OCD-HOBBS

Form 3160-3
(April 2004)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HOBBS OCD

MAY 25 2012

RECEIVED

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

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a Type of work ☑ DRILL ☐ REENTER	5 Lease Serial No. NMLC-058395
1b. Type of Well ☑ Oil Well ☐ Gas Well ☐ Other ☐ Single Zone ☐ Multiple Zone	6 If Indian, Allotee or Tribe Name N/A
2. Name of Operator COG Operating LLC 229137	7 If Unit or CA Agreement, Name and No. N/A
3a. Address 550 W. Texas, Suite 100 Midland TX 79701	3b. Phone No (include area code) (432) 221-0336
4 Location of Well (Report location clearly and in accordance with any State requirements *) At surface SHL: 1195' FSL & 800' FEL, UL P At proposed prod zone BHL: 990' FSL & 990' FEL, UL P	8 Lease Name and Well No S C FEDERAL #9 37483
	9 API Well No. 30-025- 40596
	10 Field and Pool, or Exploratory Maljamar; Yeso, West 44500
	11 Sec, T R M or Blk and Survey or Area Sec 22, T17S, R32E
14 Distance in miles and direction from nearest town or post office* 2.5 miles south 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) 800'	16 No. of acres in lease 120 / 17. Spacing Unit dedicated to this well 40
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft 299'	19. Proposed Depth TVD: 7100' MD: 7112' / 20 BLM/BIA Bond No on file NMB000215; NMB000740
21 Elevations (Show whether DF, KDB, RT, GL, etc) 3990' GL	22 Approximate date work will start* 05/31/2012 / 23 Estimated duration 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 Kacie Connally	Name (Printed/Typed) Kacie Connally	Date 03/12/2012
Title Permitting Tech		
Approved by (Signature) /s/ Don Peterson	Name (Printed/Typed)	Date MAY 23 2012
Title FOR 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

05/30/12

Approval Subject to General Requirements & Special Stipulations Attached

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

MAY 31 2012

COG Operating LLC
Master Drilling Plan Revised 3-30-12
East Maljamar Area: Maljamar; Yeso, West
Use for Sections 3-35, T17S, R32E
Lea County, NM

MASTER DRILLING PROGRAM

1. Geologic Name of Surface Formation

Quaternary

2. Estimated Tops of Important Geologic Markers:

Quaternary	Surface
Rustler	820'
Top of Salt	900'
Base of Salt	1700'
Yates	2140'
Seven Rivers	2500'
Queen	3110'
Grayburg	3500'
San Andres	3870'
Glorietta	5400'
Paddock	5450'
Blinebry	5970'
Tubb	6900'

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

Water Sand	150'	Fresh Water
Grayburg	3500'	Oil/Gas
San Andres	3870'	Oil/Gas
Glorietta	5400'	Oil/Gas
Paddock	5450'	Oil/Gas
Blinebry	5970'	Oil/Gas
Tubb	6900'	Oil/Gas

No other formations are expected to give up oil, gas or fresh water in measurable quantities. Setting 13 3/8" casing to ~~840~~' 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 ½"	0-~~840~~705	13 3/8"	48#	H-40/J-55 hybrid	ST&C/New	6.03/2.578/10.32
11"	0-~~2100~~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:

LEAD Class C, 4% Gel, 2% CaCl2, .25 pps CF, 325 sx, yield-1.75 + TAIL 200 sx w/ 2% CaCl2, 0.25 pps CF, yield-1.32, 133% excess

8 5/8" Intermediate Casing:

11" Hole:
Single Stage: LEAD 50:50:10 C:Poz:Gel w/ 5% Salt +0.25% CF, 375 sx, yield-2.45 + TAIL Class C w/2% CaCl2, 200 sx, yield-1.32, back to surface. 133% excess
Multi-Stage: Stage 1: Class C w/2% CaCl2, 400 sx, yield - 1.32; 48% excess Stage 2: Class C w/2% CaCl2, 200 sx, yield – 1.32, back to surface, 48% excess; assumption for tool is lost circulation. Multi stage tool to be set at approximately, depending on hole conditions, 700' (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 35:65:6 C:Poz:Gel w/ 5% Salt + 5 pps LCM + 0.2% SMS + 0.3% FL-52A + 0.125 pps CF, 500 sx, yield-2.05 + TAIL 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, 400 sx, yield-1.37, to 200' minimum tie back to intermediate casing. 30% excess back to surface.
Multi-Stage: Stage 1: (Assumed TD of 7000') 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, 500 sx, yield - 1.37, 13% excess; Stage 2: LEAD 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, 450 sx, yield - 1.37, + TAIL Class C w/ 0.3% R-3 + 1.5% CD-32, 250 sx, yield – 1.02 43% excess calculated back to surface. Multi stage tool to be set at approximately, depending on hole conditions, 3500'. 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" 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. See COA

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
0-840' 905	Fresh Water	8.5	28	N.C.
840-2100' 2160	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 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. Based on BHP tests in this area, the estimated bottom hole at TD is 110 degrees and the estimated maximum bottom hole pressure is 3100 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.

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.

CONCHO

COG Operating LLC

Lea County, NM (NAN27 NME)
SC Federal #9

OH

Plan: Plan #3 7-7/8" Hole
SHL = 1195' FSL & 800' FEL
BHL = 980' FSL & 980' FEL
Top of Paddock Top = 980' FSL & 980' FEL @ 5550' TVD

Standard Planning Report

19 April, 2012

Scientific Drilling
Directional Drilling Operations

Database:	EDM 5000 1 Single User Db	**Local Co-ordinate Reference:**	Well SC Federal #9
Company:	COG Operating LLC	**TVD Reference:**	GL @ 3990 00usft
Project:	Lea County, NM (NAN27 NME)	**MD Reference:**	GL @ 3990 00usft
Site:	SC Federal #9	**North Reference:**	Grid
Well:	SC Federal #9	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #3 7-7/8" Hole		

Project Lea County, NM (NAN27 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 SC Federal #9

Site Position:		**Northing:**	661,068 40 usft	**Latitude:**	32° 48' 57 584 N
From:	Map	**Easting:**	679,895 30 usft	**Longitude:**	103° 44' 51.991 W
Position Uncertainty:	0 00 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0 32 °

Well SC Federal #9

Well Position	**+N/-S**	0.00 usft	**Northing:**	661,068 40 usft	**Latitude:**	32° 48' 57 584 N
	+E/-W	0 00 usft	**Easting:**	679,895 30 usft	**Longitude:**	103° 44' 51 991 W
Position Uncertainty		0 00 usft	**Wellhead Elevation:**		**Ground Level:**	3,990 00 usft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	04/19/12	7 61	60.68	48,865

Design Plan #3 7-7/8" Hole

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	0 00

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0 00	0 00	0 00	219 69

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	
2,200 00	0 00	0 00	2,200 00	0 00	0 00	0 00	0 00	0 00	0 00	
2,458 96	5 18	219 69	2,458 61	-9 00	-7 47	2.00	2 00	0 00	219 69	
5,303 36	5.18	219 69	5,291 39	-206.60	-171.43	0 00	0 00	0 00	0 00	
5,562 32	0.00	0 00	5,550 00	-215 60	-178 90	2 00	-2 00	0 00	180 00	T1-SC Fed #9
7,112 32	0 00	0 00	7,100 00	-215 60	-178 90	0 00	0 00	0.00	0 00	PBHL-SC Fed #9

Database:	EDM 5000 1 Single User Db	**Local Co-ordinate Reference:**	Well SC Federal #9
Company:	COG Operating LLC	**TVD Reference:**	GL @ 3990 00usft
Project:	Lea County, NM (NAN27 NME)	**MD Reference:**	GL @ 3990 00usft
Site:	SC Federal #9	**North Reference:**	Grid
Well:	SC Federal #9	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #3 7-7/8" Hole		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
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
8 5/8"									
2,200 00	0 00	0 00	2,200 00	0 00	0 00	0 00	0 00	0 00	0 00
KOP Start DLS 2.00°/100'									
2,300 00	2 00	219 69	2,299 98	-1.34	-1 11	1 75	2 00	2 00	0 00
2,400.00	4 00	219.69	2,399 84	-5.37	-4 46	6 98	2 00	2 00	0 00
2,458 96	5 18	219 69	2,458 61	-9 00	-7 47	11 70	2 00	2 00	0 00
Hold 5.18°									
2,500.00	5 18	219 69	2,499 48	-11 85	-9 83	15 40	0 00	0 00	0 00
2,600.00	5.18	219 69	2,599 07	-18 80	-15.60	24 43	0 00	0 00	0 00
2,700 00	5 18	219.69	2,698 66	-25 75	-21 36	33 46	0 00	0 00	0 00
2,800 00	5 18	219 69	2,798 26	-32 69	-27 13	42 48	0 00	0 00	0.00
2,900 00	5 18	219.69	2,897 85	-39 64	-32 89	51 51	0 00	0 00	0 00
3,000 00	5 18	219.69	2,997 44	-46 59	-38 66	60 54	0.00	0 00	0 00
3,100 00	5 18	219 69	3,097 03	-53.53	-44 42	69 56	0 00	0 00	0 00
3,200 00	5 18	219 69	3,196.62	-60.48	-50 19	78 59	0 00	0 00	0 00
3,300 00	5 18	219 69	3,296 21	-67 43	-55 95	87.62	0 00	0 00	0.00
3,400 00	5 18	219 69	3,395 81	-74 37	-61 71	96 64	0 00	0 00	0 00
3,500 00	5 18	219 69	3,495 40	-81 32	-67 48	105 67	0 00	0 00	0 00
3,600 00	5 18	219 69	3,594 99	-88 27	-73 24	114 70	0 00	0 00	0 00
3,700 00	5.18	219 69	3,694 58	-95 22	-79.01	123 73	0 00	0.00	0 00
3,800 00	5 18	219.69	3,794 17	-102 16	-84 77	132 75	0 00	0 00	0 00
3,900 00	5 18	219 69	3,893.76	-109 11	-90 54	141 78	0 00	0 00	0 00
4,000 00	5 18	219 69	3,993 36	-116 06	-96.30	150 81	0 00	0 00	0 00
4,100 00	5 18	219 69	4,092 95	-123 00	-102 06	159 83	0 00	0 00	0 00
4,200 00	5 18	219 69	4,192 54	-129 95	-107 83	168 86	0 00	0 00	0 00
4,300 00	5 18	219 69	4,292 13	-136 90	-113 59	177.89	0 00	0 00	0.00
4,400 00	5 18	219 69	4,391 72	-143 84	-119 36	186 92	0 00	0 00	0 00
4,500 00	5 18	219 69	4,491 31	-150 79	-125.12	195 94	0 00	0 00	0 00
4,600 00	5 18	219 69	4,590 91	-157 74	-130 89	204 97	0 00	0 00	0 00
4,700 00	5 18	219 69	4,690 50	-164 68	-136.65	214 00	0 00	0 00	0 00
4,800 00	5 18	219.69	4,790 09	-171 63	-142 42	223 02	0 00	0 00	0 00
4,900 00	5 18	219 69	4,889 68	-178 58	-148 18	232 05	0 00	0 00	0 00
5,000 00	5 18	219.69	4,989 27	-185 52	-153 94	241.08	0 00	0 00	0 00
5,100 00	5 18	219 69	5,088 86	-192 47	-159 71	250 10	0 00	0 00	0 00
5,200 00	5 18	219 69	5,188 46	-199 42	-165 47	259 13	0.00	0 00	0 00
5,300 00	5.18	219 69	5,288 05	-206 37	-171 24	268 16	0 00	0 00	0 00
5,303 36	5 18	219 69	5,291 39	-206.60	-171.43	268 46	0 00	0 00	0 00
Start Drop 2.00°/100'									
5,400 00	3 25	219.69	5,387.77	-212 06	-175.96	275 56	2 00	-2 00	0 00
5,500 00	1 25	219 69	5,487 69	-215 08	-178 47	279 48	2 00	-2 00	0 00
5,562 32	0 00	0.00	5,550 00	-215 60	-178 90	280 16	2 00	-2.00	0 00
Hold 0.00° - Top of Paddock - T1-SC Fed #9									
7,112.32	0 00	0 00	7,100 00	-215 60	-178.90	280 16	0 00	0 00	0 00
PBHL-SC Fed #9									

Database:	EDM 5000 1 Single User Db	**Local Co-ordinate Reference:**	Well SC Federal #9
Company:	COG Operating LLC	**TVD Reference:**	GL @ 3990 00usft
Project:	Lea County, NM (NAN27 NME)	**MD Reference:**	GL @ 3990 00usft
Site:	SC Federal #9	**North Reference:**	Grid
Well:	SC Federal #9	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #3 7-7/8" Hole		

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
T1-SC Fed #9 - plan hits target center - Point	0.00	0 00	5,550 00	-215 60	-178 90	660,852 80	679,716 40	32° 48' 55 460 N	103° 44' 54 101 W
PBHL-SC Fed #9 - plan hits target center - Circle (radius 10 00)	0 00	0 00	7,100 00	-215 60	-178 90	660,852 80	679,716 40	32° 48' 55 460 N	103° 44' 54 101 W

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
2,100 00	2,100 00	8 5/8"	8-5/8	12-1/4

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,562 32	5,550 00	Top of Paddock		0 00	

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
2,200 00	2,200 00	0.00	0 00	KOP Start DLS 2 00°/100'
2,458 96	2,458 61	-9 00	-7.47	Hold 5 18°
5,303 36	5,291 39	-206 60	-171 43	Start Drop 2 00°/100'
5,562 32	5,550 00	-215 60	-178 90	Hold 0 00°

CONCHO

Scientific Drilling
Directional Drilling Operations

T G M

Azimuths to Grid North
True North: -0 32°
Magnetic North: 7 29°

Magnetic Field
Strength: 48864 8snT
Dip Angle: 60 68°
Date: 04/19/2012
Model: IGRF2010

To convert Magnetic North to Grid, Add 7 29°
To convert True North to Grid, Subtract 0 32°

SC Federal #9
Lea County, NM (NAN27 NME)
Northing: (Y) 661068.40
Easting: (X) 679895.30
Plan #3 7-7/8" Hole

WELL DETAILS: SC Federal #9

Ground Level: 3990 00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0 00	0 00	661068 40	679895 30	32° 48' 57 584 N	103° 44' 51 991 W

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	
2	2200 00	0 00	0 00	2200 00	0 00	0 00	0 00	0 00	0 00	
3	2458 96	5 18	219 69	2458 61	-9 00	-7 47	2 00	219 69	11 70	
4	5303 36	5 18	219 69	5291 39	-206 60	-171 43	0 00	0 00	268 46	
5	5562 32	0 00	0 00	5550 00	-215 60	-178 90	2 00	180 00	280 16	T1-SC Fed #9
6	7112 32	0 00	0 00	7100 00	-215 60	-178 90	0 00	0 00	280 16	PBHL-SC Fed #9

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
T1-SC Fed #9 - plan hits target center	5550 00	-215 60	-178 90	660852 80	679716 40	32° 48' 55 460 N	103° 44' 54 101 W
PBHL-SC Fed #9 - plan hits target center	7100 00	-215 60	-178 90	660852 80	679716 40	32° 48' 55 460 N	103° 44' 54 101 W

SITE DETAILS: SC Federal #9

Site Centre Northing: 661068 40
Easting: 679895 30

Positional Uncertainty: 0 00
Convergence: 0 32
Local North: Grid

PROJECT DETAILS: Lea County, NM (NAN27 NME)

Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001

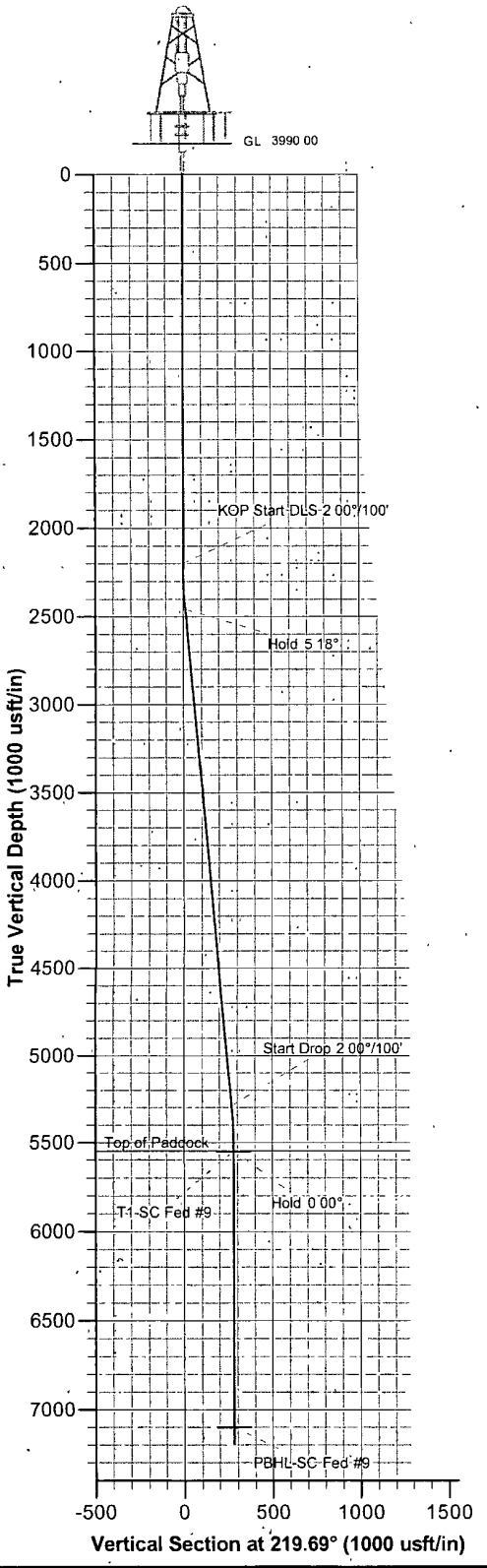
System Datum: Mean Sea Level

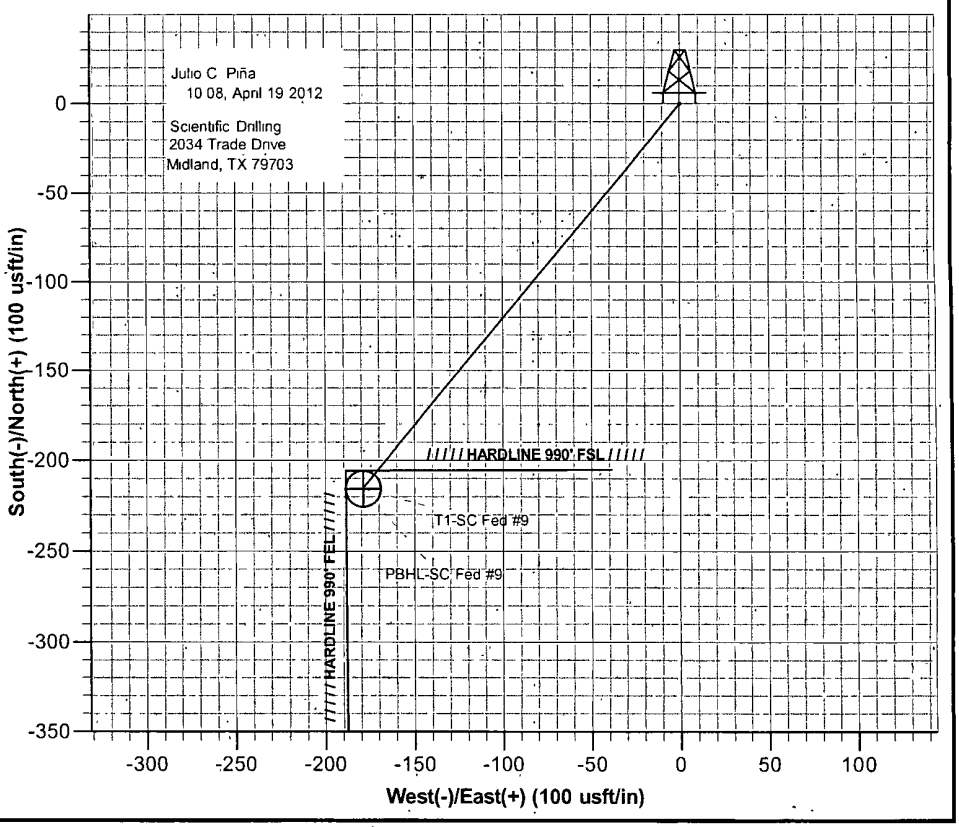
FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
5550 00	5562 32	Top of Paddock	0 00	

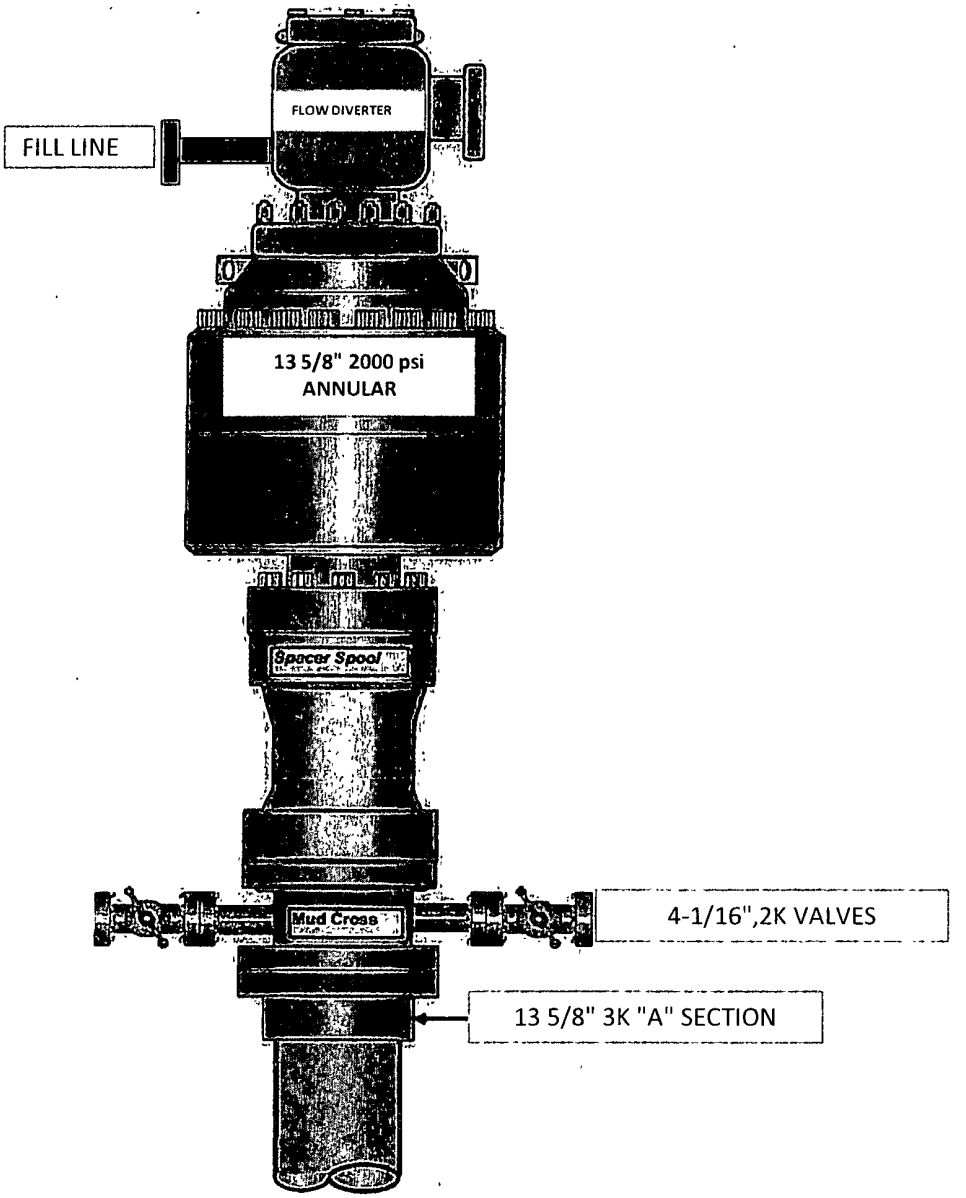
LEGEND

Plan #3 7-7/8" Hole





13 5/8" 2K ANNULAR



COG OPERATING LLC
550 West Texas, Suite 1300
Midland, TX 79701

DIRECTIONAL PLAN VARIANCE REQUEST

S C FEDERAL #9
LEA, NM

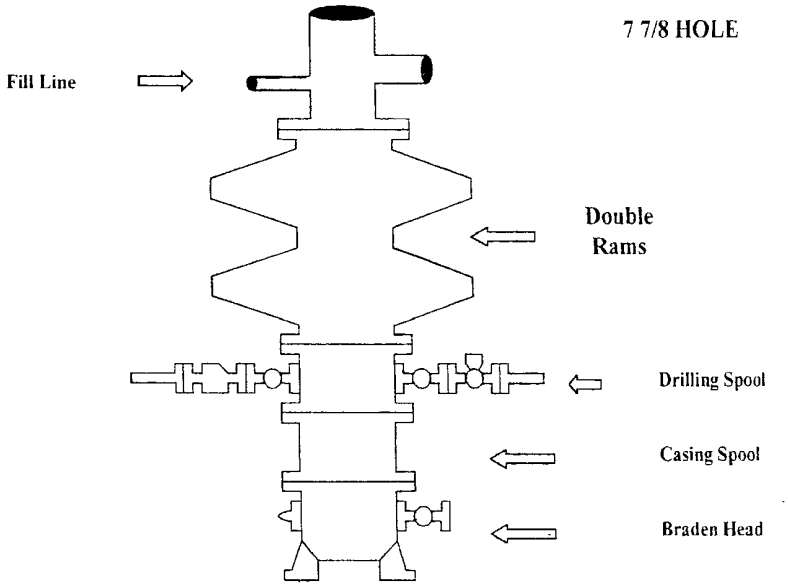
SHL	1195 FSL, 800 FEL	Sec 22, T17S, R32E, Unit P
BHL	990 FSL, 990 FEL	Sec 22, T17S, R32E, Unit P

COG Operating LLC, as Operator, desires that the APD reflect the footages as stated on the surveyor's plat. However, Operator also desires to avoid inadvertently drilling the well to a non-standard location. Therefore, due to the proximity of the plat bottom hole location to the pro-ration unit hard line(s), the attached directional plan is designed to avoid the hard lines by as much as fifty feet; said fifty feet being in either (or both) the north-south and/or east-west directions as applicable.

COG Operating LLC

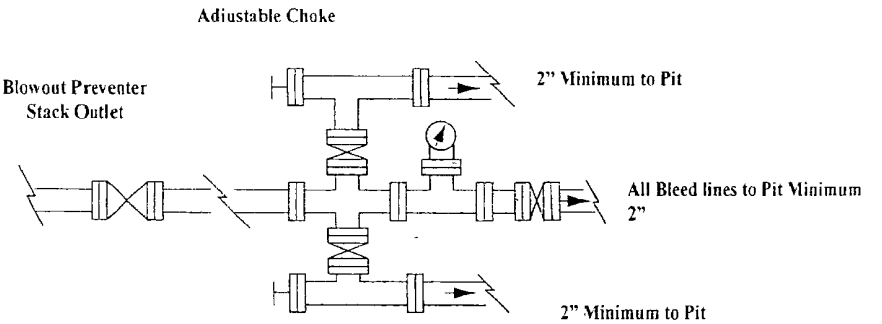
Exhibit #9

BOPE and Choke Schematic



Minimum 4" Nominal choke and kill lines

Choke Manifold Requirement (2000 psi WP)
No Annular Required



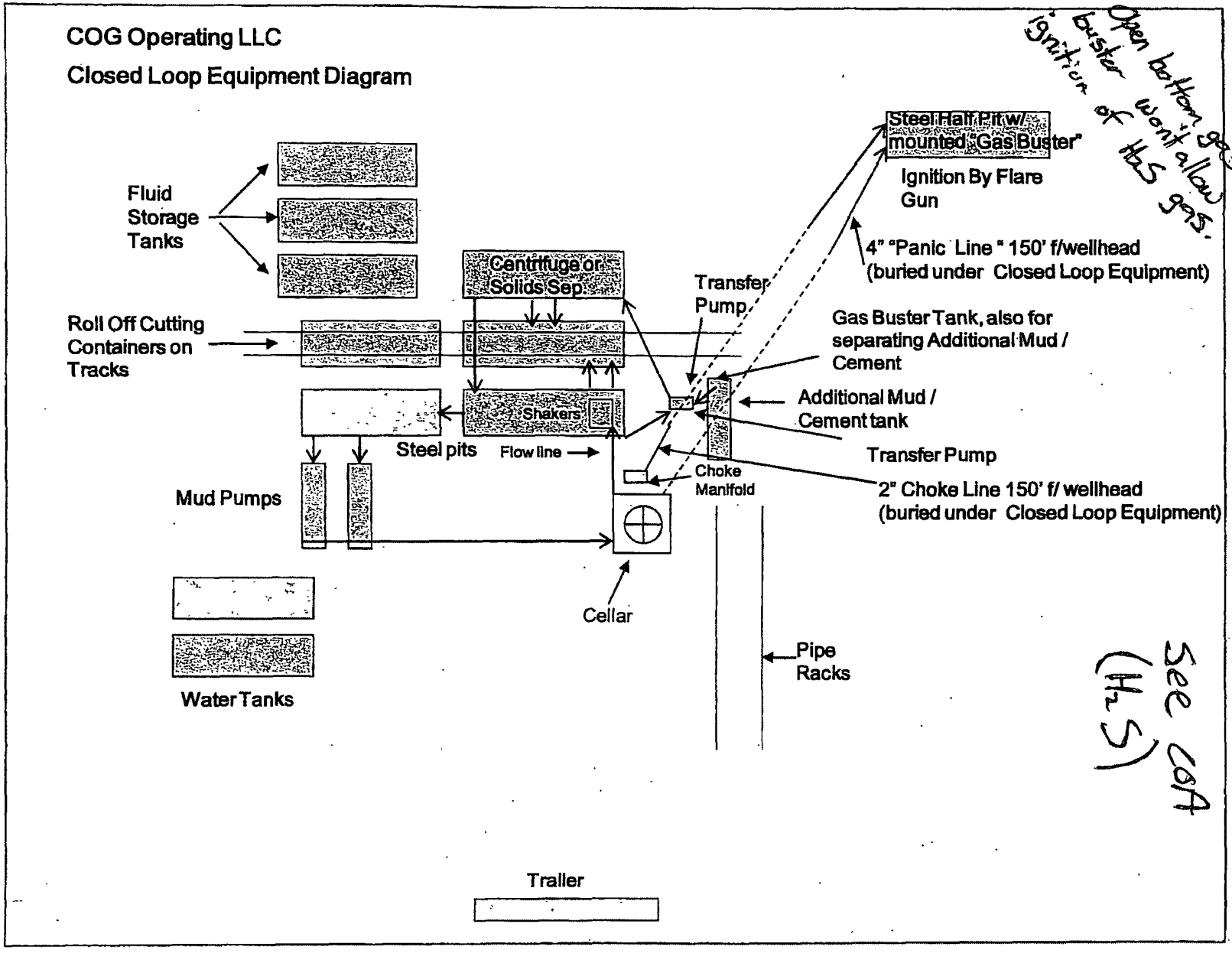
Adjustable Choke
(or Positive)

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



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.