



COG Operating LLC

30-015-39176

Eddy County, NM (NAN27 NME)

McCoy State #20

McCoy State #20

OH

Plan: Plan #1 7-7/8" Hole

SHL = 970' FNL & 2415' FWL

BHL = 980' FNL & 2260' FWL

Top of Paddock = 980' FNL & 2260' FWL @ 3900' TVD

Standard Planning Report

30 August, 2011





Scientific Drilling

Planning Report



Database:	EDM-Julio	Local Co-ordinate Reference:	Site McCoy State #20
Company:	COG Operating LLC	TVD Reference:	GL Elev @ 3629 00usft
Project:	Eddy County, NM (NAN27 NME)	MD Reference:	GL Elev @ 3629 00usft
Site:	McCoy State #20	North Reference:	Gnd
Well:	McCoy State #20	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 7-7/8" 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	McCoy State #20		
Site Position:		Northing:	674,317 30 usft
From:	Map	Easting:	572,500 30 usft
Position Uncertainty:	0 00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 51' 12 815 N
		Longitude:	104° 5' 50 080 W
		Grid Convergence:	0 13 °

Well	McCoy State #20		
Well Position	+N/-S	0 00 usft	Northing:
	+E/-W	0 00 usft	Easting:
Position Uncertainty	0 00 usft	Wellhead Elevation:	Ground Level:
			3,629 00 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
	IGRF2010	2011/08/30	(°)
			7 85
			Dip Angle
			(°)
			60 67
			Field Strength
			(nT)
			48,915

Design	Plan #1 7-7/8" 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
			(°)
			266 31

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	
950 00	0 00	0 00	950 00	0 00	0 00	0 00	0 00	0 00	0 00	
1,109 17	3 18	266 31	1,109 09	-0 28	-4 41	2 00	2 00	0 00	266 31	
3,745 06	3.18	266 31	3,740 91	-9 72	-150 49	0 00	0 00	0 00	0 00	
3,904 23	0.00	0 00	3,900 00	-10 00	-154 90	2 00	-2 00	0 00	180 00	TG1-McCoy #20
5,404 23	0.00	0 00	5,400 00	-10 00	-154 90	0 00	0 00	0 00	0 00	PBHL-McCoy #20



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Database: EDM-Julio
Company: COG Operating LLC
Project: Eddy County, NM (NAN27 NME)
Site: McCoy State #20
Well: McCoy State #20
Wellbore: OH
Design: Plan #1 7-7/8" Hole

Local Co-ordinate Reference:
TVD Reference: Site McCoy State #20
MD Reference: GL Elev @ 3629 00usft
North Reference: GL Elev @ 3629 00usft
Survey Calculation Method: Grid
Minimum Curvature.

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
East HL-McCoy #20 - North HL-McCoy #20									
850 00	0 00	0 00	850 00	0 00	0 00	0 00	0 00	0 00	0 00
8-5/8" Casing									
950 00	0 00	0 00	950 00	0 00	0 00	0 00	0 00	0 00	0 00
KOP Start Build 2.00°/100'									
1,000 00	1 00	266 31	1,000 00	-0 03	-0 44	0 44	2 00	2 00	0 00
1,100 00	3 00	266 31	1,099.93	-0 25	-3 92	3 93	2 00	2 00	0 00
1,109 17	3 18	266 31	1,109 09	-0 28	-4 41	4 42	2 00	2 00	0 00
EOC hold 3.18°									
1,200 00	3 18	266 31	1,199 78	-0 61	-9 45	9 46	0 00	0 00	0 00
1,300 00	3 18	266 31	1,299 62	-0 97	-14 99	15 02	0 00	0 00	0 00
1,400 00	3 18	266 31	1,399 47	-1 33	-20 53	20 57	0 00	0 00	0 00
1,500 00	3 18	266 31	1,499 32	-1 68	-26 07	26 12	0 00	0 00	0 00
1,600 00	3 18	266 31	1,599 16	-2 04	-31 61	31 68	0 00	0 00	0 00
1,700 00	3 18	266 31	1,699 01	-2 40	-37 15	37 23	0 00	0 00	0 00
1,800 00	3 18	266 31	1,798 85	-2 76	-42 70	42 79	0 00	0 00	0 00
1,900 00	3 18	266 31	1,898 70	-3 11	-48 24	48 34	0 00	0 00	0 00
2,000 00	3 18	266 31	1,998 54	-3 47	-53 78	53 89	0 00	0 00	0 00
2,100 00	3 18	266 31	2,098 39	-3 83	-59 32	59 45	0 00	0 00	0 00
2,200 00	3 18	266 31	2,198 23	-4 19	-64 86	65 00	0 00	0 00	0 00
2,300 00	3 18	266 31	2,298 08	-4 55	-70 41	70 55	0 00	0 00	0 00
2,400 00	3 18	266 31	2,397 93	-4 90	-75 95	76 11	0 00	0 00	0 00
2,500 00	3 18	266 31	2,497 77	-5 26	-81 49	81 66	0 00	0 00	0 00
2,600 00	3 18	266 31	2,597 62	-5 62	-87 03	87 21	0 00	0 00	0 00
2,700 00	3 18	266 31	2,697 46	-5 98	-92 57	92 77	0 00	0 00	0 00
2,800 00	3 18	266 31	2,797 31	-6 33	-98 11	98 32	0 00	0 00	0 00
2,900 00	3 18	266 31	2,897 15	-6 69	-103 66	103 87	0 00	0 00	0 00
3,000 00	3 18	266 31	2,997 00	-7 05	-109 20	109 43	0 00	0 00	0 00
3,100 00	3 18	266 31	3,096 85	-7 41	-114 74	114 98	0 00	0 00	0 00
3,200 00	3 18	266 31	3,196 69	-7 77	-120 28	120 53	0 00	0 00	0 00
3,300 00	3 18	266 31	3,296 54	-8 12	-125 82	126 09	0 00	0 00	0 00
3,400 00	3 18	266 31	3,396 38	-8 48	-131.37	131 64	0 00	0 00	0 00
3,500 00	3 18	266 31	3,496 23	-8 84	-136 91	137 19	0 00	0 00	0 00
3,600 00	3 18	266 31	3,596 07	-9 20	-142.45	142 75	0 00	0 00	0 00
3,700 00	3 18	266 31	3,695 92	-9 55	-147 99	148 30	0 00	0 00	0 00
3,745 06	3 18	266 31	3,740 91	-9 72	-150 49	150 80	0 00	0 00	0 00
Start Drop 2.00°/100'									
3,800 00	2 08	266 31	3,795 79	-9 88	-153 01	153 33	2 00	-2 00	0 00
3,900 00	0 08	266 31	3,895 77	-10 00	-154 90	155 22	2 00	-2 00	0 00
3,904 23	0 00	0 00	3,900 00	-10 00	-154 90	155 22	2 00	-2 00	2,214 18
EOC hold 0.00° - Top of Paddock - TG1-McCoy #20									
5,404 23	0 00	0 00	5,400 00	-10 00	-154 90	155 22	0 00	0 00	0 00
PBHL-McCoy #20									



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Project:	Eddy County, NM (NAN27 NME)	MD Reference:	GL Elev @ 3629 00usft
Site:	McCoy State #20	North Reference:	Grid
Well:	McCoy State #20	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 7-7/8" Hole		

Design Targets

Target Name	- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape		(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
East HL-McCoy #20		0 00	0 01	0 00	-20 00	-104 90	674,297 30	572,395 40	32° 51' 12 619 N	104° 5' 51 310 W
- plan misses target center by 106 79usft at 0 00usft MD (0 00 TVD, 0 00 N, 0 00 E)										
- Rectangle (sides W0 00 H100 00 D0 00)										
North HL-McCoy #20		0 00	0 01	0 00	-20 00	-104 90	674,297 30	572,395 40	32° 51' 12 619 N	104° 5' 51 310 W
- plan misses target center by 106 79usft at 0 00usft MD (0 00 TVD, 0 00 N, 0 00 E)										
- Rectangle (sides W150 00 H0 00 D0 00)										
TG1-McCoy #20		0 00	0 01	3,900 00	-10 00	-154 90	674,307 30	572,345 40	32° 51' 12 719 N	104° 5' 51 896 W
- plan hits target center										
- Point										
PBHL-McCoy #20		0 00	0 01	5,400 00	-10 00	-154 90	674,307 30	572,345 40	32° 51' 12 719 N	104° 5' 51 896 W
- plan hits target center										
- Circle (radius 50 00)										

Casing Points

Measured Depth	Vertical Depth	Name	Casing Diameter	Hole Diameter
(usft)	(usft)		(")	(")
850 00	850 00	8-5/8" Casing	8-5/8	12-1/4

Formations

Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction
(usft)	(usft)			(°)	(°)
3,904 23	3,900.00	Top of Paddock		0 00	

Plan Annotations

Measured Depth	Vertical Depth	Local Coordinates		
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	Comment
950 00	950 00	0 00	0 00	KOP Start Build 2 00°/100'
1,109 17	1,109 09	-0 28	-4 41	EOC hold 3 18°
3,745 06	3,740 91	-9 72	-150 49	Start Drop 2 00°/100'
3,904 23	3,900 00	-10 00	-154 90	EOC hold 0 00°

