



30-015-37589

EOG Resources, Inc.

Eddy County
Elk Wallow 11 State
#2H
OH

Survey: MWD #1

Pathfinder X & Y Survey Report

21 July, 2010



Pathfinder
Pathfinder X & Y Survey Report

Company:	EOG Resources, Inc.	Local Co-ordinate Reference:	Well #2H
Project:	Eddy County	TVD Reference:	Well1 @ 3078.50ft (19' KB Correction)
Site:	Elk Wallow 11 State	MD Reference:	Well1 @ 3078.50ft (19' KB Correction)
Well:	#2H	North Reference:	Grid:
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Midland Database

Project	Eddy County		
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		Elk Wallow 11 State			
Site Position:		Northing:	418,830.100 ft	Latitude:	32° 9' 3.367 N
From:	Map	Easting:	615,001.000 ft	Longitude:	103° 57' 42.290 W
Position Uncertainty:	0.00 ft	Slot Radius:	"	Grid Convergence:	0.20 °

Well	#2H					
Well Position	+N/-S	0.00 ft	Northing:	419,007.400 ft	Latitude:	32° 9' 5.074 N
	+E/-W	0.00 ft	Easting:	616,383.500 ft	Longitude:	103° 57' 26.201 W
Position Uncertainty	0.00 ft	Wellhead Elevation:	ft	Ground Level:	3,059.50 ft	

Wellbore	OH
----------	----

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	07/07/2010	7.87	60.07	48,624

Design	OH
--------	----

Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(ft)	(ft)	(ft)	(°)	
	0.00	0.00	0.00	179.84	



Pathfinder
Pathfinder X & Y Survey Report

Company: EOG Resources, Inc.
Project: Eddy County
Site: Elk Wallow 11 State
Well: #2H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #2H
TVD Reference: Well1 @ 3078.50ft (19' KB Correction)
MD Reference: Well1 @ 3078.50ft (19' KB Correction)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Survey Program Date 07/21/2010

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
100.00	6,800.00	GYRO (OH)	Gyro	Gyro
6,876.00	11,873.00	MWD #1 (OH)	MWD	MWD - Standard

MD (ft)	Inc (")	Azi (")	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg ("/100ft)	Northing (ft)	Easting (ft)
6,800.00	0.16	188.73	6,798.76	3,720.26	-39.69	26.33	39.76	0.00	418,967.71	616,409.83
6,876.00	0.70	220.08	6,874.76	3,796.26	-40.15	26.01	40.22	0.75	418,967.25	616,409.51
6,917.00	3.34	199.63	6,915.73	3,837.23	-41.46	25.45	41.53	6.57	418,965.94	616,408.95
6,949.00	6.33	190.58	6,947.61	3,869.11	-44.08	24.81	44.15	9.61	418,963.32	616,408.31
6,981.00	9.85	184.43	6,979.29	3,900.79	-48.54	24.28	48.61	11.31	418,958.86	616,407.78
7,012.00	13.54	181.09	7,009.64	3,931.14	-54.81	24.00	54.88	12.10	418,952.59	616,407.50
7,043.00	16.97	179.24	7,039.55	3,961.05	-62.97	23.99	63.04	11.17	418,944.43	616,407.49
7,075.00	20.49	177.66	7,069.85	3,991.35	-73.24	24.28	73.31	11.11	418,934.16	616,407.78
7,106.00	24.27	176.69	7,098.51	4,020.01	-85.02	24.87	85.09	12.25	418,922.38	616,408.37
7,138.00	29.28	178.45	7,127.07	4,048.57	-99.42	25.47	99.49	15.85	418,907.98	616,408.97
7,169.00	35.00	181.44	7,153.31	4,074.81	-115.90	25.45	115.97	19.15	418,891.50	616,408.95
7,207.00	41.86	183.20	7,183.06	4,104.56	-139.48	24.46	139.55	18.28	418,867.92	616,407.96
7,238.00	45.29	181.62	7,205.51	4,127.01	-160.83	23.58	160.89	11.61	418,846.57	616,407.08
7,269.00	48.54	179.86	7,226.69	4,148.19	-183.46	23.29	183.53	11.27	418,823.94	616,406.79
7,300.00	51.79	178.10	7,246.54	4,168.04	-207.26	23.72	207.32	11.35	418,800.14	616,407.22
7,331.00	55.05	177.05	7,265.02	4,186.52	-232.13	24.78	232.20	10.86	418,775.27	616,408.28
7,362.00	58.21	176.34	7,282.07	4,203.57	-257.97	26.28	258.04	10.37	418,749.43	616,409.78
7,394.00	61.73	176.37	7,298.08	4,219.58	-285.61	28.04	285.69	11.00	418,721.79	616,411.54
7,425.00	65.25	177.02	7,311.91	4,233.41	-313.30	29.64	313.38	11.51	418,694.10	616,413.14
7,456.00	68.85	177.77	7,324.00	4,245.50	-341.82	30.93	341.90	11.82	418,665.58	616,414.43
7,487.00	72.46	178.52	7,334.27	4,255.77	-371.04	31.87	371.13	11.87	418,636.36	616,415.37



Pathfinder
Pathfinder X & Y Survey Report

Company:	EOG Resources, Inc.	Local Co-ordinate Reference:	Well #2H
Project:	Eddy County	TVD Reference:	Well1 @ 3078.50ft (19' KB Correction)
Site:	Elk Wallow 11 State	MD Reference:	Well1 @ 3078.50ft (19' KB Correction)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Midland Database

Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
7,518.00	76.15	179.00	7,342.65	4,264.15	-400.88	32.52	400.97	12.00	418,606.52	616,416.02
7,549.00	80.28	179.11	7,348.98	4,270.48	-431.21	33.02	431.30	13.33	418,576.19	616,416.52
7,580.00	84.59	178.89	7,353.06	4,274.56	-461.93	33.56	462.02	13.92	418,545.47	616,417.06
7,642.00	89.25	179.08	7,356.39	4,277.89	-523.81	34.65	523.91	7.52	418,483.59	616,418.15
7,705.00	89.69	178.68	7,356.97	4,278.47	-586.80	35.88	586.90	0.94	418,420.60	616,419.38
7,767.00	89.60	178.43	7,357.36	4,278.86	-648.78	37.45	648.88	0.43	418,358.62	616,420.95
7,829.00	90.13	178.40	7,357.50	4,279.00	-710.75	39.16	710.86	0.86	418,296.65	616,422.66
7,892.00	91.01	177.46	7,356.88	4,278.38	-773.71	41.44	773.82	2.04	418,233.69	616,424.94
7,954.00	90.13	177.70	7,356.26	4,277.76	-835.65	44.06	835.77	1.47	418,171.75	616,427.56
8,016.00	89.52	178.40	7,356.45	4,277.95	-897.61	46.16	897.74	1.50	418,109.79	616,429.66
8,079.00	91.45	180.53	7,355.92	4,277.42	-960.60	46.75	960.73	4.56	418,046.80	616,430.25
8,141.00	89.25	180.35	7,355.54	4,277.04	-1,022.59	46.28	1,022.72	3.56	417,984.81	616,429.78
8,203.00	88.29	179.82	7,356.87	4,278.37	-1,084.58	46.19	1,084.70	1.77	417,922.82	616,429.69
8,266.00	89.87	181.74	7,357.88	4,279.38	-1,147.56	45.33	1,147.68	3.95	417,859.84	616,428.83
8,328.00	90.31	181.95	7,357.78	4,279.28	-1,209.53	43.33	1,209.64	0.79	417,797.87	616,426.83
8,391.00	88.20	181.62	7,358.60	4,280.10	-1,272.49	41.37	1,272.60	3.39	417,734.91	616,424.87
8,454.00	88.20	181.51	7,360.58	4,282.08	-1,335.43	39.65	1,335.54	0.17	417,671.97	616,423.15
8,516.00	87.85	181.46	7,362.72	4,284.22	-1,397.38	38.04	1,397.48	0.57	417,610.02	616,421.54
8,578.00	88.90	182.16	7,364.48	4,285.98	-1,459.32	36.09	1,459.41	2.04	417,548.08	616,419.59
8,641.00	91.01	183.52	7,364.53	4,286.03	-1,522.24	32.96	1,522.32	3.98	417,485.16	616,416.46
8,702.00	91.89	185.60	7,362.98	4,284.48	-1,583.02	28.12	1,583.09	3.70	417,424.38	616,411.62
8,765.00	91.54	185.76	7,361.10	4,282.60	-1,645.68	21.88	1,645.74	0.61	417,361.72	616,405.38
8,827.00	88.99	184.32	7,360.81	4,282.31	-1,707.44	16.44	1,707.47	4.72	417,299.96	616,399.94
8,890.00	88.37	184.42	7,362.26	4,283.76	-1,770.23	11.64	1,770.26	1.00	417,237.17	616,395.14
8,951.00	87.14	182.97	7,364.65	4,286.15	-1,831.06	7.71	1,831.07	3.12	417,176.34	616,391.21
9,013.00	87.49	182.46	7,367.55	4,289.05	-1,892.92	4.78	1,892.93	1.00	417,114.48	616,388.28
9,076.00	87.41	182.14	7,370.36	4,291.86	-1,955.81	2.25	1,955.81	0.52	417,051.59	616,385.75



Pathfinder
Pathfinder X & Y Survey Report

Company: EOG Resources, Inc.
Project: Eddy County
Site: Elk Wallow 11 State
Well: #2H
Wellbore: OH
Design: OH

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:

Well #2H
Well1 @ 3078.50ft (19' KB Correction)
Well1 @ 3078.50ft (19' KB Correction)
Grid
Minimum Curvature
Midland Database

Survey										
MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
9,138.00	87.58	182.14	7,373.07	4,294.57	-2,017.71	-0.06	2,017.70	0.27	416,989.69	616,383.44
9,201.00	88.20	181.71	7,375.39	4,296.89	-2,080.63	-2.18	2,080.61	1.20	416,926.77	616,381.32
9,263.00	87.32	180.60	7,377.81	4,299.31	-2,142.56	-3.42	2,142.55	2.28	416,864.84	616,380.08
9,326.00	88.64	180.98	7,380.03	4,301.53	-2,205.52	-4.29	2,205.50	2.18	416,801.88	616,379.21
9,388.00	88.02	180.72	7,381.84	4,303.34	-2,267.48	-5.21	2,267.46	1.08	416,739.92	616,378.29
9,450.00	88.46	180.49	7,383.74	4,305.24	-2,329.45	-5.87	2,329.43	0.80	416,677.95	616,377.63
9,513.00	88.37	180.46	7,385.48	4,306.98	-2,392.43	-6.39	2,392.40	0.15	416,614.97	616,377.11
9,575.00	88.20	180.17	7,387.34	4,308.84	-2,454.40	-6.73	2,454.37	0.54	416,553.00	616,376.77
9,637.00	88.46	179.99	7,389.15	4,310.65	-2,516.37	-6.82	2,516.34	0.51	416,491.03	616,376.68
9,700.00	88.46	179.97	7,390.84	4,312.34	-2,579.35	-6.79	2,579.32	0.03	416,428.05	616,376.71
9,762.00	88.46	179.93	7,392.51	4,314.01	-2,641.33	-6.74	2,641.30	0.06	416,366.07	616,376.76
9,823.00	88.11	179.91	7,394.33	4,315.83	-2,702.30	-6.65	2,702.27	0.57	416,305.10	616,376.85
9,886.00	87.76	179.10	7,396.60	4,318.10	-2,765.25	-6.11	2,765.23	1.40	416,242.15	616,377.39
9,949.00	87.76	179.11	7,399.06	4,320.56	-2,828.20	-5.13	2,828.17	0.02	416,179.20	616,378.37
10,011.00	87.85	179.14	7,401.44	4,322.94	-2,890.15	-4.18	2,890.12	0.15	416,117.25	616,379.32
10,073.00	88.29	179.66	7,403.53	4,325.03	-2,952.11	-3.53	2,952.08	1.10	416,055.29	616,379.97
10,135.00	87.76	179.07	7,405.66	4,327.16	-3,014.07	-2.85	3,014.05	1.28	415,993.33	616,380.65
10,197.00	87.83	178.64	7,408.05	4,329.55	-3,076.01	-1.61	3,075.99	0.70	415,931.39	616,381.89
10,260.00	88.11	177.89	7,410.28	4,331.78	-3,138.94	0.30	3,138.93	1.27	415,868.46	616,383.80
10,323.00	88.46	177.83	7,412.17	4,333.67	-3,201.87	2.65	3,201.86	0.56	415,805.53	616,386.15
10,385.00	88.99	177.26	7,413.55	4,335.05	-3,263.79	5.30	3,263.79	1.26	415,743.61	616,388.80
10,448.00	90.40	178.15	7,413.88	4,335.38	-3,326.74	7.83	3,326.75	2.65	415,680.66	616,391.33
10,510.00	91.45	178.08	7,412.88	4,334.38	-3,388.70	9.87	3,388.71	1.70	415,618.70	616,393.37
10,573.00	91.89	178.03	7,411.04	4,332.54	-3,451.63	12.00	3,451.65	0.70	415,555.77	616,395.50
10,636.00	90.66	177.56	7,409.64	4,331.14	-3,514.57	14.43	3,514.60	2.09	415,492.83	616,397.93
10,699.00	89.96	176.92	7,409.30	4,330.80	-3,577.50	17.46	3,577.53	1.51	415,429.90	616,400.96
10,761.00	89.34	176.10	7,409.68	4,331.18	-3,639.38	21.23	3,639.42	1.66	415,368.02	616,404.73



Pathfinder
Pathfinder X & Y Survey Report

Company: EOG Resources, Inc.
Project: Eddy County
Site: Elk Wallow 11 State
Well: #2H
Wellbore: OH
Design: OH

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:

Well #2H
Well1 @ 3078.50ft (19' KB Correction)
Well1 @ 3078.50ft (19' KB Correction)
Grid
Minimum Curvature
Midland Database

Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
10,824.00	88.72	175.58	7,410.75	4,332.25	-3,702.20	25.80	3,702.26	1.28	415,305.20	616,409.30
10,886.00	90.13	175.64	7,411.37	4,332.87	-3,764.02	30.55	3,764.09	2.28	415,243.38	616,414.05
10,948.00	91.63	176.08	7,410.42	4,331.92	-3,825.85	35.03	3,825.93	2.52	415,181.55	616,418.53
11,011.00	92.86	176.20	7,407.95	4,329.45	-3,888.65	39.26	3,888.75	1.96	415,118.75	616,422.76
11,042.00	93.39	176.22	7,406.26	4,327.76	-3,919.54	41.31	3,919.64	1.71	415,087.86	616,424.81
11,104.00	93.74	176.85	7,402.40	4,323.90	-3,981.31	45.05	3,981.42	1.16	415,026.09	616,428.55
11,198.00	92.95	176.59	7,396.92	4,318.42	-4,074.99	50.42	4,075.12	0.88	414,932.41	616,433.92
11,260.00	92.86	176.61	7,393.78	4,315.28	-4,136.80	54.09	4,136.94	0.15	414,870.60	616,437.59
11,323.00	93.56	176.29	7,390.25	4,311.75	-4,199.58	57.99	4,199.73	1.22	414,807.82	616,441.49
11,385.00	94.09	176.20	7,386.11	4,307.61	-4,261.31	62.04	4,261.47	0.87	414,746.09	616,445.54
11,478.00	94.09	176.44	7,379.48	4,300.98	-4,353.88	67.99	4,354.06	0.26	414,653.52	616,451.49
11,541.00	94.18	176.61	7,374.94	4,296.44	-4,416.60	71.80	4,416.79	0.30	414,590.80	616,455.30
11,603.00	92.95	175.41	7,371.08	4,292.58	-4,478.33	76.11	4,478.53	2.77	414,529.07	616,459.61
11,667.00	92.24	173.71	7,368.18	4,289.68	-4,541.97	82.17	4,542.19	2.88	414,465.43	616,465.67
11,760.00	93.30	174.93	7,363.69	4,285.19	-4,634.41	91.36	4,634.64	1.74	414,372.99	616,474.86
11,825.00	93.12	173.93	7,360.05	4,281.55	-4,699.00	97.66	4,699.25	1.56	414,308.40	616,481.16
11,873.00	93.12	173.93	7,357.44	4,278.94	-4,746.66	102.73	4,746.93	0.00	414,260.74	616,486.23

BHL-11873.00°MD;93.12°INC;173.93°AZI, 7357.44°TVD, 4746.93°VS, -4746.66°N, 102.73°E



Pathfinder
Pathfinder X & Y Survey Report

Company:	EOG Resources, Inc.	Local Co-ordinate Reference:	Well #2H
Project:	Eddy County	TVD Reference:	Well1 @ 3078.50ft (19' KB Correction)
Site:	Elk Wallow 11 State	MD Reference:	Well1 @ 3078.50ft (19' KB Correction)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Midland Database

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
Karlsbad Corral SWD - survey misses target center by 808.09ft at 10239.45ft MD (7409.59 TVD, -3118.41 N, -0.41 E) - Circle (radius 50.00)	0.00	0.00	7,575.00	-3,088.60	790.00	415,918.800	617,173.500	32° 8' 34.481 N	103° 57' 17.138 W
PBHL(ELK#2) - survey misses target center by 119.35ft at 11873.00ft MD (7357.44 TVD, -4746.66 N, 102.73 E) - Point	0.00	0.00	7,350.00	-4,825.80	13.70	414,181.600	616,397.200	32° 8' 17.316 N	103° 57' 26.238 W

Survey Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	+E/-W (ft)	Comment
11,873.00	7,357.44	-4,746.66	102.73	BHL-11873.00'MD,93.12°INC,173.93°AZI, 7357.44'TVD, 4746.93°VS, -

Checked By: _____ Approved By: _____ Date: _____