

12-376

OCD-ARTESIA

Form 3160-3
(April 2004)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
APPLICATION FOR PERMIT TO DRILL OR REENTER

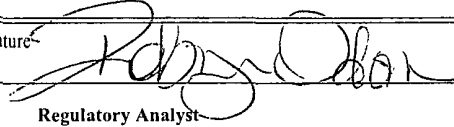
FORM APPROVED
OMB No 1004-0137
Expires March 31, 2007

5 Lease Serial No. SH:LC029020M; BH:LC-029020J	
6 If Indian, Allottee or Tribe Name N/A	
7 If Unit or CA Agreement, Name and No. N/A	
8 Lease Name and Well No Carmen 3 Federal Com #15H	
9 API Well No. 30-015- 40539	
1a Type of work <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER	10 Field and Pool, or Exploratory Mar Loco, Glorieta-Yeso
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	11 Sec., T R M or Blk. and Survey or Area Sec 3, T17S, R30E
2 Name of Operator COG Operating LLC	12 County or Parish Eddy
3a Address 550 W. Texas, Suite 100 Midland TX 79701	13 State NM
3b Phone No. (include area code) (432) 685-4385	14 Distance in miles and direction from nearest town or post office* 2.5 miles Northeast of Loco Hills, NM
4 Location of Well (Report location clearly and in accordance with any State requirements *) At surface SHL: 330' FNL & 330' FEL, Unit A, Lot 1 At proposed prod zone BHL: 330' FNL & 330' FWL, Unit B, Lot 4	15 Distance from proposed* location to nearest property or lease line, ft (Also to nearest drig unit line, if any) 330'
16 No. of acres in lease SHL:159.57; BHL:159.75	17 Spacing Unit dedicated to this well 159.32
18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft 0'	19 Proposed Depth 4800' TVD; 9216' MD
20 BLM/BIA Bond No on file NMB000740; NMB000215	21 Elevations (Show whether DF, KDB, RT, GL, etc.) 3757' GL
22 Approximate date work will start* 03/30/2012	23 Estimated duration 90 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) Robyn M. Odom	Date 01/23/2012
Title Regulatory Analyst		

Approved by (Signature) /s/ Don Peterson	Name (Printed/Typed) CARLSBAD FIELD OFFICE	Date JUL 26 2012
Title FIELD MANAGER		

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon
Conditions of approval, if any, are attached

APPROVAL FOR TWO YEARS

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction

*(Instructions on page 2)

Roswell Controlled Water Basin

**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**



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

Surface Use Plan
COG Operating, LLC
Carmen 3 Federal Com 15H
SL: 330' FNL & 330' FEL UN 1
BHL: 330' FNL & 330' FWL UN 4
Section 3, T-17-S, R-30-E
Eddy County, New Mexico

I hereby certify that I, or persons under my direct supervision, have inspected the drill site and access road proposed herein; that I am familiar with the conditions that presently exist; that I have full knowledge of State and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or COG Operating, LLC, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements. Executed this 18th day of November, 2011.

Signed: Carl Bird

Printed Name: Carl Bird

Position: Drilling Engineer

Address: 550 W. Texas, Suite 1300, Midland, Texas 79701

Telephone: (432) 683-7443

Field Representative (if not above signatory): Same

E-mail: cbird@conchoresources.com

DISTRICT I
1625 N. FRENCH DR., HOBBS, NM 88240

DISTRICT II
1301 W. GRAND AVENUE, ARTESIA, NM 88210

DISTRICT III
1000 RIO BRAZOS RD., AZTEC, NM 87410

DISTRICT IV
11885 S. ST. FRANCIS DR., SANTA FE, NM 87505

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

Form C-102
Revised July 16, 2010
Submit to Appropriate
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015- 40539	Pool Code 97866	Pool Name Loco Hills
Property Code 37967-39065	Property Name CARMEN 3 FEDERAL COM	Well Number 15 H
OGRID No. 229137	Operator Name COG OPERATING LLC	Elevation 3757'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
1	3	17-S	30-E		330	NORTH	330	EAST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
4	3	17-S	30-E		330	NORTH	330	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
159.32			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

<p>Project Area</p> <p>GR AZ. 269'49'15"</p> <p>HORIZ. DIST. 4622 34'</p> <p>Producing Area</p> <p>39.76 AC 39.81 AC 39.85 AC 39.90 AC</p> <p>SECTION QUARTER & SIXTEENTH CORNER COORDINATES</p> <p>Ⓐ - Y=680665.8 N, X=617494.8 E</p> <p>Ⓑ - Y=679346.5 N, X=617498.5 E</p> <p>Ⓒ - Y=680649.3 N, X=612213.5 E</p> <p>Ⓓ - Y=679333.7 N, X=612218.4 E</p>		<p>OPERATOR CERTIFICATION</p> <p>I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</p> <p><i>[Signature]</i> 1/23/2012 Signature Date</p> <p>Robyn M. Odom Printed Name</p> <p>Rodom@concho.com E-mail Address</p>	
<p>SECTION QUARTER & SIXTEENTH CORNER COORDINATES</p> <p>Ⓐ - Y=680665.8 N, X=617494.8 E</p> <p>Ⓑ - Y=679346.5 N, X=617498.5 E</p> <p>Ⓒ - Y=680649.3 N, X=612213.5 E</p> <p>Ⓓ - Y=679333.7 N, X=612218.4 E</p>		<p>SURVEYOR CERTIFICATION</p> <p>I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.</p> <p>SEPTEMBER 19, 2011</p> <p>Date of Survey</p> <p>Signature & Seal of Professional Surveyor:</p> <p><i>[Signature]</i> 9/24/2011</p> <p>RONALD J. EIDSON NEW MEXICO 3239 Certificate Number Gary J. Eidson 12641 Ronald J. Eidson 3239 AF WSC WO: 11.11 2048</p>	

ATTACHMENT TO FORM 3160-3
COG Operating, LLC
Carmen 3 Federal Com #15H
SHL: 330' FNL & 330' FEL, Unit 1
BHL: 330' FNL & 330' FWL, Unit 4
Sec 3, T17S, R30E
Eddy County, NM

1. Proration Unit Spacing: 160 Acres
2. Ground Elevation: 3757'
3. Proposed Depths: Horizontal TVD = 4,800', MD = 9216', PH = 6200'
4. Estimated tops of geological markers:

Quaternary	Surface
Rustler	332'
Top of Salt	563'
Tansill	1277'
Yates	1425'
Seven Rivers	1724'
Queen	2336'
Grayburg	2759'
San Andres	3053'
Glorieta	4499'
Paddock	4568'
Blaine	5044'
Tubb	5928'

PILOT HOLE WILL TD IN THE DRINKARD

4/17/2022
HJB

5. Possible mineral bearing formations:

Water Sand	150'	Fresh Water
Grayburg	2759'	Oil/Gas
San Andres	3053'	Oil/Gas
Glorieta	4499'	Oil/Gas
Paddock	4568'	Oil/Gas
Blaine	5044'	Oil/Gas
Tubb	5928'	Oil/Gas

No other formations are expected to give up oil, gas or fresh water in measurable quantities. Setting 13 3/8" casing to 450' 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 1350' 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 7" x 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
Carmen 3 Federal Com #15H
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*Hybrid J-55
cut 4/18/12*

6. Casing Program - Proposed

Hole size	Interval	OD of Casing	Weight	Cond.	Collar	Grade
17-1/2"	0' - +/-450'	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' - +/-1350'	9-5/8"	36#	New	STC	J/K-55
Collapse sf - 2.88, Burst sf - 5.01, Tension sf - 8.11						
8-3/4" x 7 7/8"	0' - 9216'	7" x 5-1/2"	26#/17#	New	LTC	L-80
7" Csg - Collapse sf - 2.38, Burst sf - 4.19, Tension sf - 4.16						
5 1/2" Csg - Collapse sf - 2.76, Burst sf - 3.41, Tension sf - 4.26						

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

7. Cement Program *See Coa*

13 3/8" Surface Csg: Set at +/- 450'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 +/- 1350'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. 194% excess, calculated to surface.

Multi Stage: **Stage 1:** 200 sx Class "C" w/ 2% CaCl₂, 1.32 yield. 76% 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, 176% excess; assumption for tool is lost circulation. Multi stage tool to be set at approximately, depending on hole conditions, 500' (50' below the surface casing). Cement volumes will be adjusted proportionately for depth changes of multi stage tool.

Pilot Hole Cement: 7-7/8" hole +/- 4175'-6200', 700sx Class C, 16.8 ppg, 1.02 yd, 17% excess, calculated. Cement volume to be adjusted proportionally with pilot hole td. *(states 6200')*

7 x 5 1/2" Production Csg: Set at +/- 9216'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. Tail 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. DV Tool and ECP to be set at kick off point with 7" cemented to surface and 5 1/2" run with +/- 18 isolation packers and sliding sleeves in uncemented lateral. 122% excess in open hole, from kick off point, calculated to surface. **This is a minimum volume and will be adjusted up after caliper is run.**

Multi Stage: **Stage 1:** (Assumed TD of 9216'MD to DV at 3000') Lead 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. 107% excess. **This is a minimum volume and will be adjusted up after caliper is run.** **Stage 2:** Lead Slurry: 400 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: 300 sx Class C w/ 0.3% R-3 + 1.5% CD-32, 1.02 yield. 154% 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 3000', depending on hole conditions. 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
Carmen 3 Federal Com #15H
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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" BOP will be used during the drilling of the well. A 13 5/8" permanent casing head will be installed on the 13 3/8" casing. The BOP will be nipped up on the 13 5/8" permanent casing head and tested to 2000 psi. After setting 9-5/8", permanent "B section" well head will be installed and the BOP will then be nipped up on the permanent B section well head 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' - 450'	8.5	28	NC	Fresh water native mud w/ paper for seepage and sweeps. Lime for PH.
450'- 1350'	10	30	NC	Brine mud, lime for PH and paper for seepage and sweeps.
1350'- 9216'	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:

Reduce hole size at 4175' to 7 7/8", drill pilot hole to 6200'. After evaluation, plug back pilot hole to 6,000'. Drill 8 3/4" hole and kick off at +/- 4323', building curve over +/- 750' to horizontal at 4800' TVD. Drill 7 7/8" lateral section in a westerly direction for +/-4144' lateral to TD at +/-9216' MD, 4800' TVD. Run 7" x 5-1/2" production casing. 7" to be ran from surface to kickoff point and changed over to 5 1/2" with DV Tool and ECP at kickoff point. 5 1/2" casing will be ran from kickoff point to td and isolation packers set throughout lateral. 7" to be cemented from kickoff point to surface.

run

run

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
Carmen 3 Federal Com #15H
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12. Logging, Testing and Coring Program:

see COFF

- A. The evaluation program will consist of PEX, LDT-CNL-GR, HRLA_GR, FMI, Rotary Cores and will be ran from T.D. in vertical pilot hole to 9 5/8" casing shoe.
- 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:

2700 cc 4/18/12

No abnormal pressures or temperatures are anticipated. The estimated bottom hole temperature at TD of pilot hole is 90 degrees and estimated maximum bottom hole pressure is ~~1800~~ 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 March 30, 2012 with drilling and completion operations lasting approximately 90 days.

ATTACHMENT TO FORM 3160-3
COG Operating, LLC
Carmen 3 Federal Com #15H
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12. Logging, Testing and Coring Program:

See COA

- A. The evaluation program will consist of PEX, LDT-CNL-GR, HRLA_GR, FMI, Rotary Cores and will be ran from T.D. in vertical pilot hole to 9 5/8" casing shoe.
- 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 temperature at TD is 90 degrees and estimated maximum bottom hole pressure is 1800 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 ^{*April*}~~March~~ 30, 2012 with drilling and completion operations lasting approximately 90 days.



COG Operating LLC

Eddy County, NM (NAN27 NME)

Carmen 3 Federal Com #15H

Carmen 3 Federal Com #15H

OH

Plan: Plan #1 8 3/4" Hole

SHL = 330' FNL & 330' FEL

BHL = 330' FNL & 330' FWL

Standard Planning Report

20 October, 2011





Scientific Drilling
Planning Report



Database:	EDM 5000 1 Single User Db	Local Co-ordinate Reference:	Site Carmen 3 Federal Com #15H
Company:	COG Operating LLC	TVD Reference:	GL Elev @ 3757.0usft
Project:	Eddy County, NM (NAN27 NME)	MD Reference:	GL Elev @ 3757.0usft
Site:	Carmen 3 Federal Com #15H	North Reference:	Grid
Well:	Carmen 3 Federal Com #15H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 8 3/4" 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:	Carmen 3 Federal Com #15H		
Site Position:		Northing:	680,334.90 usft
From:	Map	Easting:	617,165.90 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"
		Latitude:	32° 52' 11.068 N
		Longitude:	103° 57' 6.219 W
		Grid Convergence:	0.21°

Well:	Carmen 3 Federal Com #15H		
Well Position:	+N/-S 0.0 usft	Northing:	680,334.90 usft
	+E/-W 0.0 usft	Easting:	617,165.90 usft
Position Uncertainty:	0.0 usft	Wellhead Elevation:	3,757.0 usft
		Latitude:	32° 52' 11.068 N
		Longitude:	103° 57' 6.219 W
		Ground Level:	3,757.0 usft

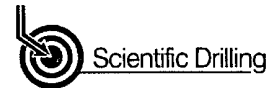
Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/19/11	7.77	60.71	48,926

Design:	Plan #1 8 3/4" Hole			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0 0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0 0	0 0	0.0	269.82

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
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
4,322.5	0.00	0.00	4,322.5	0.0	0.0	0.00	0.00	0.00	0.00	
5,072.5	90.00	269.82	4,800.0	-1.5	-477.5	12.00	12.00	0.00	269.82	
9,216.4	90.00	269.82	4,800.0	-14.4	-4,621.3	0.00	0.00	0.00	0.00	PBHL-Carmen 3 #15H



Scientific Drilling
Planning Report

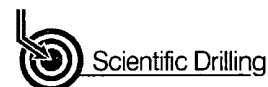


Database:	EDM 5000 1 Single User Db	Local Co-ordinate Reference:	Site Carmen 3 Federal Com #15H
Company:	COG Operating LLC	TVD Reference:	GL Elev @ 3757.0usft
Project:	Eddy County, NM (NAN27 NME)	MD Reference:	GL Elev @ 3757.0usft
Site:	Carmen 3 Federal Com #15H	North Reference:	Grd
Well:	Carmen 3 Federal Com #15H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 8 3/4" 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 0	0 00	0 00	0 0	0 0	0 0	0 0	0.00	0.00	0.00
1,350 0	0 00	0 00	1,350 0	0 0	0 0	0 0	0.00	0.00	0.00
9 5/8"									
4,322 5	0.00	0 00	4,322.5	0 0	0 0	0 0	0.00	0.00	0.00
KOP Start Build 12.00°/100"									
4,400 0	9 30	269 82	4,399 7	0 0	-6 3	6 3	12 00	12 00	0.00
4,500 0	21 30	269 82	4,495 9	-0 1	-32 6	32 6	12 00	12 00	0.00
4,600 0	33 30	269 82	4,584 6	-0 2	-78 4	78 4	12 00	12 00	0.00
4,700 0	45 30	269 82	4,661 9	-0 4	-141 6	141 6	12 00	12 00	0.00
4,800 0	57 30	269 82	4,724 3	-0 7	-219 5	219 5	12 00	12 00	0.00
4,900 0	69 30	269 82	4,769 2	-1 0	-308 7	308 7	12 00	12 00	0.00
5,000 0	81 30	269 82	4,794 5	-1 3	-405 2	405 2	12 00	12 00	0.00
5,072 5	90 00	269 82	4,800 0	-1 5	-477 5	477 5	12 00	12 00	0.00
Land EOC Hold 90.0°									
5,100 0	90 00	269 82	4,800 0	-1 6	-504 9	504 9	0.00	0.00	0.00
5,200 0	90 00	269 82	4,800 0	-1 9	-604 9	604 9	0.00	0.00	0.00
5,300 0	90 00	269 82	4,800 0	-2 2	-704 9	704 9	0.00	0.00	0.00
5,400 0	90 00	269 82	4,800 0	-2 5	-804 9	804 9	0.00	0.00	0.00
5,500 0	90 00	269 82	4,800 0	-2 8	-904 9	904 9	0.00	0.00	0.00
5,600 0	90 00	269 82	4,800 0	-3 1	-1,004 9	1,004 9	0.00	0.00	0.00
5,700 0	90 00	269 82	4,800 0	-3 4	-1,104 9	1,104 9	0.00	0.00	0.00
5,800 0	90 00	269 82	4,800 0	-3 8	-1,204 9	1,204 9	0.00	0.00	0.00
5,900 0	90 00	269 82	4,800 0	-4 1	-1,304 9	1,304 9	0.00	0.00	0.00
6,000 0	90 00	269 82	4,800 0	-4 4	-1,404 9	1,404 9	0.00	0.00	0.00
6,100 0	90 00	269 82	4,800 0	-4 7	-1,504 9	1,504 9	0.00	0.00	0.00
6,200 0	90 00	269 82	4,800 0	-5 0	-1,604 9	1,604 9	0.00	0.00	0.00
6,300 0	90 00	269 82	4,800 0	-5 3	-1,704 9	1,704 9	0.00	0.00	0.00
6,400 0	90 00	269 82	4,800 0	-5 6	-1,804 9	1,804 9	0.00	0.00	0.00
6,500 0	90 00	269 82	4,800 0	-5 9	-1,904 9	1,904 9	0.00	0.00	0.00
6,600 0	90 00	269 82	4,800 0	-6 2	-2,004 9	2,004 9	0.00	0.00	0.00
6,700 0	90 00	269 82	4,800 0	-6 6	-2,104 9	2,104 9	0.00	0.00	0.00
6,800 0	90 00	269 82	4,800 0	-6 9	-2,204 9	2,204 9	0.00	0.00	0.00
6,900 0	90 00	269 82	4,800 0	-7 2	-2,304 9	2,304 9	0.00	0.00	0.00
7,000 0	90 00	269 82	4,800 0	-7 5	-2,404 9	2,404 9	0.00	0.00	0.00
7,100 0	90 00	269 82	4,800 0	-7 8	-2,504 9	2,504 9	0.00	0.00	0.00
7,200 0	90 00	269 82	4,800 0	-8 1	-2,604 9	2,604 9	0.00	0.00	0.00
7,300 0	90 00	269 82	4,800 0	-8 4	-2,704 9	2,704 9	0.00	0.00	0.00
7,400 0	90 00	269 82	4,800 0	-8 7	-2,804 9	2,804 9	0.00	0.00	0.00
7,500 0	90 00	269 82	4,800 0	-9 1	-2,904 9	2,904 9	0.00	0.00	0.00
7,600 0	90 00	269 82	4,800 0	-9 4	-3,004 9	3,004 9	0.00	0.00	0.00
7,700 0	90 00	269 82	4,800 0	-9 7	-3,104 9	3,104 9	0.00	0.00	0.00
7,800 0	90 00	269 82	4,800 0	-10 0	-3,204 9	3,204 9	0.00	0.00	0.00
7,900 0	90 00	269 82	4,800 0	-10 3	-3,304 9	3,304 9	0.00	0.00	0.00
8,000 0	90 00	269 82	4,800 0	-10 6	-3,404 9	3,404 9	0.00	0.00	0.00
8,100 0	90 00	269 82	4,800 0	-10 9	-3,504 9	3,504 9	0.00	0.00	0.00
8,200 0	90 00	269 82	4,800 0	-11 2	-3,604 9	3,604 9	0.00	0.00	0.00
8,300 0	90 00	269 82	4,800 0	-11 5	-3,704 9	3,704 9	0.00	0.00	0.00
8,400 0	90 00	269 82	4,800 0	-11 9	-3,804 9	3,804 9	0.00	0.00	0.00
8,500 0	90 00	269 82	4,800 0	-12 2	-3,904 9	3,904 9	0.00	0.00	0.00
8,600 0	90 00	269 82	4,800 0	-12 5	-4,004 9	4,004 9	0.00	0.00	0.00
8,700 0	90 00	269 82	4,800 0	-12 8	-4,104 9	4,104 9	0.00	0.00	0.00
8,800 0	90 00	269 82	4,800 0	-13 1	-4,204 9	4,204 9	0.00	0.00	0.00
8,900 0	90 00	269 82	4,800 0	-13 4	-4,304 9	4,304 9	0.00	0.00	0.00



Scientific Drilling
Planning Report



Database:	EDM 5000 1 Single User Db	Local Co-ordinate Reference:	Site Carmen 3 Federal Com #15H
Company:	COG Operating LLC	TVD Reference:	GL Elev @ 3757 0usft
Project:	Eddy County, NM (NAN27 NME)	MD Reference:	GL Elev @ 3757 0usft
Site:	Carmen 3 Federal Com #15H	North Reference:	Grid
Well:	Carmen 3 Federal Com #15H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 8 3/4" Hole		

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)
9,000 0	90 00	269 82	4,800 0	-13 7	-4,404 9	4,404 9	0 00	0 00	0 00
9,100 0	90 00	269 82	4,800 0	-14 0	-4,504 9	4,504 9	0 00	0 00	0 00
9,200 0	90 00	269 82	4,800 0	-14 3	-4,604 9	4,604 9	0 00	0 00	0 00
9,216 4	90 00	269 82	4,800 0	-14 4	-4,621 3	4,621 3	0 00	0 00	0 00
PBHL-Carmen 3 #15H									

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
PBHL-Carmen 3 #15H	- plan hits target center - Point	0 00	0 00	4,800 0	-14 4	-4,621 3	680,320 50	612,544 60	32° 52' 11 087 N 103° 58' 0 404 W

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,350 0	1,350 0	9 5/8"	9-5/8	12-1/4

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates	Comment
4,322 5	4,322 5	0 0	KOP Start Build 12 00°/100"
5,072 5	4,800 0	-1 5	Land EOC Hold 90 0°



Scientific Drilling for COG Operating LLC
Site: Eddy County, NM (NAN27-NME)
Well: Carmen 3 Federal Com #15H
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	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	4322.5	0.00	0.00	4322.5	0.0	0.0	0.00	0.00	0.0	
3	5072.5	90.00	269.82	4800.0	-1.5	-477.5	12.00	269.82	477.5	
4	9216.4	90.00	269.82	4800.0	-14.4	-4621.3	0.00	0.00	4621.3	PBHL-Carmen 3 #15H

Plan: Plan #1 8 3/4" Hole (Carmen 3 Federal Com #15H/OH)

Created By: Julio Pina

Date: 19-Oct-11

Name
PBHL-Carmen 3 #15H

Checked: _____

Date: _____

Reviewed: _____

Date: _____

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape Point
4800.0	-14.4	-4621.3	680320.50	612544.60	32°52'11.087 N	103°58'0.404 W	

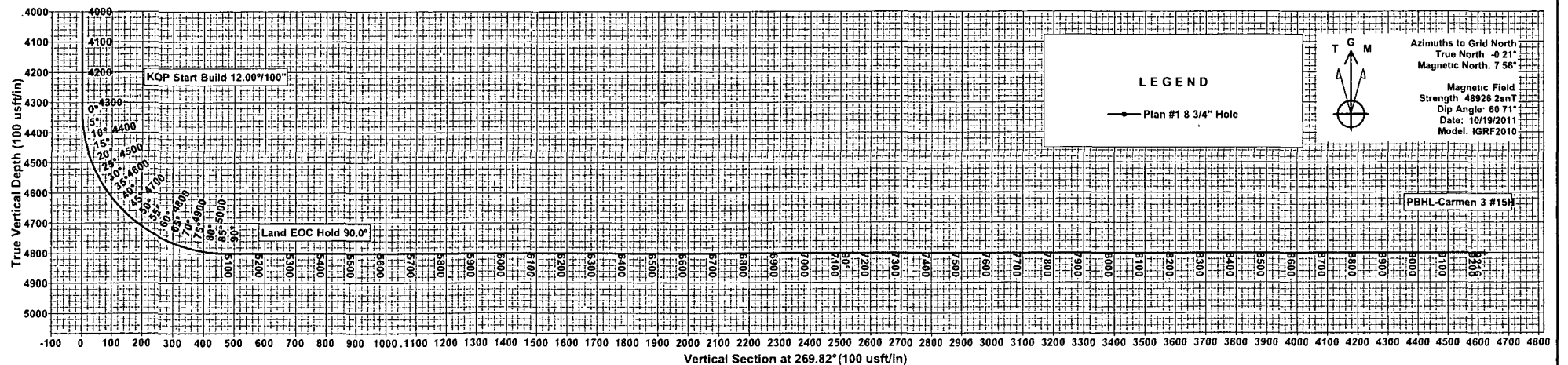
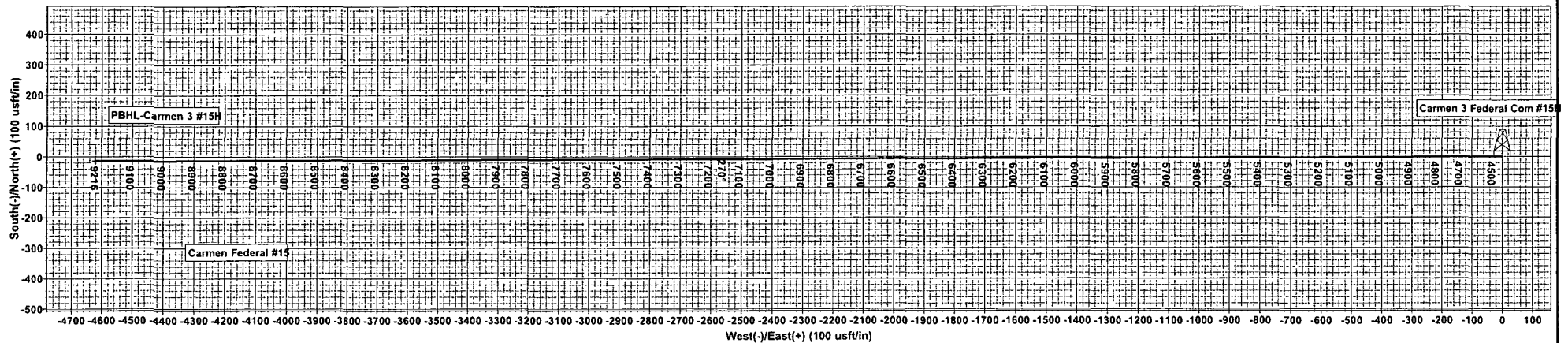
WELL DETAILS: Carmen 3 Federal Com #15H

PROJECT DETAILS: Eddy County, NM (NAN27-NME)

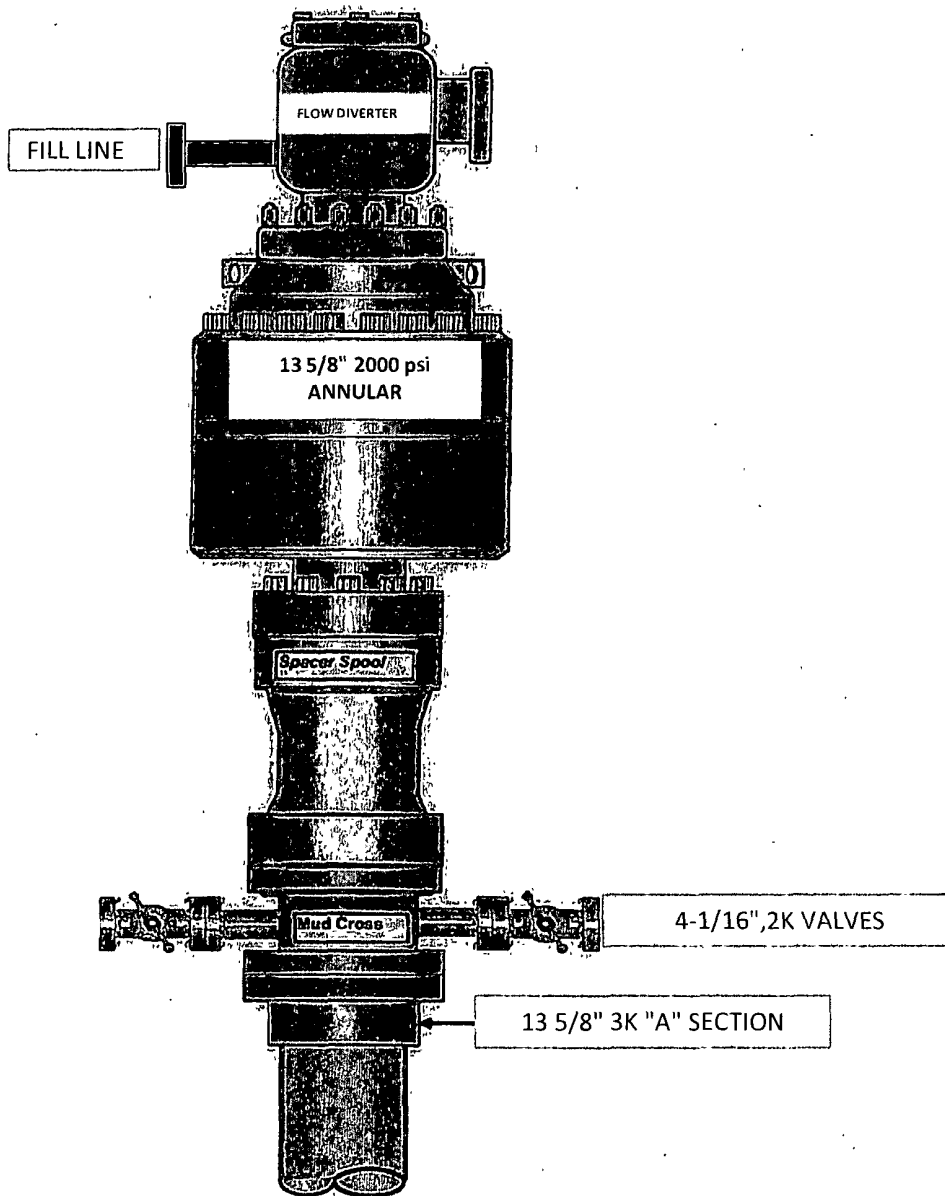
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level

Ground Level	3757.0	Latitude	Longitude	Slot
+N/-S	0.0	+E/-W	0.0	
Northing	680334.90	Easting	617165.90	
		32°52'11.068 N	103°57'6.219 W	

AZIMUTH CORRECTIONS
ALL AZIMUTHS MUST BE CORRECTED TO GRID
GRID CORRECTIONS MUST BE APPLIED BEFORE PLOTTING
To convert a Magnetic Direction to a Grid Direction, Add 7.56°
To convert a True Direction to a Grid Direction, Subtract 0.21°



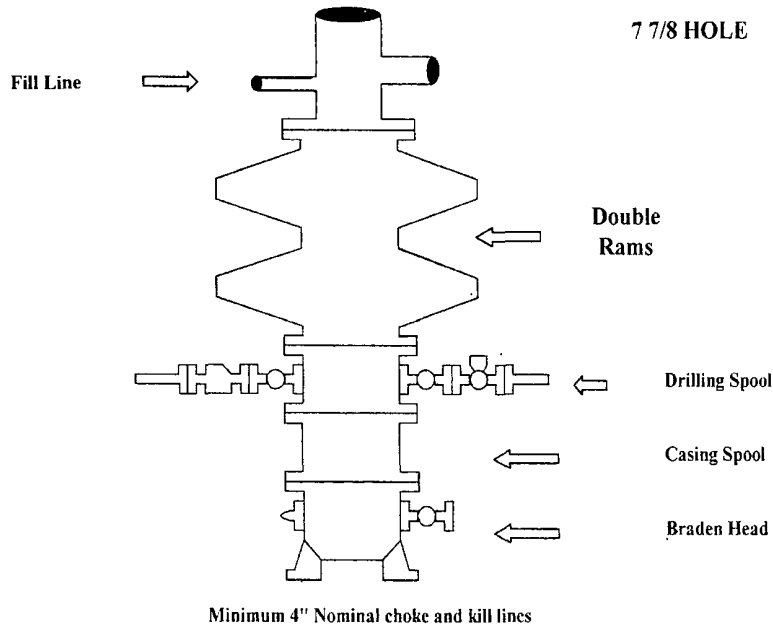
13 5/8" 2K ANNULAR



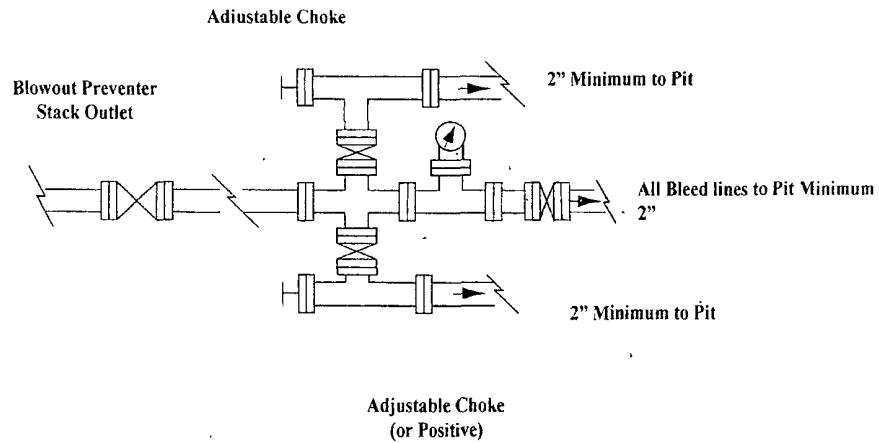
COG Operating LLC

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.

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:

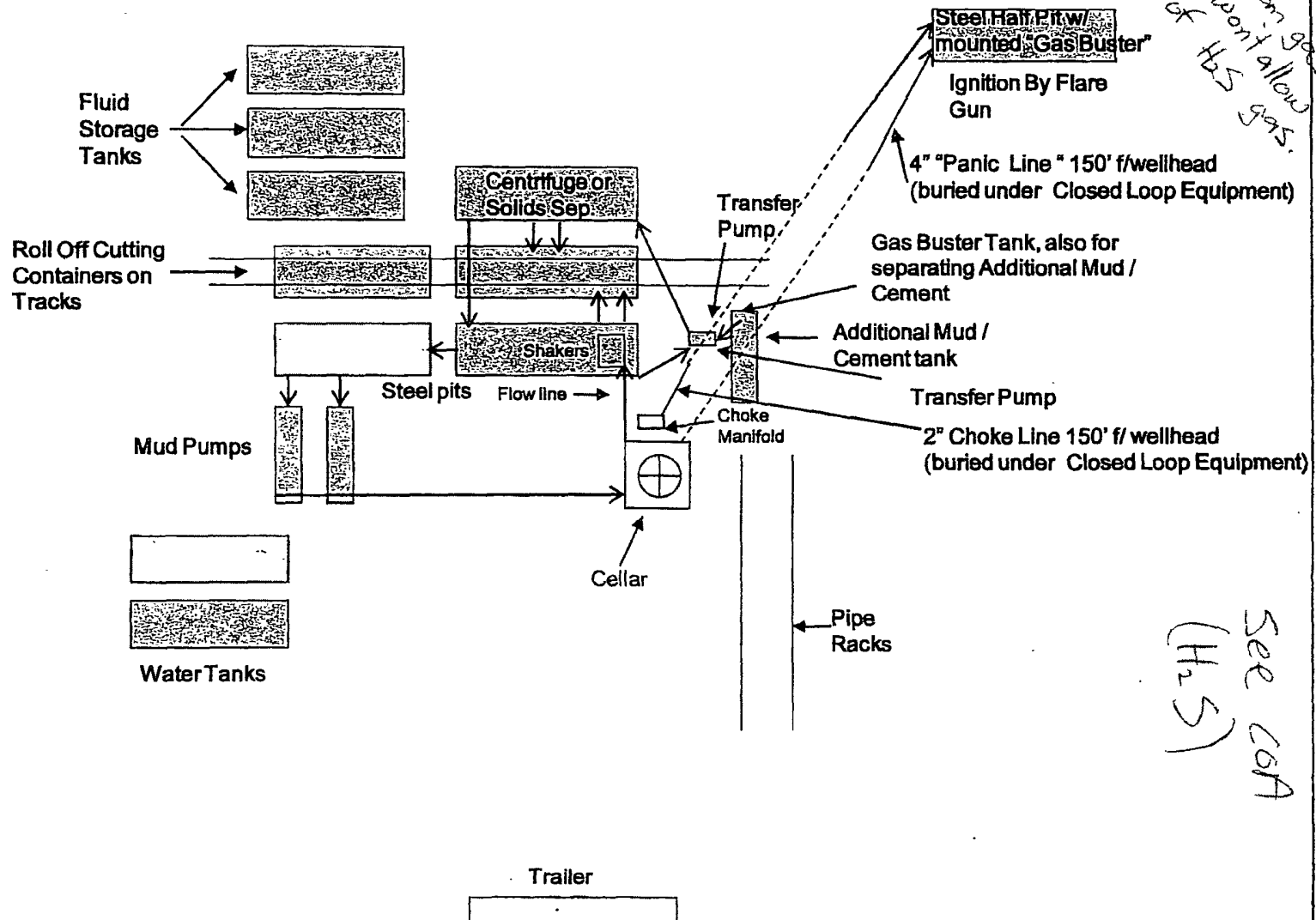
CRI (permit number R9166)

or

GMI (permit number 711-019-001)

dependent upon which rig is available to drill this well.

COG Operating LLC
Closed Loop Equipment Diagram



COG Operating LLC

Hydrogen Sulfide Drilling Operation Plan

I. HYDROGEN SULFIDE TRAINING

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

1. The hazards and characteristics of hydrogen sulfide (H₂S)
2. The proper use and maintenance of personal protective equipment and life support systems.
3. The proper use of H₂S detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.
4. The proper techniques for first aid and rescue procedures.

In addition, supervisory personnel will be trained in the following areas:

1. The effects of H₂S on metal components. If high tensile tubular are to be used, personnel will be trained in their special maintenance requirements.
2. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
3. The contents and requirements of the H₂S Drilling Operations Plan and Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H₂S zone (within 3 days or 500 feet) and weekly H₂S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H₂S Drilling Operations Plan and the Public Protection Plan. **The concentrations of H₂S of wells in this area from surface to TD are low enough that a contingency plan is not required.**

II. H2S SAFETY EQUIPMENT AND SYSTEMS

Note: All H2S safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonable expected to contain H2S.

1. Well Control Equipment:

- A. Flare line.
- B. Choke manifold.
- C. Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit.
- D. Auxiliary equipment may include if applicable: annular preventer & rotating head.

2. Protective equipment for essential personnel:

- A. Mark II Survive air 30-minute units located in the doghouse and at briefing areas, as indicated on well site diagram.

3. H2S detection and monitoring equipment:

- A. 1 portable H2S monitors positioned on location for best coverage and response. These units have warning lights and audible sirens when H2S levels of 20 PPM are reached.

4. Visual warning systems:

- A. Wind direction indicators as shown on well site diagram (Exhibit #8).
- B. Caution/Danger signs (Exhibit #7) shall be posted on roads providing direct access to location. Signs will be painted a high visibility yellow with black lettering of sufficient size to be readable at a reasonable distance from the immediate location. Bilingual signs will be used, when appropriate. See example attached.

5. Mud program:

- A. The mud program has been designed to minimize the volume of H2S circulated to surface. Proper mud weight, safe drilling practices, and the use of H2S scavengers will minimize hazards when penetrating H2S bearing zones.
-

6. Metallurgy:

- A. All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H2S service
- B. All elastomers used for packing and seals shall be H2S trim.

7. Communication:

- A. Radio communications in company vehicles including cellular telephone and 2-way radio.
- B. Land line (telephone) communication at Office.

8. Well testing:

- A. Drill stem testing will be performed with a minimum number of personnel in the immediate vicinity, which are necessary to safely and adequately conduct the test. The drill stem testing will be conducted during daylight hours and formation fluids will not be flowed to the surface. All drill-stem-testing operations conducted in an H2S environment will use the closed chamber method of testing.
- B. There will be no drill stem testing.

EXHIBIT #7

**WARNING
YOU ARE ENTERING AN H2S
AUTHORIZED PERSONNEL ONLY**

- 1. BEARDS OR CONTACT LENSES NOT ALLOWED**
- 2. HARD HATS REQUIRED**
- 3. SMOKING IN DESIGNATED AREAS ONLY.**
- 4. BE WIND CONSCIOUS AT ALL TIMES**
- 5. CHECK WITH COG OPERATING FOREMAN AT**

**COG OPERATING LLC
1-432-683-7443
1-575-746-2010**

EDDY COUNTY EMERGENCY NUMBERS

ARTESIA FIRE DEPT. 575-746-5050
ARTESIA POLICE DEPT. 575-746-5000
EDDY CO. SHERIFF DEPT. 575-746-9888

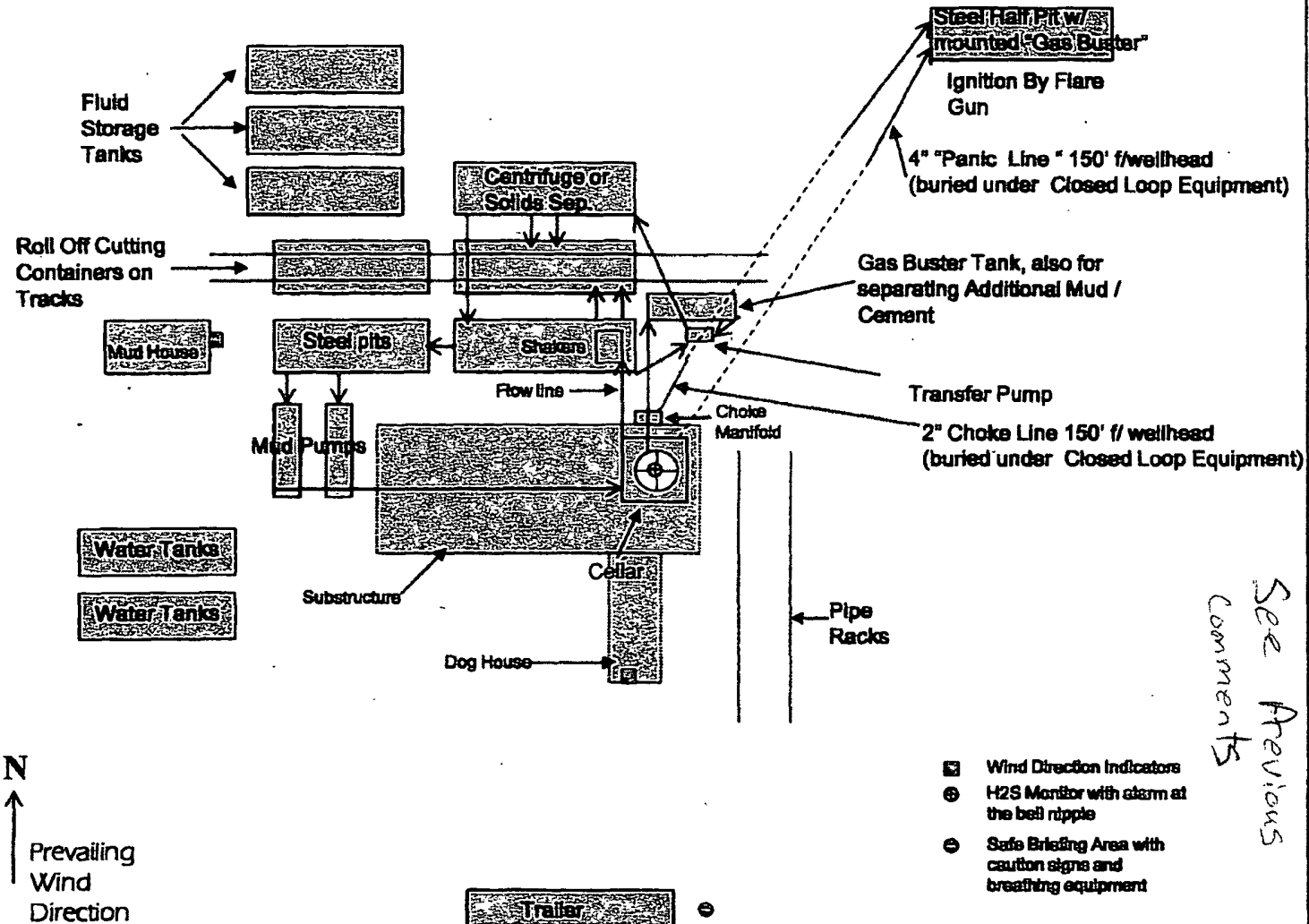
LEA COUNTY EMERGENCY NUMBERS

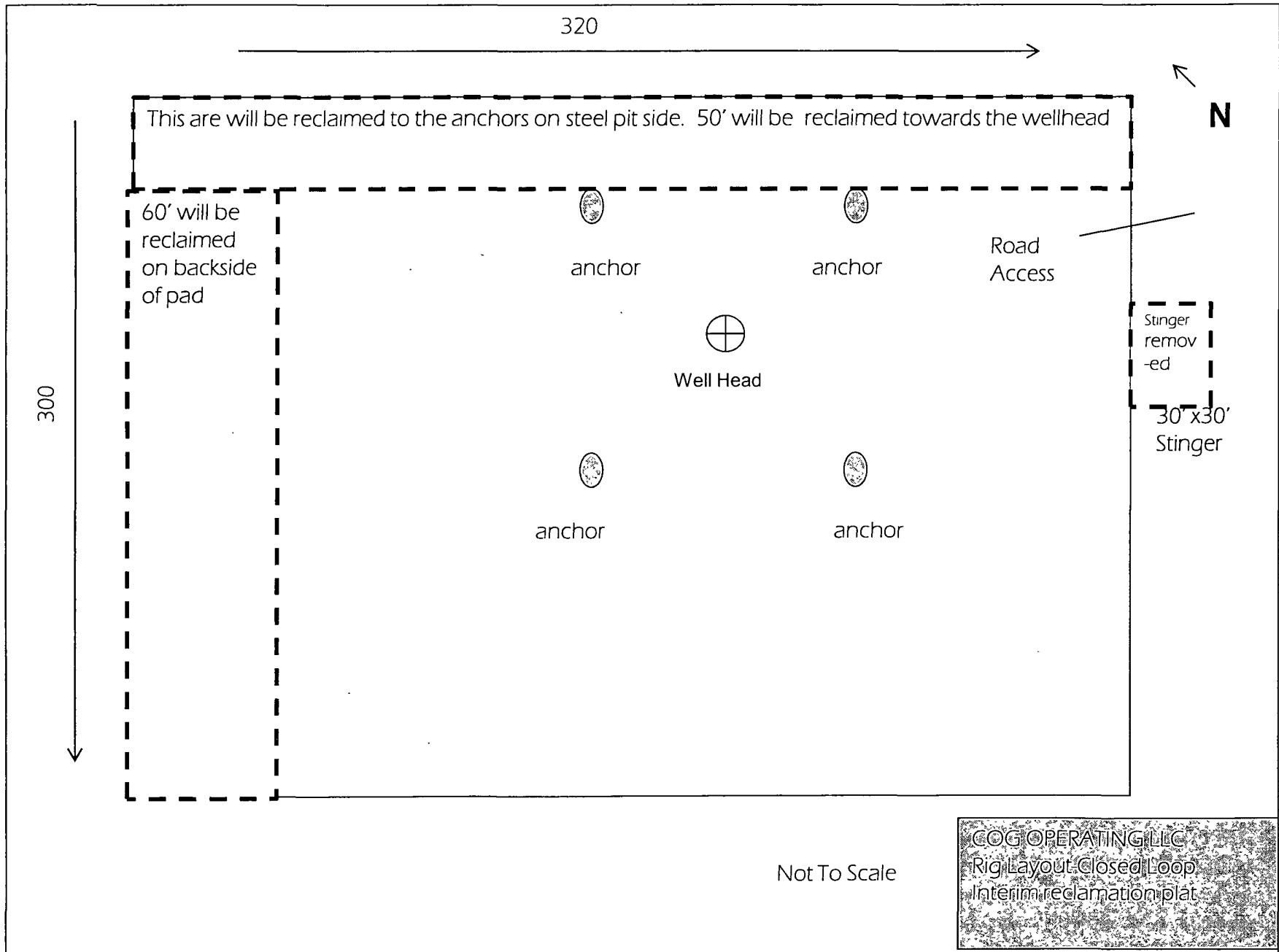
HOBBS FIRE DEPT. 575-397-9308
HOBBS POLICE DEPT. 575-397-9285
LEA CO. SHERIFF DEPT. 575-396-1196

COG Operating LLC

EXHIBIT 8

Drilling Location - H2S Safety Equipment Diagram





PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	COG OPERATING LLC
LEASE NO.:	NMLC029020M
WELL NAME & NO.:	15H CARMEN 3 FEDERAL COM
SURFACE HOLE FOOTAGE:	330' FNL & 330' FEL
BOTTOM HOLE FOOTAGE:	330' FNL & 330' FWL
LOCATION:	Section 3, T.17 S., R.30 E., NMPM
COUNTY:	Eddy County, New Mexico

TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☒ **Special Requirements**
 - Pipeline Placement
 - Lesser Prairie-Chicken Timing Stipulations
 - Ground-level Abandoned Well Marker
 - Communitization Agreement
- ☒ **Construction**
 - Notification
 - Topsoil
 - Closed Loop System
 - Federal Mineral Material Pits
 - Well Pads
 - Roads
- ☐ **Road Section Diagram**
- ☒ **Drilling**
 - H2S requirement
 - Logging requirement
 - Waste Material and Fluids
- ☒ **Production (Post Drilling)**
 - Well Structures & Facilities
 - Pipelines
- ☐ **Interim Reclamation**
- ☒ **Final Abandonment & Reclamation**