BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

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In re: Annual Reestablishment of authorized rate of return on common equity of water and sewer utilities, pursuant to Section 367.081(4)(f), Florida Statutes. DOCKET NO. 910006-WS ORDER NO. 24246 ISSUED: 3-18-91

The following Commissioners participated in the disposition of this matter:

THOMAS M. BEARD, Chairman GERALD L. GUNTER J. TERRY DEASON MICHAEL McK. WILSON

NOTICE OF PROPOSED AGENCY ACTION

ORDER ESTABLISHING AUTHORIZED RANGE OF RETURNS ON COMMON EQUITY

BY THE COMMISSION:

NOTICE IS HEREBY GIVEN by the Florida Public Service Commission that the action proposed herein is preliminary in nature but will become final unless a person whose interests are substantially affected files a petition for a formal proceeding in accordance with Rule 25-22.029, Florida Administrative Code.

Pursuant to Section 367.081(4)(f), Florida Statutes, this Commission is authorized to establish, not less than once each year, a leverage formula to calculate a reasonable range of returns on common equity for water and wastewater utilities. We last revised the leverage formula by Order No. 23318, issued August 7, 1990.

In order to calculate the current leverage formula, we have utilized the same methodologies and assumptions utilized in previous years, adjusted for changes in bond yields and required rates of return. The basic assumptions are that: business risk is similar for all water and wastewater utilities; the cost of equity is an exponential function of the equity ratio; the marginal weighted average cost of investor capital is constant over the 40

DOCUMENT NUMBER-DATE

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to 100 percent equity ratio range; and, given adequate management and effective regulation, a Moody's Baa bond rating is representative of the average marginal cost of debt for water and wastewater utilities with equity ratios of 40 to 100 percent.

451

Using the most current financial information, we have calculated a range of returns on common equity from 11.22 percent to 13.11 percent. Last year's leverage formula, 10.16 percent plus 1.34/equity ratio, produced a range of returns of 11.50 percent to 13.51 percent. The net change in the average return over the 40 percent to 100 percent equity ratio range is a decrease of 34 basis points, from 12.51 percent to 12.17 percent. This decrease in the average common equity return reflects the lowered bond yield and required rates of return.

We derived the upper level of the range of returns on common equity by applying a discounted cash flow model to an index of publicly traded water and wastewater utilities, a risk premium model to an index of natural gas utilities, and a bond yield differential adjustment to reflect the difference in risk between the indices and an average Florida water/wastewater utility. Using the most recently available capital structure for the index of publicly traded water and wastewater companies as a proxy for the capital structure of an average Florida water/wastewater utility, we calculated the marginal cost of investor capital to be 11.22 percent, as shown below.

Marginal Cost of Investor Capital Average Water/Wastewater Utility

<u>Capital</u> <u>Component</u>	Ratio	Cost Rate	Marginal Cost
Common Equity Total Debt	40% 60%	13.11% 9.96%	5.24% 5.98%
	100%		11.22%

Our analyses are appended to this Order as Attachment 1.

452

Based upon the discussion above, we find that the appropriate formula for measuring returns on common equity for Florida water and wastewater utilities is as follows:

> Return on Common Equity = 9.96 percent + <u>1.26</u> Equity Ratio

where:

Equity Ratio = <u>Common Equity</u> Common Equity + Preferred Equity + Longand Short-Term Debt

Finally, in order to discourage imprudent financial risk, we find it appropriate to limit the authorized return on common equity to a maximum of 13.11 percent for all water/wastewater utilities with equity ratios of less than 40 percent.

It is, therefore,

ORDERED by the Florida Public Service Commission that the provisions of this Order are issued as proposed agency action and will become final unless an appropriate petition is filed with the Division of Records and Reporting, 101 East Gaines Street, Tallahassee, Florida 32399-0870, by the close of business on the date indicated in the Notice of Further Proceedings or Judicial Review. It is further

ORDERED that the appropriate formula for measuring returns on common equity for water and wastewater utilities shall be as set forth in the body of this Order. It is further

ORDERED that returns on common equity are hereby capped at 13.11 percent for all water/wastewater utilities with equity ratios of less than 40 percent in order to discourage imprudent financial risk.

By ORDER of the Florida Public Service Commission this <u>18th</u> day of <u>MARCH</u>, <u>1991</u>.

STEVE TRIBBLE, Director Division of Records and Reporting

453

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454

NOTICE OF FURTHER PROCEEDINGS OR JUDICIAL REVIEW

The Florida Public Service Commission is required by Section 120.59(4), Florida Statutes, to notify parties of any administrative hearing or judicial review of Commission orders that is available under Sections 120.57 or 120.68, Florida Statutes, as well as the procedures and time limits that apply. This notice should not be construed to mean all requests for an administrative hearing or judicial review will be granted or result in the relief sought.

The action proposed herein is preliminary in nature and will not become effective or final, except as provided by Rule 25-22.029, Florida Administrative Code. Any person whose substantial interests are affected by the action proposed by this order may file a petition for a formal proceeding, as provided by Rule 25-22.029(4), Florida Administrative Code, in the form provided by Rule 25-22.036(7)(a) and (f), Florida Administrative Code. This petition must be received by the Director, Division of Records and Reporting at his office at 101 East Gaines Street, Tallahassee, by the business Florida 32399-0870, close of on April 8, 1991

In the absence of such a petition, this order shall become effective on the day subsequent to the above date as provided by Rule 25-22.029(6), Florida Administrative Code.

Any objection or protest filed in this docket before the issuance date of this order is considered abandoned unless it satisfies the foregoing conditions and is renewed within the specified protest period.

If this order becomes final and effective on the date described above, any party adversely affected may request judicial review by the Florida Supreme Court in the case of an electric, gas or telephone utility or by the First District Court of Appeal in the case of a water or sewer utility by filing a notice of appeal with the Director, Division of Records and Reporting and filing a copy of the notice of appeal and the filing fee with the appropriate court. This filing must be completed within thirty (30) days of the effective date of this order, pursuant to Rule 9.110, Florida Rules of Appellate Procedure. The notice of appeal must be in the form specified in Rule 9.900(a), Florida Rules of Appellate Procedure.

ATTACHMENT 1 Page 1 of 8

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455-

Marginal Cost of Investor Capital Average Water and Sewer Utility

Capital Component	Ratio	Marginal Cost Rate	Marginal Cost Rate
Common Equity	45.10%	12.74%	5.75%
Total Debt	54.90%	9.96% *	5.47%
	100%		11.22%

Return on Common Equity = 9.96% + 1.26/ER**

Use leverage formula to compute required common equity return at 40% common equity ratio. Required return at 40% equity ratio is the ceiling for allowed common equity returns.

Return on Common Equity = 9.96% + 1.26/.40 = 13.11%

Marginal Cost of Investor Capital Average Water and Sewer Utility

		Marginal	Weighted Marginal
Capital Component	Ratio	Cost Rate	Cost Rate
Common Equity	40.00%	13.11%	5.24%
Total Debt	<u>60.00%</u>	<u>9.96%</u> •	5.98%
	100%		11.22%

Average Baa rate for January 1991.
Source: Moody's Bond Survey, 2/4/91

.. Where:

Equity Ratio = Common Equity / Common Equity + Preferred Equity + Long and Short-Term Debt

456

ATTACHMENT 1 Page 2 of 8

SUMMARY OF RESULTS

Leverage Formula Update

	1990	<u>1991</u>
DCF Cost of Equity for Water Index	12.48%	12.38%
Risk Premium Cost of Equity for Natural Gas Index	12.87%	12.05%
AVERAGE	12.68%	12.22%
Bond Yield Differential	.60%	.52%
Adjustment to Reflect Required Equity Return at a 40% Equity Ratio	.23%	.37%
Cost of Equity for Average Florida Water and Sewer Utility at a 40% Equity Ratio	13.51%	13.11%

Existing Leverage Formula

Return of	n Common	Equity	202	10.16%	+	1.34/ER
Range of	Returns	on Equity	20	11.50%	-	13.51%

Updated Leverage Formula

Return	on Common	Equity	-	9.96% +	1.26/ER
Range o	f Returns	on Equity	225	11.22% -	13.11%

ATTACHMENT 1 Page 3 of 8 457

DCF Analysis of Water Index

	1986	1987	1988	1989	1990	Geometric Average Growth Rate	Ave. Stock Price
American Water Works	0.56	0.64	0.68	0.74	0.80	.9.33%	16.00
CA Water Services Co.	1.40	1.48	1.60	1.68	1.74	5.59%	26.00
Connecticut Water Co.	1.49	1.52	1.53	1.56	1.57	1.32%	18.63
Consumers Water Co.	0.84	0.92	1.00	1.06	1.09	6.73%	15.13
E'Town Company	2.74	2.82	2.89	2.92	2.97	2.04%	36.75
Hydraulic Company	1.39	1.46	1.52	1.58	1.60	3.58%	21.63
Middlesex Water Co.	1.60	1.68	1.74	1.78	1.85	3.70%	23.31
SJW Corporation	1.57	1.68	1.76	1.82	1.86	4.33%	25.25
Southern CA Water Co.	1.88	1.93	2.02	2.02	2.14	3.29%	27.88
United Water Res.	0.70	0.77	0.88	0.88	0.88	5.89%	11.31
Average					1.65	4.58%	22.19

DCF Analysis

$$\begin{split} &\mathsf{K} = \mathsf{D}(1)/\mathsf{P}(0) + \mathsf{g} \\ &\mathsf{K} = \mathsf{Investors' required rate of return} \\ &\mathsf{D}(1) = \mathsf{Dividend} \text{ expected next period} = \$1.65 \times 1.0458 = \$1.73 \\ &\mathsf{P}(0) = \mathsf{Current stock price} = \$22.19 \\ &\mathsf{g} = \mathsf{Projected long-term growth in dividends} = 4.58\% \\ &\mathsf{K} = \$1.73/\$22.19 + 4.61\% \\ &\mathsf{K} = 12.38\% \end{split}$$

Source: Moody's Public Utility Manual, 1990 Standard & Poor's Stock Guide, January 1991

ORDER NO. 24246 DOCKET NO. 910006-WS PAGE 9 ATTACHMENT 1 Page 4 of 8

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

Estimated	Monthly Risk	Premium	4.154 %	
Blue Chip	Forecast for	30-Year Treasury	Bond	7.900 %
				12.050 %

* Blue Chip Financial Forecasts, January 1, 1991

ATTACHMENT 1 Page 5 of 8

ESTIMATED MONTHLY RISK PREMIUMS MOODY'S NATURAL GAS DISTRIBUTION INDEX JANUARY 1981 - DECEMBER 1991

		Cost of Equity	Risk Free	Risk
YEAR MONTH	Gas	Rate	Premium 5.130	
981	JAN	17.480	12.350	5.375
	FEB	17.425	12.050	4.340
	MAR	17.020	12.680	4.610
	APR	17.200	13.080	4.755
	MAY	17.835	13.440	5.010
	JUN	18.450	12.820	5.470
	JUL	18.290	13.490	4.683
	AUG	17.850	14.050	3.800
	SEP	18.810	14.590	4.220
	OCT	19.080	14.590	4.490
	NOV		13.080	5.677
0.000	DEC	18.757	13.280	5.154
1982	JAN	18.434		4.810
	FEB	18.970	14.160	5.410
	MAR	19.480	13.370	6.413
	APR	19.783	13.240	6.374
	MAY	19.614	13.050	6.880
	JUN	19.930 19.450	13.750	5.700
	JUL	19.963	13.400	6.563
	AUG	19.990	12.540	7.450
	OCT	18.962	11.860	7.102
	NOV	18.576	10.840	7.736
	DEC	18.625	10.460	8.165
1983	JAN	18.054	10.600	7.454
1703	FEB	17.806	10.640	7.166
	MAR	17.800	10.890	6.910
	APR	17.464	10.650	6.814
	MAY	17.364	10.490	6.874
	JUN	17.180	10.520	6.660
	JUL	16.505	10.950	5.555
	AUG	16.429	11.440	4.989
	SEP	16.493	11.780	4.713
	OCT	16.226	11.620	4.606
	NOV	15.903	11.550	4.353
	DEC	16.072	11.680	4.392
1984	JAN	15.862	11.810	4.052
	FEB	15.870	11.650	4.220
	MAR	15.825	11.810	4.015
	APR	15.736	12.280	3.456
	MAY	15.627	12.580	3.047
	JUN	15.776	13.320	2.456
	JUL	16.334	13.430	2.904
	AUG	16.429	13.240	3.189
	SEP	16.453	12.630	3.823
	OCT	16.508	12.340	4.168
	NOV	15.927	12.000	3.927
	DEC	15.640	11.550	4.090

459

ORDER NO. 24246 DOCKET NO. 910006-WS PAGE 11 ATTACHMENT 1 Page 6 of 8

		Cost of	Risk			
		Equity	Free	Risk		
YEAR	MONTH	Gas	Rate	Premium		
1985	JAN	15.290	11.510	3.780		
	FEB	15.051	11.460	3.591		
	MAR	14.917	11.560	3.357		
	APR	14.673	11.920	2.753		
	MAY	14.694	11.550	3.144		
	JUN	14.588	11.080	3.508		
	JUL	14.886	10.480	4.406		
	AUG	15.017	10.620	4.397		
	SEP	15.604	10.700	4.904		
	OCT	15.030	10.780	4.250		
	NOV	15.122	10.660	4.462		
	DEC	14.672	10.190	4.482		
1986	JAN	13.857	9.680	4.177		
	FEB	13.780	9.590	4.190		
	MAR	13.644	9.260	4.384		
	APR	12.944	8.150	4.794		
	MAY	12.684	7.580	5.104		
	JUN	12.726	8.130	4.596		
	IUL	11.818	8.270	3.548		
	AUG	11.683	7.880	3.803		
	SEP	11.653	7.740	3.913		
	OCT	11.408	8.100	3.308		
	NOV	11.617	8.060	3.557		
	DEC	11.336	7.820	3.516		
1987	JAN	11.847	7.660	4.187		
	FEB	11.642	7.620	4.022		
	MAR	11.563	7.710	3.853		
	APR	11.293	7.640	3.653		
	MAY	11.759	8.350	3.409		
	JUN	11.903	8.850	3.053		
	JUL	11.738	8.670	3.068		
	AUG	11.856	8.770	3.086		
	SEP	11.858	9.060	2.798		
	OCT	12.148	9.670	2.478		
	NOV	12.926	9.730	3.196		
	DEC	13.078	9.100	3.978		
1988	JAN	13.226	9.230	3.996		
	FEB	12.850	8.930	3.920		
	MAR	12.416	8.480	3.936		
	APR	12.396	8.640	3,756		
	MAY	12.398	8.970	3.428		
	JUN	12.378	9.300	3.078		
	JUL	12.049	9.110	2.939		
	AUG	12.027	9.280	2.747		
	SEP	12.314	9.420	2.894		
	OCT	12.070	9.140	2.930		
	NOV	12.036	8.960	3.076		
	DEC					

DEC

12.088

9.090

2.998

ESTIMATED MONTHLY RISK PREMIUMS (continued)

24246 ORDER NO. DOCKET NO. 910006-WS PAGE 12

> Risk Cost of Equity Free Risk Premium YEAR MONTH Gas Rate 2.928 1989 9.100 JAN 12.028 FEB 12.050 9.050 3.000 2.910 9.150 12.060 MAR 9.310 3.270 APR 12.580 9.170 3.310 MAY 12.480 8.930 3.382 JUN 12.312 8.370 3.701 JUL 12.071 3.722 AUG 8.160 11.882 SEP 11.788 8.230 3.558 8.290 3.160 OCT 11.450 8,120 3.342 NOV 11.462 3.320 DEC 8.000 11.320 1990 8.000 2.978 JAN 10.978 FEB 11.130 8.370 2.760 MAR 11.252 8.630 2.622 APR 11.416 8.730 2.686 11.620 8.920 2.700 MAY 2.840 JUN 11.710 8.870 JUL 11.468 8.600 2.868 2.930 AUG 8.620 11.550 2.900 SEP 11.830 8.930 OCT 9.080 2.420 11.500 2.760 NOV 11.340 8.580 2.800 DEC 11.070 8.270

ESTIMATED MONTHLY RISK PREMIUMS (continued)

AVERAGE

4.154

ATTACHMENT 1 Page 7 of 8

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

ORDER NO. 24246 DOCKET NO. 910006-WS PAGE 13

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

60 No	nth Aver	rage -	0.0837		0.0837		0.0837		0.118		0.118		0.118	
YEAR	HONTH	Aa2	SPREAD	Aa3	SPREAD	A1	SPREAD	A2	SPREAD	A3	SPREAD	Baal	SPREAD	
	DEC	9.42	0.10	9.52	0.10	9.63	0.10	9.73	0.08	9.81	0.08	9.88	0.08	
	NOV	9.59	0.10	9.69	0.10	9.80	0.10	9.90	0.07	9.97		10.05	0.07	
	OCT	9.77	0.09	9.86	0.09	9.96	0.09	10.05	0.08	10.13	0.08	10.20	0.08	
	SEP	9.87	0.08	9.95	0.08	10.04	0.08	10.12	0.07	10.19		10.25	0.07	
	AUG	9.78	0.05	9.83	0.05	9.87	0.05	9.92	0.07	9.99		10.05	-0.07	
	JUL	9.61	0.05	9.66	0.05	9.70	0.05	9.75	0.06	9.81	0.06	9.86	0.06	
	JUN	9.60	0.07	9.67	0.07	9.73	0.07	9.80	0.05	9.85	0.05	9.91	0.05	
	MAY	9.83	0.06	9.89	0.06	9.94	0.06	10.00	0.05	10.05	0.05	10.11	0.05	
	APR	9.81	0.04	9.85	0.04	9.88	0.04	9.92	0.07	9.99		10.06	0.07	
	MAR	9.60	0.08	9.68	0.08	9.77	0.08	9.85	0.07	9.92		9.99	0.07	
	FEB	9.57	0.06	9.63	0.06	9.70	0.06	9.76	0.07	9.83		9.89	0.07	
1990	JAN	9.39	0.06	9.45	0.06	9.50	0.06	9.56	0.06	9.62		9.68	0.06	
	DEC	9.26	0.06	9.32	0.06	9.38	0.06	9.44 9.51	0.05	9.49		9.55	0.05	
	NOV	9.25 9.28	0.09	9.34	0.09	9.45	0.09	9.54	0.03	9.57		9.61	0.03	
	OCT SEP	9.35	0.05	9.43	0.09	9.50	0.08	9.58	0.04	9.62		9.66	0.04	
	AUG	9.27	0.08	9.35	0.08	9.44	0.08	9.52	0.04	9.56		9.60	0.04	
	JUL	9.23	0.09	9.32	0.09	9.41	0.09	9.50	0.05	9.55		9.59	0.05	
	JUN	9.37	0.09	9.46	0.09	9.55	0.09	9.64	0.05	9.69		9.75	0.05	
	MAY	9.79	0.07	9.86	0.07	9.92	0.07	9.99	0.10	10.09		10.19	0.10	
	APR	10.02	0.05	10.07	0.05	10.13	0.05	10.18	0.10	10.28		10.39	0.10	
	MAR	10.05	0.06	10.11	0.06	10.17	0.06	10.23	0.09	10.32		10.41	0.09	
	FEB	9.93	0.05	9.98		10.02		10.07	0.10	10.17		10.28	0.10	
1989	JAN	9.89	0.06	9.95	0.06	10.02	0.05	10.08	0.10	10.18	0.10	10.28	0.10	
ALC: NO	DEC	9.90	0.05	9.95	0.05	10.01	0.05	10.06	0.13	10.19	0.13	10.31	0.13	
	NOV	9.79	0.06	9.85	0.06	9.91	0.06	9.97		10.08		10.20		
	OCT	9.80	0.03	9.83		9.87		9.90		10.05		10.20		
	SEP	10.34	0.09	10.43		10.52		10.61	0.17	10.78		10.96		
	AUG	10.85	0.11	10.96		11.06		11.17		11.34		11.52		
	JUL	10.76	0.09	10.85		10.95	0.09	11.04	0.16	11.20		11.36		
	JUN	10.52	0.09	10.61	0.09	10.70		10.79	0.16	11.00		11.11	0.16	
	MAY	10.53	0.09	10.62		10.72		10.54		10.77		11.00		
	MAR	9.92		9.98		10.03		10.09		10.29		10.49		
	FEB	9.91	0.06	9.97		10.04		10.10		10.28		10.47		
1988	JAN	10.52		10.60		10.68		10.76		10.95		11.15		
	DEC	10.78		10.85		10.91		10.98		11.17		11.36		
	NOV	10.62		10.69		10.75		10.82		11.01		11.21		
	OCT	11.11	0.08	11.19		11.26		11.34		11.53		11.72		
	SEP	10.66		10.85		11.03		11.22		11.34		11.46		
	AUG	10.05		10.18		10.32		10.45		10.60	0.15	10.75	0.15	
	JUL	9.70	0.15	9.85	0.15	10.00	0.15	10.15	0.16	10.31	0.16	10.46	0.16	
	J.N	9.61	0.14	9.75		9.88		10.02		10.17		10.31		
	MAY	9.63		9.72		9.82		9.91		10.07		10.24		
	APR	9.15		9.23		9.30		9.38		9.54		9.66		
	MAR	8.64		8.74		8.83		8.93		9.02		9.10		
	FEB	8.69		8.7		8.90		9.00		9.08		9.16		
1987	JAN	8.62		8.73		8.84		8.95		9.00		9.16		
	DEC	8.81		8.91		9.02		9.12		9.24		9.37		
	NOV	9.01 9.24		9.10		9.19		9.52		9.6		9.81		
	OCT	9.28		9.3		9.44		9.52	0.15	9.6		9.81		
	AUG	9.03		9.12		9.20		9.39	0.14	9.4		9.5		
	JUL	9.05		9.10		9.20		9.37		9.4		9.5		
	JUN	9.36		9.45		9.53		9.62		9.70		9.8		
	MAY	9.38		9.45		9.52		9.59		9.7		9.8		
	APR	8.87		8.9		9.05		9.14		9.30		9.47		
	MAR	9.16		9.27		9.37	0.11	9.48	0.14	9.6	2 0.14	9.7	0.14	
	FEB	9.98		10.07		10.17	0.09	10.26		10.4	2 0.16	10.5		
1986	JAN	10.44		10.5	0.12	10.67		10.75	0.15	10.9	4 0.15	11.05	0.15	

ATTACHMENT 1 Page 8 of 8