

11-328

HOBBS OCD

MAY 25 2011

COPY

OCD Hobbs

Form 3160-3
(April 2004)

RECEIVED

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

FORM APPROVED
OMB No. 1004-0137
Expires March 31, 2007

5. Lease Serial No. *NM 01218A*
SHL - NMNM59045 BHL-107898

6. If Indian, Allottee 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. *(3864)*
SL East 30 Federal Com #1H

2. Name of Operator
COG OPERATING LLC.

9. API Well No.
30-025-40154

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

3b. Phone No. (include area code)
(229) 137
575-748-6940

10. Field and Pool, or Exploratory
South Lusk Bone Spring (41440)

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

At surface 330 FSL & 1670 FEL *Unit A*
At proposed prod zone 330 FNL & 1670 FEL *Unit B*

11. Sec., T. R. M. or Blk. and Survey or Area
Sec. 30 T19S. R32E

14. Distance in miles and direction from nearest town or post office*
18 MILES FROM MALJAMAR, NM

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)
330'

16. No. of acres in lease
640 ac

17. Spacing Unit dedicated to this well
160 ac

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.
1340'

19. Proposed Depth
13720, 10520, 9300
MD - TD - TVD

20. BLM/BIA Bond No. on file
NMB000215

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
GL - 3545'

22. Approximate date work will start*
04/05/2011

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 *Rand French* Name (Printed Typed) **Rand French** Date **02/16/2011**
Title **Regulatory Coordinator**

Approved by (Signature) *Is/ Don Peterson* Name (Printed Typed) **Is/ Don Peterson** Date **MAY 19 2011**
Title **FIELD MANAGER** Office **CARLSBAD FIELD OFFICE**

Application approval does not warrant or certify that the applicant holds legal 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.

*(Instructions on page 2)

Capitan Controlled Water Basin

K2 05/31/11

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

Approval Subject to General Requirements
& Special Stipulations Attached

JUN 02 2011

COG OPERATING LLC
DRILLING AND OPERATIONS PROGRAM

SL East Federal Com #1H
 SHL: 330' FSL & 1670' FEL
 BHL: 330' FNL & 1670' FEL
 Section 30 T19S R32E
 Lea County, New Mexico

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In conjunction with Form 3160-3, Application for Permit to Drill subject well, COG Operation LLC submits the following ten items of pertinent information in accordance with BLM requirements.

1. Geological surface formation: Permian
2. The estimated tops of geologic markers & estimated depths at which anticipated water, oil or gas formations are expected to be encountered are as follows:

Rustler	825'	
Top of Salt	1175'	
Base of Salt	2445'	
Reef	3020'	
Delaware	4420'	Oil
Bone Spring	7150'	
1 st BSS	8345'	Oil
2 nd BSS	9020'	Oil
3 rd BSS	9848'	Oil
TD (Pilot)	10520'	
TVD	9300'	
TMD	13720'	

No other formations are expected to give up oil, gas or fresh water in measurable quantities. The surface fresh water is less than ~~850'~~ and will be protected by setting 13 3/8" casing at 850' and circulating cement back to surface. All intervals will be isolated by setting 5 1/2" casing to total depth and tying back cement to 200' into 9 5/8" casing.

3. Proposed Casing Program:

Hole Size	Interval	OD Casing	New or Used	Wt	Collar	Grade	Collapse Design Factor	Burst Design Factor	Tension Design Factor
17 1/2"	0' - 850' 1175'	13 3/8"	New	54.5#	STC	J-55	1.125	1.125	1.6
12 1/4"	0' - 3400'	9 5/8"	New	36#	BUTT	J-55	1.125	1.125	1.6
12 1/4"	3400' - 4400'	9 5/8"	New	40#	BUTT	J-55	1.125	1.125	1.6
7 7/8"	0'-13720'	5 1/2"	New	17#	LTC	P-110/N-80	1.125	1.125	1.6

4. Proposed Cement Program

- a. 13-3/8" Surface *See COA* Cement to surface with 500 sx Class C wt 12.7 yield 1.91 and tail with 200 sx Class C wt 14.8 yield 1.34
- b. 9 5/8" Intermediate Cement to surface in 2 stages. 1st stg: lead with 350 sx Class C wt 12.7 yield 1.89 Tail in with 250 sx Class C wt 14.8 yield 1.34. 2nd stg: lead with 600 sx Class C wt 12.7 yield 1.89 Tail in with 100 sx Class C wt 14.8 yield 1.34. DVT/ECP set +/- 100' above reef.
- c. 5 1/2" Production Cement 1st stage with 500 sx "H" acid soluble cement wt 15.0 yield 2.6. Cement 2nd stage with 600 sk Class C wt 12.7 yield 1.91 & Tail in with 100 sx Class C wt 14.8 yield 1.33. DV Tool @ 8700' & TOC will be 200' above intermediate csg shoe.

The above cement volumes could be revised pending the caliper measurement from the open hole logs. The top of cement is designed to reach approximately 200' above the 9 5/8" casing shoe. **All casing is new and API approved.**

5. Minimum Specifications for Pressure Control:

Nipple up on 13 3/8 with 2M system (Hydril) tested to 2000# by independent tester, nipple up on 9 5/8 with 3m system tested to 3000# by independent tester

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. A 2" kill line and a 3" choke line will be included in the drilling spool located below the ram-type BOP. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold with 3000 psi WP rating.

6. Estimated BHP: 4000 psi

7. Mud Program: The applicable depths and properties of this system are as follows:

Depth	Type System	Mud Weight	Viscosity (sec)	Waterloss (cc)
0' - 410' <i>925'</i>	Fresh Water	8.4	29	N.C.
<i>925'</i> 410' - 4400'	Brine	10	29	N.C.
4400' - 13720'	Cut Brine	8.9-9.2	29	N.C.

The necessary mud products for weight addition and fluid loss control will be on location at all times.

8. Auxiliary Well Control and Monitoring Equipment:

- a. A Kelly cock will be in the drill string at all times.
- b. A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor at all times.
- c. Hydrogen Sulfide detection equipment will be in operation after drilling out the 13 3/8" casing shoe until the 5 1/2" casing is cemented. Breathing equipment will be on location upon drilling the 13 3/8" shoe until total depth is reached.

9. Testing, Logging and Coring Program: *See COA*

- a. Drill stem tests will be based on geological sample shows.
- b. The open hole electrical logging program will be:
 - i. Total Depth to Intermediate Casing: Dual Laterolog-Micro Laterolog and Gamma Ray. Compensated Neutron – Z Density log with Gamma Ray and Caliper.
 - ii. Total Depth to Surface: Compensated Neutron with Gamma Ray
 - iii. No coring program is planned
 - iv. Additional testing will be initiated subsequent to setting the 5 1/2" production casing. Specific intervals will be targeted based on log evaluation, geological sample shows and drill stem tests.

10. Potential Hazards:

- a. No abnormal pressures or temperatures are expected. There is ^{*some*} ~~no~~ known presence of H₂S in this area. If H₂S is encountered the operator will comply with the provisions of Onshore Oil and Gas Order No. 6. No lost circulation is expected to occur. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. Estimated BHP: 2100 psi. No H₂S is anticipated to be encountered.

11. Anticipated starting date and Duration of Operations:

- a. Road and location construction will begin after the BLM has approved the APD. Anticipated spud date will be as possible after BLM approval and as soon as a rig will be available. Move in operations and drilling is expected to take 30 days.



COG Operating LLC

Lea County(NAD27)

SL East 30 Fed

#1

OH

HOBBS OCD

MAY 25 2011

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Plan: Plan #1

Pathfinder X & Y Planning Report

14 January, 2011

PATHFINDER

A Schlumberger Company



Pathfinder
Pathfinder X & Y Planning Report



Company: COG Operating LLC
Project: Lea County(NAD27)
Site: SL East 30 Fed
Well: #1
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #1
TVD Reference: WELL @ 3563.00usft (Original Well Elev)
MD Reference: WELL @ 3563.00usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Project	Lea County(NAD27)		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	SL East 30 Fed		
Site Position:		Northing:	591,492.100 usft
From:	Map	Easting:	663,621.200 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 37' 29.966 N
		Longitude:	103° 48' 6.771 W
		Grid Convergence:	0.29 °

Well	#1					
Well Position	+N/-S	0.00 usft	Northing:	591,492.100 usft	Latitude:	32° 37' 29.966 N
	+E/-W	0.00 usft	Easting:	663,621.200 usft	Longitude:	103° 48' 6.771 W
Position Uncertainty	0.00 usft		Wellhead Elevation:	usft	Ground Level:	3,545.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	01/14/11	7.76	60.55	48,908

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	359.77

Survey Tool Program	Date	01/14/11		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	13,717.69	Plan #1 (OH)	MWD	MWD - Standard



Pathfinder
Pathfinder X & Y Planning Report



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Planned Survey

MD (usft)	Inc (°)	Azi (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
0.00	0.00	0.00	0.00	3,563.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
100.00	0.00	0.00	100.00	3,463.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
200.00	0.00	0.00	200.00	3,363.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
300.00	0.00	0.00	300.00	3,263.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
400.00	0.00	0.00	400.00	3,163.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
500.00	0.00	0.00	500.00	3,063.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
600.00	0.00	0.00	600.00	2,963.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
700.00	0.00	0.00	700.00	2,863.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
800.00	0.00	0.00	800.00	2,763.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
900.00	0.00	0.00	900.00	2,663.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
1,000.00	0.00	0.00	1,000.00	2,563.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
1,100.00	0.00	0.00	1,100.00	2,463.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
1,200.00	0.00	0.00	1,200.00	2,363.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
1,300.00	0.00	0.00	1,300.00	2,263.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
1,400.00	0.00	0.00	1,400.00	2,163.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
1,500.00	0.00	0.00	1,500.00	2,063.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
1,600.00	0.00	0.00	1,600.00	1,963.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
1,700.00	0.00	0.00	1,700.00	1,863.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
1,800.00	0.00	0.00	1,800.00	1,763.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
1,900.00	0.00	0.00	1,900.00	1,663.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
2,000.00	0.00	0.00	2,000.00	1,563.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
2,100.00	0.00	0.00	2,100.00	1,463.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
2,200.00	0.00	0.00	2,200.00	1,363.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
2,300.00	0.00	0.00	2,300.00	1,263.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
2,400.00	0.00	0.00	2,400.00	1,163.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
2,500.00	0.00	0.00	2,500.00	1,063.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
2,600.00	0.00	0.00	2,600.00	963.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20



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Pathfinder X & Y Planning Report



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2,700.00	0.00	0.00	2,700.00	863.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
2,800.00	0.00	0.00	2,800.00	763.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
2,900.00	0.00	0.00	2,900.00	663.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
3,000.00	0.00	0.00	3,000.00	563.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
3,100.00	0.00	0.00	3,100.00	463.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
3,200.00	0.00	0.00	3,200.00	363.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
3,300.00	0.00	0.00	3,300.00	263.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
3,400.00	0.00	0.00	3,400.00	163.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
3,500.00	0.00	0.00	3,500.00	63.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
3,600.00	0.00	0.00	3,600.00	-37.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
3,700.00	0.00	0.00	3,700.00	-137.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
3,800.00	0.00	0.00	3,800.00	-237.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
3,900.00	0.00	0.00	3,900.00	-337.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
4,000.00	0.00	0.00	4,000.00	-437.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
4,100.00	0.00	0.00	4,100.00	-537.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
4,200.00	0.00	0.00	4,200.00	-637.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
4,300.00	0.00	0.00	4,300.00	-737.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
4,400.00	0.00	0.00	4,400.00	-837.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
4,500.00	0.00	0.00	4,500.00	-937.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
4,600.00	0.00	0.00	4,600.00	-1,037.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
4,700.00	0.00	0.00	4,700.00	-1,137.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
4,800.00	0.00	0.00	4,800.00	-1,237.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
4,900.00	0.00	0.00	4,900.00	-1,337.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
5,000.00	0.00	0.00	5,000.00	-1,437.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
5,100.00	0.00	0.00	5,100.00	-1,537.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
5,200.00	0.00	0.00	5,200.00	-1,637.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
5,300.00	0.00	0.00	5,300.00	-1,737.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20



Pathfinder
Pathfinder X & Y Planning Report



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Wellbore: OH
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MD (usft)	Inc (°)	Azi (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
5,400.00	0.00	0.00	5,400.00	-1,837.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20	
5,500.00	0.00	0.00	5,500.00	-1,937.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20	
5,600.00	0.00	0.00	5,600.00	-2,037.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20	
5,700.00	0.00	0.00	5,700.00	-2,137.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20	
5,800.00	0.00	0.00	5,800.00	-2,237.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20	
5,900.00	0.00	0.00	5,900.00	-2,337.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20	
6,000.00	0.00	0.00	6,000.00	-2,437.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20	
6,100.00	0.00	0.00	6,100.00	-2,537.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20	
6,200.00	0.00	0.00	6,200.00	-2,637.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20	
6,300.00	0.00	0.00	6,300.00	-2,737.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20	
6,400.00	0.00	0.00	6,400.00	-2,837.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20	
6,500.00	0.00	0.00	6,500.00	-2,937.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20	
6,600.00	0.00	0.00	6,600.00	-3,037.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20	
6,700.00	0.00	0.00	6,700.00	-3,137.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20	
6,800.00	0.00	0.00	6,800.00	-3,237.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20	
6,900.00	0.00	0.00	6,900.00	-3,337.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20	
7,000.00	0.00	0.00	7,000.00	-3,437.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20	
7,100.00	0.00	0.00	7,100.00	-3,537.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20	
7,200.00	0.00	0.00	7,200.00	-3,637.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20	
7,300.00	0.00	0.00	7,300.00	-3,737.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20	
7,400.00	0.00	0.00	7,400.00	-3,837.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20	
7,500.00	0.00	0.00	7,500.00	-3,937.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20	
7,600.00	0.00	0.00	7,600.00	-4,037.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20	
7,700.00	0.00	0.00	7,700.00	-4,137.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20	
7,800.00	0.00	0.00	7,800.00	-4,237.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20	
7,900.00	0.00	0.00	7,900.00	-4,337.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20	
8,000.00	0.00	0.00	8,000.00	-4,437.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20	



Pathfinder
Pathfinder X & Y Planning Report



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Project: Lea County(NAD27)
Site: SL East 30 Fed
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Wellbore: OH
Design: Plan #1

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North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
8,100.00	0.00	0.00	8,100.00	-4,537.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
8,200.00	0.00	0.00	8,200.00	-4,637.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
8,300.00	0.00	0.00	8,300.00	-4,737.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
8,400.00	0.00	0.00	8,400.00	-4,837.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
8,500.00	0.00	0.00	8,500.00	-4,937.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
8,600.00	0.00	0.00	8,600.00	-5,037.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
8,700.00	0.00	0.00	8,700.00	-5,137.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
8,800.00	0.00	0.00	8,800.00	-5,237.00	0.00	0.00	0.00	0.00	591,492.10	663,621.20
8,822.50	0.00	0.00	8,822.50	-5,259.50	0.00	0.00	0.00	0.00	591,492.10	663,621.20
8,825.00	0.30	359.77	8,825.00	-5,262.00	0.01	0.00	0.01	12.00	591,492.11	663,621.20
8,850.00	3.30	359.77	8,849.98	-5,286.98	0.79	0.00	0.79	12.00	591,492.89	663,621.20
8,875.00	6.30	359.77	8,874.89	-5,311.89	2.88	-0.01	2.88	12.00	591,494.98	663,621.19
8,900.00	9.30	359.77	8,899.66	-5,336.66	6.28	-0.03	6.28	12.00	591,498.38	663,621.17
8,925.00	12.30	359.77	8,924.21	-5,361.21	10.96	-0.04	10.96	12.00	591,503.06	663,621.16
8,950.00	15.30	359.77	8,948.49	-5,385.49	16.92	-0.07	16.92	12.00	591,509.02	663,621.13
8,975.00	18.30	359.77	8,972.42	-5,409.42	24.15	-0.10	24.15	12.00	591,516.25	663,621.10
9,000.00	21.30	359.77	8,995.94	-5,432.94	32.61	-0.13	32.61	12.00	591,524.71	663,621.07
9,025.00	24.30	359.77	9,018.98	-5,455.98	42.30	-0.17	42.30	12.00	591,534.40	663,621.03
9,050.00	27.30	359.77	9,041.49	-5,478.49	53.18	-0.21	53.18	12.00	591,545.28	663,620.99
9,075.00	30.30	359.77	9,063.40	-5,500.40	65.22	-0.26	65.22	12.00	591,557.32	663,620.94
9,100.00	33.30	359.77	9,084.64	-5,521.64	78.39	-0.31	78.39	12.00	591,570.49	663,620.89
9,125.00	36.30	359.77	9,105.17	-5,542.17	92.66	-0.37	92.66	12.00	591,584.76	663,620.83
9,150.00	39.30	359.77	9,124.92	-5,561.92	107.98	-0.43	107.98	12.00	591,600.08	663,620.77
9,175.00	42.30	359.77	9,143.84	-5,580.84	124.31	-0.50	124.31	12.00	591,616.41	663,620.70
9,200.00	45.30	359.77	9,161.89	-5,598.89	141.61	-0.57	141.61	12.00	591,633.71	663,620.63
9,225.00	48.30	359.77	9,179.00	-5,616.00	159.83	-0.64	159.83	12.00	591,651.93	663,620.56
9,250.00	51.30	359.77	9,195.14	-5,632.14	178.92	-0.72	178.92	12.00	591,671.02	663,620.48



Pathfinder
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MD (usft)	Inc (°)	Azi (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
9,275.00	54.30	359.77	9,210.25	-5,647.25	198.83	-0.80	198.83	12.00	591,690.93	663,620.40
9,300.00	57.30	359.77	9,224.30	-5,661.30	219.50	-0.88	219.51	12.00	591,711.60	663,620.32
9,325.00	60.30	359.77	9,237.25	-5,674.25	240.88	-0.97	240.89	12.00	591,732.98	663,620.23
9,350.00	63.30	359.77	9,249.07	-5,686.07	262.91	-1.06	262.92	12.00	591,755.01	663,620.14
9,375.00	66.30	359.77	9,259.71	-5,696.71	285.53	-1.15	285.53	12.00	591,777.63	663,620.05
9,400.00	69.29	359.77	9,269.16	-5,706.16	308.67	-1.24	308.68	12.00	591,800.77	663,619.96
9,425.00	72.29	359.77	9,277.38	-5,714.38	332.28	-1.33	332.28	12.00	591,824.38	663,619.87
9,450.00	75.29	359.77	9,284.36	-5,721.36	356.28	-1.43	356.29	12.00	591,848.38	663,619.77
9,475.00	78.29	359.77	9,290.07	-5,727.07	380.62	-1.53	380.62	12.00	591,872.72	663,619.67
9,500.00	81.29	359.77	9,294.50	-5,731.50	405.22	-1.63	405.22	12.00	591,897.32	663,619.57
9,525.00	84.29	359.77	9,297.63	-5,734.63	430.02	-1.73	430.02	12.00	591,922.12	663,619.47
9,550.00	87.29	359.77	9,299.47	-5,736.47	454.95	-1.83	454.95	12.00	591,947.05	663,619.37
9,572.47	89.99	359.77	9,300.00	-5,737.00	477.41	-1.92	477.42	12.00	591,969.51	663,619.28
9,600.00	89.99	359.77	9,300.00	-5,737.00	504.94	-2.03	504.94	0.00	591,997.04	663,619.17
9,700.00	89.99	359.77	9,300.02	-5,737.02	604.94	-2.43	604.94	0.00	592,097.04	663,618.77
9,800.00	89.99	359.77	9,300.04	-5,737.04	704.94	-2.83	704.94	0.00	592,197.04	663,618.37
9,900.00	89.99	359.77	9,300.06	-5,737.06	804.94	-3.23	804.94	0.00	592,297.04	663,617.97
10,000.00	89.99	359.77	9,300.07	-5,737.07	904.94	-3.63	904.94	0.00	592,397.04	663,617.57
10,100.00	89.99	359.77	9,300.09	-5,737.09	1,004.94	-4.03	1,004.94	0.00	592,497.04	663,617.17
10,200.00	89.99	359.77	9,300.11	-5,737.11	1,104.94	-4.44	1,104.94	0.00	592,597.04	663,616.76
10,300.00	89.99	359.77	9,300.13	-5,737.13	1,204.94	-4.84	1,204.94	0.00	592,697.04	663,616.36
10,400.00	89.99	359.77	9,300.14	-5,737.14	1,304.93	-5.24	1,304.94	0.00	592,797.03	663,615.96
10,500.00	89.99	359.77	9,300.16	-5,737.16	1,404.93	-5.64	1,404.94	0.00	592,897.03	663,615.56
10,600.00	89.99	359.77	9,300.18	-5,737.18	1,504.93	-6.04	1,504.94	0.00	592,997.03	663,615.16
10,700.00	89.99	359.77	9,300.20	-5,737.20	1,604.93	-6.44	1,604.94	0.00	593,097.03	663,614.76
10,800.00	89.99	359.77	9,300.21	-5,737.21	1,704.93	-6.84	1,704.94	0.00	593,197.03	663,614.36
10,900.00	89.99	359.77	9,300.23	-5,737.23	1,804.93	-7.25	1,804.94	0.00	593,297.03	663,613.95



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11,000.00	89.99	359.77	9,300.25	-5,737.25	1,904.93	-7.65	1,904.94	0.00	593,397.03	663,613.55
11,100.00	89.99	359.77	9,300.27	-5,737.27	2,004.93	-8.05	2,004.94	0.00	593,497.03	663,613.15
11,200.00	89.99	359.77	9,300.28	-5,737.28	2,104.93	-8.45	2,104.94	0.00	593,597.03	663,612.75
11,300.00	89.99	359.77	9,300.30	-5,737.30	2,204.93	-8.85	2,204.94	0.00	593,697.03	663,612.35
11,400.00	89.99	359.77	9,300.32	-5,737.32	2,304.93	-9.25	2,304.94	0.00	593,797.03	663,611.95
11,500.00	89.99	359.77	9,300.34	-5,737.34	2,404.93	-9.65	2,404.94	0.00	593,897.03	663,611.55
11,600.00	89.99	359.77	9,300.35	-5,737.35	2,504.92	-10.06	2,504.94	0.00	593,997.02	663,611.14
11,700.00	89.99	359.77	9,300.37	-5,737.37	2,604.92	-10.46	2,604.94	0.00	594,097.02	663,610.74
11,800.00	89.99	359.77	9,300.39	-5,737.39	2,704.92	-10.86	2,704.94	0.00	594,197.02	663,610.34
11,900.00	89.99	359.77	9,300.41	-5,737.41	2,804.92	-11.26	2,804.94	0.00	594,297.02	663,609.94
12,000.00	89.99	359.77	9,300.42	-5,737.42	2,904.92	-11.66	2,904.94	0.00	594,397.02	663,609.54
12,100.00	89.99	359.77	9,300.44	-5,737.44	3,004.92	-12.06	3,004.94	0.00	594,497.02	663,609.14
12,200.00	89.99	359.77	9,300.46	-5,737.46	3,104.92	-12.46	3,104.94	0.00	594,597.02	663,608.74
12,300.00	89.99	359.77	9,300.48	-5,737.48	3,204.92	-12.87	3,204.94	0.00	594,697.02	663,608.33
12,400.00	89.99	359.77	9,300.49	-5,737.49	3,304.92	-13.27	3,304.94	0.00	594,797.02	663,607.93
12,500.00	89.99	359.77	9,300.51	-5,737.51	3,404.92	-13.67	3,404.94	0.00	594,897.02	663,607.53
12,600.00	89.99	359.77	9,300.53	-5,737.53	3,504.92	-14.07	3,504.94	0.00	594,997.02	663,607.13
12,700.00	89.99	359.77	9,300.55	-5,737.55	3,604.92	-14.47	3,604.94	0.00	595,097.02	663,606.73
12,800.00	89.99	359.77	9,300.56	-5,737.56	3,704.91	-14.87	3,704.94	0.00	595,197.01	663,606.33
12,900.00	89.99	359.77	9,300.58	-5,737.58	3,804.91	-15.27	3,804.94	0.00	595,297.01	663,605.93
13,000.00	89.99	359.77	9,300.60	-5,737.60	3,904.91	-15.68	3,904.94	0.00	595,397.01	663,605.52
13,100.00	89.99	359.77	9,300.62	-5,737.62	4,004.91	-16.08	4,004.94	0.00	595,497.01	663,605.12
13,200.00	89.99	359.77	9,300.63	-5,737.63	4,104.91	-16.48	4,104.94	0.00	595,597.01	663,604.72
13,300.00	89.99	359.77	9,300.65	-5,737.65	4,204.91	-16.88	4,204.94	0.00	595,697.01	663,604.32
13,400.00	89.99	359.77	9,300.67	-5,737.67	4,304.91	-17.28	4,304.94	0.00	595,797.01	663,603.92
13,500.00	89.99	359.77	9,300.69	-5,737.69	4,404.91	-17.68	4,404.94	0.00	595,897.01	663,603.52
13,600.00	89.99	359.77	9,300.70	-5,737.70	4,504.91	-18.08	4,504.94	0.00	595,997.01	663,603.12



Pathfinder
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Planned Survey

MD (usft)	Inc (°)	Azi (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
13,700.00	89.99	359.77	9,300.72	-5,737.72	4,604.91	-18.49	4,604.94	0.00	596,097.01	663,602.71
13,717.69	89.99	359.77	9,300.72	-5,737.72	4,622.60	-18.56	4,622.64	0.00	596,114.70	663,602.64
PBHL (SLE30)										

Checked By: _____ Approved By: _____ Date: _____



Project: Lea County(NAD27)
 Site: SL East 30 Fed
 Well: #1
 Wellbore: OH
 Plan: Plan #1 (#1/OH)



Azimuths to Grid North
 True North: -0.29°
 Magnetic North: 7.47°

Magnetic Field
 Strength: 48908.0snT
 Dip Angle: 60.55°
 Date: 01/14/2011
 Model: IGRF200510

PATHFINDER

A Schlumberger Company

PROJECT DETAILS: Lea County(NAD27)
 Geodetic System: US State Plane 1927 (Exact solution)
 Datum: NAD 1927 (NADCON CONUS)
 Ellipsoid: Clarke 1866
 Zone: New Mexico East 3001
 System Datum: Mean Sea Level
 Local North: Grid

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
8822.50	0.00	0.00	8822.50	0.00	0.00	0.00	0.00	0.00	
9572.47	89.99	359.77	9300.00	477.41	-1.92	12.00	359.77	477.42	
13717.69	89.99	359.77	9300.72	4622.60	-18.56	0.00	0.00	4622.64	PBHL (SLE30)

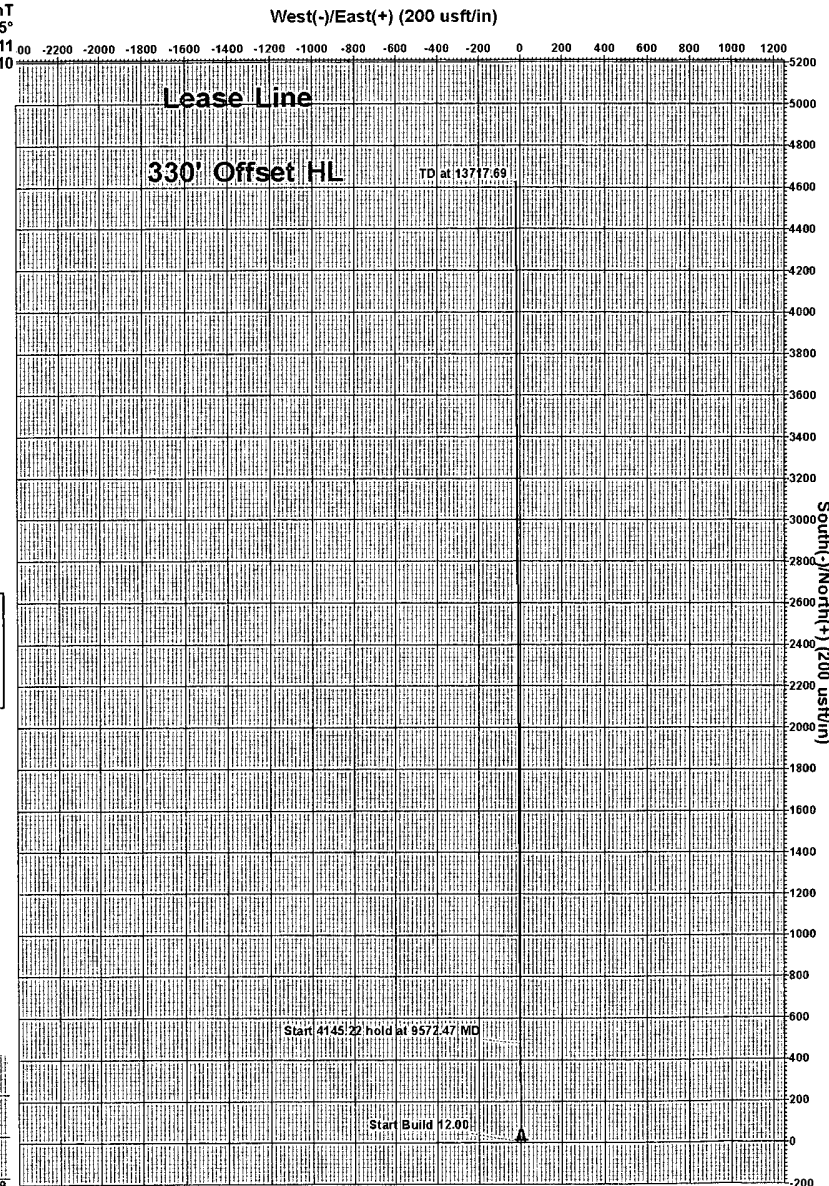
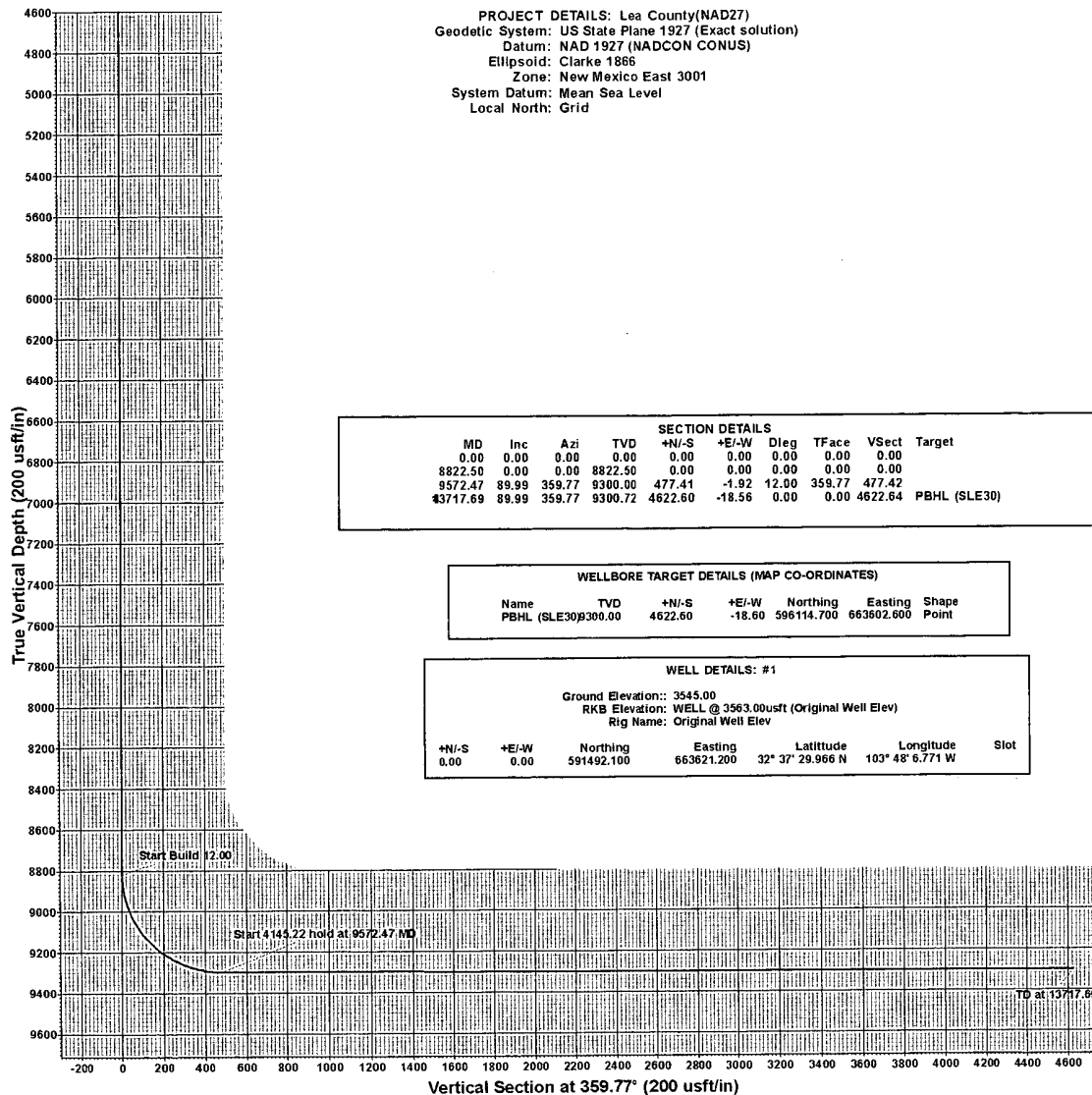
WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
PBHL (SLE30)	9300.00	4622.60	-18.56	596114.700	663602.600	Point

WELL DETAILS: #1

Ground Elevation: 3545.00
 RKB Elevation: WELL @ 3563.00usft (Original Well Elev)
 Rig Name: Original Well Elev

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	591492.100	663621.200	32° 37' 29.966 N	103° 48' 6.771 W	



Plan: Plan #1 (#1/OH)

Created By: Nate Bingham Date: 10:48, January 14 2011

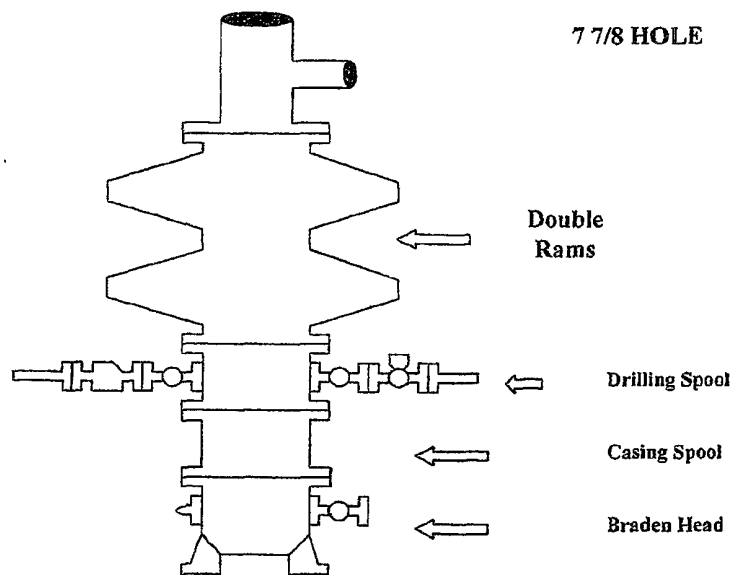
Checked: _____ Date: _____

COG Operating LLC

Exhibit #9

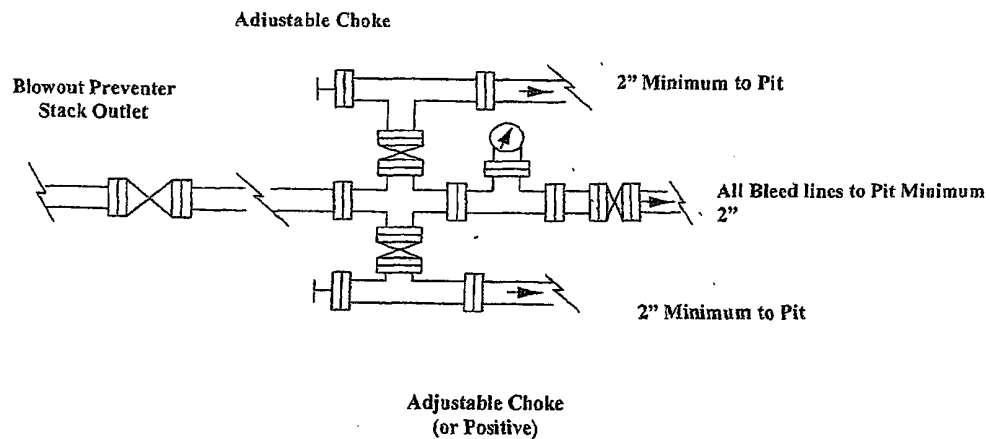
BOPE and Choke Schematic

ZM



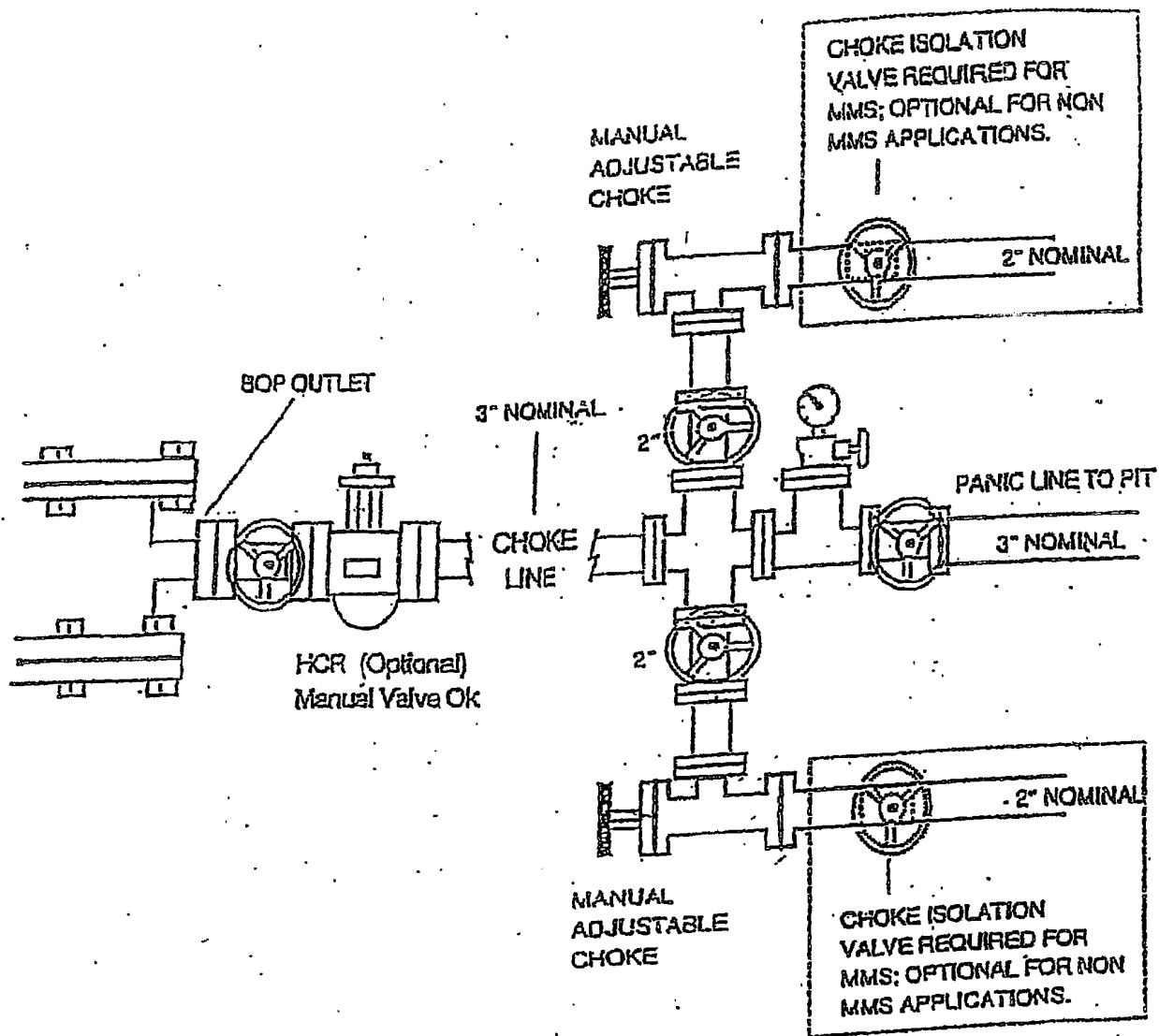
Minimum 4" Nominal choke and kill lines

Choke Manifold Requirement (2000 psi WP)
No Annular Required

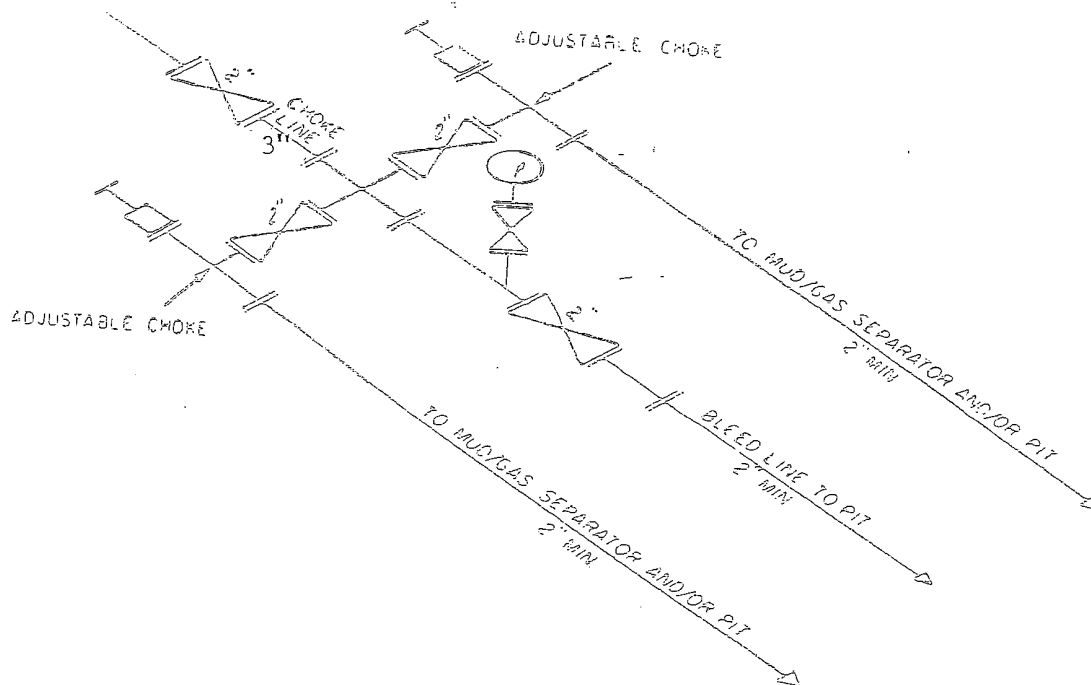
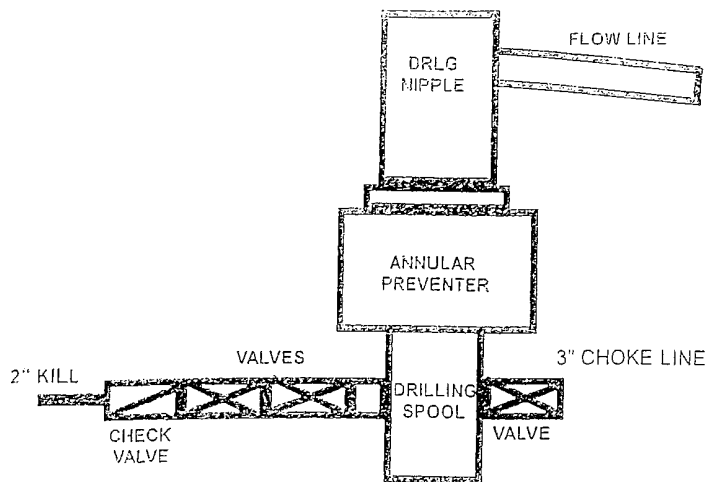


CHOKE MANIFOLD

3M SERVICE



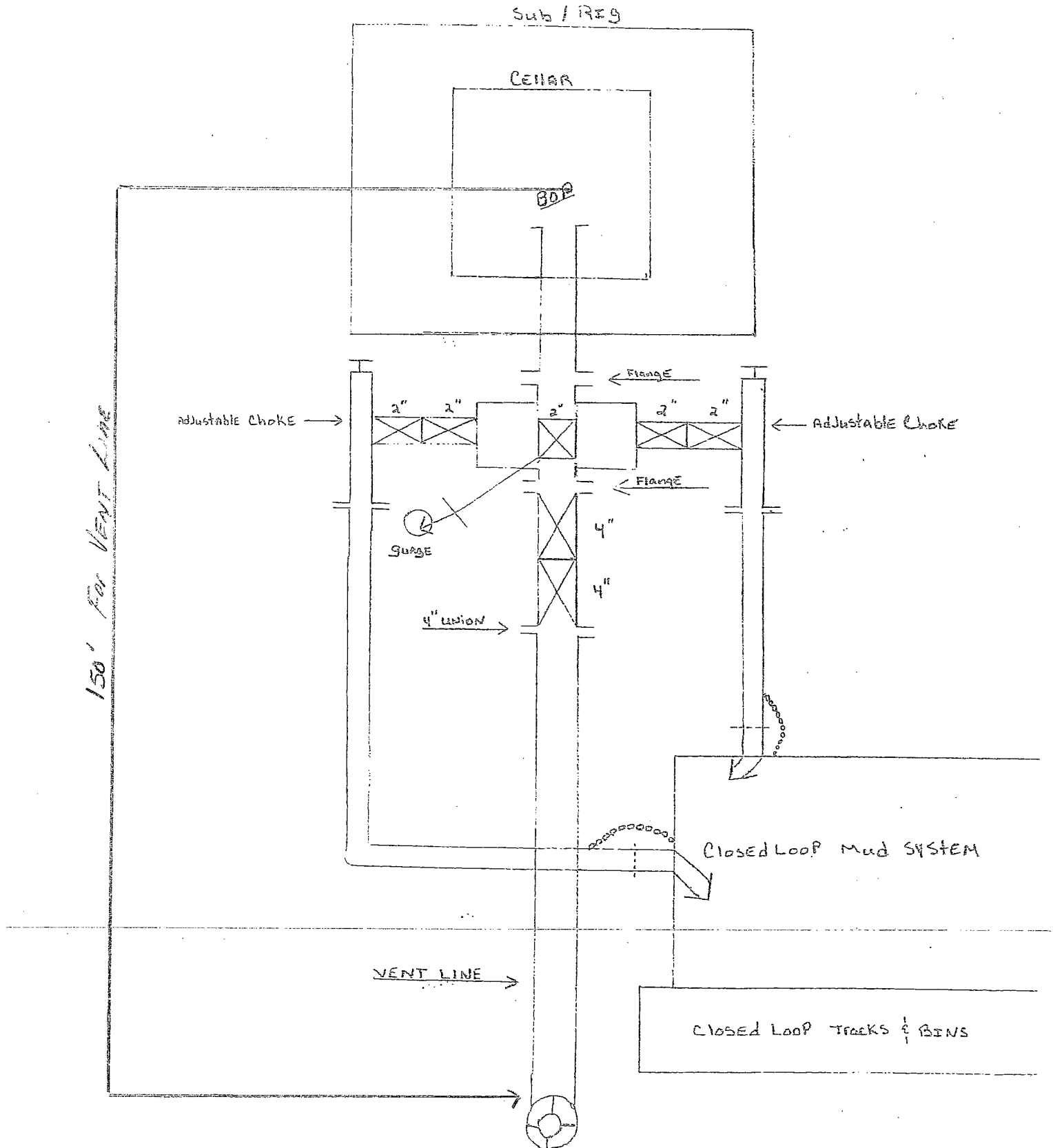
2M SYSTEM



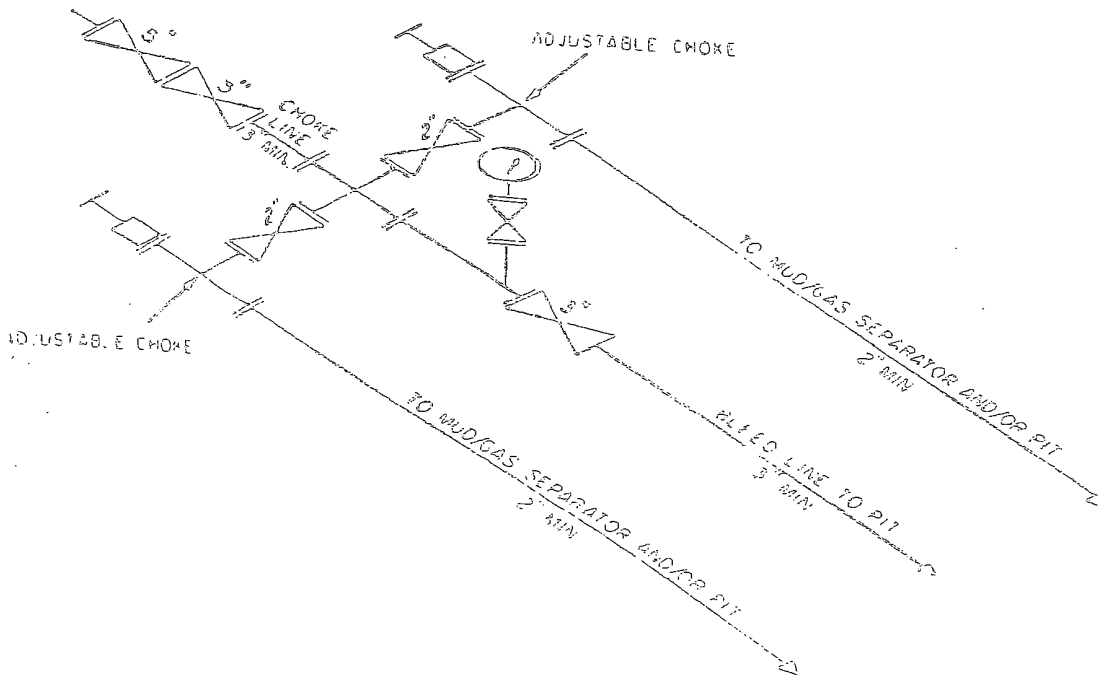
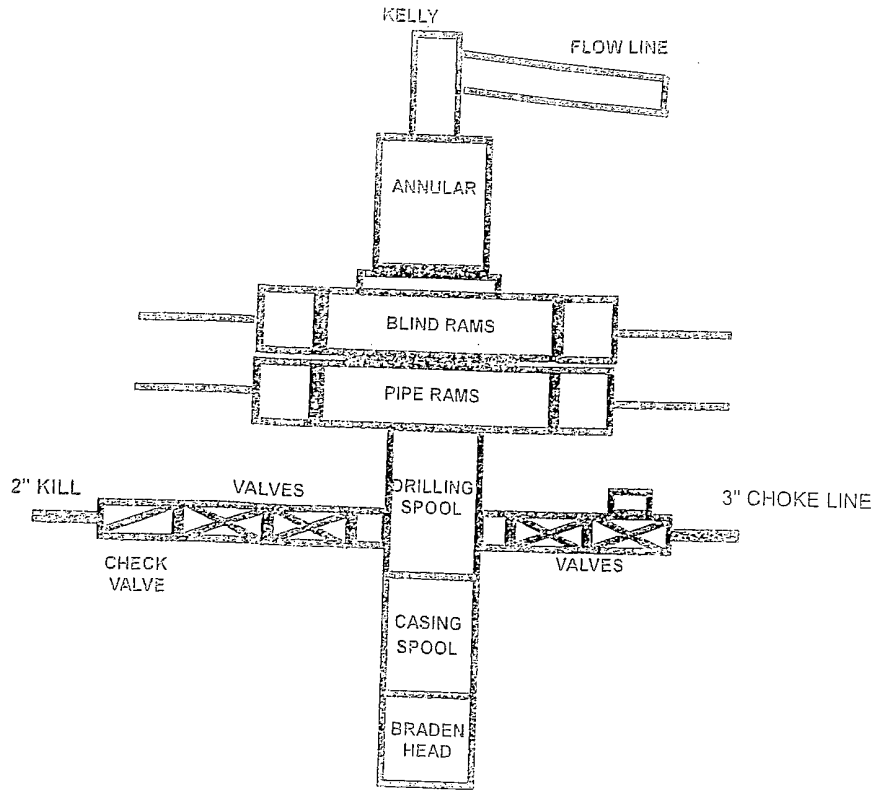
2M CHOKE MANIFOLD EQUIPMENT — CONFIGURATION OF CHOKES

MAY VARY

2M Choke Manifold Equipment

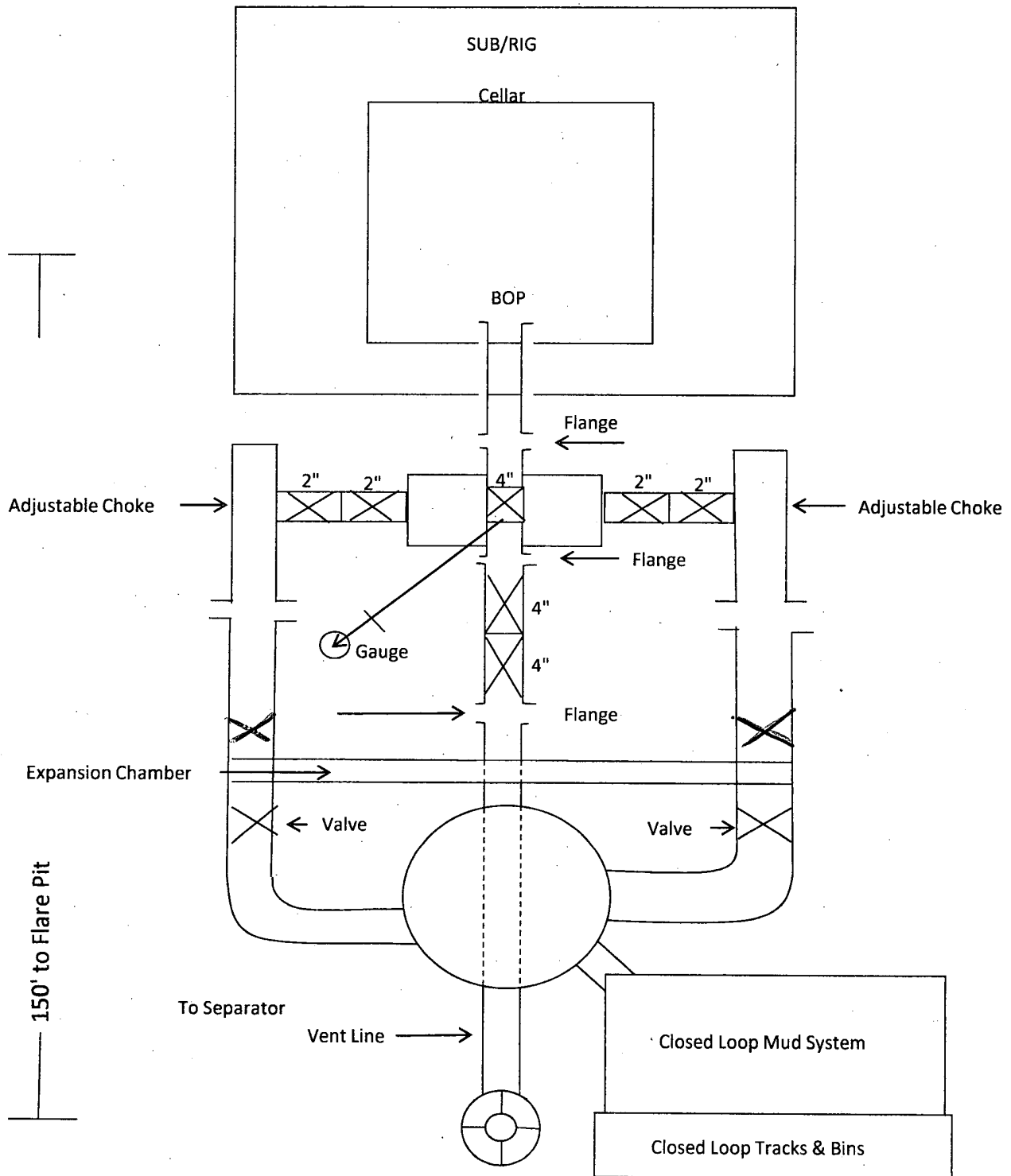


3M SYSTEM

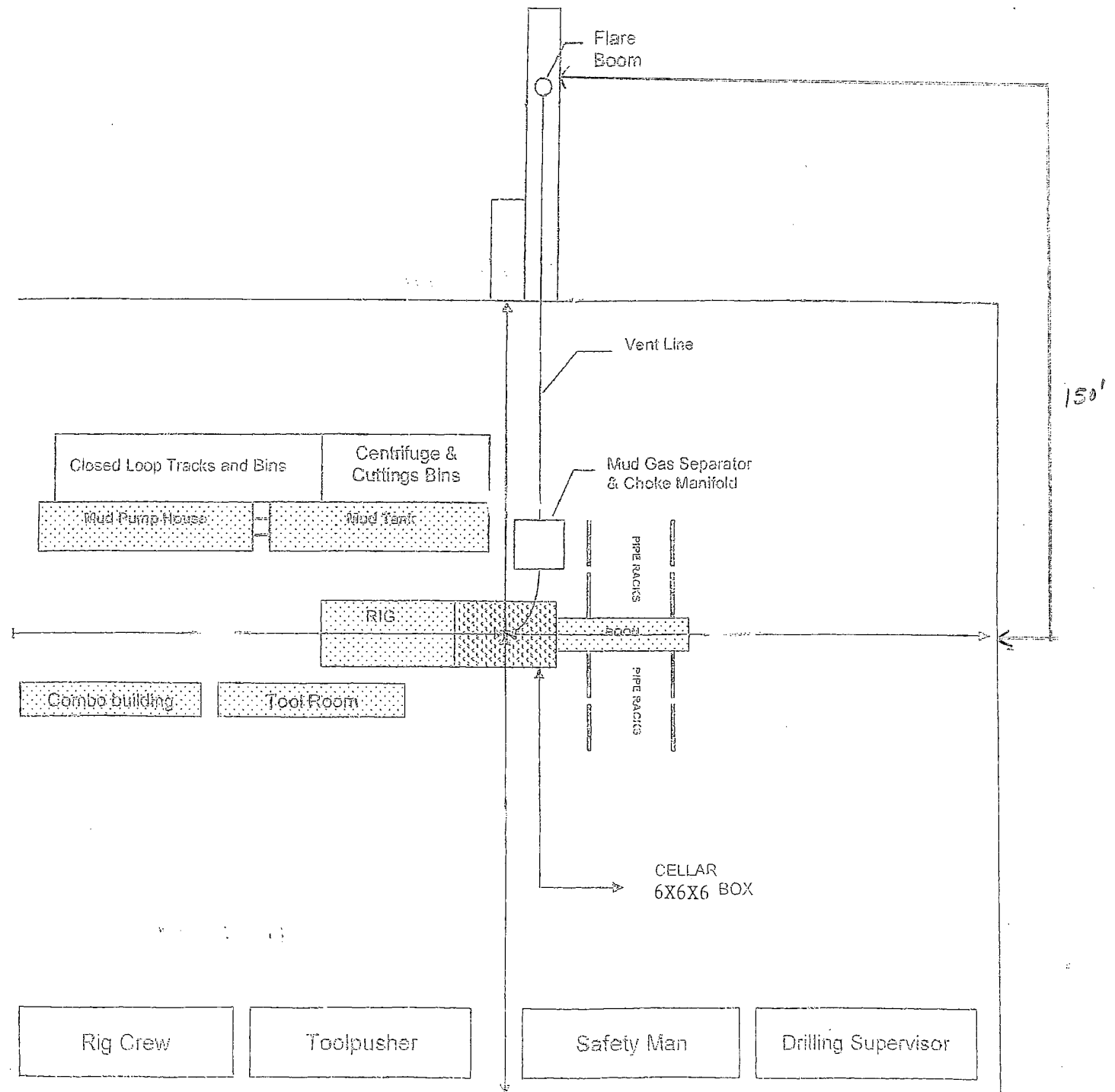


3M CHOKE MANIFOLD EQUIPMENT -- CONFIGURATION OF CHOKES
MAY VARY

3M Choke Manifold Equipment



3M Choke Manifold Equipment



STATEMENT ACCEPTING RESPONSIBILITY FOR OPERATIONS

The undersigned accepts all applicable terms, conditions, stipulations, and restrictions concerning operations conducted on the leased land or portion thereof, as described below:

Date: January 19, 2011

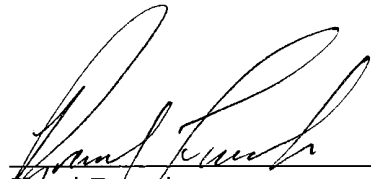
Lease #: NMNM 59045
SL East 30 Federal Com #1H

Legal Description: SHL: 330' FSL 1670' FEL,
BHL: 330' FNL 1670' FEL
T19S-R32E
Lea County, New Mexico

Formation(s): Permian

Bond Coverage: Statewide

BLM Bond File #: NMD000215



Rand French
Regulatory Coordinator

CERTIFICATION:

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drillsite and access route, that I am familiar with the conditions which presently exist; that the statements made in this plan are to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed by Concho Resources and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved. This statement is subject to the provisions of 18 U.S.C. 1001 for the filing of a false statement.

1/20/11
Date

Concho Resources

Rand French
Sheryl Baker RAND FRENCH
Drilling Superintendent