FORM APPROVED Form 3160-3 OMB No 1004-0137 Expires March 31, 2007 (April 2004) OCD Artesia UNITED STATES Lease Serial No DEPARTMENT OF THE INTERIOR NMLC-028731A BUREAU OF LAND MANAGEMENT 6. If Indian, Allotee or Tribe Name APPLICATION FOR PERMIT TO DRILL OR REENTER 7 If Unit or CA Agreement, Name and No **✓** DRILL la. Type of work. REENTER NMNM-111789X; Dodd Federal Unit 8 Lease Name and Well No. Type of Well: JOil Well Gas Well Single Zone Multiple Zone DODD FEDERAL UNIT #618 lh 9 API Well No. Name of Operator COG Operating LLC 30-015-3b Phone No (include area 3a. Address 10. Field and Pool, or Exploratory 550 W. Texas Ave., Suite 100 Midland, TX 79701 432-685-4384 Dodd; Glorieta-Upper Yeso 4 Location of Well (Report location clearly and in accordance with any State requirements\*) 11. Sec., T. R. M. or Blk. and Survey or Area 1710' FSL & 1650' FEL, Unit J At surface Sec 15 T17S R29E At proposed prod. zone 12. County or Parish 13. State 14. Distance in miles and direction from nearest town or post office\* 2 miles from Loco Hills, NM EDDY NM 15. Distance from proposed\* 16 No of acres in lease 17. Spacing Unit dedicated to this well location to nearest property or lease line, ft (Also to nearest drig, unit line, if any) 1650 600 40 18. Distance from proposed location\*
to nearest well, drilling, completed, applied for, on this lease, ft. 20. BLM/BIA Bond No on file 19. Proposed Depth 4550 NMB000740; NMB000215 on 22 Approximate date work will start\* 23. Estimated duration Elevations (Show whether DF, KDB, RT, GL, etc.) 3591' GL 08/31/2012 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. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). 2 A Dulling Plan. 3 A Surface Use Plan (if the location is on National Forest System Lands, the Operator certification SUPO shall be filed with the appropriate Forest Service Office). Such other site specific information and/or plans as may be required by the authorized officer. Name (Printed/Typed) 25 Signature Date Kelly J. Holly 06/12/2012 Title **Permitting Tech** Approved by (Signature) Name (Printed/Typed) Date /s/ Don Peterson /s/ Don Peterson AUG - 8 2012 Title 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** 

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



Surface Use Plan COG Operating, LLC Dodd Federal Unit #618 SL: 1710' FSL & 1650' FEL Section 15, T-17-S, R-29-E

Eddy County, New Mexico

ULJ

I hereby certify that I, or persons under my direct supervision, have inspected the drill site and access road proposed herein; that I am familiar with the conditions that presently exist; that I have full knowledge of State and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or COG Operating, LLC, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements. Executed this 13th day of June, 2012.

Signed

Printed Name: Carl Bird

Position: Drilling Engineer

Address: 550 W. Texas, Suite 1300, Midland, Texas 79701

Telephone: (432) 683-7443

Field Representative (if not above signatory): Same

and big

E-mail: cbird@concho.com

Surface Use Plan

Page 8

DISTRICT I 4625 N. French Dr., Hobbs, NM 88240 Phone (575) 393-6161 Fax (575) 393-0720 DISTRICT II 811 S First St , Artesia, NM 88210 Phone: (575) 748-1283 Fax (575) 748-9720 DISTRICT III 1000 Rio Brazos Road, Aztec, NM 87410 Phone (505) 334-6178 Fax (505) 334-6170 DISTRICT IV

1220 S St Francis Dr , Santa Fe, NM 87505 Phone: (505) 476-3460 Fax (505) 476-3462

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## State of New Mexico Energy, Minerals & Natural Resources Department OIL CONSERVATION DIVISION 1220 South St. Francis Dr. Santa Fe, New Mexico 87505

Form C-102 Revised August 1, 2011 -Submit one copy to appropriate District Office

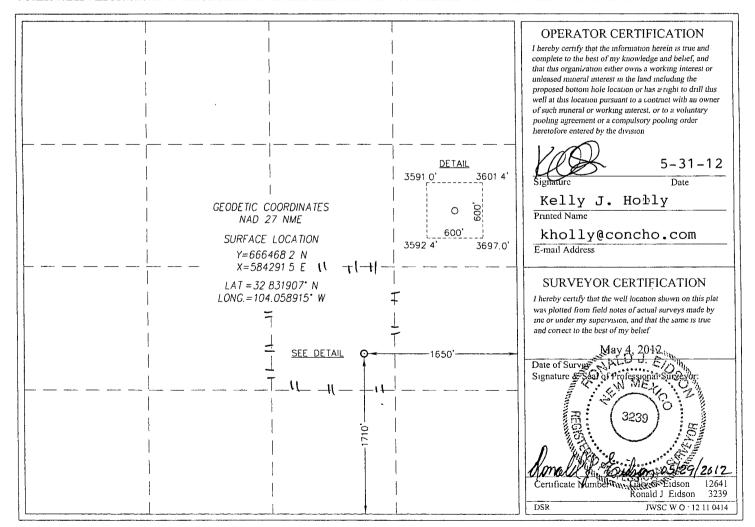
□ AMENDED REPORT

#### WELL LOCATION AND ACREAGE DEDICATION PLAT

Pool Code

30-01	PI Number	101	Pool Code Pool Name 97917 Dodd; Glorieta-Upper Yes						
	operty Code		Property Name					Well Number	
308195			DODD FEDERAL UNIT						618
OGRID No. 229137			Operator Name COG OPERATING, LLC					Elevation 3591'	
					Surface Locati	on			
UL or lot No	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
J	15	17-S	29-E		1710	SOUTH	1650	EAST	EDDY
				Bottom Hole	Location If Diffe	erent 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 C	onsolidation C	ode Ord	er 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



#### MASTER DRILLING PROGRAM

## 1. Geologic Name of Surface Formation

Quaternary

## 2. Estimated Tops of Important Geologic Markers:

Surface
220'
360'
780'
950'
1235'.
1845'
2220'
2540'
4000'
4075'
4620'
5520'

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

Water Sand	150'	Fresh Water
Grayburg	2220'	Oil/Gas
San Andres	2540'	Oil/Gas
Glorieta	4000'	Oil/Gas
Paddock	4075'	Oil/Gas
Blinebry	4620'	Oil/Gas
Tubb	5520'	Oil/Gas

No other formations are expected to give up oil, gas or fresh water in measurable quantities. Setting 13 3/8" casing to 300' 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 \$50' 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, (but calculated to surface) 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 environment.



## 4. Casing Program

200
Dec
COA
((/)

		OD			Jt.,		
<b>Hole Size</b>	Interval	Casing	Weight	Grade	Condition	Jt.	brst/clps/ten
17 ½"	0-300;25	513 3/8"	48#	H-40/J-55 hybrid	ST&C/New	ST&C	9.22/3.943/15.8
11"	0-850'93	り8 5/8"	24or32#	J-55	ST&C/New	ST&C	3.03/2.029/7.82
7 7/8"	0-TD	5 1/2"	15.5or17#	J-55orL-80	LT&C/New	LT&C	1.88/1.731/2.42

# 5. Cement Program See COA

13 3/8" Surface Casing:

Class C w/ 2% Cacl2 + 0.25 pps CF, 400 sx, yield 1.32 cuft/sk, 14.8 ppg, back to surface. 154% excess

8 5/8" Intermediate Casing:

## 11" Hole:

Single Stage: 50:50:10 C:Poz:Gel w/ 5% Salt +0.25% CF, 300 sx lead, yield-2.45 cuft/sk, 11.8 ppg + Class C w/2% CaCl2, 200 sx tail, yield-1.32 cuft/sk, 14.8 ppg, back to surface. 363% excess

Multi-Stage: Stage 1: Class C w/2% CaCl2, 200 sx, yield - 1.32 cuft/sk, 14.8 ppg; 108% excess Stage 2: 50:50:10 C:Poz:Gel w/ 5% Salt +0.25% CF, 300 sx, yield - 2.45 cuft/sk, 11.8 ppg, back to surface, 726% excess; assumption for tool is lost circulation. Multi stage tool to be set at approximately, depending on hole conditions, 350' (50' below the surface casing). Cement volumes will be adjusted proportionately for depth changes of multi stage tool.

5 1/2" Production Casing:

Single Stage: LEAD 500 sx 35:65:6 C:Poz:Gel w/ 5% Salt + 5 pps LCM + 0.2% SMS + 0.3% FL-52A + 0.125 pps CF, yield-2.05 cuft/sk, 12.5 ppg; + TAIL 400 sx 50:50:2 C:Poz:Gel w/ 5% Salt + 3 pps LCM + 0.6% SMS + 1% FL-25 + 1% BA-58 + 0.3% FL-52A + 0.125 pps CF, yield-1.37 cuft/sk, 14.0 ppg, to 200' minimum tie back to intermediate casing. 76.8% open hole excess, cement calculated back to surface. Multi-Stage: Stage 1: (Assumed TD of 4550') 500 sx 50:50:2 C:Poz:Gel w/ 5% Salt + 3 pps LCM + 0.6% SMS + 1% FL-25 + 1% BA-58 + 0.3% FL-52A + 0.125 pps CF, yield - 1.37 cuft/sk, 14.0 ppg, 34% excess; Stage 2: LEAD 450 sx 50:50:2 C:Poz:Gel w/5% Salt + 3 pps LCM + 0.6% SMS + 1% FL-25 + 1% BA-58 + 0.3% FL-52A + 0.125 pps CF, vield - 1.37 cuft/sk, 14.0 ppg, + TAIL 250 sx Class C w/ 0.3% R-3 + 1.5% CD-32, yield - 1.02 cuft/sk, 16.8 ppg, 148% open hole excess, cement calculated back to surface. Multi stage tool to be set at approximately, depending on hole conditions, 2500'. Cement volumes will be adjusted proportionately for depth changes of multi stage tool, assumption for tool is water flow.

## 6. Minimum Specifications for Pressure Control

The blowout preventer equipment (BOP) shown in Exhibit #9 will consist of a double ram-type (2000 psi WP) preventer, and in some cases possibly a 2000 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 2000 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 2000 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 will include a Kelly cock and floor safety valve, choke lines and a choke manifold (Exhibit #9) with a 2000 psi WP rating. This equipment will also be tested to rated working pressure by an independent tester.

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.

## 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:

DEPTH	TYPE	WEIGHT	VISCOSITY	WATERLOSS
0-390' 255	Fresh Water	8.5	28	N.C.
3,00-8,50' 930	Brine	10	30	N.C.
850'-TD'	Cut Brine	8.7-9.2	30	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 Surface.
- B. Drill Stem test is not anticipated.
- C. No conventional coring is anticipated.
- D. Further testing procedures will be determined after the 5 ½" 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 hole pressure is 2300 psig. Measurable gas volumes or Hydrogen Sulfide levels have not been

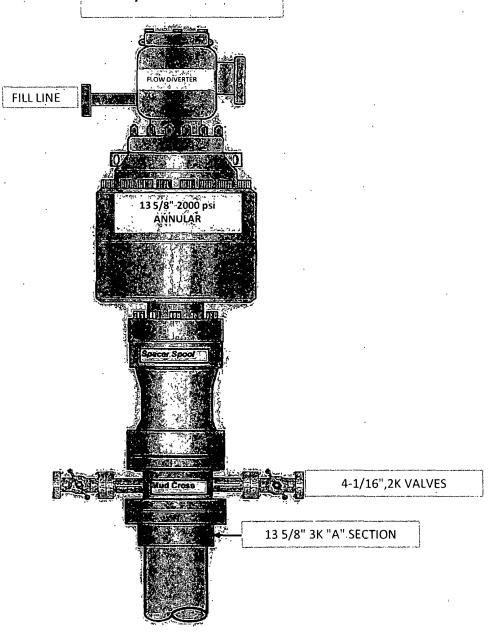
COG Operating LLC
Master Drilling Plan
Dodd; Glorieta- Upper Yeso
Use for Sections 6-30, T17S, R29E
Eddy County, NM

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.

## 11. Anticipated Starting Date and Duration of Operations

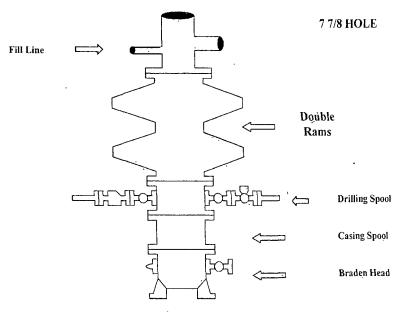
Road and location work will not begin until approval has been received from the BLM. As this is a Master Drilling plan, please refer to the Form 3160-3 for the anticipated start date. Once commenced, drilling operations should be finished in approximately 10 days. If the well is productive, an additional 30 days will be required for completion and testing before a decision is made to install permanent facilities. Completion is planned in the Paddock formation.

## 13 5/8" 2K ANNULAR



# **COG Operating LLC**

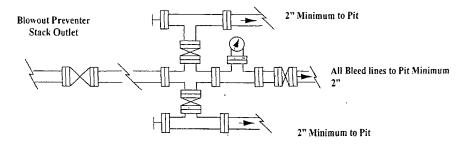
# Exhibit #9 BOPE and Choke Schematic



Minimum 4" Nominal choke and kill lines

## Choke Manifold Requirement (2000 psi WP) No Annular Required

#### Adiustable Choke



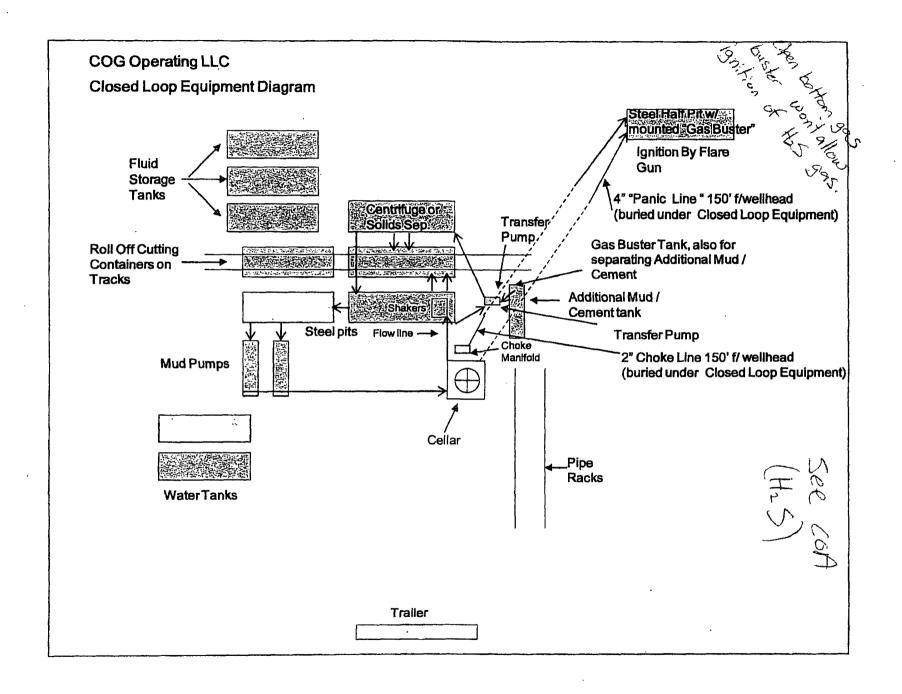
Adjustable Choke (or Positive)

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

- 1. Drilling upple 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.
- 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.
- 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.

Blowaut Preventers

Page 2



## Closed Loop Operation & Maintenance Procedure

All drilling fluid circulated over shaker(s) with cuttings discharged into roll off container.

Fluid and fines below shaker(s) are circulated with transfer pump through centrifuge(s) or solids separator with cuttings and fines discharged into roll off container.

Fluid is continuously re-circulated through equipment with polymer added to aid separation of cutting fines.

Roll off containers are lined and de-watered with fluids re-circulated into system.

Additional tank is used to capture unused drilling fluid or cement returns from casing jobs.

This equipment will be maintained 24 hrs./day by solids control personnel and or rig crews that stay on location.

Cuttings will be hauled to either:

CRI (permit number R9166) or GMI (permit number 711-019-001)

dependent upon which rig is available to drill this well.

## **COG Operating LLC**

## Hydrogen Sulfide Drilling Operation Plan

## I. HYDROGEN SULFIDE TRAINING

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

- 1. The hazards an characteristics of hydrogen sulfide (H2S)
- 2. The proper use and maintenance of personal protective equipment and life support systems.
- 3. The proper use of H2S detectors alarms warning systems, briefing areas, evacuation procedures, and prevailing winds.
- 4. The proper techniques for first aid and rescue procedures.

In addition, supervisory personnel will be trained in the following areas:

- 1. The effects of H2S on metal components. If high tensile tubular are to be used, personnel well be trained in their special maintenance requirements.
- 2. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
- 3. The contents and requirements of the H2S Drilling Operations Plan and Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H2S zone (within 3 days or 500 feet) and weekly H2S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H2S Drilling Operations Plan and the Public Protection Plan. The concentrations of H2S of wells in this area from surface to TD are low enough that a contingency plan is not required.

## II. H2S SAFETY EQUIPMENT AND SYSTEMS

Note: All H2S safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonable expected to contain H2S.

### 1. Well Control Equipment:

- A. Flare line.
- B. Choke manifold.
- C. Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit.
- D. Auxiliary equipment may include if applicable: annular preventer & rotating head

#### 2. Protective equipment for essential personnel:

A. Mark II Survive air 30-minute units located in the doghouse and at briefing areas, as indicated on well site diagram.

### 3. H2S detection and monitoring equipment:

A. 1 portable H2S monitors positioned on location for best coverage and response. These units have warning lights and audible sirens when H2S levels of 20 PPM are reached.

## 4. Visual warning systems:

- A. Wind direction indicators as shown on well site diagram (Exhibit #8).
- B. Caution/Danger signs (Exhibit #7) shall be posted on roads providing direct access to location. Signs will be painted a high visibility yellow with black lettering of sufficient size to be readable at a reasonable distance from the immediate location. Bilingual signs will be used, when appropriate. See example attached.

#### 5. Mud program:

A. The mud program has been designed to minimize the volume of H2S circulated to surface. Proper mud weight, safe drilling practices, and the use of H2S scavengers will minimize hazards when penetrating H2S bearing zones.

## 6. Metallurgy:

- A. All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H2S service.
- B. All elastomers used for packing and seals shall be H2S trim.

#### 7. Communication:

- A. Radio communications in company vehicles including cellular telephone and 2-way radio.
- B. Land line (telephone) communication at Office.

#### 8. Well testing:

- A. Drill stem testing will be performed with a minimum number of personnel in the immediate vicinity, which are necessary to safely and adequately conduct the test. The drill stem testing will be conducted during daylight hours and formation fluids will not be flowed to the surface. All drill-stem-testing operations conducted in an H2S environment will use the closed chamber method of testing.
- B. There will be no drill stem testing.

## EXHIBIT #7

## WARNING YOU ARE ENTERING AN H2S

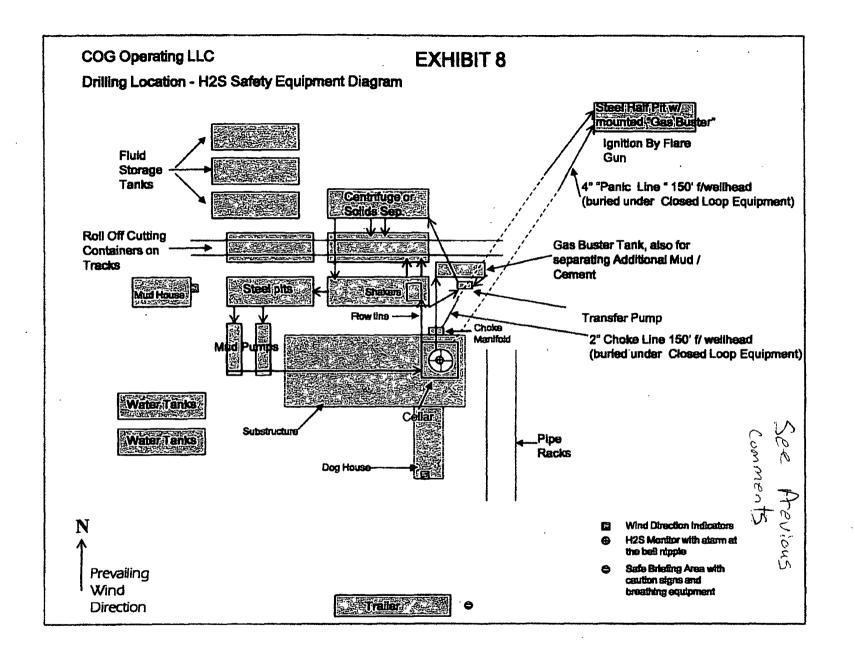
## AUTHORIZED PERSONNEL ONLY

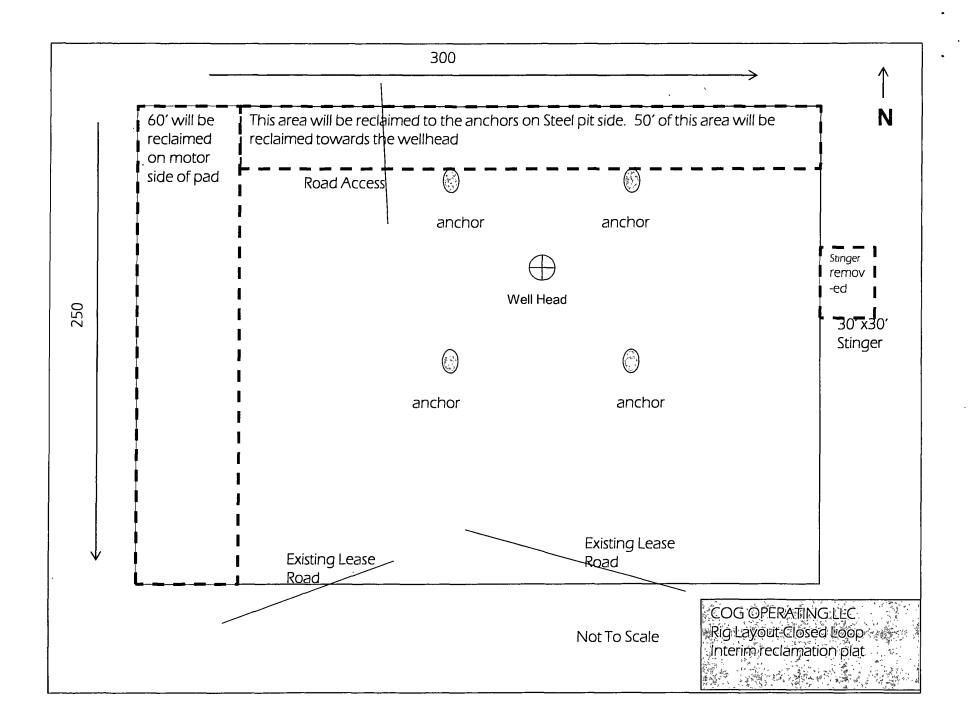
- 1. BEARDS OR CONTACT LENSES NOT ALLOWED
- 2. HARD HATS REQUIRED
- 3. SMOKING IN DESIGNATED AREAS ONLY
- 4. BE WIND CONSCIOUS AT ALL TIMES
- 5. CHECK WITH COG OPERATING FOREMAN AT

COG OPERATING LLC 1-432-683-7443 1-575-746-2010

EDDY COUNTY EMERGENCY NUMBERS
ARTESIA FIRE DEPT. 575-746-5050
ARTESIA POLICE DEPT. 575-746-5000
EDDY CO. SHERIFF DEPT. 575-746-9888

LEA COUNTY EMERGENCY NUMBERS
HOBBS FIRE DEPT. 575-397-9308
HOBBS POLICE DEPT. 575-397-9285
LEA CO. SHERIFF DEPT. 575-396-1196





## PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME: COG OPERATING, LLC
LEASE NO.: LC028731A
WELL NAME & NO.: 618-DODD FEDERAL UNIT
SURFACE HOLE FOOTAGE: BOTTOM HOLE FOOTAGE
LOCATION: Section 15, T. 17 S., R. 9 E., NMPM
COUNTY: Eddy County, New Mexico

## TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

General Provisions
Permit Expiration
Archaeology, Paleontology, and Historical Sites
Noxious Weeds
Special Requirements
Construction
Notification
Topsoil
Closed Loop System
Federal Mineral Material Pits
Well Pads
Roads
Road Section Diagram
⊠ Drilling
H2S requirement
Logging requirement
Waste Material and Fluids
Production (Post Drilling)
Well Structures & Facilities
Pipelines
Electric Lines
Interim Reclamation
Final Ahandonment & Reclamation