11-623

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Form 3160-3
(April 2004)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NMNM-029410A

6. If Indian, Allotee or Tribe Name
N/A

1a. Type of work: ☑ DRILL ☐ REENTER

7 If Unit or CA Agreement, Name and No.
N/A

1b. Type of Well: ☐ Oil Well ☐ Gas Well ☑ Other ☐ Single Zone ☐ Multiple Zone

8 Lease Name and Well No (38853)
Maljamar SWD 30 #2

2 Name of Operator
COG Operating LLC (229137)

9 API Well No.
30-025- 40310

3a. Address
550 W. Texas, Suite 1300 Midland TX 79701

3b. Phone No. *(include area code)*
(432) 685-4384

10 Field and Pool, or Exploratory (96135)
SWD; Wolfcamp

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface **1350' FNL & 770' FEL, UL H** UNORTHODOX LOCATION
At proposed prod zone

11. Sec., T. R M or Blk. and Survey or Area
Sec 30, T17S, R32E

14 Distance in miles and direction from nearest town or post office*
4 miles South West of 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)	16. No. of acres in lease	17. Spacing Unit dedicated to this well
770'	**560**	**N/A**
18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19 Proposed Depth	20 BLM/BIA Bond No. on file
750'	**9600'**	**NMB000740**
21 Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
3917' GL	**07/31/2011**	**15 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	Name *(Printed/Typed)*	Date
	Kelly J. Holly	**06/08/2011**

Title
Permitting Tech

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
/s/ Don Peterson		AUG 30 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)*

Roswell Controlled Water Basin

Ka 10/06/11

SWD-1286

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

Approval 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
1220 S. ST. FRANCIS DR., SANTA FE, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION
1220 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

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OCT 04 2011
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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	Pool Code	Pool Name
30-025-40310	96135	

Property Code	Property Name	Well Number
38853	MALJAMAR SWD 30	2

OGRID No.	Operator Name	Elevation
229137	COG OPERATING, LLC	3917'

Surface Location

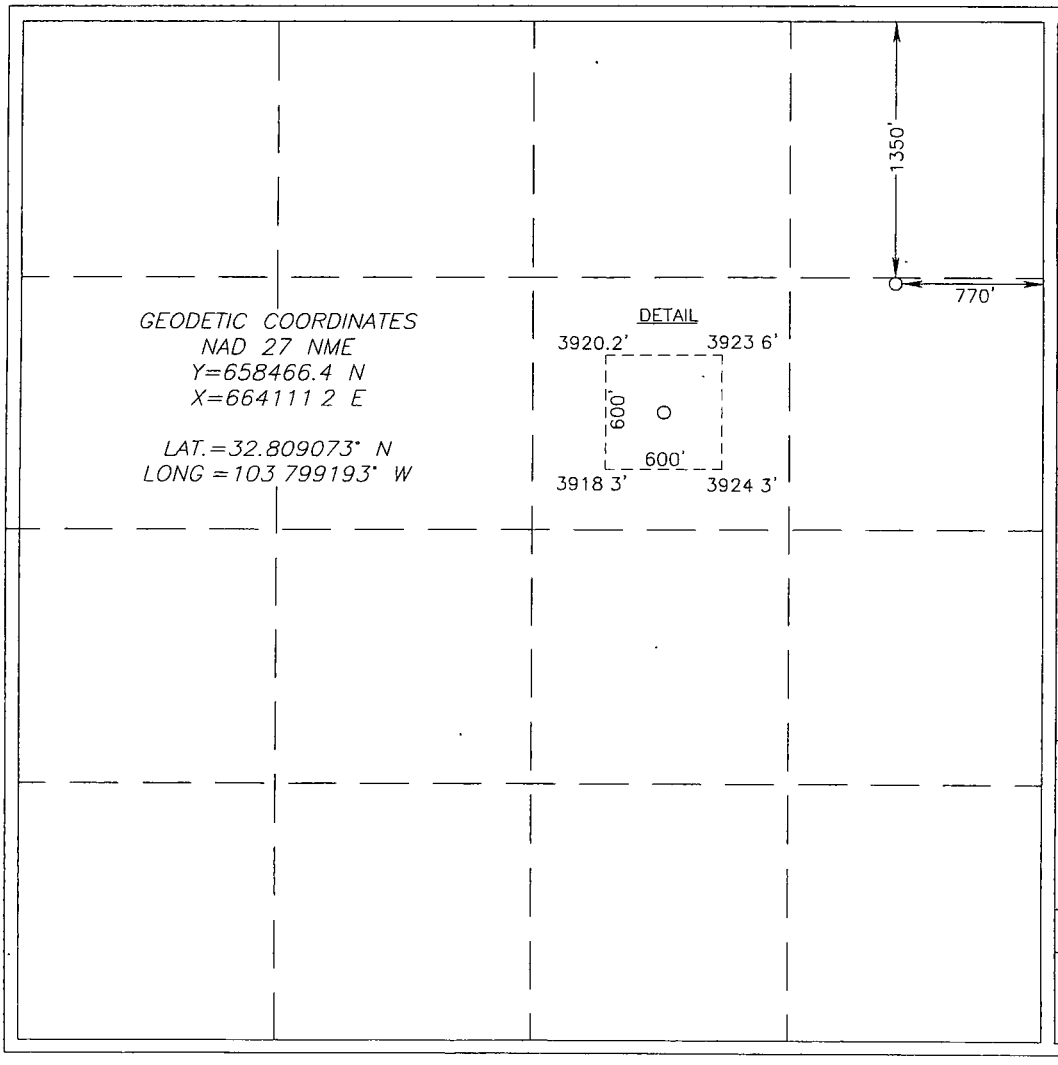
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	30	17-S	32-E		1350	NORTH	770	EAST	LEA

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

Dedicated Acres	Joint or Infill	Consolidation Code	Order No

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



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.

Signature Date

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

JANUARY 21, 2011
Date Surveyed LA

Signature & Seal of Professional Surveyor

Ronald J. Eidson 3/08/2011

11.13.0518

Certificate No. GARY EIDSON 12641
RONALD J. EIDSON 3239

SWD WELL DRILLING PROGRAM

1. Geologic Name of Surface Formation
   Quaternary

2. Estimated Tops of Important Geologic Markers:

Quaternary	Surface
Rustler	861
T/Salt	930'
B/Salt	1,875'
Yates	2,208
Queen	3,000'
San Andres	3,750'
Yeso	5,425'
Tubb	6,950
Abo	7,550'
Wolfcamp	9,000'
Wolfcamp Reef	9,500'
Cisco.	9,700'
Cisco Reef	10,000'

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

Fresh Water	None	
Queen	3,000'	Oil/Gas
San Andres	3,750'	Oil/Gas
Yeso	6,950'	Oil/Gas

No other formations are expected to give up oil, gas in measurable quantities. No interval capable of fresh water production is expected at any point in the well. Any salt and/or hydrocarbon bearing intervals will be protected by setting 9 5/8" casing to 4,000' and circulating cement back to the surface. All other zones above TD will be cased with 7" casing and that casing cemented to surface.

4. Casing Program

See COA

3600'
See Cement
& 3400 + 400 ≠ 4000

Hole Size	Interval	OD	Weight (ppf)	Grade	Joint	Condition
24"	0-40'	20"	94	F-25	ST & C	Used
17.5"	~~870'~~	13 3/8"	48	H-40	ST & C	New
12.25"	4000-4,000	9 5/8"	~~3,400~~' of 36 ppf and 400' of 40 ppf	J-55	ST & C	New
8.75"	0-TD	7"	26 ppf	10,000' of L-80; 300' of HCL L80	LT & C	New

Casing Design Factors, Minimums

All casing strings are designed to meet or exceed the following Design or Safety factors.

Factor	Minimum
Burst	1.000
Collapse	1.125
Joint Strength	1.800
Body Strength	2.000

Note: TD = 10,300' per Cement program

COG Operating LLC
SWD Drilling Plan
Maljamar SWD 30 #2
Maljamar Area
Lea County, NM

5. Cement Program:

Hole volume in cu ft will be adjusted to Open Hole Caliper log in field

Cement volumes for all casing strings are designed to bring the cement to surface..

String:	Surface Csg Sz,			Hole		Calculated	Slurry	Yield cu ft /	Pump	
Hole Sz	OD	Footage	cu ft / ft	cu ft	excess	cu ft	#	sx	sxs*	Stage
17 1/2" ✓	13 3/8"	870	0.69462	604	100.00%	1209	1	1.35	900	Single
	Total Depth:	870			Total Hole cu ft:	1209				
					Total Cmt cu ft:	1209				

* See COA

String:	Intermediate Csg Sz,			Hole		Calculated	Slurry	Yield cu ft /	Pump	
Hole Sz	OD	Footage	cu ft / ft	cu ft	excess	cu ft	#	sx	sxs*	Stage
ID 13 3/8"	9 5/8"	400	0.37649	151	35.00%	203	2	2.1	670	Lead
12 1/4" ✓	9 5/8"	3,600	0.31318	1,127	50.00%	1,691	3	1.34	375	Tail
	Total Depth:	4,000			Total Hole cu ft:	1,894				
					Total Cmt cu ft:	1,910				

String:	Long String Csg Sz,			Hole		Calculated	Slurry	Yield cu ft /	Pump	
Hole Sz	OD	Footage	cu ft / ft	cu ft	excess	cu ft	#	sx	sxs*	Stage
ID 9 5/8	7"	4,000	0.16681	667	35.00%	901				
8 3/4"	7"	3,000	0.15033	451	50.00%	676	4	1.99	785	Lead
8 3/4" ✓	7"	1,000	0.15033	150	50.00%	225	5	1.17	225	Tail
8 3/4"	7"	2,300	0.15033	346	50.00%	519	5	1.17	445	Tail, below DV
	Total Depth:	10,300			Total Hole cu ft:	2,321				
	DV tool set at 8,000'				Total Cmt cu ft:	2,346				

* Sxs rounded to nearest 10 sxs

See COA

Slurry #	Composition	Density ppg	Yield cu ft/ sx
1	CLASS C + 2% CACL2 + 0.25% De foamer	14.8	1.35
2	CLASS C 35/65 + 6% BENTONITE + 0.25% De Foamer + 5% SALT (BWOW)	12.4	2.1
3	CLASS C + 1% CACL2 + 0.25% De Foamer	14.8	1.34
4	CLASS H 35/65 + 6% BENTONITE + 0.55% Fl. Loss Add + 0.1% Dispersant + 0.25% De Foamer	12.4	1.99
5	CLASS H + 1% Fl. Loss Add + 0.3% Dispersant + 0.15% Accelerator + 0.1% Temp Add + 0.25% De Foamer	15.7	1.17

*See COA Must be A 3M System

6. Minimum Specifications for Pressure Control

The blowout preventer equipment (BOP) shown in Exhibit #9 will consist of a double ram-type (3000 psi WP) preventer, and ~~in some cases possibly a 3000 psi Hydril type annular preventer~~ as provided for in Onshore Order #2. 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. A 13-5/8" or ~~11" BOP will be used, depending on the rig selected, during the drilling of the well.~~ The BOP will be nippled up on the 13 3/8" surface casing with BOP equipment and tested to 3000 psi. When ~~11" BOP~~ is used the special drilling flange will be utilized on the 13-3/8" head to allow testing the BOP with a retrievable test plug. After setting ~~8-5/8"~~ the BOP will then be nippled up on the ~~8-5/8"~~ intermediate casing and tested by a third party to 3000 psi and used continuously until total depth is reached. 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 3000 psi WP rating.

Intermediate Hole Design is 12¼" / Casing is 9 5/8"

*See COA

The majority of the rigs currently in use have a 13-5/8" BOP, so no special provision is needed for most wells in the area for conventionally testing the BOP with a test plug. However, due to the vagaries of rig scheduling, it might be that one of the few rigs with 11" BOP's might be called upon to drill any specific well in the area. ~~Note that intermediate hole size is always 11". Therefore, COG Operating LLC respectfully requests a variance to the requirement of 13-5/8" BOP on 13-3/8" casing~~. When that circumstance is encountered the special flange will be utilized to allow testing the entire BOP with a test plug, without subjecting the casing to test pressure. The special flange also allows the return to full-open capability if desired.

No Variance

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
~~0-850~~	Fresh Water, spud	8.6-9.2	32-34	N.C.
~~850~~-4,000	Saturated Brine	9.8-10.1	28-30	N.C.
4,000 - TD	Cut Brine	8.7 - 9.3	. 28	12 to Log

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, and CSNG Log and will be run from TD to 9 5/8" casing shoe and Gamma Ray from 9 5/8" to base 13 3/8".

B. Drill Stem test is not anticipated.

C. No conventional coring is anticipated.

D. Zones considered for injection may be acidized. These zones will be swabbed to insure there are no hydrocarbons present prior to injection operations.

10. Abnormal Conditions, Pressure, Temperatures and Potential Hazards

No abnormal pressures or temperatures are anticipated. The estimated bottom hole at TD is 125 to 140 degrees and the estimated maximum bottom hold pressure is 4,038 psig. Low levels of hydrogen sulfide have been monitored in producing wells in the area, so H_2S may be present while drilling the well. A Hydrogen Sulfide Drilling Operation Plan is attached to this program. No major loss of circulation zones has been reported in offsetting wells.

11. Anticipated Starting Date and Duration of Operations

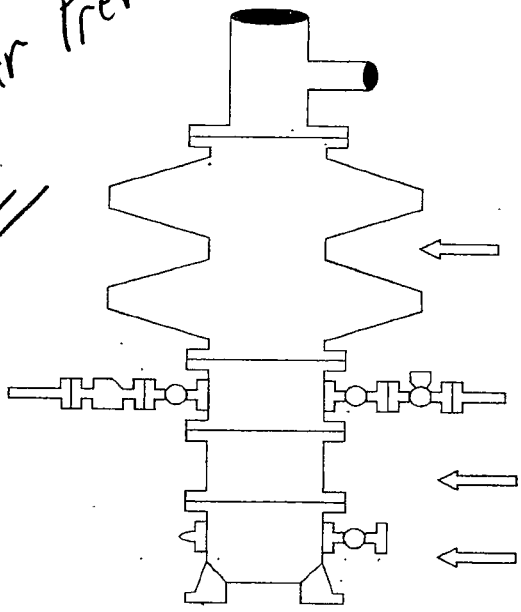
Road and location work will not begin until approval has been received from the BLM. Once commenced drilling operations should take 20 days. Completion operations should only require 10 or fewer days.

COG Operating LLC

Exhibit #9

BOPE and Choke Schematic

* 3M System With Annular Preventer Required



7 7/8 HOLE

Double Rams

Drilling Spool

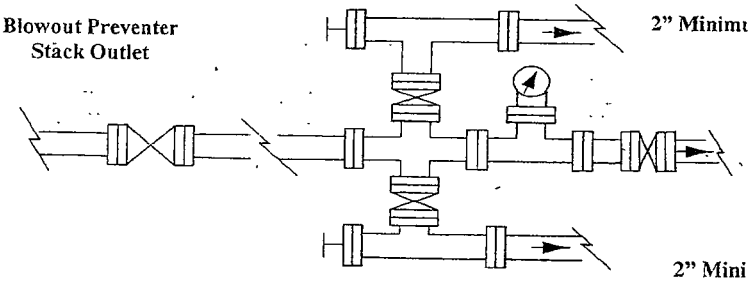
Casing Spool

Braden Head

Minimum 4" Nominal choke and kill lines

Choke Manifold Requirement (2000 psi WP)
No Annular Required 3M

Adiustable Choke



Blowout Preventer Stack Outlet

2" Minimum to Pit

All Bleed lines to Pit Minimum 2"

2" Minimum to Pit

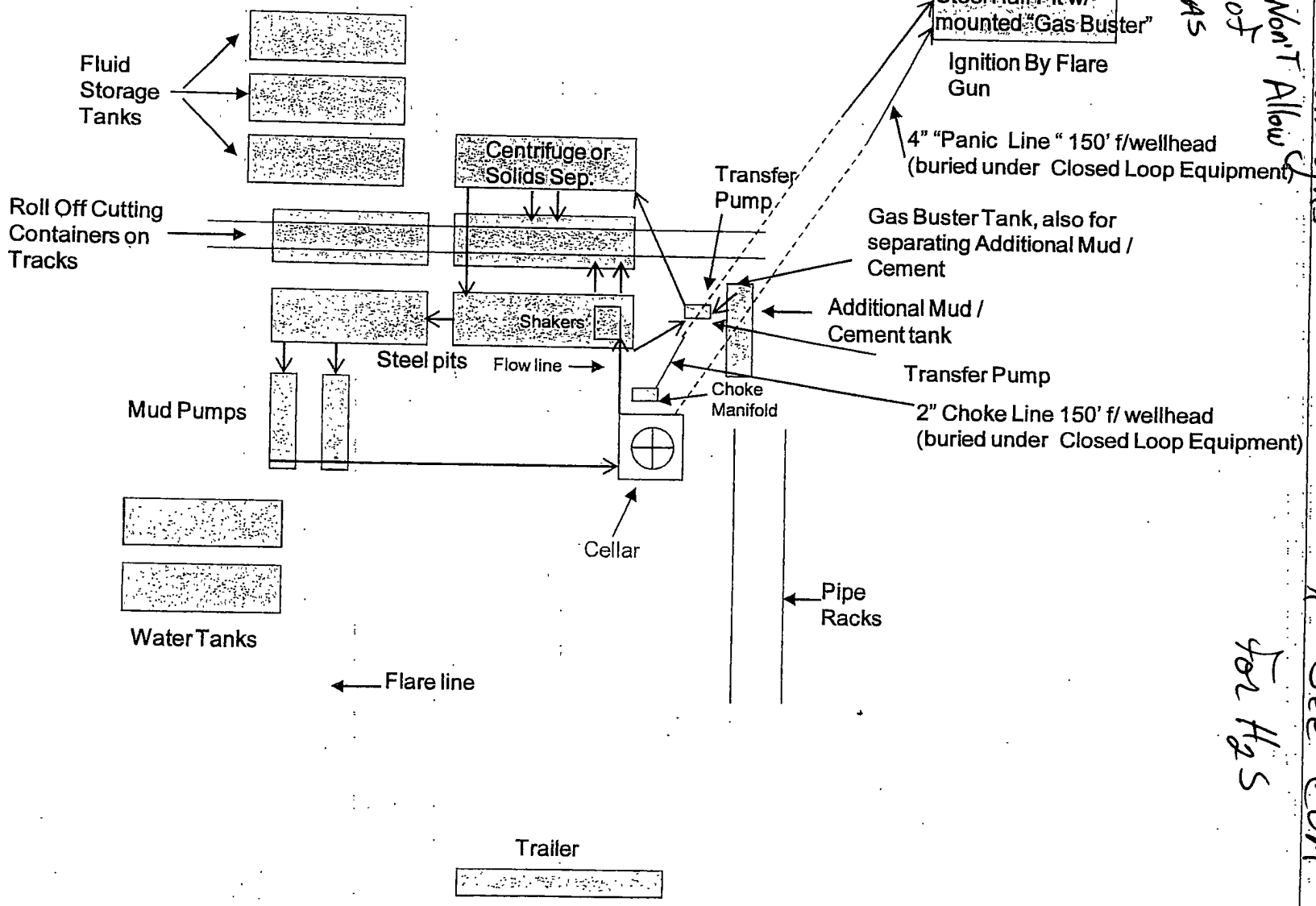
Adjustable Choke (or Positive)

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.

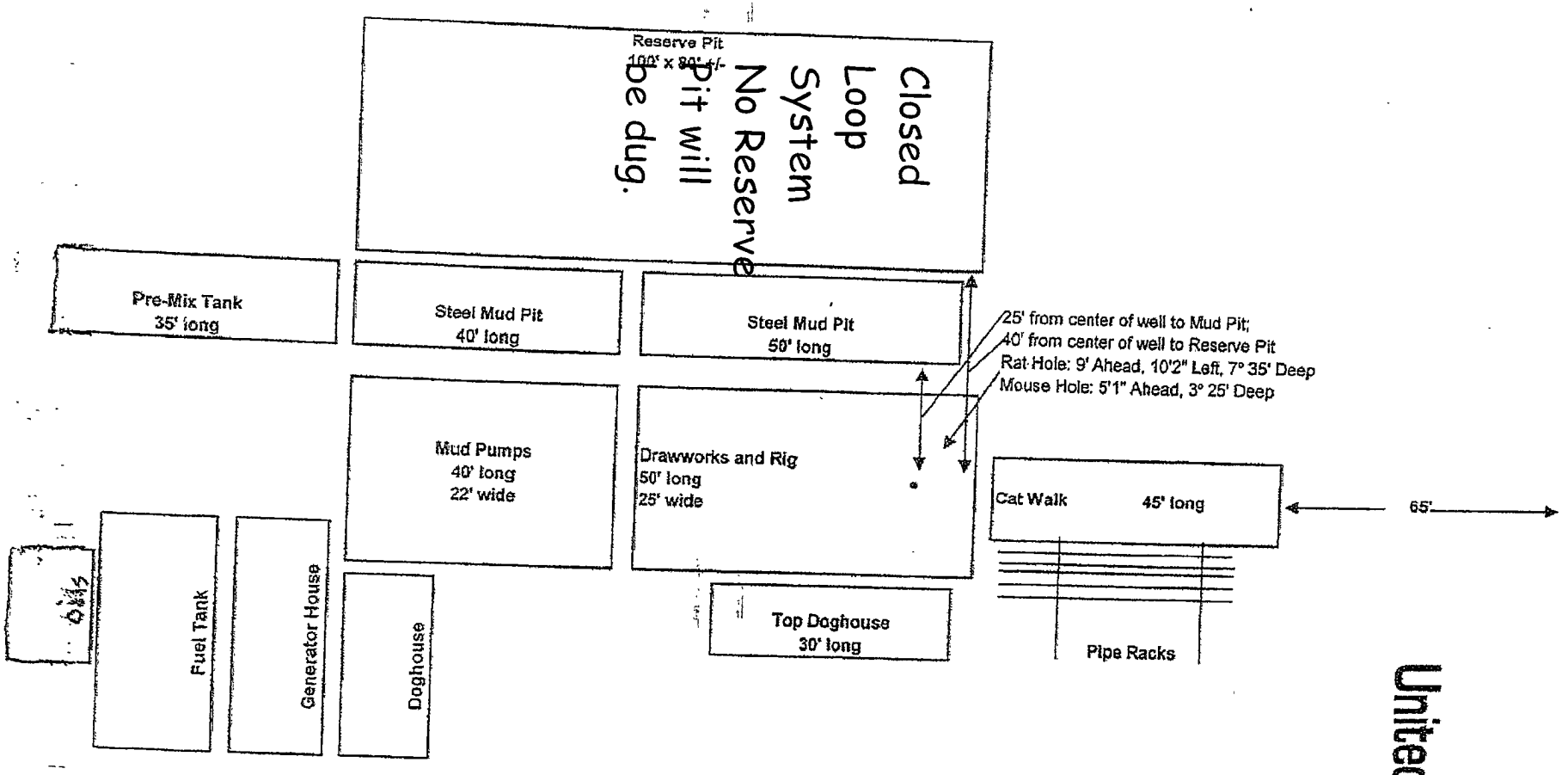
COG Operating LLC

Closed Loop Equipment Diagram



*Open bottom gas Buster won't allow ignition of this gas

* See COA for H2S



UNITED DRILLING, INC.
RIG NO. 41

United Drilling, Inc.