

OCD Artesia

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

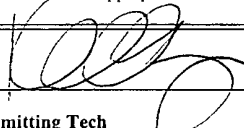
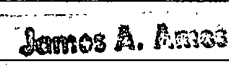
Split Estate

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a Type of work ☒ DRILL ☐ REENTER		6 Lease Serial No SL:NM029415B BL:NM029415A	
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 Ave., Suite 1300 Midland, TX 79701		8 Lease Name and Well No. Puckett 13 Federal Com #8H [38922]	
3b Phone No. (include area code) 432-685-4384		9 API Well No 30-015- 39658	
4 Location of Well (Report location clearly and in accordance with any State requirements) At surface SHL: 232' FSL & 459' FEL, UL P, SEC 12 At proposed prod. zone BHL: 330' FSL & 330' FEL, UL P, SEC 13		10 Field and Pool, or Exploratory Loc; Glorieta-Yeso [38922] [38922]	
11 Sec, T, R M. or Blk. and Survey or Area Sec 12 & 13 T17S R31E		12 County or Parish EDDY	
13 State NM		14 Distance in miles and direction from nearest town or post office* 9 miles East of Loco Hills, NM	
15 Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 232'		16 No. of acres in lease SHL: 1920 BHL:640	
17 Spacing Unit dedicated to this well 160		18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 453'	
19 Proposed Depth TVD: 6800' MD: 11580		20 BLM/BIA Bond No on file NMB000740; NMB000215	
21 Elevations (Show whether DF, KDB, RT, GL, etc.) 3967' 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.

- Well plat certified by a registered surveyor.
- A Drilling Plan.
- A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office).
- Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
- Operator certification
- 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 08/04/2011
Title Permitting Tech		
Approved by (Signature) 	Name (Printed/Typed) James A. Ames	Date OCT 28 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.

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

ATTACHMENT TO FORM 3160-3
COG Operating, LLC
Puckett 13 Federal Com #8H
SHL: 232' FSL & 459' FEL, Unit P, Sec 12
BHL: 330' FSL & 330' FEL, Unit P, Sec 13
Sec 12, T17S, R31E
Eddy County, NM

1. Proration Unit Spacing: 160 Acres
2. Ground Elevation: 3967'
3. Proposed Depths: Horizontal TVD = 6,600', MD = 11579'
4. Estimated tops of geological markers:

Quaternary	Surface
Rustler	682'
Top of Salt	900'
Base of Salt	1923'
Yates	2028'
Seven Rivers	2356'
Queen	2980'
Grayburg	3415'
San Andres	3739'
Glorieta	5247'
Paddock	5317'
Blaine	5745'
Tubb	6700'

5. Possible mineral bearing formations:

Water Sand	150'	Fresh Water
Grayburg	3415'	Oil/Gas
San Andres	3739'	Oil/Gas
Glorieta	5247'	Oil/Gas
Paddock	5317'	Oil/Gas
Blaine	5745'	Oil/Gas
Tubb	6700'	Oil/Gas

No other formations are expected to give up oil, gas or fresh water in measurable quantities. Setting 13 3/8" casing to 700' and circulating cement back to the surface will protect the surface fresh water sand. The Salt Section will be protected by setting 9 5/8" casing to 2000' 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

ATTACHMENT TO FORM 3160-3
COG Operating, LLC
Puckett 13 Federal Com #8H
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6. Casing Program - Proposed

Hole size	Interval	OD of Casing	Weight	Cond.	Collar	Grade
17-1/2"	0' - +/- 700' 75'	13-3/8"	48#	New	STC	H-40 or J/K-55
Collapse sf – 3.87, Burst sf – 8.70, Tension sf – 14.91						
12-1/4"	0' - +/- 2000'	9-5/8"	36#	New	STC	J/K-55
Collapse sf – 2.88, Burst sf – 5.01, Tension sf – 8.11						
8-3/4"	0' – 11579'	7" x 5-1/2"	26#/17#	New	LTC	L-80
Collapse sf – 1.87, Burst sf – 2.48, Tension sf – 2.08						

Production string will be a tapered string with 7" 26# L-80 LTC ran from surface to kick off point and then crossed over to 5 1/2" 17# L-80 LTC.

7. Cement Program See COF

13 3/8" Surface Csg: Set at +/- 700'MD, Lead Slurry: 450sx Class "C" w/ 2% CaCl₂ & .25 pps CF, 1.32 yield. 45% excess, calculated to surface.

9 5/8" Intrmd. Csg: Set at +/- 2000'MD. **Single Stage:** Lead Slurry: 300 sx 50:50:10:C:Poz:Gel w/ 5% salt, 5 pps LCM-1 .25 pps CF, 2.45 yield. Tail Slurry: 200 sx Class "C" w/ 2% CaCl₂, 1.32 yield. 76% excess, calculated to surface.

Multi Stage: **Stage 1:** 200 sx Class "C" w/ 2% CaCl₂, 1.32 yield. 80% excess. **Stage 2:** 300 sx 50:50:10:C:Poz:Gel w/ 5% salt, 5 pps LCM-1 .25 pps CF, 2.45 yield, back to surface, 166% excess; assumption for tool is lost circulation. Multi stage tool to be set at approximately, depending on hole conditions, 750' (50' below the surface casing). Cement volumes will be adjusted proportionately for depth changes of multi stage tool.

7 x 5 1/2" Production Csg: Set at +/- 11579'MD. **Single Stage:** Lead Slurry: 400 sx 35:65:6:C:Poz:Gel w/ 5% salt, 5 pps LCM, .2% SMS, .3% FL-52A, .125 pps CF, 2.01 yd. Inter. Slurry: 300 sx 50:50:2:C:Poz:Gel w/ 5% salt, 3 pps LCM, .6% SMS, 1% FL-25, 1% BA-58, .125 pps CF, .3% FL-52A; 1.37 yield Tail Slurry: 450 sx Class "H" SOLUCEM-H w/ .7% HR-601, 2.62 yield 50% excess in open hole, calculated to surface. **This is a minimum volume and will be adjusted up after caliper is run.**

Multi Stage: **Stage 1:** (Assumed TD of 11579'MD to DV at 3550') Lead Slurry: 450 sx 50:50:2:C:Poz:Gel w/ 5% salt, 3 pps LCM, .6% SMS, 1% FL-25, 1% BA-58, .125 pps CF, .3% FL-52A; 1.37 yield Tail Slurry: 450 sx Class "H" SOLUCEM-H w/ .7% HR-601, 2.62 yield; 2% excess. **This is a minimum volume and will be adjusted up after caliper is run.** **Stage 2:** Lead Slurry: 350 sx 50:50:2:C:Poz:Gel w/ 5% salt, 3 pps LCM, .6% SMS, 1% FL-25, 1% BA-58, .125 pps CF, .3% FL-52A; 1.37 yield. Tail Slurry: 150 sx Class C w/ 0.3% R-3 + 1.5% CD-32, 1.02 yield. 5% excess calculated back to surface (no need for excess in casing overlap). **This is a minimum volume and will be adjusted up after caliper is run.**

Multi stage tool to be set at approximately, depending on hole conditions, 3550'. Cement volumes will be adjusted proportionately for depth changes of multi stage tool; assumption for use of tool is water flow.

ATTACHMENT TO FORM 3160-3
COG Operating, LLC
Puckett 13 Federal Com #8H
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8. Pressure Control Equipment:

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" will be used 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. After setting 9-5/8" the BOP will then be nipped up on the 9-5/8" 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.

9. Proposed Mud Circulating System

Interval	Mud Wt.	Visc.	FL	Type Mud System
0' - 700' 750	8.5	28	NC	Fresh water native mud w/ paper for seepage and sweeps. Lime for PH.
700' - 2000'	10	30	NC	Brine mud, lime for PH and paper for seepage and sweeps.
2000' - 11579'	9.1	29	NC	Drill section with fresh water/cut brine circulating the reserve utilizing periodic sweeps of paper as needed for seepage control and solids removal.

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept at the well site at all times.

10. Production Hole Drilling Summary:

Drill 8 3/4" hole and kick off at +/- 6123', building curve over +/- 750' to horizontal at 6600' TVD. Drill horizontal section in a Southerly direction for +/-4706' lateral to TD at +/-11579' MD, 6600' TVD. Run 7" x 5-1/2" production casing in Open hole lateral and cement to surface.

11. 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.

ATTACHMENT TO FORM 3160-3
COG Operating, LLC
Puckett 13 Federal Com #8H
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12. Logging, Testing and Coring Program:

- A. No electric logging to be performed on this well. *See COA*
- B. The mud logging program will consist of lagged 10' samples from intermediate casing point to T.D. in vertical pilot hole and from Kick off point to TD in Horizontal hole.
- C. Drill Stem test is not anticipated.
- D. No conventional coring is anticipated.
- E. Further testing procedures will be determined after the 7" x 5 1/2" production casing has been cemented at TD based on drill shows and log evaluation.

13. Abnormal Conditions, Pressures, Temperatures and Potential Hazards:

No abnormal pressures or temperatures are anticipated. The estimated bottom hole at TD is 90 degrees and estimated maximum bottom hole pressure is 2500 psig. Measurable gas volumes or Hydrogen Sulfide levels have not been encountered during drilling operations in this area, however an H2S plan is attached to the Drilling Program. No major loss of circulation zones has been reported in offsetting wells.

14. Anticipated Starting Date

Drilling operations will commence approximately on October 30, 2011 with drilling and completion operations lasting approximately 90 days.



COG Operating LLC

Eddy County, NM (NAN27 NME)

Puckett 13 Federal #8H

Puckett 13 Federal #8H

OH

Plan: Plan #1 8-3/4" Hole

SHL = 232' FSL & 459' FEL of Section 12

PP = 330' FNL & 444' FEL of Section 13

BHL = 330' FSL & 330' FEL of Section 13

Standard Planning Report

09 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: Puckett 13 Federal #8H
Well: Puckett 13 Federal #8H
Wellbore: OH
Design: Plan #1 8-3/4" Hole

Local Co-ordinate Reference: Site Puckett 13 Federal #8H
TVD Reference: GL Elev @ 3967 00usft
MD Reference: GL Elev @ 3967 00usft
North Reference: Grid
Survey Calculation Method: 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: Puckett 13 Federal #8H

Site Position: Northing: 670,589.00 usft Latitude: 32° 50' 32.867 N
From: Map Easting: 659,043.10 usft Longitude: 103° 48' 55.781 W
Position Uncertainty: 0 00 usft Slot Radius: 13-3/16" Grid Convergence: 0 28 °

Well: Puckett 13 Federal #8H

Well Position +N/-S 0 00 usft Northing: 670,589.00 usft Latitude: 32° 50' 32.867 N
+E/-W 0 00 usft Easting: 659,043.10 usft Longitude: 103° 48' 55.781 W
Position Uncertainty 0 00 usft Wellhead Elevation: Ground Level: 3,967.00 usft

Wellbore: OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2011/07/29	7 73	60 71	48,946

Design: Plan #1 8-3/4" Hole

Audit Notes:

Version: Phase: PLAN Tie On Depth: 0 00

Vertical Section	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0 00	0 00	0 00	178 24

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	
6,122.54	0 00	0 00	6,122.54	0 00	0 00	0 00	0 00	0 00	0 00	
6,872.54	90 00	178 24	6,600.00	-477.24	14.63	12 00	12 00	0 00	178 24	
11,578.80	90 00	178 24	6,600.00	-5,181.30	158.80	0 00	0 00	0 00	0 00	PBHL-Puckett 13 #8H



Scientific Drilling
Planning Report



Database: EDM-Julio
Company: COG Operating LLC
Project: Eddy County, NM (NAN27 NME)
Site: Puckett 13 Federal #8H
Well: Puckett 13 Federal #8H
Wellbore: OH
Design: Plan #1 8-3/4" Hole

Local Co-ordinate Reference: Site Puckett 13 Federal #8H
TVD Reference: GL Elev @ 3967 00usft
MD Reference: GL Elev @ 3967 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
6,122 54	0 00	0 00	6,122 54	0 00	0 00	0 00	0 00	0 00	0 00
KOP Start Build 12.00°/100'									
6,200 00	9.30	178.24	6,199 66	-6.27	0.19	6.27	12.00	12.00	0.00
6,300 00	21.30	178.24	6,295.94	-32.59	1.00	32.60	12.00	12.00	0.00
6,400 00	33.30	178.24	6,384.65	-78.34	2.40	78.38	12.00	12.00	0.00
6,500 00	45.30	178.24	6,461.89	-141.53	4.34	141.59	12.00	12.00	0.00
6,600 00	57.30	178.24	6,524.31	-219.39	6.72	219.49	12.00	12.00	0.00
6,700 00	69.30	178.24	6,569.16	-308.52	9.46	308.66	12.00	12.00	0.00
6,800 00	81.30	178.24	6,594.50	-405.02	12.41	405.21	12.00	12.00	0.00
6,872 54	90.00	178.24	6,600.00	-477.25	14.63	477.47	12.00	12.00	0.00
Land EOC hold 90.00°									
6,895 07	90.00	178.24	6,600.00	-499.76	15.32	500.00	0.00	0.00	0.00
PP=330' FNL, Puckett 13 #8H									
6,900 00	90.00	178.24	6,600.00	-504.69	15.47	504.93	0.00	0.00	0.00
7,000.00	90.00	178.24	6,600.00	-604.65	18.53	604.93	0.00	0.00	0.00
7,100 00	90.00	178.24	6,600.00	-704.60	21.60	704.93	0.00	0.00	0.00
7,200 00	90.00	178.24	6,600.00	-804.55	24.66	804.93	0.00	0.00	0.00
7,300 00	90.00	178.24	6,600.00	-904.50	27.72	904.93	0.00	0.00	0.00
7,400 00	90.00	178.24	6,600.00	-1,004.46	30.79	1,004.93	0.00	0.00	0.00
7,500.00	90.00	178.24	6,600.00	-1,104.41	33.85	1,104.93	0.00	0.00	0.00
7,600 00	90.00	178.24	6,600.00	-1,204.36	36.91	1,204.93	0.00	0.00	0.00
7,700 00	90.00	178.24	6,600.00	-1,304.32	39.98	1,304.93	0.00	0.00	0.00
7,800 00	90.00	178.24	6,600.00	-1,404.27	43.04	1,404.93	0.00	0.00	0.00
7,900 00	90.00	178.24	6,600.00	-1,504.22	46.10	1,504.93	0.00	0.00	0.00
8,000.00	90.00	178.24	6,600.00	-1,604.18	49.17	1,604.93	0.00	0.00	0.00
8,100 00	90.00	178.24	6,600.00	-1,704.13	52.23	1,704.93	0.00	0.00	0.00
8,200 00	90.00	178.24	6,600.00	-1,804.08	55.29	1,804.93	0.00	0.00	0.00
8,300 00	90.00	178.24	6,600.00	-1,904.04	58.36	1,904.93	0.00	0.00	0.00
8,400 00	90.00	178.24	6,600.00	-2,003.99	61.42	2,004.93	0.00	0.00	0.00
8,500 00	90.00	178.24	6,600.00	-2,103.94	64.48	2,104.93	0.00	0.00	0.00
8,600 00	90.00	178.24	6,600.00	-2,203.89	67.55	2,204.93	0.00	0.00	0.00
8,700.00	90.00	178.24	6,600.00	-2,303.85	70.61	2,304.93	0.00	0.00	0.00
8,800 00	90.00	178.24	6,600.00	-2,403.80	73.67	2,404.93	0.00	0.00	0.00
8,900 00	90.00	178.24	6,600.00	-2,503.75	76.74	2,504.93	0.00	0.00	0.00
9,000 00	90.00	178.24	6,600.00	-2,603.71	79.80	2,604.93	0.00	0.00	0.00
9,100 00	90.00	178.24	6,600.00	-2,703.66	82.86	2,704.93	0.00	0.00	0.00
9,200 00	90.00	178.24	6,600.00	-2,803.61	85.93	2,804.93	0.00	0.00	0.00
9,300 00	90.00	178.24	6,600.00	-2,903.57	88.99	2,904.93	0.00	0.00	0.00
9,400.00	90.00	178.24	6,600.00	-3,003.52	92.05	3,004.93	0.00	0.00	0.00
9,500 00	90.00	178.24	6,600.00	-3,103.47	95.12	3,104.93	0.00	0.00	0.00
9,600.00	90.00	178.24	6,600.00	-3,203.43	98.18	3,204.93	0.00	0.00	0.00
9,700 00	90.00	178.24	6,600.00	-3,303.38	101.24	3,304.93	0.00	0.00	0.00
9,800 00	90.00	178.24	6,600.00	-3,403.33	104.31	3,404.93	0.00	0.00	0.00
9,900 00	90.00	178.24	6,600.00	-3,503.28	107.37	3,504.93	0.00	0.00	0.00
10,000.00	90.00	178.24	6,600.00	-3,603.24	110.43	3,604.93	0.00	0.00	0.00
10,100 00	90.00	178.24	6,600.00	-3,703.19	113.50	3,704.93	0.00	0.00	0.00
10,200 00	90.00	178.24	6,600.00	-3,803.14	116.56	3,804.93	0.00	0.00	0.00
10,300 00	90.00	178.24	6,600.00	-3,903.10	119.62	3,904.93	0.00	0.00	0.00
10,400 00	90.00	178.24	6,600.00	-4,003.05	122.69	4,004.93	0.00	0.00	0.00
10,500 00	90.00	178.24	6,600.00	-4,103.00	125.75	4,104.93	0.00	0.00	0.00
10,600 00	90.00	178.24	6,600.00	-4,202.96	128.82	4,204.93	0.00	0.00	0.00
10,700 00	90.00	178.24	6,600.00	-4,302.91	131.88	4,304.93	0.00	0.00	0.00



Scientific Drilling
Planning Report



Database: EDM-Julio
Company: COG Operating LLC
Project: Eddy County, NM (NAN27 NME)
Site: Puckett 13 Federal #8H
Well: Puckett 13 Federal #8H
Wellbore: OH
Design: Plan #1 8-3/4" Hole

Local Co-ordinate Reference: Site Puckett 13 Federal #8H
TVD Reference: GL Elev @ 3967 00usft
MD Reference: GL Elev @ 3967 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)
10,800 00	90 00	178 24	6,600 00	-4,402 86	134 94	4,404 93	0 00	0 00	0 00
10,900 00	90.00	178 24	6,600 00	-4,502 82	138 01	4,504 93	0 00	0 00	0 00
11,000 00	90 00	178 24	6,600 00	-4,602 77	141.07	4,604 93	0 00	0 00	0 00
11,100 00	90 00	178 24	6,600 00	-4,702 72	144.13	4,704 93	0 00	0 00	0 00
11,200 00	90 00	178 24	6,600 00	-4,802.67	147 20	4,804.93	0 00	0 00	0 00
11,300 00	90.00	178 24	6,600 00	-4,902 63	150.26	4,904 93	0 00	0 00	0 00
11,400 00	90 00	178 24	6,600 00	-5,002 58	153 32	5,004.93	0 00	0 00	0 00
11,500 00	90.00	178 24	6,600 00	-5,102 53	156 39	5,104 93	0 00	0 00	0 00
11,578.80	90 00	178 24	6,600 00	-5,181 30	158.80	5,183 73	0 00	0 00	0 00

PBHL-Puckett 13 #8H

Design Targets

Target Name	hit/miss target	Shape	Dip Angle (°)	Dip Dir (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL-Puckett 13 #8H	- plan hits target center	- Point	0 00	0 00	6,600 00	-5,181 30	158 80	665,407 70	659,201.90	32° 49' 41 590 N	103° 48' 54 217 W
PP=330' FNL, Puckett 1	- plan hits target center	- Point	0 00	0 00	6,600 00	-499 76	15 32	670,089 24	659,058 42	32° 50' 27 921 N	103° 48' 55 630 W

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates	+N/-S (usft)	+E/-W (usft)	Comment
6,122 54	6,122 54	0 00	0 00	0 00	KOP Start Build 12 00°/100'
6,872 54	6,600 00	-477 25	14 63		Land EOC hold 90.00°



Scientific Drilling for COG Operating LLC
Site: Eddy County, NM (NAN27 NME)
Well: Puckett 13 Federal #8H
Wellbore: OH
Design: Plan #1 8-3/4" Hole



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	6122.54	0.00	0.00	6122.54	0.00	0.00	0.00	0.00	0.00	
3	6872.54	90.00	178.24	6600.00	-477.24	14.63	12.00	178.24	477.46	
4	11578.80	90.00	178.24	6600.00	-5181.30	158.80	0.00	0.00	5183.73	PBHL-Puckett 13 #8H

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N-S	+E-W	Northing	Easting	Latitude	Longitude	Shape
PBHL-Puckett 13 #8H	6600.00	-5181.30	158.80	665407.70	659201.90	32°49' 41.590 N 103°48' 54.217 W	Point	
PP=330° FNL, Puckett 13 #8H	6600.00	-499.76	15.32	670089.24	659058.42	32°50' 27.921 N 103°48' 55.630 W	Point	

WELL DETAILS: Puckett 13 Federal #8H

		Ground Level:		3967 00		
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0 00	670589 00	659043 10	32°50' 32 867 N	103°48' 55 781 W	

Puckett 13 Federal #8H

Created By: Julio Pina Date: 29-Jul-11

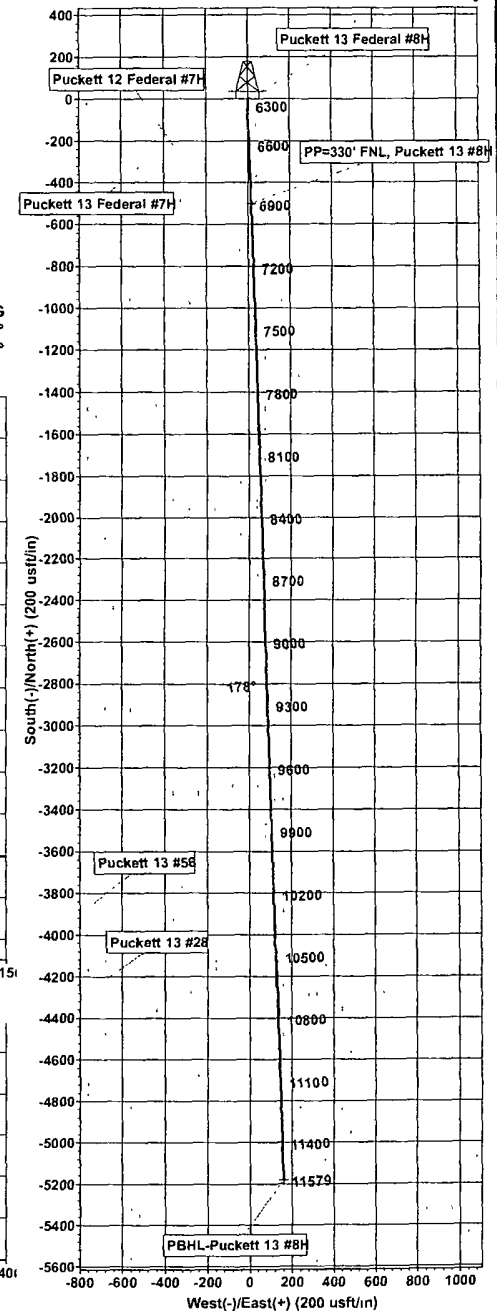
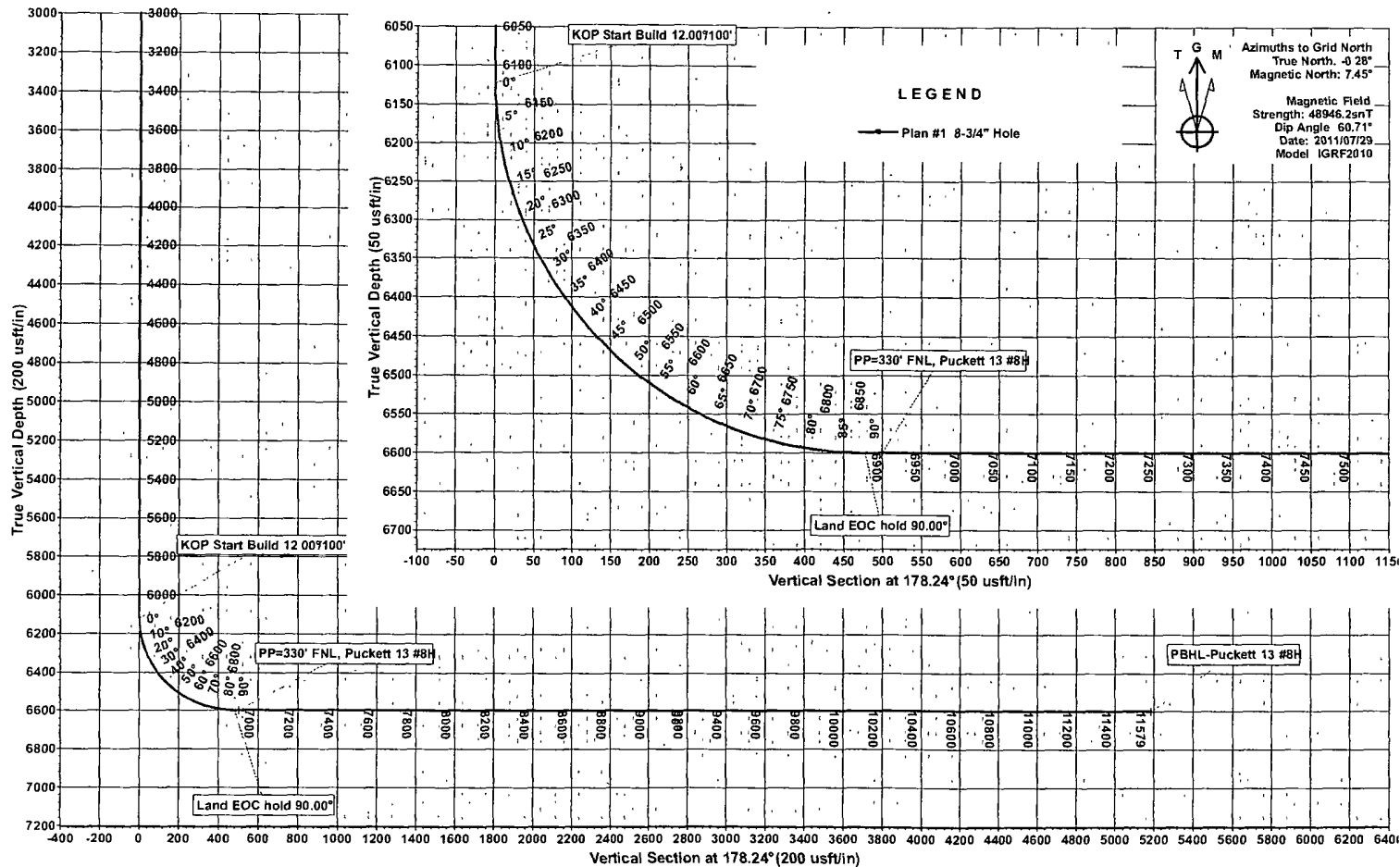
Checked: Date:

Reviewed: Date:

PROJECT DETAILS: Eddy County, NM (NAN27 NME)

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

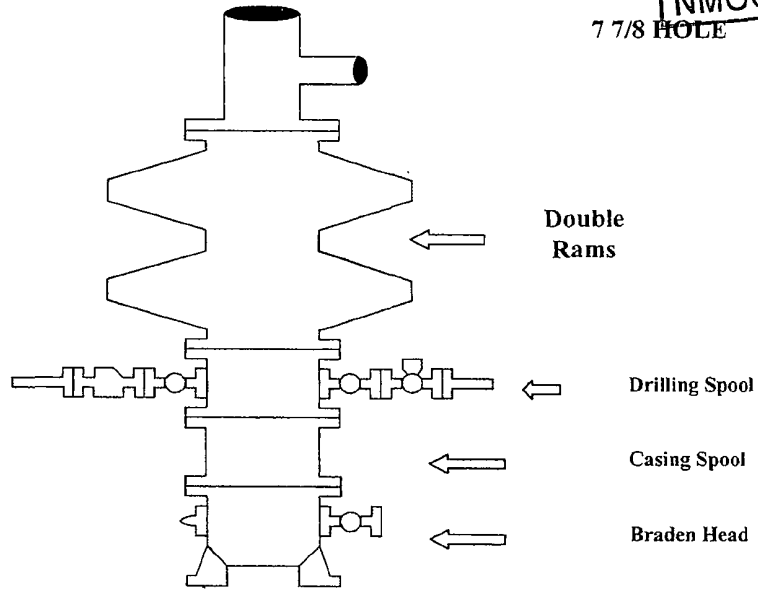
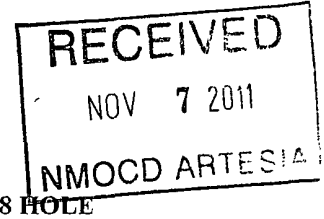
AZIMUTH CORRECTIONS
ALL AZIMUTHS MUST BE CORRECTED TO GRID
GRID CORRECTIONS MUST BE APPLIED BEFORE PLOTING
To convert a Magnetic Direction to a Grid Direction, Add 7.45°
To convert a True Direction to a Grid Direction, Subtract 0.28°



COG Operating LLC

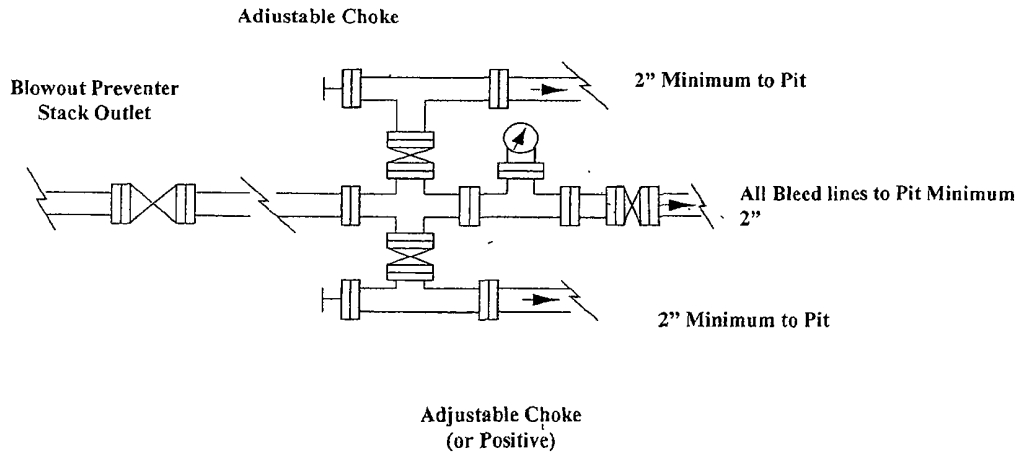
Exhibit #9

BOPE and Choke Schematic



Minimum 4" Nominal choke and kill lines

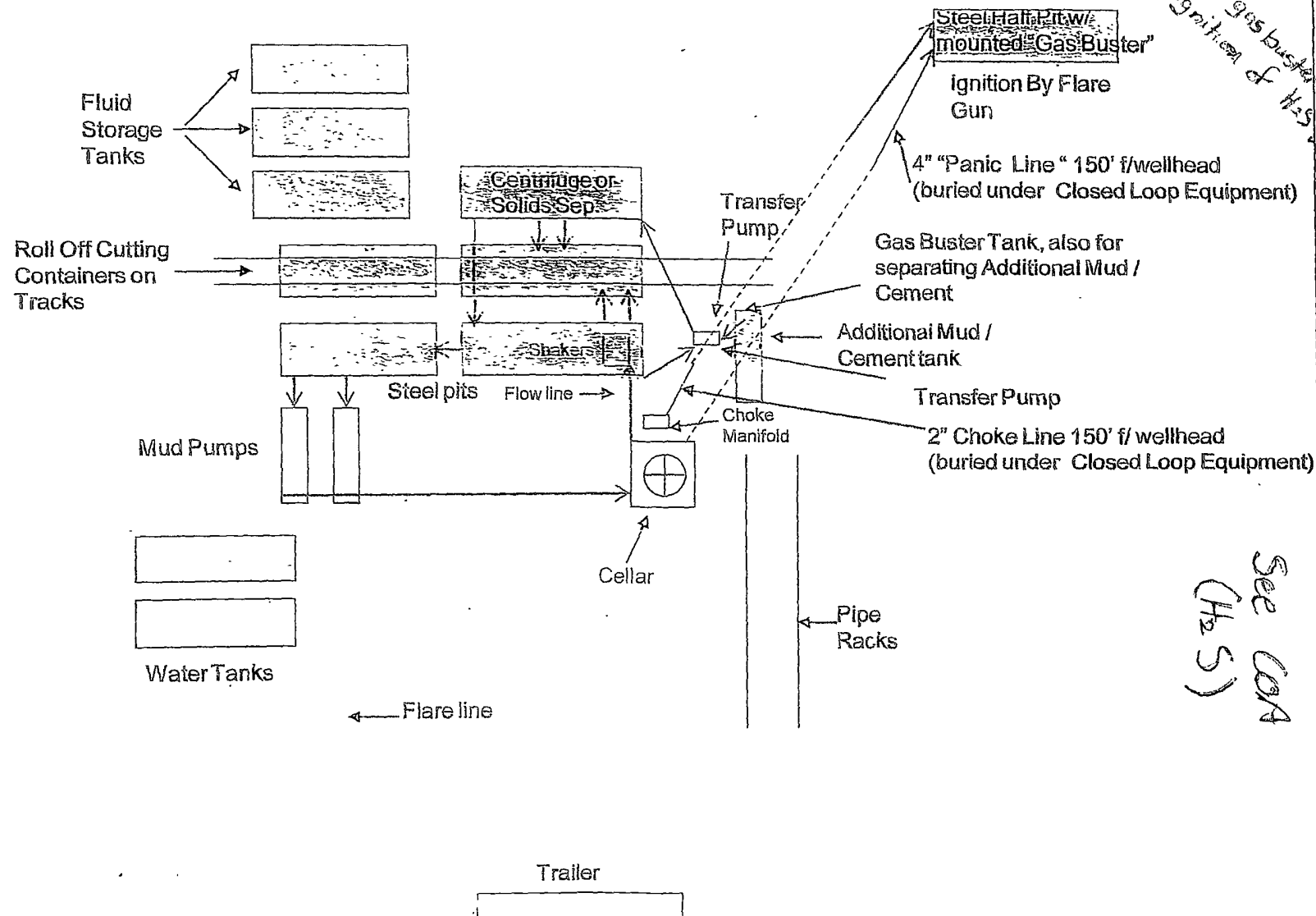
Choke Manifold Requirement (2000 psi WP)
No Annular Required



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.

COG Operating LLC
Closed Loop Equipment Diagram



*Open bottom gas buster
don't allow ignition of H₂S gas*

*See CEA
(H₂S)*

Closed Loop Operation & Maintenance Procedure

All drilling fluid circulated over shaker(s) with cuttings discharged into roll off container.

Fluid and fines below shaker(s) are circulated with transfer pump through centrifuge(s) or solids separator with cuttings and fines discharged into roll off container.

Fluid is continuously re-circulated through equipment with polymer added to aid separation of cutting fines.

Roll off containers are lined and de-watered with fluids re-circulated into system.

Additional tank is used to capture unused drilling fluid or cement returns from casing jobs.

This equipment will be maintained 24 hrs./day by solids control personnel and or rig crews that stay on location.

Cuttings will be hauled to either:

CRI (permit number R9166)

or

GMI (permit number 711-019-001)

dependent upon which rig is available to drill this well.

DISTRICT 2 -- CHECKLIST FOR INTENTS TO DRILL

38922

Operator COG Ope OGRID # 229134
 Well Name & # Duckett 13 F806242 84 Surface Type (F) (S) (P)
 Location: UL P Sect 12 Township 17 s, RNG 31 e, Sub-surface Type (F) (S) (P)

A. Date C101 rec'd 11/7/2011 C101 reviewed 11/14/2011

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

OGRID ☒ BONDING ☐ PROP CODE ☐ WELL # ☐ SIGNATURE ☐

2. Inactive Well list as of: 11/14/2011 # 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: 11/14/2011

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 GLORIA - Yaso Code 97213-97866

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 160 What Units P-I-H-A-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 11/21/2011

API #30-0 15-39658

8. Reviewers TCS