

30-025-40424



COG Operating LLC

Eddy County, NM (NAN27 NME)
High Plains 15 State Com #1H
#1H

OH

Plan: Plan #1 8-3/4" Hole
SHL = 330' FSL & 380' FWL
BHL = 330' FNL & 380' FWL

HOBBS OCD

JAN 17 2012

RECEIVED

Standard Planning Report

30 December, 2011



Scientific Drilling
Directional Drilling Operations

FEB 01 2012



SDI
Planning Report



Database:	EDM:5000 1 Single User Db	Local Co-ordinate Reference:	Site:High Plains 15 State Com #1H
Company:	COG Operating LLC	TVD Reference:	GL @ 4120 00usft
Project:	Eddy County NM (NAN27 NME)	MD Reference:	GL @ 4120 00usft
Site:	High Plains 15 State Com #1H	North Reference:	Gnd
Well:	#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:	High Plains 15 State Com #1H		
Site Position:		Northing:	764,215 60 usft
From:	Map	Easting:	753,487 70 usft
Position Uncertainty:	0 00 usft	Slot Radius:	13-3/16 "
		Latitude:	33° 5' 53 283 N
		Longitude:	103° 30' 20 205 W
		Grid Convergence:	0 45 °

Well:	#1H		
Well Position	+N-S	0 00 usft	Northing:
	+E-W	0 00 usft	Easting:
Position Uncertainty	0 00 usft	Wellhead Elevation:	Ground Level:
			4,120 00 usft

Wellbore:	OH		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010	2011/12/30	7 55
			Dip Angle
			(°)
			60 99
			Field Strength
			(nT)
			49,090

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
			(°)
			359 57

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	
9,167 50	0 00	0 00	9,167 50	0 00	0 00	0 00	0 00	0 00	0 00	
9,919 28	90 21	359 57	9,644 99	479 21	-3 56	12 00	12 00	0 00	359 57	
14,058 51	90 21	359 57	9,630 00	4,618 30	-34 30	0 00	0 00	0 00	0 00	PBHL-High Plains #11



Database:	EDM 5000 11 Single User Db	Local Co-ordinate Reference:	Site High Plains 15 State Corn #1H
Company:	COG Operating LLC	TVD Reference:	GL @ 4120 00usft
Project:	Eddy County NM (NAN27 NME)	MD Reference:	GL @ 4120 00usft
Site:	High Plains 15 State Corn #1H	North Reference:	Grid
Well:	#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 00	0 00	0 00	0 00	0.00	0 00	0 00	0 00	0 00	0 00	
9,167 50	0 00	0 00	9,167 50	0 00	0 00	0 00	0 00	0 00	0 00	
Start Build 12.00°/100'										
9,200 00	3 90	359 57	9,199 98	1 11	-0 01	1 11	12 00	12 00	0 00	
9,300 00	15 90	359 57	9,298 31	18 27	-0 14	18 27	12 00	12 00	0 00	
9,400 00	27 90	359 57	9,390 92	55 49	-0 41	55 49	12 00	12 00	0 00	
9,500 00	39 90	359 57	9,473 77	111 16	-0 83	111.16	12 00	12 00	0 00	
9,600 00	51 90	359 57	9,543 24	182 84	-1 36	182 84	12 00	12 00	0 00	
9,700 00	63 90	359 57	9,596 29	267 39	-1 99	267 39	12 00	12 00	0 00	
9,800 00	75 89	359 57	9,630 60	361 12	-2 68	361 13	12 00	12 00	0 00	
9,900 00	87 89	359 57	9,644 68	459 94	-3 42	459 95	12 00	12 00	0 00	
9,919 28	90 21	359 57	9,644 99	479 22	-3 56	479 23	12 00	12 00	0 00	
Land hold 90.21°										
10,000 00	90 21	359 57	9,644 70	559 93	-4 16	559 95	0 00	0 00	0 00	
10,100 00	90 21	359 57	9,644 34	659 93	-4 90	659 94	0 00	0 00	0 00	
10,200 00	90 21	359 57	9,643 98	759 92	-5 64	759 94	0 00	0 00	0 00	
10,300 00	90 21	359 57	9,643 62	859 92	-6 39	859 94	0 00	0 00	0 00	
10,400 00	90 21	359 57	9,643 25	959 92	-7 13	959 94	0 00	0 00	0 00	
10,500 00	90 21	359 57	9,642 89	1,059 91	-7 87	1,059 94	0 00	0 00	0 00	
10,600 00	90 21	359 57	9,642 53	1,159 91	-8 61	1,159 94	0 00	0 00	0 00	
10,700 00	90 21	359 57	9,642 17	1,259 91	-9 36	1,259 94	0 00	0 00	0 00	
10,800 00	90 21	359 57	9,641 80	1,359 90	-10 10	1,359 94	0 00	0 00	0 00	
10,900 00	90 21	359 57	9,641 44	1,459 90	-10 84	1,459 94	0 00	0 00	0 00	
11,000 00	90 21	359 57	9,641 08	1,559 90	-11 59	1,559 94	0 00	0 00	0 00	
11,100 00	90 21	359 57	9,640 72	1,659 89	-12 33	1,659 94	0 00	0 00	0 00	
11,200 00	90 21	359 57	9,640 36	1,759 89	-13 07	1,759 94	0 00	0 00	0 00	
11,300 00	90 21	359 57	9,639 99	1,859 89	-13 81	1,859 94	0 00	0 00	0 00	
11,400 00	90 21	359 57	9,639 63	1,959 88	-14 56	1,959 94	0 00	0 00	0 00	
11,500 00	90 21	359 57	9,639 27	2,059 88	-15 30	2,059 94	0 00	0 00	0 00	
11,600 00	90 21	359 57	9,638 91	2,159 88	-16 04	2,159 93	0 00	0 00	0 00	
11,700 00	90 21	359 57	9,638 54	2,259 87	-16 78	2,259 93	0 00	0 00	0 00	
11,800 00	90 21	359 57	9,638 18	2,359 87	-17 53	2,359 93	0 00	0 00	0 00	
11,900 00	90 21	359 57	9,637 82	2,459 86	-18 27	2,459 93	0 00	0 00	0 00	
12,000 00	90 21	359 57	9,637 46	2,559 86	-19 01	2,559 93	0 00	0 00	0 00	
12,100 00	90 21	359 57	9,637 10	2,659 86	-19 75	2,659 93	0 00	0 00	0 00	
12,200 00	90 21	359 57	9,636 73	2,759 85	-20 50	2,759 93	0 00	0 00	0 00	
12,300 00	90 21	359 57	9,636 37	2,859 85	-21 24	2,859 93	0 00	0 00	0 00	
12,400 00	90 21	359 57	9,636 01	2,959 85	-21 98	2,959 93	0 00	0 00	0 00	
12,500 00	90 21	359 57	9,635 65	3,059 84	-22 73	3,059 93	0 00	0 00	0 00	
12,600 00	90 21	359 57	9,635 28	3,159 84	-23 47	3,159 93	0 00	0 00	0 00	
12,700 00	90 21	359 57	9,634 92	3,259 84	-24 21	3,259 93	0 00	0 00	0 00	
12,800 00	90 21	359 57	9,634 56	3,359 83	-24 95	3,359 93	0 00	0 00	0 00	
12,900 00	90 21	359 57	9,634 20	3,459 83	-25 70	3,459 93	0 00	0 00	0 00	
13,000 00	90 21	359 57	9,633 83	3,559 83	-26 44	3,559 93	0 00	0 00	0 00	
13,100 00	90 21	359 57	9,633 47	3,659 82	-27 18	3,659 92	0 00	0 00	0 00	
13,200 00	90 21	359 57	9,633 11	3,759 82	-27 92	3,759 92	0 00	0 00	0 00	
13,300 00	90 21	359 57	9,632 75	3,859 82	-28 67	3,859 92	0 00	0 00	0 00	
13,400 00	90 21	359 57	9,632 39	3,959 81	-29 41	3,959 92	0 00	0 00	0 00	
13,500 00	90 21	359 57	9,632 02	4,059 81	-30 15	4,059 92	0 00	0 00	0 00	
13,600 00	90 21	359 57	9,631 66	4,159 81	-30 89	4,159 92	0 00	0 00	0 00	
13,700 00	90 21	359 57	9,631 30	4,259 80	-31 64	4,259 92	0 00	0 00	0 00	
13,800 00	90 21	359 57	9,630 94	4,359 80	-32 38	4,359 92	0 00	0 00	0 00	
13,900 00	90 21	359 57	9,630 57	4,459 80	-33 12	4,459 92	0 00	0 00	0 00	
14,000 00	90 21	359 57	9,630 21	4,559 79	-33 87	4,559 92	0 00	0 00	0 00	



Database:	EDM 5000 1: Single User Db	Local Co-ordinate Reference:	Site High Plains 15 State Com #1H
Company:	COG Operating LLC	TVD Reference:	GL @ 4120 00usft
Project:	Eddy County, NM (NAN27 NME)	MD Reference:	GL @ 4120 00usft
Site:	High Plains 15 State Com #1H	North Reference:	Grid
Well:	#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)
14,058.51	90.21	359.57	9,630.00	4,618.30	-34.30	4,618.43	0.00	0.00	0.00
PBHL-High Plains #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-High Plains #1H	0.00	0.01	9,630.00	4,618.30	-34.30	768,833.90	753,453.40	33° 6' 38.979 N	103° 30' 20.179 W
- plan hits target center									
- Point									

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
9,167.50	9,167.50	0.00	0.00	Start Build 12.00°/100'
9,919.28	9,645.00	479.22	-3.56	Land hold 90.21°



High Plains 15 State Com #1H
Eddy County, NM (NAN27 NME)
Northing: (Y) 764215.60
Easting: (X) 753487.70
Plan #1 8-3/4" Hole



Azimuths to Grid North
True North -0.45°
Magnetic North 7.10°
Magnetic Field
Strength 49090.3nT
Dip Angle 60.99°
Date 2011/12/30
Model IGRF2010



WELL DETAILS #1H

+N/-S	+E/-W	Northing	Ground Level	Latitude	Longitude	Slot
0.00	0.00	764215.60	4120.00	33° 5' 53.283 N	103° 30' 20.205 W	

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	9167.50	0.00	0.00	9167.50	0.00	0.00	0.00	0.00	
3	9919.28	90.21	359.57	9645.00	479.22	-3.56	12.00	359.57	479.23
4	14058.51	90.21	359.57	9630.00	4618.30	-34.30	0.00	0.00	4618.43 PBHL-High Plains #1H

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PBHL-High Plains #1H	9630.00	4618.30	-34.30	768833.90	753453.40	33° 6' 38.979 N	103° 30' 20.179 W	Point
- plan hits target center								

PROJECT DETAILS Eddy County, NM (NAN27 NME)

Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone Name: New Mexico East 3001
Local Origin: Site High Plains 15 State Com #1H, Grid North
System Datum: Mean Sea Level

Map System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone Name: New Mexico East 3001
Local Origin: Site High Plains 15 State Com #1H, Grid North
Latitude: 33° 5' 53.283 N
Longitude: 103° 30' 20.205 W
Grid East: 753487.70
Grid North: 764215.60
Scale Factor: 1.000

Geomagnetic Model: IGRF2010
Sample Date: 30-Dec-11
Magnetic Declination: 7.55°
Dip Angle from Horizontal: 60.99°
Magnetic Field Strength: 49090
To convert a Magnetic Direction to a Grid Direction: Add 7.10°
To convert a Magnetic Direction to a True Direction: Add 7.55° East
To convert a True Direction to a Grid Direction: Subtract 0.45°

SITE DETAILS High Plains 15 State Com #1H

Site Centre Northing: 764215.60
Easting: 753487.70
Positional Uncertainty: 0.00
Convergence: 0.45
Local North: Grid

CASING DETAILS

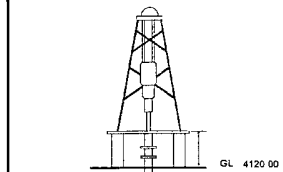
No casing data is available

FORMATION TOP DETAILS

No formation data is available

LEGEND

Plan #1 8-3/4" Hole



GL 4120.00

