0-3
2012)

FORM APPROVED 16-1335
OMB No. 1004-0137
Expires October 31, 2014

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD-Hobbs
HOBBS OCD
APR 03 2018
RECEIVED

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.: NMNM120907

6. If Indian, Allotee or Tribe Name:

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

8. Lease Name and Well No.: Eider Federal #16H (314193)

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)

9. API Well No.: 30-025-44628

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

3b. Phone No. (include area code): 575-748-6940

MIN F SURF

10. Field and Pool, or Exploratory: WC-025 G-07 S243225S; Lower Bone Spring (97854) UPER G-06 S243201M

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

At surface: 210' FSL & 960' FWL Unit Letter M (SWSW) Sec 35-T24S-R32E

At proposed prod. Zone: 2410' FSL & 330' FWL Unit Letter L (NWSW) Sec 26-T24S-R32E

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

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

12. County or Parish: Lea

13. State: NM

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 15H) BHL: 1983'

19. Proposed Depth: TVD: 9,710' MD: 17,174'

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

21. Elevations (Show whether DF, KDB, RT, GL, etc.): 3522.2' 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:

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: 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 2018

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 theron.

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)

SEE ATTACHED FOR CONDITIONS OF APPROVAL

GCP Rec 4/3/18

TOP 1B 9855 TVD
TD WELL 9710 TVD

Carlsbad Controlled Water Basin

KZ 04/04/18

*(Instructions on page 2)

Approval Subject to General Requirements & Special Stipulations Attached

* Double sided

Form 3160-3
(March 2012)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.: NMNM120907

6. If Indian, Allotee or Tribe Name:

1a. Type of Work: [✓] DRILL [ ] REENTER

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

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

8. Lease Name and Well No.: Eider Federal #16H

2. Name of Operator: COG Production LLC.

9. API Well No.:

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3b. Phone No. *(include area code)*: 575-748-6940

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5. Operator certification
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: 7-15-2016

Title: Regulatory Analyst

Approved by *(Signature)*:

Name *(Printed/Typed)*:

Date:

Title:

Office:

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(Continued on page 2)

*(Instructions on page 2)

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: 16H
APD#: 10400003797

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

AFMSS

U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Paper APD Data Report

03/28/2018

Highlight All Changes

Application

Section 1 - General

APD ID: 10400003797 **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_16H_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:** 16H **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 FED

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_16H_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 Leg #1	210	FSL	960	FWL	24S	32E	35	Aliquot SWSW	32.167268	-103.650407	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 120907	3522	0	0
PPP Leg #1	50	FNL	380	FWL	24S	32E	26	Aliquot NWNW	32.195569	-103.652272	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 120907	3522	0	0
BHL Leg #1	50	FNL	380	FWL	24S	32E	26	Aliquot NWNW	32.195569	-103.652272	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 120907	-6123	19670	9645

Drilling Plan

Drilling Plan Attachments

Drilling Plan Attachment(s)

Eider_Federal_16H_Drilling_Plan_08-21-2017.PDF

Hydrogen Sulfide Drilling Operations Plan

Eider_Federal_16H_H2S_Plan_08-21-2017.PDF

Other Attachments

Eider_Federal_16H_Plat_maps_08-21-2017.PDF

DP General Comments:

SUPO

SUPO Attachments

Surface Use Plan Attachment(s)

Eider_Federal_16H_SUPO_08-21-2017.PDF

Map or Plat Attachment(s)

Eider_Federal_16H_Plat_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_16H_Certification_08-21-2017.PDF

Payment Info

Payment

APD Fee Payment Method: BLM DIRECT

CBS Receipt number: 3610917

Form Attachment(s)

APD Form Attachment(s)

Eider_Federal_16H_3160_08-21-2017.PDF

Well Plat Attachment(s)

Eider_Federal_16H_Plat_08-21-2017.PDF

Drilling Plan Attachment(s)

Drilling Plan Attachment(s)

Eider_Federal_16H_Drilling_Plan_08-21-2017.PDF

Hydrogen Sulfide Drilling Operations Plan

Eider_Federal_16H_H2S_Plan_08-21-2017.PDF

Other Attachments

Eider_Federal_16H_Plat_maps_08-21-2017.PDF

Surface Use Plan Attachment(s)

Surface Use Plan Attachment(s)

Eider_Federal_16H_SUPO_08-21-2017.PDF

Map or Plat Attachment(s)

Eider_Federal_16H_Plat_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_16H_Certification_08-21-2017.PDF

COG Production, LLC - Eider Federal 16H

1. Geologic Formations

TVD of target	9,710' EOL	Pilot hole depth	NA
MD at TD:	17,174'	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	1305	Salt	
Base of Salt	4595	Salt	
Lamar	4820	Salt Water	
Bell Canyon	4870	Salt Water	
Cherry Canyon	5825	Oil/Gas	
Brushy Canyon	7110	Oil/Gas	
Bone Spring Lime	8755	Oil/Gas	
U. Avalon Shale	9120	Oil/Gas	
L. Avalon Shale	9300	Target Oil/Gas	
1st Bone Spring Sand	9855	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	4845	9.625"	40	J55	LTC	1.00	1.05	2.68
8.75"	0	17,174	5.5"	17	P110	LTC	1.58	2.82	2.70
				BLM Minimum Safety Factor			1.125	1	1.6 Dry 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 16H

	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?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary?	
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

3. Cementing Program

Casing	# Sks	Wt. lb/ gal	Yld ft3/ sack	H_20 gal/sk	500# Comp. Strength (hours)	Slurry Description
Surf.	430	13.5	1.75	9	12	Lead: Class C + 4% Gel + 1% CaCl2
	250	14.8	1.34	6.34	8	Tail: Class C + 2% CaCl2
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	680	11.9	2.5	19	72	Lead: 50:50:10 H Blend
	2030	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%
1st Intermediate	0'	50%
Production	4,345'	25% OH in Lateral (KOP to EOL) – 40% OH in Vertical

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. 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.

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 (If cement not circulated to surface)
Y	Mud log	Intermediate shoe to TD
N	PEX	

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	4750 psi at 9710' TVD
Abnormal Temperature	NO 155 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.

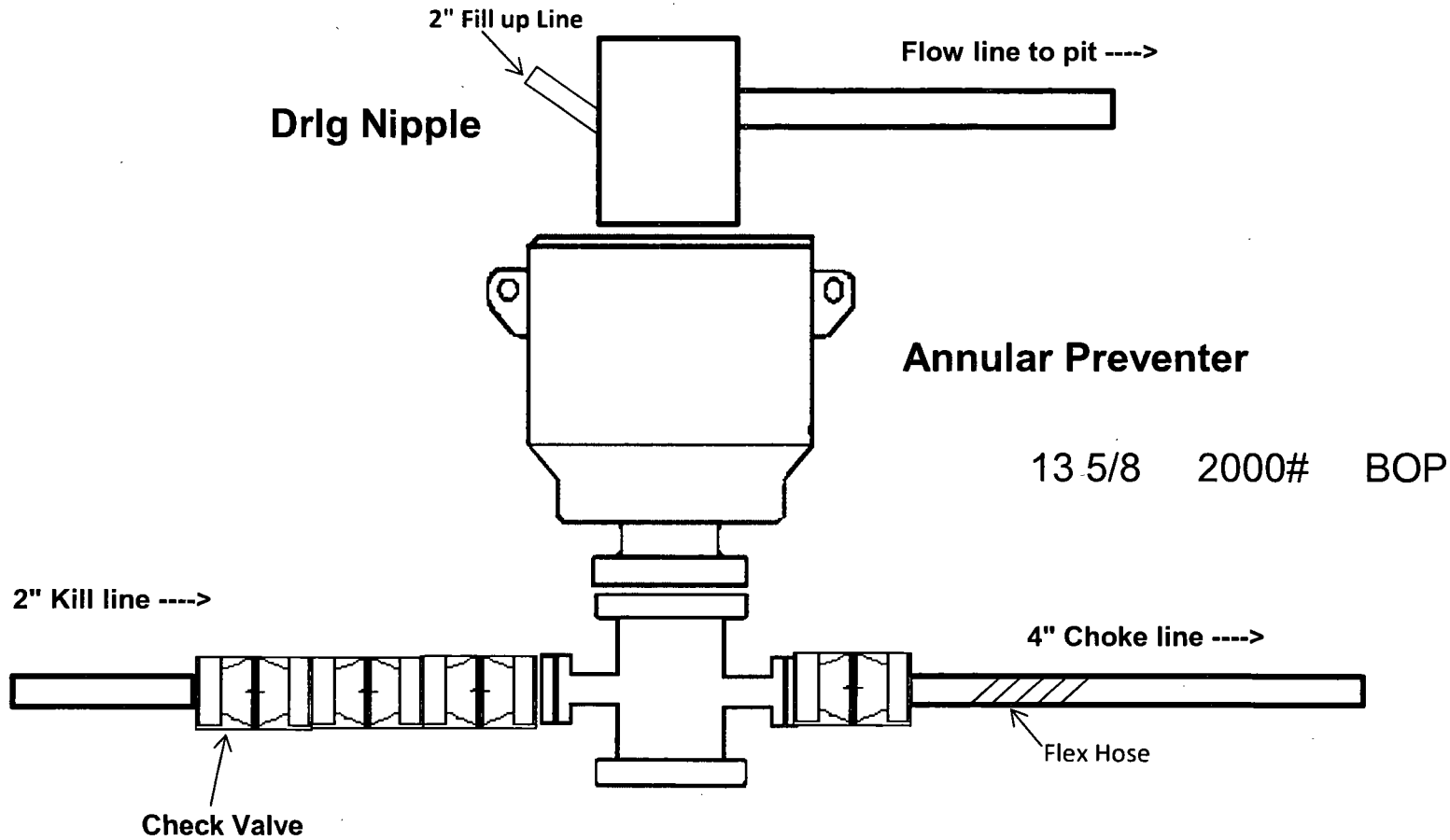
Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be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

8. Other Facets of Operation

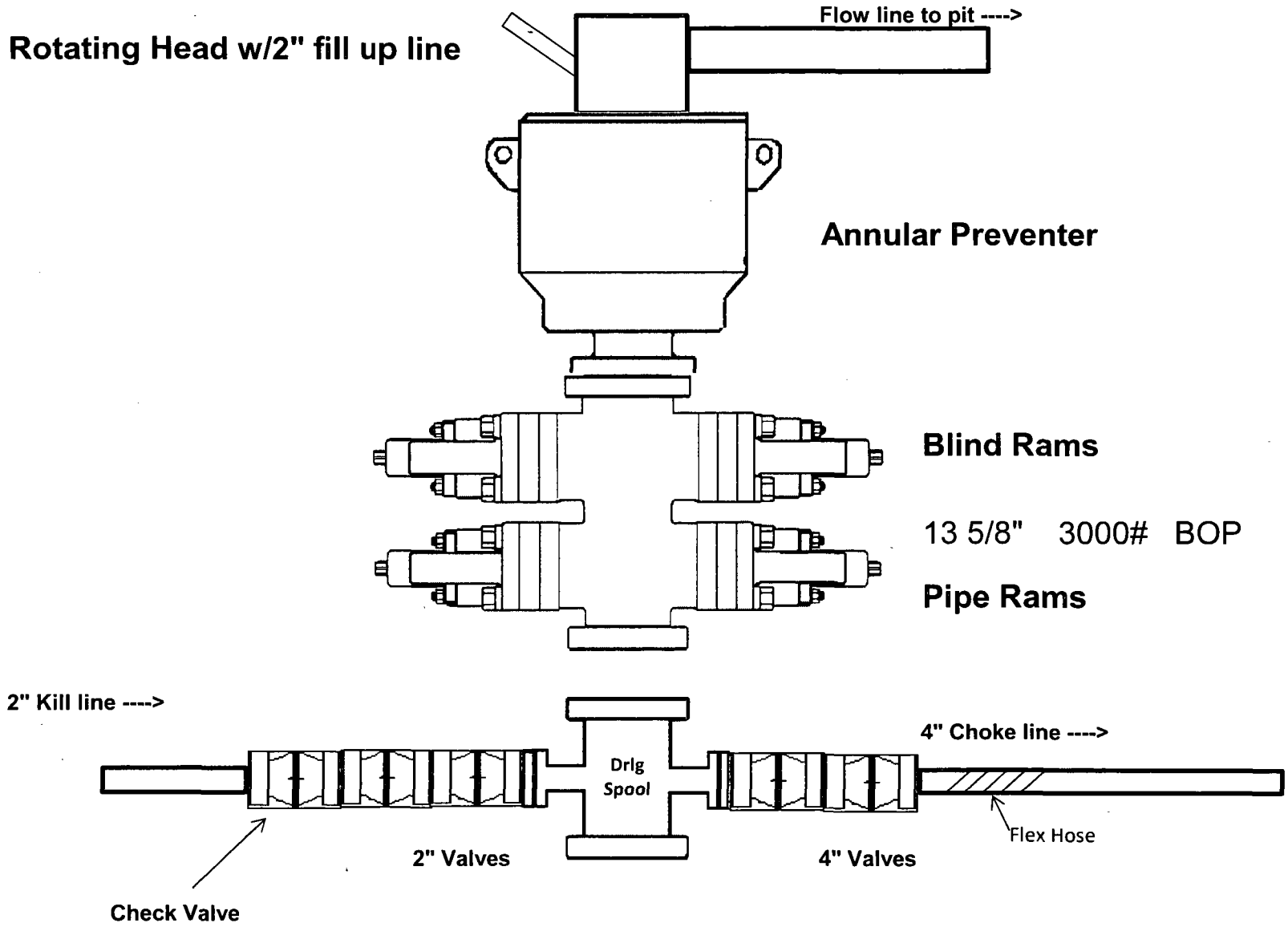
Y	Is it a walking operation?
N	Is casing pre-set?

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

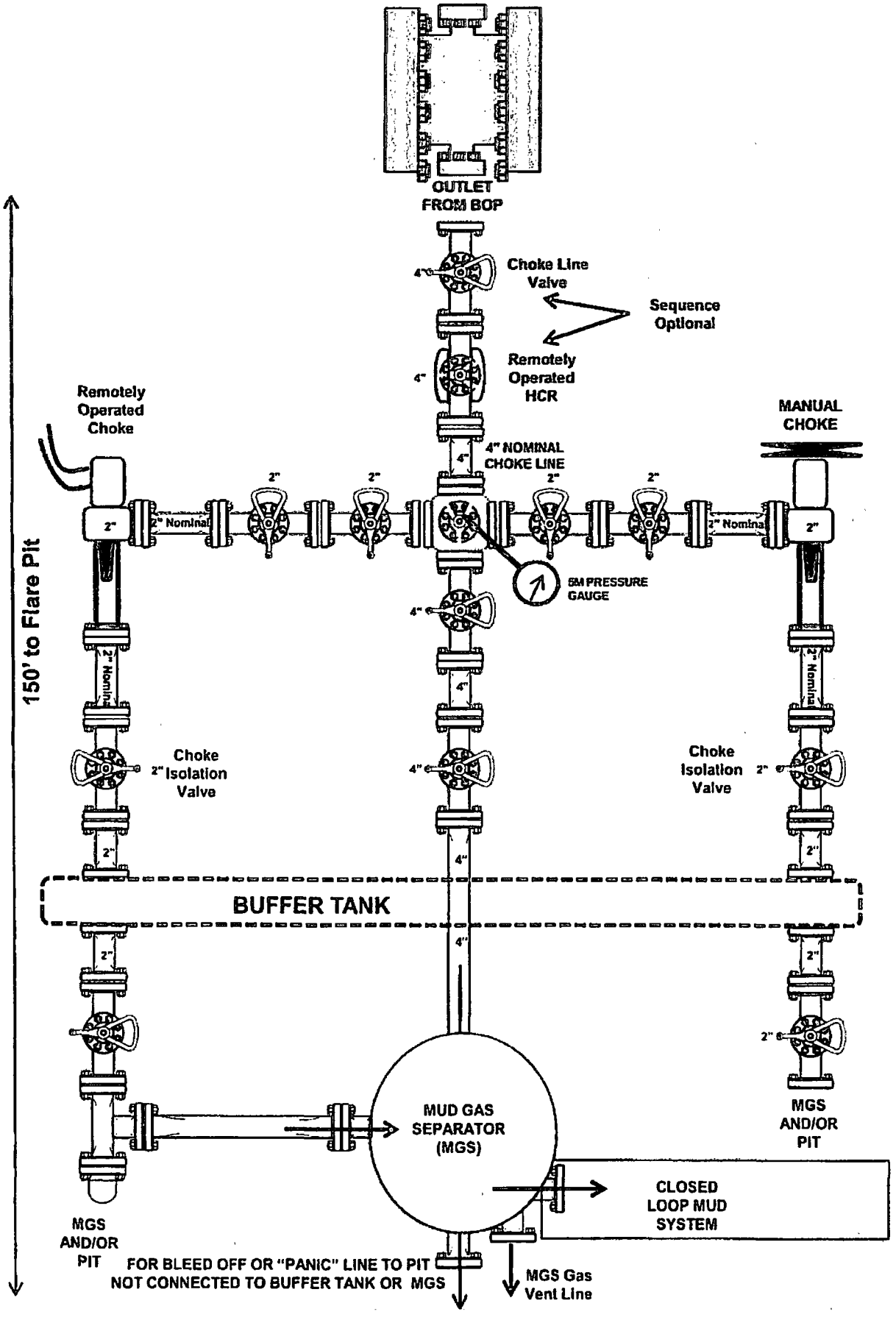
2,000 psi BOP Schematic



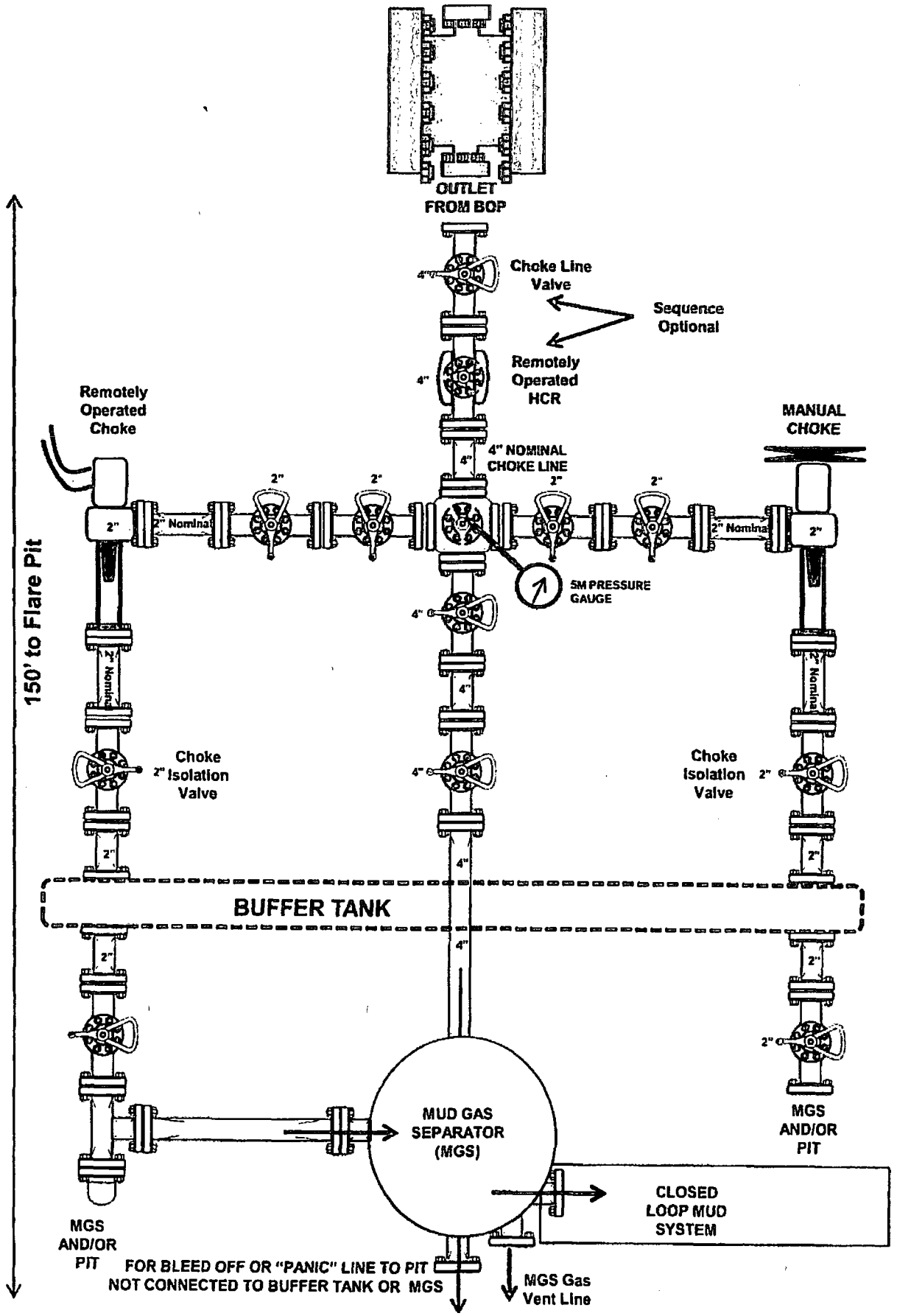
3,000 psi BOP Schematic



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



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



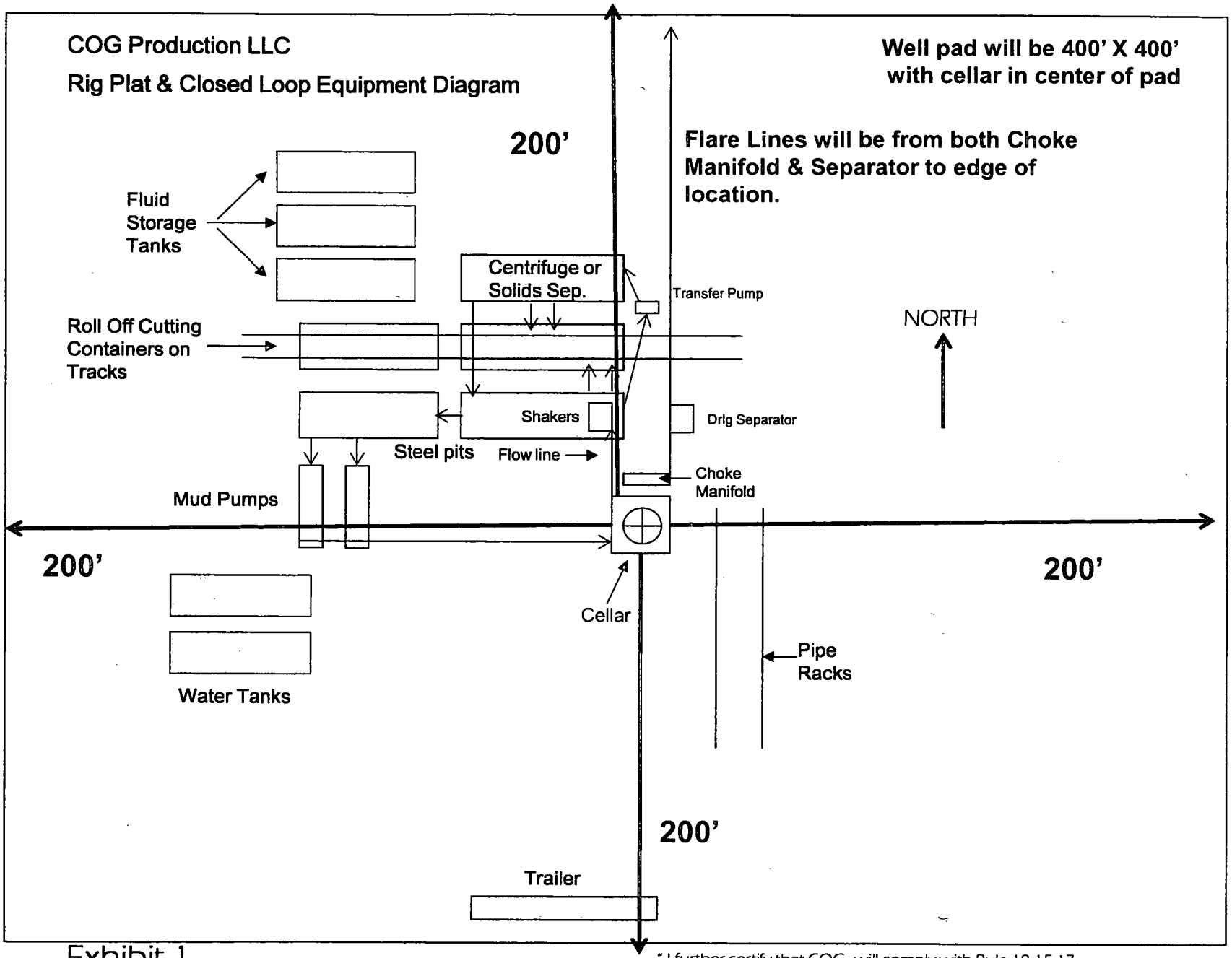


Exhibit 1

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

COG Production LLC
H_2S Equipment Schematic
Terrain: Shinnery sand hills.

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