30015 40051

Yates Petroleum

Eddy, NM (NAD-83)
Martha AIK Federal
#7H

OH

Design: OH

Standard Survey Report

06 December, 2013

Survey Report

Company:	Yates Petroleum	**Local Co-ordinate Reference:**	Well #7H
Project:	Eddy, NM (NAD-83)	**TVD Reference:**	Well @ 3571.5usft (Nomac #22 - 21.5' KB)
Site:	Martha AIK Federal	**MD Reference:**	Well @ 3571.5usft (Nomac #22 - 21.5' KB)
Well:	#7H	**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 Martha AIK Federal

Site Position:		**Northing:**	509,750.87 usft	**Latitude:**	32° 23' 59.928 N
From:	Map	**Easting:**	724,235.17 usft	**Longitude:**	103° 44' 26.648 W
Position Uncertainty:	2.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.32 °

Well #7H

Well Position	**+N/-S**	0.0 usft	**Northing:**	512,854.44 usft	**Latitude:**	32° 24' 30.639 N
	+E/-W	0.0 usft	**Easting:**	724,218.35 usft	**Longitude:**	103° 44' 26.644 W
Position Uncertainty		2.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	3,550.0 usft

Wellbore OH

Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2010	10/23/2013	7.39	60.27	48,472

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	42.15

Survey Program **Date** 12/6/2013

From (usft)	**To (usft)**	**Survey (Wellbore)**	**Tool Name**	**Description**
100.0	7,425.0	Gyro Surveys (OH)	Good_gyro	Good Gyro
7,494.0	12,560.8	Crescent MWD Surveys (OH)	MWD	MWD - Standard

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	0.25	160.44	100.0	-0.2	0.1	-0.1	0.25	0.25	0.00
200.0	0.24	168.03	200.0	-0.6	0.2	-0.3	0.03	-0.01	7.59
300.0	0.26	147.10	300.0	-1.0	0.4	-0.5	0.09	0.02	-20.93
400.0	0.16	118.71	400.0	-1.3	0.6	-0.5	0.14	-0.10	-28.39
500.0	0.21	105.18	500.0	-1.4	0.9	-0.4	0.07	0.05	-13.53
600.0	0.11	84.93	600.0	-1.4	1.2	-0.3	0.11	-0.10	-20.25
700.0	0.09	75.44	700.0	-1.4	1.3	-0.1	0.03	-0.02	-9.49
800.0	0.14	145.74	800.0	-1.5	1.5	-0.1	0.14	0.05	70.30
900.0	0.25	136.09	900.0	-1.7	1.7	-0.1	0.11	0.11	-9.65

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Well:	#7H	**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)
1,000.0	0.24	125.70	1,000.0	-2.0	2.0	-0.1	0.05	-0.01	-10.39
1,100.0	0.24	91.70	1,100.0	-2.1	2.4	0.0	0.14	0.00	-34.00
1,200.0	0.26	85.58	1,200.0	-2.1	2.8	0.3	0.03	0.02	-6.12
1,300.0	0.37	65.65	1,300.0	-2.0	3.4	0.8	0.15	0.11	-19.93
1,400.0	0.53	61.26	1,400.0	-1.6	4.1	1.5	0.16	0.16	-4.39
1,500.0	0.58	51.36	1,500.0	-1.1	4.9	2.5	0.11	0.05	-9.90
1,600.0	0.73	46.87	1,600.0	-0.3	5.7	3.6	0.16	0.15	-4.49
1,700.0	0.76	51.24	1,700.0	0.5	6.7	4.9	0.06	0.03	4.37
1,800.0	0.86	54.53	1,800.0	1.4	7.8	6.3	0.11	0.10	3.29
1,900.0	0.96	52.10	1,899.9	2.3	9.1	7.8	0.11	0.10	-2.43
2,000.0	1.02	52.24	1,999.9	3.4	10.5	9.5	0.06	0.06	0.14
2,100.0	1.08	55.10	2,099.9	4.5	12.0	11.3	0.08	0.06	2.86
2,200.0	1.11	53.30	2,199.9	5.6	13.5	13.2	0.05	0.03	-1.80
2,300.0	1.24	57.31	2,299.9	6.7	15.2	15.2	0.15	0.13	4.01
2,400.0	1.36	56.05	2,399.8	8.0	17.1	17.4	0.12	0.12	-1.26
2,500.0	1.59	47.87	2,499.8	9.6	19.1	19.9	0.31	0.23	-8.18
2,600.0	1.77	39.12	2,599.8	11.7	21.1	22.8	0.31	0.18	-8.75
2,700.0	1.82	31.13	2,699.7	14.3	22.9	25.9	0.25	0.05	-7.99
2,800.0	1.35	24.99	2,799.7	16.7	24.2	28.6	0.50	-0.47	-6.14
2,900.0	1.40	23.19	2,899.7	18.9	25.2	30.9	0.07	0.05	-1.80
3,000.0	1.17	41.71	2,999.6	20.8	26.4	33.1	0.47	-0.23	18.52
3,100.0	1.25	52.56	3,099.6	22.2	27.9	35.2	0.24	0.08	10.85
3,200.0	2.34	53.21	3,199.6	24.1	30.4	38.3	1.09	1.09	0.65
3,300.0	2.42	55.13	3,299.5	26.5	33.8	42.3	0.11	0.08	1.92
3,400.0	1.87	83.82	3,399.4	27.9	37.1	45.6	1.19	-0.55	28.69
3,500.0	1.61	79.63	3,499.4	28.3	40.1	47.9	0.29	-0.26	-4.19
3,600.0	1.81	78.29	3,599.3	28.9	43.1	50.3	0.20	0.20	-1.34
3,700.0	2.71	77.79	3,699.2	29.7	46.9	53.5	0.90	0.90	-0.50
3,800.0	3.05	71.21	3,799.1	31.1	51.7	57.8	0.47	0.34	-6.58
3,900.0	3.01	75.08	3,899.0	32.6	56.8	62.3	0.21	-0.04	3.87
4,000.0	2.90	74.31	3,998.8	34.0	61.8	66.6	0.12	-0.11	-0.77
4,100.0	2.49	75.11	4,098.7	35.2	66.3	70.6	0.41	-0.41	0.80
4,200.0	1.78	75.39	4,198.6	36.2	69.9	73.7	0.71	-0.71	0.28
4,300.0	1.11	69.03	4,298.6	36.9	72.3	75.9	0.69	-0.67	-6.36
4,400.0	1.00	60.16	4,398.6	37.7	74.0	77.6	0.20	-0.11	-8.87
4,500.0	0.67	75.60	4,498.6	38.3	75.3	78.9	0.40	-0.33	15.44
4,600.0	0.94	73.73	4,598.6	38.6	76.6	80.1	0.27	0.27	-1.87
4,700.0	0.89	61.25	4,698.6	39.2	78.1	81.5	0.21	-0.05	-12.48
4,800.0	0.28	37.82	4,798.6	39.8	78.9	82.5	0.64	-0.61	-23.43
4,900.0	0.35	42.21	4,898.6	40.2	79.3	83.0	0.07	0.07	4.39
5,000.0	0.10	76.84	4,998.6	40.5	79.6	83.4	0.27	-0.25	34.63
5,100.0	0.23	50.32	5,098.6	40.6	79.8	83.7	0.15	0.13	-26.52
5,200.0	0.38	17.06	5,198.6	41.1	80.1	84.2	0.23	0.15	-33.26

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Well:	#7H	**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)
5,300.0	0.45	353.13	5,298.6	41.8	80.1	84.7	0.19	0.07	-23.93
5,400.0	0.61	324.55	5,398.5	42.6	79.8	85.1	0.30	0.16	-28.58
5,500.0	0.39	332.73	5,498.5	43.3	79.3	85.4	0.23	-0.22	8.18
5,600.0	0.65	348.87	5,598.5	44.2	79.0	85.8	0.30	0.26	16.14
5,700.0	0.74	330.81	5,698.5	45.3	78.6	86.4	0.24	0.09	-18.06
5,800.0	0.71	295.11	5,798.5	46.1	77.7	86.4	0.45	-0.03	-35.70
5,900.0	0.97	281.47	5,898.5	46.6	76.4	85.8	0.33	0.26	-13.64
6,000.0	0.66	268.49	5,998.5	46.7	75.0	84.9	0.36	-0.31	-12.98
6,100.0	0.72	268.69	6,098.5	46.7	73.7	84.1	0.06	0.06	0.20
6,200.0	0.86	267.27	6,198.5	46.6	72.4	83.1	0.14	0.14	-1.42
6,300.0	1.07	265.32	6,298.5	46.5	70.7	81.9	0.21	0.21	-1.95
6,400.0	1.22	259.08	6,398.4	46.2	68.7	80.4	0.19	0.15	-6.24
6,500.0	1.28	252.63	6,498.4	45.7	66.6	78.6	0.15	0.06	-6.45
6,600.0	1.29	251.26	6,598.4	45.0	64.5	76.6	0.03	0.01	-1.37
6,700.0	0.92	263.12	6,698.4	44.6	62.6	75.1	0.43	-0.37	11.86
6,800.0	0.60	234.57	6,798.4	44.2	61.4	73.9	0.49	-0.32	-28.55
6,900.0	0.87	231.99	6,898.4	43.4	60.4	72.7	0.27	0.27	-2.58
7,000.0	0.57	220.21	6,998.4	42.5	59.4	71.4	0.33	-0.30	-11.78
7,100.0	0.57	218.26	7,098.4	41.8	58.8	70.4	0.02	0.00	-1.95
7,200.0	0.66	204.82	7,198.3	40.9	58.3	69.4	0.17	0.09	-13.44
7,300.0	0.66	223.86	7,298.3	39.9	57.6	68.3	0.22	0.00	19.04
7,400.0	0.48	222.54	7,398.3	39.2	56.9	67.3	0.18	-0.18	-1.32
7,425.0	0.48	216.36	7,423.3	39.0	56.8	67.1	0.21	0.00	-24.72
7,494.0	0.90	240.00	7,492.3	38.5	56.2	66.3	0.72	0.61	34.26
7,526.0	5.80	260.40	7,524.3	38.1	54.4	64.7	15.52	15.31	63.75
7,557.0	11.80	261.20	7,554.9	37.4	49.7	61.1	19.36	19.35	2.58
7,589.0	17.10	262.00	7,585.9	36.2	41.8	54.9	16.57	16.56	2.50
7,620.0	22.00	262.10	7,615.1	34.8	31.5	46.9	15.81	15.81	0.32
7,651.0	24.60	263.70	7,643.5	33.3	19.3	37.7	8.63	8.39	5.16
7,683.0	27.10	265.80	7,672.3	32.0	5.4	27.4	8.32	7.81	6.56
7,714.0	30.30	268.30	7,699.5	31.3	-9.4	16.9	11.02	10.32	8.06
7,746.0	33.60	269.50	7,726.7	31.0	-26.3	5.3	10.50	10.31	3.75
7,777.0	37.00	270.20	7,752.0	30.9	-44.3	-6.8	11.04	10.97	2.26
7,809.0	40.50	269.50	7,776.9	30.9	-64.3	-20.3	11.02	10.94	-2.19
7,840.0	42.90	268.50	7,800.1	30.5	-84.9	-34.4	8.03	7.74	-3.23
7,872.0	45.00	267.60	7,823.1	29.7	-107.1	-49.8	6.85	6.56	-2.81
7,903.0	47.30	266.30	7,844.6	28.5	-129.4	-65.7	8.01	7.42	-4.19
7,910.0	48.14	266.06	7,849.3	28.2	-134.6	-69.4	12.18	11.92	-3.37
330' Hardline Crossed: 7910' MD / 7849' TVD									
7,934.0	51.00	265.30	7,864.8	26.8	-152.8	-82.7	12.18	11.94	-3.18
7,966.0	54.40	264.60	7,884.2	24.6	-178.1	-101.3	10.77	10.63	-2.19
7,997.0	58.60	265.10	7,901.3	22.3	-203.9	-120.3	13.61	13.55	1.61
8,029.0	62.10	266.30	7,917.2	20.2	-231.6	-140.5	11.41	10.94	3.75

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8,060.0	64.20	266.90	7,931.2	18.5	-259.2	-160.2	6.99	6.77	1.94
8,092.0	67.20	267.10	7,944.3	17.0	-288.3	-180.9	9.39	9.38	0.63
8,123.0	70.90	267.40	7,955.4	15.6	-317.3	-201.3	11.97	11.94	0.97
8,155.0	74.10	268.30	7,965.0	14.5	-347.8	-222.6	10.35	10.00	2.81
8,186.0	77.80	269.50	7,972.6	13.9	-377.8	-243.2	12.51	11.94	3.87
8,217.0	80.20	269.70	7,978.5	13.7	-408.2	-263.8	7.77	7.74	0.65
8,249.0	82.30	269.50	7,983.3	13.5	-439.9	-285.2	6.59	6.56	-0.63
8,278.0	84.10	270.60	7,986.8	13.5	-468.7	-304.5	7.26	6.21	3.79
8,309.0	84.50	270.40	7,989.9	13.8	-499.5	-325.0	1.44	1.29	-0.65
8,340.0	84.80	270.00	7,992.8	13.9	-530.4	-345.6	1.61	0.97	-1.29
8,372.0	85.90	269.90	7,995.3	13.9	-562.3	-367.1	3.45	3.44	-0.31
8,403.0	86.90	268.80	7,997.3	13.5	-593.2	-388.1	4.79	3.23	-3.55
8,466.0	92.00	268.30	7,997.9	11.9	-656.2	-431.5	8.13	8.10	-0.79
8,561.0	88.30	266.00	7,997.6	7.2	-751.0	-498.7	4.59	-3.89	-2.42
8,655.0	91.10	267.80	7,998.1	2.1	-844.9	-565.4	3.54	2.98	1.91
8,749.0	89.90	267.10	7,997.3	-2.1	-938.8	-631.6	1.48	-1.28	-0.74
8,844.0	90.30	266.90	7,997.2	-7.0	-1,033.6	-698.9	0.47	0.42	-0.21
8,938.0	91.50	268.60	7,995.7	-10.7	-1,127.5	-764.7	2.21	1.28	1.81
9,032.0	91.70	269.00	7,993.1	-12.7	-1,221.5	-829.2	0.48	0.21	0.43
9,127.0	90.60	269.00	7,991.1	-14.4	-1,316.4	-894.1	1.16	-1.16	0.00
9,221.0	90.10	268.60	7,990.6	-16.3	-1,410.4	-958.7	0.68	-0.53	-0.43
9,315.0	89.70	269.70	7,990.7	-17.7	-1,504.4	-1,022.8	1.25	-0.43	1.17
9,410.0	89.70	268.30	7,991.2	-19.4	-1,599.4	-1,087.8	1.47	0.00	-1.47
9,504.0	91.50	268.50	7,990.2	-22.0	-1,693.3	-1,152.8	1.93	1.91	0.21
9,598.0	92.90	270.90	7,986.6	-22.5	-1,787.3	-1,216.2	2.95	1.49	2.55
9,693.0	92.70	272.30	7,982.0	-19.9	-1,882.1	-1,277.8	1.49	-0.21	1.47
9,787.0	91.50	273.40	7,978.6	-15.2	-1,975.9	-1,337.3	1.73	-1.28	1.17
9,882.0	89.00	271.60	7,978.1	-11.0	-2,070.8	-1,398.0	3.24	-2.63	-1.89
9,976.0	88.70	269.00	7,980.0	-10.5	-2,164.8	-1,460.7	2.78	-0.32	-2.77
10,070.0	89.60	268.60	7,981.4	-12.5	-2,258.8	-1,525.2	1.05	0.96	-0.43
10,165.0	90.10	269.20	7,981.7	-14.3	-2,353.8	-1,590.3	0.82	0.53	0.63
10,259.0	89.70	269.20	7,981.8	-15.7	-2,447.7	-1,654.3	0.43	-0.43	0.00
10,354.0	90.10	269.00	7,982.0	-17.1	-2,542.7	-1,719.2	0.47	0.42	-0.21
10,448.0	89.90	268.80	7,982.0	-18.9	-2,636.7	-1,783.6	0.30	-0.21	-0.21
10,543.0	89.70	268.50	7,982.3	-21.2	-2,731.7	-1,849.0	0.38	-0.21	-0.32
10,637.0	90.40	268.30	7,982.3	-23.8	-2,825.6	-1,914.0	0.77	0.74	-0.21
10,732.0	90.60	270.00	7,981.4	-25.2	-2,920.6	-1,978.8	1.80	0.21	1.79
10,826.0	89.60	271.10	7,981.3	-24.3	-3,014.6	-2,041.2	1.58	-1.06	1.17
10,921.0	91.10	271.30	7,980.7	-22.3	-3,109.6	-2,103.5	1.59	1.58	0.21
11,015.0	88.90	271.10	7,980.7	-20.4	-3,203.6	-2,165.1	2.35	-2.34	-0.21
11,110.0	89.70	270.20	7,981.8	-19.3	-3,298.6	-2,228.0	1.27	0.84	-0.95
11,204.0	90.30	269.90	7,981.8	-19.2	-3,392.6	-2,291.0	0.71	0.64	-0.32
11,298.0	89.20	269.20	7,982.2	-19.9	-3,486.5	-2,354.7	1.39	-1.17	-0.74
11,393.0	91.30	268.30	7,981.8	-22.0	-3,581.5	-2,419.9	2.40	2.21	-0.95

Survey Report

Company:	Yates Petroleum	**Local Co-ordinate Reference:**	Well #7H
Project:	Eddy, NM (NAD-83)	**TVD Reference:**	Well @ 3571.5usft (Nomac #22 - 21.5' KB)
Site:	Martha AIK Federal	**MD Reference:**	Well @ 3571.5usft (Nomac #22 - 21.5' KB)
Well:	#7H	**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)
11,487.0	92.20	268.10	7,979.0	-25.0	-3,675.4	-2,485.2	0.98	0.96	-0.21
11,582.0	91.50	268.30	7,975.9	-27.9	-3,770.3	-2,551.1	0.77	-0.74	0.21
11,676.0	91.00	269.00	7,973.8	-30.2	-3,864.3	-2,615.7	0.91	-0.53	0.74
11,771.0	92.90	270.60	7,970.6	-30.5	-3,959.2	-2,679.7	2.61	2.00	1.68
11,865.0	91.30	270.20	7,967.2	-29.8	-4,053.1	-2,742.3	1.75	-1.70	-0.43
11,959.0	91.10	269.90	7,965.2	-29.8	-4,147.1	-2,805.3	0.38	-0.21	-0.32
12,054.0	90.10	269.20	7,964.2	-30.5	-4,242.1	-2,869.6	1.28	-1.05	-0.74
12,148.0	90.10	269.20	7,964.0	-31.8	-4,336.1	-2,933.6	0.00	0.00	0.00
12,243.0	88.90	269.20	7,964.9	-33.1	-4,431.1	-2,998.4	1.26	-1.26	0.00
12,509.0	90.40	269.70	7,966.5	-35.7	-4,697.1	-3,178.8	0.59	0.56	0.19
Last MWD Survey : 12509' MD / 7966' TVD									
12,560.0	90.40	269.40	7,966.1	-36.1	-4,748.1	-3,213.3	0.58	0.00	-0.58
Projection to TD: 12560' MD / 7966' TVD : 1750' FNL / 327' FWL - Northing : 512818.34 / Easting : 719470.26									
12,560.8	90.40	269.40	7,966.1	-36.1	-4,748.9	-3,213.8	0.58	0.00	-0.58

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
7,910.0	7,849.3	28.2	-134.6	330' Hardline Crossed: 7910' MD / 7849' TVD
12,509.0	7,966.5	-35.7	-4,697.1	Last MWD Survey : 12509' MD / 7966' TVD
12,560.0	7,966.1	-36.1	-4,748.1	Projection to TD: 12560' MD / 7966' TVD : 1750' FNL / 327' FWL
12,560.0	7,966.1	-36.1	-4,748.1	Northing : 512818.34 / Easting : 719470.26

Checked By: _____ Approved By: _____ Date: _____

Yates Petroleum

Eddy, NM (NAD-83)
Martha AIK Federal
#7H

OH

Design: OH

Survey Report - Geographic

06 December, 2013

Survey Report - Geographic

Company:	Yates Petroleum	**Local Co-ordinate Reference:**	Well #7H
Project:	Eddy NM (NAD-83)	**TVD Reference:**	Well @ 3571.5usft (Nomac #22 - 21.5 KB)
Site:	Martha AIK Federal	**MD Reference:**	Well @ 3571.5usft (Nomac #22 - 21.5 KB)
Well:	#7H	**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 Martha AIK Federal

Site Position:		**Northing:**	509,750.87 usft	**Latitude:**	32° 23' 59.928 N
From:	Map	**Easting:**	724,235.17 usft	**Longitude:**	103° 44' 26.648 W
Position Uncertainty:	2.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.32 °

Well #7H

Well Position	**+N/-S**	0.0 usft	**Northing:**	512,854.44 usft	**Latitude:**	32° 24' 30.639 N
	+E/-W	0.0 usft	**Easting:**	724,218.35 usft	**Longitude:**	103° 44' 26.644 W
Position Uncertainty		2.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	3,550.0 usft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/23/2013	7.39	60.27	48,472

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	42.15

Survey Program **Date** 12/6/2013

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	7,425.0	Gyro Surveys (OH)	Good_gyro	Good Gyro
7,494.0	12,560.8	Crescent MWD Surveys (OH)	MWD	MWD - Standard

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.0	0.00	0.00	0.0	0.0	0.0	512,854.44	724,218.35	32° 24' 30.639 N	103° 44' 26.644 W
100.0	0.25	160.44	100.0	-0.2	0.1	512,854.23	724,218.42	32° 24' 30.637 N	103° 44' 26.643 W
200.0	0.24	168.03	200.0	-0.6	0.2	512,853.82	724,218.54	32° 24' 30.633 N	103° 44' 26.642 W
300.0	0.26	147.10	300.0	-1.0	0.4	512,853.42	724,218.70	32° 24' 30.629 N	103° 44' 26.640 W
400.0	0.16	118.71	400.0	-1.3	0.6	512,853.17	724,218.95	32° 24' 30.627 N	103° 44' 26.637 W
500.0	0.21	105.18	500.0	-1.4	0.9	512,853.05	724,219.25	32° 24' 30.625 N	103° 44' 26.633 W
600.0	0.11	84.93	600.0	-1.4	1.2	512,853.01	724,219.52	32° 24' 30.625 N	103° 44' 26.630 W
700.0	0.09	75.44	700.0	-1.4	1.3	512,853.04	724,219.69	32° 24' 30.625 N	103° 44' 26.628 W
800.0	0.14	145.74	800.0	-1.5	1.5	512,852.96	724,219.84	32° 24' 30.624 N	103° 44' 26.627 W
900.0	0.25	136.09	900.0	-1.7	1.7	512,852.70	724,220.06	32° 24' 30.622 N	103° 44' 26.624 W
1,000.0	0.24	125.70	1,000.0	-2.0	2.0	512,852.42	724,220.38	32° 24' 30.619 N	103° 44' 26.620 W

Survey Report - Geographic

Company:	Yates Petroleum	**Local Co-ordinate Reference:**	Well #7H
Project:	Eddy, NM (NAD-83)	**TVD Reference:**	Well @ 3571.5usft (Nomac #22 - 21.5' KB)
Site:	Martha AIK Federal	**MD Reference:**	Well @ 3571.5usft (Nomac #22 - 21.5' KB)
Well:	#7H	**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
1,100.0	0.24	91.70	1,100.0	-2.1	2.4	512,852.29	724,220.76	32° 24' 30.618 N	103° 44' 26.616 W
1,200.0	0.26	85.58	1,200.0	-2.1	2.8	512,852.30	724,221.19	32° 24' 30.618 N	103° 44' 26.611 W
1,300.0	0.37	65.65	1,300.0	-2.0	3.4	512,852.45	724,221.72	32° 24' 30.619 N	103° 44' 26.605 W
1,400.0	0.53	61.26	1,400.0	-1.6	4.1	512,852.81	724,222.41	32° 24' 30.623 N	103° 44' 26.597 W
1,500.0	0.58	51.36	1,500.0	-1.1	4.9	512,853.35	724,223.22	32° 24' 30.628 N	103° 44' 26.587 W
1,600.0	0.73	46.87	1,600.0	-0.3	5.7	512,854.10	724,224.08	32° 24' 30.636 N	103° 44' 26.577 W
1,700.0	0.76	51.24	1,700.0	0.5	6.7	512,854.95	724,225.06	32° 24' 30.644 N	103° 44' 26.566 W
1,800.0	0.86	54.53	1,800.0	1.4	7.8	512,855.80	724,226.19	32° 24' 30.652 N	103° 44' 26.552 W
1,900.0	0.96	52.10	1,899.9	2.3	9.1	512,856.75	724,227.46	32° 24' 30.662 N	103° 44' 26.537 W
2,000.0	1.02	52.24	1,999.9	3.4	10.5	512,857.81	724,228.82	32° 24' 30.672 N	103° 44' 26.521 W
2,100.0	1.08	55.10	2,099.9	4.5	12.0	512,858.90	724,230.30	32° 24' 30.683 N	103° 44' 26.504 W
2,200.0	1.11	53.30	2,199.9	5.6	13.5	512,860.01	724,231.85	32° 24' 30.694 N	103° 44' 26.486 W
2,300.0	1.24	57.31	2,299.9	6.7	15.2	512,861.18	724,233.54	32° 24' 30.705 N	103° 44' 26.466 W
2,400.0	1.36	56.05	2,399.8	8.0	17.1	512,862.42	724,235.43	32° 24' 30.717 N	103° 44' 26.444 W
2,500.0	1.59	47.87	2,499.8	9.6	19.1	512,864.02	724,237.44	32° 24' 30.733 N	103° 44' 26.421 W
2,600.0	1.77	39.12	2,599.8	11.7	21.1	512,866.15	724,239.45	32° 24' 30.754 N	103° 44' 26.397 W
2,700.0	1.82	31.13	2,699.7	14.3	22.9	512,868.70	724,241.24	32° 24' 30.779 N	103° 44' 26.376 W
2,800.0	1.35	24.99	2,799.7	16.7	24.2	512,871.13	724,242.56	32° 24' 30.803 N	103° 44' 26.360 W
2,900.0	1.40	23.19	2,899.7	18.9	25.2	512,873.32	724,243.54	32° 24' 30.825 N	103° 44' 26.349 W
3,000.0	1.17	41.71	2,999.6	20.8	26.4	512,875.21	724,244.70	32° 24' 30.843 N	103° 44' 26.335 W
3,100.0	1.25	52.56	3,099.6	22.2	27.9	512,876.63	724,246.25	32° 24' 30.857 N	103° 44' 26.317 W
3,200.0	2.34	53.21	3,199.6	24.1	30.4	512,878.52	724,248.75	32° 24' 30.876 N	103° 44' 26.288 W
3,300.0	2.42	55.13	3,299.5	26.5	33.8	512,880.95	724,252.11	32° 24' 30.900 N	103° 44' 26.248 W
3,400.0	1.87	83.82	3,399.4	27.9	37.1	512,882.33	724,255.47	32° 24' 30.913 N	103° 44' 26.209 W
3,500.0	1.61	79.63	3,499.4	28.3	40.1	512,882.76	724,258.47	32° 24' 30.917 N	103° 44' 26.174 W
3,600.0	1.81	78.29	3,599.3	28.9	43.1	512,883.33	724,261.40	32° 24' 30.923 N	103° 44' 26.140 W
3,700.0	2.71	77.79	3,699.2	29.7	46.9	512,884.15	724,265.26	32° 24' 30.931 N	103° 44' 26.095 W
3,800.0	3.05	71.21	3,799.1	31.1	51.7	512,885.51	724,270.09	32° 24' 30.944 N	103° 44' 26.038 W
3,900.0	3.01	75.08	3,899.0	32.6	56.8	512,887.04	724,275.14	32° 24' 30.959 N	103° 44' 25.979 W
4,000.0	2.90	74.31	3,998.8	34.0	61.8	512,888.40	724,280.12	32° 24' 30.972 N	103° 44' 25.921 W
4,100.0	2.49	75.11	4,098.7	35.2	66.3	512,889.64	724,284.65	32° 24' 30.984 N	103° 44' 25.868 W
4,200.0	1.78	75.39	4,198.6	36.2	69.9	512,890.59	724,288.25	32° 24' 30.993 N	103° 44' 25.826 W
4,300.0	1.11	69.03	4,298.6	36.9	72.3	512,891.33	724,290.66	32° 24' 31.000 N	103° 44' 25.798 W
4,400.0	1.00	60.16	4,398.6	37.7	74.0	512,892.11	724,292.32	32° 24' 31.008 N	103° 44' 25.779 W
4,500.0	0.67	75.60	4,498.6	38.3	75.3	512,892.69	724,293.64	32° 24' 31.014 N	103° 44' 25.763 W
4,600.0	0.94	73.73	4,598.6	38.6	76.6	512,893.07	724,295.00	32° 24' 31.017 N	103° 44' 25.747 W
4,700.0	0.89	61.25	4,698.6	39.2	78.1	512,893.67	724,296.47	32° 24' 31.023 N	103° 44' 25.730 W
4,800.0	0.28	37.82	4,798.6	39.8	78.9	512,894.24	724,297.30	32° 24' 31.029 N	103° 44' 25.720 W
4,900.0	0.35	42.21	4,898.6	40.2	79.3	512,894.66	724,297.65	32° 24' 31.033 N	103° 44' 25.716 W
5,000.0	0.10	76.84	4,998.6	40.5	79.6	512,894.90	724,297.94	32° 24' 31.035 N	103° 44' 25.713 W
5,100.0	0.23	50.32	5,098.6	40.6	79.8	512,895.05	724,298.18	32° 24' 31.037 N	103° 44' 25.710 W
5,200.0	0.38	17.06	5,198.6	41.1	80.1	512,895.50	724,298.43	32° 24' 31.041 N	103° 44' 25.707 W
5,300.0	0.45	353.13	5,298.6	41.8	80.1	512,896.20	724,298.48	32° 24' 31.048 N	103° 44' 25.706 W
5,400.0	0.61	324.55	5,398.5	42.6	79.8	512,897.03	724,298.13	32° 24' 31.056 N	103° 44' 25.711 W
5,500.0	0.39	332.73	5,498.5	43.3	79.3	512,897.76	724,297.66	32° 24' 31.064 N	103° 44' 25.716 W
5,600.0	0.65	348.87	5,598.5	44.2	79.0	512,898.62	724,297.40	32° 24' 31.072 N	103° 44' 25.719 W
5,700.0	0.74	330.81	5,698.5	45.3	78.6	512,899.74	724,296.97	32° 24' 31.083 N	103° 44' 25.724 W
5,800.0	0.71	295.11	5,798.5	46.1	77.7	512,900.57	724,296.10	32° 24' 31.091 N	103° 44' 25.734 W
5,900.0	0.97	281.47	5,898.5	46.6	76.4	512,901.00	724,294.71	32° 24' 31.096 N	103° 44' 25.750 W
6,000.0	0.66	268.49	5,998.5	46.7	75.0	512,901.15	724,293.30	32° 24' 31.097 N	103° 44' 25.767 W
6,100.0	0.72	268.69	6,098.5	46.7	73.7	512,901.12	724,292.10	32° 24' 31.097 N	103° 44' 25.781 W
6,200.0	0.86	267.27	6,198.5	46.6	72.4	512,901.07	724,290.72	32° 24' 31.097 N	103° 44' 25.797 W
6,300.0	1.07	265.32	6,298.5	46.5	70.7	512,900.96	724,289.04	32° 24' 31.096 N	103° 44' 25.816 W
6,400.0	1.22	259.08	6,398.4	46.2	68.7	512,900.68	724,287.06	32° 24' 31.093 N	103° 44' 25.839 W
6,500.0	1.28	252.63	6,498.4	45.7	66.6	512,900.15	724,284.95	32° 24' 31.088 N	103° 44' 25.864 W

Survey Report - Geographic

Company:	Yates Petroleum	**Local Co-ordinate Reference:**	Well #7H
Project:	Eddy, NM (NAD-83)	**TVD Reference:**	Well @ 3571.5usft (Nomac #22 - 21.5' KB)
Site:	Martha AIK Federal	**MD Reference:**	Well @ 3571.5usft (Nomac #22 - 21.5' KB)
Well:	#7H	**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
6,600.0	1.29	251.26	6,598.4	45.0	64.5	512,899.45	724,282.82	32° 24' 31.081 N	103° 44' 25.889 W
6,700.0	0.92	263.12	6,698.4	44.6	62.6	512,899.00	724,280.96	32° 24' 31.077 N	103° 44' 25.911 W
6,800.0	0.60	234.57	6,798.4	44.2	61.4	512,898.60	724,279.73	32° 24' 31.073 N	103° 44' 25.925 W
6,900.0	0.87	231.99	6,898.4	43.4	60.4	512,897.83	724,278.71	32° 24' 31.065 N	103° 44' 25.937 W
7,000.0	0.57	220.21	6,998.4	42.5	59.4	512,896.98	724,277.79	32° 24' 31.057 N	103° 44' 25.948 W
7,100.0	0.57	218.26	7,098.4	41.8	58.8	512,896.21	724,277.16	32° 24' 31.049 N	103° 44' 25.955 W
7,200.0	0.66	204.82	7,198.3	40.9	58.3	512,895.29	724,276.61	32° 24' 31.040 N	103° 44' 25.962 W
7,300.0	0.66	223.86	7,298.3	39.9	57.6	512,894.36	724,275.97	32° 24' 31.031 N	103° 44' 25.969 W
7,400.0	0.48	222.54	7,398.3	39.2	56.9	512,893.63	724,275.29	32° 24' 31.024 N	103° 44' 25.977 W
7,425.0	0.48	216.36	7,423.3	39.0	56.8	512,893.47	724,275.16	32° 24' 31.022 N	103° 44' 25.979 W
7,494.0	0.90	240.00	7,492.3	38.5	56.2	512,892.97	724,274.51	32° 24' 31.017 N	103° 44' 25.986 W
7,526.0	5.80	260.40	7,524.3	38.1	54.4	512,892.57	724,272.70	32° 24' 31.014 N	103° 44' 26.007 W
7,557.0	11.80	261.20	7,554.9	37.4	49.7	512,891.83	724,268.02	32° 24' 31.006 N	103° 44' 26.062 W
7,589.0	17.10	262.00	7,585.9	36.2	41.8	512,890.67	724,260.12	32° 24' 30.995 N	103° 44' 26.154 W
7,620.0	22.00	262.10	7,615.1	34.8	31.5	512,889.24	724,249.85	32° 24' 30.982 N	103° 44' 26.274 W
7,651.0	24.60	263.70	7,643.5	33.3	19.3	512,887.73	724,237.68	32° 24' 30.968 N	103° 44' 26.416 W
7,683.0	27.10	265.80	7,672.3	32.0	5.4	512,886.46	724,223.79	32° 24' 30.956 N	103° 44' 26.578 W
7,714.0	30.30	268.30	7,699.5	31.3	-9.4	512,885.72	724,208.93	32° 24' 30.949 N	103° 44' 26.752 W
7,746.0	33.60	269.50	7,726.7	31.0	-26.3	512,885.40	724,192.00	32° 24' 30.947 N	103° 44' 26.949 W
7,777.0	37.00	270.20	7,752.0	30.9	-44.3	512,885.36	724,174.09	32° 24' 30.948 N	103° 44' 27.158 W
7,809.0	40.50	269.50	7,776.9	30.9	-64.3	512,885.30	724,154.07	32° 24' 30.948 N	103° 44' 27.392 W
7,840.0	42.90	268.50	7,800.1	30.5	-84.9	512,884.93	724,133.45	32° 24' 30.946 N	103° 44' 27.632 W
7,872.0	45.00	267.60	7,823.1	29.7	-107.1	512,884.18	724,111.25	32° 24' 30.939 N	103° 44' 27.891 W
7,903.0	47.30	266.30	7,844.6	28.5	-129.4	512,882.98	724,088.93	32° 24' 30.929 N	103° 44' 28.152 W
7,910.0	48.14	266.06	7,849.3	28.2	-134.6	512,882.64	724,083.75	32° 24' 30.926 N	103° 44' 28.212 W
330' Hardline Crossed: 7910' MD / 7849' TVD									
7,934.0	51.00	265.30	7,864.8	26.8	-152.8	512,881.26	724,065.55	32° 24' 30.913 N	103° 44' 28.425 W
7,966.0	54.40	264.60	7,884.2	24.6	-178.1	512,879.01	724,040.20	32° 24' 30.892 N	103° 44' 28.720 W
7,997.0	58.60	265.10	7,901.3	22.3	-203.9	512,876.70	724,014.46	32° 24' 30.871 N	103° 44' 29.021 W
8,029.0	62.10	266.30	7,917.2	20.2	-231.6	512,874.62	723,986.73	32° 24' 30.852 N	103° 44' 29.344 W
8,060.0	64.20	266.90	7,931.2	18.5	-259.2	512,872.98	723,959.12	32° 24' 30.837 N	103° 44' 29.666 W
8,092.0	67.20	267.10	7,944.3	17.0	-288.3	512,871.45	723,930.00	32° 24' 30.823 N	103° 44' 30.006 W
8,123.0	70.90	267.40	7,955.4	15.6	-317.3	512,870.07	723,901.09	32° 24' 30.811 N	103° 44' 30.344 W
8,155.0	74.10	268.30	7,965.0	14.5	-347.8	512,868.92	723,870.60	32° 24' 30.802 N	103° 44' 30.699 W
8,186.0	77.80	269.50	7,972.6	13.9	-377.8	512,868.35	723,840.54	32° 24' 30.798 N	103° 44' 31.050 W
8,217.0	80.20	269.70	7,978.5	13.7	-408.2	512,868.14	723,810.11	32° 24' 30.797 N	103° 44' 31.405 W
8,249.0	82.30	269.50	7,983.3	13.5	-439.9	512,867.92	723,778.48	32° 24' 30.797 N	103° 44' 31.774 W
8,278.0	84.10	270.60	7,986.8	13.5	-468.7	512,867.94	723,749.69	32° 24' 30.798 N	103° 44' 32.110 W
8,309.0	84.50	270.40	7,989.9	13.8	-499.5	512,868.21	723,718.84	32° 24' 30.803 N	103° 44' 32.470 W
8,340.0	84.80	270.00	7,992.8	13.9	-530.4	512,868.32	723,687.98	32° 24' 30.806 N	103° 44' 32.830 W
8,372.0	85.90	269.90	7,995.3	13.9	-562.3	512,868.29	723,656.09	32° 24' 30.807 N	103° 44' 33.202 W
8,403.0	86.90	268.80	7,997.3	13.5	-593.2	512,867.94	723,625.15	32° 24' 30.805 N	103° 44' 33.563 W
8,466.0	92.00	268.30	7,997.9	11.9	-656.2	512,866.35	723,562.19	32° 24' 30.793 N	103° 44' 34.297 W
8,561.0	88.30	266.00	7,997.6	7.2	-751.0	512,861.62	723,467.34	32° 24' 30.751 N	103° 44' 35.404 W
8,655.0	91.10	267.80	7,998.1	2.1	-844.9	512,856.54	723,373.49	32° 24' 30.706 N	103° 44' 36.499 W
8,749.0	89.90	267.10	7,997.3	-2.1	-938.8	512,852.36	723,279.59	32° 24' 30.670 N	103° 44' 37.594 W
8,844.0	90.30	266.90	7,997.2	-7.0	-1,033.6	512,847.39	723,184.72	32° 24' 30.626 N	103° 44' 38.701 W
8,938.0	91.50	268.60	7,995.7	-10.7	-1,127.5	512,843.70	723,090.81	32° 24' 30.595 N	103° 44' 39.797 W
9,032.0	91.70	269.00	7,993.1	-12.7	-1,221.5	512,841.73	722,996.86	32° 24' 30.580 N	103° 44' 40.893 W
9,127.0	90.60	269.00	7,991.1	-14.4	-1,316.4	512,840.07	722,901.90	32° 24' 30.569 N	103° 44' 42.001 W
9,221.0	90.10	268.60	7,990.6	-16.3	-1,410.4	512,838.10	722,807.92	32° 24' 30.555 N	103° 44' 43.097 W
9,315.0	89.70	269.70	7,990.7	-17.7	-1,504.4	512,836.71	722,713.93	32° 24' 30.546 N	103° 44' 44.194 W
9,410.0	89.70	268.30	7,991.2	-19.4	-1,599.4	512,835.05	722,618.95	32° 24' 30.535 N	103° 44' 45.302 W
9,504.0	91.50	268.50	7,990.2	-22.0	-1,693.3	512,832.43	722,525.00	32° 24' 30.514 N	103° 44' 46.398 W
9,598.0	92.90	270.90	7,986.6	-22.5	-1,787.3	512,831.93	722,431.08	32° 24' 30.514 N	103° 44' 47.493 W

Survey Report - Geographic

Company:	Yates Petroleum	**Local Co-ordinate Reference:**	Well #7H
Project:	Eddy, NM (NAD-83)	**TVD Reference:**	Well @ 3571.5usft (Nomac #22 - 21.5' KB)
Site:	Martha AIK Federal	**MD Reference:**	Well @ 3571.5usft (Nomac #22 - 21.5' KB)
Well:	#7H	**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
9,693.0	92.70	272.30	7,982.0	-19.9	-1,882.1	512,834.58	722,336.23	32° 24' 30.545 N	103° 44' 48.600 W
9,787.0	91.50	273.40	7,978.6	-15.2	-1,975.9	512,839.25	722,242.41	32° 24' 30.597 N	103° 44' 49.694 W
9,882.0	89.00	271.60	7,978.1	-11.0	-2,070.8	512,843.40	722,147.52	32° 24' 30.643 N	103° 44' 50.800 W
9,976.0	88.70	269.00	7,980.0	-10.5	-2,164.8	512,843.89	722,053.55	32° 24' 30.653 N	103° 44' 51.896 W
10,070.0	89.60	268.60	7,981.4	-12.5	-2,258.8	512,841.92	721,959.58	32° 24' 30.638 N	103° 44' 52.993 W
10,165.0	90.10	269.20	7,981.7	-14.3	-2,353.8	512,840.10	721,864.60	32° 24' 30.626 N	103° 44' 54.101 W
10,259.0	89.70	269.20	7,981.8	-15.7	-2,447.7	512,838.78	721,770.61	32° 24' 30.618 N	103° 44' 55.197 W
10,354.0	90.10	269.00	7,982.0	-17.1	-2,542.7	512,837.29	721,675.62	32° 24' 30.608 N	103° 44' 56.305 W
10,448.0	89.90	268.80	7,982.0	-18.9	-2,636.7	512,835.49	721,581.64	32° 24' 30.595 N	103° 44' 57.402 W
10,543.0	89.70	268.50	7,982.3	-21.2	-2,731.7	512,833.25	721,486.66	32° 24' 30.578 N	103° 44' 58.510 W
10,637.0	90.40	268.30	7,982.3	-23.8	-2,825.6	512,830.62	721,392.70	32° 24' 30.557 N	103° 44' 59.606 W
10,732.0	90.60	270.00	7,981.4	-25.2	-2,920.6	512,829.22	721,297.72	32° 24' 30.549 N	103° 45' 0.714 W
10,826.0	89.60	271.10	7,981.3	-24.3	-3,014.6	512,830.12	721,203.73	32° 24' 30.563 N	103° 45' 1.810 W
10,921.0	91.10	271.30	7,980.7	-22.3	-3,109.6	512,832.11	721,108.75	32° 24' 30.587 N	103° 45' 2.918 W
11,015.0	88.90	271.10	7,980.7	-20.4	-3,203.6	512,834.08	721,014.78	32° 24' 30.612 N	103° 45' 4.014 W
11,110.0	89.70	270.20	7,981.8	-19.3	-3,298.6	512,835.15	720,919.79	32° 24' 30.628 N	103° 45' 5.122 W
11,204.0	90.30	269.90	7,981.8	-19.2	-3,392.6	512,835.24	720,825.80	32° 24' 30.634 N	103° 45' 6.218 W
11,298.0	89.20	269.20	7,982.2	-19.9	-3,486.5	512,834.50	720,731.80	32° 24' 30.631 N	103° 45' 7.315 W
11,393.0	91.30	268.30	7,981.8	-22.0	-3,581.5	512,832.42	720,636.83	32° 24' 30.616 N	103° 45' 8.423 W
11,487.0	92.20	268.10	7,979.0	-25.0	-3,675.4	512,829.47	720,542.92	32° 24' 30.592 N	103° 45' 9.518 W
11,582.0	91.50	268.30	7,975.9	-27.9	-3,770.3	512,826.49	720,448.02	32° 24' 30.567 N	103° 45' 10.626 W
11,676.0	91.00	269.00	7,973.8	-30.2	-3,864.3	512,824.28	720,354.07	32° 24' 30.550 N	103° 45' 11.722 W
11,771.0	92.90	270.60	7,970.6	-30.5	-3,959.2	512,823.94	720,259.13	32° 24' 30.552 N	103° 45' 12.829 W
11,865.0	91.30	270.20	7,967.2	-29.8	-4,053.1	512,824.60	720,165.20	32° 24' 30.564 N	103° 45' 13.925 W
11,959.0	91.10	269.90	7,965.2	-29.8	-4,147.1	512,824.68	720,071.22	32° 24' 30.570 N	103° 45' 15.021 W
12,054.0	90.10	269.20	7,964.2	-30.5	-4,242.1	512,823.94	719,976.23	32° 24' 30.567 N	103° 45' 16.129 W
12,148.0	90.10	269.20	7,964.0	-31.8	-4,336.1	512,822.62	719,882.24	32° 24' 30.559 N	103° 45' 17.226 W
12,243.0	88.90	269.20	7,964.9	-33.1	-4,431.1	512,821.30	719,787.26	32° 24' 30.551 N	103° 45' 18.334 W
12,509.0	90.40	269.70	7,966.5	-35.7	-4,697.1	512,818.74	719,521.26	32° 24' 30.540 N	103° 45' 21.437 W
Last MWD Survey : 12509' MD / 7966' TVD									
12,560.0	90.40	269.40	7,966.1	-36.1	-4,748.1	512,818.35	719,470.26	32° 24' 30.539 N	103° 45' 22.031 W
Projection to TD: 12560' MD / 7966' TVD : 1750' FNL / 327' FWL - Northing : 512818.34 / Easting : 719470.26									
12,560.8	90.40	269.40	7,966.1	-36.1	-4,748.9	512,818.34	719,469.50	32° 24' 30.539 N	103° 45' 22.040 W

Design Annotations

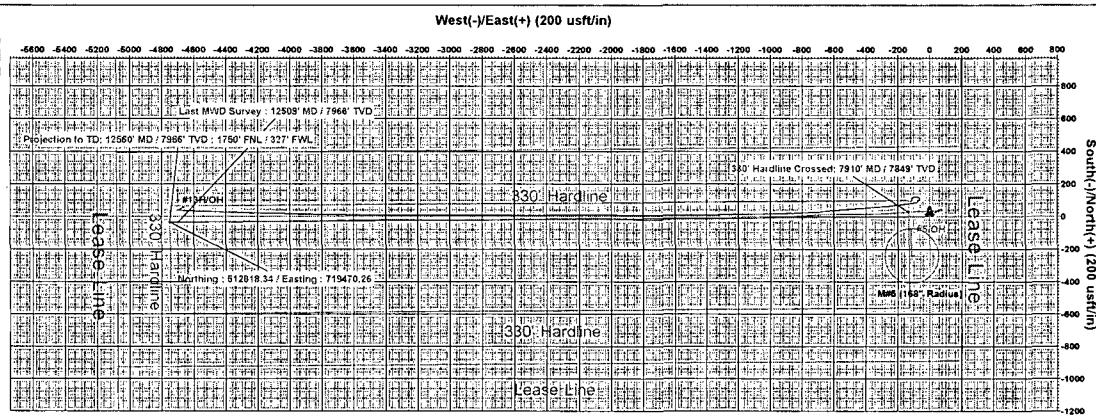
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
7,910.0	7,849.3	28.2	-134.6	330' Hardline Crossed: 7910' MD / 7849' TVD
12,509.0	7,966.5	-35.7	-4,697.1	Last MWD Survey : 12509' MD / 7966' TVD
12,560.0	7,966.1	-36.1	-4,748.1	Projection to TD: 12560' MD / 7966' TVD : 1750' FNL / 327' FWL
12,560.0	7,966.1	-36.1	-4,748.1	Northing : 512818.34 / Easting : 719470.26

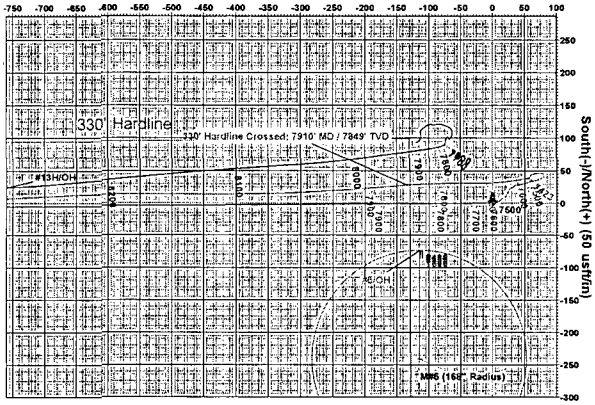
Checked By: _____ Approved By: _____ Date: _____

Yates Petroleum
Project: Eddy, NM (NAD-83)
Site: Martha AIK Federal
Well: #7H
Wellbore: OH
Plan: Final Plan vs Actual

Azimuths to Grid North
True North: -0.32°
Magnetic North: 7.07°

Magnetic Field
Strength: 48472.4snT
Dip Angle: 60.27°
Date: 10/23/2013
Model: IGRF2010





DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
PBHL (M#7H)	7965.0	-35.5	-4748.6	512818.94	719469.72
M#5 (168" Radius)	8416.5	-241.1	-114.6	512613.36	724103.77

WELL DETAILS: #7H

Ground Elevation:: 3550.0
RKB Elevation: Well @ 3571.5usft (Nomac #22 - 21.5' KB)
Rig Name: Nomac #22 - 21.5' KB

Surface Hole Location

Northing	Easting	Latitude	Longitude
512854.43	724218.35	32° 24' 30.639 N	103° 44' 26.644 W

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

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

Plan: Plan #3 (#7H/OH)
Created By: Jason Roe Date: 21:28, December 06 2013

MS Energy Services

Job Number: SVMO-131032
Company: Yates Petroleum Corporation
Lease/Well: Martha AIK Federal 7H
Location: Eddy County, NM
Rig Name: Nomac #22
RKB: 21.5'
G.L. or M.S.L.: GL

State/Country: New Mexico/USA
Declination: 7.07°
Grid: East To Grid North
File name: S:\2013SU~1\YATES\MO\MARTHA~1\7H.SVY
Date/Time: 02-Dec-13 / 11:26
Curve Name: Surface - 7425' M.D. (Rate Gyro)

WINSERVE SURVEY CALCULATIONS
Minimum Curvature Method
Vertical Section Plane 269.57
Vertical Section Referenced to Wellhead
Rectangular Coordinates Referenced to Wellhead

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE Distance FT	CLOSURE Direction Deg	Dogleg Severity Deg/100
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
100.00	.25	160.44	100.00	-.21	.07	-.07	.22	160.44	.25
200.00	.24	168.03	200.00	-.62	.19	-.18	.64	162.90	.03
300.00	.26	147.10	300.00	-1.01	.36	-.35	1.07	160.60	.09
400.00	.16	118.71	400.00	-1.27	.60	-.59	1.40	154.62	.14
500.00	.21	105.18	500.00	-1.38	.90	-.89	1.65	146.93	.07
600.00	.11	84.93	600.00	-1.42	1.17	-1.16	1.85	140.49	.11
700.00	.09	75.44	700.00	-1.40	1.35	-1.33	1.94	136.04	.03
800.00	.14	145.74	800.00	-1.48	1.49	-1.48	2.10	134.74	.14
900.00	.25	136.09	900.00	-1.73	1.71	-1.70	2.44	135.41	.11

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE Distance FT	CLOSURE Direction Deg	Dogleg Severity Deg/100
1000.00	.24	125.70	999.99	-2.01	2.03	-2.02	2.86	134.75	.05
1100.00	.24	91.70	1099.99	-2.14	2.41	-2.39	3.23	131.63	.14
1200.00	.26	85.58	1199.99	-2.13	2.85	-2.83	3.56	126.82	.03
1300.00	.37	65.65	1299.99	-1.98	3.37	-3.35	3.91	120.47	.15
1400.00	.53	61.26	1399.99	-1.63	4.07	-4.05	4.38	111.78	.16
1500.00	.58	51.36	1499.98	-1.09	4.87	-4.86	4.99	102.58	.11
1600.00	.73	46.87	1599.98	-.34	5.73	-5.73	5.74	93.35	.16
1700.00	.76	51.24	1699.97	.52	6.71	-6.71	6.73	85.61	.06
1800.00	.86	54.53	1799.96	1.37	7.84	-7.85	7.96	80.11	.11
1900.00	.96	52.10	1899.95	2.32	9.11	-9.13	9.40	75.73	.11
2000.00	1.02	52.24	1999.93	3.38	10.48	-10.50	11.01	72.14	.06
2100.00	1.08	55.10	2099.91	4.46	11.95	-11.98	12.76	69.54	.08
2200.00	1.11	53.30	2199.90	5.58	13.50	-13.54	14.61	67.55	.05
2300.00	1.24	57.31	2299.87	6.74	15.19	-15.24	16.62	66.07	.15
2400.00	1.36	56.05	2399.85	7.99	17.08	-17.14	18.86	64.94	.12
2500.00	1.59	47.87	2499.82	9.58	19.10	-19.17	21.37	63.35	.31
2600.00	1.77	39.12	2599.77	11.71	21.10	-21.19	24.13	60.97	.31
2700.00	1.82	31.13	2699.72	14.27	22.90	-23.00	26.98	58.07	.25
2800.00	1.35	24.99	2799.69	16.70	24.21	-24.34	29.41	55.41	.50
2900.00	1.40	23.19	2899.66	18.89	25.19	-25.33	31.49	53.14	.07
3000.00	1.17	41.71	2999.63	20.77	26.35	-26.51	33.55	51.76	.47
3100.00	1.25	52.56	3099.61	22.20	27.90	-28.06	35.65	51.49	.24
3200.00	2.34	53.21	3199.56	24.08	30.40	-30.58	38.78	51.61	1.09
3300.00	2.42	55.13	3299.47	26.51	33.77	-33.96	42.93	51.86	.11
3400.00	1.87	83.82	3399.41	27.89	37.12	-37.33	46.43	53.08	1.19
3500.00	1.61	79.63	3499.36	28.32	40.12	-40.34	49.11	54.78	.29
3600.00	1.81	78.29	3599.31	28.90	43.05	-43.27	51.85	56.13	.20
3700.00	2.71	77.79	3699.24	29.72	46.91	-47.13	55.53	57.65	.90
3800.00	3.05	71.21	3799.11	31.07	51.74	-51.97	60.35	59.01	.47

Surface - 7425' M.D. (Rate Gyro) File: S:\2013SU~1\YATES\MO\MARTHA~1\7H.SVY

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE Distance FT	CLOSURE Direction Deg	Dogleg Severity Deg/100
3900.00	3.01	75.08	3898.97	32.61	56.79	-57.04	65.49	60.14	.21
4000.00	2.90	74.31	3998.84	33.97	61.77	-62.02	70.49	61.19	.12
4100.00	2.49	75.11	4098.73	35.21	66.30	-66.56	75.07	62.03	.41
4200.00	1.78	75.39	4198.66	36.16	69.90	-70.17	78.70	62.65	.71
4300.00	1.11	69.03	4298.62	36.90	72.31	-72.59	81.18	62.97	.69
4400.00	1.00	60.16	4398.61	37.68	73.97	-74.25	83.02	63.01	.20
4500.00	.67	75.60	4498.60	38.26	75.30	-75.58	84.46	63.06	.40
4600.00	.94	73.73	4598.59	38.63	76.65	-76.94	85.84	63.25	.27
4700.00	.89	61.25	4698.57	39.24	78.12	-78.41	87.42	63.33	.21
4800.00	.28	37.82	4798.57	39.80	78.95	-79.25	88.42	63.24	.64
4900.00	.35	42.21	4898.57	40.22	79.30	-79.60	88.92	63.11	.07
5000.00	.10	76.84	4998.57	40.47	79.59	-79.90	89.29	63.05	.27
5100.00	.23	50.32	5098.57	40.62	79.83	-80.14	89.57	63.03	.15
5200.00	.38	17.06	5198.56	41.06	80.09	-80.39	90.00	62.85	.23
5300.00	.45	353.13	5298.56	41.77	80.14	-80.45	90.37	62.47	.19
5400.00	.61	324.55	5398.56	42.59	79.78	-80.10	90.44	61.90	.30
5500.00	.39	332.73	5498.55	43.33	79.32	-79.64	90.38	61.35	.23
5600.00	.65	348.87	5598.55	44.19	79.05	-79.38	90.56	60.80	.30
5700.00	.74	330.81	5698.54	45.31	78.63	-78.96	90.75	60.05	.24
5800.00	.71	295.11	5798.53	46.13	77.75	-78.09	90.41	59.32	.45
5900.00	.97	281.47	5898.52	46.57	76.36	-76.71	89.44	58.62	.33
6000.00	.66	268.49	5998.51	46.72	74.95	-75.30	88.32	58.06	.36
6100.00	.72	268.69	6098.51	46.69	73.75	-74.10	87.29	57.66	.06
6200.00	.86	267.27	6198.50	46.64	72.37	-72.72	86.10	57.20	.14
6300.00	1.07	265.32	6298.48	46.53	70.69	-71.04	84.63	56.65	.21
6400.00	1.22	259.08	6398.46	46.25	68.72	-69.06	82.83	56.06	.19
6500.00	1.28	252.63	6498.44	45.71	66.60	-66.95	80.78	55.54	.15
6600.00	1.29	251.26	6598.41	45.02	64.47	-64.81	78.63	55.07	.03
6700.00	.92	263.12	6698.40	44.56	62.61	-62.94	76.85	54.56	.43

Surface - 7425' M.D. (Rate Gyro) File: S:\2013SU~1\YATES\MO\MARTHA~1\7H.SVY

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE Distance FT	CLOSURE Direction Deg	Dogleg Severity Deg/100
6800.00	.60	234.57	6798.39	44.16	61.39	-61.72	75.62	54.27	.49
6900.00	.87	231.99	6898.38	43.39	60.36	-60.69	74.34	54.29	.27
7000.00	.57	220.21	6998.37	42.54	59.44	-59.76	73.10	54.41	.33
7100.00	.57	218.26	7098.37	41.77	58.81	-59.12	72.14	54.62	.02
7200.00	.66	204.82	7198.36	40.86	58.26	-58.57	71.16	54.96	.17
7300.00	.66	223.86	7298.35	39.92	57.62	-57.92	70.10	55.29	.22
7400.00	.48	222.54	7398.35	39.20	56.94	-57.23	69.13	55.46	.18
Last Survey Depth Recorded									
7425.00	.48	216.36	7423.35	39.04	56.81	-57.10	68.93	55.50	.21