



Lea County, NM (NAD 83 NME)

Antietam 9 Fed Com #704H

H&P 610

Plan #1

PROJECT DETAILS: Lea County, NM (NAD 83 NME)

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level

WELL DETAILS: #704H

KB = 25 @ 3465.0ust (H&P 610) 3440.0
Northing 419815.00 Easting 774728.00 Latitude 32° 9' 6.850 N Longitude 103° 34' 45.103 W

SECTION DETAILS

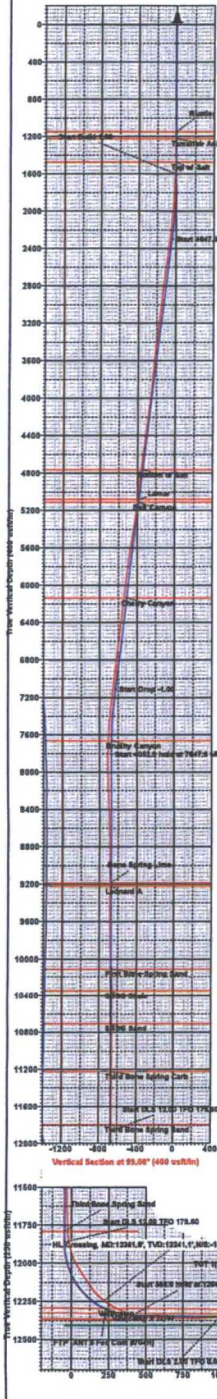
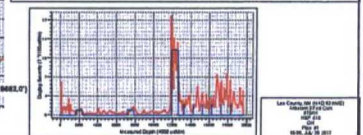
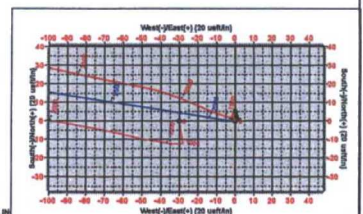
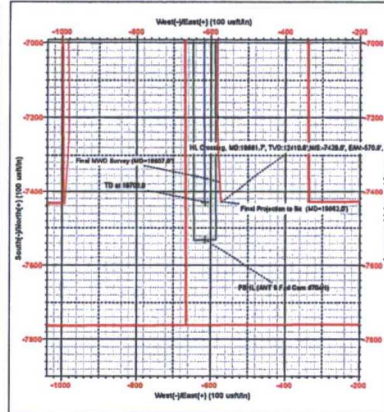
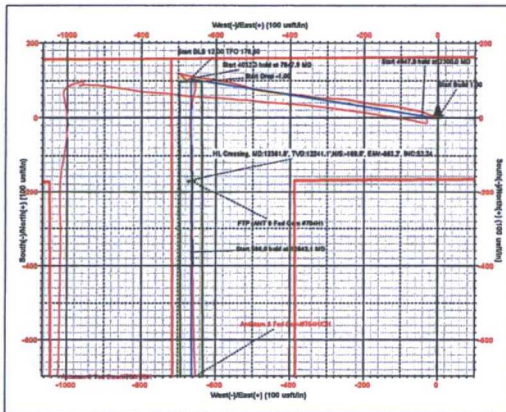
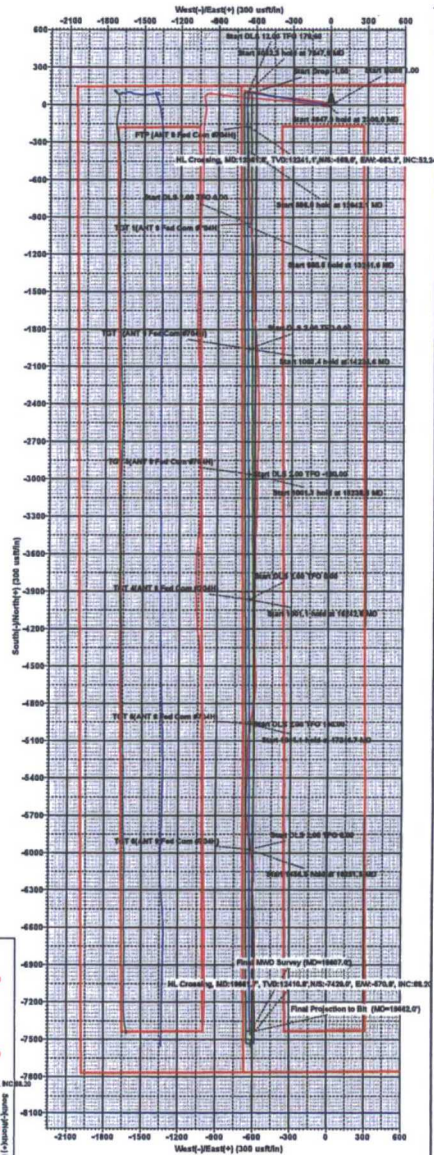
Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	Vsect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1600.0	0.00	0.00	1600.0	0.0	0.0	0.00	0.00	0.0	
3	2300.0	7.00	279.00	2298.3	6.7	-42.2	1.00	279.00	-3.2	
4	7147.9	7.00	279.00	7110.0	99.1	-525.7	0.00	0.00	-47.1	
5	7847.9	0.00	0.00	7808.3	105.8	-667.9	1.00	180.00	-50.3	
6	11900.2	0.00	0.00	11860.6	105.8	-667.9	0.00	0.00	-50.3	
7	12642.1	89.02	179.60	12338.0	-363.5	-664.6	12.00	179.60	417.2	
8	13228.0	89.02	179.60	12348.0	-949.4	-660.6	0.00	0.00	1000.7	TGT 1 (ANT 9 Fed Com #704H)
9	13251.6	89.49	179.60	12348.3	-972.9	-660.4	2.00	0.00	1024.1	TGT 2 (ANT 9 Fed Com #704H)
10	14232.0	89.49	179.60	12357.0	-1953.3	-653.6	0.00	0.00	2000.6	TGT 3 (ANT 9 Fed Com #704H)
11	14234.6	89.54	179.60	12357.0	-1955.9	-653.6	2.00	0.00	2003.2	TGT 4 (ANT 9 Fed Com #704H)
12	15236.0	89.54	179.60	12365.0	-2957.2	-646.7	0.00	0.00	3000.5	TGT 5 (ANT 9 Fed Com #704H)
13	15238.8	89.49	179.60	12365.0	-2960.1	-646.7	2.00	180.00	3003.4	TGT 6 (ANT 9 Fed Com #704H)
14	16239.9	89.49	179.60	12374.0	-3961.1	-639.7	0.00	0.00	4000.4	TD (ANT 9 Fed Com #704H)
15	16242.8	89.54	179.60	12374.0	-3964.0	-639.7	2.00	0.00	4003.3	
16	17243.9	89.54	179.60	12382.0	-4965.0	-632.8	0.00	0.00	5000.3	
17	17246.7	89.49	179.60	12382.0	-4967.9	-632.7	2.00	180.00	5003.1	
18	18247.9	89.49	179.60	12391.0	-5968.9	-625.8	0.00	0.00	6000.2	
19	18251.5	89.56	179.60	12391.0	-5972.6	-625.8	2.00	0.00	6003.8	
20	19708.0	89.56	179.60	12402.2	-7429.0	-615.7	0.00	0.00	7454.4	

CASING DETAILS

No casing data is available

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N-S	+E-W	Northing	Easting
TGT 1 (ANT 9 Fed Com #704H)	12348.0	-949.4	-660.6	419885.60	774067.41
TGT 2 (ANT 9 Fed Com #704H)	12357.0	-1853.3	-653.6	417861.70	774074.37
TGT 3 (ANT 9 Fed Com #704H)	12365.0	-2957.2	-646.7	416867.80	774081.32
TGT 4 (ANT 9 Fed Com #704H)	12374.0	-3961.1	-639.7	415863.90	774088.28
TGT 5 (ANT 9 Fed Com #704H)	12382.0	-4965.0	-632.8	414860.00	774095.24
TGT 6 (ANT 9 Fed Com #704H)	12391.0	-5968.9	-625.8	413846.10	774102.19
TD (ANT 9 Fed Com #704H)	12402.2	-7429.0	-615.7	412838.03	774112.31
FTP (ANT 9 Fed Com #704H)	12338.0	-170.0	-686.0	419845.00	774092.00
PBH (ANT 9 Fed Com #704H)	12403.0	-7529.0	-615.0	412286.00	774113.00



EOG Resources - Midland

Lea County, NM (NAD 83 NME)

Antietam 9 Fed Com

#704H

OH

Design: OH

PVA Report

20 July, 2017

HOBBS OCD
SEP 11 2017
RECEIVED

PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #704H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25 @ 3465.0usft (H&P 610)
Site:	Antietam 9 Fed Com	MD Reference:	KB = 25 @ 3465.0usft (H&P 610)
Well:	#704H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.14

Project	Lea County, NM (NAD 83 NME)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Antietam 9 Fed Com		
Site Position:		Northing:	419,815.00 usft
From:	Map	Easting:	774,698.00 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 9' 6.852 N
		Longitude:	103° 34' 45.452 W
		Grid Convergence:	0.40 °

Well	#704H		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty		0.0 usft	Wellhead Elevation:
			Latitude:
			Longitude:
			Ground Level:

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2015	5/18/2017	6.96
			Dip Angle
			(°)
			Field Strength
			(nT)
			47,902.80037379

Design	OH		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction
			(°)
			184.67

PVA Report

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 Design: OH

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Survey Program		Date 7/20/2017			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
111.0	1,204.0	MWD (OH)	MWD	MWD - Standard	
1,338.0	19,662.0	Intrepid MWD (OH)	MWD	MWD - Standard	

Survey										
MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.0	0.0
111.0	0.30	40.60	111.0	0.2	0.2	0.27	0.27	0.00	-0.3	0.0
131.0	0.60	252.60	131.0	0.2	0.1	4.35	1.50	-740.00	0.2	-0.2
141.0	0.60	236.60	141.0	0.2	0.0	1.67	0.00	-160.00	0.1	-0.1
158.0	0.60	354.60	158.0	0.2	-0.1	6.05	0.00	694.12	-0.2	0.0
187.0	0.80	329.60	187.0	0.6	-0.2	1.24	0.69	-86.21	-0.6	-0.1
216.0	0.60	310.60	216.0	0.8	-0.4	1.05	-0.69	-65.52	-0.8	-0.4
246.0	0.30	332.60	246.0	1.0	-0.5	1.14	-1.00	73.33	-1.1	0.0
303.0	0.50	324.60	303.0	1.3	-0.8	0.36	0.35	-14.04	-1.5	-0.2
333.0	0.60	0.60	333.0	1.6	-0.8	1.18	0.33	120.00	-1.6	0.8
364.0	0.20	312.60	364.0	1.8	-0.9	1.58	-1.29	-154.84	-1.9	-0.7
396.0	0.50	341.60	396.0	2.0	-1.0	1.06	0.94	90.62	-2.2	0.3
427.0	0.00	6.60	427.0	2.1	-1.0	1.61	-1.61	0.00	-2.1	1.0
490.0	0.60	341.60	490.0	2.4	-1.1	0.95	0.95	0.00	-2.6	0.3
521.0	0.40	35.60	521.0	2.6	-1.1	1.57	-0.65	174.19	-1.5	2.4
553.0	0.50	352.60	553.0	2.9	-1.0	1.07	0.31	-134.37	-3.0	0.7
616.0	0.30	29.60	616.0	3.3	-1.0	0.50	-0.32	58.73	-2.4	2.5
648.0	0.10	216.60	648.0	3.3	-1.0	1.25	-0.62	-540.62	2.1	-2.8
679.0	0.40	28.60	679.0	3.4	-0.9	1.61	0.97	554.84	-2.6	2.5
711.0	0.10	196.60	711.0	3.5	-0.9	1.56	-0.94	525.00	3.1	-1.8
775.0	0.60	310.60	775.0	3.7	-1.2	1.01	0.78	178.12	-3.3	-2.0

PVA Report

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 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well #704H
 TVD Reference: KB = 25 @ 3465.0usft (H&P 610)
 MD Reference: KB = 25 @ 3465.0usft (H&P 610)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: EDM 5000.14

Survey

MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
805.0	0.40	256.60	805.0	3.7	-1.4	1.63	-0.67	-180.00	-0.5	-3.9
837.0	0.30	22.60	837.0	3.8	-1.5	1.95	-0.31	393.75	-2.9	2.8
867.0	0.20	81.60	867.0	3.9	-1.4	0.87	-0.33	196.67	0.8	4.0
898.0	0.70	106.60	898.0	3.8	-1.1	1.70	1.61	80.65	2.2	3.3
930.0	0.30	256.60	930.0	3.7	-1.0	3.04	-1.25	468.75	-0.1	-3.9
961.0	0.40	233.60	961.0	3.7	-1.2	0.55	0.32	-74.19	1.2	-3.7
993.0	0.40	218.60	993.0	3.5	-1.4	0.33	0.00	-46.87	1.9	-3.2
1,055.0	0.30	221.60	1,055.0	3.2	-1.6	0.16	-0.16	4.84	1.3	-3.3
1,087.0	0.50	122.60	1,087.0	3.1	-1.5	1.94	0.62	-309.37	3.0	1.8
1,118.0	0.40	96.60	1,118.0	3.0	-1.3	0.72	-0.32	-83.87	1.7	2.8
1,150.0	0.60	166.60	1,150.0	2.8	-1.2	1.86	0.62	218.75	3.0	-0.5
1,204.0	0.30	90.60	1,204.0	2.5	-1.0	1.12	-0.56	-140.74	1.0	2.5
1,338.0	0.70	255.00	1,338.0	2.3	-1.4	0.74	0.30	122.69	-0.8	-2.6
1,525.0	2.20	286.60	1,524.9	3.1	-5.9	0.88	0.80	16.90	-6.6	-1.2
1,712.0	2.20	292.50	1,711.8	5.5	-12.7	0.12	0.00	3.16	-12.8	-0.4
1,897.0	3.90	294.00	1,896.5	9.4	-21.7	0.92	0.92	0.81	-16.2	-1.7
2,083.0	5.30	289.90	2,081.9	14.9	-35.6	0.77	0.75	-2.20	-18.5	-5.7
2,269.0	7.20	279.30	2,266.8	19.7	-55.2	1.19	1.02	-5.70	-18.6	-10.7
2,456.0	7.30	282.80	2,452.3	24.2	-78.3	0.24	0.05	1.87	-20.1	-10.4
2,642.0	7.10	281.60	2,636.8	29.1	-101.1	0.13	-0.11	-0.65	-20.6	-12.0
2,829.0	6.90	277.30	2,822.4	32.9	-123.6	0.30	-0.11	-2.30	-19.6	-13.7
3,015.0	6.90	272.20	3,007.1	34.7	-145.8	0.33	0.00	-2.74	-18.1	-13.7
3,201.0	6.50	276.40	3,191.8	36.3	-167.4	0.34	-0.22	2.26	-18.0	-10.5
3,388.0	6.40	282.80	3,377.6	39.8	-188.1	0.39	-0.05	3.42	-17.3	-8.8
3,576.0	6.30	278.00	3,564.5	43.6	-208.6	0.29	-0.05	-2.55	-14.3	-10.7
3,763.0	5.90	280.20	3,750.4	46.7	-228.2	0.25	-0.21	1.18	-11.8	-10.2
3,950.0	5.20	279.30	3,936.6	49.8	-246.0	0.38	-0.37	-0.48	-6.9	-10.6

PVA Report

Company: EOG Resources - Midland
 Project: Lea County, NM (NAD 83 NME)
 Site: Antietam 9 Fed Com
 Well: #704H
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well #704H
 TVD Reference: KB = 25 @ 3465.0usft (H&P 610)
 MD Reference: KB = 25 @ 3465.0usft (H&P 610)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: EDM 5000.14

Survey

MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
4,137.0	7.30	272.60	4,122.4	51.7	-266.2	1.19	1.12	-3.58	-3.3	-9.8
4,325.0	7.60	272.90	4,308.8	52.9	-290.6	0.16	0.16	0.16	-4.9	-7.3
4,512.0	8.20	271.60	4,494.1	53.9	-316.3	0.33	0.32	-0.70	-7.9	-4.8
4,701.0	7.10	281.50	4,681.4	56.6	-341.2	0.91	-0.58	5.24	-10.5	-2.0
4,888.0	6.20	277.30	4,867.1	60.1	-362.5	0.55	-0.48	-2.25	-9.2	-3.0
5,075.0	6.40	275.80	5,053.0	62.5	-382.9	0.14	0.11	-0.80	-6.9	-2.2
5,262.0	7.50	275.10	5,238.6	64.6	-405.4	0.59	0.59	-0.37	-6.7	-0.9
5,449.0	9.20	276.40	5,423.6	67.4	-432.4	0.91	0.91	0.70	-11.2	0.6
5,636.0	8.60	278.90	5,608.4	71.2	-461.1	0.38	-0.32	1.34	-17.3	1.8
5,823.0	7.70	282.40	5,793.5	76.1	-487.2	0.55	-0.48	1.87	-20.9	2.3
6,010.0	7.70	285.00	5,978.8	82.0	-511.5	0.19	0.00	1.39	-23.2	1.5
6,197.0	7.30	287.40	6,164.2	88.8	-534.9	0.27	-0.21	1.28	-25.0	-0.4
6,383.0	6.90	282.40	6,348.8	94.7	-557.1	0.40	-0.22	-2.69	-25.2	-4.9
6,571.0	7.30	280.20	6,535.3	99.3	-579.9	0.26	0.21	-1.17	-25.3	-6.8
6,756.0	6.10	279.30	6,719.1	102.9	-601.2	0.65	-0.65	-0.49	-24.2	-7.5
6,944.0	6.20	277.90	6,906.0	105.9	-621.1	0.10	0.05	-0.74	-21.2	-7.9
7,129.0	6.60	276.30	7,089.8	108.5	-641.6	0.24	0.22	-0.86	-19.1	-7.7
7,316.0	6.50	281.60	7,275.6	111.8	-662.6	0.33	-0.05	2.83	-20.7	-5.8
7,502.0	4.70	282.10	7,460.7	115.5	-680.4	0.97	-0.97	0.27	-24.7	-6.3
7,689.0	2.70	286.30	7,647.3	118.3	-692.1	1.08	-1.07	2.25	-29.0	-5.0
7,873.0	0.30	40.90	7,831.3	119.9	-695.9	1.54	-1.30	62.28	7.7	30.5
8,060.0	2.10	146.30	8,018.2	117.4	-693.7	1.18	0.96	56.36	24.0	-15.0
8,246.0	1.50	136.20	8,204.1	112.9	-690.1	0.36	-0.32	-5.43	20.5	-11.2
8,433.0	1.80	130.70	8,391.1	109.2	-686.2	0.18	0.16	-2.94	16.1	-9.4
8,620.0	2.00	133.00	8,578.0	105.0	-681.6	0.11	0.11	1.23	9.5	-9.9
8,807.0	1.80	129.50	8,764.8	100.9	-677.0	0.12	-0.11	-1.87	3.9	-9.5
8,995.0	0.40	225.10	8,952.8	98.6	-675.1	1.00	-0.74	50.85	-10.2	0.0

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Survey

MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
9,185.0	0.30	343.50	9,142.8	98.6	-675.8	0.32	-0.05	62.32	4.7	9.6
9,370.0	0.80	28.40	9,327.8	100.2	-675.3	0.34	0.27	24.27	8.4	3.8
9,556.0	1.60	29.00	9,513.8	103.6	-673.4	0.43	0.43	0.32	4.6	3.8
9,742.0	0.40	71.10	9,699.7	106.1	-671.5	0.72	-0.65	22.63	3.3	1.5
9,929.0	1.63	105.16	9,886.7	105.6	-668.3	0.70	0.66	18.21	0.4	-0.3
10,116.0	1.80	122.70	10,073.6	103.3	-663.3	0.29	0.09	9.38	-5.2	0.4
10,303.0	0.70	165.90	10,260.6	100.6	-660.6	0.74	-0.59	23.10	-6.8	5.9
10,489.0	0.60	147.70	10,446.6	98.7	-659.8	0.12	-0.05	-9.78	-10.3	3.1
10,675.0	1.50	124.00	10,632.5	96.5	-657.2	0.53	0.48	-12.74	-14.0	-1.7
10,861.0	0.97	163.52	10,818.5	93.7	-654.7	0.52	-0.28	21.25	-15.4	9.2
11,048.0	0.80	29.40	11,005.5	93.3	-653.7	0.87	-0.09	-71.72	3.9	-18.5
11,236.0	1.20	170.80	11,193.5	92.5	-652.7	1.01	0.21	75.21	-15.6	12.9
11,424.0	1.00	212.10	11,381.4	89.1	-653.3	0.42	-0.11	21.97	-6.3	21.2
11,610.0	1.20	175.10	11,567.4	85.8	-654.0	0.39	0.11	-19.89	-21.1	12.2
11,704.0	1.70	172.30	11,661.4	83.5	-653.7	0.54	0.53	-2.98	-24.0	11.1
11,860.0	4.18	193.32	11,817.2	75.6	-654.7	1.71	1.59	13.47	-26.3	19.8
11,906.0	12.57	196.75	11,862.6	69.2	-656.5	18.26	18.24	7.46	-31.5	21.8
11,953.0	16.84	196.48	11,908.1	57.8	-659.9	9.09	9.09	-0.57	-41.2	20.7
11,999.0	20.79	192.26	11,951.6	43.4	-663.5	9.08	8.59	-9.17	-50.5	15.2
12,046.0	27.91	185.58	11,994.4	24.3	-666.4	16.22	15.15	-14.21	-59.1	6.9
12,092.0	31.34	182.07	12,034.4	1.6	-667.9	8.35	7.46	-7.63	-65.7	1.9
12,139.0	33.10	179.43	12,074.2	-23.5	-668.2	4.79	3.74	-5.62	-69.0	-1.4
12,186.0	35.52	176.79	12,113.0	-49.9	-667.3	6.04	5.15	-5.62	-68.5	-3.1
12,233.0	37.36	174.33	12,150.8	-77.8	-665.1	5.00	3.91	-5.23	-64.4	-2.7
12,279.0	43.52	177.76	12,185.8	-107.5	-663.1	14.23	13.39	7.46	-58.6	2.1
12,326.0	48.79	180.92	12,218.3	-141.4	-662.8	12.21	11.21	6.72	-52.0	4.1

PVA Report

Company: EOG Resources - Midland
 Project: Lea County, NM (NAD 83 NME)
 Site: Antietam 9 Fed Com
 Well: #704H
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well #704H
 TVD Reference: KB = 25 @ 3465.0usft (H&P 610)
 MD Reference: KB = 25 @ 3465.0usft (H&P 610)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: EDM 5000.14

Survey

MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
12,361.8	52.24	180.72	12,241.1	-169.0	-663.2	9.65	9.64	-0.56	-46.3	3.3
HL Crossing, MD:12361.8', TVD:12241.1', N/S:-169.0', E/W:-663.2', INC:52.24										
12,373.0	53.32	180.66	12,247.9	-177.9	-663.3	9.65	9.64	-0.53	-44.4	3.1
12,420.0	58.77	179.78	12,274.1	-216.9	-663.4	11.70	11.60	-1.87	-35.9	2.3
12,466.0	64.18	179.26	12,296.1	-257.3	-663.1	11.80	11.76	-1.13	-27.2	2.3
12,513.0	68.04	178.93	12,315.1	-300.2	-662.4	8.24	8.21	-0.70	-17.4	2.7
12,559.0	72.59	178.82	12,330.6	-343.5	-661.5	9.89	9.89	-0.24	-6.6	3.3
12,606.0	78.02	178.20	12,342.5	-389.0	-660.4	11.62	11.55	-1.32	4.0	4.2
12,652.0	84.13	178.90	12,349.6	-434.4	-659.2	13.37	13.28	1.52	10.4	5.0
12,753.0	86.81	178.55	12,357.6	-535.0	-657.0	2.68	2.65	-0.35	16.7	6.5
12,847.0	90.51	178.29	12,359.8	-628.9	-654.4	3.95	3.94	-0.28	17.3	8.4
12,941.0	89.93	176.18	12,359.5	-722.8	-649.8	2.33	-0.62	-2.24	15.3	12.3
13,033.0	92.44	176.88	12,357.6	-814.6	-644.3	2.83	2.73	0.76	11.9	17.2
13,128.0	93.23	176.35	12,352.9	-909.4	-638.7	1.00	0.83	-0.56	5.6	22.2
13,220.0	90.80	176.52	12,349.6	-1,001.1	-633.0	2.65	-2.64	0.18	1.1	27.3
13,313.0	90.80	175.22	12,348.3	-1,093.9	-626.3	1.40	0.00	-1.40	-1.0	33.3
13,406.0	90.80	176.92	12,347.0	-1,186.6	-619.9	1.83	0.00	1.83	-3.2	39.1
13,499.0	89.80	179.52	12,346.5	-1,279.6	-617.0	3.00	-1.08	2.80	-4.5	41.3
13,592.0	88.50	178.32	12,347.9	-1,372.5	-615.2	1.90	-1.40	-1.29	-4.0	42.4
13,686.0	90.50	177.72	12,348.7	-1,466.5	-612.0	2.22	2.13	-0.64	-3.9	45.0
13,780.0	87.50	176.32	12,350.4	-1,560.3	-607.1	3.52	-3.19	-1.49	-3.3	49.2
13,865.0	90.10	178.02	12,352.2	-1,645.2	-602.9	3.65	3.06	2.00	-2.1	52.8
13,958.0	90.10	175.82	12,352.0	-1,738.1	-597.9	2.37	0.00	-2.37	-3.1	57.2
14,052.0	89.50	175.82	12,352.3	-1,831.8	-591.1	0.64	-0.64	0.00	-3.6	63.4
14,146.0	90.00	176.52	12,352.7	-1,925.6	-584.8	0.92	0.53	0.74	-4.0	69.0
14,239.0	90.20	176.92	12,352.6	-2,018.4	-579.5	0.48	0.22	0.43	-4.9	73.7
14,333.0	88.70	176.92	12,353.5	-2,112.3	-574.4	1.60	-1.60	0.00	-4.9	78.1

PVA Report

Company: EOG Resources - Midland
 Project: Lea County, NM (NAD 83 NME)
 Site: Antietam 9 Fed Com
 Well: #704H
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well #704H
 TVD Reference: KB = 25 @ 3465.0usft (H&P 610)
 MD Reference: KB = 25 @ 3465.0usft (H&P 610)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: EDM 5000.14

Survey											
MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)	
14,426.0	87.60	177.72	12,356.5	-2,205.1	-570.1	1.46	-1.18	0.86	-2.6	81.8	
14,520.0	89.50	178.42	12,358.9	-2,299.1	-566.9	2.15	2.02	0.74	-0.9	84.3	
14,613.0	88.80	179.82	12,360.2	-2,392.0	-565.5	1.68	-0.75	1.51	-0.3	85.1	
14,707.0	92.20	180.20	12,359.4	-2,486.0	-565.5	3.64	3.62	0.40	-1.9	84.4	
14,800.0	87.30	179.80	12,359.8	-2,579.0	-565.5	5.29	-5.27	-0.43	-2.2	83.8	
14,894.0	89.60	181.50	12,362.4	-2,672.9	-566.6	3.04	2.45	1.81	-0.4	82.1	
14,987.0	89.20	182.20	12,363.3	-2,765.9	-569.6	0.87	-0.43	0.75	-0.1	78.4	
15,080.0	90.50	181.80	12,363.6	-2,858.8	-572.8	1.46	1.40	-0.43	-0.7	74.5	
15,173.0	88.40	181.50	12,364.5	-2,951.8	-575.5	2.28	-2.26	-0.32	-0.4	71.2	
15,267.0	91.60	179.50	12,364.5	-3,045.7	-576.3	4.01	3.40	-2.13	-1.3	69.8	
15,359.0	89.10	180.00	12,363.9	-3,137.7	-575.9	2.77	-2.72	0.54	-2.7	69.5	
15,454.0	90.50	181.50	12,364.2	-3,232.7	-577.1	2.16	1.47	1.58	-3.2	67.6	
15,548.0	91.70	182.20	12,362.4	-3,326.7	-580.2	1.48	1.28	0.74	-6.0	63.9	
15,641.0	91.60	183.40	12,359.8	-3,419.5	-584.7	1.29	-0.11	1.29	-9.5	58.7	
15,734.0	90.10	180.20	12,358.4	-3,512.4	-587.6	3.80	-1.61	-3.44	-11.6	55.2	
15,827.0	91.20	180.70	12,357.3	-3,605.4	-588.4	1.30	1.18	0.54	-13.5	53.8	
15,921.0	88.70	180.70	12,357.4	-3,699.4	-589.5	2.66	-2.66	0.00	-14.2	52.0	
16,015.0	87.60	180.30	12,360.4	-3,793.4	-590.3	1.25	-1.17	-0.43	-12.0	50.5	
16,108.0	87.00	179.30	12,364.8	-3,886.2	-590.0	1.25	-0.65	-1.08	-8.5	50.2	
16,201.0	89.10	181.50	12,368.0	-3,979.2	-590.7	3.27	2.26	2.37	-6.1	48.9	
16,295.0	87.20	180.50	12,371.0	-4,073.1	-592.3	2.28	-2.02	-1.06	-3.8	46.6	
16,389.0	88.60	179.70	12,374.5	-4,167.0	-592.5	1.72	1.49	-0.85	-1.2	45.8	
16,482.0	91.60	179.90	12,374.3	-4,260.0	-592.1	3.23	3.23	0.22	-2.1	45.5	
16,576.0	91.40	178.60	12,371.8	-4,354.0	-590.9	1.40	-0.21	-1.38	-5.3	46.1	
16,669.0	91.20	177.10	12,369.7	-4,446.9	-587.4	1.63	-0.22	-1.61	-8.1	48.9	
16,763.0	87.00	176.30	12,371.2	-4,540.7	-582.0	4.55	-4.47	-0.85	-7.6	53.7	
16,856.0	91.70	181.40	12,372.3	-4,633.6	-580.2	7.46	5.05	5.48	-7.1	54.9	

PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #704H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25 @ 3465.0usft (H&P 610)
Site:	Antietam 9 Fed Com	MD Reference:	KB = 25 @ 3465.0usft (H&P 610)
Well:	#704H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.14

Survey											
MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)	
16,950.0	93.60	186.40	12,367.9	-4,727.3	-586.5	5.68	2.02	5.32	-12.6	47.8	
17,044.0	91.70	189.30	12,363.6	-4,820.3	-599.4	3.69	-2.02	3.09	-17.6	34.2	
17,138.0	92.20	190.80	12,360.4	-4,912.8	-615.8	1.68	0.53	1.60	-21.4	17.1	
17,181.0	91.50	188.30	12,359.0	-4,955.2	-622.9	6.03	-1.63	-5.81	-23.0	9.9	
17,278.0	90.30	186.30	12,357.5	-5,051.4	-635.2	2.40	-1.24	-2.06	-25.3	-3.0	
17,325.0	89.90	184.70	12,357.4	-5,098.1	-639.7	3.51	-0.85	-3.40	-25.8	-7.8	
17,370.0	88.00	183.00	12,358.2	-5,143.0	-642.7	5.67	-4.22	-3.78	-25.4	-11.2	
17,418.0	88.50	182.10	12,359.7	-5,191.0	-644.9	2.14	1.04	-1.87	-24.4	-13.6	
17,512.0	87.90	179.30	12,362.6	-5,284.9	-646.0	3.04	-0.64	-2.98	-22.2	-15.5	
17,560.0	88.50	178.60	12,364.1	-5,332.9	-645.1	1.92	1.25	-1.46	-21.2	-14.9	
17,606.0	87.90	180.90	12,365.6	-5,378.8	-644.9	5.16	-1.30	5.00	-20.1	-15.0	
17,700.0	86.70	183.60	12,370.0	-5,472.6	-648.6	3.14	-1.28	2.87	-16.6	-19.3	
17,745.0	88.30	182.20	12,372.0	-5,517.5	-650.9	4.72	3.56	-3.11	-15.0	-21.9	
17,812.0	90.20	181.90	12,372.8	-5,584.5	-653.3	2.87	2.84	-0.45	-14.7	-24.8	
17,905.0	87.20	175.50	12,375.0	-5,677.4	-651.2	7.60	-3.23	-6.88	-13.4	-23.4	
17,999.0	85.50	172.00	12,380.9	-5,770.6	-641.0	4.13	-1.81	-3.72	-8.2	-13.8	
18,093.0	84.90	170.70	12,388.8	-5,863.2	-626.9	1.52	-0.64	-1.38	-1.2	-0.4	
18,186.0	87.70	171.60	12,394.8	-5,954.9	-612.6	3.16	3.01	0.97	3.9	13.3	
18,279.0	91.30	176.40	12,395.6	-6,047.4	-602.9	6.45	3.87	5.16	4.0	22.4	
18,373.0	89.80	177.80	12,394.7	-6,141.2	-598.1	2.18	-1.60	1.49	2.4	26.5	
18,466.0	89.80	177.10	12,395.0	-6,234.1	-594.0	0.75	0.00	-0.75	2.0	30.0	
18,560.0	90.10	180.00	12,395.1	-6,328.1	-591.6	3.10	0.32	3.09	1.4	31.7	
18,654.0	87.20	177.10	12,397.3	-6,422.0	-589.3	4.36	-3.09	-3.09	2.8	33.4	
18,747.0	90.00	178.20	12,399.6	-6,514.9	-585.4	3.23	3.01	1.18	4.4	36.6	
18,840.0	91.40	179.30	12,398.5	-6,607.9	-583.4	1.91	1.51	1.18	2.6	38.0	
18,934.0	89.50	179.00	12,397.7	-6,701.9	-582.0	2.05	-2.02	-0.32	1.1	38.7	
19,028.0	88.40	179.50	12,399.5	-6,795.8	-580.8	1.29	-1.17	0.53	2.1	39.3	

PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #704H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25 @ 3465.0usft (H&P 610)
Site:	Antietam 9 Fed Com	MD Reference:	KB = 25 @ 3465.0usft (H&P 610)
Well:	#704H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.14

Survey											
MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)	
19,120.0	89.80	180.20	12,400.9	-6,887.8	-580.5	1.70	1.52	0.76	2.8	38.9	
19,214.0	92.20	180.40	12,399.3	-6,981.8	-581.0	2.56	2.55	0.21	0.5	37.7	
19,307.0	87.50	180.60	12,399.5	-7,074.8	-581.9	5.06	-5.05	0.22	0.0	36.3	
19,400.0	87.00	179.00	12,404.0	-7,167.6	-581.5	1.80	-0.54	-1.72	3.7	36.0	
19,494.0	89.20	178.10	12,407.1	-7,261.6	-579.2	2.53	2.34	-0.96	6.1	37.7	
19,588.0	88.90	177.10	12,408.6	-7,355.5	-575.2	1.11	-0.32	-1.06	7.0	41.0	
19,607.0	88.20	176.60	12,409.1	-7,374.4	-574.2	4.53	-3.68	-2.63	7.3	41.9	
Final MWD Survey (MD=19607.0')											
19,661.7	88.20	176.60	12,410.8	-7,429.0	-570.9	0.00	0.00	0.00	8.6	44.8	
HL Crossing, MD:19661.7', TVD:12410.8', N/S:-7429.0', E/W:-570.9', INC:88.20											
19,662.0	88.20	176.60	12,410.9	-7,429.3	-570.9	0.00	0.00	0.00	8.6	44.8	
Final Projection to Bit (MD=19662.0')											

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
12,361.8	12,241.1	-169.0	-663.2	HL Crossing, MD:12361.8', TVD:12241.1', N/S:-169.0', E/W:-663.2', INC:52.24	
19,607.0	12,409.1	-7,374.4	-574.2	Final MWD Survey (MD=19607.0')	
19,661.7	12,410.8	-7,429.0	-570.9	HL Crossing, MD:19661.7', TVD:12410.8', N/S:-7429.0', E/W:-570.9', INC:88.20	
19,662.0	12,410.9	-7,429.3	-570.9	Final Projection to Bit (MD=19662.0')	

Checked By: _____ Approved By: _____ Date: _____