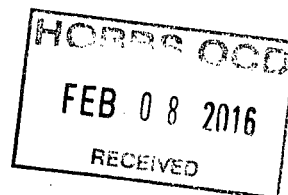




COG Operating, LLC

Lea County, NM
Sec 28, T22S, R34E
Smalls Federal 4H



Wellbore #1

Plan: Design #1

DDC Well Planning Report

07 July, 2015



FEB 11 2016



HP
Well Planning Report



Database:	Compass	Local Co-ordinate Reference:	Well Smalls Federal 4H
Company:	COG Operating, LLC	TVD Reference:	Well @ 3448.0usft (Ensign #772)
Project:	Lea County, NM	MD Reference:	Well @ 3448.0usft (Ensign #772)
Site:	Sec 28, T22S, R34E	North Reference:	Grid
Well:	Smalls Federal 4H	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 28, T22S, R34E			
Site Position:		Northing:	494,242.70 usft	Latitude:	32° 21' 20.947 N
From:	Map	Easting:	767,268.60 usft	Longitude:	103° 28' 4.141 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.46 °

Well	Smalls Federal 4H					
Well Position	+N/-S	-36.5 usft	Northing:	494,206.20 usft	Latitude:	32° 21' 20.931 N
	+E/-W	-4,345.1 usft	Easting:	762,923.50 usft	Longitude:	103° 28' 54.795 W
Position Uncertainty	0.0 usft		Wellhead Elevation:	0.0 usft	Ground Level:	3,417.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	7/7/2015	7.13	60.22	48,227

Design	Design #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	359.62

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
10,622.6	0.00	0.00	10,622.6	0.0	0.0	0.00	0.00	0.00	0.00	
11,367.0	89.33	359.62	11,100.0	471.9	-3.1	12.00	12.00	-0.05	359.62	
15,655.2	89.33	359.62	11,150.0	4,759.7	-31.7	0.00	0.00	0.00	0.00	PBHL Smalls Federal



HP
Well Planning Report



Database:	Compass	Local Co-ordinate Reference:	Well Smalls Federal 4H
Company:	COG Operating, LLC	TVD Reference:	Well @ 3448.0usft (Ensign #772)
Project:	Lea County, NM	MD Reference:	Well @ 3448.0usft (Ensign #772)
Site:	Sec 28, T22S, R34E	North Reference:	Grid
Well:	Smalls Federal 4H	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)
KOP 12°/100'									
10,622.6	0.00	0.00	10,622.6	0.0	0.0	0.0	0.00	0.00	0.00
10,700.0	9.29	359.62	10,699.7	6.3	0.0	6.3	12.00	12.00	0.00
10,800.0	21.29	359.62	10,795.9	32.6	-0.2	32.6	12.00	12.00	0.00
10,900.0	33.29	359.62	10,884.7	78.3	-0.5	78.3	12.00	12.00	0.00
TBSG_sand									
10,916.2	35.23	359.62	10,898.0	87.4	-0.6	87.4	12.00	12.00	0.00
11,000.0	45.29	359.62	10,961.9	141.5	-0.9	141.5	12.00	12.00	0.00
11,100.0	57.29	359.62	11,024.3	219.4	-1.5	219.4	12.00	12.00	0.00
11,200.0	69.29	359.62	11,069.2	308.6	-2.1	308.6	12.00	12.00	0.00
11,300.0	81.29	359.62	11,094.6	405.1	-2.7	405.1	12.00	12.00	0.00
End of Curve / 89.33° Inc / 359.62° Azm / 11100' TVD									
11,367.0	89.33	359.62	11,100.0	471.9	-3.1	471.9	12.00	12.00	0.00
11,400.0	89.33	359.62	11,100.4	504.9	-3.4	504.9	0.00	0.00	0.00
11,500.0	89.33	359.62	11,101.6	604.8	-4.0	604.9	0.00	0.00	0.00
11,600.0	89.33	359.62	11,102.7	704.8	-4.7	704.8	0.00	0.00	0.00
11,700.0	89.33	359.62	11,103.9	804.8	-5.4	804.8	0.00	0.00	0.00
11,800.0	89.33	359.62	11,105.1	904.8	-6.0	904.8	0.00	0.00	0.00
11,900.0	89.33	359.62	11,106.2	1,004.8	-6.7	1,004.8	0.00	0.00	0.00
12,000.0	89.33	359.62	11,107.4	1,104.8	-7.4	1,104.8	0.00	0.00	0.00
12,100.0	89.33	359.62	11,108.6	1,204.8	-8.0	1,204.8	0.00	0.00	0.00
12,200.0	89.33	359.62	11,109.7	1,304.8	-8.7	1,304.8	0.00	0.00	0.00
12,300.0	89.33	359.62	11,110.9	1,404.8	-9.4	1,404.8	0.00	0.00	0.00
12,400.0	89.33	359.62	11,112.1	1,504.8	-10.0	1,504.8	0.00	0.00	0.00
12,500.0	89.33	359.62	11,113.2	1,604.8	-10.7	1,604.8	0.00	0.00	0.00
12,600.0	89.33	359.62	11,114.4	1,704.7	-11.4	1,704.8	0.00	0.00	0.00
12,700.0	89.33	359.62	11,115.6	1,804.7	-12.0	1,804.8	0.00	0.00	0.00
12,800.0	89.33	359.62	11,116.7	1,904.7	-12.7	1,904.8	0.00	0.00	0.00
12,900.0	89.33	359.62	11,117.9	2,004.7	-13.4	2,004.8	0.00	0.00	0.00
13,000.0	89.33	359.62	11,119.1	2,104.7	-14.0	2,104.8	0.00	0.00	0.00
13,100.0	89.33	359.62	11,120.2	2,204.7	-14.7	2,204.7	0.00	0.00	0.00
13,200.0	89.33	359.62	11,121.4	2,304.7	-15.3	2,304.7	0.00	0.00	0.00
13,300.0	89.33	359.62	11,122.6	2,404.7	-16.0	2,404.7	0.00	0.00	0.00
13,400.0	89.33	359.62	11,123.7	2,504.7	-16.7	2,504.7	0.00	0.00	0.00
13,500.0	89.33	359.62	11,124.9	2,604.7	-17.3	2,604.7	0.00	0.00	0.00
13,600.0	89.33	359.62	11,126.1	2,704.7	-18.0	2,704.7	0.00	0.00	0.00
13,700.0	89.33	359.62	11,127.2	2,804.6	-18.7	2,804.7	0.00	0.00	0.00
13,800.0	89.33	359.62	11,128.4	2,904.6	-19.3	2,904.7	0.00	0.00	0.00
13,900.0	89.33	359.62	11,129.5	3,004.6	-20.0	3,004.7	0.00	0.00	0.00
14,000.0	89.33	359.62	11,130.7	3,104.6	-20.7	3,104.7	0.00	0.00	0.00
14,100.0	89.33	359.62	11,131.9	3,204.6	-21.3	3,204.7	0.00	0.00	0.00
14,200.0	89.33	359.62	11,133.0	3,304.6	-22.0	3,304.7	0.00	0.00	0.00
14,300.0	89.33	359.62	11,134.2	3,404.6	-22.7	3,404.7	0.00	0.00	0.00
14,400.0	89.33	359.62	11,135.4	3,504.6	-23.3	3,504.7	0.00	0.00	0.00
14,500.0	89.33	359.62	11,136.5	3,604.6	-24.0	3,604.7	0.00	0.00	0.00
14,600.0	89.33	359.62	11,137.7	3,704.6	-24.7	3,704.6	0.00	0.00	0.00
14,700.0	89.33	359.62	11,138.9	3,804.6	-25.3	3,804.6	0.00	0.00	0.00
14,800.0	89.33	359.62	11,140.0	3,904.5	-26.0	3,904.6	0.00	0.00	0.00
14,900.0	89.33	359.62	11,141.2	4,004.5	-26.7	4,004.6	0.00	0.00	0.00
15,000.0	89.33	359.62	11,142.4	4,104.5	-27.3	4,104.6	0.00	0.00	0.00
15,100.0	89.33	359.62	11,143.5	4,204.5	-28.0	4,204.6	0.00	0.00	0.00
15,200.0	89.33	359.62	11,144.7	4,304.5	-28.7	4,304.6	0.00	0.00	0.00
15,300.0	89.33	359.62	11,145.9	4,404.5	-29.3	4,404.6	0.00	0.00	0.00



HP
Well Planning Report



Database:	Compass	Local Co-ordinate Reference:	Well Smalls Federal 4H
Company:	COG Operating, LLC	TVD Reference:	Well @ 3448.0usft (Ensign #772)
Project:	Lea County, NM	MD Reference:	Well @ 3448.0usft (Ensign #772)
Site:	Sec 28, T22S, R34E	North Reference:	Grid
Well:	Smalls Federal 4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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)
15,400.0	89.33	359.62	11,147.0	4,504.5	-30.0	4,504.6	0.00	0.00	0.00
15,500.0	89.33	359.62	11,148.2	4,604.5	-30.7	4,604.6	0.00	0.00	0.00
15,600.0	89.33	359.62	11,149.4	4,704.5	-31.3	4,704.6	0.00	0.00	0.00
PBHL @ 15655' MD / 11150' TVD									
15,655.2	89.33	359.62	11,150.0	4,759.7	-31.7	4,759.8	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 Smalls Federal 4H	0.00	0.00	11,150.0	4,759.7	-31.7	498,965.90	762,891.80	32° 22' 8.031 N	103° 28' 54.723 W
- plan hits target center									
- Point									

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,383.0	2,383.0	Rustler		0.67	359.62
2,646.0	2,646.0	TOS		0.67	359.62
3,605.0	3,605.0	BOS / Tansill		0.67	359.62
3,676.0	3,676.0	Yates		0.67	359.62
3,811.0	3,811.0	Seven Rivers		0.67	359.62
3,980.0	3,980.0	Captain Reef		0.67	359.62
5,177.0	5,177.0	Base of Reef (BLCN)		0.67	359.62
5,868.0	5,868.0	CYCN		0.67	359.62
7,071.0	7,071.0	BYCN		0.67	359.62
8,473.0	8,473.0	Bone Spring (BSGL)		0.67	359.62
8,765.0	8,765.0	U Avalon Sh		0.67	359.62
9,006.0	9,006.0	L Avalon Sh		0.67	359.62
9,536.0	9,536.0	FBSG_sand		0.67	359.62
10,002.0	10,002.0	SBSG_sand		0.67	359.62
10,916.2	10,898.0	TBSG_sand		0.67	359.62

Plan Annotations:				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
10,622.6	10,622.6	0.0	0.0	KOP 12°/100'
11,367.0	11,100.0	471.9	-3.1	End of Curve / 89.33° Inc / 359.62° Azm / 11100' TVD
15,655.2	11,150.0	4,759.7	-31.7	PBHL @ 15655' MD / 11150' TVD



COG Operating, LLC

Lea County, NM

Sec 28, T22S, R34E

Smalls Federal 4H

Wellbore #1

Design #1

DDC Anticollision Report

07 July, 2015





HP
Anticollision Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Smalls Federal 4H
Project:	Lea County, NM	TVD Reference:	Well @ 3448.0usft (Ensign #772)
Reference Site:	Sec 28, T22S, R34E	MD Reference:	Well @ 3448.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Smalls Federal 4H	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 7/7/2015		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	15,655.2	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 28, T22S, R34E						
Smalls Federal 8H - Wellbore #1 - Design #1	9,857.7	9,856.7	30.0	-14.0	0.682	Level 1, CC
Smalls Federal 8H - Wellbore #1 - Design #1	9,900.0	9,898.8	30.1	-14.1	0.681	Level 1, ES, SF

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)	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	
0.0	0.0	0.0	0.0	0.0	0.0	89.43	0.3	30.0	30.0				
100.0	100.0	99.0	99.0	0.1	0.1	89.43	0.3	30.0	30.0	29.8	194.419		
200.0	200.0	199.0	199.0	0.3	0.3	89.43	0.3	30.0	30.0	29.4	49.806		
300.0	300.0	299.0	299.0	0.5	0.5	89.43	0.3	30.0	30.0	28.9	28.521		
400.0	400.0	399.0	399.0	0.8	0.7	89.43	0.3	30.0	30.0	28.5	19.982		
500.0	500.0	499.0	499.0	1.0	1.0	89.43	0.3	30.0	30.0	28.1	15.378		
600.0	600.0	599.0	599.0	1.2	1.2	89.43	0.3	30.0	30.0	27.6	12.498		
700.0	700.0	699.0	699.0	1.4	1.4	89.43	0.3	30.0	30.0	27.2	10.527		
800.0	800.0	799.0	799.0	1.7	1.6	89.43	0.3	30.0	30.0	26.7	9.093		
900.0	900.0	899.0	899.0	1.9	1.9	89.43	0.3	30.0	30.0	26.3	8.002		
1,000.0	1,000.0	999.0	999.0	2.1	2.1	89.43	0.3	30.0	30.0	25.8	7.146		
1,100.0	1,100.0	1,099.0	1,099.0	2.3	2.3	89.43	0.3	30.0	30.0	25.4	6.454		
1,200.0	1,200.0	1,199.0	1,199.0	2.5	2.5	89.43	0.3	30.0	30.0	24.9	5.885		
1,300.0	1,300.0	1,299.0	1,299.0	2.8	2.8	89.43	0.3	30.0	30.0	24.5	5.408		
1,400.0	1,400.0	1,399.0	1,399.0	3.0	3.0	89.43	0.3	30.0	30.0	24.0	5.003		
1,500.0	1,500.0	1,499.0	1,499.0	3.2	3.2	89.43	0.3	30.0	30.0	23.6	4.654		
1,600.0	1,600.0	1,599.0	1,599.0	3.4	3.4	89.43	0.3	30.0	30.0	23.1	4.351		
1,700.0	1,700.0	1,699.0	1,699.0	3.7	3.7	89.43	0.3	30.0	30.0	22.7	4.084		
1,800.0	1,800.0	1,799.0	1,799.0	3.9	3.9	89.43	0.3	30.0	30.0	22.2	3.849		
1,900.0	1,900.0	1,899.0	1,899.0	4.1	4.1	89.43	0.3	30.0	30.0	21.8	3.639		
2,000.0	2,000.0	1,999.0	1,999.0	4.3	4.3	89.43	0.3	30.0	30.0	21.3	3.451		
2,100.0	2,100.0	2,099.0	2,099.0	4.6	4.6	89.43	0.3	30.0	30.0	20.9	3.281		
2,200.0	2,200.0	2,199.0	2,199.0	4.8	4.8	89.43	0.3	30.0	30.0	20.4	3.127		
2,300.0	2,300.0	2,299.0	2,299.0	5.0	5.0	89.43	0.3	30.0	30.0	20.0	2.987		
2,400.0	2,400.0	2,399.0	2,399.0	5.2	5.2	89.43	0.3	30.0	30.0	19.5	2.859		

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 Smalls Federal 4H
Project:	Lea County, NM	TVD Reference:	Well @ 3448.0usft (Ensign #772)
Reference Site:	Sec 28, T22S, R34E	MD Reference:	Well @ 3448.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Smalls Federal 4H	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 28, T22S, R34E - Smalls Federal 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)	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
2,500.0	2,500.0	2,499.0	2,499.0	5.5	5.5	89.43	0.3	30.0	30.0	19.1	2.742	
2,600.0	2,600.0	2,599.0	2,599.0	5.7	5.7	89.43	0.3	30.0	30.0	18.6	2.634	
2,700.0	2,700.0	2,699.0	2,699.0	5.9	5.9	89.43	0.3	30.0	30.0	18.2	2.534	
2,800.0	2,800.0	2,799.0	2,799.0	6.1	6.1	89.43	0.3	30.0	30.0	17.7	2.441	
2,900.0	2,900.0	2,899.0	2,899.0	6.4	6.4	89.43	0.3	30.0	30.0	17.3	2.355	
3,000.0	3,000.0	2,999.0	2,999.0	6.6	6.6	89.43	0.3	30.0	30.0	16.8	2.275	
3,100.0	3,100.0	3,099.0	3,099.0	6.8	6.8	89.43	0.3	30.0	30.0	16.4	2.200	
3,200.0	3,200.0	3,199.0	3,199.0	7.0	7.0	89.43	0.3	30.0	30.0	15.9	2.130	
3,300.0	3,300.0	3,299.0	3,299.0	7.3	7.3	89.43	0.3	30.0	30.0	15.5	2.064	
3,400.0	3,400.0	3,399.0	3,399.0	7.5	7.5	89.43	0.3	30.0	30.0	15.0	2.002	
3,500.0	3,500.0	3,499.0	3,499.0	7.7	7.7	89.43	0.3	30.0	30.0	14.6	1.943	
3,600.0	3,600.0	3,599.0	3,599.0	7.9	7.9	89.43	0.3	30.0	30.0	14.1	1.888	
3,700.0	3,700.0	3,699.0	3,699.0	8.2	8.2	89.43	0.3	30.0	30.0	13.7	1.837	
3,800.0	3,800.0	3,799.0	3,799.0	8.4	8.4	89.43	0.3	30.0	30.0	13.2	1.787	
3,900.0	3,900.0	3,899.0	3,899.0	8.6	8.6	89.43	0.3	30.0	30.0	12.8	1.741	
4,000.0	4,000.0	3,999.0	3,999.0	8.8	8.8	89.43	0.3	30.0	30.0	12.3	1.696	
4,100.0	4,100.0	4,099.0	4,099.0	9.1	9.1	89.43	0.3	30.0	30.0	11.9	1.654	
4,200.0	4,200.0	4,199.0	4,199.0	9.3	9.3	89.43	0.3	30.0	30.0	11.4	1.614	
4,300.0	4,300.0	4,299.0	4,299.0	9.5	9.5	89.43	0.3	30.0	30.0	11.0	1.576	
4,400.0	4,400.0	4,399.0	4,399.0	9.7	9.7	89.43	0.3	30.0	30.0	10.5	1.540	
4,500.0	4,500.0	4,499.0	4,499.0	10.0	10.0	89.43	0.3	30.0	30.0	10.1	1.505	
4,600.0	4,600.0	4,599.0	4,599.0	10.2	10.2	89.43	0.3	30.0	30.0	9.6	1.472	Level 3
4,700.0	4,700.0	4,699.0	4,699.0	10.4	10.4	89.43	0.3	30.0	30.0	9.2	1.440	Level 3
4,800.0	4,800.0	4,799.0	4,799.0	10.6	10.6	89.43	0.3	30.0	30.0	8.7	1.410	Level 3
4,900.0	4,900.0	4,899.0	4,899.0	10.9	10.9	89.43	0.3	30.0	30.0	8.3	1.381	Level 3
5,000.0	5,000.0	4,999.0	4,999.0	11.1	11.1	89.43	0.3	30.0	30.0	7.8	1.353	Level 3
5,100.0	5,100.0	5,099.0	5,099.0	11.3	11.3	89.43	0.3	30.0	30.0	7.4	1.326	Level 3
5,200.0	5,200.0	5,199.0	5,199.0	11.5	11.5	89.43	0.3	30.0	30.0	6.9	1.300	Level 3
5,300.0	5,300.0	5,299.0	5,299.0	11.8	11.8	89.43	0.3	30.0	30.0	6.5	1.275	Level 3
5,400.0	5,400.0	5,399.0	5,399.0	12.0	12.0	89.43	0.3	30.0	30.0	6.0	1.251	Level 3
5,500.0	5,500.0	5,499.0	5,499.0	12.2	12.2	89.43	0.3	30.0	30.0	5.6	1.228	Level 2
5,600.0	5,600.0	5,599.0	5,599.0	12.4	12.4	89.43	0.3	30.0	30.0	5.1	1.206	Level 2
5,700.0	5,700.0	5,699.0	5,699.0	12.7	12.7	89.43	0.3	30.0	30.0	4.7	1.185	Level 2
5,800.0	5,800.0	5,799.0	5,799.0	12.9	12.9	89.43	0.3	30.0	30.0	4.2	1.164	Level 2
5,900.0	5,900.0	5,899.0	5,899.0	13.1	13.1	89.43	0.3	30.0	30.0	3.8	1.144	Level 2
6,000.0	6,000.0	5,999.0	5,999.0	13.3	13.3	89.43	0.3	30.0	30.0	3.3	1.125	Level 2
6,100.0	6,100.0	6,099.0	6,099.0	13.6	13.6	89.43	0.3	30.0	30.0	2.9	1.106	Level 2
6,200.0	6,200.0	6,199.0	6,199.0	13.8	13.8	89.43	0.3	30.0	30.0	2.4	1.088	Level 2
6,300.0	6,300.0	6,299.0	6,299.0	14.0	14.0	89.43	0.3	30.0	30.0	2.0	1.071	Level 2
6,400.0	6,400.0	6,399.0	6,399.0	14.2	14.2	89.43	0.3	30.0	30.0	1.5	1.054	Level 2
6,500.0	6,500.0	6,499.0	6,499.0	14.5	14.5	89.43	0.3	30.0	30.0	1.1	1.037	Level 2
6,600.0	6,600.0	6,599.0	6,599.0	14.7	14.7	89.43	0.3	30.0	30.0	0.6	1.021	Level 2
6,700.0	6,700.0	6,699.0	6,699.0	14.9	14.9	89.43	0.3	30.0	30.0	0.2	1.006	Level 2
6,800.0	6,800.0	6,799.0	6,799.0	15.1	15.1	89.43	0.3	30.0	30.0	-0.3	0.991	Level 1
6,900.0	6,900.0	6,899.0	6,899.0	15.4	15.4	89.43	0.3	30.0	30.0	-0.7	0.977	Level 1
7,000.0	7,000.0	6,999.0	6,999.0	15.6	15.6	89.43	0.3	30.0	30.0	-1.2	0.962	Level 1
7,100.0	7,100.0	7,099.0	7,099.0	15.8	15.8	89.43	0.3	30.0	30.0	-1.6	0.949	Level 1
7,200.0	7,200.0	7,199.0	7,199.0	16.0	16.0	89.43	0.3	30.0	30.0	-2.1	0.936	Level 1
7,300.0	7,300.0	7,299.0	7,299.0	16.3	16.3	89.43	0.3	30.0	30.0	-2.5	0.923	Level 1
7,400.0	7,400.0	7,399.0	7,399.0	16.5	16.5	89.43	0.3	30.0	30.0	-3.0	0.910	Level 1
7,500.0	7,500.0	7,499.0	7,499.0	16.7	16.7	89.43	0.3	30.0	30.0	-3.4	0.898	Level 1
7,600.0	7,600.0	7,599.0	7,599.0	16.9	16.9	89.43	0.3	30.0	30.0	-3.9	0.886	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 Smalls Federal 4H
Project:	Lea County, NM	TVD Reference:	Well @ 3448.0usft (Ensign #772)
Reference Site:	Sec 28, T22S, R34E	MD Reference:	Well @ 3448.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Smalls Federal 4H	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 28, T22S, R34E - Smalls Federal 4H - Wellbore #1 - Design #1												Offset Well Error:	0.0 usft
Survey Program: 0-MWD default													
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning	
7,700.0	7,700.0	7,699.0	7,699.0	17.2	17.2	89.43	0.3	30.0	30.0	-4.3	0.874	Level 1	
7,800.0	7,800.0	7,799.0	7,799.0	17.4	17.4	89.43	0.3	30.0	30.0	-4.8	0.863	Level 1	
7,900.0	7,900.0	7,899.0	7,899.0	17.6	17.6	89.43	0.3	30.0	30.0	-5.2	0.852	Level 1	
8,000.0	8,000.0	7,999.0	7,999.0	17.8	17.8	89.43	0.3	30.0	30.0	-5.7	0.841	Level 1	
8,100.0	8,100.0	8,099.0	8,099.0	18.1	18.1	89.43	0.3	30.0	30.0	-6.1	0.831	Level 1	
8,200.0	8,200.0	8,199.0	8,199.0	18.3	18.3	89.43	0.3	30.0	30.0	-6.6	0.820	Level 1	
8,300.0	8,300.0	8,299.0	8,299.0	18.5	18.5	89.43	0.3	30.0	30.0	-7.0	0.811	Level 1	
8,400.0	8,400.0	8,399.0	8,399.0	18.7	18.7	89.43	0.3	30.0	30.0	-7.5	0.801	Level 1	
8,500.0	8,500.0	8,499.0	8,499.0	19.0	19.0	89.43	0.3	30.0	30.0	-7.9	0.791	Level 1	
8,600.0	8,600.0	8,599.0	8,599.0	19.2	19.2	89.43	0.3	30.0	30.0	-8.4	0.782	Level 1	
8,700.0	8,700.0	8,699.0	8,699.0	19.4	19.4	89.43	0.3	30.0	30.0	-8.8	0.773	Level 1	
8,800.0	8,800.0	8,799.0	8,799.0	19.6	19.6	89.43	0.3	30.0	30.0	-9.3	0.764	Level 1	
8,900.0	8,900.0	8,899.0	8,899.0	19.9	19.9	89.43	0.3	30.0	30.0	-9.7	0.755	Level 1	
9,000.0	9,000.0	8,999.0	8,999.0	20.1	20.1	89.43	0.3	30.0	30.0	-10.2	0.747	Level 1	
9,100.0	9,100.0	9,099.0	9,099.0	20.3	20.3	89.43	0.3	30.0	30.0	-10.6	0.739	Level 1	
9,200.0	9,200.0	9,199.0	9,199.0	20.5	20.5	89.43	0.3	30.0	30.0	-11.1	0.731	Level 1	
9,300.0	9,300.0	9,299.0	9,299.0	20.8	20.8	89.43	0.3	30.0	30.0	-11.5	0.723	Level 1	
9,400.0	9,400.0	9,399.0	9,399.0	21.0	21.0	89.43	0.3	30.0	30.0	-12.0	0.715	Level 1	
9,500.0	9,500.0	9,499.0	9,499.0	21.2	21.2	89.43	0.3	30.0	30.0	-12.4	0.707	Level 1	
9,600.0	9,600.0	9,599.0	9,599.0	21.4	21.4	89.43	0.3	30.0	30.0	-12.9	0.700	Level 1	
9,700.0	9,700.0	9,699.0	9,699.0	21.7	21.7	89.43	0.3	30.0	30.0	-13.3	0.693	Level 1	
9,800.0	9,800.0	9,799.0	9,799.0	21.9	21.9	89.43	0.3	30.0	30.0	-13.8	0.686	Level 1	
9,857.7	9,857.7	9,856.7	9,856.7	22.0	22.0	89.26	0.4	30.0	30.0	-14.0	0.682	Level 1, CC	
9,900.0	9,900.0	9,898.8	9,898.7	22.1	22.1	84.18	3.1	30.0	30.1	-14.1	0.681	Level 1, ES, SF	
10,000.0	10,000.0	9,994.2	9,991.9	22.3	22.3	52.66	22.7	29.7	38.0	-6.6	0.852	Level 1	
10,100.0	10,100.0	10,079.0	10,070.1	22.6	22.5	27.89	55.3	29.3	69.0	23.9	1.532		
10,200.0	10,200.0	10,150.0	10,130.2	22.8	22.6	17.21	93.0	28.8	119.2	73.8	2.627		
10,300.0	10,300.0	10,209.2	10,175.6	23.0	22.8	12.21	130.9	28.3	182.1	136.4	3.886		
10,400.0	10,400.0	10,256.8	10,208.5	23.2	22.9	9.57	165.3	27.9	253.7	207.8	5.519		
10,500.0	10,500.0	10,300.0	10,235.2	23.5	23.0	7.84	199.1	27.4	331.6	285.4	7.172		
10,600.0	10,600.0	10,325.0	10,249.3	23.7	23.1	7.04	219.8	27.2	413.9	367.5	8.904		
10,622.6	10,622.6	10,333.7	10,253.9	23.7	23.2	6.79	227.1	27.1	433.0	386.5	9.303		
10,625.0	10,625.0	10,334.3	10,254.2	23.7	23.2	7.10	227.7	27.1	435.1	388.5	9.346		
10,650.0	10,650.0	10,341.4	10,257.9	23.8	23.2	6.39	233.7	27.0	456.0	409.4	9.793		
10,675.0	10,674.9	10,350.0	10,262.2	23.8	23.2	5.77	241.2	26.9	476.4	430.0	10.256		
10,700.0	10,699.7	10,350.0	10,262.2	23.9	23.2	5.39	241.2	26.9	496.4	450.2	10.742		
10,725.0	10,724.2	10,363.8	10,268.9	24.0	23.3	4.87	253.3	26.7	515.6	469.7	11.244		
10,750.0	10,748.5	10,375.0	10,274.1	24.0	23.3	4.47	263.2	26.6	534.3	489.0	11.775		
10,775.0	10,772.4	10,375.0	10,274.1	24.1	23.3	4.23	263.2	26.6	552.5	507.7	12.341		
10,800.0	10,795.9	10,387.9	10,279.7	24.1	23.4	3.92	274.8	26.4	570.0	525.9	12.938		
10,825.0	10,819.0	10,400.0	10,284.7	24.2	23.4	3.66	285.8	26.3	586.9	543.7	13.579		
10,850.0	10,841.5	10,400.0	10,284.7	24.2	23.4	3.50	285.8	26.3	603.1	560.9	14.272		
10,875.0	10,863.4	10,413.3	10,289.9	24.3	23.5	3.29	298.1	26.1	618.7	577.5	15.016		
10,900.0	10,884.7	10,425.0	10,294.1	24.3	23.5	3.11	309.0	26.0	633.6	593.5	15.826		
10,925.0	10,905.2	10,425.0	10,294.1	24.4	23.5	3.00	309.0	26.0	647.8	609.1	16.719		
10,950.0	10,924.9	10,439.6	10,299.1	24.4	23.6	2.85	322.7	25.8	661.3	623.9	17.691		
10,975.0	10,943.9	10,450.0	10,302.4	24.5	23.6	2.73	332.6	25.7	674.1	638.1	18.771		
11,000.0	10,961.9	10,457.6	10,304.6	24.6	23.7	2.63	339.9	25.6	686.1	651.8	19.976		
11,025.0	10,979.0	10,466.7	10,307.2	24.6	23.7	2.54	348.6	25.5	697.4	664.7	21.328		
11,050.0	10,995.2	10,475.0	10,309.3	24.7	23.7	2.46	356.6	25.4	708.0	677.0	22.857		
11,075.0	11,010.3	10,485.1	10,311.8	24.8	23.8	2.39	366.4	25.3	717.8	688.7	24.599		
11,100.0	11,024.3	10,500.0	10,315.0	24.8	23.9	2.31	380.9	25.1	727.0	699.6	26.596		

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 Smalls Federal 4H
Project:	Lea County, NM	TVD Reference:	Well @ 3448.0usft (Ensign #772)
Reference Site:	Sec 28, T22S, R34E	MD Reference:	Well @ 3448.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Smalls Federal 4H	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 28, T22S, R34E - Smalls Federal 8H - Wellbore #1 - Design #1											Offset Well Error:	0.0 usft
Survey Program: 0-MWD default												
Reference	Measured Depth (usft)	Vertical Depth (usft)	Offset	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	Offset Wellbore Centre +E-W (usft)	Distance Between Centres (usft)	Separation Factor
Warning												
	11,125.0	11,037.3	10,500.0	10,315.0	24.9	23.9	2.27	380.9	25.1	735.2	709.8	28.937
	11,150.0	11,049.1	10,513.1	10,317.5	25.0	23.9	2.22	393.7	24.9	742.7	719.2	31.657
	11,175.0	11,059.8	10,525.0	10,319.5	25.1	24.0	2.17	405.5	24.7	749.4	728.0	34.880
	11,200.0	11,069.2	10,525.0	10,319.5	25.2	24.0	2.14	405.5	24.7	755.5	736.0	38.791
	11,225.0	11,077.4	10,541.4	10,321.7	25.3	24.1	2.10	421.7	24.5	760.5	743.0	43.429
	11,250.0	11,084.4	10,550.0	10,322.6	25.4	24.1	2.07	430.3	24.4	764.9	749.3	49.106
	11,275.0	11,090.1	10,560.3	10,323.5	25.5	24.2	2.05	440.6	24.3	768.4	754.7	55.947
	11,300.0	11,094.6	10,575.0	10,324.4	25.7	24.3	2.02	455.2	24.1	771.2	759.1	63.909
	11,325.0	11,097.7	10,575.0	10,324.4	25.8	24.3	2.02	455.2	24.1	773.1	762.5	72.895
	11,350.0	11,099.5	10,594.7	10,325.0	25.9	24.4	2.00	474.9	23.8	774.3	764.7	80.510
	11,367.0	11,100.0	10,596.5	10,325.0	26.0	24.4	2.00	476.8	23.8	774.5	765.3	84.189
	11,400.0	11,100.4	10,629.5	10,325.2	26.2	24.6	1.98	509.7	23.4	774.7	765.2	81.522
	11,500.0	11,101.6	10,729.5	10,325.7	26.9	25.3	1.93	609.7	22.1	775.3	764.8	73.923
	11,600.0	11,102.7	10,829.5	10,326.3	27.6	26.1	1.89	709.7	20.8	775.9	764.3	67.024
	11,700.0	11,103.9	10,929.5	10,326.9	28.5	27.0	1.84	809.7	19.5	776.4	763.7	60.941
	11,800.0	11,105.1	11,029.5	10,327.5	29.4	28.0	1.79	909.7	18.2	777.0	763.0	55.648
	11,900.0	11,106.2	11,129.5	10,328.1	30.4	29.1	1.74	1,009.7	16.9	777.5	762.3	51.060
	12,000.0	11,107.4	11,229.5	10,328.7	31.5	30.3	1.69	1,109.6	15.6	778.1	761.6	47.081
	12,100.0	11,108.6	11,329.5	10,329.3	32.7	31.5	1.65	1,209.6	14.3	778.7	760.8	43.618
	12,200.0	11,109.7	11,429.5	10,329.8	33.9	32.7	1.60	1,309.6	13.0	779.2	760.0	40.590
	12,300.0	11,110.9	11,529.5	10,330.4	35.2	34.1	1.55	1,409.6	11.7	779.8	759.2	37.928
	12,400.0	11,112.1	11,629.5	10,331.0	36.5	35.4	1.50	1,509.6	10.4	780.3	758.4	35.575
	12,500.0	11,113.2	11,729.5	10,331.6	37.8	36.8	1.46	1,609.6	9.1	780.9	757.6	33.484
	12,600.0	11,114.4	11,829.5	10,332.2	39.2	38.3	1.41	1,709.6	7.8	781.5	756.8	31.617
	12,700.0	11,115.6	11,929.5	10,332.8	40.7	39.7	1.36	1,809.5	6.5	782.0	755.9	29.940
	12,800.0	11,116.7	12,029.5	10,333.3	42.1	41.2	1.32	1,909.5	5.2	782.6	755.1	28.427
	12,900.0	11,117.9	12,129.4	10,333.9	43.6	42.8	1.27	2,009.5	4.0	783.2	754.2	27.057
	13,000.0	11,119.1	12,229.4	10,334.5	45.1	44.3	1.22	2,109.5	2.7	783.7	753.4	25.811
	13,100.0	11,120.2	12,329.4	10,335.1	46.6	45.9	1.17	2,209.5	1.4	784.3	752.5	24.672
	13,200.0	11,121.4	12,429.4	10,335.7	48.2	47.5	1.13	2,309.5	0.1	784.9	751.7	23.629
	13,300.0	11,122.6	12,529.4	10,336.3	49.8	49.1	1.08	2,409.5	-1.2	785.4	750.8	22.670
	13,400.0	11,123.7	12,629.4	10,336.8	51.4	50.7	1.03	2,509.4	-2.5	786.0	749.9	21.785
	13,500.0	11,124.9	12,729.4	10,337.4	53.0	52.3	0.99	2,609.4	-3.8	786.6	749.1	20.967
	13,600.0	11,126.1	12,829.4	10,338.0	54.6	54.0	0.94	2,709.4	-5.1	787.2	748.2	20.207
	13,700.0	11,127.2	12,929.4	10,338.6	56.2	55.6	0.89	2,809.4	-6.4	787.7	747.3	19.501
	13,800.0	11,128.4	13,029.4	10,339.2	57.9	57.3	0.85	2,909.4	-7.7	788.3	746.5	18.843
	13,900.0	11,129.5	13,129.4	10,339.8	59.5	59.0	0.80	3,009.4	-9.0	788.9	745.6	18.228
	14,000.0	11,130.7	13,229.4	10,340.4	61.2	60.6	0.76	3,109.4	-10.3	789.4	744.7	17.652
	14,100.0	11,131.9	13,329.4	10,340.9	62.8	62.3	0.71	3,209.4	-11.6	790.0	743.8	17.112
	14,200.0	11,133.0	13,429.4	10,341.5	64.5	64.0	0.66	3,309.3	-12.9	790.6	743.0	16.604
	14,300.0	11,134.2	13,529.4	10,342.1	66.2	65.7	0.62	3,409.3	-14.2	791.2	742.1	16.125
	14,400.0	11,135.4	13,629.4	10,342.7	67.9	67.4	0.57	3,509.3	-15.5	791.7	741.2	15.674
	14,500.0	11,136.5	13,729.4	10,343.3	69.6	69.2	0.52	3,609.3	-16.8	792.3	740.3	15.248
	14,600.0	11,137.7	13,829.4	10,343.9	71.3	70.9	0.48	3,709.3	-18.1	792.9	739.5	14.844
	14,700.0	11,138.9	13,929.4	10,344.4	73.0	72.6	0.43	3,809.3	-19.4	793.5	738.6	14.462
	14,800.0	11,140.0	14,029.4	10,345.0	74.7	74.4	0.39	3,909.3	-20.7	794.0	737.7	14.099
	14,900.0	11,141.2	14,129.4	10,345.6	76.5	76.1	0.34	4,009.2	-22.0	794.6	736.8	13.754
	15,000.0	11,142.4	14,229.4	10,346.2	78.2	77.8	0.30	4,109.2	-23.3	795.2	736.0	13.426
	15,100.0	11,143.5	14,329.4	10,346.8	79.9	79.6	0.25	4,209.2	-24.6	795.8	735.1	13.114
	15,200.0	11,144.7	14,429.4	10,347.4	81.7	81.3	0.20	4,309.2	-25.9	796.3	734.2	12.816
	15,300.0	11,145.9	14,529.4	10,348.0	83.4	83.1	0.16	4,409.2	-27.2	796.9	733.3	12.532
	15,400.0	11,147.0	14,629.4	10,348.5	85.2	84.8	0.11	4,509.2	-28.5	797.5	732.5	12.260

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 Smalls Federal 4H
Project:	Lea County, NM	TVD Reference:	Well @ 3448.0usft (Ensign #772)
Reference Site:	Sec 28, T22S, R34E	MD Reference:	Well @ 3448.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Smalls Federal 4H	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 28, T22S, R34E - Smalls Federal 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 Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning	
15,500.0	11,148.2	14,729.4	10,349.1	86.9	86.6	0.07	4,609.2	-29.7	798.1	731.6	12.000		
15,600.0	11,149.4	14,829.3	10,349.7	88.6	88.4	0.02	4,709.1	-31.0	798.7	730.7	11.751		
15,655.2	11,150.0	14,880.4	10,350.0	89.6	89.3	0.00	4,760.2	-31.7	799.0	730.3	11.624		
15,655.6	11,150.0	14,880.4	10,350.0	89.6	89.3	0.00	4,760.2	-31.7	799.0	730.3	11.623		

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



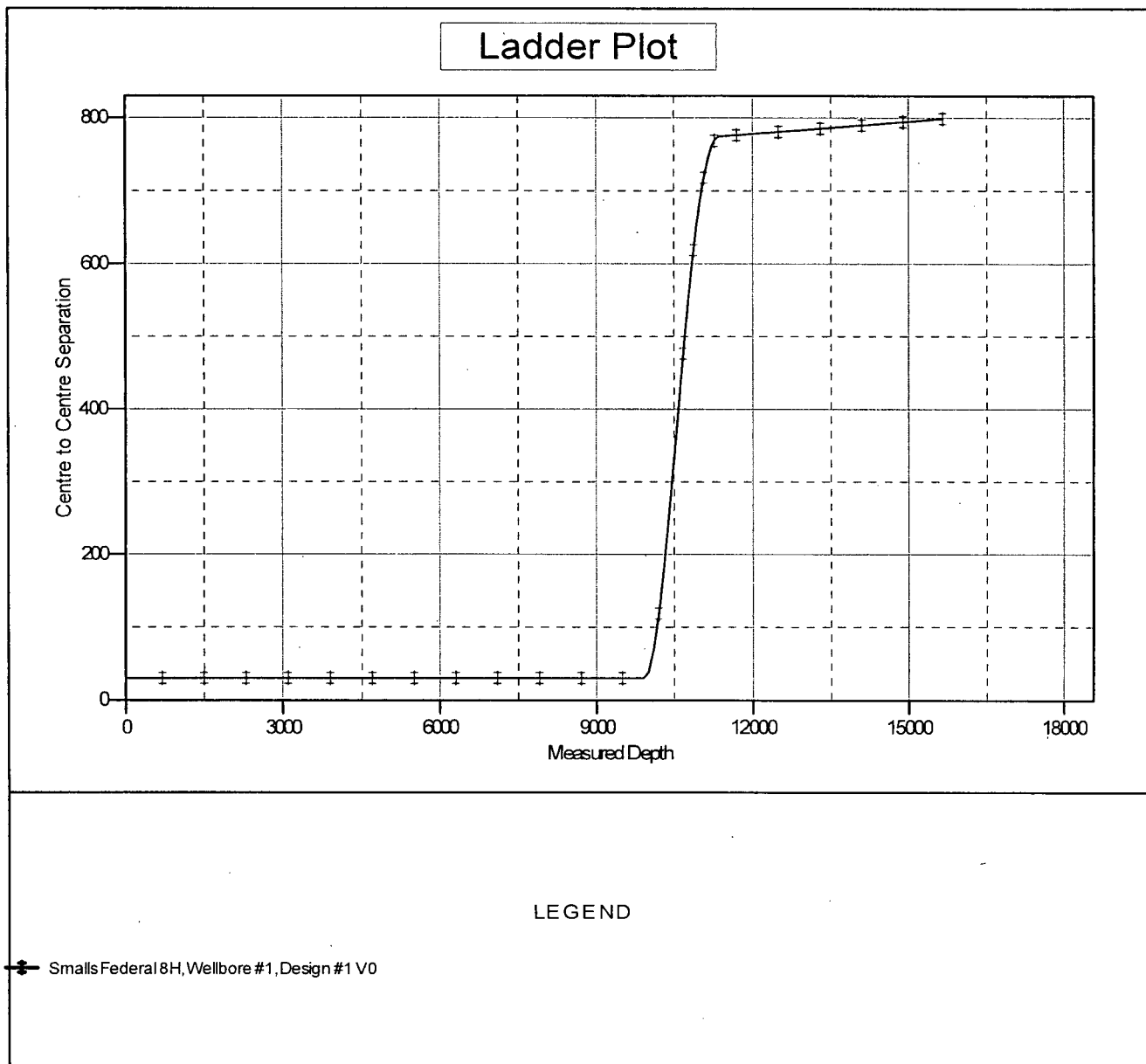
HP
Anticollision Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Smalls Federal 4H
Project:	Lea County, NM	TVD Reference:	Well @ 3448.0usft (Ensign #772)
Reference Site:	Sec 28, T22S, R34E	MD Reference:	Well @ 3448.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Smalls Federal 4H	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 @ 3448.0usft (Ensign #772)
Offset Depths are relative to Offset Datum
Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: Smalls Federal 4H
Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
Grid Convergence at Surface is: 0.46°



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



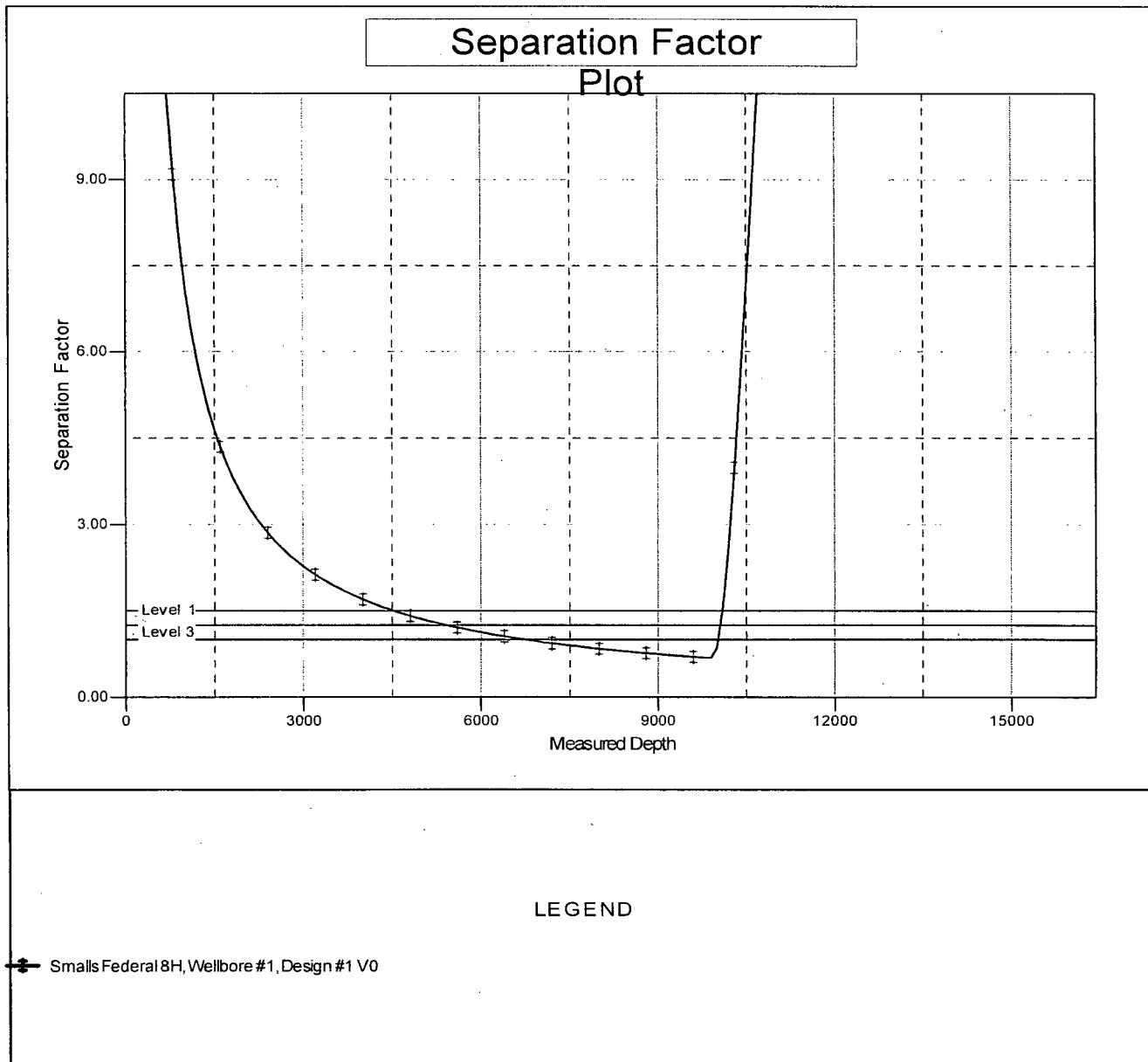
HP
Anticollision Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Smalls Federal 4H
Project:	Lea County, NM	TVD Reference:	Well @ 3448.0usft (Ensign #772)
Reference Site:	Sec 28, T22S, R34E	MD Reference:	Well @ 3448.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Smalls Federal 4H	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 @ 3448.0usft (Ensign #772)
Offset Depths are relative to Offset Datum
Central Meridian is 104° 20' 0.000 W

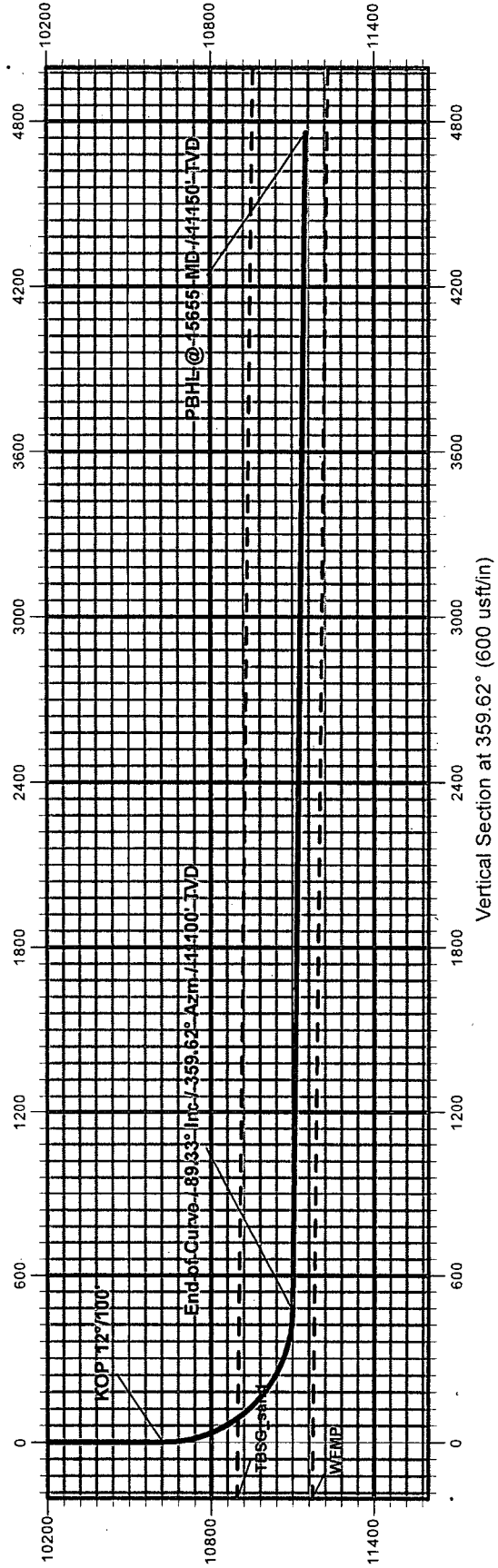
Coordinates are relative to: Smalls Federal 4H
Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
Grid Convergence at Surface is: 0.46°



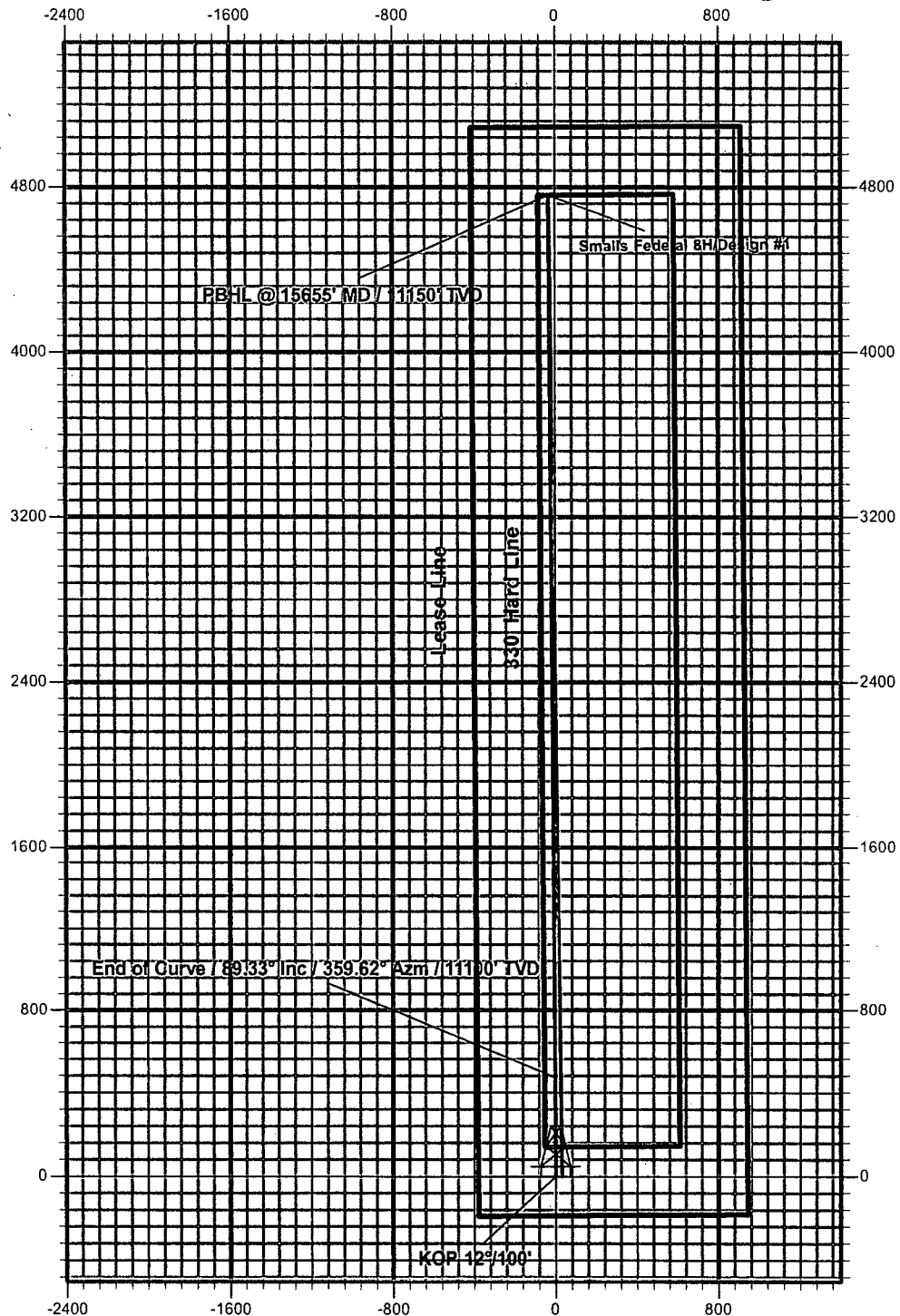
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Lea County, NM
Sec 28, T22S, R34E
Smalls Federal 4H
Design #1



Lea County, NM
Sec 28, T22S, R34E
Smalls Federal 4H
Design #1





New Mexico Office of the State Engineer **Water Column/Average Depth to Water**

No records found.

PLSS Search:

Section(s): 28

Township: 22S

Range: 34E

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

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WATER COLUMN/ AVERAGE
DEPTH TO WATER



New Mexico Office of the State Engineer

Water Column/Average Depth to Water

(A CLW##### in the
POD suffix indicates the
POD has been replaced
& no longer serves a
water right file.)

(R=POD has
been replaced,
O=orphaned,
C=the file is
closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest) (NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	64	16	4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
CP 00380			LE	4	2	11	22S	34E		647245	3586739*	45	30	15
CP 00596			LE	4	2	11	22S	34E		647245	3586739*	50		
CP 00597			LE	2	2	08	22S	34E		642410	3587074*	35		
CP 00598			LE	4	1	23	22S	34E		646480	3583511*	70		
CP 00599			LE	1	1	12	22S	34E		647642	3587147*	62	50	12
CP 00604			LE	1	4	4	01	22S	34E	648743	3587666*	135		
CP 00704			LE	2	4	22	22S	34E		645681	3583097*	600		
CP 00744			LE	1	2	09	22S	34E		643618	3587091*	460		
CP 00751			LE	4	2	11	22S	34E		647245	3586739*		45	
CP 00865			LE	4	1	3	20	22S	34E	641957	3583146	885	605	280
CP 00933			LE	1	1	1	12	22S	34E	647541	3587246*	60		
CP 00934			LE	2	1	2	01	22S	34E	648682	3588822	60	42	18
CP 01362 POD1			LE	3	4	4	18	22S	34E	640809	3584182	1032	613	419
CP 01455 POD1			LE	4	1	4	18	22S	34E	640574	3584515	1033	615	418

Average Depth to Water: **285 feet**

Minimum Depth: **30 feet**

Maximum Depth: **615 feet**

Record Count: 14

PLSS Search:

Township: 22S

Range: 34E

*UTM location was derived from PLSS - see Help

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