



Public Service Commission

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RECORDS AND REPORTING

DATE: May 25, 2000

TO: DIRECTOR, DIVISION OF RECORDS AND REPORTING (BAYÓ)

ALM

FROM: DIVISION OF AUDITING AND FINANCIAL ANALYSIS (DRAPER, LESTER) *DD PL CSK*
DIVISION OF WATER AND WASTEWATER (KYLE, MERCHANT) *PSK*
DIVISION OF LEGAL SERVICES (FUDGE) *PS*

198

RE: DOCKET NO. 000006-WS - WATER AND WASTEWATER INDUSTRY - ANNUAL REESTABLISHMENT OF AUTHORIZED RANGE OF RETURNS ON COMMON EQUITY OF WATER AND WASTEWATER UTILITIES, PURSUANT TO SECTION 367.081(4)(f), FLORIDA STATUTES.

AGENDA: 06/06/00 - REGULAR AGENDA - PROPOSED AGENCY ACTION - INTERESTED PERSONS MAY PARTICIPATE

CRITICAL DATES: FINAL DECISION BY THE END OF 2000

SPECIAL INSTRUCTIONS: NONE

FILE NAME AND LOCATION: S:\PSC\ECR\WP\000006.RCM

CASE BACKGROUND

Pursuant to Section 367.081 (4)(f), Florida Statutes, the Commission is authorized to establish, not less than once each year, a leverage formula to calculate a reasonable range of returns on equity for water and wastewater utilities. The Commission established the current leverage formula by Order No. PSC-99-1382-CO-WS, issued July 19, 1999. This order made Order No. PSC-99-1224-PAA-WS, which presented the current leverage formula, final and effective on June 21, 1999.

DOCUMENT NUMBER-DATE

06409 MAY 24 8

FPSC-RECORDS/REPORTING

DISCUSSION OF ISSUES

ISSUE 1: What is the appropriate range of returns on common equity for water and wastewater (WAW) utilities pursuant to Section 367.081(4)(f), Florida Statutes?

RECOMMENDATION: Staff recommends that the current leverage formula methodology be applied using updated financial data. Staff recommends the following leverage formula:

$$\text{Return on Common Equity} = 8.99\% + 0.376/\text{Equity Ratio}$$

Where the Equity Ratio = Common Equity / (Common Equity + Preferred Equity + Long-Term and Short-Term Debt)

Range: 9.37% @ 100% equity to 9.94% @ 40% equity

(D. DRAPER, LESTER)

STAFF ANALYSIS: Section 367.081(4)(f), Florida Statutes, authorizes the Commission to establish a leverage formula to calculate a reasonable range of returns on equity for water and wastewater (WAW) utilities. The Commission should establish this leverage formula not less than once a year.

Staff notes that the leverage formula depends on four basic assumptions listed below.

- 1) Business risk is similar for all WAW utilities.
- 2) The cost of equity is an exponential function of the equity ratio.
- 3) The marginal weighted average cost of investor capital is constant over the equity ratio range of 40% to 100%.
- 4) The cost rate at an assumed Moody's Baa3 bond rating plus 50 basis points, represents the average marginal cost of debt to a Florida WAW utility over an equity ratio range of 40% to 100%.

In addition, the leverage formula is assumed to be appropriate for the average Florida WAW utility.

The leverage formula relies on two return on equity models and several adjustments for differences in risk and debt cost to conform the model results to the average Florida WAW utility. The models are as follows:

- A Discounted Cash Flow (DCF) model applied to an index of six WAW utilities that have publicly traded stock and are followed by the Value Line Investment Survey (Value Line). The DCF model is an annual model and uses prospective growth rates.
- A Capital Asset Pricing Model (CAPM) using a market return for all dividend paying stocks followed by Value Line, the yield on 30 year Treasury Bonds projected by the Blue Chip Financial Forecasts, and the average beta of the index of WAW utilities.

The results of the above models are averaged and the resulting estimate is adjusted in the following manner:

- A bond yield differential reflecting the difference in yields between an A+/A1 rated bond, which is the average bond rating for the WAW company index, and a BBB-/Baa3 rated bond. Florida WAW utilities are assumed to be comparable to WAW companies with the lowest investment grade bond rating, which is Baa3. This adjustment compensates for the difference between credit quality of the WAW company index and the assumed credit quality of Florida WAW utilities.
- A private placement premium of 50 basis points that reflects the difference in yields on publicly traded debt and privately placed debt, which is illiquid. Investors require a premium for the lack of liquidity of privately placed debt.

After the above adjustments, the resulting cost of equity estimate is included in the average capital structure for the WAW utilities. The cost of equity is determined at a 40% equity ratio, and the leverage formula is derived. The leverage formula derived using the current methodology with updated financial data is presented on Attachment 1.

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ISSUE 2: Should this docket be closed?

RECOMMENDATION: No. Upon expiration of the protest period, if a timely protest is not received, the Order should become final and effective upon the issuance of a Consummating Order. This docket should remain open to allow staff to monitor the movement in capital costs and to readdress the reasonableness of the leverage formula as conditions warrant, until next year's docket is open. (FUDGE)

STAFF ANALYSIS: Upon expiration of the protest period, if a timely protest is not received, the Order should become final and effective upon the issuance of a Consummating Order. This docket should remain open to allow staff to monitor the movement in capital costs and to readdress the reasonableness of the leverage formula as conditions warrant, until next year's docket is open.

SUMMARY OF RESULTS

Leverage Formula Update

	<u>1999</u>	<u>2000</u>
(A) DCF ROE for WAW Index	8.77%	8.63%
(B) CAPM ROE for WAW Index	<u>9.19%</u>	<u>9.33%</u>
AVERAGE [(A+B)/2]	8.98%	8.98%
Bond Yield Differential	.42%	.43%
Private Placement Premium	.50%	.50%
Adjustment to Reflect Required Equity		
Return at a 40% Equity Ratio	<u>.22%</u>	<u>.03%</u>
Cost of Equity for Average Florida WAW		
Utility at a 40% Equity Ratio	<u>10.12%</u>	<u>9.94%</u>

1999 Leverage Formula (Currently in effect)

Return on Common Equity	=	8.14% + 0.789/ER
Range of Returns on Equity	=	8.93% - 10.12%

2000 Leverage Formula (Recommendation)

Return on Common Equity	=	8.99% + .376/ER
Range of Returns on Equity	=	9.37% - 9.94%

Marginal Cost of Investor Capital
Average Water and Wastewater Utility

<u>Capital Component</u>	<u>Ratio</u>	<u>Marginal Cost Rate</u>	<u>Weighted Marginal Cost Rate</u>
Common Equity	41.32%	9.91%	4.09%
Total Debt	<u>58.68%</u>	8.99% *	<u>5.28%</u>
	100.00%		9.37%

A 40% equity ratio is the floor for calculating the required return on common equity. The return on equity at a 40% equity ratio = $8.99\% + 0.376/.40 = 9.94\%$

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	40.00%	9.94%	3.97%
Total Debt	<u>60.00%</u>	8.99% *	<u>5.40%</u>
	100.00%		9.37%

Where: Equity Ratio = $\text{Common Equity} / (\text{Common Equity} + \text{Preferred Equity} + \text{Long-Term Debt} + \text{Short-Term Debt})$

* Assumed Baa3 rate for March 2000 plus a 50 basis point private placement premium.

Source: Moody's Credit Perspectives

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COST OF EQUITY FOR WAW INDEX COMPANIES COST OF

Attachment 1
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VALUE LINE WAW UTILITY INDUSTRY

COMPANY	2000 Quarter 1st				Value line Edition 9, February							
	DIV1	DIV2	DIV3	DIV4	Value Line Ed. 9 - 2/04/00	EPS4	ROE4	GR1-4	GR4+	MARCH		
										HI-PR	LO-PR	AVER-PR
AMERICAN WATER WORKS	0.94	1.01	1.08	1.15	2.30	12.00	1.07	1.06	23.75	18.94	21.34	
AMERICAN STATES	1.32	1.35	1.37	1.40	2.25	11.00	1.02	1.04	31.81	26.00	28.91	
CALIFORNIA WATER SVC	1.10	1.12	1.13	1.15	2.25	13.00	1.01	1.06	26.88	22.25	24.56	
E'TOWN	2.04	2.12	2.21	2.30	3.30	10.00	1.04	1.03	65.00	63.25	64.13	
PHILADELPHIA	0.74	0.77	0.81	0.85	1.50	12.50	1.05	1.05	19.25	16.50	17.88	
UNITED WATER RESOURCES	0.96	0.97	0.99	1.00	1.55	12.50	1.01	1.04	34.94	34.00	34.47	
AVERAGE	1.1833	1.2232	1.2648	1.3083	2.1917			1.0343	1.0490			31.8802
				1.3724								

COST OF EQUITY					March							
8.72% Quarter					8.63% Annual							
0.2917	0.2857	0.2798	0.2740	0.2774	0.2716	0.2660	0.2605	0.2638	0.2584	0.2530		
0.2478	0.2510	0.2458	0.2407	0.2357								
					1.1030	1.0497	0.9992	0.9538				
30.9238												

Source: April 2000 S&P STOCK GUIDE with March Stock

ANNUAL DISCOUNTED CASH FLOW MODEL

\$30.92 = March 2000 average stock price less 3%
flotation costs, or $P_0(1-fc)$

8.63% = Cost of equity required to match the current
stock price with the expected cash flows

Sources:

1. Stock Prices - S&P Stock Guide , April 2000 Edition
2. DPS, EPS, ROE - Value Line Edition 9, February 4, 2000.

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 WAW utilities followed by
Value Line)

MR = Market return

$$\underline{9.33\%} = 6.08\% + .55(11.98\% - 6.08\%)$$

Source: Blue Chip Financial Forecasts, April 1, 2000
Value Screen CD 2.0, April 2000

BOND YIELD
DIFFERENTIALS

Public Utility Long
Term Bond Yield
Averages
Source: Moody's Credit
Perspectives
Long-Term Corporate Bond Yield
Averages - Avg. Public Utility

		0.0910	0.0910	0.0496	0.0496	0.0496	0.0939	0.0939	0.0939	0.0939										
120 Month Average -																				
YEAR	MONTH	Aaa	SPREAD	Aa1	SPREAD	Aa2	SPREAD	Aa3	SPREAD	A1	SPREAD	A2	SPREAD	A3	SPREAD	Baa1	SPREAD	Baa2	SPREAD	Baa3
2000	MAR	7.87	0.06	7.93	0.06	7.99	0.10	8.09	0.10	8.18	0.10	8.28	0.04	8.32	0.04	8.36	0.04	8.40	0.04	8.44
	FEB	7.82	0.09	7.91	0.09	7.99	0.09	8.08	0.09	8.16	0.09	8.25	0.03	8.28	0.03	8.30	0.03	8.33	0.03	8.36
	JAN	7.95	0.11	8.06	0.11	8.17	0.06	8.23	0.06	8.29	0.06	8.35	0.02	8.37	0.02	8.38	0.02	8.40	0.02	8.42
	DEC	7.74	0.13	7.87	0.13	8.00	0.05	8.05	0.05	8.09	0.05	8.14	0.05	8.19	0.05	8.23	0.05	8.28	0.05	8.33
	NOV	7.56	0.13	7.69	0.13	7.82	0.04	7.86	0.04	7.90	0.04	7.94	0.06	8.00	0.06	8.06	0.06	8.12	0.06	8.18
	OCT	7.73	0.11	7.85	0.11	7.96	0.03	7.99	0.03	8.03	0.03	8.06	0.09	8.15	0.09	8.23	0.09	8.32	0.09	8.41
	SEP	7.55	0.14	7.69	0.14	7.82	0.04	7.86	0.04	7.89	0.04	7.93	0.09	8.02	0.09	8.10	0.09	8.19	0.09	8.28
	AUG	7.54	0.14	7.68	0.14	7.82	0.03	7.85	0.03	7.88	0.03	7.91	0.08	7.99	0.08	8.08	0.08	8.16	0.08	8.24
	JULY	7.34	0.14	7.48	0.14	7.62	0.03	7.65	0.03	7.68	0.03	7.71	0.09	7.80	0.09	7.88	0.09	7.97	0.09	8.06
	JUNE	7.37	0.15	7.52	0.15	7.67	0.02	7.69	0.02	7.72	0.02	7.74	0.10	7.84	0.10	7.93	0.10	8.03	0.10	8.13
	MAY	7.09	0.15	7.24	0.15	7.38	0.03	7.41	0.03	7.44	0.03	7.47	0.09	7.56	0.09	7.65	0.09	7.74	0.09	7.83
	APR	6.80	0.16	6.96	0.16	7.11	0.04	7.15	0.04	7.18	0.04	7.22	0.10	7.32	0.10	7.41	0.10	7.51	0.10	7.61
MAR	6.78	0.17	6.95	0.17	7.11	0.05	7.16	0.05	7.21	0.05	7.26	0.10	7.36	0.10	7.45	0.10	7.55	0.10	7.65	
FEB	6.56	0.19	6.75	0.19	6.94	0.05	6.99	0.05	7.04	0.05	7.09	0.11	7.20	0.11	7.30	0.11	7.41	0.11	7.52	
1999	JAN	6.41	0.21	6.62	0.21	6.82	0.05	6.87	0.05	6.92	0.05	6.97	0.11	7.08	0.11	7.19	0.11	7.30	0.11	7.41
	DEC	6.43	0.18	6.61	0.18	6.78	0.04	6.82	0.04	6.87	0.04	6.91	0.11	7.02	0.11	7.13	0.11	7.24	0.11	7.35
	NOV	6.59	0.15	6.74	0.15	6.89	0.05	6.94	0.05	6.98	0.05	7.03	0.09	7.12	0.09	7.22	0.09	7.31	0.09	7.41
	OCT	6.64	0.08	6.72	0.08	6.80	0.05	6.85	0.05	6.91	0.05	6.96	0.06	7.02	0.06	7.07	0.06	7.13	0.06	7.19
	SEP	6.66	0.06	6.72	0.06	6.78	0.05	6.83	0.05	6.88	0.05	6.93	0.07	7.00	0.07	7.06	0.07	7.13	0.07	7.20
	AUG	6.75	0.06	6.81	0.06	6.87	0.04	6.91	0.04	6.96	0.04	7.00	0.07	7.07	0.07	7.13	0.07	7.20	0.07	7.27
	JULY	6.80	0.06	6.86	0.06	6.91	0.04	6.95	0.04	6.99	0.04	7.03	0.07	7.10	0.07	7.16	0.07	7.23	0.07	7.30
	JUNE	6.80	0.06	6.86	0.06	6.91	0.04	6.95	0.04	6.99	0.04	7.03	0.06	7.09	0.06	7.15	0.06	7.21	0.06	7.27
	MAY	6.94	0.04	6.98	0.04	7.02	0.05	7.07	0.05	7.11	0.05	7.16	0.06	7.22	0.06	7.28	0.06	7.34	0.06	7.40
	APR	6.94	0.04	6.98	0.04	7.02	0.05	7.07	0.05	7.11	0.05	7.16	0.07	7.23	0.07	7.30	0.07	7.37	0.07	7.44
	MAR	6.96	0.04	7.00	0.04	7.04	0.04	7.08	0.04	7.12	0.04	7.16	0.07	7.23	0.07	7.30	0.07	7.37	0.07	7.44
	FEB	6.91	0.04	6.95	0.04	6.99	0.04	7.03	0.04	7.08	0.04	7.12	0.08	7.20	0.08	7.28	0.08	7.36	0.08	7.44
1998	JAN	6.85	0.05	6.90	0.05	6.94	0.04	6.98	0.04	7.01	0.04	7.05	0.08	7.13	0.08	7.20	0.08	7.28	0.08	7.36

12/31/99 Equity Ratios of WAW Index Companies

	Common Equity (Thousands)	Total Debt (Thousands)	Preferred Equity (Thousands)	Equity Ratio
American States Water Co.	\$158,846.0	\$188,663.0	\$2,000.0	45.45%
American Water Works	\$1,634,798.0	\$2,671,316.0	\$93,811.0	37.16%
California Water Service Co.	\$177,182.0	\$172,822.0	\$3,475.0	50.13%
E'Town Water Co.	\$229,233.0	\$356,009.0	\$12,227.0	38.37%
Philadelphia Suburban Corp.	\$367,141.0	\$529,015.0	\$1,760.0	40.89%
United Water Resource	\$468,790.0	\$794,136.0	\$42,104.0	<u>35.92%</u>
			Average	41.32%

Source: Utilities' December 31, 1999, 4 th quarter -
 S.E.C. 10-Qs