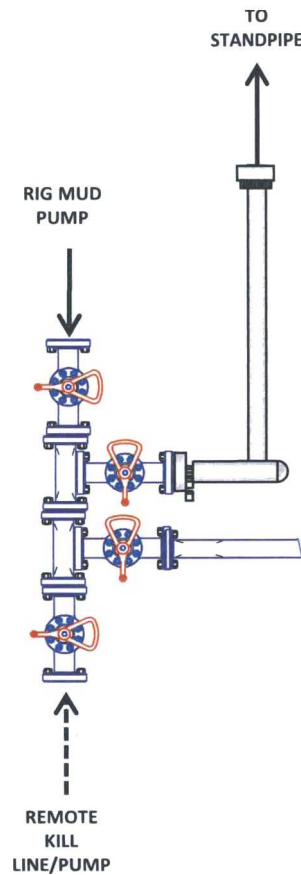
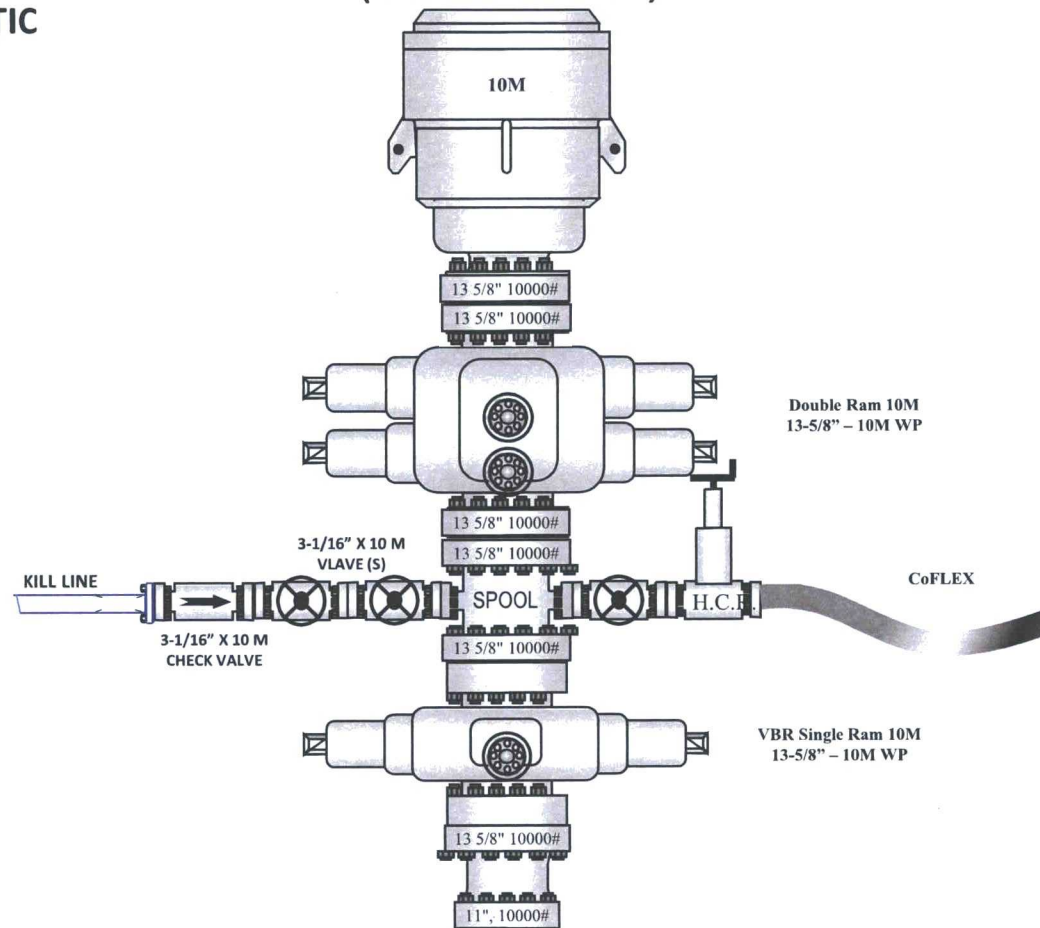


10M BOP Stack

10M REMOTE KILL SCHEMATIC

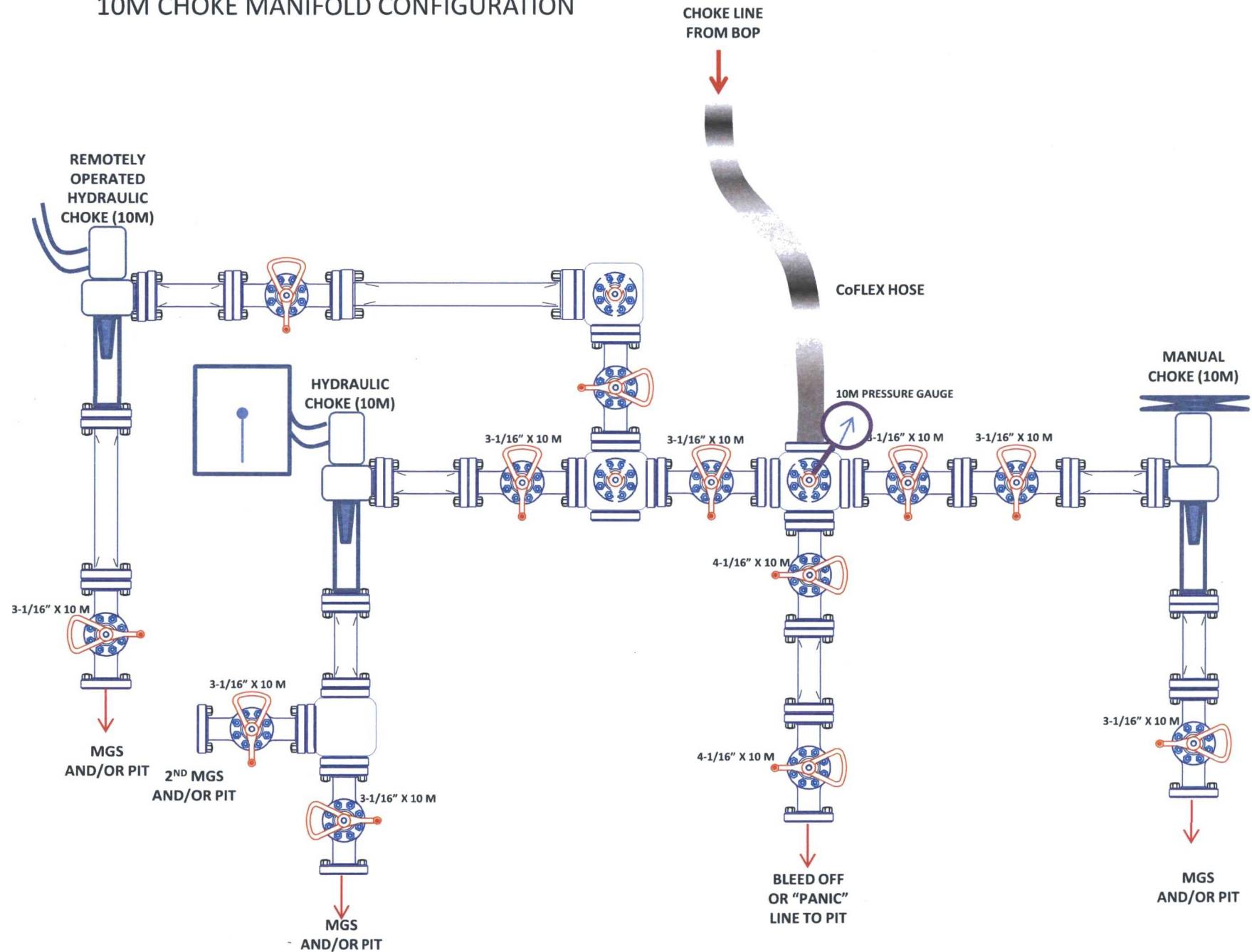


10M BOP Stack (10M Annular)

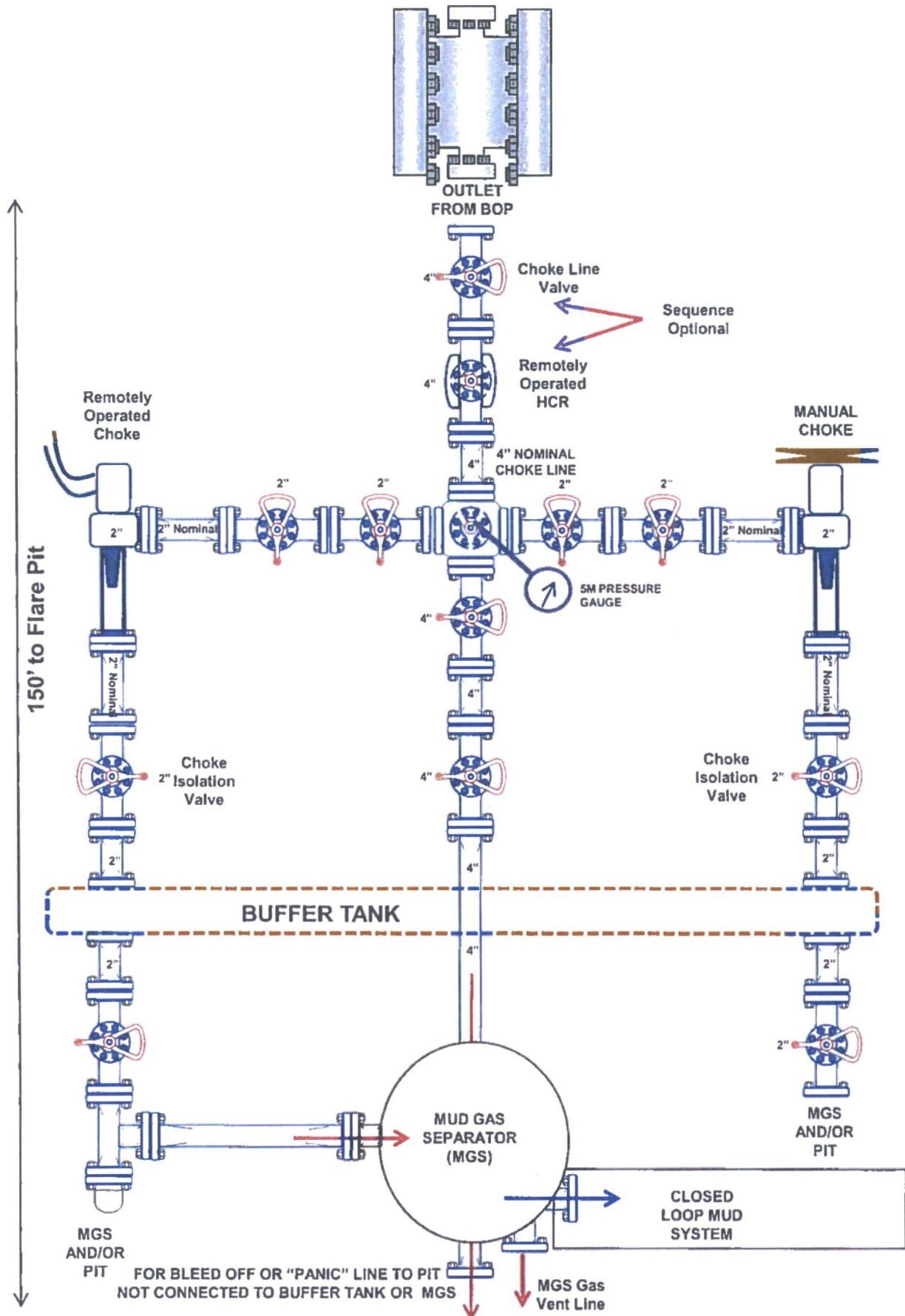


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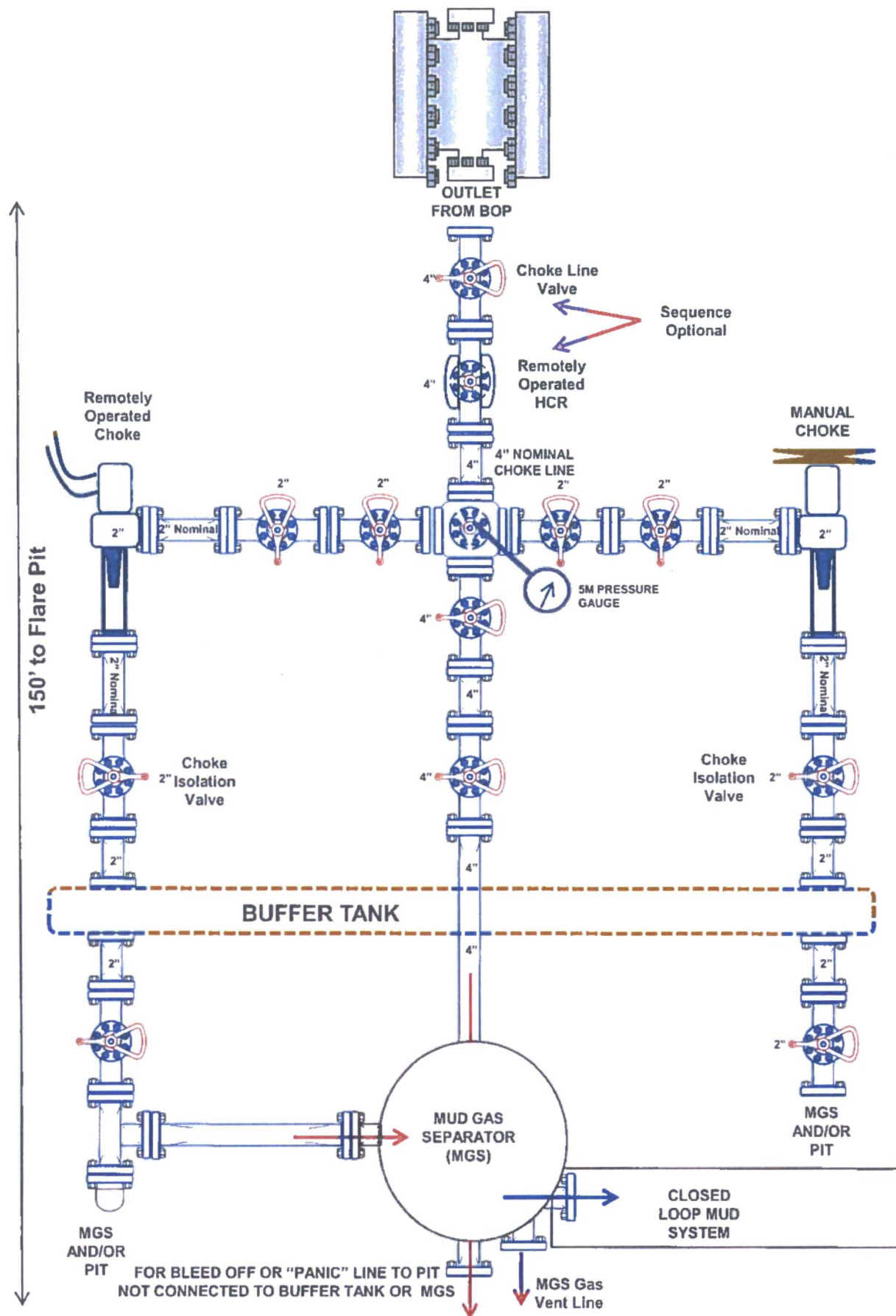
10M CHOKE MANIFOLD CONFIGURATION



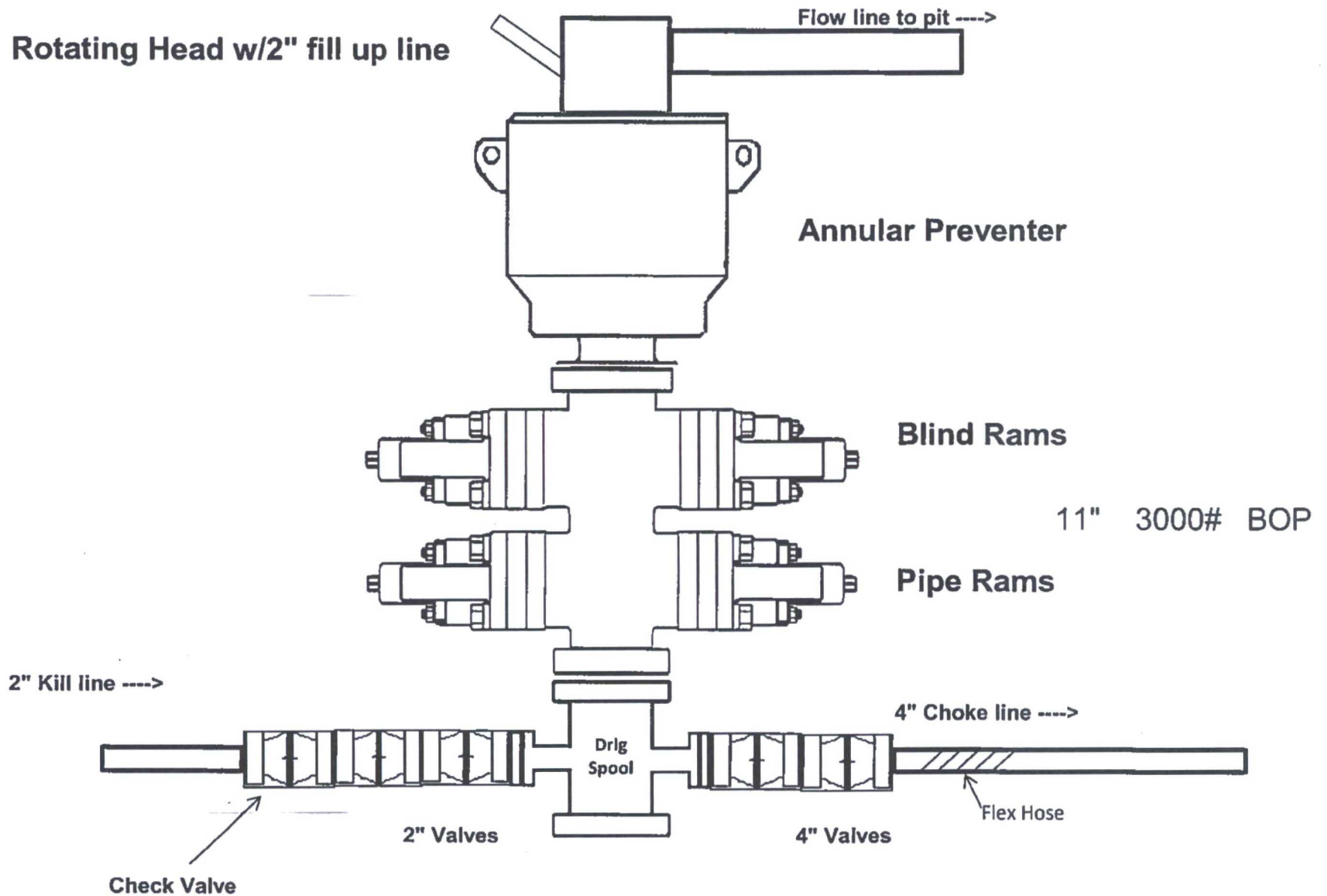
3M Choke Manifold Equipment (WITH MGS + CLOSED LOOP)



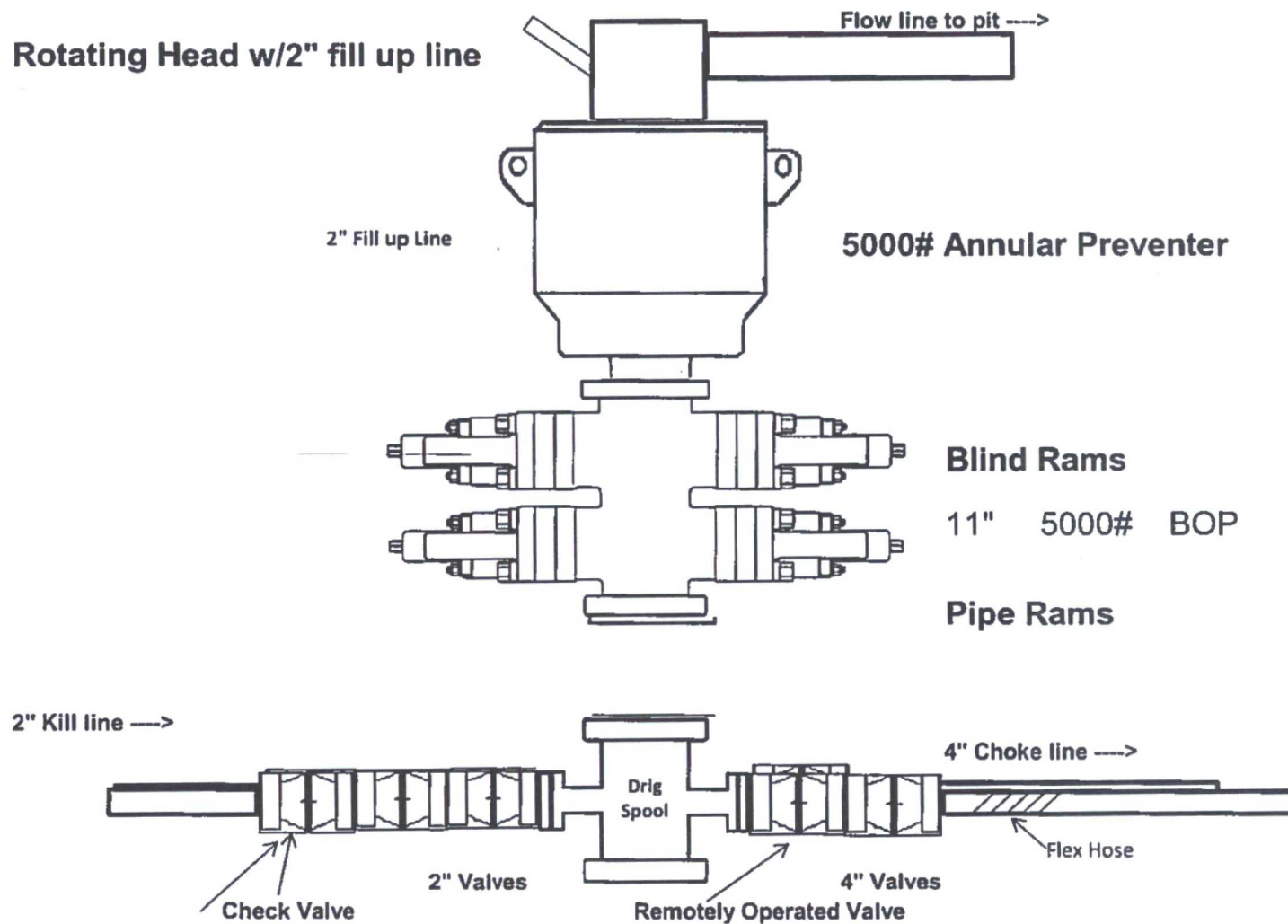
5M Choke Manifold Equipment (WITH MGS + CLOSED LOOP)

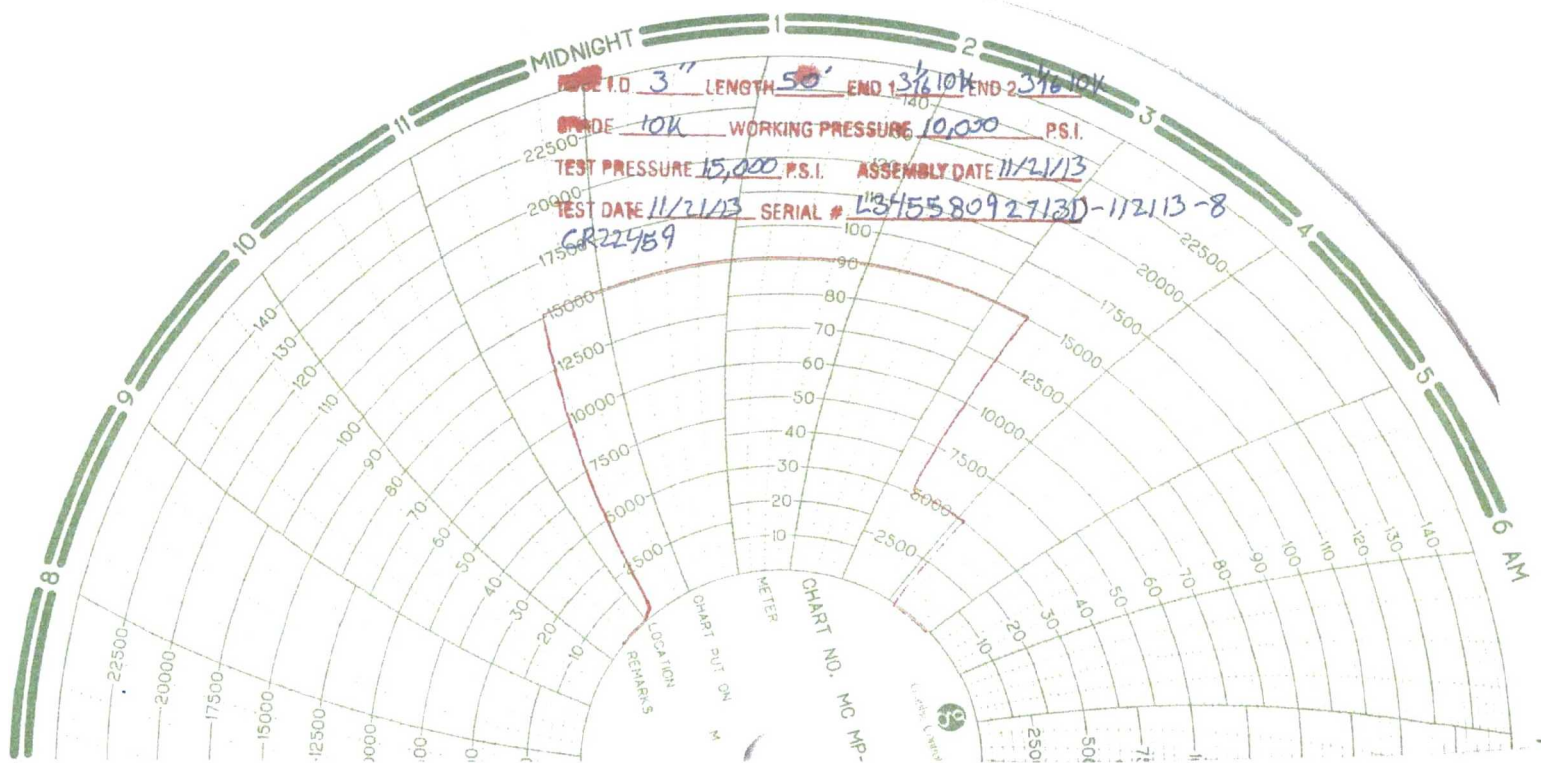


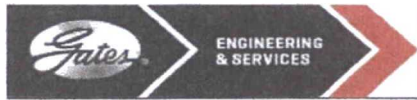
3,000 psi BOP Schematic



5,000 psi BOP Schematic







GATES E & S NORTH AMERICA, INC
DU-TEX
134 44TH STREET
CORPUS CHRISTI, TEXAS 78405

PHONE: 361-887-9807
FAX: 361-887-0812
EMAIL: crpe&s@gates.com
WEB: www.gates.com

10K CHOKE & KILL ASSEMBLY PRESSURE TEST CERTIFICATE

Customer :	SPECIALTY SALES, INC.	Test Date:	11/21/2013
Customer Ref. :	49680-S	Hose Serial No.:	D-112113-8
Invoice No. :	197465	Created By:	Norma M.
Product Description:	10K3.050.0CK31/1610KFLGE/E		
End Fitting 1 :	3 1/16 10K FLG	End Fitting 2 :	3 1/16 10K FLG
Gates Part No. :	47773-4290	Assembly Code :	L34558092713D-112113-8
Working Pressure :	10,000 PSI	Test Pressure :	15,000 PSI

Gates E & S North America, Inc. certifies that the following hose assembly has been tested to the Gates Oilfield Roughneck Agreement/Specification requirements and passed the 15 minute hydrostatic test per API Spec 7K/Q1, Fifth Edition, June 2010, Test pressure 9.6.7 and per Table 9 to 15,000 psi in accordance with this product number. Hose burst pressure 9.6.7.2 exceeds the minimum of 2.5 times the working pressure per Table 9.

Quality Manager :
Date :
Signature :

QUALITY
11/22/2013

Technical Supervisor :
Date :
Signature :

PRODUCTION
11/21/2013

COG Operating LLC, Montera Federal 23H

Casing Program

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
	From	To							
13.5"	0'	1000'	10 3/4"	45.5	N80	STC	5.51	.92	16.5
9 7/8"	0'	11,800'	7 5/8"	29.7	HCP110	BTC	1.125	1.22	2.68
6 3/4"	0'	11,300'	5.5"	23	P110	BTC	1.87	1.87	2.5
6 3/4"	11,300'	19,768'	5.0"	18	P110	BTC	1.8	1.8	2.5
BLM Minimum Safety Factor							1.125	1.125	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

- Burst SF on Surf is $0.92 > 0.7$.
- The 0.422" clearance overlaps for 500' into the intermediate casing to ensure good cement bond for the casing overlap.
- Intermediate casing will be kept 1/3 full to avoid approaching collapse rating.

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1. Geologic Formations

TVD of target	12,432'	Pilot hole depth	NA
MD at TD:	19,768'	Deepest expected fresh water:	207'

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Fill	Surface	Water	
Rustler	724	Water	
Top of Salt	190	Salt	
Fletcher Anhydrite	4983	Barren	
Lamar (top of Delaware)	5220	Barren	
Bone Spring	8902	Oil/Gas	
3 rd Bone Spring Sand	11828	Oil/Gas	
Wolfcamp	12462	Target Oil/Gas	

2. Casing Program

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
	From	To							
13.5"	0'	850'	10 3/4"	45.5	N80	STC	6.14	.92	17.1
9 7/8"	0'	11,800'	7 5/8"	29.7	HCP110	BTC	1.125	1.22	2.68
6 3/4"	0'	19,768'	5.5"	23	P110	CDC	1.87	1.87	2.5
BLM Minimum Safety Factor							1.125	1.125	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

- Burst SF on Surf is 0.92 > 0.7.
- 5.5" CDC connection OD = 6.05". Variance is requested for .7" clearance from OH to connection OD.
- Intermediate casing will be kept 1/3 full to avoid approaching collapse rating.

COG Operating, LLC, Montera Federal 23H

	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
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 rd 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 nd 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?	N
(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?	N

3. Cementing Program

Casing	# Sks	Wt. lb/gal	Yld ft3/sack	H ₂ O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surf.	400	13.5	1.76	9.37	10-15	Class C + 4% Gel + 1% CaCl
	250	14.8	1.36	6.53	5-8	Class C + 2% CaCl
Inter.	750	10.3	3.48	20	32	Tuned Light Blend
	350	16.4	1.1	4.45	10-12	Class H
Prod. Csg	350	11.9	2.5	14.7	50-60	50:50:10 H Blend
	1100	14.4	1.23	5.52	15-20	50:50:2 H Blend
Casing String				TOC		% Excess
Surface				0'		50%
Intermediate Stage				0'		50%
Production				0'		35%

COG Operating, LLC, Monteria Federal 23H

4. Pressure Control Equipment

	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:
9.875"	11"	3M	Annular	X	50% of working pressure
			Blind Ram		WP
			Pipe Ram		
			Double Ram		
			Other*		
6.75"	11"	5M	Annular	X	50% testing pressure
			Blind Ram	X	WP
			Pipe Ram	X	
			Double Ram		
			Other*		
			Annular	X	
			Blind Ram	X	
			Pipe Ram	X	
			Double Ram		
			Other*		

*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, Montero Federal 23H

Y	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. 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	Int shoe	Diesel Brine Emulsion	8.6-9.2	28-34	N/C
Int Shoe	TD	OBM	10.5 -11.5	40-60	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 – NA

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	7150 psi
Abnormal Temperature	No

COG Operating, LLC, Montera Federal 23H

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	H ₂ S is present
Y	H ₂ 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
- H₂S schematic
- H₂S contingency plan
- Interim reclamation plat
- Pressure Chart and Certs for Flex Hose Variance