

30-025-40126



COG Operating LLC

Lea County(NAD83)

Estacado 18 State

#1H

OH

HOBBS OCD

MAY 02 2011

RECEIVED

Plan: Plan #1

Pathfinder X & Y Planning Report

13 April, 2011

PATHFINDER

A Schlumberger Company



Pathfinder
Pathfinder X & Y Planning Report



Company: COG Operating LLC
Project: Lea County(NAD83)
Site: Estacado 18 State
Well: #1H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #1H
TVD Reference: KB=18' @ 4088.50usft (Original Well Elev)
MD Reference: KB=18' @ 4088.50usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Project		Lea County(NAD83)	
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site						Estacado 18 State					
Site Position:		Northing:		764,423.470 usft		Latitude:		33° 5' 53.836 N			
From:		Map		Easting:		810,459.590 usft		Longitude:		103° 27' 16.350 W	
Position Uncertainty:		0.00 usft		Slot Radius:		13-3/16 "		Grid Convergence:		0.48 °	

Well	#1H					
Well Position	+N/-S	0.00 usft	Northing:	764,423.470 usft	Latitude:	33° 5' 53.836 N
	+E/-W	0.00 usft	Easting:	810,459.590 usft	Longitude:	103° 27' 16.350 W
Position Uncertainty	0.00 usft		Wellhead Elevation:	usft	Ground Level:	4,070.50 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	04/13/11	7.62	61.02	49,169

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0.00	0.00	0.00	89.66

Survey Tool Program		Date
From (usft)	To (usft)	Survey (Wellbore)
0.00	14,215.40	Plan #1 (OH)



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Planned Survey

MD (usft)	Inc (°)	Azi (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
0.00	0.00	0.00	0.00	4,088.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
100.00	0.00	0.00	100.00	3,988.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
200.00	0.00	0.00	200.00	3,888.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
300.00	0.00	0.00	300.00	3,788.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
400.00	0.00	0.00	400.00	3,688.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
500.00	0.00	0.00	500.00	3,588.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
600.00	0.00	0.00	600.00	3,488.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
700.00	0.00	0.00	700.00	3,388.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
800.00	0.00	0.00	800.00	3,288.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
900.00	0.00	0.00	900.00	3,188.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
1,000.00	0.00	0.00	1,000.00	3,088.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
1,100.00	0.00	0.00	1,100.00	2,988.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
1,200.00	0.00	0.00	1,200.00	2,888.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
1,300.00	0.00	0.00	1,300.00	2,788.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
1,400.00	0.00	0.00	1,400.00	2,688.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
1,500.00	0.00	0.00	1,500.00	2,588.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
1,600.00	0.00	0.00	1,600.00	2,488.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
1,700.00	0.00	0.00	1,700.00	2,388.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
1,800.00	0.00	0.00	1,800.00	2,288.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
1,900.00	0.00	0.00	1,900.00	2,188.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
2,000.00	0.00	0.00	2,000.00	2,088.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
2,100.00	0.00	0.00	2,100.00	1,988.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
2,200.00	0.00	0.00	2,200.00	1,888.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
2,300.00	0.00	0.00	2,300.00	1,788.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
2,400.00	0.00	0.00	2,400.00	1,688.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
2,500.00	0.00	0.00	2,500.00	1,588.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
2,600.00	0.00	0.00	2,600.00	1,488.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59



Pathfinder
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2,700.00	0.00	0.00	2,700.00	1,388.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
2,800.00	0.00	0.00	2,800.00	1,288.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
2,900.00	0.00	0.00	2,900.00	1,188.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
3,000.00	0.00	0.00	3,000.00	1,088.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
3,100.00	0.00	0.00	3,100.00	988.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
3,200.00	0.00	0.00	3,200.00	888.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
3,300.00	0.00	0.00	3,300.00	788.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
3,400.00	0.00	0.00	3,400.00	688.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
3,500.00	0.00	0.00	3,500.00	588.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
3,600.00	0.00	0.00	3,600.00	488.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
3,700.00	0.00	0.00	3,700.00	388.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
3,800.00	0.00	0.00	3,800.00	288.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
3,900.00	0.00	0.00	3,900.00	188.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
4,000.00	0.00	0.00	4,000.00	88.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
4,100.00	0.00	0.00	4,100.00	-11.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
4,200.00	0.00	0.00	4,200.00	-111.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
4,300.00	0.00	0.00	4,300.00	-211.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
4,400.00	0.00	0.00	4,400.00	-311.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
4,500.00	0.00	0.00	4,500.00	-411.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
4,600.00	0.00	0.00	4,600.00	-511.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
4,700.00	0.00	0.00	4,700.00	-611.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
4,800.00	0.00	0.00	4,800.00	-711.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
4,900.00	0.00	0.00	4,900.00	-811.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
5,000.00	0.00	0.00	5,000.00	-911.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
5,100.00	0.00	0.00	5,100.00	-1,011.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
5,200.00	0.00	0.00	5,200.00	-1,111.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
5,300.00	0.00	0.00	5,300.00	-1,211.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59



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5,400.00	0.00	0.00	5,400.00	-1,311.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
5,500.00	0.00	0.00	5,500.00	-1,411.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
5,600.00	0.00	0.00	5,600.00	-1,511.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
5,700.00	0.00	0.00	5,700.00	-1,611.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
5,800.00	0.00	0.00	5,800.00	-1,711.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
5,900.00	0.00	0.00	5,900.00	-1,811.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
6,000.00	0.00	0.00	6,000.00	-1,911.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
6,100.00	0.00	0.00	6,100.00	-2,011.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
6,200.00	0.00	0.00	6,200.00	-2,111.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
6,300.00	0.00	0.00	6,300.00	-2,211.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
6,400.00	0.00	0.00	6,400.00	-2,311.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
6,500.00	0.00	0.00	6,500.00	-2,411.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
6,600.00	0.00	0.00	6,600.00	-2,511.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
6,700.00	0.00	0.00	6,700.00	-2,611.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
6,800.00	0.00	0.00	6,800.00	-2,711.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
6,900.00	0.00	0.00	6,900.00	-2,811.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
7,000.00	0.00	0.00	7,000.00	-2,911.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
7,100.00	0.00	0.00	7,100.00	-3,011.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
7,200.00	0.00	0.00	7,200.00	-3,111.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
7,300.00	0.00	0.00	7,300.00	-3,211.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
7,400.00	0.00	0.00	7,400.00	-3,311.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
7,500.00	0.00	0.00	7,500.00	-3,411.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
7,600.00	0.00	0.00	7,600.00	-3,511.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
7,700.00	0.00	0.00	7,700.00	-3,611.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
7,800.00	0.00	0.00	7,800.00	-3,711.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
7,900.00	0.00	0.00	7,900.00	-3,811.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
8,000.00	0.00	0.00	8,000.00	-3,911.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59



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8,100.00	0.00	0.00	8,100.00	-4,011.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
8,200.00	0.00	0.00	8,200.00	-4,111.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
8,300.00	0.00	0.00	8,300.00	-4,211.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
8,400.00	0.00	0.00	8,400.00	-4,311.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
8,500.00	0.00	0.00	8,500.00	-4,411.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
8,600.00	0.00	0.00	8,600.00	-4,511.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
8,700.00	0.00	0.00	8,700.00	-4,611.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
8,800.00	0.00	0.00	8,800.00	-4,711.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
8,900.00	0.00	0.00	8,900.00	-4,811.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
9,000.00	0.00	0.00	9,000.00	-4,911.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
9,100.00	0.00	0.00	9,100.00	-5,011.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
9,200.00	0.00	0.00	9,200.00	-5,111.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
9,300.00	0.00	0.00	9,300.00	-5,211.50	0.00	0.00	0.00	0.00	764,423.47	810,459.59
9,322.54	0.00	0.00	9,322.54	-5,234.04	0.00	0.00	0.00	0.00	764,423.47	810,459.59
9,325.00	0.30	89.66	9,325.00	-5,236.50	0.00	0.01	0.01	12.00	764,423.47	810,459.60
9,350.00	3.30	89.66	9,349.98	-5,261.48	0.00	0.79	0.79	12.00	764,423.47	810,460.38
9,375.00	6.30	89.66	9,374.89	-5,286.39	0.02	2.88	2.88	12.00	764,423.49	810,462.47
9,400.00	9.30	89.66	9,399.66	-5,311.16	0.04	6.27	6.27	12.00	764,423.51	810,465.86
9,425.00	12.30	89.66	9,424.22	-5,335.72	0.06	10.95	10.95	12.00	764,423.53	810,470.54
9,450.00	15.30	89.66	9,448.49	-5,359.99	0.10	16.91	16.91	12.00	764,423.57	810,476.50
9,475.00	18.30	89.66	9,472.42	-5,383.92	0.14	24.13	24.14	12.00	764,423.61	810,483.72
9,500.00	21.30	89.66	9,495.94	-5,407.44	0.19	32.60	32.60	12.00	764,423.66	810,492.19
9,525.00	24.30	89.66	9,518.99	-5,430.49	0.25	42.28	42.29	12.00	764,423.72	810,501.87
9,550.00	27.30	89.66	9,541.49	-5,452.99	0.31	53.16	53.16	12.00	764,423.78	810,512.75
9,575.00	30.30	89.66	9,563.40	-5,474.90	0.38	65.20	65.20	12.00	764,423.85	810,524.79
9,600.00	33.30	89.66	9,584.65	-5,496.15	0.46	78.37	78.37	12.00	764,423.93	810,537.96
9,625.00	36.30	89.66	9,605.17	-5,516.67	0.54	92.64	92.64	12.00	764,424.01	810,552.23



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9,650.00	39.30	89.66	9,624.93	-5,536.43	0.63	107.96	107.96	12.00	764,424.10	810,567.55
9,675.00	42.30	89.66	9,643.85	-5,555.35	0.73	124.29	124.29	12.00	764,424.20	810,583.88
9,700.00	45.30	89.66	9,661.89	-5,573.39	0.83	141.59	141.59	12.00	764,424.30	810,601.18
9,725.00	48.30	89.66	9,679.01	-5,590.51	0.94	159.81	159.81	12.00	764,424.41	810,619.40
9,750.00	51.30	89.66	9,695.14	-5,606.64	1.05	178.90	178.90	12.00	764,424.52	810,638.49
9,775.00	54.30	89.66	9,710.26	-5,621.76	1.17	198.81	198.81	12.00	764,424.64	810,658.40
9,800.00	57.30	89.66	9,724.31	-5,635.81	1.29	219.48	219.49	12.00	764,424.76	810,679.07
9,825.00	60.30	89.66	9,737.26	-5,648.76	1.41	240.86	240.87	12.00	764,424.88	810,700.45
9,850.00	63.30	89.66	9,749.08	-5,660.58	1.54	262.89	262.90	12.00	764,425.01	810,722.48
9,875.00	66.30	89.66	9,759.72	-5,671.22	1.68	285.51	285.51	12.00	764,425.15	810,745.10
9,900.00	69.30	89.66	9,769.17	-5,680.67	1.81	308.65	308.66	12.00	764,425.28	810,768.24
9,925.00	72.30	89.66	9,777.39	-5,688.89	1.95	332.26	332.26	12.00	764,425.42	810,791.85
9,950.00	75.30	89.66	9,784.37	-5,695.87	2.09	356.26	356.27	12.00	764,425.56	810,815.85
9,975.00	78.30	89.66	9,790.08	-5,701.58	2.23	380.60	380.60	12.00	764,425.70	810,840.19
10,000.00	81.30	89.66	9,794.50	-5,706.00	2.38	405.20	405.20	12.00	764,425.85	810,864.79
10,025.00	84.30	89.66	9,797.64	-5,709.14	2.52	430.00	430.00	12.00	764,425.99	810,889.59
10,050.00	87.30	89.66	9,799.47	-5,710.97	2.67	454.93	454.93	12.00	764,426.14	810,914.52
10,072.54	90.00	89.66	9,800.00	-5,711.50	2.80	477.46	477.46	12.00	764,426.27	810,937.05
LP (Estacado 18 #1)										
10,100.00	90.00	89.66	9,800.00	-5,711.50	2.96	504.92	504.93	0.00	764,426.43	810,964.51
10,200.00	90.00	89.66	9,800.00	-5,711.50	3.55	604.91	604.93	0.00	764,427.02	811,064.50
10,300.00	90.00	89.66	9,800.00	-5,711.50	4.14	704.91	704.93	0.00	764,427.61	811,164.50
10,400.00	90.00	89.66	9,800.00	-5,711.50	4.72	804.91	804.93	0.00	764,428.19	811,264.50
10,500.00	90.00	89.66	9,800.00	-5,711.50	5.31	904.91	904.93	0.00	764,428.78	811,364.50
10,600.00	90.00	89.66	9,800.00	-5,711.50	5.90	1,004.91	1,004.93	0.00	764,429.37	811,464.50
10,700.00	90.00	89.66	9,800.00	-5,711.50	6.49	1,104.91	1,104.93	0.00	764,429.96	811,564.50
10,800.00	90.00	89.66	9,800.00	-5,711.50	7.07	1,204.90	1,204.93	0.00	764,430.54	811,664.49



Pathfinder
Pathfinder X & Y Planning Report

PATHFINDER
A Schlumberger Company

Company: COG Operating LLC
Project: Lea County(NAD83)
Site: Estacado 18 State
Well: #1H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #1H
TVD Reference: KB=18' @ 4088.50usft (Original Well Elev)
MD Reference: KB=18' @ 4088.50usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
10,900.00	90.00	89.66	9,800.00	-5,711.50	7.66	1,304.90	1,304.93	0.00	764,431.13	811,764.49
11,000.00	90.00	89.66	9,800.00	-5,711.50	8.25	1,404.90	1,404.93	0.00	764,431.72	811,864.49
11,100.00	90.00	89.66	9,800.00	-5,711.50	8.83	1,504.90	1,504.93	0.00	764,432.30	811,964.49
11,200.00	90.00	89.66	9,800.00	-5,711.50	9.42	1,604.90	1,604.93	0.00	764,432.89	812,064.49
11,300.00	90.00	89.66	9,800.00	-5,711.50	10.01	1,704.90	1,704.93	0.00	764,433.48	812,164.49
11,400.00	90.00	89.66	9,800.00	-5,711.50	10.59	1,804.89	1,804.93	0.00	764,434.06	812,264.48
11,500.00	90.00	89.66	9,800.00	-5,711.50	11.18	1,904.89	1,904.93	0.00	764,434.65	812,364.48
11,600.00	90.00	89.66	9,800.00	-5,711.50	11.77	2,004.89	2,004.93	0.00	764,435.24	812,464.48
11,700.00	90.00	89.66	9,800.00	-5,711.50	12.36	2,104.89	2,104.93	0.00	764,435.83	812,564.48
11,800.00	90.00	89.66	9,800.00	-5,711.50	12.94	2,204.89	2,204.93	0.00	764,436.41	812,664.48
11,900.00	90.00	89.66	9,800.00	-5,711.50	13.53	2,304.89	2,304.93	0.00	764,437.00	812,764.48
12,000.00	90.00	89.66	9,800.00	-5,711.50	14.12	2,404.88	2,404.93	0.00	764,437.59	812,864.47
12,100.00	90.00	89.66	9,800.00	-5,711.50	14.70	2,504.88	2,504.93	0.00	764,438.17	812,964.47
12,200.00	90.00	89.66	9,800.00	-5,711.50	15.29	2,604.88	2,604.93	0.00	764,438.76	813,064.47
12,300.00	90.00	89.66	9,800.00	-5,711.50	15.88	2,704.88	2,704.93	0.00	764,439.35	813,164.47
12,400.00	90.00	89.66	9,800.00	-5,711.50	16.46	2,804.88	2,804.93	0.00	764,439.93	813,264.47
12,500.00	90.00	89.66	9,800.00	-5,711.50	17.05	2,904.88	2,904.93	0.00	764,440.52	813,364.47
12,600.00	90.00	89.66	9,800.00	-5,711.50	17.64	3,004.87	3,004.93	0.00	764,441.11	813,464.46
12,700.00	90.00	89.66	9,800.00	-5,711.50	18.22	3,104.87	3,104.93	0.00	764,441.69	813,564.46
12,800.00	90.00	89.66	9,800.00	-5,711.50	18.81	3,204.87	3,204.93	0.00	764,442.28	813,664.46
12,900.00	90.00	89.66	9,800.00	-5,711.50	19.40	3,304.87	3,304.93	0.00	764,442.87	813,764.46
13,000.00	90.00	89.66	9,800.00	-5,711.50	19.99	3,404.87	3,404.93	0.00	764,443.46	813,864.46
13,100.00	90.00	89.66	9,800.00	-5,711.50	20.57	3,504.86	3,504.93	0.00	764,444.04	813,964.45
13,200.00	90.00	89.66	9,800.00	-5,711.50	21.16	3,604.86	3,604.93	0.00	764,444.63	814,064.45
13,300.00	90.00	89.66	9,800.00	-5,711.50	21.75	3,704.86	3,704.93	0.00	764,445.22	814,164.45
13,400.00	90.00	89.66	9,800.00	-5,711.50	22.33	3,804.86	3,804.93	0.00	764,445.80	814,264.45
13,500.00	90.00	89.66	9,800.00	-5,711.50	22.92	3,904.86	3,904.93	0.00	764,446.39	814,364.45



Pathfinder
Pathfinder X & Y Planning Report



Company: COG Operating LLC
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Well: #1H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #1H
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MD Reference: KB=18' @ 4088.50usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
13,600.00	90.00	89.66	9,800.00	-5,711.50	23.51	4,004.86	4,004.93	0.00	764,446.98	814,464.45
13,700.00	90.00	89.66	9,800.00	-5,711.50	24.09	4,104.85	4,104.93	0.00	764,447.56	814,564.44
13,800.00	90.00	89.66	9,800.00	-5,711.50	24.68	4,204.85	4,204.93	0.00	764,448.15	814,664.44
13,900.00	90.00	89.66	9,800.00	-5,711.50	25.27	4,304.85	4,304.93	0.00	764,448.74	814,764.44
14,000.00	90.00	89.66	9,800.00	-5,711.50	25.86	4,404.85	4,404.93	0.00	764,449.33	814,864.44
14,100.00	90.00	89.66	9,800.00	-5,711.50	26.44	4,504.85	4,504.93	0.00	764,449.91	814,964.44
14,200.00	90.00	89.66	9,800.00	-5,711.50	27.03	4,604.85	4,604.93	0.00	764,450.50	815,064.44
14,215.40	90.00	89.66	9,800.00	-5,711.50	27.12	4,620.24	4,620.32	0.00	764,450.59	815,079.83

BHL (Estacado 18 #1)

Checked By: _____ Approved By: _____ Date: _____



Project: Lea County(NAD83)
Site: Estacado 18 State
Well: #1H
Wellbore: OH
Plan: Plan #1 (#1H/OH)



Azimuths to Grid North
True North: -0.48°
Magnetic North: 7.14°

Magnetic Field
Strength: 49168.7nT
Dip Angle: 61.02°
Date: 04/13/2011
Model: IGRF2010



A Schlumberger Company

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)						
Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
BHL (Estacado 18 #1)	9800.00	32.84	4620.21	764456.310	815079.800	Point
LP (Estacado 18 #1)	9800.00	3.42	477.45	764426.887	810937.042	Point

WELL DETAILS: #1H						
Ground Elevation: 4070.50						
RKB Elevation: KB=18' @ 4088.50usft (Original Well Elev)						
Rig Name: Original Well Elev						
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Stor
0.00	0.00	764423.470	810459.590	33° 2' 53.836 N	103° 27' 16.350 W	

SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
9322.54	0.00	0.00	9322.54	0.00	0.00	0.00	0.00	0.00	
10072.54	90.00	89.66	9800.00	2.80	477.46	12.00	89.66	477.46	
14215.40	90.00	89.66	9800.00	27.12	4620.24	0.00	0.00	4620.32	BHL (Estacado 18 #1)

