

**DOCKET** 950495-WS  
**EXHIBIT NO.** 194  
**CASE NO.** 96-04227

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FLORIDA PUBLIC SERVICE COMMISSION  
DOCKET NO. 950495-WS EXHIBIT NO. 194  
COMPANY/ WITNESS: FPSC/ MAUREY  
DATE: 4/29/96

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FPSC-RECORDS/REPORTING

**DERIVATION OF LEVERAGE FORMULA**

**SUMMARY OF RESULTS**

	<u>1995</u>
DCF ROE for Water Index (Historical)	10.92%
Risk Premium ROE for Gas Index	10.50%
Gas Index premium	.18%
DCF ROE for Water Index (Projected)	10.37%
CAPM ROE for Water Index	<u>11.00%</u>
AVERAGE	10.78%
Bond Yield Differential	.51%
Private Placement Premium	.25%
Adjustment to Reflect Required Equity Return at a 40% Equity Ratio	<u>.34%</u>
Cost of Equity for Average Florida Water and Wastewater Utility at a 40% Equity Ratio	<u>11.88%</u>

1995 Leverage Formula

Return on Common Equity	=	9.05% + 1.131/ER
Range of Returns on Equity	=	10.18% - 11.88%

Where: Equity Ratio (ER) = Common Equity / (Common Equity + Preferred Stock  
+ Long-term Debt + Short-term Debt)

Leverage Formula =  $9.05\% + 1.131 / ER^*$

Marginal Cost of Investor Capital  
Average Water and Wastewater Utility

Capital Component	<u>Ratio</u>	<u>Marginal Cost Rate</u>	<u>Weighted Marginal Cost Rate</u>
Common Equity	45.43%	11.54%	5.24%
Total Debt	<u>54.57%</u>	9.05% **	<u>4.93%</u>
	<u>100.00%</u>		<u>10.18%</u>

A 40% equity ratio is the floor for calculating the required return on common equity.  
The return on equity at a 40% equity ratio =  $9.05\% + 1.131 / .40 = 11.88\%$

Marginal Cost of Investor Capital  
Average Water & Wastewater Utility at 40% Equity Ratio

<u>Capital Component</u>	<u>Ratio</u>	<u>Marginal Cost Rate</u>	<u>Weighted Marginal Cost Rate</u>
Common Equity	40.0%	11.88%	4.75%
Total Debt	<u>60.0%</u>	9.05% **	<u>5.43%</u>
	<u>100.0%</u>		<u>10.18%</u>

\* Where:  $Equity\ Ratio = \frac{Common\ Equity}{Common\ Equity + Preferred\ Equity + Long-Term\ Debt + Short-Term\ Debt}$

\*\* Assumed Baa3 rate for April 1995 plus 25 basis point private placement premium  
Source: Moody's Bond Survey, 5/22/95

## DCF Analysis of Water Index

	Arithmetic Average Growth Rate	Current Dividend	Current Average Stock Price	Required Return On Equity %
American Water Works	8.58%	1.28	28.94	13.38
Aquarion Company	1.95%	1.62	22.75	9.21
California Water Services Co.	4.44%	2.04	31.00	11.32
Consumers Water Company	4.21%	1.18	15.25	12.28
Philadelphia Suburban Corp.	2.42%	1.12	18.06	8.77
Uniter Water Resources	3.55%	0.92	13.63	10.54
AVERAGE	4.19%	\$1.36	\$21.60	10.92%

## Basic DCF Analysis

$$K = D_1/P_0 + g$$

K = Investors' required rate of return

$D_1$  = Dividend expected next period = Arithmetic growth rate  $\times$  current dividend

$P_0$  = Current stock price = April average stock price

g = Projected long-term growth in dividends = Arithmetic growth rate

K = 10.92%

Source: Standard & Poor's Stock Guide, May 1995 Edition

COST OF EQUITY FOR WATER INDEX COMPANIES  
DISCOUNTED CASH FLOW MODEL

COMPANY	DIV1	DIV2	DIV3	DIV4	EPS4	ROE4	Yr 1-4	4+	Growth HI-Price	Growth LO-Price	April
											Average Price
AMERICAN WATER WORKS	1.28	1.38	1.49	1.60	2.90	11.00	1.0772	1.0493	29.375	28.500	28.938
AQUARIAN CO.	1.62	1.74	1.86	2.00	2.60	13.50	1.0728	1.0312	23.750	21.750	22.750
CALIFORNIA WATER SVC	2.04	2.10	2.16	2.22	3.00	12.00	1.0286	1.0312	32.250	29.750	31.000
CONSUMERS WATER	1.19	1.21	1.23	1.25	1.45	11.00	1.0165	1.0152	15.750	14.750	15.250
PHILADELPHIA SUBURBAN	1.15	1.18	1.22	1.25	1.60	13.00	1.0282	1.0284	18.375	17.750	18.063
UNITED WATER RESOURCES	0.92	0.96	1.00	1.05	1.55	12.50	1.0450	1.0403	14.125	13.125	13.625
AVERAGE	1.37	1.43	1.49	1.56	2.18	12.17	1.0447	1.0326			21.604

10.37% = Cost of equity required to match the current stock price with the expected cash flows

20.96 = April 1995 average stock price less 3% flotation costs, or  $P_0(1-fc)$

		QTR1	QTR2	QTR3	QTR4
20.96 =	DIV1	0.34	0.33	0.32	0.31
	DIV2	0.32	0.31	0.31	0.30
	DIV3	0.30	0.30	0.29	0.28
	DIV4	0.29	0.28	0.27	0.27
	P4=	16.13			
	D1+D2+D3+D4+P4=			20.96	

Data Sources:

1. Stock Prices - S&P Stock Guide, May 1995 Edition
2. DPS, EPS, ROE - Value Line Edition 9, February 10, 1995

Risk Premium Cost of Equity for  
Moody's Natural Gas Distribution Index

Estimated Monthly Risk Premium	3.076%
Blue Chip Forecast for 30-Year Treasury Bond	<u>7.42 %</u>
	<u>10.496%</u>

Blue Chip Financial Forecasts, May 1, 1995

ESTIMATED MONTHLY RISK PREMIUMS  
MOODY'S NATURAL GAS DISTRIBUTION INDEX  
JUNE 1985 - MAY 1995

YEAR	MONTH	Quarterly Cost of Equity Gas	Risk Free Rate	Risk Premium Quarterly	
1985	JUN	14.588	11.08	3.508	
	JUL	14.886	10.48	4.406	
	AUG	15.017	10.62	4.397	
	SEP	15.604	10.70	4.904	
	OCT	15.030	10.78	4.250	
	NOV	15.122	10.66	4.462	
	DEC	14.672	10.19	4.482	
	1986	JAN	13.857	9.68	4.177
		FEB	13.780	9.59	4.190
		MAR	13.644	9.26	4.384
		APR	12.944	8.15	4.794
		MAY	12.684	7.58	5.104
JUN		12.726	8.13	4.596	
JUL		11.818	8.27	3.548	
AUG		11.683	7.88	3.803	
SEP		11.653	7.74	3.913	
OCT		11.408	8.10	3.308	
NOV		11.617	8.06	3.557	
DEC		11.336	7.82	3.516	
1987	JAN	11.847	7.66	4.187	
	FEB	11.642	7.62	4.022	
	MAR	11.563	7.71	3.853	
	APR	11.293	7.64	3.653	
	MAY	11.759	8.35	3.409	
	JUN	11.903	8.85	3.053	
	JUL	11.738	8.67	3.068	
	AUG	11.856	8.77	3.086	
	SEP	11.858	9.06	2.798	
	OCT	12.148	9.67	2.478	
	NOV	12.926	9.73	3.196	
	DEC	13.078	9.10	3.978	
1988	JAN	13.226	9.23	3.996	
	FEB	12.850	8.93	3.920	
	MAR	12.416	8.48	3.936	
	APR	12.396	8.64	3.756	
	MAY	12.398	8.97	3.428	
	JUN	12.378	9.30	3.078	
	JUL	12.049	9.11	2.939	
	AUG	12.027	9.28	2.747	
	SEP	12.314	9.42	2.894	
	OCT	12.070	9.14	2.930	
	NOV	12.036	8.96	3.076	
	DEC	12.088	9.09	2.998	
1989	JAN	12.028	9.10	2.928	
	FEB	12.050	9.05	3.000	
	MAR	12.060	9.15	2.910	
	APR	12.580	9.31	3.270	
	MAY	12.480	9.17	3.310	
	JUN	12.312	8.93	3.382	
	JUL	12.071	8.37	3.701	
	AUG	11.882	8.13	3.752	

YEAR	MONTH	Quarterly Cost of Equity Gas	Risk Free Rate	Risk Premium Quarterly
1990	SEP	11.788	8.23	3.558
	OCT	11.450	8.29	3.160
	NOV	11.462	8.12	3.342
	DEC	11.320	8.00	3.320
	JAN	10.978	8.00	2.978
	FEB	11.130	8.37	2.760
	MAR	11.252	8.63	2.622
	APR	11.416	8.73	2.686
	MAY	11.620	8.92	2.700
	JUN	11.710	8.87	2.840
	JUL	11.468	8.60	2.868
	AUG	11.550	8.62	2.930
1991	SEP	11.830	8.93	2.900
	OCT	11.160	9.08	2.080
	NOV	11.340	8.89	2.450
	DEC	11.070	8.58	2.490
	JAN	11.031	8.27	2.761
	FEB	11.186	8.31	2.876
	MAR	11.171	8.09	3.081
	APR	10.864	8.36	2.504
	MAY	10.810	8.26	2.550
	JUN	10.820	8.31	2.510
	JUL	10.797	8.52	2.277
	AUG	10.783	8.47	2.313
1992	SEP	10.680	8.15	2.530
	OCT	10.988	7.95	3.038
	NOV	10.742	7.86	2.882
	DEC	10.719	7.80	2.919
	JAN	10.580	7.55	3.030
	FEB	10.640	7.46	3.180
	MAR	10.698	7.76	2.938
	APR	10.684	7.90	2.784
	MAY	10.810	7.85	2.960
	JUN	10.740	7.77	2.970
	JUL	10.525	7.70	2.825
	AUG	10.351	7.37	2.981
1993	SEP	10.170	7.15	3.020
	OCT	9.812	7.05	2.762
	NOV	10.032	7.24	2.792
	DEC	10.113	7.40	2.713
	JAN	9.653	7.29	2.363
	FEB	9.518	7.16	2.358
	MAR	9.306	6.87	2.436
	APR	9.086	6.63	2.456
	MAY	9.222	6.63	2.592
	JUN	9.338	6.67	2.668
	JUL	9.547	6.54	3.007
	AUG	8.769	6.33	2.439
SEP	8.774	6.16	2.614	
OCT	8.813	5.93	2.883	
NOV	8.843	5.89	2.953	
DEC	9.136	6.23	2.906	



YEAR	MONTH	Quarterly Cost of Equity Gas	Risk Free Rate	Risk Premium Quarterly
1994	JAN	9.133	6.26	2.873
	FEB	8.805	6.23	2.575
	MAR	8.885	6.44	2.445
	APR	9.126	6.89	2.236
	MAY	9.431	7.30	2.131
	JUN	9.550	7.47	2.080
	JUL	9.737	7.42	2.317
	AUG	9.723	7.60	2.123
	SEP	9.802	7.54	2.262
	OCT	9.921	7.77	2.151
	NOV	9.813	8.01	1.803
	DEC	10.198	8.15	2.048
1995	JAN	10.342	7.95	2.392
	FEB	10.071	7.92	2.151
	MAR	9.891	7.67	2.221
	APR	9.865	7.50	2.365
	MAY	9.747	7.38	2.367
AVERAGE				3.076

SOURCE: Value Line Investment Survey  
S&P Stock Guide  
Moody's Bond Survey

Capital Asset Pricing Model Cost of Equity for  
Water and Wastewater Industry

CAPM analysis formula

- K =  $RF + \text{Beta}(\text{MR} - \text{RF})$
- K = Investor's required rate of return
- RF = Risk-free rate (Blue Chip forecast for 30-year Treasury bond)
- Beta = Measure of industry-specific risk (Average for water utilities followed by Value Line)
- MR = Market return

$$\underline{11.00\%} = 7.42\% + .6417(13.0\% - 7.42\%)$$

Blue Chip Financial Forecasts, May 1, 1995  
Value Line Investment Survey, May 12, 1995  
ValueScreen, June 1, 1995

**BOND YIELD DIFFERENTIALS**  
 Public Utility Bond Yield Averages  
 Source: Moody's Bond Survey

120 Month Average - 8.1243		8.1243		8.0748		8.0748		8.0748		8.1082		8.1082		8.1082		8.1082				
YEAR	MON	Aaa SPREAD	Aa1 SPREAD	Aa2 SPREAD	Aa3 SPREAD	A1 SPREAD	A2 SPREAD	A3 SPREAD	Baa1 SPREAD	Baa2 SPREAD	Baa3	Baa1 SPREAD	Baa2 SPREAD	Baa3	Baa1 SPREAD	Baa2 SPREAD	Baa3			
1985	APR	8.08	8.05	8.13	8.05	8.17	8.03	8.20	8.03	8.24	8.03	8.27	8.13	8.40	8.13	8.54	8.13	8.67	8.13	8.80
	MAR	8.18	8.05	8.24	8.05	8.29	8.03	8.32	8.03	8.34	8.03	8.37	8.13	8.60	8.13	8.53	8.13	8.76	8.13	8.89
	FEB	8.33	8.06	8.39	8.06	8.43	8.02	8.47	8.02	8.50	8.02	8.52	8.14	8.66	8.14	8.79	8.14	8.83	8.14	8.97
	JAN	8.53	8.07	8.60	8.07	8.66	8.02	8.68	8.02	8.71	8.02	8.73	8.14	8.87	8.14	8.91	8.14	9.15	8.14	9.29
	DEC	8.55	8.07	8.62	8.07	8.68	8.02	8.71	8.02	8.74	8.02	8.76	8.13	8.89	8.13	9.03	8.13	9.16	8.13	9.29
	NOV	8.77	8.06	8.84	8.06	8.90	8.03	8.93	8.03	8.95	8.03	8.98	8.12	9.10	8.12	9.23	8.12	9.35	8.12	9.47
	OCT	8.65	8.07	8.72	8.07	8.78	8.03	8.81	8.03	8.83	8.03	8.86	8.13	8.99	8.13	9.11	8.13	9.24	8.13	9.37
	SEP	8.41	8.06	8.49	8.06	8.56	8.03	8.59	8.03	8.61	8.03	8.64	8.11	8.75	8.11	8.87	8.11	8.98	8.11	9.09
	AUG	8.15	8.06	8.24	8.06	8.32	8.03	8.35	8.03	8.38	8.03	8.41	8.11	8.52	8.11	8.63	8.11	8.74	8.11	8.85
	JUL	8.21	8.08	8.30	8.08	8.38	8.03	8.41	8.03	8.44	8.03	8.47	8.11	8.58	8.11	8.68	8.11	8.80	8.11	8.91
	JUN	8.07	8.07	8.14	8.07	8.21	8.03	8.24	8.03	8.28	8.03	8.31	8.11	8.42	8.11	8.53	8.11	8.64	8.11	8.75
	MAY	8.11	8.07	8.18	8.07	8.24	8.03	8.27	8.03	8.30	8.03	8.33	8.09	8.42	8.09	8.52	8.09	8.61	8.09	8.70
1984	APR	8.00	8.06	8.06	8.06	8.12	8.03	8.15	8.03	8.18	8.03	8.22	8.08	8.30	8.08	8.39	8.08	8.47	8.08	8.55
	MAR	7.80	8.07	7.67	8.07	7.74	8.04	7.78	8.04	7.81	8.04	7.85	8.09	7.84	8.09	8.02	8.09	8.11	8.09	8.20
	FEB	7.19	8.08	7.27	8.08	7.34	8.04	7.38	8.04	7.43	8.04	7.47	8.10	7.57	8.10	7.66	8.10	7.76	8.10	7.86
	JAN	7.05	8.08	7.12	8.08	7.18	8.05	7.23	8.05	7.28	8.05	7.33	8.11	7.44	8.11	7.53	8.11	7.66	8.11	7.77
	DEC	7.06	8.06	7.12	8.06	7.18	8.05	7.23	8.05	7.28	8.05	7.34	8.13	7.47	8.13	7.60	8.13	7.73	8.13	7.86
	NOV	7.06	8.06	7.12	8.06	7.17	8.04	7.21	8.04	7.26	8.04	7.30	8.13	7.43	8.13	7.56	8.13	7.69	8.13	7.82
	OCT	6.75	8.07	6.82	8.07	6.89	8.05	6.94	8.05	6.99	8.05	7.03	8.06	7.11	8.06	7.19	8.06	7.27	8.06	7.35
	SEP	6.76	8.06	6.83	8.06	6.89	8.05	6.94	8.05	6.99	8.05	7.04	8.10	7.14	8.10	7.25	8.10	7.35	8.10	7.46
	AUG	6.84	8.07	7.01	8.07	7.07	8.06	7.13	8.06	7.19	8.06	7.25	8.11	7.36	8.11	7.48	8.11	7.59	8.11	7.70
	JUL	7.25	8.07	7.32	8.07	7.38	8.05	7.43	8.05	7.49	8.05	7.54	8.13	7.67	8.13	7.80	8.13	7.93	8.13	8.06
	JUN	7.37	8.08	7.46	8.08	7.54	8.07	7.61	8.07	7.68	8.07	7.75	8.10	7.85	8.10	7.95	8.10	8.05	8.10	8.15
	MAY	7.44	8.10	7.54	8.10	7.64	8.07	7.71	8.07	7.79	8.07	7.86	8.11	7.97	8.11	8.07	8.11	8.18	8.11	8.29
1983	APR	7.50	8.07	7.57	8.07	7.64	8.06	7.70	8.06	7.75	8.06	7.81	8.10	7.91	8.10	8.01	8.10	8.11	8.10	8.21
	MAR	7.64	8.06	7.70	8.06	7.76	8.05	7.81	8.05	7.85	8.05	7.90	8.07	7.97	8.07	8.03	8.07	8.10	8.07	8.17
	FEB	7.75	8.08	7.84	8.08	7.92	8.04	7.96	8.04	8.00	8.04	8.04	8.09	8.13	8.09	8.22	8.09	8.21	8.09	8.40
	JAN	7.94	8.10	8.04	8.10	8.14	8.04	8.18	8.04	8.23	8.04	8.27	8.10	8.37	8.10	8.47	8.10	8.57	8.10	8.67
	DEC	8.01	8.15	8.17	8.15	8.22	8.04	8.26	8.04	8.30	8.04	8.43	8.08	8.52	8.08	8.60	8.08	8.69	8.08	8.78
	NOV	8.11	8.20	8.21	8.20	8.21	8.04	8.25	8.04	8.29	8.04	8.33	8.08	8.71	8.08	8.78	8.08	8.86	8.08	8.94
	OCT	8.08	8.18	8.24	8.18	8.42	8.04	8.46	8.04	8.50	8.04	8.54	8.07	8.61	8.07	8.69	8.07	8.78	8.07	8.83
	SEP	8.04	8.12	8.16	8.12	8.28	8.04	8.32	8.04	8.36	8.04	8.40	8.05	8.45	8.05	8.49	8.05	8.54	8.05	8.59
	AUG	8.04	8.13	8.17	8.13	8.30	8.05	8.35	8.05	8.39	8.05	8.44	8.05	8.49	8.05	8.53	8.05	8.58	8.05	8.63
	JUL	8.12	8.16	8.29	8.16	8.45	8.04	8.49	8.04	8.53	8.04	8.57	8.04	8.61	8.04	8.65	8.04	8.69	8.04	8.73
	JUN	8.25	8.18	8.45	8.18	8.63	8.06	8.68	8.06	8.73	8.06	8.78	8.04	8.82	8.04	8.86	8.04	8.90	8.04	8.94
	MAY	8.32	8.18	8.51	8.18	8.69	8.06	8.73	8.06	8.81	8.06	8.87	8.05	8.92	8.05	8.96	8.05	9.01	8.05	9.06
1982	APR	8.36	8.20	8.56	8.20	8.76	8.06	8.82	8.06	8.87	8.06	8.93	8.06	8.99	8.06	9.05	8.06	9.11	8.06	9.17
	MAR	8.39	8.21	8.61	8.21	8.82	8.05	8.87	8.05	8.92	8.05	8.97	8.05	9.03	8.05	9.10	8.05	9.16	8.05	9.22
	FEB	8.30	8.23	8.53	8.23	8.76	8.06	8.82	8.06	8.87	8.06	8.93	8.05	8.99	8.05	9.04	8.05	9.09	8.05	9.14
	JAN	8.22	8.29	8.43	8.29	8.63	8.07	8.70	8.07	8.77	8.07	8.84	8.05	8.90	8.05	8.95	8.05	8.99	8.05	9.03
	DEC	8.36	8.16	8.55	8.16	8.71	8.06	8.77	8.06	8.82	8.06	8.88	8.06	8.94	8.06	9.01	8.06	9.07	8.06	9.13
	NOV	8.52	8.17	8.70	8.17	8.87	8.06	8.93	8.06	8.99	8.06	9.05	8.06	9.13	8.06	9.20	8.06	9.29	8.06	9.36
	OCT	8.57	8.18	8.75	8.18	8.92	8.07	8.98	8.07	9.05	8.07	9.12	8.07	9.19	8.07	9.25	8.07	9.32	8.07	9.39
	SEP	8.65	8.15	8.80	8.15	8.95	8.07	9.02	8.07	9.09	8.07	9.16	8.06	9.22	8.06	9.28	8.06	9.34	8.06	9.40
	AUG	8.81	8.13	8.94	8.13	9.05	8.06	9.14	8.06	9.21	8.06	9.28	8.05	9.35	8.05	9.41	8.05	9.47	8.05	9.53
	JUL	9.10	8.08	9.18	8.08	9.25	8.10	9.36	8.10	9.45	8.10	9.55	8.05	9.60	8.05	9.64	8.05	9.69	8.05	9.74
	JUN	9.10	8.08	9.19	8.08	9.26	8.10	9.36	8.10	9.45	8.10	9.55	8.07	9.65	8.07	9.72	8.07	9.79	8.07	9.86
	MAY	8.93	8.11	8.95	8.11	9.16	8.09	9.25	8.09	9.35	8.09	9.44	8.07	9.51	8.07	9.57	8.07	9.64	8.07	9.71
1981	APR	8.95	8.19	9.05	8.19	9.14	8.11	9.25	8.11	9.36	8.11	9.45	8.06	9.52	8.06	9.58	8.06	9.64	8.06	9.70
	MAR	9.04	8.09	9.14	8.09	9.23	8.11	9.34	8.11	9.44	8.11	9.55	8.06	9.61	8.06	9.68	8.06	9.74	8.06	9.80
	FEB	8.82	8.12	9.04	8.12	9.16	8.10	9.28	8.10	9.37	8.10	9.47	8.07	9.54	8.07	9.61	8.07	9.68	8.07	9.75
	JAN	9.17	8.11	9.28	8.11	9.39	8.11	9.50	8.11	9.60	8.11	9.71	8.06	9.75	8.06	9.89	8.06	9.98	8.06	10.04
	DEC	9.16	8.12	9.30	8.12	9.42	8.10	9.52	8.10	9.63	8.10	9.73	8.06	9.81	8.06	9.88	8.06	9.96	8.06	10.04
	NOV	9.43	8.06	9.51	8.06	9.59	8.10	9.69	8.10	9.80	8.10	9.90	8.07	9.97	8.07	10.05	8.07	10.12	8.07	10.19
	OCT	9.68	8.05	9.72	8.05	9.77	8.09	9.85	8.09	9.95	8.09	10.05	8.05	10.13	8.05	10.20	8.05	10.25	8.05	10.32
	SEP	9.73	8.07	9.80	8.07	9.87	8.08	9.95	8.08	10.04	8.08	10.12	8.07	10.19	8.07	10.25	8.07	10.32	8.07	10.39
	AUG	9.54	8.12	9.66	8.12	9.75	8.06	9.83	8.06	9.97	8.06	10.02	8.07	10.09	8.07	10.05	8.07	10.12	8.07	10.19
	JUL	9.36	8.13	9.49	8.13	9.61	8.05	9.68	8.05	9.79	8.05	9.75	8.06	9.81	8.06	9.86	8.06	9.92	8.06	9.98
	JUN	9.35	8.11	9.48	8.11	9.60	8.07	9.67	8.07	9.73	8.07	9.80	8.05	9.85	8.05	9.91	8.05	9.98	8.05	10.01
	MAY	9.36	8.13	9.71	8.13	9.83	8.05	9.89	8.05	9.94	8.05	10.00	8.05	10.05	8.05	10.11	8.05	10.16	8.05	10.21

**BOND YIELD DIFFERENTIALS**  
**Public Utility Bond Yield Averages**  
 Source: Moody's Bond Survey

120 Month Average - 0.1243			0.1243		0.0748		0.0748		0.0748		0.1082		0.1082		0.1082		0.1082			
YEAR	MON	As1 SPREAD	As1 SPREAD	As2 SPREAD	As3 SPREAD	A1 SPREAD	A2 SPREAD	A3 SPREAD	Baa1 SPREAD	Baa2 SPREAD	Baa3									
1980	APR	9.80	0.11	9.71	0.11	9.61	0.04	9.55	0.04	9.59	0.04	9.52	0.07	9.59	0.07	10.06	0.07	10.13	0.07	10.20
	MAR	9.48	0.08	9.54	0.06	9.80	0.06	9.68	0.06	9.77	0.06	9.85	0.07	9.92	0.07	9.99	0.07	10.06	0.07	10.13
	FEB	9.36	0.11	9.48	0.11	9.57	0.06	9.63	0.06	9.70	0.06	9.76	0.07	9.83	0.07	9.89	0.07	9.96	0.07	10.03
	JAN	9.08	0.16	9.24	0.16	9.39	0.06	9.45	0.06	9.50	0.06	9.58	0.06	9.62	0.06	9.68	0.06	9.74	0.06	9.80
	DEC	8.92	0.17	9.09	0.17	9.26	0.06	9.32	0.06	9.38	0.06	9.44	0.06	9.48	0.05	9.55	0.05	9.60	0.05	9.65
	NOV	8.92	0.16	9.09	0.16	9.25	0.06	9.34	0.06	9.42	0.06	9.51	0.04	9.55	0.04	9.60	0.04	9.64	0.04	9.68
	OCT	9.01	0.13	9.15	0.13	9.28	0.09	9.37	0.09	9.45	0.09	9.54	0.03	9.57	0.03	9.61	0.03	9.64	0.03	9.67
	SEP	9.10	0.13	9.23	0.13	9.35	0.06	9.43	0.06	9.50	0.06	9.58	0.04	9.62	0.04	9.66	0.04	9.70	0.04	9.74
	AUG	9.02	0.13	9.15	0.13	9.27	0.06	9.35	0.06	9.44	0.06	9.52	0.04	9.56	0.04	9.60	0.04	9.64	0.04	9.68
	JUL	8.98	0.13	9.11	0.13	9.23	0.06	9.32	0.06	9.41	0.06	9.50	0.05	9.55	0.05	9.59	0.05	9.64	0.05	9.68
	JUN	9.13	0.12	9.25	0.12	9.37	0.09	9.46	0.09	9.55	0.09	9.64	0.05	9.69	0.05	9.75	0.05	9.80	0.05	9.85
	MAY	9.80	0.09	9.70	0.09	9.79	0.07	9.86	0.07	9.92	0.07	9.99	0.10	10.06	0.10	10.19	0.10	10.29	0.10	10.39
	APR	9.88	0.07	9.95	0.07	10.02	0.05	10.07	0.05	10.13	0.05	10.18	0.10	10.28	0.10	10.39	0.10	10.49	0.10	10.59
	MAR	9.87	0.09	9.96	0.09	10.05	0.06	10.11	0.06	10.17	0.06	10.23	0.09	10.32	0.09	10.41	0.09	10.50	0.09	10.60
1980	FEB	9.71	0.11	9.82	0.11	9.93	0.05	9.98	0.05	10.02	0.05	10.07	0.10	10.17	0.10	10.29	0.10	10.38	0.10	10.48
	JAN	9.72	0.09	9.81	0.09	9.89	0.06	9.95	0.06	10.02	0.06	10.08	0.10	10.18	0.10	10.29	0.10	10.39	0.10	10.48
	DEC	9.67	0.11	9.79	0.11	9.90	0.05	9.95	0.05	10.01	0.05	10.06	0.13	10.19	0.13	10.31	0.13	10.44	0.13	10.57
	NOV	9.62	0.09	9.71	0.09	9.78	0.06	9.85	0.06	9.91	0.06	9.97	0.11	10.06	0.11	10.20	0.11	10.31	0.11	10.42
	OCT	9.52	0.14	9.66	0.14	9.80	0.03	9.83	0.03	9.87	0.03	9.90	0.15	10.05	0.15	10.20	0.15	10.35	0.15	10.50
	SEP	10.13	0.10	10.25	0.10	10.34	0.09	10.43	0.09	10.52	0.09	10.61	0.17	10.78	0.17	10.96	0.17	11.13	0.17	11.30
	AUG	10.66	0.10	10.76	0.10	10.85	0.11	10.96	0.11	11.06	0.11	11.17	0.17	11.34	0.17	11.52	0.17	11.69	0.17	11.86
	JUL	10.50	0.13	10.63	0.13	10.76	0.09	10.85	0.09	10.95	0.09	11.04	0.16	11.20	0.16	11.36	0.16	11.52	0.16	11.68
	JUN	10.27	0.13	10.40	0.13	10.52	0.09	10.61	0.09	10.70	0.09	10.79	0.16	10.95	0.16	11.11	0.16	11.27	0.16	11.43
	MAY	10.29	0.12	10.41	0.12	10.53	0.09	10.62	0.09	10.72	0.09	10.81	0.19	11.00	0.19	11.19	0.19	11.38	0.19	11.57
	APR	10.07	0.11	10.18	0.11	10.29	0.08	10.37	0.08	10.46	0.08	10.54	0.23	10.77	0.23	11.00	0.23	11.23	0.23	11.46
	MAR	9.72	0.10	9.82	0.10	9.92	0.06	9.99	0.06	10.03	0.06	10.09	0.20	10.29	0.20	10.49	0.20	10.69	0.20	10.89
1980	FEB	9.77	0.07	9.84	0.07	9.91	0.06	9.97	0.06	10.04	0.06	10.10	0.16	10.28	0.16	10.47	0.16	10.65	0.16	10.83
	JAN	10.39	0.07	10.46	0.07	10.52	0.06	10.60	0.06	10.68	0.06	10.76	0.19	10.95	0.19	11.15	0.19	11.34	0.19	11.53
	DEC	10.64	0.07	10.71	0.07	10.78	0.07	10.85	0.07	10.91	0.07	10.98	0.19	11.17	0.19	11.36	0.19	11.55	0.19	11.74
	NOV	10.43	0.09	10.53	0.09	10.62	0.07	10.69	0.07	10.75	0.07	10.82	0.19	11.01	0.19	11.21	0.19	11.40	0.19	11.59
	OCT	10.82	0.09	11.02	0.09	11.11	0.06	11.19	0.06	11.26	0.06	11.34	0.19	11.53	0.19	11.72	0.19	11.91	0.19	12.10
	SEP	10.53	0.07	10.60	0.07	10.66	0.19	10.85	0.19	11.03	0.19	11.22	0.12	11.34	0.12	11.46	0.12	11.58	0.12	11.70
	AUG	9.92	0.07	9.99	0.07	10.05	0.13	10.18	0.13	10.32	0.13	10.45	0.15	10.60	0.15	10.75	0.15	10.90	0.15	11.06
	JUL	9.56	0.07	9.63	0.07	9.70	0.15	9.85	0.15	10.00	0.15	10.15	0.16	10.31	0.16	10.46	0.16	10.62	0.16	10.78
	JUN	9.37	0.12	9.49	0.12	9.61	0.14	9.75	0.14	9.89	0.14	10.02	0.15	10.17	0.15	10.31	0.15	10.46	0.15	10.61
	MAY	9.34	0.14	9.48	0.14	9.63	0.08	9.72	0.08	9.82	0.08	9.91	0.16	10.07	0.16	10.24	0.16	10.40	0.16	10.56
	APR	8.63	0.16	8.80	0.16	9.15	0.06	9.23	0.06	9.30	0.06	9.38	0.16	9.54	0.16	9.69	0.16	9.85	0.16	10.01
	MAR	8.21	0.22	8.43	0.22	8.64	0.10	8.74	0.10	8.83	0.10	8.93	0.08	9.02	0.08	9.10	0.08	9.19	0.08	9.28
1987	FEB	8.29	0.20	8.49	0.20	8.69	0.10	8.79	0.10	8.90	0.10	9.00	0.08	9.08	0.08	9.16	0.08	9.24	0.08	9.32
	JAN	8.23	0.20	8.43	0.20	8.62	0.11	8.73	0.11	8.84	0.11	8.95	0.11	9.06	0.11	9.16	0.11	9.27	0.11	9.38
	DEC	8.41	0.20	8.61	0.20	8.81	0.10	8.91	0.10	9.02	0.10	9.12	0.12	9.24	0.12	9.37	0.12	9.49	0.12	9.61
	NOV	8.59	0.21	8.80	0.21	9.01	0.09	9.10	0.09	9.19	0.09	9.28	0.14	9.42	0.14	9.55	0.14	9.69	0.14	9.83
	OCT	8.84	0.20	9.04	0.20	9.24	0.09	9.33	0.09	9.43	0.09	9.52	0.14	9.66	0.14	9.81	0.14	9.95	0.14	10.09
	SEP	8.91	0.18	9.10	0.18	9.28	0.08	9.36	0.08	9.44	0.08	9.52	0.15	9.67	0.15	9.81	0.15	9.96	0.15	10.11
	AUG	8.59	0.22	8.81	0.22	9.03	0.09	9.12	0.09	9.20	0.09	9.29	0.14	9.43	0.14	9.56	0.14	9.70	0.14	9.84
	JUL	8.66	0.20	8.86	0.20	9.06	0.11	9.16	0.11	9.26	0.11	9.37	0.11	9.48	0.11	9.59	0.11	9.69	0.11	9.80
	JUN	8.02	0.17	8.19	0.17	8.36	0.09	8.45	0.09	8.53	0.09	8.62	0.14	8.76	0.14	8.89	0.14	10.03	0.14	10.17
	MAY	9.07	0.16	9.23	0.16	9.39	0.07	9.45	0.07	9.52	0.07	9.59	0.14	9.73	0.14	9.86	0.14	10.02	0.14	10.16
	APR	8.45	0.21	8.66	0.21	8.87	0.09	8.96	0.09	9.05	0.09	9.14	0.16	9.30	0.16	9.47	0.16	9.63	0.16	9.79
	MAR	8.75	0.20	8.96	0.20	9.16	0.11	9.27	0.11	9.37	0.11	9.48	0.14	9.62	0.14	9.77	0.14	9.91	0.14	10.05
1988	FEB	8.65	0.16	8.82	0.16	8.99	0.09	10.07	0.09	10.17	0.09	10.26	0.16	10.42	0.16	10.58	0.16	10.74	0.16	10.90
	JAN	10.14	0.15	10.29	0.15	10.44	0.12	10.56	0.12	10.67	0.12	10.79	0.15	10.94	0.15	11.09	0.15	11.24	0.15	11.39
	DEC	10.24	0.16	10.41	0.16	10.57	0.13	10.70	0.13	10.84	0.13	10.97	0.17	11.14	0.17	11.31	0.17	11.48	0.17	11.65
	NOV	10.71	0.20	10.91	0.20	11.10	0.13	11.23	0.13	11.36	0.13	11.49	0.18	11.67	0.18	11.86	0.18	12.04	0.18	12.22
	OCT	11.23	0.18	11.42	0.18	11.61	0.13	11.74	0.13	11.88	0.13	12.01	0.17	12.18	0.17	12.36	0.17	12.52	0.17	12.69
	SEP	11.27	0.20	11.48	0.20	11.69	0.15	11.83	0.15	11.98	0.15	12.13	0.20	12.33	0.20	12.52	0.20	12.72	0.20	12.92
	AUG	11.23	0.21	11.44	0.21	11.65	0.16	11.81	0.16	11.97	0.16	12.13	0.20	12.33	0.20	12.53	0.20	12.73	0.20	12.93
	JUL	11.19	0.19	11.37	0.19	11.56	0.17	11.72	0.17	11.90	0.17	12.07	0.21	12.26	0.21	12.46	0.21	12.70	0.21	12.91
	JUN	11.17	0.26	11.43	0.26	11.69	0.15	11.83	0.15	11.98	0.15	12.13	0.19	12.31	0.19	12.48	0.19	12.66	0.19	12.84
	MAY	12.19	0.23	12.42	0.23	12.65	0.16	12.81	0.16	12.96	0.16	13.12	0.17	13.29	0.17	13.45	0.17	13.62	0.17	13.79

## 5/95 Equity Ratios of Water Index Companies

	Book Value Per Share	Common Shares Outstanding	Common Equity	Total Debt	Preferred Equity	Equity Ratio
American Water Works	\$22.18	32.66	\$724.4	\$1,464.40	\$101.7	0.316257
Aquarion Company	\$17.41	6.69	\$116.5	\$115.60	\$0.0	0.501881
California Water Services Co.	\$23.08	6.25	\$144.2	\$135.90	\$3.5	0.508431
Consumers Water Company	\$12.42	8.26	\$102.6	\$159.90	\$1.1	0.389192
Philadelphia Suburban Corp.	\$12.27	11.48	\$140.8	\$153.10	\$7.1	0.46782
United Water Resources	\$11.28	31.39	\$354.1	\$591.50	\$107.2	0.336338

Average

42.00%

Source: Value Line Investment Survey  
Edition 9 May 12, 1995  
C. A. Turner Utility Reports May 1995

## 5/95 Equity Ratios of Natural Gas Index Companies

	Book Value Per Share	Common Shares Outstanding	Common Equity	Total Debt	Preferred Equity	Equity Ratio
Atlanta Gas & Light	\$21.24	25.60	\$543.8	\$718.10	\$58.5	0.411825
Bay State Gas	\$17.06	13.34	\$227.6	\$246.60	\$5.3	0.474608
Brooklyn Union Gas	\$16.99	48.08	\$816.9	\$717.50	\$7.2	0.529907
Indiana Energy	\$12.50	22.56	\$282.0	\$203.30	\$0.0	0.581051
Laclede Gas	\$13.09	15.71	\$205.6	\$244.20	\$2.0	0.455103
Northwest Natural Gas	\$20.32	13.30	\$270.2	\$332.70	\$42.5	0.418625
Peoples Energy	\$19.29	34.90	\$673.2	\$636.10	\$0.0	0.514174
Washington Gas & Light	\$24.22	21.21	\$513.7	\$439.40	\$28.5	0.523353

Average

48.86%

Source: Value Line Investment Survey  
Edition 3 March 31, 1995  
C. A. Turner Utility Reports May 1995