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MAR 25 2011

OCD-HOBBS

Form 3160-3
(April 2004)

HOBBSOCD

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, 20075. Lease Serial No.
NMLC-029509A6. If Indian, Allottee or Tribe Name
N/A7. If Unit or CA Agreement, Name and No.
N/A8. Lease Name and Well No.
M C FEDERAL #579. API Well No.
30-025-10. Field and Pool, or Exploratory
Maljamar; Yeso, West11. Sec., T. R. M. or Blk. and Survey of Area
Sec 21, T17S, R32E1a. Type of work: ☒ DRILL ☐ REENTER1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☐ Single Zone ☐ Multiple Zone2. Name of Operator
COG Operating LLC3a. Address
550 W. Texas, Suite 1300 Midland TX 797013b. Phone No. (include area code)
(432) 685-4385

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

At surface SHL: 2561' FSL & 1567' FEL, Unit J

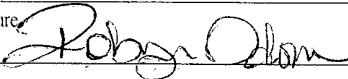
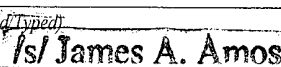
At proposed prod. zone BHL: 2310' FSL & 990' FEL, Unit I

14. Distance in miles and direction from nearest town or post office*
2.5 miles south of Maljamar NM12. County or Parish
Lea13. State
NM15. Distance from proposed*
location to nearest
property or lease line, ft.
(Also to nearest drig. unit line, if any) 1567'16. No. of acres in lease
64017. Spacing Unit dedicated to this well
4018. Distance from proposed location*
to nearest well, drilling, completed,
applied for, on this lease, ft. 110'19. Proposed Depth
1247' TVD20. BLM/BIA Bond No. on file
NMB00021521. Elevations (Show whether DF, KDB, RT, GL, etc.)
4053' GL22. Approximate date work will start*
09/30/201023. Estimated duration
10 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:

- Well plat certified by a registered surveyor.
- A Drilling Plan.
- A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office).
- Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
- Operator certification
- Such other site specific information and/or plans as may be required by the authorized officer.

25. Signature: 
Title: Regulatory AnalystName (Printed/Typed)
Robyn M. OdomDate
06/21/2010Approved by (Signature): 
Title: FIELD MANAGERName (Printed/Typed): 
Office: CARLSBAD FIELD OFFICE

Date: MAR 21 2011

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)

KZ 03/28/11

MAR 29 2011

Roswell Controlled Water Basin

PETROLEUM ENGINEER

SEE ATTACHED FOR
CONDITIONS OF APPROVALApproval Subject to General Requirements
& Special Stipulations Attached

DISTRICT I
1625 N. FRENCH DR., HOBBS, NM 88240

DISTRICT II
1301 W. GRAND AVENUE, ARTESIA, NM 88210

DISTRICT III
1000 RIO BRAZOS RD., AZTEC, NM 87410

DISTRICT IV
11885 S. ST. FRANCIS DR., SANTA FE, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION
11885 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

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Form C-102
Revised October 12, 2005
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30-025- 40096	Pool Code 44500	Pool Name MALJAMAR; YESO, WEST
Property Code 302519 ✓	Property Name MC FEDERAL	Well Number 57
OGRID No. 229137	Operator Name COG OPERATING, LLC	Elevation 4053'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
J	21	17-S	32-E		2561	SOUTH	1567	EAST	LEA

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
I	21	17-S	32-E		2310	SOUTH	990	EAST	LEA

Dedicated Acres 40	Joint or Infill	Consolidation Code	Order No.
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

GEODETIC COORDINATES NAD 27 NME SURFACE LOCATION Y=662415.0 N X=673848.1 E LAT.=32.819787° N LONG.=103.767435° W BOTTOM HOLE LOCATION Y=662165.5 N X=674426.7 E	DETAIL 4049.6' 4048.6' 600' 4050.4' 4045.2' S.L. SEE DETAIL GRID AZ. 113°19'26" HORZ. DIST. -630.3' 2561' 2310' 1567' 990'	OPERATOR CERTIFICATION I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. <i>Robyn Odom</i> 6/18/2010 Signature Date Robyn Odom Printed Name SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief. Date Surveyed: 06/16/2010 Signature & Seal of Professional Surveyor <i>Ronald J. Eidson</i> 10-410659 Certificate No. GARY G. EIDSON 12641 RONALD J. EIDSON 3239
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MASTER DRILLING PROGRAM

1. Geologic Name of Surface Formation

Quaternary

2. Estimated Tops of Important Geologic Markers:

Quaternary	Surface
Top of Salt	900'
Base of Salt	1700'
Yates	2000'
Seven Rivers	2375'
Queen	2975'
Grayburg	3475'
San Andres	3775'
Glorietta	5225'
Yeso Group	5325'

3. Estimated Depths of Anticipated Fresh Water, Oil and Gas

Water Sand	150'	Fresh Water
Grayburg	3475'	Oil/Gas
San Andres	3775'	Oil/Gas
Glorietta	5225'	Oil/Gas
Yeso Group	5325'	Oil/Gas

*
No other formations are expected to give up oil, gas or fresh water in measurable quantities. Setting 13 3/8" casing to ~~650'~~ and circulating cement back to the surface will protect the surface fresh water sand. The Salt Section will be protected by setting 8 5/8" casing to 2100' and circulating cement, in a single or multi-stage job and/or with an ECP, back to the surface. Any shallower zones above TD, which contain commercial quantities of oil and/or gas, will have cement circulated across them. This will be achieved by cementing, with a single or multi-stage job, the 5 1/2" production casing back 200' into the intermediate casing, to be run at TD. If wellbore conditions arise that require immediate action and/or a change to this program, COG Operating LLC personnel will always react to protect the wellbore and/or the environment.

see CoA

see
CoA

4. Casing Program

See COA

Hole Size	Interval	OD Casing	Weight	Grade	Jt., Condition	burst/collapse/tension
17 1/2"	0-650'	13 3/8"	48#	H-40orJ-55	ST&C/New	6.03/2.578/10.32
11" or 12 7/8"	0-2100'	8 5/8"	24or32#	J-55	ST&C/New	1.85/1.241/4.78
7 7/8"	0-T.D.	5 1/2"	15.5or17#	J-55orL-80	LT&C/New	1.59/1.463/2.05

5. Cement Program

** See COA*

13 3/8" Surface Casing:

Class C, 4% Gel, 2% CaCl₂, .25 pps CF, 450 sx lead, yield-1.98 + 200 sx tail, yield-1.32.

8 5/8" Intermediate Casing:

*DV-Tool
Requirements
See COA*

11" Hole:

Single Stage: 50:50:10, 400 sx lead, yield-2.45 + Class C, 200 sx tail, yield-1.32, back to surface.

Multi-Stage: Stage 1: Class C, 400 sx, yield - 1.32; Stage 2: Class C, 200 sx, yield - 1.32, back to surface. Multi stage tool to be set at approximately, depending on hole conditions, 650' *

5 1/2" Production Casing:

Single Stage: 35:65:6, 500 sx Lead, yield-2.05 + 50:50:2, 400 sx Tail, yield-1.37, to 200' minimum tie back to intermediate casing.

Multi-Stage: Stage 1: 50:50:2, 400 sx, yield - 1.37; Stage 2: 35:65:6, 500 sx, yield - 2.05, to 200' minimum tie back to intermediate casing. Multi stage tool to be set at approximately, depending on hole conditions, 200' *

See COA

6. Minimum Specifications for Pressure Control

*
Testing See COA

The blowout preventer equipment (BOP) shown in Exhibit #9 will consist of a double ram-type (2000 psi WP) preventer. This unit will be hydraulically operated and the ram type preventer will be equipped with blind rams on top of 4 1/2" drill pipe rams on the bottom. The BOP will be nipped up on the 13 3/8" surface casing with BOP equipment and tested ~~together to 1000 psi by rig pump~~ ^{tested} ~~in one test~~. The BOP will then be nipped up on the 8 5/8" intermediate casing and tested by a third party to 2000 psi and used continuously until total depth is reached. All BOP's and accessory equipment will be tested to 2000 psi before drilling out of the intermediate casing. 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 (Exhibit #10) will include a Kelly cock and floor safety valve, choke lines and a choke manifold (Exhibit #11) with a 2000 psi WP rating.

7. Types and Characteristics of the Proposed Mud System

The well will be drilled to TD with a combination of brine, cut brine and polymer mud system. The applicable depths and properties of this system are as follows:

See COA

DEPTH	TYPE	WEIGHT	VISCOSITY	WATERLOSS
0-650'	Fresh Water	8.5	28	N.C.
650-2100'	Brine	10	30	N.C.
2100'-TD	Cut Brine	8.7-9.1	29	N.C.

Sufficient mud materials will be kept at the well site to maintain mud properties and meet minimum lost circulation and weight increase requirements at all times.

8. Auxiliary Well Control and Monitoring Equipment

- A. Kelly cock will be kept in the drill string at all times.
- B. A full opening drill pipe-stabbing valve with proper drill pipe connections will be on the rig floor at all times.

9. **Logging, Testing and Coring Program**

**See COA*

- A. The electric logging program will consist of GR-Dual Laterolog, Spectral Density, Dual Spaced Neutron, CSNG Log and will be run from TD to 8 5/8" casing shoe.
- B. Drill Stem test is not anticipated.
- C. No conventional coring is anticipated.
- D. Further testing procedures will be determined after the 5 1/2" production casing has been cemented at TD, based on drill shows and log evaluation.

10. **Abnormal Conditions, Pressure, Temperatures and Potential Hazards**

No abnormal pressures or temperatures are anticipated. The estimated bottom hole at TD is 110 degrees and the estimated maximum bottom hold pressure is 2300 psig. Measurable gas volumes or Hydrogen Sulfide levels have not been encountered during drilling operations in this area, although a Hydrogen Sulfide Drilling Operation Plan is attached to this program. No major loss of circulation zones has been reported in offsetting wells.

*See
COA*

11. **Anticipated Starting Date and Duration of Operations**

Road and location work will not begin until approval has been received from the BLM. As this is a Master Drilling plan, please refer to the Form 3160-3 for the anticipated start date. Once commenced, drilling operations should be finished in approximately 15 days. If the well is productive, an additional 30 days will be required for completion and testing before a decision is made to install permanent facilities.



COG Operating LLC

Lea County, NM (NAD27 NME)

MC Federal #57

MC Federal #57

OH

Plan: Plan #1

Standard Planning Report

18 February, 2011

Plan #1 7 7/8" hole

SHL = 2561' FSL &1567' FEL Sec 21 T17S R32E Unit J

BHL = 2300' FSL &980' FEL Sec 21 T17S R32E Unit I

Top of Paddock TVD= 5450' TVD



SDI
Planning Report

Database:	EDM-Thomas	Local Co-ordinate Reference:	Well MC Federal #57
Company:	COG Operating LLC	TVD Reference:	WELL @ 4053.00usft (Original Well Elev)
Project:	Lea County, NM (NAD27 NME)	MD Reference:	WELL @ 4053.00usft (Original Well Elev)
Site:	MC Federal #57	North Reference:	Grid
Well:	MC Federal #57	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Project:	Lea County, NM (NAD27 NME)		
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:	MC Federal #57		
Site Position:	Northings:	662,415.000 usft	Latitude: 32° 49' 11.234 N
From: Map	Easting:	673,848.100 usft	Longitude: 103° 46' 2.764 W
Position Uncertainty:	0.00 usft	Slot Radius: 13.200 in	Grid Convergence: 0.31 °

Well:	MC Federal #57		
Well Position	+N/-S	0.00 usft	Northings: 662,415.000 usft
	+E/-W	0.00 usft	Easting: 673,848.100 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	Ground Level: 0.00 usft

Wellbore:	OH		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2010	02/18/11	7.76
			Dip Angle (°)
			60.71
			Field Strength (nT)
			48,982

Design:	Plan #1		
Audit Notes:			
Version:	Phase:	PROTOTYPE	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction (°)
			113.35

Plan Sections:										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth (usft)	(°)	(°)	Depth (usft)	(usft)	(usft)	Rate (°/100ft)	Rate (°/100ft)	Rate (°/100ft)	(°)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,603.15	10.06	113.34	2,600.57	-17.46	40.46	2.00	2.00	0.00	113.34	
5,155.79	10.06	113.34	5,113.94	-194.21	449.98	0.00	0.00	0.00	0.00	
5,494.34	3.29	113.35	5,450.00	-209.80	486.10	2.00	-2.00	0.00	180.00	Paddock Top
7,247.24	3.29	113.35	7,200.00	-249.70	578.52	0.00	0.00	0.00	0.00	PBHL



SDI
Planning Report

Database:	EDM-Thomas	Local Co-ordinate Reference:	Well MC Federal #57
Company:	COG Operating LLC	TVD Reference:	WELL @ 4053.00usft (Original Well Elev)
Project:	Lea County, NM (NAD27 NME)	MD Reference:	WELL @ 4053.00usft (Original Well Elev)
Site:	MC Federal #57	North Reference:	Grid
Well:	MC Federal #57	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
8 5/8									
2,200.00	2.00	113.34	2,199.98	-0.69	1.60	1.75	2.00	2.00	0.00
2,300.00	4.00	113.34	2,299.84	-2.77	6.41	6.98	2.00	2.00	0.00
2,400.00	6.00	113.34	2,399.45	-6.22	14.41	15.69	2.00	2.00	0.00
2,500.00	8.00	113.34	2,498.70	-11.05	25.60	27.88	2.00	2.00	0.00
2,600.00	10.00	113.34	2,597.47	-17.25	39.96	43.52	2.00	2.00	0.00
2,603.15	10.06	113.34	2,600.57	-17.46	40.46	44.07	2.00	2.00	0.00
2,700.00	10.06	113.34	2,695.93	-24.17	56.00	60.99	0.00	0.00	0.00
2,800.00	10.06	113.34	2,794.39	-31.09	72.04	78.47	0.00	0.00	0.00
2,900.00	10.06	113.34	2,892.85	-38.02	88.09	95.94	0.00	0.00	0.00
3,000.00	10.06	113.34	2,991.31	-44.94	104.13	113.41	0.00	0.00	0.00
3,100.00	10.06	113.34	3,089.77	-51.87	120.17	130.89	0.00	0.00	0.00
3,200.00	10.06	113.34	3,188.24	-58.79	136.21	148.36	0.00	0.00	0.00
3,300.00	10.06	113.34	3,286.70	-65.71	152.26	165.83	0.00	0.00	0.00
3,400.00	10.06	113.34	3,385.16	-72.64	168.30	183.31	0.00	0.00	0.00
3,500.00	10.06	113.34	3,483.62	-79.56	184.34	200.78	0.00	0.00	0.00
3,600.00	10.06	113.34	3,582.08	-86.49	200.39	218.25	0.00	0.00	0.00
3,700.00	10.06	113.34	3,680.54	-93.41	216.43	235.73	0.00	0.00	0.00
3,800.00	10.06	113.34	3,779.01	-100.33	232.47	253.20	0.00	0.00	0.00
3,900.00	10.06	113.34	3,877.47	-107.26	248.51	270.67	0.00	0.00	0.00
4,000.00	10.06	113.34	3,975.93	-114.18	264.56	288.14	0.00	0.00	0.00
4,100.00	10.06	113.34	4,074.39	-121.11	280.60	305.62	0.00	0.00	0.00
4,200.00	10.06	113.34	4,172.85	-128.03	296.64	323.09	0.00	0.00	0.00
4,300.00	10.06	113.34	4,271.31	-134.95	312.68	340.56	0.00	0.00	0.00
4,400.00	10.06	113.34	4,369.77	-141.88	328.73	358.04	0.00	0.00	0.00
4,500.00	10.06	113.34	4,468.24	-148.80	344.77	375.51	0.00	0.00	0.00
4,600.00	10.06	113.34	4,566.70	-155.73	360.81	392.98	0.00	0.00	0.00
4,700.00	10.06	113.34	4,665.16	-162.65	376.86	410.46	0.00	0.00	0.00
4,800.00	10.06	113.34	4,763.62	-169.57	392.90	427.93	0.00	0.00	0.00
4,900.00	10.06	113.34	4,862.08	-176.50	408.94	445.40	0.00	0.00	0.00
5,000.00	10.06	113.34	4,960.54	-183.42	424.98	462.88	0.00	0.00	0.00
5,100.00	10.06	113.34	5,059.01	-190.35	441.03	480.35	0.00	0.00	0.00



SDI
Planning Report

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Wellbore:	OH		
Design:	Plan #1		

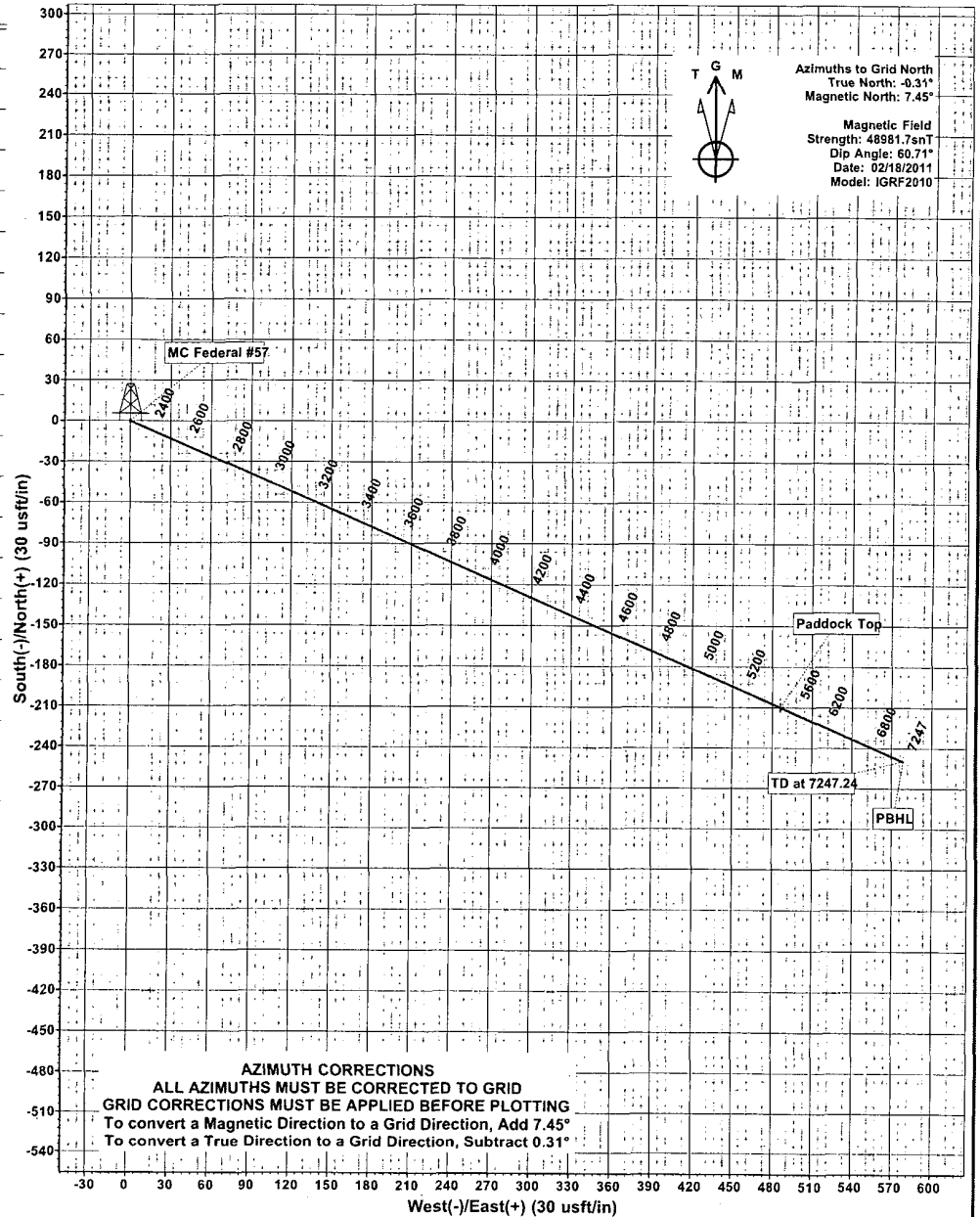
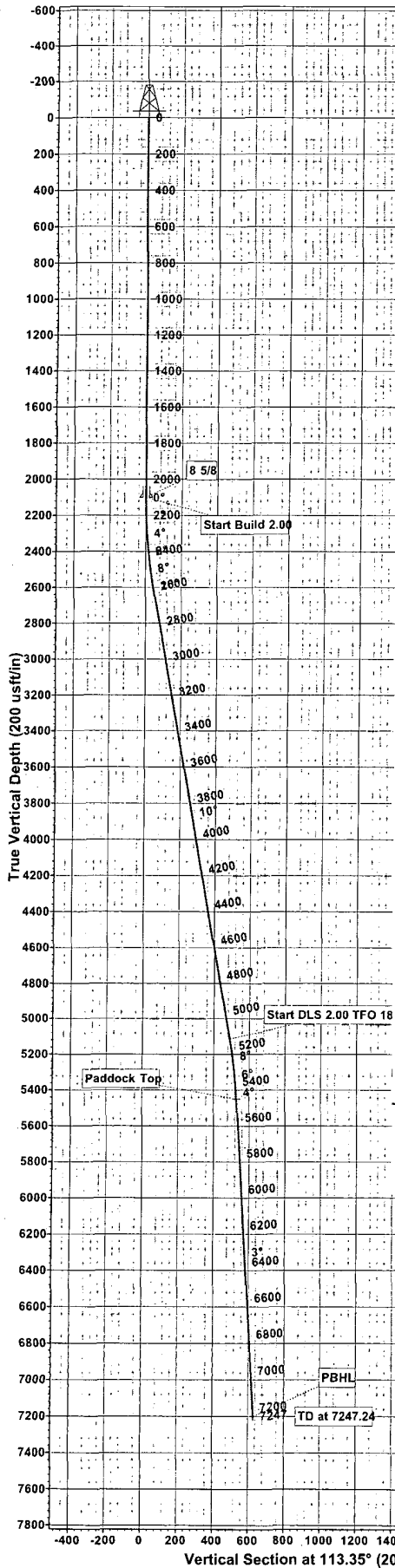
Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
5,155.79	10.06	113.34	5,113.94	-194.21	449.98	490.10	0.00	0.00	0.00	
5,200.00	9.18	113.35	5,157.53	-197.14	456.76	497.49	2.00	-2.00	0.00	
5,300.00	7.18	113.35	5,256.50	-202.77	469.82	511.71	2.00	-2.00	0.00	
5,400.00	5.18	113.35	5,355.92	-207.04	479.70	522.47	2.00	-2.00	0.00	
5,494.34	3.29	113.35	5,450.00	-209.80	486.10	529.44	2.00	-2.00	0.00	
5,500.00	3.29	113.35	5,455.65	-209.93	486.40	529.77	0.00	0.00	0.00	
5,600.00	3.29	113.35	5,555.48	-212.20	491.67	535.51	0.00	0.00	0.00	
5,700.00	3.29	113.35	5,655.32	-214.48	496.94	541.25	0.00	0.00	0.00	
5,800.00	3.29	113.35	5,755.15	-216.76	502.21	546.99	0.00	0.00	0.00	
5,900.00	3.29	113.35	5,854.99	-219.03	507.49	552.74	0.00	0.00	0.00	
6,000.00	3.29	113.35	5,954.82	-221.31	512.76	558.48	0.00	0.00	0.00	
6,100.00	3.29	113.35	6,054.66	-223.58	518.03	564.22	0.00	0.00	0.00	
6,200.00	3.29	113.35	6,154.49	-225.86	523.30	569.96	0.00	0.00	0.00	
6,300.00	3.29	113.35	6,254.33	-228.14	528.58	575.71	0.00	0.00	0.00	
6,400.00	3.29	113.35	6,354.16	-230.41	533.85	581.45	0.00	0.00	0.00	
6,500.00	3.29	113.35	6,454.00	-232.69	539.12	587.19	0.00	0.00	0.00	
6,600.00	3.29	113.35	6,553.83	-234.96	544.39	592.93	0.00	0.00	0.00	
6,700.00	3.29	113.35	6,653.67	-237.24	549.66	598.68	0.00	0.00	0.00	
6,800.00	3.29	113.35	6,753.50	-239.52	554.94	604.42	0.00	0.00	0.00	
6,900.00	3.29	113.35	6,853.34	-241.79	560.21	610.16	0.00	0.00	0.00	
7,000.00	3.29	113.35	6,953.17	-244.07	565.48	615.90	0.00	0.00	0.00	
7,100.00	3.29	113.35	7,053.01	-246.34	570.75	621.65	0.00	0.00	0.00	
7,200.00	3.29	113.35	7,152.84	-248.62	576.03	627.39	0.00	0.00	0.00	
7,247.24	3.29	113.35	7,200.00	-249.70	578.52	630.10	0.00	0.00	0.00	

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude		Longitude
- hit/miss target										
- Shape										
Paddock Top	0.00	0.00	5,450.00	-209.80	486.10	662,205.200	674,334.200	32° 49' 9.132 N		103° 45' 57.081 W
- plan hits target center										
- Point										
PBHL	0.00	0.00	7,200.00	-249.50	578.60	662,165.500	674,426.700	32° 49' 8.734 N		103° 45' 56.000 W
- plan misses target center by 0.21usft at 7247.24usft MD (7200.00 TVD, -249.70 N, 578.52 E)										
- Point										

Casing Points						
Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (in)	Hole Diameter (in)	
2,100.00	2,100.00	8 5/8		8.875	12.125	



Scientific Drilling for COG Operating LLC
Site: Lea County, NM (NAD27 NME)
Well: MC Federal #57
Wellbore: OH
Design: Plan #1



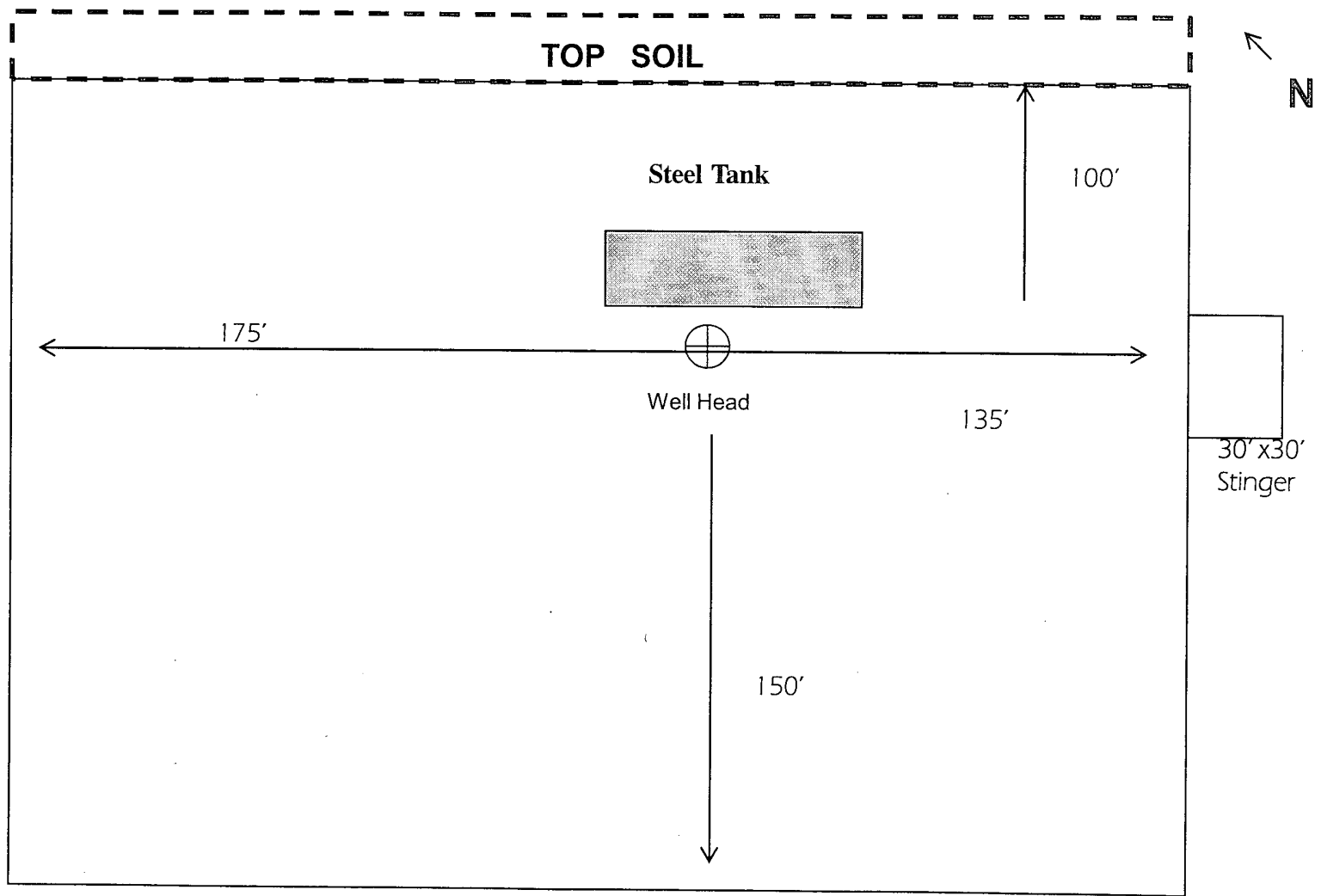
WELLBORE TARGET DETAILS (MAP CO-ORDINATES)									
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape	
Paddock Top	5450.00	-209.80	486.10	662205.200	674334.200	32° 49' 9.132 N	103° 45' 57.081 W	Point	
PBHL	7200.00	-249.50	578.60	662165.500	674426.700	32° 49' 8.734 N	103° 45' 56.000 W	Point	

SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
22100.00	0.00	0.00	2100.00	0.00	0.00	0.00	0.00	0.00	0.00	
32603.15	10.06	113.34	2600.57	-17.46	40.46	2.00	113.34	44.07		
45155.79	10.06	113.34	5113.94	-194.21	449.98	0.00	0.00	490.10		
55494.34	3.29	113.35	5450.00	-209.80	486.10	2.00	180.00	529.44		Paddock Top
67247.24	3.29	113.35	7200.00	-249.70	578.52	0.00	0.00	630.10		PBHL

WELL DETAILS: MC Federal #57

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	662415.000	673848.100	32° 49' 11.234 N	103° 46' 2.764 W

PROJECT DETAILS: Lea County, NM (NAD27 NME)					Plan: Plan #1 (MC Federal #57/OH)	
Geodetic System:	US State Plane 1927 (Exact solution)	Created By:	Julio Pina	Date:	18-Feb-11	
Datum:	NAD 1927 (NADCON CONUS)	Checked:		Date:		
Ellipsoid:	Clarke 1866	Reviewed:		Date:		
Zone:	New Mexico East 3001	Approved:		Date:		
System Datum:	Mean Sea Level					



Not To Scale

COG OPERATING LLC
Rig Layout-Closed Loop
System

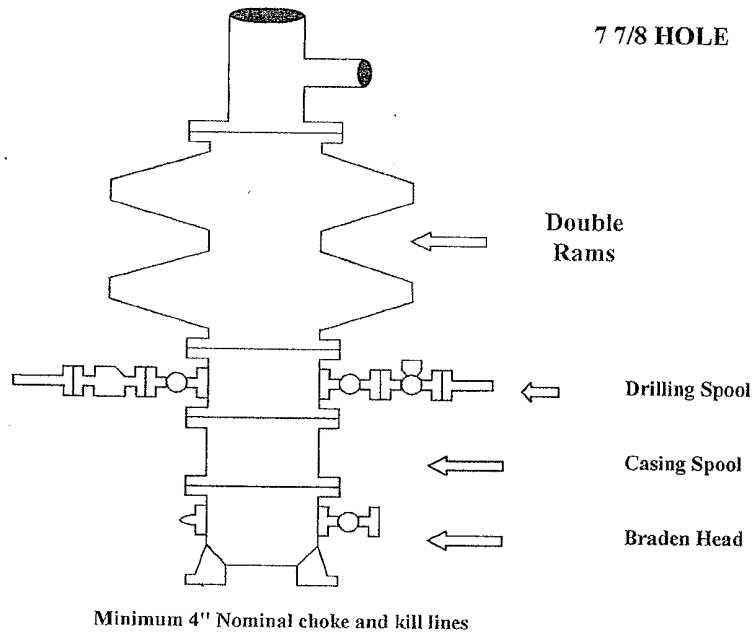
NOTES REGARDING THE BLOWOUT PREVENTERS
Master Drilling Plan
Eddy County, New Mexico

1. Drilling nipple to be so constructed that it can be removed without use of a welder through rotary table opening, with minimum I.D. equal to preventer bore.
2. Wear ring to be properly installed in head.
3. Blow out preventer and all fittings must be in good condition, 2000 psi WP minimum.
4. All fittings to be flanged.
5. Safety valve must be available on rig floor at all times with proper connections, valve to be full 2000 psi WP minimum.
6. All choke and fill lines to be securely anchored especially ends of choke lines.
7. Equipment through which bit must pass shall be at least as large as the diameter of the casing being drilled through.
8. Kelly cock on Kelly.
9. Extension wrenches and hands wheels to be properly installed.
10. Blow out preventer control to be located as close to driller's position as feasible.
11. Blow out preventer closing equipment to include minimum 40-gallon accumulator, two independent sources of pump power on each closing unit installation all API specifications.

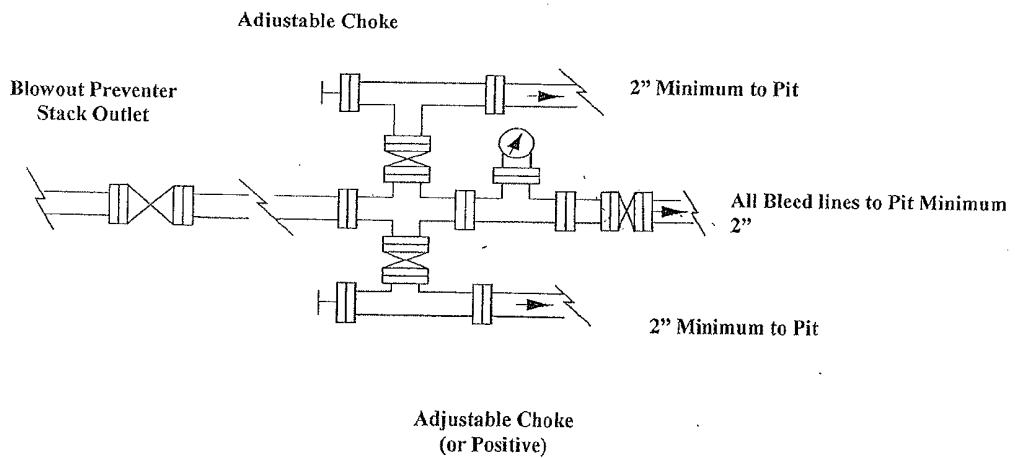
COG Operating LLC

Exhibit #9

BOPE and Choke Schematic

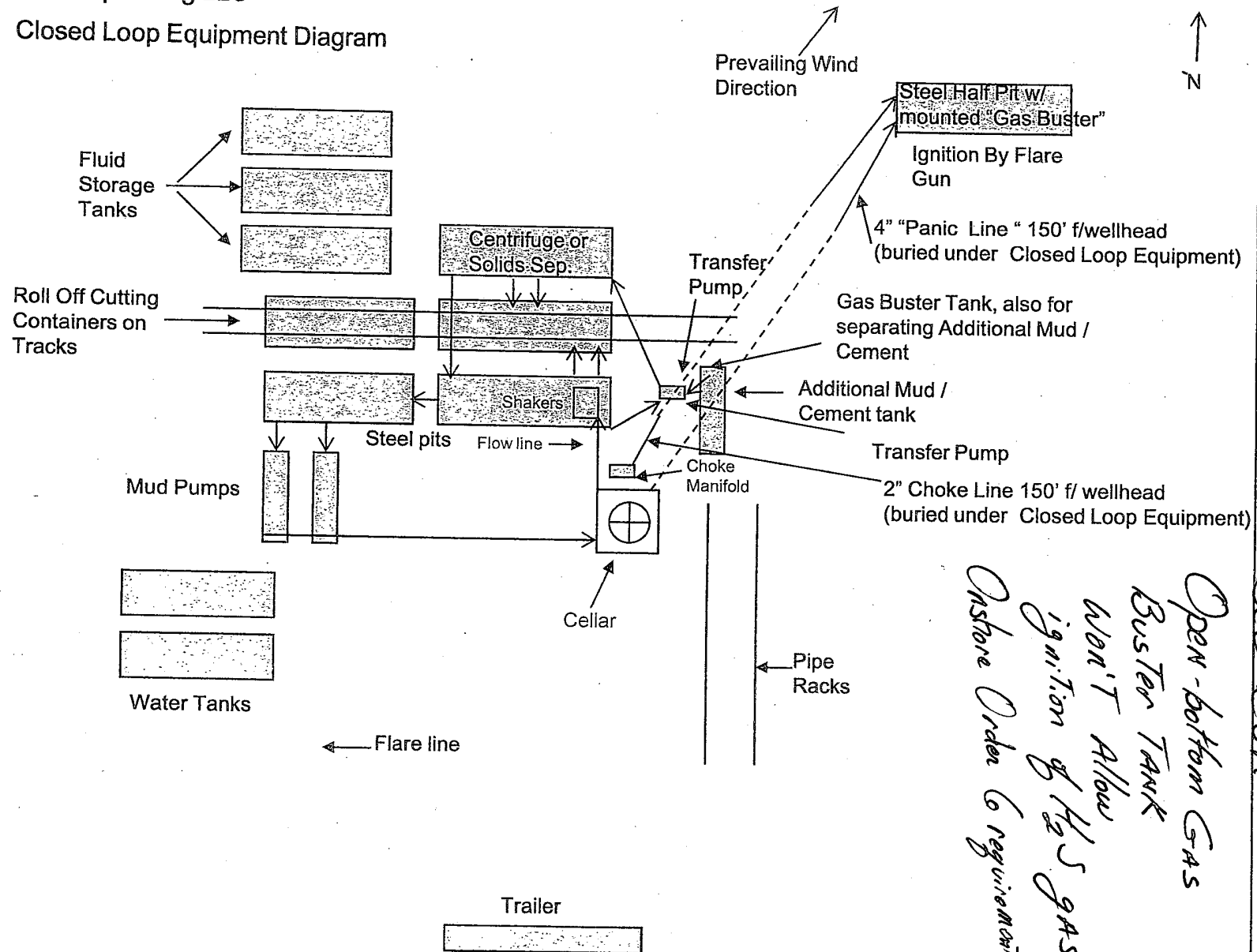


Choke Manifold Requirement (2000 psi WP)
No Annular Required



COG Operating LLC

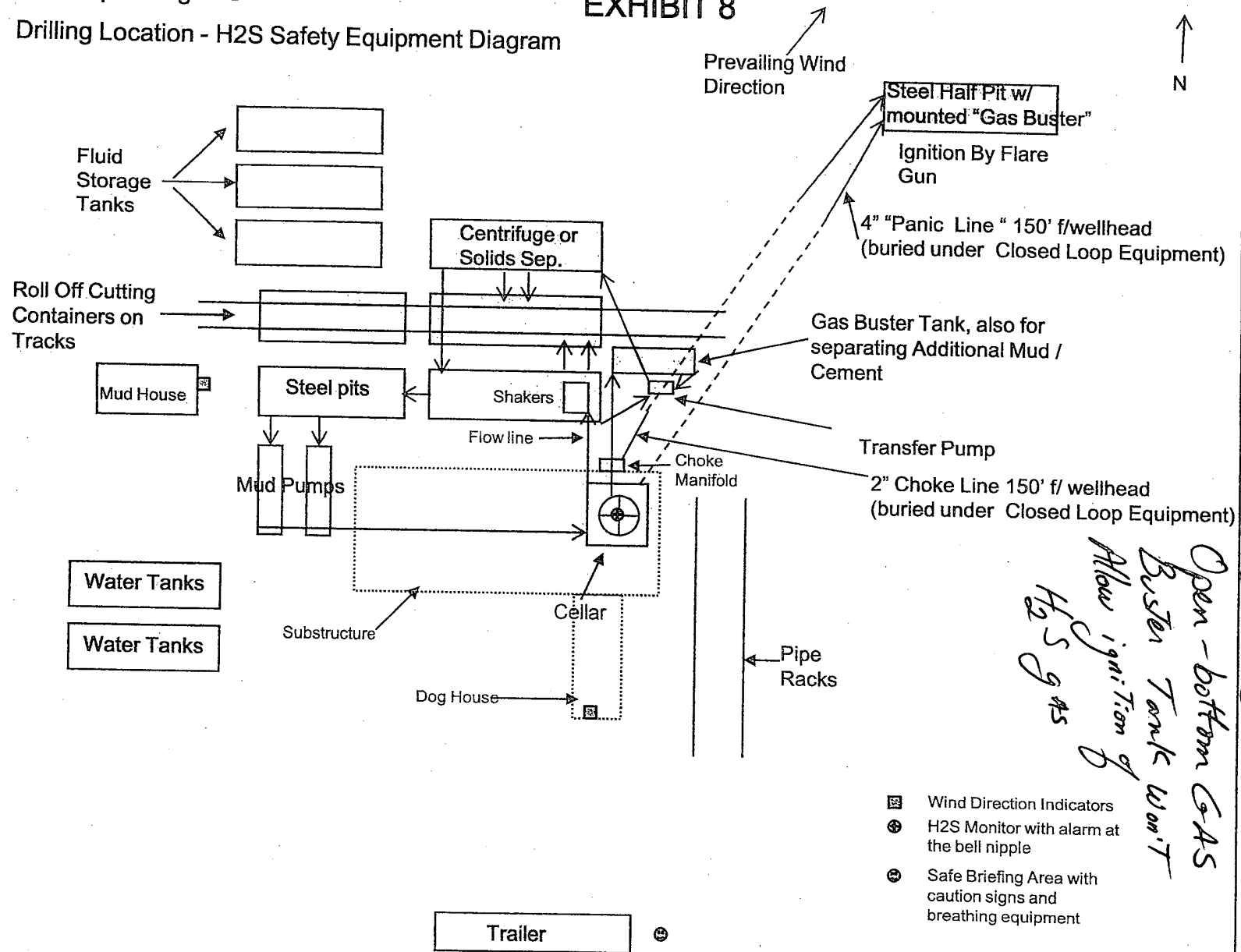
Closed Loop Equipment Diagram



COG Operating LLC

Drilling Location - H2S Safety Equipment Diagram

EXHIBIT 8



*See COA
Open-bottom GAS
Buster Tank won't
allow ignition of
H₂S gas