Results of Directional Survey

API number:	30-025-39892			
OGRID:		Operator:	EOG RESOURCES INC	
		Property:	VACA 14 FEDERAL	# 4H

surface	ULSTR:	A	14	T	25S	R	33E
				330	FNL	660	FEL

BH Loc	ULSTR:	P	14	T	25S	R	33E
13800	MD	9470.0	TVD	358	FSL	405	FEL
				4922	FNL		

Top Perf/OH	ULSTR:	A	14	T	25S	R	33E
9718	MD	9443.4	TVD	849	FNL	622	FEL

Bot Perf/OH	ULSTR:	P	14	T	25S	R	33E
13750	MD	9470.7	TVD	408	FSL	409	FEL
				4872	FNL		

	MD	N/S	E/W	VD
	9707	-507.70	37.90	9442.3
TOP PERFS/OH	**9718**	-518.63	38.45	9443.40
	9739	-539.50	39.50	9445.50
	13658	-4450.40	242.80	9471.20
BOT PERFS/OH	**13750**	-4542.00	250.81	9470.71
	13751	-4543.00	250.90	9470.70

NEXT TO LAST	13658	-4450.40	242.80	9471.20
LAST READING	13751	-4543.00	250.90	9470.70
TD	**13800**	-4591.79	255.17	9470.44

Surface Location	330	FN	660	FE
Projected BHL	4922	FN	405	FE
Location of				
Top Perfs/OH	849	FN	622	FE
Bottom Perfs/OH	4872	FN	409	FE

SUMMARY of Subsurface Locations

Surface Location	A-14-25S-33E	330	FN	660	FE	Vert. Depth
Top Perfs/OH	A-14-25S-33E	849	FN	622	FE	9443.40
Bottom Perfs/OH	P-14-25S-33E	4872	FN	409	FE	9470.71
Projected TD	P-14-25S-33E	4922	FN	405	FE	9470.44

eog resources

EOG Resources, Inc.

Lea County
Vaca "14" Fed
#4H
OH

SUR: A-14-25s-33e, 330/N & 660/E
BHL: P-14-25s-33e, 4922/N & 405/E
API # 30-025-39892

Design: OH

PathfinderX & Y Report

18 June, 2012

PATHFINDER®
A Schlumberger Company

Company:	EOG Resources, Inc.	Local Co-ordinate Reference:	Well #4H
Project:	Lea County	TVD Reference:	KB =25 @ 3384.8usft (Cactus 139)
Site:	Vaca "14" Fed	MD Reference:	KB =25 @ 3384.8usft (Cactus 139)
Well:	#4H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

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 Vaca "14" Fed

Site Position:		Northing:	414,051.100 usft	Latitude:	32° 8' 9.097 N
From:	Map	Easting:	745,404.300 usft	Longitude:	103° 32' 25 918 W
Position Uncertainty:	0 0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.42 °

Well #4H

Well Position	+N/-S	0.0 usft	Northing:	414,392.500 usft	Latitude:	32° 8' 12 379 N
	+E/-W	0.0 usft	Easting:	746,721.700 usft	Longitude:	103° 32' 10 569 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	3,359 8 usft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	5/25/2010	7.68	60.16	48,706

Design OH

Audit Notes:

Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0 0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0 0	0.0	176.71

Company:	EOG Resources, Inc	Local Co-ordinate Reference:	Well #4H
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Well:	#4H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Survey Program — Date 6/18/2012

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	1,160.0	Gyro #1 (OH)	SRG-GYRO-MS	surface readout gyro multishot
1,331.0	13,800.0	MWD #1 (OH)	MWD	MWD - Standard

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
0.0	0 00	0 00	0.0	-3,384.8	0.0	0.0	0.0	0.00	414,392 50	746,721.70
100.0	0 47	202.34	100.0	-3,284 8	-0.4	-0.2	0 4	0.47	414,392.12	746,721.54
200.0	0 51	216.53	200.0	-3,184.8	-1.1	-0 6	1 1	0 13	414,391.38	746,721.12
300.0	0 56	220.32	300 0	-3,084.8	-1 8	-1.2	1.8	0.06	414,390 65	746,720.54
400.0	0 60	223.97	400.0	-2,984.8	-2 6	-1.8	2 5	0.05	414,389.90	746,719.86
500.0	0.62	226.81	500.0	-2,884 8	-3 3	-2.6	3.2	0.04	414,389.16	746,719.10
600.0	0.66	227.00	600.0	-2,784.8	-4 1	-3 4	3 9	0 04	414,388.39	746,718.29
700.0	0.69	250.44	700.0	-2,684.8	-4.7	-4.4	4.4	0 28	414,387 80	746,717.30
800.0	0 54	232 62	800.0	-2,584.8	-5.2	-5 3	4.9	0 24	414,387 31	746,716.36
900.0	0 30	287.36	900.0	-2,484.8	-5 4	-6 0	5.0	0 44	414,387 10	746,715.73
1,000.0	0.32	261.13	1,000.0	-2,384 8	-5 4	-6 5	5.0	0.14	414,387.14	746,715 21
1,100.0	0.26	290.52	1,100 0	-2,284 8	-5 3	-7.0	4.9	0 16	414,387.18	746,714.72
1,160.0	0 25	292 26	1,160 0	-2,224.8	-5.2	-7.2	4.8	0.02	414,387.27	746,714.47
1,331.0	0 09	283 08	1,331.0	-2,053.8	-5 1	-7 7	4.6	0 09	414,387.44	746,714.00
1,516.0	0 26	349.79	1,516 0	-1,868 8	-4.6	-7.9	4.1	0 13	414,387.89	746,713.78
1,706.0	0.44	317 01	1,706.0	-1,678.8	-3.7	-8.5	3.2	0 14	414,388.85	746,713.21
1,895.0	0.70	311.65	1,894.9	-1,489.9	-2.4	-9.9	1.8	0 14	414,390 15	746,711.85
2,085 0	0 53	299.61	2,084 9	-1,299 9	-1 1	-11.5	0 5	0.11	414,391 35	746,710.22
2,275.0	0.70	321 14	2,274.9	-1,109 9	0 2	-13 0	-0.9	0 15	414,392 69	746,708.72
2,464 0	0.35	355.86	2,463.9	-920 9	1 7	-13.7	-2.5	0 24	414,394.16	746,707.96
2,654.0	1 06	35.32	2,653.9	-730 9	3.7	-12 8	-4.4	0.43	414,396.18	746,708 93

Company:	EOG Resources, Inc	Local Co-ordinate Reference:	Well #4H
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Well:	#4H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
2,843.0	0.97	67.58	2,842 9	-541.9	5.7	-10.3	-6.3	0.30	414,398 21	746,711.42
3,034 0	1.32	68 81	3,033 8	-351.0	7.1	-6.7	-7.5	0 18	414,399.63	746,714.97
3,223 0	1 14	56.77	3,222.8	-162 0	8 9	-3.1	-9 1	0 17	414,401 44	746,718.57
3,413 0	0.70	71 44	3,412 8	28 0	10.3	-0.4	-10 4	0.26	414,402 85	746,721.25
3,603 0	1.06	73 82	3,602 7	217.9	11.2	2.3	-11 1	0.19	414,403.71	746,724.04
3,792.0	0.88	169.27	3,791.7	406.9	10.3	4.3	-10 0	0.76	414,402 77	746,725.99
3,981.0	1 32	153.53	3,980 7	595.9	6 9	5.5	-6 6	0.28	414,399.39	746,727.23
4,170 0	0 70	167.77	4,169.7	784.9	3.8	6.7	-3.4	0.35	414,396.32	746,728.44
4,360.0	0.70	122.68	4,359 6	974 8	2.1	8 0	-1.6	0.28	414,394.56	746,729.67
4,549.0	1.58	117.59	4,548 6	1,163.8	0.2	11.2	0 4	0.47	414,392 73	746,732.95
4,738.0	1 67	102.91	4,737.5	1,352.7	-1.6	16.2	2 5	0.22	414,390 90	746,737.94
4,901.0	0.97	95 53	4,900 5	1,515.7	-2 3	19.9	3.4	0.44	414,390.24	746,741 63
5,007.0	0.70	77.60	5,006 5	1,621.7	-2.2	21 5	3.4	0.35	414,390 29	746,743.16
5,196.0	1 14	302 68	5,195.5	1,810 7	-0.9	21.0	2.1	0.90	414,391.56	746,742.70
5,386.0	1.06	306.20	5,385.4	2,000 6	1.1	18 0	-0.1	0.06	414,393.61	746,739.69
5,576.0	0.70	289.41	5,575.4	2,190.6	2.5	15 5	-1.6	0.23	414,395.04	746,737.18
5,765.0	0.62	135 17	5,764.4	2,379.6	2 2	15 1	-1.3	0.68	414,394.70	746,736 81
5,954.0	0 62	187.90	5,953.4	2,568.6	0.5	15 7	0.4	0.29	414,392.96	746,737.39
6,144 0	0 53	221.30	6,143.4	2,758.6	-1 2	15 0	2.1	0 18	414,391 28	746,736.67
6,334.0	0 62	239.67	6,333.4	2,948 6	-2.4	13.5	3 2	0.11	414,390 10	746,735 20
6,523.0	0.62	128.31	6,522.4	3,137.6	-3.6	13.4	4 3	0.54	414,388.95	746,735 12
6,713.0	0 44	321.67	6,712.4	3,327.6	-3.6	13.8	4 4	0.55	414,388 89	746,735.48
6,904 0	0 44	330 37	6,903.4	3,518.6	-2.4	13.0	3.1	0.03	414,390.10	746,734.66
7,093.0	0.53	324.92	7,092.4	3,707 6	-1.1	12 1	1 7	0 05	414,391 44	746,733.80
7,278 0	0.00	262.17	7,277 3	3,892 5	-0.4	11 6	1.0	0.29	414,392 14	746,733.31
7,467 0	0 26	229 12	7,466 3	4,081.5	-0.6	11.3	1.3	0 14	414,391.86	746,732 98
7,657.0	0 26	198 62	7,656 3	4,271.5	-1.3	10 8	1.9	0 07	414,391.17	746,732.52

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Well:	#4H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
7,847.0	0 79	221.47	7,846.3	4,461 5	-2.7	9.8	3 3	0.29	414,389.78	746,731.51
8,035.0	0.97	216.90	8,034.3	4,649.5	-5 0	8.0	5.4	0 10	414,387.54	746,729.70
8,222 0	0 79	222 53	8,221.3	4,836.5	-7.2	6.2	7.5	0 11	414,385.32	746,727.88
8,410.0	0 79	191 94	8,409 3	5,024.5	-9 4	5.0	9.7	0.22	414,383.10	746,726.73
8,598.0	0 44	217.52	8,597.3	5,212 5	-11.2	4.3	11.5	0.23	414,381.26	746,726 03
8,787.0	0 79	196 42	8,786.3	5,401.5	-13.1	3.5	13 2	0.22	414,379.43	746,725.22
8,921 0	0.97	201.35	8,920 2	5,535.4	-15.0	2.8	15.1	0.15	414,377.49	746,724.54
8,953.0	3.08	176.91	8,952 2	5,567 4	-16.1	2.8	16 3	6.98	414,376 38	746,724.49
KOP - 8953.0 'MD, 8952.2 'TVD, -16.1 'N, 2.8 'E										
8,985.0	7.56	172.34	8,984.1	5,599 3	-19.1	3.1	19.2	14.05	414,373.43	746,724 82
9,016.0	12.31	172 52	9,014.6	5,629.8	-24.4	3 8	24 5	15.32	414,368.13	746,725 52
9,047.0	16.62	174.54	9,044.6	5,659.8	-32.1	4.7	32.3	14.00	414,360.44	746,726 37
9,078.0	20.40	175.42	9,074.0	5,689.2	-41.9	5.5	42.1	12.23	414,350 64	746,727.22
9,109 0	23.13	175.24	9,102 8	5,718.0	-53.3	6.5	53.6	8.81	414,339.18	746,728.16
9,141.0	26.03	175.24	9,131 9	5,747.1	-66.6	7.6	66 9	9.06	414,325.92	746,729.27
9,172.0	29.28	175.33	9,159.3	5,774 5	-80 9	8 7	81.3	10.48	414,311.58	746,730.45
9,203 0	32.01	175 33	9,186.0	5,801 2	-96.7	10 0	97.1	8 81	414,295.83	746,731.73
9,234 0	35 17	175 68	9,211.8	5,827.0	-113.8	11.4	114.2	10 21	414,278 74	746,733.08
9,266.0	37.81	177.09	9,237 6	5,852.8	-132.8	12.6	133 3	8 66	414,259 75	746,734 27
9,297 0	40.36	177 35	9,261.6	5,876.8	-152.3	13.5	152.8	8 24	414,240.23	746,735.22
9,328 0	43.44	177.35	9,284.7	5,899.9	-172.9	14.5	173.5	9 94	414,219.55	746,736 17
9,360.0	47 48	176 39	9,307.1	5,922.3	-195 7	15 7	196.3	12 80	414,196.78	746,737.42
9,391.0	51 00	175 33	9,327.4	5,942.6	-219.1	17.4	219.8	11 65	414,173.37	746,739.12
9,422.0	53.99	175.07	9,346.2	5,961.4	-243.6	19 5	244.4	9 67	414,148.86	746,741.18
9,453 0	57.33	174 63	9,363 7	5,978 9	-269 1	21.8	269 9	10.84	414,123.37	746,743.48
9,485.0	61.29	174 98	9,380.0	5,995 2	-296 5	24 3	297 4	12 41	414,095.97	746,745.97
9,517 0	65.07	175.51	9,394 5	6,009.7	-325.0	26 6	326 0	11 90	414,067.52	746,748.34

Company:	EOG Resources, Inc.	**Local Co-ordinate Reference:**	Well #4H
Project:	Lea County	**TVD Reference:**	KB =25 @ 3384 8usft (Cactus 139)
Site:	Vaca "14" Fed	**MD Reference:**	KB =25 @ 3384.8usft (Cactus 139)
Well:	#4H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	OH	**Database:**	EDM 5000.1 Single User Db

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
9,549.0	69 64	175.59	9,406 8	6,022.0	-354.4	28.9	355.5	14 28	414,038.08	746,750 63
9,580.0	72.72	175.68	9,416.8	6,032.0	-383.7	31.2	384.8	9.94	414,008.83	746,752.86
9,611.0	75.62	176.30	9,425.3	6,040.5	-413 4	33.2	414.6	9.55	413,979 08	746,754 94
9,643.0	78.88	177.18	9,432 3	6,047 5	-444.6	35.0	445.9	10.53	413,947.93	746,756.72
9,674.0	81 07	177 70	9,437 7	6,052 9	-475 1	36 4	476.4	7.26	413,917.43	746,758.08
9,707.0	82 83	176 91	9,442.3	6,057.5	-507 7	37.9	509.0	5.84	413,884.79	746,759.62
9,739.0	85 74	177 53	9,445.5	6,060.7	-539.5	39 5	540.9	9.30	413,852 99	746,761 16
9,769 0	88.81	177.62	9,446 9	6,062.1	-569.4	40 7	570 8	10.24	413,823.06	746,762.43
9,801.0	90 22	177.62	9,447 2	6,062 4	-601.4	42.1	602.8	4.41	413,791 09	746,763.76
LP - 9801.0 'MD, 9447.2 'TVD, -601.4 'N, 42.1 'E										
9,894.0	90.57	178 14	9,446 6	6,061.8	-694.3	45.5	695 8	0.67	413,698.15	746,767 20
9,988.0	89.60	179.11	9,446 4	6,061.6	-788.3	47.8	789.8	1.46	413,604 18	746,769 45
10,082.0	91.80	179.64	9,445.3	6,060.5	-882.3	48.8	883.6	2 41	413,510 20	746,770.48
10,177 0	90.48	178 93	9,443.4	6,058 6	-977 3	50.0	978.5	1.58	413,415 23	746,771.66
10,270.0	90.22	177 35	9,442.8	6,058.0	-1,070 2	53.0	1,071 5	1 72	413,322.29	746,774.68
10,365.0	88.64	175.42	9,443.8	6,059.0	-1,165.0	59.0	1,166.5	2.63	413,227.49	746,780.67
10,458.0	88.11	174.71	9,446 4	6,061.6	-1,257.6	67 0	1,259.4	0.95	413,134.87	746,788 67
10,553 0	88.20	174 36	9,449.5	6,064.7	-1,352.1	76 0	1,354 3	0.38	413,040 35	746,797 71
10,647.0	90.31	174 10	9,450.7	6,065 9	-1,445 7	85.5	1,448.2	2.26	412,946.84	746,807 16
10,742.0	92.51	177.70	9,448.4	6,063.6	-1,540.4	92.3	1,543.1	4 44	412,852.13	746,813 95
10,835.0	94 44	178 23	9,442 7	6,057.9	-1,633 1	95.5	1,635.9	2.15	412,759.37	746,817 25
10,930.0	95 23	178 23	9,434.7	6,049.9	-1,727.7	98.5	1,730 6	0 83	412,664.75	746,820 17
11,025 0	89.69	178.06	9,430.6	6,045.8	-1,822 6	101.5	1,825.4	5.83	412,569.93	746,823 24
11,119.0	90.31	177 62	9,430.6	6,045.8	-1,916 5	105.1	1,919 4	0.81	412,475.99	746,826 78
11,212.0	88.99	176.91	9,431.2	6,046 4	-2,009.4	109.5	2,012 4	1.61	412,383 10	746,831 22
11,308 0	89 78	177.26	9,432.2	6,047.4	-2,105 3	114.4	2,108 4	0.90	412,287 23	746,836.10
11,401.0	89.43	177.70	9,432 9	6,048.1	-2,198.2	118.5	2,201 4	0.60	412,194.33	746,840 19

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Well:	#4H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
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Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
11,495.0	89 43	177.26	9,433.8	6,049.0	-2,292.1	122.6	2,295.3	0.47	412,100.42	746,844 33
11,589.0	88.46	176.30	9,435.5	6,050.7	-2,385 9	127.9	2,389 3	1 45	412,006.59	746,849.60
11,685.0	88 55	175.86	9,438.0	6,053.2	-2,481 7	134.5	2,485 3	0 47	411,910.85	746,856.17
11,779 0	87.23	175.59	9,441.5	6,056 7	-2,575 3	141.5	2,579.2	1.43	411,817.17	746,863.17
11,873.0	90 75	179.02	9,443.2	6,058 4	-2,669.2	145.9	2,673.2	5.23	411,723.32	746,867.58
11,967.0	89 96	178.58	9,442 6	6,057.8	-2,763.2	147.9	2,767 1	0 96	411,629.34	746,869.55
12,061 0	88.55	178.85	9,443.8	6,059 0	-2,857 1	150.0	2,861.0	1.53	411,535.38	746,871.66
12,155.0	87 58	176.74	9,447.0	6,062 2	-2,951.0	153 6	2,954 9	2.47	411,441.51	746,875.27
12,248.0	89 60	177.88	9,449.3	6,064 5	-3,043.9	157 9	3,047 9	2.49	411,348.65	746,879.64
12,342.0	88 64	177.26	9,450.7	6,065.9	-3,137.8	161 9	3,141 9	1 22	411,254.74	746,883 62
12,437.0	88.02	174.89	9,453.5	6,068 7	-3,232.5	168 4	3,236 8	2.58	411,160.01	746,890 12
12,531.0	91.19	177 09	9,454.1	6,069 3	-3,326.2	175.0	3,330 8	4 10	411,066 26	746,896.69
12,625.0	89.60	176 30	9,453.5	6,068 7	-3,420.1	180.4	3,424.8	1.89	410,972 42	746,902.11
12,720.0	89.43	176.12	9,454.3	6,069 5	-3,514.9	186.7	3,519.8	0.26	410,877 64	746,908 39
12,814.0	89 87	177.97	9,454.9	6,070 1	-3,608.7	191.5	3,613.8	2.02	410,783 77	746,913 24
12,907.0	88 72	179.43	9,456.0	6,071 2	-3,701 7	193.6	3,706.7	2 00	410,690 80	746,915 35
13,002.0	89.96	180.44	9,457.1	6,072.3	-3,796 7	193.8	3,801.5	1 68	410,595.81	746,915 45
13,095.0	88.90	176 76	9,458.0	6,073 2	-3,889.6	196.0	3,894.5	4 12	410,502.86	746,917.72
13,189.0	89.69	175.18	9,459 2	6,074.4	-3,983 4	202.6	3,988.5	1 88	410,409.10	746,924.33
13,282.0	89.87	174 82	9,459 5	6,074.7	-4,076.0	210.7	4,081.4	0 43	410,316.46	746,932.44
13,375 0	89 87	174.88	9,459.7	6,074.9	-4,168.7	219.1	4,174.4	0 06	410,223.83	746,940.78
13,469.0	86.09	175 57	9,463.1	6,078.3	-4,262 3	226.9	4,268 3	4 09	410,130 24	746,948.60
13,563.0	87 49	175.26	9,468.3	6,083.5	-4,355.8	234.4	4,362.1	1.53	410,036 69	746,956.11
13,658.0	88.99	174.64	9,471 2	6,086.4	-4,450.4	242.8	4,457.0	1 71	409,942 10	746,964.46
13,751.0	91.63	175 38	9,470 7	6,085 9	-4,543.0	250 9	4,549.9	2 95	409,849.47	746,972 55
13,800.0	91 63	175 38	9,469 3	6,084 5	-4,591.9	254 8	4,598.9	0.00	409,800 65	746,976 50

BHL - 13800.0 'MD, 9469.3 'TVD, -4591.9 'N, 254.8 'E

Company:	EOG Resources, Inc.	Local Co-ordinate Reference:	Well #4H
Project:	Lea County	TVD Reference:	KB =25 @ 3384.8usft (Cactus 139)
Site:	Vaca "14" Fed	MD Reference:	KB =25 @ 3384.8usft (Cactus 139)
Well:	#4H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
8,953.0	8,952.2	-16.1	2.8	KOP - 8953.0 'MD, 8952.2 'TVD, -16.1 'N, 2 8 'E
9,801.0	9,447.2	-601 4	42.1	LP - 9801.0 'MD, 9447.2 'TVD, -601.4 'N, 42.1 'E
13,800.0	9,469.3	-4,591.9	254.8	BHL - 13800.0 'MD, 9469.3 'TVD, -4591.9 'N, 254.8 'E

Checked By: _____ Approved By: _____ Date: _____

Vaca 14 #4H

Stage Number	Cluster Top	Cluster Bottom
1	13,750	13,751
1	13,692	13,693
1	13,634	13,635
1	13,576	13,577
2	13,516	13,517
2	13,460	13,461
2	13,402	13,403
2	13,350	13,351
3	13,286	13,287
3	13,228	13,229
3	13,170	13,171
3	13,112	13,113
4	13,054	13,055
4	12,996	12,997
4	12,938	12,939
4	12,888	12,889
5	12,824	12,825
5	12,764	12,765
5	12,706	12,707
5	12,646	12,647
6	12,590	12,591
6	12,532	12,533
6	12,474	12,475
6	12,416	12,417
7	12,358	12,359
7	12,300	12,301
7	12,242	12,243
7	12,184	12,185
8	12,126	12,127
8	12,068	12,069
8	12,010	12,011
8	11,952	11,953
9	11,894	11,895
9	11,836	11,837
9	11,778	11,779
9	11,720	11,721
10	11,662	11,663
10	11,604	11,605
10	11,546	11,547
10	11,488	11,489
11	11430	11431

SUR: A-14-25s-33e, 330/N & 660/E
BHL: P-14-25s-33e, 4922/N & 405/E
API # 30-025-39892

11	11,370	11,371
11	11,314	11,315
11	11,256	11,257
12	11,194	11,195
12	11,140	11,141
12	11,082	11,083
12	11,030	11,031
13	10,966	10,967
13	10,908	10,909
13	10,850	10,851
13	10,792	10,793
14	10,734	10,735
14	10,676	10,677
14	10,618	10,619
14	10,560	10,561
15	10,502	10,503
15	10,444	10,445
15	10,386	10,387
15	10,328	10,329
16	10,270	10,271
16	10,212	10,213
16	10,154	10,155
16	10,093	10,094
17	10,038	10,039
17	9,996	9,997
17	9,922	9,923
17	9,864	9,865
18	9,806	9,807
18	9,776	9,777
18	9,748	9,749
18	9,718	9,719

Vaca 14 #4H

Stage Number	Total Shots	Acid type descr	Acid Volume	Acid Flush Volume	BBL Load	Frac fld type descr	Fracture Volume	Fracture Flush Volume	Total BBLs	Total Load	100 Mesh	40/70	Total Numbers All Prop
1	32	7 1/2 % HCL	80	565	645	SLICKWATER	7,999	439	8,438	9,083	193,700	94,820	288,520
2	32	7 1/2 % HCL	40	357	397	SLICKWATER	6,649	428	7,077	7,474	144,020	144,420	288,440
3	32	7 1/2 % HCL	40	302	342	SLICKWATER	6,814	426	7,240	7,582	144,360	143,920	288,280
4	32	7 1/2 % HCL	40	311	351	SLICKWATER	6,582	419	7,001	7,352	143,500	191,680	335,180
5	32	7 1/2 % HCL	40	294	334	SLICKWATER	6,306	413	6,719	7,053	144,420	192,780	337,200
6	32	7 1/2 % HCL	40	630	670	SLICKWATER	6,471	406	6,877	7,547	143,360	191,020	334,380
7	32	7 1/2 % HCL	40	286	326	SLICKWATER	6,412	407	6,819	7,145	142,700	191,260	333,960
8	32	7 1/2 % HCL	40	290	330	SLICKWATER	6,388	397	6,785	7,115	144,960	191,100	336,060
9	32	7 1/2 % HCL	40	285	325	SLICKWATER	6,442	392	6,834	7,159	145,340	190,320	335,660
10	32	7 1/2 % HCL	40	282	322	SLICKWATER	6,377	382	6,759	7,081	139,940	188,400	328,340
11	32	7 1/2 % HCL	40	270	310	SLICKWATER	7,409	383	7,792	8,102	142,200	193,580	335,780
12	32	7 1/2 % HCL	40	336	376	SLICKWATER	6,338	376	6,714	7,090	143,600	191,860	335,460
13	32	7 1/2 % HCL	40	272	312	SLICKWATER	6,271	371	6,642	6,954	143,080	192,360	335,440
14	32	7 1/2 % HCL	40	288	328	SLICKWATER	6,318	366	6,684	7,012	144,100	191,100	335,200
15	32	7 1/2 % HCL	40	262	302	SLICKWATER	6,161	360	6,521	6,823	141,030	190,600	331,630
16	32	7 1/2 % HCL	40	238	278	SLICKWATER	6,359	352	6,711	6,989	145,360	189,980	335,340
17	32	7 1/2 % HCL	40	237	277	SLICKWATER	6,342	364	6,706	6,983	144,240	191,920	336,160
18	32	7 1/2 % HCL	40	233	273	SLICKWATER	6,331	639	6,970	7,243	143,860	191,140	335,000
	Total Shots		Total Acid	Total Flush	Total Acid BBLS		Total Frac Vol	Total Frac Flush	Total Frac BBLS	Total Load	Total 100 Mesh	Total 40/70	Total Prop
	576	7 1/2 % HCL	760	5,738	6,498	SLICKWATER	117,969	7,320	125,289	131,787	2,633,770	3,252,260	5,886,030