### OCD-ARTESIA

FORM APPROVED Form 3160 - 3 OMB No 1004-0137 Expires March 31, 2007 (April 2004) UNITED STATES Lease Serial No. DEPARTMENT OF THE INTERIOR NMLC-028784B 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 REENTER la. Type of work NMNM-88525X; Burch Keely Unit 8 Lease Name and Well No. ✓ Oil Well Gas Well Single Zone Multiple Zone lb Type of Well. **BURCH KEELY UNIT #859** 9 API Well No. Name of Operator COG Operating LLC 30-015-3b Phone No. (include area code) 10 Field and Pool, or Exploratory 3a. Address 550 W. Texas Ave., Suite 100 Grayburg Jackson; SR-Q-G-SA Midland, TX 79701 432-221-0336 11 Sec., T R M. or Blk and Survey or Area Location of Well (Report location clearly and in accordance with any State requirements.\*) 95' FNL & 805' FWL, Unit D Sec 25 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 17. Spacing Unit dedicated to this well Distance from proposed\* 16 No of acres in lease location to nearest property or lease line, ft (Also to nearest drig unit line, if any) 95' 1264.52 20 BLM/BIA Bond No on file 18 Distance from proposed location\* to nearest well, drilling, completed, 19 Proposed Depth 4100' NMB000740; NMB000215 153' applied for, on this lease, ft Elevations (Show whether DF, KDB, RT, GL, etc) 22 Approximate date work will start\* 23. Estimated duration 3581' GL 05/31/2012 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 Bond to cover the operations unless covered by an existing bond on file (see Item 20 above) 2 A Drilling Plan. Operator certification 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) Such other site specific information and/or plans as may be required by the authorized officer Name (Printed/Typed) 25 Signature Kacie Connally 03/07/2012 Title Permitting Tech Approved by (Signature) /s/ Don Peterson Name (Printed/Typed) <sup>D</sup>MAY 3 1 2012 Title Office FIELD MANAGER 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 APPROVAL FOR TWO YEARS Conditions of approval, if any, are attached 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

Roswell Controlled Water Basin

\*(Instructions on page 2)



Approval Subject to General Requirements & Special Stipulations Attached

SEE ATTACHED FOR CONDITIONS OF APPROVAL

Surface Use Plan
 COG Operating, LLC
 Burch Keely Unit #859
 SL: 95' FNL & 805' FWL
 Section 25, T-17-S, R29-E
 Eddy County, New Mexico

UL D

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 make 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 19th day of March, 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 Bright

E-mail: cbird@conchoresources.com

DISTRICT I
1625 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

# 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

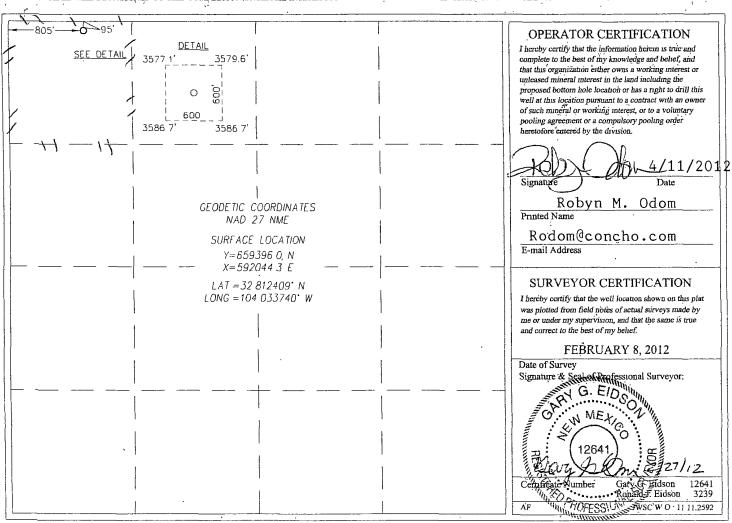
### WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 3			Pool Code			Pool Name				
			28509		GR	GRAYBURG JACKSON; SR-Q-G-SA				
Property Code Property Name,						Vell Number				
308086 BURCH KEELY					EELY UNIT 859			859		
OGRID No.			Operator Name						Elevation	
229137	229137 COG OPERATING, LLC					3581'				
					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	
D	25	17-S	29-E		95	NORTH	805	WEST	EDDY	

#### 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 C	onsolidation C	ode Ord	ler No.				
40		}							

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:

Quaternary	Surface
Rustler	220'
Salt	360'
Base of Salt	780'
Yates	950'
Seven Rivers	1235'
Queen	1845'
Grayburg	2220'
San Andres	2540'
Glorieta	4000'
Paddock	4075'

### 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

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 850' 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.

See COA

gu.

COG Operating LLC
Master Drilling Plan Revised 5-7-12
Grayburg Jackson; SR-Q-G-SA
Use for Sections 6-30, T17S, R29E
Eddy County, NM

### 4. Casing Program

See CoA

		OD			Jt.,		·
Hole Size	Interval	Casing	Weight	Grade	Condition	Jt.	brst/clps/ten
17 1/2"	0-300'120	13 3/8"	48#	H-40/J-55 Hybrid	ST&C/New	ST&C	9.22/3.943/15.8
11"	0-880'945	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, 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 + Class C w/2% CaCl2, 200 sx tail, yield-1.32, back to surface. 363% excess

Multi-Stage: Stage 1: Class C w/2% CaCl2, 200 sx, yield - 1.32; 108% excess Stage 2: 50:50:10 C:Poz:Gel w/ 5% Salt +0.25% CF, 300 sx, yield - 2.45, 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; + 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, to 200' minimum tie back to intermediate casing. 106% open hole excess, cement calculated back to surface.

Multi-Stage: Stage 1: (Assumed TD of 4100') 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, 89% 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 CFyield - 1.37, + TAIL 250 sx Class C w/ 0.3% R-3 + 1.5% CD-32, yield -1.02 148% open hole excess, cement calculated back to Multi stage tool to be set at surface. 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 (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.

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" See COA 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
0-300' 220	Fresh Water	8.5	28	N.C.
300-850' 945	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 Lec 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.

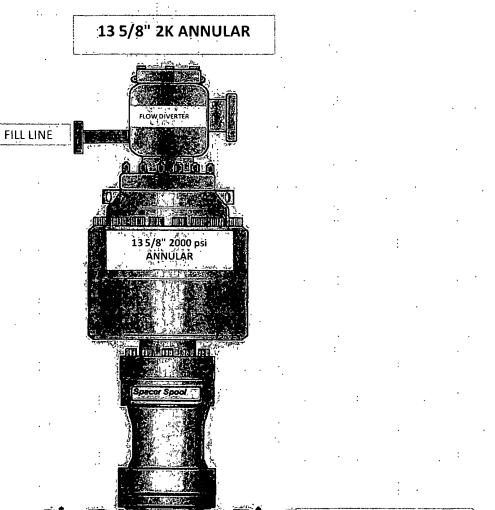
### 10. Abnormal Conditions, Pressure, Temperatures and Potential Hazards

No abnormal pressures or temperatures are anticipated. The estimated bottom hole at TD is 110 degrees and the estimated maximum bottom hole pressure is 1760 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.

COG Operating LLC
Master Drilling Plan Revised 5-7-12
Grayburg Jackson; SR-Q-G-SA
Use for Sections 6-30, T17S, R29E
Eddy County, NM

### 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 San Andres formation.

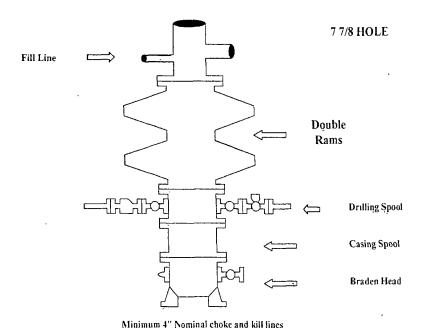


4-1/16",2K VALVES

13 5/8" 3K "A" SECTION

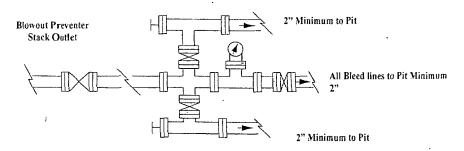
# **COG Operating LLC**

# Exhibit #9 BOPE and Choke Schematic



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

### Adiustable Choke



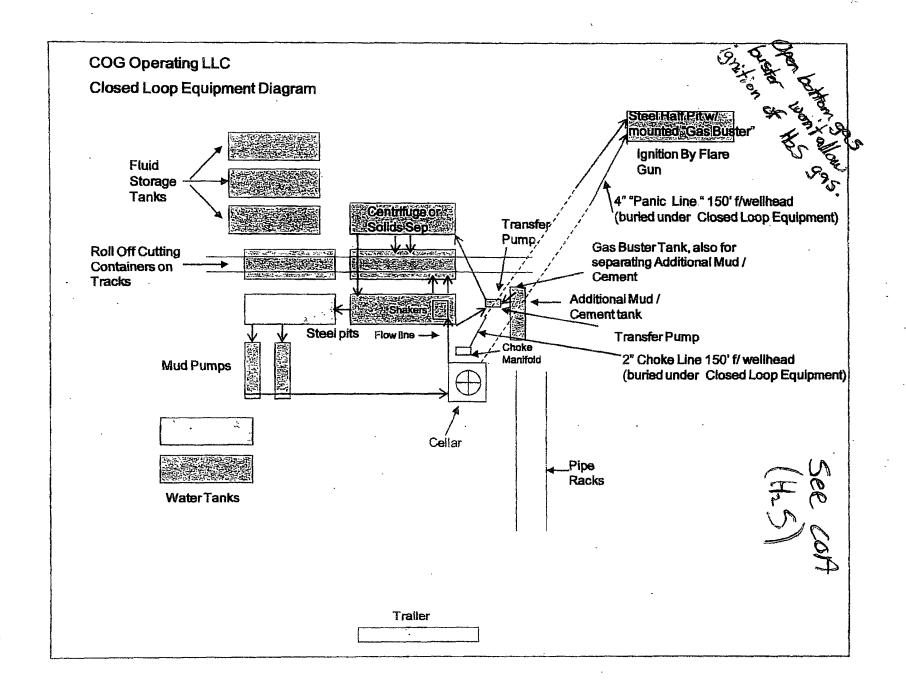
Adjustable Choke (or Positive)

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

- 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
- 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

Blowout Preventers

Page 2



### Gioseu 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.

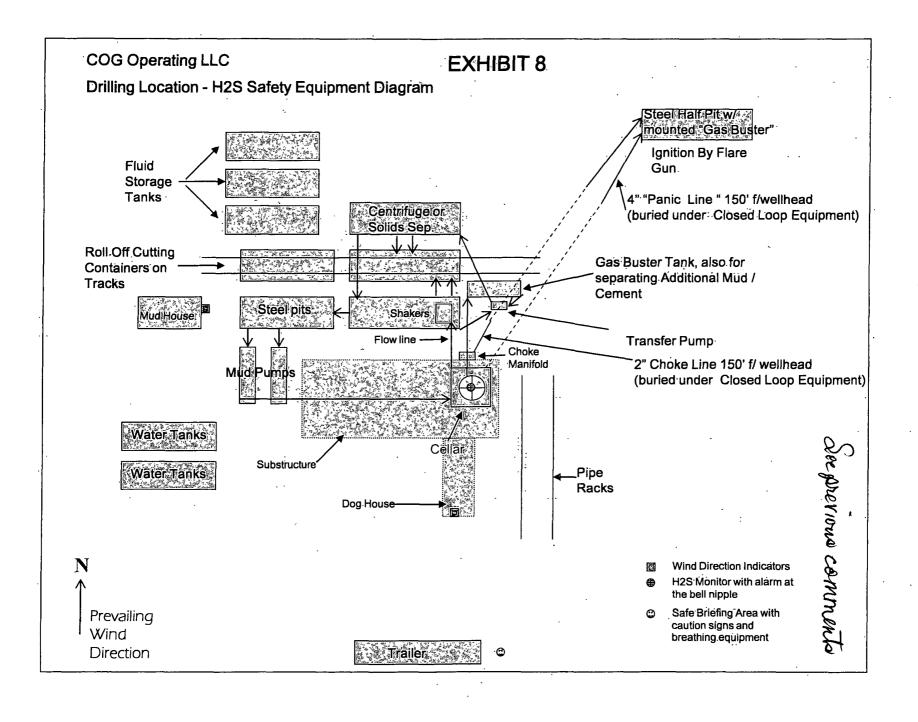
Additional tank is used to capture unused drilling fluid or cement returns from casing jobs.

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**

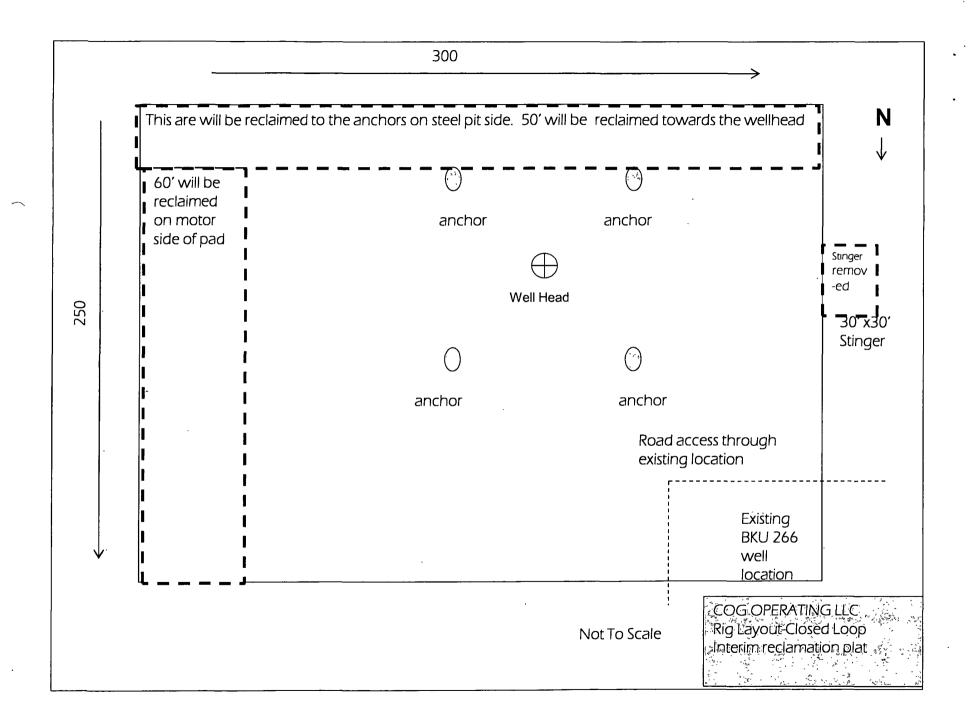
- 1. BEARDS OR CONTACT LENSES NOT ALLOWED
- 2. HARD HATS REQUIRED
- 3. SMOKING IN DESIGNATED AREAS ONLY
- 4. BE WIND CONSCIOUS AT ALL TIMES
- 5. CHECK WITH COG OPERATING FOREMAN AT

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	· · · · · · · · · · · · · · · · · · ·	- +	
LEASE NO.:	LC028784B	··		•
WELL NAME & NO.:	859 Burch Keely Unit	•		
SURFACE HOLE FOOTAGE:	95' FNL & 805' FWL			
BOTTOM HOLE FOOTAGE	'FL & 'FL			
LOCATION:	Section 25, T.17 S., R.29 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.

<ul> <li>☐ General Provisions</li> <li>☐ Permit Expiration</li> <li>☐ Archaeology, Paleontology, and Historical</li> <li>☐ Noxious Weeds</li> </ul>	l Sites		·
Special Requirements			
Existing Reserve Pit Requirement			
Lesser Prairie-Chicken Timing Stipulation	ons		
Ground-level Abandoned Well Marker			
<b>◯</b> Construction	-		
Notification			
Topsoil			
Closed Loop System	ĭ		
Federal Mineral Material Pits		•	
Well Pads			
Roads			
☐ Road Section Diagram			
Drilling			
H2S requirement			
Logging requirement		<b>v</b>	
Waste Material and Fluids		•	
☐ Production (Post Drilling)			
Well Structures & Facilities			
Pipelines			
Interim Reclamation	80 40° 40° 94 84	er en a con a commentante a	
☐ Final Abandonment & Reclamation	•		
<u></u>			