



HOBBS OCD
DEC 18 2019
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EOG Resources - Midland

Lea County, NM (NAD 83 NME)
Fearless 23 Fed Com
#508H
OH

Design: OH

Final PVA Report

10 July, 2019



Final PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #508H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3456.0usft
Site:	Fearless 23 Fed Com	MD Reference:	KB = 25' @ 3456.0usft
Well:	#508H	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	Fearless 23 Fed Com		
Site Position:		Northing:	408,599.00 usft
From:	Map	Easting:	753,585.00 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 7' 17.261 N
		Longitude:	103° 38' 51.862 W
		Grid Convergence:	0.36 "

Well	#508H		
Well Position	+N-S	0.0 usft	Northing:
	+E-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	32° 7' 20.772 N
		Longitude:	103° 39' 7.941 W
		Ground Level:	3,431.0 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
			(°)
			Dip Angle
			(°)
			Field Strength
			(nT)
	IGRF2015	8/1/2019	6.77
			59.93
			47,668.44650242

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
			(°)
			181.32

Survey Program	Date 7/10/2019		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
144.0	20,710.0	Intrepid MWD #1 (OH)	MWD
			Description
			OWSG MWD - Standard



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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)	EW (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
144.0	1.20	62.30	144.0	0.7	1.3	0.83	0.83	0.00	-1.5	0.0	
322.0	0.40	68.10	322.0	1.8	3.6	0.45	-0.45	3.26	-4.0	0.3	
500.0	1.30	128.30	500.0	0.8	5.7	0.65	0.51	33.82	-4.0	4.2	
687.0	1.30	162.30	686.9	-2.6	8.0	0.41	0.00	18.18	-4.9	6.9	
868.0	0.90	159.40	867.9	-5.8	9.2	0.22	-0.22	-1.60	-8.7	6.5	
1,045.0	1.80	150.10	1,044.8	-9.6	11.0	0.52	0.51	-5.25	-13.8	4.8	
1,234.0	1.90	305.20	1,233.8	-10.3	10.0	1.91	0.05	82.06	14.1	2.7	
1,423.0	0.50	310.10	1,422.7	-8.0	6.8	0.74	-0.74	2.59	10.3	1.8	
1,612.0	1.80	291.20	1,611.7	-6.4	3.4	0.71	0.69	-10.00	5.4	4.7	
1,800.0	1.80	299.20	1,799.8	-3.9	-2.0	0.13	0.00	4.26	0.2	4.3	
1,989.0	1.40	319.50	1,988.5	-0.7	-6.1	0.36	-0.21	10.74	-3.4	5.0	
2,178.0	1.80	298.60	2,177.5	2.5	-10.2	0.37	0.21	-11.06	-10.1	2.7	
2,368.0	1.50	302.50	2,367.4	5.3	-14.9	0.17	-0.16	2.05	-15.4	3.5	
2,557.0	4.10	301.50	2,556.1	10.1	-22.7	1.38	1.38	-0.53	-24.7	3.2	
2,746.0	7.60	315.30	2,744.1	22.6	-37.3	1.98	1.85	7.30	-42.2	10.7	
2,935.0	7.80	315.40	2,931.4	40.6	-55.1	0.11	0.11	0.05	-85.2	10.4	
3,123.0	7.10	312.40	3,117.8	57.5	-72.6	0.43	-0.37	-1.60	-76.0	4.9	
3,312.0	5.90	312.00	3,305.6	71.9	-88.5	0.64	-0.63	-0.21	-77.8	2.6	
3,501.0	4.40	317.10	3,493.9	83.7	-100.6	0.83	-0.79	2.70	-74.7	6.8	
3,690.0	6.10	305.70	3,682.1	94.8	-113.7	1.05	0.90	-6.03	-71.9	-9.0	
3,878.0	5.00	307.30	3,869.2	105.6	-128.3	0.59	-0.59	0.85	-70.7	-6.9	
4,067.0	5.40	307.30	4,057.4	116.0	-142.0	0.21	0.21	0.00	-68.0	-7.0	
4,257.0	5.10	305.90	4,246.6	126.4	-155.9	0.17	-0.16	-0.74	-65.4	-8.5	
4,445.0	4.30	302.30	4,434.0	135.1	-168.8	0.45	-0.43	-1.91	-60.5	-11.5	
4,577.0	6.90	305.80	4,565.3	142.3	-179.3	1.99	1.97	2.65	-60.1	-7.3	
4,726.0	7.20	306.10	4,713.2	153.1	-194.1	0.20	0.20	0.20	-62.9	-6.7	



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Well:	#508H	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)	
4,915.0	7.20	302.60	4,900.7	166.4	-213.8	0.23	0.00	-1.85	-66.4	-9.7	
5,104.0	7.30	303.30	5,088.2	179.4	-233.6	0.07	0.05	0.37	-70.6	-7.5	
5,293.0	7.30	301.60	5,275.7	192.3	-253.9	0.11	0.00	-0.90	-74.7	-8.1	
5,482.0	7.20	299.20	5,463.2	204.4	-274.5	0.17	-0.05	-1.27	-78.8	-9.1	
5,670.0	6.60	298.20	5,649.8	215.2	-294.3	0.33	-0.32	-0.53	-81.6	-7.7	
5,859.0	6.60	302.90	5,837.1	228.0	-315.7	1.11	1.06	2.49	-87.3	1.3	
6,048.0	4.90	319.00	6,024.8	241.8	-332.9	2.18	-1.96	8.52	-85.9	25.1	
6,236.0	2.80	340.70	6,212.4	251.9	-339.5	1.42	-1.22	11.54	-65.9	47.0	
6,425.0	0.30	92.50	6,401.3	255.9	-340.5	1.44	-1.22	59.15	53.0	36.4	
6,613.0	0.30	317.70	6,589.3	256.3	-340.3	0.29	0.00	-71.70	-44.0	8.0	
6,802.0	0.80	285.80	6,778.3	257.0	-341.9	0.30	0.26	-16.88	-25.2	-9.7	
6,991.0	2.10	127.60	6,967.3	255.2	-340.4	1.51	0.69	-83.70	13.6	-0.7	
7,180.0	1.60	149.10	7,156.2	250.8	-336.3	0.45	-0.28	11.38	5.7	-4.0	
7,369.0	1.60	151.80	7,345.1	246.3	-333.7	0.04	0.00	1.43	0.2	-4.1	
7,558.0	1.70	168.70	7,534.0	241.2	-331.9	0.26	0.05	8.94	-6.3	-3.2	
7,748.0	1.50	183.40	7,724.0	235.9	-331.5	0.24	-0.11	7.74	-12.1	-0.8	
7,937.0	1.60	199.30	7,912.8	231.0	-332.6	0.23	0.05	8.41	-16.9	3.2	
8,125.0	1.60	204.50	8,100.8	225.8	-334.6	0.13	0.11	2.77	-22.1	5.0	
8,314.0	2.20	209.80	8,289.7	220.0	-337.7	0.23	0.21	2.80	-28.1	7.3	
8,503.0	2.50	217.80	8,478.5	213.6	-342.0	0.23	0.16	4.23	-34.6	11.6	
8,691.0	1.00	230.10	8,666.5	209.3	-345.8	0.82	-0.80	6.54	-37.0	19.6	
8,880.0	2.00	344.00	8,855.4	211.4	-348.0	1.36	0.53	60.26	30.2	27.4	
9,068.0	2.20	355.30	9,043.3	218.1	-349.2	0.24	0.11	6.01	28.2	21.6	
9,257.0	1.90	351.30	9,232.2	224.8	-349.9	0.18	-0.16	-2.12	19.9	23.2	
9,446.0	1.10	345.80	9,421.1	229.7	-350.8	0.43	-0.42	-2.91	12.6	24.7	
9,635.0	1.70	288.40	9,610.0	232.8	-353.8	0.66	0.32	-25.08	-13.7	24.7	
9,823.0	1.10	191.90	9,798.0	232.4	-356.6	1.21	-0.32	-56.65	-20.8	-22.8	



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 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well #508H
 TVD Reference: KB = 25' @ 3456.0usft
 MD Reference: KB = 25' @ 3456.0usft
 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)	Bulld (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
9,896.0	1.30	265.20	9,871.0	231.6	-357.6	1.97	0.27	100.41	-28.8	14.0
9,953.0	1.30	250.70	9,928.0	231.3	-358.8	0.58	0.00	-25.44	-32.7	6.2
10,000.0	5.90	193.70	9,974.9	228.8	-359.9	11.28	9.79	-121.28	-25.7	-24.6
10,048.0	10.90	188.90	10,022.4	221.9	-361.2	10.51	10.42	-10.00	-30.3	-27.0
10,056.3	11.55	186.41	10,030.5	220.3	-361.4	9.78	7.86	-28.98	-30.7	-28.4
KOP (Fearless 23 Fed Com #508H)										
10,095.0	14.80	177.80	10,068.2	211.5	-361.6	9.78	8.39	-22.25	-34.0	-33.3
10,142.0	16.90	176.60	10,113.4	198.7	-361.0	4.52	4.47	-2.55	-41.7	-33.8
10,146.1	17.14	176.17	10,117.3	197.5	-360.9	6.61	5.86	-10.46	-42.1	-34.0
HL Crossing, MD:10146.1', TVD:10117.3', N/S:197.5', E/W:-360.9', INC:17.14										
10,189.0	19.70	172.30	10,158.0	184.0	-359.5	6.61	5.97	-9.02	-45.5	-36.0
10,237.0	24.00	169.40	10,202.6	166.4	-358.6	9.23	8.96	-6.04	-49.0	-36.0
10,284.0	29.30	168.20	10,244.5	145.7	-352.5	11.33	11.28	-2.55	-53.3	-33.5
10,331.0	34.60	170.30	10,284.4	121.3	-347.9	11.52	11.28	4.47	-59.3	-27.6
10,378.0	39.20	172.20	10,322.0	93.4	-343.7	10.08	9.79	4.04	-64.7	-22.0
10,425.0	42.80	173.30	10,357.5	62.8	-339.8	7.81	7.66	2.34	-68.7	-17.2
10,472.0	47.20	174.40	10,390.7	29.8	-336.2	9.51	9.36	2.34	-71.4	-12.7
10,483.3	48.18	174.54	10,405.0	14.1	-334.7	4.61	4.58	0.64	-72.1	-11.1
FTP (Fearless 23 Fed Com #508H)										
10,520.0	49.40	174.70	10,422.6	-5.9	-332.8	4.61	4.58	0.62	-72.1	-8.0
10,567.0	51.90	176.40	10,452.4	-42.1	-330.0	6.01	5.32	3.62	-70.3	-4.8
10,614.0	55.30	178.30	10,480.3	-79.9	-328.3	7.93	7.23	4.04	-66.5	-2.0
10,661.0	59.30	178.70	10,505.7	-119.4	-327.3	8.54	8.51	0.85	-61.3	-1.0
10,709.0	62.20	178.10	10,529.1	-161.3	-326.1	6.14	6.04	-1.25	-54.4	-0.3
10,756.0	65.40	178.10	10,549.9	-203.4	-324.7	6.81	6.81	0.00	-46.0	0.9
10,803.0	69.30	178.90	10,568.0	-246.8	-323.6	8.45	8.30	1.70	-36.4	1.9
10,850.0	72.50	178.90	10,583.4	-291.2	-322.7	6.81	6.81	0.00	-25.7	2.4



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 Wellbore: OH
 Design: OH

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 TVD Reference: KB = 25' @ 3458.0usft
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10,897.0	75.10	179.40	10,596.5	-338.3	-322.0	5.63	5.53	1.08	-13.8	2.6
10,944.0	77.70	179.50	10,607.5	-382.0	-321.8	5.54	5.53	0.21	-3.5	2.6
10,992.0	81.30	179.10	10,618.3	-429.1	-321.0	7.54	7.50	-0.83	4.4	2.7
11,086.0	88.60	180.00	10,624.5	-522.7	-320.3	7.82	7.77	0.96	11.1	2.6
11,181.0	89.50	180.80	10,626.1	-617.7	-321.0	1.27	0.95	0.84	11.1	1.0
11,275.0	89.10	181.20	10,627.3	-711.7	-322.6	0.60	-0.43	0.43	10.7	-1.5
11,370.0	89.10	181.60	10,628.8	-806.6	-324.9	0.42	0.00	0.42	10.6	-4.7
11,464.0	88.90	178.30	10,630.4	-900.6	-324.8	3.52	-0.21	-3.51	10.6	-5.4
11,559.0	89.10	178.20	10,632.0	-995.5	-321.9	0.24	0.21	-0.11	10.7	-3.4
11,653.0	88.70	176.80	10,633.9	-1,089.4	-317.8	1.55	-0.43	-1.49	11.0	-0.2
11,747.0	87.80	176.10	10,636.7	-1,183.2	-312.0	1.21	-0.96	-0.74	12.3	4.8
11,841.0	87.70	177.80	10,640.4	-1,277.0	-307.0	1.81	-0.11	1.81	14.4	8.9
11,936.0	90.30	179.20	10,642.1	-1,371.9	-304.5	3.11	2.74	1.47	14.5	10.5
12,030.0	90.20	179.60	10,641.7	-1,465.9	-303.5	0.44	-0.11	0.43	12.5	10.6
12,124.0	89.90	180.30	10,641.6	-1,559.9	-303.5	0.81	-0.32	0.74	10.8	9.8
12,218.0	89.80	179.90	10,641.8	-1,653.9	-303.6	0.44	-0.11	-0.43	9.5	8.8
12,313.0	90.10	179.70	10,641.9	-1,748.9	-303.3	0.38	0.32	-0.21	8.0	8.3
12,407.0	90.60	179.40	10,641.3	-1,842.9	-302.6	0.62	0.53	-0.32	5.9	8.1
12,502.0	90.70	179.60	10,640.3	-1,937.9	-301.7	0.24	0.11	0.21	3.2	8.1
12,596.0	88.50	179.80	10,640.9	-2,031.9	-301.2	2.35	-2.34	0.21	2.3	7.7
12,691.0	88.20	180.10	10,643.6	-2,126.9	-301.2	0.45	-0.32	0.32	3.4	6.9
12,786.0	88.00	180.00	10,646.8	-2,221.8	-301.2	0.24	-0.21	-0.11	5.0	5.9
12,880.0	87.30	179.20	10,650.7	-2,315.7	-300.6	1.13	-0.74	-0.85	7.3	5.7
12,975.0	88.20	178.90	10,654.4	-2,410.6	-299.0	1.00	0.85	-0.32	9.4	6.4
13,070.0	88.40	178.80	10,657.2	-2,505.6	-297.1	0.24	0.21	-0.11	10.7	7.5
13,157.7	88.77	178.33	10,659.4	-2,593.2	-294.9	0.68	0.43	-0.53	11.4	8.8

TGT 1 (Fearless 23 Fed Com #508H)



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Site:	Fearless 23 Fed Com	MD Reference:	KB = 25' @ 3458.0usft
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13,164.0	88.80	178.30	10,659.5	-2,599.5	-294.7	0.68	0.43	-0.53	11.4	9.0	
13,259.0	89.10	178.60	10,661.2	-2,694.5	-282.2	0.45	0.32	0.32	11.1	10.7	
13,353.0	88.80	178.30	10,663.0	-2,788.4	-289.6	0.45	-0.32	-0.32	10.8	12.3	
13,448.0	89.00	178.90	10,664.8	-2,883.4	-287.3	0.67	0.21	0.63	10.6	13.8	
13,542.0	89.20	178.90	10,666.3	-2,977.4	-285.5	0.21	0.21	0.00	10.1	14.7	
13,637.0	89.10	179.00	10,667.7	-3,072.3	-283.7	0.15	-0.11	0.11	9.5	15.6	
13,731.0	89.10	179.80	10,669.1	-3,166.3	-282.8	0.85	0.00	0.85	8.9	15.7	
13,826.0	90.60	180.10	10,669.4	-3,261.3	-282.7	1.61	1.58	0.32	7.1	14.9	
13,920.0	89.20	180.20	10,669.6	-3,355.3	-282.9	1.49	-1.49	0.11	5.3	13.8	
14,014.0	90.00	180.70	10,670.2	-3,449.3	-283.7	1.00	0.85	0.53	4.0	12.2	
14,108.0	88.50	179.20	10,673.1	-3,543.2	-283.8	4.05	-3.72	-1.60	4.8	11.4	
14,203.0	85.90	179.40	10,679.4	-3,638.0	-282.4	0.67	-0.83	0.21	9.1	11.7	
14,297.0	86.20	178.40	10,685.9	-3,731.8	-280.6	1.11	0.32	-1.06	13.5	12.6	
14,391.0	85.40	178.50	10,692.7	-3,825.5	-278.1	0.86	-0.85	0.11	18.4	14.3	
14,486.0	87.90	178.80	10,698.3	-3,920.3	-275.9	2.65	2.63	0.32	21.9	15.6	
14,580.0	87.20	178.10	10,702.3	-4,014.2	-273.3	1.05	-0.74	-0.74	24.0	17.3	
14,674.0	89.50	178.90	10,705.0	-4,108.1	-270.9	2.59	2.45	0.85	24.7	18.9	
14,768.0	90.30	179.40	10,705.2	-4,202.1	-269.5	1.00	0.85	0.53	22.8	19.4	
14,863.0	91.00	179.60	10,704.1	-4,297.1	-268.6	0.77	0.74	0.21	19.7	19.4	
14,957.0	91.70	180.80	10,701.9	-4,391.0	-269.0	1.48	0.74	1.28	15.5	18.2	
15,052.0	89.90	180.90	10,700.6	-4,486.0	-270.4	1.90	-1.89	0.11	12.1	15.9	
15,147.0	88.60	180.30	10,701.8	-4,581.0	-271.4	1.51	-1.37	-0.63	11.4	14.0	
15,241.0	88.90	181.00	10,703.9	-4,675.0	-272.4	0.81	0.32	0.74	11.4	12.1	
15,336.0	87.80	180.40	10,706.6	-4,769.9	-273.6	1.32	-1.16	-0.63	12.1	10.0	
15,430.0	86.70	181.30	10,711.1	-4,863.8	-275.0	1.51	-1.17	0.96	14.6	7.8	
15,525.0	87.80	181.00	10,715.7	-4,958.7	-276.9	1.20	1.16	-0.32	17.1	5.0	
15,619.0	87.70	180.90	10,719.4	-5,052.6	-278.4	0.15	-0.11	-0.11	18.8	2.6	



Final PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #508H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3456.0usft
Site:	Fearless 23 Fed Com	MD Reference:	KB = 25' @ 3456.0usft
Well:	#508H	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)	EW (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)		
15,714.0	88.40	181.30	10,722.6	-5,147.5	-280.3	0.85	0.74	0.42	20.0	-0.1		
15,809.0	88.60	181.50	10,725.1	-5,242.5	-282.6	0.30	0.21	0.21	20.5	-3.3		
15,903.0	89.70	181.80	10,728.5	-5,336.4	-285.3	1.21	1.17	0.32	19.9	-6.9		
15,998.0	90.50	182.30	10,726.3	-5,431.3	-288.7	0.99	0.84	0.53	17.7	-11.2		
16,081.2	89.22	181.83	10,728.5	-5,484.5	-291.0	2.15	-2.02	-0.74	16.5	-14.0		
TGT 2 (Fearless 23 Fed Com #508H)												
16,092.0	88.60	181.60	10,727.0	-5,525.3	-291.9	2.15	-2.02	-0.74	16.3	-15.2		
16,187.0	87.20	180.30	10,730.5	-5,620.2	-293.5	2.01	-1.47	-1.37	17.6	-17.7		
16,281.0	86.90	180.60	10,735.4	-5,714.1	-294.2	0.45	-0.32	0.32	20.2	-19.3		
16,375.0	86.60	178.80	10,740.7	-5,807.9	-293.7	1.94	-0.32	-1.91	23.3	-19.7		
16,470.0	86.70	178.50	10,746.2	-5,902.7	-291.5	0.33	0.11	-0.32	26.6	-18.3		
16,564.0	87.40	179.10	10,751.1	-5,996.8	-289.5	0.98	0.74	0.64	29.2	-17.2		
16,659.0	88.20	179.60	10,754.7	-6,091.5	-288.4	0.99	0.84	0.53	30.6	-17.0		
16,753.0	87.50	177.50	10,758.2	-6,185.4	-286.1	2.35	-0.74	-2.23	31.9	-15.5		
16,848.0	87.30	177.30	10,762.6	-6,280.2	-281.8	0.30	-0.21	-0.21	34.0	-12.0		
16,942.0	89.80	177.20	10,764.9	-6,374.1	-277.2	2.66	2.66	-0.11	34.1	-8.4		
17,037.0	90.00	178.70	10,765.1	-6,469.0	-273.8	1.59	0.21	1.58	32.0	-5.9		
17,130.0	88.80	178.50	10,766.1	-6,562.0	-271.6	1.31	-1.29	-0.22	30.8	-4.5		
17,224.0	87.20	179.80	10,769.4	-6,655.9	-270.2	2.19	-1.70	1.38	31.9	-4.0		
17,318.0	87.30	179.90	10,773.9	-6,749.8	-269.9	0.15	0.11	0.11	34.2	-4.6		
17,413.0	87.80	180.40	10,777.9	-6,844.7	-270.2	0.74	0.53	0.53	36.0	-5.7		
17,507.0	87.60	181.00	10,781.7	-6,938.6	-271.3	0.67	-0.21	0.64	37.5	-7.8		
17,602.0	88.10	181.30	10,785.3	-7,033.5	-273.2	0.61	0.53	0.32	38.8	-10.5		
17,696.0	88.10	182.20	10,787.6	-7,127.4	-276.1	1.43	1.06	0.98	38.9	-14.3		
17,791.0	87.50	180.70	10,790.4	-7,222.4	-278.5	2.31	-1.68	-1.58	39.5	-17.6		
17,885.0	87.30	180.80	10,794.6	-7,316.3	-279.7	0.24	-0.21	0.11	41.5	-19.7		
17,980.0	89.10	179.30	10,797.6	-7,411.2	-279.8	2.47	1.89	-1.58	42.3	-20.6		



Final PVA Report

Company: EOG Resources - Midland
 Project: Lea County, NM (NAD 83 NME)
 Site: Fearless 23 Fed Com
 Well: #508H
 Wellbore: OH
 Design: OH

Local Co-ordinate Reference: Well #508H
 TVD Reference: KB = 25' @ 3456.0usft
 MD Reference: KB = 25' @ 3456.0usft
 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)	Bulid (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
18,074.0	89.60	179.80	10,788.7	-7,505.2	-279.1	0.75	0.53	0.53	41.1	-20.7
18,169.0	90.00	180.50	10,799.0	-7,600.2	-279.3	0.85	0.42	0.74	39.2	-21.9
18,263.0	89.30	178.80	10,799.6	-7,694.2	-278.8	1.96	-0.74	-1.81	37.5	-22.1
18,358.0	88.90	176.90	10,801.1	-7,789.1	-275.2	2.04	-0.42	-2.00	36.8	-19.4
18,452.0	89.50	177.40	10,802.4	-7,883.0	-270.5	0.83	0.64	0.53	35.9	-15.6
18,546.0	89.80	177.90	10,803.0	-7,976.9	-266.7	0.62	0.32	0.53	34.2	-12.6
18,641.0	87.40	177.40	10,805.3	-8,071.8	-262.8	2.58	-2.53	-0.53	34.3	-9.6
18,735.0	86.90	176.80	10,810.0	-8,165.5	-258.0	0.83	-0.53	-0.64	36.7	-5.7
18,829.0	89.20	176.80	10,813.2	-8,259.3	-252.8	2.45	2.45	0.00	37.7	-1.3
18,923.0	89.50	177.40	10,814.2	-8,353.2	-248.0	0.71	0.32	0.64	36.6	2.5
19,018.0	89.80	177.80	10,814.8	-8,448.1	-244.0	0.53	0.32	0.42	34.9	5.6
19,112.0	90.10	177.60	10,814.9	-8,542.1	-240.3	0.38	0.32	-0.21	32.7	8.5
19,206.0	90.60	177.80	10,814.3	-8,636.0	-236.5	0.57	0.53	0.21	29.9	11.4
19,301.0	89.90	179.10	10,813.9	-8,730.9	-233.9	1.55	-0.74	1.37	27.3	13.1
19,395.0	89.90	178.30	10,814.1	-8,824.9	-231.8	0.85	0.00	-0.85	25.2	14.4
19,490.0	92.00	179.30	10,812.5	-8,919.9	-229.8	2.45	2.21	1.05	21.4	15.5
19,584.0	88.30	180.20	10,812.3	-9,013.9	-229.4	4.05	-3.94	0.96	18.9	15.0
19,678.0	87.10	180.30	10,816.0	-9,107.8	-229.8	1.28	-1.28	0.11	20.5	13.7
19,773.0	88.30	181.40	10,819.8	-9,202.7	-231.2	1.71	1.26	1.16	22.1	11.4
19,867.0	87.60	181.10	10,823.2	-9,296.6	-233.3	0.81	-0.74	-0.32	23.2	8.5
19,962.0	88.40	181.80	10,826.5	-9,391.5	-235.7	1.12	0.84	0.74	24.3	5.2
20,057.0	87.20	179.30	10,830.2	-9,486.4	-236.6	2.92	-1.26	-2.63	25.7	3.5
20,151.0	87.60	179.50	10,834.4	-9,580.3	-235.6	0.48	0.43	0.21	27.7	3.6
20,245.0	87.90	179.50	10,838.1	-9,674.2	-234.8	0.32	0.32	0.00	29.2	3.5
20,340.0	88.70	180.10	10,840.9	-9,769.2	-234.4	1.05	0.84	0.63	29.7	3.0
20,435.0	89.20	180.60	10,842.7	-9,864.2	-235.0	0.74	0.53	0.53	29.2	1.5
20,529.0	89.80	181.10	10,843.5	-9,958.2	-238.4	0.83	0.64	0.53	27.8	-0.8



Final PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #508H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3456.0usft
Site:	Fearless 23 Fed Com	MD Reference:	KB = 25' @ 3456.0usft
Well:	#508H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.14

MD (usft)	Inc (")	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	EW (usft)	DLeg (°/100usft)	Bulid (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
20,624.0	90.50	181.80	10,843.3	-10,053.1	-238.8	1.04	0.74	0.74	25.3	-4.0
20,652.0	90.80	182.00	10,842.9	-10,081.1	-239.8	1.29	1.07	0.71	24.3	-5.2
Final MWD Survey (MD=20652.0')										
20,710.0	90.80	182.00	10,842.1	-10,139.1	-241.8	0.00	0.00	0.00	22.2	-7.8
Final Projection to Bit (MD=20710.0') - PBHL (Fearless 23 Fed Com #508H)										

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N-S (usft)	+E-W (usft)	
10,146.1	10,117.3	197.5	-360.9	HL Crossing, MD:10146.1', TVD:10117.3', N/S:197.5', E/W:-360.9', INC:17.14
20,652.0	10,842.9	-10,081.1	-239.8	Final MWD Survey (MD=20652.0')
20,710.0	10,842.1	-10,139.1	-241.8	Final Projection to Bit (MD=20710.0')

Checked By: _____ Approved By: _____ Date: _____

I certify this survey to be true and correct to the best of my belief and knowledge.

Kay Maddox 12/10/2019
Signed Date



Lea County, NM (NAD 83 NME)

Fearless 23 Fed Com #508H

Plan #1

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

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

WELL DETAILS: #508H

KB = 25' @ 3456.0usft
Northing 408945.00 Easting 782200.00 Latitude 32° 7' 20.772 N Longitude 103° 39' 7.841 W

To convert a Magnetic Direction to a Grid Direction, Add 6.41°
To convert a Magnetic Direction to a True Direction, Add 6.77° East
To convert a True Direction to a Grid Direction, Subtract 0.36°

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	2815.0	0.00	0.00	2815.0	0.0	0.0	0.00	0.00	0.0	
3	3115.1	6.00	306.93	3114.5	9.4	-12.6	2.00	306.93	-9.1	
4	6763.0	6.00	306.93	6742.5	238.6	-317.4	0.00	0.00	-231.2	
5	7063.1	0.00	179.48	7042.0	248.0	-330.0	2.00	180.00	-240.3	
6	10058.2	0.00	179.48	10037.1	248.0	-330.0	0.00	0.00	-240.3	
7	10948.6	89.04	179.47	10610.0	-315.4	-324.8	10.00	179.47	322.8	KOP (Fearless 23 Fed Com #508H)
8	13227.4	89.04	179.47	10648.0	-2593.7	-303.7	0.00	0.00	2600.0	TGT 1 (Fearless 23 Fed Com #508H)
9	13240.8	88.78	179.47	10648.3	-2607.1	-303.8	2.00	180.00	2613.4	
10	16129.6	88.78	179.47	10710.0	-5495.1	-278.9	0.00	0.00	5500.0	TGT 2 (Fearless 23 Fed Com #508H)
11	16136.1	88.64	179.47	10710.1	-5501.7	-278.9	2.00	-180.00	5508.6	
12	20777.0	88.64	179.47	10820.0	-10141.0	-234.0	0.00	0.00	10143.7	PBHL (Fearless 23 Fed Com #508H)

CASING DETAILS

No casing data is available

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting
KOP (Fearless 23 Fed Com #508H)	10037.1	248.0	-330.0	408193.00	781870.00
FTP (Fearless 23 Fed Com #508H)	10615.0	180.0	-330.0	408143.00	781870.00
TGT 1 (Fearless 23 Fed Com #508H)	10648.0	-2607.1	-303.7	408351.00	781838.28
TGT 2 (Fearless 23 Fed Com #508H)	10710.0	-5495.1	-278.9	408445.80	781823.07
PBHL (Fearless 23 Fed Com #508H)	10820.0	-10141.0	-234.0	388804.00	781868.00

