BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Water and wastewater industry annual reestablishment of authorized range of return on common equity of water and wastewater utilities pursuant to Section 367.081(4)(f), F.S.	DOCKET NO. 010006-WS ORDER NO. PSC-01-2514-FOF-WS ISSUED: December 24, 2001

The following Commissioners participated in the disposition of this matter:

E. LEON JACOBS, JR., Chairman
J. TERRY DEASON
LILA A. JABER
BRAULIO L. BAEZ
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APPEARANCES:

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On behalf of the Florida Waterworks Association

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ORDER APPROVING METHODOLOGY AND ESTABLISHING AUTHORIZED RANGE OF RETURNS ON COMMON EQUITY

BY THE COMMISSION:

BACKGROUND

Section 367.081(4)(f), Florida Statutes, authorizes this Commission to establish, not less than once each year, a leverage

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formula to calculate a reasonable range of return on equity (ROE) for water and wastewater (WAW) utilities. In Docket No. 000006-WS, we established the current leverage formula by Proposed Agency Action (PAA) Order No. PSC-00-1162-PAA-WS, issued June 26, 2000, which was made final by Consummating Order No. PSC-00-1299-CO-WS, issued on July 18, 2000.

For the year 2001 in Docket No. 010006-WS, our staff filed its May 3, 2001 recommendation to establish the new leverage formula. We considered that recommendation at the May 15, 2001 Agenda Conference. In that recommendation, our staff presented primary and alternative proposals.

The primary recommendation proposed that the leverage formula be based on recent returns on equity which we had authorized in recent gas rate cases. The alternative staff recommendation proposed that we continue the existing leverage formula methodology, using returns on equity from financial models. However, the alternative recommendation did include one minor correction and one minor modification to the existing methodology. These were as follows:

> 1. A 3% flotation cost allowance in the calculation of the market return in the Capital Asset Pricing Model (CAPM). The existing CAPM model does not have a flotation cost allowance.

> 2. An addition of 10 basis points to the market return in the CAPM model to allow for the quarterly compounding of dividends. This adjustment is appropriate for non-regulated firms. Most of the firms used to calculate the market return are non-regulated.

Upon consideration of these proposals, and other proposals presented by interested persons, we approved the alternative staff recommendation. Accordingly, PAA Order No. PSC-01-1226-PAA-WS, approving the above-noted modifications and a range of ROE from 9.14% at 100% equity to 10.24% at 40% of equity (or less), was issued June 1, 2001. However, that PAA Order was timely protested by the Florida Waterworks Association (FWA) and the matter was set for hearing on November 5, 2001. Subsequent to the above-noted protest, the Office of Public Counsel (OPC) served notice of its

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intervention. Intervention was acknowledged by Order No. PSC-01-1727-PCO-WS, issued August 24, 2001.

A prehearing conference was held on October 22, 2001, and the Prehearing Order, Order No. PSC-01-2139-PCO-WS, was issued November 2, 2001. The formal hearing was held as scheduled on November 5, 2001.

This Order addresses the issues and evidence presented at the November 5, hearing. We have jurisdiction pursuant to Section 367.081(4)(f), Florida Statutes.

STIPULATIONS

The Prehearing Order set forth four stipulations that were agreed to by the parties and our staff. We considered and approved these stipulations at the hearing.   The stipulations are as follows:

1. This docket should remain open to allow our staff to monitor the movement in capital costs and to readdress the reasonableness of the leverage formula as conditions warrant.

2. The depositions taken on October 23, 2001 and November 1, 2001, of Dr. Roger A. Morin, and all exhibits thereto, shall be admitted as an exhibit at the hearing and shall be in lieu of cross-examination of that witness by the parties.

3. The direct and rebuttal testimony of Dr. Roger A. Morin shall be inserted into the record as though read at the appropriate time, and the exhibits attached to that testimony shall be admitted into the record at the hearing.

4. Dr. Roger A. Morin shall be allowed to attend the hearing by telephone, and he shall be excused if the Commission determines that there are no cross-examination questions for him.

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APPROPRIATE METHODOLOGIES

At the Prehearing Conference, the only pure issue of fact identified by the parties was what is the most appropriate model or method to estimate a fair and reasonable return on a water and wastewater utility's common equity capita. The parties took the following positions:

> FWA: No individual model or approach provides a dependable level of accuracy. Several different approaches should be utilized to cross-check results. A diversified, comprehensive analysis results in a range of returns significantly higher than contained in the PAA Order.

> OPC: The most appropriate model is that which is used in the PAA [PSC-01-1226-PAA-WSI. With occasional modifications, this model has been used for many years and clearly has proven to result in ROEs that attract capital investment to the industry.

FWA Witness Dr. Roger A. Morin employed several variants of three distinct market-based ROE models: (1) CAPM, (2) Risk Premium, and (3) Ciscounted Cash Flow (DCF). Witness Morin's overall analysis includes two studies applying a CAPM and an empirical approximation of the CAPM using current market data. He also performed four risk premium analyses based on historical and allowed risk premium data from both the electric and natural gas distribution industries. Finally, witness Morin performed a DCF analyses on three surrogates for the WAW industry: a group of large water utilities, a group of transmission and distribution (T&D) electric utilities, and a group of natural gas distribution utilities. The results of his financial analyses and the application of his professional judgment, including an assessment of the risk circumstances of the industry, led witness Morin to conclude that the just and reasonable range of returns on common equity for a typical Florida WAW utility was from 10.2% to 12.7% with a midpoint of 11.5%.

As for the use of our past leverage formula, witness Morin generally endorsed the notion of a generic mechanistic approach for the determination of a fair ROE. Although not specifically

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recommending a different approach to our past leverage formula, witness Morin did mention the possibility of allowing the cost of debt in the formula to vary depending on the level of equity. Furthermore, witness Morin discussed using an average of five formal relationships between the cost of capital and leverage as explained by Modigliani and Miller's (M&M) theory of financial leverage. Witness Morin believed that the current equity allowance level of 40% to 100% could be relaxed to 30% to 100%.

OPC Witness Mark A. Cicchetti testified that the assumptions and conclusions contained in PAA Order No. PSC-01-1226-PAA-WS were reasonable and appropriate for determining allowed returns on common equity for WAW utilities in Florida. Witness Cicchetti determined the appropriateness of the allowed return on common equity incorporated in the PAA Order by applying a DCF model on an index of WAW utilities and a risk premium analysis on an index of natural gas distribution companies. The PAA Order resulted in a range of ROE from 9.14% at 100% equity to 10.24% at 40% equity (or less).

Staff witness Pete Lester determined the cost of equity for the leverage formula using a DCF model and a CAPM. Witness Lester applied these two models to an index of water utilities and to an index of natural gas distribution utilities. Witness Lester's analysis resulted in a range of ROE from 9.69% at 100% equity to 10.80% at 40% equity (or less).

All three witnesses employed some version of the DCF model in their analysis. Witness Morin and witness Lester employed versions of the CAPM in both of their analyses. Although witness Cicchetti did not perform a CAPM analysis, his analysis implicitly endorses the use of the CAPM by supporting the protested PAA Order. Witness Cicchetti and witness Lester used the existing leverage formula methodology for determining the ROE for Florida's WAW utilities.

Witness Morin suggested amending the leverage formula to allow the cost of debt to vary in relationship to the equity ratio. In addition, witness Morin discussed using an average of five formal relationships between the cost of capital and leverage as explained by M&M's theory of financial leverage. The five formal relationships M&M described in their theory of financial leverage

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are M&M Leverage with no tax, M&M Leverage with tax, Miller with personal and corporate tax, CAPM and Empirical CAPM (ECAPM).

Witness Cicchetti stated that prior to recommending the leverage formula for use before the Commission, the staff of the Commission thoroughly analyzed the relevant theories related to the effects of leverage on the cost of equity. Witness Cicchetti thought it would be:

> . . . inappropriate to average the five hypotheses cited by witness Morin and use the result in the leverage formula. Because some of the hypotheses do not account for the impacts of regulation, the legitimacy of the result would be compromised.

We agree that it would be inappropriate to average the five hypotheses cited by witness Morin. The leverage formula was developed over the years through workshops and hearings in order to provide a flexible and useful tool for determining the ROE for the more than 300 WAW utilities regulated by this Commission. The simplicity of the leverage formula allows for greater efficiencies in setting a utility's ROE. In addition, we agree with witnesses Cicchetti and Lester that limiting the low end of the equity ratio to 40% provides an incentive to the companies to avoid imprudent amounts of debt.

Based on our analysis of this issue and a review of the witnesses' testimonies, we find, that with the adjustments delineated later in this Order, the existing leverage formula methodology used to determine the ROE for Florida's WAW utilities is appropriate. In addition, we find that the DCF model and the CAPM are the most appropriate models in which to estimate a fair and reasonable return for Florida's WAW utilities' common equity.

ACTUAL MEASURED COST OF EQUITY

At the Prehearing Conference, the parties identified as a mixed issue of policy and law as whether the Commission should establish a leverage formula that systematically results in an allowed equity return that is either higher or lower than the actual measured cost of equity for an average water and wastewater

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utility at the corresponding equity. The parties took the following positions:

FWA: Section 367.081(4)(f), Florida Statutes, does not limit the Commission to consideration of any single model for determining the cost of equity. The Commission should consider and evaluate the testimony and evidence regarding various approaches for estimating the cost of equity in determining the appropriate range of returns.

OPC: No. Sound public policy as well as Section 367.081(4)(f), F.S., contemplates the establishment of authorized equity returns that equal - not systematically exceed - the actual cost of equity.

In determining the appropriate cost of equity, any decision we make must be based on the evidence contained in the record. Section 367.081(4)(f), Florida Statutes, authorizes this Commission to establish, not less than once each year, a leverage formula to calculate a reasonable range of ROE for an average WAW utility. Determining the appropriate ROE is a subjective process based on forecasted information and professional judgement. The witnesses in this proceeding recommended the use of generally accepted financial models and the use of specific industry information concerning investors' perception of risk for WAW investments. Based on the information provided in this proceeding and with the adjustments delineated later in this Order, we find that the current Commission leverage formula methodology is the most appropriate method to use in setting the ROE for Florida's WAW utilities.

COMPARISON WITH OTHER RATE-BASED REGULATED INDUSTRIES

At the Prehearing Conference, the parties identified as an issue of policy as to whether there was justification for utilizing a leverage formula methodology that yields a lower return on equity for water and wastewater utilities as compared to other rate-based regulated industries in Florida and elsewhere. The parties took the following positions:

FWA: The PAA Order produces returns on equity that are significantly less than the composite authorized rate of

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  return for Commission regulated electric and gas
  utilities. There is no reasonable or justified basis for
  this difference and this result does not appropriately
  reflect the risks and issues facing the water and
  wastewater industry.

  OPC: The formula should reflect the actual cost of equity
  for an average water/wastewater utility, not ROEs
  stipulated in some other industry. If risk factors
  associated with another industry are different (e.g.,
  threat of restructuring, absence of indexing), the ROEs
  should reflect that difference.

  FWA argues that the past methodology produced returns
significantly less than the composite authorized rate of return for
Commission regulated electric and gas utilities. FWA goes on to
argue that we ". . . should refrain from elevating the subjective
application of financial models for which there are no directly
comparable proxies to conclusive status for determining the
reasonable range of ROEs for the average Florida water and
wastewater utility." FWA believes that WAW utilities have become
as risky if not more risky than energy utilities.

  In addition, FWA notes that the rising costs, the continually
changing environmental regulations and conditions, the small size
of the average water utility, the uncertainty regarding future
demand (and supply), the possibility of contamination, and the need
for substantial external financing must all be considered. In
conclusion, FWA argues that there is no rationale for the ROE for
WAW utilities to be below that of the gas utilities, and that, in
fact, the ROE should be higher than the average return allowed for
the gas utilities.

  In its post-hearing brief, OPC states that this issue was
presented as one of policy and not one of fact, and that OPC's
approach has been **as** a matter of regulatory policy. OPC also
states that Section 367.081(4)(f), Florida Statutes, clearly
applies only to WAW companies. Therefore, OPC argues that those
returns from other regulated industries should not be considered
and especially when those returns are based on stipulations.

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Although we agree in principal with OPC's interpretation of
the statute, we find that the evidence shows that the average WAW
utility in Florida may face more risk than the energy utilities
used in the models. Pursuant to Section 367.081(4)(f), Florida
Statutes, we must establish a leverage formula which reasonably
reflects the "range of returns on common equity for an average
water or wastewater utility." Using the methodologies set forth in
this Order, and allowing for placement costs and a risk premium to
account for the small size and the additional risk of the average
WAW utility, we believe will result in a leverage formula
appropriate for an average WAW utility. The specific amounts for
the placement costs and the risk premium are set forth below.

<u>ESTABLISHMENT OF APPROPRIATE RANGE OF RETURNS ON COMMON EQUITY</u>

For the ultimate issue on what is the appropriate range of
returns on common equity for water and wastewater utilities
pursuant to Section 367.081(4)(f), Florida Statutes, the parties
took the following positions:

> FWA: The reasonable range of return on common equity to
> be used as part of the leverage formula methodology is
> 10.2% to 12.7% with the mid-point of 11.5% for a typical
> Florida water and wastewater utility with an average
> capital structure. The range of return set forth in the
> PAA Order is too low and would place Florida water and
> wastewater utilities at a competitive disadvantage in the
> capital markets.

> OPC: 9.14% ROE @ 100% equity ratio to 10.24% ROE @ 40%
> (or lower) Equity ratio, based on the formula: Return on
> Common Equity = 8.41% + 0.731/Equity Ratio.

<u>SUMMARY OF WITNESSES TESTIMONY</u>

<u>Witness Morin's Direct and Cicchetti's Rebuttal</u>:

<u>CAPM</u>: In his analysis, FWA witness Morin used a common form
of the CAPM and an ECAPM. In using these models, he had to make
assumptions regarding the appropriate beta, market return, and
risk-free rate. He used a historical measure of beta supplied by
<u>Value Line</u>. Witness Morin's estimate of the market return was

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based on the results of both forward-looking and historical studies of long-term risk premiums. Finally, for the risk-free rate, he used the actual yield on long-term Treasury bonds. Based upon this analysis, he concluded that his common form of the CAPM and his ECAPM analysis indicated a cost of equity of 10.2% and 10.8%, respectively.

On rebuttal, Witness Cicchetti criticized the use of the actual yield on long-term Treasury bonds used in witness Morin's CAPM analysis. Witness Cicchetti states:

> [T]he current yield on long-term Treasury bonds is lower. Consequently, using witness Morin's own methodology, the results of his CAPM risk premium approach and Risk Premium analysis are overstated by 50 basis points.

In addition, witness Cicchetti disagrees with witness Morin's use of a market risk premium, noting that witness Morin's ". . . market risk premium was based on the historical earned returns of a broad market sample of common stock over the returns of long-term Treasury bonds." Witness Cicchetti does not believe it is appropriate to rely on a risk premium analysis that uses earned returns rather than expected returns in determining *the* risk premium. Witness Cicchetti states:

> Required return is a function of expectations and not a function of ex post performance. Actual performance may deviate substantially from what was expected but it is expectations relative to requirements that determine if an investment should be made. Relying on earned returns in the rate making process as the basis for required returns can produce incorrect results.

Furthermore, witness Cicchetti believes that relying on earned returns as a proxy for required returns can produce nonsensical results. For example, he points to witness Morin's Exhibit 1, RAM-2 and 3, which shows annual equity risk premiums that range from a negative 37.3% to a positive 61.2%. Witness Cicchetti believes that it is illogical to think that in any year the cost of equity was 37.3 percentage points less than the cost of less risky debt.

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Witness Cicchetti also believes that it is inappropriate for witness Morin to rely on expected earnings growth as a proxy for expected dividend growth in determining the market risk premium of his CAPM. The DCF model is used to determine the market risk premium in the CAPM. Witness Cicchetti states that the DCF model is a dividend discounting model which in theory takes the present value of all dividends paid out and the present value of the future stock price, discounted back in order to determine the discount rate or investors' required return. Furthermore, he states that due to the fact that not all earnings are paid out as dividends when they are earned, the use of earnings in determining the market risk premium violates the principle of the time value of money.

RISK PREMIUM: In his Risk Premium analysis, witness Morin used historical and allowed risk premiums on a surrogate index of electric and natural gas utilities. For the risk-free rate, he used the actual yield on long-term Treasury bonds. He then adjusted the results of the Risk Premium model by 35 basis points to compensate for his perception of the difference in risk between that of the utility indexes used in his model and the average Florida WAW utility.

As previously stated, witness Cicchetti disagrees with using the actual yield on long-term Treasury bonds, and he also disagreed that it was appropriate to use ex post returns as a proxy for expectations. He states that the use of these inputs in the Risk Premium model overstates the cost of equity for a typical Florida WAW utility. Witness Cicchetti believes the risk adjustment made by witness Morin to compensate WAW utilities for their greater risk is wrong and argues that WAW utilities are not riskier than electric or natural gas utilities. He points out that because of limited technological breakthroughs, lack of competition and having no substitutes for water, Standard and Poor's considers water utilities to be the lowest-risk utility sector. Witness Cicchetti believes that using allowed returns to determine a utility's cost of equity is circular logic and that the required ROE is a function of relevant risk.

DCF: Witness Morin also conducted a cost of equity analysis using a single-stage annual DCF model, applied to three proxy groups: a group of WAW utilities, a group of T&D electric utilities, and a group of natural gas distribution utilities. To

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use these models, he had to make assumptions regarding the expected
dividend yield and the expected long term growth rate. The
expected dividend in the DCF model can be obtained by multiplying
the current indicated annual dividend rate by the assumed expected
long term growth rate. Witness Morin used long-term earnings
growth rate forecasts provided by Institutional Broker's Estimate
Systems (IBES) and by Value Line's earnings growth forecasts as a
proxy for dividend growth rates.

After combining the long-term growth rates for his WAW
utilities with their average expected dividend yields, witness
Morin then added 30 basis points to recognize quarterly payments of
dividends. He further adjusted his ROE results to recognize a
five-percent flotation cost allowance. The estimated ROE obtained
from witness Morin's DCF analysis on his WAW utilities group using
IBES growth rates is 10.2%. Witness Morin then performed a DCF
analysis, on his same WAW utilities group, using historical
earnings growth rate forecasts (instead of analyst earnings growth
rates). After adjusting for quarterly timing of dividends and
flotation costs, his analysis resulted in an 11.4% cost of equity.
Performing the same analysis for a third time, but using Value
Line's long-term earnings growth rate forecasts instead of IBES or
historical growth rates, and not adjusting for quarterly timing of
dividends or flotation allowance, resulted in an 11.6% coat of
equity.

Witness Morin performed a DCF analysis on his T&D electric
utilities group by using IBES average long-term growth rate
forecasts. Witness Morin adjusted the results for a five-percent
flotation cost allowance and also added 35 basis points for a small
size premium. Witness Morin truncated the range of his indicated
returns by removing the highest and lowest cost of equity outcomes.
After these adjustment were made, his ROE analysis produced a 10.8%
cost of equity. Witness Morin then conducted a similar DCF
analysis on his T&D electric utilities group, using Value Line's
long-term earnings growth rate forecast instead. After adjusting
for flotation costs and a small size premium, he truncated these
results to arrive at a 12.3% cost of equity.

On his index of natural gas utilities, witness Morin repeated
his DCF analyses using IBES and Value Line earnings growth rate
forecasts. The results of using IBES forecasted growth rate

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estimates on his index of natural gas utilities, resulted in a ROE estimate of 12.7%. His DCF analysis using Value Line growth rate estimates resulted in a ROE estimate of 14.5%. Witness Morin considered the ROE estimate derived from his DCF analysis on his index of natural gas utilities, using Value Line's forecasted earnings growth rate to be an outlier and accorded it little weight.

As previously stated, witness Cicchetti believes that the use of earnings growth rates, historical or projected, as a proxy for expected dividend growth rates in the DCF model is inappropriate. Witness Cicchetti testified that using earnings growth rates in the DCF analysis overstates the cost of equity for a typical Florida WAW utility.

Witness Cicchetti's Direct and Morin's Rebuttal:

DCF: Using a two-stage variable growth rate DCF model, witness Cicchetti averaged the high and low stock price for each company and assumed an initial five-year growth period based upon Value Line's explicit dividends forecasts. Assuming a constant growth rate for the period beyond five-years, he calculated the long-term constant growth rate by multiplying Value Line's expected ROE (r) and expected retention rate (b) for 2005 (known as "b times r" or the earnings retention method). Using his DCF model on an index of WAW utilities and adjusting the results to include a three-percent flotation cost allowance, he estimated an ROE of 8.91%. Witness Cicchetti also included a quarterly compounding two-stage variable growth rate DCF model for his index of WAW utilities. The result of his quarterly DCF model ROE estimate was 9.08%.

Witness Morin criticizes witness Cicchetti analysis for being too narrow in scope by relying exclusively on one particularly fragile variant of the DCF approach, namely, the retention growth approach (b times r). Witness Morin states that:

> Mr. Cicchetti's recommendation rests entirely on the retention growth DCF method, and there are serious logical inconsistencies in this particular method because witness Cicchetti is forced to assume the answer to implement the method. This method is the least valid, both empirically and theoretically. . . . Mr. Cicchetti

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fails to use analyst's growth rate forecasts in his DCF
analysis, even though the stock price he uses in his
analysis is predicated on such forecasts.

Witness Morin disagreed with witness Cicchetti's singular use
of Value Line's forecasted dividend growth rate in his DCF model,
stating that there are at least four different techniques to
estimate an expected growth rate, including the retention growth
method. Witness Morin believes that the use of the retention
growth method (b times r) is circular because the method requires
you to assume the ROE answer to start with. In addition, witness
Morin states that witness Cicchetti's forecast of expected ROE
published by Value Line is based on end-of-period book equity
rather than on average book equity, understating the results by 10-
20 basis points.

RISK PREMIUM: Witness Cicchetti also performed a Risk Premium
analysis on an index of natural gas companies. This analysis
required him to make two assumptions: first, the equity risk
premium, and second, the risk-free rate of return. Witness
Cicchetti determined the equity risk premium by subtracting the
required returns on equity as reported by Value Line from the then
current yield on long-term government bonds, averaged over a ten-
year period. By taking this average and adding it to a consensus
forecast for long-term government bonds, as published by Blue Chip
Financial Forecasts, he then adjusted the results for a bond yield
differential (the difference between the Index's average bond
rating and the assumed BBB rating of Florida's WAW utilities)
producing an ROE estimate of 8.60%.

On rebuttal, witness Morin states that "witness Cicchetti's
risk premium analysis is merely a replication of his DCF analysis
over several years . . ." and therefore subject to the same
criticisms as previously stated on his DCF analysis, especially the
inherent circularity of the technique.

Witness Lester's Direct and Morin's and Cicchetti's Rebuttal:

DCF: In his testimony, witness Lester used a two-stage
annually compounded DCF model and a CAPM analysis applied to an
index of WAW utilities and natural gas utilities. Witness Lester's
inputs for his DCF model consisted of current stock prices, Value

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<u>Line</u>'s forecasted dividend growth rates, and long-term growth rates
using the earnings retention method. The results of his DCF model
were adjusted for a three-percent flotation cost allowance, which
produced an ROE estimate for his index of WAW utilities of 9.01%
and an ROE estimate of 10.71% for his index of natural gas
utilities.

   <u>CAPM</u>: Witness Lester also performed a CAPM analysis on an
index of WAW utilities and natural gas utilities. For his inputs,
witness Lester used the average forecasted 30-year Treasury bond
and the average beta as reported by <u>Value Line</u>. For his required
market return input, witness Lester applied a simple DCF equation
to 652 companies selected from <u>Value Line</u>. In his simple DCF model
he used the average of expected earnings growth rate and expected
dividends growth rate as a proxy for the forecasted growth rate.
Witness Lester added 10 basis points to his required market return
in his CAPM to compensate for quarterly compounding of dividends.
The result of his CAPM analysis for both WAW and natural gas
utilities was 8.98%.

   <u>Adjustments</u>: After averaging the estimated ROE results of
these four models, witness Lester made three adjustments to his
final recommended ROE. The first adjustment was to adjust for the
historical differences between the different bond yield rated
indexes and the average Florida WAW utility. This adjustment,
consistent with the status quo methodology, amounted to 25-basis
points. He then added 50 basis points to compensate for the
liquidity premium that investors require for holding privately
placed bonds. Finally, he added 50 basis points to compensate for
the small size of Florida WAW utilities. Based on his financial
analysis, Witness Lester recommended a leverage formula range of
9.69% to 10.80%.

   In his criticism of witness Lester's testimony, witness Morin
had several points of disagreement with the methods and inputs of
his models. These disagreements are similar to those he expressed
in regard to the models and methods used by witness Cicchetti in
his ROE analysis. Witness Morin disagreed: (1) with witness
Lester's use of the retention growth approach in the DCF model; (2)
the exclusive use of <u>Value Line</u>'s [dividend] growth rate forecasts
as opposed to the consensus analyst's [earnings] growth rate
forecast; (3) the market risk premium [methodology] of his CAPM

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analysis; (4) the use of a plain vanilla version of the CAPM; and
(5) the capital structure assumption [the 40% floor in the allowed
equity ratio] inherent in the leverage formula.

Witness Morin did agree with several of witness Lester's views
and procedures. Witness Morin agreed with witness Lester's: (1)
use of information from two regulated industries, although he was
somewhat concerned with the statistical reliability of a four-
company sample of water utilities; **(2)** stock prices in his DCF
analysis; (3) inclusion of a flotation cost allowance; (4)
estimate of his risk free rate in the CAPM; (5) beta estimates in
the CAPM analysis; and (6) risk adjustments, including a bond yield
differential, a private placement premium, and a size premium in
the calculation of the recommended leverage formula.

On rebuttal, Witness Cicchetti disagreed with witness Lester's
use of an earnings growth rate in determining the market risk
premium inherent in the CAPM. This disagreement is similar to the
criticisms witness Cicchetti expressed about witness Morin's use of
a forecasted earnings growth rate in his models. Witness Cicchetti
also stated that the addition of a small size risk premium in the
leverage formula is unnecessary. Witness Cicchetti believes that
the risk due to size has already been accounted for by the bond
yield adjustment and the private placement premium included in the
leverage formula.

COMMISSION ANALYSIS

All three witnesses agree with the use of a bond yield
differential adjustment and a private placement premium. In
addition, all three witnesses agree on a flotation cost allowance,
but disagree on the required size of the adjustment. Finally,
there was a general consensus on an adjustment for quarterly
dividends with the models.

Witnesses Lester and Cicchetti both stated that historically
the utilities' underwriting expenses associated with issuing common
stock have averaged around three to four-percent. Witness Morin
stated that according to empirical financial literature, the total
flotation costs amount to four-percent for the direct costs and
one-percent for the market's downward pressure on a newly issued
stock's price. Due to the small size of Florida's WAW utilities

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and the lack of in-house legal services and additional resources normally available to larger companies, we find that a four-percent flotation cost allowance is appropriate. To allow for this four-percent flotation cost adjustment, we add 20-basis points to each model. This adjustment of 20-basis points is derived from an approximate average of a one-percent allowance in each of the witnesses' testimonies.

Moreover, we find that an adjustment for a bond yield differential and a private placement premium is appropriate. This would be in agreement with all the witnesses' testimonies. As for the small size premium, we find that an adjustment is justified in light of the new information presented in witness Lester's testimony concerning the size of Florida's WAW utilities. (See Attachment B, which is attached to this Order and incorporated herein.) Witness Lester was the only witness who specifically analyzed Florida's WAW utilities. In his analysis, witness Lester reports that two-thirds of Florida's WAW utilities range from small to very small. Based on this information and the opinions of witnesses Lester and Morin, we find that a 50-basis point adjustment is appropriate and shall be included in the leverage formula.

Another risk factor facing Florida's water and wastewater industry is regulatory risk. There are two primary regulatory risk factors that have a profound effect on these utilities. First, water and wastewater utilities face significant exposure to used and useful adjustments. These adjustments impact cash flow and financial integrity. Unlike electric utilities who have the opportunity to sell excess generation capacity on the wholesale market, water utilities have limited revenue producing options for excess capacity even though it may be prudent to build for future growth. Second, water utilities face increasing cost pressures due to environmental regulations. Unlike electric utilities who have access to an environmental cost recovery clause, water utilities face risk of recovery and regulatory lag via a base rate proceeding.

As to whether a single-stage DCF or two-stage DCF is more reliable at determining an estimated ROE, we find that a two-stage annual DCF provides a more detailed analysis of the cost of equity because short-term forecasts are more reliable than long-term

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forecasts. Our staff has analyzed the approximate basis point
differences between a two-stage and single-stage DCF model using an
index of WAW utilities. The results of this analysis shows an
estimated 9.01% ROE for the two-stage DCF model, and 9.46% ROE for
the single-stage DCF model.

As for the DCF model's inputs, we believe that it is
appropriate to use the forecasted dividend growth rates as
published by Value Line in the calculation of the DCF model. We
believe that dividend growth rates are a more reliable prediction
of short-term future growth and more closely satisfy the concept of
the time value of money theory. Witness Cicchetti supports this
concept by testifying that:

> Required return is a function of expectations and not a
> function of ex post performance. Actual performance may
> deviate substantially from what was expected but it is
> expectations relative to requirements that determine if
> an investment should be made. Relying on earned returns
> in the ratemaking process as the basis for required
> returns can produce incorrect results. For example,
> just because a company had an earned ROE of either 5% or
> 25% does not mean that the company's cost of equity was
> either 5% or 25%. Furthermore, relying on earned returns
> as a proxy for required returns can produce nonsensical
> results.

In addition, we also believe that the use of a retention
growth method for the periods beyond the first five years is
appropriate. An average of a dividend growth rate forecast and an
earnings growth rate forecast would also be appropriate, but the
retention growth method most closely satisfies the concept of the
time value of money theory.

As for the CAPM inputs, all three witnesses agreed that the
average beta as derived from an index of the companies published in
Value Line was appropriate. Therefore, we find that the use of the
average beta as derived from Value Line is appropriate. It appears
that the twelve-month average yield of the 30-year Treasury Bond,
as reported by Blue Chip Financial Forecasts, as opposed to using
the actual 30-year Treasury Bond yield, is a more reliable measure
due to its smoothing effect on short-term aberrations. For the

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calculation of the market risk premium, we find that the averaging
of a forecasted dividend growth rate with the forecasted earnings
growth rate is appropriate. Although this seems to contradict our
previous determination concerning the inputs to the DCF model, we
believe that it is appropriate here in determining the overall
market risk premium. Our reason for using this method is based on
the assumption stated by witness Cicchetti that over time the
earnings growth rate and the dividends growth rate would
theoretically be the same.

The use of the CAPM and DCF model is based on the assumption
that the index of companies used in the models to estimate an ROE
for a utility have comparable characteristics. Other than witness
Morin's use of an electric utility index in his analysis, nowhere
else in the record does the evidence support the use of a T&D
electric utility index for a proxy of WAW utilities. Therefore, we
find that it is not appropriate to use a T&D electric utility index
as a proxy for WAW utilities.

All three witnesses used an index of nationally traded,
dividend paying WAW companies as a proxy for Florida WAW utilities.
However, each witness criticized the small size of their index and
the unreliability of the information provided by using only four
companies. For the four water companies used in witness
Cicchetti's and witness Lester's testimonies, two utilities are
located in California. These companies are heavily influenced by
the California Public Service Commission and the current electric
deregulation crisis. In addition, another of the four utilities in
the index is being acquired by a foreign investor. When asked if
takeover rumors can have an impact on stock prices, witness
Cicchetti said yes. Therefore, takeovers of publicly traded
utilities can affect the results of an ROE estimate for a
particular industry. Finally, witness Morin, said:

> There is a severe shortage of pure-play water
> utilities whose shares are publicly listed and actively
> traded, and are therefore subject to the opinions and
> actions of investors in a measurable way. Given this
> situation, the need to extend the sample to companies of
> comparable risk is obvious.

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In addition, witness Morin stated:

I consider the DCF results obtained from the water
utilities group somewhat unreliable in view of the
scarcity of available companies. Moreover, the DCF
results are somewhat clouded by pending merger
negotiations for several of the water companies in the
sample. There is **a** very strong possibility that the
stock price of these companies used as input in the DCF
dividend yield component is biased by ongoing merger
negotiations. The DCF analysis of these companies is
therefore susceptible to the singular vagaries of these
particular companies. **An** abnormally low or high ROE
recommendation can result from a biased DCF estimate. It
is fairly common practice amongst experts and investment
analysts to exclude companies currently involved in
merger negotiations when applying the DCF model to a
sample of comparable risk companies.

Based on the record and the testimonies of the witnesses, we
find that excluding the index of four WAW utilities used in witness
Cicchetti's and witness Lester's analyses would result in a more
reliable estimate. Due to the lack of available data, we also find
it appropriate to exclude the WAW index used by witness Morin.
Moreover, there is sufficient evidence in the record showing that
the specific business risks and singular vagaries of the three of
the four water utilities used in the index overpower the most
important assumption implicit in the financial models, that is,
that each water utility has similar business risks compared to the
risks of Florida's WAW utilities.

All three witnesses used an index of natural gas distribution
companies as a proxy for the WAW utilities. With the elimination
of the electric and water indexes, we find that the use of natural
gas distribution companies as a proxy will result in a more
reasonable cost of equity for Florida's WAW utilities. We have
concerns with using only one index of companies in our analysis,
but we believe the alternative to be unreliable and could possibly
produce distorted results.

CONCLUSION

Based on our analysis of this issue and a review of the
witnesses' testimonies and exhibits, we find **as** follows:

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1. A two-stage annual DCF model shall be applied to an index of natural gas distribution utilities, using forecasted expected dividend growth rates for the first stage and the retention earnings method for the second stage.

2. The CAPM shall be used and applied to an index of natural gas distribution utilities, using an average utility beta derived from Value Line, and a market risk premium calculated by a simple DCF model using an average forecasted dividends and earnings growth rate.

3. A 20-basis point adjustment shall be made to each model to adjust for flotation cost allowance. In addition, a 10-basis point adjustment shall be made to the CAPM to adjust for quarterly compounded results.

4. The following adjustments shall be made to the average of the two models: a bond yield differential adjustment; a private placement premium of 50 basis points; and a small-utility risk premium of 50 basis points.

5. The applied range of ROE for a WAW utility shall be from 40% equity to 100% equity. In addition, an adjustment to reflect the required equity return at a 40% equity ratio shall be included.

See Attachment A, which is attached to this Order and incorporated herein.

Based on the above, we calculate the leverage formula to be as follows:

Return on Common Equity = 9.10% + 0.896/Equity Ratio

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

Range: 10.00% @ 100% equity to 11.34% @ 40% equity

Based on the foregoing, it is

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ORDERED by the Florida Public Service Commission that the leverage formula shall use the methodologies and adjustments as shown in the body of this Order. 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 all findings made in the body of this Order are hereby approved. It is further

ORDERED that returns on common equity are hereby capped at 11.34 percent for all water and wastewater utilities with equity ratios of less than 40 percent in order to discourage imprudent financial risk. It is further

ORDERED that all matters contained in Attachments A and B of this Order are incorporated herein by reference. It is further

ORDERED that this docket shall remain open to allow this Commission 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 opened.

By ORDER of the Florida Public Service Commission this 24th day of December, 2001.

BLANCA S. BAYÓ, Director
Division of the Commission Clerk
and Administrative Services

(S E A L)
RRJ

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NOTICE OF FURTHER PROCEEDINGS OR JUDICIAL REVIEW

The Florida Public Service Commission is required by Section 120.569(1), 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.

Any party adversely affected by the Commission's final action in this matter may request: 1) reconsideration of the decision by filing a motion for reconsideration with the Director, Division of the Commission Clerk and Administrative Services, 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399-0850, within fifteen (15) days of the issuance of this order in the form prescribed by Rule 25-22.060, Florida Administrative Code; or 2) judicial review by the Florida Supreme Court in the case of an electric, gas or telephone utility or the First District Court of Appeal in the case of a water and/or wastewater utility by filing a notice of appeal with the Director, Division of the Commission Clerk and Administrative Services 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 after the issuance 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.

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ATTACHMENT A

Calculation of Approved and PAA (Status Quo) Leverage Formulae

	Approved 2001	PAA Order 2001
(A) DCF ROE for Water Index		9.01%
(B) DCF ROE for Gas Index	10.81%	
(C) CAPM for Water Index		8.98%
(D) CAPM for Gas Index	9.08%	
AVERAGE	9.95%	9.00%
Bond Yield Differential	.25%	.41%
Small-Utility Risk Premium	.50%	
Private Placement Premium	.50%	.50%
Adjustment to Reflect Required Equity		
Return at a 40% Equity Ratio	.15%	.11%
Cost of Equity for Average Florida WAW		
Utility at a 40% Equity Ratio	11.34%	10.01%

2000 Leverage Formula (Currently in Effect)

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

2001 Leverage Formula (Approved)

Return on Common Equity	=	9.10% + .896/ER
Range of Returns on Equity	=	10.00% - 11.34%

2001 Leverage Formula (PAA Order)

Return on Common Equity	=	8.54% + .588/ER
Range of Returns on Equity	=	9.13% - 10.01%

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ATTACHMENT A

BASIC DCF EQUATION

$$P_0 = \frac{D_1}{(1+K)} + \frac{D_2}{(1+K)^2} + \frac{D_3}{(1+K)^3} + \ldots + \frac{D_\infty}{(1+K)^\infty}$$

where: D_t = Dividends paid at the end of period t

K = Investors' required rate of return

P_0 = The current price of the stock this can also be
written as

$$P_0 = \sum_{t=1}^{n} \frac{D_t}{(1+K)^t}, \text{ as n approaches } \infty$$

Assuming constant growth in dividends and $g < K$, these equations reduce to

$$K = \frac{D_1}{P_0} + g$$

where g is the constant growth rate in dividends.

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ATTACHMENT A

TWO-STAGE ANNUALLY COMPOUNDED DCF MODEL

$$P_0(1-FC) = \frac{D_1}{(1+K)} + \frac{D_2}{(1+K)^2} + \ldots + \frac{D_n}{(1+K)^n} + \frac{D_n(1+g)}{K-g}\frac{1}{(1+K)^n}$$

Where

P_0 = The current stock price

$D_1, D_2, \ldots D_n$ = Expected dividends each year

FC = Flotation costs

K = Investors required rate of return

g = The constant growth rate after year n

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ATTACHMENT A

COST OF EQUITY   INDEX OF GAS UTILITIES

COMPANIES	2001	2002	2003	2004	2005	EPS4	ROE4	GR1-4	GR4+	AVG-PR
					VALUE LINE ISSUE: Ed. 3,6122101					
AGL RESOURCES	1.08	1.08	1.10	1.13	1.15	1.85	12.00	1.0212	1.0454	22.80
ATMOS ENERGY	1.16	1.20	1.25	1.30	1.35	2.60	17.50	1.0400	1.0841	21.34
CASCADE NATURAL GAS	0.96	0.96	0.97	0.99	1.00	1.90	14.50	1.0137	1.0687	20.67
ENERGEN CORP.	0.69	0.71	0.74	0.77	0.80	4.10	23.00	1.0406	1.1851	25.95
LACLEDE GAS	1.35	1.36	1.39	1.42	1.45	2.15	11.50	1.0216	1.0374	23.65
NORTHWEST NAT. GAS	1.25	1.26	1.27	1.29	1.30	2.45	11.00	1.0105	1.0516	24.65
PEOPLES ENERGY	2.04	2.08	2.11	2.13	2.16	4.05	12.00	1.0127	1.0560	38.23
PIEDMONT NATURAL GAS	1.52	1.60	1.67	1.74	1.82	3.00	13.00	1.0439	1.0511	33.02
SEMCO ENERGY	0.84	0.88	0.92	0.96	1.00	1.70	3.50	1.0435	1.0144	14.92
SOUTHWEST GAS	0.82	0.84	0.88	0.92	0.96	1.75	8.00	1.0455	1.0361	23.46
WGL HOLDINGS	1.26	1.28	1.30	1.33	1.35	2.60	12.50	1.0179	1.0601	27.35
AVERAGE	1.1791	1.2045	1.2365	1.2695	1.304	2.56	12.591	1.0283	1.0627	25.097
					1.385					

S&P STOCK GUIDE: SEPT. 2001 with August Stock Prices

Annual   10.81% COST OF EQUITY

Average Price less Flotation
       $24.34

Cash Flows

1.0876188	1.006462	0.933303	0.8656135	0.8194280	19.631487
24.34391					

Sources: Stock Prices/S&P Stock Guides; Dividends, EPS, ROE/Value Line, Ed. 3

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ATTACHMENT A

Capital Asset Pricing Model Cost of Equity for an Average Water or Wastewater Utility

CAPM Analysis Formula

$$K = RF + Beta(MR - RF)$$

K = Investor's required rate of return

RF = Risk-free rate (Blue Chip forecast for 30-year Treasury bond)

$Beta$ = Measure of systematic risk (Average for water utilities followed by Value Line and average for the gas index)

MR = Market return

GAS <u>9.08%</u> = 5.74% + .61(10.89% - 5.74%)+.20%

Note: We calculated the market return using an annual DCF model for a large number of dividend paying stocks followed by Value Line. For July 2001 stock prices, the result was 10.79%. We have added 10 basis points to allow for the quarterly compounding of dividends. The resulting market return is 10.89%. We have also added 20 basis points to the CAPM result to allow for a four-percent flotation

Source: Blue Chip Financial Forecasts, August 1,2001 Value Screen CD 2.0, August 2001

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ATTACHMENT A

Marginal Cost of Investor Capital
Average Water and Wastewater Utility

Approved: 9.10 + 0.896/ER

Range: 10.00% to 11.34%

Capital Component	Ratio	Marginal Cost Rate	Weighted Marginal Cost Rate
Common Equity	42.79% *	11.20%	4.79%
Total Debt	57.21%	9.10% **	5.21%
	100.0%		10.00%

A 40% equity ratio is the floor for calculating the required return on common equity. The return on equity at a 40% equity ratio is

9.10% + .896/.40 = 11.34%.

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

Capital Component	Ratio	Marginal Cost Rate	Weighted Marginal Cost Rate
Common Equity	40.00%	11.34%	4.54%
Total Debt	60.00%	9.10% **	5.46%
	100.0%		10.00%

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

* Average of average gas index equity ratios.

** Baa rate for August 2001 plus a 50 basis point private placement premium plus 50 basis point small-utility risk premium.

Source: Moody's Credit Perspectives

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ATTACHMENT A

GAS INDEX STATISTICS

Company Name	Percent Non-utility Revenue (1)	Sales to Net Plant Ratio (2)	Beta (3)	S & P Bond Rating (4)	Annual Revenue (5) Millions $	Equity Ratio (6)	Achieved ROE for 2000(7)
AGL Resources	1%	0.37	0.60	A-	$607.40	33.60%	11.50%
Atmos Energy	4%	0.87	0.55	A-	850.15	58.06%	8.20%
Cascade Natural Gas	0%	0.85	0.55	BBB+	241.94	44.76%	12.90%
Energen Corp.	19%	0.61	0.75	A-	555.60	43.88%	13.80%
Laclede Gas	11%	0.98	0.50	AA-	566.13	44.32%	9.10%
Northwest Nat. Gas	1%	0.57	0.60	A	532.11	49.45%	10.00%
Peoples Energy	16%	0.86	0.70	A+	1,417.53	40.85%	12.40%
Piedmont Natural Gas	0%	0.77	0.60	A	830.38	53.83%	12.10%
SEMCO Energy	16%	0.83	0.65	BBB	422.59	20.35%	12.30%
Southwest Gas	5%	0.61	0.65	BBB-	1,034.09	33.39%	7.20%
WGL Holdings Inc.	22%	0.71	0.60	AA-	1,031.10	48.15%	11.70%
AVERAGE	9%	0.73	0.61	A-	735.37	42.79%	11.02%

(1) From 1st Quarter 2001 10-Q's
(2) From Value Screen July 2001 Disk
(3) From Value Screen July 2001 Disk
(4) From Standard & Poor's Ratings Direct Website
(5) From Value Screen July 2001 Disk
(6) From 1st Quarter 2001 10-Q's
(7) Value Line Investment Survey, Ed. 3, June 22, 2001

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ATTACHMENT B

BREAKDOWN OF WATER AND WASTEWATER SYSTEMS BY REVENUE

As of December 31, 2000

	Number of Systems
Water Systems With Less that $200K Revenue	97
Water Systems With $200K to $1,000,000 in Revenue	42
Water Systems With $1,000,000 or More in Revenue	9
TOTAL	148
Wastewater Systems With Less that $200K Revenue	73
Wastewater Systems $200K to $1,000,000 in Revenue	36
Wastewater Systems With $1,000,000 or More in Revenue	9
TOTAL	118

SOURCE: PSC Annual Reports for 2000

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ATTACHMENT B

Comparison of 2000 Profitability for Water Systems

Water Systems by Revenue Class

	Over $1 Million	$200 K to $1 Million	Under $200 K	$200 K to $1 Million	Under $200 K
	With Common Equity			Without Common Equity	
Number of Systems	9	28	56	14	41
	Achieved ROE			Achieved ROR	
Average	18.14%	-106.07%	-15.44%	-0.83%	-27.64%
Median	12.04%	0.50%	-2.30%	8.06%	-10.20%
Range	7.37% to 59.92%	-3076.74% to 359.54%	-392.84% to 486.96%	-81.81% to 18.52%	-460.74% to 225.92%
Number Above 12% ROE	5	5	12	--	--
Number Reporting Losses	0	14	32	4	28
Number Above 10% ROR				1	5

ROR - rate of return

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Source: PSC Annual Reports for 2000

ATTACHMENT B

Comparison of 2000 Profitability for Wastewater Systems

Wastewater Systems by Revenue Class

	Over $1 Million	$200 K to $1 Million	Under $200 K.	Over $1 Million	$200 K to $1 Million	Under $200 K
		With Common Equity			Without Common Equity	
# of Systems	6	28	43	3	8	30
		Achieved ROE			Achieved ROR	
Average	5.67%	-6.45%	-34.59%	7.53%	4.68%	-12.81%
Median	8.30%	2.77%	-5.25%	7.13%	5.62%	-3.87%
Range	-32.52% to 35.56%	-234.46% to 96.64%	-360.57% to 28.44%	5.85% to 9.61%	-3.73% to 9.82%	-148.99% to 55.53%
# Above 12% ROE	2	4	2	--	--	--
# Reporting Losses	1	12	33	0	1	19
# Above 10% ROR				0	0	5

ROR - rate of return

Source: PSC Annual Reports for 2000

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ATTACHMENT B

Comparison of 2000 Revenue for Gas Companies and WAW Systems

	Gas Systems	Water Systems & Revenue		
	Florida Gas Utilities (1)	Over $1 Million	$200 K to $1 Million	Less Than $200K
Number of Systems	8	9	42	97
Revenue				
Average	$26,024,627	$5,785,778	$412,511	$67,644
Median	5,569,149	2,316,526	325,606	54,052
Range	259,935 to 145,147,000	1,089,043 to 26,199,153	202,277 to 913,740	2,005 to 188,806

	Gas Systems	Wastewater Systems & Revenue		
	Florida Gas Utilities (1)	Over $1 Million	$200 K to $1 Million	Less Than $200K
Number of Systems	8	9	36	73
Revenue				
Average	$26,024,627	$6,057,937	$458,717	$71,541
Median	5,569,149	2,949,128	417,356	53,981
Range	259,935 to 145,147,000	1,027,439 to 20,531,114	213,864 to 907,909	4,274 to 199,073

(1) Net Revenue
Source: PSC Annual Reports **for** 2000 & **Dec.** 2000 Surveillance Reports