



30-025-39516

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AUG 26 2009

HOBBSOCD

COG Operating LLC

Lea County(NAD83)
Good Hands "15" State
#2H
OH

Plan: Plan #1

Pathfinder X & Y Planning Report

24 August, 2009

PATHFINDER



Company: Project: Site: Well: Wellbore: Design:	COG Operating LLC Lea County(NAD83) Good Hands "15" State #2H OH Plan #1	Local Co-ordinate Reference: TVD Reference: MD Reference: North Reference: Survey Calculation Method: Database:	Well #2H WELL @ 4320.00ft (18' KB) WELL @ 4320.00ft (18' KB) Grid Minimum Curvature Midland Database		
Project Lea County(NAD83)					
Map System: US State Plane 1983 Geo Datum: North American Datum 1983 Map Zone: New Mexico Eastern Zone		System Datum: Mean Sea Level			
Site Good Hands "15" State					
Site Position: From: Map Position Uncertainty: 0.00 ft		Northing: 767,625.383 ft Easting: 735,766.229 ft Slot Radius: " Latitude: 33° 6' 30.847 N Longitude: 103° 41' 54.120 W Grid Convergence: 0.35 °			
Well #2H					
Well Position +N/-S 0.00 ft +E/-W 0.00 ft Position Uncertainty 0.00 ft		Northing: 765,525.585 ft Easting: 735,780.602 ft Wellhead Elevation: ft Latitude: 33° 6' 10.071 N Longitude: 103° 41' 54.101 W Ground Level: 4,302.00 ft			
Wellbore OH					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	08/24/2009	7.85	61.06	49,349
Design Plan #1					
Audit Notes:					
Version:		Phase: PLAN	Tie On Depth: 0.00		
Vertical Section:		Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
		0.00	0.00	0.00	269.71
Survey Tool Program Date 08/24/2009					
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.00	13,222.46	Plan #1 (OH)			



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Well:	#2H	North Reference:	Grd
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	Midland Database

Planned Survey										
MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg ("/100ft)	Northing (ft)	Easting (ft)
0.00	0.00	0.00	0.00	-4,320.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
100.00	0.00	0.00	100.00	-4,220.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
200.00	0.00	0.00	200.00	-4,120.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
300.00	0.00	0.00	300.00	-4,020.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
400.00	0.00	0.00	400.00	-3,920.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
500.00	0.00	0.00	500.00	-3,820.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
600.00	0.00	0.00	600.00	-3,720.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
700.00	0.00	0.00	700.00	-3,620.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
800.00	0.00	0.00	800.00	-3,520.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
900.00	0.00	0.00	900.00	-3,420.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
1,000.00	0.00	0.00	1,000.00	-3,320.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
1,100.00	0.00	0.00	1,100.00	-3,220.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
1,200.00	0.00	0.00	1,200.00	-3,120.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
1,300.00	0.00	0.00	1,300.00	-3,020.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
1,400.00	0.00	0.00	1,400.00	-2,920.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
1,500.00	0.00	0.00	1,500.00	-2,820.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
1,600.00	0.00	0.00	1,600.00	-2,720.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
1,700.00	0.00	0.00	1,700.00	-2,620.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
1,800.00	0.00	0.00	1,800.00	-2,520.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
1,900.00	0.00	0.00	1,900.00	-2,420.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
2,000.00	0.00	0.00	2,000.00	-2,320.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
2,100.00	0.00	0.00	2,100.00	-2,220.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
2,200.00	0.00	0.00	2,200.00	-2,120.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
2,300.00	0.00	0.00	2,300.00	-2,020.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
2,400.00	0.00	0.00	2,400.00	-1,920.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
2,500.00	0.00	0.00	2,500.00	-1,820.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
2,600.00	0.00	0.00	2,600.00	-1,720.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #2H
Project:	Lea County(NAD83)	TVD Reference:	WELL @ 4320.00ft (18' KB)
Site:	Good Hands "15" State	MD Reference:	WELL @ 4320.00ft (18' KB)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	Midland Database

Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
2,700.00	0.00	0.00	2,700.00	-1,620.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
2,800.00	0.00	0.00	2,800.00	-1,520.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
2,900.00	0.00	0.00	2,900.00	-1,420.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
3,000.00	0.00	0.00	3,000.00	-1,320.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
3,100.00	0.00	0.00	3,100.00	-1,220.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
3,200.00	0.00	0.00	3,200.00	-1,120.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
3,300.00	0.00	0.00	3,300.00	-1,020.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
3,400.00	0.00	0.00	3,400.00	-920.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
3,500.00	0.00	0.00	3,500.00	-820.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
3,600.00	0.00	0.00	3,600.00	-720.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
3,700.00	0.00	0.00	3,700.00	-620.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
3,800.00	0.00	0.00	3,800.00	-520.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
3,900.00	0.00	0.00	3,900.00	-420.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
4,000.00	0.00	0.00	4,000.00	-320.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
4,100.00	0.00	0.00	4,100.00	-220.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
4,200.00	0.00	0.00	4,200.00	-120.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
4,300.00	0.00	0.00	4,300.00	-20.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
4,400.00	0.00	0.00	4,400.00	80.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
4,500.00	0.00	0.00	4,500.00	180.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
4,600.00	0.00	0.00	4,600.00	280.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
4,700.00	0.00	0.00	4,700.00	380.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
4,800.00	0.00	0.00	4,800.00	480.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
4,900.00	0.00	0.00	4,900.00	580.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
5,000.00	0.00	0.00	5,000.00	680.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
5,100.00	0.00	0.00	5,100.00	780.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
5,200.00	0.00	0.00	5,200.00	880.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
5,300.00	0.00	0.00	5,300.00	980.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60



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MD (ft)	Inc (")	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
5,400.00	0.00	0.00	5,400.00	1,080.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
5,500.00	0.00	0.00	5,500.00	1,180.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
5,600.00	0.00	0.00	5,600.00	1,280.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
5,700.00	0.00	0.00	5,700.00	1,380.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
5,800.00	0.00	0.00	5,800.00	1,480.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
5,900.00	0.00	0.00	5,900.00	1,580.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
6,000.00	0.00	0.00	6,000.00	1,680.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
6,100.00	0.00	0.00	6,100.00	1,780.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
6,200.00	0.00	0.00	6,200.00	1,880.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
6,300.00	0.00	0.00	6,300.00	1,980.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
6,400.00	0.00	0.00	6,400.00	2,080.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
6,500.00	0.00	0.00	6,500.00	2,180.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
6,600.00	0.00	0.00	6,600.00	2,280.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
6,700.00	0.00	0.00	6,700.00	2,380.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
6,800.00	0.00	0.00	6,800.00	2,480.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
6,900.00	0.00	0.00	6,900.00	2,580.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
7,000.00	0.00	0.00	7,000.00	2,680.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
7,100.00	0.00	0.00	7,100.00	2,780.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
7,200.00	0.00	0.00	7,200.00	2,880.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
7,300.00	0.00	0.00	7,300.00	2,980.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
7,400.00	0.00	0.00	7,400.00	3,080.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
7,500.00	0.00	0.00	7,500.00	3,180.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
7,600.00	0.00	0.00	7,600.00	3,280.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
7,700.00	0.00	0.00	7,700.00	3,380.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
7,800.00	0.00	0.00	7,800.00	3,480.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
7,900.00	0.00	0.00	7,900.00	3,580.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
8,000.00	0.00	0.00	8,000.00	3,680.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60



Pathfinder Energy Services
Pathfinder X & Y Planning Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #2H
Project:	Lea County(NAD83)	TVD Reference:	WELL @ 4320.00ft (18' KB)
Site:	Good Hands "15" State	MD Reference:	WELL @ 4320.00ft (18' KB)
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MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
8,100.00	0.00	0.00	8,100.00	3,780.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
8,200.00	0.00	0.00	8,200.00	3,880.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
8,300.00	0.00	0.00	8,300.00	3,980.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
8,400.00	0.00	0.00	8,400.00	4,080.00	0.00	0.00	0.00	0.00	765,525.59	735,780.60
8,422.50	0.00	0.00	8,422.50	4,102.50	0.00	0.00	0.00	0.00	765,525.59	735,780.60
8,425.00	0.30	269.71	8,425.00	4,105.00	0.00	-0.01	0.01	12.00	765,525.58	735,780.60
8,450.00	3.30	269.71	8,449.98	4,129.98	0.00	-0.79	0.79	12.00	765,525.58	735,779.81
8,475.00	6.30	269.71	8,474.89	4,154.89	-0.01	-2.88	2.88	12.00	765,525.57	735,777.72
8,500.00	9.30	269.71	8,499.66	4,179.66	-0.03	-6.28	6.28	12.00	765,525.55	735,774.33
8,525.00	12.30	269.71	8,524.21	4,204.21	-0.06	-10.96	10.96	12.00	765,525.53	735,769.64
8,550.00	15.30	269.71	8,548.49	4,228.49	-0.09	-16.92	16.92	12.00	765,525.50	735,763.68
8,575.00	18.30	269.71	8,572.42	4,252.42	-0.12	-24.15	24.15	12.00	765,525.46	735,756.46
8,600.00	21.30	269.71	8,595.94	4,275.94	-0.17	-32.61	32.61	12.00	765,525.42	735,747.99
8,625.00	24.30	269.71	8,618.98	4,298.98	-0.21	-42.30	42.30	12.00	765,525.37	735,738.30
8,650.00	27.30	269.71	8,641.49	4,321.49	-0.27	-53.18	53.18	12.00	765,525.32	735,727.43
8,675.00	30.30	269.71	8,663.40	4,343.40	-0.33	-65.22	65.22	12.00	765,525.25	735,715.38
8,700.00	33.30	269.71	8,684.64	4,364.64	-0.40	-78.39	78.39	12.00	765,525.19	735,702.21
8,725.00	36.30	269.71	8,705.17	4,385.17	-0.47	-92.65	92.66	12.00	765,525.12	735,687.95
8,750.00	39.30	269.71	8,724.92	4,404.92	-0.55	-107.97	107.98	12.00	765,525.04	735,672.63
8,775.00	42.30	269.71	8,743.84	4,423.84	-0.63	-124.31	124.31	12.00	765,524.96	735,656.30
8,800.00	45.30	269.71	8,761.89	4,441.89	-0.72	-141.61	141.61	12.00	765,524.87	735,639.00
8,825.00	48.30	269.71	8,779.00	4,459.00	-0.81	-159.83	159.83	12.00	765,524.78	735,620.77
8,850.00	51.30	269.71	8,795.14	4,475.14	-0.91	-178.92	178.92	12.00	765,524.68	735,601.68
8,875.00	54.30	269.71	8,810.25	4,490.25	-1.01	-198.83	198.83	12.00	765,524.58	735,581.77
8,900.00	57.30	269.71	8,824.30	4,504.30	-1.11	-219.50	219.50	12.00	765,524.47	735,561.10
8,925.00	60.30	269.71	8,837.25	4,517.25	-1.22	-240.88	240.89	12.00	765,524.37	735,539.72
8,950.00	63.29	269.71	8,849.07	4,529.07	-1.33	-262.91	262.91	12.00	765,524.25	735,517.69



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #2H
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Planned Survey

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8,975.00	66.29	269.71	8,859.71	4,539.71	-1.45	-285.53	285.53	12.00	765,524.14	735,495.07
9,000.00	69.29	269.71	8,869.16	4,549.16	-1.56	-308.67	308.67	12.00	765,524.02	735,471.93
9,025.00	72.29	269.71	8,877.38	4,557.38	-1.68	-332.28	332.28	12.00	765,523.90	735,448.33
9,050.00	75.29	269.71	8,884.36	4,564.36	-1.80	-356.28	356.28	12.00	765,523.78	735,424.32
9,075.00	78.29	269.71	8,890.07	4,570.07	-1.93	-380.62	380.62	12.00	765,523.66	735,399.99
9,100.00	81.29	269.71	8,894.50	4,574.50	-2.05	-405.22	405.22	12.00	765,523.53	735,375.39
9,125.00	84.29	269.71	8,897.64	4,577.64	-2.18	-430.02	430.02	12.00	765,523.41	735,350.59
9,150.00	87.29	269.71	8,899.47	4,579.47	-2.30	-454.95	454.95	12.00	765,523.28	735,325.66
9,170.81	89.79	269.71	8,900.00	4,580.00	-2.41	-475.75	475.75	12.00	765,523.18	735,304.86
9,200.00	89.79	269.71	8,900.11	4,580.11	-2.56	-504.94	504.94	0.00	765,523.03	735,275.67
9,300.00	89.79	269.71	8,900.47	4,580.47	-3.06	-604.93	604.94	0.00	765,522.52	735,175.67
9,400.00	89.79	269.71	8,900.84	4,580.84	-3.57	-704.93	704.94	0.00	765,522.02	735,075.67
9,500.00	89.79	269.71	8,901.21	4,581.21	-4.07	-804.93	804.94	0.00	765,521.51	734,975.67
9,600.00	89.79	269.71	8,901.57	4,581.57	-4.58	-904.93	904.94	0.00	765,521.00	734,875.67
9,700.00	89.79	269.71	8,901.94	4,581.94	-5.09	-1,004.93	1,004.94	0.00	765,520.50	734,775.68
9,800.00	89.79	269.71	8,902.31	4,582.31	-5.59	-1,104.92	1,104.94	0.00	765,519.99	734,675.68
9,900.00	89.79	269.71	8,902.67	4,582.67	-6.10	-1,204.92	1,204.94	0.00	765,519.49	734,575.68
10,000.00	89.79	269.71	8,903.04	4,583.04	-6.60	-1,304.92	1,304.94	0.00	765,518.98	734,475.68
10,100.00	89.79	269.71	8,903.41	4,583.41	-7.11	-1,404.92	1,404.94	0.00	765,518.47	734,375.68
10,200.00	89.79	269.71	8,903.77	4,583.77	-7.62	-1,504.92	1,504.94	0.00	765,517.97	734,275.69
10,300.00	89.79	269.71	8,904.14	4,584.14	-8.12	-1,604.91	1,604.94	0.00	765,517.46	734,175.69
10,400.00	89.79	269.71	8,904.51	4,584.51	-8.63	-1,704.91	1,704.93	0.00	765,516.96	734,075.69
10,500.00	89.79	269.71	8,904.87	4,584.87	-9.14	-1,804.91	1,804.93	0.00	765,516.45	733,975.69
10,600.00	89.79	269.71	8,905.24	4,585.24	-9.64	-1,904.91	1,904.93	0.00	765,515.94	733,875.69
10,700.00	89.79	269.71	8,905.60	4,585.60	-10.15	-2,004.91	2,004.93	0.00	765,515.44	733,775.70
10,800.00	89.79	269.71	8,905.97	4,585.97	-10.65	-2,104.91	2,104.93	0.00	765,514.93	733,675.70
10,900.00	89.79	269.71	8,906.34	4,586.34	-11.16	-2,204.90	2,204.93	0.00	765,514.42	733,575.70

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #2H
Project:	Lea County(NAD83)	TVD Reference:	WELL @ 4320.00ft (18' KB)
Site:	Good Hands "15" State	MD Reference:	WELL @ 4320.00ft (18' KB)
Well:	#2H	North Reference:	Grd
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	Midland Database

Planned Survey										
MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
11,000.00	89.79	269.71	8,906.70	4,586.70	-11.67	-2,304.90	2,304.93	0.00	765,513.92	733,475.70
11,100.00	89.79	269.71	8,907.07	4,587.07	-12.17	-2,404.90	2,404.93	0.00	765,513.41	733,375.70
11,200.00	89.79	269.71	8,907.44	4,587.44	-12.68	-2,504.90	2,504.93	0.00	765,512.91	733,275.70
11,300.00	89.79	269.71	8,907.80	4,587.80	-13.18	-2,604.90	2,604.93	0.00	765,512.40	733,175.71
11,400.00	89.79	269.71	8,908.17	4,588.17	-13.69	-2,704.89	2,704.93	0.00	765,511.89	733,075.71
11,500.00	89.79	269.71	8,908.54	4,588.54	-14.20	-2,804.89	2,804.93	0.00	765,511.39	732,975.71
11,600.00	89.79	269.71	8,908.90	4,588.90	-14.70	-2,904.89	2,904.93	0.00	765,510.88	732,875.71
11,700.00	89.79	269.71	8,909.27	4,589.27	-15.21	-3,004.89	3,004.93	0.00	765,510.38	732,775.71
11,800.00	89.79	269.71	8,909.64	4,589.64	-15.72	-3,104.89	3,104.93	0.00	765,509.87	732,675.72
11,900.00	89.79	269.71	8,910.00	4,590.00	-16.22	-3,204.88	3,204.92	0.00	765,509.36	732,575.72
12,000.00	89.79	269.71	8,910.37	4,590.37	-16.73	-3,304.88	3,304.92	0.00	765,508.86	732,475.72
12,100.00	89.79	269.71	8,910.74	4,590.74	-17.23	-3,404.88	3,404.92	0.00	765,508.35	732,375.72
12,200.00	89.79	269.71	8,911.10	4,591.10	-17.74	-3,504.88	3,504.92	0.00	765,507.85	732,275.72
12,300.00	89.79	269.71	8,911.47	4,591.47	-18.25	-3,604.88	3,604.92	0.00	765,507.34	732,175.73
12,400.00	89.79	269.71	8,911.84	4,591.84	-18.75	-3,704.87	3,704.92	0.00	765,506.83	732,075.73
12,500.00	89.79	269.71	8,912.20	4,592.20	-19.26	-3,804.87	3,804.92	0.00	765,506.33	731,975.73
12,600.00	89.79	269.71	8,912.57	4,592.57	-19.76	-3,904.87	3,904.92	0.00	765,505.82	731,875.73
12,700.00	89.79	269.71	8,912.94	4,592.94	-20.27	-4,004.87	4,004.92	0.00	765,505.31	731,775.73
12,800.00	89.79	269.71	8,913.30	4,593.30	-20.78	-4,104.87	4,104.92	0.00	765,504.81	731,675.74
12,900.00	89.79	269.71	8,913.67	4,593.67	-21.28	-4,204.86	4,204.92	0.00	765,504.30	731,575.74
13,000.00	89.79	269.71	8,914.03	4,594.03	-21.79	-4,304.86	4,304.92	0.00	765,503.80	731,475.74
13,100.00	89.79	269.71	8,914.40	4,594.40	-22.30	-4,404.86	4,404.92	0.00	765,503.29	731,375.74
13,200.00	89.79	269.71	8,914.77	4,594.77	-22.80	-4,504.86	4,504.92	0.00	765,502.78	731,275.74
13,222.46	89.79	269.71	8,914.85	4,594.85	-22.91	-4,527.32	4,527.37	0.00	765,502.67	731,253.29
PBHL(#2H)										



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #2H
Project:	Lea County(NAD83)	TVD Reference:	WELL @ 4320.00ft (18' KB)
Site:	Good Hands "15" State	MD Reference:	WELL @ 4320.00ft (18' KB)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	Midland Database

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
PBHL(#2H)	0.00	0.00	8,915.00	-22.91	-4,532.33	765,502.670	731,248.272	33° 6' 10.112 N	103° 42' 47.382 W
- plan misses by 5.02ft at 13222.46ft MD (8914.85 TVD, -22.91 N, -4527.32 E)									
- Point									

Checked By: _____ Approved By: _____ Date: _____



PROJECT DETAILS: Lea County(NAD83)
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level
Local North: Grid



Azimuths to Grid North
True North: -0.35°
Magnetic North: 7.51°

Magnetic Field
Strength: 49348.8snT
Dip Angle: 61.06°
Date: 08/24/2009
Model: IGRF200510

PATHFINDER

