



CONCHO

NM OIL CONSERVATION
ARTESIA DISTRICT

DEC 12 2018

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COG Operating L L C

Eddy County, NM (NAD 27 NME)

Sec. 31, T 26 S, R 28- E

Way South State Com 705H

Wellbore #1
Plan #1

30-015-45545

Anticollision Report

11 December, 2018



INTEGRITY
DIRECTIONAL



Anticollision Report



Company: COG Operating L L C
Project: Eddy County, NM (NAD 27 NME)
Reference Site: Sec. 31, T 26 S, R 28- E
Site Error: 0.00 usft
Reference Well: Way South State Com 705H
Well Error: 0.00 usft
Reference Wellbore: Wellbore #1
Reference Design: Plan #1

Local Co-ordinate Reference: Well Way South State Com 705H
TVD Reference: KB=30' @ 3129.00usft (Nabor 894)
MD Reference: KB=30' @ 3129.00usft (Nabor 894)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1
Offset TVD Reference: Offset Datum

Reference	Plan #1
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method:	Stations
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 19,999.96 u
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	ISCWSA
Scan Method:	Closest Approach 3D
Error Surface:	Circular Conic
Casing Method:	Not applied

Survey Tool Program Date 12/11/2018

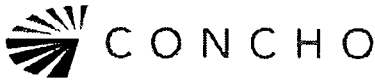
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	21,580.58	Plan #1 (Wellbore #1)	MWD	MWD - Standard

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						
Sec. 31, T 26 S, R 28- E						
Way South State Com 704H - Wellbore #1 - Plan #1	2,000.00	2,000.00	30.00	21.30	3.449	CC
Way South State Com 704H - Wellbore #1 - Plan #1	21,580.58	21,788.87	396.91	-58.07	0.872	Level 1, ES, SF
Way South State Com 706H - Wellbore #1 - Plan #1	1,966.33	1,967.33	30.00	21.45	3.509	CC
Way South State Com 706H - Wellbore #1 - Plan #1	21,580.58	21,774.88	381.34	-73.64	0.838	Level 1, ES, SF

Offset Design Sec. 31, T 26 S, R 28- E - Way South State Com 704H - Wellbore #1 - Plan #1												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
0.00	0.00	0.00	0.00	0.00	0.00	90.00	0.00	30.00	30.00				
100.00	100.00	100.00	100.00	0.08	0.08	90.00	0.00	30.00	30.00	29.84	0.16	190.674	
200.00	200.00	200.00	200.00	0.30	0.30	90.00	0.00	30.00	30.00	29.39	0.61	49.434	
300.00	300.00	300.00	300.00	0.53	0.53	90.00	0.00	30.00	30.00	28.94	1.06	28.398	
400.00	400.00	400.00	400.00	0.75	0.75	90.00	0.00	30.00	30.00	28.49	1.51	19.921	
500.00	500.00	500.00	500.00	0.98	0.98	90.00	0.00	30.00	30.00	28.04	1.96	15.342	
600.00	600.00	600.00	600.00	1.20	1.20	90.00	0.00	30.00	30.00	27.60	2.40	12.474	
700.00	700.00	700.00	700.00	1.43	1.43	90.00	0.00	30.00	30.00	27.15	2.85	10.510	
800.00	800.00	800.00	800.00	1.65	1.65	90.00	0.00	30.00	30.00	26.70	3.30	9.080	
900.00	900.00	900.00	900.00	1.88	1.88	90.00	0.00	30.00	30.00	26.25	3.75	7.992	
1,000.00	1,000.00	1,000.00	1,000.00	2.10	2.10	90.00	0.00	30.00	30.00	25.80	4.20	7.138	
1,100.00	1,100.00	1,100.00	1,100.00	2.33	2.33	90.00	0.00	30.00	30.00	25.35	4.65	6.448	
1,200.00	1,200.00	1,200.00	1,200.00	2.55	2.55	90.00	0.00	30.00	30.00	24.90	5.10	5.880	
1,300.00	1,300.00	1,300.00	1,300.00	2.78	2.78	90.00	0.00	30.00	30.00	24.45	5.55	5.404	
1,400.00	1,400.00	1,400.00	1,400.00	3.00	3.00	90.00	0.00	30.00	30.00	24.00	6.00	4.999	
1,500.00	1,500.00	1,500.00	1,500.00	3.23	3.23	90.00	0.00	30.00	30.00	23.55	6.45	4.651	
1,600.00	1,600.00	1,600.00	1,600.00	3.45	3.45	90.00	0.00	30.00	30.00	23.10	6.90	4.348	
1,700.00	1,700.00	1,700.00	1,700.00	3.67	3.67	90.00	0.00	30.00	30.00	22.65	7.35	4.082	
1,800.00	1,800.00	1,800.00	1,800.00	3.90	3.90	90.00	0.00	30.00	30.00	22.20	7.80	3.846	
1,900.00	1,900.00	1,900.00	1,900.00	4.12	4.12	90.00	0.00	30.00	30.00	21.75	8.25	3.637	
2,000.00	2,000.00	2,000.00	2,000.00	4.35	4.35	90.00	0.00	30.00	30.00	21.30	8.70	3.449	CC
2,050.00	2,050.00	2,050.00	2,050.00	4.45	4.46	-132.24	0.00	30.00	30.29	21.38	8.91	3.400	
2,100.00	2,099.99	2,099.99	2,099.99	4.54	4.57	-133.44	0.00	30.00	30.89	21.77	9.11	3.390	

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



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North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1
Offset TVD Reference: Offset Datum

Offset Design													Sec. 31, T 26 S, R 28- E - Way South State Com 704H - Wellbore #1 - Plan #1		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				
2,200.00	2,199.97	2,199.97	2,199.97	4.72	4.80	-135.70	0.00	30.00	32.11	22.60	9.51	3.375				
2,300.00	2,299.96	2,299.96	2,299.96	4.90	5.02	-137.79	0.00	30.00	33.38	23.46	9.92	3.364				
2,400.00	2,399.94	2,399.94	2,399.94	5.08	5.25	-139.73	0.00	30.00	34.69	24.36	10.33	3.358				
2,500.00	2,499.93	2,499.93	2,499.93	5.27	5.47	-141.52	0.00	30.00	36.04	25.30	10.75	3.354				
2,600.00	2,599.91	2,599.91	2,599.91	5.47	5.70	-143.19	0.00	30.00	37.43	26.26	11.16	3.352				
2,700.00	2,699.90	2,699.90	2,699.90	5.66	5.92	-144.73	0.00	30.00	38.84	27.25	11.58	3.353				
2,800.00	2,799.88	2,799.88	2,799.88	5.86	6.15	-146.16	0.00	30.00	40.27	28.27	12.01	3.355				
2,900.00	2,899.87	2,899.87	2,899.87	6.06	6.37	-147.50	0.00	30.00	41.74	29.31	12.43	3.358				
3,000.00	2,999.85	2,999.85	2,999.85	6.26	6.60	-148.74	0.00	30.00	43.22	30.36	12.86	3.362				
3,100.00	3,099.84	3,099.84	3,099.84	6.46	6.82	-149.90	0.00	30.00	44.72	31.43	13.28	3.366				
3,200.00	3,199.82	3,199.82	3,199.82	6.67	7.05	-150.99	0.00	30.00	46.24	32.52	13.71	3.372				
3,300.00	3,299.81	3,299.81	3,299.81	6.87	7.27	-152.00	0.00	30.00	47.77	33.63	14.14	3.377				
3,400.00	3,399.79	3,399.79	3,399.79	7.08	7.50	-152.95	0.00	30.00	49.32	34.74	14.58	3.383				
3,500.00	3,499.78	3,499.78	3,499.78	7.29	7.72	-153.85	0.00	30.00	50.88	35.87	15.01	3.390				
3,600.00	3,599.76	3,599.76	3,599.76	7.50	7.94	-154.69	0.00	30.00	52.45	37.01	15.44	3.396				
3,700.00	3,699.75	3,699.75	3,699.75	7.71	8.17	-155.48	0.00	30.00	54.03	38.15	15.88	3.403				
3,800.00	3,799.73	3,799.73	3,799.73	7.92	8.39	-156.22	0.00	30.00	55.63	39.31	16.32	3.409				
3,900.00	3,899.72	3,899.72	3,899.72	8.14	8.62	-156.93	0.00	30.00	57.23	40.47	16.75	3.416				
4,000.00	3,999.70	3,999.70	3,999.70	8.35	8.84	-157.59	0.00	30.00	58.84	41.65	17.19	3.422				
4,100.00	4,099.69	4,099.69	4,099.69	8.56	9.07	-158.23	0.00	30.00	60.46	42.82	17.63	3.429				
4,200.00	4,199.67	4,199.67	4,199.67	8.78	9.29	-158.82	0.00	30.00	62.08	44.01	18.07	3.435				
4,300.00	4,299.65	4,299.65	4,299.65	8.99	9.52	-159.39	0.00	30.00	63.71	45.20	18.51	3.442				
4,400.00	4,399.64	4,399.64	4,399.64	9.21	9.74	-159.93	0.00	30.00	65.35	46.39	18.95	3.448				
4,500.00	4,499.62	4,499.62	4,499.62	9.43	9.97	-160.44	0.00	30.00	66.99	47.60	19.39	3.454				
4,600.00	4,599.61	4,599.61	4,599.61	9.64	10.19	-160.93	0.00	30.00	68.64	48.80	19.84	3.460				
4,700.00	4,699.59	4,699.59	4,699.59	9.86	10.42	-161.39	0.00	30.00	70.29	50.01	20.28	3.466				
4,800.00	4,799.58	4,799.58	4,799.58	10.08	10.64	-161.84	0.00	30.00	71.94	51.22	20.72	3.472				
4,900.00	4,899.56	4,899.56	4,899.56	10.30	10.87	-162.26	0.00	30.00	73.60	52.44	21.16	3.478				
5,000.00	4,999.55	4,999.55	4,999.55	10.52	11.09	-162.67	0.00	30.00	75.27	53.66	21.61	3.484				
5,100.00	5,099.53	5,099.53	5,099.53	10.73	11.32	-163.05	0.00	30.00	76.94	54.89	22.05	3.489				
5,200.00	5,199.52	5,199.52	5,199.52	10.95	11.54	-163.42	0.00	30.00	78.61	56.11	22.50	3.494				
5,300.00	5,299.50	5,299.50	5,299.50	11.17	11.77	-163.78	0.00	30.00	80.28	57.34	22.94	3.500				
5,400.00	5,399.49	5,399.49	5,399.49	11.39	11.99	-164.12	0.00	30.00	81.96	58.57	23.38	3.505				
5,500.00	5,499.47	5,499.47	5,499.47	11.62	12.21	-164.45	0.00	30.00	83.64	59.81	23.83	3.510				
5,600.00	5,599.46	5,599.46	5,599.46	11.84	12.44	-164.76	0.00	30.00	85.32	61.05	24.28	3.515				
5,700.00	5,699.39	5,700.43	5,700.41	12.06	12.64	-164.28	-1.71	30.41	88.10	63.40	24.70	3.567				
5,719.83	5,719.19	5,720.44	5,720.41	12.11	12.67	-164.00	-2.46	30.58	88.91	64.14	24.78	3.589				
5,800.00	5,799.22	5,801.07	5,800.91	12.29	12.81	-162.21	-6.77	31.60	92.09	66.99	25.10	3.669				
5,900.00	5,899.04	5,900.91	5,900.56	12.52	12.98	-159.77	-12.77	33.03	95.98	70.48	25.50	3.764				
6,000.00	5,998.87	6,000.76	6,000.22	12.75	13.15	-157.52	-18.78	34.45	100.04	74.14	25.90	3.862				
6,100.00	6,098.69	6,100.60	6,099.87	12.98	13.32	-155.45	-24.79	35.87	104.23	77.93	26.31	3.962				
6,200.00	6,198.52	6,200.45	6,199.52	13.22	13.50	-153.54	-30.80	37.29	108.55	81.84	26.72	4.063				
6,300.00	6,298.34	6,300.29	6,299.18	13.45	13.68	-151.78	-36.80	38.72	112.99	85.86	27.13	4.165				
6,400.00	6,398.17	6,400.13	6,398.83	13.68	13.86	-150.15	-42.81	40.14	117.52	89.98	27.54	4.267				
6,500.00	6,497.99	6,499.98	6,498.48	13.92	14.04	-148.64	-48.82	41.56	122.14	94.18	27.96	4.368				
6,600.00	6,597.81	6,599.82	6,598.13	14.15	14.22	-147.25	-54.82	42.98	126.84	98.46	28.38	4.469				
6,700.00	6,697.64	6,699.66	6,697.79	14.39	14.41	-145.95	-60.83	44.41	131.60	102.80	28.80	4.569				
6,800.00	6,797.46	6,799.51	6,797.44	14.63	14.60	-144.75	-66.84	45.83	136.43	107.20	29.23	4.668				
6,900.00	6,897.29	6,899.35	6,897.09	14.86	14.79	-143.63	-72.84	47.25	141.32	111.66	29.66	4.765				
7,000.00	6,997.11	6,999.19	6,996.74	15.10	14.99	-142.58	-78.85	48.68	146.25	116.17	30.09	4.861				
7,100.00	7,096.94	7,099.04	7,096.40	15.34	15.18	-141.60	-84.86	50.10	151.24	120.72	30.52	4.955				
7,200.00	7,196.76	7,198.88	7,196.05	15.58	15.38	-140.69	-90.86	51.52	156.26	125.30	30.95	5.048				

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Survey Program: 0-MWD													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	
7,300.00	7,296.58	7,298.73	7,295.70	15.82	15.58	-139.83	-96.87	52.94	161.32	129.93	31.39	5.139	
7,400.00	7,396.41	7,398.57	7,395.35	16.05	15.77	-139.03	-102.88	54.37	166.41	134.58	31.83	5.228	
7,500.00	7,496.23	7,498.41	7,495.01	16.29	15.98	-138.27	-108.89	55.79	171.54	139.27	32.27	5.316	
7,600.00	7,596.06	7,598.26	7,594.66	16.53	16.18	-137.55	-114.89	57.21	176.69	143.98	32.71	5.401	
7,700.00	7,695.88	7,698.10	7,694.31	16.77	16.38	-136.88	-120.90	58.63	181.87	148.71	33.16	5.485	
7,800.00	7,795.71	7,797.94	7,793.97	17.01	16.59	-136.25	-126.91	60.06	187.07	153.47	33.60	5.567	
7,900.00	7,895.53	7,897.79	7,893.62	17.25	16.80	-135.65	-132.91	61.48	192.30	158.25	34.05	5.647	
8,000.00	7,995.35	7,997.63	7,993.27	17.50	17.00	-135.08	-138.92	62.90	197.54	163.04	34.50	5.726	
8,100.00	8,095.18	8,097.48	8,092.92	17.74	17.21	-134.54	-144.93	64.32	202.80	167.85	34.95	5.803	
8,200.00	8,195.00	8,197.32	8,192.58	17.98	17.42	-134.02	-150.93	65.75	208.08	172.68	35.40	5.878	
8,300.00	8,294.83	8,297.16	8,292.23	18.22	17.63	-133.54	-156.94	67.17	213.38	177.52	35.85	5.951	
8,400.00	8,394.65	8,397.01	8,391.88	18.46	17.85	-133.07	-162.95	68.59	218.69	182.38	36.31	6.023	
8,500.00	8,494.48	8,496.85	8,491.53	18.70	18.06	-132.63	-168.96	70.02	224.01	187.24	36.76	6.093	
8,600.00	8,594.30	8,596.69	8,591.19	18.95	18.28	-132.21	-174.96	71.44	229.35	192.12	37.22	6.162	
8,654.08	8,648.29	8,650.69	8,645.08	19.08	18.39	-131.99	-178.21	72.21	232.24	194.77	37.47	6.198	
8,700.00	8,694.15	8,696.45	8,690.75	19.18	18.49	-132.62	-180.96	72.86	234.85	197.19	37.67	6.235	
8,750.00	8,743.92	8,745.85	8,740.06	19.27	18.60	-133.21	-183.94	73.56	238.19	200.32	37.87	6.290	
8,800.00	8,793.13	8,794.43	8,788.55	19.35	18.70	-133.81	-186.86	74.26	242.35	204.30	38.05	6.369	
8,850.00	8,841.42	8,841.83	8,835.85	19.42	18.81	-134.41	-189.71	74.93	247.87	209.64	38.23	6.484	
8,900.00	8,888.42	8,891.84	8,885.83	19.49	18.92	-135.01	-190.94	75.64	255.02	216.62	38.40	6.641	
8,950.00	8,933.77	8,943.93	8,937.79	19.55	19.02	-135.61	-187.60	76.39	263.49	224.92	38.56	6.833	
9,000.00	8,977.12	8,997.96	8,991.13	19.60	19.11	-136.21	-179.17	77.15	273.05	234.34	38.71	7.054	
9,050.00	9,018.14	9,054.11	9,045.46	19.64	19.19	-136.81	-165.12	77.92	283.47	244.63	38.84	7.299	
9,100.00	9,056.53	9,112.55	9,100.28	19.69	19.27	-137.41	-144.93	78.70	294.50	255.54	38.96	7.559	
9,150.00	9,091.99	9,173.45	9,154.89	19.73	19.34	-138.01	-118.07	79.47	305.85	266.78	39.07	7.828	
9,200.00	9,124.25	9,236.93	9,208.46	19.76	19.42	-138.61	-84.07	80.23	317.25	278.07	39.18	8.097	
9,250.00	9,153.07	9,303.07	9,259.91	19.84	19.50	-139.21	-42.57	80.96	328.42	289.07	39.34	8.348	
9,300.00	9,178.22	9,371.88	9,307.99	20.02	19.60	-139.81	6.60	81.64	339.07	299.45	39.63	8.557	
9,350.00	9,199.51	9,443.26	9,351.26	20.24	19.75	-140.41	63.30	82.25	348.96	308.97	39.99	8.726	
9,400.00	9,216.79	9,516.98	9,388.21	20.48	19.97	-141.01	127.03	82.76	357.84	317.39	40.45	8.846	
9,450.00	9,229.92	9,592.69	9,417.31	20.76	20.25	-141.61	196.86	83.17	365.50	324.49	41.01	8.912	
9,500.00	9,238.79	9,669.89	9,437.26	21.07	20.62	-142.21	271.38	83.44	371.78	330.09	41.69	8.918	
9,550.00	9,243.36	9,747.97	9,447.06	21.41	21.06	-142.81	348.78	83.57	376.57	334.10	42.47	8.867	
9,573.40	9,244.00	9,781.86	9,448.04	21.58	21.27	-143.41	382.65	83.58	378.30	335.45	42.85	8.829	
9,600.00	9,244.18	9,808.38	9,448.23	21.76	21.45	-144.01	409.17	83.58	380.05	336.83	43.22	8.794	
9,696.41	9,244.86	9,904.72	9,448.92	22.46	22.17	-144.61	505.50	83.57	382.90	338.27	44.63	8.579	
9,700.00	9,244.89	9,908.30	9,448.94	22.49	22.20	-144.61	509.09	83.57	382.91	338.22	44.69	8.568	
9,800.00	9,245.59	10,008.30	9,449.66	23.38	23.07	-145.21	609.09	83.57	383.03	338.58	44.44	8.247	
9,900.00	9,246.30	10,108.30	9,450.37	24.37	24.04	-145.81	709.08	83.56	383.14	338.74	44.41	7.915	
10,000.00	9,247.01	10,208.30	9,451.09	25.44	25.11	-146.41	809.08	83.56	383.26	338.90	44.41	7.581	
10,100.00	9,247.72	10,308.30	9,451.81	26.60	26.26	-147.01	909.08	83.55	383.38	339.01	44.41	7.252	
10,200.00	9,248.43	10,408.30	9,452.52	27.83	27.49	-147.61	1,009.08	83.55	383.49	339.12	44.41	6.932	
10,300.00	9,249.13	10,508.30	9,453.24	29.13	28.78	-148.21	1,109.07	83.54	383.61	339.23	44.41	6.625	
10,400.00	9,249.84	10,608.30	9,453.95	30.47	30.12	-148.81	1,209.07	83.54	383.73	339.34	44.41	6.339	
10,500.00	9,250.55	10,708.30	9,454.67	31.87	31.52	-149.41	1,309.07	83.54	383.85	339.45	44.41	6.056	
10,600.00	9,251.26	10,808.30	9,455.38	33.30	32.95	-150.01	1,409.07	83.53	383.96	339.56	44.41	5.796	
10,700.00	9,251.97	10,908.30	9,456.10	34.77	34.42	-150.61	1,509.06	83.53	384.08	339.67	44.41	5.551	
10,800.00	9,252.67	11,008.30	9,456.81	36.28	35.93	-151.21	1,609.06	83.52	384.20	339.78	44.41	5.321	
10,900.00	9,253.38	11,108.30	9,457.53	37.81	37.46	-151.81	1,709.06	83.52	384.32	339.89	44.41	5.106	
11,000.00	9,254.09	11,208.30	9,458.24	39.36	39.02	-152.41	1,809.06	83.51	384.43	339.99	44.41	4.905	
11,100.00	9,254.80	11,308.30	9,458.96	40.94	40.60	-153.01	1,909.05	83.51	384.55	340.10	44.41	4.716	
11,200.00	9,255.51	11,408.30	9,459.67	42.54	42.20	-153.61	2,009.05	83.50	384.67	340.21	44.41	4.539	

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

Company: COG Operating L L C
Project: Eddy County, NM (NAD 27 NME)
Reference Site: Sec. 31, T 26 S, R 28- E
Site Error: 0.00 usft
Reference Well: Way South State Com 705H
Well Error: 0.00 usft
Reference Wellbore: Wellbore #1
Reference Design: Plan #1

Local Co-ordinate Reference: Well Way South State Com 705H
TVD Reference: KB=30' @ 3129.00usft (Nabor 894)
MD Reference: KB=30' @ 3129.00usft (Nabor 894)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1
Offset TVD Reference: Offset Datum

Offset Design Sec. 31, T 26 S, R 28- E - Way South State Com 704H - Wellbore #1 - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Tooface (")	Distance		Minimum Separation (usft)	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset		Between Centres (usft)	Between Ellipses (usft)				Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	
11,300.00	9,256.21	11,508.30	9,460.39	44.16	43.81	122.05	2,109.05	83.50	384.78	296.81	87.97	4.374		
11,400.00	9,256.92	11,608.30	9,461.11	45.79	45.45	122.04	2,209.05	83.49	384.90	293.67	91.24	4.219		
11,500.00	9,257.63	11,708.30	9,461.82	47.43	47.09	122.03	2,309.04	83.49	385.02	290.49	94.53	4.073		
11,600.00	9,258.34	11,808.30	9,462.54	49.09	48.75	122.02	2,409.04	83.48	385.14	287.29	97.85	3.936		
11,700.00	9,259.05	11,908.30	9,463.25	50.76	50.43	122.01	2,509.04	83.48	385.25	284.07	101.19	3.807		
11,800.00	9,259.75	12,008.30	9,463.97	52.44	52.11	122.00	2,609.03	83.47	385.37	280.82	104.55	3.686		
11,900.00	9,260.46	12,108.30	9,464.68	54.13	53.80	121.99	2,709.03	83.47	385.49	277.56	107.93	3.572		
12,000.00	9,261.17	12,208.30	9,465.40	55.83	55.50	121.98	2,809.03	83.46	385.61	274.28	111.33	3.464		
12,100.00	9,261.88	12,308.30	9,466.11	57.54	57.20	121.97	2,909.03	83.46	385.72	270.98	114.74	3.362		
12,200.00	9,262.59	12,408.30	9,466.83	59.25	58.92	121.96	3,009.02	83.45	385.84	267.68	118.17	3.265		
12,300.00	9,263.29	12,508.30	9,467.54	60.97	60.64	121.95	3,109.02	83.45	385.96	264.35	121.61	3.174		
12,400.00	9,264.00	12,608.30	9,468.26	62.69	62.36	121.94	3,209.02	83.44	386.08	261.02	125.06	3.087		
12,500.00	9,264.71	12,708.30	9,468.98	64.42	64.10	121.93	3,309.02	83.44	386.19	257.67	128.52	3.005		
12,600.00	9,265.42	12,808.30	9,469.69	66.16	65.83	121.92	3,409.01	83.43	386.31	254.32	131.99	2.927		
12,700.00	9,266.13	12,908.30	9,470.41	67.90	67.57	121.91	3,509.01	83.43	386.43	250.95	135.47	2.852		
12,800.00	9,266.83	13,008.30	9,471.12	69.64	69.32	121.91	3,609.01	83.42	386.55	247.58	138.96	2.782		
12,900.00	9,267.54	13,108.30	9,471.84	71.39	71.07	121.90	3,709.01	83.42	386.66	244.20	142.46	2.714		
13,000.00	9,268.25	13,208.30	9,472.55	73.15	72.82	121.89	3,809.00	83.41	386.78	240.81	145.97	2.650		
13,100.00	9,268.96	13,308.30	9,473.27	74.90	74.58	121.88	3,909.00	83.41	386.90	237.42	149.48	2.588		
13,200.00	9,269.67	13,408.30	9,473.98	76.66	76.34	121.87	4,009.00	83.40	387.02	234.02	153.00	2.530		
13,300.00	9,270.37	13,508.30	9,474.70	78.42	78.10	121.86	4,108.99	83.40	387.13	230.61	156.53	2.473		
13,400.00	9,271.08	13,608.30	9,475.41	80.19	79.87	121.85	4,208.99	83.40	387.25	227.20	160.06	2.419		
13,500.00	9,271.79	13,708.30	9,476.13	81.95	81.64	121.84	4,308.99	83.39	387.37	223.78	163.59	2.368		
13,600.00	9,272.50	13,808.30	9,476.85	83.72	83.41	121.83	4,408.99	83.39	387.49	220.35	167.13	2.318		
13,700.00	9,273.21	13,908.30	9,477.56	85.50	85.18	121.82	4,508.98	83.38	387.60	216.93	170.68	2.271		
13,800.00	9,273.91	14,008.30	9,478.28	87.27	86.96	121.81	4,608.98	83.38	387.72	213.49	174.23	2.225		
13,900.00	9,274.62	14,108.30	9,478.99	89.05	88.73	121.80	4,708.98	83.37	387.84	210.06	177.78	2.182		
14,000.00	9,275.33	14,208.30	9,479.71	90.83	90.51	121.79	4,808.98	83.37	387.96	206.62	181.34	2.139		
14,100.00	9,276.04	14,308.30	9,480.42	92.61	92.29	121.78	4,908.97	83.36	388.08	203.18	184.90	2.099		
14,200.00	9,276.75	14,408.30	9,481.14	94.39	94.08	121.77	5,008.97	83.36	388.19	199.73	188.46	2.060		
14,300.00	9,277.45	14,508.30	9,481.85	96.17	95.86	121.76	5,108.97	83.35	388.31	196.28	192.03	2.022		
14,400.00	9,278.16	14,608.30	9,482.57	97.96	97.64	121.75	5,208.97	83.35	388.43	192.83	195.60	1.986		
14,500.00	9,278.87	14,708.30	9,483.28	99.74	99.43	121.74	5,308.96	83.34	388.55	189.37	199.18	1.951		
14,600.00	9,279.58	14,808.30	9,484.00	101.53	101.22	121.73	5,408.96	83.34	388.66	185.91	202.75	1.917		
14,700.00	9,280.29	14,908.30	9,484.72	103.32	103.01	121.72	5,508.96	83.33	388.78	182.45	206.33	1.884		
14,800.00	9,280.99	15,008.30	9,485.43	105.11	104.80	121.72	5,608.96	83.33	388.90	178.99	209.91	1.853		
14,900.00	9,281.70	15,108.30	9,486.15	106.90	106.59	121.71	5,708.95	83.32	389.02	175.52	213.50	1.822		
15,000.00	9,282.41	15,208.30	9,486.86	108.70	108.39	121.70	5,808.95	83.32	389.14	172.05	217.08	1.793		
15,100.00	9,283.12	15,308.30	9,487.58	110.49	110.18	121.69	5,908.95	83.31	389.25	168.58	220.67	1.764		
15,200.00	9,283.83	15,408.30	9,488.29	112.28	111.97	121.68	6,008.94	83.31	389.37	165.11	224.26	1.736		
15,300.00	9,284.53	15,508.30	9,489.01	114.08	113.77	121.67	6,108.94	83.30	389.49	161.64	227.85	1.709		
15,400.00	9,285.24	15,608.30	9,489.72	115.88	115.57	121.66	6,208.94	83.30	389.61	158.16	231.44	1.683		
15,500.00	9,285.95	15,708.30	9,490.44	117.67	117.36	121.65	6,308.94	83.29	389.72	154.68	235.04	1.658		
15,600.00	9,286.66	15,808.30	9,491.15	119.47	119.16	121.64	6,408.93	83.29	389.84	151.21	238.64	1.634		
15,700.00	9,287.37	15,908.30	9,491.87	121.27	120.96	121.63	6,508.93	83.28	389.96	147.73	242.23	1.610		
15,800.00	9,288.07	16,008.30	9,492.59	123.07	122.76	121.62	6,608.93	83.28	390.08	144.24	245.83	1.587		
15,900.00	9,288.78	16,108.30	9,493.30	124.87	124.56	121.61	6,708.93	83.27	390.20	140.76	249.44	1.564		
16,000.00	9,289.49	16,208.30	9,494.02	126.67	126.36	121.60	6,808.92	83.27	390.31	137.27	253.04	1.543		
16,100.00	9,290.20	16,308.30	9,494.73	128.48	128.17	121.59	6,908.92	83.26	390.43	133.79	256.64	1.521		
16,200.00	9,290.91	16,408.30	9,495.45	130.28	129.97	121.58	7,008.92	83.26	390.55	130.30	260.25	1.501		
16,300.00	9,291.61	16,508.30	9,496.16	132.08	131.77	121.57	7,108.92	83.26	390.67	126.81	263.85	1.481 Level 3		
16,400.00	9,292.32	16,608.30	9,496.88	133.89	133.58	121.57	7,208.91	83.25	390.78	123.32	267.46	1.461 Level 3		

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



Anticollision Report



Company: COG Operating L L C
Project: Eddy County, NM (NAD 27 NME)
Reference Site: Sec. 31, T 26 S, R 28- E
Site Error: 0.00 usft
Reference Well: Way South State Com 705H
Well Error: 0.00 usft
Reference Wellbore: Wellbore #1
Reference Design: Plan #1

Local Co-ordinate Reference: Well Way South State Com 705H
TVD Reference: KB=30' @ 3129.00usft (Nabor 894)
MD Reference: KB=30' @ 3129.00usft (Nabor 894)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1
Offset TVD Reference: Offset Datum

Offset Design Sec. 31, T 26 S, R 28- E - Way South State Com 704H - Wellbore #1 - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-MWMD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)						
16,500.00	9,293.03	16,708.30	9,497.59	135.69	135.38	121.56	7,308.91	83.25	390.90	119.83	271.07	1.442 Level 3		
16,600.00	9,293.74	16,808.30	9,498.31	137.49	137.19	121.55	7,408.91	83.24	391.02	116.34	274.68	1.424 Level 3		
16,700.00	9,294.45	16,908.30	9,499.02	139.30	138.99	121.54	7,508.90	83.24	391.14	112.85	278.29	1.405 Level 3		
16,800.00	9,295.15	17,008.30	9,499.74	141.11	140.80	121.53	7,608.90	83.23	391.26	109.35	281.90	1.388 Level 3		
16,900.00	9,295.86	17,108.30	9,500.46	142.91	142.60	121.52	7,708.90	83.23	391.37	105.86	285.52	1.371 Level 3		
17,000.00	9,296.57	17,208.29	9,501.17	144.72	144.41	121.51	7,808.90	83.22	391.49	102.36	289.13	1.354 Level 3		
17,100.00	9,297.28	17,308.29	9,501.89	146.53	146.22	121.50	7,908.89	83.22	391.61	98.87	292.75	1.338 Level 3		
17,200.00	9,297.99	17,408.29	9,502.60	148.33	148.03	121.49	8,008.89	83.21	391.73	95.37	296.36	1.322 Level 3		
17,300.00	9,298.69	17,508.29	9,503.32	150.14	149.83	121.48	8,108.89	83.21	391.85	91.87	299.98	1.306 Level 3		
17,400.00	9,299.40	17,608.29	9,504.03	151.95	151.64	121.47	8,208.89	83.20	391.96	88.37	303.59	1.291 Level 3		
17,500.00	9,300.11	17,708.29	9,504.75	153.76	153.45	121.46	8,308.88	83.20	392.08	84.87	307.21	1.276 Level 3		
17,600.00	9,300.82	17,808.29	9,505.46	155.57	155.26	121.45	8,408.88	83.19	392.20	81.37	310.83	1.262 Level 3		
17,700.00	9,301.53	17,908.29	9,506.18	157.38	157.07	121.44	8,508.88	83.19	392.32	77.87	314.45	1.248 Level 2		
17,800.00	9,302.23	18,008.29	9,506.89	159.19	158.88	121.44	8,608.88	83.18	392.44	74.37	318.07	1.234 Level 2		
17,900.00	9,302.94	18,108.29	9,507.61	161.00	160.69	121.43	8,708.87	83.18	392.55	70.86	321.69	1.220 Level 2		
18,000.00	9,303.65	18,208.29	9,508.33	162.81	162.50	121.42	8,808.87	83.17	392.67	67.36	325.31	1.207 Level 2		
18,100.00	9,304.36	18,308.29	9,509.04	164.62	164.31	121.41	8,908.87	83.17	392.79	63.86	328.93	1.194 Level 2		
18,200.00	9,305.07	18,408.29	9,509.76	166.43	166.12	121.40	9,008.87	83.16	392.91	60.35	332.56	1.181 Level 2		
18,300.00	9,305.77	18,508.29	9,510.47	168.24	167.94	121.39	9,108.86	83.16	393.03	56.85	336.18	1.169 Level 2		
18,400.00	9,306.48	18,608.29	9,511.19	170.06	169.75	121.38	9,208.86	83.15	393.15	53.34	339.80	1.157 Level 2		
18,500.00	9,307.19	18,708.29	9,511.90	171.87	171.56	121.37	9,308.86	83.15	393.26	49.84	343.43	1.145 Level 2		
18,600.00	9,307.90	18,808.29	9,512.62	173.68	173.37	121.36	9,408.85	83.14	393.38	46.33	347.05	1.133 Level 2		
18,700.00	9,308.61	18,908.29	9,513.33	175.49	175.18	121.35	9,508.85	83.14	393.50	42.82	350.68	1.122 Level 2		
18,800.00	9,309.31	19,008.29	9,514.05	177.31	177.00	121.34	9,608.85	83.13	393.62	39.31	354.30	1.111 Level 2		
18,900.00	9,310.02	19,108.29	9,514.76	179.12	178.81	121.33	9,708.85	83.13	393.74	35.81	357.93	1.100 Level 2		
19,000.00	9,310.73	19,208.29	9,515.48	180.93	180.62	121.32	9,808.84	83.12	393.85	32.30	361.56	1.089 Level 2		
19,100.00	9,311.44	19,308.29	9,516.20	182.75	182.44	121.32	9,908.84	83.12	393.97	28.79	365.18	1.079 Level 2		
19,200.00	9,312.15	19,408.29	9,516.91	184.56	184.25	121.31	10,008.84	83.12	394.09	25.28	368.81	1.069 Level 2		
19,300.00	9,312.85	19,508.29	9,517.63	186.38	186.06	121.30	10,108.84	83.11	394.21	21.77	372.44	1.058 Level 2		
19,400.00	9,313.56	19,608.29	9,518.34	188.19	187.88	121.29	10,208.83	83.11	394.33	18.26	376.07	1.049 Level 2		
19,500.00	9,314.27	19,708.29	9,519.06	190.00	189.69	121.28	10,308.83	83.10	394.45	14.75	379.70	1.039 Level 2		
19,600.00	9,314.98	19,808.29	9,519.77	191.82	191.51	121.27	10,408.83	83.10	394.56	11.24	383.33	1.029 Level 2		
19,700.00	9,315.69	19,908.29	9,520.49	193.63	193.32	121.26	10,508.83	83.09	394.68	7.73	386.96	1.020 Level 2		
19,800.00	9,316.39	20,008.29	9,521.20	195.45	195.14	121.25	10,608.82	83.09	394.80	4.21	390.59	1.011 Level 2		
19,900.00	9,317.10	20,108.29	9,521.92	197.26	196.95	121.24	10,708.82	83.08	394.92	0.70	394.22	1.002 Level 2		
20,000.00	9,317.81	20,208.29	9,522.63	199.08	198.77	121.23	10,808.82	83.08	395.04	-2.81	397.85	0.993 Level 1		
20,100.00	9,318.52	20,308.29	9,523.35	200.89	200.58	121.22	10,908.81	83.07	395.16	-6.32	401.48	0.984 Level 1		
20,200.00	9,319.23	20,408.29	9,524.07	202.71	202.40	121.21	11,008.81	83.07	395.27	-9.84	405.11	0.976 Level 1		
20,300.00	9,319.93	20,508.29	9,524.78	204.53	204.21	121.21	11,108.81	83.06	395.39	-13.35	408.74	0.967 Level 1		
20,400.00	9,320.64	20,608.29	9,525.50	206.34	206.03	121.20	11,208.81	83.06	395.51	-16.86	412.37	0.959 Level 1		
20,500.00	9,321.35	20,708.29	9,526.21	208.16	207.85	121.19	11,308.80	83.05	395.63	-20.38	416.01	0.951 Level 1		
20,600.00	9,322.06	20,808.29	9,526.93	209.98	209.66	121.18	11,408.80	83.05	395.75	-23.89	419.64	0.943 Level 1		
20,700.00	9,322.77	20,908.29	9,527.64	211.79	211.48	121.17	11,508.80	83.04	395.87	-27.41	423.27	0.935 Level 1		
20,800.00	9,323.47	21,008.29	9,528.36	213.61	213.30	121.16	11,608.80	83.04	395.98	-30.92	426.90	0.928 Level 1		
20,900.00	9,324.18	21,108.29	9,529.07	215.43	215.11	121.15	11,708.79	83.03	396.10	-34.44	430.54	0.920 Level 1		
21,000.00	9,324.89	21,208.29	9,529.79	217.24	216.93	121.14	11,808.79	83.03	396.22	-37.95	434.17	0.913 Level 1		
21,100.00	9,325.60	21,308.29	9,530.50	219.06	218.75	121.13	11,908.79	83.02	396.34	-41.47	437.81	0.905 Level 1		
21,200.00	9,326.31	21,408.29	9,531.22	220.88	220.56	121.12	12,008.79	83.02	396.46	-44.98	441.44	0.898 Level 1		
21,300.00	9,327.01	21,508.29	9,531.94	222.69	222.38	121.11	12,108.78	83.01	396.58	-48.50	445.07	0.891 Level 1		
21,400.00	9,327.72	21,608.29	9,532.65	224.51	224.20	121.11	12,208.78	83.01	396.69	-52.02	448.71	0.884 Level 1		
21,500.00	9,328.43	21,708.29	9,533.37	226.33	225.99	121.10	12,308.78	83.00	396.81	-55.50	452.32	0.877 Level 1		
21,580.58	9,329.00	21,788.87	9,533.94	227.79	227.18	121.09	12,389.35	83.00	396.91	-58.07	454.97	0.872 Level 1, ES, SF		

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



Anticollision Report



Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Way South State Com 705H
Project:	Eddy County, NM (NAD 27 NME)	TVD Reference:	KB=30' @ 3129.00usft (Nabor 894)
Reference Site:	Sec. 31, T 26 S, R 28- E	MD Reference:	KB=30' @ 3129.00usft (Nabor 894)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Way South State Com 705H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum



Anticollision Report



Company: COG Operating L L C
Project: Eddy County, NM (NAD 27 NME)
Reference Site: Sec. 31, T 26 S, R 28- E
Site Error: 0.00 usft
Reference Well: Way South State Com 705H
Well Error: 0.00 usft
Reference Wellbore: Wellbore #1
Reference Design: Plan #1

Local Co-ordinate Reference: Well Way South State Com 705H
TVD Reference: KB=30' @ 3129.00usft (Nabor 894)
MD Reference: KB=30' @ 3129.00usft (Nabor 894)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1
Offset TVD Reference: Offset Datum

Offset Design													Sec. 31, T 26 S, R 28- E - Way South State Com 706H - Wellbore #1 - Plan #1		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)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
0.00	0.00	1.00	1.00	0.00	0.00	-90.00	0.00	-30.00	30.00							
100.00	100.00	101.00	101.00	0.08	0.08	-90.00	0.00	-30.00	30.00	29.84	0.16	187.989				
200.00	200.00	201.00	201.00	0.30	0.31	-90.00	0.00	-30.00	30.00	29.39	0.61	49.252				
300.00	300.00	301.00	301.00	0.53	0.53	-90.00	0.00	-30.00	30.00	28.94	1.06	28.338				
400.00	400.00	401.00	401.00	0.75	0.76	-90.00	0.00	-30.00	30.00	28.49	1.51	19.892				
500.00	500.00	501.00	501.00	0.98	0.98	-90.00	0.00	-30.00	30.00	28.04	1.96	15.324				
600.00	600.00	601.00	601.00	1.20	1.20	-90.00	0.00	-30.00	30.00	27.59	2.41	12.462				
700.00	700.00	701.00	701.00	1.43	1.43	-90.00	0.00	-30.00	30.00	27.14	2.86	10.501				
800.00	800.00	801.00	801.00	1.65	1.65	-90.00	0.00	-30.00	30.00	26.69	3.31	9.074				
900.00	900.00	901.00	901.00	1.88	1.88	-90.00	0.00	-30.00	30.00	26.24	3.76	7.988				
1,000.00	1,000.00	1,001.00	1,001.00	2.10	2.10	-90.00	0.00	-30.00	30.00	25.79	4.21	7.134				
1,100.00	1,100.00	1,101.00	1,101.00	2.33	2.33	-90.00	0.00	-30.00	30.00	25.35	4.65	6.445				
1,200.00	1,200.00	1,201.00	1,201.00	2.55	2.55	-90.00	0.00	-30.00	30.00	24.90	5.10	5.877				
1,300.00	1,300.00	1,301.00	1,301.00	2.78	2.78	-90.00	0.00	-30.00	30.00	24.45	5.55	5.402				
1,400.00	1,400.00	1,401.00	1,401.00	3.00	3.00	-90.00	0.00	-30.00	30.00	24.00	6.00	4.997				
1,500.00	1,500.00	1,501.00	1,501.00	3.23	3.23	-90.00	0.00	-30.00	30.00	23.55	6.45	4.649				
1,600.00	1,600.00	1,601.00	1,601.00	3.45	3.45	-90.00	0.00	-30.00	30.00	23.10	6.90	4.346				
1,700.00	1,700.00	1,701.00	1,701.00	3.67	3.68	-90.00	0.00	-30.00	30.00	22.65	7.35	4.080				
1,800.00	1,800.00	1,801.00	1,801.00	3.90	3.90	-90.00	0.00	-30.00	30.00	22.20	7.80	3.845				
1,900.00	1,900.00	1,901.00	1,901.00	4.12	4.13	-90.00	0.00	-30.00	30.00	21.75	8.25	3.636				
1,966.33	1,966.33	1,967.33	1,967.33	4.27	4.28	-90.00	0.00	-30.00	30.00	21.45	8.55	3.509 CC				
2,000.00	2,000.00	2,000.99	2,000.99	4.35	4.35	-90.00	0.00	-30.00	30.00	21.30	8.70	3.448				
2,050.00	2,050.00	2,050.55	2,050.54	4.45	4.45	48.56	-0.22	-30.39	30.10	21.20	8.90	3.382				
2,100.00	2,099.99	2,100.55	2,100.54	4.54	4.54	48.97	-0.66	-31.14	30.28	21.20	9.08	3.334				
2,200.00	2,199.97	2,200.54	2,200.52	4.72	4.73	49.77	-1.53	-32.65	30.64	21.19	9.44	3.244				
2,300.00	2,299.96	2,300.54	2,300.50	4.90	4.92	50.55	-2.40	-34.16	31.00	21.19	9.82	3.158				
2,400.00	2,399.94	2,400.54	2,400.48	5.08	5.11	51.31	-3.28	-35.68	31.37	21.18	10.20	3.077				
2,500.00	2,499.93	2,500.54	2,500.47	5.27	5.31	52.06	-4.15	-37.19	31.75	21.17	10.58	3.001				
2,600.00	2,599.91	2,600.54	2,600.45	5.47	5.50	52.79	-5.02	-38.70	32.13	21.16	10.97	2.929				
2,700.00	2,699.90	2,700.54	2,700.43	5.66	5.70	53.50	-5.89	-40.21	32.52	21.15	11.36	2.861				
2,800.00	2,799.88	2,800.53	2,800.42	5.86	5.91	54.19	-6.77	-41.72	32.91	21.15	11.76	2.797				
2,900.00	2,899.87	2,900.53	2,900.40	6.06	6.11	54.87	-7.64	-43.23	33.31	21.14	12.17	2.737				
3,000.00	2,999.85	3,000.53	3,000.38	6.26	6.31	55.53	-8.51	-44.74	33.71	21.13	12.57	2.681				
3,100.00	3,099.84	3,100.53	3,100.37	6.46	6.52	56.18	-9.39	-46.26	34.11	21.13	12.98	2.627				
3,200.00	3,199.82	3,200.53	3,200.35	6.67	6.73	56.81	-10.26	-47.77	34.52	21.13	13.40	2.577				
3,300.00	3,299.81	3,300.53	3,300.33	6.87	6.94	57.42	-11.13	-49.28	34.94	21.12	13.81	2.529				
3,400.00	3,399.79	3,400.53	3,400.32	7.08	7.15	58.03	-12.00	-50.79	35.35	21.12	14.23	2.484				
3,500.00	3,499.78	3,500.52	3,500.30	7.29	7.36	58.61	-12.88	-52.30	35.77	21.12	14.65	2.442				
3,600.00	3,599.76	3,600.52	3,600.28	7.50	7.57	59.19	-13.75	-53.81	36.20	21.13	15.07	2.402				
3,700.00	3,699.75	3,700.52	3,700.27	7.71	7.79	59.75	-14.62	-55.32	36.63	21.13	15.50	2.364				
3,800.00	3,799.73	3,800.52	3,800.25	7.92	8.00	60.29	-15.49	-56.84	37.06	21.14	15.92	2.328				
3,900.00	3,899.72	3,900.52	3,900.23	8.14	8.21	60.83	-16.37	-58.35	37.50	21.15	16.35	2.293				
4,000.00	3,999.70	4,000.52	4,000.22	8.35	8.43	61.35	-17.24	-59.86	37.93	21.16	16.78	2.261				
4,100.00	4,099.69	4,100.51	4,100.20	8.56	8.65	61.86	-18.11	-61.37	38.38	21.17	17.21	2.230				
4,200.00	4,199.67	4,200.51	4,200.18	8.78	8.86	62.36	-18.98	-62.88	38.82	21.18	17.64	2.201				
4,300.00	4,299.65	4,300.51	4,300.17	8.99	9.08	62.85	-19.86	-64.39	39.27	21.20	18.07	2.173				
4,400.00	4,399.64	4,400.51	4,400.15	9.21	9.30	63.32	-20.73	-65.90	39.72	21.21	18.51	2.146				
4,500.00	4,499.62	4,500.51	4,500.13	9.43	9.51	63.79	-21.60	-67.42	40.17	21.23	18.94	2.121				
4,600.00	4,599.61	4,600.51	4,600.12	9.64	9.73	64.24	-22.47	-68.93	40.63	21.25	19.38	2.097				
4,700.00	4,699.59	4,700.51	4,700.10	9.86	9.95	64.69	-23.35	-70.44	41.08	21.27	19.81	2.074				
4,800.00	4,799.58	4,800.50	4,800.08	10.08	10.17	65.12	-24.22	-71.95	41.54	21.29	20.25	2.052				
4,900.00	4,899.56	4,900.50	4,900.07	10.30	10.39	65.55	-25.09	-73.46	42.01	21.32	20.69	2.031				

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

Company: COG Operating L L C
Project: Eddy County, NM (NAD 27 NME)
Reference Site: Sec. 31, T 26 S, R 28- E
Site Error: 0.00 usft
Reference Well: Way South State Com 705H
Well Error: 0.00 usft
Reference Wellbore: Wellbore #1
Reference Design: Plan #1

Local Co-ordinate Reference: Well Way South State Com 705H
TVD Reference: KB=30' @ 3129.00usft (Nabor 894)
MD Reference: KB=30' @ 3129.00usft (Nabor 894)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1
Offset TVD Reference: Offset Datum

Offset Design													Sec. 31, T 26 S, R 28- E - Way South State Com 706H - Wellbore #1 - Plan #1		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				
5,000.00	4,999.55	5,000.50	5,000.05	10.52	10.61	65.97	-25.96	-74.97	42.47	21.35	21.13	2.010				
5,100.00	5,099.53	5,100.50	5,100.03	10.73	10.83	66.37	-26.84	-76.48	42.94	21.37	21.57	1.991				
5,200.00	5,199.52	5,200.50	5,200.01	10.95	11.05	66.77	-27.71	-78.00	43.41	21.40	22.01	1.973				
5,300.00	5,299.50	5,300.50	5,300.00	11.17	11.27	67.16	-28.58	-79.51	43.88	21.43	22.45	1.955				
5,400.00	5,399.49	5,400.49	5,399.98	11.39	11.49	67.54	-29.46	-81.02	44.35	21.46	22.89	1.938				
5,500.00	5,499.47	5,500.49	5,499.96	11.62	11.72	67.92	-30.33	-82.53	44.83	21.50	23.33	1.921				
5,600.00	5,599.46	5,600.00	5,599.46	11.84	11.94	68.28	-31.20	-84.03	45.31	21.54	23.77	1.906				
5,700.00	5,699.39	5,699.47	5,698.86	12.06	12.16	68.96	-32.93	-87.03	46.26	22.04	24.22	1.910				
5,719.83	5,719.19	5,719.09	5,718.45	12.11	12.21	69.18	-33.47	-87.98	46.57	22.26	24.31	1.915				
5,800.00	5,799.22	5,798.93	5,798.10	12.29	12.39	69.45	-36.17	-92.65	48.31	23.63	24.68	1.957				
5,900.00	5,899.04	5,898.90	5,897.83	12.52	12.62	69.58	-39.66	-98.69	50.61	25.47	25.14	2.013				
6,000.00	5,998.87	5,998.87	5,997.56	12.75	12.86	69.71	-43.15	-104.73	52.91	27.30	25.61	2.066				
6,100.00	6,098.69	6,098.85	6,097.29	12.98	13.09	69.82	-46.63	-110.77	55.22	29.14	26.08	2.117				
6,200.00	6,198.52	6,198.82	6,197.02	13.22	13.33	69.92	-50.12	-116.81	57.52	30.97	26.55	2.167				
6,300.00	6,298.34	6,298.79	6,296.75	13.45	13.57	70.01	-53.61	-122.85	59.83	32.81	27.02	2.214				
6,400.00	6,398.17	6,398.77	6,396.48	13.68	13.81	70.10	-57.10	-128.89	62.13	34.64	27.49	2.260				
6,500.00	6,497.99	6,498.74	6,496.21	13.92	14.05	70.18	-60.58	-134.93	64.43	36.47	27.97	2.304				
6,600.00	6,597.81	6,598.71	6,595.94	14.15	14.29	70.26	-64.07	-140.97	66.74	38.30	28.44	2.347				
6,700.00	6,697.64	6,698.69	6,695.67	14.39	14.53	70.33	-67.56	-147.01	69.04	40.13	28.92	2.388				
6,800.00	6,797.46	6,798.66	6,795.40	14.63	14.77	70.39	-71.04	-153.05	71.35	41.95	29.39	2.427				
6,900.00	6,897.29	6,898.63	6,895.13	14.86	15.01	70.46	-74.53	-159.09	73.65	43.78	29.87	2.466				
7,000.00	6,997.11	6,998.61	6,994.86	15.10	15.25	70.51	-78.02	-165.13	75.96	45.61	30.35	2.503				
7,100.00	7,096.94	7,098.58	7,094.59	15.34	15.49	70.57	-81.50	-171.17	78.26	47.43	30.83	2.538				
7,200.00	7,196.76	7,198.55	7,194.32	15.58	15.74	70.62	-84.99	-177.21	80.57	49.25	31.31	2.573				
7,300.00	7,296.58	7,298.53	7,294.05	15.82	15.98	70.67	-88.48	-183.25	82.87	51.08	31.80	2.606				
7,400.00	7,396.41	7,398.50	7,393.78	16.05	16.23	70.71	-91.96	-189.29	85.18	52.90	32.28	2.639				
7,500.00	7,496.23	7,498.47	7,493.51	16.29	16.47	70.76	-95.45	-195.33	87.48	54.72	32.76	2.670				
7,600.00	7,596.06	7,598.45	7,593.24	16.53	16.72	70.80	-98.94	-201.37	89.79	56.54	33.25	2.701				
7,700.00	7,695.88	7,698.42	7,692.97	16.77	16.96	70.84	-102.42	-207.40	92.09	58.36	33.73	2.730				
7,800.00	7,795.71	7,798.39	7,792.70	17.01	17.21	70.88	-105.91	-213.44	94.40	60.18	34.22	2.759				
7,900.00	7,895.53	7,898.37	7,892.43	17.25	17.45	70.91	-109.40	-219.48	96.71	62.00	34.71	2.786				
8,000.00	7,995.35	7,998.34	7,992.16	17.50	17.70	70.95	-112.89	-225.52	99.01	63.81	35.20	2.813				
8,100.00	8,095.18	8,098.31	8,091.89	17.74	17.95	70.98	-116.37	-231.56	101.32	65.63	35.68	2.839				
8,200.00	8,195.00	8,198.29	8,191.62	17.98	18.20	71.01	-119.86	-237.60	103.62	67.45	36.17	2.865				
8,300.00	8,294.83	8,298.26	8,291.35	18.22	18.44	71.04	-123.35	-243.64	105.93	69.26	36.66	2.889				
8,400.00	8,394.65	8,398.24	8,391.08	18.46	18.69	71.07	-126.83	-249.68	108.23	71.08	37.15	2.913				
8,500.00	8,494.48	8,498.21	8,490.81	18.70	18.94	71.09	-130.32	-255.72	110.54	72.89	37.64	2.936				
8,600.00	8,594.30	8,598.18	8,590.54	18.95	19.19	71.12	-133.81	-261.76	112.84	74.71	38.14	2.959				
8,654.08	8,648.29	8,652.25	8,644.48	19.08	19.32	71.13	-135.69	-265.03	114.09	75.69	38.40	2.971				
8,700.00	8,694.15	8,698.13	8,690.24	19.18	19.44	-15.41	-137.29	-267.80	114.30	75.69	38.62	2.960				
8,750.00	8,743.92	8,747.78	8,739.78	19.27	19.56	-47.03	-139.02	-270.80	112.78	73.95	38.83	2.904				
8,800.00	8,793.13	8,796.76	8,788.64	19.35	19.68	-59.49	-140.73	-273.76	110.01	70.98	39.03	2.818				
8,850.00	8,841.42	8,844.69	8,836.45	19.42	19.80	-70.03	-142.40	-276.65	107.12	67.90	39.23	2.731				
8,892.22	8,881.21	8,883.07	8,874.74	19.48	19.90	-78.96	-143.45	-279.06	105.92	66.54	39.37	2.690				
8,900.00	8,888.42	8,889.95	8,881.60	19.49	19.91	-80.54	-143.44	-279.56	105.97	66.56	39.40	2.689				
8,950.00	8,933.77	8,934.83	8,926.26	19.55	20.01	-90.29	-141.43	-283.43	108.54	68.98	39.56	2.744				
9,000.00	8,977.12	8,980.88	8,971.68	19.60	20.11	-99.10	-135.90	-288.48	114.97	75.27	39.71	2.896				
9,050.00	9,018.14	9,028.23	9,017.66	19.64	20.21	-106.69	-126.60	-294.81	124.86	85.01	39.85	3.133				
9,100.00	9,056.53	9,077.00	9,063.93	19.69	20.30	-112.95	-113.25	-302.46	137.57	97.59	39.99	3.440				
9,150.00	9,091.99	9,127.36	9,110.18	19.73	20.40	-117.93	-95.56	-311.53	152.47	112.35	40.12	3.800				
9,200.00	9,124.25	9,179.47	9,156.03	19.76	20.49	-121.77	-73.21	-322.08	168.96	128.71	40.25	4.198				
9,250.00	9,153.07	9,233.50	9,201.03	19.84	20.59	-124.64	-45.89	-334.17	186.55	146.12	40.43	4.614				

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

Company: COG Operating L L C
Project: Eddy County, NM (NAD 27 NME)
Reference Site: Sec. 31, T 26 S, R 28- E
Site Error: 0.00 usft
Reference Well: Way South State Com 705H
Well Error: 0.00 usft
Reference Wellbore: Wellbore #1
Reference Design: Plan #1

Local Co-ordinate Reference: Well Way South State Com 705H
TVD Reference: KB=30' @ 3129.00usft (Nabor 894)
MD Reference: KB=30' @ 3129.00usft (Nabor 894)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1
Offset TVD Reference: Offset Datum

Offset Design Sec. 31, T 26 S, R 28- E - Way South State Com 706H - Wellbore #1 - Plan #1													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		
9,300.00	9,178.22	9,289.66	9,244.62	20.02	20.69	-126.69	-13.29	-347.88	204.82	164.11	40.72	5.031		
9,350.00	9,199.51	9,348.14	9,286.13	20.24	20.82	-128.05	24.89	-363.25	223.44	182.38	41.05	5.443		
9,400.00	9,216.79	9,409.15	9,324.75	20.48	20.97	-128.84	68.89	-380.30	242.07	200.61	41.45	5.840		
9,450.00	9,229.92	9,472.85	9,359.51	20.76	21.19	-129.12	118.85	-399.01	260.42	218.47	41.95	6.208		
9,500.00	9,238.79	9,539.40	9,389.28	21.07	21.50	-128.98	174.77	-419.29	278.22	235.65	42.56	6.536		
9,550.00	9,243.36	9,608.87	9,412.80	21.41	21.91	-128.44	236.38	-440.97	295.19	251.87	43.32	6.815		
9,573.40	9,244.00	9,642.39	9,421.29	21.58	22.14	-128.07	267.04	-451.52	302.78	259.06	43.72	6.926		
9,600.00	9,244.18	9,681.33	9,428.76	21.76	22.43	-128.26	303.22	-463.79	310.88	266.68	44.20	7.034		
9,696.41	9,244.86	9,813.77	9,436.32	22.46	23.57	-125.88	428.89	-504.35	334.70	288.67	46.03	7.271		
9,700.00	9,244.89	9,818.04	9,436.35	22.49	23.61	-125.76	432.99	-505.54	335.52	289.41	46.10	7.278		
9,800.00	9,245.59	9,939.75	9,437.22	23.38	24.75	-123.05	551.25	-534.13	355.00	306.88	48.13	7.376		
9,900.00	9,246.30	10,065.64	9,438.12	24.37	26.01	-121.45	675.67	-553.03	367.65	317.28	50.37	7.299		
10,000.00	9,247.01	10,193.91	9,439.03	25.44	27.33	-120.83	803.65	-560.98	372.85	320.08	52.77	7.066		
10,100.00	9,247.72	10,298.72	9,439.77	26.60	28.44	-120.81	908.46	-561.37	373.03	317.99	55.04	6.777		
10,200.00	9,248.43	10,398.72	9,440.48	27.83	29.56	-120.80	1,008.46	-561.59	373.11	315.71	57.39	6.501		
10,300.00	9,249.13	10,498.72	9,441.19	29.13	30.75	-120.80	1,108.45	-561.82	373.18	313.30	59.88	6.233		
10,400.00	9,249.84	10,598.72	9,441.90	30.47	32.00	-120.79	1,208.45	-562.04	373.25	310.78	62.47	5.975		
10,500.00	9,250.55	10,698.72	9,442.60	31.87	33.30	-120.78	1,308.45	-562.26	373.32	308.16	65.16	5.729		
10,600.00	9,251.26	10,798.72	9,443.31	33.30	34.64	-120.78	1,408.45	-562.48	373.39	305.45	67.94	5.496		
10,700.00	9,251.97	10,898.72	9,444.02	34.77	36.03	-120.77	1,508.44	-562.71	373.47	302.66	70.80	5.275		
10,800.00	9,252.67	10,998.72	9,444.73	36.28	37.46	-120.76	1,608.44	-562.93	373.54	299.80	73.73	5.066		
10,900.00	9,253.38	11,098.72	9,445.44	37.81	38.92	-120.76	1,708.44	-563.15	373.61	296.89	76.72	4.870		
11,000.00	9,254.09	11,198.72	9,446.14	39.36	40.40	-120.75	1,808.43	-563.37	373.68	293.91	79.77	4.685		
11,100.00	9,254.80	11,298.72	9,446.85	40.94	41.92	-120.74	1,908.43	-563.60	373.75	290.89	82.86	4.511		
11,200.00	9,255.51	11,398.72	9,447.56	42.54	43.46	-120.74	2,008.43	-563.82	373.83	287.83	86.00	4.347		
11,300.00	9,256.21	11,498.72	9,448.27	44.16	45.02	-120.73	2,108.43	-564.04	373.90	284.72	89.17	4.193		
11,400.00	9,256.92	11,598.72	9,448.97	45.79	46.59	-120.72	2,208.42	-564.26	373.97	281.59	92.38	4.048		
11,500.00	9,257.63	11,698.72	9,449.68	47.43	48.19	-120.72	2,308.42	-564.49	374.04	278.42	95.63	3.912		
11,600.00	9,258.34	11,798.72	9,450.39	49.09	49.80	-120.71	2,408.42	-564.71	374.11	275.22	98.90	3.783		
11,700.00	9,259.05	11,898.72	9,451.10	50.76	51.43	-120.70	2,508.41	-564.93	374.18	271.99	102.19	3.662		
11,800.00	9,259.75	11,998.72	9,451.81	52.44	53.07	-120.70	2,608.41	-565.15	374.26	268.75	105.51	3.547		
11,900.00	9,260.46	12,098.72	9,452.51	54.13	54.72	-120.69	2,708.41	-565.37	374.33	265.48	108.85	3.439		
12,000.00	9,261.17	12,198.72	9,453.22	55.83	56.38	-120.68	2,808.41	-565.60	374.40	262.19	112.21	3.337		
12,100.00	9,261.88	12,298.72	9,453.93	57.54	58.05	-120.68	2,908.40	-565.82	374.47	258.89	115.59	3.240		
12,200.00	9,262.59	12,398.72	9,454.64	59.25	59.73	-120.67	3,008.40	-566.04	374.54	255.56	118.98	3.148		
12,300.00	9,263.29	12,498.72	9,455.34	60.97	61.42	-120.66	3,108.40	-566.26	374.62	252.23	122.39	3.061		
12,400.00	9,264.00	12,598.72	9,456.05	62.69	63.12	-120.66	3,208.39	-566.49	374.69	248.88	125.81	2.978		
12,500.00	9,264.71	12,698.72	9,456.76	64.42	64.82	-120.65	3,308.39	-566.71	374.76	245.52	129.24	2.900		
12,600.00	9,265.42	12,798.72	9,457.47	66.16	66.53	-120.64	3,408.39	-566.93	374.83	242.14	132.69	2.825		
12,700.00	9,266.13	12,898.72	9,458.18	67.90	68.25	-120.64	3,508.39	-567.15	374.90	238.76	136.15	2.754		
12,800.00	9,266.83	12,998.72	9,458.88	69.64	69.97	-120.63	3,608.38	-567.38	374.98	235.36	139.61	2.686		
12,900.00	9,267.54	13,098.72	9,459.59	71.39	71.69	-120.62	3,708.38	-567.60	375.05	231.96	143.09	2.621		
13,000.00	9,268.25	13,198.72	9,460.30	73.15	73.43	-120.62	3,808.38	-567.82	375.12	228.55	146.57	2.559		
13,100.00	9,268.96	13,298.72	9,461.01	74.90	75.16	-120.61	3,908.38	-568.04	375.19	225.13	150.06	2.500		
13,200.00	9,269.67	13,398.72	9,461.72	76.66	76.90	-120.61	4,008.37	-568.27	375.26	221.70	153.56	2.444		
13,300.00	9,270.37	13,498.72	9,462.42	78.42	78.65	-120.60	4,108.37	-568.49	375.34	218.27	157.07	2.390		
13,400.00	9,271.08	13,598.72	9,463.13	80.19	80.39	-120.59	4,208.37	-568.71	375.41	214.83	160.58	2.338		
13,500.00	9,271.79	13,698.72	9,463.84	81.95	82.14	-120.59	4,308.36	-568.93	375.48	211.38	164.10	2.288		
13,600.00	9,272.50	13,798.72	9,464.55	83.72	83.90	-120.58	4,408.36	-569.16	375.55	207.93	167.62	2.240		
13,700.00	9,273.21	13,898.72	9,465.25	85.50	85.65	-120.57	4,508.36	-569.38	375.63	204.47	171.15	2.195		
13,800.00	9,273.91	13,998.72	9,465.96	87.27	87.41	-120.57	4,608.36	-569.60	375.70	201.01	174.69	2.151		
13,900.00	9,274.62	14,098.72	9,466.67	89.05	89.18	-120.56	4,708.35	-569.82	375.77	197.54	178.22	2.108		

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



Anticollision Report

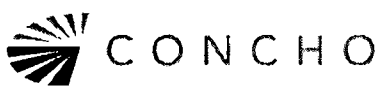


Company: COG Operating L L C
Project: Eddy County, NM (NAD 27 NME)
Reference Site: Sec. 31, T 26 S, R 28- E
Site Error: 0.00 usft
Reference Well: Way South State Com 705H
Well Error: 0.00 usft
Reference Wellbore: Wellbore #1
Reference Design: Plan #1

Local Co-ordinate Reference: Well Way South State Com 705H
TVD Reference: KB=30' @ 3129.00usft (Nabor 894)
MD Reference: KB=30' @ 3129.00usft (Nabor 894)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1
Offset TVD Reference: Offset Datum

Offset Design Sec. 31, T 26 S, R 28- E - Way South State Com 706H - Wellbore #1 - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)						
14,000.00	9,275.33	14,198.72	9,467.38	90.83	90.94	-120.55	4,808.35	-570.05	375.84	194.07	181.77	2.068		
14,100.00	9,276.04	14,298.72	9,468.09	92.61	92.71	-120.55	4,908.35	-570.27	375.91	190.60	185.32	2.029		
14,200.00	9,276.75	14,398.72	9,468.79	94.39	94.48	-120.54	5,008.34	-570.49	375.99	187.12	188.87	1.991		
14,300.00	9,277.45	14,498.72	9,469.50	96.17	96.25	-120.53	5,108.34	-570.71	376.06	183.64	192.42	1.954		
14,400.00	9,278.16	14,598.72	9,470.21	97.96	98.02	-120.53	5,208.34	-570.94	376.13	180.15	195.98	1.919		
14,500.00	9,278.87	14,698.72	9,470.92	99.74	99.80	-120.52	5,308.34	-571.16	376.20	176.66	199.54	1.885		
14,600.00	9,279.58	14,798.72	9,471.62	101.53	101.58	-120.51	5,408.33	-571.38	376.27	173.17	203.11	1.853		
14,700.00	9,280.29	14,898.72	9,472.33	103.32	103.35	-120.51	5,508.33	-571.60	376.35	169.67	206.68	1.821		
14,800.00	9,280.99	14,998.72	9,473.04	105.11	105.13	-120.50	5,608.33	-571.83	376.42	166.17	210.25	1.790		
14,900.00	9,281.70	15,098.72	9,473.75	106.90	106.92	-120.49	5,708.33	-572.05	376.49	162.67	213.82	1.761		
15,000.00	9,282.41	15,198.72	9,474.46	108.70	108.70	-120.49	5,808.32	-572.27	376.56	159.17	217.40	1.732		
15,100.00	9,283.12	15,298.72	9,475.16	110.49	110.48	-120.48	5,908.32	-572.49	376.63	155.66	220.97	1.704		
15,200.00	9,283.83	15,398.72	9,475.87	112.28	112.27	-120.47	6,008.32	-572.72	376.71	152.15	224.55	1.678		
15,300.00	9,284.53	15,498.72	9,476.58	114.08	114.06	-120.47	6,108.31	-572.94	376.78	148.64	228.14	1.652		
15,400.00	9,285.24	15,598.72	9,477.29	115.88	115.85	-120.46	6,208.31	-573.16	376.85	145.13	231.72	1.626		
15,500.00	9,285.95	15,698.72	9,477.99	117.67	117.64	-120.46	6,308.31	-573.38	376.92	141.61	235.31	1.602		
15,600.00	9,286.66	15,798.72	9,478.70	119.47	119.43	-120.45	6,408.31	-573.61	377.00	138.10	238.90	1.578		
15,700.00	9,287.37	15,898.72	9,479.41	121.27	121.22	-120.44	6,508.30	-573.83	377.07	134.58	242.49	1.555		
15,800.00	9,288.07	15,998.72	9,480.12	123.07	123.01	-120.44	6,608.30	-574.05	377.14	131.06	246.08	1.533		
15,900.00	9,288.78	16,098.72	9,480.83	124.87	124.80	-120.43	6,708.30	-574.27	377.21	127.54	249.68	1.511		
16,000.00	9,289.49	16,198.72	9,481.53	126.67	126.60	-120.42	6,808.29	-574.50	377.28	124.01	253.27	1.490 Level 3		
16,100.00	9,290.20	16,298.72	9,482.24	128.48	128.39	-120.42	6,908.29	-574.72	377.36	120.49	256.87	1.469 Level 3		
16,200.00	9,290.91	16,398.72	9,482.95	130.28	130.19	-120.41	7,008.29	-574.94	377.43	116.96	260.47	1.449 Level 3		
16,300.00	9,291.61	16,498.72	9,483.66	132.08	131.99	-120.40	7,108.29	-575.16	377.50	113.43	264.07	1.430 Level 3		
16,400.00	9,292.32	16,598.72	9,484.36	133.89	133.78	-120.40	7,208.28	-575.39	377.57	109.90	267.67	1.411 Level 3		
16,500.00	9,293.03	16,698.72	9,485.07	135.69	135.58	-120.39	7,308.28	-575.61	377.64	106.37	271.27	1.392 Level 3		
16,600.00	9,293.74	16,798.72	9,485.78	137.49	137.38	-120.38	7,408.28	-575.83	377.72	102.84	274.88	1.374 Level 3		
16,700.00	9,294.45	16,898.72	9,486.49	139.30	139.18	-120.38	7,508.28	-576.05	377.79	99.31	278.48	1.357 Level 3		
16,800.00	9,295.15	16,998.72	9,487.20	141.11	140.98	-120.37	7,608.27	-576.28	377.86	95.77	282.09	1.340 Level 3		
16,900.00	9,295.86	17,098.72	9,487.90	142.91	142.78	-120.36	7,708.27	-576.50	377.93	92.24	285.70	1.323 Level 3		
17,000.00	9,296.57	17,198.72	9,488.61	144.72	144.59	-120.36	7,808.27	-576.72	378.01	88.70	289.30	1.307 Level 3		
17,100.00	9,297.28	17,298.72	9,489.32	146.53	146.39	-120.35	7,908.26	-576.94	378.08	85.16	292.91	1.291 Level 3		
17,200.00	9,297.99	17,398.72	9,490.03	148.33	148.19	-120.35	8,008.26	-577.17	378.15	81.62	296.53	1.275 Level 3		
17,300.00	9,298.69	17,498.72	9,490.73	150.14	149.99	-120.34	8,108.26	-577.39	378.22	78.09	300.14	1.260 Level 3		
17,400.00	9,299.40	17,598.72	9,491.44	151.95	151.80	-120.33	8,208.26	-577.61	378.29	74.55	303.75	1.245 Level 2		
17,500.00	9,300.11	17,698.72	9,492.15	153.76	153.60	-120.33	8,308.25	-577.83	378.37	71.00	307.36	1.231 Level 2		
17,600.00	9,300.82	17,798.72	9,492.86	155.57	155.41	-120.32	8,408.25	-578.05	378.44	67.46	310.98	1.217 Level 2		
17,700.00	9,301.53	17,898.72	9,493.57	157.38	157.21	-120.31	8,508.25	-578.28	378.51	63.92	314.59	1.203 Level 2		
17,800.00	9,302.23	17,998.72	9,494.27	159.19	159.02	-120.31	8,608.24	-578.50	378.58	60.38	318.21	1.190 Level 2		
17,900.00	9,302.94	18,098.72	9,494.98	161.00	160.82	-120.30	8,708.24	-578.72	378.66	56.83	321.82	1.177 Level 2		
18,000.00	9,303.65	18,198.72	9,495.69	162.81	162.63	-120.29	8,808.24	-578.94	378.73	53.29	325.44	1.164 Level 2		
18,100.00	9,304.36	18,298.72	9,496.40	164.62	164.44	-120.29	8,908.24	-579.17	378.80	49.74	329.06	1.151 Level 2		
18,200.00	9,305.07	18,398.72	9,497.10	166.43	166.25	-120.28	9,008.23	-579.39	378.87	46.19	332.68	1.139 Level 2		
18,300.00	9,305.77	18,498.72	9,497.81	168.24	168.05	-120.27	9,108.23	-579.61	378.94	42.65	336.30	1.127 Level 2		
18,400.00	9,306.48	18,598.72	9,498.52	170.06	169.86	-120.27	9,208.23	-579.83	379.02	39.10	339.92	1.115 Level 2		
18,500.00	9,307.19	18,698.72	9,499.23	171.87	171.67	-120.26	9,308.23	-580.06	379.09	35.55	343.54	1.103 Level 2		
18,600.00	9,307.90	18,798.72	9,499.94	173.68	173.48	-120.26	9,408.22	-580.28	379.16	32.00	347.16	1.092 Level 2		
18,700.00	9,308.61	18,898.72	9,500.64	175.49	175.29	-120.25	9,508.22	-580.50	379.23	28.45	350.78	1.081 Level 2		
18,800.00	9,309.31	18,998.72	9,501.35	177.31	177.10	-120.24	9,608.22	-580.72	379.31	24.90	354.41	1.070 Level 2		
18,900.00	9,310.02	19,098.72	9,502.06	179.12	178.91	-120.24	9,708.21	-580.95	379.38	21.35	358.03	1.060 Level 2		
19,000.00	9,310.73	19,198.72	9,502.77	180.93	180.72	-120.23	9,808.21	-581.17	379.45	17.80	361.65	1.049 Level 2		
19,100.00	9,311.44	19,298.72	9,503.47	182.75	182.53	-120.22	9,908.21	-581.39	379.52	14.25	365.28	1.039 Level 2		

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



Anticollision Report



Company: COG Operating L L C
Project: Eddy County, NM (NAD 27 NME)
Reference Site: Sec. 31, T 26 S, R 28- E
Site Error: 0.00 usft
Reference Well: Way South State Com 705H
Well Error: 0.00 usft
Reference Wellbore: Wellbore #1
Reference Design: Plan #1

Local Co-ordinate Reference: Well Way South State Com 705H
TVD Reference: KB=30' @ 3129.00usft (Nabor 894)
MD Reference: KB=30' @ 3129.00usft (Nabor 894)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1
Offset TVD Reference: Offset Datum

Offset Design Sec. 31, T 26 S, R 28- E - Way South State Com 706H - Wellbore #1 - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-MWVD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (usft)	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Between Centres (usft)	Between Ellipses (usft)						
19,200.00	9,312.15	19,398.72	9,504.18	184.56	184.34	-120.22	10,008.21	-581.61	379.60	10.69	368.90	1.029	Level 2	
19,300.00	9,312.85	19,498.72	9,504.89	186.38	186.15	-120.21	10,108.20	-581.84	379.67	7.14	372.53	1.019	Level 2	
19,400.00	9,313.56	19,598.72	9,505.60	188.19	187.96	-120.20	10,208.20	-582.06	379.74	3.59	376.15	1.010	Level 2	
19,500.00	9,314.27	19,698.72	9,506.31	190.00	189.77	-120.20	10,308.20	-582.28	379.81	0.03	379.78	1.000	Level 2	
19,600.00	9,314.98	19,798.72	9,507.01	191.82	191.59	-120.19	10,408.19	-582.50	379.88	-3.52	383.41	0.991	Level 1	
19,700.00	9,315.69	19,898.72	9,507.72	193.63	193.40	-120.19	10,508.19	-582.73	379.96	-7.08	387.03	0.982	Level 1	
19,800.00	9,316.39	19,998.72	9,508.43	195.45	195.21	-120.18	10,608.19	-582.95	380.03	-10.63	390.66	0.973	Level 1	
19,900.00	9,317.10	20,098.72	9,509.14	197.26	197.02	-120.17	10,708.19	-583.17	380.10	-14.19	394.29	0.964	Level 1	
20,000.00	9,317.81	20,198.72	9,509.84	199.08	198.84	-120.17	10,808.18	-583.39	380.17	-17.74	397.92	0.955	Level 1	
20,100.00	9,318.52	20,298.72	9,510.55	200.89	200.65	-120.16	10,908.18	-583.62	380.25	-21.30	401.55	0.947	Level 1	
20,200.00	9,319.23	20,398.72	9,511.26	202.71	202.46	-120.15	11,008.18	-583.84	380.32	-24.86	405.17	0.939	Level 1	
20,300.00	9,319.93	20,498.72	9,511.97	204.53	204.28	-120.15	11,108.17	-584.06	380.39	-28.41	408.80	0.930	Level 1	
20,400.00	9,320.64	20,598.72	9,512.68	206.34	206.09	-120.14	11,208.17	-584.28	380.46	-31.97	412.43	0.922	Level 1	
20,500.00	9,321.35	20,698.72	9,513.38	208.16	207.90	-120.13	11,308.17	-584.51	380.54	-35.53	416.06	0.915	Level 1	
20,600.00	9,322.06	20,798.72	9,514.09	209.98	209.72	-120.13	11,408.17	-584.73	380.61	-39.09	419.69	0.907	Level 1	
20,700.00	9,322.77	20,898.72	9,514.80	211.79	211.53	-120.12	11,508.16	-584.95	380.68	-42.64	423.33	0.899	Level 1	
20,800.00	9,323.47	20,998.72	9,515.51	213.61	213.35	-120.12	11,608.16	-585.17	380.75	-46.20	426.96	0.892	Level 1	
20,900.00	9,324.18	21,098.72	9,516.21	215.43	215.16	-120.11	11,708.16	-585.40	380.83	-49.76	430.59	0.884	Level 1	
21,000.00	9,324.89	21,198.72	9,516.92	217.24	216.98	-120.10	11,808.16	-585.62	380.90	-53.32	434.22	0.877	Level 1	
21,100.00	9,325.60	21,298.72	9,517.63	219.06	218.79	-120.10	11,908.15	-585.84	380.97	-56.88	437.85	0.870	Level 1	
21,200.00	9,326.31	21,398.72	9,518.34	220.88	220.61	-120.09	12,008.15	-586.06	381.04	-60.44	441.48	0.863	Level 1	
21,300.00	9,327.01	21,498.72	9,519.05	222.69	222.42	-120.08	12,108.15	-586.29	381.12	-64.00	445.12	0.856	Level 1	
21,400.00	9,327.72	21,598.72	9,519.75	224.51	224.24	-120.08	12,208.14	-586.51	381.19	-67.56	448.75	0.849	Level 1	
21,500.00	9,328.43	21,698.72	9,520.46	226.33	226.05	-120.07	12,308.14	-586.73	381.26	-71.12	452.38	0.843	Level 1	
21,543.70	9,328.74	21,742.42	9,520.77	227.12	226.71	-120.07	12,351.84	-586.83	381.29	-72.54	453.83	0.840	Level 1	
21,580.58	9,329.00	21,774.88	9,521.00	227.79	227.19	-120.07	12,384.30	-586.90	381.34	-73.64	454.98	0.838	Level 1, ES, SF	

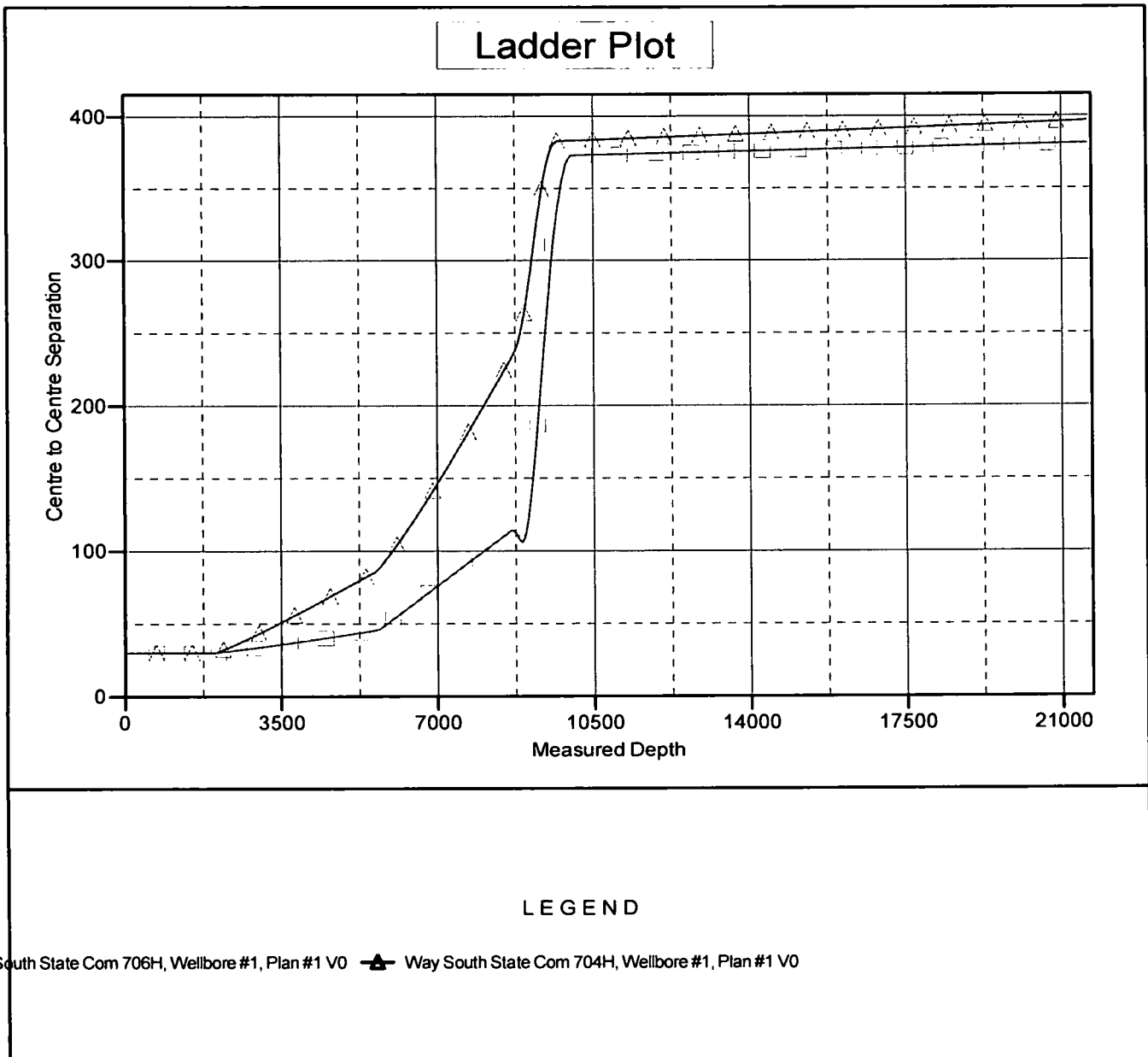
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company: COG Operating L L C
Project: Eddy County, NM (NAD 27 NME)
Reference Site: Sec. 31, T 26 S, R 28- E
Site Error: 0.00 usft
Reference Well: Way South State Com 705H
Well Error: 0.00 usft
Reference Wellbore: Wellbore #1
Reference Design: Plan #1

Local Co-ordinate Reference: Well Way South State Com 705H
TVD Reference: KB=30' @ 3129.00usft (Nabor 894)
MD Reference: KB=30' @ 3129.00usft (Nabor 894)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1
Offset TVD Reference: Offset Datum

Reference Depths are relative to KB=30' @ 3129.00usft (Nabor 894)
 Offset Depths are relative to Offset Datum
 Central Meridian is -104.33334

Coordinates are relative to: Way South State Com 705H
 Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
 Grid Convergence at Surface is: 0.11°



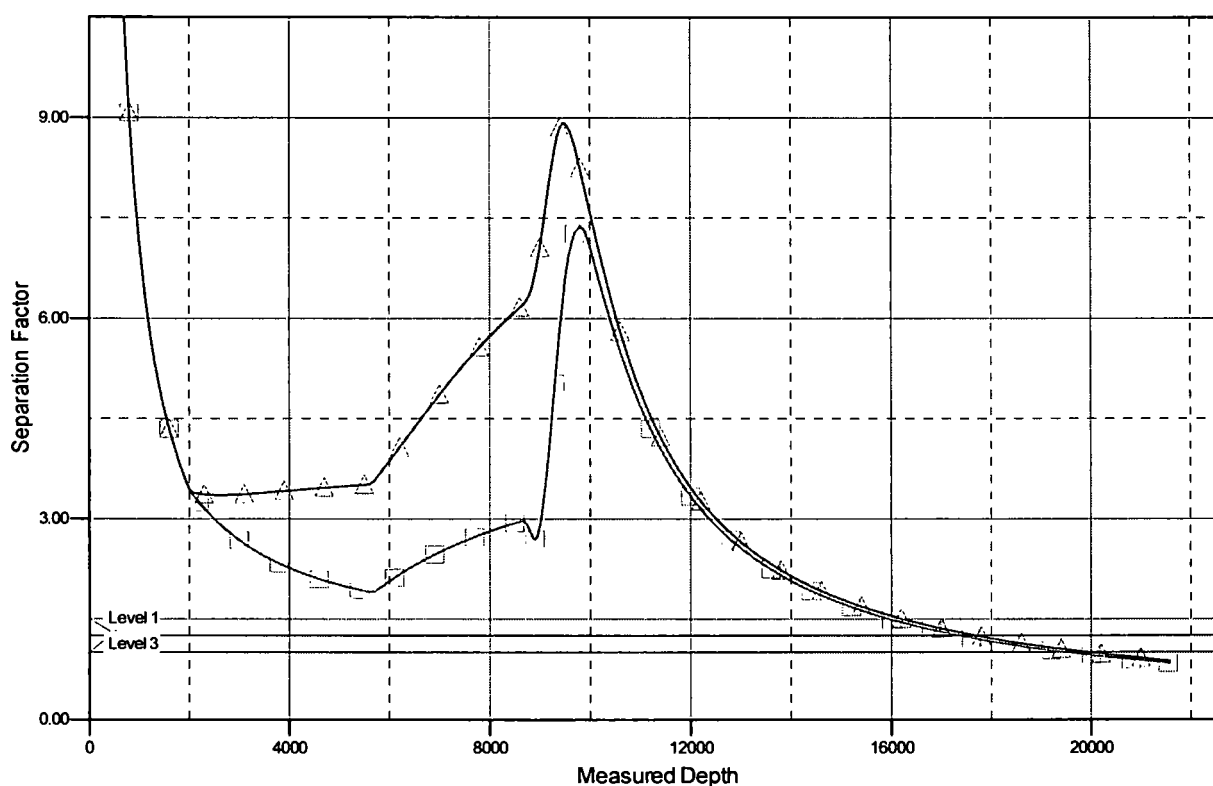
Company: COG Operating L L C
Project: Eddy County, NM (NAD 27 NME)
Reference Site: Sec. 31, T 26 S, R 28- E
Site Error: 0.00 usft
Reference Well: Way South State Com 705H
Well Error: 0.00 usft
Reference Wellbore: Wellbore #1
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Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1
Offset TVD Reference: Offset Datum

Reference Depths are relative to KB=30' @ 3129.00usft (Nabor 894)
 Offset Depths are relative to Offset Datum
 Central Meridian is -104.33334

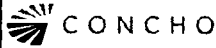
Coordinates are relative to: Way South State Com 705H
 Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
 Grid Convergence at Surface is: 0.11°

Separation Factor Plot



LEGEND

South State Com 706H, Wellbore #1, Plan #1 V0  Way South State Com 704H, Wellbore #1, Plan #1 V0 



COG Operating L.L.C.
Project: Eddy County, NM (NAD 27 NME)
Site: Sec. 31, T 26 S, R 28 E
Well: Way South State Com 705H
Wellbore: Wellbore #1
Plan: Plan #1 (Way South State Com 705H/Wellbore #1)
Nabor 894

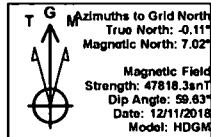
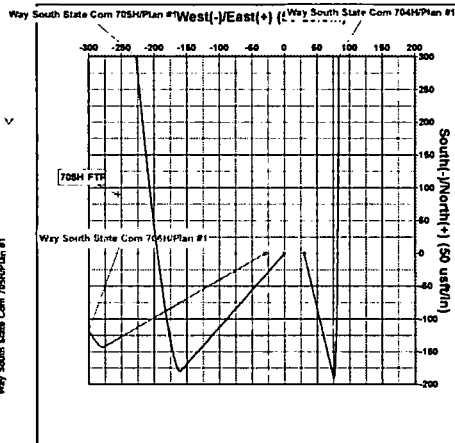
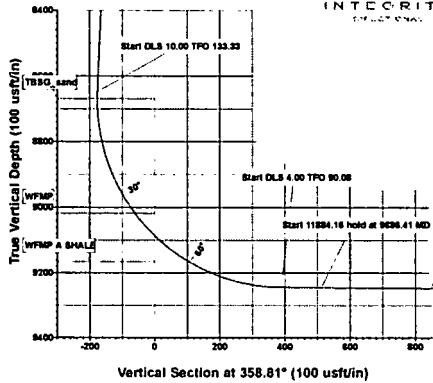
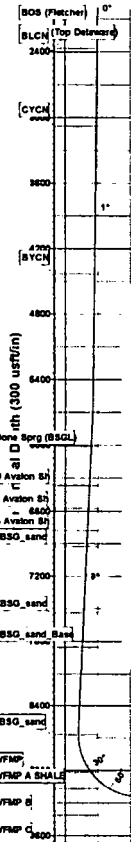
WELL DETAILS: Way South State Com 705H

Ground Elevation: 3099.00
RKB Elevation: KB=30' @ 3129.00usft (Nabor 894)
Rig Name: Nabor 894

Northing 363975.10 Easting 565459.70 Latitude 32.00051 Longitude -104.12217

Planned Section Details

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VFace	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Start Build 2.00
2	2000.00	0.00	0.00	2000.00	0.00	0.00	0.00	0.00	0.00	Start DLS 2.00 TFO 0.01
3	2050.00	1.00	221.63	2050.00	-0.33	-0.29	2.00	221.63	-0.32	Start 3550.00 hold at 2050.00 MD
4	5600.00	1.00	221.63	5599.46	-46.64	-41.45	0.00	0.00	-45.77	Start DLS 2.00 TFO 0.01
5	5719.83	3.40	221.63	5719.19	-50.07	-44.50	2.00	0.01	-49.14	Start 2934.26 hold at 5719.83 MD
6	8654.08	3.40	221.63	8648.29	-180.00	-160.00	0.00	0.00	-176.64	Start DLS 10.00 TFO 133.33
7	9573.40	89.60	355.00	9244.00	384.10	-234.97	10.00	133.33	388.89	Start DLS 4.00 TFO 90.08
8	9696.41	89.59	359.92	9244.86	506.95	-240.42	4.00	90.08	511.82	Start 11884.16 hold at 9696.41 MD
9	21580.57	89.59	359.92	9329.00	12390.80	-256.90	0.00	0.00	12393.46	TD at 21580.57



PROJECT DETAILS: Eddy County, NM (NAD 27 NME)
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level
Local North: Grid

