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APR 18 2016
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COG Operating, LLC

Lea County, NM

Sec 27, T22S, R34E

Squints Federal Com #6H

Wellbore #1

Plan: Design #1

DDC Well Planning Report

08 June, 2015



APR 22 2016



HP
Well Planning Report



Database:	Compass	Local Co-ordinate Reference:	Well Squints Federal Com #6H
Company:	COG Operating, LLC	TVD Reference:	Well @ 3438.0usft (Ensign #772)
Project:	Lea County, NM	MD Reference:	Well @ 3438.0usft (Ensign #772)
Site:	Sec 27, T22S, R34E	North Reference:	Grid
Well:	Squints Federal Com #6H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Project	Lea County, NM		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Sec 27, T22S, R34E		
Site Position:		Northing:	494,272.80 usft
From:	Map	Easting:	770,960.20 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"
		Latitude:	32° 21' 20.947 N
		Longitude:	103° 27' 21.105 W
		Grid Convergence:	0.47 °

Well:	Squints Federal Com #6H		
Well Position	+N/-S	-0.3 usft	Northing:
	+E/-W	-29.8 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft
		Latitude:	32° 21' 20.947 N
		Longitude:	103° 27' 21.452 W
		Ground Level:	3,407.0 usft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2015	5/28/2015	7.13
			Dip Angle
			(°)
			60.23
			Field Strength
			(nT)
			48,241

Design	Design #1		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth:
			0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction
			(°)
			0.03

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(usft)	(usft)	Rate	Rate	Rate	(°)	
(usft)			(usft)			(°/100usft)	(°/100usft)	(°/100usft)		
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
9,932.6	0.00	0.00	9,932.6	0.0	0.0	0.00	0.00	0.00	0.00	
10,689.3	90.80	0.03	10,410.0	484.2	0.2	12.00	12.00	0.00	0.03	
14,966.6	90.80	0.03	10,350.0	4,761.0	2.3	0.00	0.00	0.00	0.00	PBHL Squints Federa



HP Well Planning Report



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Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
KOP 12°/100'									
9,932.6	0.00	0.00	9,932.6	0.0	0.0	0.0	0.00	0.00	0.00
10,000.0	8.09	0.03	9,999.8	4.7	0.0	4.7	12.00	12.00	0.00
10,100.0	20.09	0.03	10,096.6	29.0	0.0	29.0	12.00	12.00	0.00
SBSG_sand									
10,103.2	20.47	0.03	10,099.6	30.1	0.0	30.1	12.00	12.00	0.00
10,200.0	32.09	0.03	10,186.2	72.9	0.0	72.9	12.00	12.00	0.00
10,300.0	44.09	0.03	10,264.8	134.5	0.1	134.5	12.00	12.00	0.00
10,400.0	56.09	0.03	10,328.8	211.1	0.1	211.1	12.00	12.00	0.00
10,500.0	68.09	0.03	10,375.6	299.3	0.1	299.3	12.00	12.00	0.00
10,600.0	80.09	0.03	10,402.9	395.3	0.2	395.3	12.00	12.00	0.00
End of Curve / 90.80° Inc / 0.03° Azm / 10410' TVD									
10,689.3	90.80	0.03	10,410.0	484.2	0.2	484.2	12.00	12.00	0.00
10,700.0	90.80	0.03	10,409.9	494.9	0.2	494.9	0.00	0.00	0.00
10,800.0	90.80	0.03	10,408.5	594.9	0.3	594.9	0.00	0.00	0.00
10,900.0	90.80	0.03	10,407.1	694.8	0.3	694.8	0.00	0.00	0.00
11,000.0	90.80	0.03	10,405.7	794.8	0.4	794.8	0.00	0.00	0.00
11,100.0	90.80	0.03	10,404.3	894.8	0.4	894.8	0.00	0.00	0.00
11,200.0	90.80	0.03	10,402.9	994.8	0.5	994.8	0.00	0.00	0.00
11,300.0	90.80	0.03	10,401.4	1,094.8	0.5	1,094.8	0.00	0.00	0.00
11,400.0	90.80	0.03	10,400.0	1,194.8	0.6	1,194.8	0.00	0.00	0.00
11,500.0	90.80	0.03	10,398.6	1,294.8	0.6	1,294.8	0.00	0.00	0.00
11,600.0	90.80	0.03	10,397.2	1,394.8	0.7	1,394.8	0.00	0.00	0.00
11,700.0	90.80	0.03	10,395.8	1,494.8	0.7	1,494.8	0.00	0.00	0.00
11,800.0	90.80	0.03	10,394.4	1,594.8	0.8	1,594.8	0.00	0.00	0.00
11,900.0	90.80	0.03	10,393.0	1,694.7	0.8	1,694.7	0.00	0.00	0.00
12,000.0	90.80	0.03	10,391.6	1,794.7	0.9	1,794.7	0.00	0.00	0.00
12,100.0	90.80	0.03	10,390.2	1,894.7	0.9	1,894.7	0.00	0.00	0.00
12,200.0	90.80	0.03	10,388.8	1,994.7	1.0	1,994.7	0.00	0.00	0.00
12,300.0	90.80	0.03	10,387.4	2,094.7	1.0	2,094.7	0.00	0.00	0.00
12,400.0	90.80	0.03	10,386.0	2,194.7	1.1	2,194.7	0.00	0.00	0.00
12,500.0	90.80	0.03	10,384.6	2,294.7	1.1	2,294.7	0.00	0.00	0.00
12,600.0	90.80	0.03	10,383.2	2,394.7	1.2	2,394.7	0.00	0.00	0.00
12,700.0	90.80	0.03	10,381.8	2,494.7	1.2	2,494.7	0.00	0.00	0.00
12,800.0	90.80	0.03	10,380.4	2,594.7	1.3	2,594.7	0.00	0.00	0.00
12,900.0	90.80	0.03	10,379.0	2,694.6	1.3	2,694.6	0.00	0.00	0.00
13,000.0	90.80	0.03	10,377.6	2,794.6	1.4	2,794.6	0.00	0.00	0.00
13,100.0	90.80	0.03	10,376.2	2,894.6	1.4	2,894.6	0.00	0.00	0.00
13,200.0	90.80	0.03	10,374.8	2,994.6	1.4	2,994.6	0.00	0.00	0.00
13,300.0	90.80	0.03	10,373.4	3,094.6	1.5	3,094.6	0.00	0.00	0.00
13,400.0	90.80	0.03	10,372.0	3,194.6	1.5	3,194.6	0.00	0.00	0.00
13,500.0	90.80	0.03	10,370.6	3,294.6	1.6	3,294.6	0.00	0.00	0.00
13,600.0	90.80	0.03	10,369.2	3,394.6	1.6	3,394.6	0.00	0.00	0.00
13,700.0	90.80	0.03	10,367.8	3,494.6	1.7	3,494.6	0.00	0.00	0.00
13,800.0	90.80	0.03	10,366.4	3,594.6	1.7	3,594.6	0.00	0.00	0.00
13,900.0	90.80	0.03	10,365.0	3,694.5	1.8	3,694.5	0.00	0.00	0.00
14,000.0	90.80	0.03	10,363.6	3,794.5	1.8	3,794.5	0.00	0.00	0.00
14,100.0	90.80	0.03	10,362.2	3,894.5	1.9	3,894.5	0.00	0.00	0.00
14,200.0	90.80	0.03	10,360.8	3,994.5	1.9	3,994.5	0.00	0.00	0.00
14,300.0	90.80	0.03	10,359.4	4,094.5	2.0	4,094.5	0.00	0.00	0.00
14,400.0	90.80	0.03	10,357.9	4,194.5	2.0	4,194.5	0.00	0.00	0.00
14,500.0	90.80	0.03	10,356.5	4,294.5	2.1	4,294.5	0.00	0.00	0.00
14,600.0	90.80	0.03	10,355.1	4,394.5	2.1	4,394.5	0.00	0.00	0.00



HP
Well Planning Report



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Site:	Sec 27, T22S, R34E	North Reference:	Grid
Well:	Squints Federal Com #6H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
14,700.0	90.80	0.03	10,353.7	4,494.5	2.2	4,494.5	0.00	0.00	0.00
14,800.0	90.80	0.03	10,352.3	4,594.5	2.2	4,594.5	0.00	0.00	0.00
14,900.0	90.80	0.03	10,350.9	4,694.4	2.3	4,694.4	0.00	0.00	0.00
PBHL @ 14967' MD / 10350' TVD									
14,966.6	90.80	0.03	10,350.0	4,761.0	2.3	4,761.0	0.00	0.00	0.00

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
PBHL Squints Federal #	0.00	0.00	10,350.0	4,761.0	2.3	499,033.50	770,932.70	32° 22' 8.057 N	103° 27' 20.971 W
- plan hits target center									
- Point									

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,700.0	1,700.0	Rustler		-0.80	0.03	
1,896.0	1,896.0	TOS		-0.80	0.03	
3,636.0	3,636.0	BOS / Tansill		-0.80	0.03	
3,715.0	3,715.0	Yates		-0.80	0.03	
3,923.0	3,923.0	Seven Rivers		-0.80	0.03	
4,044.0	4,044.0	Captain Reef		-0.80	0.03	
5,312.0	5,312.0	Base of Reef (BLCN)		-0.80	0.03	
5,828.0	5,828.0	CYCN		-0.80	0.03	
7,221.0	7,221.0	BYCN		-0.80	0.03	
8,533.0	8,533.0	Bone Spring (BSGL)		-0.80	0.03	
8,841.0	8,841.0	U Avalon Sh		-0.80	0.03	
8,967.0	8,967.0	L Avalon Sh		-0.80	0.03	
9,615.0	9,615.0	FBSG_sand		-0.80	0.03	
10,103.2	10,099.6	SBSG_sand		-0.80	0.03	

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment
9,932.6	9,932.6	0.0	0.0	KOP 12°/100'
10,689.3	10,410.0	484.2	0.2	End of Curve / 90.80° Inc / 0.03° Azm / 10410' TVD
14,966.6	10,350.0	4,761.0	2.3	PBHL @ 14967' MD / 10350' TVD



COG Operating, LLC

Lea County, NM

Sec 27, T22S, R34E

Squints Federal Com #6H

Wellbore #1

Design #1

DDC Anticollision Report

08 June, 2015





HP
Anticollision Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Squints Federal Com #6H
Project:	Lea County, NM	TVD Reference:	Well @ 3438.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3438.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #6H	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 - 6/8/2015		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	14,966.6	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
Offset Well - Wellbore - Design						
Sec 27, T22S, R34E						
Squints Federal Com #2H - Wellbore #1 - Design #1	9,949.9	9,950.9	29.8	-14.6	0.671	Level 1, CC
Squints Federal Com #2H - Wellbore #1 - Design #1	9,975.0	9,975.9	29.8	-14.7	0.670	Level 1, ES, SF
Squints Federal Com #3H - Wellbore #1 - Design #1	9,932.6	9,930.6	1,122.1	1,077.8	25.301	CC
Squints Federal Com #3H - Wellbore #1 - Design #1	10,050.0	10,046.8	1,122.4	1,077.5	25.014	ES
Squints Federal Com #3H - Wellbore #1 - Design #1	14,966.6	15,790.2	1,428.1	1,278.0	9.514	SF
Squints Federal Com #4H - Wellbore #1 - Design #1	9,932.6	9,930.6	2,442.0	2,397.6	55.060	CC
Squints Federal Com #4H - Wellbore #1 - Design #1	10,075.0	10,070.9	2,442.3	2,397.3	54.301	ES
Squints Federal Com #4H - Wellbore #1 - Design #1	14,966.6	15,661.4	2,593.6	2,421.9	15.104	SF
Squints Federal Com #7H - Wellbore #1 - Design #1	9,900.6	9,897.6	1,092.2	1,048.0	24.708	CC
Squints Federal Com #7H - Wellbore #1 - Design #1	14,966.6	14,935.2	1,136.7	958.3	6.371	ES, SF
Squints Federal Com #8H - Wellbore #1 - Design #1	9,857.2	9,855.2	2,412.0	2,368.0	54.803	CC
Squints Federal Com #8H - Wellbore #1 - Design #1	14,966.6	14,903.8	2,456.7	2,278.3	13.773	ES, SF

Offset Design	Sec 27, T22S, R34E - Squints Federal Com #2H - 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)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
0.0	0.0	1.0	1.0	0.0	0.0	89.42	0.3	29.8	29.8			
100.0	100.0	101.0	101.0	0.1	0.1	89.42	0.3	29.8	29.8	29.6	189.413	
200.0	200.0	201.0	201.0	0.3	0.3	89.42	0.3	29.8	29.8	29.2	49.107	
300.0	300.0	301.0	301.0	0.5	0.5	89.42	0.3	29.8	29.8	28.7	28.210	
400.0	400.0	401.0	401.0	0.8	0.8	89.42	0.3	29.8	29.8	28.3	19.789	
500.0	500.0	501.0	501.0	1.0	1.0	89.42	0.3	29.8	29.8	27.8	15.240	
600.0	600.0	601.0	601.0	1.2	1.2	89.42	0.3	29.8	29.8	27.4	12.391	
700.0	700.0	701.0	701.0	1.4	1.4	89.42	0.3	29.8	29.8	26.9	10.440	
800.0	800.0	801.0	801.0	1.7	1.7	89.42	0.3	29.8	29.8	26.5	9.020	
900.0	900.0	901.0	901.0	1.9	1.9	89.42	0.3	29.8	29.8	26.0	7.939	
1,000.0	1,000.0	1,001.0	1,001.0	2.1	2.1	89.42	0.3	29.8	29.8	25.6	7.090	
1,100.0	1,100.0	1,101.0	1,101.0	2.3	2.3	89.42	0.3	29.8	29.8	25.1	6.405	
1,200.0	1,200.0	1,201.0	1,201.0	2.5	2.6	89.42	0.3	29.8	29.8	24.7	5.841	
1,300.0	1,300.0	1,301.0	1,301.0	2.8	2.8	89.42	0.3	29.8	29.8	24.2	5.368	
1,400.0	1,400.0	1,401.0	1,401.0	3.0	3.0	89.42	0.3	29.8	29.8	23.8	4.966	
1,500.0	1,500.0	1,501.0	1,501.0	3.2	3.2	89.42	0.3	29.8	29.8	23.4	4.620	

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



HP
Anticollision Report



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Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #6H	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	Vertical	Measured	Vertical	Semi Major Axis		Highside	Offset Wellbore Centre	Distance		Separation	Warning		
Measured Depth (usft)	Depth (usft)	Depth (usft)	Depth (usft)	Reference (usft)	Offset (usft)	Toolface (°)	+N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
1,600.0	1,600.0	1,601.0	1,601.0	3.4	3.5	89.42	0.3	29.8	29.8	22.9	4.319		
1,700.0	1,700.0	1,701.0	1,701.0	3.7	3.7	89.42	0.3	29.8	29.8	22.5	4.055		
1,800.0	1,800.0	1,801.0	1,801.0	3.9	3.9	89.42	0.3	29.8	29.8	22.0	3.821		
1,900.0	1,900.0	1,901.0	1,901.0	4.1	4.1	89.42	0.3	29.8	29.8	21.6	3.613		
2,000.0	2,000.0	2,001.0	2,001.0	4.3	4.4	89.42	0.3	29.8	29.8	21.1	3.426		
2,100.0	2,100.0	2,101.0	2,101.0	4.6	4.6	89.42	0.3	29.8	29.8	20.7	3.258		
2,200.0	2,200.0	2,201.0	2,201.0	4.8	4.8	89.42	0.3	29.8	29.8	20.2	3.105		
2,300.0	2,300.0	2,301.0	2,301.0	5.0	5.0	89.42	0.3	29.8	29.8	19.8	2.966		
2,400.0	2,400.0	2,401.0	2,401.0	5.2	5.2	89.42	0.3	29.8	29.8	19.3	2.839		
2,500.0	2,500.0	2,501.0	2,501.0	5.5	5.5	89.42	0.3	29.8	29.8	18.9	2.723		
2,600.0	2,500.0	2,601.0	2,601.0	5.7	5.7	89.42	0.3	29.8	29.8	18.4	2.615		
2,700.0	2,700.0	2,701.0	2,701.0	5.9	5.9	89.42	0.3	29.8	29.8	18.0	2.516		
2,800.0	2,800.0	2,801.0	2,801.0	6.1	6.1	89.42	0.3	29.8	29.8	17.5	2.424		
2,900.0	2,900.0	2,901.0	2,901.0	6.4	6.4	89.42	0.3	29.8	29.8	17.1	2.338		
3,000.0	3,000.0	3,001.0	3,001.0	6.6	6.6	89.42	0.3	29.8	29.8	16.6	2.259		
3,100.0	3,100.0	3,101.0	3,101.0	6.8	6.8	89.42	0.3	29.8	29.8	16.2	2.184		
3,200.0	3,200.0	3,201.0	3,201.0	7.0	7.0	89.42	0.3	29.8	29.8	15.7	2.115		
3,300.0	3,300.0	3,301.0	3,301.0	7.3	7.3	89.42	0.3	29.8	29.8	15.3	2.049		
3,400.0	3,400.0	3,401.0	3,401.0	7.5	7.5	89.42	0.3	29.8	29.8	14.8	1.988		
3,500.0	3,500.0	3,501.0	3,501.0	7.7	7.7	89.42	0.3	29.8	29.8	14.4	1.930		
3,600.0	3,600.0	3,601.0	3,601.0	7.9	7.9	89.42	0.3	29.8	29.8	13.9	1.875		
3,700.0	3,700.0	3,701.0	3,701.0	8.2	8.2	89.42	0.3	29.8	29.8	13.5	1.824		
3,800.0	3,800.0	3,801.0	3,801.0	8.4	8.4	89.42	0.3	29.8	29.8	13.0	1.775		
3,900.0	3,900.0	3,901.0	3,901.0	8.6	8.6	89.42	0.3	29.8	29.8	12.6	1.729		
4,000.0	4,000.0	4,001.0	4,001.0	8.8	8.8	89.42	0.3	29.8	29.8	12.1	1.685		
4,100.0	4,100.0	4,101.0	4,101.0	9.1	9.1	89.42	0.3	29.8	29.8	11.7	1.643		
4,200.0	4,200.0	4,201.0	4,201.0	9.3	9.3	89.42	0.3	29.8	29.8	11.2	1.603		
4,300.0	4,300.0	4,301.0	4,301.0	9.5	9.5	89.42	0.3	29.8	29.8	10.8	1.565		
4,400.0	4,400.0	4,401.0	4,401.0	9.7	9.7	89.42	0.3	29.8	29.8	10.3	1.529		
4,500.0	4,500.0	4,501.0	4,501.0	10.0	10.0	89.42	0.3	29.8	29.8	9.9	1.495 Level 3		
4,600.0	4,600.0	4,601.0	4,601.0	10.2	10.2	89.42	0.3	29.8	29.8	9.4	1.462 Level 3		
4,700.0	4,700.0	4,701.0	4,701.0	10.4	10.4	89.42	0.3	29.8	29.8	9.0	1.430 Level 3		
4,800.0	4,800.0	4,801.0	4,801.0	10.6	10.6	89.42	0.3	29.8	29.8	8.5	1.400 Level 3		
4,900.0	4,900.0	4,901.0	4,901.0	10.9	10.9	89.42	0.3	29.8	29.8	8.1	1.371 Level 3		
5,000.0	5,000.0	5,001.0	5,001.0	11.1	11.1	89.42	0.3	29.8	29.8	7.6	1.343 Level 3		
5,100.0	5,100.0	5,101.0	5,101.0	11.3	11.3	89.42	0.3	29.8	29.8	7.2	1.317 Level 3		
5,200.0	5,200.0	5,201.0	5,201.0	11.5	11.5	89.42	0.3	29.8	29.8	6.7	1.291 Level 3		
5,300.0	5,300.0	5,301.0	5,301.0	11.8	11.8	89.42	0.3	29.8	29.8	6.3	1.266 Level 3		
5,400.0	5,400.0	5,401.0	5,401.0	12.0	12.0	89.42	0.3	29.8	29.8	5.8	1.243 Level 2		
5,500.0	5,500.0	5,501.0	5,501.0	12.2	12.2	89.42	0.3	29.8	29.8	5.4	1.220 Level 2		
5,600.0	5,600.0	5,601.0	5,601.0	12.4	12.4	89.42	0.3	29.8	29.8	4.9	1.198 Level 2		
5,700.0	5,700.0	5,701.0	5,701.0	12.7	12.7	89.42	0.3	29.8	29.8	4.5	1.176 Level 2		
5,800.0	5,800.0	5,801.0	5,801.0	12.9	12.9	89.42	0.3	29.8	29.8	4.0	1.156 Level 2		
5,900.0	5,900.0	5,901.0	5,901.0	13.1	13.1	89.42	0.3	29.8	29.8	3.6	1.136 Level 2		
6,000.0	6,000.0	6,001.0	6,001.0	13.3	13.3	89.42	0.3	29.8	29.8	3.1	1.117 Level 2		
6,100.0	6,100.0	6,101.0	6,101.0	13.6	13.6	89.42	0.3	29.8	29.8	2.7	1.099 Level 2		
6,200.0	6,200.0	6,201.0	6,201.0	13.8	13.8	89.42	0.3	29.8	29.8	2.2	1.081 Level 2		
6,300.0	6,300.0	6,301.0	6,301.0	14.0	14.0	89.42	0.3	29.8	29.8	1.8	1.063 Level 2		
6,400.0	6,400.0	6,401.0	6,401.0	14.2	14.2	89.42	0.3	29.8	29.8	1.3	1.046 Level 2		
6,500.0	6,500.0	6,501.0	6,501.0	14.5	14.5	89.42	0.3	29.8	29.8	0.9	1.030 Level 2		
6,600.0	6,600.0	6,601.0	6,601.0	14.7	14.7	89.42	0.3	29.8	29.8	0.4	1.014 Level 2		
6,700.0	6,700.0	6,701.0	6,701.0	14.9	14.9	89.42	0.3	29.8	29.8	0.0	0.999 Level 1		

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 #6H
Project:	Lea County, NM	TVD Reference:	Well @ 3438.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3438.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #6H	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 #2H - 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)	Distance Between Ellipses (usft)	Separation Factor	Warning
6,800.0	6,800.0	6,801.0	6,801.0	15.1	15.1	89.42	0.3	29.8	29.8	-0.5	-0.984	Level 1
6,900.0	6,900.0	6,901.0	6,901.0	15.4	15.4	89.42	0.3	29.8	29.8	-0.9	0.970	Level 1
7,000.0	7,000.0	7,001.0	7,001.0	15.6	15.6	89.42	0.3	29.8	29.8	-1.4	0.956	Level 1
7,100.0	7,100.0	7,101.0	7,101.0	15.8	15.8	89.42	0.3	29.8	29.8	-1.8	0.942	Level 1
7,200.0	7,200.0	7,201.0	7,201.0	16.0	16.0	89.42	0.3	29.8	29.8	-2.3	0.929	Level 1
7,300.0	7,300.0	7,301.0	7,301.0	16.3	16.3	89.42	0.3	29.8	29.8	-2.7	0.916	Level 1
7,400.0	7,400.0	7,401.0	7,401.0	16.5	16.5	89.42	0.3	29.8	29.8	-3.2	0.904	Level 1
7,500.0	7,500.0	7,501.0	7,501.0	16.7	16.7	89.42	0.3	29.8	29.8	-3.6	0.892	Level 1
7,600.0	7,600.0	7,601.0	7,601.0	16.9	16.9	89.42	0.3	29.8	29.8	-4.1	0.880	Level 1
7,700.0	7,700.0	7,701.0	7,701.0	17.2	17.2	89.42	0.3	29.8	29.8	-4.5	0.868	Level 1
7,800.0	7,800.0	7,801.0	7,801.0	17.4	17.4	89.42	0.3	29.8	29.8	-5.0	0.857	Level 1
7,900.0	7,900.0	7,901.0	7,901.0	17.6	17.6	89.42	0.3	29.8	29.8	-5.4	0.846	Level 1
8,000.0	8,000.0	8,001.0	8,001.0	17.8	17.8	89.42	0.3	29.8	29.8	-5.9	0.835	Level 1
8,100.0	8,100.0	8,101.0	8,101.0	18.1	18.1	89.42	0.3	29.8	29.8	-6.3	0.825	Level 1
8,200.0	8,200.0	8,201.0	8,201.0	18.3	18.3	89.42	0.3	29.8	29.8	-6.8	0.815	Level 1
8,300.0	8,300.0	8,301.0	8,301.0	18.5	18.5	89.42	0.3	29.8	29.8	-7.2	0.805	Level 1
8,400.0	8,400.0	8,401.0	8,401.0	18.7	18.7	89.42	0.3	29.8	29.8	-7.7	0.795	Level 1
8,500.0	8,500.0	8,501.0	8,501.0	19.0	19.0	89.42	0.3	29.8	29.8	-8.1	0.786	Level 1
8,600.0	8,600.0	8,601.0	8,601.0	19.2	19.2	89.42	0.3	29.8	29.8	-8.6	0.777	Level 1
8,700.0	8,700.0	8,701.0	8,701.0	19.4	19.4	89.42	0.3	29.8	29.8	-9.0	0.768	Level 1
8,800.0	8,800.0	8,801.0	8,801.0	19.6	19.6	89.42	0.3	29.8	29.8	-9.5	0.759	Level 1
8,900.0	8,900.0	8,901.0	8,901.0	19.9	19.9	89.42	0.3	29.8	29.8	-9.9	0.750	Level 1
9,000.0	9,000.0	9,001.0	9,001.0	20.1	20.1	89.42	0.3	29.8	29.8	-10.4	0.742	Level 1
9,100.0	9,100.0	9,101.0	9,101.0	20.3	20.3	89.42	0.3	29.8	29.8	-10.8	0.734	Level 1
9,200.0	9,200.0	9,201.0	9,201.0	20.5	20.5	89.42	0.3	29.8	29.8	-11.3	0.726	Level 1
9,300.0	9,300.0	9,301.0	9,301.0	20.8	20.8	89.42	0.3	29.8	29.8	-11.7	0.718	Level 1
9,400.0	9,400.0	9,401.0	9,401.0	21.0	21.0	89.42	0.3	29.8	29.8	-12.2	0.710	Level 1
9,500.0	9,500.0	9,501.0	9,501.0	21.2	21.2	89.42	0.3	29.8	29.8	-12.6	0.703	Level 1
9,600.0	9,600.0	9,601.0	9,601.0	21.4	21.4	89.42	0.3	29.8	29.8	-13.1	0.695	Level 1
9,700.0	9,700.0	9,701.0	9,701.0	21.7	21.7	89.42	0.3	29.8	29.8	-13.5	0.688	Level 1
9,800.0	9,800.0	9,801.0	9,801.0	21.9	21.9	89.42	0.3	29.8	29.8	-14.0	0.681	Level 1
9,900.0	9,900.0	9,901.0	9,901.0	22.1	22.1	89.42	0.3	29.8	29.8	-14.4	0.674	Level 1
9,932.6	9,932.6	9,933.6	9,933.6	22.2	22.2	89.42	0.3	29.8	29.8	-14.6	0.672	Level 1
9,949.9	9,949.9	9,950.9	9,950.9	22.2	22.2	90.00	0.3	29.8	29.8	-14.6	0.671	Level 1, CC
9,950.0	9,950.0	9,951.0	9,951.0	22.2	22.2	90.01	0.3	29.8	29.8	-14.6	0.671	Level 1
9,975.0	9,974.9	9,975.9	9,975.9	22.3	22.3	93.00	0.3	29.8	29.8	-14.7	0.670	Level 1, ES, SF
10,000.0	9,999.8	10,000.8	10,000.8	22.3	22.3	98.38	0.3	29.8	30.1	-14.5	0.675	Level 1
10,025.0	10,024.4	10,025.4	10,025.4	22.4	22.4	105.81	0.3	29.8	31.0	-13.7	0.694	Level 1
10,050.0	10,048.8	10,049.8	10,049.8	22.4	22.4	114.57	0.3	29.8	32.9	-11.7	0.738	Level 1
10,075.0	10,072.9	10,073.9	10,073.9	22.5	22.5	123.66	0.3	29.8	36.3	-8.1	0.818	Level 1
10,100.0	10,096.6	10,097.6	10,097.6	22.5	22.5	132.16	0.3	29.8	41.4	-2.5	0.943	Level 1
10,125.0	10,119.8	10,120.8	10,120.8	22.6	22.6	139.50	0.3	29.8	48.2	5.0	1.117	Level 2
10,150.0	10,142.6	10,143.6	10,143.6	22.6	22.7	145.53	0.3	29.8	56.8	14.5	1.342	Level 3
10,175.0	10,164.7	10,165.7	10,165.7	22.7	22.7	150.35	0.3	29.8	66.9	25.6	1.621	
10,200.0	10,186.2	10,187.2	10,187.2	22.7	22.8	154.16	0.3	29.8	78.5	38.4	1.956	
10,225.0	10,207.1	10,208.1	10,208.1	22.8	22.8	157.16	0.3	29.8	91.4	52.6	2.352	
10,250.0	10,227.1	10,228.1	10,228.1	22.9	22.8	159.52	0.3	29.8	105.6	68.1	2.813	
10,275.0	10,246.4	10,247.4	10,247.4	22.9	22.9	161.37	0.3	29.8	121.0	84.9	3.347	
10,300.0	10,264.8	10,265.8	10,265.8	23.0	22.9	162.82	0.3	29.8	137.5	102.8	3.965	
10,325.0	10,282.3	10,283.3	10,283.3	23.1	23.0	163.94	0.3	29.8	154.9	121.8	4.678	
10,350.0	10,298.8	10,299.8	10,299.8	23.1	23.0	164.79	0.3	29.8	173.4	141.9	5.500	
10,375.0	10,314.4	10,315.4	10,315.4	23.2	23.0	165.39	0.3	29.8	192.7	162.8	6.450	

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 #6H
Project:	Lea County, NM	TVD Reference:	Well @ 3438.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3438.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #6H	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 #2H - 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	
10,400.0	10,328.8	10,329.8	10,329.8	23.3	23.1	165.78	0.3	29.8	212.9	184.7	7.547		
10,425.0	10,342.2	10,343.2	10,343.2	23.4	23.1	165.95	0.3	29.8	233.8	207.2	8.812		
10,450.0	10,354.5	10,355.5	10,355.5	23.5	23.1	165.91	0.3	29.8	255.4	230.5	10.265		
10,475.0	10,365.6	10,366.6	10,366.6	23.5	23.2	165.62	0.3	29.8	277.6	254.3	11.912		
10,500.0	10,375.6	10,376.6	10,376.6	23.7	23.2	165.05	0.3	29.8	300.5	278.6	13.728		
10,525.0	10,384.3	10,385.3	10,385.3	23.8	23.2	164.08	0.3	29.8	323.8	303.0	15.616		
10,550.0	10,391.8	10,392.8	10,392.8	23.9	23.2	162.57	0.3	29.8	347.5	327.5	17.338		
10,575.0	10,398.0	10,399.0	10,399.0	24.0	23.2	160.20	0.3	29.8	371.7	351.5	18.447		
10,600.0	10,402.9	10,403.9	10,403.9	24.1	23.2	156.33	0.3	29.8	396.1	374.5	18.322		
10,625.0	10,406.6	10,407.6	10,407.6	24.3	23.2	149.46	0.3	29.8	420.7	395.2	16.478		
10,650.0	10,409.0	10,410.0	10,410.0	24.4	23.3	135.51	0.3	29.8	445.6	411.6	13.131		
10,675.0	10,410.0	10,411.0	10,411.0	24.5	23.3	104.08	0.3	29.8	470.5	424.1	10.140		
10,699.3	10,410.0	10,411.0	10,411.0	24.6	23.3	77.17	0.3	29.8	484.8	438.1	10.377		
10,700.0	10,409.9	10,410.9	10,410.9	24.7	23.3	76.89	0.3	29.8	495.4	448.7	10.602		
10,800.0	10,408.5	10,409.5	10,409.5	25.4	23.2	74.36	0.3	29.8	595.3	548.4	12.700		
10,900.0	10,407.1	10,408.1	10,408.1	26.2	23.2	71.89	0.3	29.8	695.2	648.1	14.780		
11,000.0	10,405.7	10,406.7	10,406.7	27.0	23.2	69.49	0.3	29.8	795.1	747.9	16.839		
11,100.0	10,404.3	11,941.5	11,234.1	28.0	29.7	178.33	906.6	24.6	829.3	815.5	60.252		
11,200.0	10,402.9	12,041.5	11,232.7	29.1	30.7	178.38	1,006.6	24.0	829.3	814.2	55.186		
11,300.0	10,401.4	12,141.5	11,231.3	30.2	31.8	178.42	1,106.6	23.4	829.2	812.9	50.798		
11,400.0	10,400.0	12,241.5	11,229.9	31.4	32.9	178.46	1,206.6	22.8	829.2	811.6	46.986		
11,500.0	10,398.6	12,341.5	11,228.5	32.7	34.1	178.51	1,306.5	22.3	829.2	810.2	43.658		
11,600.0	10,397.2	12,441.5	11,227.1	34.0	35.4	178.55	1,406.5	21.7	829.2	808.8	40.737		
11,700.0	10,395.8	12,541.5	11,225.7	35.3	36.7	178.59	1,506.5	21.1	829.2	807.4	38.158		
11,800.0	10,394.4	12,641.5	11,224.3	36.7	38.0	178.64	1,606.5	20.5	829.2	806.0	35.869		
11,900.0	10,393.0	12,741.5	11,222.9	38.1	39.4	178.68	1,706.5	19.9	829.1	804.6	33.826		
12,000.0	10,391.6	12,841.5	11,221.5	39.6	40.9	178.72	1,806.5	19.4	829.1	803.2	31.993		
12,100.0	10,390.2	12,941.5	11,220.1	41.1	42.3	178.77	1,906.5	18.8	829.1	801.8	30.342		
12,200.0	10,388.8	13,041.5	11,218.7	42.6	43.8	178.81	2,006.4	18.2	829.1	800.4	28.848		
12,300.0	10,387.4	13,141.5	11,217.3	44.1	45.3	178.85	2,106.4	17.6	829.1	798.9	27.489		
12,400.0	10,386.0	13,241.5	11,215.9	45.7	46.8	178.89	2,206.4	17.1	829.1	797.5	26.249		
12,500.0	10,384.6	13,341.5	11,214.4	47.3	48.4	178.94	2,306.4	16.5	829.1	796.1	25.113		
12,600.0	10,383.2	13,441.5	11,213.0	48.9	49.9	178.98	2,406.4	15.9	829.1	794.6	24.070		
12,700.0	10,381.8	13,541.5	11,211.6	50.5	51.5	179.02	2,506.4	15.3	829.0	793.2	23.108		
12,800.0	10,380.4	13,641.5	11,210.2	52.1	53.1	179.07	2,606.4	14.7	829.0	791.7	22.218		
12,900.0	10,379.0	13,741.5	11,208.8	53.7	54.7	179.11	2,706.4	14.2	829.0	790.3	21.393		
13,000.0	10,377.6	13,841.5	11,207.4	55.4	56.4	179.15	2,806.3	13.6	829.0	788.8	20.627		
13,100.0	10,376.2	13,941.4	11,206.0	57.0	58.0	179.20	2,906.3	13.0	829.0	787.4	19.912		
13,200.0	10,374.8	14,041.4	11,204.6	58.7	59.7	179.24	3,006.3	12.4	829.0	785.9	19.245		
13,300.0	10,373.4	14,141.4	11,203.2	60.4	61.3	179.28	3,106.3	11.9	829.0	784.5	18.620		
13,400.0	10,372.0	14,241.4	11,201.8	62.1	63.0	179.33	3,206.3	11.3	829.0	783.0	18.034		
13,500.0	10,370.6	14,341.4	11,200.4	63.8	64.7	179.37	3,306.3	10.7	829.0	781.6	17.483		
13,600.0	10,369.2	14,441.4	11,199.0	65.5	66.3	179.41	3,406.3	10.1	829.0	780.1	16.965		
13,700.0	10,367.8	14,541.4	11,197.6	67.2	68.0	179.46	3,506.2	9.5	829.0	778.6	16.476		
13,800.0	10,366.4	14,641.4	11,196.2	68.9	69.7	179.50	3,606.2	9.0	829.0	777.2	16.014		
13,900.0	10,365.0	14,741.4	11,194.8	70.6	71.4	179.54	3,706.2	8.4	828.9	775.7	15.577		
14,000.0	10,363.6	14,841.4	11,193.4	72.3	73.1	179.59	3,806.2	7.8	828.9	774.3	15.163		
14,100.0	10,362.2	14,941.4	11,192.0	74.1	74.9	179.63	3,906.2	7.2	828.9	772.8	14.771		
14,200.0	10,360.8	15,041.4	11,190.6	75.8	76.6	179.67	4,006.2	6.7	828.9	771.4	14.398		
14,300.0	10,359.4	15,141.4	11,189.2	77.5	78.3	179.72	4,106.2	6.1	828.9	769.9	14.043		
14,400.0	10,357.9	15,241.4	11,187.8	79.3	80.0	179.76	4,206.2	5.5	828.9	768.4	13.705		
14,500.0	10,356.5	15,341.4	11,186.4	81.0	81.8	179.80	4,306.1	4.9	828.9	767.0	13.383		

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 #6H
Project:	Lea County, NM	TVD Reference:	Well @ 3438.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3438.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #6H	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 #2H - 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
14,600.0	10,355.1	15,441.4	11,185.0	82.8	83.5	179.85	4,406.1	4.3	828.9	765.5	13.075	
14,700.0	10,353.7	15,541.4	11,183.6	84.5	85.2	179.89	4,506.1	3.8	828.9	764.1	12.782	
14,800.0	10,352.3	15,641.4	11,182.2	86.3	87.0	179.93	4,606.1	3.2	828.9	762.6	12.501	
14,900.0	10,350.9	15,741.4	11,180.8	88.0	88.7	179.98	4,706.1	2.6	828.9	761.2	12.232	
14,944.9	10,350.3	15,786.3	11,180.1	88.8	89.5	180.00	4,751.0	2.4	828.9	760.5	12.115	
14,966.6	10,350.0	15,796.7	11,180.0	89.2	89.7	-180.00	4,761.4	2.3	829.0	760.3	12.074	



HP
Anticollision Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Squints Federal Com #6H
Project:	Lea County, NM	TVD Reference:	Well @ 3438.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3438.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #6H	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)	Separation Factor	Warning:	
0.0	0.0	0.0	0.0	0.0	0.0	-90.46	-9.1	-1,122.1	1,122.1			
100.0	100.0	98.0	98.0	0.1	0.1	-90.46	-9.1	-1,122.1	1,122.1	1,122.0	7,308.534	
200.0	200.0	198.0	198.0	0.3	0.3	-90.46	-9.1	-1,122.1	1,122.1	1,121.5	1,869.837	
300.0	300.0	298.0	298.0	0.5	0.5	-90.46	-9.1	-1,122.1	1,122.1	1,121.1	1,069.050	
400.0	400.0	398.0	398.0	0.8	0.7	-90.46	-9.1	-1,122.1	1,122.1	1,120.6	748.496	
500.0	500.0	498.0	498.0	1.0	1.0	-90.46	-9.1	-1,122.1	1,122.1	1,120.2	575.832	
600.0	600.0	598.0	598.0	1.2	1.2	-90.46	-9.1	-1,122.1	1,122.1	1,119.7	467.897	
700.0	700.0	698.0	698.0	1.4	1.4	-90.46	-9.1	-1,122.1	1,122.1	1,119.3	394.038	
800.0	800.0	798.0	798.0	1.7	1.6	-90.46	-9.1	-1,122.1	1,122.1	1,118.8	340.318	
900.0	900.0	898.0	898.0	1.9	1.9	-90.46	-9.1	-1,122.1	1,122.1	1,118.4	299.488	
1,000.0	1,000.0	998.0	998.0	2.1	2.1	-90.46	-9.1	-1,122.1	1,122.1	1,117.9	267.406	
1,100.0	1,100.0	1,098.0	1,098.0	2.3	2.3	-90.46	-9.1	-1,122.1	1,122.1	1,117.5	241.532	
1,200.0	1,200.0	1,198.0	1,198.0	2.5	2.5	-90.46	-9.1	-1,122.1	1,122.1	1,117.0	220.223	
1,300.0	1,300.0	1,298.0	1,298.0	2.8	2.8	-90.46	-9.1	-1,122.1	1,122.1	1,116.6	202.370	
1,400.0	1,400.0	1,398.0	1,398.0	3.0	3.0	-90.46	-9.1	-1,122.1	1,122.1	1,116.1	187.194	
1,500.0	1,500.0	1,498.0	1,498.0	3.2	3.2	-90.46	-9.1	-1,122.1	1,122.1	1,115.7	174.136	
1,600.0	1,600.0	1,598.0	1,598.0	3.4	3.4	-90.46	-9.1	-1,122.1	1,122.1	1,115.2	162.780	
1,700.0	1,700.0	1,698.0	1,698.0	3.7	3.7	-90.46	-9.1	-1,122.1	1,122.1	1,114.8	152.815	
1,800.0	1,800.0	1,798.0	1,798.0	3.9	3.9	-90.46	-9.1	-1,122.1	1,122.1	1,114.3	144.000	
1,900.0	1,900.0	1,898.0	1,898.0	4.1	4.1	-90.46	-9.1	-1,122.1	1,122.1	1,113.9	136.146	
2,000.0	2,000.0	1,998.0	1,998.0	4.3	4.3	-90.46	-9.1	-1,122.1	1,122.1	1,113.4	129.104	
2,100.0	2,100.0	2,098.0	2,098.0	4.6	4.6	-90.46	-9.1	-1,122.1	1,122.1	1,113.0	122.756	
2,200.0	2,200.0	2,198.0	2,198.0	4.8	4.8	-90.46	-9.1	-1,122.1	1,122.1	1,112.5	117.002	
2,300.0	2,300.0	2,298.0	2,298.0	5.0	5.0	-90.46	-9.1	-1,122.1	1,122.1	1,112.1	111.763	
2,400.0	2,400.0	2,398.0	2,398.0	5.2	5.2	-90.46	-9.1	-1,122.1	1,122.1	1,111.6	106.974	
2,500.0	2,500.0	2,498.0	2,498.0	5.5	5.5	-90.46	-9.1	-1,122.1	1,122.1	1,111.2	102.578	
2,600.0	2,600.0	2,598.0	2,598.0	5.7	5.7	-90.46	-9.1	-1,122.1	1,122.1	1,110.7	98.529	
2,700.0	2,700.0	2,698.0	2,698.0	5.9	5.9	-90.46	-9.1	-1,122.1	1,122.1	1,110.3	94.788	
2,800.0	2,800.0	2,798.0	2,798.0	6.1	6.1	-90.46	-9.1	-1,122.1	1,122.1	1,109.8	91.320	
2,900.0	2,900.0	2,898.0	2,898.0	6.4	6.4	-90.46	-9.1	-1,122.1	1,122.1	1,109.4	88.097	
3,000.0	3,000.0	2,998.0	2,998.0	6.6	6.6	-90.46	-9.1	-1,122.1	1,122.1	1,108.9	85.094	
3,100.0	3,100.0	3,098.0	3,098.0	6.8	6.8	-90.46	-9.1	-1,122.1	1,122.1	1,108.5	82.289	
3,200.0	3,200.0	3,198.0	3,198.0	7.0	7.0	-90.46	-9.1	-1,122.1	1,122.1	1,108.1	79.663	
3,300.0	3,300.0	3,298.0	3,298.0	7.3	7.3	-90.46	-9.1	-1,122.1	1,122.1	1,107.6	77.199	
3,400.0	3,400.0	3,398.0	3,398.0	7.5	7.5	-90.46	-9.1	-1,122.1	1,122.1	1,107.2	74.883	
3,500.0	3,500.0	3,498.0	3,498.0	7.7	7.7	-90.46	-9.1	-1,122.1	1,122.1	1,106.7	72.702	
3,600.0	3,600.0	3,598.0	3,598.0	7.9	7.9	-90.46	-9.1	-1,122.1	1,122.1	1,106.3	70.645	
3,700.0	3,700.0	3,698.0	3,698.0	8.2	8.2	-90.46	-9.1	-1,122.1	1,122.1	1,105.8	68.701	
3,800.0	3,800.0	3,798.0	3,798.0	8.4	8.4	-90.46	-9.1	-1,122.1	1,122.1	1,105.4	66.860	
3,900.0	3,900.0	3,898.0	3,898.0	8.6	8.6	-90.46	-9.1	-1,122.1	1,122.1	1,104.9	65.116	
4,000.0	4,000.0	3,998.0	3,998.0	8.8	8.8	-90.46	-9.1	-1,122.1	1,122.1	1,104.5	63.461	
4,100.0	4,100.0	4,098.0	4,098.0	9.1	9.1	-90.46	-9.1	-1,122.1	1,122.1	1,104.0	61.888	
4,200.0	4,200.0	4,198.0	4,198.0	9.3	9.3	-90.46	-9.1	-1,122.1	1,122.1	1,103.6	60.390	
4,300.0	4,300.0	4,298.0	4,298.0	9.5	9.5	-90.46	-9.1	-1,122.1	1,122.1	1,103.1	58.964	
4,400.0	4,400.0	4,398.0	4,398.0	9.7	9.7	-90.46	-9.1	-1,122.1	1,122.1	1,102.7	57.603	
4,500.0	4,500.0	4,498.0	4,498.0	10.0	10.0	-90.46	-9.1	-1,122.1	1,122.1	1,102.2	56.304	
4,600.0	4,600.0	4,598.0	4,598.0	10.2	10.2	-90.46	-9.1	-1,122.1	1,122.1	1,101.8	55.062	
4,700.0	4,700.0	4,698.0	4,698.0	10.4	10.4	-90.46	-9.1	-1,122.1	1,122.1	1,101.3	53.874	
4,800.0	4,800.0	4,798.0	4,798.0	10.6	10.6	-90.46	-9.1	-1,122.1	1,122.1	1,100.9	52.735	
4,900.0	4,900.0	4,898.0	4,898.0	10.9	10.9	-90.46	-9.1	-1,122.1	1,122.1	1,100.4	51.644	
5,000.0	5,000.0	4,998.0	4,998.0	11.1	11.1	-90.46	-9.1	-1,122.1	1,122.1	1,100.0	50.598	
5,100.0	5,100.0	5,098.0	5,098.0	11.3	11.3	-90.46	-9.1	-1,122.1	1,122.1	1,099.5	49.592	

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 #6H
Project:	Lea County, NM	TVD Reference:	Well @ 3438.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3438.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #6H	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 #3H - 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)	Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning	
5,200.0	5,200.0	5,198.0	5,198.0	11.5	11.5	-90.46	-9.1	-1,122.1	1,122.1	1,099.1	48.626		
5,300.0	5,300.0	5,298.0	5,298.0	11.8	11.8	-90.46	-9.1	-1,122.1	1,122.1	1,098.6	47.697		
5,400.0	5,400.0	5,398.0	5,398.0	12.0	12.0	-90.46	-9.1	-1,122.1	1,122.1	1,098.2	46.803		
5,500.0	5,500.0	5,498.0	5,498.0	12.2	12.2	-90.46	-9.1	-1,122.1	1,122.1	1,097.7	45.942		
5,600.0	5,600.0	5,598.0	5,598.0	12.4	12.4	-90.46	-9.1	-1,122.1	1,122.1	1,097.3	45.111		
5,700.0	5,700.0	5,698.0	5,698.0	12.7	12.7	-90.46	-9.1	-1,122.1	1,122.1	1,096.8	44.311		
5,800.0	5,800.0	5,798.0	5,798.0	12.9	12.9	-90.46	-9.1	-1,122.1	1,122.1	1,096.4	43.538		
5,900.0	5,900.0	5,898.0	5,898.0	13.1	13.1	-90.46	-9.1	-1,122.1	1,122.1	1,095.9	42.791		
6,000.0	6,000.0	5,998.0	5,998.0	13.3	13.3	-90.46	-9.1	-1,122.1	1,122.1	1,095.5	42.070		
6,100.0	6,100.0	6,098.0	6,098.0	13.6	13.6	-90.46	-9.1	-1,122.1	1,122.1	1,095.0	41.373		
6,200.0	6,200.0	6,198.0	6,198.0	13.8	13.8	-90.46	-9.1	-1,122.1	1,122.1	1,094.6	40.698		
6,300.0	6,300.0	6,298.0	6,298.0	14.0	14.0	-90.46	-9.1	-1,122.1	1,122.1	1,094.1	40.045		
6,400.0	6,400.0	6,398.0	6,398.0	14.2	14.2	-90.46	-9.1	-1,122.1	1,122.1	1,093.7	39.413		
6,500.0	6,500.0	6,498.0	6,498.0	14.5	14.5	-90.46	-9.1	-1,122.1	1,122.1	1,093.2	38.801		
6,600.0	6,600.0	6,598.0	6,598.0	14.7	14.7	-90.46	-9.1	-1,122.1	1,122.1	1,092.8	38.207		
6,700.0	6,700.0	6,698.0	6,698.0	14.9	14.9	-90.46	-9.1	-1,122.1	1,122.1	1,092.3	37.631		
6,800.0	6,800.0	6,798.0	6,798.0	15.1	15.1	-90.46	-9.1	-1,122.1	1,122.1	1,091.9	37.072		
6,900.0	6,900.0	6,898.0	6,898.0	15.4	15.4	-90.46	-9.1	-1,122.1	1,122.1	1,091.4	36.529		
7,000.0	7,000.0	6,998.0	6,998.0	15.6	15.6	-90.46	-9.1	-1,122.1	1,122.1	1,091.0	36.002		
7,100.0	7,100.0	7,098.0	7,098.0	15.8	15.8	-90.46	-9.1	-1,122.1	1,122.1	1,090.5	35.491		
7,200.0	7,200.0	7,198.0	7,198.0	16.0	16.0	-90.46	-9.1	-1,122.1	1,122.1	1,090.1	34.993		
7,300.0	7,300.0	7,298.0	7,298.0	16.3	16.3	-90.46	-9.1	-1,122.1	1,122.1	1,089.6	34.509		
7,400.0	7,400.0	7,398.0	7,398.0	16.5	16.5	-90.46	-9.1	-1,122.1	1,122.1	1,089.2	34.039		
7,500.0	7,500.0	7,498.0	7,498.0	16.7	16.7	-90.46	-9.1	-1,122.1	1,122.1	1,088.7	33.581		
7,600.0	7,600.0	7,598.0	7,598.0	16.9	16.9	-90.46	-9.1	-1,122.1	1,122.1	1,088.3	33.135		
7,700.0	7,700.0	7,698.0	7,698.0	17.2	17.2	-90.46	-9.1	-1,122.1	1,122.1	1,087.8	32.701		
7,800.0	7,800.0	7,798.0	7,798.0	17.4	17.4	-90.46	-9.1	-1,122.1	1,122.1	1,087.4	32.278		
7,900.0	7,900.0	7,898.0	7,898.0	17.6	17.6	-90.46	-9.1	-1,122.1	1,122.1	1,086.9	31.866		
8,000.0	8,000.0	7,998.0	7,998.0	17.8	17.8	-90.46	-9.1	-1,122.1	1,122.1	1,086.5	31.464		
8,100.0	8,100.0	8,098.0	8,098.0	18.1	18.1	-90.46	-9.1	-1,122.1	1,122.1	1,086.0	31.073		
8,200.0	8,200.0	8,198.0	8,198.0	18.3	18.3	-90.46	-9.1	-1,122.1	1,122.1	1,085.6	30.691		
8,300.0	8,300.0	8,298.0	8,298.0	18.5	18.5	-90.46	-9.1	-1,122.1	1,122.1	1,085.1	30.318		
8,400.0	8,400.0	8,398.0	8,398.0	18.7	18.7	-90.46	-9.1	-1,122.1	1,122.1	1,084.7	29.954		
8,500.0	8,500.0	8,498.0	8,498.0	19.0	19.0	-90.46	-9.1	-1,122.1	1,122.1	1,084.2	29.599		
8,600.0	8,600.0	8,598.0	8,598.0	19.2	19.2	-90.46	-9.1	-1,122.1	1,122.1	1,083.8	29.252		
8,700.0	8,700.0	8,698.0	8,698.0	19.4	19.4	-90.46	-9.1	-1,122.1	1,122.1	1,083.3	28.913		
8,800.0	8,800.0	8,798.0	8,798.0	19.6	19.6	-90.46	-9.1	-1,122.1	1,122.1	1,082.9	28.582		
8,900.0	8,900.0	8,898.0	8,898.0	19.9	19.9	-90.46	-9.1	-1,122.1	1,122.1	1,082.4	28.259		
9,000.0	9,000.0	8,998.0	8,998.0	20.1	20.1	-90.46	-9.1	-1,122.1	1,122.1	1,082.0	27.942		
9,100.0	9,100.0	9,098.0	9,098.0	20.3	20.3	-90.46	-9.1	-1,122.1	1,122.1	1,081.5	27.633		
9,200.0	9,200.0	9,198.0	9,198.0	20.5	20.5	-90.46	-9.1	-1,122.1	1,122.1	1,081.1	27.331		
9,300.0	9,300.0	9,298.0	9,298.0	20.8	20.8	-90.46	-9.1	-1,122.1	1,122.1	1,080.6	27.035		
9,400.0	9,400.0	9,398.0	9,398.0	21.0	21.0	-90.46	-9.1	-1,122.1	1,122.1	1,080.2	26.745		
9,500.0	9,500.0	9,498.0	9,498.0	21.2	21.2	-90.46	-9.1	-1,122.1	1,122.1	1,079.7	26.461		
9,600.0	9,600.0	9,598.0	9,598.0	21.4	21.4	-90.46	-9.1	-1,122.1	1,122.1	1,079.3	26.184		
9,700.0	9,700.0	9,698.0	9,698.0	21.7	21.7	-90.46	-9.1	-1,122.1	1,122.1	1,078.8	25.912		
9,800.0	9,800.0	9,798.0	9,798.0	21.9	21.9	-90.46	-9.1	-1,122.1	1,122.1	1,078.4	25.646		
9,900.0	9,900.0	9,898.0	9,898.0	22.1	22.1	-90.46	-9.1	-1,122.1	1,122.1	1,077.9	25.385		
9,932.6	9,932.6	9,930.6	9,930.6	22.2	22.2	-90.46	-9.1	-1,122.1	1,122.1	1,077.8	25.301 CC		
9,950.0	9,950.0	9,948.0	9,948.0	22.2	22.2	-90.51	-9.1	-1,122.1	1,122.1	1,077.7	25.257		
9,975.0	9,974.9	9,972.9	9,972.9	22.3	22.3	-90.59	-9.1	-1,122.1	1,122.2	1,077.6	25.194		
10,000.0	9,999.8	9,997.8	9,997.8	22.3	22.3	-90.73	-9.1	-1,122.1	1,122.2	1,077.5	25.132		

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 #6H
Project:	Lea County, NM	TVD Reference:	Well @ 3438.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3438.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #6H	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:	0.0usft
Survey Program: 0-MWD default												Offset Well Error:	0.0usft
Reference	Offset	Semi Major Axis	Highside	Offset Wellbore Centre	Distance	Separation	Warning						
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Toolface (°)	N/S (usft)	E/W (usft)	Between Centres (usft)	Between Ellipses (usft)	Factor		
10,025.0	10,024.4	10,022.4	10,022.4	22.4	22.4	-90.93	-9.1	-1,122.1	1,122.2	1,077.5	25.072		
10,050.0	10,048.8	10,046.8	10,046.8	22.4	22.4	-91.19	-9.1	-1,122.1	1,122.4	1,077.5	25.014	ES	
10,075.0	10,072.9	10,070.9	10,070.9	22.5	22.5	-91.50	-9.1	-1,122.1	1,122.5	1,077.5	24.959		
10,100.0	10,096.6	10,094.6	10,094.6	22.5	22.5	-91.85	-9.1	-1,122.1	1,122.8	1,077.7	24.906		
10,125.0	10,119.8	10,117.8	10,117.8	22.6	22.6	-92.25	-9.1	-1,122.1	1,123.1	1,077.9	24.857		
10,150.0	10,142.6	10,140.6	10,140.6	22.6	22.6	-92.67	-9.1	-1,122.1	1,123.6	1,078.3	24.813		
10,175.0	10,164.7	10,162.7	10,162.7	22.7	22.7	-93.11	-9.1	-1,122.1	1,124.3	1,078.9	24.774		
10,200.0	10,186.2	10,184.2	10,184.2	22.7	22.7	-93.57	-9.1	-1,122.1	1,125.1	1,079.7	24.741		
10,225.0	10,207.1	10,205.1	10,205.1	22.8	22.8	-94.02	-9.1	-1,122.1	1,126.2	1,080.7	24.714		
10,250.0	10,227.1	10,225.1	10,225.1	22.9	22.8	-94.46	-9.1	-1,122.1	1,127.6	1,081.9	24.695		
10,275.0	10,246.4	10,244.4	10,244.4	22.9	22.9	-94.89	-9.1	-1,122.1	1,129.3	1,083.5	24.684		
10,300.0	10,264.8	10,262.8	10,262.8	23.0	22.9	-95.27	-9.1	-1,122.1	1,131.3	1,085.5	24.682		
10,325.0	10,282.3	10,280.3	10,280.3	23.1	23.0	-95.61	-9.1	-1,122.1	1,133.7	1,087.8	24.687		
10,350.0	10,298.8	10,296.8	10,296.8	23.1	23.0	-95.90	-9.1	-1,122.1	1,136.6	1,090.5	24.701		
10,375.0	10,314.4	10,312.4	10,312.4	23.2	23.0	-96.12	-9.1	-1,122.1	1,139.8	1,093.7	24.722		
10,400.0	10,328.8	10,326.8	10,326.8	23.3	23.1	-96.26	-9.1	-1,122.1	1,143.6	1,097.4	24.749		
10,425.0	10,342.2	10,340.2	10,340.2	23.4	23.1	-96.32	-9.1	-1,122.1	1,147.9	1,101.5	24.783		
10,450.0	10,354.5	10,352.5	10,352.5	23.5	23.1	-96.28	-9.1	-1,122.1	1,152.6	1,106.2	24.822		
10,475.0	10,365.6	10,363.6	10,363.6	23.5	23.1	-96.13	-9.1	-1,122.1	1,158.0	1,111.4	24.864		
10,500.0	10,375.6	10,373.6	10,373.6	23.7	23.2	-95.87	-9.1	-1,122.1	1,163.8	1,117.1	24.911		
10,525.0	10,384.3	10,382.3	10,382.3	23.8	23.2	-95.48	-9.1	-1,122.1	1,170.3	1,123.4	24.961		
10,550.0	10,391.8	10,389.8	10,389.8	23.9	23.2	-94.97	-9.1	-1,122.1	1,177.3	1,130.2	25.015		
10,575.0	10,398.0	10,396.0	10,396.0	24.0	23.2	-94.33	-9.1	-1,122.1	1,184.8	1,137.6	25.074		
10,600.0	10,402.9	10,400.9	10,400.9	24.1	23.2	-93.55	-9.1	-1,122.1	1,192.9	1,145.5	25.140		
10,625.0	10,406.6	10,404.6	10,404.6	24.3	23.2	-92.64	-9.1	-1,122.1	1,201.5	1,153.9	25.215		
10,650.0	10,409.0	10,407.0	10,407.0	24.4	23.2	-91.58	-9.1	-1,122.1	1,210.7	1,162.8	25.302		
10,675.0	10,410.0	10,408.0	10,408.0	24.5	23.2	-90.39	-9.1	-1,122.1	1,220.3	1,172.2	25.406		
10,689.3	10,410.0	10,408.0	10,408.0	24.6	23.2	-89.65	-9.1	-1,122.1	1,225.9	1,177.8	25.473		
10,700.0	10,409.9	10,407.9	10,407.9	24.7	23.2	-89.64	-9.1	-1,122.1	1,230.3	1,182.1	25.525		
10,800.0	10,408.5	10,406.5	10,406.5	25.4	23.2	-89.57	-9.1	-1,122.1	1,274.6	1,225.6	26.045		
10,900.0	10,407.1	10,405.1	10,405.1	26.2	23.2	-89.50	-9.1	-1,122.1	1,324.9	1,275.1	26.612		
11,000.0	10,405.7	10,403.7	10,403.7	27.0	23.2	-89.42	-9.1	-1,122.1	1,380.7	1,329.9	27.214		
11,100.0	10,404.3	11,923.8	11,221.6	28.0	29.6	-126.00	894.6	-1,127.4	1,394.1	1,346.8	29.464		
11,200.0	10,402.9	12,023.8	11,220.9	29.1	30.6	-126.00	994.6	-1,128.0	1,395.0	1,345.9	28.417		
11,300.0	10,401.4	12,123.8	11,220.1	30.2	31.7	-126.01	1,094.6	-1,128.6	1,395.8	1,344.8	27.377		
11,400.0	10,400.0	12,223.8	11,219.3	31.4	32.9	-126.01	1,194.6	-1,129.2	1,396.7	1,343.7	26.356		
11,500.0	10,398.6	12,323.8	11,218.5	32.7	34.1	-126.02	1,294.6	-1,129.8	1,397.6	1,342.5	25.365		
11,600.0	10,397.2	12,423.8	11,217.7	34.0	35.3	-126.02	1,394.6	-1,130.4	1,398.5	1,341.2	24.410		
11,700.0	10,395.8	12,523.8	11,216.9	35.3	36.6	-126.03	1,494.6	-1,130.9	1,399.4	1,339.8	23.494		
11,800.0	10,394.4	12,623.8	11,216.2	36.7	38.0	-126.03	1,594.5	-1,131.5	1,400.2	1,338.3	22.621		
11,900.0	10,393.0	12,723.8	11,215.4	38.1	39.4	-126.04	1,694.5	-1,132.1	1,401.1	1,336.8	21.790		
12,000.0	10,391.6	12,823.7	11,214.6	39.6	40.8	-126.04	1,794.5	-1,132.7	1,402.0	1,335.2	21.002		
12,100.0	10,390.2	12,923.7	11,213.8	41.1	42.2	-126.05	1,894.5	-1,133.3	1,402.9	1,333.6	20.256		
12,200.0	10,388.8	13,023.7	11,213.0	42.6	43.7	-126.05	1,994.5	-1,133.9	1,403.7	1,331.9	19.549		
12,300.0	10,387.4	13,123.7	11,212.2	44.1	45.2	-126.06	2,094.5	-1,134.5	1,404.6	1,330.2	18.882		
12,400.0	10,386.0	13,223.7	11,211.5	45.7	46.8	-126.06	2,194.5	-1,135.1	1,405.5	1,328.5	18.250		
12,500.0	10,384.6	13,323.7	11,210.7	47.3	48.3	-126.07	2,294.5	-1,135.7	1,406.4	1,326.7	17.654		
12,600.0	10,383.2	13,423.7	11,209.9	48.9	49.9	-126.07	2,394.5	-1,136.2	1,407.3	1,324.9	17.089		
12,700.0	10,381.8	13,523.7	11,209.1	50.5	51.5	-126.08	2,494.5	-1,136.8	1,408.1	1,323.1	16.556		
12,800.0	10,380.4	13,623.7	11,208.3	52.1	53.1	-126.08	2,594.5	-1,137.4	1,409.0	1,321.2	16.051		
12,900.0	10,379.0	13,723.7	11,207.5	53.7	54.7	-126.09	2,694.5	-1,138.0	1,409.9	1,319.4	15.572		
13,000.0	10,377.6	13,823.7	11,206.8	55.4	56.3	-126.09	2,794.4	-1,138.6	1,410.8	1,317.5	15.119		

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 #6H
Project:	Lea County, NM	TVD Reference:	Well @ 3438.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3438.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #6H	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
13,100.0	10,376.2	13,923.7	11,206.0	57.0	57.9	-126.10	2,894.4	-1,139.2	1,411.7	1,315.6	14.690	
13,200.0	10,374.8	14,023.7	11,205.2	58.7	59.6	-126.10	2,994.4	-1,139.8	1,412.5	1,313.6	14.282	
13,300.0	10,373.4	14,123.7	11,204.4	60.4	61.2	-126.11	3,094.4	-1,140.4	1,413.4	1,311.7	13.895	
13,400.0	10,372.0	14,223.7	11,203.6	62.1	62.9	-126.11	3,194.4	-1,141.0	1,414.3	1,309.7	13.526	
13,500.0	10,370.6	14,323.7	11,202.8	63.8	64.6	-126.12	3,294.4	-1,141.5	1,415.2	1,307.8	13.176	
13,600.0	10,369.2	14,423.7	11,202.0	65.5	66.3	-126.12	3,394.4	-1,142.1	1,416.1	1,305.8	12.843	
13,700.0	10,367.8	14,523.7	11,201.3	67.2	68.0	-126.13	3,494.4	-1,142.7	1,416.9	1,303.8	12.525	
13,800.0	10,366.4	14,623.7	11,200.5	68.9	69.7	-126.13	3,594.4	-1,143.3	1,417.8	1,301.8	12.222	
13,900.0	10,365.0	14,723.7	11,199.7	70.6	71.4	-126.14	3,694.4	-1,143.9	1,418.7	1,299.8	11.932	
14,000.0	10,363.6	14,823.7	11,198.9	72.3	73.1	-126.14	3,794.4	-1,144.5	1,419.6	1,297.8	11.656	
14,100.0	10,362.2	14,923.7	11,198.1	74.1	74.8	-126.15	3,894.3	-1,145.1	1,420.5	1,295.8	11.392	
14,200.0	10,360.8	15,023.7	11,197.3	75.8	76.5	-126.15	3,994.3	-1,145.7	1,421.3	1,293.7	11.139	
14,300.0	10,359.4	15,123.7	11,196.6	77.5	78.2	-126.16	4,094.3	-1,146.3	1,422.2	1,291.7	10.897	
14,400.0	10,357.9	15,223.7	11,195.8	79.3	80.0	-126.16	4,194.3	-1,146.8	1,423.1	1,289.7	10.664	
14,500.0	10,356.5	15,323.7	11,195.0	81.0	81.7	-126.17	4,294.3	-1,147.4	1,424.0	1,287.6	10.442	
14,600.0	10,355.1	15,423.6	11,194.2	82.8	83.4	-126.17	4,394.3	-1,148.0	1,424.9	1,285.5	10.228	
14,700.0	10,353.7	15,523.6	11,193.4	84.5	85.2	-126.18	4,494.3	-1,148.6	1,425.7	1,283.5	10.023	
14,800.0	10,352.3	15,623.6	11,192.6	86.3	86.9	-126.18	4,594.3	-1,149.2	1,426.6	1,281.4	9.826	
14,900.0	10,350.9	15,723.6	11,191.9	88.0	88.7	-126.19	4,694.3	-1,149.8	1,427.5	1,279.4	9.636	
14,966.6	10,350.0	15,790.2	11,191.3	89.2	89.8	-126.19	4,760.8	-1,150.2	1,428.1	1,278.0	9.514 SF	



HP
Anticollision Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Squints Federal Com #6H
Project:	Lea County, NM	TVD Reference:	Well @ 3438.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3438.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #6H	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		Highside Tooface (")	Offset +N/-S (usft)	Wellbore Centre +E/-W (usft)	Distance		Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)				Between Centres (usft)	Between Ellipses (usft)			
0.0	0.0	0.0	0.0	0.0	0.0	-90.46	-19.7	-2,441.9	2,442.0				
100.0	100.0	98.0	98.0	0.1	0.1	-90.46	-19.7	-2,441.9	2,442.0	2,441.8		N/A	
200.0	200.0	198.0	198.0	0.3	0.3	-90.46	-19.7	-2,441.9	2,442.0	2,441.4	4,069.114		
300.0	300.0	298.0	298.0	0.5	0.5	-90.46	-19.7	-2,441.9	2,442.0	2,440.9	2,326.453		
400.0	400.0	398.0	398.0	0.8	0.7	-90.46	-19.7	-2,441.9	2,442.0	2,440.5	1,628.866		
500.0	500.0	498.0	498.0	1.0	1.0	-90.46	-19.7	-2,441.9	2,442.0	2,440.0	1,253.119		
600.0	600.0	598.0	598.0	1.2	1.2	-90.46	-19.7	-2,441.9	2,442.0	2,439.6	1,018.232		
700.0	700.0	698.0	698.0	1.4	1.4	-90.46	-19.7	-2,441.9	2,442.0	2,439.1	857.501		
800.0	800.0	798.0	798.0	1.7	1.6	-90.46	-19.7	-2,441.9	2,442.0	2,438.7	740.596		
900.0	900.0	898.0	898.0	1.9	1.9	-90.46	-19.7	-2,441.9	2,442.0	2,438.2	651.742		
1,000.0	1,000.0	998.0	998.0	2.1	2.1	-90.46	-19.7	-2,441.9	2,442.0	2,437.8	581.925		
1,100.0	1,100.0	1,098.0	1,098.0	2.3	2.3	-90.46	-19.7	-2,441.9	2,442.0	2,437.3	525.619		
1,200.0	1,200.0	1,198.0	1,198.0	2.5	2.5	-90.46	-19.7	-2,441.9	2,442.0	2,436.9	479.247		
1,300.0	1,300.0	1,298.0	1,298.0	2.8	2.8	-90.46	-19.7	-2,441.9	2,442.0	2,436.4	440.395		
1,400.0	1,400.0	1,398.0	1,398.0	3.0	3.0	-90.46	-19.7	-2,441.9	2,442.0	2,436.0	407.369		
1,500.0	1,500.0	1,498.0	1,498.0	3.2	3.2	-90.46	-19.7	-2,441.9	2,442.0	2,435.5	378.951		
1,600.0	1,600.0	1,598.0	1,598.0	3.4	3.4	-90.46	-19.7	-2,441.9	2,442.0	2,435.1	354.240		
1,700.0	1,700.0	1,698.0	1,698.0	3.7	3.7	-90.46	-19.7	-2,441.9	2,442.0	2,434.6	332.554		
1,800.0	1,800.0	1,798.0	1,798.0	3.9	3.9	-90.46	-19.7	-2,441.9	2,442.0	2,434.2	313.370		
1,900.0	1,900.0	1,898.0	1,898.0	4.1	4.1	-90.46	-19.7	-2,441.9	2,442.0	2,433.7	296.279		
2,000.0	2,000.0	1,998.0	1,998.0	4.3	4.3	-90.46	-19.7	-2,441.9	2,442.0	2,433.3	280.955		
2,100.0	2,100.0	2,098.0	2,098.0	4.6	4.6	-90.46	-19.7	-2,441.9	2,442.0	2,432.8	267.139		
2,200.0	2,200.0	2,198.0	2,198.0	4.8	4.8	-90.46	-19.7	-2,441.9	2,442.0	2,432.4	254.618		
2,300.0	2,300.0	2,298.0	2,298.0	5.0	5.0	-90.46	-19.7	-2,441.9	2,442.0	2,431.9	243.218		
2,400.0	2,400.0	2,398.0	2,398.0	5.2	5.2	-90.46	-19.7	-2,441.9	2,442.0	2,431.5	232.795		
2,500.0	2,500.0	2,498.0	2,498.0	5.5	5.5	-90.46	-19.7	-2,441.9	2,442.0	2,431.0	223.229		
2,600.0	2,600.0	2,598.0	2,598.0	5.7	5.7	-90.46	-19.7	-2,441.9	2,442.0	2,430.6	214.418		
2,700.0	2,700.0	2,698.0	2,698.0	5.9	5.9	-90.46	-19.7	-2,441.9	2,442.0	2,430.1	206.276		
2,800.0	2,800.0	2,798.0	2,798.0	6.1	6.1	-90.46	-19.7	-2,441.9	2,442.0	2,429.7	198.729		
2,900.0	2,900.0	2,898.0	2,898.0	6.4	6.4	-90.46	-19.7	-2,441.9	2,442.0	2,429.2	191.716		
3,000.0	3,000.0	2,998.0	2,998.0	6.6	6.6	-90.46	-19.7	-2,441.9	2,442.0	2,428.8	185.180		
3,100.0	3,100.0	3,098.0	3,098.0	6.8	6.8	-90.46	-19.7	-2,441.9	2,442.0	2,428.3	179.076		
3,200.0	3,200.0	3,198.0	3,198.0	7.0	7.0	-90.46	-19.7	-2,441.9	2,442.0	2,427.9	173.361		
3,300.0	3,300.0	3,298.0	3,298.0	7.3	7.3	-90.46	-19.7	-2,441.9	2,442.0	2,427.4	168.000		
3,400.0	3,400.0	3,398.0	3,398.0	7.5	7.5	-90.46	-19.7	-2,441.9	2,442.0	2,427.0	162.960		
3,500.0	3,500.0	3,498.0	3,498.0	7.7	7.7	-90.46	-19.7	-2,441.9	2,442.0	2,426.5	158.214		
3,600.0	3,600.0	3,598.0	3,598.0	7.9	7.9	-90.46	-19.7	-2,441.9	2,442.0	2,426.1	153.736		
3,700.0	3,700.0	3,698.0	3,698.0	8.2	8.2	-90.46	-19.7	-2,441.9	2,442.0	2,425.6	149.505		
3,800.0	3,800.0	3,798.0	3,798.0	8.4	8.4	-90.46	-19.7	-2,441.9	2,442.0	2,425.2	145.501		
3,900.0	3,900.0	3,898.0	3,898.0	8.6	8.6	-90.46	-19.7	-2,441.9	2,442.0	2,424.7	141.705		
4,000.0	4,000.0	3,998.0	3,998.0	8.8	8.8	-90.46	-19.7	-2,441.9	2,442.0	2,424.3	138.103		
4,100.0	4,100.0	4,098.0	4,098.0	9.1	9.1	-90.46	-19.7	-2,441.9	2,442.0	2,423.8	134.679		
4,200.0	4,200.0	4,198.0	4,198.0	9.3	9.3	-90.46	-19.7	-2,441.9	2,442.0	2,423.4	131.421		
4,300.0	4,300.0	4,298.0	4,298.0	9.5	9.5	-90.46	-19.7	-2,441.9	2,442.0	2,422.9	128.316		
4,400.0	4,400.0	4,398.0	4,398.0	9.7	9.7	-90.46	-19.7	-2,441.9	2,442.0	2,422.5	125.355		
4,500.0	4,500.0	4,498.0	4,498.0	10.0	10.0	-90.46	-19.7	-2,441.9	2,442.0	2,422.0	122.528		
4,600.0	4,600.0	4,598.0	4,598.0	10.2	10.2	-90.46	-19.7	-2,441.9	2,442.0	2,421.6	119.825		
4,700.0	4,700.0	4,698.0	4,698.0	10.4	10.4	-90.46	-19.7	-2,441.9	2,442.0	2,421.2	117.239		
4,800.0	4,800.0	4,798.0	4,798.0	10.6	10.6	-90.46	-19.7	-2,441.9	2,442.0	2,420.7	114.762		
4,900.0	4,900.0	4,898.0	4,898.0	10.9	10.9	-90.46	-19.7	-2,441.9	2,442.0	2,420.3	112.388		
5,000.0	5,000.0	4,998.0	4,998.0	11.1	11.1	-90.46	-19.7	-2,441.9	2,442.0	2,419.8	110.110		
5,100.0	5,100.0	5,098.0	5,098.0	11.3	11.3	-90.46	-19.7	-2,441.9	2,442.0	2,419.4	107.922		

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 #6H
Project:	Lea County, NM	TVD Reference:	Well @ 3438.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3438.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #6H	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)	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	5,198.0	5,198.0	11.5	11.5	-90.46	-19.7	-2,441.9	2,442.0	2,418.9	105.820		
5,300.0	5,300.0	5,298.0	5,298.0	11.8	11.8	-90.46	-19.7	-2,441.9	2,442.0	2,418.5	103.798		
5,400.0	5,400.0	5,398.0	5,398.0	12.0	12.0	-90.46	-19.7	-2,441.9	2,442.0	2,418.0	101.852		
5,500.0	5,500.0	5,498.0	5,498.0	12.2	12.2	-90.46	-19.7	-2,441.9	2,442.0	2,417.6	99.977		
5,600.0	5,600.0	5,598.0	5,598.0	12.4	12.4	-90.46	-19.7	-2,441.9	2,442.0	2,417.1	98.171		
5,700.0	5,700.0	5,698.0	5,698.0	12.7	12.7	-90.46	-19.7	-2,441.9	2,442.0	2,416.7	96.428		
5,800.0	5,800.0	5,798.0	5,798.0	12.9	12.9	-90.46	-19.7	-2,441.9	2,442.0	2,416.2	94.746		
5,900.0	5,900.0	5,898.0	5,898.0	13.1	13.1	-90.46	-19.7	-2,441.9	2,442.0	2,415.8	93.122		
6,000.0	6,000.0	5,998.0	5,998.0	13.3	13.3	-90.46	-19.7	-2,441.9	2,442.0	2,415.3	91.553		
6,100.0	6,100.0	6,098.0	6,098.0	13.6	13.6	-90.46	-19.7	-2,441.9	2,442.0	2,414.9	90.035		
6,200.0	6,200.0	6,198.0	6,198.0	13.8	13.8	-90.46	-19.7	-2,441.9	2,442.0	2,414.4	88.567		
6,300.0	6,300.0	6,298.0	6,298.0	14.0	14.0	-90.46	-19.7	-2,441.9	2,442.0	2,414.0	87.146		
6,400.0	6,400.0	6,398.0	6,398.0	14.2	14.2	-90.46	-19.7	-2,441.9	2,442.0	2,413.5	85.770		
6,500.0	6,500.0	6,498.0	6,498.0	14.5	14.5	-90.46	-19.7	-2,441.9	2,442.0	2,413.1	84.437		
6,600.0	6,600.0	6,598.0	6,598.0	14.7	14.7	-90.46	-19.7	-2,441.9	2,442.0	2,412.6	83.145		
6,700.0	6,700.0	6,698.0	6,698.0	14.9	14.9	-90.46	-19.7	-2,441.9	2,442.0	2,412.2	81.891		
6,800.0	6,800.0	6,798.0	6,798.0	15.1	15.1	-90.46	-19.7	-2,441.9	2,442.0	2,411.7	80.675		
6,900.0	6,900.0	6,898.0	6,898.0	15.4	15.4	-90.46	-19.7	-2,441.9	2,442.0	2,411.3	79.495		
7,000.0	7,000.0	6,998.0	6,998.0	15.6	15.6	-90.46	-19.7	-2,441.9	2,442.0	2,410.8	78.348		
7,100.0	7,100.0	7,098.0	7,098.0	15.8	15.8	-90.46	-19.7	-2,441.9	2,442.0	2,410.4	77.234		
7,200.0	7,200.0	7,198.0	7,198.0	16.0	16.0	-90.46	-19.7	-2,441.9	2,442.0	2,409.9	76.152		
7,300.0	7,300.0	7,298.0	7,298.0	16.3	16.3	-90.46	-19.7	-2,441.9	2,442.0	2,409.5	75.099		
7,400.0	7,400.0	7,398.0	7,398.0	16.5	16.5	-90.46	-19.7	-2,441.9	2,442.0	2,409.0	74.075		
7,500.0	7,500.0	7,498.0	7,498.0	16.7	16.7	-90.46	-19.7	-2,441.9	2,442.0	2,408.6	73.078		
7,600.0	7,600.0	7,598.0	7,598.0	16.9	16.9	-90.46	-19.7	-2,441.9	2,442.0	2,408.1	72.108		
7,700.0	7,700.0	7,698.0	7,698.0	17.2	17.2	-90.46	-19.7	-2,441.9	2,442.0	2,407.7	71.164		
7,800.0	7,800.0	7,798.0	7,798.0	17.4	17.4	-90.46	-19.7	-2,441.9	2,442.0	2,407.2	70.243		
7,900.0	7,900.0	7,898.0	7,898.0	17.6	17.6	-90.46	-19.7	-2,441.9	2,442.0	2,406.8	69.347		
8,000.0	8,000.0	7,998.0	7,998.0	17.8	17.8	-90.46	-19.7	-2,441.9	2,442.0	2,406.3	68.473		
8,100.0	8,100.0	8,098.0	8,098.0	18.1	18.1	-90.46	-19.7	-2,441.9	2,442.0	2,405.9	67.620		
8,200.0	8,200.0	8,198.0	8,198.0	18.3	18.3	-90.46	-19.7	-2,441.9	2,442.0	2,405.4	66.789		
8,300.0	8,300.0	8,298.0	8,298.0	18.5	18.5	-90.46	-19.7	-2,441.9	2,442.0	2,405.0	65.978		
8,400.0	8,400.0	8,398.0	8,398.0	18.7	18.7	-90.46	-19.7	-2,441.9	2,442.0	2,404.5	65.186		
8,500.0	8,500.0	8,498.0	8,498.0	19.0	19.0	-90.46	-19.7	-2,441.9	2,442.0	2,404.1	64.413		
8,600.0	8,600.0	8,598.0	8,598.0	19.2	19.2	-90.46	-19.7	-2,441.9	2,442.0	2,403.6	63.658		
8,700.0	8,700.0	8,698.0	8,698.0	19.4	19.4	-90.46	-19.7	-2,441.9	2,442.0	2,403.2	62.921		
8,800.0	8,800.0	8,798.0	8,798.0	19.6	19.6	-90.46	-19.7	-2,441.9	2,442.0	2,402.7	62.200		
8,900.0	8,900.0	8,898.0	8,898.0	19.9	19.9	-90.46	-19.7	-2,441.9	2,442.0	2,402.3	61.496		
9,000.0	9,000.0	8,998.0	8,998.0	20.1	20.1	-90.46	-19.7	-2,441.9	2,442.0	2,401.8	60.808		
9,100.0	9,100.0	9,098.0	9,098.0	20.3	20.3	-90.46	-19.7	-2,441.9	2,442.0	2,401.4	60.135		
9,200.0	9,200.0	9,198.0	9,198.0	20.5	20.5	-90.46	-19.7	-2,441.9	2,442.0	2,400.9	59.476		
9,300.0	9,300.0	9,298.0	9,298.0	20.8	20.8	-90.46	-19.7	-2,441.9	2,442.0	2,400.5	58.832		
9,400.0	9,400.0	9,398.0	9,398.0	21.0	21.0	-90.46	-19.7	-2,441.9	2,442.0	2,400.0	58.202		
9,500.0	9,500.0	9,498.0	9,498.0	21.2	21.2	-90.46	-19.7	-2,441.9	2,442.0	2,399.6	57.585		
9,600.0	9,600.0	9,598.0	9,598.0	21.4	21.4	-90.46	-19.7	-2,441.9	2,442.0	2,399.1	56.981		
9,700.0	9,700.0	9,698.0	9,698.0	21.7	21.7	-90.46	-19.7	-2,441.9	2,442.0	2,398.7	56.389		
9,800.0	9,800.0	9,798.0	9,798.0	21.9	21.9	-90.46	-19.7	-2,441.9	2,442.0	2,398.2	55.810		
9,900.0	9,900.0	9,898.0	9,898.0	22.1	22.1	-90.46	-19.7	-2,441.9	2,442.0	2,397.8	55.242		
9,932.6	9,932.6	9,930.6	9,930.6	22.2	22.2	-90.46	-19.7	-2,441.9	2,442.0	2,397.6	55.060 CC		
9,950.0	9,950.0	9,948.0	9,948.0	22.2	22.2	-90.50	-19.7	-2,441.9	2,442.0	2,397.6	54.963		
9,975.0	9,974.9	9,972.9	9,972.9	22.3	22.3	-90.53	-19.7	-2,441.9	2,442.0	2,397.5	54.826		
10,000.0	9,999.8	9,997.8	9,997.8	22.3	22.3	-90.60	-19.7	-2,441.9	2,442.0	2,397.4	54.691		

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 #6H
Project:	Lea County, NM	TVD Reference:	Well @ 3438.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3438.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #6H	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 10-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
10,025.0	10,024.4	10,022.4	10,022.4	22.4	22.4	-90.69	-19.7	-2,441.9	2,442.1	2,397.3	54.559	
10,050.0	10,048.8	10,046.8	10,046.8	22.4	22.4	-90.80	-19.7	-2,441.9	2,442.1	2,397.3	54.429	
10,075.0	10,072.9	10,070.9	10,070.9	22.5	22.5	-90.94	-19.7	-2,441.9	2,442.3	2,397.3	54.301 ES	
10,100.0	10,096.6	10,094.6	10,094.6	22.5	22.5	-91.10	-19.7	-2,441.9	2,442.4	2,397.3	54.177	
10,125.0	10,119.8	10,117.8	10,117.8	22.6	22.6	-91.28	-19.7	-2,441.9	2,442.6	2,397.4	54.055	
10,150.0	10,142.6	10,140.6	10,140.6	22.6	22.6	-91.46	-19.7	-2,441.9	2,442.9	2,397.6	53.937	
10,175.0	10,164.7	10,162.7	10,162.7	22.7	22.7	-91.66	-19.7	-2,441.9	2,443.2	2,397.8	53.821	
10,200.0	10,186.2	10,184.2	10,184.2	22.7	22.7	-91.86	-19.7	-2,441.9	2,443.7	2,398.2	53.709	
10,225.0	10,207.1	10,205.1	10,205.1	22.8	22.8	-92.07	-19.7	-2,441.9	2,444.3	2,398.7	53.600	
10,250.0	10,227.1	10,225.1	10,225.1	22.9	22.8	-92.26	-19.7	-2,441.9	2,445.0	2,399.3	53.494	
10,275.0	10,246.4	10,244.4	10,244.4	22.9	22.9	-92.45	-19.7	-2,441.9	2,445.8	2,400.0	53.391	
10,300.0	10,264.8	10,262.8	10,262.8	23.0	22.9	-92.62	-19.7	-2,441.9	2,446.8	2,400.9	53.290	
10,325.0	10,282.3	10,280.3	10,280.3	23.1	23.0	-92.77	-19.7	-2,441.9	2,448.0	2,402.0	53.192	
10,350.0	10,298.8	10,296.8	10,296.8	23.1	23.0	-92.89	-19.7	-2,441.9	2,449.4	2,403.3	53.095	
10,375.0	10,314.4	10,312.4	10,312.4	23.2	23.0	-92.98	-19.7	-2,441.9	2,451.0	2,404.8	52.999	
10,400.0	10,328.8	10,326.8	10,326.8	23.3	23.1	-93.03	-19.7	-2,441.9	2,452.9	2,406.5	52.904	
10,425.0	10,342.2	10,340.2	10,340.2	23.4	23.1	-93.05	-19.7	-2,441.9	2,455.0	2,408.5	52.809	
10,450.0	10,354.5	10,352.5	10,352.5	23.5	23.1	-93.02	-19.7	-2,441.9	2,457.3	2,410.7	52.713	
10,475.0	10,365.6	10,363.6	10,363.6	23.5	23.1	-92.94	-19.7	-2,441.9	2,459.9	2,413.2	52.616	
10,500.0	10,375.6	10,373.6	10,373.6	23.7	23.2	-92.80	-19.7	-2,441.9	2,462.8	2,415.9	52.518	
10,525.0	10,384.3	10,382.3	10,382.3	23.8	23.2	-92.61	-19.7	-2,441.9	2,465.9	2,418.9	52.419	
10,550.0	10,391.8	10,389.8	10,389.8	23.9	23.2	-92.36	-19.7	-2,441.9	2,469.4	2,422.2	52.319	
10,575.0	10,398.0	10,396.0	10,396.0	24.0	23.2	-92.05	-19.7	-2,441.9	2,473.1	2,425.7	52.220	
10,600.0	10,402.9	10,400.9	10,400.9	24.1	23.2	-91.68	-19.7	-2,441.9	2,477.1	2,429.6	52.122	
10,625.0	10,406.6	10,404.6	10,404.6	24.3	23.2	-91.24	-19.7	-2,441.9	2,481.4	2,433.7	52.027	
10,650.0	10,409.0	10,407.0	10,407.0	24.4	23.2	-90.75	-19.7	-2,441.9	2,485.9	2,438.1	51.938	
10,675.0	10,410.0	10,408.0	10,408.0	24.5	23.2	-90.18	-19.7	-2,441.9	2,490.7	2,442.7	51.855	
10,689.3	10,410.0	10,408.0	10,408.0	24.6	23.2	-89.83	-19.7	-2,441.9	2,493.6	2,445.4	51.812	
10,700.0	10,409.9	10,407.9	10,407.9	24.7	23.2	-89.83	-19.7	-2,441.9	2,495.8	2,447.6	51.779	
10,800.0	10,408.5	10,406.5	10,406.5	25.4	23.2	-89.80	-19.7	-2,441.9	2,518.3	2,469.4	51.459	
10,900.0	10,407.1	10,405.1	10,405.1	26.2	23.2	-89.76	-19.7	-2,441.9	2,544.6	2,494.8	51.110	
11,000.0	10,405.7	11,695.7	11,107.0	27.0	28.4	-106.03	776.0	-2,446.6	2,546.1	2,492.7	47.703	
11,100.0	10,404.3	11,795.7	11,107.6	28.0	29.3	-106.07	876.0	-2,447.2	2,547.3	2,492.1	46.135	
11,200.0	10,402.9	11,895.7	11,108.2	29.1	30.3	-106.11	975.9	-2,447.8	2,548.5	2,491.3	44.545	
11,300.0	10,401.4	11,995.7	11,108.9	30.2	31.4	-106.15	1,075.9	-2,448.4	2,549.6	2,490.3	42.960	
11,400.0	10,400.0	12,095.7	11,109.5	31.4	32.6	-106.19	1,175.9	-2,448.9	2,550.8	2,489.2	41.400	
11,500.0	10,398.6	12,195.6	11,110.1	32.7	33.8	-106.23	1,275.9	-2,449.5	2,552.0	2,488.0	39.881	
11,600.0	10,397.2	12,295.6	11,110.7	34.0	35.0	-106.27	1,375.8	-2,450.1	2,553.2	2,486.7	38.413	
11,700.0	10,395.8	12,395.6	11,111.4	35.3	36.3	-106.31	1,475.8	-2,450.7	2,554.4	2,485.3	37.002	
11,800.0	10,394.4	12,495.6	11,112.0	36.7	37.7	-106.35	1,575.8	-2,451.3	2,555.5	2,483.9	35.652	
11,900.0	10,393.0	12,595.5	11,112.6	38.1	39.1	-106.39	1,675.8	-2,451.9	2,556.7	2,482.3	34.366	
12,000.0	10,391.6	12,695.5	11,113.2	39.6	40.5	-106.43	1,775.7	-2,452.5	2,557.9	2,480.7	33.143	
12,100.0	10,390.2	12,795.5	11,113.9	41.1	42.0	-106.47	1,875.7	-2,453.1	2,559.1	2,479.1	31.983	
12,200.0	10,388.8	12,895.5	11,114.5	42.6	43.5	-106.51	1,975.7	-2,453.7	2,560.3	2,477.4	30.884	
12,300.0	10,387.4	12,995.5	11,115.1	44.1	45.0	-106.54	2,075.6	-2,454.3	2,561.5	2,475.6	29.842	
12,400.0	10,386.0	13,095.4	11,115.8	45.7	46.5	-106.58	2,175.6	-2,454.8	2,562.7	2,473.9	28.857	
12,500.0	10,384.6	13,195.4	11,116.4	47.3	48.0	-106.62	2,275.6	-2,455.4	2,563.9	2,472.0	27.924	
12,600.0	10,383.2	13,295.4	11,117.0	48.9	49.6	-106.66	2,375.6	-2,456.0	2,565.1	2,470.2	27.041	
12,700.0	10,381.8	13,395.4	11,117.6	50.5	51.2	-106.70	2,475.5	-2,456.6	2,566.3	2,468.3	26.204	
12,800.0	10,380.4	13,495.3	11,118.3	52.1	52.8	-106.74	2,575.5	-2,457.2	2,567.4	2,466.4	25.412	
12,900.0	10,379.0	13,595.3	11,118.9	53.7	54.4	-106.78	2,675.5	-2,457.8	2,568.6	2,464.5	24.662	
13,000.0	10,377.6	13,695.3	11,119.5	55.4	56.0	-106.82	2,775.5	-2,458.4	2,569.8	2,462.5	23.950	

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 #6H
Project:	Lea County, NM	TVD Reference:	Well @ 3438.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3438.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #6H	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)	Measured Depth (usft)	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
13,100.0	10,376.2	13,795.3	11,120.2	57.0	57.7	-106.86	2,875.4	-2,459.0	2,571.0	2,460.6	23.274	
13,200.0	10,374.8	13,895.2	11,120.8	58.7	59.3	-106.90	2,975.4	-2,459.6	2,572.2	2,458.6	22.633	
13,300.0	10,373.4	13,995.2	11,121.4	60.4	61.0	-106.94	3,075.4	-2,460.2	2,573.4	2,456.6	22.023	
13,400.0	10,372.0	14,095.2	11,122.0	62.1	62.7	-106.98	3,175.4	-2,460.7	2,574.6	2,454.6	21.443	
13,500.0	10,370.6	14,195.2	11,122.7	63.8	64.4	-107.02	3,275.3	-2,461.3	2,575.8	2,452.5	20.891	
13,600.0	10,369.2	14,295.2	11,123.3	65.5	66.0	-107.05	3,375.3	-2,461.9	2,577.1	2,450.5	20.365	
13,700.0	10,367.8	14,395.1	11,123.9	67.2	67.7	-107.09	3,475.3	-2,462.5	2,578.3	2,448.5	19.864	
13,800.0	10,366.4	14,495.1	11,124.5	68.9	69.4	-107.13	3,575.3	-2,463.1	2,579.5	2,446.4	19.385	
13,900.0	10,365.0	14,595.1	11,125.2	70.6	71.1	-107.17	3,675.2	-2,463.7	2,580.7	2,444.3	18.928	
14,000.0	10,363.6	14,695.1	11,125.8	72.3	72.8	-107.21	3,775.2	-2,464.3	2,581.9	2,442.3	18.492	
14,100.0	10,362.2	14,795.0	11,126.4	74.1	74.6	-107.25	3,875.2	-2,464.9	2,583.1	2,440.2	18.074	
14,200.0	10,360.8	14,895.0	11,127.1	75.8	76.3	-107.29	3,975.1	-2,465.5	2,584.3	2,438.1	17.674	
14,300.0	10,359.4	14,995.0	11,127.7	77.5	78.0	-107.33	4,075.1	-2,466.0	2,585.5	2,436.0	17.291	
14,400.0	10,357.9	15,095.0	11,128.3	79.3	79.7	-107.37	4,175.1	-2,466.6	2,586.7	2,433.9	16.924	
14,500.0	10,356.5	15,195.0	11,128.9	81.0	81.5	-107.40	4,275.1	-2,467.2	2,588.0	2,431.8	16.572	
14,600.0	10,355.1	15,294.9	11,129.6	82.8	83.2	-107.44	4,375.0	-2,467.8	2,589.2	2,429.7	16.234	
14,700.0	10,353.7	15,394.9	11,130.2	84.5	85.0	-107.48	4,475.0	-2,468.4	2,590.4	2,427.6	15.909	
14,800.0	10,352.3	15,494.9	11,130.8	86.3	86.7	-107.52	4,575.0	-2,469.0	2,591.6	2,425.4	15.597	
14,900.0	10,350.9	15,594.9	11,131.4	88.0	88.5	-107.56	4,675.0	-2,469.6	2,592.8	2,423.3	15.297	
14,966.6	10,350.0	15,661.4	11,131.9	89.2	89.6	-107.58	4,741.5	-2,470.0	2,593.6	2,421.9	15.104 SF	



HP
Anticollision Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Squints Federal Com #6H
Project:	Lea County, NM	TVD Reference:	Well @ 3438.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3438.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #6H	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)	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	-90.47	-8.9	-1,092.2	1,092.2			
100.0	100.0	97.0	97.0	0.1	0.1	-90.47	-8.9	-1,092.2	1,092.2	1,092.1	7,149.900	
200.0	200.0	197.0	197.0	0.3	0.3	-90.47	-8.9	-1,092.2	1,092.2	1,091.6	1,826.855	
300.0	300.0	297.0	297.0	0.5	0.5	-90.47	-8.9	-1,092.2	1,092.2	1,091.2	1,042.797	
400.0	400.0	397.0	397.0	0.8	0.7	-90.47	-8.9	-1,092.2	1,092.2	1,090.7	729.645	
500.0	500.0	497.0	497.0	1.0	1.0	-90.47	-8.9	-1,092.2	1,092.2	1,090.3	561.136	
600.0	600.0	597.0	597.0	1.2	1.2	-90.47	-8.9	-1,092.2	1,092.2	1,089.8	455.857	
700.0	700.0	697.0	697.0	1.4	1.4	-90.47	-8.9	-1,092.2	1,092.2	1,089.4	383.842	
800.0	800.0	797.0	797.0	1.7	1.6	-90.47	-8.9	-1,092.2	1,092.2	1,088.9	331.476	
900.0	900.0	897.0	897.0	1.9	1.9	-90.47	-8.9	-1,092.2	1,092.2	1,088.5	291.683	
1,000.0	1,000.0	997.0	997.0	2.1	2.1	-90.47	-8.9	-1,092.2	1,092.2	1,088.0	260.420	
1,100.0	1,100.0	1,097.0	1,097.0	2.3	2.3	-90.47	-8.9	-1,092.2	1,092.2	1,087.6	235.210	
1,200.0	1,200.0	1,197.0	1,197.0	2.5	2.5	-90.47	-8.9	-1,092.2	1,092.2	1,087.1	214.450	
1,300.0	1,300.0	1,297.0	1,297.0	2.8	2.8	-90.47	-8.9	-1,092.2	1,092.2	1,086.7	197.057	
1,400.0	1,400.0	1,397.0	1,397.0	3.0	3.0	-90.47	-8.9	-1,092.2	1,092.2	1,086.2	182.274	
1,500.0	1,500.0	1,497.0	1,497.0	3.2	3.2	-90.47	-8.9	-1,092.2	1,092.2	1,085.8	169.555	
1,600.0	1,600.0	1,597.0	1,597.0	3.4	3.4	-90.47	-8.9	-1,092.2	1,092.2	1,085.3	158.494	
1,700.0	1,700.0	1,697.0	1,697.0	3.7	3.7	-90.47	-8.9	-1,092.2	1,092.2	1,084.9	148.789	
1,800.0	1,800.0	1,797.0	1,797.0	3.9	3.9	-90.47	-8.9	-1,092.2	1,092.2	1,084.4	140.203	
1,900.0	1,900.0	1,897.0	1,897.0	4.1	4.1	-90.47	-8.9	-1,092.2	1,092.2	1,084.0	132.554	
2,000.0	2,000.0	1,997.0	1,997.0	4.3	4.3	-90.47	-8.9	-1,092.2	1,092.2	1,083.5	125.697	
2,100.0	2,100.0	2,097.0	2,097.0	4.6	4.6	-90.47	-8.9	-1,092.2	1,092.2	1,083.1	119.514	
2,200.0	2,200.0	2,197.0	2,197.0	4.8	4.8	-90.47	-8.9	-1,092.2	1,092.2	1,082.6	113.911	
2,300.0	2,300.0	2,297.0	2,297.0	5.0	5.0	-90.47	-8.9	-1,092.2	1,092.2	1,082.2	108.810	
2,400.0	2,400.0	2,397.0	2,397.0	5.2	5.2	-90.47	-8.9	-1,092.2	1,092.2	1,081.7	104.146	
2,500.0	2,500.0	2,497.0	2,497.0	5.5	5.5	-90.47	-8.9	-1,092.2	1,092.2	1,081.3	99.865	
2,600.0	2,600.0	2,597.0	2,597.0	5.7	5.7	-90.47	-8.9	-1,092.2	1,092.2	1,080.8	95.923	
2,700.0	2,700.0	2,697.0	2,697.0	5.9	5.9	-90.47	-8.9	-1,092.2	1,092.2	1,080.4	92.279	
2,800.0	2,800.0	2,797.0	2,797.0	6.1	6.1	-90.47	-8.9	-1,092.2	1,092.2	1,080.0	88.903	
2,900.0	2,900.0	2,897.0	2,897.0	6.4	6.4	-90.47	-8.9	-1,092.2	1,092.2	1,079.5	85.765	
3,000.0	3,000.0	2,997.0	2,997.0	6.6	6.6	-90.47	-8.9	-1,092.2	1,092.2	1,079.1	82.841	
3,100.0	3,100.0	3,097.0	3,097.0	6.8	6.8	-90.47	-8.9	-1,092.2	1,092.2	1,078.6	80.109	
3,200.0	3,200.0	3,197.0	3,197.0	7.0	7.0	-90.47	-8.9	-1,092.2	1,092.2	1,078.2	77.552	
3,300.0	3,300.0	3,297.0	3,297.0	7.3	7.3	-90.47	-8.9	-1,092.2	1,092.2	1,077.7	75.154	
3,400.0	3,400.0	3,397.0	3,397.0	7.5	7.5	-90.47	-8.9	-1,092.2	1,092.2	1,077.3	72.899	
3,500.0	3,500.0	3,497.0	3,497.0	7.7	7.7	-90.47	-8.9	-1,092.2	1,092.2	1,076.8	70.775	
3,600.0	3,600.0	3,597.0	3,597.0	7.9	7.9	-90.47	-8.9	-1,092.2	1,092.2	1,076.4	68.772	
3,700.0	3,700.0	3,697.0	3,697.0	8.2	8.2	-90.47	-8.9	-1,092.2	1,092.2	1,075.9	66.879	
3,800.0	3,800.0	3,797.0	3,797.0	8.4	8.4	-90.47	-8.9	-1,092.2	1,092.2	1,075.5	65.088	
3,900.0	3,900.0	3,897.0	3,897.0	8.6	8.6	-90.47	-8.9	-1,092.2	1,092.2	1,075.0	63.389	
4,000.0	4,000.0	3,997.0	3,997.0	8.8	8.8	-90.47	-8.9	-1,092.2	1,092.2	1,074.6	61.778	
4,100.0	4,100.0	4,097.0	4,097.0	9.1	9.1	-90.47	-8.9	-1,092.2	1,092.2	1,074.1	60.246	
4,200.0	4,200.0	4,197.0	4,197.0	9.3	9.3	-90.47	-8.9	-1,092.2	1,092.2	1,073.7	58.788	
4,300.0	4,300.0	4,297.0	4,297.0	9.5	9.5	-90.47	-8.9	-1,092.2	1,092.2	1,073.2	57.399	
4,400.0	4,400.0	4,397.0	4,397.0	9.7	9.7	-90.47	-8.9	-1,092.2	1,092.2	1,072.8	56.075	
4,500.0	4,500.0	4,497.0	4,497.0	10.0	10.0	-90.47	-8.9	-1,092.2	1,092.2	1,072.3	54.810	
4,600.0	4,600.0	4,597.0	4,597.0	10.2	10.2	-90.47	-8.9	-1,092.2	1,092.2	1,071.9	53.601	
4,700.0	4,700.0	4,697.0	4,697.0	10.4	10.4	-90.47	-8.9	-1,092.2	1,092.2	1,071.4	52.444	
4,800.0	4,800.0	4,797.0	4,797.0	10.6	10.6	-90.47	-8.9	-1,092.2	1,092.2	1,071.0	51.336	
4,900.0	4,900.0	4,897.0	4,897.0	10.9	10.9	-90.47	-8.9	-1,092.2	1,092.2	1,070.5	50.273	
5,000.0	5,000.0	4,997.0	4,997.0	11.1	11.1	-90.47	-8.9	-1,092.2	1,092.2	1,070.1	49.254	
5,100.0	5,100.0	5,097.0	5,097.0	11.3	11.3	-90.47	-8.9	-1,092.2	1,092.2	1,069.6	48.276	

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 #6H
Project:	Lea County, NM	TVD Reference:	Well @ 3438.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3438.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #6H	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)	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
5,200.0	5,200.0	5,197.0	5,197.0	11.5	11.5	-90.47	-8.9	-1,092.2	1,092.2	1,069.2	47.335	
5,300.0	5,300.0	5,297.0	5,297.0	11.8	11.8	-90.47	-8.9	-1,092.2	1,092.2	1,068.7	46.431	
5,400.0	5,400.0	5,397.0	5,397.0	12.0	12.0	-90.47	-8.9	-1,092.2	1,092.2	1,068.3	45.560	
5,500.0	5,500.0	5,497.0	5,497.0	12.2	12.2	-90.47	-8.9	-1,092.2	1,092.2	1,067.8	44.721	
5,600.0	5,600.0	5,597.0	5,597.0	12.4	12.4	-90.47	-8.9	-1,092.2	1,092.2	1,067.4	43.913	
5,700.0	5,700.0	5,697.0	5,697.0	12.7	12.7	-90.47	-8.9	-1,092.2	1,092.2	1,066.9	43.134	
5,800.0	5,800.0	5,797.0	5,797.0	12.9	12.9	-90.47	-8.9	-1,092.2	1,092.2	1,066.5	42.381	
5,900.0	5,900.0	5,897.0	5,897.0	13.1	13.1	-90.47	-8.9	-1,092.2	1,092.2	1,066.0	41.655	
6,000.0	6,000.0	5,997.0	5,997.0	13.3	13.3	-90.47	-8.9	-1,092.2	1,092.2	1,065.6	40.953	
6,100.0	6,100.0	6,097.0	6,097.0	13.6	13.6	-90.47	-8.9	-1,092.2	1,092.2	1,065.1	40.274	
6,200.0	6,200.0	6,197.0	6,197.0	13.8	13.8	-90.47	-8.9	-1,092.2	1,092.2	1,064.7	39.617	
6,300.0	6,300.0	6,297.0	6,297.0	14.0	14.0	-90.47	-8.9	-1,092.2	1,092.2	1,064.2	38.982	
6,400.0	6,400.0	6,397.0	6,397.0	14.2	14.2	-90.47	-8.9	-1,092.2	1,092.2	1,063.8	38.366	
6,500.0	6,500.0	6,497.0	6,497.0	14.5	14.5	-90.47	-8.9	-1,092.2	1,092.2	1,063.3	37.770	
6,600.0	6,600.0	6,597.0	6,597.0	14.7	14.7	-90.47	-8.9	-1,092.2	1,092.2	1,062.9	37.191	
6,700.0	6,700.0	6,697.0	6,697.0	14.9	14.9	-90.47	-8.9	-1,092.2	1,092.2	1,062.4	36.631	
6,800.0	6,800.0	6,797.0	6,797.0	15.1	15.1	-90.47	-8.9	-1,092.2	1,092.2	1,062.0	36.087	
6,900.0	6,900.0	6,897.0	6,897.0	15.4	15.4	-90.47	-8.9	-1,092.2	1,092.2	1,061.5	35.559	
7,000.0	7,000.0	6,997.0	6,997.0	15.6	15.6	-90.47	-8.9	-1,092.2	1,092.2	1,061.1	35.046	
7,100.0	7,100.0	7,097.0	7,097.0	15.8	15.8	-90.47	-8.9	-1,092.2	1,092.2	1,060.6	34.547	
7,200.0	7,200.0	7,197.0	7,197.0	16.0	16.0	-90.47	-8.9	-1,092.2	1,092.2	1,060.2	34.063	
7,300.0	7,300.0	7,297.0	7,297.0	16.3	16.3	-90.47	-8.9	-1,092.2	1,092.2	1,059.7	33.592	
7,400.0	7,400.0	7,397.0	7,397.0	16.5	16.5	-90.47	-8.9	-1,092.2	1,092.2	1,059.3	33.134	
7,500.0	7,500.0	7,497.0	7,497.0	16.7	16.7	-90.47	-8.9	-1,092.2	1,092.2	1,058.8	32.688	
7,600.0	7,600.0	7,597.0	7,597.0	16.9	16.9	-90.47	-8.9	-1,092.2	1,092.2	1,058.4	32.254	
7,700.0	7,700.0	7,697.0	7,697.0	17.2	17.2	-90.47	-8.9	-1,092.2	1,092.2	1,057.9	31.832	
7,800.0	7,800.0	7,797.0	7,797.0	17.4	17.4	-90.47	-8.9	-1,092.2	1,092.2	1,057.5	31.420	
7,900.0	7,900.0	7,897.0	7,897.0	17.6	17.6	-90.47	-8.9	-1,092.2	1,092.2	1,057.0	31.019	
8,000.0	8,000.0	7,997.0	7,997.0	17.8	17.8	-90.47	-8.9	-1,092.2	1,092.2	1,056.6	30.628	
8,100.0	8,100.0	8,097.0	8,097.0	18.1	18.1	-90.47	-8.9	-1,092.2	1,092.2	1,056.1	30.247	
8,200.0	8,200.0	8,197.0	8,197.0	18.3	18.3	-90.47	-8.9	-1,092.2	1,092.2	1,055.7	29.875	
8,300.0	8,300.0	8,297.0	8,297.0	18.5	18.5	-90.47	-8.9	-1,092.2	1,092.2	1,055.2	29.512	
8,400.0	8,400.0	8,397.0	8,397.0	18.7	18.7	-90.47	-8.9	-1,092.2	1,092.2	1,054.8	29.158	
8,500.0	8,500.0	8,497.0	8,497.0	19.0	19.0	-90.47	-8.9	-1,092.2	1,092.2	1,054.3	28.812	
8,600.0	8,600.0	8,597.0	8,597.0	19.2	19.2	-90.47	-8.9	-1,092.2	1,092.2	1,053.9	28.474	
8,700.0	8,700.0	8,697.0	8,697.0	19.4	19.4	-90.47	-8.9	-1,092.2	1,092.2	1,053.4	28.145	
8,800.0	8,800.0	8,797.0	8,797.0	19.6	19.6	-90.47	-8.9	-1,092.2	1,092.2	1,053.0	27.822	
8,900.0	8,900.0	8,897.0	8,897.0	19.9	19.9	-90.47	-8.9	-1,092.2	1,092.2	1,052.5	27.507	
9,000.0	9,000.0	8,997.0	8,997.0	20.1	20.1	-90.47	-8.9	-1,092.2	1,092.2	1,052.1	27.199	
9,100.0	9,100.0	9,097.0	9,097.0	20.3	20.3	-90.47	-8.9	-1,092.2	1,092.2	1,051.6	26.898	
9,200.0	9,200.0	9,197.0	9,197.0	20.5	20.5	-90.47	-8.9	-1,092.2	1,092.2	1,051.2	26.604	
9,300.0	9,300.0	9,297.0	9,297.0	20.8	20.7	-90.47	-8.9	-1,092.2	1,092.2	1,050.7	26.316	
9,400.0	9,400.0	9,397.0	9,397.0	21.0	21.0	-90.47	-8.9	-1,092.2	1,092.2	1,050.3	26.034	
9,500.0	9,500.0	9,497.0	9,497.0	21.2	21.2	-90.47	-8.9	-1,092.2	1,092.2	1,049.8	25.758	
9,600.0	9,600.0	9,597.0	9,597.0	21.4	21.4	-90.47	-8.9	-1,092.2	1,092.2	1,049.4	25.487	
9,700.0	9,700.0	9,697.0	9,697.0	21.7	21.6	-90.47	-8.9	-1,092.2	1,092.2	1,048.9	25.223	
9,800.0	9,800.0	9,797.0	9,797.0	21.9	21.9	-90.47	-8.9	-1,092.2	1,092.2	1,048.5	24.964	
9,900.0	9,900.0	9,897.0	9,897.0	22.1	22.1	-90.47	-8.9	-1,092.2	1,092.2	1,048.0	24.710	
9,900.6	9,900.6	9,897.6	9,897.6	22.1	22.1	-90.47	-8.9	-1,092.2	1,092.2	1,048.0	24.708 CC	
9,932.6	9,932.6	9,929.5	9,929.5	22.2	22.2	-90.43	-8.1	-1,092.2	1,092.2	1,047.9	24.629	
9,950.0	9,950.0	9,946.8	9,946.8	22.2	22.2	-90.40	-6.8	-1,092.2	1,092.2	1,047.8	24.586	
9,975.0	9,974.9	9,971.6	9,971.4	22.3	22.3	-90.33	-3.9	-1,092.2	1,092.3	1,047.7	24.526	

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 #6H
Project:	Lea County, NM	TVD Reference:	Well @ 3438.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3438.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #6H	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)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning	
10,000.0	9,999.8	9,996.3	9,995.7	22.3	22.3	-90.25	0.3	-1,092.3	1,092.3	1,047.7	24.468		
10,025.0	10,024.4	10,021.0	10,019.8	22.4	22.4	-90.17	5.7	-1,092.3	1,092.3	1,047.6	24.411		
10,050.0	10,048.8	10,045.6	10,043.4	22.4	22.4	-90.10	12.4	-1,092.4	1,092.4	1,047.5	24.355		
10,075.0	10,072.9	10,070.1	10,066.7	22.5	22.5	-90.02	20.2	-1,092.5	1,092.5	1,047.5	24.301		
10,100.0	10,096.6	10,094.5	10,089.4	22.5	22.5	-89.94	29.2	-1,092.5	1,092.6	1,047.5	24.247		
10,125.0	10,119.8	10,118.9	10,111.6	22.6	22.6	-89.87	39.3	-1,092.6	1,092.7	1,047.5	24.194		
10,150.0	10,142.6	10,143.3	10,133.2	22.6	22.6	-89.79	50.5	-1,092.7	1,092.8	1,047.5	24.141		
10,175.0	10,164.7	10,167.5	10,154.1	22.7	22.7	-89.71	62.8	-1,092.8	1,092.9	1,047.5	24.088		
10,200.0	10,185.2	10,191.7	10,174.4	22.7	22.7	-89.64	76.1	-1,093.0	1,093.0	1,047.6	24.034		
10,225.0	10,207.1	10,215.9	10,193.9	22.8	22.8	-89.56	90.3	-1,093.1	1,093.2	1,047.6	23.979		
10,250.0	10,227.1	10,240.0	10,212.6	22.9	22.8	-89.49	105.5	-1,093.2	1,093.3	1,047.6	23.922		
10,275.0	10,246.4	10,264.1	10,230.5	22.9	22.9	-89.42	121.6	-1,093.4	1,093.5	1,047.7	23.863		
10,300.0	10,264.8	10,288.1	10,247.5	23.0	23.0	-89.35	138.5	-1,093.5	1,093.7	1,047.7	23.801		
10,325.0	10,282.3	10,312.0	10,263.6	23.1	23.0	-89.28	156.2	-1,093.7	1,093.9	1,047.8	23.737		
10,350.0	10,298.8	10,336.0	10,278.8	23.1	23.1	-89.21	174.7	-1,093.8	1,094.0	1,047.8	23.669		
10,375.0	10,314.4	10,359.8	10,293.0	23.2	23.2	-89.15	193.9	-1,094.0	1,094.2	1,047.9	23.597		
10,400.0	10,328.8	10,383.7	10,306.3	23.3	23.3	-89.09	213.7	-1,094.2	1,094.5	1,047.9	23.521		
10,425.0	10,342.2	10,407.5	10,318.5	23.4	23.3	-89.03	234.2	-1,094.4	1,094.7	1,048.0	23.441		
10,450.0	10,354.5	10,431.3	10,329.6	23.5	23.4	-88.97	255.2	-1,094.5	1,094.9	1,048.0	23.356		
10,475.0	10,365.6	10,455.1	10,339.7	23.5	23.5	-88.92	276.7	-1,094.7	1,095.1	1,048.0	23.267		
10,500.0	10,375.6	10,478.8	10,348.7	23.7	23.6	-88.86	298.7	-1,094.9	1,095.3	1,048.1	23.172		
10,525.0	10,384.3	10,502.5	10,356.6	23.8	23.7	-88.82	321.0	-1,095.1	1,095.6	1,048.1	23.073		
10,550.0	10,391.8	10,526.2	10,363.4	23.9	23.8	-88.77	343.7	-1,095.3	1,095.8	1,048.1	22.969		
10,575.0	10,398.0	10,550.0	10,369.0	24.0	24.0	-88.73	366.8	-1,095.5	1,096.0	1,048.1	22.860		
10,600.0	10,402.9	10,573.6	10,373.5	24.1	24.1	-88.69	390.0	-1,095.7	1,096.3	1,048.1	22.747		
10,625.0	10,406.6	10,597.2	10,376.8	24.3	24.2	-88.65	413.4	-1,095.9	1,096.5	1,048.0	22.630		
10,650.0	10,409.0	10,620.9	10,378.9	24.4	24.3	-88.62	437.0	-1,096.2	1,096.7	1,048.0	22.508		
10,675.0	10,410.0	10,644.6	10,379.9	24.5	24.5	-88.59	460.6	-1,096.4	1,097.0	1,048.0	22.384		
10,689.3	10,410.0	10,658.2	10,379.9	24.6	24.6	-88.58	474.3	-1,096.5	1,097.1	1,047.9	22.311		
10,700.0	10,409.9	10,668.9	10,379.9	24.7	24.6	-88.58	485.0	-1,096.6	1,097.2	1,047.9	22.253		
10,800.0	10,408.5	10,768.9	10,379.2	25.4	25.3	-88.62	585.0	-1,097.5	1,098.1	1,047.4	21.673		
10,900.0	10,407.1	10,868.9	10,378.6	26.2	26.1	-88.67	684.9	-1,098.3	1,099.0	1,046.8	21.039		
11,000.0	10,405.7	10,968.9	10,378.0	27.0	27.0	-88.71	784.9	-1,099.2	1,099.9	1,045.9	20.366		
11,100.0	10,404.3	11,068.9	10,377.4	28.0	28.0	-88.75	884.9	-1,100.1	1,100.9	1,044.9	19.671		
11,200.0	10,402.9	11,168.9	10,376.7	29.1	29.0	-88.79	984.9	-1,101.0	1,101.8	1,043.7	18.970		
11,300.0	10,401.4	11,268.9	10,376.1	30.2	30.2	-88.83	1,084.9	-1,101.9	1,102.7	1,042.4	18.274		
11,400.0	10,400.0	11,368.9	10,375.5	31.4	31.4	-88.87	1,184.9	-1,102.8	1,103.6	1,040.9	17.591		
11,500.0	10,398.6	11,468.9	10,374.9	32.7	32.6	-88.91	1,284.9	-1,103.7	1,104.5	1,039.3	16.929		
11,600.0	10,397.2	11,568.9	10,374.2	34.0	33.9	-88.96	1,384.9	-1,104.6	1,105.5	1,037.6	16.290		
11,700.0	10,395.8	11,668.9	10,373.6	35.3	35.3	-89.00	1,484.8	-1,105.4	1,106.4	1,035.8	15.679		
11,800.0	10,394.4	11,768.8	10,373.0	36.7	36.7	-89.04	1,584.8	-1,106.3	1,107.3	1,033.9	15.096		
11,900.0	10,393.0	11,868.8	10,372.3	38.1	38.1	-89.08	1,684.8	-1,107.2	1,108.2	1,032.0	14.542		
12,000.0	10,391.6	11,968.8	10,371.7	39.6	39.6	-89.12	1,784.8	-1,108.1	1,109.1	1,030.0	14.016		
12,100.0	10,390.2	12,068.8	10,371.1	41.1	41.0	-89.16	1,884.8	-1,109.0	1,110.1	1,027.9	13.518		
12,200.0	10,388.8	12,168.8	10,370.5	42.6	42.6	-89.20	1,984.8	-1,109.9	1,111.0	1,025.8	13.048		
12,300.0	10,387.4	12,268.8	10,369.8	44.1	44.1	-89.24	2,084.8	-1,110.8	1,111.9	1,023.7	12.603		
12,400.0	10,386.0	12,368.8	10,369.2	45.7	45.7	-89.28	2,184.7	-1,111.6	1,112.8	1,021.5	12.182		
12,500.0	10,384.6	12,468.8	10,368.6	47.3	47.2	-89.32	2,284.7	-1,112.5	1,113.8	1,019.2	11.785		
12,600.0	10,383.2	12,568.8	10,368.0	48.9	48.8	-89.36	2,384.7	-1,113.4	1,114.7	1,017.0	11.409		
12,700.0	10,381.8	12,668.8	10,367.3	50.5	50.5	-89.40	2,484.7	-1,114.3	1,115.6	1,014.7	11.054		
12,800.0	10,380.4	12,768.8	10,366.7	52.1	52.1	-89.44	2,584.7	-1,115.2	1,116.5	1,012.4	10.718		
12,900.0	10,379.0	12,868.8	10,366.1	53.7	53.7	-89.48	2,684.7	-1,116.1	1,117.5	1,010.0	10.399		

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 #6H
Project:	Lea County, NM	TVD Reference:	Well @ 3438.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3438.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #6H	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)	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	10,377.6	12,968.8	10,365.5	55.4	55.4	-89.52	2,784.7	-1,117.0	1,118.4	1,007.6	10.098	
13,100.0	10,376.2	13,068.8	10,364.8	57.0	57.0	-89.56	2,884.7	-1,117.8	1,119.3	1,005.2	9.812	
13,200.0	10,374.8	13,168.7	10,364.2	58.7	58.7	-89.60	2,984.6	-1,118.7	1,120.2	1,002.8	9.541	
13,300.0	10,373.4	13,268.7	10,363.6	60.4	60.4	-89.64	3,084.6	-1,119.6	1,121.2	1,000.4	9.283	
13,400.0	10,372.0	13,368.7	10,362.9	62.1	62.1	-89.68	3,184.6	-1,120.5	1,122.1	998.0	9.038	
13,500.0	10,370.6	13,468.7	10,362.3	63.8	63.8	-89.72	3,284.6	-1,121.4	1,123.0	995.5	8.805	
13,600.0	10,369.2	13,568.7	10,361.7	65.5	65.5	-89.76	3,384.6	-1,122.3	1,124.0	993.0	8.584	
13,700.0	10,367.8	13,668.7	10,361.1	67.2	67.2	-89.80	3,484.6	-1,123.2	1,124.9	990.5	8.372	
13,800.0	10,366.4	13,768.7	10,360.4	68.9	68.9	-89.84	3,584.6	-1,124.0	1,125.8	988.0	8.171	
13,900.0	10,365.0	13,868.7	10,359.8	70.6	70.6	-89.88	3,684.5	-1,124.9	1,126.8	985.5	7.978	
14,000.0	10,363.6	13,968.7	10,359.2	72.3	72.3	-89.92	3,784.5	-1,125.8	1,127.7	983.0	7.795	
14,100.0	10,362.2	14,068.7	10,358.6	74.1	74.1	-89.96	3,884.5	-1,126.7	1,128.6	980.5	7.619	
14,200.0	10,360.8	14,168.7	10,357.9	75.8	75.8	-90.00	3,984.5	-1,127.6	1,129.6	978.0	7.451	
14,300.0	10,359.4	14,268.7	10,357.3	77.5	77.6	-90.04	4,084.5	-1,128.5	1,130.5	975.4	7.290	
14,400.0	10,357.9	14,368.7	10,356.7	79.3	79.3	-90.08	4,184.5	-1,129.4	1,131.4	972.9	7.136	
14,500.0	10,356.5	14,468.6	10,356.0	81.0	81.0	-90.12	4,284.5	-1,130.3	1,132.4	970.3	6.988	
14,600.0	10,355.1	14,568.6	10,355.4	82.8	82.8	-90.16	4,384.5	-1,131.1	1,133.3	967.8	6.846	
14,700.0	10,353.7	14,668.6	10,354.8	84.5	84.5	-90.20	4,484.4	-1,132.0	1,134.2	965.2	6.710	
14,800.0	10,352.3	14,768.6	10,354.2	86.3	86.3	-90.24	4,584.4	-1,132.9	1,135.2	962.6	6.579	
14,900.0	10,350.9	14,868.6	10,353.5	88.0	88.1	-90.28	4,684.4	-1,133.8	1,136.1	960.1	6.453	
14,966.6	10,350.0	14,935.2	10,353.1	89.2	89.2	-90.30	4,751.0	-1,134.4	1,136.7	958.3	6.371 ES, SF	



HP
Anticollision Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Squints Federal Com #6H
Project:	Lea County, NM	TVD Reference:	Well @ 3438.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3438.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #6H	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 #8H - 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 Tooface (°)	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	-19.5	-2,411.9	2,412.0			
100.0	100.0	98.0	98.0	0.1	0.1	-90.46	-19.5	-2,411.9	2,412.0	2,411.8	N/A	
200.0	200.0	198.0	198.0	0.3	0.3	-90.46	-19.5	-2,411.9	2,412.0	2,411.4	4,019.124	
300.0	300.0	298.0	298.0	0.5	0.5	-90.46	-19.5	-2,411.9	2,412.0	2,410.9	2,297.872	
400.0	400.0	398.0	398.0	0.8	0.7	-90.46	-19.5	-2,411.9	2,412.0	2,410.5	1,608.855	
500.0	500.0	498.0	498.0	1.0	1.0	-90.46	-19.5	-2,411.9	2,412.0	2,410.0	1,237.724	
600.0	600.0	598.0	598.0	1.2	1.2	-90.46	-19.5	-2,411.9	2,412.0	2,409.6	1,005.723	
700.0	700.0	698.0	698.0	1.4	1.4	-90.46	-19.5	-2,411.9	2,412.0	2,409.1	846.966	
800.0	800.0	798.0	798.0	1.7	1.6	-90.46	-19.5	-2,411.9	2,412.0	2,408.7	731.497	
900.0	900.0	898.0	898.0	1.9	1.9	-90.46	-19.5	-2,411.9	2,412.0	2,408.2	643.735	
1,000.0	1,000.0	998.0	998.0	2.1	2.1	-90.46	-19.5	-2,411.9	2,412.0	2,407.8	574.776	
1,100.0	1,100.0	1,098.0	1,098.0	2.3	2.3	-90.46	-19.5	-2,411.9	2,412.0	2,407.3	519.161	
1,200.0	1,200.0	1,198.0	1,198.0	2.5	2.5	-90.46	-19.5	-2,411.9	2,412.0	2,406.9	473.360	
1,300.0	1,300.0	1,298.0	1,298.0	2.8	2.8	-90.46	-19.5	-2,411.9	2,412.0	2,406.4	434.984	
1,400.0	1,400.0	1,398.0	1,398.0	3.0	3.0	-90.46	-19.5	-2,411.9	2,412.0	2,406.0	402.365	
1,500.0	1,500.0	1,498.0	1,498.0	3.2	3.2	-90.46	-19.5	-2,411.9	2,412.0	2,405.5	374.296	
1,600.0	1,600.0	1,598.0	1,598.0	3.4	3.4	-90.46	-19.5	-2,411.9	2,412.0	2,405.1	349.888	
1,700.0	1,700.0	1,698.0	1,698.0	3.7	3.7	-90.46	-19.5	-2,411.9	2,412.0	2,404.6	328.468	
1,800.0	1,800.0	1,798.0	1,798.0	3.9	3.9	-90.46	-19.5	-2,411.9	2,412.0	2,404.2	309.520	
1,900.0	1,900.0	1,898.0	1,898.0	4.1	4.1	-90.46	-19.5	-2,411.9	2,412.0	2,403.7	292.639	
2,000.0	2,000.0	1,998.0	1,998.0	4.3	4.3	-90.46	-19.5	-2,411.9	2,412.0	2,403.3	277.504	
2,100.0	2,100.0	2,098.0	2,098.0	4.6	4.6	-90.46	-19.5	-2,411.9	2,412.0	2,402.8	263.857	
2,200.0	2,200.0	2,198.0	2,198.0	4.8	4.8	-90.46	-19.5	-2,411.9	2,412.0	2,402.4	251.490	
2,300.0	2,300.0	2,298.0	2,298.0	5.0	5.0	-90.46	-19.5	-2,411.9	2,412.0	2,401.9	240.230	
2,400.0	2,400.0	2,398.0	2,398.0	5.2	5.2	-90.46	-19.5	-2,411.9	2,412.0	2,401.5	229.935	
2,500.0	2,500.0	2,498.0	2,498.0	5.5	5.5	-90.46	-19.5	-2,411.9	2,412.0	2,401.0	220.486	
2,600.0	2,600.0	2,598.0	2,598.0	5.7	5.7	-90.46	-19.5	-2,411.9	2,412.0	2,400.6	211.783	
2,700.0	2,700.0	2,698.0	2,698.0	5.9	5.9	-90.46	-19.5	-2,411.9	2,412.0	2,400.1	203.741	
2,800.0	2,800.0	2,798.0	2,798.0	6.1	6.1	-90.46	-19.5	-2,411.9	2,412.0	2,399.7	196.288	
2,900.0	2,900.0	2,898.0	2,898.0	6.4	6.4	-90.46	-19.5	-2,411.9	2,412.0	2,399.2	189.361	
3,000.0	3,000.0	2,998.0	2,998.0	6.6	6.6	-90.46	-19.5	-2,411.9	2,412.0	2,398.8	182.905	
3,100.0	3,100.0	3,098.0	3,098.0	6.8	6.8	-90.46	-19.5	-2,411.9	2,412.0	2,398.3	176.876	
3,200.0	3,200.0	3,198.0	3,198.0	7.0	7.0	-90.46	-19.5	-2,411.9	2,412.0	2,397.9	171.231	
3,300.0	3,300.0	3,298.0	3,298.0	7.3	7.3	-90.46	-19.5	-2,411.9	2,412.0	2,397.4	165.936	
3,400.0	3,400.0	3,398.0	3,398.0	7.5	7.5	-90.46	-19.5	-2,411.9	2,412.0	2,397.0	160.958	
3,500.0	3,500.0	3,498.0	3,498.0	7.7	7.7	-90.46	-19.5	-2,411.9	2,412.0	2,396.5	156.270	
3,600.0	3,600.0	3,598.0	3,598.0	7.9	7.9	-90.46	-19.5	-2,411.9	2,412.0	2,396.1	151.848	
3,700.0	3,700.0	3,698.0	3,698.0	8.2	8.2	-90.46	-19.5	-2,411.9	2,412.0	2,395.6	147.668	
3,800.0	3,800.0	3,798.0	3,798.0	8.4	8.4	-90.46	-19.5	-2,411.9	2,412.0	2,395.2	143.713	
3,900.0	3,900.0	3,898.0	3,898.0	8.6	8.6	-90.46	-19.5	-2,411.9	2,412.0	2,394.7	139.964	
4,000.0	4,000.0	3,998.0	3,998.0	8.8	8.8	-90.46	-19.5	-2,411.9	2,412.0	2,394.3	136.406	
4,100.0	4,100.0	4,098.0	4,098.0	9.1	9.1	-90.46	-19.5	-2,411.9	2,412.0	2,393.8	133.024	
4,200.0	4,200.0	4,198.0	4,198.0	9.3	9.3	-90.46	-19.5	-2,411.9	2,412.0	2,393.4	129.806	
4,300.0	4,300.0	4,298.0	4,298.0	9.5	9.5	-90.46	-19.5	-2,411.9	2,412.0	2,392.9	126.740	
4,400.0	4,400.0	4,398.0	4,398.0	9.7	9.7	-90.46	-19.5	-2,411.9	2,412.0	2,392.5	123.815	
4,500.0	4,500.0	4,498.0	4,498.0	10.0	10.0	-90.46	-19.5	-2,411.9	2,412.0	2,392.0	121.022	
4,600.0	4,600.0	4,598.0	4,598.0	10.2	10.2	-90.46	-19.5	-2,411.9	2,412.0	2,391.6	118.353	
4,700.0	4,700.0	4,698.0	4,698.0	10.4	10.4	-90.46	-19.5	-2,411.9	2,412.0	2,391.1	115.799	
4,800.0	4,800.0	4,798.0	4,798.0	10.6	10.6	-90.46	-19.5	-2,411.9	2,412.0	2,390.7	113.352	
4,900.0	4,900.0	4,898.0	4,898.0	10.9	10.9	-90.46	-19.5	-2,411.9	2,412.0	2,390.3	111.007	
5,000.0	5,000.0	4,998.0	4,998.0	11.1	11.1	-90.46	-19.5	-2,411.9	2,412.0	2,389.8	108.757	
5,100.0	5,100.0	5,098.0	5,098.0	11.3	11.3	-90.46	-19.5	-2,411.9	2,412.0	2,389.4	106.596	

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 #6H
Project:	Lea County, NM	TVD Reference:	Well @ 3438.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3438.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #6H	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 #6H - 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)	Ellipses (usft)	Separation Factor	Warning	
5,200.0	5,200.0	5,198.0	5,198.0	11.5	11.5	-90.46	-19.5	-2,411.9	2,412.0	2,388.9	104.520		
5,300.0	5,300.0	5,298.0	5,298.0	11.8	11.8	-90.46	-19.5	-2,411.9	2,412.0	2,388.5	102.523		
5,400.0	5,400.0	5,398.0	5,398.0	12.0	12.0	-90.46	-19.5	-2,411.9	2,412.0	2,388.0	100.601		
5,500.0	5,500.0	5,498.0	5,498.0	12.2	12.2	-90.46	-19.5	-2,411.9	2,412.0	2,387.6	98.749		
5,600.0	5,600.0	5,598.0	5,598.0	12.4	12.4	-90.46	-19.5	-2,411.9	2,412.0	2,387.1	96.965		
5,700.0	5,700.0	5,698.0	5,698.0	12.7	12.7	-90.46	-19.5	-2,411.9	2,412.0	2,386.7	95.243		
5,800.0	5,800.0	5,798.0	5,798.0	12.9	12.9	-90.46	-19.5	-2,411.9	2,412.0	2,386.2	93.582		
5,900.0	5,900.0	5,898.0	5,898.0	13.1	13.1	-90.46	-19.5	-2,411.9	2,412.0	2,385.8	91.978		
6,000.0	6,000.0	5,998.0	5,998.0	13.3	13.3	-90.46	-19.5	-2,411.9	2,412.0	2,385.3	90.428		
6,100.0	6,100.0	6,098.0	6,098.0	13.6	13.6	-90.46	-19.5	-2,411.9	2,412.0	2,384.9	88.929		
6,200.0	6,200.0	6,198.0	6,198.0	13.8	13.8	-90.46	-19.5	-2,411.9	2,412.0	2,384.4	87.479		
6,300.0	6,300.0	6,298.0	6,298.0	14.0	14.0	-90.46	-19.5	-2,411.9	2,412.0	2,384.0	86.076		
6,400.0	6,400.0	6,398.0	6,398.0	14.2	14.2	-90.46	-19.5	-2,411.9	2,412.0	2,383.5	84.717		
6,500.0	6,500.0	6,498.0	6,498.0	14.5	14.5	-90.46	-19.5	-2,411.9	2,412.0	2,383.1	83.400		
6,600.0	6,600.0	6,598.0	6,598.0	14.7	14.7	-90.46	-19.5	-2,411.9	2,412.0	2,382.6	82.123		
6,700.0	6,700.0	6,698.0	6,698.0	14.9	14.9	-90.46	-19.5	-2,411.9	2,412.0	2,382.2	80.885		
6,800.0	6,800.0	6,798.0	6,798.0	15.1	15.1	-90.46	-19.5	-2,411.9	2,412.0	2,381.7	79.684		
6,900.0	6,900.0	6,898.0	6,898.0	15.4	15.4	-90.46	-19.5	-2,411.9	2,412.0	2,381.3	78.518		
7,000.0	7,000.0	6,998.0	6,998.0	15.6	15.6	-90.46	-19.5	-2,411.9	2,412.0	2,380.8	77.386		
7,100.0	7,100.0	7,098.0	7,098.0	15.8	15.8	-90.46	-19.5	-2,411.9	2,412.0	2,380.4	76.285		
7,200.0	7,200.0	7,198.0	7,198.0	16.0	16.0	-90.46	-19.5	-2,411.9	2,412.0	2,379.9	75.216		
7,300.0	7,300.0	7,298.0	7,298.0	16.3	16.3	-90.46	-19.5	-2,411.9	2,412.0	2,379.5	74.176		
7,400.0	7,400.0	7,398.0	7,398.0	16.5	16.5	-90.46	-19.5	-2,411.9	2,412.0	2,379.0	73.165		
7,500.0	7,500.0	7,498.0	7,498.0	16.7	16.7	-90.46	-19.5	-2,411.9	2,412.0	2,378.6	72.180		
7,600.0	7,600.0	7,598.0	7,598.0	16.9	16.9	-90.46	-19.5	-2,411.9	2,412.0	2,378.1	71.222		
7,700.0	7,700.0	7,698.0	7,698.0	17.2	17.2	-90.46	-19.5	-2,411.9	2,412.0	2,377.7	70.289		
7,800.0	7,800.0	7,798.0	7,798.0	17.4	17.4	-90.46	-19.5	-2,411.9	2,412.0	2,377.2	69.380		
7,900.0	7,900.0	7,898.0	7,898.0	17.6	17.6	-90.46	-19.5	-2,411.9	2,412.0	2,376.8	68.495		
8,000.0	8,000.0	7,998.0	7,998.0	17.8	17.8	-90.46	-19.5	-2,411.9	2,412.0	2,376.3	67.631		
8,100.0	8,100.0	8,098.0	8,098.0	18.1	18.1	-90.46	-19.5	-2,411.9	2,412.0	2,375.9	66.789		
8,200.0	8,200.0	8,198.0	8,198.0	18.3	18.3	-90.46	-19.5	-2,411.9	2,412.0	2,375.4	65.968		
8,300.0	8,300.0	8,298.0	8,298.0	18.5	18.5	-90.46	-19.5	-2,411.9	2,412.0	2,375.0	65.167		
8,400.0	8,400.0	8,398.0	8,398.0	18.7	18.7	-90.46	-19.5	-2,411.9	2,412.0	2,374.5	64.385		
8,500.0	8,500.0	8,498.0	8,498.0	19.0	19.0	-90.46	-19.5	-2,411.9	2,412.0	2,374.1	63.622		
8,600.0	8,600.0	8,598.0	8,598.0	19.2	19.2	-90.46	-19.5	-2,411.9	2,412.0	2,373.6	62.876		
8,700.0	8,700.0	8,698.0	8,698.0	19.4	19.4	-90.46	-19.5	-2,411.9	2,412.0	2,373.2	62.148		
8,800.0	8,800.0	8,798.0	8,798.0	19.6	19.6	-90.46	-19.5	-2,411.9	2,412.0	2,372.7	61.436		
8,900.0	8,900.0	8,898.0	8,898.0	19.9	19.9	-90.46	-19.5	-2,411.9	2,412.0	2,372.3	60.741		
9,000.0	9,000.0	8,998.0	8,998.0	20.1	20.1	-90.46	-19.5	-2,411.9	2,412.0	2,371.8	60.061		
9,100.0	9,100.0	9,098.0	9,098.0	20.3	20.3	-90.46	-19.5	-2,411.9	2,412.0	2,371.4	59.396		
9,200.0	9,200.0	9,198.0	9,198.0	20.5	20.5	-90.46	-19.5	-2,411.9	2,412.0	2,370.9	58.746		
9,300.0	9,300.0	9,298.0	9,298.0	20.8	20.8	-90.46	-19.5	-2,411.9	2,412.0	2,370.5	58.109		
9,400.0	9,400.0	9,398.0	9,398.0	21.0	21.0	-90.46	-19.5	-2,411.9	2,412.0	2,370.0	57.487		
9,500.0	9,500.0	9,498.0	9,498.0	21.2	21.2	-90.46	-19.5	-2,411.9	2,412.0	2,369.6	56.877		
9,600.0	9,600.0	9,598.0	9,598.0	21.4	21.4	-90.46	-19.5	-2,411.9	2,412.0	2,369.1	56.281		
9,700.0	9,700.0	9,698.0	9,698.0	21.7	21.7	-90.46	-19.5	-2,411.9	2,412.0	2,368.7	55.697		
9,800.0	9,800.0	9,798.0	9,798.0	21.9	21.9	-90.46	-19.5	-2,411.9	2,412.0	2,368.2	55.124		
9,857.2	9,857.2	9,855.2	9,855.2	22.0	22.0	-90.46	-19.5	-2,411.9	2,412.0	2,368.0	54.803 CC		
9,900.0	9,900.0	9,897.9	9,897.9	22.1	22.1	-90.45	-18.8	-2,411.9	2,412.0	2,367.8	54.565		
9,932.6	9,932.6	9,930.1	9,929.9	22.2	22.2	-90.38	-16.0	-2,411.9	2,412.0	2,367.6	54.388		
9,950.0	9,950.0	9,947.1	9,946.8	22.2	22.2	-90.36	-13.7	-2,412.0	2,412.0	2,367.6	54.295		
9,975.0	9,974.9	9,971.5	9,970.8	22.3	22.3	-90.29	-9.3	-2,412.0	2,412.0	2,367.5	54.165		

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 #6H
Project:	Lea County, NM	TVD Reference:	Well @ 3438.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3438.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #6H	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 #8H - 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	
10,000.0	9,999.8	9,995.7	9,994.3	22.3	22.3	-90.21	-3.7	-2,412.0	2,412.1	2,367.4	54.037		
10,025.0	10,024.4	10,019.8	10,017.5	22.4	22.4	-90.14	3.0	-2,412.1	2,412.1	2,367.4	53.913		
10,050.0	10,048.8	10,043.7	10,040.1	22.4	22.4	-90.07	10.9	-2,412.2	2,412.2	2,367.3	53.791		
10,075.0	10,072.9	10,067.6	10,062.2	22.5	22.5	-89.99	19.8	-2,412.2	2,412.3	2,367.3	53.671		
10,100.0	10,096.6	10,091.3	10,083.7	22.5	22.5	-89.92	29.7	-2,412.3	2,412.4	2,367.3	53.552		
10,125.0	10,119.8	10,114.8	10,104.6	22.6	22.6	-89.85	40.7	-2,412.4	2,412.5	2,367.3	53.434		
10,150.0	10,142.6	10,138.3	10,124.8	22.6	22.6	-89.78	52.6	-2,412.5	2,412.6	2,367.4	53.315		
10,175.0	10,164.7	10,161.6	10,144.3	22.7	22.7	-89.70	65.4	-2,412.7	2,412.8	2,367.4	53.195		
10,200.0	10,186.2	10,184.9	10,163.1	22.7	22.7	-89.63	79.1	-2,412.8	2,412.9	2,367.4	53.073		
10,225.0	10,207.1	10,208.0	10,181.1	22.8	22.8	-89.56	93.6	-2,412.9	2,413.1	2,367.5	52.948		
10,250.0	10,227.1	10,231.1	10,198.3	22.9	22.8	-89.49	108.9	-2,413.0	2,413.3	2,367.6	52.818		
10,275.0	10,246.4	10,254.1	10,214.7	22.9	22.9	-89.43	125.0	-2,413.2	2,413.4	2,367.6	52.684		
10,300.0	10,264.8	10,277.0	10,230.3	23.0	23.0	-89.36	141.8	-2,413.3	2,413.6	2,367.7	52.545		
10,325.0	10,282.3	10,300.0	10,245.1	23.1	23.0	-89.29	159.4	-2,413.5	2,413.8	2,367.8	52.397		
10,350.0	10,298.8	10,322.5	10,258.8	23.1	23.1	-89.23	177.3	-2,413.6	2,414.0	2,367.8	52.244		
10,375.0	10,314.4	10,345.2	10,271.7	23.2	23.2	-89.17	196.0	-2,413.8	2,414.3	2,367.9	52.081		
10,400.0	10,328.8	10,367.8	10,283.6	23.3	23.2	-89.11	215.2	-2,414.0	2,414.5	2,368.0	51.909		
10,425.0	10,342.2	10,390.3	10,294.6	23.4	23.3	-89.05	234.8	-2,414.2	2,414.7	2,368.0	51.729		
10,450.0	10,354.5	10,412.9	10,304.7	23.5	23.4	-89.00	255.0	-2,414.3	2,414.9	2,368.1	51.538		
10,475.0	10,365.6	10,435.3	10,313.7	23.5	23.5	-88.95	275.5	-2,414.5	2,415.2	2,368.1	51.337		
10,500.0	10,375.6	10,457.7	10,321.8	23.7	23.6	-88.90	296.4	-2,414.7	2,415.4	2,368.2	51.127		
10,525.0	10,384.3	10,480.1	10,328.9	23.8	23.7	-88.85	317.7	-2,414.9	2,415.6	2,368.2	50.906		
10,550.0	10,391.8	10,502.5	10,335.0	23.9	23.8	-88.81	339.2	-2,415.1	2,415.9	2,368.2	50.675		
10,575.0	10,398.0	10,525.0	10,340.0	24.0	23.9	-88.76	361.1	-2,415.3	2,416.1	2,368.2	50.434		
10,600.0	10,402.9	10,547.1	10,344.0	24.1	24.0	-88.73	382.9	-2,415.5	2,416.4	2,368.2	50.185		
10,625.0	10,406.6	10,569.4	10,347.0	24.3	24.2	-88.69	405.0	-2,415.7	2,416.6	2,368.2	49.927		
10,650.0	10,409.0	10,591.7	10,349.0	24.4	24.3	-88.66	427.2	-2,415.9	2,416.8	2,368.2	49.661		
10,675.0	10,410.0	10,614.0	10,349.9	24.5	24.4	-88.63	449.4	-2,416.1	2,417.1	2,368.1	49.387		
10,689.3	10,410.0	10,626.9	10,349.9	24.6	24.5	-88.62	462.4	-2,416.2	2,417.2	2,368.1	49.226		
10,700.0	10,409.9	10,637.6	10,349.9	24.7	24.6	-88.62	473.1	-2,416.3	2,417.3	2,368.1	49.094		
10,800.0	10,408.5	10,737.6	10,349.4	25.4	25.2	-88.64	573.1	-2,417.2	2,418.2	2,367.6	47.793		
10,900.0	10,407.1	10,837.6	10,348.8	26.2	26.0	-88.66	673.1	-2,418.1	2,419.1	2,367.0	46.371		
11,000.0	10,405.7	10,937.6	10,348.3	27.0	26.9	-88.68	773.0	-2,418.9	2,420.1	2,366.1	44.865		
11,100.0	10,404.3	11,037.6	10,347.8	28.0	27.9	-88.70	873.0	-2,419.8	2,421.0	2,365.1	43.313		
11,200.0	10,402.9	11,137.6	10,347.3	29.1	29.0	-88.72	973.0	-2,420.7	2,421.9	2,363.9	41.748		
11,300.0	10,401.4	11,237.6	10,346.8	30.2	30.1	-88.75	1,073.0	-2,421.6	2,422.8	2,362.5	40.196		
11,400.0	10,400.0	11,337.6	10,346.2	31.4	31.3	-88.77	1,173.0	-2,422.5	2,423.7	2,361.1	38.675		
11,500.0	10,398.6	11,437.6	10,345.7	32.7	32.5	-88.79	1,273.0	-2,423.4	2,424.6	2,359.5	37.199		
11,600.0	10,397.2	11,537.6	10,345.2	34.0	33.9	-88.81	1,373.0	-2,424.3	2,425.6	2,357.8	35.779		
11,700.0	10,395.8	11,637.6	10,344.7	35.3	35.2	-88.83	1,473.0	-2,425.2	2,426.5	2,356.0	34.419		
11,800.0	10,394.4	11,737.6	10,344.1	36.7	36.6	-88.85	1,572.9	-2,426.0	2,427.4	2,354.1	33.122		
11,900.0	10,393.0	11,837.5	10,343.6	38.1	38.0	-88.87	1,672.9	-2,426.9	2,428.3	2,352.2	31.891		
12,000.0	10,391.6	11,937.5	10,343.1	39.6	39.5	-88.90	1,772.9	-2,427.8	2,429.2	2,350.2	30.723		
12,100.0	10,390.2	12,037.5	10,342.6	41.1	41.0	-88.92	1,872.9	-2,428.7	2,430.2	2,348.1	29.617		
12,200.0	10,388.8	12,137.5	10,342.1	42.6	42.5	-88.94	1,972.9	-2,429.6	2,431.1	2,346.0	28.572		
12,300.0	10,387.4	12,237.5	10,341.5	44.1	44.1	-88.96	2,072.9	-2,430.5	2,432.0	2,343.8	27.584		
12,400.0	10,386.0	12,337.5	10,341.0	45.7	45.6	-88.98	2,172.9	-2,431.4	2,432.9	2,341.6	26.651		
12,500.0	10,384.6	12,437.5	10,340.5	47.3	47.2	-89.00	2,272.8	-2,432.3	2,433.8	2,339.4	25.769		
12,600.0	10,383.2	12,537.5	10,340.0	48.9	48.8	-89.02	2,372.8	-2,433.2	2,434.8	2,337.1	24.935		
12,700.0	10,381.8	12,637.5	10,339.4	50.5	50.4	-89.04	2,472.8	-2,434.0	2,435.7	2,334.8	24.147		
12,800.0	10,380.4	12,737.5	10,338.9	52.1	52.0	-89.06	2,572.8	-2,434.9	2,436.6	2,332.5	23.402		
12,900.0	10,379.0	12,837.5	10,338.4	53.7	53.7	-89.09	2,672.8	-2,435.8	2,437.5	2,330.1	22.696		

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 #6H
Project:	Lea County, NM	TVD Reference:	Well @ 3438.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3438.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #6H	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
Measured Depth (usft)	Reference Vertical Depth (usft)	Measured Depth (usft)	Offset 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	10,377.6	12,937.5	10,337.9	55.4	55.3	-89.11	2,772.8	-2,436.7	2,438.4	2,327.8	22.028		
13,100.0	10,376.2	13,037.4	10,337.4	57.0	57.0	-89.13	2,872.8	-2,437.6	2,439.4	2,325.4	21.394		
13,200.0	10,374.8	13,137.4	10,336.8	58.7	58.7	-89.15	2,972.8	-2,438.5	2,440.3	2,322.9	20.793		
13,300.0	10,373.4	13,237.4	10,336.3	60.4	60.3	-89.17	3,072.7	-2,439.4	2,441.2	2,320.5	20.222		
13,400.0	10,372.0	13,337.4	10,335.8	62.1	62.0	-89.19	3,172.7	-2,440.3	2,442.1	2,318.0	19.680		
13,500.0	10,370.6	13,437.4	10,335.3	63.8	63.7	-89.21	3,272.7	-2,441.2	2,443.1	2,315.6	19.164		
13,600.0	10,369.2	13,537.4	10,334.7	65.5	65.4	-89.23	3,372.7	-2,442.0	2,444.0	2,313.1	18.672		
13,700.0	10,367.8	13,637.4	10,334.2	67.2	67.1	-89.25	3,472.7	-2,442.9	2,444.9	2,310.6	18.204		
13,800.0	10,366.4	13,737.4	10,333.7	68.9	68.9	-89.27	3,572.7	-2,443.8	2,445.8	2,308.1	17.758		
13,900.0	10,365.0	13,837.4	10,333.2	70.6	70.6	-89.29	3,672.7	-2,444.7	2,446.8	2,305.6	17.332		
14,000.0	10,363.6	13,937.4	10,332.6	72.3	72.3	-89.32	3,772.6	-2,445.6	2,447.7	2,303.1	16.925		
14,100.0	10,362.2	14,037.4	10,332.1	74.1	74.0	-89.34	3,872.6	-2,446.5	2,448.6	2,300.5	16.536		
14,200.0	10,360.8	14,137.4	10,331.6	75.8	75.8	-89.36	3,972.6	-2,447.4	2,449.5	2,298.0	16.163		
14,300.0	10,359.4	14,237.3	10,331.1	77.5	77.5	-89.38	4,072.6	-2,448.3	2,450.5	2,295.4	15.807		
14,400.0	10,357.9	14,337.3	10,330.6	79.3	79.3	-89.40	4,172.6	-2,449.1	2,451.4	2,292.9	15.465		
14,500.0	10,356.5	14,437.3	10,330.0	81.0	81.0	-89.42	4,272.6	-2,450.0	2,452.3	2,290.3	15.138		
14,600.0	10,355.1	14,537.3	10,329.5	82.8	82.7	-89.44	4,372.6	-2,450.9	2,453.3	2,287.8	14.824		
14,700.0	10,353.7	14,637.3	10,329.0	84.5	84.5	-89.46	4,472.5	-2,451.8	2,454.2	2,285.2	14.522		
14,800.0	10,352.3	14,737.3	10,328.5	86.3	86.3	-89.48	4,572.5	-2,452.7	2,455.1	2,282.6	14.232		
14,900.0	10,350.9	14,837.3	10,327.9	88.0	88.0	-89.50	4,672.5	-2,453.6	2,456.0	2,280.0	13.953		
14,966.6	10,350.0	14,903.8	10,327.6	89.2	89.2	-89.52	4,739.1	-2,454.2	2,456.7	2,278.3	13.773	ES, SF	



HP
Anticollision Report

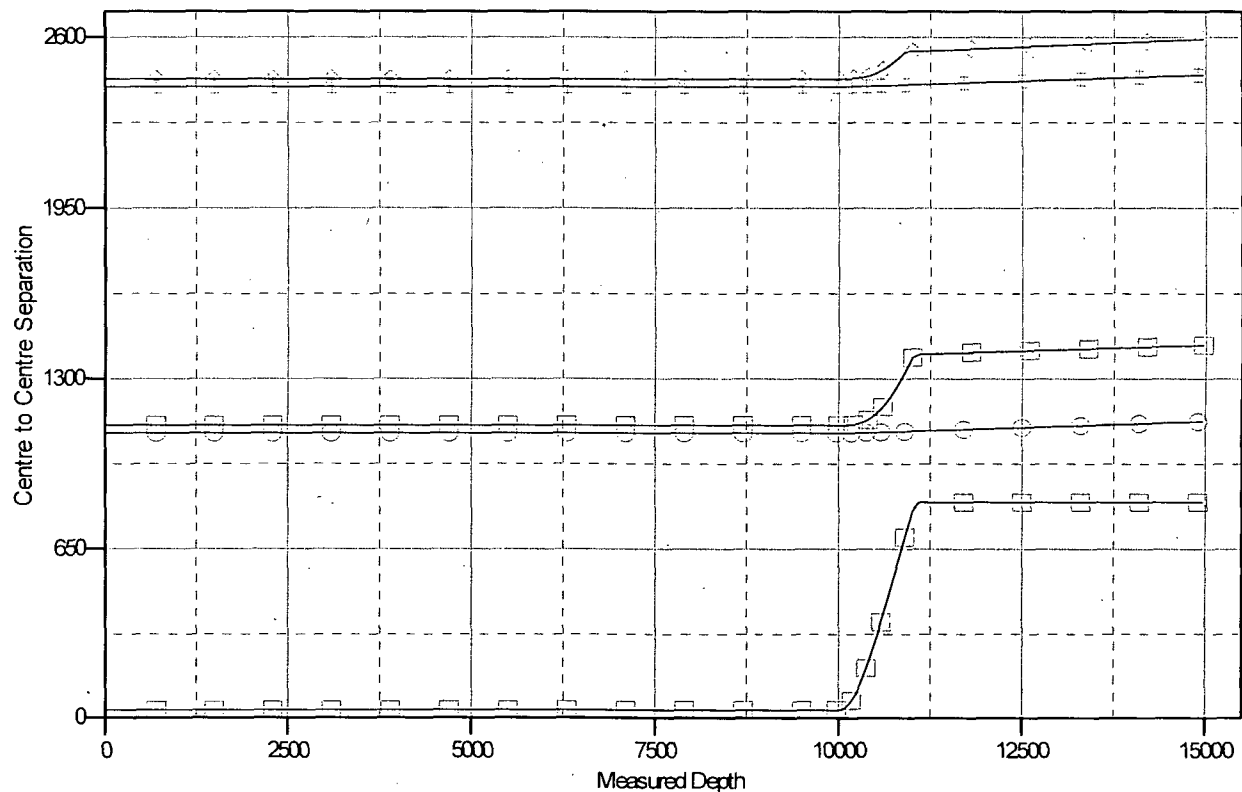


Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Squires Federal Com #6H
Project:	Lea County, NM	TVD Reference:	Well @ 3438.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3438.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squires Federal Com #6H	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 @ 3438.0usft (Ensign #772)
Offset Depths are relative to Offset Datum
Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: Squires Federal Com #6H
Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
Grid Convergence at Surface is: 0.47°

Ladder Plot



LEGEND

Squires Federal Com #8H, Wellbore #1, Design #1 V0 Squires Federal Com #2H, Wellbore #1, Design #1 V0 Squires Federal Com #4H, Wellbore #1, Design #1 V0
Squires Federal Com #3H, Wellbore #1, Design #1 V0 Squires Federal Com #7H, Wellbore #1, Design #1 V0



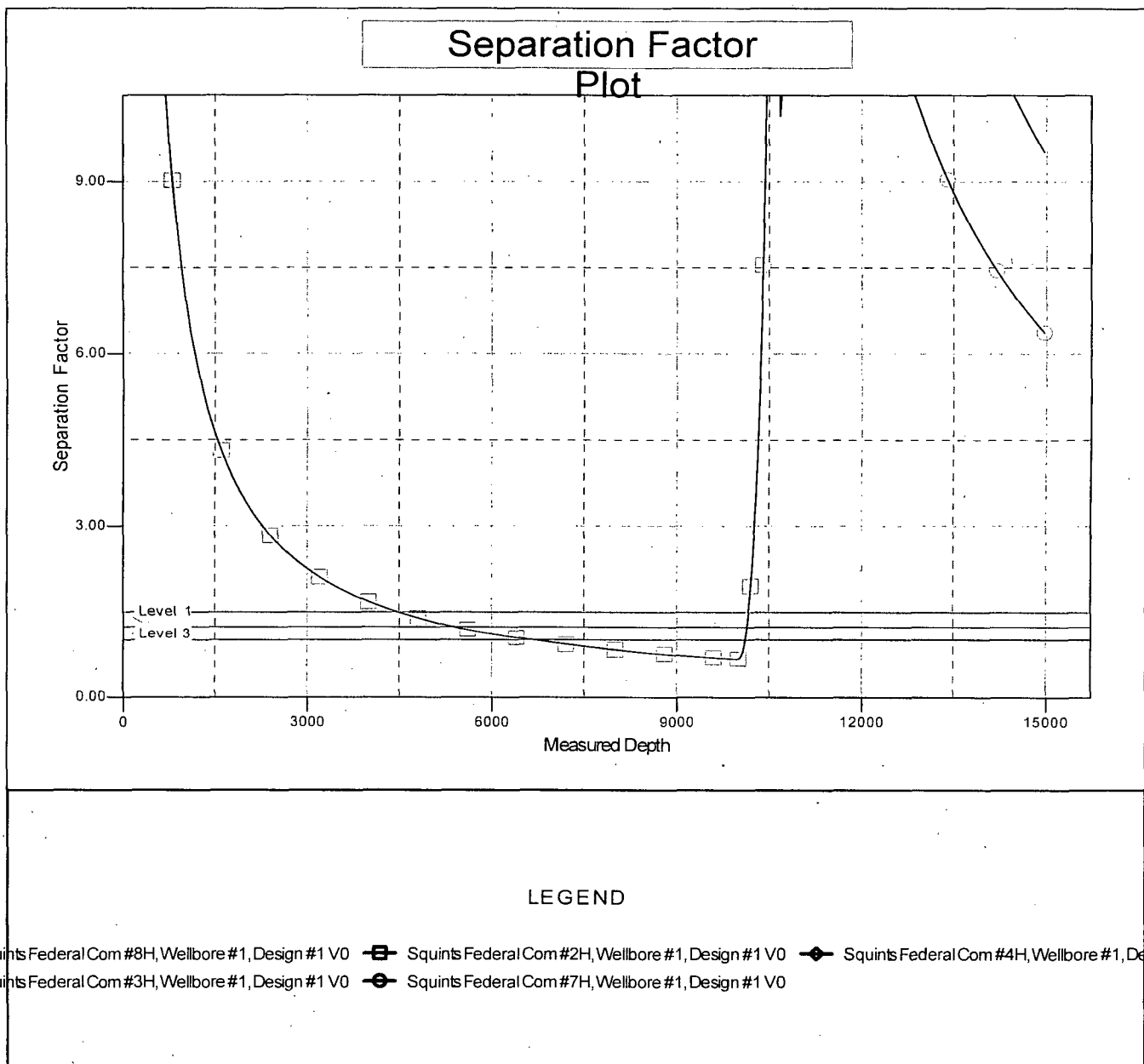
HP
Anticollision Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Squints Federal Com #6H
Project:	Lea County, NM	TVD Reference:	Well @ 3438.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3438.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #6H	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

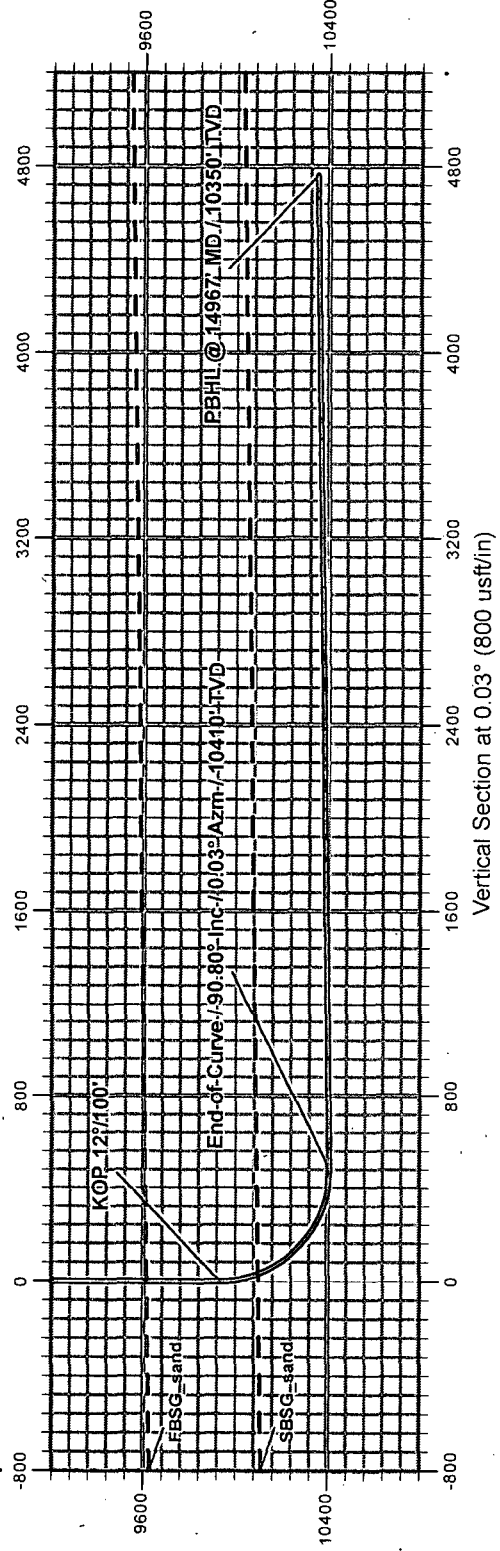
Reference Depths are relative to Well @ 3438.0usft (Ensign #772)
Offset Depths are relative to Offset Datum
Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: Squints Federal Com #6H
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 #6H
Design #1



Lea County, NM
Sec 27, T22S, R34E
Squints Federal Com #6H
Design #1

