

## OCD-ARTESIA

Form 3160-3  
(April 2004)UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

## APPLICATION FOR PERMIT TO DRILL OR REENTER

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

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. <b>NMNM-0467931</b>
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name N/A
2. Name of Operator <b>COG Operating LLC</b> (229137)		7. If Unit or CA Agreement, Name and No. N/A
3a. Address <b>550 W. Texas, Suite 1300 Midland TX 79701</b>	3b. Phone No. (include area code) <b>(432) 685-4385</b>	8. Lease Name and Well No. <b>Electra Federal #52</b> (302483)
4. Location of Well (Report location clearly and in accordance with any State requirements.)* At surface <b>2280' FNL &amp; 2491' FWL (Unit F)</b> At proposed prod. zone <b>NON-STANDARD LOCATION</b>		9. API Well No. <b>30-015- 38353</b>
14. Distance in miles and direction from nearest town or post office* <b>2 miles North of Loco Hills, NM</b>		10. Field and Pool, or Exploratory <b>Loco Hills; Glorieta Yeso</b> (96718)
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) <b>2280'</b>	16. No. of acres in lease <b>640</b>	11. Sec., T. R. M. or Blk. and Survey or Area <b>Sec 10, T17S, R30E</b>
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. <b>500'</b>	19. Proposed Depth <b>6150' VD</b> <b>6157' MD</b>	12. County or Parish <b>Eddy</b>
21. Elevations (Show whether DF, KDB, RT, GL, etc.) <b>3712' GL</b>	22. Approximate date work will start* <b>12/31/2010</b>	13. State <b>NM</b>
20. BLM/BIA Bond No. on file <b>NMB000215</b>		
23. Estimated duration <b>10 days</b>		

## 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.  | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).    |
| 2. A Drilling Plan.   | 5. 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). | 6. Such other site specific information and/or plans as may be required by the authorized officer. |

25. Signature 	Name (Printed Typed) <b>Robyn M. Odom</b>	Date <b>09/08/2010</b>
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Title  
**Regulatory Analyst**

Approved by (Signature) <b>/s/ Don Peterson</b>	Name (Printed Typed)	Date <b>DEC 7 2010</b>
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Title <b>FIELD MANAGER</b>	Office <b>CARLSBAD FIELD OFFICE</b>
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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.

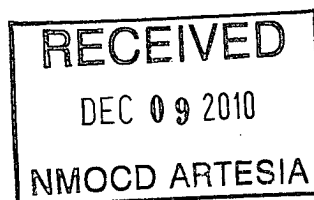
Conditions of approval, if any, are attached.

**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 AttachedSEE ATTACHED FOR  
CONDITIONS OF APPROVAL

**OCD-ARTESIA**  
UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

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

**SUNDRY NOTICES AND REPORTS ON WELLS**

*Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.*

**SUBMIT IN TRIPLICATE- Other instructions on reverse side.**

1. Type of Well <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other		5. Lease Serial No. <b>NMNM-0467931</b>
2. Name of Operator <b>COG Operating LLC</b>		6. If Indian, Allottee or Tribe Name <b>N/A</b>
3a. Address <b>550 W. Texas Ave., Suite 1300 Midland, TX 79701</b>	3b. Phone No. (include area code) <b>432-685-4385</b>	7. If Unit or CA/Agreement, Name and/or No. <b>N/A</b>
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) <b>2280 FNL &amp; 2491 FWL SEC. 10, T17S, R30E, UNIT F</b>		8. Well Name and No. <b>Electra Federal #52</b>
		9. API Well No. <b>30-015-</b>
		10. Field and Pool, or Exploratory Area <b>Loco Hills; Glorieta Yeso 96718</b>
		11. County or Parish, State <b>EDDY, NM</b>

**12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA**

TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input checked="" type="checkbox"/> Other <b>Add Bottom Hole</b>
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	<b>Location</b>
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

**COG permitted this well at this location:**

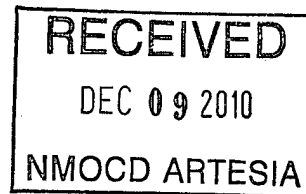
**2280 FNL & 2491 FWL SEC. 10, T17S, R30E, UNIT F**

**COG respectfully requests permission to move this location to:**

**SHL: 2280 FNL & 2491 FWL SEC. 10, T17S, R30E, UNIT F**

**BHL: 2310 FNL & 2310 FWL SEC. 10, T17S, R30E, UNIT F**

**A Revised C-102 and Directional Plan are attached for your review.**



14. I hereby certify that the foregoing is true and correct  
Name (Printed/Typed)

**Kelly J. Holly**

Title **Permitting Tech**

Signature

Date

**11/03/2010**

**THIS SPACE FOR FEDERAL OR STATE OFFICE USE**

Approved by

**/s/ Don Peterson**

Title **FIELD MANAGER**

Date

**DEC 7 2010**

Conditions of approval, if any, are attached. Approval of this notice 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.

Office **CARLSBAD FIELD OFFICE**

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)

## MASTER DRILLING PROGRAM

### 1. Geologic Name of Surface Formation

Quaternary

### 2. Estimated Tops of Important Geologic Markers:

Quaternary	Surface
Top of Salt	500'
Base of Salt	1000'
Yates	1180'
Seven Rivers	1470'
Queen	2070'
Grayburg	2480'
San Andres	2780'
Glorietta	4220'
Yeso Group	4300'

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

Water Sand	150'	Fresh Water
Grayburg	2480'	Oil/Gas
San Andres	2780'	Oil/Gas
Glorietta	4220'	Oil/Gas
Yeso Group	4300'	Oil/Gas

No other formations are expected to give up oil, gas or fresh water in measurable quantities. Setting 13 3/8" casing to 425' 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 1300' 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

Hole Size	Interval	OD Casing	Weight	Grade	Jt., Condition	Jt.	brst/clps/ten
17 1/2"	0-425'	13 3/8"	48#	H-40orJ-55	ST&C/New	ST&C	9.22/3.943/15.8
11"or <del>12 1/4"</del>	0-1300'	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

13 3/8" Surface Casing: Class C, 450 sx, yield 1.32, back to surface

8 5/8" Intermediate Casing:

##### 11" Hole:

**Single Stage:** 50:50:10, 300 sx lead, yield-2.45 + Class C, 200 sx tail, yield-1.32, back to surface.

**Multi-Stage:** Stage 1: Class C, 300 sx, yield-1.32 Stage 2: Class C, 200 sx, yield-2.45, back to surface. Multi stage tool to be set at approximately, depending on hole conditions, ~~425'~~ See CoA

5 1/2" Production Casing:

**Single Stage:** 35:65:6, 500 sx Lead, yield-2.05 + 50:50:2, 400 sx Tail, yield-1.37, to 200' minimum tie back to intermediate casing.

**Multi-Stage:** Stage 1: 50:50:2, 400 sx, - See CoA yield-1.37 Stage 2: 35:65:6, 500 sx, yield-2.05, to 200' minimum tie back to intermediate casing. Multi stage tool to be set at approximately, depending on hole conditions, TD - ~~2000'~~ See CoA

Operator to provide 100' range

**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. 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. The BOP will be nipped up on the 13 3/8" surface casing with BOP equipment and tested ~~together to 1000 psi by rig pump in one test.~~ <sup>See Co A</sup> The BOP will then be nipped 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. All BOP's and accessory equipment will be tested to 2000 psi before drilling out of the intermediate casing. 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.

**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
0-425'	Fresh Water	8.5	28	N.C.
425-1300'	Brine	10	30	N.C.
1300'-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 1/2" 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 hold pressure is 2300 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 12 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.



## **COG Operating LLC**

Eddy County, NM (NAN27 NME)

Electra Federal #52

Electra Federal #52

OH

Plan: Plan #1 - 7-7/8" Hole

SHL = 2280' FNL & 2491' FWL

BHL = 2300' FNL & 2300' FWL

Top of Paddock = 2300' FNL & 2300' FWL @ 4400' TVD

## **Standard Planning Report**

18 November, 2010





Scientific Drilling  
Planning Report



Database:	EDM-Julio	Local Co-ordinate Reference:	Site Electra Federal #52
Company:	COG Operating LLC	TVD Reference:	GL Elev. @ 3730.00usft
Project:	Eddy County, NM (NAN27 NME)	MD Reference:	GL Elev. @ 3730.00usft
Site:	Electra Federal #52	North Reference:	Grid
Well:	Electra Federal #52	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 - 7-7/8" Hole		

Project:	Eddy 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:	Electra Federal #52		
Site Position:		Northing:	673,105.00 usft
From:	Map	Easting:	614,730.30 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 50' 59.613 N
		Longitude:	103° 57' 35.076 W
		Grid Convergence:	0.20 °

Well:	Electra Federal #52		
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	Ground Level:
			3,712.00 usft

Wellbore:	OH		
Magnetics	Model Name	Sample Date	Declination
	IGRF2010	2010/11/18	7.88
			Dip Angle
			60.71
			Field Strength
			49,006

Design:	Plan #1 - 7-7/8" Hole		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth:
			0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			263.93

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	
1,450.00	0.00	0.00	1,450.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,649.76	4.00	263.93	1,649.60	-0.74	-6.92	2.00	2.00	0.00	263.93	
4,206.78	4.00	263.93	4,200.40	-19.56	-184.08	0.00	0.00	0.00	0.00	
4,406.54	0.00	0.00	4,400.00	-20.30	-191.00	2.00	-2.00	0.00	180.00	TG1-Electra #52
6,156.54	0.00	0.00	6,150.00	-20.30	-191.00	0.00	0.00	0.00	0.00	PBHL-Electra #52





Scientific Drilling  
Planning Report



Database: EDM-Julio  
Company: COG Operating LLC  
Project: Eddy County, NM (NAN27 NME)  
Site: Electra Federal #52  
Well: Electra Federal #52  
Wellbore: OH  
Design: Plan #1 - 7-7/8" Hole

Local Co-ordinate Reference:  
TVD Reference:  
MD Reference:  
North Reference:  
Survey Calculation Method:

Site Electra Federal #52  
GL Elev. @ 3730.00usft  
GL Elev. @ 3730.00usft  
Grid  
Minimum Curvature

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
1,350.00	0.00	0.00	1,350.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>8-5/8" Casing</b>									
1,450.00	0.00	0.00	1,450.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>KOP Start Build 2.00°/100'</b>									
1,500.00	1.00	263.93	1,500.00	-0.05	-0.43	0.44	2.00	2.00	0.00
1,600.00	3.00	263.93	1,599.93	-0.41	-3.90	3.93	2.00	2.00	0.00
1,649.76	4.00	263.93	1,649.60	-0.74	-6.92	6.96	2.00	2.00	0.00
<b>EOC hold 4.00°</b>									
1,700.00	4.00	263.93	1,699.72	-1.11	-10.40	10.46	0.00	0.00	0.00
1,800.00	4.00	263.93	1,799.47	-1.84	-17.33	17.43	0.00	0.00	0.00
1,900.00	4.00	263.93	1,899.23	-2.58	-24.26	24.40	0.00	0.00	0.00
2,000.00	4.00	263.93	1,998.99	-3.31	-31.19	31.36	0.00	0.00	0.00
2,100.00	4.00	263.93	2,098.74	-4.05	-38.12	38.33	0.00	0.00	0.00
2,200.00	4.00	263.93	2,198.50	-4.79	-45.04	45.30	0.00	0.00	0.00
2,300.00	4.00	263.93	2,298.26	-5.52	-51.97	52.27	0.00	0.00	0.00
2,400.00	4.00	263.93	2,398.02	-6.26	-58.90	59.23	0.00	0.00	0.00
2,500.00	4.00	263.93	2,497.77	-7.00	-65.83	66.20	0.00	0.00	0.00
2,600.00	4.00	263.93	2,597.53	-7.73	-72.76	73.17	0.00	0.00	0.00
2,700.00	4.00	263.93	2,697.29	-8.47	-79.69	80.13	0.00	0.00	0.00
2,800.00	4.00	263.93	2,797.04	-9.21	-86.61	87.10	0.00	0.00	0.00
2,900.00	4.00	263.93	2,896.80	-9.94	-93.54	94.07	0.00	0.00	0.00
3,000.00	4.00	263.93	2,996.56	-10.68	-100.47	101.04	0.00	0.00	0.00
3,100.00	4.00	263.93	3,096.31	-11.41	-107.40	108.00	0.00	0.00	0.00
3,200.00	4.00	263.93	3,196.07	-12.15	-114.33	114.97	0.00	0.00	0.00
3,300.00	4.00	263.93	3,295.83	-12.89	-121.25	121.94	0.00	0.00	0.00
3,400.00	4.00	263.93	3,395.59	-13.62	-128.18	128.90	0.00	0.00	0.00
3,500.00	4.00	263.93	3,495.34	-14.36	-135.11	135.87	0.00	0.00	0.00
3,600.00	4.00	263.93	3,595.10	-15.10	-142.04	142.84	0.00	0.00	0.00
3,700.00	4.00	263.93	3,694.86	-15.83	-148.97	149.81	0.00	0.00	0.00
3,800.00	4.00	263.93	3,794.61	-16.57	-155.90	156.77	0.00	0.00	0.00
3,900.00	4.00	263.93	3,894.37	-17.31	-162.82	163.74	0.00	0.00	0.00
4,000.00	4.00	263.93	3,994.13	-18.04	-169.75	170.71	0.00	0.00	0.00
4,100.00	4.00	263.93	4,093.88	-18.78	-176.68	177.67	0.00	0.00	0.00
4,200.00	4.00	263.93	4,193.64	-19.51	-183.61	184.64	0.00	0.00	0.00
4,206.78	4.00	263.93	4,200.40	-19.56	-184.08	185.11	0.00	0.00	0.00
<b>Start Drop 2.00°/100'</b>									
4,300.00	2.13	263.93	4,293.49	-20.09	-189.03	190.09	2.00	-2.00	0.00
4,400.00	0.13	263.93	4,393.46	-20.30	-190.99	192.07	2.00	-2.00	0.00
4,406.54	0.00	0.00	4,400.00	-20.30	-191.00	192.08	2.00	-2.00	1,469.51
<b>EOC hold 0.00° - TG1-Electra #52</b>									
6,156.54	0.00	0.00	6,150.00	-20.30	-191.00	192.08	0.00	0.00	0.00
<b>PBHL-Electra #52</b>									



Scientific Drilling  
Planning Report



Database:	EDM-Julio	Local Co-ordinate Reference:	Site Electra Federal #52
Company:	COG Operating LLC	TVD Reference:	GL Elev. @ 3730.00usft
Project:	Eddy County, NM (NAN27 NME)	MD Reference:	GL Elev. @ 3730.00usft
Site:	Electra Federal #52	North Reference:	Grid
Well:	Electra Federal #52	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 - 7-7/8" Hole		

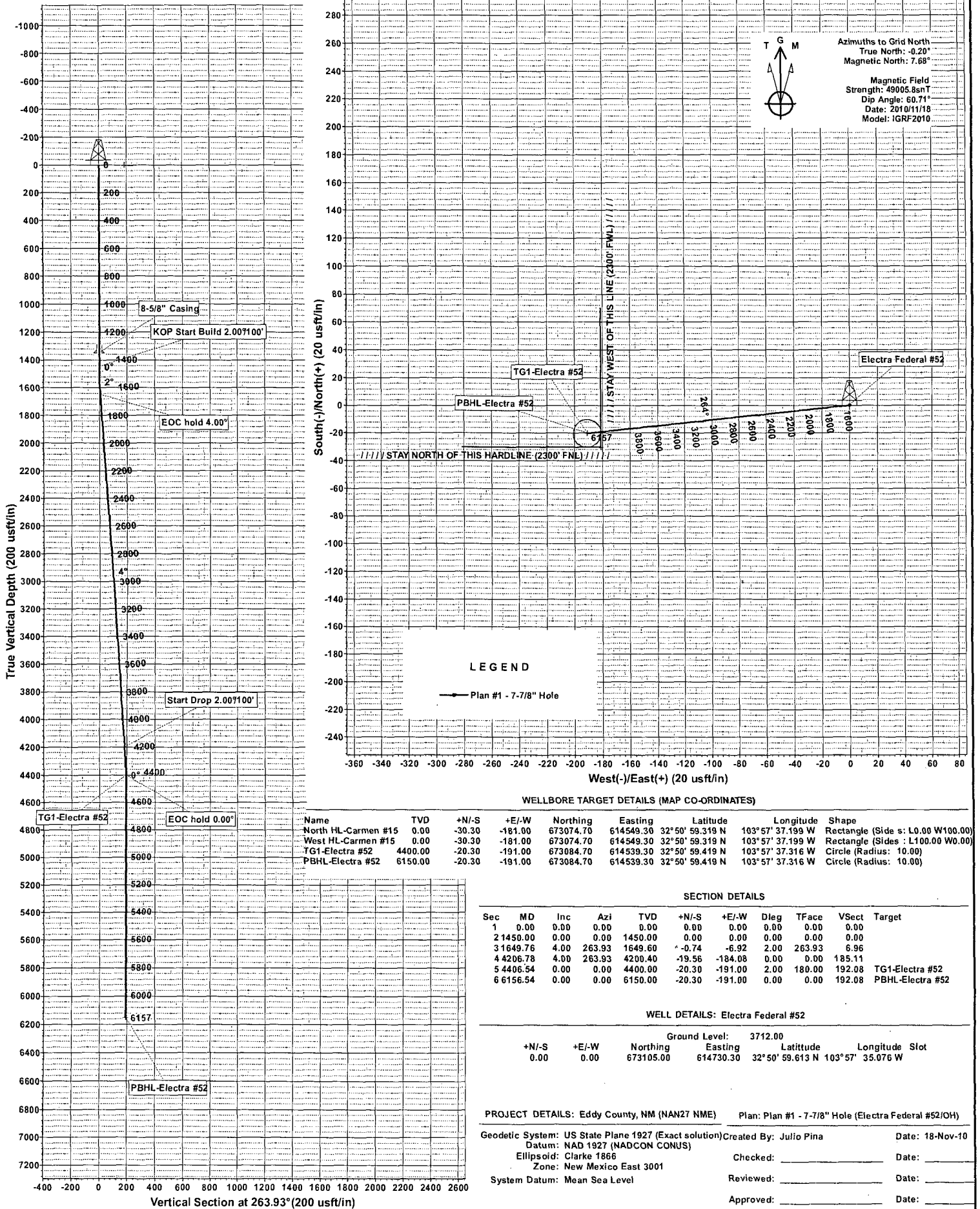
Design Targets									
Target Name	hit/miss target	Dip Angle	Dip Dir	TVD	+N/-S	+E/-W	Northing	Easting	
	Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)	Latitude Longitude
North HL-Carmen #15		0.00	0.00	0.00	-30.30	-181.00	673,074.70	614,549.30	32° 50' 59.319 N 103° 57' 37.199 W
- plan misses target center by 183.52usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Rectangle (sides W100.00 H0.00 D0.00)									
West HL-Carmen #15		0.00	0.00	0.00	-30.30	-181.00	673,074.70	614,549.30	32° 50' 59.319 N 103° 57' 37.199 W
- plan misses target center by 183.52usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Rectangle (sides W0.00 H100.00 D0.00)									
TG1-Electra #52		0.00	0.00	4,400.00	-20.30	-191.00	673,084.70	614,539.30	32° 50' 59.419 N 103° 57' 37.316 W
- plan hits target center									
- Circle (radius 10.00)									
PBHL-Electra #52		0.00	0.00	6,150.00	-20.30	-191.00	673,084.70	614,539.30	32° 50' 59.419 N 103° 57' 37.316 W
- plan hits target center									
- Circle (radius 10.00)									

Casing Points				
Measured Depth	Vertical Depth		Casing Diameter	Hole Diameter
(usft)	(usft)	Name	(")	(")
1,350.00	1,350.00	8-5/8" Casing	8-5/8	12-1/4

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	
1,450.00	1,450.00	0.00	0.00	KOP Start Build 2.00°/100'
1,649.76	1,649.60	-0.74	-6.92	EOC hold 4.00°
4,206.78	4,200.40	-19.56	-184.08	Start Drop 2.00°/100'
4,406.54	4,400.00	-20.30	-191.00	EOC hold 0.00°



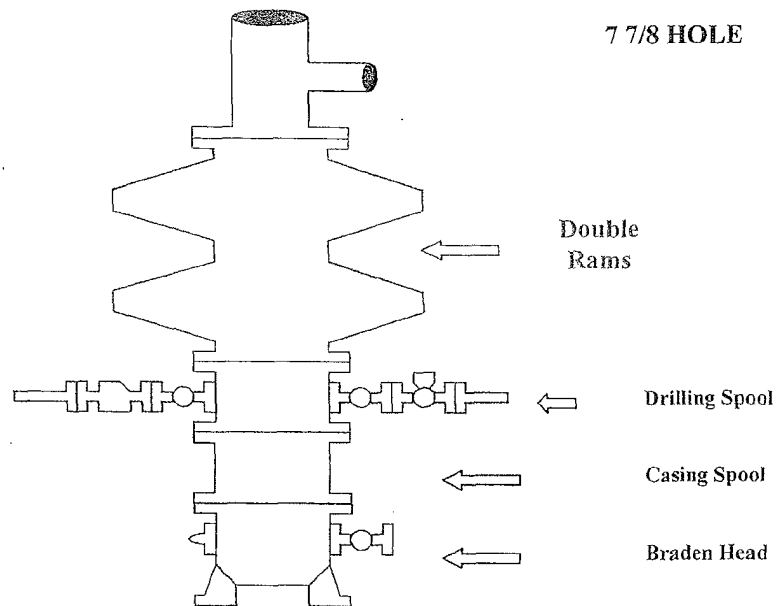
Scientific Drilling for COG Operating LLC  
Site: Eddy County, NM (NAN27 NME)  
Well: Electra Federal #52  
Wellbore: OH  
Design: Plan #1 - 7-7/8" Hole



# COG Operating LLC

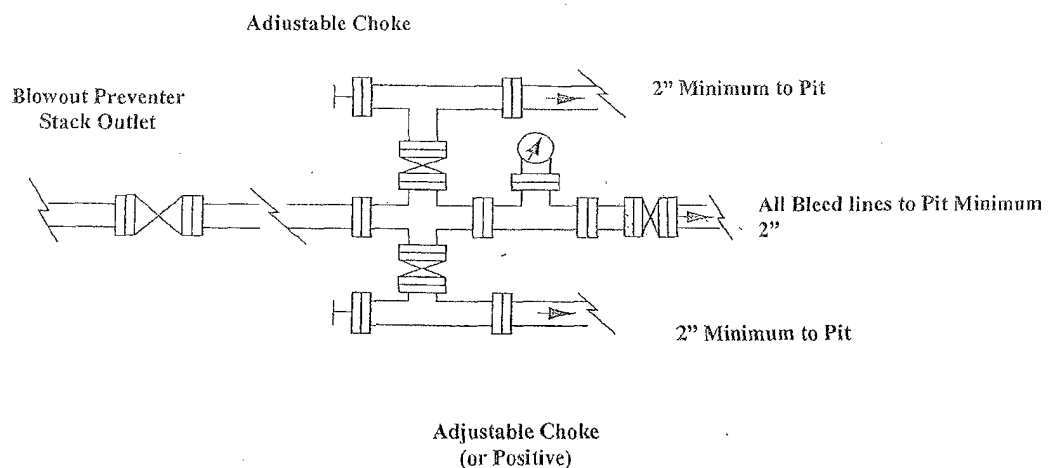
## Exhibit #9

### BOPE and Choke Schematic



Minimum 4" Nominal choke and kill lines

Choke Manifold Requirement (2000 psi WP)  
No Annular Required



**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.