

COG Operating LLC, Columbus Federal Com 22H

1. Geologic Formations

TVD of target	12411	Pilot hole depth	NA
MD at TD:	22397	Deepest expected fresh water:	200'

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Fill	Surface	Water	
Rustler	1000	Water	
Top of Salt	1380	Salt	
Fletcher Anhydrite	4837	Barren	
Lamar (top of Delaware)	4974	Barren	
Bone Spring	9116	Oil/Gas	
Wolfcamp	12230	Target Oil/Gas	
Wolfcamp B	12638	Oil/Gas	

2. Casing Program *PSEE COA*

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Coll	SF Burst	SF Tension
	From	To							
13.5"	0'	1025' <i>1015'</i>	10 3/4"	45.5	L80 <i>N80</i>	STC	5.14	.86	14.7
9 7/8"	0'	11,500'	7 5/8"	29.7	HCP110	BTC	1.125	1.27	2.74
6 3/4"	0'	22,397'	5.5"	23	P110	Ultra SF	1.95	1.95	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 0.86 > 0.7.
- 5.5" Ultra SF connection OD = 5.65".

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Casing Program

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
	From	To							
13.5"	0'	1025'	10 3/4"	45.5	L80	STC	5.14	.86	14.7
9 7/8"	0'	11,500'	7 5/8"	29.7	HCP110	BTC	1.125	1.27	2.74
6 3/4"	0'	22,397'	5.5"	23	P110	CDC	1.95	1.95	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 0.86 > 0.7.
- 5.5" CDC connection OD = 6.05". Variance is requested for .7" clearance from OH to connection OD.

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4. Pressure Control Equipment *→ SEE COA*

SEE COA

<i>X</i>	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.
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SEE COA

BOP installed and tested before drilling which hole?	Size?	System Rated WP	Type	✓	Tested to:
9.875"	11"	3M 5M	Annular	X	50% of working pressure WP
			Blind Ram	<i>X</i>	
			Pipe Ram	<i>X</i>	
			Double Ram		
			Other*		
6.75"	11"	5M	Annular	X	50% testing pressure WP
			Blind Ram	X	
			Pipe Ram	X	
			Double Ram		
			Other*		
			Annular	X	
			Blind Ram	X	
			Pipe Ram	X	
			Double Ram		
			Other*		

*Specify if additional ram is utilized.

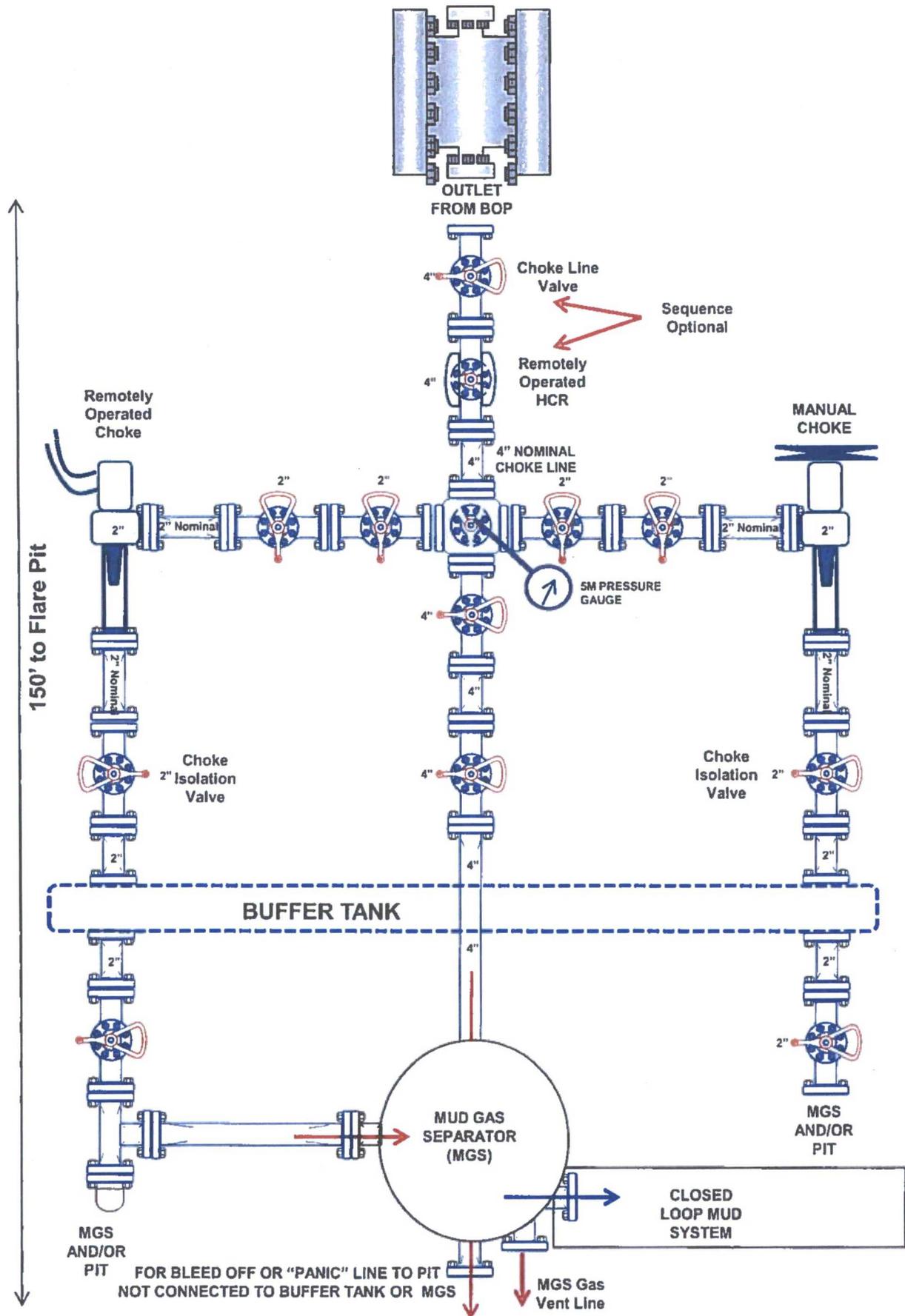
BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components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

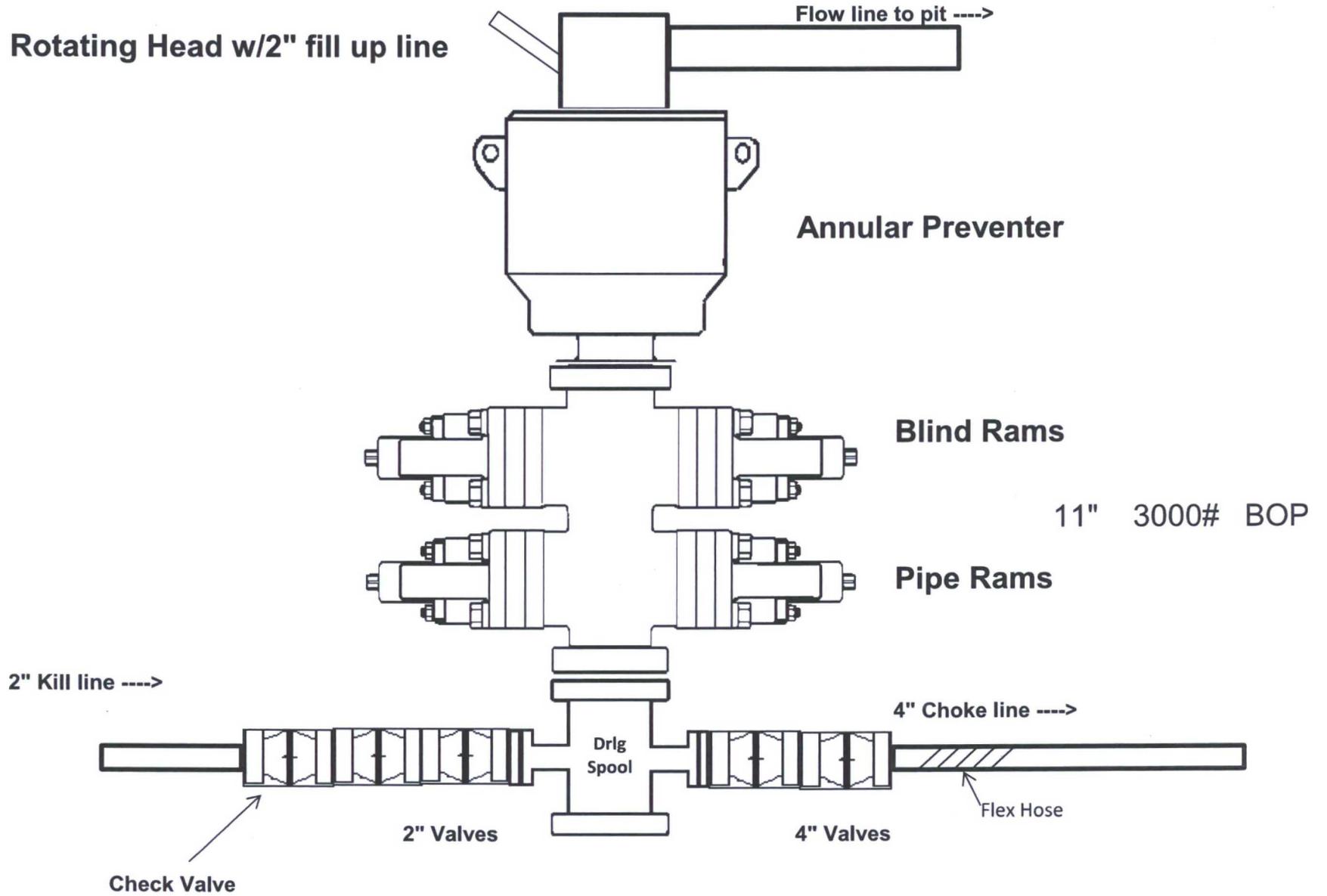
COLUMBUS FEDERAL COM 22H

FID	Shape *	OPERATOR	WELL_NAME	LATITUDE	LONGITUDE	API	SECTION	TOWNSHIP	RANGE	FTG_NS	NS_CD	FTG_EW	EW_CD	TVD_DEPTH	COMPL_STAT
1	Point	EOG RESOURCES INC	LOMAS ROJAS 26 STATE COM #003H	32.095150	-103.541885	3002539702	26	25.05	33E	330 S		2262 E		9437	Active
2	Point	EOG RESOURCES INC	LOMAS ROJAS 26 STATE COM #002H	32.095158	-103.545631	3002539701	26	25.05	33E	330 S		1850 W		9420	Active
3	Point	BTA OIL PRODUCERS LLC	ROJO C 7811 JV-P #001H	32.094789	-103.552836	3002542458	27	25.05	33E	190 S		380 E		9361	Active
4	Point	PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #001	32.096081	-103.553734	3002522786	27	25.05	33E	660 S		660 E		5150	Plugged, Site Released
5	Point	PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #001	32.096108	-103.570816	3002508391	28	25.05	33E	660 S		660 E		5081	Plugged, Site Released
6	Point	CIMAREX ENERGY CO.	RED HILLS UNIT #021H	32.093388	-103.571437	3002542327	33	25.05	33E	330 N		850 E		0	New
7	Point	PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #001	32.088799	-103.540947	3002527876	35	25.05	33E	1980 N		1980 E		5122	Plugged, Site Released
8	Point	COG OPERATING LLC	RED BULL 35 FEDERAL #001H	32.085182	-103.545204	3002534015	35	25.05	33E	1980 S		1980 W		12093	Active
9	Point	PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #001	32.077927	-103.545204	3002508397	2	26.05	33E	660 N		1980 W		5210	Plugged, Site Released
10	Point	PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #001	32.077934	-103.549461	3002508398	2	26.05	33E	660 N		660 W		5243	Plugged, Site Released
11	Point	COG OPERATING LLC	BATTLE AXE FEDERAL COM #002H	32.073536	-103.550369	3002541370	2	26.05	33E	2260 N		380 W		9325	Active
12	Point	PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #001	32.074329	-103.562248	3002527897	3	26.05	33E	1980 N		1980 W		5200	Plugged, Site Released
13	Point	COG OPERATING LLC	RED BULL 3 FEDERAL #001	32.077969	-103.566505	3002539812	3	26.05	33E	660 N		660 W		13900	Active
14	Point	PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #001	32.067082	-103.570786	3002508399	4	26.05	33E	660 S		660 E		5258	Plugged, Site Released
15	Point	MEWBOURNE OIL CO.	SALADO DRAW 9 AP FEDERAL COM #001H	32.064415	-103.569885	3002540755	9	26.05	33E	310 N		380 E		9931	Active
16	Point	MEWBOURNE OIL CO.	SALADO DRAW 10 A3DMAFEE #001H	32.064434	-103.567040	3002541843	10	26.05	33E	300 N		500 W		9984	Active
17	Point	MEWBOURNE OIL CO.	SALADO DRAW 10 FEDERAL COM #001H	32.064343	-103.563202	3002540124	30	26.05	33E	330 N		1690 W		9261	Active
18	Point	EOG RESOURCES INC	LA PINTA 10 FEE #002H	32.064345	-103.562038	3002539896	10	26.05	33E	330 N		2040 E		0	Cancelled Appd
19	Point	MEWBOURNE OIL CO.	SALADO DRAW 10 FEDERAL #002H	32.064335	-103.557999	3002540056	10	26.05	33E	330 N		1980 E		9319	Active
20	Point	PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #002	32.058907	-103.565468	3002508412	10	26.05	33E	2310 N		990 W		5190	Plugged, Site Released
21	Point	PRE-ONGARD WELL OPERATOR	PRE-ONGARD WELL #001	32.058895	-103.561203	3002508411	10	26.05	33E	2310 N		2310 W		5126	Plugged, Site Released
22	Point	RKI EXPLORATION & PRODUCTION LLC	GOEDEKE #002	32.059799	-103.557999	3002508407	10	26.05	33E	1980 N		1980 E		5200	Active
23	Point	EL PASO PRODUCTION OIL & GAS CO.	GOEDEKE FEDERAL #001	32.056171	-103.562279	3002508404	10	26.05	33E	1980 S		1980 W		5300	Plugged, Site Released
24	Point	EL PASO PRODUCTION OIL & GAS CO.	GOEDEKE FEDERAL #002	32.056164	-103.557999	3002508405	10	26.05	33E	1980 S		1980 E		5302	Plugged, Site Released
25	Point	RKI EXPLORATION & PRODUCTION LLC	GOEDEKE #004	32.052540	-103.562279	3002520015	10	26.05	33E	660 S		1980 W		5140	Active
26	Point	RKI EXPLORATION & PRODUCTION LLC	GOEDEKE #001	32.052536	-103.557999	3002508406	10	26.05	33E	660 S		1980 E		5170	Active
27	Point	MEWBOURNE OIL CO.	SALADO DRAW 10 A1PA FEDERAL #001H	32.051109	-103.552411	3002542706	10	26.05	33E	185 S		380 E		0	New
28	Point	MEWBOURNE OIL CO.	SALADO DRAW 10 A3PA FEDERAL #002H	32.051109	-103.552249	3002542707	10	26.05	33E	185 S		330 E		10061	Active
29	Point	PRE-ONGARD WELL OPERATOR	PRE-ONGARDWELL #003Y	32.056160	-103.553742	3002508410	10	26.05	33E	1980 S		660 E		364	Plugged, Site Released
30	Point	EOG RESOURCES INC	LOMAS ROJAS 26 STATE COM #004H	32.095146	-103.538918	3002539703	26	25.05	33E	330 S		1350 E		9443	Active

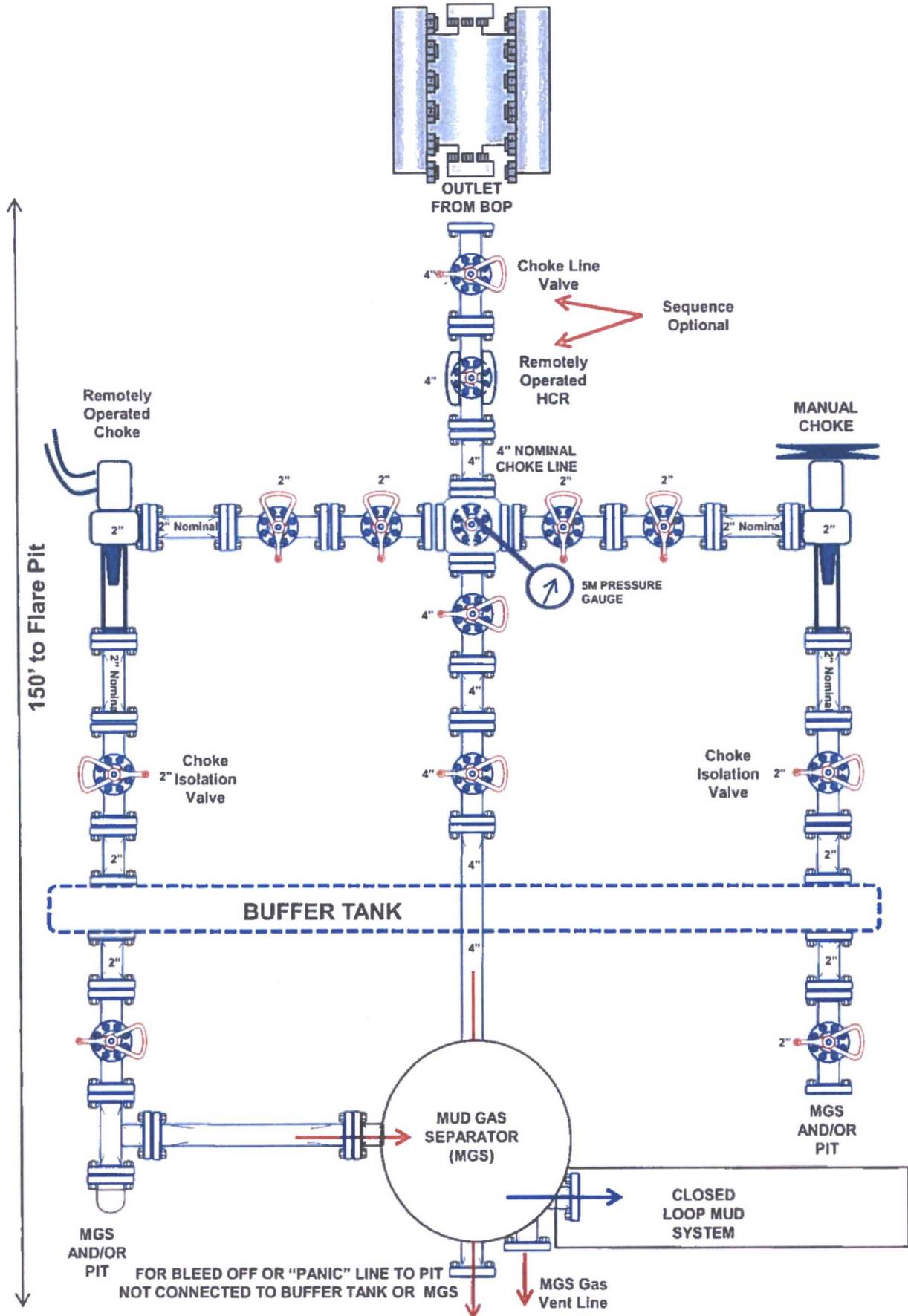
3M Choke Manifold Equipment (WITH MGS + CLOSED LOOP)



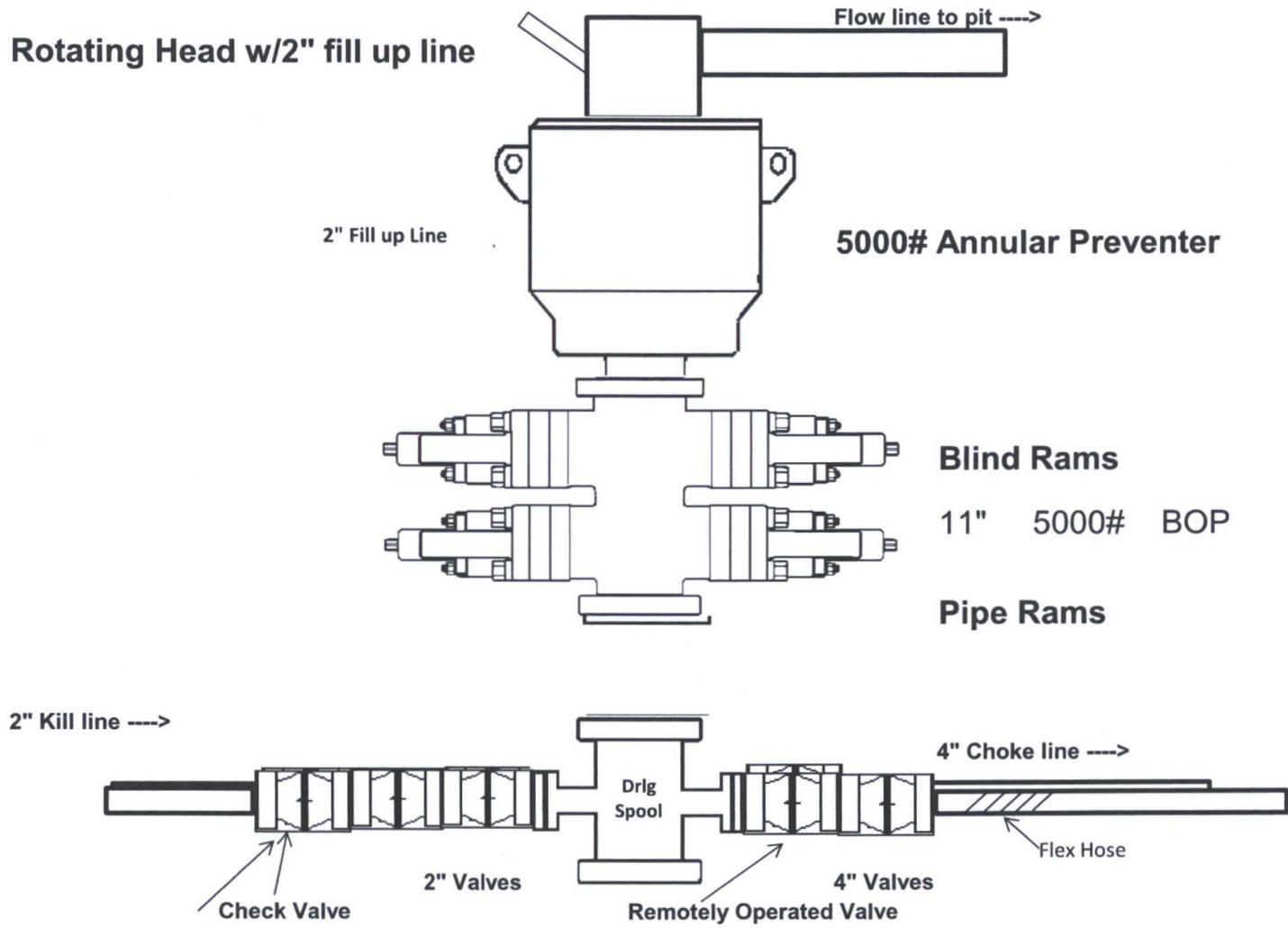
3,000 psi BOP Schematic



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



5,000 psi BOP Schematic





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

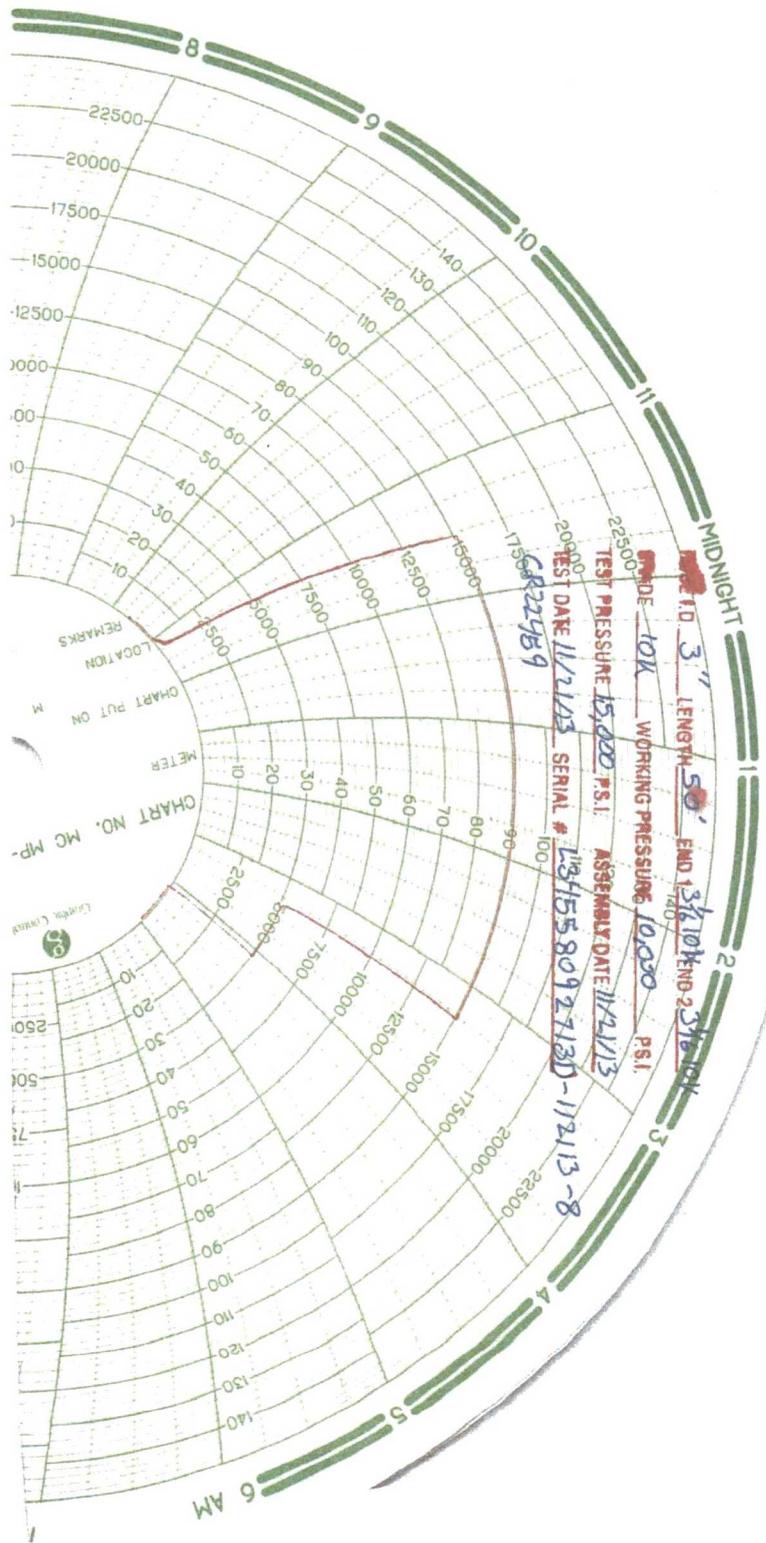
PHONE: 361-887-9807
FAX: 361-887-0812
EMAIL: crpe&s@gates.com
WEB: www.gates.com

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 :	QUALITY	Technical Supervisor :	PRODUCTION
Date :	11/22/2013	Date :	11/22/2013
Signature :		Signature :	



MIDNIGHT

TEST ID 3 LENGTH 50' END 131610 END 231610K

MODE 10K WORKING PRESSURE 10,000 PSI

TEST PRESSURE 15,000 PSI ASSEMBLY DATE 11/21/13

TEST DATE 11/21/13 SERIAL # 134558092713D-112113-8

CHART NO. 821489

REMARKS
LOCATION
CHART PUT ON
METER

CHART NO. MC MP-
Lumber Chart

6 AM







