



COG Operating, LLC

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

Wellbore #1

Plan: Design #1

DDC Well Planning Report

07 July, 2015



JAN 05 2010



HP
Well Planning Report



Database:	Compass	Local Co-ordinate Reference:	Well Smalls Federal 1H
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 1H	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
From:	Map	Easting:	767,268.60 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 21' 20.947 N
		Longitude:	103° 28' 4.141 W
		Grid Convergence:	0.46 °

Well	Smalls Federal 1H		
Well Position	+N/-S	0.0 usft	Northing: 494,242.70 usft
	+E/-W	0.0 usft	Easting: 767,268.60 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft
		Latitude:	32° 21' 20.947 N
		Longitude:	103° 28' 4.141 W
		Ground Level:	3,404.0 usft

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

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)
	0.0	0.0	0.0
			Direction (°)
			358.43

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	
11,378.2	90.67	358.43	11,100.0	482.9	-13.3	12.00	12.00	-0.21	358.43	
15,654.8	90.67	358.43	11,050.0	4,757.6	-130.6	0.00	0.00	0.00	0.00	PBHL Smalls Federal



HP
Well Planning Report



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Well:	Smalls Federal 1H	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	358.43	10,699.7	6.3	-0.2	6.3	12.00	12.00	0.00
10,800.0	21.29	358.43	10,795.9	32.6	-0.9	32.6	12.00	12.00	0.00
10,900.0	33.29	358.43	10,884.7	78.3	-2.1	78.3	12.00	12.00	0.00
TBSG_sand									
10,953.6	39.72	358.43	10,927.7	110.2	-3.0	110.2	12.00	12.00	0.00
11,000.0	45.29	358.43	10,961.9	141.5	-3.9	141.5	12.00	12.00	0.00
11,100.0	57.29	358.43	11,024.3	219.4	-6.0	219.4	12.00	12.00	0.00
11,200.0	69.29	358.43	11,069.2	308.5	-8.5	308.6	12.00	12.00	0.00
11,300.0	81.29	358.43	11,094.6	405.0	-11.1	405.1	12.00	12.00	0.00
End of Curve / 90.67° Inc / 358.43° Azm / 11100' TVD									
11,378.2	90.67	358.43	11,100.0	482.9	-13.3	483.1	12.00	12.00	0.00
11,400.0	90.67	358.43	11,099.8	504.7	-13.9	504.9	0.00	0.00	0.00
11,500.0	90.67	358.43	11,098.6	604.6	-16.6	604.9	0.00	0.00	0.00
11,600.0	90.67	358.43	11,097.4	704.6	-19.3	704.8	0.00	0.00	0.00
11,700.0	90.67	358.43	11,096.3	804.5	-22.1	804.8	0.00	0.00	0.00
11,800.0	90.67	358.43	11,095.1	904.5	-24.8	904.8	0.00	0.00	0.00
11,900.0	90.67	358.43	11,093.9	1,004.5	-27.6	1,004.8	0.00	0.00	0.00
12,000.0	90.67	358.43	11,092.8	1,104.4	-30.3	1,104.8	0.00	0.00	0.00
12,100.0	90.67	358.43	11,091.6	1,204.4	-33.1	1,204.8	0.00	0.00	0.00
12,200.0	90.67	358.43	11,090.4	1,304.3	-35.8	1,304.8	0.00	0.00	0.00
12,300.0	90.67	358.43	11,089.2	1,404.3	-38.5	1,404.8	0.00	0.00	0.00
12,400.0	90.67	358.43	11,088.1	1,504.2	-41.3	1,504.8	0.00	0.00	0.00
12,500.0	90.67	358.43	11,086.9	1,604.2	-44.0	1,604.8	0.00	0.00	0.00
12,600.0	90.67	358.43	11,085.7	1,704.1	-46.8	1,704.8	0.00	0.00	0.00
12,700.0	90.67	358.43	11,084.6	1,804.1	-49.5	1,804.8	0.00	0.00	0.00
12,800.0	90.67	358.43	11,083.4	1,904.1	-52.3	1,904.8	0.00	0.00	0.00
12,900.0	90.67	358.43	11,082.2	2,004.0	-55.0	2,004.8	0.00	0.00	0.00
13,000.0	90.67	358.43	11,081.1	2,104.0	-57.8	2,104.8	0.00	0.00	0.00
13,100.0	90.67	358.43	11,079.9	2,203.9	-60.5	2,204.7	0.00	0.00	0.00
13,200.0	90.67	358.43	11,078.7	2,303.9	-63.2	2,304.7	0.00	0.00	0.00
13,300.0	90.67	358.43	11,077.5	2,403.8	-66.0	2,404.7	0.00	0.00	0.00
13,400.0	90.67	358.43	11,076.4	2,503.8	-68.7	2,504.7	0.00	0.00	0.00
13,500.0	90.67	358.43	11,075.2	2,603.7	-71.5	2,604.7	0.00	0.00	0.00
13,600.0	90.67	358.43	11,074.0	2,703.7	-74.2	2,704.7	0.00	0.00	0.00
13,700.0	90.67	358.43	11,072.9	2,803.6	-77.0	2,804.7	0.00	0.00	0.00
13,800.0	90.67	358.43	11,071.7	2,903.6	-79.7	2,904.7	0.00	0.00	0.00
13,900.0	90.67	358.43	11,070.5	3,003.6	-82.5	3,004.7	0.00	0.00	0.00
14,000.0	90.67	358.43	11,069.4	3,103.5	-85.2	3,104.7	0.00	0.00	0.00
14,100.0	90.67	358.43	11,068.2	3,203.5	-87.9	3,204.7	0.00	0.00	0.00
14,200.0	90.67	358.43	11,067.0	3,303.4	-90.7	3,304.7	0.00	0.00	0.00
14,300.0	90.67	358.43	11,065.8	3,403.4	-93.4	3,404.7	0.00	0.00	0.00
14,400.0	90.67	358.43	11,064.7	3,503.3	-96.2	3,504.7	0.00	0.00	0.00
14,500.0	90.67	358.43	11,063.5	3,603.3	-98.9	3,604.7	0.00	0.00	0.00
14,600.0	90.67	358.43	11,062.3	3,703.2	-101.7	3,704.6	0.00	0.00	0.00
14,700.0	90.67	358.43	11,061.2	3,803.2	-104.4	3,804.6	0.00	0.00	0.00
14,800.0	90.67	358.43	11,060.0	3,903.2	-107.1	3,904.6	0.00	0.00	0.00
14,900.0	90.67	358.43	11,058.8	4,003.1	-109.9	4,004.6	0.00	0.00	0.00
15,000.0	90.67	358.43	11,057.7	4,103.1	-112.6	4,104.6	0.00	0.00	0.00
15,100.0	90.67	358.43	11,056.5	4,203.0	-115.4	4,204.6	0.00	0.00	0.00
15,200.0	90.67	358.43	11,055.3	4,303.0	-118.1	4,304.6	0.00	0.00	0.00
15,300.0	90.67	358.43	11,054.2	4,402.9	-120.9	4,404.6	0.00	0.00	0.00



HP
Well Planning Report



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Project:	Lea County, NM	MD Reference:	Well @ 3435.0usft (Ensign #772)
Site:	Sec 28, T22S, R34E	North Reference:	Grid
Well:	Smalls Federal 1H	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)
15,400.0	90.67	358.43	11,053.0	4,502.9	-123.6	4,504.6	0.00	0.00	0.00
15,500.0	90.67	358.43	11,051.8	4,602.8	-126.4	4,604.6	0.00	0.00	0.00
15,600.0	90.67	358.43	11,050.6	4,702.8	-129.1	4,704.6	0.00	0.00	0.00
PBHL @ 15655' MD / 11050' TVD									
15,654.8	90.67	358.43	11,050.0	4,757.6	-130.6	4,759.4	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 1H	0.00	0.00	11,050.0	4,757.6	-130.6	499,000.30	767,138.00	32° 22' 8.034 N	103° 28' 5.215 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		-0.67	358.43
2,678.0	2,678.0	TOS		-0.67	358.43
3,637.0	3,637.0	BOS / Tansill		-0.67	358.43
3,708.0	3,708.0	Yates		-0.67	358.43
3,843.0	3,843.0	Seven Rivers		-0.67	358.43
4,012.0	4,012.0	Captain Reef		-0.67	358.43
5,209.0	5,209.0	Base of Reef (BLCN)		-0.67	358.43
5,900.0	5,900.0	CYCN		-0.67	358.43
7,103.0	7,103.0	BYCN		-0.67	358.43
8,505.0	8,505.0	Bone Spring (BSGL)		-0.67	358.43
8,797.0	8,797.0	U Avalon Sh		-0.67	358.43
9,038.0	9,038.0	L Avalon Sh		-0.67	358.43
9,568.0	9,568.0	FBSG_sand		-0.67	358.43
10,034.0	10,034.0	SBSG_sand		-0.67	358.43
10,953.6	10,927.7	TBSG_sand		-0.67	358.43

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'
11,378.2	11,100.0	482.9	-13.3	End of Curve / 90.67° Inc / 358.43° Azm / 11100' TVD
15,654.8	11,050.0	4,757.6	-130.6	PBHL @ 15655' MD / 11050' TVD



COG Operating, LLC

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

Wellbore #1
Design #1

DDC Anticollision Report

07 July, 2015





HP
Anticollision Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Smalls Federal 1H
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 1H	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	15,654.8	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 5H - Wellbore #1 - Design #1	9,840.5	9,840.5	29.3	-14.6	0.667	Level 1, CC, ES, SF

Offset Design Sec 28, T22S, R34E - Smalls Federal 5H - 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)	Distance Between Ellipses (usft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	88.44	0.8	29.3	29.3			
100.0	100.0	100.0	100.0	0.1	0.1	88.44	0.8	29.3	29.3	29.2	188.994	
200.0	200.0	200.0	200.0	0.3	0.3	88.44	0.8	29.3	29.3	28.7	48.478	
300.0	300.0	300.0	300.0	0.5	0.5	88.44	0.8	29.3	29.3	28.3	27.805	
400.0	400.0	400.0	400.0	0.8	0.8	88.44	0.8	29.3	29.3	27.8	19.493	
500.0	500.0	500.0	500.0	1.0	1.0	88.44	0.8	29.3	29.3	27.4	15.006	
600.0	600.0	600.0	600.0	1.2	1.2	88.44	0.8	29.3	29.3	26.9	12.199	
700.0	700.0	700.0	700.0	1.4	1.4	88.44	0.8	29.3	29.3	26.5	10.276	
800.0	800.0	800.0	800.0	1.7	1.7	88.44	0.8	29.3	29.3	26.0	8.877	
900.0	900.0	900.0	900.0	1.9	1.9	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	0.8	29.3	29.3	18.8	2.793	
2,500.0	2,500.0	2,500.0	2,500.0	5.5	5.5	88.44	0.8	29.3	29.3	18.4	2.678	

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

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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 1H	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 5H - 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	
2,600.0	2,600.0	2,600.0	2,600.0	5.7	5.7	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	0.8	29.3	29.3	-4.6	0.865 Level 1		
7,700.0	7,700.0	7,700.0	7,700.0	17.2	17.2	88.44	0.8	29.3	29.3	-5.0	0.854 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 1H
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 1H	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 5H - 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)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
7,800.0	7,800.0	7,800.0	7,800.0	17.4	17.4	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	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	88.44	0.8	29.3	29.3	-14.4	0.670	Level 1
9,840.5	9,840.5	9,840.5	9,840.5	22.0	22.0	87.78	1.1	29.3	29.3	-14.6	0.667	Level 1, CC, ES, SF
9,900.0	9,900.0	9,899.4	9,899.0	22.1	22.1	76.53	7.0	29.1	29.9	-14.3	0.677	Level 1
10,000.0	10,000.0	9,992.5	9,988.9	22.3	22.3	42.84	30.7	28.3	43.2	-1.4	0.968	Level 1
10,100.0	10,100.0	10,075.0	10,063.4	22.6	22.5	22.34	66.0	27.1	80.2	35.2	1.781	
10,200.0	10,200.0	10,142.0	10,118.7	22.8	22.6	14.00	103.7	25.9	134.3	89.0	2.962	
10,300.0	10,300.0	10,200.0	10,161.9	23.0	22.8	9.79	142.3	24.6	199.9	154.2	4.378	
10,400.0	10,400.0	10,242.7	10,190.5	23.2	22.9	7.70	174.0	23.5	273.3	227.4	5.951	
10,500.0	10,500.0	10,275.0	10,210.2	23.5	23.0	6.48	199.5	22.7	352.5	306.4	7.633	
10,600.0	10,600.0	10,309.6	10,229.4	23.7	23.1	5.43	228.3	21.7	435.8	389.4	9.384	
10,622.6	10,622.6	10,315.7	10,232.5	23.7	23.1	5.27	233.5	21.5	455.1	408.6	9.788	
10,625.0	10,625.0	10,316.3	10,232.9	23.7	23.1	6.77	234.1	21.5	457.2	410.7	9.831	
10,650.0	10,650.0	10,325.0	10,237.2	23.8	23.2	6.04	241.6	21.3	478.3	431.8	10.283	
10,675.0	10,674.9	10,325.0	10,237.2	23.8	23.2	5.60	241.6	21.3	499.0	452.6	10.755	
10,700.0	10,699.7	10,337.2	10,243.2	23.9	23.2	5.03	252.2	20.9	519.0	472.8	11.242	
10,725.0	10,724.2	10,350.0	10,249.1	24.0	23.3	4.57	263.6	20.5	538.6	492.7	11.756	
10,750.0	10,748.5	10,350.0	10,249.1	24.0	23.3	4.30	263.6	20.5	557.4	512.1	12.299	
10,775.0	10,772.4	10,360.0	10,253.4	24.1	23.3	3.98	272.5	20.2	575.8	531.0	12.873	
10,800.0	10,795.9	10,367.9	10,256.8	24.1	23.3	3.72	279.7	20.0	593.5	549.5	13.486	
10,825.0	10,819.0	10,375.0	10,259.7	24.2	23.4	3.50	286.2	19.8	610.5	567.4	14.143	
10,850.0	10,841.5	10,384.2	10,263.3	24.2	23.4	3.29	294.6	19.5	627.0	584.7	14.850	
10,875.0	10,863.4	10,392.5	10,266.4	24.3	23.4	3.12	302.3	19.2	642.7	601.6	15.616	
10,900.0	10,884.7	10,400.0	10,269.1	24.3	23.5	2.97	309.3	19.0	657.8	617.8	16.450	
10,925.0	10,905.2	10,409.5	10,272.4	24.4	23.5	2.82	318.2	18.7	672.1	633.4	17.363	
10,950.0	10,924.9	10,425.0	10,277.4	24.4	23.6	2.68	332.9	18.2	685.9	648.5	18.365	
10,975.0	10,943.9	10,425.0	10,277.4	24.5	23.6	2.60	332.9	18.2	698.8	662.9	19.482	
11,000.0	10,961.9	10,435.7	10,280.5	24.6	23.6	2.50	343.1	17.9	711.0	676.6	20.722	
11,025.0	10,979.0	10,450.0	10,284.3	24.6	23.7	2.40	356.9	17.4	722.5	689.8	22.113	
11,050.0	10,995.2	10,450.0	10,284.3	24.7	23.7	2.34	356.9	17.4	733.1	702.2	23.698	
11,075.0	11,010.3	10,462.5	10,287.4	24.8	23.8	2.26	369.1	17.0	743.1	713.9	25.492	
11,100.0	11,024.3	10,475.0	10,290.0	24.8	23.8	2.20	381.2	16.6	752.3	725.0	27.556	
11,125.0	11,037.3	10,475.0	10,290.0	24.9	23.8	2.16	381.2	16.6	760.7	735.3	29.977	

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 1H
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 1H	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 5H - 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
11,150.0	11,049.1	10,489.9	10,292.8	25.0	23.9	2.10	395.8	16.1	768.2	744.8	32.782	
11,175.0	11,059.8	10,500.0	10,294.5	25.1	23.9	2.06	405.8	15.8	775.1	753.6	36.118	
11,200.0	11,069.2	10,508.3	10,295.7	25.2	24.0	2.02	414.0	15.5	781.1	761.6	40.120	
11,225.0	11,077.4	10,525.0	10,297.6	25.3	24.1	1.98	430.6	14.9	786.4	768.9	44.909	
11,250.0	11,084.4	10,525.0	10,297.6	25.4	24.1	1.96	430.6	14.9	790.7	775.2	50.832	
11,275.0	11,090.1	10,536.1	10,298.6	25.5	24.2	1.94	441.7	14.6	794.3	780.6	57.901	
11,300.0	11,094.6	10,550.0	10,299.4	25.7	24.2	1.92	455.5	14.1	797.1	785.1	66.150	
11,325.0	11,097.7	10,550.0	10,299.4	25.8	24.2	1.91	455.5	14.1	799.1	788.5	75.458	
11,350.0	11,099.5	10,564.1	10,299.9	25.9	24.3	1.90	469.6	13.6	800.2	790.6	83.546	
11,375.0	11,100.1	10,574.7	10,300.0	26.1	24.4	1.89	480.2	13.3	800.5	791.4	87.994	
11,378.2	11,100.0	10,574.7	10,300.0	26.1	24.4	1.89	480.2	13.3	800.5	791.4	88.207	
11,400.0	11,099.8	10,596.3	10,299.9	26.2	24.5	1.89	501.8	12.6	800.4	791.1	86.311	
11,500.0	11,098.6	10,696.3	10,299.4	26.9	25.2	1.84	601.8	9.2	799.6	789.4	77.924	
11,600.0	11,097.4	10,796.3	10,298.9	27.6	26.0	1.80	701.7	5.9	798.9	787.6	70.364	
11,700.0	11,096.3	10,896.3	10,298.5	28.5	26.9	1.76	801.6	2.5	798.2	785.7	63.736	
11,800.0	11,095.1	10,996.3	10,298.0	29.4	27.9	1.72	901.6	-0.8	797.5	783.7	57.997	
11,900.0	11,093.9	11,096.3	10,297.5	30.4	29.0	1.68	1,001.5	-4.1	796.8	781.7	53.045	
12,000.0	11,092.8	11,196.3	10,297.1	31.5	30.1	1.64	1,101.5	-7.5	796.0	779.7	48.766	
12,100.0	11,091.6	11,296.3	10,296.6	32.7	31.4	1.60	1,201.4	-10.8	795.3	777.7	45.054	
12,200.0	11,090.4	11,396.3	10,296.1	33.9	32.6	1.56	1,301.3	-14.1	794.6	775.6	41.817	
12,300.0	11,089.2	11,496.3	10,295.7	35.2	33.9	1.51	1,401.3	-17.5	793.9	773.5	38.978	
12,400.0	11,088.1	11,596.3	10,295.2	36.5	35.3	1.47	1,501.2	-20.8	793.2	771.4	36.474	
12,500.0	11,086.9	11,696.3	10,294.7	37.9	36.7	1.43	1,601.2	-24.2	792.4	769.3	34.253	
12,600.0	11,085.7	11,796.3	10,294.3	39.3	38.2	1.39	1,701.1	-27.5	791.7	767.2	32.272	
12,700.0	11,084.6	11,896.3	10,293.8	40.7	39.6	1.35	1,801.0	-30.8	791.0	765.1	30.495	
12,800.0	11,083.4	11,996.3	10,293.3	42.2	41.1	1.31	1,901.0	-34.2	790.3	762.9	28.895	
12,900.0	11,082.2	12,096.3	10,292.9	43.7	42.7	1.26	2,000.9	-37.5	789.6	760.8	27.447	
13,000.0	11,081.1	12,196.3	10,292.4	45.2	44.2	1.22	2,100.8	-40.9	788.8	758.7	26.130	
13,100.0	11,079.9	12,296.3	10,291.9	46.7	45.8	1.18	2,200.8	-44.2	788.1	756.5	24.929	
13,200.0	11,078.7	12,396.3	10,291.5	48.3	47.4	1.14	2,300.7	-47.5	787.4	754.4	23.830	
13,300.0	11,077.5	12,496.3	10,291.0	49.9	49.0	1.09	2,400.7	-50.9	786.7	752.2	22.819	
13,400.0	11,076.4	12,596.3	10,290.5	51.5	50.6	1.05	2,500.6	-54.2	786.0	750.1	21.888	
13,500.0	11,075.2	12,696.2	10,290.1	53.1	52.3	1.01	2,600.5	-57.5	785.3	747.9	21.026	
13,600.0	11,074.0	12,796.2	10,289.6	54.7	53.9	0.97	2,700.5	-60.9	784.6	745.8	20.228	
13,700.0	11,072.9	12,896.2	10,289.1	56.3	55.6	0.92	2,800.4	-64.2	783.8	743.6	19.486	
13,800.0	11,071.7	12,996.2	10,288.7	58.0	57.2	0.88	2,900.4	-67.6	783.1	741.5	18.794	
13,900.0	11,070.5	13,096.2	10,288.2	59.8	58.9	0.84	3,000.3	-70.9	782.4	739.3	18.148	
14,000.0	11,069.4	13,196.2	10,287.7	61.3	60.6	0.80	3,100.2	-74.2	781.7	737.2	17.543	
14,100.0	11,068.2	13,296.2	10,287.3	63.0	62.3	0.75	3,200.2	-77.5	781.0	735.0	16.976	
14,200.0	11,067.0	13,396.2	10,286.8	64.7	64.0	0.71	3,300.1	-80.9	780.3	732.8	16.443	
14,300.0	11,065.8	13,496.2	10,286.3	66.4	65.7	0.67	3,400.1	-84.3	779.6	730.7	15.942	
14,400.0	11,064.7	13,596.2	10,285.9	68.1	67.4	0.62	3,500.0	-87.6	778.9	728.5	15.469	
14,500.0	11,063.5	13,696.2	10,285.4	69.8	69.2	0.58	3,599.9	-90.9	778.2	726.4	15.022	
14,600.0	11,062.3	13,796.2	10,284.9	71.5	70.9	0.54	3,699.9	-94.3	777.4	724.2	14.599	
14,700.0	11,061.2	13,896.2	10,284.5	73.2	72.6	0.49	3,799.8	-97.6	776.7	722.0	14.198	
14,800.0	11,060.0	13,996.2	10,284.0	74.9	74.4	0.45	3,899.7	-100.9	776.0	719.9	13.819	
14,900.0	11,058.8	14,096.2	10,283.5	76.6	76.1	0.41	3,999.7	-104.3	775.3	717.7	13.458	
15,000.0	11,057.7	14,196.2	10,283.1	78.4	77.9	0.36	4,099.6	-107.6	774.6	715.5	13.114	
15,100.0	11,056.5	14,296.2	10,282.6	80.1	79.6	0.32	4,199.6	-111.0	773.9	713.4	12.787	
15,200.0	11,055.3	14,396.2	10,282.1	81.9	81.4	0.28	4,299.5	-114.3	773.2	711.2	12.476	
15,300.0	11,054.2	14,496.2	10,281.7	83.6	83.1	0.23	4,399.4	-117.6	772.5	709.1	12.178	
15,400.0	11,053.0	14,596.2	10,281.2	85.3	84.9	0.19	4,499.4	-121.0	771.8	706.9	11.894	

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 1H
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 1H	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 5H - Wellbore #1 - Design #1												Offset Site Error:	0.0 usft
Survey Program: Q-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)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning	
15,500.0	11,051.8	14,896.2	10,280.7	87.1	88.6	0.14	4,599.3	-124.3	771.1	704.7	11.822		
15,600.0	11,059.8	14,796.2	10,280.3	88.9	88.4	0.10	4,699.3	-127.7	770.4	702.6	11.362		
15,654.8	11,050.0	14,851.0	10,280.0	89.8	89.4	0.08	4,754.0	-129.5	770.0	701.4	11.224		

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Smalls Federal 1H
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 1H	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

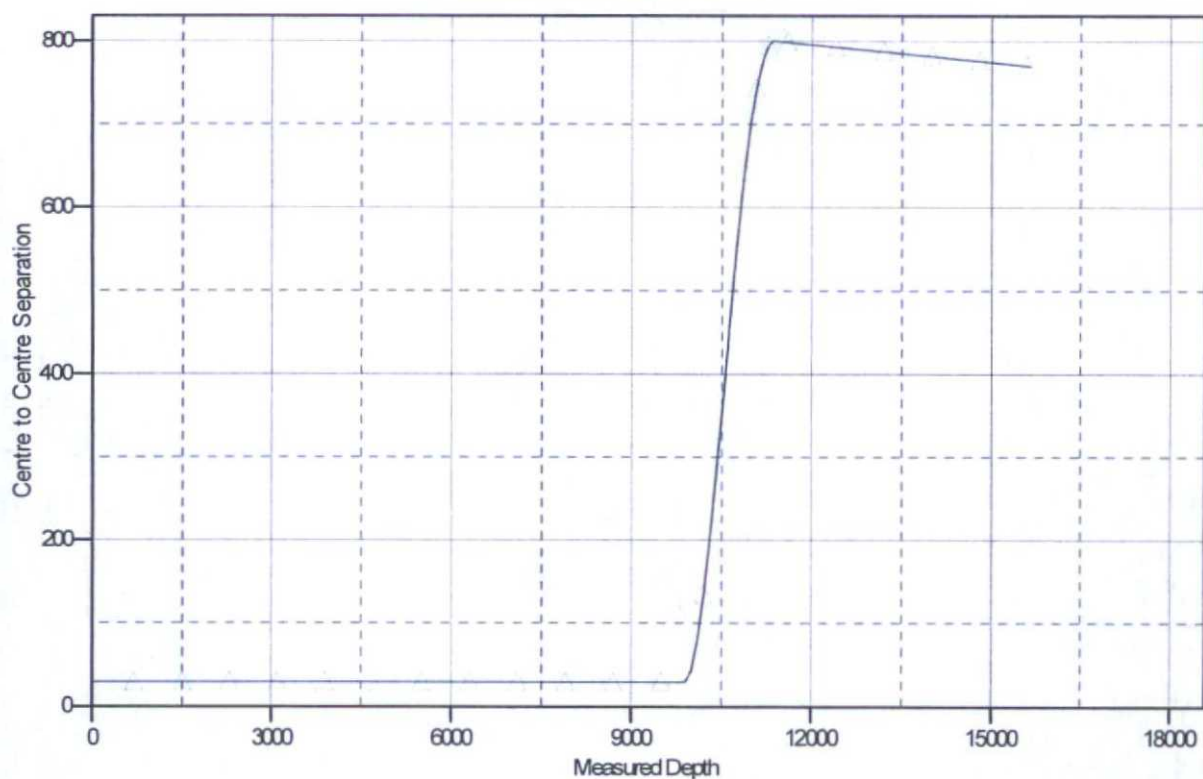
Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: Smalls Federal 1H

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

Grid Convergence at Surface is: 0.46°

Ladder Plot



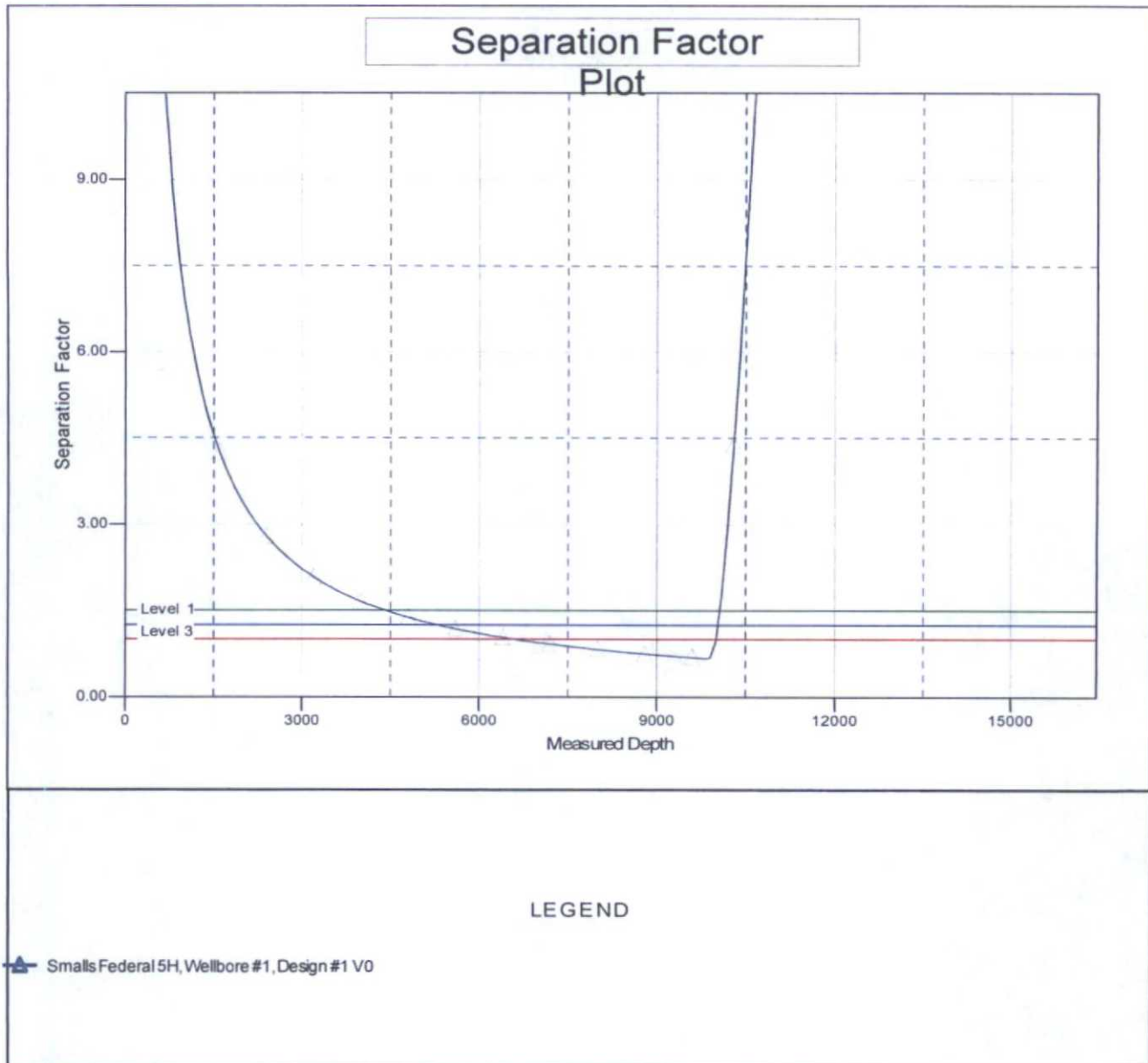
LEGEND

▲ SmallsFederal 5H, Wellbore #1, Design #1 V0

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Smalls Federal 1H
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 1H	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

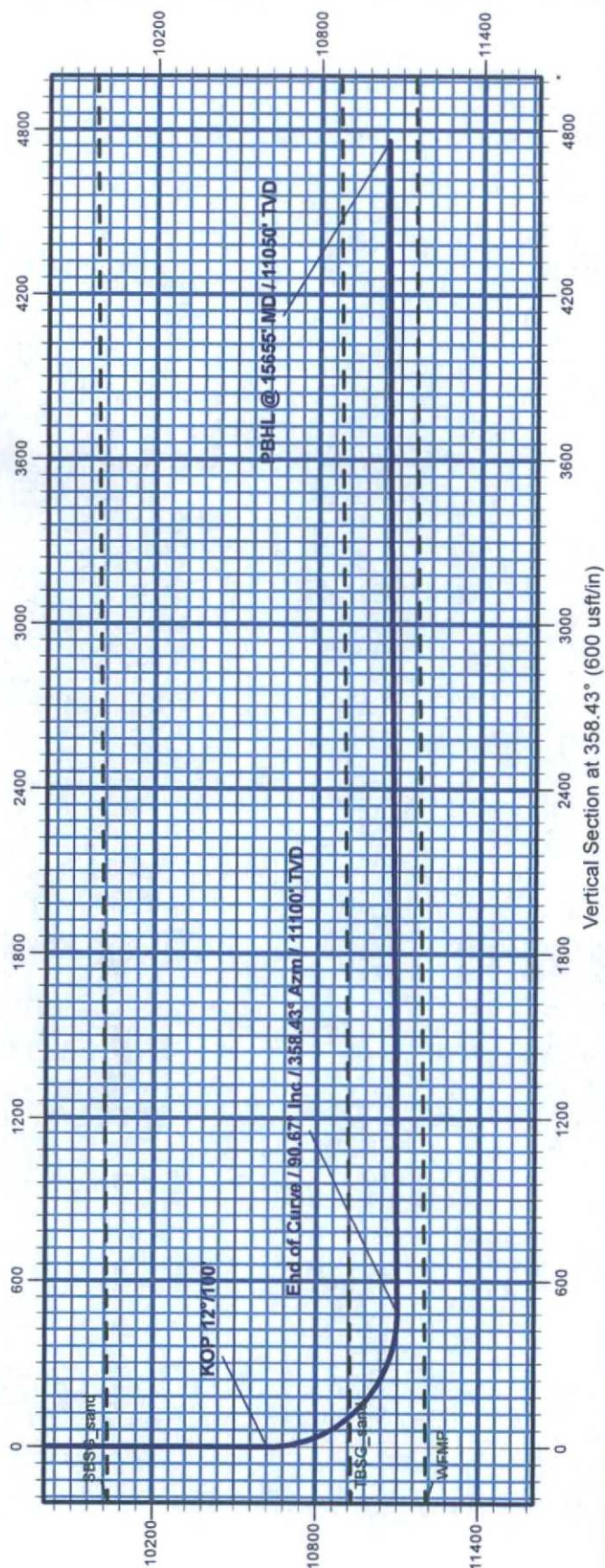
Reference Depths are relative to Well @ 3435.0usft (Ensign #772)
Offset Depths are relative to Offset Datum
Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: Smalls Federal 1H
Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
Grid Convergence at Surface is: 0.46°

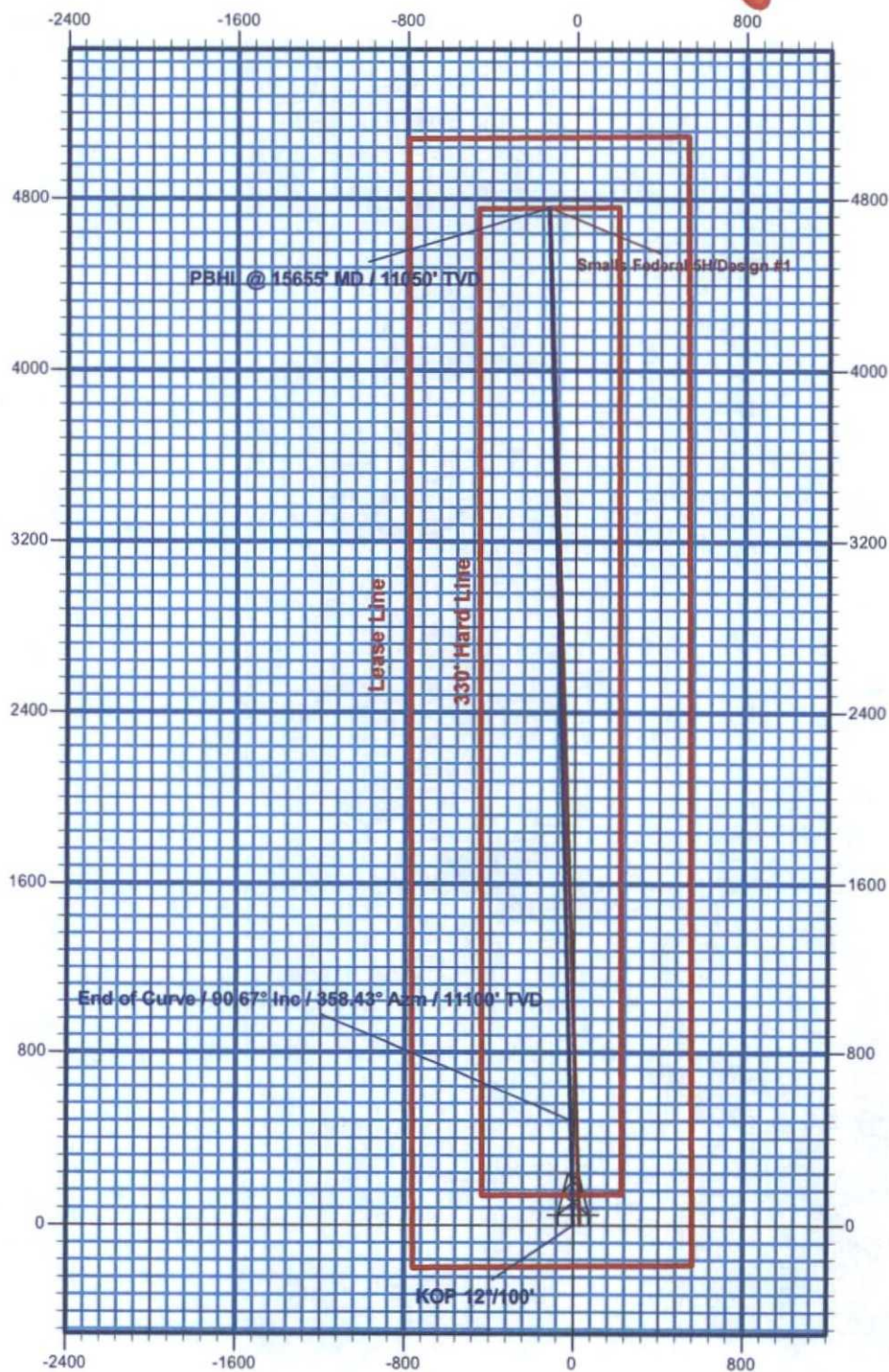




Lea County, NM
 Sec 28, T22S, R34E
 Smalls Federal 1H
 Design #1



Lea County, NM
Sec 28, T22S, R34E
Smalls Federal 1H
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.

6/5/15 9:26 AM

Page 1 of 1

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	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.



TECHNIP Umbilicals Inc.
COFLEXIP® Products Division

CERTIFICATE OF CONFORMITY

SUPPLIER

COFLEXIP® Products Division
16661 Jacintoport Blvd.
Houston, Texas 77015

CUSTOMER	OFS CANADA INC
CUSTOMER PROJECT	OFS GLOBAL RIG 772 PROJECT 59
CONTRACT NUMBER	OFS-012060-1
COFLEXIP REFERENCE NUMBER	K12386
COFLEXIP LINE DESCRIPTION	3" x 30' 10K CHOKE/KILL LINE
COFLEXIP LINE SERIAL NUMBER	K12386-202
WORKING / TEST PRESSURE (PSI)	10000 / 15000
COFLEXIP ID (inches)/PART NUMBER	3 / 076 60414 13 13
COFLEXIP STRUCTURE NUMBER	076 60414
END FITTING REFERENCE NUMBER	EM 076 65000 13 / EM 076 65000 13
END FITTING DESCRIPTION	4 1/16" 10K FLG BX 155 INC. 625 RG / 4 1/16" 10K FLG BX 155 INC. 625 RG

IRC REFERENCE

SAFE WORKING LOADS

NOMINAL DAMAGING PULL (STRAIGHT LINE)

MINIMUM BENDING RADIUS

MAXIMUM DESIGN TEMPERATURE

-4 Deg. F To 212 Deg. F/B

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 Avelin

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


IN CO INC. QUALITY CONTROL

Test Configuration 12 Zone

Production Information Input

Customer ID:
OFS CANADA INC.
Line S/N:
KL386-202@Q2387-202
Technician:
RDV

QC Information Input

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

Station Information

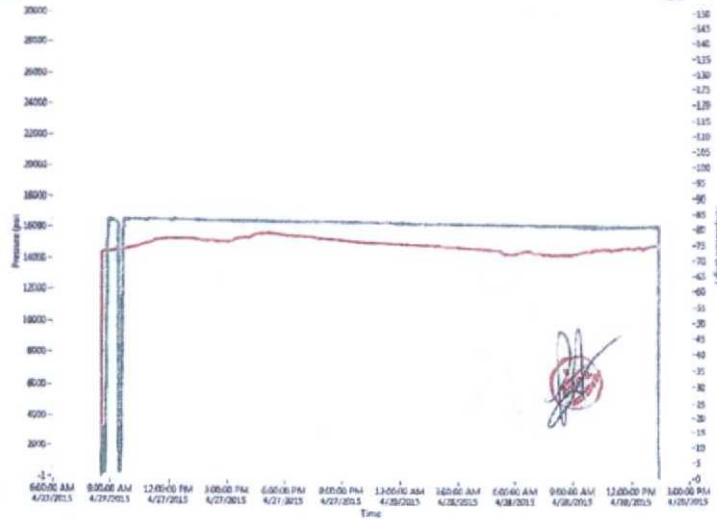
Pressure Transducer S/N:
1211379
Duke Pans:
16100
Calib. Due:
N/A 2015 8:26:12 AM
Temperature S/N:
T11A
Test Press:
15000
Pressure Range:
0 - 30000

Station 04

Calibration

Raw Maximum:
0.00000
Raw Minimum:
0.02000
Eng. Maximum:
0.00000
Eng. Minimum:
0.00000

XY Graph





CHU

3

202

K12387

FILSA

CHU

3

202

K12387

FILSA

TEMP-401

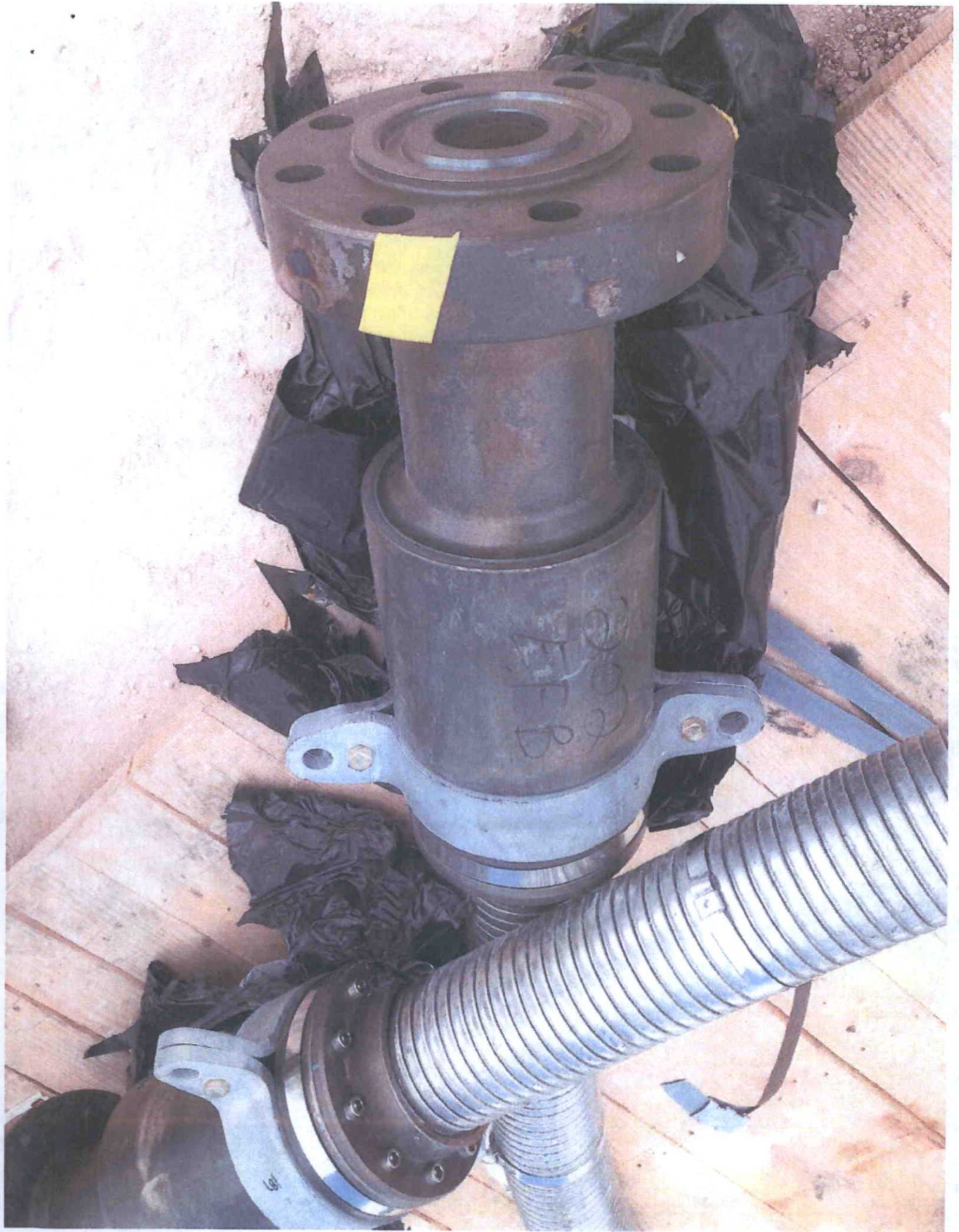
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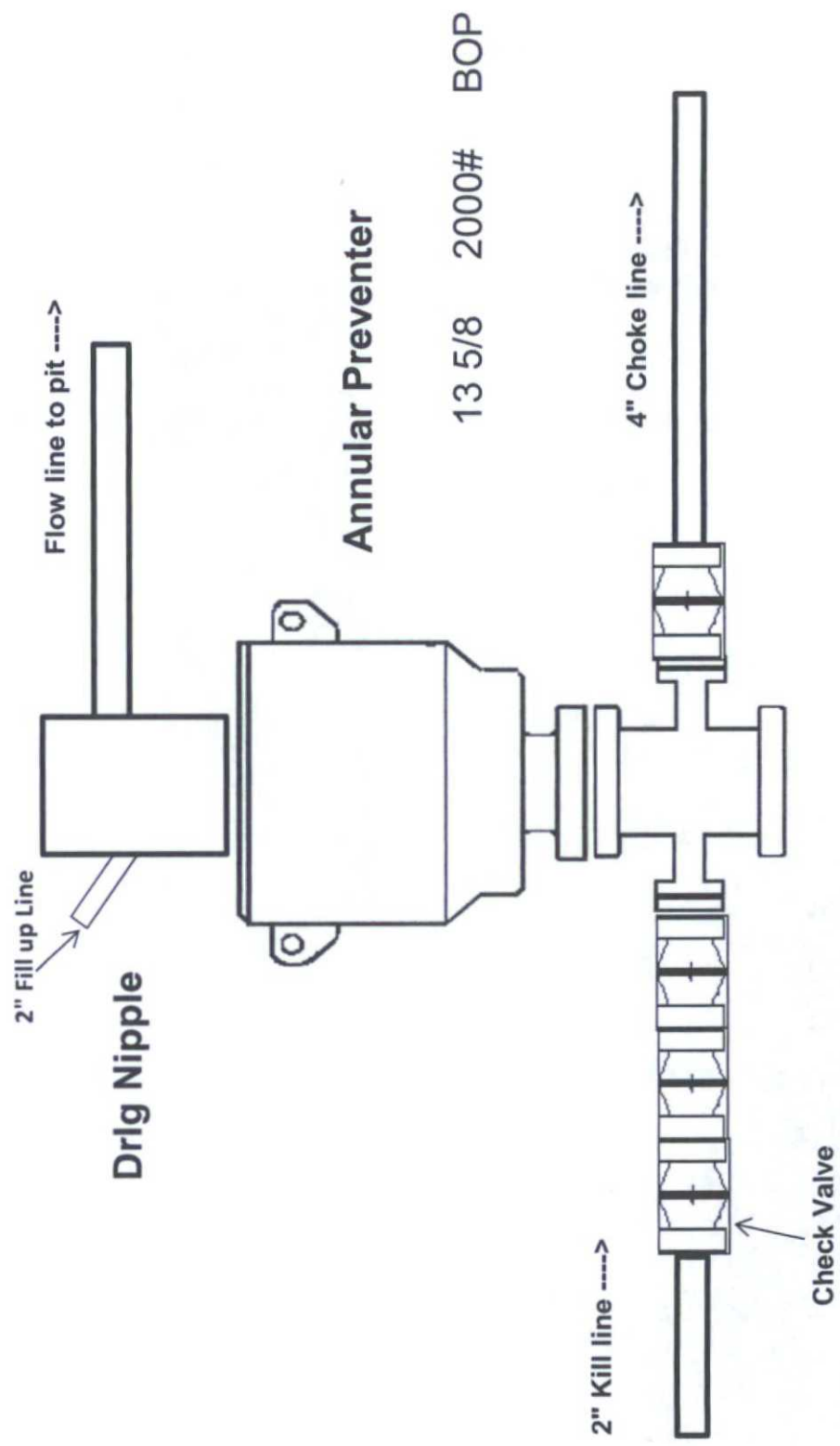
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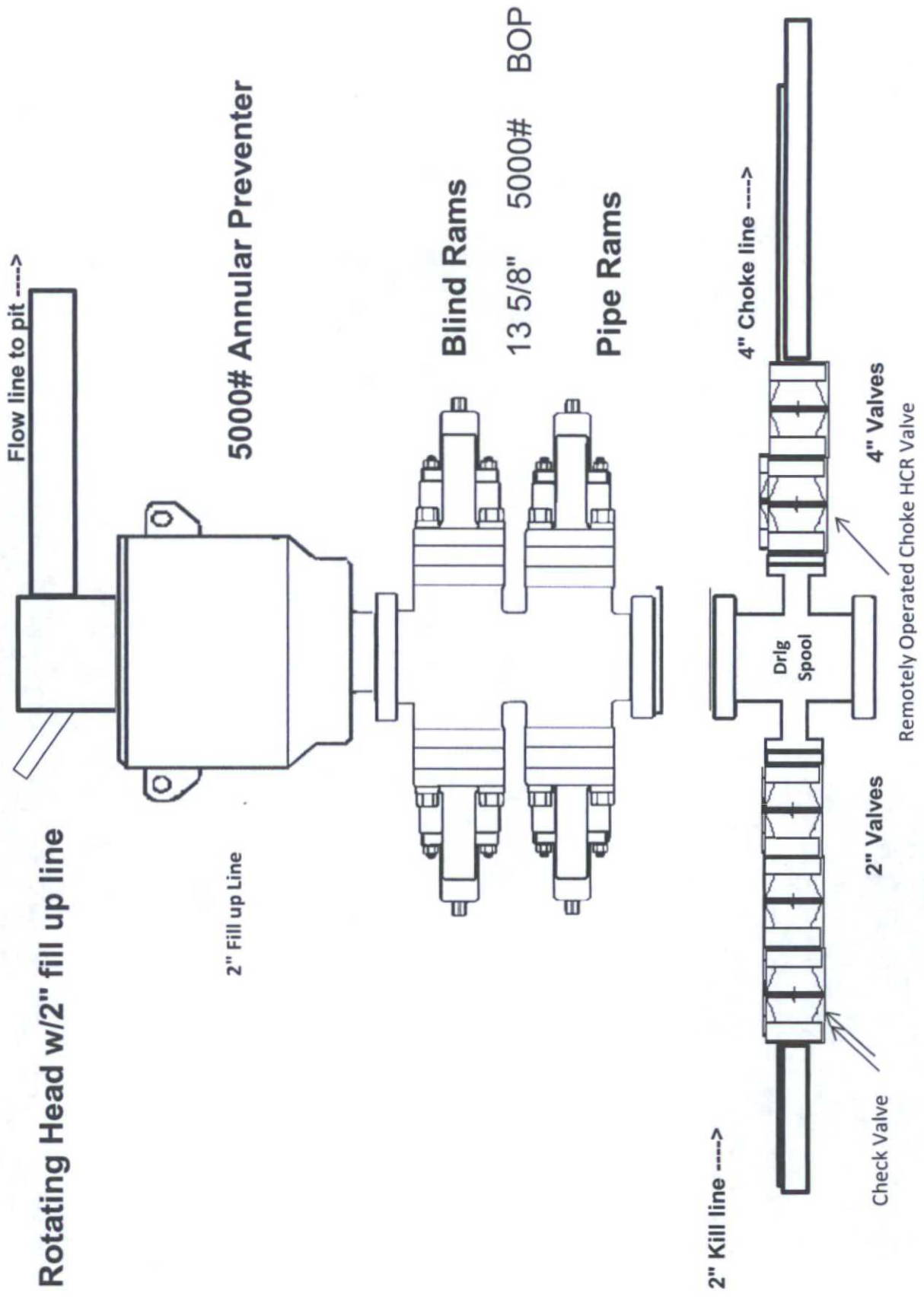




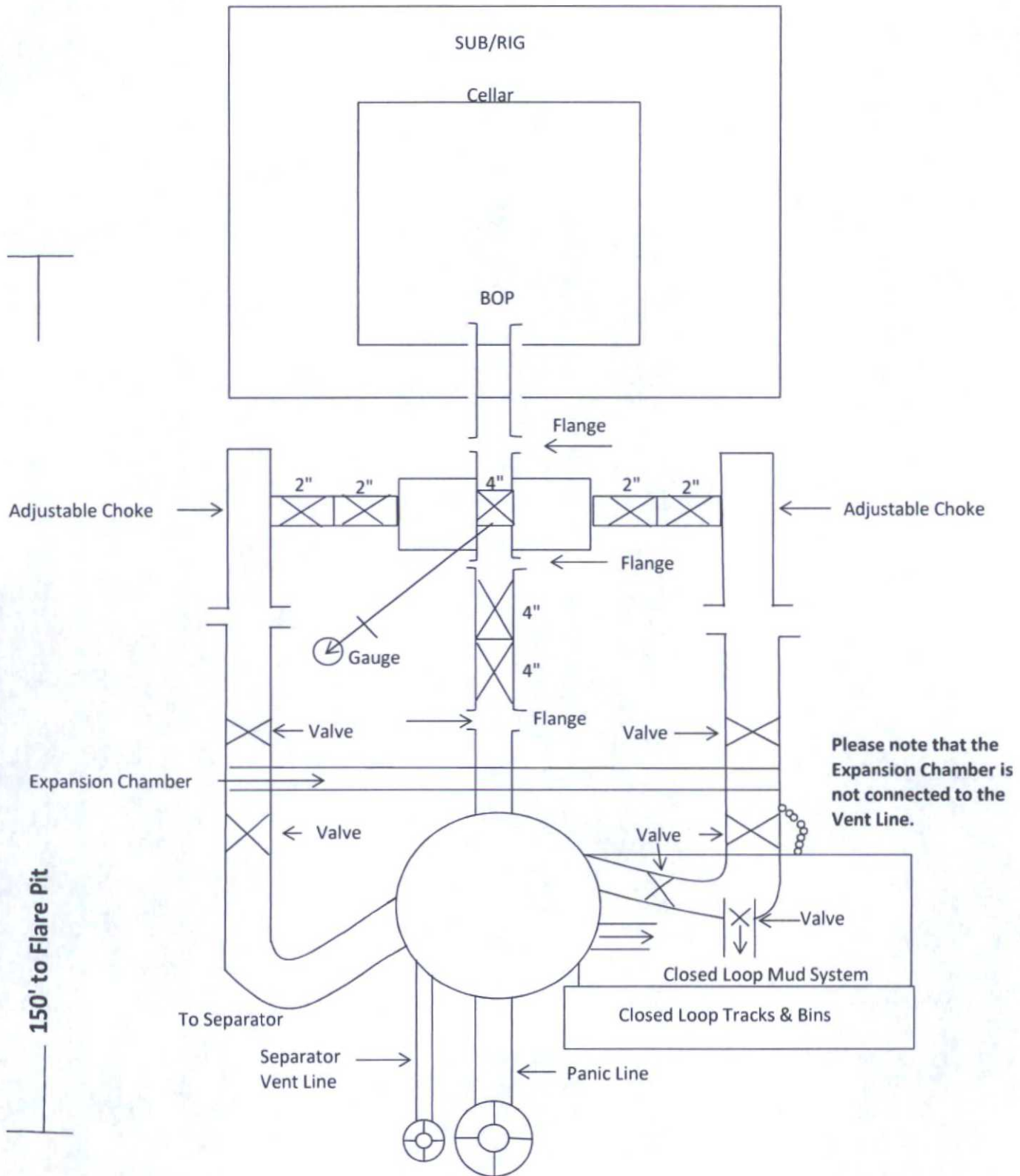
2,000 psi BOP Schematic



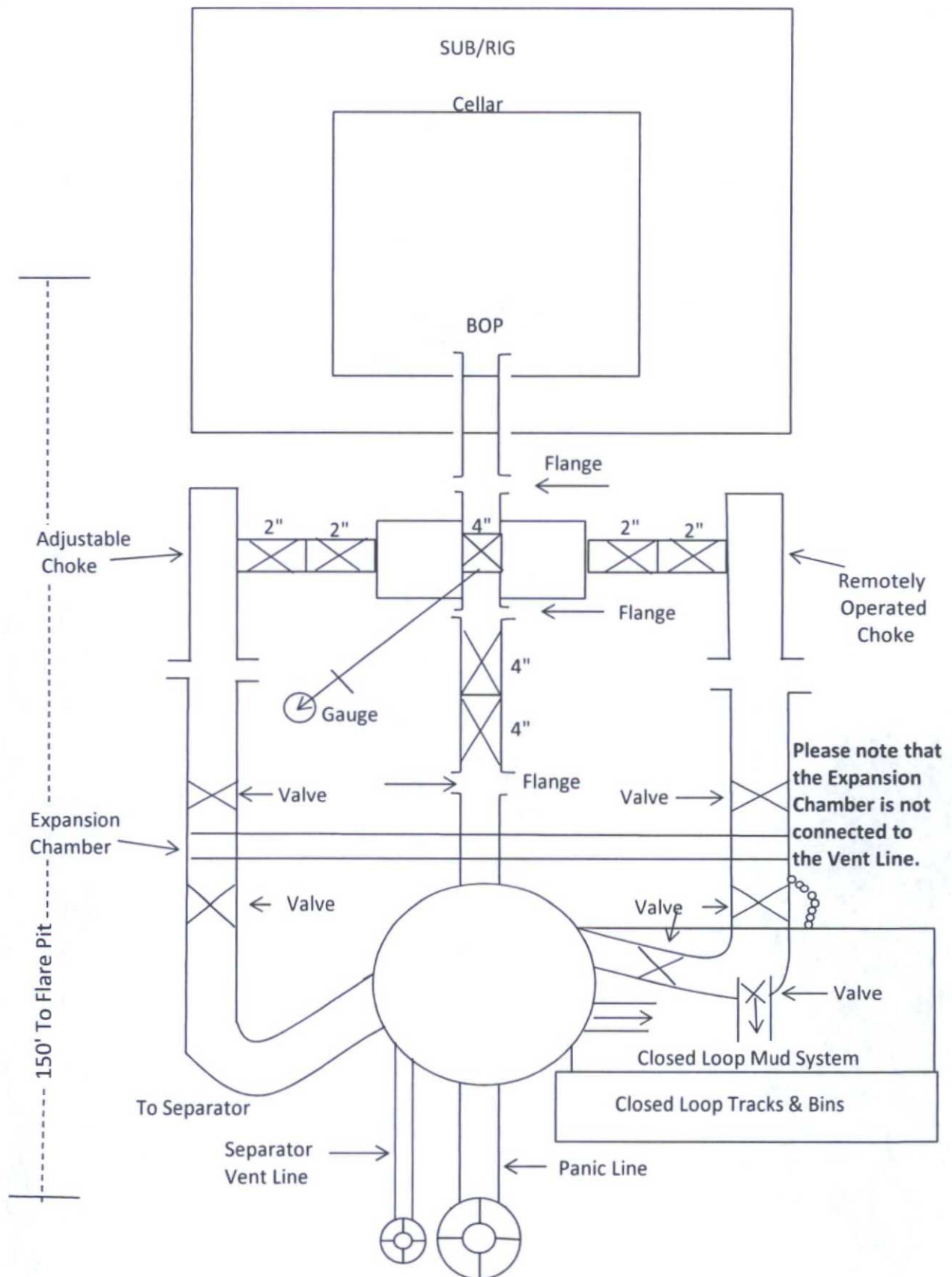
5,000 psi BOP Schematic

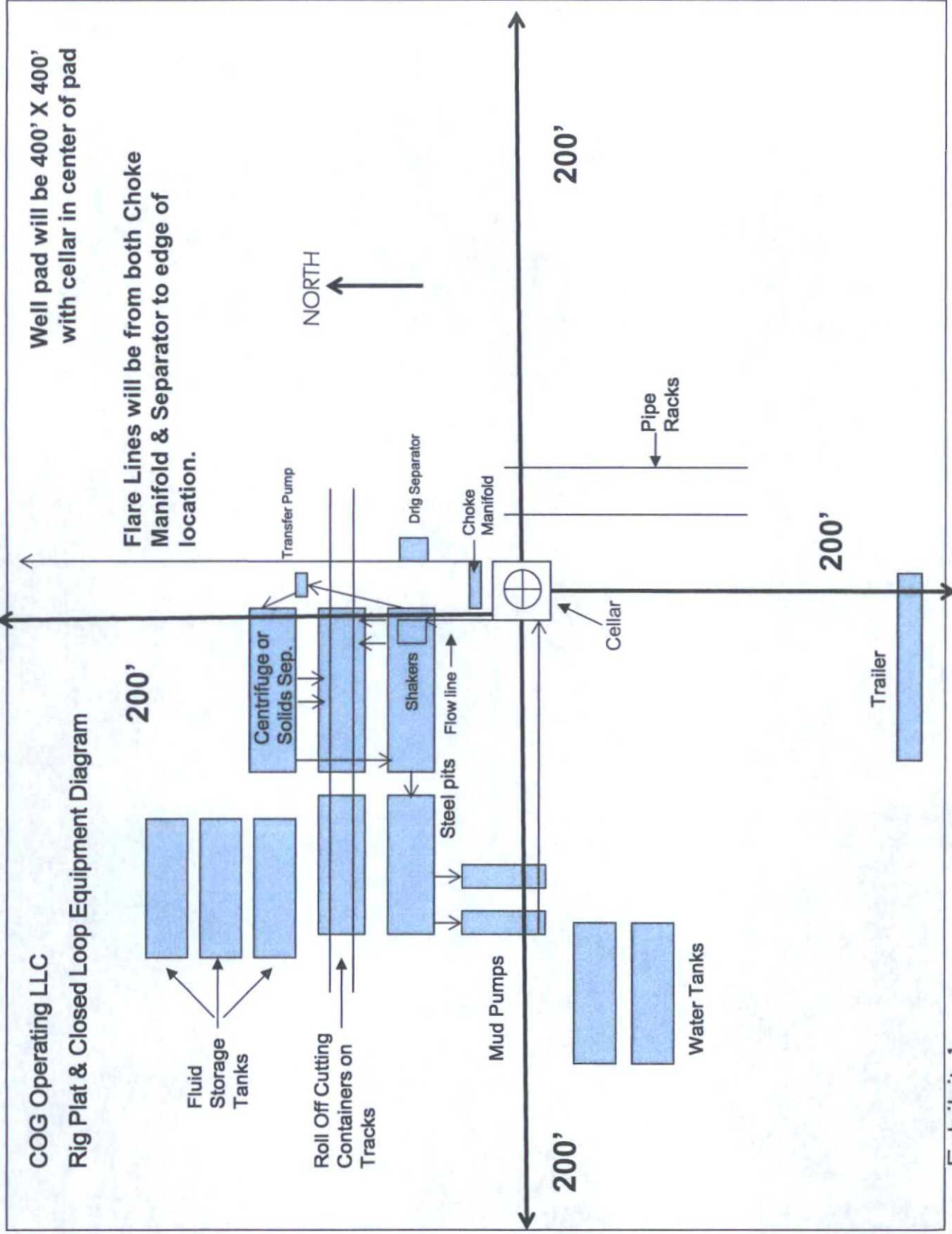


2M Choke Manifold Equipment



5M Choke Manifold Equipment

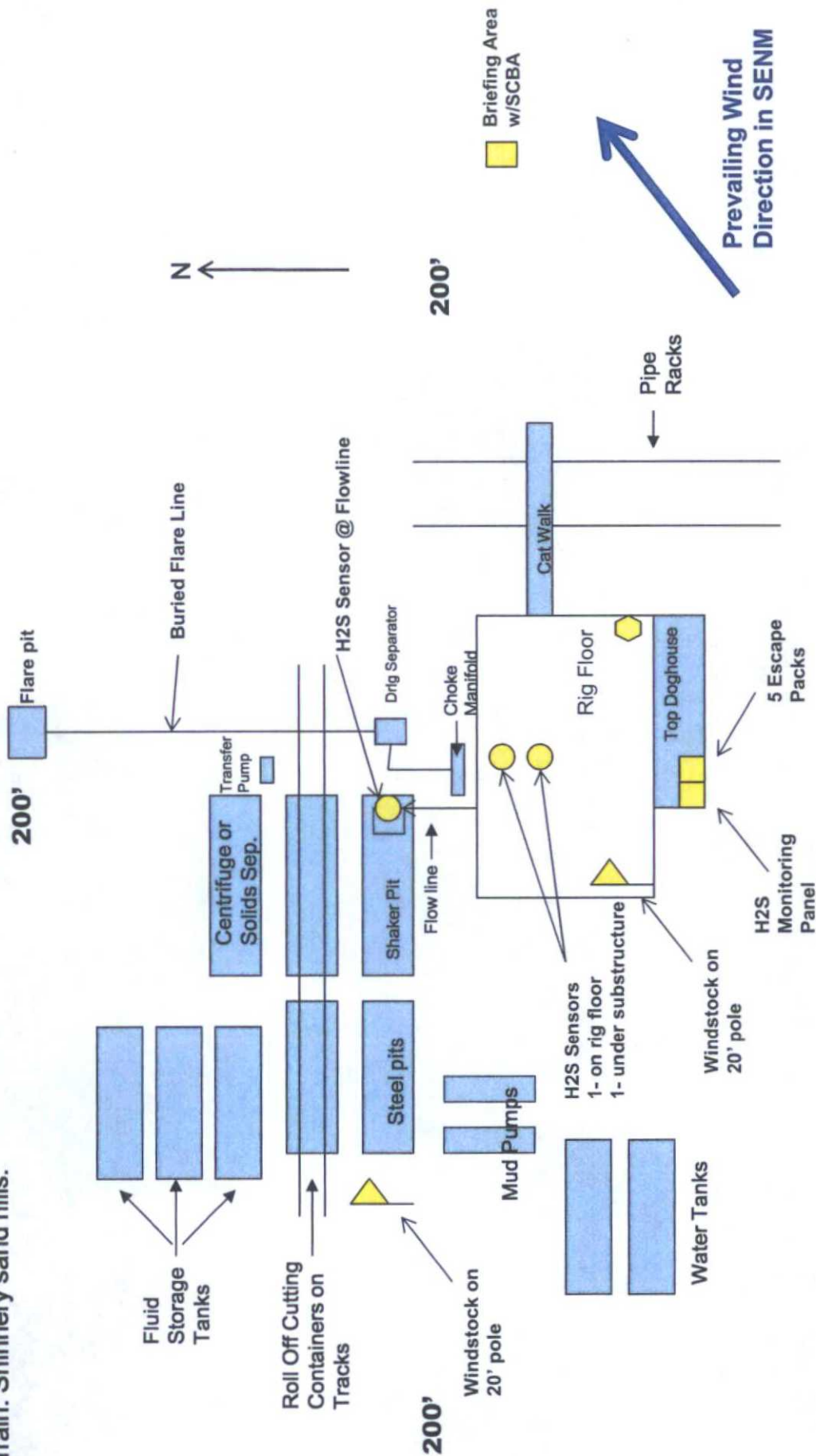




* I further certify that COG will comply with Rule 19.15.17 NMAC by using a Closed Loop System."

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

Secondary egress.

Primary Briefing
Area w/SCBA

