



HOBBS OCD

APR 18 2016

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COG Operating, LLC

Lea County, NM

Sec 27, T22S, R34E

Squints Federal Com #2H

Wellbore #1

Design #1

DDC Anticollision Report

08 June, 2015



APR 22 2016

Company:	COG Operating, LLC	Local/Co-ordinate Reference:	Well Squints Federal Com #2H
Project:	Lea County, NM	TVD Reference:	Well @ 3439.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3439.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Compass
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Reference	Design #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 10,000.0 usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program		Date	5/30/2015		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.0	15,796.3	Design #1 (Wellbore #1)	MWD default	MWD - Standard	

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Sec 27, T22S, R34E						
Squints Federal Com #3H - Wellbore #1 - Design #1	10,831.4	10,828.7	1,151.9	1,103.6	23.809	CC
Squints Federal Com #3H - Wellbore #1 - Design #1	15,796.7	15,784.1	1,152.5	973.1	6.423	ES, SF
Squints Federal Com #4H - Wellbore #1 - Design #1	10,702.3	10,699.5	2,471.8	2,424.0	51.704	CC
Squints Federal Com #4H - Wellbore #1 - Design #1	15,796.7	15,667.0	2,472.8	2,293.4	13.784	ES, SF
Squints Federal Com #6H - Wellbore #1 - Design #1	9,950.9	9,949.9	29.8	-14.6	0.671	Level 1, CC, ES, SF
Squints Federal Com #7H - Wellbore #1 - Design #1	9,900.0	9,896.0	1,122.0	1,077.8	25.385	CC
Squints Federal Com #7H - Wellbore #1 - Design #1	10,000.0	9,994.7	1,122.1	1,077.4	25.135	ES
Squints Federal Com #7H - Wellbore #1 - Design #1	15,796.7	14,930.4	1,403.3	1,253.0	9.335	SF
Squints Federal Com #8H - Wellbore #1 - Design #1	9,857.6	9,854.6	2,441.8	2,397.8	55.480	CC
Squints Federal Com #8H - Wellbore #1 - Design #1	10,000.0	9,993.8	2,441.8	2,397.2	54.706	ES
Squints Federal Com #8H - Wellbore #1 - Design #1	15,796.7	14,899.9	2,599.3	2,428.8	15.248	SF

Offset Design Sec 27, T22S, R34E - Squints Federal Com #3H - Wellbore #1 - Design #1										Offset Site Error:	
Survey Program: 0-MWD default										Offset Well Error:	
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)	Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Separation Factor
0.0	0.0	0.0	0.0	0.0	0.0	-90.47	-9.4	-1,151.9	1,151.9		
100.0	100.0	97.0	97.0	0.1	0.1	-90.47	-9.4	-1,151.9	1,151.9	1,151.8	7,540.716
200.0	200.0	197.0	197.0	0.3	0.3	-90.47	-9.4	-1,151.9	1,151.9	1,151.3	1,926.712
300.0	300.0	297.0	297.0	0.5	0.5	-90.47	-9.4	-1,151.9	1,151.9	1,150.9	1,099.797
400.0	400.0	397.0	397.0	0.8	0.7	-90.47	-9.4	-1,151.9	1,151.9	1,150.4	769.528
500.0	500.0	497.0	497.0	1.0	1.0	-90.47	-9.4	-1,151.9	1,151.9	1,150.0	591.808
600.0	600.0	597.0	597.0	1.2	1.2	-90.47	-9.4	-1,151.9	1,151.9	1,149.5	480.774
700.0	700.0	697.0	697.0	1.4	1.4	-90.47	-9.4	-1,151.9	1,151.9	1,149.1	404.823
800.0	800.0	797.0	797.0	1.7	1.6	-90.47	-9.4	-1,151.9	1,151.9	1,148.6	349.594
900.0	900.0	897.0	897.0	1.9	1.9	-90.47	-9.4	-1,151.9	1,151.9	1,148.2	307.626
1,000.0	1,000.0	997.0	997.0	2.1	2.1	-90.47	-9.4	-1,151.9	1,151.9	1,147.7	274.655
1,100.0	1,100.0	1,097.0	1,097.0	2.3	2.3	-90.47	-9.4	-1,151.9	1,151.9	1,147.3	248.067
1,200.0	1,200.0	1,197.0	1,197.0	2.5	2.5	-90.47	-9.4	-1,151.9	1,151.9	1,146.8	226.172
1,300.0	1,300.0	1,297.0	1,297.0	2.8	2.8	-90.47	-9.4	-1,151.9	1,151.9	1,146.4	207.829
1,400.0	1,400.0	1,397.0	1,397.0	3.0	3.0	-90.47	-9.4	-1,151.9	1,151.9	1,145.9	192.238
1,500.0	1,500.0	1,497.0	1,497.0	3.2	3.2	-90.47	-9.4	-1,151.9	1,151.9	1,145.5	178.823

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



HP
Anticollision Report



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Reference Well:	Squints Federal Com #2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Compass
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design: Sec 27, T22S, R34E - Squints Federal Com #3H - Wellbore #1 - Design #1												Offset Site Error:	0.0 usft
Survey Program: 0-MWD default												Offset Well Error:	0.0 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning	
1,600.0	1,600.0	1,597.0	1,597.0	3.4	3.4	-90.47	-9.4	-1,151.9	1,151.9	1,145.0	167.158		
1,700.0	1,700.0	1,697.0	1,697.0	3.7	3.7	-90.47	-9.4	-1,151.9	1,151.9	1,144.6	156.921		
1,800.0	1,800.0	1,797.0	1,797.0	3.9	3.9	-90.47	-9.4	-1,151.9	1,151.9	1,144.1	147.867		
1,900.0	1,900.0	1,897.0	1,897.0	4.1	4.1	-90.47	-9.4	-1,151.9	1,151.9	1,143.7	139.800		
2,000.0	2,000.0	1,997.0	1,997.0	4.3	4.3	-90.47	-9.4	-1,151.9	1,151.9	1,143.2	132.567		
2,100.0	2,100.0	2,097.0	2,097.0	4.6	4.6	-90.47	-9.4	-1,151.9	1,151.9	1,142.8	126.047		
2,200.0	2,200.0	2,197.0	2,197.0	4.8	4.8	-90.47	-9.4	-1,151.9	1,151.9	1,142.3	120.137		
2,300.0	2,300.0	2,297.0	2,297.0	5.0	5.0	-90.47	-9.4	-1,151.9	1,151.9	1,141.9	114.757		
2,400.0	2,400.0	2,397.0	2,397.0	5.2	5.2	-90.47	-9.4	-1,151.9	1,151.9	1,141.5	109.838		
2,500.0	2,500.0	2,497.0	2,497.0	5.5	5.5	-90.47	-9.4	-1,151.9	1,151.9	1,141.0	105.324		
2,600.0	2,600.0	2,597.0	2,597.0	5.7	5.7	-90.47	-9.4	-1,151.9	1,151.9	1,140.6	101.166		
2,700.0	2,700.0	2,697.0	2,697.0	5.9	5.9	-90.47	-9.4	-1,151.9	1,151.9	1,140.1	97.323		
2,800.0	2,800.0	2,797.0	2,797.0	6.1	6.1	-90.47	-9.4	-1,151.9	1,151.9	1,139.7	93.762		
2,900.0	2,900.0	2,897.0	2,897.0	6.4	6.4	-90.47	-9.4	-1,151.9	1,151.9	1,139.2	90.453		
3,000.0	3,000.0	2,997.0	2,997.0	6.6	6.6	-90.47	-9.4	-1,151.9	1,151.9	1,138.8	87.369		
3,100.0	3,100.0	3,097.0	3,097.0	6.8	6.8	-90.47	-9.4	-1,151.9	1,151.9	1,138.3	84.488		
3,200.0	3,200.0	3,197.0	3,197.0	7.0	7.0	-90.47	-9.4	-1,151.9	1,151.9	1,137.9	81.791		
3,300.0	3,300.0	3,297.0	3,297.0	7.3	7.3	-90.47	-9.4	-1,151.9	1,151.9	1,137.4	79.262		
3,400.0	3,400.0	3,397.0	3,397.0	7.5	7.5	-90.47	-9.4	-1,151.9	1,151.9	1,137.0	76.884		
3,500.0	3,500.0	3,497.0	3,497.0	7.7	7.7	-90.47	-9.4	-1,151.9	1,151.9	1,136.5	74.644		
3,600.0	3,600.0	3,597.0	3,597.0	7.9	7.9	-90.47	-9.4	-1,151.9	1,151.9	1,136.1	72.531		
3,700.0	3,700.0	3,697.0	3,697.0	8.2	8.2	-90.47	-9.4	-1,151.9	1,151.9	1,135.6	70.535		
3,800.0	3,800.0	3,797.0	3,797.0	8.4	8.4	-90.47	-9.4	-1,151.9	1,151.9	1,135.2	68.645		
3,900.0	3,900.0	3,897.0	3,897.0	8.6	8.6	-90.47	-9.4	-1,151.9	1,151.9	1,134.7	66.854		
4,000.0	4,000.0	3,997.0	3,997.0	8.8	8.8	-90.47	-9.4	-1,151.9	1,151.9	1,134.3	65.155		
4,100.0	4,100.0	4,097.0	4,097.0	9.1	9.1	-90.47	-9.4	-1,151.9	1,151.9	1,133.8	63.539		
4,200.0	4,200.0	4,197.0	4,197.0	9.3	9.3	-90.47	-9.4	-1,151.9	1,151.9	1,133.4	62.002		
4,300.0	4,300.0	4,297.0	4,297.0	9.5	9.5	-90.47	-9.4	-1,151.9	1,151.9	1,132.9	60.537		
4,400.0	4,400.0	4,397.0	4,397.0	9.7	9.7	-90.47	-9.4	-1,151.9	1,151.9	1,132.5	59.140		
4,500.0	4,500.0	4,497.0	4,497.0	10.0	10.0	-90.47	-9.4	-1,151.9	1,151.9	1,132.0	57.806		
4,600.0	4,600.0	4,597.0	4,597.0	10.2	10.2	-90.47	-9.4	-1,151.9	1,151.9	1,131.6	56.531		
4,700.0	4,700.0	4,697.0	4,697.0	10.4	10.4	-90.47	-9.4	-1,151.9	1,151.9	1,131.1	55.310		
4,800.0	4,800.0	4,797.0	4,797.0	10.6	10.6	-90.47	-9.4	-1,151.9	1,151.9	1,130.7	54.142		
4,900.0	4,900.0	4,897.0	4,897.0	10.9	10.9	-90.47	-9.4	-1,151.9	1,151.9	1,130.2	53.021		
5,000.0	5,000.0	4,997.0	4,997.0	11.1	11.1	-90.47	-9.4	-1,151.9	1,151.9	1,129.8	51.947		
5,100.0	5,100.0	5,097.0	5,097.0	11.3	11.3	-90.47	-9.4	-1,151.9	1,151.9	1,129.3	50.915		
5,200.0	5,200.0	5,197.0	5,197.0	11.5	11.5	-90.47	-9.4	-1,151.9	1,151.9	1,128.9	49.923		
5,300.0	5,300.0	5,297.0	5,297.0	11.8	11.8	-90.47	-9.4	-1,151.9	1,151.9	1,128.4	48.969		
5,400.0	5,400.0	5,397.0	5,397.0	12.0	12.0	-90.47	-9.4	-1,151.9	1,151.9	1,128.0	48.050		
5,500.0	5,500.0	5,497.0	5,497.0	12.2	12.2	-90.47	-9.4	-1,151.9	1,151.9	1,127.5	47.166		
5,600.0	5,600.0	5,597.0	5,597.0	12.4	12.4	-90.47	-9.4	-1,151.9	1,151.9	1,127.1	46.314		
5,700.0	5,700.0	5,697.0	5,697.0	12.7	12.7	-90.47	-9.4	-1,151.9	1,151.9	1,126.6	45.491		
5,800.0	5,800.0	5,797.0	5,797.0	12.9	12.9	-90.47	-9.4	-1,151.9	1,151.9	1,126.2	44.698		
5,900.0	5,900.0	5,897.0	5,897.0	13.1	13.1	-90.47	-9.4	-1,151.9	1,151.9	1,125.7	43.932		
6,000.0	6,000.0	5,997.0	5,997.0	13.3	13.3	-90.47	-9.4	-1,151.9	1,151.9	1,125.3	43.191		
6,100.0	6,100.0	6,097.0	6,097.0	13.6	13.6	-90.47	-9.4	-1,151.9	1,151.9	1,124.8	42.475		
6,200.0	6,200.0	6,197.0	6,197.0	13.8	13.8	-90.47	-9.4	-1,151.9	1,151.9	1,124.4	41.783		
6,300.0	6,300.0	6,297.0	6,297.0	14.0	14.0	-90.47	-9.4	-1,151.9	1,151.9	1,123.9	41.112		
6,400.0	6,400.0	6,397.0	6,397.0	14.2	14.2	-90.47	-9.4	-1,151.9	1,151.9	1,123.5	40.463		
6,500.0	6,500.0	6,497.0	6,497.0	14.5	14.5	-90.47	-9.4	-1,151.9	1,151.9	1,123.0	39.834		
6,600.0	6,600.0	6,597.0	6,597.0	14.7	14.7	-90.47	-9.4	-1,151.9	1,151.9	1,122.6	39.224		
6,700.0	6,700.0	6,697.0	6,697.0	14.9	14.9	-90.47	-9.4	-1,151.9	1,151.9	1,122.1	38.633		

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



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Reference Wellbore:	Wellbore #1	Database:	Compass
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design: Sec 27, T22S, R34E - Squints Federal Com #3H - Wellbore #1 - Design #1												Offset Site Error:	0.0 usft
Survey Program: 0-MWD default												Offset Well Error:	0.0 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning	
6,800.0	6,800.0	6,797.0	6,797.0	15.1	15.1	-90.47	-9.4	-1,151.9	1,151.9	1,121.7	38.059		
6,900.0	6,900.0	6,897.0	6,897.0	15.4	15.4	-90.47	-9.4	-1,151.9	1,151.9	1,121.2	37.502		
7,000.0	7,000.0	6,997.0	6,997.0	15.6	15.6	-90.47	-9.4	-1,151.9	1,151.9	1,120.8	36.961		
7,100.0	7,100.0	7,097.0	7,097.0	15.8	15.8	-90.47	-9.4	-1,151.9	1,151.9	1,120.3	36.436		
7,200.0	7,200.0	7,197.0	7,197.0	16.0	16.0	-90.47	-9.4	-1,151.9	1,151.9	1,119.9	35.925		
7,300.0	7,300.0	7,297.0	7,297.0	16.3	16.3	-90.47	-9.4	-1,151.9	1,151.9	1,119.4	35.428		
7,400.0	7,400.0	7,397.0	7,397.0	16.5	16.5	-90.47	-9.4	-1,151.9	1,151.9	1,119.0	34.945		
7,500.0	7,500.0	7,497.0	7,497.0	16.7	16.7	-90.47	-9.4	-1,151.9	1,151.9	1,118.5	34.475		
7,600.0	7,600.0	7,597.0	7,597.0	16.9	16.9	-90.47	-9.4	-1,151.9	1,151.9	1,118.1	34.017		
7,700.0	7,700.0	7,697.0	7,697.0	17.2	17.2	-90.47	-9.4	-1,151.9	1,151.9	1,117.6	33.572		
7,800.0	7,800.0	7,797.0	7,797.0	17.4	17.4	-90.47	-9.4	-1,151.9	1,151.9	1,117.2	33.138		
7,900.0	7,900.0	7,897.0	7,897.0	17.6	17.6	-90.47	-9.4	-1,151.9	1,151.9	1,116.7	32.715		
8,000.0	8,000.0	7,997.0	7,997.0	17.8	17.8	-90.47	-9.4	-1,151.9	1,151.9	1,116.3	32.302		
8,100.0	8,100.0	8,097.0	8,097.0	18.1	18.1	-90.47	-9.4	-1,151.9	1,151.9	1,115.8	31.900		
8,200.0	8,200.0	8,197.0	8,197.0	18.3	18.3	-90.47	-9.4	-1,151.9	1,151.9	1,115.4	31.508		
8,300.0	8,300.0	8,297.0	8,297.0	18.5	18.5	-90.47	-9.4	-1,151.9	1,151.9	1,114.9	31.125		
8,400.0	8,400.0	8,397.0	8,397.0	18.7	18.7	-90.47	-9.4	-1,151.9	1,151.9	1,114.5	30.752		
8,500.0	8,500.0	8,497.0	8,497.0	19.0	19.0	-90.47	-9.4	-1,151.9	1,151.9	1,114.0	30.387		
8,600.0	8,600.0	8,597.0	8,597.0	19.2	19.2	-90.47	-9.4	-1,151.9	1,151.9	1,113.6	30.031		
8,700.0	8,700.0	8,697.0	8,697.0	19.4	19.4	-90.47	-9.4	-1,151.9	1,151.9	1,113.1	29.683		
8,800.0	8,800.0	8,797.0	8,797.0	19.6	19.6	-90.47	-9.4	-1,151.9	1,151.9	1,112.7	29.343		
8,900.0	8,900.0	8,897.0	8,897.0	19.9	19.9	-90.47	-9.4	-1,151.9	1,151.9	1,112.2	29.011		
9,000.0	9,000.0	8,997.0	8,997.0	20.1	20.1	-90.47	-9.4	-1,151.9	1,151.9	1,111.8	28.686		
9,100.0	9,100.0	9,097.0	9,097.0	20.3	20.3	-90.47	-9.4	-1,151.9	1,151.9	1,111.3	28.369		
9,200.0	9,200.0	9,197.0	9,197.0	20.5	20.5	-90.47	-9.4	-1,151.9	1,151.9	1,110.9	28.058		
9,300.0	9,300.0	9,297.0	9,297.0	20.8	20.7	-90.47	-9.4	-1,151.9	1,151.9	1,110.4	27.754		
9,400.0	9,400.0	9,397.0	9,397.0	21.0	21.0	-90.47	-9.4	-1,151.9	1,151.9	1,110.0	27.457		
9,500.0	9,500.0	9,497.0	9,497.0	21.2	21.2	-90.47	-9.4	-1,151.9	1,151.9	1,109.5	27.166		
9,600.0	9,600.0	9,597.0	9,597.0	21.4	21.4	-90.47	-9.4	-1,151.9	1,151.9	1,109.1	26.881		
9,700.0	9,700.0	9,697.0	9,697.0	21.7	21.6	-90.47	-9.4	-1,151.9	1,151.9	1,108.6	26.602		
9,800.0	9,800.0	9,797.0	9,797.0	21.9	21.9	-90.47	-9.4	-1,151.9	1,151.9	1,108.2	26.328		
9,900.0	9,900.0	9,897.0	9,897.0	22.1	22.1	-90.47	-9.4	-1,151.9	1,151.9	1,107.7	26.060		
10,000.0	10,000.0	9,997.0	9,997.0	22.3	22.3	-90.47	-9.4	-1,151.9	1,151.9	1,107.3	25.798		
10,100.0	10,100.0	10,097.0	10,097.0	22.6	22.5	-90.47	-9.4	-1,151.9	1,151.9	1,106.8	25.541		
10,200.0	10,200.0	10,197.0	10,197.0	22.8	22.8	-90.47	-9.4	-1,151.9	1,151.9	1,106.4	25.289		
10,300.0	10,300.0	10,297.0	10,297.0	23.0	23.0	-90.47	-9.4	-1,151.9	1,151.9	1,105.9	25.042		
10,400.0	10,400.0	10,397.0	10,397.0	23.2	23.2	-90.47	-9.4	-1,151.9	1,151.9	1,105.5	24.799		
10,500.0	10,500.0	10,497.0	10,497.0	23.5	23.4	-90.47	-9.4	-1,151.9	1,151.9	1,105.0	24.562		
10,600.0	10,600.0	10,597.0	10,597.0	23.7	23.7	-90.47	-9.4	-1,151.9	1,151.9	1,104.6	24.329		
10,700.0	10,700.0	10,697.0	10,697.0	23.9	23.9	-90.47	-9.4	-1,151.9	1,151.9	1,104.1	24.100		
10,762.6	10,762.6	10,759.7	10,759.7	24.0	24.0	-90.46	-9.2	-1,151.9	1,151.9	1,103.9	23.959		
10,775.0	10,775.0	10,772.1	10,772.1	24.1	24.1	-90.11	-8.8	-1,151.9	1,151.9	1,103.8	23.931		
10,800.0	10,800.0	10,797.2	10,797.1	24.1	24.1	-90.08	-6.8	-1,151.9	1,151.9	1,103.7	23.876		
10,825.0	10,824.8	10,822.3	10,822.0	24.2	24.2	-90.05	-3.6	-1,151.9	1,151.9	1,103.6	23.822		
10,831.4	10,831.2	10,828.7	10,828.3	24.2	24.2	-90.04	-2.5	-1,151.9	1,151.9	1,103.6	23.809 CC		
10,850.0	10,849.5	10,847.3	10,846.6	24.2	24.2	-90.02	1.0	-1,152.0	1,151.9	1,103.5	23.770		
10,875.0	10,874.0	10,872.3	10,870.9	24.3	24.3	-89.98	6.8	-1,152.0	1,151.9	1,103.4	23.718		
10,900.0	10,898.1	10,897.2	10,894.8	24.3	24.3	-89.95	13.9	-1,152.0	1,151.9	1,103.3	23.667		
10,925.0	10,921.9	10,922.1	10,918.3	24.4	24.4	-89.92	22.2	-1,152.1	1,151.9	1,103.2	23.617		
10,950.0	10,945.2	10,947.0	10,941.3	24.4	24.4	-89.89	31.7	-1,152.1	1,151.9	1,103.1	23.567		
10,975.0	10,968.1	10,971.9	10,963.7	24.5	24.5	-89.86	42.4	-1,152.2	1,151.9	1,103.0	23.517		
11,000.0	10,990.3	10,996.7	10,985.5	24.5	24.5	-89.83	54.2	-1,152.3	1,151.9	1,102.9	23.468		

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



HP
Anticollision Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Squints Federal Com #2H
Project:	Lea County, NM	TVD Reference:	Well @ 3439.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3439.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Compass
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design: Sec 27, T22S, R34E - Squints Federal Com #3H - Wellbore #1 - Design #1												Offset Site Error:	0.0 usft
Survey Program: 0-MWD default												Offset Well Error:	0.0 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning	
11,025.0	11,012.0	11,021.5	11,005.7	24.6	24.6	-89.80	67.1	-1,152.4	1,152.0	1,102.8	23.417		
11,050.0	11,033.0	11,046.2	11,027.1	24.7	24.6	-89.77	81.0	-1,152.4	1,152.0	1,102.7	23.366		
11,075.0	11,053.2	11,071.0	11,046.8	24.7	24.7	-89.74	96.0	-1,152.5	1,152.0	1,102.5	23.313		
11,100.0	11,072.6	11,095.7	11,065.6	24.8	24.8	-89.71	112.0	-1,152.6	1,152.0	1,102.4	23.259		
11,125.0	11,091.2	11,120.3	11,083.6	24.8	24.8	-89.68	128.9	-1,152.7	1,152.0	1,102.3	23.202		
11,150.0	11,108.9	11,145.0	11,100.6	24.9	24.9	-89.65	146.7	-1,152.8	1,152.0	1,102.2	23.143		
11,175.0	11,125.6	11,169.6	11,116.7	25.0	25.0	-89.63	165.3	-1,152.9	1,152.0	1,102.1	23.081		
11,200.0	11,141.3	11,194.2	11,131.8	25.0	25.0	-89.60	184.7	-1,153.0	1,152.0	1,101.9	23.016		
11,225.0	11,156.0	11,218.8	11,145.9	25.1	25.1	-89.58	204.9	-1,153.2	1,152.0	1,101.8	22.948		
11,250.0	11,169.7	11,243.3	11,158.9	25.2	25.2	-89.56	225.7	-1,153.3	1,152.0	1,101.6	22.875		
11,275.0	11,182.2	11,267.8	11,170.8	25.3	25.3	-89.53	247.1	-1,153.4	1,152.0	1,101.5	22.799		
11,300.0	11,193.5	11,292.3	11,181.6	25.4	25.4	-89.51	269.1	-1,153.5	1,152.0	1,101.3	22.719		
11,325.0	11,203.7	11,316.8	11,191.2	25.5	25.4	-89.49	291.6	-1,153.7	1,152.0	1,101.1	22.634		
11,350.0	11,212.6	11,341.3	11,199.6	25.6	25.5	-89.48	314.6	-1,153.8	1,152.0	1,100.9	22.545		
11,375.0	11,220.4	11,365.7	11,206.9	25.7	25.7	-89.46	337.9	-1,153.9	1,152.0	1,100.7	22.453		
11,400.0	11,226.8	11,390.2	11,213.0	25.8	25.8	-89.45	361.6	-1,154.1	1,152.0	1,100.5	22.356		
11,425.0	11,232.1	11,414.6	11,217.8	25.9	25.9	-89.43	385.5	-1,154.2	1,152.0	1,100.3	22.255		
11,450.0	11,236.0	11,439.0	11,221.4	26.0	26.0	-89.42	409.7	-1,154.4	1,152.0	1,100.0	22.151		
11,475.0	11,238.6	11,463.4	11,223.8	26.1	26.1	-89.41	434.0	-1,154.5	1,152.0	1,099.8	22.043		
11,500.0	11,239.9	11,487.8	11,224.9	26.3	26.3	-89.40	458.3	-1,154.7	1,152.0	1,099.5	21.932		
11,519.3	11,240.0	11,506.7	11,224.9	26.4	26.4	-89.40	477.3	-1,154.8	1,152.1	1,099.3	21.843		
11,600.0	11,238.9	11,587.4	11,224.3	26.9	26.9	-89.42	558.0	-1,155.2	1,152.1	1,098.3	21.443		
11,700.0	11,237.5	11,687.4	11,223.5	27.6	27.6	-89.45	658.0	-1,155.8	1,152.1	1,096.9	20.895		
11,800.0	11,236.1	11,787.4	11,222.7	28.4	28.4	-89.48	758.0	-1,156.4	1,152.1	1,095.3	20.302		
11,900.0	11,234.7	11,887.4	11,221.9	29.3	29.3	-89.52	858.0	-1,157.0	1,152.1	1,093.5	19.680		
12,000.0	11,233.3	11,987.4	11,221.1	30.3	30.3	-89.55	957.9	-1,157.6	1,152.1	1,091.6	19.043		
12,100.0	11,231.9	12,087.4	11,220.4	31.3	31.3	-89.58	1,057.9	-1,158.2	1,152.1	1,089.5	18.401		
12,200.0	11,230.5	12,187.4	11,219.6	32.4	32.4	-89.61	1,157.9	-1,158.8	1,152.1	1,087.2	17.763		
12,300.0	11,229.1	12,287.4	11,218.8	33.6	33.6	-89.64	1,257.9	-1,159.4	1,152.1	1,084.9	17.137		
12,400.0	11,227.7	12,387.4	11,218.0	34.9	34.9	-89.67	1,357.9	-1,159.9	1,152.1	1,082.4	16.527		
12,500.0	11,226.3	12,487.4	11,217.2	36.1	36.1	-89.70	1,457.9	-1,160.5	1,152.1	1,079.8	15.937		
12,600.0	11,224.9	12,587.4	11,216.4	37.5	37.5	-89.73	1,557.9	-1,161.1	1,152.1	1,077.2	15.370		
12,700.0	11,223.4	12,687.4	11,215.7	38.8	38.9	-89.76	1,657.9	-1,161.7	1,152.1	1,074.4	14.827		
12,800.0	11,222.0	12,787.4	11,214.9	40.3	40.3	-89.79	1,757.9	-1,162.3	1,152.1	1,071.6	14.307		
12,900.0	11,220.6	12,887.4	11,214.1	41.7	41.7	-89.82	1,857.9	-1,162.9	1,152.1	1,068.7	13.813		
13,000.0	11,219.2	12,987.4	11,213.3	43.2	43.2	-89.85	1,957.9	-1,163.5	1,152.2	1,065.8	13.342		
13,100.0	11,217.8	13,087.4	11,212.5	44.7	44.7	-89.88	2,057.9	-1,164.1	1,152.2	1,062.8	12.896		
13,200.0	11,216.4	13,187.4	11,211.7	46.2	46.2	-89.92	2,157.9	-1,164.7	1,152.2	1,059.8	12.471		
13,300.0	11,215.0	13,287.4	11,211.0	47.7	47.7	-89.95	2,257.9	-1,165.2	1,152.2	1,056.7	12.069		
13,400.0	11,213.6	13,387.4	11,210.2	49.3	49.3	-89.98	2,357.9	-1,165.8	1,152.2	1,053.6	11.687		
13,500.0	11,212.2	13,487.4	11,209.4	50.9	50.9	-90.01	2,457.8	-1,166.4	1,152.2	1,050.5	11.324		
13,600.0	11,210.8	13,587.4	11,208.6	52.5	52.5	-90.04	2,557.8	-1,167.0	1,152.2	1,047.3	10.980		
13,700.0	11,209.4	13,687.4	11,207.8	54.1	54.1	-90.07	2,657.8	-1,167.6	1,152.2	1,044.1	10.654		
13,800.0	11,208.0	13,787.4	11,207.0	55.7	55.7	-90.10	2,757.8	-1,168.2	1,152.2	1,040.8	10.344		
13,900.0	11,206.6	13,887.4	11,206.3	57.3	57.3	-90.13	2,857.8	-1,168.8	1,152.3	1,037.6	10.049		
14,000.0	11,205.2	13,987.4	11,205.5	59.0	59.0	-90.16	2,957.8	-1,169.4	1,152.3	1,034.3	9.769		
14,100.0	11,203.8	14,087.4	11,204.7	60.6	60.6	-90.19	3,057.8	-1,170.0	1,152.3	1,031.0	9.502		
14,200.0	11,202.4	14,187.4	11,203.9	62.3	62.3	-90.22	3,157.8	-1,170.5	1,152.3	1,027.7	9.248		
14,300.0	11,201.0	14,287.4	11,203.1	64.0	64.0	-90.25	3,257.8	-1,171.1	1,152.3	1,024.4	9.006		
14,400.0	11,199.6	14,387.4	11,202.3	65.6	65.7	-90.29	3,357.8	-1,171.7	1,152.3	1,021.0	8.776		
14,500.0	11,198.2	14,487.4	11,201.5	67.3	67.4	-90.32	3,457.8	-1,172.3	1,152.3	1,017.6	8.556		
14,600.0	11,196.8	14,587.4	11,200.8	69.0	69.0	-90.35	3,557.8	-1,172.9	1,152.3	1,014.3	8.346		

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



HP
Anticollision Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Squints Federal Com #2H
Project:	Lea County, NM	TVD Reference:	Well @ 3439.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3439.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Compass
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design - Sec 27, T22S, R34E - Squints Federal Com #3H - Wellbore #1 - Design #1												Offset Site Error:	0.0 usft
Survey Program: 0-MWD default												Offset Well Error:	0.0 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning	
14,700.0	11,195.4	14,687.4	11,200.0	70.7	70.8	-90.38	3,657.8	-1,173.5	1,152.4	1,010.9	8.145		
14,800.0	11,194.0	14,787.4	11,199.2	72.4	72.5	-90.41	3,757.8	-1,174.1	1,152.4	1,007.5	7.953		
14,900.0	11,192.6	14,887.4	11,198.4	74.1	74.2	-90.44	3,857.8	-1,174.7	1,152.4	1,004.1	7.770		
15,000.0	11,191.2	14,987.4	11,197.6	75.9	75.9	-90.47	3,957.7	-1,175.2	1,152.4	1,000.7	7.594		
15,100.0	11,189.8	15,087.4	11,196.8	77.6	77.6	-90.50	4,057.7	-1,175.8	1,152.4	997.2	7.425		
15,200.0	11,188.4	15,187.4	11,196.1	79.3	79.3	-90.53	4,157.7	-1,176.4	1,152.4	993.8	7.264		
15,300.0	11,187.0	15,287.4	11,195.3	81.0	81.1	-90.56	4,257.7	-1,177.0	1,152.5	990.3	7.109		
15,400.0	11,185.6	15,387.4	11,194.5	82.8	82.8	-90.59	4,357.7	-1,177.6	1,152.5	986.9	6.960		
15,500.0	11,184.2	15,487.4	11,193.7	84.5	84.6	-90.62	4,457.7	-1,178.2	1,152.5	983.4	6.817		
15,600.0	11,182.8	15,587.4	11,192.9	86.3	86.3	-90.65	4,557.7	-1,178.8	1,152.5	980.0	6.679		
15,700.0	11,181.4	15,687.4	11,192.1	88.0	88.0	-90.69	4,657.7	-1,179.4	1,152.5	976.5	6.547		
15,796.3	11,180.0	15,783.7	11,191.4	89.7	89.7	-90.72	4,754.0	-1,179.9	1,152.5	973.1	6.424		
15,796.7	11,180.0	15,784.1	11,191.4	89.7	89.7	-90.72	4,754.4	-1,179.9	1,152.5	973.1	6.423	ES, SF	

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



HP
Anticollision Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Squints Federal Com #2H
Project:	Lea County, NM	TVD Reference:	Well @ 3439.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3439.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Compass
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design Sec 27, T22S, R34E - Squints Federal Com #4H - Wellbore #1 - Design #1											Offset Site Error:	0.0 usft
Survey Program: 0-MWD default											Offset Well Error:	0.0 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-90.46	-20.0	-2,471.7	2,471.8			
100.0	100.0	97.0	97.0	0.1	0.1	-90.46	-20.0	-2,471.7	2,471.8	2,471.6		N/A
200.0	200.0	197.0	197.0	0.3	0.3	-90.46	-20.0	-2,471.7	2,471.8	2,471.2	4,134.257	
300.0	300.0	297.0	297.0	0.5	0.5	-90.46	-20.0	-2,471.7	2,471.8	2,470.7	2,359.898	
400.0	400.0	397.0	397.0	0.8	0.7	-90.46	-20.0	-2,471.7	2,471.8	2,470.3	1,651.220	
500.0	500.0	497.0	497.0	1.0	1.0	-90.46	-20.0	-2,471.7	2,471.8	2,469.8	1,269.876	
600.0	600.0	597.0	597.0	1.2	1.2	-90.46	-20.0	-2,471.7	2,471.8	2,469.4	1,031.625	
700.0	700.0	697.0	697.0	1.4	1.4	-90.46	-20.0	-2,471.7	2,471.8	2,468.9	868.651	
800.0	800.0	797.0	797.0	1.7	1.6	-90.46	-20.0	-2,471.7	2,471.8	2,468.5	750.145	
900.0	900.0	897.0	897.0	1.9	1.9	-90.46	-20.0	-2,471.7	2,471.8	2,468.0	660.092	
1,000.0	1,000.0	997.0	997.0	2.1	2.1	-90.46	-20.0	-2,471.7	2,471.8	2,467.6	589.342	
1,100.0	1,100.0	1,097.0	1,097.0	2.3	2.3	-90.46	-20.0	-2,471.7	2,471.8	2,467.1	532.291	
1,200.0	1,200.0	1,197.0	1,197.0	2.5	2.5	-90.46	-20.0	-2,471.7	2,471.8	2,466.7	485.310	
1,300.0	1,300.0	1,297.0	1,297.0	2.8	2.8	-90.46	-20.0	-2,471.7	2,471.8	2,466.2	445.950	
1,400.0	1,400.0	1,397.0	1,397.0	3.0	3.0	-90.46	-20.0	-2,471.7	2,471.8	2,465.8	412.495	
1,500.0	1,500.0	1,497.0	1,497.0	3.2	3.2	-90.46	-20.0	-2,471.7	2,471.8	2,465.3	383.710	
1,600.0	1,600.0	1,597.0	1,597.0	3.4	3.4	-90.46	-20.0	-2,471.7	2,471.8	2,464.9	358.680	
1,700.0	1,700.0	1,697.0	1,697.0	3.7	3.7	-90.46	-20.0	-2,471.7	2,471.8	2,464.4	336.715	
1,800.0	1,800.0	1,797.0	1,797.0	3.9	3.9	-90.46	-20.0	-2,471.7	2,471.8	2,464.0	317.286	
1,900.0	1,900.0	1,897.0	1,897.0	4.1	4.1	-90.46	-20.0	-2,471.7	2,471.8	2,463.5	299.976	
2,000.0	2,000.0	1,997.0	1,997.0	4.3	4.3	-90.46	-20.0	-2,471.7	2,471.8	2,463.1	284.458	
2,100.0	2,100.0	2,097.0	2,097.0	4.6	4.6	-90.46	-20.0	-2,471.7	2,471.8	2,462.6	270.466	
2,200.0	2,200.0	2,197.0	2,197.0	4.8	4.8	-90.46	-20.0	-2,471.7	2,471.8	2,462.2	257.785	
2,300.0	2,300.0	2,297.0	2,297.0	5.0	5.0	-90.46	-20.0	-2,471.7	2,471.8	2,461.7	246.241	
2,400.0	2,400.0	2,397.0	2,397.0	5.2	5.2	-90.46	-20.0	-2,471.7	2,471.8	2,461.3	235.686	
2,500.0	2,500.0	2,497.0	2,497.0	5.5	5.5	-90.46	-20.0	-2,471.7	2,471.8	2,460.8	225.999	
2,600.0	2,600.0	2,597.0	2,597.0	5.7	5.7	-90.46	-20.0	-2,471.7	2,471.8	2,460.4	217.077	
2,700.0	2,700.0	2,697.0	2,697.0	5.9	5.9	-90.46	-20.0	-2,471.7	2,471.8	2,459.9	208.833	
2,800.0	2,800.0	2,797.0	2,797.0	6.1	6.1	-90.46	-20.0	-2,471.7	2,471.8	2,459.5	201.192	
2,900.0	2,900.0	2,897.0	2,897.0	6.4	6.4	-90.46	-20.0	-2,471.7	2,471.8	2,459.0	194.090	
3,000.0	3,000.0	2,997.0	2,997.0	6.6	6.6	-90.46	-20.0	-2,471.7	2,471.8	2,458.6	187.472	
3,100.0	3,100.0	3,097.0	3,097.0	6.8	6.8	-90.46	-20.0	-2,471.7	2,471.8	2,458.1	181.291	
3,200.0	3,200.0	3,197.0	3,197.0	7.0	7.0	-90.46	-20.0	-2,471.7	2,471.8	2,457.7	175.505	
3,300.0	3,300.0	3,297.0	3,297.0	7.3	7.3	-90.46	-20.0	-2,471.7	2,471.8	2,457.2	170.076	
3,400.0	3,400.0	3,397.0	3,397.0	7.5	7.5	-90.46	-20.0	-2,471.7	2,471.8	2,456.8	164.973	
3,500.0	3,500.0	3,497.0	3,497.0	7.7	7.7	-90.46	-20.0	-2,471.7	2,471.8	2,456.3	160.168	
3,600.0	3,600.0	3,597.0	3,597.0	7.9	7.9	-90.46	-20.0	-2,471.7	2,471.8	2,455.9	155.634	
3,700.0	3,700.0	3,697.0	3,697.0	8.2	8.2	-90.46	-20.0	-2,471.7	2,471.8	2,455.4	151.351	
3,800.0	3,800.0	3,797.0	3,797.0	8.4	8.4	-90.46	-20.0	-2,471.7	2,471.8	2,455.0	147.296	
3,900.0	3,900.0	3,897.0	3,897.0	8.6	8.6	-90.46	-20.0	-2,471.7	2,471.8	2,454.6	143.453	
4,000.0	4,000.0	3,997.0	3,997.0	8.8	8.8	-90.46	-20.0	-2,471.7	2,471.8	2,454.1	139.806	
4,100.0	4,100.0	4,097.0	4,097.0	9.1	9.1	-90.46	-20.0	-2,471.7	2,471.8	2,453.7	136.339	
4,200.0	4,200.0	4,197.0	4,197.0	9.3	9.3	-90.46	-20.0	-2,471.7	2,471.8	2,453.2	133.041	
4,300.0	4,300.0	4,297.0	4,297.0	9.5	9.5	-90.46	-20.0	-2,471.7	2,471.8	2,452.8	129.898	
4,400.0	4,400.0	4,397.0	4,397.0	9.7	9.7	-90.46	-20.0	-2,471.7	2,471.8	2,452.3	126.900	
4,500.0	4,500.0	4,497.0	4,497.0	10.0	10.0	-90.46	-20.0	-2,471.7	2,471.8	2,451.9	124.037	
4,600.0	4,600.0	4,597.0	4,597.0	10.2	10.2	-90.46	-20.0	-2,471.7	2,471.8	2,451.4	121.301	
4,700.0	4,700.0	4,697.0	4,697.0	10.4	10.4	-90.46	-20.0	-2,471.7	2,471.8	2,451.0	118.683	
4,800.0	4,800.0	4,797.0	4,797.0	10.6	10.6	-90.46	-20.0	-2,471.7	2,471.8	2,450.5	116.175	
4,900.0	4,900.0	4,897.0	4,897.0	10.9	10.9	-90.46	-20.0	-2,471.7	2,471.8	2,450.1	113.771	
5,000.0	5,000.0	4,997.0	4,997.0	11.1	11.1	-90.46	-20.0	-2,471.7	2,471.8	2,449.6	111.465	
5,100.0	5,100.0	5,097.0	5,097.0	11.3	11.3	-90.46	-20.0	-2,471.7	2,471.8	2,449.2	109.250	

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



HP
Anticollision Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Squints Federal Com #2H
Project:	Lea County, NM	TVD Reference:	Well @ 3439.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3439.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Compass
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design: Sec 27, T22S, R34E - Squints Federal Com #4H - Wellbore #1 - Design #1											Offset Site Error:	0.0 usft
Survey Program: 0-MWD default											Offset Well Error:	0.0 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning
5,200.0	5,200.0	5,197.0	5,197.0	11.5	11.5	-90.46	-20.0	-2,471.7	2,471.8	2,448.7	107.122	
5,300.0	5,300.0	5,297.0	5,297.0	11.8	11.8	-90.46	-20.0	-2,471.7	2,471.8	2,448.3	105.075	
5,400.0	5,400.0	5,397.0	5,397.0	12.0	12.0	-90.46	-20.0	-2,471.7	2,471.8	2,447.8	103.105	
5,500.0	5,500.0	5,497.0	5,497.0	12.2	12.2	-90.46	-20.0	-2,471.7	2,471.8	2,447.4	101.207	
5,600.0	5,600.0	5,597.0	5,597.0	12.4	12.4	-90.46	-20.0	-2,471.7	2,471.8	2,446.9	99.378	
5,700.0	5,700.0	5,697.0	5,697.0	12.7	12.7	-90.46	-20.0	-2,471.7	2,471.8	2,446.5	97.613	
5,800.0	5,800.0	5,797.0	5,797.0	12.9	12.9	-90.46	-20.0	-2,471.7	2,471.8	2,446.0	95.911	
5,900.0	5,900.0	5,897.0	5,897.0	13.1	13.1	-90.46	-20.0	-2,471.7	2,471.8	2,445.6	94.266	
6,000.0	6,000.0	5,997.0	5,997.0	13.3	13.3	-90.46	-20.0	-2,471.7	2,471.8	2,445.1	92.678	
6,100.0	6,100.0	6,097.0	6,097.0	13.6	13.6	-90.46	-20.0	-2,471.7	2,471.8	2,444.7	91.141	
6,200.0	6,200.0	6,197.0	6,197.0	13.8	13.8	-90.46	-20.0	-2,471.7	2,471.8	2,444.2	89.655	
6,300.0	6,300.0	6,297.0	6,297.0	14.0	14.0	-90.46	-20.0	-2,471.7	2,471.8	2,443.8	88.217	
6,400.0	6,400.0	6,397.0	6,397.0	14.2	14.2	-90.46	-20.0	-2,471.7	2,471.8	2,443.3	86.824	
6,500.0	6,500.0	6,497.0	6,497.0	14.5	14.5	-90.46	-20.0	-2,471.7	2,471.8	2,442.9	85.474	
6,600.0	6,600.0	6,597.0	6,597.0	14.7	14.7	-90.46	-20.0	-2,471.7	2,471.8	2,442.4	84.166	
6,700.0	6,700.0	6,697.0	6,697.0	14.9	14.9	-90.46	-20.0	-2,471.7	2,471.8	2,442.0	82.897	
6,800.0	6,800.0	6,797.0	6,797.0	15.1	15.1	-90.46	-20.0	-2,471.7	2,471.8	2,441.5	81.666	
6,900.0	6,900.0	6,897.0	6,897.0	15.4	15.4	-90.46	-20.0	-2,471.7	2,471.8	2,441.1	80.471	
7,000.0	7,000.0	6,997.0	6,997.0	15.6	15.6	-90.46	-20.0	-2,471.7	2,471.8	2,440.6	79.310	
7,100.0	7,100.0	7,097.0	7,097.0	15.8	15.8	-90.46	-20.0	-2,471.7	2,471.8	2,440.2	78.182	
7,200.0	7,200.0	7,197.0	7,197.0	16.0	16.0	-90.46	-20.0	-2,471.7	2,471.8	2,439.7	77.086	
7,300.0	7,300.0	7,297.0	7,297.0	16.3	16.3	-90.46	-20.0	-2,471.7	2,471.8	2,439.3	76.021	
7,400.0	7,400.0	7,397.0	7,397.0	16.5	16.5	-90.46	-20.0	-2,471.7	2,471.8	2,438.8	74.984	
7,500.0	7,500.0	7,497.0	7,497.0	16.7	16.7	-90.46	-20.0	-2,471.7	2,471.8	2,438.4	73.975	
7,600.0	7,600.0	7,597.0	7,597.0	16.9	16.9	-90.46	-20.0	-2,471.7	2,471.8	2,437.9	72.993	
7,700.0	7,700.0	7,697.0	7,697.0	17.2	17.2	-90.46	-20.0	-2,471.7	2,471.8	2,437.5	72.037	
7,800.0	7,800.0	7,797.0	7,797.0	17.4	17.4	-90.46	-20.0	-2,471.7	2,471.8	2,437.0	71.105	
7,900.0	7,900.0	7,897.0	7,897.0	17.6	17.6	-90.46	-20.0	-2,471.7	2,471.8	2,436.6	70.197	
8,000.0	8,000.0	7,997.0	7,997.0	17.8	17.8	-90.46	-20.0	-2,471.7	2,471.8	2,436.1	69.313	
8,100.0	8,100.0	8,097.0	8,097.0	18.1	18.1	-90.46	-20.0	-2,471.7	2,471.8	2,435.7	68.450	
8,200.0	8,200.0	8,197.0	8,197.0	18.3	18.3	-90.46	-20.0	-2,471.7	2,471.8	2,435.2	67.608	
8,300.0	8,300.0	8,297.0	8,297.0	18.5	18.5	-90.46	-20.0	-2,471.7	2,471.8	2,434.8	66.787	
8,400.0	8,400.0	8,397.0	8,397.0	18.7	18.7	-90.46	-20.0	-2,471.7	2,471.8	2,434.3	65.985	
8,500.0	8,500.0	8,497.0	8,497.0	19.0	19.0	-90.46	-20.0	-2,471.7	2,471.8	2,433.9	65.203	
8,600.0	8,600.0	8,597.0	8,597.0	19.2	19.2	-90.46	-20.0	-2,471.7	2,471.8	2,433.4	64.439	
8,700.0	8,700.0	8,697.0	8,697.0	19.4	19.4	-90.46	-20.0	-2,471.7	2,471.8	2,433.0	63.692	
8,800.0	8,800.0	8,797.0	8,797.0	19.6	19.6	-90.46	-20.0	-2,471.7	2,471.8	2,432.5	62.963	
8,900.0	8,900.0	8,897.0	8,897.0	19.9	19.9	-90.46	-20.0	-2,471.7	2,471.8	2,432.1	62.250	
9,000.0	9,000.0	8,997.0	8,997.0	20.1	20.1	-90.46	-20.0	-2,471.7	2,471.8	2,431.6	61.553	
9,100.0	9,100.0	9,097.0	9,097.0	20.3	20.3	-90.46	-20.0	-2,471.7	2,471.8	2,431.2	60.872	
9,200.0	9,200.0	9,197.0	9,197.0	20.5	20.5	-90.46	-20.0	-2,471.7	2,471.8	2,430.7	60.205	
9,300.0	9,300.0	9,297.0	9,297.0	20.8	20.7	-90.46	-20.0	-2,471.7	2,471.8	2,430.3	59.553	
9,400.0	9,400.0	9,397.0	9,397.0	21.0	21.0	-90.46	-20.0	-2,471.7	2,471.8	2,429.8	58.915	
9,500.0	9,500.0	9,497.0	9,497.0	21.2	21.2	-90.46	-20.0	-2,471.7	2,471.8	2,429.4	58.291	
9,600.0	9,600.0	9,597.0	9,597.0	21.4	21.4	-90.46	-20.0	-2,471.7	2,471.8	2,428.9	57.679	
9,700.0	9,700.0	9,697.0	9,697.0	21.7	21.6	-90.46	-20.0	-2,471.7	2,471.8	2,428.5	57.080	
9,800.0	9,800.0	9,797.0	9,797.0	21.9	21.9	-90.46	-20.0	-2,471.7	2,471.8	2,428.0	56.494	
9,900.0	9,900.0	9,897.0	9,897.0	22.1	22.1	-90.46	-20.0	-2,471.7	2,471.8	2,427.6	55.919	
10,000.0	10,000.0	9,997.0	9,997.0	22.3	22.3	-90.46	-20.0	-2,471.7	2,471.8	2,427.1	55.357	
10,100.0	10,100.0	10,097.0	10,097.0	22.6	22.5	-90.46	-20.0	-2,471.7	2,471.8	2,426.7	54.805	
10,200.0	10,200.0	10,197.0	10,197.0	22.8	22.8	-90.46	-20.0	-2,471.7	2,471.8	2,426.2	54.264	
10,300.0	10,300.0	10,297.0	10,297.0	23.0	23.0	-90.46	-20.0	-2,471.7	2,471.8	2,425.8	53.734	

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



HP
Anticollision Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Squints Federal Com #2H
Project:	Lea County, NM	TVD Reference:	Well @ 3439.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3439.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Compass
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design: Sec 27, T22S, R34E - Squints Federal Com #4H - Wellbore #1 - Design #1												Offset Site Error:	0.0 usft
Survey Program: 0-MWD default												Offset Well Error:	0.0 usft
Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning	
10,400.0	10,400.0	10,397.0	10,397.0	23.2	23.2	-90.46	-20.0	-2,471.7	2,471.8	2,425.3	53.214		
10,500.0	10,500.0	10,497.0	10,497.0	23.5	23.4	-90.46	-20.0	-2,471.7	2,471.8	2,424.9	52.704		
10,600.0	10,600.0	10,597.0	10,597.0	23.7	23.7	-90.46	-20.0	-2,471.7	2,471.8	2,424.4	52.203		
10,700.0	10,700.0	10,697.3	10,697.0	23.9	23.9	-90.35	-14.9	-2,471.7	2,471.8	2,424.0	51.715		
10,702.3	10,702.3	10,699.5	10,699.3	23.9	23.9	-90.34	-14.6	-2,471.7	2,471.8	2,424.0	51.704	CC	
10,762.6	10,762.6	10,757.8	10,756.2	24.0	24.0	-90.05	-2.3	-2,471.8	2,471.8	2,423.7	51.426		
10,775.0	10,775.0	10,769.4	10,767.3	24.1	24.0	-89.65	0.9	-2,471.8	2,471.8	2,423.7	51.371		
10,800.0	10,800.0	10,792.5	10,789.3	24.1	24.1	-89.50	8.2	-2,471.9	2,471.9	2,423.7	51.262		
10,825.0	10,824.8	10,815.4	10,810.6	24.2	24.1	-89.35	16.5	-2,471.9	2,471.9	2,423.6	51.155		
10,850.0	10,849.5	10,838.0	10,831.3	24.2	24.2	-89.21	25.7	-2,472.0	2,472.0	2,423.6	51.050		
10,875.0	10,874.0	10,860.4	10,851.3	24.3	24.2	-89.06	35.7	-2,472.0	2,472.1	2,423.6	50.948		
10,900.0	10,898.1	10,882.5	10,870.6	24.3	24.3	-88.92	46.5	-2,472.1	2,472.2	2,423.6	50.847		
10,925.0	10,921.9	10,904.5	10,889.2	24.4	24.3	-88.79	58.1	-2,472.2	2,472.4	2,423.7	50.746		
10,950.0	10,945.2	10,925.0	10,906.1	24.4	24.4	-88.66	69.7	-2,472.2	2,472.5	2,423.7	50.649		
10,975.0	10,968.1	10,947.7	10,924.2	24.5	24.4	-88.52	83.4	-2,472.3	2,472.7	2,423.7	50.547		
11,000.0	10,990.3	10,969.0	10,940.6	24.5	24.5	-88.39	97.0	-2,472.4	2,472.8	2,423.8	50.446		
11,025.0	11,012.0	10,990.2	10,956.3	24.6	24.5	-88.27	111.2	-2,472.5	2,473.0	2,423.8	50.344		
11,050.0	11,033.0	11,011.2	10,971.2	24.7	24.6	-88.15	126.0	-2,472.6	2,473.1	2,423.9	50.239		
11,075.0	11,053.2	11,032.0	10,985.3	24.7	24.6	-88.04	141.3	-2,472.7	2,473.3	2,424.0	50.132		
11,100.0	11,072.6	11,052.7	10,998.7	24.8	24.7	-87.93	157.1	-2,472.7	2,473.5	2,424.0	50.022		
11,125.0	11,091.2	11,075.0	11,012.3	24.8	24.8	-87.81	174.8	-2,472.8	2,473.6	2,424.1	49.903		
11,150.0	11,108.9	11,093.7	11,023.1	24.9	24.8	-87.72	190.1	-2,472.9	2,473.8	2,424.1	49.788		
11,175.0	11,125.6	11,114.1	11,034.1	25.0	24.9	-87.63	207.2	-2,473.0	2,474.0	2,424.2	49.663		
11,200.0	11,141.3	11,134.3	11,044.4	25.0	24.9	-87.54	224.6	-2,473.1	2,474.1	2,424.2	49.532		
11,225.0	11,156.0	11,154.4	11,053.8	25.1	25.0	-87.45	242.4	-2,473.2	2,474.3	2,424.2	49.395		
11,250.0	11,169.7	11,175.0	11,062.7	25.2	25.1	-87.37	261.0	-2,473.4	2,474.4	2,424.2	49.250		
11,275.0	11,182.2	11,194.5	11,070.3	25.3	25.2	-87.30	278.9	-2,473.5	2,474.6	2,424.2	49.100		
11,300.0	11,193.5	11,214.4	11,077.4	25.4	25.3	-87.24	297.5	-2,473.6	2,474.7	2,424.2	48.941		
11,325.0	11,203.7	11,234.2	11,083.6	25.5	25.3	-87.18	316.3	-2,473.7	2,474.8	2,424.1	48.774		
11,350.0	11,212.6	11,254.0	11,089.1	25.6	25.4	-87.12	335.3	-2,473.8	2,475.0	2,424.0	48.600		
11,375.0	11,220.4	11,275.0	11,094.0	25.7	25.5	-87.07	355.7	-2,473.9	2,475.1	2,423.9	48.413		
11,400.0	11,226.8	11,293.4	11,097.6	25.8	25.6	-87.04	373.8	-2,474.0	2,475.1	2,423.8	48.228		
11,425.0	11,232.1	11,313.1	11,100.6	25.9	25.7	-87.00	393.2	-2,474.1	2,475.2	2,423.7	48.030		
11,450.0	11,236.0	11,332.7	11,102.9	26.0	25.8	-86.98	412.7	-2,474.3	2,475.3	2,423.5	47.826		
11,475.0	11,238.6	11,350.0	11,104.2	26.1	25.9	-86.96	430.0	-2,474.4	2,475.3	2,423.3	47.626		
11,500.0	11,239.9	11,374.5	11,105.0	26.3	26.0	-86.94	454.5	-2,474.5	2,475.4	2,423.1	47.384		
11,501.3	11,239.9	11,374.5	11,105.0	26.3	26.0	-86.94	454.5	-2,474.5	2,475.4	2,423.1	47.378		
11,519.3	11,240.0	11,390.5	11,105.1	26.4	26.1	-86.94	470.4	-2,474.6	2,475.4	2,422.9	47.206		
11,600.0	11,238.9	11,471.1	11,105.6	26.9	26.6	-86.98	551.1	-2,475.1	2,475.3	2,421.8	46.320		
11,700.0	11,237.5	11,571.1	11,106.2	27.6	27.4	-87.03	651.1	-2,475.7	2,475.2	2,420.3	45.119		
11,800.0	11,236.1	11,671.1	11,106.8	28.4	28.2	-87.08	751.0	-2,476.2	2,475.1	2,418.6	43.822		
11,900.0	11,234.7	11,771.1	11,107.4	29.3	29.1	-87.12	851.0	-2,476.8	2,475.0	2,416.7	42.464		
12,000.0	11,233.3	11,871.1	11,108.1	30.3	30.1	-87.17	951.0	-2,477.4	2,474.9	2,414.7	41.074		
12,100.0	11,231.9	11,971.0	11,108.7	31.3	31.1	-87.22	1,051.0	-2,478.0	2,474.8	2,412.4	39.676		
12,200.0	11,230.5	12,071.0	11,109.3	32.4	32.3	-87.26	1,150.9	-2,478.6	2,474.7	2,410.1	38.289		
12,300.0	11,229.1	12,171.0	11,110.0	33.6	33.5	-87.31	1,250.9	-2,479.2	2,474.7	2,407.6	36.928		
12,400.0	11,227.7	12,271.0	11,110.6	34.9	34.7	-87.36	1,350.9	-2,479.8	2,474.6	2,405.1	35.604		
12,500.0	11,226.3	12,371.0	11,111.2	36.1	36.0	-87.41	1,450.9	-2,480.4	2,474.5	2,402.4	34.324		
12,600.0	11,224.9	12,470.9	11,111.8	37.5	37.4	-87.45	1,550.8	-2,481.0	2,474.4	2,399.6	33.095		
12,700.0	11,223.4	12,570.9	11,112.5	38.8	38.7	-87.50	1,650.8	-2,481.6	2,474.3	2,396.8	31.917		
12,800.0	11,222.0	12,670.9	11,113.1	40.3	40.2	-87.55	1,750.8	-2,482.1	2,474.3	2,393.9	30.793		
12,900.0	11,220.6	12,770.9	11,113.7	41.7	41.6	-87.59	1,850.8	-2,482.7	2,474.2	2,390.9	29.723		

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



HP
Anticollision Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Squints Federal Corn #2H
Project:	Lea County, NM	TVD Reference:	Well @ 3439.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3439.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Corn #2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Compass
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design: Sec 27, T22S, R34E - Squints Federal Corn #4H - Wellbore #1 - Design #1											Offset Site Error: 0.0 usft	
Survey Program: 0-MWD default											Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		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)	Between Centres (usft)	Between Ellipses (usft)		
13,000.0	11,219.2	12,870.8	11,114.3	43.2	43.1	-87.64	1,950.7	-2,483.3	2,474.1	2,387.9	28.706	
13,100.0	11,217.8	12,970.8	11,115.0	44.7	44.6	-87.69	2,050.7	-2,483.9	2,474.0	2,384.8	27.739	
13,200.0	11,216.4	13,070.8	11,115.6	46.2	46.1	-87.73	2,150.7	-2,484.5	2,474.0	2,381.7	26.822	
13,300.0	11,215.0	13,170.8	11,116.2	47.7	47.7	-87.78	2,250.7	-2,485.1	2,473.9	2,378.6	25.952	
13,400.0	11,213.6	13,270.8	11,116.9	49.3	49.2	-87.83	2,350.7	-2,485.7	2,473.8	2,375.4	25.127	
13,500.0	11,212.2	13,370.7	11,117.5	50.9	50.8	-87.88	2,450.6	-2,486.3	2,473.8	2,372.2	24.345	
13,600.0	11,210.8	13,470.7	11,118.1	52.5	52.4	-87.92	2,550.6	-2,486.9	2,473.7	2,368.9	23.603	
13,700.0	11,209.4	13,570.7	11,118.7	54.1	54.0	-87.97	2,650.6	-2,487.4	2,473.6	2,365.6	22.898	
13,800.0	11,208.0	13,670.7	11,119.4	55.7	55.6	-88.02	2,750.6	-2,488.0	2,473.6	2,362.3	22.229	
13,900.0	11,206.6	13,770.7	11,120.0	57.3	57.3	-88.06	2,850.5	-2,488.6	2,473.5	2,359.0	21.593	
14,000.0	11,205.2	13,870.6	11,120.6	59.0	58.9	-88.11	2,950.5	-2,489.2	2,473.5	2,355.6	20.989	
14,100.0	11,203.8	13,970.6	11,121.3	60.6	60.6	-88.16	3,050.5	-2,489.8	2,473.4	2,352.3	20.414	
14,200.0	11,202.4	14,070.6	11,121.9	62.3	62.3	-88.20	3,150.5	-2,490.4	2,473.4	2,348.9	19.867	
14,300.0	11,201.0	14,170.6	11,122.5	64.0	63.9	-88.25	3,250.4	-2,491.0	2,473.3	2,345.5	19.346	
14,400.0	11,199.6	14,270.6	11,123.1	65.6	65.6	-88.30	3,350.4	-2,491.6	2,473.3	2,342.1	18.849	
14,500.0	11,198.2	14,370.5	11,123.8	67.3	67.3	-88.35	3,450.4	-2,492.2	2,473.2	2,338.6	18.375	
14,600.0	11,196.8	14,470.5	11,124.4	69.0	69.0	-88.39	3,550.4	-2,492.8	2,473.2	2,335.2	17.923	
14,700.0	11,195.4	14,570.5	11,125.0	70.7	70.7	-88.44	3,650.3	-2,493.3	2,473.1	2,331.7	17.491	
14,800.0	11,194.0	14,670.5	11,125.6	72.4	72.4	-88.49	3,750.3	-2,493.9	2,473.1	2,328.3	17.077	
14,900.0	11,192.6	14,770.5	11,126.3	74.1	74.1	-88.53	3,850.3	-2,494.5	2,473.0	2,324.8	16.682	
15,000.0	11,191.2	14,870.4	11,126.9	75.9	75.9	-88.58	3,950.3	-2,495.1	2,473.0	2,321.3	16.303	
15,100.0	11,189.8	14,970.4	11,127.5	77.6	77.6	-88.63	4,050.2	-2,495.7	2,473.0	2,317.8	15.940	
15,200.0	11,188.4	15,070.4	11,128.2	79.3	79.3	-88.67	4,150.2	-2,496.3	2,472.9	2,314.3	15.593	
15,300.0	11,187.0	15,170.4	11,128.8	81.0	81.1	-88.72	4,250.2	-2,496.9	2,472.9	2,310.8	15.259	
15,400.0	11,185.6	15,270.4	11,129.4	82.8	82.8	-88.77	4,350.2	-2,497.5	2,472.9	2,307.3	14.938	
15,500.0	11,184.2	15,370.3	11,130.0	84.5	84.5	-88.82	4,450.1	-2,498.1	2,472.8	2,303.8	14.630	
15,600.0	11,182.8	15,470.3	11,130.7	86.3	86.3	-88.86	4,550.1	-2,498.6	2,472.8	2,300.3	14.334	
15,700.0	11,181.4	15,570.3	11,131.3	88.0	88.0	-88.91	4,650.1	-2,499.2	2,472.8	2,296.8	14.049	
15,796.3	11,180.0	15,666.6	11,131.9	89.7	89.7	-88.95	4,746.4	-2,499.8	2,472.8	2,293.4	13.785	
15,796.7	11,180.0	15,667.0	11,131.9	89.7	89.7	-88.96	4,746.8	-2,499.8	2,472.8	2,293.4	13.784	ES, SF

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



HP
Anticollision Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Squints Federal Com #2H
Project:	Lea County, NM	TVD Reference:	Well @ 3439.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3439.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Compass
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:
Sec 27, T22S, R34E - Squints Federal Com #6H - Wellbore #1 - Design #1												0.0 usft
Survey Program: 0-MWD default												Offset Well Error:
												0.0 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-90.58	-0.3	-29.8	29.8			
100.0	100.0	99.0	99.0	0.1	0.1	-90.58	-0.3	-29.8	29.8	29.6	193.123	
200.0	200.0	199.0	199.0	0.3	0.3	-90.58	-0.3	-29.8	29.8	29.2	49.474	
300.0	300.0	299.0	299.0	0.5	0.5	-90.58	-0.3	-29.8	29.8	28.7	28.331	
400.0	400.0	399.0	399.0	0.8	0.7	-90.58	-0.3	-29.8	29.8	28.3	19.849	
500.0	500.0	499.0	499.0	1.0	1.0	-90.58	-0.3	-29.8	29.8	27.9	15.275	
600.0	600.0	599.0	599.0	1.2	1.2	-90.58	-0.3	-29.8	29.8	27.4	12.415	
700.0	700.0	699.0	699.0	1.4	1.4	-90.58	-0.3	-29.8	29.8	27.0	10.457	
800.0	800.0	799.0	799.0	1.7	1.6	-90.58	-0.3	-29.8	29.8	26.5	9.032	
900.0	900.0	899.0	899.0	1.9	1.9	-90.58	-0.3	-29.8	29.8	26.1	7.949	
1,000.0	1,000.0	999.0	999.0	2.1	2.1	-90.58	-0.3	-29.8	29.8	25.6	7.098	
1,100.0	1,100.0	1,099.0	1,099.0	2.3	2.3	-90.58	-0.3	-29.8	29.8	25.2	6.411	
1,200.0	1,200.0	1,199.0	1,199.0	2.5	2.5	-90.58	-0.3	-29.8	29.8	24.7	5.846	
1,300.0	1,300.0	1,299.0	1,299.0	2.8	2.8	-90.58	-0.3	-29.8	29.8	24.3	5.372	
1,400.0	1,400.0	1,399.0	1,399.0	3.0	3.0	-90.58	-0.3	-29.8	29.8	23.8	4.970	
1,500.0	1,500.0	1,499.0	1,499.0	3.2	3.2	-90.58	-0.3	-29.8	29.8	23.4	4.623	
1,600.0	1,600.0	1,599.0	1,599.0	3.4	3.4	-90.58	-0.3	-29.8	29.8	22.9	4.322	
1,700.0	1,700.0	1,699.0	1,699.0	3.7	3.7	-90.58	-0.3	-29.8	29.8	22.5	4.057	
1,800.0	1,800.0	1,799.0	1,799.0	3.9	3.9	-90.58	-0.3	-29.8	29.8	22.0	3.823	
1,900.0	1,900.0	1,899.0	1,899.0	4.1	4.1	-90.58	-0.3	-29.8	29.8	21.6	3.615	
2,000.0	2,000.0	1,999.0	1,999.0	4.3	4.3	-90.58	-0.3	-29.8	29.8	21.1	3.428	
2,100.0	2,100.0	2,099.0	2,099.0	4.6	4.6	-90.58	-0.3	-29.8	29.8	20.7	3.259	
2,200.0	2,200.0	2,199.0	2,199.0	4.8	4.8	-90.58	-0.3	-29.8	29.8	20.2	3.107	
2,300.0	2,300.0	2,299.0	2,299.0	5.0	5.0	-90.58	-0.3	-29.8	29.8	19.8	2.968	
2,400.0	2,400.0	2,399.0	2,399.0	5.2	5.2	-90.58	-0.3	-29.8	29.8	19.3	2.840	
2,500.0	2,500.0	2,499.0	2,499.0	5.5	5.5	-90.58	-0.3	-29.8	29.8	18.9	2.724	
2,600.0	2,600.0	2,599.0	2,599.0	5.7	5.7	-90.58	-0.3	-29.8	29.8	18.4	2.616	
2,700.0	2,700.0	2,699.0	2,699.0	5.9	5.9	-90.58	-0.3	-29.8	29.8	18.0	2.517	
2,800.0	2,800.0	2,799.0	2,799.0	6.1	6.1	-90.58	-0.3	-29.8	29.8	17.5	2.425	
2,900.0	2,900.0	2,899.0	2,899.0	6.4	6.4	-90.58	-0.3	-29.8	29.8	17.1	2.339	
3,000.0	3,000.0	2,999.0	2,999.0	6.6	6.6	-90.58	-0.3	-29.8	29.8	16.6	2.260	
3,100.0	3,100.0	3,099.0	3,099.0	6.8	6.8	-90.58	-0.3	-29.8	29.8	16.2	2.185	
3,200.0	3,200.0	3,199.0	3,199.0	7.0	7.0	-90.58	-0.3	-29.8	29.8	15.7	2.115	
3,300.0	3,300.0	3,299.0	3,299.0	7.3	7.3	-90.58	-0.3	-29.8	29.8	15.3	2.050	
3,400.0	3,400.0	3,399.0	3,399.0	7.5	7.5	-90.58	-0.3	-29.8	29.8	14.8	1.988	
3,500.0	3,500.0	3,499.0	3,499.0	7.7	7.7	-90.58	-0.3	-29.8	29.8	14.4	1.931	
3,600.0	3,600.0	3,599.0	3,599.0	7.9	7.9	-90.58	-0.3	-29.8	29.8	13.9	1.876	
3,700.0	3,700.0	3,699.0	3,699.0	8.2	8.2	-90.58	-0.3	-29.8	29.8	13.5	1.824	
3,800.0	3,800.0	3,799.0	3,799.0	8.4	8.4	-90.58	-0.3	-29.8	29.8	13.0	1.775	
3,900.0	3,900.0	3,899.0	3,899.0	8.6	8.6	-90.58	-0.3	-29.8	29.8	12.6	1.729	
4,000.0	4,000.0	3,999.0	3,999.0	8.8	8.8	-90.58	-0.3	-29.8	29.8	12.1	1.685	
4,100.0	4,100.0	4,099.0	4,099.0	9.1	9.1	-90.58	-0.3	-29.8	29.8	11.7	1.643	
4,200.0	4,200.0	4,199.0	4,199.0	9.3	9.3	-90.58	-0.3	-29.8	29.8	11.2	1.604	
4,300.0	4,300.0	4,299.0	4,299.0	9.5	9.5	-90.58	-0.3	-29.8	29.8	10.8	1.566	
4,400.0	4,400.0	4,399.0	4,399.0	9.7	9.7	-90.58	-0.3	-29.8	29.8	10.3	1.530	
4,500.0	4,500.0	4,499.0	4,499.0	10.0	10.0	-90.58	-0.3	-29.8	29.8	9.9	1.495 Level 3	
4,600.0	4,600.0	4,599.0	4,599.0	10.2	10.2	-90.58	-0.3	-29.8	29.8	9.4	1.462 Level 3	
4,700.0	4,700.0	4,699.0	4,699.0	10.4	10.4	-90.58	-0.3	-29.8	29.8	9.0	1.431 Level 3	
4,800.0	4,800.0	4,799.0	4,799.0	10.6	10.6	-90.58	-0.3	-29.8	29.8	8.5	1.400 Level 3	
4,900.0	4,900.0	4,899.0	4,899.0	10.9	10.9	-90.58	-0.3	-29.8	29.8	8.1	1.371 Level 3	
5,000.0	5,000.0	4,999.0	4,999.0	11.1	11.1	-90.58	-0.3	-29.8	29.8	7.6	1.344 Level 3	
5,100.0	5,100.0	5,099.0	5,099.0	11.3	11.3	-90.58	-0.3	-29.8	29.8	7.2	1.317 Level 3	

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



HP
Anticollision Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Squints Federal Com #2H
Project:	Lea County, NM	TVD Reference:	Well @ 3439.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3439.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore:	Wellbore #1	Database:	Compass
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 usft
Sec 27, T22S, R34E - Squints Federal Com #6H - Wellbore #1 - Design #1												Offset Well Error:	0.0 usft
Survey Program: 0-MWD default													
Reference Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning	
5,200.0	5,200.0	5,199.0	5,199.0	11.5	11.5	-90.58	-0.3	-29.8	29.8	6.7	1.291	Level 3	
5,300.0	5,300.0	5,299.0	5,299.0	11.8	11.8	-90.58	-0.3	-29.8	29.8	6.3	1.267	Level 3	
5,400.0	5,400.0	5,399.0	5,399.0	12.0	12.0	-90.58	-0.3	-29.8	29.8	5.8	1.243	Level 2	
5,500.0	5,500.0	5,499.0	5,499.0	12.2	12.2	-90.58	-0.3	-29.8	29.8	5.4	1.220	Level 2	
5,600.0	5,600.0	5,599.0	5,599.0	12.4	12.4	-90.58	-0.3	-29.8	29.8	4.9	1.198	Level 2	
5,700.0	5,700.0	5,699.0	5,699.0	12.7	12.7	-90.58	-0.3	-29.8	29.8	4.5	1.177	Level 2	
5,800.0	5,800.0	5,799.0	5,799.0	12.9	12.9	-90.58	-0.3	-29.8	29.8	4.0	1.156	Level 2	
5,900.0	5,900.0	5,899.0	5,899.0	13.1	13.1	-90.58	-0.3	-29.8	29.8	3.6	1.136	Level 2	
6,000.0	6,000.0	5,999.0	5,999.0	13.3	13.3	-90.58	-0.3	-29.8	29.8	3.1	1.117	Level 2	
6,100.0	6,100.0	6,099.0	6,099.0	13.6	13.6	-90.58	-0.3	-29.8	29.8	2.7	1.099	Level 2	
6,200.0	6,200.0	6,199.0	6,199.0	13.8	13.8	-90.58	-0.3	-29.8	29.8	2.2	1.081	Level 2	
6,300.0	6,300.0	6,299.0	6,299.0	14.0	14.0	-90.58	-0.3	-29.8	29.8	1.8	1.063	Level 2	
6,400.0	6,400.0	6,399.0	6,399.0	14.2	14.2	-90.58	-0.3	-29.8	29.8	1.3	1.047	Level 2	
6,500.0	6,500.0	6,499.0	6,499.0	14.5	14.5	-90.58	-0.3	-29.8	29.8	0.9	1.030	Level 2	
6,600.0	6,600.0	6,599.0	6,599.0	14.7	14.7	-90.58	-0.3	-29.8	29.8	0.4	1.015	Level 2	
6,700.0	6,700.0	6,699.0	6,699.0	14.9	14.9	-90.58	-0.3	-29.8	29.8	0.0	0.999	Level 1	
6,800.0	6,800.0	6,799.0	6,799.0	15.1	15.1	-90.58	-0.3	-29.8	29.8	-0.5	0.984	Level 1	
6,900.0	6,900.0	6,899.0	6,899.0	15.4	15.4	-90.58	-0.3	-29.8	29.8	-0.9	0.970	Level 1	
7,000.0	7,000.0	6,999.0	6,999.0	15.6	15.6	-90.58	-0.3	-29.8	29.8	-1.4	0.956	Level 1	
7,100.0	7,100.0	7,099.0	7,099.0	15.8	15.8	-90.58	-0.3	-29.8	29.8	-1.8	0.942	Level 1	
7,200.0	7,200.0	7,199.0	7,199.0	16.0	16.0	-90.58	-0.3	-29.8	29.8	-2.3	0.929	Level 1	
7,300.0	7,300.0	7,299.0	7,299.0	16.3	16.3	-90.58	-0.3	-29.8	29.8	-2.7	0.916	Level 1	
7,400.0	7,400.0	7,399.0	7,399.0	16.5	16.5	-90.58	-0.3	-29.8	29.8	-3.2	0.904	Level 1	
7,500.0	7,500.0	7,499.0	7,499.0	16.7	16.7	-90.58	-0.3	-29.8	29.8	-3.6	0.892	Level 1	
7,600.0	7,600.0	7,599.0	7,599.0	16.9	16.9	-90.58	-0.3	-29.8	29.8	-4.1	0.880	Level 1	
7,700.0	7,700.0	7,699.0	7,699.0	17.2	17.2	-90.58	-0.3	-29.8	29.8	-4.5	0.868	Level 1	
7,800.0	7,800.0	7,799.0	7,799.0	17.4	17.4	-90.58	-0.3	-29.8	29.8	-5.0	0.857	Level 1	
7,900.0	7,900.0	7,899.0	7,899.0	17.6	17.6	-90.58	-0.3	-29.8	29.8	-5.4	0.846	Level 1	
8,000.0	8,000.0	7,999.0	7,999.0	17.8	17.8	-90.58	-0.3	-29.8	29.8	-5.9	0.836	Level 1	
8,100.0	8,100.0	8,099.0	8,099.0	18.1	18.1	-90.58	-0.3	-29.8	29.8	-6.3	0.825	Level 1	
8,200.0	8,200.0	8,199.0	8,199.0	18.3	18.3	-90.58	-0.3	-29.8	29.8	-6.8	0.815	Level 1	
8,300.0	8,300.0	8,299.0	8,299.0	18.5	18.5	-90.58	-0.3	-29.8	29.8	-7.2	0.805	Level 1	
8,400.0	8,400.0	8,399.0	8,399.0	18.7	18.7	-90.58	-0.3	-29.8	29.8	-7.7	0.795	Level 1	
8,500.0	8,500.0	8,499.0	8,499.0	19.0	19.0	-90.58	-0.3	-29.8	29.8	-8.1	0.786	Level 1	
8,600.0	8,600.0	8,599.0	8,599.0	19.2	19.2	-90.58	-0.3	-29.8	29.8	-8.6	0.777	Level 1	
8,700.0	8,700.0	8,699.0	8,699.0	19.4	19.4	-90.58	-0.3	-29.8	29.8	-9.0	0.768	Level 1	
8,800.0	8,800.0	8,799.0	8,799.0	19.6	19.6	-90.58	-0.3	-29.8	29.8	-9.5	0.759	Level 1	
8,900.0	8,900.0	8,899.0	8,899.0	19.9	19.9	-90.58	-0.3	-29.8	29.8	-9.9	0.750	Level 1	
9,000.0	9,000.0	8,999.0	8,999.0	20.1	20.1	-90.58	-0.3	-29.8	29.8	-10.4	0.742	Level 1	
9,100.0	9,100.0	9,099.0	9,099.0	20.3	20.3	-90.58	-0.3	-29.8	29.8	-10.8	0.734	Level 1	
9,200.0	9,200.0	9,199.0	9,199.0	20.5	20.5	-90.58	-0.3	-29.8	29.8	-11.3	0.726	Level 1	
9,300.0	9,300.0	9,299.0	9,299.0	20.8	20.8	-90.58	-0.3	-29.8	29.8	-11.7	0.718	Level 1	
9,400.0	9,400.0	9,399.0	9,399.0	21.0	21.0	-90.58	-0.3	-29.8	29.8	-12.2	0.710	Level 1	
9,500.0	9,500.0	9,499.0	9,499.0	21.2	21.2	-90.58	-0.3	-29.8	29.8	-12.6	0.703	Level 1	
9,600.0	9,600.0	9,599.0	9,599.0	21.4	21.4	-90.58	-0.3	-29.8	29.8	-13.1	0.695	Level 1	
9,700.0	9,700.0	9,699.0	9,699.0	21.7	21.7	-90.58	-0.3	-29.8	29.8	-13.5	0.688	Level 1	
9,800.0	9,800.0	9,799.0	9,799.0	21.9	21.9	-90.58	-0.3	-29.8	29.8	-14.0	0.681	Level 1	
9,900.0	9,900.0	9,899.0	9,899.0	22.1	22.1	-90.58	-0.3	-29.8	29.8	-14.4	0.674	Level 1	
9,950.9	9,950.9	9,949.9	9,949.9	22.2	22.2	-89.97	0.0	-29.8	29.8	-14.6	0.671	Level 1, CC, ES, SF	
10,000.0	10,000.0	9,998.6	9,998.6	22.3	22.3	-81.87	4.3	-29.8	30.1	-14.5	0.674	Level 1	
10,100.0	10,100.0	10,092.8	10,089.8	22.6	22.5	-48.53	26.3	-29.8	40.8	-4.3	0.905	Level 1	
10,200.0	10,200.0	10,175.0	10,164.7	22.8	22.7	-26.42	59.9	-29.8	75.2	29.7	1.654		

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



HP
Anticollision Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Squints Federal Com #2H
Project:	Lea County, NM	TVD Reference:	Well @ 3439.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3439.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Compass
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 usft
Sec 27, T22S, R34E - Squints Federal Com #6H - Wellbore #1 - Design #1												Offset Well Error:	0.0 usft
Survey Program: 0-MWD default													
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference Offset (usft)		Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	Offset Wellbore Centre +E-W (usft)	Distance Between Centres (usft)		Separation Factor	Warning	
10,300.0	10,300.0	10,245.3	10,223.4	23.0	22.9	-16.81	98.5	-29.8	127.7	81.9	2.787		
10,400.0	10,400.0	10,300.0	10,264.8	23.2	23.0	-12.49	134.2	-29.7	192.1	146.0	4.167		
10,500.0	10,500.0	10,350.0	10,298.8	23.5	23.1	-9.87	170.8	-29.7	264.8	218.4	5.708		
10,600.0	10,600.0	10,385.9	10,320.8	23.7	23.2	-8.48	199.2	-29.7	343.4	296.8	7.362		
10,700.0	10,700.0	10,416.7	10,337.9	23.9	23.3	-7.52	224.8	-29.7	426.4	379.5	9.090		
10,762.6	10,762.6	10,433.2	10,346.4	24.0	23.4	-7.08	239.0	-29.7	480.0	432.9	10.200		
10,775.0	10,775.0	10,436.4	10,348.0	24.1	23.4	-6.39	241.7	-29.7	490.6	443.6	10.420		
10,800.0	10,800.0	10,442.9	10,351.1	24.1	23.4	-5.75	247.4	-29.7	511.8	464.7	10.878		
10,825.0	10,824.8	10,450.0	10,354.5	24.2	23.5	-5.22	253.7	-29.7	532.4	485.5	11.356		
10,850.0	10,849.5	10,450.0	10,354.5	24.2	23.5	-4.86	253.7	-29.7	552.5	505.9	11.860		
10,875.0	10,874.0	10,463.7	10,360.8	24.3	23.5	-4.40	265.9	-29.7	571.9	525.7	12.385		
10,900.0	10,898.1	10,475.0	10,365.6	24.3	23.5	-4.05	276.0	-29.7	590.8	545.2	12.944		
10,925.0	10,921.9	10,475.0	10,365.6	24.4	23.5	-3.83	276.0	-29.7	609.1	564.1	13.542		
10,950.0	10,945.2	10,486.4	10,370.3	24.4	23.6	-3.56	286.4	-29.7	626.7	582.5	14.177		
10,975.0	10,968.1	10,500.0	10,375.6	24.5	23.7	-3.31	299.0	-29.7	643.8	600.5	14.862		
11,000.0	10,990.3	10,500.0	10,375.6	24.5	23.7	-3.17	299.0	-29.7	660.1	617.8	15.604		
11,025.0	11,012.0	10,510.3	10,379.3	24.6	23.7	-2.99	308.6	-29.7	675.8	634.6	16.408		
11,050.0	11,033.0	10,525.0	10,384.3	24.7	23.8	-2.82	322.4	-29.6	690.8	650.8	17.285		
11,075.0	11,053.2	10,525.0	10,384.3	24.7	23.8	-2.72	322.4	-29.6	705.0	666.4	18.253		
11,100.0	11,072.6	10,535.4	10,387.5	24.8	23.8	-2.60	332.2	-29.6	718.5	681.3	19.318		
11,125.0	11,091.2	10,550.0	10,391.8	24.8	23.9	-2.48	346.3	-29.6	731.4	695.7	20.501		
11,150.0	11,108.9	10,550.0	10,391.8	24.9	23.9	-2.41	346.3	-29.6	743.4	709.4	21.832		
11,175.0	11,125.6	10,561.2	10,394.7	25.0	23.9	-2.33	357.0	-29.6	754.7	722.3	23.324		
11,200.0	11,141.3	10,575.0	10,398.0	25.0	24.0	-2.25	370.5	-29.6	765.3	734.7	25.016		
11,225.0	11,156.0	10,575.0	10,398.0	25.1	24.0	-2.20	370.5	-29.6	775.0	746.3	26.970		
11,250.0	11,169.7	10,587.6	10,400.6	25.2	24.1	-2.13	382.8	-29.6	784.0	757.1	29.209		
11,275.0	11,182.2	10,600.0	10,402.9	25.3	24.1	-2.08	395.0	-29.6	792.2	767.3	31.820		
11,300.0	11,193.5	10,600.0	10,402.9	25.4	24.1	-2.04	395.0	-29.6	799.6	776.7	34.930		
11,325.0	11,203.7	10,614.5	10,405.2	25.5	24.2	-2.00	409.3	-29.6	806.1	785.3	38.585		
11,350.0	11,212.6	10,625.0	10,406.6	25.6	24.3	-1.96	419.7	-29.6	811.9	793.0	42.995		
11,375.0	11,220.4	10,625.0	10,406.6	25.7	24.3	-1.94	419.7	-29.6	817.0	800.1	48.417		
11,400.0	11,226.8	10,641.6	10,408.3	25.8	24.4	-1.91	436.2	-29.6	821.0	806.1	54.859		
11,425.0	11,232.1	10,650.0	10,409.0	25.9	24.4	-1.89	444.6	-29.6	824.3	811.2	62.676		
11,450.0	11,236.0	10,659.8	10,409.5	26.0	24.5	-1.87	454.4	-29.6	826.8	815.3	71.653		
11,475.0	11,238.6	10,675.0	10,410.0	26.1	24.5	-1.86	469.6	-29.6	828.6	818.3	80.748		
11,500.0	11,239.9	10,675.0	10,410.0	26.3	24.5	-1.86	469.6	-29.6	829.3	820.0	88.388		
11,519.3	11,240.0	10,689.3	10,410.0	26.4	24.6	-1.85	483.9	-29.6	829.4	820.3	90.402		
11,551.4	11,239.6	10,710.0	10,409.7	26.6	24.8	-1.84	504.6	-29.6	829.3	819.9	88.031		
11,600.0	11,238.9	10,758.7	10,409.0	26.9	25.1	-1.82	553.2	-29.5	829.3	819.5	83.892		
11,700.0	11,237.5	10,858.7	10,407.6	27.6	25.8	-1.78	653.2	-29.5	829.3	818.4	75.905		
11,800.0	11,236.1	10,958.7	10,406.2	28.4	26.7	-1.73	753.2	-29.4	829.3	817.2	68.791		
11,900.0	11,234.7	11,058.7	10,404.8	29.3	27.6	-1.69	853.2	-29.4	829.3	816.0	62.579		
12,000.0	11,233.3	11,158.7	10,403.4	30.3	28.6	-1.65	953.2	-29.3	829.3	814.8	57.199		
12,100.0	11,231.9	11,258.7	10,402.0	31.3	29.7	-1.60	1,053.2	-29.3	829.2	813.5	52.543		
12,200.0	11,230.5	11,358.7	10,400.6	32.4	30.9	-1.56	1,153.2	-29.2	829.2	812.1	48.504		
12,300.0	11,229.1	11,458.7	10,399.2	33.6	32.1	-1.52	1,253.1	-29.2	829.2	810.8	44.985		
12,400.0	11,227.7	11,558.7	10,397.8	34.9	33.4	-1.47	1,353.1	-29.1	829.2	809.4	41.903		
12,500.0	11,226.3	11,658.7	10,396.4	36.1	34.7	-1.43	1,453.1	-29.1	829.2	808.0	39.189		
12,600.0	11,224.9	11,758.7	10,395.0	37.5	36.1	-1.39	1,553.1	-29.0	829.2	806.6	36.785		
12,700.0	11,223.4	11,858.6	10,393.6	38.8	37.5	-1.34	1,653.1	-29.0	829.1	805.2	34.645		
12,800.0	11,222.0	11,958.6	10,392.2	40.3	39.0	-1.30	1,753.1	-29.0	829.1	803.8	32.729		
12,900.0	11,220.6	12,058.6	10,390.8	41.7	40.5	-1.26	1,853.1	-28.9	829.1	802.4	31.006		

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



HP
Anticollision Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Squints Federal Com #2H
Project:	Lea County, NM	TVD Reference:	Well @ 3439.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3439.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore:	Wellbore #1	Database:	Compass
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset-Design												Offset Site Error:
Sec 27, T22S, R34E - Squints Federal Com #6H - Wellbore #1 - Design #1												0.0 usft
Survey Program: 0-MWD default												Offset Well Error:
												0.0 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning
13,000.0	11,219.2	12,158.6	10,389.4	43.2	42.0	-1.21	1,953.1	-28.9	829.1	801.0	29.450	
13,100.0	11,217.8	12,258.6	10,388.0	44.7	43.5	-1.17	2,053.1	-28.8	829.1	799.5	28.037	
13,200.0	11,216.4	12,358.6	10,386.6	46.2	45.0	-1.13	2,153.0	-28.8	829.1	798.1	26.749	
13,300.0	11,215.0	12,458.6	10,385.2	47.7	46.6	-1.08	2,253.0	-28.7	829.1	796.6	25.572	
13,400.0	11,213.6	12,558.6	10,383.8	49.3	48.2	-1.04	2,353.0	-28.7	829.1	795.2	24.492	
13,500.0	11,212.2	12,658.6	10,382.4	50.9	49.8	-1.00	2,453.0	-28.6	829.0	793.8	23.497	
13,600.0	11,210.8	12,758.6	10,381.0	52.5	51.4	-0.96	2,553.0	-28.6	829.0	792.3	22.579	
13,700.0	11,209.4	12,858.6	10,379.6	54.1	53.1	-0.91	2,653.0	-28.5	829.0	790.9	21.728	
13,800.0	11,208.0	12,958.6	10,378.2	55.7	54.7	-0.87	2,753.0	-28.5	829.0	789.4	20.938	
13,900.0	11,206.6	13,058.6	10,376.8	57.3	56.4	-0.83	2,853.0	-28.4	829.0	788.0	20.202	
14,000.0	11,205.2	13,158.6	10,375.4	59.0	58.0	-0.78	2,952.9	-28.4	829.0	786.5	19.516	
14,100.0	11,203.8	13,258.6	10,374.0	60.6	59.7	-0.74	3,052.9	-28.3	829.0	785.1	18.874	
14,200.0	11,202.4	13,358.6	10,372.6	62.3	61.4	-0.70	3,152.9	-28.3	829.0	783.6	18.272	
14,300.0	11,201.0	13,458.6	10,371.2	64.0	63.1	-0.65	3,252.9	-28.2	829.0	782.2	17.707	
14,400.0	11,199.6	13,558.6	10,369.8	65.6	64.8	-0.61	3,352.9	-28.2	829.0	780.7	17.176	
14,500.0	11,198.2	13,658.6	10,368.4	67.3	66.5	-0.57	3,452.9	-28.1	829.0	779.2	16.675	
14,600.0	11,196.8	13,758.6	10,366.9	69.0	68.2	-0.52	3,552.9	-28.1	829.0	777.8	16.202	
14,700.0	11,195.4	13,858.6	10,365.5	70.7	69.9	-0.48	3,652.9	-28.0	828.9	776.3	15.755	
14,800.0	11,194.0	13,958.6	10,364.1	72.4	71.6	-0.44	3,752.9	-28.0	828.9	774.9	15.332	
14,900.0	11,192.6	14,058.6	10,362.7	74.1	73.3	-0.39	3,852.8	-27.9	828.9	773.4	14.931	
15,000.0	11,191.2	14,158.6	10,361.3	75.9	75.1	-0.35	3,952.8	-27.9	828.9	772.0	14.550	
15,100.0	11,189.8	14,258.6	10,359.9	77.6	76.8	-0.31	4,052.8	-27.8	828.9	770.5	14.188	
15,200.0	11,188.4	14,358.6	10,358.5	79.3	78.5	-0.26	4,152.8	-27.8	828.9	769.0	13.843	
15,300.0	11,187.0	14,458.6	10,357.1	81.0	80.3	-0.22	4,252.8	-27.7	828.9	767.6	13.514	
15,400.0	11,185.6	14,558.6	10,355.7	82.8	82.0	-0.18	4,352.8	-27.7	828.9	766.1	13.201	
15,500.0	11,184.2	14,658.6	10,354.3	84.5	83.8	-0.13	4,452.8	-27.6	828.9	764.7	12.902	
15,600.0	11,182.8	14,758.6	10,352.9	86.3	85.5	-0.09	4,552.8	-27.6	828.9	763.2	12.616	
15,700.0	11,181.4	14,858.6	10,351.5	88.0	87.3	-0.05	4,652.7	-27.6	828.9	761.8	12.342	
15,796.3	11,180.0	14,954.9	10,350.2	89.7	89.0	-0.01	4,749.1	-27.5	828.9	760.3	12.089	
15,796.7	11,180.0	14,955.3	10,350.2	89.7	89.0	0.00	4,749.5	-27.5	828.9	760.3	12.088	

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



HP
Anticollision Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Squires Federal Com #2H
Project:	Lea County, NM	TVD Reference:	Well @ 3439.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3439.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squires Federal Com #2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Compass
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design											Offset Site Error:
Sec 27, T22S, R34E - Squires Federal Com #7H - Wellbore #1 - Design #1											0.0 usft
Survey Program: 0-MWD default											Offset Well Error:
											0.0 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Distance Between Centres (usft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-90.47	-9.2	-1,122.0	1,122.0		
100.0	100.0	96.0	96.0	0.1	0.1	-90.47	-9.2	-1,122.0	1,122.0	1,121.9	7,382.458
200.0	200.0	196.0	196.0	0.3	0.3	-90.47	-9.2	-1,122.0	1,122.0	1,121.4	1,883.782
300.0	300.0	296.0	296.0	0.5	0.5	-90.47	-9.2	-1,122.0	1,122.0	1,121.0	1,073.554
400.0	400.0	396.0	396.0	0.8	0.7	-90.47	-9.2	-1,122.0	1,122.0	1,120.5	750.680
500.0	500.0	496.0	496.0	1.0	1.0	-90.47	-9.2	-1,122.0	1,122.0	1,120.1	577.113
600.0	600.0	596.0	596.0	1.2	1.2	-90.47	-9.2	-1,122.0	1,122.0	1,119.6	468.735
700.0	700.0	696.0	696.0	1.4	1.4	-90.47	-9.2	-1,122.0	1,122.0	1,119.2	394.626
800.0	800.0	796.0	796.0	1.7	1.6	-90.47	-9.2	-1,122.0	1,122.0	1,118.7	340.753
900.0	900.0	896.0	896.0	1.9	1.9	-90.47	-9.2	-1,122.0	1,122.0	1,118.3	299.821
1,000.0	1,000.0	996.0	996.0	2.1	2.1	-90.47	-9.2	-1,122.0	1,122.0	1,117.8	267.669
1,100.0	1,100.0	1,096.0	1,096.0	2.3	2.3	-90.47	-9.2	-1,122.0	1,122.0	1,117.4	241.745
1,200.0	1,200.0	1,196.0	1,196.0	2.5	2.5	-90.47	-9.2	-1,122.0	1,122.0	1,116.9	220.398
1,300.0	1,300.0	1,296.0	1,296.0	2.8	2.8	-90.47	-9.2	-1,122.0	1,122.0	1,116.5	202.516
1,400.0	1,400.0	1,396.0	1,396.0	3.0	3.0	-90.47	-9.2	-1,122.0	1,122.0	1,116.0	187.318
1,500.0	1,500.0	1,496.0	1,496.0	3.2	3.2	-90.47	-9.2	-1,122.0	1,122.0	1,115.6	174.242
1,600.0	1,600.0	1,596.0	1,596.0	3.4	3.4	-90.47	-9.2	-1,122.0	1,122.0	1,115.1	162.872
1,700.0	1,700.0	1,696.0	1,696.0	3.7	3.7	-90.47	-9.2	-1,122.0	1,122.0	1,114.7	152.895
1,800.0	1,800.0	1,796.0	1,796.0	3.9	3.9	-90.47	-9.2	-1,122.0	1,122.0	1,114.2	144.070
1,900.0	1,900.0	1,896.0	1,896.0	4.1	4.1	-90.47	-9.2	-1,122.0	1,122.0	1,113.8	136.208
2,000.0	2,000.0	1,996.0	1,996.0	4.3	4.3	-90.47	-9.2	-1,122.0	1,122.0	1,113.4	129.160
2,100.0	2,100.0	2,096.0	2,096.0	4.6	4.6	-90.47	-9.2	-1,122.0	1,122.0	1,112.9	122.805
2,200.0	2,200.0	2,196.0	2,196.0	4.8	4.8	-90.47	-9.2	-1,122.0	1,122.0	1,112.5	117.046
2,300.0	2,300.0	2,296.0	2,296.0	5.0	5.0	-90.47	-9.2	-1,122.0	1,122.0	1,112.0	111.803
2,400.0	2,400.0	2,396.0	2,396.0	5.2	5.2	-90.47	-9.2	-1,122.0	1,122.0	1,111.6	107.010
2,500.0	2,500.0	2,496.0	2,496.0	5.5	5.5	-90.47	-9.2	-1,122.0	1,122.0	1,111.1	102.611
2,600.0	2,600.0	2,596.0	2,596.0	5.7	5.7	-90.47	-9.2	-1,122.0	1,122.0	1,110.7	98.559
2,700.0	2,700.0	2,696.0	2,696.0	5.9	5.9	-90.47	-9.2	-1,122.0	1,122.0	1,110.2	94.815
2,800.0	2,800.0	2,796.0	2,796.0	6.1	6.1	-90.47	-9.2	-1,122.0	1,122.0	1,109.8	91.345
2,900.0	2,900.0	2,896.0	2,896.0	6.4	6.4	-90.47	-9.2	-1,122.0	1,122.0	1,109.3	88.120
3,000.0	3,000.0	2,996.0	2,996.0	6.6	6.6	-90.47	-9.2	-1,122.0	1,122.0	1,108.9	85.116
3,100.0	3,100.0	3,096.0	3,096.0	6.8	6.8	-90.47	-9.2	-1,122.0	1,122.0	1,108.4	82.309
3,200.0	3,200.0	3,196.0	3,196.0	7.0	7.0	-90.47	-9.2	-1,122.0	1,122.0	1,108.0	79.681
3,300.0	3,300.0	3,296.0	3,296.0	7.3	7.3	-90.47	-9.2	-1,122.0	1,122.0	1,107.5	77.216
3,400.0	3,400.0	3,396.0	3,396.0	7.5	7.5	-90.47	-9.2	-1,122.0	1,122.0	1,107.1	74.899
3,500.0	3,500.0	3,496.0	3,496.0	7.7	7.7	-90.47	-9.2	-1,122.0	1,122.0	1,106.6	72.717
3,600.0	3,600.0	3,596.0	3,596.0	7.9	7.9	-90.47	-9.2	-1,122.0	1,122.0	1,106.2	70.659
3,700.0	3,700.0	3,696.0	3,696.0	8.2	8.2	-90.47	-9.2	-1,122.0	1,122.0	1,105.7	68.713
3,800.0	3,800.0	3,796.0	3,796.0	8.4	8.4	-90.47	-9.2	-1,122.0	1,122.0	1,105.3	66.872
3,900.0	3,900.0	3,896.0	3,896.0	8.6	8.6	-90.47	-9.2	-1,122.0	1,122.0	1,104.8	65.128
4,000.0	4,000.0	3,996.0	3,996.0	8.8	8.8	-90.47	-9.2	-1,122.0	1,122.0	1,104.4	63.471
4,100.0	4,100.0	4,096.0	4,096.0	9.1	9.1	-90.47	-9.2	-1,122.0	1,122.0	1,103.9	61.897
4,200.0	4,200.0	4,196.0	4,196.0	9.3	9.3	-90.47	-9.2	-1,122.0	1,122.0	1,103.5	60.400
4,300.0	4,300.0	4,296.0	4,296.0	9.5	9.5	-90.47	-9.2	-1,122.0	1,122.0	1,103.0	58.973
4,400.0	4,400.0	4,396.0	4,396.0	9.7	9.7	-90.47	-9.2	-1,122.0	1,122.0	1,102.6	57.611
4,500.0	4,500.0	4,496.0	4,496.0	10.0	10.0	-90.47	-9.2	-1,122.0	1,122.0	1,102.1	56.312
4,600.0	4,600.0	4,596.0	4,596.0	10.2	10.2	-90.47	-9.2	-1,122.0	1,122.0	1,101.7	55.069
4,700.0	4,700.0	4,696.0	4,696.0	10.4	10.4	-90.47	-9.2	-1,122.0	1,122.0	1,101.2	53.880
4,800.0	4,800.0	4,796.0	4,796.0	10.6	10.6	-90.47	-9.2	-1,122.0	1,122.0	1,100.8	52.742
4,900.0	4,900.0	4,896.0	4,896.0	10.9	10.9	-90.47	-9.2	-1,122.0	1,122.0	1,100.3	51.651
5,000.0	5,000.0	4,996.0	4,996.0	11.1	11.1	-90.47	-9.2	-1,122.0	1,122.0	1,099.9	50.603
5,100.0	5,100.0	5,096.0	5,096.0	11.3	11.3	-90.47	-9.2	-1,122.0	1,122.0	1,099.4	49.598

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



HP
Anticollision Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Squires Federal Com #2H
Project:	Lea County, NM	TVD Reference:	Well @ 3439.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3439.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squires Federal Com #2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at:	2.00 sigma
Reference Wellbore:	Wellbore #1	Database:	Compass
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:
Sec 27, T22S, R34E - Squires Federal Com #7H - Wellbore #1 - Design #1												0.0 usft
Survey Program: 0-MWD default												Offset Well Error: 0.0 usft
Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
5,200.0	5,200.0	5,196.0	5,196.0	11.5	11.5	-90.47	-9.2	-1,122.0	1,122.0	1,099.0	48.632	
5,300.0	5,300.0	5,296.0	5,296.0	11.8	11.8	-90.47	-9.2	-1,122.0	1,122.0	1,098.5	47.702	
5,400.0	5,400.0	5,396.0	5,396.0	12.0	12.0	-90.47	-9.2	-1,122.0	1,122.0	1,098.1	46.808	
5,500.0	5,500.0	5,496.0	5,496.0	12.2	12.2	-90.47	-9.2	-1,122.0	1,122.0	1,097.6	45.946	
5,600.0	5,600.0	5,596.0	5,596.0	12.4	12.4	-90.47	-9.2	-1,122.0	1,122.0	1,097.2	45.115	
5,700.0	5,700.0	5,696.0	5,696.0	12.7	12.7	-90.47	-9.2	-1,122.0	1,122.0	1,096.7	44.314	
5,800.0	5,800.0	5,796.0	5,796.0	12.9	12.9	-90.47	-9.2	-1,122.0	1,122.0	1,096.3	43.541	
5,900.0	5,900.0	5,896.0	5,896.0	13.1	13.1	-90.47	-9.2	-1,122.0	1,122.0	1,095.8	42.795	
6,000.0	6,000.0	5,996.0	5,996.0	13.3	13.3	-90.47	-9.2	-1,122.0	1,122.0	1,095.4	42.074	
6,100.0	6,100.0	6,096.0	6,096.0	13.6	13.6	-90.47	-9.2	-1,122.0	1,122.0	1,094.9	41.376	
6,200.0	6,200.0	6,196.0	6,196.0	13.8	13.8	-90.47	-9.2	-1,122.0	1,122.0	1,094.5	40.701	
6,300.0	6,300.0	6,296.0	6,296.0	14.0	14.0	-90.47	-9.2	-1,122.0	1,122.0	1,094.0	40.048	
6,400.0	6,400.0	6,396.0	6,396.0	14.2	14.2	-90.47	-9.2	-1,122.0	1,122.0	1,093.6	39.416	
6,500.0	6,500.0	6,496.0	6,496.0	14.5	14.5	-90.47	-9.2	-1,122.0	1,122.0	1,093.1	38.803	
6,600.0	6,600.0	6,596.0	6,596.0	14.7	14.7	-90.47	-9.2	-1,122.0	1,122.0	1,092.7	38.209	
6,700.0	6,700.0	6,696.0	6,696.0	14.9	14.9	-90.47	-9.2	-1,122.0	1,122.0	1,092.2	37.633	
6,800.0	6,800.0	6,796.0	6,796.0	15.1	15.1	-90.47	-9.2	-1,122.0	1,122.0	1,091.8	37.074	
6,900.0	6,900.0	6,896.0	6,896.0	15.4	15.4	-90.47	-9.2	-1,122.0	1,122.0	1,091.3	36.531	
7,000.0	7,000.0	6,996.0	6,996.0	15.6	15.6	-90.47	-9.2	-1,122.0	1,122.0	1,090.9	36.005	
7,100.0	7,100.0	7,096.0	7,096.0	15.8	15.8	-90.47	-9.2	-1,122.0	1,122.0	1,090.4	35.493	
7,200.0	7,200.0	7,196.0	7,196.0	16.0	16.0	-90.47	-9.2	-1,122.0	1,122.0	1,090.0	34.995	
7,300.0	7,300.0	7,296.0	7,296.0	16.3	16.3	-90.47	-9.2	-1,122.0	1,122.0	1,089.5	34.511	
7,400.0	7,400.0	7,396.0	7,396.0	16.5	16.5	-90.47	-9.2	-1,122.0	1,122.0	1,089.1	34.040	
7,500.0	7,500.0	7,496.0	7,496.0	16.7	16.7	-90.47	-9.2	-1,122.0	1,122.0	1,088.6	33.582	
7,600.0	7,600.0	7,596.0	7,596.0	16.9	16.9	-90.47	-9.2	-1,122.0	1,122.0	1,088.2	33.137	
7,700.0	7,700.0	7,696.0	7,696.0	17.2	17.2	-90.47	-9.2	-1,122.0	1,122.0	1,087.7	32.702	
7,800.0	7,800.0	7,796.0	7,796.0	17.4	17.4	-90.47	-9.2	-1,122.0	1,122.0	1,087.3	32.280	
7,900.0	7,900.0	7,896.0	7,896.0	17.6	17.6	-90.47	-9.2	-1,122.0	1,122.0	1,086.8	31.867	
8,000.0	8,000.0	7,996.0	7,996.0	17.8	17.8	-90.47	-9.2	-1,122.0	1,122.0	1,086.4	31.466	
8,100.0	8,100.0	8,096.0	8,096.0	18.1	18.0	-90.47	-9.2	-1,122.0	1,122.0	1,085.9	31.074	
8,200.0	8,200.0	8,196.0	8,196.0	18.3	18.3	-90.47	-9.2	-1,122.0	1,122.0	1,085.5	30.692	
8,300.0	8,300.0	8,296.0	8,296.0	18.5	18.5	-90.47	-9.2	-1,122.0	1,122.0	1,085.0	30.319	
8,400.0	8,400.0	8,396.0	8,396.0	18.7	18.7	-90.47	-9.2	-1,122.0	1,122.0	1,084.6	29.955	
8,500.0	8,500.0	8,496.0	8,496.0	19.0	18.9	-90.47	-9.2	-1,122.0	1,122.0	1,084.1	29.600	
8,600.0	8,600.0	8,596.0	8,596.0	19.2	19.2	-90.47	-9.2	-1,122.0	1,122.0	1,083.7	29.253	
8,700.0	8,700.0	8,696.0	8,696.0	19.4	19.4	-90.47	-9.2	-1,122.0	1,122.0	1,083.2	28.914	
8,800.0	8,800.0	8,796.0	8,796.0	19.6	19.6	-90.47	-9.2	-1,122.0	1,122.0	1,082.8	28.583	
8,900.0	8,900.0	8,896.0	8,896.0	19.9	19.8	-90.47	-9.2	-1,122.0	1,122.0	1,082.3	28.259	
9,000.0	9,000.0	8,996.0	8,996.0	20.1	20.1	-90.47	-9.2	-1,122.0	1,122.0	1,081.9	27.943	
9,100.0	9,100.0	9,096.0	9,096.0	20.3	20.3	-90.47	-9.2	-1,122.0	1,122.0	1,081.4	27.634	
9,200.0	9,200.0	9,196.0	9,196.0	20.5	20.5	-90.47	-9.2	-1,122.0	1,122.0	1,081.0	27.331	
9,300.0	9,300.0	9,296.0	9,296.0	20.8	20.7	-90.47	-9.2	-1,122.0	1,122.0	1,080.5	27.035	
9,400.0	9,400.0	9,396.0	9,396.0	21.0	21.0	-90.47	-9.2	-1,122.0	1,122.0	1,080.1	26.745	
9,500.0	9,500.0	9,496.0	9,496.0	21.2	21.2	-90.47	-9.2	-1,122.0	1,122.0	1,079.6	26.462	
9,600.0	9,600.0	9,596.0	9,596.0	21.4	21.4	-90.47	-9.2	-1,122.0	1,122.0	1,079.2	26.184	
9,700.0	9,700.0	9,696.0	9,696.0	21.7	21.6	-90.47	-9.2	-1,122.0	1,122.0	1,078.7	25.912	
9,800.0	9,800.0	9,796.0	9,796.0	21.9	21.9	-90.47	-9.2	-1,122.0	1,122.0	1,078.3	25.646	
9,900.0	9,900.0	9,896.0	9,896.0	22.1	22.1	-90.47	-9.2	-1,122.0	1,122.0	1,077.8	25.385 CC	
9,926.7	9,926.7	9,922.7	9,922.7	22.2	22.2	-90.45	-8.8	-1,122.0	1,122.0	1,077.7	25.317	
10,000.0	10,000.0	9,994.7	9,994.1	22.3	22.3	-90.02	-0.3	-1,122.1	1,122.1	1,077.4	25.135 ES	
10,100.0	10,100.0	10,086.1	10,081.6	22.6	22.5	-88.69	25.7	-1,122.3	1,122.7	1,077.6	24.917	
10,200.0	10,200.0	10,165.3	10,152.3	22.8	22.7	-86.87	61.3	-1,122.6	1,125.1	1,079.7	24.756	

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



HP
Anticollision Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Squints Federal Com #2H
Project:	Lea County, NM	TVD Reference:	Well @ 3439.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3439.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Compass
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:
Sec 27, T22S, R34E - Squints Federal Com #7H - Wellbore #1 - Design #1												0.0 usft
Survey Program: 0-MWD default												Offset Well Error: 0.0 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning
10,300.0	10,300.0	10,231.2	10,205.9	23.0	22.8	-84.93	99.6	-1,123.0	1,131.0	1,085.1	24.681	
10,400.0	10,400.0	10,285.0	10,245.4	23.2	23.0	-83.10	136.0	-1,123.3	1,141.5	1,095.3	24.716	
10,500.0	10,500.0	10,325.0	10,272.0	23.5	23.1	-81.60	165.8	-1,123.6	1,157.6	1,111.1	24.886	
10,600.0	10,600.0	10,364.3	10,295.6	23.7	23.2	-80.05	197.2	-1,123.8	1,179.9	1,130.0	25.180	
10,700.0	10,700.0	10,393.5	10,311.4	23.9	23.3	-78.84	221.8	-1,124.0	1,208.5	1,161.4	25.617	
10,762.6	10,762.6	10,409.3	10,319.3	24.0	23.3	-78.17	235.4	-1,124.2	1,229.7	1,182.3	25.959	
10,775.0	10,775.0	10,412.3	10,320.8	24.1	23.4	-77.16	238.0	-1,124.2	1,234.1	1,186.7	26.033	
10,800.0	10,800.0	10,425.0	10,326.8	24.1	23.4	-75.51	249.3	-1,124.3	1,243.2	1,195.7	26.175	
10,825.0	10,824.8	10,425.0	10,326.8	24.2	23.4	-74.38	249.3	-1,124.3	1,252.3	1,204.7	26.348	
10,850.0	10,849.5	10,425.0	10,326.8	24.2	23.4	-73.24	249.3	-1,124.3	1,261.4	1,213.9	26.532	
10,875.0	10,874.0	10,438.6	10,332.8	24.3	23.5	-71.63	261.4	-1,124.4	1,270.5	1,222.9	26.702	
10,900.0	10,898.1	10,450.0	10,337.7	24.3	23.5	-70.13	271.8	-1,124.5	1,279.6	1,232.0	26.893	
10,925.0	10,921.9	10,450.0	10,337.7	24.4	23.5	-69.04	271.8	-1,124.5	1,288.6	1,241.1	27.118	
10,950.0	10,945.2	10,460.4	10,341.9	24.4	23.5	-67.65	281.3	-1,124.6	1,297.5	1,250.0	27.346	
10,975.0	10,968.1	10,475.0	10,347.3	24.5	23.6	-66.19	294.8	-1,124.7	1,306.3	1,258.9	27.593	
11,000.0	10,990.3	10,475.0	10,347.3	24.5	23.6	-65.20	294.8	-1,124.7	1,314.8	1,267.6	27.879	
11,025.0	11,012.0	10,483.7	10,350.4	24.6	23.6	-64.01	303.0	-1,124.8	1,323.1	1,276.2	28.179	
11,050.0	11,033.0	10,491.7	10,353.2	24.7	23.7	-62.90	310.5	-1,124.8	1,331.2	1,284.5	28.506	
11,075.0	11,053.2	10,500.0	10,355.8	24.7	23.7	-61.83	318.3	-1,124.9	1,339.1	1,292.7	28.859	
11,100.0	11,072.6	10,508.1	10,358.3	24.8	23.8	-60.82	326.0	-1,125.0	1,346.6	1,300.6	29.236	
11,125.0	11,091.2	10,516.4	10,360.7	24.8	23.8	-59.87	334.0	-1,125.0	1,353.9	1,308.2	29.636	
11,150.0	11,108.9	10,525.0	10,363.0	24.9	23.8	-58.97	342.3	-1,125.1	1,360.8	1,315.5	30.059	
11,175.0	11,125.6	10,533.3	10,365.2	25.0	23.9	-58.13	350.3	-1,125.2	1,367.3	1,322.5	30.500	
11,200.0	11,141.3	10,541.8	10,367.2	25.0	23.9	-57.36	358.6	-1,125.3	1,373.5	1,329.1	30.955	
11,225.0	11,156.0	10,550.0	10,369.0	25.1	24.0	-56.65	366.5	-1,125.3	1,379.2	1,335.3	31.419	
11,250.0	11,169.7	10,559.1	10,370.9	25.2	24.0	-55.98	375.4	-1,125.4	1,384.6	1,341.2	31.885	
11,275.0	11,182.2	10,575.0	10,373.7	25.3	24.1	-55.31	391.1	-1,125.5	1,389.5	1,346.6	32.344	
11,300.0	11,193.5	10,575.0	10,373.7	25.4	24.1	-54.87	391.1	-1,125.5	1,394.0	1,351.4	32.794	
11,325.0	11,203.7	10,585.4	10,375.3	25.5	24.1	-54.38	401.4	-1,125.6	1,398.0	1,355.9	33.214	
11,350.0	11,212.6	10,600.0	10,377.1	25.6	24.2	-53.92	415.9	-1,125.8	1,401.5	1,359.8	33.597	
11,375.0	11,220.4	10,600.0	10,377.1	25.7	24.2	-53.62	415.9	-1,125.8	1,404.6	1,363.2	33.951	
11,400.0	11,226.8	10,612.0	10,378.2	25.8	24.3	-53.30	427.8	-1,125.9	1,407.1	1,366.0	34.232	
11,425.0	11,232.1	10,625.0	10,379.2	25.9	24.4	-53.05	440.8	-1,126.0	1,409.2	1,368.3	34.443	
11,450.0	11,236.0	10,625.0	10,379.2	26.0	24.4	-52.90	440.8	-1,126.0	1,410.8	1,370.0	34.614	
11,475.0	11,238.6	10,638.8	10,379.8	26.1	24.4	-52.77	454.5	-1,126.1	1,411.9	1,371.1	34.662	
11,500.0	11,239.9	10,650.0	10,380.0	26.3	24.5	-52.70	465.7	-1,126.2	1,412.4	1,371.6	34.632	
11,519.3	11,240.0	10,655.5	10,380.0	26.4	24.5	-52.69	471.2	-1,126.3	1,412.5	1,371.6	34.560	
11,600.0	11,238.9	10,733.8	10,379.5	26.9	25.1	-52.72	549.5	-1,127.0	1,412.3	1,370.6	33.834	
11,700.0	11,237.5	10,833.8	10,378.8	27.6	25.8	-52.75	649.5	-1,127.8	1,412.1	1,369.1	32.842	
11,800.0	11,236.1	10,933.8	10,378.2	28.4	26.7	-52.79	749.5	-1,128.7	1,411.9	1,367.5	31.782	
11,900.0	11,234.7	11,033.8	10,377.6	29.3	27.6	-52.82	849.5	-1,129.6	1,411.7	1,365.6	30.681	
12,000.0	11,233.3	11,133.8	10,377.0	30.3	28.6	-52.85	949.5	-1,130.5	1,411.4	1,363.7	29.565	
12,100.0	11,231.9	11,233.8	10,376.3	31.3	29.7	-52.88	1,049.5	-1,131.4	1,411.2	1,361.6	28.453	
12,200.0	11,230.5	11,333.8	10,375.7	32.4	30.9	-52.92	1,149.5	-1,132.3	1,411.0	1,359.4	27.361	
12,300.0	11,229.1	11,433.8	10,375.1	33.6	32.2	-52.95	1,249.5	-1,133.2	1,410.8	1,357.1	26.299	
12,400.0	11,227.7	11,533.8	10,374.4	34.9	33.4	-52.98	1,349.4	-1,134.0	1,410.5	1,354.7	25.274	
12,500.0	11,226.3	11,633.8	10,373.8	36.1	34.8	-53.01	1,449.4	-1,134.9	1,410.3	1,352.3	24.292	
12,600.0	11,224.9	11,733.7	10,373.2	37.5	36.2	-53.05	1,549.4	-1,135.8	1,410.1	1,349.7	23.354	
12,700.0	11,223.4	11,833.7	10,372.6	38.8	37.6	-53.08	1,649.4	-1,136.7	1,409.9	1,347.1	22.463	
12,800.0	11,222.0	11,933.7	10,371.9	40.3	39.0	-53.11	1,749.4	-1,137.6	1,409.7	1,344.5	21.618	
12,900.0	11,220.6	12,033.7	10,371.3	41.7	40.5	-53.15	1,849.4	-1,138.5	1,409.4	1,341.7	20.818	
13,000.0	11,219.2	12,133.7	10,370.7	43.2	42.0	-53.18	1,949.4	-1,139.4	1,409.2	1,339.0	20.062	

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



HP
Anticollision Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Squints Federal Com #2H
Project:	Lea County, NM	TVD Reference:	Well @ 3439.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3439.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Compass
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design: Sec 27, T22S, R34E - Squints Federal Com #7H - Wellbore #1 - Design #1											Offset Site Error:	0.0 usft
Survey Program: 0-MWD default											Offset Well Error:	0.0 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning
13,100.0	11,217.8	12,233.7	10,370.1	44.7	43.6	-53.21	2,049.4	-1,140.2	1,409.0	1,336.2	19.347	
13,200.0	11,216.4	12,333.7	10,369.4	46.2	45.1	-53.24	2,149.4	-1,141.1	1,408.8	1,333.3	18.672	
13,300.0	11,215.0	12,433.7	10,368.8	47.7	46.7	-53.28	2,249.4	-1,142.0	1,408.6	1,330.5	18.034	
13,400.0	11,213.6	12,533.7	10,368.2	49.3	48.3	-53.31	2,349.4	-1,142.9	1,408.4	1,327.6	17.431	
13,500.0	11,212.2	12,633.7	10,367.6	50.9	49.9	-53.34	2,449.3	-1,143.8	1,408.1	1,324.6	16.861	
13,600.0	11,210.8	12,733.7	10,366.9	52.5	51.5	-53.37	2,549.3	-1,144.7	1,407.9	1,321.7	16.323	
13,700.0	11,209.4	12,833.7	10,366.3	54.1	53.1	-53.41	2,649.3	-1,145.6	1,407.7	1,318.7	15.813	
13,800.0	11,208.0	12,933.7	10,365.7	55.7	54.8	-53.44	2,749.3	-1,146.4	1,407.5	1,315.7	15.331	
13,900.0	11,206.6	13,033.7	10,365.0	57.3	56.5	-53.47	2,849.3	-1,147.3	1,407.3	1,312.7	14.873	
14,000.0	11,205.2	13,133.7	10,364.4	59.0	58.1	-53.51	2,949.3	-1,148.2	1,407.1	1,309.6	14.440	
14,100.0	11,203.8	13,233.7	10,363.8	60.6	59.8	-53.54	3,049.3	-1,149.1	1,406.9	1,306.6	14.028	
14,200.0	11,202.4	13,333.7	10,363.2	62.3	61.5	-53.57	3,149.3	-1,150.0	1,406.6	1,303.5	13.637	
14,300.0	11,201.0	13,433.7	10,362.5	64.0	63.2	-53.60	3,249.3	-1,150.9	1,406.4	1,300.4	13.265	
14,400.0	11,199.6	13,533.7	10,361.9	65.6	64.9	-53.64	3,349.3	-1,151.8	1,406.2	1,297.3	12.911	
14,500.0	11,198.2	13,633.7	10,361.3	67.3	66.6	-53.67	3,449.3	-1,152.7	1,406.0	1,294.2	12.575	
14,600.0	11,196.8	13,733.7	10,360.7	69.0	68.3	-53.70	3,549.2	-1,153.5	1,405.8	1,291.1	12.253	
14,700.0	11,195.4	13,833.7	10,360.0	70.7	70.0	-53.74	3,649.2	-1,154.4	1,405.6	1,287.9	11.947	
14,800.0	11,194.0	13,933.7	10,359.4	72.4	71.7	-53.77	3,749.2	-1,155.3	1,405.4	1,284.8	11.654	
14,900.0	11,192.6	14,033.7	10,358.8	74.1	73.5	-53.80	3,849.2	-1,156.2	1,405.2	1,281.6	11.375	
15,000.0	11,191.2	14,133.7	10,358.1	75.9	75.2	-53.84	3,949.2	-1,157.1	1,405.0	1,278.5	11.107	
15,100.0	11,189.8	14,233.7	10,357.5	77.6	76.9	-53.87	4,049.2	-1,158.0	1,404.7	1,275.3	10.851	
15,200.0	11,188.4	14,333.7	10,356.9	79.3	78.7	-53.90	4,149.2	-1,158.9	1,404.5	1,272.1	10.606	
15,300.0	11,187.0	14,433.7	10,356.3	81.0	80.4	-53.93	4,249.2	-1,159.7	1,404.3	1,268.9	10.371	
15,400.0	11,185.6	14,533.6	10,355.6	82.8	82.2	-53.97	4,349.2	-1,160.6	1,404.1	1,265.7	10.146	
15,500.0	11,184.2	14,633.6	10,355.0	84.5	83.9	-54.00	4,449.2	-1,161.5	1,403.9	1,262.5	9.929	
15,600.0	11,182.8	14,733.6	10,354.4	86.3	85.7	-54.03	4,549.1	-1,162.4	1,403.7	1,259.3	9.721	
15,700.0	11,181.4	14,833.6	10,353.8	88.0	87.4	-54.07	4,649.1	-1,163.3	1,403.5	1,256.1	9.521	
15,796.3	11,180.0	14,930.0	10,353.2	89.7	89.1	-54.10	4,745.5	-1,164.1	1,403.3	1,253.0	9.336	
15,796.7	11,180.0	14,930.4	10,353.1	89.7	89.1	-54.10	4,745.9	-1,164.1	1,403.3	1,253.0	9.335 SF	

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



HP
Anticollision Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Squints Federal Com #2H
Project:	Lea County, NM	TVD Reference:	Well @ 3439.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3439.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at:	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Compass
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 usft
Sec 27, T22S, R34E - Squints Federal Com #8H - Wellbore #1 - Design #1												Offset Well Error:	0.0 usft
Survey Program: 0-MWD default													
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	-90.46	-19.8	-2,441.7	2,441.8				
100.0	100.0	97.0	97.0	0.1	0.1	-90.46	-19.8	-2,441.7	2,441.8	2,441.6	N/A		
200.0	200.0	197.0	197.0	0.3	0.3	-90.46	-19.8	-2,441.7	2,441.8	2,441.2	4,084.079		
300.0	300.0	297.0	297.0	0.5	0.5	-90.46	-19.8	-2,441.7	2,441.8	2,440.7	2,331.256		
400.0	400.0	397.0	397.0	0.8	0.7	-90.46	-19.8	-2,441.7	2,441.8	2,440.3	1,631.179		
500.0	500.0	497.0	497.0	1.0	1.0	-90.46	-19.8	-2,441.7	2,441.8	2,439.8	1,254.463		
600.0	600.0	597.0	597.0	1.2	1.2	-90.46	-19.8	-2,441.7	2,441.8	2,439.4	1,019.104		
700.0	700.0	697.0	697.0	1.4	1.4	-90.46	-19.8	-2,441.7	2,441.8	2,438.9	858.108		
800.0	800.0	797.0	797.0	1.7	1.6	-90.46	-19.8	-2,441.7	2,441.8	2,438.5	741.040		
900.0	900.0	897.0	897.0	1.9	1.9	-90.46	-19.8	-2,441.7	2,441.8	2,438.0	652.080		
1,000.0	1,000.0	997.0	997.0	2.1	2.1	-90.46	-19.8	-2,441.7	2,441.8	2,437.6	582.189		
1,100.0	1,100.0	1,097.0	1,097.0	2.3	2.3	-90.46	-19.8	-2,441.7	2,441.8	2,437.1	525.830		
1,200.0	1,200.0	1,197.0	1,197.0	2.5	2.5	-90.46	-19.8	-2,441.7	2,441.8	2,436.7	479.420		
1,300.0	1,300.0	1,297.0	1,297.0	2.8	2.8	-90.46	-19.8	-2,441.7	2,441.8	2,436.2	440.537		
1,400.0	1,400.0	1,397.0	1,397.0	3.0	3.0	-90.46	-19.8	-2,441.7	2,441.8	2,435.8	407.489		
1,500.0	1,500.0	1,497.0	1,497.0	3.2	3.2	-90.46	-19.8	-2,441.7	2,441.8	2,435.3	379.053		
1,600.0	1,600.0	1,597.0	1,597.0	3.4	3.4	-90.46	-19.8	-2,441.7	2,441.8	2,434.9	354.327		
1,700.0	1,700.0	1,697.0	1,697.0	3.7	3.7	-90.46	-19.8	-2,441.7	2,441.8	2,434.4	332.629		
1,800.0	1,800.0	1,797.0	1,797.0	3.9	3.9	-90.46	-19.8	-2,441.7	2,441.8	2,434.0	313.435		
1,900.0	1,900.0	1,897.0	1,897.0	4.1	4.1	-90.46	-19.8	-2,441.7	2,441.8	2,433.5	296.335		
2,000.0	2,000.0	1,997.0	1,997.0	4.3	4.3	-90.46	-19.8	-2,441.7	2,441.8	2,433.1	281.005		
2,100.0	2,100.0	2,097.0	2,097.0	4.6	4.6	-90.46	-19.8	-2,441.7	2,441.8	2,432.6	267.183		
2,200.0	2,200.0	2,197.0	2,197.0	4.8	4.8	-90.46	-19.8	-2,441.7	2,441.8	2,432.2	254.657		
2,300.0	2,300.0	2,297.0	2,297.0	5.0	5.0	-90.46	-19.8	-2,441.7	2,441.8	2,431.7	243.252		
2,400.0	2,400.0	2,397.0	2,397.0	5.2	5.2	-90.46	-19.8	-2,441.7	2,441.8	2,431.3	232.826		
2,500.0	2,500.0	2,497.0	2,497.0	5.5	5.5	-90.46	-19.8	-2,441.7	2,441.8	2,430.8	223.256		
2,600.0	2,600.0	2,597.0	2,597.0	5.7	5.7	-90.46	-19.8	-2,441.7	2,441.8	2,430.4	214.442		
2,700.0	2,700.0	2,697.0	2,697.0	5.9	5.9	-90.46	-19.8	-2,441.7	2,441.8	2,429.9	206.298		
2,800.0	2,800.0	2,797.0	2,797.0	6.1	6.1	-90.46	-19.8	-2,441.7	2,441.8	2,429.5	198.750		
2,900.0	2,900.0	2,897.0	2,897.0	6.4	6.4	-90.46	-19.8	-2,441.7	2,441.8	2,429.0	191.734		
3,000.0	3,000.0	2,997.0	2,997.0	6.6	6.6	-90.46	-19.8	-2,441.7	2,441.8	2,428.6	185.197		
3,100.0	3,100.0	3,097.0	3,097.0	6.8	6.8	-90.46	-19.8	-2,441.7	2,441.8	2,428.1	179.091		
3,200.0	3,200.0	3,197.0	3,197.0	7.0	7.0	-90.46	-19.8	-2,441.7	2,441.8	2,427.7	173.375		
3,300.0	3,300.0	3,297.0	3,297.0	7.3	7.3	-90.46	-19.8	-2,441.7	2,441.8	2,427.2	168.012		
3,400.0	3,400.0	3,397.0	3,397.0	7.5	7.5	-90.46	-19.8	-2,441.7	2,441.8	2,426.8	162.971		
3,500.0	3,500.0	3,497.0	3,497.0	7.7	7.7	-90.46	-19.8	-2,441.7	2,441.8	2,426.3	158.224		
3,600.0	3,600.0	3,597.0	3,597.0	7.9	7.9	-90.46	-19.8	-2,441.7	2,441.8	2,425.9	153.745		
3,700.0	3,700.0	3,697.0	3,697.0	8.2	8.2	-90.46	-19.8	-2,441.7	2,441.8	2,425.4	149.514		
3,800.0	3,800.0	3,797.0	3,797.0	8.4	8.4	-90.46	-19.8	-2,441.7	2,441.8	2,425.0	145.508		
3,900.0	3,900.0	3,897.0	3,897.0	8.6	8.6	-90.46	-19.8	-2,441.7	2,441.8	2,424.5	141.712		
4,000.0	4,000.0	3,997.0	3,997.0	8.8	8.8	-90.46	-19.8	-2,441.7	2,441.8	2,424.1	138.109		
4,100.0	4,100.0	4,097.0	4,097.0	9.1	9.1	-90.46	-19.8	-2,441.7	2,441.8	2,423.7	134.685		
4,200.0	4,200.0	4,197.0	4,197.0	9.3	9.3	-90.46	-19.8	-2,441.7	2,441.8	2,423.2	131.426		
4,300.0	4,300.0	4,297.0	4,297.0	9.5	9.5	-90.46	-19.8	-2,441.7	2,441.8	2,422.8	128.321		
4,400.0	4,400.0	4,397.0	4,397.0	9.7	9.7	-90.46	-19.8	-2,441.7	2,441.8	2,422.3	125.359		
4,500.0	4,500.0	4,497.0	4,497.0	10.0	10.0	-90.46	-19.8	-2,441.7	2,441.8	2,421.9	122.532		
4,600.0	4,600.0	4,597.0	4,597.0	10.2	10.2	-90.46	-19.8	-2,441.7	2,441.8	2,421.4	119.829		
4,700.0	4,700.0	4,697.0	4,697.0	10.4	10.4	-90.46	-19.8	-2,441.7	2,441.8	2,421.0	117.242		
4,800.0	4,800.0	4,797.0	4,797.0	10.6	10.6	-90.46	-19.8	-2,441.7	2,441.8	2,420.5	114.765		
4,900.0	4,900.0	4,897.0	4,897.0	10.9	10.9	-90.46	-19.8	-2,441.7	2,441.8	2,420.1	112.390		
5,000.0	5,000.0	4,997.0	4,997.0	11.1	11.1	-90.46	-19.8	-2,441.7	2,441.8	2,419.6	110.112		
5,100.0	5,100.0	5,097.0	5,097.0	11.3	11.3	-90.46	-19.8	-2,441.7	2,441.8	2,419.2	107.924		

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



HP
Anticollision Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Squires Federal Com #2H
Project:	Lea County, NM	TVD Reference:	Well @ 3439.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3439.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squires Federal Com #2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at:	2.00 sigma
Reference Wellbore:	Wellbore #1	Database:	Compass
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design											Offset Site Error: 0.0 usft	
Survey Program: 0-MWD default											Offset Well Error: 0.0 usft	
Reference	Offset	Semi Major Axis	Offset	Highside	Offset Wellbore Centre	Distance	Between	Between	Separation	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Ellipses (usft)	Factor			
5,200.0	5,200.0	5,197.0	5,197.0	11.5	11.5	-90.46	-19.8	-2,441.7	2,441.8	2,418.7	105.822	
5,300.0	5,300.0	5,297.0	5,297.0	11.8	11.8	-90.46	-19.8	-2,441.7	2,441.8	2,418.3	103.799	
5,400.0	5,400.0	5,397.0	5,397.0	12.0	12.0	-90.46	-19.8	-2,441.7	2,441.8	2,417.8	101.853	
5,500.0	5,500.0	5,497.0	5,497.0	12.2	12.2	-90.46	-19.8	-2,441.7	2,441.8	2,417.4	99.978	
5,600.0	5,600.0	5,597.0	5,597.0	12.4	12.4	-90.46	-19.8	-2,441.7	2,441.8	2,416.9	98.171	
5,700.0	5,700.0	5,697.0	5,697.0	12.7	12.7	-90.46	-19.8	-2,441.7	2,441.8	2,416.5	96.429	
5,800.0	5,800.0	5,797.0	5,797.0	12.9	12.9	-90.46	-19.8	-2,441.7	2,441.8	2,416.0	94.747	
5,900.0	5,900.0	5,897.0	5,897.0	13.1	13.1	-90.46	-19.8	-2,441.7	2,441.8	2,415.6	93.122	
6,000.0	6,000.0	5,997.0	5,997.0	13.3	13.3	-90.46	-19.8	-2,441.7	2,441.8	2,415.1	91.553	
6,100.0	6,100.0	6,097.0	6,097.0	13.6	13.6	-90.46	-19.8	-2,441.7	2,441.8	2,414.7	90.035	
6,200.0	6,200.0	6,197.0	6,197.0	13.8	13.8	-90.46	-19.8	-2,441.7	2,441.8	2,414.2	88.567	
6,300.0	6,300.0	6,297.0	6,297.0	14.0	14.0	-90.46	-19.8	-2,441.7	2,441.8	2,413.8	87.146	
6,400.0	6,400.0	6,397.0	6,397.0	14.2	14.2	-90.46	-19.8	-2,441.7	2,441.8	2,413.3	85.770	
6,500.0	6,500.0	6,497.0	6,497.0	14.5	14.5	-90.46	-19.8	-2,441.7	2,441.8	2,412.9	84.437	
6,600.0	6,600.0	6,597.0	6,597.0	14.7	14.7	-90.46	-19.8	-2,441.7	2,441.8	2,412.4	83.144	
6,700.0	6,700.0	6,697.0	6,697.0	14.9	14.9	-90.46	-19.8	-2,441.7	2,441.8	2,412.0	81.891	
6,800.0	6,800.0	6,797.0	6,797.0	15.1	15.1	-90.46	-19.8	-2,441.7	2,441.8	2,411.5	80.675	
6,900.0	6,900.0	6,897.0	6,897.0	15.4	15.4	-90.46	-19.8	-2,441.7	2,441.8	2,411.1	79.494	
7,000.0	7,000.0	6,997.0	6,997.0	15.6	15.6	-90.46	-19.8	-2,441.7	2,441.8	2,410.6	78.347	
7,100.0	7,100.0	7,097.0	7,097.0	15.8	15.8	-90.46	-19.8	-2,441.7	2,441.8	2,410.2	77.233	
7,200.0	7,200.0	7,197.0	7,197.0	16.0	16.0	-90.46	-19.8	-2,441.7	2,441.8	2,409.7	76.151	
7,300.0	7,300.0	7,297.0	7,297.0	16.3	16.3	-90.46	-19.8	-2,441.7	2,441.8	2,409.3	75.098	
7,400.0	7,400.0	7,397.0	7,397.0	16.5	16.5	-90.46	-19.8	-2,441.7	2,441.8	2,408.8	74.074	
7,500.0	7,500.0	7,497.0	7,497.0	16.7	16.7	-90.46	-19.8	-2,441.7	2,441.8	2,408.4	73.077	
7,600.0	7,600.0	7,597.0	7,597.0	16.9	16.9	-90.46	-19.8	-2,441.7	2,441.8	2,407.9	72.107	
7,700.0	7,700.0	7,697.0	7,697.0	17.2	17.2	-90.46	-19.8	-2,441.7	2,441.8	2,407.5	71.162	
7,800.0	7,800.0	7,797.0	7,797.0	17.4	17.4	-90.46	-19.8	-2,441.7	2,441.8	2,407.0	70.242	
7,900.0	7,900.0	7,897.0	7,897.0	17.6	17.6	-90.46	-19.8	-2,441.7	2,441.8	2,406.6	69.345	
8,000.0	8,000.0	7,997.0	7,997.0	17.8	17.8	-90.46	-19.8	-2,441.7	2,441.8	2,406.1	68.471	
8,100.0	8,100.0	8,097.0	8,097.0	18.1	18.1	-90.46	-19.8	-2,441.7	2,441.8	2,405.7	67.619	
8,200.0	8,200.0	8,197.0	8,197.0	18.3	18.3	-90.46	-19.8	-2,441.7	2,441.8	2,405.2	66.787	
8,300.0	8,300.0	8,297.0	8,297.0	18.5	18.5	-90.46	-19.8	-2,441.7	2,441.8	2,404.8	65.976	
8,400.0	8,400.0	8,397.0	8,397.0	18.7	18.7	-90.46	-19.8	-2,441.7	2,441.8	2,404.3	65.185	
8,500.0	8,500.0	8,497.0	8,497.0	19.0	19.0	-90.46	-19.8	-2,441.7	2,441.8	2,403.9	64.412	
8,600.0	8,600.0	8,597.0	8,597.0	19.2	19.2	-90.46	-19.8	-2,441.7	2,441.8	2,403.4	63.657	
8,700.0	8,700.0	8,697.0	8,697.0	19.4	19.4	-90.46	-19.8	-2,441.7	2,441.8	2,403.0	62.919	
8,800.0	8,800.0	8,797.0	8,797.0	19.6	19.6	-90.46	-19.8	-2,441.7	2,441.8	2,402.5	62.199	
8,900.0	8,900.0	8,897.0	8,897.0	19.9	19.9	-90.46	-19.8	-2,441.7	2,441.8	2,402.1	61.495	
9,000.0	9,000.0	8,997.0	8,997.0	20.1	20.1	-90.46	-19.8	-2,441.7	2,441.8	2,401.6	60.806	
9,100.0	9,100.0	9,097.0	9,097.0	20.3	20.3	-90.46	-19.8	-2,441.7	2,441.8	2,401.2	60.133	
9,200.0	9,200.0	9,197.0	9,197.0	20.5	20.5	-90.46	-19.8	-2,441.7	2,441.8	2,400.7	59.475	
9,300.0	9,300.0	9,297.0	9,297.0	20.8	20.7	-90.46	-19.8	-2,441.7	2,441.8	2,400.3	58.831	
9,400.0	9,400.0	9,397.0	9,397.0	21.0	21.0	-90.46	-19.8	-2,441.7	2,441.8	2,399.8	58.200	
9,500.0	9,500.0	9,497.0	9,497.0	21.2	21.2	-90.46	-19.8	-2,441.7	2,441.8	2,399.4	57.583	
9,600.0	9,600.0	9,597.0	9,597.0	21.4	21.4	-90.46	-19.8	-2,441.7	2,441.8	2,398.9	56.979	
9,700.0	9,700.0	9,697.0	9,697.0	21.7	21.6	-90.46	-19.8	-2,441.7	2,441.8	2,398.5	56.388	
9,800.0	9,800.0	9,797.0	9,797.0	21.9	21.9	-90.46	-19.8	-2,441.7	2,441.8	2,398.0	55.808	
9,857.6	9,857.6	9,854.6	9,854.6	22.0	22.0	-90.46	-19.8	-2,441.7	2,441.8	2,397.8	55.480 CC	
9,900.0	9,900.0	9,896.9	9,896.9	22.1	22.1	-90.45	-19.2	-2,441.7	2,441.8	2,397.6	55.242	
10,000.0	10,000.0	9,993.8	9,992.5	22.3	22.3	-90.10	-4.5	-2,441.8	2,441.8	2,397.2	54.706 ES	
10,100.0	10,100.0	10,081.6	10,075.0	22.6	22.5	-89.41	25.3	-2,442.1	2,442.3	2,397.3	54.221	
10,200.0	10,200.0	10,156.6	10,140.2	22.8	22.7	-88.54	62.3	-2,442.4	2,443.9	2,398.5	53.795	

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



HP
Anticollision Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Squints Federal Com #2H
Project:	Lea County, NM	TVD Reference:	Well @ 3439.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3439.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore:	Wellbore #1	Database:	Compass
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:
Sec 27, T22S, R34E - Squints Federal Com #8H - Wellbore #1 - Design #1												0.0 usft
Survey Program: 0-MWD default												Offset Well Error: 0.0 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning
10,300.0	10,300.0	10,218.6	10,189.0	23.0	22.8	-87.65	100.2	-2,442.8	2,447.2	2,401.4	53.432	
10,400.0	10,400.0	10,269.0	10,224.9	23.2	22.9	-86.82	135.5	-2,443.1	2,452.9	2,406.7	53.143	
10,500.0	10,500.0	10,309.9	10,251.3	23.5	23.0	-86.09	166.9	-2,443.4	2,461.4	2,414.9	52.933	
10,600.0	10,600.0	10,343.4	10,270.7	23.7	23.2	-85.46	194.2	-2,443.6	2,472.9	2,426.1	52.806	
10,700.0	10,700.0	10,375.0	10,287.2	23.9	23.3	-84.83	221.1	-2,443.8	2,487.8	2,440.6	52.749	
10,762.6	10,762.6	10,386.0	10,292.6	24.0	23.3	-84.61	230.7	-2,443.9	2,498.8	2,451.5	52.780	
10,775.0	10,775.0	10,388.8	10,293.9	24.1	23.3	-83.94	233.2	-2,443.9	2,501.1	2,453.8	52.787	
10,800.0	10,800.0	10,400.0	10,299.1	24.1	23.4	-83.14	243.1	-2,444.0	2,505.9	2,458.4	52.783	
10,825.0	10,824.8	10,400.0	10,299.1	24.2	23.4	-82.56	243.1	-2,444.0	2,510.7	2,463.2	52.829	
10,850.0	10,849.5	10,407.3	10,302.3	24.2	23.4	-81.83	249.7	-2,444.1	2,515.5	2,467.9	52.850	
10,875.0	10,874.0	10,413.9	10,305.1	24.3	23.4	-81.12	255.7	-2,444.1	2,520.4	2,472.7	52.881	
10,900.0	10,898.1	10,425.0	10,309.7	24.3	23.5	-80.34	265.7	-2,444.2	2,525.3	2,477.5	52.903	
10,925.0	10,921.9	10,425.0	10,309.7	24.4	23.5	-79.76	265.7	-2,444.2	2,530.1	2,482.4	52.980	
10,950.0	10,945.2	10,435.0	10,313.6	24.4	23.5	-79.02	275.0	-2,444.3	2,534.9	2,487.1	53.024	
10,975.0	10,968.1	10,442.4	10,316.4	24.5	23.5	-78.34	281.8	-2,444.4	2,539.7	2,491.8	53.091	
11,000.0	10,990.3	10,450.0	10,319.1	24.5	23.6	-77.66	288.9	-2,444.4	2,544.3	2,496.5	53.169	
11,025.0	11,012.0	10,450.0	10,319.1	24.6	23.6	-77.12	288.9	-2,444.4	2,548.9	2,501.1	53.288	
11,050.0	11,033.0	10,465.3	10,324.3	24.7	23.6	-76.38	303.3	-2,444.6	2,553.4	2,505.5	53.357	
11,075.0	11,053.2	10,475.0	10,327.4	24.7	23.7	-75.74	312.5	-2,444.7	2,557.7	2,509.8	53.462	
11,100.0	11,072.6	10,475.0	10,327.4	24.8	23.7	-75.24	312.5	-2,444.7	2,561.9	2,514.1	53.614	
11,125.0	11,091.2	10,489.3	10,331.5	24.8	23.7	-74.61	326.1	-2,444.8	2,565.9	2,518.1	53.718	
11,150.0	11,108.9	10,500.0	10,334.3	24.9	23.8	-74.04	336.5	-2,444.9	2,569.8	2,522.0	53.844	
11,175.0	11,125.6	10,500.0	10,334.3	25.0	23.8	-73.61	336.5	-2,444.9	2,573.4	2,525.8	54.014	
11,200.0	11,141.3	10,514.0	10,337.7	25.0	23.9	-73.08	350.1	-2,445.0	2,576.9	2,529.3	54.131	
11,225.0	11,156.0	10,525.0	10,340.0	25.1	23.9	-72.61	360.8	-2,445.1	2,580.2	2,532.6	54.258	
11,250.0	11,169.7	10,525.0	10,340.0	25.2	23.9	-72.26	360.8	-2,445.1	2,583.2	2,535.7	54.422	
11,275.0	11,182.2	10,539.4	10,342.7	25.3	24.0	-71.84	374.9	-2,445.2	2,586.0	2,538.5	54.516	
11,300.0	11,193.5	10,550.0	10,344.5	25.4	24.1	-71.48	385.4	-2,445.3	2,588.5	2,541.1	54.611	
11,325.0	11,203.7	10,550.0	10,344.5	25.5	24.1	-71.21	385.4	-2,445.3	2,590.9	2,543.5	54.734	
11,350.0	11,212.6	10,565.2	10,346.5	25.6	24.1	-70.90	400.4	-2,445.4	2,592.9	2,545.5	54.762	
11,375.0	11,220.4	10,575.0	10,347.6	25.7	24.2	-70.66	410.2	-2,445.5	2,594.6	2,547.3	54.788	
11,400.0	11,226.8	10,575.0	10,347.6	25.8	24.2	-70.49	410.2	-2,445.5	2,596.2	2,548.8	54.833	
11,425.0	11,232.1	10,591.2	10,348.9	25.9	24.3	-70.31	426.4	-2,445.7	2,597.3	2,549.9	54.756	
11,450.0	11,236.0	10,600.0	10,349.4	26.0	24.3	-70.18	435.2	-2,445.7	2,598.3	2,550.7	54.682	
11,475.0	11,238.6	10,608.7	10,349.8	26.1	24.4	-70.10	443.8	-2,445.8	2,598.9	2,551.3	54.568	
11,500.0	11,239.9	10,625.0	10,350.0	26.3	24.5	-70.05	460.1	-2,446.0	2,599.3	2,551.5	54.368	
11,519.3	11,240.0	10,625.0	10,350.0	26.4	24.5	-70.04	460.1	-2,446.0	2,599.3	2,551.4	54.263	
11,551.3	11,239.6	10,654.6	10,349.8	26.6	24.7	-70.05	489.8	-2,446.2	2,599.3	2,551.1	53.847	
11,600.0	11,238.9	10,703.4	10,349.5	26.9	25.0	-70.06	538.5	-2,446.7	2,599.3	2,550.5	53.197	
11,700.0	11,237.5	10,803.4	10,349.0	27.6	25.7	-70.08	638.5	-2,447.5	2,599.3	2,549.1	51.721	
11,800.0	11,236.1	10,903.4	10,348.5	28.4	26.6	-70.10	738.5	-2,448.4	2,599.3	2,547.5	50.134	
11,900.0	11,234.7	11,003.4	10,348.0	29.3	27.5	-70.12	838.5	-2,449.3	2,599.3	2,545.7	48.481	
12,000.0	11,233.3	11,103.3	10,347.5	30.3	28.6	-70.14	938.5	-2,450.2	2,599.3	2,543.7	46.798	
12,100.0	11,231.9	11,203.3	10,346.9	31.3	29.7	-70.16	1,038.5	-2,451.1	2,599.3	2,541.7	45.113	
12,200.0	11,230.5	11,303.3	10,346.4	32.4	30.9	-70.18	1,138.4	-2,452.0	2,599.3	2,539.5	43.451	
12,300.0	11,229.1	11,403.3	10,345.9	33.6	32.1	-70.21	1,238.4	-2,452.9	2,599.3	2,537.1	41.829	
12,400.0	11,227.7	11,503.3	10,345.4	34.9	33.4	-70.23	1,338.4	-2,453.8	2,599.3	2,534.7	40.258	
12,500.0	11,226.3	11,603.3	10,344.8	36.1	34.7	-70.25	1,438.4	-2,454.7	2,599.3	2,532.2	38.748	
12,600.0	11,224.9	11,703.3	10,344.3	37.5	36.1	-70.27	1,538.4	-2,455.5	2,599.3	2,529.6	37.303	
12,700.0	11,223.4	11,803.3	10,343.8	38.8	37.5	-70.29	1,638.4	-2,456.4	2,599.3	2,526.9	35.924	
12,800.0	11,222.0	11,903.3	10,343.3	40.3	39.0	-70.31	1,738.4	-2,457.3	2,599.2	2,524.2	34.614	
12,900.0	11,220.6	12,003.3	10,342.8	41.7	40.5	-70.33	1,838.4	-2,458.2	2,599.2	2,521.4	33.370	

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



HP
Anticollision Report



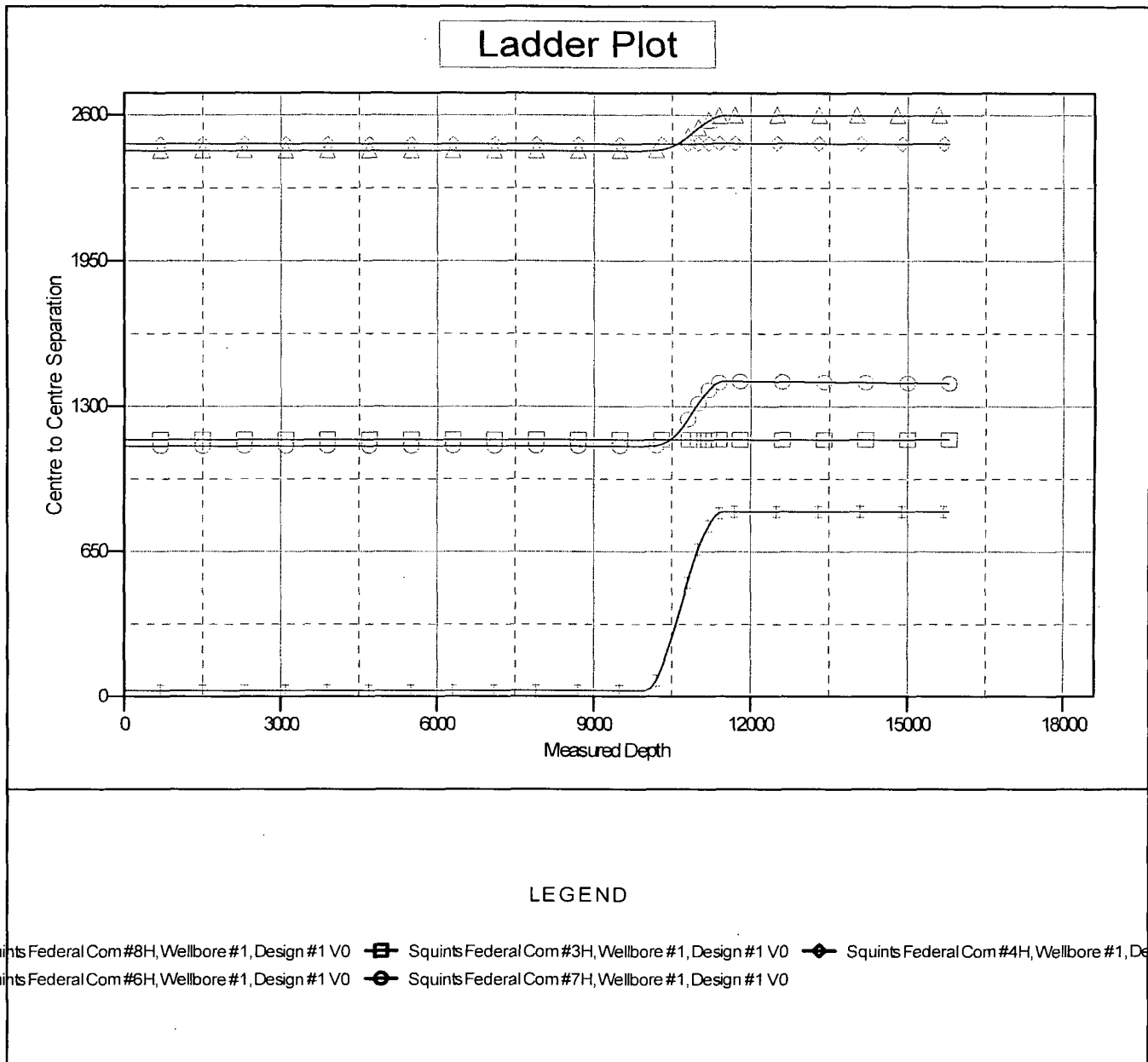
Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Squints Federal Com #2H
Project:	Lea County, NM	TVD Reference:	Well @ 3439.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3439.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore:	Wellbore #1	Database:	Compass
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset-Design												Offset Site Error:	0.0 usft
Survey Program: 0-MWD default												Offset Well Error:	0.0 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning	
13,000.0	11,219.2	12,103.3	10,342.2	43.2	42.0	-70.35	1,938.4	-2,459.1	2,599.2	2,518.5	32.191		
13,100.0	11,217.8	12,203.3	10,341.7	44.7	43.5	-70.37	2,038.4	-2,460.0	2,599.2	2,515.6	31.075		
13,200.0	11,216.4	12,303.3	10,341.2	46.2	45.1	-70.39	2,138.4	-2,460.9	2,599.2	2,512.6	30.019		
13,300.0	11,215.0	12,403.3	10,340.7	47.7	46.7	-70.41	2,238.3	-2,461.8	2,599.2	2,509.7	29.020		
13,400.0	11,213.6	12,503.3	10,340.1	49.3	48.2	-70.43	2,338.3	-2,462.7	2,599.2	2,506.6	28.074		
13,500.0	11,212.2	12,603.3	10,339.6	50.9	49.9	-70.45	2,438.3	-2,463.5	2,599.2	2,503.6	27.179		
13,600.0	11,210.8	12,703.3	10,339.1	52.5	51.5	-70.47	2,538.3	-2,464.4	2,599.2	2,500.5	26.331		
13,700.0	11,209.4	12,803.3	10,338.6	54.1	53.1	-70.49	2,638.3	-2,465.3	2,599.2	2,497.4	25.528		
13,800.0	11,208.0	12,903.3	10,338.1	55.7	54.8	-70.51	2,738.3	-2,466.2	2,599.2	2,494.3	24.767		
13,900.0	11,206.6	13,003.3	10,337.5	57.3	56.4	-70.53	2,838.3	-2,467.1	2,599.2	2,491.1	24.045		
14,000.0	11,205.2	13,103.3	10,337.0	59.0	58.1	-70.56	2,938.3	-2,468.0	2,599.2	2,488.0	23.360		
14,028.5	11,204.8	13,131.7	10,336.9	59.4	58.6	-70.56	2,966.8	-2,468.2	2,599.2	2,487.0	23.170		
14,100.0	11,203.8	13,203.3	10,336.5	60.6	59.8	-70.58	3,038.3	-2,468.9	2,599.2	2,484.8	22.708		
14,200.0	11,202.4	13,303.3	10,336.0	62.3	61.5	-70.60	3,138.3	-2,469.8	2,599.2	2,481.6	22.089		
14,300.0	11,201.0	13,403.2	10,335.4	64.0	63.1	-70.62	3,238.2	-2,470.6	2,599.2	2,478.3	21.500		
14,400.0	11,199.6	13,503.2	10,334.9	65.6	64.8	-70.64	3,338.2	-2,471.5	2,599.2	2,475.1	20.939		
14,500.0	11,198.2	13,603.2	10,334.4	67.3	66.6	-70.66	3,438.2	-2,472.4	2,599.2	2,471.8	20.405		
14,600.0	11,196.8	13,703.2	10,333.9	69.0	68.3	-70.68	3,538.2	-2,473.3	2,599.2	2,468.6	19.895		
14,700.0	11,195.4	13,803.2	10,333.3	70.7	70.0	-70.70	3,638.2	-2,474.2	2,599.2	2,465.3	19.408		
14,800.0	11,194.0	13,903.2	10,332.8	72.4	71.7	-70.72	3,738.2	-2,475.1	2,599.2	2,462.0	18.943		
14,900.0	11,192.6	14,003.2	10,332.3	74.1	73.4	-70.74	3,838.2	-2,476.0	2,599.2	2,458.7	18.498		
15,000.0	11,191.2	14,103.2	10,331.8	75.9	75.2	-70.76	3,938.2	-2,476.9	2,599.2	2,455.4	18.073		
15,100.0	11,189.8	14,203.2	10,331.3	77.6	76.9	-70.78	4,038.2	-2,477.8	2,599.2	2,452.1	17.665		
15,200.0	11,188.4	14,303.2	10,330.7	79.3	78.7	-70.80	4,138.2	-2,478.6	2,599.2	2,448.8	17.275		
15,300.0	11,187.0	14,403.2	10,330.2	81.0	80.4	-70.82	4,238.1	-2,479.5	2,599.3	2,445.5	16.900		
15,400.0	11,185.6	14,503.2	10,329.7	82.8	82.2	-70.84	4,338.1	-2,480.4	2,599.3	2,442.1	16.541		
15,500.0	11,184.2	14,603.2	10,329.2	84.5	83.9	-70.86	4,438.1	-2,481.3	2,599.3	2,438.8	16.196		
15,600.0	11,182.8	14,703.2	10,328.6	86.3	85.7	-70.88	4,538.1	-2,482.2	2,599.3	2,435.4	15.864		
15,700.0	11,181.4	14,803.2	10,328.1	88.0	87.4	-70.91	4,638.1	-2,483.1	2,599.3	2,432.1	15.545		
15,796.3	11,180.0	14,899.5	10,327.6	89.7	89.1	-70.92	4,734.4	-2,483.9	2,599.3	2,428.8	15.249		
15,796.7	11,180.0	14,899.9	10,327.6	89.7	89.1	-70.92	4,734.8	-2,483.9	2,599.3	2,428.8	15.248 SF		

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Squints Federal Com #2H
Project:	Lea County, NM	TVD Reference:	Well @ 3439.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3439.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at:	2.00 sigma
Reference Wellbore:	Wellbore #1	Database:	Compass
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to Well @ 3439.0usft (Ensign #772)
Offset Depths are relative to Offset Datum
Central Meridian is 104° 20' 0.000 W

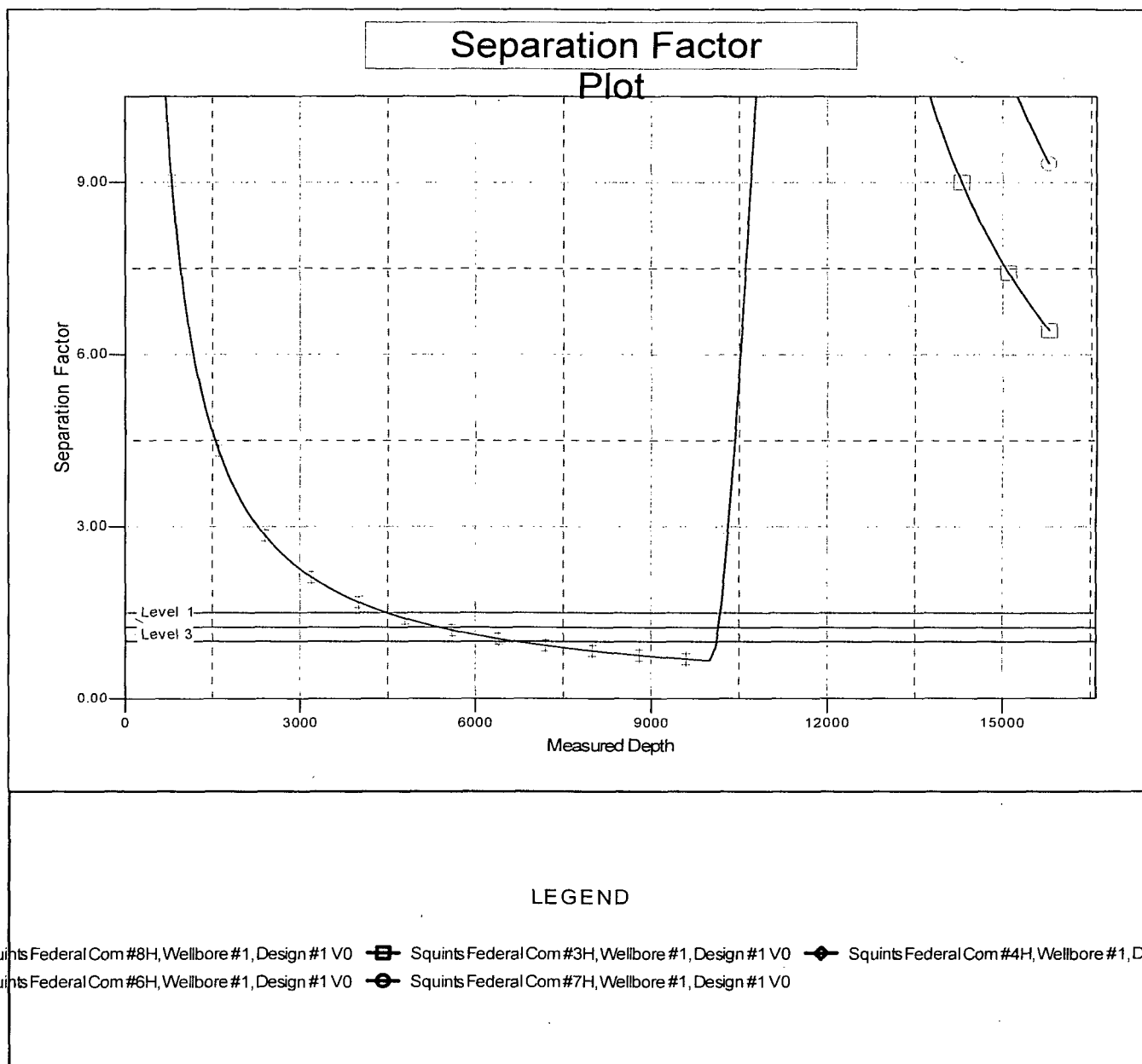
Coordinates are relative to: Squints Federal Com #2H
Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
Grid Convergence at Surface is: 0.47°



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Squints Federal Com #2H
Project:	Lea County, NM	TVD Reference:	Well @ 3439.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3439.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Compass
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

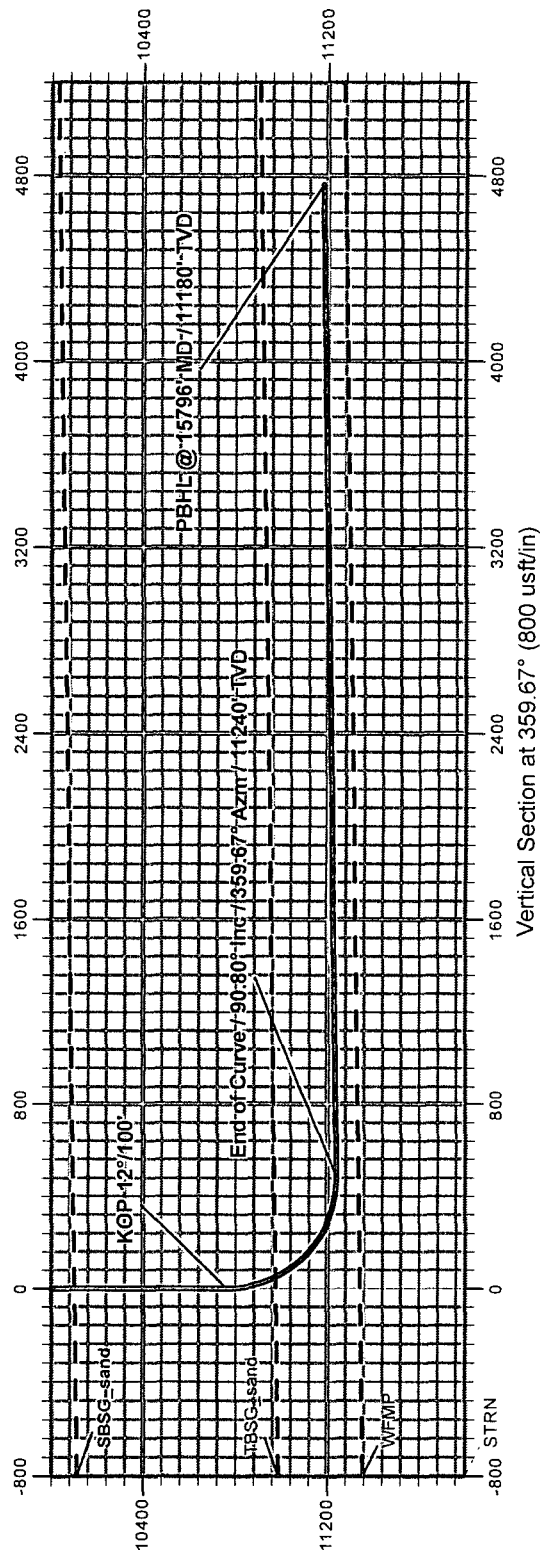
Reference Depths are relative to Well @ 3439.0usft (Ensign #772)
Offset Depths are relative to Offset Datum
Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: Squints Federal Com #2H
Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
Grid Convergence at Surface is: 0.47°





Lea County, NM
 Sec 27, T22S, R34E
 Squints Federal Com #2H
 Design #1



Lea County, NM
Sec 27, T22S, R34E
Squints Federal Com #2H
Design #1

