

HOBBS OCD

**UNORTHODOX
LOCATION**

UNITED STATES

JUN 06 2014

DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD Hobbs

RECEIVED**APPLICATION FOR PERMIT TO DRILL OR REENTER**

FORM APPROVED

OMB No. 1004-0137

Expires October 31, 2014

5. Lease Serial No.

SHL: NMNM066925,
BHL: NMNM016353

6. If Indian, Allottee or Tribe Name

7. If Unit or CA Agreement, Name and No.

8. Lease Name and Well No. **313336**
Goldfinger 17 Federal Com #2H

9. API Well No.

30-025-41902

10. Field and Pool, or Exploratory

Mesa Verde; Delaware

11. Sec., T.R.M. or Blk and Survey or Area

Sec. 17 - T245 - R32E

12. County or Parish

Lea County

13. State

NM

1a. Type of Work: ☒ DRILL ☐ REENTER1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone

2. Name of Operator

COG Production LLC.

3a. Address

2208 West Main Street
Artesia, NM 88210

3b. Phone No. (include area code)

575-748-6940

4. Location of Well (Report location clearly and in accordance with any State requirements. *)

At surface 190' FSL & 1980' FWL Unit Letter N (SESW) SHL Sec 17-T245-R32E

At proposed prod. Zone 330' FNL & 1980' FWL Unit Letter C (NENW) BHL Sec 17-T245-R32E

14. Distance in miles and direction from nearest town or post office*

Approximately 21 miles from Malaga

15. Distance from proposed*

location to nearest
property or lease line, ft.

(Also to nearest drig. Unit line, if any)

190'

18. Distance from location*
to nearest well, drilling, completed,
applied for, on this lease, ft.SHL: 1320' Goldfinger #1H
BHL: 3131

19. Proposed Depth

TVD: 8,480' MD: 13,067'

17. Spacing Unit dedicated to this well

160

20. BLM/BIA Bond No. on file

NMB000860 & NMB000845

21. Elevations (Show whether DF, KDB, RT, GL, etc.)

3561.4' GL

22. Approximate date work will start*

2/1/2014

23. Estimated duration

30 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, shall be attached to this form:

1. Well plat certified by a registered surveyor.

2. A Drilling Plan

3. A Surface Use Plan (if the location is on National Forest System Lands, the
SUPO shall be filed with the appropriate Forest Service Office).4. Bond to cover the operations unless covered by an existing bond on file (see
Item 20 above).

5. Operator certification

6. Such other site specific information and/or plans as may be required by the
authorized officer.

25. Signature

Name (Printed/Typed)

Date

Mayte Reyes

Mayte Reyes

10/29/2013

Title

Regulatory Analyst

Approved by (Signature)

Name (Printed/Typed)

Date

STEPHEN J. CAFFEY

JUN - 3 2014

Title

FIELD MANAGER

Office

CARLSBAD FIELD OFFICE

Application approval does not warrant or certify that the applicant holds legan or equitable title to those rights in the subject lease which would entitle the applicant to
conduct operations thereon.

Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARSTitle 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United
States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on page 2)

*(Instructions on page 2)

Carlsbad Controlled Water Basin

Approval Subject to General Requirements
& Special Stipulations Attached**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**

JUN 09 2014

Jm

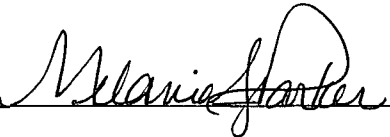
Surface Use Plan
COG Production LLC
Goldfinger 17 FederalCom #2H
SL: 190' FSL & 1980' FWL UL N
Section 17, T24S, R32E
BHL: 330' FNL & 1980' FWL UL C
Section 17, T24S, R32E
Lea County, New Mexico

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JUN 09 2014
RECEIVED

OPERATOR CERTIFICATION

I hereby certify that I, or persons under my direct supervision, have inspected the drill site and access road proposed herein; that I am familiar with the conditions that presently exist; that I have full knowledge of State and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or COG Production LLC, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements. Executed this 29th day of October, 2013.

Signed: 

Printed Name: Melanie J. Parker

Position: Regulatory Coordinator

Address: 2208 W. Main Street, Artesia, NM 88210

Telephone: (575) 748-6940

Field Representative (if not above signatory): Rand French

E-mail: mparker@concho.com

ATTACHMENT TO FORM 3160-3
COG Production LLC
GOLDFINGER 17 FEDERAL COM #2H
SHL: 190' FSL & 1980' FWL, Unit N
Sec. 17 T24S R32E
BHL: 330' FNL & 1980' FWL, Unit C
Sec 17, T24S, R32E
Lea County, NM

1. Proration Unit Spacing: 160 Acres

2. Ground Elevation: 3561.4'

3. Proposed Depths:

Horizontal: EOC (end of curve) TVD = 8510' MD = 8786'
Toe (end of lateral) TVD = 8480' MD= 13067'

4. Estimated tops of geological markers: (TVD)

Permian	surface
Fresh Water	160'
Rustler	831'
Top of Salt	1152'
Base of Salt	4456'
Lamar	4681'
Bell Canyon	4715'
Cherry Canyon	5595'
Brushy Canyon	6991'
Brushy Canyon - A	8256'
Brushy Canyon-2	8490'
Bone Spring	8544'

5. Possible mineral bearing formations:

Bell Canyon	4715'	Oil/Gas
Cherry Canyon	5595'	Oil/Gas
Brushy Canyon	6991'	Oil/Gas
Brushy Canyon -A	8256'	Oil/Gas
Brushy Canyon-2	8490'	Oil/Gas
Bone Spring	8544'	Oil/Gas

See COA

935'
No other formations are expected to give up oil, gas or fresh water in measurable quantities. Setting 13 3/8" casing to ~~850'~~ *935'* and circulating cement back to the surface will protect the surface fresh water sand. The Salt Section will be protected by setting 9 5/8" casing to ~~4700'~~ *4600'* and circulating cement back to surface. Any zones between 9 5/8" casing shoe and TD, which contain commercial quantities of oil and/or gas will have cement circulated across them. This will be achieved by cementing 5 1/2" production casing from the TD to surface.

ATTACHMENT TO FORM 3160-3
COG Production LLC
GOLDFINGER 17 FEDERAL COM #2H
Page 2 of 5

6. Proposed Mud System

See COA

The well will be drilled to TD with a combination of fresh water, brine, cut brine and polymer mud systems. The applicable depths and properties of these systems are as follows:

DEPTH (MD)	TYPE	WEIGHT	VISCOSITY	WATERLOSS
0-850' 935'	Fresh Water	8.4	29	N.C.
850'-4700'	Brine	10	29	N.C.
4700'-13067'	Cut Brine	8.9-9.2	29	N.C.

Sufficient mud materials will be kept at the well site to maintain mud properties and meet minimum lost circulation and weight increase requirements at all times.

Visual or electronic mud monitoring equipment shall be in place to detect volume changes indicating loss or gain of circulating fluid volume.

The mud program has been designed to minimize the volume of H₂S circulated to surface. Proper mud weights, safe drilling practices and the use of H₂S scavengers will minimize hazards when penetrating H₂S bearing zones.

7. Proposed Casing Program

See COA

Hole Size	Interval MD	OD Casing	Weight	Grade	Condition	Jt.	brst/clps/ten
17 1/2"	0-850' 935'	13 3/8" 0-850'	54.5#	J-55	New	ST&C	3.50/3.24/13.50
12 1/4"	850'-4700' 7600'	9 5/8" 0-4700'	40#	J-55	New	LT&C	1.16/1.06/3.25
7 7/8"	4700'-13067'	5 1/2" 0-13067'	17#	P-110	New	LT&C	1.33/1.85/3.09

8. Proposed Cement Program

13 3/8" SURFACE: (Circulate to Surface)

Lead: 0'-500' 325 sks Class "C" + 4% Gel 1.75 cf/sk 13.5 ppg
Excess 64% + 2 % CaCl₂

Tail: 250 sks Class C w/2% CaCl₂ 1.32 cf/sk 14.8 ppg
500'-850' ~~935'~~
Excess 19%

Combined open hole excess 50%.

ATTACHMENT TO FORM 3160-3
COG Production LLC
GOLDFINGER 17 FEDERAL COM #2H
Page 3 of 5

9 5/8" INTERMEDIATE CASING:

Single Stage: (Circulate to Surface)

Lead:	250 sks	EconoCem-HLC + 5% Salt	2.00 cf/sk	12.7 ppg
0'-850'		+5 pps Kol-Seal		
Excess 56%				
Lead:*	675 sks	EconoCem-HLC + 5% Salt	2.00 cf/sk	12.7 ppg
850'-4000'		+5 pps Kol-Seal		
Excess 37%				
Tail:*	225 sks	Class C w/2% CaCl ₂	1.32 cf/sk	14.8 ppg
4000'-4700'				
Excess 29%				

* open hole

Combined open hole excess 35%

5 1/2" PRODUCTION CASING:

Single Stage: (Cement calculated to surface. Minimum tie back 200' above 9 5/8" intermediate casing)

Lead:	550 sks	EconoCem-H + 0.5% Halad-322+	2.51 cf/sk	11.9 ppg
0'-4700'		5 pps Kol-Seal + 0.25 pps		
(min. tie back 200'		D-Air 5000 + 0.2% HR-601		
Above 9 5/8" shoe)				
Excess 13%				
Lead:*	310 sks	EconoCem-H + 0.5% Halad-322+	2.51 cf/sk	11.9 ppg
4700'-8033' (KOP)		5 pps Kol-Seal + 0.25 pps		
Excess 35%		D-Air 5000 + 0.2% HR 601		
Tail:*	950 sks	VersaCem + 0.4% GasStop +	1.24 cf/sk	14.4ppg
8033'(KOP) - 13067'		0.3% CFR-3 + 1 % Salt+ 0.1 %		
Excess 34%		HR-601		

*open hole

Combined open hole excess 34%

ATTACHMENT TO FORM 3160-3
COG Production LLC
GOLDFINGER 17 FEDERAL COM #2H
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8. Pressure Control Equipment:

See
COA

A 13 5/8" 2000 psi Hydril type annular preventer with mud cross, choke manifold, chokes, kill line, Kelly cock, safety valve and subs to fit all drill strings in use as provided for in Onshore Order #2 will be nipped up on the 13 3/8" x 2000 psi SOW X 13 5/8" x 2000 psi casing head (see attached BOPE drawings). This unit will be hydraulically operated and will be tested by independent tester using test plug to 250 psig/300 psig low and 1000 psig high. Choke line valve, chokes, upper Kelly cock valve, safety valve shall also be tested to 250 psig/300 psig low and 1000 psig high by independent tester.

After setting the 9 5/8" intermediate casing the following BOPE as provided for in Onshore Order #2 will be rigged up on the 9 5/8" intermediate casing spool (13 5/8" 2000 psi x 13 5/8" 3000 psi): 13 5/8" X 3000 psi annular, 13 5/8" X 3000 psi double ram type preventer with blind rams on top and 4 1/2" drill pipe rams on the bottom, choke, mud cross, choke manifold, 4" diameter choke line, 2" kill line, kelly cock, safety valve with proper subs for all drill string connections in use (see attached BOPE drawings). The BOPE including auxiliary equipment (chokes, choke manifold etc.) will be tested by independent tester.

Test plug will be used and all BOPE tested to 250 psig/ 300 psig low pressure and 3000 psig high pressure for 10 minutes. Annular preventer will be tested to 1500 psig. BOP stack will be used continuously until total depth is reached. Pipe rams will be operationally checked each 24-hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Any time a component of the BOP stack or choke manifold is changed or installed BOPE will be re-tested as required.

All casing strings below the conductor shall be pressure tested to 0.22 psi per foot of casing string depth or 1500 psig, whichever is greater, but not to exceed 70 percent of casing's minimum internal yield. If pressure declines more than 10 percent in 30 minutes, corrective action will be taken.

9. Production Hole Drilling Summary:

Drill 7 7/8" hole to 8033'. Kick off at +/- 8033', building curve at 12°/100' to 90.4° inclination at 8786' MD/8510' TVD az 359.61°. Continue lateral section at 90.4° Inc az 359.61° for +/-6915' to TD at +/-13067' MD/ 8480' TVD. Run 5-1/2" production casing. 5 1/2" casing will be isolated by a single stage cement job. Cement will be calculated to surface (min tie back is 200' above 9 5/8" csq shoe).

10. Auxiliary Well Control and Monitoring Equipment

- A. Kelly cock will be kept in the drill string at all times.
- B. A full opening drill pipe-stabbing valve with proper drill pipe connections will be on the rig floor at all times.

12. Logging, Testing and Coring Program:

- A. The following logs will be run in the vertical portion of the hole to KOP: SLB-PEX/HRLA,HNGS.
- B. The mud logging program will consist of lagged 10' samples from intermediate casing shoe to KOP and thru curve and lateral to TD.

ATTACHMENT TO FORM 3160-3
COG Production LLC
GOLDFINGER 17 FEDERAL COM #2H
Page 5 of 5

- C. Drill Stem test is not anticipated.
- D. No conventional coring is anticipated.
- E. Further testing procedures will be determined after the 5 ½" production casing has been cemented at TD based on drill shows and log evaluation.

12. Abnormal Conditions, Pressures, Temperatures and Potential Hazards:

see
COA

No abnormal pressures or temperatures are anticipated. The estimated bottom hole temperature is 107° Fahrenheit and estimated maximum bottom hole pressure is 3685 psi.. Wells in the Cotton Draw East area will penetrate formations that are known or could reasonably be expected to contain hydrogen sulfide. Measurable gas volumes or hydrogen sulfide levels have **not** been encountered during drilling operations in this area; however, a H2S drilling operations plan is included with this APD. Hydrogen Sulfide detection equipment will be operational and breathing equipment will be on location after drilling out the 13 3/8" casing shoe and until the 5 ½" casing is cemented. If H2S concentrations exceed 100 ppm a remote operated choke will be installed and COG will comply with Onshore Order #6. All BOPE testing companies used by COG have H2S certified employees and will work on H2S locations. No major loss circulation zones have been reported in offsetting wells.

13. Anticipated Starting Date

Drilling operations will commence on approximately **February 1, 2014** with drilling and completion operations lasting approximately **90** days.

GEG/08.19.13



COG Production, LLC

Lea County (NM27E)

Sec.17-T24S-R32E

Goldfinger 17 Federal Com #2H

Wellbore #1

Plan: Design #1

Standard Planning Report

26 August, 2013

Archer



Project: Lea County (NM27E)
 Site: Sec.17-T24S-R32E
 Well: Goldfinger 17 Federal Com #2H
 Wellbore: Wellbore #1
 Design: Design #1
 Lat: 32° 12' 38.174 N
 Long: 103° 41' 54.270 W
 GL: 3561.40
 KB: WELL @ 3579.40usft

Archer

SECTION DETAILS

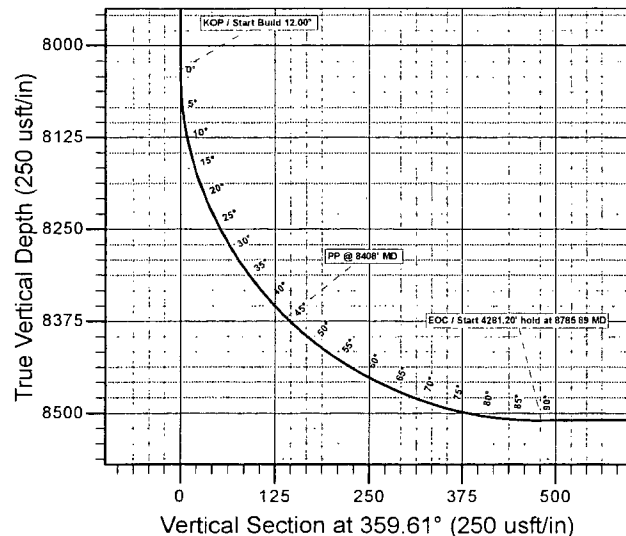
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
8032.55	0.00	0.00	8032.55	0.00	0.00	0.00	0.00	0.00	KOP / Start Build 12.00°
8785.89	90.40	359.61	8510.00	480.80	-3.26	12.00	359.61	480.81	EOC / Start 4281.20' hold at 8785.89 MD
13067.10	90.40	359.61	8480.00	4761.80	-32.30	0.00	0.00	4761.91	TD at 13067.10

WELL DETAILS: Goldfinger 17 Federal Com #2H

+N/-S	+E/-W	Northing	Ground Level:	3561.40	Longitude	Slot
0.00	0.00	440917.100	Easting	696373.900	32° 12' 38.174 N	103° 41' 54.270 W

DESIGN TARGET DETAILS

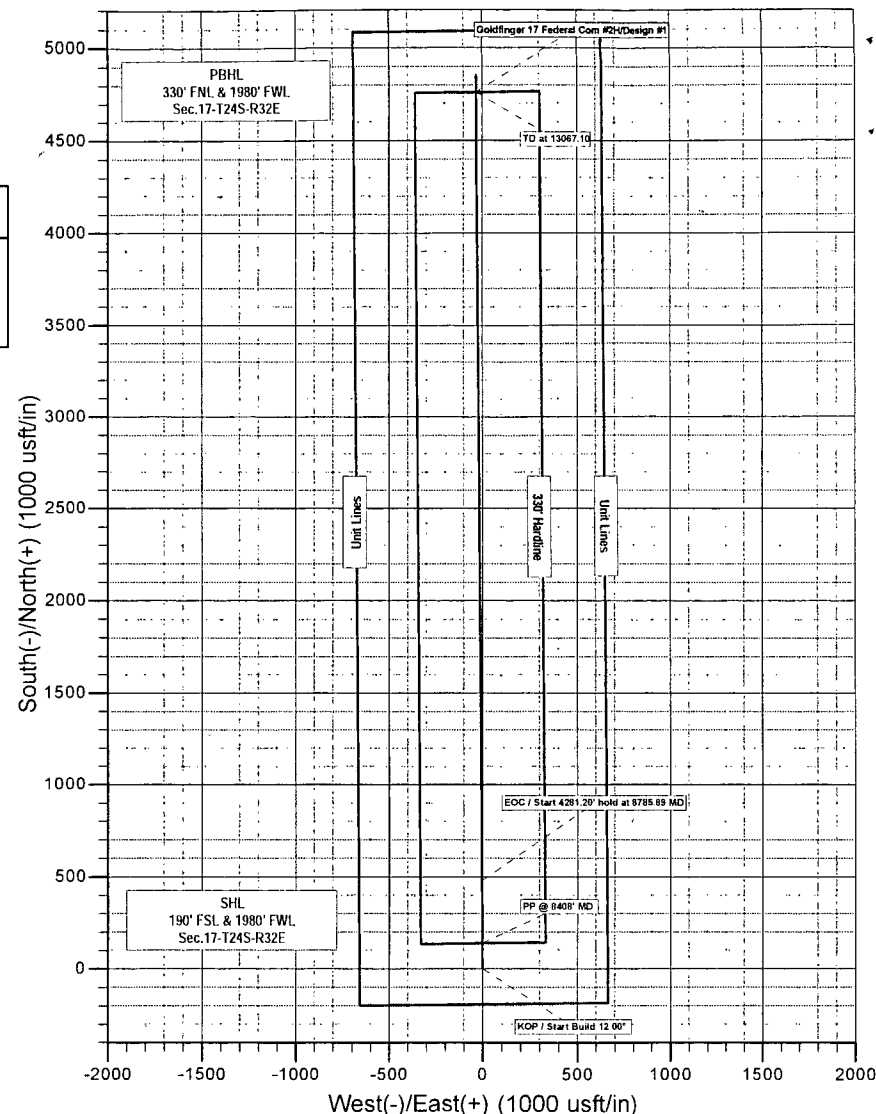
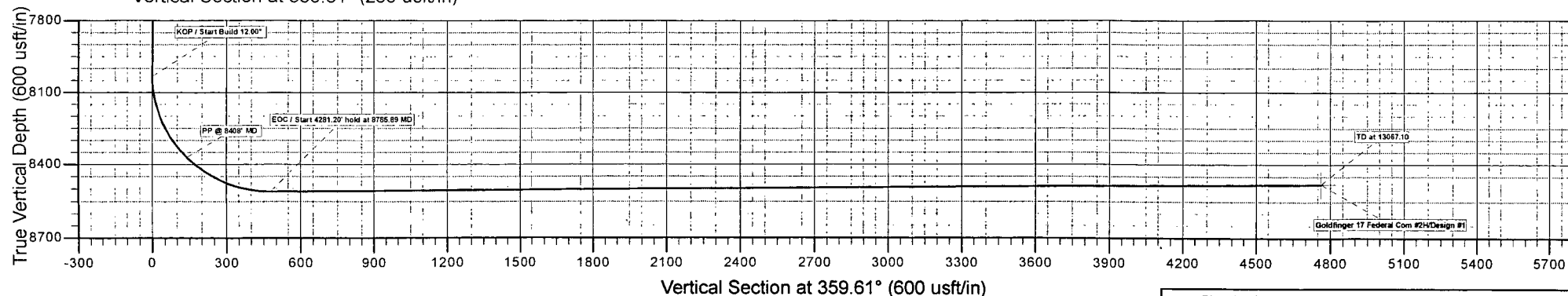
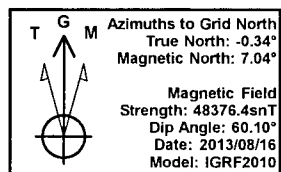
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Gldfng 17 Fed Com #2H PBHL	8480.00	4761.80	-32.30	445678.900	696341.600	32° 13' 25.297 N	103° 41' 54.319 W	Point



PROJECT DETAILS: Lea County (NM27E)
 Geodetic System: US State Plane 1927 (Exact solution)
 Datum: NAD 1927 (NADCON CONUS)
 Ellipsoid: Clarke 1866
 Zone: New Mexico East 3001
 System Datum: Mean Sea Level

SITE DETAILS: Sec.17-T24S-R32E

Site Centre Latitude: 32° 12' 38.095 N
 Longitude: 103° 42' 9.630 W
 Positional Uncertainty: 0.00
 Convergence: 0.34
 Local North: Grid



Plan: Design #1 (Goldfinger 17 Federal Com #2H/Wellbore #1)

Created By: Bret Wolford Date: 10:32, August 26 2013

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Goldfinger 17 Federal Com #2H
Company:	COG Production, LLC	TVD Reference:	WELL @ 3579.40usft
Project:	Lea County (NM27E)	MD Reference:	WELL @ 3579.40usft
Site:	Sec.17-T24S-R32E	North Reference:	Grid
Well:	Goldfinger 17 Federal Com #2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Project	Lea County (NM27E)		
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.17-T24S-R32E		
Site Position:		Northing:	440,901.400 usft
From:	Map	Easting:	695,054.300 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"
		Latitude:	32° 12' 38.095 N
		Longitude:	103° 42' 9.630 W
		Grid Convergence:	0.34 °

Well	Goldfinger 17 Federal Com #2H		
Well Position	+N/-S	15.70 usft	Northing:
	+E/-W	1,319.60 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 12' 38.174 N
		Longitude:	103° 41' 54.270 W
		Ground Level:	3,561.40 usft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010	2013/08/16	7.38
			Dip Angle
			(°)
			Field Strength
			(nT)
			60.10
			48,376

Design	Design #1		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth:
			0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	8,480.00	0.00	0.00
			Direction
			(°)
			359.61

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(usft)	(usft)	Rate	Rate	Rate	(°)	
(usft)			(usft)			(°/100usft)	(°/100usft)	(°/100usft)		
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
8,032.55	0.00	0.00	8,032.55	0.00	0.00	0.00	0.00	0.00	0.00	
8,785.89	90.40	359.61	8,510.00	480.80	-3.26	12.00	12.00	0.00	359.61	Gldfng 17 Fed Com #
13,067.10	90.40	359.61	8,480.00	4,761.80	-32.30	0.00	0.00	0.00	0.00	Gldfng 17 Fed Com #



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Goldfinger 17 Federal Com #2H
Company:	COG Production, LLC	TVD Reference:	WELL @ 3579.40usft
Project:	Lea County (NM27E)	MD Reference:	WELL @ 3579.40usft
Site:	Sec.17-T24S-R32E	North Reference:	Grid
Well:	Goldfinger 17 Federal Com #2H	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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Goldfinger 17 Federal Com #2H
Company:	COG Production, LLC	TVD Reference:	WELL @ 3579.40usft
Project:	Lea County (NM27E)	MD Reference:	WELL @ 3579.40usft
Site:	Sec.17-T24S-R32E	North Reference:	Grid
Well:	Goldfinger 17 Federal Com #2H	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)
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,200.00	0.00	0.00	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,300.00	0.00	0.00	0.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,400.00	0.00	0.00	0.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,500.00	0.00	0.00	0.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,600.00	0.00	0.00	0.00	0.00	0.00	0.00
6,700.00	0.00	0.00	6,700.00	0.00	0.00	0.00	0.00	0.00	0.00
6,800.00	0.00	0.00	6,800.00	0.00	0.00	0.00	0.00	0.00	0.00
6,900.00	0.00	0.00	6,900.00	0.00	0.00	0.00	0.00	0.00	0.00
7,000.00	0.00	0.00	7,000.00	0.00	0.00	0.00	0.00	0.00	0.00
7,100.00	0.00	0.00	7,100.00	0.00	0.00	0.00	0.00	0.00	0.00
7,200.00	0.00	0.00	7,200.00	0.00	0.00	0.00	0.00	0.00	0.00
7,300.00	0.00	0.00	7,300.00	0.00	0.00	0.00	0.00	0.00	0.00
7,400.00	0.00	0.00	7,400.00	0.00	0.00	0.00	0.00	0.00	0.00
7,500.00	0.00	0.00	7,500.00	0.00	0.00	0.00	0.00	0.00	0.00
7,600.00	0.00	0.00	7,600.00	0.00	0.00	0.00	0.00	0.00	0.00
7,700.00	0.00	0.00	7,700.00	0.00	0.00	0.00	0.00	0.00	0.00
7,800.00	0.00	0.00	7,800.00	0.00	0.00	0.00	0.00	0.00	0.00
7,900.00	0.00	0.00	7,900.00	0.00	0.00	0.00	0.00	0.00	0.00
8,000.00	0.00	0.00	8,000.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP / Start Build 12.00°									
8,032.55	0.00	0.00	8,032.55	0.00	0.00	0.00	0.00	0.00	0.00
8,050.00	2.09	359.61	8,050.00	0.32	0.00	0.32	12.00	12.00	0.00
8,075.00	5.09	359.61	8,074.94	1.89	-0.01	1.89	12.00	12.00	0.00
8,100.00	8.09	359.61	8,099.78	4.76	-0.03	4.76	12.00	12.00	0.00
8,125.00	11.09	359.61	8,124.42	8.92	-0.06	8.92	12.00	12.00	0.00
8,150.00	14.09	359.61	8,148.82	14.37	-0.10	14.37	12.00	12.00	0.00
8,175.00	17.09	359.61	8,172.90	21.09	-0.14	21.09	12.00	12.00	0.00
8,200.00	20.09	359.61	8,196.59	29.06	-0.20	29.06	12.00	12.00	0.00
8,225.00	23.09	359.61	8,219.83	38.26	-0.26	38.26	12.00	12.00	0.00
8,250.00	26.09	359.61	8,242.56	48.67	-0.33	48.67	12.00	12.00	0.00
8,275.00	29.09	359.61	8,264.71	60.25	-0.41	60.25	12.00	12.00	0.00
8,300.00	32.09	359.61	8,286.23	72.97	-0.49	72.97	12.00	12.00	0.00
8,325.00	35.09	359.61	8,307.05	86.80	-0.59	86.80	12.00	12.00	0.00
8,350.00	38.09	359.61	8,327.12	101.70	-0.69	101.70	12.00	12.00	0.00
8,375.00	41.09	359.61	8,346.39	117.63	-0.80	117.63	12.00	12.00	0.00
8,400.00	44.09	359.61	8,364.79	134.55	-0.91	134.55	12.00	12.00	0.00
PP @ 8408' MD									
8,408.00	45.05	359.61	8,370.49	140.16	-0.95	140.17	12.00	12.00	0.00
8,425.00	47.09	359.61	8,382.28	152.41	-1.03	152.41	12.00	12.00	0.00
8,450.00	50.09	359.61	8,398.81	171.16	-1.16	171.16	12.00	12.00	0.00
8,475.00	53.09	359.61	8,414.34	190.74	-1.29	190.75	12.00	12.00	0.00
8,500.00	56.09	359.61	8,428.82	211.12	-1.43	211.12	12.00	12.00	0.00
8,525.00	59.09	359.61	8,442.22	232.22	-1.58	232.23	12.00	12.00	0.00
8,550.00	62.09	359.61	8,454.49	254.00	-1.72	254.00	12.00	12.00	0.00
8,575.00	65.09	359.61	8,465.61	276.39	-1.87	276.39	12.00	12.00	0.00

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Goldfinger 17 Federal Com #2H
Company:	COG Production, LLC	TVD Reference:	WELL @ 3579.40usft
Project:	Lea County (NM27E)	MD Reference:	WELL @ 3579.40usft
Site:	Sec.17-T24S-R32E	North Reference:	Grid
Well:	Goldfinger 17 Federal Com #2H	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)
8,600.00	68.09	359.61	8,475.54	299.33	-2.03	299.33	12.00	12.00	0.00
8,625.00	71.09	359.61	8,484.25	322.75	-2.19	322.76	12.00	12.00	0.00
8,650.00	74.09	359.61	8,491.73	346.61	-2.35	346.61	12.00	12.00	0.00
8,675.00	77.09	359.61	8,497.95	370.82	-2.52	370.83	12.00	12.00	0.00
8,700.00	80.09	359.61	8,502.89	395.32	-2.68	395.33	12.00	12.00	0.00
8,725.00	83.09	359.61	8,506.55	420.05	-2.85	420.06	12.00	12.00	0.00
8,750.00	86.09	359.61	8,508.90	444.93	-3.02	444.94	12.00	12.00	0.00
8,775.00	89.09	359.61	8,509.95	469.91	-3.19	469.92	12.00	12.00	0.00
EOC / Start 4281.20' hold at 8785.89 MD									
8,785.89	90.40	359.61	8,510.00	480.80	-3.26	480.81	12.00	12.00	0.00
8,800.00	90.40	359.61	8,509.90	494.91	-3.36	494.92	0.00	0.00	0.00
8,900.00	90.40	359.61	8,509.20	594.90	-4.04	594.92	0.00	0.00	0.00
9,000.00	90.40	359.61	8,508.50	694.90	-4.71	694.91	0.00	0.00	0.00
9,100.00	90.40	359.61	8,507.80	794.89	-5.39	794.91	0.00	0.00	0.00
9,200.00	90.40	359.61	8,507.10	894.89	-6.07	894.91	0.00	0.00	0.00
9,300.00	90.40	359.61	8,506.40	994.88	-6.75	994.91	0.00	0.00	0.00
9,400.00	90.40	359.61	8,505.70	1,094.88	-7.43	1,094.90	0.00	0.00	0.00
9,500.00	90.40	359.61	8,505.00	1,194.87	-8.11	1,194.90	0.00	0.00	0.00
9,600.00	90.40	359.61	8,504.30	1,294.87	-8.78	1,294.90	0.00	0.00	0.00
9,700.00	90.40	359.61	8,503.59	1,394.86	-9.46	1,394.90	0.00	0.00	0.00
9,800.00	90.40	359.61	8,502.89	1,494.86	-10.14	1,494.89	0.00	0.00	0.00
9,900.00	90.40	359.61	8,502.19	1,594.85	-10.82	1,594.89	0.00	0.00	0.00
10,000.00	90.40	359.61	8,501.49	1,694.85	-11.50	1,694.89	0.00	0.00	0.00
10,100.00	90.40	359.61	8,500.79	1,794.84	-12.17	1,794.89	0.00	0.00	0.00
10,200.00	90.40	359.61	8,500.09	1,894.84	-12.85	1,894.88	0.00	0.00	0.00
10,300.00	90.40	359.61	8,499.39	1,994.83	-13.53	1,994.88	0.00	0.00	0.00
10,400.00	90.40	359.61	8,498.69	2,094.83	-14.21	2,094.88	0.00	0.00	0.00
10,500.00	90.40	359.61	8,497.99	2,194.83	-14.89	2,194.88	0.00	0.00	0.00
10,600.00	90.40	359.61	8,497.29	2,294.82	-15.57	2,294.87	0.00	0.00	0.00
10,700.00	90.40	359.61	8,496.59	2,394.82	-16.24	2,394.87	0.00	0.00	0.00
10,800.00	90.40	359.61	8,495.89	2,494.81	-16.92	2,494.87	0.00	0.00	0.00
10,900.00	90.40	359.61	8,495.19	2,594.81	-17.60	2,594.87	0.00	0.00	0.00
11,000.00	90.40	359.61	8,494.49	2,694.80	-18.28	2,694.86	0.00	0.00	0.00
11,100.00	90.40	359.61	8,493.78	2,794.80	-18.96	2,794.86	0.00	0.00	0.00
11,200.00	90.40	359.61	8,493.08	2,894.79	-19.64	2,894.86	0.00	0.00	0.00
11,300.00	90.40	359.61	8,492.38	2,994.79	-20.31	2,994.86	0.00	0.00	0.00
11,400.00	90.40	359.61	8,491.68	3,094.78	-20.99	3,094.85	0.00	0.00	0.00
11,500.00	90.40	359.61	8,490.98	3,194.78	-21.67	3,194.85	0.00	0.00	0.00
11,600.00	90.40	359.61	8,490.28	3,294.77	-22.35	3,294.85	0.00	0.00	0.00
11,700.00	90.40	359.61	8,489.58	3,394.77	-23.03	3,394.85	0.00	0.00	0.00
11,800.00	90.40	359.61	8,488.88	3,494.76	-23.71	3,494.84	0.00	0.00	0.00
11,900.00	90.40	359.61	8,488.18	3,594.76	-24.38	3,594.84	0.00	0.00	0.00
12,000.00	90.40	359.61	8,487.48	3,694.75	-25.06	3,694.84	0.00	0.00	0.00
12,100.00	90.40	359.61	8,486.78	3,794.75	-25.74	3,794.84	0.00	0.00	0.00
12,200.00	90.40	359.61	8,486.08	3,894.74	-26.42	3,894.83	0.00	0.00	0.00
12,300.00	90.40	359.61	8,485.38	3,994.74	-27.10	3,994.83	0.00	0.00	0.00
12,400.00	90.40	359.61	8,484.67	4,094.73	-27.78	4,094.83	0.00	0.00	0.00
12,500.00	90.40	359.61	8,483.97	4,194.73	-28.45	4,194.83	0.00	0.00	0.00
12,600.00	90.40	359.61	8,483.27	4,294.73	-29.13	4,294.82	0.00	0.00	0.00
12,700.00	90.40	359.61	8,482.57	4,394.72	-29.81	4,394.82	0.00	0.00	0.00
12,800.00	90.40	359.61	8,481.87	4,494.72	-30.49	4,494.82	0.00	0.00	0.00
12,900.00	90.40	359.61	8,481.17	4,594.71	-31.17	4,594.82	0.00	0.00	0.00
13,000.00	90.40	359.61	8,480.47	4,694.71	-31.84	4,694.81	0.00	0.00	0.00
TD at 13067.10 - Gldfng 17 Fed Com #2H PBHL									

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Goldfinger 17 Federal Com #2H
Company:	COG Production, LLC	TVD Reference:	WELL @ 3579.40usft
Project:	Lea County (NM27E)	MD Reference:	WELL @ 3579.40usft
Site:	Sec. 17-T24S-R32E	North Reference:	Grid
Well:	Goldfinger 17 Federal Com #2H	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)	
13,067.10	90.40	359.61	8,480.00	4,761.80	-32.30	4,761.91	0.00	0.00	0.00	

Design Targets									
Target Name	hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude Longitude
Gldfng 17 Fed Com #2H	- plan hits target center	0.00	0.00	8,480.00	4,761.80	-32.30	445,678.900	696,341.600	32° 13' 25.297 N 103° 41' 54.319 W
- Point									

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
8,032.55	8,032.55	0.00	0.00	KOP / Start Build 12.00°	
8,408.00	8,370.49	140.16	-0.95	PP @ 8408' MD	
8,785.89	8,510.00	480.80	-3.26	EOC / Start 4281.20' hold at 8785.89 MD	
13,067.10	8,480.00	4,761.80	-32.30	TD at 13067.10	

Goldfinger 17 Federal Com #2H Design #1

COG Production, LLC
Goldfinger 17 Federal Com #2H - Design #1

Lea County (NM27E)
Sec.17-T24S-R32E
Your Ref:

Measured Dogleg Depth (ft)	Incl.	Azim.	Depth (ft)	Vertical Northings (ft)	Eastings (ft)	Vertical Section Rate (°/100ft)
0.00		0.000	0.000	0.00	0.00	0.00
0.00	0.00	0.000	0.000	8032.55	0.00	0.00
0.00	0.00					
0.32	12.00	2.094	359.611	8050.00	0.32	0.00
0.32	12.00	5.094	359.611	8074.94	1.89	-0.01
1.89	12.00	8.094	359.611	8099.78	4.76	-0.03
1.89	12.00					
4.76	12.00	11.094	359.611	8124.42	8.92	-0.06
4.76	12.00					
8.92	12.00	14.094	359.611	8148.82	14.37	-0.10
8.92	12.00					
14.37	12.00	17.094	359.611	8172.90	21.09	-0.14
14.37	12.00					
21.09	12.00	20.094	359.611	8196.59	29.06	-0.20
21.09	12.00					
29.06	12.00	23.094	359.611	8219.83	38.26	-0.26
29.06	12.00					
38.26	12.00	26.094	359.611	8242.56	48.67	-0.33
38.26	12.00					
48.67	12.00	29.094	359.611	8264.71	60.25	-0.41
48.67	12.00					
60.25	12.00	32.094	359.611	8286.23	72.97	-0.49
60.25	12.00					
72.97	12.00	35.094	359.611	8307.05	86.80	-0.59
72.97	12.00					
86.80	12.00	38.094	359.611	8327.12	101.70	-0.69
86.80	12.00					
101.70	12.00	41.094	359.611	8346.39	117.63	-0.80
101.70	12.00					
117.63	12.00	44.094	359.611	8364.79	134.55	-0.91
117.63	12.00					
134.55	12.00	47.094	359.611	8382.28	152.41	-1.03
134.55	12.00					
152.41	12.00	50.094	359.611	8398.81	171.16	-1.16
152.41	12.00					
171.16	12.00	53.094	359.611	8414.34	190.74	-1.29
171.16	12.00					
190.74	12.00	56.094	359.611	8428.82	211.12	-1.43
190.74	12.00					
211.12	12.00	59.094	359.611	8442.22	232.22	-1.58
211.12	12.00					
232.22	12.00	62.094	359.611	8454.49	254.00	-1.72
232.22	12.00					
254.00	12.00	65.094	359.611	8465.61	276.39	-1.87
254.00	12.00					
8575.00						

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276.39	12.00					
8600.00		68.094	359.611	8475.54	299.33	-2.03
299.33	12.00					
8625.00		71.094	359.611	8484.25	322.75	-2.19
322.75	12.00					
8650.00		74.094	359.611	8491.73	346.61	-2.35
346.61	12.00					
8675.00		77.094	359.611	8497.95	370.82	-2.52
370.82	12.00					
8700.00		80.094	359.611	8502.89	395.32	-2.68
395.32	12.00					
8725.00		83.094	359.611	8506.55	420.05	-2.85
420.05	12.00					
8750.00		86.094	359.611	8508.90	444.93	-3.02
444.93	12.00					
8775.00		89.094	359.611	8509.95	469.91	-3.19
469.91	12.00					
8785.89		90.401	359.611	8510.00	480.80	-3.26
480.80	12.00					
8800.00		90.401	359.611	8509.90	494.91	-3.36
494.91	0.00					
8900.00		90.401	359.611	8509.20	594.90	-4.04
594.90	0.00					
9000.00		90.401	359.611	8508.50	694.90	-4.71
694.90	0.00					
9100.00		90.401	359.611	8507.80	794.89	-5.39
794.89	0.00					
9200.00		90.401	359.611	8507.10	894.89	-6.07
894.89	0.00					
9300.00		90.401	359.611	8506.40	994.88	-6.75
994.88	0.00					
9400.00		90.401	359.611	8505.70	1094.88	-7.43
1094.88	0.00					
9500.00		90.401	359.611	8505.00	1194.87	-8.11
1194.87	0.00					
9600.00		90.401	359.611	8504.30	1294.87	-8.78
1294.87	0.00					
9700.00		90.401	359.611	8503.59	1394.86	-9.46
1394.86	0.00					
9800.00		90.401	359.611	8502.89	1494.86	-10.14
1494.86	0.00					
9900.00		90.401	359.611	8502.19	1594.85	-10.82
1594.85	0.00					
10000.00		90.401	359.611	8501.49	1694.85	-11.50
1694.85	0.00					
10100.00		90.401	359.611	8500.79	1794.84	-12.17
1794.84	0.00					
10200.00		90.401	359.611	8500.09	1894.84	-12.85
1894.84	0.00					
10300.00		90.401	359.611	8499.39	1994.83	-13.53
1994.83	0.00					
10400.00		90.401	359.611	8498.69	2094.83	-14.21
2094.83	0.00					
10500.00		90.401	359.611	8497.99	2194.83	-14.89
2194.83	0.00					
10600.00		90.401	359.611	8497.29	2294.82	-15.57
2294.82	0.00					
10700.00		90.401	359.611	8496.59	2394.82	-16.24
2394.82	0.00					
10800.00		90.401	359.611	8495.89	2494.81	-16.92
2494.81	0.00					
10900.00		90.401	359.611	8495.19	2594.81	-17.60
2594.81	0.00					

Goldfinger 17 Federal Com #2H Design #1					
11000.00		90.401	359.611	8494.49	2694.80 -18.28
2694.80	0.00				
11100.00		90.401	359.611	8493.78	2794.80 -18.96
2794.80	0.00				
11200.00		90.401	359.611	8493.08	2894.79 -19.64
2894.79	0.00				
11300.00		90.401	359.611	8492.38	2994.79 -20.31
2994.79	0.00				
11400.00		90.401	359.611	8491.68	3094.78 -20.99
3094.78	0.00				
11500.00		90.401	359.611	8490.98	3194.78 -21.67
3194.78	0.00				
11600.00		90.401	359.611	8490.28	3294.77 -22.35
3294.77	0.00				
11700.00		90.401	359.611	8489.58	3394.77 -23.03
3394.77	0.00				
11800.00		90.401	359.611	8488.88	3494.76 -23.71
3494.76	0.00				
11900.00		90.401	359.611	8488.18	3594.76 -24.38
3594.76	0.00				
12000.00		90.401	359.611	8487.48	3694.75 -25.06
3694.75	0.00				
12100.00		90.401	359.611	8486.78	3794.75 -25.74
3794.75	0.00				
12200.00		90.401	359.611	8486.08	3894.74 -26.42
3894.74	0.00				
12300.00		90.401	359.611	8485.38	3994.74 -27.10
3994.74	0.00				
12400.00		90.401	359.611	8484.67	4094.73 -27.78
4094.73	0.00				
12500.00		90.401	359.611	8483.97	4194.73 -28.45
4194.73	0.00				
12600.00		90.401	359.611	8483.27	4294.73 -29.13
4294.73	0.00				
12700.00		90.401	359.611	8482.57	4394.72 -29.81
4394.72	0.00				
12800.00		90.401	359.611	8481.87	4494.72 -30.49
4494.72	0.00				
12900.00		90.401	359.611	8481.17	4594.71 -31.17
4594.71	0.00				
13000.00		90.401	359.611	8480.47	4694.71 -31.84
4694.71	0.00				
13067.10		90.401	359.611	8480.00	4761.80 -32.30
4761.80	0.00				

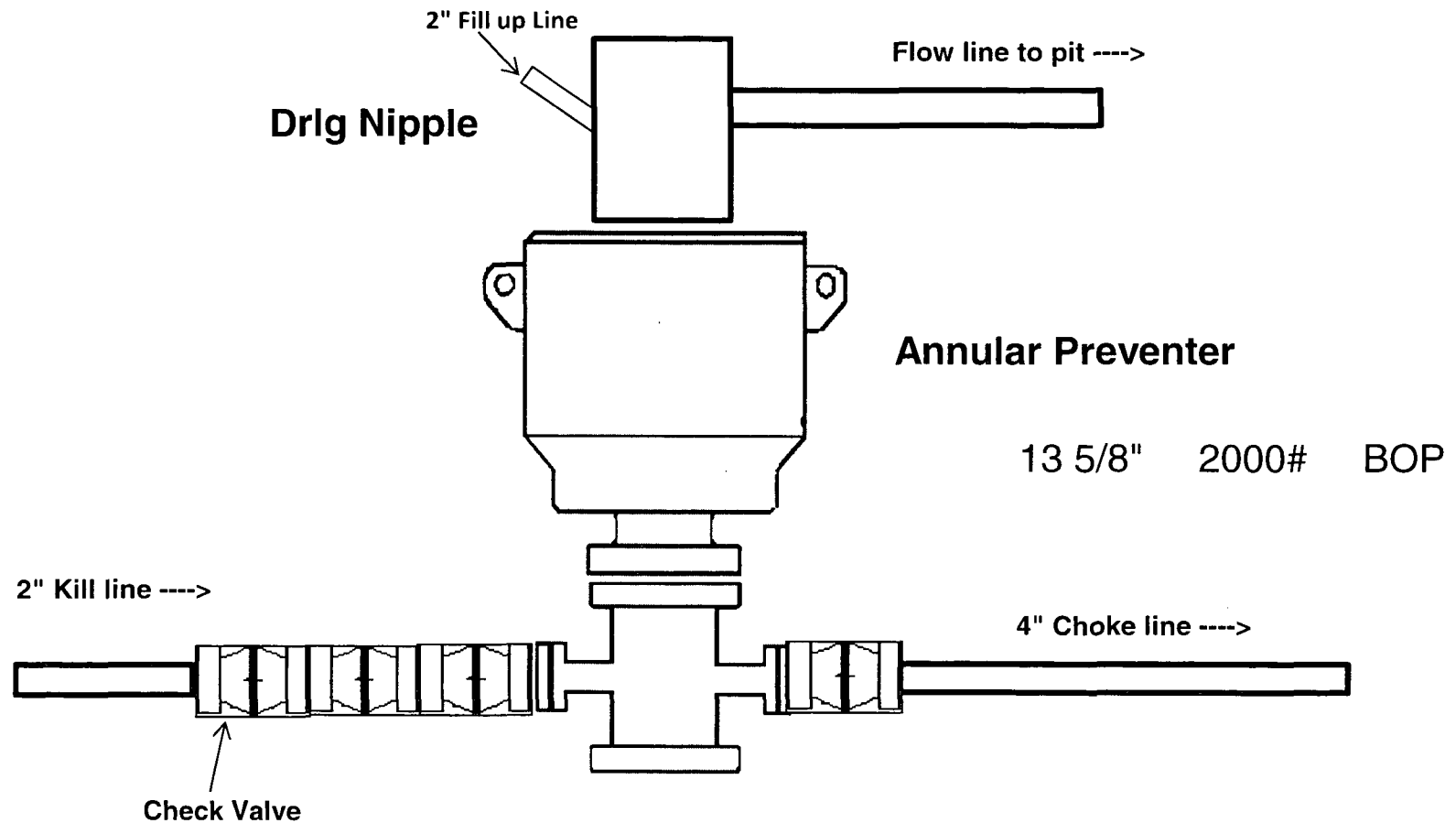
All data are in feet unless otherwise stated. Directions and coordinates are relative to Grid North.
Vertical depths are relative to WELL. Northings and Eastings are relative to well.

The Dogleg Severity is in Degrees per 100 feet.
Vertical Section is from Slot and calculated along an Azimuth of 0.000° (Grid).

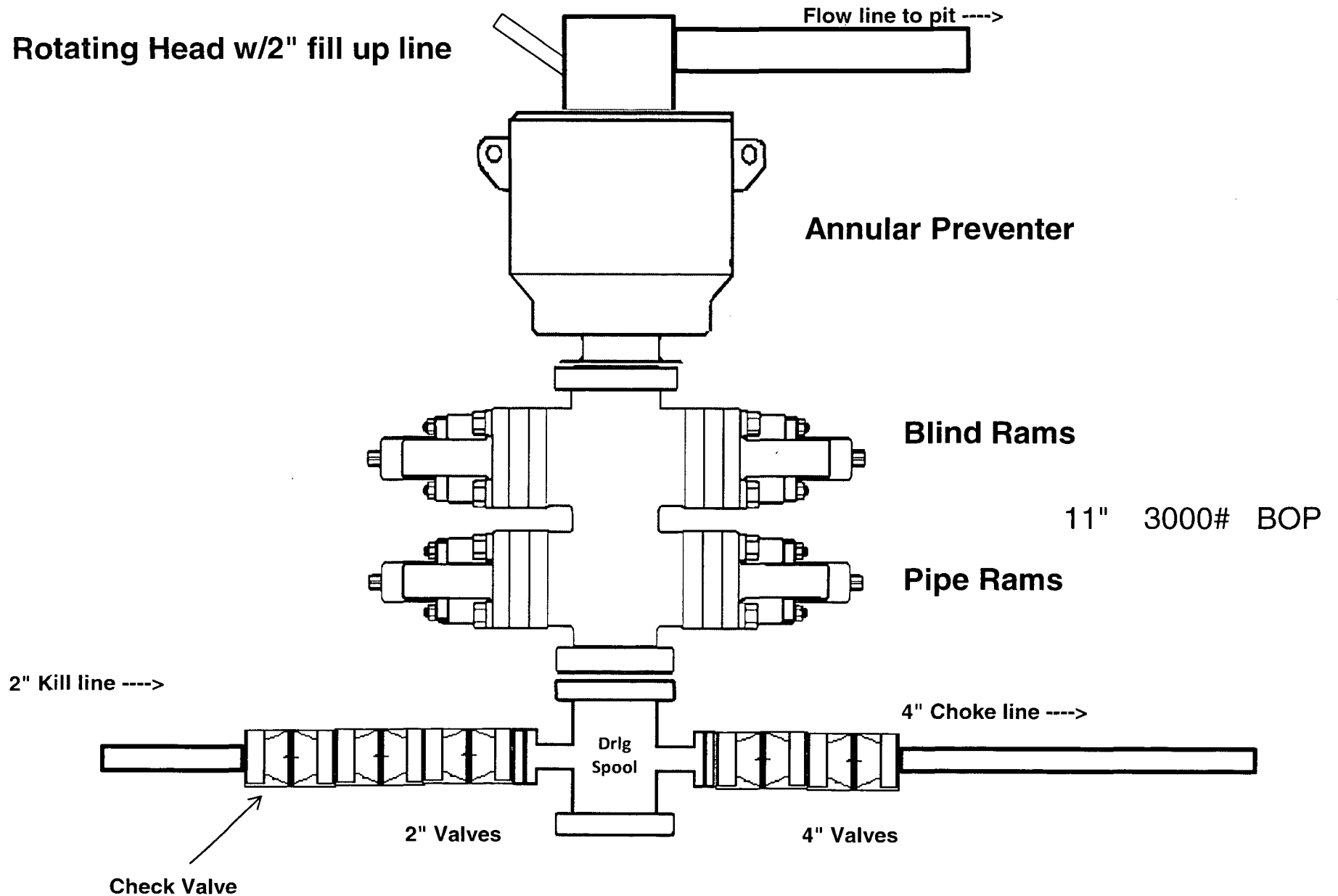
Coordinate System is NAD 1927 (NADCON CONUS) US State Plane 1927 (Exact solution),
New Mexico East 3001.
Central meridian is -104.333°.
Grid Convergence at Surface is 0.338°.

Based upon Minimum Curvature type calculations, at a Measured Depth of 13067.10ft.,
the Bottom Hole Displacement is 4761.91ft., in the Direction of 0.000° (Grid).

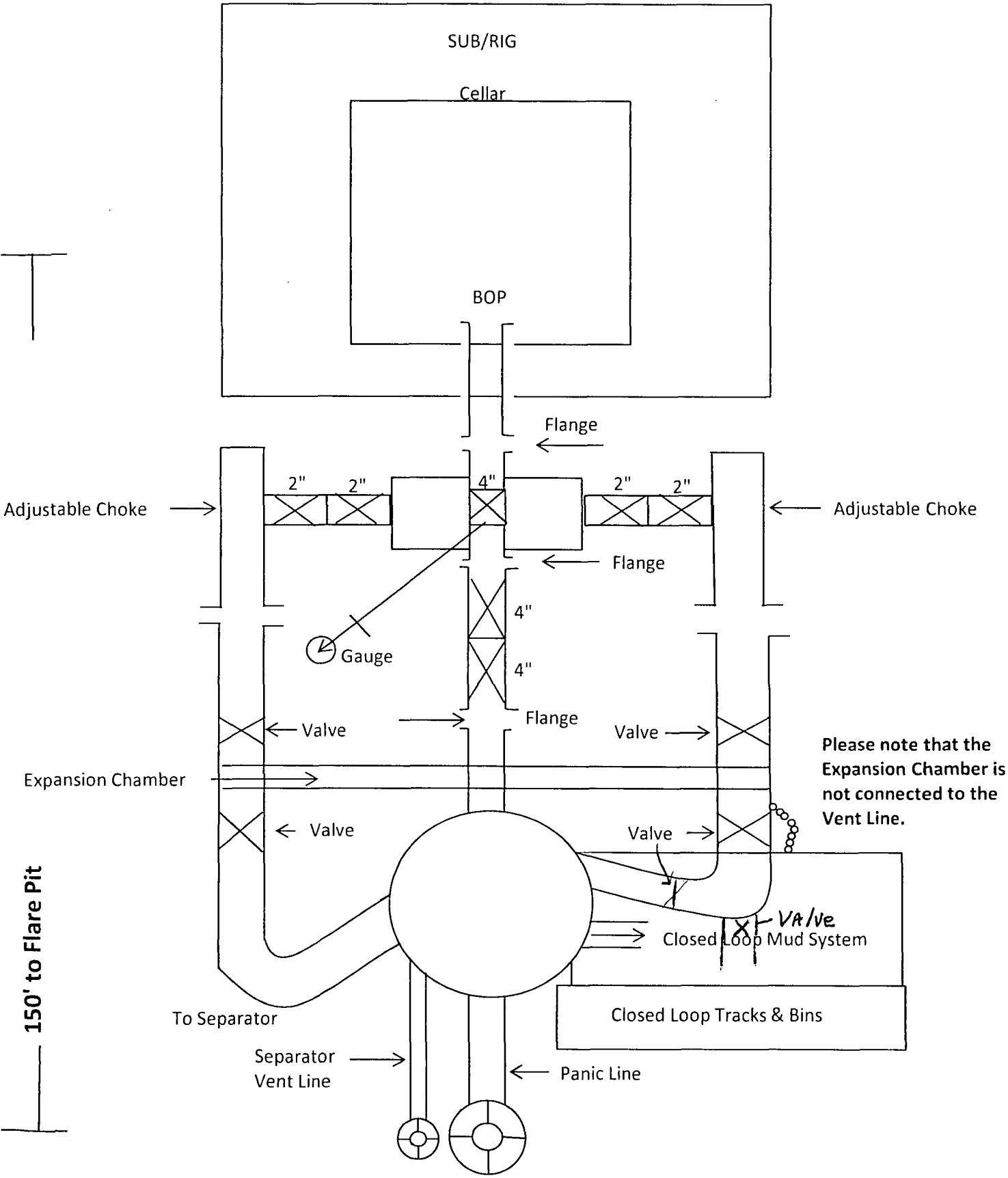
2,000 psi BOP Schematic



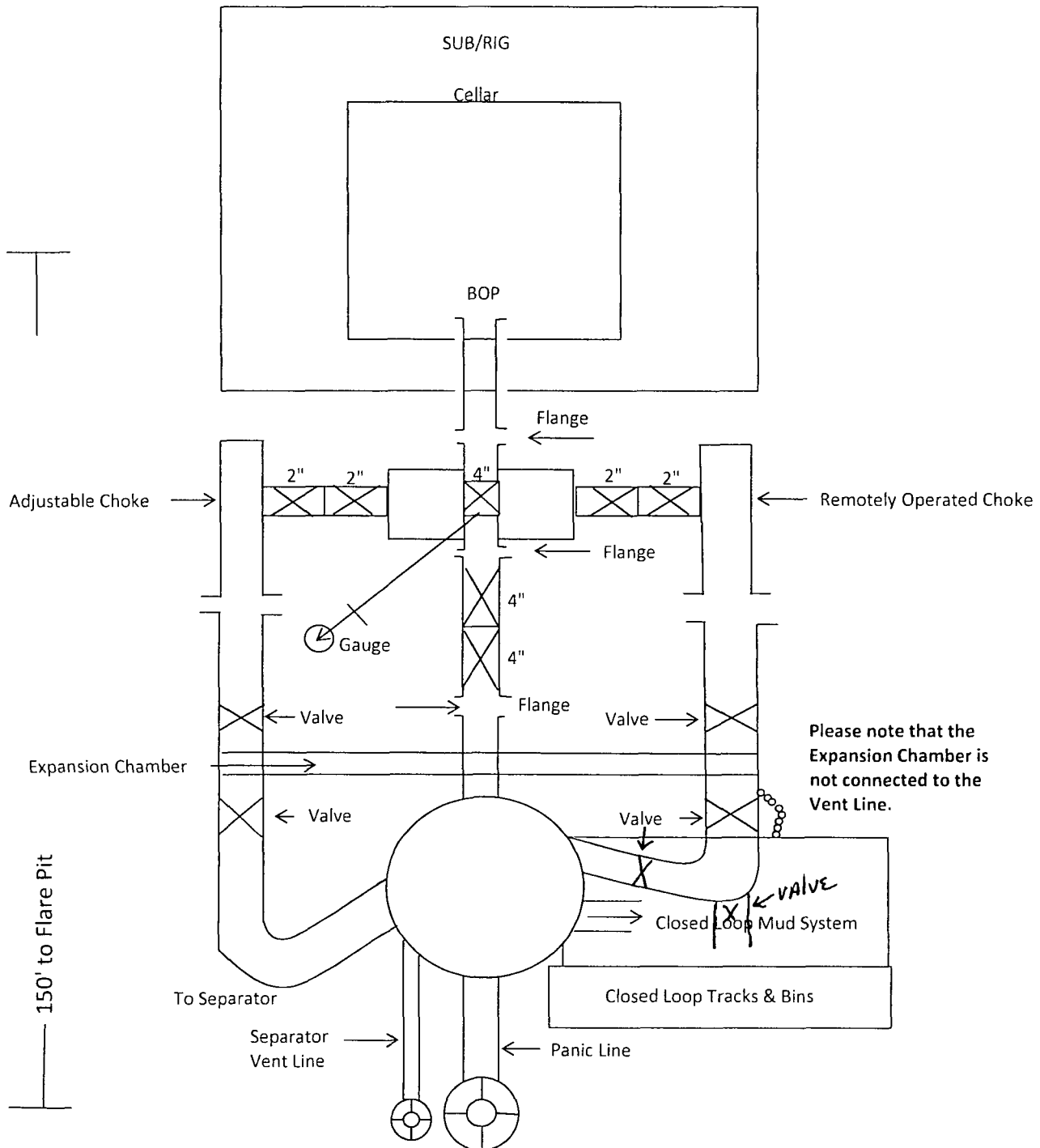
3,000 psi BOP Schematic



2M Choke Manifold Equipment



3M Choke Manifold Equipment



COG Production LLC

Rig Plat & Closed Loop Equipment Diagram

Well pad will be 340' X 340'
with cellar in center of pad

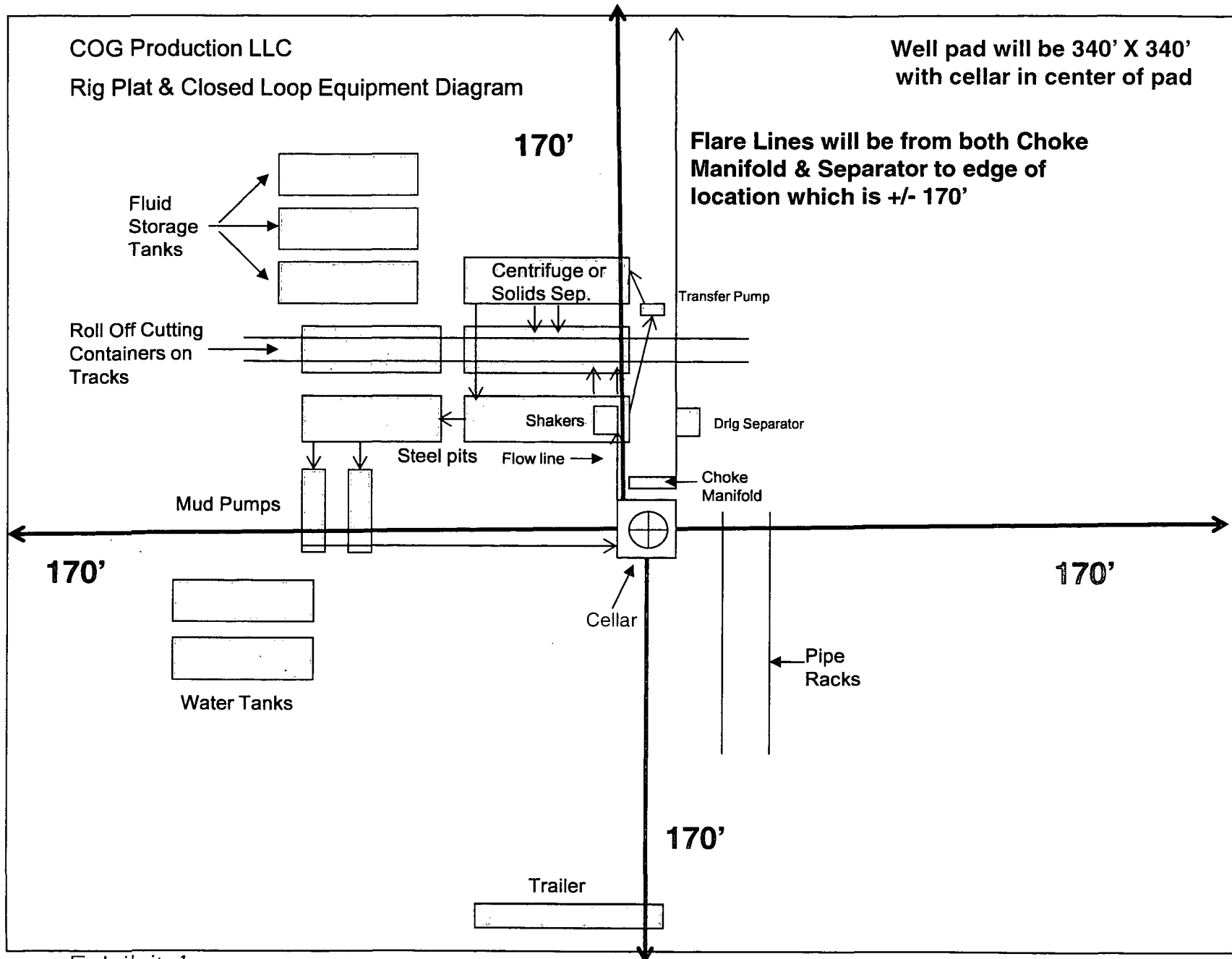


Exhibit 1

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