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EOG Resources - Midland

Lea County, NM (NAD 27 NME)

Hearns 27 State Com

#301H

OH

Design: OH

Standard Survey Report

06 December, 2014

MAR 10 2015



EOG Resources, Inc.

Survey Report

Company:	EOG Resources - Midland		Local Co-ordinate Reference:	Well #301H	
Project:	Lea County, NM (NAD 27 NME)		TVD Reference:	KB = 25 @ 3505.0usft (H&P 260)	
Site:	Hearns 27 State Corn		MD Reference:	KB = 25 @ 3505.0usft (H&P 260)	
Well:	#301H		North Reference:	Grid	
Wellbore:	OH		Survey Calculation Method:	Minimum Curvature	
Design:	OH		Database:	EDM 5000.1 Single User Db	

Project	Lea County, NM (NAD 27 NME)				
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	Hearns 27 State Corn				
Site Position:		Northing:	430,710.00 usft	Latitude:	32° 10' 54.484 N
From:	Map	Easting:	737,910.00 usft	Longitude:	103° 33' 51.687 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.41 °

Well	#301H					
Well Position	+N/-S	0.0 usft	Northing:	430,705.00 usft	Latitude:	32° 10' 54.477 N
	+E/-W	0.0 usft	Easting:	737,310.00 usft	Longitude:	103° 33' 58.668 W
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	3,480.0 usft	

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF201014	11/18/2014	7.16	60.06	48,248

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	177.18	

Survey Program	Date 12/6/2014				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
184.0	15,402.0	Dritech MWD#1 (OH)	MWD	MWD - Standard	

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
184.0	0.70	279.00	184.0	0.2	-1.1	-0.2	0.38	0.38	0.00	
304.0	0.40	264.10	304.0	0.2	-2.3	-0.4	0.27	-0.25	-12.42	
394.0	0.90	109.80	394.0	0.0	-1.9	-0.1	1.41	0.56	-171.44	
487.0	1.10	114.20	487.0	-0.6	-0.4	0.6	0.23	0.22	4.73	
610.0	1.40	114.00	609.9	-1.7	2.1	1.8	0.24	0.24	-0.16	
701.0	1.60	117.00	700.9	-2.8	4.2	3.0	0.24	0.22	3.30	
794.0	1.60	113.40	793.9	-3.9	6.5	4.2	0.11	0.00	-3.87	
885.0	1.80	113.10	884.8	-4.9	9.0	5.4	0.22	0.22	-0.33	
978.0	1.90	108.40	977.8	-6.0	11.8	6.6	0.20	0.11	-5.05	



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Well:	#301H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,073.0	1.90	105.50	1,072.7	-6.9	14.8	7.6	0.10	0.00	-3.05
1,271.0	1.20	102.20	1,270.7	-8.2	20.0	9.2	0.36	-0.35	-1.67
1,460.0	1.80	34.90	1,459.6	-6.2	23.7	7.4	0.92	0.32	-35.61
1,649.0	1.40	35.20	1,648.5	-1.9	26.7	3.2	0.21	-0.21	0.16
1,838.0	1.40	25.60	1,837.5	2.1	29.0	-0.6	0.12	0.00	-5.08
2,028.0	2.50	48.10	2,027.4	6.9	33.1	-5.3	0.69	0.58	11.84
2,217.0	2.30	40.50	2,216.2	12.6	38.6	-10.7	0.20	-0.11	-4.02
2,407.0	2.30	36.60	2,406.0	18.5	43.4	-16.4	0.08	0.00	-2.05
2,596.0	1.80	66.90	2,594.9	22.7	48.4	-20.3	0.62	-0.26	16.03
2,786.0	2.10	51.20	2,784.8	26.1	53.8	-23.4	0.32	0.16	-8.26
2,975.0	1.80	85.50	2,973.7	28.5	59.5	-25.5	0.63	-0.16	18.15
3,165.0	1.60	85.10	3,163.6	29.0	65.1	-25.7	0.11	-0.11	-0.21
3,355.0	1.80	77.90	3,353.6	29.8	70.7	-26.3	0.15	0.11	-3.79
3,544.0	1.90	94.10	3,542.5	30.2	76.7	-26.4	0.28	0.05	8.57
3,734.0	1.60	81.60	3,732.4	30.4	82.5	-26.3	0.25	-0.16	-6.58
3,923.0	1.80	117.50	3,921.3	29.4	87.7	-25.0	0.56	0.11	18.99
4,112.0	1.20	105.90	4,110.2	27.5	92.3	-22.9	0.35	-0.32	-6.14
4,302.0	0.50	91.10	4,300.2	26.9	95.0	-22.2	0.38	-0.37	-7.79
4,491.0	1.40	94.30	4,489.2	26.7	98.1	-21.9	0.48	0.48	1.69
4,680.0	1.80	103.40	4,678.1	25.9	103.3	-20.7	0.25	0.21	4.81
4,870.0	3.30	119.80	4,867.9	22.5	111.0	-17.0	0.87	0.79	8.63
5,004.0	3.20	108.00	5,001.7	19.4	117.9	-13.6	0.50	-0.07	-8.81
5,132.0	2.80	113.30	5,129.5	17.0	124.1	-10.9	0.38	-0.31	4.14
5,321.0	1.60	128.20	5,318.4	13.6	130.4	-7.1	0.70	-0.63	7.88
5,511.0	2.10	77.40	5,508.3	12.7	135.9	-6.0	0.87	0.26	-26.74
5,700.0	2.50	70.00	5,697.1	14.9	143.2	-7.8	0.26	0.21	-3.92
5,889.0	2.60	70.90	5,886.0	17.7	151.1	-10.2	0.06	0.05	0.48
6,079.0	2.50	69.20	6,075.8	20.6	159.1	-12.7	0.07	-0.05	-0.89
6,268.0	2.50	64.80	6,264.6	23.8	166.6	-15.5	0.10	0.00	-2.33
6,458.0	2.50	57.20	6,454.4	27.8	173.9	-19.2	0.17	0.00	-4.00
6,647.0	2.60	58.30	6,643.2	32.3	181.0	-23.3	0.06	0.05	0.58
6,837.0	2.60	53.00	6,833.0	37.1	188.1	-27.8	0.13	0.00	-2.79
7,026.0	1.20	25.20	7,021.9	41.5	192.4	-32.0	0.87	-0.74	-14.71
7,216.0	1.20	22.60	7,211.9	45.1	194.0	-35.5	0.03	0.00	-1.37
7,405.0	1.10	19.10	7,400.8	48.7	195.3	-39.0	0.06	-0.05	-1.85
7,595.0	1.10	6.20	7,590.8	52.2	196.1	-42.5	0.13	0.00	-6.79
7,784.0	0.70	16.40	7,779.8	55.1	196.6	-45.4	0.23	-0.21	5.40
7,973.0	0.50	24.90	7,968.8	57.0	197.3	-47.2	0.12	-0.11	4.50
8,163.0	0.50	62.80	8,158.8	58.1	198.4	-48.3	0.17	0.00	19.95
8,352.0	0.20	159.70	8,347.8	58.2	199.2	-48.3	0.30	-0.16	51.27
8,542.0	0.20	108.50	8,537.8	57.8	199.7	-47.9	0.09	0.00	-26.95
8,731.0	0.20	72.50	8,726.8	57.8	200.3	-47.8	0.07	0.00	-19.05
8,921.0	0.40	182.90	8,916.8	57.2	200.6	-47.3	0.27	0.11	58.11
9,110.0	0.40	154.90	9,105.8	55.9	200.8	-46.0	0.10	0.00	-14.81



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Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
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Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,300.0	0.40	135.90	9,295.7	54.9	201.6	-44.9	0.07	0.00	-10.00
9,489.0	0.40	140.70	9,484.7	53.9	202.5	-43.8	0.02	0.00	2.54
9,678.0	0.00	26.30	9,673.7	53.4	202.9	-43.3	0.21	-0.21	0.00
9,730.0	0.50	53.50	9,725.7	53.5	203.1	-43.4	0.96	0.96	0.00
9,778.0	3.00	144.00	9,773.7	52.6	204.0	-42.5	6.35	5.21	188.54
9,825.0	10.00	171.50	9,820.4	47.6	205.3	-37.4	15.89	14.89	58.51
9,872.0	16.40	170.20	9,866.1	37.0	207.0	-26.8	13.63	13.62	-2.77
9,919.0	20.90	176.90	9,910.7	22.1	208.6	-11.8	10.59	9.57	14.26
9,967.0	22.90	175.00	9,955.2	4.2	209.9	6.1	4.42	4.17	-3.96
10,014.0	25.90	170.90	9,998.0	-15.0	212.3	25.5	7.33	6.38	-8.72
10,062.0	28.20	169.30	10,040.7	-36.5	216.1	47.1	5.03	4.79	-3.33
10,109.0	34.10	175.10	10,081.0	-60.6	219.3	71.3	14.07	12.55	12.34
10,157.0	40.50	175.70	10,119.1	-89.6	221.6	100.4	13.35	13.33	1.25
10,204.0	48.00	174.60	10,152.8	-122.2	224.4	133.1	16.04	15.96	-2.34
10,251.0	53.10	180.60	10,182.6	-158.4	225.8	169.4	14.65	10.85	12.77
10,298.0	59.60	183.90	10,208.7	-197.5	224.2	208.3	15.01	13.83	7.02
10,346.0	63.20	185.30	10,231.6	-239.5	220.9	250.1	7.92	7.50	2.92
10,393.0	65.60	188.20	10,251.9	-281.6	215.9	291.9	7.55	5.11	6.17
10,441.0	66.90	187.10	10,271.3	-325.1	210.0	335.1	3.43	2.71	-2.29
10,488.0	72.30	183.40	10,287.7	-369.0	206.0	378.7	13.65	11.49	-7.87
10,535.0	75.70	178.70	10,300.6	-414.1	205.2	423.7	12.03	7.23	-10.00
10,582.0	78.80	178.80	10,311.0	-460.0	206.2	469.5	6.60	6.60	0.21
10,630.0	81.10	178.50	10,319.4	-507.2	207.3	516.8	4.83	4.79	-0.63
10,661.1	83.52	178.60	10,323.5	-538.0	208.1	547.6	7.80	7.79	0.32
Cross HL @ 10661.1' MD; 10323.5' TVD									
10,725.0	88.50	178.80	10,328.0	-601.7	209.5	611.3	7.80	7.79	0.31
10,819.0	89.40	178.50	10,329.7	-695.7	211.8	705.3	1.01	0.96	-0.32
10,914.0	88.90	178.80	10,331.1	-790.6	214.0	800.2	0.61	-0.53	0.32
11,009.0	87.60	179.50	10,334.0	-885.6	215.4	895.1	1.55	-1.37	0.74
11,104.0	87.40	179.40	10,338.1	-980.5	216.3	989.9	0.24	-0.21	-0.11
11,198.0	88.50	179.20	10,341.5	-1,074.4	217.5	1,083.8	1.19	1.17	-0.21
11,293.0	88.70	179.50	10,343.8	-1,169.4	218.5	1,178.7	0.38	0.21	0.32
11,388.0	88.20	179.50	10,346.4	-1,264.3	219.4	1,273.6	0.53	-0.53	0.00
11,482.0	89.70	179.40	10,348.1	-1,358.3	220.3	1,367.5	1.60	1.60	-0.11
11,577.0	91.80	179.50	10,346.9	-1,453.3	221.2	1,462.4	2.21	2.21	0.11
11,672.0	91.50	180.20	10,344.1	-1,548.3	221.4	1,557.3	0.80	-0.32	0.74
11,767.0	91.80	179.40	10,341.4	-1,643.2	221.8	1,652.1	0.90	0.32	-0.84
11,861.0	91.70	179.00	10,338.5	-1,737.2	223.1	1,746.0	0.44	-0.11	-0.43
11,956.0	89.60	178.80	10,337.5	-1,832.1	224.9	1,841.0	2.22	-2.21	-0.21
12,051.0	88.50	179.40	10,339.0	-1,927.1	226.4	1,935.9	1.32	-1.16	0.63
12,146.0	88.70	179.50	10,341.4	-2,022.1	227.3	2,030.8	0.24	0.21	0.11
12,240.0	91.50	181.10	10,341.2	-2,116.1	226.8	2,124.7	3.43	2.98	1.70
12,335.0	90.30	180.80	10,339.7	-2,211.0	225.2	2,219.4	1.30	-1.26	-0.32



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Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
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12,430.0	90.30	180.80	10,339.2	-2,306.0	223.9	2,314.3	0.00	0.00	0.00
12,524.0	90.10	178.80	10,338.9	-2,400.0	224.2	2,408.2	2.14	-0.21	-2.13
12,619.0	89.20	179.90	10,339.5	-2,495.0	225.3	2,503.1	1.50	-0.95	1.16
12,714.0	89.70	180.60	10,340.4	-2,590.0	224.9	2,597.9	0.91	0.53	0.74
12,809.0	91.00	181.70	10,339.8	-2,685.0	223.0	2,692.7	1.79	1.37	1.16
12,903.0	89.70	180.20	10,339.2	-2,779.0	221.4	2,786.5	2.11	-1.38	-1.60
12,998.0	88.20	180.40	10,341.0	-2,873.9	220.9	2,881.3	1.59	-1.58	0.21
13,093.0	86.70	180.80	10,345.2	-2,968.8	219.9	2,976.1	1.63	-1.58	0.42
13,188.0	86.70	180.20	10,350.6	-3,063.7	219.1	3,070.8	0.63	0.00	-0.63
13,282.0	87.60	180.10	10,355.3	-3,157.6	218.9	3,164.5	0.96	0.96	-0.11
13,377.0	89.60	178.70	10,357.6	-3,252.5	219.9	3,259.4	2.57	2.11	-1.47
13,472.0	89.60	177.40	10,358.3	-3,347.5	223.1	3,354.4	1.37	0.00	-1.37
13,566.0	88.00	177.40	10,360.3	-3,441.3	227.4	3,448.4	1.70	-1.70	0.00
13,661.0	93.60	178.80	10,358.9	-3,536.2	230.5	3,543.3	6.08	5.89	1.47
13,756.0	92.40	178.80	10,354.0	-3,631.1	232.5	3,638.1	1.26	-1.26	0.00
13,850.0	88.70	178.70	10,353.1	-3,725.0	234.5	3,732.1	3.94	-3.94	-0.11
13,945.0	88.70	179.00	10,355.2	-3,820.0	236.5	3,827.0	0.32	0.00	0.32
14,040.0	87.40	178.80	10,358.5	-3,914.9	238.3	3,921.9	1.38	-1.37	-0.21
14,135.0	88.20	178.30	10,362.1	-4,009.8	240.7	4,016.8	0.99	0.84	-0.53
14,229.0	88.50	178.50	10,364.8	-4,103.7	243.3	4,110.7	0.38	0.32	0.21
14,324.0	87.60	178.10	10,368.0	-4,198.6	246.1	4,205.7	1.04	-0.95	-0.42
14,419.0	88.20	177.40	10,371.5	-4,293.5	249.8	4,300.6	0.97	0.63	-0.74
14,513.0	89.90	178.50	10,373.1	-4,387.4	253.2	4,394.6	2.15	1.81	1.17
14,608.0	89.00	178.10	10,374.0	-4,482.4	256.0	4,489.6	1.04	-0.95	-0.42
14,703.0	90.10	178.10	10,374.7	-4,577.3	259.2	4,584.5	1.16	1.16	0.00
14,797.0	92.90	177.80	10,372.3	-4,671.2	262.5	4,678.5	3.00	2.98	-0.32
14,892.0	87.60	178.10	10,371.9	-4,766.1	265.9	4,773.4	5.59	-5.58	0.32
14,987.0	87.80	178.50	10,375.7	-4,861.0	268.7	4,868.3	0.47	0.21	0.42
15,081.0	90.10	179.00	10,377.4	-4,955.0	270.8	4,962.3	2.50	2.45	0.53
15,176.0	90.10	179.00	10,377.2	-5,050.0	272.5	5,057.2	0.00	0.00	0.00
15,253.0	90.26	178.59	10,377.0	-5,126.9	274.1	5,134.2	0.57	0.21	-0.53
Cross HL @ 15253.0' MD; 10377.0' TVD									
15,270.0	90.30	178.50	10,376.9	-5,143.9	274.5	5,151.2	0.57	0.21	-0.53
15,336.0	90.60	179.40	10,376.4	-5,209.9	275.7	5,217.2	1.44	0.45	1.36
15,402.0	90.60	179.40	10,375.7	-5,275.9	276.4	5,283.1	0.00	0.00	0.00

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
10,661.1	10,323.5	-538.0	208.1	Cross HL @ 10661.1' MD; 10323.5' TVD
15,253.0	10,377.0	-5,126.9	274.1	Cross HL @ 15253.0' MD; 10377.0' TVD



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Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #301H
Project:	Lea County, NM (NAD 27 NME)	TVD Reference:	KB = 25 @ 3505.0usft (H&P 260)
Site:	Hearns 27 State Com	MD Reference:	KB = 25 @ 3505.0usft (H&P 260)
Well:	#301H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Checked By: _____	Approved By: _____	Date: _____
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