

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 ☒ DRILL ☐ REENTER		5 Lease Serial No NMNM-094593
1b Type of Well ☒ Oil Well ☐ Gas Well ☐ Other ☐ Single Zone ☒ Multiple Zone		6 If Indian, Allottee or Tribe Name N/A
2 Name of Operator COG Operating LLC		7 If Unit or CA Agreement, Name and No N/A
3a Address 550 W. Texas, Suite 100 Midland TX 79701		8 Lease Name and Well No Fir Federal #2 [302494]
3b Phone No. (include area code) (432) 685-4384		9 API Well No 30-015-39465
4 Location of Well (Report location clearly and in accordance with any State requirements*) At surface 2430' FSL & 900' FWL, UL L At proposed prod zone		10 Field and Pool, or Exploratory Red Lake; Glorieta-Yeso, Northeast [96836]
11 Sec, T R M or Blk and Survey or Area Sec 25, T17S, R27E		
12 County or Parish Eddy		13 State NM
14 Distance in miles and direction from nearest town or post office* 2 miles North of Loco Hills, NM	15 Distance from proposed* location to nearest property or lease line, ft (Also to nearest drg unit line, if any) 900'	16 No. of acres in lease 40
17 Spacing Unit dedicated to this well 40	18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft 150'	19 Proposed Depth 4700' ✓
20 BLM/BIA Bond No on file NMB000740; NMB000215	21 Elevations (Show whether DF, KDB, RT, GL, etc) 3581' GL ✓	22 Approximate date work will start* 09/30/2011
23 Estimated duration 15 days		

UNORTHODOX
LOCATION

RECEIVED
SEP 26 2011
NMCD ARTESIA

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) Kelly J. Holly	Date 06/20/2011
Title Permitting Tech		

Approved by (Signature) James A. Amos	Name (Printed/Typed) James A. Amos	Date SEP 21 2011
Title 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 USC Section 1001 and Title 43 USC 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

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

APPROVAL SUBJECT TO
GENERAL REQUIREMENTS
AND SPECIAL STIPULATIONS
ATTACHED

DRILLING PROGRAM

1. Geologic Name of Surface Formation

Quaternary

2. Estimated Tops of Important Geologic Markers:

Quaternary	Surface
Top of Salt	0'
Base of Salt	100'
Yates	250'
Seven Rivers	450'
Queen	950'
Grayburg	1400'
San Andres	1750'
Glorieta	3100'
Yeso Group	3200'
Tubb	4600'

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

Water Sand	150'	Fresh Water
Grayburg	1400'	Oil/Gas
San Andres	1750'	Oil/Gas
Glorieta	3100'	Oil/Gas
Yeso Group	3200'	Oil/Gas
Tubb	4600'	Oil/Gas

See
COA

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 1000' 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 (although cement volume is actually 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

See
COA

4. Casing Program

See COA

Hole Size	Interval	OD Casing	Weight	Grade	Jt., Condition	Jt.	brst/clps/ten
17 1/2"	0- 200 0'	13 3/8"	48#	H-40orJ-55	ST&C/New	ST&C	9.22/3.943/15.8
11"	0-1000'	8 5/8"	24or32#	J-55orK-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 w/ 2% CaCl₂ + 0.25 pps CF, 350 sx, yield 1.32, back to surface. 122% excess

8 5/8" Intermediate Casing:

11" Hole:

Single Stage: 50:50:10 C:Poz:Gel w/ 5% Salt +0.25% CF, 200 sx lead, yield-2.45 + Class C, 200 sx tail, yield-1.32, back to surface. 197% 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, ~~30~~ (50' below the surface casing). Cement volumes will be adjusted proportionately for depth changes of multi stage tool.

See COA

5 1/2" Production Casing:

Single Stage: LEAD 400 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. 52% open hole

excess, cement calculated back to surface (no need for excess in casing overlap).

Multi-Stage: Stage 1: (Assumed TD of 4800' to DV at 2500') 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, 56% excess; **this is a minimum volume and will be adjusted up after caliper is run.** 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 88% excess calculated back to surface (no need for excess in casing overlap). 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 use of tool is water flow.

See
COA
High cave/karst

See
COA

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 nipped 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 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. 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

*See
COA

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:

*
See
COA

Use Fresh Water Mud to 1000'

DEPTH	TYPE	WEIGHT	VISCOSITY	WATERLOSS
0-300'	Fresh Water	8.5	28	N.C.
300-1000'	Brine	10	30	N.C.
1000'-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 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 temperature at TD is 100 degrees and the estimated maximum bottom hole pressure is 1900 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 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.



COG Operating LLC

Eddy County, NM (NAN27 NME)

Fir Federal #2

Fir Federal #2

OH

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

SHL = 2430' FSL & 900' FWL

BHL = 2260' FSL & 980' FWL

Paddock Top = 2260' FSL & 980' FWL @ 3200' TVD

Standard Planning Report

23 August, 2011

Bureau of Land Management
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AUG 29 2011

Carlsbad Field Office
Carlsbad, NM



Scientific Drilling
Directional Drilling Operations



Scientific Drilling
Planning Report



Database	EDM-Julio	Local Co-ordinate Reference	Site Fir Federal #2
Company	CQG Operating LLC	TVD Reference	GL Elev @ 3581 00usft
Project	Eddy County, NM (NAN27 NME)	MD Reference	GL Elev @ 3581 00usft
Site	Fir Federal #2	North Reference	Grid
Well	Fir Federal #2	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	Fir Federal #2		
Site Position	Map	Northing	656,381 80 usft
From		Easting	529,480 30 usft
Position Uncertainty	0 00 usft	Slot Radius	13-3/16 "
		Latitude	32° 48' 16 005 N
		Longitude	104° 14' 14 593 W
		Grid Convergence	0 05 °

Well	Fir Federal #2		
Well Position	+N/-S	0 00 usft	Northing: 656,381 80 usft
	+E/-W	0 00 usft	Easting: 529,480 30 usft
Position Uncertainty	0 00 usft	Wellhead Elevation	Ground Level: 3,581 00 usft

Wellbore	OH		
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Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
	IGRF2010	2011/08/23	(°) 7 91	(°) 60 60	(nT) 48,871

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 (°) 154 81

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	
950 00	0 00	0 00	950 00	0 00	0 00	0 00	0 00	0 00	0 00	
1,222 49	5 45	154 81	1,222 08	-11 72	5 51	2 00	2 00	0 00	154 81	
2,936 08	5 45	154 81	2,927 92	-158 98	74 79	0 00	0 00	0 00	0 00	
3,208 57	0 00	0 00	3,200 00	-170 70	80 30	2 00	-2 00	0 00	180 00	TG1-Fir Fed #2
4,708 57	0 00	0 00	4,700 00	-170 70	80 30	0 00	0 00	0 00	0 00	PBHL-Fir Fed #2



Scientific Drilling Planning Report



Database EDM-Julio
Company COG Operating LLC
Project Eddy County, NM (NAN27 NME)
Site Fir Federal #2
Well Fir Federal #2
Wellbore OH
Design Plan #1 7-7/8" Hole

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

Site Fir Federal #2
GL Elev @ 3581'00usft
GL Elev @ 3581'00usft
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
North HL-Fir Fed #2 - West HL-Fir Fed #2									
850 00	0 00	0 00	850 00	0 00	0 00	0 00	0 00	0 00	0 00
8-5/8" Casing									
950 00	0 00	0 00	950 00	0 00	0 00	0 00	0 00	0 00	0 00
KOP Start Build 2.00°/100'									
1,000 00	1 00	154 81	1,000 00	-0 39	0 19	0 44	2 00	2 00	0 00
1,100 00	3 00	154 81	1,099 93	-3 55	1 67	3 93	2 00	2 00	0 00
1,200 00	5 00	154 81	1,199 68	-9 86	4 64	10 90	2 00	2 00	0 00
1,222 49	5 45	154 81	1,222 08	-11 72	5 51	12 95	2 00	2 00	0 00
EOC hold 4 45°									
1,300 00	5 45	154 81	1,299 24	-18 38	8 65	20 31	0 00	0 00	0 00
1,400 00	5 45	154 81	1,398 79	-26 97	12 69	29 81	0 00	0 00	0 00
1,500 00	5 45	154 81	1,498 33	-35 57	16 73	39 31	0 00	0 00	0 00
1,600 00	5 45	154 81	1,597 88	-44 16	20 77	48 80	0 00	0 00	0 00
1,700 00	5 45	154 81	1,697 43	-52 75	24 82	58 30	0 00	0 00	0 00
1,800 00	5 45	154 81	1,796 98	-61 35	28 86	67 80	0 00	0 00	0 00
1,900 00	5 45	154 81	1,896 53	-69 94	32 90	77 29	0 00	0 00	0 00
2,000 00	5 45	154 81	1,996 07	-78 54	36 94	86 79	0 00	0 00	0 00
2,100 00	5 45	154 81	2,095 62	-87 13	40 99	96 29	0 00	0 00	0 00
2,200 00	5 45	154 81	2,195 17	-95 72	45 03	105 79	0 00	0 00	0 00
2,300 00	5 45	154 81	2,294 72	-104 32	49 07	115 28	0 00	0 00	0 00
2,400 00	5 45	154 81	2,394 27	-112 91	53 12	124 78	0 00	0 00	0 00
2,500 00	5 45	154 81	2,493 81	-121 51	57 16	134 28	0 00	0 00	0 00
2,600 00	5 45	154 81	2,593 36	-130 10	61 20	143 78	0 00	0 00	0 00
2,700 00	5 45	154 81	2,692 91	-138 69	65 24	153 27	0 00	0 00	0 00
2,800 00	5 45	154 81	2,792 46	-147 29	69 29	162 77	0 00	0 00	0 00
2,900 00	5 45	154 81	2,892 01	-155 88	73 33	172 27	0 00	0 00	0 00
2,936 08	5 45	154 81	2,927 92	-158 98	74 79	175 69	0 00	0 00	0 00
Start Drop 2 00°/100'									
3,000 00	4 17	154 81	2,991 62	-163 83	77 07	181 06	2 00	-2 00	0 00
3,100 00	2 17	154 81	3,091 46	-168 84	79 42	186 59	2 00	-2 00	0 00
3,200 00	0 17	154 81	3,191 43	-170 69	80 29	188 63	2 00	-2 00	0 00
3,208 57	0 00	0 00	3,200 00	-170 70	80 30	188 64	2 00	-2 00	0 00
EOC hold 0.00° - Top of Paddock - TG1-Fir Fed #2									
4,708 57	0 00	0 00	4,700 00	-170 70	80 30	188 64	0 00	0 00	0 00
PBHL-Fir Fed #2									



Scientific Drilling Planning Report



Database:	EDM-Julio	Local Co-ordinate Reference:	Site Fir Federal #2
Company:	COG Operating LLC	TVD Reference:	GL Elev @ 3581 00usft
Project:	Eddy County, NM (NAN27 NME)	MD Reference:	GL Elev @ 3581 00usft
Site:	Fir Federal #2	North Reference:	Grid
Well:	Fir Federal #2	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 (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
North HL-Fir Fed #2		0 00	0 00	0 00	-120 70	90 30	656,261 10	529,570 60	32° 48' 14 810 N	104° 14' 13 536 W
- plan misses target center by 150 74usft at 0 00usft MD (0 00 TVD, 0 00 N, 0 00 E)										
- Rectangle (sides W100 00 H0 00 D0 00)										
West HL-Fir Fed #2		0 00	0 00	0 00	-120 70	90 30	656,261 10	529,570 60	32° 48' 14 810 N	104° 14' 13 536 W
- plan misses target center by 150 74usft at 0 00usft MD (0 00 TVD, 0 00 N, 0 00 E)										
- Rectangle (sides W0 00 H150 00 D0 00)										
TG1-Fir Fed #2		0 00	0 00	3,200 00	-170 70	80 30	656,211 10	529,560 60	32° 48' 14 315 N	104° 14' 13 654 W
- plan hits target center										
- Circle (radius 0 00)										
PBHL-Fir Fed #2		0 00	0 01	4,700 00	-170 70	80 30	656,211 10	529,560 60	32° 48' 14 315 N	104° 14' 13 654 W
- plan hits target center										
- Circle (radius 50 00)										

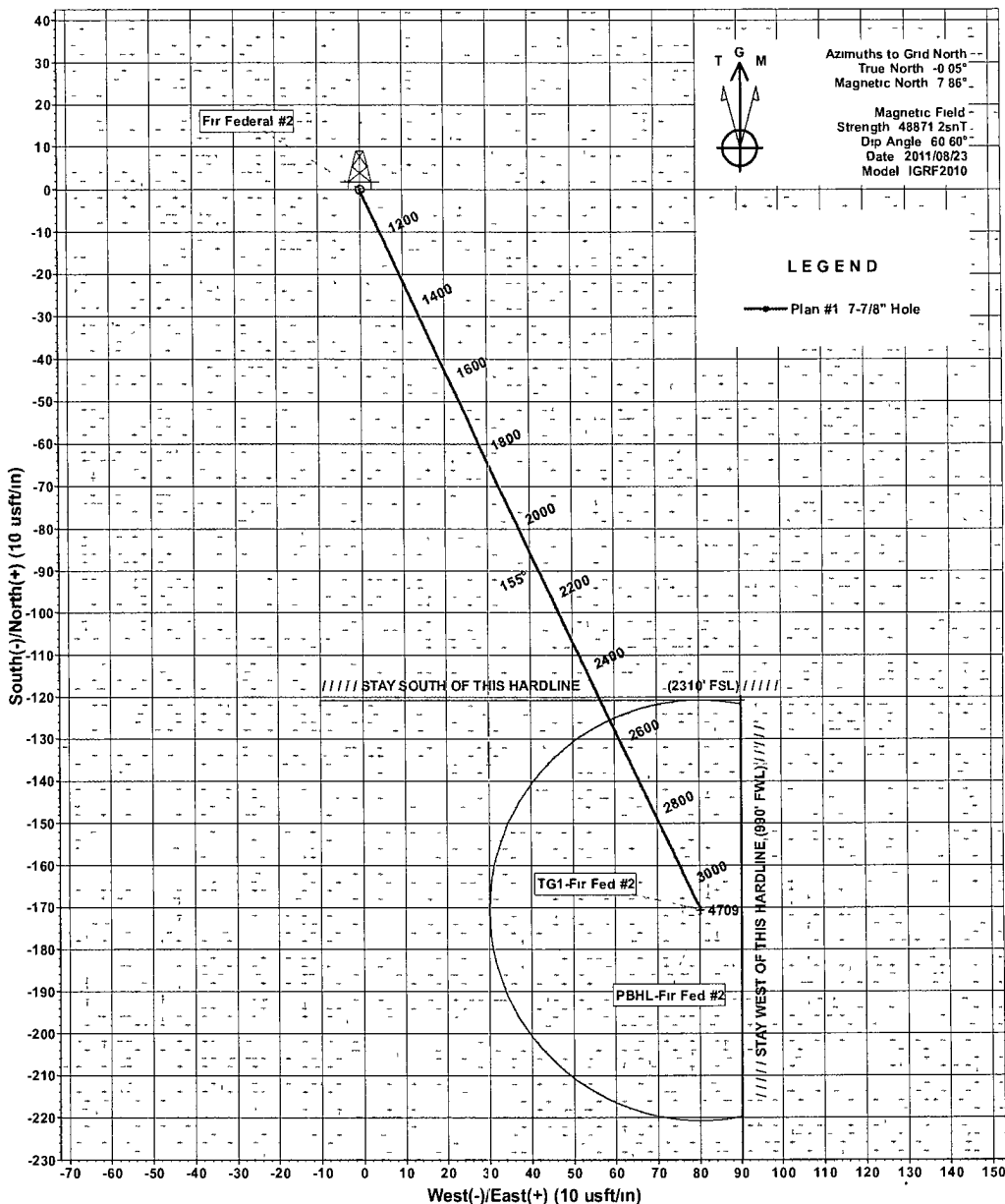
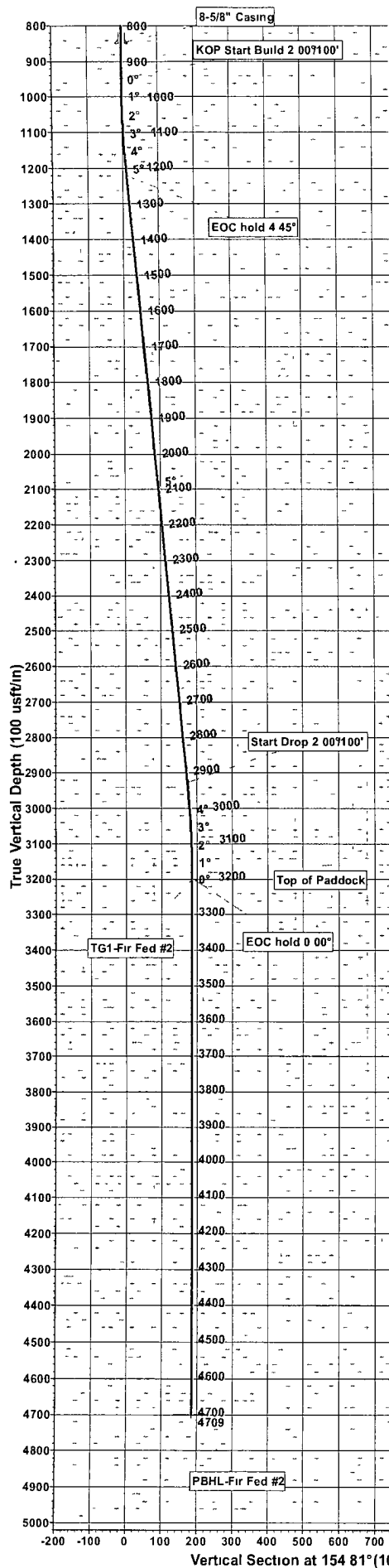
Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
850 00	850 00	8-5/8" Casing	8-5/8	12-1/4	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,208 57	3,200 00	Top of Paddock		0 00	

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
950 00	950 00	0 00	0 00	KOP Start Build 2 00°/100'	
1,222 49	1,222 08	-11 72	5 51	EOC hold 4 45°	
2,936 08	2,927 92	-158 98	74 79	Start Drop 2 00°/100'	
3,208 57	3,200 00	-170 70	80 30	EOC hold 0 00°	



Scientific Drilling for COG Operating LLC
Site: Eddy County, NM (NAN27 NME)
Well: Fir Federal #2
Wellbore: OH
Design: Plan #1 7-7/8" Hole



WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
North HL-Fir Fed #2	0 00	-120 70	90 30	656261 10	529579 60	32°48' 14 810 N	104°14' 13 536 W	Rectangle (Sides L0 00 W100 00)
West HL-Fir Fed #2	0 00	-120 70	90 30	656261 10	529579 60	32°48' 14 810 N	104°14' 13 536 W	Rectangle (Sides L150 00 W0 00)
TG1-Fir Fed #2	3200 00	-170 70	80 30	656211 10	529569 60	32°48' 14 315 N	104°14' 13 654 W	Circle (Radius 0 00)
PBHL-Fir Fed #2	4700 00	-170 70	80 30	656211 10	529569 60	32°48' 14 315 N	104°14' 13 654 W	Circle (Radius 5 000)

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	950 00	0 00	0 00	950 00	0 00	0 00	0 00	0 00	0 00	
3	1222 49	5 45	154 81	1222 08	-11 72	5 51	2 00	154 81	12 95	
4	2936 08	5 45	154 81	2927 92	-158 98	74 79	0 00	0 00	175 69	
5	3208 57	0 00	0 00	3200 00	-170 70	80 30	2 00	180 00	188 64	TG1-Fir Fed #2
6	4708 57	0 00	0 00	4700 00	-170 70	80 30	0 00	0 00	188 64	PBHL-Fir Fed #2

WELL DETAILS Fir Federal #2

+N/-S	+E/-W	Northing	Easting	Ground Level	Latitude	Longitude	Slot
0 00	0 00	656381 80	529480 30	3581 00	32°48' 16 005 N	104°14' 14 593 W	

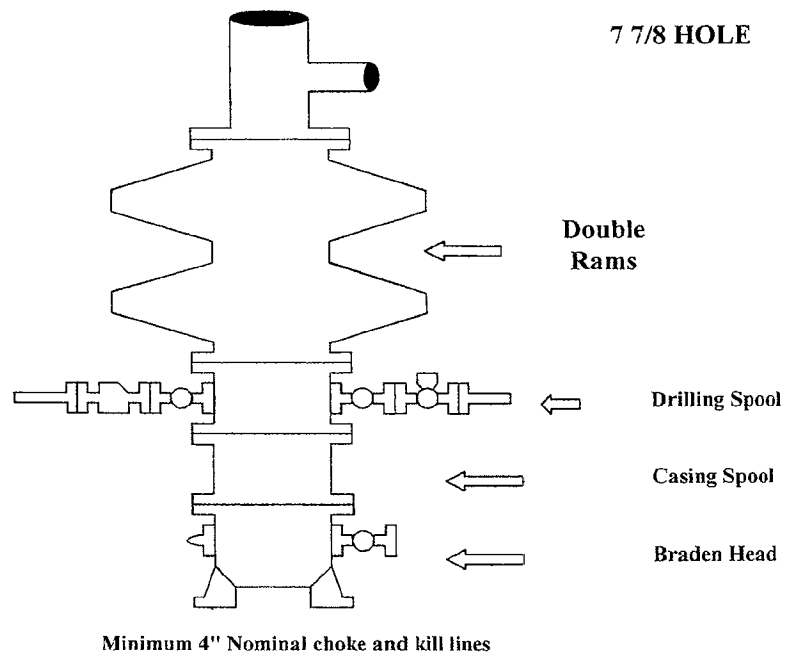
PROJECT DETAILS Eddy County, NM (NAN27 NME) Plan Plan #1 7-7/8" Hole (Fir Federal #2/OH)

Geodetic System	US State Plane 1927 (Exact solution)	Created By	Julio Pina	Date	23-Aug-11
Datum	NAD 1927 (NADCON CONUS)	Checked		Date	
Ellipsoid	Clarke 1866	Reviewed		Date	
Zone	New Mexico East 3001	Approved		Date	
System Datum	Mean Sea Level				

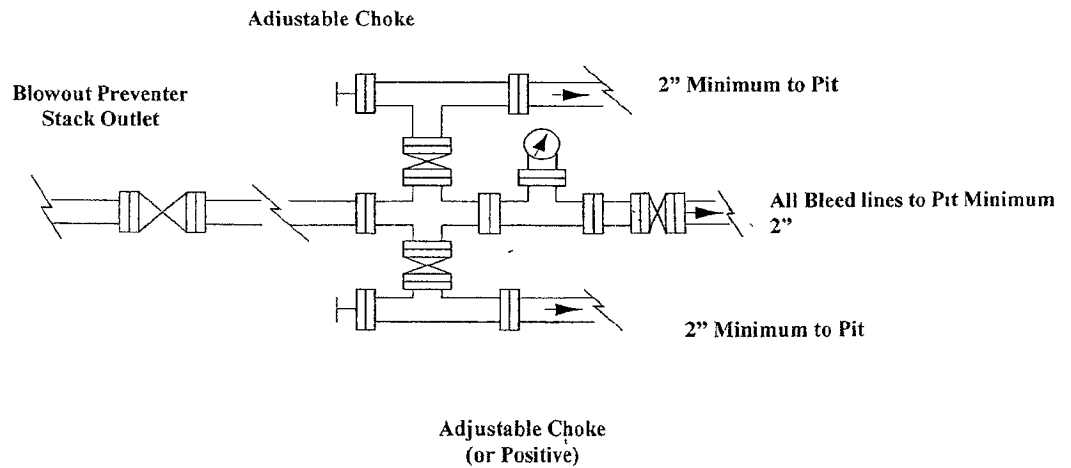
COG Operating LLC

Exhibit #9

BOPE and Choke Schematic



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.

DISTRICT 2 CHECKLIST FOR INTENTS TO DRILL

Operator COG-OP2 OGRID # 229134
 Well Name & # FIR FEDERAL # # 2H Surface Type (F) (S) (P)
 Location: UL 25, Sect 25, Township 17 s, RNG 27 e, Sub-surface Type (F) (S) (P)

A. Date C101 rec'd 9/26/2011 C101 reviewed 9/29/2011

B. 1. Check mark, Information is OK on Forms:

OGRID ☒ BONDING ☒ PROP CODE ☒ WELL # 2H SIGNATURE 8
 2. Inactive Well list as of: 9/29/2011 # wells 3023, # Inactive wells 8

a. District Grant APD but see number of inactive wells:

No letter required ☒; Sent Letter to Operator , to Santa Fe

3. Additional Bonding as of: / /

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 , NO , Signature

1. Pool RED LAKE; G. TORIOTA - 1000; NE, Code 96836

a. Dedicated acreage 40, What Units L

b. SUR. Location Standard : Non-Standard Location ☒

c. Well shares acres: Yes , No ☒ # of wells plus this well #

2. 2nd. 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

a. Pool #2 , Code , Acres

Pool #3 , Code , Acres

Pool #4 , Code , Acres

5. POTASH Area Yes , No

D. Blowout Preventer Yes ☒ 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 #

5. SWD order Yes , NO ☒; SWD #

6. DHC from SF ; DHC-HOB ; Holding

7. OCD Approval Date 9/29/2011

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8. Reviewers 103