

30-015-39842



COG Operating LLC

Eddy County, NM (NAN27 NME)

Patton 5 Fee #4H

Patton 5 Fee #4H

OH

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

SHL = 2310' FNL & 235' FWL

PP = 2308' FNL & 330' FWL

BHL = 2260' FNL & 330' FEL

Standard Planning Report

07 December, 2011





Scientific Drilling
Planning Report



Database:	EDM-Julio	Local Co-ordinate Reference:	Site Patton 5 Fee #4H
Company:	COG Operating LLC	TVD Reference:	GL Elev @ 3368 00usft
Project:	Eddy County, NM (NAN27 NME)	MD Reference:	GL Elev @ 3368 00usft
Site:	Patton 5 Fee #4H	North Reference:	Grid
Well:	Patton 5 Fee #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:	Patton 5 Fee #4H		
Site Position:		Northing:	614,892 20 usft
From:	Map	Easting:	475,942 20 usft
Position Uncertainty:	0 00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 41' 25 487 N
		Longitude:	104° 24' 41 515 W
		Grid Convergence:	-0 04 °

Well:	Patton 5 Fee #4H		
Well Position	+N/-S	0 00 usft	Northing:
	+E/-W	0 00 usft	Easting:
Position Uncertainty	0 00 usft	Wellhead Elevation:	Ground Level:

Wellbore:	OH		
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Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2010	2011/12/07	7 95	60 46	48,755

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

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		
2,272 54	0 00	0 00	2,272 54	0 00	0.00	0 00	0 00	0 00	0 00		
3,022 54	90 00	89 04	2,750.00	8 03	477 40	12 00	12 00	0 00	89 04		
7,258 24	90 00	89 04	2,750 00	79 30	4,712 50	0 00	0 00	0 00	0 00	PBHL-Patton 5 Fee #	



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Site:	Patton 5 Fee #4H	North Reference:	Grid
Well:	Patton 5 Fee #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
2,272 54	0 00	0 00	2,272 54	0 00	0 00	0 00	0 00	0 00	0 00
KOP Start Build 12.00/100'									
2,300 00	3 30	89 04	2,299 98	0 01	0 79	0 79	12 00	12 00	0 00
2,400 00	15 30	89 04	2,398 49	0 28	16 91	16 91	12 00	12 00	0 00
2,500 00	27 30	89 04	2,491 49	0 89	53 16	53 17	12 00	12 00	0 00
2,579.02	36 78	89 04	2,558 40	1 60	95.02	95 03	12 00	12 00	0 00
PP=330' FWL, Patton 5 Fee #4H									
2,600 00	39 30	89 04	2,574 93	1 82	107.95	107 96	12 00	12 00	0 00
2,700 00	51 30	89 04	2,645 14	3 01	178 88	178 91	12 00	12 00	0 00
2,800.00	63 30	89 04	2,699 07	4 42	262 86	262 90	12 00	12 00	0 00
2,900 00	75 30	89 04	2,734 36	5 99	356 22	356 27	12 00	12 00	0 00
3,000 00	87 30	89 04	2,749 47	7 65	454.87	454.94	12 00	12 00	0 00
3,022 54	90 00	89 04	2,750 00	8 03	477 40	477 47	12 00	12 00	0 00
Land EOC hold 90.00°									
3,100 00	90 00	89 04	2,750 00	9 34	554 85	554 93	0 00	0 00	0 00
3,200 00	90 00	89 04	2,750 00	11 02	654 84	654 93	0 00	0 00	0 00
3,300 00	90 00	89 04	2,750.00	12.70	754.82	754 93	0 00	0 00	0 00
3,400 00	90 00	89 04	2,750 00	14 38	854 81	854 93	0 00	0 00	0 00
3,500 00	90 00	89 04	2,750 00	16 07	954 79	954 93	0 00	0 00	0 00
3,600 00	90 00	89 04	2,750 00	17 75	1,054 78	1,054 93	0 00	0 00	0 00
3,700 00	90 00	89 04	2,750 00	19 43	1,154 77	1,154 93	0 00	0 00	0 00
3,800 00	90 00	89 04	2,750 00	21 11	1,254 75	1,254 93	0 00	0 00	0 00
3,900 00	90 00	89 04	2,750.00	22 80	1,354 74	1,354 93	0 00	0 00	0 00
4,000 00	90 00	89 04	2,750 00	24 48	1,454 72	1,454 93	0 00	0 00	0 00
4,100 00	90 00	89 04	2,750 00	26 16	1,554 71	1,554 93	0 00	0 00	0 00
4,200 00	90 00	89 04	2,750 00	27 84	1,654 70	1,654 93	0 00	0 00	0 00
4,300 00	90 00	89 04	2,750 00	29 53	1,754 68	1,754 93	0 00	0 00	0 00
4,400 00	90 00	89 04	2,750 00	31 21	1,854 67	1,854 93	0 00	0 00	0 00
4,500 00	90 00	89 04	2,750 00	32 89	1,954 65	1,954 93	0 00	0 00	0 00
4,600 00	90 00	89 04	2,750 00	34.57	2,054 64	2,054 93	0 00	0 00	0 00
4,700 00	90 00	89 04	2,750 00	36 26	2,154 62	2,154 93	0 00	0 00	0 00
4,800 00	90 00	89 04	2,750 00	37 94	2,254 61	2,254 93	0 00	0 00	0 00
4,900 00	90 00	89 04	2,750 00	39 62	2,354 60	2,354 93	0 00	0 00	0 00
5,000 00	90 00	89 04	2,750 00	41 30	2,454 58	2,454 93	0 00	0 00	0 00
5,100 00	90 00	89 04	2,750 00	42 99	2,554 57	2,554 93	0 00	0 00	0 00
5,200 00	90 00	89 04	2,750.00	44 67	2,654.55	2,654 93	0 00	0 00	0 00
5,300 00	90 00	89 04	2,750 00	46 35	2,754 54	2,754 93	0 00	0 00	0 00
5,400 00	90 00	89 04	2,750 00	48 03	2,854 53	2,854 93	0 00	0 00	0 00
5,500 00	90 00	89 04	2,750 00	49 72	2,954 51	2,954 93	0 00	0 00	0 00
5,600 00	90 00	89 04	2,750 00	51 40	3,054 50	3,054 93	0 00	0 00	0 00
5,700 00	90 00	89 04	2,750 00	53 08	3,154 48	3,154 93	0 00	0 00	0 00
5,800 00	90 00	89 04	2,750 00	54 76	3,254 47	3,254 93	0 00	0 00	0 00
5,900 00	90 00	89 04	2,750 00	56 45	3,354.45	3,354.93	0 00	0 00	0 00
6,000 00	90 00	89 04	2,750 00	58.13	3,454 44	3,454.93	0 00	0 00	0 00
6,100 00	90 00	89 04	2,750 00	59 81	3,554 43	3,554 93	0 00	0 00	0 00
6,200 00	90 00	89 04	2,750 00	61 49	3,654 41	3,654.93	0 00	0 00	0 00
6,300 00	90 00	89 04	2,750 00	63 18	3,754 40	3,754 93	0 00	0 00	0 00
6,400 00	90 00	89 04	2,750.00	64 86	3,854.38	3,854.93	0 00	0 00	0 00
6,500 00	90 00	89 04	2,750 00	66 54	3,954 37	3,954 93	0 00	0 00	0 00
6,600 00	90 00	89 04	2,750 00	68 23	4,054 36	4,054 93	0 00	0 00	0 00
6,700 00	90 00	89 04	2,750.00	69 91	4,154.34	4,154 93	0 00	0 00	0 00
6,800 00	90 00	89 04	2,750 00	71 59	4,254.33	4,254 93	0 00	0 00	0 00



Scientific Drilling
Planning Report



Database:	EDM-Julio	Local Co-ordinate Reference:	Site Patton 5 Fee #4H
Company:	COG Operating LLC	TVD Reference:	GL Elev @ 3368 00usft
Project:	Eddy County, NM (NAN27 NME)	MD Reference:	GL Elev @ 3368 00usft
Site:	Patton 5 Fee #4H	North Reference:	Gnd
Well:	Patton 5 Fee #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)
6,900 00	90 00	89 04	2,750 00	73 27	4,354 31	4,354.93	0 00	0 00	0 00
7,000 00	90 00	89 04	2,750.00	74.96	4,454 30	4,454 93	0 00	0 00	0 00
7,100 00	90 00	89 04	2,750 00	76 64	4,554 28	4,554 93	0 00	0 00	0 00
7,200.00	90 00	89 04	2,750 00	78 32	4,654 27	4,654 93	0 00	0 00	0 00
7,258 24	90 00	89 04	2,750 00	79 30	4,712 50	4,713 17	0 00	0 00	0 00
PBHL-Patton 5 Fee #4H									

Design Targets									
Target Name	hit/miss target Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude Longitude
PP=330' FWL, Patton 5	- plan hits target center	0 00	0 00	2,558 37	1 60	95.00	614,893 80	476,037 20	32° 41' 25 504 N 104° 24' 40 404 W
	- Point								
PBHL-Patton 5 Fee #4H	- plan hits target center	0 00	0 00	2,750 00	79 30	4,712 50	614,971 50	480,654 70	32° 41' 26 303 N 104° 23' 46 372 W
	- Point								

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,272 54	2,272 54	0 00	0.00	KOP Start Build 12.00/100'
3,022 54	2,750 00	-119 36	462 31	Land EOC hold 90 00°



Scientific Drilling for COG Operating LLC
Site: Eddy County, NM (NAN27 NME)
Well: Patton 5 Fee #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	2272.54	0.00	0.00	2272.54	0.00	0.00	0.00	0.00	0.00	
3	3022.54	90.00	89.04	2750.00	8.03	477.40	12.00	89.04	477.46	
4	7258.24	90.00	89.04	2750.00	79.30	4712.50	0.00	0.00	4713.17	PBHL-Patton 5 Fee #4H

Plan Plan #1 8-3/4" Hole (Patton 5 Fee #4H/OH)

Created By: Julio Pina Date: 07-Dec-11
Checked: Date:
Reviewed: Date:

WELL DETAILS: Patton 5 Fee #4H

Ground Level: 3368.00
+N/-S +E/-W Northing Easting Latitude Longitude Slot
0.00 0.00 614892.20 475942.20 32°41' 25.487 N 104°24' 41.515 W

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PP=330' FWL, Patton 5 Fee #4H	2558.37	1.60	95.00	614893.80	476037.20	32°41' 25.504 N	104°24' 40.404 W	Point
PBHL-Patton 5 Fee #4H	2750.00	79.30	4712.50	614971.50	480654.70	32°41' 26.303 N	104°23' 46.372 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

