30-025-41378

Yates Petroleum

Lea County, NM (NAD-83)
Cranberry BSU State Com
#1H

OH

Design: OH

Standard Survey Report

22 August, 2014

Provide signature page for directional survey

Survey Report

Company:	Yates Petroleum	Local Co-ordinate Reference:	Well #1H
Project:	Lea County, NM (NAD-83)	TVD Reference:	RKB @ 3808.5usft (Nomac 22 - KB=21.5')
Site:	Cranberry BSU State Com	MD Reference:	RKB @ 3808.5usft (Nomac 22 - KB=21.5')
Well:	#1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Houston R5000 Database

Project Lea County, 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 Cranberry BSU State Com

Site Position:		Northing:	541,488.80 usft	Latitude:	32° 29' 9.928 N
From:	Map	Easting:	787,085.20 usft	Longitude:	103° 32' 10.845 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.43 °

Well #1H

Well Position	+N/-S	0.0 usft	Northing:	541,488.80 usft	Latitude:	32° 29' 9.928 N
	+E/-W	0.0 usft	Easting:	787,085.20 usft	Longitude:	103° 32' 10.845 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	3,787.0 usft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/2/2014	7.21	60.36	48,470

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	357.80

Survey Program Date 6/22/2014

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	1,804.0	Survey #1 - Gyro (OH)	CB-GYRO-MS	Camera based gyro multishot
2,000.0	6,030.0	Survey #2 - Gyro2 (OH)	CB-GYRO-MS	Camera based gyro multishot
6,206.0	16,497.0	Survey #3 - 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	0.33	8.80	100.0	0.3	0.0	0.3	0.33	0.33	0.00
200.0	0.22	31.50	200.0	0.7	0.2	0.7	0.15	-0.11	22.70
300.0	0.31	13.97	300.0	1.2	0.4	1.1	0.12	0.09	-17.53
400.0	0.27	4.87	400.0	1.7	0.4	1.6	0.06	-0.04	-9.10
500.0	0.19	14.97	500.0	2.1	0.5	2.0	0.09	-0.08	10.10
600.0	0.28	318.75	600.0	2.4	0.4	2.4	0.24	0.09	-56.22
700.0	0.35	316.32	700.0	2.8	0.0	2.8	0.07	0.07	-2.43
800.0	0.43	282.26	800.0	3.1	-0.6	3.1	0.24	0.08	-34.06

Survey Report

Company:	Yates Petroleum	Local Co-ordinate Reference:	Well #1H
Project:	Lea County, NM (NAD-83)	TVD Reference:	RKB @ 3808.5usft (Nomac 22 - KB=21.5')
Site:	Cranberry BSU State Com	MD Reference:	RKB @ 3808.5usft (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)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
900.0	0.46	300.69	900.0	3.4	-1.3	3.4	0.15	0.03	18.83
1,000.0	0.49	280.33	1,000.0	3.7	-2.0	3.7	0.17	0.03	-20.56
1,100.0	0.37	268.16	1,100.0	3.7	-2.8	3.8	0.15	-0.12	-12.17
1,200.0	0.24	250.16	1,200.0	3.7	-3.3	3.8	0.16	-0.13	-18.00
1,300.0	0.07	181.43	1,300.0	3.5	-3.5	3.7	0.22	-0.17	-68.73
1,400.0	0.20	55.69	1,400.0	3.6	-3.4	3.7	0.25	0.13	-125.74
1,500.0	0.24	342.96	1,500.0	3.9	-3.3	4.0	0.26	0.04	-72.73
1,600.0	0.18	274.21	1,600.0	4.1	-3.5	4.2	0.24	-0.06	-68.75
1,700.0	0.23	160.69	1,700.0	3.9	-3.6	4.0	0.34	0.05	-113.52
1,800.0	0.27	97.47	1,800.0	3.7	-3.3	3.8	0.26	0.04	-63.22
1,804.0	0.31	98.82	1,804.0	3.7	-3.3	3.8	1.00	1.00	-16.25
2,000.0	1.12	93.63	2,000.0	3.5	-0.8	3.5	0.41	0.41	-1.53
2,200.0	2.97	92.03	2,199.8	3.2	6.3	2.9	0.93	0.93	-0.90
2,400.0	3.14	87.79	2,399.5	3.2	17.0	2.5	0.14	0.09	-2.12
2,600.0	3.46	85.93	2,599.2	3.8	28.4	2.7	0.17	0.16	-0.93
2,800.0	3.34	88.49	2,798.9	4.4	40.3	2.9	0.10	-0.06	1.28
3,000.0	2.95	78.42	2,998.6	5.6	51.2	3.6	0.34	-0.20	-5.04
3,200.0	3.65	74.41	3,198.2	8.3	62.3	5.9	0.37	0.35	-2.01
3,400.0	4.30	72.07	3,397.7	12.4	75.6	9.5	0.33	0.33	-1.17
3,600.0	3.23	59.02	3,597.3	17.6	87.6	14.2	0.68	-0.54	-6.53
3,800.0	2.91	54.26	3,797.0	23.4	96.5	19.7	0.20	-0.16	-2.38
4,000.0	2.28	48.11	3,996.8	29.1	103.6	25.1	0.34	-0.32	-3.08
4,200.0	1.88	38.15	4,196.7	34.3	108.8	30.1	0.27	-0.20	-4.98
4,400.0	1.70	25.84	4,396.6	39.5	111.9	35.2	0.21	-0.09	-6.16
4,600.0	1.70	15.79	4,596.5	45.1	114.0	40.7	0.15	0.00	-5.03
4,800.0	1.77	17.35	4,796.4	50.9	115.7	46.4	0.04	0.04	0.78
5,000.0	1.92	15.27	4,996.3	57.1	117.5	52.5	0.08	0.08	-1.04
5,200.0	1.92	11.09	5,196.2	63.6	119.1	59.0	0.07	0.00	-2.09
5,400.0	1.69	21.74	5,396.1	69.6	120.8	64.9	0.20	-0.12	5.33
5,600.0	1.11	20.86	5,596.0	74.1	122.6	69.4	0.29	-0.29	-0.44
5,800.0	0.70	23.73	5,796.0	77.1	123.8	72.3	0.21	-0.21	1.44
6,000.0	1.06	21.23	5,996.0	79.9	124.9	75.1	0.18	0.18	-1.25
6,030.0	1.09	11.11	6,026.0	80.5	125.1	75.6	0.64	0.10	-33.73
6,208.0	1.40	11.40	6,203.9	84.3	125.8	79.4	0.17	0.17	0.16
6,301.0	1.20	19.30	6,296.9	86.3	126.4	81.4	0.29	-0.22	8.49
6,394.0	0.40	306.30	6,389.9	87.4	126.4	82.5	1.24	-0.86	-78.49
6,489.0	0.40	273.60	6,484.9	87.6	125.8	82.7	0.24	0.00	-34.42
6,582.0	0.50	270.80	6,577.9	87.6	125.1	82.8	0.11	0.11	-3.01
6,675.0	0.50	275.70	6,670.9	87.7	124.3	82.8	0.05	0.00	5.27
6,769.0	0.70	274.70	6,764.9	87.8	123.3	83.0	0.21	0.21	-1.06
6,862.0	0.90	277.60	6,857.9	87.9	122.0	83.2	0.22	0.22	3.33
6,955.0	0.90	217.40	6,950.9	87.4	120.9	82.7	0.97	0.00	-64.95
7,048.0	0.90	226.00	7,043.9	86.4	119.9	81.7	0.15	0.00	9.25

Survey Report

Company:	Yates Petroleum	Local Co-ordinate Reference:	Well #1H
Project:	Lea County, NM (NAD-83)	TVD Reference:	RKB @ 3808.5usft (Nomac 22 - KB=21.5')
Site:	Cranberry BSU State Com	MD Reference:	RKB @ 3808.5usft (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)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,142.0	1.10	227.00	7,137.8	85.2	118.7	80.6	0.21	0.21	1.06
7,236.0	0.90	235.10	7,231.8	84.2	117.4	79.6	0.26	-0.21	8.62
7,329.0	0.90	226.20	7,324.8	83.3	116.3	78.7	0.15	0.00	-9.57
7,422.0	1.10	216.50	7,417.8	82.0	115.3	77.6	0.28	0.22	-10.43
7,515.0	1.20	224.20	7,510.8	80.6	114.0	76.2	0.20	0.11	8.28
7,609.0	1.20	219.30	7,604.8	79.2	112.7	74.8	0.11	0.00	-5.21
7,703.0	1.40	224.60	7,698.7	77.6	111.3	73.2	0.25	0.21	5.64
7,796.0	1.60	223.20	7,791.7	75.8	109.6	71.6	0.22	0.22	-1.51
7,890.0	1.60	222.50	7,885.7	73.9	107.8	69.7	0.02	0.00	-0.74
7,984.0	1.60	220.50	7,979.6	71.9	106.1	67.8	0.06	0.00	-2.13
8,078.0	1.40	215.30	8,073.6	70.0	104.6	65.9	0.26	-0.21	-5.53
8,172.0	1.60	216.10	8,167.6	68.0	103.1	64.0	0.21	0.21	0.85
8,265.0	1.40	219.50	8,260.5	66.1	101.7	62.1	0.24	-0.22	3.66
8,359.0	1.80	221.90	8,354.5	64.1	99.9	60.2	0.43	0.43	2.55
8,452.0	1.80	216.00	8,447.5	61.8	98.1	58.0	0.20	0.00	-6.34
8,545.0	1.90	212.10	8,540.4	59.3	96.4	55.6	0.17	0.11	-4.19
8,638.0	2.10	211.20	8,633.4	56.6	94.7	52.9	0.22	0.22	-0.97
8,731.0	1.40	219.70	8,726.3	54.2	93.1	50.6	0.80	-0.75	9.14
8,825.0	1.40	224.60	8,820.3	52.5	91.6	49.0	0.13	0.00	5.21
8,918.0	1.40	226.80	8,913.3	51.0	89.9	47.5	0.11	0.00	4.52
9,012.0	1.40	226.50	9,007.2	49.4	88.2	46.0	0.08	0.00	-2.45
9,105.0	1.20	220.00	9,100.2	47.9	86.8	44.5	0.27	-0.22	-6.99
9,198.0	1.20	206.50	9,193.2	46.3	85.7	43.0	0.30	0.00	-14.52
9,292.0	1.60	206.80	9,287.2	44.2	84.7	40.9	0.43	0.43	0.32
9,385.0	1.90	201.70	9,380.1	41.6	83.5	38.4	0.36	0.32	-5.48
9,478.0	1.40	223.30	9,473.1	39.4	82.2	36.2	0.85	-0.54	23.23
9,571.0	1.20	235.60	9,566.1	38.0	80.6	34.9	0.37	-0.22	13.23
9,665.0	1.40	226.30	9,660.0	36.7	79.0	33.6	0.31	0.21	-9.89
9,758.0	1.40	205.10	9,753.0	34.8	77.7	31.8	0.55	0.00	-22.80
9,852.0	1.60	203.70	9,847.0	32.6	76.6	29.6	0.22	0.21	-1.49
9,945.0	1.40	209.10	9,939.9	30.4	75.6	27.5	0.26	-0.22	5.81
10,039.0	1.60	194.30	10,033.9	28.1	74.7	25.3	0.46	0.21	-15.74
10,132.0	1.90	200.10	10,126.9	25.4	73.8	22.6	0.37	0.32	6.24
10,225.0	1.20	201.00	10,219.8	23.1	73.0	20.3	0.75	-0.75	0.97
10,319.0	1.40	207.30	10,313.8	21.1	72.1	18.4	0.26	0.21	6.70
10,412.0	1.40	184.50	10,406.8	19.0	71.5	16.2	0.60	0.00	-24.52
10,506.0	1.90	176.10	10,500.7	16.3	71.5	13.5	0.59	0.53	-8.94
10,599.0	1.40	165.20	10,593.7	13.7	71.9	10.9	0.63	-0.54	-11.72
10,693.0	1.60	162.30	10,687.7	11.3	72.6	8.5	0.23	0.21	-3.09
10,787.0	1.20	181.70	10,781.6	9.1	72.9	6.3	0.65	-0.43	20.64
10,880.0	1.40	175.50	10,874.6	7.0	73.0	4.2	0.26	0.22	-6.67
10,974.0	1.90	157.10	10,968.6	4.4	73.7	1.6	0.77	0.53	-19.57
11,067.0	1.20	182.90	11,061.5	2.0	74.2	-0.9	1.04	-0.75	27.74

Survey Report

Company:	Yates Petroleum	Local Co-ordinate Reference:	Well #1H
Project:	Lea County, NM (NAD-83)	TVD Reference:	RKB @ 3808.5usft (Nomac 22 - KB=21.5')
Site:	Cranberry BSU State Com	MD Reference:	RKB @ 3808.5usft (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)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,150.0	0.90	162.90	11,144.5	0.5	74.4	-2.4	0.57	-0.36	-24.10
11,180.0	0.90	158.10	11,174.5	0.1	74.5	-2.8	0.25	0.00	-16.00
11,200.0	0.20	40.16	11,194.5	-0.1	74.6	-2.9	5.06	-3.48	-589.68
KOP: 11200.0' MD, 11194.5' TVD									
11,211.0	0.70	1.50	11,205.5	0.0	74.6	-2.8	5.06	4.52	-351.49
11,242.0	3.90	353.10	11,236.5	1.3	74.5	-1.6	10.35	10.32	-27.10
11,273.0	7.40	354.70	11,267.3	4.3	74.2	1.4	11.30	11.29	5.16
11,304.0	10.70	356.60	11,297.9	9.2	73.9	6.3	10.69	10.65	6.13
11,336.0	13.50	356.60	11,329.2	15.8	73.5	13.0	8.75	8.75	0.00
11,367.0	17.40	356.60	11,359.1	24.1	73.0	21.3	12.58	12.58	0.00
11,398.0	21.30	357.60	11,388.3	34.3	72.5	31.5	12.63	12.58	3.23
11,429.0	25.20	358.70	11,416.8	46.6	72.1	43.8	12.66	12.58	3.55
11,460.0	29.70	358.00	11,444.3	60.9	71.7	58.1	14.55	14.52	-2.26
11,491.0	33.60	356.60	11,470.7	77.1	70.9	74.3	12.74	12.58	-3.87
11,519.0	36.40	356.10	11,493.6	93.1	69.9	90.4	10.10	10.00	-2.50
11,550.0	40.10	356.40	11,518.0	112.3	68.7	109.6	11.95	11.94	0.97
11,581.0	44.50	357.10	11,540.9	133.1	67.5	130.4	14.27	14.19	2.26
11,612.0	48.20	357.80	11,562.3	155.5	66.5	152.8	12.05	11.94	2.26
11,643.0	52.30	358.30	11,582.1	179.3	65.7	176.7	13.28	13.23	1.61
11,674.0	55.80	358.90	11,600.3	204.4	65.1	201.8	11.40	11.29	1.94
11,705.0	58.40	359.20	11,617.2	230.4	64.6	227.8	8.43	8.39	0.97
11,736.0	61.80	359.40	11,632.8	257.3	64.3	254.6	10.98	10.97	0.65
11,768.0	64.90	359.00	11,647.0	285.9	63.9	283.2	9.75	9.69	-1.25
11,799.0	68.10	358.70	11,659.3	314.3	63.3	311.6	10.36	10.32	-0.97
11,799.4	68.14	358.70	11,659.5	314.7	63.3	312.0	10.31	10.31	0.00
Cross 330' Hardline:11799.4' MD, 11659.5' TVD, 68.14° INC									
11,831.0	71.40	358.70	11,670.4	344.3	62.7	341.7	10.31	10.31	0.00
11,862.0	74.40	358.50	11,679.5	373.9	61.9	371.3	9.70	9.68	-0.65
11,880.0	76.50	358.20	11,684.0	391.3	61.4	388.7	11.78	11.67	-1.67
11,914.0	80.60	358.90	11,690.8	424.6	60.0	422.0	12.63	12.08	-3.82
11,945.0	83.40	356.80	11,695.1	455.3	58.3	452.7	9.04	9.03	-0.32
11,977.0	84.80	356.90	11,698.4	487.1	56.6	484.5	4.39	4.38	0.31
12,008.0	86.90	357.30	11,700.6	517.9	55.0	515.4	6.90	6.77	1.29
12,039.0	88.90	357.50	11,701.8	548.9	53.6	546.4	6.48	6.45	0.65
12,070.0	90.30	357.60	11,702.0	579.9	52.3	577.4	4.53	4.52	0.32
EOC: 12070.0' MD, 11702.0' TVD, 90.30° INC, 357.60° AZ, 577.4' VS									
12,102.0	90.60	357.80	11,701.7	611.8	51.0	609.4	1.13	0.94	0.63
12,195.0	91.30	358.10	11,700.2	704.7	46.0	702.4	1.98	0.75	-1.83
12,289.0	91.70	358.10	11,697.7	798.4	39.7	796.3	0.43	0.43	0.00
12,383.0	91.70	358.10	11,694.9	892.2	33.3	890.2	0.00	0.00	0.00
12,476.0	90.80	355.40	11,692.9	984.9	26.4	983.2	1.23	-0.97	-0.75
12,569.0	91.00	355.50	11,691.4	1,077.6	19.0	1,076.1	0.24	0.22	0.11
12,662.0	91.70	356.20	11,689.3	1,170.3	12.3	1,169.0	1.06	0.75	0.75
12,756.0	91.30	356.40	11,686.8	1,264.1	6.2	1,262.9	0.48	-0.43	0.21

Survey Report

Company:	Yates Petroleum	**Local Co-ordinate Reference:**	Well #1H
Project:	Lea County, NM (NAD-83)	**TVD Reference:**	RKB @ 3808.5usft (Nomac 22 - KB=21.5')
Site:	Cranberry BSU Slate Com	**MD Reference:**	RKB @ 3808.5usft (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)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,849.0	91.80	356.60	11,684.3	1,356.9	0.5	1,355.9	0.58	0.54	0.22
12,943.0	90.60	355.70	11,682.3	1,450.6	-5.8	1,449.8	1.60	-1.28	-0.96
13,037.0	91.50	355.90	11,680.6	1,544.4	-12.7	1,543.7	0.98	0.96	0.21
13,130.0	91.00	356.60	11,678.8	1,637.2	-18.7	1,636.7	0.92	-0.54	0.75
13,223.0	90.80	356.90	11,677.1	1,730.0	-24.0	1,729.6	0.39	-0.22	0.32
13,316.0	91.10	357.30	11,675.8	1,822.9	-28.7	1,822.6	0.54	0.32	0.43
13,410.0	91.50	357.60	11,673.4	1,916.7	-32.9	1,916.6	0.53	0.43	0.32
13,503.0	91.80	357.50	11,670.7	2,009.6	-36.9	2,009.6	0.34	0.32	-0.11
13,596.0	90.80	356.40	11,668.6	2,102.5	-41.8	2,102.5	1.60	-1.08	-1.18
13,690.0	90.60	356.90	11,667.3	2,196.3	-47.3	2,196.5	0.53	0.00	0.53
13,784.0	91.50	357.60	11,665.4	2,290.2	-51.8	2,290.5	1.05	0.74	0.74
13,877.0	91.80	358.20	11,662.8	2,383.1	-55.2	2,383.4	0.72	0.32	0.65
13,971.0	91.50	357.60	11,660.1	2,477.0	-58.7	2,477.4	0.71	-0.32	-0.64
14,064.0	91.00	356.60	11,658.0	2,569.8	-63.4	2,570.4	1.20	-0.54	-1.08
14,157.0	91.30	356.80	11,656.2	2,662.6	-68.7	2,663.3	0.39	0.32	0.22
14,251.0	91.80	356.90	11,653.6	2,756.5	-73.9	2,757.3	0.54	0.53	0.11
14,344.0	90.30	356.20	11,651.9	2,849.3	-79.5	2,850.2	1.78	-1.61	-0.75
14,438.0	90.80	356.10	11,651.0	2,943.1	-85.8	2,944.2	0.54	0.53	-0.11
14,531.0	91.30	355.90	11,649.3	3,035.8	-92.3	3,037.1	0.58	0.54	-0.22
14,625.0	92.00	355.90	11,646.6	3,129.5	-99.0	3,131.0	0.74	0.74	0.00
14,718.0	92.60	355.70	11,642.9	3,222.2	-105.8	3,223.9	0.68	0.65	-0.22
14,812.0	91.70	355.90	11,639.3	3,315.9	-112.7	3,317.8	0.98	-0.96	0.21
14,905.0	91.10	356.80	11,637.1	3,408.7	-118.6	3,410.7	1.16	-0.65	0.97
14,998.0	91.10	357.30	11,635.3	3,501.5	-123.4	3,503.7	0.54	0.00	0.54
15,091.0	90.40	358.50	11,634.1	3,594.5	-126.8	3,596.7	1.49	-0.75	1.29
15,185.0	91.10	359.70	11,632.8	3,688.4	-129.1	3,690.7	0.77	0.74	0.21
15,278.0	92.20	359.20	11,630.2	3,781.4	-130.8	3,783.6	1.30	1.18	0.54
15,372.0	92.70	359.70	11,626.1	3,875.3	-131.7	3,877.5	0.75	0.53	0.53
15,466.0	91.10	358.90	11,623.0	3,969.2	-132.9	3,971.4	1.90	-1.70	-0.85
15,559.0	91.70	358.50	11,620.7	4,062.2	-135.0	4,064.4	0.78	0.65	-0.43
15,653.0	91.10	356.90	11,618.5	4,156.1	-138.7	4,158.3	1.82	-0.64	-1.70
15,746.0	91.00	356.60	11,616.7	4,248.9	-144.0	4,251.3	0.34	-0.11	-0.32
15,840.0	89.90	356.10	11,616.0	4,342.7	-150.0	4,345.3	1.29	-1.17	-0.53
15,934.0	90.30	356.20	11,615.8	4,436.5	-156.3	4,439.2	0.44	0.43	0.11
16,027.0	90.40	356.60	11,615.3	4,529.3	-162.1	4,532.2	0.44	0.11	0.43
16,121.0	91.50	356.20	11,613.7	4,623.1	-168.0	4,626.1	1.25	1.17	-0.43
16,214.0	92.00	356.40	11,610.9	4,715.9	-174.0	4,719.1	0.58	0.54	0.22
16,307.0	93.10	356.80	11,606.7	4,808.6	-179.6	4,812.0	1.26	1.18	0.43
16,401.0	91.80	356.40	11,602.7	4,902.4	-185.1	4,905.8	1.45	-1.38	-0.43
16,431.0	91.23	355.90	11,601.9	4,932.3	-187.1	4,935.8	2.53	-1.90	-1.67
Cross 330' Hardline:16431.0' MD, 11601.9' TVD, 91.23° INC									
16,443.0	91.00	355.70	11,601.7	4,944.2	-188.0	4,947.8	2.53	-1.90	-1.67
Final MWD Survey: 16443.0' MD, 11601.7' TVD, 4944.2' +N/-S, -188.0' +E/-W									
16,497.0	91.00	355.70	11,600.8	4,998.1	-192.1	5,001.8	0.00	0.00	0.00

Survey Report

Company:	Yates Petroleum	Local Co-ordinate Reference:	Well #1H
Project:	Lea County, NM (NAD-83)	TVD Reference:	RKB @ 3808.5usft (Nomac 22 - KB=21.5')
Site:	Cranberry BSU State Com	MD Reference:	RKB @ 3808.5usft (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)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
BHL: 16497.0' MD, 11600.8' TVD, 91.00° INC, 355.70° AZ, 4998.1' +N/-S, -192.1' +E/-W, 5001.8' VS - TD: 16497.0' MD, 11600.8' TVD									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
11,200.0	11,194.5	-0.1	74.6	KOP: 11200.0' MD, 11194.5' TVD
11,799.4	11,659.5	314.7	83.3	Cross 330' Hardline:11799.4' MD, 11659.5' TVD, 88.14° INC
12,070.0	11,702.0	579.9	52.3	EOC: 12070.0' MD, 11702.0' TVD, 90.30° INC, 357.60° AZ, 577.4' VS
16,431.0	11,601.9	4,932.3	-167.1	Cross 330' Hardline:16431.0' MD, 11601.9' TVD, 91.23° INC
16,443.0	11,601.7	4,944.2	-168.0	Final MWD Survey: 16443.0' MD, 11601.7' TVD, 4944.2' +N/-S, -168.0' +E/-W
16,497.0	11,600.8	4,998.1	-192.1	BHL: 16497.0' MD, 11600.8' TVD, 91.00° INC, 355.70° AZ, 4998.1' +N/-S, -192.
16,497.0	11,600.8	4,998.1	-192.1	TD: 16497.0' MD, 11600.8' TVD

Checked By: _____ Approved By: _____ Date: _____