



NM OIL CONSERVATION
ARTESIA DISTRICT

DEC 31 2014

RECEIVED

30-015-
42239

Yates Petroleum Corp.

Eddy County, NM(NAD83)

Wolf AJA Federal Com

#21H

OH

Design: OH

Standard Survey Report

05 August, 2014



Survey Report

Company:	Yates Petroleum Corp.	Local Co-ordinate Reference:	Well #21H
Project:	Eddy County NM(NAD83)	TVD Reference:	WELL1 @ 3574.5usft
Site:	Wolf AJA Federal Com	MD Reference:	WELL1 @ 3574.5usft
Well:	#21H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	CompassEDM

Project	Eddy County NM(NAD83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Wolf AJA Federal Com		
Site Position:		Northing:	521,358.39 usft
From:	Map	Easting:	725,026.02 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 25' 54.743 N
		Longitude:	103° 44' 16.670 W
		Grid Convergence:	0.32 °

Well	#21H		
Well Position	+N/-S	0.0 usft	Northing: 521,358.39 usft
	+E/-W	0.0 usft	Easting: 725,026.02 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	32° 25' 54.743 N
		Longitude:	103° 44' 16.670 W
		Ground Level:	3,556.0 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2010	5/12/2014	7.32
			Dip Angle (°)
			60.28
			Field Strength (nT)
			48,432

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)
	0.0	0.0	0.0
			Direction (°)
			358.11

Survey Program	Date 8/5/2014		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name
100.0	16,745.0	MWD #1 (OH)	MWD
			Description
			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	0.48	78.33	100.0	0.1	0.4	0.1	0.48	0.48	0.00	
200.0	0.71	32.72	200.0	0.7	1.2	0.7	0.51	0.23	-45.61	
300.0	0.53	68.64	300.0	1.4	1.9	1.3	0.42	-0.18	35.92	
400.0	0.79	43.44	400.0	2.0	2.8	2.0	0.38	0.26	-25.20	
500.0	0.59	45.31	500.0	2.9	3.7	2.8	0.20	-0.20	1.87	
600.0	0.85	55.03	600.0	3.7	4.6	3.5	0.29	0.26	9.72	
700.0	1.11	37.92	700.0	4.9	5.8	4.7	0.39	0.26	-17.11	
804.0	1.10	28.80	803.9	6.6	6.9	6.3	0.17	-0.01	-8.77	
899.0	1.20	29.70	898.9	8.2	7.9	8.0	0.11	0.11	0.95	



Survey Report

Company:	Yates Petroleum Corp.	Local Co-ordinate Reference:	Well #21H
Project:	Eddy County, NM(NAD83)	TVD Reference:	WELL1 @ 3574.5usft
Site:	Wolf AJA Federal Com	MD Reference:	WELL1 @ 3574.5usft
Well:	#21H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	CompassEDM

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)
994.0	1.10	29.00	993.9	9.9	8.8	9.6	0.11	-0.11	-0.74
1,089.0	0.40	99.50	1,088.9	10.6	9.6	10.3	1.09	-0.74	74.21
1,184.0	0.40	76.10	1,183.9	10.7	10.2	10.3	0.17	0.00	-24.63
1,278.0	0.50	75.90	1,277.9	10.8	10.9	10.5	-0.11	0.11	-0.21
1,373.0	0.60	86.50	1,372.9	11.0	11.8	10.6	0.15	0.11	11.16
1,468.0	0.90	78.40	1,467.9	11.1	13.1	10.7	-0.33	0.32	-8.53
1,563.0	1.30	73.80	1,562.9	11.6	14.8	11.1	0.43	0.42	-4.84
1,658.0	1.80	67.50	1,657.8	12.5	17.2	11.9	0.56	0.53	-6.63
1,753.0	1.70	73.80	1,752.8	13.4	20.0	12.8	0.23	-0.11	6.63
1,848.0	1.10	62.40	1,847.7	14.2	22.1	13.5	0.69	-0.63	-12.00
1,943.0	1.00	42.20	1,942.7	15.3	23.5	14.5	0.40	-0.11	-21.26
2,038.0	0.90	84.20	2,037.7	16.0	24.8	15.1	0.72	-0.11	44.21
2,133.0	1.10	51.50	2,132.7	16.6	26.3	15.7	0.63	0.21	-34.42
2,228.0	0.80	0.70	2,227.7	17.8	27.0	16.9	0.90	-0.32	-53.47
2,323.0	0.60	95.60	2,322.7	18.5	27.5	17.5	1.09	-0.21	99.89
2,418.0	0.80	54.60	2,417.7	18.8	28.5	17.8	0.55	0.21	-43.16
2,513.0	1.10	106.30	2,512.7	18.9	29.9	17.9	0.92	0.32	54.42
2,608.0	1.20	109.10	2,607.6	18.3	31.8	17.3	0.12	0.11	2.95
2,703.0	2.70	109.30	2,702.6	17.3	34.8	16.1	1.58	1.58	0.21
2,798.0	1.60	113.70	2,797.5	16.0	38.1	14.7	1.17	-1.16	4.63
2,893.0	0.70	21.90	2,892.5	16.0	39.6	14.7	1.86	-0.95	-96.63
2,988.0	1.70	48.10	2,987.5	17.5	40.8	16.1	1.17	1.05	27.58
3,083.0	1.00	48.70	3,082.5	19.0	42.5	17.6	0.74	-0.74	0.63
3,177.0	0.20	56.90	3,176.5	19.6	43.3	18.2	0.85	-0.85	8.72
3,272.0	0.70	62.70	3,271.5	20.0	43.9	18.5	0.53	0.53	6.11
3,367.0	0.40	96.30	3,366.4	20.2	44.8	18.7	0.45	-0.32	35.37
3,462.0	0.50	204.80	3,461.4	19.8	44.9	18.3	0.77	0.11	114.21
3,557.0	1.50	208.80	3,556.4	18.3	44.1	16.8	1.05	1.05	4.21
3,652.0	0.70	228.70	3,651.4	16.8	43.1	15.4	0.92	-0.84	20.95
3,747.0	0.40	258.70	3,746.4	16.4	42.3	15.0	0.43	-0.32	31.58
3,842.0	0.60	250.30	3,841.4	16.2	41.5	14.8	0.22	0.21	-8.84
3,937.0	0.10	20.70	3,936.4	16.1	41.1	14.7	0.70	-0.53	137.26
4,032.0	0.60	39.70	4,031.4	16.5	41.5	15.2	0.53	0.53	20.00
4,127.0	0.90	61.80	4,126.4	17.3	42.4	15.9	0.43	0.32	23.26
4,221.0	0.30	126.90	4,220.4	17.5	43.3	16.0	0.87	-0.64	69.26
4,316.0	0.40	139.20	4,315.4	17.1	43.7	15.6	0.13	0.11	12.95
4,359.0	0.30	149.40	4,358.4	16.9	43.8	15.4	0.27	-0.23	23.72
4,528.0	0.20	115.30	4,527.4	16.3	44.3	14.9	0.10	-0.06	-20.18
4,623.0	0.10	167.70	4,622.4	16.2	44.5	14.7	0.17	-0.11	55.16
4,718.0	0.10	158.50	4,717.4	16.0	44.6	14.6	0.02	0.00	-9.68
4,812.0	0.30	42.90	4,811.4	16.1	44.8	14.7	0.38	0.21	-122.98
4,907.0	0.40	37.60	4,906.4	16.6	45.1	15.1	0.11	0.11	-5.58
5,002.0	0.40	26.20	5,001.4	17.1	45.5	15.6	0.08	0.00	-12.00
5,097.0	0.40	18.60	5,096.4	17.8	45.7	16.2	0.06	0.00	-8.00



Survey Report

Company:	Yates Petroleum Corp.	Local Co-ordinate Reference:	Well #21H
Project:	Eddy County, NM(NAD83)	TVD Reference:	WELL1 @ 3574.5usft
Site:	Wolf AJA Federal Com	MD Reference:	WELL1 @ 3574.5usft
Well:	#21H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	CompassEDM

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)
5,192.0	0.30	338.50	5,191.4	18.3	45.7	16.8	0.27	-0.11	-42.21
5,287.0	0.50	302.30	5,286.4	18.8	45.3	17.3	0.33	0.21	-38.11
5,382.0	0.70	287.20	5,381.4	19.2	44.4	17.7	0.27	0.21	-15.89
5,477.0	0.80	304.10	5,476.4	19.7	43.3	18.3	0.25	0.11	17.79
5,572.0	0.70	289.50	5,571.4	20.3	42.2	18.9	0.23	-0.11	-15.37
5,666.0	0.70	298.40	5,665.3	20.7	41.1	19.4	0.12	0.00	9.47
5,762.0	0.60	300.90	5,761.3	21.3	40.2	19.9	0.11	-0.10	2.60
5,857.0	0.70	287.40	5,856.3	21.7	39.2	20.4	0.19	0.11	-14.21
5,952.0	0.80	295.30	5,951.3	22.1	38.1	20.9	0.15	0.11	8.32
6,046.0	0.80	289.10	6,045.3	22.6	36.9	21.4	0.09	0.00	-6.60
6,141.0	0.80	283.00	6,140.3	23.0	35.6	21.8	0.09	0.00	-6.42
6,236.0	0.90	281.00	6,235.3	23.3	34.2	22.2	0.11	0.11	-2.11
6,331.0	1.00	273.80	6,330.3	23.5	32.6	22.4	0.16	0.11	-7.58
6,426.0	1.10	280.70	6,425.3	23.7	30.9	22.7	0.17	0.11	7.26
6,521.0	1.20	280.50	6,520.2	24.1	29.0	23.1	0.11	0.11	-0.21
6,616.0	1.20	250.80	6,615.2	23.9	27.1	23.0	0.65	0.00	-31.26
6,710.0	1.10	241.30	6,709.2	23.2	25.4	22.3	0.23	-0.11	-10.11
6,805.0	1.00	237.40	6,804.2	22.3	23.9	21.5	0.13	-0.11	-4.11
6,900.0	1.10	224.60	6,899.2	21.2	22.6	20.4	0.27	0.11	-13.47
6,995.0	0.70	219.00	6,994.2	20.1	21.6	19.4	0.43	-0.42	-5.89
7,090.0	0.70	228.30	7,089.2	19.3	20.8	18.6	0.12	0.00	9.79
7,185.0	0.50	229.00	7,184.2	18.6	20.0	17.9	0.21	-0.21	0.74
7,280.0	0.60	227.80	7,279.1	18.0	19.3	17.3	0.11	0.11	-1.26
7,390.0	0.60	222.90	7,389.1	17.2	18.5	16.6	0.05	0.00	-4.45
7,483.0	0.50	235.50	7,482.1	16.6	17.9	16.0	0.17	-0.11	13.55
7,507.0	0.60	230.90	7,506.1	16.5	17.7	15.9	0.46	0.42	-19.17
7,532.0	0.60	226.00	7,531.1	16.3	17.5	15.7	0.21	0.00	-19.60
7,563.0	1.10	339.10	7,562.1	16.4	17.3	15.9	4.66	1.61	364.84
7,595.0	4.30	355.80	7,594.1	17.9	17.1	17.4	10.19	10.00	52.19
7,627.0	7.70	0.00	7,625.9	21.3	17.0	20.7	10.71	10.63	13.13
7,659.0	10.80	4.00	7,657.5	26.4	17.2	25.8	9.89	9.69	12.50
7,691.0	13.70	7.70	7,688.8	33.2	17.9	32.5	9.38	9.06	11.56
7,723.0	17.10	7.20	7,719.6	41.6	19.0	40.9	10.63	10.63	-1.56
7,755.0	20.30	6.10	7,749.9	51.8	20.2	51.1	10.06	10.00	-3.44
7,787.0	22.70	4.90	7,779.7	63.4	21.3	62.7	7.62	7.50	-3.75
7,818.0	25.10	2.80	7,808.0	76.0	22.1	75.2	8.21	7.74	-6.77
7,851.0	28.80	1.70	7,837.4	90.9	22.7	90.1	11.31	11.21	-3.33
7,882.0	32.40	1.00	7,864.1	106.7	23.1	105.9	11.67	11.61	-2.26
7,912.0	35.30	1.20	7,889.0	123.4	23.4	122.6	9.67	9.67	0.67
7,944.0	37.70	1.00	7,914.8	142.4	23.8	141.6	7.51	7.50	-0.63
7,974.0	40.00	0.30	7,938.1	161.2	24.0	160.4	7.81	7.67	-2.33
8,006.0	43.40	359.80	7,962.0	182.5	24.0	181.6	10.68	10.63	-1.56
8,038.0	47.70	359.80	7,984.4	205.4	23.9	204.5	13.44	13.44	0.00



Survey Report

Company:	Yates Petroleum Corp.	Local Co-ordinate Reference:	Well #21H
Project:	Eddy County, NM(NAD83)	TVD Reference:	WELL1 @ 3574.5usft
Site:	Wolf AJA Federal Com	MD Reference:	WELL1 @ 3574.5usft
Well:	#21H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	CompassEDM

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)
8,069.0	51.60	359.60	8,004.5	229.0	23.8	228.1	12.59	12.58	-0.65
8,101.0	54.70	0.00	8,023.7	254.6	23.7	253.7	9.74	9.69	1.25
8,133.0	57.10	359.60	8,041.6	281.1	23.6	280.1	7.57	7.50	-1.25
8,165.0	59.00	358.90	8,058.5	308.2	23.2	307.3	6.22	5.94	-2.19
8,196.0	60.20	357.90	8,074.2	335.0	22.5	334.0	4.77	3.87	-3.23
8,228.0	62.70	356.60	8,089.5	363.0	21.1	362.1	8.59	7.81	-4.06
8,258.0	66.00	355.90	8,102.5	390.0	19.4	389.2	11.20	11.00	-2.33
8,290.0	71.10	355.80	8,114.2	419.7	17.2	418.9	15.94	15.94	-0.31
8,322.0	73.60	356.30	8,123.9	450.1	15.1	449.4	7.95	7.81	1.56
8,354.0	75.30	356.80	8,132.5	480.9	13.3	480.2	5.52	5.31	1.56
8,385.0	78.10	357.20	8,139.6	511.0	11.7	510.4	9.12	9.03	1.29
8,417.0	81.60	357.90	8,145.2	542.5	10.3	541.8	11.15	10.94	2.19
8,439.0	83.40	358.40	8,148.1	564.3	9.6	563.7	8.49	8.18	2.27
8,471.0	85.20	358.40	8,151.3	596.1	8.7	595.5	5.63	5.63	0.00
8,502.0	86.60	357.30	8,153.5	627.0	7.6	626.4	5.74	4.52	-3.55
8,533.0	87.00	357.20	8,155.2	657.9	6.1	657.4	1.33	1.29	-0.32
8,565.0	87.40	356.30	8,156.8	689.8	4.3	689.3	3.07	1.25	-2.81
8,597.0	88.70	355.20	8,157.9	721.7	1.9	721.3	5.32	4.06	-3.44
8,628.0	90.50	354.50	8,158.1	752.6	-0.9	752.2	6.23	5.81	-2.26
8,723.0	93.00	356.80	8,155.2	847.3	-8.1	847.1	3.57	2.63	2.42
8,818.0	92.20	357.20	8,150.9	942.0	-13.0	942.0	0.94	-0.84	0.42
8,913.0	91.90	356.80	8,147.5	1,036.8	-18.0	1,036.9	0.53	-0.32	-0.42
9,009.0	91.80	357.20	8,144.4	1,132.7	-23.0	1,132.8	0.43	-0.10	0.42
9,104.0	89.90	358.00	8,143.0	1,227.6	-27.0	1,227.8	2.17	-2.00	0.84
9,198.0	89.50	358.20	8,143.5	1,321.5	-30.1	1,321.8	0.48	-0.43	0.21
9,293.0	91.50	358.60	8,142.7	1,416.5	-32.8	1,416.8	2.15	2.11	0.42
9,388.0	90.90	358.90	8,140.7	1,511.4	-34.9	1,511.8	0.71	-0.63	0.32
9,483.0	90.70	359.10	8,139.3	1,606.4	-36.5	1,606.7	0.30	-0.21	0.21
9,577.0	90.40	359.60	8,138.4	1,700.4	-37.6	1,700.7	0.62	-0.32	0.53
9,672.0	92.10	0.00	8,136.4	1,795.4	-37.9	1,795.6	1.84	1.79	0.42
9,768.0	90.20	359.40	8,134.4	1,891.3	-38.4	1,891.6	2.08	-1.98	-0.63
9,864.0	89.20	358.60	8,134.9	1,987.3	-40.1	1,987.6	1.33	-1.04	-0.83
9,959.0	87.50	357.70	8,137.7	2,082.2	-43.1	2,082.5	2.02	-1.79	-0.95
10,051.0	87.40	356.30	8,141.8	2,174.0	-48.0	2,174.4	1.52	-0.11	-1.52
10,147.0	88.20	355.20	8,145.5	2,269.7	-55.1	2,270.3	1.42	0.83	-1.15
10,242.0	91.60	355.80	8,145.6	2,364.4	-62.5	2,365.1	3.63	3.58	0.63
10,335.0	92.00	355.80	8,142.7	2,457.1	-69.3	2,458.0	0.43	0.43	0.00
10,431.0	92.20	355.90	8,139.2	2,552.8	-76.3	2,553.9	0.23	0.21	0.10
10,524.0	91.50	357.70	8,136.2	2,645.6	-81.5	2,646.8	2.08	-0.75	1.94
10,618.0	90.40	357.70	8,134.6	2,739.5	-85.2	2,740.8	1.17	-1.17	0.00
10,714.0	90.70	357.00	8,133.7	2,835.4	-89.7	2,836.8	0.79	0.31	-0.73
10,807.0	91.50	357.30	8,131.9	2,928.2	-94.3	2,929.7	0.92	0.86	0.32
10,901.0	91.00	359.40	8,129.9	3,022.2	-97.0	3,023.7	2.30	-0.53	2.23



Survey Report

Company:	Yates Petroleum Corp.	Local Co-ordinate Reference:	Well #21H
Project:	Eddy County, NM(NAD83)	TVD Reference:	WELL1 @ 3574.5usft
Site:	Wolf AJA Federal Com	MD Reference:	WELL1 @ 3574.5usft
Well:	#21H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	CompassEDM

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)
10,980.0	90.50	359.60	8,128.8	3,101.1	-97.7	3,102.7	0.68	-0.63	0.25
11,074.0	91.40	359.30	8,127.3	3,195.1	-98.6	3,196.6	1.01	0.96	-0.32
11,169.0	92.20	358.90	8,124.3	3,290.1	-100.1	3,291.6	0.94	0.84	-0.42
11,261.0	91.90	358.90	8,121.0	3,382.0	-101.8	3,383.5	0.33	-0.33	0.00
11,353.0	89.10	357.50	8,120.2	3,473.9	-104.7	3,475.5	3.40	-3.04	-1.52
11,446.0	89.70	357.30	8,121.2	3,566.8	-109.0	3,568.5	0.68	0.65	-0.22
11,539.0	90.70	358.20	8,120.8	3,659.8	-112.6	3,661.5	1.45	1.08	0.97
11,632.0	89.30	358.60	8,120.8	3,752.7	-115.2	3,754.5	1.57	-1.51	0.43
11,724.0	90.30	358.60	8,121.2	3,844.7	-117.4	3,846.5	1.09	1.09	0.00
11,817.0	88.10	357.70	8,122.5	3,937.6	-120.5	3,939.5	2.56	-2.37	-0.97
11,910.0	88.40	357.20	8,125.3	4,030.5	-124.6	4,032.4	0.63	0.32	-0.54
12,002.0	89.20	359.20	8,127.2	4,122.4	-127.5	4,124.4	2.34	0.87	2.17
12,092.0	89.50	358.90	8,128.3	4,212.4	-129.0	4,214.4	0.47	0.33	-0.33
12,186.0	90.00	358.20	8,128.7	4,306.4	-131.3	4,308.4	0.92	0.53	-0.74
12,279.0	90.40	357.90	8,128.3	4,399.3	-134.5	4,401.4	0.54	0.43	-0.32
12,374.0	91.50	357.30	8,126.8	4,494.2	-138.5	4,496.3	1.32	1.16	-0.63
12,467.0	92.70	357.30	8,123.4	4,587.0	-142.9	4,589.3	1.29	1.29	0.00
12,558.0	93.00	356.60	8,118.8	4,677.8	-147.7	4,680.1	0.84	0.33	-0.77
12,652.0	91.50	356.60	8,115.1	4,771.6	-153.3	4,774.0	1.60	-1.60	0.00
12,745.0	91.90	358.20	8,112.4	4,864.4	-157.5	4,867.0	1.77	0.43	1.72
12,839.0	91.00	359.40	8,110.0	4,958.4	-159.5	4,960.9	1.60	-0.96	1.28
12,933.0	91.60	358.90	8,107.9	5,052.3	-160.9	5,054.9	0.83	0.64	-0.53
13,027.0	92.90	358.60	8,104.2	5,146.2	-162.9	5,148.8	1.42	1.38	-0.32
13,120.0	90.80	358.70	8,101.2	5,239.2	-165.1	5,241.8	2.26	-2.26	0.11
13,214.0	90.90	357.30	8,099.8	5,333.1	-168.4	5,335.7	1.49	0.11	-1.49
13,309.0	93.30	357.00	8,096.3	5,427.9	-173.1	5,430.7	2.55	2.53	-0.32
13,404.0	92.70	357.20	8,091.3	5,522.7	-177.9	5,525.5	0.67	-0.63	0.21
13,498.0	88.60	358.70	8,090.3	5,616.6	-181.3	5,619.5	4.64	-4.36	1.60
13,593.0	90.70	358.00	8,090.8	5,711.5	-184.0	5,714.5	2.33	2.21	-0.74
13,688.0	91.50	359.60	8,089.0	5,806.5	-186.0	5,809.4	1.88	0.84	1.68
13,783.0	90.00	0.10	8,087.8	5,901.5	-186.2	5,904.4	1.66	-1.58	0.53
13,878.0	87.80	359.40	8,089.6	5,996.4	-186.6	5,999.3	2.43	-2.32	-0.74
13,993.0	90.30	358.40	8,091.5	6,111.4	-188.8	6,114.3	2.34	2.17	-0.87
14,087.0	90.70	358.60	8,090.7	6,205.4	-191.3	6,208.3	0.48	0.43	0.21
14,181.0	89.40	357.70	8,090.6	6,299.3	-194.3	6,302.3	1.68	-1.38	-0.96
14,274.0	89.00	356.80	8,091.9	6,392.2	-198.8	6,395.3	1.06	-0.43	-0.97
14,369.0	90.00	357.50	8,092.7	6,487.1	-203.5	6,490.2	1.28	1.05	0.74
14,464.0	88.80	357.70	8,093.7	6,582.0	-207.5	6,585.2	1.28	-1.26	0.21
14,559.0	87.80	357.50	8,096.5	6,676.8	-211.5	6,680.2	1.07	-1.05	-0.21
14,654.0	89.70	358.70	8,098.6	6,771.8	-214.6	6,775.2	2.37	2.00	1.26
14,748.0	89.30	359.10	8,099.4	6,865.7	-216.4	6,869.1	0.60	-0.43	0.43
14,843.0	90.00	358.60	8,100.0	6,960.7	-218.3	6,964.1	0.91	0.74	-0.53
14,937.0	89.90	358.40	8,100.1	7,054.7	-220.8	7,058.1	0.24	-0.11	-0.21
15,030.0	91.40	358.60	8,099.0	7,147.6	-223.2	7,151.1	1.63	1.61	0.22



Survey Report

Company:	Yates Petroleum Corp.	Local Co-ordinate Reference:	Well #21H
Project:	Eddy County, NM(NAD83)	TVD Reference:	WELL1 @ 3574.5usft
Site:	Wolf/AJA Federal Com	MD Reference:	WELL1 @ 3574.5usft
Well:	#21H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	CompassEDM

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)
15,125.0	91.50	358.60	8,096.6	7,242.6	-225.6	7,246.1	0.11	0.11	0.00
15,219.0	90.10	357.30	8,095.3	7,336.5	-228.9	7,340.1	2.03	-1.49	-1.38
15,315.0	90.20	357.90	8,095.1	7,432.4	-232.9	7,436.1	0.63	0.10	0.63
15,410.0	90.50	357.20	8,094.5	7,527.3	-237.0	7,531.1	0.80	0.32	-0.74
15,505.0	90.70	357.30	8,093.5	7,622.2	-241.6	7,626.0	0.24	0.21	0.11
15,600.0	90.40	357.20	8,092.6	7,717.1	-246.1	7,721.0	0.33	-0.32	-0.11
15,695.0	90.00	356.80	8,092.3	7,812.0	-251.1	7,816.0	0.60	-0.42	-0.42
15,790.0	91.00	357.00	8,091.4	7,906.8	-256.2	7,911.0	1.07	1.05	0.21
15,885.0	91.90	357.50	8,089.0	8,001.7	-260.8	8,005.9	1.08	0.95	0.53
15,979.0	91.40	358.00	8,086.3	8,095.6	-264.5	8,099.9	0.75	-0.53	0.53
16,073.0	89.90	357.70	8,085.3	8,189.5	-268.0	8,193.9	1.63	-1.60	-0.32
16,168.0	90.60	357.50	8,084.8	8,284.4	-272.0	8,288.9	0.77	0.74	-0.21
16,263.0	91.20	357.50	8,083.3	8,379.3	-276.1	8,383.9	0.63	0.63	0.00
16,357.0	89.10	357.00	8,083.1	8,473.2	-280.6	8,477.9	2.30	-2.23	-0.53
16,452.0	89.80	358.20	8,084.0	8,568.1	-284.6	8,572.8	1.46	0.74	1.26
16,547.0	92.70	358.90	8,081.9	8,663.1	-287.0	8,667.8	3.14	3.05	0.74
16,633.8	92.70	358.72	8,077.8	8,749.8	-288.8	8,754.5	0.21	0.00	-0.21
PBHL(WFC#21)									
16,642.0	92.70	358.70	8,077.5	8,757.9	-289.0	8,762.7	0.21	0.00	-0.21
16,689.0	91.80	358.40	8,075.6	8,804.9	-290.2	8,809.7	2.02	-1.91	-0.64
16,745.0	91.80	358.40	8,073.9	8,860.8	-291.7	8,865.6	0.00	0.00	0.00

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
PBHL(WFC#21)	0.00	0.00	8,076.0	8,749.7	-289.4	530,108.06	724,736.63	32° 27' 21.339 N	103° 44' 19.478 W
- actual wellpath misses target center by 1.9usft at 16633.8usft MD (8077.8 TVD, 8749.8 N, -288.8 E)									
- Point									

Checked By: _____	Approved By: _____	Date: _____
-------------------	--------------------	-------------



Yates Petroleum Corp.
Project: Eddy County, NM(NAD83)
Site: Wolf AJA Federal Com
Well: #21H
Wellbore: OH
Plan: Plan #4_REV2 (#21H/OH)

Section Details

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	7550.0	0.59	315.90	7549.1	16.3	17.3	0.00	0.00	15.7	
2	7578.5	0.59	315.90	7577.6	16.5	17.1	0.00	0.00	15.9	
3	8492.0	90.55	358.02	8154.0	602.4	-7.1	9.86	42.12	602.3	
4	16644.6	90.55	358.02	8076.7	8749.7	-288.8	0.00	0.00	8754.5	PBHL(WFC#21)
5	16744.6	90.55	358.02	8074.8	8849.6	-292.2	0.00	0.00	8854.4	

WELL DETAILS: #21H

Ground Elevation:: 3556.0

RKB Elevation: WELL1 @ 3574.6usft

Rig Name:

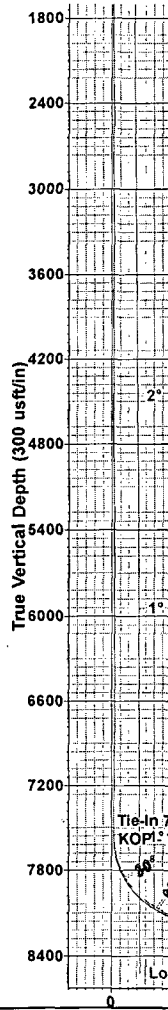
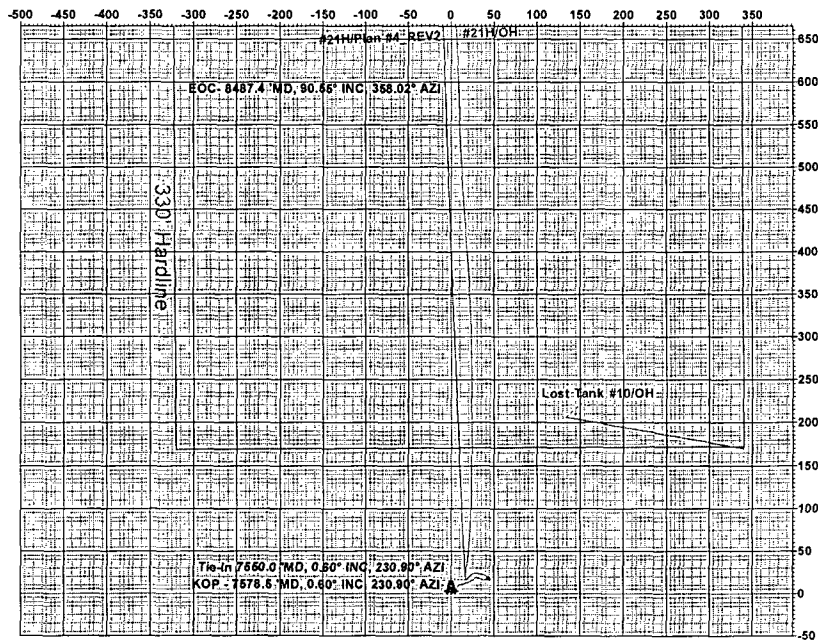
Northing 521358.39 Easting 725026.02 Latitude 32° 25' 54.743 N Longitude 103° 44' 16.670 W



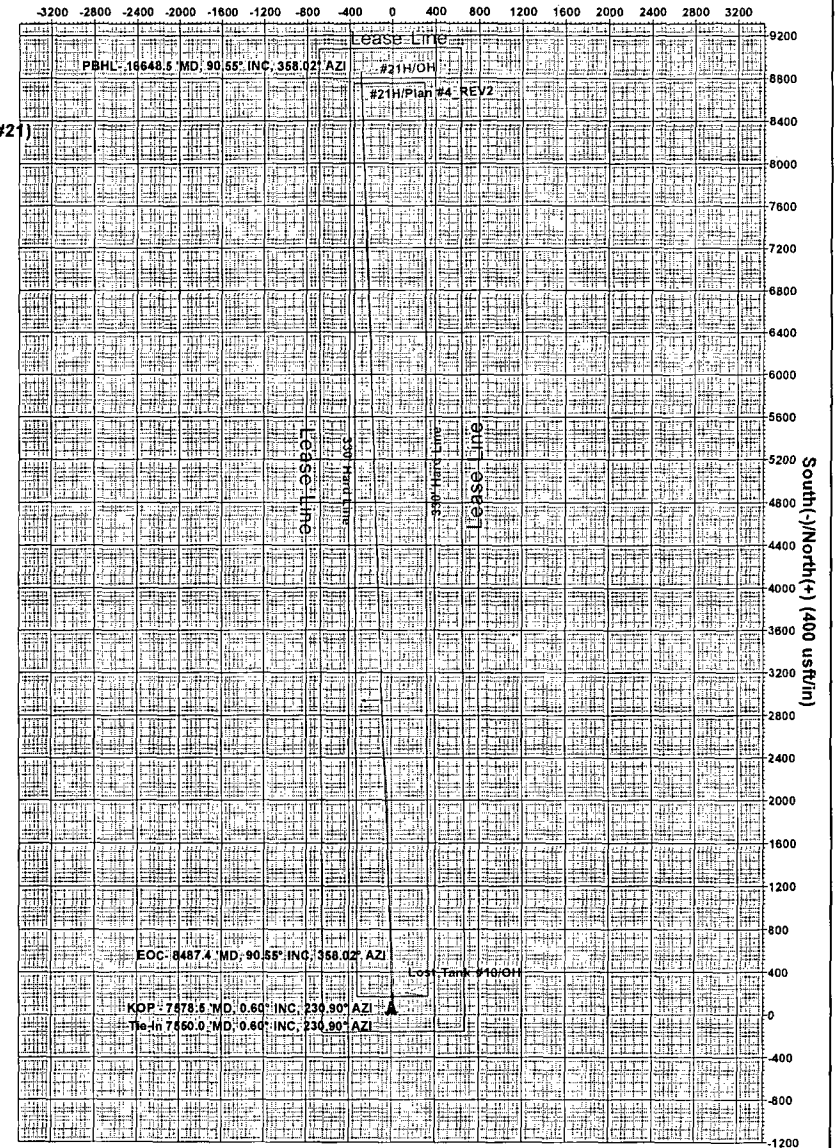
Azimuths to Grid North
True North: -0.32°
Magnetic North: 7.00°

Magnetic Field
Strength: 48431.6nT
Dip Angle: 60.28°
Date: 5/12/2014
Model: IGRF2010

West(-)/East(+) (50 usft/in)



West(-)/East(+) (400 usft/in)



PBHL(WFC#21)

PBHL-16648.5 MD: 90.55° INC: 358.02° AZI

#21H/Plan #4_REV2

#21H/OH

PROJECT DETAILS: Eddy County, NM(NAD83)
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 358.11° (300 usft/in)

Terra Directional Services LLC
322 Spring Hill Drive, Suite A300, Spring, Tx 77386
Phone: 432-425-7532

Plan: Plan #4_REV2 (#21H/OH)
Date: 6:05, August 05 2014