

11-970

OCD-ARTESIA
RECEIVED
OCT 20 2011
NMOCD ARTESIA

Form 3160-3
(April 2004)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

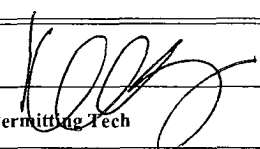
APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5 Lease Serial No. NMLC-028784A
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 NMNM-88525X; Burch Keely Unit
3a Address 550 W. Texas Ave., Suite 1300 Midland, TX 79701		8 Lease Name and Well No. BURCH KEELY UNIT #542
3b Phone No. (include area code) 432-685-4384		9 API Well No. 30-015- 39521
4 Location of Well (Report location clearly and in accordance with any State requirements *) At surface SHL: 860' FSL & 206' FEL, Unit P At proposed prod zone BHL: 660' FSL & 10' FEL, Unit P		10 Field and Pool, or Exploratory Grayburg Jackson; SR-Q-Grbg-SA
11 Sec, T R M or Blk and Survey or Area Sec 13 T17S R29E		12 County or Parish EDDY
13 State NM		14 Distance in miles and direction from nearest town or post office* 2 miles from Loco Hills, NM
15 Distance from proposed* location to nearest property or lease line, ft (Also to nearest drg unit line, if any) 206'	16 No of acres in lease 640	17 Spacing Unit dedicated to this well 40
18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft 457'	19 Proposed Depth <input checked="" type="checkbox"/> TVD: 4800' MD: 4811'	20 BLM/BIA Bond No on file NMB000740; NMB000215
21 Elevations (Show whether DF, KDB, RT, GL, etc) 3629' GL	22 Approximate date work will start* 10/30/2011	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 08/26/2011
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Title
Permitting Tech

Approved by (Signature) /s/ Don Peterson	Name (Printed Typed)	Date OCT 19 2011
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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)

Reswell Controlled Water Basin

**Approval Subject to General Requirements
& Special Stipulations Attached**

**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**

MASTER DRILLING PROGRAM

1. Geologic Name of Surface Formation

Quaternary

2. Estimated Tops of Important Geologic Markers:

Quaternary	Surface
Rustler	220'
Salt	360'
Base of Salt	780'
Yates	950'
Seven Rivers	1235'
Queen	1845'
Grayburg	2220'
San Andres	2540'
Glorieta	4000'
Paddock	4075'
Blinbry	4620'
Tubb	5520'

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

Water Sand	150'	Fresh Water
Grayburg	2150'	Oil/Gas
San Andres	2450'	Oil/Gas
Glorieta	3900'	Oil/Gas
Paddock	4075'	Oil/Gas
Blinebry	4620'	Oil/Gas
Tubb	5520'	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 850' 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, (but 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

4. Casing Program

see
COA

Hole Size	Interval	OD Casing	Weight	Grade	Jt., Condition	Jt.	brst/clps/ten
17 1/2"	0-300' 240	13 3/8"	48#	H-40orJ-55	ST&C/New	ST&C	9.22/3.943/15.8
11"	0-850' 1040	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 w/ 2% CaCl₂ + 0.25 pps CF, 400 sx, yield 1.32, back to surface. 154% excess

8 5/8" Intermediate Casing:

11" Hole:

Single Stage: 50:50:10 C:Poz:Gel w/ 5% Salt +0.25% CF, 300 sx lead, yield-2.45 + Class C w/2% CaCl₂, 200 sx tail, yield-1.32, back to surface. 363% 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 500 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. 106% open hole excess, cement calculated back to surface.

Multi-Stage: Stage 1: (Assumed TD of 4800') 500 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, 72% excess; Stage 2: LEAD

see
COA

450 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, + TAIL 250 sx Class C w/ 0.3% R-3 + 1.5% CD-32, yield - 1.02 148% open hole excess, cement calculated back to surface. 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 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 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:

DEPTH	TYPE	WEIGHT	VISCOSITY	WATERLOSS
0-300' 290	Fresh Water	8.5	28	N.C.
300-850' 840	Brine	10	30	N.C.
850'-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 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 at TD is 110 degrees and the estimated maximum bottom hole 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 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)

Burch Keely Unit #542

Burch Keely Unit #542

OH

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

SHL = 860' FSL & 206' FEL

BHL = 660' FSL & 60' FEL

Top of Paddock = 660' FSL & 60' FEL @ 4100' TVD

Standard Planning Report

23 August, 2011



Scientific Drilling
Directional Drilling Operations



Scientific Drilling Planning Report



Database: EDM-Julio
Company: COG Operating LLC
Project: Eddy County, NM (NAN27 NME)
Site: Burch Keely Unit #542
Well: Burch Keely Unit #542
Wellbore: OH
Design: Plan #1 7-7/8" Hole

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

Site Burch Keely Unit #542
GL Elev @ 3629 00usft
GL Elev @ 3629 00usft
Grid
Minimum Curvature

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	Burch Keely Unit #542		
Site Position:	From:	Map	
Position Uncertainty:	0 00 usft	Slot Radius:	13-3/16 "
		Grid Convergence:	0 17 °
		North:	665,636 10 usft
		East:	596,299 70 usft
		Latitude:	32° 49' 46 299 N
		Longitude:	104° 1' 11 385 W

Well	Burch Keely Unit #542		
Well Position	+N/-S	0 00 usft	North:
	+E/-W	0 00 usft	East:
Position Uncertainty	0 00 usft	Wellhead Elevation:	Ground Level:
			3,629 00 usft
		Latitude:	32° 49' 46 299 N
		Longitude:	104° 1' 11 385 W

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
	IGRF2010	2011/08/23	7 82
			Dip Angle
			60 66
			Field Strength
			48,911

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
			143 76

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	
1,150 00	0 00	0 00	1,150 00	0 00	0 00	0 00	0 00	0 00	0 00	
1,412 98	5 26	143 76	1,412 61	-9 73	7 13	2 00	2 00	0 00	143 76	
3,848 02	5 26	143 76	3,837 39	-189 77	139 07	0 00	0 00	0 00	0 00	
4,110 99	0 00	0 00	4,100 00	-199.50	146 20	2 00	-2 00	0 00	180 00	TG1-BK #542
4,810 99	0 00	0 00	4,800 00	-199 50	146 20	0 00	0 00	0 00	0 00	PBHL-BK #542



Scientific Drilling Planning Report



Database: EDM-Julio
Company: COG Operating LLC
Project: Eddy County, NM (NAN27 NME)
Site: Burch Keely Unit #542
Well: Burch Keely Unit #542
Wellbore: OH
Design: Plan #1 7-7/8" Hole

Local Co-ordinate Reference: Site Burch Keely Unit #542
TVD Reference: GL Elev @ 3629 00usft
MD Reference: GL Elev @ 3629 00usft
North Reference: Grid
Survey Calculation Method: 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
West HL-BK #542									
1,150 00	0 00	0 00	1,150 00	0 00	0 00	0 00	0 00	0 00	0 00
KOP Start Build 2.00°/100'									
1,200 00	1 00	143 76	1,200 00	-0 35	0 26	0 44	2 00	2 00	0 00
1,300 00	3 00	143 76	1,299 93	-3 17	2 32	3 93	2 00	2 00	0 00
1,350 00	4 00	143 76	1,349 84	-5 63	4 12	6 98	2 00	2 00	0 00
8-5/8" Casing									
1,400 00	5 00	143 76	1,399 68	-8 79	6 44	10 90	2 00	2 00	0 00
1,412 97	5.26	143 76	1,412 60	-9 73	7 13	12 06	2 00	2 00	0.00
EOC hold 5.26°									
1,500 00	5 26	143 76	1,499 26	-16 16	11 84	20 04	0 00	0 00	0 00
1,600 00	5 26	143 76	1,598 84	-23 56	17 26	29 21	0 00	0 00	0 00
1,700 00	5 26	143 76	1,698 42	-30 95	22 68	38 37	0 00	0 00	0 00
1,800 00	5 26	143 76	1,798 00	-38 34	28 10	47 54	0 00	0 00	0 00
1,900 00	5 26	143 76	1,897 58	-45 74	33 52	56 71	0 00	0 00	0 00
2,000 00	5 26	143 76	1,997 16	-53 13	38 94	65 87	0 00	0 00	0 00
2,100 00	5 26	143 76	2,096 74	-60 53	44 36	75 04	0 00	0 00	0 00
2,200 00	5 26	143 76	2,196 32	-67 92	49 77	84 21	0 00	0 00	0 00
2,300 00	5 26	143 76	2,295 90	-75.31	55 19	93 37	0 00	0 00	0 00
2,400 00	5 26	143 76	2,395 48	-82 71	60 61	102 54	0 00	0 00	0 00
2,500 00	5 26	143 76	2,495.05	-90 10	66 03	111 71	0 00	0 00	0 00
2,600 00	5 26	143 76	2,594 63	-97 50	71 45	120 87	0 00	0 00	0 00
2,700 00	5 26	143 76	2,694 21	-104 89	76 87	130 04	0 00	0 00	0 00
2,800 00	5 26	143 76	2,793 79	-112 28	82 28	139 21	0 00	0 00	0 00
2,900 00	5 26	143 76	2,893 37	-119 68	87 70	148 37	0 00	0 00	0 00
3,000 00	5 26	143 76	2,992 95	-127 07	93 12	157 54	0 00	0 00	0 00
3,100 00	5 26	143 76	3,092 53	-134 46	98 54	166 71	0 00	0 00	0 00
3,200 00	5 26	143 76	3,192 11	-141 86	103 96	175 87	0 00	0 00	0 00
3,300 00	5 26	143 76	3,291 69	-149 25	109 38	185 04	0 00	0 00	0 00
3,400 00	5 26	143 76	3,391 27	-156.65	114 80	194 21	0 00	0 00	0 00
3,500 00	5 26	143 76	3,490 84	-164 04	120 21	203 37	0 00	0 00	0 00
3,600 00	5 26	143 76	3,590 42	-171 43	125 63	212 54	0 00	0 00	0 00
3,700 00	5 26	143 76	3,690 00	-178.83	131 05	221 71	0 00	0 00	0 00
3,748 02	5 26	143 76	3,737 82	-182 38	133 65	226 11	0 00	0 00	0 00
Start Drop 2.00°/100'									
3,800 00	5 26	143 76	3,789 58	-186 22	136 47	230 87	0 00	0 00	0 00
3,848 02	5 26	143 76	3,837 39	-189 77	139 07	235 27	0 00	0 00	0 00
3,900 00	4 22	143 76	3,889 20	-193 24	141 61	239 57	2 00	-2 00	0 00
4,000 00	2 22	143 76	3,989 04	-197 77	144 93	245 19	2 00	-2 00	0 00
4,100 00	0 22	143 76	4,089 01	-199 48	146 19	247 31	2 00	-2 00	0 00
4,110 99	0 00	0 00	4,100 00	-199 50	146 20	247 34	2 00	-2 00	0 00
EOC hold 0.00° - Top of Paddock - TG1-BK #542									
4,810 99	0 00	0 00	4,800 00	-199.50	146 20	247 34	0 00	0 00	0 00
PBHL-BK #542									



Scientific Drilling Planning Report



Database: EDM-Julio
Company: COG Operating LLC
Project: Eddy County, NM (NAN27 NME)
Site: Burch Keely Unit #542
Well: Burch Keely Unit #542
Wellbore: OH
Design: Plan #1 7-7/8" Hole

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

Site Burch Keely Unit #542
GL Elev @ 3629 00usft
GL Elev @ 3629 00usft
Grid
Minimum Curvature

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
West HL-BK #542		0 00	0 00	0 00	-199 50	196 20	665,436 60	596,495 90	32° 49' 44 319 N	104° 1' 9 093 W
- plan misses target center by 279 81usft at 0 00usft MD (0 00 TVD, 0 00 N, 0 00 E)										
- Rectangle (sides W0 00 H300 00 D0 00)										
TG1-BK #542		0 00	0 00	4,100 00	-199 50	146 20	665,436 60	596,445 90	32° 49' 44 321 N	104° 1' 9 679 W
- plan hits target center										
- Circle (radius 0 00)										
PBHL-BK #542		0 00	0 01	4,800 00	-199 50	146 20	665,436 60	596,445 90	32° 49' 44 321 N	104° 1' 9 679 W
- plan hits target center										
- Circle (radius 50 00)										

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,350 00	1,349 84	8-5/8" Casing	8-5/8	12-1/4

Formations

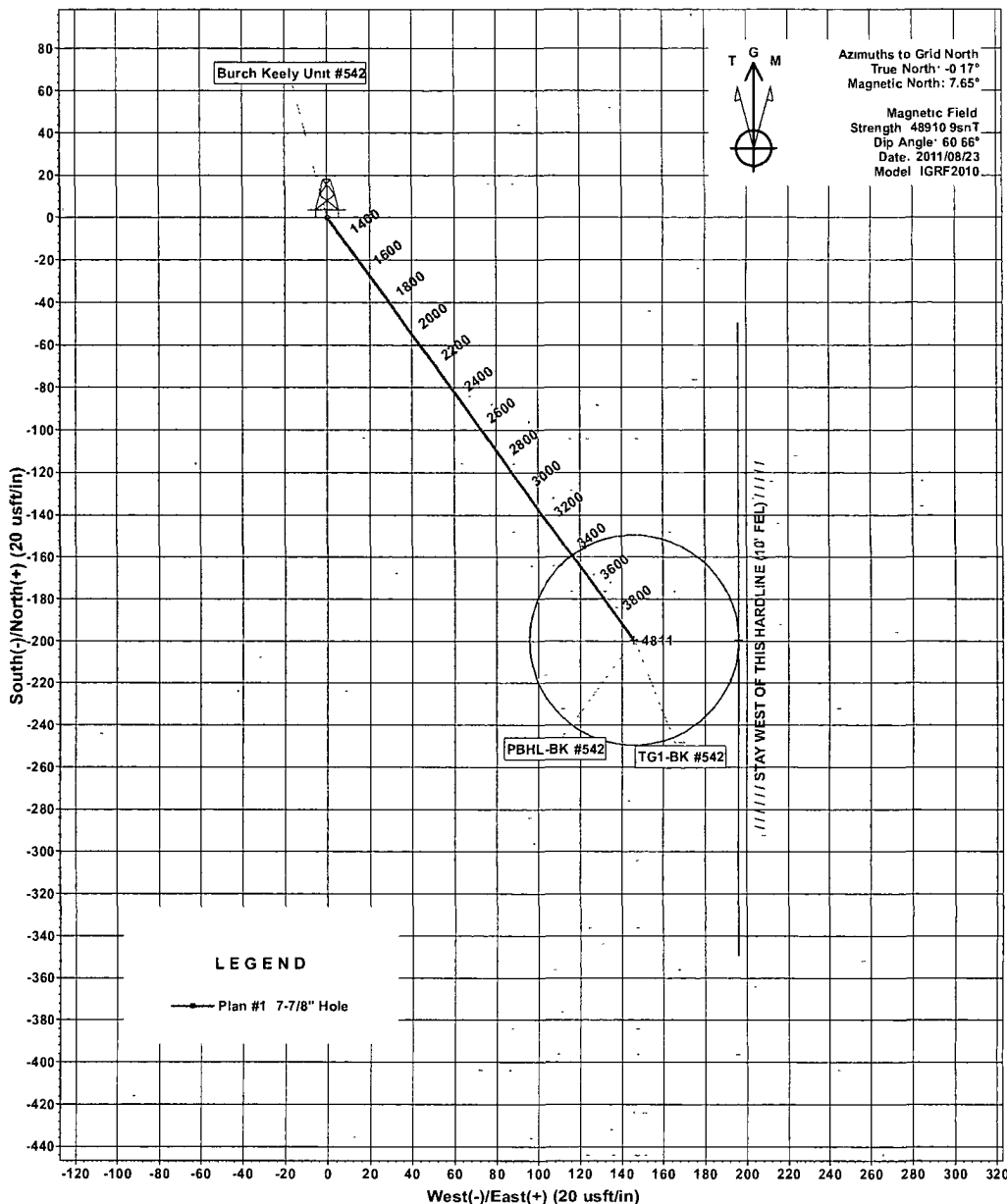
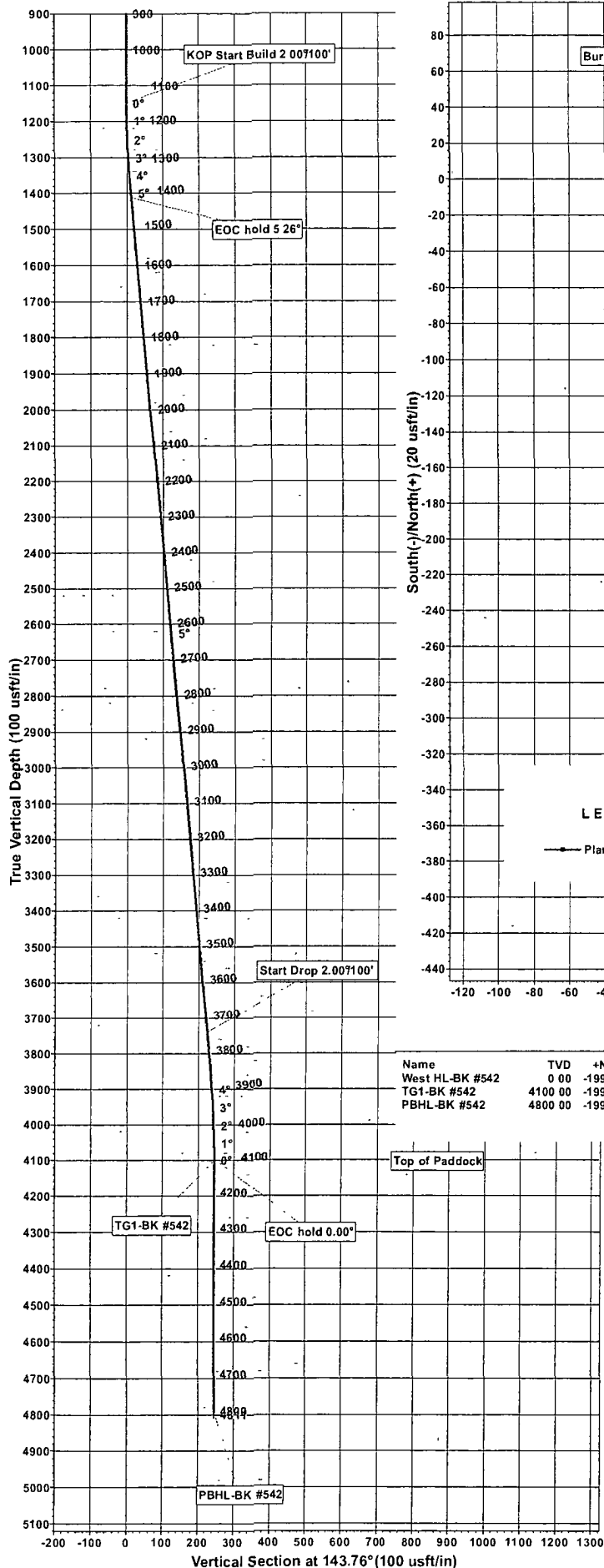
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction
4,110 99	4,100 00	Top of Paddock		0 00	

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	+E/-W (usft)	Comment
1,150 00	1,150 00	0 00	0 00	KOP Start Build 2 00°/100'
1,412 97	1,412 60	-9.73	7 13	EOC hold 5 26°
3,748 02	3,737 82	-182 38	133 65	Start Drop 2 00°/100'
4,110 99	4,100 00	-199 50	146 20	EOC hold 0 00°



Scientific Drilling for COG Operating LLC
Site: Eddy County, NM (NAN27 NME)
Well: Burch Keely Unit #542
Wellbore: OH
Design: Plan #1 7-7/8" Hole



Azimuths to Grid North
True North: -0.17°
Magnetic North: 7.65°

Magnetic Field
Strength: 48910.9nT
Dip Angle: 60.66°
Date: 2011/08/23
Model: IGRF2010

LEGEND

Plan #1 7-7/8" Hole

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
West HL-BK #542	0.00	-199.50	196.20	665436.60	596495.90	32°49' 44.319 N	104°1' 9.093 W	Rectangle (Sides: L30 0 00 W0.00)
TG1-BK #542	4100.00	-199.50	146.20	665436.60	596445.90	32°49' 44.321 N	104°1' 9.679 W	Circle (Radius: 0.00)
PBHL-BK #542	4800.00	-199.50	146.20	665436.60	596445.90	32°49' 44.321 N	104°1' 9.679 W	Circle (Radius: 50.00)

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	1150.00	0.00	0.00	1150.00	0.00	0.00	0.00	0.00	0.00	
3	1412.97	5.26	143.76	1412.61	-9.73	7.13	2.00	143.76	12.06	
4	3848.02	5.26	143.76	3837.39	-189.77	139.07	0.00	0.00	235.27	
5	4110.99	0.00	0.00	4100.00	-199.50	146.20	2.00	180.00	247.34	TG1-BK #542
6	4810.99	0.00	0.00	4800.00	-199.50	146.20	0.00	0.00	247.34	PBHL-BK #542

WELL DETAILS: Burch Keely Unit #542

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	665436.10	596299.70	32°49' 46.299 N	104°1' 11.385 W	

PROJECT DETAILS: Eddy County, NM (NAN27 NME) Plan: Plan #1 7-7/8" Hole (Burch Keely Unit #542/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
550 West Texas, Suite 1300
Midland, TX 79701

DIRECTIONAL PLAN VARIANCE REQUEST

Burch Keely Unit #542
EDDY, NM

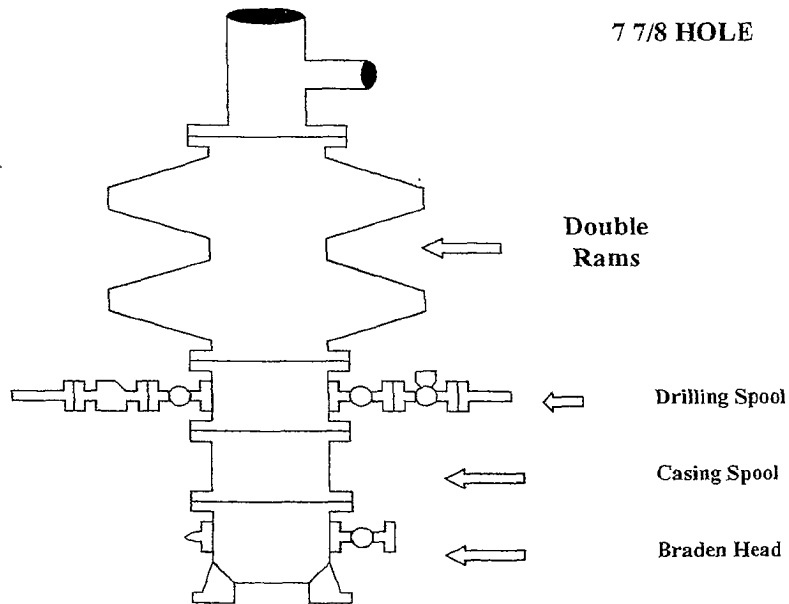
SHL	860 FSL, 206 FEL	Sec 13, T17S, R29E, Unit P
BHL	660 FSL, 10 FEL	Sec 13, T17S, R29E, Unit P

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

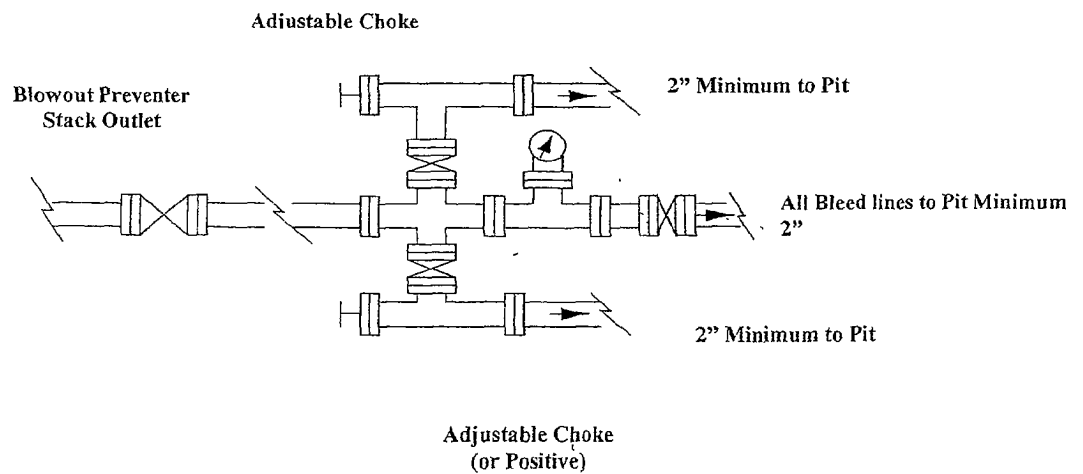
Exhibit #9

BOPE and Choke Schematic



Minimum 4" Nominal choke and kill lines

Choke Manifold Requirement (2000 psi WP)
No Annular Required



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 Ope OGRID # 229134
 Well Name & # BURCH KERRY Unit 542 Surface Type (F) (S) (P)
 Location: UL P Sect 13 Township 17 s, RNG 29 e, Sub-surface Type (F) (S) (P)

A. Date C101 rec'd 10/14/2011 C101 reviewed 10/26/2011

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

OGRID ☒, BONDING ☒, PROP CODE ☒, WELL # ☒, SIGNATURE ☒
 2. Inactive Well list as of: 10/26/2011 # wells 3624, # 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: 10/26/2011

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 GB: JACK, Code 28509

a. Dedicated acreage 40, What Units P

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

c. Well shares acres: Yes ☒, No ☐, # of wells 2 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 40, What Units P

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 10/26/2011

API #30-015 -- 39521

8. Reviewers TDS