

Form 3160-3
(April 2004)FORM APPROVED
OMB No 1004-0137
Expires March 31, 2007UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMNM-096836
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 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. Spruce Federal #4 [302565]
3b. Phone No. (include area code) [229137] (432) 685-4384		9. API Well No. 30-015-39464
4. Location of Well (Report location clearly and in accordance with any State requirements *) At surface 2460' FSL & 1650' FWL, UL K At proposed prod zone BH 2310' FSL & 1650' FWL		10. Field and Pool, or Exploratory Red Lake; Glorieta-Yeso, Northeast [86886]
14. Distance in miles and direction from nearest town or post office* 2 miles North of Loco Hills, NM		11. Sec., T, R, M or Blk. and Survey or Area Sec 25, T17S, R27E
15. Distance from proposed* location to nearest property or lease line, ft (Also to nearest drig unit line, if any) 1650'	16. No. of acres in lease 40	12. County or Parish Eddy
17. Spacing Unit dedicated to this well 40	18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft 500'	13. State NM
19. Proposed Depth MD 4206 TKD 4700	20. BLM/BIA Bond No. on file NMB000740; NMB000215	
21. Elevations (Show whether DF, KDB, RT, GL, etc) 3578' GL	22. Approximate date work will start* 07/30/2011	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 | 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) /s/ Don Peterson	Name (Printed/Typed)	Date SEP 22 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 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)

Witness Surface &
Intermediate Casing

ROSWELL CONTROLLED WATER BASIN

SEE ATTACHED FOR
CONDITIONS OF APPROVALAPPROVAL 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

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

See
COA

4. Casing Program

See COA

Hole Size	Interval	OD Casing	Weight	Grade	Jt., Condition	Jt.	brst/clps/ten
17 1/2"	0-300'	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, 350' (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

See COA

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

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 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:

** Use Fresh Water Mud to 1000'*

See COA

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.

** See COA*
9. Logging, Testing and Coring Program

- 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 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)

Spruce Federal #4

Spruce Federal #4

OH

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

SHL = 2460' FSL & 1650' FWL

BHL = 2300' FSL & 1660' FWL

Top of Paddock = 2300' FSL & 1660' FWL @ 3200' TVD

Standard Planning Report

24 August, 2011

Bureau of Land Management
RECEIVED

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 Spruce Federal #4
Company:	COG Operating LLC	TVD Reference:	GL Elev @ 3578 00usft
Project:	Eddy County, NM (NAN27 NME)	MD Reference:	GL Elev @ 3578 00usft
Site:	Spruce Federal #4	North Reference:	Grid
Well:	Spruce Federal #4	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:	Spruce Federal #4		
Site Position:		Northing:	656,406.10 usft
From:	Map	Easting:	530,230.20 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"
		Latitude:	32° 48' 16.239 N
		Longitude:	104° 14' 5.806 W
		Grid Convergence:	0.05 °

Well:	Spruce Federal #4		
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	Ground Level:
			3,578.00 usft

Wellbore:	OH		
Magnetics:	Model Name	Sample Date	Declination
	IGRF2010	2011/08/24	7.91
			Dip Angle
			60.60
			Field Strength
			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
			(°)
			176.35

Plan Sections										
Measured	Inclination	Azimuth	Vertical	N/S	E/W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(usft)	(usft)	Rate	Rate	Rate	(°)	
(usft)			(usft)			(%/100usft)	(%/100usft)	(%/100usft)		
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	
1,176.37	4.53	176.35	1,176.13	-8.92	0.57	2.00	2.00	0.00	176.35	
2,979.73	4.53	176.35	2,973.87	-150.98	9.63	0.00	0.00	0.00	0.00	
3,206.10	0.00	0.00	3,200.00	-159.90	10.20	2.00	-2.00	0.00	180.00	TG1-Spruce #4
4,706.10	0.00	0.00	4,700.00	-159.90	10.20	0.00	0.00	0.00	0.00	PBHL-Spruce#4



Scientific Drilling
Planning Report



Database	EDM-Julio	Local Co-ordinate Reference:	Site Spruce Federal #4
Company	COG Operating LLC	TVD Reference:	GL Elev @ 3578 00usft
Project	Eddy County, NM (NAN27 NME)	MD Reference:	GL Elev @ 3578 00usft
Site:	Spruce Federal #4	North Reference:	Grid
Well:	Spruce Federal #4	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 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
North HL-Spruce #4 - West HL-Spruce #4									
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	176 35	1,000 00	-0 44	0 03	0 44	2 00	2 00	0 00
1,100 00	3 00	176 35	1,099 93	-3 92	0 25	3 93	2 00	2 00	0 00
1,176.37	4 53	176 35	1,176 13	-8.92	0 57	8 94	2 00	2 00	0.00
EOC hold 4.53°									
1,200 00	4 53	176.35	1,199 69	-10 78	0 69	10.80	0 00	0 00	0.00
1,300.00	4 53	176 35	1,299 38	-18.66	1 19	18 70	0 00	0 00	0 00
1,400 00	4 53	176 35	1,399.07	-26 54	1.69	26.59	0 00	0.00	0 00
1,500.00	4 53	176 35	1,498 75	-34.41	2 20	34 48	0 00	0 00	0.00
1,600 00	4 53	176 35	1,598 44	-42 29	2 70	42.38	0 00	0 00	0 00
1,700.00	4 53	176 35	1,698 13	-50.17	3 20	50 27	0 00	0 00	0 00
1,800.00	4 53	176 35	1,797.82	-58 05	3 70	58 16	0 00	0 00	0.00
1,900.00	4 53	176.35	1,897 51	-65 92	4.21	66.06	0 00	0 00	0 00
2,000.00	4 53	176.35	1,997.19	-73 80	4 71	73 95	0 00	0 00	0 00
2,100 00	4 53	176 35	2,096 88	-81.68	5 21	81 85	0 00	0 00	0.00
2,200 00	4.53	176 35	2,196.57	-89 56	5 71	89 74	0 00	0 00	0.00
2,300 00	4.53	176 35	2,296 26	-97 43	6.22	97.63	0 00	0 00	0.00
2,400 00	4 53	176.35	2,395 95	-105 31	6 72	105 53	0 00	0.00	0 00
2,500 00	4 53	176.35	2,495 63	-113.19	7 22	113.42	0 00	0.00	0 00
2,600 00	4 53	176 35	2,595 32	-121 07	7.72	121 31	0 00	0 00	0 00
2,700.00	4 53	176.35	2,695 01	-128 94	8 23	129 21	0 00	0 00	0 00
2,800 00	4 53	176 35	2,794 70	-136 82	8 73	137 10	0 00	0 00	0.00
2,900 00	4.53	176 35	2,894 39	-144 70	9 23	144 99	0 00	0 00	0 00
2,979.73	4.53	176 35	2,973 87	-150 98	9.63	151 29	0 00	0 00	0 00
Start Drop 2.00°/100'									
3,000 00	4.12	176 35	2,994.08	-152 50	9 73	152.81	2 00	-2.00	0 00
3,100 00	2 12	176 35	3,093 93	-157 94	10 07	158 26	2 00	-2.00	0.00
3,200 00	0 12	176 35	3,193 90	-159 89	10 20	160 22	2 00	-2 00	0.00
3,206 10	0 00	0 00	3,200 00	-159.90	10 20	160 23	2.00	-2 00	0 00
EOC hold 0.00° - Top of Paddock - TG1-Spruce #4									
4,706.10	0 00	0 00	4,700 00	-159 90	10.20	160.23	0 00	0 00	0.00
PBHL-Spruce#4									



Scientific Drilling
Planning Report



Database	EDM-Julio	Local Co-ordinate Reference	Site Spruce Federal #4
Company	COG Operating LLC	TVD Reference	GL Elev. @ 3578 00usft
Project	Eddy County, NM (NAN27 NME)	MD Reference	GL Elev. @ 3578 00usft
Site	Spruce Federal #4	North Reference	Grid
Well	Spruce Federal #4	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-Spruce #4		0 00	0 00	0 00	-149 90	0 20	656,256 20	530,230 40	32° 48' 14 755 N	104° 14' 5 806 W
- plan misses target center by 149 90usft at 0.00usft MD (0 00 TVD, 0 00 N, 0 00 E)										
- Rectangle (sides W100.00 H0 00 D0 00)										
West HL-Spruce #4		0 00	0 00	0 00	-149 90	0 20	656,256 20	530,230 40	32° 48' 14 755 N	104° 14' 5 806 W
- plan misses target center by 149 90usft at 0.00usft MD (0 00 TVD, 0 00 N, 0 00 E)										
- Rectangle (sides W0 00 H100 00 D0 00)										
TG1-Spruce #4		0 00	0 00	3,200 00	-159 90	10 20	656,246 20	530,240 40	32° 48' 14 656 N	104° 14' 5 689 W
- plan hits target center										
- Circle (radius 0 00)										
PBHL-Spruce#4		0 00	0 01	4,700.00	-159 90	10 20	656,246 20	530,240 40	32° 48' 14 656 N	104° 14' 5 689 W
- plan hits target center										
- Circle (radius 10 00)										

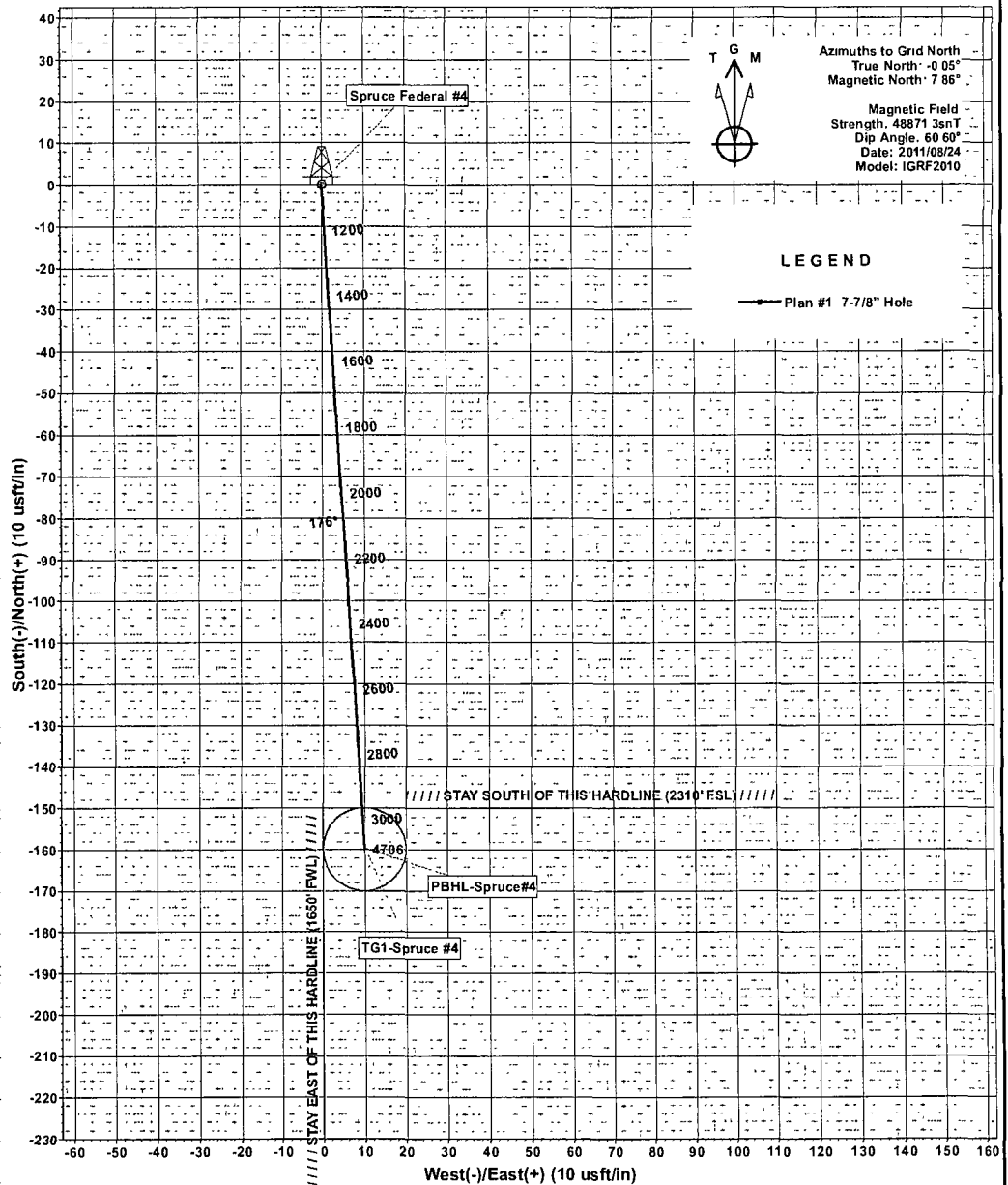
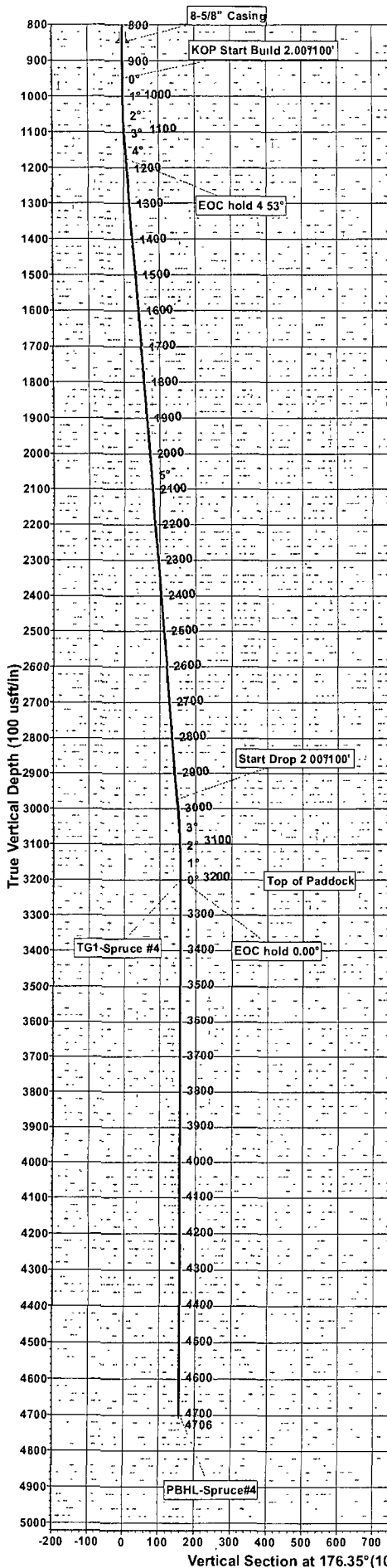
Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (")	Hole Diameter (")
850 00	850.00	8-5/8" Casing		8-5/8	12-1/4

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,206 10	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'	
1,176 37	1,176 13	-8 92	0 57	EOC hold 4 53°	
2,979 73	2,973 87	-150 98	9 63	Start Drop 2 00°/100'	
3,206 10	3,200 00	-159 90	10 20	EOC hold 0 00°	



Scientific Drilling for COG Operating LLC
Site: Eddy County, NM (NAN27 NME)
Well: Spruce Federal #4
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-Spruce #4	0.00	-149.90	0.20	656256 20	530230.40	32°48' 14.755 N	104°14' 5.806 W	Rectangle (Sides: L 0.00 W100 00)	
West HL-Spruce #4	0.00	-149.90	0.20	656256 20	530230.40	32°48' 14.755 N	104°14' 5.806 W	Rectangle (Sides: L1 00.00 W0 00)	
TG1-Spruce #4	3200.00	-159.90	10.20	656246 20	530240.40	32°48' 14.656 N	104°14' 5.689 W	Circle (Radius: 0.00)	
PBHL-Spruce #4	4700.00	-159.90	10.20	656246 20	530240.40	32°48' 14.656 N	104°14' 5.689 W	Circle (Radius: 10.0 0)	

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	1176 37	4.53	176.35	1176 13	-8.92	0.57	2.00	176.35	8.94
4	2979.73	4.53	176.35	2973.87	-150.98	9.63	0.00	0.00	151.29
5	3206 10	0.00	0.00	3200.00	-159.90	10.20	2.00	180.00	160.22 TG1-Spruce #4
6	4706 10	0.00	0.00	4700.00	-159.90	10.20	0.00	0.00	160.22 PBHL-Spruce#4

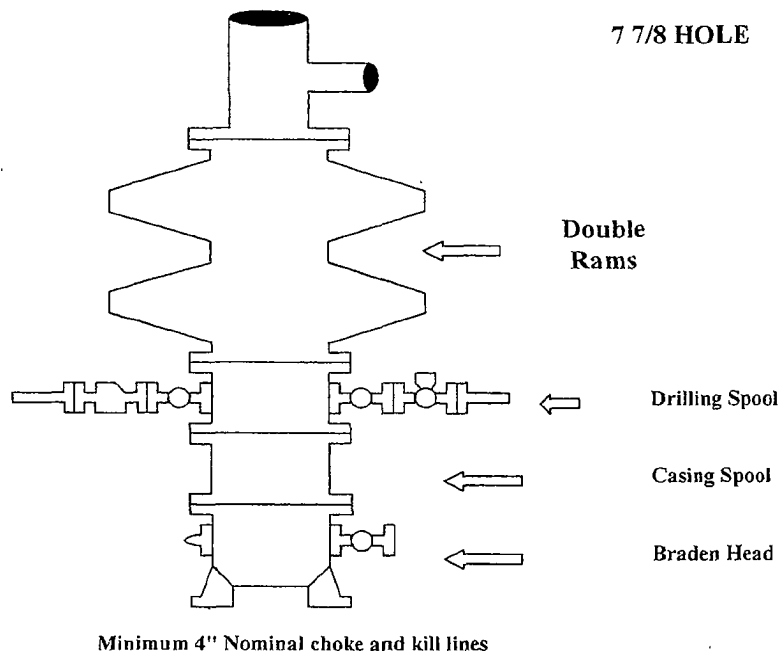
WELL DETAILS- Spruce Federal #4					
Ground Level.			3578 00		
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude Slot
0 00	0 00	656406 10	530230 20	32°48' 16.239 N	104°14' 5.806 W

PROJECT DETAILS: Eddy County, NM (NAN27 NME) Plan, Plan #1 7-7/8" Hole (Spruce Federal #4/OH)
Geodetic System: US State Plane 1927 (Exact solution) Created By: Julio Pina Date 24-Aug-11
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866 Checked: _____ Date: _____
Zone: New Mexico East 3001 Reviewed: _____ Date: _____
System Datum: Mean Sea Level Approved: _____ Date: _____

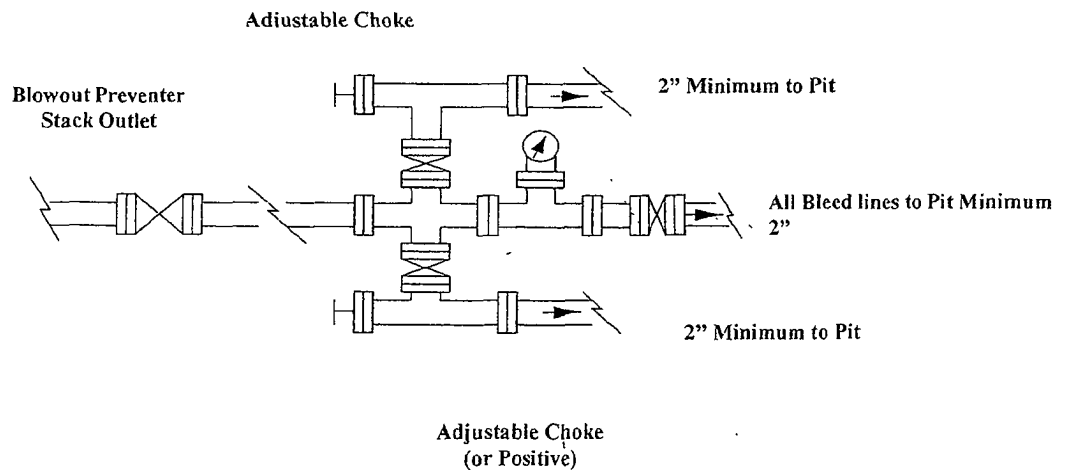
COG Operating LLC

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 & # Spruce Federal #4 Surface Type (F) (S) (P)
 Location: UL K, Sect 25, Township 17 s, RNG 27 e, Sub-surface Type (F) (S) (P)

A. Date C101 rec'd 9/26/2011 C101 reviewed 9/28/2011

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

OGRID ☒ BONDING ☒ PROP CODE ☒ WELL # _____, SIGNATURE _____

2. Inactive Well list as of: 9/28/2011 # wells _____, # Inactive wells _____

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: 9/28/2011

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 _____, NO _____ Signature _____

1. Pool Red Lake; Elbeleta-Yoso NE Code 96836

a. Dedicated acreage _____, What Units _____

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 9/28/2011

API #30-015 -- 39464

8. Reviewers JC