



30-015-37215

EOG Resources, Inc.

Eddy County
Sand Tank 1 Fed Com
#3H
OH

Survey: MWD Lateral

Pathfinder X & Y Survey Report

17 November, 2010



PATHFINDER®

A Schlumberger Company

Company:	EOG Resources, Inc.	Local Co-ordinate Reference:	Well #3H
Project:	Eddy County	TVD Reference:	WELL @ 3552.90ft (19' KB Correction)
Site:	Sand Tank 1 Fed Com	MD Reference:	WELL @ 3552.90ft (19' KB Correction)
Well:	#3H	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	Sand Tank 1 Fed Com
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Site Position:		Northing:	645,298.300 ft	Latitude:	32° 46' 25.050 N
From:	Map	Easting:	596,324.000 ft	Longitude:	104° 1' 11.807 W
Position Uncertainty:	0.00 ft	Slot Radius:	"	Grid Convergence:	0.17 °

Well	#3H					
Well Position	+N/-S	0.00 ft	Northing:	644,234.300 ft	Latitude:	32° 46' 14.521 N
	+E/-W	0.00 ft	Easting:	596,329.000 ft	Longitude:	104° 1' 11.785 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	3,533.90 ft

Wellbore	OH
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	11/06/10	7.89	60.65	48,988

Design	OH
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Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.00

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	270.99

Survey Program		Date 11/17/10		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
3,455.00	7,910.00	MWD Pilot Hole (OH)	MWD	MWD - Standard

Company: EOG Resources, Inc.
Project: Eddy County
Site: Sand Tank 1 Fed Com
Well: #3H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #3H
TYD Reference: WELL @ 3552.90ft (19' KB Correction)
MD Reference: WELL @ 3552.90ft (19' KB Correction)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
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)	
3,289.00	0.64	179.99	3,289.56	-263.34	15.25	5.84	-5.58	0.00	644,249.55	596,334.84	
3,455.00	0.44	193.33	3,455.55	-97.35	13.70	5.69	-5.46	0.14	644,248.00	596,334.69	
3,642.00	0.44	186.84	3,642.55	89.65	12.29	5.44	-5.23	0.03	644,246.59	596,334.44	
3,831.00	0.44	204.59	3,831.54	278.64	10.91	5.05	-4.86	0.07	644,245.21	596,334.05	
4,018.00	0.44	241.43	4,018.54	465.64	9.91	4.12	-3.95	0.15	644,244.21	596,333.12	
4,203.00	0.26	274.24	4,203.53	650.63	9.61	3.08	-2.92	0.14	644,243.91	596,332.08	
4,392.00	0.53	271.38	4,392.53	839.63	9.66	1.78	-1.61	0.14	644,243.96	596,330.78	
4,579.00	0.62	292.93	4,579.52	1,026.62	10.07	-0.02	0.19	0.12	644,244.37	596,328.98	
4,767.00	0.53	270.54	4,767.51	1,214.61	10.48	-1.82	2.00	0.13	644,244.78	596,327.18	
4,954.00	0.62	253.44	4,954.50	1,401.60	10.20	-3.66	3.83	0.10	644,244.50	596,325.34	
5,141.00	2.37	278.72	5,141.43	1,588.53	10.50	-8.45	8.63	0.98	644,244.80	596,320.55	
5,204.00	1.67	256.16	5,204.39	1,651.49	10.47	-10.63	10.81	1.66	644,244.77	596,318.37	
5,297.00	1.83	137.17	5,297.37	1,744.47	9.06	-10.93	11.09	3.24	644,243.36	596,318.07	
5,360.00	1.41	113.65	5,360.35	1,807.45	8.01	-9.54	9.68	1.23	644,242.31	596,319.46	
5,453.00	1.41	89.82	5,453.32	1,900.42	7.56	-7.35	7.48	0.63	644,241.86	596,321.65	
5,547.00	1.85	87.61	5,547.28	1,994.38	7.62	-4.68	4.81	0.47	644,241.92	596,324.32	
5,640.00	0.88	78.81	5,640.25	2,087.35	7.82	-2.48	2.61	1.06	644,242.12	596,326.52	
5,735.00	0.88	30.27	5,735.24	2,182.34	8.60	-1.39	1.54	0.76	644,242.90	596,327.61	
5,829.00	1.32	11.71	5,829.23	2,276.33	10.28	-0.81	0.99	0.60	644,244.58	596,328.19	
5,923.00	1.76	357.20	5,923.19	2,370.29	12.78	-0.66	0.88	0.62	644,247.08	596,328.34	
6,018.00	1.76	355.95	6,018.15	2,465.25	15.69	-0.83	1.10	0.04	644,249.99	596,328.17	
6,111.00	2.20	356.35	6,111.09	2,558.19	18.90	-1.05	1.37	0.47	644,253.20	596,327.95	
6,204.00	1.58	325.52	6,204.04	2,651.14	21.74	-1.89	2.26	1.26	644,256.04	596,327.11	
6,298.00	2.20	333.18	6,297.99	2,745.09	24.42	-3.43	3.86	0.71	644,258.72	596,325.57	
6,392.00	0.79	292.17	6,391.96	2,839.06	26.27	-4.85	5.30	1.79	644,260.57	596,324.15	
6,484.00	1.14	299.59	6,483.95	2,931.05	26.96	-6.23	6.70	0.40	644,261.26	596,322.77	
6,578.00	1.49	304.12	6,577.92	3,025.02	28.11	-8.06	8.54	0.39	644,262.41	596,320.94	

Company: EOG Resources, Inc.
Project: Eddy County
Site: Sand Tank 1 Fed Com
Well: #3H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #3H
TVD Reference: WELL @ 3552.90ft (19' KB Correction)
MD Reference: WELL @ 3552.90ft (19' KB Correction)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
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)	
6,673.00	1.76	299.06	6,672.88	3,119.98	29.51	-10.35	10.86	0.32	644,263.81	596,318.65	
6,766.00	1.58	313.16	6,765.84	3,212.94	31.08	-12.54	13.07	0.48	644,265.38	596,316.46	
6,860.00	1.58	303.85	6,859.81	3,306.91	32.69	-14.56	15.12	0.27	644,266.99	596,314.44	
6,953.00	1.06	334.10	6,952.78	3,399.88	34.18	-16.00	16.59	0.92	644,268.48	596,313.00	
7,047.00	1.06	337.48	7,046.77	3,493.87	35.76	-16.71	17.33	0.07	644,270.06	596,312.29	
7,140.00	1.14	354.22	7,139.75	3,586.85	37.48	-17.14	17.78	0.35	644,271.78	596,311.86	
7,159.00	1.76	299.25	7,158.75	3,605.85	37.81	-17.41	18.06	7.62	644,272.11	596,311.59	
7,190.00	4.66	278.69	7,189.69	3,636.79	38.23	-19.07	19.73	9.92	644,272.53	596,309.93	
7,221.00	8.44	270.09	7,220.49	3,667.59	38.43	-22.59	23.25	12.56	644,272.73	596,306.41	
7,252.00	12.49	267.59	7,250.97	3,698.07	38.29	-28.22	28.88	13.14	644,272.59	596,300.78	
7,283.00	16.53	265.31	7,280.97	3,728.07	37.79	-35.97	36.61	13.16	644,272.09	596,293.03	
7,314.00	20.05	262.28	7,310.40	3,757.50	36.71	-45.63	46.26	11.76	644,271.01	596,283.37	
7,345.00	23.57	263.76	7,339.18	3,786.28	35.32	-57.06	57.66	11.49	644,269.62	596,271.94	
7,377.00	27.08	264.21	7,368.10	3,815.20	33.89	-70.67	71.25	10.99	644,268.19	596,258.33	
7,408.00	30.42	264.60	7,395.27	3,842.37	32.44	-85.51	86.06	10.79	644,266.74	596,243.49	
7,439.00	34.29	264.73	7,421.45	3,868.55	30.90	-102.02	102.54	12.49	644,265.20	596,226.98	
7,471.00	37.64	266.13	7,447.35	3,894.45	29.41	-120.76	121.25	10.78	644,263.71	596,208.24	
7,502.00	40.89	267.03	7,471.35	3,918.45	28.25	-140.34	140.80	10.64	644,262.55	596,188.66	
7,533.00	43.62	267.30	7,494.29	3,941.39	27.22	-161.16	161.60	8.83	644,261.52	596,167.84	
7,564.00	46.52	266.78	7,516.18	3,963.28	26.08	-183.07	183.49	9.43	644,260.38	596,145.93	
7,594.00	49.07	267.51	7,536.34	3,983.44	24.98	-205.26	205.66	8.69	644,259.28	596,123.74	
7,626.00	52.58	269.15	7,556.55	4,003.65	24.27	-230.05	230.44	11.67	644,258.57	596,098.95	
7,657.00	55.31	270.03	7,574.79	4,021.89	24.09	-255.11	255.49	9.10	644,258.39	596,073.89	
7,688.00	57.95	272.54	7,591.84	4,038.94	24.68	-280.99	281.37	10.87	644,258.98	596,048.01	
7,719.00	60.67	272.53	7,607.66	4,054.76	25.86	-307.62	308.02	8.77	644,260.16	596,021.38	
7,751.00	63.84	271.86	7,622.56	4,069.66	26.94	-335.92	336.33	10.08	644,261.24	595,993.08	
7,782.00	67.62	269.63	7,635.30	4,082.40	27.30	-364.17	364.58	13.84	644,261.60	595,964.83	

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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)	
7,814.00	72.11	268.84	7,646.31	4,093.41	26.89	-394.20	394.61	14.22	644,261.19	595,934.80	
7,845.00	75.27	268.12	7,655.02	4,102.12	26.10	-423.94	424.33	10.43	644,260.40	595,905.06	
7,876.00	78.96	268.85	7,661.93	4,109.03	25.31	-454.14	454.51	12.12	644,259.61	595,874.86	
7,907.00	82.57	269.51	7,666.90	4,114.00	24.87	-484.73	485.09	11.83	644,259.17	595,844.27	
7,975.00	91.19	272.01	7,670.60	4,117.70	25.78	-552.56	552.92	13.20	644,260.08	595,776.44	
8,038.00	91.01	271.71	7,669.39	4,116.49	27.82	-615.51	615.90	0.56	644,262.12	595,713.49	
8,100.00	90.84	271.89	7,668.39	4,115.49	29.77	-677.47	677.88	0.40	644,264.07	595,651.53	
8,162.00	90.66	271.71	7,667.58	4,114.68	31.71	-739.44	739.87	0.41	644,266.01	595,589.56	
8,224.00	90.57	271.71	7,666.91	4,114.01	33.56	-801.40	801.86	0.15	644,267.86	595,527.60	
8,286.00	90.48	272.33	7,666.35	4,113.45	35.75	-863.36	863.85	1.01	644,270.05	595,465.64	
8,380.00	91.80	272.04	7,664.48	4,111.58	39.33	-957.27	957.81	1.44	644,273.63	595,371.73	
8,442.00	91.98	271.88	7,662.43	4,109.53	41.45	-1,019.20	1,019.77	0.39	644,275.75	595,309.80	
8,505.00	91.80	270.65	7,660.35	4,107.45	42.84	-1,082.15	1,082.73	1.97	644,277.14	595,246.85	
8,567.00	91.89	270.52	7,658.36	4,105.46	43.48	-1,144.12	1,144.70	0.25	644,277.78	595,184.88	
8,629.00	92.07	270.47	7,656.22	4,103.32	44.01	-1,206.08	1,206.66	0.30	644,278.31	595,122.92	
8,692.00	91.80	270.65	7,654.09	4,101.19	44.63	-1,269.04	1,269.62	0.51	644,278.93	595,059.96	
8,785.00	90.66	271.00	7,652.09	4,099.19	45.96	-1,362.01	1,362.60	1.28	644,280.26	594,966.99	
8,848.00	90.84	270.39	7,651.27	4,098.37	46.73	-1,425.00	1,425.59	1.01	644,281.03	594,904.00	
8,911.00	90.84	270.33	7,650.34	4,097.44	47.12	-1,487.99	1,488.58	0.10	644,281.42	594,841.01	
8,973.00	91.19	271.29	7,649.25	4,096.35	48.00	-1,549.97	1,550.57	1.65	644,282.30	594,779.03	
9,035.00	91.62	271.50	7,647.72	4,094.82	49.51	-1,611.93	1,612.55	0.77	644,283.81	594,717.07	
9,129.00	92.07	272.20	7,644.70	4,091.80	52.54	-1,705.84	1,706.49	0.88	644,286.84	594,623.16	
9,223.00	92.86	271.49	7,640.66	4,087.76	55.57	-1,799.70	1,800.39	1.13	644,289.87	594,529.30	
9,316.00	91.89	271.41	7,636.80	4,083.90	57.92	-1,892.59	1,893.31	1.05	644,292.22	594,436.41	
9,409.00	91.80	271.31	7,633.81	4,080.91	60.12	-1,985.51	1,986.26	0.14	644,294.42	594,343.49	
9,503.00	91.36	270.53	7,631.22	4,078.32	61.63	-2,079.46	2,080.22	0.95	644,295.93	594,249.54	
9,597.00	90.22	269.81	7,629.92	4,077.02	61.91	-2,173.45	2,174.20	1.43	644,296.21	594,155.55	

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Well:	#3H	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)	
9,660.00	90.40	269.77	7,629.58	4,076.68	61.68	-2,236.45	2,237.18	0.29	644,295.98	594,092.55	
9,721.00	90.40	269.78	7,629.15	4,076.25	61.44	-2,297.45	2,298.17	0.02	644,295.74	594,031.55	
9,784.00	91.19	270.22	7,628.28	4,075.38	61.44	-2,360.44	2,361.15	1.44	644,295.74	593,968.56	
9,846.00	91.71	270.66	7,626.71	4,073.81	61.92	-2,422.42	2,423.13	1.10	644,296.22	593,906.58	
9,940.00	90.57	269.60	7,624.84	4,071.94	62.13	-2,516.40	2,517.10	1.66	644,296.43	593,812.60	
10,002.00	89.78	268.77	7,624.65	4,071.75	61.25	-2,578.39	2,579.07	1.85	644,295.55	593,750.61	
10,096.00	89.96	268.59	7,624.86	4,071.96	59.08	-2,672.37	2,672.99	0.27	644,293.38	593,656.63	
10,158.00	89.08	268.28	7,625.38	4,072.48	57.39	-2,734.34	2,734.92	1.50	644,291.69	593,594.66	
10,220.00	88.55	268.10	7,626.67	4,073.77	55.43	-2,796.30	2,796.84	0.90	644,289.73	593,532.70	
10,313.00	89.69	268.21	7,628.09	4,075.19	52.44	-2,889.24	2,889.71	1.23	644,286.74	593,439.76	
10,376.00	89.52	267.95	7,628.53	4,075.63	50.33	-2,952.20	2,952.63	0.49	644,284.63	593,376.80	
10,483.00	90.31	268.14	7,628.69	4,075.79	46.68	-3,059.14	3,059.48	0.76	644,280.98	593,269.86	
10,501.00	90.31	267.66	7,628.59	4,075.69	46.02	-3,077.12	3,077.46	2.67	644,280.32	593,251.88	
10,563.00	90.22	267.34	7,628.30	4,075.40	43.31	-3,139.06	3,139.34	0.54	644,277.61	593,189.94	
10,626.00	90.22	267.28	7,628.06	4,075.16	40.36	-3,201.99	3,202.21	0.10	644,274.66	593,127.01	
10,687.00	88.90	266.21	7,628.53	4,075.63	36.89	-3,262.89	3,263.04	2.79	644,271.19	593,066.11	
10,781.00	88.72	267.12	7,630.48	4,077.58	31.43	-3,356.71	3,356.75	0.99	644,265.73	592,972.29	
10,844.00	88.55	267.59	7,631.98	4,079.08	28.52	-3,419.63	3,419.61	0.79	644,262.82	592,909.37	
10,906.00	89.52	268.47	7,633.03	4,080.13	26.39	-3,481.58	3,481.51	2.11	644,260.69	592,847.42	
10,999.00	91.28	269.88	7,632.38	4,079.48	25.05	-3,574.56	3,574.46	2.42	644,259.35	592,754.44	
11,062.00	91.54	269.34	7,630.83	4,077.93	24.62	-3,637.54	3,637.42	0.95	644,258.92	592,691.46	
11,123.00	91.54	268.95	7,629.19	4,076.29	23.71	-3,698.51	3,698.37	0.64	644,258.01	592,630.49	
11,216.00	92.51	269.91	7,625.90	4,073.00	22.79	-3,791.45	3,791.27	1.47	644,257.09	592,537.55	
11,278.00	92.95	269.81	7,622.95	4,070.05	22.63	-3,853.37	3,853.19	0.73	644,256.93	592,475.63	
11,341.00	93.12	269.31	7,619.61	4,066.71	22.15	-3,916.28	3,916.08	0.84	644,256.45	592,412.72	
11,435.00	92.51	268.78	7,615.00	4,062.10	20.59	-4,010.16	4,009.91	0.86	644,254.89	592,318.84	
11,498.00	92.42	269.15	7,612.29	4,059.39	19.45	-4,073.09	4,072.82	0.60	644,253.75	592,255.91	

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Project:	Eddy County	TVD Reference:	WELL @ 3552.90ft (19' KB Correction)
Site:	Sand Tank 1 Fed Com	MD Reference:	WELL @ 3552.90ft (19' KB Correction)
Well:	#3H	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)	
11,560.00	93.39	269.09	7,609.14	4,056.24	18.50	-4,135.00	4,134.70	1.57	644,252.80	592,194.00	
11,654.00	91.80	269.11	7,604.89	4,051.99	17.02	-4,228.89	4,228.55	1.69	644,251.32	592,100.11	
11,749.00	92.15	269.90	7,601.61	4,048.71	16.20	-4,323.83	4,323.46	0.91	644,250.50	592,005.17	
11,843.00	92.86	269.22	7,597.51	4,044.61	15.48	-4,417.74	4,417.34	1.05	644,249.78	591,911.26	
11,938.00	94.18	269.29	7,591.67	4,038.77	14.25	-4,512.55	4,512.12	1.39	644,248.55	591,816.45	
11,970.00	94.53	268.71	7,589.24	4,036.34	13.69	-4,544.45	4,544.01	2.11	644,247.99	591,784.55	
12,053.00	94.53	268.71	7,582.69	4,029.79	11.83	-4,627.17	4,626.68	0.00	644,246.13	591,701.83	
BHL-12053.00°MD,94.53°INC,268.71°AZI, 7582.69°TVD, 4626.68°VS, 11.83°N, -4627.17°E											

Targets									
Target Name	hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	
PP(#3HST1)		0.00	0.00	7,650.00	99.60	-90.20	644,333.900	596,238.800	32° 46' 15.509 N 104° 1' 12.838 W
- survey misses target center by 177.62ft at 7582.49ft MD (7528.72 TVD, 25.37 N, -196.64 E)									
- Point									
PBHL(#3HST1)		0.00	0.00	7,565.19	80.90	-4,701.10	644,315.200	591,627.900	32° 46' 15.456 N 104° 2' 6.842 W
- survey misses target center by 102.68ft at 12053.00ft MD (7582.69 TVD, 11.83 N, -4627.17 E)									
- Point									

Survey Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
+N/-S (ft)	+E/-W (ft)			
12,053.00	7,582.69	11.83	-4,627.17	BHL-12053.00°MD,94.53°INC,268.71°AZI, 7582.69°TVD, 4626.68°VS, 1

Checked By: _____ Approved By: _____ Date: _____