



COG Operating LLC

Eddy County, NM (NAN27 NME)

Lee 3 Fee #1H

Lee 3 Fee #1H

30-015-39586

OH

Plan: Plan #1 8 3/4 Hole

SHL = 330' FSL & 380' FWL

BHL = 330' FNL & 380' FWL

Standard Planning Report

20 October, 2011



Scientific Drilling



Scientific Drilling
Planning Report



Database:	EDM 5000 1 Single User Db	Local Co-ordinate Reference:	Site Lee 3 Fee #1H
Company:	COG Operating LLC	TVD Reference:	GL Elev @ 3344 0usft (Origina Well Elev)
Project:	Eddy County, NM (NAN27 NME)	MD Reference:	GL Elev @ 3344 0usft (Origina Well Elev)
Site:	Lee 3 Fee #1H	North Reference:	Grid
Well:	Lee 3 Fee #1H	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	Lee 3 Fee #1H			
Site Position:		Northing:	612,335.50 usft	Latitude: 32° 41' 0.248 N
From:	Map	Easting:	486,632.90 usft	Longitude: 104° 22' 36.405 W
Position Uncertainty:	0 0 usft	Slot Radius:	13-3/16 "	Grid Convergence: -0 02 °

Well	Lee 3 Fee #1H			
Well Position	+N/-S	0 0 usft	Northing:	612,335.50 usft
	+E/-W	0 0 usft	Easting:	486,632.90 usft
Position Uncertainty	0 0 usft	Wellhead Elevation:		Ground Level: 3,344.0 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/20/11	7 95	60 46	48,768

Design	Plan #1 8 3/4 Hole			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0 0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0 0	0 0	0 0	359 98

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 0	0 00	0 00	0 0	0 0	0 0	0 00	0 00	0 00	0 00	
2,272.5	0 00	0 00	2,272.5	0 0	0 0	0 00	0 00	0 00	0 00	
3,022.5	90 00	359 98	2,750.0	477.5	-0.2	12 00	12 00	0 00	359 98	
7,144.4	90 00	359 98	2,750.0	4,599.3	-1.9	0 00	0 00	0 00	0 00	PBHL - Lee 3 Fee #1H



Scientific Drilling
Planning Report



Database:	EDM 5000 1 Single User Db	Local Co-ordinate Reference:	Site Lee 3 Fee #1H
Company:	COG Operating LLC	TVD Reference:	GL Elev @ 3344 0usft (Origina Well Elev)
Project:	Eddy County, NM (NAN27 NME)	MD Reference:	GL Elev @ 3344 0usft (Origina Well Elev)
Site:	Lee 3 Fee #1H	North Reference:	Grid
Well:	Lee 3 Fee #1H	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 0	0 00	0 00	0 0	0 0	0 0	0 0	0 00	0 00	0 00
2,272 5	0 00	0 00	2,272 5	0 0	0 0	0 0	0 00	0 00	0 00
KOP Start Build 12.00°/100									
2,300 0	3 30	359 98	2,300 0	0 8	0 0	0 8	12 00	12 00	0 00
2,400 0	15 30	359 98	2,398 5	16 9	0 0	16 9	12 00	12 00	0 00
2,500 0	27 30	359 98	2,491 5	53 2	0 0	53 2	12 00	12 00	0 00
2,600 0	39 30	359 98	2,574 9	108 0	0 0	108 0	12 00	12 00	0 00
2,700 0	51 30	359 98	2,645 1	178 9	-0 1	178 9	12 00	12 00	0 00
2,800 0	63 30	359 98	2,699 1	262 9	-0 1	262 9	12 00	12 00	0 00
2,900 0	75 30	359 98	2,734 4	356 3	-0 1	356 3	12 00	12 00	0 00
3,000 0	87 30	359 98	2,749 5	454 9	-0 2	454 9	12 00	12 00	0 00
3,022 5	90 00	359 98	2,750 0	477 5	-0 2	477 5	12 00	12 00	0 00
Land EOC hold at 90°									
3,100 0	90 00	359 98	2,750 0	554 9	-0 2	554 9	0 00	0 00	0 00
3,200 0	90 00	359 98	2,750 0	654 9	-0 3	654 9	0 00	0 00	0 00
3,300 0	90 00	359 98	2,750 0	754 9	-0 3	754 9	0 00	0 00	0 00
3,400 0	90 00	359 98	2,750 0	854 9	-0 4	854 9	0 00	0 00	0 00
3,500 0	90 00	359 98	2,750 0	954 9	-0 4	954 9	0 00	0 00	0 00
3,600 0	90 00	359 98	2,750 0	1,054 9	-0 4	1,054 9	0 00	0 00	0 00
3,700 0	90 00	359 98	2,750 0	1,154 9	-0 5	1,154 9	0 00	0 00	0 00
3,800 0	90 00	359 98	2,750 0	1,254 9	-0 5	1,254 9	0 00	0 00	0 00
3,900 0	90 00	359 98	2,750 0	1,354 9	-0 6	1,354 9	0 00	0 00	0 00
4,000 0	90 00	359 98	2,750 0	1,454 9	-0 6	1,454 9	0 00	0 00	0 00
4,100 0	90 00	359 98	2,750 0	1,554 9	-0 6	1,554 9	0 00	0 00	0 00
4,200 0	90 00	359 98	2,750 0	1,654 9	-0 7	1,654 9	0 00	0 00	0 00
4,300 0	90 00	359 98	2,750 0	1,754 9	-0 7	1,754 9	0 00	0 00	0 00
4,400 0	90 00	359 98	2,750 0	1,854 9	-0 8	1,854 9	0 00	0 00	0 00
4,500 0	90 00	359 98	2,750 0	1,954 9	-0 8	1,954 9	0 00	0 00	0 00
4,600 0	90 00	359 98	2,750 0	2,054 9	-0 8	2,054 9	0 00	0 00	0 00
4,700 0	90 00	359 98	2,750 0	2,154 9	-0 9	2,154 9	0 00	0 00	0 00
4,800 0	90 00	359 98	2,750 0	2,254 9	-0 9	2,254 9	0 00	0 00	0 00
4,900 0	90 00	359 98	2,750 0	2,354 9	-1 0	2,354 9	0 00	0 00	0 00
5,000 0	90 00	359 98	2,750 0	2,454 9	-1 0	2,454 9	0 00	0 00	0 00
5,100 0	90 00	359 98	2,750 0	2,554 9	-1 1	2,554 9	0 00	0 00	0 00
5,200 0	90 00	359 98	2,750 0	2,654 9	-1 1	2,654 9	0 00	0 00	0 00
5,300 0	90 00	359 98	2,750 0	2,754 9	-1 1	2,754 9	0 00	0 00	0 00
5,400 0	90 00	359 98	2,750 0	2,854 9	-1 2	2,854 9	0 00	0 00	0 00
5,500 0	90 00	359 98	2,750 0	2,954 9	-1 2	2,954 9	0 00	0 00	0 00
5,600 0	90 00	359 98	2,750 0	3,054 9	-1 3	3,054 9	0 00	0 00	0 00
5,700 0	90 00	359 98	2,750 0	3,154 9	-1 3	3,154 9	0 00	0 00	0 00
5,800 0	90 00	359 98	2,750 0	3,254 9	-1 3	3,254 9	0 00	0 00	0 00
5,900 0	90 00	359 98	2,750 0	3,354 9	-1 4	3,354 9	0 00	0 00	0 00
6,000 0	90 00	359 98	2,750 0	3,454 9	-1 4	3,454 9	0 00	0 00	0 00
6,100 0	90 00	359 98	2,750 0	3,554 9	-1 5	3,554 9	0 00	0 00	0 00
6,200 0	90 00	359 98	2,750 0	3,654 9	-1 5	3,654 9	0 00	0 00	0 00
6,300 0	90 00	359 98	2,750 0	3,754 9	-1 6	3,754 9	0 00	0 00	0 00
6,400 0	90 00	359 98	2,750 0	3,854 9	-1 6	3,854 9	0 00	0 00	0 00
6,500 0	90 00	359 98	2,750 0	3,954 9	-1 6	3,954 9	0 00	0 00	0 00
6,600 0	90 00	359 98	2,750 0	4,054 9	-1 7	4,054 9	0 00	0 00	0 00
6,700 0	90 00	359 98	2,750 0	4,154 9	-1 7	4,154 9	0 00	0 00	0 00
6,800 0	90 00	359 98	2,750 0	4,254 9	-1 8	4,254 9	0 00	0 00	0 00
6,900 0	90 00	359 98	2,750 0	4,354 9	-1 8	4,354 9	0 00	0 00	0 00
7,000 0	90 00	359 98	2,750 0	4,454 9	-1 8	4,454 9	0 00	0 00	0 00
7,100 0	90 00	359 98	2,750 0	4,554 9	-1 9	4,554 9	0 00	0 00	0 00



Scientific Drilling
Planning Report



Database:	EDM 5000 1 Single User Db	Local Co-ordinate Reference:	Site Lee 3 Fee #1H
Company:	COG Operating LLC	TVD Reference:	GL Elev @ 3344.0usft (Origina Well Elev)
Project:	Eddy County, NM (NAN27 NME)	MD Reference:	GL Elev @ 3344.0usft (Origina Well Elev)
Site:	Lee 3 Fee #1H	North Reference:	Grid
Well:	Lee 3 Fee #1H	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)
7,144.4	90.00	359.98	2,750.0	4,599.3	-1.9	4,599.3	0.00	0.00	0.00
PBHL - Lee 3 Fee #1H									

Design Targets

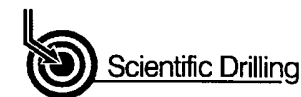
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
PBHL - Lee 3 Fee #1H	0.00	360.00	2,750.0	4,599.3	-1.9	616,934.80	486,631.00	32° 41' 45.761 N	104° 22' 36.449 W
- plan hits target center									
- Point									

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	+E/-W (usft)	Comment
2,272.5	2,272.5	0.0	0.0	KOP Start Build 12.00°/100
3,022.5	2,750.0	477.5	-0.2	Land EOC hold at 90°



Scientific Drilling for COG Operating LLC
Site: Eddy County, NM (NAN27 NME)
Well: Lee 3 Fee #1H
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 0	0.00	0.00	0.00	0.0	0.0	0.00	0.00	0 0	
2	2272 5	0.00	0.00	2272.5	0.0	0.0	0.00	0.00	0 0	
3	3022 5	90.00	359.98	2750.0	477.5	-0.2	12.00	359.98	477 5	
4	7144 4	90.00	359.98	2750 0	4599.3	-1.9	0.00	0.00	4599 3	PBHL - Lee 3 Fee #1H

Lee 3 Fee #1H

Created By: Julio Pina Date: 20-Oct-11
Checked: _____ Date: _____
Reviewed: _____ Date: _____

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PBHL - Lee 3 Fee #1H	2750.0	4599.3	-1.9	616934.80	486631.00	32°41' 45.761 N	104°22' 36.449 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: Lee 3 Fee #1H

	Ground Level	3344.0					
	North	East	Lat	Long	Slot		
+N/-S	0.0	0.0	612335.50	486632.90	32°41' 0.248 N	104°22' 36.405 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 7.97°
To convert a True Direction to a Grid Direction, Add 0.02°

