

**AN ANALYSIS OF THE COST OF CAPITAL**

**FOR**

**MISSOURI-AMERICAN WATER COMPANY**

**CASE NO. WR-2003-0500**

**AND**

**WC-2004-0168**

**SCHEDULES**

**BY**

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**UTILITY SERVICES DIVISION**

**MISSOURI PUBLIC SERVICE COMMISSION**

**OCTOBER 2003**

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MISSOURI-AMERICAN WATER COMPANY  
CASE NO. WR-2003-0500

**Federal Reserve Discount Rate and Federal Funds Rate Changes**

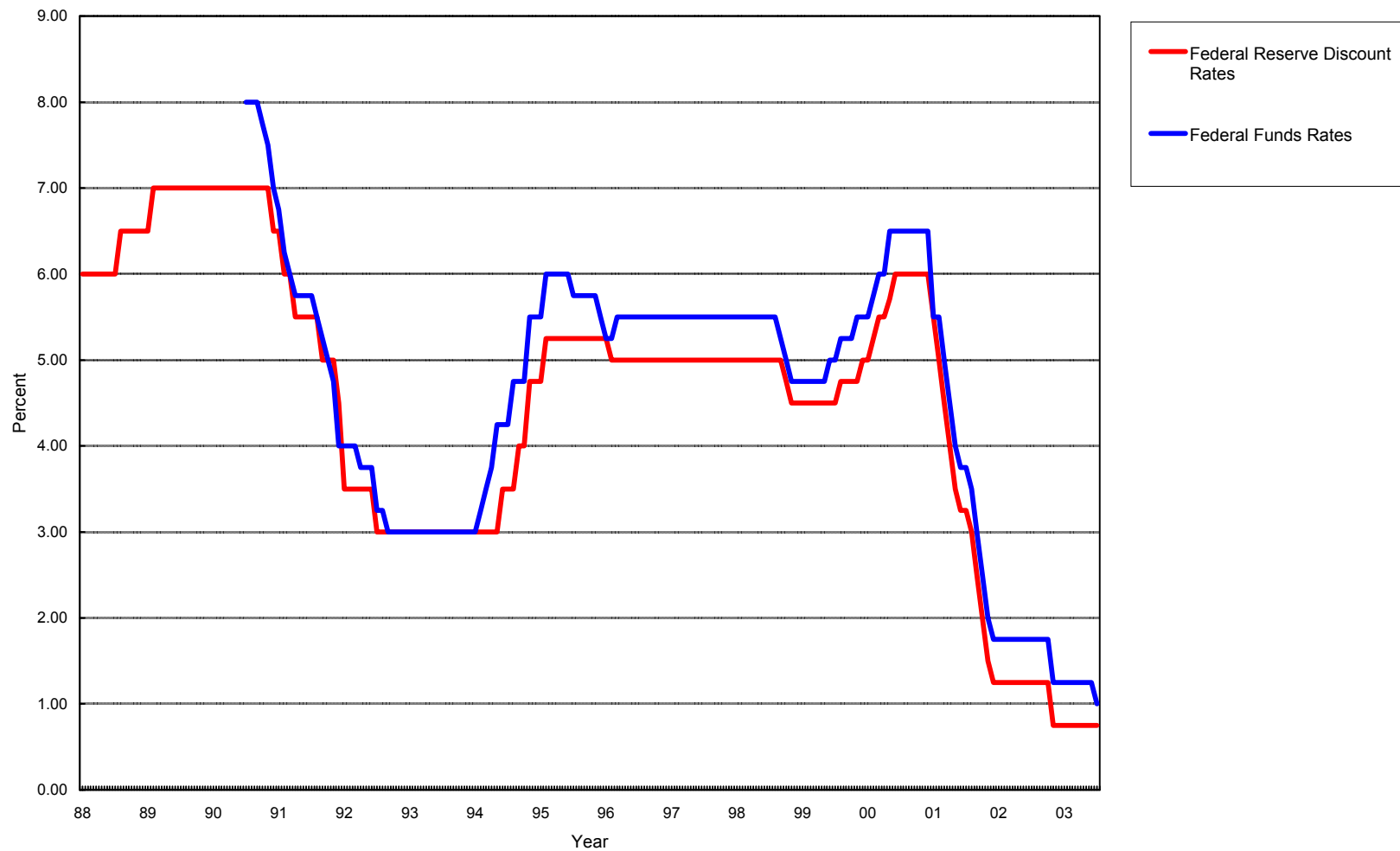
Date	Discount Rate	Federal Reserve Rate
05/20/85	7.50%	
03/07/86	7.00%	
04/21/86	6.50%	
07/11/86	6.00%	
08/21/86	5.50%	
09/04/87	6.00%	
08/09/88	6.50%	
02/24/89	7.00%	
07/13/90		8.00% *
10/29/90		7.75%
11/13/90		7.50%
12/07/90		7.25%
12/18/90		7.00%
12/19/90	6.50%	
01/09/91		6.75%
02/01/91	6.00%	6.25%
03/08/91		6.00%
04/30/91	5.50%	5.75%
08/06/91		5.50%
09/13/91	5.00%	5.25%
10/31/91		5.00%
11/06/91	4.50%	4.75%
12/06/91		4.50%
12/20/91	3.50%	4.00%
04/09/92		3.75%
07/02/92	3.00%	3.25%
09/04/92		3.00%
01/01/93		
12/31/93	No Changes	No Changes
02/04/94		3.25%
03/22/94		3.50%
04/18/94		3.75%
05/17/94	3.50%	4.25%
08/16/94	4.00%	4.75%
11/15/94	4.75%	5.50%
02/01/95	5.25%	6.00%
07/06/95		5.75%
12/19/95		5.50%
01/31/96	5.00%	5.25%
03/25/97		5.50%
12/12/97	5.00%	
01/09/98	5.00%	
03/06/98	5.00%	
09/29/98		5.25%
10/15/98	4.75%	5.00%
11/17/98	4.50%	4.75%
06/30/99	4.50%	5.00%
08/24/99	4.75%	5.25%
11/16/99	5.00%	5.50%
02/02/00	5.25%	5.75%
03/21/00	5.50%	6.00%
05/16/00	5.50%	6.50%
05/19/00	6.00%	
01/03/01	5.75%	6.00%
01/04/01	5.50%	
01/31/01	5.00%	5.50%
03/20/01	4.50%	5.00%
04/18/01	4.00%	4.50%
05/15/01	3.50%	4.00%
06/27/01	3.25%	3.75%
08/21/01	3.00%	3.50%
09/17/01	2.50%	3.00%
10/02/01	2.00%	2.50%
11/06/01	1.50%	2.00%
12/11/01	1.25%	1.75%
01/11/02	1.25%	
02/01/02	1.25%	
11/06/02	0.75%	1.25%
06/25/03		1.00%

\* Began tracking the Federal Funds Rate.

Sources: Federal Reserve Bank of New York: <http://www.ny.frb.org/pihome/statistics/dlyrates/fedrate.html>  
[Historical Changes of the Fed Fund and Discount Rate - Statistics - Federal Reserve Bank of New York](#)

## Federal Reserve Discount Rates and Federal Funds Rates

1988 - 2003



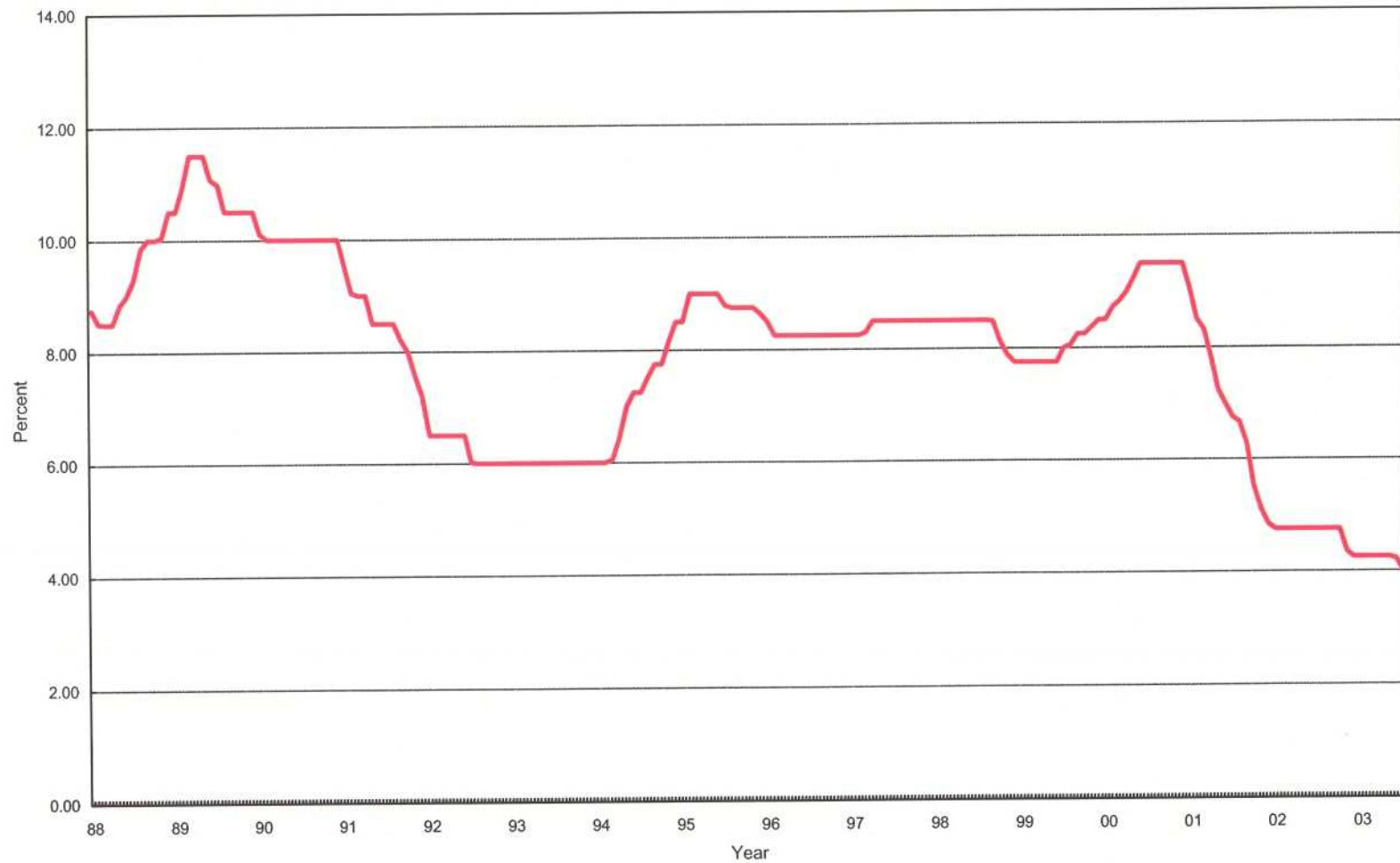
MISSOURI-AMERICAN WATER COMPANY  
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**Average Prime Interest Rates**

<u>Mo/Year</u>	<u>Rate (%)</u>	<u>Mo/Year</u>	<u>Rate (%)</u>	<u>Mo/Year</u>	<u>Rate (%)</u>	<u>Mo/Year</u>	<u>Rate (%)</u>
Jan 1988	8.75	Jan 1992	6.50	Jan 1996	8.50	Jan 2000	8.50
Feb	8.51	Feb	6.50	Feb	8.25	Feb	8.73
Mar	8.50	Mar	6.50	Mar	8.25	Mar	8.83
Apr	8.50	Apr	6.50	Apr	8.25	Apr	9.00
May	8.84	May	6.50	May	8.25	May	9.24
Jun	9.00	Jun	6.50	Jun	8.25	Jun	9.50
Jul	9.29	Jul	6.02	Jul	8.25	Jul	9.50
Aug	9.84	Aug	6.00	Aug	8.25	Aug	9.50
Sep	10.00	Sep	6.00	Sep	8.25	Sep	9.50
Oct	10.00	Oct	6.00	Oct	8.25	Oct	9.50
Nov	10.05	Nov	6.00	Nov	8.25	Nov	9.50
Dec	10.50	Dec	6.00	Dec	8.25	Dec	9.50
Jan 1989	10.50	Jan 1993	6.00	Jan 1997	8.26	Jan 2001	9.05
Feb	10.93	Feb	6.00	Feb	8.25	Feb	8.50
Mar	11.50	Mar	6.00	Mar	8.30	Mar	8.32
Apr	11.50	Apr	6.00	Apr	8.50	Apr	7.80
May	11.50	May	6.00	May	8.50	May	7.24
Jun	11.07	Jun	6.00	Jun	8.50	Jun	6.98
Jul	10.98	Jul	6.00	Jul	8.50	Jul	6.75
Aug	10.50	Aug	6.00	Aug	8.50	Aug	6.67
Sep	10.50	Sep	6.00	Sep	8.50	Sep	6.28
Oct	10.50	Oct	6.00	Oct	8.50	Oct	5.53
Nov	10.50	Nov	6.00	Nov	8.50	Nov	5.10
Dec	10.50	Dec	6.00	Dec	8.50	Dec	4.84
Jan 1990	10.11	Jan 1994	6.00	Jan 1998	8.50	Jan 2002	4.75
Feb	10.00	Feb	6.00	Feb	8.50	Feb	4.75
Mar	10.00	Mar	6.06	Mar	8.50	Mar	4.75
Apr	10.00	Apr	6.45	Apr	8.50	Apr	4.75
May	10.00	May	6.99	May	8.50	May	4.75
Jun	10.00	Jun	7.25	Jun	8.50	Jun	4.75
Jul	10.00	Jul	7.25	Jul	8.50	Jul	4.75
Aug	10.00	Aug	7.51	Aug	8.50	Aug	4.75
Sep	10.00	Sep	7.75	Sep	8.49	Sep	4.75
Oct	10.00	Oct	7.75	Oct	8.12	Oct	4.75
Nov	10.00	Nov	8.15	Nov	7.89	Nov	4.35
Dec	10.00	Dec	8.50	Dec	7.75	Dec	4.25
Jan 1991	9.52	Jan 1995	8.50	Jan 1999	7.75	Jan 2003	4.25
Feb	9.05	Feb	9.00	Feb	7.75	Feb	4.25
Mar	9.00	Mar	9.00	Mar	7.75	Mar	4.25
Apr	9.00	Apr	9.00	Apr	7.75	Apr	4.25
May	8.50	May	9.00	May	7.75	May	4.25
Jun	8.50	Jun	9.00	Jun	7.75	Jun	4.22
Jul	8.50	Jul	8.80	Jul	8.00		
Aug	8.50	Aug	8.75	Aug	8.06		
Sep	8.20	Sep	8.75	Sep	8.25		
Oct	8.00	Oct	8.75	Oct	8.25		
Nov	7.58	Nov	8.75	Nov	8.37		
Dec	7.21	Dec	8.65	Dec	8.50		

Sources: Federal Reserve, <http://www.stls.frb.org/fred/data/irates/mprim>

Average Prime Interest Rate  
1988 - 2003

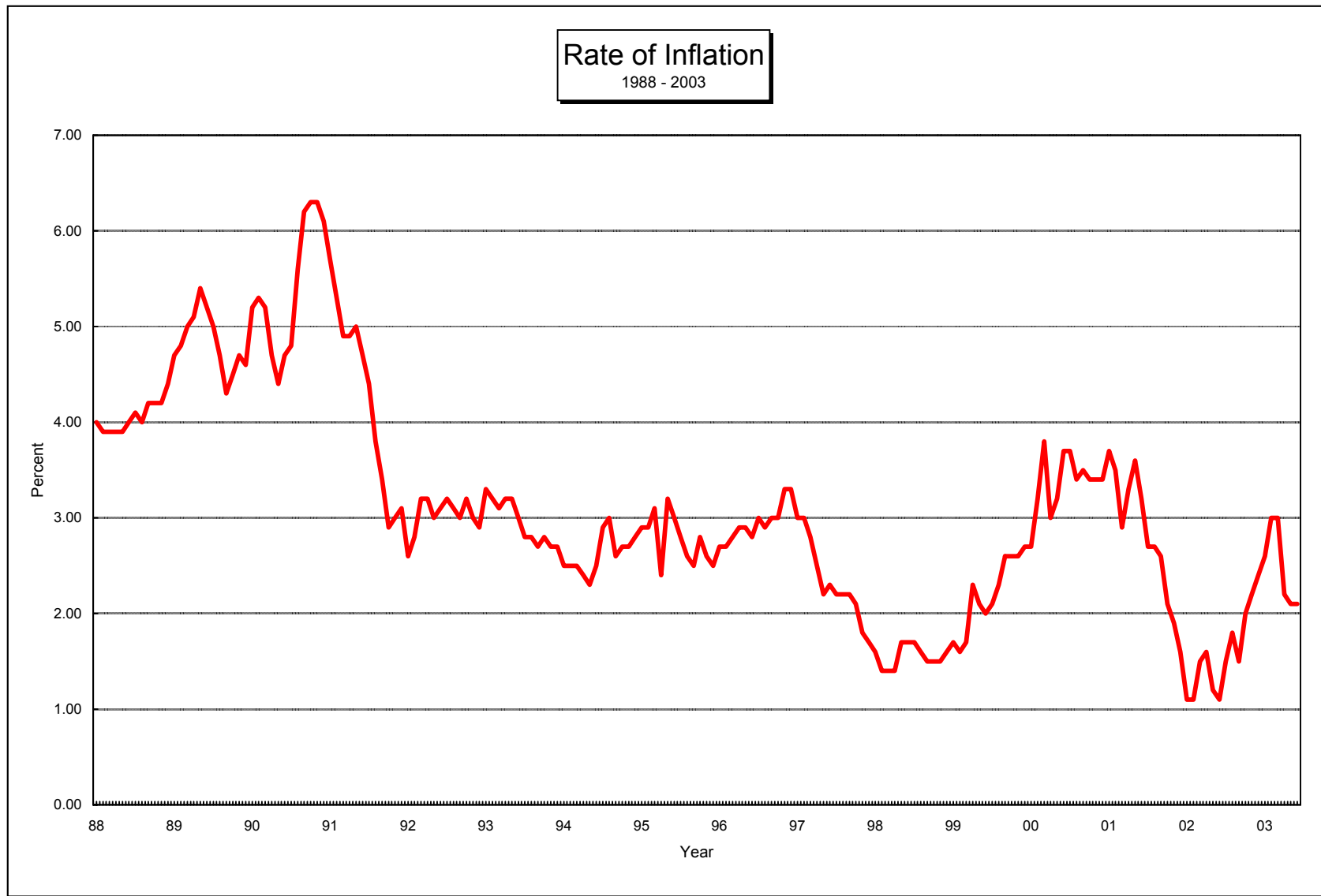


MISSOURI-AMERICAN WATER COMPANY  
CASE NO. WR-2003-0500

**Rate of Inflation**

Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)	Mo/Year	Rate (%)
Jan 1988	4.00	Jan 1992	2.60	Jan 1996	2.70	Jan 2000	2.70
Feb	3.90	Feb	2.80	Feb	2.70	Feb	3.20
Mar	3.90	Mar	3.20	Mar	2.80	Mar	3.70
Apr	3.90	Apr	3.20	Apr	2.90	Apr	3.00
May	3.90	May	3.00	May	2.90	May	3.20
Jun	4.00	Jun	3.10	Jun	2.80	Jun	3.70
Jul	4.10	Jul	3.20	Jul	3.00	Jul	3.70
Aug	4.00	Aug	3.10	Aug	2.90	Aug	3.40
Sep	4.20	Sep	3.00	Sep	3.00	Sep	3.50
Oct	4.20	Oct	3.20	Oct	3.00	Oct	3.40
Nov	4.20	Nov	3.00	Nov	3.30	Nov	3.40
Dec	4.40	Dec	2.90	Dec	3.30	Dec	3.40
Jan 1989	4.70	Jan 1993	3.30	Jan 1997	3.00	Jan 2001	3.70
Feb	4.80	Feb	3.20	Feb	3.00	Feb	3.50
Mar	5.00	Mar	3.10	Mar	2.80	Mar	2.90
Apr	5.10	Apr	3.20	Apr	2.50	Apr	3.30
May	5.40	May	3.20	May	2.20	May	3.60
Jun	5.20	Jun	3.00	Jun	2.30	Jun	3.20
Jul	5.00	Jul	2.80	Jul	2.20	Jul	2.70
Aug	4.70	Aug	2.80	Aug	2.20	Aug	2.70
Sep	4.30	Sep	2.70	Sep	2.20	Sep	2.60
Oct	4.50	Oct	2.80	Oct	2.10	Oct	2.10
Nov	4.70	Nov	2.70	Nov	1.80	Nov	1.90
Dec	4.60	Dec	2.70	Dec	1.70	Dec	1.60
Jan 1990	5.20	Jan 1994	2.50	Jan 1998	1.60	Jan 2002	1.10
Feb	5.30	Feb	2.50	Feb	1.40	Feb	1.10
Mar	5.20	Mar	2.50	Mar	1.40	Mar	1.50
Apr	4.70	Apr	2.40	Apr	1.40	Apr	1.60
May	4.40	May	2.30	May	1.70	May	1.20
Jun	4.70	Jun	2.50	Jun	1.70	Jun	1.10
Jul	4.80	Jul	2.90	Jul	1.70	Jul	1.50
Aug	5.60	Aug	3.00	Aug	1.60	Aug	1.80
Sep	6.20	Sep	2.60	Sep	1.50	Sep	1.50
Oct	6.30	Oct	2.70	Oct	1.50	Oct	2.00
Nov	6.30	Nov	2.70	Nov	1.50	Nov	2.20
Dec	6.10	Dec	2.80	Dec	1.60	Dec	2.40
Jan 1991	5.70	Jan 1995	2.90	Jan 1999	1.70	Jan 2003	2.60
Feb	5.30	Feb	2.90	Feb	1.60	Feb	3.00
Mar	4.90	Mar	3.10	Mar	1.70	Mar	3.00
Apr	4.90	Apr	2.40	Apr	2.30	Apr	2.20
May	5.00	May	3.20	May	2.10	May	2.10
Jun	4.70	Jun	3.00	Jun	2.00	Jun	2.10
Jul	4.40	Jul	2.80	Jul	2.10		
Aug	3.80	Aug	2.60	Aug	2.30		
Sep	3.40	Sep	2.50	Sep	2.60		
Oct	2.90	Oct	2.80	Oct	2.60		
Nov	3.00	Nov	2.60	Nov	2.60		
Dec	3.10	Dec	2.50	Dec	2.70		

Source: U.S. Department of Labor, Bureau of Labor Statistics, Consumer Price Index - All Urban Consumers,  
Change for 12-Month Period, Bureau of Labor Statistics, <ftp://ftp.bls.gov/pub/special.requests/cpi/cpiiai.txt>



Schedule 4-2



MISSOURI-AMERICAN WATER COMPANY  
CASE NO. WR-2003-0500

**Average Yields on Mergent's Public Utility Bonds**

<u>Mo/Year</u>	<u>Rate (%)</u>	<u>Mo/Year</u>	<u>Rate (%)</u>	<u>Mo/Year</u>	<u>Rate (%)</u>	<u>Mo/Year</u>	<u>Rate (%)</u>
Jan 1988	10.75	Jan 1992	8.67	Jan 1996	7.20	Jan 2000	8.22
Feb	10.11	Feb	8.77	Feb	7.37	Feb	8.10
Mar	10.11	Mar	8.84	Mar	7.72	Mar	8.14
Apr	10.53	Apr	8.79	Apr	7.88	Apr	8.14
May	10.75	May	8.72	May	7.99	May	8.55
Jun	10.71	Jun	8.64	Jun	8.07	Jun	8.22
Jul	10.96	Jul	8.46	Jul	8.02	Jul	8.17
Aug	11.09	Aug	8.34	Aug	7.84	Aug	8.05
Sep	10.56	Sep	8.32	Sep	8.01	Sep	8.16
Oct	9.92	Oct	8.44	Oct	7.76	Oct	8.08
Nov	9.89	Nov	8.53	Nov	7.48	Nov	8.03
Dec	10.02	Dec	8.36	Dec	7.58	Dec	7.79
Jan 1989	10.02	Jan 1993	8.23	Jan 1997	7.79	Jan 2001	7.76
Feb	10.02	Feb	8.00	Feb	7.68	Feb	7.69
Mar	10.16	Mar	7.85	Mar	7.92	Mar	7.59
Apr	10.14	Apr	7.76	Apr	8.08	Apr	7.81
May	9.92	May	7.78	May	7.94	May	7.88
Jun	9.49	Jun	7.68	Jun	7.77	Jun	7.75
Jul	9.34	Jul	7.53	Jul	7.52	Jul	7.71
Aug	9.37	Aug	7.21	Aug	7.57	Aug	7.57
Sep	9.43	Sep	7.01	Sep	7.50	Sep	7.73
Oct	9.37	Oct	6.99	Oct	7.37	Oct	7.64
Nov	9.33	Nov	7.30	Nov	7.24	Nov	7.61
Dec	9.31	Dec	7.33	Dec	7.16	Dec	7.86
Jan 1990	9.44	Jan 1994	7.31	Jan 1998	7.03	Jan 2002	7.69
Feb	9.66	Feb	7.44	Feb	7.09	Feb	7.62
Mar	9.75	Mar	7.83	Mar	7.13	Mar	7.83
Apr	9.87	Apr	8.20	Apr	7.12	Apr	7.74
May	9.89	May	8.32	May	7.11	May	7.76
Jun	9.69	Jun	8.31	Jun	6.99	Jun	7.67
Jul	9.66	Jul	8.47	Jul	6.99	Jul	7.54
Aug	9.84	Aug	8.41	Aug	6.96	Aug	7.34
Sep	10.01	Sep	8.65	Sep	6.88	Sep	7.23
Oct	9.94	Oct	8.88	Oct	6.88	Oct	7.43
Nov	9.76	Nov	9.00	Nov	6.96	Nov	7.31
Dec	9.57	Dec	8.79	Dec	6.84	Dec	7.20
Jan 1991	9.56	Jan 1995	8.77	Jan 1999	6.87	Jan 2003	7.13
Feb	9.31	Feb	8.56	Feb	7.00	Feb	6.92
Mar	9.39	Mar	8.41	Mar	7.18	Mar	6.80
Apr	9.30	Apr	8.30	Apr	7.16	Apr	6.68
May	9.29	May	7.93	May	7.42	May	6.35
Jun	9.44	Jun	7.62	Jun	7.70	Jun	6.21
Jul	9.40	Jul	7.73	Jul	7.66		
Aug	9.16	Aug	7.86	Aug	7.86		
Sep	9.03	Sep	7.62	Sep	7.87		
Oct	8.99	Oct	7.46	Oct	8.02		
Nov	8.93	Nov	7.40	Nov	7.86		
Dec	8.76	Dec	7.21	Dec	8.04		

Source: Mergent Bond Record

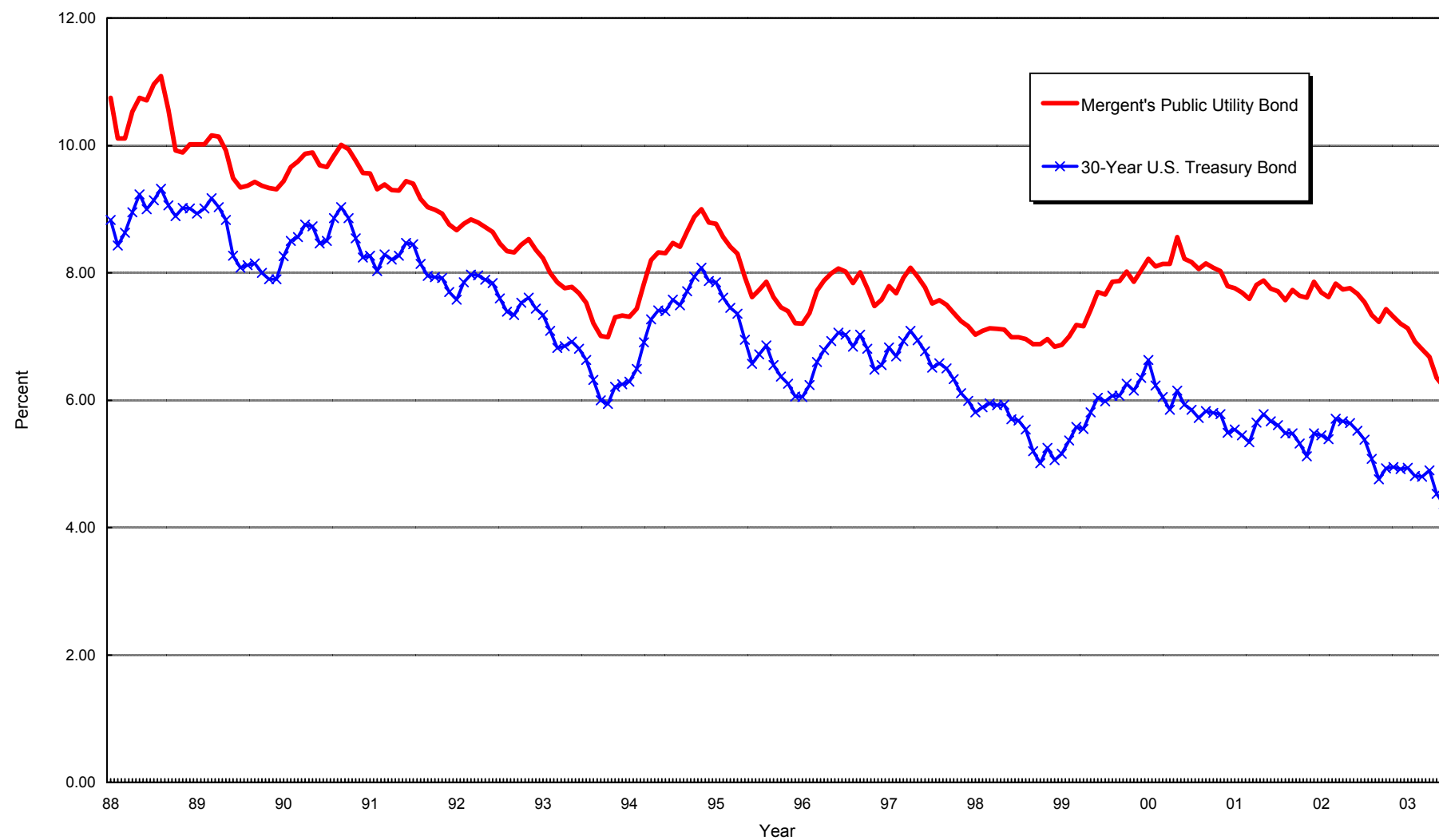
MISSOURI-AMERICAN WATER COMPANY  
CASE NO. WR-2003-0500

**Average Yields on Thirty-Year U.S. Treasury Bonds**

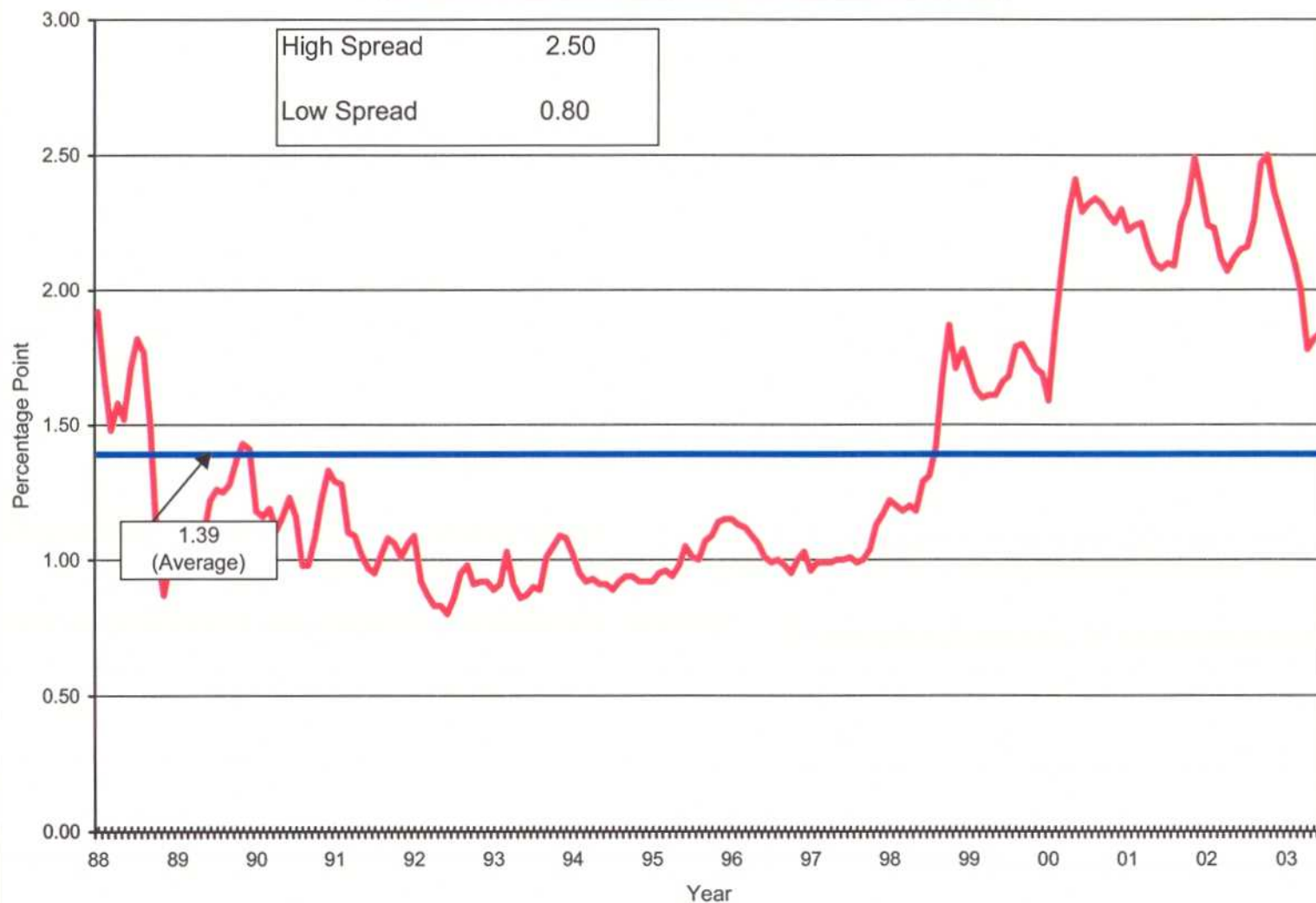
<u>Mo/Year</u>	<u>Rate (%)</u>	<u>Mo/Year</u>	<u>Rate (%)</u>	<u>Mo/Year</u>	<u>Rate (%)</u>	<u>Mo/Year</u>	<u>Rate (%)</u>
Jan 1988	8.83	Jan 1992	7.58	Jan 1996	6.05	Jan 2000	6.63
Feb	8.43	Feb	7.85	Feb	6.24	Feb	6.23
Mar	8.63	Mar	7.97	Mar	6.60	Mar	6.05
Apr	8.95	Apr	7.96	Apr	6.79	Apr	5.85
May	9.23	May	7.89	May	6.93	May	6.15
Jun	9.00	Jun	7.84	Jun	7.06	Jun	5.93
Jul	9.14	Jul	7.60	Jul	7.03	Jul	5.85
Aug	9.32	Aug	7.39	Aug	6.84	Aug	5.72
Sep	9.06	Sep	7.34	Sep	7.03	Sep	5.83
Oct	8.89	Oct	7.53	Oct	6.81	Oct	5.80
Nov	9.02	Nov	7.61	Nov	6.48	Nov	5.78
Dec	9.01	Dec	7.44	Dec	6.55	Dec	5.49
Jan 1989	8.93	Jan 1993	7.34	Jan 1997	6.83	Jan 2001	5.54
Feb	9.01	Feb	7.09	Feb	6.69	Feb	5.45
Mar	9.17	Mar	6.82	Mar	6.93	Mar	5.34
Apr	9.03	Apr	6.85	Apr	7.09	Apr	5.65
May	8.83	May	6.92	May	6.94	May	5.78
Jun	8.27	Jun	6.81	Jun	6.77	Jun	5.67
Jul	8.08	Jul	6.63	Jul	6.51	Jul	5.61
Aug	8.12	Aug	6.32	Aug	6.58	Aug	5.48
Sep	8.15	Sep	6.00	Sep	6.50	Sep	5.48
Oct	8.00	Oct	5.94	Oct	6.33	Oct	5.32
Nov	7.90	Nov	6.21	Nov	6.11	Nov	5.12
Dec	7.90	Dec	6.25	Dec	5.99	Dec	5.48
Jan 1990	8.26	Jan 1994	6.29	Jan 1998	5.81	Jan 2002	5.45
Feb	8.50	Feb	6.49	Feb	5.89	Feb	5.39
Mar	8.56	Mar	6.91	Mar	5.95	Mar	5.71
Apr	8.76	Apr	7.27	Apr	5.92	Apr	5.67
May	8.73	May	7.41	May	5.93	May	5.64
Jun	8.46	Jun	7.40	Jun	5.70	Jun	5.52
Jul	8.50	Jul	7.58	Jul	5.68	Jul	5.38
Aug	8.86	Aug	7.49	Aug	5.54	Aug	5.08
Sep	9.03	Sep	7.71	Sep	5.20	Sep	4.76
Oct	8.86	Oct	7.94	Oct	5.01	Oct	4.93
Nov	8.54	Nov	8.08	Nov	5.25	Nov	4.95
Dec	8.24	Dec	7.87	Dec	5.06	Dec	4.92
Jan 1991	8.27	Jan 1995	7.85	Jan 1999	5.16	Jan 2003	4.94
Feb	8.03	Feb	7.61	Feb	5.37	Feb	4.81
Mar	8.29	Mar	7.45	Mar	5.58	Mar	4.80
Apr	8.21	Apr	7.36	Apr	5.55	Apr	4.90
May	8.27	May	6.95	May	5.81	May	4.53
Jun	8.47	Jun	6.57	Jun	6.04	Jun	4.37
Jul	8.45	Jul	6.72	Jul	5.98	Jul	4.93
Aug	8.14	Aug	6.86	Aug	6.07		
Sep	7.95	Sep	6.55	Sep	6.07		
Oct	7.93	Oct	6.37	Oct	6.26		
Nov	7.92	Nov	6.26	Nov	6.15		
Dec	7.70	Dec	6.06	Dec	6.35		

Source: Federal Reserve, <http://www.stls.frb.org/fred/data/irates/gs30>

Average Yields on Mergent's Public Utility Bonds and  
Thirty-Year U.S. Treasury Bonds (1988 - 2003)



**Monthly Spreads Between Yields on Mergent's  
Public Utility Bonds  
and Thirty-Year U.S. Treasury Bonds (1988 - 2003)**



Economic Estimates and Projections, 2003-2005

Source	Inflation Rate			Real GDP			Unemployment			3-Mo. T-Bill Rate			30-Yr. T-Bond Rate		
	2003	2004	2005	2003	2004	2005	2003	2004	2005	2003	2004	2005	2003	2004	2005
Value Line Investment Survey (5/30/03)	1.70%	1.90%	2.10%	2.00%	2.90%	3.30%	6.10%	6.00%	5.70%	1.20%	1.90%	2.60%	4.70%	5.10%	6.20%
The Congressional Budget Office The Budget and Economic Outlook (01/03)	2.30%	2.20%	2.40%	2.50%	3.60%	3.40%	5.90%	5.70%	5.40%	1.40%	3.50%	4.80%	N.A.	N.A.	N.A.
Current rate	2.10%			3.10%			6.20%			0.92%			5.27%		

Notes: N.A. = Not Available.

Sources of Current Rates:

The Bureau of Labor Statistics, Consumer Price Index - All Urban Consumers, 12-Month Period Ending July 31, 2003  
Federal Reserve website, <http://www.stls.frb.org/fred/data/rates.html>, for the 12-month period ending July 31, 2003  
U.S. Department of Commerce, Bureau of Economic Analysis, for the 12-month period ending July 31, 2003  
The Bureau of Labor Statistics, Economy at a Glance - Unemployment Rate, July 2003  
<http://cbs.marketwatch.com/tools/marketsummary/default.asp?siteid=mktw> on August 20, 2003

Other Sources:

The Congressional Budget Office, The Budget and Economic Outlook: Fiscal Years 2003-2013, January 2003 as published on <http://www.cbo.gov/showdoc.cfm?index=3277&sequence=13>

**Historical Consolidated Capital Structures for  
American Water**  
(Dollars in thousands)

Capital Components	1998	1999	2000	2001	2002
Common Equity	\$1,239,174.0	\$1,634,798.0	\$1,669,677.0	\$1,758,018.0	\$1,801,921.0
Preferred Stock	97,089.0	93,811.0	52,693.0	49,415.0	33,858.0
Long-Term Debt	2,159,332.0 *	2,431,452.0 *	2,432,560.0 *	2,716,106.0 *	3,668,589.0 *
Short-Term Debt	88,590.0	239,864.0	412,179.0	414,083.0	394,712.0
Total	<u>\$3,584,185.0</u>	<u>\$4,399,925.0</u>	<u>\$4,567,109.0</u>	<u>\$4,937,622.0</u>	<u>\$5,899,080.0</u>

Capital Structure	1998	1999	2000	2001	2002
Common Equity	34.57%	37.16%	36.56%	35.60%	30.55%
Preferred Stock	2.71%	2.13%	1.15%	1.00%	0.57%
Long-Term Debt	60.25% *	55.26% *	53.26% *	55.01% *	62.19% *
Short-Term Debt	2.47%	5.45%	9.02%	8.39%	6.69%
Total	<u>100.00%</u>	<u>100.00%</u>	<u>100.00%</u>	<u>100.00%</u>	<u>100.00%</u>

Note: \*Includes current maturities on long-term debt.

Source: American Water's Annual Reports 1998 - 2002.

Selected Financial Ratios for American Water

Financial Ratios	1998	1999	2000	2001	2002
Return on Beginning Common Equity	10.90%	9.10%	9.60%	9.60%	8.40%
Earnings Per Common Share	1.54	1.40	1.61	1.61	1.46
Cash Dividends Per Common Share	0.82	0.86	0.90	0.94	0.98
Common Dividend Payout Ratio	53.00%	61.00%	56.00%	58.00%	67.12%
Year-End Market Price Per Common Share	\$33.75	\$21.25	\$29.38	\$41.75	\$45.48
Year-End Book Value Per Common Share	\$15.46	\$16.82	\$16.92	\$17.58	\$18.00
Year-End Market-to-Book Ratio	2.18	1.26	1.74	2.38	2.53
Pretax Interest Coverage Ratio	2.40 x	2.30 x	2.30 x	2.40 x	2.18 x
Senior Debt Rating	N.A.	N.A.	N.A.	N.A.	N.A.

Notes:

Because the financial data was not directly provided in American Water's 2002 Annual Report the following formulas were used to calculate ratios for that year.

Return on Beginning Common Equity = Net Income Available for Common Stock / Beginning Common Shareholders' Equity.

Common Dividend Payout Ratio = Common Dividends Paid / Net Income Available for Common Stock.

Year-End Market-to-Book Ratio = Year-End Market Price Per Common Share / Year-End Book Value Per Common Share.

Pretax Interest Coverage Ratio = Earnings Before Taxes + Total Interest Expense / Total Interest Expense.

Sources: American Water's 1998 - 2002 Annual Reports  
Standard & Poor's Stock Guide, January 2003

MISSOURI-AMERICAN WATER COMPANY  
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**Capital Structure as of December 31, 2002  
for American Water**

Capital Component	Amount in Dollars	Percentage of Capital
Common Stock Equity	\$1,801,921,000	31.85%
Preferred Stock	34,917,399	0.62%
Long-Term Debt	3,616,021,335	63.92%
Short-Term Debt	204,382,000	3.61%
<b>Total Capitalization</b>	<b><u>\$5,657,241,734</u></b>	<b><u>100.00%</u></b>

**Water Utility Financial Ratio Benchmarks  
Total Debt / Total Capital - Including Preferred Stock**

Standard & Poor's RatingsDirect July 7, 2000	Lower Quartile	Median	Upper Quartile
	<b>A</b>	<b>A</b>	<b>A</b>
	53%	56%	61%

Note: See Schedule 10 for the amount of Long-Term Debt at 12/31/02.  
See Schedule 11 for the amount of Preferred Stock outstanding at 12/31/02.

For purposes of this analysis, the amount of Short-term Debt outstanding at December 31, 2002 was set at \$204,382,000. This results from the fact that the amount of Construction Work in Progress was \$190,330,000 as indicated American Water's 2002 Annual Report. This amount was deducted from the short-term debt balance of \$394,712,000 indicated in American Water's 2002 Annual Report.

Source: Missouri-American Water Company's response to Staff's Data Information Request Nos. 3801 and 38



**Embedded Cost of Long-Term Debt as of December 31, 2002  
for American Water and Subsidiary Companies**

Total Annual Cost:	\$220,433,910	
Total Carrying Value:	\$3,616,021,335	
Embedded Cost = Total Annual Cost/Total Carrying Value		6.10%

Sources: Missouri-American Water Company's response to Staff's Data Information Requests Nos. 3802 and 3816.

**Embedded Cost of Preferred Stock as of December 31, 2002  
for American Water and Subsidiary Companies**

Total Annual Cost:	\$2,687,868	
Total Carrying Value:	\$34,917,399	
Embedded Cost = Total Annual Cost/Total Carrying Value		7.70%

Sources: Missouri-American Water Company's response to Staff's Data Information Requests Nos. 3802 and 3816.

## Criteria for Selecting Comparable Water Utility Companies

	(1)	(2)	(3)	(4)	(5)	(6)
	Stock Publicly Traded & Followed By E. Jones & Company	Value Line, S&P and I/B/E/S 5-Year Earnings Growth Projections Available	>80% of Revenues from Water Operations	Information Printed in Value Line	10-Years of Data Available	Comparable Company
Water Utility Companies						
American States Water Company	Yes	Yes	Yes	Yes	Yes	Yes
Artesian Resources Corporation	Yes	Yes	Yes	No		
BIW Ltd.	Yes	No				
California Water Service Group	Yes	Yes	Yes	Yes	Yes	Yes
Connecticut Water Service, Inc.	Yes	No				
Middlesex Water Company	Yes	Yes	Yes	Yes	Yes	Yes
Pennichuck Corporation	Yes	No				
Philadelphia Suburban Corporation	Yes	Yes	Yes	Yes	Yes	Yes
SJW Corporation	Yes	No				
Southwest Water Company	Yes	Yes	No			
York Water Company	Yes	Yes	Yes	No		

Sources: Column 1 = Edward Jones & Co.'s Quarterly Financial & Common Stock Information - Water Utility Industry, March 31, 2003

Column 2 = The Value Line Investment Survey, May 2, 2003, Standard & Poor's Corporation's Earnings Guide, July 2003 and  
I/B/E/S Inc.'s Institutional Brokers Estimate System (Utility Sector Five-Year Growth Rate-Company Data by Industry), May 15, 2003

Column 3 = C.A. Turner Utility Reports, June 2003

Columns 4 and 5 = The Value Line Investment Survey, May 2, 2003

**Four Comparable Water Utility Companies**

Number	Ticker Symbol	Company Name
1	AWR	American States Water Company
2	CWT	California Water Services Group
3	MSEX	Middlesex Water Company
4	PSC	Philadelphia Suburban Corporation

**Ten-Year Dividends Per Share, Earnings Per Share & Book Value Per Share Growth Rates  
for the Comparable Water Utility Companies**

Company Name	Dividends Per Share		Earnings Per Share		Book Value Per Share	
	1992	2002	1992	2002	1992	2002
American States Water Company	\$0.77	\$0.87	\$1.15	\$1.34	\$8.85	\$14.05
California Water Services Group	\$0.93	\$1.12	\$1.09	\$1.25	\$10.51	\$13.12
Middlesex Water Company	\$0.65	\$0.85	\$0.80	\$0.97	\$6.86	\$9.85
Philadelphia Suburban Corporation	\$0.33	\$0.54	\$0.39	\$0.90	\$3.48	\$7.26

----- Annual Compound Growth Rates -----

Company Name	DPS	EPS	BVPS	Average
	1992 - 2002	1992 - 2002	1992 - 2002	
American States Water Company	1.23%	1.54%	4.73%	2.50%
California Water Services Group	1.88%	1.38%	2.24%	1.83%
Middlesex Water Company	2.72%	1.95%	3.68%	2.78%
Philadelphia Suburban Corporation	<u>5.05%</u>	<u>8.72%</u>	<u>7.63%</u>	7.13%
<b>Average</b>	<b><u>2.72%</u></b>	<b><u>3.40%</u></b>	<b><u>4.57%</u></b>	
Standard Deviation	1.45%	3.08%	1.97%	

Source: The Value Line Investment Survey: Ratings & Reports, May 2, 2003.

**Five-Year Dividends Per Share, Earnings Per Share & Book Value Per Share Growth Rates  
for the Comparable Water Utility Companies**

Company Name	Dividends Per Share		Earnings Per Share		Book Value Per Share	
	1997	2002	1997	2002	1997	2002
American States Water Company	\$0.83	\$0.87	\$1.04	\$1.34	\$11.24	\$14.05
California Water Services Group	\$1.06	\$1.12	\$1.83	\$1.25	\$13.00	\$13.12
Middlesex Water Company	\$0.75	\$0.85	\$0.89	\$0.97	\$8.00	\$9.85
Philadelphia Suburban Corporation	\$0.40	\$0.54	\$0.57	\$0.90	\$4.73	\$7.26

----- Annual Compound Growth Rates -----

Company Name	DPS	EPS	BVPS	Average
	1997 - 2002	1997 - 2002	1997 - 2002	
American States Water Company	0.95%	5.20%	4.56%	3.57%
California Water Services Group	1.11%	-7.34%	0.18%	-2.02%
Middlesex Water Company	2.53%	1.74%	4.25%	2.84%
Philadelphia Suburban Corporation	<u>6.19%</u>	<u>9.57%</u>	<u>8.95%</u>	8.23%
<b>Average</b>	<b><u>2.69%</u></b>	<b><u>2.29%</u></b>	<b><u>4.49%</u></b>	
Standard Deviation	2.11%	6.21%	3.10%	

Source: The Value Line Investment Survey: Ratings & Reports, May 2, 2003.

**Average of Ten and Five-Year Dividends Per Share, Earnings Per Share &  
Book Value Per Share Growth Rates for the Comparable Water Utility Companies**

Company Name	10-Year Average DPS, EPS & BVPS	5-Year Average DPS, EPS & BVPS	Average of 5-Year & 10-Year Averages
American States Water Company	2.50%	3.57%	3.03%
California Water Services Group	1.83%	-2.02%	-0.09%
Middlesex Water Company	2.78%	2.84%	2.81%
Philadelphia Suburban Corporation	<u>7.13%</u>	<u>8.23%</u>	<u>7.68%</u>
<b>Average</b>	<b><u>3.56%</u></b>	<b><u>3.16%</u></b>	<b><u>3.36%</u></b>

**Historical & Projected Growth Rates  
for the Four Comparable Water Utility Companies**

	(1)	(2)	(3)	(4)	(5)	(6)
<b>Company Name</b>	<b>Historical Growth Rate (DPS, EPS, &amp; BVPS)</b>	<b>Projected 5- Year Growth I/B/E/S (median)</b>	<b>Projected 5- Year EPS Growth (S&amp;P)</b>	<b>Projected 3-5 Year EPS Growth (Value Line)</b>	<b>Average Projected Growth</b>	<b>Average Historical &amp; Projected Growth</b>
American States Water Company	3.03%	3.00%	3.00%	6.00%	4.00%	3.52%
California Water Services Group	-0.09%	3.00%	3.00%	9.00%	5.00%	2.45%
Middlesex Water Company	2.81%	7.00%	7.00%	7.00%	7.00%	4.91%
Philadelphia Suburban Corporation	7.68%	10.00%	9.00%	10.00%	9.67%	8.67%
<b>Average</b>	<b>3.36%</b>	<b>5.75%</b>	<b>5.50%</b>	<b>8.00%</b>	<b>6.42%</b>	<b>4.89%</b>
				<b>Proposed Range of Growth</b>		<b>4.39% - 5.39%</b>

Notes : Column 5 = [(Sum of Columns 2 through 4) / 3]  
Column 6 = [(Sum of Columns 1 and 5) / 2]

Sources: Column 1 = Average Historical DPS, EPS, & BVPS Growth Rates from Schedule 14-3.  
Column 2 = I/B/E/S Inc.'s Institutional Brokers Estimate System (Utility Sector  
Five-Year Growth Rate-Company Data by Industry), July 17, 2003  
Column 3 = Standard & Poor's Corporation's Earnings Guide, July 2003.  
Column 4 = The Value Line Investment Survey: Ratings and Reports, May 2, 2003.



**Average High/Low Stock Price for March 2003 through June 2003  
for the Four Comparable Water Utility Companies**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	March 2003		April 2003		May 2003		June 2003		
<b>Company Name</b>	<b>High Stock Price</b>	<b>Low Stock Price</b>	<b>High Stock Price</b>	<b>Low Stock Price</b>	<b>High Stock Price</b>	<b>Low Stock Price</b>	<b>High Stock Price</b>	<b>Low Stock Price</b>	<b>Average High/Low Stock Price</b>
American States Water Company	\$24.600	\$22.600	\$26.070	\$23.450	\$26.860	\$24.800	\$28.950	\$25.700	<b>\$25.379</b>
California Water Services Group	\$26.350	\$24.650	\$27.590	\$25.100	\$28.850	\$26.100	\$31.400	\$26.510	<b>\$27.069</b>
Middlesex Water Company	\$23.360	\$21.710	\$22.690	\$21.760	\$23.500	\$21.880	\$24.650	\$22.740	<b>\$22.786</b>
Philadelphia Suburban Corporation	\$22.290	\$20.440	\$23.160	\$21.520	\$23.840	\$22.150	\$24.810	\$23.000	<b>\$22.651</b>

Notes: Column 9 = [(Sum of Columns 1 through 8) / 8]

Sources: S&P Stock Guides: July 2003, June 2003, May 2003, April 2003

**Discounted Cash Flow (DCF) Cost-of-Common-Equity Estimates  
for the Four Comparable Water Utility Companies**

	(1)	(2)	(3)	(4)	(5)
<b>Company Name</b>	<b>Expected Dividend</b>	<b>Average High/Low Stock Price</b>	<b>Projected Dividend Yield</b>	<b>Average Growth Rate</b>	<b>Cost of Common Equity</b>
American States Water Company	\$0.89	\$25.379	3.51%	3.52%	7.03%
California Water Services Group	\$1.15	\$27.069	4.23%	2.45%	6.68%
Middlesex Water Company	\$0.87 *	\$22.786	3.83%	4.91%	8.74%
Philadelphia Suburban Corporation	\$0.59	\$22.651	2.58%	8.67%	11.25%
			<u><b>3.54%</b></u>	<u><b>4.89%</b></u>	<u><b>8.43%</b></u>
			<b>Proposed Dividend Yield</b>		<b>3.54%</b>
			<b>Proposed Range of Growth</b>		<b>4.39 - 5.39%</b>
			<b>Estimated Cost of Equity</b>		<b>7.93 - 8.93%</b>

Notes: Column 3 = [Column 1 / Column 2]  
Column 5 = [Column 3 + Column 4]

Sources: Column 1 = The Value Line Investment Survey: Ratings and Reports, May 02, 2003  
Average of 2003 estimated DPS and 2004 estimated DPS  
\*Except for Middlesex, which was calculated by taking the 2002 dividend  
times the average historical 5-year and 10-year dividend growth rate.  
Column 2 = Schedule 16.  
Column 4 = Schedule 15.

**Capital Asset Pricing Model (CAPM) Cost-of-Common-Equity Estimates  
for the Four Comparable Water Utility Companies**

	(1)	(2)	(3)	(4)	(5)	(6)
Company Name	Risk-Free Rate	Company's Beta	Market Risk Premium (1926-2002)	Market Risk Premium (1993-2002)	Cost of Common Equity (1926-2002)	Cost of Common Equity (1993-2002)
American States Water Company	4.93%	0.60	6.40%	-0.34%	8.77%	4.73%
California Water Services Group	4.93%	0.60	6.40%	-0.34%	8.77%	4.73%
Middlesex Water Company	4.93%	0.55	6.40%	-0.34%	8.45%	4.74%
Philadelphia Suburban Corporation	4.93%	0.70	6.40%	-0.34%	9.41%	4.69%
<b>Average</b>		<b>0.58</b>			<b>8.66%</b>	<b>4.73%</b>

Notes:

Column 5 = [ Column 1 + ( Column 2 \* Column 3 ) ] .

Column 6 = [ Column 1 + ( Column 2 \* Column 4 ) ] .

Sources:

Column 1 = The appropriate yield is equal to the average 30-Year U.S. Treasury Bond yield for July 2003 which was obtained from Yahoo Finance at <http://www.investopedia.com/offsite.asp?URL=http://quote.yahoo.com/q?s=%5ETEX&d=1y>

Column 2 = Beta is a measure of the movement and relative risk of an individual stock to the market as a whole as reported by The Value Line Investment Survey: Ratings & Reports, May 2, 2003.

Column 3 = The Market Risk Premium represents the expected return from holding the entire market portfolio less the expected return from holding a risk-free investment. The appropriate Market Risk Premium for the period 1926-2002 was determined to be 6.40% as calculated in Ibbotson Associates, Inc.'s Stocks, Bonds, Bills, and Inflation: 2003 Yearbook.

Column 4 = The Market Risk Premium represents the expected return from holding the entire market portfolio less the expected return from holding a risk-free investment. The appropriate Market Risk Premium for the period 1993-2002 was determined to be -0.34% as calculated in Ibbotson Associates, Inc.'s Stocks, Bonds, Bills, and Inflation: 2003 Yearbook.

**MISSOURI-AMERICAN WATER  
COMPANY  
CASE NO. WR-2003-0500**

**Average Risk Premium Above the Yields of 30-Year U.S. Treasury Bonds  
for American States Water Company's Actual Returns on Common Equity**

Mo/Year	American States'	30-Year	American States'	Mo/Year	American States'	30-Year	American States'
	Actual	U.S. Treasury	Risk		Actual	U.S. Treasury	Risk
	ROE	Bond	Premium		ROE	Bond	Premium
		Yields				Yields	
Jan 1993	10.20%	7.34%	2.86%	Jan 1998	9.40%	5.81%	3.59%
Feb	10.20%	7.09%	3.11%	Feb	9.40%	5.89%	3.51%
Mar	10.20%	6.82%	3.38%	Mar	9.40%	5.95%	3.45%
Apr	10.20%	6.85%	3.35%	Apr	9.40%	5.92%	3.48%
May	10.20%	6.92%	3.28%	May	9.40%	5.93%	3.47%
Jun	10.20%	6.81%	3.39%	Jun	9.40%	5.70%	3.70%
Jul	10.20%	6.63%	3.57%	Jul	9.40%	5.68%	3.72%
Aug	10.20%	6.32%	3.88%	Aug	9.40%	5.54%	3.86%
Sep	10.20%	6.00%	4.20%	Sep	9.40%	5.20%	4.20%
Oct	10.20%	5.94%	4.26%	Oct	9.40%	5.01%	4.39%
Nov	10.20%	6.21%	3.99%	Nov	9.40%	5.25%	4.15%
Dec	10.20%	6.25%	3.95%	Dec	9.40%	5.06%	4.34%
Jan 1994	9.50%	6.29%	3.21%	Jan 1999	10.10%	5.16%	4.94%
Feb	9.50%	6.49%	3.01%	Feb	10.10%	5.37%	4.73%
Mar	9.50%	6.91%	2.59%	Mar	10.10%	5.58%	4.52%
Apr	9.50%	7.27%	2.23%	Apr	10.10%	5.55%	4.55%
May	9.50%	7.41%	2.09%	May	10.10%	5.81%	4.29%
Jun	9.50%	7.40%	2.10%	June	10.10%	6.04%	4.06%
Jul	9.50%	7.58%	1.92%	July	10.10%	5.98%	4.12%
Aug	9.50%	7.49%	2.01%	Aug	10.10%	6.07%	4.03%
Sep	9.50%	7.71%	1.79%	Sept	10.10%	6.07%	4.03%
Oct	9.50%	7.94%	1.56%	Oct	10.10%	6.26%	3.84%
Nov	9.50%	8.08%	1.42%	Nov	10.10%	6.15%	3.95%
Dec	9.50%	7.87%	1.63%	Dec	10.10%	6.35%	3.75%
Jan 1995	10.00%	7.85%	2.15%	Jan 2000	9.30%	6.63%	2.67%
Feb	10.00%	7.61%	2.39%	Feb	9.30%	6.23%	3.07%
Mar	10.00%	7.45%	2.55%	March	9.30%	6.05%	3.25%
Apr	10.00%	7.36%	2.64%	Apr	9.30%	5.85%	3.45%
May	10.00%	6.95%	3.05%	May	9.30%	6.15%	3.15%
Jun	10.00%	6.57%	3.43%	June	9.30%	5.93%	3.37%
Jul	10.00%	6.72%	3.28%	July	9.30%	5.85%	3.45%
Aug	10.00%	6.86%	3.14%	Aug	9.30%	5.72%	3.58%
Sep	10.00%	6.55%	3.45%	Sept	9.30%	5.83%	3.47%
Oct	10.00%	6.37%	3.63%	Oct	9.30%	5.80%	3.50%
Nov	10.00%	6.26%	3.74%	Nov	9.30%	5.78%	3.52%
Dec	10.00%	6.06%	3.94%	Dec	9.30%	5.49%	3.81%
Jan 1996	9.00%	6.05%	2.95%	Jan 2001	10.10%	5.54%	4.56%
Feb	9.00%	6.24%	2.76%	Feb	10.10%	5.45%	4.65%
Mar	9.00%	6.60%	2.40%	March	10.10%	5.34%	4.76%
Apr	9.00%	6.79%	2.21%	Apr	10.10%	5.65%	4.45%
May	9.00%	6.93%	2.07%	May	10.10%	5.78%	4.32%
Jun	9.00%	7.06%	1.94%	June	10.10%	5.67%	4.43%
Jul	9.00%	7.03%	1.97%	July	10.10%	5.61%	4.49%
Aug	9.00%	6.84%	2.16%	Aug	10.10%	5.48%	4.62%
Sep	9.00%	7.03%	1.97%	Sept	10.10%	5.48%	4.62%
Oct	9.00%	6.81%	2.19%	Oct	10.10%	5.32%	4.78%
Nov	9.00%	6.48%	2.52%	Nov	10.10%	5.12%	4.98%
Dec	9.00%	6.55%	2.45%	Dec	10.10%	5.48%	4.62%
Jan 1997	9.20%	6.83%	2.37%	Jan 2002	9.50%	5.45%	4.05%
Feb	9.20%	6.69%	2.51%	Feb	9.50%	5.40%	4.10%
Mar	9.20%	6.93%	2.27%	Mar	9.50%	5.71%	3.79%
Apr	9.20%	7.09%	2.11%	Apr	9.50%	5.67%	3.83%
May	9.20%	6.94%	2.26%	May	9.50%	5.64%	3.86%
Jun	9.20%	6.77%	2.43%	June	9.50%	5.52%	3.98%
Jul	9.20%	6.51%	2.69%	July	9.50%	5.38%	4.12%
Aug	9.20%	6.58%	2.62%	Aug	9.50%	5.08%	4.42%
Sep	9.20%	6.50%	2.70%	Sept	9.50%	4.76%	4.74%
Oct	9.20%	6.33%	2.87%	Oct	9.50%	4.93%	4.57%
Nov	9.20%	6.11%	3.09%	Nov	9.50%	4.95%	4.55%
Dec	9.20%	5.99%	3.21%	Dec	9.50%	4.92%	4.58%

**Summary Information (January 1993 - December 2002)**

Average Risk Premium:	3.40%
High Risk Premium:	4.98%
Low Risk Premium:	1.42%

Sources: The Value Line Investment Survey: Ratings & Reports.  
St. Louis Federal Reserve Website: <http://www.stls.frb.org/fred/data/irates/g30>  
Yahoo Finance at:  
<http://www.investopedia.com/offsite.asp?URL=http://quote.yahoo.com/q?s=%5ETX&d=1y>

**MISSOURI-AMERICAN WATER  
COMPANY  
CASE NO. WR-2003-0500**

**Average Risk Premium Above the Yields of 30-Year U.S. Treasury Bonds  
for California Water Service Group's Actual Returns on Common Equity**

Mo/Year	California Water's Actual ROE	30-Year U.S. Treasury Bond Yields	California Water's Risk Premium	Mo/Year	California Water's Actual ROE	30-Year U.S. Treasury Bond Yields	California Wat Risk Premium
Jan 1993	12.40%	7.34%	5.06%	Jan 1998	10.80%	5.81%	4.99%
Feb	12.40%	7.09%	5.31%	Feb	10.80%	5.89%	4.91%
Mar	12.40%	6.82%	5.58%	Mar	10.80%	5.95%	4.85%
Apr	12.40%	6.85%	5.55%	Apr	10.80%	5.92%	4.88%
May	12.40%	6.92%	5.48%	May	10.80%	5.93%	4.87%
Jun	12.40%	6.81%	5.59%	Jun	10.80%	5.70%	5.10%
Jul	12.40%	6.63%	5.77%	Jul	10.80%	5.68%	5.12%
Aug	12.40%	6.32%	6.08%	Aug	10.80%	5.54%	5.26%
Sep	12.40%	6.00%	6.40%	Sep	10.80%	5.20%	5.60%
Oct	12.40%	5.94%	6.46%	Oct	10.80%	5.01%	5.79%
Nov	12.40%	6.21%	6.19%	Nov	10.80%	5.25%	5.55%
Dec	12.40%	6.25%	6.15%	Dec	10.80%	5.06%	5.74%
Jan 1994	9.90%	6.29%	3.61%	Jan 1999	11.40%	5.16%	6.24%
Feb	9.90%	6.49%	3.41%	Feb	11.40%	5.37%	6.03%
Mar	9.90%	6.91%	2.99%	Mar	11.40%	5.58%	5.82%
Apr	9.90%	7.27%	2.63%	Apr	11.40%	5.55%	5.85%
May	9.90%	7.41%	2.49%	May	11.40%	5.81%	5.59%
Jun	9.90%	7.40%	2.50%	June	11.40%	6.04%	5.36%
Jul	9.90%	7.58%	2.32%	July	11.40%	5.98%	5.42%
Aug	9.90%	7.49%	2.41%	Aug	11.40%	6.07%	5.33%
Sep	9.90%	7.71%	2.19%	Sept	11.40%	6.07%	5.33%
Oct	9.90%	7.94%	1.96%	Oct	11.40%	6.26%	5.14%
Nov	9.90%	8.08%	1.82%	Nov	11.40%	6.15%	5.25%
Dec	9.90%	7.87%	2.03%	Dec	11.40%	6.35%	5.05%
Jan 1995	9.90%	7.85%	2.05%	Jan 2000	10.10%	6.63%	3.47%
Feb	9.90%	7.61%	2.29%	Feb	10.10%	6.23%	3.87%
Mar	9.90%	7.45%	2.45%	March	10.10%	6.05%	4.05%
Apr	9.90%	7.36%	2.54%	Apr	10.10%	5.85%	4.25%
May	9.90%	6.95%	2.95%	May	10.10%	6.15%	3.95%
Jun	9.90%	6.57%	3.33%	June	10.10%	5.93%	4.17%
Jul	9.90%	6.72%	3.18%	July	10.10%	5.85%	4.25%
Aug	9.90%	6.86%	3.04%	Aug	10.10%	5.72%	4.38%
Sep	9.90%	6.55%	3.35%	Sept	10.10%	5.83%	4.27%
Oct	9.90%	6.37%	3.53%	Oct	10.10%	5.80%	4.30%
Nov	9.90%	6.26%	3.64%	Nov	10.10%	5.78%	4.32%
Dec	9.90%	6.06%	3.84%	Dec	10.10%	5.49%	4.61%
Jan 1996	12.30%	6.05%	6.25%	Jan 2001	7.20%	5.54%	1.66%
Feb	12.30%	6.24%	6.06%	Feb	7.20%	5.45%	1.75%
Mar	12.30%	6.60%	5.70%	March	7.20%	5.34%	1.86%
Apr	12.30%	6.79%	5.51%	Apr	7.20%	5.65%	1.55%
May	12.30%	6.93%	5.37%	May	7.20%	5.78%	1.42%
Jun	12.30%	7.06%	5.24%	June	7.20%	5.67%	1.53%
Jul	12.30%	7.03%	5.27%	July	7.20%	5.61%	1.59%
Aug	12.30%	6.84%	5.46%	Aug	7.20%	5.48%	1.72%
Sep	12.30%	7.03%	5.27%	Sept	7.20%	5.48%	1.72%
Oct	12.30%	6.81%	5.49%	Oct	7.20%	5.32%	1.88%
Nov	12.30%	6.48%	5.82%	Nov	7.20%	5.12%	2.08%
Dec	12.30%	6.55%	5.75%	Dec	7.20%	5.48%	1.72%
Jan 1997	14.10%	6.83%	7.27%	Jan 2002	9.50%	5.45%	4.05%
Feb	14.10%	6.69%	7.41%	Feb	9.50%	5.40%	4.10%
Mar	14.10%	6.93%	7.17%	Mar	9.50%	5.71%	3.79%
Apr	14.10%	7.09%	7.01%	Apr	9.50%	5.67%	3.83%
May	14.10%	6.94%	7.16%	May	9.50%	5.64%	3.86%
Jun	14.10%	6.77%	7.33%	June	9.50%	5.52%	3.98%
Jul	14.10%	6.51%	7.59%	July	9.50%	5.38%	4.12%
Aug	14.10%	6.58%	7.52%	Aug	9.50%	5.08%	4.42%
Sep	14.10%	6.50%	7.60%	Sept	9.50%	4.78%	4.74%
Oct	14.10%	6.33%	7.77%	Oct	9.50%	4.93%	4.57%
Nov	14.10%	6.11%	7.99%	Nov	9.50%	4.95%	4.55%
Dec	14.10%	5.99%	8.11%	Dec	9.50%	4.92%	4.56%

**Summary Information (January 1993 - December 2002)**

Average Risk Premium:	4.53%
High Risk Premium:	8.11%
Low Risk Premium:	1.42%

Sources: The Value Line Investment Survey: Ratings & Reports.  
 St. Louis Federal Reserve Website: <http://www.stls.frb.org/fred/data/lrates/g30>  
 Yahoo Finance at:  
<http://www.investopedia.com/offsite.asp?URL=http://quote.yahoo.com/q?s=5ETX&d=1y>

**MISSOURI-AMERICAN WATER  
COMPANY  
CASE NO. WR-2003-0500**

**Average Risk Premium Above the Yields of 30-Year U.S. Treasury Bonds  
for Middlesex Water Company's Actual Returns on Common Equity**

Mo/Year	Middlesex's Actual ROE	30-Year U.S. Treasury Bond Yields	Middlesex's Risk Premium	Mo/Year	Middlesex's Actual ROE	30-Year U.S. Treasury Bond Yields	Middlesex's Risk Premium
Jan 1993	11.70%	7.34%	4.36%	Jan 1998	9.10%	5.81%	3.29%
Feb	11.70%	7.09%	4.61%	Feb	9.10%	5.89%	3.21%
Mar	11.70%	6.82%	4.88%	Mar	9.10%	5.95%	3.15%
Apr	11.70%	6.85%	4.85%	Apr	9.10%	5.92%	3.18%
May	11.70%	6.92%	4.78%	May	9.10%	5.93%	3.17%
Jun	11.70%	6.81%	4.89%	Jun	9.10%	5.70%	3.40%
Jul	11.70%	6.63%	5.07%	Jul	9.10%	5.68%	3.42%
Aug	11.70%	6.32%	5.38%	Aug	9.10%	5.54%	3.56%
Sep	11.70%	6.00%	5.70%	Sep	9.10%	5.20%	3.90%
Oct	11.70%	5.94%	5.76%	Oct	9.10%	5.01%	4.09%
Nov	11.70%	6.21%	5.49%	Nov	9.10%	5.25%	3.85%
Dec	11.70%	6.25%	5.45%	Dec	9.10%	5.06%	4.04%
Jan 1994	11.50%	6.29%	5.21%	Jan 1999	10.60%	5.16%	5.44%
Feb	11.50%	6.49%	5.01%	Feb	10.60%	5.37%	5.23%
Mar	11.50%	6.91%	4.59%	Mar	10.60%	5.58%	5.02%
Apr	11.50%	7.27%	4.23%	Apr	10.60%	5.55%	5.05%
May	11.50%	7.41%	4.09%	May	10.60%	5.61%	4.79%
Jun	11.50%	7.40%	4.10%	June	10.60%	6.04%	4.56%
Jul	11.50%	7.58%	3.92%	July	10.60%	5.98%	4.62%
Aug	11.50%	7.49%	4.01%	Aug	10.60%	6.07%	4.53%
Sep	11.50%	7.71%	3.79%	Sept	10.60%	6.07%	4.53%
Oct	11.50%	7.94%	3.56%	Oct	10.60%	6.26%	4.34%
Nov	11.50%	8.08%	3.42%	Nov	10.60%	6.15%	4.45%
Dec	11.50%	7.87%	3.63%	Dec	10.60%	6.35%	4.25%
Jan 1995	11.30%	7.85%	3.45%	Jan 2000	7.10%	6.63%	0.47%
Feb	11.30%	7.61%	3.69%	Feb	7.10%	6.23%	0.87%
Mar	11.30%	7.45%	3.85%	March	7.10%	6.05%	1.05%
Apr	11.30%	7.36%	3.94%	Apr	7.10%	5.85%	1.25%
May	11.30%	6.95%	4.35%	May	7.10%	6.15%	0.95%
Jun	11.30%	6.57%	4.73%	June	7.10%	5.93%	1.17%
Jul	11.30%	6.72%	4.58%	July	7.10%	5.85%	1.25%
Aug	11.30%	6.66%	4.44%	Aug	7.10%	5.72%	1.38%
Sep	11.30%	6.55%	4.75%	Sept	7.10%	5.83%	1.27%
Oct	11.30%	6.37%	4.93%	Oct	7.10%	5.80%	1.30%
Nov	11.30%	6.26%	5.04%	Nov	7.10%	5.78%	1.32%
Dec	11.30%	6.06%	5.24%	Dec	7.10%	5.49%	1.61%
Jan 1996	10.00%	6.05%	3.95%	Jan 2001	9.10%	5.54%	3.56%
Feb	10.00%	6.24%	3.76%	Feb	9.10%	5.45%	3.65%
Mar	10.00%	6.60%	3.40%	March	9.10%	5.34%	3.76%
Apr	10.00%	6.79%	3.21%	Apr	9.10%	5.65%	3.45%
May	10.00%	6.93%	3.07%	May	9.10%	5.78%	3.32%
Jun	10.00%	7.06%	2.94%	June	9.10%	5.67%	3.43%
Jul	10.00%	7.03%	2.97%	July	9.10%	5.61%	3.49%
Aug	10.00%	6.84%	3.16%	Aug	9.10%	5.48%	3.62%
Sep	10.00%	7.03%	2.97%	Sept	9.10%	5.48%	3.62%
Oct	10.00%	6.81%	3.19%	Oct	9.10%	5.32%	3.78%
Nov	10.00%	6.48%	3.52%	Nov	9.10%	5.12%	3.98%
Dec	10.00%	6.55%	3.45%	Dec	9.10%	5.48%	3.62%
Jan 1997	10.40%	6.83%	3.57%	Jan 2002	9.60%	5.45%	4.15%
Feb	10.40%	6.69%	3.71%	Feb	9.60%	5.40%	4.20%
Mar	10.40%	6.93%	3.47%	Mar	9.60%	5.71%	3.89%
Apr	10.40%	7.09%	3.31%	Apr	9.60%	5.67%	3.93%
May	10.40%	6.94%	3.46%	May	9.60%	5.64%	3.96%
Jun	10.40%	6.77%	3.63%	June	9.60%	5.52%	4.08%
Jul	10.40%	6.51%	3.89%	July	9.60%	5.38%	4.22%
Aug	10.40%	6.58%	3.82%	Aug	9.60%	5.08%	4.52%
Sep	10.40%	6.50%	3.90%	Sept	9.60%	4.76%	4.84%
Oct	10.40%	6.33%	4.07%	Oct	9.60%	4.93%	4.67%
Nov	10.40%	6.11%	4.29%	Nov	9.60%	4.95%	4.65%
Dec	10.40%	5.99%	4.41%	Dec	9.60%	4.92%	4.68%

**Summary Information (January 1993 - December 2002)**

Average Risk Premium:	3.81%
High Risk Premium:	5.76%
Low Risk Premium:	0.47%

Sources: The Value Line Investment Survey: Ratings & Reports.  
 St. Louis Federal Reserve Website: <http://www.stls.frb.org/fred/data/irates/gs30>  
 Yahoo Finance at:  
<http://www.investopedia.com/offsite.asp?URL=http://quote.yahoo.com/q?s=%5ETEX&d=1y>

**MISSOURI-AMERICAN WATER  
COMPANY  
CASE NO. WR-2003-0500**

**Average Risk Premium Above the Yields of 30-Year U.S. Treasury Bonds  
for Philadelphia Suburban Corporation's Actual Returns on Common Equity**

Mo/Year	Philadelphia's Actual ROE	30-Year U.S. Treasury Bond Yields	Philadelphia's Risk Premium	Mo/Year	Philadelphia's Actual ROE	30-Year U.S. Treasury Bond Yields	Philadelphia Risk Premium
Jan 1993	10.20%	7.34%	2.86%	Jan 1998	12.40%	5.81%	6.59%
Feb	10.20%	7.09%	3.11%	Feb	12.40%	5.89%	6.51%
Mar	10.20%	6.82%	3.38%	Mar	12.40%	5.95%	6.45%
Apr	10.20%	6.85%	3.35%	Apr	12.40%	5.92%	6.48%
May	10.20%	6.92%	3.28%	May	12.40%	5.93%	6.47%
Jun	10.20%	6.81%	3.39%	Jun	12.40%	5.70%	6.70%
Jul	10.20%	6.63%	3.57%	Jul	12.40%	5.68%	6.72%
Aug	10.20%	6.32%	3.88%	Aug	12.40%	5.54%	6.86%
Sep	10.20%	6.00%	4.20%	Sep	12.40%	5.20%	7.20%
Oct	10.20%	5.94%	4.26%	Oct	12.40%	5.01%	7.39%
Nov	10.20%	6.21%	3.99%	Nov	12.40%	5.25%	7.15%
Dec	10.20%	6.25%	3.95%	Dec	12.40%	5.06%	7.34%
Jan 1994	10.30%	6.29%	4.01%	Jan 1999	12.30%	5.16%	7.14%
Feb	10.30%	6.49%	3.81%	Feb	12.30%	5.37%	6.93%
Mar	10.30%	6.91%	3.39%	Mar	12.30%	5.58%	6.72%
Apr	10.30%	7.27%	3.03%	Apr	12.30%	5.55%	6.75%
May	10.30%	7.41%	2.89%	May	12.30%	5.81%	6.49%
Jun	10.30%	7.40%	2.90%	June	12.30%	6.04%	6.26%
Jul	10.30%	7.58%	2.72%	July	12.30%	5.98%	6.32%
Aug	10.30%	7.49%	2.81%	Aug	12.30%	6.07%	6.23%
Sep	10.30%	7.71%	2.59%	Sept	12.30%	6.07%	6.23%
Oct	10.30%	7.94%	2.36%	Oct	12.30%	6.26%	6.04%
Nov	10.30%	8.08%	2.22%	Nov	12.30%	6.15%	6.15%
Dec	10.30%	7.87%	2.43%	Dec	12.30%	6.35%	5.95%
Jan 1995	11.70%	7.85%	3.85%	Jan 2000	11.70%	6.63%	5.07%
Feb	11.70%	7.61%	4.09%	Feb	11.70%	6.23%	5.47%
Mar	11.70%	7.45%	4.25%	March	11.70%	6.05%	5.65%
Apr	11.70%	7.36%	4.34%	Apr	11.70%	5.85%	5.85%
May	11.70%	6.95%	4.75%	May	11.70%	6.15%	5.55%
Jun	11.70%	6.57%	5.13%	June	11.70%	5.93%	5.77%
Jul	11.70%	6.72%	4.98%	July	11.70%	5.85%	5.85%
Aug	11.70%	6.88%	4.84%	Aug	11.70%	5.72%	5.98%
Sep	11.70%	6.55%	5.15%	Sept	11.70%	5.83%	5.87%
Oct	11.70%	6.37%	5.33%	Oct	11.70%	5.80%	5.90%
Nov	11.70%	6.26%	5.44%	Nov	11.70%	5.78%	5.92%
Dec	11.70%	6.06%	5.64%	Dec	11.70%	5.49%	6.21%
Jan 1996	11.20%	6.05%	5.15%	Jan 2001	12.40%	5.54%	6.86%
Feb	11.20%	6.24%	4.96%	Feb	12.40%	5.45%	6.95%
Mar	11.20%	6.60%	4.60%	March	12.40%	5.34%	7.06%
Apr	11.20%	6.79%	4.41%	Apr	12.40%	5.65%	6.75%
May	11.20%	6.93%	4.27%	May	12.40%	5.78%	6.62%
Jun	11.20%	7.06%	4.14%	June	12.40%	5.67%	6.73%
Jul	11.20%	7.03%	4.17%	July	12.40%	5.61%	6.79%
Aug	11.20%	6.84%	4.36%	Aug	12.40%	5.48%	6.92%
Sep	11.20%	7.03%	4.17%	Sept	12.40%	5.48%	6.92%
Oct	11.20%	6.81%	4.39%	Oct	12.40%	5.32%	7.08%
Nov	11.20%	6.48%	4.72%	Nov	12.40%	5.12%	7.26%
Dec	11.20%	6.55%	4.65%	Dec	12.40%	5.48%	6.92%
Jan 1997	12.00%	6.83%	5.17%	Jan 2002	12.70%	5.45%	7.25%
Feb	12.00%	6.69%	5.31%	Feb	12.70%	5.40%	7.30%
Mar	12.00%	6.93%	5.07%	Mar	12.70%	5.71%	6.98%
Apr	12.00%	7.09%	4.91%	Apr	12.70%	5.67%	7.03%
May	12.00%	6.94%	5.06%	May	12.70%	5.64%	7.06%
Jun	12.00%	6.77%	5.23%	June	12.70%	5.52%	7.18%
Jul	12.00%	6.51%	5.49%	July	12.70%	5.38%	7.32%
Aug	12.00%	6.58%	5.42%	Aug	12.70%	5.08%	7.62%
Sep	12.00%	6.50%	5.50%	Sept	12.70%	4.76%	7.94%
Oct	12.00%	6.33%	5.67%	Oct	12.70%	4.93%	7.77%
Nov	12.00%	6.11%	5.89%	Nov	12.70%	4.95%	7.75%
Dec	12.00%	5.99%	6.01%	Dec	12.70%	4.92%	7.78%

**Summary Information (January 1993 - December 2002)**

Average Risk Premium:	5.46%
High Risk Premium:	7.94%
Low Risk Premium:	2.22%

Sources: The Value Line Investment Survey: Ratings & Reports.  
St. Louis Federal Reserve Website: <http://www.stls.frb.org/fred/data/irates/gs30>  
Yahoo Finance at:  
<http://www.investopedia.com/offsite.asp?URL=http://quote.yahoo.com/q?s=%5ETIY&d=1y>

**Risk Premium Cost-of-Common-Equity Estimates  
for the Four Comparable Water Utility Companies  
(30-Year Treasury)**

	(1)	(2)	(3)
<b>Company Name</b>	<b>July 2003 30-Year U.S. Treasury Yield</b>	<b>Equity Premium</b>	<b>Cost of Common Equity</b>
American States Water Company	4.93%	3.40%	8.33%
California Water Services Group	4.93%	4.53%	9.46%
Middlesex Water Company	4.93%	3.81%	8.74%
Philadelphia Suburban Corporation	4.93%	5.46%	10.39%
<b>Average</b>		<b>4.30%</b>	<b>9.23%</b>

**NOTES:**

Column 1 = The appropriate yield is equal to the average 30-year U.S. Treasury Bond yield for July 2003, which was obtained from Yahoo Finance at <http://www.investopedia.com/offsite.asp?URL=http://quote.yahoo.com/q?s=%5ETUX&d=1y>

Column 2 = The equity premium represents the average positive difference between the Company's actual return on common equity as reported in The Value Line Investment Survey: Ratings & Report and the average yield on 30-year U.S. Treasury Bonds from January 1993 through December 2002.  
See Schedules 19-1 through 19-4.

Column 3 = Column 1 + Column 2.



**Selected Financial Ratios for the Four Comparable Water Utility Companies**

	(1)	(2)	(3)	(4)	(5)	(6)
Company Name	Year 2002 Common Equity to Total Capital Ratio	Year 2002 Long-Term Debt Ratio	Pretax Interest Coverage Ratio (as of 12/31/02)	Market- to-Book Value (as of 12/31/02)	2003 Projected Return on Common Equity	Bond Rating
American States Water Company	48.00%	52.00%	2.90 x	1.88 x	9.00%	A+
California Water Services Group	44.00%	55.30%	2.90 x	2.08 x	7.50%	A+
Middlesex Water Company	46.00%	52.00%	3.37 x *	2.26 x	N.A.	A
Philadelphia Suburban Corporation	45.80%	54.20%	3.50 x	3.11 x	13.50%	A+
<b>Average</b>	<u>45.95%</u>	<u>53.38%</u>	<u>3.17 x</u>	<u>2.33 x</u>	<u>10.00%</u>	<u>A+</u>

Sources: The Value Line Investment Survey: Ratings and Reports, May 2, 2003 for columns (1), (2), (3), and (5).

\*Middlesex's pretax interest coverage ratio was calculated manually from financial information in Middlesex Water Company's 2002 SEC 10K Filing.

C.A. Tumer Utility Reports, May 2003 for column (4).

Standard & Poor's Utilities & Perspectives, September 8, 2003 for Column (6)

**Pro Forma Pretax Interest Coverage Ratios  
for Missouri-American Water Company**

	<u>8.26%</u>	<u>8.76%</u>	<u>9.26%</u>
1. Common Equity ( Schedule 9 )	\$1,801,921,000	\$1,801,921,000	\$1,801,921,000
2. Earnings Allowed ( ROE * [ 1 ] )	\$148,838,675	\$157,848,280	\$166,857,885
3. Preferred Dividends	\$146,000	\$146,000	\$146,000
4. Net Income Available ( [ 2 ] + [ 3 ] )	\$148,984,675	\$157,994,280	\$167,003,885
5. Tax Multiplier ( 1 / { 1 - Tax Rate } )	1.6231	1.6231	1.6231
6. Pretax Earnings ( [ 4 ] * [ 5 ] )	\$241,817,025	\$256,440,515	\$271,064,005
7. Annual Interest Costs ( American Water's 2002 Annual Report)	\$227,295,000	\$227,295,000	\$227,295,000
8. Avail. for Coverage ( [ 6 ] + [ 7 ] )	\$469,112,025	\$483,735,515	\$498,359,005
9. <b>Pro Forma Pretax Interest Coverage</b> ( [ 8 ] / [ 7 ] )	<b>2.06 x</b>	<b>2.13 x</b>	<b>2.19 x</b>

**Water Utility Financial Medians - Pretax Interest Coverage (x)**

Standard & Poor's RatingsDirect

Research: Utility Financial Targets are Revised

June 18, 1999 - Water Utilities

Based on a Business Position of 3

<u>AA</u>	<u>A</u>	<u>BBB</u>
3.4 - 4.0	2.8 - 3.4	1.8 - 2.8

## Public Utility Revenue Requirement

or

## Cost of Service

The formula for the revenue requirement of a public utility may be stated as follows :

Equation 1 : **Revenue Requirement = Cost of Service**

or

Equation 2 :  **$RR = O + (V - D)R$**

The symbols in the second equation are represented by the following factors :

RR	=	Revenue Requirement
O	=	Prudent Operating Costs, including Depreciation and Taxes
V	=	Gross Valuation of the Property Serving the Public
D	=	Accumulated Depreciation
(V - D)	=	Rate Base (Net Valuation)
(V - D)R	=	Return Amount (\$\$) or Earnings Allowed on Rate Base
R	=	$iL + dP + kE$ or Overall Rate of Return (%)
i	=	Embedded Cost of Debt
L	=	Proportion of Debt in the Capital Structure
d	=	Embedded Cost of Preferred Stock
P	=	Proportion of Preferred Stock in the Capital Structure
k	=	Required Return on Common Equity (ROE)
E	=	Proportion of Common Equity in the Capital Structure

## Weighted Average Cost of Capital as of December 31, 2002 for Missouri-American Water Company

Capital Component	Percentage of Capital	Embedded Cost	Weighted Cost of Capital Using Common Equity Return of:		
			8.26%	8.76%	9.26%
Common Stock Equity	31.85%	-----	2.63%	2.79%	2.95%
Preferred Stock	0.62%	7.70%	0.05%	0.05%	0.05%
Long-Term Debt	63.92%	6.10%	3.90%	3.90%	3.90%
Short-Term Debt	3.61%	2.08%	0.08%	0.08%	0.08%
Total	<u><u>100.00%</u></u>		<u><u>6.66%</u></u>	<u><u>6.82%</u></u>	<u><u>6.98%</u></u>

Notes:

See Schedule 9 for the Capital Structure Ratios.

See Schedule 10 for the Embedded Cost of Long-Term Debt.

See Schedule 11 for the Embedded Cost of Preferred Stock.