

3001542755

Yates Petroleum

Eddy, NM (NAD-83)
Humidor BML State Com
#5H

OH

Design: OH

NM OIL CONSERVATION
ARTESIA DISTRICT

JUL 23 2015

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Standard Survey Report

26 February, 2015



Survey Report

Company:	Yates Petroleum	Local Co-ordinate Reference:	Well #5H
Project:	Eddy, NM (NAD-83)	TVD Reference:	RKB @ 3192.5usft (Nomac 22 - KB=21.5)
Site:	Humidor BML State Com	MD Reference:	RKB @ 3192.5usft (Nomac 22 - KB=21.5)
Well:	#5H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Houston R5000 Database

Project	Eddy, NM (NAD-83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site		Humidor BML State Com				
Site Position:		Northing:	437,269.80 usft	Latitude:	32° 12' 7.220 N	
From:	Map	Easting:	596,585.60 usft	Longitude:	104° 9' 16.971 W	
Position Uncertainty:		0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.10 °

Well	#5H					
Well Position	+N/-S	0.0 usft	Northing:	437,269.80 usft	Latitude:	32° 12' 7.220 N
	+E/-W	0.0 usft	Easting:	596,585.60 usft	Longitude:	104° 9' 16.971 W
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	3,171.0 usft	

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/19/2016	7.29	59.95	48,083

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)	Direction (°)	
	0.0	0.0	0.0	178.35	

Survey Program	Date	2/26/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.0	726.0	Survey #1 - Gyros (OH)	CB-GYRO-MS	Camera based gyro multishot	
780.0	16,120.0	Survey #2 - Crescent MWD Surveys (OH)	MWD	MWD - Standard	
16,176.0	16,176.0	Survey #3 - PTB (OH)	BLIND	Blind drilling, where no tool is applied	

Survey	Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
	0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
	100.0	0.81	80.78	100.0	0.1	0.7	-0.1	0.81	0.81	0.00
	200.0	0.96	85.23	200.0	0.3	2.2	-0.2	0.16	0.15	4.45
	300.0	1.34	107.91	300.0	0.0	4.2	0.1	0.59	0.38	22.68
	400.0	1.01	141.77	399.9	-1.0	5.8	1.2	0.75	-0.33	33.86
	500.0	0.85	166.87	499.9	-2.5	6.5	2.6	0.43	-0.16	25.10
	600.0	1.07	200.03	599.9	-4.1	6.4	4.2	0.59	0.22	33.16
	700.0	1.43	212.81	699.9	-6.0	5.4	6.1	0.45	0.36	12.78
	726.0	1.40	220.01	725.9	-6.5	5.0	6.6	0.69	-0.12	27.69



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Well:	#5H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Houston R5000 Database

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
780.0	1.50	214.60	779.9	-7.6	4.2	7.7	0.31	0.19	-10.02
873.0	1.50	213.00	872.8	-9.6	2.8	9.7	0.05	0.00	-1.72
966.0	1.00	196.50	965.8	-11.4	1.9	11.5	0.66	-0.54	-17.74
1,060.0	1.70	201.90	1,059.8	-13.5	1.2	13.5	0.76	0.74	5.74
1,154.0	1.00	189.60	1,153.8	-15.6	0.5	15.6	0.80	-0.74	-13.09
1,248.0	0.70	210.00	1,247.8	-16.9	0.1	16.9	0.45	-0.32	21.70
1,341.0	0.50	262.80	1,340.7	-17.4	-0.6	17.4	0.61	-0.22	56.77
1,435.0	0.40	260.80	1,434.7	-17.5	-1.3	17.5	0.11	-0.11	-2.13
1,528.0	1.10	281.10	1,527.7	-17.4	-2.5	17.3	0.79	0.75	21.83
1,623.0	1.40	14.80	1,622.7	-16.1	-3.1	16.0	1.93	0.32	98.63
1,716.0	3.40	59.30	1,715.6	-13.6	-0.4	13.6	2.79	2.15	47.85
1,810.0	5.40	68.00	1,809.4	-10.5	6.1	10.7	2.24	2.13	9.26
1,903.0	5.20	73.50	1,902.0	-7.7	14.2	8.1	0.59	-0.22	5.91
1,997.0	3.60	73.50	1,995.7	-5.7	21.1	6.3	1.70	-1.70	0.00
2,090.0	3.50	81.80	2,088.5	-4.4	26.7	5.2	0.56	-0.11	8.92
2,184.0	2.60	89.60	2,182.4	-4.0	31.7	4.9	1.05	-0.96	8.30
2,278.0	1.80	70.30	2,276.3	-3.5	35.2	4.5	1.15	-0.85	-20.53
2,371.0	1.60	74.80	2,369.3	-2.7	37.8	3.7	0.26	-0.22	4.84
2,458.0	2.20	74.40	2,456.2	-1.9	40.6	3.1	0.69	0.69	-0.46
2,577.0	2.30	85.40	2,575.1	-1.1	45.2	2.4	0.37	0.08	9.24
2,670.0	2.50	83.00	2,668.0	-0.7	49.0	2.1	0.24	0.22	-2.58
2,764.0	2.80	78.90	2,761.9	0.0	53.3	1.5	0.38	0.32	-4.36
2,858.0	3.00	78.00	2,855.8	1.0	58.0	0.7	0.22	0.21	-0.96
2,951.0	2.60	89.50	2,948.7	1.5	62.5	0.3	0.74	-0.43	12.37
3,044.0	2.60	89.60	3,041.6	1.5	66.7	0.4	0.00	0.00	0.11
3,138.0	2.60	88.40	3,135.5	1.6	71.0	0.4	0.06	0.00	-1.28
3,232.0	2.50	107.70	3,229.4	1.0	75.0	1.1	0.92	-0.11	20.53
3,325.0	2.50	112.70	3,322.3	-0.4	78.8	2.6	0.23	0.00	5.38
3,418.0	2.60	111.60	3,415.2	-1.9	82.7	4.3	0.12	0.11	-1.18
3,512.0	2.80	108.40	3,509.1	-3.4	86.8	5.9	0.27	0.21	-3.40
3,605.0	1.40	103.20	3,602.1	-4.4	90.1	7.0	1.52	-1.51	-5.59
3,699.0	1.20	100.50	3,696.1	-4.9	92.2	7.5	0.22	-0.21	-2.87
3,792.0	1.20	99.10	3,789.0	-5.2	94.1	7.9	0.03	0.00	-1.51
3,885.0	1.20	105.30	3,882.0	-5.6	96.0	8.4	0.14	0.00	6.67
3,978.0	1.20	103.00	3,975.0	-6.1	97.9	8.9	0.05	0.00	-2.47
4,072.0	1.20	100.00	4,069.0	-6.5	99.8	9.3	0.07	0.00	-3.19
4,165.0	1.10	95.80	4,162.0	-6.7	101.7	9.7	0.14	-0.11	-4.52
4,258.0	0.50	59.20	4,254.9	-6.6	102.9	9.6	0.82	-0.65	-39.35
4,352.0	0.50	57.80	4,348.9	-6.2	103.6	9.2	0.01	0.00	-1.49
4,445.0	0.50	50.40	4,441.9	-5.7	104.3	8.7	0.07	0.00	-7.96
4,538.0	0.50	43.60	4,534.9	-5.2	104.9	8.2	0.06	0.00	-7.31
4,725.0	0.40	38.00	4,721.9	-4.0	105.8	7.1	0.06	-0.05	-2.99
4,911.0	0.50	32.20	4,907.9	-2.8	106.7	5.9	0.06	0.05	-3.12



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Well:	#5H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Houston R5000 Database

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,098.0	0.50	12.80	5,094.9	-1.4	107.3	4.5	0.09	0.00	-10.37
5,284.0	0.70	337.70	5,280.9	0.5	107.0	2.6	0.22	0.11	-18.87
5,471.0	0.70	334.80	5,467.9	2.6	106.1	0.5	0.02	0.00	-1.55
5,658.0	0.50	340.30	5,654.9	4.4	105.3	-1.3	0.11	-0.11	2.94
5,845.0	0.50	357.30	5,841.9	6.0	105.0	-2.9	0.08	0.00	9.09
6,033.0	0.70	319.90	6,029.9	7.7	104.2	-4.6	0.23	0.11	-19.89
6,220.0	1.10	303.40	6,216.8	9.5	102.0	-6.6	0.25	0.21	-8.82
6,408.0	1.40	249.90	6,404.8	9.7	98.3	-6.9	0.62	0.16	-28.46
6,595.0	0.70	135.50	6,591.8	8.1	97.0	-5.3	0.97	-0.37	-61.18
6,781.0	1.10	162.40	6,777.8	5.6	98.3	-2.8	0.31	0.22	14.46
6,968.0	1.20	154.50	6,964.7	2.1	99.7	0.7	0.10	0.05	-4.22
7,156.0	0.50	186.70	7,152.7	-0.5	100.5	3.4	0.44	-0.37	17.13
7,343.0	0.70	28.50	7,339.7	-0.3	100.9	3.2	0.63	0.11	-84.60
7,529.0	0.90	203.40	7,525.7	-0.6	100.9	3.5	0.86	0.11	94.03
7,716.0	1.80	253.50	7,712.6	-2.8	97.5	5.6	0.75	0.48	26.79
7,903.0	1.20	244.50	7,899.6	-4.5	92.9	7.1	0.34	-0.32	-4.81
8,090.0	1.80	235.40	8,086.5	-7.0	88.7	9.5	0.34	0.32	-4.87
8,171.0	0.90	210.40	8,167.5	-8.3	87.4	10.8	1.30	-1.11	-30.86
8,357.0	1.40	202.70	8,353.5	-11.6	85.7	14.1	0.28	0.27	-4.14
8,434.0	1.40	205.60	8,430.4	-13.3	85.0	15.8	0.09	0.00	3.77
8,481.0	2.30	193.30	8,477.4	-14.8	84.5	17.2	2.08	1.91	-26.17
8,484.0	2.61	191.65	8,480.4	-14.9	84.5	17.3	10.44	10.17	-54.87
KOP: 8484.0 MD: 8480.4 TVD:									
8,513.0	5.60	185.10	8,509.3	-16.9	84.2	19.4	10.44	10.33	-22.60
8,544.0	9.30	186.50	8,540.1	-20.9	83.8	23.3	11.95	11.94	4.52
8,575.0	13.00	186.30	8,570.5	-26.9	83.1	29.3	11.94	11.94	-0.65
8,606.0	15.80	185.40	8,600.5	-34.6	82.3	36.9	9.06	9.03	-2.90
8,637.0	17.80	185.30	8,630.2	-43.5	81.5	45.8	6.45	6.45	-0.32
8,664.8	19.23	185.30	8,656.5	-52.3	80.7	54.6	5.16	5.16	0.00
Cross 330 Hardline: 8664.8 MD: 8656.5 TVD: 19.23° INC:									
8,668.0	19.40	185.30	8,659.5	-53.3	80.6	55.6	5.16	5.16	0.00
8,699.0	21.60	184.40	8,688.6	-64.1	79.7	66.4	7.17	7.10	-2.90
8,730.0	24.60	182.40	8,717.1	-76.3	79.0	78.5	10.00	9.68	-6.45
8,761.0	26.90	180.30	8,745.0	-89.7	78.7	92.0	7.98	7.42	-6.77
8,792.0	28.90	180.90	8,772.4	-104.3	78.5	106.5	6.51	6.45	1.94
8,824.0	31.30	181.90	8,800.1	-120.3	78.1	122.5	7.66	7.50	3.13
8,855.0	36.10	181.60	8,825.9	-137.5	77.6	139.7	15.49	15.48	-0.97
8,886.0	40.50	181.40	8,850.2	-156.7	77.1	158.8	14.20	14.19	-0.65
8,917.0	43.60	181.90	8,873.2	-177.4	76.5	179.6	10.06	10.00	1.61
8,948.0	45.70	181.20	8,895.3	-199.2	75.9	201.3	6.96	6.77	-2.26
8,979.0	47.90	181.60	8,916.5	-221.8	75.4	223.9	7.16	7.10	1.29
9,011.0	50.10	181.00	8,937.5	-245.9	74.8	248.0	7.02	6.88	-1.88
9,042.0	52.40	180.30	8,956.9	-270.1	74.5	272.1	7.63	7.42	-2.26
9,073.0	55.10	179.60	8,975.2	-295.1	74.6	297.1	8.90	8.71	-2.26



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Site:	Humidor BML State Com	MD Reference:	RKB @ 3192.5usft (Nomac 22 - KB=21.5)
Well:	#5H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Houston R5000 Database

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,104.0	58.10	178.90	8,992.3	-321.0	74.9	323.0	9.86	9.68	-2.26
9,135.0	62.10	179.80	9,007.7	-347.9	75.2	349.9	13.15	12.90	2.90
9,166.0	66.20	180.90	9,021.2	-375.7	75.0	377.7	13.61	13.23	3.55
9,198.0	68.60	181.60	9,033.5	-405.3	74.4	407.3	7.77	7.50	2.19
9,229.0	70.00	181.40	9,044.5	-434.3	73.6	436.2	4.56	4.52	-0.65
9,260.0	70.70	180.50	9,054.9	-463.5	73.1	465.4	3.55	2.26	-2.90
9,291.0	72.50	179.60	9,064.7	-492.9	73.1	494.8	6.43	5.81	-2.90
9,321.0	75.30	180.00	9,073.0	-521.7	73.2	523.6	9.42	9.33	1.33
9,352.0	77.20	180.20	9,080.4	-551.8	73.2	553.7	6.16	6.13	0.65
9,384.0	79.40	179.30	9,086.9	-583.1	73.3	585.0	7.41	6.88	-2.81
9,420.0	82.00	178.20	9,092.7	-618.6	74.1	620.5	7.83	7.22	-3.06
9,451.0	82.90	177.00	9,096.8	-649.4	75.4	651.3	4.81	2.90	-3.87
9,483.0	83.40	177.30	9,100.6	-681.1	76.9	683.0	1.82	1.56	0.94
9,514.0	85.30	177.00	9,103.6	-711.9	78.5	713.9	6.20	6.13	-0.97
9,546.0	87.30	176.60	9,105.7	-743.8	80.3	745.8	6.37	6.25	-1.25
9,608.0	88.50	177.00	9,108.0	-805.6	83.7	807.7	2.04	1.94	0.65
9,702.0	89.20	177.90	9,109.9	-899.5	87.9	901.7	1.21	0.74	0.96
9,796.0	88.90	177.70	9,111.4	-993.4	91.5	995.7	0.38	-0.32	-0.21
9,889.0	90.10	177.30	9,112.2	-1,086.3	95.6	1,088.6	1.36	1.29	-0.43
EOC: 9889.0' MD, 9112.2' TVD, 90.10° INC, 177.30° AZ, 1088.6' VS									
9,983.0	89.90	177.20	9,112.2	-1,180.2	100.1	1,182.6	0.24	-0.21	-0.11
10,077.0	89.90	176.30	9,112.4	-1,274.1	105.4	1,276.6	0.96	0.00	-0.96
10,171.0	89.20	178.40	9,113.1	-1,368.0	109.8	1,370.6	2.35	-0.74	2.23
10,264.0	89.90	181.20	9,113.9	-1,461.0	110.1	1,463.5	3.10	0.75	3.01
10,358.0	89.90	181.20	9,114.0	-1,554.9	108.1	1,557.4	0.00	0.00	0.00
10,452.0	90.10	180.50	9,114.0	-1,648.9	106.7	1,651.3	0.77	0.21	-0.74
10,545.0	90.10	180.70	9,113.9	-1,741.9	105.7	1,744.2	0.22	0.00	0.22
10,639.0	90.10	180.50	9,113.7	-1,835.9	104.8	1,838.2	0.21	0.00	-0.21
10,733.0	90.10	179.30	9,113.5	-1,929.9	104.9	1,932.1	1.28	0.00	-1.28
10,826.0	90.40	178.90	9,113.1	-2,022.9	106.4	2,025.1	0.54	0.32	-0.43
10,920.0	90.30	180.20	9,112.6	-2,116.9	107.1	2,119.1	1.39	-0.11	1.38
11,107.0	89.40	178.80	9,113.0	-2,303.9	108.7	2,306.1	0.89	-0.48	-0.75
11,293.0	88.50	178.00	9,116.5	-2,489.8	113.9	2,492.0	0.65	-0.48	-0.43
11,480.0	89.90	177.30	9,119.1	-2,676.6	121.6	2,679.0	0.84	0.75	-0.37
11,667.0	89.90	178.90	9,119.4	-2,863.5	127.8	2,866.0	0.86	0.00	0.86
11,854.0	90.30	178.80	9,119.1	-3,050.4	131.6	3,053.0	0.22	0.21	-0.05
12,041.0	88.50	176.50	9,121.0	-3,237.3	139.2	3,239.9	1.56	-0.96	-1.23
12,228.0	88.90	178.00	9,125.3	-3,424.0	148.2	3,426.8	0.83	0.21	0.80
12,415.0	90.30	179.50	9,126.6	-3,610.9	152.3	3,613.8	1.10	0.75	0.80
12,603.0	91.00	179.10	9,124.4	-3,798.9	154.6	3,801.8	0.43	0.37	-0.21
12,790.0	89.70	177.50	9,123.3	-3,985.8	160.1	3,988.8	1.10	-0.70	-0.86
12,977.0	91.00	178.90	9,122.2	-4,172.7	166.0	4,175.8	1.02	0.70	0.75
13,164.0	90.30	176.30	9,120.0	-4,359.5	173.8	4,362.7	1.44	-0.37	-1.39



Survey Report

Company:	Yates Petroleum	Local Co-ordinate Reference:	Well #5H
Project:	Eddy, NM (NAD:83)	TVD Reference:	RKB @ 3192.5usft (Nomac 22 - KB=21.5)
Site:	Humidor BML State Com	MD Reference:	RKB @ 3192.5usft (Nomac 22 - KB=21.5)
Well:	#5H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Houston R5000 Database

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,351.0	90.30	178.40	9,119.1	-4,546.3	182.5	4,549.7	1.12	0.00	1.12
13,539.0	91.70	180.00	9,115.8	-4,734.2	185.1	4,737.6	1.13	0.74	0.85
13,726.0	89.60	179.60	9,113.6	-4,921.2	185.7	4,924.5	1.14	-1.12	-0.21
13,913.0	90.80	178.90	9,113.0	-5,108.2	188.2	5,111.5	0.74	0.64	-0.37
14,101.0	90.10	179.80	9,111.5	-5,296.2	190.3	5,299.5	0.61	-0.37	0.48
14,288.0	90.30	180.30	9,110.9	-5,483.2	190.2	5,486.4	0.29	0.11	0.27
14,381.0	89.00	180.00	9,111.4	-5,576.2	189.9	5,579.3	1.43	-1.40	-0.32
14,475.0	88.30	178.90	9,113.6	-5,670.1	190.8	5,673.3	1.39	-0.74	-1.17
14,569.0	87.30	177.30	9,117.3	-5,764.0	193.9	5,767.2	2.01	-1.06	-1.70
14,662.0	88.70	177.50	9,120.5	-5,856.9	198.2	5,860.1	1.52	1.51	0.22
14,748.0	89.90	178.20	9,121.6	-5,942.8	201.4	5,946.1	1.62	1.40	0.81
14,843.0	90.30	179.50	9,121.4	-6,037.8	203.3	6,041.1	1.43	0.42	1.37
14,936.0	90.80	178.90	9,120.5	-6,130.8	204.6	6,134.1	0.84	0.54	-0.65
15,029.0	88.50	178.90	9,121.1	-6,223.7	206.4	6,227.1	2.47	-2.47	0.00
15,122.0	88.70	180.00	9,123.3	-6,316.7	207.3	6,320.0	1.20	0.22	1.18
15,216.0	89.00	180.20	9,125.2	-6,410.7	207.1	6,414.0	0.38	0.32	0.21
15,310.0	88.90	179.30	9,126.9	-6,504.7	207.5	6,507.9	0.96	-0.11	-0.96
15,404.0	89.00	181.00	9,128.7	-6,598.6	207.3	6,601.9	1.81	0.11	1.81
15,497.0	89.60	181.40	9,129.8	-6,691.6	205.3	6,694.7	0.78	0.65	0.43
15,590.0	89.70	181.00	9,130.4	-6,784.6	203.4	6,787.6	0.44	0.11	-0.43
15,684.0	89.90	180.70	9,130.7	-6,878.6	202.0	6,881.5	0.38	0.21	-0.32
15,778.0	90.40	180.70	9,130.5	-6,972.6	200.8	6,975.5	0.53	0.53	0.00
15,872.0	90.60	180.70	9,129.6	-7,066.6	199.7	7,069.4	0.21	0.21	0.00
15,965.0	91.10	179.60	9,128.3	-7,159.5	199.4	7,162.3	1.30	0.54	-1.18
16,058.0	91.30	180.00	9,126.3	-7,252.5	199.8	7,255.3	0.48	0.22	0.43
16,120.0	91.70	180.30	9,124.7	-7,314.5	199.6	7,317.2	0.81	0.65	0.48
Final MWD Survey: 16120.0' MD, 9124.7' TVD									
16,176.0	91.70	180.30	9,123.0	-7,370.5	199.3	7,373.2	0.00	0.00	0.00
BHL: 16176.0' MD, 9123.0' TVD, 91.70° INC, 180.30° AZ, -7370.5' +N/-S, 199.3' +E/-W, 7373.2' VS - PBHL (HBSC#5H)									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
8,484.0	8,480.4	-14.9	84.5	KOP: 8484.0' MD, 8480.4' TVD
8,664.8	8,656.5	-52.3	80.7	Cross 330' Hardline: 8664.8' MD, 8656.5' TVD, 19.23° INC
9,889.0	9,112.2	-1,086.3	95.6	EOC: 9889.0' MD, 9112.2' TVD, 90.10° INC, 177.30° AZ, 1088.6' VS
16,120.0	9,124.7	-7,314.5	199.6	Final MWD Survey: 16120.0' MD, 9124.7' TVD
16,176.0	9,123.0	-7,370.5	199.3	BHL: 16176.0' MD, 9123.0' TVD, 91.70° INC, 180.30° AZ, -7370.5' +N/-S, 199.3

Checked By: _____

Approved By: _____

Date: _____



Yates Petroleum
Project: Eddy, NM (NAD-83)
Site: Humidor BML State Com
Well: #5H
Wellbore: OH
Plan: Plan #4 (#5H/OH)

WELL DETAILS: #5H

Ground Elevation:: 3171.0
RKB Elevation: RKB @ 3192.5usft (Nomac 22 - KB=21.5)
Rig Name: Nomac 22 - KB=21.5

Surface Hole Location

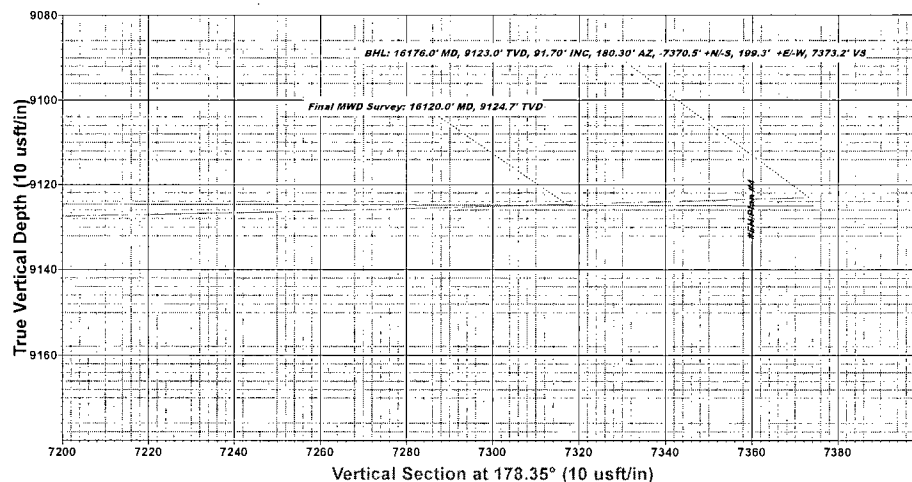
Northing 437269.80 Easting 596585.60 Latitude 32° 12' 7.220 N Longitude 104° 9' 16.971 W



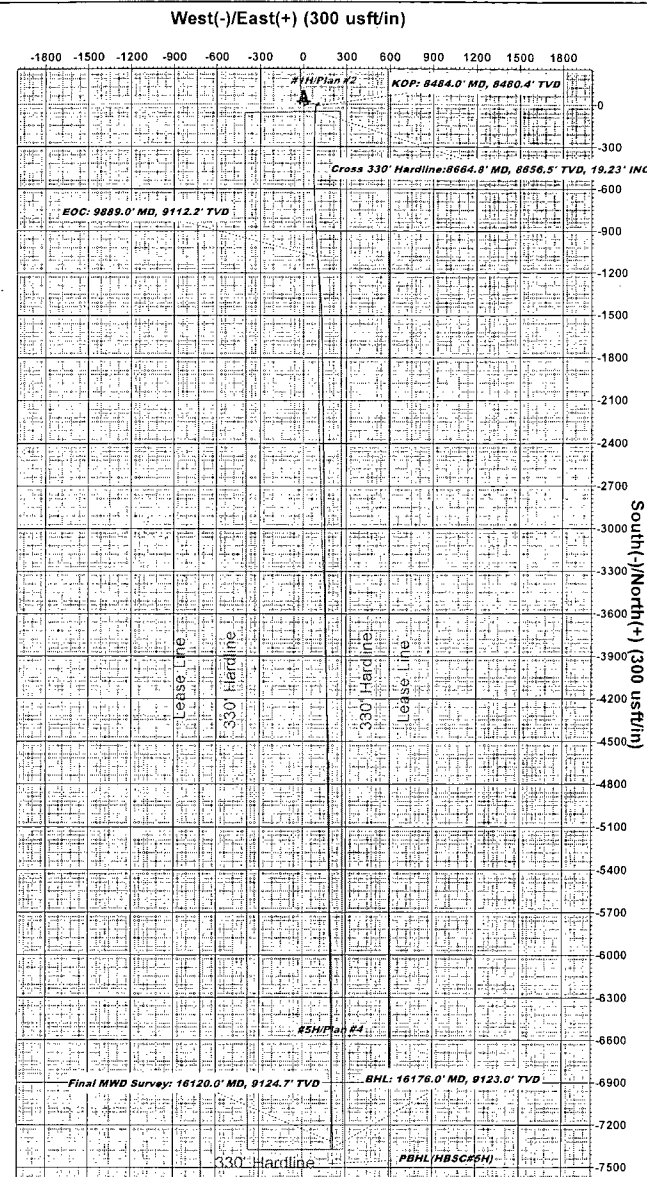
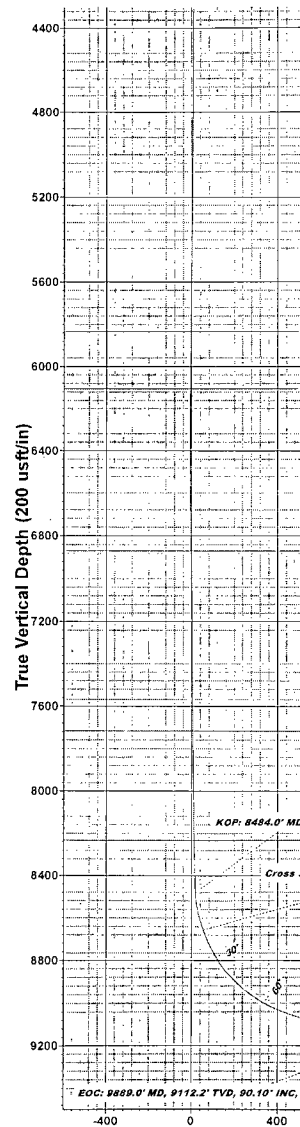
Azimuths to Grid North
True North: -0.09°
Magnetic North: 7.19°
Magnetic Field
Strength: 48083.2snT
Dip Angle: 59.95°
Date: 1/19/2016
Model: IGRF2010

Section Details

	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect
1	9702.0	89.20	177.90	9109.9	-899.5	87.9	0.00	0.00	901.7
2	9752.0	89.20	177.90	9110.6	-949.5	89.7	0.00	0.00	951.7
3	9881.4	89.87	175.40	9111.6	-1078.7	97.3	2.00	-75.01	1081.0
4	10151.4	89.87	175.40	9112.2	-1347.8	118.9	0.00	0.00	1350.7
5	10339.7	89.88	179.17	9112.6	-1535.8	127.9	2.00	89.87	1538.8
6	16175.6	89.88	179.17	9125.0	-7371.1	212.9	0.00	0.00	7374.2



PROJECT DETAILS: Eddy, NM (NAD-83)
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level
Local North: Grid



Vertical Section at 178.35° (200 usft/in)

Crescent Directional Drilling
7715 West Industrial Ave. Midland, Tx 79706
Phone: 432-618-1135



Plan: Plan #4 (#5H/OH)
Created By: Adrian Castro Date: 15:29, February 26 2015



Yates Petroleum

Eddy, NM (NAD-83)

Humidor BML State Com

#5H

OH

Design: OH

Survey Report - Geographic

26 February, 2015



Survey Report - Geographic

Company:	Yates Petroleum	Local Co-ordinate Reference:	Well #5H
Project:	Eddy, NM (NAD-83)	TVD Reference:	RKB @ 3192.5usft (Nomac 22 - KB=21.5)
Site:	Humidor BML State Com	MD Reference:	RKB @ 3192.5usft (Nomac 22 - KB=21.5)
Well:	#5H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Houston R5000 Database

Project:	Eddy, NM (NAD-83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site:	Humidor BML State Com		
Site Position:	Map	Northing:	437,269.80 usft
From:		Easting:	596,585.60 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 12' 7.220 N
		Longitude:	104° 9' 16.971 W
		Grid Convergence:	0.10 °

Well:	#5H		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft
		Latitude:	32° 12' 7.220 N
		Longitude:	104° 9' 16.971 W
		Ground Level:	3,171.0 usft

Wellbore:	OH		
Magnetics	Model Name	Sample Date	Declination
	IGRF2010	1/19/2016	(°)
			Dip Angle
			(°)
			Field Strength
			(nT)
			7.29
			59.95
			48,083

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
			(°)
			178.35

Survey Program	Date 2/26/2015		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		Description
100.0	726.0	Survey #1 - Gyros (OH)	CB-GYRO-MS
780.0	16,120.0	Survey #2 - Crescent MWD Surveys (OH)	MWD
16,176.0	16,176.0	Survey #3 - PTB (OH)	BLIND
			Camera based gyro multishot
			MWD - Standard
			Blind drilling, where no tool is applied

Survey										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Map	Map			
Depth	(°)	(°)	Depth	(usft)	(usft)	Northing	Easting	Latitude	Longitude	
(usft)			(usft)			(usft)	(usft)			
0.0	0.00	0.00	0.0	0.0	0.0	437,269.80	596,585.60	32° 12' 7.220 N	104° 9' 16.971 W	
100.0	0.81	80.78	100.0	0.1	0.7	437,269.91	596,586.30	32° 12' 7.221 N	104° 9' 16.963 W	
200.0	0.96	85.23	200.0	0.3	2.2	437,270.10	596,587.83	32° 12' 7.223 N	104° 9' 16.945 W	
300.0	1.34	107.91	300.0	0.0	4.2	437,269.81	596,589.78	32° 12' 7.220 N	104° 9' 16.922 W	
400.0	1.01	141.77	399.9	-1.0	5.8	437,268.75	596,591.44	32° 12' 7.210 N	104° 9' 16.903 W	
500.0	0.85	166.87	499.9	-2.5	6.5	437,267.34	596,592.15	32° 12' 7.196 N	104° 9' 16.895 W	
600.0	1.07	200.03	599.9	-4.1	6.4	437,265.74	596,592.00	32° 12' 7.180 N	104° 9' 16.897 W	
700.0	1.43	212.81	699.9	-6.0	5.4	437,263.81	596,591.01	32° 12' 7.161 N	104° 9' 16.908 W	
726.0	1.40	220.01	725.9	-6.5	5.0	437,263.30	596,590.63	32° 12' 7.156 N	104° 9' 16.913 W	
780.0	1.50	214.60	779.9	-7.6	4.2	437,262.21	596,589.80	32° 12' 7.145 N	104° 9' 16.922 W	



Survey Report - Geographic

Company:	Yates Petroleum	Local Co-ordinate Reference:	Well #5H
Project:	Eddy, NM (NAD:83)	TVD Reference:	RKB @ 3192.5usft (Nomac 22 - KB=21.5)
Site:	Humidor BML State Com	MD Reference:	RKB @ 3192.5usft (Nomac 22 - KB=21.5)
Well:	#5H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Houston R5000 Database

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
873.0	1.50	213.00	872.8	-9.6	2.8	437,260.19	596,588.45	32° 12' 7.125 N	104° 9' 16.938 W
966.0	1.00	196.50	965.8	-11.4	1.9	437,258.39	596,587.55	32° 12' 7.107 N	104° 9' 16.949 W
1,060.0	1.70	201.90	1,059.8	-13.5	1.2	437,256.31	596,586.80	32° 12' 7.087 N	104° 9' 16.957 W
1,154.0	1.00	189.60	1,153.8	-15.6	0.5	437,254.21	596,586.14	32° 12' 7.066 N	104° 9' 16.965 W
1,248.0	0.70	210.00	1,247.8	-16.9	0.1	437,252.90	596,585.72	32° 12' 7.053 N	104° 9' 16.970 W
1,341.0	0.50	262.80	1,340.7	-17.4	-0.6	437,252.36	596,585.03	32° 12' 7.048 N	104° 9' 16.978 W
1,435.0	0.40	260.80	1,434.7	-17.5	-1.3	437,252.25	596,584.30	32° 12' 7.047 N	104° 9' 16.987 W
1,528.0	1.10	281.10	1,527.7	-17.4	-2.5	437,252.37	596,583.10	32° 12' 7.048 N	104° 9' 17.001 W
1,623.0	1.40	14.80	1,622.7	-16.1	-3.1	437,253.67	596,582.51	32° 12' 7.061 N	104° 9' 17.007 W
1,716.0	3.40	59.30	1,715.6	-13.6	-0.4	437,256.18	596,585.17	32° 12' 7.086 N	104° 9' 16.976 W
1,810.0	5.40	68.00	1,809.4	-10.5	6.1	437,259.26	596,591.67	32° 12' 7.116 N	104° 9' 16.901 W
1,903.0	5.20	73.50	1,902.0	-7.7	14.2	437,262.09	596,599.77	32° 12' 7.144 N	104° 9' 16.806 W
1,997.0	3.60	73.50	1,995.7	-5.7	21.1	437,264.14	596,606.68	32° 12' 7.164 N	104° 9' 16.726 W
2,090.0	3.50	81.80	2,088.5	-4.4	26.7	437,265.38	596,612.29	32° 12' 7.176 N	104° 9' 16.661 W
2,184.0	2.60	89.60	2,182.4	-4.0	31.7	437,265.80	596,617.26	32° 12' 7.180 N	104° 9' 16.603 W
2,278.0	1.80	70.30	2,276.3	-3.5	35.2	437,266.31	596,620.78	32° 12' 7.185 N	104° 9' 16.562 W
2,371.0	1.60	74.80	2,369.3	-2.7	37.8	437,267.15	596,623.41	32° 12' 7.193 N	104° 9' 16.531 W
2,458.0	2.20	74.40	2,456.2	-1.9	40.6	437,267.91	596,626.19	32° 12' 7.201 N	104° 9' 16.499 W
2,577.0	2.30	85.40	2,575.1	-1.1	45.2	437,268.72	596,630.77	32° 12' 7.209 N	104° 9' 16.445 W
2,670.0	2.50	83.00	2,668.0	-0.7	49.0	437,269.12	596,634.64	32° 12' 7.213 N	104° 9' 16.400 W
2,764.0	2.80	78.90	2,761.9	0.0	53.3	437,269.81	596,638.93	32° 12' 7.220 N	104° 9' 16.350 W
2,858.0	3.00	78.00	2,855.8	1.0	58.0	437,270.76	596,643.59	32° 12' 7.229 N	104° 9' 16.296 W
2,951.0	2.60	89.50	2,948.7	1.5	62.5	437,271.29	596,648.08	32° 12' 7.234 N	104° 9' 16.244 W
3,044.0	2.60	89.60	3,041.6	1.5	66.7	437,271.32	596,652.30	32° 12' 7.234 N	104° 9' 16.195 W
3,138.0	2.60	88.40	3,135.5	1.6	71.0	437,271.39	596,656.56	32° 12' 7.235 N	104° 9' 16.145 W
3,232.0	2.50	107.70	3,229.4	1.0	75.0	437,270.83	596,660.65	32° 12' 7.229 N	104° 9' 16.098 W
3,325.0	2.50	112.70	3,322.3	-0.4	78.8	437,269.43	596,664.45	32° 12' 7.215 N	104° 9' 16.053 W
3,418.0	2.60	111.60	3,415.2	-1.9	82.7	437,267.87	596,668.28	32° 12' 7.200 N	104° 9' 16.009 W
3,512.0	2.80	108.40	3,509.1	-3.4	86.8	437,266.36	596,672.44	32° 12' 7.185 N	104° 9' 15.960 W
3,605.0	1.40	103.20	3,602.1	-4.4	90.1	437,265.39	596,675.71	32° 12' 7.175 N	104° 9' 15.922 W
3,699.0	1.20	100.50	3,696.1	-4.9	92.2	437,264.94	596,677.79	32° 12' 7.171 N	104° 9' 15.898 W
3,792.0	1.20	99.10	3,789.0	-5.2	94.1	437,264.61	596,679.71	32° 12' 7.167 N	104° 9' 15.876 W
3,885.0	1.20	105.30	3,882.0	-5.6	96.0	437,264.20	596,681.61	32° 12' 7.163 N	104° 9' 15.854 W
3,978.0	1.20	103.00	3,975.0	-6.1	97.9	437,263.73	596,683.50	32° 12' 7.159 N	104° 9' 15.832 W
4,072.0	1.20	100.00	4,069.0	-6.5	99.8	437,263.33	596,685.43	32° 12' 7.155 N	104° 9' 15.809 W
4,165.0	1.10	95.80	4,162.0	-6.7	101.7	437,263.07	596,687.28	32° 12' 7.152 N	104° 9' 15.788 W
4,258.0	0.50	59.20	4,254.9	-6.6	102.9	437,263.19	596,688.51	32° 12' 7.153 N	104° 9' 15.773 W
4,352.0	0.50	57.80	4,348.9	-6.2	103.6	437,263.62	596,689.21	32° 12' 7.157 N	104° 9' 15.765 W
4,445.0	0.50	50.40	4,441.9	-5.7	104.3	437,264.09	596,689.87	32° 12' 7.162 N	104° 9' 15.758 W
4,538.0	0.50	43.60	4,534.9	-5.2	104.9	437,264.65	596,690.46	32° 12' 7.168 N	104° 9' 15.751 W
4,725.0	0.40	38.00	4,721.9	-4.0	105.8	437,265.75	596,691.42	32° 12' 7.179 N	104° 9' 15.740 W
4,911.0	0.50	32.20	4,907.9	-2.8	106.7	437,266.95	596,692.26	32° 12' 7.190 N	104° 9' 15.730 W
5,098.0	0.50	12.80	5,094.9	-1.4	107.3	437,268.44	596,692.87	32° 12' 7.205 N	104° 9' 15.723 W
5,284.0	0.70	337.70	5,280.9	0.5	107.0	437,270.28	596,692.62	32° 12' 7.223 N	104° 9' 15.726 W
5,471.0	0.70	334.80	5,467.9	2.6	106.1	437,272.37	596,691.70	32° 12' 7.244 N	104° 9' 15.736 W
5,658.0	0.50	340.30	5,654.9	4.4	105.3	437,274.17	596,690.94	32° 12' 7.262 N	104° 9' 15.745 W
5,845.0	0.50	357.30	5,841.9	6.0	105.0	437,275.75	596,690.63	32° 12' 7.278 N	104° 9' 15.749 W
6,033.0	0.70	319.90	6,029.9	7.7	104.2	437,277.45	596,689.85	32° 12' 7.294 N	104° 9' 15.758 W
6,220.0	1.10	303.40	6,216.8	9.5	102.0	437,279.31	596,687.61	32° 12' 7.313 N	104° 9' 15.784 W
6,408.0	1.40	249.90	6,404.8	9.7	98.3	437,279.52	596,683.95	32° 12' 7.315 N	104° 9' 15.826 W
6,595.0	0.70	135.50	6,591.8	8.1	97.0	437,277.92	596,682.61	32° 12' 7.299 N	104° 9' 15.842 W
6,781.0	1.10	162.40	6,777.8	5.6	98.3	437,275.41	596,683.94	32° 12' 7.274 N	104° 9' 15.826 W
6,968.0	1.20	154.50	6,964.7	2.1	99.7	437,271.93	596,685.33	32° 12' 7.240 N	104° 9' 15.810 W
7,156.0	0.50	186.70	7,152.7	-0.5	100.5	437,269.34	596,686.08	32° 12' 7.214 N	104° 9' 15.802 W
7,343.0	0.70	28.50	7,339.7	-0.3	100.9	437,269.53	596,686.53	32° 12' 7.216 N	104° 9' 15.796 W



Survey Report - Geographic

Company:	Yates Petroleum	Local Co-ordinate Reference:	Well #5H
Project:	Eddy NM (NAD-83)	TVD Reference:	RKB @ 3192.5usft (Nomac 22 - KB=21'5)
Site:	Humidor BML State Com	MD Reference:	RKB @ 3192.5usft (Nomac 22 - KB=21'5)
Well:	#5H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Houston R5000 Database

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
7,529.0	0.90	203.40	7,525.7	-0.6	100.9	437,269.19	596,686.49	32° 12' 7.213 N	104° 9' 15.797 W
7,716.0	1.80	253.50	7,712.6	-2.8	97.5	437,267.01	596,683.09	32° 12' 7.191 N	104° 9' 15.837 W
7,903.0	1.20	244.50	7,899.6	-4.5	92.9	437,265.33	596,678.51	32° 12' 7.175 N	104° 9' 15.890 W
8,090.0	1.80	235.40	8,086.5	-7.0	88.7	437,262.82	596,674.32	32° 12' 7.150 N	104° 9' 15.939 W
8,171.0	0.90	210.40	8,167.5	-8.3	87.4	437,261.55	596,672.95	32° 12' 7.137 N	104° 9' 15.955 W
8,357.0	1.40	202.70	8,353.5	-11.6	85.7	437,258.19	596,671.34	32° 12' 7.104 N	104° 9' 15.973 W
8,434.0	1.40	205.60	8,430.4	-13.3	85.0	437,256.47	596,670.57	32° 12' 7.087 N	104° 9' 15.982 W
8,481.0	2.30	193.30	8,477.4	-14.8	84.5	437,255.04	596,670.10	32° 12' 7.073 N	104° 9' 15.988 W
8,484.0	2.61	191.65	8,480.4	-14.9	84.5	437,254.91	596,670.08	32° 12' 7.072 N	104° 9' 15.988 W
KOP: 8484.0' MD: 8480.4' TVD									
8,513.0	5.60	185.10	8,509.3	-16.9	84.2	437,252.86	596,669.82	32° 12' 7.051 N	104° 9' 15.991 W
8,544.0	9.30	186.50	8,540.1	-20.9	83.8	437,248.86	596,669.40	32° 12' 7.012 N	104° 9' 15.996 W
8,575.0	13.00	186.30	8,570.5	-26.9	83.1	437,242.91	596,668.73	32° 12' 6.953 N	104° 9' 16.004 W
8,606.0	15.80	185.40	8,600.5	-34.6	82.3	437,235.24	596,667.95	32° 12' 6.877 N	104° 9' 16.013 W
8,637.0	17.80	185.30	8,630.2	-43.5	81.5	437,226.32	596,667.12	32° 12' 6.789 N	104° 9' 16.023 W
8,664.8	19.23	185.30	8,656.5	-52.3	80.7	437,217.52	596,666.30	32° 12' 6.702 N	104° 9' 16.033 W
Cross 330' Hardline: 8664.8' MD: 8656.5' TVD, 19.23° INC									
8,668.0	19.40	185.30	8,659.5	-53.3	80.6	437,216.47	596,666.20	32° 12' 6.691 N	104° 9' 16.034 W
8,699.0	21.60	184.40	8,688.6	-64.1	79.7	437,205.65	596,665.29	32° 12' 6.584 N	104° 9' 16.045 W
8,730.0	24.60	182.40	8,717.1	-76.3	79.0	437,193.52	596,664.58	32° 12' 6.464 N	104° 9' 16.053 W
8,761.0	26.90	180.30	8,745.0	-89.7	78.7	437,180.05	596,664.28	32° 12' 6.331 N	104° 9' 16.057 W
8,792.0	28.90	180.90	8,772.4	-104.3	78.5	437,165.55	596,664.12	32° 12' 6.187 N	104° 9' 16.059 W
8,824.0	31.30	181.90	8,800.1	-120.3	78.1	437,149.51	596,663.72	32° 12' 6.029 N	104° 9' 16.064 W
8,855.0	36.10	181.60	8,825.9	-137.5	77.6	437,132.32	596,663.20	32° 12' 5.859 N	104° 9' 16.071 W
8,886.0	40.50	181.40	8,850.2	-156.7	77.1	437,113.12	596,662.70	32° 12' 5.669 N	104° 9' 16.077 W
8,917.0	43.60	181.90	8,873.2	-177.4	76.5	437,092.37	596,662.10	32° 12' 5.463 N	104° 9' 16.084 W
8,948.0	45.70	181.20	8,895.3	-199.2	75.9	437,070.59	596,661.51	32° 12' 5.248 N	104° 9' 16.091 W
8,979.0	47.90	181.60	8,916.5	-221.8	75.4	437,048.00	596,660.96	32° 12' 5.024 N	104° 9' 16.098 W
9,011.0	50.10	181.00	8,937.5	-245.9	74.8	437,023.86	596,660.41	32° 12' 4.785 N	104° 9' 16.105 W
9,042.0	52.40	180.30	8,956.9	-270.1	74.5	436,999.68	596,660.14	32° 12' 4.546 N	104° 9' 16.109 W
9,073.0	55.10	179.60	8,975.2	-295.1	74.6	436,974.69	596,660.17	32° 12' 4.299 N	104° 9' 16.109 W
9,104.0	58.10	178.90	8,992.3	-321.0	74.9	436,948.81	596,660.51	32° 12' 4.043 N	104° 9' 16.106 W
9,135.0	62.10	179.80	9,007.7	-347.9	75.2	436,921.95	596,660.81	32° 12' 3.777 N	104° 9' 16.103 W
9,166.0	66.20	180.90	9,021.2	-375.7	75.0	436,894.06	596,660.63	32° 12' 3.501 N	104° 9' 16.105 W
9,198.0	68.60	181.60	9,033.5	-405.3	74.4	436,864.52	596,659.99	32° 12' 3.208 N	104° 9' 16.113 W
9,229.0	70.00	181.40	9,044.5	-434.3	73.6	436,835.53	596,659.23	32° 12' 2.922 N	104° 9' 16.123 W
9,260.0	70.70	180.50	9,054.9	-463.5	73.1	436,806.34	596,658.75	32° 12' 2.633 N	104° 9' 16.129 W
9,291.0	72.50	179.60	9,064.7	-492.9	73.1	436,776.93	596,658.72	32° 12' 2.342 N	104° 9' 16.130 W
9,321.0	75.30	180.00	9,073.0	-521.7	73.2	436,748.11	596,658.82	32° 12' 2.056 N	104° 9' 16.129 W
9,352.0	77.20	180.20	9,080.4	-551.8	73.2	436,718.00	596,658.77	32° 12' 1.758 N	104° 9' 16.130 W
9,384.0	79.40	179.30	9,086.9	-583.1	73.3	436,686.67	596,658.91	32° 12' 1.448 N	104° 9' 16.129 W
9,420.0	82.00	178.20	9,092.7	-618.6	74.1	436,651.15	596,659.68	32° 12' 1.097 N	104° 9' 16.121 W
9,451.0	82.90	177.00	9,096.8	-649.4	75.4	436,620.45	596,660.97	32° 12' 0.793 N	104° 9' 16.106 W
9,483.0	83.40	177.30	9,100.6	-681.1	76.9	436,588.72	596,662.55	32° 12' 0.479 N	104° 9' 16.089 W
9,514.0	85.30	177.00	9,103.6	-711.9	78.5	436,557.91	596,664.08	32° 12' 0.174 N	104° 9' 16.071 W
9,546.0	87.30	176.60	9,105.7	-743.8	80.3	436,526.03	596,665.87	32° 11' 59.859 N	104° 9' 16.051 W
9,608.0	88.50	177.00	9,108.0	-805.6	83.7	436,464.17	596,669.32	32° 11' 59.246 N	104° 9' 16.012 W
9,702.0	89.20	177.90	9,109.9	-899.5	87.9	436,370.28	596,673.51	32° 11' 58.317 N	104° 9' 15.965 W
9,796.0	88.90	177.70	9,111.4	-993.4	91.5	436,276.36	596,677.11	32° 11' 57.388 N	104° 9' 15.925 W
9,889.0	90.10	177.30	9,112.2	-1,086.3	95.6	436,183.45	596,681.17	32° 11' 56.468 N	104° 9' 15.880 W
EOC: 9889.0' MD: 9112.2' TVD, 90.10° INC, 177.30° AZ, 1088.6' VS									
9,983.0	89.90	177.20	9,112.2	-1,180.2	100.1	436,089.56	596,685.68	32° 11' 55.539 N	104° 9' 15.829 W
10,077.0	89.90	176.30	9,112.4	-1,274.1	105.4	435,995.72	596,691.01	32° 11' 54.610 N	104° 9' 15.769 W
10,171.0	89.20	178.40	9,113.1	-1,368.0	109.8	435,901.82	596,695.35	32° 11' 53.681 N	104° 9' 15.720 W
10,264.0	89.90	181.20	9,113.9	-1,461.0	110.1	435,808.84	596,695.68	32° 11' 52.761 N	104° 9' 15.718 W



Survey Report - Geographic

Company:	Yates Petroleum	Local Co-ordinate Reference:	Well #5H
Project:	Eddy, NM (NAD-83)	TVD Reference:	RKB @ 3192.5usft (Nomac 22 - KB=21.5)
Site:	Humidor BML State Com	MD Reference:	RKB @ 3192.5usft (Nomac 22 - KB=21.5)
Well:	#5H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Houston R5000 Database

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
10,358.0	89.90	181.20	9,114.0	-1,554.9	108.1	435,714.86	596,693.71	32° 11' 51.831 N	104° 9' 15.743 W
10,452.0	90.10	180.50	9,114.0	-1,648.9	106.7	435,620.87	596,692.32	32° 11' 50.901 N	104° 9' 15.761 W
10,545.0	90.10	180.70	9,113.9	-1,741.9	105.7	435,527.88	596,691.34	32° 11' 49.980 N	104° 9' 15.774 W
10,639.0	90.10	180.50	9,113.7	-1,835.9	104.8	435,433.88	596,690.36	32° 11' 49.050 N	104° 9' 15.787 W
10,733.0	90.10	179.30	9,113.5	-1,929.9	104.9	435,339.88	596,690.52	32° 11' 48.120 N	104° 9' 15.787 W
10,826.0	90.40	178.90	9,113.1	-2,022.9	106.4	435,246.90	596,691.98	32° 11' 47.200 N	104° 9' 15.772 W
10,920.0	90.30	180.20	9,112.6	-2,116.9	107.1	435,152.90	596,692.72	32° 11' 46.270 N	104° 9' 15.765 W
11,107.0	89.40	178.80	9,113.0	-2,303.9	108.7	434,965.92	596,694.35	32° 11' 44.419 N	104° 9' 15.750 W
11,293.0	88.50	178.00	9,116.5	-2,489.8	113.9	434,780.02	596,699.54	32° 11' 42.579 N	104° 9' 15.693 W
11,480.0	89.90	177.30	9,119.1	-2,676.6	121.6	434,593.20	596,707.21	32° 11' 40.731 N	104° 9' 15.608 W
11,667.0	89.90	178.90	9,119.4	-2,863.5	127.8	434,406.31	596,713.41	32° 11' 38.881 N	104° 9' 15.539 W
11,854.0	90.30	178.80	9,119.1	-3,050.4	131.6	434,219.35	596,717.16	32° 11' 37.031 N	104° 9' 15.499 W
12,041.0	88.50	176.50	9,121.0	-3,237.3	139.2	434,032.54	596,724.83	32° 11' 35.182 N	104° 9' 15.413 W
12,228.0	88.90	178.00	9,125.3	-3,424.0	148.2	433,845.81	596,733.80	32° 11' 33.334 N	104° 9' 15.313 W
12,415.0	90.30	179.50	9,126.6	-3,610.9	152.3	433,658.87	596,737.88	32° 11' 31.484 N	104° 9' 15.269 W
12,603.0	91.00	179.10	9,124.4	-3,798.9	154.6	433,470.90	596,740.18	32° 11' 29.624 N	104° 9' 15.246 W
12,790.0	89.70	177.50	9,123.3	-3,985.8	160.1	433,283.99	596,745.72	32° 11' 27.774 N	104° 9' 15.185 W
12,977.0	91.00	178.90	9,122.2	-4,172.7	166.0	433,097.10	596,751.60	32° 11' 25.924 N	104° 9' 15.120 W
13,164.0	90.30	176.30	9,120.0	-4,359.5	173.8	432,910.29	596,759.43	32° 11' 24.075 N	104° 9' 15.033 W
13,351.0	90.30	178.40	9,119.1	-4,546.3	182.5	432,723.50	596,768.07	32° 11' 22.227 N	104° 9' 14.936 W
13,539.0	91.70	180.00	9,115.8	-4,734.2	185.1	432,535.56	596,770.70	32° 11' 20.367 N	104° 9' 14.909 W
13,726.0	89.60	179.60	9,113.6	-4,921.2	185.7	432,348.58	596,771.35	32° 11' 18.517 N	104° 9' 14.905 W
13,913.0	90.80	178.90	9,113.0	-5,108.2	188.2	432,161.61	596,773.80	32° 11' 16.666 N	104° 9' 14.880 W
14,101.0	90.10	179.80	9,111.5	-5,296.2	190.3	431,973.63	596,775.93	32° 11' 14.806 N	104° 9' 14.859 W
14,288.0	90.30	180.30	9,110.9	-5,483.2	190.2	431,786.63	596,775.77	32° 11' 12.955 N	104° 9' 14.864 W
14,381.0	89.00	180.00	9,111.4	-5,576.2	189.9	431,693.63	596,775.52	32° 11' 12.035 N	104° 9' 14.869 W
14,475.0	88.30	178.90	9,113.6	-5,670.1	190.8	431,599.67	596,776.42	32° 11' 11.105 N	104° 9' 14.860 W
14,569.0	87.30	177.30	9,117.3	-5,764.0	193.9	431,505.79	596,779.54	32° 11' 10.176 N	104° 9' 14.826 W
14,662.0	88.70	177.50	9,120.5	-5,856.9	198.2	431,412.94	596,783.75	32° 11' 9.257 N	104° 9' 14.778 W
14,748.0	89.90	178.20	9,121.6	-5,942.8	201.4	431,327.01	596,786.98	32° 11' 8.407 N	104° 9' 14.743 W
14,843.0	90.30	179.50	9,121.4	-6,037.8	203.3	431,232.04	596,788.89	32° 11' 7.467 N	104° 9' 14.722 W
14,936.0	90.80	178.90	9,120.5	-6,130.8	204.6	431,139.05	596,790.19	32° 11' 6.547 N	104° 9' 14.709 W
15,029.0	88.50	178.90	9,121.1	-6,223.7	206.4	431,046.07	596,791.97	32° 11' 5.627 N	104° 9' 14.690 W
15,122.0	88.70	180.00	9,123.3	-6,316.7	207.3	430,953.11	596,792.86	32° 11' 4.707 N	104° 9' 14.681 W
15,216.0	89.00	180.20	9,125.2	-6,410.7	207.1	430,859.13	596,792.70	32° 11' 3.776 N	104° 9' 14.685 W
15,310.0	88.90	179.30	9,126.9	-6,504.7	207.5	430,765.15	596,793.11	32° 11' 2.846 N	104° 9' 14.682 W
15,404.0	89.00	181.00	9,128.7	-6,598.6	207.3	430,671.16	596,792.86	32° 11' 1.916 N	104° 9' 14.687 W
15,497.0	89.60	181.40	9,129.8	-6,691.6	205.3	430,578.19	596,790.92	32° 11' 0.996 N	104° 9' 14.711 W
15,590.0	89.70	181.00	9,130.4	-6,784.6	203.4	430,485.21	596,788.97	32° 11' 0.076 N	104° 9' 14.736 W
15,684.0	89.90	180.70	9,130.7	-6,878.6	202.0	430,391.23	596,787.57	32° 10' 59.146 N	104° 9' 14.754 W
15,778.0	90.40	180.70	9,130.5	-6,972.6	200.8	430,297.23	596,786.42	32° 10' 58.216 N	104° 9' 14.769 W
15,872.0	90.60	180.70	9,129.6	-7,066.6	199.7	430,203.24	596,785.28	32° 10' 57.286 N	104° 9' 14.784 W
15,965.0	91.10	179.60	9,128.3	-7,159.5	199.4	430,110.26	596,785.03	32° 10' 56.366 N	104° 9' 14.789 W
16,058.0	91.30	180.00	9,126.3	-7,252.5	199.8	430,017.28	596,785.36	32° 10' 55.446 N	104° 9' 14.787 W
16,120.0	91.70	180.30	9,124.7	-7,314.5	199.6	429,955.30	596,785.20	32° 10' 54.832 N	104° 9' 14.790 W
Final MWD Survey: 16120.0' MD, 9124.7' TVD									
16,176.0	91.70	180.30	9,123.0	-7,370.5	199.3	429,899.32	596,784.90	32° 10' 54.278 N	104° 9' 14.794 W
BHL: 16176.0' MD, 9123.0' TVD, 91.70° INC, 180.30° AZ, -7370.5' +N/-S, 199.3' +E/-W, 7373.2' VS -PBHL(HBSC#5H)									



Survey Report - Geographic

Company:	Yates Petroleum	Local Co-ordinate Reference:	Well #5H
Project:	Eddy, NM (NAD-83)	TVD Reference:	RKB @ 3192.5usft (Nomac 22 - KB=21.5)
Site:	Humidor BML State Com	MD Reference:	RKB @ 3192.5usft (Nomac 22 - KB=21.5)
Well:	#5H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Houston R5000 Database

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
8,484.0	8,480.4	-14.9	84.5	KOP: 8484.0' MD, 8480.4' TVD
8,664.8	8,656.5	-52.3	80.7	Cross 330' Hardline: 8664.8' MD, 8656.5' TVD, 19.23° INC
9,889.0	9,112.2	-1,086.3	95.6	EOC: 9889.0' MD, 9112.2' TVD, 90.10° INC, 177.30° AZ, 1088.6' VS
16,120.0	9,124.7	-7,314.5	199.6	Final MWD Survey: 16120.0' MD, 9124.7' TVD
16,176.0	9,123.0	-7,370.5	199.3	BHL: 16176.0' MD, 9123.0' TVD, 91.70° INC, 180.30° AZ, -7370.5' +N/-S, 199.3

Checked By: _____	Approved By: _____	Date: _____
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Job Number: SVMO-150134
 Company: Yates Petroleum Corporation
 Lease/Well: Humidor BML State Com 5H
 Location: Eddy County, NM
 Rig Name: Nomac #22
 RKB: 21.5'
 G.L. or M.S.L.: GL

State/Country: New Mexico/USA
 Declination: 7.49°
 Grid: East To Grid North
 File name: S:\2015SU-1\YATESP-1\MOI\HUMIDO-1\5H.SVY
 Date/Time: 09-Feb-15 / 11:49
 Curve Name: Surface -726' M.D. (Rate Gyro)

MS SURVEY

WINSERVE SURVEY CALCULATIONS

Minimum Curvature Method
 Vertical Section Plane: 178.35
 Vertical Section Referenced to Wellhead
 Rectangular Coordinates Referenced to Wellhead

We hereby certify that our survey data from
 Surface MD to 726' MD is, to the best of
 our knowledge a true and accurate account of
 the well bore.
Harvey Patterson 2/9/15
 MS Energy Services Date

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
100.00	.81	80.78	100.00	.11	.70	-.09	.71	80.78	.81
200.00	.96	85.23	199.98	.30	2.23	-.23	2.25	82.44	.16
300.00	1.34	107.91	299.96	.01	4.18	.11	4.18	89.91	.59
400.00	1.01	141.77	399.94	-1.05	5.84	1.21	5.93	100.16	.75
500.00	.85	166.87	499.93	-2.46	6.55	2.65	7.00	110.59	.43
600.00	1.07	200.03	599.92	-4.06	6.40	4.24	7.58	122.40	.59
700.00	1.43	212.81	699.89	-5.99	5.40	6.14	8.06	137.93	.45
Last Survey Depth Recorded									
726.00	1.40	220.01	725.89	-6.50	5.02	6.64	8.22	142.32	.69