

NM OIL CONSERVATION
ARTESIA DISTRICT

JUN 4 2015

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Yates Petroleum

Eddy, NM (NAD-83)

Spunky BUK State Com

#1H

OH

30-015-42624

Design: OH

Accepted for record
MASC

Survey Report - Geographic

27 January, 2015



Survey Report - Geographic

Company:	Yates Petroleum	Local Co-ordinate Reference:	Well #1H
Project:	Eddy, NM (NAD-83)	TVD Reference:	RKB @ 3401.5usft (Nomac 22 - KB=21.5)
Site:	Spunky BUK State Com	MD Reference:	RKB @ 3401.5usft (Nomac 22 - KB=21.5)
Well:	#1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Houston R5000 Database

Project	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	Spunky BUK State Com		
Site Position:		Northing:	392,293.90 usft
From:	Map	Easting:	560,875.90 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 4' 42.528 N
		Longitude:	104° 16' 12.900 W
		Grid Convergence:	0.03 °

Well	#1H		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft
		Ground Level:	3,380.0 usft
		Latitude:	32° 4' 42.528 N
		Longitude:	104° 16' 12.900 W

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010	12/19/2014	7.46
			Dip Angle
			(°)
			59.85
			Field Strength
			(nT)
			48,102

Design	OH		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction
			(°)
			181.58

Survey Program	Date	1/27/2015		
From	To	Survey (Wellbore)	Tool Name	Description
(usft)	(usft)			
100.0	350.0	Survey #1 - Gyros (OH)	CB-GYRO-MS	Camera based gyro multishot
469.0	11,652.0	Survey #2 - Crescent MWD Surveys (OH)	MWD	MWD - Standard
11,820.0	11,820.0	Survey #3 - PTB (OH)	BLIND	Blind drilling, where no tool is applied

Survey									
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Map	Map	Latitude	Longitude
Depth	(°)	(°)	Depth	(usft)	(usft)	Northing	Easting		
(usft)			(usft)			(usft)	(usft)		
0.0	0.00	0.00	0.0	0.0	0.0	392,293.90	560,875.90	32° 4' 42.528 N	104° 16' 12.900 W
100.0	0.38	62.84	100.0	0.2	0.3	392,294.05	560,876.20	32° 4' 42.529 N	104° 16' 12.897 W
200.0	0.42	33.95	200.0	0.6	0.8	392,294.51	560,876.70	32° 4' 42.534 N	104° 16' 12.891 W
300.0	0.51	38.90	300.0	1.3	1.3	392,295.16	560,877.18	32° 4' 42.540 N	104° 16' 12.885 W
350.0	0.44	30.28	350.0	1.6	1.5	392,295.49	560,877.42	32° 4' 42.543 N	104° 16' 12.882 W
469.0	0.40	41.40	469.0	2.3	2.0	392,296.20	560,877.92	32° 4' 42.550 N	104° 16' 12.877 W
590.0	0.40	50.80	590.0	2.9	2.6	392,296.78	560,878.53	32° 4' 42.556 N	104° 16' 12.870 W
776.0	0.70	0.60	776.0	4.4	3.1	392,298.33	560,879.04	32° 4' 42.571 N	104° 16' 12.864 W
964.0	1.00	40.50	964.0	6.8	4.2	392,300.73	560,880.12	32° 4' 42.595 N	104° 16' 12.851 W
1,151.0	0.40	32.10	1,150.9	8.6	5.6	392,302.52	560,881.53	32° 4' 42.613 N	104° 16' 12.835 W



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Site:	Spunky BUK State Com	MD Reference:	RKB @ 3401.5usft (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)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
1,337.0	1.90	87.80	1,336.9	9.3	9.1	392,303.19	560,884.96	32° 4' 42.620 N	104° 16' 12.795 W	
1,524.0	1.50	97.90	1,523.8	9.1	14.6	392,302.97	560,890.48	32° 4' 42.617 N	104° 16' 12.731 W	
1,711.0	1.60	77.10	1,710.8	9.3	19.5	392,303.22	560,895.45	32° 4' 42.620 N	104° 16' 12.673 W	
1,898.0	0.80	46.40	1,897.7	10.8	23.0	392,304.70	560,898.94	32° 4' 42.634 N	104° 16' 12.632 W	
1,975.0	0.70	66.20	1,974.7	11.4	23.9	392,305.26	560,899.76	32° 4' 42.640 N	104° 16' 12.623 W	
2,104.0	0.70	47.30	2,103.7	12.2	25.2	392,306.11	560,901.06	32° 4' 42.648 N	104° 16' 12.608 W	
2,291.0	0.90	62.30	2,290.7	13.7	27.3	392,307.57	560,903.20	32° 4' 42.663 N	104° 16' 12.583 W	
2,477.0	1.10	55.60	2,476.7	15.4	30.1	392,309.26	560,905.96	32° 4' 42.679 N	104° 16' 12.551 W	
2,665.0	0.70	233.70	2,664.6	15.7	30.6	392,309.60	560,906.53	32° 4' 42.683 N	104° 16' 12.544 W	
2,851.0	0.70	230.10	2,850.6	14.3	28.8	392,308.20	560,904.74	32° 4' 42.669 N	104° 16' 12.565 W	
3,038.0	0.70	229.40	3,037.6	12.8	27.1	392,306.72	560,903.00	32° 4' 42.654 N	104° 16' 12.585 W	
3,225.0	0.70	228.40	3,224.6	11.3	25.4	392,305.22	560,901.27	32° 4' 42.640 N	104° 16' 12.605 W	
3,412.0	0.90	250.50	3,411.6	10.1	23.1	392,303.97	560,899.04	32° 4' 42.627 N	104° 16' 12.631 W	
3,599.0	0.90	238.90	3,598.6	8.8	20.5	392,302.72	560,896.39	32° 4' 42.615 N	104° 16' 12.662 W	
3,788.0	1.10	240.70	3,787.5	7.2	17.6	392,301.07	560,893.54	32° 4' 42.598 N	104° 16' 12.695 W	
3,974.0	1.40	222.10	3,973.5	4.6	14.6	392,298.51	560,890.46	32° 4' 42.573 N	104° 16' 12.731 W	
4,162.0	1.60	217.00	4,161.4	0.8	11.4	392,294.71	560,887.34	32° 4' 42.536 N	104° 16' 12.767 W	
4,350.0	0.40	236.30	4,349.4	-1.7	9.3	392,292.25	560,885.22	32° 4' 42.511 N	104° 16' 12.792 W	
4,537.0	0.40	230.00	4,536.4	-2.4	8.3	392,291.47	560,884.17	32° 4' 42.503 N	104° 16' 12.804 W	
4,725.0	0.40	215.60	4,724.4	-3.4	7.4	392,290.51	560,883.29	32° 4' 42.494 N	104° 16' 12.814 W	
4,911.0	0.70	201.70	4,910.4	-5.0	6.6	392,288.93	560,882.49	32° 4' 42.478 N	104° 16' 12.824 W	
5,098.0	0.70	194.30	5,097.4	-7.1	5.9	392,286.76	560,881.78	32° 4' 42.457 N	104° 16' 12.832 W	
5,284.0	0.70	183.20	5,283.3	-9.4	5.5	392,284.52	560,881.44	32° 4' 42.435 N	104° 16' 12.836 W	
5,472.0	0.70	248.60	5,471.3	-10.9	4.4	392,282.96	560,880.31	32° 4' 42.419 N	104° 16' 12.849 W	
5,659.0	0.70	241.00	5,658.3	-11.9	2.3	392,281.99	560,878.24	32° 4' 42.410 N	104° 16' 12.873 W	
5,845.0	0.40	285.20	5,844.3	-12.3	0.7	392,281.61	560,876.62	32° 4' 42.406 N	104° 16' 12.892 W	
6,032.0	0.50	285.00	6,031.3	-11.9	-0.7	392,281.99	560,875.21	32° 4' 42.410 N	104° 16' 12.908 W	
6,218.0	1.20	297.60	6,217.3	-10.8	-3.2	392,283.10	560,872.70	32° 4' 42.421 N	104° 16' 12.937 W	
6,405.0	1.10	280.40	6,404.2	-9.6	-6.7	392,284.33	560,869.20	32° 4' 42.433 N	104° 16' 12.978 W	
6,594.0	1.10	279.70	6,593.2	-8.9	-10.3	392,284.97	560,865.62	32° 4' 42.439 N	104° 16' 13.020 W	
6,781.0	1.40	322.10	6,780.2	-6.8	-13.5	392,287.07	560,862.45	32° 4' 42.460 N	104° 16' 13.056 W	
6,851.0	1.20	320.80	6,850.2	-5.6	-14.4	392,288.31	560,861.46	32° 4' 42.472 N	104° 16' 13.068 W	
6,893.0	0.70	289.90	6,892.1	-5.2	-15.0	392,288.74	560,860.94	32° 4' 42.477 N	104° 16' 13.074 W	
6,901.0	0.79	232.63	6,900.1	-5.2	-15.0	392,288.72	560,860.85	32° 4' 42.476 N	104° 16' 13.075 W	
KOP: 6901.0' MD, 6900.1' TVD										
6,924.0	2.60	192.00	6,923.1	-5.8	-15.3	392,288.12	560,860.62	32° 4' 42.470 N	104° 16' 13.078 W	
6,955.0	6.00	185.30	6,954.0	-8.1	-15.6	392,285.82	560,860.32	32° 4' 42.448 N	104° 16' 13.081 W	
6,986.0	9.30	185.00	6,984.8	-12.2	-15.9	392,281.71	560,859.95	32° 4' 42.407 N	104° 16' 13.086 W	
7,018.0	12.70	184.80	7,016.2	-18.3	-16.5	392,275.62	560,859.43	32° 4' 42.347 N	104° 16' 13.092 W	
7,049.0	15.50	184.10	7,046.2	-25.8	-17.0	392,268.10	560,858.85	32° 4' 42.272 N	104° 16' 13.098 W	
7,080.0	18.70	179.90	7,075.9	-34.9	-17.3	392,258.99	560,858.57	32° 4' 42.182 N	104° 16' 13.102 W	
7,111.0	22.00	177.60	7,104.9	-45.7	-17.1	392,248.22	560,858.82	32° 4' 42.076 N	104° 16' 13.099 W	
7,142.0	25.30	178.10	7,133.3	-58.1	-16.6	392,235.79	560,859.28	32° 4' 41.953 N	104° 16' 13.094 W	
7,173.0	28.50	178.80	7,161.0	-72.1	-16.2	392,221.77	560,859.65	32° 4' 41.814 N	104° 16' 13.089 W	
7,205.0	32.00	179.70	7,188.6	-88.2	-16.0	392,205.66	560,859.86	32° 4' 41.654 N	104° 16' 13.087 W	
7,236.0	35.20	179.90	7,214.4	-105.4	-16.0	392,188.50	560,859.92	32° 4' 41.485 N	104° 16' 13.087 W	
7,268.0	38.90	179.90	7,240.0	-124.7	-16.0	392,169.23	560,859.95	32° 4' 41.294 N	104° 16' 13.086 W	
7,276.4	40.09	179.93	7,246.4	-130.0	-15.9	392,163.88	560,859.96	32° 4' 41.241 N	104° 16' 13.086 W	
Cross 330' Hardline: 7276.4' MD, 7246.4' TVD, 40.09° INC										
7,299.0	43.30	180.00	7,263.3	-145.0	-15.9	392,148.85	560,859.97	32° 4' 41.092 N	104° 16' 13.086 W	
7,330.0	47.90	179.90	7,285.0	-167.2	-15.9	392,126.71	560,859.99	32° 4' 40.873 N	104° 16' 13.086 W	
7,361.0	51.60	179.50	7,305.0	-190.8	-15.8	392,103.06	560,860.11	32° 4' 40.639 N	104° 16' 13.085 W	
7,392.0	54.70	179.30	7,323.6	-215.6	-15.5	392,078.25	560,860.38	32° 4' 40.394 N	104° 16' 13.082 W	
7,423.0	57.70	179.70	7,340.8	-241.4	-15.3	392,052.50	560,860.60	32° 4' 40.139 N	104° 16' 13.080 W	
7,454.0	61.20	180.60	7,356.6	-268.1	-15.4	392,025.80	560,860.52	32° 4' 39.875 N	104° 16' 13.081 W	



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Company:	Yates Petroleum	Local Co-ordinate Reference:	Well #1H
Project:	Eddy, NM (NAD-83)	TVD Reference:	RKB @ 3401.5usft (Nomac 22 - KB=21.5)
Site:	Spunky BUK State Com	MD Reference:	RKB @ 3401.5usft (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)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
7,485.0	64.90	180.90	7,370.6	-295.7	-15.7	391,998.18	560,860.16	32° 4' 39.601 N	104° 16' 13.085 W
7,517.0	68.30	181.50	7,383.4	-325.1	-16.4	391,968.82	560,859.55	32° 4' 39.311 N	104° 16' 13.092 W
7,548.0	71.60	182.30	7,394.0	-354.2	-17.3	391,939.72	560,858.58	32° 4' 39.023 N	104° 16' 13.104 W
7,579.0	75.30	182.20	7,402.8	-383.9	-18.5	391,910.03	560,857.41	32° 4' 38.729 N	104° 16' 13.118 W
7,611.0	79.50	182.00	7,409.8	-415.1	-19.6	391,878.83	560,856.27	32° 4' 38.420 N	104° 16' 13.131 W
7,634.0	83.00	181.50	7,413.3	-437.8	-20.3	391,856.11	560,855.57	32° 4' 38.195 N	104° 16' 13.139 W
7,712.0	88.14	181.92	7,419.3	-515.5	-22.6	391,778.41	560,853.26	32° 4' 37.426 N	104° 16' 13.167 W
EOC: 7712.0' MD, 7419.3' TVD, 88.14° INC, 181.92° AZ, 515.9' VS									
7,728.0	89.20	182.00	7,419.7	-531.5	-23.2	391,762.42	560,852.71	32° 4' 37.268 N	104° 16' 13.173 W
7,821.0	90.10	182.20	7,420.2	-624.4	-26.6	391,669.49	560,849.30	32° 4' 36.348 N	104° 16' 13.214 W
7,916.0	91.00	180.60	7,419.3	-719.4	-28.9	391,574.52	560,846.98	32° 4' 35.409 N	104° 16' 13.241 W
8,009.0	90.60	180.60	7,418.0	-812.4	-29.9	391,481.54	560,846.01	32° 4' 34.488 N	104° 16' 13.253 W
8,102.0	90.30	180.00	7,417.3	-905.4	-30.4	391,388.54	560,845.52	32° 4' 33.568 N	104° 16' 13.259 W
8,195.0	90.40	180.20	7,416.7	-998.4	-30.5	391,295.54	560,845.36	32° 4' 32.648 N	104° 16' 13.262 W
8,288.0	89.60	181.10	7,416.7	-1,091.3	-31.6	391,202.55	560,844.30	32° 4' 31.728 N	104° 16' 13.275 W
8,382.0	89.90	180.80	7,417.1	-1,185.3	-33.2	391,108.57	560,842.74	32° 4' 30.797 N	104° 16' 13.294 W
8,475.0	90.30	180.60	7,417.0	-1,278.3	-34.3	391,015.57	560,841.61	32° 4' 29.877 N	104° 16' 13.307 W
8,568.0	90.30	180.20	7,416.5	-1,371.3	-34.9	390,922.58	560,840.96	32° 4' 28.957 N	104° 16' 13.316 W
8,662.0	90.30	179.70	7,416.0	-1,465.3	-34.9	390,828.58	560,841.04	32° 4' 28.027 N	104° 16' 13.315 W
8,755.0	89.00	181.50	7,416.6	-1,558.3	-35.8	390,735.59	560,840.07	32° 4' 27.106 N	104° 16' 13.327 W
8,848.0	88.70	181.60	7,418.4	-1,651.3	-38.3	390,642.64	560,837.55	32° 4' 26.187 N	104° 16' 13.357 W
8,942.0	88.70	181.60	7,420.6	-1,745.2	-41.0	390,548.70	560,834.93	32° 4' 25.257 N	104° 16' 13.388 W
9,036.0	88.70	182.30	7,422.7	-1,839.1	-44.2	390,454.78	560,831.73	32° 4' 24.327 N	104° 16' 13.426 W
9,130.0	89.20	182.30	7,424.4	-1,933.0	-47.9	390,360.88	560,827.96	32° 4' 23.398 N	104° 16' 13.470 W
9,223.0	90.60	182.20	7,424.6	-2,025.9	-51.6	390,267.95	560,824.31	32° 4' 22.479 N	104° 16' 13.514 W
9,316.0	90.30	182.00	7,423.9	-2,118.9	-55.0	390,175.02	560,820.90	32° 4' 21.559 N	104° 16' 13.554 W
9,409.0	90.30	181.30	7,423.4	-2,211.8	-57.7	390,082.06	560,818.22	32° 4' 20.639 N	104° 16' 13.585 W
9,502.0	91.10	182.50	7,422.2	-2,304.8	-60.8	389,989.12	560,815.14	32° 4' 19.719 N	104° 16' 13.622 W
9,595.0	92.70	183.00	7,419.2	-2,397.6	-65.2	389,896.28	560,810.68	32° 4' 18.800 N	104° 16' 13.674 W
9,689.0	92.00	181.80	7,415.3	-2,491.5	-69.2	389,802.44	560,806.75	32° 4' 17.872 N	104° 16' 13.721 W
9,782.0	90.80	181.60	7,413.0	-2,584.4	-71.9	389,709.51	560,803.99	32° 4' 16.952 N	104° 16' 13.753 W
9,876.0	91.00	181.30	7,411.6	-2,678.3	-74.3	389,615.55	560,801.61	32° 4' 16.022 N	104° 16' 13.782 W
9,969.0	89.70	180.60	7,411.0	-2,771.3	-75.8	389,522.57	560,800.07	32° 4' 15.102 N	104° 16' 13.800 W
10,062.0	89.90	179.90	7,411.3	-2,864.3	-76.2	389,429.57	560,799.66	32° 4' 14.182 N	104° 16' 13.806 W
10,155.0	90.30	180.60	7,411.1	-2,957.3	-76.6	389,336.57	560,799.26	32° 4' 13.262 N	104° 16' 13.811 W
10,249.0	90.60	180.80	7,410.4	-3,051.3	-77.8	389,242.58	560,798.11	32° 4' 12.331 N	104° 16' 13.825 W
10,342.0	89.60	180.80	7,410.2	-3,144.3	-79.1	389,149.60	560,796.81	32° 4' 11.411 N	104° 16' 13.841 W
10,436.0	89.60	182.00	7,410.9	-3,238.3	-81.4	389,055.63	560,794.51	32° 4' 10.481 N	104° 16' 13.868 W
10,529.0	89.60	181.80	7,411.6	-3,331.2	-84.5	388,962.68	560,791.43	32° 4' 9.561 N	104° 16' 13.904 W
10,622.0	89.90	182.50	7,412.0	-3,424.2	-88.0	388,869.75	560,787.94	32° 4' 8.642 N	104° 16' 13.946 W
10,715.0	90.30	182.50	7,411.8	-3,517.1	-92.0	388,776.84	560,783.89	32° 4' 7.722 N	104° 16' 13.993 W
10,810.0	90.60	182.30	7,411.0	-3,612.0	-96.0	388,681.92	560,779.91	32° 4' 6.783 N	104° 16' 14.040 W
10,903.0	91.00	182.20	7,409.8	-3,704.9	-99.6	388,589.00	560,776.26	32° 4' 5.863 N	104° 16' 14.083 W
10,996.0	90.30	182.00	7,408.7	-3,797.8	-103.1	388,496.07	560,772.85	32° 4' 4.944 N	104° 16' 14.124 W
11,090.0	90.60	182.20	7,408.0	-3,891.8	-106.5	388,402.14	560,769.40	32° 4' 4.014 N	104° 16' 14.164 W
11,184.0	89.90	182.50	7,407.5	-3,985.7	-110.4	388,308.22	560,765.55	32° 4' 3.085 N	104° 16' 14.210 W
11,278.0	90.40	182.90	7,407.3	-4,079.6	-114.8	388,214.32	560,761.12	32° 4' 2.156 N	104° 16' 14.262 W
11,371.0	90.40	182.00	7,406.7	-4,172.5	-118.8	388,121.41	560,757.15	32° 4' 1.236 N	104° 16' 14.309 W
11,465.0	89.70	180.60	7,406.6	-4,266.5	-120.9	388,027.44	560,755.01	32° 4' 0.306 N	104° 16' 14.334 W
11,558.0	89.00	180.60	7,407.6	-4,359.4	-121.9	387,934.45	560,754.04	32° 3' 59.386 N	104° 16' 14.346 W
11,652.0	89.00	180.00	7,409.3	-4,453.4	-122.4	387,840.47	560,753.55	32° 3' 58.456 N	104° 16' 14.352 W
Final MWD Survey: 11652.0' MD, 7409.3' TVD									
11,819.0	89.00	180.00	7,412.2	-4,620.4	-122.4	387,673.49	560,753.55	32° 3' 56.803 N	104° 16' 14.353 W
BNL: 11819.0' MD, 7412.2' TVD, 89.00° INC, 180.00° AZ, -4620.4' +N/-S, -122.4' +E/-W, 4622.0' VS									



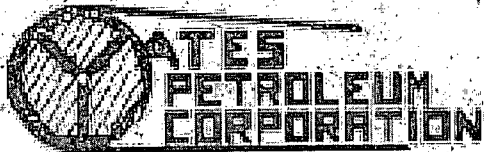
Survey Report - Geographic

Company:	Yates Petroleum	Local Co-ordinate Reference:	Well #1H
Project:	Eddy, NM (NAD-83)	TVD Reference:	RKB @ 3401.5usft (Nomac 22 - KB=21.5)
Site:	Spunky BUK State Com	MD Reference:	RKB @ 3401.5usft (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)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
11,819.9	89.00	180.00	7,412.2	-4,621.3	-122.4	387,672.64	560,753.55	32° 3' 56.795 N	104° 16' 14.353 W
TD330(SBS#1H)									
11,820.0	89.00	180.00	7,412.2	-4,621.4	-122.4	387,672.51	560,753.55	32° 3' 56.794 N	104° 16' 14.353 W
PBHL(SBS#1H)									

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N-S (usft)	+E-W (usft)	Comment	
6,901.0	6,900.1	-5.2	-15.0	KOP: 6901.0' MD, 6900.1' TVD	
7,276.4	7,246.4	-130.0	-15.9	Cross 330' Hardline: 7276.4' MD, 7246.4' TVD, 40.09° INC	
7,712.0	7,419.3	-515.5	-22.6	EOC: 7712.0' MD, 7419.3' TVD, 88.14° INC, 181.92° AZ, 515.9° VS	
11,652.0	7,409.3	-4,453.4	-122.4	Final MWD Survey: 11652.0' MD, 7409.3' TVD	
11,819.0	7,412.2	-4,620.4	-122.4	BHL: 11819.0' MD, 7412.2' TVD, 89.00° AZ, -4620.4' +N-S, -122.4	

Checked By: _____	Approved By: _____	Date: _____
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Yates Petroleum

Eddy, NM (NAD-83)

Spunky BUK State Com

#1H

OH

30-015-42624

Accepted for record
NMSCD

Design: OH

Standard Survey Report

27 January, 2015



Survey Report

Company:	Yates Petroleum	Local Co-ordinate Reference:	Well #1H
Project:	Eddy, NM (NAD-83)	TVD Reference:	RKB @ 3401.5usft (Nomac 22 - KB=21.5)
Site:	Spunky BUK State Com	MD Reference:	RKB @ 3401.5usft (Nomac 22 - KB=21.5)
Well:	#1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Houston R5000 Database

Project	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	Spunky BUK State Com		
Site Position:		Northing:	392,293.90 usft
From:	Map	Easting:	560,875.90 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 4' 42.528 N
		Longitude:	104° 16' 12.900 W
		Grid Convergence:	0.03 °

Well	#1H		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft
		Latitude:	32° 4' 42.528 N
		Longitude:	104° 16' 12.900 W
		Ground Level:	3,380.0 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
	IGRF2010	12/19/2014	7.46
			Dip Angle
			59.85
			Field Strength
			48,102

Design	OH		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction
			(°)
			181.58

Survey Program	Date 1/27/2015		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
100.0	350.0	Survey #1 - Gyros (OH)	CB-GYRO-MS
469.0	11,652.0	Survey #2 - Crescent MWD Surveys (OH)	MWD
11,820.0	11,820.0	Survey #3 - PTB (OH)	BLIND
			Description
			Camera based gyro multishot
			MWD - Standard
			Blind drilling, where no tool is applied

Survey									
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Vertical Section	Dogleg Rate	Build Rate	Turn Rate
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(°/100usft)	(°/100usft)	(°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.38	62.84	100.0	0.2	0.3	-0.2	0.38	0.38	0.00
200.0	0.42	33.95	200.0	0.6	0.8	-0.6	0.20	0.04	-28.89
300.0	0.51	38.90	300.0	1.3	1.3	-1.3	0.10	0.09	4.95
350.0	0.44	30.28	350.0	1.6	1.5	-1.6	0.20	-0.14	-17.24
469.0	0.40	41.40	469.0	2.3	2.0	-2.4	0.08	-0.03	9.34
590.0	0.40	50.80	590.0	2.9	2.6	-3.0	0.05	0.00	7.77
776.0	0.70	0.60	776.0	4.4	3.1	-4.5	0.29	0.16	-26.99
964.0	1.00	40.50	964.0	6.8	4.2	-6.9	0.34	0.16	21.22



Survey Report

Company:	Yates Petroleum	Local Co-ordinate Reference:	Well #1H
Project:	Eddy, NM (NAD-83)	TVD Reference:	RKB @ 3401.5usft (Nomac 22 - KB=21.5)
Site:	Spunky BUK State Com	MD Reference:	RKB @ 3401.5usft (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)
1,151.0	0.40	32.10	1,150.9	8.6	5.6	-8.8	0.32	-0.32	-4.49
1,337.0	1.90	87.80	1,336.9	9.3	9.1	-9.5	0.92	0.81	29.95
1,524.0	1.50	97.90	1,523.8	9.1	14.6	-9.5	0.27	-0.21	5.40
1,711.0	1.60	77.10	1,710.8	9.3	19.5	-9.9	0.30	0.05	-11.12
1,898.0	0.80	46.40	1,897.7	10.8	23.0	-11.4	0.53	-0.43	-16.42
1,975.0	0.70	66.20	1,974.7	11.4	23.9	-12.0	0.36	-0.13	25.71
2,104.0	0.70	47.30	2,103.7	12.2	25.2	-12.9	0.18	0.00	-14.65
2,291.0	0.90	62.30	2,290.7	13.7	27.3	-14.4	0.15	0.11	8.02
2,477.0	1.10	55.60	2,476.7	15.4	30.1	-16.2	0.12	0.11	-3.60
2,665.0	0.70	233.70	2,664.6	15.7	30.6	-16.5	0.96	-0.21	94.73
2,851.0	0.70	230.10	2,850.6	14.3	28.8	-15.1	0.02	0.00	-1.94
3,038.0	0.70	229.40	3,037.6	12.8	27.1	-13.6	0.00	0.00	-0.37
3,225.0	0.70	228.40	3,224.6	11.3	25.4	-12.0	0.01	0.00	-0.53
3,412.0	0.90	250.50	3,411.6	10.1	23.1	-10.7	0.19	0.11	11.82
3,599.0	0.90	238.90	3,598.6	8.8	20.5	-9.4	0.10	0.00	-6.20
3,788.0	1.10	240.70	3,787.5	7.2	17.6	-7.7	0.11	0.11	0.95
3,974.0	1.40	222.10	3,973.5	4.6	14.6	-5.0	0.27	0.16	-10.00
4,162.0	1.60	217.00	4,161.4	0.8	11.4	-1.1	0.13	0.11	-2.71
4,350.0	0.40	236.30	4,349.4	-1.7	9.3	1.4	0.65	-0.64	10.27
4,537.0	0.40	230.00	4,536.4	-2.4	8.3	2.2	0.02	0.00	-3.37
4,725.0	0.40	215.60	4,724.4	-3.4	7.4	3.2	0.05	0.00	-7.66
4,911.0	0.70	201.70	4,910.4	-5.0	6.6	4.8	0.18	0.16	-7.47
5,098.0	0.70	194.30	5,097.4	-7.1	5.9	7.0	0.05	0.00	-3.96
5,284.0	0.70	183.20	5,283.3	-9.4	5.5	9.2	0.07	0.00	-5.97
5,472.0	0.70	248.60	5,471.3	-10.9	4.4	10.8	0.40	0.00	34.79
5,659.0	0.70	241.00	5,658.3	-11.9	2.3	11.8	0.05	0.00	-4.06
5,845.0	0.40	285.20	5,844.3	-12.3	0.7	12.3	0.27	-0.16	23.76
6,032.0	0.50	285.00	6,031.3	-11.9	-0.7	11.9	0.05	0.05	-0.11
6,218.0	1.20	297.60	6,217.3	-10.8	-3.2	10.9	0.39	0.38	6.77
6,405.0	1.10	280.40	6,404.2	-9.6	-6.7	9.7	0.19	-0.05	-9.20
6,594.0	1.10	279.70	6,593.2	-8.9	-10.3	9.2	0.01	0.00	-0.37
6,781.0	1.40	322.10	6,780.2	-6.8	-13.5	7.2	0.51	0.16	22.67
6,851.0	1.20	320.80	6,850.2	-5.6	-14.4	6.0	0.29	-0.29	-1.86
6,893.0	0.70	289.90	6,892.1	-5.2	-15.0	5.6	1.66	-1.19	-73.57
6,901.0	0.79	232.63	6,900.1	-5.2	-15.0	5.6	8.98	1.13	-715.84
KOP: 6901.0' MD, 6900.1' TVD									
6,924.0	2.60	192.00	6,923.1	-5.8	-15.3	6.2	8.98	7.87	-176.66
6,955.0	6.00	185.30	6,954.0	-8.1	-15.6	8.5	11.07	10.97	-21.61
6,986.0	9.30	185.00	6,984.8	-12.2	-15.9	12.6	10.65	10.65	-0.97
7,018.0	12.70	184.80	7,016.2	-18.3	-16.5	18.7	10.63	10.63	-0.63
7,049.0	15.50	184.10	7,046.2	-25.8	-17.0	26.3	9.05	9.03	-2.26
7,080.0	18.70	179.90	7,075.9	-34.9	-17.3	35.4	11.06	10.32	-13.55
7,111.0	22.00	177.60	7,104.9	-45.7	-17.1	46.1	10.95	10.65	-7.42



Survey Report

Company:	Yates Petroleum	Local Co-ordinate Reference:	Well #1H
Project:	Eddy, NM (NAD-83)	TVD Reference:	RKB @ 3401.5usft (Nomac 22 - KB=21.5)
Site:	Spunky BUK State Com	MD Reference:	RKB @ 3401.5usft (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	25.30	178.10	7,133.3	-58.1	-16.6	58.5	10.66	10.65	1.61
7,173.0	28.50	178.80	7,161.0	-72.1	-16.2	72.5	10.37	10.32	2.26
7,205.0	32.00	179.70	7,188.6	-88.2	-16.0	88.7	11.03	10.94	2.81
7,236.0	35.20	179.90	7,214.4	-105.4	-16.0	105.8	10.33	10.32	0.65
7,268.0	38.90	179.90	7,240.0	-124.7	-16.0	125.1	11.56	11.56	0.00
7,276.4	40.09	179.93	7,246.4	-130.0	-15.9	130.4	14.20	14.19	0.34
Cross 330° Hardline: 7276.4' MD, 7246.4' TVD, 40.09° INC									
7,299.0	43.30	180.00	7,263.3	-145.0	-15.9	145.4	14.20	14.19	0.31
7,330.0	47.90	179.90	7,285.0	-167.2	-15.9	167.6	14.84	14.84	-0.32
7,361.0	51.60	179.50	7,305.0	-190.8	-15.8	191.2	11.98	11.94	-1.29
7,392.0	54.70	179.30	7,323.6	-215.6	-15.5	216.0	10.01	10.00	-0.65
7,423.0	57.70	179.70	7,340.8	-241.4	-15.3	241.7	9.74	9.68	1.29
7,454.0	61.20	180.60	7,356.6	-268.1	-15.4	268.4	11.56	11.29	2.90
7,485.0	64.90	180.90	7,370.6	-295.7	-15.7	296.0	11.97	11.94	0.97
7,517.0	68.30	181.50	7,383.4	-325.1	-16.4	325.4	10.76	10.63	1.88
7,548.0	71.60	182.30	7,394.0	-354.2	-17.3	354.5	10.92	10.65	2.58
7,579.0	75.30	182.20	7,402.8	-383.9	-18.5	384.2	11.94	11.94	-0.32
7,611.0	79.50	182.00	7,409.8	-415.1	-19.6	415.5	13.14	13.13	-0.63
7,634.0	83.00	181.50	7,413.3	-437.8	-20.3	438.2	15.37	15.22	-2.17
7,712.0	88.14	181.92	7,419.3	-515.5	-22.6	515.9	6.62	6.60	0.53
EOC: 7712.0' MD, 7419.3' TVD, 88.14° INC, 181.92° AZ, 515.9' VS									
7,728.0	89.20	182.00	7,419.7	-531.5	-23.2	531.9	6.62	6.60	0.53
7,821.0	90.10	182.20	7,420.2	-624.4	-26.6	624.9	0.99	0.97	0.22
7,916.0	91.00	180.60	7,419.3	-719.4	-28.9	719.9	1.93	0.95	-1.68
8,009.0	90.60	180.60	7,418.0	-812.4	-29.9	812.9	0.43	-0.43	0.00
8,102.0	90.30	180.00	7,417.3	-905.4	-30.4	905.9	0.72	-0.32	-0.65
8,195.0	90.40	180.20	7,416.7	-998.4	-30.5	998.8	0.24	0.11	0.22
8,288.0	89.60	181.10	7,416.7	-1,091.3	-31.6	1,091.8	1.29	-0.86	0.97
8,382.0	89.90	180.80	7,417.1	-1,185.3	-33.2	1,185.8	0.45	0.32	-0.32
8,475.0	90.30	180.60	7,417.0	-1,278.3	-34.3	1,278.8	0.48	0.43	-0.22
8,568.0	90.30	180.20	7,416.5	-1,371.3	-34.9	1,371.8	0.43	0.00	-0.43
8,662.0	90.30	179.70	7,416.0	-1,465.3	-34.9	1,465.7	0.53	0.00	-0.53
8,755.0	89.00	181.50	7,416.6	-1,558.3	-35.8	1,558.7	2.39	-1.40	1.94
8,848.0	88.70	181.60	7,418.4	-1,651.3	-38.3	1,651.7	0.34	-0.32	0.11
8,942.0	88.70	181.60	7,420.6	-1,745.2	-41.0	1,745.7	0.00	0.00	0.00
9,036.0	88.70	182.30	7,422.7	-1,839.1	-44.2	1,839.6	0.74	0.00	0.74
9,130.0	89.20	182.30	7,424.4	-1,933.0	-47.9	1,933.6	0.53	0.53	0.00
9,223.0	90.60	182.20	7,424.6	-2,025.9	-51.6	2,026.6	1.51	1.51	-0.11
9,316.0	90.30	182.00	7,423.9	-2,118.9	-55.0	2,119.6	0.39	-0.32	-0.22
9,409.0	90.30	181.30	7,423.4	-2,211.8	-57.7	2,212.6	0.75	0.00	-0.75
9,502.0	91.10	182.50	7,422.2	-2,304.8	-60.8	2,305.6	1.55	0.86	1.29
9,595.0	92.70	183.00	7,419.2	-2,397.6	-65.2	2,398.5	1.80	1.72	0.54
9,689.0	92.00	181.80	7,415.3	-2,491.5	-69.2	2,492.4	1.48	-0.74	-1.28
9,782.0	90.80	181.60	7,413.0	-2,584.4	-71.9	2,585.4	1.31	-1.29	-0.22



Survey Report

Company:	Yates Petroleum	Local Co-ordinate Reference:	Well #1H
Project:	Eddy, NM (NAD-83)	TVD Reference:	RKB @ 3401.5usft (Nomac 22 - KB=21.5)
Site:	Spunky: BUK State Com	MD Reference:	RKB @ 3401.5usft (Nomac 22 - KB=21.5)
Well:	#1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Houston R5000 Database

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)
9,876.0	91.00	181.30	7,411.6	-2,678.3	-74.3	2,679.4	0.38	0.21	-0.32
9,969.0	89.70	180.60	7,411.0	-2,771.3	-75.8	2,772.4	1.59	-1.40	-0.75
10,062.0	89.90	179.90	7,411.3	-2,864.3	-76.2	2,865.3	0.78	0.22	-0.75
10,155.0	90.30	180.60	7,411.1	-2,957.3	-76.6	2,958.3	0.87	0.43	0.75
10,249.0	90.60	180.80	7,410.4	-3,051.3	-77.8	3,052.3	0.38	0.32	0.21
10,342.0	89.60	180.80	7,410.2	-3,144.3	-79.1	3,145.3	1.08	-1.08	0.00
10,436.0	89.60	182.00	7,410.9	-3,238.3	-81.4	3,239.3	1.28	0.00	1.28
10,529.0	89.60	181.80	7,411.6	-3,331.2	-84.5	3,332.3	0.22	0.00	-0.22
10,622.0	89.90	182.50	7,412.0	-3,424.2	-88.0	3,425.3	0.82	0.32	0.75
10,715.0	90.30	182.50	7,411.8	-3,517.1	-92.0	3,518.3	0.43	0.43	0.00
10,810.0	90.60	182.30	7,411.0	-3,612.0	-96.0	3,613.2	0.38	0.32	-0.21
10,903.0	91.00	182.20	7,409.8	-3,704.9	-99.6	3,706.2	0.44	0.43	-0.11
10,996.0	90.30	182.00	7,408.7	-3,797.8	-103.1	3,799.2	0.78	-0.75	-0.22
11,090.0	90.60	182.20	7,408.0	-3,891.8	-106.5	3,893.2	0.38	0.32	0.21
11,184.0	89.90	182.50	7,407.5	-3,985.7	-110.4	3,987.2	0.81	-0.74	0.32
11,278.0	90.40	182.90	7,407.3	-4,079.6	-114.8	4,081.2	0.68	0.53	0.43
11,371.0	90.40	182.00	7,406.7	-4,172.5	-118.8	4,174.2	0.97	0.00	-0.97
11,465.0	89.70	180.60	7,406.6	-4,266.5	-120.9	4,268.2	1.67	-0.74	-1.49
11,558.0	89.00	180.60	7,407.6	-4,359.4	-121.9	4,361.1	0.75	-0.75	0.00
11,652.0	89.00	180.00	7,409.3	-4,453.4	-122.4	4,455.1	0.64	0.00	-0.64
Final MWD Survey: 11652.0' MD, 7409.3' TVD									
11,819.0	89.00	180.00	7,412.2	-4,620.4	-122.4	4,622.0	0.00	0.00	0.00
BHL: 11819.0' MD, 7412.2' TVD, 89.00° INC, 180.00° AZ, -4620.4' +N/-S, -122.4' +E/-W, 4622.0' VS									
11,819.9	89.00	180.00	7,412.2	-4,621.3	-122.4	4,622.9	0.00	0.00	0.00
TD330(SBS#1H)									
11,820.0	89.00	180.00	7,412.2	-4,621.4	-122.4	4,623.0	0.00	0.00	0.00
PBHL(SBS#1H)									

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,901.0	6,900.1	-5.2	-15.0	KOP: 6901.0' MD, 6900.1' TVD
7,276.4	7,246.4	-130.0	-15.9	Cross 330' Hardline: 7276.4' MD, 7246.4' TVD, 40.09° INC
7,712.0	7,419.3	-515.5	-22.6	EOC: 7712.0' MD, 7419.3' TVD, 88.14° INC, 181.92° AZ, 515.9' VS
11,652.0	7,409.3	-4,453.4	-122.4	Final MWD Survey: 11652.0' MD, 7409.3' TVD
11,819.0	7,412.2	-4,620.4	-122.4	BHL: 11819.0' MD, 7412.2' TVD, 89.00° INC, 180.00° AZ, -4620.4' +N/-S, -122.4' +E/-W, 4622.0' VS

Checked By: _____ Approved By: _____ Date: _____



Yates Petroleum
Project: Eddy, NM (NAD-83)
Site: Spunky BUK State Com
Well: #1H
Wellbore: OH
Plan: Plan #2 (#1H/OH)

WELL DETAILS: #1H

Ground Elevation:: 3380.0
RKB Elevation: RKB @ 3401.5usft (Nomac 22 - KB=21.5)
Rig Name: Nomac 22 - KB=21.5

Surface Hole Location
Northing Easting Latitude Longitude
392293.90 560875.90 32° 4' 42.528 N 104° 16' 12.900 W

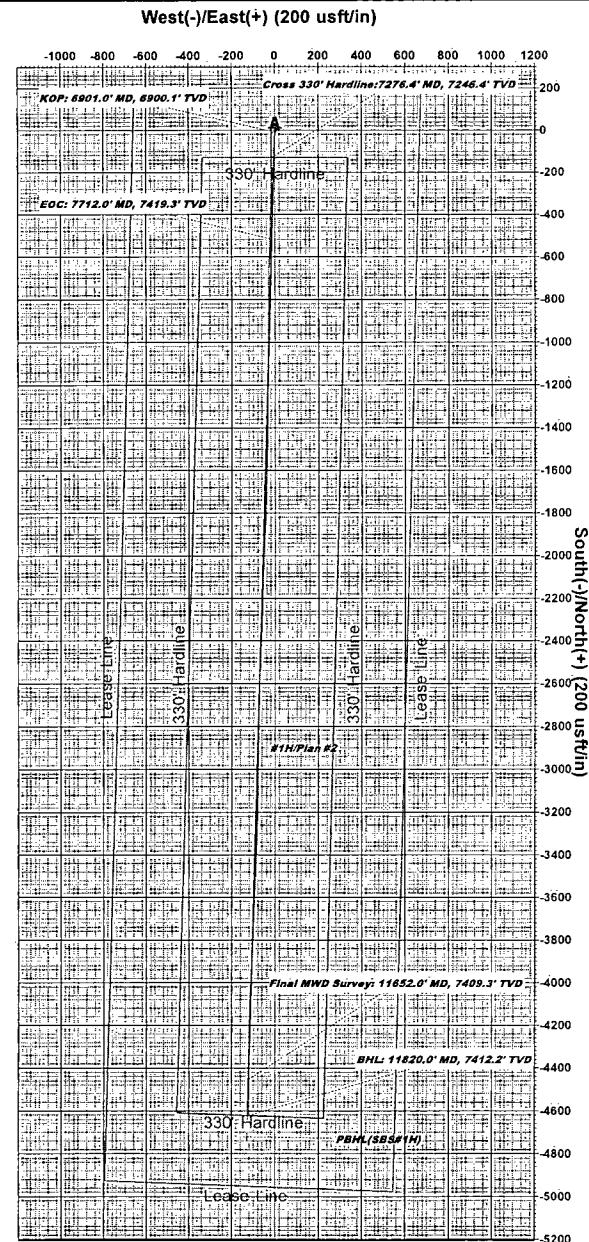
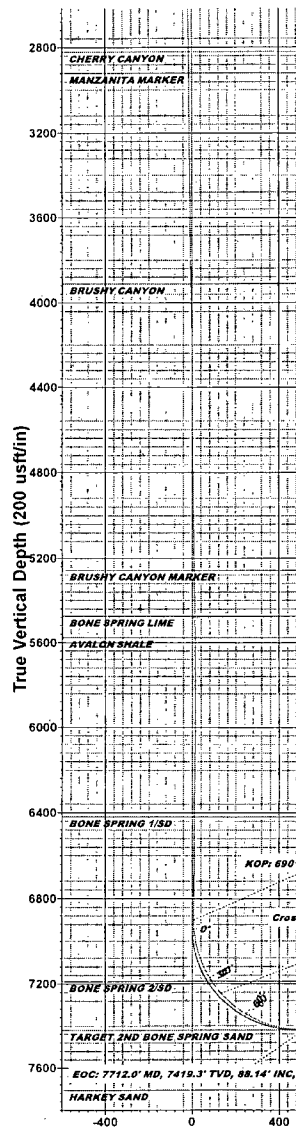
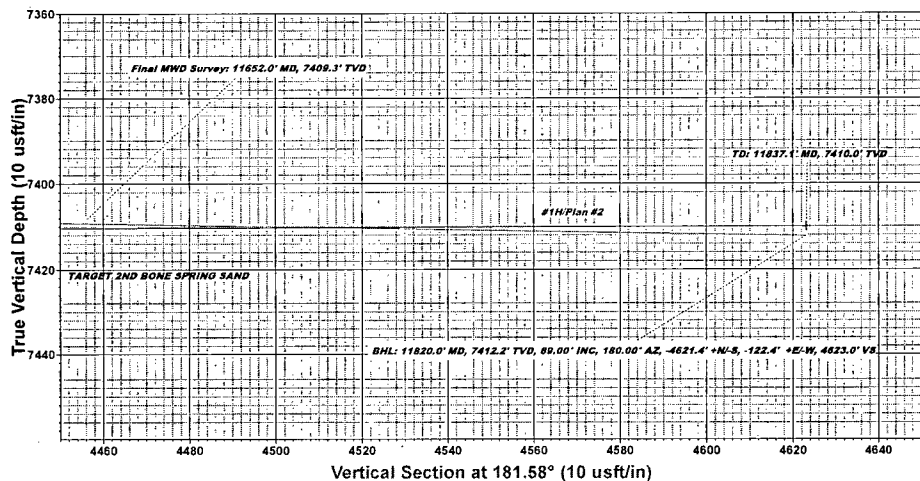


Azimuths to Grid North
True North: -0.03°
Magnetic North: 7.43°

Magnetic Field
Strength: 48102.1nT
Dip Angle: 59.85°
Date: 12/19/2014
Model: IGRF2010

Section Details

	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0
2	6941.5	0.00	0.00	6941.5	0.0	0.0	0.00	0.00	0.0
3	7692.5	90.12	181.58	7419.0	-478.3	-13.2	12.00	181.58	478.5
4	11837.1	90.12	181.58	7410.0	-4621.3	-127.1	0.00	0.00	4623.0



PROJECT DETAILS: Eddy, NM (NAD-83)
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level
Local North: Grid

Vertical Section at 181.58° (200 usft/in)

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



Plan: Plan #2 (#1H/OH)
Created By: Adrian Castro Date: 9:44, January 27 2015



Job Number: SVMO-150060
 Company: Yates Petroleum Corporation
 Lease/Well: Spunky Buk State Com 1
 Location: Eddy County, NM
 Rig Name: Nomac #22
 RKB: 21.5'
 G.L. or M.S.L.: GL

State/Country: New Mexico/USA
 Declination: 7.43°
 Grid: East To Grid North
 File name: Y:\WINSER~1\2015SU~1\YATESP~1\MOISPUKY~1\1.SVY
 Date/Time: 15-Jan-15 / 16:22
 Curve Name: Surface - 350' M.D. (Rate Gyro)

NM OIL CONSERVATION
 ARTESIA DISTRICT

JUN 4 2015

RECEIVED

MS Survey

WINSERVE SURVEY CALCULATIONS

Minimum Curvature Method

Vertical Section Plane 181.58

Vertical Section Referenced to Wellhead

Rectangular Coordinates Referenced to Wellhead

We hereby certify that our survey data from
 Surface MD to 350' MD is, to the best of
 our knowledge a true and accurate account of the
 well bore.

Harley Patterson 1/15/15
 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	.38	62.84	100.00	.15	.30	-.16	.33	62.84	.38
200.00	.42	33.95	200.00	.61	.79	-.63	1.00	52.64	.20
300.00	.51	38.90	299.99	1.26	1.28	-1.29	1.79	45.49	.10
Last Survey Depth Recorded									
350.00	.44	30.28	349.99	1.60	1.52	-1.64	2.20	43.52	.20