



EOG Resources, Inc.

Lea County
Lomas Rojas "26" State Com
#1H
OH

Survey: Mwd #1

Pathfinder X & Y Survey Report

28 December, 2009

SUR: D-26-25s-33e, 330/N & 430/W
BHL: M-26-25s-33e, 4845/N & 452/W
API # 30-025-39531

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PATHFINDER

Company:	EOG Resources, Inc.	Local Co-ordinate Reference:	Well #1H
Project:	Lea County	TVD Reference:	WELL @ 3362.60ft (19' KB Correction)
Site:	Lomas Rojas "26" State Com	MD Reference:	WELL @ 3362.60ft (19' KB Correction)
Well:	#1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Midland Database

Project	Lea 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	Lomas Rojas "26" State Com		
Site Position:		Northing:	403,802.800 ft
From:	Map	Easting:	742,610.100 ft
Position Uncertainty:	0.00 ft	Slot Radius:	"
		Latitude:	32° 6' 27.886 N
		Longitude:	103° 32' 59.279 W
		Grid Convergence:	0.42 °

Well	#1H		
Well Position	+N/-S	0.00 ft	Northing: 403,802.800 ft
	+E/-W	0.00 ft	Easting: 742,610.100 ft
Position Uncertainty		0.00 ft	Wellhead Elevation: ft
			Latitude: 32° 6' 27.886 N
			Longitude: 103° 32' 59.279 W
			Ground Level: 3,343.60 ft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF200510	09/28/2009	7.76
			Dip Angle (°)
			60.14
			Field Strength (nT)
			48,749

Design	OH		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0 00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(ft)	(ft)	(ft)
	0.00	0.00	0.00
			Direction
			(°)
			179.55

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Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Midland Database

Survey Program		Date	12/28/2009		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
100.00	6,020.00	GYRO (OH)	MWD	MWD - Standard	
6,070.00	11,000.00	Pilot Hole (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)	
6,020.00	3.81	120.16	6,016.83	2,654.23	-33.16	83.80	33.82	0.00	403,769.64	742,693.90	
6,070.00	3.96	118.85	6,066.71	2,704.11	-34.83	86.74	35.51	0.35	403,767.97	742,696.84	
6,093.00	3.96	122.54	6,089.66	2,727.06	-35.64	88.11	36.33	1.11	403,767.16	742,698.21	
6,125.00	3.25	124.04	6,121.59	2,758.99	-36.74	89.79	37.44	2.24	403,766.06	742,699.89	
6,157.00	2.64	118.76	6,153.55	2,790.95	-37.60	91.19	38.32	2.08	403,765.20	742,701.29	
6,188.00	1.85	123.42	6,184.53	2,821.93	-38.22	92.23	38.94	2.61	403,764.58	742,702.33	
6,220.00	1.41	122.72	6,216.51	2,853.91	-38.72	93.00	39.45	1.38	403,764.08	742,703.10	
6,315.00	0.70	57.42	6,311.50	2,948.90	-39.04	94.47	39.78	1.35	403,763.76	742,704.57	
6,410.00	0.88	72.36	6,406.49	3,043.89	-38.50	95.65	39.25	0.29	403,764.30	742,705.75	
6,505.00	0.70	65.15	6,501.48	3,138.88	-38.04	96.87	38.80	0.22	403,764.76	742,706.97	
6,695.00	0.79	68.14	6,691.46	3,328.86	-37.06	99.14	37.84	0.05	403,765.74	742,709.24	
6,886.00	0.53	68.67	6,882.45	3,519.85	-36.25	101.19	37.05	0.14	403,766.55	742,711.29	
7,075.00	0.44	79.83	7,071.45	3,708.85	-35.81	102.72	36.61	0.07	403,766.99	742,712.82	
7,265.00	0.53	120.96	7,261.44	3,898.84	-36.13	104.19	36.95	0.18	403,766.67	742,714.29	
7,454.00	0.79	125.09	7,450.43	4,087.83	-37.33	106.00	38.16	0.14	403,765.47	742,716.10	
7,644.00	0.88	132.48	7,640.41	4,277.81	-39.07	108.15	39.91	0.07	403,763.73	742,718.25	
7,834.00	1.06	170.01	7,830.38	4,467.78	-41.78	109.53	42.64	0.34	403,761.02	742,719.63	
7,957.00	1.06	188.73	7,953.36	4,590.76	-44.03	109.56	44.89	0.28	403,758.77	742,719.66	
8,146.00	0.79	185.91	8,142.34	4,779.74	-47.05	109.16	47.91	0.14	403,755.75	742,719.26	
8,336.00	1.41	184.60	8,332.30	4,969.70	-50.68	108.84	51.54	0.33	403,752.12	742,718.94	
8,526.00	1.41	204.99	8,522.24	5,159.64	-55.13	107.66	55.98	0.26	403,747.67	742,717.76	

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Well:	#1H	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)
8,716.00	1.58	198.04	8,712.18	5,349.58	-59.74	105.86	60.57	0.13	403,743.06	742,715.96
8,906.00	1.76	216.15	8,902.10	5,539.50	-64.59	103.33	65.40	0.29	403,738.21	742,713.43
8,960.00	3.43	199.34	8,956.04	5,593.44	-66.78	102.31	67.59	3.37	403,736.02	742,712.41
8,991.00	7.21	193.61	8,986.90	5,624.30	-69.55	101.54	70.35	12.30	403,733.25	742,711.64
9,023.00	11.78	189.41	9,018.46	5,655.86	-74.73	100.53	75.51	14.44	403,728.07	742,710.63
9,054.00	16.27	189.45	9,048.53	5,685.93	-82.14	99.30	82.91	14.48	403,720.66	742,709.40
9,086.00	19.87	188.97	9,078.94	5,716.34	-91.93	97.72	92.70	11.26	403,710.87	742,707.82
9,118.00	23.21	186.39	9,108.70	5,746.10	-103.58	96.17	104.33	10.85	403,699.22	742,706.27
9,149.00	25.68	184.26	9,136.92	5,774.32	-116.35	94.99	117.09	8.46	403,686.45	742,705.09
9,181.00	27.70	181.72	9,165.51	5,802.91	-130.70	94.25	131.43	7.25	403,672.10	742,704.35
9,213.00	29.99	180.93	9,193.54	5,830.94	-146.13	93.90	146.86	7.25	403,656.67	742,704.00
9,244.00	32.62	181.30	9,220.03	5,857.43	-162.23	93.58	162.96	8.51	403,640.57	742,703.68
9,276.00	35.70	181.74	9,246.50	5,883.90	-180.19	93.10	180.92	9.66	403,622.61	742,703.20
9,308.00	38.51	182.63	9,272.02	5,909.42	-199.48	92.36	200.20	8.94	403,603.32	742,702.46
9,339.00	41.15	181.59	9,295.82	5,933.22	-219.32	91.64	220.03	8.78	403,583.48	742,701.74
9,371.00	43.79	180.33	9,319.43	5,956.83	-240.92	91.28	241.63	8.67	403,561.88	742,701.38
9,403.00	46.78	179.76	9,341.94	5,979.34	-263.66	91.26	264.37	9.43	403,539.14	742,701.36
9,434.00	50.65	179.56	9,362.39	5,999.79	-286.95	91.40	287.66	12.49	403,515.85	742,701.50
9,466.00	55.05	179.38	9,381.71	6,019.11	-312.45	91.64	313.16	13.76	403,490.35	742,701.74
9,497.00	58.92	179.96	9,398.60	6,036.00	-338.44	91.79	339.15	12.58	403,464.36	742,701.89
9,530.00	61.99	180.78	9,414.87	6,052.27	-367.14	91.60	367.85	9.55	403,435.66	742,701.70
9,561.00	65.42	181.25	9,428.60	6,066.00	-394.92	91.11	395.63	11.15	403,407.88	742,701.21
9,593.00	68.76	181.23	9,441.05	6,078.45	-424.39	90.47	425.09	10.44	403,378.41	742,700.57
9,625.00	72.72	181.17	9,451.61	6,089.01	-454.58	89.84	455.28	12.38	403,348.22	742,699.94
9,656.00	77.21	180.95	9,459.65	6,097.05	-484.51	89.28	485.20	14.50	403,318.29	742,699.38
9,688.00	79.76	181.35	9,466.03	6,103.43	-515.86	88.65	516.54	8.06	403,286.94	742,698.75
9,720.00	80.81	181.44	9,471.43	6,108.83	-547.39	87.88	548.06	3.29	403,255.41	742,697.98

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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)
9,751.00	85.03	181.62	9,475.25	6,112.65	-578.13	87.06	578.80	13.63	403,224.67	742,697.16
9,814.00	90.57	182.89	9,477.67	6,115.07	-641.01	84.59	641.66	9.02	403,161.79	742,694.69
9,877.00	91.10	182.39	9,476.75	6,114.15	-703.94	81.68	704.56	1.16	403,098.86	742,691.78
9,941.00	91.54	179.90	9,475.28	6,112.68	-767.90	80.41	768.51	3.95	403,034.90	742,690.51
10,036.00	89.69	182.73	9,474.26	6,111.66	-862.86	78.23	863.45	3.56	402,939.94	742,688.33
10,131.00	88.90	183.20	9,475.43	6,112.83	-957.72	73.31	958.27	0.97	402,845.08	742,683.41
10,226.00	88.29	179.76	9,477.76	6,115.16	-1,052.65	70.86	1,053.17	3.68	402,750.15	742,680.96
10,321.00	89.08	181.42	9,479.94	6,117.34	-1,147.62	69.88	1,148.13	1.93	402,655.18	742,679.98
10,416.00	90.75	180.55	9,480.08	6,117.48	-1,242.60	68.25	1,243.09	1.98	402,560.20	742,678.35
10,511.00	90.13	180.78	9,479.35	6,116.75	-1,337.59	67.15	1,338.07	0.70	402,465.21	742,677.25
10,606.00	91.80	181.57	9,477.75	6,115.15	-1,432.55	65.20	1,433.02	1.94	402,370.25	742,675.30
10,702.00	91.89	180.69	9,474.66	6,112.06	-1,528.48	63.31	1,528.93	0.92	402,274.32	742,673.41
10,797.00	91.54	181.46	9,471.82	6,109.22	-1,623.42	61.52	1,623.85	0.89	402,179.38	742,671.62
10,893.00	91.80	180.46	9,469.02	6,106.42	-1,719.36	59.92	1,719.78	1.08	402,083.44	742,670.02
10,957.00	90.48	179.87	9,467.74	6,105.14	-1,783.35	59.73	1,783.76	2.26	402,019.45	742,669.83
11,020.00	90.57	179.54	9,467.17	6,104.57	-1,846.35	60.06	1,846.76	0.54	401,956.45	742,670.16
11,082.00	90.92	180.00	9,466.36	6,103.76	-1,908.34	60.31	1,908.76	0.93	401,894.46	742,670.41
11,177.00	90.40	179.78	9,465.27	6,102.67	-2,003.33	60.49	2,003.75	0.59	401,799.47	742,670.59
11,272.00	90.22	180.67	9,464.75	6,102.15	-2,098.33	60.11	2,098.74	0.96	401,704.47	742,670.21
11,368.00	91.19	180.01	9,463.57	6,100.97	-2,194.32	59.55	2,194.72	1.22	401,608.48	742,669.65
11,464.00	90.92	181.44	9,461.80	6,099.20	-2,290.29	58.33	2,290.68	1.52	401,512.51	742,668.43
11,559.00	90.84	181.10	9,460.35	6,097.75	-2,385.26	56.23	2,385.63	0.37	401,417.54	742,666.33
11,655.00	89.43	181.21	9,460.12	6,097.52	-2,481.24	54.29	2,481.59	1.47	401,321.56	742,664.39
11,750.00	89.25	178.60	9,461.21	6,098.61	-2,576.22	54.45	2,576.57	2.75	401,226.58	742,664.55
11,846.00	90.75	179.92	9,461.21	6,098.61	-2,672.21	55.69	2,672.56	2.08	401,130.59	742,665.79
11,942.00	91.36	179.37	9,459.45	6,096.85	-2,768.19	56.28	2,768.55	0.86	401,034.61	742,666.38
12,037.00	91.54	178.91	9,457.04	6,094.44	-2,863.15	57.71	2,863.51	0.52	400,939.65	742,667.81

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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)	
12,133.00	91.98	180.15	9,454.09	6,091.49	-2,959.10	58.49	2,959.47	1.37	400,843.70	742,668.59	
12,228.00	91.89	178.57	9,450.89	6,088.29	-3,054.03	59.56	3,054.41	1.66	400,748.77	742,669.66	
12,324.00	91.71	179.76	9,447.87	6,085.27	-3,149.98	60.95	3,150.36	1.25	400,652.82	742,671.05	
12,419.00	92.24	180.24	9,444.60	6,082.00	-3,244.92	60.95	3,245.30	0.75	400,557.88	742,671.05	
12,514.00	92.24	180.37	9,440.88	6,078.28	-3,339.84	60.45	3,340.22	0.14	400,462.96	742,670.55	
12,611.00	90.66	181.31	9,438.43	6,075.83	-3,436.80	59.03	3,437.16	1.90	400,366.00	742,669.13	
12,706.00	91.45	181.63	9,436.68	6,074.08	-3,531.75	56.59	3,532.09	0.90	400,271.05	742,666.69	
12,802.00	91.71	181.33	9,434.03	6,071.43	-3,627.68	54.11	3,628.00	0.41	400,175.12	742,664.21	
12,898.00	91.63	181.52	9,431.23	6,068.63	-3,723.61	51.73	3,723.90	0.21	400,079.19	742,661.83	
12,993.00	91.98	180.95	9,428.24	6,065.64	-3,818.54	49.68	3,818.81	0.70	399,984.26	742,659.78	
13,089.00	92.42	180.95	9,424.56	6,061.96	-3,914.46	48.09	3,914.71	0.46	399,888.34	742,658.19	
13,185.00	92.24	181.44	9,420.65	6,058.05	-4,010.36	46.09	4,010.60	0.54	399,792.44	742,656.19	
13,280.00	90.04	181.62	9,418.76	6,056.16	-4,105.30	43.55	4,105.51	2.32	399,697.50	742,653.65	
13,376.00	90.40	181.75	9,418.40	6,055.80	-4,201.26	40.73	4,201.45	0.40	399,601.54	742,650.83	
13,472.00	90.31	183.34	9,417.80	6,055.20	-4,297.16	36.47	4,297.31	1.66	399,505.64	742,646.57	
13,567.00	90.48	184.19	9,417.15	6,054.55	-4,391.95	30.23	4,392.05	0.91	399,410.85	742,640.33	
13,640.00	90.57	183.49	9,416.48	6,053.88	-4,464.78	25.34	4,464.84	0.97	399,338.02	742,635.44	
13,690.00	90.57	183.49	9,415.98	6,053.38	-4,514.69	22.30	4,514.72	0.00	399,288.11	742,632.40	

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Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Midland Database

Targets									
Target Name	hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude Longitude
PBHL(LORO)		0.00	0.00	9,480.00	-4,621.00	35.70	399,181.800	742,645.800	32° 5' 42.156 N 103° 32' 59.255 W
- survey misses by 124.82ft at 13690.00ft MD (9415.98 TVD, -4514.69 N, 22.30 E)									
- Point									

Checked By: _____ Approved By: _____ Date: _____



Project: Lea County
Site: Lomas Rojas "26" State Com
Well: #1H
Wellbore: OH
Plan: Plan #2 (#1H/OH)



Azimuths to Grid North
True North: -0.42°
Magnetic North: 7.34°

PATHFINDER
ANALYSIS • DESIGN • PLANNING • DRILLING

Magnetic Field
Strength: 48749.3nT
Dip Angle: 60.14°
Date: 09/28/2009
Model: IGRF200510

WELL DETAILS: #1H
Ground Elevation: 3343.60
RKB Elevation: WELL @ 3362.60ft (19' KB Correction)
Rig Name: 19' KB Correction

	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
	0.00	0.00	403502.800	742610.100	32° 6' 27.886 N	103° 32' 59.279 W	

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

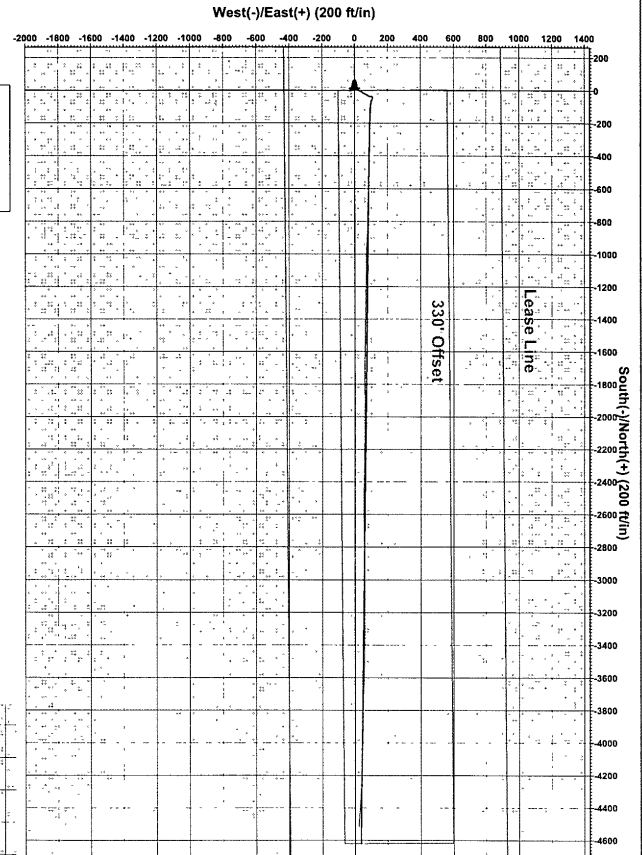
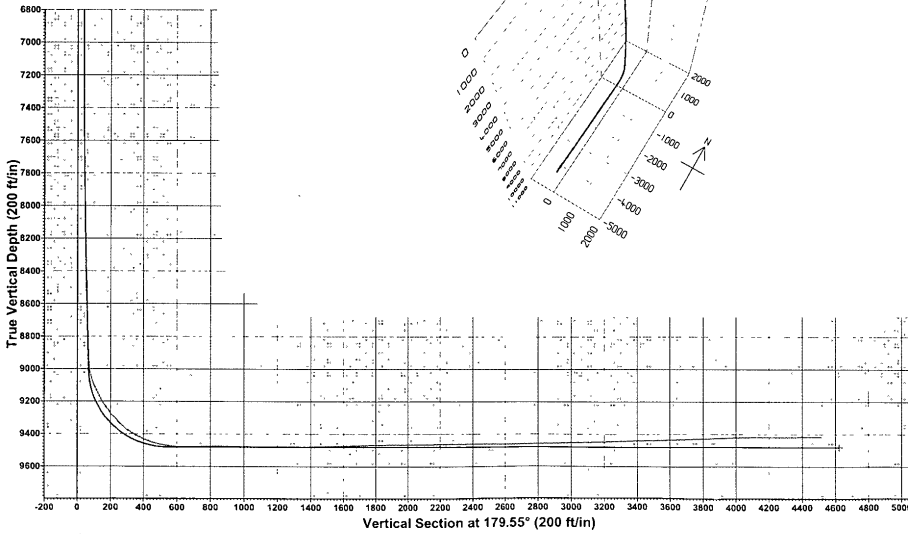
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLog	TFace	VSec	Target
1	9016.50	1.59	223.75	9012.55	-47.07	101.27	0.00	0.00	67.85	
2	9756.42	90.00	180.71	9480.00	-544.04	86.49	12.01	-43.05	544.70	
3	13833.70	90.00	180.71	9480.00	-4621.00	35.97	0.00	0.00	4621.14	PBHL(LORO)

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
PBHL(LORO)	9480.00	-4621.00	35.70	398181.800	742645.800	Point

LEGEND

- #1H, OH, Mwd #1
- Plan #2



Plan: Plan #2 (#1H/OH)

Created By: Nate Bingham Date: 8:48, December 28 2009
Checked: _____ Date: _____