



COG Operating L L C

Lea County, NM (NAD27 NME)

Sec. 19, T 19 S., R 33 E

Geronimo Federal Com 11H

Wellbore #1

Plan #1

Anticollision Report

01 July, 2016





Integrity Directional Services, LLC
Anticollision Report



Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Geronimo Federal Com 11H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB=26' @ 3625.60ft (Scandril Freedom)
Reference Site:	Sec. 19, T 19 S., R 33 E	MD Reference:	KB=26' @ 3625.60ft (Scandril Freedom)
Site Error:	5.00 ft	North Reference:	Grid
Reference Well:	Geronimo Federal Com 11H	Survey Calculation Method:	Minimum Curvature
Well Error:	5.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Multi User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference	Plan #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.00 ft	Error Surface:	Circular Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program		Date	6/20/2016		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.00	20,836.70	Plan #1 (Wellbore #1)	MWD	MWD - Standard	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Sec. 31, T 19 S., R 33 E						
GERONIMO FED #1 - Actual Wellbore - INC ONLY	16,269.54	9,947.95	294.86	-125.11	0.702	Level 1, CC, ES, SF
GERONIMO FED #2 - Actual Wellbore - INC ONLY	17,590.84	9,961.45	303.28	-140.92	0.683	Level 1, CC, SF
GERONIMO FED #2 - Actual Wellbore - INC ONLY	17,600.00	9,961.54	303.42	-140.95	0.683	Level 1, ES

Offset Design		Sec. 31, T 19 S., R 33 E - GERONIMO FED #1 - Actual Wellbore - INC ONLY										Offset Site Error:		0.00 ft		
Survey Program: 225-Inclinometer only														Offset Well Error:		0.00 ft
Reference		Offset		Semi Major Axis			Distance									
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)					
0.00	0.00	0.00	0.00	7.07	0.00	177.47	-6,584.28	291.38	6,590.72							
100.00	100.00	94.00	94.00	7.07	2.57	177.47	-6,584.28	291.38	6,590.72	6,581.08	9.64	683.618				
200.00	200.00	225.00	225.00	7.08	6.15	177.47	-6,584.28	291.38	6,590.79	6,577.57	13.23	498.250				
248.31	248.31	242.31	242.31	7.08	6.67	177.47	-6,584.28	291.38	6,590.72	6,576.97	13.75	479.230				
300.00	300.00	294.00	294.00	7.09	8.22	177.47	-6,584.28	291.38	6,590.72	6,575.41	15.31	430.451				
400.00	400.00	394.00	394.00	7.11	11.22	177.47	-6,584.28	291.38	6,590.72	6,572.39	18.33	359.528				
500.00	500.00	494.00	494.00	7.14	14.22	177.47	-6,584.28	291.38	6,590.72	6,569.36	21.36	308.567				
600.00	600.00	594.00	594.00	7.17	17.22	177.47	-6,584.28	291.38	6,590.72	6,566.33	24.39	270.184				
700.00	700.00	694.00	694.00	7.21	20.22	177.47	-6,584.28	291.38	6,590.72	6,563.29	27.43	240.233				
800.00	800.00	888.00	888.00	7.26	26.04	177.47	-6,584.28	291.38	6,591.39	6,558.09	33.30	197.924				
900.00	900.00	894.00	894.00	7.32	26.22	177.47	-6,584.28	291.38	6,590.72	6,557.18	33.54	196.520				
1,000.00	1,000.00	994.00	994.00	7.38	29.22	177.47	-6,584.28	291.38	6,590.72	6,554.12	36.60	180.083				
1,100.00	1,100.00	1,094.00	1,094.00	7.45	32.22	177.47	-6,584.28	291.38	6,590.72	6,551.06	39.67	166.158				
1,200.00	1,200.00	1,194.00	1,194.00	7.52	35.22	177.47	-6,584.28	291.38	6,590.72	6,547.98	42.74	154.209				
1,300.00	1,300.00	1,294.00	1,294.00	7.60	38.22	177.47	-6,584.28	291.38	6,590.72	6,544.90	45.82	143.845				
1,400.00	1,400.00	1,394.00	1,394.00	7.68	41.22	177.47	-6,584.28	291.38	6,590.72	6,541.82	48.90	134.770				
1,500.00	1,500.00	1,494.05	1,494.00	7.77	44.22	177.47	-6,584.28	291.38	6,590.72	6,538.73	52.00	126.756				
1,600.00	1,600.00	1,594.05	1,594.00	7.87	47.22	177.47	-6,584.28	291.38	6,590.72	6,535.63	55.09	119.632				
1,700.00	1,700.00	1,694.05	1,694.00	7.97	50.22	177.47	-6,584.28	291.38	6,590.72	6,532.53	58.19	113.257				
1,800.00	1,800.00	1,794.05	1,794.00	8.08	53.22	177.47	-6,584.28	291.38	6,590.72	6,529.42	61.30	107.518				
1,900.00	1,900.00	1,894.05	1,894.00	8.19	56.22	177.47	-6,584.28	291.38	6,590.72	6,526.31	64.41	102.325				
2,000.00	2,000.00	1,994.05	1,994.00	8.30	59.22	177.47	-6,584.28	291.38	6,590.72	6,523.20	67.53	97.603				
2,100.00	2,100.00	2,094.05	2,094.00	8.42	62.22	177.47	-6,584.28	291.38	6,590.72	6,520.08	70.65	93.293				
2,200.00	2,200.00	2,194.05	2,194.00	8.55	65.22	177.47	-6,584.28	291.38	6,590.72	6,516.95	73.77	89.342				

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



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Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Sec. 31, T 19 S., R 33 E - GERONIMO FED #1 - Actual Wellbore - INC ONLY													Offset Site Error: 0.00 ft	
Survey Program: 225-Inclinometer only													Offset Well Error: 0.00 ft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
2,300.00	2,300.00	2,482.00	2,481.95	8.68	73.86	177.47	-6,584.28	291.38	6,593.40	6,510.86	82.54	79.885		
2,400.00	2,400.00	2,482.00	2,481.95	8.81	73.86	177.47	-6,584.28	291.38	6,591.31	6,508.64	82.67	79.732		
2,500.00	2,500.00	2,494.05	2,494.00	8.94	74.22	177.47	-6,584.28	291.38	6,590.72	6,507.55	83.17	79.248		
2,600.00	2,600.00	2,702.00	2,701.89	9.08	80.46	177.47	-6,584.28	291.38	6,591.60	6,502.06	89.54	73.613		
2,700.00	2,700.00	2,702.00	2,701.89	9.23	80.46	177.47	-6,584.28	291.38	6,590.73	6,501.04	89.69	73.486		
2,729.71	2,729.71	2,723.82	2,723.71	9.27	81.11	177.47	-6,584.28	291.38	6,590.72	6,500.34	90.38	72.919		
2,800.00	2,800.00	2,797.00	2,796.86	9.37	83.31	177.47	-6,584.28	291.38	6,590.72	6,498.04	92.68	71.111		
2,803.25	2,803.25	2,797.39	2,797.25	9.38	83.32	177.47	-6,584.28	291.38	6,590.72	6,498.02	92.70	71.098		
2,900.00	2,900.00	2,953.00	2,952.83	9.52	87.99	177.47	-6,584.28	291.38	6,590.98	6,493.47	97.51	67.592		
2,980.96	2,980.96	2,975.13	2,974.96	9.64	88.65	177.47	-6,584.28	291.38	6,590.72	6,492.42	98.30	67.048		
3,000.00	3,000.00	2,994.17	2,994.00	9.67	89.23	177.47	-6,584.28	291.38	6,590.72	6,491.82	98.90	66.641		
3,100.00	3,100.00	3,110.00	3,109.80	9.83	92.70	177.47	-6,584.28	291.38	6,590.74	6,488.21	102.53	64.282		
3,139.59	3,139.59	3,133.79	3,133.59	9.89	93.41	177.47	-6,584.28	291.38	6,590.72	6,487.42	103.30	63.799		
3,200.00	3,200.00	3,194.20	3,194.00	9.99	95.23	177.47	-6,584.28	291.38	6,590.72	6,485.51	105.21	62.642		
3,300.00	3,300.00	3,350.00	3,349.75	10.15	99.90	177.47	-6,584.28	291.38	6,590.96	6,480.91	110.05	59.893		
3,375.32	3,375.32	3,369.58	3,369.32	10.27	100.49	177.47	-6,584.28	291.38	6,590.72	6,479.97	110.76	59.507		
3,400.00	3,400.00	3,394.25	3,394.00	10.31	101.23	177.47	-6,584.28	291.38	6,590.72	6,479.18	111.54	59.091		
3,500.00	3,500.00	3,494.25	3,494.00	10.47	104.23	177.47	-6,584.28	291.38	6,590.72	6,476.02	114.70	57.460		
3,600.00	3,600.00	3,830.00	3,829.74	10.64	114.30	177.47	-6,584.28	291.38	6,594.94	6,470.00	124.94	52.785		
3,700.00	3,700.00	3,830.00	3,829.74	10.81	114.30	177.47	-6,584.28	291.38	6,592.12	6,467.01	125.11	52.691		
3,800.00	3,800.00	3,830.00	3,829.74	10.98	114.30	177.47	-6,584.28	291.38	6,590.82	6,465.54	125.28	52.609		
3,851.87	3,851.87	3,846.13	3,845.87	11.07	114.78	177.47	-6,584.28	291.38	6,590.72	6,464.87	125.85	52.368		
3,900.00	3,900.00	3,894.26	3,894.00	11.15	116.23	177.47	-6,584.28	291.38	6,590.72	6,463.34	127.38	51.740		
4,000.00	4,000.00	4,111.00	4,110.65	11.33	122.73	177.47	-6,584.28	291.38	6,591.75	6,457.70	134.06	49.171		
4,100.00	4,100.00	4,111.00	4,110.65	11.50	122.73	177.47	-6,584.28	291.38	6,590.74	6,456.51	134.23	49.099		
4,139.99	4,139.99	4,134.34	4,133.99	11.57	123.43	177.47	-6,584.28	291.38	6,590.72	6,455.72	135.01	48.818		
4,200.00	4,200.00	4,194.35	4,194.00	11.68	125.23	177.47	-6,584.28	291.38	6,590.72	6,453.81	136.91	48.138		
4,300.00	4,300.00	4,296.00	4,295.60	11.86	128.28	177.47	-6,584.28	291.38	6,590.72	6,450.58	140.14	47.029		
4,333.88	4,333.88	4,328.27	4,327.88	11.92	129.25	177.47	-6,584.28	291.38	6,590.72	6,449.55	141.17	46.686		
4,400.00	4,400.00	4,394.40	4,394.00	12.04	131.23	177.47	-6,584.28	291.38	6,590.72	6,447.45	143.27	46.001		
4,500.00	4,500.00	4,494.45	4,494.00	12.23	134.23	177.47	-6,584.28	291.38	6,590.72	6,444.26	146.46	45.001		
4,600.00	4,600.00	4,594.45	4,594.00	12.41	137.23	177.47	-6,584.28	291.38	6,590.72	6,441.08	149.64	44.043		
4,700.00	4,700.00	4,694.45	4,694.00	12.59	140.23	177.47	-6,584.28	291.38	6,590.72	6,437.89	152.83	43.125		
4,800.00	4,800.00	4,794.45	4,794.00	12.78	143.23	177.47	-6,584.28	291.38	6,590.72	6,434.71	156.01	42.244		
4,900.00	4,900.00	4,986.00	4,985.55	12.97	148.98	177.47	-6,584.28	291.38	6,591.36	6,429.41	161.95	40.700		
5,000.00	5,000.00	4,994.45	4,994.00	13.16	149.23	177.47	-6,584.28	291.38	6,590.72	6,428.33	162.39	40.585		
5,100.00	5,100.00	5,094.45	5,094.00	13.35	152.23	177.47	-6,584.28	291.38	6,590.72	6,425.14	165.58	39.803		
5,200.00	5,200.00	5,194.45	5,194.00	13.54	155.23	177.47	-6,584.28	291.38	6,590.72	6,421.95	168.77	39.051		
5,300.00	5,300.00	5,294.49	5,294.00	13.73	158.23	177.47	-6,584.28	291.38	6,590.72	6,418.75	171.97	38.326		
5,400.00	5,400.00	5,430.00	5,429.51	13.92	162.30	177.47	-6,584.28	291.38	6,590.82	6,414.59	176.22	37.400		
5,451.69	5,451.69	5,446.18	5,445.69	14.02	162.79	177.47	-6,584.28	291.38	6,590.72	6,413.91	176.81	37.276		
5,500.00	5,500.00	5,494.49	5,494.00	14.12	164.23	177.47	-6,584.28	291.38	6,590.72	6,412.37	178.35	36.953		
5,600.00	5,600.00	5,594.49	5,594.00	14.31	167.23	177.47	-6,584.28	291.38	6,590.72	6,409.17	181.55	36.303		
5,700.00	5,700.00	5,694.49	5,694.00	14.51	170.23	177.47	-6,584.28	291.38	6,590.72	6,405.98	184.74	35.675		
5,800.00	5,800.00	5,794.49	5,794.00	14.71	173.23	177.47	-6,584.28	291.38	6,590.72	6,402.78	187.94	35.068		
5,900.00	5,900.00	5,919.00	5,918.50	14.90	176.97	177.47	-6,584.28	291.38	6,590.77	6,398.89	191.87	34.349		
5,944.15	5,944.15	5,938.65	5,938.15	14.99	177.56	177.47	-6,584.28	291.38	6,590.72	6,398.17	192.55	34.228		
6,000.00	6,000.00	5,994.50	5,994.00	15.10	179.24	177.47	-6,584.28	291.38	6,590.72	6,396.38	194.34	33.914		
6,100.00	6,100.00	6,094.50	6,094.00	15.30	182.24	177.47	-6,584.28	291.38	6,590.72	6,393.18	197.54	33.365		
6,200.00	6,200.00	6,417.00	6,416.47	15.50	191.91	177.47	-6,584.28	291.38	6,594.47	6,387.06	207.41	31.794		
6,300.00	6,300.00	6,417.00	6,416.47	15.70	191.91	177.47	-6,584.28	291.38	6,591.86	6,384.25	207.61	31.751		
6,400.00	6,400.00	6,417.00	6,416.47	15.90	191.91	177.47	-6,584.28	291.38	6,590.76	6,382.95	207.81	31.715		

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Well Error: 5.00 ft
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Reference Design: Plan #1

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Survey Calculation Method: Minimum Curvature
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Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (ft)	+E-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
6,411.02	6,411.02	6,417.00	6,416.47	15.92	191.91	177.47	-6,584.28	291.38	6,590.73	6,382.90	207.83	31.711		
6,500.00	6,500.00	6,571.00	6,570.44	16.10	196.53	177.47	-6,584.28	291.38	6,591.16	6,378.53	212.63	30.998		
6,600.00	6,600.00	6,594.57	6,594.00	16.31	197.24	177.47	-6,584.28	291.38	6,590.72	6,377.18	213.54	30.864		
6,700.00	6,700.00	6,750.00	6,749.40	16.51	201.90	177.47	-6,584.28	291.38	6,590.95	6,372.54	218.41	30.177		
6,774.74	6,774.74	6,769.34	6,768.74	16.66	202.48	177.47	-6,584.28	291.38	6,590.72	6,371.58	219.14	30.075		
6,800.00	6,800.00	6,794.60	6,794.00	16.71	203.24	177.47	-6,584.28	291.38	6,590.72	6,370.77	219.95	29.965		
6,900.00	6,900.00	6,894.60	6,894.00	16.92	206.24	177.47	-6,584.28	291.38	6,590.72	6,367.57	223.15	29.534		
7,000.00	7,000.00	6,994.60	6,994.00	17.12	209.24	177.47	-6,584.28	291.38	6,590.72	6,364.36	226.36	29.116		
7,100.00	7,100.00	7,256.00	7,255.37	17.33	217.08	177.47	-6,584.28	291.38	6,592.70	6,358.29	234.41	28.125		
7,200.00	7,200.00	7,256.00	7,255.37	17.53	217.08	177.47	-6,584.28	291.38	6,591.01	6,356.40	234.61	28.093		
7,286.30	7,286.30	7,280.92	7,280.30	17.71	217.83	177.47	-6,584.28	291.38	6,590.72	6,355.18	235.54	27.982		
7,300.00	7,300.00	7,294.63	7,294.00	17.74	218.24	177.47	-6,584.28	291.38	6,590.72	6,354.74	235.98	27.930		
7,400.00	7,400.00	7,394.63	7,394.00	17.94	221.24	177.47	-6,584.28	291.38	6,590.72	6,351.54	239.18	27.555		
7,500.00	7,500.00	7,618.00	7,617.32	18.15	227.94	177.47	-6,584.28	291.38	6,591.87	6,345.78	246.09	26.786		
7,600.00	7,600.00	7,618.00	7,617.32	18.36	227.94	177.47	-6,584.28	291.38	6,590.76	6,344.46	246.30	26.759		
7,643.47	7,643.47	7,638.15	7,637.47	18.45	228.54	177.47	-6,584.28	291.38	6,590.72	6,343.73	246.99	26.684		
7,700.00	7,700.00	7,694.68	7,694.00	18.56	230.24	177.47	-6,584.28	291.38	6,590.72	6,341.92	248.81	26.489		
7,800.00	7,800.00	7,794.68	7,794.00	18.77	233.24	177.47	-6,584.28	291.38	6,590.72	6,338.71	252.01	26.152		
7,900.00	7,900.00	8,090.00	8,089.28	18.98	242.10	177.47	-6,584.28	291.38	6,593.61	6,332.53	261.08	25.255		
8,000.00	8,000.00	8,090.00	8,089.28	19.19	242.10	177.47	-6,584.28	291.38	6,591.41	6,330.12	261.29	25.226		
8,100.00	8,100.00	8,094.72	8,094.00	19.40	242.24	177.47	-6,584.28	291.38	6,590.72	6,329.08	261.64	25.190		
8,200.00	8,200.00	8,194.77	8,194.00	19.61	245.24	177.47	-6,584.28	291.38	6,590.72	6,325.87	264.85	24.885		
8,300.00	8,300.00	8,294.77	8,294.00	19.82	248.24	177.47	-6,584.28	291.38	6,590.72	6,322.66	268.06	24.587		
8,400.00	8,400.00	8,394.77	8,394.00	20.03	251.24	177.47	-6,584.28	291.38	6,590.72	6,319.45	271.27	24.296		
8,500.00	8,500.00	8,565.00	8,564.19	20.24	256.35	177.47	-6,584.28	291.38	6,591.09	6,314.51	276.59	23.830		
8,600.00	8,600.00	8,594.81	8,594.00	20.45	257.24	177.47	-6,584.28	291.38	6,590.72	6,313.03	277.69	23.734		
8,700.00	8,700.00	8,811.00	8,810.12	20.66	263.73	177.47	-6,584.28	291.38	6,591.74	6,307.35	284.39	23.178		
8,800.00	8,800.00	8,811.00	8,810.12	20.87	263.73	177.47	-6,584.28	291.38	6,590.74	6,306.14	284.60	23.158		
8,839.74	8,839.74	8,834.62	8,833.74	20.96	264.44	177.47	-6,584.28	291.38	6,590.72	6,305.33	285.39	23.093		
8,900.00	8,900.00	8,894.88	8,894.00	21.08	266.25	177.47	-6,584.28	291.38	6,590.72	6,303.39	287.33	22.938		
9,000.00	9,000.00	9,059.00	9,058.08	21.30	271.17	177.47	-6,584.28	291.38	6,591.03	6,298.57	292.47	22.536		
9,092.79	9,092.79	9,087.72	9,086.79	21.49	272.03	177.47	-6,584.28	291.38	6,590.72	6,297.20	293.52	22.454		
9,100.00	9,100.00	9,094.92	9,094.00	21.51	272.25	177.47	-6,584.28	291.38	6,590.72	6,296.97	293.76	22.436		
9,200.00	9,200.00	9,194.92	9,194.00	21.72	275.25	177.47	-6,584.28	291.38	6,590.72	6,293.75	296.97	22.193		
9,300.00	9,300.00	9,294.92	9,294.00	21.93	278.25	177.47	-6,584.28	291.38	6,590.72	6,290.54	300.18	21.956		
9,400.00	9,400.00	9,396.00	9,395.04	22.15	281.28	177.47	-6,584.28	291.38	6,590.72	6,287.29	303.43	21.721		
9,404.56	9,404.56	9,399.53	9,398.56	22.16	281.39	177.47	-6,584.28	291.38	6,590.72	6,287.18	303.54	21.713		
9,412.56	9,412.56	9,407.52	9,406.56	22.17	281.63	177.47	-6,584.28	291.38	6,590.72	6,286.92	303.80	21.694		
9,425.00	9,425.00	9,419.96	9,419.00	22.20	282.00	-2.57	-6,584.28	291.38	6,590.56	6,286.36	304.19	21.666		
9,450.00	9,449.96	9,444.92	9,443.96	22.24	282.75	-2.57	-6,584.28	291.38	6,589.25	6,284.27	304.98	21.605		
9,475.00	9,474.82	9,469.78	9,468.82	22.28	283.49	-2.59	-6,584.28	291.38	6,586.65	6,280.88	305.77	21.541		
9,500.00	9,499.51	9,494.47	9,493.51	22.32	284.23	-2.61	-6,584.28	291.38	6,582.74	6,276.19	306.55	21.474		
9,525.00	9,523.96	9,518.92	9,517.96	22.36	284.97	-2.64	-6,584.28	291.38	6,577.56	6,270.23	307.32	21.403		
9,550.00	9,548.11	9,543.07	9,542.11	22.40	285.69	-2.68	-6,584.28	291.38	6,571.10	6,263.01	308.09	21.329		
9,575.00	9,571.88	9,566.85	9,565.88	22.44	286.41	-2.73	-6,584.28	291.38	6,563.38	6,254.54	308.84	21.252		
9,600.00	9,595.22	9,758.00	9,757.03	22.48	292.14	-2.82	-6,584.28	291.38	6,556.58	6,241.97	314.62	20.840		
9,625.00	9,618.06	9,758.00	9,757.03	22.51	292.14	-2.89	-6,584.28	291.38	6,545.89	6,231.23	314.65	20.803		
9,650.00	9,640.33	9,758.00	9,757.03	22.55	292.14	-2.97	-6,584.28	291.38	6,534.10	6,219.41	314.69	20.763		
9,675.00	9,661.98	9,758.00	9,757.03	22.59	292.14	-3.07	-6,584.28	291.38	6,521.25	6,206.52	314.73	20.720		
9,700.00	9,682.95	9,758.00	9,757.03	22.63	292.14	-3.18	-6,584.28	291.38	6,507.36	6,192.59	314.77	20.674		
9,725.00	9,703.17	9,758.00	9,757.03	22.66	292.14	-3.30	-6,584.28	291.38	6,492.47	6,177.66	314.80	20.624		
9,750.00	9,722.60	9,758.00	9,757.03	22.71	292.14	-3.45	-6,584.28	291.38	6,476.60	6,161.75	314.85	20.570		

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



Integrity Directional Services, LLC

Anticollision Report



Company: COG Operating L L C
Project: Lea County, NM (NAD27 NME)
Reference Site: Sec. 19, T 19 S., R 33 E
Site Error: 5.00 ft
Reference Well: Geronimo Federal Com 11H
Well Error: 5.00 ft
Reference Wellbore: Wellbore #1
Reference Design: Plan #1

Local Co-ordinate Reference: Well Geronimo Federal Com 11H
TVD Reference: KB=26' @ 3625.60ft (Scandril Freedom)
MD Reference: KB=26' @ 3625.60ft (Scandril Freedom)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Sec. 31, T 19 S., R 33 E - GERONIMO FED #1 - Actual Wellbore - INC ONLY													Offset Site Error:	0.00 ft
Survey Program: 225-Inclinometer only													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)						
9,775.00	9,741.18	9,758.00	9,757.03	22.76	292.14	-3.62	-6,584.28	291.38	6,459.81	6,144.91	314.90	20.514		
9,800.00	9,758.86	9,758.00	9,757.03	22.82	292.14	-3.81	-6,584.28	291.38	6,442.12	6,127.16	314.96	20.454		
9,825.00	9,775.59	9,770.56	9,769.59	22.88	292.52	-4.05	-6,584.28	291.38	6,423.56	6,108.17	315.40	20.367		
9,850.00	9,791.32	9,786.29	9,785.32	22.95	292.99	-4.33	-6,584.28	291.38	6,404.16	6,088.22	315.93	20.271		
9,875.00	9,806.02	9,800.99	9,800.02	23.02	293.43	-4.67	-6,584.28	291.38	6,383.96	6,067.51	316.45	20.174		
9,900.00	9,819.63	9,866.00	9,865.00	23.09	295.38	-5.14	-6,584.28	291.38	6,363.23	6,044.75	318.48	19.980		
9,925.00	9,832.14	9,866.00	9,865.00	23.18	295.38	-5.63	-6,584.28	291.38	6,341.51	6,022.95	318.56	19.907		
9,950.00	9,843.49	9,866.00	9,865.00	23.27	295.38	-6.25	-6,584.28	291.38	6,319.21	6,000.56	318.65	19.831		
9,975.00	9,853.66	9,866.00	9,865.00	23.37	295.38	-7.03	-6,584.28	291.38	6,296.36	5,977.61	318.75	19.753		
10,000.00	9,862.62	9,866.00	9,865.00	23.47	295.38	-8.05	-6,584.28	291.38	6,273.03	5,954.18	318.85	19.674		
10,025.00	9,870.35	9,866.00	9,865.00	23.59	295.38	-9.44	-6,584.28	291.38	6,249.28	5,930.31	318.97	19.592		
10,050.00	9,876.82	9,871.82	9,870.82	23.71	295.55	-11.48	-6,584.28	291.38	6,225.16	5,905.90	319.26	19.499		
10,075.00	9,882.02	9,877.02	9,876.02	23.83	295.71	-14.63	-6,584.28	291.38	6,200.74	5,881.20	319.55	19.405		
10,100.00	9,885.93	9,880.93	9,879.93	23.97	295.83	-20.09	-6,584.28	291.38	6,176.08	5,856.28	319.80	19.313		
10,125.00	9,888.55	9,883.55	9,882.55	24.11	295.91	-31.41	-6,584.28	291.38	6,151.25	5,831.23	320.02	19.222		
10,150.00	9,889.86	9,884.86	9,883.86	24.26	295.95	-61.37	-6,584.28	291.38	6,126.32	5,806.11	320.20	19.133		
10,157.64	9,890.00	9,885.00	9,884.00	24.30	295.95	-77.95	-6,584.28	291.38	6,118.68	5,798.43	320.25	19.106		
10,200.00	9,890.44	9,885.44	9,884.44	24.57	295.96	-78.03	-6,584.28	291.38	6,076.38	5,755.84	320.53	18.957		
10,300.00	9,891.47	9,886.47	9,885.47	25.29	295.99	-78.22	-6,584.28	291.38	5,976.50	5,655.22	321.28	18.602		
10,400.00	9,892.50	9,887.50	9,886.50	26.11	296.03	-78.41	-6,584.28	291.38	5,876.63	5,554.49	322.14	18.243		
10,500.00	9,893.53	9,888.53	9,887.53	27.04	296.06	-78.61	-6,584.28	291.38	5,776.77	5,453.67	323.09	17.880		
10,600.00	9,894.56	9,889.56	9,888.56	28.05	296.09	-78.80	-6,584.28	291.38	5,676.90	5,352.77	324.14	17.514		
10,700.00	9,895.59	9,890.59	9,889.59	29.14	296.12	-78.99	-6,584.28	291.38	5,577.05	5,251.78	325.26	17.146		
10,800.00	9,896.62	9,891.62	9,890.62	30.31	296.15	-79.18	-6,584.28	291.38	5,477.19	5,150.74	326.46	16.778		
10,900.00	9,897.65	9,892.65	9,891.65	31.54	296.18	-79.38	-6,584.28	291.38	5,377.35	5,049.63	327.72	16.409		
11,000.00	9,898.68	9,893.68	9,892.68	32.82	296.21	-79.57	-6,584.28	291.38	5,277.51	4,948.47	329.03	16.040		
11,100.00	9,899.71	9,894.71	9,893.71	34.15	296.24	-79.76	-6,584.28	291.38	5,177.67	4,847.27	330.40	15.671		
11,200.00	9,900.74	9,895.74	9,894.74	35.53	296.27	-79.96	-6,584.28	291.38	5,077.84	4,746.04	331.80	15.304		
11,300.00	9,901.77	9,896.77	9,895.77	36.95	296.30	-80.15	-6,584.28	291.38	4,978.02	4,644.76	333.25	14.938		
11,400.00	9,902.80	9,897.80	9,896.80	38.40	296.33	-80.35	-6,584.28	291.38	4,878.20	4,543.47	334.74	14.573		
11,500.00	9,903.83	9,898.83	9,897.83	39.89	296.37	-80.54	-6,584.28	291.38	4,778.39	4,442.14	336.25	14.211		
11,600.00	9,904.86	9,899.86	9,898.86	41.40	296.40	-80.74	-6,584.28	291.38	4,678.59	4,340.80	337.79	13.850		
11,700.00	9,905.89	9,900.89	9,899.89	42.93	296.43	-80.93	-6,584.28	291.38	4,578.80	4,239.44	339.36	13.492		
11,800.00	9,906.92	9,901.92	9,900.92	44.49	296.46	-81.13	-6,584.28	291.38	4,479.02	4,138.07	340.95	13.137		
11,900.00	9,907.95	9,902.95	9,901.95	46.07	296.49	-81.32	-6,584.28	291.38	4,379.25	4,036.69	342.56	12.784		
12,000.00	9,908.98	9,903.98	9,902.98	47.67	296.52	-81.52	-6,584.28	291.38	4,279.48	3,935.30	344.19	12.434		
12,100.00	9,910.01	9,905.01	9,904.01	49.28	296.55	-81.71	-6,584.28	291.38	4,179.73	3,833.90	345.83	12.086		
12,200.00	9,911.04	9,906.04	9,905.04	50.91	296.58	-81.91	-6,584.28	291.38	4,079.99	3,732.50	347.49	11.741		
12,300.00	9,912.07	9,907.07	9,906.07	52.55	296.61	-82.11	-6,584.28	291.38	3,980.27	3,631.10	349.16	11.399		
12,400.00	9,913.10	9,908.10	9,907.10	54.20	296.64	-82.30	-6,584.28	291.38	3,880.55	3,529.71	350.85	11.061		
12,500.00	9,914.13	9,909.13	9,908.13	55.87	296.67	-82.50	-6,584.28	291.38	3,780.86	3,428.31	352.54	10.725		
12,600.00	9,915.16	9,910.16	9,909.16	57.54	296.70	-82.70	-6,584.28	291.38	3,681.17	3,326.93	354.25	10.392		
12,700.00	9,916.19	9,911.19	9,910.19	59.23	296.74	-82.89	-6,584.28	291.38	3,581.51	3,225.55	355.96	10.062		
12,800.00	9,917.22	9,912.22	9,911.22	60.92	296.77	-83.09	-6,584.28	291.38	3,481.86	3,124.18	357.68	9.734		
12,900.00	9,918.25	9,913.25	9,912.25	62.62	296.80	-83.29	-6,584.28	291.38	3,382.24	3,022.82	359.42	9.410		
13,000.00	9,919.28	9,914.28	9,913.28	64.33	296.83	-83.48	-6,584.28	291.38	3,282.64	2,921.48	361.15	9.089		
13,100.00	9,920.31	9,915.31	9,914.31	66.04	296.86	-83.68	-6,584.28	291.38	3,183.06	2,820.16	362.90	8.771		
13,200.00	9,921.34	9,916.34	9,915.34	67.76	296.89	-83.88	-6,584.28	291.38	3,083.51	2,718.86	364.65	8.456		
13,300.00	9,922.37	9,917.37	9,916.37	69.48	296.92	-84.08	-6,584.28	291.38	2,983.99	2,617.58	366.41	8.144		
13,400.00	9,923.40	9,918.39	9,917.40	71.22	296.95	-84.28	-6,584.28	291.38	2,884.50	2,516.33	368.17	7.835		
13,500.00	9,924.43	9,919.42	9,918.43	72.95	296.98	-84.47	-6,584.28	291.38	2,785.05	2,415.11	369.93	7.528		
13,600.00	9,925.46	9,920.45	9,919.46	74.69	297.01	-84.67	-6,584.28	291.38	2,685.64	2,313.93	371.71	7.225		

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



Integrity Directional Services, LLC
Anticollision Report



Company: COG Operating L L C
Project: Lea County, NM (NAD27 NME)
Reference Site: Sec. 19, T 19 S., R 33 E
Site Error: 5.00 ft
Reference Well: Geronimo Federal Com 11H
Well Error: 5.00 ft
Reference Wellbore: Wellbore #1
Reference Design: Plan #1

Local Co-ordinate Reference: Well Geronimo Federal Com 11H
TVD Reference: KB=26' @ 3625.60ft (Scandill Freedom)
MD Reference: KB=26' @ 3625.60ft (Scandill Freedom)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Sec. 31, T 19 S., R 33 E - GERONIMO FED #1 - Actual Wellbore - INC ONLY													Offset Site Error: 0.00 ft
Survey Program: 225-Inclinometer only													Offset Well Error: 0.00 ft
Reference		Offset		Semi Major Axis			Distance			Minimum Separation			Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
13,700.00	9,926.49	9,921.48	9,920.49	76.44	297.04	-84.87	-6,584.28	291.38	2,586.27	2,212.79	373.48	6.925	
13,800.00	9,927.52	9,922.51	9,921.52	78.18	297.08	-85.07	-6,584.28	291.38	2,486.95	2,111.69	375.26	6.627	
13,900.00	9,928.55	9,923.54	9,922.55	79.94	297.11	-85.27	-6,584.28	291.38	2,387.69	2,010.65	377.04	6.333	
14,000.00	9,929.58	9,924.57	9,923.58	81.69	297.14	-85.47	-6,584.28	291.38	2,288.50	1,909.67	378.83	6.041	
14,100.00	9,930.61	9,925.60	9,924.61	83.45	297.17	-85.67	-6,584.28	291.38	2,189.37	1,808.75	380.62	5.752	
14,200.00	9,931.64	9,926.63	9,925.64	85.21	297.20	-85.87	-6,584.28	291.38	2,090.33	1,707.92	382.41	5.466	
14,300.00	9,932.67	9,927.66	9,926.67	86.98	297.23	-86.06	-6,584.28	291.38	1,991.39	1,607.18	384.21	5.183	
14,400.00	9,933.70	9,928.69	9,927.70	88.74	297.26	-86.26	-6,584.28	291.38	1,892.55	1,506.55	386.01	4.903	
14,500.00	9,934.73	9,929.72	9,928.73	90.51	297.29	-86.46	-6,584.28	291.38	1,793.85	1,406.04	387.81	4.626	
14,600.00	9,935.76	9,930.75	9,929.76	92.29	297.32	-86.66	-6,584.28	291.38	1,695.29	1,305.68	389.61	4.351	
14,700.00	9,936.79	9,931.78	9,930.79	94.06	297.35	-86.86	-6,584.28	291.38	1,596.92	1,205.50	391.41	4.080	
14,800.00	9,937.82	9,932.81	9,931.82	95.84	297.38	-87.06	-6,584.28	291.38	1,498.75	1,105.53	393.22	3.811	
14,900.00	9,938.85	9,933.84	9,932.85	97.62	297.42	-87.26	-6,584.28	291.38	1,400.85	1,005.82	395.03	3.546	
15,000.00	9,939.88	9,934.87	9,933.88	99.40	297.45	-87.46	-6,584.28	291.38	1,303.27	906.43	396.84	3.284	
15,100.00	9,940.91	9,935.90	9,934.91	101.18	297.48	-87.66	-6,584.28	291.38	1,206.08	807.42	398.66	3.025	
15,200.00	9,941.94	9,936.93	9,935.94	102.96	297.51	-87.86	-6,584.28	291.38	1,109.39	708.92	400.47	2.770	
15,300.00	9,942.97	9,937.96	9,936.97	104.75	297.54	-88.06	-6,584.28	291.38	1,013.34	611.05	402.29	2.519	
15,400.00	9,944.00	9,938.99	9,938.00	106.54	297.57	-88.26	-6,584.28	291.38	918.13	514.03	404.11	2.272	
15,500.00	9,945.03	9,940.02	9,939.03	108.32	297.60	-88.46	-6,584.28	291.38	824.06	418.13	405.92	2.030	
15,600.00	9,946.06	9,941.05	9,940.06	110.11	297.63	-88.66	-6,584.28	291.38	731.56	323.82	407.75	1.794	
15,700.00	9,947.09	9,942.08	9,941.09	111.91	297.66	-88.86	-6,584.28	291.38	641.32	231.75	409.57	1.566	
15,800.00	9,948.12	9,943.11	9,942.12	113.70	297.69	-89.06	-6,584.28	291.38	554.43	143.04	411.39	1.348 Level 3	
15,900.00	9,949.15	9,944.14	9,943.15	115.49	297.72	-89.26	-6,584.28	291.38	472.75	59.53	413.22	1.144 Level 2	
16,000.00	9,950.18	9,945.17	9,944.18	117.29	297.76	-89.46	-6,584.28	291.38	399.49	-15.56	415.04	0.963 Level 1	
16,100.00	9,951.21	9,946.20	9,945.21	119.08	297.79	-89.66	-6,584.28	291.38	340.12	-76.74	416.87	0.816 Level 1	
16,200.00	9,952.24	9,947.23	9,946.24	120.88	297.82	-89.86	-6,584.28	291.38	302.95	-115.75	418.70	0.724 Level 1	
16,269.54	9,952.95	9,947.95	9,946.95	122.13	297.84	-90.00	-6,584.28	291.38	294.86	-125.11	419.97	0.702 Level 1, CC, ES, SF	
16,300.00	9,953.27	9,948.26	9,947.27	122.68	297.85	-90.06	-6,584.28	291.38	296.43	-124.09	420.53	0.705 Level 1	
16,400.00	9,954.30	9,949.29	9,948.30	124.48	297.88	-90.26	-6,584.28	291.38	322.43	-99.92	422.36	0.763 Level 1	
16,500.00	9,955.33	9,950.32	9,949.33	126.28	297.91	-90.46	-6,584.28	291.38	374.23	-49.95	424.19	0.882 Level 1	
16,600.00	9,956.36	9,951.35	9,950.36	128.08	297.94	-90.66	-6,584.28	291.38	442.87	16.85	426.02	1.040 Level 2	
16,700.00	9,957.39	9,952.38	9,951.39	129.88	297.97	-90.86	-6,584.28	291.38	521.75	93.90	427.85	1.219 Level 2	
16,800.00	9,958.41	9,953.41	9,952.41	131.68	298.00	-91.06	-6,584.28	291.38	606.88	177.19	429.68	1.412 Level 3	
16,900.00	9,959.44	9,954.44	9,953.44	133.48	298.03	-91.26	-6,584.28	291.38	695.97	264.46	431.52	1.613	
17,000.00	9,960.47	9,955.47	9,954.47	135.29	298.06	-91.46	-6,584.28	291.38	787.69	354.34	433.35	1.818	
17,100.00	9,961.50	9,956.50	9,955.50	137.09	298.10	-91.66	-6,584.28	291.38	881.21	446.02	435.19	2.025	
17,200.00	9,962.53	9,957.53	9,956.53	138.90	298.13	-91.86	-6,584.28	291.38	976.02	538.99	437.02	2.233	
17,300.00	9,963.56	9,958.56	9,957.56	140.70	298.16	-92.06	-6,584.28	291.38	1,071.76	632.90	438.86	2.442	
17,400.00	9,964.59	9,959.59	9,958.59	142.51	298.19	-92.26	-6,584.28	291.38	1,168.22	727.52	440.70	2.651	
17,500.00	9,965.62	9,960.62	9,959.62	144.32	298.22	-92.46	-6,584.28	291.38	1,265.23	822.70	442.54	2.859	
17,600.00	9,966.65	9,961.65	9,960.65	146.13	298.25	-92.66	-6,584.28	291.38	1,362.67	918.30	444.38	3.066	
17,700.00	9,967.68	9,962.68	9,961.68	147.93	298.28	-92.86	-6,584.28	291.38	1,460.46	1,014.24	446.21	3.273	
17,800.00	9,968.71	9,963.71	9,962.71	149.74	298.31	-93.06	-6,584.28	291.38	1,558.52	1,110.47	448.05	3.478	
17,900.00	9,969.74	9,964.74	9,963.74	151.55	298.34	-93.26	-6,584.28	291.38	1,656.82	1,206.93	449.89	3.683	
18,000.00	9,970.77	9,965.77	9,964.77	153.36	298.37	-93.46	-6,584.28	291.38	1,755.31	1,303.57	451.74	3.886	
18,100.00	9,971.80	9,966.80	9,965.80	155.17	298.40	-93.66	-6,584.28	291.38	1,853.96	1,400.38	453.58	4.087	
18,200.00	9,972.83	9,967.83	9,966.83	156.98	298.44	-93.86	-6,584.28	291.38	1,952.75	1,497.33	455.42	4.288	
18,300.00	9,973.86	9,968.86	9,967.86	158.79	298.47	-94.06	-6,584.28	291.38	2,051.65	1,594.39	457.26	4.487	
18,400.00	9,974.89	9,969.89	9,968.89	160.61	298.50	-94.26	-6,584.28	291.38	2,150.66	1,691.55	459.10	4.684	
18,500.00	9,975.92	9,970.92	9,969.92	162.42	298.53	-94.45	-6,584.28	291.38	2,249.75	1,788.80	460.95	4.881	
18,600.00	9,976.95	9,971.95	9,970.95	164.23	298.56	-94.65	-6,584.28	291.38	2,348.92	1,886.13	462.79	5.076	
18,700.00	9,977.98	9,972.98	9,971.98	166.04	298.59	-94.85	-6,584.28	291.38	2,448.15	1,983.52	464.63	5.269	

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



Integrity Directional Services, LLC
Anticollision Report



Company: COG Operating L L C
Project: Lea County, NM (NAD27 NME)
Reference Site: Sec. 19, T 19 S., R 33 E
Site Error: 5.00 ft
Reference Well: Geronimo Federal Com 11H
Well Error: 5.00 ft
Reference Wellbore: Wellbore #1
Reference Design: Plan #1

Local Co-ordinate Reference: Well Geronimo Federal Com 11H
TVD Reference: KB=26' @ 3625.60ft (Scandriil Freedom)
MD Reference: KB=26' @ 3625.60ft (Scandriil Freedom)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Sec. 31, T 19 S., R 33 E - GERONIMO FED #1 - Actual Wellbore - INC ONLY													Offset Site Error:	0.00 ft
Survey Program: 225-Inclinometer only													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
18,800.00	9,979.01	9,974.01	9,973.01	167.86	298.62	-95.05	-6,584.28	291.38	2,547.45	2,080.97	466.48	5.461		
18,900.00	9,980.04	9,975.04	9,974.04	169.67	298.65	-95.25	-6,584.28	291.38	2,646.80	2,178.47	468.32	5.652		
19,000.00	9,981.07	9,976.07	9,975.07	171.49	298.68	-95.45	-6,584.28	291.38	2,746.19	2,276.02	470.17	5.841		
19,100.00	9,982.10	9,977.10	9,976.10	173.30	298.71	-95.65	-6,584.28	291.38	2,845.63	2,373.61	472.01	6.029		
19,200.00	9,983.13	9,978.13	9,977.13	175.12	298.74	-95.84	-6,584.28	291.38	2,945.10	2,471.24	473.86	6.215		
19,300.00	9,984.16	9,979.16	9,978.16	176.93	298.78	-96.04	-6,584.28	291.38	3,044.61	2,568.90	475.71	6.400		
19,400.00	9,985.19	9,980.19	9,979.19	178.75	298.81	-96.24	-6,584.28	291.38	3,144.15	2,666.60	477.55	6.584		
19,500.00	9,986.22	9,981.22	9,980.22	180.56	298.84	-96.44	-6,584.28	291.38	3,243.72	2,764.32	479.40	6.766		
19,600.00	9,987.25	9,982.25	9,981.25	182.38	298.87	-96.64	-6,584.28	291.38	3,343.31	2,862.06	481.25	6.947		
19,700.00	9,988.28	9,983.28	9,982.28	184.19	298.90	-96.83	-6,584.28	291.38	3,442.93	2,959.83	483.09	7.127		
19,800.00	9,989.31	9,984.31	9,983.31	186.01	298.93	-97.03	-6,584.28	291.38	3,542.56	3,057.62	484.94	7.305		
19,900.00	9,990.34	9,985.34	9,984.34	187.83	298.96	-97.23	-6,584.28	291.38	3,642.22	3,155.43	486.79	7.482		
20,000.00	9,991.37	9,986.37	9,985.37	189.64	298.99	-97.42	-6,584.28	291.38	3,741.90	3,253.26	488.64	7.658		
20,100.00	9,992.40	9,987.40	9,986.40	191.46	299.02	-97.62	-6,584.28	291.38	3,841.59	3,351.10	490.48	7.832		
20,200.00	9,993.43	9,988.43	9,987.43	193.28	299.05	-97.82	-6,584.28	291.38	3,941.30	3,448.96	492.33	8.005		
20,300.00	9,994.46	9,989.46	9,988.46	195.10	299.08	-98.01	-6,584.28	291.38	4,041.02	3,546.84	494.18	8.177		
20,400.00	9,995.49	9,990.49	9,989.49	196.92	299.12	-98.21	-6,584.28	291.38	4,140.75	3,644.72	496.03	8.348		
20,500.00	9,996.52	9,991.52	9,990.52	198.73	299.15	-98.41	-6,584.28	291.38	4,240.50	3,742.62	497.88	8.517		
20,600.00	9,997.55	9,992.55	9,991.55	200.55	299.18	-98.60	-6,584.28	291.38	4,340.26	3,840.53	499.73	8.685		
20,700.00	9,998.58	9,993.58	9,992.58	202.37	299.21	-98.80	-6,584.28	291.38	4,440.03	3,938.45	501.58	8.852		
20,800.00	9,999.61	9,994.61	9,993.61	204.19	299.24	-98.99	-6,584.28	291.38	4,539.80	4,036.37	503.43	9.018		
20,837.29	10,000.00	9,995.00	9,994.00	204.75	299.25	-99.06	-6,584.28	291.38	4,577.01	4,073.02	504.00	9.081		

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



Integrity Directional Services, LLC

Anticollision Report



Company: COG Operating L L C
Project: Lea County, NM (NAD27 NME)
Reference Site: Sec. 19, T 19 S., R 33 E
Site Error: 5.00 ft
Reference Well: Geronimo Federal Com 11H
Well Error: 5.00 ft
Reference Wellbore: Wellbore #1
Reference Design: Plan #1

Local Co-ordinate Reference: Well Geronimo Federal Com 11H
TVD Reference: KB=26' @ 3625.60ft (Scandill Freedom)
MD Reference: KB=26' @ 3625.60ft (Scandill Freedom)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Sec. 31, T 19 S., R 33 E - GERONIMO FED #2 - Actual Wellbore - INC ONLY													Offset Site Error:	0.00 ft
Survey Program: 500-Inclinometer only													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)						
0.00	0.00	0.00	0.00	7.07	0.00	177.83	-7,905.50	299.10	7,911.16					
100.00	100.00	94.00	94.00	7.07	2.71	177.83	-7,905.50	299.10	7,911.16	7,901.38	9.78	809.014		
200.00	200.00	194.00	194.00	7.08	5.59	177.83	-7,905.50	299.10	7,911.16	7,898.50	12.66	624.648		
300.00	300.00	294.00	294.00	7.09	8.47	177.83	-7,905.50	299.10	7,911.16	7,895.60	15.56	508.484		
400.00	400.00	394.00	394.00	7.11	11.35	177.83	-7,905.50	299.10	7,911.16	7,892.70	18.46	428.586		
500.00	500.00	500.00	500.00	7.14	14.40	177.83	-7,905.50	299.10	7,911.16	7,889.62	21.54	367.295		
535.46	535.46	529.46	529.46	7.15	15.28	177.83	-7,905.50	299.10	7,911.16	7,888.73	22.43	352.638		
600.00	600.00	594.00	594.00	7.17	17.22	177.83	-7,905.50	299.10	7,911.16	7,886.77	24.39	324.316		
700.00	700.00	694.00	694.00	7.21	20.22	177.83	-7,905.50	299.10	7,911.16	7,883.73	27.43	288.364		
800.00	800.00	899.00	898.99	7.26	26.37	177.83	-7,905.50	299.10	7,911.86	7,878.22	33.63	235.244		
900.00	900.00	899.00	898.99	7.32	26.37	177.83	-7,905.50	299.10	7,911.16	7,877.48	33.69	234.843		
935.09	935.09	929.09	929.09	7.34	27.27	177.83	-7,905.50	299.10	7,911.16	7,876.55	34.61	228.577		
1,000.00	1,000.00	994.01	994.00	7.38	29.22	177.83	-7,905.50	299.10	7,911.16	7,874.56	36.60	216.162		
1,100.00	1,100.00	1,094.01	1,094.00	7.45	32.22	177.83	-7,905.50	299.10	7,911.16	7,871.50	39.67	199.447		
1,200.00	1,200.00	1,250.00	1,249.98	7.52	36.90	177.83	-7,905.50	299.10	7,911.36	7,866.94	44.42	178.109		
1,275.72	1,275.72	1,269.74	1,269.72	7.58	37.49	177.83	-7,905.50	299.10	7,911.16	7,866.09	45.07	175.528		
1,300.00	1,300.00	1,294.02	1,294.00	7.60	38.22	177.83	-7,905.50	299.10	7,911.16	7,865.34	45.82	172.662		
1,400.00	1,400.00	1,394.02	1,394.00	7.68	41.22	177.83	-7,905.50	299.10	7,911.16	7,862.26	48.90	161.770		
1,500.00	1,500.00	1,494.02	1,494.00	7.77	44.22	177.83	-7,905.50	299.10	7,911.16	7,859.17	51.99	152.154		
1,600.00	1,600.00	1,653.00	1,652.97	7.87	48.99	177.83	-7,905.50	299.10	7,911.38	7,854.52	56.86	139.138		
1,681.23	1,681.23	1,675.27	1,675.23	7.95	49.66	177.83	-7,905.50	299.10	7,911.16	7,853.55	57.61	137.323		
1,700.00	1,700.00	1,694.03	1,694.00	7.97	50.22	177.83	-7,905.50	299.10	7,911.16	7,852.97	58.19	135.949		
1,800.00	1,800.00	1,794.03	1,794.00	8.08	53.22	177.83	-7,905.50	299.10	7,911.16	7,849.86	61.30	129.060		
1,900.00	1,900.00	1,894.03	1,894.00	8.19	56.22	177.83	-7,905.50	299.10	7,911.16	7,846.75	64.41	122.826		
2,000.00	2,000.00	2,067.00	2,066.94	8.30	61.41	177.83	-7,905.50	299.10	7,911.50	7,841.78	69.71	113.485		
2,100.00	2,100.00	2,094.06	2,094.00	8.42	62.22	177.83	-7,905.50	299.10	7,911.16	7,840.52	70.65	111.984		
2,200.00	2,200.00	2,194.06	2,194.00	8.55	65.22	177.83	-7,905.50	299.10	7,911.16	7,837.39	73.77	107.241		
2,300.00	2,300.00	2,294.06	2,294.00	8.68	68.22	177.83	-7,905.50	299.10	7,911.16	7,834.26	76.90	102.878		
2,400.00	2,400.00	2,507.00	2,506.93	8.81	74.61	177.83	-7,905.50	299.10	7,911.97	7,828.55	83.42	94.847		
2,500.00	2,500.00	2,507.00	2,506.93	8.94	74.61	177.83	-7,905.50	299.10	7,911.17	7,827.62	83.55	94.683		
2,538.28	2,538.28	2,532.35	2,532.28	9.00	75.37	177.83	-7,905.50	299.10	7,911.16	7,826.79	84.37	93.770		
2,600.00	2,600.00	2,594.07	2,594.00	9.08	77.22	177.83	-7,905.50	299.10	7,911.16	7,824.85	86.31	91.664		
2,700.00	2,700.00	2,752.00	2,751.91	9.23	81.96	177.83	-7,905.50	299.10	7,911.37	7,820.19	91.19	86.760		
2,779.20	2,779.20	2,773.29	2,773.20	9.34	82.60	177.83	-7,905.50	299.10	7,911.16	7,819.22	91.94	86.046		
2,800.00	2,800.00	2,794.09	2,794.00	9.37	83.22	177.83	-7,905.50	299.10	7,911.16	7,818.57	92.60	85.438		
2,900.00	2,900.00	2,894.09	2,894.00	9.52	86.22	177.83	-7,905.50	299.10	7,911.16	7,815.42	95.74	82.628		
3,000.00	3,000.00	3,065.00	3,064.86	9.67	91.35	177.83	-7,905.50	299.10	7,911.48	7,810.45	101.02	78.313		
3,100.00	3,100.00	3,094.14	3,094.00	9.83	92.22	177.83	-7,905.50	299.10	7,911.16	7,809.11	102.05	77.521		
3,200.00	3,200.00	3,194.14	3,194.00	9.99	95.22	177.83	-7,905.50	299.10	7,911.16	7,805.95	105.21	75.194		
3,300.00	3,300.00	3,294.14	3,294.00	10.15	98.22	177.83	-7,905.50	299.10	7,911.16	7,802.79	108.37	73.002		
3,400.00	3,400.00	3,394.14	3,394.00	10.31	101.22	177.83	-7,905.50	299.10	7,911.16	7,799.63	111.53	70.932		
3,500.00	3,500.00	3,581.00	3,580.85	10.47	106.83	177.83	-7,905.50	299.10	7,911.64	7,794.33	117.30	67.446		
3,600.00	3,600.00	3,594.15	3,594.00	10.64	107.22	177.83	-7,905.50	299.10	7,911.16	7,793.30	117.86	67.121		
3,700.00	3,700.00	3,694.15	3,694.00	10.81	110.22	177.83	-7,905.50	299.10	7,911.16	7,790.13	121.03	65.364		
3,800.00	3,800.00	3,794.15	3,794.00	10.98	113.22	177.83	-7,905.50	299.10	7,911.16	7,786.96	124.20	63.695		
3,900.00	3,900.00	4,090.00	4,089.82	11.15	122.10	177.83	-7,905.50	299.10	7,913.58	7,780.33	133.25	59.388		
4,000.00	4,000.00	4,090.00	4,089.82	11.33	122.10	177.83	-7,905.50	299.10	7,911.74	7,778.31	133.43	59.296		
4,100.00	4,100.00	4,094.18	4,094.00	11.50	122.23	177.83	-7,905.50	299.10	7,911.16	7,777.43	133.73	59.158		
4,200.00	4,200.00	4,273.00	4,272.75	11.68	127.59	177.83	-7,905.50	299.10	7,911.55	7,772.28	139.27	56.807		
4,300.00	4,300.00	4,294.25	4,294.00	11.86	128.23	177.83	-7,905.50	299.10	7,911.16	7,771.07	140.09	56.472		
4,400.00	4,400.00	4,394.25	4,394.00	12.04	131.23	177.83	-7,905.50	299.10	7,911.16	7,767.89	143.27	55.218		
4,500.00	4,500.00	4,571.00	4,570.66	12.23	136.53	177.83	-7,905.50	299.10	7,911.53	7,762.78	148.76	53.185		

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



Integrity Directional Services, LLC

Anticollision Report



Company: COG Operating L L C
Project: Lea County, NM (NAD27 NME)
Reference Site: Sec. 19, T 19 S., R 33 E
Site Error: 5.00 ft
Reference Well: Geronimo Federal Com 11H
Well Error: 5.00 ft
Reference Wellbore: Wellbore #1
Reference Design: Plan #1

Local Co-ordinate Reference: Well Geronimo Federal Com 11H
TVD Reference: KB=26' @ 3625.60ft (Scandril Freedom)
MD Reference: KB=26' @ 3625.60ft (Scandril Freedom)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Sec. 31, T 19 S., R 33 E - GERONIMO FED #2 - Actual Wellbore - INC ONLY													Offset Site Error:	0.00 ft
Survey Program: 500-Inclinometer only													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
4,600.00	4,600.00	4,594.34	4,594.00	12.41	137.23	177.83	-7,905.50	299.10	7,911.16	7,761.52	149.64	52.868		
4,700.00	4,700.00	4,694.34	4,694.00	12.59	140.23	177.83	-7,905.50	299.10	7,911.16	7,758.34	152.83	51.766		
4,800.00	4,800.00	4,794.34	4,794.00	12.78	143.23	177.83	-7,905.50	299.10	7,911.16	7,755.15	156.01	50.709		
4,900.00	4,900.00	5,075.00	5,074.60	12.97	151.65	177.83	-7,905.50	299.10	7,913.22	7,748.60	164.62	48.070		
5,000.00	5,000.00	5,075.00	5,074.60	13.16	151.65	177.83	-7,905.50	299.10	7,911.57	7,746.76	164.81	48.005		
5,100.00	5,100.00	5,094.40	5,094.00	13.35	152.23	177.83	-7,905.50	299.10	7,911.16	7,745.58	165.58	47.778		
5,200.00	5,200.00	5,194.40	5,194.00	13.54	155.23	177.83	-7,905.50	299.10	7,911.16	7,742.39	168.77	46.875		
5,300.00	5,300.00	5,294.40	5,294.00	13.73	158.23	177.83	-7,905.50	299.10	7,911.16	7,739.20	171.96	46.005		
5,400.00	5,400.00	5,561.00	5,560.50	13.92	166.23	177.83	-7,905.50	299.10	7,912.91	7,732.76	180.15	43.923		
5,500.00	5,500.00	5,561.00	5,560.50	14.12	166.23	177.83	-7,905.50	299.10	7,911.44	7,731.09	180.35	43.867		
5,599.51	5,599.51	5,594.01	5,593.51	14.31	167.22	177.83	-7,905.50	299.10	7,911.16	7,729.63	181.53	43.580		
5,600.00	5,600.00	5,594.50	5,594.00	14.31	167.24	177.83	-7,905.50	299.10	7,911.16	7,729.61	181.55	43.576		
5,700.00	5,700.00	5,694.50	5,694.00	14.51	170.24	177.83	-7,905.50	299.10	7,911.16	7,726.42	184.74	42.822		
5,800.00	5,800.00	5,794.50	5,794.00	14.71	173.24	177.83	-7,905.50	299.10	7,911.16	7,723.22	187.94	42.094		
5,900.00	5,900.00	6,071.00	6,070.46	14.90	181.53	177.83	-7,905.50	299.10	7,913.13	7,716.69	196.43	40.284		
6,000.00	6,000.00	6,071.00	6,070.46	15.10	181.53	177.83	-7,905.50	299.10	7,911.53	7,714.90	196.63	40.235		
6,100.00	6,100.00	6,094.54	6,094.00	15.30	182.24	177.83	-7,905.50	299.10	7,911.16	7,713.62	197.54	40.049		
6,200.00	6,200.00	6,194.54	6,194.00	15.50	185.24	177.83	-7,905.50	299.10	7,911.16	7,710.42	200.74	39.411		
6,300.00	6,300.00	6,294.54	6,294.00	15.70	188.24	177.83	-7,905.50	299.10	7,911.16	7,707.22	203.94	38.792		
6,400.00	6,400.00	6,428.00	6,427.39	15.90	192.24	177.83	-7,905.50	299.10	7,911.23	7,703.09	208.14	38.009		
6,450.04	6,450.04	6,444.65	6,444.04	16.00	192.74	177.83	-7,905.50	299.10	7,911.16	7,702.42	208.74	37.899		
6,500.00	6,500.00	6,494.61	6,494.00	16.10	194.24	177.83	-7,905.50	299.10	7,911.16	7,700.82	210.34	37.611		
6,600.00	6,600.00	6,594.61	6,594.00	16.31	197.24	177.83	-7,905.50	299.10	7,911.16	7,697.62	213.54	37.047		
6,700.00	6,700.00	6,694.61	6,694.00	16.51	200.24	177.83	-7,905.50	299.10	7,911.16	7,694.41	216.75	36.499		
6,800.00	6,800.00	6,955.00	6,954.37	16.71	208.05	177.83	-7,905.50	299.10	7,912.79	7,688.02	224.76	35.205		
6,900.00	6,900.00	6,955.00	6,954.37	16.92	208.05	177.83	-7,905.50	299.10	7,911.39	7,686.42	224.97	35.167		
6,984.12	6,984.12	6,978.75	6,978.12	17.09	208.76	177.83	-7,905.50	299.10	7,911.16	7,685.31	225.85	35.028		
7,000.00	7,000.00	6,994.63	6,994.00	17.12	209.24	177.83	-7,905.50	299.10	7,911.16	7,684.80	226.36	34.950		
7,100.00	7,100.00	7,094.63	7,094.00	17.33	212.24	177.83	-7,905.50	299.10	7,911.16	7,681.60	229.56	34.462		
7,200.00	7,200.00	7,194.63	7,194.00	17.53	215.24	177.83	-7,905.50	299.10	7,911.16	7,678.39	232.77	33.987		
7,300.00	7,300.00	7,294.63	7,294.00	17.74	218.24	177.83	-7,905.50	299.10	7,911.16	7,675.19	235.98	33.525		
7,400.00	7,400.00	7,490.00	7,489.33	17.94	224.10	177.83	-7,905.50	299.10	7,911.74	7,669.69	242.04	32.687		
7,500.00	7,500.00	7,494.67	7,494.00	18.15	224.24	177.83	-7,905.50	299.10	7,911.16	7,668.77	242.39	32.638		
7,600.00	7,600.00	7,594.67	7,594.00	18.36	227.24	177.83	-7,905.50	299.10	7,911.16	7,665.56	245.60	32.212		
7,700.00	7,700.00	7,694.67	7,694.00	18.56	230.24	177.83	-7,905.50	299.10	7,911.16	7,662.36	248.80	31.797		
7,800.00	7,800.00	7,890.00	7,889.31	18.77	236.10	177.83	-7,905.50	299.10	7,911.73	7,656.86	254.87	31.042		
7,900.00	7,900.00	7,894.69	7,894.00	18.98	236.24	177.83	-7,905.50	299.10	7,911.16	7,655.94	255.22	30.997		
8,000.00	8,000.00	7,994.69	7,994.00	19.19	239.24	177.83	-7,905.50	299.10	7,911.16	7,652.73	258.43	30.612		
8,100.00	8,100.00	8,100.00	8,099.30	19.40	242.40	177.83	-7,905.50	299.10	7,911.16	7,649.36	261.80	30.218		
8,135.20	8,135.20	8,129.90	8,129.20	19.47	243.30	177.83	-7,905.50	299.10	7,911.16	7,648.39	262.77	30.107		
8,200.00	8,200.00	8,194.71	8,194.00	19.61	245.24	177.83	-7,905.50	299.10	7,911.16	7,646.31	264.85	29.870		
8,300.00	8,300.00	8,294.71	8,294.00	19.82	248.24	177.83	-7,905.50	299.10	7,911.16	7,643.10	268.06	29.513		
8,400.00	8,400.00	8,620.00	8,619.27	20.03	258.00	177.83	-7,905.50	299.10	7,914.37	7,636.34	278.03	28.466		
8,500.00	8,500.00	8,620.00	8,619.27	20.24	258.00	177.83	-7,905.50	299.10	7,912.15	7,633.91	278.24	28.437		
8,600.00	8,600.00	8,620.00	8,619.27	20.45	258.00	177.83	-7,905.50	299.10	7,911.20	7,632.75	278.45	28.412		
8,644.60	8,644.60	8,639.34	8,638.60	20.54	258.58	177.83	-7,905.50	299.10	7,911.16	7,632.04	279.12	28.343		
8,700.00	8,700.00	8,694.73	8,694.00	20.66	260.24	177.83	-7,905.50	299.10	7,911.16	7,630.26	280.90	28.163		
8,800.00	8,800.00	8,800.00	8,799.22	20.87	263.40	177.83	-7,905.50	299.10	7,911.16	7,626.89	284.27	27.830		
8,835.17	8,835.17	8,829.95	8,829.17	20.95	264.30	177.83	-7,905.50	299.10	7,911.16	7,625.92	285.25	27.735		
8,900.00	8,900.00	8,894.78	8,894.00	21.08	266.24	177.83	-7,905.50	299.10	7,911.16	7,623.83	287.33	27.534		
9,000.00	9,000.00	9,148.00	9,147.15	21.30	273.84	177.83	-7,905.50	299.10	7,912.64	7,617.51	295.14	26.810		
9,100.00	9,100.00	9,148.00	9,147.15	21.51	273.84	177.83	-7,905.50	299.10	7,911.34	7,615.99	295.35	26.787		

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



Integrity Directional Services, LLC
Anticollision Report



Company: COG Operating L L C
Project: Lea County, NM (NAD27 NME)
Reference Site: Sec. 19, T 19 S., R 33 E
Site Error: 5.00 ft
Reference Well: Geronimo Federal Com 11H
Well Error: 5.00 ft
Reference Wellbore: Wellbore #1
Reference Design: Plan #1

Local Co-ordinate Reference: Well Geronimo Federal Com 11H
TVD Reference: KB=26' @ 3625.60ft (Scandril Freedom)
MD Reference: KB=26' @ 3625.60ft (Scandril Freedom)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design Sec. 31, T 19 S., R 33 E - GERONIMO FED #2 - Actual Wellbore - INC ONLY													Offset Site Error: 0.00 ft
Survey Program: 500-Inclinometer only													Offset Well Error: 0.00 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
9,171.15	9,171.15	9,166.00	9,165.15	21.66	274.38	177.83	-7,905.50	299.10	7,911.16	7,615.12	296.04	26.723	
9,200.00	9,200.00	9,194.85	9,194.00	21.72	275.25	177.83	-7,905.50	299.10	7,911.16	7,614.19	296.97	26.640	
9,300.00	9,300.00	9,294.85	9,294.00	21.93	278.25	177.83	-7,905.50	299.10	7,911.16	7,610.98	300.18	26.355	
9,400.00	9,400.00	9,394.85	9,394.00	22.15	281.25	177.83	-7,905.50	299.10	7,911.16	7,607.77	303.39	26.076	
9,412.56	9,412.56	9,407.41	9,406.56	22.17	281.62	177.83	-7,905.50	299.10	7,911.16	7,607.37	303.79	26.041	
9,425.00	9,425.00	9,419.85	9,419.00	22.20	282.00	-2.20	-7,905.50	299.10	7,911.00	7,606.81	304.19	26.007	
9,450.00	9,449.96	9,444.81	9,443.96	22.24	282.74	-2.20	-7,905.50	299.10	7,909.69	7,604.72	304.98	25.935	
9,475.00	9,474.82	9,469.67	9,468.82	22.28	283.49	-2.22	-7,905.50	299.10	7,907.09	7,601.32	305.77	25.860	
9,500.00	9,499.51	9,494.36	9,493.51	22.32	284.23	-2.24	-7,905.50	299.10	7,903.18	7,596.64	306.55	25.781	
9,525.00	9,523.96	9,518.81	9,517.96	22.36	284.96	-2.26	-7,905.50	299.10	7,897.99	7,590.67	307.32	25.700	
9,550.00	9,548.11	9,542.96	9,542.11	22.40	285.69	-2.30	-7,905.50	299.10	7,891.53	7,583.44	308.09	25.615	
9,575.00	9,571.88	9,566.73	9,565.88	22.44	286.40	-2.34	-7,905.50	299.10	7,883.81	7,574.98	308.84	25.527	
9,600.00	9,595.22	9,590.07	9,589.22	22.48	287.10	-2.39	-7,905.50	299.10	7,874.87	7,565.29	309.58	25.437	
9,625.00	9,618.06	9,609.00	9,608.11	22.51	289.47	-2.46	-7,905.50	299.10	7,864.91	7,552.92	311.98	25.209	
9,650.00	9,640.33	9,609.00	9,608.11	22.55	289.47	-2.52	-7,905.50	299.10	7,853.44	7,541.42	312.02	25.169	
9,675.00	9,661.98	9,609.00	9,608.11	22.59	289.47	-2.60	-7,905.50	299.10	7,840.89	7,528.83	312.06	25.126	
9,700.00	9,682.95	9,677.84	9,676.95	22.63	289.74	-2.69	-7,905.50	299.10	7,827.28	7,514.92	312.36	25.058	
9,725.00	9,703.17	9,698.06	9,697.17	22.66	290.34	-2.80	-7,905.50	299.10	7,812.60	7,499.60	313.01	24.960	
9,750.00	9,722.60	9,717.49	9,716.60	22.71	290.92	-2.93	-7,905.50	299.10	7,796.89	7,483.25	313.64	24.860	
9,775.00	9,741.18	9,736.07	9,735.18	22.76	291.48	-3.08	-7,905.50	299.10	7,780.18	7,465.93	314.24	24.758	
9,800.00	9,758.86	9,753.75	9,752.86	22.82	292.01	-3.25	-7,905.50	299.10	7,762.52	7,447.69	314.83	24.656	
9,825.00	9,775.59	9,770.48	9,769.59	22.88	292.51	-3.45	-7,905.50	299.10	7,743.96	7,428.56	315.39	24.553	
9,850.00	9,791.32	9,786.21	9,785.32	22.95	292.99	-3.69	-7,905.50	299.10	7,724.55	7,408.61	315.93	24.450	
9,875.00	9,806.02	9,800.91	9,800.02	23.02	293.43	-3.98	-7,905.50	299.10	7,704.34	7,387.90	316.44	24.347	
9,900.00	9,819.63	9,814.52	9,813.63	23.09	293.84	-4.32	-7,905.50	299.10	7,683.39	7,366.46	316.93	24.243	
9,925.00	9,832.14	9,827.03	9,826.14	23.18	294.21	-4.74	-7,905.50	299.10	7,661.76	7,344.37	317.39	24.140	
9,950.00	9,843.49	9,838.38	9,837.49	23.27	294.55	-5.27	-7,905.50	299.10	7,639.51	7,321.69	317.82	24.037	
9,975.00	9,853.66	9,848.55	9,847.66	23.37	294.86	-5.94	-7,905.50	299.10	7,616.69	7,298.47	318.23	23.935	
10,000.00	9,862.62	9,857.51	9,856.62	23.47	295.13	-6.83	-7,905.50	299.10	7,593.38	7,274.78	318.60	23.834	
10,025.00	9,870.35	9,865.24	9,864.35	23.59	295.36	-8.03	-7,905.50	299.10	7,569.62	7,250.68	318.94	23.733	
10,050.00	9,876.82	9,871.71	9,870.82	23.71	295.55	-9.77	-7,905.50	299.10	7,545.50	7,226.24	319.26	23.634	
10,075.00	9,882.02	9,876.91	9,876.02	23.83	295.71	-12.48	-7,905.50	299.10	7,521.07	7,201.53	319.54	23.537	
10,100.00	9,885.93	9,880.82	9,879.93	23.97	295.82	-17.22	-7,905.50	299.10	7,496.40	7,176.61	319.79	23.441	
10,125.00	9,888.55	9,883.44	9,882.55	24.11	295.90	-27.34	-7,905.50	299.10	7,471.56	7,151.55	320.01	23.348	
10,150.00	9,889.86	9,884.75	9,883.86	24.26	295.94	-57.16	-7,905.50	299.10	7,446.62	7,126.42	320.20	23.256	
10,157.64	9,890.00	9,884.89	9,884.00	24.30	295.95	-75.83	-7,905.50	299.10	7,438.98	7,118.73	320.25	23.229	
10,200.00	9,890.44	9,885.33	9,884.44	24.57	295.96	-75.91	-7,905.50	299.10	7,396.66	7,076.13	320.53	23.076	
10,300.00	9,891.47	9,886.36	9,885.47	25.29	295.99	-76.09	-7,905.50	299.10	7,296.75	6,975.48	321.28	22.712	
10,400.00	9,892.50	9,887.39	9,886.50	26.11	296.02	-76.28	-7,905.50	299.10	7,196.85	6,874.71	322.13	22.341	
10,500.00	9,893.53	9,888.42	9,887.53	27.04	296.05	-76.46	-7,905.50	299.10	7,096.94	6,773.85	323.09	21.966	
10,600.00	9,894.56	9,889.45	9,888.56	28.05	296.08	-76.65	-7,905.50	299.10	6,997.04	6,672.91	324.13	21.587	
10,700.00	9,895.59	9,890.48	9,889.59	29.14	296.11	-76.83	-7,905.50	299.10	6,897.14	6,571.88	325.26	21.205	
10,800.00	9,896.62	9,891.51	9,890.62	30.31	296.15	-77.01	-7,905.50	299.10	6,797.24	6,470.79	326.45	20.821	
10,900.00	9,897.65	9,892.54	9,891.65	31.54	296.18	-77.20	-7,905.50	299.10	6,697.35	6,369.64	327.71	20.437	
11,000.00	9,898.68	9,893.57	9,892.68	32.82	296.21	-77.38	-7,905.50	299.10	6,597.46	6,268.43	329.03	20.051	
11,100.00	9,899.71	9,894.60	9,893.71	34.15	296.24	-77.57	-7,905.50	299.10	6,497.57	6,167.18	330.39	19.666	
11,200.00	9,900.74	9,895.63	9,894.74	35.53	296.27	-77.76	-7,905.50	299.10	6,397.69	6,065.89	331.80	19.282	
11,300.00	9,901.77	9,896.66	9,895.77	36.95	296.30	-77.94	-7,905.50	299.10	6,297.81	5,964.56	333.25	18.898	
11,400.00	9,902.80	9,897.69	9,896.80	38.40	296.33	-78.13	-7,905.50	299.10	6,197.93	5,863.20	334.73	18.516	
11,500.00	9,903.83	9,898.72	9,897.83	39.89	296.36	-78.31	-7,905.50	299.10	6,098.06	5,761.81	336.25	18.136	
11,600.00	9,904.86	9,899.75	9,898.86	41.40	296.39	-78.50	-7,905.50	299.10	5,998.19	5,660.40	337.79	17.757	
11,700.00	9,905.89	9,900.78	9,899.89	42.93	296.42	-78.69	-7,905.50	299.10	5,898.32	5,558.97	339.36	17.381	

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



Integrity Directional Services, LLC
Anticollision Report



Company: COG Operating L L C
Project: Lea County, NM (NAD27 NME)
Reference Site: Sec. 19, T 19 S., R 33 E
Site Error: 5.00 ft
Reference Well: Geronimo Federal Com 11H
Well Error: 5.00 ft
Reference Wellbore: Wellbore #1
Reference Design: Plan #1

Local Co-ordinate Reference: Well Geronimo Federal Com 11H
TVD Reference: KB=26' @ 3625.60ft (Scandril Freedom)
MD Reference: KB=26' @ 3625.60ft (Scandril Freedom)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design													Sec. 31, T 19 S., R 33 E - GERONIMO FED #2 - Actual Wellbore - INC ONLY		Offset Site Error: 0.00 ft	
Survey Program: 500-Inclinometer only													Offset Well Error: 0.00 ft			
Reference		Offset		Semi Major Axis			Distance						Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor				
11,800.00	9,906.92	9,901.81	9,900.92	44.49	296.45	-78.87	-7,905.50	299.10	5,798.46	5,457.52	340.95	17.007				
11,900.00	9,907.95	9,902.84	9,901.95	46.07	296.49	-79.06	-7,905.50	299.10	5,698.61	5,356.05	342.56	16.636				
12,000.00	9,908.98	9,903.87	9,902.98	47.67	296.52	-79.25	-7,905.50	299.10	5,598.76	5,254.57	344.18	16.267				
12,100.00	9,910.01	9,904.90	9,904.01	49.28	296.55	-79.44	-7,905.50	299.10	5,498.91	5,153.09	345.83	15.901				
12,200.00	9,911.04	9,905.93	9,905.04	50.91	296.58	-79.63	-7,905.50	299.10	5,399.07	5,051.59	347.49	15.537				
12,300.00	9,912.07	9,906.96	9,906.07	52.55	296.61	-79.81	-7,905.50	299.10	5,299.24	4,950.08	349.16	15.177				
12,400.00	9,913.10	9,907.99	9,907.10	54.20	296.64	-80.00	-7,905.50	299.10	5,199.41	4,848.57	350.84	14.820				
12,500.00	9,914.13	9,909.02	9,908.13	55.87	296.67	-80.19	-7,905.50	299.10	5,099.59	4,747.05	352.54	14.465				
12,600.00	9,915.16	9,910.05	9,909.16	57.54	296.70	-80.38	-7,905.50	299.10	4,999.78	4,645.53	354.24	14.114				
12,700.00	9,916.19	9,911.08	9,910.19	59.23	296.73	-80.57	-7,905.50	299.10	4,899.97	4,544.01	355.96	13.766				
12,800.00	9,917.22	9,912.11	9,911.22	60.92	296.76	-80.76	-7,905.50	299.10	4,800.17	4,442.49	357.68	13.420				
12,900.00	9,918.25	9,913.14	9,912.25	62.62	296.79	-80.95	-7,905.50	299.10	4,700.38	4,340.97	359.41	13.078				
13,000.00	9,919.28	9,914.17	9,913.28	64.33	296.83	-81.14	-7,905.50	299.10	4,600.60	4,239.45	361.15	12.739				
13,100.00	9,920.31	9,915.20	9,914.31	66.04	296.86	-81.33	-7,905.50	299.10	4,500.83	4,137.93	362.90	12.403				
13,200.00	9,921.34	9,916.23	9,915.34	67.76	296.89	-81.52	-7,905.50	299.10	4,401.06	4,036.42	364.65	12.069				
13,300.00	9,922.37	9,917.26	9,916.37	69.48	296.92	-81.71	-7,905.50	299.10	4,301.31	3,934.91	366.40	11.739				
13,400.00	9,923.40	9,918.29	9,917.40	71.22	296.95	-81.90	-7,905.50	299.10	4,201.57	3,833.41	368.16	11.412				
13,500.00	9,924.43	9,919.32	9,918.43	72.95	296.98	-82.09	-7,905.50	299.10	4,101.85	3,731.91	369.93	11.088				
13,600.00	9,925.46	9,920.35	9,919.46	74.69	297.01	-82.28	-7,905.50	299.10	4,002.13	3,630.43	371.70	10.767				
13,700.00	9,926.49	9,921.38	9,920.49	76.44	297.04	-82.47	-7,905.50	299.10	3,902.43	3,528.95	373.48	10.449				
13,800.00	9,927.52	9,922.41	9,921.52	78.18	297.07	-82.66	-7,905.50	299.10	3,802.75	3,427.49	375.26	10.134				
13,900.00	9,928.55	9,923.44	9,922.55	79.94	297.10	-82.86	-7,905.50	299.10	3,703.08	3,326.04	377.04	9.821				
14,000.00	9,929.58	9,924.47	9,923.58	81.69	297.13	-83.05	-7,905.50	299.10	3,603.43	3,224.60	378.83	9.512				
14,100.00	9,930.61	9,925.50	9,924.61	83.45	297.17	-83.24	-7,905.50	299.10	3,503.80	3,123.18	380.62	9.206				
14,200.00	9,931.64	9,926.53	9,925.64	85.21	297.20	-83.43	-7,905.50	299.10	3,404.19	3,021.78	382.41	8.902				
14,300.00	9,932.67	9,927.56	9,926.67	86.98	297.23	-83.62	-7,905.50	299.10	3,304.61	2,920.40	384.20	8.601				
14,400.00	9,933.70	9,928.59	9,927.70	88.74	297.26	-83.82	-7,905.50	299.10	3,205.05	2,819.05	386.00	8.303				
14,500.00	9,934.73	9,929.62	9,928.73	90.51	297.29	-84.01	-7,905.50	299.10	3,105.52	2,717.71	387.80	8.008				
14,600.00	9,935.76	9,930.65	9,929.76	92.29	297.32	-84.20	-7,905.50	299.10	3,006.01	2,616.41	389.61	7.716				
14,700.00	9,936.79	9,931.68	9,930.79	94.06	297.35	-84.39	-7,905.50	299.10	2,906.55	2,515.14	391.41	7.426				
14,800.00	9,937.82	9,932.71	9,931.82	95.84	297.38	-84.59	-7,905.50	299.10	2,807.12	2,413.90	393.22	7.139				
14,900.00	9,938.85	9,933.74	9,932.85	97.62	297.41	-84.78	-7,905.50	299.10	2,707.73	2,312.70	395.03	6.855				
15,000.00	9,939.88	9,934.77	9,933.88	99.40	297.44	-84.97	-7,905.50	299.10	2,608.39	2,211.55	396.84	6.573				
15,100.00	9,940.91	9,935.80	9,934.91	101.18	297.47	-85.17	-7,905.50	299.10	2,509.10	2,110.45	398.65	6.294				
15,200.00	9,941.94	9,936.83	9,935.94	102.96	297.50	-85.36	-7,905.50	299.10	2,409.87	2,009.40	400.47	6.018				
15,300.00	9,942.97	9,937.86	9,936.97	104.75	297.54	-85.55	-7,905.50	299.10	2,310.70	1,908.42	402.28	5.744				
15,400.00	9,944.00	9,938.89	9,938.00	106.54	297.57	-85.75	-7,905.50	299.10	2,211.61	1,807.51	404.10	5.473				
15,500.00	9,945.03	9,939.92	9,939.03	108.32	297.60	-85.94	-7,905.50	299.10	2,112.61	1,706.69	405.92	5.204				
15,600.00	9,946.06	9,940.95	9,940.06	110.11	297.63	-86.13	-7,905.50	299.10	2,013.70	1,605.96	407.74	4.939				
15,700.00	9,947.09	9,941.98	9,941.09	111.91	297.66	-86.33	-7,905.50	299.10	1,914.90	1,505.34	409.56	4.675				
15,800.00	9,948.12	9,943.01	9,942.12	113.70	297.69	-86.52	-7,905.50	299.10	1,816.24	1,404.85	411.39	4.415				
15,900.00	9,949.15	9,944.04	9,943.15	115.49	297.72	-86.71	-7,905.50	299.10	1,717.73	1,304.52	413.21	4.157				
16,000.00	9,950.18	9,945.06	9,944.18	117.29	297.75	-86.91	-7,905.50	299.10	1,619.40	1,204.37	415.04	3.902				
16,100.00	9,951.21	9,946.09	9,945.21	119.08	297.78	-87.10	-7,905.50	299.10	1,521.29	1,104.43	416.87	3.649				
16,200.00	9,952.24	9,947.12	9,946.24	120.88	297.81	-87.30	-7,905.50	299.10	1,423.45	1,004.75	418.69	3.400				
16,300.00	9,953.27	9,948.15	9,947.27	122.68	297.84	-87.49	-7,905.50	299.10	1,325.92	905.40	420.52	3.153				
16,400.00	9,954.30	9,949.18	9,948.30	124.48	297.88	-87.68	-7,905.50	299.10	1,228.79	806.44	422.35	2.909				
16,500.00	9,955.33	9,950.21	9,949.33	126.28	297.91	-87.88	-7,905.50	299.10	1,132.16	707.97	424.18	2.669				
16,600.00	9,956.36	9,951.24	9,950.36	128.08	297.94	-88.07	-7,905.50	299.10	1,036.16	610.15	426.01	2.432				
16,700.00	9,957.39	9,952.27	9,951.39	129.88	297.97	-88.27	-7,905.50	299.10	941.00	513.15	427.85	2.199				
16,800.00	9,958.41	9,953.30	9,952.41	131.68	298.00	-88.46	-7,905.50	299.10	846.96	417.28	429.68	1.971				
16,900.00	9,959.44	9,954.33	9,953.44	133.48	298.03	-88.66	-7,905.50	299.10	754.44	322.93	431.51	1.748				

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



Integrity Directional Services, LLC
Anticollision Report



Company: COG Operating L L C
Project: Lea County, NM (NAD27 NME)
Reference Site: Sec. 19, T 19 S., R 33 E
Site Error: 5.00 ft
Reference Well: Geronimo Federal Com 11H
Well Error: 5.00 ft
Reference Wellbore: Wellbore #1
Reference Design: Plan #1

Local Co-ordinate Reference: Well Geronimo Federal Com 11H
TVD Reference: KB=26' @ 3625.60ft (Scandril Freedom)
MD Reference: KB=26' @ 3625.60ft (Scandril Freedom)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Offset Design													Sec. 31, T 19 S., R 33 E - GERONIMO FED #2 - Actual Wellbore - INC ONLY		Offset Site Error: 0.00 ft	
Survey Program: 500-Inclinometer only													Offset Well Error: 0.00 ft			
Reference		Offset		Semi Major Axis			Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning			
17,000.00	9,960.47	9,955.36	9,954.47	135.29	298.06	-88.85	-7,905.50	299.10	664.10	230.75	433.35	1.532				
17,100.00	9,961.50	9,956.39	9,955.50	137.09	298.09	-89.05	-7,905.50	299.10	576.95	141.77	435.18	1.326 Level 3				
17,200.00	9,962.53	9,957.42	9,956.53	138.90	298.12	-89.24	-7,905.50	299.10	494.69	57.67	437.02	1.132 Level 2				
17,300.00	9,963.56	9,958.45	9,957.56	140.70	298.15	-89.43	-7,905.50	299.10	420.19	-18.67	438.86	0.957 Level 1				
17,400.00	9,964.59	9,959.48	9,958.59	142.51	298.18	-89.63	-7,905.50	299.10	358.32	-82.37	440.70	0.813 Level 1				
17,500.00	9,965.62	9,960.51	9,959.62	144.32	298.22	-89.82	-7,905.50	299.10	316.59	-125.94	442.53	0.715 Level 1				
17,590.84	9,966.56	9,961.45	9,960.56	145.96	298.24	-90.00	-7,905.50	299.10	303.28	-140.92	444.20	0.683 Level 1, CC, SF				
17,600.00	9,966.65	9,961.54	9,960.65	146.13	298.25	-90.02	-7,905.50	299.10	303.42	-140.95	444.37	0.683 Level 1, ES				
17,700.00	9,967.68	9,962.57	9,961.68	147.93	298.28	-90.21	-7,905.50	299.10	322.33	-123.88	446.21	0.722 Level 1				
17,800.00	9,968.71	9,963.60	9,962.71	149.74	298.31	-90.41	-7,905.50	299.10	368.41	-79.64	448.05	0.822 Level 1				
17,900.00	9,969.74	9,964.63	9,963.74	151.55	298.34	-90.60	-7,905.50	299.10	433.07	-16.82	449.89	0.963 Level 1				
18,000.00	9,970.77	9,965.66	9,964.77	153.36	298.37	-90.80	-7,905.50	299.10	509.29	57.56	451.73	1.127 Level 2				
18,100.00	9,971.80	9,966.69	9,965.80	155.17	298.40	-90.99	-7,905.50	299.10	592.62	139.05	453.57	1.307 Level 3				
18,200.00	9,972.83	9,967.72	9,966.83	156.98	298.43	-91.19	-7,905.50	299.10	680.46	225.04	455.42	1.494 Level 3				
18,300.00	9,973.86	9,968.75	9,967.86	158.79	298.46	-91.38	-7,905.50	299.10	771.26	314.00	457.26	1.687				
18,400.00	9,974.89	9,969.78	9,968.89	160.61	298.49	-91.57	-7,905.50	299.10	864.09	404.99	459.10	1.882				
18,500.00	9,975.92	9,970.81	9,969.92	162.42	298.52	-91.77	-7,905.50	299.10	958.37	497.43	460.94	2.079				
18,600.00	9,976.95	9,971.84	9,970.95	164.23	298.56	-91.96	-7,905.50	299.10	1,053.70	590.91	462.79	2.277				
18,700.00	9,977.98	9,972.87	9,971.98	166.04	298.59	-92.16	-7,905.50	299.10	1,149.82	685.19	464.63	2.475				
18,800.00	9,979.01	9,973.90	9,973.01	167.86	298.62	-92.35	-7,905.50	299.10	1,246.56	780.08	466.48	2.672				
18,900.00	9,980.04	9,974.93	9,974.04	169.67	298.65	-92.55	-7,905.50	299.10	1,343.77	875.45	468.32	2.869				
19,000.00	9,981.07	9,975.96	9,975.07	171.49	298.68	-92.74	-7,905.50	299.10	1,441.36	971.19	470.17	3.066				
19,100.00	9,982.10	9,976.99	9,976.10	173.30	298.71	-92.93	-7,905.50	299.10	1,539.26	1,067.25	472.01	3.261				
19,200.00	9,983.13	9,978.02	9,977.13	175.12	298.74	-93.13	-7,905.50	299.10	1,637.41	1,163.56	473.86	3.456				
19,300.00	9,984.16	9,979.05	9,978.16	176.93	298.77	-93.32	-7,905.50	299.10	1,735.78	1,260.07	475.70	3.649				
19,400.00	9,985.19	9,980.08	9,979.19	178.75	298.80	-93.52	-7,905.50	299.10	1,834.32	1,356.77	477.55	3.841				
19,500.00	9,986.22	9,981.11	9,980.22	180.56	298.83	-93.71	-7,905.50	299.10	1,933.00	1,453.61	479.40	4.032				
19,600.00	9,987.25	9,982.14	9,981.25	182.38	298.86	-93.90	-7,905.50	299.10	2,031.82	1,550.58	481.24	4.222				
19,700.00	9,988.28	9,983.17	9,982.28	184.19	298.90	-94.10	-7,905.50	299.10	2,130.75	1,647.66	483.09	4.411				
19,800.00	9,989.31	9,984.20	9,983.31	186.01	298.93	-94.29	-7,905.50	299.10	2,229.77	1,744.83	484.94	4.598				
19,900.00	9,990.34	9,985.23	9,984.34	187.83	298.96	-94.48	-7,905.50	299.10	2,328.87	1,842.09	486.78	4.784				
20,000.00	9,991.37	9,986.26	9,985.37	189.64	298.99	-94.68	-7,905.50	299.10	2,428.05	1,939.42	488.63	4.969				
20,100.00	9,992.40	9,987.29	9,986.40	191.46	299.02	-94.87	-7,905.50	299.10	2,527.30	2,036.81	490.48	5.153				
20,200.00	9,993.43	9,988.32	9,987.43	193.28	299.05	-95.06	-7,905.50	299.10	2,626.59	2,134.26	492.33	5.335				
20,300.00	9,994.46	9,989.35	9,988.46	195.10	299.08	-95.26	-7,905.50	299.10	2,725.95	2,231.77	494.18	5.516				
20,400.00	9,995.49	9,990.38	9,989.49	196.92	299.11	-95.45	-7,905.50	299.10	2,825.34	2,329.31	496.03	5.696				
20,500.00	9,996.52	9,991.41	9,990.52	198.73	299.14	-95.64	-7,905.50	299.10	2,924.78	2,426.90	497.88	5.874				
20,600.00	9,997.55	9,992.44	9,991.55	200.55	299.17	-95.83	-7,905.50	299.10	3,024.25	2,524.52	499.73	6.052				
20,700.00	9,998.58	9,993.47	9,992.58	202.37	299.20	-96.03	-7,905.50	299.10	3,123.76	2,622.18	501.58	6.228				
20,800.00	9,999.61	9,994.50	9,993.61	204.19	299.24	-96.22	-7,905.50	299.10	3,223.29	2,719.87	503.43	6.403				
20,837.29	10,000.00	9,994.89	9,994.00	204.75	299.25	-96.29	-7,905.50	299.10	3,260.42	2,756.42	503.99	6.469				

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



Integrity Directional Services, LLC
Anticollision Report

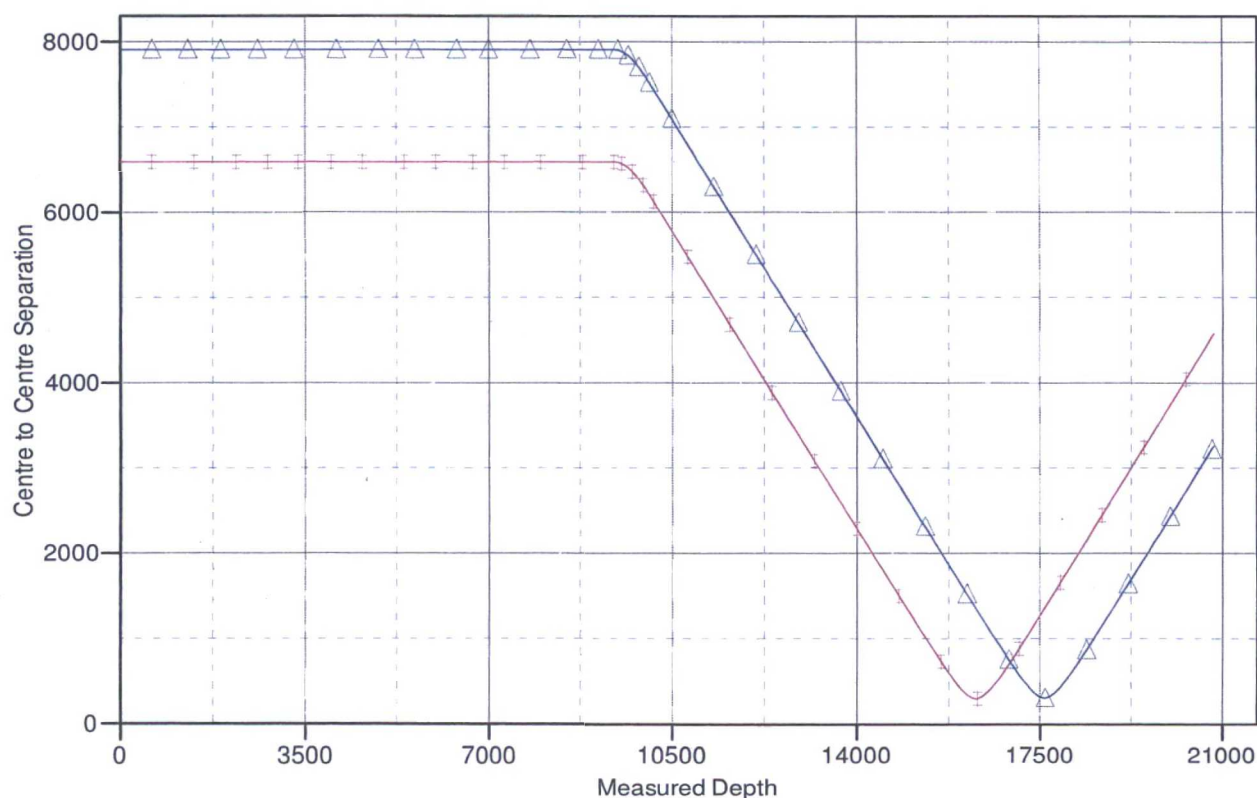


Company: COG Operating L L C
Project: Lea County, NM (NAD27 NME)
Reference Site: Sec. 19, T 19 S., R 33 E
Site Error: 5.00 ft
Reference Well: Geronimo Federal Com 11H
Well Error: 5.00 ft
Reference Wellbore: Wellbore #1
Reference Design: Plan #1

Local Co-ordinate Reference: Well Geronimo Federal Com 11H
TVD Reference: KB=26' @ 3625.60ft (Scandriil Freedom)
MD Reference: KB=26' @ 3625.60ft (Scandriil Freedom)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Reference Depths are relative to KB=26' @ 3625.60ft (Scandriil Freedom) Coordinates are relative to: Geronimo Federal Com 11H
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
Central Meridian is 104° 20' 0.000 W Grid Convergence at Surface is: 0.34°

Ladder Plot



LEGEND

GERONIMO FED #1, Actual Wellbore, INC ONLY V0 GERONIMO FED #2, Actual Wellbore, INC ONLY V0



Integrity Directional Services, LLC
Anticollision Report



Company: COG Operating L L C
Project: Lea County, NM (NAD27 NME)
Reference Site: Sec. 19, T 19 S., R 33 E
Site Error: 5.00 ft
Reference Well: Geronimo Federal Com 11H
Well Error: 5.00 ft
Reference Wellbore: Wellbore #1
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Local Co-ordinate Reference: Well Geronimo Federal Com 11H
TVD Reference: KB=26' @ 3625.60ft (Scandriil Freedom)
MD Reference: KB=26' @ 3625.60ft (Scandriil Freedom)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Multi User Db
Offset TVD Reference: Offset Datum

Reference Depths are relative to KB=26' @ 3625.60ft (Scandriil Freedom) Coordinates are relative to: Geronimo Federal Com 11H

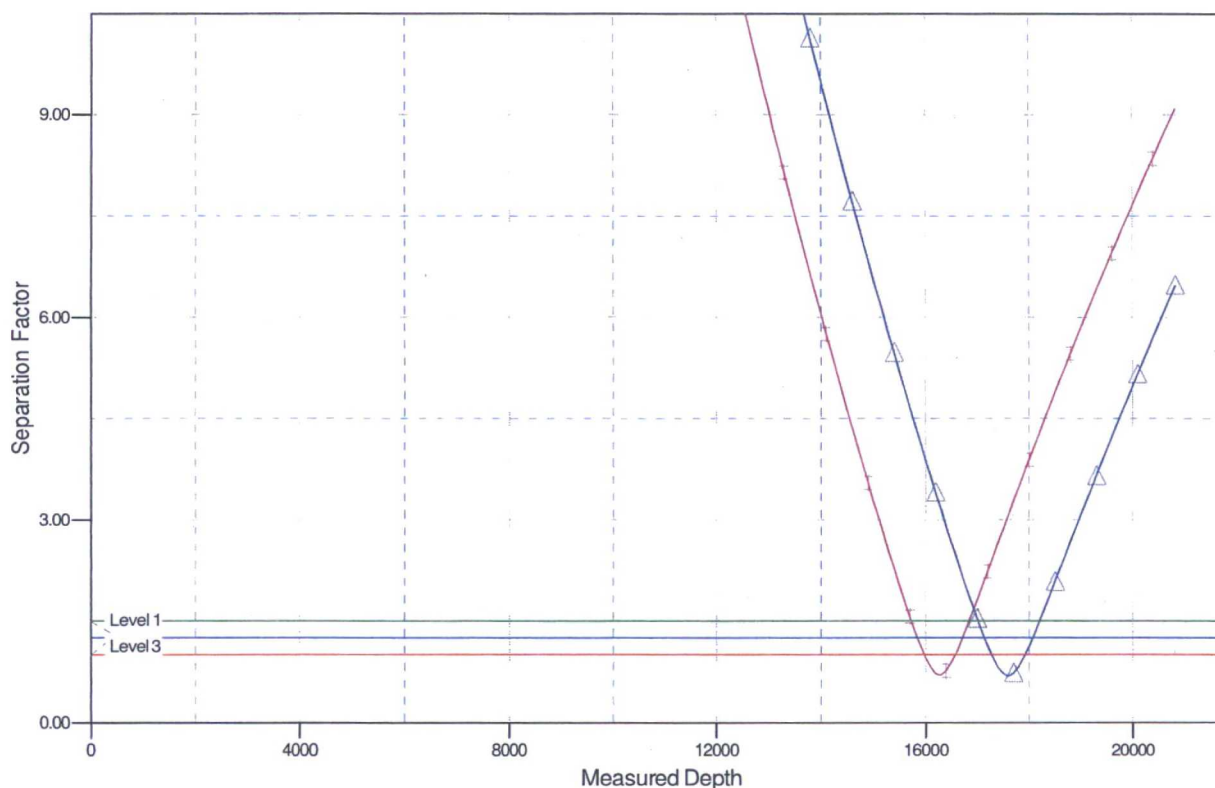
Offset Depths are relative to Offset Datum

Central Meridian is 104° 20' 0.000 W

Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30

Grid Convergence at Surface is: 0.34°

Separation Factor Plot



LEGEND

GERONIMO FED #1, Actual Wellbore, INC ONLY V0 GERONIMO FED #2, Actual Wellbore, INC ONLY V0