Form 3160-3
(March 2012)

HOBBS OCD
OCD Hobbs
OCT 27 2016
RECEIVED

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.: NMNM120908

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.: (40143) Windward Federal #6H

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

9. API Well No.: 30-025-43465

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

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

10. Field and Pool, or Exploratory: (97899) WC-025 G-06 S253206M; Bone Spring

4. Location of Well (Report location clearly and in accordance with any State requirements.*)
At surface: 210' FNL & 560' FWL Lot 1 (NWNW) SHL Sec. 30 - T24S - R32E
At proposed prod. Zone: 230' FSL & 990' FWL Lot 4 (SWSW) BHL Sec. 31 - T24S - R32E

11. Sec., T.R.M. or Blk and Survey or Area: Sec. 30 - T24S - R32E

14. Distance in miles and direction from nearest town or post office*: Approximately 20 miles East from Malaga

12. County or Parish: Lea County

13. State: NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. Unit line, if any)	16. No. of acres in lease	17. Spacing Unit dedicated to this well
50'	1891.72	371.72

18. Distance from location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth	20. BLM/BIA Bond No. on file
SHL: 50' (Prop. Windward #5H) BHL: 4720'	TVD: 9,197' MD: 19,209'	NMB000845 & NMB000860

21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
3538.3' GL	10/1/2016	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	7/13/2016

Title: Regulatory Analyst

Approved by (Signature)	Name (Printed/Typed)	Date
Cody R. Layton	Cody R. Layton	10/24/16

Title	Office
for Field Manager	CFO-BLM

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)

*(Instructions on page 2)

SEE ATTACHED FOR CONDITIONS OF APPROVAL

Approval Subject to General Requirements & Special Stipulations Attached

KZ 10/27/16

Witness Surface Casing

Carlsbad Controlled Water Basin

COG Operating, LLC – Windward Federal 6H

1. Geologic Formations

TVD of target	9197' (EOC)	Pilot hole depth	No
MD at TD:	19,209'	Deepest expected fresh water:	550

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Rustler	682	Water	
Top of Salt	1005	Salt	
Base of Salt - Fletcher	4287	Salt	
Delaware - Lamar	4509	Salt Water	
Bell Canyon	4539	Salt Water	Seepage/Loss Cir
Cherry Canyon	5442	Oil/Gas	Seepage/Loss Cir
Brushy Canyon	6822	Oil/Gas	Seepage/Loss Cir
Bone Spring Lime	8432	Barren	
Upper Avalon Shale	8724	Oil/Gas	
Lower Avalon Shale	9189	Oil/Gas	
1st Bone Spring Sand	9770	Not Penetrated	

2. Casing Program

Hole Size	Casing Interval From	To	Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
17.5"	0	800	13.375"	54.5	J55	STC	2.985	1.623	3.579
12.25"	0	4524	9.625"	40	J55	LTC	11.09	1.6	2.242
8.75"	0	19,209'	5.5"	17	P110	LTC	1.664	2.451	2.130
				BLM Minimum Safety Factor			1.125	1	1.6 Dry 1.8 Wet

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h
Intermediate and Production Burst based on Pore Pressure (9.1 ppge) at Lateral TVD
Intermediate casing will always be kept 1/3 full while running as additional collapse protection.

	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.	460	13.5	1.72	9.11	12	Lead: Class C + 4% Gel + 2% CaCl2
	180	14.8	1.33	6.34	8	Tail: Class C + 2% CaCl2
Intermediate	580	11.0	3.26	20.13	18	Lead: Halliburton NEOCEM TM
	340	14.8	1.33	6.34	8	Tail: Class C + 2% CaCl
Production	840	11	3.2	19.66	72	Lead: Halliburton NEOCEM + 1 lb/sk kol-seal
	2160	13.2	1.5	7.5	8	Tail: Halliburton NEOCEM TM

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'	80%
1st Intermediate	0'	75%, 50%
Production	4000' (500'+ Tie-in to Int Casing)	45% from int csg to KOP and 20% from KOP to TD.

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	✓	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 shoe	9-5/8" Int shoe	Saturated Brine	10.0-10.2	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.
N	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	4386 psi at 9197' TVD (EOC)
Abnormal Temperature	NO (149 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

Directional Drilling and Anticollision Considerations

The directional plan and anti-collision plan(s) for this well is attached.

There are three wells that are in proximity of the Windward Federal 6H surface location.
The Windward Federal 1H surface location is 131' West of the proposed location.
The King Tut Federal 1H surface location is 230' West of the proposed location.
The Windward Federal 5H surface location will be 30' West of the proposed location.
The anticollision assessment reports for both wells are included.

The Redhead 31 Federal 1H will be in the proximity of the lateral as it is extended into Section 31. This well was drilled to the Bone Springs and the vertical portion of this well poses a possible collision hazard with the proposed Windward Federal 5H lateral. The anticollision assessment report for this well is included in the directional plan.

Is this a walking operation? YES If yes, describe. We will walk 30' to the Windward Federal 5H after rig releasing from the Windward Federal 6H.
Will be pre-setting casing? NO If yes, describe.

Attachments

- Directional Plan
- AC Report
- BOP & Choke Schematics
- C102 and supporting maps
- Rig plat
- H2S schematic
- H2S contingency plan
- Interim reclamation plat
- Pressure Chart and Certs for Flex Hose Variance

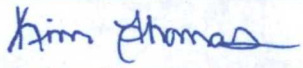
Midwest Hose
& Specialty, Inc.

Internal Hydrostatic Test Certificate

General Information		Hose Specifications	
Customer	**Hobbs**	*Hose Assembly Type*	**Rotary/Vibrator**
MWH Sales Representative	**Ryan Rynolds**	*Certification*	**API 7K/FSL Level 2**
Date Assembled	**11/19/2015**	*Hose Grade*	**D**
Location Assembled	**OKC**	*Hose Working Pressure*	**5000**
Sales Order #	**271739**	*Hose Lot # and Date Code*	**11834 11/14**
Customer Purchase Order #	**302337**	*Hose I.D. (Inches)*	**3.5"**
Assembly Serial # (Pick Ticket #)	**326000**	*Hose O.D. (Inches)*	**4.89"**
Hose Assembly Length	**25'**	*Armor (yes/no)*	No

Fittings			
End A		**End B**	
Stem (Part and Revision #)	**R3.5X64WB**	*Stem (Part and Revision #)*	**R3.5X64WB**
Stem (Heat #)	**A144783**	*Stem (Heat #)*	**A144783**
Ferrule (Part and Revision #)	**RF3.5**	*Ferrule (Part and Revision #)*	**RF3.5**
Ferrule (Heat #)	**J1628**	*Ferrule (Heat #)*	**J1628**
Connection . Flange Hammer Union Part	**4-1/16 5000**	*Connection (Part #)*	**4-1/16 5000**
Connection (Heat #)	**14032501**	*Connection (Heat #)*	**1404H321**
Nut (Part #)	**N/A**	*Nut (Part #)*	**N/A**
Nut (Heat #)	**N/A**	*Nut (Heat #)*	**N/A**
Dies Used	**5.49"**	*Dies Used*	**5.49"**

Hydrostatic Test Requirements		
Test Pressure (psi)	**10,000**	***Hose assembly was tested with ambient water temperature.***
Test Pressure Hold Time (minutes)	**11 1/2**	

Date Tested	*Tested By*	*Approved By*
11/19/2015		

Midwest Hose
& Specialty, Inc.

Certificate of Conformity

Customer: **Hobbs**	*Customer P.O.#* **302337**
Sales Order # **271739**	*Date Assembled:* **11/19/2015**

Specifications

Hose Assembly Type:	**Rotary/Vibrator**		
Assembly Serial #	**326000**	*Hose Lot # and Date Code*	**11834 11/14**
Hose Working Pressure (psi)	**5000**	*Test Pressure (psi)*	**10000**

We hereby certify that the above material supplied for the referenced purchase order to be true according to the requirements of the purchase order and current industry standards.

Supplier:
Midwest Hose & Specialty, Inc.
3312 S I-35 Service Rd
Oklahoma City, OK 73129

Comments:

Approved By	*Date*
Kim Thomas	**11/19/2015**

Midwest Hose & Specialty, Inc.

Internal Hydrostatic Test Graph

November 19, 2015

Customer: Hobbs

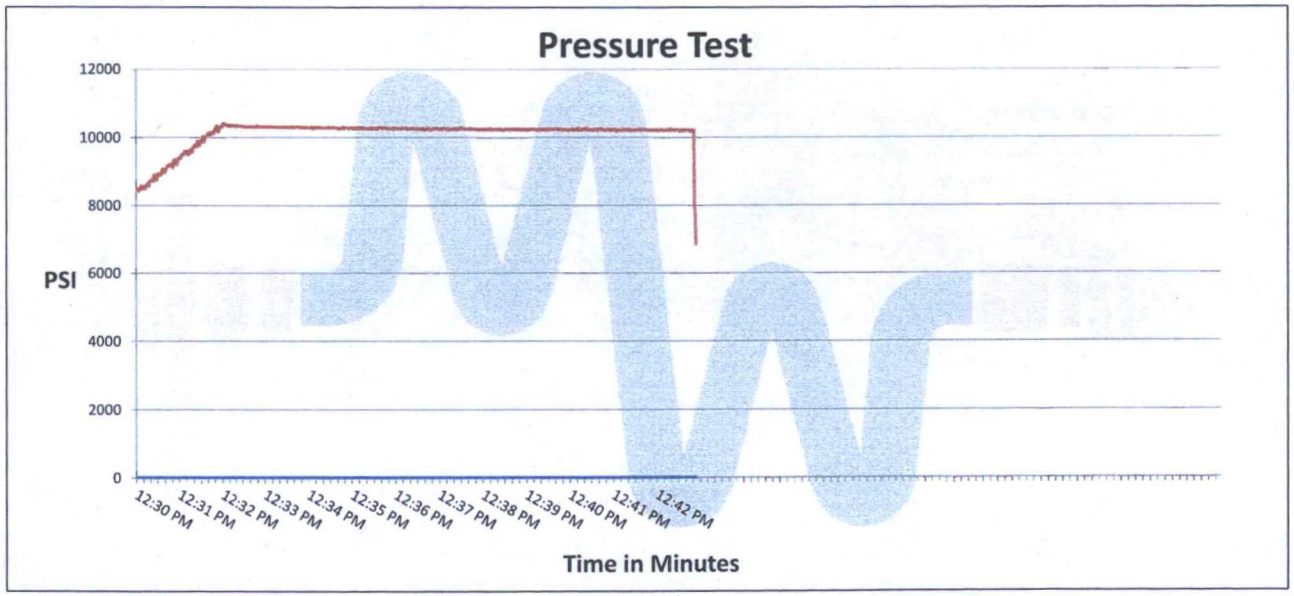
Pick Ticket #: 326000

Hose Specifications

Hose Type	Length
D	25'
I.D.	**O.D.**
3.5"	4.89"
Working Pressure	**Burst Pressure**
5000 PSI	Standard Safety Multiplier Applies

Verification

Type of Fitting	Coupling Method
4 1/16 5K	Swage
Die Size	**Final O.D.**
5.49"	5.50"
Hose Serial #	**Hose Assembly Serial #**
11834	326000



Test Pressure	Time Held at Test Pressure	Actual Burst Pressure	Peak Pressure
10000 PSI	11 2/4 Minutes		10473 PSI

Comments: Hose assembly pressure tested with water at ambient temperature.

Tested By: *James Hawkins*

Approved By: *Kim Thomas*

x _____

x _____

Midwest Hose & Specialty, Inc.

Hose Assembly & Test Report

General Information		Hose Specifications	
Customer	Hobbs	Hose Assembly Type	choke + kill
Date Assembled	6-26-14	Certification	API 7K
Location Assembled	DKC	Hose Grade	D
Sales Order #	216797	Hose Working Pressure	5,000
Customer Purchase Order #	237512	Hose Lot #	B309
Hose Assembly Serial #	260212	Hose Date Code	04/12
Pick Ticket Line Item	0010	Hose I.D. (inches)	3.5 inches
Hose Assembly Length (Feet and Inches)	50 feet	Hose O.D. (inches)	5.49
Contact Information Phone #		Armor (yes/no)	yes

Fittings

End A		End B	
Stem (Part and Revision #)	R3.5X64 WB	Stem (Part and Revision #)	R3.5x64 WB
Stem (Heat #)	131140502225	Stem (Heat #)	131140502225
Stem (Rockwell Hardness HRB #)	—	Stem (Rockwell Hardness HRB #)	—
Ferrule (Part and Revision #)	RF3.5	Ferrule (Part and Revision #)	RF3.5
Ferrule (Heat #)	126151	Ferrule (Heat #)	372114
Ferrule (Rockwell Hardness HRB #)	—	Ferrule (Rockwell Hardness HRB #)	—
Connection (Part #)	4 1/16 5K	Connection (Part #)	4 1/16 5K
Connection (Heat #)	V3360	Connection (Heat #)	V3360
Connection (Brinell Hardness HB #)	—	Connection (Brinell Hardness HB #)	—
Stress Relief #	17614	Stress Relief #	17614
Welding #	MKR	Welding #	MKR
X-ray #	—	X-ray #	—

Assembly Information

End A		End B	
Skive O.D. (inches)	5.04	Skive O.D. (inches)	4.92
Swager Dies (1st pass)	5.62	Swager Dies (1st pass)	5.53
Swager Dies (2nd pass)	—	Swager Dies (2nd pass)	—
Final Swage O.D. (inches)	5.64	Final Swage O.D. (inches)	5.48
Compression % (See Crimp Calculator)	8%	Compression % (See Crimp Calculator)	22%
Swaged By	Charles		

Hydrostatic Test Requirements

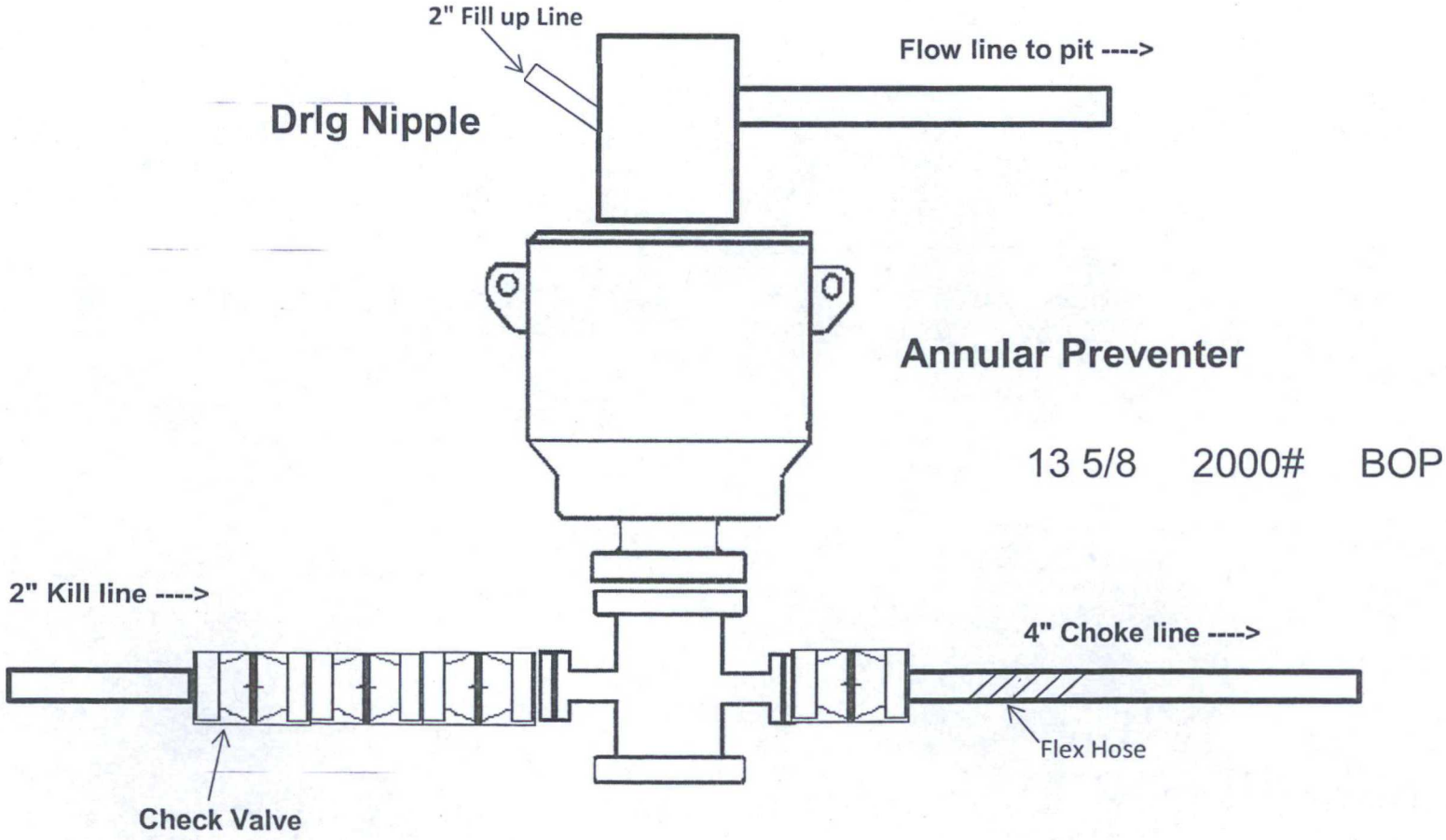
Test Pressure (psi)	10,000	Hold Time (minutes)	13¼
Tested By	Charles	Date Tested	6-26-14

This is to certify that the above Hose Assembly has been satisfactorily tested in accordance with MHSI procedure 8.2.4.2

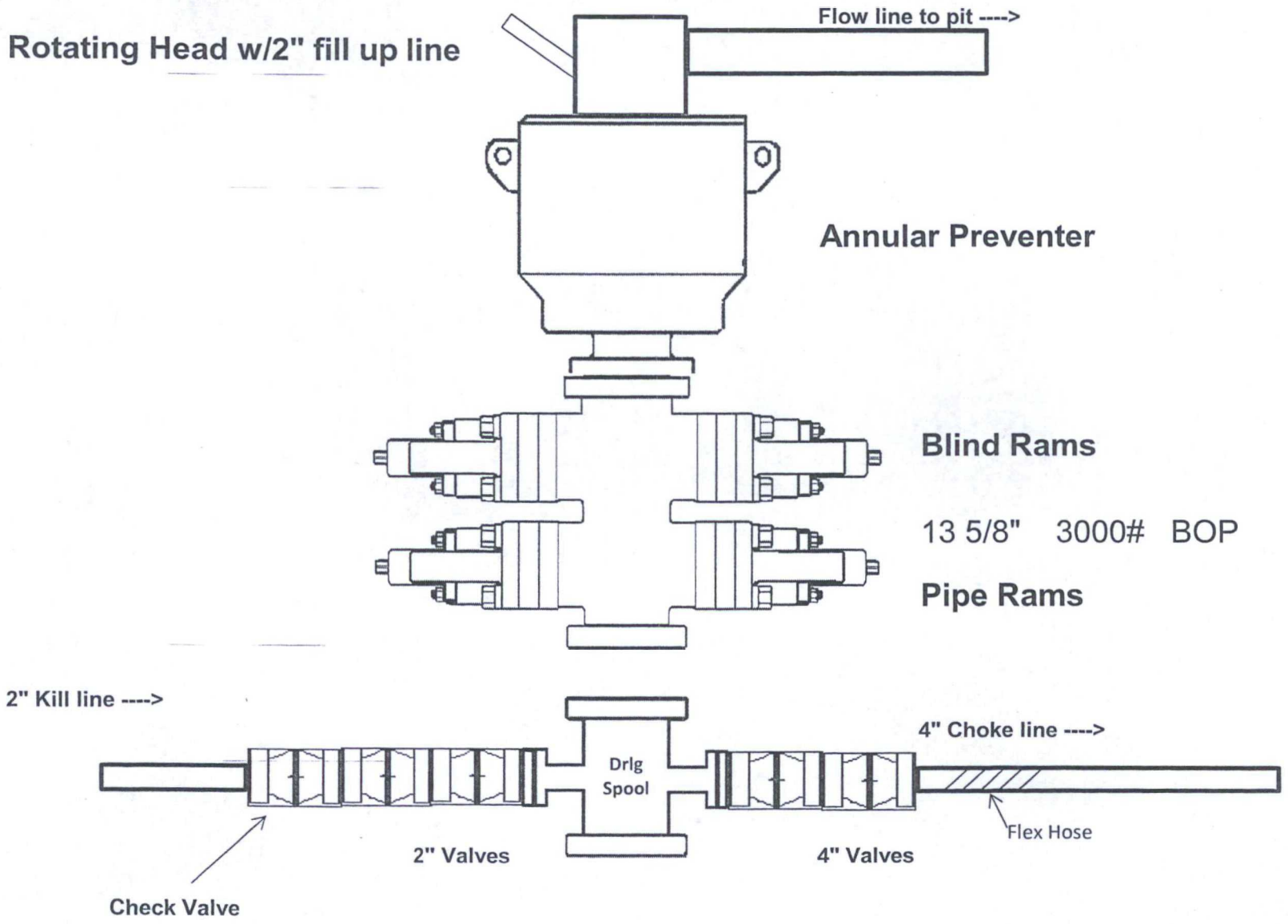
Final Verification

Visual Inspection	(Yes) No	Hammer Unions	Yes (No)
Lifting Collar	(Yes) No	Safety Clamps	Yes (No)
Customer or Third Party Witness (No)	Customer or Third Party Witnessed By:		

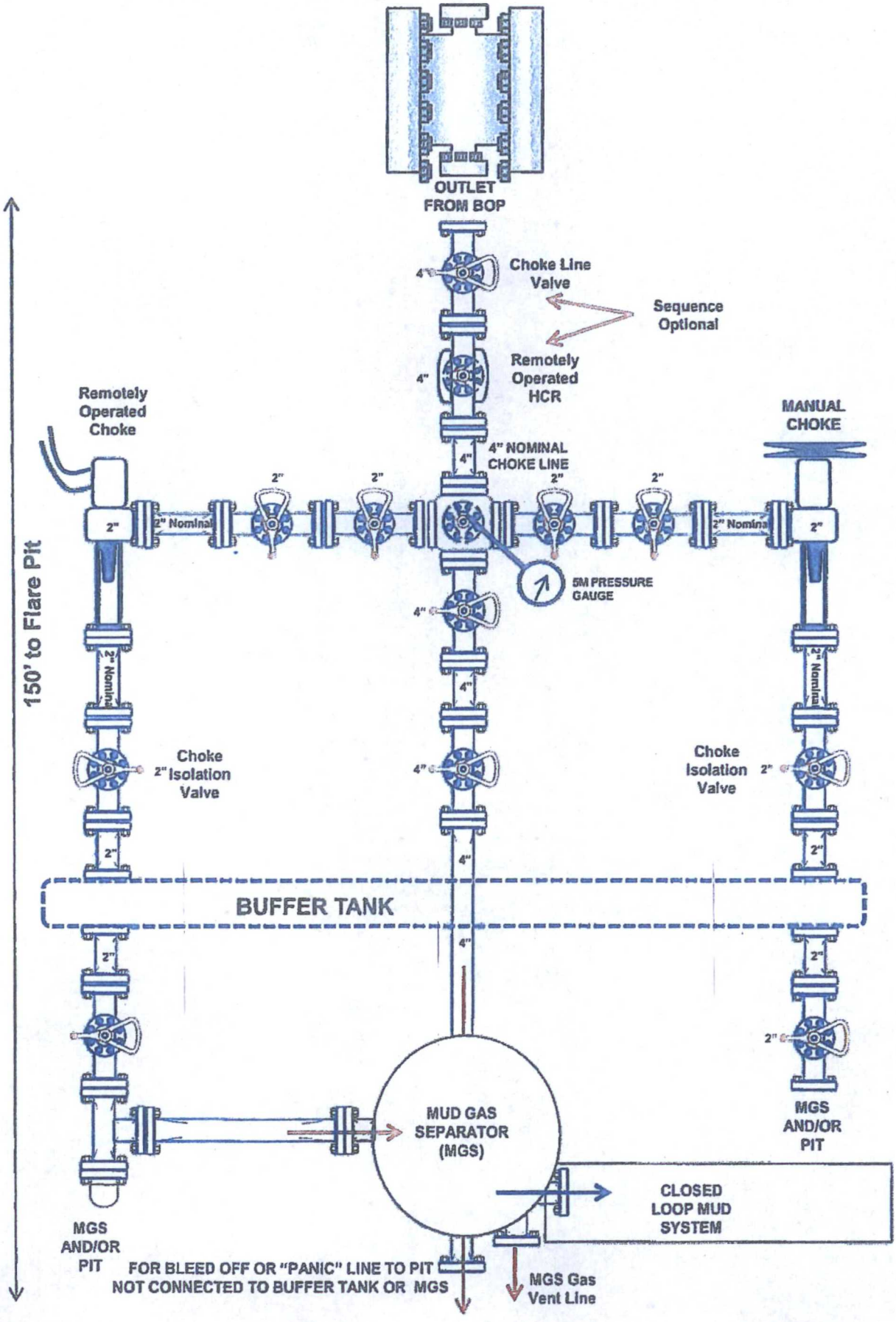
2,000 psi BOP Schematic



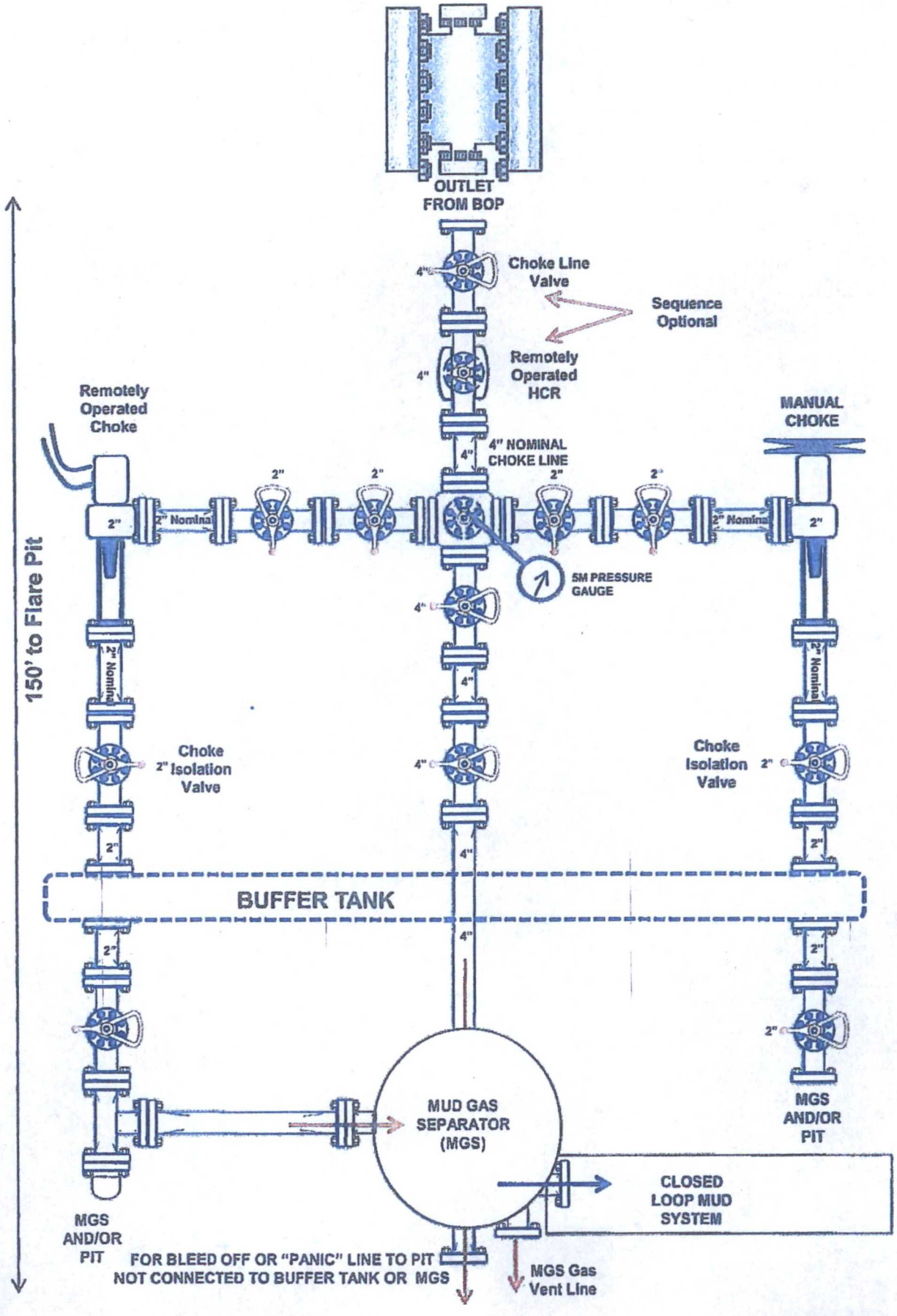
3,000 psi BOP Schematic



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

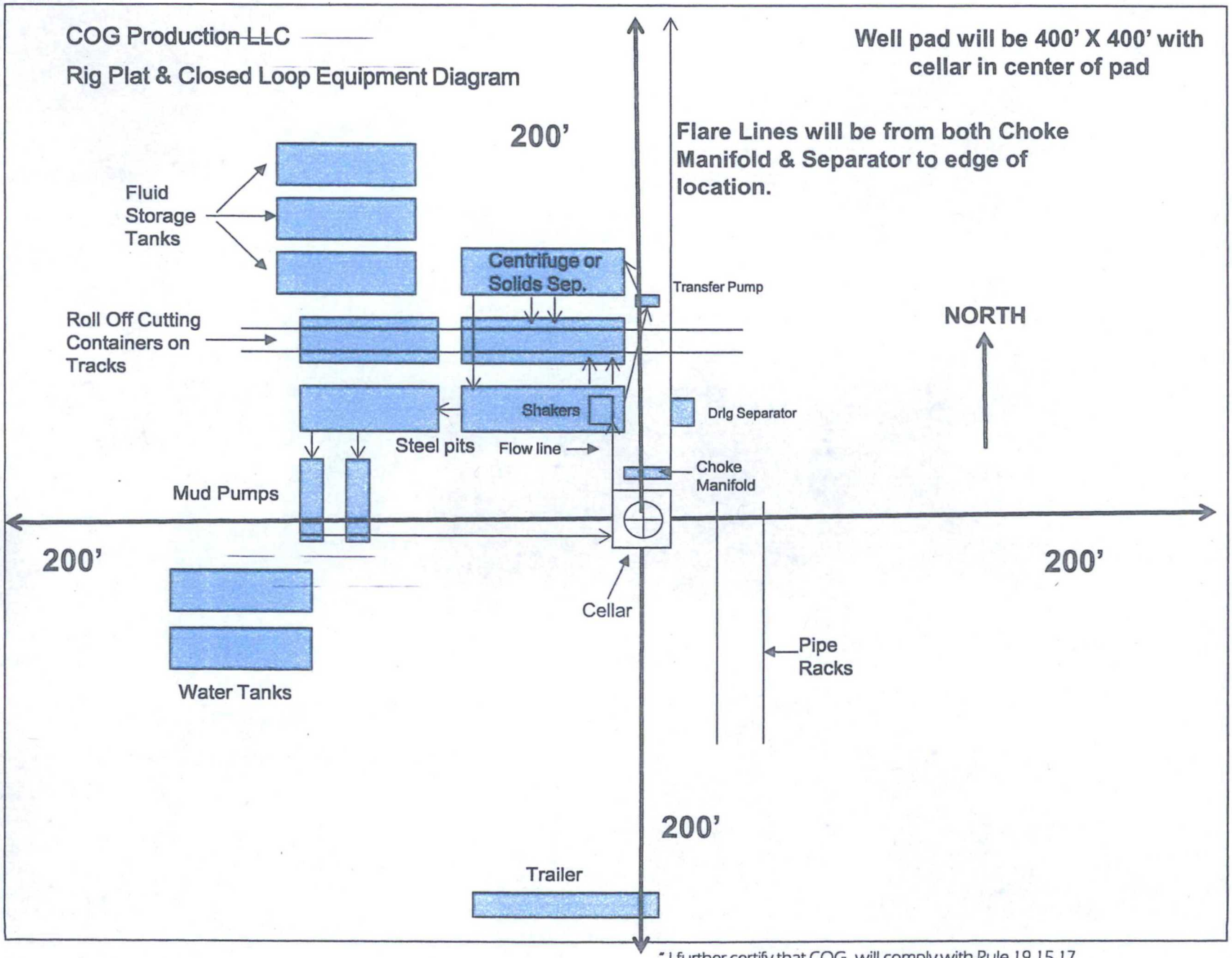


3M Choke Manifold Equipment (WITH MGS + CLOSED LOOP)



COG Production LLC

Rig Plat & Closed Loop Equipment Diagram



"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