

HOBBS OCD

SEP 05 2017

RECEIVED



Lea County, NM (NAD 83 NME)

Antietam 9 Fed Com #702H

H&P 620

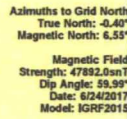
Plan #3

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: #702H

Ground Level: 3438.0
KB= 25 @ 3463.0usft (H&P 620)
Northing 419916.00 Easting 773073.00 Longitude 103° 55' 4.346 W



To convert a Magnetic Direction to a Grid Direction, Add 6.55°
To convert a Magnetic Direction to a True Direction, Add 6.95° East
To convert a True Direction to a Grid Direction, Subtract 0.40°

SECTION DETAILS

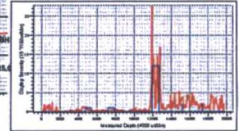
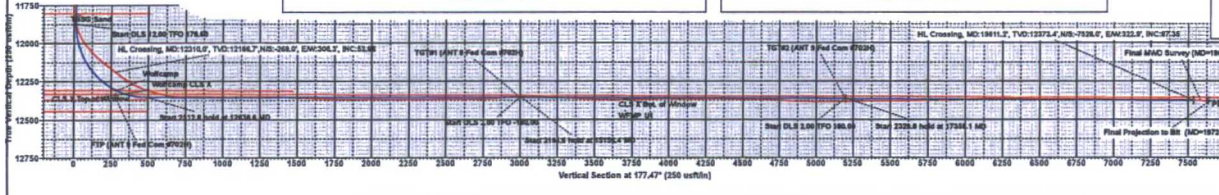
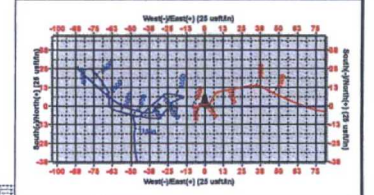
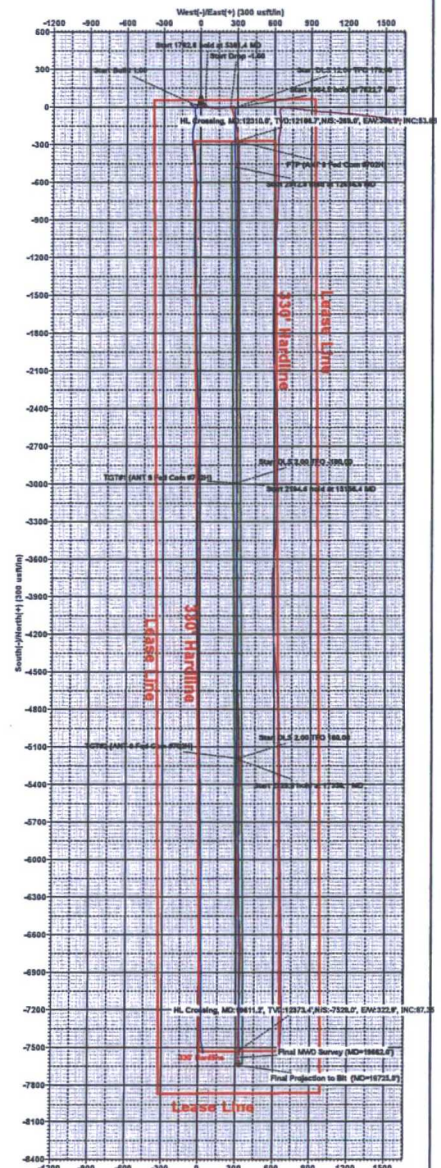
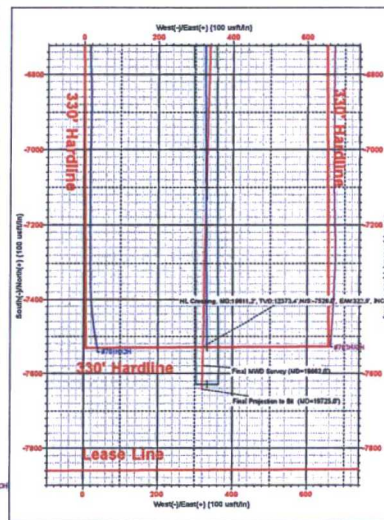
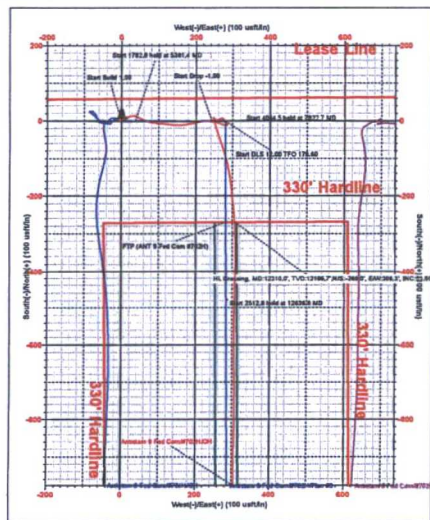
Set	MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	Vsect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	4723.0	0.00	0.00	4723.0	0.0	0.0	0.00	0.00	0.0	
3	5381.4	6.58	90.01	5380.0	0.0	37.8	1.00	90.01	1.7	
4	7164.2	6.58	90.01	7151.0	0.0	242.2	0.00	0.00	10.7	
5	7822.7	0.00	0.00	7808.0	0.0	280.0	1.00	180.00	12.4	
6	11887.2	0.00	0.00	11872.5	0.0	280.0	0.00	0.00	12.4	
7	12636.6	89.93	179.60	12350.0	-476.9	283.3	12.00	179.60	488.9	
8	15149.4	89.93	179.60	12353.0	-2989.7	300.8	0.00	0.00	3000.1	TGT#1 (ANT 9 Fed Com #702H)
9	15156.4	89.79	179.60	12353.0	-2996.7	300.8	2.00	-180.00	3007.0	TGT#2 (ANT 9 Fed Com #702H)
10	17351.0	89.79	179.60	12361.0	-5191.2	316.1	0.00	0.00	5200.1	
11	17358.1	89.65	179.60	12361.0	-5198.3	316.1	2.00	180.00	5207.2	TD (ANT 9 Fed Com #702H)
12	19687.9	89.65	179.60	12375.3	-7528.0	332.3	0.00	0.00	7535.3	

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 #702H)	12353.0	-2989.7	300.8	416920.30	773373.77
TGT#2 (ANT 9 Fed Com #702H)	12361.0	-5191.2	316.1	414716.80	773385.07
TD (ANT 9 Fed Com #702H)	12375.3	-7528.0	332.3	412382.00	773406.00
PBHL (ANT 9 Fed Com #702H)	12350.0	-269.0	282.0	419641.00	773355.00
	12376.0	-7628.0	333.0	412282.00	773406.00



Lea County, NM (NAD 83 NME)
Antietam 9 Fed Com #702H
H&P 620
Plan #3
SEP 05 2017

EOG Resources - Midland

Lea County, NM (NAD 83 NME)

Antietam 9 Fed Com

#702H

OH

Design: OH

PVA Report

14 July, 2017

HOBBS OCD
SEP 05 2017
RECEIVED

PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #702H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB= 25 @ 3463.0usft (H&P 620)
Site:	Antietam 9 Fed Com	MD Reference:	KB= 25 @ 3463.0usft (H&P 620)
Well:	#702H	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	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	#702H					
Well Position	+N/-S	0.0 usft	Northing:	419,910.00 usft	Latitude:	32° 9' 7.904 N
	+E/-W	0.0 usft	Easting:	773,073.00 usft	Longitude:	103° 35' 4.346 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	3,438.0 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	6/24/2017	6.95	59.99	47,892.00867532

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	177.50	

PVA Report

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Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB= 25 @ 3463.0usft (H&P 620)
Site:	Antietam 9 Fed Com	MD Reference:	KB= 25 @ 3463.0usft (H&P 620)
Well:	#702H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.14

Survey Program		Date	7/14/2017		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
187.0	1,169.0	Invictus MWD (OH)	MWD	MWD - Standard	
1,230.0	19,725.0	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	0.0
187.0	0.80	307.98	187.0	0.8	-1.0	0.43	0.43	0.00	-1.3	0.0	
217.0	0.60	303.98	217.0	1.0	-1.3	0.69	-0.67	-13.33	-1.7	-0.1	
247.0	0.60	297.98	247.0	1.2	-1.6	0.21	0.00	-20.00	-2.0	-0.3	
276.0	0.30	275.98	276.0	1.3	-1.8	1.18	-1.03	-75.86	-1.9	-1.1	
304.0	0.60	335.98	304.0	1.4	-1.9	1.86	1.07	214.29	-2.1	1.2	
333.0	0.30	0.98	333.0	1.6	-2.0	1.21	-1.03	86.21	-1.6	2.0	
364.0	0.30	233.98	364.0	1.7	-2.1	1.73	0.00	-409.68	-0.7	-2.5	
396.0	0.30	223.98	396.0	1.5	-2.2	0.16	0.00	-31.25	-0.4	-2.6	
426.0	0.30	203.98	426.0	1.4	-2.3	0.35	0.00	-66.67	0.4	-2.7	
457.0	0.40	237.98	457.0	1.3	-2.4	0.73	0.32	109.68	-1.4	-2.4	
489.0	0.20	201.98	489.0	1.2	-2.5	0.83	-0.62	-112.50	0.1	-2.8	
552.0	0.60	262.98	552.0	1.0	-2.9	0.85	0.63	96.83	-2.7	-1.4	
582.0	0.50	234.98	582.0	0.9	-3.1	0.94	-0.33	-93.33	-2.0	-2.6	
613.0	0.10	173.98	613.0	0.8	-3.3	1.48	-1.29	-196.77	1.2	-3.1	
645.0	0.30	340.98	645.0	0.9	-3.3	1.24	0.62	521.87	-1.9	2.8	
676.0	0.50	260.98	676.0	0.9	-3.4	1.73	0.65	-258.06	-3.2	-1.5	
708.0	0.40	182.98	708.0	0.8	-3.6	1.79	-0.31	-243.75	0.6	-3.6	
803.0	0.30	250.98	803.0	0.4	-3.8	0.42	-0.11	71.58	-3.5	-1.6	
835.0	0.50	153.98	835.0	0.2	-3.9	1.92	0.62	-303.12	1.9	-3.4	
866.0	0.60	223.98	866.0	0.0	-3.9	2.05	0.32	225.81	-2.7	-2.8	

PVA Report

Company: EOG Resources - Midland
 Project: Lea County, NM (NAD 83 NME)
 Site: Antietam 9 Fed Com
 Well: #702H
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well #702H
 TVD Reference: KB= 25 @ 3463.0usft (H&P 620)
 MD Reference: KB= 25 @ 3463.0usft (H&P 620)
 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)	
897.0	0.60	160.98	897.0	-0.3	-4.0	2.02	0.00	-203.23	1.0	-3.8	
928.0	0.30	155.98	928.0	-0.5	-3.9	0.98	-0.97	-16.13	1.1	-3.7	
960.0	0.20	265.98	960.0	-0.6	-3.9	1.29	-0.31	343.75	-3.9	0.3	
1,023.0	0.50	268.98	1,023.0	-0.6	-4.3	0.48	0.48	4.76	-4.3	0.5	
1,054.0	0.80	254.98	1,054.0	-0.7	-4.6	1.09	0.97	-45.16	-4.6	-0.6	
1,085.0	0.70	281.98	1,085.0	-0.7	-5.0	1.17	-0.32	87.10	-4.8	1.7	
1,116.0	0.30	276.98	1,116.0	-0.6	-5.3	1.30	-1.29	-16.13	-5.2	1.3	
1,146.0	0.60	322.98	1,146.0	-0.5	-5.5	1.49	1.00	153.33	-2.9	4.7	
1,169.0	0.50	260.98	1,169.0	-0.4	-5.6	2.49	-0.43	-269.57	-5.6	-0.5	
1,230.0	0.40	287.80	1,230.0	-0.4	-6.1	0.38	-0.16	43.97	-5.7	2.2	
1,322.0	0.40	291.40	1,322.0	-0.2	-6.7	0.03	0.00	3.91	-6.2	2.6	
1,416.0	0.50	267.30	1,416.0	-0.1	-7.4	0.23	0.11	-25.64	-7.4	-0.3	
1,510.0	0.70	286.70	1,510.0	0.1	-8.4	0.30	0.21	20.64	-8.0	2.3	
1,604.0	0.60	87.40	1,604.0	0.3	-8.4	1.36	-0.11	170.96	8.4	0.7	
1,697.0	0.90	92.20	1,696.9	0.3	-7.2	0.33	0.32	5.16	7.2	0.0	
1,791.0	0.60	94.90	1,790.9	0.2	-6.0	0.32	-0.32	2.87	6.0	-0.3	
1,886.0	0.70	90.40	1,885.9	0.1	-4.9	0.12	0.11	-4.74	4.9	0.1	
1,979.0	0.60	89.30	1,978.9	0.1	-3.9	0.11	-0.11	-1.18	3.9	0.2	
2,072.0	0.70	77.00	2,071.9	0.3	-2.8	0.18	0.11	-13.23	2.7	0.9	
2,166.0	0.90	79.60	2,165.9	0.5	-1.5	0.22	0.21	2.77	1.4	0.8	
2,353.0	0.80	85.60	2,352.9	0.9	1.2	0.07	-0.05	3.21	-1.3	0.8	
2,540.0	0.80	46.10	2,539.9	1.9	3.5	0.29	0.00	-21.12	-3.8	-1.0	
2,727.0	1.00	29.00	2,726.8	4.2	5.2	0.18	0.11	-9.14	-6.2	-2.5	
2,915.0	1.20	22.00	2,914.8	7.5	6.7	0.13	0.11	-3.72	-9.5	-3.4	
3,103.0	1.10	74.30	3,102.8	9.8	9.2	0.54	-0.05	27.82	-11.5	7.0	
3,290.0	1.80	83.80	3,289.7	10.6	13.8	0.39	0.37	5.08	-14.9	9.1	
3,477.0	1.50	74.80	3,476.6	11.6	19.1	0.21	-0.16	-4.81	-21.5	6.2	

PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #702H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB= 25 @ 3463.0usft (H&P 620)
Site:	Antietam 9 Fed Com	MD Reference:	KB= 25 @ 3463.0usft (H&P 620)
Well:	#702H	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)	Buidl (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)	
3,664.0	1.20	79.10	3,663.6	12.6	23.4	0.17	-0.16	2.30	-25.4	7.9	
3,852.0	2.60	80.00	3,851.5	13.7	29.5	0.74	0.74	0.48	-31.5	8.4	
4,039.0	1.40	97.30	4,038.4	14.2	36.0	0.71	-0.64	9.25	-33.9	18.6	
4,133.0	1.00	102.30	4,132.3	13.8	37.9	0.44	-0.43	5.32	-34.1	21.6	
4,320.0	1.00	139.50	4,319.3	12.2	40.6	0.34	0.00	19.89	-17.0	38.8	
4,506.0	3.60	111.80	4,505.2	8.8	47.1	1.48	1.40	-14.89	-40.4	25.7	
4,693.0	5.70	116.40	4,691.5	2.5	60.8	1.14	1.12	2.46	-53.3	29.4	
4,881.0	3.60	96.90	4,878.9	-2.3	75.0	1.38	-1.12	-10.37	-72.7	6.4	
5,068.0	2.90	102.40	5,065.6	-4.1	85.5	0.41	-0.37	2.94	-74.2	12.1	
5,256.0	3.90	95.60	5,253.3	-5.7	96.5	0.57	0.53	-3.62	-71.8	1.3	
5,444.0	4.80	94.80	5,440.7	-7.0	110.7	0.48	0.48	-0.43	-65.8	-1.5	
5,632.0	4.50	96.20	5,628.1	-8.4	125.9	0.17	-0.16	0.74	-59.6	-2.0	
5,819.0	4.90	98.50	5,814.5	-10.4	141.1	0.24	0.21	1.23	-53.7	-2.5	
6,007.0	5.10	85.70	6,001.8	-11.0	157.3	0.60	0.11	-6.81	-46.5	-14.5	
6,195.0	5.20	81.00	6,189.0	-9.0	174.1	0.23	0.05	-2.50	-40.7	-15.5	
6,382.0	5.20	79.10	6,375.3	-6.1	190.8	0.09	0.00	-1.02	-36.0	-13.1	
6,570.0	4.10	75.80	6,562.6	-2.8	205.7	0.60	-0.59	-1.76	-29.5	-10.3	
6,758.0	4.30	84.30	6,750.1	-0.5	219.2	0.35	0.11	4.52	-22.9	-2.7	
6,945.0	4.00	92.40	6,936.6	0.0	232.7	0.35	-0.16	4.33	-15.1	0.6	
7,128.0	3.90	100.90	7,119.2	-1.5	245.2	0.32	-0.05	4.64	-6.7	-0.2	
7,316.0	3.60	102.20	7,306.8	-3.9	257.2	0.17	-0.16	0.69	0.0	-4.0	
7,503.0	3.30	112.00	7,493.5	-7.2	267.9	0.35	-0.16	5.24	0.5	-7.9	
7,691.0	2.20	114.90	7,681.2	-10.8	276.2	0.59	-0.59	1.54	-2.4	-10.7	
7,875.0	1.70	72.20	7,865.1	-11.4	282.0	0.81	-0.27	-23.21	1.5	-11.4	
8,063.0	0.70	28.50	8,053.1	-9.5	285.2	0.69	-0.53	-23.24	5.8	-9.1	
8,250.0	1.00	337.00	8,240.1	-7.0	285.2	0.42	0.16	-27.54	8.5	-2.0	
8,438.0	0.90	299.00	8,428.1	-4.8	283.2	0.33	-0.05	-20.21	5.1	2.6	

PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #702H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB= 25 @ 3463.0usft (H&P 620)
Site:	Antietam 9 Fed Com	MD Reference:	KB= 25 @ 3463.0usft (H&P 620)
Well:	#702H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.14

Survey										
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8,625.0	0.40	336.10	8,615.1	-3.5	281.7	0.34	-0.27	19.84	3.8	-0.1
8,813.0	0.30	137.00	8,803.1	-3.3	281.7	0.37	-0.05	85.59	-3.5	-0.9
9,001.0	0.20	180.00	8,991.0	-3.9	282.1	0.11	-0.05	22.87	-3.9	2.1
9,189.0	0.10	216.60	9,179.0	-4.4	282.0	0.07	-0.05	19.47	-2.3	4.2
9,376.0	0.20	254.40	9,366.0	-4.6	281.6	0.07	0.05	20.21	0.3	4.8
9,564.0	0.80	330.20	9,554.0	-3.6	280.6	0.41	0.32	40.32	3.4	1.2
9,751.0	1.80	338.90	9,741.0	0.3	278.9	0.54	0.53	4.65	-0.7	0.9
9,939.0	2.20	314.70	9,928.9	5.6	275.3	0.49	0.21	-12.87	-7.3	-0.7
10,126.0	0.40	272.90	10,115.8	8.1	272.1	1.03	-0.96	-22.35	-8.3	-7.8
10,314.0	0.40	279.70	10,303.8	8.3	270.8	0.03	0.00	3.62	-10.5	-6.7
10,502.0	0.80	225.60	10,491.8	7.5	269.2	0.35	0.21	-28.78	-2.5	-12.9
10,595.0	1.50	226.50	10,584.8	6.2	267.8	0.75	0.75	0.97	-4.5	-12.9
10,783.0	1.40	260.80	10,772.7	4.1	263.8	0.46	-0.05	18.24	-15.3	-6.7
10,971.0	1.90	255.40	10,960.7	3.0	258.5	0.28	0.27	-2.87	-20.1	-8.3
11,159.0	0.90	317.60	11,148.6	3.3	254.5	0.89	-0.53	33.09	-19.7	16.6
11,347.0	0.70	284.70	11,336.6	4.7	252.4	0.26	-0.11	-17.50	-27.9	2.5
11,534.0	0.90	318.60	11,523.6	6.1	250.3	0.27	0.11	18.13	-24.2	18.3
11,654.0	2.00	329.50	11,643.5	8.6	248.6	0.94	0.92	9.08	-23.3	22.7
11,753.0	0.90	286.40	11,742.5	10.3	247.0	1.49	-1.11	-43.54	-34.6	-0.6
11,847.0	5.80	164.90	11,836.4	5.9	247.5	6.72	5.21	-129.26	14.1	-29.8
11,893.0	18.50	164.30	11,881.2	-3.4	250.1	27.61	27.61	-1.30	4.7	-29.7
11,941.0	25.30	161.50	11,925.7	-20.5	255.4	14.33	14.17	-5.83	-8.6	-28.8
11,987.0	31.60	159.70	11,966.2	-41.1	262.7	13.82	13.70	-3.91	-23.0	-27.3
12,035.0	38.70	160.80	12,005.4	-67.1	272.0	14.85	14.79	2.29	-40.8	-23.0
12,081.0	41.80	162.90	12,040.5	-95.4	281.3	7.36	6.74	4.57	-57.9	-15.9
12,128.0	46.30	169.60	12,074.3	-127.1	289.0	13.77	9.57	14.26	-73.5	-3.2
12,174.0	51.30	172.80	12,104.6	-161.3	294.2	12.06	10.87	6.96	-86.2	5.0

PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #702H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB= 25 @ 3463.0usft (H&P 620)
Site:	Antietam 9 Fed Com	MD Reference:	KB= 25 @ 3463.0usft (H&P 620)
Well:	#702H	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)
12,222.0	53.10	173.30	12,134.0	-198.9	298.8	3.84	3.75	1.04	-96.6	9.8
12,268.0	53.00	172.70	12,161.6	-235.4	303.3	1.06	-0.22	-1.30	-101.8	13.8
12,310.0	53.86	176.91	12,186.7	-269.0	306.3	8.30	2.06	10.02	-101.1	21.8
HL Crossing, MD:12310.0', TVD:12186.7', N/S:-269.0', E/W:306.3', INC:53.86										
12,316.0	54.00	177.50	12,190.2	-273.8	306.6	8.30	2.26	9.89	-100.6	22.7
12,362.0	54.10	178.40	12,217.2	-311.1	307.9	1.60	0.22	1.96	-94.9	25.2
12,410.0	57.20	179.40	12,244.3	-350.7	308.7	6.68	6.46	2.08	-84.5	26.8
12,456.0	62.10	181.20	12,267.5	-390.4	308.4	11.17	10.65	3.91	-72.5	27.1
12,503.0	69.00	181.50	12,287.0	-433.1	307.4	14.69	14.68	0.64	-60.2	25.4
12,549.0	72.60	181.00	12,302.1	-476.5	306.5	7.89	7.83	-1.09	-47.4	24.1
12,597.0	73.70	181.00	12,316.0	-522.5	305.7	2.29	2.29	0.00	-33.5	22.8
12,643.0	76.10	180.90	12,328.0	-566.9	304.9	5.22	5.22	-0.22	-21.7	21.4
12,691.0	79.20	179.80	12,338.3	-613.7	304.7	6.84	6.46	-2.29	-11.7	20.5
12,737.0	83.10	178.60	12,345.3	-659.2	305.3	8.86	8.48	-2.61	-4.9	20.7
12,769.0	88.50	178.90	12,347.7	-691.1	306.0	16.90	16.87	0.94	-2.5	21.2
12,814.0	90.80	180.40	12,348.0	-736.1	306.3	6.10	5.11	3.33	-2.3	21.2
12,908.0	89.30	180.70	12,347.9	-830.1	305.4	1.63	-1.60	0.32	-2.5	19.6
13,001.0	88.60	180.60	12,349.6	-923.0	304.3	0.76	-0.75	-0.11	-0.9	17.9
13,094.0	90.50	179.90	12,350.3	-1,016.0	303.9	2.18	2.04	-0.75	-0.3	16.8
13,187.0	90.80	179.30	12,349.3	-1,109.0	304.6	0.72	0.32	-0.65	-1.5	16.8
13,280.0	89.90	179.70	12,348.7	-1,202.0	305.4	1.06	-0.97	0.43	-2.2	17.0
13,372.0	89.40	179.90	12,349.2	-1,294.0	305.7	0.59	-0.54	0.22	-1.7	16.7
13,466.0	88.60	179.90	12,350.9	-1,388.0	305.9	0.85	-0.85	0.00	-0.2	16.2
13,560.0	87.00	179.30	12,354.5	-1,481.9	306.5	1.82	-1.70	-0.64	3.3	16.2
13,653.0	88.70	179.20	12,358.0	-1,574.8	307.7	1.83	1.83	-0.11	6.7	16.8
13,747.0	87.20	178.60	12,361.3	-1,668.8	309.5	1.72	-1.60	-0.64	9.9	17.9
13,841.0	87.60	179.40	12,365.6	-1,762.7	311.2	0.95	0.43	0.85	14.1	18.9

PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #702H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB= 25 @ 3463.0usft (H&P 620)
Site:	Antietam 9 Fed Com	MD Reference:	KB= 25 @ 3463.0usft (H&P 620)
Well:	#702H	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)	
13,935.0	91.50	180.80	12,366.3	-1,856.6	311.0	4.41	4.15	1.49	14.7	18.1	
14,028.0	91.70	181.30	12,363.8	-1,949.6	309.3	0.58	0.22	0.54	12.0	15.8	
14,122.0	89.10	182.20	12,363.1	-2,043.5	306.4	2.93	-2.77	0.96	11.3	12.2	
14,216.0	90.10	182.40	12,363.8	-2,137.4	302.7	1.08	1.06	0.21	11.8	7.8	
14,310.0	88.10	181.30	12,365.2	-2,231.4	299.6	2.43	-2.13	-1.17	13.1	4.1	
14,403.0	91.30	178.10	12,365.7	-2,324.3	300.1	4.87	3.44	-3.44	13.5	4.0	
14,497.0	91.50	179.20	12,363.4	-2,418.3	302.3	1.19	0.21	1.17	11.1	5.5	
14,591.0	89.90	180.00	12,362.3	-2,512.3	303.0	1.90	-1.70	0.85	9.8	5.5	
14,685.0	89.40	180.70	12,362.8	-2,606.3	302.4	0.92	-0.53	0.74	10.3	4.3	
14,778.0	89.50	180.00	12,363.7	-2,699.3	301.8	0.76	0.11	-0.75	11.1	3.1	
14,872.0	94.40	179.20	12,360.5	-2,793.2	302.5	5.28	5.21	-0.85	7.8	3.1	
14,966.0	95.70	180.00	12,352.3	-2,886.8	303.1	1.62	1.38	0.85	-0.6	3.1	
15,059.0	92.90	180.70	12,345.3	-2,979.5	302.6	3.10	-3.01	0.75	-7.7	1.9	
15,153.0	89.40	180.50	12,343.4	-3,073.5	301.6	3.73	-3.72	-0.21	-9.9	0.2	
15,247.0	85.80	179.30	12,347.3	-3,167.4	301.8	4.04	-3.83	-1.28	-6.3	-0.3	
15,340.0	86.60	179.30	12,353.5	-3,260.2	302.9	0.86	0.86	0.00	-0.5	0.2	
15,434.0	88.50	179.50	12,357.5	-3,354.1	303.9	2.03	2.02	0.21	3.2	0.6	
15,527.0	87.30	179.30	12,360.9	-3,447.0	304.8	1.31	-1.29	-0.22	6.3	0.9	
15,621.0	87.50	180.50	12,365.2	-3,540.9	305.0	1.29	0.21	1.28	10.2	0.4	
15,714.0	91.50	181.50	12,366.0	-3,633.9	303.4	4.43	4.30	1.08	10.7	-1.9	
15,808.0	88.70	180.50	12,365.8	-3,727.9	301.7	3.16	-2.98	-1.06	10.2	-4.2	
15,902.0	92.80	179.70	12,364.6	-3,821.8	301.6	4.44	4.36	-0.85	8.6	-5.0	
15,996.0	91.30	179.60	12,361.3	-3,915.8	302.2	1.60	-1.60	-0.11	4.9	-5.1	
16,090.0	88.60	179.40	12,361.3	-4,009.8	303.0	2.88	-2.87	-0.21	4.6	-4.9	
16,183.0	87.90	180.60	12,364.2	-4,102.7	303.0	1.49	-0.75	1.29	7.1	-5.5	
16,277.0	92.40	179.70	12,363.9	-4,196.7	302.7	4.88	4.79	-0.96	6.5	-6.4	
16,371.0	90.90	179.00	12,361.2	-4,290.6	303.8	1.76	-1.60	-0.74	3.5	-6.0	

PVA Report

Company: EOG Resources - Midland
 Project: Lea County, NM (NAD 83 NME)
 Site: Antietam 9 Fed Com
 Well: #702H
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well #702H
 TVD Reference: KB= 25 @ 3463.0usft (H&P 620)
 MD Reference: KB= 25 @ 3463.0usft (H&P 620)
 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)	
16,465.0	87.40	177.40	12,362.6	-4,384.6	306.7	4.09	-3.72	-1.70	4.6	-3.7	
16,558.0	89.70	178.40	12,365.0	-4,477.5	310.2	2.70	2.47	1.08	6.6	-1.0	
16,652.0	90.50	179.80	12,364.8	-4,571.4	311.6	1.72	0.85	1.49	6.1	-0.1	
16,746.0	88.00	178.90	12,366.0	-4,665.4	312.7	2.83	-2.66	-0.96	6.9	0.3	
16,840.0	86.10	178.10	12,370.9	-4,759.3	315.2	2.19	-2.02	-0.85	11.4	2.1	
16,934.0	87.90	178.00	12,375.8	-4,853.1	318.3	1.92	1.91	-0.11	16.0	4.6	
17,027.0	87.90	178.60	12,379.2	-4,946.0	321.1	0.64	0.00	0.65	19.1	6.7	
17,121.0	89.00	177.80	12,381.7	-5,039.9	324.1	1.45	1.17	-0.85	21.3	9.0	
17,214.0	90.90	178.60	12,381.8	-5,132.8	327.0	2.22	2.04	0.86	21.0	11.3	
17,308.0	91.80	180.20	12,379.6	-5,226.8	328.0	1.95	0.96	1.70	18.4	11.7	
17,401.0	91.30	180.20	12,377.1	-5,319.8	327.6	0.54	-0.54	0.00	15.3	10.7	
17,495.0	89.10	180.10	12,376.8	-5,413.8	327.4	2.34	-2.34	-0.11	14.4	9.8	
17,589.0	90.90	180.70	12,376.8	-5,507.8	326.7	2.02	1.91	0.64	13.8	8.5	
17,683.0	91.50	181.10	12,374.8	-5,601.7	325.3	0.77	0.64	0.43	11.3	6.3	
17,777.0	90.40	180.70	12,373.2	-5,695.7	323.8	1.25	-1.17	-0.43	9.2	4.2	
17,871.0	90.90	181.40	12,372.2	-5,789.7	322.1	0.92	0.53	0.74	7.5	1.8	
17,964.0	92.30	182.20	12,369.6	-5,882.6	319.1	1.73	1.51	0.86	4.4	-1.7	
18,058.0	93.20	182.10	12,365.1	-5,976.4	315.6	0.96	0.96	-0.11	-0.7	-5.9	
18,155.0	91.80	180.70	12,360.8	-6,073.3	313.3	2.04	-1.44	-1.44	-5.6	-9.0	
18,248.0	91.40	180.70	12,358.2	-6,166.2	312.1	0.43	-0.43	0.00	-8.7	-10.7	
18,342.0	87.60	178.60	12,359.1	-6,260.2	312.7	4.62	-4.04	-2.23	-8.5	-10.8	
18,436.0	91.00	177.40	12,360.2	-6,354.1	316.0	3.84	3.62	-1.28	-7.9	-8.2	
18,529.0	88.40	174.90	12,360.7	-6,446.9	322.2	3.88	-2.80	-2.69	-8.0	-2.6	
18,623.0	89.00	175.00	12,362.8	-6,540.5	330.5	0.65	0.64	0.11	-6.4	5.0	
18,717.0	89.60	177.30	12,364.0	-6,634.3	336.8	2.53	0.64	2.45	-5.9	10.7	
18,811.0	91.20	180.50	12,363.3	-6,728.3	338.6	3.81	1.70	3.40	-7.1	11.8	
18,905.0	89.90	182.10	12,362.4	-6,822.2	336.5	2.19	-1.38	1.70	-8.6	9.1	

PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #702H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB= 25 @ 3463.0usft (H&P 620)
Site:	Antietam 9 Fed Com	MD Reference:	KB= 25 @ 3463.0usft (H&P 620)
Well:	#702H	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)	
18,999.0	88.20	181.10	12,364.0	-6,916.2	333.8	2.10	-1.81	-1.06	-7.6	5.8	
19,092.0	88.80	180.80	12,366.4	-7,009.1	332.3	0.72	0.65	-0.32	-5.7	3.6	
19,186.0	88.30	180.90	12,368.8	-7,103.1	330.9	0.54	-0.53	0.11	-3.9	1.6	
19,280.0	91.30	182.00	12,369.1	-7,197.0	328.5	3.40	3.19	1.17	-4.2	-1.5	
19,374.0	91.70	181.20	12,366.7	-7,291.0	325.9	0.95	0.43	-0.85	-7.2	-4.8	
19,468.0	87.80	180.30	12,367.1	-7,384.9	324.7	4.26	-4.15	-0.96	-7.4	-6.6	
19,562.0	87.30	180.80	12,371.1	-7,478.9	323.8	0.75	-0.53	0.53	-3.9	-8.2	
19,611.2	87.35	181.28	12,373.4	-7,528.0	322.9	0.97	0.11	0.97	-1.9	-9.4	
HL Crossing, MD:19611.2', TVD:12373.4',N/S:-7528.0', E/W:322.9', INC:87.35											
19,655.0	87.40	181.70	12,375.4	-7,571.7	321.7	0.97	0.11	0.97	-9.1	-44.1	
19,662.0	87.50	181.80	12,375.7	-7,578.7	321.5	2.02	1.43	1.43	-10.2	-50.9	
Final MWD Survey (MD=19662.0')											
19,725.0	87.50	181.80	12,378.4	-7,641.6	319.6	0.00	0.00	0.00	-22.4	-112.2	
Final Projection to Bit (MD=19725.0')											

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
12,310.0	12,186.7	-269.0	306.3	HL Crossing, MD:12310.0', TVD:12186.7',N/S:-269.0', E/W:306.3', INC:53.86	
19,611.2	12,373.4	-7,528.0	322.9	HL Crossing, MD:19611.2', TVD:12373.4',N/S:-7528.0', E/W:322.9', INC:87.35	
19,662.0	12,375.7	-7,578.7	321.5	Final MWD Survey (MD=19662.0')	
19,725.0	12,378.4	-7,641.6	319.6	Final Projection to Bit (MD=19725.0')	

Checked By: _____ Approved By: _____ Date: _____