



COG Operating LLC

Eddy County, NM (NAN27 NME)

Hearse State #4H

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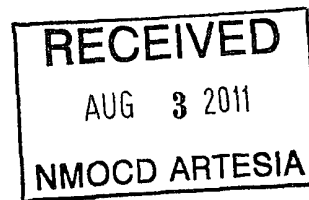
OH

30-015-39264

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

SHL = 455' FNL & 1700' FEL

BHL = 330' FSL & 1700' FEL



Standard Planning Report

01 August, 2011





Scientific Drilling
Planning Report



Database:	EDM-Julio	Local Co-ordinate Reference:	Site Hearse State #4H
Company:	COG Operating LLC	TVD Reference:	GL Elev @ 3401 00usft
Project:	Eddy County, NM (NAN27 NME)	MD Reference:	GL Elev @ 3401 00usft
Site:	Hearse State #4H	North Reference:	Grid
Well:	Hearse State #4H	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 #4H				
Site Position:		Northing:	590,339 40 usft	Latitude:	32° 37' 22 461 N
From:	Map	Easting:	468,775 50 usft	Longitude:	104° 26' 5 103 W
Position Uncertainty:	0 00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0 05 °

Well	Hearse State #4H					
Well Position	+N/-S	0 00 usft	Northing:	590,339 40 usft	Latitude:	32° 37' 22 461 N
	+E/-W	0 00 usft	Easting:	468,775 50 usft	Longitude:	104° 26' 5 103 W
Position Uncertainty		0 00 usft	Wellhead Elevation:		Ground Level:	3,401 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 01

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	180 01	2,775 00	-477.46	-0 07	12 00	12 00	0 00	180.01	
7,047 97	90 00	180 01	2,775.00	-4,477 90	-0 70	0.00	0 00	0.00	0 00	PBHL-Hearse State #



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Well:	Hearse State #4H	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 01	2,300 00	-0 01	0 00	0 01	12 02	12 02	0 00
2,400 00	12 30	180 01	2,399 22	-10 95	0 00	10 95	12 00	12 00	0 00
2,500 00	24 30	180 01	2,493 99	-42 29	-0 01	42 29	12 00	12 00	0 00
2,600 00	36 30	180 01	2,580 17	-92 64	-0 01	92 64	12 00	12 00	0 00
2,700 00	48 30	180 01	2,654 01	-159 81	-0 02	159 81	12 00	12 00	0 00
2,800 00	60 30	180 01	2,712 26	-240 87	-0 04	240 87	12 00	12 00	0 00
2,900 00	72 30	180 01	2,752 39	-332 27	-0 05	332 27	12 00	12 00	0 00
3,000 00	84 30	180 01	2,772 64	-430 01	-0 07	430 01	12 00	12 00	0 00
3,047 54	90 00	180 01	2,775 00	-477 47	-0 07	477 47	12 00	12 00	0 00
Land EOC hold 90.00°									
3,100 00	90 00	180 01	2,775 00	-529 93	-0 08	529 93	0 00	0 00	0 00
3,200 00	90 00	180 01	2,775 00	-629 93	-0 10	629 93	0 00	0 00	0 00
3,300 00	90 00	180 01	2,775 00	-729 93	-0 11	729 93	0 00	0 00	0 00
3,400 00	90 00	180 01	2,775 00	-829 93	-0 13	829 93	0 00	0 00	0 00
3,500 00	90 00	180 01	2,775 00	-929 93	-0 15	929 93	0 00	0 00	0 00
3,600 00	90 00	180 01	2,775 00	-1,029 93	-0 16	1,029 93	0 00	0 00	0 00
3,700 00	90 00	180 01	2,775 00	-1,129 93	-0 18	1,129 93	0 00	0 00	0 00
3,800 00	90 00	180 01	2,775 00	-1,229 93	-0 19	1,229 93	0 00	0 00	0 00
3,900 00	90 00	180 01	2,775 00	-1,329 93	-0 21	1,329 93	0 00	0 00	0 00
4,000 00	90 00	180 01	2,775 00	-1,429 93	-0 22	1,429 93	0 00	0 00	0 00
4,100 00	90 00	180 01	2,775 00	-1,529 93	-0 24	1,529 93	0 00	0 00	0 00
4,200 00	90 00	180 01	2,775 00	-1,629 93	-0 25	1,629 93	0 00	0 00	0 00
4,300 00	90 00	180 01	2,775 00	-1,729 93	-0 27	1,729 93	0 00	0 00	0 00
4,400 00	90 00	180 01	2,775 00	-1,829 93	-0 29	1,829 93	0 00	0 00	0 00
4,500 00	90 00	180 01	2,775 00	-1,929 93	-0 30	1,929 93	0 00	0 00	0 00
4,600 00	90 00	180 01	2,775 00	-2,029 93	-0 32	2,029 93	0 00	0 00	0 00
4,700 00	90 00	180 01	2,775 00	-2,129 93	-0 33	2,129 93	0 00	0 00	0 00
4,800 00	90 00	180 01	2,775 00	-2,229 93	-0 35	2,229 93	0 00	0 00	0 00
4,900 00	90 00	180 01	2,775 00	-2,329 93	-0 36	2,329 93	0 00	0 00	0 00
5,000 00	90 00	180 01	2,775 00	-2,429 93	-0 38	2,429 93	0 00	0 00	0 00
5,100 00	90 00	180 01	2,775 00	-2,529 93	-0 40	2,529 93	0 00	0 00	0 00
5,200 00	90 00	180 01	2,775 00	-2,629 93	-0 41	2,629 93	0 00	0 00	0 00
5,300 00	90 00	180 01	2,775 00	-2,729 93	-0 43	2,729 93	0 00	0 00	0 00
5,400 00	90 00	180 01	2,775 00	-2,829 93	-0 44	2,829 93	0 00	0 00	0 00
5,500 00	90 00	180 01	2,775 00	-2,929 93	-0 46	2,929 93	0 00	0 00	0 00
5,600 00	90 00	180 01	2,775 00	-3,029 93	-0 47	3,029 93	0 00	0 00	0 00
5,700 00	90 00	180 01	2,775 00	-3,129 93	-0 49	3,129 93	0 00	0 00	0 00
5,800 00	90 00	180 01	2,775 00	-3,229 93	-0 50	3,229 93	0 00	0 00	0 00
5,900 00	90 00	180 01	2,775 00	-3,329 93	-0 52	3,329 93	0 00	0 00	0 00
6,000 00	90 00	180 01	2,775 00	-3,429 93	-0 54	3,429 93	0 00	0 00	0 00
6,100 00	90 00	180 01	2,775 00	-3,529 93	-0 55	3,529 93	0 00	0 00	0 00
6,200 00	90 00	180 01	2,775 00	-3,629 93	-0 57	3,629 93	0 00	0 00	0 00
6,300 00	90 00	180 01	2,775 00	-3,729 93	-0 58	3,729 93	0 00	0 00	0 00
6,400 00	90 00	180 01	2,775 00	-3,829 93	-0 60	3,829 93	0 00	0 00	0 00
6,500 00	90 00	180 01	2,775 00	-3,929 93	-0 61	3,929 93	0 00	0 00	0 00
6,600 00	90 00	180 01	2,775 00	-4,029 93	-0 63	4,029 93	0 00	0 00	0 00
6,700 00	90 00	180 01	2,775 00	-4,129 93	-0 65	4,129 93	0 00	0 00	0 00
6,800 00	90 00	180 01	2,775 00	-4,229 93	-0 66	4,229 93	0 00	0 00	0 00
6,900 00	90 00	180 01	2,775 00	-4,329 93	-0 68	4,329 93	0 00	0 00	0 00
7,000 00	90 00	180 01	2,775 00	-4,429 93	-0 69	4,429 93	0 00	0 00	0 00
7,047 97	90 00	180 01	2,775 00	-4,477 90	-0 70	4,477 90	0 00	0 00	0 00



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Company:	COG Operating LLC	TVD Reference:	GL Elev @ 3401 00usft
Project:	Eddy County, NM (NAN27 NME)	MD Reference:	GL Elev @ 3401 00usft
Site:	Hearse State #4H	North Reference:	Grid
Well:	Hearse State #4H	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)
PBHL-Hearse State #4H									

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 #4H	0 00	0 00	2,775 00	-4,477 90	-0 70	585,861 50	468,774 80	32° 36' 38 148 N	104° 26' 5 061 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	-0 07	Land EOC hold 90 00°



Scientific Drilling for COG Operating LLC
Site: Eddy County, NM (NAN27 NME)
Well: Hearse State #4H
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	2297.54	0.00	0.00	2297.54	0.00	0.00	0.00	0.00	0.00	
3	3047.54	90.00	180.01	2775.00	-477.46	-0.07	12.00	180.01	477.46	
4	7047.97	90.00	180.01	2775.00	-4477.90	-0.70	0.00	0.00	4477.90	PBHL-Hearse State #4H

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PBHL-Hearse State #4H	2775.00	-4477.90	-0.70	585861.50	468774.80	32°36' 38.148 N	104°26' 5.061 W	Point

WELL DETAILS: Hearse State #4H

Ground Level:		3401.00	
+N/-S	+E/-W	Northing	Easting
0.00	0.00	590339.40	468775.50
		Latitude	Longitude
		32°37' 22.461 N	104°26' 5.103 W

Hearse State #4H

Created By: Julio Pina Date: 29-Jul-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 8.05°
To convert a True Direction to a Grid Direction, Add 0.05°

