

30-015-38522

Yates Petroleum Corp.

Eddy County

Lechuza "BQC" Federal Com

#1H

ST1

Design: ST1

Pathfinder X & Y Report

08 September, 2011

Pathfinder Pathfinder X & Y Report

Company:	Yates Petroleum Corp	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County	TVD Reference:	26.5' KB @ 3022.50usft (Patriot 5)
Site:	Lechúza "BOC" Federal Com	MD Reference:	26.5' KB @ 3022.50usft (Patriot 5)
Well:	#1H	North Reference:	Gnd
Wellbore:	ST1	Survey Calculation Method:	Minimum Curvature
Design:	ST1	Database:	EDM 5000.1 Single User.Db

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

Site:	Lechúza "BOC" Federal Com		
Site Position:		Northing:	365,764.414 usft
From:	Map	Easting:	629,267.182 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 0' 18.897 N
		Longitude:	104° 2' 58.785 W
		Grid Convergence:	0.15 °

Well:	#1H					
Well Position	+N/-S	0.00 usft	Northing:	365,764.414 usft	Latitude:	32° 0' 18.897 N
	+E/-W	0.00 usft	Easting:	629,267.182 usft	Longitude:	104° 2' 58.785 W
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft	Ground Level:	2,996.00 usft	

Wellbore						ST1					
Magnetics		Model Name		Sample Date		Declination (°)		Dip Angle (°)		Field Strength (nT)	
		IGRF2010		7/11/2011		7.78		59.90		48,426	

Design: ST1				
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	267.99

Survey Program		Date 9/8/2011		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
448.00	11,732.00	mwd #7 (ST1)	MWD	MWD - Standard

Pathfinder
Pathfinder X & Y Report

Company:	Yates Petroleum Corp					Local Co-ordinate Reference			Well #1H		
Project:	Eddy County					TVD Reference:			26' 5" KB @ 3022.50usft (Patriot 5)		
Site:	Lechuza "BOC" Federal Com					MD Reference:			26' 5" KB @ 3022.50usft (Patriot 5)		
Well:	#1H					North Reference:			Grnd		
Wellbore:	ST1					Survey Calculation Method:			Minimum Curvature		
Design:	ST1					Database:			EDM 5000 1' Single User Db		
Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	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	-3,022.50	0.00	0.00	0.00	0.00	365,764.41	629,267.18	
448.00	3.43	27.88	447.73	-2,574.77	11.85	6.27	-6.68	0.77	365,776.26	629,273.45	
536.00	3.25	352.12	535.59	-2,486.91	16.65	7.16	-7.74	2.34	365,781.06	629,274.34	
626.00	2.99	331.13	625.46	-2,397.04	21.23	5.67	-6.42	1.29	365,785.64	629,272.86	
723.00	3.78	287.97	722.31	-2,300.19	24.43	1.41	-2.27	2.68	365,788.85	629,268.59	
754.00	3.96	286.35	753.24	-2,269.26	25.05	-0.59	-0.29	0.68	365,789.46	629,266.59	
850.00	4.66	279.62	848.96	-2,173.54	26.63	-7.61	6.67	0.90	365,791.05	629,259.57	
945.00	5.01	253.59	943.64	-2,078.86	26.11	-15.40	14.47	2.32	365,790.52	629,251.78	
1,040.00	4.57	257.77	1,038.31	-1,984.19	24.13	-23.08	22.22	0.59	365,788.55	629,244.11	
1,135.00	4.22	257.38	1,133.03	-1,889.47	22.57	-30.19	29.38	0.37	365,786.98	629,237.00	
1,231.00	4.13	259.77	1,228.77	-1,793.73	21.18	-37.04	36.27	0.20	365,785.60	629,230.15	
1,326.00	3.34	252.75	1,323.57	-1,698.93	19.75	-43.04	42.33	0.96	365,784.17	629,224.14	
1,421.00	2.55	237.81	1,418.45	-1,604.05	17.81	-47.48	46.82	1.15	365,782.22	629,219.71	
1,516.00	2.46	249.31	1,513.35	-1,509.15	15.96	-51.17	50.58	0.54	365,780.38	629,216.01	
1,611.00	2.11	228.42	1,608.28	-1,414.22	14.08	-54.39	53.86	0.94	365,778.49	629,212.79	
1,707.00	1.41	193.62	1,704.24	-1,318.26	11.76	-55.99	55.54	1.30	365,776.17	629,211.19	
1,802.00	1.06	205.75	1,799.22	-1,223.28	9.83	-56.64	56.27	0.46	365,774.25	629,210.54	
1,897.00	1.32	216.10	1,894.19	-1,128.31	8.16	-57.67	57.35	0.35	365,772.57	629,209.51	
1,992.00	0.70	127.85	1,989.18	-1,033.32	6.92	-57.86	57.58	1.55	365,771.33	629,209.32	
2,088.00	1.41	94.83	2,085.17	-937.33	6.46	-56.22	55.96	0.94	365,770.87	629,210.96	
2,183.00	0.79	94.01	2,180.15	-842.35	6.31	-54.40	54.14	0.65	365,770.73	629,212.78	
2,278.00	2.20	97.29	2,275.12	-747.38	6.04	-51.94	51.69	1.49	365,770.45	629,215.24	
2,373.00	2.02	117.88	2,370.05	-652.45	5.02	-48.65	48.44	0.82	365,769.44	629,218.53	
2,468.00	0.35	186.39	2,465.03	-557.47	3.95	-47.20	47.03	2.02	365,768.36	629,219.98	
2,564.00	0.70	173.57	2,561.03	-461.47	3.08	-47.17	47.03	0.38	365,767.49	629,220.01	
2,740.00	0.70	188.30	2,737.01	-285.49	0.94	-47.20	47.14	0.10	365,765.36	629,219.98	
2,849.00	0.44	187.27	2,846.01	-176.49	-0.13	-47.35	47.33	0.24	365,764.28	629,219.83	

Pathfinder
Pathfinder X & Y Report

Company:	Yates Petroleum Corp	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County	TVD Reference:	26.5' KB @ 3022.50usft (Patriot-5)
Site:	Lechuza "BOC" Federal Com	MD Reference:	26.5' KB @ 3022.50usft (Patriot-5)
Well:	#1H	North Reference:	Gnd
Wellbore:	ST1	Survey Calculation Method:	Minimum Curvature
Design:	ST1	Database:	EDM 5000.1 Single User Db

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
3,039.00	0.53	175.01	3,036.00	13.50	-1.73	-47.37	47.40	0.07	365,762.69	629,219.81
3,230.00	0.53	188.56	3,226.99	204.49	-3.48	-47.42	47.52	0.07	365,760.93	629,219.76
3,420.00	0.53	202.59	3,416.99	394.49	-5.16	-47.89	48.04	0.07	365,759.25	629,219.29
3,611.00	0.70	214.34	3,607.97	585.47	-6.94	-48.89	49.10	0.11	365,757.47	629,218.29
3,801.00	0.70	211.77	3,797.96	775.46	-8.89	-50.15	50.44	0.02	365,755.53	629,217.03
3,992.00	0.79	217.76	3,988.94	966.44	-10.92	-51.57	51.93	0.06	365,753.49	629,215.61
4,182.00	0.88	223.52	4,178.92	1,156.42	-13.01	-53.38	53.81	0.06	365,751.40	629,213.80
4,372.00	1.06	232.27	4,368.90	1,346.40	-15.15	-55.78	56.27	0.12	365,749.27	629,211.41
4,563.00	1.23	247.63	4,559.86	1,537.36	-17.01	-59.07	59.63	0.18	365,747.41	629,208.11
4,753.00	0.62	254.33	4,749.83	1,727.33	-18.06	-61.94	62.54	0.33	365,746.35	629,205.24
4,944.00	0.70	9.98	4,940.83	1,918.33	-17.19	-62.74	63.30	0.59	365,747.22	629,204.44
5,134.00	0.79	46.44	5,130.81	2,108.31	-15.15	-61.59	62.08	0.25	365,749.27	629,205.59
5,324.00	0.35	85.36	5,320.80	2,298.30	-14.20	-60.06	60.52	0.30	365,750.22	629,207.12
5,513.00	0.53	140.69	5,509.80	2,487.30	-14.83	-58.93	59.41	0.23	365,749.59	629,208.25
5,701.00	0.88	146.22	5,697.78	2,675.28	-16.70	-57.58	58.13	0.19	365,747.71	629,209.60
5,890.00	1.23	14.30	5,886.77	2,864.27	-15.94	-56.27	56.79	1.02	365,748.47	629,210.91
6,079.00	0.88	21.34	6,075.74	3,053.24	-12.62	-55.24	55.65	0.20	365,751.79	629,211.94
6,267.00	0.44	326.00	6,263.72	3,241.22	-10.68	-55.12	55.46	0.39	365,753.74	629,212.06
6,440.00	0.97	349.69	6,436.71	3,414.21	-8.69	-55.75	56.02	0.34	365,755.73	629,211.43
6,549.00	1.58	306.45	6,545.69	3,523.19	-6.89	-57.13	57.33	1.01	365,757.53	629,210.06
6,611.00	4.31	236.97	6,607.61	3,585.11	-7.65	-59.77	60.00	6.51	365,756.76	629,207.41
6,643.00	9.76	244.34	6,639.36	3,616.86	-9.48	-63.22	63.52	17.23	365,754.93	629,203.96
6,675.00	14.95	250.34	6,670.61	3,648.11	-12.05	-69.56	69.94	16.69	365,752.37	629,197.62
6,706.00	18.82	253.95	6,700.27	3,677.77	-14.77	-78.13	78.60	12.93	365,749.64	629,189.05
6,737.00	22.34	256.43	6,729.29	3,706.79	-17.54	-88.67	89.23	11.70	365,746.87	629,178.51
6,769.00	25.76	259.40	6,758.50	3,736.00	-20.25	-101.42	102.07	11.33	365,744.17	629,165.76
6,800.00	29.19	262.57	6,786.01	3,763.51	-22.46	-115.54	116.26	12.02	365,741.95	629,151.64

Pathfinder
Pathfinder X & Y Report

Company:	Yates Petroleum Corp					Local Co-ordinate Reference:			Well #1H		
Project:	Eddy County					TVD Reference:			26.5' KB @ 3022.50usft (Patriot 5)		
Site:	Lechuza "BOC" Federal Com					MD Reference:			26.5' KB @ 3022.50usft (Patriot 5)		
Well:	#1H					North Reference:			Gnd		
Wellbore:	ST1					Survey Calculation Method:			Minimum Curvature		
Design:	ST1					Database:			EDM 5000.1 Single User Db		
Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
6,832.00	32.54	265.26	6,813.47	3,790.97	-24.19	-131.86	132.63	11.32	365,740.23	629,135.32	
6,863.00	36.05	267.38	6,839.08	3,816.58	-25.29	-149.29	150.09	11.96	365,739.12	629,117.89	
6,894.00	39.48	269.76	6,863.58	3,841.08	-25.75	-168.26	169.06	12.02	365,738.66	629,098.92	
6,925.00	43.18	271.09	6,886.86	3,864.36	-25.59	-188.73	189.51	12.27	365,738.82	629,078.45	
6,957.00	46.60	271.13	6,909.52	3,887.02	-25.15	-211.31	212.06	10.69	365,739.26	629,055.87	
6,988.00	49.68	270.93	6,930.21	3,907.71	-24.74	-234.39	235.11	9.95	365,739.68	629,032.79	
7,020.00	53.02	271.35	6,950.19	3,927.69	-24.24	-259.37	260.06	10.49	365,740.18	629,007.81	
7,051.00	56.54	271.16	6,968.07	3,945.57	-23.69	-284.69	285.34	11.37	365,740.73	628,982.50	
7,083.00	60.23	271.22	6,984.84	3,962.34	-23.12	-311.93	312.55	11.53	365,741.30	628,955.26	
7,114.00	64.54	271.83	6,999.21	3,976.71	-22.39	-339.38	339.96	14.01	365,742.03	628,927.80	
7,145.00	69.03	272.85	7,011.42	3,988.92	-21.22	-367.84	368.36	14.80	365,743.20	628,899.34	
7,177.00	73.42	273.53	7,021.72	3,999.22	-19.53	-398.08	398.52	13.87	365,744.88	628,869.10	
7,208.00	78.35	273.32	7,029.28	4,006.78	-17.74	-428.08	428.44	15.92	365,746.68	628,839.10	
7,245.00	84.33	272.46	7,034.85	4,012.35	-15.89	-464.60	464.87	16.32	365,748.52	628,802.59	
7,276.00	90.31	271.01	7,036.29	4,013.79	-14.96	-495.53	495.75	19.85	365,749.46	628,771.65	
7,308.00	91.89	268.66	7,035.68	4,013.18	-15.05	-527.52	527.73	8.85	365,749.36	628,739.66	
7,338.00	91.71	267.67	7,034.74	4,012.24	-16.01	-557.49	557.71	3.35	365,748.40	628,709.69	
7,369.00	91.10	267.94	7,033.98	4,011.48	-17.20	-588.46	588.70	2.15	365,747.22	628,678.72	
7,464.00	91.80	268.54	7,031.57	4,009.07	-20.11	-683.38	683.67	0.97	365,744.30	628,583.80	
7,558.00	91.54	268.28	7,028.83	4,006.33	-22.72	-777.31	777.63	0.39	365,741.69	628,489.87	
7,653.00	90.84	267.94	7,026.86	4,004.36	-25.85	-872.24	872.61	0.82	365,738.56	628,394.95	
7,747.00	90.57	267.81	7,025.70	4,003.20	-29.34	-966.16	966.60	0.32	365,735.08	628,301.02	
7,842.00	92.07	268.67	7,023.52	4,001.02	-32.26	-1,061.09	1,061.57	1.82	365,732.16	628,206.09	
7,935.00	90.84	267.46	7,021.15	3,998.65	-35.40	-1,154.00	1,154.53	1.85	365,729.02	628,113.18	
8,030.00	89.25	266.25	7,021.08	3,998.58	-40.61	-1,248.86	1,249.51	2.10	365,723.81	628,018.33	
8,124.00	89.78	267.24	7,021.88	3,999.38	-45.94	-1,342.70	1,343.48	1.19	365,718.47	627,924.48	
8,218.00	90.31	267.01	7,021.80	3,999.30	-50.66	-1,436.58	1,437.47	0.61	365,713.76	627,830.60	

Pathfinder
Pathfinder X & Y Report

Company: Yates Petroleum Corp.		Local Co-ordinate Reference:				Well #1H	
Project: Eddy County		TVD Reference:				26.5' KB @ 3022.50usft (Patriot-5)	
Site: Lechúza "BCC" Federal Corn		MD Reference:				26.5' KB @ 3022.50usft (Patriot-5)	
Well: #1H		North Reference:				Grid	
Wellbore: ST1		Survey Calculation Method:				Minimum Curvature	
Design: ST1		Database:				EDM 5000, 1 Single User Db	

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
8,312.00	87.85	266.78	7,023.31	4,000.81	-55.75	-1,530.42	1,531.44	2.63	365,708.66	627,736.76	
8,406.00	87.32	266.69	7,027.27	4,004.77	-61.10	-1,624.19	1,625.33	0.57	365,703.32	627,643.00	
8,500.00	89.69	266.14	7,029.72	4,007.22	-66.97	-1,717.96	1,719.26	2.59	365,697.44	627,549.22	
8,595.00	91.80	267.29	7,028.49	4,005.99	-72.42	-1,812.79	1,814.22	2.53	365,692.00	627,454.39	
8,689.00	92.51	267.52	7,024.95	4,002.45	-76.67	-1,906.63	1,908.15	0.79	365,687.74	627,360.55	
8,783.00	92.51	268.64	7,020.84	3,998.34	-79.82	-2,000.48	2,002.05	1.19	365,684.60	627,266.70	
8,877.00	93.03	268.50	7,016.29	3,993.79	-82.16	-2,094.35	2,095.94	0.57	365,682.26	627,172.84	
8,972.00	91.63	268.86	7,012.43	3,989.93	-84.35	-2,189.24	2,190.85	1.52	365,680.07	627,077.94	
9,066.00	91.54	269.07	7,009.83	3,987.33	-86.04	-2,283.19	2,284.80	0.24	365,678.37	626,983.99	
9,161.00	91.10	269.34	7,007.64	3,985.14	-87.36	-2,378.15	2,379.75	0.54	365,677.05	626,889.03	
9,255.00	90.22	269.89	7,006.56	3,984.06	-87.99	-2,472.14	2,473.71	1.10	365,676.42	626,795.04	
9,348.00	89.69	269.14	7,006.63	3,984.13	-88.78	-2,565.14	2,566.67	0.99	365,675.63	626,702.04	
9,443.00	89.43	269.00	7,007.36	3,984.86	-90.32	-2,660.12	2,661.65	0.31	365,674.09	626,607.06	
9,537.00	89.34	268.55	7,008.37	3,985.87	-92.33	-2,754.10	2,755.64	0.49	365,672.08	626,513.09	
9,632.00	91.01	268.69	7,008.08	3,985.58	-94.62	-2,849.06	2,850.63	1.76	365,669.80	626,418.12	
9,726.00	91.45	268.99	7,006.06	3,983.56	-96.52	-2,943.02	2,944.60	0.57	365,667.89	626,324.16	
9,821.00	91.98	268.39	7,003.22	3,980.72	-98.69	-3,037.96	3,039.55	0.84	365,665.72	626,229.23	
9,915.00	92.15	267.74	6,999.83	3,977.33	-101.86	-3,131.84	3,133.49	0.71	365,662.55	626,135.34	
10,009.00	90.75	266.94	6,997.46	3,974.96	-106.22	-3,225.71	3,227.45	1.72	365,658.19	626,041.48	
10,103.00	90.57	266.99	6,996.37	3,973.87	-111.20	-3,319.57	3,321.43	0.20	365,653.21	625,947.61	
10,198.00	90.66	267.42	6,995.35	3,972.85	-115.83	-3,414.45	3,416.41	0.46	365,648.58	625,852.73	
10,292.00	89.96	267.23	6,994.84	3,972.34	-120.22	-3,508.34	3,510.40	0.77	365,644.19	625,758.84	
10,386.00	89.96	267.32	6,994.91	3,972.41	-124.69	-3,602.24	3,604.40	0.10	365,639.72	625,664.94	
10,479.00	89.87	267.34	6,995.05	3,972.55	-129.02	-3,695.14	3,697.39	0.10	365,635.39	625,572.04	
10,573.00	90.13	268.06	6,995.05	3,972.55	-132.79	-3,789.06	3,791.39	0.81	365,631.62	625,478.12	
10,668.00	89.60	267.58	6,995.27	3,972.77	-136.41	-3,883.99	3,886.39	0.75	365,628.01	625,383.19	
10,762.00	90.04	268.32	6,995.57	3,973.07	-139.77	-3,977.93	3,980.38	0.92	365,624.64	625,289.25	

Pathfinder
Pathfinder X & Y Report

Company:	Yates Petroleum Corp	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County	TVD Reference:	26.5' KB @ 3022.50usft (Patriot 5)
Site:	Lechuza "BOC" Federal Com	MD Reference:	26.5' KB @ 3022.50usft (Patriot 5)
Well:	#1H	North Reference:	Gnd
Wellbore:	ST1	Survey Calculation Method:	Minimum Curvature
Design:	ST1	Database:	EDM 5000.1 Single User Db

Survey	MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
	10,856.00	90.31	268.97	6,995.28	3,972.78	-141.99	-4,071.90	4,074.38	0.75	365,622.42	625,195.28
	10,951.00	89.78	269.31	6,995.21	3,972.71	-143.42	-4,166.89	4,169.36	0.68	365,621.00	625,100.29
	11,045.00	89.60	268.15	6,995.71	3,973.21	-145.50	-4,260.87	4,263.35	1.25	365,618.91	625,006.32
	11,139.00	90.22	268.98	6,995.86	3,973.36	-147.86	-4,354.83	4,357.34	1.10	365,616.56	624,912.35
	11,234.00	90.40	268.71	6,995.35	3,972.85	-149.77	-4,449.81	4,452.33	0.34	365,614.64	624,817.37
	11,328.00	90.40	268.44	6,994.69	3,972.19	-152.11	-4,543.78	4,546.32	0.29	365,612.31	624,723.40
	11,422.00	91.28	268.04	6,993.31	3,970.81	-155.00	-4,637.73	4,640.31	1.03	365,609.42	624,629.46
	11,517.00	91.03	268.14	6,990.90	3,968.40	-158.16	-4,732.64	4,735.28	0.38	365,606.25	624,534.54
	11,611.00	90.66	267.54	6,989.02	3,966.52	-161.70	-4,826.56	4,829.26	1.21	365,602.71	624,440.63
	11,652.00	90.22	267.78	6,988.71	3,966.21	-163.38	-4,867.52	4,870.26	1.22	365,601.04	624,399.66
	11,732.00	90.22	267.78	6,988.40	3,965.90	-166.48	-4,947.46	4,950.25	0.00	365,597.94	624,319.72

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,611.00	6,607.61	-7.65	-59.77	KOP - 6611.00 'MD, 6607.61 'TVD, -7.65 'N, -59.77 'E
7,276.00	7,036.29	-14.96	-495.53	LP - 7276.00 'MD, 7036.29 'TVD, -14.96 'N, -495.53 'E
11,732.00	6,988.40	-166.48	-4,947.46	BHL - 11732.00 'MD, 6988.40 'TVD, -166.48 'N, -4947.46 'E

Checked By: _____	Approved By: _____	Date: _____
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Project: Eddy County
Site: Lechuza "BQC" Federal
Well: #1H
Wellbore: ST1
Plan: Post Gyro Plan #5 (#1H/ST1)



Azimuths to Grid North
True North: -0.15°
Magnetic North: 7.63°

Magnetic Field
Strength: 48426.29nT
Dip Angle: 59.90°
Date: 7/11/2011
Model: IGRF2010



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

