



COG Production LLC

Lea County, NM
Sec 26, T24S, R32E
Eider Federal #13H

Wellbore #1
Design #1

DDC Anticollision Report

17 June, 2015





HP
Anticollision Report



Company:	COG Production LLC	Local Co-ordinate Reference:	Well Eider Federal #13H
Project:	Lea County, NM	TVD Reference:	Well @ 3617.0usft (Ensign #772)
Reference Site:	Sec 26, T24S, R32E	MD Reference:	Well @ 3617.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Eider Federal #13H	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	19,476.8	Design #1 (Wellbore #1)	MWD default	MWD - Standard	

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 26, T24S, R32E						
Eider Federal #11H - Wellbore #1 - Design #1	14,161.5	9,629.3	1,559.9	1,451.0	14.327	CC
Eider Federal #11H - Wellbore #1 - Design #1	14,200.0	9,606.4	1,560.1	1,450.7	14.257	ES
Eider Federal #11H - Wellbore #1 - Design #1	14,600.0	9,450.0	1,601.3	1,486.0	13.890	SF
Eider Federal #4H - Wellbore #1 - Design #1	9,212.5	9,203.5	1,991.7	1,950.6	48.462	CC
Eider Federal #4H - Wellbore #1 - Design #1	9,250.0	9,241.0	1,991.8	1,950.5	48.288	ES
Eider Federal #4H - Wellbore #1 - Design #1	19,477.3	20,648.6	2,798.0	2,462.8	8.348	SF

Offset Design		Sec 26, T24S, R32E - Eider Federal #11H - Wellbore #1 - Design #1										Offset Site Error:		0.0 usft
Survey Program:		D-MWD default										Offset Well Error:		0.0 usft
Reference	Vertical	Offset	Vertical	Semi Major Axis		Highside	Offset Wellbore Centre		Distance		Separation	Warning		
Depth	Depth	Measured	Depth	Reference	Offset		Toolface	+N/-S	+E/-W	Between			Between	Factor
(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(°)	(usft)	(usft)	Centres	Ellipses				
									(usft)	(usft)				
0 0	0 0	0 0	0 0	0 0	0 0	160 82	-4,812 8	1,673 7	5,095 6					
100 0	100 0	80 0	80 0	0 1	0 1	160 82	-4,812 8	1,673 7	5,095 5	5,095 4	N/A			
200 0	200 0	180 0	180 0	0 3	0 3	160 82	-4,812 8	1,673 7	5,095 5	5,095 0	9,104,545			
300 0	300 0	280 0	280 0	0 5	0 5	160 82	-4,812 8	1,673 7	5,095 5	5,094 5	5,049,069			
400 0	400 0	380 0	380 0	0 8	0 7	160 82	-4,812 8	1,673 7	5,095 5	5,094 1	3,493,116			
500 0	500 0	480 0	480 0	1 0	0 9	160 82	-4,812 8	1,673 7	5,095 5	5,093 6	2,670,238			
600 0	600 0	580 0	580 0	1 2	1 2	160 82	-4,812 8	1,673 7	5,095 5	5,093 2	2,161,137			
700 0	700 0	680 0	680 0	1 4	1 4	160 82	-4,812 8	1,673 7	5,095 5	5,092 7	1,815,078			
800 0	800 0	780 0	780 0	1 7	1 6	160 82	-4,812 8	1,673 7	5,095 5	5,092 3	1,564,550			
900 0	900 0	880 0	880 0	1 9	1 8	160 82	-4,812 8	1,673 7	5,095 5	5,091 8	1,374,792			
1,000 0	1,000 0	980 0	980 0	2 1	2 1	160 82	-4,812 8	1,673 7	5,095 5	5,091 4	1,226,086			
1,100 0	1,100 0	1,080 0	1,080 0	2 3	2 3	160 82	-4,812 8	1,673 7	5,095 5	5,090 9	1,106,409			
1,200 0	1,200 0	1,180 0	1,180 0	2 5	2 5	160 82	-4,812 8	1,673 7	5,095 5	5,090 5	1,008,018			
1,300 0	1,300 0	1,280 0	1,280 0	2 8	2 7	160 82	-4,812 8	1,673 7	5,095 5	5,090 0	925,697			
1,400 0	1,400 0	1,380 0	1,380 0	3 0	3 0	160 82	-4,812 8	1,673 7	5,095 5	5,089 6	855,807			
1,500 0	1,500 0	1,480 0	1,480 0	3 2	3 2	160 82	-4,812 8	1,673 7	5,095 5	5,089 1	795,729			
1,600 0	1,600 0	1,580 0	1,580 0	3 4	3 4	160 82	-4,812 8	1,673 7	5,095 5	5,088 7	743,533			
1,700 0	1,700 0	1,680 0	1,680 0	3 7	3 6	160 82	-4,812 8	1,673 7	5,095 5	5,088 2	697,763			
1,800 0	1,800 0	1,780 0	1,780 0	3 9	3 9	160 82	-4,812 8	1,673 7	5,095 5	5,087 8	657,301			
1,900 0	1,900 0	1,880 0	1,880 0	4 1	4 1	160 82	-4,812 8	1,673 7	5,095 5	5,087 3	621,275			
2,000 0	2,000 0	1,980 0	1,980 0	4 3	4 3	160 82	-4,812 8	1,673 7	5,095 5	5,086 9	588,993			

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



HP
Anticollision Report



Company: COG Production LLC
Project: Lea County, NM
Reference Site: Sec 26, T24S, R32E
Site Error: 0.0 usft
Reference Well: Eider Federal #13H
Well Error: 0.0 usft
Reference Wellbore: Wellbore #1
Reference Design: Design #1

Local Co-ordinate Reference:
TVD Reference: Well @ 3617.0usft (Ensign #772)
MD Reference: Well @ 3617.0usft (Ensign #772)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: Compass
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)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning
2,100.0	2,100.0	2,080.0	2,080.0	4.6	4.5	160.82	-4.812.8	1.673.7	5.095.5	5.086.4	559.899	
2,200.0	2,200.0	2,180.0	2,180.0	4.8	4.8	160.82	-4.812.8	1.673.7	5.095.5	5.086.0	533.545	
2,300.0	2,300.0	2,280.0	2,280.0	5.0	5.0	160.82	-4.812.8	1.673.7	5.095.5	5.085.5	509.560	
2,400.0	2,400.0	2,380.0	2,380.0	5.2	5.2	160.82	-4.812.8	1.673.7	5.095.5	5.085.1	487.639	
2,500.0	2,500.0	2,480.0	2,480.0	5.5	5.4	160.82	-4.812.8	1.673.7	5.095.5	5.084.6	467.526	
2,600.0	2,600.0	2,580.0	2,580.0	5.7	5.7	160.82	-4.812.8	1.673.7	5.095.5	5.084.2	449.006	
2,700.0	2,700.0	2,680.0	2,680.0	5.9	5.9	160.82	-4.812.8	1.673.7	5.095.5	5.083.7	431.898	
2,800.0	2,800.0	2,780.0	2,780.0	6.1	6.1	160.82	-4.812.8	1.673.7	5.095.5	5.083.3	416.046	
2,900.0	2,900.0	2,880.0	2,880.0	6.4	6.3	160.82	-4.812.8	1.673.7	5.095.5	5.082.8	401.316	
3,000.0	3,000.0	2,980.0	2,980.0	6.6	6.6	160.82	-4.812.8	1.673.7	5.095.5	5.082.4	387.593	
3,100.0	3,100.0	3,080.0	3,080.0	6.8	6.8	160.82	-4.812.8	1.673.7	5.095.5	5.081.9	374.778	
3,200.0	3,200.0	3,180.0	3,180.0	7.0	7.0	160.82	-4.812.8	1.673.7	5.095.5	5.081.5	362.783	
3,300.0	3,300.0	3,280.0	3,280.0	7.3	7.2	160.82	-4.812.8	1.673.7	5.095.5	5.081.0	351.532	
3,400.0	3,400.0	3,380.0	3,380.0	7.5	7.4	160.82	-4.812.8	1.673.7	5.095.5	5.080.6	340.958	
3,500.0	3,500.0	3,480.0	3,480.0	7.7	7.7	160.82	-4.812.8	1.673.7	5.095.5	5.080.1	331.002	
3,600.0	3,600.0	3,580.0	3,580.0	7.9	7.9	160.82	-4.812.8	1.673.7	5.095.5	5.079.7	321.611	
3,700.0	3,700.0	3,680.0	3,680.0	8.2	8.1	160.82	-4.812.8	1.673.7	5.095.5	5.079.2	312.737	
3,800.0	3,800.0	3,780.0	3,780.0	8.4	8.3	160.82	-4.812.8	1.673.7	5.095.5	5.078.8	304.341	
3,900.0	3,900.0	3,880.0	3,880.0	8.6	8.6	160.82	-4.812.8	1.673.7	5.095.5	5.078.3	296.383	
4,000.0	4,000.0	3,980.0	3,980.0	8.8	8.8	160.82	-4.812.8	1.673.7	5.095.5	5.077.9	288.831	
4,100.0	4,100.0	4,080.0	4,080.0	9.1	9.0	160.82	-4.812.8	1.673.7	5.095.5	5.077.4	281.654	
4,200.0	4,200.0	4,180.0	4,180.0	9.3	9.2	160.82	-4.812.8	1.673.7	5.095.5	5.077.0	274.825	
4,300.0	4,300.0	4,280.0	4,280.0	9.5	9.5	160.82	-4.812.8	1.673.7	5.095.5	5.076.5	268.320	
4,400.0	4,400.0	4,380.0	4,380.0	9.7	9.7	160.82	-4.812.8	1.673.7	5.095.5	5.076.1	262.115	
4,500.0	4,500.0	4,480.0	4,480.0	10.0	9.9	160.82	-4.812.8	1.673.7	5.095.5	5.075.6	256.191	
4,600.0	4,600.0	4,580.0	4,580.0	10.2	10.1	160.82	-4.812.8	1.673.7	5.095.5	5.075.2	250.529	
4,700.0	4,700.0	4,680.0	4,680.0	10.4	10.4	160.82	-4.812.8	1.673.7	5.095.5	5.074.7	245.111	
4,800.0	4,800.0	4,780.0	4,780.0	10.6	10.6	160.82	-4.812.8	1.673.7	5.095.5	5.074.3	239.923	
4,900.0	4,900.0	4,880.0	4,880.0	10.9	10.8	160.82	-4.812.8	1.673.7	5.095.5	5.073.8	234.950	
5,000.0	5,000.0	14,247.7	9,680.0	11.1	88.8	91.33	-41.5	1.784.5	5.027.5	4.927.7	50.363	
5,100.0	5,100.0	14,247.7	9,680.0	11.3	88.8	91.33	-41.4	1.784.5	4.934.2	4.834.1	49.317	
5,200.0	5,200.0	14,247.7	9,680.0	11.5	88.8	91.33	-41.4	1.784.5	4.841.1	4.740.8	48.278	
5,300.0	5,300.0	14,247.7	9,680.0	11.8	88.8	91.33	-41.4	1.784.5	4.748.3	4.647.8	47.247	
5,400.0	5,400.0	14,247.7	9,680.0	12.0	88.8	91.33	-41.4	1.784.5	4.655.7	4.555.0	46.223	
5,500.0	5,500.0	14,247.7	9,680.0	12.2	88.8	91.33	-41.4	1.784.5	4.563.5	4.462.6	45.206	
5,600.0	5,600.0	14,247.7	9,680.0	12.4	88.8	91.33	-41.4	1.784.5	4.471.7	4.370.5	44.198	
5,700.0	5,700.0	14,247.7	9,680.0	12.7	88.8	91.33	-41.4	1.784.5	4.380.2	4.278.8	43.198	
5,800.0	5,800.0	14,247.7	9,680.0	12.9	88.8	91.33	-41.4	1.784.5	4.289.0	4.187.4	42.205	
5,900.0	5,900.0	14,247.7	9,680.0	13.1	88.8	91.33	-41.4	1.784.5	4.198.3	4.096.5	41.221	
6,000.0	6,000.0	14,247.7	9,680.0	13.3	88.8	91.33	-41.4	1.784.5	4.108.0	4.006.0	40.246	
6,100.0	6,100.0	14,247.7	9,680.0	13.6	88.8	91.33	-41.4	1.784.5	4.018.2	3.915.9	39.280	
6,200.0	6,200.0	14,247.7	9,680.0	13.8	88.8	91.33	-41.4	1.784.5	3.928.9	3.826.3	38.322	
6,300.0	6,300.0	14,247.7	9,680.0	14.0	88.8	91.33	-41.4	1.784.5	3.840.0	3.737.3	37.374	
6,400.0	6,400.0	14,247.7	9,680.0	14.2	88.8	91.33	-41.4	1.784.5	3.751.8	3.648.8	36.435	
6,500.0	6,500.0	14,247.7	9,680.0	14.5	88.8	91.33	-41.4	1.784.5	3.664.1	3.561.0	35.506	
6,600.0	6,600.0	14,247.7	9,680.0	14.7	88.8	91.33	-41.4	1.784.5	3.577.1	3.473.7	34.588	
6,700.0	6,700.0	14,247.7	9,680.0	14.9	88.8	91.33	-41.4	1.784.5	3.490.8	3.387.2	33.680	
6,800.0	6,800.0	14,247.7	9,680.0	15.1	88.8	91.33	-41.4	1.784.5	3.405.3	3.301.4	32.784	
6,900.0	6,900.0	14,247.7	9,680.0	15.4	88.8	91.33	-41.4	1.784.5	3.320.5	3.216.4	31.899	
7,000.0	7,000.0	14,247.7	9,680.0	15.6	88.8	91.33	-41.4	1.784.5	3.236.7	3.132.3	31.026	
7,100.0	7,100.0	14,247.7	9,680.0	15.8	88.8	91.33	-41.4	1.784.5	3.153.7	3.049.2	30.166	
7,200.0	7,200.0	14,247.7	9,680.0	16.0	88.8	91.33	-41.4	1.784.5	3.071.8	2.967.0	29.319	

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



HP
Anticollision Report



Company: COG Production LLC
Project: Lea County, NM
Reference Site: Sec 26, T24S, R32E
Site Error: 0.0 usft
Reference Well: Eider Federal #13H
Well Error: 0.0 usft
Reference Wellbore: Wellbore #1
Reference Design: Design #1

Local Co-ordinate Reference: Well Eider Federal #13H
TVD Reference: Well @ 3617.0usft (Ensign #772)
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North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: Compass
Offset TVD Reference: Offset Datum

Offset Design Sec 26, T24S, R32E - Eider Federal #11H - 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	
7,300.0	7,300.0	14,247.7	9,680.0	16.3	88.8	91.33	-41.4	1,784.5	2,991.0	2,886.0	28.487		
7,400.0	7,400.0	14,247.7	9,680.0	16.5	88.8	91.33	-41.4	1,784.5	2,911.4	2,806.1	27.669		
7,500.0	7,500.0	14,247.7	9,680.0	16.7	88.8	91.33	-41.4	1,784.5	2,833.0	2,727.6	26.867		
7,600.0	7,600.0	14,247.7	9,680.0	16.9	88.8	91.33	-41.4	1,784.5	2,756.1	2,650.4	26.082		
7,700.0	7,700.0	14,247.7	9,680.0	17.2	88.8	91.33	-41.4	1,784.5	2,680.7	2,574.8	25.315		
7,800.0	7,800.0	14,247.7	9,680.0	17.4	88.8	91.33	-41.4	1,784.5	2,606.9	2,500.8	24.566		
7,900.0	7,900.0	14,247.7	9,680.0	17.6	88.8	91.33	-41.4	1,784.5	2,535.0	2,428.6	23.837		
8,000.0	8,000.0	14,247.7	9,680.0	17.8	88.8	91.33	-41.4	1,784.5	2,465.0	2,358.4	23.130		
8,100.0	8,100.0	14,247.7	9,680.0	18.1	88.8	91.33	-41.4	1,784.5	2,397.1	2,290.3	22.446		
8,200.0	8,200.0	14,247.7	9,680.0	18.3	88.8	91.33	-41.4	1,784.5	2,331.5	2,224.5	21.786		
8,300.0	8,300.0	14,247.7	9,680.0	18.5	88.8	91.33	-41.4	1,784.5	2,268.5	2,161.2	21.153		
8,400.0	8,400.0	14,247.7	9,680.0	18.7	88.8	91.33	-41.4	1,784.5	2,208.2	2,100.7	20.547		
8,500.0	8,500.0	14,247.7	9,680.0	19.0	88.8	91.33	-41.4	1,784.5	2,150.8	2,043.1	19.972		
8,600.0	8,600.0	14,247.7	9,680.0	19.2	88.8	91.33	-41.4	1,784.5	2,096.7	1,988.8	19.429		
8,700.0	8,700.0	14,247.7	9,680.0	19.4	88.8	91.33	-41.4	1,784.5	2,046.0	1,937.8	18.919		
8,800.0	8,800.0	14,247.7	9,680.0	19.6	88.8	91.33	-41.4	1,784.5	1,999.0	1,890.6	18.447		
8,900.0	8,900.0	14,247.7	9,680.0	19.9	88.8	91.33	-41.4	1,784.5	1,956.0	1,847.4	18.013		
9,000.0	9,000.0	14,247.7	9,680.0	20.1	88.8	91.33	-41.4	1,784.5	1,917.3	1,808.5	17.620		
9,100.0	9,100.0	14,247.7	9,680.0	20.3	88.8	91.33	-41.4	1,784.5	1,883.1	1,774.1	17.270		
9,200.0	9,200.0	14,247.7	9,680.0	20.5	88.8	91.33	-41.4	1,784.5	1,853.7	1,744.4	16.965		
9,212.5	9,212.5	14,247.7	9,680.0	20.6	88.8	91.33	-41.4	1,784.5	1,850.3	1,741.0	16.930		
9,225.0	9,225.0	14,247.5	9,680.0	20.6	88.8	-87.58	-41.6	1,784.5	1,847.1	1,735.2	16.510		
9,250.0	9,250.0	14,246.2	9,680.0	20.6	88.7	-88.32	-42.9	1,784.4	1,840.7	1,729.0	16.465		
9,275.0	9,274.8	14,243.6	9,680.0	20.7	88.7	-88.99	-45.5	1,784.4	1,834.7	1,723.0	16.427		
9,300.0	9,299.5	14,239.7	9,680.0	20.7	88.6	-89.57	-49.4	1,784.3	1,829.0	1,717.4	16.394		
9,325.0	9,324.0	14,234.5	9,680.0	20.7	88.5	-90.08	-54.6	1,784.2	1,823.5	1,712.1	16.367		
9,350.0	9,348.1	14,228.0	9,680.0	20.8	88.4	-90.51	-61.1	1,784.0	1,818.4	1,707.1	16.344		
9,375.0	9,371.9	14,220.3	9,680.0	20.8	88.3	-90.86	-68.8	1,783.8	1,813.5	1,702.5	16.326		
9,400.0	9,395.2	14,211.4	9,680.0	20.9	88.1	-91.15	-77.7	1,783.6	1,809.0	1,698.1	16.312		
9,425.0	9,418.1	14,201.2	9,680.0	20.9	87.9	-91.36	-87.9	1,783.4	1,804.8	1,694.1	16.301		
9,450.0	9,440.3	14,189.9	9,680.0	20.9	87.7	-91.51	-99.2	1,783.1	1,800.9	1,690.4	16.294		
9,475.0	9,462.0	14,177.4	9,680.0	21.0	87.5	-91.60	-111.7	1,782.9	1,797.3	1,687.0	16.291		
9,500.0	9,482.9	14,163.8	9,680.0	21.0	87.3	-91.64	-125.3	1,782.5	1,794.0	1,683.9	16.291		
9,525.0	9,503.2	14,149.1	9,680.0	21.1	87.0	-91.62	-140.0	1,782.2	1,791.0	1,681.1	16.295		
9,550.0	9,522.6	14,133.4	9,680.0	21.1	86.8	-91.57	-155.7	1,781.8	1,788.2	1,678.5	16.302		
9,575.0	9,541.2	14,116.7	9,680.0	21.2	86.5	-91.48	-172.4	1,781.4	1,785.6	1,676.1	16.313		
9,600.0	9,558.8	14,099.1	9,680.0	21.2	86.1	-91.36	-190.0	1,781.0	1,783.2	1,674.0	16.327		
9,625.0	9,575.6	14,080.5	9,680.0	21.3	85.8	-91.22	-208.6	1,780.6	1,781.1	1,672.1	16.345		
9,650.0	9,591.3	14,061.1	9,680.0	21.4	85.5	-91.07	-228.0	1,780.2	1,779.1	1,670.4	16.366		
9,675.0	9,606.0	14,040.9	9,680.0	21.5	85.1	-90.91	-248.2	1,779.7	1,777.3	1,668.8	16.390		
9,700.0	9,619.6	14,020.0	9,680.0	21.5	84.8	-90.74	-269.1	1,779.2	1,775.6	1,667.4	16.417		
9,725.0	9,632.1	13,998.4	9,680.0	21.6	84.4	-90.58	-290.7	1,778.7	1,774.0	1,666.1	16.446		
9,750.0	9,643.5	13,976.1	9,680.0	21.7	84.0	-90.44	-312.9	1,778.2	1,772.5	1,664.9	16.478		
9,775.0	9,653.6	13,953.3	9,680.0	21.8	83.6	-90.31	-335.7	1,777.7	1,771.1	1,663.8	16.513		
9,800.0	9,662.6	13,930.0	9,680.0	21.9	83.2	-90.20	-359.0	1,777.1	1,769.7	1,662.8	16.549		
9,825.0	9,670.3	13,906.2	9,680.0	22.1	82.8	-90.12	-382.8	1,776.6	1,768.4	1,661.8	16.586		
9,850.0	9,676.8	13,882.1	9,680.0	22.2	82.3	-90.07	-406.9	1,776.0	1,767.1	1,660.8	16.624		
9,875.0	9,682.0	13,857.7	9,680.0	22.3	81.9	-90.06	-431.3	1,775.4	1,765.9	1,659.9	16.663		
9,900.0	9,685.9	13,833.0	9,680.0	22.5	81.5	-90.09	-456.0	1,774.9	1,764.6	1,659.0	16.702		
9,925.0	9,688.5	13,808.2	9,680.0	22.6	81.0	-90.15	-480.8	1,774.3	1,763.4	1,658.0	16.740		
9,950.0	9,689.8	13,783.3	9,680.0	22.8	80.6	-90.26	-505.7	1,773.7	1,762.1	1,657.1	16.778		
9,962.5	9,690.0	13,770.8	9,680.0	22.9	80.4	-90.33	-518.2	1,773.4	1,761.5	1,656.6	16.797		

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



HP
Anticollision Report



Company: COG Production LLC
Project: Lea County, NM
Reference Site: Sec 26, T24S, R32E
Site Error: 0.0 usft
Reference Well: Eider Federal #13H
Well Error: 0.0 usft
Reference Wellbore: Wellbore #1
Reference Design: Design #1

Local Co-ordinate Reference: Well Eider Federal #13H
TVD Reference: Well @ 3617.0usft (Ensign #772)
MD Reference: Well @ 3617.0usft (Ensign #772)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: Compass
Offset TVD Reference: Offset Datum

Offset Design Sec 26, T24S, R32E - Eider Federal #11H - 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
10,000.0	9,690.0	13,733.3	9,680.0	23.1	79.7	-90.33	-555.6	1,772.5	1,759.7	1,655.3	16.852	
10,100.0	9,690.0	13,633.5	9,680.0	23.9	78.0	-90.33	-655.5	1,770.2	1,754.8	1,651.5	16.987	
10,200.0	9,690.0	13,533.6	9,680.0	24.7	76.2	-90.33	-755.3	1,767.9	1,749.8	1,647.5	17.105	
10,300.0	9,690.0	13,433.7	9,680.0	25.7	74.5	-90.33	-855.2	1,765.6	1,744.9	1,643.5	17.208	
10,400.0	9,690.0	13,333.8	9,680.0	26.8	72.8	-90.33	-955.0	1,763.3	1,740.0	1,639.4	17.297	
10,500.0	9,690.0	13,234.0	9,680.0	27.9	71.0	-90.33	-1,054.9	1,761.0	1,735.1	1,635.2	17.373	
10,600.0	9,690.0	13,134.1	9,680.0	29.1	69.3	-90.33	-1,154.7	1,758.6	1,730.2	1,631.0	17.436	
10,700.0	9,690.0	13,034.2	9,680.0	30.4	67.6	-90.33	-1,254.6	1,756.3	1,725.3	1,626.6	17.489	
10,800.0	9,690.0	12,934.3	9,680.0	31.7	65.9	-90.33	-1,354.5	1,754.0	1,720.4	1,622.2	17.532	
10,900.0	9,690.0	12,834.4	9,680.0	33.1	64.2	-90.33	-1,454.3	1,751.7	1,715.4	1,617.8	17.565	
11,000.0	9,690.0	12,734.6	9,680.0	34.5	62.5	-90.34	-1,554.2	1,749.4	1,710.5	1,613.3	17.591	
11,100.0	9,690.0	12,634.7	9,680.0	36.0	60.8	-90.34	-1,654.0	1,747.0	1,705.6	1,608.7	17.608	
11,200.0	9,690.0	12,534.8	9,680.0	37.4	59.1	-90.34	-1,753.9	1,744.7	1,700.7	1,604.2	17.619	
11,300.0	9,690.0	12,434.9	9,680.0	39.0	57.4	-90.34	-1,853.7	1,742.4	1,695.8	1,599.5	17.614	
11,400.0	9,690.0	12,335.0	9,680.0	40.5	55.7	-90.34	-1,953.6	1,740.1	1,690.9	1,594.7	17.587	
11,500.0	9,690.0	12,235.2	9,680.0	42.1	54.0	-90.34	-2,053.4	1,737.8	1,685.9	1,589.9	17.555	
11,600.0	9,690.0	12,135.3	9,680.0	43.6	52.4	-90.34	-2,153.3	1,735.5	1,681.0	1,585.1	17.517	
11,700.0	9,690.0	12,035.4	9,680.0	45.3	50.7	-90.34	-2,253.1	1,733.1	1,676.1	1,580.2	17.473	
11,800.0	9,690.0	11,935.5	9,680.0	46.9	49.1	-90.34	-2,353.0	1,730.8	1,671.2	1,575.3	17.425	
11,900.0	9,690.0	11,835.6	9,680.0	48.5	47.5	-90.34	-2,452.8	1,728.5	1,666.3	1,570.4	17.371	
12,000.0	9,690.0	11,735.8	9,680.0	50.2	45.9	-90.35	-2,552.7	1,726.2	1,661.4	1,565.4	17.312	
12,100.0	9,690.0	11,635.9	9,680.0	51.8	44.3	-90.35	-2,652.5	1,723.9	1,656.4	1,560.4	17.248	
12,200.0	9,690.0	11,536.0	9,680.0	53.5	42.7	-90.35	-2,752.4	1,721.5	1,651.5	1,555.4	17.180	
12,300.0	9,690.0	11,436.1	9,680.0	55.2	41.1	-90.35	-2,852.2	1,719.2	1,646.6	1,550.4	17.106	
12,400.0	9,690.0	11,336.2	9,680.0	56.9	39.6	-90.35	-2,952.1	1,716.9	1,641.7	1,545.3	17.027	
12,500.0	9,690.0	11,236.4	9,680.0	58.5	38.1	-90.35	-3,051.9	1,714.6	1,636.8	1,540.2	16.942	
12,600.0	9,690.0	11,136.5	9,680.0	60.3	36.6	-90.35	-3,151.8	1,712.3	1,631.9	1,535.0	16.851	
12,700.0	9,690.0	11,036.6	9,680.0	62.0	35.2	-90.35	-3,251.6	1,709.9	1,627.0	1,529.8	16.754	
12,800.0	9,690.0	10,936.7	9,680.0	63.7	33.8	-90.35	-3,351.5	1,707.6	1,622.0	1,524.6	16.651	
12,900.0	9,690.0	10,836.9	9,680.0	65.4	32.4	-90.35	-3,451.4	1,705.3	1,617.1	1,519.4	16.540	
13,000.0	9,690.0	10,737.0	9,680.0	67.1	31.1	-90.36	-3,551.2	1,703.0	1,612.2	1,514.0	16.422	
13,100.0	9,690.0	10,637.1	9,680.0	68.9	29.8	-90.36	-3,651.1	1,700.7	1,607.3	1,508.7	16.296	
13,200.0	9,690.0	10,537.2	9,680.0	70.6	28.6	-90.36	-3,750.9	1,698.4	1,602.4	1,503.2	16.160	
13,300.0	9,690.0	10,437.3	9,680.0	72.4	27.4	-90.36	-3,850.8	1,696.0	1,597.5	1,497.7	16.014	
13,400.0	9,690.0	10,337.5	9,680.0	74.1	26.3	-90.36	-3,950.6	1,693.7	1,592.5	1,492.1	15.858	
13,500.0	9,690.0	10,237.6	9,680.0	75.9	25.3	-90.36	-4,050.5	1,691.4	1,587.6	1,486.4	15.690	
13,600.0	9,690.0	10,137.7	9,680.0	77.6	24.4	-90.36	-4,150.3	1,689.1	1,582.7	1,480.7	15.509	
13,700.0	9,690.0	10,037.8	9,680.0	79.4	23.7	-90.36	-4,250.2	1,686.8	1,577.8	1,474.8	15.316	
13,800.0	9,690.0	9,937.6	9,679.7	81.1	23.0	-90.36	-4,350.3	1,684.4	1,572.9	1,468.8	15.111	
13,900.0	9,690.0	9,837.9	9,666.3	82.9	22.4	-89.86	-4,449.0	1,682.1	1,567.9	1,462.7	14.893	
14,000.0	9,690.0	9,747.3	9,636.5	84.7	22.0	-88.77	-4,534.4	1,680.2	1,563.4	1,456.8	14.666	
14,100.0	9,690.0	9,670.0	9,598.8	86.4	21.7	-87.38	-4,601.7	1,678.6	1,560.5	1,452.5	14.449	
14,161.5	9,690.0	9,629.3	9,574.7	87.5	21.5	-86.50	-4,634.4	1,677.8	1,559.9	1,451.0	14.327	CC
14,200.0	9,690.0	9,606.4	9,559.9	88.2	21.5	-85.95	-4,652.0	1,677.4	1,560.1	1,450.7	14.257	ES
14,300.0	9,690.0	9,554.9	9,523.8	90.0	21.3	-84.63	-4,688.6	1,676.6	1,563.4	1,452.6	14.101	
14,400.0	9,690.0	9,513.3	9,491.8	91.8	21.2	-83.45	-4,715.2	1,676.0	1,571.1	1,458.8	13.987	
14,500.0	9,690.0	9,475.0	9,460.4	93.5	21.1	-82.31	-4,737.1	1,675.5	1,583.7	1,469.9	13.921	
14,600.0	9,690.0	9,450.0	9,439.1	95.3	21.1	-81.53	-4,750.1	1,675.2	1,601.3	1,486.0	13.890	SF
14,700.0	9,690.0	9,425.0	9,417.0	97.1	21.0	-80.74	-4,761.9	1,674.9	1,624.1	1,507.3	13.908	
14,800.0	9,690.0	9,400.9	9,402.5	98.9	21.0	-80.21	-4,768.9	1,674.7	1,652.1	1,533.7	13.959	
14,900.0	9,690.0	9,392.3	9,387.4	100.7	20.9	-79.67	-4,775.6	1,674.6	1,685.1	1,565.2	14.054	
15,000.0	9,690.0	9,375.0	9,371.3	102.5	20.9	-79.09	-4,782.0	1,674.4	1,722.9	1,601.5	14.189	

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



HP
Anticollision Report



Company: COG Production LLC
Project: Lea County, NM
Reference Site: Sec 26, T24S, R32E
Site Error: 0.0 usft
Reference Well: Eider Federal #13H
Well Error: 0.0 usft
Reference Wellbore: Wellbore #1
Reference Design: Design #1

Local Co-ordinate Reference: Well Eider Federal #13H
TVD Reference: Well @ 3617.0usft (Ensign #772)
MD Reference: Well @ 3617.0usft (Ensign #772)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: Compass
Offset TVD Reference: Offset Datum

Offset Design Sec 26, T24S, R32E - Eider Federal #11H - 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)	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	
15,100.0	9,690.0	9,365.8	9,362.7	104.2	20.9	-78.78	-4,785.1	1,674.3	1,765.3	1,642.3	14.345		
15,200.0	9,690.0	9,350.0	9,347.7	106.0	20.9	-78.25	-4,790.2	1,674.2	1,812.1	1,687.5	14.545		
15,300.0	9,690.0	9,350.0	9,347.7	107.8	20.9	-78.25	-4,790.2	1,674.2	1,862.9	1,736.5	14.744		
15,400.0	9,690.0	9,337.2	9,335.4	109.6	20.8	-77.81	-4,793.9	1,674.1	1,917.4	1,789.5	14.991		
15,500.0	9,690.0	9,325.0	9,323.7	111.4	20.8	-77.40	-4,797.2	1,674.1	1,975.4	1,845.9	15.259		
15,600.0	9,690.0	9,325.0	9,323.7	113.2	20.8	-77.40	-4,797.2	1,674.1	2,036.5	1,905.3	15.520		
15,700.0	9,690.0	9,325.0	9,323.7	115.0	20.8	-77.40	-4,797.2	1,674.1	2,100.6	1,967.6	15.797		
15,800.0	9,690.0	9,311.5	9,310.6	116.8	20.8	-76.93	-4,800.4	1,674.0	2,167.2	2,032.7	16.114		
15,900.0	9,690.0	9,300.0	9,299.3	118.6	20.8	-76.54	-4,802.9	1,673.9	2,236.4	2,100.4	16.439		
16,000.0	9,690.0	9,300.0	9,299.3	120.4	20.8	-76.54	-4,802.9	1,673.9	2,307.7	2,169.9	16.747		
16,100.0	9,690.0	9,300.0	9,299.3	122.2	20.8	-76.54	-4,802.9	1,673.9	2,381.1	2,241.5	17.062		
16,200.0	9,690.0	9,300.0	9,299.3	124.0	20.8	-76.54	-4,802.9	1,673.9	2,456.3	2,315.0	17.382		
16,300.0	9,690.0	9,300.0	9,299.3	125.8	20.8	-76.54	-4,802.9	1,673.9	2,533.3	2,390.2	17.706		
16,400.0	9,690.0	9,287.1	9,286.6	127.6	20.7	-76.10	-4,805.3	1,673.9	2,611.7	2,467.1	18.064		
16,500.0	9,690.0	9,275.0	9,274.7	129.4	20.7	-75.68	-4,807.3	1,673.8	2,691.6	2,545.5	18.426		
16,600.0	9,690.0	9,275.0	9,274.7	131.2	20.7	-75.68	-4,807.3	1,673.8	2,772.7	2,624.9	18.755		
16,700.0	9,690.0	9,275.0	9,274.7	133.0	20.7	-75.68	-4,807.3	1,673.8	2,855.0	2,705.4	19.085		
16,800.0	9,690.0	9,275.0	9,274.7	134.8	20.7	-75.68	-4,807.3	1,673.8	2,938.4	2,787.1	19.415		
16,900.0	9,690.0	9,275.0	9,274.7	136.6	20.7	-75.68	-4,807.3	1,673.8	3,022.8	2,869.7	19.743		
17,000.0	9,690.0	9,275.0	9,274.7	138.4	20.7	-75.68	-4,807.3	1,673.8	3,108.1	2,953.3	20.070		
17,100.0	9,690.0	9,275.0	9,274.7	140.2	20.7	-75.68	-4,807.3	1,673.8	3,194.3	3,037.7	20.394		
17,200.0	9,690.0	9,275.0	9,274.7	142.0	20.7	-75.68	-4,807.3	1,673.8	3,281.3	3,122.9	20.717		
17,300.0	9,690.0	9,275.0	9,274.7	143.8	20.7	-75.68	-4,807.3	1,673.8	3,369.0	3,208.8	21.037		
17,400.0	9,690.0	9,264.0	9,263.8	145.6	20.7	-75.30	-4,808.8	1,673.8	3,457.2	3,295.6	21.387		
17,500.0	9,690.0	9,262.3	9,262.2	147.4	20.7	-75.25	-4,809.1	1,673.8	3,546.1	3,382.8	21.706		
17,600.0	9,690.0	9,250.0	9,249.9	149.3	20.6	-74.82	-4,810.4	1,673.8	3,635.8	3,471.0	22.059		
17,700.0	9,690.0	9,250.0	9,249.9	151.1	20.6	-74.82	-4,810.4	1,673.8	3,725.8	3,559.2	22.366		
17,800.0	9,690.0	9,250.0	9,249.9	152.9	20.6	-74.82	-4,810.4	1,673.8	3,816.3	3,647.9	22.670		
17,900.0	9,690.0	9,250.0	9,249.9	154.7	20.6	-74.82	-4,810.4	1,673.8	3,907.2	3,737.1	22.971		
18,000.0	9,690.0	9,250.0	9,249.9	156.5	20.6	-74.82	-4,810.4	1,673.8	3,998.6	3,826.8	23.268		
18,100.0	9,690.0	9,250.0	9,249.9	158.3	20.6	-74.82	-4,810.4	1,673.8	4,090.4	3,916.8	23.561		
18,200.0	9,690.0	9,250.0	9,249.9	160.1	20.6	-74.82	-4,810.4	1,673.8	4,182.6	4,007.2	23.850		
18,300.0	9,690.0	9,250.0	9,249.9	161.9	20.6	-74.82	-4,810.4	1,673.8	4,275.1	4,098.0	24.136		
18,400.0	9,690.0	9,250.0	9,249.9	163.7	20.6	-74.82	-4,810.4	1,673.8	4,368.0	4,189.1	24.417		
18,500.0	9,690.0	9,250.0	9,249.9	165.6	20.6	-74.82	-4,810.4	1,673.8	4,461.1	4,280.5	24.695		
18,600.0	9,690.0	9,250.0	9,249.9	167.4	20.6	-74.82	-4,810.4	1,673.8	4,554.6	4,372.2	24.969		
18,700.0	9,690.0	9,250.0	9,249.9	169.2	20.6	-74.82	-4,810.4	1,673.8	4,648.3	4,464.1	25.240		
18,800.0	9,690.0	9,250.0	9,249.9	171.0	20.6	-74.82	-4,810.4	1,673.8	4,742.3	4,556.4	25.506		
18,900.0	9,690.0	9,250.0	9,249.9	172.8	20.6	-74.82	-4,810.4	1,673.8	4,836.5	4,648.8	25.769		
19,000.0	9,690.0	9,250.0	9,249.9	174.6	20.6	-74.82	-4,810.4	1,673.8	4,931.0	4,741.5	26.028		
19,100.0	9,690.0	9,250.0	9,249.9	176.4	20.6	-74.82	-4,810.4	1,673.8	5,025.6	4,834.4	26.283		
19,200.0	9,690.0	9,250.0	9,249.9	178.2	20.6	-74.82	-4,810.4	1,673.8	5,120.5	4,927.5	26.535		
19,300.0	9,690.0	9,250.0	9,249.9	180.1	20.6	-74.82	-4,810.4	1,673.8	5,215.6	5,020.8	26.783		
19,400.0	9,690.0	9,250.0	9,249.9	181.9	20.6	-74.82	-4,810.4	1,673.8	5,310.8	5,114.3	27.027		
19,476.8	9,690.0	9,250.0	9,249.9	183.3	20.6	-74.82	-4,810.4	1,673.8	5,384.1	5,186.2	27.213		
19,477.3	9,690.0	9,250.0	9,249.9	183.3	20.6	-74.82	-4,810.4	1,673.8	5,384.5	5,186.7	27.214		



HP
Anticollision Report



Company: COG Production LLC
Project: Lea County, NM
Reference Site: Sec 26, T24S, R32E
Site Error: 0.0 usft
Reference Well: Eider Federal #13H
Well Error: 0.0 usft
Reference Wellbore: Wellbore #1
Reference Design: Design #1

Local Co-ordinate Reference: Well Eider Federal #13H
TVD Reference: Well @ 3617.0usft (Ensign #772)
MD Reference: Well @ 3617.0usft (Ensign #772)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: Compass
Offset TVD Reference: Offset Datum

Offset Design Sec 26, T24S, R32E - Eider Federal #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
0.0	0.0	0.0	0.0	0.0	0.0	-89.18	28.6	-1.991 5	1.991 7			
100.0	100.0	91.0	91.0	0.1	0.1	-89.18	28.6	-1.991 5	1.991 7	1.991 6	N/A	
200.0	200.0	191.0	191.0	0.3	0.3	-89.18	28.6	-1.991 5	1.991 7	1.991 1	3.408 167	
300.0	300.0	291.0	291.0	0.5	0.5	-89.18	28.6	-1.991 5	1.991 7	1.990 7	1.926 356	
400.0	400.0	391.0	391.0	0.8	0.7	-89.18	28.6	-1.991 5	1.991 7	1.990 2	1.342 612	
500.0	500.0	491.0	491.0	1.0	1.0	-89.18	28.6	-1.991 5	1.991 7	1.989 8	1.030 376	
600.0	600.0	591.0	591.0	1.2	1.2	-89.18	28.6	-1.991 5	1.991 7	1.989 3	835.966	
700.0	700.0	691.0	691.0	1.4	1.4	-89.18	28.6	-1.991 5	1.991 7	1.988 9	703.273	
800.0	800.0	791.0	791.0	1.7	1.6	-89.18	28.6	-1.991 5	1.991 7	1.988 4	606.934	
900.0	900.0	891.0	891.0	1.9	1.9	-89.18	28.6	-1.991 5	1.991 7	1.988 0	533.810	
1,000.0	1,000.0	991.0	991.0	2.1	2.1	-89.18	28.6	-1.991 5	1.991 7	1.987 5	476.411	
1,100.0	1,100.0	1,091.0	1,091.0	2.3	2.3	-89.18	28.6	-1.991 5	1.991 7	1.987 1	430.157	
1,200.0	1,200.0	1,191.0	1,191.0	2.5	2.5	-89.18	28.6	-1.991 5	1.991 7	1.986 6	392.090	
1,300.0	1,300.0	1,291.0	1,291.0	2.8	2.8	-89.18	28.6	-1.991 5	1.991 7	1.986 2	360.213	
1,400.0	1,400.0	1,391.0	1,391.0	3.0	3.0	-89.18	28.6	-1.991 5	1.991 7	1.985 7	333.129	
1,500.0	1,500.0	1,491.0	1,491.0	3.2	3.2	-89.18	28.6	-1.991 5	1.991 7	1.985 3	309.833	
1,600.0	1,600.0	1,591.0	1,591.0	3.4	3.4	-89.18	28.6	-1.991 5	1.991 7	1.984 8	289.583	
1,700.0	1,700.0	1,691.0	1,691.0	3.7	3.7	-89.18	28.6	-1.991 5	1.991 7	1.984 4	271.817	
1,800.0	1,800.0	1,791.0	1,791.0	3.9	3.9	-89.18	28.6	-1.991 5	1.991 7	1.983 9	256.105	
1,900.0	1,900.0	1,891.0	1,891.0	4.1	4.1	-89.18	28.6	-1.991 5	1.991 7	1.983 5	242.110	
2,000.0	2,000.0	1,991.0	1,991.0	4.3	4.3	-89.18	28.6	-1.991 5	1.991 7	1.983 0	229.566	
2,100.0	2,100.0	2,091.0	2,091.0	4.6	4.6	-89.18	28.6	-1.991 5	1.991 7	1.982 6	218.257	
2,200.0	2,200.0	2,191.0	2,191.0	4.8	4.8	-89.18	28.6	-1.991 5	1.991 7	1.982 1	208.010	
2,300.0	2,300.0	2,291.0	2,291.0	5.0	5.0	-89.18	28.6	-1.991 5	1.991 7	1.981 7	198.682	
2,400.0	2,400.0	2,391.0	2,391.0	5.2	5.2	-89.18	28.6	-1.991 5	1.991 7	1.981 2	190.155	
2,500.0	2,500.0	2,491.0	2,491.0	5.5	5.5	-89.18	28.6	-1.991 5	1.991 7	1.980 8	182.330	
2,600.0	2,600.0	2,591.0	2,591.0	5.7	5.7	-89.18	28.6	-1.991 5	1.991 7	1.980 3	175.123	
2,700.0	2,700.0	2,691.0	2,691.0	5.9	5.9	-89.18	28.6	-1.991 5	1.991 7	1.979 9	168.465	
2,800.0	2,800.0	2,791.0	2,791.0	6.1	6.1	-89.18	28.6	-1.991 5	1.991 7	1.979 4	162.294	
2,900.0	2,900.0	2,891.0	2,891.0	6.4	6.4	-89.18	28.6	-1.991 5	1.991 7	1.979 0	156.559	
3,000.0	3,000.0	2,991.0	2,991.0	6.6	6.6	-89.18	28.6	-1.991 5	1.991 7	1.978 5	151.216	
3,100.0	3,100.0	3,091.0	3,091.0	6.8	6.8	-89.18	28.6	-1.991 5	1.991 7	1.978 1	146.225	
3,200.0	3,200.0	3,191.0	3,191.0	7.0	7.0	-89.18	28.6	-1.991 5	1.991 7	1.977 6	141.553	
3,300.0	3,300.0	3,291.0	3,291.0	7.3	7.2	-89.18	28.6	-1.991 5	1.991 7	1.977 2	137.171	
3,400.0	3,400.0	3,391.0	3,391.0	7.5	7.5	-89.18	28.6	-1.991 5	1.991 7	1.976 7	133.052	
3,500.0	3,500.0	3,491.0	3,491.0	7.7	7.7	-89.18	28.6	-1.991 5	1.991 7	1.976 3	129.173	
3,600.0	3,600.0	3,591.0	3,591.0	7.9	7.9	-89.18	28.6	-1.991 5	1.991 7	1.975 8	125.513	
3,700.0	3,700.0	3,691.0	3,691.0	8.2	8.1	-89.18	28.6	-1.991 5	1.991 7	1.975 4	122.056	
3,800.0	3,800.0	3,791.0	3,791.0	8.4	8.4	-89.18	28.6	-1.991 5	1.991 7	1.974 9	118.783	
3,900.0	3,900.0	3,891.0	3,891.0	8.6	8.6	-89.18	28.6	-1.991 5	1.991 7	1.974 5	115.682	
4,000.0	4,000.0	3,991.0	3,991.0	8.8	8.8	-89.18	28.6	-1.991 5	1.991 7	1.974 0	112.738	
4,100.0	4,100.0	4,091.0	4,091.0	9.1	9.0	-89.18	28.6	-1.991 5	1.991 7	1.973 6	109.941	
4,200.0	4,200.0	4,191.0	4,191.0	9.3	9.3	-89.18	28.6	-1.991 5	1.991 7	1.973 1	107.279	
4,300.0	4,300.0	4,291.0	4,291.0	9.5	9.5	-89.18	28.6	-1.991 5	1.991 7	1.972 7	104.743	
4,400.0	4,400.0	4,391.0	4,391.0	9.7	9.7	-89.18	28.6	-1.991 5	1.991 7	1.972 2	102.324	
4,500.0	4,500.0	4,491.0	4,491.0	10.0	9.9	-89.18	28.6	-1.991 5	1.991 7	1.971 8	100.014	
4,600.0	4,600.0	4,591.0	4,591.0	10.2	10.2	-89.18	28.6	-1.991 5	1.991 7	1.971 3	97.806	
4,700.0	4,700.0	4,691.0	4,691.0	10.4	10.4	-89.18	28.6	-1.991 5	1.991 7	1.970 9	95.694	
4,800.0	4,800.0	4,791.0	4,791.0	10.6	10.6	-89.18	28.6	-1.991 5	1.991 7	1.970 4	93.671	
4,900.0	4,900.0	4,891.0	4,891.0	10.9	10.8	-89.18	28.6	-1.991 5	1.991 7	1.970 0	91.731	
5,000.0	5,000.0	4,991.0	4,991.0	11.1	11.1	-89.18	28.6	-1.991 5	1.991 7	1.969 5	89.871	
5,100.0	5,100.0	5,091.0	5,091.0	11.3	11.3	-89.18	28.6	-1.991 5	1.991 7	1.969 1	88.084	

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



HP
Anticollision Report



Company: COG Production LLC
Project: Lea County, NM
Reference Site: Sec 26, T24S, R32E
Site Error: 0.0 usft
Reference Well: Eider Federal #13H
Well Error: 0.0 usft
Reference Wellbore: Wellbore #1
Reference Design: Design #1

Local Co-ordinate Reference: Well Eider Federal #13H
TVD Reference: Well @ 3617.0usft (Ensign #772)
MD Reference: Well @ 3617.0usft (Ensign #772)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: Compass
Offset TVD Reference: Offset Datum

Offset Design Sec 26, T24S, R32E - Eider Federal #4H - Wellbore #1 - Design #1												Offset Site Error:	0.0 usft
Survey Program: 0-MWD default												Offset Well Error:	0.0 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning	
5,200.0	5,200.0	5,191.0	5,191.0	11.5	11.5	-89.18	28.6	-1.991.5	1.991.7	1.968.6	86.367		
5,300.0	5,300.0	5,291.0	5,291.0	11.8	11.7	-89.18	28.6	-1.991.5	1.991.7	1.968.2	84.715		
5,400.0	5,400.0	5,391.0	5,391.0	12.0	12.0	-89.18	28.6	-1.991.5	1.991.7	1.967.7	83.126		
5,500.0	5,500.0	5,491.0	5,491.0	12.2	12.2	-89.18	28.6	-1.991.5	1.991.7	1.967.3	81.595		
5,600.0	5,600.0	5,591.0	5,591.0	12.4	12.4	-89.18	28.6	-1.991.5	1.991.7	1.966.8	80.120		
5,700.0	5,700.0	5,691.0	5,691.0	12.7	12.6	-89.18	28.6	-1.991.5	1.991.7	1.966.4	78.697		
5,800.0	5,800.0	5,791.0	5,791.0	12.9	12.9	-89.18	28.6	-1.991.5	1.991.7	1.965.9	77.323		
5,900.0	5,900.0	5,891.0	5,891.0	13.1	13.1	-89.18	28.6	-1.991.5	1.991.7	1.965.5	75.997		
6,000.0	6,000.0	5,991.0	5,991.0	13.3	13.3	-89.18	28.6	-1.991.5	1.991.7	1.965.0	74.715		
6,100.0	6,100.0	6,091.0	6,091.0	13.6	13.5	-89.18	28.6	-1.991.5	1.991.7	1.964.6	73.476		
6,200.0	6,200.0	6,191.0	6,191.0	13.8	13.8	-89.18	28.6	-1.991.5	1.991.7	1.964.1	72.278		
6,300.0	6,300.0	6,291.0	6,291.0	14.0	14.0	-89.18	28.6	-1.991.5	1.991.7	1.963.7	71.117		
6,400.0	6,400.0	6,391.0	6,391.0	14.2	14.2	-89.18	28.6	-1.991.5	1.991.7	1.963.2	69.994		
6,500.0	6,500.0	6,491.0	6,491.0	14.5	14.4	-89.18	28.6	-1.991.5	1.991.7	1.962.8	68.905		
6,600.0	6,600.0	6,591.0	6,591.0	14.7	14.7	-89.18	28.6	-1.991.5	1.991.7	1.962.4	67.850		
6,700.0	6,700.0	6,691.0	6,691.0	14.9	14.9	-89.18	28.6	-1.991.5	1.991.7	1.961.9	66.827		
6,800.0	6,800.0	6,791.0	6,791.0	15.1	15.1	-89.18	28.6	-1.991.5	1.991.7	1.961.5	65.834		
6,900.0	6,900.0	6,891.0	6,891.0	15.4	15.3	-89.18	28.6	-1.991.5	1.991.7	1.961.0	64.870		
7,000.0	7,000.0	6,891.0	6,891.0	15.6	15.6	-89.18	28.6	-1.991.5	1.991.7	1.960.6	63.934		
7,100.0	7,100.0	7,091.0	7,091.0	15.8	15.8	-89.18	28.6	-1.991.5	1.991.7	1.960.1	63.024		
7,200.0	7,200.0	7,191.0	7,191.0	16.0	16.0	-89.18	28.6	-1.991.5	1.991.7	1.959.7	62.141		
7,300.0	7,300.0	7,291.0	7,291.0	16.3	16.2	-89.18	28.6	-1.991.5	1.991.7	1.959.2	61.281		
7,400.0	7,400.0	7,391.0	7,391.0	16.5	16.5	-89.18	28.6	-1.991.5	1.991.7	1.958.8	60.445		
7,500.0	7,500.0	7,491.0	7,491.0	16.7	16.7	-89.18	28.6	-1.991.5	1.991.7	1.958.3	59.631		
7,600.0	7,600.0	7,591.0	7,591.0	16.9	16.9	-89.18	28.6	-1.991.5	1.991.7	1.957.9	58.840		
7,700.0	7,700.0	7,691.0	7,691.0	17.2	17.1	-89.18	28.6	-1.991.5	1.991.7	1.957.4	58.068		
7,800.0	7,800.0	7,791.0	7,791.0	17.4	17.4	-89.18	28.6	-1.991.5	1.991.7	1.957.0	57.317		
7,900.0	7,900.0	7,891.0	7,891.0	17.6	17.6	-89.18	28.6	-1.991.5	1.991.7	1.956.5	56.585		
8,000.0	8,000.0	7,991.0	7,991.0	17.8	17.8	-89.18	28.6	-1.991.5	1.991.7	1.956.1	55.872		
8,100.0	8,100.0	8,091.0	8,091.0	18.1	18.0	-89.18	28.6	-1.991.5	1.991.7	1.955.6	55.176		
8,200.0	8,200.0	8,191.0	8,191.0	18.3	18.3	-89.18	28.6	-1.991.5	1.991.7	1.955.2	54.497		
8,300.0	8,300.0	8,291.0	8,291.0	18.5	18.5	-89.18	28.6	-1.991.5	1.991.7	1.954.7	53.835		
8,400.0	8,400.0	8,391.0	8,391.0	18.7	18.7	-89.18	28.6	-1.991.5	1.991.7	1.954.3	53.189		
8,500.0	8,500.0	8,491.0	8,491.0	19.0	18.9	-89.18	28.6	-1.991.5	1.991.7	1.953.8	52.558		
8,600.0	8,600.0	8,591.0	8,591.0	19.2	19.2	-89.18	28.6	-1.991.5	1.991.7	1.953.4	51.942		
8,700.0	8,700.0	8,691.0	8,691.0	19.4	19.4	-89.18	28.6	-1.991.5	1.991.7	1.952.9	51.340		
8,800.0	8,800.0	8,791.0	8,791.0	19.6	19.6	-89.18	28.6	-1.991.5	1.991.7	1.952.5	50.752		
8,900.0	8,900.0	8,891.0	8,891.0	19.9	19.8	-89.18	28.6	-1.991.5	1.991.7	1.952.0	50.177		
9,000.0	9,000.0	8,991.0	8,991.0	20.1	20.1	-89.18	28.6	-1.991.5	1.991.7	1.951.6	49.615		
9,100.0	9,100.0	9,091.0	9,091.0	20.3	20.3	-89.18	28.6	-1.991.5	1.991.7	1.951.1	49.066		
9,200.0	9,200.0	9,191.0	9,191.0	20.5	20.5	-89.18	28.6	-1.991.5	1.991.7	1.950.7	48.528		
9,212.5	9,212.5	9,203.5	9,203.5	20.6	20.5	-89.18	28.6	-1.991.5	1.991.7	1.950.6	48.462 CC		
9,225.0	9,225.0	9,216.0	9,216.0	20.6	20.6	92.31	28.6	-1.991.5	1.991.7	1.950.6	48.400		
9,250.0	9,250.0	9,241.0	9,241.0	20.6	20.6	92.35	28.6	-1.991.5	1.991.8	1.950.5	48.288 ES		
9,275.0	9,274.8	9,265.8	9,265.8	20.7	20.7	92.41	28.6	-1.991.5	1.991.9	1.950.5	48.179		
9,300.0	9,299.5	9,290.5	9,290.5	20.7	20.7	92.50	28.6	-1.991.5	1.992.0	1.950.6	48.073		
9,325.0	9,324.0	9,315.0	9,315.0	20.7	20.8	92.62	28.6	-1.991.5	1.992.3	1.950.7	47.971		
9,350.0	9,348.1	9,339.1	9,339.1	20.8	20.8	92.76	28.6	-1.991.5	1.992.6	1.951.0	47.872		
9,375.0	9,371.9	9,362.9	9,362.9	20.8	20.9	92.92	28.6	-1.991.5	1.993.0	1.951.3	47.777		
9,400.0	9,395.2	9,386.2	9,386.2	20.9	20.9	93.10	28.6	-1.991.5	1.993.5	1.951.7	47.686		
9,425.0	9,418.1	9,409.1	9,409.1	20.9	21.0	93.29	28.6	-1.991.5	1.994.1	1.952.2	47.598		
9,450.0	9,440.3	9,431.3	9,431.3	20.9	21.1	93.49	28.6	-1.991.5	1.994.9	1.952.9	47.515		

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



HP
Anticollision Report



Company: COG Production LLC
Project: Lea County, NM
Reference Site: Sec 26, T24S, R32E
Site Error: 0.0 usft
Reference Well: Eider Federal #13H
Well Error: 0.0 usft
Reference Wellbore: Wellbore #1
Reference Design: Design #1

Local Co-ordinate Reference: Well Eider Federal #13H
TVD Reference: Well @ 3617.0usft (Ensign #772)
MD Reference: Well @ 3617.0usft (Ensign #772)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: Compass
Offset TVD Reference: Offset Datum

Offset Design Sec 26, T24S, R32E - Eider Federal #4H - Wellbore #1 - Design #1												Offset Site Error:	0.0 usft
Survey Program: 0-MWD default												Offset Well Error:	0.0 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning	
9.475 0	9.462 0	9.453 0	9.453 0	21.0	21.1	93.89	28.6	-1.991 5	1.995 8	1.953 7	47.436		
9.500 0	9.482 9	9.473 9	9.473 9	21.0	21.1	93.89	28.6	-1.991 5	1.996 9	1.954 7	47.360		
9.525 0	9.503 2	9.494 2	9.494 2	21.1	21.2	94.08	28.6	-1.991 5	1.998 1	1.955 9	47.289		
9.550 0	9.522 6	9.513 6	9.513 6	21.1	21.2	94.25	28.6	-1.991 5	1.999 6	1.957 2	47.221		
9.575 0	9.541 2	9.532 2	9.532 2	21.2	21.3	94.41	28.6	-1.991 5	2.001 3	1.958 8	47.155		
9.600 0	9.558 8	9.549 8	9.549 8	21.2	21.3	94.53	28.6	-1.991 5	2.003 2	1.960 7	47.092		
9.625 0	9.575 6	9.566 6	9.566 6	21.3	21.4	94.62	28.6	-1.991 5	2.005 4	1.962 8	47.031		
9.650 0	9.591 3	9.582 3	9.582 3	21.4	21.4	94.67	28.6	-1.991 5	2.007 9	1.965 2	46.970		
9.675 0	9.606 0	9.597 0	9.597 0	21.5	21.4	94.67	28.6	-1.991 5	2.010 7	1.967 9	46.908		
9.700 0	9.619 6	9.610 6	9.610 6	21.5	21.5	94.63	28.6	-1.991 5	2.013 8	1.970 8	46.846		
9.725 0	9.632 1	9.623 1	9.623 1	21.6	21.5	94.52	28.6	-1.991 5	2.017 2	1.974 1	46.782		
9.750 0	9.643 5	9.634 5	9.634 5	21.7	21.5	94.36	28.6	-1.991 5	2.021 0	1.977 7	46.715		
9.775 0	9.653 6	9.644 6	9.644 6	21.8	21.5	94.12	28.6	-1.991 5	2.025 1	1.981 7	46.645		
9.800 0	9.662 6	9.653 6	9.653 6	21.9	21.6	93.82	28.6	-1.991 5	2.029 6	1.986 0	46.573		
9.825 0	9.670 3	9.661 3	9.661 3	22.1	21.6	93.45	28.6	-1.991 5	2.034 4	1.990 6	46.500		
9.850 0	9.676 8	9.667 8	9.667 8	22.2	21.6	93.00	28.6	-1.991 5	2.039 5	1.995 6	46.426		
9.875 0	9.682 0	9.673 0	9.673 0	22.3	21.6	92.47	28.6	-1.991 5	2.045 0	2.000 9	46.353		
9.900 0	9.685 9	9.676 9	9.676 9	22.5	21.6	91.86	28.6	-1.991 5	2.050 8	2.006 5	46.285		
9.925 0	9.688 5	9.679 5	9.679 5	22.6	21.6	91.18	28.6	-1.991 5	2.057 0	2.012 5	46.223		
9.950 0	9.689 8	9.680 8	9.680 8	22.8	21.6	90.41	28.6	-1.991 5	2.063 4	2.018 7	46.171		
9.962 5	9.690 0	9.681 0	9.681 0	22.9	21.6	90.00	28.6	-1.991 5	2.066 8	2.022 0	46.149		
10.000 0	9.690 0	9.681 0	9.681 0	23.1	21.6	90.00	28.6	-1.991 5	2.077 2	2.032 1	46.090		
10.100 0	9.690 0	9.681 0	9.681 0	23.9	21.6	90.00	28.6	-1.991 5	2.108 0	2.062 1	45.917		
10.200 0	9.690 0	9.681 0	9.681 0	24.7	21.6	90.00	28.6	-1.991 5	2.143 1	2.096 2	45.732		
10.300 0	9.690 0	9.681 0	9.681 0	25.7	21.6	90.00	28.6	-1.991 5	2.182 2	2.134 3	45.542		
10.400 0	9.690 0	9.681 0	9.681 0	26.8	21.6	90.00	28.6	-1.991 5	2.225 1	2.176 0	45.355		
10.500 0	9.690 0	9.681 0	9.681 0	27.9	21.6	90.00	28.6	-1.991 5	2.271 6	2.221 3	45.176		
10.600 0	9.690 0	9.681 0	9.681 0	29.1	21.6	90.00	28.6	-1.991 5	2.321 4	2.269 9	45.011		
10.700 0	9.690 0	9.681 0	9.681 0	30.4	21.6	90.00	28.6	-1.991 5	2.374 5	2.321 5	44.860		
10.800 0	9.690 0	11.983 4	10.900 0	31.7	33.1	120.84	-1.259 3	-2.026 0	2.394 4	2.337 8	42.320		
10.900 0	9.690 0	12.083 3	10.900 0	33.1	34.4	120.57	-1.359 1	-2.028 7	2.399 0	2.340 0	40.678		
11.000 0	9.690 0	12.183 1	10.900 0	34.5	35.7	120.51	-1.459 0	-2.031 4	2.403 5	2.342 1	39.113		
11.100 0	9.690 0	12.283 0	10.900 0	36.0	37.1	120.45	-1.558 8	-2.034 0	2.408 0	2.344 1	37.628		
11.200 0	9.690 0	12.382 8	10.900 0	37.4	38.5	120.38	-1.658 6	-2.036 7	2.412 6	2.346 0	36.222		
11.300 0	9.690 0	12.482 7	10.900 0	39.0	39.9	120.32	-1.758 4	-2.039 4	2.417 2	2.347 9	34.893		
11.400 0	9.690 0	12.582 6	10.900 0	40.5	41.4	120.26	-1.858 3	-2.042 1	2.421 7	2.349 7	33.639		
11.500 0	9.690 0	12.682 4	10.900 0	42.1	42.9	120.19	-1.958 1	-2.044 7	2.426 3	2.351 5	32.456		
11.600 0	9.690 0	12.782 3	10.900 0	43.6	44.4	120.13	-2.057 9	-2.047 4	2.430 8	2.353 3	31.341		
11.700 0	9.690 0	12.882 2	10.900 0	45.3	45.9	120.07	-2.157 7	-2.050 1	2.435 4	2.355 0	30.290		
11.800 0	9.690 0	12.982 0	10.900 0	46.9	47.5	120.01	-2.257 6	-2.052 8	2.440 0	2.356 7	29.299		
11.900 0	9.690 0	13.081 9	10.900 0	48.5	49.0	119.95	-2.357 4	-2.055 4	2.444 5	2.358 3	28.363		
12.000 0	9.690 0	13.181 7	10.900 0	50.2	50.6	119.88	-2.457 2	-2.058 1	2.449 1	2.360 0	27.481		
12.100 0	9.690 0	13.281 6	10.900 0	51.8	52.2	119.82	-2.557 0	-2.060 8	2.453 7	2.361 6	26.647		
12.200 0	9.690 0	13.381 5	10.900 0	53.5	53.8	119.76	-2.656 9	-2.063 5	2.458 2	2.363 2	25.858		
12.300 0	9.690 0	13.481 3	10.900 0	55.2	55.5	119.70	-2.756 7	-2.066 1	2.462 8	2.364 8	25.112		
12.400 0	9.690 0	13.581 2	10.900 0	56.9	57.1	119.64	-2.856 5	-2.068 8	2.467 4	2.366 3	24.406		
12.500 0	9.690 0	13.681 0	10.900 0	58.5	58.8	119.58	-2.956 3	-2.071 5	2.472 0	2.367 9	23.737		
12.600 0	9.690 0	13.780 9	10.900 0	60.3	60.4	119.52	-3.056 2	-2.074 2	2.476 6	2.369 4	23.101		
12.700 0	9.690 0	13.880 8	10.900 0	62.0	62.1	119.46	-3.156 0	-2.076 8	2.481 2	2.370 9	22.498		
12.800 0	9.690 0	13.980 6	10.900 0	63.7	63.8	119.40	-3.255 8	-2.079 5	2.485 8	2.372 4	21.925		
12.900 0	9.690 0	14.080 5	10.900 0	65.4	65.4	119.34	-3.355 6	-2.082 2	2.490 4	2.373 9	21.380		
13.000 0	9.690 0	14.180 3	10.900 0	67.1	67.1	119.28	-3.455 5	-2.084 9	2.495 0	2.375 4	20.861		

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



HP
Anticollision Report



Company: COG Production LLC
Project: Lea County, NM
Reference Site: Sec 26, T24S, R32E
Site Error: 0.0 usft
Reference Well: Eider Federal #13H
Well Error: 0.0 usft
Reference Wellbore: Wellbore #1
Reference Design: Design #1

Local Co-ordinate Reference: Well Eider Federal #13H
TVD Reference: Well @ 3617.0usft (Ensign #772)
MD Reference: Well @ 3617.0usft (Ensign #772)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: Compass
Offset TVD Reference: Offset Datum

Offset Design Sec 26, T24S, R32E - Eider Federal #4H - Wellbore #1 - Design #1												Offset Site Error:	0.0 usft
Survey Program: 0-MWD default												Offset Well Error:	0.0 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning	
13,100.0	9,690.0	14,280.2	10,900.0	68.9	68.8	119.22	-3,555.3	-2,087.5	2,499.6	2,376.8	20.366		
13,200.0	9,690.0	14,380.1	10,900.0	70.6	70.5	119.16	-3,655.1	-2,090.2	2,504.2	2,378.3	19.894		
13,300.0	9,690.0	14,479.9	10,900.0	72.4	72.2	119.10	-3,754.9	-2,092.9	2,508.8	2,379.8	19.443		
13,400.0	9,690.0	14,579.8	10,900.0	74.1	74.0	119.05	-3,854.8	-2,095.6	2,513.4	2,381.2	19.013		
13,500.0	9,690.0	14,679.6	10,900.0	75.9	75.7	118.99	-3,954.6	-2,098.2	2,518.0	2,382.6	18.601		
13,600.0	9,690.0	14,779.5	10,900.0	77.6	77.4	118.93	-4,054.4	-2,100.9	2,522.6	2,384.1	18.207		
13,700.0	9,690.0	14,879.4	10,900.0	79.4	79.1	118.87	-4,154.2	-2,103.6	2,527.2	2,385.5	17.829		
13,800.0	9,690.0	14,979.2	10,900.0	81.1	80.8	118.81	-4,254.1	-2,106.3	2,531.9	2,386.9	17.467		
13,900.0	9,690.0	15,079.1	10,900.0	82.9	82.6	118.76	-4,353.9	-2,108.9	2,536.5	2,388.3	17.120		
14,000.0	9,690.0	15,179.0	10,900.0	84.7	84.3	118.70	-4,453.7	-2,111.6	2,541.1	2,389.7	16.787		
14,100.0	9,690.0	15,278.8	10,900.0	86.4	86.1	118.64	-4,553.5	-2,114.3	2,545.7	2,391.1	16.467		
14,200.0	9,690.0	15,378.7	10,900.0	88.2	87.8	118.59	-4,653.4	-2,117.0	2,550.4	2,392.5	16.159		
14,300.0	9,690.0	15,478.5	10,900.0	90.0	89.5	118.53	-4,753.2	-2,119.7	2,555.0	2,393.9	15.863		
14,400.0	9,690.0	15,578.4	10,900.0	91.8	91.3	118.47	-4,853.0	-2,122.3	2,559.6	2,395.3	15.578		
14,500.0	9,690.0	15,678.3	10,900.0	93.5	93.0	118.42	-4,952.8	-2,125.0	2,564.3	2,396.7	15.304		
14,600.0	9,690.0	15,778.1	10,900.0	95.3	94.8	118.36	-5,052.7	-2,127.7	2,568.9	2,398.1	15.039		
14,700.0	9,690.0	15,878.0	10,900.0	97.1	96.6	118.31	-5,152.5	-2,130.4	2,573.6	2,399.5	14.784		
14,800.0	9,690.0	15,977.8	10,900.0	98.9	98.3	118.25	-5,252.3	-2,133.0	2,578.2	2,400.9	14.538		
14,900.0	9,690.0	16,077.7	10,900.0	100.7	100.1	118.19	-5,352.1	-2,135.7	2,582.9	2,402.2	14.300		
15,000.0	9,690.0	16,177.6	10,900.0	102.5	101.8	118.14	-5,452.0	-2,138.4	2,587.5	2,403.6	14.070		
15,100.0	9,690.0	16,277.4	10,900.0	104.2	103.6	118.08	-5,551.8	-2,141.1	2,592.2	2,405.0	13.849		
15,200.0	9,690.0	16,377.3	10,900.0	106.0	105.4	118.03	-5,651.6	-2,143.7	2,596.8	2,406.3	13.634		
15,300.0	9,690.0	16,477.1	10,900.0	107.8	107.1	117.98	-5,751.4	-2,146.4	2,601.5	2,407.7	13.426		
15,400.0	9,690.0	16,577.0	10,900.0	109.6	108.9	117.92	-5,851.3	-2,149.1	2,606.1	2,409.1	13.225		
15,500.0	9,690.0	16,676.9	10,900.0	111.4	110.7	117.87	-5,951.1	-2,151.8	2,610.8	2,410.4	13.031		
15,600.0	9,690.0	16,776.7	10,900.0	113.2	112.4	117.81	-6,050.9	-2,154.4	2,615.5	2,411.8	12.842		
15,700.0	9,690.0	16,876.6	10,900.0	115.0	114.2	117.76	-6,150.7	-2,157.1	2,620.1	2,413.1	12.659		
15,800.0	9,690.0	16,976.4	10,900.0	116.8	116.0	117.71	-6,250.6	-2,159.8	2,624.8	2,414.5	12.482		
15,900.0	9,690.0	17,076.3	10,900.0	118.6	117.8	117.65	-6,350.4	-2,162.5	2,629.5	2,415.9	12.310		
16,000.0	9,690.0	17,176.2	10,900.0	120.4	119.5	117.60	-6,450.2	-2,165.1	2,634.1	2,417.2	12.142		
16,100.0	9,690.0	17,276.0	10,900.0	122.2	121.3	117.55	-6,550.0	-2,167.8	2,638.8	2,418.5	11.979		
16,200.0	9,690.0	17,375.9	10,900.0	124.0	123.1	117.49	-6,649.9	-2,170.5	2,643.5	2,419.9	11.820		
16,300.0	9,690.0	17,475.8	10,900.0	125.8	124.9	117.44	-6,749.7	-2,173.2	2,648.2	2,421.2	11.666		
16,400.0	9,690.0	17,575.6	10,900.0	127.6	126.7	117.39	-6,849.5	-2,175.8	2,652.9	2,422.5	11.516		
16,500.0	9,690.0	17,675.5	10,900.0	129.4	128.4	117.34	-6,949.3	-2,178.5	2,657.5	2,423.8	11.371		
16,600.0	9,690.0	17,775.3	10,900.0	131.2	130.2	117.28	-7,049.2	-2,181.2	2,662.2	2,425.1	11.229		
16,700.0	9,690.0	17,875.2	10,900.0	133.0	132.0	117.23	-7,149.0	-2,183.9	2,666.9	2,426.5	11.091		
16,800.0	9,690.0	17,975.1	10,900.0	134.8	133.8	117.18	-7,248.8	-2,186.5	2,671.6	2,427.8	10.957		
16,900.0	9,690.0	18,074.9	10,900.0	136.6	135.6	117.13	-7,348.6	-2,189.2	2,676.3	2,429.1	10.826		
17,000.0	9,690.0	18,174.8	10,900.0	138.4	137.4	117.08	-7,448.5	-2,191.9	2,681.0	2,430.4	10.699		
17,100.0	9,690.0	18,274.6	10,900.0	140.2	139.1	117.03	-7,548.3	-2,194.6	2,685.7	2,431.7	10.575		
17,200.0	9,690.0	18,374.5	10,900.0	142.0	140.9	116.97	-7,648.1	-2,197.2	2,690.4	2,433.0	10.454		
17,300.0	9,690.0	18,474.4	10,900.0	143.8	142.7	116.92	-7,747.9	-2,199.9	2,695.1	2,434.4	10.336		
17,400.0	9,690.0	18,574.2	10,900.0	145.6	144.5	116.87	-7,847.8	-2,202.6	2,699.8	2,435.7	10.222		
17,500.0	9,690.0	18,674.1	10,900.0	147.4	146.3	116.82	-7,947.6	-2,205.3	2,704.5	2,437.0	10.109		
17,600.0	9,690.0	18,773.9	10,900.0	149.3	148.1	116.77	-8,047.4	-2,207.9	2,709.2	2,438.3	10.000		
17,700.0	9,690.0	18,873.8	10,900.0	151.1	149.9	116.72	-8,147.2	-2,210.6	2,713.9	2,439.6	9.893		
17,800.0	9,690.0	18,973.7	10,900.0	152.9	151.7	116.67	-8,247.1	-2,213.3	2,718.6	2,440.9	9.789		
17,900.0	9,690.0	19,073.5	10,900.0	154.7	153.5	116.62	-8,346.9	-2,216.0	2,723.4	2,442.2	9.687		
18,000.0	9,690.0	19,173.4	10,900.0	156.5	155.2	116.57	-8,446.7	-2,218.6	2,728.1	2,443.5	9.588		
18,100.0	9,690.0	19,273.2	10,900.0	158.3	157.0	116.52	-8,546.5	-2,221.3	2,732.8	2,444.8	9.491		
18,200.0	9,690.0	19,373.1	10,900.0	160.1	158.8	116.47	-8,646.4	-2,224.0	2,737.5	2,446.1	9.396		

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



HP
Anticollision Report



Company: COG Production LLC
Project: Lea County, NM
Reference Site: Sec 26, T24S, R32E
Site Error: 0.0 usft
Reference Well: Eider Federal #13H
Well Error: 0.0 usft
Reference Wellbore: Wellbore #1
Reference Design: Design #1

Local Co-ordinate Reference: Well Eider Federal #13H
TVD Reference: Well @ 3617.0usft (Ensign #772)
MD Reference: Well @ 3617.0usft (Ensign #772)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: Compass
Offset TVD Reference: Offset Datum

Offset Design Sec 26, T24S, R32E - Eider Federal #4H - Wellbore #1 - Design #1												Offset Site Error:	0.0 usft
Survey Program: 0-MWD default												Offset Well Error:	0.0 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference Offset (usft) (usft)		Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning	
18,300.0	9,690.0	19,473.0	10,900.0	161.9	160.6	116.42	-8,746.2	-2,226.7	2,742.2	2,447.5	9.303		
18,400.0	9,690.0	19,572.8	10,900.0	163.7	162.4	116.38	-8,846.0	-2,229.3	2,747.0	2,448.8	9.212		
18,500.0	9,690.0	19,672.7	10,900.0	165.6	164.2	116.33	-8,945.8	-2,232.0	2,751.7	2,450.1	9.123		
18,600.0	9,690.0	19,772.5	10,900.0	167.4	166.0	116.28	-9,045.7	-2,234.7	2,756.4	2,451.4	9.036		
18,700.0	9,690.0	19,872.4	10,900.0	169.2	167.8	116.23	-9,145.5	-2,237.4	2,761.1	2,452.7	8.951		
18,800.0	9,690.0	19,972.3	10,900.0	171.0	169.6	116.18	-9,245.3	-2,240.0	2,765.9	2,454.0	8.868		
18,900.0	9,690.0	20,072.1	10,900.0	172.8	171.4	116.13	-9,345.1	-2,242.7	2,770.6	2,455.3	8.787		
19,000.0	9,690.0	20,172.0	10,900.0	174.6	173.2	116.09	-9,445.0	-2,245.4	2,775.3	2,456.6	8.707		
19,100.0	9,690.0	20,271.9	10,900.0	176.4	175.0	116.04	-9,544.8	-2,248.1	2,780.1	2,457.9	8.629		
19,200.0	9,690.0	20,371.7	10,900.0	178.2	176.8	115.99	-9,644.6	-2,250.7	2,784.8	2,459.2	8.552		
19,300.0	9,690.0	20,471.6	10,900.0	180.1	178.6	115.94	-9,744.4	-2,253.4	2,789.6	2,460.5	8.478		
19,400.0	9,690.0	20,571.4	10,900.0	181.9	180.4	115.90	-9,844.3	-2,256.1	2,794.3	2,461.8	8.404		
19,476.8	9,690.0	20,648.1	10,900.0	183.3	181.8	115.86	-9,920.9	-2,258.1	2,798.0	2,462.8	8.349		
19,477.3	9,690.0	20,648.6	10,900.0	183.3	181.8	115.86	-9,921.4	-2,258.2	2,798.0	2,462.8	8.348 SF		



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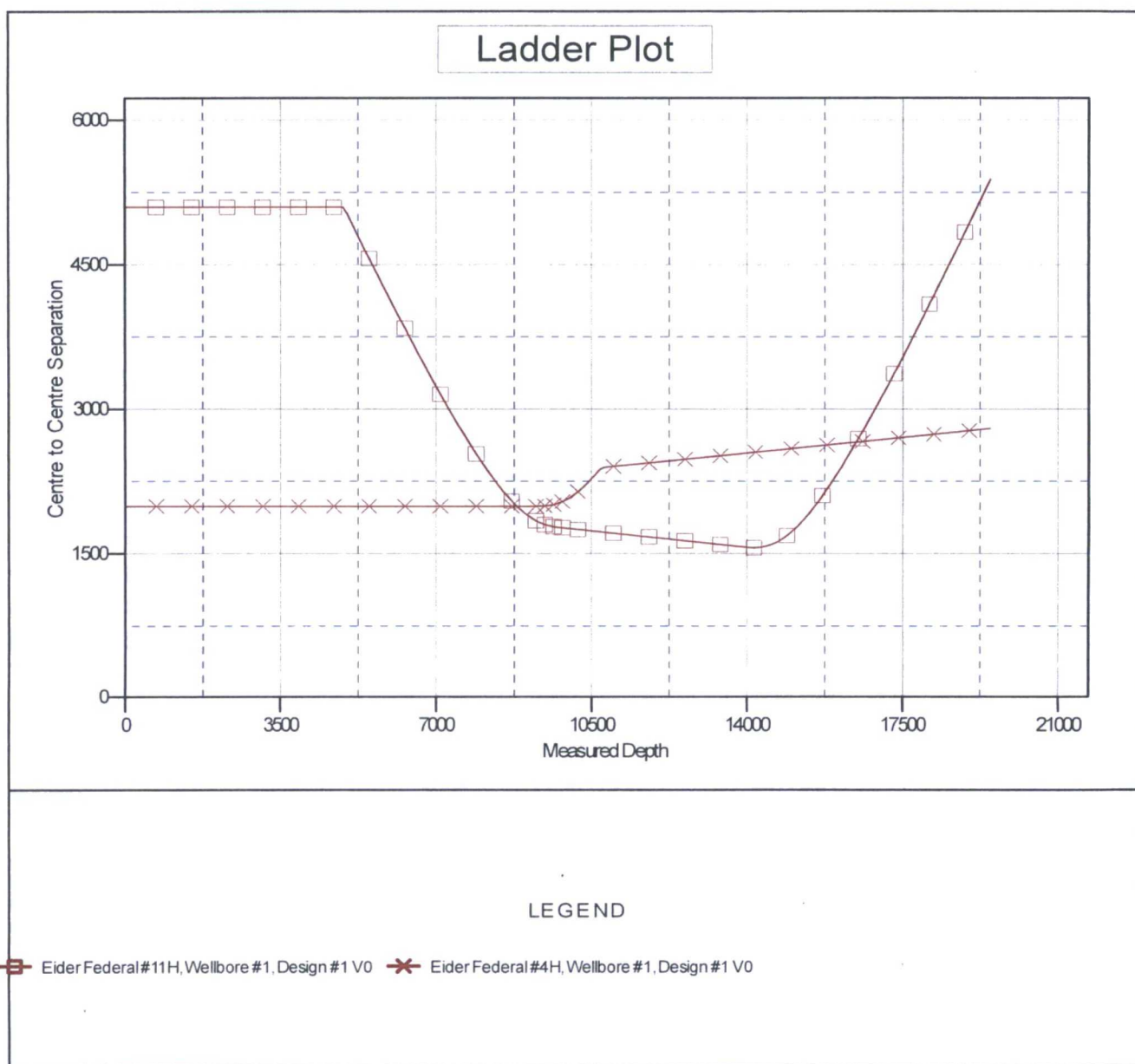


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Reference Depths are relative to Well @ 3617.0usft (Ensign #772)
Offset Depths are relative to Offset Datum
Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: Eider Federal #13H
Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
Grid Convergence at Surface is: 0.37°





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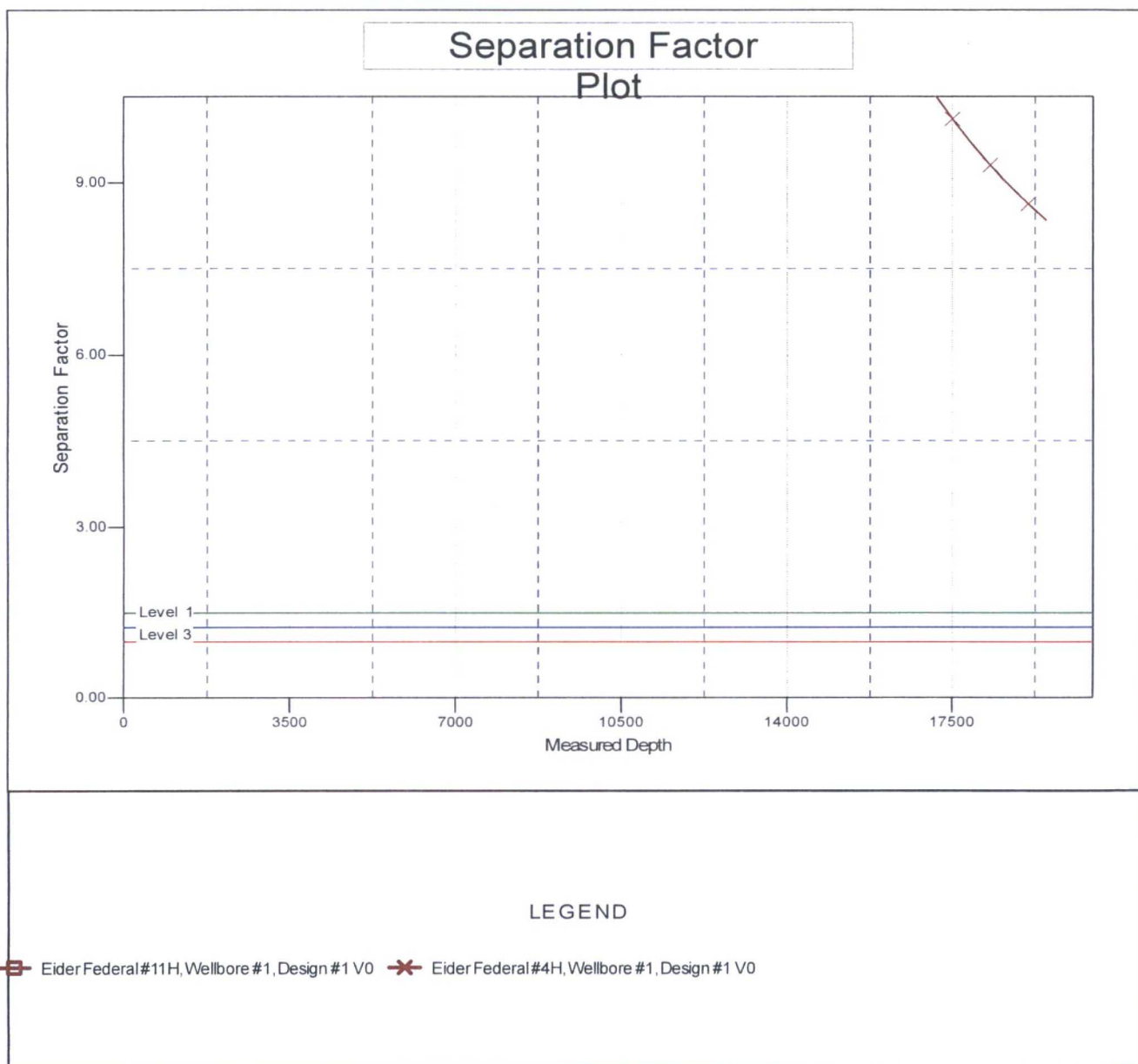


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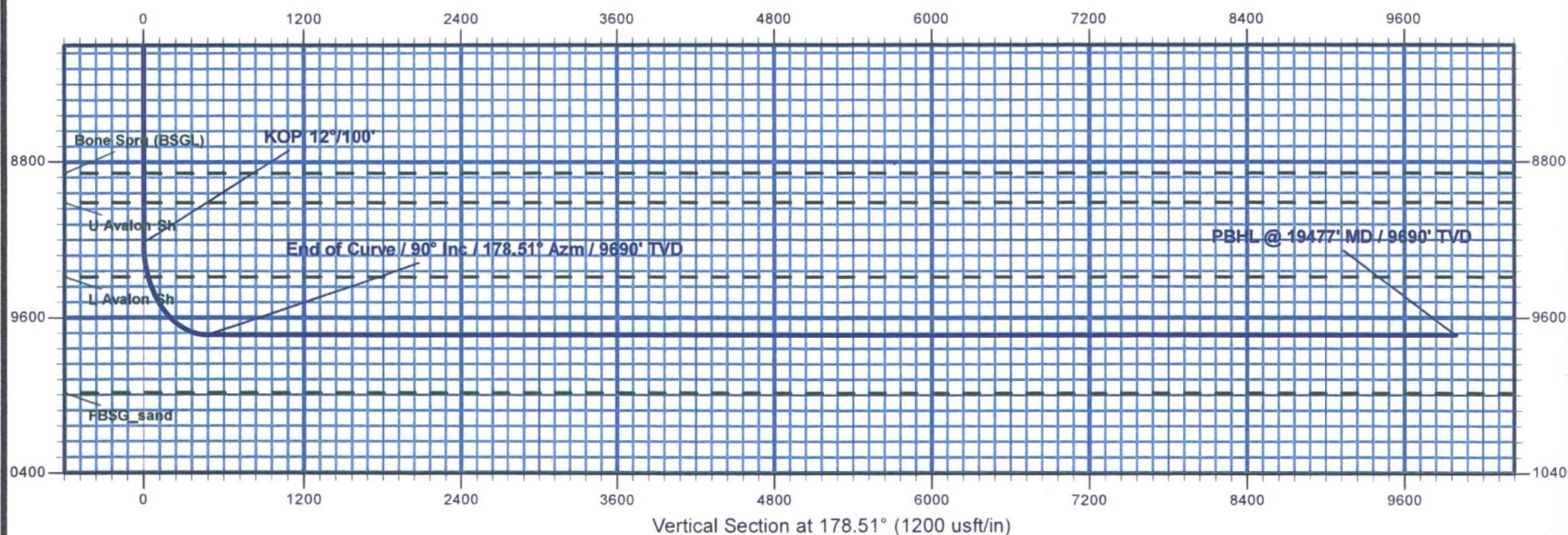
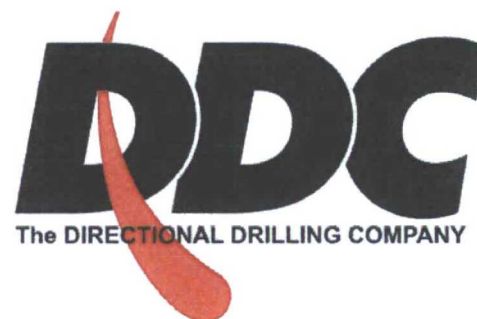
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Lea County, NM
Sec 26, T24S, R32E
Eider Federal #13H
Design #1



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Sec 26, T24S, R32E
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