



COG Operating LLC

Eddy County, NM (NAN27 NME)

Hearse 36 State #3H

Hearse 36 State #3H

30-015-39263

OH

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

SHL = 155' FNL & 2260' FWL

PP = 330' FNL & 2260' FWL

BHL = 330' FSL & 2260' FWL

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Standard Planning Report

02 August, 2011



Scientific Drilling
Directional Drilling Operations



Scientific Drilling
Planning Report



Database:	EDM-Julio	Local Co-ordinate Reference:	Site Hearse State #3H
Company:	COG Operating LLC	TVD Reference:	GL Elev @ 3417 00usft
Project:	Eddy County, NM (NAN27 NME)	MD Reference:	GL Elev @ 3417 00usft
Site:	Hearse State #3H	North Reference:	Grid
Well:	Hearse 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		Hearse State #3H			
Site Position:		Northing:	590,642 20 usft	Latitude:	32° 37' 25 444 N
From:	Map	Easting:	467,466 20 usft	Longitude:	104° 26' 20 416 W
Position Uncertainty:	0 00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0 06 °

Well		Hearse State #3H				
Well Position	+N/-S	0 00 usft	Northing:	590,642 20 usft	Latitude:	32° 37' 25 444 N
	+E/-W	0 00 usft	Easting:	467,466 20 usft	Longitude:	104° 26' 20 416 W
Position Uncertainty		0 00 usft	Wellhead Elevation:		Ground Level:	3,417 00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2011/07/29	8 00	60 40	48,747

Design	Plan #1 8-3/4" Hole			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0 00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0 00	0 00	0 00	180 18

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth (usft)	(°)	(°)	Depth (usft)	(usft)	(usft)	Rate (°/100usft)	Rate (°/100usft)	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	
3,047 54	90 00	180 18	2,775 00	-477 46	-1 49	12 00	12 00	0 00	180 18	
7,354 99	90 00	180 18	2,775 00	-4,784 90	-14 90	0 00	0 00	0 00	0 00	PBHL-Hearse State #



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Planning Report



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Site:	Hearse State #3H	North Reference:	Grid
Well:	Hearse 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 03	10 95	12 00	12 00	0 00
2,500 00	24 30	180 18	2,493 99	-42 29	-0 13	42 29	12 00	12 00	0 00
2,600 00	36 30	180 18	2,580 17	-92 64	-0 29	92 64	12 00	12 00	0 00
2,700 00	48 30	180 18	2,654 01	-159 81	-0 50	159 81	12 00	12 00	0 00
2,719 94	50 69	180 18	2,666 96	-174 97	-0 54	174 98	12 00	12 00	0 00
PP=330' FNL, HS #3H									
2,800 00	60 30	180 18	2,712 26	-240 87	-0 75	240 87	12 00	12 00	0 00
2,900 00	72 30	180 18	2,752 39	-332 26	-1 03	332 27	12 00	12 00	0 00
3,000 00	84 30	180 18	2,772 64	-430 01	-1 34	430 01	12 00	12 00	0 00
3,047 54	90 00	180 18	2,775 00	-477 47	-1 49	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 65	529 93	0 00	0 00	0 00
3,200 00	90 00	180 18	2,775 00	-629 93	-1 96	629 93	0 00	0 00	0 00
3,300 00	90 00	180 18	2,775 00	-729 93	-2 27	729 93	0 00	0 00	0 00
3,400 00	90 00	180 18	2,775 00	-829 93	-2 58	829 93	0 00	0 00	0 00
3,500 00	90 00	180 18	2,775 00	-929 93	-2 90	929 93	0 00	0 00	0 00
3,600 00	90 00	180 18	2,775 00	-1,029 92	-3 21	1,029 93	0 00	0 00	0 00
3,700 00	90 00	180 18	2,775 00	-1,129 92	-3 52	1,129 93	0 00	0 00	0 00
3,800 00	90 00	180 18	2,775 00	-1,229 92	-3 83	1,229 93	0 00	0 00	0 00
3,900 00	90 00	180 18	2,775 00	-1,329 92	-4 14	1,329 93	0 00	0 00	0 00
4,000 00	90 00	180 18	2,775 00	-1,429 92	-4 45	1,429 93	0 00	0 00	0 00
4,100 00	90 00	180 18	2,775 00	-1,529 92	-4 76	1,529 93	0 00	0 00	0 00
4,200 00	90 00	180 18	2,775 00	-1,629 92	-5 08	1,629 93	0 00	0 00	0 00
4,300 00	90 00	180 18	2,775 00	-1,729 92	-5 39	1,729 93	0 00	0 00	0 00
4,400 00	90 00	180 18	2,775 00	-1,829 92	-5 70	1,829 93	0 00	0 00	0 00
4,500 00	90 00	180 18	2,775 00	-1,929 92	-6 01	1,929 93	0 00	0 00	0 00
4,600 00	90 00	180 18	2,775 00	-2,029 92	-6 32	2,029 93	0 00	0 00	0 00
4,700 00	90 00	180 18	2,775 00	-2,129 92	-6 63	2,129 93	0 00	0 00	0 00
4,800 00	90 00	180 18	2,775 00	-2,229 92	-6 94	2,229 93	0 00	0 00	0 00
4,900 00	90 00	180 18	2,775 00	-2,329 92	-7 26	2,329 93	0 00	0 00	0 00
5,000 00	90 00	180 18	2,775 00	-2,429 92	-7 57	2,429 93	0 00	0 00	0 00
5,100 00	90 00	180 18	2,775 00	-2,529 92	-7 88	2,529 93	0 00	0 00	0 00
5,200 00	90 00	180 18	2,775 00	-2,629 92	-8 19	2,629 93	0 00	0 00	0 00
5,300 00	90 00	180 18	2,775 00	-2,729 92	-8 50	2,729 93	0 00	0 00	0 00
5,400 00	90 00	180 18	2,775 00	-2,829 92	-8 81	2,829 93	0 00	0 00	0 00
5,500 00	90 00	180 18	2,775 00	-2,929 92	-9 12	2,929 93	0 00	0 00	0 00
5,600 00	90 00	180 18	2,775 00	-3,029 92	-9 44	3,029 93	0 00	0 00	0 00
5,700 00	90 00	180 18	2,775 00	-3,129 91	-9 75	3,129 93	0 00	0 00	0 00
5,800 00	90 00	180 18	2,775 00	-3,229 91	-10 06	3,229 93	0 00	0 00	0 00
5,900 00	90 00	180 18	2,775 00	-3,329 91	-10 37	3,329 93	0 00	0 00	0 00
6,000 00	90 00	180 18	2,775 00	-3,429 91	-10 68	3,429 93	0 00	0 00	0 00
6,100 00	90 00	180 18	2,775 00	-3,529 91	-10 99	3,529 93	0 00	0 00	0 00
6,200 00	90 00	180 18	2,775 00	-3,629 91	-11 30	3,629 93	0 00	0 00	0 00
6,300 00	90 00	180 18	2,775 00	-3,729 91	-11 61	3,729 93	0 00	0 00	0 00
6,400 00	90 00	180 18	2,775 00	-3,829 91	-11 93	3,829 93	0 00	0 00	0 00
6,500 00	90 00	180 18	2,775 00	-3,929 91	-12 24	3,929 93	0 00	0 00	0 00
6,600 00	90 00	180 18	2,775 00	-4,029 91	-12 55	4,029 93	0 00	0 00	0 00
6,700 00	90 00	180 18	2,775 00	-4,129 91	-12 86	4,129 93	0 00	0 00	0 00
6,800 00	90 00	180 18	2,775 00	-4,229 91	-13 17	4,229 93	0 00	0 00	0 00

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Company:	COG Operating LLC	TVD Reference:	GL Elev @ 3417 00usft
Project:	Eddy County, NM (NAN27 NME)	MD Reference:	GL Elev @ 3417 00usft
Site:	Hearse State #3H	North Reference:	Grid
Well:	Hearse 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 48	4,329 93	0 00	0 00	0 00
7,000 00	90 00	180 18	2,775 00	-4,429 91	-13 79	4,429 93	0 00	0 00	0 00
7,100 00	90 00	180 18	2,775 00	-4,529 91	-14 11	4,529 93	0 00	0 00	0 00
7,200 00	90 00	180 18	2,775 00	-4,629 91	-14 42	4,629 93	0 00	0 00	0 00
7,300 00	90 00	180 18	2,775 00	-4,729 91	-14 73	4,729 93	0 00	0 00	0 00
7,354 99	90 00	180 18	2,775 00	-4,784 90	-14 90	4,784 92	0 00	0 00	0 00
PBHL-Hearse 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, HS #3H - hit/miss target - Shape - Point	0 00	360 00	2,666 98	-175 00	-0 54	590,467 20	467,465 66	32° 37' 23 713 N	104° 26' 20 420 W
PBHL-Hearse State #3H - plan hits target center - Point	0 00	0 00	2,775 00	-4,784 90	-14 90	585,857 30	467,451 30	32° 36' 38 094 N	104° 26' 20 535 W

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
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 49	Land EOC hold 90 00°



Scientific Drilling for COG Operating LLC
Site: Eddy County, NM (NAN27 NME)
Well: Hearse 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 49	12 00	180 18	477 46	
4	7354 99	90 00	180 18	2775 00	-4784 90	-14 90	0 00	0 00	4784 92	PBHL-Hearse State #3H

Hearse State #3H

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

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PP=330' FNL, HS #3H	2666.98	-175.00	-0 54	590467.20	467465.66	32°37' 23.713 N 104°26' 20.420 W	Point	
PBHL-Hearse State #3H	2775.00	-4784.90	-14.90	585857.30	467451.30	32°36' 38.094 N 104°26' 20.535 W	Point	

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

WELL DETAILS: Hearse State #3H

		Ground Level		3417 00		
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0 00	0 00	590642.20	467466.20	32°37' 25.444 N	104°26' 20.416 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 8.05°
To convert a True Direction to a Grid Direction, Add 0.06°

