



15-40523

NM OIL CONSERVATION
ARTESIA DISTRICT

MAR 04 2014

Yates Petroleum Corp.

Eddy County, NM(NAD83)

Antweil ANU Federal

#3H

OH

RECEIVED

Design: OH

Standard Survey Report

03 November, 2014





TDS
Survey Report



Company:	Yates Petroleum Corp.	Local Co-ordinate Reference:	Well #3H
Project:	Eddy County, NM(NAD83)	TVD Reference:	KB @ 3363.0usft
Site:	Antwell ANU Federal	MD Reference:	KB @ 3363.0usft
Well:	#3H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM5000.1 Single User Db

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	Antwell ANU Federal		
Site Position:		Northing:	596,565.79 usft
From:	Map	Easting:	641,121.67 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 38' 22.522 N
		Longitude:	104° 0' 33.001 W
		Grid Convergence:	0.17 °

Well	#3H					
Well Position	+N/-S	0.0 usft	Northing:	596,565.79 usft	Latitude:	32° 38' 22.522 N
	+E/-W	0.0 usft	Easting:	641,121.67 usft	Longitude:	104° 0' 33.001 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	3,344.0 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/15/2014	7.42	60.42	48,494

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	359.85	

Survey Program		Date 11/3/2014		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	3,813.0	GYRO #1 (OH)	MWD	MWD - Standard
3,890.0	12,693.0	MWD #1 (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	0.28	17.31	100.0	0.2	0.1	0.2	0.28	0.28	0.00	
200.0	0.44	17.19	200.0	0.8	0.3	0.8	0.16	0.16	-0.12	
300.0	0.91	16.44	300.0	2.0	0.6	2.0	0.47	0.47	-0.75	
400.0	0.93	18.83	400.0	3.5	1.1	3.5	0.04	0.02	2.39	
500.0	1.09	10.53	500.0	5.2	1.5	5.2	0.22	0.16	-8.30	
600.0	1.16	14.95	599.9	7.1	2.0	7.1	0.11	0.07	4.42	
700.0	1.02	19.75	699.9	8.9	2.5	8.9	0.17	-0.14	4.80	
800.0	0.99	37.20	799.9	10.4	3.3	10.4	0.31	-0.03	17.45	
900.0	0.84	59.48	899.9	11.5	4.5	11.5	0.38	-0.15	22.28	



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Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

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	0.70	50.42	999.9	12.3	5.6	12.3	0.19	-0.14	-9.06
1,100.0	0.85	58.97	1,099.9	13.0	6.7	13.0	0.19	0.15	8.55
1,200.0	1.11	63.88	1,199.9	13.9	8.2	13.8	0.27	0.26	4.91
1,300.0	1.17	73.92	1,299.8	14.6	10.1	14.5	0.21	0.06	10.04
1,400.0	1.26	70.22	1,399.8	15.2	12.1	15.2	0.12	-0.09	-3.70
1,500.0	1.14	69.26	1,499.8	15.9	14.0	15.9	0.12	-0.12	-0.96
1,600.0	1.09	64.58	1,599.8	16.7	15.8	16.7	0.10	-0.05	-4.68
1,700.0	0.99	69.26	1,699.8	17.4	17.5	17.4	0.13	-0.10	4.68
1,800.0	0.92	66.02	1,799.8	18.0	19.0	18.0	0.09	-0.07	-3.24
1,900.0	0.98	72.07	1,899.7	18.6	20.6	18.6	0.12	0.06	6.05
2,000.0	0.90	74.52	1,999.7	19.1	22.2	19.1	0.09	-0.08	2.45
2,100.0	0.99	87.26	2,099.7	19.4	23.8	19.3	0.23	0.09	12.74
2,200.0	1.06	82.54	2,199.7	19.5	25.6	19.5	0.11	0.07	-4.72
2,300.0	0.93	94.59	2,299.7	19.6	27.3	19.5	0.25	-0.13	12.05
2,400.0	0.97	89.55	2,399.7	19.5	28.9	19.4	0.09	0.04	-5.04
2,500.0	1.11	90.98	2,499.6	19.5	30.7	19.4	0.14	0.14	1.43
2,600.0	0.96	96.35	2,599.6	19.4	32.6	19.3	0.18	-0.15	5.37
2,700.0	1.10	106.42	2,699.6	19.0	34.3	18.9	0.23	0.14	10.07
2,800.0	1.32	113.14	2,799.6	18.3	36.3	18.2	0.26	0.22	6.72
2,900.0	1.18	115.80	2,899.6	17.4	38.3	17.3	0.15	-0.14	2.66
3,000.0	1.18	109.75	2,999.5	16.6	40.2	16.5	0.12	0.00	-6.05
3,100.0	0.94	112.49	3,099.5	16.0	41.9	15.8	0.25	-0.24	2.74
3,200.0	0.95	126.43	3,199.5	15.1	43.3	15.0	0.23	0.01	13.94
3,300.0	1.15	121.07	3,299.5	14.1	44.8	14.0	0.22	0.20	-5.36
3,400.0	1.22	122.29	3,399.5	13.1	46.6	12.9	0.07	0.07	1.22
3,500.0	1.13	125.17	3,499.5	11.9	48.3	11.8	0.11	-0.09	2.88
3,600.0	1.12	129.34	3,599.4	10.7	49.9	10.6	0.08	-0.01	4.17
3,700.0	1.12	127.49	3,699.4	9.5	51.4	9.4	0.04	0.00	-1.85
3,800.0	1.16	122.71	3,799.4	8.4	53.0	8.2	0.10	0.04	-4.78
3,813.0	1.06	122.99	3,812.4	8.2	53.2	8.1	0.77	-0.77	2.15
3,890.0	1.10	109.60	3,889.4	7.6	54.5	7.5	0.33	0.05	-17.39
4,080.0	1.10	114.10	4,079.4	6.2	57.9	6.1	0.05	0.00	2.37
4,270.0	1.70	112.20	4,269.3	4.4	62.2	4.3	0.32	0.32	-1.00
4,460.0	0.80	90.70	4,459.2	3.4	66.1	3.2	0.53	-0.47	-11.32
4,650.0	0.80	240.00	4,649.2	2.7	66.3	2.5	0.81	0.00	78.58
4,841.0	0.60	202.00	4,840.2	1.1	64.8	0.9	0.26	-0.10	-19.90
5,030.0	0.50	234.40	5,029.2	-0.3	63.7	-0.5	0.17	-0.05	17.14
5,221.0	0.50	235.00	5,220.2	-1.3	62.4	-1.4	0.00	0.00	0.31
5,410.0	0.90	300.30	5,409.2	-1.0	60.4	-1.2	0.44	0.21	34.55
5,535.0	0.89	314.08	5,534.2	0.2	58.9	0.0	0.17	-0.01	11.03
Cross 330' Hard Line: 5535.0' MD, 5534.2' TVD, 0.89' INC									
5,600.0	0.90	321.20	5,599.2	0.9	58.2	0.8	0.17	0.02	10.95
5,789.0	0.60	307.80	5,788.2	2.7	56.5	2.5	0.18	-0.16	-7.09



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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)
5,979.0	1.10	74.40	5,978.1	3.8	57.5	3.6	0.81	0.26	66.63
6,169.0	1.80	50.80	6,168.1	6.1	61.5	6.0	0.48	0.37	-12.42
6,358.0	1.60	33.30	6,357.0	10.2	65.3	10.1	0.29	-0.11	-9.26
6,562.0	1.90	344.00	6,560.9	15.9	65.9	15.7	0.73	0.15	-24.17
6,752.0	1.70	0.40	6,750.8	21.7	65.1	21.5	0.29	-0.11	8.63
6,939.0	1.50	358.50	6,937.8	26.9	65.0	26.8	0.11	-0.11	-1.02
7,123.0	2.70	82.10	7,121.7	29.9	69.2	29.7	1.60	0.65	45.43
7,311.0	1.90	132.40	7,309.5	28.4	75.9	28.2	1.11	-0.43	26.76
7,494.0	2.50	179.30	7,492.4	22.4	78.2	22.2	1.00	0.33	25.63
7,682.0	1.50	208.50	7,680.3	16.1	77.1	15.9	0.74	-0.53	15.53
7,805.0	1.80	37.10	7,803.3	16.3	77.5	16.1	2.68	0.24	-139.35
KOP: 7805' MD: 1.80' INC: 37.10' AZI:									
7,837.0	4.00	27.50	7,835.2	17.7	78.3	17.5	7.02	6.88	-30.00
7,868.0	7.10	12.20	7,866.1	20.5	79.2	20.3	10.99	10.00	-49.35
7,899.0	11.10	3.70	7,896.7	25.3	79.8	25.1	13.58	12.90	-27.42
7,929.0	15.00	2.30	7,925.9	32.1	80.2	31.9	13.04	13.00	-4.67
7,961.0	18.50	2.70	7,956.5	41.3	80.6	41.1	10.94	10.94	1.25
7,992.0	22.10	8.50	7,985.6	52.0	81.7	51.8	13.29	11.61	18.71
8,024.0	26.30	10.80	8,014.8	64.9	83.9	64.7	13.45	13.13	7.19
8,055.0	30.20	10.80	8,042.1	79.3	86.6	79.1	12.58	12.58	0.00
8,086.0	33.20	9.40	8,068.5	95.4	89.5	95.1	9.96	9.68	-4.52
8,118.0	36.80	7.40	8,094.7	113.5	92.1	113.3	11.81	11.25	-6.25
8,149.0	40.60	6.70	8,118.9	132.8	94.5	132.5	12.34	12.26	-2.26
8,182.0	44.60	5.00	8,143.2	155.0	96.8	154.7	12.61	12.12	-5.15
8,213.0	48.60	3.20	8,164.5	177.4	98.4	177.2	13.57	12.90	-5.81
8,245.0	52.10	2.20	8,184.9	202.0	99.5	201.8	11.20	10.94	-3.13
8,277.0	56.50	0.90	8,203.5	228.0	100.2	227.7	14.14	13.75	-4.06
8,308.0	59.50	1.40	8,220.0	254.3	100.8	254.0	9.77	9.68	1.61
8,340.0	61.30	1.40	8,235.8	282.1	101.4	281.8	5.63	5.63	0.00
8,372.0	63.20	1.60	8,250.7	310.4	102.2	310.1	5.96	5.94	0.63
8,403.0	65.60	1.40	8,264.1	338.4	102.9	338.1	7.76	7.74	-0.65
8,435.0	68.10	1.10	8,276.6	367.8	103.5	367.5	7.86	7.81	-0.94
8,466.0	70.60	0.90	8,287.6	396.8	104.0	396.5	8.09	8.06	-0.65
8,497.0	73.10	0.20	8,297.2	426.2	104.3	426.0	8.35	8.06	-2.26
8,529.0	75.80	0.00	8,305.8	457.1	104.4	456.8	8.46	8.44	-0.63
8,560.0	78.50	0.00	8,312.7	487.3	104.4	487.0	8.71	8.71	0.00
8,591.0	81.50	359.70	8,318.1	517.8	104.3	517.5	9.72	9.68	-0.97
8,622.0	84.30	359.70	8,321.9	548.6	104.1	548.3	9.03	9.03	0.00
8,654.0	87.10	359.70	8,324.3	580.5	104.0	580.2	8.75	8.75	0.00
8,669.0	88.60	359.50	8,324.9	595.5	103.9	595.2	10.09	10.00	-1.33
8,697.4	90.29	359.32	8,325.2	623.9	103.6	623.6	5.97	5.94	-0.63
EOC: 8697.4' MD: 8325.2' TVD: 90.29' INC: 359.32' AZI: 623.6' VS:									
8,701.0	90.50	359.30	8,325.1	627.5	103.5	627.2	5.97	5.94	-0.62
8,764.0	91.20	359.20	8,324.2	690.4	102.7	690.2	1.12	1.11	-0.16



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8,859.0	90.70	359.20	8,322.6	785.4	101.4	785.1	0.53	-0.53	0.00
8,954.0	90.30	359.50	8,321.8	880.4	100.3	880.1	0.53	-0.42	0.32
9,049.0	89.50	358.50	8,322.0	975.4	98.7	975.1	1.35	-0.84	-1.05
9,144.0	89.50	359.30	8,322.8	1,070.4	96.8	1,070.1	0.84	0.00	0.84
9,239.0	88.90	358.10	8,324.1	1,165.3	94.7	1,165.1	1.41	-0.63	-1.26
9,335.0	89.80	356.50	8,325.2	1,261.2	90.1	1,261.0	1.91	0.94	-1.67
9,430.0	92.00	356.40	8,323.7	1,356.0	84.3	1,355.8	2.32	2.32	-0.11
9,524.0	92.30	356.90	8,320.2	1,449.8	78.8	1,449.6	0.62	0.32	0.53
9,619.0	92.10	357.60	8,316.5	1,544.6	74.2	1,544.4	0.77	-0.21	0.74
9,714.0	92.20	358.30	8,313.0	1,639.5	70.8	1,639.3	0.74	0.11	0.74
9,809.0	91.70	358.80	8,309.7	1,734.4	68.4	1,734.2	0.74	-0.53	0.53
9,904.0	91.50	359.30	8,307.1	1,829.3	66.9	1,829.2	0.57	-0.21	0.53
9,999.0	91.10	359.90	8,304.9	1,924.3	66.2	1,924.1	0.76	-0.42	0.63
10,094.0	90.70	0.00	8,303.4	2,019.3	66.1	2,019.1	0.43	-0.42	0.11
10,189.0	89.30	358.30	8,303.4	2,114.3	64.7	2,114.1	2.32	-1.47	-1.79
10,284.0	89.90	357.10	8,304.1	2,209.2	60.9	2,209.0	1.41	0.63	-1.26
10,379.0	90.50	356.40	8,303.8	2,304.1	55.5	2,303.9	0.97	0.63	-0.74
10,474.0	92.00	356.90	8,301.7	2,398.9	49.9	2,398.7	1.66	1.58	0.53
10,568.0	92.10	357.80	8,298.3	2,492.7	45.6	2,492.6	0.96	0.11	0.96
10,663.0	91.50	358.30	8,295.4	2,587.6	42.4	2,587.5	0.82	-0.63	0.53
10,758.0	91.30	359.00	8,293.0	2,682.5	40.1	2,682.4	0.77	-0.21	0.74
10,852.0	91.00	359.00	8,291.1	2,776.5	38.5	2,776.4	0.32	-0.32	0.00
10,947.0	91.30	359.90	8,289.2	2,871.5	37.6	2,871.4	1.00	0.32	-0.95
11,042.0	91.20	359.70	8,287.2	2,966.5	37.3	2,966.4	0.24	-0.11	-0.21
11,137.0	90.10	358.80	8,286.1	3,061.4	36.0	3,061.3	1.50	-1.16	-0.95
11,232.0	90.50	357.90	8,285.6	3,156.4	33.3	3,156.3	1.04	0.42	-0.95
11,327.0	90.90	357.90	8,284.4	3,251.3	29.8	3,251.2	0.42	0.42	0.00
11,422.0	91.20	357.90	8,282.7	3,346.3	26.3	3,346.2	0.32	0.32	0.00
11,517.0	91.60	358.30	8,280.4	3,441.2	23.2	3,441.1	0.60	0.42	0.42
11,612.0	91.60	358.30	8,277.7	3,536.1	20.3	3,536.0	0.00	0.00	0.00
11,707.0	88.60	357.90	8,277.6	3,631.0	17.2	3,631.0	3.19	-3.16	-0.42
11,802.0	87.90	357.80	8,280.5	3,725.9	13.6	3,725.9	0.74	-0.74	-0.11
11,897.0	90.60	356.40	8,281.7	3,820.8	8.8	3,820.7	3.20	2.84	-1.47
11,992.0	92.30	357.10	8,279.3	3,915.6	3.4	3,915.6	1.94	1.79	0.74
12,087.0	92.00	357.10	8,275.7	4,010.4	-1.4	4,010.4	0.32	-0.32	0.00
12,181.0	91.60	357.40	8,272.8	4,104.2	-5.9	4,104.2	0.53	-0.43	0.32
12,245.0	91.70	357.60	8,270.9	4,168.2	-8.7	4,168.2	0.35	0.16	0.31
12,340.0	92.50	357.90	8,267.5	4,263.0	-12.4	4,263.0	0.90	0.84	0.32
12,434.0	91.80	358.80	8,263.9	4,356.9	-15.1	4,356.9	1.21	-0.74	0.96
12,529.0	90.00	358.80	8,262.4	4,451.9	-17.1	4,451.9	1.89	-1.89	0.00
12,624.0	89.30	358.80	8,263.0	4,546.9	-19.1	4,546.9	0.74	-0.74	0.00
12,639.0	89.20	359.20	8,263.2	4,561.9	-19.3	4,561.9	2.75	-0.67	2.67
Final MWD Survey - 12639.0' MD, 8263.2' TVD, 4561.9' N/S, -19.3' E/W									



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Company:	Yates Petroleum Corp.	Local Co-ordinate Reference:	Well #3H
Project:	Eddy County, NM(NAD83)	TVD Reference:	KB @ 3363.0usft
Site:	Antwell ANU Federal	MD Reference:	KB @ 3363.0usft
Well:	#3H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

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)
12,693.0	89.20	359.20	8,264.0	4,615.8	-20.1	4,615.9	0.00	0.00	0.00
BHL - 12693.0' MD, 8264.0' TVD, 89.20' INCL, 359.20' AZI, 4615.8' N/S, -20.1' E/W, 4615.9' VS - TD - 12693.0' MD, 8264.0' TVD									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
5,535.0	5,534.2	0.2	58.9	Cross 330' Hard Line: 5535.0' MD, 5534.2' TVD, 0.89° INC
7,805.0	7,803.3	16.3	77.5	KOP - 7805' MD; 1.80° INC, 37.10° AZI
8,697.4	8,325.2	623.9	103.6	EOC - 8697.4' MD, 8325.2' TVD, 90.29° INC, 359.32° AZI, 623.6' VS
12,639.0	8,263.2	4,561.9	-19.3	Final MWD Survey - 12639.0' MD, 8263.2' TVD, 4561.9' N/S, -19.3° E/W
12,693.0	8,264.0	4,615.8	-20.1	BHL - 12693.0' MD, 8264.0' TVD, 89.20° INCL, 359.20° AZI, 4615.8' N/S, -20.1°
12,693.0	8,264.0	4,615.8	-20.1	TD - 12693.0' MD, 8264.0' TVD

Checked By: _____	Approved By: _____	Date: _____
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Yates Petroleum Corp.
Project: Eddy County, NM(NAD83)
Site: Antwell ANU Federal
Well: #3H
Wellbore: OH
Plan: Plan #5 (#3H/OH)

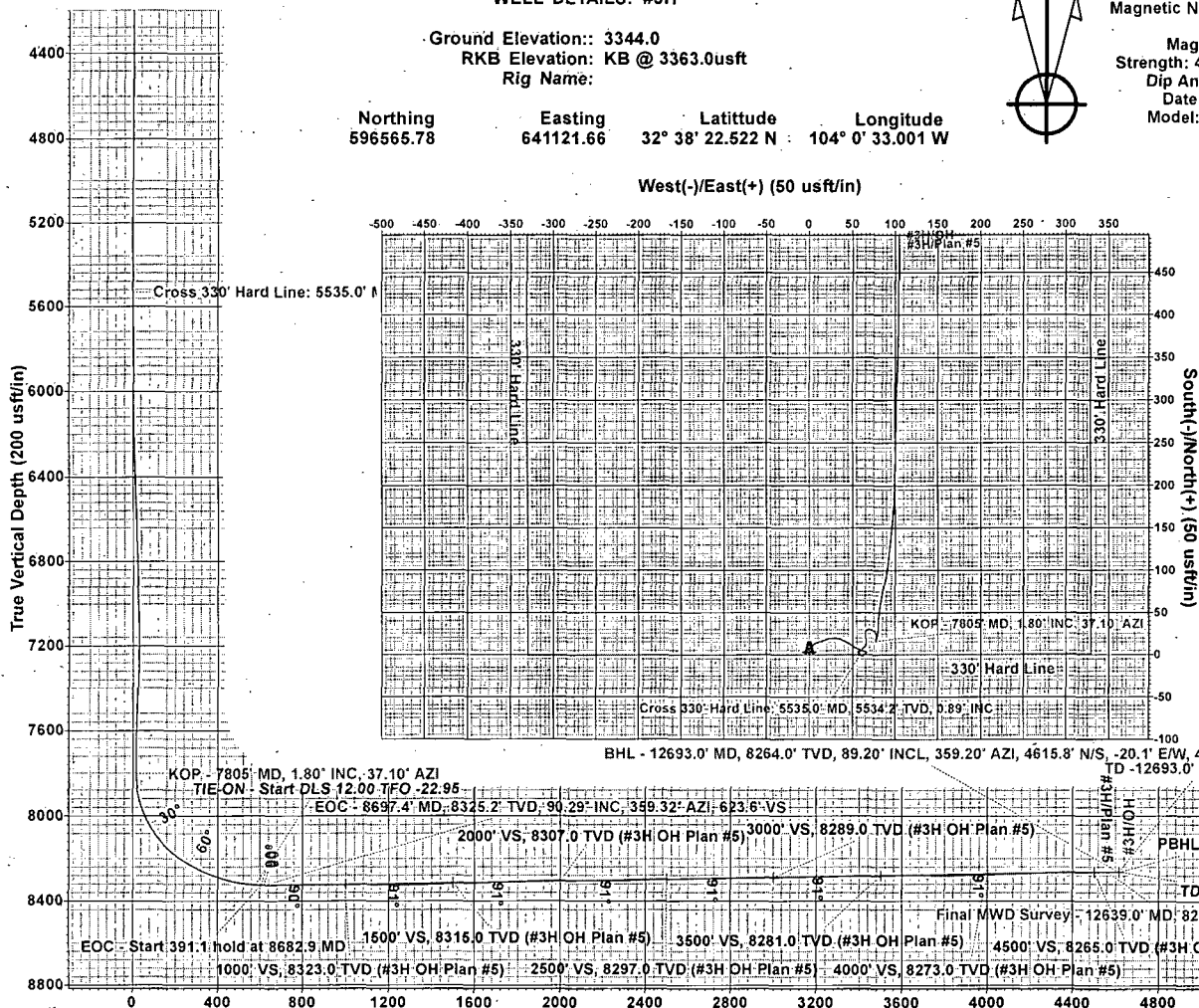
Section Details											
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFac	VSec	Target	
1	8654.0	87.10	358.70	8324.3	580.5	104.0	0.00	0.00	580.2		
2	8682.9	90.29	358.35	8325.0	609.3	103.5	12.00	-22.95	609.0		
3	9074.0	90.29	358.35	8323.0	1000.3	92.2	0.00	0.00	1000.0		
4	9106.4	90.94	358.35	8322.7	1032.7	91.3	2.00	0.00	1032.4		
5	9574.2	90.94	358.35	8315.0	1500.2	77.8	0.00	0.00	1500.0		
6	9575.2	90.92	358.35	8315.0	1501.3	77.8	2.00	180.00	1501.0		
7	10074.4	90.92	358.35	8307.0	2000.2	63.4	0.00	0.00	2000.0		
8	10086.0	91.15	358.35	8306.8	2011.8	63.1	2.00	0.00	2011.6		
9	10574.7	91.15	358.35	8297.0	2500.2	49.0	0.00	0.00	2500.0		
10	10586.5	90.91	358.35	8296.8	2511.9	48.7	2.00	180.00	2511.7		
11	11075.0	90.91	358.35	8289.0	3000.1	34.6	0.00	0.00	3000.0		
12	11075.1	90.92	358.35	8289.0	3000.3	34.6	2.00	0.00	3000.2		
13	11575.2	90.92	358.35	8281.0	3500.1	20.2	0.00	0.00	3500.0		
14	11575.2	90.92	358.35	8281.0	3500.1	20.2	2.00	180.00	3500.0		
15	12075.4	90.92	358.35	8273.0	4000.0	5.8	0.00	0.00	4000.0		
16	12575.7	90.92	358.35	8265.0	4500.0	-8.6	0.00	0.00	4500.0		
17	12579.4	90.99	358.35	8264.9	4503.7	-8.7	2.00	0.00	4503.7		
18	12692.2	90.99	358.35	8263.0	4616.4	-11.9	0.00	0.00	4616.5	PBHL (AAF #3H/OH)	

WELL DETAILS: #3H

Ground Elevation:: 3344.0
RKB Elevation: KB @ 3363.0usft
Rig Name:

Northing 596565.78 Easting 641121.66 Latitude 32° 38' 22.522 N Longitude 104° 0' 33.001 W

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



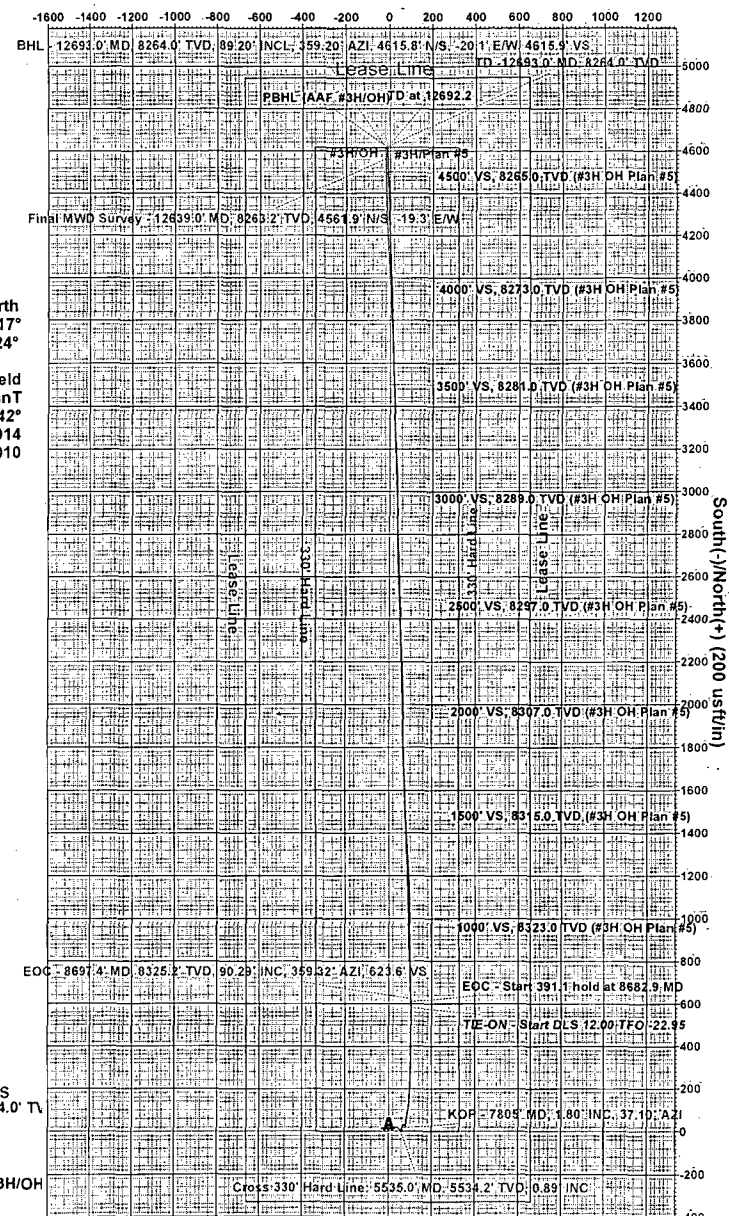
Vertical Section at 359.85° (200 usft/in)

Terra Directional Services LLC

322 Spring Hill Drive, Suite A300, Spring, Tx 77386

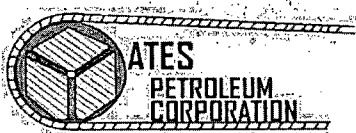
Phone: 432-425-7532

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



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

Plan: Plan #5 (#3H/OH)
Date: 5:46, November 03 2014



Yates Petroleum Corp.

Eddy County, NM(NAD83)

Antweil ANU Federal

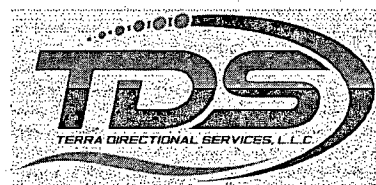
#3H

OH

Design: OH

Survey Report - Geographic

03 November, 2014





TDS

Survey Report - Geographic



Company:	Yates Petroleum Corp.	Local Co-ordinate Reference:	Well #3H
Project:	Eddy County, NM(NAD83)	TVD Reference:	KB @ 3363.0usft
Site:	Antwell/ANU Federal	MD Reference:	KB @ 3363.0usft
Well:	#3H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

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	Antwell/ANU Federal		
Site Position:		Northing:	596,565.79 usft
From:	Map	Easting:	641,121.67 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 38' 22.522 N
		Longitude:	104° 0' 33.001 W
		Grid Convergence:	0.17 °

Well	#3H		
Well Position	+N/-S	0.0 usft	Northing: 596,565.79 usft
	+E/-W	0.0 usft	Easting: 641,121.67 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft
		Latitude:	32° 38' 22.522 N
		Longitude:	104° 0' 33.001 W
		Ground Level:	3,344.0 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2010	9/15/2014	7.42
			Dip Angle (°)
			60.42
			Field Strength (nT)
			48,494

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 (°)
			359.85

Survey Program	Date 11/3/2014		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name
100.0	3,813.0	GYRO #1 (OH)	MWD
3,890.0	12,693.0	MWD #1 (OH)	MWD
			Description
			MWD - Standard
			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	596,565.79	641,121.67	32° 38' 22.522 N	104° 0' 33.001 W	
100.0	0.28	17.31	100.0	0.2	0.1	596,566.02	641,121.74	32° 38' 22.524 N	104° 0' 33.000 W	
200.0	0.44	17.19	200.0	0.8	0.3	596,566.62	641,121.93	32° 38' 22.530 N	104° 0' 32.997 W	
300.0	0.91	16.44	300.0	2.0	0.6	596,567.75	641,122.27	32° 38' 22.541 N	104° 0' 32.993 W	
400.0	0.93	18.83	400.0	3.5	1.1	596,569.28	641,122.75	32° 38' 22.557 N	104° 0' 32.988 W	
500.0	1.09	10.53	500.0	5.2	1.5	596,570.98	641,123.19	32° 38' 22.573 N	104° 0' 32.983 W	
600.0	1.16	14.95	599.9	7.1	2.0	596,572.89	641,123.62	32° 38' 22.592 N	104° 0' 32.977 W	
700.0	1.02	19.75	699.9	8.9	2.5	596,574.71	641,124.18	32° 38' 22.610 N	104° 0' 32.971 W	
800.0	0.99	37.20	799.9	10.4	3.3	596,576.23	641,125.01	32° 38' 22.625 N	104° 0' 32.961 W	
900.0	0.84	59.48	899.9	11.5	4.5	596,577.30	641,126.16	32° 38' 22.636 N	104° 0' 32.948 W	
1,000.0	0.70	50.42	999.9	12.3	5.6	596,578.06	641,127.26	32° 38' 22.643 N	104° 0' 32.935 W	



TDS
Survey Report - Geographic



Company:	Yates Petroleum Corp.	Local Co-ordinate Reference:	Well #3H
Project:	Eddy County, NM(NAD83)	TVD Reference:	KB @ 3363.0usft
Site:	Antwell ANU Federal	MD Reference:	KB @ 3363.0usft
Well:	#3H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM/5000.1 Single User Db

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	0.85	58.97	1,099.9	13.0	6.7	596,578.83	641,128.37	32° 38' 22.651 N	104° 0' 32.922 W
1,200.0	1.11	63.88	1,199.9	13.9	8.2	596,579.64	641,129.88	32° 38' 22.659 N	104° 0' 32.904 W
1,300.0	1.17	73.92	1,299.8	14.6	10.1	596,580.35	641,131.73	32° 38' 22.666 N	104° 0' 32.882 W
1,400.0	1.26	70.22	1,399.8	15.2	12.1	596,581.00	641,133.74	32° 38' 22.672 N	104° 0' 32.859 W
1,500.0	1.14	69.26	1,499.8	15.9	14.0	596,581.73	641,135.71	32° 38' 22.679 N	104° 0' 32.836 W
1,600.0	1.09	64.58	1,599.8	16.7	15.8	596,582.49	641,137.50	32° 38' 22.687 N	104° 0' 32.815 W
1,700.0	0.99	69.26	1,699.8	17.4	17.5	596,583.20	641,139.16	32° 38' 22.694 N	104° 0' 32.795 W
1,800.0	0.92	66.02	1,799.8	18.0	19.0	596,583.83	641,140.70	32° 38' 22.700 N	104° 0' 32.777 W
1,900.0	0.98	72.07	1,899.7	18.6	20.6	596,584.42	641,142.25	32° 38' 22.706 N	104° 0' 32.759 W
2,000.0	0.90	74.52	1,999.7	19.1	22.2	596,584.89	641,143.82	32° 38' 22.710 N	104° 0' 32.741 W
2,100.0	0.99	87.26	2,099.7	19.4	23.8	596,585.15	641,145.44	32° 38' 22.713 N	104° 0' 32.722 W
2,200.0	1.06	82.54	2,199.7	19.5	25.6	596,585.31	641,147.22	32° 38' 22.714 N	104° 0' 32.701 W
2,300.0	0.93	94.59	2,299.7	19.6	27.3	596,585.36	641,148.95	32° 38' 22.715 N	104° 0' 32.681 W
2,400.0	0.97	89.55	2,399.7	19.5	28.9	596,585.30	641,150.60	32° 38' 22.714 N	104° 0' 32.661 W
2,500.0	1.11	90.98	2,499.6	19.5	30.7	596,585.29	641,152.42	32° 38' 22.714 N	104° 0' 32.640 W
2,600.0	0.96	96.35	2,599.6	19.4	32.6	596,585.18	641,154.22	32° 38' 22.713 N	104° 0' 32.619 W
2,700.0	1.10	106.42	2,699.6	19.0	34.3	596,584.82	641,155.97	32° 38' 22.709 N	104° 0' 32.599 W
2,800.0	1.32	113.14	2,799.6	18.3	36.3	596,584.10	641,157.95	32° 38' 22.702 N	104° 0' 32.576 W
2,900.0	1.18	115.80	2,899.6	17.4	38.3	596,583.20	641,159.94	32° 38' 22.693 N	104° 0' 32.552 W
3,000.0	1.18	109.75	2,999.5	16.6	40.2	596,582.40	641,161.83	32° 38' 22.685 N	104° 0' 32.530 W
3,100.0	0.94	112.49	3,099.5	16.0	41.9	596,581.74	641,163.56	32° 38' 22.679 N	104° 0' 32.510 W
3,200.0	0.95	126.43	3,199.5	15.1	43.3	596,580.93	641,164.99	32° 38' 22.671 N	104° 0' 32.493 W
3,300.0	1.15	121.07	3,299.5	14.1	44.8	596,579.92	641,166.51	32° 38' 22.661 N	104° 0' 32.476 W
3,400.0	1.22	122.29	3,399.5	13.1	46.6	596,578.84	641,168.27	32° 38' 22.650 N	104° 0' 32.455 W
3,500.0	1.13	125.17	3,499.5	11.9	48.3	596,577.70	641,169.98	32° 38' 22.638 N	104° 0' 32.435 W
3,600.0	1.12	129.34	3,599.4	10.7	49.9	596,576.51	641,171.54	32° 38' 22.627 N	104° 0' 32.417 W
3,700.0	1.12	127.49	3,699.4	9.5	51.4	596,575.30	641,173.07	32° 38' 22.615 N	104° 0' 32.399 W
3,800.0	1.16	122.71	3,799.4	8.4	53.0	596,574.16	641,174.70	32° 38' 22.603 N	104° 0' 32.380 W
3,813.0	1.06	122.99	3,812.4	8.2	53.2	596,574.02	641,174.91	32° 38' 22.602 N	104° 0' 32.378 W
3,890.0	1.10	109.60	3,889.4	7.6	54.5	596,573.38	641,176.20	32° 38' 22.596 N	104° 0' 32.362 W
4,080.0	1.10	114.10	4,079.4	6.2	57.9	596,572.03	641,179.59	32° 38' 22.582 N	104° 0' 32.323 W
4,270.0	1.70	112.20	4,269.3	4.4	62.2	596,570.22	641,183.86	32° 38' 22.564 N	104° 0' 32.273 W
4,460.0	0.80	90.70	4,459.2	3.4	66.1	596,569.14	641,187.80	32° 38' 22.553 N	104° 0' 32.227 W
4,650.0	0.80	240.00	4,649.2	-2.7	66.3	596,568.46	641,187.97	32° 38' 22.546 N	104° 0' 32.225 W
4,841.0	0.60	202.00	4,840.2	1.1	64.8	596,566.86	641,186.45	32° 38' 22.531 N	104° 0' 32.243 W
5,030.0	0.50	234.40	5,029.2	-0.3	63.7	596,565.46	641,185.40	32° 38' 22.517 N	104° 0' 32.255 W
5,221.0	0.50	235.00	5,220.2	-1.3	62.4	596,564.50	641,184.04	32° 38' 22.507 N	104° 0' 32.271 W
5,410.0	0.90	300.30	5,409.2	-1.0	60.4	596,564.78	641,182.09	32° 38' 22.510 N	104° 0' 32.294 W
5,535.0	0.89	314.08	5,534.2	0.2	58.9	596,565.95	641,180.54	32° 38' 22.522 N	104° 0' 32.312 W
Cross 330° Hard Line: 5535.0° MD: 5534.2° TVD: 0.89° INC									
5,600.0	0.90	321.20	5,599.2	0.9	58.2	596,566.69	641,179.86	32° 38' 22.529 N	104° 0' 32.320 W
5,789.0	0.60	307.80	5,788.2	2.7	56.5	596,568.46	641,178.15	32° 38' 22.547 N	104° 0' 32.340 W
5,979.0	1.10	74.40	5,978.1	3.8	57.5	596,569.56	641,179.12	32° 38' 22.558 N	104° 0' 32.328 W
6,169.0	1.80	50.80	6,168.1	6.1	61.5	596,571.93	641,183.19	32° 38' 22.581 N	104° 0' 32.281 W
6,358.0	1.60	33.30	6,357.0	10.2	65.3	596,576.01	641,186.94	32° 38' 22.621 N	104° 0' 32.237 W
6,562.0	1.90	344.00	6,560.9	15.9	65.9	596,581.65	641,187.57	32° 38' 22.677 N	104° 0' 32.229 W
6,752.0	1.70	0.40	6,750.8	21.7	65.1	596,587.49	641,186.72	32° 38' 22.735 N	104° 0' 32.239 W
6,939.0	1.50	358.50	6,937.8	26.9	65.0	596,592.71	641,186.68	32° 38' 22.786 N	104° 0' 32.239 W
7,123.0	2.70	82.10	7,121.7	29.9	69.2	596,595.72	641,190.91	32° 38' 22.816 N	104° 0' 32.190 W
7,311.0	1.90	132.40	7,309.5	28.4	75.9	596,594.22	641,197.60	32° 38' 22.801 N	104° 0' 32.112 W
7,494.0	2.50	179.30	7,492.4	22.4	78.2	596,588.19	641,199.89	32° 38' 22.741 N	104° 0' 32.085 W
7,682.0	1.50	208.50	7,680.3	16.1	77.1	596,581.92	641,198.76	32° 38' 22.679 N	104° 0' 32.098 W
7,805.0	1.80	37.10	7,803.3	16.3	77.5	596,582.05	641,199.16	32° 38' 22.681 N	104° 0' 32.094 W
KOP - 7805° MD: 1.80° INC: 37.10° AZI									
7,837.0	4.00	27.50	7,835.2	17.7	78.3	596,583.44	641,199.98	32° 38' 22.694 N	104° 0' 32.084 W



TDS

Survey Report - Geographic



Company:	Yates Petroleum Corp.	Local Co-ordinate Reference:	Well #3H
Project:	Eddy County, NM(NAD83)	TVD Reference:	KB @ 3363.0usft
Site:	Antwell ANU Federal	MD Reference:	KB @ 3363.0usft
Well:	#3H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
7,868.0	7.10	12.20	7,866.1	20.5	79.2	596,586.27	641,200.88	32° 38' 22.722 N	104° 0' 32.073 W	
7,899.0	11.10	3.70	7,896.7	25.3	79.8	596,591.13	641,201.48	32° 38' 22.770 N	104° 0' 32.066 W	
7,929.0	15.00	2.30	7,925.9	32.1	80.2	596,597.89	641,201.82	32° 38' 22.837 N	104° 0' 32.062 W	
7,961.0	18.50	2.70	7,956.5	41.3	80.6	596,607.10	641,202.23	32° 38' 22.928 N	104° 0' 32.057 W	
7,992.0	22.10	8.50	7,985.6	52.0	81.7	596,617.79	641,203.32	32° 38' 23.034 N	104° 0' 32.044 W	
8,024.0	26.30	10.80	8,014.8	64.9	83.9	596,630.71	641,205.54	32° 38' 23.162 N	104° 0' 32.017 W	
8,055.0	30.20	10.80	8,042.1	79.3	86.6	596,645.12	641,208.29	32° 38' 23.304 N	104° 0' 31.985 W	
8,086.0	33.20	9.40	8,068.5	95.4	89.5	596,661.16	641,211.14	32° 38' 23.463 N	104° 0' 31.951 W	
8,118.0	36.80	7.40	8,094.7	113.5	92.1	596,679.31	641,213.80	32° 38' 23.643 N	104° 0' 31.919 W	
8,149.0	40.60	6.70	8,118.9	132.8	94.5	596,698.54	641,216.18	32° 38' 23.833 N	104° 0' 31.891 W	
8,182.0	44.60	5.00	8,143.2	155.0	96.8	596,720.76	641,218.44	32° 38' 24.053 N	104° 0' 31.863 W	
8,213.0	48.60	3.20	8,164.5	177.4	98.4	596,743.22	641,220.04	32° 38' 24.275 N	104° 0' 31.844 W	
8,245.0	52.10	2.20	8,184.9	202.0	99.5	596,767.83	641,221.19	32° 38' 24.518 N	104° 0' 31.829 W	
8,277.0	56.50	0.90	8,203.5	228.0	100.2	596,793.80	641,221.89	32° 38' 24.775 N	104° 0' 31.820 W	
8,308.0	59.50	1.40	8,220.0	254.3	100.8	596,820.08	641,222.42	32° 38' 25.035 N	104° 0' 31.813 W	
8,340.0	61.30	1.40	8,235.8	282.1	101.4	596,847.89	641,223.10	32° 38' 25.310 N	104° 0' 31.804 W	
8,372.0	63.20	1.60	8,250.7	310.4	102.2	596,876.20	641,223.84	32° 38' 25.591 N	104° 0' 31.795 W	
8,403.0	65.60	1.40	8,264.1	338.4	102.9	596,904.15	641,224.57	32° 38' 25.867 N	104° 0' 31.785 W	
8,435.0	68.10	1.10	8,276.6	367.8	103.5	596,933.56	641,225.21	32° 38' 26.158 N	104° 0' 31.776 W	
8,466.0	70.60	0.90	8,287.6	396.8	104.0	596,962.56	641,225.72	32° 38' 26.445 N	104° 0' 31.770 W	
8,497.0	73.10	0.20	8,297.2	426.2	104.3	596,992.01	641,226.00	32° 38' 26.736 N	104° 0' 31.765 W	
8,529.0	75.80	0.00	8,305.8	457.1	104.4	597,022.84	641,226.05	32° 38' 27.042 N	104° 0' 31.763 W	
8,560.0	78.50	0.00	8,312.7	487.3	104.4	597,053.06	641,226.05	32° 38' 27.341 N	104° 0' 31.762 W	
8,591.0	81.50	359.70	8,318.1	517.8	104.3	597,083.59	641,225.97	32° 38' 27.643 N	104° 0' 31.762 W	
8,622.0	84.30	359.70	8,321.9	548.6	104.1	597,114.35	641,225.81	32° 38' 27.947 N	104° 0' 31.763 W	
8,654.0	87.10	359.70	8,324.3	580.5	104.0	597,146.25	641,225.64	32° 38' 28.263 N	104° 0' 31.764 W	
8,669.0	88.60	359.50	8,324.9	595.5	103.9	597,161.24	641,225.54	32° 38' 28.411 N	104° 0' 31.764 W	
8,697.4	90.29	359.32	8,325.2	623.9	103.6	597,189.64	641,225.25	32° 38' 28.692 N	104° 0' 31.767 W	
EOC: 8697.4' MD: 8325.2' TVD: 90.29' INC: 359.32' AZI: 623.6' VS										
8,701.0	90.50	359.30	8,325.1	627.5	103.5	597,193.24	641,225.20	32° 38' 28.728 N	104° 0' 31.767 W	
8,764.0	91.20	359.20	8,324.2	690.4	102.7	597,256.22	641,224.38	32° 38' 29.351 N	104° 0' 31.775 W	
8,859.0	90.70	359.20	8,322.6	785.4	101.4	597,351.20	641,223.05	32° 38' 30.291 N	104° 0' 31.787 W	
8,954.0	90.30	359.50	8,321.8	880.4	100.3	597,446.19	641,221.98	32° 38' 31.231 N	104° 0' 31.796 W	
9,049.0	89.50	358.50	8,322.0	975.4	98.7	597,541.17	641,220.32	32° 38' 32.171 N	104° 0' 31.812 W	
9,144.0	89.50	359.30	8,322.8	1,070.4	96.8	597,636.15	641,218.49	32° 38' 33.111 N	104° 0' 31.830 W	
9,239.0	88.90	358.10	8,324.1	1,165.3	94.7	597,731.12	641,216.34	32° 38' 34.050 N	104° 0' 31.852 W	
9,335.0	89.80	356.50	8,325.2	1,261.2	90.1	597,827.00	641,211.82	32° 38' 34.999 N	104° 0' 31.901 W	
9,430.0	92.00	356.40	8,323.7	1,356.0	84.3	597,921.80	641,205.94	32° 38' 35.938 N	104° 0' 31.967 W	
9,524.0	92.30	356.90	8,320.2	1,449.8	78.8	598,015.57	641,200.45	32° 38' 36.866 N	104° 0' 32.027 W	
9,619.0	92.10	357.60	8,316.5	1,544.6	74.2	598,110.39	641,195.89	32° 38' 37.804 N	104° 0' 32.077 W	
9,714.0	92.20	358.30	8,313.0	1,639.5	70.8	598,205.26	641,192.50	32° 38' 38.743 N	104° 0' 32.114 W	
9,809.0	91.70	358.80	8,309.7	1,734.4	68.4	598,300.18	641,190.09	32° 38' 39.682 N	104° 0' 32.138 W	
9,904.0	91.50	359.30	8,307.1	1,829.3	66.9	598,395.13	641,188.52	32° 38' 40.622 N	104° 0' 32.153 W	
9,999.0	91.10	359.90	8,304.9	1,924.3	66.2	598,490.10	641,187.86	32° 38' 41.562 N	104° 0' 32.158 W	
10,094.0	90.70	0.00	8,303.4	2,019.3	66.1	598,585.09	641,187.77	32° 38' 42.502 N	104° 0' 32.155 W	
10,189.0	89.30	358.30	8,303.4	2,114.3	64.7	598,680.07	641,186.37	32° 38' 43.441 N	104° 0' 32.168 W	
10,284.0	89.90	357.10	8,304.1	2,209.2	60.9	598,774.99	641,182.55	32° 38' 44.381 N	104° 0' 32.210 W	
10,379.0	90.50	356.40	8,303.8	2,304.1	55.5	598,869.84	641,177.17	32° 38' 45.319 N	104° 0' 32.269 W	
10,474.0	92.00	356.90	8,301.7	2,398.9	49.9	598,964.65	641,171.62	32° 38' 46.258 N	104° 0' 32.331 W	
10,568.0	92.10	357.80	8,298.3	2,492.7	45.6	599,058.49	641,167.27	32° 38' 47.187 N	104° 0' 32.378 W	
10,663.0	91.50	358.30	8,295.4	2,587.6	42.4	599,153.38	641,164.04	32° 38' 48.126 N	104° 0' 32.413 W	
10,758.0	91.30	359.00	8,293.0	2,682.5	40.1	599,248.33	641,161.81	32° 38' 49.065 N	104° 0' 32.435 W	
10,852.0	91.00	359.00	8,291.1	2,776.5	38.5	599,342.30	641,160.17	32° 38' 49.995 N	104° 0' 32.451 W	
10,947.0	91.30	359.90	8,289.2	2,871.5	37.6	599,437.27	641,159.25	32° 38' 50.935 N	104° 0' 32.458 W	
11,042.0	91.20	359.70	8,287.2	2,966.5	37.3	599,532.25	641,158.92	32° 38' 51.875 N	104° 0' 32.459 W	



TDS
Survey Report - Geographic



Company:	Yates Petroleum Corp.	Local Co-ordinate Reference:	Well #3H
Project:	Eddy County NM(NAD83)	TVD Reference:	KB @ 3363.0usft
Site:	Antwell/ANU Federal	MD Reference:	KB @ 3363.0usft
Well:	#3H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM/5000.1 Single User Db

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
11,137.0	90.10	358.80	8,286.1	3,061.4	36.0	599,627.23	641,157.68	32° 38' 52.815 N	104° 0' 32.470 W
11,232.0	90.50	357.90	8,285.6	3,156.4	33.3	599,722.19	641,154.94	32° 38' 53.754 N	104° 0' 32.499 W
11,327.0	90.90	357.90	8,284.4	3,251.3	29.8	599,817.12	641,151.46	32° 38' 54.694 N	104° 0' 32.536 W
11,422.0	91.20	357.90	8,282.7	3,346.3	26.3	599,912.04	641,147.98	32° 38' 55.633 N	104° 0' 32.573 W
11,517.0	91.60	358.30	8,280.4	3,441.2	23.2	600,006.96	641,144.83	32° 38' 56.573 N	104° 0' 32.607 W
11,612.0	91.60	358.30	8,277.7	3,536.1	20.3	600,101.88	641,142.02	32° 38' 57.512 N	104° 0' 32.636 W
11,707.0	88.60	357.90	8,277.6	3,631.0	17.2	600,196.82	641,138.87	32° 38' 58.451 N	104° 0' 32.670 W
11,802.0	87.90	357.80	8,280.5	3,725.9	13.6	600,291.70	641,135.30	32° 38' 59.390 N	104° 0' 32.708 W
11,897.0	90.60	356.40	8,281.7	3,820.8	8.8	600,386.56	641,130.50	32° 39' 0.329 N	104° 0' 32.761 W
11,992.0	92.30	357.10	8,279.3	3,915.6	3.4	600,481.38	641,125.11	32° 39' 1.268 N	104° 0' 32.820 W
12,087.0	92.00	357.10	8,275.7	4,010.4	-1.4	600,576.19	641,120.31	32° 39' 2.206 N	104° 0' 32.873 W
12,181.0	91.60	357.40	8,272.8	4,104.2	-5.9	600,670.03	641,115.80	32° 39' 3.135 N	104° 0' 32.923 W
12,245.0	91.70	357.60	8,270.9	4,168.2	-8.7	600,733.94	641,113.01	32° 39' 3.767 N	104° 0' 32.953 W
12,340.0	92.50	357.90	8,267.5	4,263.0	-12.4	600,828.81	641,109.29	32° 39' 4.706 N	104° 0' 32.993 W
12,434.0	91.80	358.80	8,263.9	4,356.9	-15.1	600,922.70	641,106.58	32° 39' 5.635 N	104° 0' 33.021 W
12,529.0	90.00	358.80	8,262.4	4,451.9	-17.1	601,017.66	641,104.59	32° 39' 6.575 N	104° 0' 33.041 W
12,624.0	89.30	358.80	8,263.0	4,546.9	-19.1	601,112.64	641,102.60	32° 39' 7.515 N	104° 0' 33.061 W
12,639.0	89.20	359.20	8,263.2	4,561.9	-19.3	601,127.64	641,102.34	32° 39' 7.663 N	104° 0' 33.064 W
Final MWD Survey - 12639.0' MD, 8263.2' TVD, 4561.9' N/S, -19.3' E/W									
12,693.0	89.20	359.20	8,264.0	4,615.8	-20.1	601,181.63	641,101.59	32° 39' 8.197 N	104° 0' 33.071 W
BHL - 12693.0' MD, 8264.0' TVD, 89.20' INCL, 359.20' AZI, 4615.8' N/S, -20.1' E/W, 4615.9' VS - TD - 12693.0' MD, 8264.0' TVD									

Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment
5,535.0	5,534.2	0.2	58.9	Cross 330' Hard Line: 5535.0' MD, 5534.2' TVD, 0.89' INC
7,805.0	7,803.3	16.3	77.5	KOP - 7805' MD, 1.80' INC, 37.10' AZI
8,697.4	8,325.2	623.9	103.6	EOC - 8697.4' MD, 8325.2' TVD, 90.29' INC, 359.32' AZI, 623.6' VS
12,639.0	8,263.2	4,561.9	-19.3	Final MWD Survey - 12639.0' MD, 8263.2' TVD, 4561.9' N/S, -19.3' E/W
12,693.0	8,264.0	4,615.8	-20.1	BHL - 12693.0' MD, 8264.0' TVD, 89.20' INCL, 359.20' AZI, 4615.8' N/S, -20.1'
12,693.0	8,264.0	4,615.8	-20.1	TD - 12693.0' MD, 8264.0' TVD

Checked By:	Approved By:	Date:
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Job Number: SVMO-140436

Company: Yates Petroleum Corporation

Lease/Well: Antwell ANU Federal 3H

Location: Eddy County, NM

Rig Name: McVay #10

RKB: 18.5

G.L. or M.S.L.: GL

State/Country: New Mexico/USA

Declination: 7.42°

Grid: East To Grid North

File name: S:12014SU-11YATES\MOVANTWEI-113H.SVY

Date/Time: 22-Oct-14 / 08:48

Curve Name: Surface - 3813' M.D. (Rate Gyro)

MS SURVEY

WINSERVE SURVEY CALCULATIONS

Minimum Curvature Method

Vertical Section Plane 359.85

Vertical Section Referenced to Wellhead

Rectangular Coordinates Referenced to Wellhead

We hereby certify that our survey data from
Surface MD to 3,813' MD is, to the best of
our knowledge a true and accurate account of the
well bore.
Daniel West 10/22/14
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	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
100.00	.28	17.31	100.00	.23	.07	.23	.24	17.31	.28
200.00	.44	17.19	200.00	.83	.26	.83	.87	17.26	.16
300.00	.91	16.44	299.99	1.96	.60	1.96	2.05	16.93	.47
400.00	.93	18.83	399.98	3.49	1.08	3.49	3.66	17.24	.04
500.00	1.09	10.53	499.96	5.19	1.52	5.19	5.41	16.30	.22
600.00	1.16	14.95	599.94	7.11	1.95	7.10	7.37	15.37	.11
700.00	1.02	19.75	699.92	8.92	2.52	8.92	9.27	15.75	.17
800.00	.99	37.20	799.91	10.45	3.34	10.44	10.97	17.72	.31
900.00	.84	59.48	899.90	11.51	4.49	11.50	12.36	21.32	.38

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	
1000.00	.70	50.42	999.89	12.27	5.60	12.26	13.49	24.51	.19
1100.00	.85	58.97	1099.88	13.04	6.70	13.03	14.66	27.20	.19
1200.00	1.11	63.88	1199.86	13.85	8.21	13.83	16.10	30.65	.27
1300.00	1.17	73.92	1299.84	14.56	10.06	14.53	17.70	34.63	.21
1400.00	1.26	70.22	1399.82	15.22	12.07	15.18	19.42	38.43	.12
1500.00	1.14	69.26	1499.80	15.94	14.04	15.90	21.24	41.37	.12
1600.00	1.09	64.58	1599.78	16.70	15.83	16.66	23.01	43.46	.10
1700.00	.99	69.26	1699.76	17.41	17.49	17.37	24.68	45.13	.13
1800.00	.92	66.02	1799.75	18.05	19.04	18.00	26.23	46.53	.09
1900.00	.98	72.07	1899.74	18.64	20.58	18.58	27.77	47.84	.12
2000.00	.90	74.52	1999.72	19.11	22.15	19.05	29.26	49.22	.09
2100.00	.99	87.26	2099.71	19.36	23.77	19.30	30.66	50.84	.23
2200.00	1.06	82.54	2199.69	19.52	25.55	19.45	32.16	52.62	.11
2300.00	.93	94.59	2299.68	19.58	27.28	19.51	33.58	54.34	.25
2400.00	.97	89.55	2399.67	19.52	28.94	19.44	34.90	56.00	.09
2500.00	1.11	90.98	2499.65	19.51	30.75	19.43	36.42	57.61	.14
2600.00	.96	96.35	2599.63	19.40	32.55	19.31	37.89	59.21	.18
2700.00	1.10	106.42	2699.62	19.04	34.30	18.95	39.23	60.97	.23
2800.00	1.32	113.14	2799.59	18.31	36.28	18.22	40.64	63.22	.26
2900.00	1.18	115.80	2899.57	17.41	38.27	17.31	42.04	65.54	.15
3000.00	1.18	109.75	2999.55	16.61	40.17	16.51	43.47	67.53	.12
3100.00	.94	112.49	3099.53	15.95	41.89	15.84	44.83	69.15	.25
3200.00	.95	126.43	3199.52	15.15	43.32	15.03	45.89	70.73	.23
3300.00	1.15	121.07	3299.50	14.14	44.84	14.02	47.02	72.50	.22
3400.00	1.22	122.29	3399.48	13.05	46.60	12.93	48.40	74.36	.07
3500.00	1.13	125.17	3499.46	11.91	48.31	11.79	49.76	76.15	.11
3600.00	1.12	129.34	3599.44	10.73	49.87	10.60	51.01	77.86	.08
3700.00	1.12	127.49	3699.42	9.51	51.40	9.38	52.28	79.52	.04
3800.00	1.16	122.71	3799.40	8.37	53.03	8.23	53.69	81.03	.10

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	
Last Survey Depth Recorded									
3813.00	1.06	122.99	3812.40	8.23	53.24	8.09	53.88	81.21	.77



Customer Name: Yates Petroleum Corp
 Well Name: Antwell ANU Federal #
 API Number: 3001540523
 County / Parish: Eddy County NM

M.W.D. Operator: Rusty Martin
 Directional Driller: Jason Mueller
 Total Magnetic Correction: 7.25
 Job #: NM-480

Vertical Section: 359.85

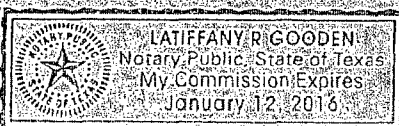
Tie In Survey(s) Provided By:

MS Survey

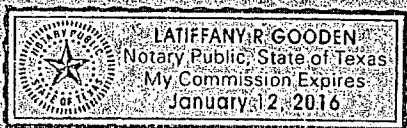
	Meas. Depth	Inc.	Azm.	T-V-D	Ver. Sect.	+N/-S	+E/-W	Dist.	Angle	DLS
Tie - In										
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	100.00	0.28	17.31	100.00	0.23	0.23	0.07	0.24	17.31	0.28
	200.00	0.44	17.19	200.00	0.83	0.83	0.26	0.87	17.26	0.16
	300.00	0.91	16.44	299.99	1.96	1.96	0.60	2.05	16.93	0.47
	400.00	0.93	18.83	399.98	3.49	3.49	1.08	3.66	17.24	0.04
	500.00	1.09	10.53	499.96	5.19	5.19	1.52	5.41	16.30	0.22
	600.00	1.16	14.95	599.94	7.10	7.11	1.95	7.37	15.37	0.11
	700.00	1.02	19.75	699.92	8.92	8.92	2.52	9.27	15.75	0.17
	800.00	0.99	37.20	799.91	10.44	10.45	3.34	10.97	17.72	0.31
	900.00	0.84	59.48	899.90	11.50	11.51	4.49	12.36	21.32	0.38
	1000.00	0.70	50.42	999.89	12.26	12.27	5.60	13.49	24.51	0.19
	1100.00	0.85	58.97	1099.88	13.03	13.04	6.70	14.66	27.20	0.19
	1200.00	1.11	63.88	1199.86	13.83	13.85	8.21	16.10	30.65	0.27
	1300.00	1.17	73.92	1299.84	14.53	14.56	10.06	17.70	34.63	0.21
	1400.00	1.26	70.22	1399.82	15.18	15.22	12.07	19.42	38.43	0.12
	1500.00	1.14	69.26	1499.80	15.90	15.94	14.04	21.24	41.37	0.12
	1600.00	1.09	64.58	1599.78	16.66	16.70	15.83	23.01	43.46	0.10
	1700.00	0.99	69.26	1699.76	17.37	17.41	17.49	24.68	45.13	0.13
	1800.00	0.92	66.02	1799.75	18.00	18.05	19.04	26.23	46.53	0.09
	1900.00	0.98	72.07	1899.74	18.58	18.64	20.58	27.77	47.84	0.12
	2000.00	0.90	74.52	1999.72	19.05	19.11	22.15	29.26	49.22	0.09
	2100.00	0.99	87.26	2099.71	19.30	19.36	23.77	30.66	50.84	0.23
	2200.00	1.06	82.54	2199.69	19.45	19.52	25.55	32.16	52.62	0.11
	2300.00	0.93	94.59	2299.68	19.51	19.58	27.28	33.58	54.34	0.25
	2400.00	0.97	89.55	2399.67	19.44	19.52	28.94	34.90	56.00	0.09
	2500.00	1.11	90.98	2499.65	19.43	19.51	30.75	36.42	57.61	0.14
	2600.00	0.96	96.35	2599.63	19.31	19.40	32.55	37.89	59.21	0.18
	2700.00	1.10	106.42	2699.62	18.95	19.04	34.30	39.23	60.97	0.23
	2800.00	1.32	113.14	2799.59	18.22	18.31	36.28	40.64	63.22	0.26
	2900.00	1.18	115.80	2899.57	17.31	17.41	38.27	42.04	65.54	0.15
	3000.00	1.18	109.75	2999.55	16.51	16.61	40.17	43.47	67.53	0.12
	3100.00	0.94	112.49	3099.53	15.84	15.95	41.89	44.83	69.15	0.25
	3200.00	0.95	126.43	3199.52	15.03	15.15	43.32	45.89	70.73	0.23
	3300.00	1.15	121.07	3299.50	14.02	14.14	44.84	47.02	72.50	0.22
	3400.00	1.22	122.29	3399.48	12.93	13.05	46.60	48.40	74.36	0.07
	3500.00	1.13	125.17	3499.46	11.79	11.91	48.31	49.76	76.15	0.11
	3600.00	1.12	129.34	3599.44	10.60	10.73	49.87	51.01	77.86	0.08
	3700.00	1.12	127.49	3699.42	9.38	9.51	51.40	52.28	79.52	0.04
	3800.00	1.16	122.71	3799.40	8.23	8.37	53.03	53.69	81.03	0.10
	3813.00	1.06	122.99	3812.40	8.09	8.23	53.24	53.88	81.21	0.77
1	3890.00	1.10	109.60	3889.39	7.45	7.60	54.54	55.06	82.07	0.33
2	4080.00	1.10	114.10	4079.35	6.09	6.24	57.92	58.25	83.85	0.05
3	4270.00	1.70	112.20	4269.29	4.27	4.43	62.19	62.35	85.92	0.32
4	4460.00	0.80	90.70	4459.25	3.18	3.35	66.13	66.21	87.10	0.53
5	4650.00	0.80	240.00	4649.24	2.50	2.67	66.31	66.36	87.69	0.81



6	4841.00	0.60	202.00	4840.23	0.91	1.08	64.78	64.79	89.05	0.26
7	5030.00	0.50	234.40	5029.22	-0.49	-0.32	63.74	63.74	90.29	0.17
8	5221.00	0.50	235.00	5220.21	-1.45	-1.28	62.38	62.39	91.18	0.00
9	5410.00	0.90	300.30	5409.20	-1.17	-1.01	60.42	60.43	90.96	0.44
10	5600.00	0.90	321.20	5599.18	0.76	0.91	58.20	58.20	89.11	0.17
11	5789.00	0.60	307.80	5788.16	2.52	2.67	56.48	56.55	87.29	0.18
12	5979.00	1.10	74.40	5978.15	3.62	3.77	57.45	57.58	86.24	0.81
13	6169.00	1.80	50.80	6168.09	5.99	6.15	61.52	61.83	84.29	0.48
14	6358.00	1.60	33.30	6357.01	10.06	10.23	65.27	66.07	81.09	0.29
15	6562.00	1.90	344.00	6560.92	15.69	15.86	65.90	67.78	76.47	0.73
16	6752.00	1.70	0.40	6750.83	21.54	21.71	65.05	68.58	71.55	0.29
17	6939.00	1.50	358.50	6937.76	26.76	26.93	65.01	70.37	67.50	0.11
18	7123.00	2.70	82.10	7121.66	29.75	29.93	69.24	75.43	66.62	1.60
19	7311.00	1.90	132.40	7309.53	28.24	28.44	75.93	81.08	69.47	1.11
20	7494.00	2.50	179.30	7492.40	22.20	22.40	78.22	81.36	74.02	1.00
21	7682.00	1.50	208.50	7680.29	15.94	16.14	77.09	78.76	78.18	0.74
22	7805.00	1.80	37.10	7803.28	16.06	16.26	77.49	79.18	78.15	2.68
23	7837.00	4.00	27.50	7835.23	17.45	17.66	78.31	80.28	77.29	7.02
24	7868.00	7.10	12.20	7866.08	20.28	20.49	79.21	81.82	75.50	10.99
25	7899.00	11.10	3.70	7896.69	25.13	25.34	79.81	83.74	72.39	13.58
26	7929.00	15.00	2.30	7925.91	31.89	32.10	80.15	86.34	68.17	13.04
27	7961.00	18.50	2.70	7956.55	41.10	41.32	80.56	90.54	62.85	10.94
28	7992.00	22.10	8.50	7985.62	51.79	52.00	81.65	96.81	57.51	13.29
29	8024.00	26.30	10.80	8014.80	64.70	64.92	83.87	106.06	52.26	13.45
30	8055.00	30.20	10.80	8042.10	79.11	79.33	86.62	117.46	47.51	12.58
31	8086.00	33.20	9.40	8068.48	95.14	95.37	89.47	130.77	43.17	9.96
32	8118.00	36.80	7.40	8094.69	113.28	113.52	92.14	146.21	39.06	11.81
33	8149.00	40.60	6.70	8118.87	132.51	132.76	94.51	162.96	35.45	12.34
34	8182.00	44.60	5.00	8143.16	154.72	154.97	96.77	182.71	31.98	12.61
35	8213.00	48.60	3.20	8164.46	177.18	177.43	98.37	202.88	29.00	13.57
36	8245.00	52.10	2.20	8184.87	201.78	202.04	99.53	225.22	26.23	11.20
37	8277.00	56.50	0.90	8203.54	227.75	228.01	100.22	249.06	23.73	14.14
38	8308.00	59.50	1.40	8219.97	254.03	254.29	100.75	273.52	21.61	9.77
39	8340.00	61.30	1.40	8235.77	281.84	282.11	101.43	299.79	19.78	5.63
40	8372.00	63.20	1.60	8250.67	310.15	310.41	102.17	326.80	18.22	5.96
41	8403.00	65.60	1.40	8264.07	338.09	338.36	102.90	353.66	16.92	7.76
42	8435.00	68.10	1.10	8276.65	367.50	367.77	103.54	382.07	15.72	7.86
43	8466.00	70.60	0.90	8287.58	396.50	396.78	104.05	410.19	14.69	8.09
44	8497.00	73.10	0.20	8297.23	425.95	426.23	104.33	438.81	13.75	8.35
45	8529.00	75.80	0.00	8305.81	456.78	457.05	104.38	468.82	12.86	8.46
46	8560.00	78.50	0.00	8312.71	487.00	487.28	104.38	498.33	12.09	8.71
47	8591.00	81.50	359.70	8318.09	517.53	517.80	104.30	528.20	11.39	9.72
48	8622.00	84.30	359.70	8321.92	548.29	548.56	104.14	558.36	10.75	9.03
49	8654.00	87.10	359.50	8324.32	580.19	580.47	103.92	589.69	10.15	8.77
50	8669.00	88.60	359.50	8324.88	595.18	595.45	103.79	604.43	9.89	10.00
51	8701.00	90.50	359.30	8325.13	627.18	627.45	103.45	635.92	9.36	5.97
52	8764.00	91.20	359.20	8324.20	690.17	690.44	102.63	698.02	8.45	1.12
53	8859.00	90.70	359.20	8322.62	785.15	785.41	101.30	791.92	7.35	0.53
54	8954.00	90.30	359.50	8321.79	880.14	880.40	100.23	886.09	6.49	0.53
55	9049.00	89.50	358.50	8321.96	975.13	975.39	98.57	980.36	5.77	1.35
56	9144.00	89.50	359.30	8322.79	1070.11	1070.37	96.74	1074.73	5.16	0.84
57	9239.00	88.90	358.10	8324.12	1165.08	1165.33	94.59	1169.16	4.64	1.41
58	9335.00	89.80	356.50	8325.20	1260.97	1261.21	90.07	1264.43	4.08	1.91
59	9430.00	92.00	356.40	8323.71	1355.79	1356.01	84.19	1358.62	3.55	2.32
60	9524.00	92.30	356.90	8320.19	1449.58	1449.79	78.70	1451.92	3.11	0.62
61	9619.00	92.10	357.60	8316.54	1544.41	1544.61	74.14	1546.38	2.75	0.77
62	9714.00	92.20	358.30	8312.98	1639.29	1639.48	70.75	1641.00	2.47	0.74
63	9809.00	91.70	358.80	8309.74	1734.21	1734.39	68.34	1735.74	2.26	0.74



64	9904.00	91.50	359.30	8307.09	1829.16	1829.34	66.77	1830.56	2.09	0.57
65	9999.00	91.10	359.90	8304.93	1924.13	1924.31	66.11	1925.45	1.97	0.76
66	10094.00	90.70	0.00	8303.44	2019.12	2019.30	66.02	2020.38	1.87	0.43
67	10189.00	89.30	358.30	8303.44	2114.11	2114.29	64.62	2115.27	1.75	2.32
68	10284.00	89.90	357.10	8304.11	2209.04	2209.21	60.80	2210.04	1.58	1.41
69	10379.00	90.50	356.40	8303.77	2303.90	2304.05	55.42	2304.72	1.38	0.97
70	10474.00	92.00	356.90	8301.70	2398.72	2398.86	49.87	2399.38	1.19	1.66
71	10568.00	92.10	357.80	8298.34	2492.57	2492.70	45.52	2493.12	1.05	0.96
72	10663.00	91.50	358.30	8295.36	2587.48	2587.60	42.29	2587.94	0.94	0.82
73	10758.00	91.30	359.00	8293.03	2682.43	2682.54	40.06	2682.84	0.86	0.77
74	10852.00	91.00	359.00	8291.15	2776.40	2776.51	38.42	2776.78	0.79	0.32
75	10947.00	91.30	359.90	8289.24	2871.38	2871.49	37.50	2871.73	0.75	1.00
76	11042.00	91.20	359.70	8287.17	2966.35	2966.46	37.17	2966.69	0.72	0.24
77	11137.00	90.10	358.80	8286.09	3061.34	3061.45	35.93	3061.66	0.67	1.50
78	11232.00	90.50	357.90	8285.59	3156.31	3156.40	33.19	3156.58	0.60	1.04
79	11327.00	90.90	357.90	8284.43	3251.24	3251.33	29.71	3251.47	0.52	0.42
80	11422.00	91.20	357.90	8282.69	3346.17	3346.25	26.23	3346.36	0.45	0.32
81	11517.00	91.60	358.50	8280.37	3441.10	3441.17	23.08	3441.25	0.38	0.60
82	11612.00	91.60	358.30	8277.72	3536.03	3536.09	20.27	3536.15	0.33	0.00
83	11707.00	88.60	357.90	8277.55	3630.97	3631.03	17.12	3631.07	0.27	3.19
84	11802.00	87.90	357.80	8280.45	3725.87	3725.92	13.55	3725.94	0.21	0.74
85	11897.00	90.60	356.40	8281.70	3820.74	3820.78	8.75	3820.79	0.13	3.20
86	11992.00	92.30	357.10	8279.29	3915.57	3915.59	3.36	3915.59	0.05	1.94
87	12087.00	92.00	357.10	8275.73	4010.39	4010.40	-1.44	4010.40	359.98	0.32
88	12181.00	91.60	357.40	8272.78	4104.25	4104.25	-5.95	4104.25	359.92	0.53
89	12245.00	91.70	357.60	8270.93	4168.17	4168.16	-8.74	4168.17	359.88	0.35
90	12340.00	92.50	357.90	8267.45	4263.04	4263.02	-12.46	4263.04	359.83	0.90
91	12434.00	91.80	358.80	8263.93	4356.94	4356.91	-15.17	4356.94	359.80	1.21
92	12529.00	90.00	358.80	8262.43	4451.91	4451.88	-17.16	4451.91	359.78	1.89
93	12624.00	89.30	358.80	8263.01	4546.89	4546.85	-19.15	4546.89	359.76	0.74
94	12640.00	89.20	359.20	8263.22	4562.89	4562.85	-19.43	4562.89	359.76	2.58



**McVAY DRILLING COMPANY**

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

Well Name and Num: Antweil ANU Federal #3H
Location: Sec 19, T19S, R30E
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>
1.10	228	1.10	5579
0.70	485	1.80	6169
1.10	581	2.70	7123
0.50	736	1.90	7301
0.60	912	1.50	7682
1.20	1260	22.10	7992
1.10	1355	44.50	8182
0.80	1547	87.10	8654
1.20	1729	90.00	8859
0.80	2020	89.50	9144
1.05	2300	92.10	9619
1.41	2871	90.70	10094
1.50	3249	91.30	10758
1.25	3540	90.90	11327
1.25	3723	88.60	11707
1.40	4008	92.00	12087
0.60	4842	90.00	12529

By: Hunter

Subscribed and sworn to before me this 6th day of November, 2014

Tina Flemens
Notary Public, Lea County, New Mexico

