usft (KB=25)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Todd 2-24S-31E State 405H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	405H	Database:	EDM 5000.14 Single User Db
Reference Design:	Plan #1-Rev0	Offset TVD Reference:	Offset Datum

Reference	Plan #1-Rev0		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum separation factor of 12.00	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date 5/31/2019			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	16,757.88	Plan #1-Rev0 (405H)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
A01 Todd DSU						
Todd 2-24S-31E State 202H - 202H - Plan #1-Rev0	1,500.00	1,499.00	54.00	47.54	8.359	CC, ES
Todd 2-24S-31E State 202H - 202H - Plan #1-Rev0	1,600.00	1,598.51	55.55	48.68	8.085	SF
Todd 2-24S-31E State 203H - 203H - Plan #1-Rev0	1,500.00	1,499.00	54.53	48.07	8.441	CC
Todd 2-24S-31E State 203H - 203H - Plan #1-Rev0	1,600.00	1,598.55	54.74	47.87	7.967	ES
Todd 2-24S-31E State 203H - 203H - Plan #1-Rev0	1,900.00	1,896.91	59.52	51.47	7.394	SF
Todd 2-24S-31E State 207H - 207H - Plan #1-Rev0	1,500.00	1,500.00	30.10	23.64	4.658	CC
Todd 2-24S-31E State 207H - 207H - Plan #1-Rev0	1,659.54	1,658.34	30.26	23.17	4.267	ES
Todd 2-24S-31E State 207H - 207H - Plan #1-Rev0	1,700.00	1,698.50	30.55	23.31	4.218	SF
Todd 2-24S-31E State 304H - 304H - Plan #1-Rev0	1,584.07	1,583.53	45.18	38.37	6.639	CC
Todd 2-24S-31E State 304H - 304H - Plan #1-Rev0	1,659.54	1,659.25	45.37	38.28	6.397	ES
Todd 2-24S-31E State 304H - 304H - Plan #1-Rev0	16,757.88	16,620.03	673.30	485.01	3.576	SF

Offset Design	A01 Todd DSU - Todd 2-24S-31E State 202H - 202H - Plan #1-Rev0											Offset Site Error:	0.00 usft
Survey Program:	O-MWD											Offset Well Error:	0.00 usft
Reference	Offset	Semi Major Axis		Distance									
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
1,100.00	1,100.00	1,099.00	1,099.00	2.33	2.33	-33.75	44.90	-30.00	54.00	49.34	4.66	11.584	
1,200.00	1,200.00	1,199.00	1,199.00	2.56	2.55	-33.75	44.90	-30.00	54.00	48.89	5.11	10.565	
1,300.00	1,300.00	1,299.00	1,299.00	2.78	2.78	-33.75	44.90	-30.00	54.00	48.44	5.56	9.711	
1,400.00	1,400.00	1,399.00	1,399.00	3.01	3.00	-33.75	44.90	-30.00	54.00	47.99	6.01	8.985	
1,500.00	1,500.00	1,499.00	1,499.00	3.23	3.23	-33.75	44.90	-30.00	54.00	47.54	6.46	8.359	CC, ES
1,600.00	1,599.99	1,598.51	1,598.50	3.44	3.43	-150.92	44.55	-31.22	55.55	48.68	6.87	8.085	SF
1,659.54	1,659.49	1,657.61	1,657.57	3.55	3.55	-153.71	44.01	-33.13	58.06	50.97	7.10	8.181	
1,700.00	1,699.92	1,697.68	1,697.60	3.63	3.63	-156.05	43.51	-34.92	60.35	53.10	7.25	8.323	
1,800.00	1,799.83	1,796.40	1,796.11	3.82	3.83	-162.42	41.77	-41.06	67.33	59.69	7.64	8.816	
1,900.00	1,899.74	1,894.63	1,893.93	4.02	4.03	-169.07	39.35	-49.59	76.54	68.51	8.03	9.535	
2,000.00	1,999.66	1,993.70	1,992.48	4.22	4.26	-174.84	36.60	-59.30	87.36	78.93	8.43	10.364	
2,100.00	2,099.57	2,092.77	2,091.04	4.43	4.48	-179.31	33.85	-69.01	98.87	90.03	8.84	11.186	
2,200.00	2,199.48	2,191.84	2,189.60	4.64	4.72	-177.16	31.10	-78.71	110.85	101.60	9.25	11.981	

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

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Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	405H	Database:	EDM 5000.14 Single User Db
Reference Design:	Plan #1-Rev0	Offset TVD Reference:	Offset Datum

Offset Design														Offset Site Error: 0.00 usft	
Survey Program: 0-MWD														Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance								
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
1,100.00	1,100.00	1,099.00	1,099.00	2.33	2.33	33.63	45.40	30.20	54.53	49.87	4.66	11.697			
1,200.00	1,200.00	1,199.00	1,199.00	2.56	2.55	33.63	45.40	30.20	54.53	49.42	5.11	10.668			
1,300.00	1,300.00	1,299.00	1,299.00	2.78	2.78	33.63	45.40	30.20	54.53	48.97	5.56	9.806			
1,400.00	1,400.00	1,399.00	1,399.00	3.01	3.00	33.63	45.40	30.20	54.53	48.52	6.01	9.072			
1,500.00	1,500.00	1,499.00	1,499.00	3.23	3.23	33.63	45.40	30.20	54.53	48.07	6.46	8.441 CC			
1,600.00	1,599.99	1,598.55	1,598.54	3.44	3.44	-81.70	45.07	31.43	54.74	47.87	6.87	7.967 ES			
1,659.54	1,659.49	1,657.82	1,657.78	3.55	3.55	-81.80	44.55	33.35	55.08	47.99	7.10	7.761			
1,700.00	1,699.92	1,698.10	1,698.01	3.63	3.63	-81.68	44.07	35.16	55.44	48.18	7.25	7.644			
1,800.00	1,799.83	1,797.58	1,797.28	3.82	3.83	-79.66	42.39	41.39	56.93	49.28	7.65	7.445			
1,900.00	1,899.74	1,896.91	1,896.20	4.02	4.04	-75.45	40.05	50.09	59.52	51.47	8.05	7.394 SF			
2,000.00	1,999.66	1,996.73	1,995.49	4.22	4.26	-70.69	37.40	59.92	62.97	54.50	8.47	7.437			
2,100.00	2,099.57	2,096.54	2,094.78	4.43	4.49	-66.44	34.75	69.75	66.80	57.91	8.89	7.513			
2,200.00	2,199.48	2,196.35	2,194.07	4.64	4.73	-62.67	32.11	79.58	70.96	61.64	9.32	7.614			
2,300.00	2,299.40	2,296.16	2,293.36	4.85	4.97	-59.34	29.46	89.41	75.39	65.64	9.75	7.731			
2,400.00	2,399.31	2,395.97	2,392.65	5.07	5.22	-56.38	26.82	99.24	80.05	69.86	10.19	7.858			
2,500.00	2,499.22	2,495.78	2,491.94	5.28	5.48	-53.75	24.17	109.07	84.89	74.27	10.62	7.990			
2,600.00	2,599.13	2,595.59	2,591.23	5.50	5.73	-51.41	21.52	118.90	89.90	78.84	11.06	8.125			
2,700.00	2,699.05	2,695.40	2,690.53	5.72	5.99	-49.32	18.88	128.73	95.04	83.53	11.51	8.260			
2,800.00	2,798.96	2,795.21	2,789.82	5.94	6.25	-47.45	16.23	138.56	100.29	88.35	11.95	8.394			
2,900.00	2,898.87	2,895.02	2,889.11	6.17	6.52	-45.76	13.59	148.39	105.64	93.25	12.39	8.525			
3,000.00	2,998.78	2,994.84	2,988.40	6.39	6.78	-44.24	10.94	158.22	111.08	98.24	12.84	8.653			
3,100.00	3,098.70	3,094.65	3,087.69	6.62	7.05	-42.86	8.29	168.05	116.58	103.30	13.28	8.776			
3,200.00	3,198.61	3,194.46	3,186.98	6.84	7.32	-41.60	5.65	177.88	122.14	108.41	13.73	8.896			
3,300.00	3,298.52	3,294.27	3,286.27	7.07	7.59	-40.46	3.00	187.71	127.76	113.58	14.18	9.011			
3,400.00	3,398.44	3,394.08	3,385.56	7.29	7.87	-39.41	0.36	197.54	133.43	118.80	14.63	9.122			
3,500.00	3,498.35	3,493.89	3,484.85	7.52	8.14	-38.45	-2.29	207.37	139.13	124.05	15.08	9.228			
3,600.00	3,598.26	3,593.70	3,584.14	7.75	8.42	-37.56	-4.94	217.20	144.87	129.35	15.53	9.330			
3,700.00	3,698.17	3,693.51	3,683.43	7.98	8.69	-36.74	-7.58	227.03	150.65	134.67	15.98	9.428			
3,800.00	3,798.09	3,793.32	3,782.72	8.21	8.97	-35.98	-10.23	236.86	156.45	140.02	16.43	9.522			
3,900.00	3,898.00	3,893.13	3,882.01	8.44	9.25	-35.28	-12.87	246.69	162.28	145.39	16.88	9.612			
4,000.00	3,997.91	3,992.94	3,981.30	8.67	9.53	-34.62	-15.52	256.52	168.13	150.79	17.34	9.698			
4,100.00	4,097.83	4,092.76	4,080.59	8.90	9.81	-34.01	-18.17	266.35	174.00	156.21	17.79	9.781			
4,200.00	4,197.74	4,192.57	4,179.88	9.13	10.09	-33.44	-20.81	276.18	179.88	161.64	18.24	9.861			
4,300.00	4,297.65	4,292.38	4,279.17	9.36	10.37	-32.91	-23.46	286.01	185.79	167.09	18.70	9.937			
4,400.00	4,397.56	4,392.19	4,378.46	9.59	10.65	-32.41	-26.10	295.84	191.71	172.56	19.15	10.010			
4,500.00	4,497.48	4,492.00	4,477.75	9.83	10.94	-31.93	-28.75	305.67	197.64	178.04	19.61	10.080			
4,600.00	4,597.39	4,591.81	4,577.04	10.06	11.22	-31.49	-31.40	315.50	203.59	183.53	20.06	10.147			
4,700.00	4,697.30	4,691.62	4,676.33	10.29	11.50	-31.07	-34.04	325.33	209.55	189.03	20.52	10.212			
4,800.00	4,797.21	4,791.43	4,775.63	10.52	11.79	-30.68	-36.69	335.16	215.52	194.54	20.98	10.275			
4,900.00	4,897.13	4,891.24	4,874.92	10.76	12.07	-30.30	-39.33	344.99	221.50	200.07	21.43	10.335			
5,000.00	4,997.04	4,991.05	4,974.21	10.99	12.35	-29.95	-41.98	354.82	227.49	205.60	21.89	10.392			
5,100.00	5,096.95	5,090.86	5,073.50	11.22	12.64	-29.61	-44.63	364.65	233.48	211.13	22.35	10.448			
5,200.00	5,196.87	5,190.68	5,172.79	11.46	12.92	-29.29	-47.27	374.48	239.49	216.68	22.81	10.501			
5,300.00	5,296.78	5,290.49	5,272.08	11.69	13.21	-28.99	-49.92	384.31	245.50	222.23	23.26	10.553			
5,400.00	5,396.69	5,390.30	5,371.37	11.92	13.49	-28.70	-52.56	394.14	251.51	227.79	23.72	10.603			
5,500.00	5,496.60	5,490.11	5,470.66	12.16	13.78	-28.42	-55.21	403.97	257.54	233.36	24.18	10.651			
5,600.00	5,596.52	5,589.92	5,569.95	12.39	14.07	-28.16	-57.86	413.80	263.56	238.93	24.64	10.697			
5,700.00	5,696.43	5,689.73	5,669.24	12.63	14.35	-27.91	-60.50	423.62	269.60	244.50	25.10	10.742			
5,800.00	5,796.34	5,789.54	5,768.53	12.86	14.64	-27.67	-63.15	433.45	275.64	250.08	25.56	10.785			
5,900.00	5,896.26	5,889.35	5,867.82	13.10	14.92	-27.44	-65.79	443.28	281.68	255.67	26.02	10.827			
6,000.00	5,996.17	5,989.16	5,967.11	13.33	15.21	-27.21	-68.44	453.11	287.73	261.25	26.48	10.867			
6,100.00	6,096.08	6,088.97	6,066.40	13.57	15.50	-27.00	-71.09	462.94	293.78	266.85	26.94	10.907			

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Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD													Offset Well Error:	0.00 usft
A01 Todd DSU - Todd 2-24S-31E State 203H - 203H - Plan #1-Rev0														
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance				Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
6,200.00	6,195.99	6,188.79	6,165.69	13.80	15.78	-26.80	-73.73	472.77	299.84	272.44	27.40	10.945		
6,300.00	6,295.91	6,288.60	6,264.98	14.04	16.07	-26.61	-76.38	482.60	305.90	278.04	27.86	10.981		
6,400.00	6,395.82	6,388.41	6,364.27	14.27	16.36	-26.42	-79.02	492.43	311.96	283.64	28.32	11.017		
6,500.00	6,495.73	6,488.22	6,463.56	14.51	16.65	-26.24	-81.67	502.26	318.03	289.25	28.78	11.051		
6,600.00	6,595.65	6,588.03	6,562.85	14.74	16.93	-26.06	-84.32	512.09	324.10	294.86	29.24	11.085		
6,700.00	6,695.56	6,687.84	6,662.14	14.98	17.22	-25.90	-86.96	521.92	330.17	300.47	29.70	11.117		
6,800.00	6,795.47	6,787.65	6,761.43	15.21	17.51	-25.74	-89.61	531.75	336.24	306.08	30.16	11.149		
6,900.00	6,895.38	6,887.46	6,860.72	15.45	17.80	-25.58	-92.25	541.58	342.32	311.70	30.62	11.179		
7,000.00	6,995.30	6,987.27	6,960.02	15.68	18.09	-25.43	-94.90	551.41	348.40	317.32	31.08	11.209		
7,100.00	7,095.21	7,087.08	7,059.31	15.92	18.37	-25.29	-97.55	561.24	354.48	322.94	31.54	11.238		
7,200.00	7,195.12	7,186.89	7,158.60	16.15	18.66	-25.15	-100.19	571.07	360.57	328.56	32.00	11.266		
7,300.00	7,295.03	7,286.71	7,257.89	16.39	18.95	-25.01	-102.84	580.90	366.65	334.19	32.47	11.293		
7,400.00	7,394.95	7,386.52	7,357.18	16.63	19.24	-24.88	-105.48	590.73	372.74	339.81	32.93	11.320		
7,500.00	7,494.86	7,486.33	7,456.47	16.86	19.53	-24.75	-108.13	600.56	378.83	345.44	33.39	11.346		
7,600.00	7,594.77	7,586.14	7,555.76	17.10	19.82	-24.63	-110.78	610.39	384.92	351.07	33.85	11.371		
7,700.00	7,694.69	7,685.95	7,655.05	17.33	20.10	-24.51	-113.42	620.22	391.02	356.70	34.31	11.396		
7,800.00	7,794.60	7,785.76	7,754.34	17.57	20.39	-24.40	-116.07	630.05	397.11	362.34	34.78	11.419		
7,900.00	7,894.51	7,885.57	7,853.63	17.81	20.68	-24.29	-118.71	639.88	403.21	367.97	35.24	11.443		
8,000.00	7,994.42	7,985.38	7,952.92	18.04	20.97	-24.18	-121.36	649.71	409.31	373.61	35.70	11.465		
8,100.00	8,094.34	8,085.19	8,052.21	18.28	21.26	-24.07	-124.01	659.54	415.41	379.25	36.16	11.487		
8,200.00	8,194.25	8,185.00	8,151.50	18.51	21.55	-23.97	-126.65	669.37	421.51	384.88	36.62	11.509		
8,300.00	8,294.16	8,284.82	8,250.79	18.75	21.84	-23.87	-129.30	679.20	427.61	390.52	37.09	11.530		
8,400.00	8,394.08	8,384.63	8,350.08	18.99	22.13	-23.77	-131.94	689.03	433.71	396.16	37.55	11.551		
8,500.00	8,493.99	8,484.44	8,449.37	19.22	22.42	-23.68	-134.59	698.86	439.82	401.81	38.01	11.571		
8,600.00	8,593.90	8,584.25	8,548.66	19.46	22.71	-23.59	-137.24	708.69	445.92	407.45	38.47	11.590		
8,700.00	8,693.81	8,684.06	8,647.95	19.70	23.00	-23.50	-139.88	718.52	452.03	413.09	38.94	11.609		
8,800.00	8,793.73	8,783.87	8,747.24	19.93	23.28	-23.42	-142.53	728.35	458.14	418.74	39.40	11.628		
8,900.00	8,893.64	8,883.68	8,846.53	20.17	23.57	-23.33	-145.18	738.18	464.25	424.39	39.86	11.646		
9,000.00	8,993.55	8,983.49	8,945.82	20.41	23.86	-23.25	-147.82	748.01	470.36	430.03	40.33	11.664		
9,100.00	9,093.46	9,088.13	9,049.93	20.64	24.15	-23.17	-150.54	758.12	476.29	435.49	40.80	11.674		
9,200.00	9,193.38	9,201.94	9,163.41	20.88	24.39	-23.16	-152.81	766.56	479.94	438.69	41.25	11.634		
9,300.00	9,293.29	9,315.91	9,277.24	21.12	24.60	-23.24	-154.21	771.73	480.69	439.01	41.68	11.533		
9,400.00	9,393.20	9,429.80	9,391.12	21.35	24.78	-23.41	-154.72	773.63	478.53	436.45	42.09	11.370		
9,500.00	9,493.12	9,530.80	9,492.12	21.59	24.95	-23.61	-154.72	773.64	474.71	432.20	42.51	11.166		
9,600.00	9,593.03	9,630.71	9,592.03	21.83	25.12	-23.82	-154.72	773.64	470.89	427.95	42.94	10.966		
9,700.00	9,692.94	9,730.63	9,691.94	22.06	25.29	-24.02	-154.72	773.64	467.07	423.70	43.37	10.769		
9,800.00	9,792.85	9,831.60	9,792.58	22.30	25.44	-25.01	-148.43	773.61	463.16	419.34	43.82	10.569		
9,900.00	9,892.77	9,925.96	9,883.59	22.54	25.55	-28.25	-124.10	773.48	459.95	415.60	44.35	10.370		
9,940.66	9,933.39	9,960.86	9,915.77	22.63	25.58	-30.00	-110.62	773.41	459.55	414.96	44.58	10.308		
10,000.00	9,992.68	10,007.65	9,957.21	22.77	25.61	-32.80	-88.94	773.30	460.66	415.76	44.90	10.260		
10,100.00	10,092.59	10,075.00	10,012.68	23.01	25.64	-37.62	-50.85	773.11	469.15	423.90	45.25	10.368		
10,200.00	10,192.51	10,130.14	10,053.75	23.25	25.66	-42.11	-14.10	772.92	488.41	443.22	45.19	10.807		
10,300.00	10,292.42	10,175.00	10,083.86	23.48	25.67	-45.99	19.13	772.75	519.73	475.07	44.66	11.639		

Company:	Titus Oil & Gas Production, LLC	Local Co-ordinate Reference:	Well Todd 2-24S-31E State 405H - Slot 405H
Project:	Eddy County, NM (NAD83-NME)	TVD Reference:	3508+25 @ 3533.00usft (KB=25)
Reference Site:	A01 Todd DSU	MD Reference:	3508+25 @ 3533.00usft (KB=25)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Todd 2-24S-31E State 405H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	405H	Database:	EDM 5000.14 Single User Db
Reference Design:	Plan #1-Rev0	Offset TVD Reference:	Offset Datum

Offset Design														Offset Site Error:	0.00 usft
A01 Todd DSU - Todd 2-24S-31E State 207H - 207H - Plan #1-Rev0														Offset Well Error:	0.00 usft
Survey Program: 0-MWD															
Reference		Offset		Semi Major Axis		Distance									
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
700.00	700.00	700.00	700.00	1.43	1.43	89.81	0.10	30.10	30.10	27.23	2.87	10.503			
800.00	800.00	800.00	800.00	1.66	1.66	89.81	0.10	30.10	30.10	26.78	3.32	9.079			
900.00	900.00	900.00	900.00	1.88	1.88	89.81	0.10	30.10	30.10	26.34	3.76	7.995			
1,000.00	1,000.00	1,000.00	1,000.00	2.11	2.11	89.81	0.10	30.10	30.10	25.89	4.21	7.142			
1,100.00	1,100.00	1,100.00	1,100.00	2.33	2.33	89.81	0.10	30.10	30.10	25.44	4.66	6.454			
1,200.00	1,200.00	1,200.00	1,200.00	2.56	2.56	89.81	0.10	30.10	30.10	24.99	5.11	5.886			
1,300.00	1,300.00	1,300.00	1,300.00	2.78	2.78	89.81	0.10	30.10	30.10	24.54	5.56	5.411			
1,400.00	1,400.00	1,400.00	1,400.00	3.01	3.01	89.81	0.10	30.10	30.10	24.09	6.01	5.006			
1,500.00	1,500.00	1,500.00	1,500.00	3.23	3.23	89.81	0.10	30.10	30.10	23.64	6.46	4.658 CC			
1,600.00	1,599.99	1,599.25	1,599.24	3.44	3.44	-25.79	-0.27	31.34	30.16	23.29	6.87	4.391			
1,659.54	1,659.49	1,658.34	1,658.30	3.55	3.55	-26.33	-0.84	33.24	30.26	23.17	7.09	4.267 ES			
1,700.00	1,699.92	1,698.50	1,698.41	3.63	3.63	-26.65	-1.37	35.04	30.55	23.31	7.24	4.218 SF			
1,800.00	1,799.83	1,797.98	1,797.69	3.82	3.83	-26.50	-3.17	41.07	32.84	25.21	7.62	4.308			
1,900.00	1,899.74	1,897.94	1,897.41	4.02	4.04	-26.11	-5.14	47.65	35.64	27.62	8.02	4.445			
2,000.00	1,999.66	1,997.90	1,997.13	4.22	4.25	-25.77	-7.10	54.23	38.44	30.02	8.42	4.566			
2,100.00	2,099.57	2,097.86	2,096.86	4.43	4.47	-25.48	-9.06	60.81	41.25	32.42	8.83	4.673			
2,200.00	2,199.48	2,197.82	2,196.58	4.64	4.69	-25.22	-11.03	67.39	44.06	34.82	9.24	4.768			
2,300.00	2,299.40	2,297.78	2,296.31	4.85	4.92	-25.00	-12.99	73.96	46.86	37.21	9.66	4.853			
2,400.00	2,399.31	2,397.74	2,396.03	5.07	5.14	-24.80	-14.95	80.54	49.67	39.59	10.08	4.929			
2,500.00	2,499.22	2,497.70	2,495.76	5.28	5.37	-24.62	-16.91	87.12	52.48	41.98	10.50	4.997			
2,600.00	2,599.13	2,597.66	2,595.48	5.50	5.61	-24.46	-18.88	93.70	55.29	44.36	10.93	5.059			
2,700.00	2,699.05	2,697.62	2,695.21	5.72	5.84	-24.32	-20.84	100.27	58.10	46.74	11.36	5.114			
2,800.00	2,798.96	2,797.58	2,794.93	5.94	6.08	-24.19	-22.80	106.85	60.91	49.12	11.79	5.165			
2,900.00	2,898.87	2,897.54	2,894.65	6.17	6.32	-24.07	-24.76	113.43	63.72	51.49	12.23	5.211			
3,000.00	2,898.78	2,897.50	2,894.38	6.39	6.56	-23.96	-26.73	120.01	66.53	53.87	12.66	5.254			
3,100.00	3,098.70	3,097.46	3,094.10	6.62	6.80	-23.86	-28.69	126.59	69.34	56.24	13.10	5.293			
3,200.00	3,198.61	3,197.42	3,193.83	6.84	7.04	-23.77	-30.65	133.16	72.15	58.61	13.54	5.328			
3,300.00	3,298.52	3,297.38	3,293.55	7.07	7.29	-23.68	-32.62	139.74	74.96	60.98	13.98	5.361			
3,400.00	3,398.44	3,397.34	3,393.28	7.29	7.53	-23.60	-34.58	146.32	77.78	63.35	14.42	5.392			
3,500.00	3,498.35	3,497.30	3,493.00	7.52	7.78	-23.53	-36.54	152.90	80.59	65.72	14.87	5.420			
3,600.00	3,598.26	3,597.26	3,592.73	7.75	8.02	-23.46	-38.50	159.48	83.40	68.09	15.31	5.446			
3,700.00	3,698.17	3,697.22	3,692.45	7.98	8.27	-23.40	-40.47	166.05	86.21	70.45	15.76	5.471			
3,800.00	3,798.09	3,797.18	3,792.17	8.21	8.52	-23.34	-42.43	172.63	89.02	72.82	16.20	5.494			
3,900.00	3,898.00	3,897.14	3,891.90	8.44	8.76	-23.28	-44.39	179.21	91.83	75.18	16.65	5.515			
4,000.00	3,997.91	3,997.10	3,991.62	8.67	9.01	-23.23	-46.35	185.79	94.65	77.55	17.10	5.535			
4,100.00	4,097.83	4,097.07	4,091.35	8.90	9.26	-23.18	-48.32	192.36	97.46	79.91	17.55	5.554			
4,200.00	4,197.74	4,197.03	4,191.07	9.13	9.51	-23.13	-50.28	198.94	100.27	82.27	18.00	5.572			
4,300.00	4,297.65	4,296.99	4,290.80	9.36	9.76	-23.08	-52.24	205.52	103.08	84.64	18.45	5.588			
4,400.00	4,397.56	4,396.95	4,390.52	9.59	10.01	-23.04	-54.21	212.10	105.89	87.00	18.90	5.604			
4,500.00	4,497.48	4,496.91	4,490.25	9.83	10.26	-23.00	-56.17	218.68	108.71	89.36	19.35	5.619			
4,600.00	4,597.39	4,596.87	4,589.97	10.06	10.51	-22.96	-58.13	225.25	111.52	91.72	19.80	5.633			
4,700.00	4,697.30	4,696.83	4,689.69	10.29	10.76	-22.93	-60.09	231.83	114.33	94.08	20.25	5.646			
4,800.00	4,797.21	4,796.79	4,789.42	10.52	11.01	-22.89	-62.06	238.41	117.14	96.44	20.70	5.658			
4,900.00	4,897.13	4,896.75	4,889.14	10.76	11.26	-22.86	-64.02	244.99	119.96	98.80	21.15	5.670			
5,000.00	4,997.04	4,996.71	4,988.87	10.99	11.52	-22.83	-65.98	251.56	122.77	101.16	21.61	5.682			
5,100.00	5,096.95	5,096.67	5,088.59	11.22	11.77	-22.80	-67.94	258.14	125.58	103.52	22.06	5.692			
5,200.00	5,196.87	5,196.63	5,188.32	11.46	12.02	-22.77	-69.91	264.72	128.39	105.88	22.51	5.703			
5,300.00	5,296.78	5,296.59	5,288.04	11.69	12.27	-22.74	-71.87	271.30	131.21	108.24	22.97	5.713			
5,400.00	5,396.69	5,396.55	5,387.77	11.92	12.53	-22.71	-73.83	277.88	134.02	110.60	23.42	5.722			
5,500.00	5,496.60	5,496.51	5,487.49	12.16	12.78	-22.69	-75.80	284.45	136.83	112.96	23.88	5.731			
5,600.00	5,596.52	5,596.47	5,587.21	12.39	13.03	-22.67	-77.76	291.03	139.65	115.31	24.33	5.739			
5,700.00	5,696.43	5,696.43	5,686.94	12.63	13.29	-22.64	-79.72	297.61	142.46	117.67	24.79	5.747			

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

Company:	Titus Oil & Gas Production, LLC	Local Co-ordinate Reference:	Well Todd 2-24S-31E State 405H - Slot 405H
Project:	Eddy County, NM (NAD83-NME)	TVD Reference:	3508+25 @ 3533.00usft (KB=25)
Reference Site:	A01 Todd DSU	MD Reference:	3508+25 @ 3533.00usft (KB=25)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Todd 2-24S-31E State 405H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	405H	Database:	EDM 5000.14 Single User Db
Reference Design:	Plan #1-Rev0	Offset TVD Reference:	Offset Datum

Offset Design														Offset Site Error: 0.00 usft	
A01 Todd DSU - Todd 2-24S-31E State 207H - 207H - Plan #1-Rev0														Offset Well Error: 0.00 usft	
Survey Program: 0-MWD															
Reference		Offset		Semi Major Axis		Distance									
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
5,800.00	5,796.34	5,796.39	5,786.66	12.86	13.54	-22.62	-81.68	304.19	145.27	120.03	25.24	5.755			
5,900.00	5,896.26	5,896.35	5,886.39	13.10	13.79	-22.60	-83.65	310.77	148.08	122.39	25.70	5.763			
6,000.00	5,996.17	5,996.31	5,986.11	13.33	14.05	-22.58	-85.61	317.34	150.90	124.74	26.15	5.770			
6,100.00	6,096.08	6,096.27	6,085.84	13.57	14.30	-22.56	-87.57	323.92	153.71	127.10	26.61	5.777			
6,200.00	6,195.99	6,196.23	6,185.56	13.80	14.55	-22.54	-89.53	330.50	156.52	129.46	27.06	5.784			
6,300.00	6,295.91	6,296.19	6,285.29	14.04	14.81	-22.52	-91.50	337.08	159.33	131.82	27.52	5.790			
6,400.00	6,395.82	6,396.15	6,385.01	14.27	15.06	-22.50	-93.46	343.65	162.15	134.17	27.98	5.796			
6,500.00	6,495.73	6,496.12	6,484.73	14.51	15.32	-22.48	-95.42	350.23	164.96	136.53	28.43	5.802			
6,600.00	6,595.65	6,596.08	6,584.46	14.74	15.57	-22.47	-97.39	356.81	167.77	138.88	28.89	5.808			
6,700.00	6,695.56	6,696.04	6,684.18	14.98	15.83	-22.45	-99.35	363.39	170.59	141.24	29.35	5.813			
6,800.00	6,795.47	6,796.00	6,783.91	15.21	16.08	-22.44	-101.31	369.97	173.40	143.60	29.80	5.818			
6,900.00	6,895.38	6,895.96	6,883.63	15.45	16.33	-22.42	-103.27	376.54	176.21	145.95	30.26	5.823			
7,000.00	6,995.30	6,995.92	6,983.36	15.68	16.59	-22.41	-105.24	383.12	179.02	148.31	30.72	5.828			
7,100.00	7,095.21	7,095.88	7,083.08	15.92	16.84	-22.39	-107.20	389.70	181.84	150.67	31.17	5.833			
7,200.00	7,195.12	7,195.84	7,182.81	16.15	17.10	-22.38	-109.16	396.28	184.65	153.02	31.63	5.838			
7,300.00	7,295.03	7,295.80	7,282.53	16.39	17.35	-22.36	-111.12	402.85	187.46	155.38	32.09	5.842			
7,400.00	7,394.95	7,395.76	7,382.25	16.63	17.61	-22.35	-113.09	409.43	190.28	157.73	32.55	5.847			
7,500.00	7,494.86	7,495.72	7,481.98	16.86	17.86	-22.34	-115.05	416.01	193.09	160.09	33.00	5.851			
7,600.00	7,594.77	7,595.68	7,581.70	17.10	18.12	-22.33	-117.01	422.59	195.90	162.44	33.46	5.855			
7,700.00	7,694.69	7,695.64	7,681.43	17.33	18.37	-22.32	-118.98	429.17	198.72	164.80	33.92	5.859			
7,800.00	7,794.60	7,795.60	7,781.15	17.57	18.63	-22.30	-120.94	435.74	201.53	167.15	34.38	5.863			
7,900.00	7,894.51	7,895.56	7,880.88	17.81	18.89	-22.29	-122.90	442.32	204.34	169.51	34.83	5.866			
8,000.00	7,994.42	7,995.52	7,980.60	18.04	19.14	-22.28	-124.86	448.90	207.16	171.86	35.29	5.870			
8,100.00	8,094.34	8,095.48	8,080.33	18.28	19.40	-22.27	-126.83	455.48	209.97	174.22	35.75	5.873			
8,200.00	8,194.25	8,195.44	8,180.05	18.51	19.65	-22.26	-128.79	462.06	212.78	176.57	36.21	5.877			
8,300.00	8,294.16	8,295.40	8,279.77	18.75	19.91	-22.25	-130.75	468.63	215.59	178.93	36.67	5.880			
8,400.00	8,394.08	8,395.36	8,379.50	18.99	20.16	-22.24	-132.71	475.21	218.41	181.28	37.12	5.883			
8,500.00	8,493.99	8,495.32	8,479.22	19.22	20.42	-22.23	-134.68	481.79	221.22	183.64	37.58	5.886			
8,600.00	8,593.90	8,595.28	8,578.95	19.46	20.67	-22.22	-136.64	488.37	224.03	185.99	38.04	5.889			
8,700.00	8,693.81	8,695.24	8,678.67	19.70	20.93	-22.21	-138.60	494.94	226.85	188.35	38.50	5.892			
8,800.00	8,793.73	8,795.21	8,778.40	19.93	21.19	-22.20	-140.57	501.52	229.66	190.70	38.96	5.895			
8,900.00	8,893.64	8,895.17	8,878.12	20.17	21.44	-22.20	-142.53	508.10	232.47	193.06	39.42	5.898			
9,000.00	8,993.55	8,995.13	8,977.85	20.41	21.70	-22.19	-144.49	514.68	235.29	195.41	39.88	5.900			
9,100.00	9,093.46	9,095.09	9,077.57	20.64	21.95	-22.18	-146.45	521.26	238.10	197.76	40.33	5.903			
9,200.00	9,193.38	9,195.05	9,177.29	20.88	22.21	-22.17	-148.42	527.83	240.91	200.12	40.79	5.906			
9,300.00	9,293.29	9,295.01	9,277.02	21.12	22.46	-22.16	-150.38	534.41	243.73	202.47	41.25	5.908			
9,400.00	9,393.20	9,394.97	9,376.74	21.35	22.72	-22.15	-152.34	540.99	246.54	204.83	41.71	5.911			
9,500.00	9,493.12	9,495.56	9,478.11	21.59	22.97	-22.16	-154.29	547.52	249.15	206.98	42.17	5.908			
9,600.00	9,593.03	9,604.34	9,585.78	21.83	23.17	-22.29	-155.63	552.01	249.55	206.95	42.59	5.859			
9,700.00	9,692.94	9,711.04	9,692.47	22.06	23.35	-22.59	-156.12	553.64	247.23	204.23	43.00	5.750			
9,800.00	9,792.85	9,811.43	9,792.85	22.30	23.53	-22.97	-156.12	553.65	243.39	199.96	43.43	5.604			
9,900.00	9,892.77	9,911.34	9,892.77	22.54	23.71	-23.36	-156.12	553.65	239.55	195.68	43.87	5.461			
10,000.00	9,992.68	10,011.25	9,992.68	22.77	23.89	-23.76	-156.12	553.65	235.72	191.42	44.30	5.321			
10,100.00	10,092.59	10,111.12	10,091.98	23.01	24.06	-26.33	-147.40	553.61	231.86	187.07	44.80	5.176			
10,176.27	10,168.80	10,182.28	10,160.58	23.19	24.16	-31.30	-128.72	553.51	230.28	185.02	45.27	5.087			
10,200.00	10,192.51	10,203.04	10,179.99	23.25	24.18	-33.22	-121.37	553.47	230.51	185.09	45.42	5.075			
10,300.00	10,292.42	10,282.15	10,250.56	23.48	24.26	-42.22	-85.81	553.29	238.19	192.36	45.83	5.197			
10,348.13	10,340.51	10,315.28	10,278.19	23.60	24.29	-46.57	-67.54	553.20	247.06	201.29	45.76	5.399			
10,400.00	10,392.34	10,350.00	10,305.71	23.70	24.31	-51.46	-46.39	553.09	261.25	215.76	45.49	5.743			
10,507.67	10,500.00	10,405.03	10,345.98	23.91	24.34	55.80	-8.93	552.90	306.04	262.00	44.04	6.949			
10,600.00	10,592.33	10,445.19	10,372.51	24.08	24.37	50.72	21.21	552.74	357.85	315.29	42.57	8.407			
10,700.00	10,692.33	10,480.95	10,393.92	24.27	24.39	46.48	49.83	552.60	424.00	382.94	41.05	10.328			

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

Company:	Titus Oil & Gas Production, LLC	Local Co-ordinate Reference:	Well Todd 2-24S-31E State 405H - Slot 405H
Project:	Eddy County, NM (NAD83-NME)	TVD Reference:	3508+25 @ 3533.00usft (KB=25)
Reference Site:	A01 Todd DSU	MD Reference:	3508+25 @ 3533.00usft (KB=25)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Todd 2-24S-31E State 405H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	405H	Database:	EDM 5000.14 Single User Db
Reference Design:	Plan #1-Rev0	Offset TVD Reference:	Offset Datum

Company:	Titus Oil & Gas Production, LLC	Local Co-ordinate Reference:	Well Todd 2-24S-31E State 405H - Slot 405H
Project:	Eddy County, NM (NAD83-NME)	TVD Reference:	3508+25 @ 3533.00usft (KB=25)
Reference Site:	A01 Todd DSU	MD Reference:	3508+25 @ 3533.00usft (KB=25)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Todd 2-24S-31E State 405H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	405H	Database:	EDM 5000.14 Single User Db
Reference Design:	Plan #1-Rev0	Offset TVD Reference:	Offset Datum

Offset Design														Offset Site Error: 0.00 usft	
Survey Program: 0-MWD														Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor			
1,000.00	1,000.00	999.00	999.00	2.11	2.10	0.13	45.20	0.10	45.20	40.99	4.21	10.731			
1,100.00	1,100.00	1,099.00	1,099.00	2.33	2.33	0.13	45.20	0.10	45.20	40.54	4.66	9.696			
1,200.00	1,200.00	1,199.00	1,199.00	2.56	2.55	0.13	45.20	0.10	45.20	40.09	5.11	8.843			
1,300.00	1,300.00	1,299.00	1,299.00	2.78	2.78	0.13	45.20	0.10	45.20	39.64	5.56	8.128			
1,400.00	1,400.00	1,399.00	1,399.00	3.01	3.00	0.13	45.20	0.10	45.20	39.19	6.01	7.521			
1,500.00	1,500.00	1,499.00	1,499.00	3.23	3.23	0.13	45.20	0.10	45.20	38.74	6.46	6.997			
1,584.07	1,584.07	1,583.53	1,583.52	3.40	3.40	-117.20	44.75	-0.70	45.18	38.37	6.80	6.639	CC		
1,600.00	1,599.99	1,599.53	1,599.51	3.44	3.43	-118.06	44.56	-1.03	45.18	38.31	6.87	6.577			
1,659.54	1,659.49	1,659.25	1,659.20	3.55	3.55	-122.61	43.57	-2.79	45.37	38.28	7.09	6.397	ES		
1,700.00	1,699.92	1,699.67	1,699.58	3.63	3.62	-126.53	42.67	-4.40	45.70	38.45	7.25	6.307			
1,800.00	1,799.83	1,799.36	1,799.16	3.82	3.82	-135.98	40.39	-8.47	47.38	39.75	7.63	6.207			
1,900.00	1,899.74	1,899.05	1,898.74	4.02	4.01	-144.57	38.10	-12.54	50.25	42.23	8.03	6.260			
2,000.00	1,999.66	1,998.74	1,998.32	4.22	4.22	-152.09	35.81	-16.61	54.13	45.70	8.43	6.422			
2,100.00	2,099.57	2,098.43	2,097.90	4.43	4.42	-158.52	33.53	-20.68	58.80	49.97	8.83	6.658			
2,200.00	2,199.48	2,198.12	2,197.48	4.64	4.63	-163.95	31.24	-24.75	64.11	54.87	9.24	6.937			
2,300.00	2,299.40	2,297.81	2,297.06	4.85	4.84	-168.51	28.95	-28.82	69.90	60.24	9.65	7.240			
2,400.00	2,399.31	2,397.50	2,396.65	5.07	5.06	-172.36	26.67	-32.89	76.06	65.99	10.07	7.552			
2,500.00	2,499.22	2,497.19	2,496.23	5.28	5.28	-175.62	24.38	-36.96	82.52	72.02	10.49	7.865			
2,600.00	2,599.13	2,596.88	2,595.81	5.50	5.50	-178.40	22.09	-41.03	89.20	78.28	10.91	8.173			
2,700.00	2,699.05	2,696.57	2,695.39	5.72	5.72	-179.21	19.81	-45.10	96.06	84.72	11.34	8.471			
2,800.00	2,798.96	2,796.26	2,794.97	5.94	5.94	-177.14	17.52	-49.17	103.07	91.30	11.77	8.758			
2,900.00	2,898.87	2,895.95	2,894.55	6.17	6.16	-175.34	15.23	-53.24	110.19	97.99	12.20	9.033			
3,000.00	2,998.78	2,995.64	2,994.13	6.39	6.39	-173.76	12.95	-57.31	117.41	104.78	12.63	9.295			
3,100.00	3,098.70	3,095.33	3,093.71	6.62	6.62	-172.36	10.66	-61.38	124.71	111.64	13.07	9.545			
3,200.00	3,198.61	3,195.02	3,193.29	6.84	6.84	-171.12	8.38	-65.45	132.07	118.57	13.50	9.782			
3,300.00	3,298.52	3,294.71	3,292.87	7.07	7.07	-170.01	6.09	-69.52	139.49	125.55	13.94	10.007			
3,400.00	3,398.44	3,394.40	3,392.45	7.29	7.30	-169.01	3.80	-73.59	146.95	132.58	14.38	10.221			
3,500.00	3,498.35	3,494.09	3,492.03	7.52	7.53	-168.10	1.52	-77.66	154.46	139.64	14.82	10.424			
3,600.00	3,598.26	3,593.78	3,591.61	7.75	7.76	-167.29	-0.77	-81.73	162.00	146.74	15.26	10.617			
3,700.00	3,698.17	3,693.47	3,691.19	7.98	7.99	-166.54	-3.06	-85.80	169.57	153.87	15.70	10.800			
3,800.00	3,798.09	3,793.16	3,790.77	8.21	8.22	-165.86	-5.34	-89.87	177.17	161.02	16.14	10.974			
3,900.00	3,898.00	3,892.85	3,890.35	8.44	8.46	-165.23	-7.63	-93.94	184.78	168.20	16.59	11.139			
4,000.00	3,997.91	3,992.54	3,989.93	8.67	8.69	-164.66	-9.92	-98.01	192.42	175.39	17.03	11.296			
4,100.00	4,097.83	4,092.23	4,089.51	8.90	8.92	-164.12	-12.20	-102.08	200.08	182.60	17.48	11.446			
4,200.00	4,197.74	4,191.92	4,189.09	9.13	9.16	-163.63	-14.49	-106.15	207.75	189.83	17.93	11.589			
4,300.00	4,297.65	4,291.61	4,288.67	9.36	9.39	-163.17	-16.78	-110.22	215.44	197.07	18.37	11.726			
4,400.00	4,397.56	4,391.30	4,388.26	9.59	9.62	-162.75	-19.06	-114.29	223.14	204.32	18.82	11.856			
4,500.00	4,497.48	4,490.99	4,487.84	9.83	9.86	-162.35	-21.35	-118.36	230.85	211.58	19.27	11.980			
12,500.00	11,774.98	12,362.16	11,632.25	30.04	29.21	-77.92	801.36	-332.88	677.05	618.95	58.10	11.653			
12,600.00	11,774.70	12,462.15	11,631.81	31.02	30.15	-77.90	901.35	-333.28	676.96	617.00	59.97	11.289			
12,700.00	11,774.43	12,562.15	11,631.37	32.07	31.16	-77.89	1,001.35	-333.67	676.88	614.89	61.98	10.920			
12,800.00	11,774.15	12,662.15	11,630.93	33.18	32.25	-77.87	1,101.35	-334.07	676.79	612.65	64.14	10.552			
12,900.00	11,773.87	12,762.15	11,630.49	34.36	33.40	-77.85	1,201.35	-334.46	676.70	610.28	66.41	10.189			
13,000.00	11,773.59	12,862.15	11,630.05	35.59	34.61	-77.84	1,301.35	-334.86	676.61	607.80	68.80	9.834			
13,100.00	11,773.31	12,962.15	11,629.61	36.87	35.87	-77.82	1,401.34	-335.25	676.52	605.23	71.29	9.489			
13,200.00	11,773.03	13,062.15	11,629.18	38.20	37.18	-77.81	1,501.34	-335.65	676.43	602.56	73.87	9.157			
13,300.00	11,772.75	13,162.15	11,628.74	39.56	38.53	-77.79	1,601.34	-336.04	676.34	599.81	76.53	8.837			
13,400.00	11,772.47	13,262.15	11,628.30	40.96	39.92	-77.78	1,701.34	-336.44	676.25	596.99	79.27	8.531			
13,500.00	11,772.19	13,362.15	11,627.86	42.40	41.34	-77.76	1,801.34	-336.83	676.16	594.10	82.07	8.239			
13,600.00	11,771.91	13,462.15	11,627.42	43.86	42.80	-77.75	1,901.33	-337.23	676.08	591.15	84.92	7.961			
13,700.00	11,771.63	13,562.15	11,626.98	45.35	44.28	-77.73	2,001.33	-337.62	675.99	588.15	87.84	7.696			
13,800.00	11,771.36	13,662.15	11,626.54	46.86	45.78	-77.72	2,101.33	-338.02	675.90	585.10	90.80	7.444			

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

Company:	Titus Oil & Gas Production, LLC	Local Co-ordinate Reference:	Well Todd 2-24S-31E State 405H - Slot 405H
Project:	Eddy County, NM (NAD83-NME)	TVD Reference:	3508+25 @ 3533.00usft (KB=25)
Reference Site:	A01 Todd DSU	MD Reference:	3508+25 @ 3533.00usft (KB=25)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Todd 2-24S-31E State 405H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	405H	Database:	EDM 5000.14 Single User Db
Reference Design:	Plan #1-Rev0	Offset TVD Reference:	Offset Datum

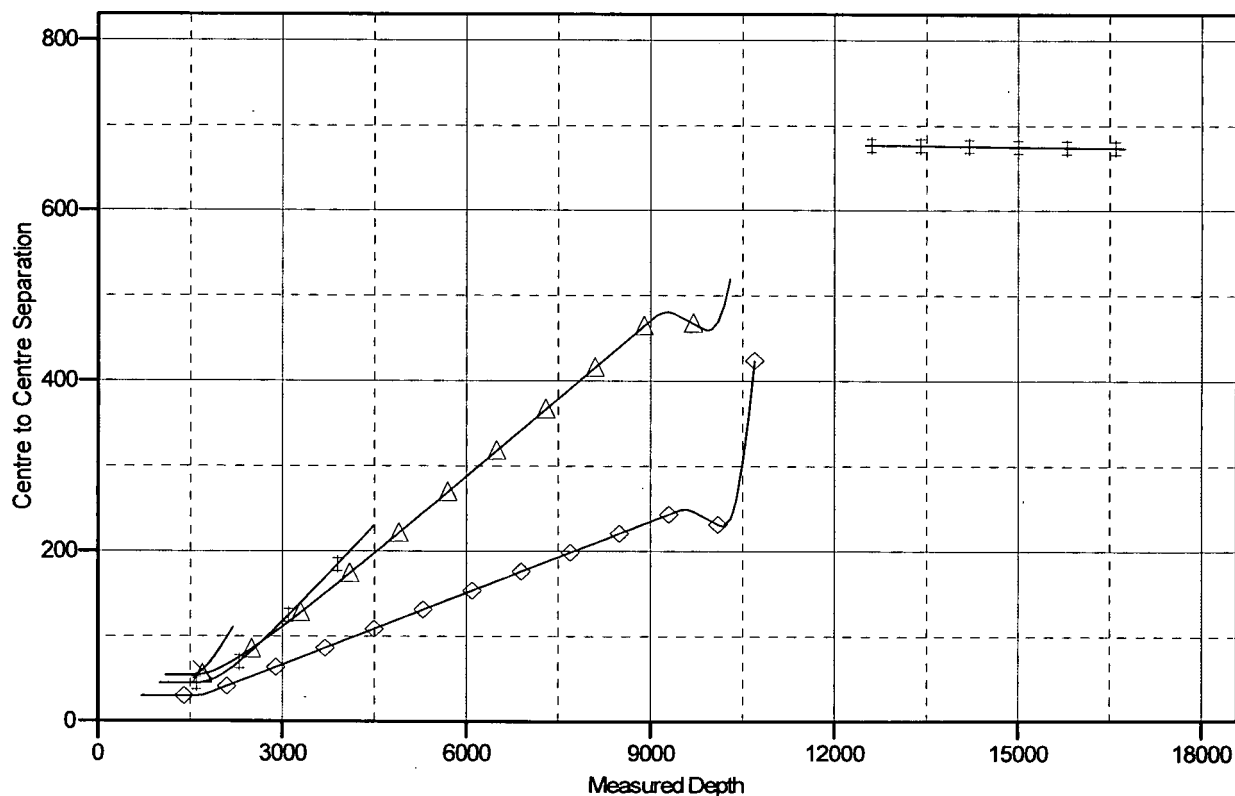
Offset Design														Offset Site Error: 0.00 usft	
Survey Program: 0-MWD														Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor			
13,900.00	11,771.08	13,762.15	11,626.10	48.40	47.31	-77.70	2,201.33	-338.41	675.81	582.01	93.80	7.205			
14,000.00	11,770.80	13,862.15	11,625.66	49.95	48.86	-77.68	2,301.33	-338.81	675.72	578.88	96.84	6.978			
14,100.00	11,770.52	13,962.15	11,625.23	51.53	50.43	-77.67	2,401.32	-339.20	675.63	575.71	99.92	6.762			
14,200.00	11,770.24	14,062.15	11,624.79	53.11	52.02	-77.65	2,501.32	-339.60	675.54	572.51	103.03	6.557			
14,300.00	11,769.96	14,162.15	11,624.35	54.72	53.62	-77.64	2,601.32	-339.99	675.46	569.29	106.17	6.362			
14,400.00	11,769.68	14,262.15	11,623.91	56.34	55.23	-77.62	2,701.32	-340.39	675.37	566.03	109.34	6.177			
14,500.00	11,769.40	14,362.15	11,623.47	57.97	56.86	-77.61	2,801.32	-340.78	675.28	562.75	112.53	6.001			
14,600.00	11,769.12	14,462.15	11,623.03	59.61	58.50	-77.59	2,901.31	-341.18	675.19	559.45	115.74	5.834			
14,700.00	11,768.84	14,562.15	11,622.59	61.26	60.15	-77.58	3,001.31	-341.57	675.10	556.12	118.98	5.674			
14,800.00	11,768.56	14,662.15	11,622.15	62.93	61.82	-77.56	3,101.31	-341.97	675.01	552.78	122.23	5.522			
14,900.00	11,768.29	14,762.15	11,621.71	64.60	63.49	-77.54	3,201.31	-342.36	674.93	549.42	125.50	5.378			
15,000.00	11,768.01	14,862.15	11,621.27	66.28	65.16	-77.53	3,301.31	-342.76	674.84	546.05	128.79	5.240			
15,100.00	11,767.73	14,962.15	11,620.84	67.97	66.85	-77.51	3,401.30	-343.15	674.75	542.66	132.09	5.108			
15,200.00	11,767.45	15,062.15	11,620.40	69.66	68.55	-77.50	3,501.30	-343.55	674.66	539.25	135.41	4.982			
15,300.00	11,767.17	15,162.15	11,619.96	71.36	70.25	-77.48	3,601.30	-343.94	674.57	535.83	138.74	4.862			
15,400.00	11,766.89	15,262.15	11,619.52	73.07	71.95	-77.47	3,701.30	-344.34	674.49	532.41	142.08	4.747			
15,500.00	11,766.61	15,362.15	11,619.08	74.78	73.67	-77.45	3,801.30	-344.73	674.40	528.96	145.43	4.637			
15,600.00	11,766.33	15,462.15	11,618.64	76.50	75.39	-77.44	3,901.30	-345.13	674.31	525.51	148.80	4.532			
15,700.00	11,766.05	15,562.15	11,618.20	78.23	77.11	-77.42	4,001.29	-345.52	674.22	522.05	152.17	4.431			
15,800.00	11,765.77	15,662.15	11,617.76	79.95	78.84	-77.40	4,101.29	-345.92	674.14	518.59	155.55	4.334			
15,900.00	11,765.49	15,762.15	11,617.32	81.69	80.57	-77.39	4,201.29	-346.31	674.05	515.11	158.94	4.241			
16,000.00	11,765.22	15,862.15	11,616.89	83.43	82.31	-77.37	4,301.29	-346.71	673.96	511.62	162.34	4.152			
16,100.00	11,764.94	15,962.15	11,616.45	85.17	84.05	-77.36	4,401.29	-347.10	673.87	508.13	165.74	4.066			
16,200.00	11,764.66	16,062.15	11,616.01	86.91	85.79	-77.34	4,501.28	-347.50	673.79	504.63	169.15	3.983			
16,300.00	11,764.38	16,162.15	11,615.57	88.66	87.54	-77.33	4,601.28	-347.89	673.70	501.13	172.57	3.904			
16,400.00	11,764.10	16,262.15	11,615.13	90.41	89.29	-77.31	4,701.28	-348.29	673.61	497.62	175.99	3.828			
16,500.00	11,763.82	16,362.15	11,614.69	92.17	91.05	-77.30	4,801.28	-348.68	673.52	494.10	179.42	3.754			
16,600.00	11,763.54	16,462.15	11,614.25	93.92	92.81	-77.28	4,901.28	-349.08	673.44	490.58	182.86	3.683			
16,700.00	11,763.26	16,562.15	11,613.81	95.68	94.57	-77.26	5,001.27	-349.47	673.35	487.06	186.29	3.614			
16,757.88	11,763.10	16,620.03	11,613.56	96.70	95.59	-77.25	5,059.15	-349.70	673.30	485.01	188.29	3.576 SF			

Company:	Titus Oil & Gas Production, LLC	Local Co-ordinate Reference:	Well Todd 2-24S-31E State 405H - Slot 405H
Project:	Eddy County, NM (NAD83-NME)	TVD Reference:	3508+25 @ 3533.00usft (KB=25)
Reference Site:	A01 Todd DSU	MD Reference:	3508+25 @ 3533.00usft (KB=25)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Todd 2-24S-31E State 405H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	405H	Database:	EDM 5000.14 Single User Db
Reference Design:	Plan #1-Rev0	Offset TVD Reference:	Offset Datum

Reference Depths are relative to 3508+25 @ 3533.00usft (KB=25)
 Offset Depths are relative to Offset Datum
 Central Meridian is -104.33333334

Coordinates are relative to: Todd 2-24S-31E State 405H - Slot 405H
 Coordinate System is US State Plane 1983, New Mexico Eastern Zone
 Grid Convergence at Surface is: 0.31°

Ladder Plot



LEGEND

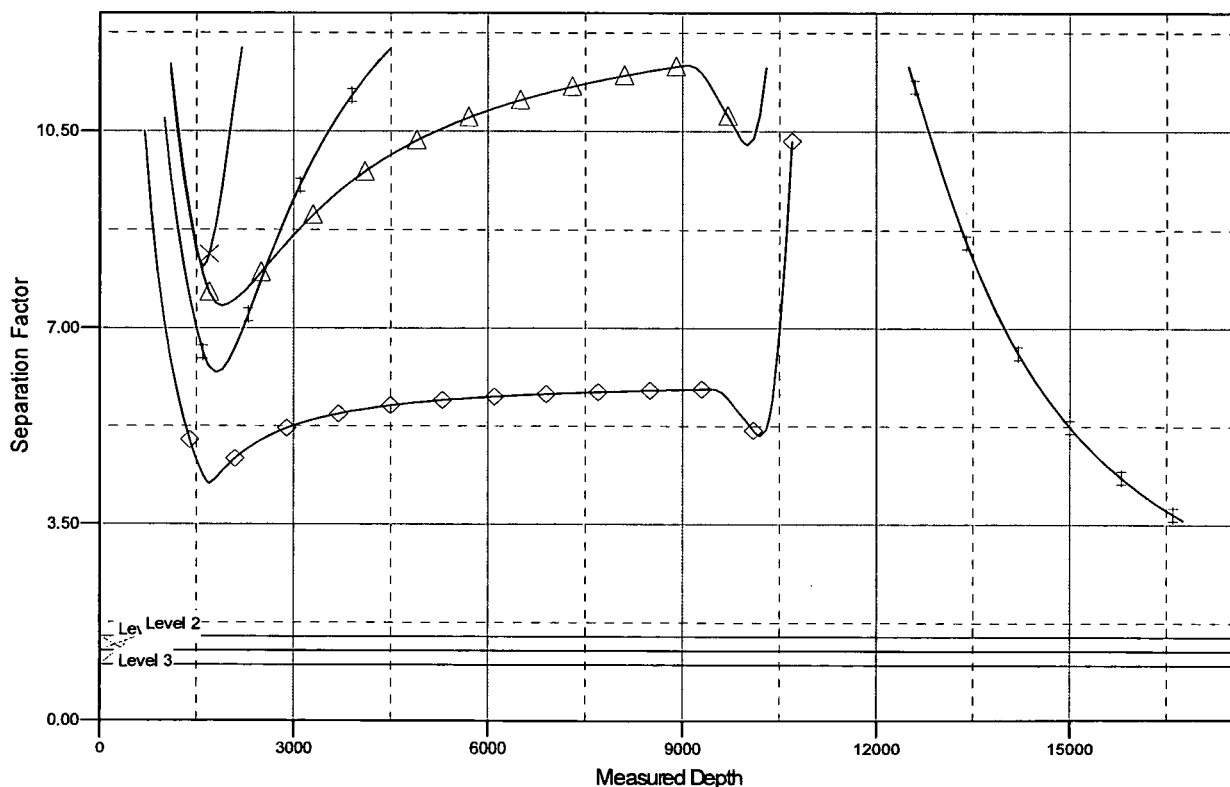
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 Todd2245-31E State 203H, 203 HP & n#1-Rev0V0
 Todd2245-31E State 306H, 304 HP & n#1-Rev0V0

Company:	Titus Oil & Gas Production, LLC	Local Co-ordinate Reference:	Well Todd 2-24S-31E State 405H - Slot 405H
Project:	Eddy County, NM (NAD83-NME)	TVD Reference:	3508+25 @ 3533.00usft (KB=25)
Reference Site:	A01 Todd DSU	MD Reference:	3508+25 @ 3533.00usft (KB=25)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Todd 2-24S-31E State 405H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	405H	Database:	EDM 5000.14 Single User Db
Reference Design:	Plan #1-Rev0	Offset TVD Reference:	Offset Datum

Reference Depths are relative to 3508+25 @ 3533.00usft (KB=25)
 Offset Depths are relative to Offset Datum
 Central Meridian is -104.33333334

Coordinates are relative to: Todd 2-24S-31E State 405H - Slot 405H
 Coordinate System is US State Plane 1983, New Mexico Eastern Zone
 Grid Convergence at Surface is: 0.31°

Separation Factor Plot



LEGEND

Todd 2-24S-31E State 207H, 207 HP b n#1-Rev0/0
 Todd 2-24S-31E State 202H, 202 HP b n#1-Rev0/0
 Todd 2-24S-31E State 304H, 304 HP b n#1-Rev0/0

TITUS

OIL GAS LLC

Titus Oil & Gas Production, LLC
Project: Eddy County, NM (NAD83-NME)
Site: A01 Todd DSU
Well: Todd 2-24S-31E State 405H
Wellbore: 405H
Plan: Plan #1-Rev0

WELL DETAILS: Todd 2-24S-31E State 405H

Northing	Easting	Latitude	Longitude	Slot
451439.40	722123.90	32.23972991	-103.74860683	405H

Section Details

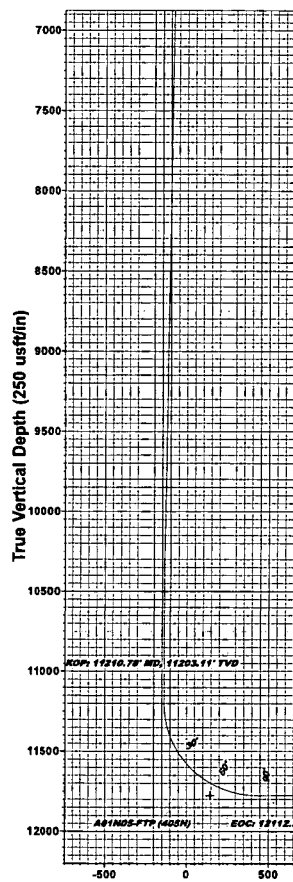
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	1500.00	0.00	0.00	1500.00	0.00	0.00	0.00	0.00	0.00
3	1659.54	2.39	115.25	1659.49	-1.42	3.01	1.50	115.25	-1.24
4	10348.13	2.39	115.25	10340.51	-156.15	331.16	0.00	0.00	-135.82
5	10507.67	0.00	0.00	10500.00	-157.57	334.17	1.50	180.00	-137.05
6	11210.78	0.00	0.00	11203.11	-157.57	334.17	0.00	0.00	-137.05
7	12112.38	90.16	359.70	11776.07	416.98	331.18	10.00	359.70	436.26
8	16757.88	90.16	359.70	11763.10	5062.40	307.00	0.00	0.00	5071.70



Azimuths to Grid North
True North: -0.31°
Magnetic North: 6.51°

Magnetic Field
Strength: 47727.8nT
Dip Angle: 60.02°
Date: 5/30/2019
Model: IGRF2015

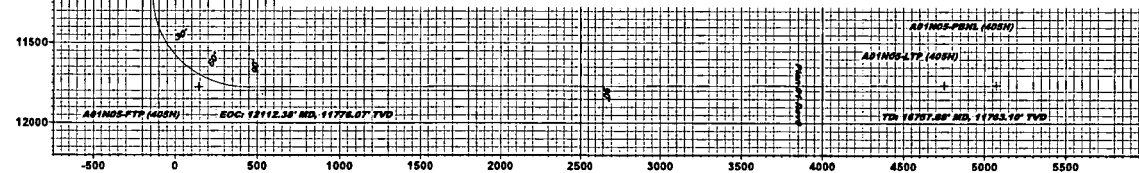
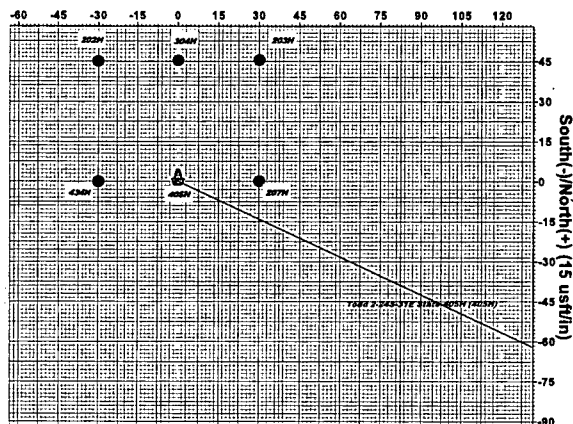
PROJECT DETAILS: Eddy County, NM (NAD83-NME)
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level
Local North: Grid
Grid Convergence: 0.31° West
KB Elevation: 3503+25 @ 3533.00usft (KB=25)
Elevation: 3508.00



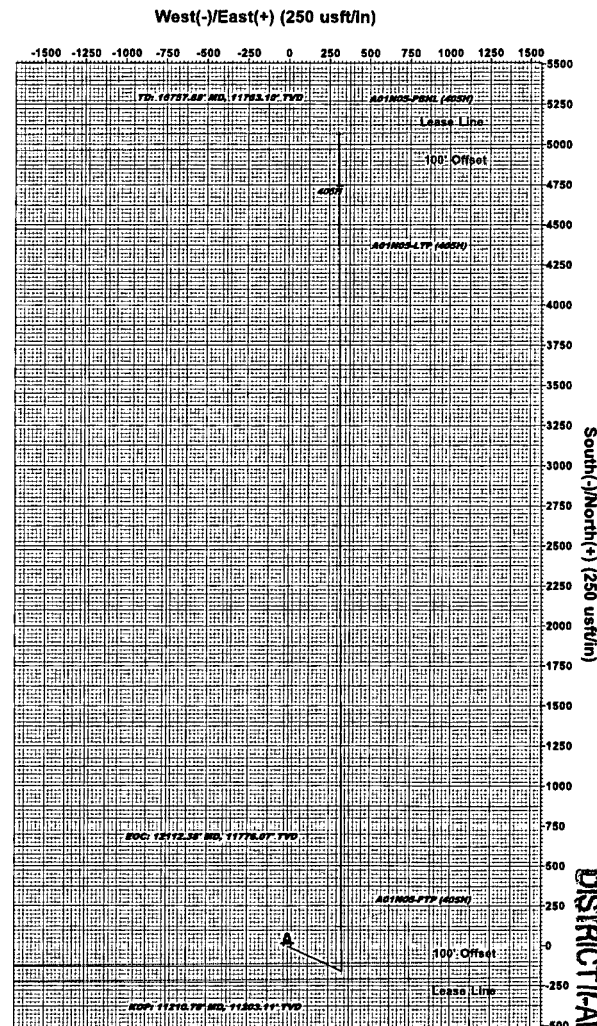
DESIGN TARGET DETAILS

Name	+N/-S	+E/-W	Northing	Easting
A01N05-EOM (405H)	-157.57	334.17	451281.83	722458.07
A01N05-PBNL (405H)	5062.40	307.00	458501.80	722430.90
A01N05-LTP (405H)	4742.40	309.20	458181.80	722433.10
A01N05-FTP (405H)	122.40	332.70	451581.80	722456.80

West(-)/East(+) (15 usft/in)



Vertical Section at 3.47° (250 usft/in)



TURNAZONTAL
WELL PLANNING

Plan: Plan #1-Rev0 (Todd 2-24S-31E State 405H/405H)
Created By: Adrian Castro Date: 13:34, May 31 2019

DISTRICT-ARTESIA O.C.D.

JUN 03 2019