

HOBBS OCD

Form 3160-3
(March 2012)

DEC 05 2013

OCD Hobbs

FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014UNITED STATES
RECEIVED DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMNM120908
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name
2. Name of Operator COG Production LLC. <217955>		7. If Unit or CA Agreement, Name and No.
3a. Address 2208 West Main Street Artesia, NM 88210		8. Lease Name and Well No. <39881> Azores Federal #2H
3b. Phone No. (include area code) 575-748-6940		9. API Well No. 30-025-41534
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface 190' FSL & 1650' FEL Unit Letter O (SWSE) SHL Sec 29-T24S-R32E (O) At proposed prod. Zone 330' FNL & 1840' FEL Unit Letter B (NWNE) BHL Sec 29-T24S-R32E (B)		10. Field and Pool, or Exploratory WC-025-G06 S253206M; Bone Spring <97899>
14. Distance in miles and direction from nearest town or post office* Approximately 22 miles from Malaga		11. Sec., T.R.M. or Blk and Survey or Area Sec. 29 - T24S - R32E
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. Unit line, if any) 190'	16. No. of acres in lease 1891.72	17. Spacing Unit dedicated to this well 160
18. Distance from location* to nearest well, drilling, completed, applied for, on this lease, ft. SHL: 1650' BHL: 3233'	19. Proposed Depth TVD: 10,560' MD: 15,100'	20. BLM/BIA Bond No. on file NMB000860 & NMB000845
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3498.1' GL	22. Approximate date work will start* 11/1/2013	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. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan | 5. Operator certification |
| 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). | 6. Such other site specific information and/or plans as may be required by the authorized officer. |

25. Signature Mayte Reyes	Name (Printed/Typed) Mayte Reyes	Date 8/27/2013
Title Regulatory Analyst		

Approved by (Signature) STEPHEN J. CAFFEY	Name (Printed/Typed)	Date DEC 2 2013
Title FIELD MANAGER	Office CARLSBAD FIELD OFFICE	

Application approval does not warrant or certify that the applicant holds legal 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.

Title 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)

Carlsbad Controlled Water Basin

SEE ATTACHED FOR
CONDITIONS OF APPROVALK2
12/13/13APPROVAL SUBJECT TO
GENERAL REQUIREMENTS
AND SPECIAL STIPULATIONS
ATTACHED
DEC 10 2013 RM

(Instructions on page 2)

COG Production LLC
DRILLING AND OPERATIONS PROGRAM
Azores Federal #2H
SHL: 190' FSL & 1650' FEL
BHL: 330' FNL & 1840' FEL
Section 29 T24S R32E
Lea County, New Mexico

In conjunction with Form 3160-3, Application for Permit to Drill subject well, COG Production LLC submits the following eleven items of pertinent information in accordance with BLM requirements.

1. Geological surface formation: Permian
2. The estimated tops of geologic markers & estimated depths at which anticipated water, oil or gas formations are expected to be encountered are as follows:

Fresh Water	~200'	
Rustler	782'	
Top of Salt	1,114'	
Base of Salt	4,509'	
Delaware	4,629'	Oil
Bone Springs	8,520'	Oil
TD TVD	10,560'	
TD MD	15,100'	

No other formations are expected to give up oil, gas or fresh water in measurable quantities. The surface fresh water sands will be protected by setting 13-3/8" casing at 810' and circulating cement back to surface. All intervals will be isolated by setting 5 1/2" casing to total depth and tying back cement to a minimum of 500' into the 9-5/8" casing.

3. Proposed Casing Program: All casing is new and API approved

Hole Size	Depths	Section	OD Casing	New/Used	Wt	Collar	Grade	Collapse Design Factor	Burst Design Factor	Tension Design Factor
17 1/2"	0' – 810'	Surface	13 3/8"	New	54.5#	STC	J-55	1.125	1.125	1.6
12 1/4"	0' – 3,500'	Intrmd	9 5/8"	New	36#	LTC	J-55	1.125	1.125	1.6
12 1/4"	3,500' – 4,550'	Intrmd	9 5/8"	New	40#	LTC	J-55	1.125	1.125	1.6
7 7/8"	0' – 15,100'	Production Curve & Lateral	5 1/2"	New	17#	LTC	P-110	1.125	1.125	1.6

4/08 • While running all casing strings, the pipe will be kept a minimum of 1/3 full at all times to avoid approaching the collapse pressure of casing.

4. Proposed Cement Program

- a. 13-3/8" Surface
- Lead: 300 sx Class C + 4% Gel + 2% CaCl₂
(13.5 ppg / 1.75 cuft/sx / 9.2 gal/sk)
- Tail: 250 sx Class C + 2% CaCl₂
(14.8 ppg / 1.35 cuft/sx / 6.3 gal/sk)
- **Calculated w/50% excess on OH volumes
- b. 9 5/8" Intermediate:
- Lead: 825 sx 35:65:6 C Blend
(12.7 ppg / 1.89 cuft/sx / 10.6 gal/sk)
- Tail: 250 sx Class C
(14.8 ppg / 1.35 cuft/sx / 6.3 gal/sk)
- **Calculated w/35% excess on OH volumes
- c. 5 1/2" Production:
- Lead: 600 sx 50:50:10 H +Salt+Gilsonite+CFR-3+ HR601
(11.9 ppg / 2.5 cuft/sx / 14.11 gal/sk)
- Tail: 950 sx 50:50:2 H +Salt+GasStop +CFR-3+HR601
(14.4 ppg / 1.25 cuft/sx / 5.66 gal/sk)
- **Calculated w/35% excess on OH volumes

- The above cement volumes could be revised pending the caliper measurement.
- The 9-5/8" intermediate string is designed to circulate cement to surface.
- The production string will tie back a minimum of 500' into the 9-5/8" casing.

5. Pressure Control:

Nipple up on 13 3/8 with annular preventer tested to 50% of rated working pressure by independent tester and the rest of the 2M system tested to 2000 psi.

Nipple up on 9 5/8 with 3M system tested to 3000 psi by independent tester.

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. A 2" kill line and a minimum 3" choke line will be included in the drilling spool located below the ram-type BOP. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold with 3000 psi WP rating. A remotely operated choke will be installed before drilling out intermediate shoe. If H₂S is monitored with 100 ppm in the gas stream while drilling intermediate, we will shut in and install a remote operated choke.

6. Estimated BHP & BHT:

Lateral TD = 5,050 psi

Lateral TD= 160°F

7. Mud Program: The applicable depths and properties of this system are as follows:

Depth	Type System	Mud Weight	Viscosity (sec)	Waterloss (cc)
0' – 810'	Fresh Water	8.4	29	N.C.
810' – 4,550'	Brine	10	29	N.C.
4,550' – 15,100' (Lateral)	Cut Brine	8.8 – 9.2	29	N.C.

- The necessary mud products for weight addition and fluid loss control will be on location at all times.
- A visual and electronic mud monitoring system will be rigged up prior to spud to detect changes in the volume of mud system. The electronic system consists of a pit volume total, stroke counter and flow sensor at flow line.
- If weight and/or viscosity are introduced to the mud system a daily mud check will be performed by mud contractor, along with tourly check by rig personnel.
- After setting intermediate casing, a third party gas unit detection system will be installed at the flow line.

8. Auxiliary Well Control and Monitoring Equipment:

- a. A Kelly cock will be in the drill string at all times.
- b. A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor at all times.
- c. Hydrogen Sulfide detection equipment will be in operation after drilling out the 13 3/8" casing shoe until the 5 1/2" casing is cemented. Breathing equipment will be on location upon drilling the 13 3/8" shoe until total depth is reached.

9. Testing, Logging and Coring Program:

- a. Drill stem tests will be based on geological sample shows.
- b. If open hole electrical logging is performed, the program will be:
 - i. Total Depth to Intermediate Casing: Dual Laterolog-Micro Laterolog and Gamma Ray. Compensated Neutron – Z Density log with Gamma Ray and Caliper.
 - ii. Total Depth to Surface: Compensated Neutron with Gamma Ray
 - iii. No coring program is planned
 - iv. Additional testing will be initiated subsequent to setting the 5 1/2" production casing. Specific intervals will be targeted based on log evaluation, geological sample shows and drill stem tests.

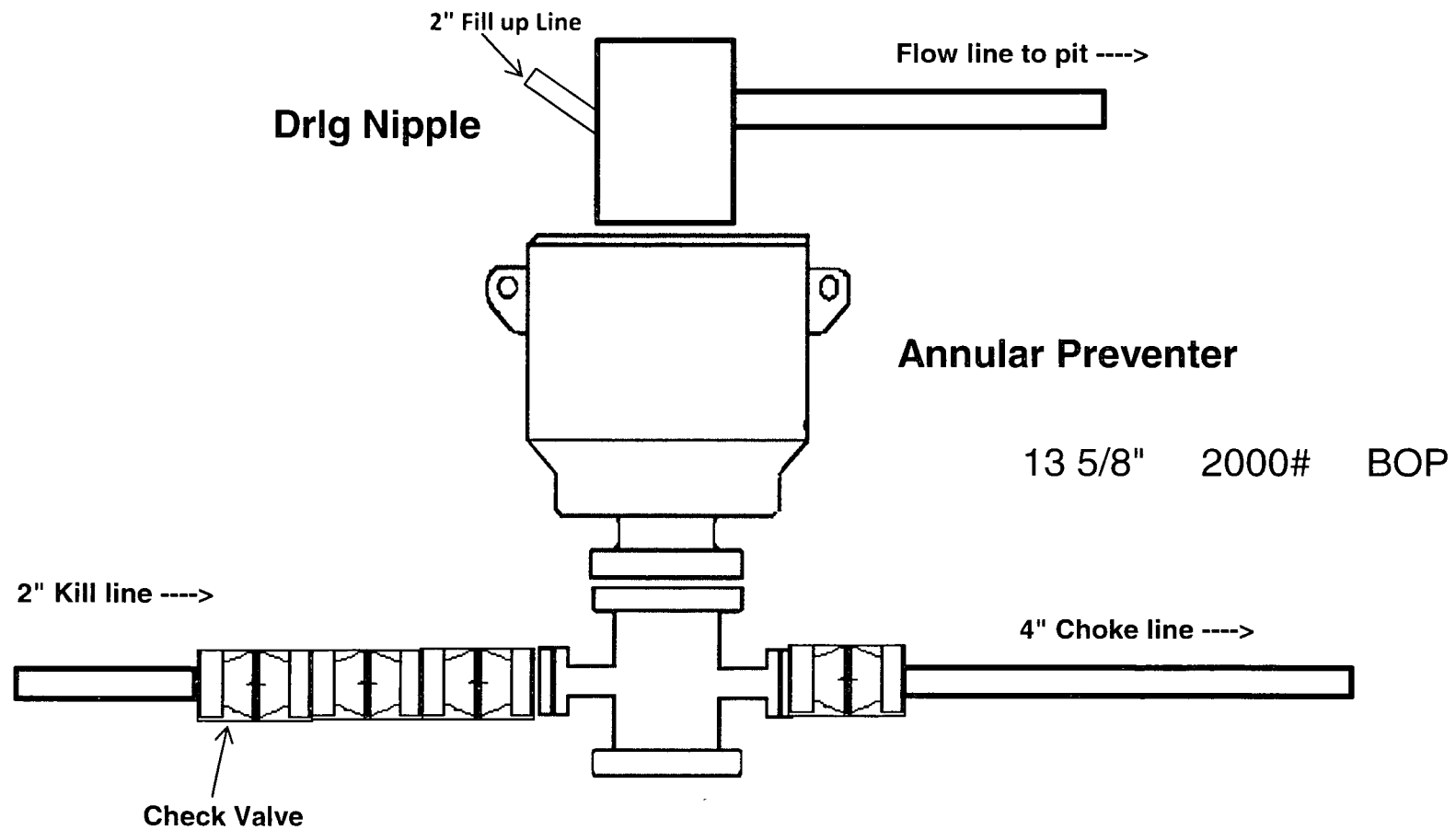
10. Potential Hazards:

- a. No abnormal pressures or temperatures are expected. There is no known presence of H₂S in this area. If H₂S is encountered the operator will comply with the provisions of Onshore Oil and Gas Order No. 6. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. No H₂S is anticipated to be encountered.

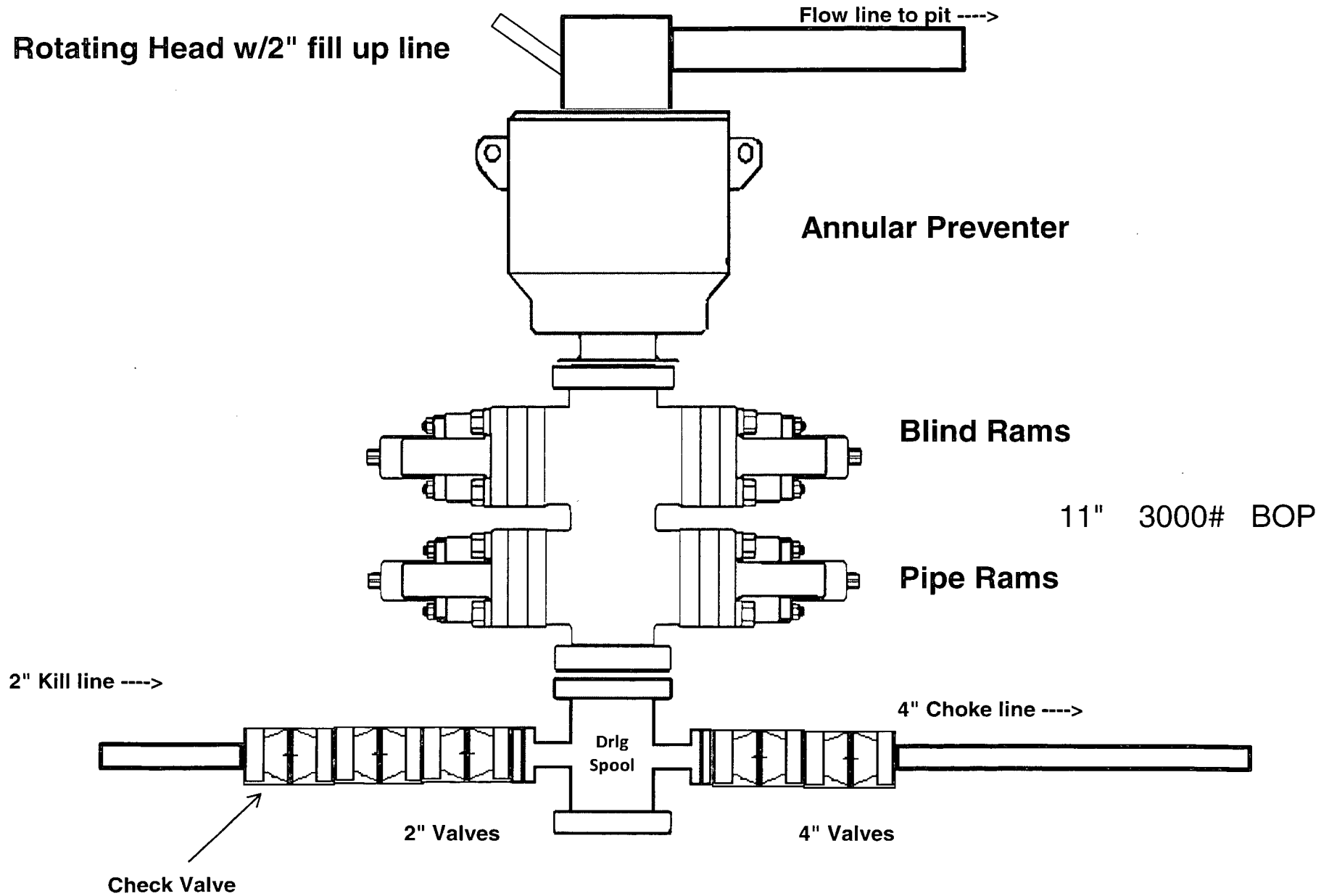
11. Anticipated starting date and Duration of Operations:

- a. Road and location construction will begin after the BLM has approved the APD. Anticipated spud date will be as soon as possible after BLM approval and as soon as a rig will be available. Move in operations and drilling is expected to take 30 days.

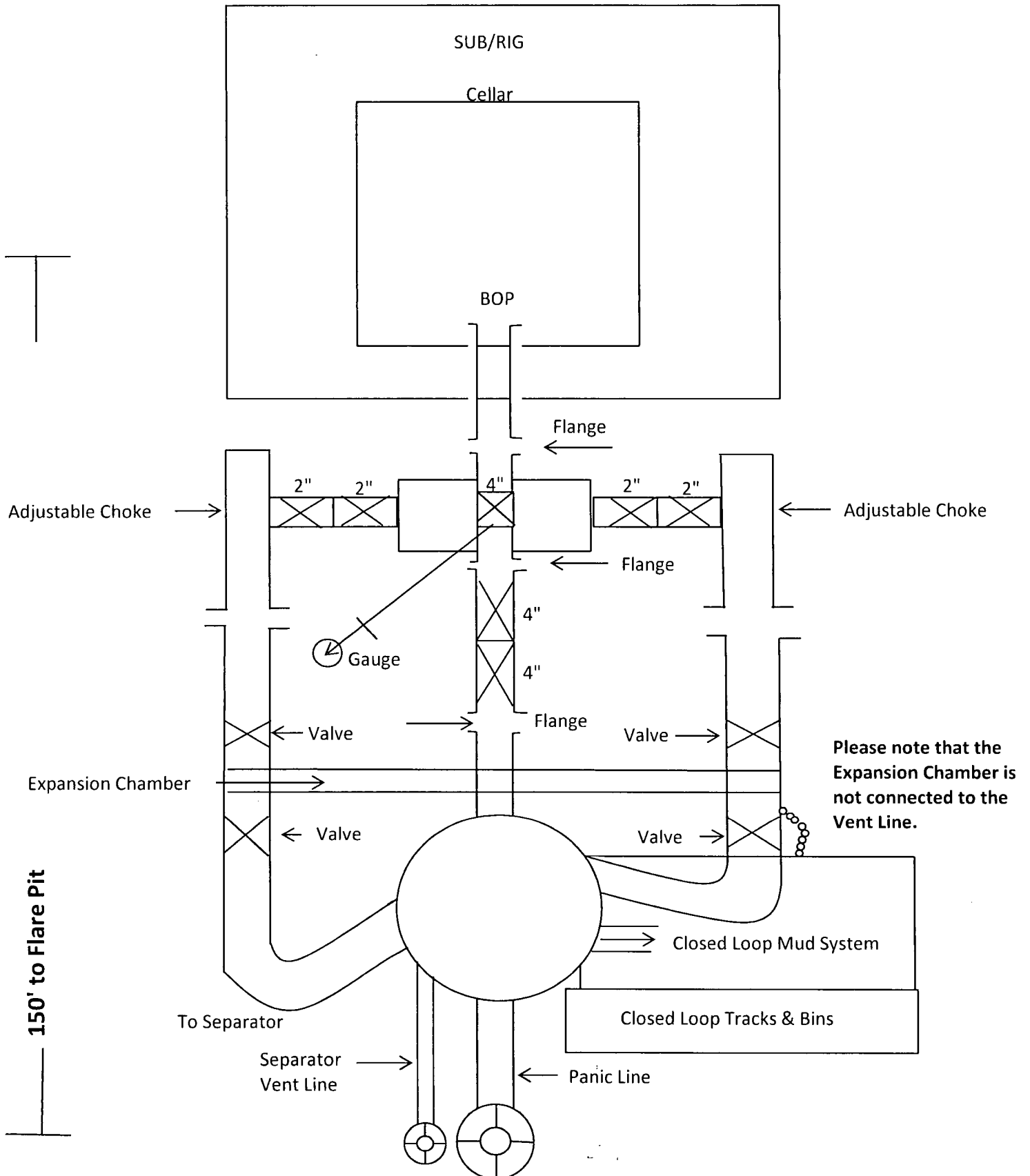
2,000 psi BOP Schematic



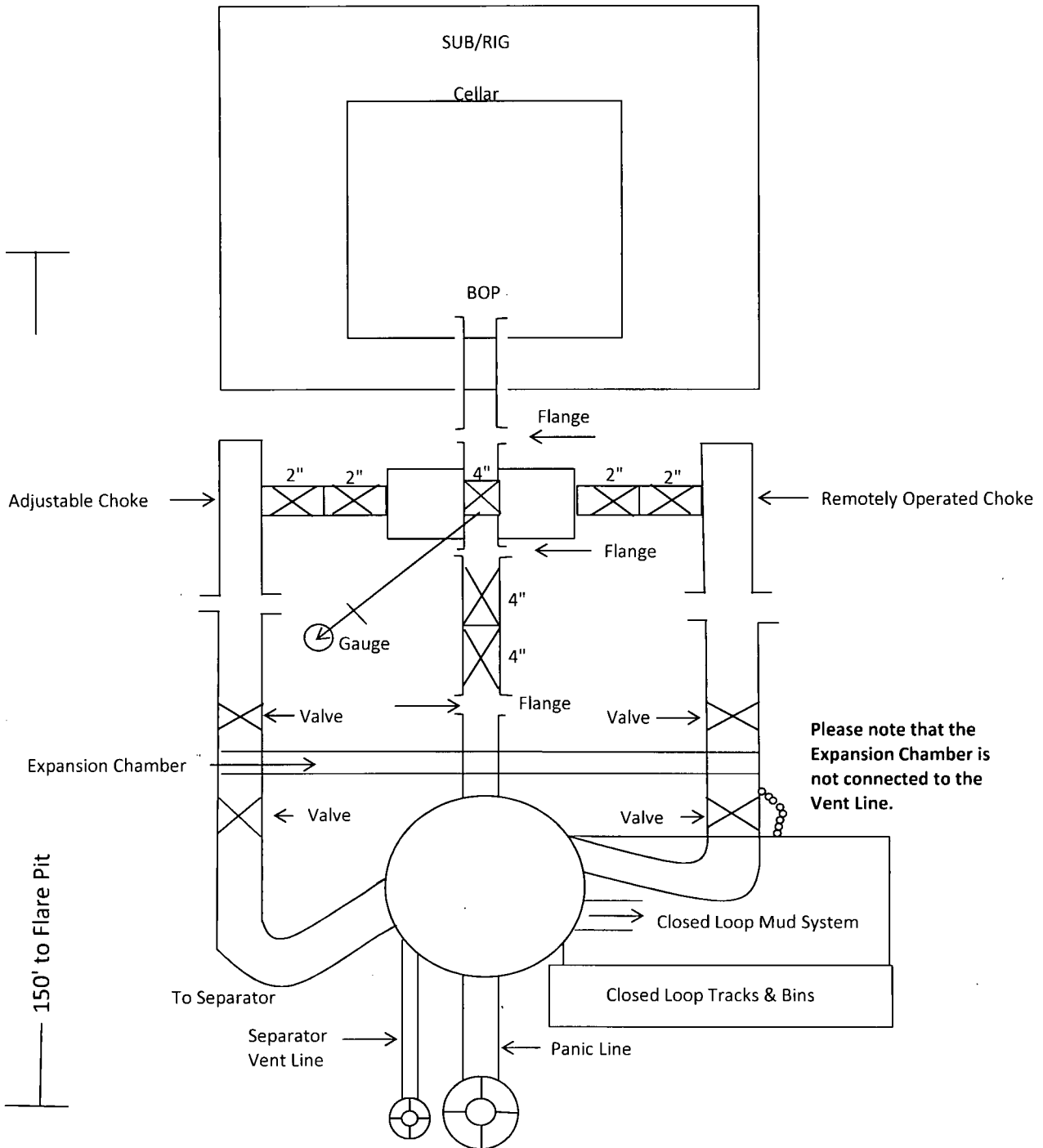
3,000 psi BOP Schematic



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

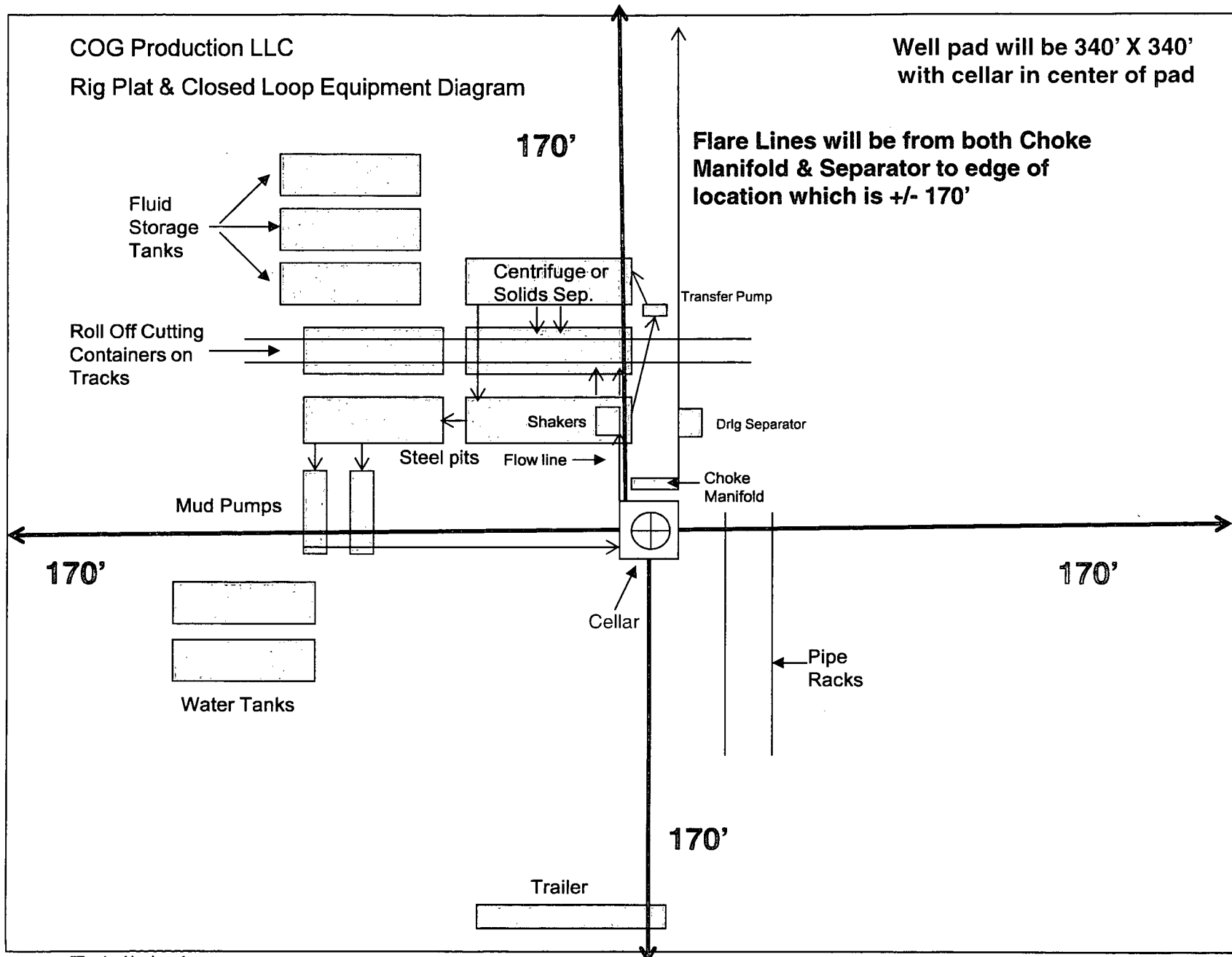


Exhibit 1

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



OG Production LLC

2208 West Main

Artesia, NM 88210

EXHIBIT 3

Production Facility Layout

Azores Federal #2H

Section 29-T24S-R32E

