

30-015-40963

NM OIL CONSERVATION
ARTESIA DISTRICT
JUL 31 2014

RECEIVED

Yates Petroleum

Eddy, NM (NAD-83)
Haracz "Amo" Federal
#10H

OH

Design: OH

Survey Report - Geographic

05 May, 2014

Survey Report - Geographic

Company:	Yates Petroleum	Local Co-ordinate Reference:	Well #10H
Project:	Eddy, NM (NAD-83)	TVD Reference:	RKB @ 3596.5usft (Nomac 22 KB=21.5')
Site:	Haracz "Amo" Federal	MD Reference:	RKB @ 3596.5usft (Nomac 22 KB=21.5')
Well:	#10H	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	Haracz "Amo" Federal		
Site Position:	From:	Map	
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Northings:	440,509.80 usft
		Easting:	729,457.00 usft
		Latitude:	32° 12' 34.471 N
		Longitude:	103° 43' 30.325 W
		Grid Convergence:	0.32 °

Well	#10H		
Well Position	+N/-S	0.0 usft	Northings:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft
		Latitude:	32° 12' 34.471 N
		Longitude:	103° 43' 30.325 W
		Ground Level:	3,575.0 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
	IGRF2010	3/20/2014	7.32
			Dip Angle
			60.08
			Field Strength
			48,314

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
			179.65

Survey Program	Date 5/5/2014		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
200.0	4,600.0	Survey #1 - Gyro (OH)	Good_gyro
4,659.0	15,235.1	Survey #2 - Crescent MWD Surveys (OH)	MWD
			Description
			Good Gyro
			MWD - Standard

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	440,509.80	729,457.00	32° 12' 34.471 N	103° 43' 30.325 W	
200.0	0.82	265.99	200.0	-0.1	-1.4	440,509.70	729,455.57	32° 12' 34.470 N	103° 43' 30.342 W	
400.0	0.65	278.59	400.0	0.0	-4.0	440,509.77	729,453.02	32° 12' 34.471 N	103° 43' 30.371 W	
600.0	0.60	275.26	600.0	0.2	-6.1	440,510.03	729,450.85	32° 12' 34.473 N	103° 43' 30.396 W	
800.0	0.96	209.09	799.9	-1.1	-8.0	440,508.67	729,449.00	32° 12' 34.460 N	103° 43' 30.418 W	
1,000.0	0.76	217.27	999.9	-3.7	-9.6	440,506.15	729,447.38	32° 12' 34.435 N	103° 43' 30.437 W	
1,200.0	0.59	215.69	1,199.9	-5.5	-11.0	440,504.25	729,445.98	32° 12' 34.416 N	103° 43' 30.454 W	
1,400.0	0.40	220.25	1,399.9	-6.9	-12.1	440,502.89	729,444.92	32° 12' 34.403 N	103° 43' 30.466 W	
1,600.0	0.29	283.02	1,599.9	-7.3	-13.0	440,502.47	729,443.98	32° 12' 34.399 N	103° 43' 30.477 W	
1,800.0	0.67	328.56	1,799.9	-6.2	-14.1	440,503.58	729,442.88	32° 12' 34.410 N	103° 43' 30.490 W	
2,000.0	1.03	343.49	1,999.9	-3.5	-15.2	440,506.30	729,441.76	32° 12' 34.437 N	103° 43' 30.503 W	

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Company:	Yates Petroleum	Local Co-ordinate Reference:	Well #10H
Project:	Eddy NM.(NAD-83)	TVD Reference:	RKB @ 3596.5usft (Nomac 22 KB=21.5')
Site:	Haracz "Amo" Federal	MD Reference:	RKB @ 3596.5usft (Nomac 22 KB=21.5')
Well:	#10H	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
2,200.0	1.30	3.32	2,199.8	0.5	-15.6	440,510.29	729,441.38	32° 12' 34.476 N	103° 43' 30.507 W
2,400.0	1.45	16.24	2,399.8	5.2	-14.8	440,514.98	729,442.22	32° 12' 34.523 N	103° 43' 30.497 W
2,600.0	1.81	24.59	2,599.7	10.5	-12.8	440,520.28	729,444.24	32° 12' 34.575 N	103° 43' 30.473 W
2,800.0	2.73	45.69	2,799.5	16.7	-8.0	440,526.48	729,448.96	32° 12' 34.636 N	103° 43' 30.417 W
3,000.0	3.65	55.71	2,999.2	23.6	0.6	440,533.40	729,457.63	32° 12' 34.704 N	103° 43' 30.316 W
3,200.0	3.85	59.32	3,198.8	30.6	11.7	440,540.41	729,468.66	32° 12' 34.773 N	103° 43' 30.187 W
3,400.0	1.52	108.77	3,398.6	33.2	20.0	440,542.98	729,476.95	32° 12' 34.798 N	103° 43' 30.090 W
3,600.0	1.01	99.35	3,598.5	32.0	24.2	440,541.84	729,481.20	32° 12' 34.786 N	103° 43' 30.041 W
3,800.0	1.07	110.26	3,798.5	31.1	27.7	440,540.91	729,484.69	32° 12' 34.777 N	103° 43' 30.000 W
4,000.0	1.62	138.97	3,998.5	28.3	31.3	440,538.13	729,488.30	32° 12' 34.749 N	103° 43' 29.959 W
4,200.0	1.50	177.77	4,198.4	23.6	33.3	440,533.38	729,490.26	32° 12' 34.702 N	103° 43' 29.936 W
4,400.0	1.16	196.01	4,398.3	19.0	32.8	440,528.82	729,489.80	32° 12' 34.657 N	103° 43' 29.942 W
4,600.0	1.39	202.94	4,598.3	14.8	31.3	440,524.64	729,488.30	32° 12' 34.616 N	103° 43' 29.960 W
4,659.0	1.40	206.20	4,657.3	13.5	30.7	440,523.34	729,487.70	32° 12' 34.603 N	103° 43' 29.967 W
4,722.0	1.40	208.40	4,720.2	12.2	30.0	440,521.97	729,486.99	32° 12' 34.589 N	103° 43' 29.975 W
4,909.0	1.60	207.40	4,907.2	7.8	27.7	440,517.64	729,484.71	32° 12' 34.547 N	103° 43' 30.002 W
5,098.0	0.90	222.50	5,096.1	4.4	25.5	440,514.20	729,482.49	32° 12' 34.513 N	103° 43' 30.028 W
5,285.0	0.90	220.60	5,283.1	2.2	23.5	440,512.01	729,480.54	32° 12' 34.491 N	103° 43' 30.051 W
5,472.0	0.90	226.50	5,470.1	0.1	21.5	440,509.88	729,478.52	32° 12' 34.470 N	103° 43' 30.074 W
5,659.0	1.10	222.80	5,657.1	-2.2	19.2	440,507.55	729,476.24	32° 12' 34.447 N	103° 43' 30.101 W
5,847.0	1.10	235.20	5,845.0	-4.6	16.5	440,505.20	729,473.53	32° 12' 34.424 N	103° 43' 30.133 W
6,034.0	1.20	237.80	6,032.0	-6.7	13.4	440,503.13	729,470.40	32° 12' 34.404 N	103° 43' 30.169 W
6,220.0	1.10	228.80	6,218.0	-8.9	10.4	440,500.92	729,467.41	32° 12' 34.382 N	103° 43' 30.204 W
6,406.0	1.40	227.90	6,403.9	-11.6	7.4	440,498.22	729,464.38	32° 12' 34.356 N	103° 43' 30.240 W
6,594.0	0.70	254.30	6,591.9	-13.4	4.6	440,496.37	729,461.57	32° 12' 34.338 N	103° 43' 30.273 W
6,780.0	0.70	275.60	6,777.9	-13.6	2.3	440,496.17	729,459.34	32° 12' 34.336 N	103° 43' 30.298 W
6,967.0	0.70	251.30	6,964.8	-13.9	0.1	440,495.91	729,457.12	32° 12' 34.333 N	103° 43' 30.324 W
7,154.0	0.70	290.90	7,151.8	-13.8	-2.0	440,495.96	729,454.97	32° 12' 34.334 N	103° 43' 30.349 W
7,341.0	1.10	287.90	7,338.8	-12.9	-4.8	440,496.92	729,452.20	32° 12' 34.343 N	103° 43' 30.382 W
7,528.0	1.10	278.20	7,525.8	-12.1	-8.3	440,497.72	729,448.71	32° 12' 34.352 N	103° 43' 30.422 W
7,714.0	0.90	293.00	7,711.7	-11.3	-11.4	440,498.55	729,445.60	32° 12' 34.360 N	103° 43' 30.458 W
7,901.0	0.90	276.60	7,898.7	-10.5	-14.2	440,499.29	729,442.79	32° 12' 34.368 N	103° 43' 30.491 W
8,087.0	1.20	267.30	8,084.7	-10.4	-17.6	440,499.37	729,439.40	32° 12' 34.368 N	103° 43' 30.530 W
8,274.0	1.20	280.30	8,271.7	-10.2	-21.5	440,499.63	729,435.51	32° 12' 34.371 N	103° 43' 30.576 W
8,461.0	0.90	271.40	8,458.6	-9.8	-24.9	440,500.01	729,432.12	32° 12' 34.375 N	103° 43' 30.615 W
8,648.0	0.40	276.80	8,645.6	-9.7	-27.0	440,500.12	729,430.00	32° 12' 34.376 N	103° 43' 30.640 W
8,834.0	0.90	223.60	8,831.6	-10.7	-28.6	440,499.14	729,428.35	32° 12' 34.367 N	103° 43' 30.659 W
9,021.0	0.90	331.70	9,018.6	-10.4	-30.4	440,499.37	729,426.64	32° 12' 34.369 N	103° 43' 30.679 W
9,208.0	1.40	333.80	9,205.5	-7.1	-32.1	440,502.72	729,424.94	32° 12' 34.402 N	103° 43' 30.699 W
9,395.0	0.50	280.90	9,392.5	-4.9	-33.9	440,504.92	729,423.13	32° 12' 34.424 N	103° 43' 30.719 W
9,582.0	0.20	248.30	9,579.5	-4.8	-35.0	440,504.95	729,422.02	32° 12' 34.425 N	103° 43' 30.732 W
9,768.0	0.50	217.40	9,765.5	-5.6	-35.8	440,504.19	729,421.23	32° 12' 34.417 N	103° 43' 30.742 W
9,955.0	0.40	207.90	9,952.5	-6.8	-36.6	440,502.96	729,420.43	32° 12' 34.405 N	103° 43' 30.751 W
10,049.0	0.20	204.90	10,046.5	-7.3	-36.8	440,502.52	729,420.20	32° 12' 34.401 N	103° 43' 30.754 W
10,098.0	1.20	176.30	10,095.5	-7.9	-36.8	440,501.94	729,420.20	32° 12' 34.395 N	103° 43' 30.754 W
KOP: 10098.0' MD, 10095.5' TVD									
10,129.0	4.40	181.70	10,126.5	-9.4	-36.8	440,500.42	729,420.19	32° 12' 34.380 N	103° 43' 30.754 W
10,160.0	8.10	183.30	10,157.3	-12.7	-37.0	440,497.05	729,420.02	32° 12' 34.347 N	103° 43' 30.756 W
10,191.0	11.40	182.10	10,187.8	-18.0	-37.2	440,491.81	729,419.79	32° 12' 34.295 N	103° 43' 30.759 W
10,222.0	14.90	181.00	10,218.0	-25.0	-37.4	440,484.76	729,419.60	32° 12' 34.225 N	103° 43' 30.762 W
10,253.0	18.60	180.10	10,247.7	-34.0	-37.5	440,475.83	729,419.53	32° 12' 34.137 N	103° 43' 30.763 W
10,285.0	22.20	180.30	10,277.7	-45.1	-37.5	440,464.68	729,419.49	32° 12' 34.026 N	103° 43' 30.764 W
10,315.0	25.70	180.50	10,305.1	-57.3	-37.6	440,452.50	729,419.40	32° 12' 33.906 N	103° 43' 30.766 W
10,347.0	28.80	180.70	10,333.5	-71.9	-37.8	440,437.85	729,419.24	32° 12' 33.761 N	103° 43' 30.769 W
10,378.0	31.70	180.50	10,360.3	-87.6	-37.9	440,422.24	729,419.08	32° 12' 33.606 N	103° 43' 30.772 W

Survey Report - Geographic

Company:	Yates Petroleum	Local Co-ordinate Reference:	Well #10H
Project:	Eddy, NM (NAD-83)	TVD Reference:	RKB @ 3596.5usft (Nomac 22 KB=21.5)
Site:	Haracz "Amd" Federal	MD Reference:	RKB @ 3596.5usft (Nomac 22 KB=21.5)
Well:	#10H	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	
10,409.0	35.00	180.30	10,386.2	-104.6	-38.0	440,405.20	729,418.96	32° 12' 33.438 N	103° 43' 30.774 W	
10,440.0	38.90	180.70	10,411.0	-123.2	-38.2	440,386.57	729,418.80	32° 12' 33.253 N	103° 43' 30.778 W	
10,452.0	40.02	180.98	10,420.2	-130.9	-38.3	440,378.94	729,418.69	32° 12' 33.178 N	103° 43' 30.779 W	
Cross 330° Hardline at 10452.0' MD, 40.02° INC, 180.98° AZ										
10,471.0	41.80	181.40	10,434.6	-143.3	-38.6	440,366.50	729,418.43	32° 12' 33.055 N	103° 43' 30.783 W	
10,503.0	45.00	181.20	10,457.8	-165.3	-39.1	440,344.52	729,417.93	32° 12' 32.837 N	103° 43' 30.790 W	
10,533.0	49.00	180.70	10,478.3	-187.2	-39.4	440,322.59	729,417.57	32° 12' 32.620 N	103° 43' 30.796 W	
10,565.0	53.20	180.30	10,498.4	-212.1	-39.6	440,297.69	729,417.36	32° 12' 32.374 N	103° 43' 30.800 W	
10,596.0	56.50	180.00	10,516.2	-237.5	-39.7	440,272.35	729,417.29	32° 12' 32.123 N	103° 43' 30.803 W	
10,627.0	59.60	179.60	10,532.6	-263.8	-39.6	440,246.05	729,417.38	32° 12' 31.863 N	103° 43' 30.803 W	
10,658.0	61.20	179.40	10,547.9	-290.7	-39.4	440,219.10	729,417.62	32° 12' 31.596 N	103° 43' 30.802 W	
10,689.0	62.40	179.80	10,562.6	-318.0	-39.2	440,191.78	729,417.81	32° 12' 31.326 N	103° 43' 30.802 W	
10,720.0	65.20	180.50	10,576.3	-345.8	-39.3	440,163.96	729,417.73	32° 12' 31.051 N	103° 43' 30.805 W	
10,751.0	68.10	180.50	10,588.6	-374.3	-39.5	440,135.51	729,417.49	32° 12' 30.769 N	103° 43' 30.809 W	
10,782.0	71.00	180.70	10,599.4	-403.3	-39.8	440,106.47	729,417.18	32° 12' 30.482 N	103° 43' 30.815 W	
10,813.0	74.60	180.10	10,608.6	-432.9	-40.0	440,076.86	729,416.98	32° 12' 30.189 N	103° 43' 30.819 W	
10,845.0	78.00	179.30	10,616.1	-464.0	-39.9	440,045.77	729,417.14	32° 12' 29.881 N	103° 43' 30.819 W	
10,876.0	80.20	178.60	10,622.0	-494.5	-39.3	440,015.34	729,417.70	32° 12' 29.580 N	103° 43' 30.815 W	
10,907.0	82.90	178.60	10,626.6	-525.1	-38.5	439,984.69	729,418.45	32° 12' 29.277 N	103° 43' 30.808 W	
10,939.0	85.30	179.30	10,629.8	-556.9	-38.0	439,952.87	729,419.03	32° 12' 28.962 N	103° 43' 30.803 W	
10,970.0	87.80	180.50	10,631.7	-587.9	-37.9	439,921.93	729,419.08	32° 12' 28.655 N	103° 43' 30.805 W	
11,000.0	89.60	181.70	10,632.4	-617.9	-38.5	439,891.94	729,418.51	32° 12' 28.359 N	103° 43' 30.814 W	
11,032.0	90.30	182.60	10,632.4	-649.8	-39.7	439,859.96	729,417.31	32° 12' 28.042 N	103° 43' 30.830 W	
EOC: 11032.0' MD, 10632.4' TVD, 90.30° INC, 182.60° AZ, 649.6' VS										
11,094.0	91.70	181.40	10,631.3	-711.8	-41.9	439,798.01	729,415.14	32° 12' 27.430 N	103° 43' 30.859 W	
11,187.0	90.80	179.30	10,629.3	-804.8	-42.4	439,705.04	729,414.58	32° 12' 26.510 N	103° 43' 30.872 W	
11,375.0	90.10	178.60	10,627.8	-992.7	-39.0	439,517.08	729,418.02	32° 12' 24.649 N	103° 43' 30.844 W	
11,561.0	90.40	178.20	10,627.0	-1,178.6	-33.8	439,331.16	729,423.22	32° 12' 22.809 N	103° 43' 30.796 W	
11,748.0	90.40	178.60	10,625.7	-1,365.6	-28.6	439,144.24	729,428.44	32° 12' 20.959 N	103° 43' 30.747 W	
11,934.0	89.40	178.60	10,626.0	-1,551.5	-24.0	438,958.29	729,432.98	32° 12' 19.119 N	103° 43' 30.707 W	
12,121.0	90.80	180.50	10,625.7	-1,738.5	-22.5	438,771.31	729,434.45	32° 12' 17.269 N	103° 43' 30.702 W	
12,307.0	92.40	180.50	10,620.5	-1,924.4	-24.2	438,585.40	729,432.83	32° 12' 15.429 N	103° 43' 30.733 W	
12,400.0	92.20	179.10	10,616.8	-2,017.3	-23.8	438,492.48	729,433.15	32° 12' 14.510 N	103° 43' 30.735 W	
12,493.0	89.20	177.80	10,615.6	-2,110.3	-21.3	438,399.53	729,435.67	32° 12' 13.590 N	103° 43' 30.712 W	
12,586.0	88.70	177.80	10,617.4	-2,203.2	-17.8	438,306.62	729,439.24	32° 12' 12.670 N	103° 43' 30.677 W	
12,679.0	86.40	177.10	10,621.3	-2,296.0	-13.6	438,213.80	729,443.37	32° 12' 11.751 N	103° 43' 30.635 W	
12,772.0	86.20	179.30	10,627.3	-2,388.8	-10.7	438,121.04	729,446.28	32° 12' 10.833 N	103° 43' 30.607 W	
12,865.0	87.10	180.80	10,632.8	-2,481.6	-10.8	438,028.21	729,446.20	32° 12' 9.915 N	103° 43' 30.614 W	
12,958.0	86.60	181.00	10,637.9	-2,574.4	-12.3	437,935.36	729,444.74	32° 12' 8.996 N	103° 43' 30.637 W	
13,052.0	88.20	181.00	10,642.1	-2,668.3	-13.9	437,841.47	729,443.11	32° 12' 8.067 N	103° 43' 30.662 W	
13,145.0	87.40	179.80	10,645.7	-2,761.3	-14.5	437,748.55	729,442.46	32° 12' 7.147 N	103° 43' 30.676 W	
13,239.0	86.90	179.80	10,650.4	-2,855.1	-14.2	437,654.66	729,442.78	32° 12' 6.218 N	103° 43' 30.678 W	
13,332.0	86.70	178.70	10,655.6	-2,948.0	-13.0	437,561.82	729,444.00	32° 12' 5.300 N	103° 43' 30.670 W	
13,426.0	87.30	178.90	10,660.5	-3,041.8	-11.0	437,467.97	729,445.97	32° 12' 4.371 N	103° 43' 30.654 W	
13,520.0	87.60	179.10	10,664.7	-3,135.7	-9.4	437,374.08	729,447.60	32° 12' 3.442 N	103° 43' 30.641 W	
13,613.0	88.50	178.70	10,667.8	-3,228.7	-7.6	437,281.15	729,449.39	32° 12' 2.522 N	103° 43' 30.626 W	
13,706.0	88.00	178.90	10,670.7	-3,321.6	-5.7	437,188.21	729,451.34	32° 12' 1.602 N	103° 43' 30.610 W	
13,799.0	88.00	178.20	10,673.9	-3,414.5	-3.3	437,095.30	729,453.69	32° 12' 0.683 N	103° 43' 30.588 W	
13,893.0	89.00	177.70	10,676.4	-3,508.4	0.1	437,001.39	729,457.05	32° 11' 59.753 N	103° 43' 30.555 W	
13,986.0	90.10	177.70	10,677.1	-3,601.3	3.8	436,908.47	729,460.78	32° 11' 58.833 N	103° 43' 30.518 W	
14,083.0	89.00	177.10	10,677.9	-3,698.2	8.2	436,811.58	729,465.18	32° 11' 57.874 N	103° 43' 30.473 W	
14,176.0	89.40	177.00	10,679.2	-3,791.1	13.0	436,718.71	729,469.97	32° 11' 56.955 N	103° 43' 30.424 W	
14,269.0	90.30	176.80	10,679.4	-3,884.0	18.0	436,625.85	729,475.00	32° 11' 56.036 N	103° 43' 30.371 W	
14,363.0	89.90	177.30	10,679.3	-3,977.8	22.8	436,531.97	729,479.83	32° 11' 55.107 N	103° 43' 30.321 W	
14,457.0	90.80	178.60	10,678.7	-4,071.8	26.2	436,438.04	729,483.20	32° 11' 54.177 N	103° 43' 30.288 W	

Survey Report - Geographic

Company:	Yates Petroleum	Local Co-ordinate Reference:	Well #10H
Project:	Eddy, NM (NAD-83)	TVD Reference:	RKB @ 3596.5usft (Nomac 22 KB=21.5')
Site:	Haracz "Amo" Federal	MD Reference:	RKB @ 3596.5usft (Nomac 22 KB=21.5')
Well:	#10H	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
14,551.0	90.30	179.30	10,677.8	-4,165.7	27.9	436,344.06	729,484.92	32° 11' 53.247 N		103° 43' 30.274 W
14,645.0	89.70	179.40	10,677.8	-4,259.7	29.0	436,250.06	729,485.98	32° 11' 52.317 N		103° 43' 30.268 W
14,738.0	90.60	178.60	10,677.5	-4,352.7	30.6	436,157.08	729,487.61	32° 11' 51.396 N		103° 43' 30.255 W
14,831.0	89.90	178.20	10,677.1	-4,445.7	33.2	436,064.12	729,490.20	32° 11' 50.476 N		103° 43' 30.231 W
14,924.0	90.30	178.40	10,677.0	-4,538.6	36.0	435,971.16	729,492.96	32° 11' 49.556 N		103° 43' 30.205 W
15,017.0	90.30	178.90	10,676.5	-4,631.6	38.2	435,878.19	729,495.15	32° 11' 48.636 N		103° 43' 30.186 W
15,111.0	90.60	179.30	10,675.7	-4,725.6	39.6	435,784.20	729,496.63	32° 11' 47.706 N		103° 43' 30.175 W
15,135.0	90.54	179.53	10,675.5	-4,749.6	39.9	435,760.20	729,496.88	32° 11' 47.469 N		103° 43' 30.174 W
Cross 330' Hardline at 15135.0' MD, 90.54° INC, 179.53° AZ										
15,185.0	90.40	180.00	10,675.1	-4,799.6	40.1	435,710.21	729,497.08	32° 11' 46.974 N		103° 43' 30.174 W
Final MWD Survey: 15185.0' MD, 10675.1' TVD, -4799.6' +N/-S, 40.1' +E/-W										
15,235.0	90.40	180.00	10,674.7	-4,849.6	40.1	435,660.21	729,497.08	32° 11' 46.479 N		103° 43' 30.178 W
BHL: 15235.0' MD, 10674.7' TVD, 90.40° INC, 180.00° AZ, -4849.6' +N/-S, 40.1' +E/-W, 4849.7' VS - TD: 15235.0' MD, 10674.7' TVD										
15,235.1	90.40	180.00	10,674.7	-4,849.7	40.1	435,660.06	729,497.08	32° 11' 46.478 N		103° 43' 30.178 W

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
10,098.0	10,095.5	-7.9	-36.8	KOP: 10098.0' MD, 10095.5' TVD	
10,452.0	10,420.2	-130.9	-38.3	Cross 330' Hardline at 10452.0' MD, 40.02° INC, 180.98° AZ	
11,032.0	10,632.4	-649.8	-39.7	EOC: 11032.0' MD, 10632.4' TVD, 90.30° INC, 182.60° AZ, 649.6' VS	
15,135.0	10,675.5	-4,749.6	39.9	Cross 330' Hardline at 15135.0' MD, 90.54° INC, 179.53° AZ	
15,185.0	10,675.1	-4,799.6	40.1	Final MWD Survey: 15185.0' MD, 10675.1' TVD, -4799.6' +N/-S, 40.1' +E/-W	
15,235.0	10,674.7	-4,849.6	40.1	BHL: 15235.0' MD, 10674.7' TVD, 90.40° INC, 180.00° AZ, -4849.6' +N/-S, 40.1	
15,235.0	10,674.7	-4,849.6	40.1	TD: 15235.0' MD, 10674.7' TVD	

Checked By: _____ Approved By: _____ Date: _____



Yates Petroleum
Project: Eddy, NM (NAD-83)
Site: Haracz "Amo" Federal
Well: #10H
Wellbore: OH
Plan: Plan #4 (#10H/OH)

WELL DETAILS: #10H

Ground Elevation:: 3575.0
RKB Elevation: RKB @ 3596.5usft (Nomac 22 KB=21.5')
Rig Name: Nomac 22 KB=21.5'

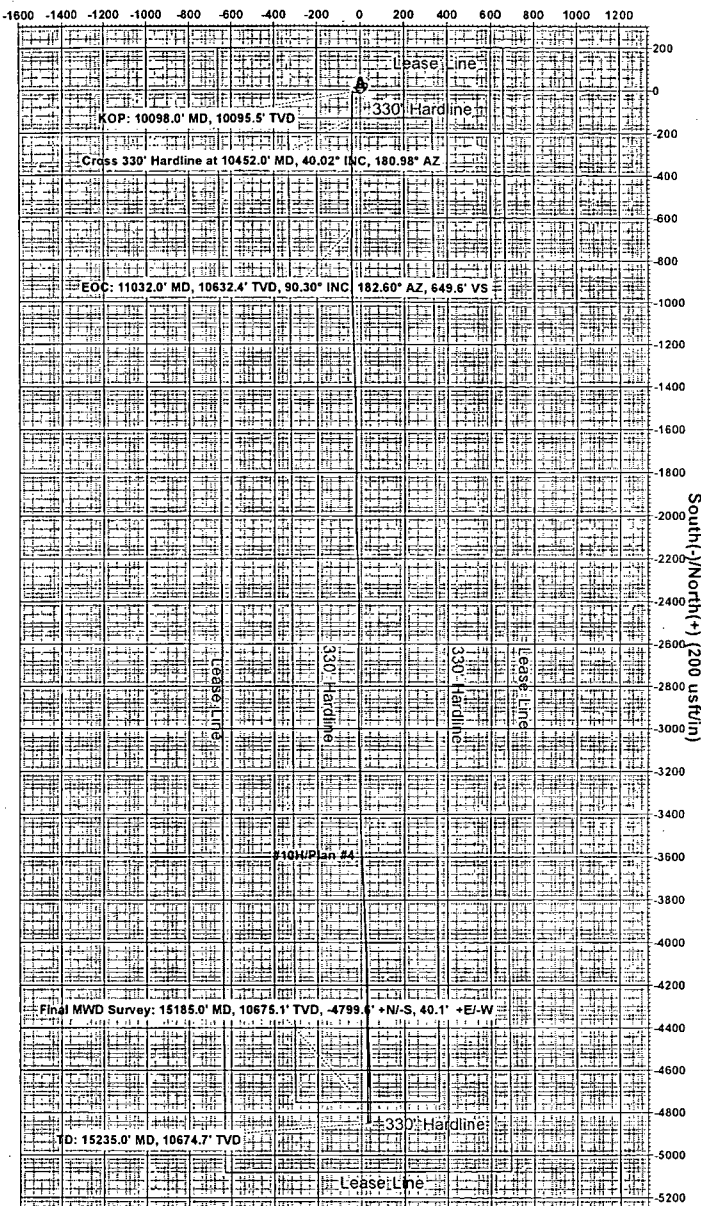
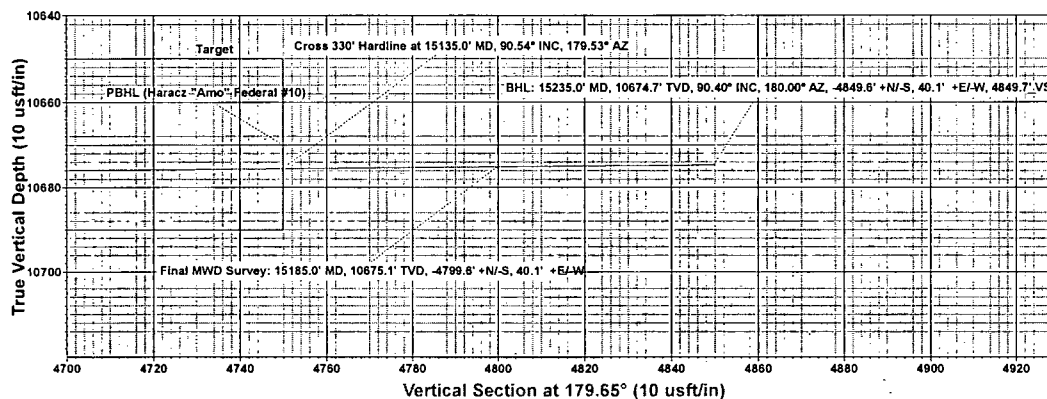
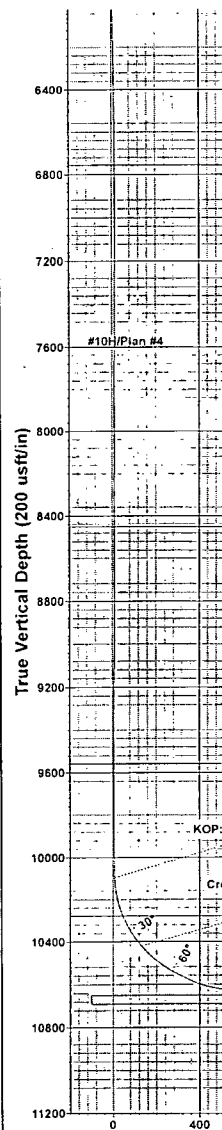
Surface Hole Location
Northing 440509.80 Easting 729467.00 Latitude 32° 12' 34.471 N Longitude 103° 43' 30.325 W



Azimuths to Grid North
True North: -0.32°
Magnetic North: 6.99°

Magnetic Field
Strength: 48313.7nT
Dip Angle: 60.08°
Date: 3/20/2014
Model: IGRF2010

West(-)/East(+) (200 usft/in)



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 179.65° (200 usft/in)

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



Plan: Plan #4 (#10H/OH)
Created By: Adrian Castro Date: 7:47, May 05 2014



Job Number: SVMO-140509
 Company: Yates Petroleum Corporation
 Lease/Well: Haracz Amó Fed 10H
 Location: Eddy County, NM
 Rig Name: Nomac #22
 RKB: 22.5'
 G.L. or M.S.L.: GL

State/Country: New Mexico/USA
 Declination: 7.02°
 Grid: East To Grid North
 File name: S:\2014SU-1\YATES\MOIHARACZ-1\10H.SVY
 Date/Time: 23-Apr-14 / 12:43
 Curve Name: Surface - 4600' M.D. (Rate Gyro)

MS SURVEY

WINSERVE SURVEY CALCULATIONS
 Minimum Curvature Method
 Vertical Section Plane 179.65
 Vertical Section Referenced to Wellhead
 Rectangular Coordinates Referenced to Wellhead

We hereby certify that our survey data from
 Surface MD to 4600' MD is, to the best of
 our knowledge a true and accurate account of
 the well bore.
 Daniel West 4/23/14
 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
200.00	.82	265.99	199.99	-1.10	-1.43	.09	1.43	265.99	.41
400.00	.65	278.59	399.98	-.03	-3.98	.01	3.98	269.56	.12
600.00	.60	275.26	599.96	.23	-6.14	-.27	6.15	272.19	.03
800.00	.96	209.09	799.95	-1.13	-8.00	1.08	8.08	261.94	.45
1000.00	.76	217.27	999.93	-3.65	-9.62	3.59	10.29	249.20	.12
1200.00	.59	215.69	1199.91	-5.54	-11.02	5.48	12.34	243.29	.09
1400.00	.40	220.25	1399.91	-6.91	-12.07	6.84	13.91	240.20	.10
1600.00	.29	283.02	1599.90	-7.33	-13.02	7.25	14.94	240.61	.19
1800.00	.67	328.56	1799.90	-6.22	-14.12	6.13	15.43	246.22	.26

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
2000.00	1.03	343.49	1999.87	-3.50	-15.24	3.41	15.64	257.07	.21
2200.00	1.30	3.32	2199.83	.49	-15.62	-5.58	15.63	271.79	.24
2400.00	1.45	16.24	2399.78	5.18	-14.78	-5.27	15.66	289.32	.17
2600.00	1.81	24.59	2599.69	10.48	-12.76	-10.56	16.51	309.41	.22
2800.00	2.73	45.69	2799.54	16.68	-8.04	-16.73	18.52	334.28	.61
3000.00	3.65	55.71	2999.23	23.60	.63	-23.59	23.61	1.53	.54
3200.00	3.85	59.32	3198.80	30.61	11.67	-30.54	32.76	20.86	.15
3400.00	1.52	108.77	3398.59	33.18	19.95	-33.06	38.72	31.02	1.54
3600.00	1.01	99.35	3598.54	32.04	24.21	-31.90	40.16	37.07	.27
3800.00	1.07	110.26	3798.51	31.11	27.70	-30.94	41.65	41.68	.10
4000.00	1.62	138.97	3998.45	28.33	31.30	-28.14	42.22	47.85	.43
4200.00	1.50	177.77	4198.38	23.58	33.26	-23.38	40.77	54.66	.52
4400.00	1.16	196.01	4398.33	19.02	32.81	-18.82	37.92	59.89	.27
Last Survey Depth Recorded									
4600.00	1.39	202.94	4598.28	14.84	31.30	-14.65	34.64	64.63	.14

**McVAY DRILLING COMPANY**

P.O. Box 2450
Hobbs, New Mexico 88241
(575) 397-3311
FAX: 39-DRILL

Well Name and Num: Southland Royalty APM State #3H
Location: Sec 24, T19S, R29E
Operator: Yates
Drilling Contractor: McVay Drilling Company

The undersigned certifies that he is an authorized representative of the drilling contractor who drilled the above described well and that he has conducted deviation tests and obtained the following results:

<u>Degrees @</u>	<u>Depth</u>	<u>Degrees @</u>	<u>Depth</u>	<u>Degrees @</u>	<u>Depth</u>
0.66	370	0.80	5591	88.90	9144
0.40	457	0.30	5873	89.70	9207
1.50	880	0.60	6155	91.00	9553
1.10	1253	2.20	6438	89.90	9865
1.80	1441	0.90	6911	89.70	10135
1.00	1536	0.50	7383	87.30	10229
0.80	1912	1.10	7662	91.10	10700
2.00	2289	1.00	7692	91.40	11076
1.60	2572	7.90	7817	89.50	11546
2.10	2764	21.90	7943	89.60	11735
1.40	3141	30.30	8037	90.80	12114
1.80	3424	43.70	8162	90.40	12208
2.60	3665	64.00	8350	90.20	12484
2.50	3781	73.70	8413	90.60	12757
1.20	4064	88.50	8518		
0.90	4762	97.30	8769		
1.10	5119	94.10	8956		

By: Hunter Cunniff

Subscribed and sworn to before me this 24th day of April, 2014

Tina Flemens
Notary Public, Lea County, New Mexico

