



CONCHO

NM OIL CONSERVATION
ARTESIA DISTRICT

DEC 12 2018

RECEIVED

COG Operating L L C

Eddy County, NM (NAD 27 NME)

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

Way South State Com 704H

Wellbore #1

Plan #1

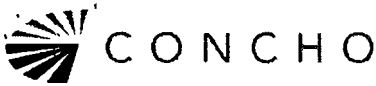
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Anticollision Report

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 704H
Well Error: 0.00 usft
Reference Wellbore: Wellbore #1
Reference Design: Plan #1

Local Co-ordinate Reference: Well Way South State Com 704H
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	21,796.28	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 705H - Wellbore #1 - Plan #1	2,000.00	2,000.00	30.00	21.30	3.449	CC
Way South State Com 705H - Wellbore #1 - Plan #1	21,796.92	21,580.58	396.99	-58.10	0.872	Level 1, ES, SF
Way South State Com 706H - Wellbore #1 - Plan #1	1,966.33	1,967.33	60.00	51.45	7.018	CC
Way South State Com 706H - Wellbore #1 - Plan #1	2,000.00	2,000.98	60.00	51.30	6.896	ES
Way South State Com 706H - Wellbore #1 - Plan #1	21,796.92	21,774.88	670.17	215.68	1.475	Level 3, SF

Offset Design Sec. 31, T 26 S, R 28- E - Way South State Com 705H - 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
2,100.00	2,100.00	2,099.64	2,099.63	4.57	4.54	-91.81	-0.97	-30.87	30.88	21.77	9.11	3.390	

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



Anticollision Report

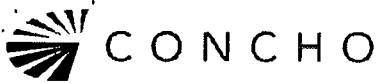


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Database: EDM 5000.1
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Offset Design Sec. 31, T 26 S, R 28- E - Way South State Com 705H - Wellbore #1 - Plan #1														Offset Site Error:	0.00 usft
Survey Program: 0-MWD														Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance		Minimum		Separation		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)	Separation (usft)	Factor			
2,200.00	2,200.00	2,199.62	2,199.60	4.80	4.72	-94.07	-2.28	-32.02	32.11	22.59	9.51	3.375			
2,300.00	2,300.00	2,299.61	2,299.57	5.02	4.90	-96.16	-3.58	-33.18	33.38	23.46	9.92	3.364			
2,400.00	2,400.00	2,399.59	2,399.54	5.25	5.08	-98.10	-4.89	-34.34	34.69	24.36	10.33	3.358			
2,500.00	2,500.00	2,499.58	2,499.51	5.47	5.27	-99.89	-6.19	-35.50	36.04	25.29	10.75	3.354			
2,600.00	2,600.00	2,599.56	2,599.48	5.70	5.47	-101.55	-7.50	-36.66	37.42	26.26	11.16	3.352			
2,700.00	2,700.00	2,699.55	2,699.45	5.92	5.66	-103.10	-8.80	-37.82	38.83	27.25	11.58	3.353			
2,800.00	2,800.00	2,799.53	2,799.42	6.15	5.86	-104.53	-10.10	-38.98	40.27	28.27	12.01	3.355			
2,900.00	2,900.00	2,899.52	2,899.39	6.37	6.06	-105.87	-11.41	-40.14	41.73	29.30	12.43	3.358			
3,000.00	3,000.00	2,999.50	2,999.36	6.60	6.26	-107.11	-12.71	-41.30	43.22	30.36	12.86	3.362			
3,100.00	3,100.00	3,099.49	3,099.32	6.82	6.46	-108.27	-14.02	-42.46	44.72	31.43	13.28	3.366			
3,200.00	3,200.00	3,199.47	3,199.29	7.05	6.67	-109.35	-15.32	-43.62	46.23	32.52	13.71	3.372			
3,300.00	3,300.00	3,299.46	3,299.26	7.27	6.87	-110.37	-16.63	-44.78	47.77	33.62	14.14	3.377			
3,400.00	3,400.00	3,399.44	3,399.23	7.50	7.08	-111.32	-17.93	-45.94	49.32	34.74	14.58	3.383			
3,500.00	3,500.00	3,499.43	3,499.20	7.72	7.29	-112.22	-19.23	-47.09	50.88	35.87	15.01	3.390			
3,600.00	3,600.00	3,599.41	3,599.17	7.95	7.50	-113.06	-20.54	-48.25	52.45	37.00	15.44	3.396			
3,700.00	3,700.00	3,699.40	3,699.14	8.17	7.71	-113.85	-21.84	-49.41	54.03	38.15	15.88	3.403			
3,800.00	3,800.00	3,799.38	3,799.11	8.40	7.92	-114.59	-23.15	-50.57	55.62	39.31	16.32	3.409			
3,900.00	3,900.00	3,899.37	3,899.08	8.62	8.13	-115.30	-24.45	-51.73	57.23	40.47	16.75	3.416			
4,000.00	4,000.00	3,899.35	3,899.05	8.84	8.35	-115.96	-25.76	-52.89	58.84	41.64	17.19	3.422			
4,100.00	4,100.00	4,099.33	4,099.02	9.07	8.56	-116.59	-27.06	-54.05	60.45	42.82	17.63	3.429			
4,200.00	4,200.00	4,199.32	4,198.99	9.29	8.78	-117.19	-28.36	-55.21	62.08	44.01	18.07	3.435			
4,300.00	4,300.00	4,299.30	4,298.96	9.52	8.99	-117.76	-29.67	-56.37	63.71	45.20	18.51	3.442			
4,400.00	4,400.00	4,399.29	4,398.93	9.74	9.21	-118.30	-30.97	-57.53	65.34	46.39	18.95	3.448			
4,500.00	4,500.00	4,499.27	4,498.90	9.97	9.42	-118.81	-32.28	-58.69	66.99	47.59	19.39	3.454			
4,600.00	4,600.00	4,599.26	4,598.87	10.19	9.64	-119.30	-33.58	-59.85	68.63	48.80	19.83	3.460			
4,700.00	4,700.00	4,699.24	4,698.84	10.42	9.86	-119.76	-34.89	-61.01	70.28	50.01	20.28	3.466			
4,800.00	4,800.00	4,799.23	4,798.81	10.64	10.08	-120.21	-36.19	-62.16	71.94	51.22	20.72	3.472			
4,900.00	4,900.00	4,899.21	4,898.78	10.87	10.30	-120.63	-37.49	-63.32	73.60	52.44	21.16	3.478			
5,000.00	5,000.00	4,999.20	4,998.75	11.09	10.51	-121.03	-38.80	-64.48	75.27	53.66	21.61	3.484			
5,100.00	5,100.00	5,099.18	5,098.72	11.32	10.73	-121.42	-40.10	-65.64	76.93	54.88	22.05	3.489			
5,200.00	5,200.00	5,199.17	5,198.69	11.54	10.95	-121.79	-41.41	-66.80	78.60	56.11	22.49	3.494			
5,300.00	5,300.00	5,299.15	5,298.65	11.77	11.17	-122.15	-42.71	-67.96	80.28	57.34	22.94	3.500			
5,400.00	5,400.00	5,399.14	5,398.62	11.99	11.39	-122.49	-44.01	-69.12	81.96	58.57	23.38	3.505			
5,500.00	5,500.00	5,499.12	5,498.59	12.22	11.61	-122.82	-45.32	-70.28	83.64	59.81	23.83	3.510			
5,600.00	5,600.00	5,599.11	5,598.56	12.44	11.83	-123.13	-46.62	-71.44	85.32	61.04	24.27	3.515			
5,700.00	5,699.98	5,696.26	5,695.66	12.64	12.05	70.62	-49.10	-73.64	88.02	63.33	24.69	3.565			
5,777.24	5,777.12	5,772.70	5,771.97	12.77	12.23	72.00	-52.41	-76.58	91.12	66.13	24.99	3.646			
5,800.00	5,799.84	5,795.43	5,794.65	12.81	12.28	72.59	-53.42	-77.48	91.98	66.90	25.09	3.667			
5,900.00	5,899.65	5,895.27	5,894.32	12.98	12.51	75.04	-57.84	-81.41	95.87	70.38	25.49	3.762			
6,000.00	5,999.46	5,995.11	5,993.99	13.15	12.74	77.29	-62.26	-85.34	99.92	74.03	25.89	3.860			
6,100.00	6,099.27	6,094.96	6,093.66	13.32	12.97	79.37	-66.68	-89.27	104.11	77.82	26.29	3.960			
6,200.00	6,199.08	6,194.80	6,193.33	13.50	13.20	81.28	-71.10	-93.20	108.43	81.73	26.70	4.061			
6,300.00	6,298.89	6,294.65	6,293.00	13.68	13.44	83.05	-75.52	-97.13	112.86	85.75	27.11	4.162			
6,400.00	6,398.70	6,394.49	6,392.66	13.86	13.67	84.68	-79.94	-101.06	117.39	89.86	27.53	4.264			
6,500.00	6,498.50	6,494.33	6,492.33	14.04	13.91	86.19	-84.37	-104.99	122.01	94.06	27.95	4.366			
6,600.00	6,598.31	6,594.18	6,592.00	14.23	14.14	87.59	-88.79	-108.92	126.70	98.34	28.37	4.467			
6,700.00	6,698.12	6,694.02	6,691.67	14.41	14.38	88.89	-93.21	-112.85	131.47	102.68	28.79	4.567			
6,800.00	6,797.93	6,793.86	6,791.34	14.60	14.61	90.09	-97.63	-116.78	136.30	107.08	29.21	4.665			
6,900.00	6,897.74	6,893.71	6,891.00	14.79	14.85	91.22	-102.05	-120.71	141.18	111.54	29.64	4.763			
7,000.00	6,997.55	6,993.55	6,990.67	14.99	15.09	92.26	-106.47	-124.64	146.11	116.04	30.07	4.859			
7,100.00	7,097.36	7,093.39	7,090.34	15.18	15.32	93.24	-110.89	-128.57	151.09	120.59	30.51	4.953			
7,200.00	7,197.17	7,193.24	7,190.01	15.38	15.56	94.16	-115.31	-132.50	156.12	125.18	30.94	5.046			

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7,300.00	7,296.97	7,293.08	7,289.68	15.58	15.80	95.02	-119.73	-136.43	161.18	129.80	31.38	5.137		
7,400.00	7,396.78	7,392.93	7,389.35	15.78	16.04	95.83	-124.16	-140.36	166.27	134.45	31.82	5.226		
7,500.00	7,496.59	7,492.77	7,489.01	15.98	16.28	96.58	-128.58	-144.29	171.39	139.14	32.26	5.314		
7,600.00	7,596.40	7,592.61	7,588.68	16.18	16.52	97.30	-133.00	-148.22	176.54	143.85	32.70	5.399		
7,700.00	7,696.21	7,692.46	7,688.35	16.39	16.76	97.97	-137.42	-152.15	181.72	148.58	33.14	5.483		
7,800.00	7,796.02	7,792.30	7,788.02	16.59	17.00	98.61	-141.84	-156.08	186.92	153.34	33.59	5.565		
7,900.00	7,895.83	7,892.14	7,887.69	16.80	17.24	99.21	-146.26	-160.01	192.15	158.11	34.04	5.646		
8,000.00	7,995.63	7,991.99	7,987.36	17.01	17.48	99.78	-150.68	-163.94	197.39	162.91	34.48	5.724		
8,100.00	8,095.44	8,091.83	8,087.02	17.22	17.72	100.32	-155.10	-167.87	202.65	167.72	34.93	5.801		
8,200.00	8,195.25	8,191.67	8,186.69	17.43	17.96	100.84	-159.52	-171.80	207.93	172.55	35.39	5.876		
8,300.00	8,295.06	8,291.52	8,286.36	17.64	18.20	101.32	-163.95	-175.73	213.23	177.39	35.84	5.949		
8,400.00	8,394.87	8,391.36	8,386.03	17.85	18.44	101.79	-168.37	-179.66	218.54	182.24	36.29	6.021		
8,500.00	8,494.68	8,491.21	8,485.70	18.07	18.68	102.23	-172.79	-183.59	223.86	187.11	36.75	6.091		
8,600.00	8,594.49	8,591.05	8,585.37	18.28	18.92	102.65	-177.21	-187.52	229.20	191.99	37.21	6.160		
8,700.00	8,694.30	8,689.61	8,683.78	18.50	19.15	103.32	-180.48	-191.49	234.64	196.99	37.65	6.232		
8,800.00	8,794.10	8,783.45	8,776.92	18.72	19.32	106.85	-171.21	-196.34	241.81	203.78	38.04	6.357		
8,846.64	8,840.65	8,824.99	8,817.41	18.82	19.39	109.46	-162.28	-198.87	246.54	208.33	38.20	6.453		
8,850.00	8,844.01	8,827.92	8,820.24	18.82	19.39	111.08	-161.53	-199.05	246.93	208.71	38.21	6.462		
8,900.00	8,893.99	8,870.98	8,861.32	18.93	19.45	-103.57	-149.00	-201.93	253.29	214.91	38.38	6.599		
8,950.00	8,943.82	8,913.18	8,900.55	19.03	19.50	-83.67	-133.77	-204.95	260.60	222.06	38.53	6.763		
9,000.00	8,993.13	8,954.63	8,937.87	19.11	19.55	-77.84	-116.04	-208.11	268.62	229.96	38.66	6.948		
9,050.00	9,041.54	8,995.40	8,973.22	19.19	19.59	-73.95	-96.02	-211.39	277.17	238.39	38.78	7.147		
9,100.00	9,088.68	9,035.56	9,006.55	19.26	19.63	-70.84	-73.88	-214.76	286.05	247.16	38.89	7.356		
9,150.00	9,134.20	9,075.19	9,037.83	19.32	19.67	-68.23	-49.81	-218.22	295.09	256.10	38.98	7.570		
9,200.00	9,177.75	9,114.35	9,067.02	19.38	19.70	-66.00	-23.95	-221.74	304.12	265.05	39.07	7.783		
9,250.00	9,219.00	9,150.00	9,091.99	19.43	19.73	-64.14	1.27	-225.02	313.05	273.89	39.16	7.994		
9,300.00	9,257.62	9,191.50	9,119.01	19.50	19.75	-62.43	32.52	-228.91	321.68	282.43	39.25	8.196		
9,350.00	9,293.34	9,229.59	9,141.74	19.57	19.78	-61.04	62.87	-232.54	329.97	290.62	39.35	8.386		
9,400.00	9,325.87	9,267.43	9,162.26	19.66	19.90	-59.87	94.44	-236.18	337.83	298.28	39.55	8.541		
9,450.00	9,354.98	9,300.00	9,178.22	19.77	20.02	-58.94	122.65	-239.33	345.22	305.43	39.79	8.676		
9,500.00	9,380.43	9,342.53	9,196.58	19.91	20.20	-58.16	160.78	-243.45	351.94	311.83	40.11	8.773		
9,550.00	9,402.03	9,379.87	9,210.33	20.08	20.38	-57.58	195.30	-247.06	358.09	317.62	40.46	8.850		
9,600.00	9,419.63	9,417.13	9,221.76	20.28	20.58	-57.19	230.58	-250.63	363.57	322.71	40.86	8.898		
9,650.00	9,433.08	9,450.00	9,229.92	20.51	20.76	-56.93	262.26	-253.74	368.39	327.11	41.27	8.925		
9,700.00	9,442.29	9,491.56	9,237.60	20.78	21.02	-56.90	302.90	-257.62	372.43	330.63	41.79	8.911		
9,750.00	9,447.17	9,528.80	9,241.95	21.07	21.26	-57.00	339.73	-261.02	375.77	333.44	42.33	8.877		
9,777.03	9,448.00	9,550.00	9,243.36	21.24	21.41	-57.13	360.80	-262.92	377.28	334.63	42.65	8.846		
9,800.00	9,448.17	9,566.12	9,243.90	21.39	21.52	-57.30	376.84	-264.34	378.64	335.73	42.91	8.823		
9,900.00	9,448.88	9,689.74	9,244.81	22.13	22.41	-57.79	500.27	-270.40	382.89	338.35	44.54	8.596		
10,000.00	9,449.60	9,791.25	9,245.53	22.99	23.30	-57.81	601.78	-270.55	383.02	336.73	46.29	8.275		
10,100.00	9,450.31	9,891.25	9,246.24	23.95	24.28	-57.82	701.78	-270.69	383.13	334.90	48.23	7.944		
10,200.00	9,451.03	9,991.25	9,246.95	25.02	25.35	-57.82	801.78	-270.83	383.25	332.88	50.37	7.609		
10,300.00	9,451.75	10,091.25	9,247.66	26.16	26.50	-57.83	901.77	-270.97	383.37	330.70	52.66	7.279		
10,400.00	9,452.46	10,191.25	9,248.36	27.38	27.73	-57.84	1,001.77	-271.11	383.48	328.38	55.11	6.959		
10,500.00	9,453.18	10,291.25	9,249.07	28.67	29.01	-57.85	1,101.77	-271.25	383.60	325.92	57.68	6.651		
10,600.00	9,453.89	10,391.25	9,249.78	30.01	30.35	-57.86	1,201.77	-271.39	383.72	323.36	60.36	6.357		
10,700.00	9,454.61	10,491.25	9,250.49	31.40	31.74	-57.87	1,301.76	-271.53	383.84	320.70	63.14	6.079		
10,800.00	9,455.32	10,591.25	9,251.20	32.83	33.18	-57.88	1,401.76	-271.66	383.95	317.95	66.00	5.817		
10,900.00	9,456.04	10,691.25	9,251.90	34.30	34.64	-57.89	1,501.76	-271.80	384.07	315.13	68.94	5.571		
11,000.00	9,456.75	10,791.25	9,252.61	35.80	36.14	-57.90	1,601.76	-271.94	384.19	312.24	71.94	5.340		
11,100.00	9,457.47	10,891.25	9,253.32	37.33	37.67	-57.91	1,701.75	-272.08	384.31	309.30	75.00	5.124		
11,200.00	9,458.18	10,991.25	9,254.03	38.89	39.23	-57.92	1,801.75	-272.22	384.42	306.31	78.11	4.921		

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 704H
Well Error: 0.00 usft
Reference Wellbore: Wellbore #1
Reference Design: Plan #1

Local Co-ordinate Reference: Well Way South State Com 704H
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 705H - 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					
11,300.00	9,458.90	11,091.25	9,254.74	40.46	40.80	-57.93	1,901.75	-272.36	384.54	303.27	81.27	4.732					
11,400.00	9,459.62	11,191.25	9,255.44	42.06	42.40	-57.94	2,001.74	-272.50	384.66	300.19	84.46	4.554					
11,500.00	9,460.33	11,291.25	9,256.15	43.68	44.02	-57.95	2,101.74	-272.63	384.77	297.08	87.69	4.388					
11,600.00	9,461.05	11,391.25	9,256.86	45.31	45.65	-57.96	2,201.74	-272.77	384.89	293.94	90.96	4.232					
11,700.00	9,461.76	11,491.25	9,257.57	46.96	47.29	-57.97	2,301.74	-272.91	385.01	290.76	94.25	4.085					
11,800.00	9,462.48	11,591.25	9,258.28	48.62	48.95	-57.98	2,401.73	-273.05	385.13	287.56	97.56	3.947					
11,900.00	9,463.19	11,691.25	9,258.98	50.29	50.62	-57.99	2,501.73	-273.19	385.24	284.34	100.90	3.818					
12,000.00	9,463.91	11,791.25	9,259.69	51.97	52.30	-58.00	2,601.73	-273.33	385.36	281.10	104.26	3.696					
12,100.00	9,464.62	11,891.25	9,260.40	53.66	53.98	-58.01	2,701.73	-273.47	385.48	277.84	107.64	3.581					
12,200.00	9,465.34	11,991.25	9,261.11	55.36	55.68	-58.02	2,801.72	-273.61	385.60	274.56	111.04	3.473					
12,300.00	9,466.05	12,091.25	9,261.82	57.06	57.39	-58.03	2,901.72	-273.74	385.71	271.27	114.45	3.370					
12,400.00	9,466.77	12,191.25	9,262.52	58.78	59.10	-58.04	3,001.72	-273.88	385.83	267.96	117.87	3.273					
12,500.00	9,467.49	12,291.25	9,263.23	60.50	60.82	-58.05	3,101.71	-274.02	385.95	264.64	121.31	3.181					
12,600.00	9,468.20	12,391.25	9,263.94	62.22	62.54	-58.06	3,201.71	-274.16	386.07	261.30	124.76	3.094					
12,700.00	9,468.92	12,491.25	9,264.65	63.95	64.27	-58.07	3,301.71	-274.30	386.18	257.96	128.22	3.012					
12,800.00	9,469.63	12,591.25	9,265.36	65.69	66.01	-58.08	3,401.71	-274.44	386.30	254.61	131.70	2.933					
12,900.00	9,470.35	12,691.25	9,266.06	67.43	67.75	-58.08	3,501.70	-274.58	386.42	251.24	135.18	2.859					
13,000.00	9,471.06	12,791.25	9,266.77	69.18	69.49	-58.09	3,601.70	-274.71	386.54	247.87	138.67	2.788					
13,100.00	9,471.78	12,891.25	9,267.48	70.92	71.24	-58.10	3,701.70	-274.85	386.65	244.49	142.16	2.720					
13,200.00	9,472.49	12,991.25	9,268.19	72.68	72.99	-58.11	3,801.70	-274.99	386.77	241.10	145.67	2.655					
13,300.00	9,473.21	13,091.25	9,268.90	74.43	74.75	-58.12	3,901.69	-275.13	386.89	237.71	149.18	2.593					
13,400.00	9,473.92	13,191.25	9,269.60	76.19	76.51	-58.13	4,001.69	-275.27	387.01	234.31	152.70	2.534					
13,500.00	9,474.64	13,291.25	9,270.31	77.96	78.27	-58.14	4,101.69	-275.41	387.12	230.90	156.22	2.478					
13,600.00	9,475.36	13,391.25	9,271.02	79.72	80.03	-58.15	4,201.69	-275.55	387.24	227.49	159.76	2.424					
13,700.00	9,476.07	13,491.25	9,271.73	81.49	81.80	-58.16	4,301.68	-275.68	387.36	224.07	163.29	2.372					
13,800.00	9,476.79	13,591.25	9,272.44	83.26	83.57	-58.17	4,401.68	-275.82	387.48	220.65	166.83	2.323					
13,900.00	9,477.50	13,691.25	9,273.14	85.03	85.34	-58.18	4,501.68	-275.96	387.59	217.22	170.38	2.275					
14,000.00	9,478.22	13,791.25	9,273.85	86.81	87.12	-58.19	4,601.67	-276.10	387.71	213.79	173.92	2.229					
14,100.00	9,478.93	13,891.25	9,274.56	88.59	88.89	-58.20	4,701.67	-276.24	387.83	210.35	177.48	2.185					
14,200.00	9,479.65	13,991.25	9,275.27	90.36	90.67	-58.21	4,801.67	-276.38	387.95	206.91	181.04	2.143					
14,300.00	9,480.36	14,091.25	9,275.98	92.14	92.45	-58.22	4,901.67	-276.52	388.07	203.47	184.60	2.102					
14,400.00	9,481.08	14,191.25	9,276.68	93.93	94.23	-58.23	5,001.66	-276.66	388.18	200.02	188.16	2.063					
14,500.00	9,481.79	14,291.25	9,277.39	95.71	96.02	-58.24	5,101.66	-276.79	388.30	196.57	191.73	2.025					
14,600.00	9,482.51	14,391.25	9,278.10	97.50	97.80	-58.25	5,201.66	-276.93	388.42	193.12	195.30	1.989					
14,700.00	9,483.23	14,491.25	9,278.81	99.28	99.59	-58.26	5,301.66	-277.07	388.54	189.67	198.87	1.954					
14,800.00	9,483.94	14,591.25	9,279.52	101.07	101.38	-58.27	5,401.65	-277.21	388.65	186.21	202.45	1.920					
14,900.00	9,484.66	14,691.25	9,280.22	102.86	103.16	-58.27	5,501.65	-277.35	388.77	182.75	206.03	1.887					
15,000.00	9,485.37	14,791.25	9,280.93	104.65	104.96	-58.28	5,601.65	-277.49	388.89	179.28	209.61	1.855					
15,100.00	9,486.09	14,891.25	9,281.64	106.44	106.75	-58.29	5,701.64	-277.63	389.01	175.82	213.19	1.825					
15,200.00	9,486.80	14,991.25	9,282.35	108.24	108.54	-58.30	5,801.64	-277.76	389.13	172.35	216.78	1.795					
15,300.00	9,487.52	15,091.25	9,283.06	110.03	110.33	-58.31	5,901.64	-277.90	389.24	168.88	220.36	1.766					
15,400.00	9,488.23	15,191.25	9,283.76	111.83	112.13	-58.32	6,001.64	-278.04	389.36	165.41	223.95	1.739					
15,500.00	9,488.95	15,291.25	9,284.47	113.62	113.92	-58.33	6,101.63	-278.18	389.48	161.93	227.54	1.712					
15,600.00	9,489.66	15,391.25	9,285.18	115.42	115.72	-58.34	6,201.63	-278.32	389.60	158.46	231.14	1.686					
15,700.00	9,490.38	15,491.25	9,285.89	117.22	117.52	-58.35	6,301.63	-278.46	389.71	154.98	234.73	1.660					
15,800.00	9,491.10	15,591.25	9,286.60	119.01	119.32	-58.36	6,401.63	-278.60	389.83	151.50	238.33	1.636					
15,900.00	9,491.81	15,691.25	9,287.30	120.81	121.11	-58.37	6,501.62	-278.73	389.95	148.02	241.93	1.612					
16,000.00	9,492.53	15,791.25	9,288.01	122.61	122.91	-58.38	6,601.62	-278.87	390.07	144.54	245.53	1.589					
16,100.00	9,493.24	15,891.24	9,288.72	124.41	124.71	-58.39	6,701.62	-279.01	390.19	141.06	249.13	1.566					
16,200.00	9,493.96	15,991.24	9,289.43	126.22	126.52	-58.40	6,801.62	-279.15	390.30	137.57	252.73	1.544					
16,300.00	9,494.67	16,091.24	9,290.14	128.02	128.32	-58.41	6,901.61	-279.29	390.42	134.09	256.34	1.523					
16,400.00	9,495.39	16,191.24	9,290.84	129.82	130.12	-58.42	7,001.61	-279.43	390.54	130.60	259.94	1.502					

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 704H
Well Error: 0.00 usft
Reference Wellbore: Wellbore #1
Reference Design: Plan #1

Local Co-ordinate Reference: Well Way South State Com 704H
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 705H - 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	
16,500.00	9,496.10	16,291.24	9,291.55	131.62	131.92	-58.43	7,101.61	-279.57	390.66	127.11	263.55	1.482 Level 3	
16,600.00	9,496.82	16,391.24	9,292.26	133.43	133.73	-58.43	7,201.60	-279.71	390.77	123.62	267.15	1.463 Level 3	
16,700.00	9,497.53	16,491.24	9,292.97	135.23	135.53	-58.44	7,301.60	-279.84	390.89	120.13	270.76	1.444 Level 3	
16,800.00	9,498.25	16,591.24	9,293.68	137.04	137.34	-58.45	7,401.60	-279.98	391.01	116.64	274.37	1.425 Level 3	
16,900.00	9,498.97	16,691.24	9,294.38	138.84	139.14	-58.46	7,501.60	-280.12	391.13	113.14	277.98	1.407 Level 3	
17,000.00	9,499.68	16,791.24	9,295.09	140.65	140.95	-58.47	7,601.59	-280.26	391.25	109.65	281.60	1.389 Level 3	
17,100.00	9,500.40	16,891.24	9,295.80	142.45	142.75	-58.48	7,701.59	-280.40	391.36	106.16	285.21	1.372 Level 3	
17,200.00	9,501.11	16,991.24	9,296.51	144.26	144.56	-58.49	7,801.59	-280.54	391.48	102.66	288.82	1.355 Level 3	
17,300.00	9,501.83	17,091.24	9,297.22	146.07	146.37	-58.50	7,901.59	-280.68	391.60	99.16	292.44	1.339 Level 3	
17,400.00	9,502.54	17,191.24	9,297.92	147.88	148.18	-58.51	8,001.58	-280.81	391.72	95.67	296.05	1.323 Level 3	
17,500.00	9,503.26	17,291.24	9,298.63	149.68	149.98	-58.52	8,101.58	-280.95	391.84	92.17	299.67	1.308 Level 3	
17,600.00	9,503.97	17,391.24	9,299.34	151.49	151.79	-58.53	8,201.58	-281.09	391.95	88.67	303.29	1.292 Level 3	
17,700.00	9,504.69	17,491.24	9,300.05	153.30	153.60	-58.54	8,301.57	-281.23	392.07	85.17	306.90	1.278 Level 3	
17,800.00	9,505.40	17,591.24	9,300.76	155.11	155.41	-58.55	8,401.57	-281.37	392.19	81.67	310.52	1.263 Level 3	
17,900.00	9,506.12	17,691.24	9,301.46	156.92	157.22	-58.56	8,501.57	-281.51	392.31	78.17	314.14	1.249 Level 2	
18,000.00	9,506.84	17,791.24	9,302.17	158.73	159.03	-58.56	8,601.57	-281.65	392.43	74.67	317.76	1.235 Level 2	
18,100.00	9,507.55	17,891.24	9,302.88	160.54	160.84	-58.57	8,701.56	-281.79	392.54	71.16	321.38	1.221 Level 2	
18,200.00	9,508.27	17,991.24	9,303.59	162.35	162.65	-58.58	8,801.56	-281.92	392.66	67.66	325.00	1.208 Level 2	
18,300.00	9,508.98	18,091.24	9,304.30	164.16	164.46	-58.59	8,901.56	-282.06	392.78	64.16	328.63	1.195 Level 2	
18,400.00	9,509.70	18,191.24	9,305.00	165.97	166.27	-58.60	9,001.56	-282.20	392.90	60.65	332.25	1.183 Level 2	
18,500.00	9,510.41	18,291.24	9,305.71	167.78	168.09	-58.61	9,101.55	-282.34	393.02	57.15	335.87	1.170 Level 2	
18,600.00	9,511.13	18,391.24	9,306.42	169.60	169.90	-58.62	9,201.55	-282.48	393.14	53.64	339.49	1.158 Level 2	
18,700.00	9,511.84	18,491.24	9,307.13	171.41	171.71	-58.63	9,301.55	-282.62	393.25	50.13	343.12	1.146 Level 2	
18,800.00	9,512.56	18,591.24	9,307.84	173.22	173.52	-58.64	9,401.55	-282.76	393.37	46.63	346.74	1.134 Level 2	
18,900.00	9,513.27	18,691.24	9,308.54	175.03	175.34	-58.65	9,501.54	-282.89	393.49	43.12	350.37	1.123 Level 2	
19,000.00	9,513.99	18,791.24	9,309.25	176.85	177.15	-58.66	9,601.54	-283.03	393.61	39.61	353.99	1.112 Level 2	
19,100.00	9,514.71	18,891.24	9,309.96	178.66	178.96	-58.67	9,701.54	-283.17	393.73	36.11	357.62	1.101 Level 2	
19,200.00	9,515.42	18,991.24	9,310.67	180.47	180.77	-58.68	9,801.53	-283.31	393.84	32.60	361.25	1.090 Level 2	
19,300.00	9,516.14	19,091.24	9,311.38	182.29	182.59	-58.68	9,901.53	-283.45	393.96	29.09	364.87	1.080 Level 2	
19,400.00	9,516.85	19,191.24	9,312.08	184.10	184.40	-58.69	10,001.53	-283.59	394.08	25.58	368.50	1.069 Level 2	
19,500.00	9,517.57	19,291.24	9,312.79	185.91	186.22	-58.70	10,101.53	-283.73	394.20	22.07	372.13	1.059 Level 2	
19,600.00	9,518.28	19,391.24	9,313.50	187.73	188.03	-58.71	10,201.52	-283.86	394.32	18.56	375.76	1.049 Level 2	
19,700.00	9,519.00	19,491.24	9,314.21	189.54	189.84	-58.72	10,301.52	-284.00	394.44	15.05	379.39	1.040 Level 2	
19,800.00	9,519.71	19,591.24	9,314.92	191.36	191.66	-58.73	10,401.52	-284.14	394.55	11.54	383.02	1.030 Level 2	
19,900.00	9,520.43	19,691.24	9,315.62	193.17	193.47	-58.74	10,501.52	-284.28	394.67	8.03	386.65	1.021 Level 2	
20,000.00	9,521.14	19,791.24	9,316.33	194.99	195.29	-58.75	10,601.51	-284.42	394.79	4.51	390.28	1.012 Level 2	
20,100.00	9,521.86	19,891.24	9,317.04	196.80	197.10	-58.76	10,701.51	-284.56	394.91	1.00	393.91	1.003 Level 2	
20,200.00	9,522.58	19,991.24	9,317.75	198.62	198.92	-58.77	10,801.51	-284.70	395.03	-2.51	397.54	0.994 Level 1	
20,300.00	9,523.29	20,091.24	9,318.46	200.43	200.74	-58.78	10,901.51	-284.84	395.15	-6.02	401.17	0.985 Level 1	
20,400.00	9,524.01	20,191.24	9,319.16	202.25	202.55	-58.79	11,001.50	-284.97	395.26	-9.54	404.80	0.976 Level 1	
20,500.00	9,524.72	20,291.24	9,319.87	204.06	204.37	-58.79	11,101.50	-285.11	395.38	-13.05	408.43	0.968 Level 1	
20,600.00	9,525.44	20,391.24	9,320.58	205.88	206.18	-58.80	11,201.50	-285.25	395.50	-16.56	412.06	0.960 Level 1	
20,700.00	9,526.15	20,491.24	9,321.29	207.70	208.00	-58.81	11,301.49	-285.39	395.62	-20.08	415.70	0.952 Level 1	
20,800.00	9,526.87	20,591.24	9,322.00	209.51	209.82	-58.82	11,401.49	-285.53	395.74	-23.59	419.33	0.944 Level 1	
20,900.00	9,527.58	20,691.24	9,322.70	211.33	211.63	-58.83	11,501.49	-285.67	395.86	-27.11	422.96	0.936 Level 1	
21,000.00	9,528.30	20,791.24	9,323.41	213.14	213.45	-58.84	11,601.49	-285.81	395.97	-30.62	426.59	0.928 Level 1	
21,100.00	9,529.01	20,891.24	9,324.12	214.96	215.27	-58.85	11,701.48	-285.94	396.09	-34.14	430.23	0.921 Level 1	
21,200.00	9,529.73	20,991.24	9,324.83	216.78	217.08	-58.86	11,801.48	-286.08	396.21	-37.65	433.86	0.913 Level 1	
21,300.00	9,530.45	21,091.24	9,325.54	218.60	218.90	-58.87	11,901.48	-286.22	396.33	-41.17	437.50	0.906 Level 1	
21,400.00	9,531.16	21,191.24	9,326.24	220.41	220.72	-58.88	12,001.48	-286.36	396.45	-44.68	441.13	0.899 Level 1	
21,500.00	9,531.88	21,291.24	9,326.95	222.23	222.54	-58.89	12,101.47	-286.50	396.57	-48.20	444.76	0.892 Level 1	
21,600.00	9,532.59	21,391.24	9,327.66	224.05	224.35	-58.89	12,201.47	-286.64	396.68	-51.72	448.40	0.885 Level 1	

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 704H
Well Error: 0.00 usft
Reference Wellbore: Wellbore #1
Reference Design: Plan #1

Local Co-ordinate Reference: Well Way South State Com 704H
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 705H - 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							
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	
21,700.00	9,533.31	21,491.24	9,328.37	225.86	226.17	-58.90	12,301.47	-286.78	396.80	-55.23	452.03	0.878	Level 1	
21,752.70	9,533.68	21,543.94	9,328.74	226.64	227.13	-58.91	12,354.16	-286.85	396.86	-56.91	453.77	0.875	Level 1	
21,796.92	9,534.00	21,580.58	9,329.00	227.30	227.79	-58.91	12,390.80	-286.90	396.99	-58.10	455.09	0.872	Level 1, ES, SF	



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 704H
Well Error: 0.00 usft
Reference Wellbore: Wellbore #1
Reference Design: Plan #1

Local Co-ordinate Reference: Well Way South State Com 704H
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		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)				Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	
0.00	0.00	1.00	1.00	0.00	0.00	-90.00	0.00	-60.00	60.00					
100.00	100.00	101.00	101.00	0.08	0.08	-90.00	0.00	-60.00	60.00	59.84	0.16	375.977		
200.00	200.00	201.00	201.00	0.30	0.31	-90.00	0.00	-60.00	60.00	59.39	0.61	98.503		
300.00	300.00	301.00	301.00	0.53	0.53	-90.00	0.00	-60.00	60.00	58.94	1.06	56.676		
400.00	400.00	401.00	401.00	0.75	0.76	-90.00	0.00	-60.00	60.00	58.49	1.51	39.783		
500.00	500.00	501.00	501.00	0.98	0.98	-90.00	0.00	-60.00	60.00	58.04	1.96	30.648		
600.00	600.00	601.00	601.00	1.20	1.20	-90.00	0.00	-60.00	60.00	57.59	2.41	24.925		
700.00	700.00	701.00	701.00	1.43	1.43	-90.00	0.00	-60.00	60.00	57.14	2.86	21.003		
800.00	800.00	801.00	801.00	1.65	1.65	-90.00	0.00	-60.00	60.00	56.69	3.31	18.147		
900.00	900.00	901.00	901.00	1.88	1.88	-90.00	0.00	-60.00	60.00	56.24	3.76	15.975		
1,000.00	1,000.00	1,001.00	1,001.00	2.10	2.10	-90.00	0.00	-60.00	60.00	55.79	4.21	14.267		
1,100.00	1,100.00	1,101.00	1,101.00	2.33	2.33	-90.00	0.00	-60.00	60.00	55.35	4.65	12.890		
1,200.00	1,200.00	1,201.00	1,201.00	2.55	2.55	-90.00	0.00	-60.00	60.00	54.90	5.10	11.754		
1,300.00	1,300.00	1,301.00	1,301.00	2.78	2.78	-90.00	0.00	-60.00	60.00	54.45	5.55	10.803		
1,400.00	1,400.00	1,401.00	1,401.00	3.00	3.00	-90.00	0.00	-60.00	60.00	54.00	6.00	9.994		
1,500.00	1,500.00	1,501.00	1,501.00	3.23	3.23	-90.00	0.00	-60.00	60.00	53.55	6.45	9.298		
1,600.00	1,600.00	1,601.00	1,601.00	3.45	3.45	-90.00	0.00	-60.00	60.00	53.10	6.90	8.692		
1,700.00	1,700.00	1,701.00	1,701.00	3.67	3.68	-90.00	0.00	-60.00	60.00	52.65	7.35	8.161		
1,800.00	1,800.00	1,801.00	1,801.00	3.90	3.90	-90.00	0.00	-60.00	60.00	52.20	7.80	7.691		
1,900.00	1,900.00	1,901.00	1,901.00	4.12	4.13	-90.00	0.00	-60.00	60.00	51.75	8.25	7.272		
1,966.33	1,966.33	1,967.33	1,967.33	4.27	4.28	-90.00	0.00	-60.00	60.00	51.45	8.55	7.018 CC		
2,000.00	2,000.00	2,000.98	2,000.98	4.35	4.35	-90.00	0.00	-60.00	60.00	51.30	8.70	6.896 ES		
2,100.00	2,100.00	2,100.08	2,100.07	4.57	4.54	-90.61	-0.66	-61.13	61.15	52.03	9.12	6.707		
2,200.00	2,200.00	2,200.07	2,200.04	4.80	4.73	-91.40	-1.53	-62.65	62.67	53.14	9.53	6.578		
2,300.00	2,300.00	2,300.05	2,300.01	5.02	4.92	-92.14	-2.40	-64.16	64.21	54.27	9.94	6.459		
2,400.00	2,400.00	2,400.03	2,399.98	5.25	5.11	-92.85	-3.27	-65.67	65.76	55.40	10.36	6.348		
2,500.00	2,500.00	2,500.02	2,499.95	5.47	5.30	-93.53	-4.15	-67.18	67.32	56.54	10.78	6.246		
2,600.00	2,600.00	2,600.00	2,599.92	5.70	5.50	-94.18	-5.02	-68.69	68.88	57.68	11.20	6.150		
2,700.00	2,700.00	2,699.99	2,699.89	5.92	5.70	-94.80	-5.89	-70.20	70.46	58.83	11.62	6.061		
2,800.00	2,800.00	2,799.97	2,799.86	6.15	5.90	-95.39	-6.76	-71.71	72.04	59.99	12.05	5.978		
2,900.00	2,900.00	2,899.96	2,899.83	6.37	6.11	-95.95	-7.64	-73.22	73.63	61.15	12.48	5.900		
3,000.00	3,000.00	2,999.94	2,999.80	6.60	6.31	-96.49	-8.51	-74.74	75.23	62.32	12.91	5.827		
3,100.00	3,100.00	3,099.93	3,099.77	6.82	6.52	-97.01	-9.38	-76.25	76.83	63.49	13.34	5.759		
3,200.00	3,200.00	3,199.91	3,199.74	7.05	6.73	-97.51	-10.25	-77.76	78.44	64.67	13.77	5.695		
3,300.00	3,300.00	3,299.90	3,299.70	7.27	6.94	-97.99	-11.13	-79.27	80.06	65.85	14.21	5.635		
3,400.00	3,400.00	3,399.88	3,399.67	7.50	7.15	-98.45	-12.00	-80.78	81.68	67.03	14.64	5.578		
3,500.00	3,500.00	3,499.87	3,499.64	7.72	7.36	-98.89	-12.87	-82.29	83.30	68.22	15.08	5.524		
3,600.00	3,600.00	3,599.85	3,599.61	7.95	7.57	-99.31	-13.74	-83.80	84.93	69.42	15.52	5.474		
3,700.00	3,700.00	3,699.84	3,699.58	8.17	7.78	-99.72	-14.61	-85.31	86.57	70.61	15.95	5.426		
3,800.00	3,800.00	3,799.82	3,799.55	8.40	8.00	-100.11	-15.49	-86.83	88.21	71.81	16.39	5.381		
3,900.00	3,900.00	3,899.81	3,899.52	8.62	8.21	-100.49	-16.36	-88.34	89.85	73.02	16.83	5.338		
4,000.00	4,000.00	3,999.79	3,999.49	8.84	8.43	-100.86	-17.23	-89.85	91.50	74.23	17.27	5.297		
4,100.00	4,100.00	4,099.78	4,099.46	9.07	8.64	-101.21	-18.10	-91.36	93.15	75.44	17.71	5.259		
4,200.00	4,200.00	4,199.76	4,199.43	9.29	8.86	-101.55	-18.98	-92.87	94.80	76.65	18.15	5.222		
4,300.00	4,300.00	4,299.75	4,299.40	9.52	9.08	-101.88	-19.85	-94.38	96.46	77.86	18.60	5.187		
4,400.00	4,400.00	4,399.73	4,399.37	9.74	9.29	-102.19	-20.72	-95.89	98.12	79.08	19.04	5.154		
4,500.00	4,500.00	4,499.71	4,499.34	9.97	9.51	-102.50	-21.59	-97.40	99.78	80.30	19.48	5.122		
4,600.00	4,600.00	4,599.70	4,599.31	10.19	9.73	-102.80	-22.47	-98.91	101.45	81.52	19.92	5.092		
4,700.00	4,700.00	4,699.68	4,699.28	10.42	9.95	-103.08	-23.34	-100.43	103.12	82.75	20.37	5.063		
4,800.00	4,800.00	4,799.67	4,799.25	10.64	10.17	-103.36	-24.21	-101.94	104.79	83.98	20.81	5.035		
4,900.00	4,900.00	4,899.65	4,899.22	10.87	10.39	-103.63	-25.08	-103.45	106.46	85.20	21.26	5.008		
5,000.00	5,000.00	4,999.64	4,999.19	11.09	10.61	-103.89	-25.96	-104.96	108.14	86.44	21.70	4.983		

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 704H
Well Error: 0.00 usft
Reference Wellbore: Wellbore #1
Reference Design: Plan #1

Local Co-ordinate Reference: Well Way South State Com 704H
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				
5,100.00	5,100.00	5,099.62	5,099.16	11.32	10.83	-104.14	-26.83	-106.47	109.81	87.67	22.15	4.959				
5,200.00	5,200.00	5,199.61	5,199.13	11.54	11.05	-104.39	-27.70	-107.98	111.49	88.90	22.59	4.935				
5,300.00	5,300.00	5,299.59	5,299.10	11.77	11.27	-104.63	-28.57	-109.49	113.18	90.14	23.04	4.913				
5,400.00	5,400.00	5,399.58	5,399.07	11.99	11.49	-104.86	-29.45	-111.00	114.86	91.38	23.48	4.891				
5,500.00	5,500.00	5,499.56	5,499.03	12.22	11.71	-105.08	-30.32	-112.52	116.55	92.62	23.93	4.870				
5,600.00	5,600.00	5,599.55	5,599.00	12.44	11.93	-105.30	-31.19	-114.03	118.23	93.86	24.38	4.850				
5,700.00	5,699.98	5,695.62	5,695.02	12.64	12.15	88.36	-32.83	-116.86	121.47	96.68	24.79	4.900				
5,777.24	5,777.12	5,770.43	5,769.68	12.77	12.32	89.36	-35.18	-120.93	126.07	100.98	25.09	5.025				
5,800.00	5,799.84	5,793.13	5,792.32	12.81	12.38	89.80	-35.97	-122.30	127.59	102.40	25.18	5.067				
5,900.00	5,899.65	5,892.81	5,891.76	12.98	12.61	91.58	-39.45	-128.33	134.33	108.74	25.59	5.250				
6,000.00	5,999.46	5,992.50	5,991.21	13.15	12.84	93.20	-42.93	-134.35	141.18	115.19	25.99	5.432				
6,100.00	6,099.27	6,092.19	6,090.66	13.32	13.08	94.66	-46.40	-140.37	148.14	121.74	26.40	5.611				
6,200.00	6,199.08	6,191.88	6,190.10	13.50	13.31	96.00	-49.88	-146.39	155.19	128.37	26.81	5.788				
6,300.00	6,298.89	6,291.57	6,289.55	13.68	13.55	97.21	-53.36	-152.42	162.31	135.08	27.23	5.961				
6,400.00	6,398.70	6,391.26	6,389.00	13.86	13.79	98.33	-56.83	-158.44	169.50	141.85	27.65	6.131				
6,500.00	6,498.50	6,490.95	6,488.44	14.04	14.03	99.35	-60.31	-164.46	176.74	148.68	28.07	6.297				
6,600.00	6,598.31	6,590.64	6,587.89	14.23	14.27	100.29	-63.79	-170.48	184.04	155.55	28.49	6.460				
6,700.00	6,698.12	6,690.33	6,687.34	14.41	14.51	101.16	-67.26	-176.51	191.39	162.47	28.92	6.618				
6,800.00	6,797.93	6,790.02	6,786.78	14.60	14.75	101.97	-70.74	-182.53	198.77	169.43	29.35	6.773				
6,900.00	6,897.74	6,889.71	6,886.23	14.79	14.99	102.72	-74.22	-188.55	206.20	176.41	29.78	6.924				
7,000.00	6,997.55	6,989.40	6,985.68	14.99	15.23	103.41	-77.70	-194.57	213.65	183.43	30.22	7.071				
7,100.00	7,097.36	7,089.09	7,085.12	15.18	15.47	104.06	-81.17	-200.59	221.13	190.48	30.65	7.214				
7,200.00	7,197.17	7,188.78	7,184.57	15.38	15.71	104.67	-84.65	-206.62	228.64	197.55	31.09	7.354				
7,300.00	7,296.97	7,288.47	7,284.01	15.58	15.96	105.24	-88.13	-212.64	236.18	204.64	31.53	7.490				
7,400.00	7,396.78	7,388.15	7,383.46	15.78	16.20	105.77	-91.60	-218.66	243.73	211.76	31.98	7.622				
7,500.00	7,496.59	7,487.84	7,482.91	15.98	16.44	106.27	-95.08	-224.68	251.31	218.89	32.42	7.751				
7,600.00	7,596.40	7,587.53	7,582.35	16.18	16.69	106.74	-98.56	-230.71	258.90	226.03	32.87	7.876				
7,700.00	7,696.21	7,687.22	7,681.80	16.39	16.93	107.19	-102.03	-236.73	266.51	233.19	33.32	7.998				
7,800.00	7,796.02	7,786.91	7,781.25	16.59	17.18	107.61	-105.51	-242.75	274.14	240.37	33.77	8.117				
7,900.00	7,895.83	7,886.60	7,880.69	16.80	17.43	108.00	-108.99	-248.77	281.78	247.55	34.23	8.233				
8,000.00	7,995.63	7,986.29	7,980.14	17.01	17.67	108.38	-112.47	-254.80	289.43	254.75	34.68	8.346				
8,100.00	8,095.44	8,085.98	8,079.59	17.22	17.92	108.74	-115.94	-260.82	297.09	261.96	35.14	8.456				
8,200.00	8,195.25	8,185.67	8,179.03	17.43	18.16	109.08	-119.42	-266.84	304.77	269.17	35.59	8.562				
8,300.00	8,295.06	8,285.36	8,278.48	17.64	18.41	109.40	-122.90	-272.86	312.45	276.40	36.05	8.667				
8,400.00	8,394.87	8,385.05	8,377.93	17.85	18.66	109.71	-126.37	-278.88	320.14	283.63	36.51	8.768				
8,500.00	8,494.68	8,484.74	8,477.37	18.07	18.91	110.00	-129.85	-284.91	327.85	290.87	36.97	8.867				
8,600.00	8,594.49	8,584.43	8,576.82	18.28	19.16	110.28	-133.33	-290.93	335.56	298.12	37.44	8.963				
8,700.00	8,694.30	8,684.12	8,676.27	18.50	19.40	110.54	-136.80	-296.95	343.27	305.37	37.90	9.057				
8,800.00	8,794.10	8,783.81	8,775.71	18.72	19.65	110.80	-140.28	-302.97	351.00	312.63	38.37	9.148				
8,846.64	8,840.65	8,830.30	8,822.09	18.82	19.77	110.91	-141.90	-305.78	354.60	316.02	38.59	9.190				
8,850.00	8,844.01	8,833.65	8,825.44	18.82	19.78	112.33	-142.02	-305.99	354.86	316.26	38.60	9.193				
8,900.00	8,893.99	8,879.43	8,871.10	18.93	19.89	-105.66	-143.43	-308.81	358.51	319.69	38.82	9.235				
8,950.00	8,943.82	8,918.61	8,910.14	19.03	19.98	-89.01	-142.54	-311.91	362.77	323.77	39.01	9.300				
9,000.00	8,993.13	8,957.73	8,948.92	19.11	20.06	-86.23	-139.12	-315.81	367.92	328.75	39.17	9.392				
9,050.00	9,041.54	9,000.00	8,990.35	19.19	20.15	-85.22	-132.59	-320.90	373.97	334.63	39.34	9.507				
9,100.00	9,088.68	9,035.86	9,024.98	19.26	20.22	-84.67	-124.76	-325.93	380.83	341.36	39.48	9.647				
9,150.00	9,134.20	9,074.89	9,061.95	19.32	20.30	-84.44	-113.91	-332.11	388.56	348.95	39.61	9.809				
9,200.00	9,177.75	9,113.94	9,098.02	19.38	20.37	-84.35	-100.66	-339.00	397.11	357.37	39.75	9.991				
9,250.00	9,219.00	9,150.00	9,130.37	19.43	20.44	-84.26	-86.34	-345.97	406.48	366.61	39.87	10.195				
9,300.00	9,257.62	9,192.20	9,166.88	19.50	20.51	-84.40	-67.14	-354.82	416.60	376.59	40.01	10.412				
9,350.00	9,293.34	9,231.50	9,199.41	19.57	20.58	-84.48	-46.98	-363.70	427.48	387.33	40.15	10.647				
9,400.00	9,325.87	9,270.98	9,230.50	19.66	20.66	-84.58	-24.59	-373.20	439.07	398.76	40.31	10.892				

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 704H
Well Error: 0.00 usft
Reference Wellbore: Wellbore #1
Reference Design: Plan #1

Local Co-ordinate Reference: Well Way South State Com 704H
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
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Semi Major Axis (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
9,450.00	9,354.98	9,310.70	9,260.04	19.77	20.74	-84.68		-0.03	-383.29	451.33	410.82	40.51	11.142	
9,500.00	9,380.43	9,350.00	9,287.38	19.91	20.82	-84.75		26.17	-393.76	464.20	423.47	40.73	11.396	
9,550.00	9,402.03	9,391.18	9,313.90	20.08	20.92	-84.87		55.52	-405.18	477.64	436.64	41.00	11.649	
9,600.00	9,419.63	9,432.11	9,337.96	20.28	21.04	-84.96		86.46	-416.95	491.57	450.25	41.32	11.896	
9,650.00	9,433.08	9,473.64	9,359.90	20.51	21.19	-85.04		119.50	-429.25	505.94	464.24	41.70	12.131	
9,700.00	9,442.29	9,515.90	9,379.55	20.78	21.38	-85.12		154.63	-442.06	520.66	478.51	42.15	12.352	
9,750.00	9,447.17	9,559.02	9,396.72	21.07	21.60	-85.20		191.87	-455.37	535.66	492.99	42.67	12.553	
9,777.03	9,448.00	9,582.74	9,404.88	21.24	21.74	-85.25		212.87	-462.77	543.85	500.87	42.98	12.653	
9,800.00	9,448.17	9,603.28	9,411.21	21.39	21.87	-85.98		231.33	-469.21	550.88	507.62	43.26	12.734	
9,900.00	9,448.88	9,697.77	9,431.13	22.13	22.56	-88.19		318.65	-498.97	582.09	537.40	44.69	13.025	
10,000.00	9,449.60	9,815.88	9,436.33	22.99	23.59	-88.73		430.91	-534.94	612.70	566.13	46.58	13.155	
10,100.00	9,450.31	9,988.77	9,437.57	23.95	25.23	-88.81		599.50	-572.79	634.64	585.45	49.19	12.903	
10,200.00	9,451.03	10,168.65	9,438.85	25.02	27.06	-88.84		778.40	-590.32	644.40	592.32	52.08	12.374	
10,300.00	9,451.75	10,289.70	9,439.71	26.16	28.34	-88.84		899.44	-591.35	645.04	590.54	54.50	11.835	
10,400.00	9,452.46	10,389.70	9,440.42	27.38	29.46	-88.84		999.43	-591.57	645.26	588.42	56.84	11.352	
10,500.00	9,453.18	10,489.70	9,441.13	28.67	30.64	-88.84		1,099.43	-591.80	645.47	586.17	59.31	10.883	
10,600.00	9,453.89	10,589.70	9,441.83	30.01	31.88	-88.84		1,199.43	-592.02	645.69	583.80	61.89	10.433	
10,700.00	9,454.61	10,689.70	9,442.54	31.40	33.18	-88.84		1,299.42	-592.24	645.91	581.33	64.58	10.002	
10,800.00	9,455.32	10,789.70	9,443.25	32.83	34.52	-88.84		1,399.42	-592.46	646.13	578.78	67.35	9.594	
10,900.00	9,456.04	10,889.70	9,443.96	34.30	35.91	-88.84		1,499.42	-592.69	646.35	576.14	70.20	9.207	
11,000.00	9,456.75	10,989.70	9,444.66	35.80	37.33	-88.84		1,599.42	-592.91	646.56	573.44	73.13	8.842	
11,100.00	9,457.47	11,089.70	9,445.37	37.33	38.78	-88.84		1,699.41	-593.13	646.78	570.67	76.11	8.498	
11,200.00	9,458.18	11,189.70	9,446.08	38.89	40.27	-88.84		1,799.41	-593.35	647.00	567.84	79.15	8.174	
11,300.00	9,458.90	11,289.70	9,446.79	40.46	41.78	-88.84		1,899.41	-593.58	647.22	564.97	82.25	7.869	
11,400.00	9,459.62	11,389.70	9,447.50	42.06	43.32	-88.84		1,999.40	-593.80	647.43	562.05	85.38	7.583	
11,500.00	9,460.33	11,489.70	9,448.20	43.68	44.87	-88.84		2,099.40	-594.02	647.65	559.10	88.55	7.314	
11,600.00	9,461.05	11,589.70	9,448.91	45.31	46.45	-88.84		2,199.40	-594.24	647.87	556.11	91.76	7.060	
11,700.00	9,461.76	11,689.70	9,449.62	46.96	48.05	-88.84		2,299.39	-594.47	648.09	553.08	95.00	6.822	
11,800.00	9,462.48	11,789.70	9,450.33	48.62	49.66	-88.84		2,399.39	-594.69	648.30	550.03	98.27	6.597	
11,900.00	9,463.19	11,889.70	9,451.03	50.29	51.28	-88.84		2,499.39	-594.91	648.52	546.95	101.57	6.385	
12,000.00	9,463.91	11,989.70	9,451.74	51.97	52.92	-88.84		2,599.39	-595.13	648.74	543.85	104.89	6.185	
12,100.00	9,464.62	12,089.70	9,452.45	53.66	54.57	-88.84		2,699.38	-595.35	648.96	540.73	108.23	5.996	
12,200.00	9,465.34	12,189.70	9,453.16	55.36	56.23	-88.84		2,799.38	-595.58	649.18	537.59	111.59	5.818	
12,300.00	9,466.05	12,289.70	9,453.87	57.06	57.90	-88.84		2,899.38	-595.80	649.39	534.43	114.96	5.649	
12,400.00	9,466.77	12,389.70	9,454.57	58.78	59.58	-88.84		2,999.37	-596.02	649.61	531.25	118.36	5.489	
12,500.00	9,467.49	12,489.70	9,455.28	60.50	61.27	-88.84		3,099.37	-596.24	649.83	528.06	121.76	5.337	
12,600.00	9,468.20	12,589.70	9,455.99	62.22	62.96	-88.84		3,199.37	-596.47	650.05	524.86	125.19	5.193	
12,700.00	9,468.92	12,689.70	9,456.70	63.95	64.67	-88.84		3,299.36	-596.69	650.26	521.64	128.62	5.056	
12,800.00	9,469.63	12,789.70	9,457.40	65.69	66.38	-88.84		3,399.36	-596.91	650.48	518.42	132.07	4.925	
12,900.00	9,470.35	12,889.70	9,458.11	67.43	68.09	-88.84		3,499.36	-597.13	650.70	515.18	135.52	4.801	
13,000.00	9,471.06	12,989.70	9,458.82	69.18	69.81	-88.84		3,599.36	-597.36	650.92	511.93	138.99	4.683	
13,100.00	9,471.78	13,089.70	9,459.53	70.92	71.54	-88.83		3,699.35	-597.58	651.14	508.67	142.46	4.571	
13,200.00	9,472.49	13,189.70	9,460.24	72.68	73.27	-88.83		3,799.35	-597.80	651.35	505.41	145.95	4.463	
13,300.00	9,473.21	13,289.70	9,460.94	74.43	75.00	-88.83		3,899.35	-598.02	651.57	502.13	149.44	4.360	
13,400.00	9,473.92	13,389.69	9,461.65	76.19	76.74	-88.83		3,999.34	-598.25	651.79	498.85	152.94	4.262	
13,500.00	9,474.64	13,489.69	9,462.36	77.96	78.49	-88.83		4,099.34	-598.47	652.01	495.56	156.44	4.168	
13,600.00	9,475.36	13,589.69	9,463.07	79.72	80.23	-88.83		4,199.34	-598.69	652.22	492.27	159.96	4.077	
13,700.00	9,476.07	13,689.69	9,463.77	81.49	81.99	-88.83		4,299.34	-598.91	652.44	488.97	163.48	3.991	
13,800.00	9,476.79	13,789.69	9,464.48	83.26	83.74	-88.83		4,399.33	-599.14	652.66	485.66	167.00	3.908	
13,900.00	9,477.50	13,889.69	9,465.19	85.03	85.50	-88.83		4,499.33	-599.36	652.88	482.35	170.53	3.829	
14,000.00	9,478.22	13,989.69	9,465.90	86.81	87.26	-88.83		4,599.33	-599.58	653.10	479.03	174.06	3.752	
14,100.00	9,478.93	14,089.69	9,466.61	88.59	89.02	-88.83		4,699.32	-599.80	653.31	475.71	177.60	3.679	

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



Anticollision Report

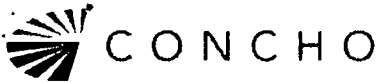


Company: COG Operating L L C
Project: Eddy County, NM (NAD 27 NME)
Reference Site: Sec. 31, T 26 S, R 28- E
Site Error: 0.00 usft
Reference Well: Way South State Com 704H
Well Error: 0.00 usft
Reference Wellbore: Wellbore #1
Reference Design: Plan #1

Local Co-ordinate Reference: Well Way South State Com 704H
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		
14,200.00	9,479.65	14,189.69	9,467.31	90.36	90.78	-88.83	4,799.32	-600.03	653.53	472.38	181.15	3.608		
14,300.00	9,480.36	14,289.69	9,468.02	92.14	92.55	-88.83	4,899.32	-600.25	653.75	469.05	184.69	3.540		
14,400.00	9,481.08	14,389.69	9,468.73	93.93	94.32	-88.83	4,999.31	-600.47	653.97	465.72	188.25	3.474		
14,500.00	9,481.79	14,489.69	9,469.44	95.71	96.09	-88.83	5,099.31	-600.69	654.18	462.38	191.80	3.411		
14,600.00	9,482.51	14,589.69	9,470.14	97.50	97.86	-88.83	5,199.31	-600.92	654.40	459.04	195.36	3.350		
14,700.00	9,483.23	14,689.69	9,470.85	99.28	99.64	-88.83	5,299.31	-601.14	654.62	455.70	198.92	3.291		
14,800.00	9,483.94	14,789.69	9,471.56	101.07	101.41	-88.83	5,399.30	-601.36	654.84	452.35	202.49	3.234		
14,900.00	9,484.66	14,889.69	9,472.27	102.86	103.19	-88.83	5,499.30	-601.58	655.05	449.00	206.05	3.179		
15,000.00	9,485.37	14,989.69	9,472.98	104.65	104.97	-88.83	5,599.30	-601.81	655.27	445.65	209.62	3.126		
15,100.00	9,486.09	15,089.69	9,473.68	106.44	106.76	-88.83	5,699.29	-602.03	655.49	442.29	213.20	3.075		
15,200.00	9,486.80	15,189.69	9,474.39	108.24	108.54	-88.83	5,799.29	-602.25	655.71	438.93	216.77	3.025		
15,300.00	9,487.52	15,289.69	9,475.10	110.03	110.32	-88.83	5,899.29	-602.47	655.93	435.57	220.35	2.977		
15,400.00	9,488.23	15,389.69	9,475.81	111.83	112.11	-88.83	5,999.28	-602.70	656.14	432.21	223.93	2.930		
15,500.00	9,488.95	15,489.69	9,476.51	113.62	113.90	-88.83	6,099.28	-602.92	656.36	428.84	227.52	2.885		
15,600.00	9,489.66	15,589.69	9,477.22	115.42	115.68	-88.83	6,199.28	-603.14	656.58	425.48	231.10	2.841		
15,700.00	9,490.38	15,689.69	9,477.93	117.22	117.47	-88.83	6,299.28	-603.36	656.80	422.11	234.69	2.799		
15,800.00	9,491.10	15,789.69	9,478.64	119.01	119.26	-88.83	6,399.27	-603.59	657.01	418.74	238.28	2.757		
15,900.00	9,491.81	15,889.69	9,479.35	120.81	121.06	-88.83	6,499.27	-603.81	657.23	415.36	241.87	2.717		
16,000.00	9,492.53	15,989.69	9,480.05	122.61	122.85	-88.83	6,599.27	-604.03	657.45	411.99	245.46	2.678		
16,100.00	9,493.24	16,089.69	9,480.76	124.41	124.64	-88.83	6,699.26	-604.25	657.67	408.61	249.06	2.641		
16,200.00	9,493.96	16,189.69	9,481.47	126.22	126.44	-88.83	6,799.26	-604.48	657.89	405.23	252.65	2.604		
16,300.00	9,494.67	16,289.69	9,482.18	128.02	128.23	-88.83	6,899.26	-604.70	658.10	401.85	256.25	2.568		
16,400.00	9,495.39	16,389.69	9,482.88	129.82	130.03	-88.83	6,999.25	-604.92	658.32	398.47	259.85	2.533		
16,500.00	9,496.10	16,489.69	9,483.59	131.62	131.82	-88.83	7,099.25	-605.14	658.54	395.09	263.45	2.500		
16,600.00	9,496.82	16,589.69	9,484.30	133.43	133.62	-88.82	7,199.25	-605.37	658.76	391.71	267.05	2.467		
16,700.00	9,497.53	16,689.69	9,485.01	135.23	135.42	-88.82	7,299.25	-605.59	658.97	388.32	270.65	2.435		
16,800.00	9,498.25	16,789.69	9,485.72	137.04	137.22	-88.82	7,399.24	-605.81	659.19	384.94	274.26	2.404		
16,900.00	9,498.97	16,889.69	9,486.42	138.84	139.02	-88.82	7,499.24	-606.03	659.41	381.55	277.86	2.373		
17,000.00	9,499.68	16,989.69	9,487.13	140.65	140.82	-88.82	7,599.24	-606.26	659.63	378.16	281.47	2.344		
17,100.00	9,500.40	17,089.69	9,487.84	142.45	142.62	-88.82	7,699.23	-606.48	659.84	374.77	285.07	2.315		
17,200.00	9,501.11	17,189.69	9,488.55	144.26	144.42	-88.82	7,799.23	-606.70	660.06	371.38	288.68	2.286		
17,300.00	9,501.83	17,289.69	9,489.25	146.07	146.22	-88.82	7,899.23	-606.92	660.28	367.99	292.29	2.259		
17,400.00	9,502.54	17,389.69	9,489.96	147.88	148.03	-88.82	7,999.22	-607.14	660.50	364.59	295.90	2.232		
17,500.00	9,503.26	17,489.69	9,490.67	149.68	149.83	-88.82	8,099.22	-607.37	660.72	361.20	299.52	2.206		
17,600.00	9,503.97	17,589.68	9,491.38	151.49	151.63	-88.82	8,199.22	-607.59	660.93	357.81	303.13	2.180		
17,700.00	9,504.69	17,689.68	9,492.09	153.30	153.44	-88.82	8,299.22	-607.81	661.15	354.41	306.74	2.155		
17,800.00	9,505.40	17,789.68	9,492.79	155.11	155.24	-88.82	8,399.21	-608.03	661.37	351.01	310.36	2.131		
17,900.00	9,506.12	17,889.68	9,493.50	156.92	157.05	-88.82	8,499.21	-608.26	661.59	347.62	313.97	2.107		
18,000.00	9,506.84	17,989.68	9,494.21	158.73	158.86	-88.82	8,599.21	-608.48	661.80	344.22	317.59	2.084		
18,100.00	9,507.55	18,089.68	9,494.92	160.54	160.66	-88.82	8,699.20	-608.70	662.02	340.82	321.20	2.061		
18,200.00	9,508.27	18,189.68	9,495.62	162.35	162.47	-88.82	8,799.20	-608.92	662.24	337.42	324.82	2.039		
18,300.00	9,508.98	18,289.68	9,496.33	164.16	164.28	-88.82	8,899.20	-609.15	662.46	334.02	328.44	2.017		
18,400.00	9,509.70	18,389.68	9,497.04	165.97	166.08	-88.82	8,999.19	-609.37	662.68	330.62	332.06	1.996		
18,500.00	9,510.41	18,489.68	9,497.75	167.78	167.89	-88.82	9,099.19	-609.59	662.89	327.22	335.68	1.975		
18,600.00	9,511.13	18,589.68	9,498.46	169.60	169.70	-88.82	9,199.19	-609.81	663.11	323.82	339.30	1.954		
18,700.00	9,511.84	18,689.68	9,499.16	171.41	171.51	-88.82	9,299.19	-610.04	663.33	320.41	342.92	1.934		
18,800.00	9,512.56	18,789.68	9,499.87	173.22	173.32	-88.82	9,399.18	-610.26	663.55	317.01	346.54	1.915		
18,900.00	9,513.27	18,889.68	9,500.58	175.03	175.13	-88.82	9,499.18	-610.48	663.76	313.60	350.16	1.896		
19,000.00	9,513.99	18,989.68	9,501.29	176.85	176.94	-88.82	9,599.18	-610.70	663.98	310.20	353.78	1.877		
19,100.00	9,514.71	19,089.68	9,501.99	178.66	178.75	-88.82	9,699.17	-610.93	664.20	306.79	357.41	1.858		
19,200.00	9,515.42	19,189.68	9,502.70	180.47	180.56	-88.82	9,799.17	-611.15	664.42	303.39	361.03	1.840		
19,300.00	9,516.14	19,289.68	9,503.41	182.29	182.37	-88.82	9,899.17	-611.37	664.64	299.98	364.65	1.823		

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 704H
Well Error: 0.00 usft
Reference Wellbore: Wellbore #1
Reference Design: Plan #1

Local Co-ordinate Reference: Well Way South State Com 704H
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

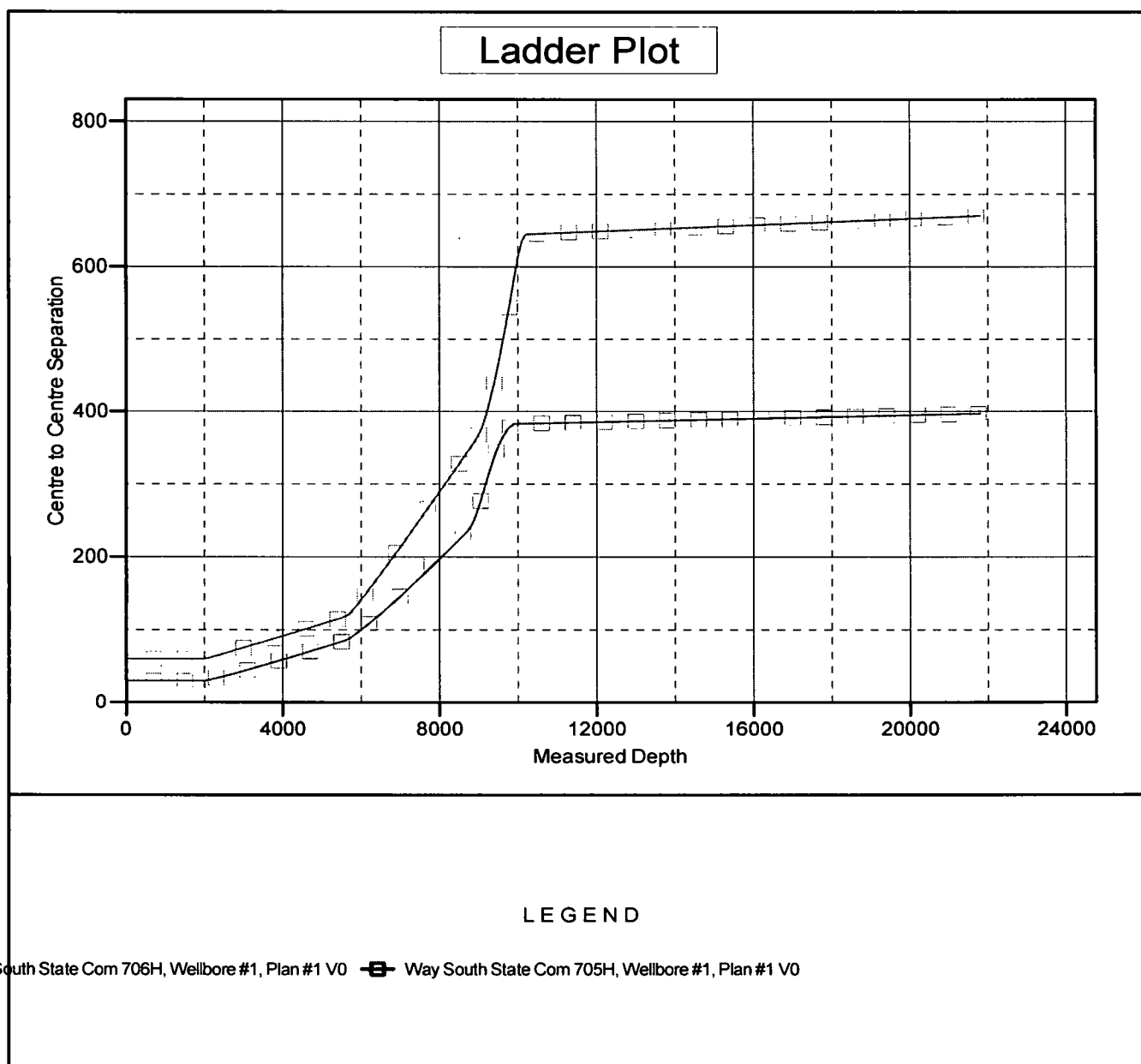
Offset Design Sec. 31, T 26 S, R 28- E - Way South State Com 706H - Wellbore #1 - Plan #1													Offset Site Error: 0.00 usft
Survey Program: 0-MWD													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (usft)	Between Ellipses (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)					
19,400.00	9,516.85	19,389.68	9,504.12	184.10	184.18	-88.82	9,999.16	-611.59	664.85	296.58	368.28	1.805	
19,500.00	9,517.57	19,489.68	9,504.83	185.91	185.99	-88.82	10,099.16	-611.82	665.07	293.17	371.90	1.788	
19,600.00	9,518.28	19,589.68	9,505.53	187.73	187.80	-88.82	10,199.16	-612.04	665.29	289.76	375.53	1.772	
19,700.00	9,519.00	19,689.68	9,506.24	189.54	189.61	-88.82	10,299.16	-612.26	665.51	286.35	379.15	1.755	
19,800.00	9,519.71	19,789.68	9,506.95	191.36	191.42	-88.82	10,399.15	-612.48	665.72	282.94	382.78	1.739	
19,900.00	9,520.43	19,889.68	9,507.66	193.17	193.24	-88.82	10,499.15	-612.71	665.94	279.53	386.41	1.723	
20,000.00	9,521.14	19,989.68	9,508.36	194.99	195.05	-88.82	10,599.15	-612.93	666.16	276.13	390.03	1.708	
20,100.00	9,521.86	20,089.68	9,509.07	196.80	196.86	-88.82	10,699.14	-613.15	666.38	272.72	393.66	1.693	
20,200.00	9,522.58	20,189.68	9,509.78	198.62	198.67	-88.82	10,799.14	-613.37	666.59	269.30	397.29	1.678	
20,300.00	9,523.29	20,289.68	9,510.49	200.43	200.49	-88.81	10,899.14	-613.60	666.81	265.89	400.92	1.663	
20,400.00	9,524.01	20,389.68	9,511.20	202.25	202.30	-88.81	10,999.13	-613.82	667.03	262.48	404.55	1.649	
20,500.00	9,524.72	20,489.68	9,511.90	204.06	204.11	-88.81	11,099.13	-614.04	667.25	259.07	408.18	1.635	
20,600.00	9,525.44	20,589.68	9,512.61	205.88	205.93	-88.81	11,199.13	-614.26	667.47	255.66	411.81	1.621	
20,700.00	9,526.15	20,689.68	9,513.32	207.70	207.74	-88.81	11,299.13	-614.49	667.68	252.25	415.44	1.607	
20,800.00	9,526.87	20,789.68	9,514.03	209.51	209.55	-88.81	11,399.12	-614.71	667.90	248.83	419.07	1.594	
20,900.00	9,527.58	20,889.68	9,514.73	211.33	211.37	-88.81	11,499.12	-614.93	668.12	245.42	422.70	1.581	
21,000.00	9,528.30	20,989.68	9,515.44	213.14	213.18	-88.81	11,599.12	-615.15	668.34	242.01	426.33	1.568	
21,100.00	9,529.01	21,089.68	9,516.15	214.96	215.00	-88.81	11,699.11	-615.38	668.55	238.59	429.96	1.555	
21,200.00	9,529.73	21,189.68	9,516.86	216.78	216.81	-88.81	11,799.11	-615.60	668.77	235.18	433.59	1.542	
21,300.00	9,530.45	21,289.68	9,517.57	218.60	218.63	-88.81	11,899.11	-615.82	668.99	231.77	437.22	1.530	
21,400.00	9,531.16	21,389.68	9,518.27	220.41	220.44	-88.81	11,999.11	-616.04	669.21	228.35	440.86	1.518	
21,500.00	9,531.88	21,489.68	9,518.98	222.23	222.26	-88.81	12,099.10	-616.27	669.43	224.94	444.49	1.506	
21,600.00	9,532.59	21,589.68	9,519.69	224.05	224.07	-88.81	12,199.10	-616.49	669.64	221.52	448.12	1.494 Level 3	
21,700.00	9,533.31	21,689.68	9,520.40	225.86	225.89	-88.81	12,299.10	-616.71	669.86	218.11	451.75	1.483 Level 3	
21,746.01	9,533.64	21,735.68	9,520.72	226.55	226.61	-88.81	12,345.10	-616.81	669.96	216.81	453.15	1.478 Level 3	
21,796.92	9,534.00	21,774.88	9,521.00	227.30	227.19	-88.81	12,384.30	-616.90	670.17	215.68	454.49	1.475 Level 3, SF	

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 704H
Well Error: 0.00 usft
Reference Wellbore: Wellbore #1
Reference Design: Plan #1

Local Co-ordinate Reference: Well Way South State Com 704H
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 704H
 Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
 Grid Convergence at Surface is: 0.11°



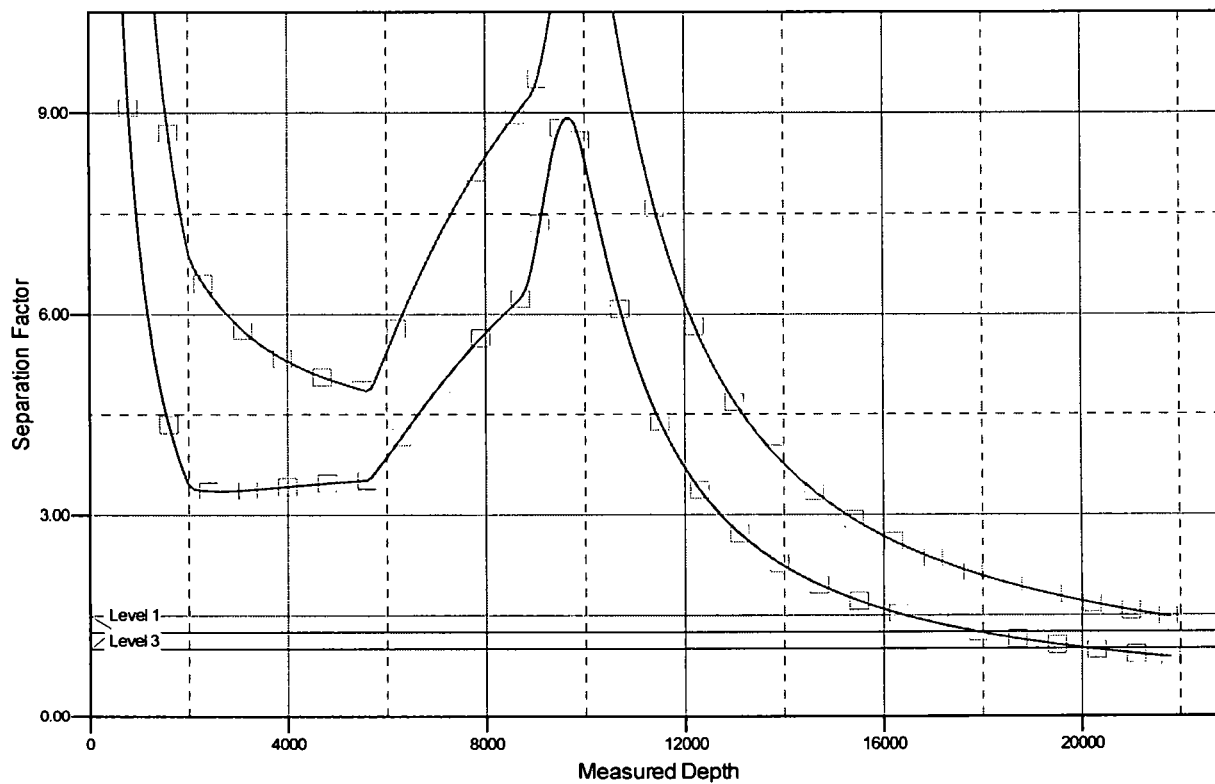
Company: COG Operating L L C
Project: Eddy County, NM (NAD 27 NME)
Reference Site: Sec. 31, T 26 S, R 28- E
Site Error: 0.00 usft
Reference Well: Way South State Com 704H
Well Error: 0.00 usft
Reference Wellbore Wellbore #1
Reference Design: Plan #1

Local Co-ordinate Reference: Well Way South State Com 704H
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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

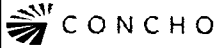
Coordinates are relative to: Way South State Com 704H
 Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
 Grid Convergence at Surface is: 0.11°

Separation Factor Plot



LEGEND

South State Com 706H, Wellbore #1, Plan #1 V0  Way South State Com 705H, 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 704H
Wellbore: Wellbore #1
Plan: Plan #1 (Way South State Com 704H/Wellbore #1)
Nabor 894

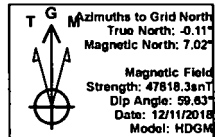
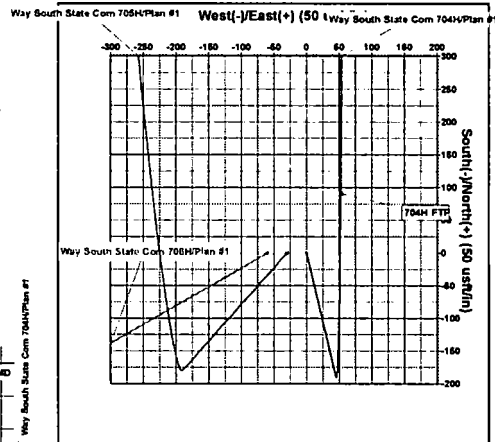
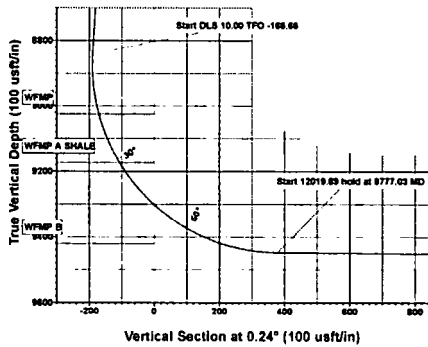
WELL DETAILS: Way South State Com 704H

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

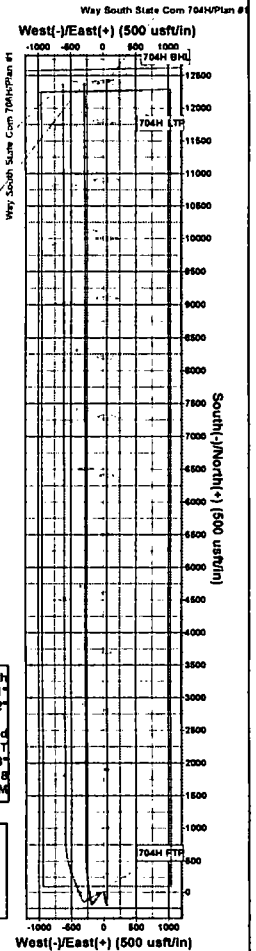
Northing 363975.10 Easting 565489.70 Latitude 32.00051 Longitude -104.12207

Planned Section Details

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	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	5800.00	0.00	0.00	5800.00	0.00	0.00	0.00	0.00	0.00	Start DLS 10.00 TFO -166.66
3	5777.24	3.54	166.68	5777.12	-5.33	1.28	2.00	166.68	-5.33	Start 3069.40 hold at 5777.24 MD
4	8846.64	3.54	166.68	8840.65	-190.00	45.00	0.00	0.00	-189.81	Start DLS 10.00 TFO -166.66
5	9777.03	89.59	360.00	9448.00	377.82	53.58	10.00	-166.66	378.05	Start 12019.89 hold at 9777.03 MD
6	21796.92	89.59	360.00	9534.00	12397.40	53.00	0.00	0.00	2397.51	TD at 21796.92



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



Vertical Section at 0.24\"/>