



EOG Resources, Inc.

Lea County
Vaca "14" Fed
#3H
OH

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HOBBSOCD

Plan: Plan #1

Pathfinder X & Y Planning Report

30 June, 2009

PATHFINDER



Pathfinder Energy Services
Pathfinder X & Y Planning Report



Company: EOG Resources, Inc
Project: Lea County
Site: Vaca "14" Fed
Well: #3H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #3H
TVD Reference: WELL @ 3376.70ft (McVay 4 RKB = 19')
MD Reference: WELL @ 3376.70ft (McVay 4 RKB = 19')
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Project: Lea County

Map System: US State Plane 1927 (Exact solution)
Geo Datum: NAD 1927 (NADCON CONUS)
Map Zone: New Mexico East 3001

System Datum: Mean Sea Level

Site: Vaca "14" Fed

Site Position:		Northing:	414,051.100 ft	Latitude:	32° 8' 9.097" N
From: Map		Easting:	745,404.300 ft	Longitude:	103° 32' 25.918" W
Position Uncertainty:	0.00 ft	Slot Radius:	"	Grid Convergence:	0.42°

Well: #3H

Well Position	+N/-S	0.00 ft	Northing:	414,051.100 ft	Latitude:	32° 8' 9.097" N
	+E/-W	0.00 ft	Easting:	745,404.300 ft	Longitude:	103° 32' 25.918" W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	3,357.70 ft

Wellbore: OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip/Angle (°)	Field Strength (nT)
	IGRF200510	03/24/2009	7.82	60.18	48,842

Design: Plan #1

Audit Notes:

Version: Phase: PLAN Tie On Depth: 8,998.50

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	179.56



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Survey Tool/Program	Date	From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
	06/30/2009	100.00	8,998.50	GYRO (OH)	Gyro	Gyro
		8,998.50	13,200.19	Plan #1 (OH)	MWD	MWD - Standard

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	-3,376.70	0.00	0.00	0.00	0.00	414,051.10	745,404.30
	100.00	0.55	280.65	100.00	-3,276.70	0.09	-0.47	-0.09	0.55	414,051.19	745,403.83
	200.00	0.37	216.24	200.00	-3,176.70	-0.08	-1.13	0.07	0.51	414,051.02	745,403.17
	300.00	0.40	243.63	299.99	-3,076.71	-0.50	-1.64	0.49	0.18	414,050.60	745,402.66
	400.00	0.40	201.19	399.99	-2,976.71	-0.98	-2.08	0.96	0.29	414,050.12	745,402.22
	500.00	0.44	193.37	499.99	-2,876.71	-1.68	-2.29	1.66	0.07	414,049.42	745,402.01
	600.00	0.55	165.08	599.99	-2,776.71	-2.52	-2.26	2.50	0.26	414,048.58	745,402.04
	700.00	0.82	152.61	699.98	-2,676.72	-3.61	-1.80	3.60	0.31	414,047.49	745,402.50
	800.00	1.02	173.19	799.97	-2,576.73	-5.13	-1.37	5.12	0.38	414,045.97	745,402.93
	900.00	1.25	173.36	899.95	-2,476.75	-7.10	-1.14	7.09	0.23	414,044.00	745,403.16
	1,000.00	1.35	182.86	999.92	-2,376.78	-9.36	-1.07	9.35	0.24	414,041.74	745,403.23
	1,100.00	1.40	180.78	1,099.89	-2,276.81	-11.76	-1.15	11.75	0.07	414,039.34	745,403.15
	1,200.00	0.81	180.86	1,199.87	-2,176.83	-13.69	-1.17	13.68	0.59	414,037.41	745,403.13
	1,300.00	0.65	153.81	1,299.86	-2,076.84	-14.90	-0.93	14.90	0.38	414,036.20	745,403.37
	1,400.00	0.47	169.66	1,399.86	-1,976.84	-15.82	-0.61	15.81	0.24	414,035.28	745,403.69
	1,500.00	0.50	162.39	1,499.86	-1,876.84	-16.63	-0.40	16.63	0.07	414,034.47	745,403.90
	1,600.00	0.49	173.30	1,599.85	-1,776.85	-17.48	-0.22	17.47	0.09	414,033.62	745,404.08
	1,700.00	0.19	188.16	1,699.85	-1,676.85	-18.06	-0.20	18.06	0.31	414,033.04	745,404.10
	1,800.00	0.45	265.17	1,799.85	-1,576.85	-18.26	-0.61	18.26	0.45	414,032.84	745,403.69
	1,900.00	0.47	268.05	1,899.85	-1,476.85	-18.31	-1.41	18.30	0.03	414,032.79	745,402.89
	2,000.00	0.41	297.04	1,999.84	-1,376.86	-18.16	-2.14	18.14	0.23	414,032.94	745,402.16



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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)
2,100.00	0.60	337.71	2,099.84	-1,276.86	-17.51	-2.66	17.49	0.39	414,033.59	745,401.64
2,200.00	0.64	341.90	2,199.83	-1,176.87	-16.50	-3.03	16.47	0.06	414,034.60	745,401.27
2,300.00	0.96	35.54	2,299.82	-1,076.88	-15.28	-2.72	15.26	0.78	414,035.82	745,401.58
2,400.00	1.05	37.31	2,399.81	-976.89	-13.87	-1.67	13.86	0.10	414,037.23	745,402.63
2,500.00	0.88	44.10	2,499.80	-876.90	-12.59	-0.58	12.59	0.20	414,038.51	745,403.72
2,600.00	0.99	57.63	2,599.78	-776.92	-11.58	0.68	11.58	0.25	414,039.52	745,404.98
2,700.00	1.81	56.02	2,699.75	-676.95	-10.23	2.72	10.26	0.82	414,040.87	745,407.02
2,800.00	2.44	58.06	2,799.68	-577.02	-8.23	5.84	8.27	0.63	414,042.87	745,410.14
2,900.00	2.05	58.48	2,899.61	-477.09	-6.16	9.17	6.23	0.39	414,044.94	745,413.47
3,000.00	1.94	61.94	2,999.54	-377.16	-4.43	12.18	4.53	0.16	414,046.67	745,416.48
3,100.00	2.77	48.94	3,099.46	-277.24	-2.05	15.50	2.17	0.98	414,049.05	745,419.80
3,200.00	3.91	42.68	3,199.29	-177.41	2.04	19.63	-1.89	1.20	414,053.14	745,423.93
3,300.00	3.98	45.27	3,299.05	-77.65	6.99	24.41	-6.81	0.19	414,058.09	745,428.71
3,400.00	2.52	63.05	3,398.89	22.19	10.43	28.84	-10.21	1.76	414,061.53	745,433.14
3,500.00	2.15	78.30	3,498.81	122.11	11.81	32.63	-11.56	0.72	414,062.91	745,436.93
3,600.00	1.05	111.96	3,598.77	222.07	11.85	35.32	-11.58	1.40	414,062.95	745,439.62
3,700.00	1.40	110.35	3,698.75	322.05	11.08	37.31	-10.79	0.35	414,062.18	745,441.61
3,800.00	1.70	109.91	3,798.71	422.01	10.15	39.85	-9.84	0.30	414,061.25	745,444.15
3,900.00	2.30	80.38	3,898.65	521.95	9.98	43.23	-9.65	1.17	414,061.08	745,447.53
4,000.00	1.80	81.56	3,998.59	621.89	10.54	46.76	-10.19	0.50	414,061.64	745,451.06
4,100.00	1.87	201.12	4,098.56	721.86	9.25	47.73	-8.89	3.17	414,060.35	745,452.03
4,200.00	1.92	198.08	4,198.51	821.81	6.14	46.62	-5.78	0.11	414,057.24	745,450.92
4,300.00	1.13	139.31	4,298.48	921.78	3.80	46.74	-3.44	1.65	414,054.90	745,451.04
4,400.00	2.73	114.58	4,398.42	1,021.72	2.06	49.55	-1.68	1.77	414,053.16	745,453.85
4,500.00	2.82	111.42	4,498.30	1,121.60	0.17	54.01	0.24	0.18	414,051.27	745,458.31
4,600.00	2.44	107.11	4,598.19	1,221.49	-1.35	58.33	1.80	0.43	414,049.75	745,462.63
4,700.00	1.45	148.49	4,698.14	1,321.44	-3.06	61.03	3.53	1.66	414,048.04	745,465.33



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Project:	Lea County	TVD Reference:	WELL @ 3376 70ft (McVay 4 RKB = 19')
Site:	Vaca "14" Fed	MD Reference:	WELL @ 3376 70ft (McVay 4 RKB = 19')
Well:	#3H	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)	
4,800.00	3.81	151.41	4,798.03	1,421.33	-7.06	63.28	7.54	2.36	414,044.04	745,467.58	
4,900.00	2.65	148.45	4,897.87	1,521.17	-11.94	66.08	12.45	1.17	414,039.16	745,470.38	
5,000.00	1.11	79.63	4,997.82	1,621.12	-13.74	68.24	14.26	2.48	414,037.36	745,472.54	
5,100.00	1.37	70.50	5,097.80	1,721.10	-13.17	70.32	13.70	0.33	414,037.93	745,474.62	
5,200.00	1.48	77.78	5,197.77	1,821.07	-12.49	72.71	13.05	0.21	414,038.61	745,477.01	
5,300.00	1.34	77.99	5,297.74	1,921.04	-11.98	75.11	12.55	0.14	414,039.12	745,479.41	
5,400.00	1.19	74.63	5,397.71	2,021.01	-11.46	77.26	12.05	0.17	414,039.64	745,481.56	
5,500.00	1.23	75.89	5,497.69	2,120.99	-10.92	79.30	11.53	0.05	414,040.18	745,483.60	
5,600.00	0.91	74.63	5,597.67	2,220.97	-10.45	81.11	11.07	0.32	414,040.65	745,485.41	
5,700.00	0.58	90.61	5,697.66	2,320.96	-10.24	82.38	10.87	0.39	414,040.86	745,486.68	
5,800.00	0.44	57.37	5,797.66	2,420.96	-10.04	83.21	10.68	0.32	414,041.06	745,487.51	
5,900.00	0.42	77.58	5,897.66	2,520.96	-9.76	83.89	10.40	0.15	414,041.34	745,488.19	
6,000.00	0.36	85.59	5,997.65	2,620.95	-9.65	84.56	10.30	0.08	414,041.45	745,488.86	
6,100.00	0.35	51.42	6,097.65	2,720.95	-9.44	85.11	10.09	0.21	414,041.66	745,489.41	
6,200.00	0.36	71.83	6,197.65	2,820.95	-9.15	85.65	9.80	0.13	414,041.95	745,489.95	
6,300.00	0.30	351.13	6,297.65	2,920.95	-8.79	85.91	9.45	0.43	414,042.31	745,490.21	
6,400.00	0.17	309.89	6,397.65	3,020.95	-8.44	85.75	9.09	0.21	414,042.66	745,490.05	
6,500.00	0.17	356.14	6,497.65	3,120.95	-8.20	85.63	8.85	0.13	414,042.90	745,489.93	
6,600.00	0.27	332.53	6,597.65	3,220.95	-7.84	85.51	8.49	0.13	414,043.26	745,489.81	
6,700.00	0.33	338.03	6,697.65	3,320.95	-7.36	85.30	8.01	0.07	414,043.74	745,489.60	
6,800.00	0.41	303.51	6,797.64	3,420.94	-6.90	84.89	7.55	0.23	414,044.20	745,489.19	
6,900.00	0.49	294.56	6,897.64	3,520.94	-6.52	84.20	7.17	0.11	414,044.58	745,488.50	
7,000.00	0.46	294.60	6,997.64	3,620.94	-6.18	83.45	6.82	0.03	414,044.92	745,487.75	
7,100.00	0.37	276.51	7,097.63	3,720.93	-5.98	82.76	6.61	0.16	414,045.12	745,487.06	
7,200.00	0.32	185.82	7,197.63	3,820.93	-6.22	82.41	6.85	0.49	414,044.88	745,486.71	
7,300.00	0.51	209.06	7,297.63	3,920.93	-6.88	82.17	7.51	0.25	414,044.22	745,486.47	
7,400.00	0.74	193.59	7,397.62	4,020.92	-7.90	81.80	8.52	0.28	414,043.20	745,486.10	



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Well:	#3H	North Reference:	Gnd
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
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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)	
7,500.00	0.89	196.26	7,497.61	4,120.91	-9.27	81.43	9.89	0.15	414,041.83	745,485.73	
7,600.00	0.76	203.70	7,597.60	4,220.90	-10.63	80.95	11.24	0.17	414,040.47	745,485.25	
7,700.00	0.82	196.58	7,697.59	4,320.89	-11.92	80.48	12.53	0.11	414,039.18	745,484.78	
7,800.00	0.86	199.61	7,797.58	4,420.88	-13.31	80.02	13.92	0.06	414,037.79	745,484.32	
7,900.00	0.91	199.62	7,897.57	4,520.87	-14.77	79.50	15.37	0.05	414,036.33	745,483.80	
8,000.00	1.05	188.78	7,997.56	4,620.86	-16.42	79.10	17.02	0.23	414,034.68	745,483.40	
8,100.00	1.06	191.14	8,097.54	4,720.84	-18.23	78.78	18.83	0.04	414,032.87	745,483.08	
8,200.00	1.08	189.87	8,197.52	4,820.82	-20.07	78.44	20.67	0.03	414,031.03	745,482.74	
8,300.00	0.90	197.37	8,297.51	4,920.81	-21.75	78.04	22.34	0.22	414,029.35	745,482.34	
8,400.00	0.83	198.95	8,397.50	5,020.80	-23.18	77.57	23.77	0.07	414,027.92	745,481.87	
8,500.00	0.71	199.68	8,497.49	5,120.79	-24.45	77.13	25.04	0.12	414,026.65	745,481.43	
8,600.00	0.61	190.34	8,597.48	5,220.78	-25.56	76.82	26.14	0.15	414,025.54	745,481.12	
8,700.00	0.58	193.15	8,697.48	5,320.78	-26.57	76.61	27.16	0.04	414,024.53	745,480.91	
8,800.00	0.61	201.04	8,797.47	5,420.77	-27.56	76.31	28.15	0.09	414,023.54	745,480.61	
8,900.00	0.40	207.81	8,897.47	5,520.77	-28.37	75.95	28.95	0.22	414,022.73	745,480.25	
8,998.50	0.41	206.84	8,995.96	5,619.26	-28.99	75.63	29.56	0.01	414,022.11	745,479.93	
KOP-8998.50°MD,0.41°INC,206.84°AZI,8995.96°TVD											
9,000.00	0.58	198.98	8,997.46	5,620.76	-29.00	75.63	29.58	11.88	414,022.10	745,479.93	
9,025.00	3.52	183.58	9,022.45	5,645.75	-29.88	75.54	30.46	11.88	414,021.22	745,479.84	
9,050.00	6.49	182.23	9,047.35	5,670.65	-32.06	75.44	32.64	11.88	414,019.04	745,479.74	
9,075.00	9.46	181.73	9,072.10	5,695.40	-35.53	75.32	36.10	11.88	414,015.57	745,479.62	
9,100.00	12.43	181.46	9,096.65	5,719.95	-40.27	75.19	40.85	11.88	414,010.83	745,479.49	
9,125.00	15.40	181.30	9,120.91	5,744.21	-46.28	75.05	46.86	11.88	414,004.82	745,479.35	
9,150.00	18.37	181.18	9,144.83	5,768.13	-53.54	74.89	54.11	11.88	413,997.56	745,479.19	
9,175.00	21.34	181.10	9,168.34	5,791.64	-62.03	74.72	62.60	11.88	413,989.07	745,479.02	
9,200.00	24.31	181.04	9,191.38	5,814.68	-71.73	74.54	72.30	11.88	413,979.37	745,478.84	
9,225.00	27.28	180.99	9,213.88	5,837.18	-82.61	74.35	83.17	11.88	413,968.49	745,478.65	



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9,250.00	30.26	180.95	9,235.79	5,859.09	-94.64	74.14	95.20	11.88	413,956.46	745,478.44
9,275.00	33.23	180.92	9,257.05	5,880.35	-107.79	73.93	108.35	11.88	413,943.31	745,478.23
9,300.00	36.20	180.89	9,277.60	5,900.90	-122.02	73.71	122.58	11.88	413,929.08	745,478.01
9,325.00	39.17	180.86	9,297.38	5,920.68	-137.30	73.47	137.86	11.88	413,913.80	745,477.77
9,350.00	42.14	180.84	9,316.35	5,939.65	-153.58	73.23	154.14	11.88	413,897.52	745,477.53
9,375.00	45.11	180.82	9,334.44	5,957.74	-170.83	72.98	171.38	11.88	413,880.27	745,477.28
9,400.00	48.08	180.80	9,351.62	5,974.92	-188.99	72.72	189.54	11.88	413,862.11	745,477.02
9,425.00	51.05	180.79	9,367.83	5,991.13	-208.01	72.46	208.56	11.88	413,843.09	745,476.76
9,450.00	54.02	180.77	9,383.04	6,006.34	-227.85	72.19	228.39	11.88	413,823.25	745,476.49
9,475.00	56.99	180.76	9,397.19	6,020.49	-248.45	71.92	248.99	11.88	413,802.65	745,476.22
9,500.00	59.96	180.74	9,410.26	6,033.56	-269.76	71.64	270.30	11.88	413,781.34	745,475.94
9,525.00	62.94	180.73	9,422.21	6,045.51	-291.71	71.36	292.25	11.88	413,759.39	745,475.66
9,550.00	65.91	180.72	9,433.00	6,056.30	-314.26	71.07	314.79	11.88	413,736.84	745,475.37
9,575.00	68.88	180.71	9,442.61	6,065.91	-337.33	70.78	337.86	11.88	413,713.77	745,475.08
9,600.00	71.85	180.70	9,451.01	6,074.31	-360.88	70.49	361.40	11.88	413,690.22	745,474.79
9,625.00	74.82	180.69	9,458.18	6,081.48	-384.82	70.20	385.35	11.88	413,666.28	745,474.50
9,650.00	77.79	180.68	9,464.10	6,087.40	-409.11	69.91	409.63	11.88	413,641.99	745,474.21
9,675.00	80.76	180.67	9,468.75	6,092.05	-433.66	69.62	434.18	11.88	413,617.44	745,473.92
9,700.00	83.73	180.66	9,472.12	6,095.42	-458.43	69.34	458.95	11.88	413,592.67	745,473.64
9,725.00	86.70	180.65	9,474.21	6,097.51	-483.34	69.05	483.85	11.88	413,567.76	745,473.35
9,750.64	89.75	180.64	9,475.00	6,098.30	-508.96	68.76	509.47	11.88	413,542.14	745,473.06
EOC-9750.64°MD,89.75°INC,180.64°AZI,9475.00°TVD,11.88°DLS, 509.47°VS, -508.96°N, 68.76°E										
9,800.00	89.75	180.64	9,475.22	6,098.52	-558.32	68.21	558.82	0.00	413,492.78	745,472.51
9,900.00	89.75	180.64	9,475.65	6,098.95	-658.31	67.10	658.81	0.00	413,392.79	745,471.40
10,000.00	89.75	180.64	9,476.09	6,099.39	-758.31	65.98	758.79	0.00	413,292.79	745,470.28
10,100.00	89.75	180.64	9,476.52	6,099.82	-858.30	64.86	858.77	0.00	413,192.80	745,469.16
10,200.00	89.75	180.64	9,476.96	6,100.26	-958.29	63.75	958.75	0.00	413,092.81	745,468.05



Pathfinder Energy Services
Pathfinder X & Y Planning Report



Company: EOG Resources, Inc
Project: Lea County
Site: Vaca "14" Fed
Well: #3H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #3H
TVD Reference: WELL @ 3376.70ft (McVay 4 RKB = 19')
MD Reference: WELL @ 3376.70ft (McVay 4 RKB = 19')
North Reference: Grid
Survey Calculation Method: Minimum Curvature
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)
10,300.00	89.75	180.64	9,477.40	6,100.70	-1,058.28	62.63	1,058.73	0.00	412,992.82	745,466.93
10,400.00	89.75	180.64	9,477.83	6,101.13	-1,158.28	61.51	1,158.71	0.00	412,892.82	745,465.81
10,500.00	89.75	180.64	9,478.27	6,101.57	-1,258.27	60.39	1,258.69	0.00	412,792.83	745,464.69
10,600.00	89.75	180.64	9,478.71	6,102.01	-1,358.26	59.28	1,358.68	0.00	412,692.84	745,463.58
10,700.00	89.75	180.64	9,479.14	6,102.44	-1,458.25	58.16	1,458.66	0.00	412,592.85	745,462.46
10,800.00	89.75	180.64	9,479.58	6,102.88	-1,558.25	57.04	1,558.64	0.00	412,492.85	745,461.34
10,900.00	89.75	180.64	9,480.02	6,103.32	-1,658.24	55.93	1,658.62	0.00	412,392.86	745,460.23
11,000.00	89.75	180.64	9,480.45	6,103.75	-1,758.23	54.81	1,758.60	0.00	412,292.87	745,459.11
11,100.00	89.75	180.64	9,480.89	6,104.19	-1,858.23	53.69	1,858.58	0.00	412,192.87	745,457.99
11,200.00	89.75	180.64	9,481.32	6,104.62	-1,958.22	52.58	1,958.56	0.00	412,092.88	745,456.88
11,300.00	89.75	180.64	9,481.76	6,105.06	-2,058.21	51.46	2,058.54	0.00	411,992.89	745,455.76
11,400.00	89.75	180.64	9,482.20	6,105.50	-2,158.20	50.34	2,158.53	0.00	411,892.90	745,454.64
11,500.00	89.75	180.64	9,482.63	6,105.93	-2,258.20	49.22	2,258.51	0.00	411,792.90	745,453.52
11,600.00	89.75	180.64	9,483.07	6,106.37	-2,358.19	48.11	2,358.49	0.00	411,692.91	745,452.41
11,700.00	89.75	180.64	9,483.51	6,106.81	-2,458.18	46.99	2,458.47	0.00	411,592.92	745,451.29
11,800.00	89.75	180.64	9,483.94	6,107.24	-2,558.18	45.87	2,558.45	0.00	411,492.92	745,450.17
11,900.00	89.75	180.64	9,484.38	6,107.68	-2,658.17	44.76	2,658.43	0.00	411,392.93	745,449.06
12,000.00	89.75	180.64	9,484.81	6,108.11	-2,758.16	43.64	2,758.41	0.00	411,292.94	745,447.94
12,100.00	89.75	180.64	9,485.25	6,108.55	-2,858.15	42.52	2,858.40	0.00	411,192.95	745,446.82
12,200.00	89.75	180.64	9,485.69	6,108.99	-2,958.15	41.41	2,958.38	0.00	411,092.95	745,445.71
12,300.00	89.75	180.64	9,486.12	6,109.42	-3,058.14	40.29	3,058.36	0.00	410,992.96	745,444.59
12,400.00	89.75	180.64	9,486.56	6,109.86	-3,158.13	39.17	3,158.34	0.00	410,892.97	745,443.47
12,500.00	89.75	180.64	9,487.00	6,110.30	-3,258.13	38.06	3,258.32	0.00	410,792.97	745,442.36
12,600.00	89.75	180.64	9,487.43	6,110.73	-3,358.12	36.94	3,358.30	0.00	410,692.98	745,441.24
12,700.00	89.75	180.64	9,487.87	6,111.17	-3,458.11	35.82	3,458.28	0.00	410,592.99	745,440.12
12,800.00	89.75	180.64	9,488.31	6,111.61	-3,558.10	34.70	3,558.27	0.00	410,493.00	745,439.00
12,900.00	89.75	180.64	9,488.74	6,112.04	-3,658.10	33.59	3,658.25	0.00	410,393.00	745,437.89



Pathfinder Energy Services
Pathfinder X & Y Planning Report



Company: EOG Resources, Inc.
Project: Lea County
Site: Vaca "14" Fed
Well: #3H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #3H
TVD Reference: WELL @ 3376.70ft (McVay 4 RKB = 19')
MD Reference: WELL @ 3376.70ft (McVay 4 RKB = 19')
North Reference: Grd
Survey Calculation Method: Minimum Curvature
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)
13,000.00	89.75	180.64	9,489.18	6,112.48	-3,758.09	32.47	3,758.23	0.00	410,293.01	745,436.77
13,100.00	89.75	180.64	9,489.61	6,112.91	-3,858.08	31.35	3,858.21	0.00	410,193.02	745,435.65
13,200.16	89.75	180.64	9,490.05	6,113.35	-3,958.23	30.23	3,958.35	0.00	410,092.87	745,434.53
PBHL (Vaca #3H)										
13,200.23	89.75	180.64	9,490.05	6,113.35	-3,958.30	30.23	3,958.42	0.00	410,092.80	745,434.53
BHL-13200.23*MD,89.75*INC,180.64*AZI, 9490.05*TVD, 3958.42*VS, -3958.31*N, 30.23*E										

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
PBHL (Vaca #3H) - plan misses by 15.06ft at 13200.16ft MD (9490.05 TVD, -3958.23 N, 30.23 E) - Point	0.00	0.00	9,475.00	-3,958.30	30.60	410,092.800	745,434.900	32° 7' 29.925 N	103° 32' 25.901 W

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
8,998.50	8,995.96	-28.99	75.63	KOP-8998.50*MD,0.41*INC,206.84*AZI,8995.96*TVD
9,750.64	9,475.00	-508.96	68.76	EOC-9750.64*MD,89.75*INC,180.64*AZI,9475.00*TVD,11.88*DLS, 509
13,200.23	9,490.05	-3,958.30	30.23	BHL-13200.23*MD,89.75*INC,180.64*AZI, 9490.05*TVD, 3958.42*VS, -

Checked By: _____ Approved By: _____ Date: _____



Project: Lea County
Site: Vaca "14" Fed
Well: #3H
Wellbore: OH
Plan: Plan #1 (#3H/OH)



Azimuths to Grid North
True North: -0.42°
Magnetic North: 7.37°

Magnetic Field
Strength: 48790 TsnT
Dip Angle: 60.17°
Date: 07/01/2009
Model: IGRF200510

PATHFINDER

WELL DETAILS #3H

Ground Elevation: 3357.70
RKB Elevation: WELL @ 3376.70ft (McVay 4 RKB = 19')
Rig Name: McVay 4 RKB = 19'

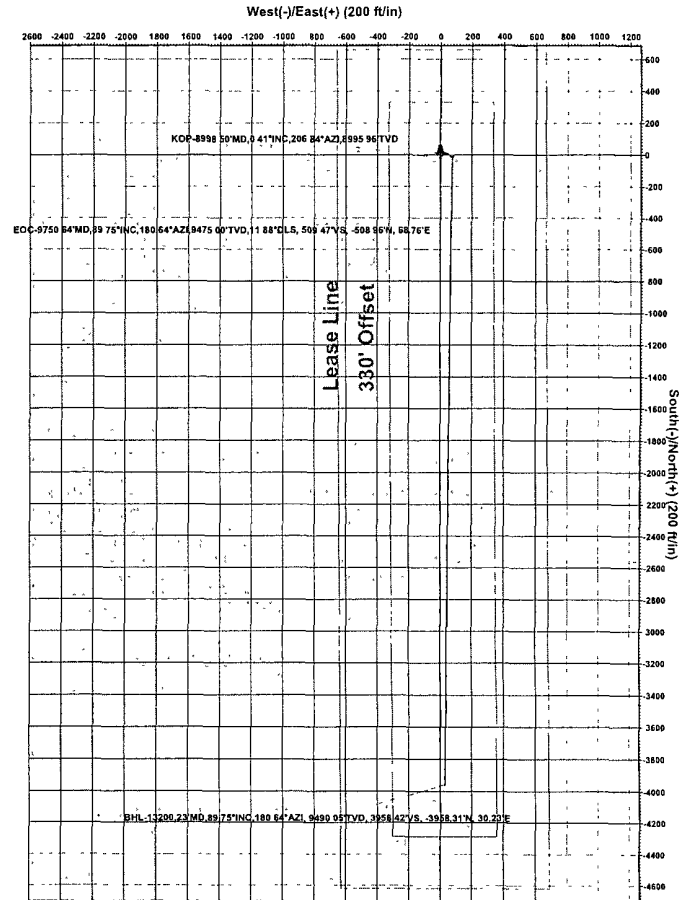
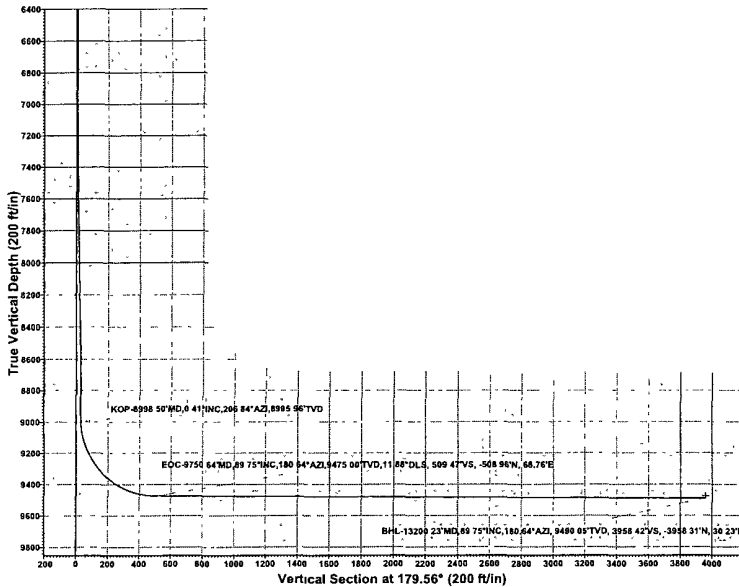
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	414051.100	745404.300	32° 8' 9.097" N	103° 32' 25.918" W

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting
PBHL (Vaca #3H)	9475.00	-3958.30	30.60	410092.800	745434.900

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	8998.50	0.41	206.84	8995.96	-28.99	75.63	0.00	0.00	29.56	
2	9750.64	89.75	180.64	9475.00	-508.96	68.76	11.88	-26.21	509.47	
3	13200.23	89.75	180.64	9490.05	-3958.30	30.23	0.00	0.00	3958.42	PBHL (Vaca #3H)



PROJECT DETAILS: Lea County
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
Local North: Grid

Plan: Plan #1 (#3H/OH)	
Created By: Nate Bingham	Date: 15 Aug 2009
Checked: _____	Date: _____

**Vaca 14 Fed 3H
30-025-39327
EOG Resources Inc.
July 16, 2009
Conditions of Approval**

- 1. Contact the BLM at 575-393-3612 a minimum of 4 hours prior to start of work to enable witnessing the BOP test and the bottom hole plug tag.**
- 2. 5M BOP/BOPE to be installed and tested per Onshore Order 2 with third party. Operator to submit copy of test done with the subsequent sundry detailing the casing/cementing details.**
- 3. Drill out 9-5/8" CIBP per proposed procedure.**
- 4. Plug required at bottom of open hole (clean out depth). Plug to be 200' in length. Class H required and plug is to be tagged at 9800' or shallower. If tag is not at that depth, additional cement is to be added.**
- 5. Set kick-off cement plug. Dress plug and start lateral.**
- 6. No hole size was listed for the lateral, hole sizes listed in the sundry of March 23, 2009 were used.**
- 7. Casing in the original APD and sundry of March 23, 2009 was 5 -1/2" casing, this sundry states 5". Used 5.5" since the sundry states that casing will be installed as per original APD. Based on the depths in the drilling plan attached to this sundry, the casing is actually being installed per the sundry submitted on March 23, 2009.**
- 8. Submit subsequent sundry detailing work completed.**
- 9. Submit completion report within 30 days of completing well.**

WWI 071609