



COG Operating, LLC

Lea County, NM
Sec 28, T22S, R34E
Smalls Federal 5H

Wellbore #1

Plan: Design #1

DDC Well Planning Report

07 July, 2015



JAN 05 2016

Database:	Compass	Local Co-ordinate Reference:	Well Smalls Federal 5H
Company:	COG Operating, LLC	TVD Reference:	Well @ 3435.0usft (Ensign #772)
Project:	Lea County, NM	MD Reference:	Well @ 3435.0usft (Ensign #772)
Site:	Sec 28, T22S, R34E	North Reference:	Grid
Well:	Smalls Federal 5H	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 5H					
Well Position	+N/-S	0.8 usft	Northing:	494,243.50 usft	Latitude:	32° 21' 20.953 N
	+E/-W	29.3 usft	Easting:	767,297.90 usft	Longitude:	103° 28' 3.799 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	3,404.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	7/7/2015	7.13	60.23	48,228

Design	Design #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0.0	0.0	0.0	358.09

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	
9,822.5	0.00	0.00	9,822.5	0.0	0.0	0.00	0.00	0.00	0.00	
10,574.7	90.27	358.09	10,300.0	479.4	-16.0	12.00	12.00	-0.25	358.09	
14,854.5	90.27	358.09	10,280.0	4,756.8	-158.9	0.00	0.00	0.00	0.00	PBHL Smalls Federal



HP
Well Planning Report



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Well:	Smalls Federal 5H	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'									
9,822.5	0.00	0.00	9,822.5	0.0	0.0	0.0	0.00	0.00	0.00
9,900.0	9.30	358.09	9,899.7	6.3	-0.2	6.3	12.00	12.00	0.00
10,000.0	21.30	358.09	9,995.9	32.6	-1.1	32.6	12.00	12.00	0.00
SBSG_sand									
10,041.4	26.26	358.09	10,033.8	49.3	-1.6	49.3	12.00	12.00	0.00
10,100.0	33.30	358.09	10,084.6	78.4	-2.6	78.4	12.00	12.00	0.00
10,200.0	45.30	358.09	10,161.9	141.5	-4.7	141.6	12.00	12.00	0.00
10,300.0	57.30	358.09	10,224.3	219.4	-7.3	219.5	12.00	12.00	0.00
10,400.0	69.30	358.09	10,269.1	308.5	-10.3	308.7	12.00	12.00	0.00
10,500.0	81.30	358.09	10,294.5	405.0	-13.5	405.2	12.00	12.00	0.00
End of Curve / 90.27° Inc / 358.09° Azm / 10300' TVD									
10,574.7	90.27	358.09	10,300.0	479.4	-16.0	479.7	12.00	12.00	0.00
10,600.0	90.27	358.09	10,299.8	504.7	-16.9	505.0	0.00	0.00	0.00
10,700.0	90.27	358.09	10,299.4	604.6	-20.2	605.0	0.00	0.00	0.00
10,800.0	90.27	358.09	10,298.9	704.6	-23.5	705.0	0.00	0.00	0.00
10,900.0	90.27	358.09	10,298.4	804.5	-26.9	805.0	0.00	0.00	0.00
11,000.0	90.27	358.09	10,298.0	904.5	-30.2	905.0	0.00	0.00	0.00
11,100.0	90.27	358.09	10,297.5	1,004.4	-33.6	1,005.0	0.00	0.00	0.00
11,200.0	90.27	358.09	10,297.0	1,104.3	-36.9	1,105.0	0.00	0.00	0.00
11,300.0	90.27	358.09	10,296.6	1,204.3	-40.2	1,205.0	0.00	0.00	0.00
11,400.0	90.27	358.09	10,296.1	1,304.2	-43.6	1,305.0	0.00	0.00	0.00
11,500.0	90.27	358.09	10,295.6	1,404.2	-46.9	1,405.0	0.00	0.00	0.00
11,600.0	90.27	358.09	10,295.2	1,504.1	-50.2	1,505.0	0.00	0.00	0.00
11,700.0	90.27	358.09	10,294.7	1,604.1	-53.6	1,605.0	0.00	0.00	0.00
11,800.0	90.27	358.09	10,294.2	1,704.0	-56.9	1,705.0	0.00	0.00	0.00
11,900.0	90.27	358.09	10,293.8	1,803.9	-60.3	1,805.0	0.00	0.00	0.00
12,000.0	90.27	358.09	10,293.3	1,903.9	-63.6	1,904.9	0.00	0.00	0.00
12,100.0	90.27	358.09	10,292.8	2,003.8	-66.9	2,004.9	0.00	0.00	0.00
12,200.0	90.27	358.09	10,292.4	2,103.8	-70.3	2,104.9	0.00	0.00	0.00
12,300.0	90.27	358.09	10,291.9	2,203.7	-73.6	2,204.9	0.00	0.00	0.00
12,400.0	90.27	358.09	10,291.4	2,303.7	-77.0	2,304.9	0.00	0.00	0.00
12,500.0	90.27	358.09	10,291.0	2,403.6	-80.3	2,404.9	0.00	0.00	0.00
12,600.0	90.27	358.09	10,290.5	2,503.5	-83.6	2,504.9	0.00	0.00	0.00
12,700.0	90.27	358.09	10,290.0	2,603.5	-87.0	2,604.9	0.00	0.00	0.00
12,800.0	90.27	358.09	10,289.6	2,703.4	-90.3	2,704.9	0.00	0.00	0.00
12,900.0	90.27	358.09	10,289.1	2,803.4	-93.6	2,804.9	0.00	0.00	0.00
13,000.0	90.27	358.09	10,288.6	2,903.3	-97.0	2,904.9	0.00	0.00	0.00
13,100.0	90.27	358.09	10,288.2	3,003.3	-100.3	3,004.9	0.00	0.00	0.00
13,200.0	90.27	358.09	10,287.7	3,103.2	-103.7	3,104.9	0.00	0.00	0.00
13,300.0	90.27	358.09	10,287.2	3,203.1	-107.0	3,204.9	0.00	0.00	0.00
13,400.0	90.27	358.09	10,286.8	3,303.1	-110.3	3,304.9	0.00	0.00	0.00
13,500.0	90.27	358.09	10,286.3	3,403.0	-113.7	3,404.9	0.00	0.00	0.00
13,600.0	90.27	358.09	10,285.9	3,503.0	-117.0	3,504.9	0.00	0.00	0.00
13,700.0	90.27	358.09	10,285.4	3,602.9	-120.4	3,604.9	0.00	0.00	0.00
13,800.0	90.27	358.09	10,284.9	3,702.9	-123.7	3,704.9	0.00	0.00	0.00
13,900.0	90.27	358.09	10,284.5	3,802.8	-127.0	3,804.9	0.00	0.00	0.00
14,000.0	90.27	358.09	10,284.0	3,902.8	-130.4	3,904.9	0.00	0.00	0.00
14,100.0	90.27	358.09	10,283.5	4,002.7	-133.7	4,004.9	0.00	0.00	0.00
14,200.0	90.27	358.09	10,283.1	4,102.6	-137.0	4,104.9	0.00	0.00	0.00
14,300.0	90.27	358.09	10,282.6	4,202.6	-140.4	4,204.9	0.00	0.00	0.00
14,400.0	90.27	358.09	10,282.1	4,302.5	-143.7	4,304.9	0.00	0.00	0.00
14,500.0	90.27	358.09	10,281.7	4,402.5	-147.1	4,404.9	0.00	0.00	0.00

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Site:	Sec 28, T22S, R34E	North Reference:	Grid
Well:	Smalls Federal 5H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
14,600.0	90.27	358.09	10,281.2	4,502.4	-150.4	4,504.9	0.00	0.00	0.00
14,700.0	90.27	358.09	10,280.7	4,602.4	-153.7	4,604.9	0.00	0.00	0.00
14,800.0	90.27	358.09	10,280.3	4,702.3	-157.1	4,704.9	0.00	0.00	0.00
PBHL @ 14855' MD / 10280' TVD									
14,854.5	90.27	358.09	10,280.0	4,756.8	-158.9	4,759.5	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 5H	0.00	0.00	10,280.0	4,756.8	-158.9	499,000.30	767,139.00	32° 22' 8.034 N	103° 28' 5.203 W
- plan hits target center									
- Point									

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,415.0	2,415.0	Rustler		-0.27	358.09
2,678.0	2,678.0	TOS		-0.27	358.09
3,637.0	3,637.0	BOS / Tansill		-0.27	358.09
3,708.0	3,708.0	Yates		-0.27	358.09
3,843.0	3,843.0	Seven Rivers		-0.27	358.09
4,012.0	4,012.0	Captain Reef		-0.27	358.09
5,209.0	5,209.0	Base of Reef (BLCN)		-0.27	358.09
5,900.0	5,900.0	CYCN		-0.27	358.09
7,103.0	7,103.0	BYCN		-0.27	358.09
8,505.0	8,505.0	Bone Spring (BSGL)		-0.27	358.09
8,797.0	8,797.0	U Avalon Sh		-0.27	358.09
9,038.0	9,038.0	L Avalon Sh		-0.27	358.09
9,568.0	9,568.0	FBSG_sand		-0.27	358.09
10,041.4	10,033.8	SBSG_sand		-0.27	358.09

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
9,822.5	9,822.5	0.0	0.0	KOP 12°/100'
10,574.7	10,300.0	479.4	-16.0	End of Curve / 90.27° Inc / 358.09° Azm / 10300' TVD
14,854.5	10,280.0	4,756.8	-158.9	PBHL @ 14855' MD / 10280' TVD



COG Operating, LLC

Lea County, NM
Sec 28, T22S, R34E
Smalls Federal 5H

Wellbore #1
Design #1

DDC Anticollision Report

07 July, 2015



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Smalls Federal 5H
Project:	Lea County, NM	TVD Reference:	Well @ 3435.0usft (Ensign #772)
Reference Site:	Sec 28, T22S, R34E	MD Reference:	Well @ 3435.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Smalls Federal 5H	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	14,854.5	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 1H - Wellbore #1 - Design #1	9,835.5	9,835.5	29.3	-14.6	0.667	Level 1, CC
Smalls Federal 1H - Wellbore #1 - Design #1	9,850.0	9,850.0	29.3	-14.7	0.667	Level 1, ES, SF

Offset Design	Sec 28, T22S, R34E - Smalls Federal 1H - 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)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-91.56	-0.8	-29.3	29.3			
100.0	100.0	100.0	100.0	0.1	0.1	-91.56	-0.8	-29.3	29.3	29.2	188.994	
200.0	200.0	200.0	200.0	0.3	0.3	-91.56	-0.8	-29.3	29.3	28.7	48.478	
300.0	300.0	300.0	300.0	0.5	0.5	-91.56	-0.8	-29.3	29.3	28.3	27.805	
400.0	400.0	400.0	400.0	0.8	0.8	-91.56	-0.8	-29.3	29.3	27.8	19.493	
500.0	500.0	500.0	500.0	1.0	1.0	-91.56	-0.8	-29.3	29.3	27.4	15.006	
600.0	600.0	600.0	600.0	1.2	1.2	-91.56	-0.8	-29.3	29.3	26.9	12.199	
700.0	700.0	700.0	700.0	1.4	1.4	-91.56	-0.8	-29.3	29.3	26.5	10.276	
800.0	800.0	800.0	800.0	1.7	1.7	-91.56	-0.8	-29.3	29.3	26.0	8.877	
900.0	900.0	900.0	900.0	1.9	1.9	-91.56	-0.8	-29.3	29.3	25.8	7.813	
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-91.56	-0.8	-29.3	29.3	25.1	6.977	
1,100.0	1,100.0	1,100.0	1,100.0	2.3	2.3	-91.56	-0.8	-29.3	29.3	24.7	6.303	
1,200.0	1,200.0	1,200.0	1,200.0	2.5	2.5	-91.56	-0.8	-29.3	29.3	24.2	5.747	
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-91.56	-0.8	-29.3	29.3	23.8	5.282	
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	-91.56	-0.8	-29.3	29.3	23.3	4.886	
1,500.0	1,500.0	1,500.0	1,500.0	3.2	3.2	-91.56	-0.8	-29.3	29.3	22.9	4.545	
1,600.0	1,600.0	1,600.0	1,600.0	3.4	3.4	-91.56	-0.8	-29.3	29.3	22.4	4.249	
1,700.0	1,700.0	1,700.0	1,700.0	3.7	3.7	-91.56	-0.8	-29.3	29.3	22.0	3.989	
1,800.0	1,800.0	1,800.0	1,800.0	3.9	3.9	-91.56	-0.8	-29.3	29.3	21.5	3.759	
1,900.0	1,900.0	1,900.0	1,900.0	4.1	4.1	-91.56	-0.8	-29.3	29.3	21.1	3.554	
2,000.0	2,000.0	2,000.0	2,000.0	4.3	4.3	-91.56	-0.8	-29.3	29.3	20.6	3.371	
2,100.0	2,100.0	2,100.0	2,100.0	4.6	4.6	-91.56	-0.8	-29.3	29.3	20.2	3.205	
2,200.0	2,200.0	2,200.0	2,200.0	4.8	4.8	-91.56	-0.8	-29.3	29.3	19.7	3.055	
2,300.0	2,300.0	2,300.0	2,300.0	5.0	5.0	-91.56	-0.8	-29.3	29.3	19.3	2.918	
2,400.0	2,400.0	2,400.0	2,400.0	5.2	5.2	-91.56	-0.8	-29.3	29.3	18.8	2.793	

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



HP
Anticollision Report



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Reference Site:	Sec 28, T22S, R34E	MD Reference:	Well @ 3435.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Smalls Federal 5H	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 1H - 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)	Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning		
2,500.0	2,500.0	2,500.0	2,500.0	5.5	5.5	-91.56	-0.8	-29.3	29.3	18.4	2.678		
2,600.0	2,600.0	2,600.0	2,600.0	5.7	5.7	-91.56	-0.8	-29.3	29.3	17.9	2.573		
2,700.0	2,700.0	2,700.0	2,700.0	5.9	5.9	-91.56	-0.8	-29.3	29.3	17.5	2.475		
2,800.0	2,800.0	2,800.0	2,800.0	6.1	6.1	-91.56	-0.8	-29.3	29.3	17.0	2.384		
2,900.0	2,900.0	2,900.0	2,900.0	6.4	6.4	-91.56	-0.8	-29.3	29.3	16.6	2.300		
3,000.0	3,000.0	3,000.0	3,000.0	6.6	6.6	-91.56	-0.8	-29.3	29.3	16.1	2.222		
3,100.0	3,100.0	3,100.0	3,100.0	6.8	6.8	-91.56	-0.8	-29.3	29.3	15.7	2.149		
3,200.0	3,200.0	3,200.0	3,200.0	7.0	7.0	-91.56	-0.8	-29.3	29.3	15.2	2.080		
3,300.0	3,300.0	3,300.0	3,300.0	7.3	7.3	-91.56	-0.8	-29.3	29.3	14.8	2.016		
3,400.0	3,400.0	3,400.0	3,400.0	7.5	7.5	-91.56	-0.8	-29.3	29.3	14.3	1.955		
3,500.0	3,500.0	3,500.0	3,500.0	7.7	7.7	-91.56	-0.8	-29.3	29.3	13.9	1.898		
3,600.0	3,600.0	3,600.0	3,600.0	7.9	7.9	-91.56	-0.8	-29.3	29.3	13.4	1.845		
3,700.0	3,700.0	3,700.0	3,700.0	8.2	8.2	-91.56	-0.8	-29.3	29.3	13.0	1.794		
3,800.0	3,800.0	3,800.0	3,800.0	8.4	8.4	-91.56	-0.8	-29.3	29.3	12.5	1.746		
3,900.0	3,900.0	3,900.0	3,900.0	8.6	8.6	-91.56	-0.8	-29.3	29.3	12.1	1.700		
4,000.0	4,000.0	4,000.0	4,000.0	8.8	8.8	-91.56	-0.8	-29.3	29.3	11.6	1.657		
4,100.0	4,100.0	4,100.0	4,100.0	9.1	9.1	-91.56	-0.8	-29.3	29.3	11.2	1.616		
4,200.0	4,200.0	4,200.0	4,200.0	9.3	9.3	-91.56	-0.8	-29.3	29.3	10.7	1.577		
4,300.0	4,300.0	4,300.0	4,300.0	9.5	9.5	-91.56	-0.8	-29.3	29.3	10.3	1.540		
4,400.0	4,400.0	4,400.0	4,400.0	9.7	9.7	-91.56	-0.8	-29.3	29.3	9.8	1.504		
4,500.0	4,500.0	4,500.0	4,500.0	10.0	10.0	-91.56	-0.8	-29.3	29.3	9.4	1.470	Level 3	
4,600.0	4,600.0	4,600.0	4,600.0	10.2	10.2	-91.56	-0.8	-29.3	29.3	8.9	1.438	Level 3	
4,700.0	4,700.0	4,700.0	4,700.0	10.4	10.4	-91.56	-0.8	-29.3	29.3	8.5	1.407	Level 3	
4,800.0	4,800.0	4,800.0	4,800.0	10.6	10.6	-91.56	-0.8	-29.3	29.3	8.0	1.377	Level 3	
4,900.0	4,900.0	4,900.0	4,900.0	10.9	10.9	-91.56	-0.8	-29.3	29.3	7.6	1.349	Level 3	
5,000.0	5,000.0	5,000.0	5,000.0	11.1	11.1	-91.56	-0.8	-29.3	29.3	7.1	1.321	Level 3	
5,100.0	5,100.0	5,100.0	5,100.0	11.3	11.3	-91.56	-0.8	-29.3	29.3	6.7	1.295	Level 3	
5,200.0	5,200.0	5,200.0	5,200.0	11.5	11.5	-91.56	-0.8	-29.3	29.3	6.2	1.270	Level 3	
5,300.0	5,300.0	5,300.0	5,300.0	11.8	11.8	-91.56	-0.8	-29.3	29.3	5.8	1.246	Level 2	
5,400.0	5,400.0	5,400.0	5,400.0	12.0	12.0	-91.56	-0.8	-29.3	29.3	5.3	1.222	Level 2	
5,500.0	5,500.0	5,500.0	5,500.0	12.2	12.2	-91.56	-0.8	-29.3	29.3	4.9	1.200	Level 2	
5,600.0	5,600.0	5,600.0	5,600.0	12.4	12.4	-91.56	-0.8	-29.3	29.3	4.4	1.178	Level 2	
5,700.0	5,700.0	5,700.0	5,700.0	12.7	12.7	-91.56	-0.8	-29.3	29.3	4.0	1.157	Level 2	
5,800.0	5,800.0	5,800.0	5,800.0	12.9	12.9	-91.56	-0.8	-29.3	29.3	3.5	1.137	Level 2	
5,900.0	5,900.0	5,900.0	5,900.0	13.1	13.1	-91.56	-0.8	-29.3	29.3	3.1	1.118	Level 2	
6,000.0	6,000.0	6,000.0	6,000.0	13.3	13.3	-91.56	-0.8	-29.3	29.3	2.6	1.099	Level 2	
6,100.0	6,100.0	6,100.0	6,100.0	13.6	13.6	-91.56	-0.8	-29.3	29.3	2.2	1.081	Level 2	
6,200.0	6,200.0	6,200.0	6,200.0	13.8	13.8	-91.56	-0.8	-29.3	29.3	1.7	1.063	Level 2	
6,300.0	6,300.0	6,300.0	6,300.0	14.0	14.0	-91.56	-0.8	-29.3	29.3	1.3	1.046	Level 2	
6,400.0	6,400.0	6,400.0	6,400.0	14.2	14.2	-91.56	-0.8	-29.3	29.3	0.8	1.029	Level 2	
6,500.0	6,500.0	6,500.0	6,500.0	14.5	14.5	-91.56	-0.8	-29.3	29.3	0.4	1.013	Level 2	
6,600.0	6,600.0	6,600.0	6,600.0	14.7	14.7	-91.56	-0.8	-29.3	29.3	-0.1	0.998	Level 1	
6,700.0	6,700.0	6,700.0	6,700.0	14.9	14.9	-91.56	-0.8	-29.3	29.3	-0.5	0.983	Level 1	
6,800.0	6,800.0	6,800.0	6,800.0	15.1	15.1	-91.56	-0.8	-29.3	29.3	-1.0	0.968	Level 1	
6,900.0	6,900.0	6,900.0	6,900.0	15.4	15.4	-91.56	-0.8	-29.3	29.3	-1.4	0.954	Level 1	
7,000.0	7,000.0	7,000.0	7,000.0	15.6	15.6	-91.56	-0.8	-29.3	29.3	-1.9	0.940	Level 1	
7,100.0	7,100.0	7,100.0	7,100.0	15.8	15.8	-91.56	-0.8	-29.3	29.3	-2.3	0.927	Level 1	
7,200.0	7,200.0	7,200.0	7,200.0	16.0	16.0	-91.56	-0.8	-29.3	29.3	-2.8	0.914	Level 1	
7,300.0	7,300.0	7,300.0	7,300.0	16.3	16.3	-91.56	-0.8	-29.3	29.3	-3.2	0.901	Level 1	
7,400.0	7,400.0	7,400.0	7,400.0	16.5	16.5	-91.56	-0.8	-29.3	29.3	-3.7	0.889	Level 1	
7,500.0	7,500.0	7,500.0	7,500.0	16.7	16.7	-91.56	-0.8	-29.3	29.3	-4.1	0.877	Level 1	
7,600.0	7,600.0	7,600.0	7,600.0	16.9	16.9	-91.56	-0.8	-29.3	29.3	-4.6	0.865	Level 1	

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

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Smalls Federal 5H
Project:	Lea County, NM	TVD Reference:	Well @ 3435.0usft (Ensign #772)
Reference Site:	Sec 28, T22S, R34E	MD Reference:	Well @ 3435.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Smalls Federal 5H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Compass
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design											Offset Site Error:	0.0 usft
Survey Program: 0-MWD default											Offset Well Error:	0.0 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning
7,700.0	7,700.0	7,700.0	7,700.0	17.2	17.2	-91.56	-0.8	-29.3	29.3	-5.0	0.854	Level 1
7,800.0	7,800.0	7,800.0	7,800.0	17.4	17.4	-91.56	-0.8	-29.3	29.3	-5.5	0.843	Level 1
7,900.0	7,900.0	7,900.0	7,900.0	17.6	17.6	-91.56	-0.8	-29.3	29.3	-5.9	0.832	Level 1
8,000.0	8,000.0	8,000.0	8,000.0	17.8	17.8	-91.56	-0.8	-29.3	29.3	-6.4	0.822	Level 1
8,100.0	8,100.0	8,100.0	8,100.0	18.1	18.1	-91.56	-0.8	-29.3	29.3	-6.8	0.812	Level 1
8,200.0	8,200.0	8,200.0	8,200.0	18.3	18.3	-91.56	-0.8	-29.3	29.3	-7.3	0.802	Level 1
8,300.0	8,300.0	8,300.0	8,300.0	18.5	18.5	-91.56	-0.8	-29.3	29.3	-7.7	0.792	Level 1
8,400.0	8,400.0	8,400.0	8,400.0	18.7	18.7	-91.56	-0.8	-29.3	29.3	-8.2	0.782	Level 1
8,500.0	8,500.0	8,500.0	8,500.0	19.0	19.0	-91.56	-0.8	-29.3	29.3	-8.6	0.773	Level 1
8,600.0	8,600.0	8,600.0	8,600.0	19.2	19.2	-91.56	-0.8	-29.3	29.3	-9.1	0.764	Level 1
8,700.0	8,700.0	8,700.0	8,700.0	19.4	19.4	-91.56	-0.8	-29.3	29.3	-9.5	0.755	Level 1
8,800.0	8,800.0	8,800.0	8,800.0	19.6	19.6	-91.56	-0.8	-29.3	29.3	-10.0	0.747	Level 1
8,900.0	8,900.0	8,900.0	8,900.0	19.9	19.9	-91.56	-0.8	-29.3	29.3	-10.4	0.738	Level 1
9,000.0	9,000.0	9,000.0	9,000.0	20.1	20.1	-91.56	-0.8	-29.3	29.3	-10.9	0.730	Level 1
9,100.0	9,100.0	9,100.0	9,100.0	20.3	20.3	-91.56	-0.8	-29.3	29.3	-11.3	0.722	Level 1
9,200.0	9,200.0	9,200.0	9,200.0	20.5	20.5	-91.56	-0.8	-29.3	29.3	-11.8	0.714	Level 1
9,300.0	9,300.0	9,300.0	9,300.0	20.8	20.8	-91.56	-0.8	-29.3	29.3	-12.2	0.706	Level 1
9,400.0	9,400.0	9,400.0	9,400.0	21.0	21.0	-91.56	-0.8	-29.3	29.3	-12.7	0.699	Level 1
9,500.0	9,500.0	9,500.0	9,500.0	21.2	21.2	-91.56	-0.8	-29.3	29.3	-13.1	0.691	Level 1
9,600.0	9,600.0	9,600.0	9,600.0	21.4	21.4	-91.56	-0.8	-29.3	29.3	-13.5	0.684	Level 1
9,700.0	9,700.0	9,700.0	9,700.0	21.7	21.7	-91.56	-0.8	-29.3	29.3	-14.0	0.677	Level 1
9,800.0	9,800.0	9,800.0	9,800.0	21.9	21.9	-91.56	-0.8	-29.3	29.3	-14.4	0.670	Level 1
9,822.5	9,822.5	9,822.5	9,822.5	21.9	21.9	-91.56	-0.8	-29.3	29.3	-14.5	0.668	Level 1
9,825.0	9,825.0	9,825.0	9,825.0	21.9	21.9	-89.66	-0.8	-29.3	29.3	-14.6	0.668	Level 1
9,835.5	9,835.5	9,835.5	9,835.5	22.0	22.0	-90.00	-0.8	-29.3	29.3	-14.6	0.667	Level 1, CC
9,850.0	9,850.0	9,850.0	9,850.0	22.0	22.0	-91.20	-0.8	-29.3	29.3	-14.7	0.667	Level 1, ES, SF
9,875.0	9,874.9	9,874.9	9,874.9	22.0	22.0	-95.24	-0.8	-29.3	29.4	-14.7	0.668	Level 1
9,900.0	9,899.7	9,899.7	9,899.7	22.1	22.1	-101.60	-0.8	-29.3	29.9	-14.2	0.678	Level 1
9,925.0	9,924.2	9,924.2	9,924.2	22.2	22.2	-109.77	-0.8	-29.3	31.2	-13.0	0.707	Level 1
9,950.0	9,948.5	9,948.5	9,948.5	22.2	22.2	-118.86	-0.8	-29.3	33.8	-10.3	0.766	Level 1
9,975.0	9,972.4	9,972.4	9,972.4	22.3	22.3	-127.83	-0.8	-29.3	37.9	-5.9	0.866	Level 1
10,000.0	9,995.9	9,995.9	9,995.9	22.3	22.3	-135.88	-0.8	-29.3	43.7	0.6	1.014	Level 2
10,025.0	10,019.0	10,019.0	10,019.0	22.4	22.4	-142.64	-0.8	-29.3	51.3	9.0	1.212	Level 2
10,050.0	10,041.5	10,041.5	10,041.5	22.4	22.4	-148.11	-0.8	-29.3	60.6	19.2	1.463	Level 3
10,075.0	10,063.4	10,063.4	10,063.4	22.5	22.5	-152.44	-0.8	-29.3	71.3	31.0	1.769	
10,100.0	10,084.6	10,084.6	10,084.6	22.5	22.5	-155.85	-0.8	-29.3	83.5	44.4	2.133	
10,125.0	10,105.2	10,105.2	10,105.2	22.6	22.6	-158.53	-0.8	-29.3	97.0	59.1	2.559	
10,150.0	10,124.9	10,124.9	10,124.9	22.6	22.6	-160.64	-0.8	-29.3	111.7	75.2	3.056	
10,175.0	10,143.8	10,143.8	10,143.8	22.7	22.7	-162.30	-0.8	-29.3	127.6	92.4	3.630	
10,200.0	10,161.9	10,161.9	10,161.9	22.8	22.7	-163.58	-0.8	-29.3	144.4	110.8	4.293	
10,225.0	10,179.0	10,179.0	10,179.0	22.8	22.7	-164.57	-0.8	-29.3	162.3	130.2	5.058	
10,250.0	10,195.1	10,195.1	10,195.1	22.9	22.8	-165.31	-0.8	-29.3	181.1	150.7	5.941	
10,275.0	10,210.2	10,210.2	10,210.2	23.0	22.8	-165.81	-0.8	-29.3	200.8	172.0	6.961	
10,300.0	10,224.3	10,224.3	10,224.3	23.1	22.8	-166.11	-0.8	-29.3	221.3	194.1	8.140	
10,325.0	10,237.2	10,237.2	10,237.2	23.2	22.9	-166.19	-0.8	-29.3	242.5	217.0	9.499	
10,350.0	10,249.1	10,249.1	10,249.1	23.3	22.9	-166.06	-0.8	-29.3	264.4	240.5	11.056	
10,375.0	10,259.7	10,259.7	10,259.7	23.4	22.9	-165.67	-0.8	-29.3	286.9	264.5	12.808	
10,400.0	10,269.1	10,269.1	10,269.1	23.5	22.9	-164.96	-0.8	-29.3	309.9	288.8	14.711	
10,425.0	10,277.4	10,277.4	10,277.4	23.6	23.0	-163.81	-0.8	-29.3	333.4	313.4	16.621	
10,450.0	10,284.3	10,284.3	10,284.3	23.7	23.0	-162.03	-0.8	-29.3	357.3	337.7	18.217	
10,475.0	10,290.0	10,290.0	10,290.0	23.8	23.0	-159.20	-0.8	-29.3	381.6	361.5	18.950	
10,500.0	10,294.5	10,294.5	10,294.5	23.9	23.0	-154.43	-0.8	-29.3	406.1	383.8	18.170	

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 5H
Project:	Lea County, NM	TVD Reference:	Well @ 3435.0usft (Ensign #772)
Reference Site:	Sec 28, T22S, R34E	MD Reference:	Well @ 3435.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Smalls Federal 5H	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 1H - 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)	Offset Wellbore Centre +E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning
10,525.0	10,297.6	10,297.6	10,297.6	24.1	23.0	-145.53	-0.8	-29.3	430.9	403.2	15.557	
10,550.0	10,299.4	10,299.4	10,299.4	24.2	23.0	-126.16	-0.8	-29.3	455.7	417.1	11.807	
10,574.7	10,300.0	10,300.0	10,300.0	24.4	23.0	-85.64	-0.8	-29.3	480.4	432.8	10.097	
10,600.0	10,299.8	10,299.8	10,299.8	24.5	23.0	-85.41	-0.8	-29.3	505.6	457.9	10.591	
10,700.0	10,299.4	10,299.4	10,299.4	25.2	23.0	-84.50	-0.8	-29.3	605.5	557.0	12.495	
10,800.0	10,298.9	10,298.9	10,298.9	26.0	23.0	-83.60	-0.8	-29.3	705.4	656.1	14.317	
10,900.0	10,298.4	11,709.4	11,096.2	26.9	28.6	-178.24	813.2	-51.6	798.1	785.5	63.148	
11,000.0	10,298.0	11,809.4	11,095.0	27.9	29.5	-178.28	913.1	-54.4	797.4	783.6	57.499	
11,100.0	10,297.5	11,909.4	11,093.8	29.0	30.5	-178.33	1,013.1	-57.1	796.7	781.6	52.622	
11,200.0	10,297.0	12,009.4	11,092.6	30.2	31.6	-178.37	1,113.0	-59.9	796.0	779.5	48.405	
11,300.0	10,296.6	12,109.4	11,091.5	31.4	32.8	-178.41	1,213.0	-62.6	795.3	777.5	44.743	
11,400.0	10,296.1	12,209.4	11,090.3	32.7	34.0	-178.45	1,312.9	-65.4	794.5	775.4	41.548	
11,500.0	10,295.6	12,309.4	11,089.1	34.0	35.3	-178.49	1,412.9	-68.1	793.8	773.3	38.743	
11,600.0	10,295.2	12,409.4	11,088.0	35.4	36.6	-178.53	1,512.8	-70.9	793.1	771.2	36.268	
11,700.0	10,294.7	12,509.4	11,086.8	36.8	38.0	-178.57	1,612.8	-73.6	792.4	769.1	34.070	
11,800.0	10,294.2	12,609.4	11,085.6	38.2	39.4	-178.62	1,712.7	-76.3	791.7	767.0	32.109	
11,900.0	10,293.8	12,709.4	11,084.5	39.7	40.8	-178.66	1,812.7	-79.1	791.0	764.9	30.350	
12,000.0	10,293.3	12,809.4	11,083.3	41.2	42.3	-178.70	1,912.6	-81.8	790.2	762.8	28.764	
12,100.0	10,292.8	12,909.4	11,082.1	42.7	43.8	-178.74	2,012.6	-84.6	789.5	760.6	27.328	
12,200.0	10,292.4	13,009.4	11,080.9	44.3	45.3	-178.78	2,112.5	-87.3	788.8	758.5	26.023	
12,300.0	10,291.9	13,109.4	11,079.8	45.9	46.9	-178.83	2,212.5	-90.1	788.1	756.3	24.831	
12,400.0	10,291.4	13,209.4	11,078.6	47.5	48.4	-178.87	2,312.4	-92.8	787.4	754.2	23.740	
12,500.0	10,291.0	13,309.4	11,077.4	49.1	50.0	-178.91	2,412.4	-95.5	786.7	752.1	22.737	
12,600.0	10,290.5	13,409.4	11,076.3	50.7	51.6	-178.95	2,512.3	-98.3	785.9	749.9	21.812	
12,700.0	10,290.0	13,509.4	11,075.1	52.3	53.2	-179.00	2,612.3	-101.0	785.2	747.8	20.956	
12,800.0	10,289.6	13,609.4	11,073.9	54.0	54.8	-179.04	2,712.2	-103.8	784.5	745.6	20.163	
12,900.0	10,289.1	13,709.3	11,072.8	55.6	56.5	-179.08	2,812.2	-106.5	783.8	743.5	19.425	
13,000.0	10,288.6	13,809.3	11,071.6	57.3	58.1	-179.12	2,912.1	-109.3	783.1	741.3	18.738	
13,100.0	10,288.2	13,909.3	11,070.4	59.0	59.8	-179.17	3,012.1	-112.0	782.4	739.1	18.096	
13,200.0	10,287.7	14,009.3	11,069.3	60.7	61.5	-179.21	3,112.0	-114.8	781.7	737.0	17.494	
13,300.0	10,287.2	14,109.3	11,068.1	62.4	63.1	-179.25	3,212.0	-117.5	781.0	734.8	16.930	
13,400.0	10,286.8	14,209.3	11,066.9	64.1	64.8	-179.30	3,312.0	-120.2	780.2	732.7	16.400	
13,500.0	10,286.3	14,309.3	11,065.7	65.8	66.5	-179.34	3,411.9	-123.0	779.5	730.5	15.901	
13,600.0	10,285.9	14,409.3	11,064.6	67.5	68.2	-179.38	3,511.9	-125.7	778.8	728.3	15.430	
13,700.0	10,285.4	14,509.3	11,063.4	69.2	69.9	-179.42	3,611.8	-128.5	778.1	726.2	14.986	
13,800.0	10,284.9	14,609.3	11,062.2	71.0	71.6	-179.47	3,711.8	-131.2	777.4	724.0	14.565	
13,900.0	10,284.5	14,709.3	11,061.1	72.7	73.4	-179.51	3,811.7	-134.0	776.7	721.9	14.166	
14,000.0	10,284.0	14,809.3	11,059.9	74.4	75.1	-179.55	3,911.7	-136.7	776.0	719.7	13.788	
14,100.0	10,283.5	14,909.3	11,058.7	76.2	76.8	-179.60	4,011.6	-139.4	775.3	717.5	13.428	
14,200.0	10,283.1	15,009.3	11,057.6	77.9	78.5	-179.64	4,111.6	-142.2	774.6	715.4	13.087	
14,300.0	10,282.6	15,109.3	11,056.4	79.7	80.3	-179.69	4,211.5	-144.9	773.9	713.2	12.761	
14,400.0	10,282.1	15,209.3	11,055.2	81.4	82.0	-179.73	4,311.5	-147.7	773.2	711.1	12.450	
14,500.0	10,281.7	15,309.3	11,054.0	83.2	83.8	-179.77	4,411.4	-150.4	772.4	708.9	12.154	
14,600.0	10,281.2	15,409.3	11,052.9	84.9	85.5	-179.82	4,511.4	-153.2	771.7	706.7	11.871	
14,700.0	10,280.7	15,509.3	11,051.7	86.7	87.3	-179.86	4,611.3	-155.9	771.0	704.6	11.600	
14,800.0	10,280.3	15,609.3	11,050.5	88.5	89.0	-179.91	4,711.3	-158.7	770.3	702.4	11.341	
14,851.0	10,280.0	15,654.8	11,050.0	89.4	89.8	-179.93	4,756.8	-159.9	770.0	701.4	11.219	
14,854.5	10,280.0	15,654.8	11,050.0	89.4	89.8	-179.93	4,756.8	-159.9	770.0	701.3	11.215	
14,855.0	10,280.0	15,654.8	11,050.0	89.5	89.8	-179.93	4,756.8	-159.9	770.0	701.3	11.215	

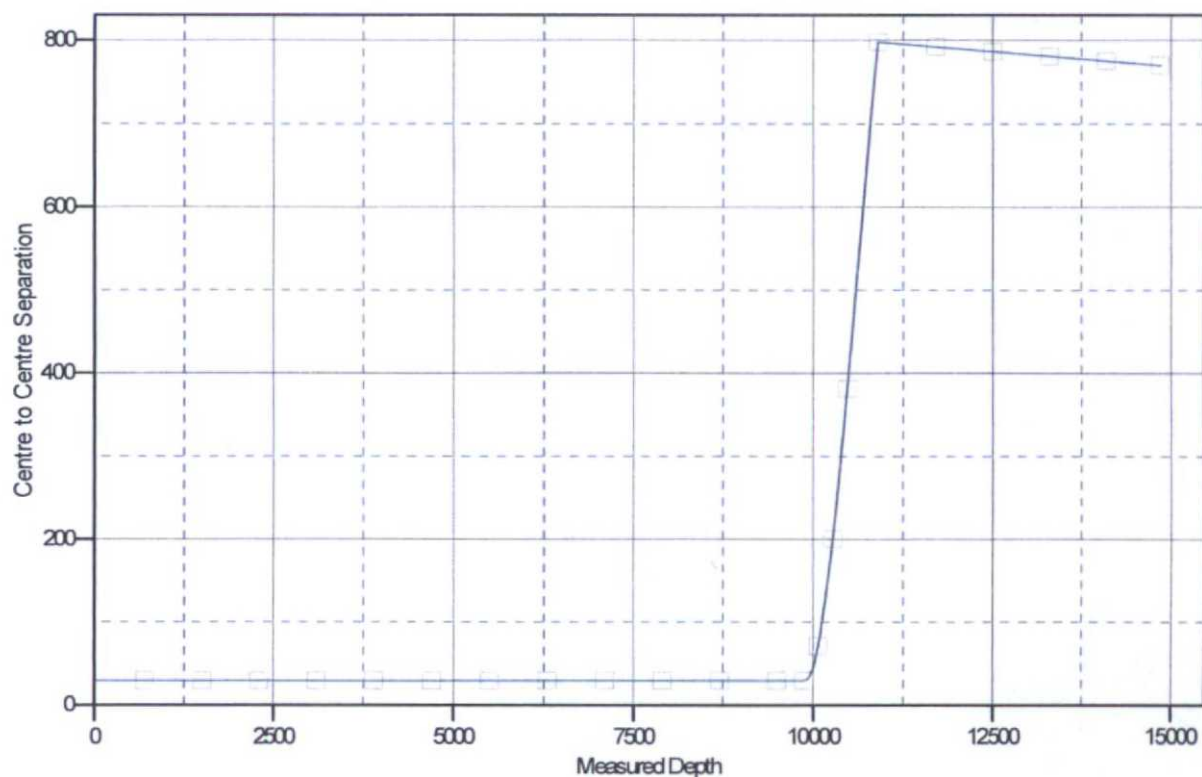
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Smalls Federal 5H
Project:	Lea County, NM	TVD Reference:	Well @ 3435.0usft (Ensign #772)
Reference Site:	Sec 28, T22S, R34E	MD Reference:	Well @ 3435.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Smalls Federal 5H	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 @ 3435.0usft (Ensign #772)
Offset Depths are relative to Offset Datum
Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: Smalls Federal 5H
Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
Grid Convergence at Surface is: 0.46°

Ladder Plot



LEGEND

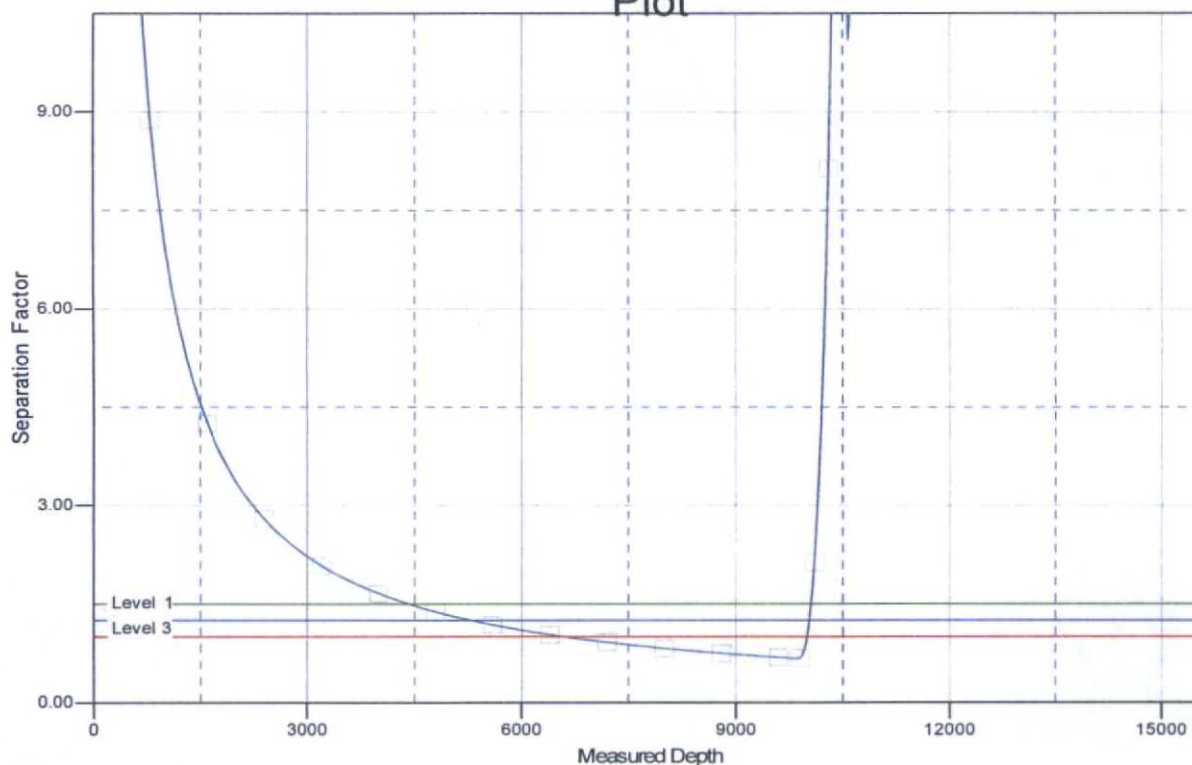
Smalls Federal 1H, Wellbore #1, Design #1 V0

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Smalls Federal 5H
Project:	Lea County, NM	TVD Reference:	Well @ 3435.0usft (Ensign #772)
Reference Site:	Sec 28, T22S, R34E	MD Reference:	Well @ 3435.0usft (Ensign #772)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Smalls Federal 5H	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 @ 3435.0usft (Ensign #772)
Offset Depths are relative to Offset Datum
Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: Smalls Federal 5H
Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
Grid Convergence at Surface is: 0.46°

Separation Factor Plot

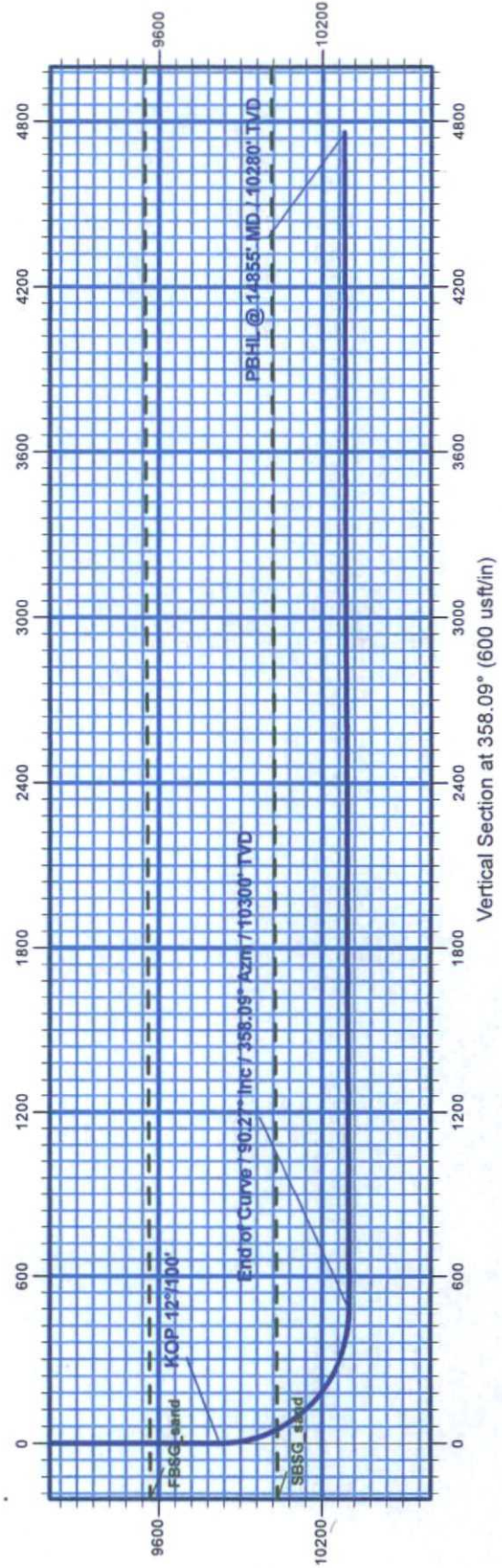


LEGEND

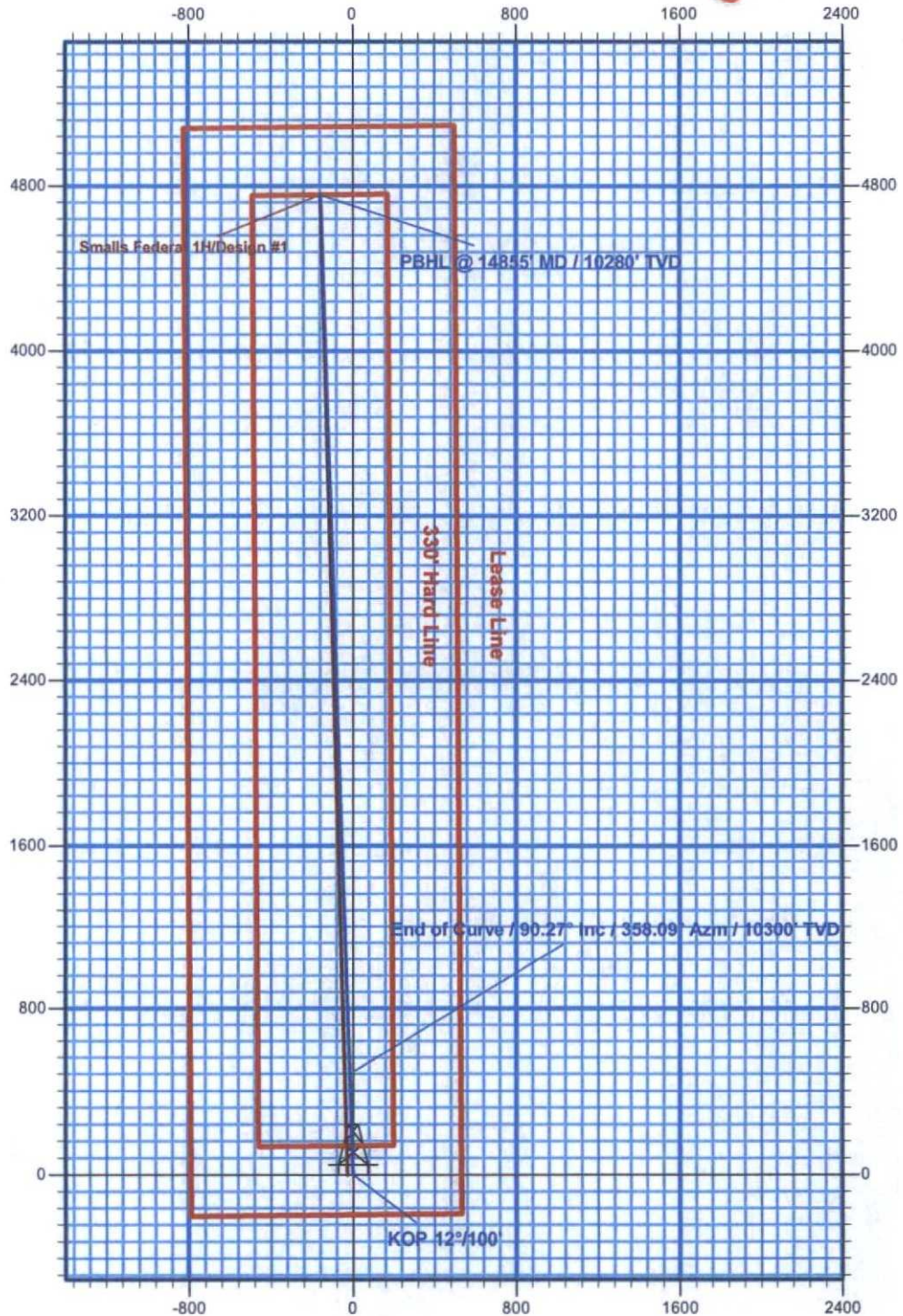
 Smalls Federal 1H, Wellbore #1, Design #1 V0



Lea County, NM
Sec 28, T22S, R34E
Smalls Federal 5H
Design #1



Lea County, NM
Sec 28, T22S, R34E
Smalls Federal 5H
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



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	Q 64	Q 16	Q 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

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.

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 DESCRIPTION4 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

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.

Licence Number 16C-0001

(If Required)

TECHNIP QUALITY CONTROL

JCS Acuña 4/30/15

Name/ Date/ Stamp



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
Length	30.83	feet
Working Pressure	10000	psi
Test Pressure	15000	psi
As per attached recorder chart	24	hours
Test Duration		

THIRD PARTY INSPECTION FIRM OR CUSTOMER REPRESENTATIVE



Technip

NICO INC. QUALITY CONTROL

Test Configuration 12 Zone

Production Information Input

Customer ID	
OPS CANADA INC.	
Line S/N	Technician
KI7386-202@K12387-202	ROY

QC Information Input

QC Insp	Third Party
PAT	SV
Witness?	Test Procedure
Yes	SIC 01 60
Special Instructions	

Station Information

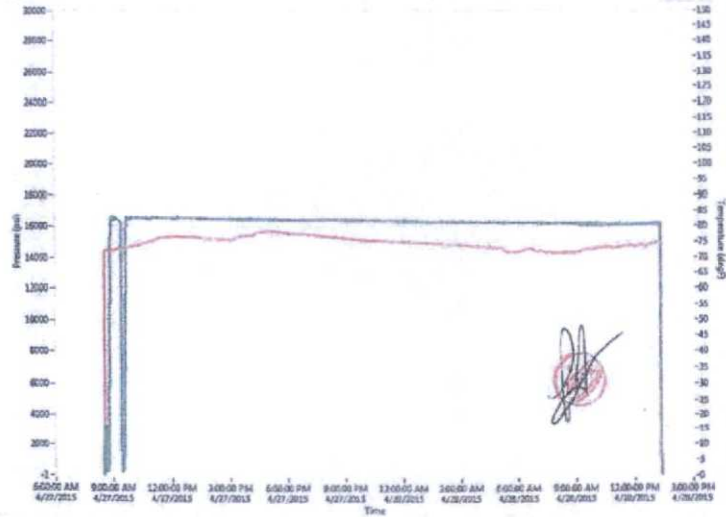
Pressure Transducer S/N	Temperature S/N
1211376	T15A
Static Press	Test Press
1000	1500
Calib. Due	Pressure Range
9/9/2015 8:29:42 AM	0 - 30000

Station 04

Calibration

Line Minimum	Eng Minimum
0.00000	0.00000
Rev Maximum	Eng Maximum
0.00001	00000 000001

SV Graph



Pressure 4
Temp 4
Run 3



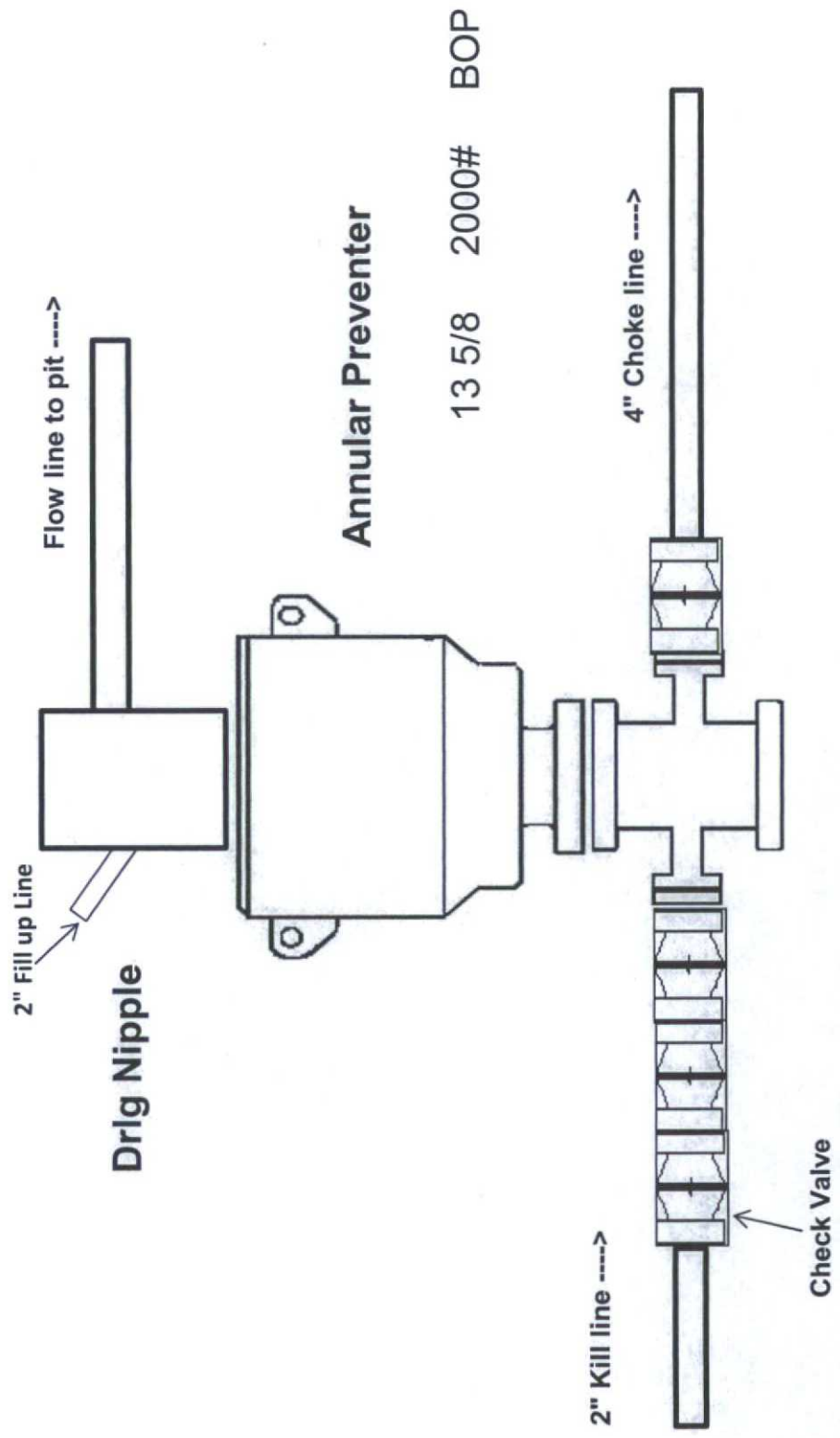
PHILSA K12387 2003 31/15 TEMP 101
600 31/15



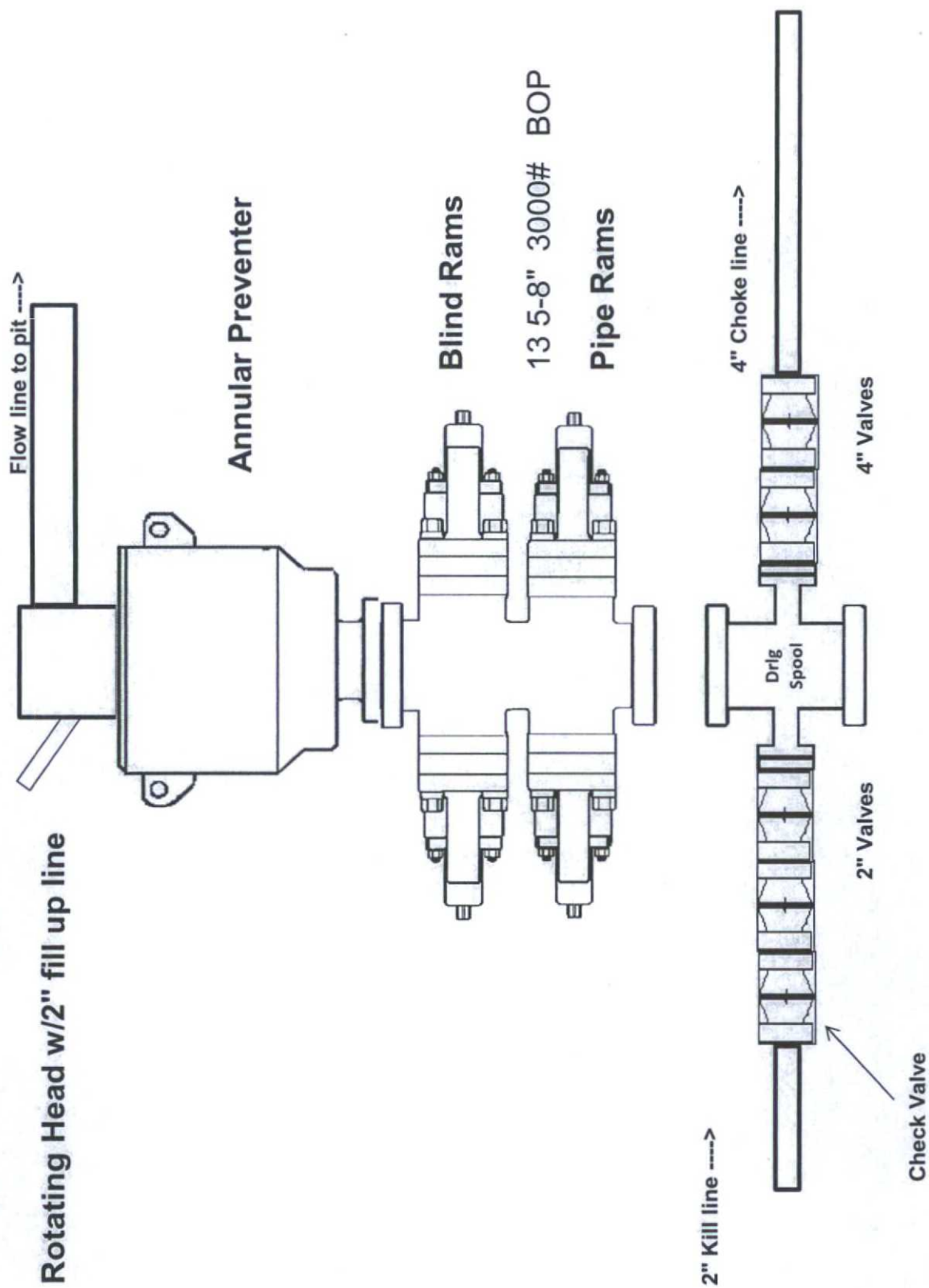




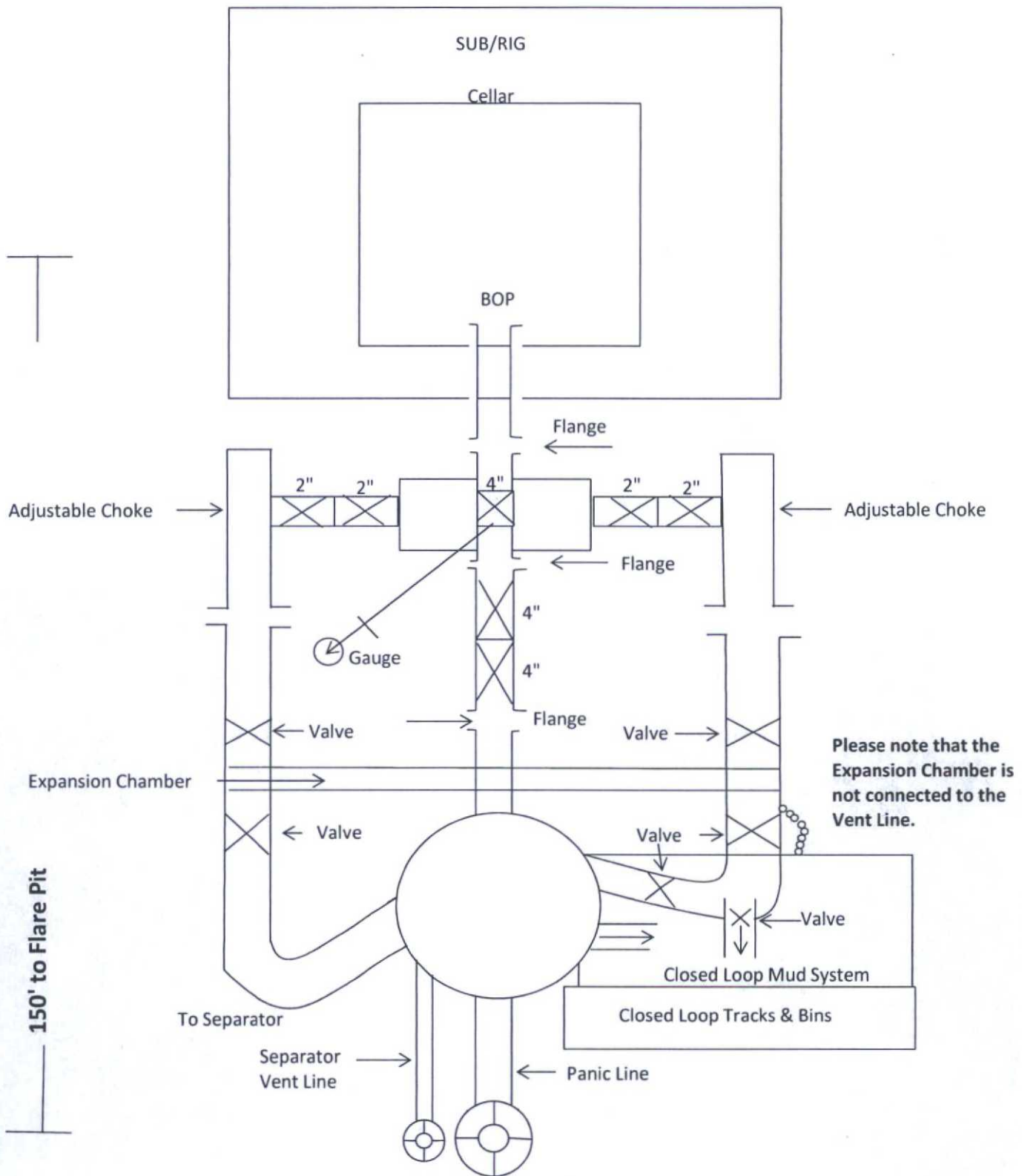
2,000 psi BOP Schematic



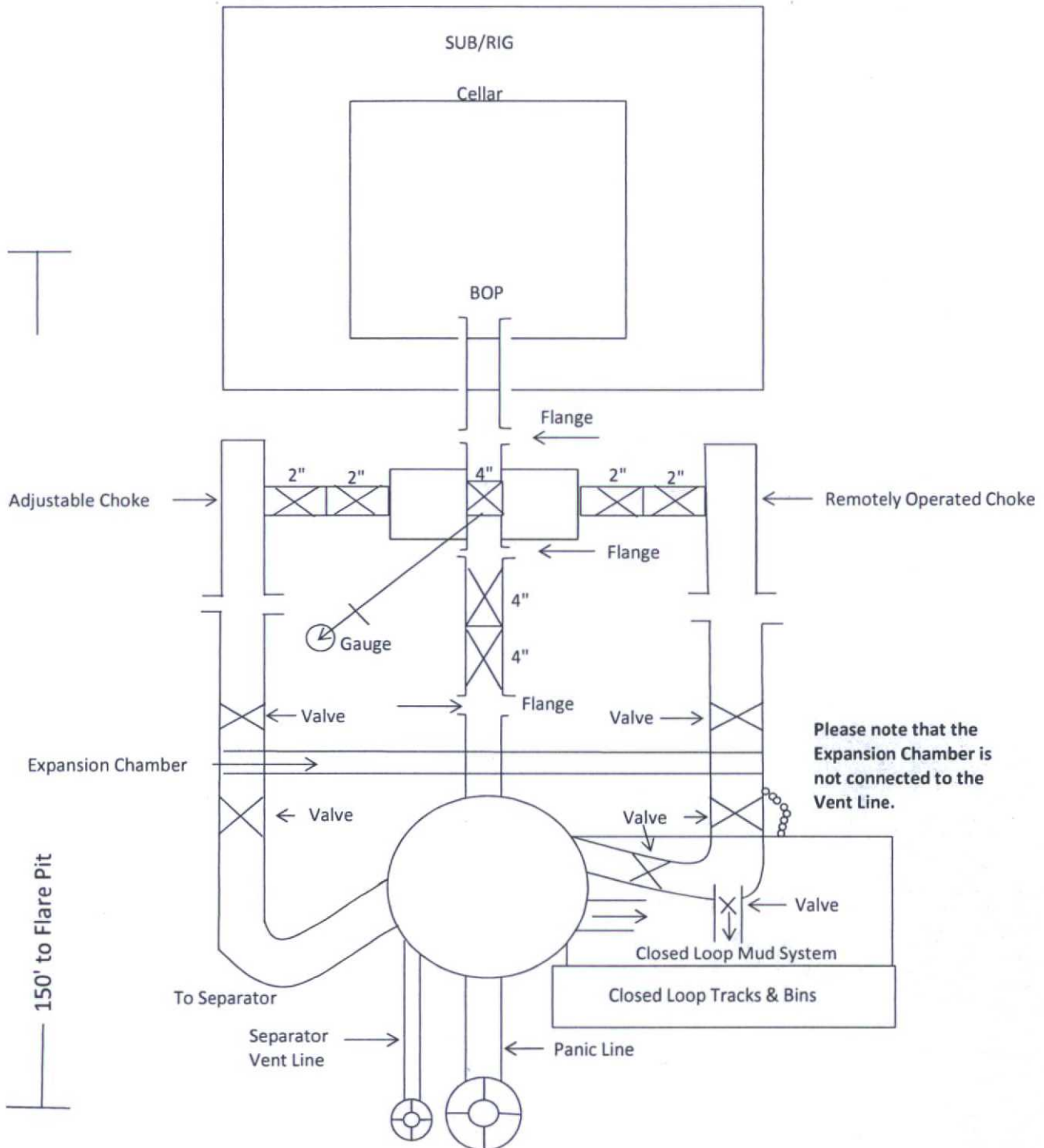
3,000 psi BOP Schematic



2M Choke Manifold Equipment



3M Choke Manifold Equipment



COG Operating LLC

Rig Plat & Closed Loop Equipment Diagram

Well pad will be 400' X 400'
with cellar in center of pad

Flare Lines will be from both Choke
Manifold & Separator to edge of
location.

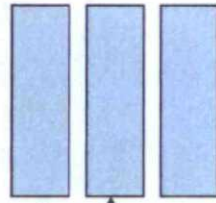
NORTH

200'

200'

200'

200'



Fluid
Storage
Tanks

Roll Off Cutting
Containers on
Tracks



Transfer Pump

Steel pits

Shakers

Drig Separator

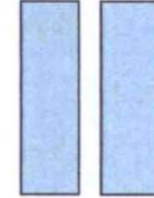
Flow line

Mud Pumps

Choke Manifold

Cellar

Pipe
Racks



Water Tanks

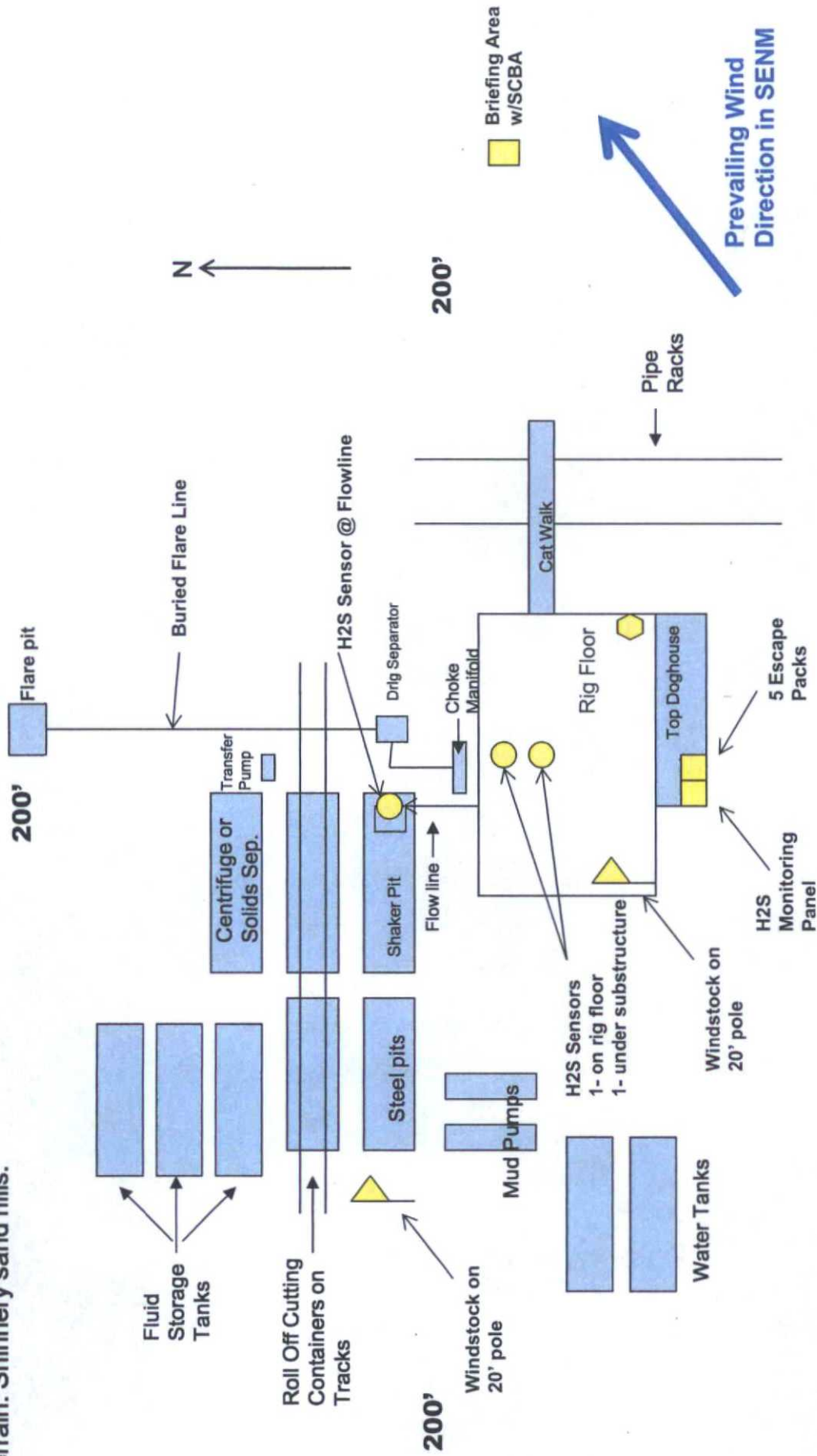
Trailer

Exhibit 1

* I further certify that COG will comply with Rule 19.15.17
NMAC by using a Closed Loop System.*

COG Operating LLC
H₂S Equipment Schematic
Terrain: Shinnery sand hills.

Well pad will be 400' X 400'
with cellar in center of pad



Location Entry
Condition Sign

Company Representative's Trailer

Primary Briefing
Area w/SCBA

Secondary egress.