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Reply to:
Consumer Advocate and Protection Division
Post Office Box 20207
Nashville, TN 37202

December 23, 2004

Honorable Pat Miller
Chairman
Tennessee Regulatory Authority
460 James Robertson Parkway
Nashville, Tennessee 37243

RE: In Re: Petition of Tennessee-American Water Company for Approval of Change in Rates and Charges

Docket No. 04-00288

Dear Chairman Miller:

Enclosed is an original and thirteen copies of the Direct Testimony of Steve N. Brown of the Consumer Advocate and Protection Division of the Office of the Attorney General. Kindly file same in this docket. Copies are being sent to all parties of record. If you have any questions, kindly contact me at (615) 741-3533 Thank you

Sincerely,

Timothy C. Phillips
Senior Counsel

Enclosures
cc: All Parties of Record

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BEFORE THE
TENNESSEE REGULATORY AUTHORITY
AT NASHVILLE, TENNESSEE

IN RE:

PETITION OF TENNESSEE-AMERICAN WATER COMPANY FOR APPROVAL OF CHANGE IN RATES AND CHARGES

DOCKET NO. 04-00288

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DIRECT TESTIMONY
OF
STEVE N. BROWN

****

December 23, 2004

I. Introduction

Q_1. Please state your name.

A_1. Steve Brown.

Q_2. Where do you work and what is your job title?

A_2. I am an Economist in the Consumer Advocate and Protection Division, Office of the Attorney General.

Q_3. What are your responsibilities as an Economist?

A_3. I review companies' petitions for rate changes and follow the economic conditions that affect the companies.

Q_4. What experience do you have regarding utilities?

A_4. In 1995 I began work as an economist in the Consumer Advocate and Protection Division (CAPD) of the Attorney General's Office. I have also appeared as a witness for CAPD in several cases before the Tennessee Regulatory Authority (TRA). From 1986 to 1995 I was employed by the Iowa Utilities Board as Chief of the Bureau of Energy Efficiency, Auditing and Research, and Utility Specialist and State Liaison Officer to the U.S. Nuclear Regulatory Commission. From 1984 to 1986 I worked for Houston Lighting & Power as Supervisor of Rate Design. From 1982

to 1984 I worked for Arizona Electric Power Cooperative as a Rate Analyst. From 1979 to 1982 I worked for Tri-State Generation and Transmission Association as Power Requirements Supervisor and Rate Specialist. Since 1979 my work spanned many issues including cost of service studies, rate design issues, telecommunications issues and matters related to the disposal of nuclear waste.

Q_5. **What is your educational background?**

A_5. I have an M.S. in Regulatory Economics from the University of Wyoming, an M.A. and Ph.D. in International Relations with a specialty in International Economics from the University of Denver, and a B.A. from Colorado State University.

Q_6. **Dr. Brown, have you authored any articles relating to your profession?**

A_6. Yes, my articles have appeared in Public Utilities Fortnightly.

Q_7. **Are you and have you been a member of any professional organizations, Dr. Brown?**

A_7. Yes, I am a past member of the NARUC Staff Committee on Management Analysis, a past trustee of and a member of the Board for the Automatic Meter Reading Association, and a current member of the National Association of Business Economists.

Q_8. Have you studied mathematics and statistics as part of your education?

A_8. Yes.

Q_9. Dr. Brown, do you use mathematics and statistics in combination with economics as part of your profession?

A_9. Yes.

Q_10. What were you asked to do with respect to this case?

A_10. I was asked to form opinions on: 1) the company's cost of capital which includes determining the appropriate capital structure, the appropriate market-based common equity return, the cost of long term debt, and the equity and debt ratios in the capital structure; 2) the cost-of-service allocations to the various classes of customers; 3) the company's treatment for recouping the costs of public fire protection service provided to the City of Chattanooga.

II. Summary of Testimony

Q_11. Please summarize your testimony.

A_11. My opinion is that Tennessee American (TnAm) be treated as a subsidiary of its corporate parent, RWE, which actually controls capital flows to and from the subsidiary and which sets the subsidiary's pricing policies. This is a so-called "double-leverage" of RWE's capital cost into TnAm's capital cost, a policy that accurately reflects the true cost of equity funds supplied by RWE to TnAm, and a policy that the TRA has adhered to since 1984 regarding TnAm's capital cost. The Tennessee Public Service Commission recognized TnAm's subsidiary status in the Commission's Final Order in Docket U-85-7338:

> *"The Company argues that the Commission should .ignore the parent-subsidiary relationship . [but] all of its stock is financed by its parent corporation. the Commission adopts the double leverage capital structure " [Final Order U-85-7338, pp. 16-18]*

However, RWE's financial position is characterized by a small amount of equity. RWE's consolidated and unconsolidated balance sheets for the year ending 2003 reveal that less than 10% of RWE's capital is equity. This figure is very low and not representative of private water-supply companies in the United States.

Therefore, in my opinion an appropriate capital structure for rate-making is the capital structure calculated from the financial records of the twelve water companies which have stock traded in stock exchanges within the United States and which comply with the regulations of the United States Securities and Exchange Commission (SEC). The SEC filings provide financial information that is certified and audited. Other publicly available sources provide information on those companies' stock prices, and the amount and frequency of stock traded. There is ample information to arrive at an objective, reasonable cost of capital for TnAm. The final details and calculations appear in my Schedules 37 and 38 attached to this testimony.

It is my opinion that an equity rate of 7.9%, a debt rate of 6%, a short-term rate of 2.4%, and a preferred rate of 5% be applied to the capital structure.

These costs, when applied to the capital structure of the twelve water companies, yield 6.76% as the weighted cost of capital supplied by the corporate parent, RWE, to its wholly-owned subsidiary TnAm. In my opinion RWE supplies 81% of the TnAm's capital funds. The remaining 19% of TnAm's capital are provided by sources outside RWE and are comprised of long-term obligations incurred before RWE became TnAm's owner. Therefore, TnAm's weighted cost of capital in this rate case is 6.9%, which is the sum of the cost rate of 6.76% applied to 81% of TnAm's capital funds, plus the cost rate of 7.7% applied to the remaining 19%: [.0676 X .81 + .077 X .19 = .069].

My opinion on the cost of equity is based on the discounted cash flow (DCF) analysis of 12 water supply companies, and on the risk premium (RP) analysis of 12 water supply companies. My DCF establishes an upper limit of 8.9% for equity cost while my RP establishes a lower limit of 6.8% for equity cost. The range's midpoint is 7.9%.

This equity return is reasonable in terms of its support within the DCF and RP analyses I have performed, and in terms of other measures:

- Water companies are very low-risk activities, as shown in my market-to-book analysis in my Schedules 9 to 12 where water companies have much higher market-to-book ratios, and therefore much lower risk, than the gas industry, which is the industry-basis of TnAm's requested equity return of 10.7%;

- Water companies are very low-risk activities, as shown in my Schedule 13, where water companies' stockholders buy and hold their stock for an average of three and one-half (3.5) years before selling the stock, a hold-time more than three times longer than the hold-time of gas companies' stockholders;

- Water companies are very low-risk activities, as shown in my Schedule 30, where the water companies have a beta of just .09, where beta is a well known measure of risk of an individual company in comparison to the overall stock market, which has a market risk of 1, or a beta of 1;

- Water companies are very low-risk activities, as shown by the public statements of TnAm's owner, RWE. At page 1 of its February 16, 2004 letter to stockholders, RWE accurately described regulated industry as a secure source of income:

"Our portfolio combines stability and growth in other terms, too Today, we earn every second euro in regulated markets. This sector is known for its long-term stability. Economic cycles hardly affect this business at all."

- As shown in my Schedule 36, in the most recent fiscal year one-half of the companies in the United States earned less than an 8% return on equity.

- TnAm's own actuarial study, provided to CAPD in support of TnAm's request to fund an approximate increase of $900,000 in retirement expense, shows overall market returns of 6.9%;

- Broader historical-economic data shows an overall return to equity of 7.8% in the American economy, according to Professor Jeremy J. Siegel's article "The Shrinking Equity Risk Premium" published in the Journal of Portfolio Management in the fall of 1999.

There is ample information in my testimony proving that water companies are low-risk activities and that water companies are certainly less risky than the gas companies.

My analyses end at March 2004 in order to match the time periods chosen by TnAm's cost-of-capital witness, Dr. Vander Weide, whose analyses incorporate time periods ending in January 2004 and May 2004. At page 19, line 5 of his direct testimony, Dr. Vander Weide employs "high and low stock prices for ... the three month period ending January 2004." Also, Dr. Vander Weide's Schedule C, which is displayed at pages 46 and 47 of his direct testimony, ends with data for May 2004. Because of the 4-month separation in his analyses, I chose March 2004 as an end point for my analyses of the cost of capital, so the TRA can make its ultimate decision on the basis of both cost-of-capital witnesses using substantially the same time period. My decision eases the TRA's decision-making burden in comparison to a situation where the agency would be confronted with two different cost-of-capital analyses based on widely different time periods.

My Schedules 3 through 13 challenge and disprove the central arguments of TnAm's cost-of-capital analysis: that there is no reliable data for water companies; that water companies are riskier than gas companies, and therefore a return based on gas companies is appropriate. As my testimony shows, TnAm's arguments are wrong.

There are two different objective measures of risk in my analyses. One measure is the market-to-book ratio which I have calculated for each gas and water company, and which I utilize to prove that water companies are less risky than gas companies. The other measure is the beta for each water company, the beta being a widely known method to estimate an individual company's risk relative to the market as a whole. In contrast to the risk measures I present, TnAm's only measure of risk is Value Line's Safety Rank, which I disregard because the measure is vague enough to constitute an economic secret that can not be known or duplicated by anyone outside of Value Line.

Finally, my testimony addresses the issue of public fire protection revenues, where TnAm's ratepayers are now confronted with paying approximately $1.4 million for a public service that was once billed by TnAm to the City of Chattanooga before 1999, but which TnAm voluntarily gave up in 2000 as a quid pro quo for the City terminating its condemnation proceeding. However, as of 2003 the TRA allowed TnAm to recoup the quid pro quo from the City and from other ratepayers. Recent legislation in Tennessee prevents the City from paying for such service, and TnAm proposes to bill all other rate payers for that service. I use the State Board of Equalization's 2002 estimates of property values in Chattanooga to allocate public fire protection costs among TnAm's customer classes. The allocations appear in my

Schedules 39 and 40.

In my opinion the use of property values is a fair method to allocate the burden of such costs, which, if the City were paying TnAm for the service, would be recouped through property taxes based on property valuation. To the extent this allocation procedure is used, there is little room for argument about one customer class subsidizing another's public fire protection cost, if the TRA allows TnAm to bill customers other than the City for this service. My understanding of the legislation's economic impact is that it gives the TRA discretion to either prevent or allow TnAm to bill customers other than the City for this service, as Mr. Miller notes in his direct testimony at page 9 lines 1-2, where he quotes the legislation:

> *". The utility, however, may recover its costs*

III. TnAm's Requested ROR Is A Directed Result, Not The Result of Independent Appraisal

Q_12. **In your opinion is TnAm's requested cost-of-capital a major component of the requested rate increase?**

A_12. Yes. TnAm's requested cost-of-capital is a major component because capital cost accounts for approximately 50% of the requested rate increase.

Q_13. **In your opinion, is TnAm's requested cost-of-capital reasonable?**

A_13. No. In my opinion the requested cost-of-capital is not reasonable. Therefore, I disagree with Mr. Miller's opinion, at page 6 lines 18-20 of his testimony, that the requested return is "fair, reasonable, and representative of current investor expectations." As the remainder of my testimony proves, the return is not representative of current investor expectations.

Q_14. **What is the basis of your opinion?**

A_14. My opinion is based on my extensive review of the methods employed in the Company's cost-of-capital analysis and the going rate of returns to equity in the water supply business and in the United States economy.

The company applies three different methods to a group of nine natural gas companies, and applies two of those same methods to just five water companies, to support the requested equity return of 10.7% and an overall return of 8%. My opinion is to disregard the requested equity return and the overall return because they are not based on comparable companies. In my opinion the comparable companies are the twelve water companies which have actively traded stock in the United States and which file periodic financial reports with the United States Securities and Exchange Commission (SEC) in compliance with federal law.

TnAm's requested returns are biased and arbitrary, derived from unreasonable methods to obtain a return handed down in an edict to TnAm from its parent company, RWE, in April 2004, when RWE's CEO publicly announced that its wholly owned subsidiaries RWE Thames, American Water and its subsidiaries, such as TnAm, must achieve an overall return of 8%. Thus, my opinion is that the requested returns are not the result of an independent appraisal of the cost of capital. My opinion is that Dr. Vander Weide's cost-of-capital analysis, as well as the capital structure and overall return requested in Mr. Miller's testimony, are efforts to achieve a predetermined and preconceived goal, rather than independent appraisals of the cost of capital.

Q_15. What evidence supports your opinion that the overall return of 8% is the result of the corporate parent's predetermined goal rather than the result of an independent appraisal of the capital cost?

A_15. My opinion, that return of 8% is the result of a predetermined goal rather than the result of an independent appraisal of the capital cost, is supported by Schedule One, pages 1 to 5, and Schedule 2, pages 1 to 2.

Schedule One page 1 is a display of a chart that RWE's CEO presented to investors in the CEO's speech of April 15, 2004 to the Annual Meeting of RWE's shareholders. The far-left column displays the various wholly-owned operating groups in RWE. The far right-hand column is titled "Capital Costs in %" and represents the return on capital that RWE is demanding from its various operating groups, and the center column is titled "ROCE" or return-on-capital employed, which in RWE's opinion is the return actually being earned by the operating group as of January 2004.

The operating group RWE Thames Water includes American Water Works, which in turn is a 100% owner of TnAm. Mr. Miller explained the chain of corporate ownership in cross-examination during docket 03-00118:

"Q. Well, you kept referring to the stockholders throughout your testimony. I just wondered what stockholders you were talking about. Were you talking about the stockholders of RWE?

A. The stockholders -- the stock of Tennessee American is held by American Waterworks.

Q. And who holds their stock?

A. Which stock?

Q. American Waterworks

A.Thames Aqua Holdings U.S.

Q. And who holds their stock?

A. You're taking me up the corporate chain.

Q. I certainly am Who is at the top of the chain?

A. RWE.

Q. So they're the ultimate stockholders?

A Yes " [TRA Docket 03-00118, Transcript, July 1, 2003, Volume II, page 190 line 11 to page 191 line 2]

Schedule One page 2 is a display of page 41 of RWE's 2003 Annual Report, which was issued in February 2004. The page has the title "RWE's Value Management: Goal Oriented Control Of All The Group's Divisions." The page shows that RWE Thames Water had a negative "value-added" of 312 million Euros, or a negative 1.5%, which is the difference between the 8% target for RWE Thames and its actual return of 6.5%. At the bottom of page 41 the annual report remarks that "Value added is also our yardstick for determining bonus payments for RWE group executives."

Schedule One page 3 has two sections. The top section is from page 104 of RWE's Annual Report and says in part: "We plan for American Water to at least meet its cost of capital by 2006." The bottom section displays a portion of Mr. Miller's direct testimony, filed in September 2004, nearly 6 months after the April 2004 speech of RWE's CEO. At page 6 of his direct testimony, Mr. Miller requests an overall return of 8% for TnAm. This establishes a direct line of authority from the holding company, RWE, to TnAm regarding the return that TnAm must achieve.

Schedule One page 4 has two sections. The top section is a display of another chart RWE's CEO presented to investors in his speech of April 15, 2004 to the Annual Meeting of RWE's shareholders. The chart has my notations set apart in boxes. The chart has a special value because it shows American Water's overall return as less than RWE's Thames overall return. I have already shown in Schedule One page 1 that RWE Thames' achieved return in 2003 was 6.5%. Therefore, the top section of Schedule One page 4 establishes that American Water's achieved return in 2003 was approximately 6%. Thus American Water and its subsidiaries have been assigned the task of raising American Water's overall return from 6% to 8%, which is an increase of 33%.

The bottom section of Schedule One page 4 is taken from page 144 of RWE's 2003 Annual Report and shows RWE raising dividends per share while earnings per share decline.

Schedule One page 5 has two sections. The top section is from RWE's Annual Letter To Shareholders of February 15, 2004 and establishes that RWE's dividend policy is to raise dividends by 15% annually through 2006.

Thus TnAm's requested overall return of 8% is designed to support extreme growth in dividend payments. The bottom portion of page 5 shows that CAPD witness Buckner is disputing $1 million of expenses claimed by TnAm.

Taken as a whole my Schedule 1 establishes that the rate of return requested by TnAm is a directed result intended to support extreme growth in dividends at a time when the parent company RWE is raising dividends per share as earnings per share fall.

Q_16. **Does TnAm's petition to the TRA mention or discuss RWE as the ultimate owner of American Water?**

A_16. No. In the petition at paragraph 2, TnAm says: "At the present time the Company is a wholly-owned subsidiary of American Water Works Company, Inc. (AWWC)… the largest water holding company in the United States…" But TnAm's petition to the TRA does not mention or discuss RWE as the sole owner of American Water.

Q_17. **Is AWWC a wholly-owned subsidiary of RWE?**

A_17. Yes. Mr. Miller's testimony under cross examination in docket 03-00188 establishes that AWWC is a wholly-owned subsidiary of RWE.

Q_18. **How did RWE acquire its ownership of AWWC?**

A_18. My Schedule 2 page 1, the top section, shows that RWE acquired AWWC by paying a substantial capital premium. RWE paid a cash price well above AWWC's market valuation. The premium ranged from 29% above market to 38% above market. The bottom section of my Schedule 2

page 1 shows that AWWC's president was to be an officer of RWE Thames once RWE had acquired AWWC.

Q_19. **In your opinion what issue did the sale of AWWC to RWE raise regarding the rates consumers would pay for water supply services once RWE owned AWWC?**

A_19. In my opinion, the sale of AWWC to RWE raised an issue central to this rate case. According to my Schedule 2 page 2, which contains excerpts from AWWC's SEC filings, a chief concern was that RWE was paying much more than market price for AWWC only because RWE would be in a position to raise consumers' rates later so RWE would recover the premium. Understanding this RWE publicly made representations designed to rebut concern over its approach to closing the gap between the market value of AWWC and the premium price RWE paid for the purchase of AWWC.

For example, according to AWWC's SEC Form 8K filed May 8, 2002:

> *"1 How will this transaction impact rates?. In response to the first question, RWE has clearly stated strongly and consistently that it will not seek to recover the purchase premium price in rates."*

Q_20. **What premium did RWE pay for AWWC?**

A_20. RWE paid a premium ranging from 29% to 38% above AWWC's market price.

Q_21. **What increase in return is RWE demanding from AWWC and its subsidiaries?**

A_21. RWE is demanding a 33% increase in return of 33% from AWWC. Thirty-three percent would be the increase in return if AWWC successfully raises its overall capital return from 6% to 8%.

Q_22. **In your opinion is the overall return of 8%, which TnAm is seeking in this case, a recovery of the premium RWE paid to acquire AWWC?**

A_22. Yes. In my opinion the overall return of 8% sought by TnAm is a recovery of the premium RWE paid to acquire AWWC.

Q_23. **In your opinion what are the factors driving this rate case?**

A_23. In my opinion the factors driving this rate case are RWE's financial goals and management policies which I have already presented, including:

- the match between Mr. Miller's testimony of September 2004 requesting an 8% return and RWE's policy goal set in April 2004;

- the match between the capital premium paid by RWE for AWWC and the increase in capital return which RWE is seeking to extract from AWWC's ratepayers;

- RWE's intent to raise its dividends 15% annually for the next three years;

- RWE's policy of raising dividends per share while earnings per share decline;

- RWE's policy of linking management bonuses to a rate-of-return achieved in a regulatory proceeding;

- the unreasonable methods Dr. Vander Weide employs to arrive at his equity returns, which have the appearance of matching RWE's policy goal set in April 2004.

IV. CAPD's Opinion on the Company's Cost of Capital Analysis.

Q_24. **What is your opinion on the Company's recommended cost of capital?**

A_24. My opinion is that it is not just and reasonable. I have three reasons for my opinion:

1) The Company's analysis ignores the parent-subsidiary relationship between the corporate parent, RWE, and its subsidiary, Tennessee American (TnAm).

2) The Company's analysis uses companies that are not comparable to the water company. TnAm's cost-of-capital witness, Dr. Vander Weide, uses nine companies in the natural gas business to determine TnAm's equity cost. Eight of those companies are widely recognized as "local distribution companies (LDCs)", and the ninth company is widely recognized as a "diversified" natural gas company, which engages in gas transmission activities as well as gas distribution.

3) The recommended rates, 10.7% for equity and 8% overall, overstate the prevailing rates of return in the American economy and are based on growth dividend growth rates, earnings growth rates, and risk premiums that are unreasonable.

In addition, Dr. Vander Weide has two justifications for using gas companies as proxies for the water company, even though the water supply business is TnAm's sole enterprise activity:

A) Security analysts purportedly do not follow the water industry enough to provide Dr. Vander Weide with sufficient data to form a basis for his recommendations;

" the water companies are generally followed by only one or two analysts , and there are relatively few companies with consistent extending back for a reasonably long study period" [Dr. Vander Weide, Direct, page 29, lines 18-21].

B) The gas companies purportedly are no more risky than TnAm, and TnAm is actually more risky than the gas companies, therefore using gas companies to measure risk and the cost of capital is appropriate and "conservative":

" My recommended cost of equity is conservative because TAWC has . .greater risk than my proxy companies" " [Dr Vander Weide, Direct, page 4, lines 20-23].

IV. A. Parent Fully Controls The Subsidiary.

Q_25. What evidence supports your opinion that the parent fully controls the subsidiary?

A_25. My Schedule 1 is ample evidence supporting my opinion that RWE fully controls TnAm.

IV. B. Dr. Vander Weide Employs Unreasonable Methods To Reach His Recommendations.

Q_26. What evidence supports your opinion that Dr. Vander Weide employs unreasonable methods to reach his recommendations?

A_26. My Schedules 3 through 14 provide evidence supporting my opinion that Dr. Vander Weide employs unreasonable methods.

My Schedule 3 page 1 is a display of excerpts I have taken from Dr. Vander Weide's testimony where he explains his dual strategy of reliance on analysts and reliance on gas companies to form his opinions.

For example, at page 29 line 19 of his direct testimony he says "water companies are followed... only by one or two analysts ... and there are relatively few [water] companies with consistent data ... for a reasonably long study period." He explains that because there are so few water companies, he must move on to the gas industry and use it as a proxy for TnAm. He asserts that the substitution of gas companies for water companies is reasonable because water companies are more risky than gas companies, where the risk assessment is provided by Value Line's "Safety Rank", which he describes as "empirical" evidence. Therefore, Dr. Vander Weide reasons that any return based on gas companies is acceptable because it underestimates the return that water companies should be allowed in this rate case.

IV. B.1. Dr. Vander Weide Relies On Discredited Sources To Estimate DCF Returns.

Q_27. **In your opinion, is Dr, Vander Weide's method reasonable?**

A_27. No. In my opinion his method is not reasonable.

Dr. Vander Weide's analysis cedes his expertise in favor of analysts who may have a selection bias regarding the stock they offer to customers. Analysts might not cover companies that they believe would be unattractive.

For example, consider the data on stock turnover in my Schedule 13, where I compare the holding periods of gas and water company stockholders. The schedule' s far-right hand column shows the number of trading-years required for 100% of a company's stock to be traded. The data clearly shows that stock holders of water companies retain their stock more than three times longer than a gas company. Stock-brokerage firms profit from the sale and purchase of stock. To the extent that a water company's stock is bought and sold at only one-third the rate of a gas company's stock, water companies are not an attractive industry for stock analysts to follow and market to potential buyers. This fact is not a good reason to base TnAm's return on gas companies instead of the water industry.

In addition, it is well known that the "expectations" created by analysts have borne bitter fruit in the American economy. Consider Dr. Vander Weide's direct testimony at page 17, lines 8 to 13, where he explains his reliance on a form called I/B/E/S:

> *" I/B/E/S growth rates are widely circulated in the financial community ... include the projections of reputable financial analysts ...are reported on a timely basis . are widely used . . by investors "*

However, the accuracy of I/B/E/S is very doubtful, as the Chairman of the Federal Reserve Board politely emphasized two years ago:

> *". .long-term earnings forecasts of brokerage-based securities analysts, on average, have been persistently overly optimistic. Three-to five-year earnings forecasts for each of the S&P 500 corporations, compiled from projections of securities analysts by I/B/E/S, averaged almost 12 percent per year between 1985 and 2001 Actual earnings growth over that period averaged about 7 percent " [Remarks by Chairman Alan Greenspan "Corporate Governance" At the Stern School of Business, New York University, New York, New York March 26, 2002]*

When the Chairman of the Federal Reserve Board singles out a firm and its data as a source of over-optimism or exaggeration, that firm's projections should have no role in rate-making for Tennessee's consumers. Therefore, I disregard Dr. Vander Wiede's analyses which rely on I/B/E/S. Because I/B/E/S growth projections are threaded throughout Dr. Vander Weide's Discounted Cash Flow analyses appearing in his Schedules A and B at pages 44-45 of his direct testimony, I disregard his DCF analyses.

Of course, Chairman Greenspan's comments reflect widely-held and general knowledge about the current status of broker-established expectations on rate of return. For example, economists Eugene Fama and Kenneth R. French authored an article, "The Equity Premium" which was published in the Journal of Finance in mid 2002. The authors wrote:

> *"Moreover, though the issue is controversial Claus and Thomas find that analysts forecasts are biased; they tend to be substantially above observed growth rates.. In short, we find no evidence to support a forecast of strong future dividends or earnings growth." [The Equity Premium by Eugene Fama and Kenneth French in The Journal of Finance, Vol 67, No. 2, April 2002, p 639, p. 651]*

Regarding Value Line's growth estimates which appear for three water companies listed in Dr. Vander Weide's Schedule A at page 44 of his testimony, those estimates are even larger than the growth rates forecast by I/B/E/S. In addition those rates have never been achieved by any of the three companies listed. Thus, there is no good reason to accept Value Line's growth estimates as a substitute for those of I/B/E/S.

IV. B.2. Dr. Vander Weide Relies On A Quarterly DCF Model and Flotation Costs To Raise His Estimated DCF Returns.

Q_28. Other than Dr. Vander Weide's reliance on I/B/E/S and Value Line, are there other aspects of his DCF analyses you disagree with?

A_28. Yes. In my opinion Dr. Vander Weide's DCF analyses have two other aspects which inflate his estimated DCF returns and therefore require attention.

He emphasizes that a firm which pays out dividends on a quarterly basis will provide higher returns than a firm that pays out dividends just once a year. However, he does not mention the flip-side of that argument, namely, that a utility collects money monthly and thus earns its return even faster than it pays its quarterly dividends. Any increase in a DCF estimated return to account for quarterly dividend payments is more than offset by returns earned on a monthly basis. Thus Dr. Vander Weide places undue emphasis on a quarterly DCF model, distracting attention from the more fundamental aspect of what constitutes reliable growth estimates.

Dr. Vander Weide further emphasizes the need for so-called floatation costs to be factored into his DCF estimates of equity return, but this is not needed for several reasons.

There is no information that RWE intends to make a public stock offering in the near-term in Europe. Furthermore, there is no evidence that RWE intends to list its stock in American stock exchanges. Today RWE's can be purchased only as an over-the-counter stock in the United States, which entails private transaction between brokers and the absence of public records regarding volumes sold, volumes bought and prices asked and prices paid.

Also, attempts to recover equity financing costs in prior periods raises an issue of retroactive ratemaking. Finally, flotation expenses incurred in public stock offerings are underwriter's fees or discounts from the asking price, where only the underwriters receive the discount. There is no expense or payments made by one party to another.

IV. B.3. Dr. Vander Weide Relies Solely on Value Line's "Safety Rank" To Form an Opinion That Water Companies Are Riskier Investments Than Gas Companies.

Q_29. In your opinion is Dr. Vander Weide correct that water companies are riskier investments than gas companies?

A_29. No. In my opinion Dr. Vander Weide is wrong in his assessment. His only basis of proof is Value Line's "Safety Rank," which he characterizes as "empirical evidence" at page 27 line 10 of his direct testimony. In CAPD's discovery request of November 15, 2004, item 40, Dr. Vander Weide was asked "to provide all documents which explain" the safety rank. Dr. Vander Weide answered by providing a copy of Value Line's pamphlet which says in part:

> *"The Safety Rank is computed by averaging two other Value Line indexes – the Price Stability Index and the Financial Strength Index."*

However, Dr. Vander Weide's direct testimony makes no mention of these two additional indexes, and he fails to provide any information about them. His elusive response makes it impossible to establish that Value Line's Safety rank is "empirical" because the safety rank is a vague measure, an economic secret that can not be duplicated by anyone outside of Value Line. On its face Dr. Vander Weide's assertion that water companies are riskier than gas companies makes no more economic sense than to claim, as he does in his testimony, that TnAm is financially stressed because it is building a water line from Lexington to Louisville, as shown in my Schedule 3 page 2. In fact, the water line is being built in Kentucky by Kentucky-American, and neither that water line nor gas companies are relevant to this case.

Contrary to Dr. Vander Weide's opinion, water companies are less risky than gas companies, and there is ample information to prove that point.

My Schedule 4 page 1 lists the water companies in the SEC data base and the number of files in the data base. There are approximately 1000 SEC files available online and dating back to 1994. Not one of these files has made it into Dr. Vander Weide's analysis.

My Schedule 4 page 2 lists the water companies that I use in my analysis and the gas companies that Dr. Vander Weide uses. Each company's Standard Industrial Code (SIC) is also shown. For the record, I note that Equitable Resources is listed as SIC 4923, meaning that the company is engaged in two different aspects of gas sales, distribution and transmission. All the other gas companies have an SIC of 4924, meaning that they distribute gas but do not transmit it.

My Schedule 5 page 1 displays the available data on all 12 water companies' stock prices, and stock sales as far back as 1996. Taken together, the SEC's data and other publicly available data on the water companies disproves Dr. Vander Weide's assertion that "there are relatively few companies with consistent data extending back for a reasonably long study period."

My Schedule 6 page 1 displays portions of Dr. Vander Weide's testimony in a recent Federal Energy Regulatory Commission docket involving Northern Natural Gas. Schedule Six also displays my notations in boxes regarding Dr. Vander Weide's responses to certain items of CAPD's discovery. Schedule Six shows that Dr. Vander Wiede flexibly defines Equitable Resources as a "diversified gas" company before FERC, even though he describes it as an "LDC" in the current case. In my opinion Equitable is not an LDC, and I have removed it from my analyses.

My Schedule 7 page 1 displays portions of Dr. Vander Weide's testimony before the Washington Utility Commission, where Dr. Vander Weide testified that the cost of capital had to be linked to "the specific investment under consideration" and that the "most directly comparable company to" a Regional Bell Holding company's publishing business "would be another publishing company." These positions on the nature of comparable companies are the exact opposite of his positions in the current case. Schedule Seven also displays my notations in boxes regarding Dr. Vander Weide's responses to certain items of CAPD's discovery.

My Schedule 8 page 1 displays more portions of Dr. Vander Weide's testimony before the Washington Utility Commission, where Dr. Vander Weide testified that a market-to-book ratio is an alternative measure of risk and a better measure of risk than a beta. My analyses employ both measures of risk to arrive at an equity return, but Dr. Vander Weide employs neither one.

My Schedule 9 displays the annual per share book values form 2001 through 2003 for the water companies that I use and gas companies that Dr. Vander Weide uses. The data in the columns labeled "shares outstanding" are from each company's SEC form 10-k and reflect each company's own adjustments to restate "shares outstanding" to account for stock splits in the past.

My Schedule 10 displays the market-to-book ratios for each company and proves that water companies have much higher ratios than the gas companies. Thus water companies are much less risky than gas companies.

My Schedule 11 displays historical market prices adjusted downward where required for stock splits. Without the adjustment, the ratio of market-to-book prices would be higher than otherwise and inconsistent with each company's book prices which already reflect stock splits.

My Schedule 12 displays the history of stock splits for all the companies in question, except Equitable Resources, which I exclude because it is not an LDC.

My Schedule 13 shows that water companies' stockholders buy and hold their stock for an average of three and one-half (3.5) years before selling the stock, a hold-time more than three times longer than the hold-time of gas companies' stockholders.

Taken as a whole my Schedules 3 through 13 disprove the central arguments of Dr. Vander Weide's cost-of-capital analysis: that gas companies are riskier than water companies, and that there is no reliable data on water companies.

Therefore, Dr. Vander Weide's "ex ante risk premium" analysis, which he describes in his direct testimony at page 29 line 13 and which is based solely on gas companies, is not at all relevant to TnAm's cost of capital.

Dr. Vander Weide's reliance on such sources as I/B/E/S and Value Line leads to improbable results, a fact made clear by the stark difference between the top and bottom sections of my Schedule 14.

The top section displays the summary of the capital structure I derive from the twelve water companies. The bottom section is a copy of the water companies' capital structure that appears at page 53, Schedule F, of Dr. Vander Weide's direct testimony. Value Line is the source of Dr. Vander Weide's capital structure.

My capital structure summary is derived from each page of my Schedule 15, which displays each water company's capital structure available in the company's 10-K filings with the SEC. Schedule 16 provides a copy the independent auditors who audited each company's financial records. The statements are filed as part of the 10-K. In addition, all Chief Financial Officers of companies filing SEC annual reports, such as the form 10-K, since Oct 1, 2002 must comply with the Sarbanes-Oxley Act and certify those reports as promulgated in SEC The top section of my Schedule 14 is derived from information that has been audited and certified.

Therefore, in my opinion Dr. Vander Weide's capital structure is wholly inaccurate and I disregard it as a basis for determining rates in this case. Value Line's capital structure is not representative of the private water-supply industry, as demonstrated by the industry's SEC filings. This fact is further support for my opinions that Value Line's procedures in general are unreasonable; that Value Line's safety rank is an unreasonable basis to assess the risk of the water industry, and that Value Line's data is not a reasonable basis to establish rates in this case.

My Schedules 17 and 18 are copies of RWE's consolidated and unconsolidated financial statements for the year ending Dec. 31, 2003. The statements confirm that RWE's capital structure has a very low portion of equity, far less than the equity portion of any comparable water company. The schedules support my use of SEC data as a reliable basis for establishing rates in this case.

V. CAPD DCF Model.

Q_30. **How did you establish your returns on equity?**

A_30. I established my returns by using the DCF and risk premium models

My Schedules 19 and 20 display my DCF analysis, and my Schedules 21 through 35 display my Risk Premium analysis.

Q_31. **What are the advantages of your DCF method?**

A_31. The method is accurate, clear and simple requiring no adjustments whatsoever, other than verifying the historical record of dividends for the 12 water companies.

Q_32. **Why should the DCF model be used?**

A_32. The DCF model is a standard way that investors evaluate their potential returns. The model defines the cost of common equity as the cash flowing to the investor, where the cash flow is based on the revenue stream the dividend yield plus the dividend's expected growth rate

Q_33. **Does the DCF model account for capital gains that may occur when an investor sells stock?**

A_33. No. The DCF model avoids entanglement with either capital gain or capital loss because the model is tied directly to dividend yield and dividend growth. In addition, losses and gains are a matter of the investor timing the stock's purchase and sale. The DCF model neither protects investors from risk nor penalizes them for what happens in the stock market.

Q_34. **Are capital gains a part of a DCF analysis?**

A_34. No. Dividends and capital gains are mutually exclusive in the sense that once a stock is sold, the investor gives up the stream of future dividends. Also, the rational investor sells stock in anticipation of a permanent decline of the stock's price, which means the unfortunate buyer, who is now the owner, bears the capital loss. Any capital gain by the first owner is nullified by the capital loss of the second owner.

Q_35. **Is the history of those companies' dividend growth rates a reasonable estimate of their future behavior towards dividend growth?**

A_35. Yes. Eugene Fama and Kenneth French, at page 651 of their article which I cited earlier, say "... beyond two years, the best forecast of earnings growth is the historical average growth rate."

VI. CAPD RISK PREMIUM ANALYSIS.

Q_36. **Is a risk premium analysis different from a DCF analysis?**

A_36. Yes, the two analyses are completely different. For example, dividend growth and dividend yield are crucial to the DCF analysis, but they have no role whatsoever in a risk premium analysis.

Q_37. What is the rationale of risk premium analysis?

A_37. Investors require extra payments to assume additional risk. Economists call this extra payment a risk premium. Equity investments are riskier than debt because equity investments occasionally lose money, thus equity investors require a risk premium or a higher return than debt. For example, equity holders are last in line for the distribution of earnings and also last in line for distribution of liquidation proceeds. In both cases the debt holders are paid first. Any funds left are distributed to the equity holders. Therefore, the cost of equity is the debt yield plus a risk premium for the company.

Q_38. How did you implement your risk premium model?

A_38. I implemented the risk premium to match Dr. Vander Weide's procedures displayed in his direct testimony from pages 46-52. At page 47, near the bottom at the right side, he displays a risk premium of 4.71%. At page 50, near the bottom, he displays a risk premium of 5.27%. At page 52, near the bottom, he displays a risk premium of 4.16%. In all three cases the risk premium is represented as the difference between returns to stock and the return to debt costs, which he represents as returns to bonds.

His model can be represented in simple terms as:

K_e = D+ RP (1)

where

K_e is the cost of equity

D is the cost of debt

RP is the risk premium

Or, using the numbers at the bottom of pages 47, 50 and 52 respectively in his direct testimony:

K_e = D + RP

12.09% = 7.38% + 4.71%

11.67% = 6.40% + 5.27%

10.57% = 6.40% + 4.16%

Q_39. **Does Dr. Vander Weide express an opinion that his risk premium analyses actually incorporate risk?**

A_39. Yes. With regard to the risk premiums in his Schedule D and E, Dr. Vander Weide expresses his opinion at page 34 of his direct testimony:

> *"I believe TAWC faces risks today that are somewhere in between the average risk of the S&P utilities and the S&P 500 over the years 1937 to 2004."*

With regard to his Schedule C, which is based solely on gas companies, he has expressed the opinion that water companies are more risky than gas companies.

Q_40. **Do you agree with his implementation of the risk premium model in his Schedule D and E?**

A_40. No. I disagree with his implementation.

After his substantial efforts to justify his choice of just 5 water companies and 9 gas companies as the basis for estimating equity returns, those companies appear no where in his Schedules D and E. These two schedules are disconnected from the rest of his analysis. Therefore, I disregard them as a basis for setting the rate of return in this case.

I also disregard all of risk premium analyses, those displayed in his Schedules C, D, and E because there is a subtle, unspoken assumption within each one: TnAm has a beta of 1 with regard to the overall market.

VI. A. RISK PREMIUM ANALYSIS - BETA.

Q_41. **What does beta measure?**

A_41. Beta measures how an individual company's market value changes relative to the change in

the value of the entire market. For example, if a company's market value increases from $10 to $11, then the company's value increases by 10%. If the entire market's value increased from $1000 to $1200, then the entire market's value increases by 20%. The beta is calculated as .5, which is the ratio of 10% divided by 20%.

The market itself has a beta of 1. If the company's beta is one, then the company risk premium is the same as the market-wide risk premium. Thus if a company's beta is less than 1, then the company is judged less risky than the market. Beta is also used to compare the relative riskiness. For example, a beta of 0.4 is less risky than a beta of 0.6. A typical way to implement a risk premium model is to multiply the risk premium itself by a beta:

$$K_e = D + RP * B_e \quad (2)$$

where

K_e is the cost of equity

D is the cost of debt

RP is the risk premium, and

B_e is the beta.

Expressing Dr. Vander Weide's risk premiums with the beta as 1 gives this appearance to his results:

12.09% = 7.38% + 4.71% * 1

11.67% = 6.40% + 5.27% * 1

10.57% = 6.40% + 4.16% * 1

If the beta declines from 1 to a smaller number, the calculated equity return declines as well.

Q_42. **Has Dr. Vander Weide provided any betas for the companies in his analyses?**

A_42. No. Dr. Vander Weide has not provided any betas.

Q_43. **What is your procedure for deriving the cost of equity from this risk premium model?**

A_43. My procedure has seven steps:

1. I estimate the market's current cost of debt as ranging from 5.7% to 6.2%, which I show in my Schedules 26 and 27.

2. I estimate market-wide long-term rate of return for common equity as 10.4%, which I show and explain in my Schedules 21 and 22, and in my Chart 1 and Chart 2.

3. I estimate the market-wide risk-free investment as 3.75%, which I show and explain in my Schedules 23, 24 and 25.

4. I calculate the risk premium, RP, as the difference between 10.4% and 3.75%, yielding a risk premium of 6.65%, which is not substantially different than Dr. Vander Weide's risk premiums of 6.40%, but well below his premium of 7.38%.

5. I then multiply the risk premium by a beta.

6. I add the result of step 5 to the debt cost in step 1.

7. The results are summarized on a company-by-company basis in my Schedule 29, which suggests a lower limit of 6.8% for an equity return.

Q_44. **What is the economic significance of the betas you list in your Schedule 29?**

A_44. All the values are far less than 1, which means that the water companies are far less risky investments than the market as a whole. Therefore, investors do not perceive any substantial change in risk for these companies.

Q_45. **Did you compare your betas to those estimated by anyone else?**

A_45. Yes. My betas are listed in my Schedule 30 along side of betas from other sources.

VI. B. RISK PREMIUM ANALYSIS - CURRENT COST OF DEBT.

Q_46. What do you use as the current cost of debt - D?

A_46. I use a cost ranging from a high of 6.22% to a low of 5.7%. The first figure is from my Schedules 26, lower right-corner, which represents recent cost rates for BAA bonds, which have a higher cost than the A-bonds in Dr. Vander Weide's analysis. The second figure is from my Schedule 27, lower right-corner, which represents the current long-term debt cost of RWE.

VI. C. RISK PREMIUM MODEL - MARKET RETURN TO COMMON EQUITY

Q_47. What do you use to estimate R_m, market-wide rate of return for common equity?

A_47. I use 10.4%, which is the average of returns to large company stocks from the period 1925 through 2003 in the United States. My source is the Ibbotson 2004 Yearbook.

Within rate cases one of the most frequent disputes is over the kind of average to use, a so-called "geometric" average or a so-called "arithmetic" average. The terms' meanings are not easily apparent. In the most recent rate case before the TRA, there was considerable debate about the merits of using the "geometric mean" of market returns versus using the "arithmetic mean" of market returns.

One way to represent the problem is to ask: Which average is the real average? An "average" is usually thought of as representing a value that is typical, normal, or "right in the middle." So which average, "geometric" or "arithmetic," represents a value that is the middle? That question can be answered through two examples.

Here is an example of the "arithmetic" mean. If I bought a stock two years ago for $1000 and the market price declined to $500, I would have a loss of 50% in that year. If by a miracle the stock climbed back to $1000 the next year, I would have a 100% gain even though I have the same amount of money I started with. The average gain over two years is the "arithmetic" mean, which is 25%, i.e., (-50% + 100%)/2. Any historical record using the arithmetic average of percentage gains and losses is biased in the sense that it always overestimates the true gain.

Here is an example of the "geometric" average. If I started with $1000 two years and I have $1000 today, my gain is zero and the "geometric" zero percent, 0%.

In both cases I end up with the same amount of money that I started with. In the "arithmetic" case, I have a rate of return of 25%. In the "geometric" case my rate of return is 0%. The "arithmetic" return is misleading because it suggests my stock investment made money because the "arithmetic" average is based on only on percentage changes. In contrast, the "geometric" average is based on the values of the investment.

The amount, 10.4%, is the "geometric" average of returns. It is a value that is precisely in the middle of all possible returns from 1926 to 2003.

My Schedule 22 and Charts 1 and 2 show the practical differences between the geometric average and the arithmetic average.

Q_48. **How did you derive Schedule 22?**

A_48. The heart of the concept is simple. A $1 investment today has two possible outcomes next year -- a gain or a loss. But in the year after next, there are four possibilities because each possibility in the first year has two possibilities in the second year. The number of possibilities doubles each year. Thus an

investment that begins with $1 has 8 possible values three years later, 16 possible values four years later and so forth. The data on large companies covers seventy eight years and literally millions of possibilities. But the odds of each possibility can be easily calculated. I have done that in Schedule 22.

Q_49. **Why have you highlighted certain portions of Schedule 22 and Charts 1 and 2?**

A_49. I highlighted those portions to show the tie-ins of the schedule and the charts back to Schedule 21 and to emphasize the difference between the actual rate of 10.4%, which appears at the bottom of column (2) in Schedule 21 and the figure of 12.4%, which appears at the bottom of column (3), the so-called average of the returns, which I describe as a "biased average."

Q_50. **Why do you consider the average to be biased?**

A_50. The average is biased in the sense that it overstates market returns and leads unwary investors into the mistaken notion that an "average" return has a 50% chance of being achieved, when it does not. The growth rate of 12.4% means that a $1 investment in 1925 is now worth $9242 instead of $2285. Thus the arithmetic average of 12.4% is biased in the sense that it is not in the middle of the distribution.

The bias is created in a very simple way: No one can ever lose more than 100% of their investment, i.e., 100% is the mathematical limit for losses. However, there is no mathematical limit for an investment's gain. Therefore, when percentage gains are combined with percentage losses the resulting average is mathematically biased to overstate the true gain in value.

Q_51. **Is there any situation in which the arithmetic average is not biased?**

A_51. Yes. If the market always gains, then the arithmetic average is not biased. In this situation the average return and the actual return are identical. A divergence between the actual return or geometric return and the arithmetic average return indicates that losses have occurred. The greater the divergence, the greater the losses in the market.

Q_52. **Is 10.4% derived by comparing two actual values?**

A_52. Yes, it is derived by comparing the market value of large companies' common stock in 1925 with the their value in 2003, which I show in Schedule 21.

Q_53. **Is 12.4%, the biased average in your terms, derived by averaging numbers expressed as rates of return?**

A_53. Yes, it is derived by averaging all the rates of return from 1925 through 2003.

Q_54. **Does the figure 12.4% result from the mathematical bias you described?**

A_54. Yes because there have been several years where the market lost value. This is indicated in Schedule 21 column (2) when the value for an earlier year is greater than the value of a later year. For example, the market index fell from 534.46 in 1989 to 517.5 in 1990.

Q_55. **What are the odds of a company achieving at least a 12.4% return?**

A_55. The odds are less than 1 in 4 or less than 25%, indicating the return represents superior performance rather than normal performance.

Q_56. **What are the odds of a company achieving at least a 10.4% return?**

A_56. The odds are 1 in 2 or 50%, indicating that the return represents normal performance.

Q_57. **Why have you made the effort to explain the differences underlying 10.4% and 12.4%?**

A_57. Market returns vary widely over time, and when people are confronted with extremes the first step in clarifying the situation is to take an average. But with regard to a rate of return, it is a mistake to assume that an arithmetic

average is the mid-point between the extremes and that the arithmetic average represents a typical value. Without a probability analysis the difference between 10.4% and 12.4% may seem tiny and unimportant. However, when the probability of achieving 12.4% is considered, it is clear that arithmetic return represents superior performance in the market rather than normal performance. Thus when an arithmetic return is the basis of setting rates, the return is a superior return rather than a normal one.

Q_58. **Is it reasonable to describe the risk premium in terms of a probability analysis?**

A_58. Yes.

Q_59. **Do you have support for your choice of the geometric mean over the arithmetic mean?**

A_59. Yes. In addition to all of the reasons I have already described for using the geometric mean, it is also preferred by scholars in statistics and finance as well as professional investment firms. In 1990, Thomas Copeland, et. al. published *Valuation: Measuring and Managing the Value of Companies*. At page 193 they state: "Our opinion is that the best forecast of the risk premium is its long run geometric average." Irving Fisher, considered to be one of the world's greatest statisticians, wrote a book called *The Making of Index Numbers.* In the 1967 edition of the book at pages 29 and 30

Fisher says, "The simple arithmetic average produces one of the very worst index numbers. And if this book has no other effect than to lead to the total abandonment of the simple arithmetic type of index number, it will have served a useful purpose." In 1981 Richard Stevenson and Edward Jennings published, *Fundamentals of Investment 2sd ed.* At page 272 they write, "Why not simply average the rates of return? Indeed, in certain instances, such a procedure would be satisfactory. However, such an average would generally be meaningless." On March 13, 1990 at page C1 the Wall Street Journal ran the following story, "When Figuring the Rate of Return Don't Be Confused By The Sales Hype." The story compares the average return with the so-called compound return, another common name for the geometric return. The WSJ story says the compound return is "more widely used by investment firms."

There is plenty of support for using the actual market return (the geometric mean) in the risk premium model.

VI. D. RISK PREMIUM MODEL – RISK FREE RATE

Q_60. **What represents the market-wide risk-free investment, R_f?**

A_60. In this case I am using the three-month U.S. Treasury bills. I will show that the three-month rate is based on a long term perspective of the riskless rate and that it is a better concept to use in this case than a long-term bond.

Q_61. What is the market-wide risk free rate of return, R_f, based on three-month bills?

A_61. The risk free rate is 3.75%, which is the compound annual growth rate in the value of the three-month treasury bills from 1926 to 2003. Schedule 23 shows the 78 year history for returns to Treasury bills, and in the entire time there is no loss. The compound rate of 3.75% is the center of all possible outcomes from a $1 investment in three-month bills in 1925. The average rate is 3.8%. It is slightly higher than the actual rate because there were no gains in several years. The three-month rate is the best measure of a riskless rate.

Q_62. Why is the three-month treasury bill the best measure of a riskless rate?

A_62. There are three reasons:

1. The three-month bill is a debt instrument. This fits with the risk premium's basic premise: the return to debt is less than the equity return and equity return is determined by referencing debt.

2. Of all the other debt instruments measures that could be used -- long-term corporate bonds, long-term government bonds, and intermediate term government bonds -- the three-month bill provides the lowest rate. This is consistent with the financial concept that a risk free rate should be lower than rates that reflect risk.

3. A three-month bill is free from losses but the other debt instruments are not, i.e., they are riskier forms of investment than the three-month bill, which is why their rates are higher. Schedule 24 shows the actual return and the average return 1925 to 1996 for each of the debt instruments. For each kind of debt, the difference between the actual and average columns indicates the degree to which the losses occur in that particular debt market. Of all the debt instruments, the three-month bill is the safest. Investors are absolutely certain of what cash flows will be received and when they will be received. Unlike the other debt instruments, the three-month bill carries no risk of default or loss of principal.

My use of the three-month bill as the risk free rate is further supported by my Schedule 25, which displays the water companies' risk free rate in their valuation of employee stock compensation plans.

Q_63. **What is the economic significance of the betas' values you found?**

A_63. All the values are far less than 1, which means that the water companies are far less risky investments than the market as a whole. Therefore, investors do not perceive any substantial change in risk for these companies. This is further confirmation that the water supply industry is not the risk-laden industry described by Dr. Vander Weide.

VII. 7.9% IS A REASONABLE RETURN

Q_64. **In your opinion is your return of 7.9% reasonable?**

A_64. Yes. In my opinion a 7.9% return is reasonable. My entire analysis converges in my Schedule 37, which summarizes the effects of the rates of return and the double-leverage, which utilizes the value 6.67% as TnAm's cost rates for all capital supplied by RWE. Capital not supplied by RWE is valued at the cost rate file by TnAm.

I made an adjustment to the value of TnAm's retained earnings, reducing it from $20.38 million to $19.10 million. The first figure appears to include forecasted retained earnings from this case. In other words, TnAm's proposed capital structure already included retained earnings from this case. The figure, $19.10 million represents what TnAm reported in its most recent TRA form 3.06.

I made another adjustment to TnAm's filed capital structure, removing short-term debt because it is supplied by the parent.

In addition to my analyses, other sources point to a similar return of 7.9% as reasonable.

- As shown in my Schedule 36, pages 1 to 5 show that one-half the companies in the United States earned less than an 8% equity return in their most recent fiscal year. The data is provided by MorningStar, an online subscriber service.

- TnAm's own actuarial study, provided to CAPD in support of TnAm's request to fund an approximate increase of $900,000 in retirement expense, shows overall market returns of 6.9%;

- Broader historical-economic data shows an overall return to equity of 7% in the American economy, according to Professor Jeremy J. Siegel's article 1999 "The Shrinking Equity Risk Premium" published in the Journal of Portfolio Management in the fall of 1999.

"The real return on stocks, as I have emphasized, has displayed a remarkable long-term stability . since 1946... the real return on equity has been 7 8% ." ["The Shrinking Equity Risk Premium" by Jeremy J Siegel in The Journal of Portfolio Management Finance, Fall 1999 p. 12]

- Eugene Fama and Kenneth French conclude in their article:

"Whatever the story for variation in expected return .. we face a period of low(true) expected returns " [The Equity Premium by Eugene Fama and Kenneth French in The Journal of Finance, Vol. 67, No. 2, April 2002, p 658]

VIII. Public Fire Protection

Q_65. How does TnAm propose to collect revenues for public fire protection?

A_65. TnAm proposes to collect those revenues from customers other than the City of Chattanooga. Therefore, an issue presented in this docket is the appropriate treatment of fire hydrant service cost that is currently recovered by TnAm from the City of Chattanooga. Mr. Miller addresses the issue from the perspective of TnAm. Like Mr. Miller, I am not an attorney. However, I presented testimony in TnAm's prior rate case, Docket No. 03-00118 regarding the fire protection issue. Because public fire protection is once again an issue, I am addressing it here.

Recent legislation prescribes that a privately-owned public utility (such as TnAm) that provides water service to a municipal government providing public fire protection (such as the City) shall not charge the municipal government for any cost in connection with fire hydrant service. See Tenn. Code Ann. § 65-5-101(d) (2004). The new law also states that the utility may charge other, non-municipal government ratepayers ("common ratepayers") for fire hydrant service. Because TnAm currently charges the City for fire hydrant service, which is not permitted under the new law, it is necessary to consider the circumstances under which TnAm may bill common ratepayers for the City's current payments for such service.

The TRA first dealt with TnAm's charging the City for fire hydrant service in Docket No. 99-00891. In that docket, TnAm filed a tariff as part of its compliance with a settlement agreement entered into on October 25, 1999, between TnAm and the City. The settlement agreement essentially provided that TnAm would reduce the cost of fire hydrant service to the City in order to settle a condemnation lawsuit instituted by the City against TnAm, City of Chattanooga v. Tennessee-American Water Company et. al., Case No. 99-C-1081, Circuit Court of Hamilton County, Division IV. In particular, the annual charges to the City for each fire hydrant would be reduced, in quarterly reductions over two years, from $301.20 to $50.00. After the final reduction took effect on December 31, 2001, TnAm's annual fire hydrant service revenue would decline from about $1.4 million to $0.3 million, an annual revenue reduction of $1.1 million. Under the terms of the settlement agreement and the tariff, the City would continue to pay TnAm about $0.3 million each year for fire hydrant service ($50.00 per hydrant). The Order Approving Tariff in Docket No. 99-00891 specifically provided that this annual revenue reduction "shall be borne, in full, by the stockholders of Tennessee-American Water Company; [and that] the Company's ratepayers shall not at any time, through increases in rates, fees, schedules, or otherwise, bear any of the cost resulting from this Tariff filing by Tennessee-American Water Company to

voluntarily reduce its fire hydrant charges to the City of Chattanooga." In re: Tariff Filing to Reduce Fire Hydrant Annual Charges as Part of a Settlement Agreement Between the City of Chattanooga and Tennessee-American Water Company, Order Approving Tariff, TRA Docket No. 99-00891, p. 5 (Sept. 26, 2000).

In 2003, TnAm petitioned the TRA for a general rate increase. As part of the 2003 rate case, TnAm requested the TRA to reinstate the $1.1 million annual reduction in fire hydrant service revenue the Company agreed to in TRA Docket No. 99-00891. As TnAm requested, the TRA restored this revenue reduction and found that 50% of the restored revenue should be allocated to the City for public fire service and that the remaining 50% should be allocated to all customer classes, including the City. Petition of Tennessee American Water Company to Change and Increase Certain Rates and Charges so as to Permit It to Earn a Fair and Adequate Rate of Return on Its Property Used and Useful in Furnishing Water Service to Its Customers, Final Order Approving Rate Increase and Rate Design and Approving Rates Filed by Tennessee American Water Company, TRA Docket No. 03-00118, p. 20 (June 25, 2004). Under the TRA's 2003 rate design, TnAm was authorized to collect about $1.4 million annually in total fire hydrant service revenue – about $0.9 million from the City and $0.5 million from common ratepayers.

Thereafter, the General Assembly passed Tenn. Code Ann. § 65-5-101(d) (2004), which does not allow the TRA's 2003 rate design to be implemented on a going-forward basis. In particular, the new law provides that TnAm cannot collect the City's portion of fire hydrant revenue, but it does allow TnAm to collect the City's share of this revenue from common ratepayers, if approved by the TRA. Section 101(d) further provides that the City shall continue to pay its portion of the fire hydrant service revenue until the TRA sets new rates pursuant to a rate proceeding which shall commence within 120 days of May 18, 2004.

Accordingly, TnAm petitioned the TRA for a rate hearing – the instant docket – requesting the TRA's approval to collect the City's portion of the fire hydrant service revenue from common ratepayers, as well as requesting a general rate increase.

Thus, the potential effect of the 2003 rate case, coupled with the new law, is to shift the entire charge for fire hydrant service from the City and TnAm to common ratepayers. Under the new legislation the TRA is not obliged to shift the charge for fire hydrant service to common ratepayers within the residential, commercial and industrial classes. The Consumer Advocate's position regarding the responsibility of the shareholders of TnAm to bear this charge has not changed. However, there is little the Consumer Advocate would add to its presentation

in TRA Docket No. 03-00118 (the 2003 rate case) regarding this issue.

The Consumer Advocate does request that the TRA take note of the dramatic shift to common ratepayers that has occurred. Prior to the 2003 rate case, the cost of fire hydrant service was borne entirely by the City and, through the 1999 settlement agreement, voluntarily by TnAm stockholders. During the 2003 rate case, the TRA relieved TnAm of the financial burden of its voluntary settlement with the City – a decision that caused the water rates of common ratepayers to increase by about $0.5 million. The TRA's 2003 decision to undo TnAm and the City's settlement agreement also resulted in passage of Tenn. Code Ann. § 65-5-101(d) (2004), which has the potential of further increasing the water rates of common ratepayers by about $0.9 million if the TRA approves the shift of the City's share of fire hydrant revenue to common ratepayers.

In the span of less than two years, TnAm's common ratepayers may see a $1.4 million increase in water rates solely to cover fire hydrant service that was previously provided to them as part of the City's public fire protection. This is tantamount to an implicit fire protection fee built into the common ratepayers' water service. During the course of the current rate case, any decision to substantially increase the water rates of common ratepayers for public fire protection –

a service previously provided by the City – should be taken into account as just and reasonable rates are designed and implemented.

This concludes my testimony at this time.

BEFORE THE TENNESSEE REGULATORY AUTHORITY
AT NASHVILLE, TENNESSEE

IN RE:	)	
PETITION OF TENNESSEE-AMERICAN WATER COMPANY FOR APPROVAL OF CHANGE IN RATES AND CHARGES	)	**DOCKET NO. 04-00288**

AFFIDAVIT

STATE OF TENNESSEE)

COUNTY OF DAVIDSON)

Before me, the undersigned authority, duly commissioned and qualified in and for the State and County aforesaid, personally came and appeared, Steve N. Brown being by me first duly sworn deposed and said that:

He is appearing as a witness on behalf of the Consumer Advocate and Protection Division of the Tennessee Attorney General's Office and if present before the Authority and duly sworn, his testimony is set forth in the annexed transcript consisting of 65 pages.

STEVE N. BROWN

Sworn to and subscribed before me
this 23rd day of December, 2004.

Suzanne K. Linden
NOTARY PUBLIC

My commission expires: July 21, 2007

81192

SUZANNE K. LINDEN NOTARY PUBLIC AT LARGE DAVIDSON COUNTY, TENN
My Commission Expires JULY 21, 2007