

**HOBBS OCD**

**JUL 19 2019**

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**EOG Resources - Midland**

Lea County, NM (NAD 83 NME)

Antietam 9 Fed Com

#713H

OH

Design: OH

**Midland PVA**

01 April, 2019





Midland PVA

<b>Company:</b>	EOG Resources - Midland	<b>Local Co-ordinate Reference:</b>	Well #713H
<b>Project:</b>	Lea County, NM (NAD 83 NME)	<b>TVD Reference:</b>	KB = 25 @ 3441.0usft
<b>Site:</b>	Antietam 9 Fed Com	<b>MD Reference:</b>	KB = 25 @ 3441.0usft
<b>Well:</b>	#713H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	EDM 5000.14

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

<b>Site</b>	Antietam 9 Fed Com				
<b>Site Position:</b>		<b>Northing:</b>	419,815.00 usft	<b>Latitude:</b>	32° 8' 6.852 N
<b>From:</b>	Map	<b>Easting:</b>	774,698.00 usft	<b>Longitude:</b>	103° 34' 15.584 W
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	0.40 °

<b>Well</b>	#713H					
<b>Well Position</b>	+N-S	0.0 usft	<b>Northing:</b>	418,940.00 usft	<b>Latitude:</b>	32° 8' 58.014 N
	+E-W	0.0 usft	<b>Easting:</b>	777,272.00 usft	<b>Longitude:</b>	103° 34' 15.584 W
<b>Position Uncertainty</b>		0.0 usft	<b>Wellhead Elevation:</b>	usft	<b>Ground Level:</b>	3,416.0 usft

<b>Wellbore</b>	OH					
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>	
	IGRF2015	7/15/2018	6.63	59.98	47,763.31018502	

<b>Design</b>	OH				
<b>AudR Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>		<b>Depth From (TVD) (usft)</b>	<b>+N-S (usft)</b>	<b>+E-W (usft)</b>	<b>Direction (°)</b>
		0.0	0.0	0.0	185.57

<b>Survey Program</b>	<b>Date</b>	4/1/2019			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
175.0	19,990.0	Newaco MWD (OH)	MWD	OWSG MWD - Standard	



Midland PVA

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Well:	#713H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.14

Survey												
MD (usft)	Inc (°)	Azi (azimuth (°))		TVD (usft)	N/S (usft)	EW (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)	
0.0	0.00	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.0	0.0	0.0
175.0	1.20	183.50	175.0	175.0	-1.8	-0.1	0.69	0.69	0.00	0.0	0.0	0.0
353.0	1.40	189.40	352.9	352.9	-5.8	-0.6	0.14	0.11	3.31	0.0	0.0	0.0
508.0	1.10	186.20	507.9	507.9	-9.2	-1.1	0.20	-0.19	-2.06	0.0	0.0	0.0
695.0	1.00	183.60	694.9	694.9	-12.6	-1.3	0.06	-0.05	-1.39	0.0	0.0	0.0
881.0	1.00	200.40	880.8	880.8	-15.7	-2.0	0.16	0.00	9.03	0.0	0.0	0.0
1,069.0	0.30	157.20	1,068.8	1,068.8	-17.7	-2.4	0.43	-0.37	-22.98	0.0	0.0	0.0
1,172.0	0.70	65.50	1,171.8	1,171.8	-17.7	-1.7	0.75	0.39	-89.03	0.0	0.0	0.0
1,331.0	2.90	348.10	1,330.8	1,330.8	-13.4	-1.7	1.78	1.38	-48.68	-1.1	-0.4	-0.4
1,425.0	6.00	335.00	1,424.5	1,424.5	-8.6	-4.2	3.45	3.30	-13.94	-2.6	-1.4	-1.4
1,612.0	12.90	331.90	1,608.8	1,608.8	20.7	-18.2	3.70	3.69	-1.66	-13.0	-3.4	-3.4
1,799.0	13.00	333.50	1,791.1	1,791.1	57.9	-37.4	0.20	0.05	0.86	-23.1	-8.9	-8.9
1,986.0	12.80	333.50	1,973.3	1,973.3	95.3	-56.1	0.11	-0.11	0.00	-26.4	-12.7	-12.7
2,174.0	12.80	334.20	2,156.6	2,156.6	132.8	-74.5	0.10	0.05	0.37	-29.8	-18.4	-18.4
2,362.0	12.90	334.50	2,339.9	2,339.9	170.7	-92.6	0.04	0.00	0.16	-33.4	-24.7	-24.7
2,549.0	12.50	326.50	2,522.3	2,522.3	206.4	-112.8	0.96	-0.21	-4.28	-31.7	-32.9	-32.9
2,737.0	13.00	326.70	2,705.7	2,705.7	241.0	-135.6	0.27	0.27	0.11	-34.3	-33.9	-33.9
2,924.0	13.20	328.70	2,887.8	2,887.8	276.9	-158.3	0.26	0.11	1.07	-39.0	-34.6	-34.6
3,111.0	13.40	330.10	3,069.8	3,069.8	313.9	-180.2	0.20	0.11	0.75	-44.2	-36.6	-36.6
3,299.0	12.30	316.70	3,253.1	3,253.1	347.3	-204.8	1.69	-0.59	-7.13	-37.3	-45.1	-45.1
3,486.0	12.40	320.30	3,435.8	3,435.8	377.3	-231.3	0.42	0.05	1.93	-41.2	-38.3	-38.3
3,674.0	10.50	317.80	3,620.1	3,620.1	405.5	-255.7	1.04	-1.01	-1.33	-38.0	-36.0	-36.0
3,861.0	9.30	323.60	3,804.3	3,804.3	430.3	-276.1	0.83	-0.64	3.10	-34.4	-29.5	-29.5
4,048.0	7.50	330.40	3,989.3	3,989.3	453.1	-291.1	1.10	-0.96	3.64	-26.8	-27.2	-27.2
4,235.0	9.50	325.70	4,174.2	4,174.2	476.4	-305.8	1.13	1.07	-2.51	-12.1	-30.7	-30.7
4,423.0	6.90	333.20	4,360.3	4,360.3	499.3	-319.6	1.49	-1.38	3.99	-3.7	-32.4	-32.4
4,610.0	4.90	345.30	4,546.3	4,546.3	517.1	-326.7	1.25	-1.07	6.47	7.2	-42.2	-42.2



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Well:	#713H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.14

Survey											
MD (usft)	Inc (")	Azi (azimuth)	TVD (usft)	N/S (usft)	EW (usft)	DLeg ("/100usft)	Build ("/100usft)	Turn ("/100usft)	High to Plan (usft)	Right to Plan (usft)	
4,798.0	4.30	334.20	4,733.7	531.2	-331.8	0.57	-0.32	-5.90	38.9	-48.0	
4,892.0	7.20	298.50	4,827.2	537.2	-338.6	4.78	3.09	-37.98	68.4	-9.9	
4,985.0	11.30	282.50	4,919.0	543.5	-352.1	4.52	4.41	-6.45	70.6	6.9	
5,079.0	14.80	295.80	5,010.6	552.2	-371.4	3.81	3.72	3.51	68.8	12.9	
5,266.0	14.00	299.80	5,191.7	573.9	-412.6	0.68	-0.43	2.14	58.2	26.4	
5,358.0	16.70	310.00	5,280.4	587.9	-432.3	4.14	2.93	11.09	54.1	23.2	
5,547.0	17.50	313.90	5,461.1	625.0	-473.8	0.74	0.42	2.06	38.1	28.9	
5,734.0	18.10	318.20	5,639.1	666.2	-513.2	0.77	0.32	2.30	21.1	32.7	
5,921.0	16.70	324.80	5,817.8	709.8	-548.1	1.29	-0.75	3.53	7.3	33.5	
6,109.0	15.30	324.30	5,998.3	752.0	-578.1	0.75	-0.74	-0.27	-6.1	33.8	
6,296.0	13.70	325.80	6,179.3	790.4	-605.0	0.88	-0.86	0.80	-13.3	34.0	
6,483.0	13.50	325.60	6,361.1	828.7	-629.8	0.11	-0.11	-0.11	-18.8	33.5	
6,670.0	13.80	329.30	6,542.8	863.9	-653.6	0.49	0.16	1.98	-21.9	33.0	
6,858.0	13.90	333.10	6,723.4	902.9	-674.9	0.49	0.05	2.04	-28.0	30.4	
7,044.0	11.30	338.60	6,906.9	940.2	-691.9	1.52	-1.38	2.93	-25.9	25.6	
7,231.0	7.30	354.60	7,091.4	969.1	-699.7	2.53	-2.14	8.56	-14.0	17.8	
7,419.0	2.70	45.60	7,278.7	984.1	-697.6	3.18	-2.45	27.13	-2.0	2.4	
7,607.0	2.30	44.60	7,466.5	989.9	-691.8	0.21	-0.21	-0.53	-7.1	-14.6	
7,794.0	2.10	51.40	7,653.4	994.7	-688.5	0.18	-0.11	3.84	-15.7	-18.0	
7,982.0	2.00	67.50	7,841.3	998.1	-680.8	0.31	-0.05	8.56	-26.6	-12.0	
8,168.0	1.70	71.30	8,027.2	1,000.2	-675.2	0.17	-0.16	2.04	-39.4	-10.0	
8,355.0	1.40	91.60	8,214.1	1,001.1	-670.3	0.33	-0.16	10.86	-39.7	3.2	
8,542.0	1.40	91.90	8,401.0	1,000.9	-665.7	0.00	0.00	0.16	-44.2	3.4	
8,729.0	1.80	123.90	8,588.0	999.2	-661.0	0.51	0.21	17.11	-40.8	27.5	
8,915.0	2.00	142.30	8,773.9	995.0	-656.6	0.34	0.11	9.89	-35.8	39.8	
9,102.0	1.70	153.80	8,960.8	989.9	-653.3	0.26	-0.16	6.20	-33.1	46.9	
9,289.0	1.20	170.20	9,147.7	985.5	-651.8	0.34	-0.27	8.72	-23.2	55.1	



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Wellbore:	OH	Survey Calculation Method:	.Minimum Curvature
Design:	OH	Database:	EDM 5000.14

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)	
9,477.0	1.20	247.50	9,335.7	982.8	-653.3	0.80	0.00	41.12	46.2	36.7	
9,664.0	1.30	289.20	9,522.6	982.8	-657.1	0.46	0.05	22.30	55.3	-2.1	
9,852.0	2.60	267.00	9,710.5	983.2	-683.4	0.79	0.69	-11.81	45.7	18.2	
10,039.0	2.00	252.80	9,897.4	982.1	-670.7	0.44	-0.32	-7.59	32.5	27.8	
10,227.0	3.00	233.60	10,085.2	978.2	-677.8	0.69	0.53	-10.21	13.5	35.9	
10,413.0	3.10	230.70	10,270.9	972.1	-685.6	0.10	0.05	-1.56	1.8	36.3	
10,600.0	2.70	249.30	10,457.7	967.3	-693.7	0.54	-0.21	9.95	4.1	35.4	
10,787.0	2.00	256.60	10,644.6	965.0	-700.9	0.41	-0.37	3.90	0.9	35.2	
10,974.0	2.00	286.60	10,831.4	965.2	-707.2	0.55	0.00	16.04	12.3	31.6	
11,068.0	1.80	281.80	10,925.4	966.0	-710.3	0.27	-0.21	-5.11	6.5	32.4	
11,162.0	2.00	274.80	11,019.3	966.4	-713.3	0.33	0.21	-7.45	-0.6	32.8	
11,255.0	1.90	250.30	11,112.3	966.0	-716.4	0.90	-0.11	-26.34	-17.1	28.9	
11,348.0	1.50	224.60	11,205.2	964.6	-718.7	0.91	-0.43	-27.63	-30.6	17.9	
11,442.0	2.00	229.90	11,299.2	962.7	-720.8	0.56	0.53	5.64	-31.7	20.8	
11,535.0	2.00	234.30	11,392.1	960.7	-723.4	0.17	0.00	4.73	-33.2	23.3	
11,629.0	2.40	243.50	11,486.1	958.9	-726.5	0.57	0.43	9.79	-32.7	28.6	
11,722.0	3.80	261.10	11,578.9	957.5	-731.3	1.80	1.51	18.92	-27.4	37.7	
11,763.0	3.90	263.30	11,619.8	957.2	-734.0	0.44	0.24	5.37	-28.7	38.8	
11,934.0	1.90	293.80	11,790.6	957.6	-742.4	1.44	-1.17	17.84	-12.9	50.9	
12,027.0	8.00	163.80	11,883.4	952.0	-742.0	10.04	6.56	-139.78	-32.9	-42.8	
12,121.0	28.00	166.80	11,972.3	924.9	-732.1	21.32	21.28	-5.32	-41.1	-38.9	
12,168.0	31.30	160.30	12,013.1	903.1	-724.0	7.20	7.02	3.19	-51.7	-32.1	
12,215.0	34.50	166.00	12,052.6	878.7	-716.6	9.47	8.81	12.13	-62.0	-21.0	
12,262.0	36.50	167.70	12,090.9	852.1	-710.4	4.75	4.28	3.62	-68.0	-13.5	
12,308.0	38.80	169.90	12,127.3	824.5	-705.0	5.79	5.00	4.78	-71.0	-5.7	
12,355.0	41.40	174.10	12,163.3	794.6	-700.8	7.98	5.53	8.94	-71.3	2.8	
12,402.0	44.00	181.80	12,197.8	762.8	-699.7	12.53	5.53	16.60	-68.4	10.6	



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12,449.0	52.00	183.90	12,229.2	727.9	-701.6	17.31	17.02	4.26	-65.9	9.6
12,495.0	56.30	184.40	12,256.2	690.7	-704.3	9.39	9.35	1.09	-64.5	6.8
12,542.0	58.30	184.70	12,281.6	651.3	-707.4	4.29	4.26	0.64	-61.4	2.8
12,589.0	60.10	184.60	12,305.6	611.1	-710.7	3.83	3.83	-0.21	-55.5	-1.5
12,636.0	63.50	183.10	12,327.8	569.8	-713.4	7.76	7.23	-3.19	-47.5	-5.5
12,683.0	64.70	185.40	12,348.4	527.6	-716.6	5.09	2.55	4.89	-37.3	-9.1
12,776.0	70.20	178.90	12,384.1	441.9	-719.7	8.75	5.91	-6.99	-10.6	-13.6
12,823.0	78.20	178.10	12,386.8	396.7	-718.5	17.10	17.02	-1.70	1.8	-12.4
12,869.0	87.30	178.50	12,402.6	351.1	-717.2	19.80	19.78	0.87	7.2	-11.3
12,916.0	91.00	178.90	12,403.3	304.2	-716.1	7.92	7.87	0.85	7.8	-10.6
12,963.0	91.30	178.70	12,402.4	257.2	-715.1	0.77	0.64	-0.43	6.8	-9.9
13,056.0	90.20	178.80	12,401.2	164.2	-713.1	1.19	-1.18	0.11	5.4	-8.5
13,149.0	90.20	178.70	12,400.8	71.2	-711.0	0.11	0.00	-0.11	4.9	-7.0
13,243.0	88.10	178.10	12,403.9	-22.7	-708.4	4.41	-4.38	-0.64	7.5	-5.0
13,336.0	85.60	178.10	12,410.6	-115.4	-705.4	0.54	-0.54	0.00	13.8	-2.5
13,430.0	89.70	179.50	12,414.5	-209.2	-703.4	4.61	4.38	1.49	17.3	-1.2
13,523.0	89.50	179.90	12,415.1	-302.2	-702.9	0.48	-0.22	0.43	17.5	-1.3
13,618.0	89.30	180.20	12,416.1	-397.2	-703.0	0.38	-0.21	0.32	18.1	-2.0
13,711.0	88.70	179.00	12,417.7	-490.2	-702.3	1.44	-0.65	-1.29	19.4	-1.9
13,805.0	90.70	180.30	12,418.2	-584.2	-701.8	2.54	2.13	1.38	19.4	-2.0
13,898.0	90.20	179.80	12,417.5	-677.2	-701.8	0.78	-0.54	-0.64	18.1	-2.6
13,992.0	91.60	182.90	12,416.0	-771.2	-704.1	3.62	1.49	3.30	15.4	-5.5
14,086.0	92.90	181.20	12,412.3	-865.0	-707.4	2.28	1.38	-1.81	10.4	-9.4
14,180.0	89.10	179.50	12,410.7	-959.0	-708.0	4.43	-4.04	-1.81	7.6	-10.6
14,273.0	89.20	179.90	12,412.1	-1,052.0	-707.5	0.44	0.11	0.43	7.7	-10.7
14,367.0	86.10	179.00	12,415.9	-1,145.9	-706.6	3.43	-3.30	-0.96	10.4	-10.4
14,460.0	88.50	177.30	12,421.9	-1,238.6	-703.6	1.87	0.43	-1.83	15.2	-8.0



Midland PVA

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Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.14

MD (usft)	Inc (°)	Asl (azimuth) (°)	TVD (usft)	N/S (usft)	EW (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
14,554.0	86.60	180.60	12,427.6	-1,332.4	-701.9	3.51	0.11	3.51	19.6	-6.9
14,848.0	90.10	181.70	12,430.3	-1,426.4	-703.8	3.90	3.72	1.17	21.1	-9.4
14,741.0	88.20	178.90	12,433.3	-1,519.3	-702.6	6.65	-4.19	-5.16	22.9	-8.8
14,835.0	88.40	177.50	12,437.7	-1,613.0	-698.1	2.43	2.34	0.64	26.1	-4.9
14,929.0	88.80	183.80	12,441.7	-1,706.9	-699.1	6.91	-1.70	6.70	28.8	-6.6
15,022.0	88.40	184.30	12,445.6	-1,799.8	-705.7	1.80	1.72	0.54	31.6	-13.7
15,115.0	90.80	182.70	12,446.2	-1,892.4	-711.4	3.10	2.58	-1.72	31.1	-20.0
15,209.0	93.90	181.00	12,442.3	-1,986.2	-714.4	3.78	3.30	-1.81	28.1	-23.6
15,302.0	87.10	179.10	12,441.5	-2,079.2	-714.5	7.59	-7.31	-2.04	24.2	-24.3
15,396.0	87.20	179.40	12,446.2	-2,173.1	-713.2	0.34	0.11	0.32	27.7	-23.7
15,489.0	89.40	179.10	12,449.0	-2,266.0	-712.0	2.39	2.37	-0.32	29.3	-23.1
15,583.0	91.40	180.10	12,448.3	-2,360.0	-711.4	2.38	2.13	1.06	27.5	-23.0
15,675.0	90.00	179.20	12,447.2	-2,452.0	-710.8	1.81	-1.52	-0.98	25.2	-23.0
15,707.0	91.10	179.50	12,446.9	-2,484.0	-710.4	3.56	3.44	0.94	24.5	-22.9
15,738.0	92.30	179.20	12,446.0	-2,515.0	-710.1	3.99	3.87	-0.97	23.2	-22.7
15,769.0	92.10	179.30	12,444.8	-2,545.9	-709.7	0.72	-0.65	0.32	21.7	-22.5
15,862.0	91.10	178.40	12,442.2	-2,638.9	-707.8	1.45	-1.08	-0.97	17.9	-21.3
15,955.0	90.00	178.00	12,441.3	-2,731.8	-704.9	1.26	-1.18	-0.43	15.9	-18.9
16,048.0	87.40	176.90	12,443.4	-2,824.7	-700.8	3.04	-2.80	-1.18	16.9	-15.4
16,141.0	86.70	176.50	12,448.2	-2,917.4	-695.4	0.87	-0.75	-0.43	20.5	-10.6
16,235.0	87.60	178.40	12,452.9	-3,011.2	-691.2	2.23	0.96	2.02	24.0	-7.1
16,329.0	89.90	179.90	12,454.9	-3,105.2	-689.8	2.92	2.45	1.60	24.9	-6.3
16,422.0	88.50	178.50	12,456.2	-3,198.1	-688.5	2.13	-1.51	-1.51	25.1	-5.6
16,516.0	91.00	179.40	12,456.6	-3,292.1	-686.8	2.83	2.66	0.96	24.4	-4.5
16,609.0	89.60	179.10	12,456.1	-3,385.1	-685.6	1.54	-1.51	-0.32	22.7	-3.9
16,703.0	89.90	179.80	12,456.5	-3,479.1	-684.7	0.81	0.32	0.74	22.0	-3.6
16,796.0	86.40	179.90	12,459.5	-3,572.0	-684.5	3.78	-3.78	0.11	23.8	-3.9



Midland PVA

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #713H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25 @ 3441.0usft
Site:	Antietam 9 Fed Com	MD Reference:	KB = 25 @ 3441.0usft
Well:	#713H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.14

Survey										
MD (usft)	Inc (°)	Asz (azimuth) (°)	TVD (usft)	NIS (usft)	EW (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
16,890.0	87.30	181.30	12,484.7	-3,665.9	-685.4	1.77	0.96	1.49	27.9	-5.5
16,984.0	88.70	182.80	12,468.0	-3,759.8	-688.8	2.18	1.49	1.60	30.0	-9.5
17,078.0	89.80	184.00	12,469.2	-3,853.6	-694.4	1.73	1.17	1.28	30.1	-15.6
17,172.0	89.50	184.90	12,469.8	-3,947.3	-701.7	1.01	-0.32	0.96	29.9	-23.5
17,265.0	91.00	182.80	12,469.4	-4,040.1	-707.9	2.77	1.61	-2.26	28.7	-30.4
17,359.0	91.30	186.30	12,467.5	-4,133.8	-715.4	3.74	0.32	3.72	26.2	-38.3
17,453.0	88.00	177.70	12,468.1	-4,227.6	-718.7	9.80	-3.51	-9.15	25.9	-42.3
17,546.0	90.20	178.00	12,469.5	-4,320.5	-715.2	2.39	2.37	0.32	26.5	-39.4
17,640.0	86.70	176.30	12,472.1	-4,414.3	-710.5	4.14	-3.72	-1.81	28.4	-35.3
17,733.0	86.00	176.10	12,478.0	-4,507.0	-704.3	0.78	-0.75	-0.22	33.5	-29.8
17,827.0	90.20	177.40	12,481.1	-4,600.7	-699.0	4.68	4.47	1.38	35.8	-25.1
17,919.0	93.10	179.80	12,478.5	-4,692.6	-696.8	4.09	3.15	2.61	32.3	-23.5
18,013.0	91.30	177.30	12,474.9	-4,786.5	-694.4	3.28	-1.91	-2.66	27.9	-21.7
18,107.0	90.20	175.00	12,473.8	-4,880.3	-688.1	2.71	-1.17	-2.45	26.0	-15.9
18,231.0	91.60	180.90	12,471.7	-5,004.2	-683.6	4.89	1.13	4.76	22.9	-12.4
18,294.0	92.30	176.20	12,469.5	-5,067.1	-682.1	7.54	1.11	-7.46	20.3	-11.2
18,388.0	90.00	167.50	12,467.6	-5,160.0	-668.7	9.57	-2.45	-9.26	17.6	1.5
18,481.0	89.10	167.40	12,468.4	-5,250.8	-648.5	0.97	-0.87	-0.11	17.8	21.0
18,512.0	89.30	170.70	12,468.8	-5,281.2	-642.6	10.68	0.65	10.65	17.9	26.8
18,543.0	89.30	174.10	12,469.2	-5,311.9	-638.6	10.97	0.00	10.97	17.9	30.7
18,574.0	89.70	178.60	12,469.5	-5,342.9	-636.6	14.57	1.29	14.52	17.9	32.5
18,606.0	89.80	180.60	12,469.6	-5,374.9	-636.4	6.26	0.31	6.25	17.8	32.5
18,637.0	90.70	180.00	12,469.5	-5,405.9	-636.5	3.49	2.90	-1.94	17.4	32.2
18,668.0	91.00	179.20	12,469.0	-5,436.9	-636.3	2.78	0.97	-2.58	18.6	32.2
18,699.0	89.40	181.60	12,468.9	-5,467.9	-636.5	9.30	-5.18	7.74	16.3	31.8
18,731.0	88.40	184.30	12,469.5	-5,499.8	-638.2	9.00	-3.12	8.44	16.7	29.9
18,762.0	87.50	184.80	12,470.6	-5,530.7	-640.6	3.32	-2.90	1.61	17.6	27.2





Midland PVA

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #713H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25 @ 3441.0usft
Site:	Antistam 9 Fed Com	MD Reference:	KB = 25 @ 3441.0usft
Well:	#713H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.14

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	EW (usft)	DLeg (°/100usft)	Buidl (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)	
18,793.0	88.80	183.50	12,471.6	-5,561.6	-642.9	5.93	4.19	-4.19	18.3	24.8	
18,825.0	89.70	182.70	12,472.0	-5,593.5	-644.6	3.76	2.81	-2.50	18.4	22.9	
18,856.0	89.10	181.10	12,472.4	-5,624.5	-645.6	5.51	-1.94	-5.16	18.4	21.7	
18,887.0	88.40	182.20	12,473.0	-5,655.5	-646.5	4.21	-2.26	3.55	18.9	20.6	
18,919.0	87.90	184.10	12,474.1	-5,687.4	-648.3	6.14	-1.56	5.94	19.7	18.6	
18,950.0	88.60	184.60	12,475.0	-5,718.3	-650.6	2.77	2.26	1.61	20.4	16.0	
18,981.0	88.70	184.30	12,475.7	-5,749.2	-653.0	1.02	0.32	-0.97	20.8	13.4	
19,012.0	89.00	183.70	12,476.4	-5,780.1	-655.2	2.16	0.97	-1.94	21.2	11.1	
19,043.0	89.40	183.10	12,476.8	-5,811.1	-657.0	2.33	1.29	-1.94	21.3	9.0	
19,137.0	89.50	185.60	12,477.7	-5,904.8	-664.2	2.66	0.11	2.66	21.4	1.3	
19,231.0	90.50	186.10	12,477.7	-5,998.3	-673.7	1.19	1.06	0.53	20.7	-8.8	
19,324.0	90.30	185.00	12,477.0	-6,090.9	-682.7	1.20	-0.22	-1.18	20.0	-18.4	
19,417.0	90.10	183.60	12,476.7	-6,183.6	-689.7	1.52	-0.22	-1.51	19.7	-26.0	
19,512.0	88.50	180.40	12,477.9	-6,278.5	-693.0	3.77	-1.68	-3.37	20.8	-29.9	
19,605.0	88.00	179.20	12,480.7	-6,371.5	-692.7	1.40	-0.54	-1.29	23.7	-30.2	
19,698.0	89.80	179.40	12,482.5	-6,464.4	-691.6	1.95	1.94	0.22	25.5	-28.7	
19,791.0	87.00	177.00	12,485.1	-6,557.4	-688.6	3.98	-3.01	-2.58	28.1	-27.3	
19,885.0	87.60	176.80	12,489.5	-6,651.1	-683.6	0.67	0.64	-0.21	32.5	-22.8	
19,937.0	87.80	177.00	12,491.6	-6,703.0	-680.8	0.54	0.38	0.38	34.6	-20.4	
19,990.0	87.80	177.00	12,493.7	-6,755.9	-678.0	0.00	0.00	0.00	36.7	-17.9	



Midland PVA

<b>Company:</b> EOG Resources - Midland	<b>Local Co-ordinate Reference:</b>	<b>Well #713H</b>
<b>Project:</b> Lea County, NM (NAD 83 NME)	<b>TVD Reference:</b>	<b>KB = 25 @ 3441.0usft</b>
<b>Site:</b> Antitam 9 Fed Com	<b>MD Reference:</b>	<b>KB = 25 @ 3441.0usft</b>
<b>Well:</b> #713H	<b>North Reference:</b>	<b>Grid</b>
<b>Wellbore:</b> OH	<b>Survey Calculation Method:</b>	<b>Minimum Curvature</b>
<b>Design:</b> OH	<b>Database:</b>	<b>EDM 5000.14</b>

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N-S (usft)	+E-W (usft)	
11,970.0	11,826.6	957.1	-743.0	KOP, MD:11970.0', TVD:11826.6', N/S:957.1', E/W:-743.0', INC:2.51
12,046.0	11,902.1	948.9	-741.0	FTP Crossing, MD:12046.0', TVD:11902.1', N/S:948.9', E/W:-741.0', INC:12.03
19,937.0	12,491.6	-6,703.0	-680.8	Last MWD Survey (MD=19937.0')
19,990.0	12,493.7	-6,755.9	-678.0	Projection to Bit (MD=19990.0')

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_

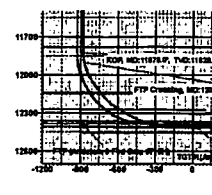
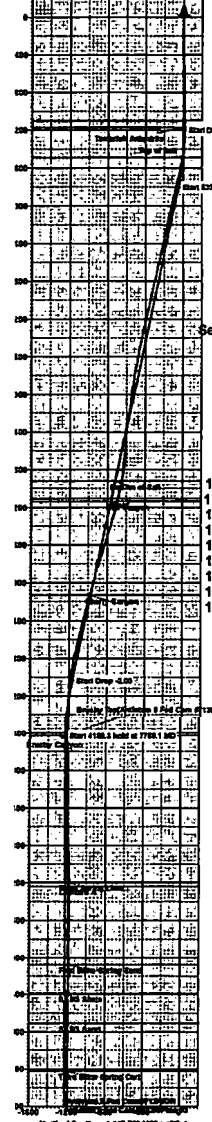


Lea County, NM (NAD 83 NME)  
 Antietam 9 Fed Com #713H  
 Plan #3

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: #713H  
 KB = 25 @ 3441.0usft 3416.0  
 Northing 419940.00 Easting 777272.00 Latitude 32° 58.014 N Longitude 103° 34' 15.594 W

To convert a Magnetic Direction to a Grid Direction, Add 6.43°  
 To convert a Magnetic Direction to a True Direction, Add 8.63° East  
 To convert a True Direction to a Grid Direction, Subtract 0.41°



Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Diag	TFace	VSect	Target
1	1172.0	0.70	65.50	1171.8	-17.7	-1.7	0.00	0.00	17.8	
2	1200.2	0.70	65.50	1200.0	-17.6	-1.4	0.00	0.00	17.6	
3	1808.2	12.01	324.95	1803.6	38.0	-34.5	2.00	-103.74	-32.5	
4	7158.5	12.01	324.95	7036.7	947.6	-674.0	0.00	0.00	-877.7	
5	7759.1	0.00	0.00	7633.0	999.0	-710.0	2.00	180.00	-925.3	
6	11948.4	0.00	0.00	11822.3	999.0	-710.0	0.00	0.00	-925.3	
7	12847.3	89.88	179.63	12395.3	427.2	-706.3	10.00	179.63	-356.6	Brushy Top(Antietam 9 Fed Com #713H)
8	13205.8	89.88	179.63	12396.0	68.7	-704.0	0.00	0.00	0.0	TGT#1(Antietam 9 Fed Com #713H)
9	13212.1	89.78	179.63	12396.0	62.4	-704.0	2.00	179.67	6.3	TGT#2(Antietam 9 Fed Com #713H)
10	13909.6	89.78	179.63	12399.0	-635.1	-699.5	0.00	0.00	700.0	TGT#3(Antietam 9 Fed Com #713H)
11	13934.7	89.25	179.63	12399.2	-660.2	-699.3	2.00	-179.84	725.0	TGT#4(Antietam 9 Fed Com #713H)
12	14915.0	89.25	179.63	12412.0	-1640.4	-693.0	0.00	0.00	1700.0	TGT#5(Antietam 9 Fed Com #713H)
13	14917.3	89.30	179.63	12412.0	-1642.6	-693.0	2.00	0.01	1702.2	
14	17117.0	89.30	179.63	12439.0	-3842.2	-678.8	0.00	0.00	3950.0	
15	17128.2	89.52	179.63	12439.1	-3853.4	-678.7	2.00	-0.34	3901.1	
16	19268.8	89.52	179.63	12457.0	-5993.8	-664.9	0.00	0.00	6030.0	
17	19293.1	90.01	179.63	12457.1	-6018.1	-664.7	0.00	0.60	6054.2	
18	20037.0	90.01	179.63	12457.0	-6762.0	-680.0	0.00	0.00	6794.1	PBHL (Antietam 9 Fed Com #713H)

Name	TVD	+N-S	+E-W	Northing	Easting
Brushy Top(Antietam 9 Fed Com #713H)	7633.0	999.0	-710.0	419939.00	776582.00
TGT#1(Antietam 9 Fed Com #713H)	12396.0	68.7	-704.0	419938.76	776582.00
TGT#2(Antietam 9 Fed Com #713H)	12399.0	-635.1	-699.5	419939.80	776572.83
TGT#3(Antietam 9 Fed Com #713H)	12412.0	-1640.4	-693.0	417288.80	776579.00
TGT#4(Antietam 9 Fed Com #713H)	12439.0	-3842.2	-678.8	416007.80	776583.19
TGT#5(Antietam 9 Fed Com #713H)	12457.0	-5993.8	-664.9	415946.20	776587.10
PBHL (Antietam 9 Fed Com #713H)	12457.0	-6018.1	-664.7	412178.00	776612.00
FTP (Antietam 9 Fed Com #713H)	12394.0	949.0	-710.0	419939.00	776582.00

