

RECEIVED

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Job Number: SVMO-130844
 Company: Yates Petroleum Corporation
 Lease/Well: Martha AIK Federal 8H
 Location: Eddy County, NM
 Rig Name: Nomac #22
 RKB: 21.5'
 G.L. or M.S.L.: GL

State/Country: New Mexico/USA
 Declination: 7.40°
 Grid: East To Grid North
 File name: S:\SURVEY\NEWSUR-1\RRCWINSER-1\2013SU-1\YATES\MOIMARTHA-
 Date/Time: 10-Oct-13 / 10:42
 Curve Name: Surface - 625' M.D. (Rate Gyro)

WINSERVE SURVEY CALCULATIONS
 Minimum Curvature Method
 Vertical Section Plane 268.40
 Vertical Section Referenced to Wellhead
 Rectangular Coordinates Referenced to Wellhead

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
100.00	.68	323.22	100.00	.48	-.36	.34	.59	323.22	.68
200.00	.45	306.03	199.99	1.18	-1.03	.99	1.57	318.97	.28
300.00	.59	350.48	299.99	1.92	-1.43	1.38	2.39	323.31	.41
400.00	.50	327.99	399.98	2.80	-1.75	1.67	3.30	328.02	.23
500.00	.65	6.06	499.98	3.73	-1.92	1.81	4.20	332.79	.40
600.00	.88	351.36	599.97	5.06	-1.97	1.83	5.43	338.67	.30
Last Survey Depth Recorded									
625.00	.82	344.46	624.97	5.42	-2.05	1.90	5.79	339.26	.47



Job Number: SVMO-130888
 Company: Yates Petroleum Corporation
 Lease/Well: Martha AIK Federal 8H
 Location: Eddy County, NM
 Rig Name: Nomac #22
 RKB: 21.5'
 G.L. or M.S.L.: GL

State/Country: New Mexico/USA
 Declination: 7.08°
 Grid: East To Grid North
 File name: S:\2013SU-11YATES\MOIMARTHA-118H.SVY
 Date/Time: 24-Oct-13 / 15:07
 Curve Name: 800' - 7751' M.D. (Rate Gyro)

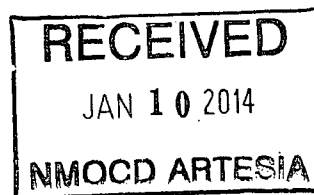
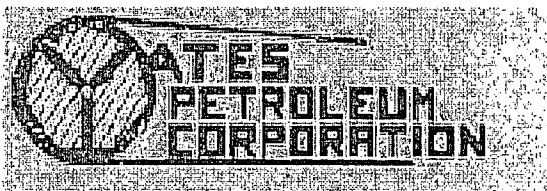
WINSERVE SURVEY CALCULATIONS
 Minimum Curvature Method
 Vertical Section Plane 268.40
 Vertical Section Referenced to Wellhead
 Rectangular Coordinates Referenced to Wellhead

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE Distance FT	Direction Deg	Dogleg Severity Deg/100
625.00	.82	344.46	624.97	5.42	-2.05	1.90	5.79	339.28	.00
Tied Rate Gyro Surveys Into Previous Rate Gyro Surveys									
800.00	1.10	2.62	799.95	8.30	-2.31	2.08	8.62	344.46	.23
1000.00	1.35	6.61	999.90	12.56	-1.95	1.60	12.71	351.18	.13
1200.00	1.55	11.25	1199.84	17.56	-1.15	.66	17.59	356.25	.12
1400.00	1.68	17.90	1399.76	23.00	.28	-.92	23.00	.69	.11
1600.00	1.88	18.71	1599.66	28.90	2.23	-3.04	28.98	4.42	.10
1800.00	1.89	18.62	1799.55	35.13	4.34	-5.32	35.40	7.04	.01
2000.00	1.36	16.85	1999.47	40.53	6.08	-7.21	40.98	8.53	.27

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	
2200.00	1.04	355.91	2199.43	44.61	6.64	-7.88	45.10	8.46	.27
2400.00	.94	347.80	2399.40	48.02	6.16	-7.50	48.41	7.31	.09
2600.00	.98	330.69	2599.37	51.12	4.98	-6.40	51.36	5.56	.14
2800.00	.88	315.59	2799.34	53.70	3.06	-4.56	53.79	3.27	.13
3000.00	1.22	338.04	2999.31	56.78	1.19	-2.78	56.79	1.20	.26
3200.00	3.13	5.37	3199.16	64.19	.91	-2.70	64.19	.81	1.06
3400.00	2.09	8.81	3398.95	73.23	1.98	-4.02	73.26	1.55	.53
3600.00	.83	20.70	3598.88	78.19	3.05	-5.23	78.25	2.23	.64
3800.00	1.68	82.54	3798.84	79.92	6.47	-8.70	80.18	4.63	.74
4000.00	2.52	94.99	3998.71	79.92	13.75	-15.98	81.10	9.76	.48
4200.00	2.02	123.24	4198.55	77.61	21.08	-23.24	80.42	15.20	.60
4400.00	1.47	145.99	4398.46	73.55	25.47	-27.51	77.83	19.10	.44
4600.00	1.36	154.39	4598.40	69.28	27.93	-29.85	74.70	21.95	.12
4800.00	1.45	161.37	4798.34	64.74	29.76	-31.56	71.26	24.69	.10
5000.00	1.63	165.85	4998.27	59.59	31.27	-32.92	67.29	27.69	.11
5200.00	.87	178.41	5198.22	55.31	32.00	-33.53	63.90	30.05	.40
5400.00	.85	188.80	5398.20	52.33	31.82	-33.27	61.24	31.30	.08
5600.00	.95	183.96	5598.17	49.21	31.48	-32.84	58.41	32.61	.06
5800.00	.98	197.14	5798.15	45.92	30.86	-32.13	55.32	33.90	.11
6000.00	1.00	203.21	5998.12	42.68	29.67	-30.85	51.98	34.80	.05
6200.00	.94	207.58	6198.09	39.62	28.22	-29.31	48.64	35.46	.05
6400.00	1.02	214.04	6398.06	36.69	26.46	-27.48	45.24	35.80	.07
6600.00	1.23	219.95	6598.02	33.57	24.09	-25.02	41.32	35.66	.12
6800.00	1.43	223.55	6797.97	30.12	20.99	-21.82	36.71	34.87	.11
7000.00	.62	228.63	6997.93	27.59	18.46	-19.22	33.20	33.78	.41
7100.00	.37	262.68	7097.93	27.20	17.73	-18.48	32.47	33.11	.38
7200.00	.36	280.92	7197.93	27.21	17.10	-17.86	32.14	32.15	.12
7300.00	.38	284.12	7297.92	27.35	16.47	-17.23	31.93	31.06	.03
7400.00	.50	272.92	7397.92	27.46	15.72	-16.48	31.64	29.79	.15

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	
7500.00	.58	283.02	7497.92	27.59	14.79	-15.55	31.31	28.19	.12
7600.00	.70	274.99	7597.91	27.76	13.69	-14.46	30.95	26.24	.15
7700.00	.89	272.22	7697.90	27.84	12.30	-13.07	30.44	23.83	.19
Last Survey Depth Recorded									
7751.00	.96	261.66	7748.89	27.80	11.48	-12.25	30.08	22.44	.36

39733



Yates Petroleum

Eddy, NM (NAD-83)

Martha AIK Federal

#8H

OH

Design: OH

Survey Report - Geographic

01 November, 2013

CRESCENT
DIRECTIONAL DRILLING



Survey Report - Geographic



Company:	Yates Petroleum	Local Co-ordinate Reference:	Well #8H
Project:	Eddy NM (NAD-83)	TVD Reference:	WELL @ 3567.5usft (Nomac #22 - 21.5' KB)
Site:	Martha AIK Federal	MD Reference:	WELL @ 3567.5usft (Nomac #22 - 21.5' KB)
Well:	#8H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Houston R5000 Database

Project	Eddy NM (NAD-83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

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

Well	#8H		
Well Position	+N/-S	0.0 usft	North:
	+E/-W	0.0 usft	East:
Position Uncertainty	2.0 usft	Wellhead Elevation:	usft
		Ground Level:	3,546.0 usft
		Latitude:	32° 24' 43.698 N
		Longitude:	103° 44' 26.641 W

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
	IGRF2010	9/18/2013	(°)
			7.40
			Dip Angle
			(°)
			60.28
			Field Strength
			(nT)
			48,484

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
			(°)
			268.40

Survey Program	Date 11/1/2013		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name
100.0	625.0	Survey #1 - Gyrodata1 (OH)	CB-GYRO-MS
800.0	7,751.0	Survey #2 - MS1 (OH)	CB-GYRO-MS
7,773.0	11,422.0	Survey #3 - MWD1 (OH)	MWD
11,475.5	11,475.5	Survey #4 - PTB (OH)	BLIND
			Description
			Camera based gyro multishot
			Camera based gyro multishot
			MWD - Standard
			Blind drilling, where no tool is applied

Survey									
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Map	Map	Latitude	Longitude
Depth (usft)	(°)	(°)	Depth (usft)	(usft)	(usft)	North	East		
						(usft)	(usft)		
0.0	0.00	0.00	0.0	0.0	0.0	514,174.14	724,211.30	32° 24' 43.698 N	103° 44' 26.641 W
100.0	0.68	323.22	100.0	0.5	-0.4	514,174.62	724,210.95	32° 24' 43.703 N	103° 44' 26.645 W
200.0	0.45	306.03	200.0	1.2	-1.0	514,175.33	724,210.28	32° 24' 43.710 N	103° 44' 26.653 W
300.0	0.59	350.48	300.0	1.9	-1.4	514,176.06	724,209.87	32° 24' 43.717 N	103° 44' 26.657 W
400.0	0.50	327.99	400.0	2.8	-1.7	514,176.94	724,209.56	32° 24' 43.726 N	103° 44' 26.661 W
500.0	0.65	6.06	500.0	3.7	-1.9	514,177.88	724,209.38	32° 24' 43.735 N	103° 44' 26.663 W
600.0	0.88	351.36	600.0	5.1	-2.0	514,179.20	724,209.33	32° 24' 43.749 N	103° 44' 26.663 W
625.0	0.82	344.46	625.0	5.4	-2.1	514,179.56	724,209.25	32° 24' 43.752 N	103° 44' 26.664 W
800.0	1.10	2.62	799.9	8.3	-2.3	514,182.45	724,208.99	32° 24' 43.781 N	103° 44' 26.667 W



Survey Report - Geographic



Company:	Yates Petroleum	Local Co-ordinate Reference:	Well #8H
Project:	Eddy NM, (NAD-83)	TVD Reference:	WELL @ 3567.5usft (Nomac #22 - 21'5" KB)
Site:	Martha Aik Federal	MD Reference:	WELL @ 3567.5usft (Nomac #22 - 21'5" KB)
Well:	#8H	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	
1,000.0	1.35	6.61	999.9	12.6	-2.0	514,186.70	724,209.35	32° 24' 43.823 N	103° 44' 26.663 W	
1,200.0	1.55	11.25	1,199.8	17.6	-1.2	514,191.70	724,210.15	32° 24' 43.872 N	103° 44' 26.653 W	
1,400.0	1.68	17.90	1,399.8	23.0	0.3	514,197.14	724,211.58	32° 24' 43.926 N	103° 44' 26.636 W	
1,600.0	1.88	18.71	1,599.7	28.9	2.2	514,203.04	724,213.53	32° 24' 43.984 N	103° 44' 26.613 W	
1,800.0	1.89	18.62	1,799.5	35.1	4.3	514,209.27	724,215.64	32° 24' 44.046 N	103° 44' 26.588 W	
2,000.0	1.36	16.85	1,999.5	40.5	6.1	514,214.67	724,217.38	32° 24' 44.099 N	103° 44' 26.567 W	
2,200.0	1.04	355.91	2,199.4	44.6	6.6	514,218.75	724,217.94	32° 24' 44.139 N	103° 44' 26.560 W	
2,400.0	0.94	347.80	2,399.4	48.0	6.2	514,222.16	724,217.46	32° 24' 44.173 N	103° 44' 26.566 W	
2,600.0	0.98	330.69	2,599.4	51.1	5.0	514,225.26	724,216.28	32° 24' 44.204 N	103° 44' 26.579 W	
2,800.0	0.88	315.59	2,799.3	53.7	3.1	514,227.85	724,214.37	32° 24' 44.230 N	103° 44' 26.602 W	
3,000.0	1.22	338.04	2,999.3	56.8	1.2	514,230.92	724,212.50	32° 24' 44.260 N	103° 44' 26.623 W	
3,200.0	3.12	5.18	3,199.2	64.2	0.9	514,238.31	724,212.19	32° 24' 44.333 N	103° 44' 26.626 W	
3,400.0	2.09	8.81	3,399.0	73.2	1.9	514,247.34	724,213.24	32° 24' 44.423 N	103° 44' 26.613 W	
3,600.0	0.83	20.70	3,598.9	78.2	3.0	514,252.30	724,214.31	32° 24' 44.472 N	103° 44' 26.601 W	
3,800.0	1.68	82.54	3,798.8	79.9	6.4	514,254.03	724,217.73	32° 24' 44.489 N	103° 44' 26.561 W	
4,000.0	2.52	94.99	3,998.7	79.9	13.7	514,254.03	724,225.02	32° 24' 44.488 N	103° 44' 26.476 W	
4,200.0	2.02	123.24	4,198.6	77.6	21.0	514,251.72	724,232.35	32° 24' 44.465 N	103° 44' 26.390 W	
4,400.0	1.47	145.99	4,398.5	73.5	25.4	514,247.66	724,236.73	32° 24' 44.424 N	103° 44' 26.339 W	
4,600.0	1.36	154.39	4,598.4	69.2	27.9	514,243.39	724,239.19	32° 24' 44.382 N	103° 44' 26.311 W	
4,800.0	1.45	161.37	4,798.3	64.7	29.7	514,238.85	724,241.02	32° 24' 44.337 N	103° 44' 26.290 W	
5,000.0	1.63	165.85	4,998.3	59.6	31.2	514,233.70	724,242.53	32° 24' 44.286 N	103° 44' 26.273 W	
5,200.0	0.87	178.41	5,198.2	55.3	32.0	514,229.42	724,243.27	32° 24' 44.244 N	103° 44' 26.264 W	
5,400.0	0.85	188.80	5,398.2	52.3	31.8	514,226.44	724,243.08	32° 24' 44.214 N	103° 44' 26.267 W	
5,600.0	0.95	183.96	5,598.2	49.2	31.4	514,223.32	724,242.74	32° 24' 44.183 N	103° 44' 26.271 W	
5,800.0	0.98	197.14	5,798.1	45.9	30.8	514,220.03	724,242.12	32° 24' 44.151 N	103° 44' 26.278 W	
6,000.0	1.00	203.21	5,998.1	42.6	29.6	514,216.79	724,240.93	32° 24' 44.119 N	103° 44' 26.292 W	
6,200.0	0.94	207.58	6,198.1	39.6	28.2	514,213.73	724,239.48	32° 24' 44.089 N	103° 44' 26.309 W	
6,400.0	1.02	214.04	6,398.1	36.7	26.4	514,210.80	724,237.73	32° 24' 44.060 N	103° 44' 26.330 W	
6,600.0	1.23	219.95	6,598.0	33.5	24.0	514,207.68	724,235.35	32° 24' 44.029 N	103° 44' 26.358 W	
6,800.0	1.43	223.55	6,798.0	30.1	20.9	514,204.23	724,232.25	32° 24' 43.995 N	103° 44' 26.394 W	
7,000.0	0.62	228.63	6,997.9	27.6	18.4	514,201.70	724,229.72	32° 24' 43.970 N	103° 44' 26.424 W	
7,100.0	0.37	262.68	7,097.9	27.2	17.7	514,201.31	724,229.00	32° 24' 43.966 N	103° 44' 26.433 W	
7,200.0	0.36	280.92	7,197.9	27.2	17.1	514,201.32	724,228.37	32° 24' 43.966 N	103° 44' 26.440 W	
7,300.0	0.38	284.12	7,297.9	27.3	16.4	514,201.46	724,227.74	32° 24' 43.968 N	103° 44' 26.447 W	
7,400.0	0.50	272.92	7,397.9	27.4	15.7	514,201.57	724,226.98	32° 24' 43.969 N	103° 44' 26.456 W	
7,500.0	0.58	283.02	7,497.9	27.6	14.7	514,201.70	724,226.05	32° 24' 43.970 N	103° 44' 26.467 W	
7,600.0	0.70	274.99	7,597.9	27.7	13.6	514,201.87	724,224.95	32° 24' 43.972 N	103° 44' 26.480 W	
7,700.0	0.89	272.22	7,697.9	27.8	12.3	514,201.95	724,223.56	32° 24' 43.973 N	103° 44' 26.496 W	
7,751.0	0.96	261.66	7,748.9	27.8	11.4	514,201.91	724,222.75	32° 24' 43.972 N	103° 44' 26.505 W	
Gyro Tie In / KOP @ 7751.0 MD										
7,773.0	2.10	257.40	7,770.9	27.6	10.9	514,201.79	724,222.17	32° 24' 43.971 N	103° 44' 26.512 W	
7,805.0	6.90	262.00	7,802.8	27.3	8.4	514,201.40	724,219.69	32° 24' 43.968 N	103° 44' 26.541 W	
7,836.0	12.00	263.40	7,833.3	26.6	3.3	514,200.77	724,214.64	32° 24' 43.962 N	103° 44' 26.600 W	
7,868.0	16.20	263.90	7,864.4	25.8	-4.4	514,199.91	724,206.90	32° 24' 43.954 N	103° 44' 26.690 W	
7,899.0	19.70	265.00	7,893.9	24.9	-13.9	514,198.99	724,197.39	32° 24' 43.945 N	103° 44' 26.801 W	
7,931.0	21.80	265.80	7,923.8	23.9	-25.2	514,198.09	724,186.09	32° 24' 43.937 N	103° 44' 26.933 W	
7,962.0	24.50	266.50	7,952.3	23.1	-37.4	514,197.28	724,173.93	32° 24' 43.929 N	103° 44' 27.075 W	
7,994.0	29.20	269.80	7,980.8	22.7	-51.8	514,196.84	724,159.49	32° 24' 43.926 N	103° 44' 27.244 W	
8,025.0	33.60	266.40	8,007.3	22.1	-67.9	514,196.28	724,143.36	32° 24' 43.921 N	103° 44' 27.432 W	
8,057.0	37.10	266.20	8,033.4	20.9	-86.4	514,195.08	724,124.89	32° 24' 43.910 N	103° 44' 27.647 W	
8,088.0	40.50	266.00	8,057.5	19.6	-105.8	514,193.76	724,105.51	32° 24' 43.898 N	103° 44' 27.874 W	
8,120.0	43.30	266.00	8,081.4	18.1	-127.1	514,192.27	724,084.20	32° 24' 43.885 N	103° 44' 28.122 W	
8,124.5	43.74	266.03	8,084.6	17.9	-130.2	514,192.05	724,081.10	32° 24' 43.883 N	103° 44' 28.158 W	
Cross into 330 Lease - 8124.5' MD, 8084.6' TVD, 43.74° INC, 129.6° VS										
8,151.0	46.30	266.20	8,103.3	16.6	-148.9	514,190.78	724,062.40	32° 24' 43.871 N	103° 44' 28.377 W	



Survey Report - Geographic



Company:	Yates Petroleum	Local Co-ordinate Reference:	Well #8H
Project:	Eddy NM (NAD-83)	TVD Reference:	WELL @ 3567.5usft (Nomac #22 - 21.5" KB)
Site:	Martha Aik Federal	MD Reference:	WELL @ 3567.5usft (Nomac #22 - 21.5" KB)
Well:	#8H	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
8,183.0	50.00	266.90	8,124.7	15.2	-172.7	514,189.35	724,038.62	32° 24' 43.858 N	103° 44' 28.654 W
8,214.0	53.80	267.80	8,143.8	14.1	-197.1	514,188.23	724,014.25	32° 24' 43.849 N	103° 44' 28.938 W
8,245.0	56.80	268.30	8,161.5	13.2	-222.5	514,187.37	723,988.78	32° 24' 43.841 N	103° 44' 29.236 W
8,277.0	60.40	268.80	8,178.1	12.5	-249.8	514,186.68	723,961.48	32° 24' 43.836 N	103° 44' 29.554 W
8,308.0	63.50	268.80	8,192.7	12.0	-277.2	514,186.10	723,934.13	32° 24' 43.832 N	103° 44' 29.873 W
8,340.0	67.40	268.10	8,206.0	11.2	-306.3	514,185.31	723,905.04	32° 24' 43.826 N	103° 44' 30.213 W
8,371.0	71.60	266.90	8,216.9	9.9	-335.3	514,184.04	723,876.04	32° 24' 43.815 N	103° 44' 30.551 W
8,400.0	74.10	267.60	8,225.4	8.6	-362.9	514,182.72	723,848.36	32° 24' 43.803 N	103° 44' 30.874 W
8,432.0	76.70	267.10	8,233.5	7.1	-393.9	514,181.28	723,817.43	32° 24' 43.791 N	103° 44' 31.235 W
8,463.0	79.20	266.00	8,239.9	5.3	-424.1	514,179.46	723,787.17	32° 24' 43.774 N	103° 44' 31.588 W
8,495.0	82.20	265.70	8,245.1	3.0	-455.6	514,177.17	723,755.68	32° 24' 43.753 N	103° 44' 31.955 W
8,526.0	84.10	265.10	8,248.8	0.6	-486.3	514,174.70	723,725.00	32° 24' 43.731 N	103° 44' 32.313 W
8,558.0	86.40	264.80	8,251.5	-2.2	-518.1	514,171.90	723,693.24	32° 24' 43.705 N	103° 44' 32.684 W
8,589.0	88.70	265.00	8,252.8	-5.0	-548.9	514,169.14	723,662.39	32° 24' 43.679 N	103° 44' 33.044 W
8,621.0	91.30	265.10	8,252.8	-7.8	-580.8	514,166.38	723,630.51	32° 24' 43.653 N	103° 44' 33.416 W
8,652.0	93.60	265.80	8,251.5	-10.2	-611.7	514,163.93	723,599.64	32° 24' 43.631 N	103° 44' 33.777 W
8,747.0	97.10	269.50	8,242.6	-14.1	-706.1	514,160.04	723,505.17	32° 24' 43.597 N	103° 44' 34.879 W
EOC: 8747.0' MD: 8242.6' TVD: 97.10' INC: 706.3' VS									
8,841.0	94.70	273.20	8,232.9	-11.9	-799.6	514,162.25	723,411.72	32° 24' 43.624 N	103° 44' 35.969 W
8,935.0	91.50	276.00	8,227.9	-4.4	-893.1	514,169.78	723,318.18	32° 24' 43.704 N	103° 44' 37.060 W
9,030.0	87.10	274.80	8,229.0	4.6	-987.7	514,178.72	723,223.63	32° 24' 43.798 N	103° 44' 38.162 W
9,124.0	88.90	266.40	8,232.3	5.6	-1,081.5	514,179.70	723,129.78	32° 24' 43.812 N	103° 44' 39.257 W
9,219.0	92.00	263.90	8,231.6	-2.5	-1,176.2	514,171.67	723,035.14	32° 24' 43.738 N	103° 44' 40.361 W
9,313.0	91.00	267.40	8,229.1	-9.6	-1,269.8	514,164.54	722,941.46	32° 24' 43.673 N	103° 44' 41.454 W
9,407.0	89.70	270.00	8,228.5	-11.7	-1,363.8	514,162.41	722,847.50	32° 24' 43.657 N	103° 44' 42.551 W
9,502.0	88.30	269.90	8,230.2	-11.8	-1,458.8	514,162.32	722,752.51	32° 24' 43.661 N	103° 44' 43.659 W
9,596.0	89.20	269.00	8,232.2	-12.7	-1,552.8	514,161.42	722,658.54	32° 24' 43.657 N	103° 44' 44.755 W
9,693.0	88.50	267.90	8,234.2	-15.3	-1,649.7	514,158.80	722,561.60	32° 24' 43.637 N	103° 44' 45.886 W
9,787.0	87.00	267.70	8,237.9	-18.9	-1,743.6	514,155.19	722,467.74	32° 24' 43.606 N	103° 44' 46.981 W
9,882.0	88.30	267.80	8,241.8	-22.7	-1,838.4	514,151.47	722,372.90	32° 24' 43.574 N	103° 44' 48.088 W
9,976.0	90.60	267.70	8,242.7	-26.4	-1,932.3	514,147.78	722,278.98	32° 24' 43.543 N	103° 44' 49.183 W
10,071.0	92.90	269.40	8,239.8	-28.8	-2,027.2	514,145.37	722,184.07	32° 24' 43.524 N	103° 44' 50.291 W
10,165.0	91.30	268.60	8,236.3	-30.4	-2,121.2	514,143.73	722,090.15	32° 24' 43.513 N	103° 44' 51.386 W
10,260.0	88.50	266.50	8,236.5	-34.5	-2,216.1	514,139.67	721,995.25	32° 24' 43.478 N	103° 44' 52.494 W
10,355.0	90.60	267.50	8,237.2	-39.4	-2,310.9	514,134.70	721,900.39	32° 24' 43.434 N	103° 44' 53.601 W
10,449.0	88.70	266.40	8,237.8	-44.4	-2,404.8	514,129.70	721,806.53	32° 24' 43.390 N	103° 44' 54.696 W
10,544.0	88.20	266.20	8,240.4	-50.6	-2,499.5	514,123.57	721,711.76	32° 24' 43.334 N	103° 44' 55.802 W
10,638.0	91.00	269.30	8,241.0	-54.3	-2,593.4	514,119.88	721,617.86	32° 24' 43.303 N	103° 44' 56.897 W
10,733.0	90.80	267.90	8,239.5	-56.6	-2,688.4	514,117.56	721,522.90	32° 24' 43.285 N	103° 44' 58.005 W
10,827.0	90.80	267.30	8,238.2	-60.5	-2,782.3	514,113.63	721,428.99	32° 24' 43.251 N	103° 44' 59.101 W
10,922.0	91.70	267.80	8,236.2	-64.6	-2,877.2	514,109.57	721,334.10	32° 24' 43.216 N	103° 45' 0.208 W
11,016.0	90.90	267.60	8,234.0	-68.3	-2,971.1	514,105.80	721,240.21	32° 24' 43.184 N	103° 45' 1.304 W
11,110.0	91.20	266.90	8,232.3	-72.9	-3,065.0	514,101.29	721,146.33	32° 24' 43.144 N	103° 45' 2.399 W
11,205.0	91.10	266.40	8,230.4	-78.4	-3,159.8	514,095.74	721,051.51	32° 24' 43.094 N	103° 45' 3.505 W
11,299.0	90.90	266.90	8,228.8	-83.9	-3,253.6	514,090.25	720,957.69	32° 24' 43.045 N	103° 45' 4.600 W
11,394.0	90.40	267.10	8,227.7	-88.9	-3,348.5	514,085.27	720,862.82	32° 24' 43.001 N	103° 45' 5.707 W
11,422.0	90.40	267.10	8,227.5	-90.3	-3,376.4	514,083.86	720,834.86	32° 24' 42.988 N	103° 45' 6.033 W
11,475.5	90.40	267.10	8,227.1	-93.0	-3,429.9	514,081.15	720,781.43	32° 24' 42.965 N	103° 45' 6.657 W
BHL: 11475.5' MD: 8227.1' TVD: 90.40' INC: 267.10' AZI: 93.0' N: 3429.9' E: 3431.1' VS									



Survey Report - Geographic

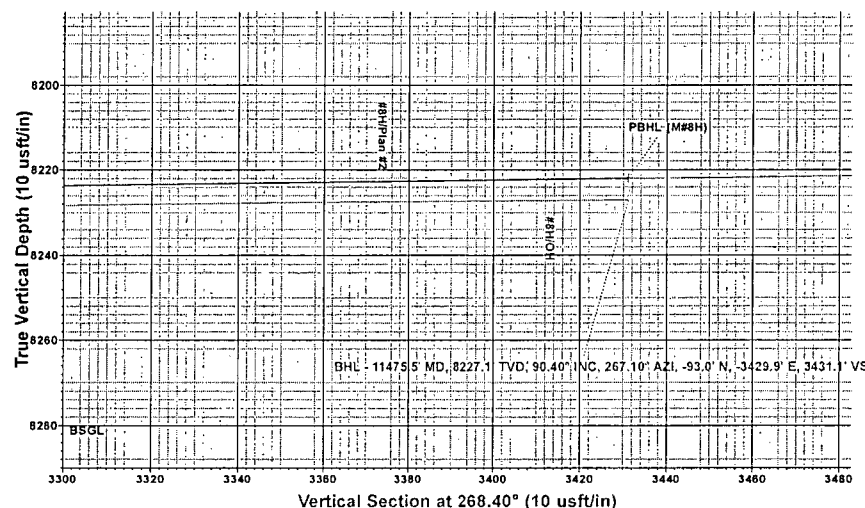
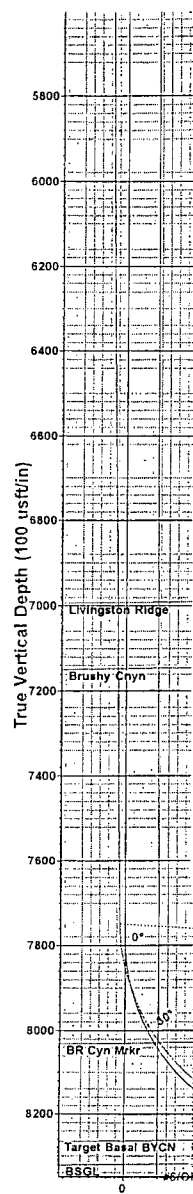
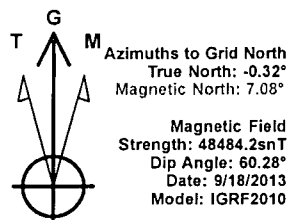
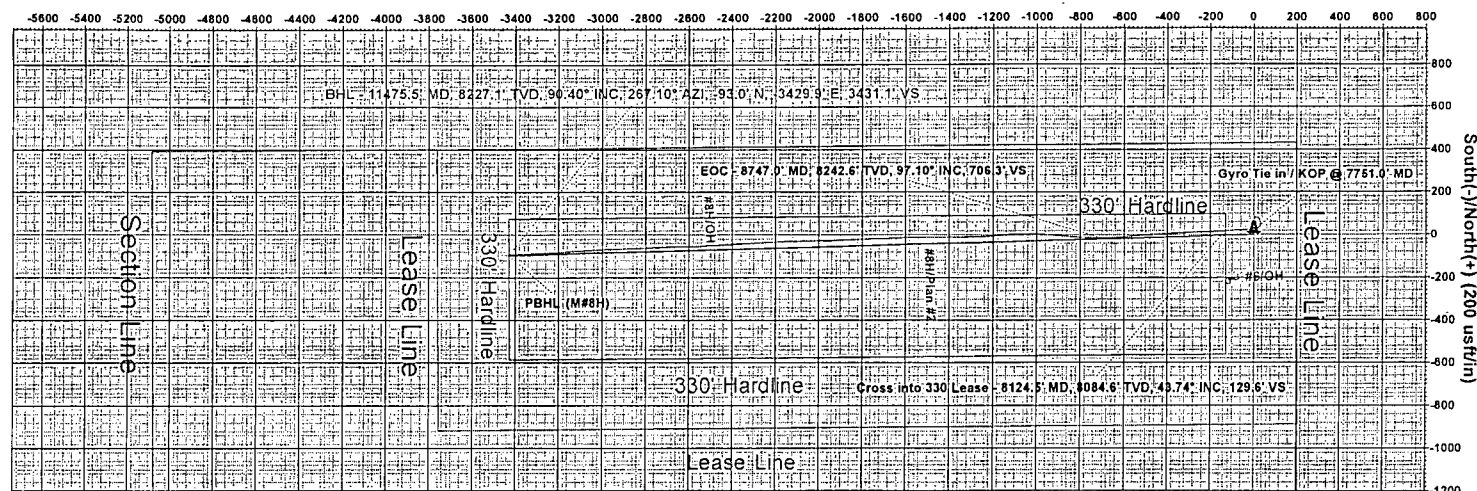


Company:	Yates Petroleum	Local Co-ordinate Reference:	Well #8H
Project:	Eddy, NM (NAD-83)	TVD Reference:	WELL @ 3567.5usft (Nomac #22 - 21.5; KB)
Site:	Martha AIK Federal	MD Reference:	WELL @ 3567.5usft (Nomac #22 - 21.5; KB)
Well:	#8H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Houston R5000 Database

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N-S (usft)	+E-W (usft)	
7,751.0	7,748.9	27.8	11.4	Gyro Tie in / KOP @ 7751.0' MD
8,124.5	8,084.6	17.9	-130.2	Cross into 330 Lease - 8124.5' MD, 8084.6' TVD, 43.74° INC, 129.6' VS
8,747.0	8,242.6	-14.1	-706.1	EOC - 8747.0' MD, 8242.6' TVD, 97.10° INC, 706.3' VS
11,475.5	8,227.1	-93.0	-3,429.9	BHL - 11475.5' MD, 8227.1' TVD, 90.40° INC, 267.10° AZI, -93.0° N, -3429.9' E,

Checked By: _____	Approved By: _____	Date: _____
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West(-)/East(+) (200 usft/in)



Section Details										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	7780.7	0.00	0.00	7780.7	0.0	0.0	0.00	0.00	0.0	
3	8536.6	90.70	268.40	8258.1	-13.5	-483.1	12.00	268.40	483.3	
4	11484.6	90.70	268.40	8222.0	-95.7	-3429.8	0.00	0.00	3431.1	PBHL (M#8H)

Ground Elevation:: 3546.0
RKB Elevation: WELL @ 3567.5usft (Nomac #22 - 21.5' KB)
Rig Name: Nomac #22 - 21.5' KB

Surface Hole Location			
Northing	Easting	Latitude	Longitude
514174.14	724211.31	32° 24' 43.698 N	103° 44' 26.641 W

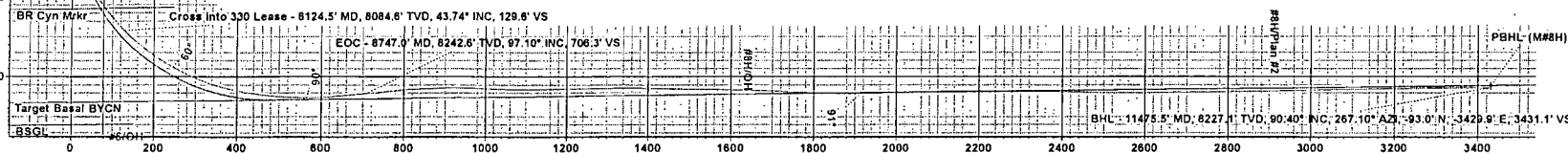
FORMATION TOP DETAILS

TVDPath	MDPath	Formation
650.0	650.0	Rustler
970.0	970.0	T of Salt
4140.0	4140.0	B of Salt
4500.0	4500.0	Bell Cnyn
5320.0	5320.0	Cherry Cnyn
6992.0	6992.0	Livingston Ridge
7148.0	7148.0	Brushy Cnyn
8029.1	8042.0	BR Cyn Mrkr
8258.2	8530.8	Target Basal BYCN

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

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
PBHL (M#8H)	8222.0	-95.7	-3429.8	514078.41	720781.54



Vertical Section at 268.40° (100 usft/in)

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

Plan: Plan #2 (#8H/OH)
Created By: Matt Higgins Date: 9:39, November 01 2013

