

30-015-37448



EOG Resources, Inc.

Eddy County
Lucky Wolf 31 Fed Com
#2H
OH

Survey: MWD

Pathfinder X & Y Survey Report

18 October, 2010

PATHFINDER®
A Schlumberger Company

Company:	EOG Resources, Inc.	Local Co-ordinate Reference:	Well #2H
Project:	Eddy County	TVD Reference:	WELL @ 3546.10ft (19' KB Correction)
Site:	Lucky Wolf 31 Fed Com	MD Reference:	WELL @ 3546.10ft (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		Lucky Wolf 31 Fed Com			
Site Position:		Northing:	685,484.700 ft	Latitude:	32° 53' 3.893 N
From:	Map	Easting:	538,736.600 ft	Longitude:	104° 12' 25.734 W
Position Uncertainty:	0.00 ft	Slot Radius:	"	Grid Convergence:	0.07 °

Well	#2H					
Well Position	+N-S	0.00 ft	Northing:	683,974.600 ft	Latitude:	32° 52' 48.950 N
	+E-W	0.00 ft	Easting:	538,722.000 ft	Longitude:	104° 12' 25.926 W
Position Uncertainty	0.00 ft		Wellhead Elevation:	ft	Ground Level:	3,527.10 ft

Wellbore	OH
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	09/25/09	8.12	60.74	49,140

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	271.28

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Survey Program		Date	10/18/10		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
237.00	475.00	Totco (OH)	Gyro	Gyro	
554.00	10,772.00	MWD (OH)	MWD	MWD - Standard	

Survey											
MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)	
454.00	0.00	340.00	454.00	-3,092.10	0.00	0.00	0.00	0.00	683,974.60	538,722.00	
554.00	0.88	213.80	554.00	-2,992.10	-0.64	-0.43	0.41	0.88	683,973.96	538,721.57	
734.00	0.79	239.39	733.98	-2,812.12	-2.42	-2.26	2.21	0.21	683,972.18	538,719.74	
921.00	0.88	270.20	920.96	-2,625.14	-3.07	-4.81	4.74	0.24	683,971.53	538,717.19	
1,109.00	0.79	268.45	1,108.94	-2,437.16	-3.10	-7.55	7.48	0.05	683,971.50	538,714.45	
1,303.00	0.70	271.08	1,302.92	-2,243.18	-3.11	-10.07	10.00	0.05	683,971.49	538,711.93	
1,482.00	0.88	276.69	1,481.91	-2,064.19	-2.93	-12.53	12.46	0.11	683,971.67	538,709.47	
1,669.00	0.79	278.30	1,668.89	-1,877.21	-2.58	-15.23	15.17	0.05	683,972.02	538,706.77	
1,856.00	0.62	266.46	1,855.87	-1,690.23	-2.46	-17.52	17.46	0.12	683,972.14	538,704.48	
2,043.00	0.88	279.24	2,042.86	-1,503.24	-2.29	-19.94	19.89	0.16	683,972.31	538,702.06	
2,231.00	0.62	293.43	2,230.84	-1,315.26	-1.65	-22.30	22.26	0.17	683,972.95	538,699.70	
2,418.00	0.70	308.75	2,417.83	-1,128.27	-0.53	-24.12	24.10	0.10	683,974.07	538,697.88	
2,605.00	0.70	319.34	2,604.81	-941.29	1.05	-25.76	25.77	0.07	683,975.65	538,696.24	
2,789.00	0.79	322.05	2,788.80	-757.30	2.90	-27.27	27.33	0.05	683,977.50	538,694.73	
2,976.00	1.06	303.75	2,975.77	-570.33	4.88	-29.50	29.60	0.21	683,979.48	538,692.50	
3,164.00	1.23	293.11	3,163.74	-382.36	6.64	-32.80	32.94	0.14	683,981.24	538,689.20	
3,350.00	0.88	292.68	3,349.70	-196.40	7.97	-35.96	36.12	0.19	683,982.57	538,686.04	
3,536.00	1.14	295.91	3,535.67	-10.43	9.33	-38.94	39.14	0.14	683,983.93	538,683.06	
3,724.00	1.32	289.31	3,723.63	177.53	10.86	-42.66	42.90	0.12	683,985.46	538,679.34	
3,911.00	1.49	285.25	3,910.58	364.48	12.21	-47.04	47.30	0.11	683,986.81	538,674.96	
4,005.00	1.41	275.51	4,004.55	458.45	12.65	-49.37	49.64	0.28	683,987.25	538,672.63	

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Survey										
MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
4,099.00	1.58	285.31	4,098.51	552.41	13.10	-51.77	52.05	0.33	683,987.70	538,670.23
4,193.00	1.23	292.01	4,192.49	646.39	13.82	-53.96	54.25	0.41	683,988.42	538,668.04
4,286.00	1.41	273.02	4,285.46	739.36	14.25	-56.03	56.33	0.51	683,988.85	538,665.97
4,380.00	1.49	278.13	4,379.43	833.33	14.49	-58.39	58.70	0.16	683,989.09	538,663.61
4,473.00	1.14	281.63	4,472.41	926.31	14.85	-60.49	60.81	0.39	683,989.45	538,661.51
4,660.00	1.32	273.11	4,659.36	1,113.26	15.34	-64.47	64.79	0.14	683,989.94	538,657.53
4,845.00	1.41	278.57	4,844.31	1,298.21	15.79	-68.85	69.18	0.09	683,990.39	538,653.15
5,033.00	1.23	270.04	5,032.26	1,486.16	16.14	-73.15	73.49	0.14	683,990.74	538,648.85
5,209.00	0.70	256.96	5,208.24	1,662.14	15.90	-76.09	76.42	0.32	683,990.50	538,645.91
5,397.00	0.26	217.63	5,396.23	1,850.13	15.30	-77.47	77.79	0.28	683,989.90	538,644.53
5,585.00	0.18	110.44	5,584.23	2,038.13	14.86	-77.45	77.76	0.19	683,989.46	538,644.55
5,722.00	0.62	98.14	5,721.22	2,175.12	14.68	-76.51	76.82	0.33	683,989.28	538,645.49
5,800.00	0.88	93.82	5,799.22	2,253.12	14.58	-75.50	75.81	0.34	683,989.18	538,646.50
5,863.00	1.06	82.10	5,862.21	2,316.11	14.63	-74.44	74.75	0.42	683,989.23	538,647.56
5,926.00	0.79	74.62	5,925.20	2,379.10	14.82	-73.44	73.76	0.47	683,989.42	538,648.56
5,958.00	2.11	272.44	5,957.19	2,411.09	14.91	-73.82	74.13	8.98	683,989.51	538,648.18
5,989.00	6.07	268.09	5,988.11	2,442.01	14.88	-76.03	76.34	12.80	683,989.48	538,645.97
6,021.00	9.76	268.51	6,019.80	2,473.70	14.75	-80.43	80.74	11.53	683,989.35	538,641.57
6,052.00	13.89	268.29	6,050.13	2,504.03	14.57	-86.78	87.08	13.32	683,989.17	538,635.22
6,084.00	17.24	267.09	6,080.96	2,534.86	14.21	-95.36	95.65	10.52	683,988.81	538,626.64
6,116.00	21.02	267.06	6,111.18	2,565.08	13.68	-105.83	106.11	11.81	683,988.28	538,616.17
6,148.00	24.27	266.60	6,140.71	2,594.61	12.99	-118.13	118.39	10.17	683,987.59	538,603.87
6,179.00	28.14	268.35	6,168.52	2,622.42	12.41	-131.80	132.05	12.73	683,987.01	538,590.20
6,211.00	31.13	270.66	6,196.33	2,650.23	12.28	-147.62	147.86	10.00	683,986.88	538,574.38
6,243.00	34.47	270.42	6,223.23	2,677.13	12.45	-164.95	165.19	10.45	683,987.05	538,557.05
6,274.00	37.20	270.47	6,248.36	2,702.26	12.59	-183.10	183.33	8.81	683,987.19	538,538.90
6,306.00	40.27	268.70	6,273.32	2,727.22	12.43	-203.12	203.34	10.20	683,987.03	538,518.88

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Survey										
MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
6,338.00	43.62	267.25	6,297.12	2,751.02	11.67	-224.49	224.69	10.90	683,986.27	538,497.51
6,370.00	47.31	266.42	6,319.56	2,773.46	10.40	-247.26	247.43	11.68	683,985.00	538,474.74
6,402.00	51.00	267.14	6,340.48	2,794.38	9.05	-271.42	271.56	11.66	683,983.65	538,450.58
6,434.00	55.40	267.90	6,359.64	2,813.54	7.94	-297.02	297.12	13.88	683,982.54	538,424.98
6,466.00	58.21	268.47	6,377.16	2,831.06	7.10	-323.78	323.86	8.91	683,981.70	538,398.22
6,497.00	61.29	268.35	6,392.78	2,846.68	6.35	-350.54	350.60	9.94	683,980.95	538,371.46
6,529.00	63.40	268.19	6,407.63	2,861.53	5.50	-378.87	378.90	6.61	683,980.10	538,343.13
6,560.00	66.74	266.84	6,420.70	2,874.60	4.28	-406.95	406.95	11.47	683,978.88	538,315.05
6,592.00	70.00	266.45	6,432.49	2,886.39	2.53	-436.65	436.59	10.25	683,977.13	538,285.35
6,624.00	72.19	266.60	6,442.86	2,896.76	0.70	-466.86	466.76	6.86	683,975.30	538,255.14
6,662.00	74.83	267.35	6,453.64	2,907.54	-1.22	-503.24	503.09	7.20	683,973.38	538,218.76
6,694.00	77.91	268.48	6,461.18	2,915.08	-2.35	-534.32	534.13	10.22	683,972.25	538,187.68
6,726.00	81.16	269.41	6,466.99	2,920.89	-2.93	-565.78	565.57	10.55	683,971.67	538,156.22
6,758.00	84.24	269.24	6,471.06	2,924.96	-3.30	-597.51	597.29	9.64	683,971.30	538,124.49
6,853.00	90.04	269.24	6,475.80	2,929.70	-4.56	-692.34	692.07	6.11	683,970.04	538,029.66
6,949.00	92.07	269.74	6,474.03	2,927.93	-5.42	-788.32	788.00	2.18	683,969.18	537,933.68
7,012.00	91.98	269.21	6,471.80	2,925.70	-5.99	-851.28	850.93	0.85	683,968.61	537,870.72
7,076.00	92.42	269.06	6,469.35	2,923.25	-6.96	-915.22	914.84	0.73	683,967.64	537,806.78
7,170.00	92.42	270.46	6,465.38	2,919.28	-7.35	-1,009.13	1,008.72	1.49	683,967.25	537,712.87
7,266.00	91.36	271.17	6,462.21	2,916.11	-5.99	-1,105.07	1,104.66	1.33	683,968.61	537,616.93
7,362.00	90.40	270.31	6,460.74	2,914.64	-4.75	-1,201.05	1,200.64	1.34	683,969.85	537,520.95
7,457.00	93.56	272.69	6,457.45	2,911.35	-2.26	-1,295.94	1,295.57	4.16	683,972.34	537,426.06
7,553.00	92.42	274.83	6,452.45	2,906.35	4.02	-1,391.60	1,391.34	2.52	683,978.62	537,330.40
7,648.00	92.15	274.08	6,448.66	2,902.56	11.40	-1,486.23	1,486.12	0.84	683,986.00	537,235.77
7,712.00	93.03	274.17	6,445.77	2,899.67	16.00	-1,550.00	1,549.97	1.38	683,990.60	537,172.00
7,807.00	92.07	273.20	6,441.54	2,895.44	22.09	-1,644.71	1,644.79	1.44	683,996.69	537,077.29
7,901.00	91.63	273.43	6,438.51	2,892.41	27.53	-1,738.50	1,738.68	0.53	684,002.13	536,983.50

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Survey											
MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)	
7,965.00	91.71	273.07	6,436.64	2,890.54	31.15	-1,802.37	1,802.62	0.58	684,005.75	536,919.63	
8,028.00	91.98	272.86	6,434.61	2,888.51	34.41	-1,865.26	1,865.56	0.54	684,009.01	536,856.74	
8,122.00	90.22	273.04	6,432.81	2,886.71	39.25	-1,959.11	1,959.50	1.88	684,013.85	536,762.89	
8,186.00	90.75	272.92	6,432.27	2,886.17	42.57	-2,023.02	2,023.47	0.85	684,017.17	536,698.98	
8,249.00	90.48	271.80	6,431.59	2,885.49	45.17	-2,085.96	2,086.45	1.83	684,019.77	536,636.04	
8,312.00	90.75	272.07	6,430.91	2,884.81	47.30	-2,148.92	2,149.44	0.61	684,021.90	536,573.08	
8,375.00	90.75	272.31	6,430.09	2,883.99	49.70	-2,211.87	2,212.43	0.38	684,024.30	536,510.13	
8,438.00	90.75	271.74	6,429.26	2,883.16	51.93	-2,274.83	2,275.42	0.90	684,026.53	536,447.17	
8,501.00	91.01	271.78	6,428.30	2,882.20	53.86	-2,337.79	2,338.41	0.42	684,028.46	536,384.21	
8,564.00	91.01	271.53	6,427.19	2,881.09	55.68	-2,400.75	2,401.40	0.40	684,030.28	536,321.25	
8,627.00	91.10	271.04	6,426.03	2,879.93	57.10	-2,463.73	2,464.39	0.79	684,031.70	536,258.27	
8,690.00	91.10	270.79	6,424.82	2,878.72	58.10	-2,526.71	2,527.37	0.40	684,032.70	536,195.29	
8,753.00	91.80	270.49	6,423.22	2,877.12	58.80	-2,589.68	2,590.35	1.21	684,033.40	536,132.32	
8,847.00	91.10	271.04	6,420.84	2,874.74	60.06	-2,683.64	2,684.32	0.95	684,034.66	536,038.36	
8,910.00	91.28	271.19	6,419.54	2,873.44	61.29	-2,746.62	2,747.30	0.37	684,035.89	535,975.38	
9,005.00	90.31	271.42	6,418.22	2,872.12	63.45	-2,841.58	2,842.29	1.05	684,038.05	535,880.42	
9,068.00	90.84	271.55	6,417.59	2,871.49	65.08	-2,904.56	2,905.29	0.87	684,039.68	535,817.44	
9,163.00	89.52	271.19	6,417.29	2,871.19	67.35	-2,999.53	3,000.28	1.44	684,041.95	535,722.47	
9,225.00	90.04	271.75	6,417.52	2,871.42	68.94	-3,061.51	3,062.28	1.23	684,043.54	535,660.49	
9,288.00	90.66	272.59	6,417.14	2,871.04	71.33	-3,124.46	3,125.27	1.66	684,045.93	535,597.54	
9,384.00	89.69	272.07	6,416.85	2,870.75	75.23	-3,220.38	3,221.26	1.15	684,049.83	535,501.62	
9,479.00	88.64	272.64	6,418.23	2,872.13	79.13	-3,315.29	3,316.23	1.26	684,053.73	535,406.71	
9,541.00	89.08	272.64	6,419.46	2,873.36	81.99	-3,377.21	3,378.20	0.71	684,056.59	535,344.79	
9,604.00	88.02	273.08	6,421.06	2,874.96	85.13	-3,440.11	3,441.15	1.82	684,059.73	535,281.89	
9,667.00	88.37	272.74	6,423.04	2,876.94	88.33	-3,503.00	3,504.09	0.77	684,062.93	535,219.00	
9,730.00	88.45	272.72	6,424.79	2,878.69	91.33	-3,565.90	3,567.05	0.13	684,065.93	535,156.10	
9,825.00	89.87	273.30	6,426.18	2,880.08	96.32	-3,660.76	3,661.99	1.61	684,070.92	535,061.24	

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9,920.00	88.90	272.81	6,427.20	2,881.10	101.38	-3,755.61	3,756.94	1.14	684,075.98	534,966.39
9,983.00	89.43	272.62	6,428.12	2,882.02	104.36	-3,818.54	3,819.91	0.89	684,078.96	534,903.46
10,078.00	90.04	272.18	6,428.56	2,882.46	108.34	-3,913.45	3,914.89	0.79	684,082.94	534,808.55
10,171.00	90.92	273.54	6,427.78	2,881.68	112.98	-4,006.33	4,007.85	1.74	684,087.58	534,715.67
10,266.00	89.69	273.61	6,427.28	2,881.18	118.90	-4,101.14	4,102.77	1.30	684,093.50	534,620.86
10,361.00	90.40	273.71	6,427.20	2,881.10	124.97	-4,195.95	4,197.69	0.75	684,099.57	534,526.05
10,456.00	91.98	273.45	6,425.23	2,879.13	130.90	-4,290.74	4,292.59	1.69	684,105.50	534,431.26
10,551.00	93.30	273.49	6,420.85	2,874.75	136.64	-4,385.46	4,387.42	1.39	684,111.24	534,336.54
10,646.00	94.35	273.59	6,414.52	2,868.42	142.49	-4,480.07	4,482.13	1.11	684,117.09	534,241.93
10,698.00	95.06	273.15	6,410.25	2,864.15	145.54	-4,531.80	4,533.92	1.60	684,120.14	534,190.20
10,772.00	95.06	273.15	6,403.72	2,857.62	149.59	-4,605.40	4,607.59	0.00	684,124.19	534,116.60
BHL-10772.00'MD,95.06°INC,273.15°AZI, 6403.72'TVD, 4607.59'VS, 149.59°N, -4605.40'E										

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
PBHL(#2HLW#31)nev	0.00	0.00	6,475.00	104.10	-4,663.30	684,078.700	534,058.700	32° 52' 50.032 N	104° 13' 20.609 W
- hit/miss target									
- Shape									
- survey misses target center by 102.48ft at 10772.00ft MD (6403.72 TVD, 149.59 N, -4605.40 E)									
- Point									
MWJdogCanyon#31E	0.00	0.00	6,500.00	-175.60	-4,333.30	683,799.000	534,388.700	32° 52' 47.261 N	104° 13' 16.743 W
- survey misses target center by 317.64ft at 10476.46ft MD (6424.47 TVD, 132.13 N, -4311.15 E)									
- Point									

Survey Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
10,772.00	6,403.72	149.59	-4,605.40	BHL-10772.00'MD,95.06°INC,273.15°AZI, 6403.72'TVD, 4607.59'VS, 1

Company:	EOG Resources, Inc.	Local Co-ordinate Reference:	Well #2H
Project:	Eddy County	TVD Reference:	WELL @ 3546.10ft (19' KB Correction)
Site:	Lucky Wolf 31 Fed Com	MD Reference:	WELL @ 3546.10ft (19' KB Correction)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Midland Database

Checked By: _____ Approved By: _____ Date: _____