



COG Operating LLC

Eddy County, NM (NAN27 NME)

Crypt 30 State #3H

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30-015-39266

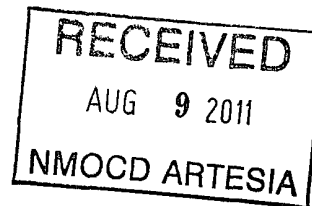
OH

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

SHL = 150' FNL & 2260' FWL

PP = 330' FNL & 2260' FWL

BHL = 330' FSL & 2260' FWL



Standard Planning Report

02 August, 2011





Scientific Drilling
Planning Report



Database:	EDM-Julio	Local Co-ordinate Reference:	Site Crypt State #3H
Company:	COG Operating LLC	TVD Reference:	GL Elev @ 3387 00usft
Project:	Eddy County, NM (NAN27 NME)	MD Reference:	GL Elev @ 3387 00usft
Site:	Crypt State #3H	North Reference:	Grid
Well:	Crypt State #3H	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	Crypt State #3H		
Site Position:		Northing:	595,837 40 usft
From:	Map	Easting:	473,542 60 usft
Position Uncertainty:	0 00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 38' 16 909 N
		Longitude:	104° 25' 9 414 W
		Grid Convergence:	-0 05 °

Well	Crypt State #3H		
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	2011/08/01	7 99
			Dip Angle
			(°)
			Field Strength
			(nT)
			60 42
			48,757

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
			(°)
			180 18

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	
2,297 54	0 00	0 00	2,297 54	0 00	0 00	0 00	0 00	0 00	0 00	
3,047 54	90 00	180 18	2,775 00	-477 46	-1 53	12 00	12 00	0 00	180 18	
7,292 29	90 00	180 18	2,775 00	-4,722 20	-15 10	0 00	0 00	0 00	0 00	PBHL-Crypt State #3H



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Project:	Eddy County, NM (NAN27 NME)	MD Reference:	GL Elev @ 3387 00usft
Site:	Crypt State #3H	North Reference:	Grid
Well:	Crypt State #3H	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
2,297 54	0 00	0 00	2,297 54	0 00	0 00	0 00	0 00	0 00	0 00
KOP Start Build 12.00°/100'									
2,300 00	0 30	180 18	2,300 00	-0 01	0 00	0 01	12 02	12 02	0 00
2,400 00	12 30	180 18	2,399 22	-10 95	-0 04	10 95	12 00	12 00	0 00
2,500 00	24 30	180 18	2,493 99	-42 29	-0 14	42 29	12 00	12 00	0 00
2,600 00	36 30	180 18	2,580 17	-92 64	-0 30	92 64	12 00	12 00	0 00
2,700 00	48 30	180 18	2,654 01	-159 81	-0 51	159 81	12 00	12 00	0 00
2,726 37	51 46	180 18	2,671 00	-179 98	-0 58	179 98	12 00	12 00	0 00
PP=330' FNL, CP #3H									
2,800 00	60 30	180 18	2,712 26	-240 87	-0 77	240 87	12 00	12 00	0 00
2,900 00	72 30	180 18	2,752 39	-332 26	-1 06	332 27	12 00	12 00	0 00
3,000 00	84 30	180 18	2,772 64	-430 01	-1 38	430 01	12 00	12 00	0 00
3,047 54	90 00	180 18	2,775 00	-477 47	-1 53	477 47	12 00	12 00	0 00
Land EOC hold 90.00°									
3,100 00	90 00	180 18	2,775 00	-529 93	-1 69	529 93	0 00	0 00	0 00
3,200 00	90 00	180 18	2,775 00	-629 93	-2 01	629 93	0 00	0 00	0 00
3,300 00	90 00	180 18	2,775 00	-729 93	-2 33	729 93	0 00	0 00	0 00
3,400 00	90 00	180 18	2,775 00	-829 93	-2 65	829 93	0 00	0 00	0 00
3,500 00	90 00	180 18	2,775 00	-929 92	-2 97	929 93	0 00	0 00	0 00
3,600 00	90 00	180 18	2,775 00	-1,029 92	-3 29	1,029 93	0 00	0 00	0 00
3,700 00	90 00	180 18	2,775 00	-1,129 92	-3 61	1,129 93	0 00	0 00	0 00
3,800 00	90 00	180 18	2,775 00	-1,229 92	-3 93	1,229 93	0 00	0 00	0 00
3,900 00	90 00	180 18	2,775 00	-1,329 92	-4 25	1,329 93	0 00	0 00	0 00
4,000 00	90 00	180 18	2,775 00	-1,429 92	-4 57	1,429 93	0 00	0 00	0 00
4,100 00	90 00	180 18	2,775 00	-1,529 92	-4 89	1,529 93	0 00	0 00	0 00
4,200 00	90 00	180 18	2,775 00	-1,629 92	-5 21	1,629 93	0 00	0 00	0 00
4,300 00	90 00	180 18	2,775 00	-1,729 92	-5 53	1,729 93	0 00	0 00	0 00
4,400 00	90 00	180 18	2,775 00	-1,829 92	-5 85	1,829 93	0 00	0 00	0 00
4,500 00	90 00	180 18	2,775 00	-1,929 92	-6 17	1,929 93	0 00	0 00	0 00
4,600 00	90 00	180 18	2,775 00	-2,029 92	-6 49	2,029 93	0 00	0 00	0 00
4,700 00	90 00	180 18	2,775 00	-2,129 92	-6 81	2,129 93	0 00	0 00	0 00
4,800 00	90 00	180 18	2,775 00	-2,229 92	-7 13	2,229 93	0 00	0 00	0 00
4,900 00	90 00	180 18	2,775 00	-2,329 92	-7 45	2,329 93	0 00	0 00	0 00
5,000 00	90 00	180 18	2,775 00	-2,429 92	-7 77	2,429 93	0 00	0 00	0 00
5,100 00	90 00	180 18	2,775 00	-2,529 92	-8 09	2,529 93	0 00	0 00	0 00
5,200 00	90 00	180 18	2,775 00	-2,629 92	-8 41	2,629 93	0 00	0 00	0 00
5,300 00	90 00	180 18	2,775 00	-2,729 92	-8 73	2,729 93	0 00	0 00	0 00
5,400 00	90 00	180 18	2,775 00	-2,829 92	-9 05	2,829 93	0 00	0 00	0 00
5,500 00	90 00	180 18	2,775 00	-2,929 91	-9 37	2,929 93	0 00	0 00	0 00
5,600 00	90 00	180 18	2,775 00	-3,029 91	-9 69	3,029 93	0 00	0 00	0 00
5,700 00	90 00	180 18	2,775 00	-3,129 91	-10 01	3,129 93	0 00	0 00	0 00
5,800 00	90 00	180 18	2,775 00	-3,229 91	-10 33	3,229 93	0 00	0 00	0 00
5,900 00	90 00	180 18	2,775 00	-3,329 91	-10 65	3,329 93	0 00	0 00	0 00
6,000 00	90 00	180 18	2,775 00	-3,429 91	-10 97	3,429 93	0 00	0 00	0 00
6,100 00	90 00	180 18	2,775 00	-3,529 91	-11 29	3,529 93	0 00	0 00	0 00
6,200 00	90 00	180 18	2,775 00	-3,629 91	-11 61	3,629 93	0 00	0 00	0 00
6,300 00	90 00	180 18	2,775 00	-3,729 91	-11 93	3,729 93	0 00	0 00	0 00
6,400 00	90 00	180 18	2,775 00	-3,829 91	-12 25	3,829 93	0 00	0 00	0 00
6,500 00	90 00	180 18	2,775 00	-3,929 91	-12 57	3,929 93	0 00	0 00	0 00
6,600 00	90 00	180 18	2,775 00	-4,029 91	-12 89	4,029 93	0 00	0 00	0 00
6,700 00	90 00	180 18	2,775 00	-4,129 91	-13 21	4,129 93	0 00	0 00	0 00
6,800 00	90 00	180 18	2,775 00	-4,229 91	-13 53	4,229 93	0 00	0 00	0 00



Scientific Drilling
Planning Report



Database:	EDM-Julio	Local Co-ordinate Reference:	Site Crypt State #3H
Company:	COG Operating LLC	TVD Reference:	GL Elev @ 3387 00usft
Project:	Eddy County, NM (NAN27 NME)	MD Reference:	GL Elev @ 3387 00usft
Site:	Crypt State #3H	North Reference:	Grid
Well:	Crypt State #3H	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)	
6,900 00	90 00	180 18	2,775 00	-4,329 91	-13 85	4,329 93	0 00	0 00	0 00	
7,000 00	90 00	180 18	2,775 00	-4,429 91	-14 17	4,429 93	0 00	0 00	0 00	
7,100 00	90 00	180 18	2,775 00	-4,529 91	-14 49	4,529 93	0 00	0 00	0 00	
7,200 00	90 00	180 18	2,775 00	-4,629 91	-14 80	4,629 93	0 00	0 00	0 00	
7,292 29	90 00	180 18	2,775 00	-4,722 20	-15 10	4,722 22	0 00	0 00	0 00	
PBHL-Crypt State #3H										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
PP=330' FNL, CP #3H	0 00	0 00	2,671 02	-180 01	-0 58	595,657 40	473,542 02	32° 38' 15 128 N	104° 25' 9 419 W	
- plan hits target center										
- Point										
PBHL-Crypt State #3H	0 00	0 00	2,775 00	-4,722 20	-15 10	591,115 20	473,527 50	32° 37' 30 179 N	104° 25' 9 546 W	
- plan hits target center										
- Point										

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment	
2,297 54	2,297 54	0 00	0 00	KOP Start Build 12 00°/100'	
3,047 54	2,775 00	-477 47	-1 53	Land EOC hold 90 00°	



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



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	2297.54	0.00	0.00	2297.54	0.00	0.00	0.00	0.00	0.00	
3	3047.54	90.00	180.18	2775.00	-477.46	-1.53	12.00	180.18	477.46	
4	7292.29	90.00	180.18	2775.00	-4722.20	-15.10	0.00	0.00	4722.22	PBHL-Crypt State #3H

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PP=330' FNL, CP #3H	2671.02	-180.01	-0.58	595657.39	473542.02	32°38' N	104°25' 9.419 W	Point
PBHL-Crypt State #3H	2775.00	-4722.20	-15.10	591115.20	473527.50	32°37' N	104°25' 9.546 W	Point

WELL DETAILS: Crypt State #3H

		Ground Level		3387.00		
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0 00	0 00	595837 40	473542.60	32°38' 16 909 N	104°25' 9.414 W	

Crypt State #3H

Created By: Julio Pina Date: 01-Aug-11

Checked: _____ Date: _____

Reviewed: _____ Date: _____

PROJECT DETAILS Eddy County, NM (NAN27 NME)

Geodetic System: US State Plane 1927 (Exact solution)

Datum: NAD 1927 (NADCON CONUS)

Ellipsoid: Clarke 1866

Zone: New Mexico East 3001

System Datum: Mean Sea Level

AZIMUTH CORRECTIONS
ALL AZIMUTHS MUST BE CORRECTED TO GRID
GRID CORRECTIONS MUST BE APPLIED BEFORE PLOTTING
To convert a Magnetic Direction to a Grid Direction, Add 8.04°
To convert a True Direction to a Grid Direction, Add 0.05°

