



Lea County, NM (NAD 83 NME)

Antietam 9 Fed Com #703H

H&P 610

Plan #2

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: #703H

Ground Level: 3440.0
KB = 25 @ 3465.0usft (H&P 610)
Northing: 419815.00
Easting: 774696.00
Latitude: 32° 9' 6.852 N
Longitude: 103° 34' 45.452 W

SECTION DETAILS

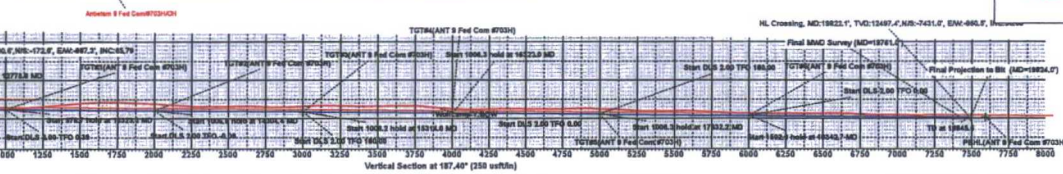
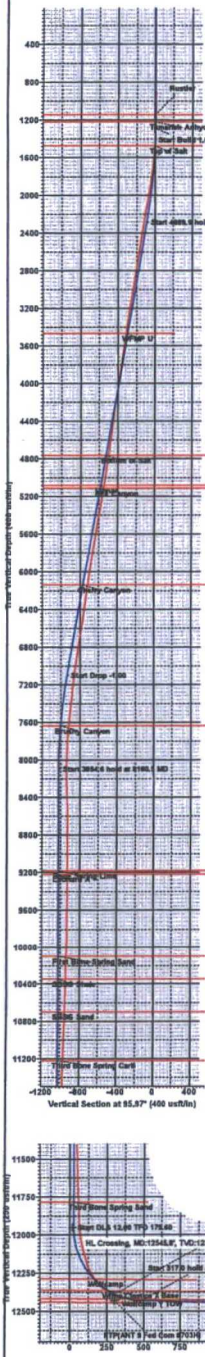
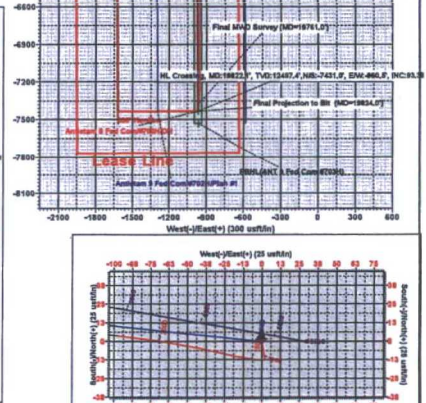
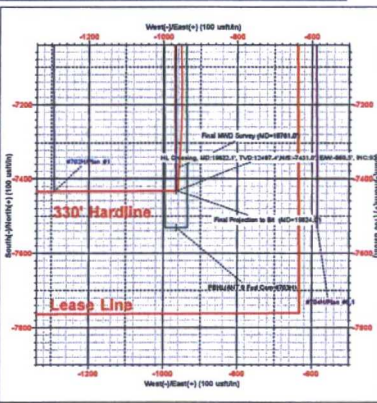
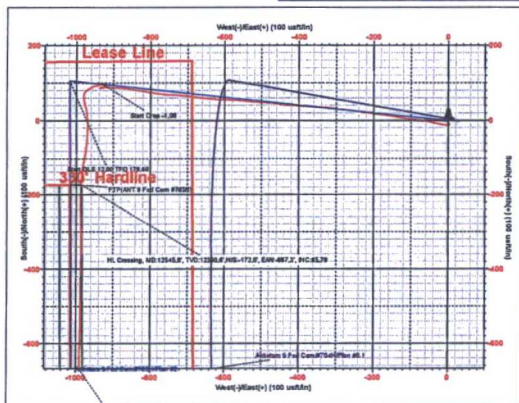
Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	VSec
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0
2	1290.0	0.00	0.00	1290.0	0.0	0.0	0.00	0.00	0.0
3	2290.3	10.00	275.97	2285.2	9.1	-86.6	1.00	275.97	2.2
4	7180.2	10.00	275.97	7100.8	97.4	-931.4	0.00	0.00	23.4
5	8180.5	0.00	0.00	8096.0	106.5	-1018.0	1.00	180.00	25.6
6	12035.1	0.00	0.00	11950.6	106.5	-1018.0	0.00	0.00	25.6
7	12775.8	88.89	179.60	12428.0	-361.7	-1014.7	12.00	179.60	489.5
8	13292.8	88.89	179.60	12438.0	-878.6	-1011.1	0.00	0.00	1001.6
9	13323.3	89.50	179.60	12438.4	-909.1	-1010.9	2.00	0.39	1031.8
10	14302.0	89.50	179.60	12447.0	-1887.7	-1004.1	0.00	0.00	2001.4
11	14304.4	89.55	179.60	12447.0	-1890.1	-1004.1	2.00	-0.08	2003.7
12	15311.1	89.55	179.60	12455.0	-2896.8	-997.1	0.00	0.00	3001.1
13	15314.0	89.49	179.60	12455.0	-2899.6	-997.1	2.00	180.00	3004.0
14	16320.2	89.49	179.60	12464.0	-3905.8	-990.1	0.00	0.00	4008.8
15	16323.0	89.55	179.60	12464.0	-3908.6	-990.1	2.00	0.00	4003.7
16	17329.4	89.55	179.60	12472.0	-4914.9	-983.1	0.00	0.00	5008.6
17	17332.2	89.49	179.60	12472.0	-4917.7	-983.1	2.00	180.00	5003.4
18	18338.5	89.49	179.60	12481.0	-5924.0	-976.1	0.00	0.00	6004.0
19	18342.7	89.57	179.60	12481.0	-5928.2	-976.1	2.00	0.00	6004.5
20	19845.6	89.57	179.60	12492.3	-7431.0	-965.7	0.00	0.00	7493.5

CASING DETAILS

No casing data is available

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N-S	+E-W	Northing	Easting
TGTW(ANT 9 Fed Com #703H)	12438.0	-878.6	-1011.1	419826.40	773686.90
TGTW(ANT 9 Fed Com #703H)	12447.0	-1887.7	-1004.1	417827.30	773689.89
TGTW(ANT 9 Fed Com #703H)	12455.0	-2896.8	-997.1	416918.20	773700.88
TGTW(ANT 9 Fed Com #703H)	12464.0	-3905.8	-990.1	415903.20	773707.88
TGTW(ANT 9 Fed Com #703H)	12472.0	-4914.9	-983.1	414890.10	773714.87
TGTW(ANT 9 Fed Com #703H)	12481.0	-5924.0	-976.1	413881.00	773721.86
Interp @ 12482.3 (#703H OH Plan #1)	12482.3	-7431.0	-965.7	412884.02	773732.31
FTW(ANT 9 Fed Com #703H)	12478.0	-172.0	-1016.0	418643.00	773682.00
PBH(ANT 9 Fed Com #703H)	12493.0	-7531.0	-965.0	412284.00	773733.00
Plan @ 11948.4 (#703H OH Design #1)	11948.4	105.7	-953.1	419920.73	773744.89



Lea County, NM (NAD 83 NME)
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level

EOG Resources - Midland

Lea County, NM (NAD 83 NME)

Antietam 9 Fed Com

#703H

OH

Design: OH

PVA Report

26 June, 2017

PVA Report

Company: EOG Resources - Midland
Project: Lea County, NM (NAD 83 NME)
Site: Antietam 9 Fed Com
Well: #703H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #703H
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

Project Lea County, NM (NAD 83 NME)

Map System: US State Plane 1983
Geo Datum: North American Datum 1983
Map Zone: New Mexico Eastern Zone

System Datum: Mean Sea Level

Site Antietam 9 Fed Com

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

Well #703H

Well Position	+N/-S	0.0 usft	Northing:	419,815.00 usft	Latitude:	32° 9' 6.852 N
	+E/-W	0.0 usft	Easting:	774,698.00 usft	Longitude:	103° 34' 45.452 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	3,440.0 usft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	6/14/2017	6.95	60.00	47,895.18939862

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	187.30

Survey Program Date 6/26/2017

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	19,824.0	Intrepid MWD (OH)	MWD	MWD - Standard

PVA Report

Company: EOG Resources - Midland
 Project: Lea County, NM (NAD 83 NME)
 Site: Antietam 9 Fed Com
 Well: #703H
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well #703H
 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)	
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.0	0.0	
100.0	0.20	197.00	100.0	-0.2	-0.1	0.20	0.20	0.00	-0.2	0.0	
131.0	0.70	186.00	131.0	-0.4	-0.1	1.63	1.61	-35.48	-0.4	0.0	
158.0	0.90	163.00	158.0	-0.8	0.0	1.39	0.74	-85.19	-0.7	-0.3	
187.0	0.60	152.00	187.0	-1.1	0.1	1.14	-1.03	-37.93	-1.0	-0.4	
216.0	0.90	134.00	216.0	-1.4	0.3	1.30	1.03	-62.07	-1.2	-0.8	
246.0	0.70	141.00	246.0	-1.7	0.6	0.74	-0.67	23.33	-1.7	-0.6	
274.0	0.90	187.00	274.0	-2.1	0.7	2.33	0.71	164.29	-2.0	0.9	
302.0	1.10	175.00	302.0	-2.6	0.7	1.03	0.71	-42.86	-2.6	0.5	
332.0	0.60	160.00	332.0	-3.0	0.8	1.81	-1.67	-50.00	-3.1	-0.3	
363.0	0.50	206.00	363.0	-3.3	0.8	1.42	-0.32	148.39	-2.6	2.1	
395.0	1.10	170.00	395.0	-3.7	0.8	2.36	1.87	-112.50	-3.8	0.1	
426.0	0.80	150.00	426.0	-4.2	0.9	1.43	-0.97	-64.52	-4.1	-1.3	
458.0	1.00	165.00	458.0	-4.6	1.1	0.96	0.62	46.87	-4.8	-0.1	
490.0	0.60	189.00	490.0	-5.1	1.2	1.60	-1.25	75.00	-4.8	1.9	
521.0	1.00	193.00	521.0	-5.5	1.1	1.30	1.29	12.90	-5.1	2.3	
552.0	0.80	162.00	552.0	-6.0	1.1	1.67	-0.65	-100.00	-6.0	-0.8	
584.0	0.80	155.00	584.0	-6.4	1.2	0.31	0.00	-21.87	-6.3	-1.6	
616.0	0.80	166.00	615.9	-6.8	1.4	0.48	0.00	34.37	-6.9	-0.3	
646.0	0.80	165.00	645.9	-7.2	1.5	0.05	0.00	-3.33	-7.3	-0.4	
678.0	0.80	198.00	677.9	-7.6	1.5	1.42	0.00	103.12	-6.8	3.8	
710.0	0.30	178.00	709.9	-7.9	1.4	1.65	-1.56	-62.50	-8.0	1.1	
741.0	0.30	182.00	740.9	-8.1	1.4	0.07	0.00	12.90	-8.0	1.7	
773.0	0.30	148.00	772.9	-8.3	1.5	0.55	0.00	-106.25	-7.8	-3.1	
804.0	0.30	163.00	803.9	-8.4	1.5	0.25	0.00	48.39	-8.5	-1.0	
835.0	0.70	162.00	834.9	-8.7	1.6	1.29	1.29	-3.23	-8.7	-1.2	
866.0	0.50	134.00	865.9	-8.9	1.8	1.13	-0.65	-90.32	-7.5	-5.2	

PVA Report

Company: EOG Resources - Midland
Project: Lea County, NM (NAD 83 NME)
Site: Antietam 9 Fed Com
Well: #703H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #703H
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)
896.0	0.30	134.00	895.9	-9.1	1.9	0.67	-0.67	0.00	-7.7	-5.2
927.0	0.70	162.00	926.9	-9.3	2.0	1.48	1.29	90.32	-9.5	-1.0
989.0	0.40	190.00	988.9	-9.9	2.1	0.64	-0.48	45.16	-9.4	3.8
1,021.0	0.60	195.00	1,020.9	-10.2	2.0	0.64	0.62	15.62	-9.3	4.6
1,053.0	0.30	185.00	1,052.9	-10.4	2.0	0.97	-0.94	-31.25	-10.2	2.9
1,178.0	0.70	155.00	1,177.9	-11.4	2.3	0.37	0.32	-24.00	-11.3	-2.8
1,214.0	0.50	205.00	1,213.9	-11.8	2.3	1.50	-0.56	138.89	-9.7	7.1
1,257.0	0.40	174.40	1,256.9	-12.1	2.2	0.60	-0.23	-71.16	-12.2	1.1
1,441.0	3.30	274.50	1,440.8	-12.3	-3.0	1.84	1.58	54.40	0.0	12.6
1,627.0	6.50	282.00	1,626.1	-9.7	-18.6	1.75	1.72	4.03	-6.4	12.3
1,813.0	7.60	284.00	1,810.7	-4.5	-40.8	0.61	0.59	1.08	-15.0	11.0
1,999.0	9.80	277.30	1,994.6	0.5	-68.5	1.30	1.18	-3.60	-24.3	7.2
2,185.0	10.20	276.60	2,177.7	4.4	-100.5	0.22	0.22	-0.38	-30.8	6.5
2,372.0	9.60	281.60	2,362.0	9.4	-132.3	0.56	-0.32	2.67	-30.8	7.4
2,558.0	9.60	276.40	2,545.4	14.2	-162.9	0.47	0.00	-2.80	-30.0	3.0
2,745.0	8.90	278.70	2,729.9	18.2	-192.7	0.42	-0.37	1.23	-27.4	3.3
2,931.0	9.60	276.30	2,913.5	22.1	-222.3	0.43	0.38	-1.29	-25.1	1.3
3,118.0	8.70	279.80	3,098.1	26.2	-251.7	0.57	-0.48	1.87	-22.2	1.6
3,305.0	9.40	274.40	3,282.8	29.7	-280.9	0.59	0.37	-2.89	-19.1	-0.9
3,492.0	8.40	278.40	3,467.5	32.9	-309.6	0.63	-0.53	2.14	-15.5	0.1
3,679.0	9.60	273.00	3,652.2	35.7	-338.7	0.78	0.64	-2.89	-12.2	-0.9
3,867.0	6.70	274.30	3,838.3	37.4	-365.3	1.55	-1.54	0.69	-6.1	0.7
4,053.0	9.80	274.70	4,022.4	39.5	-391.9	1.67	1.67	0.22	-0.4	1.5
4,241.0	8.40	273.70	4,208.0	41.7	-421.6	0.75	-0.74	-0.53	2.5	2.5
4,430.0	6.90	276.20	4,395.3	43.8	-446.6	0.81	-0.79	1.32	10.3	2.9
4,617.0	8.20	278.00	4,580.7	46.9	-471.0	0.71	0.70	0.96	18.4	1.7
4,804.0	8.30	270.20	4,765.8	48.8	-497.7	0.60	0.05	-4.17	23.7	5.6

PVA Report

Company: EOG Resources - Midland
 Project: Lea County, NM (NAD 83 NME)
 Site: Antietam 9 Fed Com
 Well: #703H
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well #703H
 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)	
4,991.0	8.70	277.10	4,950.7	50.6	-525.3	0.59	0.21	3.69	29.2	3.8	
5,177.0	9.20	275.00	5,134.5	53.6	-554.0	0.32	0.27	-1.13	32.5	4.9	
5,364.0	9.40	272.50	5,319.0	55.6	-584.2	0.24	0.11	-1.34	34.5	7.6	
5,551.0	9.00	271.50	5,503.6	56.6	-614.1	0.23	-0.21	-0.53	36.9	10.4	
5,739.0	9.50	276.50	5,689.1	58.8	-644.2	0.50	0.27	2.66	40.1	8.2	
5,926.0	9.40	277.60	5,873.6	62.5	-674.6	0.11	-0.05	0.59	42.1	6.8	
6,111.0	8.60	276.20	6,056.3	66.0	-703.4	0.45	-0.43	-0.76	45.2	7.3	
6,299.0	8.00	273.60	6,242.4	68.4	-730.4	0.38	-0.32	-1.38	50.4	10.1	
6,486.0	7.80	272.30	6,427.6	69.7	-756.1	0.14	-0.11	-0.70	56.9	13.0	
6,672.0	9.30	281.00	6,611.5	73.1	-783.4	1.06	0.81	4.68	62.9	3.4	
6,858.0	8.50	278.70	6,795.3	78.0	-811.8	0.47	-0.43	-1.24	66.3	3.8	
7,045.0	7.80	278.40	6,980.4	81.9	-838.0	0.38	-0.37	-0.16	72.3	2.7	
7,231.0	7.30	276.70	7,164.8	85.2	-862.2	0.29	-0.27	-0.91	79.9	4.0	
7,418.0	6.30	275.90	7,350.5	87.6	-884.2	0.54	-0.53	-0.43	85.6	5.0	
7,604.0	6.40	272.00	7,535.3	89.0	-904.7	0.24	0.05	-2.10	86.0	11.5	
7,792.0	4.50	270.20	7,722.5	89.4	-922.6	1.01	-1.01	-0.96	83.2	15.5	
7,978.0	2.80	234.20	7,908.1	86.8	-933.6	1.49	-0.91	-19.35	54.7	63.3	
8,162.0	1.60	357.10	8,092.0	86.7	-937.3	2.12	-0.65	66.79	23.8	-79.6	
8,349.0	1.50	99.50	8,279.0	88.9	-935.1	1.29	-0.05	54.76	-84.7	-3.6	
8,536.0	1.90	84.70	8,465.9	88.8	-929.6	0.32	0.21	-7.91	-86.4	-25.8	
8,724.0	1.40	6.30	8,653.8	91.4	-926.2	1.13	-0.27	-41.70	4.9	-92.9	
8,912.0	1.00	344.00	8,841.8	95.2	-926.4	0.32	-0.21	-11.86	36.1	-85.0	
9,099.0	0.50	330.40	9,028.8	97.5	-927.3	0.28	-0.27	-7.27	52.6	-74.5	
9,285.0	0.20	314.80	9,214.8	98.4	-927.9	0.17	-0.16	-8.39	69.6	-57.8	
9,470.0	0.30	12.60	9,399.8	99.1	-928.0	0.14	0.05	31.24	-12.5	-89.4	
9,657.0	0.40	353.80	9,586.8	100.3	-928.0	0.08	0.05	-10.05	15.9	-88.8	
9,844.0	0.70	235.10	9,773.8	100.3	-929.0	0.51	0.16	-63.48	69.5	56.0	

PVA Report

Company: EOG Resources - Midland
 Project: Lea County, NM (NAD 83 NME)
 Site: Antietam 9 Fed Com
 Well: #703H
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well #703H
 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)
10,031.0	1.40	241.30	9,960.7	98.5	-931.9	0.38	0.37	3.32	71.7	48.3
10,217.0	1.60	247.50	10,146.7	96.4	-936.3	0.14	0.11	3.33	71.6	40.6
10,404.0	1.70	251.00	10,333.6	94.5	-941.3	0.08	0.05	1.87	68.6	36.3
10,590.0	1.30	265.20	10,519.5	93.5	-946.1	0.29	-0.22	7.63	70.6	19.0
10,777.0	1.80	250.90	10,706.5	92.3	-950.9	0.34	0.27	-7.65	58.7	35.3
10,964.0	2.40	243.40	10,893.3	89.6	-957.2	0.35	0.32	-4.01	46.8	42.3
11,152.0	2.10	236.00	11,081.2	85.9	-963.6	0.22	-0.16	-3.94	33.6	47.5
11,339.0	1.20	236.30	11,268.1	82.9	-968.1	0.48	-0.48	0.16	28.5	47.3
11,526.0	1.90	240.40	11,455.0	80.3	-972.4	0.38	0.37	2.19	26.7	45.3
11,619.0	1.80	219.00	11,548.0	78.4	-974.7	0.75	-0.11	-23.01	5.5	51.4
11,718.0	2.00	211.30	11,646.9	75.7	-976.5	0.33	0.20	-7.78	-4.7	51.4
11,812.0	3.20	204.90	11,740.8	71.9	-978.5	1.31	1.28	-6.81	-14.7	50.4
11,904.0	2.00	186.40	11,832.8	68.0	-979.7	1.58	-1.30	-20.11	-34.0	42.3
11,998.0	2.90	174.80	11,926.7	64.0	-979.7	1.09	0.96	-12.34	-45.7	34.3
12,044.0	4.70	170.50	11,972.6	61.0	-979.3	3.96	3.91	-9.35	-50.7	30.8
12,091.0	10.20	169.20	12,019.2	55.0	-978.2	11.71	11.70	-2.77	-52.6	30.6
12,137.0	14.40	168.30	12,064.1	45.4	-976.3	9.14	9.13	-1.96	-53.2	31.8
12,184.0	16.80	167.20	12,109.4	33.0	-973.6	5.14	5.11	-2.34	-51.6	34.2
12,233.0	17.50	170.90	12,156.2	18.9	-970.8	2.64	1.43	7.55	-42.9	41.2
12,280.0	21.70	176.50	12,200.4	3.2	-969.2	9.78	8.94	11.91	-29.7	46.9
12,326.0	28.50	179.60	12,242.1	-16.3	-968.6	15.05	14.78	6.74	-18.3	48.7
12,373.0	36.90	183.90	12,281.6	-41.6	-969.5	18.53	17.87	9.15	-7.8	48.1
12,420.0	43.70	188.60	12,317.4	-71.8	-972.9	15.84	14.47	10.00	0.7	44.1
12,467.0	50.60	190.60	12,349.4	-105.7	-978.7	15.01	14.68	4.26	6.0	37.4
12,513.0	59.80	187.30	12,375.6	-143.0	-984.5	20.85	20.00	-7.17	6.9	31.4
12,545.8	65.79	183.95	12,390.6	-172.0	-987.3	20.38	18.25	-10.21	6.2	28.6

HL Crossing, MD:12545.8', TVD:12390.6', N/S:-172.0', E/W:-987.3', INC:65.79

PVA Report

Company: EOG Resources - Midland
 Project: Lea County, NM (NAD 83 NME)
 Site: Antietam 9 Fed Com
 Well: #703H
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well #703H
 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)	
12,560.0	68.40	182.60	12,396.1	-185.1	-988.0	20.38	18.41	-9.51	5.8	27.8	
12,606.0	77.80	177.50	12,409.5	-229.0	-988.0	23.02	20.43	-11.09	2.6	27.6	
12,666.0	87.90	178.90	12,417.0	-288.5	-986.2	16.99	16.83	2.33	-3.9	29.1	
12,754.0	89.00	181.10	12,419.3	-376.4	-986.2	2.79	1.25	2.50	-8.9	28.4	
12,847.0	87.00	180.30	12,422.6	-469.3	-987.3	2.32	-2.15	-0.86	-7.5	26.7	
12,941.0	86.40	180.50	12,428.0	-563.2	-988.0	0.67	-0.64	0.21	-3.9	25.4	
13,034.0	85.60	182.10	12,434.5	-655.9	-990.1	1.92	-0.86	1.72	0.9	22.6	
13,128.0	88.10	184.40	12,439.6	-749.6	-995.4	3.61	2.66	2.45	4.2	16.6	
13,221.0	94.50	182.70	12,437.5	-842.4	-1,001.1	7.12	6.88	-1.83	0.2	10.2	
13,314.0	92.90	182.20	12,431.5	-935.1	-1,005.1	1.80	-1.72	-0.54	-7.1	5.6	
13,408.0	93.30	182.10	12,426.4	-1,028.9	-1,008.6	0.44	0.43	-0.11	-13.0	1.4	
13,500.0	94.60	181.30	12,420.1	-1,120.6	-1,011.4	1.66	1.41	-0.87	-20.2	-1.9	
13,594.0	95.00	183.10	12,412.2	-1,214.2	-1,015.0	1.96	0.43	1.91	-28.9	-6.2	
13,687.0	95.60	184.10	12,403.7	-1,306.6	-1,020.8	1.25	0.65	1.08	-38.2	-12.7	
13,781.0	94.00	182.80	12,395.8	-1,400.1	-1,026.4	2.19	-1.70	-1.38	-46.9	-18.9	
13,874.0	91.90	180.70	12,391.0	-1,493.0	-1,029.2	3.19	-2.26	-2.26	-52.5	-22.4	
13,968.0	89.20	181.30	12,390.1	-1,586.9	-1,030.9	2.94	-2.87	0.64	-54.3	-24.7	
14,061.0	87.60	180.40	12,392.7	-1,679.9	-1,032.3	1.97	-1.72	-0.97	-52.5	-26.7	
14,155.0	87.70	178.20	12,396.5	-1,773.8	-1,031.1	2.34	0.11	-2.34	-49.4	-26.2	
14,249.0	87.40	177.80	12,400.6	-1,867.6	-1,027.8	0.53	-0.32	-0.43	-46.2	-23.6	
14,342.0	86.20	177.20	12,405.8	-1,960.4	-1,023.8	1.44	-1.29	-0.65	-41.8	-20.2	
14,436.0	86.10	176.10	12,412.1	-2,054.0	-1,018.3	1.17	-0.11	-1.17	-36.2	-15.4	
14,529.0	87.30	174.40	12,417.4	-2,146.6	-1,010.6	2.23	1.29	-1.83	-31.6	-8.3	
14,623.0	89.30	175.20	12,420.2	-2,240.1	-1,002.1	2.29	2.13	0.85	-29.6	-0.4	
14,716.0	90.80	177.80	12,420.1	-2,332.9	-996.4	3.23	1.61	2.80	-30.4	4.6	
14,809.0	91.50	179.50	12,418.3	-2,425.9	-994.2	1.98	0.75	1.83	-33.0	6.2	
14,903.0	89.50	180.50	12,417.4	-2,518.9	-994.2	2.38	-2.13	1.06	-34.6	5.5	

PVA Report

Company: EOG Resources - Midland
 Project: Lea County, NM (NAD 83 NME)
 Site: Antietam 9 Fed Com
 Well: #703H
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well #703H
 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)
14,996.0	86.60	179.00	12,420.6	-2,612.8	-993.8	3.51	-3.12	-1.61	-32.1	5.3
15,090.0	90.10	179.90	12,423.3	-2,706.8	-992.9	3.84	3.72	0.96	-30.2	5.5
15,183.0	92.30	180.40	12,421.4	-2,799.7	-993.2	2.43	2.37	0.54	-32.9	4.6
15,277.0	93.10	180.90	12,416.9	-2,893.6	-994.2	1.00	0.85	0.53	-38.0	2.9
15,370.0	92.00	181.90	12,412.8	-2,986.5	-996.5	1.60	-1.18	1.08	-43.0	0.0
15,464.0	88.40	180.70	12,412.5	-3,080.5	-998.6	4.04	-3.83	-1.28	-44.2	-2.8
15,558.0	89.40	181.60	12,414.3	-3,174.4	-1,000.5	1.43	1.06	0.96	-43.2	-5.3
15,651.0	88.10	178.90	12,416.3	-3,267.4	-1,000.9	3.22	-1.40	-2.90	-42.0	-6.4
15,744.0	91.20	186.40	12,416.9	-3,360.2	-1,005.2	8.73	3.33	8.06	-42.3	-11.2
15,838.0	90.30	186.40	12,415.6	-3,453.6	-1,015.7	0.96	-0.96	0.00	-44.4	-22.3
15,931.0	89.10	185.70	12,416.1	-3,546.1	-1,025.5	1.49	-1.29	-0.75	-44.8	-32.7
16,025.0	91.00	183.30	12,416.1	-3,639.8	-1,032.9	3.26	2.02	-2.55	-45.6	-40.9
16,118.0	83.90	180.00	12,420.2	-3,732.6	-1,035.6	8.42	-7.63	-3.55	-42.2	-44.3
16,232.0	86.30	178.60	12,429.9	-3,846.1	-1,034.2	2.43	2.11	-1.23	-33.5	-43.7
16,326.0	86.60	178.30	12,435.7	-3,939.9	-1,031.6	0.45	0.32	-0.32	-28.5	-41.8
16,419.0	90.50	178.20	12,438.1	-4,032.8	-1,028.8	4.19	4.19	-0.11	-26.9	-39.5
16,513.0	91.30	176.80	12,436.6	-4,126.7	-1,024.7	1.72	0.85	-1.49	-29.2	-36.1
16,607.0	92.00	175.30	12,433.9	-4,220.5	-1,018.2	1.76	0.74	-1.60	-32.6	-30.2
16,700.0	89.80	173.20	12,432.5	-4,313.0	-1,008.9	3.27	-2.37	-2.26	-34.8	-21.5
16,792.0	87.60	174.40	12,434.5	-4,404.4	-999.0	2.72	-2.39	1.30	-33.4	-12.3
16,885.0	88.80	175.50	12,437.5	-4,497.0	-990.8	1.75	1.29	1.18	-31.2	-4.8
16,979.0	91.40	177.20	12,437.3	-4,590.8	-984.8	3.30	2.77	1.81	-32.1	0.6
17,073.0	91.90	178.90	12,434.6	-4,684.7	-981.6	1.88	0.53	1.81	-35.6	3.1
17,166.0	90.80	177.70	12,432.4	-4,777.6	-978.8	1.75	-1.18	-1.29	-38.5	5.2
17,260.0	88.10	179.10	12,433.3	-4,871.6	-976.2	3.24	-2.87	1.49	-38.4	7.2
17,354.0	88.70	179.20	12,435.9	-4,965.5	-974.8	0.65	0.64	0.11	-36.5	7.9
17,447.0	87.00	179.20	12,439.4	-5,058.5	-973.5	1.83	-1.83	0.00	-33.9	8.6

PVA Report

Company: EOG Resources - Midland
 Project: Lea County, NM (NAD 83 NME)
 Site: Antietam 9 Fed Com
 Well: #703H
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well #703H
 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)
17,541.0	86.70	179.70	12,444.6	-5,152.3	-972.6	0.62	-0.32	0.53	-29.5	8.9
17,635.0	88.00	178.80	12,448.9	-5,246.2	-971.4	1.68	1.38	-0.96	-26.0	9.4
17,728.0	91.60	179.20	12,449.3	-5,339.2	-969.8	3.89	3.87	0.43	-26.5	10.4
17,821.0	90.90	179.60	12,447.2	-5,432.1	-968.8	0.87	-0.75	0.43	-29.4	10.7
17,915.0	88.30	180.00	12,447.9	-5,526.1	-968.5	2.80	-2.77	0.43	-29.6	10.4
18,009.0	87.70	180.60	12,451.2	-5,620.1	-969.0	0.90	-0.64	0.64	-27.1	9.3
18,102.0	87.40	180.20	12,455.1	-5,713.0	-969.6	0.54	-0.32	-0.43	-24.0	8.0
18,196.0	86.60	178.80	12,460.1	-5,806.8	-968.8	1.71	-0.85	-1.49	-19.9	8.2
18,289.0	89.90	178.60	12,462.9	-5,899.8	-966.7	3.55	3.55	-0.22	-17.9	9.6
18,383.0	87.80	177.70	12,464.8	-5,993.7	-963.7	2.43	-2.23	-0.96	-16.7	12.0
18,475.0	91.90	179.60	12,465.0	-6,085.6	-961.5	4.91	4.46	2.07	-17.2	13.5
18,569.0	90.10	179.70	12,463.4	-6,179.6	-960.9	1.92	-1.91	0.11	-19.5	13.4
18,663.0	88.70	178.00	12,464.4	-6,273.6	-959.0	2.34	-1.49	-1.81	-19.3	14.7
18,756.0	90.10	177.90	12,465.3	-6,366.5	-955.7	1.51	1.51	-0.11	-19.0	17.4
18,850.0	92.40	178.20	12,463.3	-6,460.4	-952.5	2.47	2.45	0.32	-21.7	19.9
18,943.0	88.20	180.10	12,462.8	-6,553.4	-951.1	4.96	-4.52	2.04	-22.9	20.7
19,037.0	85.90	181.10	12,467.6	-6,647.3	-952.1	2.67	-2.45	1.06	-18.7	19.1
19,129.0	86.90	180.40	12,473.4	-6,739.1	-953.3	1.33	1.09	-0.76	-13.7	17.2
19,223.0	90.90	179.30	12,475.2	-6,833.0	-953.1	4.41	4.26	-1.17	-12.6	16.8
19,316.0	89.00	180.40	12,475.3	-6,926.0	-952.8	2.36	-2.04	1.18	-13.2	16.4
19,409.0	87.20	179.10	12,478.4	-7,019.0	-952.4	2.39	-1.94	-1.40	-10.8	16.1
19,503.0	83.80	178.20	12,485.8	-7,112.6	-950.2	3.74	-3.62	-0.96	-4.1	17.7
19,597.0	86.80	181.10	12,493.5	-7,206.3	-949.6	4.43	3.19	3.09	2.9	17.6
19,690.0	88.20	183.10	12,497.5	-7,299.1	-953.0	2.62	1.51	2.15	6.3	13.5
19,761.0	89.50	183.30	12,498.9	-7,370.0	-957.0	1.85	1.83	0.28	7.2	9.1
Final MWD Survey (MD=19761.0')										

PVA Report

Company: EOG Resources - Midland
Project: Lea County, NM (NAD 83 NME)
Site: Antietam 9 Fed Com
Well: #703H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #703H
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)
19,822.1	93.38	183.30	12,497.4	-7,431.0	-960.5	6.35	6.35	0.00	5.1	5.2
HL Crossing, MD:19822.1', TVD:12497.4', N/S:-7431.0', E/W:-960.5', INC:93.38										
19,824.0	93.50	183.30	12,497.3	-7,432.9	-960.6	6.35	6.35	0.00	5.0	5.1
Final Projection to Bit (MD=19824.0')										

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
12,545.8	12,390.6	-172.0	-987.3	HL Crossing, MD:12545.8', TVD:12390.6', N/S:-172.0', E/W:-987.3', INC:65.79
19,761.0	12,498.9	-7,370.0	-957.0	Final MWD Survey (MD=19761.0')
19,822.1	12,497.4	-7,431.0	-960.5	HL Crossing, MD:19822.1', TVD:12497.4', N/S:-7431.0', E/W:-960.5', INC:93.38
19,824.0	12,497.3	-7,432.9	-960.6	Final Projection to Bit (MD=19824.0')

Checked By: _____ Approved By: _____ Date: _____