# OCD-ARTESIA

Form 3160-3 (April 2004)		FORM APPROVED OMB No 1004-0137 Expires March 31, 2007			
UNITED STATES  DEPARTMENT OF THE I  BUREAU OF LAND MAN		5 Lease Serial No. NMLC-028992H			
APPLICATION FOR PERMIT TO		6 If Indian, Allotee N/A	or Tribe?	Name	
la. Type of work DRILL > REENTI		7 If Unit or CA Agre	ement, Na	me and No.	
lb. Type of Well Oil Well Gas Well Other	ole Zone	8 Lease Name and V Loco Hills S		" #5 /378Z	
2. Name of Operator COG Operating LLC	12751377		9 API Well No. 30-015- 39	477	<u> </u>
3a. Address 550 W. Texas, Suite 1300 Midland TX 79701	3b. Phone No. (include area code) (432) 685-4384		10 Field and Pool, or I SWD; Wolfcar	•	19613.
4 Location of Well (Report location clearly and in accordance with an At surface 1650' FNL & 1595' FWL, UL F  At proposed prod zone	ny State requirements.*)  UNORTHOD  LOCATION	XC	11. Sec, T. R. M. or B Sec 34, T17S, 1		rvey or Area
14 Distance in miles and direction from nearest town or post office*  4 miles South East of Loco Hills, NN	_		12 County or Parish Eddy		13. State <b>NM</b>
Distance from proposed* location to nearest property or lease line, ft (Also to nearest drig, unit line, if any)  1595'	16 No. of acres in lease	17. Spacing	Unit dedicated to this	well	
18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft  700'	19 Proposed Depth 9700'	- ·	M/BIA Bond No on file 4B000740 + 2いら		
21 Elevations (Show whether DF, KDB, RT, GL, etc.) 3551.8' GL	22 Approximate date work will sta 07/31/2011	rt*	23 Estimated duratio 10 days	on	
	24. Attachments				
The following, completed in accordance with the requirements of Onsho	ore Oil and Gas Order No 1, shall be a	ttached to this	s form		
<ol> <li>Well plat certified by a registered surveyor.</li> <li>A Drilling Plan.</li> </ol>	Item 20 above).	•	s unless covered by an	existing l	bond on file (see
3 A Surface Use Plan (if the location is on National Forest System SUPO shall be filed with the appropriate Forest Service Office).		specific info	rmation and/or plans a	s may be r	equired by the
25. Signature COL	Name (Printed/Typed) Date Kelly J. Holly 06				02/2011
Title Permitting Tech					
Approved by (Signature) /s/ Don Peterson	Name (Printed/Typed)			AUG	3020
FIELD MANAGER	Office CARLSBAD F				
Application approval does not warrant or certify that the applicant hole conduct operations thereon. Conditions of approval, if any, are attached.	ds legal or equitable title to those righ	its in the subj	ect lease which would a APPROVAL		
Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a c States any false, fictitious or fraudulent statements or representations as	crime for any person knowingly and to any matter within its jurisdiction	willfully to m	ake to any department	or agency	of the United
*(Instructions on page 2)	)	ΓF	RECEIVE OCT 0 4 20 IMOCD ART	D	
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vell Controlled Water Basin		14	MOCD AR	IEOI	<u>ن</u>

SEE ATTACHED FUR CONDITIONS OF APPROVAL

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## SWD WELL DRILLING PROGRAM

## 1. Geologic Name of Surface Formation

Quaternary

## 2. Estimated Tops of Important Geologic Markers:

Quaternary	Surface
Rustler	350'
T/Salt	600'
B/Salt	1,280'
Yates	1,490'
Seven Rivers	1,830'
Queen	2,460'
Grayburg	2,840'
San Andres	3,295'
Glorietta	6,490'
Paddock	6,610'
Blinebry	7,840'
Tubb	8,165
Wolfcamp	8,320
T/Wolfcamp Reef	8,500'
B. Wolfcamp Reef	9,250''
Cisco	9,310'

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

Fresh Water	None	
Grayburg	2,840'	Oil/Gas
San Andres	3.295'	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.

See COA

4. Casing Program

	/		Weight			
Hole Size	Interval/	OD	(ppf)	Grade	Joint	Condition
24"	0-40'	20"	94	F-25	ST & C	Used
17.5"	490	13 3/8"	48	H-40	ST & C	New
12.25"	0'-4,000'	9 5/8"	3,400' of 36 pp; 600' of 40 ppff	J-55	ST & C	New
8.75"	0-TD	7"	26 ppf	9,700' of L-80	LT & C	New

## Casing Design Factors, Minimums

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

<u>Factor</u>	<u>Minimum</u>
Burst	1.000
Collapse	1.125
Joint Strength	1.800
Body Strength	2.000-



## 5.

5. Cement Program See attached cementing exhibit
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...

	7	& See	CO	4_		-				i
String:	Surface		,	Hole		Calculated	Slurry	Yield	Pump	
Hole Sz	Csg Sz, OD	Footage	cu ft / ft	cu ft	excess	cu ft	#	cu ft / sx	sxs*	Stage
17 1/2"	13 3/8"	<b>\$400</b>	0.6946	278	100.00%	556	1	1.3500	415	Single
	Total Depth:	<b>X</b> 400			Total Hole cu ft:	556				

Total Hole cu ft: Depth: \_\_(\400 Total Cmt cu ft: 560 /

String:	Intermediate			Hole		Calculated	Slurry	Yield	Pump	
Hole Sz	Csg Sz, OD	Footage	cu ft / ft	cu ft	excess	cu ft	#	cu ft / sx	sxs*	Stage
ID 13 3/8"	9 5/8"	400	0.3765	151	35.00%	203	2	0.0000	670	Lead
12 1/4"	9 5/8"	3,600_	0 3132	1,127	50 00%	1,691	3	1.3400	375	Tail
	Total							`		

Depth: 4,000 Total Hole cu ft: 1,894 Total Cmt cu ft: 503

String:	Long String			Hole		Calculated	Slurry	Yield	Pump	
Hole Sz	Csg Sz, OD	Footage	cu ft / ft	cu ft	excess	cu ft	#	cu ft / sx	sxs*	Stage
ID 9 5/8"	7"	4,000	0 1668	667	35 00%	901				
8 3/4"	7"	2,000	0.1503	301	50.00%	451	4	1.9900	670	Lead
8 3/4"	7"	1,000	0.1503	150	50.00%	225	5	1.1700	225	Tail Below DV
8 3/4"	7" Total	2,700	0.1503	406	50.00%	609	5	1 1700	520	Tool
	Depth:	9,700			Total Hole cu ft:	2,186				
•	DV tool set at	7,000'			Total Cmt cu ft:	2,205				

<sup>\*</sup> Sxs rounded to nearest 10 sxs

Slurry # 1	Composition CLASS C + 2% CACL2 + 0 25% De foamer	Density ppg 14 800	Yield cu ft/ sx 1 350
2	CLASS C 35/65 +6% BENTONITE + 0 25% De Foamer + 5% SALT (BWOW)	12 400	2 100
3	CLASS C + 1% CACL2 + 0 25% De Foamer	14 800	1 340
4	CLASS H 35/65 + 6% BENTONITE + 0 55% FI. Loss Add + 0 1% Dispersant + 0 25% De Foamer	12 400	1.990
5	CLASS H + 1% FI Loss Add + 0 3% Dispersant + 0 15% Accelerator + 0.1% Temp Add + 0 25% De Foamer	15 700	1 170

6.

ounty, NM

Minimum Specifications for Pressure Control

The blowout preventer

double ram-type (3000 psi WP) preventer, and on some cases possibly a 3000 psi Hydrif 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 "the BOP will then be nippled up on the "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.

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" easing. 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
0,400	Fresh Water, spud	8.6-9.2	32-34	N.C.
400-4,000	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.



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 will be perforated and 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

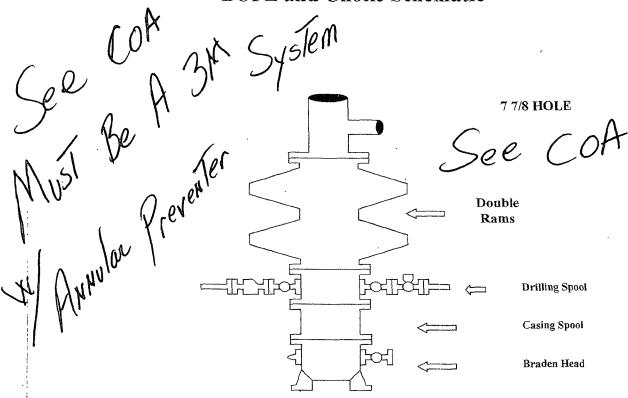
No abnormal pressures or temperatures are anticipated. The estimated bottom hole at TD is 125 to 140 degrees and the estimated maximum bottom hold pressure is 5,044 psig. Low levels of hydrogen sulfide have been monitored in producing wells in the area, so  $\rm H_2S$  may be present while drilling the 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



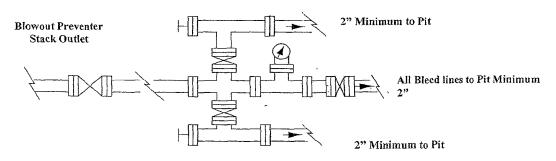
Minimum 4" Nominal choke and kill lines

Choke Manifold Requirement (2000 psi WP)

No Annular Required

See COA

Adjustable Choke



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.

Blowout Preventers Page 2

DISTRICT 2 -- CHECKLIST FOR INTENTS TO DRILL 37824 Well Name & #\_\_ Surface Type (F) (S) (P) Location: UL F. Sect 39 Twnship // s, RNG 30e, Sub-surface Type (F) (S) (P) A. Date C101 rec'd 10 1 4 1 2011 C101 reviewed 101512011 B. 1. Check mark, Information is OK on Forms: OGRID / BONDING / PROPCODE V . WELL# , SIGNATURE / 2. Inactive Well list as of: 10/5 / 2011 # wells 306, # Inactive wells // District Grant APD but see number of inactive wells:

No letter required: Sent Letter to Operator \_\_\_\_\_ to Santa Fe \_\_\_\_ W/I compliance a. District Grant APD but see number of inactive wells: 3. Additional Bonding as of: 10/5 / 2011 a. District Denial because operator needs addition bonding: No Letter required 🔀; Sent Letter to Operator \_\_\_\_\_, To Santa Fe b. District Denial because of Inactive well list and Financial Assurance: No Letter required 🔀; Sent Letter to Operator \_\_\_\_, To Santa Fe \_\_\_ C. C102 YES \(\lambda\), NO \(\text{NO}\) Signature a. Dedicated acreage 40, What Units b. SUR. Location Standard \_\_\_\_\_: Non-Standard Location \_\_\_\_\_ c. Well shares acres: Yes \_\_\_\_, No \_\_\_\_, # of wells \_\_\_\_ plus this well # \_ 2. 2<sup>nd</sup>. Operator in same acreage, Yes\_\_\_\_\_, No \_\_\_\_\_ Agreement Letter \_\_\_\_\_, Disagreement letter\_\_\_ 3. Intent to Directional Drill Yes \_\_\_\_\_, No \_\_\_\_ a. Dedicated acreage \_\_\_\_\_\_ What Units \_\_\_\_ b. Bottomhole Location Standard \_\_\_\_\_\_, Non-Standard Bottomhole \_\_\_\_\_ 4. Downhole Commingle: Yes\_\_\_\_, No \_\_\_\_\_\_,Code\_\_\_\_\_\_, Acres\_\_\_\_\_ a. Pool#2 Pool #3 \_\_\_\_\_\_, Code \_\_\_\_\_\_, Acres \_\_\_\_\_ Code\_\_\_\_\_, Acres\_\_\_ Pool #4 5. POTASH Area Yes \_\_\_\_\_, No\_\_ D. Blowout Preventer Yes V No \_\_\_\_ E. H2S Yes \_\_\_\_\_\_, No \_\_\_\_\_\_\_ F. C144 Pit Registration Yes \_\_\_\_\_, No\_ G. Does APD require Santa Fe Approval: 1. Non-Standard Location: Yes \_\_\_\_\_, No \_\_\_\_\_, NSL #\_\_\_\_\_ 2. Non-Standard Proration: Yes\_\_\_\_\_, No \_\_\_\_\_, NSP # \_\_\_\_\_ 3. Simultaneous Dedication: Yes \_\_\_\_\_, No \_\_\_\_, SD # \_\_\_\_ Number of wells \_\_\_\_\_ Plus #\_\_ 4. Injection order Yes \_\_\_\_, No \_\_\_\_\_; PMX #\_\_\_\_\_ or WFX # , NO\_\_\_\_\_; SWD # \_\_\_ 5. SWD order Yes 🔽 6. DHC from SF ; DHC-HOB\_\_\_\_; Holding 7. OCD Approval Date 15 12011

8. Reviewers\_\_\_\_