



COG Operating LLC

Eddy County, NM (NAN27 NME)

Hearse State #3H

Hearse State #3H

OH

30-015-39263

Plan: Plan #2 8-3/4" Hole

SHL = 330' FSL & 2260' FWL

BHL = 330' FNL & 2260' FWL

Standard Planning Report

12 October, 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 #2 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:	585,857 30 usft
From:	Map	Easting:	467,451 40 usft
Position Uncertainty:	0 00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 36' 38 094 N
		Longitude:	104° 26' 20 533 W
		Grid Convergence:	-0 06 °

Well	Hearse 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:
			3,417.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2011/10/12	7 97	60 39	48,719

Design	Plan #2 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	0 18

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0 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	0 18	2,775 00	477 46	1 48	12 00	12 00	0 00	0 18	
7,180 09	90 00	0 18	2,775 00	4,610 00	14 30	0 00	0 00	0 00	0 00	PBHL-Hearse State #



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Wellbore:	OH		
Design:	Plan #2 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	0 18	2,300 00	0 01	0 00	0 01	12 02	12 02	0 00
2,400 00	12 30	0 18	2,399 22	10 95	0 03	10 95	12 00	12 00	0 00
2,500 00	24 30	0 18	2,493 99	42 29	0 13	42 29	12 00	12 00	0 00
2,600 00	36 30	0 18	2,580 17	92.64	0 29	92 64	12 00	12 00	0 00
2,700 00	48 30	0 18	2,654 01	159 81	0 50	159 81	12 00	12 00	0 00
2,800 00	60 30	0 18	2,712 26	240 87	0 75	240 87	12 00	12 00	0 00
2,900 00	72 30	0 18	2,752 39	332 26	1 03	332 27	12 00	12 00	0 00
3,000 00	84 30	0 18	2,772 64	430 01	1 33	430 01	12 00	12 00	0 00
3,047 54	90 00	0 18	2,775 00	477 47	1 48	477 47	12 00	12 00	0 00
Land EOC hold 90.00°									
3,100 00	90 00	0 18	2,775.00	529 93	1.64	529 93	0 00	0 00	0 00
3,200 00	90 00	0 18	2,775 00	629 93	1 95	629 93	0 00	0 00	0 00
3,300 00	90 00	0 18	2,775 00	729 93	2 26	729 93	0 00	0 00	0 00
3,400 00	90 00	0 18	2,775 00	829 93	2.57	829 93	0 00	0 00	0 00
3,500 00	90 00	0 18	2,775 00	929 93	2 88	929 93	0 00	0 00	0 00
3,600 00	90 00	0 18	2,775 00	1,029 92	3 19	1,029 93	0 00	0 00	0 00
3,700 00	90 00	0 18	2,775 00	1,129 92	3.50	1,129 93	0 00	0 00	0 00
3,800 00	90 00	0 18	2,775 00	1,229 92	3 82	1,229 93	0 00	0 00	0 00
3,900 00	90 00	0 18	2,775 00	1,329 92	4 13	1,329.93	0 00	0 00	0 00
4,000 00	90 00	0 18	2,775 00	1,429 92	4.44	1,429 93	0 00	0 00	0 00
4,100 00	90 00	0 18	2,775 00	1,529 92	4 75	1,529.93	0 00	0 00	0 00
4,200 00	90 00	0 18	2,775 00	1,629 92	5 06	1,629 93	0 00	0 00	0 00
4,300 00	90 00	0 18	2,775 00	1,729 92	5 37	1,729 93	0 00	0 00	0 00
4,400 00	90 00	0 18	2,775 00	1,829.92	5 68	1,829 93	0 00	0 00	0 00
4,500 00	90 00	0 18	2,775 00	1,929 92	5 99	1,929 93	0 00	0 00	0 00
4,600 00	90 00	0 18	2,775 00	2,029 92	6 30	2,029 93	0 00	0 00	0 00
4,700 00	90 00	0 18	2,775 00	2,129.92	6 61	2,129 93	0 00	0 00	0 00
4,800 00	90 00	0 18	2,775 00	2,229 92	6 92	2,229 93	0 00	0 00	0 00
4,900 00	90 00	0 18	2,775 00	2,329 92	7 23	2,329 93	0 00	0 00	0 00
5,000 00	90 00	0 18	2,775 00	2,429 92	7 54	2,429 93	0 00	0 00	0 00
5,100 00	90 00	0 18	2,775 00	2,529 92	7 85	2,529 93	0 00	0 00	0 00
5,200 00	90 00	0 18	2,775 00	2,629 92	8 16	2,629 93	0 00	0 00	0 00
5,300 00	90 00	0 18	2,775 00	2,729.92	8 47	2,729 93	0 00	0 00	0 00
5,400 00	90 00	0 18	2,775 00	2,829 92	8 78	2,829 93	0 00	0 00	0 00
5,500 00	90 00	0 18	2,775 00	2,929 92	9 09	2,929 93	0 00	0 00	0 00
5,600 00	90 00	0 18	2,775 00	3,029 92	9 40	3,029 93	0 00	0 00	0 00
5,700 00	90 00	0 18	2,775 00	3,129 91	9 71	3,129 93	0 00	0 00	0 00
5,800 00	90 00	0 18	2,775 00	3,229 91	10 02	3,229 93	0 00	0 00	0 00
5,900 00	90 00	0 18	2,775 00	3,329 91	10 33	3,329 93	0 00	0 00	0 00
6,000 00	90 00	0 18	2,775 00	3,429 91	10 64	3,429 93	0 00	0 00	0 00
6,100 00	90 00	0 18	2,775 00	3,529 91	10 95	3,529 93	0 00	0 00	0 00
6,200 00	90 00	0 18	2,775 00	3,629 91	11 26	3,629.93	0 00	0 00	0 00
6,300 00	90 00	0 18	2,775 00	3,729 91	11 57	3,729 93	0 00	0 00	0 00
6,400 00	90 00	0 18	2,775 00	3,829 91	11 88	3,829 93	0 00	0 00	0 00
6,500 00	90 00	0 18	2,775 00	3,929 91	12 19	3,929 93	0 00	0 00	0 00
6,600 00	90 00	0 18	2,775 00	4,029 91	12 50	4,029 93	0 00	0 00	0 00
6,700 00	90 00	0 18	2,775 00	4,129 91	12 81	4,129 93	0 00	0 00	0 00
6,800 00	90 00	0 18	2,775 00	4,229 91	13 12	4,229 93	0 00	0 00	0 00
6,900 00	90 00	0 18	2,775 00	4,329 91	13 43	4,329 93	0 00	0 00	0 00
7,000 00	90 00	0 18	2,775 00	4,429 91	13 74	4,429 93	0 00	0 00	0 00
7,100 00	90 00	0 18	2,775 00	4,529 91	14.05	4,529 93	0 00	0 00	0 00



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Planning Report



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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 #2 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)
7,180 09	90 00	0 18	2,775 00	4,610 00	14 30	4,610 02	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
- hit/miss target									
- Shape									
PBHL-Hearse State #3H	0 00	360 00	2,775 00	4,610 00	14 30	590,467 30	467,465 70	32° 37' 23 714 N	104° 26' 20 420 W
- plan hits target center									
- Point									

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	272 58	0 85	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 #2 8-3/4" Hole



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSecl	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	0.18	2775.00	477.46	1.48	12.00	0.18	477.46	
4	7180.09	90.00	0.18	2775.00	4610.00	14.30	0.00	0.00	4610.02	PBHL-Hearse State #3H

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PBHL-Hearse State #3H	2775.00	4610.00	14.30	590467.30	467465.70	32°37' 23.714 N 104°26' 20.420 W	Point	

WELL DETAILS: Hearse State #3H

	Ground Level	3417.00						
	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot	
	0.00	0.00	585857.30	467451.40	32°36' 38.094 N 104°26' 20.533 W			

Hearse State #3H

Created By: Julio Pina Date: 12-Oct-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 8.03°
To convert a True Direction to a Grid Direction, Add 0.06°

