

HOBBS OCD

OCT 01 2018

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EOG Resources - Midland

Lea County, NM (NAD 83 NME)

Ophelia 22 Fed Com

#710H

OH

Design: OH

Final PVA

14 August, 2018



Final PVA

Company: EOG Resources - Midland Project: Lea County, NM (NAD 83 NME) Site: Ophelia 22 Fed Com Well: #710H Wellbore: OH Design: OH	Local Co-ordinate Reference: TVD Reference: MD Reference: North Reference: Survey Calculation Method: Database:	Well #710H KB = 25' @ 3331.0usft KB = 25' @ 3331.0usft Grid Minimum Curvature EDM 5000.14
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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 Ophelia 22 Fed Com			
Site Position: From: Map Position Uncertainty: 0.0 usft	Northing: 377,559.00 usft Easting: 778,915.00 usft Slot Radius: 13-3/16 "	Latitude: 32° 2' 8.418 N Longitude: 103° 33' 59.896 W Grid Convergence: 0.41 °	

Well #710H			
Well Position +N-S 0.0 usft +E-W 0.0 usft Position Uncertainty 0.0 usft	Northing: 377,562.00 usft Easting: 779,470.00 usft Wellhead Elevation: usft	Latitude: 32° 2' 8.408 N Longitude: 103° 33' 53.449 W Ground Level: 3,306.0 usft	

Wellbore OH					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	8/17/2017	6.92	59.89	47,810.49293677

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)
	0.0	0.0	0.0
			Direction (°) 183.65

Survey Program Date 8/14/2018				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
144.0	20,494.0	Intrepid MWD #1 (OH)	MWD	OWSG MWD - Standard



Final PVA

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Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3331.0usft
Site:	Ophelia 22 Fed Com	MD Reference:	KB = 25' @ 3331.0usft
Well:	#710H	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)	
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	0.70	28.40	144.0	0.8	0.4	0.49	0.49	0.00	-0.9	0.0	
334.0	1.50	105.40	334.0	1.2	3.3	0.80	0.42	41.58	-2.9	2.0	
524.0	3.00	104.10	523.8	-0.7	10.5	0.79	0.79	-0.68	-10.4	1.9	
618.0	2.50	102.40	617.7	-1.7	14.9	0.54	-0.53	-1.81	-14.9	1.5	
792.0	2.60	101.50	791.5	-3.3	22.5	0.06	0.06	-0.52	-22.7	1.2	
918.0	3.60	97.10	917.3	-4.4	29.2	0.82	0.79	-3.49	-29.5	-0.8	
1,065.0	2.70	175.50	1,064.2	-8.4	34.1	2.75	-0.61	53.33	-11.1	33.3	
1,254.0	1.30	28.80	1,253.1	-11.0	35.4	2.04	-0.74	-77.62	-7.4	-36.4	
1,443.0	1.80	288.70	1,442.1	-8.2	33.7	1.27	0.26	-52.96	34.5	-3.1	
1,632.0	3.10	257.80	1,630.9	-8.3	25.9	0.96	0.69	-16.35	23.5	13.6	
1,822.0	4.90	263.10	1,820.4	-10.3	12.8	0.97	0.95	2.79	11.4	11.8	
2,011.0	4.40	258.50	2,008.8	-12.8	-2.3	0.33	-0.26	-2.43	-3.0	11.1	
2,200.0	2.60	272.10	2,197.5	-14.1	-13.7	1.04	-0.95	7.20	-6.8	8.7	
2,388.0	3.30	264.00	2,385.2	-14.5	-23.4	0.43	0.37	-4.31	-12.1	3.4	
2,577.0	3.60	238.70	2,573.9	-18.1	-33.8	0.81	0.16	-13.39	-16.8	-5.4	
2,765.0	3.70	213.90	2,761.5	-26.2	-42.3	0.83	0.05	-13.19	-18.1	-12.6	
2,954.0	3.60	231.50	2,950.1	-35.0	-50.3	0.59	-0.05	9.31	-26.2	-4.9	
3,142.0	3.40	250.10	3,137.8	-40.5	-60.2	0.61	-0.11	9.89	-31.4	3.4	
3,330.0	4.10	251.90	3,325.4	-44.5	-71.8	0.38	0.37	0.96	-37.5	2.1	
3,519.0	1.10	259.90	3,514.2	-46.9	-80.0	1.60	-1.59	4.23	-39.6	4.9	
3,707.0	1.90	89.10	3,702.1	-47.2	-78.7	1.59	0.43	-90.85	31.9	-7.4	
3,896.0	3.60	152.70	3,891.0	-52.4	-72.8	1.71	0.90	33.65	1.7	-22.6	
4,085.0	2.60	249.00	4,079.8	-59.2	-74.1	2.47	-0.53	50.95	-20.1	4.5	
4,274.0	2.20	244.20	4,268.6	-62.4	-81.4	0.24	-0.21	-2.54	-21.9	0.9	
4,463.0	2.40	193.50	4,457.5	-67.8	-85.6	1.05	0.11	-26.83	-15.5	-15.3	
4,653.0	3.80	205.80	4,647.2	-77.3	-89.2	0.81	0.74	6.47	-22.5	-8.1	



Final PVA

Company: EOG Resources - Midland			Local Co-ordinate Reference: Well #710H		
Project: Lea County, NM (NAD 83 NME)			TVD Reference: KB = 25' @ 3331.0usft		
Site: Ophelia 22 Fed Com			MD Reference: KB = 25' @ 3331.0usft		
Well: #710H			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)	
4,842.0	6.70	214.00	4,835.4	-92.1	-98.1	1.58	1.53	4.34	-34.4	-2.1	
4,872.0	7.30	215.90	4,865.2	-95.1	-100.2	2.14	2.00	6.33	-37.1	-0.5	
5,031.0	8.40	224.10	5,022.7	-111.6	-114.2	0.99	0.69	5.16	-51.9	12.6	
5,221.0	8.50	238.30	5,210.6	-129.0	-135.8	1.10	0.05	7.47	-60.6	44.1	
5,410.0	8.70	271.90	5,397.6	-135.8	-162.0	2.62	0.11	17.78	-21.4	89.9	
5,600.0	9.90	305.30	5,585.3	-125.9	-189.7	2.87	0.63	17.58	44.4	87.8	
5,789.0	12.80	311.90	5,770.6	-102.5	-218.6	1.68	1.53	3.49	57.8	72.4	
5,978.0	12.70	310.70	5,954.9	-75.0	-249.9	0.15	-0.05	-0.63	55.7	62.1	
6,168.0	12.30	311.30	6,140.4	-48.0	-281.0	0.22	-0.21	0.32	56.5	50.2	
6,289.2	12.43	311.11	6,258.8	-30.9	-300.5	0.11	0.11	-0.16	56.7	43.2	
AC TGT (Ophelia 22 Fed Com #710H)											
6,357.0	12.50	311.00	6,325.0	-21.3	-311.5	0.11	0.11	-0.16	56.7	39.2	
6,547.0	12.90	308.80	6,510.3	5.4	-343.6	0.33	0.21	-1.16	55.1	30.9	
6,736.0	13.20	305.90	6,694.5	31.3	-377.5	0.38	0.16	-1.53	52.7	25.0	
6,926.0	13.60	302.10	6,879.3	55.9	-414.0	0.51	0.21	-2.00	49.4	22.2	
7,115.0	13.00	299.30	7,063.2	78.1	-451.3	0.47	-0.32	-1.48	47.0	20.8	
7,305.0	12.30	296.90	7,248.6	97.7	-488.0	0.46	-0.37	-1.26	38.4	21.1	
7,494.0	7.70	293.00	7,434.7	111.8	-517.7	2.46	-2.43	-2.06	25.3	23.3	
7,684.0	5.90	291.40	7,623.3	120.3	-538.5	0.95	-0.95	-0.84	10.9	24.3	
7,873.0	2.80	295.80	7,811.8	125.9	-551.7	1.65	-1.64	2.33	-1.3	24.1	
8,062.0	1.90	312.80	8,000.6	130.0	-558.1	0.60	-0.48	8.99	-1.8	24.8	
8,252.0	2.00	314.00	8,190.5	134.5	-562.8	0.06	0.05	0.63	-7.7	24.9	
8,441.0	1.90	301.50	8,379.4	138.4	-567.9	0.23	-0.05	-6.61	-19.3	21.9	
8,630.0	1.50	296.60	8,568.3	141.1	-572.8	0.22	-0.21	-2.59	-26.7	19.9	
8,819.0	1.30	285.80	8,757.3	142.8	-577.0	0.17	-0.11	-5.71	-34.5	14.1	
9,009.0	1.40	292.10	8,947.2	144.3	-581.3	0.09	0.05	3.32	-37.2	18.0	
9,201.0	2.30	12.00	9,139.1	148.9	-582.6	1.29	0.47	41.61	7.0	42.1	



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Site:	Ophelia 22 Fed Com	MD Reference:	KB = 25' @ 3331.0usft
Well:	#710H	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)	Buikd ("/100usft)	Turn ("/100usft)	High to Plan (usft)	Right to Plan (usft)	
9,390.0	1.50	334.30	9,328.0	154.9	-582.9	0.76	-0.42	-19.95	-25.7	35.2	
9,580.0	1.30	45.30	9,518.0	158.6	-582.5	0.86	-0.11	37.37	22.0	38.1	
9,769.0	0.30	64.10	9,707.0	160.4	-580.5	0.54	-0.53	9.95	30.6	29.7	
9,958.0	1.10	265.10	9,896.0	160.4	-581.8	0.73	0.42	-84.13	-40.5	-17.0	
10,148.0	0.30	135.40	10,085.9	159.9	-583.3	0.69	-0.42	-68.26	39.6	-21.8	
10,336.0	0.80	246.40	10,273.9	159.0	-584.2	0.51	0.27	59.04	-35.7	-28.7	
10,526.0	2.80	50.10	10,463.9	161.5	-581.8	1.88	1.05	86.16	22.8	38.0	
10,715.0	2.50	56.60	10,652.7	166.7	-574.8	0.22	-0.16	3.44	18.2	35.7	
10,905.0	2.60	88.90	10,842.5	169.1	-567.1	0.75	0.05	17.00	26.6	22.6	
11,094.0	1.10	85.00	11,031.4	169.3	-561.0	0.80	-0.79	-2.06	19.0	24.1	
11,283.0	2.20	288.50	11,220.4	170.6	-562.6	1.71	0.58	-82.80	-28.9	-15.2	
11,473.0	0.80	253.70	11,410.3	171.4	-567.3	0.85	-0.74	-18.32	-19.4	-31.1	
11,662.0	2.30	301.50	11,599.2	173.0	-571.8	0.98	0.79	25.29	-40.8	-5.6	
11,851.0	1.00	312.40	11,788.1	176.1	-578.3	0.70	-0.69	5.77	-46.4	3.0	
12,040.0	2.60	126.10	11,977.1	174.7	-574.1	1.90	0.85	91.90	43.8	2.3	
12,230.0	2.80	122.20	12,166.9	169.7	-566.6	0.14	0.11	-2.05	34.6	5.0	
12,324.0	2.30	123.00	12,260.8	167.4	-563.1	0.53	-0.53	0.85	30.5	4.6	
12,419.0	3.90	140.90	12,355.6	163.9	-559.5	1.95	1.68	18.84	25.4	-4.5	
12,457.0	5.70	148.30	12,393.5	161.3	-557.7	5.00	4.74	19.47	21.4	-7.6	
12,471.0	6.42	149.54	12,407.5	160.0	-556.9	5.18	5.09	8.82	19.8	-8.0	
KOP (Ophelia 22 Fed Com #710H)											
12,539.0	9.90	153.00	12,474.7	151.5	-552.3	5.18	5.13	5.09	13.4	-7.1	
12,586.0	15.30	154.70	12,520.6	142.3	-547.8	11.52	11.49	3.62	9.7	-4.3	
12,634.0	21.50	156.20	12,566.1	128.5	-541.6	12.95	12.92	3.12	4.9	0.2	
12,681.0	28.00	161.10	12,608.8	110.2	-534.5	14.49	13.83	10.43	-0.3	5.4	
12,710.2	31.90	166.06	12,634.1	96.2	-530.4	15.81	13.36	16.97	-3.2	8.7	

HL Crossing, MD:12710.2, TVD:12634.1, N/S:96.2, E/W:-530.4, INC:31.90



Final PVA

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Project:	Lea County, NM (NAD 83 NME)			TVD Reference:			KB = 25' @ 3331.0usft				
Site:	Ophelia 22 Fed Com			MD Reference:			KB = 25' @ 3331.0usft				
Well:	#710H			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)	Bulld (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)	
12,729.0	34.50	168.70	12,649.8	86.2	-528.2	15.81	13.82	14.06	-5.1	10.7	
12,776.0	43.20	176.30	12,686.4	57.0	-524.5	21.08	18.51	16.17	-10.5	14.4	
12,824.0	50.50	180.70	12,719.2	22.0	-523.7	16.61	15.21	9.17	-18.4	15.9	
12,871.0	55.90	181.50	12,747.3	-15.6	-524.4	11.57	11.49	1.70	-27.4	15.3	
FTP (Ophelia 22 Fed Com #710H)											
12,918.0	59.80	180.60	12,772.4	-55.4	-525.2	8.45	8.30	-1.91	-35.7	14.0	
12,965.0	65.20	180.90	12,794.0	-97.0	-525.7	11.50	11.49	0.64	-42.7	13.2	
13,013.0	72.00	181.70	12,811.6	-141.7	-526.7	14.25	14.17	1.67	-49.7	12.2	
13,060.0	74.90	181.90	12,824.9	-186.7	-528.2	6.18	6.17	0.43	-55.5	10.3	
13,108.0	78.50	181.30	12,836.0	-233.4	-529.5	7.60	7.50	-1.25	-58.8	8.3	
13,155.0	82.50	180.00	12,843.7	-279.7	-530.0	8.94	8.51	-2.77	-59.7	7.1	
13,182.0	84.10	178.50	12,846.9	-306.5	-529.6	8.10	5.93	-5.56	-59.2	7.2	
13,230.0	88.13	178.30	12,850.1	-354.4	-528.3	8.41	8.40	-0.42	-57.1	8.2	
13,277.0	89.14	178.30	12,851.3	-401.4	-526.9	2.15	2.15	0.00	-56.5	9.3	
13,325.0	89.60	176.90	12,851.8	-449.3	-524.9	3.07	0.96	-2.92	-56.5	10.9	
13,419.0	89.20	177.60	12,852.8	-543.2	-520.4	0.86	-0.43	0.74	-56.5	14.8	
13,466.0	89.00	174.70	12,853.5	-590.1	-517.2	6.18	-0.43	-6.17	-56.4	17.5	
13,514.0	89.10	175.10	12,854.3	-637.9	-513.0	0.86	0.21	0.83	-56.1	21.5	
13,577.0	91.20	177.20	12,854.1	-700.8	-508.7	4.71	3.33	3.33	-56.9	25.4	
13,609.0	91.70	178.70	12,853.3	-732.7	-507.6	4.94	1.56	4.69	-58.1	26.3	
13,672.0	91.30	180.50	12,851.7	-795.7	-507.1	2.93	-0.63	2.86	-60.4	26.3	
13,703.0	91.10	180.90	12,851.0	-826.7	-507.5	1.44	-0.65	1.29	-61.4	25.7	
13,798.0	90.80	180.50	12,849.5	-921.7	-508.7	0.53	-0.32	-0.42	-64.0	23.9	
13,861.0	87.20	179.60	12,850.6	-984.6	-508.7	5.89	-5.71	-1.43	-63.6	23.4	
13,893.0	86.50	179.80	12,852.3	-1,016.6	-508.6	2.27	-2.19	0.62	-62.2	23.4	
13,987.0	91.70	180.50	12,853.8	-1,110.6	-508.8	5.58	5.53	0.74	-61.7	22.5	
14,082.0	91.00	179.70	12,851.5	-1,205.5	-509.0	1.12	-0.74	-0.84	-65.0	21.6	



Final PVA

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Well:	#710H					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)	
14,176.0	90.50	179.00	12,850.3	-1,299.5	-507.9	0.92	-0.53	-0.74	-67.3	22.0	
14,271.0	89.10	181.00	12,850.7	-1,394.5	-507.9	2.57	-1.47	2.11	-68.0	21.4	
14,365.0	88.50	182.10	12,852.6	-1,488.4	-510.5	1.33	-0.64	1.17	-67.1	18.2	
14,460.0	87.90	182.00	12,855.6	-1,583.3	-513.8	0.64	-0.63	-0.11	-65.1	14.2	
14,554.0	87.00	181.50	12,859.8	-1,677.2	-516.7	1.10	-0.96	-0.53	-62.0	10.6	
14,649.0	88.00	180.70	12,863.9	-1,772.1	-518.5	1.35	1.05	-0.84	-58.9	8.1	
14,744.0	87.70	179.60	12,867.5	-1,867.0	-518.8	1.20	-0.32	-1.16	-56.4	7.2	
14,838.0	88.40	179.40	12,870.7	-1,961.0	-518.0	0.77	0.74	-0.21	-54.2	7.4	
14,849.1	88.39	179.36	12,871.0	-1,972.1	-517.8	0.33	-0.11	-0.32	-54.0	7.4	
TGT 1 (Ophelia 22 Fed Com #710H)											
14,933.0	88.30	179.10	12,873.4	-2,055.9	-516.7	0.33	-0.11	-0.32	-52.5	8.0	
15,028.0	89.80	181.00	12,875.0	-2,150.9	-516.8	2.55	1.58	2.00	-51.9	7.2	
15,122.0	90.80	180.80	12,874.5	-2,244.9	-518.3	1.08	1.06	-0.21	-53.4	5.1	
15,217.0	90.90	180.60	12,873.1	-2,339.9	-519.4	0.24	0.11	-0.21	-55.8	3.3	
15,312.0	90.50	181.10	12,871.9	-2,434.8	-520.9	0.67	-0.42	0.53	-57.9	1.2	
15,407.0	91.20	181.40	12,870.5	-2,529.8	-522.9	0.80	0.74	0.32	-60.3	-1.5	
15,501.0	90.80	181.20	12,868.9	-2,623.8	-525.1	0.48	-0.43	-0.21	-62.9	-4.3	
15,596.0	89.50	181.00	12,868.6	-2,718.7	-526.9	1.38	-1.37	-0.21	-64.2	-6.8	
15,643.0	88.50	180.70	12,869.5	-2,765.7	-527.6	2.22	-2.13	-0.64	-63.9	-7.8	
15,690.0	88.80	180.90	12,870.6	-2,812.7	-528.2	0.77	0.64	0.43	-63.2	-8.8	
15,785.0	88.10	181.20	12,873.1	-2,907.7	-530.0	0.80	-0.74	0.32	-61.7	-11.2	
15,880.0	88.00	181.30	12,876.4	-3,002.6	-532.0	0.15	-0.11	0.11	-59.4	-13.9	
15,927.0	88.20	181.60	12,877.9	-3,049.5	-533.2	0.77	0.43	0.64	-58.4	-15.4	
15,974.0	87.80	182.30	12,879.6	-3,096.5	-534.8	1.71	-0.85	1.49	-57.2	-17.3	
16,069.0	87.60	182.70	12,883.4	-3,191.3	-539.0	0.47	-0.21	0.42	-54.4	-22.1	
16,116.0	86.90	180.80	12,885.6	-3,238.2	-540.4	4.30	-1.49	-4.04	-52.6	-23.9	
16,164.0	87.00	181.00	12,888.2	-3,286.2	-541.2	0.47	0.21	0.42	-50.6	-25.0	



Final PVA

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #710H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3331.0usft
Site:	Ophelia 22 Fed Com	MD Reference:	KB = 25' @ 3331.0usft
Well:	#710H	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)	DLog (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)	
16,259.0	88.50	178.90	12,891.9	-3,361.1	-541.1	2.72	1.58	-2.21	-47.8	-25.6	
16,306.0	87.80	179.20	12,893.4	-3,428.1	-540.3	1.62	-1.49	0.64	-46.8	-25.1	
16,353.0	87.60	179.60	12,895.3	-3,475.0	-539.8	0.95	-0.43	0.85	-45.4	-25.0	
16,448.0	88.10	176.80	12,898.9	-3,569.9	-536.8	2.99	0.53	-2.95	-42.8	-22.7	
16,542.0	90.10	178.70	12,900.4	-3,663.8	-533.1	2.93	2.13	2.02	-42.4	-19.6	
16,637.0	91.60	178.00	12,899.0	-3,758.8	-530.4	1.74	1.58	-0.74	-44.8	-17.5	
16,732.0	91.30	178.40	12,896.6	-3,853.7	-527.4	0.53	-0.32	0.42	-48.2	-15.2	
16,826.0	91.20	178.20	12,894.5	-3,947.6	-524.6	0.24	-0.11	-0.21	-51.2	-13.1	
16,853.7	90.88	178.35	12,894.0	-3,975.2	-523.8	1.27	-1.16	0.53	-52.0	-12.4	
TGT 2 (Ophelia 22 Fed Com #710H)											
16,921.0	90.10	178.70	12,893.4	-4,042.6	-522.1	1.27	-1.16	0.53	-52.8	-11.2	
17,015.0	89.80	179.00	12,893.5	-4,136.5	-520.2	0.45	-0.32	0.32	-52.9	-9.9	
17,110.0	90.20	178.30	12,893.5	-4,231.5	-517.9	0.85	0.42	-0.74	-53.1	-8.4	
17,205.0	89.50	180.10	12,893.8	-4,326.5	-516.6	2.03	-0.74	1.89	-53.0	-7.7	
17,299.0	87.50	178.90	12,896.2	-4,420.5	-515.8	2.48	-2.13	-1.28	-50.8	-7.5	
17,394.0	87.20	178.10	12,900.6	-4,515.3	-513.3	0.90	-0.32	-0.84	-46.5	-5.7	
17,488.0	89.10	177.90	12,903.6	-4,609.2	-510.0	2.03	2.02	-0.21	-43.7	-3.1	
17,583.0	91.40	179.20	12,903.2	-4,704.2	-507.6	2.78	2.42	1.37	-44.3	-1.3	
17,678.0	91.40	178.90	12,900.9	-4,799.1	-506.0	0.32	0.00	-0.32	-46.8	-0.4	
17,725.0	90.10	177.40	12,900.3	-4,846.1	-504.5	4.22	-2.77	-3.19	-47.5	0.8	
17,772.0	90.20	177.50	12,900.2	-4,893.1	-502.4	0.30	0.21	0.21	-47.7	2.5	
17,867.0	94.60	179.40	12,896.2	-4,987.9	-499.9	5.04	4.63	2.00	-51.9	4.5	
17,962.0	94.70	179.60	12,888.5	-5,082.6	-499.0	0.23	0.11	0.21	-59.8	4.6	
18,056.0	94.20	181.10	12,881.2	-5,176.3	-499.6	1.68	-0.53	1.60	-67.2	3.4	
18,151.0	88.80	177.40	12,878.7	-5,271.2	-498.4	6.89	-5.68	-3.89	-69.9	4.0	
18,198.0	87.70	176.00	12,880.1	-5,318.1	-495.7	3.79	-2.34	-2.98	-68.6	6.3	
18,246.0	87.90	176.70	12,882.0	-5,366.0	-492.6	1.52	0.42	1.46	-66.8	9.1	



Final PVA

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #710H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3331.0usft
Site:	Ophelia 22 Fed Com	MD Reference:	KB = 25' @ 3331.0usft
Well:	#710H	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)	E/W (usft)	DLeg (°/100usft)	Bulld (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
18,341.0	87.60	177.50	12,885.7	-5,460.8	-487.8	0.90	-0.32	0.84	-63.3	13.2
18,388.0	85.70	177.00	12,888.5	-5,507.6	-485.6	4.18	-4.04	-1.06	-60.6	15.2
18,435.0	85.50	178.90	12,892.1	-5,554.4	-483.1	0.48	-0.43	-0.21	-57.1	17.3
18,530.0	87.40	178.10	12,898.0	-5,649.2	-478.9	2.36	2.00	1.26	-51.4	20.8
18,625.0	89.30	178.50	12,900.7	-5,744.1	-476.1	2.04	2.00	0.42	-48.9	23.0
18,719.0	91.60	181.00	12,899.9	-5,838.1	-475.7	3.61	2.45	2.66	-49.8	22.7
18,814.0	92.70	181.60	12,896.4	-5,933.0	-477.9	1.32	1.16	0.63	-53.5	19.9
18,859.7	92.65	182.03	12,894.3	-5,978.6	-479.3	0.95	-0.11	0.95	-55.7	18.1
TGT 3 (Ophelia 22 Fed Com #710H)										
18,909.0	92.60	182.50	12,892.0	-6,027.8	-481.3	0.95	-0.11	0.95	-58.1	15.8
19,003.0	91.30	181.80	12,888.8	-6,121.7	-484.8	1.57	-1.38	-0.74	-61.5	11.7
19,033.0	89.80	181.20	12,888.5	-6,151.7	-485.6	5.39	-5.00	-2.00	-61.8	10.7
19,098.0	89.20	181.50	12,889.1	-6,216.6	-487.1	1.03	-0.92	0.46	-61.4	8.7
19,130.0	87.30	180.40	12,890.1	-6,248.6	-487.6	6.86	-5.94	-3.44	-60.4	8.0
19,193.0	86.70	180.10	12,893.3	-6,311.5	-487.9	1.06	-0.95	-0.48	-57.3	7.2
19,287.0	92.20	181.30	12,894.3	-6,405.5	-489.0	5.99	5.85	1.28	-56.5	5.4
19,382.0	89.70	180.30	12,892.7	-6,500.5	-490.4	2.83	-2.63	-1.05	-58.3	3.4
19,476.0	86.90	178.10	12,895.5	-6,594.4	-489.1	3.79	-2.98	-2.34	-55.7	4.1
19,523.0	86.10	178.10	12,898.3	-6,641.3	-487.5	1.70	-1.70	0.00	-52.9	5.3
19,571.0	87.30	181.70	12,901.1	-6,689.2	-487.4	7.89	2.50	7.50	-50.2	5.1
19,618.0	86.50	178.60	12,903.6	-6,736.1	-487.5	6.80	-1.70	-6.60	-47.7	4.6
19,666.0	85.70	178.30	12,906.9	-6,784.0	-486.3	1.78	-1.67	-0.62	-44.6	5.6
19,713.0	88.00	179.90	12,909.5	-6,830.9	-485.5	5.96	4.89	3.40	-42.1	6.0
19,761.0	89.60	180.80	12,910.5	-6,878.9	-485.8	3.82	3.33	1.87	-41.1	5.4
19,855.0	89.20	180.70	12,911.5	-6,972.9	-487.0	0.44	-0.43	-0.11	-40.3	3.5
19,902.0	91.10	183.20	12,911.4	-7,019.8	-488.6	6.68	4.04	5.32	-40.5	1.6
19,950.0	91.10	183.90	12,910.4	-7,067.7	-491.6	1.46	0.00	1.46	-41.6	-1.7



Final PVA

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #710H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3331.0usft
Site:	Ophelia 22 Fed Com	MD Reference:	KB = 25' @ 3331.0usft
Well:	#710H	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)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
20,044.0	92.80	185.20	12,907.2	-7,161.4	-499.1	2.28	1.81	1.38	-44.9	-9.8
20,140.0	91.00	183.10	12,904.1	-7,257.1	-506.0	2.88	-1.87	-2.19	-48.3	-17.4
20,187.0	92.70	183.20	12,902.5	-7,304.0	-508.6	3.62	3.62	0.21	-49.9	-20.4
20,234.0	90.00	181.10	12,901.4	-7,350.9	-510.3	7.28	-5.74	-4.47	-51.1	-22.4
20,329.0	84.10	176.00	12,906.3	-7,445.7	-508.0	8.20	-6.21	-5.37	-46.3	-20.8
20,361.0	86.20	178.20	12,909.0	-7,477.5	-506.3	9.49	6.56	6.87	-43.7	-19.4
20,392.0	84.70	174.40	12,911.5	-7,508.4	-504.4	13.14	-4.84	-12.26	-41.3	-17.6
20,425.0	84.50	175.40	12,914.6	-7,541.1	-501.4	3.08	-0.61	3.03	-38.2	-14.9
Final MWD Survey (MD=20425.0)										
20,494.0	84.50	175.40	12,921.2	-7,609.6	-495.9	0.00	0.00	0.00	-31.8	-9.9
Final Projection to Bit (MD=20494.0) - PBHL (Ophelia 22 Fed Com #710H)										

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/S (usft)	+E/W (usft)	
12,710.2	12,634.1	96.2	-530.4	HL Crossing, MD:12710.2', TVD:12634.1', N/S:96.2', E/W:-530.4', INC:31.90
20,425.0	12,914.6	-7,541.1	-501.4	Final MWD Survey (MD=20425.0')
20,494.0	12,921.2	-7,609.6	-495.9	Final Projection to Bit (MD=20494.0')

Checked By: _____	Approved By: _____	Date: _____
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HOBBS OCD

OCT 01 2018

RECEIVED



Lea County, NM (NAD 83 NME)

Ophelia 22 Fed Com #710H

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: #710H

KB = 25' @ 3331.0usft
Northing 67962.00 Easting 779470.50 Longitude 32° 2' 8.409 N 103° 33' 53.449 W



To convert a Magnetic Direction to a Grid Direction, Add 6.51°
To convert a Magnetic Direction to a True Direction, Add 6.92° East
To convert a True Direction to a Grid Direction, Subtract 0.41°

SECTION DETAILS

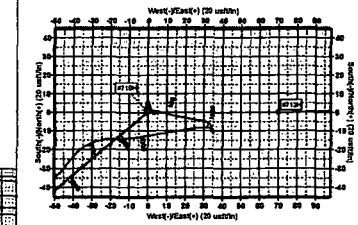
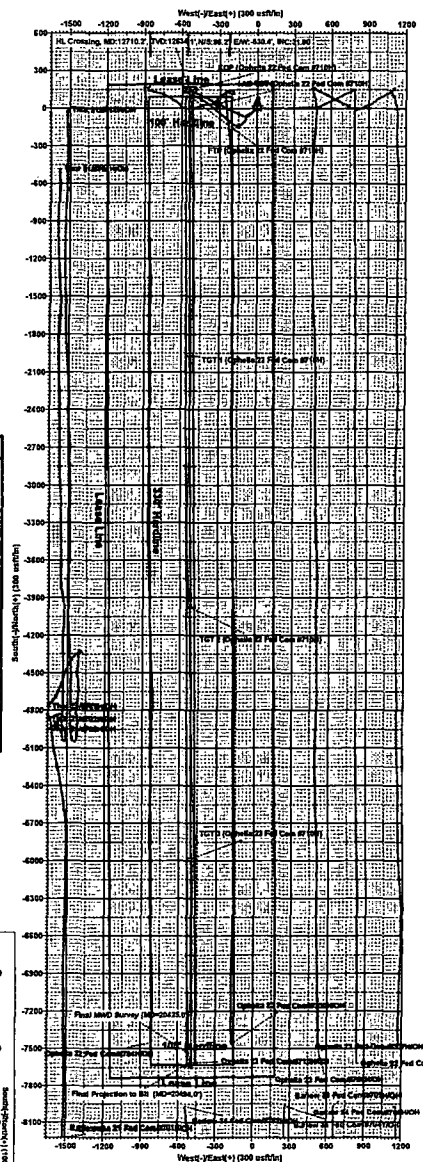
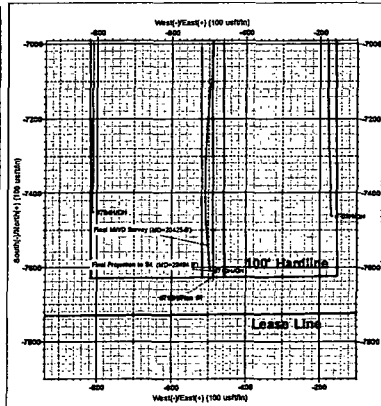
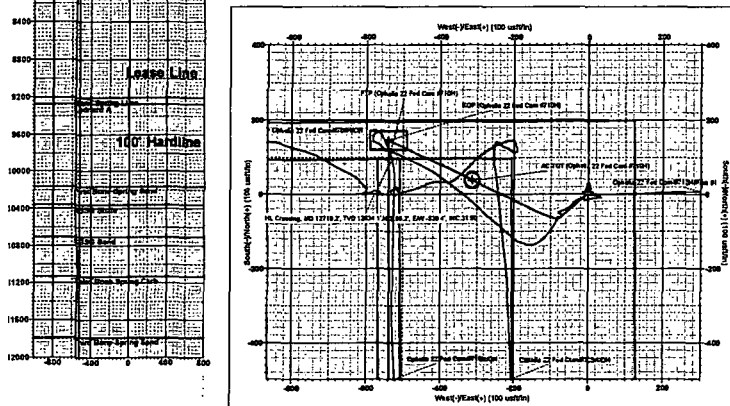
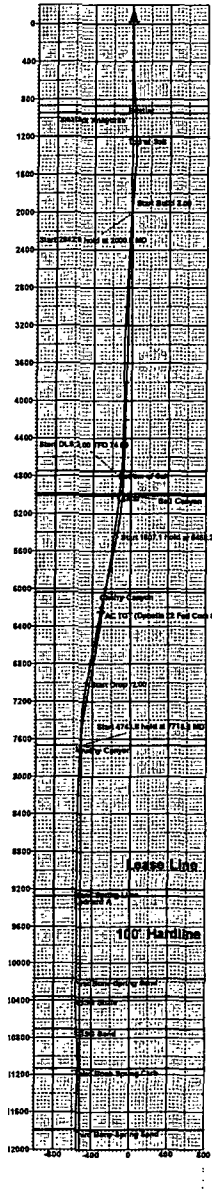
Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	Vsect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1900.0	0.00	0.00	1900.0	0.0	0.0	0.00	0.00	0.0	
3	2000.0	2.00	230.00	2000.0	-1.1	-1.3	2.00	230.00	1.2	
4	4842.8	2.00	230.00	4841.0	-64.9	-77.3	0.00	0.00	69.7	
5	5458.2	13.00	295.71	5450.7	-41.7	-148.2	2.00	74.09	51.0	
6	7065.3	13.00	295.71	7016.7	115.2	-473.9	0.00	0.00	-84.8	
7	7715.2	0.00	0.00	7661.0	147.0	-540.0	2.00	180.00	-112.4	
8	12459.0	0.00	0.00	12404.8	147.0	-540.0	0.00	0.00	-112.4	KOP (Ophelia 22 Fed Com #710H)
9	12609.0	15.00	179.60	12553.1	127.5	-539.9	10.00	179.60	-92.9	
10	13228.8	89.37	179.60	12907.0	-328.5	-536.7	12.00	0.00	361.9	
11	14871.0	89.37	179.60	12925.0	-1970.6	-525.3	0.00	0.00	2000.0	TGT 1 (Ophelia 22 Fed Com #710H)
12	14872.5	89.40	179.60	12925.0	-1972.1	-525.3	2.00	-0.22	2001.5	
13	16876.1	89.40	179.60	12946.0	-3975.5	-511.4	0.00	0.00	4000.0	TGT 2 (Ophelia 22 Fed Com #710H)
14	16900.5	89.89	179.60	12946.2	-3999.9	-511.2	2.00	0.00	4024.4	
15	18881.2	89.89	179.60	12950.0	-5980.5	-497.4	0.00	0.00	6000.0	TGT 3 (Ophelia 22 Fed Com #710H)
16	18881.5	89.90	179.60	12950.0	-5980.8	-497.4	2.00	0.00	6000.4	
17	20526.7	89.90	179.60	12953.0	-7626.0	-486.0	0.00	0.00	7641.5	PBHL (Ophelia 22 Fed Com #710H)

CASING DETAILS

No casing data is available

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N-S	+E-W	Northing	Easting
KOP (Ophelia 22 Fed Com #710H)	12404.8	147.0	-540.0	377109.00	778930.00
TGT 1 (Ophelia 22 Fed Com #710H)	12525.0	-1970.6	-525.3	375091.40	778944.71
TGT 2 (Ophelia 22 Fed Com #710H)	12946.0	-3975.5	-511.4	373386.50	778955.64
TGT 3 (Ophelia 22 Fed Com #710H)	12950.0	-5980.5	-497.4	371581.50	778972.57
PBHL (Ophelia 22 Fed Com #710H)	12953.0	-7626.0	-486.0	369935.00	778984.00
AC TGT (Ophelia 22 Fed Com #710H)	6248.6	38.0	-313.7	377609.03	778166.29
FTP (Ophelia 22 Fed Com #710H)	12907.0	87.0	-540.0	377659.00	778930.00





Final PVA

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #710H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3331.0usft
Site:	Ophelia 22 Fed Com	MD Reference:	KB = 25' @ 3331.0usft
Well:	#710H	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)	Bulld ("/100usft)	Turn ("/100usft)	High to Plan (usft)	Right to Plan (usft)	
12,729.0	34.50	168.70	12,649.8	86.2	-528.2	15.81	13.82	14.06	-5.1	10.7	
12,776.0	43.20	176.30	12,686.4	57.0	-524.5	21.08	18.51	16.17	-10.5	14.4	
12,824.0	50.50	180.70	12,719.2	22.0	-523.7	16.61	15.21	9.17	-18.4	15.9	
12,871.0	55.90	181.50	12,747.3	-15.6	-524.4	11.57	11.49	1.70	-27.4	15.3	
FTP (Ophelia 22 Fed Com #710H)											
12,918.0	59.80	180.60	12,772.4	-55.4	-525.2	8.45	8.30	-1.91	-35.7	14.0	
12,965.0	65.20	180.90	12,794.0	-97.0	-525.7	11.50	11.49	0.64	-42.7	13.2	
13,013.0	72.00	181.70	12,811.6	-141.7	-526.7	14.25	14.17	1.67	-49.7	12.2	
13,060.0	74.90	181.90	12,824.9	-186.7	-528.2	6.18	6.17	0.43	-55.5	10.3	
13,108.0	78.50	181.30	12,836.0	-233.4	-529.5	7.60	7.50	-1.25	-58.8	8.3	
13,155.0	82.50	180.00	12,843.7	-279.7	-530.0	8.94	8.51	-2.77	-59.7	7.1	
13,182.0	84.10	178.50	12,846.9	-306.5	-529.6	8.10	5.93	-5.56	-59.2	7.2	
13,230.0	88.13	178.30	12,850.1	-354.4	-528.3	8.41	8.40	-0.42	-57.1	8.2	
13,277.0	89.14	178.30	12,851.3	-401.4	-526.9	2.15	2.15	0.00	-56.5	9.3	
13,325.0	89.60	176.90	12,851.8	-449.3	-524.9	3.07	0.96	-2.92	-56.5	10.9	
13,419.0	89.20	177.60	12,852.8	-543.2	-520.4	0.86	-0.43	0.74	-56.5	14.8	
13,466.0	89.00	174.70	12,853.5	-590.1	-517.2	6.18	-0.43	-6.17	-56.4	17.5	
13,514.0	89.10	175.10	12,854.3	-637.9	-513.0	0.86	0.21	0.83	-56.1	21.5	
13,577.0	91.20	177.20	12,854.1	-700.8	-508.7	4.71	3.33	3.33	-56.9	25.4	
13,609.0	91.70	178.70	12,853.3	-732.7	-507.6	4.94	1.56	4.69	-58.1	26.3	
13,672.0	91.30	180.50	12,851.7	-795.7	-507.1	2.93	-0.63	2.86	-60.4	26.3	
13,703.0	91.10	180.90	12,851.0	-826.7	-507.5	1.44	-0.65	1.29	-61.4	25.7	
13,798.0	90.80	180.50	12,849.5	-921.7	-508.7	0.53	-0.32	-0.42	-64.0	23.9	
13,861.0	87.20	179.60	12,850.6	-984.6	-508.7	5.89	-5.71	-1.43	-63.6	23.4	
13,893.0	86.50	179.80	12,852.3	-1,016.6	-508.6	2.27	-2.19	0.62	-62.2	23.4	
13,987.0	91.70	180.50	12,853.8	-1,110.6	-508.8	5.58	5.53	0.74	-61.7	22.5	
14,082.0	91.00	179.70	12,851.5	-1,205.5	-509.0	1.12	-0.74	-0.84	-65.0	21.6	