

COG Operating, LLC

Lea County, NM

Sec 27, T22S, R34E

Squints Federal Com #2H

Wellbore #1

Design #1

DDC Anticollision Report

17 December, 2015

HOBBS OCD

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DDC

Anticollision Report

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Squints Federal Com #2H
Project:	Lea County, NM	TVD Reference:	Well @ 3439.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3439.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Reference	Design #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.0 usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

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

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Sec 27, T22S, R34E						
Sun Federal Com #1 - Wellbore #1 - Wellbore #1	11,585.5	11,235.3	215.6	182.5	6.503	CC, ES
Sun Federal Com #1 - Wellbore #1 - Wellbore #1	11,600.0	11,235.1	216.1	182.9	6.501	SF

Offset Design Sec 27, T22S, R34E - Sun Federal Com #1 - Wellbore #1 - Wellbore #1										Offset Site Error:		0.0 usft
Survey Program: 309-Good_gyro										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
0.0	0.0	0.0	0.0	0.0	0.0	21.06	551.6	212.4	591.1			
100.0	100.0	95.0	95.0	0.1	0.0	21.06	551.6	212.4	591.1	590.9	4,789.628	
200.0	200.0	195.0	195.0	0.3	0.1	21.06	551.6	212.4	591.1	590.7	1,490.902	
300.0	300.0	295.0	295.0	0.5	0.1	21.06	551.6	212.4	591.1	590.4	882.858	
400.0	400.0	395.0	395.0	0.8	0.2	21.06	551.6	212.4	591.1	590.1	624.072	
500.0	500.0	495.0	495.0	1.0	0.3	21.06	551.6	212.4	591.1	589.8	482.314	
600.0	600.0	595.0	595.0	1.2	0.3	21.06	551.6	212.4	591.1	589.6	393.036	
700.0	700.0	695.0	695.0	1.4	0.4	21.06	551.6	212.4	591.1	589.3	331.647	
800.0	800.0	795.0	795.0	1.7	0.4	21.06	551.6	212.4	591.1	589.0	286.778	
900.0	900.0	895.0	895.0	1.9	0.5	21.06	551.6	212.4	591.1	588.7	252.601	
1,000.0	1,000.0	995.0	995.0	2.1	0.5	21.06	551.6	212.4	591.1	588.4	225.757	
1,100.0	1,100.0	1,095.0	1,095.0	2.3	0.6	21.06	551.6	212.4	591.1	588.2	204.108	
1,200.0	1,200.0	1,195.0	1,195.0	2.5	0.7	21.06	551.6	212.4	591.1	587.9	186.248	
1,300.0	1,300.0	1,295.1	1,295.0	2.8	0.7	21.06	551.6	212.4	591.1	587.6	171.266	
1,400.0	1,400.0	1,395.1	1,395.0	3.0	0.8	21.06	551.6	212.4	591.1	587.3	158.525	
1,500.0	1,500.0	1,495.1	1,495.0	3.2	0.8	21.06	551.6	212.4	591.1	587.1	147.549	
1,600.0	1,600.0	1,595.1	1,595.0	3.4	0.9	21.06	551.6	212.4	591.1	586.8	137.994	
1,700.0	1,700.0	1,695.1	1,695.0	3.7	0.9	21.06	551.6	212.4	591.1	586.5	129.601	
1,800.0	1,800.0	1,795.1	1,795.0	3.9	1.0	21.06	551.6	212.4	591.1	586.2	122.179	
1,900.0	1,900.0	1,895.1	1,895.0	4.1	1.0	21.06	551.6	212.4	591.1	585.9	115.568	
2,000.0	2,000.0	1,995.1	1,995.0	4.3	1.1	21.06	551.6	212.4	591.1	585.7	109.617	
2,100.0	2,100.0	2,095.1	2,095.0	4.6	1.1	21.06	551.6	212.4	591.1	585.4	104.248	
2,200.0	2,200.0	2,195.1	2,195.0	4.8	1.2	21.06	551.6	212.4	591.1	585.1	99.379	
2,300.0	2,300.0	2,295.1	2,295.0	5.0	1.2	21.06	551.6	212.4	591.1	584.8	94.945	
2,400.0	2,400.0	2,395.1	2,395.0	5.2	1.3	21.06	551.6	212.4	591.1	584.6	90.890	

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

DDC

Anticollision Report

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Squints Federal Com #2H
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Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3439.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore:	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error
Sec 27, T22S, R34E - Sun Federal Com #1 - Wellbore #1 - Wellbore #1												0.0 usft
Survey Program: 309-Grid-Gyro												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
2,500.0	2,500.0	2,495.1	2,495.0	5.5	1.4	21.06	551.6	212.4	591.1	584.3	87.167	
2,600.0	2,600.0	2,595.1	2,595.0	5.7	1.4	21.06	551.6	212.4	591.1	584.0	83.723	
2,700.0	2,700.0	2,695.1	2,695.0	5.9	1.5	21.06	551.6	212.4	591.1	583.7	80.535	
2,800.0	2,800.0	2,795.1	2,795.0	6.1	1.5	21.06	551.6	212.4	591.1	583.4	77.582	
2,900.0	2,900.0	2,895.1	2,895.0	6.4	1.6	21.06	551.6	212.4	591.1	583.2	74.837	
3,000.0	3,000.0	2,995.1	2,995.0	6.6	1.7	21.06	551.6	212.4	591.1	582.9	72.276	
3,100.0	3,100.0	3,095.1	3,095.0	6.8	1.7	21.06	551.6	212.4	591.1	582.6	69.883	
3,200.0	3,200.0	3,195.1	3,195.0	7.0	1.8	21.06	551.6	212.4	591.1	582.3	67.644	
3,300.0	3,300.0	3,295.1	3,295.0	7.3	1.8	21.06	551.6	212.4	591.1	582.0	65.543	
3,400.0	3,400.0	3,395.2	3,395.0	7.5	1.9	21.06	551.6	212.4	591.1	581.8	63.573	
3,500.0	3,500.0	3,495.2	3,495.0	7.7	2.0	21.06	551.6	212.4	591.1	581.5	61.719	
3,600.0	3,600.0	3,595.2	3,595.0	7.9	2.0	21.06	551.6	212.4	591.1	581.2	59.970	
3,700.0	3,700.0	3,695.3	3,695.0	8.2	2.1	21.06	551.6	212.4	591.1	580.9	58.320	
3,800.0	3,800.0	3,795.3	3,795.0	8.4	2.1	21.06	551.6	212.4	591.1	580.6	56.763	
3,900.0	3,900.0	3,895.3	3,895.0	8.6	2.2	21.06	551.6	212.4	591.1	580.4	55.286	
4,000.0	4,000.0	3,995.4	3,995.0	8.8	2.2	21.06	551.6	212.4	591.1	580.1	53.885	
4,100.0	4,100.0	4,095.4	4,095.0	9.1	2.3	21.06	551.6	212.4	591.1	579.8	52.552	
4,200.0	4,200.0	4,195.4	4,195.0	9.3	2.4	21.06	551.6	212.4	591.1	579.5	51.282	
4,300.0	4,300.0	4,295.4	4,295.0	9.5	2.4	21.06	551.6	212.4	591.1	579.3	50.072	
4,400.0	4,400.0	4,395.4	4,395.0	9.7	2.5	21.06	551.6	212.4	591.1	579.0	48.918	
4,500.0	4,500.0	4,495.4	4,495.0	10.0	2.5	21.06	551.6	212.4	591.1	578.7	47.816	
4,600.0	4,600.0	4,595.5	4,595.0	10.2	2.6	21.06	551.6	212.4	591.1	578.4	46.763	
4,700.0	4,700.0	4,695.5	4,695.0	10.4	2.6	21.06	551.6	212.4	591.1	578.1	45.758	
4,800.0	4,800.0	4,795.5	4,795.0	10.6	2.7	21.06	551.6	212.4	591.1	577.9	44.795	
4,900.0	4,900.0	4,895.5	4,895.0	10.9	2.8	21.06	551.6	212.4	591.1	577.6	43.872	
5,000.0	5,000.0	4,895.5	4,895.0	11.1	2.8	21.06	551.6	212.4	591.1	577.3	42.986	
5,100.0	5,100.0	5,095.5	5,095.0	11.3	2.9	21.06	551.6	212.4	591.1	577.0	42.135	
5,200.0	5,200.0	5,195.5	5,195.0	11.5	2.9	21.06	551.6	212.4	591.1	576.8	41.317	
5,300.0	5,300.0	5,295.5	5,295.0	11.8	3.0	21.06	551.6	212.4	591.1	576.5	40.531	
5,400.0	5,400.0	5,395.5	5,395.0	12.0	3.0	21.06	551.6	212.4	591.1	576.2	39.772	
5,500.0	5,500.0	5,495.5	5,495.0	12.2	3.1	21.06	551.6	212.4	591.1	575.9	39.041	
5,600.0	5,600.0	5,595.5	5,595.0	12.4	3.1	21.06	551.6	212.4	591.1	575.6	38.335	
5,700.0	5,700.0	5,695.5	5,695.0	12.7	3.2	21.06	551.6	212.4	591.1	575.4	37.655	
5,800.0	5,800.0	5,795.5	5,795.0	12.9	3.3	21.06	551.6	212.4	591.1	575.1	36.999	
5,900.0	5,900.0	5,895.5	5,895.0	13.1	3.3	21.06	551.6	212.4	591.1	574.8	36.366	
6,000.0	6,000.0	5,995.5	5,995.0	13.3	3.4	21.06	551.6	212.4	591.1	574.5	35.755	
6,100.0	6,100.0	6,095.5	6,095.0	13.6	3.4	21.06	551.6	212.4	591.1	574.2	35.164	
6,200.0	6,200.0	6,195.5	6,195.0	13.8	3.5	21.06	551.6	212.4	591.1	574.0	34.593	
6,300.0	6,300.0	6,295.5	6,295.0	14.0	3.5	21.06	551.6	212.4	591.1	573.7	34.039	
6,400.0	6,400.0	6,395.6	6,395.0	14.2	3.6	21.06	551.6	212.4	591.1	573.4	33.505	
6,500.0	6,500.0	6,495.6	6,495.0	14.5	3.6	21.06	551.6	212.4	591.1	573.1	32.987	
6,600.0	6,600.0	6,595.6	6,595.0	14.7	3.7	21.06	551.6	212.4	591.1	572.9	32.485	
6,700.0	6,700.0	6,695.6	6,695.0	14.9	3.7	21.06	551.6	212.4	591.1	572.6	31.998	
6,800.0	6,800.0	6,795.6	6,795.0	15.1	3.8	21.06	551.6	212.4	591.1	572.3	31.525	
6,900.0	6,900.0	6,895.6	6,895.0	15.4	3.8	21.06	551.6	212.4	591.1	572.0	31.066	
7,000.0	7,000.0	6,995.6	6,995.0	15.6	3.9	21.06	551.6	212.4	591.1	571.8	30.620	
7,100.0	7,100.0	7,095.6	7,095.0	15.8	3.9	21.06	551.6	212.4	591.1	571.5	30.186	
7,200.0	7,200.0	7,195.6	7,195.0	16.0	4.0	21.06	551.6	212.4	591.1	571.2	29.764	
7,300.0	7,300.0	7,295.6	7,295.0	16.3	4.1	21.06	551.6	212.4	591.1	570.9	29.354	
7,400.0	7,400.0	7,395.6	7,395.0	16.5	4.1	21.06	551.6	212.4	591.1	570.6	28.955	
7,500.0	7,500.0	7,495.6	7,495.0	16.7	4.2	21.06	551.6	212.4	591.1	570.4	28.566	
7,600.0	7,600.0	7,595.6	7,595.0	16.9	4.2	21.06	551.6	212.4	591.1	570.1	28.188	

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

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Reference Well:	Squints Federal Com #2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design Sec 27, T22S, R34E - Sun Federal Com #1 - Wellbore #1 - Wellbore #1												Offset Site Error
Survey Program: 309-Good-gyro												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
7,700.0	7,700.0	7,695.6	7,695.0	17.2	4.3	21.06	551.6	212.4	591.1	569.8	27.820	
7,765.4	7,765.4	7,761.0	7,760.4	17.3	4.3	21.06	551.6	212.4	591.1	569.6	27.584	
7,800.0	7,800.0	7,792.0	7,791.4	17.4	4.3	21.06	551.6	212.4	591.1	569.5	27.464	
7,900.0	7,900.0	7,895.6	7,895.0	17.6	4.4	21.06	551.6	212.4	591.1	569.3	27.110	
8,000.0	8,000.0	7,995.6	7,995.0	17.8	4.4	21.06	551.6	212.4	591.1	569.0	26.769	
8,100.0	8,100.0	8,095.6	8,095.0	18.1	4.5	21.06	551.6	212.4	591.1	568.7	26.436	
8,200.0	8,200.0	8,195.6	8,195.0	18.3	4.5	21.06	551.6	212.4	591.1	568.4	26.111	
8,300.0	8,300.0	8,295.6	8,295.0	18.5	4.6	21.06	551.6	212.4	591.1	568.1	25.794	
8,400.0	8,400.0	8,395.6	8,395.0	18.7	4.7	21.06	551.6	212.4	591.1	567.9	25.485	
8,500.0	8,500.0	8,495.6	8,495.0	19.0	4.7	21.06	551.6	212.4	591.1	567.6	25.183	
8,563.9	8,563.9	8,559.5	8,558.9	19.1	4.8	21.06	551.6	212.4	591.1	567.4	24.994	
8,600.0	8,600.0	8,588.0	8,587.3	19.2	4.8	21.06	551.6	212.4	591.1	567.4	24.895	
8,700.0	8,700.0	8,695.7	8,695.0	19.4	4.8	21.06	551.6	212.4	591.1	567.0	24.602	
8,800.0	8,800.0	8,795.7	8,795.0	19.6	4.9	21.06	551.6	212.4	591.1	566.8	24.322	
8,900.0	8,900.0	8,895.7	8,895.0	19.9	4.9	21.06	551.6	212.4	591.1	566.5	24.046	
9,000.0	9,000.0	8,995.7	8,995.0	20.1	5.0	21.06	551.6	212.4	591.1	566.2	23.776	
9,100.0	9,100.0	9,095.7	9,095.0	20.3	5.1	21.06	551.6	212.4	591.1	565.9	23.511	
9,158.5	9,158.5	9,154.2	9,153.5	20.4	5.1	21.06	551.6	212.4	591.1	565.8	23.359	
9,200.0	9,200.0	9,176.0	9,175.3	20.5	5.1	21.06	551.6	212.4	591.4	566.0	23.275	
9,286.2	9,286.2	9,281.9	9,281.2	20.7	5.2	21.06	551.6	212.4	591.1	565.4	23.035	
9,300.0	9,300.0	9,290.0	9,289.2	20.8	5.2	21.06	551.6	212.4	591.1	565.4	23.005	
9,400.0	9,400.0	9,395.8	9,395.0	21.0	5.2	21.06	551.6	212.4	591.1	565.1	22.753	
9,500.0	9,500.0	9,495.8	9,495.0	21.2	5.3	21.06	551.6	212.4	591.1	564.8	22.511	
9,600.0	9,600.0	9,595.8	9,595.0	21.4	5.3	21.06	551.6	212.4	591.1	564.5	22.275	
9,700.0	9,700.0	9,695.8	9,695.0	21.7	5.4	21.06	551.6	212.4	591.1	564.2	22.044	
9,800.0	9,800.0	9,795.8	9,795.0	21.9	5.5	21.06	551.6	212.4	591.1	564.0	21.817	
9,900.0	9,900.0	9,895.8	9,895.0	22.1	5.5	21.06	551.6	212.4	591.1	563.7	21.594	
10,000.0	10,000.0	9,995.8	9,995.0	22.3	5.6	21.06	551.6	212.4	591.1	563.4	21.376	
10,100.0	10,100.0	10,095.8	10,095.0	22.6	5.6	21.06	551.6	212.4	591.1	563.1	21.163	
10,200.0	10,200.0	10,195.9	10,195.0	22.8	5.7	21.06	551.6	212.4	591.1	562.8	20.953	
10,300.0	10,300.0	10,295.9	10,295.0	23.0	5.8	21.06	551.6	212.4	591.1	562.6	20.748	
10,400.0	10,400.0	10,395.9	10,395.0	23.2	5.8	21.06	551.6	212.4	591.1	562.3	20.546	
10,500.0	10,500.0	10,495.9	10,495.0	23.5	5.9	21.06	551.6	212.4	591.1	562.0	20.348	
10,557.8	10,557.8	10,553.7	10,552.8	23.6	5.9	21.06	551.6	212.4	591.1	561.8	20.235	
10,600.0	10,600.0	10,575.0	10,574.0	23.7	5.9	21.06	551.6	212.4	591.4	562.1	20.175	
10,700.0	10,700.0	10,696.0	10,695.0	23.9	6.0	21.06	551.6	212.4	591.1	561.4	19.963	
10,762.6	10,762.6	10,758.6	10,757.6	24.0	6.1	21.06	551.6	212.4	591.1	561.3	19.845	
10,775.0	10,775.0	10,771.0	10,770.0	24.1	6.1	21.41	551.6	212.4	590.9	561.1	19.824	
10,800.0	10,800.0	10,787.0	10,786.0	24.1	6.1	21.48	551.6	212.4	589.8	560.0	19.784	
10,825.0	10,824.8	10,820.8	10,819.8	24.2	6.1	21.71	551.6	212.4	587.3	557.5	19.728	
10,850.0	10,849.5	10,845.5	10,844.5	24.2	6.1	22.01	551.6	212.4	583.6	554.0	19.675	
10,875.0	10,874.0	10,870.0	10,869.0	24.3	6.1	22.43	551.6	212.4	578.8	549.3	19.616	
10,900.0	10,898.1	10,894.1	10,893.1	24.3	6.1	22.96	551.6	212.4	572.8	543.5	19.550	
10,925.0	10,921.9	10,917.9	10,916.9	24.4	6.2	23.62	551.6	212.4	565.7	536.6	19.474	
10,950.0	10,945.2	10,941.2	10,940.2	24.4	6.2	24.42	551.6	212.4	557.4	528.7	19.384	
10,975.0	10,968.1	10,964.1	10,963.1	24.5	6.2	25.36	551.6	212.4	548.1	519.6	19.276	
11,000.0	10,990.3	10,976.0	10,974.9	24.5	6.2	26.22	551.6	212.4	537.7	509.7	19.159	
11,025.0	11,012.0	11,008.1	11,007.0	24.6	6.2	27.78	551.6	212.4	526.2	498.5	18.977	
11,050.0	11,033.0	11,029.1	11,028.0	24.7	6.2	29.29	551.6	212.4	513.8	486.5	18.767	
11,075.0	11,053.2	11,049.3	11,048.2	24.7	6.3	31.03	551.6	212.4	500.5	473.5	18.501	
11,100.0	11,072.6	11,068.7	11,067.6	24.8	6.3	33.03	551.6	212.4	486.4	459.6	18.163	
11,125.0	11,091.2	11,087.3	11,086.2	24.8	6.3	35.33	551.6	212.4	471.5	444.9	17.737	

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

DDC

Anticollision Report

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Squints Federal Com #2H
Project:	Lea County, NM	TVD Reference:	Well @ 3439.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3439.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design Sec 27, T22S, R34E - Sun Federal Com #1 - Wellbore #1 - Wellbore #1												Offset Site Error:	0.0 usft
Survey Program: 308-Good gyro												Offset Well Error:	0.0 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Reference Depth (usft)	Offset Depth (usft)	Semi Major Axis (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
11,150.0	11,108.9	11,105.0	11,103.9	24.9	6.3	37.95		551.6	212.4	455.8	429.3	17.208	
11,175.0	11,125.6	11,121.7	11,120.6	25.0	6.3	40.91		551.6	212.4	439.5	413.0	16.566	
11,200.0	11,141.3	11,137.4	11,136.3	25.0	6.3	44.24		551.6	212.4	422.7	396.0	15.812	
11,225.0	11,156.0	11,152.1	11,151.0	25.1	6.3	47.94		551.6	212.4	405.5	378.4	14.958	
11,250.0	11,169.7	11,162.0	11,160.8	25.2	6.3	51.45		551.6	212.4	387.9	360.4	14.086	
11,275.0	11,182.2	11,178.4	11,177.2	25.3	6.3	56.34		551.6	212.4	370.1	341.8	13.073	
11,300.0	11,193.5	11,189.7	11,188.5	25.4	6.3	60.91		551.6	212.4	352.2	323.2	12.122	
11,325.0	11,203.7	11,199.9	11,198.7	25.5	6.3	65.58		551.6	212.4	334.4	304.6	11.215	
11,350.0	11,212.6	11,208.9	11,207.6	25.6	6.4	70.20		551.6	212.4	317.0	286.4	10.380	
11,375.0	11,220.4	11,216.6	11,215.4	25.7	6.4	74.63		551.6	212.4	300.0	268.8	9.628	
11,400.0	11,226.8	11,223.1	11,221.8	25.8	6.4	78.70		551.6	212.4	283.7	252.1	8.964	
11,425.0	11,232.1	11,228.3	11,227.1	25.9	6.4	82.29		551.6	212.4	268.5	236.4	8.383	
11,450.0	11,236.0	11,232.2	11,231.0	26.0	6.4	85.31		551.6	212.4	254.5	222.2	7.882	
11,475.0	11,238.6	11,234.8	11,233.6	26.1	6.4	87.69		551.6	212.4	242.2	209.7	7.456	
11,500.0	11,239.9	11,236.1	11,234.9	26.3	6.4	89.40		551.6	212.4	231.9	199.3	7.105	
11,519.3	11,240.0	11,236.2	11,235.0	26.4	6.4	90.25		551.6	212.4	225.5	192.8	6.886	
11,585.5	11,239.1	11,235.3	11,234.1	26.8	6.4	90.00		551.6	212.4	215.6	182.5	6.503	CC, ES
11,600.0	11,238.9	11,235.1	11,233.9	26.9	6.4	89.95		551.6	212.4	216.1	182.9	6.501	SF
11,700.0	11,237.5	11,233.7	11,232.5	27.6	6.4	89.57		551.6	212.4	244.1	210.2	7.192	
11,800.0	11,236.1	11,232.3	11,231.1	28.4	6.4	89.20		551.6	212.4	304.1	269.4	8.754	
11,900.0	11,234.7	11,230.9	11,229.7	29.3	6.4	88.83		551.6	212.4	381.3	345.7	10.700	
12,000.0	11,233.3	11,229.5	11,228.3	30.3	6.4	88.45		551.6	212.4	467.2	430.6	12.762	
12,100.0	11,231.9	11,228.1	11,226.9	31.3	6.4	88.08		551.6	212.4	557.8	520.2	14.814	
12,200.0	11,230.5	11,226.7	11,225.5	32.4	6.4	87.71		551.6	212.4	651.2	612.4	16.796	
12,300.0	11,229.1	11,225.3	11,224.1	33.6	6.4	87.34		551.6	212.4	746.3	706.3	18.683	
12,400.0	11,227.7	11,223.9	11,222.7	34.9	6.4	86.97		551.6	212.4	842.5	801.3	20.463	
12,500.0	11,226.3	11,222.5	11,221.3	36.1	6.4	86.59		551.6	212.4	939.5	897.1	22.135	
12,600.0	11,224.9	11,221.1	11,219.9	37.5	6.4	86.22		551.6	212.4	1,037.1	993.3	23.698	
12,700.0	11,223.4	11,219.7	11,218.4	38.8	6.4	85.85		551.6	212.4	1,135.1	1,090.0	25.159	
12,800.0	11,222.0	11,218.3	11,217.0	40.3	6.4	85.48		551.6	212.4	1,233.4	1,186.9	26.523	
12,900.0	11,220.6	11,216.8	11,215.6	41.7	6.4	85.11		551.6	212.4	1,332.0	1,284.0	27.796	
13,000.0	11,219.2	11,215.4	11,214.2	43.2	6.4	84.74		551.6	212.4	1,430.7	1,381.4	28.984	
13,100.0	11,217.8	11,214.0	11,212.8	44.7	6.4	84.37		551.6	212.4	1,529.7	1,478.8	30.095	
13,200.0	11,216.4	11,212.6	11,211.4	46.2	6.4	84.00		551.6	212.4	1,628.7	1,576.4	31.134	
13,300.0	11,215.0	11,211.2	11,210.0	47.7	6.4	83.63		551.6	212.4	1,727.9	1,674.0	32.107	
13,400.0	11,213.6	11,209.8	11,208.6	49.3	6.4	83.27		551.6	212.4	1,827.1	1,771.8	33.019	
13,500.0	11,212.2	11,208.4	11,207.2	50.9	6.4	82.90		551.6	212.4	1,926.4	1,869.6	33.875	
13,600.0	11,210.8	11,207.0	11,205.8	52.5	6.4	82.53		551.6	212.4	2,025.8	1,967.4	34.681	
13,700.0	11,209.4	11,205.6	11,204.4	54.1	6.4	82.16		551.6	212.4	2,125.3	2,065.3	35.440	
13,800.0	11,208.0	11,204.2	11,203.0	55.7	6.4	81.80		551.6	212.4	2,224.8	2,163.3	36.156	
13,900.0	11,206.6	11,202.8	11,201.6	57.3	6.4	81.43		551.6	212.4	2,324.3	2,261.2	36.833	
14,000.0	11,205.2	11,201.4	11,200.2	59.0	6.4	81.07		551.6	212.4	2,423.9	2,359.2	37.473	
14,100.0	11,203.8	11,200.0	11,198.8	60.6	6.3	80.71		551.6	212.4	2,523.5	2,457.2	38.081	
14,200.0	11,202.4	11,198.6	11,197.4	62.3	6.3	80.34		551.6	212.4	2,623.1	2,555.3	38.658	
14,300.0	11,201.0	11,197.2	11,196.0	64.0	6.3	79.98		551.6	212.4	2,722.8	2,653.4	39.207	
14,400.0	11,199.6	11,195.8	11,194.6	65.6	6.3	79.62		551.6	212.4	2,822.5	2,751.5	39.730	
14,500.0	11,198.2	11,194.4	11,193.2	67.3	6.3	79.26		551.6	212.4	2,922.2	2,849.6	40.229	
14,600.0	11,196.8	11,193.0	11,191.8	69.0	6.3	78.90		551.6	212.4	3,021.9	2,947.7	40.706	
14,700.0	11,195.4	11,191.6	11,190.4	70.7	6.3	78.54		551.6	212.4	3,121.7	3,045.8	41.163	
14,800.0	11,194.0	11,190.2	11,189.0	72.4	6.3	78.18		551.6	212.4	3,221.4	3,144.0	41.601	
14,900.0	11,192.6	11,188.8	11,187.6	74.1	6.3	77.83		551.6	212.4	3,321.2	3,242.2	42.022	
15,000.0	11,191.2	11,187.4	11,186.2	75.9	6.3	77.47		551.6	212.4	3,421.0	3,340.4	42.427	

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

DDC

Anticollision Report

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Squints Federal Com #2H
Project:	Lea County, NM	TVD Reference:	Well @ 3439.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3439.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore:	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:		0.0 usft	
Sec 27, T22S, R34E - Sun Federal Com #1 - Wellbore #1 - Wellbore #1															
Survey Program: 309-Good-gyro												Offset Well Error:		0.0 usft	
Reference	Vertical	Offset	Vertical	Semi Major Axis				Distance							
Measured	Depth	Measured	Depth	Reference	Offset	Highside	Offset Wellbore Centre	Between	Between	Separation	Warning				
Depth		Depth				Toolface	+N-S	Centres	Ellipses	Factor					
(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(°)	(usft)	(usft)	(usft)						
15,100.0	11,189.8	11,186.0	11,184.8	77.6	6.3	77.12	551.6	212.4	3,520.8	3,438.6	42.816				
15,200.0	11,188.4	11,184.6	11,183.4	79.3	6.3	76.76	551.6	212.4	3,620.6	3,536.8	43.192				
15,300.0	11,187.0	11,183.2	11,182.0	81.0	6.3	76.41	551.6	212.4	3,720.4	3,635.0	43.555				
15,400.0	11,185.6	11,181.8	11,180.6	82.8	6.3	76.06	551.6	212.4	3,820.2	3,733.2	43.907				
15,500.0	11,184.2	11,180.4	11,179.2	84.5	6.3	75.71	551.6	212.4	3,920.1	3,831.5	44.247				
15,600.0	11,182.8	11,179.0	11,177.8	86.3	6.3	75.36	551.6	212.4	4,019.9	3,929.7	44.577				
15,700.0	11,181.4	11,177.6	11,176.4	88.0	6.3	75.01	551.6	212.4	4,119.8	4,028.0	44.897				
15,796.3	11,180.0	11,176.2	11,175.0	89.7	6.3	74.68	551.6	212.4	4,216.0	4,122.7	45.197				
15,796.7	11,180.0	11,176.2	11,175.0	89.7	6.3	74.67	551.6	212.4	4,216.4	4,123.1	45.199				

DDC

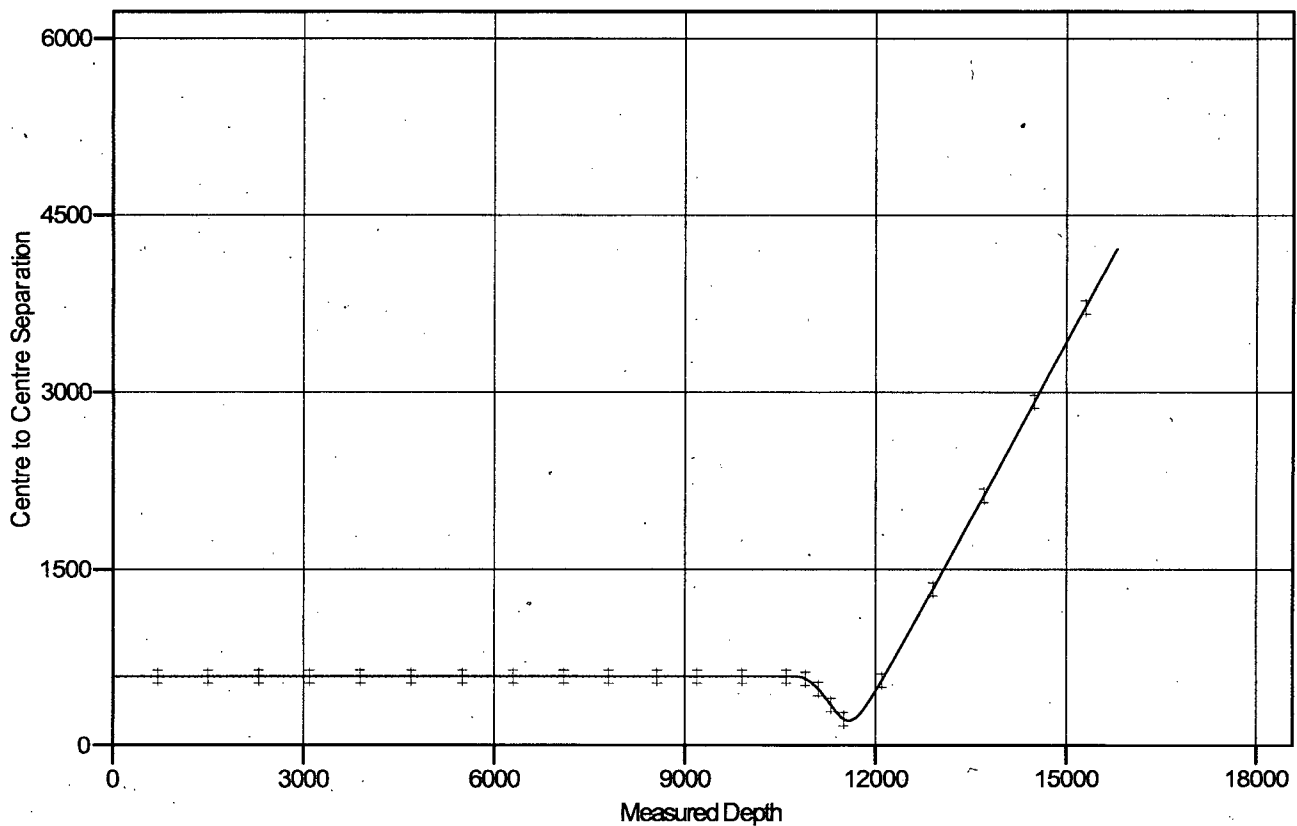
Anticollision Report

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Squints Federal Com #2H
Project:	Lea County, NM	TVD Reference:	Well @ 3439.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3439.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at:	2.00 sigma
Reference Wellbore:	Wellbore #1	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

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

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

Ladder Plot



LEGEND

— Sun Federal Com #1, Wellbore #1, Wellbore #1 V0

DDC

Anticollision Report

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Squints Federal Com #2H
Project:	Lea County, NM	TVD Reference:	Well @ 3439.0usft (Ensign #772)
Reference Site:	Sec 27, T22S, R34E	MD Reference:	Well @ 3439.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Squints Federal Com #2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore:	Wellbore #1	Database:	EDM 5000.1 Single User.Db
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to Well @ 3439.0usft (Ensign #772)

Offset Depths are relative to Offset Datum

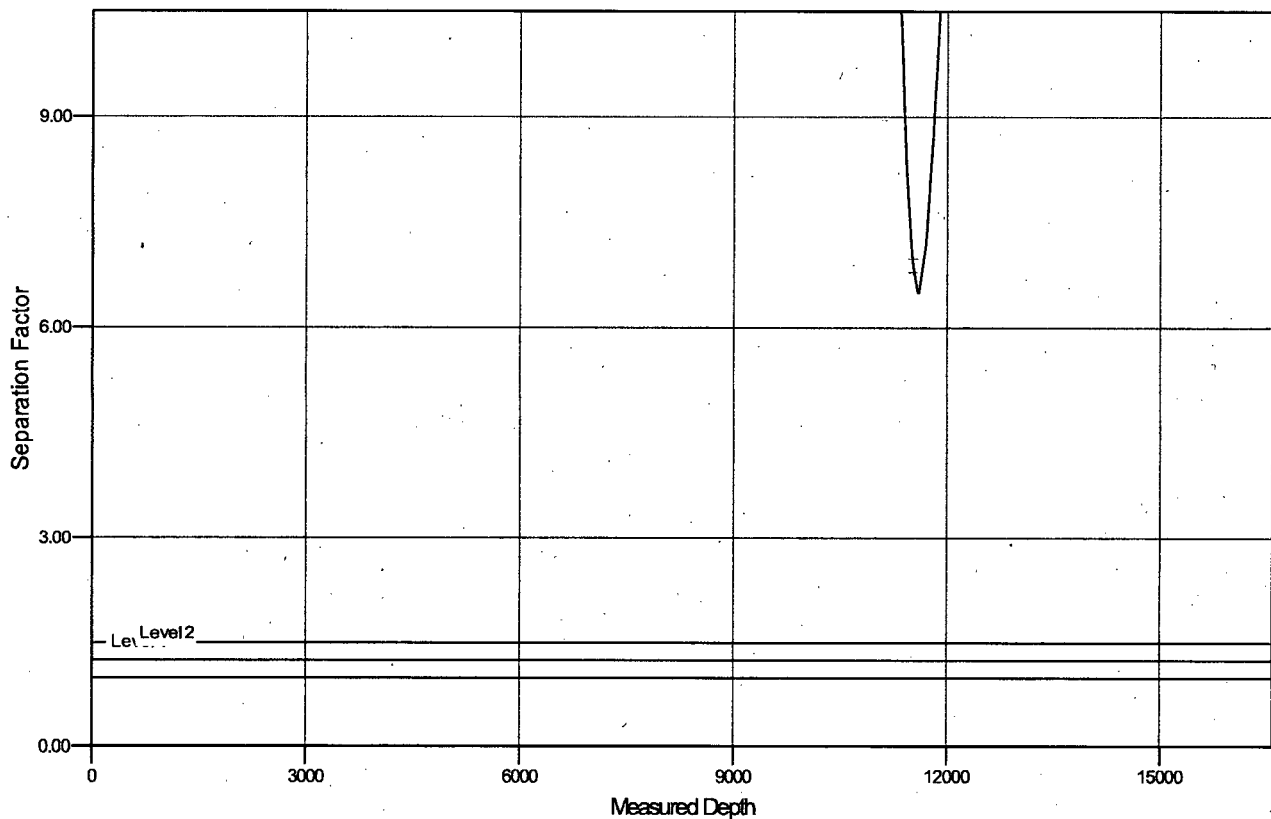
Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: Squints Federal Com #2H

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

Grid Convergence at Surface is: 0.47°

Separation Factor Plot

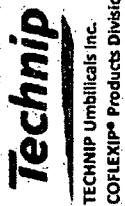


LEGEND

— Sun Federal Com #1, Wellbore #1, Wellbore #1 V0

TechnipTECHNIP Umbilicals Inc.
COFLEXIP® Products Division**CERTIFICATE OF CONFORMITY**

SUPPLIER	COFLEXIP® Products Division 16661 Jacintoport Blvd. Houston, Texas 77015	
CUSTOMER	OFS CANADA INC	
CUSTOMER PROJECT	OFS GLOBAL RIG 772 PROJECT 59	
CONTRACT NUMBER	OFS-012060-1	
COFLEXIP REFERENCE NUMBER	K12386	
COFLEXIP LINE DESCRIPTION	3" x 30' 10K CHOKE/KILL LINE	
COFLEXIP LINE SERIAL NUMBER	K12386-202	
WORKING / TEST PRESSURE (PSI)	10000 / 15000	
COFLEXIP ID (inches)/PART NUMBER	3 / 076 60414 13 13	
COFLEXIP STRUCTURE NUMBER	076 60414	
END FITTING REFERENCE NUMBER	EM 076 65000 13	EM 076 65000 13
END FITTING DESCRIPTION	4 1/16" 10K FLG BX 155 INC. 625 RG / 4 1/16" 10K FLG BX 155 INC. 625 RG	
IRC REFERENCE		
SAFE WORKING LOADS		
NOMINAL DAMAGING PULL (STRAIGHT LINE)		
MINIMUM BENDING RADIUS		
MAXIMUM DESIGN TEMPERATURE -4 Deg. F To 212 Deg. F/B		
<i>We certify that the supply detailed above was manufactured and inspected in accordance with the technical specifications specified within the contract referenced above and any specifications checked below. This document serves as a Declaration and Confirmation from the Manufacturer, TECHNIP Umbilicals Inc., Houston, Texas, that asbestos materials are not utilized in any part(s) or sub-part(s) or component(s) during the assembly process of any of our Coflexip® flexible pipes.</i>		
Licence Number 16C-0001		(If Required)
TECHNIP QUALITY CONTROL		
 4/30/15 		
Name/ Date/ Stamp		



Quality Control Department

Control Report Dated 4/28/2015

COFLEXIP FLEXIBLE PIPE TEST CERTIFICATE

Customer OFS CANADA INC.

Job Number: K12387

Address.

Line Serial Number K12387-202

Part Number 076 60414 13 13

Application 3" x 30' 10K CHOKE/KILL LINE

COFLEXIP certifies that the results of the test and controls performed on the above mentioned flexible pipe is as follows:

Internal Diameter	3	inches

3

inches:

Length	30.83	feet
--------	-------	------

30.83

feet

Working Pressure

10000

psi

Test Pressure

1500

psi.

As per attached recorder chart.

24.

hours

Test Duration

Test Duration

THIRD PARTY INSPECTION FIRM OR CUSTOMER REPRESENTATIVE

DQAC 1124 Rev.2 18 Sept.09

Date Printed: 4/28/2015 1:49:43 PM

Test Configuration 12 Zone

Production Information Input

Customer ID
OFS CANADA INC.
Line S/N
KI2386-202@KI2387-202
Technician
ROY

QC Information Input

QC Insp
PAT
Witness?
Yes
Special Instructions
Third Party
BV
Test Procedure
SIC 01.60

Station Information

Pressure Transducer S/N
1211370
Scale Pres
15500
Calib. Due
9/9/2018 2:12 AM
Temperature S/N
T13A
Test Pres
15000
Pressure Range
0 - 30000

Station 04

Calibration

Raw Minimum
0.004000
Raw Maximum
0.020000
Eng Minimum
0.000000
Eng Maximum
30000.000000

XY Graph

