

OCD Hobbs

ATS-14-603

HOBBS OCD

JUN 14 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

1a. Type of Work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. SHL: State, BHL: NMNM132948
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input checked="" type="checkbox"/> Other <input type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name
2. Name of Operator COG Operating LLC. (229137)		7. If Unit or CA Agreement, Name and No.
3a. Address 2208 West Main Street Artesia, NM 88210		8. Lease Name and Well No. Skull Cap Federal Com #2H
3b. Phone No. (include area code) 575-748-6940		9. API Well No. 30-025 43299
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface 2590' FSL & 1980' FEL Unit Letter J (NWSE) SHL Sec. 32 - T24S - R3SE At proposed prod. Zone 330' FSL & 1980' FEL Unit Letter O (SWSE) BHL Sec. 5 - T25S - R3SE		10. Field and Pool, or Exploratory WC-025 G-09 5253509D, Bone Spring
14. Distance in miles and direction from nearest town or post office* Aproximately 11 miles from Jal		11. Sec., T.R.M. or Blk and Survey or Area Sec. 32 - T24S - R3SE
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. Unit line, if any) 330'		12. County or Parish Lea County
16. No. of acres in lease 361.4		13. State NM
17. Spacing Unit dedicated to this well 240.7		
18. Distance from location* to nearest well, drilling, completed, applied for, on this lease, ft. SHL: 2421' BHL: 2661'		
19. Proposed Depth TVD: 12,406' MD: 19,748' 12,900'		20. BLM/BIA Bond No. on file NMB000740 & NMB000215
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3286.0' GL		22. Approximate date work will start* 4/1/2016
		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 <i>Mayte Reyes</i>	Name (Printed/Typed) Mayte Reyes	Date 2-2-16
Title Regulatory Analyst		
Approved by (Signature) <b>James A. Amos</b>	Name (Printed/Typed)	Date JUN 8 - 2016
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 YEARS

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)

Capitan Controlled Water Basin

Approval Subject to General Requirements  
& Special Stipulations Attached

SEE ATTACHED FOR  
CONDITIONS OF APPROVAL

KZ  
06/15/16

KZ



## COG Operating LLC, Skull Cap Federal Com #2H

### 1. Geologic Formations

TVD of target	12406	Pilot hole depth	12900
MD at TD:	19748	Deepest expected fresh water:	207'

#### Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Fill	Surface	Water	
Rustler	791	Water	
Top of Salt	1229	Salt	
Fletcher Anhydrite	5128		
Lamar	5343	Barren	
Delaware Group		Oil/Gas	
Bone Spring	9179	Oil/Gas	
3 <sup>rd</sup> Bone Spring Lime	12084	Target Zone	
Wolfcamp	12452	Oil/Gas	
Penn Shale			

### 2. Casing Program

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
	From	To							
20.0"	0	900	16.0"	75	J55	BTC	2.395	1.315	7.03
13.5"	0	5360	10.75"	45.5	HCN80	BTC	1.234	1.184	3.024
9.875"	0	11794	7 5/8"	29.7	HCP110	BTC	1.281	1.967	2.088
6.75"	0	11694	5.5"	20	P110	BTC	1.139	1.271	2.168
6.75"	11694	19748	5.0"	18	P110	BTC	1.438	1.400	5.141
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

- 9-5/8" J-55:  $P_i = 3950$ ;  $P_i/D = 3950 \text{ psi}/5460\text{ft} = 0.72$ , above the fracture gradient of 0.7 psi/ft at the shoe.
- 9-5/8" L-80:  $P_i = 5750$ ;  $P_i/D = 5750 \text{ psi}/5460\text{ft} = 1.05$ , above the fracture gradient of 0.7 psi/ft at the shoe.

Must have table for contingency casing

	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). (Assumption bulleted above)	N



## COG Operating LLC, Skull Cap Federal Com #2H

See COA →

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 3 <sup>rd</sup> 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 2 <sup>nd</sup> 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 ft <sup>3</sup> /sack	H <sub>2</sub> O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surf.	760	13.5	1.75	9.4	10	Lead: Class C + 4% Gel + 2% CaCl <sub>2</sub>
	240	14.8	1.34	6.4	8	Tail: Class C + 2% CaCl <sub>2</sub>
Inter. 1 (10.75")	1250	11.9	2.50	11.9	11	Lead: Class C + 4% Gel + 2% CaCl <sub>2</sub>
	590	14.8	1.34	6.4	10	Tail: Class C + 2% CaCl <sub>2</sub>
Inter. 2 (7 5/8")	880	10.3	3.62	22.0	72	Lead: Tuned Light H Blend (FR, Retarder, FL adds as needed)
	320	16.4	1.08	4.45	12	Tail: Class H (FR, Retarder, FL adds as needed)
Prod. Csg	40	11.9	2.52	14	17	Lead: 50:50:2 H Blend (FR, Retarder, FL adds as needed)
	958	14.4	1.25	5.7	17	Tail: 50:50:2 H Blend (FR, FL adds as needed)

Casing String	TOC	% Excess
Surface	0'	80%
Intermediate 1	0'	100%
Intermediate 2	3360'	125% lead, 75% tail
Production Csg	10694'	30%



## COG Operating LLC, Skull Cap Federal Com #2H

Include Pilot Hole Cementing specs:

**Pilot hole depth 12,900'**

**KOP 11914'**

Plug top	Plug Bottom	% Excess	No. Sacks	Wt. lb/gal	Yld ft3/sack	Water gal/sk	Slurry Description and Cement Type
11,793'	12,393'	30	230	17.2	0.98	3.75	Class H
12,393'	12,900'	30	200	17.2	0.98	3.75	Class H

#### 4. Pressure Control Equipment — See COA

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?	System Rated WP	Type	✓	Tested to:
13.5"	13-5/8"	2M	Annular	X	50% of working pressure
			Blind Ram		WP
			Pipe Ram		
			Double Ram		
			Other*		
9.875"	11"	5M	Annular	X	50% testing pressure
			Blind Ram	X	WP
			Pipe Ram	X	
			Double Ram		
			Other*		
6-3/4"	11"	5M	Annular	X	50% testing pressure
			Blind Ram	X	WP
			Pipe Ram	X	
			Double Ram		
			Other*		

See COA

\*Specify if additional ram is utilized.

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.



## COG Operating LLC, Skull Cap Federal Com #2H

N	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.
<b>See COA</b> <u>Y</u>	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.  See attached schematic.

### 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	10 3/4" shoe	Saturated Brine	10.0-10.2	28-34	N/C
10 3/4" shoe	7 5/8" shoe	Cut Brine	8.5-9.8	28-34	N/C
7 5/8" shoe	PH TD	Cut Brine	8.5 – 9.8	28-34	N/C
7 5/8" shoe	TD	OBM	11.0-11.5	30-70	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 → **See COA**

Logging, Coring and Testing.	
x	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.
	No Logs are planned based on well control or offset log information.
	Drill stem test? If yes, explain
x	Coring? If yes, explain – ROTARY SIDEWALL CORES

Additional logs planned		Interval
X	Resistivity	Int. shoe to KOP
X	Density	Int. shoe to KOP
X	CBL	Production casing
X	Mud log	4,000' to TD
X	PEX	Intermediate shoe to TD



## COG Operating LLC, Skull Cap Federal Com #2H

### 7. Drilling Conditions - See COA

Condition	Specify what type and where?
BH Pressure at deepest TVD	7000 psi
Abnormal Temperature	No

Hydrogen Sulfide (H<sub>2</sub>S) monitors will be installed prior to drilling out the surface shoe. If H<sub>2</sub>S 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	H <sub>2</sub> S is present
Y	H <sub>2</sub> S Plan attached

### 8. Other facets of operation

Is this a walking operation? NO. If yes, describe.  
Will be pre-setting casing? NO. If yes, describe.

#### Attachments

- Directional Plan
- BOP & Choke Schematics
- C102 and supporting maps
- Rig plat
- H<sub>2</sub>S schematic
- H<sub>2</sub>S contingency plan
- Interim reclamation plat



*Surface Use Plan*  
*COG Operating LLC*  
*Skull Cap Federal Com #2H*  
*SHL: 2590' FSL & 1980' FEL      UL J*  
*Section 32, T24S, R35E*  
*BHL: 330' FSL & 1980' FEL      UL O*  
*Section 5, T24S, R35E*  
*Lea County, New Mexico*

---

### **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 Operating 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 2nd day of February, 2016.

Signed: Melanie J. Wilson

Printed Name: Melanie J. Wilson

Position: Regulatory Coordinator

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

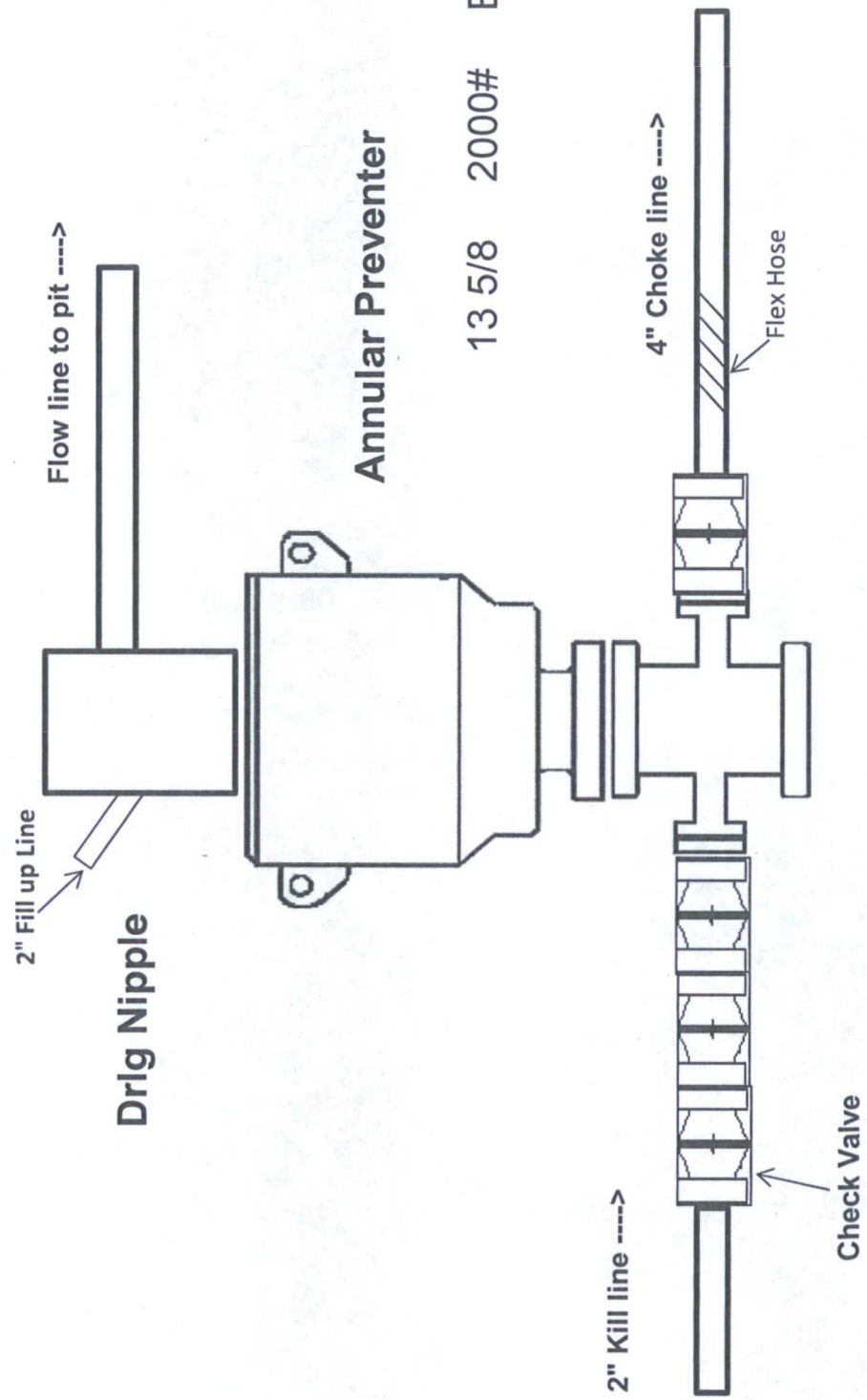
Telephone: (575) 748-6940

Field Representative (if not above signatory): Rand French

E-mail: [mwilson@concho.com](mailto:mwilson@concho.com)



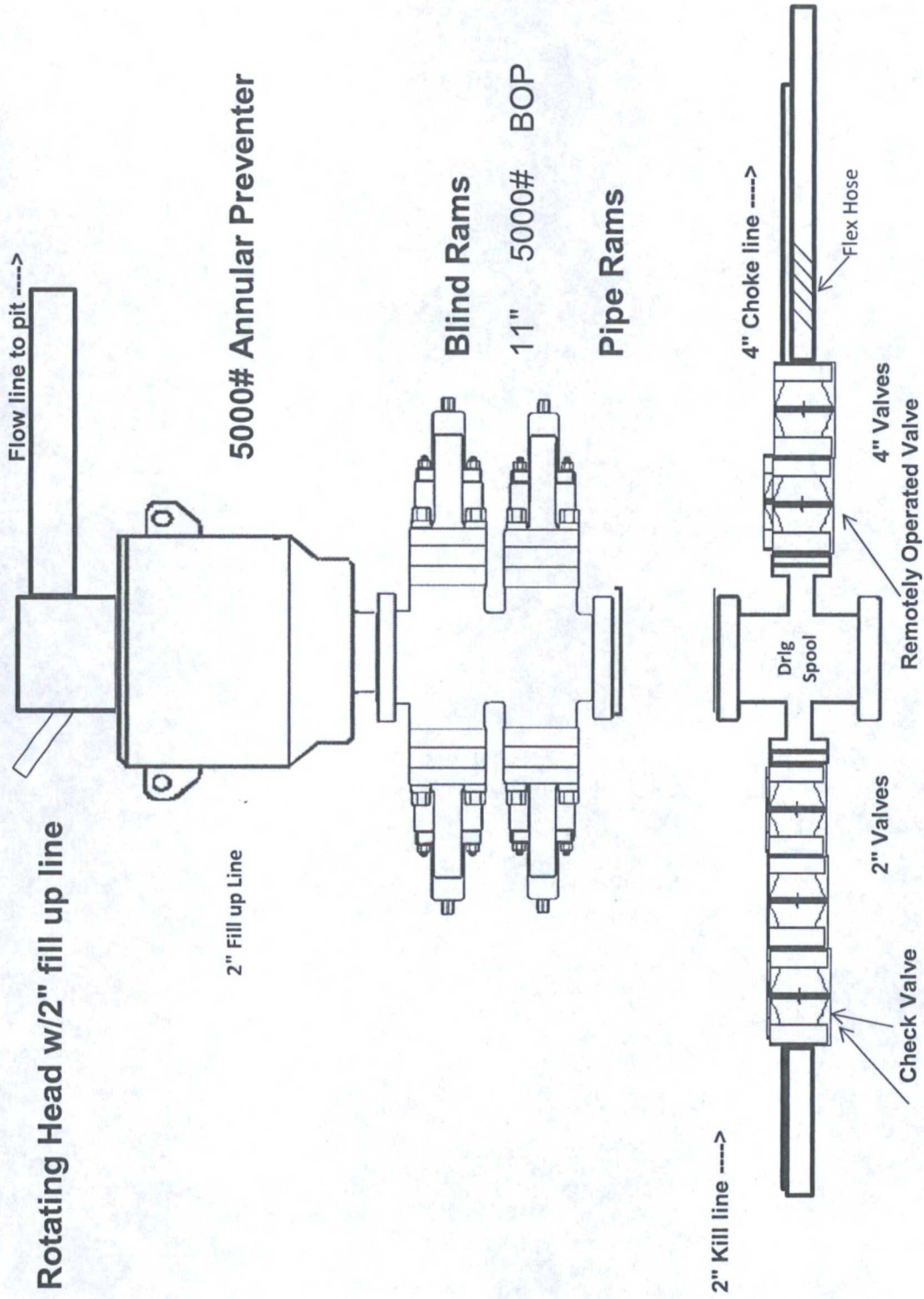
# 2,000 psi BOP Schematic



13 5/8 2000# BOP

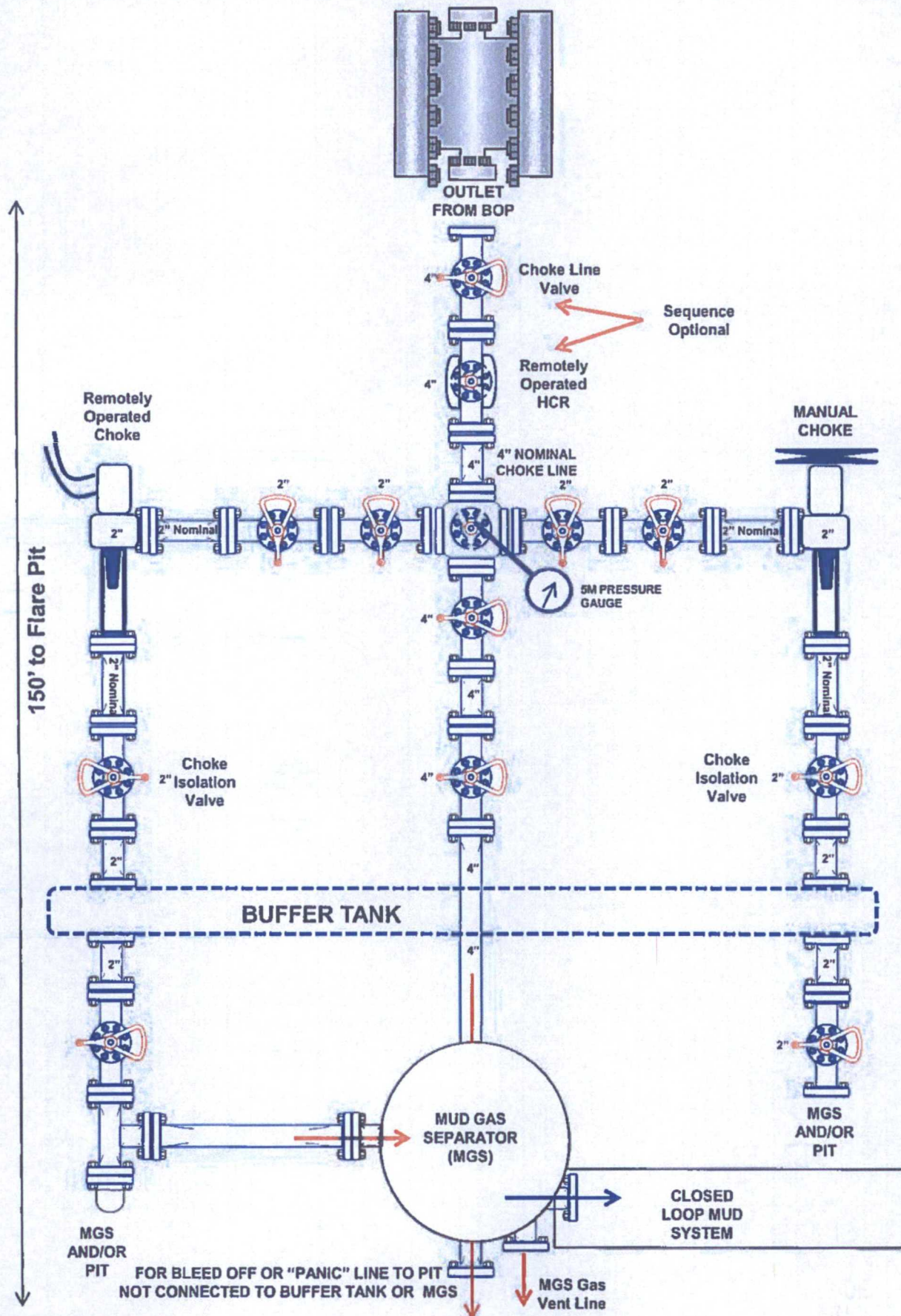


# 5,000 psi BOP Schematic



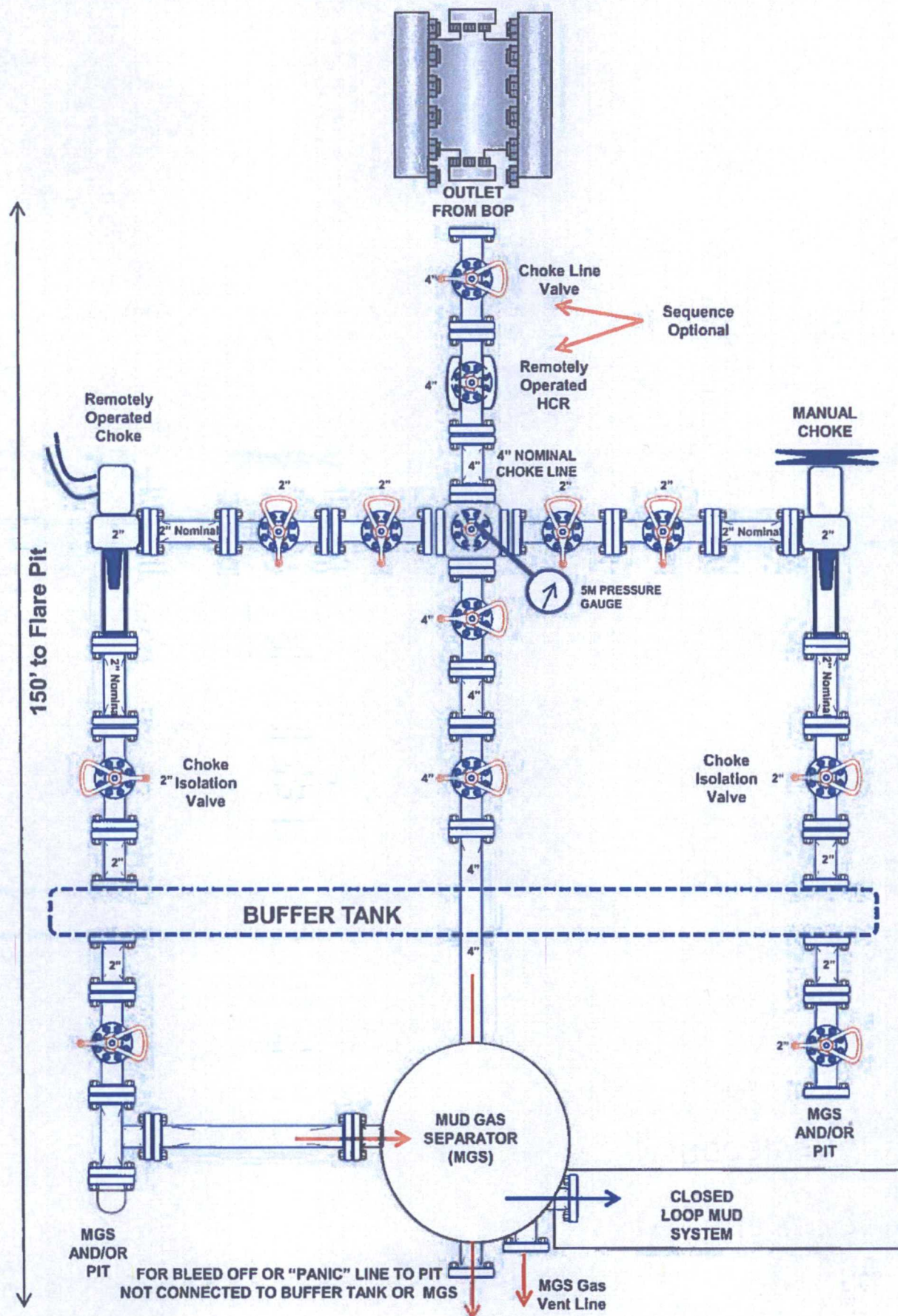


## 2M Choke Manifold Equipment (WITH MGS + CLOSED LOOP)

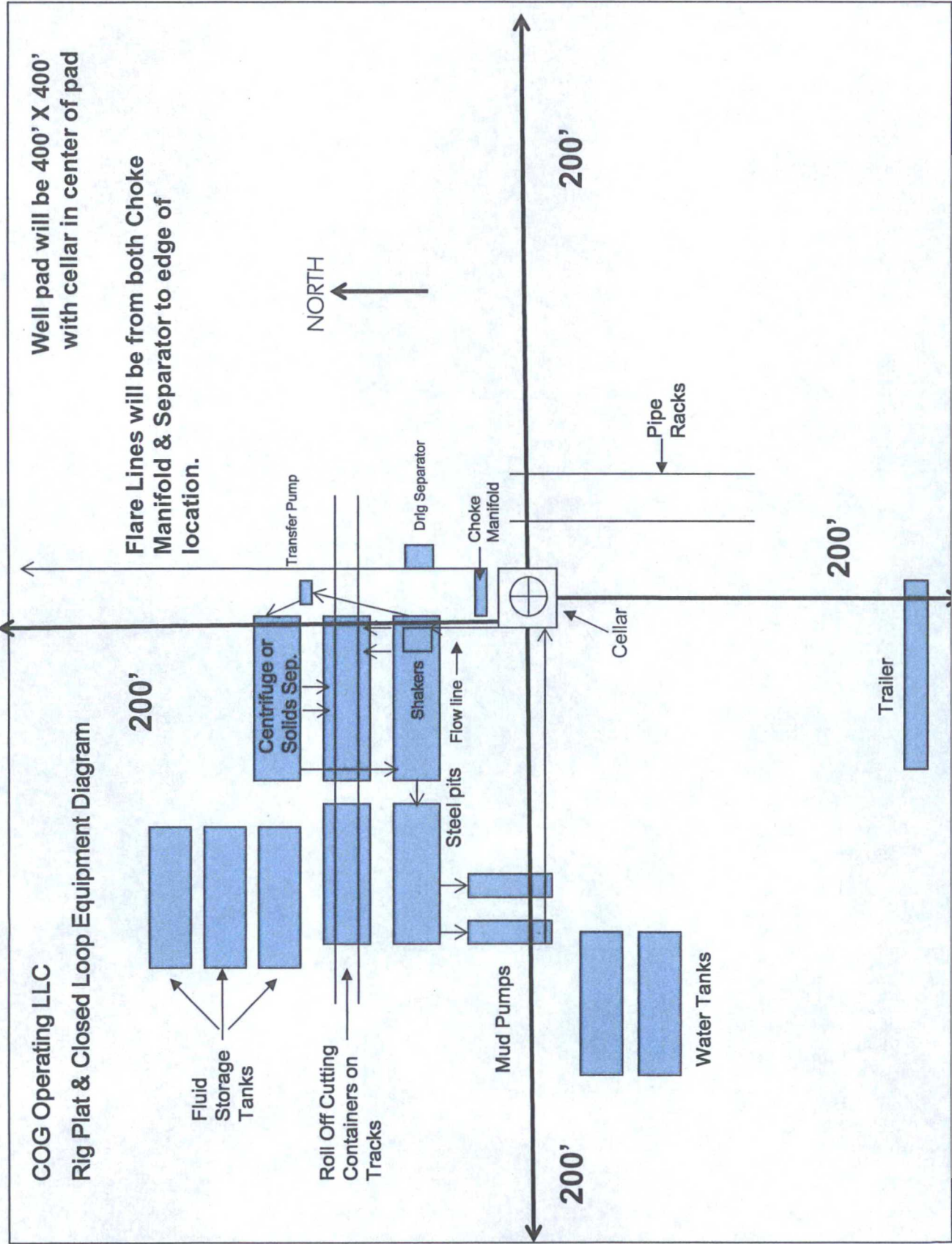




# 5M Choke Manifold Equipment (WITH MGS + CLOSED LOOP)





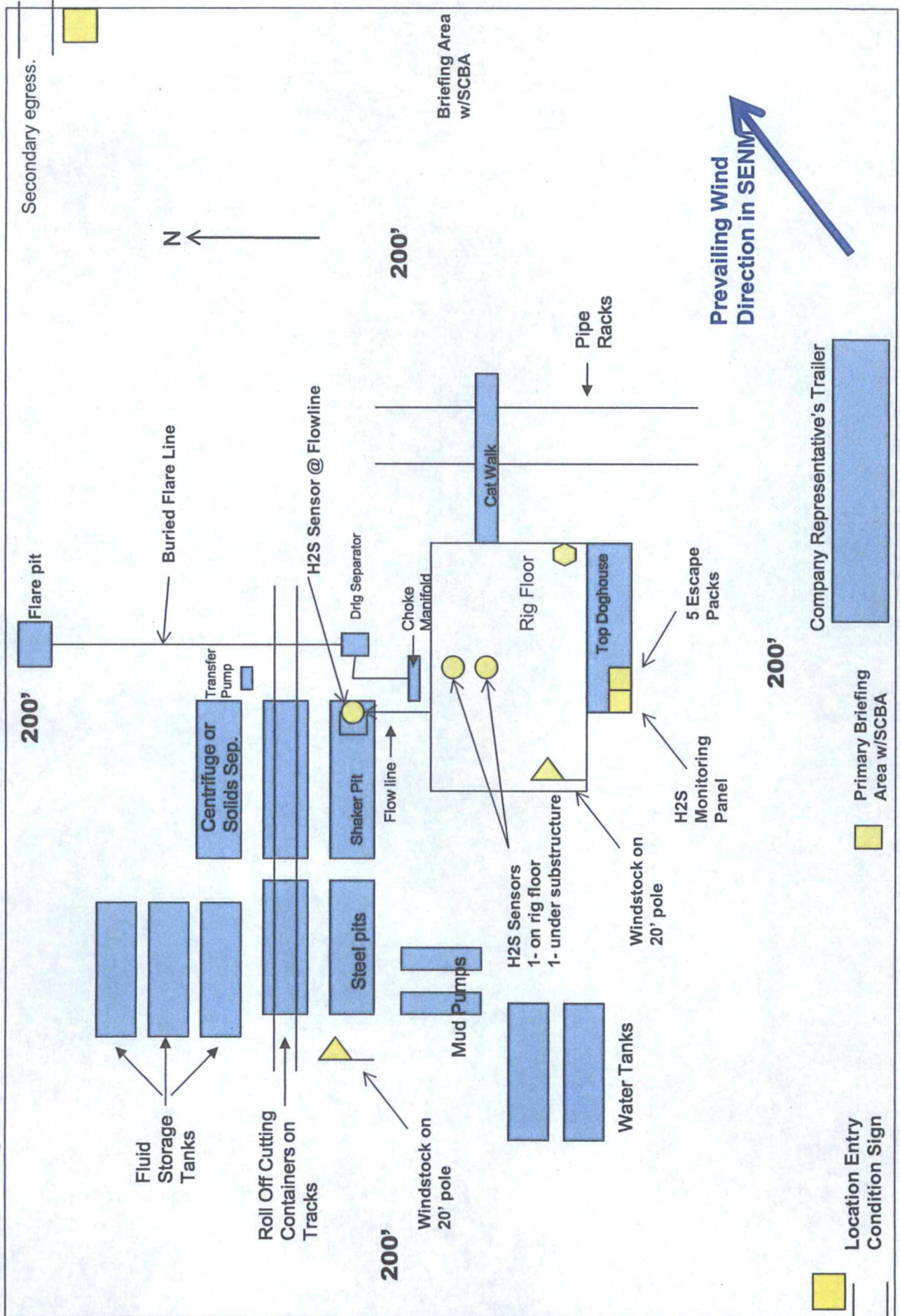


"I further certify that COG will comply with Rule 19.15.17 NMAC by using a Closed Loop System."



COG Operating 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





## Hose Assembly & Test Report

General Information		Hose Specifications	
Customer	Hobbs	Hose Assembly Type	chose + k'11
Date Assembled	6-26-14	Certification	API 7K
Location Assembled	Dick	Hose Grade	D
Sales Order #	216297	Hose Working Pressure	5,000
Customer Purchase Order #	237512	Hose Lot #	8309
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 #)	R3.5 x 64 WD	Stem (Part and Revision #)	R3.5 x 64 WD
Stem (Heat #)	13114050225	Stem (Heat #)	13114050225
Stem (Rockwell Hardness HRB #)	—	Stem (Rockwell Hardness HRB #)	—
Ferrule (Part and Revision #)	RF 3.5	Ferrule (Part and Revision #)	RF 3.5
Ferrule (Heat #)	126151	Ferrule (Heat #)	372114
Ferrule (Rockwell Hardness HRB #)	—	Ferrule (Rockwell Hardness HRB #)	—
Connection (Part #)	4 1/16 SK	Connection (Part #)	4 1/16 SK
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)	5.14	Final Swage O.D. (Inches)	5.48
Compression % (See Crimp Calculator)	24%	Compression % (See Crimp Calculator)	22%
Swaged By	Charles Ash		

Hydrostatic Test Requirements			
Test Pressure (psi)	10,000	Hold Time (minutes)	13 1/4
Tested By	Charles Ash	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			
Third Party Witness 	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Hammer Unions	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Safety Clamps	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Customer or Third Party Witnessed By:		



Midwest Hose  
& Specialty Inc.



# Internal Hydrostatic Test Graph

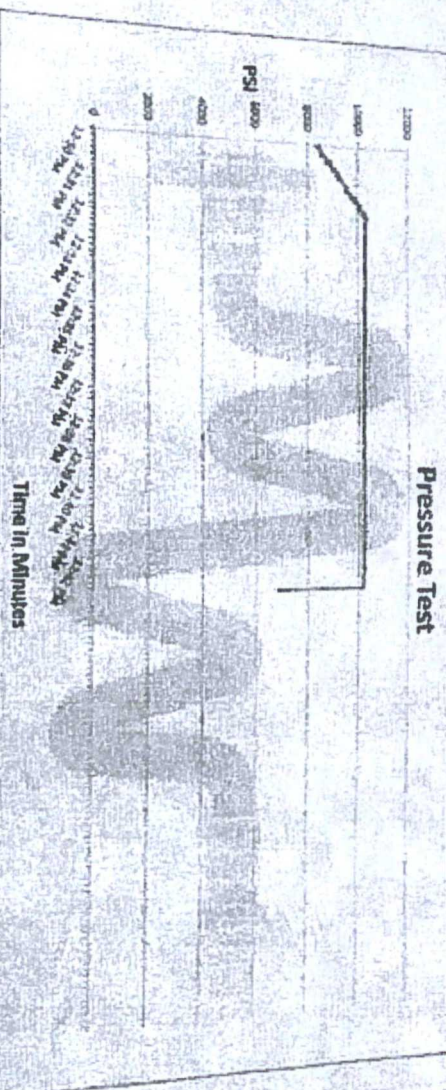
Customer: Hobbs

Pick Ticket #: 316000

November 19, 2015

<b>Hose Specifications</b>		<b>Verification</b>	
Hose Type	Length	Type of Fixture	Leaking Method
1.5"	35'	4 1/2" x 6"	Soap
3.5"	4.89'	Die Size	Equal (11L)
5.00" PSI	5.00" PSI	Block Seal & L.	5.00"
		11/24	Use Assembly Seal & L.
			316000

## Pressure Test



Test Pressure  
10000 PSI

Time Held at Test Pressure  
11.24 Minutes

Actual Burst Pressure  
10473 PSI

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

Tested By: Jonef Eshelby

Approved By: Ken Thomas

*Ken Thomas*





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

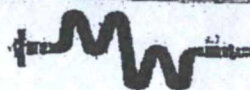
Kim Thomas

Date

11/19/2015



# Hose For Choke to Bop



Midwest Hose  
& Specialty, Inc.

Rubber Hose

## Internal Hydrostatic Test Certificate

General Information		Hose Specifications	
Customer	Hobbs	Hose Assembly Type	Rotary/Vibrator
MWH Sales Representative	Ryan Reynolds	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 # (Pack 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 - Flexible Flareless 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

11/19/2015

Tested By

*[Signature]*

Approved By

*[Signature]*