



30-015-38668

BOPCO, L.P.

Eddy County(NAD27)

Poker Lake Unit

347H

OH

Design: OH

Pathfinder X & Y Report

16 November, 2011

PATHFINDER®

A Schlumberger Company



Smith International, Inc.
Pathfinder X & Y Report

PATHFINDER
A Schlumberger Company

Company:	BOPCO, L P	Local Co-ordinate Reference:	Well 347H
Project:	Eddy County(NAD27)	TVD Reference:	KB = 22' @ 3361.0usft (TBD)
Site:	Poker Lake Unit	MD Reference:	KB = 22' @ 3361.0usft (TBD)
Well:	347H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Project	Eddy County(NAD27)		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Poker Lake Unit		
Site Position:		Northing:	431,785.905 usft
From:	Map	Easting:	669,777 503 usft
Position Uncertainty:	0 0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 11' 9 261 N
		Longitude:	103° 47' 4.373 W
		Grid Convergence:	0.29 °

Well	347H					
Well Position	+N/-S	0.0 usft	Northing:	418,936.562 usft	Latitude:	32° 9' 3.132 N
	+E/-W	0.0 usft	Easting:	647,999.807 usft	Longitude:	103° 51' 18 447 W
Position Uncertainty	0.0 usft		Wellhead Elevation:	usft	Ground Level:	3,339.5 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	9/20/2011	7.67	60 09	48,553

Design		OH		
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0.0	0.0	0.0	318.29



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Survey Program		Date 11/16/2011		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	7,053.9	Gyro #1 (OH)	NS-GYRO-MS	North sensing gyrocompassing m/s
7,158.0	12,000.0	MWD #1 (OH)	MWD	MWD - Standard

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
0.0	0.00	0.00	0.0	-3,361.0	0.0	0.0	0.0	0.00	418,936.56	647,999.81
100.0	0.19	136.02	100.0	-3,261.0	-0.1	0.1	-0.2	0.19	418,936.44	647,999.92
200.0	0.36	195.24	200.0	-3,161.0	-0.5	0.1	-0.5	0.31	418,936.02	647,999.95
300.0	0.38	174.95	300.0	-3,061.0	-1.2	0.1	-0.9	0.13	418,935.39	647,999.90
400.0	0.46	213.94	400.0	-2,961.0	-1.8	-0.1	-1.3	0.29	418,934.72	647,999.71
500.0	0.38	174.81	500.0	-2,861.0	-2.5	-0.3	-1.7	0.29	418,934.06	647,999.51
600.0	0.45	174.61	600.0	-2,761.0	-3.2	-0.2	-2.3	0.07	418,933.34	647,999.58
700.0	0.42	160.37	700.0	-2,661.0	-4.0	-0.1	-2.9	0.11	418,932.60	647,999.74
800.0	0.57	156.71	800.0	-2,561.0	-4.8	0.3	-3.7	0.15	418,931.80	648,000.06
900.0	0.77	159.49	900.0	-2,461.0	-5.8	0.7	-4.8	0.20	418,930.71	648,000.49
993.1	1.07	181.66	993.1	-2,367.9	-7.3	0.9	-6.0	0.49	418,929.26	648,000.69
1,087.8	1.48	192.95	1,087.7	-2,273.3	-9.4	0.6	-7.4	0.51	418,927.18	648,000.39
1,182.5	1.38	185.38	1,182.4	-2,178.6	-11.7	0.2	-8.9	0.23	418,924.86	648,000.00
1,277.2	1.34	184.19	1,277.1	-2,083.9	-13.9	0.0	-10.4	0.05	418,922.62	647,999.82
1,371.9	1.30	181.34	1,371.8	-1,989.2	-16.1	-0.1	-12.0	0.08	418,920.44	647,999.71
1,466.6	1.33	179.47	1,466.4	-1,894.6	-18.3	-0.1	-13.6	0.06	418,918.27	647,999.70
1,561.3	1.35	180.27	1,561.1	-1,799.9	-20.5	-0.1	-15.2	0.03	418,916.05	647,999.70
1,656.0	1.05	180.26	1,655.8	-1,705.2	-22.5	-0.1	-16.7	0.32	418,914.07	647,999.69
1,750.7	0.83	179.77	1,750.5	-1,610.5	-24.0	-0.1	-17.9	0.23	418,912.51	647,999.69
1,845.4	0.65	195.36	1,845.2	-1,515.8	-25.3	-0.3	-18.7	0.28	418,911.31	647,999.55
1,940.1	0.80	219.68	1,939.9	-1,421.1	-26.3	-0.8	-19.1	0.36	418,910.28	647,998.99



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Design:	OH	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)	
2,034.8	1.01	232.01	2,034.5	-1,326.5	-27.3	-1.9	-19.1	0.30	418,909.26	647,997.91	
2,129.5	1.15	235.70	2,129.2	-1,231.8	-28.3	-3.3	-18.9	0.16	418,908.21	647,996.46	
2,224.2	1.49	236.40	2,223.9	-1,137.1	-29.6	-5.2	-18.6	0.36	418,907.00	647,994.65	
2,318.9	1.60	239.78	2,318.6	-1,042.4	-30.9	-7.3	-18.2	0.15	418,905.65	647,992.48	
2,413.6	1.58	253.85	2,413.2	-947.8	-31.9	-9.7	-17.4	0.41	418,904.62	647,990.09	
2,508.3	1.57	269.21	2,507.9	-853.1	-32.3	-12.3	-16.0	0.44	418,904.24	647,987.54	
2,603.0	1.69	275.54	2,602.6	-758.4	-32.2	-15.0	-14.1	0.23	418,904.36	647,984.85	
2,697.7	1.74	281.07	2,697.2	-663.8	-31.8	-17.8	-11.9	0.18	418,904.77	647,982.05	
2,792.4	1.76	285.06	2,791.9	-569.1	-31.1	-20.6	-9.6	0.13	418,905.42	647,979.23	
2,887.1	1.99	284.25	2,886.5	-474.5	-30.4	-23.6	-7.0	0.24	418,906.20	647,976.24	
2,981.8	2.33	286.60	2,981.2	-379.8	-29.4	-27.0	-4.0	0.37	418,907.16	647,972.80	
3,076.5	2.15	290.26	3,075.8	-285.2	-28.2	-30.5	-0.8	0.24	418,908.32	647,969.29	
3,171.2	1.24	288.45	3,170.4	-190.6	-27.3	-33.2	1.7	0.96	418,909.26	647,966.65	
3,265.9	0.47	304.36	3,265.1	-95.9	-26.8	-34.5	3.0	0.84	418,909.81	647,965.36	
3,360.6	0.60	51.28	3,359.8	-1.2	-26.2	-34.4	3.3	0.91	418,910.34	647,965.42	
3,455.3	1.48	92.25	3,454.5	93.5	-26.0	-32.8	2.4	1.16	418,910.60	647,967.03	
3,550.0	2.47	108.47	3,549.1	188.1	-26.7	-29.6	-0.2	1.19	418,909.90	647,970.19	
3,644.7	2.89	113.50	3,643.7	282.7	-28.3	-25.5	-4.1	0.51	418,908.30	647,974.31	
3,739.4	2.92	111.38	3,738.3	377.3	-30.1	-21.1	-8.4	0.12	418,906.47	647,978.75	
3,834.1	3.03	105.81	3,832.9	471.9	-31.6	-16.4	-12.7	0.33	418,904.91	647,983.40	
3,928.8	2.54	106.11	3,927.5	566.5	-32.9	-12.0	-16.6	0.52	418,903.65	647,987.83	
4,023.5	2.48	106.76	4,022.1	661.1	-34.1	-8.0	-20.1	0.07	418,902.47	647,991.80	
4,118.2	2.15	106.36	4,116.7	755.7	-35.2	-4.3	-23.4	0.35	418,901.38	647,995.47	
4,212.9	2.04	105.19	4,211.4	850.4	-36.1	-1.0	-26.3	0.12	418,900.44	647,998.80	
4,307.6	1.82	105.56	4,306.0	945.0	-37.0	2.1	-29.0	0.23	418,899.60	648,001.88	
4,402.3	1.49	106.07	4,400.7	1,039.7	-37.7	4.7	-31.3	0.35	418,898.85	648,004.51	
4,497.0	1.20	110.24	4,495.3	1,134.3	-38.4	6.8	-33.2	0.32	418,898.17	648,006.62	



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Survey											
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4,591.7	1.03	110.84	4,590.0	1,229.0	-39.0	8.5	-34.8	0.18	418,897.52	648,008.35	
4,686.4	0.87	111.10	4,684.7	1,323.7	-39.6	10.0	-36.2	0.17	418,896.96	648,009.81	
4,781.1	0.65	116.33	4,779.4	1,418.4	-40.1	11.2	-37.4	0.24	418,896.46	648,010.97	
4,875.8	0.51	125.70	4,874.1	1,513.1	-40.6	12.0	-38.3	0.18	418,895.98	648,011.79	
5,065.2	0.60	127.29	5,063.5	1,702.5	-41.7	13.5	-40.1	0.05	418,894.89	648,013.26	
5,159.9	0.48	137.65	5,158.2	1,797.2	-42.3	14.1	-40.9	0.16	418,894.29	648,013.93	
5,254.6	0.34	166.71	5,252.9	1,891.9	-42.8	14.5	-41.6	0.26	418,893.73	648,014.26	
5,349.3	0.42	206.49	5,347.6	1,986.6	-43.4	14.4	-42.0	0.28	418,893.14	648,014.17	
5,444.0	0.73	228.83	5,442.3	2,081.3	-44.1	13.8	-42.1	0.40	418,892.43	648,013.56	
5,538.7	0.66	194.21	5,537.0	2,176.0	-45.1	13.2	-42.4	0.44	418,891.51	648,012.97	
5,633.4	0.89	186.81	5,631.6	2,270.6	-46.3	12.9	-43.2	0.26	418,890.25	648,012.75	
5,728.1	1.16	188.33	5,726.3	2,365.3	-48.0	12.7	-44.3	0.29	418,888.57	648,012.52	
5,822.8	1.18	180.40	5,821.0	2,460.0	-49.9	12.6	-45.6	0.17	418,886.65	648,012.38	
5,917.5	0.85	185.23	5,915.7	2,554.7	-51.6	12.5	-46.8	0.36	418,884.97	648,012.31	
6,012.2	1.16	171.48	6,010.4	2,649.4	-53.2	12.6	-48.1	0.41	418,883.33	648,012.38	
6,106.9	1.47	188.53	6,105.1	2,744.1	-55.4	12.5	-49.7	0.52	418,881.18	648,012.35	
6,201.6	1.50	183.54	6,199.7	2,838.7	-57.8	12.3	-51.3	0.14	418,878.74	648,012.09	
6,296.3	1.44	184.11	6,294.4	2,933.4	-60.2	12.1	-53.0	0.07	418,876.31	648,011.93	
6,391.0	0.92	202.16	6,389.1	3,028.1	-62.1	11.7	-54.2	0.67	418,874.42	648,011.56	
6,485.7	0.88	215.67	6,483.8	3,122.8	-63.4	11.0	-54.7	0.23	418,873.13	648,010.84	
6,580.4	0.68	228.68	6,578.5	3,217.5	-64.4	10.2	-54.9	0.28	418,872.17	648,010.00	
6,675.1	0.53	223.60	6,673.1	3,312.1	-65.1	9.5	-54.9	0.17	418,871.48	648,009.27	
6,769.8	0.41	215.69	6,767.8	3,406.8	-65.7	9.0	-55.0	0.14	418,870.89	648,008.78	
6,864.5	0.44	188.49	6,862.5	3,501.5	-66.3	8.7	-55.3	0.21	418,870.25	648,008.52	
6,959.2	0.63	164.89	6,957.2	3,596.2	-67.2	8.8	-56.0	0.30	418,869.39	648,008.61	
7,053.9	0.81	160.61	7,051.9	3,690.9	-68.3	9.2	-57.1	0.20	418,868.25	648,008.96	
7,158.0	0.79	184.25	7,156.0	3,795.0	-69.7	9.3	-58.3	0.32	418,866.85	648,009.15	



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7,189.0	0.62	258.60	7,187.0	3,826.0	-70.0	9.2	-58.3	2.78	418,866.60	648,008.97	
7,220.0	2.99	308.70	7,218.0	3,857.0	-69.5	8.4	-57.4	8.50	418,867.07	648,008.18	
7,251.0	6.16	313.18	7,248.9	3,887.9	-67.8	6.5	-55.0	10.28	418,868.72	648,006.33	
KOP - 7251.0 'MD, 7248.9 'TVD, -67.8 'N, 6.5 'E											
7,282.0	9.15	315.38	7,279.6	3,918.6	-65.0	3.6	-50.9	9.69	418,871.61	648,003.39	
7,313.0	12.57	315.38	7,310.1	3,949.1	-60.8	-0.5	-45.0	11.03	418,875.77	647,999.29	
7,344.0	15.74	310.46	7,340.1	3,979.1	-55.7	-6.1	-37.5	10.93	418,880.90	647,993.72	
7,375.0	18.73	310.63	7,369.7	4,008.7	-49.7	-13.1	-28.4	9.65	418,886.87	647,986.74	
7,406.0	22.34	314.41	7,398.7	4,037.7	-42.3	-21.1	-17.6	12.40	418,894.23	647,978.75	
7,437.0	26.29	315.11	7,427.0	4,066.0	-33.3	-30.1	-4.8	12.78	418,903.22	647,969.69	
7,467.0	30.16	315.64	7,453.4	4,092.4	-23.2	-40.1	9.3	12.93	418,913.32	647,959.73	
7,498.0	33.59	316.08	7,479.7	4,118.7	-11.5	-51.5	25.7	11.09	418,925.07	647,948.34	
7,529.0	36.32	316.45	7,505.1	4,144.1	1.3	-63.7	43.4	8.83	418,937.90	647,936.06	
7,561.0	39.66	315.06	7,530.4	4,169.4	15.4	-77.5	63.1	10.77	418,952.00	647,922.31	
7,592.0	43.00	315.02	7,553.6	4,192.6	29.9	-92.0	83.5	10.77	418,966.49	647,907.85	
7,623.0	44.93	316.47	7,575.9	4,214.9	45.3	-107.0	105.0	7.02	418,981.90	647,892.84	
7,655.0	47.13	317.26	7,598.2	4,237.2	62.1	-122.7	128.0	7.10	418,998.71	647,877.09	
7,686.0	50.74	316.82	7,618.5	4,257.5	79.2	-138.6	151.4	11.69	419,015.81	647,861.16	
7,717.0	54.43	317.52	7,637.4	4,276.4	97.3	-155.4	176.0	12.04	419,033.87	647,844.43	
7,748.0	58.31	318.06	7,654.5	4,293.5	116.4	-172.7	201.8	12.60	419,052.98	647,827.10	
7,779.0	62.52	318.99	7,669.8	4,308.8	136.6	-190.6	228.8	13.83	419,073.18	647,809.25	
7,811.0	65.42	320.49	7,683.9	4,322.9	158.6	-209.1	257.5	9.99	419,095.12	647,790.67	
7,842.0	67.53	321.28	7,696.2	4,335.2	180.6	-227.1	285.9	7.20	419,117.18	647,772.74	
7,873.0	69.47	321.92	7,707.6	4,346.6	203.2	-245.0	314.7	6.55	419,139.78	647,754.83	
7,904.0	73.16	322.05	7,717.5	4,356.5	226.3	-263.1	344.0	11.91	419,162.91	647,736.75	
7,935.0	77.12	322.67	7,725.5	4,364.5	250.1	-281.4	373.9	12.92	419,186.63	647,718.45	
7,966.0	80.99	322.59	7,731.4	4,370.4	274.3	-299.8	404.2	12.49	419,210.82	647,699.98	



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7,997.0	82.31	323.11	7,735.9	4,374.9	298.7	-318.3	434.8	4.57	419,235.26	647,681.46	
8,028.0	84.94	324.96	7,739.3	4,378.3	323.6	-336.4	465.5	10.35	419,260.20	647,663.37	
8,059.0	86.70	326.45	7,741.6	4,380.6	349.2	-353.9	496.1	7.43	419,285.74	647,645.95	
8,090.0	88.46	326.28	7,742.9	4,381.9	375.0	-371.0	526.8	5.70	419,311.52	647,628.80	
8,100.0	88.46	326.28	7,743.1	4,382.1	383.3	-376.6	536.7	0.00	419,319.84	647,623.25	
8,211.0	90.04	326.54	7,744.6	4,383.6	475.7	-438.0	646.6	1.44	419,412.31	647,561.84	
LP - 8211.0 'MD, 7744.6 'TVD, 475.7 'N, -438.0 'E											
8,243.0	91.28	326.19	7,744.2	4,383.2	502.4	-455.7	678.2	4.03	419,438.93	647,544.12	
8,306.0	92.42	324.78	7,742.2	4,381.2	554.3	-491.4	740.7	2.88	419,490.81	647,508.45	
8,371.0	91.80	322.76	7,739.8	4,378.8	606.6	-529.7	805.3	3.25	419,543.21	647,470.06	
8,467.0	91.80	321.53	7,736.8	4,375.8	682.4	-588.6	901.1	1.28	419,618.97	647,411.18	
8,530.0	90.13	319.68	7,735.7	4,374.7	731.1	-628.6	964.0	3.96	419,667.64	647,371.20	
8,594.0	89.52	318.63	7,735.9	4,374.9	779.5	-670.5	1,028.0	1.90	419,716.06	647,329.35	
8,658.0	90.92	317.66	7,735.7	4,374.7	827.2	-713.2	1,092.0	2.66	419,763.72	647,286.64	
8,722.0	92.15	316.61	7,734.0	4,373.0	874.1	-756.7	1,156.0	2.53	419,810.61	647,243.12	
8,816.0	92.33	315.91	7,730.3	4,369.3	941.9	-821.6	1,249.8	0.77	419,878.48	647,178.18	
8,911.0	90.84	314.94	7,727.7	4,366.7	1,009.6	-888.3	1,344.7	1.87	419,946.12	647,111.54	
9,005.0	90.57	314.41	7,726.5	4,365.5	1,075.6	-955.1	1,438.5	0.63	420,012.20	647,044.70	
9,101.0	91.63	313.80	7,724.7	4,363.7	1,142.4	-1,024.0	1,534.2	1.27	420,079.00	646,975.78	
9,196.0	91.71	313.89	7,721.9	4,360.9	1,208.2	-1,092.5	1,628.9	0.13	420,144.78	646,907.29	
9,289.0	93.21	314.68	7,717.9	4,356.9	1,273.1	-1,159.0	1,721.6	1.82	420,209.65	646,840.78	
9,385.0	94.44	316.35	7,711.5	4,350.5	1,341.4	-1,226.1	1,817.2	2.16	420,277.99	646,773.66	
9,483.0	95.67	315.35	7,702.9	4,341.9	1,411.5	-1,294.1	1,914.8	1.62	420,348.03	646,705.67	
9,579.0	91.54	317.58	7,696.8	4,335.8	1,480.9	-1,360.1	2,010.5	4.89	420,417.47	646,639.70	
9,675.0	90.22	318.37	7,695.3	4,334.3	1,552.2	-1,424.4	2,106.5	1.60	420,488.77	646,575.44	
9,772.0	91.71	318.19	7,693.7	4,332.7	1,624.6	-1,488.9	2,203.5	1.55	420,561.16	646,510.90	
9,867.0	90.84	319.86	7,691.6	4,330.6	1,696.3	-1,551.2	2,298.4	1.98	420,632.87	646,448.62	



Smith International, Inc.
Pathfinder X & Y Report

PATHFINDER
A Schlumberger Company

Company:	BOPCO, L P.	Local Co-ordinate Reference:	Well 347H
Project:	Eddy County(NAD27)	TVD Reference:	KB = 22' @ 3361.0usft (TBD)
Site:	Poker Lake Unit	MD Reference:	KB = 22' @ 3361 0usft (TBD)
Well:	347H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	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)
9,963.0	89.08	319.07	7,691.7	4,330.7	1,769.3	-1,613.6	2,394.4	2.01	420,705.82	646,386.23
10,058.0	89.78	318.00	7,692.6	4,331.6	1,840.4	-1,676.5	2,489.4	1.35	420,777.01	646,323.33
10,153.0	92.15	320.56	7,691.0	4,330.0	1,912.4	-1,738.4	2,584.4	3.67	420,848.99	646,261.38
10,248.0	91.54	321.09	7,688.0	4,327.0	1,986.0	-1,798.4	2,679.2	0.85	420,922.59	646,201.40
10,342.0	91.19	321.36	7,685.7	4,324.7	2,059.3	-1,857.3	2,773.1	0.47	420,995.86	646,142.55
10,437.0	89.96	320.23	7,684.8	4,323.8	2,132.9	-1,917.3	2,868.0	1.76	421,069.46	646,082.50
10,533.0	92.15	320.39	7,683.0	4,322.0	2,206.8	-1,978.6	2,963.9	2.29	421,143.32	646,021.21
10,629.0	90.22	320.21	7,681.0	4,320.0	2,280.6	-2,039.9	3,059.8	2.02	421,217.16	645,959.90
10,724.0	90.04	320.56	7,680.8	4,319.8	2,353.8	-2,100.5	3,154.7	0.41	421,290.34	645,899.33
10,820.0	89.34	319.95	7,681.3	4,320.3	2,427.6	-2,161.9	3,250.7	0.97	421,364.16	645,837.95
10,915.0	89.43	318.98	7,682.3	4,321.3	2,499.8	-2,223.6	3,345.6	1.03	421,436.35	645,776.21
11,010.0	89.96	318.90	7,682.8	4,321.8	2,571.4	-2,286.0	3,440.6	0.56	421,507.98	645,713.81
11,106.0	89.78	316.79	7,683.1	4,322.1	2,642.6	-2,350.4	3,536.6	2.21	421,579.15	645,649.39
11,201.0	93.21	317.93	7,680.6	4,319.6	2,712.4	-2,414.7	3,631.6	3.80	421,648.99	645,585.07
11,295.0	91.54	318.28	7,676.7	4,315.7	2,782.3	-2,477.5	3,725.5	1.82	421,718.90	645,522.35
11,358.0	90.22	317.22	7,675.7	4,314.7	2,829.0	-2,519.8	3,788.5	2.69	421,765.53	645,480.00
11,485.0	88.72	316.26	7,676.9	4,315.9	2,921.4	-2,606.8	3,915.4	1.40	421,858.01	645,392.97
11,581.0	89.43	316.43	7,678.4	4,317.4	2,990.9	-2,673.1	4,011.3	0.76	421,927.46	645,326.71
11,676.0	91.63	317.14	7,677.6	4,316.6	3,060.1	-2,738.1	4,106.3	2.43	421,996.68	645,261.67
11,771.0	90.57	314.76	7,675.7	4,314.7	3,128.4	-2,804.2	4,201.2	2.74	422,064.94	645,195.64
11,867.0	91.36	315.47	7,674.1	4,313.1	3,196.4	-2,871.9	4,297.0	1.11	422,132.95	645,127.90
11,946.0	91.19	316.26	7,672.4	4,311.4	3,253.1	-2,926.9	4,375.9	1.02	422,189.64	645,072.90
12,000.0	91.19	316.26	7,671.2	4,310.2	3,292.1	-2,964.2	4,429.9	0.00	422,228.66	645,035.56
BHL - 12000.0 'MD, 7671.2 'TVD, 3292.1 'N, -2964.2 'E										



Smith International, Inc.
Pathfinder X & Y Report

PATHFINDER
A Schlumberger Company

Company:	BOPCO, L.P.	Local Co-ordinate Reference:	Well 347H
Project:	Eddy County(NAD27)	TVD Reference:	KB = 22' @ 3361.0usft (TBD)
Site:	Poker Lake Unit	MD Reference:	KB = 22' @ 3361.0usft (TBD)
Well:	347H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000 1 Single User Db

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
7,251.0	7,248.9	-67.8	6.5	KOP - 7251.0 'MD, 7248.9 'TVD, -67.8 'N, 6.5 'E
8,211.0	7,744.6	475.7	-438.0	LP - 8211.0 'MD, 7744.6 'TVD, 475.7 'N, -438.0 'E
12,000.0	7,671.2	3,292.1	-2,964.2	BHL - 12000.0 'MD, 7671.2 'TVD, 3292.1 'N, -2964.2 'E

Checked By: _____	Approved By: _____	Date: _____
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Project: Eddy County(NAD27)
 Site: Poker Lake Unit
 Well: 347H
 Wellbore: OH
 Plan: Post Gyro Plan #5 (347H/OH)

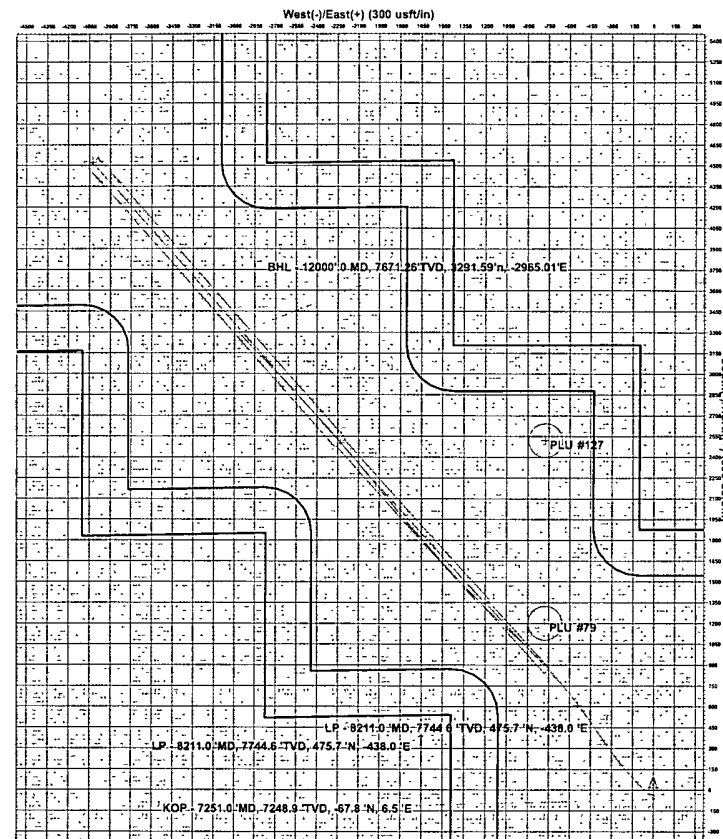
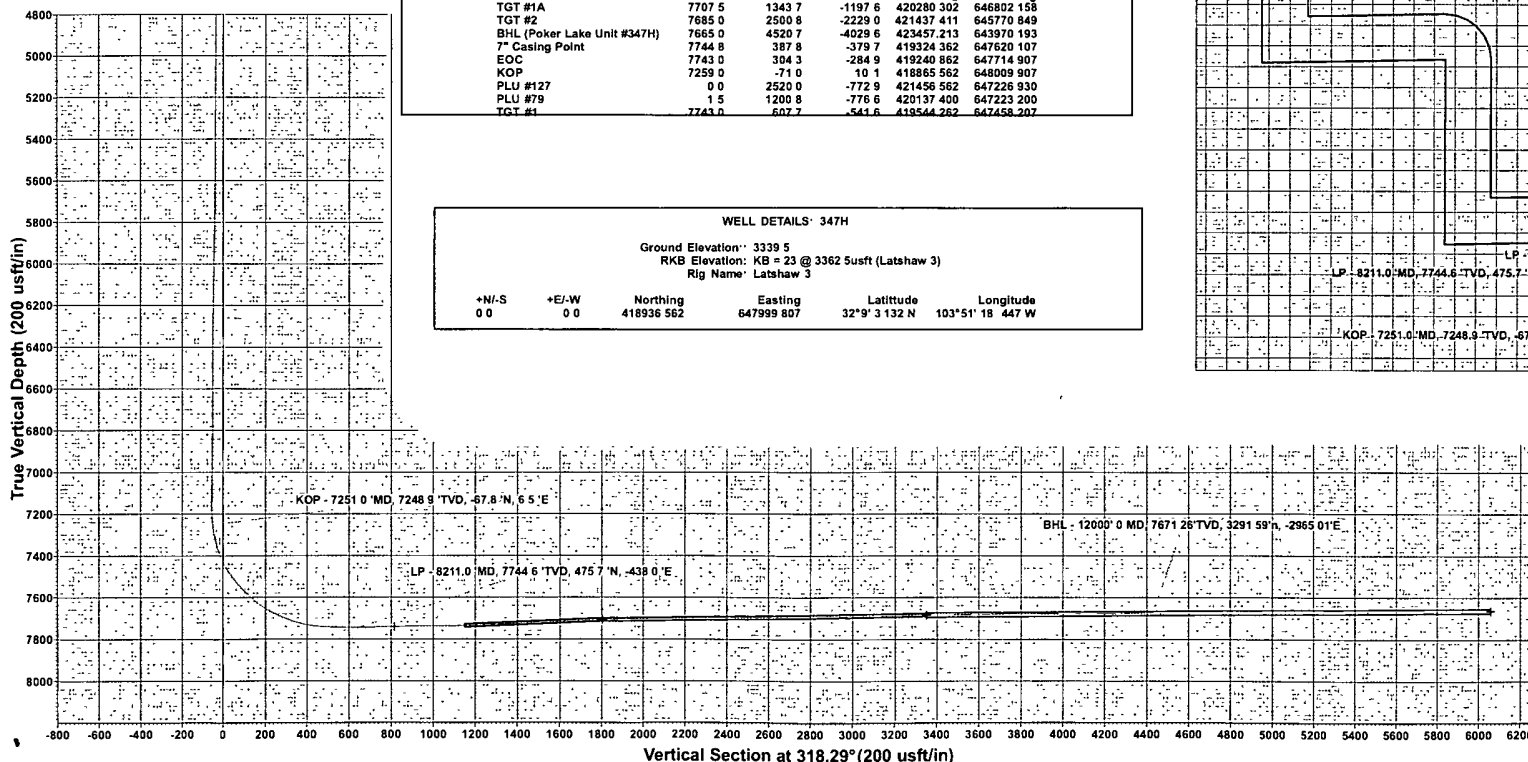
PROJECT DETAILS: Eddy County(NAD27)
 Geodetic System: US State Plane 1927 (Exact solution)
 Datum: NAD 1927 (NADCON CONUS)
 Ellipsoid: Clarke 1866
 Zone: New Mexico East 3001
 System Datum: Mean Sea Level
 Local North: Grid

PATHFINDER
 A Schlumberger Company

SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	8713.0	91.95	316.78	7735.8	866.4	-749.5	0.00	0.00	1145.5	
2	8740.1	92.49	316.81	7734.8	886.1	-768.0	2.00	2.45	1172.5	TGT #1
3	9368.3	92.49	316.81	7707.5	1343.7	-1197.6	0.00	0.00	1800.0	TGT #1A
4	9483.9	90.77	318.35	7704.2	1429.0	-1275.6	2.00	138.14	1915.5	
5	10918.5	90.77	318.35	7685.0	2500.8	-2229.0	0.00	0.00	3350.0	TGT #2
6	10936.1	90.42	318.28	7684.8	2514.0	-2240.6	2.00	-169.38	3367.6	
7	13624.5	90.42	318.28	7665.0	4520.7	-4029.6	0.00	0.00	6055.9	BHL (Poker Lake Unit #347H)

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)					
Name	TVD	+N/-S	+E/-W	Northing	Easting
TGT #1A	7707.5	1343.7	-1197.6	420280.302	646802.158
TGT #2	7685.0	2500.8	-2229.0	421437.411	645770.849
BHL (Poker Lake Unit #347H)	7665.0	4520.7	-4029.6	423457.213	643970.193
7" Casing Point	7744.8	387.8	-379.7	419324.362	647620.107
EOC	7743.0	304.3	-284.9	419240.862	647714.907
KOP	7259.0	-71.0	10.1	418865.562	648009.907
PLU #127	0.0	2520.0	-772.9	421456.562	647226.930
PLU #79	1.5	1200.8	-776.6	420137.400	647223.200
TGT #1	7743.0	607.7	-541.6	419544.262	647458.207

WELL DETAILS: 347H					
Ground Elevation: 3339.5					
RKB Elevation: KB = 23 @ 3362.5usft (Latshaw 3)					
Rig Name: Latshaw 3					
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	418936.562	647999.807	32°5'3.132 N	103°51'18.447 W



Azimuths to Grid North
 True North: -0.25°
 Magnetic North: 7.41°

Magnetic Field
 Strength: 48552.9snT
 Dip Angle: 60.09°
 Date: 9/20/2011
 Model: IGRF200510