



HOBBS OCD
JUN 11 2018
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EOG Resources - Midland

Lea County, NM (NAD 83 NME)

Ruby 2 State Com

#605H

OH

Design: OH

PVA Report

26 March, 2018



PVA Report

Company: EOG Resources - Midland Project: Lea County, NM (NAD 83 NME) Site: Ruby 2 State Com Well: #605H Wellbore: OH Design: OH		Local Co-ordinate Reference: Well #605H TVD Reference: KB = 25' @ 3323.0usft (H&P 444) MD Reference: KB = 25' @ 3323.0usft (H&P 444) North Reference: Grid Survey Calculation Method: Minimum Curvature Database: EDM 5000.14	
Project Lea County, NM (NAD 83 NME)			
Map System: US State Plane 1983 Geo Datum: North American Datum 1983 Map Zone: New Mexico Eastern Zone		System Datum: Mean Sea Level	
Site Ruby 2 State Com			
Site Position: From: Map Position Uncertainty: 0.0 usft		Northing: 393,589.99 usft Easting: 775,148.00 usft Slot Radius: 13-3/16 " Latitude: 32° 4' 47.315 N Longitude: 103° 34' 42.355 W Grid Convergence: 0.40 °	
Well #605H			
Well Position +N/-S 0.0 usft + E/-W 0.0 usft Position Uncertainty 0.0 usft		Northing: 393,603.00 usft Easting: 819,554.00 usft Wellhead Elevation: usft Latitude: 32° 4' 44.077 N Longitude: 103° 26' 6.260 W Ground Level: 3,298.0 usft	
Wellbore OH			
Magnetics			
Model Name	Sample Date	Declination (°)	Dip Angle (°)
IGRF2015	12/29/2017	6.82	59.94
Field Strength (nT) 47,812.18819008			
Design OH			
Audit Notes:			
Version: 1.0	Phase: ACTUAL	Tie On Depth: 0.0	
Vertical Section:		Depth From (TVD) (usft) 0.0	Direction (°) 336.27



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Site:	Ruby 2 State Com	MD Reference:	KB = 25' @ 3323.0usft (H&P 444)
Well:	#605H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.14

Survey Program		Date	3/28/2018		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
190.0	943.0	Invictus MWD (OH)	MWD	OWSG MWD - Standard	
1,153.0	17,215.0	Gordon MWD (OH)	MWD	OWSG MWD - Standard	

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)
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.0	0.0
190.0	0.80	286.35	190.0	0.4	-1.3	0.42	0.42	0.00	0.0	0.0
250.0	0.70	356.35	250.0	0.9	-1.7	1.44	-0.17	116.67	0.0	0.0
281.0	0.70	353.35	281.0	1.2	-1.7	0.12	0.00	-9.68	0.0	0.0
312.0	1.00	344.35	312.0	1.7	-1.8	1.06	0.97	-29.03	0.0	0.0
343.0	0.80	341.35	343.0	2.1	-2.0	0.66	-0.65	-9.68	0.0	0.0
374.0	0.80	332.35	374.0	2.5	-2.1	0.40	0.00	-29.03	0.0	0.0
405.0	0.80	331.35	405.0	2.9	-2.3	0.05	0.00	-3.23	0.0	0.0
436.0	0.60	344.35	436.0	3.3	-2.5	0.82	-0.65	41.94	0.0	0.0
468.0	0.70	333.35	468.0	3.6	-2.6	0.50	0.31	-34.37	0.0	0.0
563.0	0.90	351.35	563.0	4.9	-3.0	0.34	0.21	18.95	0.0	0.0
595.0	1.00	345.35	595.0	5.4	-3.1	0.44	0.31	-18.75	0.0	0.0
626.0	0.80	347.35	626.0	5.9	-3.2	0.65	-0.65	6.45	0.0	0.0
657.0	0.60	339.35	657.0	6.2	-3.3	0.72	-0.65	-25.81	0.0	0.0
720.0	0.90	352.35	719.9	7.0	-3.5	0.54	0.48	20.63	0.0	0.0
751.0	0.80	356.35	750.9	7.5	-3.6	0.37	-0.32	12.90	0.0	0.0
782.0	0.40	319.35	781.9	7.8	-3.6	1.73	-1.29	-119.35	0.0	0.0
813.0	0.50	323.35	812.9	8.0	-3.8	0.34	0.32	12.90	0.0	0.0
843.0	0.50	346.35	842.9	8.2	-3.9	0.66	0.00	76.67	0.0	0.0
874.0	0.80	331.35	873.9	8.5	-4.0	1.10	0.97	-48.39	0.0	0.0
906.0	0.50	333.35	905.9	8.8	-4.2	0.94	-0.94	6.25	0.0	0.0



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Site:	Ruby 2 State Corn	MD Reference:	KB = 25' @ 3323.0usft (H&P 444)
Well:	#605H	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)	
943.0	0.50	6.35	942.9	9.1	-4.3	0.77	0.00	89.19	0.0	0.0	
1,153.0	0.29	265.05	1,152.9	10.0	-4.7	0.30	-0.10	-48.24	-0.6	0.2	
1,340.0	0.28	257.56	1,339.9	9.9	-5.6	0.02	-0.01	-4.01	-1.5	0.0	
1,526.0	0.41	286.56	1,525.9	10.0	-6.7	0.11	0.07	15.59	-2.4	1.0	
1,714.0	0.22	225.69	1,713.9	9.9	-7.6	0.19	-0.10	-32.38	-2.7	-2.2	
1,902.0	0.25	239.26	1,901.9	9.4	-8.2	0.03	0.02	7.22	-3.9	-1.4	
2,089.0	0.06	8.04	2,088.9	9.3	-8.5	0.16	-0.10	68.87	1.5	4.2	
2,277.0	0.12	22.04	2,276.9	9.6	-8.4	0.03	0.03	7.45	2.2	3.8	
2,465.0	0.40	58.11	2,464.9	10.1	-7.8	0.17	0.15	19.19	3.2	1.9	
2,651.0	0.50	37.83	2,650.9	11.1	-6.8	0.10	0.05	-10.90	0.9	2.6	
2,839.0	0.42	44.57	2,838.9	12.3	-5.8	0.05	-0.04	3.59	-0.3	2.6	
3,026.0	0.76	49.67	3,025.9	13.6	-4.4	0.18	0.18	2.73	-2.0	2.7	
3,214.0	1.09	44.22	3,213.9	15.6	-2.2	0.18	0.18	-2.90	-5.3	2.4	
3,401.0	1.91	51.28	3,400.8	18.9	1.5	0.45	0.44	3.78	-9.8	3.2	
3,588.0	1.92	49.15	3,587.7	22.9	6.3	0.04	0.01	-1.14	-16.2	2.7	
3,776.0	1.47	48.19	3,775.6	26.5	10.5	0.24	-0.24	-0.51	-21.8	2.4	
3,963.0	1.63	45.70	3,962.5	30.0	14.2	0.09	0.09	-1.33	-26.9	1.3	
4,151.0	0.06	135.75	4,150.5	31.8	16.2	0.87	-0.84	47.90	1.3	29.6	
4,338.0	0.17	190.14	4,337.5	31.4	16.2	0.08	0.06	29.09	24.5	16.3	
4,525.0	0.98	107.58	4,524.5	30.7	17.7	0.52	0.43	-44.15	-14.6	26.1	
4,713.0	1.67	111.17	4,712.5	29.2	21.8	0.37	0.37	1.91	-17.3	27.1	
4,901.0	3.11	92.11	4,900.3	28.0	29.4	0.86	0.77	-10.14	-32.8	19.0	
5,088.0	4.91	102.41	5,086.8	26.1	42.3	1.03	0.96	5.51	-41.9	25.6	
5,217.0	3.79	99.82	5,215.5	24.2	51.9	0.88	-0.87	-2.01	-52.8	23.4	
5,367.0	3.11	95.16	5,365.2	23.0	60.8	0.49	-0.45	-3.11	-63.5	18.6	
5,555.0	0.85	114.40	5,553.1	22.0	67.2	1.24	-1.20	10.23	-60.1	40.1	
5,744.0	1.82	267.42	5,742.0	21.2	65.4	1.38	0.51	80.96	70.0	-7.9	



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Site:	Ruby 2 State Com	MD Reference:	KB = 25' @ 3323.0usft (H&P 444)
Well:	#805H	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)	
5,931.0	1.69	261.73	5,929.0	20.7	59.8	0.12	-0.07	-3.04	64.7	-1.2	
6,120.0	1.52	268.09	6,117.9	20.2	54.5	0.13	-0.09	3.37	58.9	-8.1	
6,308.0	1.25	260.96	6,305.8	19.8	50.0	0.17	-0.14	-3.79	54.9	-1.0	
6,498.0	1.15	257.01	6,493.8	19.1	46.1	0.07	-0.05	-2.10	50.9	2.7	
6,684.0	1.18	260.31	6,681.7	18.3	42.4	0.04	0.02	1.76	47.2	-0.2	
6,871.0	1.16	259.99	6,868.7	17.7	38.6	0.01	-0.01	-0.17	43.4	0.1	
7,059.0	0.93	259.80	7,056.7	17.1	35.2	0.12	-0.12	-0.10	40.0	0.2	
7,246.0	0.79	260.06	7,243.7	16.6	32.5	0.07	-0.07	0.14	37.1	0.1	
7,434.0	0.74	232.39	7,431.6	15.6	30.2	0.20	-0.03	-14.72	30.5	16.7	
7,621.0	0.79	216.10	7,618.6	13.8	28.5	0.12	0.03	-8.71	22.2	24.2	
7,809.0	0.77	192.71	7,806.6	11.6	27.5	0.17	-0.01	-12.44	8.3	30.5	
7,997.0	0.81	188.56	7,994.6	9.0	27.0	0.04	0.02	-2.21	3.4	31.0	
8,185.0	1.12	145.51	8,182.6	6.2	27.8	0.41	0.16	-22.90	-21.4	24.1	
8,372.0	1.63	150.02	8,369.5	2.4	30.2	0.28	0.27	2.41	-23.9	25.8	
8,558.0	1.78	137.92	8,555.4	-2.1	33.5	0.21	0.08	-6.51	-34.3	19.7	
8,745.0	1.65	178.16	8,742.3	-6.9	35.5	0.63	-0.07	21.52	-18.4	39.1	
8,931.0	1.11	215.13	8,928.3	-11.1	34.5	0.55	-0.29	19.88	4.8	43.9	
9,119.0	0.69	221.95	9,116.3	-13.4	32.7	0.23	-0.22	3.63	7.1	43.2	
9,306.0	0.40	142.92	9,303.3	-14.7	32.4	0.39	-0.16	-42.26	-41.9	14.1	
9,494.0	0.89	34.03	9,491.3	-14.1	33.6	0.58	0.26	-57.92	-1.0	-44.9	
9,682.0	1.24	31.14	9,679.2	-11.1	35.5	0.19	0.19	-1.54	-2.2	-44.9	
9,872.0	1.50	27.04	9,869.2	-7.1	37.6	0.15	0.14	-2.16	-3.5	-45.1	
10,060.0	3.65	331.28	10,057.0	0.3	35.9	1.63	1.14	-29.66	27.9	-30.4	
10,248.0	4.10	340.73	10,244.6	11.9	30.8	0.41	0.24	5.03	9.9	-33.5	
10,341.0	4.63	321.51	10,337.3	18.0	27.4	1.66	0.57	-20.67	13.5	-29.5	
10,435.0	5.02	308.49	10,431.0	23.5	21.6	1.23	0.41	-13.85	12.0	-26.5	
10,530.0	4.37	301.95	10,525.6	28.0	15.5	0.89	-0.68	-6.88	7.3	-24.9	



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10,623.0	3.91	284.85	10,618.4	30.7	9.4	1.41	-0.49	-18.39	7.3	-19.4	
10,716.0	3.96	303.10	10,711.2	33.3	3.6	1.34	0.05	19.62	-4.0	-13.5	
10,810.0	2.69	343.17	10,805.0	37.2	0.3	2.73	-1.35	42.63	-9.0	0.2	
10,904.0	4.66	9.28	10,898.9	43.0	0.2	2.70	2.10	27.78	-1.5	7.7	
10,999.0	3.88	23.83	10,993.6	49.8	2.2	1.40	-0.82	15.32	9.3	8.1	
11,093.0	4.39	34.71	11,087.3	55.6	5.5	0.99	0.54	11.57	21.6	2.6	
11,187.0	6.50	38.03	11,180.9	62.8	10.8	2.27	2.24	3.53	30.5	-3.7	
11,280.0	8.94	25.57	11,273.1	73.5	17.2	3.17	2.62	-13.40	36.4	0.4	
11,375.0	10.56	26.62	11,366.7	87.9	24.3	1.72	1.71	1.11	38.9	-1.9	
11,469.0	7.86	35.87	11,459.5	100.8	31.9	3.27	-2.87	9.84	41.0	-11.2	
11,563.0	9.59	44.23	11,552.4	111.6	41.1	2.28	1.84	8.89	41.8	-23.1	
11,657.0	8.98	43.29	11,645.2	122.6	51.6	0.67	-0.65	-1.00	44.1	-29.5	
11,751.0	7.08	39.71	11,738.2	132.4	60.4	2.09	-2.02	-3.81	50.1	-33.1	
11,780.0	6.75	40.13	11,767.0	135.1	62.6	1.15	-1.14	1.45	51.8	-35.3	
11,857.0	5.08	25.78	11,843.6	141.6	67.0	2.88	-2.17	-18.64	66.1	-23.9	
11,888.0	4.75	23.15	11,874.5	144.0	68.1	1.29	-1.06	-8.48	70.5	-21.2	
11,919.0	5.55	31.37	11,905.4	146.5	69.4	3.50	2.58	26.52	70.0	-31.8	
11,938.1	7.51	49.76	11,924.4	148.1	70.8	14.87	10.26	96.21	58.0	-53.3	
KOP (Ruby 2 State Com #805H)											
11,950.0	8.97	56.75	11,936.1	149.1	72.2	14.87	12.28	58.82	51.5	-61.1	
11,981.0	12.76	67.35	11,966.6	151.7	77.4	13.77	12.23	34.19	37.3	-72.0	
12,012.0	14.85	74.77	11,996.7	154.1	84.4	8.82	6.74	23.94	22.9	-76.9	
12,043.0	15.69	85.48	12,026.6	155.5	92.4	9.48	2.71	34.55	2.7	-78.3	
12,075.0	15.07	93.50	12,057.5	155.5	100.8	6.92	-1.94	25.06	-13.4	-74.4	
12,105.0	14.35	112.27	12,086.5	153.9	108.2	16.00	-2.40	62.57	-38.4	-61.7	
12,137.0	15.41	129.73	12,117.4	149.7	115.1	14.34	3.31	54.56	-54.6	-43.2	
12,182.0	21.11	144.55	12,160.2	139.2	124.4	16.24	12.67	32.93	-61.6	-23.2	



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12,230.0	27.48	153.83	12,203.9	122.2	134.4	15.44	13.27	19.33	-62.0	-9.5	
12,275.0	34.40	154.58	12,242.5	101.4	144.4	15.40	15.38	1.67	-60.3	-4.4	
12,324.0	42.25	155.77	12,280.9	73.8	157.1	16.09	16.02	2.43	-59.3	2.5	
12,369.0	47.71	163.09	12,312.7	44.1	168.2	16.70	12.13	16.27	-57.7	12.0	
12,418.0	54.81	167.45	12,343.4	7.1	177.8	16.06	14.49	8.90	-56.0	16.1	
12,463.0	60.74	165.20	12,367.4	-29.8	186.8	13.84	13.18	-5.00	-55.5	16.4	
12,486.6	63.12	165.54	12,378.5	-50.0	192.1	10.18	10.10	1.43	-54.8	18.0	
HL Crossing, MD:12486.6, TVD:12378.5, N/S:-50.0, E/W:192.1, INC:63.12											
12,511.0	65.59	165.87	12,389.0	-71.3	197.5	10.18	10.11	1.37	-53.7	19.6	
12,531.1	65.80	167.10	12,397.3	-89.1	201.8	5.66	1.06	6.10	-52.2	21.2	
FTP (Ruby 2 State Com #605H)											
12,556.0	66.08	168.61	12,407.5	-111.3	206.6	5.66	1.11	6.08	-49.0	22.7	
12,605.0	71.67	170.69	12,425.1	-156.3	214.8	12.08	11.41	4.24	-41.5	23.7	
12,650.0	75.93	171.57	12,437.7	-199.0	221.4	9.65	9.47	1.96	-33.9	23.7	
12,699.0	81.48	173.90	12,447.3	-246.6	227.5	12.25	11.33	4.76	-25.6	22.7	
12,744.0	82.61	177.42	12,453.5	-291.0	230.9	8.14	2.51	7.82	-19.9	20.2	
12,793.0	84.16	180.95	12,459.1	-339.7	231.6	7.82	3.16	7.20	-14.9	15.3	
12,838.0	84.11	180.34	12,463.7	-384.5	231.1	1.35	-0.11	-1.36	-10.8	10.3	
12,886.0	88.79	178.74	12,466.7	-432.3	231.5	10.30	9.75	-3.33	-8.4	6.7	
12,925.0	90.06	178.41	12,467.1	-471.3	232.4	3.36	3.26	-0.85	-8.5	5.0	
13,019.0	91.52	178.06	12,465.8	-565.3	235.3	1.60	1.55	-0.37	-10.8	3.8	
13,113.0	89.52	178.84	12,464.9	-659.2	237.9	2.28	-2.13	0.83	-12.6	4.9	
13,206.0	88.15	177.91	12,466.8	-752.2	240.5	1.78	-1.47	-1.00	-11.6	6.5	
13,300.0	89.52	177.02	12,468.8	-846.1	244.7	1.74	1.46	-0.95	-10.7	9.7	
13,394.0	89.41	175.83	12,469.6	-939.9	250.5	1.27	-0.12	-1.27	-10.8	14.6	
13,488.0	88.82	177.94	12,471.1	-1,033.7	255.6	2.33	-0.63	2.24	-10.3	18.7	
13,582.0	87.98	180.66	12,473.7	-1,127.7	256.8	3.03	-0.89	2.89	-8.6	18.9	



PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #605H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3323.0usft (H&P 444)
Site:	Ruby 2 State Com	MD Reference:	KB = 25' @ 3323.0usft (H&P 444)
Well:	#605H	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)	
13,676.0	87.37	180.23	12,477.5	-1,221.6	256.0	0.79	-0.65	-0.46	-5.7	17.2	
13,770.0	88.99	181.04	12,480.5	-1,315.5	255.0	1.93	1.72	0.86	-3.7	15.1	
13,864.0	92.72	182.58	12,479.1	-1,409.4	252.0	4.29	3.97	1.64	-6.1	11.2	
13,958.0	89.94	179.72	12,476.9	-1,503.4	250.1	4.24	-2.96	-3.04	-9.2	8.3	
14,052.0	90.95	178.53	12,476.2	-1,597.4	251.6	1.66	1.07	-1.27	-10.9	8.7	
14,142.9	91.50	179.70	12,474.2	-1,688.3	253.0	1.42	0.61	1.29	-13.7	9.2	
TGT#1 (Ruby 2 State Com #605H)											
14,146.0	91.52	179.74	12,474.2	-1,691.3	253.0	1.42	0.61	1.29	-13.9	9.2	
14,241.0	88.51	182.66	12,474.1	-1,786.3	251.0	4.41	-3.17	3.07	-14.8	6.2	
14,334.0	88.37	182.46	12,476.7	-1,879.2	246.9	0.26	-0.15	-0.22	-13.2	1.1	
14,429.0	87.62	181.66	12,480.0	-1,974.0	243.4	1.15	-0.79	-0.84	-10.9	-3.3	
14,522.0	89.02	180.23	12,482.7	-2,067.0	241.9	2.15	1.51	-1.54	-9.1	-5.8	
14,615.0	87.62	179.01	12,485.4	-2,159.9	242.5	2.00	-1.51	-1.31	-7.3	-6.2	
14,708.0	90.64	177.30	12,486.9	-2,252.9	245.5	3.73	3.25	-1.84	-6.8	-4.2	
14,803.0	91.07	179.30	12,485.4	-2,347.8	248.3	2.15	0.45	2.11	-9.1	-2.4	
14,896.0	89.44	179.20	12,485.0	-2,440.8	249.6	1.76	-1.75	-0.11	-10.5	-2.1	
14,990.0	91.15	178.57	12,484.5	-2,534.8	251.4	1.94	1.82	-0.67	-11.9	-1.3	
15,083.0	90.84	179.34	12,482.9	-2,627.7	253.1	0.89	-0.33	0.83	-14.5	-0.6	
15,177.0	90.28	180.15	12,482.0	-2,721.7	253.5	1.05	-0.60	0.86	-16.3	-1.1	
15,271.0	89.66	178.28	12,482.1	-2,815.7	254.8	2.10	-0.66	-1.99	-17.2	-0.8	
15,364.0	89.30	176.77	12,482.9	-2,908.6	258.8	1.67	-0.39	-1.62	-17.3	2.2	
15,458.0	89.75	178.37	12,483.7	-3,002.5	262.8	1.77	0.48	1.70	-17.4	5.2	
15,551.0	88.15	178.14	12,485.4	-3,095.5	265.6	1.74	-1.72	-0.25	-16.7	7.1	
15,644.0	89.38	179.33	12,487.4	-3,188.4	267.7	1.84	1.32	1.28	-15.6	8.2	
15,738.0	90.95	181.37	12,487.1	-3,282.4	267.1	2.74	1.67	2.17	-16.8	6.6	
15,831.0	89.22	180.72	12,487.0	-3,375.4	265.4	1.99	-1.86	-0.70	-17.9	3.9	



PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #605H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3323.0usft (H&P 444)
Site:	Ruby 2 State Com	MD Reference:	KB = 25' @ 3323.0usft (H&P 444)
Well:	#605H	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)	
15,846.1	89.45	180.52	12,487.2	-3,390.5	265.2	2.02	1.54	-1.31	-17.8	3.6	
TGT#2 (Ruby 2 State Com #605H)											
15,925.0	90.67	179.49	12,487.1	-3,469.4	265.2	2.02	1.54	-1.31	-18.8	2.8	
16,019.0	89.72	181.30	12,486.8	-3,563.4	264.6	2.17	-1.01	1.93	-20.3	1.2	
16,112.0	90.98	182.44	12,486.2	-3,656.3	261.6	1.83	1.35	1.23	-21.9	-2.8	
16,206.0	88.66	182.00	12,486.5	-3,750.3	257.9	2.51	-2.47	-0.47	-22.7	-7.5	
16,300.0	88.68	181.77	12,488.7	-3,844.2	254.8	0.25	0.02	-0.24	-21.6	-11.5	
16,393.0	89.30	181.90	12,490.3	-3,937.1	251.8	0.68	0.67	0.14	-21.1	-15.5	
16,487.0	90.84	182.57	12,490.2	-4,031.0	248.2	1.79	1.64	0.71	-22.3	-20.1	
16,581.0	89.22	180.37	12,490.1	-4,125.0	245.8	2.91	-1.72	-2.34	-23.4	-23.5	
16,676.0	88.91	178.63	12,491.7	-4,220.0	246.6	1.86	-0.33	-1.83	-23.0	-23.7	
16,769.0	92.46	179.93	12,490.6	-4,312.9	247.8	4.06	3.82	1.40	-25.2	-23.5	
16,864.0	90.00	178.23	12,488.5	-4,407.9	249.3	3.15	-2.59	-1.79	-28.3	-23.0	
16,958.0	87.62	175.53	12,490.5	-4,501.7	254.4	3.83	-2.53	-2.87	-27.4	-18.9	
17,052.0	88.01	174.86	12,494.1	-4,595.3	262.3	0.82	0.41	-0.71	-25.0	-12.0	
17,120.0	88.53	174.92	12,496.1	-4,663.0	268.3	0.76	0.76	0.09	-23.7	-6.6	
HL Crossing, MD:17120.0', TVD:12496.1', N/S:-4663.0', EW:268.3', INC:88.53											
17,143.0	88.70	174.94	12,496.7	-4,685.9	270.4	0.76	0.76	0.09	-23.4	-4.8	
Final MWD Survey (MD= 17143.0')											
17,215.0	88.79	174.94	12,498.3	-4,757.6	276.7	0.12	0.12	0.00	-22.7	0.7	
Final Blt Projection (MD= 17215.0') - PBHL (Ruby 2 State Com #605H)											



PVA Report

Company:	EOG Resources - Midland	Local Co-ordinate Reference:	Well #605H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB = 25' @ 3323.0usft (H&P 444)
Site:	Ruby 2 State Com	MD Reference:	KB = 25' @ 3323.0usft (H&P 444)
Well:	#605H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.14

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N-S (usft)	+E-W (usft)	
12,486.6	12,378.5	-50.0	192.1	HL Crossing, MD:12486.6', TVD:12378.5', N/S:-50.0', E/W:192.1', INC:63.12
17,120.0	12,496.1	-4,663.0	268.3	HL Crossing, MD:17120.0', TVD:12496.1', N/S:-4663.0', E/W:268.3', INC:88.53
17,143.0	12,496.7	-4,685.9	270.4	Final MWD Survey (MD= 17143.0')
17,215.0	12,498.3	-4,757.6	276.7	Final Bit Projection (MD= 17215.0')

Checked By: _____	Approved By: _____	Date: _____
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Lea County, NM (NAD 83 NME)

Ruby 2 State Com #605H

H&P 444

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: #605H

KB = 25' @ 3323.0ust (H&P 444)
Northing 393603.00 Easting 819554.00 Latitude 32° 44.077' N Longitude 103° 26' 6.260' W

Azimuth to Grid North
True North: 0.43°
Magnetic North: 4.34°
Magnetic Field
Strength: 47611.250
Dip Angle: 68.54°
Gauss: 12500.00
Model: IGRF 2010

To convert a Magnetic Direction to a Grid Direction, Add 6.34°
To convert a Magnetic Direction to a True Direction, Add 6.82° East
To convert a True Direction to a Grid Direction, Subtract 0.48°

SECTION DETAILS

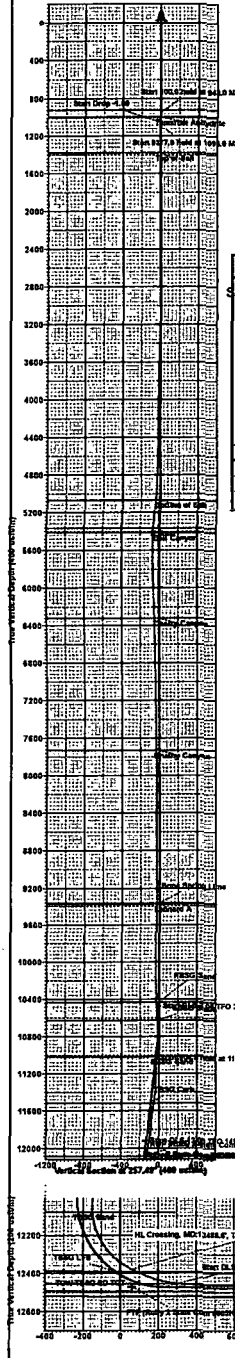
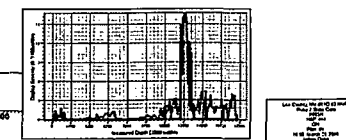
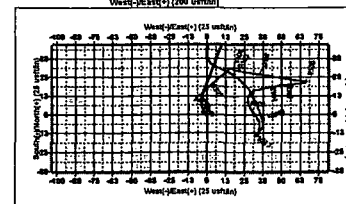
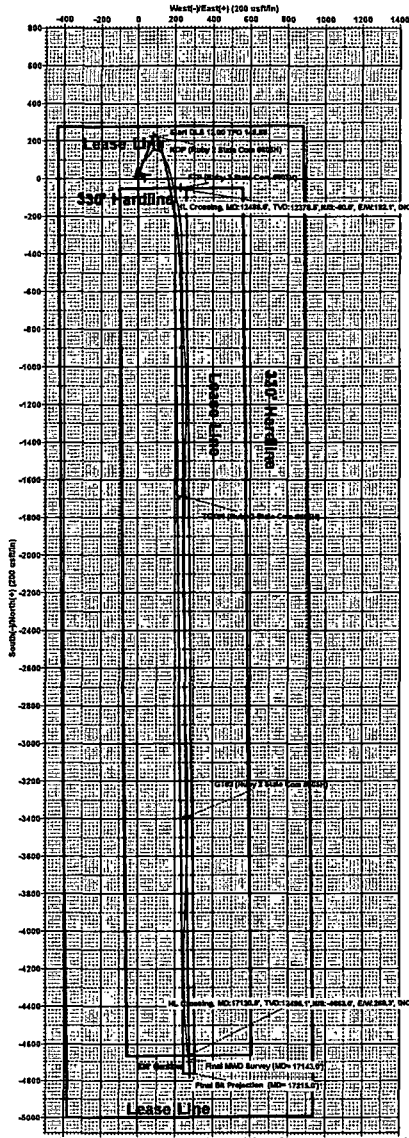
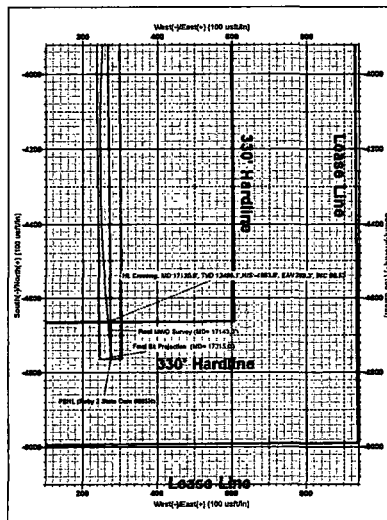
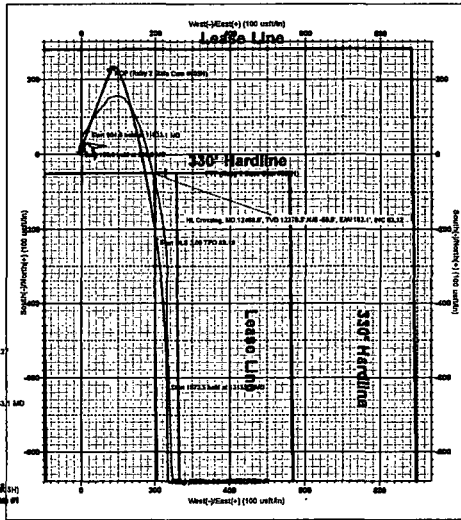
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSecl	Target
1	943.0	0.50	6.35	942.9	9.1	-4.3	0.00	0.00	-9.4	
2	1043.0	0.50	6.35	1042.9	10.0	-4.2	0.00	0.00	-10.2	
3	1093.0	0.00	0.00	1092.9	10.2	-4.1	1.00	180.00	-10.5	
4	10470.0	0.00	0.00	10469.9	10.2	-4.1	0.00	0.00	-10.5	
5	11033.1	11.26	21.27	11028.4	61.6	15.9	2.00	21.27	-60.6	
6	11938.0	11.26	21.27	11916.9	226.3	50.0	0.00	0.00	-221.3	
7	12763.6	89.30	171.67	12472.7	-226.5	201.7	12.00	149.88	236.7	KOP (Ruby 2 State Com #605H)
8	13155.0	89.42	179.40	12477.1	-615.3	232.5	2.00	89.19	627.7	
9	14228.5	89.42	179.40	12488.0	-1688.7	243.8	0.00	0.00	1700.0	TGT#1 (Ruby 2 State Com #605H)
10	14229.1	89.43	179.40	12488.0	-1689.2	243.8	2.00	16.09	1700.5	
11	15930.5	89.43	179.40	12505.0	-3390.5	261.6	0.00	0.00	3400.0	TGT#2 (Ruby 2 State Com #605H)
12	15935.3	89.33	179.40	12505.1	-3395.3	261.7	2.00	-180.00	3404.7	
13	17303.2	89.33	179.40	12521.0	-4763.0	276.0	0.00	0.00	4771.0	PBHL (Ruby 2 State Com #605H)

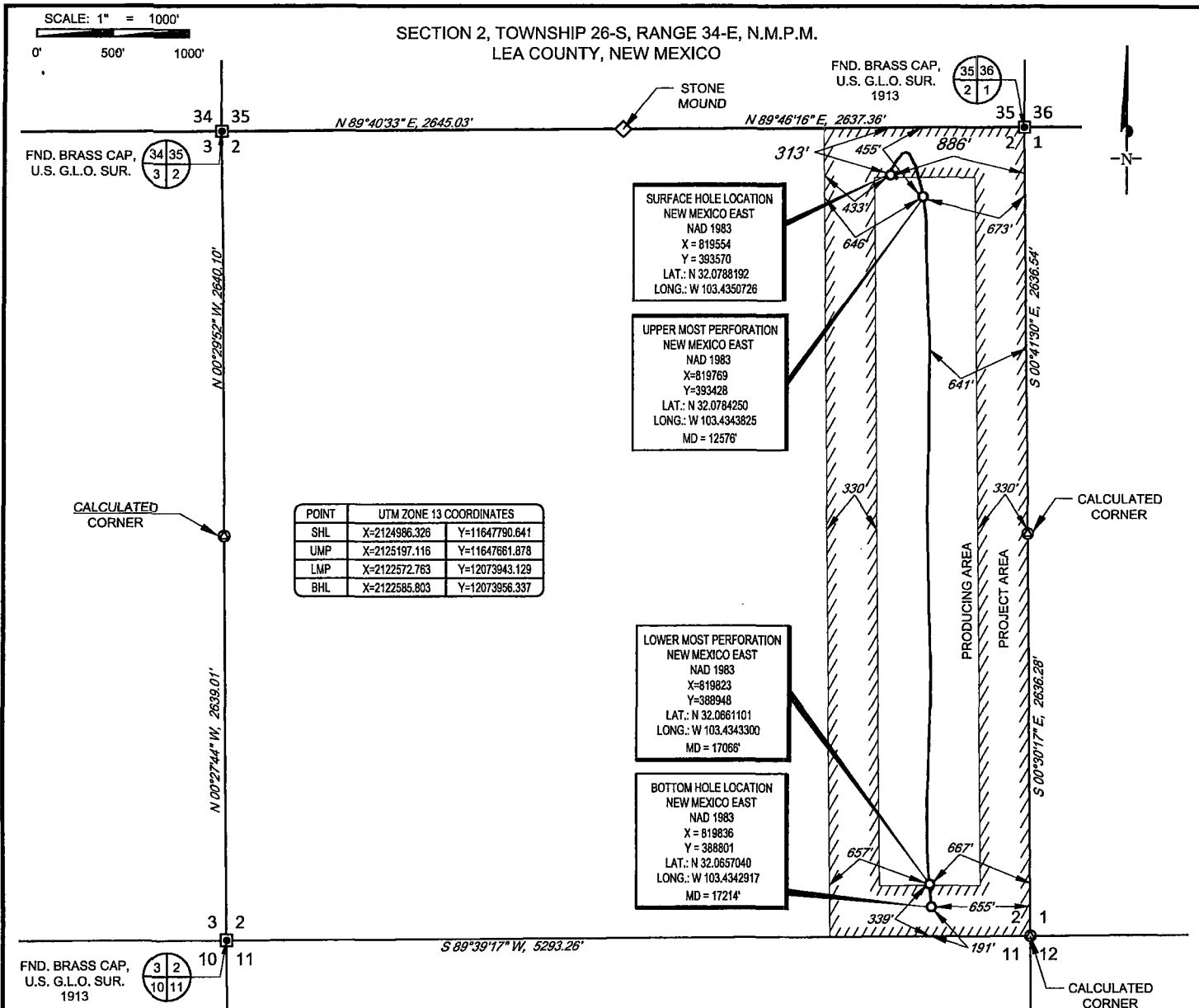
CASING DETAILS

No casing data is available

WELLBORE YARSEY DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting
KOP (Ruby 2 State Com #605H)	11916.8	226.3	80.0	393628.33	819634.00
TGT#1 (Ruby 2 State Com #605H)	12488.0	-1688.7	243.8	391914.30	819797.80
TGT#2 (Ruby 2 State Com #605H)	12505.0	-3390.5	261.6	390212.50	819815.63
PBHL (Ruby 2 State Com #605H)	12521.0	-4763.0	276.0	388840.00	819830.00
FTP (Ruby 2 State Com #605H)	12470.0	-50.0	227.0	393553.00	819781.00
Interp @ 12521.0 (#605H CH TD)	12507.0	-4763.0	276.0	388840.03	819830.00





LEASE NAME & WELL NO.: RUBY 2 STATE COM #605H

SECTION 2 TWP 26-S RGE 34-E SURVEY N.M.P.M.

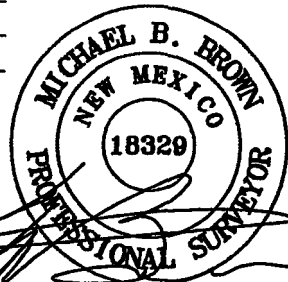
COUNTY LEA STATE NM ELEVATION 3297'

DESCRIPTION 313' FNL & 886' FEL



TOPOGRAPHIC
LOYALTY INNOVATION LEGACY

1400 EVERMAN PARKWAY, Ste. 146 • FT. WORTH, TEXAS 76140
TELEPHONE: (817) 744-7512 • FAX (817) 744-7554
2903 NORTH BIG SPRING • MIDLAND, TEXAS 79705
TELEPHONE: (432) 682-1653 OR (800) 767-1653 • FAX (432) 682-1743
WWW.TOPOGRAPHIC.COM



Michael Blake Brown, P.S. No. 18329
JUNE 4, 2018

EOG resources, Inc.

RUBY 2 STATE COM #605H AS-COMPLETED DATE: 6/4/2018 FILE: AD_RUBY2STATECOM_605H DRAWN BY: IMU SHEET: 1 OF 1	REVISION: <table border="1"> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table>											NOTES: 1. ORIGINAL DOCUMENT SIZE: 8.5" X 11" 2. ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREIN ARE GRID BASED UPON THE NEW MEXICO COORDINATE SYSTEM OF 1983, EAST ZONE, U.S. SURVEY FEET. 3. THIS WELL LOCATION SHOWN HEREON HAS BEEN SURVEYED ON THE GROUND UNDER MY SUPERVISION AND PREPARED ACCORDING TO THE EVIDENCE FOUND AT THE TIME OF SURVEY, AND DATA PROVIDED BY EOG RESOURCES, INC. THIS CERTIFICATION IS MADE AND LIMITED TO THOSE PERSONS OR ENTITIES SHOWN ON THE FACE OF THIS PLAT AND IS NON-TRANSFERABLE. THIS SURVEY IS CERTIFIED FOR THIS TRANSACTION ONLY.