

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

OCD Artesia

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

## SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

## SUBMIT IN TRIPLICATE- Other instructions on reverse side.

1. Type of Well  
☒ Oil Well ☐ Gas Well ☐ Other2. Name of Operator  
COG Operating LLC3a. Address  
550 W. Texas Ave., Suite 100 Midland, TX 797013b. Phone No. (include area code)  
432-685-43854. Location of Well (Footage, Sec., T., R., M., or Survey Description)  
2310' FNL & 330' FWL, SEC. 3, T17S, R30E, Unit E

5. Lease Serial No.

NMLC-029020M

6. If Indian, Allottee or Tribe Name

N/A

7. If Unit or CA/Agreement, Name and/or No.  
N/A

8. Well Name and No.

Carmen Federal #1 H

9. API Well No.

30-015-39286

10. Field and Pool, or Exploratory Area

Loco Hills; Gloreita-Yeso 96718

11. County or Parish, State

EDDY, NM

## 12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input checked="" type="checkbox"/> Other
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	Change Name & Location
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

COG Operating LLC respectfully requests permission to change the name of this well to:  
Carmen 3 Federal Com #1H

The present location for this well is:  
2310' FNL & 330' FWL, SEC. 3, T17S, R30E, Unit E

COG respectfully requests permission to move this location to:  
SHL: 2310' FNL & 330' FWL, SEC. 3, T17S, R30E, Unit E  
BHL: 2310' FNL & 330' FEL, SEC. 3, T17S, R30E, Unit H

These changes are requested in order to drill this well as a horizontal.

An original C-102, Directional Plan, Drilling Plan and Rig Layouts are attached for your review.

SEE ATTACHED FOR  
CONDITIONS OF APPROVAL

RECEIVED

JAN 13 2012

NMOCD ARTESIA

Property Code 39065

Accepted for record

NMOCD 10/21/2011

14. I hereby certify that the foregoing is true and correct  
Name (Printed/Typed)

Robyn M. Odom

Title Regulatory Analyst

Signature

Robyn Odom

Date

10/21/2011

## THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

/s/ Don Peterson

Title

Date

JAN 11 2012

Conditions of approval, if any, are attached. Approval of this notice 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.

Office

CARLSBAD FIELD OFFICE

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)

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 <b>30-015-39286</b>	Pool Code <b>96718</b>	Pool Name <b>LOCO HILLS; GLORIETA-YESO</b>
Property Code <b>37967</b>	Property Name <b>CARMEN 3 FEDERAL COM</b>	Well Number <b>1H</b>
OGRID No. <b>229137</b>	Operator Name <b>COG OPERATING, LLC</b>	Elevation <b>3718'</b>

**Surface Location**

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
<b>E</b>	<b>3</b>	<b>17-S</b>	<b>30-E</b>	<b>(</b>	<b>2310</b>	<b>NORTH</b>	<b>330</b>	<b>WEST</b>	<b>EDDY</b>

**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
<b>H</b>	<b>3</b>	<b>17-S</b>	<b>30-E</b>	<b>(</b>	<b>2310</b>	<b>NORTH</b>	<b>330</b>	<b>EAST</b>	<b>EDDY</b>

Dedicated Acres	Joint or Infill	Consolidation Code	Order No
<b>160</b>			

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><b>LOT 4</b>      <b>LOT 3</b>      <b>LOT 2</b>      <b>LOT 1</b></p> <p>39.76 AC      39.81 AC      39.85 AC      39.90 AC</p> <p>GRID. AZ -89°49'16" HORZ. DIST. -4620.5'</p> <p><b>GEODETIC COORDINATES</b> NAD 27 NME SURFACE LOCATION Y=678341.1 N X=612552.1 E</p> <p><b>BOTTOM HOLE LOCATION</b> Y=678355.4 N X=617171.4 E</p> <p><b>SECTION, QUARTER &amp; SIXTEENTH CORNER COORDINATES</b></p> <p>Ⓐ - Y=679338.0, X=612218.4 Ⓑ - Y=678018.2, X=612223.4 Ⓒ - Y=679347.8, X=617498.5 Ⓓ - Y=678027.3, X=617502.3</p>	<p><b>OPERATOR CERTIFICATION</b></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>Signature: <i>Robyn Odom</i>      Date: <b>10/21/2011</b></p> <p>Printed Name: <b>Robyn Odom</b></p> <p>E-mail Address: <b>Rodom@concho.com</b></p> <hr/> <p><b>SURVEYOR CERTIFICATION</b></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><b>AUGUST 25, 2010</b></p> <p>Date of Survey</p> <p>Signature &amp; Seal of Professional Surveyor.</p> <p><b>RONALD J. EIDSON</b> NEW MEXICO 3239 Professional Surveyor 9/07/2011</p> <p>Certificate Number: Gary G. Eidson 12641 Ronald J. Eidson 3239</p> <p>LA      TWSC W.O.: 11 13 1962</p>
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## **COG Operating LLC**

Eddy County, NM (NAN27 NME)

Carmen 3 Federal Com #1H

Carmen 3 Federal Com #1H

OH

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

SHL = 2310' FNL & 330' FWL

BHL = 2310' FNL & 330' FEL

## **Standard Planning Report**

22 September, 2011





Scientific Drilling  
Planning Report



Database:	EDM-Julio	Local Co-ordinate Reference:	Site Carmen 3 Federal Com #1H
Company:	COG Operating LLC	TVD Reference:	GL Elev @ 3718 00usft
Project:	Eddy County, NM (NAN27 NME)	MD Reference:	GL Elev @ 3718 00usft
Site:	Carmen 3 Federal Com #1H	North Reference:	Grid
Well:	Carmen 3 Federal Com #1H	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 #1H		
Site Position:		Northing:	678,341 10 usft
From:	Map	Easting:	612,552 10 usft
Position Uncertainty:	0 00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 51' 51 500 N
		Longitude:	103° 58' 0 397 W
		Grid Convergence:	0 20 °

Well	Carmen 3 Federal Com #1H		
Well Position	+N/-S	0 00 usft	Northing:
	+E/-W	0 00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	Ground Level:
			3,718 00 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010	2011/09/22	7.78
			Dip Angle
			(°)
			60 70
			Field Strength
			(nT)
			48,929

Design	Plan #1 8-3/4" 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
			(°)
			89 82

Plan Sections										
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Dogleg Rate	Build Rate	Turn Rate	TFO	Target
(usft)	(°)	(°)	(usft)	(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	
4,322 54	0 00	0 00	4,322 54	0 00	0 00	0.00	0.00	0.00	0 00	
5,072 54	90.00	89 82	4,800 00	1 48	477 46	12 00	12 00	0 00	89 82	
9,214 39	90 00	89 82	4,800 00	14.30	4,619.30	0 00	0 00	0 00	0 00	PBHL-Carmen 3 Fed



Scientific Drilling  
Planning Report



Database:	EDM-Julio	Local Co-ordinate Reference:	Site Carmen 3 Federal Com #1H
Company:	COG Operating LLC	TVD Reference:	GL Elev @ 3718.00usft
Project:	Eddy County, NM (NAN27 NME)	MD Reference:	GL Elev @ 3718 00usft
Site:	Carmen 3 Federal Com #1H	North Reference:	Grid
Well:	Carmen 3 Federal Com #1H	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 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
1,350 00	0 00	0 00	1,350 00	0 00	0 00	0 00	0 00	0 00	0 00
9-5/8" Casing									
4,322 54	0 00	0 00	4,322 54	0 00	0 00	0 00	0 00	0 00	0 00
KOP Start Build 12.00°/100'									
4,400 00	9 30	89 82	4,399 66	0 02	6 27	6 27	12 00	12 00	0 00
4,500 00	21 30	89 82	4,495 94	0 10	32 60	32 60	12 00	12 00	0 00
4,600 00	33 30	89 82	4,584 64	0 24	78 38	78 38	12 00	12 00	0 00
4,700 00	45 30	89 82	4,661 89	0 44	141 59	141 59	12 00	12 00	0 00
4,800 00	57 30	89 82	4,724 31	0 68	219 49	219 49	12 00	12 00	0 00
4,900 00	69 30	89 82	4,769 16	0 96	308 66	308 66	12 00	12 00	0 00
5,000 00	81 30	89 82	4,794 50	1 25	405 21	405 21	12 00	12 00	0 00
5,072.54	90 00	89 82	4,800 00	1 48	477 47	477 47	12 00	12 00	0 00
Land EOC hold 90.00°									
5,100 00	90 00	89 82	4,800 00	1 56	504 93	504 93	0 00	0 00	0 00
5,200 00	90 00	89 82	4,800 00	1 87	604 93	604 93	0 00	0 00	0 00
5,300 00	90 00	89 82	4,800 00	2 18	704 93	704 93	0 00	0 00	0 00
5,400 00	90 00	89 82	4,800 00	2 49	804 93	804 93	0 00	0 00	0 00
5,500 00	90 00	89 82	4,800 00	2 80	904 93	904 93	0 00	0 00	0 00
5,600 00	90 00	89 82	4,800 00	3 11	1,004 92	1,004 93	0 00	0 00	0 00
5,700 00	90 00	89 82	4,800 00	3 42	1,104 92	1,104 93	0 00	0 00	0 00
5,800 00	90 00	89 82	4,800 00	3 73	1,204 92	1,204 93	0 00	0 00	0 00
5,900 00	90 00	89 82	4,800 00	4 04	1,304 92	1,304 93	0 00	0 00	0 00
6,000 00	90 00	89 82	4,800 00	4 35	1,404 92	1,404 93	0 00	0 00	0 00
6,100 00	90 00	89 82	4,800 00	4 66	1,504 92	1,504 93	0 00	0 00	0 00
6,200 00	90 00	89 82	4,800 00	4 97	1,604 92	1,604 93	0 00	0 00	0 00
6,300 00	90 00	89 82	4,800 00	5 28	1,704 92	1,704 93	0 00	0 00	0 00
6,400 00	90 00	89 82	4,800 00	5 59	1,804 92	1,804 93	0 00	0 00	0 00
6,500 00	90 00	89 82	4,800 00	5 90	1,904 92	1,904 93	0 00	0 00	0 00
6,600 00	90 00	89 82	4,800 00	6 21	2,004 92	2,004 93	0 00	0 00	0 00
6,700 00	90 00	89 82	4,800 00	6 52	2,104 92	2,104 93	0 00	0 00	0 00
6,800 00	90 00	89 82	4,800 00	6 83	2,204 92	2,204 93	0 00	0 00	0 00
6,900 00	90 00	89 82	4,800 00	7 14	2,304 92	2,304 93	0 00	0 00	0 00
7,000 00	90 00	89 82	4,800 00	7 44	2,404 92	2,404 93	0 00	0 00	0 00
7,100 00	90 00	89 82	4,800 00	7 75	2,504 92	2,504 93	0 00	0 00	0 00
7,200 00	90 00	89 82	4,800 00	8 06	2,604 92	2,604 93	0 00	0 00	0 00
7,300 00	90 00	89 82	4,800 00	8 37	2,704 92	2,704 93	0 00	0 00	0 00
7,400 00	90 00	89 82	4,800 00	8 68	2,804 92	2,804 93	0 00	0 00	0 00
7,500 00	90 00	89 82	4,800 00	8 99	2,904 92	2,904 93	0 00	0 00	0 00
7,600 00	90 00	89 82	4,800 00	9 30	3,004 92	3,004 93	0 00	0 00	0 00
7,700 00	90 00	89 82	4,800 00	9 61	3,104 91	3,104 93	0 00	0 00	0 00
7,800 00	90 00	89 82	4,800 00	9 92	3,204 91	3,204 93	0 00	0 00	0 00
7,900 00	90 00	89 82	4,800 00	10 23	3,304 91	3,304 93	0 00	0 00	0 00
8,000 00	90 00	89 82	4,800 00	10 54	3,404 91	3,404 93	0 00	0 00	0 00
8,100 00	90 00	89 82	4,800 00	10 85	3,504 91	3,504 93	0 00	0 00	0 00
8,200 00	90 00	89 82	4,800 00	11 16	3,604 91	3,604 93	0 00	0 00	0 00
8,300 00	90 00	89 82	4,800 00	11 47	3,704 91	3,704 93	0 00	0 00	0 00
8,400 00	90 00	89 82	4,800 00	11 78	3,804 91	3,804 93	0 00	0 00	0 00
8,500 00	90 00	89 82	4,800 00	12 09	3,904 91	3,904 93	0 00	0 00	0 00
8,600 00	90 00	89 82	4,800 00	12 40	4,004 91	4,004 93	0 00	0 00	0 00
8,700 00	90 00	89 82	4,800 00	12 71	4,104 91	4,104 93	0 00	0 00	0 00
8,800 00	90 00	89 82	4,800 00	13 02	4,204 91	4,204 93	0 00	0 00	0 00
8,900 00	90 00	89 82	4,800 00	13 33	4,304 91	4,304 93	0 00	0 00	0 00



Scientific Drilling  
Planning Report



Database:	EDM-Julio	Local Co-ordinate Reference:	Site Carmen 3 Federal Com #1H
Company:	COG Operating LLC	TVD Reference:	GL Elev @ 3718 00usft
Project:	Eddy County, NM (NAN27 NME)	MD Reference:	GL Elev @ 3718 00usft
Site:	Carmen 3 Federal Com #1H	North Reference:	Grid
Well:	Carmen 3 Federal Com #1H	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)
9,000 00	90 00	89 82	4,800 00	13 64	4,404 91	4,404 93	0 00	0 00	0 00
9,100 00	90 00	89 82	4,800 00	13 95	4,504 91	4,504 93	0 00	0 00	0 00
9,200 00	90 00	89 82	4,800 00	14 26	4,604 91	4,604 93	0 00	0 00	0 00
9,214 39	90.00	89.82	4,800 00	14.30	4,619 30	4,619 32	0 00	0 00	0 00
PBHL-Carmen 3 Fed #1H									

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
- Shape									
PBHL-Carmen 3 Fed #1	0 00	0 00	4,800 00	14.30	4,619 30	678,355 40	617,171 40	32° 51' 51 480 N	103° 57' 6 239 W
- plan hits target center									
- Point									

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,350 00	1,350 00	9-5/8" Casing	9-5/8	12-1/4

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	+E/-W (usft)	Comment
4,322 54	4,322.54	0 00	0 00	KOP Start Build 12.00°/100'
5,072 54	4,800 00	1 48	477 47	Land EOC hold 90 00°



Scientific Drilling for COG Operating LLC  
Site: Eddy County, NM (NAN27 NME)  
Well: Carmen 3 Federal Com #1H  
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	0.00
2	4322.54	0.00	0.00	4322.54	0.00	0.00	0.00	0.00	0.00	0.00
3	5072.54	90.00	89.82	4800.00	1.48	477.46	12.00	89.82	477.46	0.00
4	9214.39	90.00	89.82	4800.00	14.30	4619.30	0.00	0.00	4619.32	PBHL-Carmen 3 Fed #1H

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

Created By Julio Pina Date: 22-Sep-11  
Checked \_\_\_\_\_ Date: \_\_\_\_\_  
Reviewed \_\_\_\_\_ Date: \_\_\_\_\_

#### WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape Point
PBHL-Carmen 3 Fed #1H	4800.00	14.30	4619.30	678355.40	617171.40	32°51' 51.480 N	103°57' 6.239 W	

#### WELL DETAILS- Carmen 3 Federal Com #1H

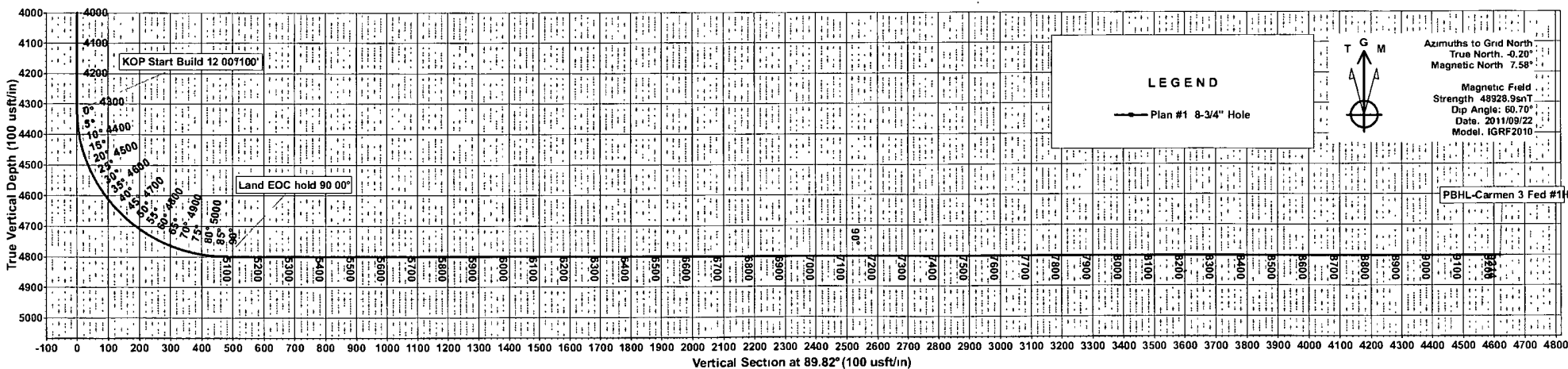
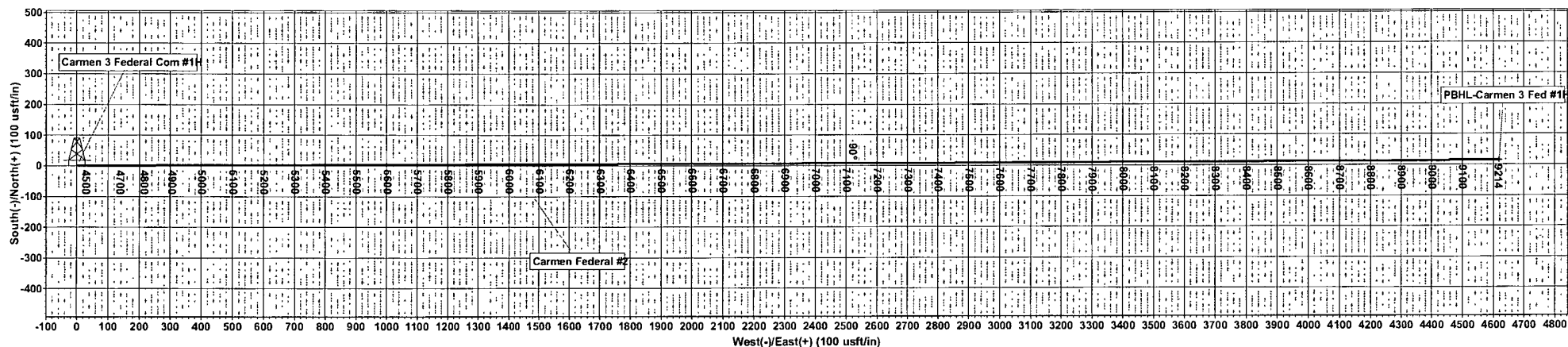
#### PROJECT DETAILS: Eddy County, NM (NAN27 NME)

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

+N/-S	+E/-W	Ground Level	3718.00	Latitude	Longitude	Slot
0.00	0.00	Northing	Easting	678341.10	612552.10	32°51' 51.500 N 103°58' 0.397 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 7.59°  
To convert a True Direction to a Grid Direction, Subtract 0.20°



ATTACHMENT TO FORM 3160-3  
 COG Operating, LLC  
 Carmen 3 Federal Com #1H  
 SHL: 2310' FNL & 330' FWL, Unit E  
 BHL: 2310' FNL & 330' FEL, Unit H  
 Sec 3, T17S, R30E  
 Eddy County, NM

1. Proration Unit Spacing: 160 Acres
2. Ground Elevation: 3718'
3. Proposed Depths: Horizontal TVD = 4,800', MD = 9214'
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'
Blinberry	5044'
Tubb	5928'

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
Blinberry	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 #1H  
Page 2 of 4

6. Casing Program - Proposed

<u>Hole size</u>	<u>Interval</u>	<u>OD of Casing</u>	<u>Weight</u>	<u>Cond.</u>	<u>Collar</u>	<u>Grade</u>
17-1/2"	0' - +/-450' <sup>345</sup>	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' <sup>1300</sup>	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' – 9214'	7" x 5-1/2"	26#/17#	New	LTC	L-80
Collapse sf – 2.89, Burst sf – 3.56, Tension sf – 4.45						

**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 COA*

**13 3/8" Surface Csg:** Set at +/- 450'MD, Lead Slurry: 450sx Class "C" w/ 2% CaCl<sub>2</sub> & .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% CaCl<sub>2</sub>, 1.32 yield. 194% excess, calculated to surface.

**Multi Stage:** **Stage 1:** 200 sx Class "C" w/ 2% CaCl<sub>2</sub>, 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 to surface. Cement volume to be adjusted proportionally with pilot hole td.

**7 x 5 1/2" Production Csg:** Set at +/- 9214'MD. **Single Stage:** Lead Slurry: 500 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: 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: 350 sx Class "H" SOLUCEM-H w/ .7% HR-601, 2.62 yield 66% 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 9214'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: 350 sx Class "H" SOLUCEM-H w/ .7% HR-601, 2.62 yield; 50% 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: 150 sx Class C w/ 0.3% R-3 + 1.5% CD-32, 1.02 yield. 44% 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 3550', 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 #1H**  
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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' - 450' <i>345</i>	8.5	28	NC	Fresh water native mud w/ paper for seepage and sweeps. Lime for PH.
450' - 1350' <i>1300</i>	10	30	NC	Brine mud, lime for PH and paper for seepage and sweeps.
1350' - 9214'	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 Easterly direction for +/-4142' lateral to TD at +/-9214' MD, 4800' 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

Carmen 3 Federal Com #1H

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12. Logging, Testing and Coring Program: *See COA*

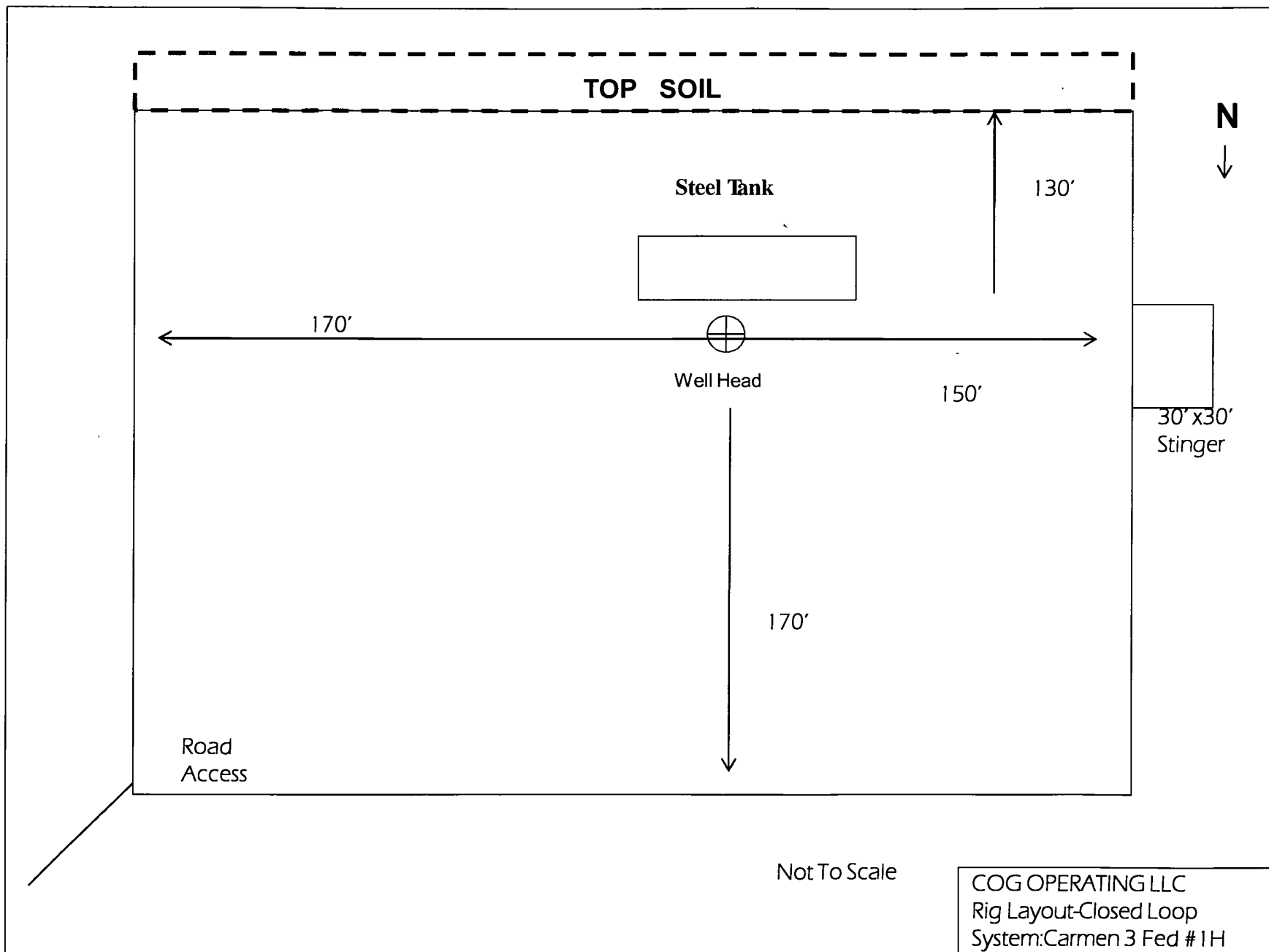
- A. The evaluation program will consist of PEX, LDT-CNL-GR, HRLA\_GR, FMI, Rotary Cores and will be ran from T.D. in vertical pilot hole to 9 5/8" casing shoe.
- B. The mud logging program will consist of lagged 10' samples from intermediate casing point to T.D. in vertical pilot hole and from Kick 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.

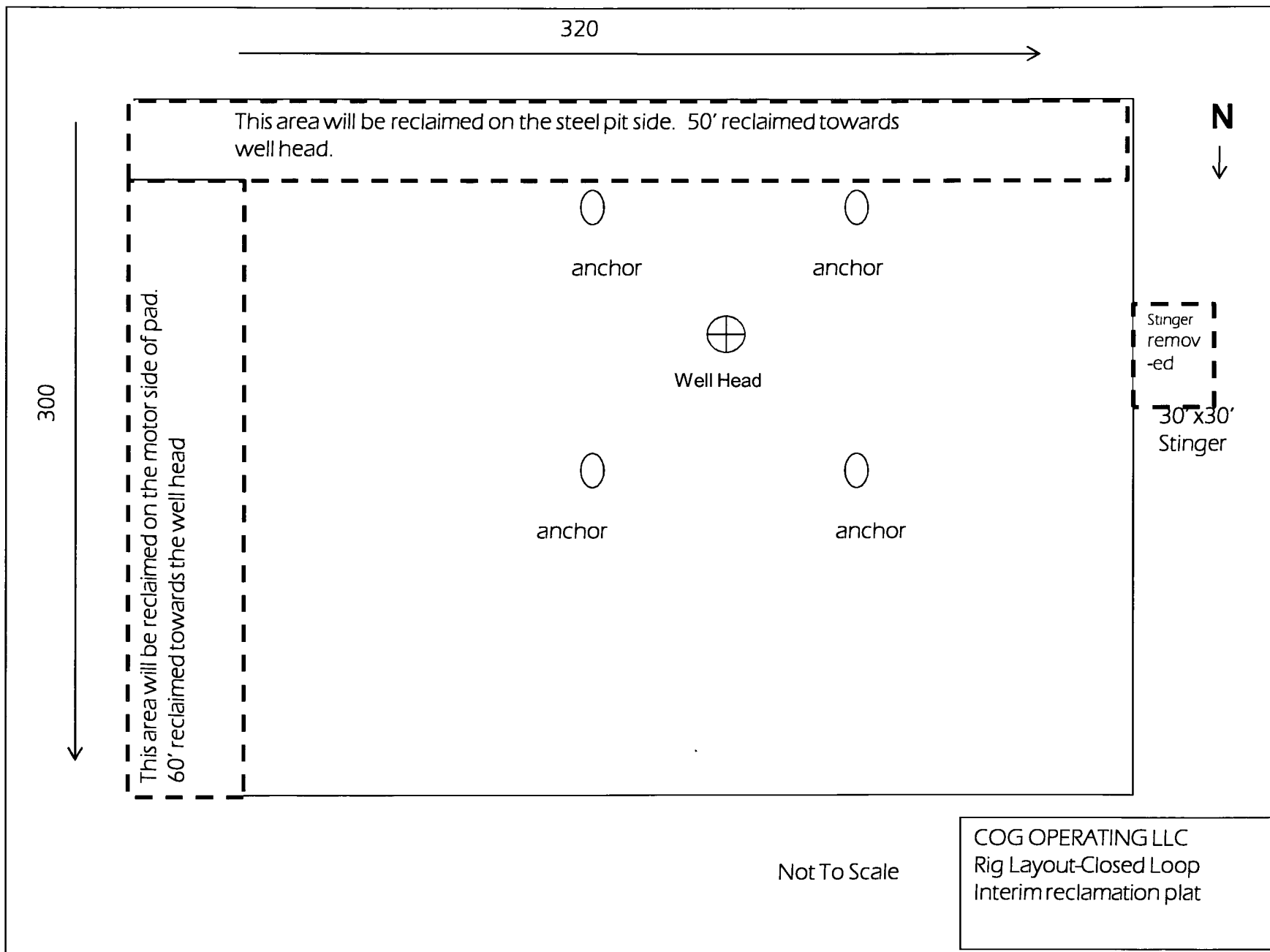
13. Abnormal Conditions, Pressures, Temperatures and Potential Hazards:

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 November 30, 2011 with drilling and completion operations lasting approximately 90 days.





## **Conditions of Approval**

Carmen 3 Fed Com 1H  
30-015-39286

### **Communitization Agreement**

A Communitization Agreement covering the acreage dedicated to this well must be filed for approval with the BLM. The effective date of the agreement shall be prior to any sales.

## **I. DRILLING**

### **A. DRILLING OPERATIONS REQUIREMENTS**

The BLM is to be notified a minimum of 4 hours in advance for a representative to witness:

- a. Spudding well
- b. Setting and/or Cementing of all casing strings
- c. BOPE tests

☒ **Eddy County**

Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,  
(575) 361-2822

1. A Hydrogen Sulfide (H<sub>2</sub>S) Drilling Plan should be activated 500 feet prior to drilling into the **Grayburg** formation. **As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.**
2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a “Major” violation.**
3. **The record of the drilling rate along with the GR/N well log run from TD to surface will be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.**

## **B. CASING**

**Changes to the approved APD casing and cement program require submitting a sundry and receiving approval prior to work. Failure to obtain approval prior to work will result in an Incident of Non-Compliance being issued.**

**Centralizers required on surface casing per Onshore Order 2.III.B.1.f.**

**Wait on cement (WOC) time prior to drilling out for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater for all casing strings. DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. See individual casing strings for details regarding lead cement slurry requirements.**

**No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.**

**Possible water and brine flows in the Salado and Artesia Group.**

**Possible lost circulation in the Grayburg and San Andres formations.**

1. The 13-3/8 inch surface casing shall be set at **approximately 345 feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt)** and cemented to the surface.
  - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
  - b. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.**
  - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
  - d. If cement falls back, remedial cementing will be done prior to drilling out that string.
2. The minimum required fill of cement behind the 9-5/8 inch intermediate casing is: **(Casing is to be set at approximately 1300')**

☒ As proposed. If cement does not circulate see B.1.a, c-d above.

**Operator has proposed DV tool at depth of 500', but will adjust cement proportionately if moved. DV tool SHALL be set a minimum of 50' below previous shoe and a minimum of 200' above current shoe. Operator shall submit sundry if DV tool depth cannot be set in this range. If an ECP is used, it is to be set a minimum of 50' below the shoe to provide cement across the shoe. If it cannot be set below the shoe, a CBL shall be run to verify cement coverage.**

a. First stage to DV tool:

- ☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve circulation on the next stage.  
**Additional cement may be required – excess calculates to -14%.**

b. Second stage above DV tool:

- ☒ Cement to surface. If cement does not circulate, contact the appropriate BLM office.

3. The minimum required fill of cement behind the 7 X 5-1/2 inch production casing is:

- ☒ As proposed. Operator shall provide method of verification.

**Operator has proposed DV tool at depth of 3550', but will adjust cement proportionately if moved. DV tool shall be set a minimum of 50' below previous shoe and a minimum of 200' above current shoe. Operator shall submit sundry if DV tool depth cannot be set in this range.**

a. First stage to DV tool:

- ☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve tie-back on the next stage.

b. Second stage above DV tool:

- ☒ Cement as proposed. Operator shall provide method of verification.

4. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.



### C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. Proposed blowout preventer (BOP) and related equipment (BOPE) meets minimum requirement.
  - a. **For surface casing only:** If the BOP/BOPE is to be tested against casing, the wait on cement (WOC) time for that casing is to be met (see WOC statement at start of casing section). Independent service company required.
3. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
  - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips or where the float does not hold, the minimum wait time before cut-off is eight hours after bumping the plug or when the cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. BOP/BOPE testing can begin after the above conditions are satisfied.
  - b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (18 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
  - c. The results of the test shall be reported to the appropriate BLM office.
  - d. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**
  - e. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.

**D. DRILL STEM TEST**

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

**E. WASTE MATERIAL AND FLUIDS**

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

**CRW 010912**

## **PECOS DISTRICT CONDITIONS OF APPROVAL**

OPERATOR'S NAME:	COG Operating
LEASE NO.:	LC029020M
WELL NAME & NO.:	Carmen Federal 1
SURFACE HOLE FOOTAGE:	2310' FNL & 330' FWL
BOTTOM HOLE FOOTAGE:	' FL & ' FL
LOCATION:	Section 3, T.17S., R.30E., NMPM
COUNTY:	Eddy County, New Mexico

### **I. PRODUCTION (POST DRILLING)**

#### **A. WELL STRUCTURES & FACILITIES**

##### **Placement of Production Facilities**

Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

##### **Containment Structures**

The containment structure shall be constructed to hold the capacity of the entire contents of the largest tank, plus 24 hour production, unless more stringent protective requirements are deemed necessary by the Authorized Officer.

##### **Painting Requirement**

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color Shale Green, Munsell Soil Color Chart # 5Y 4/2

### **II. INTERIM RECLAMATION**

#### **Interim reclamation shall take place on the east and south side of the well pad**

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover

operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).