

OCD Hobbs

FORM APPROVED  
OMB No. 1004-0137  
Expires October 31, 2014

16-1337

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

**HOBBS OCD**  
**APR 03 2018**  
**RECEIVED**

5. Lease Serial No.  
NMNM120907

6. If Indian, Allottee or Tribe Name

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

8. Lease Name and Well No. (314193)  
Eider Federal #15H

9. API Well No.  
30-025-44627

10. Field and Pool, or Exploratory (97784)  
WC-025 G-07 32432255, Lower Bone Spring  
WC-025 G-06 5233201M; 41

11. Sec., T.R.M. or Blk and Survey or Area  
Sec. 35 - T24S - R32E

12. County or Parish  
Lea

13. State  
NM

1a. Type of Work:  DRILL  REENTER

1b. Type of Well:  Oil Well  Gas Well  Other  Single Zone  Multiple Zone

2. Name of Operator  
COG Production LLC. (217955)

3a. Address  
2208 West Main Street  
Artesia, NM 88210

3b. Phone No. (include area code) MIN F  
575-748-6940 144P R

4. Location of Well (Report location clearly and in accordance with any State requirements. \*)  
At surface 210' FSL & 1020' FWL Unit Letter M (SWSW) Sec 35-T24S-R32E  
At proposed prod. Zone 2410 FSL & 1320' FWL Unit Letter L (NWSW) Sec 26-T24S-R32E

14. Distance in miles and direction from nearest town or post office\*  
Approximately 24 miles East from Malaga

15. Distance from proposed\* location to nearest property or lease line, ft. (Also to nearest drig. Unit line, if any)  
200'

16. No. of acres in lease  
1840

17. Spacing Unit dedicated to this well  
240

18. Distance from location\* to nearest well, drilling, completed, applied for, on this lease, ft.  
SHL: 60' (Prop. Eider 16H)  
BHL: 995'

19. Proposed Depth  
TVD: 9,370' MD: 16,707'

20. BLM/BIA Bond No. on file  
NMB000860 & NMB000845

21. Elevations (Show whether DF, KDB, RT, GL, etc.)  
3522.0' GL

22. Approximate date work will start\*  
12/1/2017

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:

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>1. Well plat certified by a registered surveyor.</li> <li>2. A Drilling Plan</li> <li>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).</li> </ul> | <ul style="list-style-type: none"> <li>4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).</li> <li>5. Operator certification</li> <li>6. Such other site specific information and/or plans as may be required by the authorized officer.</li> </ul> |
|---|--|

25. Signature *Mayte Reyes* Name (Printed/Typed) Mayte Reyes Date 7-15-2016

Title Regulatory Analyst

Approved by (Signature) /s/Cody Layton Name (Printed/Typed) FIELD MANAGER Date MAR 29 2013

Title 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.

APPROVAL FOR TWO YEARS

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)

*OCA rec 4/3/18*

*TOP 189 9895  
TD WELL 9370*

\*(Instructions on page 2)

**SEE ATTACHED FOR  
CONDITIONS OF APPROVAL**

Carlsbad Controlled Water Basin

*KZ  
04/04/18*

*REQUIRES NSL*

**Approval Subject to General Requirements  
& Special Stipulations Attached**

*KZ*

UNITED STATES  
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.<br><b>NMNM120907</b>   |
| 1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone  |   | 6. If Indian, Allottee or Tribe Name   |
| 2. Name of Operator<br><b>COG Production LLC.</b>  |   | 7. If Unit or CA Agreement, Name and No.   |
| 3a. Address<br><b>2208 West Main Street<br/>Artesia, NM 88210</b>  |   | 8. Lease Name and Well No.<br><b>Eider Federal #15H</b>                              |
| 3b. Phone No. (include area code)<br><b>575-748-6940</b>   |   | 9. API Well No.  |
| 4. Location of Well (Report location clearly and in accordance with any State requirements. *)<br>At surface <b>210' FSL &amp; 1020' FWL Unit Letter M (SWSW) Sec 35-T24S-R32E</b><br>At proposed prod. Zone <b>2410 FSL &amp; 1320' FWL Unit Letter L (NWSW) Sec 26-T24S-R32E</b> |   | 10. Field and Pool, or Exploratory<br><b>WC-025 G-07 S243225S; Lower Bone Spring</b> |
| 14. Distance in miles and direction from nearest town or post office*<br><b>Approximately 24 miles East from Malaga</b>  |   | 11. Sec., T.R.M. or Blk and Survey or Area<br><b>Sec. 35 - T24S - R32E</b>           |
| 15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. Unit line, if any)<br><b>200'</b>   | 16. No. of acres in lease<br><b>1840</b>                  | 17. Spacing Unit dedicated to this well<br><b>240</b>                                |
| 18. Distance from location* to nearest well, drilling, completed, applied for, on this lease, ft.<br><b>SHL: 60' (Prop. Eider 16H)<br/>BHL: 995'</b>   | 19. Proposed Depth<br><b>TVD: 9,370' MD: 16,707'</b>      | 20. BLM/BIA Bond No. on file<br><b>NMB000860 &amp; NMB000845</b>                     |
| 21. Elevations (Show whether DF, KDB, RT, GL, etc.)<br><b>3522.0' GL</b>   | 22. Approximate date work will start*<br><b>12/1/2017</b> | 23. Estimated duration<br><b>30 days</b>   |

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- |   |  |
|---|--|
| 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<br> | Name (Printed/Typed)<br><b>Mayte Reyes</b> | Date<br><b>7-15-2016</b> |
|---|--|--------------------------|

|                                    |  |  |
|------------------------------------|--|--|
| Title<br><b>Regulatory Analyst</b> |  |  |
|------------------------------------|--|--|

|                         |                      |      |
|-------------------------|----------------------|------|
| Approved by (Signature) | Name (Printed/Typed) | Date |
|                         |                      |      |
| Title                   | 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.

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.



**United States Department of the Interior**  
BUREAU OF LAND MANAGEMENT  
HOBBS FIELD STATION FIELD OFFICE  
414 W. Taylor  
Hobbs, NM 88240  
blm\_nm\_hfs\_apd@blm.gov



Attn: COG OPERATING LLC  
600 WEST ILLINOIS AVE  
MIDLAND, TX 79701

MAR 29 2010

**Re: Notice of Decision**

**Operator Name: COG OPERATING LLC**  
**Well Name: EIDER FEDERAL**  
**Well Number: 15H**  
**APD#: 10400003837**

Dear Operator:

The BLM made a decision regarding the above referenced APD. Please see the enclosed permit for details.

**Review and Appeal Rights**

A person contesting a decision shall request a State Director review. This request must be filed within 20 working days of receipt of the Notice with the appropriate State Director (see 43 CFR 3165.3). The State Director review decision may be appealed to the Interior Board of Land Appeals, 801 North Quincy Street, Suite 300, Arlington, VA 22203 (see 43 CFR 3165.4). Contact the above listed Bureau of Land Management office for further information.

Sincerely,

*/s/Cody Layton*

Highlight All Changes

Application

**Section 1 - General**

**APD ID:** 10400003837      **Tie to previous NOS?**      **Submission Date:**  
07/28/2016  
**BLM Office:** HOBBS      **User:** Priscilla Perez      **Title:** Legal Instruments  
Examiner  
**Federal/Indian APD:** FED      **Is the first lease penetrated for production Federal or Indian?** FED  
**Lease number:** NMNM120907      **Lease Acres:** 1840  
**Surface access agreement in place?**      **Allotted?**      **Reservation:**  
**Agreement in place?** N      **Federal or Indian agreement:**  
**Agreement number:**  
**Agreement name:**  
**Keep application confidential?** N  
**Permitting Agent?** NO      **APD Operator:** COG OPERATING LLC  
**Operator letter of designation:**  
**Keep application confidential?** N

**Signed By:** Mayte Reyes      **Title:** Regulatory Analyst      **Signed Date:** 07/15/2016

**APD Form Attachment(s)**      Eider\_Federal\_15H\_3160\_08-21-2017.PDF

Operator Info

**Operator Organization Name:** COG OPERATING LLC      **Zip:** 79701  
**Operator Address:** 600 West Illinois Ave  
**Operator PO Box:**  
**Operator City:** Midland      **State:** TX  
**Operator Phone:** (432)683-7443  
**Operator Internet Address:** RODOM@CONCHO.COM

**Section 2 - Well Information**

**Well in Master Development Plan?** NO      **Mater Development Plan name:**  
**Well in Master SUPO?** NO      **Master SUPO name:**  
**Well in Master Drilling Plan?** NO      **Master Drilling Plan name:**  
**Well Name:** EIDER FEDERAL      **Well Number:** 15H      **Well API Number:**  
**Field/Pool or Exploratory?** Field and Pool      **Field Name:** WC-025 G-07  
S243225S      **Pool Name:** LOWER BONE  
SPRING

Is the proposed well in an area containing other mineral resources? USEABLE WATER

Describe other minerals:

Is the proposed well in a Helium production area? N Use Existing Well Pad? NO New surface disturbance?

Type of Well Pad: MULTIPLE WELL

Multiple Well Pad Name: EIDER Number: 15H & 16H  
FEDERAL

Well Class: HORIZONTAL

Number of Legs: 1

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: INFILL

Describe sub-type:

Distance to town: 24 Miles

Distance to nearest well: 60 FT

Distance to lease line: 50 FT

Reservoir well spacing assigned acres Measurement: 320 Acres

Well plat: Eider\_Federal\_15H\_Plat\_08-21-2017.PDF

Well work start Date: 10/01/2016

Duration: 30 DAYS

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland:

USFS Ranger District:

## Section 3 - Well Location Table

**Survey Type:** RECTANGULAR

**Describe Survey Type:**

**Datum:** NAD27

**Vertical Datum:** NAVD88

**Survey number:**

|                  | NS-Foot | NS Indicator | EW-Foot  | EW Indicator | Twsp | Range | Section | Aliquot/Lot/Tract   | Latitude      | Longitude           | County | State             | Meridian          | Lease Type | Lease Number   | Elevation     | MD        | TVD      |
|------------------|---------|--------------|----------|--------------|------|-------|---------|---------------------|---------------|---------------------|--------|-------------------|-------------------|------------|----------------|---------------|-----------|----------|
| SHL<br>Leg<br>#1 | 210     | FSL          | 102<br>0 | FWL          | 24S  | 32E   | 35      | Lot<br>4            | 32.16726<br>8 | -<br>103.6502<br>13 | LEA    | NEW<br>MEXI<br>CO | NEW<br>MEXI<br>CO | F          | NMNM<br>120907 | 352<br>2      | 0         | 0        |
| PPP<br>Leg<br>#1 | 50      | FNL          | 990      | FWL          | 24S  | 32E   | 26      | Aliquot<br>NWN<br>W | 32.19557<br>6 | -<br>103.6503       | LEA    | NEW<br>MEXI<br>CO | NEW<br>MEXI<br>CO | F          | NMNM<br>120907 | -<br>613<br>8 | 196<br>51 | 966<br>0 |
| BHL<br>Leg<br>#1 | 50      | FNL          | 990      | FWL          | 24S  | 32E   | 26      | Aliquot<br>NWN<br>W | 32.19557<br>6 | -<br>103.6503       | LEA    | NEW<br>MEXI<br>CO | NEW<br>MEXI<br>CO | F          | NMNM<br>120907 | -<br>613<br>8 | 196<br>51 | 966<br>0 |

## Drilling Plan

### Drilling Plan Attachments

**Drilling Plan Attachment(s)**

Eider\_Federal\_15H\_Drilling\_Plan\_08-21-2017.PDF

**Hydrogen Sulfide Drilling Operations Plan**

Eider\_Federal\_15H\_H2S\_08-21-2017.PDF

**Other Attachments**

Eider\_Federal\_15H\_Plat\_and\_maps\_08-21-2017.PDF

**DP General Comments:**

## SUPO

### SUPO Attachments

**Surface Use Plan Attachment(s)**

Eider\_Federal\_15H\_SUPO\_08-21-2017.PDF

**Map or Plat Attachment(s)**

Eider\_Federal\_15H\_Plat\_and\_maps\_08-21-2017.PDF

SUPO General Comments:

PWD

**PWD Attachments**

Produced Water Disposal Plan Attachment

Produces Water Disposal Plan Map Attachment(s)

PWD General Comments:

Bond Info

**Bond Information**

Federal/Indian APD: FED

BLM Bond number: NMB000860

BIA Bond number:

Do you have a reclamation bond?

Is the reclamation bond a rider under the BLM bond?

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

Forest Service reclamation bond attachment:

Reclamation bond number:

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information attachment:

Bond Attachment(s)

BIA Bond Comments:

Operator Certification

**Operator Certification**

Operator Certification Attachment

Eider\_Federal\_15H\_Certification\_08-21-2017.PDF

Payment Info

## Payment

APD Fee Payment Method: BLM DIRECT

CBS Receipt number: 3610915

### Form Attachment(s)

#### APD Form Attachment(s)

Eider\_Federal\_15H\_3160\_08-21-2017.PDF

#### Well Plat Attachment(s)

Eider\_Federal\_15H\_Plat\_08-21-2017.PDF

### Drilling Plan Attachment(s)

#### Drilling Plan Attachment(s)

Eider\_Federal\_15H\_Drilling\_Plan\_08-21-2017.PDF

#### Hydrogen Sulfide Drilling Operations Plan

Eider\_Federal\_15H\_H2S\_08-21-2017.PDF

#### Other Attachments

Eider\_Federal\_15H\_Plat\_and\_maps\_08-21-2017.PDF

### Surface Use Plan Attachment(s)

#### Surface Use Plan Attachment(s)

Eider\_Federal\_15H\_SUPO\_08-21-2017.PDF

#### Map or Plat Attachment(s)

Eider\_Federal\_15H\_Plat\_and\_maps\_08-21-2017.PDF

### Produce Water Disposal Attachment

#### Produced Water Disposal Plan Attachment

Produces Water Disposal Plan Map Attachment

### Bond Information Attachments

#### Bond Attachment(s)

### Operator Certification Attachment

#### Operator Certification Attachment

Eider\_Federal\_15H\_Certification\_08-21-2017.PDF

# COG Production, LLC - Eider Federal 15H

## 1. Geologic Formations

|               |            |                               |      |
|---------------|------------|-------------------------------|------|
| TVD of target | 9,370' EOL | Pilot hole depth              | NA   |
| MD at TD:     | 16,707'    | Deepest expected fresh water: | 350' |

| Formation            | Depth (TVD) from KB | Water/Mineral Bearing/ Target Zone? | Hazards* |
|----------------------|---------------------|-------------------------------------|----------|
| Quaternary Fill      | Surface             | Water                               |          |
| Rustler              | 1015                | Water                               |          |
| Top of Salt          | 1300                | Salt                                |          |
| Base of Salt         | 4605                | Salt                                |          |
| Lamar                | 4835                | Salt Water                          |          |
| Bell Canyon          | 4880                | Salt Water                          |          |
| Cherry Canyon        | 5850                | Oil/Gas                             |          |
| Brushy Canyon        | 7130                | Oil/Gas                             |          |
| Bone Spring Lime     | 8795                | Oil/Gas                             |          |
| U. Avalon Shale      | 9140                | Oil/Gas                             |          |
| L. Avalon Shale      | 9320                | Target Oil/Gas                      |          |
| 1st Bone Spring Sand | 9895                | Not Penetrated                      |          |
| 2nd Bone Spring Sand | X                   | Not Penetrated                      |          |
| 3rd Bone Spring Sand | X                   | Not Penetrated                      |          |
| Wolfcamp             | X                   | Not Penetrated                      |          |

## 2. Casing Program

| Hole Size                 | Casing Interval |        | Csg. Size | Weight (lbs) | Grade | Conn. | SF Collapse | SF Burst | SF Tension         |
|---------------------------|-----------------|--------|-----------|--------------|-------|-------|-------------|----------|--------------------|
|                           | From            | To     |           |              |       |       |             |          |                    |
| 17.5"                     | 0               | 1040   | 13.375"   | 54.5         | J55   | STC   | 2.37        | 1.31     | 9.07               |
| 12.25"                    | 0               | 4860   | 9.625"    | 40           | J55   | LTC   | 1.00        | 1.08     | 2.67               |
| 8.75"                     | 0               | 16,707 | 5.5"      | 17           | P110  | LTC   | 1.63        | 2.92     | 2.79               |
| BLM Minimum Safety Factor |                 |        |           |              |       |       | 1.125       | 1        | 1.6 Dry<br>1.8 Wet |

Intermediate casing will be kept at least 1/3 full while running casing to mitigate collapse. Intermediate burst based on 0.7 frac gradient at the shoe with Gas Gradient 0.1 psi/ft to surface.

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h



**COG Production, LLC - Eider Federal 15H**

|   | Y or N |
|---|--------|
| Is casing new? If used, attach certification as required in Onshore Order #1  | Y      |
| Does casing meet API specifications? If no, attach casing specification sheet.  | Y      |
| Is premium or uncommon casing planned? If yes attach casing specification sheet.  | N      |
| Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).                                    | Y      |
| Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?   | Y      |
| Is well located within Capitan Reef?<br>If yes, does production casing cement tie back a minimum of 50' above the Reef?<br>Is well within the designated 4 string boundary?         | N      |
| Is well located in SOPA but not in R-111-P?<br>If yes, are the first 2 strings cemented to surface and 3 <sup>rd</sup> string cement tied back 500' into previous casing?           | N      |
| Is well located in R-111-P and SOPA?<br>If yes, are the first three strings cemented to surface?<br>Is 2 <sup>nd</sup> string set 100' to 600' below the base of salt?              | N      |
| Is well located in high Cave/Karst?<br>If yes, are there two strings cemented to surface?<br>(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs? | N      |
| Is well located in critical Cave/Karst?<br>If yes, are there three strings cemented to surface?   | N      |

**COG Production, LLC - Eider Federal 15H**

**3. Cementing Program**

| Casing   | # Sks | Wt. lb/<br>gal | Yld ft <sup>3</sup> /<br>sack | H <sub>2</sub> O gal/sk | 500# Comp.<br>Strength<br>(hours) | Slurry Description                            |
|----------|-------|----------------|-------------------------------|-------------------------|-----------------------------------|---|
| Surf.    | 430   | 13.5           | 1.75                          | 9                       | 12                                | Lead: Class C + 4% Gel + 1% CaCl <sub>2</sub> |
|          | 250   | 14.8           | 1.34                          | 6.34                    | 8                                 | Tail: Class C + 2% CaCl <sub>2</sub>          |
| Inter.   | 920   | 12.7           | 2.0                           | 9.6                     | 16                                | Lead: 35:65:6 C Blend                         |
|          | 250   | 14.8           | 1.34                          | 6.34                    | 8                                 | Tail: Class C + 2% CaCl                       |
| 5.5 Prod | 630   | 11.9           | 2.5                           | 19                      | 72                                | Lead: 50:50:10 H Blend                        |
|          | 1990  | 14.4           | 1.24                          | 5.7                     | 19                                | Tail: 50:50:2 Class H Blend                   |

Volumes Subject to Observed Hole Conditions and/or Fluid Caliper Results  
 Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

| Casing String                | TOC    | % Excess  |
|------------------------------|--------|---|
| Surface                      | 0'     | 50%   |
| 1 <sup>st</sup> Intermediate | 0'     | 50%   |
| Production                   | 4,360' | 25% OH in Lateral (KOP to EOL) – 40% OH in Vertical |

**COG Production, LLC - Eider Federal 15H**

**4. Pressure Control Equipment**

|   |  |
|---|--|
| N | A variance is requested for the use of a diverter on the surface casing. See attached for schematic. |
|---|--|

| BOP installed and tested before drilling which hole? | Size?   | Min. Required WP | Type       | x | Tested to:           |
|--|---------|------------------|------------|---|----------------------|
| 12-1/4"  | 13-5/8" | 2M               | Annular    | x | 2000 psi             |
|  |         |                  | Blind Ram  |   | 2M                   |
|  |         |                  | Pipe Ram   |   |                      |
|  |         |                  | Double Ram |   |                      |
|  |         |                  | Other*     |   |                      |
| 8-3/4"   | 13-5/8" | 3M               | Annular    | x | 50% testing pressure |
|  |         |                  | Blind Ram  | x | 3M                   |
|  |         |                  | Pipe Ram   | x |                      |
|  |         |                  | Double Ram |   |                      |
|  |         |                  | Other*     |   |                      |

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

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. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

|   |   |
|---|---|
| X | Formation integrity test will be performed per Onshore Order #2.<br>On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i. |
| Y | A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.   |
| N | Are anchors required by manufacturer?   |
| N | A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested.  |

**COG Production, LLC - Eider Federal 15H**

**5. Mud Program**

| Depth           |                 | Type            | Weight (ppg) | Viscosity | Water Loss |
|-----------------|-----------------|-----------------|--------------|-----------|------------|
| From            | To              |                 |              |           |            |
| 0               | Surf. Shoe      | FW Gel          | 8.6 - 8.8    | 28-34     | N/C        |
| Surf csg        | 9-5/8" Int shoe | Saturated Brine | 10 - 10.2    | 28-34     | N/C        |
| 9-5/8" Int shoe | Lateral TD      | Cut Brine       | 8.6 - 9.4    | 28-34     | N/C        |

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

|   |                             |
|---|-----------------------------|
| What will be used to monitor the loss or gain of fluid? | PVT/Pason/Visual Monitoring |
|---|-----------------------------|

**6. Logging and Testing Procedures**

| Logging, Coring and Testing. |   |
|------------------------------|---|
| Y                            | Will run GR/CNL from TD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM. |
| Y                            | No Logs are planned based on well control or offset log information.  |
| N                            | Drill stem test? If yes, explain.   |
| N                            | Coring? If yes, explain.  |

| Additional logs planned |             | Interval   |
|-------------------------|-------------|--|
| N                       | Resistivity | Pilot Hole TD to ICP                                       |
| N                       | Density     | Pilot Hole TD to ICP                                       |
| Y                       | CBL         | Production casing<br>(If cement not circulated to surface) |
| Y                       | Mud log     | Intermediate shoe to TD                                    |
| N                       | PEX         |  |

**COG Production, LLC - Eider Federal 15H**

**7. Drilling Conditions**

| Condition                  | Specify what type and where? |
|----------------------------|------------------------------|
| BH Pressure at deepest TVD | 4585 psi at 9370' TVD        |
| Abnormal Temperature       | NO 150 Deg. F.               |

No abnormal pressure or temperature conditions are anticipated. Sufficient mud materials to maintain mud properties and weight increase requirements will be kept on location at all times.

Sufficient supplies of Paper/LCM for periodic sweeps to control seepage and losses will be maintained on location.

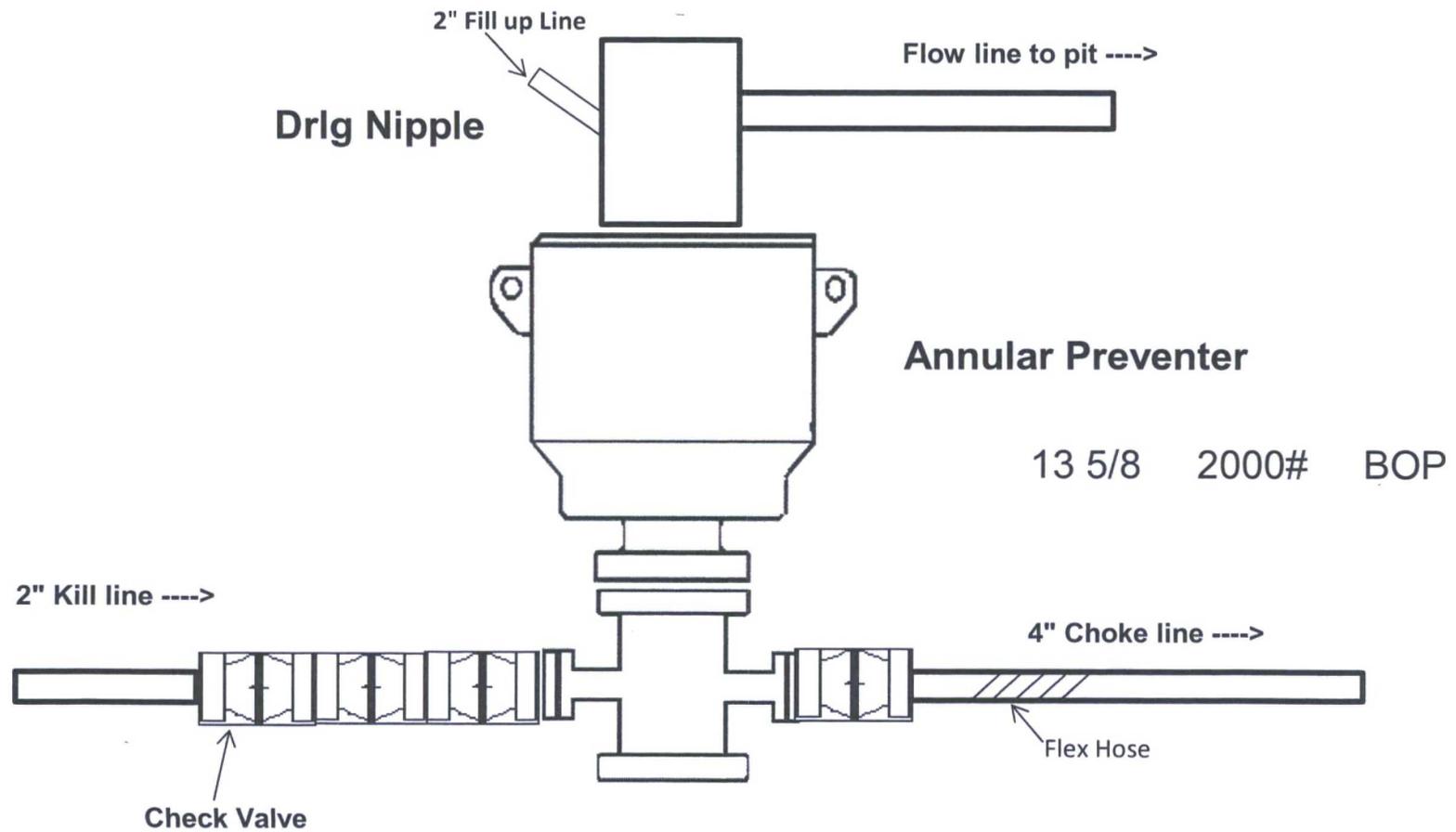
|  |                   |
|--|-------------------|
| Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM. |                   |
| N  | H2S is present    |
| Y  | H2S Plan attached |

**8. Other Facets of Operation**

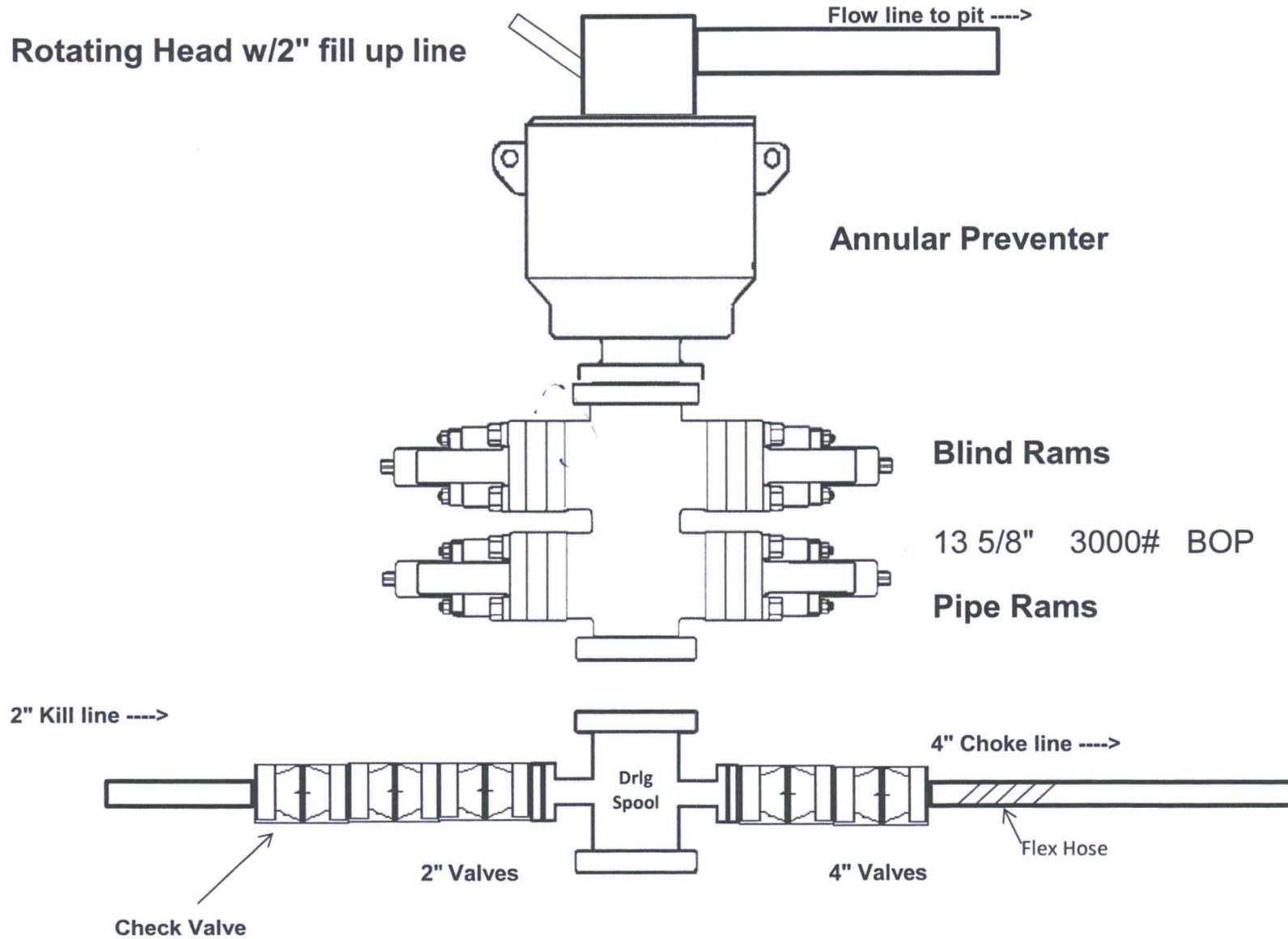
|   |                            |
|---|----------------------------|
| Y | Is it a walking operation? |
| N | Is casing pre-set?         |

|   |                         |
|---|-------------------------|
| x | H2S Plan.               |
| x | BOP & Choke Schematics. |
| x | Directional Plan        |

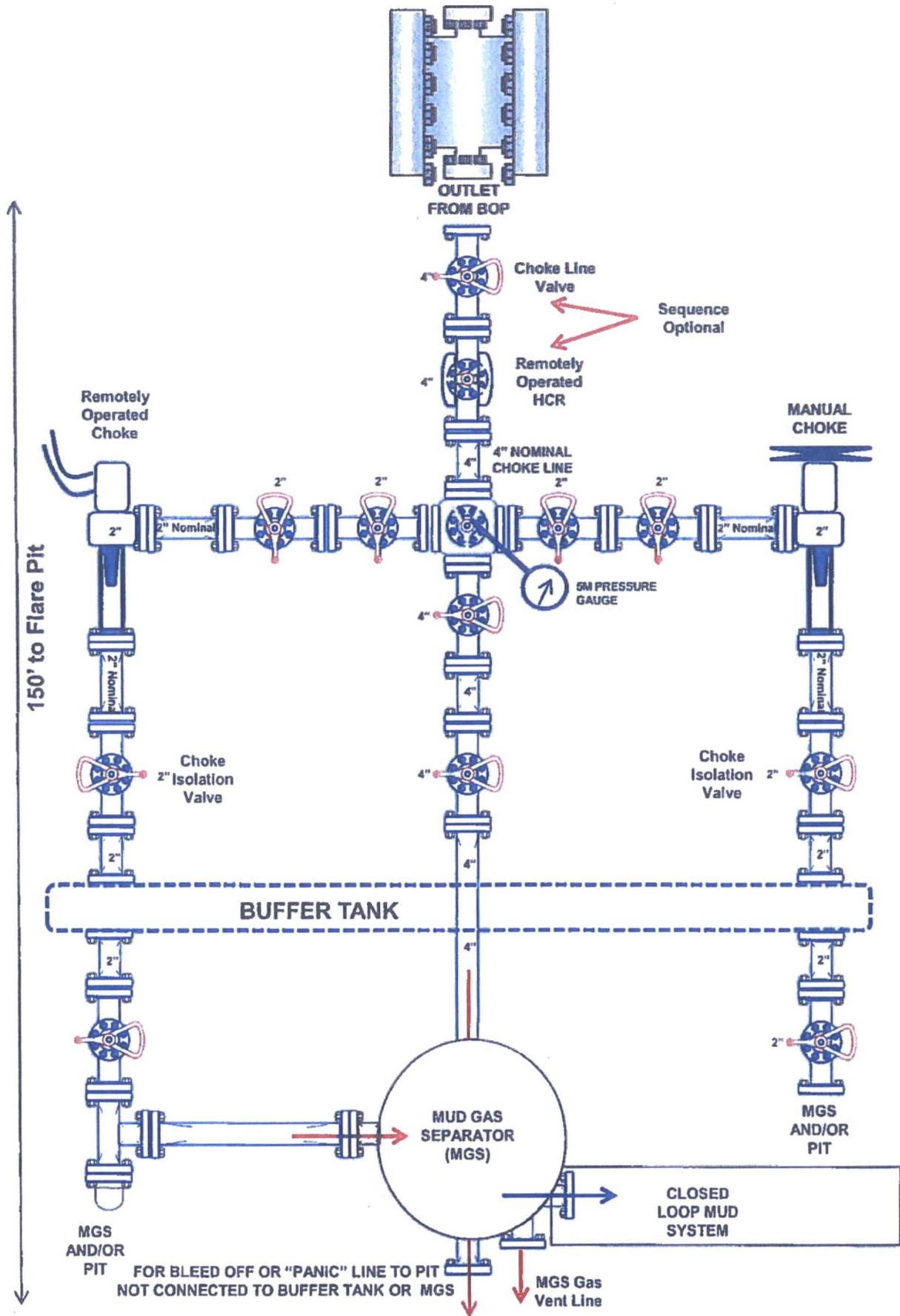
# 2,000 psi BOP Schematic



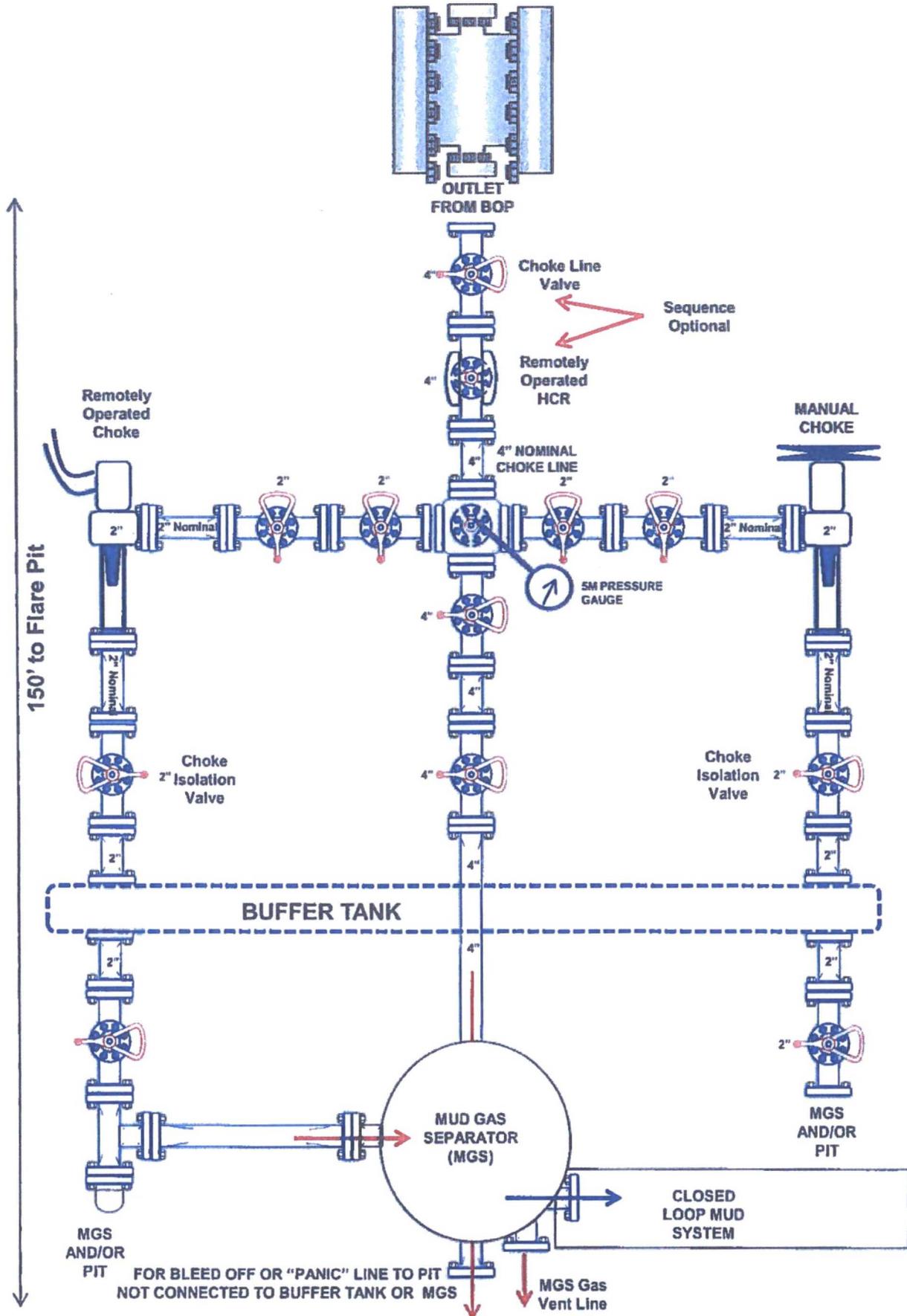
# 3,000 psi BOP Schematic



# 2M Choke Manifold Equipment (WITH MGS + CLOSED LOOP)

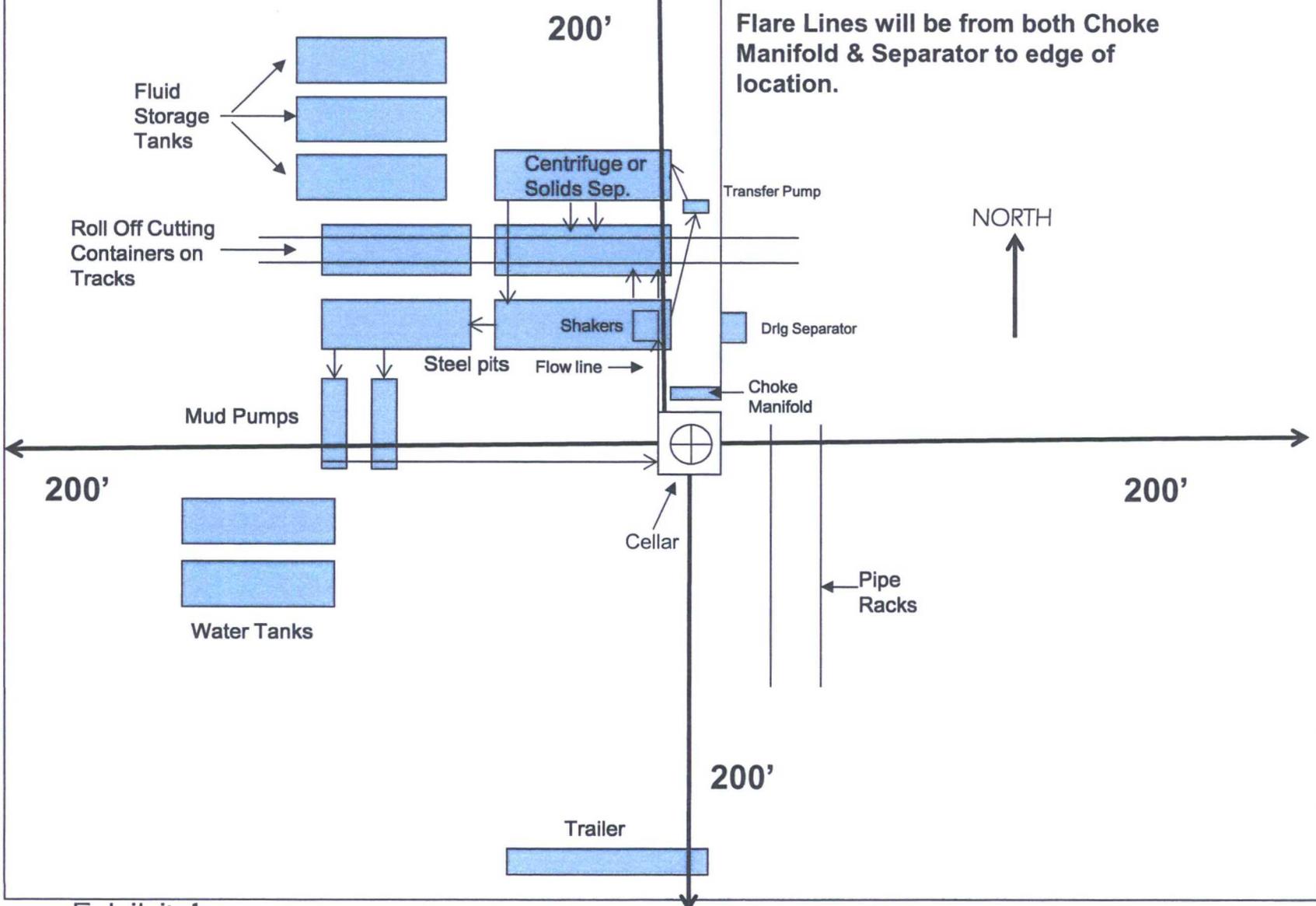


# 3M Choke Manifold Equipment (WITH MGS + CLOSED LOOP)



COG Production 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  
↑

Exhibit 1

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

COG Production LLC  
 H<sub>2</sub>S Equipment Schematic  
 Terrain: Shinnery sand hills.

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

