

30-015-37190



Project: Eddy County
 Site: Llama All Federal Com
 Well: #10H
 Wellbore: OH
 Plan: Design #1 (#10H/OH)



Azimuths to Grid North
 True North: -0.28°
 Magnetic North: 7.49°

Magnetic Field
 Strength: 48736.3nT
 Dip Angle: 60.32°
 Date: 01/20/2011
 Model: IGRF2010

PATHFINDER
 A Schlumberger Company

PROJECT DETAILS: Eddy County
 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

SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
7222.50	0.00	0.00	7222.50	0.00	0.00	0.00	0.00	0.00	
7970.48	89.75	359.71	7700.00	475.41	-2.41	12.00	359.71	475.42	
14760.94	89.75	359.71	7729.63	7265.73	-36.78	0.00	0.00	7265.82	PBHL(Llama#10H)

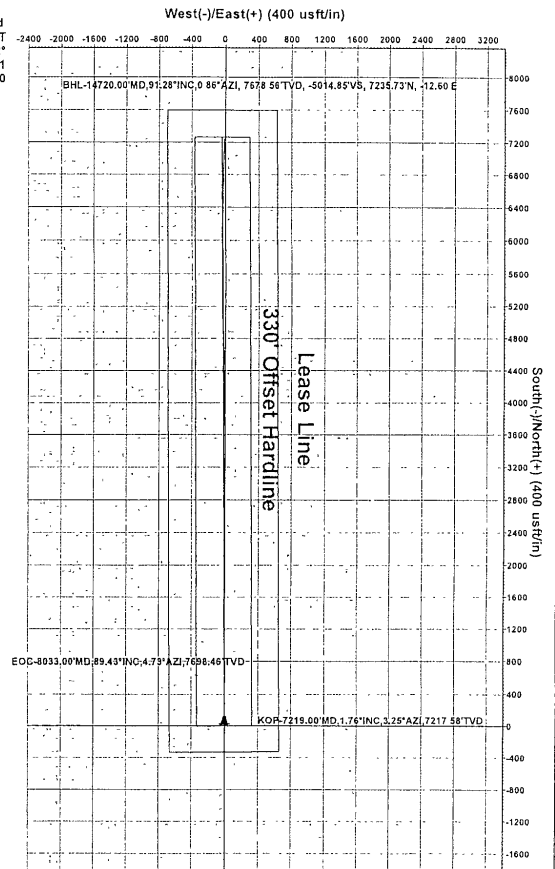
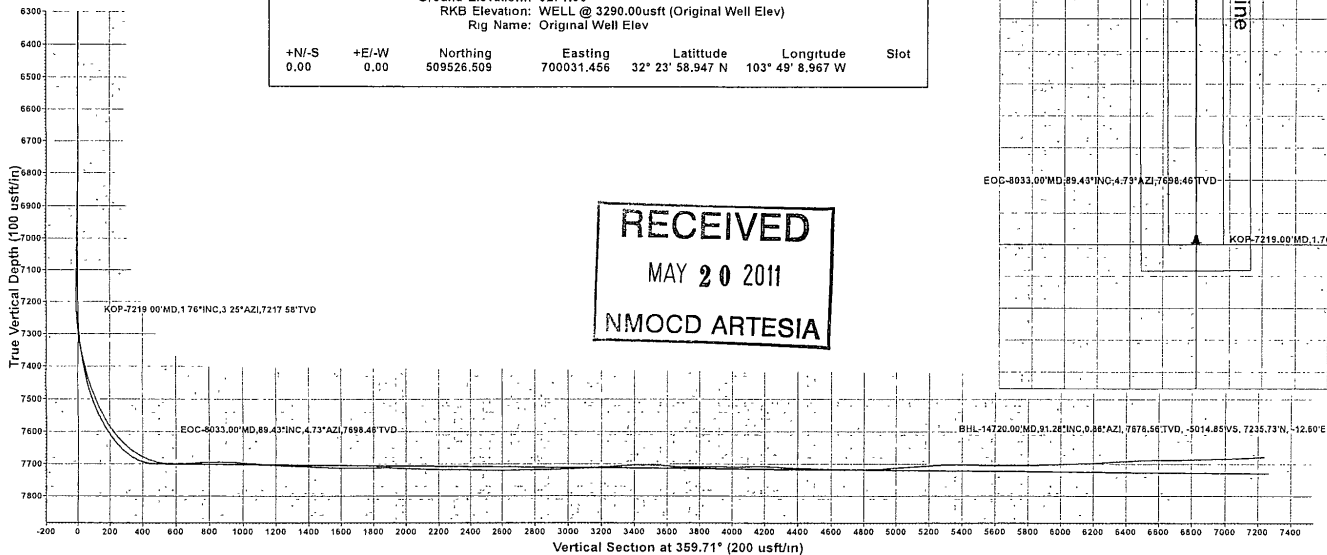
WELLBORE TARGET DETAILS (MAP CO-ORDINATES)					
Name	TVD	+N/-S	+E/-W	Northing	Easting
PBHL(Llama#10H)	7730.00	7265.73	-36.22	516792.240	699995.240
					Point

WELL DETAILS - #10H

Ground Elevation: 3271.00
 RKB Elevation: WELL @ 3290.00usft (Original Well Elev)
 Rig Name: Original Well Elev

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	509526.509	700031.456	32° 23' 58.947 N	103° 49' 8.967 W	

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Yates Petroleum Corp.

Eddy County
Llama All Federal Com
#10H
OH

Survey: MWD

Pathfinder X & Y Survey Report

08 February, 2011

PATHFINDER
A Schlumberger Company



Pathfinder
Pathfinder X & Y Survey Report

PATHFINDER
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Company: Yates Petroleum Corp.
Project: Eddy County
Site: Llama All Federal Com
Well: #10H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #10H
TVD Reference: WELL @ 3290.00usft (Original Well Elev)
MD Reference: WELL @ 3290.00usft (Original Well Elev)
North Reference: Gnd
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Project: Eddy County

Map System: US State Plane 1983
Geo Datum: North American Datum 1983
Map Zone: New Mexico Eastern Zone

System Datum: Mean Sea Level

Site: Llama All Federal Com

Site Position: Northing: 509,526.509 usft Latitude: 32° 23' 58.947 N
From: Map Easting: 700,031.456 usft Longitude: 103° 49' 8.967 W
Position Uncertainty: 0.00 usft Slot Radius: 13-3/16 " Grid Convergence: 0.28 °

Well: #10H

Well Position: +N/-S 0.00 usft Northing: 509,526.509 usft Latitude: 32° 23' 58.947 N
+E/-W 0.00 usft Easting: 700,031.456 usft Longitude: 103° 49' 8.967 W
Position Uncertainty: 0.00 usft Wellhead Elevation: usft Ground Level: 3,271.00 usft

Wellbore: OH

Magnetics:	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	01/20/11	7.76	60.32	48,736

Design: OH

Audit Notes:
Version: 1.0 Phase: ACTUAL Tie On Depth: 0.00

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	226.03

Survey Program: Date: 02/08/11

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
599.00	14,720.00	MWD (OH)	MWD	MWD - Standard



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Well: #10H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #10H
TVD Reference: WELL @ 3290.00usft (Original Well Elev)
MD Reference: WELL @ 3290.00usft (Original Well Elev)
North Reference: Gnd
Survey Calculation Method: Minimum Curvature
Database: EDM 5000 1 Single User Db

Survey											
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
0.00	0.00	0.00	0.00	3,290.00	0.00	0.00	0.00	0.00	509,526.51	700,031.46	
599.00	0.70	260.23	598.99	2,691.01	-0.62	-3.61	3.03	0.12	509,525.89	700,027.85	
725.00	0.88	226.33	724.97	2,565.03	-1.42	-5.06	4.63	0.39	509,525.09	700,026.39	
851.00	1.14	134.85	850.96	2,439.04	-2.97	-4.88	5.57	1.16	509,523.54	700,026.58	
945.00	1.06	19.98	944.95	2,345.05	-2.81	-3.92	4.77	1.97	509,523.69	700,027.54	
1,039.00	0.18	287.86	1,038.95	2,251.05	-1.95	-3.76	4.06	1.15	509,524.56	700,027.70	
1,133.00	0.53	220.90	1,132.94	2,157.06	-2.24	-4.18	4.56	0.52	509,524.27	700,027.27	
1,228.00	0.62	235.89	1,227.94	2,062.06	-2.86	-4.90	5.51	0.18	509,523.65	700,026.56	
1,322.00	0.62	168.59	1,321.94	1,968.06	-3.64	-5.22	6.28	0.73	509,522.87	700,026.24	
1,416.00	0.79	163.43	1,415.93	1,874.07	-4.76	-4.93	6.85	0.19	509,521.75	700,026.52	
1,510.00	0.88	150.12	1,509.92	1,780.08	-6.01	-4.39	7.33	0.23	509,520.50	700,027.07	
1,604.00	1.06	152.24	1,603.90	1,686.10	-7.40	-3.62	7.75	0.20	509,519.11	700,027.83	
1,792.00	0.97	112.56	1,791.88	1,498.12	-9.55	-1.34	7.60	0.37	509,516.96	700,030.11	
1,886.00	1.32	113.09	1,885.86	1,404.14	-10.28	0.39	6.86	0.37	509,516.23	700,031.84	
1,980.00	1.32	67.07	1,979.84	1,310.16	-10.28	2.38	5.43	1.10	509,516.23	700,033.84	
2,074.00	1.76	68.28	2,073.80	1,216.20	-9.33	4.72	3.08	0.47	509,517.18	700,036.17	
2,168.00	0.62	35.87	2,167.78	1,122.22	-8.38	6.36	1.24	1.36	509,518.13	700,037.81	
2,262.00	0.62	32.27	2,261.78	1,028.22	-7.54	6.93	0.25	0.04	509,518.97	700,038.38	
2,356.00	0.79	32.27	2,355.77	934.23	-6.56	7.54	-0.87	0.18	509,519.95	700,039.00	
2,450.00	1.06	17.72	2,449.76	840.24	-5.18	8.15	-2.27	0.38	509,521.32	700,039.61	
2,544.00	0.79	358.49	2,543.74	746.26	-3.71	8.40	-3.47	0.43	509,522.80	700,039.86	
2,639.00	0.97	16.86	2,638.73	651.27	-2.28	8.62	-4.62	0.35	509,524.22	700,040.07	
2,733.00	0.97	354.11	2,732.72	557.28	-0.73	8.77	-5.80	0.41	509,525.78	700,040.22	
2,827.00	0.44	12.23	2,826.71	463.29	0.41	8.76	-6.59	0.60	509,526.92	700,040.22	
2,921.00	0.26	349.73	2,920.71	369.29	0.98	8.80	-7.01	0.24	509,527.48	700,040.26	
3,015.00	0.35	324.02	3,014.71	275.29	1.42	8.59	-7.17	0.17	509,527.93	700,040.05	
3,110.00	0.97	126.66	3,109.71	180.29	1.17	9.07	-7.34	1.38	509,527.68	700,040.52	



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Design: OH

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:
Well #10H
WELL @ 3290.00usft (Original Well Elev)
WELL @ 3290.00usft (Original Well Elev)
Gnd
Minimum Curvature
EDM 5000.1 Single User Db

Survey											
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
3,204.00	1.58	137.44	3,203.68	86.32	-0.26	10.58	-7.44	0.69	509,526.25	700,042.04	
3,298.00	0.35	166.78	3,297.67	-7.67	-1.49	11.53	-7.26	1.37	509,525.02	700,042.98	
3,392.00	0.70	149.35	3,391.66	-101.66	-2.26	11.88	-6.98	0.41	509,524.24	700,043.34	
3,486.00	1.58	134.12	3,485.64	-195.64	-3.66	13.11	-6.89	0.98	509,522.85	700,044.56	
3,580.00	1.41	83.41	3,579.62	-289.62	-4.43	15.19	-7.85	1.37	509,522.08	700,046.64	
3,674.00	1.32	26.91	3,673.59	-383.59	-3.33	16.83	-9.80	1.38	509,523.18	700,048.28	
3,768.00	1.32	309.45	3,767.57	-477.57	-1.68	16.48	-10.69	1.76	509,524.83	700,047.94	
3,862.00	1.23	311.93	3,861.55	-571.55	-0.32	14.89	-10.50	0.11	509,526.19	700,046.35	
4,047.00	1.23	303.81	4,046.51	-756.51	2.12	11.77	-9.94	0.09	509,528.62	700,043.22	
4,141.00	1.23	299.51	4,140.49	-850.49	3.17	10.05	-9.44	0.10	509,529.68	700,041.51	
4,330.00	1.06	307.55	4,329.45	-1,039.45	5.24	6.90	-8.60	0.12	509,531.75	700,038.35	
4,519.00	0.97	346.76	4,518.42	-1,228.42	7.86	5.15	-9.16	0.36	509,534.37	700,036.60	
4,706.00	0.88	325.34	4,705.40	-1,415.40	10.58	3.97	-10.20	0.19	509,537.09	700,035.42	
4,895.00	0.88	326.37	4,894.38	-1,604.38	12.99	2.34	-10.70	0.01	509,539.49	700,033.79	
5,084.00	0.97	341.56	5,083.35	-1,793.35	15.71	1.03	-11.65	0.14	509,542.22	700,032.48	
5,177.00	0.88	339.57	5,176.34	-1,886.34	17.13	0.53	-12.27	0.10	509,543.64	700,031.99	
5,271.00	2.02	300.16	5,270.31	-1,980.31	18.64	-1.16	-12.11	1.54	509,545.15	700,030.30	
5,365.00	2.99	267.50	5,364.22	-2,074.22	19.36	-5.04	-9.82	1.80	509,545.87	700,026.42	
5,459.00	2.99	267.34	5,458.10	-2,168.10	19.14	-9.94	-6.14	0.01	509,545.65	700,021.52	
5,553.00	1.93	237.91	5,552.01	-2,262.01	18.19	-13.73	-2.75	1.72	509,544.70	700,017.73	
5,647.00	1.76	208.90	5,645.96	-2,355.96	16.08	-15.76	0.18	1.00	509,542.59	700,015.69	
5,741.00	0.70	193.35	5,739.94	-2,449.94	14.26	-16.59	2.04	1.17	509,540.77	700,014.86	
5,835.00	1.49	125.72	5,833.93	-2,543.93	12.99	-15.73	2.31	1.47	509,539.50	700,015.72	
5,929.00	1.49	128.08	5,927.89	-2,637.89	11.52	-13.78	1.92	0.07	509,538.03	700,017.68	
6,023.00	1.58	122.51	6,021.86	-2,731.86	10.07	-11.73	1.45	0.19	509,536.58	700,019.73	
6,117.00	1.41	132.13	6,115.83	-2,825.83	8.60	-9.78	1.07	0.32	509,535.11	700,021.68	
6,212.00	1.41	141.90	6,210.80	-2,920.80	6.89	-8.19	1.11	0.25	509,533.40	700,023.27	



Pathfinder
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Project: Eddy County
Site: Llama All Federal Com
Well: #10H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #10H
TVD Reference: WELL @ 3290.00usft (Original Well Elev)
MD Reference: WELL @ 3290 00usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Survey											
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
6,306.00	1.41	148.82	6,304.77	-3,014.77	4.99	-6.87	1.48	0.18	509,531.50	700,024.58	
6,400.00	1.23	154.15	6,398.75	-3,108.75	3.10	-5.84	2.05	0.23	509,529.61	700,025.62	
6,495.00	0.97	168.79	6,493.73	-3,203.73	1.39	-5.24	2.80	0.40	509,527.90	700,026.22	
6,587.00	0.79	183.59	6,585.72	-3,295.72	-0.01	-5.12	3.69	0.31	509,526.50	700,026.33	
6,681.00	0.88	182.13	6,679.71	-3,389.71	-1.38	-5.19	4.69	0.10	509,525.13	700,026.26	
6,776.00	1.41	154.68	6,774.69	-3,484.69	-3.16	-4.72	5.59	0.79	509,523.35	700,026.74	
6,870.00	1.14	168.91	6,868.67	-3,578.67	-5.12	-4.04	6.47	0.44	509,521.39	700,027.41	
6,964.00	1.32	173.22	6,962.65	-3,672.65	-7.12	-3.74	7.63	0.22	509,519.39	700,027.72	
7,059.00	1.32	167.37	7,057.62	-3,767.62	-9.27	-3.37	8.86	0.14	509,517.24	700,028.09	
7,153.00	1.49	164.83	7,151.59	-3,861.59	-11.51	-2.81	10.01	0.19	509,515.00	700,028.64	
7,188.00	1.23	162.13	7,186.58	-3,896.58	-12.30	-2.58	10.40	0.76	509,514.21	700,028.88	
7,219.00	1.76	3.25	7,217.58	-3,927.58	-12.14	-2.45	10.19	9.49	509,514.36	700,029.01	
KOP-7219.00°MD,1.76°INC,3.25°AZI,7217.58°TVD											
7,250.00	7.12	358.90	7,248.47	-3,958.47	-9.75	-2.46	8.54	17.31	509,516.76	700,029.00	
7,281.00	12.57	358.62	7,279.01	-3,989.01	-4.45	-2.58	4.94	17.58	509,522.06	700,028.88	
7,313.00	16.97	359.73	7,309.94	-4,019.94	3.71	-2.68	-0.64	13.78	509,530.21	700,028.77	
7,344.00	20.66	0.03	7,339.28	-4,049.28	13.70	-2.70	-7.57	11.91	509,540.21	700,028.76	
7,375.00	24.45	0.58	7,367.90	-4,077.90	25.59	-2.63	-15.87	12.24	509,552.10	700,028.82	
7,406.00	27.96	0.10	7,395.71	-4,105.71	39.28	-2.55	-25.43	11.34	509,565.79	700,028.90	
7,438.00	30.78	0.87	7,423.60	-4,133.60	54.97	-2.42	-36.43	8.89	509,581.48	700,029.04	
7,469.00	33.94	0.48	7,449.78	-4,159.78	71.56	-2.22	-48.08	10.22	509,598.07	700,029.23	
7,500.00	37.64	0.48	7,474.92	-4,184.92	89.68	-2.07	-60.78	11.94	509,616.19	700,029.38	
7,532.00	40.98	1.53	7,499.68	-4,209.68	109.95	-1.71	-75.11	10.64	509,636.46	700,029.75	
7,563.00	43.00	2.01	7,522.72	-4,232.72	130.68	-1.07	-89.96	6.60	509,657.19	700,030.39	
7,595.00	45.20	0.50	7,545.70	-4,255.70	152.94	-0.59	-105.77	7.62	509,679.45	700,030.87	
7,626.00	48.36	0.40	7,566.92	-4,276.92	175.52	-0.41	-121.58	10.20	509,702.03	700,031.05	
7,657.00	53.20	0.03	7,586.52	-4,296.52	199.53	-0.32	-138.31	15.64	509,726.04	700,031.13	



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7,689.00	57.60	359.62	7,604.69	-4,314.69	225.87	-0.40	-156.53	13.79	509,752.38	700,031.05	
7,720.00	60.06	359.73	7,620.73	-4,330.73	252.39	-0.56	-174.84	7.94	509,778.90	700,030.90	
7,752.00	63.58	358.97	7,635.84	-4,345.84	280.59	-0.88	-194.19	11.20	509,807.10	700,030.58	
7,783.00	66.92	358.93	7,648.81	-4,358.81	308.73	-1.39	-213.36	10.77	509,835.24	700,030.06	
7,814.00	70.26	359.13	7,660.13	-4,370.13	337.59	-1.88	-233.04	10.79	509,864.10	700,029.57	
7,845.00	73.69	358.49	7,669.72	-4,379.72	367.05	-2.50	-253.06	11.24	509,893.56	700,028.96	
7,876.00	76.24	359.56	7,677.76	-4,387.76	396.99	-3.00	-273.47	8.88	509,923.49	700,028.45	
7,908.00	78.17	1.00	7,684.85	-4,394.85	428.19	-2.85	-295.25	7.46	509,954.70	700,028.61	
7,939.00	80.72	3.34	7,690.53	-4,400.53	458.64	-1.69	-317.22	11.08	509,985.15	700,029.76	
7,981.00	84.77	5.17	7,695.83	-4,405.83	500.17	1.40	-348.29	10.57	510,026.68	700,032.86	
8,033.00	89.43	4.73	7,698.46	-4,408.46	551.90	5.88	-387.43	9.00	510,078.41	700,037.34	
EOC-8033.00°MD,89.43°INC,4.73°AZI,7698.46°TVD											
8,128.00	91.63	0.09	7,697.58	-4,407.58	646.78	9.87	-456.18	5.40	510,173.29	700,041.33	
8,222.00	90.66	357.75	7,695.70	-4,405.70	740.74	8.10	-520.14	2.69	510,267.25	700,039.56	
8,315.00	90.75	357.37	7,694.56	-4,404.56	833.65	4.14	-581.80	0.42	510,360.15	700,035.60	
8,410.00	88.55	357.14	7,695.14	-4,405.14	928.53	-0.41	-644.40	2.33	510,455.04	700,031.05	
8,504.00	88.37	356.38	7,697.67	-4,407.67	1,022.34	-5.72	-705.72	0.83	510,548.85	700,025.74	
8,598.00	86.70	359.56	7,701.71	-4,411.71	1,116.18	-9.04	-768.48	3.82	510,642.69	700,022.41	
8,692.00	88.81	0.19	7,705.39	-4,415.39	1,210.10	-9.25	-833.54	2.34	510,736.61	700,022.21	
8,786.00	88.72	0.60	7,707.42	-4,417.42	1,304.08	-8.60	-899.26	0.45	510,830.59	700,022.85	
8,881.00	88.81	0.23	7,709.46	-4,419.46	1,399.06	-7.91	-965.70	0.40	510,925.56	700,023.54	
8,975.00	88.64	0.57	7,711.56	-4,421.56	1,493.03	-7.26	-1,031.42	0.40	511,019.54	700,024.20	
9,069.00	89.87	0.34	7,712.78	-4,422.78	1,587.02	-6.51	-1,097.21	1.33	511,113.53	700,024.95	
9,163.00	89.87	0.05	7,712.99	-4,422.99	1,681.02	-6.19	-1,162.71	0.31	511,207.53	700,025.27	
9,256.00	90.57	0.25	7,712.63	-4,422.63	1,774.01	-5.95	-1,227.45	0.78	511,300.52	700,025.51	
9,350.00	90.13	358.29	7,712.06	-4,422.06	1,868.00	-7.14	-1,291.85	2.14	511,394.51	700,024.31	
9,444.00	88.37	359.60	7,713.29	-4,423.29	1,961.97	-8.88	-1,355.85	2.33	511,488.48	700,022.58	



Pathfinder
Pathfinder X & Y Survey Report

PATHFINDER
A Schlumberger Company

Company: Yates Petroleum Corp.
Project: Eddy County
Site: Llama All Federal Com
Well: #10H
Wellbore: OH
Design: OH

Local Co-ordinate Reference: Well #10H
TVD Reference: WELL @ 3290.00usft (Original Well Elev)
MD Reference: WELL @ 3290.00usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

MD (usft)	Inc (°)	Azi (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	D Leg (°/100usft)	Northing (usft)	Easting (usft)
9,537.00	89.16	0.50	7,715.30	-4,425.30	2,054.95	-8.79	-1,420.46	1.29	511,581.46	700,022.66
9,631.00	89.25	0.66	7,716.60	-4,426.60	2,148.93	-7.84	-1,486.40	0.20	511,675.44	700,023.61
9,725.00	89.87	1.39	7,717.32	-4,427.32	2,242.91	-6.16	-1,552.87	1.02	511,769.42	700,025.29
9,819.00	89.52	0.30	7,717.82	-4,427.82	2,336.90	-4.78	-1,619.12	1.22	511,863.41	700,026.68
9,913.00	89.34	359.91	7,718.76	-4,428.76	2,430.90	-4.60	-1,684.51	0.46	511,957.41	700,026.85
10,007.00	89.60	0.17	7,719.63	-4,429.63	2,524.89	-4.54	-1,749.82	0.39	512,051.40	700,026.92
10,102.00	90.31	359.55	7,719.70	-4,429.70	2,619.89	-4.77	-1,815.61	0.99	512,146.40	700,026.69
10,223.00	91.01	359.23	7,718.31	-4,428.31	2,740.87	-6.06	-1,898.69	0.64	512,267.38	700,025.40
10,317.00	90.48	358.33	7,717.09	-4,427.09	2,834.84	-8.06	-1,962.49	1.11	512,361.35	700,023.40
10,412.00	90.57	358.53	7,716.21	-4,426.21	2,929.80	-10.66	-2,026.55	0.23	512,456.31	700,020.79
10,506.00	90.66	357.46	7,715.21	-4,425.21	3,023.74	-13.95	-2,089.41	1.14	512,550.25	700,017.51
10,600.00	92.51	359.37	7,712.61	-4,422.61	3,117.66	-16.55	-2,152.75	2.83	512,644.17	700,014.91
10,694.00	91.98	359.35	7,708.92	-4,418.92	3,211.58	-17.60	-2,217.20	0.56	512,738.09	700,013.86
10,789.00	91.89	359.70	7,705.72	-4,415.72	3,306.52	-18.39	-2,282.56	0.38	512,833.03	700,013.07
10,883.00	90.13	0.61	7,704.06	-4,414.06	3,400.50	-18.13	-2,347.99	2.11	512,927.01	700,013.32
10,977.00	90.13	0.45	7,703.85	-4,413.85	3,494.50	-17.26	-2,413.88	0.17	513,021.01	700,014.19
11,072.00	87.58	0.21	7,705.74	-4,415.74	3,589.47	-16.71	-2,480.21	2.70	513,115.98	700,014.74
11,166.00	88.81	0.74	7,708.70	-4,418.70	3,683.42	-15.94	-2,546.01	1.42	513,209.93	700,015.52
11,260.00	90.40	1.81	7,709.35	-4,419.35	3,777.39	-13.84	-2,612.76	2.04	513,303.90	700,017.61
11,354.00	90.48	2.43	7,708.63	-4,418.63	3,871.32	-10.37	-2,680.48	0.67	513,397.83	700,021.09
11,448.00	89.08	1.28	7,708.99	-4,418.99	3,965.27	-7.32	-2,747.90	1.93	513,491.78	700,024.13
11,542.00	90.84	0.71	7,709.06	-4,419.06	4,059.25	-5.69	-2,814.32	1.97	513,585.76	700,025.76
11,637.00	90.66	0.78	7,707.81	-4,417.81	4,154.23	-4.46	-2,881.16	0.20	513,680.74	700,027.00
11,731.00	88.20	358.92	7,708.75	-4,418.75	4,248.22	-4.70	-2,946.24	3.28	513,774.73	700,026.75
11,825.00	88.99	359.49	7,711.05	-4,421.05	4,342.18	-6.01	-3,010.54	1.04	513,868.69	700,025.45
11,919.00	88.81	0.45	7,712.86	-4,422.86	4,436.16	-6.06	-3,075.76	1.04	513,962.67	700,025.40
12,013.00	88.43	357.54	7,715.12	-4,425.12	4,530.11	-7.70	-3,139.80	3.12	514,056.62	700,023.75



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Design: OH

Local Co-ordinate Reference: Well #10H
TVD Reference: WELL @ 3290.00usft (Original Well Elev)
MD Reference: WELL @ 3290.00usft (Original Well Elev)
North Reference: Gnd
Survey Calculation Method: Minimum Curvature
Database: EDM 5000 1 Single User Db

Survey											
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
12,107.00	89.78	357.29	7,716.59	-4,426.59	4,624.00	-11.94	-3,201.94	1.46	514,150.51	700,019.51	
12,201.00	90.22	355.97	7,716.59	-4,426.59	4,717.83	-17.47	-3,263.12	1.48	514,244.34	700,013.99	
12,295.00	89.69	357.39	7,716.66	-4,426.66	4,811.67	-22.91	-3,324.36	1.61	514,338.18	700,008.54	
12,391.00	91.71	358.00	7,715.49	-4,425.49	4,907.58	-26.77	-3,388.17	2.20	514,434.09	700,004.68	
12,485.00	92.15	358.26	7,712.33	-4,422.33	5,001.48	-29.84	-3,451.16	0.54	514,527.99	700,001.62	
12,579.00	91.71	358.09	7,709.16	-4,419.16	5,095.38	-32.83	-3,514.20	0.50	514,621.89	699,998.63	
12,673.00	91.89	359.49	7,706.21	-4,416.21	5,189.31	-34.81	-3,577.99	1.50	514,715.82	699,996.64	
12,767.00	91.54	0.46	7,703.39	-4,413.39	5,283.27	-34.85	-3,643.20	1.10	514,809.77	699,996.60	
12,862.00	89.60	0.11	7,702.45	-4,412.45	5,378.25	-34.38	-3,709.49	2.08	514,904.76	699,997.07	
12,956.00	89.16	359.84	7,703.47	-4,413.47	5,472.25	-34.42	-3,774.72	0.55	514,998.76	699,997.03	
13,050.00	89.34	359.93	7,704.70	-4,414.70	5,566.24	-34.61	-3,839.85	0.21	515,092.75	699,996.84	
13,143.00	90.31	0.11	7,704.98	-4,414.98	5,659.24	-34.58	-3,904.44	1.06	515,185.75	699,996.88	
13,237.00	90.13	359.32	7,704.62	-4,414.62	5,753.24	-35.05	-3,969.37	0.86	515,279.75	699,996.41	
13,331.00	90.92	0.99	7,703.76	-4,413.76	5,847.23	-34.79	-4,034.81	1.97	515,373.74	699,996.66	
13,426.00	91.10	1.51	7,702.08	-4,412.08	5,942.19	-32.72	-4,102.24	0.58	515,468.70	699,998.74	
13,520.00	90.84	1.34	7,700.49	-4,410.49	6,036.15	-30.38	-4,169.16	0.33	515,562.66	700,001.07	
13,615.00	91.01	0.90	7,698.96	-4,408.96	6,131.12	-28.53	-4,236.43	0.50	515,657.63	700,002.93	
13,709.00	91.63	0.11	7,696.79	-4,406.79	6,225.09	-27.70	-4,302.27	1.07	515,751.60	700,003.76	
13,803.00	92.24	0.46	7,693.62	-4,403.62	6,319.03	-27.23	-4,367.84	0.75	515,845.54	700,004.22	
13,897.00	91.28	1.43	7,690.73	-4,400.73	6,412.97	-25.68	-4,434.18	1.45	515,939.48	700,005.77	
13,991.00	91.45	1.87	7,688.49	-4,398.49	6,506.91	-22.98	-4,501.34	0.50	516,033.42	700,008.48	
14,084.00	89.87	0.72	7,687.42	-4,397.42	6,599.87	-20.87	-4,567.40	2.10	516,126.38	700,010.58	
14,177.00	90.31	0.62	7,687.28	-4,397.28	6,692.87	-19.79	-4,632.75	0.49	516,219.37	700,011.67	
14,271.00	90.75	0.37	7,686.41	-4,396.41	6,786.86	-18.97	-4,698.60	0.54	516,313.37	700,012.48	
14,364.00	90.57	1.09	7,685.34	-4,395.34	6,879.84	-17.79	-4,764.01	0.80	516,406.35	700,013.67	
14,458.00	90.66	0.94	7,684.33	-4,394.33	6,973.82	-16.12	-4,830.46	0.19	516,500.33	700,015.33	
14,553.00	91.54	0.57	7,682.50	-4,392.50	7,068.80	-14.87	-4,897.31	1.00	516,595.31	700,016.58	



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Survey											
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V: Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
14,646.00	91.28	0.86	7,680.21	-4,390.21	7,161.76	-13.71	-4,962.69	0.42	516,688.27	700,017.74	
14,720.00	91.28	0.86	7,678.56	-4,388.56	7,235.73	-12.60	-5,014.85	0.00	516,762.24	700,018.85	
BHL-14720.00°MD,91.28°INC,0.86°AZI, 7678.56°TVD, -5014.85°VS, 7235.73°N, -12.60°E											

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/S (usft)		Comment
7,219.00	7,217.58	-12.14	-2.45	KOP-7219.00°MD,1.76°INC,3.25°AZI,7217.58°TVD
8,033.00	7,698.46	551.90	5.88	EOC-8033.00°MD,89.43°INC,4.73°AZI,7698.46°TVD
14,720.00	7,678.56	7,235.73	-12.60	BHL-14720.00°MD,91.28°INC,0.86°AZI, 7678.56°TVD, -5014.85°VS, 7235.73°N,

Checked By: _____ Approved By: _____ Date: _____