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Yates Petroleum

Eddy, NM (NAD-83)
Macanudo BTE State Com
#1H

OH

Design: OH

Survey Report - Geographic

20 March, 2015

NM OIL CONSERVATION
ARTESTA DISTRICT
MAY 23 2016
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Survey Report - Geographic

Company:	Yates Petroleum	Local Co-ordinate Reference:	Well #1H
Project:	Eddy, NM (NAD-83)	TVD Reference:	WELL @ 3192.5usft (Nomac 22 - KB=21.5)
Site:	Macanudo BTE State Com	MD Reference:	WELL @ 3192.5usft (Nomac 22 - KB=21.5)
Well:	#1H	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	Macanudo BTE State Com		
Site Position:		Northing:	437,269.30 usft
From:	Map	Easting:	596,565.70 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 12' 7.216 N
		Longitude:	104° 9' 17.203 W
		Grid Convergence:	0.10 °

Well	#1H		
Well Position	+N/-S	0.0 usft	Northing: 437,269.30 usft
	+E/-W	0.0 usft	Easting: 596,565.70 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft
		Ground Level:	3,171.0 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
	IGRF2010	2/7/2015	7.40
			59.98
			48,177

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
			359.39

Survey Program	Date	3/20/2015		
From	To	Survey (Wellbore)	Tool Name	Description
100.0	750.0	Survey #1 - Gyro (OH)	Good_gyro	Good Gyro
809.0	16,002.0	Survey #2 - Crescent MWD Surveys (OH)	MWD	MWD - Standard
16,056.9	16,056.9	Survey #3 - PTB (OH)	BLIND	Blind drilling, where no tool is applied

Survey										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Map	Map	Latitude	Longitude	
Depth	(°)	(°)	Depth	(usft)	(usft)	Northing	Easting			
(usft)			(usft)			(usft)	(usft)			
0.0	0.00	0.00	0.0	0.0	0.0	437,269.30	596,565.70	32° 12' 7.216 N	104° 9' 17.203 W	
Humidor #5H										
38.8	0.40	356.48	38.8	0.1	0.0	437,269.43	596,565.70	32° 12' 7.217 N	104° 9' 17.203 W	
Humidor #1 - 234R										
100.0	1.02	356.48	100.0	0.9	-0.1	437,270.19	596,565.65	32° 12' 7.224 N	104° 9' 17.203 W	
139.4	1.00	355.70	139.4	1.6	-0.1	437,270.88	596,565.60	32° 12' 7.231 N	104° 9' 17.204 W	
TW(MSC#1H)										
200.0	0.98	354.45	200.0	2.6	-0.2	437,271.93	596,565.51	32° 12' 7.242 N	104° 9' 17.205 W	
300.0	0.53	324.72	300.0	3.9	-0.5	437,273.16	596,565.16	32° 12' 7.254 N	104° 9' 17.209 W	
400.0	0.34	303.20	400.0	4.4	-1.1	437,273.70	596,564.65	32° 12' 7.259 N	104° 9' 17.215 W	



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Site:	Macanudo BTE State Com	MD Reference:	WELL @ 3192.5usft (Nomac 22 - KB=21.5)
Well:	#1H	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
500.0	0.32	266.53	500.0	4.5	-1.6	437,273.84	596,564.12	32° 12' 7.261 N	104° 9' 17.221 W
600.0	0.30	207.50	600.0	4.3	-2.0	437,273.59	596,563.72	32° 12' 7.258 N	104° 9' 17.226 W
700.0	0.21	226.85	700.0	3.9	-2.2	437,273.24	596,563.46	32° 12' 7.255 N	104° 9' 17.229 W
750.0	0.26	212.54	750.0	3.8	-2.4	437,273.08	596,563.34	32° 12' 7.253 N	104° 9' 17.230 W
809.0	0.40	212.60	809.0	3.5	-2.5	437,272.79	596,563.15	32° 12' 7.250 N	104° 9' 17.232 W
872.0	0.40	232.80	872.0	3.2	-2.8	437,272.47	596,562.86	32° 12' 7.247 N	104° 9' 17.236 W
965.0	0.40	199.30	965.0	2.7	-3.2	437,271.97	596,562.49	32° 12' 7.242 N	104° 9' 17.240 W
1,058.0	0.70	200.90	1,058.0	1.8	-3.5	437,271.13	596,562.18	32° 12' 7.234 N	104° 9' 17.244 W
1,151.0	0.80	197.20	1,150.9	0.7	-3.9	437,269.98	596,561.79	32° 12' 7.223 N	104° 9' 17.248 W
1,244.0	0.70	218.50	1,243.9	-0.4	-4.5	437,268.92	596,561.24	32° 12' 7.212 N	104° 9' 17.255 W
1,338.0	0.90	222.60	1,337.9	-1.4	-5.3	437,267.92	596,560.39	32° 12' 7.202 N	104° 9' 17.265 W
1,431.0	0.80	253.60	1,430.9	-2.1	-6.4	437,267.20	596,559.27	32° 12' 7.195 N	104° 9' 17.278 W
1,525.0	1.10	254.70	1,524.9	-2.5	-7.9	437,266.78	596,557.77	32° 12' 7.191 N	104° 9' 17.295 W
1,618.0	1.10	272.40	1,617.9	-2.7	-9.7	437,266.58	596,556.02	32° 12' 7.189 N	104° 9' 17.316 W
1,712.0	0.30	308.20	1,711.9	-2.5	-10.8	437,266.77	596,554.92	32° 12' 7.191 N	104° 9' 17.328 W
1,805.0	0.80	35.90	1,804.9	-1.9	-10.6	437,267.45	596,555.11	32° 12' 7.198 N	104° 9' 17.326 W
1,899.0	2.00	51.60	1,898.8	-0.3	-8.9	437,269.00	596,556.78	32° 12' 7.213 N	104° 9' 17.307 W
1,994.0	1.10	59.10	1,993.8	1.2	-6.8	437,270.50	596,558.86	32° 12' 7.228 N	104° 9' 17.282 W
2,087.0	1.50	64.80	2,086.8	2.2	-5.0	437,271.47	596,560.73	32° 12' 7.237 N	104° 9' 17.261 W
2,180.0	2.00	78.40	2,179.7	3.0	-2.3	437,272.32	596,563.42	32° 12' 7.246 N	104° 9' 17.229 W
2,273.0	1.50	67.60	2,272.7	3.8	0.4	437,273.11	596,566.14	32° 12' 7.253 N	104° 9' 17.198 W
2,367.0	1.10	48.00	2,366.7	4.9	2.2	437,274.18	596,567.95	32° 12' 7.264 N	104° 9' 17.177 W
2,460.0	1.40	45.40	2,459.7	6.3	3.7	437,275.58	596,569.42	32° 12' 7.278 N	104° 9' 17.159 W
2,575.0	1.60	32.60	2,574.6	8.6	5.6	437,277.91	596,571.28	32° 12' 7.301 N	104° 9' 17.138 W
2,667.0	1.90	29.10	2,666.6	11.0	7.0	437,280.33	596,572.72	32° 12' 7.325 N	104° 9' 17.121 W
2,761.0	1.40	9.20	2,760.5	13.5	8.0	437,282.82	596,573.66	32° 12' 7.349 N	104° 9' 17.110 W
2,854.0	1.40	3.60	2,853.5	15.8	8.2	437,285.08	596,573.91	32° 12' 7.372 N	104° 9' 17.107 W
3,041.0	0.50	319.50	3,040.5	18.7	7.8	437,287.98	596,573.52	32° 12' 7.400 N	104° 9' 17.111 W
3,227.0	0.50	316.30	3,226.5	19.9	6.7	437,289.18	596,572.44	32° 12' 7.412 N	104° 9' 17.124 W
3,414.0	0.90	303.70	3,413.5	21.3	4.9	437,290.59	596,570.65	32° 12' 7.426 N	104° 9' 17.145 W
3,601.0	0.70	291.20	3,600.4	22.5	2.7	437,291.82	596,568.36	32° 12' 7.438 N	104° 9' 17.171 W
3,789.0	0.90	298.20	3,788.4	23.6	0.3	437,292.93	596,565.99	32° 12' 7.450 N	104° 9' 17.199 W
3,975.0	1.20	289.60	3,974.4	25.0	-2.8	437,294.27	596,562.87	32° 12' 7.463 N	104° 9' 17.235 W
4,162.0	0.90	276.40	4,161.4	25.8	-6.1	437,295.09	596,559.57	32° 12' 7.471 N	104° 9' 17.274 W
4,348.0	0.90	273.80	4,347.3	26.1	-9.0	437,295.35	596,556.66	32° 12' 7.474 N	104° 9' 17.308 W
4,535.0	1.20	267.30	4,534.3	26.1	-12.5	437,295.36	596,553.24	32° 12' 7.474 N	104° 9' 17.347 W
4,723.0	1.40	267.10	4,722.3	25.9	-16.7	437,295.15	596,548.98	32° 12' 7.472 N	104° 9' 17.397 W
4,909.0	1.80	261.10	4,908.2	25.3	-21.9	437,294.58	596,543.82	32° 12' 7.466 N	104° 9' 17.457 W
5,096.0	0.40	343.40	5,095.2	25.5	-25.0	437,294.75	596,540.73	32° 12' 7.468 N	104° 9' 17.493 W
5,284.0	0.20	259.60	5,283.2	26.0	-25.5	437,295.32	596,540.22	32° 12' 7.474 N	104° 9' 17.499 W
5,471.0	0.40	267.50	5,470.1	25.9	-26.5	437,295.24	596,539.25	32° 12' 7.473 N	104° 9' 17.510 W
5,658.0	0.20	319.50	5,657.1	26.2	-27.3	437,295.46	596,538.38	32° 12' 7.475 N	104° 9' 17.520 W
5,845.0	0.40	265.00	5,844.1	26.3	-28.2	437,295.65	596,537.52	32° 12' 7.477 N	104° 9' 17.530 W
6,033.0	1.40	231.60	6,032.1	24.9	-30.6	437,294.16	596,535.07	32° 12' 7.462 N	104° 9' 17.559 W
6,221.0	1.90	235.60	6,220.0	21.7	-35.0	437,290.98	596,530.70	32° 12' 7.431 N	104° 9' 17.610 W
6,408.0	0.70	186.30	6,407.0	18.8	-37.7	437,288.09	596,528.01	32° 12' 7.402 N	104° 9' 17.641 W
6,595.0	1.60	155.50	6,594.0	15.3	-36.7	437,284.58	596,528.97	32° 12' 7.368 N	104° 9' 17.630 W
6,781.0	1.80	163.80	6,779.9	10.1	-34.8	437,279.41	596,530.86	32° 12' 7.316 N	104° 9' 17.608 W
6,967.0	0.70	156.20	6,965.8	6.3	-33.6	437,275.57	596,532.14	32° 12' 7.278 N	104° 9' 17.593 W
7,154.0	0.50	131.80	7,152.8	4.7	-32.5	437,273.98	596,533.21	32° 12' 7.263 N	104° 9' 17.581 W
7,342.0	0.70	46.30	7,340.8	4.9	-31.1	437,274.22	596,534.65	32° 12' 7.265 N	104° 9' 17.564 W
7,529.0	0.50	27.20	7,527.8	6.4	-29.9	437,275.74	596,535.85	32° 12' 7.280 N	104° 9' 17.550 W
7,669.0	0.40	316.50	7,667.8	7.3	-29.9	437,276.64	596,535.79	32° 12' 7.289 N	104° 9' 17.551 W
7,707.0	0.90	340.80	7,705.8	7.7	-30.1	437,277.01	596,535.60	32° 12' 7.293 N	104° 9' 17.553 W



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Site:	Macanudo BTE State Com	MD Reference:	WELL @ 3192.5usft (Nomac 22 - KB=21.5)
Well:	#1H	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)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
7,719.0	2.17	349.47	7,717.8	8.0	-30.2	437,277.33	596,535.53	32° 12' 7.296 N	104° 9' 17.554 W
KOP: 7719.0' MD, 7717.8' TVD									
7,738.0	4.20	352.40	7,736.8	9.1	-30.3	437,278.37	596,535.37	32° 12' 7.306 N	104° 9' 17.556 W
7,770.0	9.10	350.40	7,768.5	12.7	-30.9	437,282.03	596,534.79	32° 12' 7.342 N	104° 9' 17.562 W
7,801.0	12.70	350.30	7,799.0	18.5	-31.9	437,287.81	596,533.81	32° 12' 7.399 N	104° 9' 17.574 W
7,832.0	15.00	348.10	7,829.1	25.8	-33.3	437,295.09	596,532.41	32° 12' 7.471 N	104° 9' 17.590 W
7,863.0	16.00	347.60	7,858.9	33.9	-35.0	437,303.19	596,530.66	32° 12' 7.552 N	104° 9' 17.610 W
7,895.0	18.30	351.00	7,889.5	43.2	-36.8	437,312.46	596,528.93	32° 12' 7.643 N	104° 9' 17.630 W
7,926.0	21.10	354.10	7,918.7	53.5	-38.1	437,322.82	596,527.59	32° 12' 7.746 N	104° 9' 17.645 W
7,957.0	23.20	358.00	7,947.4	65.2	-38.9	437,334.48	596,526.81	32° 12' 7.861 N	104° 9' 17.654 W
7,988.0	25.00	1.70	7,975.7	77.8	-38.9	437,347.13	596,526.79	32° 12' 7.987 N	104° 9' 17.654 W
8,019.0	27.80	1.50	8,003.5	91.6	-38.5	437,360.90	596,527.17	32° 12' 8.123 N	104° 9' 17.649 W
8,051.0	30.80	0.30	8,031.4	107.3	-38.3	437,376.56	596,527.41	32° 12' 8.278 N	104° 9' 17.646 W
8,082.0	33.40	0.50	8,057.6	123.7	-38.2	437,393.03	596,527.53	32° 12' 8.441 N	104° 9' 17.645 W
8,113.0	35.50	1.20	8,083.2	141.3	-37.9	437,410.56	596,527.79	32° 12' 8.614 N	104° 9' 17.641 W
8,144.0	37.70	359.80	8,108.1	159.7	-37.8	437,429.04	596,527.94	32° 12' 8.797 N	104° 9' 17.639 W
8,175.0	40.50	358.70	8,132.1	179.3	-38.0	437,448.59	596,527.68	32° 12' 8.991 N	104° 9' 17.642 W
8,206.0	44.50	358.20	8,155.0	200.2	-38.6	437,469.52	596,527.11	32° 12' 9.198 N	104° 9' 17.648 W
8,237.0	48.70	358.00	8,176.3	222.7	-39.3	437,492.03	596,526.37	32° 12' 9.420 N	104° 9' 17.656 W
8,269.0	53.10	358.70	8,196.5	247.5	-40.0	437,516.85	596,525.66	32° 12' 9.666 N	104° 9' 17.664 W
8,301.0	57.20	0.30	8,214.7	273.8	-40.3	437,543.10	596,525.44	32° 12' 9.926 N	104° 9' 17.666 W
8,332.0	60.00	2.40	8,230.9	300.2	-39.6	437,569.55	596,526.07	32° 12' 10.188 N	104° 9' 17.658 W
8,363.0	62.30	3.40	8,245.9	327.4	-38.3	437,596.66	596,527.44	32° 12' 10.456 N	104° 9' 17.642 W
8,394.0	64.90	4.00	8,259.6	355.1	-36.5	437,624.37	596,529.24	32° 12' 10.730 N	104° 9' 17.620 W
8,425.0	68.30	3.60	8,271.9	383.5	-34.6	437,652.75	596,531.12	32° 12' 11.011 N	104° 9' 17.598 W
8,457.0	71.60	3.10	8,282.9	413.5	-32.8	437,682.76	596,532.87	32° 12' 11.308 N	104° 9' 17.577 W
8,489.0	75.10	2.60	8,292.1	444.1	-31.3	437,713.37	596,534.40	32° 12' 11.611 N	104° 9' 17.559 W
8,516.0	77.60	1.50	8,298.5	470.3	-30.4	437,739.59	596,535.33	32° 12' 11.870 N	104° 9' 17.547 W
8,548.0	80.10	1.90	8,304.6	501.7	-29.4	437,770.97	596,536.27	32° 12' 12.181 N	104° 9' 17.536 W
8,580.0	81.60	2.40	8,309.7	533.2	-28.3	437,802.54	596,537.45	32° 12' 12.493 N	104° 9' 17.521 W
8,611.0	83.60	2.90	8,313.7	563.9	-26.8	437,833.25	596,538.87	32° 12' 12.797 N	104° 9' 17.504 W
8,642.0	85.20	3.30	8,316.7	594.8	-25.2	437,864.05	596,540.54	32° 12' 13.102 N	104° 9' 17.484 W
8,662.2	86.18	3.30	8,318.3	614.9	-24.0	437,884.16	596,541.70	32° 12' 13.301 N	104° 9' 17.470 W
Cross 330' Hardline: 8662.2' MD, 8318.3' TVD, 86.18° INC									
8,673.0	86.70	3.30	8,318.9	625.6	-23.4	437,894.92	596,542.32	32° 12' 13.407 N	104° 9' 17.463 W
8,766.0	88.90	2.70	8,322.5	718.4	-18.5	437,987.72	596,547.18	32° 12' 14.326 N	104° 9' 17.404 W
8,834.0	89.62	2.34	8,323.4	786.3	-15.5	438,055.65	596,550.18	32° 12' 14.998 N	104° 9' 17.368 W
EOC: 8834.0' MD, 8323.4' TVD, 89.62° INC, 2.34° AZ, 786.5' VS									
8,861.0	89.90	2.20	8,323.5	813.3	-14.5	438,082.63	596,551.25	32° 12' 15.265 N	104° 9' 17.355 W
8,954.0	89.60	2.00	8,323.9	906.3	-11.1	438,175.56	596,554.65	32° 12' 16.184 N	104° 9' 17.314 W
9,049.0	90.60	1.20	8,323.7	1,001.2	-8.4	438,270.52	596,557.31	32° 12' 17.124 N	104° 9' 17.281 W
9,142.0	90.80	1.50	8,322.6	1,094.2	-6.2	438,363.49	596,559.50	32° 12' 18.044 N	104° 9' 17.254 W
9,212.0	91.70	0.60	8,321.1	1,164.2	-4.9	438,433.46	596,560.78	32° 12' 18.736 N	104° 9' 17.238 W
9,243.0	92.00	0.50	8,320.1	1,195.1	-4.6	438,464.44	596,561.08	32° 12' 19.043 N	104° 9' 17.233 W
9,336.0	93.30	0.30	8,315.8	1,288.0	-4.0	438,557.34	596,561.73	32° 12' 19.962 N	104° 9' 17.224 W
9,430.0	93.30	0.50	8,310.4	1,381.9	-3.3	438,651.18	596,562.38	32° 12' 20.891 N	104° 9' 17.215 W
9,523.0	92.70	1.50	8,305.5	1,474.7	-1.7	438,744.04	596,564.00	32° 12' 21.810 N	104° 9' 17.194 W
9,617.0	93.10	1.20	8,300.7	1,568.6	0.5	438,837.89	596,566.21	32° 12' 22.739 N	104° 9' 17.166 W
9,710.0	91.70	0.60	8,296.8	1,661.5	2.0	438,930.80	596,567.67	32° 12' 23.658 N	104° 9' 17.148 W
9,803.0	91.80	1.50	8,294.0	1,754.4	3.7	439,023.74	596,569.38	32° 12' 24.578 N	104° 9' 17.126 W
9,896.0	91.10	1.70	8,291.7	1,847.4	6.3	439,116.67	596,571.97	32° 12' 25.497 N	104° 9' 17.094 W
9,990.0	91.30	1.00	8,289.7	1,941.3	8.5	439,210.62	596,574.19	32° 12' 26.427 N	104° 9' 17.066 W
10,083.0	92.00	359.40	8,287.0	2,034.3	8.8	439,303.58	596,574.51	32° 12' 27.347 N	104° 9' 17.061 W
10,176.0	91.50	358.70	8,284.2	2,127.2	7.3	439,396.52	596,572.97	32° 12' 28.267 N	104° 9' 17.077 W
10,270.0	91.30	359.40	8,281.9	2,221.2	5.7	439,490.48	596,571.41	32° 12' 29.197 N	104° 9' 17.093 W



Survey Report - Geographic

Company:	Yates Petroleum	Local Co-ordinate Reference:	Well #1H
Project:	Eddy, NM (NAD-83)	TVD Reference:	WELL @ 3192.5usft (Nomac 22 - KB=21.5)
Site:	Macanudo BTE State Com	MD Reference:	WELL @ 3192.5usft (Nomac 22 - KB=21.5)
Well:	#1H	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
10,364.0	90.60	358.70	8,280.3	2,315.2	4.1	439,584.45	596,569.85	32° 12' 30.127 N	104° 9' 17.110 W
10,457.0	90.40	359.20	8,279.5	2,408.1	2.4	439,677.43	596,568.15	32° 12' 31.047 N	104° 9' 17.128 W
10,550.0	90.30	359.00	8,278.9	2,501.1	1.0	439,770.42	596,566.69	32° 12' 31.967 N	104° 9' 17.143 W
10,643.0	90.40	359.40	8,278.4	2,594.1	-0.3	439,863.41	596,565.39	32° 12' 32.887 N	104° 9' 17.156 W
10,737.0	89.70	358.00	8,278.3	2,688.1	-2.4	439,957.38	596,563.26	32° 12' 33.817 N	104° 9' 17.179 W
10,830.0	89.60	358.50	8,278.9	2,781.0	-5.3	440,050.34	596,560.42	32° 12' 34.737 N	104° 9' 17.210 W
10,923.0	89.60	357.80	8,279.5	2,874.0	-8.3	440,143.29	596,557.41	32° 12' 35.657 N	104° 9' 17.244 W
11,016.0	90.40	357.10	8,279.5	2,966.9	-12.4	440,236.19	596,553.28	32° 12' 36.576 N	104° 9' 17.290 W
11,109.0	90.60	357.50	8,278.7	3,059.8	-16.8	440,329.09	596,548.90	32° 12' 37.496 N	104° 9' 17.339 W
11,203.0	91.70	357.50	8,276.8	3,153.7	-20.9	440,422.98	596,544.80	32° 12' 38.425 N	104° 9' 17.385 W
11,297.0	92.20	357.50	8,273.6	3,247.5	-25.0	440,516.83	596,540.70	32° 12' 39.354 N	104° 9' 17.431 W
11,390.0	91.00	358.70	8,271.0	3,340.4	-28.1	440,609.74	596,537.62	32° 12' 40.273 N	104° 9' 17.465 W
11,485.0	91.10	358.70	8,269.3	3,435.4	-30.2	440,704.70	596,535.46	32° 12' 41.213 N	104° 9' 17.488 W
11,578.0	90.40	358.90	8,268.0	3,528.4	-32.2	440,797.67	596,533.51	32° 12' 42.133 N	104° 9' 17.509 W
11,672.0	90.40	358.30	8,267.4	3,622.3	-34.5	440,891.64	596,531.22	32° 12' 43.063 N	104° 9' 17.534 W
11,766.0	92.00	359.00	8,265.4	3,716.3	-36.7	440,985.59	596,529.00	32° 12' 43.993 N	104° 9' 17.558 W
11,859.0	91.50	0.30	8,262.6	3,809.2	-37.3	441,078.54	596,528.44	32° 12' 44.913 N	104° 9' 17.563 W
11,952.0	91.10	0.30	8,260.5	3,902.2	-36.8	441,171.52	596,528.92	32° 12' 45.833 N	104° 9' 17.555 W
12,046.0	91.30	0.50	8,258.5	3,996.2	-36.1	441,265.50	596,529.58	32° 12' 46.763 N	104° 9' 17.546 W
12,140.0	91.50	0.80	8,256.2	4,090.2	-35.1	441,359.46	596,530.65	32° 12' 47.693 N	104° 9' 17.532 W
12,233.0	91.30	0.80	8,253.9	4,183.1	-33.8	441,452.42	596,531.94	32° 12' 48.613 N	104° 9' 17.515 W
12,328.0	90.30	0.30	8,252.6	4,278.1	-32.8	441,547.41	596,532.86	32° 12' 49.553 N	104° 9' 17.502 W
12,422.0	89.70	359.00	8,252.6	4,372.1	-33.4	441,641.40	596,532.28	32° 12' 50.483 N	104° 9' 17.507 W
12,516.0	90.40	359.40	8,252.5	4,466.1	-34.7	441,735.39	596,530.97	32° 12' 51.413 N	104° 9' 17.521 W
12,609.0	90.80	359.00	8,251.6	4,559.1	-36.0	441,828.38	596,529.67	32° 12' 52.333 N	104° 9' 17.534 W
12,703.0	90.60	359.40	8,250.4	4,653.1	-37.3	441,922.36	596,528.36	32° 12' 53.263 N	104° 9' 17.547 W
12,796.0	91.50	359.20	8,248.7	4,746.0	-38.5	442,015.34	596,527.22	32° 12' 54.183 N	104° 9' 17.559 W
12,889.0	91.50	359.80	8,246.3	4,839.0	-39.3	442,108.30	596,526.41	32° 12' 55.103 N	104° 9' 17.567 W
12,982.0	91.10	0.10	8,244.2	4,932.0	-39.4	442,201.28	596,526.33	32° 12' 56.023 N	104° 9' 17.566 W
13,076.0	91.50	358.50	8,242.0	5,025.9	-40.5	442,295.25	596,525.18	32° 12' 56.953 N	104° 9' 17.577 W
13,169.0	91.70	358.70	8,239.4	5,118.9	-42.8	442,388.18	596,522.91	32° 12' 57.873 N	104° 9' 17.602 W
13,262.0	92.20	358.50	8,236.3	5,211.8	-45.1	442,481.10	596,520.64	32° 12' 58.793 N	104° 9' 17.627 W
13,356.0	92.20	358.70	8,232.7	5,305.7	-47.4	442,575.00	596,518.34	32° 12' 59.722 N	104° 9' 17.651 W
13,449.0	92.20	359.20	8,229.1	5,398.6	-49.1	442,667.92	596,516.64	32° 13' 0.641 N	104° 9' 17.669 W
13,542.0	91.00	358.70	8,226.5	5,491.6	-50.8	442,760.86	596,514.94	32° 13' 1.561 N	104° 9' 17.687 W
13,636.0	91.10	358.70	8,224.8	5,585.5	-52.9	442,854.82	596,512.81	32° 13' 2.491 N	104° 9' 17.710 W
13,732.0	91.00	358.50	8,223.0	5,681.5	-55.2	442,950.78	596,510.46	32° 13' 3.441 N	104° 9' 17.736 W
13,825.0	91.00	358.20	8,221.4	5,774.4	-57.9	443,043.73	596,507.78	32° 13' 4.361 N	104° 9' 17.765 W
13,920.0	90.80	358.20	8,219.9	5,869.4	-60.9	443,138.67	596,504.80	32° 13' 5.300 N	104° 9' 17.798 W
14,014.0	91.50	358.30	8,218.0	5,963.3	-63.8	443,232.60	596,501.93	32° 13' 6.230 N	104° 9' 17.830 W
14,107.0	90.40	358.90	8,216.5	6,056.3	-66.0	443,325.56	596,499.66	32° 13' 7.150 N	104° 9' 17.854 W
14,200.0	90.80	359.00	8,215.5	6,149.2	-67.7	443,418.54	596,497.95	32° 13' 8.070 N	104° 9' 17.872 W
14,294.0	89.20	359.80	8,215.5	6,243.2	-68.7	443,512.53	596,496.97	32° 13' 9.000 N	104° 9' 17.882 W
14,387.0	89.00	359.40	8,216.9	6,336.2	-69.4	443,605.52	596,496.32	32° 13' 9.920 N	104° 9' 17.888 W
14,481.0	89.40	359.80	8,218.3	6,430.2	-70.0	443,699.51	596,495.66	32° 13' 10.850 N	104° 9' 17.894 W
14,574.0	90.30	359.00	8,218.5	6,523.2	-71.0	443,792.50	596,494.69	32° 13' 11.771 N	104° 9' 17.903 W
14,668.0	90.60	359.00	8,217.8	6,617.2	-72.7	443,886.48	596,493.05	32° 13' 12.701 N	104° 9' 17.921 W
14,761.0	91.00	358.70	8,216.5	6,710.2	-74.5	443,979.45	596,491.18	32° 13' 13.621 N	104° 9' 17.940 W
14,854.0	91.50	359.20	8,214.4	6,803.1	-76.2	444,072.42	596,489.48	32° 13' 14.541 N	104° 9' 17.959 W
14,948.0	90.60	359.40	8,212.7	6,897.1	-77.4	444,166.39	596,488.33	32° 13' 15.471 N	104° 9' 17.970 W
15,042.0	90.60	359.90	8,211.7	6,991.1	-77.9	444,260.38	596,487.76	32° 13' 16.401 N	104° 9' 17.975 W
15,135.0	91.50	0.50	8,210.0	7,084.1	-77.6	444,353.37	596,488.08	32° 13' 17.321 N	104° 9' 17.969 W
15,228.0	90.80	359.90	8,208.2	7,177.0	-77.3	444,446.35	596,488.41	32° 13' 18.241 N	104° 9' 17.964 W
15,321.0	91.70	0.10	8,206.1	7,270.0	-77.3	444,539.32	596,488.41	32° 13' 19.161 N	104° 9' 17.962 W
15,415.0	90.10	359.60	8,204.7	7,364.0	-77.5	444,633.31	596,488.16	32° 13' 20.091 N	104° 9' 17.963 W



Survey Report - Geographic

Company:	Yates Petroleum	Local Co-ordinate Reference:	Well #1H
Project:	Eddy, NM (NAD-83)	TVD Reference:	WELL @ 3192.5usft (Nomac 22 - KB=21.5)
Site:	Macanudo BTE State Com	MD Reference:	WELL @ 3192.5usft (Nomac 22 - KB=21.5)
Well:	#1H	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
15,508.0	90.60	359.80	8,204.1	7,457.0	-78.0	444,726.30	596,487.67	32° 13' 21.012 N	104° 9' 17.967 W
15,601.0	90.80	359.80	8,203.0	7,550.0	-78.4	444,819.30	596,487.35	32° 13' 21.932 N	104° 9' 17.969 W
15,694.0	91.00	359.60	8,201.5	7,643.0	-78.8	444,912.28	596,486.86	32° 13' 22.852 N	104° 9' 17.973 W
15,788.0	91.10	359.40	8,199.8	7,737.0	-79.7	445,006.27	596,486.04	32° 13' 23.782 N	104° 9' 17.980 W
15,881.0	91.50	359.60	8,197.7	7,829.9	-80.5	445,099.24	596,485.23	32° 13' 24.702 N	104° 9' 17.988 W
15,974.0	91.10	359.20	8,195.5	7,922.9	-81.4	445,192.21	596,484.26	32° 13' 25.622 N	104° 9' 17.998 W
16,002.0	91.10	359.20	8,195.0	7,950.9	-81.8	445,220.20	596,483.87	32° 13' 25.899 N	104° 9' 18.002 W
Final MWD Survey: 16002.0' MD, 8195.0' TVD									
16,054.7	91.10	359.20	8,194.0	8,003.6	-82.6	445,272.92	596,483.13	32° 13' 26.421 N	104° 9' 18.009 W
PBHL(MSC#1H)									
16,056.9	91.10	359.20	8,194.0	8,005.8	-82.6	445,275.08	596,483.10	32° 13' 26.443 N	104° 9' 18.010 W
BHL: 16056.9' MD, 8194.0' TVD, 91.10° INC, 359.20° AZ, 8005.8' +N-S, -82.6' +E-W, 8006.2' VS - PBHL_NEW(MSC#1H)									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N-S (usft)	+E-W (usft)	
7,719.0	7,717.8	8.0	-30.2	KOP: 7719.0' MD, 7717.8' TVD
8,662.2	8,318.3	614.9	-24.0	Cross 330° Hardline: 8662.2' MD, 8318.3' TVD, 86.18° INC
8,834.0	8,323.4	786.3	-15.5	EOC: 8834.0' MD, 8323.4' TVD, 89.62° INC, 2.34° AZ, 786.5' VS
16,002.0	8,195.0	7,950.9	-81.8	Final MWD Survey: 16002.0' MD, 8195.0' TVD
16,056.9	8,194.0	8,005.8	-82.6	BHL: 16056.9' MD, 8194.0' TVD, 91.10° INC, 359.20° AZ, 8005.8' +N-S, -82.6°

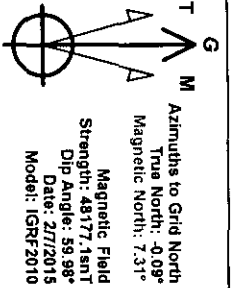
Checked By: _____	Approved By: _____	Date: _____
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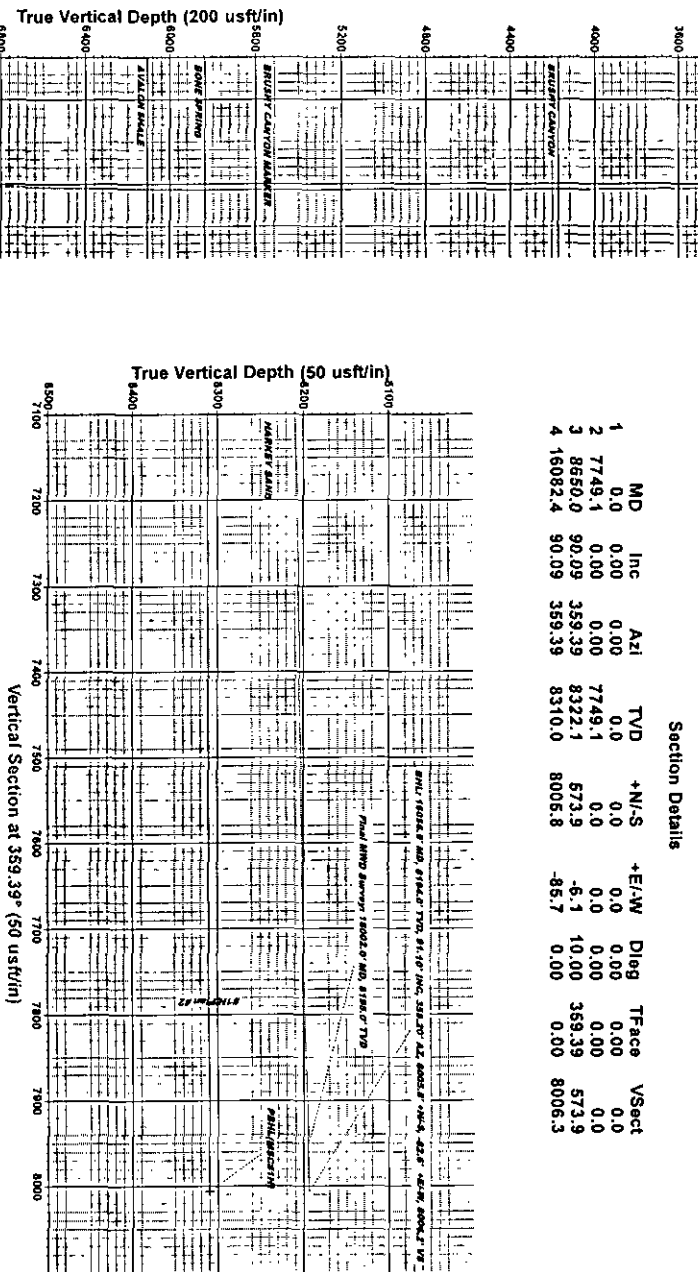
Yates Petroleum
Project: Eddy, NM (NAD-83)
Site: Macanudo BTE State Com
Well: #1H
Wellbore: OH
Plan: Plan #2 (#1H/OH)

WELL DETAILS: #1H

Ground Elevation: 3171.0
RKB Elevation: 3192.5usft (Nomac 22 - KB=21.6)
Rig Name: Nomac 22 - KB=21.5
Surface Hole Location
Northing 437269.30
Easting 596565.70
Latitude 32° 12' 7.216 N
Longitude 104° 9' 17.203 W

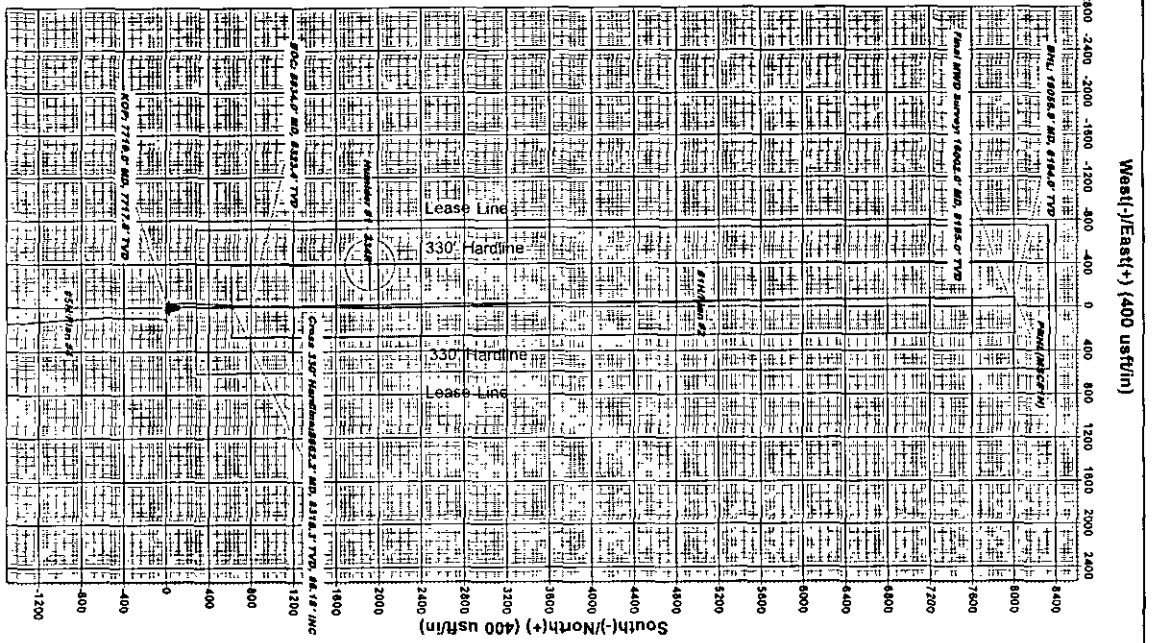


Section Details									
MD	Inc	Azi	TVD	+N.S	+E/W	Dlog	Tface	VSect	
1	0.0	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	7749.1	0.00	7749.1	0.0	0.0	0.00	0.00	0.0	
3	8650.0	90.09	359.39	8322.1	-6.1	10.00	359.39	573.9	
4	16082.4	90.09	359.39	8310.0	-85.7	0.00	0.00	8006.3	



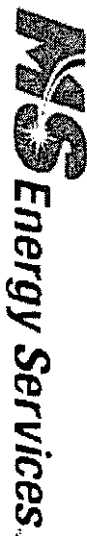
PROJECT DETAILS: Eddy, NM (NAD-83)
Geoidic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
System Zone: New Mexico Eastern Zone
Local North: Grid

DESIGN TARGET DETAILS			
Name	+N.S	+E/W	Heading
Humidor 43H	0.5	18.8	437269.40
Humidor 43H	0.5	18.8	437269.40
Humidor 43H	0.5	18.8	437269.40
Humidor 43H	0.5	18.8	437269.40
Humidor 43H	0.5	18.8	437269.40
Humidor 43H	0.5	18.8	437269.40
Humidor 43H	0.5	18.8	437269.40
Humidor 43H	0.5	18.8	437269.40
Humidor 43H	0.5	18.8	437269.40
Humidor 43H	0.5	18.8	437269.40



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

Plan: Plan #2 (#1H/OH)
Created By: Adrian Castro Date: 7:37 March 20 2015



Job Number: SVMO-160187
 Company: Yates Petroleum Corporation
 Lease/Well: Macanudo BTE State Com 001H
 Location: Eddy County, NM
 Rig Name: Normac #22
 RKB: 21.5'
 G.L. or M.S.L.: GL

State/Country: New Mexico/USA
 Declination: 7.31°
 Grid: East To Grid North
 File name: S:\2015SU-11VATESP-11MOIMACANU-11001H.SVY
 Date/Time: 05-Mar-15 / 16:24
 Curve Name: Surface - 750' M.D. (Rate Gyro)

MS SURVEY

WINSERVE SURVEY CALCULATIONS

Minimum Curvature Method

Vertical Section Plane .00

Vertical Section Referenced to Wellhead

Rectangular Coordinates Referenced to Wellhead

We hereby certify that our survey data from
 Surface MD to 150' MD is, to the best of
 our knowledge a true and accurate account of
 the well bore.
 Shawn Cooper 3/5/15
 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	Distance FT	CLOSURE Direction Deg	Dogleg Severity Deg/100
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
100.00	1.02		356.48	.89	-.05	.89	.89	356.48	1.02
200.00	.98		354.45	2.63	-.19	2.63	2.63	355.82	.05
300.00	.53		324.72	3.86	-.54	3.86	3.89	352.00	.58
400.00	.34		303.20	4.40	-1.06	4.40	4.52	346.48	.25
500.00	.32		266.53	4.54	-1.58	4.54	4.81	340.77	.21
600.00	.30		207.50	4.29	-1.98	4.29	4.73	335.20	.31
700.00	.21		226.85	3.94	-2.24	3.94	4.53	330.37	.12
Last Survey Depth Recorded									
750.00	.26		212.54	3.78	-2.37	3.78	4.46	327.93	.15