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DEC 06 2019
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EOG Resources - Midland

Lea County, NM (NAD 83 NME)

Magnolia 15 Fed Com

#745H

OH

Design: OH

Final PVA Report

11 October, 2019



Final PVA Report

Company: EOG Resources - Midland Project: Lea County, NM (NAD 83 NME) Site: Magnolia 15 Fed Com Well: #745H Wellbore: OH Design: OH		Local Co-ordinate Reference: TVD Reference: KB = 25' @ 3348.0usft MD Reference: KB = 25' @ 3348.0usft 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 Magnolia 15 Fed Com													
Site Position: From: Map Position Uncertainty: 0.0 usft		Northing: 381,905.00 usft Easting: 780,373.00 usft Slot Radius: 13-3/16 "											
		Latitude: 32° 2' 51.321 N Longitude: 103° 33' 42.598 W Grid Convergence: 0.41 "											
Well #745H													
Well Position +N-S 0.0 usft +EW 0.0 usft Position Uncertainty 0.0 usft		Northing: 382,315.00 usft Easting: 782,281.00 usft Wellhead Elevation: usft											
		Latitude: 32° 2' 55.243 N Longitude: 103° 33' 20.396 W Ground Level: 3,323.0 usft											
Wellbore OH													
Magnetics <table border="1"> <thead> <tr> <th>Model Name</th> <th>Sample Date</th> <th>Declination (°)</th> <th>Dip Angle (°)</th> <th>Field Strength (nT)</th> </tr> </thead> <tbody> <tr> <td>IGRF2015</td> <td>9/10/2019</td> <td>6.69</td> <td>59.87</td> <td>47,607.23183410</td> </tr> </tbody> </table>				Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)	IGRF2015	9/10/2019	6.69	59.87	47,607.23183410
Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)									
IGRF2015	9/10/2019	6.69	59.87	47,607.23183410									
Design OH													
Audit Notes: Version: 1.0 Phase: ACTUAL Tie On Depth: 0.0													
Vertical Section: <table border="1"> <thead> <tr> <th>Depth From (TVD) (usft)</th> <th>+N-S (usft)</th> <th>+EW (usft)</th> <th>Direction (°)</th> </tr> </thead> <tbody> <tr> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>174.84</td> </tr> </tbody> </table>				Depth From (TVD) (usft)	+N-S (usft)	+EW (usft)	Direction (°)	0.0	0.0	0.0	174.84		
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0.0	0.0	0.0	174.84										
Survey Program Date 10/11/2019													
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 Survey Calculation Method: Minimum Curvature
 Database: EDM 5000.14

Survey

MD (usft)	Inc (")	Asl (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
114.0	0.44	188.65	114.0	-0.4	-0.1	0.39	0.39	0.00	0.0	0.0
203.0	0.40	35.63	203.0	-0.5	0.1	0.92	-0.04	-171.93	0.0	0.0
293.0	0.75	18.58	293.0	0.3	0.4	0.43	0.39	-18.94	0.0	0.0
382.0	0.70	19.84	382.0	1.4	0.8	0.06	-0.06	1.19	0.0	0.0
472.0	0.70	28.25	472.0	2.4	1.2	0.12	0.00	9.57	0.0	0.0
560.0	0.75	3.47	560.0	3.4	1.5	0.36	0.06	-28.16	0.0	0.0
658.0	0.62	354.59	658.0	4.6	1.5	0.17	-0.13	-9.06	0.0	0.0
754.0	0.40	348.08	754.0	5.4	1.4	0.24	-0.23	-6.78	0.0	0.0
849.0	0.35	5.14	849.0	6.0	1.4	0.13	-0.05	17.96	0.0	0.0
944.0	0.84	342.28	944.0	7.0	1.2	0.56	0.52	-24.06	0.0	0.0
1,040.0	0.62	316.44	1,039.9	8.0	0.6	0.41	-0.23	-26.92	0.0	0.0
1,132.0	0.88	320.49	1,131.9	8.9	-0.2	0.29	0.28	4.40	0.0	0.0
1,227.0	0.57	312.49	1,226.9	9.8	-1.0	0.34	-0.33	-8.42	0.0	0.0
1,322.0	1.14	116.76	1,321.9	9.7	-0.5	1.78	0.60	172.92	0.0	0.0
1,418.0	2.99	104.10	1,415.9	8.7	2.7	2.02	1.97	-13.47	0.0	0.0
1,511.0	4.97	99.53	1,510.6	7.4	9.2	2.11	2.08	-4.81	0.0	0.0
1,608.0	5.71	107.09	1,605.2	5.3	17.7	1.07	0.78	7.96	0.0	0.0
1,701.0	8.79	113.24	1,699.4	1.1	28.9	3.34	3.24	6.47	0.0	0.0
1,798.0	10.73	114.85	1,793.1	-5.5	43.8	2.06	2.04	1.48	0.0	0.0
1,891.0	11.25	95.57	1,886.4	-10.1	60.9	3.85	0.55	-20.08	0.0	0.0
1,986.0	13.71	85.56	1,979.1	-10.1	81.4	3.44	2.59	-10.54	0.0	0.0
2,080.0	11.56	70.61	2,070.9	-6.1	101.4	4.15	-2.29	-15.90	0.0	0.0
2,175.0	10.86	49.78	2,164.1	2.9	117.2	4.30	-0.74	-21.93	0.0	0.0
2,270.0	10.29	29.31	2,257.5	16.0	128.2	3.98	-0.60	-21.55	0.0	0.0
2,365.0	9.45	7.33	2,351.1	31.2	133.3	4.04	-0.88	-23.14	0.0	0.0
2,460.0	9.41	6.19	2,444.8	46.6	135.2	0.20	-0.04	-1.20	0.0	0.0



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MD (usft)	Inc (°)	Azi (grid_north_azim)	TVD (usft)	N/S (usft)	EW (usft)	DLog (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
2,555.0	9.58	5.66	2,538.5	62.2	136.8	0.20	0.18	-0.56	0.0	0.0
2,650.0	8.09	36.95	2,632.5	75.4	141.6	5.22	-1.57	32.94	0.0	0.0
2,745.0	7.98	35.81	2,726.5	86.1	149.4	0.22	-0.14	-1.20	0.0	0.0
2,840.0	7.38	38.18	2,820.7	96.2	157.1	0.70	-0.61	2.49	0.0	0.0
2,935.0	7.43	38.09	2,914.9	105.9	164.6	0.05	0.05	-0.09	0.0	0.0
3,030.0	7.38	41.43	3,009.1	115.3	172.4	0.46	-0.05	3.52	0.0	0.0
3,126.0	7.74	43.02	3,104.3	124.6	180.9	0.43	0.37	1.66	0.0	0.0
3,221.0	9.01	25.53	3,198.3	136.0	188.5	2.98	1.34	-18.41	0.0	0.0
3,316.0	8.48	25.35	3,292.2	149.1	194.7	0.56	-0.56	-0.19	0.0	0.0
3,411.0	8.35	23.15	3,388.1	161.7	200.4	0.37	-0.14	-2.32	0.0	0.0
3,508.0	7.78	25.79	3,480.2	173.9	205.9	0.72	-0.60	2.78	0.0	0.0
3,601.0	8.18	35.90	3,574.3	185.1	212.7	1.53	0.42	10.64	0.0	0.0
3,698.0	8.66	43.37	3,668.3	195.8	221.6	1.26	0.51	7.86	0.0	0.0
3,791.0	9.05	38.45	3,762.1	206.9	231.1	0.90	0.41	-5.18	0.0	0.0
3,886.0	7.34	29.13	3,856.2	218.0	238.7	2.27	-1.80	-9.81	0.0	0.0
3,981.0	8.18	32.73	3,950.3	229.0	245.3	1.02	0.88	3.79	0.0	0.0
4,077.0	7.60	32.03	4,045.4	240.1	252.4	0.61	-0.60	-0.73	0.0	0.0
4,171.0	6.51	31.33	4,138.7	249.9	258.5	1.16	-1.16	-0.74	0.0	0.0
4,267.0	6.90	35.90	4,234.0	259.3	264.7	0.69	0.41	4.76	0.0	0.0
4,362.0	6.99	40.91	4,328.3	268.3	271.8	0.64	0.09	5.27	0.0	0.0
4,457.0	6.99	50.14	4,422.6	276.3	280.0	1.18	0.00	9.72	0.0	0.0
4,552.0	8.18	33.79	4,516.8	285.7	288.2	2.58	1.25	-17.21	0.0	0.0
4,647.0	7.65	42.23	4,610.9	296.0	296.2	1.34	-0.56	8.88	0.0	0.0
4,742.0	7.52	48.73	4,705.1	304.7	305.2	0.91	-0.14	6.84	0.0	0.0
4,837.0	8.57	44.60	4,799.1	313.9	314.8	1.26	1.11	-4.35	0.0	0.0
4,932.0	7.96	27.55	4,893.2	324.8	322.8	2.65	-0.64	-17.95	0.0	0.0
5,027.0	7.21	25.61	4,987.3	336.0	328.4	0.83	-0.79	-2.04	0.0	0.0



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5,122.0	6.42	28.23	5,081.7	346.1	333.4	0.84	-0.83	0.65	0.0	0.0
5,217.0	7.74	22.54	5,175.9	356.8	338.2	1.47	1.39	-3.88	0.0	0.0
5,312.0	8.31	19.20	5,270.0	369.2	342.9	0.77	0.60	-3.52	0.0	0.0
5,406.0	7.78	25.70	5,363.1	381.3	347.9	1.12	-0.56	6.91	0.0	0.0
5,501.0	7.87	29.39	5,457.2	392.8	353.8	0.54	0.09	3.88	0.0	0.0
5,596.0	7.87	29.57	5,551.3	404.1	360.2	0.03	0.00	0.19	0.0	0.0
5,691.0	6.90	34.67	5,645.5	414.5	366.7	1.23	-1.02	5.37	0.0	0.0
5,786.0	6.51	35.72	5,739.9	423.5	373.1	0.43	-0.41	1.11	0.0	0.0
5,881.0	6.73	32.47	5,834.2	432.6	379.2	0.46	0.23	-3.42	0.0	0.0
5,975.0	6.55	30.62	5,927.6	441.8	384.9	0.30	-0.19	-1.97	0.0	0.0
6,070.0	5.85	28.40	6,022.0	450.8	389.8	0.88	-0.74	-4.44	0.0	0.0
6,165.0	5.49	13.13	6,116.6	459.6	393.0	1.43	-0.38	-13.97	0.0	0.0
6,260.0	6.02	13.48	6,211.1	468.9	395.2	0.56	0.56	0.37	0.0	0.0
6,355.0	5.41	13.22	6,305.6	478.1	397.4	0.64	-0.64	-0.27	0.0	0.0
6,450.0	5.01	13.05	6,400.2	486.5	399.4	0.42	-0.42	-0.18	0.0	0.0
6,545.0	5.05	15.95	6,494.9	494.5	401.4	0.27	0.04	3.05	0.0	0.0
6,640.0	5.54	17.88	6,589.5	502.9	404.0	0.55	0.52	2.03	0.0	0.0
6,735.0	5.98	16.21	6,684.0	512.0	408.8	0.50	0.46	-1.76	0.0	0.0
6,830.0	6.51	22.10	6,778.4	521.8	410.2	0.87	0.56	6.20	0.0	0.0
6,925.0	6.55	31.24	6,872.8	531.4	415.0	1.09	0.04	9.62	0.0	0.0
7,020.0	7.69	40.38	6,967.1	540.9	422.0	1.69	1.20	9.62	0.0	0.0
7,114.0	7.47	41.52	7,060.2	550.2	430.1	0.28	-0.23	1.21	0.0	0.0
7,209.0	7.30	43.28	7,154.5	559.3	438.3	0.30	-0.18	1.85	0.0	0.0
7,304.0	7.12	45.57	7,248.7	567.8	446.7	0.36	-0.19	2.41	0.0	0.0
7,399.0	7.38	45.13	7,343.0	576.2	455.2	0.28	0.27	-0.46	0.0	0.0
7,494.0	7.34	43.90	7,437.2	584.9	463.7	0.17	-0.04	-1.29	0.0	0.0
7,589.0	6.64	45.21	7,531.5	593.1	471.8	0.76	-0.74	1.38	0.0	0.0



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7,684.0	6.68	44.69	7,625.8	600.9	479.6	0.08	0.04	-0.55	0.0	0.0
7,779.0	5.48	46.36	7,720.3	608.0	486.8	1.27	-1.25	1.76	0.0	0.0
7,874.0	4.97	46.53	7,814.9	614.0	493.1	0.55	-0.55	0.18	0.0	0.0
7,969.0	4.40	41.96	7,909.6	619.5	498.5	0.72	-0.60	-4.81	0.0	0.0
8,065.0	4.00	40.82	8,005.3	624.8	503.1	0.43	-0.42	-1.19	0.0	0.0
8,159.0	3.43	39.68	8,099.1	629.4	507.1	0.61	-0.61	-1.21	0.0	0.0
8,254.0	2.99	44.95	8,194.0	633.4	510.6	0.56	-0.46	5.55	0.0	0.0
8,349.0	2.90	45.65	8,288.8	636.8	514.1	0.10	-0.09	0.74	0.0	0.0
8,444.0	2.15	45.13	8,383.7	639.7	517.1	0.79	-0.79	-0.55	0.0	0.0
8,529.0	1.71	44.25	8,468.7	641.8	519.1	0.52	-0.52	-1.04	0.0	0.0
8,634.0	1.27	41.17	8,573.7	643.8	521.0	0.43	-0.42	-2.93	0.0	0.0
8,729.0	0.97	53.48	8,668.6	645.0	522.3	0.40	-0.32	12.96	0.0	0.0
8,824.0	0.84	58.84	8,763.6	645.9	523.5	0.16	-0.14	5.64	0.0	0.0
8,919.0	0.53	48.47	8,858.6	646.5	524.5	0.35	-0.33	-10.92	0.0	0.0
9,014.0	0.18	353.27	8,953.6	647.0	524.8	0.48	-0.37	-58.11	0.0	0.0
9,108.0	0.40	265.91	9,047.6	647.1	524.4	0.46	0.23	-92.94	0.0	0.0
9,203.0	0.44	299.13	9,142.6	647.2	523.8	0.26	0.04	34.97	0.0	0.0
9,298.0	0.57	274.26	9,237.6	647.5	523.0	0.27	0.14	-28.18	0.0	0.0
9,393.0	0.79	295.70	9,332.6	647.8	521.9	0.35	0.23	22.57	0.0	0.0
9,488.0	1.41	286.91	9,427.6	648.4	520.2	0.67	0.65	-9.25	0.0	0.0
9,582.0	0.79	170.46	9,521.6	648.1	519.2	2.02	-0.68	-123.88	0.0	0.0
9,677.0	0.97	188.65	9,616.6	646.6	519.2	0.35	0.19	19.15	0.0	0.0
9,772.0	1.45	209.39	9,711.6	644.8	518.5	0.68	0.51	21.83	0.0	0.0
9,867.0	1.23	208.78	9,806.5	642.9	517.4	0.23	-0.23	-0.64	0.0	0.0
9,962.0	1.36	218.09	9,901.5	641.1	516.2	0.26	0.14	9.80	0.0	0.0
10,056.0	1.58	239.54	9,995.5	639.6	514.4	0.63	0.23	22.82	0.0	0.0
10,151.0	1.83	261.51	10,090.4	638.7	512.0	0.65	0.05	23.13	0.0	0.0



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10,246.0	1.45	262.92	10,185.4	638.3	509.4	0.19	-0.19	1.48	0.0	0.0
10,341.0	0.57	81.51	10,280.4	636.3	508.7	2.13	-0.93	187.99	0.0	0.0
10,438.0	2.55	73.07	10,375.4	638.9	511.2	2.09	2.08	-8.88	0.0	0.0
10,531.0	1.58	38.71	10,470.3	640.6	514.0	1.81	-1.02	-38.17	0.0	0.0
10,626.0	1.23	36.34	10,565.3	642.4	515.5	0.37	-0.37	-2.49	0.0	0.0
10,721.0	0.88	57.81	10,660.2	643.6	516.7	0.55	-0.37	22.39	0.0	0.0
10,816.0	0.53	237.87	10,755.2	643.8	518.9	1.48	-0.37	-189.20	0.0	0.0
10,911.0	0.75	203.77	10,850.2	643.0	518.3	0.45	0.23	-35.89	0.0	0.0
11,008.0	1.27	225.39	10,945.2	641.7	515.3	0.87	0.55	22.76	0.0	0.0
11,101.0	1.63	266.79	11,040.2	640.9	513.2	1.14	0.38	43.58	0.0	0.0
11,196.0	1.38	287.18	11,135.2	641.1	510.8	0.82	-0.28	21.46	0.0	0.0
11,291.0	1.54	317.94	11,230.1	642.4	508.8	0.83	0.19	32.38	0.0	0.0
11,386.0	2.24	300.36	11,325.1	644.3	508.4	0.95	0.74	-18.51	0.0	0.0
11,481.0	2.73	269.33	11,420.0	645.2	502.5	1.48	0.52	-32.66	0.0	0.0
11,576.0	3.78	272.50	11,514.8	645.3	497.1	1.12	1.11	3.34	0.0	0.0
11,671.0	3.91	289.02	11,609.8	646.5	490.9	1.17	0.14	17.39	0.0	0.0
11,769.0	3.65	294.82	11,707.4	648.9	485.0	0.47	-0.27	5.92	0.0	0.0
11,828.0	3.16	308.16	11,766.3	650.7	481.9	1.41	-0.83	18.22	0.2	-0.4
11,924.0	3.03	320.49	11,862.2	654.2	478.2	0.81	-0.14	14.93	0.2	0.0
12,019.0	3.65	333.23	11,957.0	658.8	475.2	1.01	0.65	13.41	0.0	3.9
12,114.0	4.09	335.16	12,051.8	664.6	472.4	0.48	0.46	2.03	-0.4	11.3
12,209.0	4.18	334.55	12,146.6	670.8	469.5	0.11	0.09	-0.84	-1.5	19.3
12,304.0	4.22	335.34	12,241.3	677.1	466.6	0.07	0.04	0.83	-2.3	27.3
12,399.0	2.59	39.76	12,336.2	681.9	466.5	4.09	-1.72	67.81	28.2	15.3
12,495.0	4.82	111.66	12,432.0	682.2	471.5	4.73	2.11	74.90	19.7	-26.3
12,551.8	5.62	162.87	12,488.6	678.7	474.4	7.93	1.75	90.08	-12.9	-30.7

KOP (Magnolia 15 Fed Com #745H)



Final PVA Report

Company: EOG Resources - Midland
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Site: Magnolia 15 Fed Com
Well: #745H
Wellbore: OH
Design: .OH

Local Co-ordinate Reference: Well #745H
TVD Reference: KB = 25' @ 3348.0usft
MD Reference: KB = 25' @ 3348.0usft
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)	Build (*100usft)	Turn (*100usft)	High to Plan (usft)	Right to Plan (usft)
12,590.0	7.82	180.92	12,526.5	674.3	474.9	7.93	5.78	47.31	-24.7	-24.8
12,685.0	21.14	190.41	12,618.3	650.9	471.7	14.20	14.02	9.99	-35.4	-25.4
12,691.0	21.92	189.18	12,623.9	648.7	471.3	15.06	13.04	-20.52	-35.4	-26.7
HL Crossing, MD:12691.0', TVD:12623.9', N/S:648.7', E/W:471.3', INC:21.92										
12,780.0	34.20	177.49	12,702.4	607.1	469.8	15.06	13.80	-13.13	-36.9	-40.3
12,875.0	38.26	172.13	12,780.0	552.6	474.8	3.91	2.17	-5.64	-34.2	-46.1
12,953.1	48.58	173.26	12,837.5	500.4	481.4	15.81	15.78	1.45	-30.0	-46.8
FTP (Magnolia 15 Fed Com #745H)										
12,970.0	51.25	173.45	12,848.4	487.6	482.9	15.81	15.78	1.11	-29.5	-47.1
13,065.0	65.10	172.39	12,898.4	407.7	492.9	14.61	14.58	-1.12	-27.2	-49.3
13,160.0	80.62	165.54	12,928.3	319.0	510.4	17.72	16.34	-7.21	-28.8	-45.5
13,255.0	82.89	164.13	12,939.9	228.2	535.0	2.90	2.49	-1.48	-26.8	-34.1
13,350.0	88.55	165.62	12,948.5	136.9	559.7	4.06	3.75	1.57	-18.9	-19.8
13,445.0	91.21	168.70	12,950.4	44.3	580.8	5.88	4.91	3.24	-17.5	-3.2
13,542.0	91.60	176.43	12,948.0	-51.8	593.3	7.98	0.40	7.97	-20.3	8.5
13,637.0	91.98	176.61	12,945.0	-146.5	599.1	0.42	0.38	0.19	-23.7	13.6
13,732.0	90.15	179.86	12,943.3	-241.5	602.0	3.92	-1.91	3.42	-25.9	15.8
13,827.0	90.51	179.77	12,942.7	-336.5	602.3	0.38	0.38	-0.09	-26.8	15.4
13,922.0	88.68	175.56	12,945.1	-431.3	606.2	5.99	-4.03	-4.43	-25.0	18.5
14,017.0	87.60	178.46	12,949.8	-526.0	611.2	3.20	0.97	3.05	-20.8	22.8
14,112.0	90.20	180.92	12,951.6	-621.0	611.7	3.77	2.74	2.59	-19.3	22.6
14,207.0	89.32	180.21	12,952.0	-716.0	610.7	1.19	-0.93	-0.75	-19.3	20.9
14,302.0	91.78	180.57	12,951.1	-811.0	610.1	2.62	2.59	0.38	-20.8	19.5
14,397.0	93.05	181.71	12,947.1	-905.9	608.2	1.80	1.34	1.20	-25.1	16.9
14,492.0	90.50	183.03	12,944.2	-1,000.8	604.3	3.02	-2.68	1.39	-28.5	12.3
14,587.0	90.20	181.97	12,943.6	-1,095.7	600.1	1.16	-0.32	-1.12	-29.5	7.4
14,682.0	89.98	183.38	12,943.4	-1,190.6	595.7	1.50	-0.23	1.48	-30.1	2.3



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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)	EW (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
14,777.0	92.22	184.43	12,941.6	-1,285.3	589.2	2.60	2.36	1.11	-32.3	-4.9
14,872.0	90.51	184.26	12,939.4	-1,380.0	582.0	1.81	-1.80	-0.18	-35.0	-12.8
14,868.0	90.37	180.74	12,938.6	-1,473.9	577.9	3.75	-0.15	-3.74	-36.2	-17.6
15,061.0	88.70	180.39	12,939.4	-1,568.9	577.0	1.80	-1.76	-0.37	-35.8	-19.3
15,156.0	86.42	178.90	12,943.5	-1,663.8	577.6	2.87	-2.40	-1.57	-32.2	-19.4
15,251.0	86.07	179.51	12,949.7	-1,758.6	578.9	0.74	-0.37	0.64	-26.4	-18.8
15,345.0	85.80	179.25	12,956.3	-1,852.3	579.9	0.40	-0.29	-0.28	-20.2	-18.5
15,440.0	83.78	178.10	12,965.0	-1,946.9	582.1	2.44	-2.13	-1.21	-11.9	-17.1
15,448.6	84.09	178.09	12,965.9	-1,955.4	582.4	3.61	3.61	-0.08	-11.1	-16.8
TGT 1 (Magnolia 15 Fed Com #745H)										
15,535.0	87.21	178.02	12,972.4	-2,041.5	585.3	3.61	3.61	-0.08	-4.7	-14.5
15,630.0	89.71	178.26	12,975.0	-2,136.4	590.0	3.22	2.63	-1.85	-2.3	-10.5
15,725.0	91.08	178.43	12,974.3	-2,231.2	596.1	1.45	1.44	0.18	-3.1	-5.2
15,820.0	90.59	177.05	12,972.9	-2,326.0	601.5	0.83	-0.52	0.65	-4.6	-0.5
15,915.0	90.90	178.26	12,971.7	-2,420.8	607.0	0.89	0.33	-0.83	-6.0	4.3
16,010.0	90.46	176.52	12,970.6	-2,515.7	613.0	0.54	-0.46	0.27	-7.3	9.6
16,105.0	89.58	175.82	12,970.5	-2,610.4	619.4	1.18	-0.93	-0.74	-7.5	15.2
16,200.0	89.19	176.52	12,971.6	-2,705.2	625.7	0.84	-0.41	0.74	-6.6	20.8
16,295.0	88.18	177.23	12,973.7	-2,800.1	630.9	1.30	-1.06	0.75	-4.6	25.3
16,389.0	87.56	179.77	12,977.2	-2,893.9	633.4	2.78	-0.66	2.70	-1.2	27.0
16,484.0	86.20	179.42	12,982.4	-2,988.8	634.0	1.48	-1.43	-0.37	3.8	27.0
16,579.0	93.32	182.06	12,982.8	-3,083.7	632.8	7.99	7.49	2.78	4.0	25.0
16,674.0	89.83	180.83	12,980.1	-3,178.6	630.4	3.80	-3.57	-1.29	1.3	21.9
16,769.0	89.05	181.62	12,981.0	-3,273.6	628.4	1.24	-0.93	0.83	2.0	19.2
16,864.0	89.41	181.09	12,982.2	-3,368.6	626.1	0.67	0.38	-0.56	3.1	16.2
16,959.0	89.27	181.18	12,983.3	-3,463.6	624.2	0.18	-0.15	0.09	4.1	13.6
17,054.0	89.23	181.80	12,984.6	-3,558.5	621.8	0.65	-0.04	0.65	5.2	10.4



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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)
17,148.0	89.58	178.28	12,885.5	-3,652.5	621.7	3.76	0.37	-3.74	6.0	9.6
17,243.0	91.30	179.68	12,884.8	-3,747.5	623.4	2.33	1.81	-1.47	5.1	10.8
17,338.0	92.31	179.60	12,881.8	-3,842.4	624.0	1.07	1.06	-0.08	2.0	10.5
17,433.0	94.11	179.69	12,876.5	-3,937.3	624.6	1.90	1.89	0.09	-3.5	10.3
17,458.2	94.10	179.78	12,874.8	-3,960.4	624.7	0.37	-0.04	0.37	-5.1	10.3
TOT 2 (Magnolia 15 Fed Com #745H)										
17,528.0	94.07	180.04	12,889.7	-4,032.0	624.8	0.37	-0.04	0.37	-10.3	9.8
17,623.0	95.08	179.60	12,862.2	-4,126.7	625.1	1.16	1.06	-0.46	-18.0	9.4
17,718.0	90.59	178.90	12,857.5	-4,221.6	626.3	4.78	-4.73	-0.74	-22.8	9.9
17,813.0	89.41	183.29	12,857.5	-4,316.5	624.5	4.78	-1.24	4.62	-22.9	7.4
17,908.0	88.13	182.94	12,859.5	-4,411.4	619.4	1.40	-1.35	-0.37	-21.0	1.5
18,003.0	89.58	183.11	12,861.4	-4,506.2	614.4	1.54	1.53	0.18	-19.2	-4.2
18,097.0	89.10	183.47	12,862.5	-4,600.0	609.0	0.64	-0.51	0.38	-18.2	-10.3
18,192.0	87.82	182.41	12,865.0	-4,694.9	604.1	1.75	-1.35	-1.12	-15.7	-15.9
18,287.0	88.51	183.29	12,869.7	-4,789.6	599.4	1.66	-1.38	0.93	-11.2	-21.3
18,404.0	92.04	179.25	12,871.2	-4,906.5	598.8	5.85	4.73	-3.45	-9.7	-24.8
18,499.0	92.13	179.60	12,867.8	-5,001.5	597.7	0.38	0.09	0.37	-13.3	-24.6
18,595.0	92.48	181.09	12,863.9	-5,097.4	597.2	1.59	0.36	1.55	-17.2	-25.9
18,689.0	92.70	181.27	12,859.8	-5,191.3	595.2	0.30	0.23	0.19	-21.5	-28.6
18,784.0	88.15	179.77	12,860.6	-5,286.2	594.4	7.07	-6.89	-1.58	-20.7	-30.2
18,880.0	86.11	178.98	12,867.1	-5,382.0	595.4	0.82	-0.04	-0.82	-14.3	-29.8
18,975.0	89.05	177.75	12,871.1	-5,476.8	598.1	3.35	3.09	-1.29	-10.4	-27.8
19,070.0	87.74	178.26	12,873.7	-5,571.7	603.1	2.09	-1.38	-1.57	-7.8	-23.6
19,165.0	91.03	178.83	12,874.8	-5,666.6	607.3	4.27	3.46	2.49	-6.9	-20.1
19,260.0	92.57	177.75	12,871.8	-5,761.5	610.3	1.87	1.62	-0.93	-10.0	-17.8
19,355.0	91.69	177.23	12,868.3	-5,856.3	614.5	1.08	-0.93	-0.55	-13.6	-14.4
19,450.0	89.80	176.79	12,867.0	-5,951.2	619.4	2.04	-1.99	-0.46	-15.0	-10.1



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Survey

MD (usft)	Inc (")	Asl (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)
19,467.0	89.70	178.91	12,967.1	-5,988.1	620.4	0.95	-0.60	0.74	-14.9	-9.3
TGT 3 (Magnolia 15 Fed Com #745H)										
19,545.0	89.23	177.49	12,967.8	-6,048.0	624.2	0.95	-0.60	0.74	-14.4	-8.1
19,639.0	89.32	178.98	12,969.0	-6,140.0	627.1	1.59	0.10	1.59	-13.5	-3.9
19,734.0	90.77	178.83	12,968.9	-6,235.0	629.0	1.57	1.53	-0.37	-13.8	-2.7
19,830.0	92.70	178.63	12,966.0	-6,330.9	631.3	2.01	2.01	0.00	-17.0	-1.1
19,924.0	88.13	180.74	12,965.3	-6,424.8	631.8	5.35	-4.86	2.24	-17.9	-1.3
20,019.0	87.43	181.09	12,969.0	-6,519.8	630.3	0.82	-0.74	0.37	-14.5	-3.5
20,114.0	89.63	180.83	12,971.5	-6,614.7	628.7	2.33	2.32	-0.27	-12.3	-5.9
20,208.0	84.97	179.77	12,975.9	-6,708.8	628.2	5.08	-4.86	-1.13	-8.1	-7.1
20,303.0	88.46	178.98	12,983.0	-6,803.3	629.3	1.77	1.57	-0.83	-1.3	-6.8
20,398.0	88.48	177.23	12,987.2	-6,898.2	632.4	2.81	2.13	-1.84	2.6	-4.3
20,493.0	92.13	177.40	12,986.7	-6,993.0	636.9	3.85	3.84	0.18	1.9	-0.6
20,508.0	92.40	177.49	12,986.1	-7,008.0	637.5	1.90	1.80	0.60	1.2	0.0
Final MWD Survey (MD=20508.0')										
20,561.0	92.40	177.49	12,983.9	-7,060.9	639.9	0.00	0.00	0.00	-1.1	1.9
Final Projection to Bit (MD=20561.0') - PBHL (Magnolia 15 Fed Com #745H)										

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/S (usft)	+E/W (usft)	
12,691.0	12,623.9	648.7	471.3	HL Crossing, MD:12691.0', TVD:12623.9', N/S:648.7', E/W:471.3', INC:21.92
20,508.0	12,986.1	-7,008.0	637.5	Final MWD Survey (MD=20508.0')
20,561.0	12,983.9	-7,060.9	639.9	Final Projection to Bit (MD=20561.0')

Checked By: _____ Approved By: _____ Date: _____

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

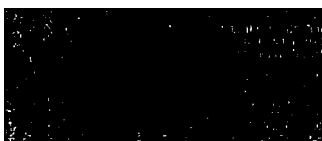
Kay Maddox 12/04/2019
 Signed Date



Lea County, NM (NAD 83 NME)
Magnolia 15 Fed Com #745H
Plan #2

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



To convert a Magnetic Direction to a Grid Direction, Add 6.29°
To convert a Magnetic Direction to a True Direction, Add 6.29° East
To convert a True Direction to a Grid Direction, Subtract 0.41°

WELL DETAILS: #745H

3323.0
KB = 2' @ 3348.0' East
Northing 382319.00 Easting 782281.00 32° 2' 55.243 N 103° 33' 20.396 W Slot

SECTION DETAILS

MD	Inc	Asl	TVD	+N-S	+E-W	Diag	TFace	VFace	Target
11769.0	3.65	294.82	11707.4	648.9	488.0	0.00	0.00	-402.6	
11828.0	3.68	294.82	11768.3	650.8	481.5	0.00	0.00	-404.5	
12058.8	6.00	28.63	12208.8	664.8	480.8	3.00	123.98	-418.8	
12353.6	6.00	28.63	12288.8	690.9	494.9	0.00	0.00	-443.8	
12553.7	0.00	179.56	12488.8	700.1	489.9	3.00	180.00	-452.3	KOP (Magnolia 15 Fed Com #745H)
13301.6	89.73	171.84	12967.0	329.9	589.0	12.00	171.84	-177.8	
13499.6	89.74	179.57	12967.9	32.6	584.2	4.00	89.87	20.2	
14086.3	89.74	179.57	12977.0	-184.0	589.2	0.00	0.00	2000.0	TGT 1 (Magnolia 15 Fed Com #745H)
14496.1	89.81	179.56	12977.0	-1982.9	589.2	2.00	-8.88	2008.8	
17483.1	89.81	179.56	12980.0	-3960.8	614.4	0.00	0.00	4000.0	TGT 2 (Magnolia 15 Fed Com #745H)
17494.6	89.84	179.56	12980.0	-3942.2	614.4	2.00	0.01	4001.4	
18439.8	89.84	179.56	12982.0	-5987.5	629.7	0.00	0.00	6000.0	TGT 3 (Magnolia 15 Fed Com #745H)
18504.8	89.84	179.56	12982.0	-5972.5	629.7	2.00	-180.00	6004.9	
20584.4	89.84	179.56	12988.0	-7082.0	638.0	0.00	0.00	7090.8	PBHL (Magnolia 15 Fed Com #745H)

WELLBORE TARGET DETAILS (MAP COORDINATES)

Name	TVD	+N-S	+E-W	Northing	Easting	Shape
KOP (Magnolia 15 Fed Com #745H)	12488.8	700.1	489.9	33231.10	782180.80	Rectangle (Sides: 140.0 Wx60.0)
TGT 1 (Magnolia 15 Fed Com #745H)	12977.0	-184.0	589.2	382864.00	782880.00	Point
TGT 2 (Magnolia 15 Fed Com #745H)	12980.0	-3960.8	614.4	392381.00	782880.17	Point
TGT 3 (Magnolia 15 Fed Com #745H)	12982.0	-5987.5	629.7	378347.00	782810.88	Point
PBHL (Magnolia 15 Fed Com #745H)	12988.0	-7082.0	638.0	378253.00	782819.00	Rectangle (Sides: 140.0 Wx60.0)

