

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)
990' FNL & 330' FWL, SEC. 3, T17S, R30E, Unit D

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 #5

9 API Well No

30-015-39287

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 &
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	Location

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 #5H

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

COG respectfully requests permission to move this location to:
SHL: 990' FNL & 330' FWL, SEC. 3, T17S, R30E, Unit D, Lot 4
BHL: 990' FNL & 330' FEL, SEC. 3, T17S, R30E, Unit A, Lot 1

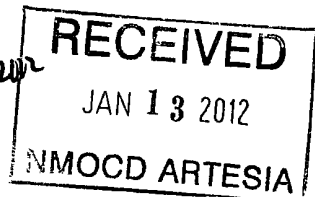
These changes are requested in order to drill this well as a horizontal.

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

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

Accepted for record

NMOCD



Property Code 39065

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

Robyn M. Odom

Title Regulatory Analyst

Signature

Date

10/21/2011

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

/s/ Don Peterson

Title

Date

JAN 17 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 USC 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)

ATTACHMENT TO FORM 3160-3
COG Operating, LLC
Carmen 3 Federal Com #5H
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'	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
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

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.

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: 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. 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. 152% 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 3550') Lead Slurry: 200 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. 136% 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.

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 30-015-39287	Pool Code 96718	Pool Name LOCO HILLS; GLORIETA-YESO
Property Code 37967	Property Name CARMEN 3 FEDERAL COM	Well Number 5H
OGRID No. 229137	Operator Name COG OPERATING, LLC	Elevation 3726'

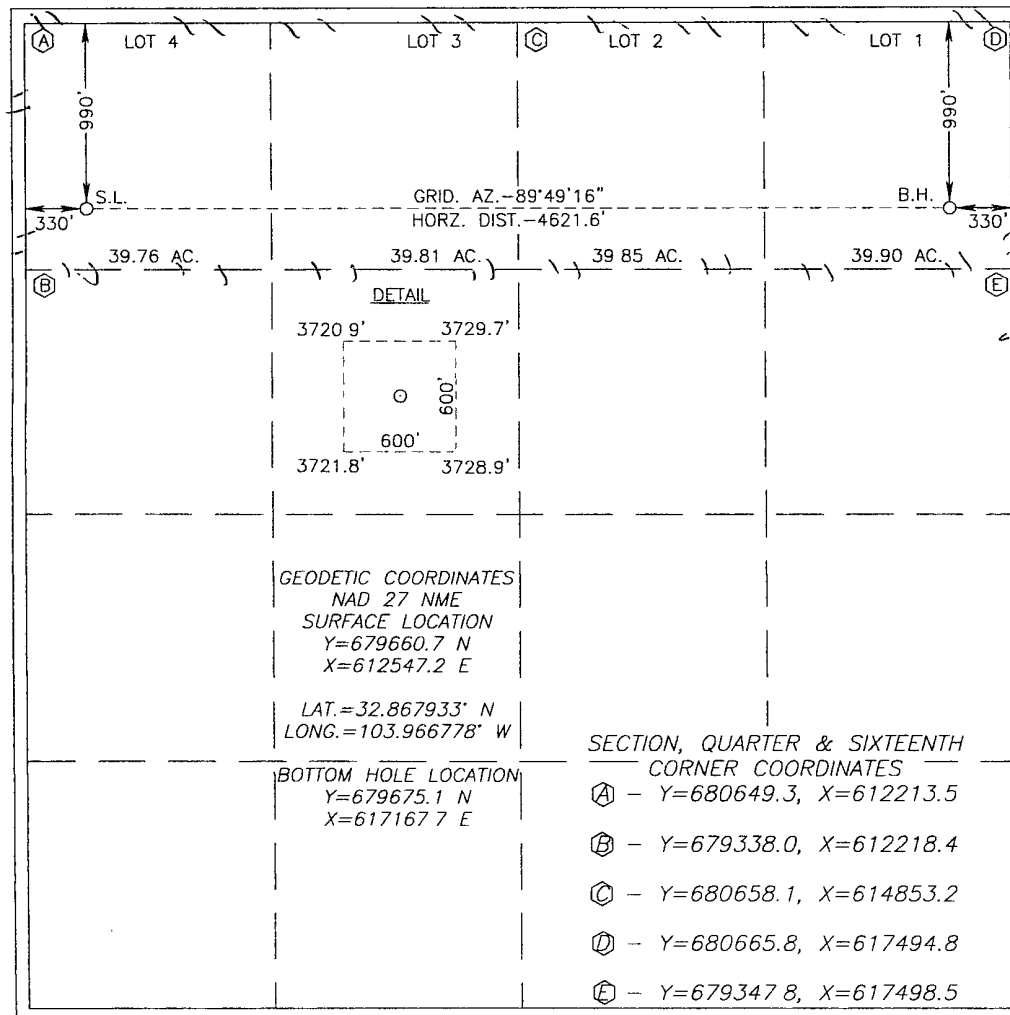
Surface Location

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		990	NORTH	330	WEST	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
1	3	17-S	30-E		990	NORTH	330	EAST	EDDY
Dedicated Acres 159.32	Joint or Infill	Consolidation Code	Order No.						

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>LOT 4 LOT 3 LOT 2 LOT 1</p> <p>GRID. AZ. -89°49'16" HORZ. DIST. -4621.6'</p> <p>39.76 AC. 39.81 AC. 39.85 AC. 39.90 AC.</p> <p>DETAIL</p> <p>3720.9' 3729.7' 3721.8' 3728.9'</p> <p>600' 600'</p> <p>GEODETC COORDINATES NAD 27 NME SURFACE LOCATION Y=679660.7 N X=612547.2 E</p> <p>LAT.=32.867933' N LONG.=103.966778' W</p> <p>BOTTOM HOLE LOCATION Y=679675.1 N X=617167.7 E</p> <p>SECTION, QUARTER & SIXTEENTH CORNER COORDINATES</p> <p>A - Y=680649.3, X=612213.5 B - Y=679338.0, X=612218.4 C - Y=680658.1, X=614853.2 D - Y=680665.8, X=617494.8 E - Y=679347.8, X=617498.5</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> 10/21/2011 Signature Date</p> <p>Robyn Odom Printed Name</p> <p>Rodom@concho.com E-mail Address</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>AUGUST 25, 2010</p> <p>Date of Survey</p> <p>Signature & Seal of Professional Surveyor:</p> <p><i>[Signature]</i> 9/27/2011 Certificate Number 3239</p> <p>LA JWSC W.O. 11.13.1963</p>
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COG Operating LLC

Eddy County, NM (NAN27 NME)

Carmen 3 Federal Com #5H

Carmen 3 Federal Com #5H

OH

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

SHL = 990' FNL & 330' FWL

BHL = 990' FNL & 330' FEL

Standard Planning Report

22 September, 2011



Scientific Drilling
Directional Drilling Operations



Scientific Drilling
Planning Report



Database:	EDM-Julio	Local Co-ordinate Reference:	Site Carmen 3 Federal Com #5H
Company:	COG Operating LLC	TVD Reference:	GL Elev @ 3726 00usft
Project:	Eddy County, NM (NAN27 NME)	MD Reference:	GL Elev @ 3726 00usft
Site:	Carmen 3 Federal Com #5H	North Reference:	Grid
Well:	Carmen 3 Federal Com #5H	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 #5H		
Site Position:		Northing:	679,660 70 usft
From:	Map	Easting:	612,547 20 usft
Position Uncertainty:	0 00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 52' 4 558 N
		Longitude:	103° 58' 0 400 W
		Grid Convergence:	0 20 °

Well	Carmen 3 Federal Com #5H		
Well Position	+N/-S	0 00 usft	Northing:
	+E/-W	0 00 usft	Easting:
Position Uncertainty	0 00 usft	Wellhead Elevation:	Ground Level:

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010	2011/09/22	7 78
			Dip Angle
			(°)
			Field Strength
			(nT)
			60.71
			48,931

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	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(usft)	(usft)	Rate	Rate	Rate	(°)	
(usft)			(usft)			(°/100usft)	(°/100usft)	(°/100usft)		
0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	
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 49	477 46	12 00	12 00	0 00	89 82	
9,215 59	90 00	89 82	4,800 00	14 40	4,620 50	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 #5H
Company:	COG Operating LLC	TVD Reference:	GL Elev @ 3726 00usft
Project:	Eddy County, NM (NAN27 NME)	MD Reference:	GL Elev @ 3726 00usft
Site:	Carmen 3 Federal Com #5H	North Reference:	Grid
Well:	Carmen 3 Federal Com #5H	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 26	405 21	405 21	12 00	12 00	0 00
5,072 54	90.00	89 82	4,800 00	1 49	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 57	504 93	504 93	0 00	0 00	0 00
5,200 00	90 00	89 82	4,800 00	1 89	604 93	604 93	0 00	0 00	0 00
5,300 00	90 00	89 82	4,800 00	2 20	704 93	704 93	0 00	0 00	0 00
5,400 00	90 00	89 82	4,800 00	2 51	804 93	804 93	0 00	0 00	0 00
5,500 00	90 00	89 82	4,800 00	2 82	904 93	904 93	0 00	0 00	0 00
5,600 00	90 00	89 82	4,800 00	3 13	1,004 92	1,004 93	0 00	0 00	0 00
5,700 00	90 00	89 82	4,800 00	3 44	1,104 92	1,104 93	0 00	0 00	0 00
5,800 00	90 00	89 82	4,800 00	3 76	1,204 92	1,204 93	0 00	0 00	0 00
5,900 00	90 00	89 82	4,800 00	4 07	1,304 92	1,304 93	0 00	0 00	0 00
6,000 00	90 00	89 82	4,800 00	4 38	1,404 92	1,404 93	0 00	0 00	0 00
6,100 00	90 00	89 82	4,800 00	4 69	1,504 92	1,504 93	0 00	0 00	0 00
6,200 00	90 00	89 82	4,800 00	5 00	1,604 92	1,604 93	0 00	0 00	0 00
6,300 00	90 00	89 82	4,800 00	5 31	1,704 92	1,704 93	0 00	0 00	0 00
6,400 00	90 00	89 82	4,800 00	5 63	1,804 92	1,804 93	0 00	0 00	0 00
6,500 00	90 00	89 82	4,800 00	5 94	1,904 92	1,904 93	0 00	0 00	0 00
6,600 00	90 00	89 82	4,800 00	6 25	2,004 92	2,004 93	0 00	0 00	0 00
6,700 00	90 00	89 82	4,800 00	6 56	2,104 92	2,104 93	0 00	0 00	0 00
6,800 00	90 00	89 82	4,800 00	6 87	2,204 92	2,204 93	0 00	0 00	0 00
6,900 00	90 00	89 82	4,800 00	7 18	2,304 92	2,304 93	0 00	0 00	0 00
7,000 00	90 00	89 82	4,800 00	7 50	2,404 92	2,404 93	0 00	0 00	0 00
7,100 00	90 00	89 82	4,800 00	7 81	2,504 92	2,504 93	0 00	0 00	0 00
7,200 00	90 00	89 82	4,800 00	8 12	2,604 92	2,604 93	0 00	0 00	0 00
7,300 00	90 00	89 82	4,800 00	8 43	2,704 92	2,704 93	0 00	0 00	0 00
7,400 00	90 00	89 82	4,800 00	8 74	2,804 92	2,804 93	0 00	0 00	0 00
7,500 00	90 00	89 82	4,800 00	9 05	2,904 92	2,904 93	0 00	0 00	0 00
7,600 00	90 00	89 82	4,800 00	9 36	3,004 92	3,004 93	0 00	0 00	0 00
7,700 00	90 00	89 82	4,800 00	9 68	3,104 91	3,104 93	0 00	0 00	0 00
7,800 00	90 00	89 82	4,800 00	9 99	3,204 91	3,204 93	0 00	0 00	0 00
7,900 00	90 00	89 82	4,800 00	10 30	3,304 91	3,304 93	0 00	0 00	0 00
8,000 00	90 00	89 82	4,800 00	10 61	3,404 91	3,404 93	0 00	0 00	0 00
8,100 00	90 00	89 82	4,800 00	10 92	3,504 91	3,504 93	0 00	0 00	0 00
8,200 00	90 00	89 82	4,800 00	11 23	3,604 91	3,604 93	0 00	0 00	0 00
8,300 00	90 00	89 82	4,800 00	11 55	3,704 91	3,704 93	0 00	0 00	0 00
8,400 00	90 00	89 82	4,800 00	11 86	3,804 91	3,804 93	0 00	0 00	0 00
8,500 00	90 00	89 82	4,800 00	12 17	3,904 91	3,904 93	0 00	0 00	0 00
8,600 00	90 00	89 82	4,800 00	12 48	4,004 91	4,004 93	0 00	0 00	0 00
8,700 00	90 00	89 82	4,800 00	12 79	4,104 91	4,104 93	0 00	0 00	0 00
8,800 00	90 00	89 82	4,800 00	13 10	4,204 91	4,204 93	0 00	0 00	0 00
8,900 00	90 00	89 82	4,800 00	13 42	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 #5H
Company:	COG Operating LLC	TVD Reference:	GL Elev @ 3726 00usft
Project:	Eddy County, NM (NAN27 NME)	MD Reference:	GL Elev @ 3726 00usft
Site:	Carmen 3 Federal Com #5H	North Reference:	Grid
Well:	Carmen 3 Federal Com #5H	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 73	4,404 91	4,404 93	0 00	0 00	0 00
9,100 00	90 00	89 82	4,800 00	14 04	4,504 91	4,504 93	0 00	0 00	0 00
9,200 00	90 00	89 82	4,800 00	14 35	4,604 91	4,604 93	0 00	0 00	0 00
9,215 59	90 00	89.82	4,800 00	14 40	4,620 50	4,620 52	0 00	0 00	0 00
PBHL-Carmen 3 Fed #5H									

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 #5	0 00	0 00	4,800 00	14 40	4,620 50	679,675 10	617,167 70	32° 52' 4 539 N	103° 57' 6 226 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	4,808 92	-127 26	450 85	Land EOC hold 90 00°



Scientific Drilling for COG Operating LLC
Site: Eddy County, NM (NAN27 NME)
Well: Carmen 3 Federal Com #5H
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	4322.54	0.00	0.00	4322.54	0.00	0.00	0.00	0.00	0.00	
3	5072.54	90.00	89.82	4800.00	1.49	477.46	12.00	89.82	477.46	
4	9215.59	90.00	89.82	4800.00	14.40	4620.50	0.00	0.00	4620.52	PBHL-Carmen 3 Fed #5H

Plan Plan #1 8-3/4" Hole (Carmen 3 Federal Com #5H/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
PBHL-Carmen 3 Fed #5H	4800.00	14.40	4620.50	679675.10	617167.70	32°52' 4.539 N	103°57' 6.226 W	Point

WELL DETAILS: Carmen 3 Federal Com #5H

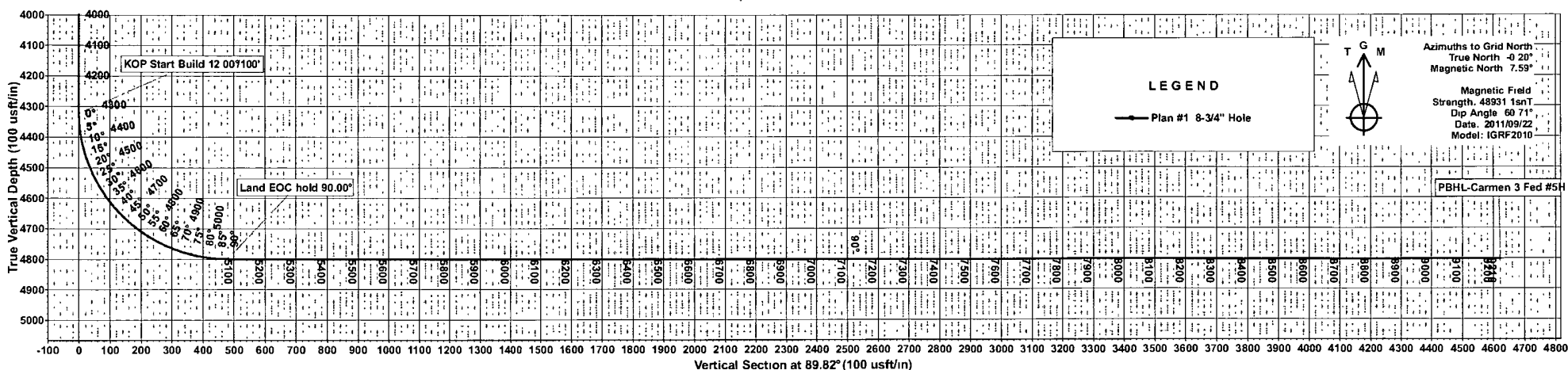
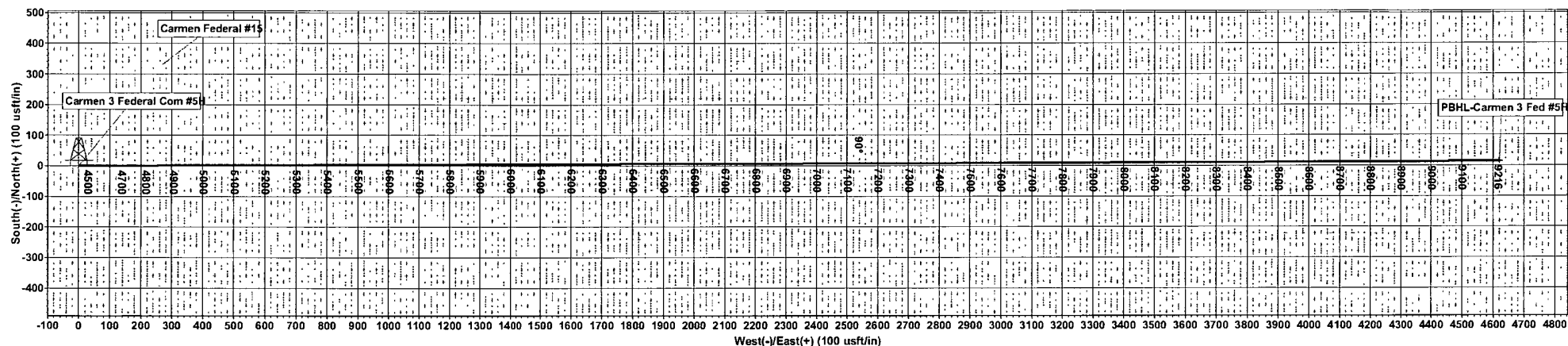
PROJECT DETAILS: Eddy County, NM (NAN27 NME)

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:	3726.00
+N/-S	0.00
+E/-W	0.00
Northing	679660.70
Easting	612547.20
Latitude	32°52' 4.558 N
Longitude	103°58' 0.400 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 #5H
 SHL: 990' FNL & 330' FWL, Unit 4
 BHL: 990' FNL & 330' FEL, Unit 1
 Sec 3, T17S, R30E
 Eddy County, NM

1. Proration Unit Spacing: 160 Acres
2. Ground Elevation: 3726'
3. Proposed Depths: Horizontal TVD = 4,800', MD = 9216'
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 #5H
Page 3 of 4

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' ³⁴⁵	8.5	28	NC	Fresh water native mud w/ paper for seepage and sweeps. Lime for PH.
450' - 1350' ¹³⁰⁰	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:

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 +/-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.

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 #5H
Page 4 of 4

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

- A. No electric logging to be performed on this well.
- 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.

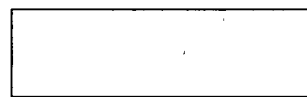
14. Anticipated Starting Date

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



TOP SOIL

Steel Tank



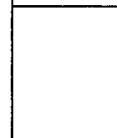
130'

170'



Well Head

150'



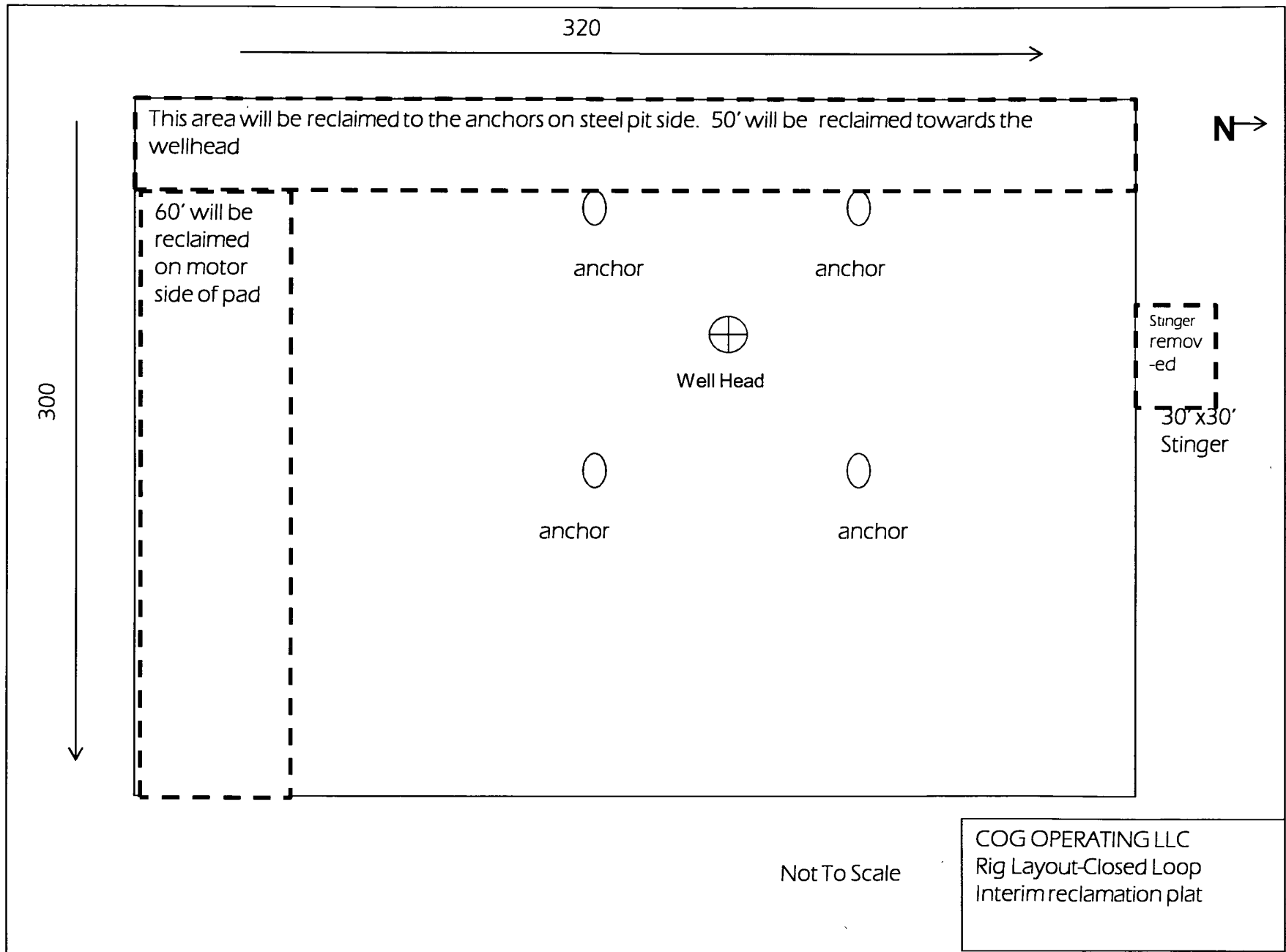
30'x30'
Stinger

170'

Road Access

Not To Scale

COG OPERATING LLC
Rig Layout-Closed Loop
System: Carmen 3 Fed #5H



Conditions of Approval

Carmen 3 Fed Com 5H
30-015-39287

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 (H₂S) 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