Before the

Tennessee Regulatory Authority

PETITION OF TENNESSEE-AMERICAN)	
WATER COMPANY TO CHANGE AND)	
INCREASE CERTAIN RATES AND)	
CHARGES SO AS TO PERMIT IT TO)	**Docket No. 08-00039**
EARN A FAIR AND ADEQUATE RATE)	
OF RETURN ON ITS PROPERTY USED)	
AND USEFUL IN FURNISHING WATER)	
SERVICE TO ITS CUSTOMERS)	

Direct Testimony and Exhibits of

Michael Gorman

On behalf of

City of Chattanooga
and
Chattanooga Manufacturers Association

Project 8985
July 18, 2008

BRUBAKER & ASSOCIATES, INC.
ST. LOUIS, MO 63141-2000

Before the
Tennessee Regulatory Authority

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	)))))))) Docket No. 08-00039

Direct Testimony of Michael Gorman

1 **Q** **PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 A My name is Michael Gorman. My business address is 1215 Fern Ridge Parkway,

3 Suite 208, St. Louis, MO 63141-2000.

4 **Q** **WHAT IS YOUR OCCUPATION?**

5 A I am a consultant in the field of public utility regulation and a Managing Principal with

6 the firm of Brubaker & Associates, Inc. (BAI), energy, economic and regulatory

7 consultants.

8 **Q** **PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND**

9 **EXPERIENCE.**

10 A I have been involved in public utility regulation and utility economic analysis for

11 approximately 25 years, with several years experience on the Staff of the Illinois

12 Commerce Commission including the position of Director of the Financial Analysis

13 Department. I previously have testified as an expert before the Tennessee

1   Regulatory Authority (TRA or Authority).   A more detailed description of my work

2   experience and education is included in Appendix A to my testimony.

3 **Q**   **ON WHOSE BEHALF ARE YOU APPEARING IN THIS PROCEEDING?**

4 A   I am appearing on behalf of the City of Chattanooga (City) and the Chattanooga

5   Manufacturers Association (CMA).   City residents, thousands of whom are employees

6   of CMA member companies and their service suppliers, and CMA member

7   companies take water service from and are ratepayers of Tennessee-American Water

8   Company (TAWC or Company).   These entities represent customers of TAWC that

9   would experience a significant increase in their cost of water if the more than twenty

10   percent (20%) increase in rates proposed by TAWC were to be approved without

11   modification by the Tennessee Regulatory Authority (TRA).   Such an increase would

12   not be just and reasonable.

13 **Q**   **WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?**

14 A   In my testimony, I review the Company's claimed revenue deficiency, cost allocation

15   and rate design to its retail customers.   The purpose of my testimony is to illustrate

16   certain flaws and deficiencies in the methodology or calculations that TAWC submits

17   or adopts as supporting its requested rate increase and, in doing so, I make the

18   following recommendations:

19   1. The Company's claimed revenue deficiency of $7.6 million is significantly

20   overstated.   I recommend adjustments to the Company's claimed revenue

21   deficiency on the following issues:

1   a. The Company's proposed capital structure is not consistent with the

2   TRA's standard practice of using a double leverage capital structure

3   to set TAWC's rates.

4   b. The Company's proposal to increase its authorized return on equity to

5   11.75% is unreasonable, unjust and should not be permitted. I

6   estimate TAWC's current cost of equity to be in the range of 9.0% to

7   10.7% with a midpoint of approximately 9.9%. TAWC's last

8   authorized return on equity of 10.2% is within this cost range. If the

9   TRA chooses to revisit the proper return on equity for TAWC in this

10   case, then TAWC's return on equity should be reduced to 9.9%.

11   Otherwise, the return on equity of 10.2% adopted in May 2007,

12   should be the highest authorized return adopted by TRA to be used to

13   set rates in this case. TAWC's proposal to implement a return on

14   equity of 11.75% is unreasonable.

15   c. The Company's working capital allowance is overstated and should

16   be amended.

17   d. The Company has overstated the amount of construction work in

18   progress and rate case expense in its pro forma rate base.

19   e. The Company's revenue at current rates is understated because it

20   understates sales and, thus, revenue at current rates.

21   f. The Company's cost of service includes an excessive lost water

22   amount detrimental to ratepayers. This excessive lost water

23   adjustment results in inflation and an unreasonable impact on at least

24   its chemical and purchased power expense. Adjustments to the

1   Company's filing to reflect a more reasonable amount of lost water will

2   reduce at least its chemical and purchased power expense.

3   **<u>Revenue Requirement Adjustments</u>**

4   **Q   PLEASE SUMMARIZE YOUR PROPOSED REVENUE REQUIREMENT**

5   **ADJUSTMENT TO TAWC'S CLAIMED REVENUE DEFICIENCY.**

6   A   As shown in Table 1 below, TAWC claimed a revenue deficiency of $7.645 million.

7   After adjusting only for the issues which CMA contends should be adopted by the

8   Authority, the resulting revenue deficiency would be at most $2.394 million.   In

9   addition, Staff or other parties may recommend additional adjustments to further

10   reduce TAWC's claimed revenue deficiency.

Table 1	
<u>Revenue Deficiency Summary</u>	
<u>Description</u>	**<u>Amount</u>**
	(000's)
Claimed Revenue Deficiency	$7,645
Rate of Return*	($3,241)
Working Capital	($335)
Construction Work in Progress	($99)
Rate Case Expenses	($256)
Lost Water Expense Adj.	($234)
Revenue Sales	<u>($1,086)</u>
Total CMA Adjustments	($5,251)
TAWC's Claimed Revenue Deficiency After Applying CMA-Recommended Adjustments	$2,394
* Assuming but not endorsing 10.2% return on equity.	

1 ## Rate of Return

2 **Q   ARE YOU PROPOSING ADJUSTMENTS TO THE COMPANY'S RECOMMENDED**

3 **RATE OF RETURN FOR SETTING RATES IN THIS PROCEEDING?**

4 A   Yes. I propose two adjustments. First, the Company's proposed capital structure

5 was not based on the TRA's long-standing practice of using a double leverage capital

6 structure.   Hence, my rate of return revenue requirement adjustment reflects a

7 continuation of TRA standard practice of using a double leverage capital structure.

8 Second, the Company's proposed return on common equity of 11.75% is

9 excessive and should be rejected. I estimate TAWC cost of equity to fall in the range

10 of 9.0% to 10.7%.

11 Reflecting the TRA standard practice of a double leverage capital structure,

12 and simply presuming (without endorsing) no change to the Company's last

13 authorized return on equity of 10.2%, immediately reduces TAWC's claimed revenue

14 deficiency by $3.241 million, as shown on my Exhibit MPG-1.

15 I expand on these issues later in my testimony.

16 ## Working Capital Adjustment

17 **Q   HOW DO YOUR PROPOSED ADJUSTMENTS IMPACT TAWC'S PROPOSED**

18 **WORKING CAPITAL ALLOWANCE?**

19 A   TAWC is proposing a Working Capital (WC) allowance of $1,991,406. As shown on

20 my Exhibit MPG-2, I recommend this WC allowance be reduced by $3,677,753. My

21 WC adjustment is based on the following adjustments.

22 First, I removed the Company's proposal to include average cash balances in

23 its WC allowances. Inclusion of these balances double-counts the amount of cash

24 needed to operate the utility with the Company's estimate of the working cash

1   allowance using the lead-lag study. Further, including the average cash balance

2   would improperly allow the Company to earn a return on these cash balances twice:

3   first, in the development of rates, and a second time as those cash balances are

4   invested in an interest bearing account at a financial institution.

5   My second adjustment to the Company's WC allowance reflects the removal

6   of deferred regulatory expense. These expenses are being amortized in rates over a

7   relatively short period of time, and therefore these costs should not be a permanent

8   portion of TAWC's WC needs. Therefore, they were removed from the estimate of

9   the WC allowance claimed to be necessary to support operations.

10   Third, I removed the unamortized debt expense because these costs are

11   already reflected in the development of TAWC's debt interest cost in this proceeding.

12   Including both the embedded cost of debt and a WC allowance for debt provides

13   TAWC double-recovery of these unamortized debt expenses.

14   I removed other deferred debits from WC allowance. These other deferred

15   debits are associated with investments made by the parent company and charged to

16   TAWC as affiliate charges. Reflecting other deferred debits in WC allowance

17   overstates the service company fees for call center, customer billing and other

18   functions that are properly paid for through service company fees and not included as

19   a component of TAWC's WC needs.

20   Finally, for several reasons I propose adjustments to the Company's lead-lag

21   study to remove items that are already provided in other portions of WC, to correct

22   what I believe to be an error in its estimated revenue lag days, and to eliminate the

23   inclusion in the lead-lag study of non-cash items.

1   The combined effect of all of these adjustments reduces the Company's WC

2   from a positive allowance of an additional $1.99 million to a negative allowance of

3   $1.69 million, as shown on my Exhibit MPG-2.

4   **Q   PLEASE DESCRIBE THE WC ADJUSTMENT TO AVERAGE CASH BALANCES.**

5   A   I am proposing that the entire balance ($214,257) of Cash Balances be removed from

6   the Company's WC requirement. Including cash balances is redundant when a utility

7   such as TAWC also includes in its rate increase proposals a lead-lag study that

8   estimates the amount of cash needed to support operations. As such, this arbitrary

9   amount of cash balance has not been shown to be prudent and reasonable and

10 required for providing utility services.

11   Further, the Company's cash balances can be invested in short-term

12 interest-bearing accounts in a financial institution. Hence, by TRA accepting TAWC's

13 inclusion of cash balances in rate base, the Company would be allowed to earn a

14 return on this cash balance twice. By including a carrying charge on this cash

15 balance in the development of rates, the Company first will recover a return from

16 customers.   Second, the Company can earn an interest return on these cash

17 balances from an interest bearing account. It is unjust and unreasonable to allow the

18 Company to increase rates when earning a return on these cash balances twice.

19 More importantly, cash balances should not be included in the WC in addition to the

20 cash WC amount estimated from a lead-lag study. This would double count the cash

21 working capital requirement.

1 **Q** **PLEASE DESCRIBE THE WC DEFERRED REGULATORY EXPENSE**

2 **ADJUSTMENT.**

3 A I propose to eliminate the entire Deferred Regulatory Expense balance ($1,020,269)

4 from TAWC's alleged WC requirement. The Deferred Regulatory Expense consists

5 of the unamortized balances from rate case expenses, cost of service study expense

6 and depreciation study expense. I have included in cost of service a three-year

7 recovery of these expenses.

8 **Q** **PLEASE DESCRIBE YOUR WC UNAMORTIZED DEBT EXPENSE ADJUSTMENT.**

9 A I propose to remove the Unamortized Debt Expense balance ($290,559) from the WC

10 requirement. Including this expense in WC will allow TAWC to double-recover this

11 expense amount. TAWC is also estimating its cost of debt by reflecting this

12 unamortized debt expense as a reduction in the net proceeds available for investment

13 in utility plant and as an amortization cost included with the interest expense on these

14 bonds. The latter methodology provides for full recovery of and a return on this debt

15 expense in the development of rates. By including this debt amortization expense in

16 working capital, while also reflecting it in the development of TAWC's embedded debt

17 cost, will provide the Company double-recovery of this unamortized debt expense.

18 **Q** **PLEASE DESCRIBE YOUR WC OTHER DEFERRED DEBITS ADJUSTMENT.**

19 A I am proposing a total disallowance of this balance ($852,184) from the WC

20 requirement. The Other Deferred Debits balance is comprised of the unamortized

21 transition cost of the customer call center, the unamortized transition cost of the

22 shared service center and the unamortized balance of the management audit. These

23 costs were financed by American Water Service Corporation -- not TAWC. Therefore,

1   any deferred carrying charge on these expenses should be picked up in the service

2   company fees charged to TAWC from the American Water Works Service Company

3   for these services. It would be inappropriate to allow TAWC to recover a carrying

4   charge on these investments that were not funded by TAWC capital.

5   **Q   PLEASE DESCRIBE YOUR ADJUSTMENTS TO THE WC LEAD-LAG STUDY.**

6   A   I am proposing that the lead-lag balance of $604,000 be reduced to a negative

7    $696,484 balance. I made several adjustments to arrive at this balance. I have

8   included two exhibits attached to this testimony to better understand the adjustments I

9   am sponsoring. Exhibit MPG-3, page 1 is a lead-lag exhibit, which depicts the amount

10   of lead-lag allowance the Company is requesting in rate base. This exhibit illustrates

11   all factors of the lead-lag study on one exhibit. Exhibit MPG-3, page 2 presents the

12   adjusted lead-lag study balance that I am recommending be included in rate base for

13   this case.

14   As shown on this exhibit, I made four adjustments to the lead-lag study. First, I

15   assigned the expense lag equal to the revenue lag for the following items:

16   Depreciation and Amortization, Deferred Taxes, Net Earnings, and Amortizations.

17   Second, I set the expense lag equal to zero for the Group Insurance, Insurance Other

18   Than Group and AWWC Charges. By setting the expense lag equal to zero, I have

19   removed the effect of these expenses being prepaid for purposes of the lead-lag

20   study. Third, I included a line to capture the effect of uncollectible expense, a

21   non-cash expense. Fourth, I reduced the revenue lag by 4.62 days to correctly reflect

22   the Company's estimate of a revenue lag.

1   The effect of these adjustments of the Company's lead-lag study results in

2   over a $1.3 million decrease in the amount of cash WC necessary to support TAWC

3   utility operations.

4   **Q**   **PLEASE DESCRIBE YOUR FIRST LEAD-LAG ADJUSTMENT TO SET EXPENSE**

5   **AND REVENUE LAG EQUAL ON CERTAIN ITEMS.**

6   A   I assigned the expense lag equal to the revenue lag for the following line items:

7   Depreciation and Amortization, Deferred Taxes, and Amortizations.   These items

8   should not be included in TAWC's lead-lag study, as they do not represent cash

9   outlays and, therefore, do not require cash WC.

10   The Company acknowledged this point and assigned a zero lag to these

11 categories to develop TAWC's overall expense lag. Assigning a zero lag to these

12 expenses does reduce the overall expense lag, but the effect of TRA accepting the

13 Company's methodology would continue to assign a cash requirement to support a

14 non-cash expense.

15   For example, the Depreciation and Amortization line 17 purportedly is

16 requiring a $540,815 lead-lag requirement. The reason for this is that by only

17 eliminating the expense effect from the expense analysis, one is still allowing an

18 improper lead-lag study impact due to the revenue lag effect.

19   I assigned the expense lag equal to the revenue lag for net earnings. Since

20 TAWC does not pay out earnings, it does not require working capital to support its

21 earning levels.   Further, allowing net earnings to recognize a lead-lag effect

22 essentially provides for a separate return on TAWC's return on equity. This is not a

23 legitimate cost and is not just and reasonable.

1   Q   **PLEASE DESCRIBE THE NEXT ADJUSTMENT YOU MADE TO THE LEAD-LAG**

2   **STUDY.**

3   A   I removed the prepayment expense lag from the AWWS charges, Group Insurance,

4   and Insurance Other Than Group.

5   I removed the (line item 7) Group Insurance and (line item 9) Insurance Other

6   Than Group because I believe the prepaid nature of those expenses are already

7   accounted for in the WC requirement under equivalent amount reflected in the

8   Prepaid Insurance line. To also include those prepaid expense lags in the lead-lag

9   study would be requiring a recognition of the prepayment twice. I have allowed these

10   expenses in the lead-lag study to reflect the effect of the revenue lag. I believe this is

11   a conservative approach that actually benefits TAWC shareholders (over ratepayers),

12   since it might be argued that due to the booking of this expense, no revenue lag

13   effect needs to be reflected and a further adjustment reasonably can be made by the

14   TRA.

15 Q   **WHY DID YOU REMOVE THE PREPAYMENT EFFECT OF THE AWWS**

16   **CHARGES?**

17 A   I do not believe it is just and reasonable for the charges from the parent company to

18   be prepaid. AWWS services should be priced at or below competitive market rates.

19   Based on my understanding of other utilities' services and competitive procurement

20   on behalf on many clients, I believe it to be unusual for a supplier to require

21   prepayment of service by an investment grade creditworthy counter-party at

22   arms-length. As such, it is at odds with standard commercial practices for AWWS to

23   require prepayments of services by its affiliate TAWC. Since these costs should be

24   comparable to competitive market prices, I recommend they be disallowed until

1   TAWC is able to prove why it is necessary and prudent for TAWC to prepay AWWS

2   services and that the service, prices, terms and conditions imposed on TAWC by its

3   parent are competitive with non-affiliated third-party supplier charges.

4   **Q**   **HAVE YOU ADDED ANY LINE ITEMS TO THE LEAD-LAG STUDY?**

5   A   Yes. I added a line to capture the effects of uncollectables. Uncollectables is a

6   noncash expense and should not be included in a lead-lag study. In the Company's

7   filing, after considering the major expense items to provide service, the Company

8   included an expense line entitled "Other Operating and Maintenance Expenses".

9   This line item is a category that includes the total operation and maintenance

10   expenses.

11   Included in this total is the amount of uncollectable expense for the test year.

12   I have merely inserted the line item in the lead-lag study, which lists the amount of

13   uncollectable expense. This insertion reduces the dollars associated with the Other

14   Operating and Maintenance Expense category and lowers the amount of the lead-lag

15   study. I also zeroed out the effect of the uncollectables by assigning the expense lag

16   equal to the revenue lag. By doing so, the effect of uncollectables in the lead-lag

17   study is zero, as it should have been presented by TAWC.

18 **Q**   **PLEASE EXPLAIN THE ADJUSTMENT YOU MADE TO LEAD-LAG STUDY**

19   **REVENUE LAG?**

20 A   I reduced the revenue lag by 4.62 days to reflect the double counting of the billing lag.

21   The revenue lag is comprised of three separate lags and they are; a) the service lag,

22   b) the billing lag and c) the collection lag. In the Company workpapers, the billing lag

23   and collection lag are defined in the following manner:

1.   Billing lag – number of days <u>between the reading date</u> and the date the bills are mailed. (4.62 days)

2.   Collection lag – number of days <u>between the reading date</u> and the date the bills are paid. (24.63 days)

As can be seen from the above definitions, the billing lag of 4.62 days appears to be counted twice. The billing lag and collection lag are both calculated from the <u>reading date</u>. The reading date is when the meter is read and signifies the end of the service period. By calculating both the billing and collection lags from the <u>reading date</u>, I believe the billing lag of 4.62 days has been included twice. Therefore, I reduced the revenue lag by 4.62 days.

Construction Work in Progress

Q   **ARE THERE ANY OTHER RATE BASE ADJUSTMENTS YOU ARE PROPOSING?**

A   Yes. I am proposing to reflect the 13-month average of Construction Work in Progress (CWIP) balances from August 2008 through August 2009, as shown on Exhibit MPG-4. The Company requested a CWIP balance of $9,083,000 to be included in the rate base. The 13-month average from August 2008 through August 2009, is $7,996,461 rather than over $9.0 million. (TN-CAPD-01-PART IV-Q073-ATTACHMENT) Using the actual 13-month balance of CWIP in rate base reduces TAWC's proposed rate base by $1.09 million.

1 **Expense Adjustments**

2 **Q** **PLEASE DESCRIBE THE EXPENSE ADJUSTMENTS YOU ARE PROPOSING TO**

3 **THE COMPANY'S COST OF SERVICE.**

4 A I am proposing two expense adjustments to the Company's cost of service. First, I

5 am proposing the expense related to an excessive lost and unaccounted for water

6 allowance estimate be removed. These expenses include chemicals and fuel and

7 purchase power expense for water that never is identified as arriving at a ratepayer's

8 meter (hence the phrase "lost and unaccounted for"). Second, I am proposing an

9 adjustment to the Company's rate case expense.

10 **Q** **WHAT AMOUNT OF UNACCOUNTED FOR WATER IS INCLUDED IN TAWC'S**

11 **COST OF SERVICE?**

12 A The Company recorded 27.5% lost and unaccounted for water for the 12 months

13 ending November 30, 2007. I believe this lost factor is excessive. I, therefore, am

14 proposing that TRA reduce the lost factor down to no greater than 15% for an annual

15 period for use in the calculation of at least chemicals expense and purchase power

16 and fuel expense.

17 **Q** **WHY DO YOU BELIEVE 27.5% IS EXCESSIVE AND 15% IS REASONABLE?**

18 A I reviewed a document published by American Water Works Association, "Survey of

19 State Agency Water Loss Reporting Practices".[1] Several states responded to the

20 survey, which asked for standards for unaccounted for water. Not one state which

21 responded allowed a lost and unaccounted for water factor of 27.5%. Most

_____

[1] AWWA: Benchmarking Performance Indicators for Water and Waste Water Utilities: Survey Data and Analysis Report.

1   respondents specified an unaccounted water factor of 10% to 15%. Further, as

2   provided by the Company in the Supplemental Response to COC-4, the Company

3   provided a document entitled "Benchmarking Performance Indicators, Distribution

4   System Water Loss." The median range in the 25th to 75th percentile of companies

5   reported typically reflects distribution system water losses of less than 15%. This

6   sample included utility companies in the West, South, Midwest and Northeast regions.

7   Clearly, TAWC's use of a lost water factor of 27.5% would make it far and

8   away one of the worst operating water systems in either survey. I chose the most

9   responded to figure of 15% for purposes of this case, even though the TRA

10   reasonably could exercise discretion to make an adjustment to an even lower

11   allowable "lost and unaccounted for" water factor should it believe the median lost

12   factor noted above is too high for ratepayers, rather than TAWC's investors, to have

13   to bear.

14   **Q**   **ARE YOU AWARE IF THIS PROBLEM EXISTS IN OTHER SERVICE**

15   **TERRITORIES OF AMERICAN WATER WORKS ASSOCIATION?**

16   A   Yes, I am aware that in the last Missouri American Water rate case, the Staff of the

17   Missouri Public Service Commission presented a similar type adjustment. Ms.

18   Roberta Grissum prepared testimony on the issue and recommended a 15% lost

19   factor be used to annualize chemicals and fuel and purchase power expense. In her

20   Surrebuttal Testimony, Ms. Grissum includes a quote from the American Water

21   Works Association, which states the following:

22   Many drinking water utilities around the world respond to leaks only
23   after they have received a report of water erupting from a street or a
24   complaint from a customer about a damp basement. Utilities that
25   employ this type of reactive leakage response most likely have
26   excessive leakage that will never be reliably contained. Controlling

1   leakage effectively relies upon a proactive leakage management
2   program that includes a means to identify hidden leaks, itemized repair
3   functions and upgrade piping infrastructure before its useful life ends.
4   Effective technologies have been developed in recent years including
5   nightflow analysis to quantify leakage amounts, leak noise correlators
6   and loggers to pinpoint leaks and pressure management to reduce
7   leakage systematically under the right conditions.   Many effective
8   strategies now exist to allow water utilities to identify, measure, reduce
9   or eliminate leaks in a manner that is consistent with their cost of doing
10   business. (Missouri Public Service Commission, Missouri-American
11   Water Company, Case No. WR-2007-0216, Surrebuttal Testimony of
12   Roberta A. Grissum, at 5).

13 **Q**   **ARE YOU AWARE OF ANY ACTIONS THE COMPANY HAS TAKEN IN THE**

14   **CONTEXT OF THIS CASE TO ADDRESS THEIR LOST AND UNACCOUNTED**

15   **FOR WATER USAGE?**

16 A   Yes.   In this rate case, the Company is requesting to add an employee to their

17   payroll. The employee's title will be "Non-Revenue Water Supervisor". As a part of

18   the justification for this employee expense, the Company states the following:

19   Company has continued to work diligently on reducing unaccounted for
20   water and it has been determined that TAWC needs a fulltime
21   employee dedicated to this function.

22   In addition, the Company has initiated a Capital Investment Management

23   Project Approval form with a project title of "Replace Lookout Mountain Supply Mains"

24   in the "Need for the Project" section of this form, where the following appears:

25   Need for project. The project is needed to greatly increase reliability
26   by reducing the leakage problems that have been encountered over
27   the years. There are two steel pipes, which originate from the Lookout
28   Mountain Pumping Station to Lookout Mountain, Tennessee, and
29   extend up the face of the mountain to provide service to the homes on
30   top of the mountain. The lines are buried for most part of their run, but
31   lay directly on top of the rock when they reach the bluff at the top of the
32   mountain. Remains of supports intended to keep a pipe off the face of
33   the rock have corroded or failed and the pipe rests directly on the rock.

34   Visual inspection of the piping above grade, revealed a considerable
35   amount of corrosion which is critical to effectively supplying water up

1   Lookout Mountain should there be a major leak or break. In total,
2   there have been three pinhole leaks on these mains (8-inch and
3   12-inch) in 5+ years and our contractors who have to repel off the bluff
4   to repair these breaks have commented that if the last break had been
5   1-inch further into the rock face, there would have been no way to fix it.

6   The above description demonstrates that the Company realizes that lost and

7   unaccounted for water is a problem or concern. Hiring the new employee and

8   replacing the supply mains should reduce the lost and unaccounted for water. I have

9   reduced that factor down to a level of 15% for cost of service purposes. Ratepayers

10   should not be required to pay in rates for excessive lost and unaccounted for water.

11   **Q   HOW DID YOU ESTIMATE THE REVENUE IMPACT OF REDUCING THE LOST**

12   **AND UNACCOUNTED FOR WATER TO 15% FROM THE COMPANY'S**

13   **PROPOSED 27.5%?**

14   A   This is developed on my Exhibit MPG-5. As shown on this exhibit, based on the

15   Company's pro forma adjustment, I estimated a modified amount of water volume in

16   the Company's test year cost of service. I then estimated the amount of chemical

17   and purchased power expense associated with this lower amount of volume delivered

18   to retail customers. The amount of chemical expense and purchased power expense

19   on a volumetric basis was estimated from the Company's cost included in its

20   workpapers. Using these factors, I estimated the amount of chemical and purchased

21   power expense necessary to supply this reduced level of water. The adjustment then

22   is the amount of chemical and purchased power expense at the Company's proposed

23   deliverable volumes reflecting its abnormally high loss factor, versus the amount of

24   chemical and purchased power expense related to a lower volume of water reflecting

25   this reduced, more efficient distribution system. This adjustment lowers the

26   Company's claimed revenue deficiency by another $234,654 and in order for just and

1   reasonable rates to be implemented the TRA should reduce TAWC's petition for

2   increases by that amount.

3   ## Rate Case Expense

4   **Q   PLEASE DESCRIBE THE RATE CASE EXPENSE ADJUSTMENT YOU ARE**

5   **PROPOSING.**

6   A   I have reduced rate expense from the Company's proposed amount of $543,384 to

7    $287,111. I am proposing to allow a three-year recovery of the unamortized balance

8   of the 2006 cost of service study expense ($30,000) and the 2006 rate case expense

9   amount ($233,333), as shown on my Exhibit MPG-6. The unamortized balance for

10   the 2006 rate case expense reflects the amortization of the $400,000 agreed to by

11   the parties in the last case.

12   To this balance, I have added TAWC's estimated 2008 rate case expense

13   ($550,000), the 2008 cost of service study ($16,000) and the 2008 depreciation study

14   ($32,000) expenses. The sum of the above was a total expense of $861,333. I

15   would propose a three-year recovery of these expenses if any or part of them is

16   allowed by TRA. Although the cost of service studies and the depreciation study

17   have proposed longer recovery periods, I am proposing a consistent three-year

18   period for ease of tracking these expenses by the Authority.

19   ## Conservation Sales Revenue

20   **Q   DID TAWC ACCURATELY ESTIMATE SALES REVENUES AT CURRENT RATES?**

21   A   No. TAWC underestimated revenues at current rates by overestimating reduced

22   sales due to conservation. More reasonable sales projections will increase TAWC

1   revenues at current rates by $1,142,595, and chemical and power expense by

2      $24,381 and $32,439, respectively. These increased sales would result in a further

3   net reduction to TAWC's claimed revenue deficiency of $1,085,775, as shown on

4   Exhibit MPG-7.

5 **Q**   **HOW DO YOU BELIEVE TAWC UNDERSTATED SALES AND REVENUE AT**

6   **CURRENT RATES?**

7 A   TAWC witness Mr. Edward Spitznagel, Jr. estimated pro forma sales and reflected

8   expected conservation of water for the residential and commercial classes.

9   Mr. Spitznagel's sales projections were based on an estimate of the average daily

10   usage of water for residential and commercial customers. The daily water usage

11   estimates used by Mr. Spitznagel for residential and commercial classes are

12   unreasonably low.

13 **Q**   **WHAT WERE THE DAILY USAGE PROJECTIONS OF WATER USAGE BY**

14   **MR. SPITZNAGEL?**

15 A   Mr. Spitznagel estimated that residential customers would use 141.8 gallons of water

16   per day and that commercial customers would use 1,029.4 gallons per day. These

17   projections are simply too low.

18 **Q**   **WHY DO YOU BELIEVE MR. SPITZNAGEL'S DAILY USAGE ESTIMATES**

19   **UNDERSTATE TAWC'S ACTUAL RECENT HISTORICAL SALES LEVELS?**

20 A   This conclusion is clearly evident by a comparison of Mr. Spitznagel's development of

21   revenue in this case, to the actual daily usage shown in his own workpapers and as

22   found in TAWC's annual reports submitted to the TRA.

1   For residential customers, Mr. Spitznagel used an average daily volume

2   estimate of 141.8 gallons, as shown on my Exhibit MPG-7, page 6. For commercial

3   customers, he used an average daily volume estimate of 1,029.4 gallons.   The

4   Company's actual data shows that these daily volume estimates are understated.

5   The ten and five-year average of water usage for the TAWC residential class

6   using the Company's workpapers was 154.0 and 149.2 gallons per day. Using the

7   three years from the TAWC annual report, the three-year average is 150.7 gallons

8   per day.   For purposes of this case, I assumed that the average Chattanooga

9   residential customer will use 150.5 gallons of water a day or 6.1 cubic feet of water a

10   month. The Company's data shows some projected decline in water usage but does

11   not support the significant usage decline included in Mr. Spitznagel's projection.

12   A normal residential consumption estimate of 150.5 gallons per day more

13   reasonably compares to the last five years' actual usage but still reflects continued

14   water conservation gains.   In order to project the residential usage for Lookout

15   Mountain and Lakeview, I calculated the percentage change between my residential

16   usage estimate and Mr. Spitznagel's for the Chattanooga district and applied that

17   percentage change to volumes that Mr. Spitznagel estimated for Lookout Mountain

18   and Lakeview.

19   The commercial class also exhibited fluctuations in the usage between one

20   year and another.   Mr. Spitznagel's projection of 1,029.4 gallons per day is not

21   reasonable relative to the historical data.   The ten and five-year averages using

22   Mr. Spitznagel's data was 1,080.0 and 1,061.2 gallons per day, respectively. Using

23   the TAWC annual report data furnished to this agency illustrates a three-year average

24   volume per day of 1,072.7 gallons.

1   I conservatively recommend TRA adopt at least 1,055 gallons per day volume

2   as an estimate for the commercial class. This daily volume, 1,055 gallons per day,

3   has been exceeded every year except twice in the last 14 years. The 1,055 gallons

4   per day volume estimate is more reasonable and consistent with actual sales volume

5   to TAWC's commercial customers over the last three years than the daily volume

6   estimate of 1,029.4 used by Mr. Spitznagel. I also converted the commercial usage

7   for Lookout Mountain and Lakeview using the percentage change which occurred

8   when I projected Chattanooga's commercial usage.

9   **Q   DID YOU ADJUST CHEMICALS AND FUEL AND PURCHASE POWER EXPENSE**

10   **FOR THIS INCREASED VOLUME SALES?**

11   A   Yes. As also shown on Exhibit MPG-7, pages 4 and 5, this exhibit reflects an

12   increase to chemical and power expense associated with the higher sales estimate.

13   The net impact on TAWC revenue requirement is the increase in sales revenue at

14   current rates, less the increase in chemical and power costs. In order to set just and

15   reasonable rates based upon proper estimates of sales, the TRA should not accept

16        $1,085,775 of the Company's claimed revenue deficiency, as explained above.

17   **Rate of Return**

18   **Q   HOW WILL THIS PORTION OF YOUR TESTIMONY BE ORGANIZED?**

19   A   First, I will review TAWC's current access to capital and investment risk. Then I will

20   review the capital structure TAWC proposes to use to set rates in this proceeding.

21   Next, I will review current estimates of TAWC's market cost of common equity.

22   Finally, I will respond to TAWC witnesses' requested return on equity of 11.75%.

1   Indeed, I show that the Company's recommended return on equity is excessive,

2   unreasonable and should be rejected.

3   **Q   PLEASE DESCRIBE AMERICAN WATER CAPITAL CORP.'S CREDIT RATING.**

4   A   American Water Capital Corp. has a credit rating of "A-" from Standard & Poor's and

5   "Baa2" from Moody's. Standard & Poor's states the following concerning American

6   Water Works' credit rating and assessment of its credit quality:

7   The ratings on the Voorhees, N.J.-based AWW reflect our assessment
8   of the company's stand-alone credit quality based on its proposed
9   post-IPO business plan, which includes improvements in the utility's
10   financial profile above current levels. AWW has received all regulatory
11   approvals necessary for its divestiture from RWE AG. The ratings are
12   also based on our expectation of regulatory support to fund the
13   company's sizable capital-spending requirements through rate cases
14   or supportive policies, such as infrastructure surcharges, forward-
15   looking test years, and single tariff pricing.
16
17   AWW's excellent business risk profile is characterized by an excellent
18   competitive position with high barriers to entry; a diverse and
19   supportive regulatory environment that provides reasonably allowed
20   ROEs, incentives for infrastructure improvements and support for
21   acquiring small water companies; an above-average service territory
22   that provides some market, cash flow, and regulatory diversification; a
23   stable customer base that is predominantly residential and
24   commercial; and the relatively low operating risk of regulated and
25   nonregulated operations.   AWW's aggressive financial profile,
26   uncertainties associated with its planned equity and equity unit
27   offerings, elevated capital-spending requirements for infrastructure
28   replacement, increased compliance costs with water-quality standards,
29   and the company's reliance on acquisitions to provide growth partly
30   offset these strengths.[2]

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[2] Standard & Poor's Credit RatingsDirect Research Update: "American Water Works, Sub
Ratings Remain On CreditWatch; IPO Timing Still Uncertain," January 29, 2008.

1 **TAWC's Proposed Capital Structure**

2 **Q** **WHAT CAPITAL STRUCTURE IS THE COMPANY REQUESTING TO USE TO**

3 **DEVELOP ITS OVERALL RATE OF RETURN FOR WATER OPERATIONS IN THIS**

4 **PROCEEDING?**

5 A The Company's overall rate of return was developed using the capital structure

6 recommended by TAWC witness Michael A. Miller on his Exhibit MAM-3.

TABLE 2

TAWC's
Proposed Capital Structure

Description	Weight
Long-Term Debt	50.66%
Short-Term Debt	5.20%
Preferred Stock	1.16%
Common Equity	42.98%
Total	100.00%

Source: Exhibit MAM-3, Page 1 of 3.

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7 **Q** **ARE YOU PROPOSING ANY ADJUSTMENTS TO TAWC'S PROPOSED CAPITAL**

8 **STRUCTURE?**

9 A Yes. The Company's capital structure is not consistent with the TRA decision in

10 Docket No. 06-00290 for the use of a double leverage capital structure.

11 I developed TAWC's rate of return using a double leverage capital structure as

12 shown on my Exhibit MPG-8. As shown on that exhibit, TAWC's properly calculated

13 overall rate of return would fall to 7.33%, assuming (but not endorsing) the return

14 being based on a 10.2% return on equity.

1 **Q** **HOW DID YOU DETERMINE THE AMOUNT OF CAPITAL AT THE PARENT**

2 **COMPANY LEVEL?**

3 A I relied on the data provided in American Water Works Company, Inc.'s (AWW) first

4 SEC filing as of March 31, 2008. In that SEC filing, I relied on the parent company's

5 balance of common equity, long-term debt, short-term debt and preferred equity. I

6 did make one adjustment to the Company's balance of common equity.

7 **Q** **DID YOU MAKE ANY ADJUSTMENTS TO AWW'S PARENT CAPITAL**

8 **STRUCTURE?**

9 A Yes. I adjusted the AWW common equity balance to remove the equity supporting

10 AWW's goodwill asset. This goodwill asset of $1.7 million is the remaining balance

11 after AWW recorded an impairment charge against this goodwill asset. I then

12 reduced the Company's goodwill common equity to remove the capital supporting this

13 goodwill asset. This resulted in a decrease of the balance of common equity of the

14 parent company from $3.8 million down to $2.1 million.

15 Removing the amount of common equity supporting goodwill is necessary in

16 order to identify the amount of common equity supporting AWW's actual capital

17 supporting its investments in its numerous subsidiary utility companies. Goodwill is

18 an asset that reflects the effect of mergers and acquisition purchase prices relative to

19 AWW's book value equity. A goodwill asset reflects stock sales that were recorded at

20 a premium to AWWC book value. As such, this goodwill asset is not related to

21 provision of utility service, but rather is related to investor transactions and the sale of

22 public stock.

23 Goodwill can only be supported by AWW's common equity, because it is an

24 intangible asset that does not produce cash flows and, therefore, cannot be

1   supported by debt capital. As such, this adjustment to AWW's capital structure is

2   necessary in order to develop a capital structure that supports its investment in

3   operating companies.

4   **Q   HOW DID YOU DETERMINE THE AWW COST OF DEBT CAPITAL?**

5   A   There was not sufficient information made available by TAWC to estimate AWW's

6   cost of debt capital. Therefore, without conceding the propriety of the amounts

7   provided by TAWC, I used TAWC debt cost provided by the Company in Exhibit

8   MAM-3, as a proxy for AWW long-term debt cost.

9   I updated AWW's cost of short-term debt to 3.25% to reflect recent reduction

10   to short-term interest rates. In AWW's SEC document, it states that its cost of

11   borrowing funds is set equal to the LIBOR rate plus 25 basis points. In estimating this

12   cost of debt, I relied on a projected LIBOR rate of 3.0% for the third quarter of 2009

13   as published by *Blue Chip Financial Forecasts*.[3] I added to this the spread of 0.25%

14   consistent with AWW's representation to the investing public. This resulted in a cost

15   of short-term debt for use in this proceeding of 3.25%.

16   **Q   WHAT IS YOUR RECOMMENDED OVERALL RATE OF RETURN USING A**

17   **DOUBLE LEVERAGE CAPITAL STRUCTURE?**

18   A   As shown on my Exhibit MPG-8, the overall rate of return using a double leverage

19   capital structure is 7.33%, which is based simply (and without endorsement) on the

20   return on equity of 10.2% approved in Docket No. 06-00290.

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[3] *Blue Chip Financial Forecasts*, June 1, 2008 at 2.

1   **Return on Common Equity**

2   **Q   PLEASE DESCRIBE THE FRAMEWORK FOR DETERMINING A REGULATED**

3   **COMPANY'S COST OF COMMON EQUITY.**

4   A   In general, determining a fair cost of common equity for a regulated utility has been

5   framed by two decisions of the U.S. Supreme Court, in <u>Bluefield Water Works</u> vs.

6   <u>West Virginia PSC</u> (1923) and <u>Federal Power Commission</u> vs. <u>Hope Natural Gas</u>

7   <u>Company</u> (1944). These decisions state that in establishing the cost of common

8   equity for a public utility, the general standards to be considered are that the

9   authorized return should: (1) be sufficient to maintain financial integrity, (2) attract

10   capital under reasonable terms, and (3) be commensurate with returns investors

11   could earn by investing in other enterprises of comparable risk.

12   **Q   PLEASE DESCRIBE WHAT IS MEANT BY "UTILITY'S COST OF COMMON**

13   **EQUITY."**

14   A   The utility's cost of common equity is the return investors expect, or require, in order

15   to make an investment. Investors expect to achieve their return requirement from

16   receiving dividends and stock price appreciation.

17   **Q   PLEASE DESCRIBE THE METHODS YOU HAVE USED TO ESTIMATE THE COST**

18   **OF COMMON EQUITY FOR TAWC.**

19   A   I have used several models based on financial theory to estimate TAWC's cost of

20   common equity. These models are: (1) the constant growth discounted cash flow

21   (DCF) model, (2) a two-stage growth DCF model, (3) a risk premium (RP) model, and

22   (4) a capital asset pricing model (CAPM). I have applied these models to a group of

1   publicly traded utilities that I have determined represent the investment risk of a water

2   utility similar to TAWC.

3   **Q   HOW DID YOU DEVELOP A DCF ANALYSIS AND CAPM ESTIMATES FOR**

4   **TAWC?**

5   A   Since TAWC is not a publicly traded entity, I performed the DCF, RP, and CAPM

6   analyses on two risk proxy utility groups used by TAWC witness Michael Vilbert.

7   **Q   PLEASE DESCRIBE THE WATER AND GAS UTILITY PROXY GROUPS USED IN**

8   **YOUR RATE OF RETURN ANALYSIS?**

9   A   I adopted the two proxy groups used by TAWC's witness Dr. Vilbert.   The first is

10   composed of publicly traded companies that are predominantly involved in the water

11   utility business. The second proxy group is composed of local natural gas distribution

12   companies (LDC).

13   **Q   IS YOUR WATER UTILITY PROXY GROUP COMPARABLE IN RISK TO TAWC?**

14   A   Yes. This group reflects reasonably comparable investment risk as TAWC. As shown

15   on Exhibit MPG-9, Page 1, this group has a group average bond rating of "A+" from

16   S&P, and "A2" from Moody's, which is reasonably comparable to American Water

17   Capital's bond ratings of "A-" and "Baa2" from each of these rating agencies. The

18   group's higher business profile score indicates higher business risk than that of

19   TAWC.   The group's average common equity ratio from Value Line is 53.3%

20   (excluding short-term debt) and 48.9% (including short-term debt) from AUS Utility

21   Reports, which is higher than the common equity ratio for TAWC. Consequently, the

22   group has slightly lower financial risk than TAWC, which has a common equity ratio of

1   45.3% (excluding short-term debt) and 42.9% (including short-term debt). Overall, the

2   group's total risk (business and financial) is comparable to TAWC.

3   **Q**   **IS YOUR GAS LDC PROXY GROUP COMPARABLE IN RISK TO TAWC?**

4   A   Yes. As shown on Exhibit MPG-9, Page 2, the gas LDC group has similar risk profile

5   measures to TAWC. As shown on Exhibit MPG-9, Page 2, the average gas proxy

6   group bond rating is "A" and "A3" from Standard & Poor's and Moody's, respectively,

7   which is reasonably comparable to American Water Capital Corp.'s current bond

8   rating. The group's common equity ratio of 51% to 55% is higher than TAWC's

9   common equity ratio of 43%. The Gas Group is also risk comparable to TAWC.

10 **Discounted Cash Flow (DCF) Model**

11 **Q**   **PLEASE DESCRIBE THE DCF MODEL.**

12 A   The DCF model posits that a stock price is valued by summing the present value of

13   expected future cash flows discounted at the investors' required rate of return (ROR)

14   or cost of capital. This model is expressed mathematically as follows:

15       $$P_0 = \frac{D_1}{(1+K)^1} + \frac{D_2}{(1+K)^2} \cdots \frac{D_\infty}{(1+K)^\infty} \quad \text{where} \qquad \text{(Equation 1)}$$

16
17   P_0 = Current stock price
18   D = Dividends in periods 1 - ∞
19   K = Investor's required return
20   This model can be rearranged in order to estimate the discount rate or

21   investor required return, "K." If it is reasonable to assume that earnings and

22   dividends will grow at a constant rate, then Equation 1 can be rearranged as follows:

1 $$K = D_1/P_0 + G \hspace{5cm} \text{(Equation 2)}$$

2 $\quad K$ = Investor's required return
3 $\quad D_1$ = Dividend in first year
4 $\quad P_0$ = Current stock price
5 $\quad G$ = Expected constant dividend growth rate

6 Equation 2 is referred to as the "constant growth" annual DCF model.

7 **Q** **PLEASE DESCRIBE THE INPUTS TO YOUR CONSTANT GROWTH DCF MODEL.**

8 A As shown under Equation 2 above, the DCF model requires a current stock price,

9 expected dividend, and expected growth rate in dividends.

10 **Q** **WHAT STOCK PRICE HAVE YOU RELIED ON IN YOUR CONSTANT GROWTH**

11 **DCF MODEL?**

12 A I relied on the average of the weekly high and low stock prices over a 13-week period

13 ending June 20, 2008. An average stock price is less susceptible to market price

14 variations than a spot price. Further, an average stock price is less susceptible to

15 aberrant market price movements, which may not be reflective of the stock's long-

16 term value.

17 A 13-week average stock price is short enough to contain data that

18 reasonably reflects current market expectations, but it is not too short to be

19 susceptible to market price variations that may not be reflective of the security's long-

20 term value. Therefore, in my judgment, a 13-week average stock price is a

21 reasonable balance between the need to reflect current market expectations and to

22 capture sufficient data to smooth out aberrant market movements.

1 **Q** **WHAT DIVIDEND DID YOU USE IN YOUR CONSTANT GROWTH DCF MODEL?**

2 **A** I used the most recently paid quarterly dividend, as reported in the Value Line

3 Investment Survey. This dividend was annualized (multiplied by 4) and adjusted for

4 next year's growth to produce the D_1 factor for use in Equation 2 above.

5 **Q** **WHAT DIVIDEND GROWTH RATES HAVE YOU USED IN YOUR DCF MODEL?**

6 **A** For purposes of determining the market required return on common equity, one must

7 attempt to estimate what the consensus of investors believes the dividend or earnings

8 growth rate will be, and not what an individual investor or analyst may use to form

9 individual investment decisions.

10 Security analyst growth estimates have been shown to be more accurate

11 predictors of future returns than growth rates derived from historical data.[4] Because

12 they are more reliable estimates, and assuming the market, in general, makes

13 rational investment decisions, analysts' growth projections are the most likely growth

14 estimates built into stock prices.

15 For my constant growth DCF analysis, I have relied on a consensus, or mean,

16 of professional security analysts' earnings growth estimates as a proxy for the

17 investor consensus dividend growth rate expectations. For my gas group, I used the

18 average of two sources of analysts' growth rate estimates: Zacks and SNL Financial.

19 Since the water utilities are very thinly followed, I obtained the growth rate estimates

20 from Zacks only. All consensus analyst projections used were available on June 23,

21 2008, as reported on-line. Each consensus growth rate projection is based on a

22 survey of security analysts. The consensus estimate is a simple arithmetic average

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[4] See, for example, David Gordon, Myron Gordon, and Lawrence Gould, "Choice Among Methods of Estimating Share Yield," The Journal of Portfolio Management, Spring 1989.

1 or mean of surveyed analysts' earnings growth forecasts. A simple average of the

2 growth forecast gives equal weight to all surveyed analysts' projections. It is

3 problematic as to whether any particular analyst's forecast is most representative of

4 general market expectations. To avoid using only one particular forecast, I used a

5 simple average, or arithmetic mean, of multiple analyst forecasts to arrive at a good

6 proxy for market consensus expectations. The growth rates I used in my DCF

7 analysis are shown on Exhibit MPG-10.

8 **Q** **WHAT ARE THE RESULTS OF YOUR CONSTANT GROWTH DCF MODEL?**

9 A The results of my DCF analyses are shown on Exhibit MPG-11. As shown on Exhibit

10 MPG-11, Page 1, the average DCF cost of common equity for the water proxy group

11 is 12.49%. On Exhibit MPG-11, Page 2, the gas proxy group DCF return is 10.45%.

12 My constant growth DCF study indicates a return on equity of 10.45% to

13 12.49%, with a midpoint of 11.47%.

14 **Q** **DO YOU HAVE ANY COMMENTS CONCERNING THE RESULTS OF YOUR**

15 **CONSTANT DCF ANALYSIS?**

16 A Yes. The comparable Water Group average five-year growth rate is 9.37% and is too

17 high to be sustainable over an indefinite period of time. The gas proxy group's three

18 to five-year growth rate of 6.29% is also too high to be sustainable in the long run.

19 The projected three to five-year growth rates exceed the growth rate of the

20 overall U.S. economy. Based on consensus economic projections, as published by

21 Blue Chip Economic Indicators, the five and ten-year U.S. economy, or GDP, is

1   estimated to grow at a nominal rate of 5.0% and 4.8%, or average of 4.9%.[5]   A

2   company cannot grow, indefinitely, at a <u>faster</u> rate than the market in which it sells its

3   products. The U.S. economy growth projection represents a ceiling, or high end,

4   sustainable growth rate for a utility over an indefinite period of time.

5   Utilities' growth cannot sustain a growth rate that exceeds the growth rate of

6   the overall economy, because utilities' earnings/dividend growth is created by

7   increased utility investment, which in turn is driven by service area economic growth.

8   In other words, utilities invest in plant to meet sales demand growth, and sales growth

9   in turn is tied to economic growth in their service areas. Hence, nominal GDP growth

10   is a proxy for sales growth, utility rate base growth, and earnings growth. Therefore,

11   GDP growth is the highest sustainable long-term growth rate of a utility.

12   **Q   WHY IS THE GDP GROWTH PROJECTION CONSIDERED A MAXIMUM**

13   **LONG-TERM SUSTAINABLE GROWTH RATE FOR A UTILITY?**

14   A   Utilities cannot sustain a growth rate that exceeds the growth rate of the overall

15   economy indefinitely. Utilities' earnings/dividend growth is created by increased utility

16   investment or rate base. Utility plant investment, in turn, is driven by service area

17   economic growth and demand for utility service. In other words, utilities invest in

18   plant to meet sales demand growth, and sales growth in turn is tied to economic

19   growth in their service areas.

20   The Energy Information Administration ("EIA") has observed that utility sales

21   growth is less than U.S. economic growth, as shown on Exhibit MPG-12. Utility sales

22   growth has lagged the GDP growth. Hence, nominal GDP growth is a very

_____

[5] Blue Chip Economic Indicators, March 10, 2008 at 15.

1   conservative, albeit overstated, proxy for electric utility sales growth, rate base

2   growth, and earnings growth.   Therefore, GDP growth is a reasonable and

3   conservatively high proxy for the highest sustainable long-term earnings/dividend

4   growth rate of a utility.

5   **Q   HOW HAS THE PROXY GROUP'S HISTORICAL GROWTH COMPARED TO**

6   **HISTORICAL NOMINAL GDP GROWTH?**

7   A   As shown on Exhibit MPG-13, the historical growth of the proxy group's dividend is

8   substantially lower than the nominal GDP growth. Therefore, the proxy group's 3-5

9   year projected growth rate estimates are considerably higher than historical growth

10   and are also high in comparison to projected nominal GDP growth. Thus, current 3-5

11   year earnings growth rates are not reasonable estimates of long-term sustainable

12   growth.

13 **Q   IS THERE RESEARCH THAT SUPPORTS YOUR CONTENTION THAT OVER THE**

14 **LONG TERM, A COMPANY'S EARNINGS AND DIVIDENDS CANNOT GROW AT**

15 **A RATE GREATER THAN THE GROWTH OF THE U.S. GDP?**

16 A   Yes. This concept is supported both in published analyst literature and in academic

17   work. Specifically, in a textbook entitled "Fundamentals of Financial Management,"

18   published by Eugene Brigham and Joel F. Houston, the authors stated as follows:

19   The constant growth model is most appropriate for mature companies
20   with a stable history of growth and stable future expectations.
21   Expected growth rates vary somewhat among companies, but
22   dividends for mature firms are often expected to grow in the future at

1   about the same rate as nominal gross domestic product (real GDP

2   plus inflation).[6]

3   Also, Morningstar's Stocks, Bonds, Bills and Inflation 2008 Yearbook

4   Valuation Edition tracked dividends of the stock market in comparison to GDP growth

5   over the period 1926 through the end of 2007.[7]   Based on that study, the authors

6   found that earnings and dividends for the market have historically grown in tandem

7   with the overall economy. It is important to note that the growth of the companies

8   included in the overall market index will normally be higher than that of utility

9   companies. These non-utility companies achieve higher level of growth because they

10   retain a larger percentage of their earnings and pay out a much smaller percentage of

11   their earnings as dividends. Retaining higher percentages of total earnings fuels

12   stronger growth for these non-utility companies.

13   Since the market in general grows at the overall GDP growth rate, it is very

14   conservative to assume that utility companies could achieve this same level of

15   sustained growth without a material reduction in their dividend payout ratios. As

16   such, using the nominal GDP as a maximum sustainable growth rate is a very

17   conservative   and   high-end   estimate   for   growth   in   utility   companies'

18   earnings/dividends.

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[6] "Fundamentals of Financial Management," Eugene F. Grigham and Joel F. Houston, Eleventh
Edition 2007, Thomson South-Western, a Division of Thomson Corporation at 298.
[7] Stocks, Bonds, Bills and Inflation 2008 Yearbook Valuation Edition (Morningstar, Inc.) at 92-93.

1 **Q** **WHY DO YOU BELIEVE GROWTH RATES FOR WATER UTILITY COMPANIES**

2 **CAN BE PROJECTED TO BE SO HIGH OVER THE NEXT THREE TO FIVE**

3 **YEARS?**

4 A Water utility companies are in the midst of major construction programs which are

5 significantly increasing their outstanding capital and net plant investment. The Value

6 Line Investment Survey is projecting a growth in the water utility industry's net utility

7 plant, and capital of 41% and 49%, respectively, over the next three to five years.[8]

8 Replacement of infrastructure and the improvements to water treatment plants to

9 meet more stringent environmental requirements results in strong growth to utilities'

10 rate base, and growth in earnings. This growth in earnings will be realized over the

11 next five years or so, but will eventually return to more normalized long-term

12 sustainable level.

13 It is simply not reasonable to expect that the earnings projections over the

14 next three to five years will be sustainable indefinitely.

15 **Q** **SINCE YOU HAVE CONCLUDED THAT YOUR WATER AND GAS UTILITY**

16 **GROWTH RATE USED IN YOUR CONSTANT GROWTH DCF MODEL IS NOT**

17 **SUSTAINABLE, DO YOU BELIEVE THAT THE RESULTS OF YOUR CONSTANT**

18 **GROWTH DCF MODEL FOR YOUR WATER AND GAS UTILITY PROXY GROUP**

19 **IS REASONABLE?**

20 A No, the results of my water and gas utility constant growth DCF model are

21 unreasonably high because it reflects a growth rate that is not sustainable over an

22 indefinite period of time. However, the growth rate is based on consensus analysts'

---

[8] The Value Line Investment Survey, April 27, 2007 at 1419.

1   growth rate projections, so it is a reasonable reflection of rational investment

2   expectations over the next three to five years. The limitation on the constant growth

3   DCF model is that it cannot reflect a rational expectation that this short-term growth

4   rate will likely be followed by slower growth at a more long-term sustainable level

5   thereafter. Hence, I will perform a two-stage DCF analysis to reflect this expectation

6   and to test the impact on the water and gas utility DCF results.

7   **Two-Stage DCF Model**

8   **Q   WHY DO YOU PROPOSE TO USE A TWO-STAGE DCF MODEL TO TEST THE**

9   **RESULTS OF YOUR CONSTANT GROWTH DCF STUDY?**

10   A   I propose to use a two-stage DCF model because the growth rates used in my

11   constant growth model do not reflect reasonable estimates of sustainable long-term

12   growth. While consensus analysts' growth rate estimates are likely reflective of

13   investors' expectations over the next three to five years, professional investors would

14   not expect those growth rates to remain in effect indefinitely. As noted above, utilities

15   cannot grow faster than the economies in which they sell their services. Historically,

16   utility sales have grown at a rate that trails the growth in the overall U.S. economy.

17   As such, a two-stage DCF model can capture the value of this extraordinary

18   growth over the next five years, followed by a period of sustainable long-term growth

19   thereafter.

20   **Q   PLEASE DESCRIBE YOUR TWO-STAGE DCF MODEL.**

21   A   The two-stage DCF growth model reflects the possibility of non-constant growth to the

22   company over time. The two-stage reflects two growth periods: (1) a short-term

23   growth period, which consists of the first five years; and (2) a long-term growth

1   period, which consists of each year starting in year six through perpetuity. For the

2   short-term growth period, I relied on the consensus analysts' growth projections

3   described above in relationship to my constant growth model. For the long-term

4   growth period, I assumed each company's growth would increase toward the

5   maximum sustainable growth rate for a utility company as proxied by the consensus

6   analysts' projected growth for the U.S. GDP.

7   **Q**   **WHAT STOCK PRICE AND DIVIDEND DID YOU USE IN YOUR MULTI-STAGE**

8   **DCF ANALYSIS?**

9   A   I relied on the same 13-week stock price, the most recent quarterly dividend payment,

10   and consensus analysts' growth rate projections discussed above in my constant

11   growth DCF model. For the long-term sustainable growth rate starting in year six, I

12   used the consensus economists' five to ten-year projected GDP normal growth rate of

13   4.9%.

14   **Q**   **WHAT ARE THE RESULTS OF YOUR TWO-STAGE GROWTH DCF MODEL?**

15   A   As shown on the attached Exhibit MPG-14, Pages 1 and 2, the resulting common

16   cost of equity from my two-stage DCF growth estimate for my water proxy group is

17   8.53% and the gas proxy group is 9.25%. As such, the two-stage DCF model

18   indicates a return on equity for TAWC in the range of 8.53% to 9.25%, with a midpoint

19   of 8.89%, rounded up to 9.0%.

1 **Risk Premium Model**

2 **Q   PLEASE DESCRIBE YOUR BOND YIELD PLUS RISK PREMIUM MODEL.**

3 A   This model is based on the principle that investors require a higher rate of return to

4   assume greater risk.   Common equity investments have greater risk than bond

5   investments because bonds have more security of payment in bankruptcy

6   proceedings than common equity and the coupon payments on bonds represent

7   contractual obligations. In contrast, companies are not required to pay dividends on

8   common equity, or to guarantee returns on common equity investments.   Therefore,

9   common equity securities are considered to be more risky than bond securities. I

10   used two models to estimate an equity risk premium.

11   This risk premium model is based on two estimates of an equity risk premium.

12   In the first model, I estimated the difference between the required return on utility

13   common equity investments and Treasury bonds.   The difference between the

14   required return on common equity and the bond yield is the risk premium. I estimated

15   the risk premium on an annual basis for each year over the period 1986 through the

16   first quarter of 2008. The common equity required returns were based on regulatory

17   commission-authorized returns for gas utility companies.   I relied on gas utility

18   authorized returns, because the information is more readily available, and there are

19   more gas utility rate decisions over the historical period than there are water utilities.

20   Authorized returns are typically based on expert witnesses' estimates of the

21   contemporary investor required return.

22   The second equity risk premium method is based on the difference between

23   regulatory commission authorized returns on common equity and contemporary "A"

24   rated utility bond yields. This time period was selected because over the period 1986

25   through the first quarter of 2008, public utility bond yields have consistently traded at

1   a premium to book value. This is illustrated on Exhibit MPG-15, where the market to

2   book ratio for the gas utility industry was consistently at or above 1.0 since 1986.

3   Therefore, over this time period, regulatory authorized returns were sufficient to

4   support market prices that at least exceeded book value. This is an indication that

5   regulatory authorized returns on common equity supported a utility's ability to issue

6   additional common stock, without diluting existing shares. This is an indication that

7   utilities were able to access equity markets without a detrimental impact on current

8   shareholders.

9   Based on this analysis, as shown on Exhibit MPG-16, the average indicated

10   equity risk premium of authorized gas utility common equity returns over U.S.

11   Treasury bond yields over the period 1986 to the first quarter of 2008 has been

12   5.00%. Of the 23 observations, 17 indicated risk premiums fall in the range of 4.2%

13   to 5.8%. Since the risk premium can vary depending upon market conditions and

14   changing investor risk perceptions, I believe using an estimated range of risk

15   premiums provides the best method to measure the current return on common equity

16   using this methodology.

17   As shown on Exhibit MPG-17, the average indicated equity risk premium,

18   based on the authorized gas utility common equity returns over contemporary

19   Moody's utility bond yields, was 3.59% over the same period. Based on this data, the

20   equity risk premium falls in the range of 3.0% to 4.4% over this time period.

1 **Q BASED ON THIS HISTORICAL ANALYSIS, WHAT RISK PREMIUM DO YOU**

2 **PROPOSE TO USE TO ESTIMATE TAWC'S COST OF EQUITY IN THIS**

3 **PROCEEDING?**

4 A Academic research indicates that equity risk premiums should reflect the current

5 market perception of risk in the equity versus debt markets. A recent study contends

6 that one can reasonably approximate the relative level of equity risk premiums, by

7 comparing the spread in corporate bond yields relative to Treasury bond yields.

8 When the Corporate/Treasury bond yield spreads are wide, the market assessment of

9 industry risk is greater, which suggests an increase to the equity risk premium.

10 Conversely, when Corporate/Treasury bond yield spreads are relatively low, the

11 industry equity risk premiums would also be relatively low.[9]

12 In order to assess the current investment risk of the utility industry, I have

13 compared utility bond yield spreads over Treasury yields for the last 27 years. This is

14 shown on Exhibit MPG-18. On this exhibit, I show the yield spread between utility

15 bonds and Treasury bonds over the last 28 years. As shown on this exhibit, the

16 current utility bond yield spreads for "A" rated and "Baa" rated utility bonds are 1.76%

17 and 2.14%, respectively. These utility bond yield spreads over Treasury bonds are

18 among the lowest yield spreads in the last 28 years, and are below the 28-year

19 average for "A" and "Baa" yields of 1.57% and 1.94%, respectively.

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[9] "The Market Risk Premium: Expectational Estimates Using Analysts' Forecasts," by Robert S. Harris and Felicia C. Marston, *Journal of Applied Finance*, Volume 11, No. 1, 2001.

1   This comparison of utility bond yield spreads over Treasury bond yields

2   indicates the market's current perception of utility risk to be below average over this

3   historical time period.   As such, it is appropriate to conclude that utility equity

4   investment risk is relatively low over this historical time period. Recognizing a robust

5   market for low-risk utility investments, I believe it is appropriate to use an average

6   market equity risk premium estimated over my historical time period to proxy the

7   current market assessment of utility risk and equity risk premiums today and going

8   forward.

9   **Q   HOW DID YOU ESTIMATE TAWC'S COST OF COMMON EQUITY WITH THIS**

10 **MODEL?**

11 A   I added to my estimated equity risk premium over Treasury yields a projected long-

12 term Treasury bond yield. Blue Chip Financial Forecasts projects 30-year Treasury

13 bond yields to be 4.9%, and a 10-year Treasury bond to be 4.4% (June 1, 2008 at 2).

14 Using the long-term bond yield of 4.9%, and an equity risk premium range over

15 Treasury bond yields of 4.2% to 5.8%, produces an estimated common equity return

16 in the range of 9.1% to 10.7%, with a midpoint of 9.9%.

17   I next added my equity risk premium over utility bond yields of 6.3%, which

18 represents an average yield on an "A" rated utility bond for the 13-week period ending

19 June 20, 2008, as shown on Exhibit MPG-19 to my risk premium range of 3.0% to

20 4.4%, which produced a risk premium return on equity in the range of 9.3% to 10.7%,

21 with a midpoint of 10.0%.

22   My risk premium analyses produce a return estimate in the range of 9.9% to

23 10.0%, with a midpoint estimate of 9.95%, rounded up to 10.0%.

1 ## Capital Asset Pricing Model (CAPM)

2 **Q**   **PLEASE DESCRIBE THE CAPM.**

3 A   The CAPM method of analysis is based upon the theory that the market required

4   ROR for a security is equal to the risk-free ROR, plus a risk premium associated with

5   the specific security. This relationship between risk and return can be expressed

6   mathematically as follows:

7          $R_i = R_f + B_i \times (R_m - R_f)$ where:

8              $R_i =$ Required return for stock i
9              $R_f =$ Risk-free rate
10              $R_m =$ Expected return for the market portfolio
11              $B_i =$ Beta - Measure of the risk for stock.

12   The stock specific risk term in the above equation is beta. Beta represents the

13   investment risk that cannot be diversified away when the security is held in a

14   diversified portfolio. When stocks are held in a diversified portfolio, firm-specific risks

15   can be eliminated by balancing the portfolio with securities that react in opposite

16   direction to firm-specific risk factors (e.g., business cycle, competition, product mix

17   and production limitations).

18   The risks that cannot be eliminated when held in diversified portfolio are

19   nondiversifiable risks. Nondiversifiable risks are related to the market in general and

20   are referred to as systematic risks. Risks that can be eliminated by diversification are

21   regarded as nonsystematic risks. The CAPM theory suggests that the market will not

22   compensate investors for assuming risks that can be diversified away. Therefore, the

23   only risk that investors will be compensated for are systematic or nondiversifiable

24   risks. The beta is a measure of the systematic or nondiversifiable risks.

1 **Q** **PLEASE DESCRIBE THE INPUTS TO YOUR CAPM.**

2 A The CAPM requires an estimate of the market risk-free rate, the company's beta, and

3 the market risk premium.

4 **Q** **WHAT DID YOU USE AS AN ESTIMATE OF THE MARKET RISK-FREE RATE?**

5 A I used Blue Chip Financial Forecasts' projected long-term Treasury bond yield of

6 4.9% (Blue Chip Financial Forecast, June 1, 2008 at 2).

7 **Q** **WHY DID YOU USE LONG-TERM TREASURY BOND YIELDS AS AN ESTIMATE**

8 **OF THE RISK-FREE RATE?**

9 A Treasury securities are backed by the full faith and credit of the United States

10 government. Therefore, long-term Treasury bonds are considered to have negligible

11 credit risk. Also, long-term Treasury bonds have an investment horizon similar to that

12 of common stock. As a result, investor-anticipated long-run inflation expectations are

13 reflected in both common stock required returns and long-term bond yields.

14 Therefore, the nominal risk-free rate (or expected inflation rate and real risk-free rate)

15 included in a long-term bond yield is a reasonable estimate of the nominal risk-free

16 rate included in common stock returns.

17 Treasury bond yields, however, include risk premiums related to unanticipated

18 future inflation and interest rates. Therefore, a Treasury bond yield is not a risk-free

19 rate. Risk premiums related to unanticipated inflation and interest rates are

20 systematic or market risks. Consequently, for companies with betas less than one,

21 using the Treasury bond yield as a proxy for the risk-free rate in the CAPM analysis

22 can produce an overstated estimate of the CAPM return.

1 **Q** **WHAT BETA DID YOU USE IN YOUR ANALYSIS?**

2 **A** I relied on the group average Value Line beta estimate for the comparable group. A

3 group average beta has stronger statistical parameters that better describe the

4 systematic risk of the group, than does an individual company beta. For this reason,

5 a group average beta will produce a more reliable return estimate.

6 As shown on Exhibit MPG-20, Page 1, the water utility proxy group average

7 beta estimate is 0.91. The gas proxy group average beta is 0.87, as shown on

8 Exhibit MPG-20, Page 2. I note that these beta estimates are very high by historical

9 measures.

10 As such, for use in my CAPM study, I will use a beta of 0.87, which will still

11 produce a very conservative, high CAPM return estimate.

12 **Q** **HOW DID YOU DERIVE YOUR MARKET PREMIUM ESTIMATE?**

13 **A** I derived two market premium estimates, a forward-looking estimate and one based

14 on a long-term historical average.

15 The forward-looking estimate was derived by estimating the expected return

16 on the market (S&P 500) and subtracting the risk-free rate from this estimate. I

17 estimated the expected return on the S&P 500 by adding an expected inflation rate to

18 the long-term historical arithmetic average real return on the market. The real return

19 on the market represents the achieved return above the rate of inflation.

20 The Ibbotson and Associates' Stocks, Bonds, Bills and Inflation 2008 Year

21 Book publication estimates the historical arithmetic average real market return over

22 the period 1926-2007 as 9.0%. A current five-year consensus analyst inflation

23 projection, as measured by the Consumer Price Index, is 2.5% (Blue Chip Financial

24 Forecasts, June 1, 2008 at 2). Using these estimates, the expected market return is

1   11.7%.[10] The market premium then is the difference between the 11.7% expected

2   market return, and my 4.9% risk-free rate estimate, or 6.8%.

3   The historical estimate of the market risk premium was also estimated by

4   Ibbotson and Associates in the <u>Stock, Bonds, Bills and Inflation, 2008 Year Book</u>.

5   Over the period 1926 through 2007, Ibbotson's study estimated that the arithmetic

6   average of the achieved total return on the S&P 500 was 12.3%, and the total return

7   on long-term Treasury bonds was 5.8%. The indicated equity risk premium is 6.5%

8   (12.3% - 5.8% = 6.5%).

9   **Q**   **HOW DOES YOUR ESTIMATED MARKET RISK PREMIUM RANGE COMPARE TO**

10   **THAT ESTIMATED BY MORNINGSTAR?**

11 A   Morningstar estimates a forward-looking market risk premium based on actual

12   achieved data from the historical period of 1926 through year-end 2007. Using this

13   data, Morningstar estimates a market risk premium derived from the total return on

14   large company stocks (S&P 500), less the income return on Treasury bonds. The

15   total return includes capital appreciation, dividend or coupon reinvestment returns,

16   and annual yields received from coupons and/or dividend payments. The income

17   return, in contrast, only reflects the income return received from dividend payments or

18   coupon yields. Morningstar argues that the income return is the only true riskless rate

19   associated with the Treasury bond and is the best approximation of a truly risk-free

20   rate. While I disagree with this assessment from Morningstar, because it does not

21   reflect a true investment option available to the marketplace, and therefore does not

22   produce a legitimate estimate of the expected premium of investing in the stock

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[10] $[(1+0.090)*(1+0.025)-1]*100$.

1   market versus that of Treasury bonds, I will use Morningstar's conclusion to show the

2   reasonableness of my market risk premium estimates.

3   Morningstar's analysis indicates that a market risk premium falls somewhere

4   in the range of 6.2% to 7.1%. This range is based on several methodologies. First,

5   Morningstar estimates a market risk premium of 7.1%, which is based on the

6   difference between the total market return on common stocks (S&P 500) less the

7   income return on Treasury bond investments. Second, Morningstar found that if the

8   New York Stock Exchange (the NYSE) was used as the market index rather than the

9   S&P 500, that the market risk premium would be 6.8% and not 7.1%. Third, if only

10   the two deciles of the largest companies included in the NYSE were considered, the

11   market risk premium would be 6.35%.[11]

12   Finally, Morningstar found that the 7.1% market risk premium based on the

13   S&P 500 was impacted by an abnormal expansion of price-to-earnings (P/E) ratios

14   relative to earnings and dividend growth during the period 1980 through 2001.

15   Morningstar believes this abnormal P/E expansion is not sustainable. Therefore,

16   Morningstar adjusted this market risk premium estimate to normalize the growth in the

17   P/E ratio to be more in line with the growth in dividends and earnings. Based on this

18   alternative methodology, Morningstar published a long-horizon supply-side market

19   risk premium of 6.2%.[12]

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[11] Morningstar observes that the S&P 500 and the NYSE Decile 1-2 are both large
capitalization benchmarks. *Ibbotson SBBI 2008 Valuation Yearbook* (Morningstar, Inc.) at 72
and 74.
[12] Id. at 92-98.

1   Thus, based on all of Morningstar's estimates, the market risk premium falls

2   somewhere in the range of 6.2% to 7.1%. The midpoint is 6.65%, which is generally

3   consistent with my estimated range of 6.50% to 6.83% used in my CAPM study.

4 **Q**   **WHAT ARE THE RESULTS OF YOUR CAPM ANALYSIS?**

5 A   As shown on Exhibit MPG-21, based on the historical and prospective market risk

6   premium estimate of 6.5% and 6.8%, respectively, a risk-free rate of 4.9%, and a beta

7   of 0.87, the CAPM estimated return on equity is 10.7%.

8 **Return On Equity Summary**

9 **Q**   **BASED ON THE RESULTS OF YOUR RATE OF RETURN ON COMMON EQUITY**

10   **ANALYSES DESCRIBED ABOVE, WHAT RETURN ON COMMON EQUITY DO**

11   **YOU RECOMMEND FOR TAWC?**

12 A   Based on my analyses, I estimate an appropriate return on equity for TAWC to be

13   9.9%.

TABLE 3

ROE Summary Results

Description	Result
Two-Stage DCF	9.0%
Risk Premium	10.0%
CAPM	10.7%

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14   I estimate a range for my estimated return of equity for TAWC of 9.0% to

15   10.7%. The low end represents my two-stage DCF analysis. The upper end is my

16   CAPM analysis. My risk premium is approximately at the midpoint of my estimated

1 range. The midpoint of my estimated range, 9.9% is my point estimate used to set

2 TAWC's rate in this proceeding using a double leverage capital structure. My return

3 on equity recommendation of 9.9% will fairly compensate both the ratepayers and the

4 Company's investors given TAWC investment risk.

5 ## Response to TAWC Witness Dr. Vilbert

6 **Q**   **WHAT RETURN ON COMMON EQUITY IS TAWC PROPOSING IN THIS**

7 **PROCEEDING?**

8 A   TAWC's proposed return on equity is supported by its witness Dr. Michael Vilbert. He

9 recommends a return on equity for TAWC in the range of 11.25% to 12.25%, with a

10 midpoint of 11.75% (Vilbert Direct at 4).

11 **Q**   **PLEASE DESCRIBE DR. VILBERT'S METHODOLOGY SUPPORTING HIS**

12 **RETURN ON COMMON EQUITY.**

13 A   He arrived at this estimate using a simple and a multi-stage growth DCF model,

14 CAPM, and empirical CAPM (ECAPM). These models were applied to two proxy

15 groups. The first proxy group consists of eight water utilities. The second proxy

16 group consists of ten Gas local distribution companies (LDC).

17 He then adjusted his traditional DCF, CAPM, and ECAPM estimates, based

18 on the market capitalization for his proxy group, relative to the book value

19 capitalization of TAWC in this proceeding.

1 **Q**   **IS DR. VILBERT'S ESTIMATED RETURN ON EQUITY FOR TAWC**

2   **REASONABLE?**

3 **A**   No. Dr. Vilbert's recommended return on equity of 11.75% for TAWC is excessive

4   and unreasonable for a low-risk regulated water utility company. The

5   unreasonableness of Dr. Vilbert's recommendation is evident from a detailed

6   assessment of the rate of return models supporting his recommendation in this

7   proceeding. Such evaluations clearly show that the fair return on equity for TAWC in

8   this proceeding is less than 10%, and indeed, clearly shows that my recommended

9   return on equity for TAWC of 9.9% is reasonable.

10 **Q**   **PLEASE SUMMARIZE DR. VILBERT'S RESULTS.**

11 **A**   Dr. Vilbert's results are summarized in the table below.

TABLE 4

Summary of Dr. Vilbert's Results

Line	Cost of Equity Model	Vilbert[1] With M/B Adjustment		Vilbert[2] No M/B Adjustment	
		Water (1)	Gas (2)	Water (3)	Gas (4)
1	Simple DCF	16.9%	11.0%	9.5%	8.8%
2	Multi-Stage DCF	10.4%	11.1%	8.2%	8.9%
	Risk Positioning (Long-term)				
3	CAPM	13.8%	11.7%	9.9%	9.5%
4	CAPM (0.5%)	13.9%	11.9%	10.0%	9.6%
5	CAPM (1.5%)	14.0%	12.1%	10.1%	9.8%
	Risk Positioning (Short-term)				
6	CAPM	12.1%	9.8%	8.6%	8.1%
7	CAPM (1%)	12.1%	10.0%	8.7%	8.3%
8	CAPM (2%)	12.2%	10.3%	8.9%	8.5%
9	CAPM (3%)	12.3%	10.6%	9.0%	8.7%
10	**Average**	**13.1%**	**10.9%**	**9.2%**	**8.9%**
12	**Recommended ROE**	**11.75%**		**9.0%**	

_____

Sources:
[1] Vilbert Direct at 30, Table 1. Cost of Equity results.
[2] MJV-6, MJV-10, MJV-17, MJV-20.

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1 **Q   PLEASE DESCRIBE THE ISSUES YOU HAVE WITH DR. VILBERT'S ANALYSES.**

2 A   The primary issue I have with Dr. Vilbert's analyses is that he adjusted his estimated

3   cost of equity for TAWC by market value capital structure (MVCS) adjustment. The

4   MVCS increased his market cost of equity from 9.0% up to 11.75%. This MVCS is

5   flawed and should be rejected.

1 **Q** **PLEASE EXPLAIN WHY IT IS UNREASONABLE TO ADJUST THE TRADITIONAL**

2 **DCF AND CAPM ANALYSES FOR MVCS PROXY VALUE.**

3 A Dr. Vilbert's proposed MVCS adjustment to his traditional DCF and CAPM results

4 adds approximately 300 basis points to these return on equity estimates. The effect

5 of these adjustments is to increase return on equity to reflect a higher level of

6 financial risk stated on a book value basis relative to the amount of financial risk

7 measured using a market capitalization capital structure. In fact, the underlying

8 assumption of the adjustment is that there is more financial risk in book value capital

9 structures than there is in a market value capital structure. This underlying principle

10 of Dr. Vilbert's market value capital structure adjustment is flawed for several

11 reasons.

12 First, there are not two financial risks faced by investors, one based on book

13 value and a second based on market value. Rather, investors in a company face one

14 financial risk and that relates to the overall variability of earnings and cash flow

15 created by the amount of fixed financial obligations taken on by the enterprise.

16 Dr. Vilbert's market value capital structure adjustment gives the incorrect impression

17 that the amount of financial risk is different when the investors look at the market

18 capitalization of the Company relative to looking at the book value capitalization.

19 Second, his adjustment does not consider the total investment risk of the

20 enterprise but rather is focused only on the amount of financial risk differential

21 between book and market values. This is inappropriate because a rate of return on

22 equity should reflect the total investment risk differential of TAWC relative to the proxy

23 groups, not simply the difference in financial risk.

24 Finally, Dr. Vilbert's market value capital structure adjustment is actually a

25 market-to-book ratio adjustment in disguise. The market-to-book ratio adjustment has

1   not gained acceptance in regulatory proceedings. The market-to-book ratio

2   adjustment is inappropriate as it inflates the return on equity utilities can earn by

3   making incremental investment in utility plant.

4   Consider, for example, the results of Dr. Vilbert's simple DCF analysis. Using

5   the traditional DCF model, Dr. Vilbert estimated an average simple DCF return of

6   9.5%. After his market value capital structure adjustment, he increased that DCF

7   return up to 16.9%. If Dr. Vilbert's market value capital structure adjustment were

8   reasonable, it would provide comparable compensation for a utility to make

9   incremental plant investment relative to other investments of comparable risk. So let

10   us consider a hypothetical investment selection for TAWC. If TAWC attempted to

11   repurchase its own stock in the marketplace, assuming it was market traded, based

12   on Dr. Vilbert's simple DCF traditional return estimate, TAWC management would

13   expect to receive a return on that stock investment of 9.5%. However, if Dr. Vilbert's

14   market value capital structure adjustment to that traditional return were approved in

15   regulatory proceedings, TAWC management could earn an incremental return on

16   utility plant investment of 11.75%. These two investment options are comparable risk

17   investments because TAWC stock would be based on the earnings strength of its

18   investments in rate base. Hence, repurchasing TAWC stock and investing in

19   incremental utility plant are comparable risk investments that should earn a

20   comparable return. Under Dr. Vilbert's market value capital structure adjustment

21   methodology, incremental investments in utility plant would earn about 300 basis

22   points above the market return of comparable investments. This would provide

23   uneconomic incentives to over invest in utility plant because that investment would

24   earn a significantly above-market return, thus unjustly rewarding TAWC's investors.

1 **Q**   **ARE YOU AWARE OF ANY REGULATORY PROCEEDINGS THAT**

2   **SPECIFICALLY REJECTED ADJUSTMENTS TO THE RETURN ON EQUITY**

3   **BASED ON THE DIFFERENCES IN MARKET CAPITALIZATION AND BOOK**

4   **CAPITALIZATION SIMILAR TO WHAT DR. VILBERT IS PROPOSING IN THIS**

5   **PROCEEDING?**

6 **A**   Yes.   Before the Missouri Public Service Commission, AmerenUE witnesses

7   proposed a MVCS financial risk adjustment. That return on equity adjustment was

8   rejected by the Missouri Commission.

9   The Ameren witnesses' MVCS risk adjustment was tied to their assessment of

10   the difference between the proxy group's market capitalization financial risk and the

11   utility book value financial risk. In that case, the Missouri Public Service Commission

12   found that adjustment to be unreasonable and disallowed it. AmerenUE's financial

13   risk adjustment was comparable to Dr. Vilbert's market value capital structure

14   adjustment in this case.

15 **Q**   **HOW WOULD DR. VILBERT'S RECOMMENDED RETURN ON EQUITY CHANGE**

16   **IF HIS UNREASONABLE MARKET VALUE CAPITAL STRUCTURE ADJUSTMENT**

17   **IS EXCLUDED?**

18 **A**   Excluding his market value capital structure adjustment will reduce Dr. Vilbert's return

19   on equity range for TAWC from 11.25% to 12.25%, with a midpoint of 11.75% to a

20   range of 8.9% to 9.2%, with a midpoint of 9.0%, as shown in the table above. These

21   DCF return estimates produce results that are reasonably similar to my own and

22   support a return on equity for TAWC no higher than 10.0%. Indeed, Dr. Vilbert's own

23   traditional methodologies illustrate that TAWC's current cost of equity is

24   approximately 9.0%.

1   **Q   DO YOU HAVE ANY OTHER ISSUES WITH DR. VILBERT'S ANALYSES?**

2   A   Yes, I have two other issues with Dr. Vilbert's analyses. First, in his water group

3   simple DCF Dr. Vilbert uses an average growth rate of 6.49% as shown in his Table

4   No. MJV-6. As discussed above, this growth rate estimate exceeds the growth rate of

5   the U.S. economy, GDP, of 4.9% by 160 basis points. Again, the GDP growth rate

6   serves as a ceiling and it represents the maximum growth rate. Therefore, estimating

7   the cost of equity for TAWC by applying a growth rate significantly above the GDP

8   growth rate will produce excessive and unreasonable results. Hence, TRA should

9   place no to little reliance to Dr. Vilbert's DCF return estimates produced by his water

10   group constant growth DCF study.

11   Second, Dr. Vilbert applies the quarterly version of the simple DCF model,

12   which leads to double counting of the dividend reinvestment return. Quarterly

13   compounding reflects dividend reinvestment return in the investor's expected return.

14   Investors price a security based on the total achievable return objectives, including

15   the expectations of quarterly reinvestment returns. However, if those quarterly

16   reinvestment returns are built into the authorized return on common equity, then

17   investors will be provided an opportunity to earn this reinvestment return twice – first

18   through the authorized return on equity, and a second time as dividends are paid to

19   investors, and reinvested. Consequently, a quarterly version of the DCF model

20   should not be used to set the authorized return on equity for a regulated utility.

21   Nevertheless, these two issues do not represent a material change in

22   Dr. Vilbert's result and will not have a significant impact on the recommended return

23   on equity for TAWC.   Hence, the TRA's primary focus should be to disallow

1   Dr. Vilbert's MVCS adjustment, which will result in a fair and reasonable return on

2   equity for TAWC no higher than 10.0%.

Cost of Service and Rate Design

4   **Q   HOW IS TAWC PROPOSING TO ADJUST RATES TO RECOVER ITS CLAIMED**

5   **REVENUE DEFICIENCY IN THIS PROCEEDING?**

6   A   TAWC's proposed distribution of the claimed revenue deficiency is shown on my

7   attached Exhibit MPG-22. As shown on this exhibit, TAWC's proposed allocation is

8   not an even spread of its claimed revenue deficiencies among all of its customers.

9   As shown on the attached exhibit, customers in Chattanooga and Lake View get an

10   above system average increase, while customers in other districts receive a below

11   system average increase.

12   **Q   HAS TAWC PROVIDED A COST OF SERVICE STUDY THAT SHOWS ITS**

13   **PROPOSED DISTRIBUTION OF THIS CLAIMED REVENUE DEFICIENCY AMONG**

14   **THE DISTRICTS IS EQUITABLE, JUST AND REASONABLE?**

15   A   No. TAWC's cost of service model simply looks at the total system increase to

16   develop an appropriate increase among rate classes, not districts. That is, TAWC did

17   not produce a cost allocation model that would suggest customers in Chattanooga

18   should get an above system average increase, or customers in Lone Oak should get

19   a below system average increase. Therefore, I believe the Company's proposed rate

20   design is unjust and unreasonable and should be rejected.

1 **Q   HOW DO YOU PROPOSE THE TRA ADJUST RATES TO RECOVER THE**

2 **REVENUE DEFICIENCY IT FINDS JUST AND REASONABLE IN THIS**

3 **PROCEEDING?**

4 A   Absent a district-specific cost of service study, I recommend a simple equal percent

5 change to all rate elements for all customers of TAWC as an equitable allocation of a

6 revenue deficiency if approved by the TRA. I would note that this would include an

7 equal percent change to all tariff rate elements (customer and volumetric), special

8 contract customers, and other revenue charges. I would note, importantly, that

9 TAWC is not proposing to increase certain costs associated with other revenues, and

10 it is not proposing to allocate any of its claimed revenue deficiency to certain districts

11 that are on special contract. TAWC has not justified this position.

12   As shown on the attached Exhibit MPG-23, page 1, using an equal percent

13 change across all districts including all rate elements, special contracts and other

14 revenue charges, would result in all customers receiving an increase of 20.4% <u>at the</u>

15 <u>Company's claimed revenue deficiency</u>.   Note, that if my proposed revenue

16 adjustments are adopted, the percent change would decrease to approximately 6.4%,

17 as shown on page 2 of this exhibit.

18 **Q   HAVE YOU IDENTIFIED ANY PROBLEMS ASSOCIATED WITH TAWC'S**

19 **PROPOSED RATE DESIGN AND THE JUST AND REASONABLENESS OF ITS**

20 **CURRENT RATE STRUCTURES?**

21 A   Yes. It appears certain special contract customers of TAWC are priced well below

22 TAWC's cost of service. Specifically, as shown on the attached Exhibit MPG-24, the

23 Walden Ridge special contract customers' current revenues are a fraction of TAWC's

24 estimated cost of providing service to that contract customer. I would note that

1   TAWC's estimated cost of providing service to this customer only includes costs that

2   can be directly assigned to that customer. It would also be appropriate to allocate

3   common costs such as management fees and related expenses to the Walden Ridge

4   customer. Therefore, all costs of providing service to this customer are not identified

5   on this exhibit. Nevertheless, TAWC's special contract rate appears to be

6   significantly below its cost of providing service to Walden Ridge. Therefore, the TRA

7   should not allow TAWC to increase tariff rates to subsidize a contract customer that is

8   priced so far below TAWC's cost of service.

9   **Q   DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

10   A   Yes, it does.

<u>Qualifications of Michael Gorman</u>

1 **Q PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 A Michael P. Gorman. My business mailing address is P. O. Box 412000, 1215 Fern

3 Ridge Parkway, Suite 208, St. Louis, Missouri 63141-2000.

4 **Q PLEASE STATE YOUR OCCUPATION.**

5 A I am a consultant in the field of public utility regulation and a managing principal with

6 Brubaker & Associates, Inc., energy, economic and regulatory consultants.

7 **Q PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND WORK**

8 **EXPERIENCE.**

9 A In 1983 I received a Bachelors of Science Degree in Electrical Engineering from

10 Southern Illinois University, and in 1986, I received a Masters Degree in Business

11 Administration with a concentration in Finance from the University of Illinois at

12 Springfield. I have also completed several graduate level economics courses.

13 In August of 1983, I accepted an analyst position with the Illinois Commerce

14 Commission (ICC). In this position, I performed a variety of analyses for both formal

15 and informal investigations before the ICC, including: marginal cost of energy, central

16 dispatch, avoided cost of energy, annual system production costs, and working

17 capital. In October of 1986, I was promoted to the position of Senior Analyst. In this

18 position, I assumed the additional responsibilities of technical leader on projects, and

19 my areas of responsibility were expanded to include utility financial modeling and

20 financial analyses.

1   In 1987, I was promoted to Director of the Financial Analysis Department. In

2   this position, I was responsible for all financial analyses conducted by the staff.

3   Among other things, I conducted analyses and sponsored testimony before the ICC

4   on rate of return, financial integrity, financial modeling and related issues. I also

5   supervised the development of all Staff analyses and testimony on these same

6   issues. In addition, I supervised the Staff's review and recommendations to the

7   Commission concerning utility plans to issue debt and equity securities.

8   In August of 1989, I accepted a position with Merrill-Lynch as a financial

9   consultant. After receiving all required securities licenses, I worked with individual

10 investors and small businesses in evaluating and selecting investments suitable to

11 their requirements.

12   In September of 1990, I accepted a position with Drazen-Brubaker &

13 Associates, Inc. In April 1995 the firm of Brubaker & Associates, Inc. (BAI) was

14 formed. It includes most of the former DBA principals and Staff. Since 1990, I have

15 performed various analyses and sponsored testimony on cost of capital, cost/benefits

16 of utility mergers and acquisitions, utility reorganizations, level of operating expenses

17 and rate base, cost of service studies, and analyses relating industrial jobs and

18 economic development. I also participated in a study used to revise the financial

19 policy for the municipal utility in Kansas City, Kansas.

20   At BAI, I also have extensive experience working with large energy users to

21 distribute and critically evaluate responses to requests for proposals (RFPs) for

22 electric, steam, and gas energy supply from competitive energy suppliers. These

23 analyses include the evaluation of gas supply and delivery charges, cogeneration

24 and/or combined cycle unit feasibility studies, and the evaluation of third-party

1   asset/supply management agreements. I have also analyzed commodity pricing

2   indices and forward pricing methods for third party supply agreements, and have also

3   conducted regional electric market price forecasts.

4   In addition to our main office in St. Louis, the firm also has branch offices in

5   Phoenix, Arizona and Corpus Christi, Texas.

6   **Q   HAVE YOU EVER TESTIFIED BEFORE A REGULATORY BODY?**

7   A   Yes. I have sponsored testimony on cost of capital, revenue requirements, cost of

8   service and other issues before the Federal Energy Regulatory Commission and

9   numerous state regulatory commissions including: Arkansas, Arizona, California,

10   Colorado, Delaware, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas,

11   Louisiana, Michigan, Missouri, Montana, New Jersey, New Mexico, New York, North

12   Carolina, Oklahoma, Oregon, South Carolina, Tennessee, Texas, Utah, Vermont,

13   Virginia, Washington, West Virginia, Wisconsin, Wyoming, and before the provincial

14   regulatory boards in Alberta and Nova Scotia, Canada. I have also sponsored

15   testimony before the Board of Public Utilities in Kansas City, Kansas; presented rate

16   setting position reports to the regulatory board of the municipal utility in Austin, Texas,

17   and Salt River Project, Arizona, on behalf of industrial customers; and negotiated rate

18   disputes for industrial customers of the Municipal Electric Authority of Georgia in the

19   LaGrange, Georgia district.

1 **Q** **PLEASE DESCRIBE ANY PROFESSIONAL REGISTRATIONS OR**

2 **ORGANIZATIONS TO WHICH YOU BELONG.**

3 A I earned the designation of Chartered Financial Analyst (CFA) from the CFA Institute.

4 The CFA charter was awarded after successfully completing three examinations

5 which covered the subject areas of financial accounting, economics, fixed income and

6 equity valuation and professional and ethical conduct. I am a member of the CFA

7 Institute's Financial Analyst Society.

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BEFORE THE TENNESSEE REGULATORY AUTHORITY
NASHVILLE, TENNESSEE

IN RE:

PETITION OF TENNESSEE-
AMERICAN WATER COMPANY TO
CHANGE AND INCREASE CERTAIN
RATES AND CHARGES...

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*   DOCKET NO. 08-00039
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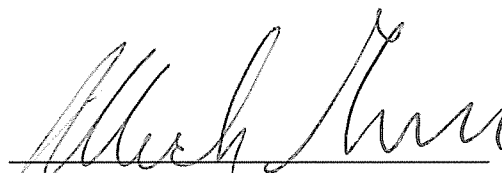
TENNESSEE REGULATORY AUTHORITY

STATE OF MISSOURI

COUNTY OF SAINT LOUIS
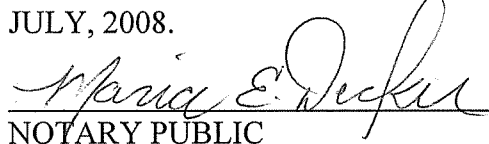
BEFORE ME, the undersigned authority, duly commissioned and qualified in and for the State and County aforesaid, personally came and appeared, **Michael Gorman**, who, being by me first duly sworn deposed and said that:

He is appearing as a witness on behalf of The City of Chattanooga and the Chattanooga Manufacturers Association before the Tennessee Regulatory Authority and, if present before the Authority and duly sworn, his testimony would be as that set forth in the annexed consisting of 57 pages, plus the appendix, and schedules or Exhibits MPG-1 to MPG-24.

Michael Gorman
Brubaker & Associates, Inc.

SWORN TO AND SUBSCRIBED
BEFORE ME THIS 18TH DAY OF
JULY, 2008.

NOTARY PUBLIC
My Commission Expires: May 5, 2009
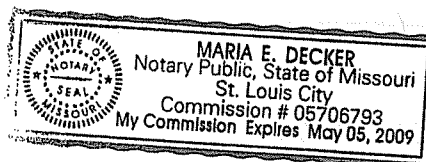
Tennessee - American Water Company

Rate of Return Reduction Impact

1. Proposed Capital Structure[1]

Line	Description	Amount (1)	Weight (2)	Cost (3)	Weighted Cost (4)	Pre-Tax Weighted Cost[1] (5)
1	Short-Term Debt	$ 6,222,000	5.20%	4.50%	0.23%	0.23%
2	Long-Term Debt	$ 60,559,797	50.66%	6.26%	3.17%	3.17%
3	Preferred Stock	$ 1,381,600	1.16%	5.00%	0.06%	0.10%
4	Common Stock	$ 51,388,610	42.98%	**11.75%**	5.05%	8.31%
5	Total	$ 119,552,007	**100.00%**		**8.514%**	**11.81%**
6	Composite Tax Rate[2]					39.23%

2. Double Leverage Capital Structure

Line	Description	Amount (1)	Weight (2)	Cost (3)	Weighted Cost (4)	Pre-Tax Weighted Cost (5)
1	**TAWC's Total Capital**	$ 119,552,007	100.00%			
	External Financing					
2	9.250% Series	$ 2,500,000	2.09%	9.25%	2.62%	
3	7.840% Series	$ 5,700,000	4.77%	7.84%	5.06%	
4	9.489% Capital Leases	$ 632,018	0.53%	9.49%	0.68%	
5	Total	$ 8,832,018	7.39%		8.36%	
6	Internal Financing	$ 110,719,989	92.61%			
	Parent[3]					
7	Long-Term Debt	$ 4,756,799,000	65.77%	6.26%	4.12%	4.12%
8	Short-Term Debt	$ 368,137,000	5.09%	3.25%	0.17%	0.17%
9	Preferred Stock	$ 4,568,000	0.06%	5.00%	0.00%	0.01%
10	Common Stock	$ 2,102,471,000	29.07%	**10.20%**	2.97%	4.88%
11	Total	$ 7,231,975,000	100.00%		7.25%	9.17%
	TAWC					
12	TAWC Financing	$ 8,832,018	7.39%	8.36%	0.62%	0.62%
13	Parent Financing	$ 110,719,989	92.61%	7.25%	6.72%	8.49%
14	Total	$ 119,552,007	100.00%		7.33%	9.11%
15	Pre-Tax ROR Impact at 1.85% Decrease in ROE					2.70%
16	Rate Base[4]					$ 119,881,506
17	Revenue Impact at 1.85% Decrease in ROE					$ 3,240,722

Sources:
[1] Exhibit MAM-3 at 1.
[2] Exhibit No 2, Schedule 6.
[3] Exhibit MPG-9.
[4] Exhibit No 1, Schedule 1.

Tennessee - American Water Company

__Working Capital__

Line	Description	TAWC Proposed Amount (1)	Adjustment (2)	As Adjusted (3)
1	Average Cash	$ 214,257	$ (214,257)	$ (0)
2	Prepaid Insurance	$ 97,506		$ 97,506
3	Prepaid Taxes	$ 168,877		$ 168,877
4	Materials & Supplies	$ 204,853		$ 204,853
5	Deferred Regulatory Expenses	$ 1,020,269	$ (1,020,269)	$ -
6	Unamortized Debt Expense	$ 290,559	$ (290,559)	$ -
7	Other Deferred Debits	$ 852,184	$ (852,184)	$ 0
8	Lead - Lag Study	$ 604,000	$ (1,300,484)	$ (696,484)
9	Total	$ 3,452,505		$ (225,248)
	Less:			
10	Customer Deposits	$ -	$ -	$ -
11	Incidental Collections	$ 1,461,099	$ -	$ 1,461,099
12	Total	$ 1,461,099		$ 1,461,099
13	**Working Capital Requirement**	**$ 1,991,406**	**$ (3,677,753)**	**$ (1,686,347)**
14	Rate of Return		9.11%	
15	**Revenue Reduction**		**$ 335,043**	

Source:
  Exhibit No. 1, Schedule 3, Page 1 of 6.

Tennessee - American Water Company

Composite Average Days Interval between Date Expenses are Incurred and Date of Payment

Line	Description	Amount (1)	Revenue Lag (2)	Post Payment or (Lead) Days (3)	(2) - (3) (4)	(4) / 365 (5)	Dollar Days (3) * (1) (6)	Dollar Days (5) * (1) (7)
1	Payrolls Charged to Expense - Hourly	$ 3,388,686	41.73	5.50	36.23	0.099260	$ 18,637,774	$ 336,362
2	Payrolls Charged to Expense - Salary	$ 1,581,955	41.73	14.02	27.71	0.075918	$ 22,179,015	$ 120,099
3	Fuel and Power	$ 1,986,259	41.73	50.65	(8.92)	(0.024438)	$ 100,604,007	$ (48,541)
4	Chemicals	$ 1,049,272	41.73	28.27	13.46	0.036877	$ 29,662,907	$ 38,694
5	Waste Disposal	$ 179,088	41.73	31.23	10.50	0.028767	$ 5,592,917	$ 5,152
6	AWWS Charges	$ 4,335,190	41.73	(4.46)	46.19	0.126548	$ (19,334,948)	$ 548,609
7	Group Insurance	$ 1,082,191	41.73	(1.31)	43.04	0.117918	$ (1,417,671)	$ 127,610
8	Pensions	$ 1,161,108	41.73	0.00	41.73	0.114329	$ -	$ 132,748
9	Insurance Other than Group	$ 583,492	41.73	(21.72)	63.45	0.173836	$ (12,673,446)	$ 101,432
10	Rents	$ 11,336	41.73	9.24	32.49	0.089014	$ 104,741	$ 1,009
11	Telephone Expense	$ 111,452	41.73	(2.73)	44.46	0.121808	$ (304,264)	$ 13,576
12	Postage Expense	$ 330,315	41.73	24.77	16.96	0.046466	$ 8,181,897	$ 15,348
13	Amortizations	$ -	41.73	0.00	41.73	0.114329	$ -	$ -
14	Stock E	$ 142,602	41.73	23.77	17.96	0.049205	$ 3,389,650	$ 7,017
15	Other Operating and Maintenance Expenses	$ 4,572,214	41.73	20.51	21.22	0.058137	$ 93,776,109	$ 265,815
16	Total O & M Expenses	$ 20,515,160						
17	Depreciation and Amortization	$ 4,730,347	41.73	0.00	41.73	0.114329	$ -	$ 540,815
	Taxes, Other than Income							
18	Payroll	$ 484,884	41.73	10.61	31.12	0.085260	$ 5,144,618	$ 41,341
19	Other	$ 3,817,512	41.73	174.52	(132.79)	(0.363808)	$ 666,232,194	$ (1,388,842)
20	FIT-Current	$ 1,018,215	41.73	37.00	4.73	0.012959	$ 37,673,955	$ 13,195
21	SIT-Current	$ 182,238	41.73	58.63	(16.90)	(0.046301)	$ 10,684,614	$ (8,438)
22	Deferred Taxes	$ 731,069	41.73	0.00	41.73	0.114329	$ -	$ 83,582
23	Interest Expense	$ 4,081,966	41.73	87.97	(46.24)	(0.126685)	$ 359,090,549	$ (517,124)
24	Preferred Dividends	$ 69,531	41.73	89.48	(47.75)	(0.130822)	$ 6,221,634	$ (9,096)
25	Net Earnings	$ 1,609,871	41.73	0.00	41.73	0.114329	$ -	$ 184,055
26	Net Operating Funds	**$ 37,240,793**					**$ 1,333,446,251**	**$ 604,417**
27	Average Days Interval between Date Expenses are Incurred and Date of Payment			35.81				

Source: Exhibit No. 1, Schedule 3, Page 3 of 6.

Tennessee - American Water Company

Adjusted Composite Average Days Interval between Date Expenses are Incurred and Date of Payment

Line	Description	Amount (1)	Revenue Lag (2)	Post Payment or (Lead) Days (3)	(2) - (3) (4)	(4) / 365 (5)	Dollar Days (3) * (1) (6)	Dollar Days (5) * (1) (7)
1	Payrolls Charged to Expense - Hourly	$ 3,388,686	37.11	5.50	31.61	0.086603	$ 18,637,774	$ 293,470
2	Payrolls Charged to Expense - Salary	$ 1,581,955	37.11	14.02	23.09	0.063260	$ 22,179,015	$ 100,075
3	Fuel and Power	$ 1,986,259	37.11	50.65	(13.54)	(0.037096)	$ 100,604,007	$ (73,682)
4	Chemicals	$ 1,049,272	37.11	28.27	8.84	0.024219	$ 29,662,907	$ 25,412
5	Waste Disposal	$ 179,088	37.11	31.23	5.88	0.016110	$ 5,592,917	$ 2,885
6	AWWS Charges	$ 4,335,190	37.11	0.00	37.11	0.101671	$ -	$ 440,764
7	Group Insurance	$ 1,082,191	37.11	0.00	37.11	0.101671	$ -	$ 110,028
8	Pensions	$ 1,161,108	37.11	0.00	37.11	0.101671	$ -	$ 118,051
9	Insurance Other than Group	$ 583,492	37.11	0.00	37.11	0.101671	$ -	$ 59,324
10	Rents	$ 11,336	37.11	9.24	27.87	0.076356	$ 104,741	$ 866
11	Telephone Expense	$ 111,452	37.11	(2.73)	39.84	0.109151	$ (304,264)	$ 12,165
12	Postage Expense	$ 330,315	37.11	24.77	12.34	0.033808	$ 8,181,897	$ 11,167
13	Amortizations	$ -	37.11	0.00	37.11	0.101671	$ -	$ -
14	Stock E	$ 142,602	37.11	23.77	13.34	0.036548	$ 3,389,650	$ 5,212
15	Uncollectibles	$ 417,756	37.11	37.11	0.00	-	$ 15,502,925	$ -
16	Other Operating and Maintenance Expenses	$ 4,154,458	37.11	20.51	16.60	0.045479	$ 85,207,934	$ 188,942
17	Total O & M Expenses	$ 20,515,160						
18	Depreciation and Amortization	$ 4,730,347	37.11	37.11	0.00	-	$ 175,543,189	$ -
	Taxes, Other than Income							
19	Payroll	$ 484,884	37.11	10.61	26.50	0.072603	$ 5,144,618	$ 35,204
20	Other	$ 3,817,512	37.11	174.52	(137.41)	(0.376466)	$ 666,232,194	$ (1,437,163)
21	FIT-Current	$ 1,018,215	37.11	37.00	0.11	0.000301	$ 37,673,955	$ 307
22	SIT-Current	$ 182,238	37.11	58.63	(21.52)	(0.058959)	$ 10,684,614	$ (10,745)
23	Deferred Taxes	$ 731,069	37.11	37.11	0.00	-	$ 27,129,976	$ -
24	Interest Expense	$ 4,081,966	37.11	87.97	(50.86)	(0.139342)	$ 359,090,549	$ (568,791)
25	Preferred Dividends	$ 69,531	37.11	89.48	(52.37)	(0.143479)	$ 6,221,634	$ (9,976)
26	Net Earnings	$ 1,609,871	37.11	37.11	0.00	-	$ 59,742,306	$ -
27	**Net Operating Funds**	**$ 37,240,793**					**$ 1,636,222,536**	**$ (696,484)**
28	Average Days Interval between Date Expenses are Incurred and Date of Payment				35.81			

Source: Exhibit No. 1, Schedule 3, Page 3 of 6.

Tennessee - American Water Company

Construction Work In Progress

Line	Month	Net Additions (1)	Capital Spending (2)	Cont/ Adv (3)	CWIP Balance (4)
1	July 08				$4,829,032
2	August	$1,675,075	$1,429,000	$300,000	$5,305,140
3	September	$838,875	$1,428,100	$250,000	$5,644,365
4	October	$859,962	$1,306,700	$250,000	$5,841,103
5	November	$612,445	$1,821,100	$215,000	$6,834,758
6	December	$1,912,842	$797,676	$101,038	$5,618,554
7	January 09	$316,035	$1,664,500	$166,667	$6,800,352
8	February	$534,901	$1,664,500	$166,667	$7,763,284
9	March	$492,522	$1,681,166	$166,667	$8,785,261
10	April	$641,186	$1,681,166	$166,667	$9,658,574
11	May	$802,284	$1,706,166	$166,667	$10,395,789
12	June	$964,560	$1,706,170	$166,667	$10,970,732
13	July	$1,071,903	$1,564,500	$166,667	$11,296,662
14	August 09	$3,655,075	$1,564,500	$166,667	$9,039,420
15	13 Month Total				$103,953,994
16	13 Month Average				$7,996,461
17	TAWC Proposed				$9,083,000
18	Adjustment				$1,086,539
19	Rate of Return				9.11%
20	**Revenue Reduction**				**$98,984**

Source: TN-CAPD-01-PART IV-Q073-ATTACHMENT, Page 1.

Tennessee - American Water Company

Lost Water Expense

Chemicals

Line	Description	Amount (1)	Reference (2)
1	Normalized chemical Expense per the Company	$ 1,044,183	TN-TRA-01-Q013-CHEMICAS
2	BAI Normalized Chemical Expense Reflecting 15% Unaccounted for Water	$ 941,796	WPD 1 (Chemicals)
3	Adjustment to Company Proposed Expenses	$ 102,387	Line 1 - Line 2

Fuel and Power

Line	Description	Amount (1)	Reference (2)
	Company Fuel & Power Normalized test Year		
4	CitcoStation	$ 1,220,114	WPD 1 (Fuel Power)
5	Boosters Station	$ 759,525	WPD 2 (Fuel Power)
6	**Total**	$ 1,979,639	Line 4 + Line 5
	BAI Norm Test Year With 15% Losses		
6	CitcoStation	$ 1,139,173	WPD 3 (Fuel Power)
7	Boosters Station	$ 708,199	WPD 4 (Fuel Power)
8	**Total**	$ 1,847,372	Line 6 + Line 7
9	Unaccounted for Lost Issue	$ 132,267	Line 6 - Line 8
10	**Total Loss Water Expense Reduction**	$ 234,654	Line 3 + Line 9

Tennessee - American Water Company

Rate Case Expense
(Combined Rate Case)

Line	Description	Amount (1)
1	Rate case Expense- 2006 Unamortized balance	$233,333
2	Cost of Service - 2006 Unamortized balance	$30,000
3	Rate Case Expense- 2008 (3-Years)	$550,000
4	Cost of Service- 2008 (5-Years)	$16,000
5	Depreciation- 2008 (5-Years)	$32,000
6	Total Expense	$861,333
7	Company Proposal	$543,384
8	3 Year Amortization	$287,111
9	**Revenue Reduction (Line 7 - Line 8)**	**$256,273**

Tennessee - American Water Company

Rate Case Expenses

Line	2006 Rate Case	Amount (1)	Amortization Period (2)	Monthly Expense (3)	14 Months Amortization (4)	Attrition Year Unamortized Balance (5)
1	Rate Case Expense	$400,000	3 Years	$11,111	$166,667	$233,333
2	Cost of Service	$40,000	5 Years	$667	$10,000	$30,000
3	Effective Date of Rates	May 2007				
4	Months until Start of Attrition Year	15				

Tennessee - American Water Company

Conservation Adjustment

Line	Description	Amount (1)	Reference (2)
1	CMA Adjustment for Residential Growth With Adjusted Conservation	$252,539	Page 2
2	CMA Adjustment for Commercial Growth With Adjusted Conservation	$890,056	Page 3
3	Total Additional Revenue With Adjusted Conservation	$1,142,595	Line 1 + Line 2
Less:			
4	Additional Chemicals	$24,381	Page 4
5	Additional Power	$32,439	Page 5
6	**Revenue Reduction**	**$1,085,775**	Ln 3 - Ln 4 - Ln 5

Tennessee - American Water Company

Conservation Adjustment
(Revenue - Residential)

TAWC Proposed Sales

Line	Description	Chattanooga (1)	Lookout Mtn. (2)	Lakeview (3)	Total (4)
1	Additional 5/8" Customer Bills	722,160	22,323	34,590	779,073
2	Average Usage per Month	6.0	13.1	5.8	
3	First 400 Cubic Feet	2,888,640	89,292	138,360	3,116,292
4	Next 6100 Cubic Feet	1,444,320	203,139	62,262	1,709,721
5	Total CCF's	4,332,960	292,431	200,622	4,826,013
6	1st Block Revenues	$560,396	$64,380	$49,256	$674,032
7	2nd Block Revenues	$4,438,395	$804,025	$210,944	$5,453,364
8	Customer Charge Revenues	$7,524,907	$261,179	$404,703	$8,190,789
9	Total Revenues	$12,523,699	$1,129,584	$664,903	$14,318,186

Adjusted Sales

Line	Description	Chattanooga (1)	Lookout Mtn. (2)	Lakeview (3)	Total (4)
10	Additional 5/8" Customer Bills	722,160	22,323	34,590	779,073
11	Average Usage per Month (CCF)	6.1	13.3	5.9	
12	First 400 Cubic Feet	2,888,640	89,292	138,360	3,116,292
13	Next 6100 Cubic Feet	1,516,536	208,013	65,606	1,790,155
14	Total CCF's	4,405,176	297,305	203,966	4,906,447
15	1st Block Revenues	$560,396	$64,380	$49,256	$674,032
16	2nd Block Revenues	$4,660,315	$823,316	$222,272	$5,705,903
17	Customer Charge Revenues	$7,524,907	$261,179	$404,703	$8,190,789
18	Total Revenues	$12,745,618	$1,148,875	$676,231	$14,570,724
19	**Revenue Increase (Line 18 - Line 9)**				**$252,539**

Tennessee - American Water Company

Conservation Adjustment
<u>(Revenue - Commercial)</u>

TAWC Proposed Sales

Line	Description	Chattanooga (1)	Lookout Mtn. (2)	Lakeview (3)	Total (4)
1	Additional 1" Customer Bills	97,704	1092	2016	100,812
2	Average Usage per Month	39.9	54.4	13.5	
3	First 400 Cubic Feet	390,816	4,368	8,064	403,248
4	Next 6100 Cubic Feet	3,507,574	55,037	19,152	3,581,762
5	Total CCF's	3,898,390	59,405	27,216	3,985,010
6	1st Block Revenues	$75,818	$847	$1,564	$78,230
7	2nd Block Revenues	$10,778,774	$169,128	$58,854	$11,006,756
8	Customer Charge Revenues	$1,018,076	$12,776	$23,587	$1,054,439
9	Total Revenues	$11,872,668	$182,752	$84,006	$12,139,425

Adjusted Sales

Line	Description	Chattanooga (1)	Lookout Mtn. (2)	Lakeview (3)	Total (4)
10	Additional 1" Customer Bills	97,704	1092	2016	100,812
11	Average Usage per Month (CCF)	42.8	58.4	14.5	
12	First 400 Cubic Feet	390,816	4,368	8,064	403,248
13	Next 6100 Cubic Feet	3,790,915	59,354	21,130	3,871,400
14	Total CCF's	4,181,731	63,722	29,194	4,274,648
15	1st Block Revenues	$75,818	$847	$1,564	$78,230
16	2nd Block Revenues	$11,649,482	$182,396	$64,933	$11,896,811
17	Customer Charge Revenues	$1,018,076	$12,776	$23,587	$1,054,439
18	Total Revenues	$12,743,376	$196,020	$90,084	$13,029,481
19	**Revenue Increase (Line 18 - Line 9)**				**$890,056**

Tennessee - American Water Company

Chemicals Expense

Line	Description	Amount (1)	Reference (2)
1	BAI Normalized Chemical Expense Reflecting 15% Unaccounted for Water	$ 941,796	WPD 1
2	BAI Normalized Chemical Expense Reflecting 15% Unaccounted for Water & Additional Customer Growth	$ 950,776	WPD 2
3	Adjustment for Additional Customer Growth	$ 8,980	Line 2 - Line 1
4	BAI Normalized Chemical Expense Reflecting 15% Unaccounted for Water & Additional Customer Growth	$ 950,776	WPD 2
5	BAI Normalized Chemical Expense Reflecting 15% Unaccounted for Water, Additional Customer Growth & Less Conservation	$ 975,157	WPD 3
6	**Expense Increase**	$ 24,381	Line 5 - Line 4

Tennessee - American Water Company

Fuel & Power Expense

Line	Description	Amount (1)	Reference (2)
	BAI Norm Test Year With 15% Losses		
1	CitcoStation	$ 1,139,173	WPD 3
2	Boosters Station	$ 708,199	WPD 4
3	**Total**	$ 1,847,372	Line 1 + Line 2
	BAI Attrition Test Year With BAI Customer Growth (15% Losses)		
4	CitcoStation	$ 1,146,396	WPD 5
5	Boosters Station	$ 712,779	WPD 6
6	Total	$ 1,859,176	
7	Increase Fuel & Power for BAI Customer Growth	$ 11,804	Line 6 - Line 3
	BAI Conservation Adjusted Revenues with 15% losses		
8	CitcoStation	$ 1,166,010	WPD 7
9	Boosters Station	$ 725,604	WPD 8
10	Total	$ 1,891,613	
11	**Expense Increase**	**$ 32,438**	Line 10 - Line 6

Tennessee - American Water Company

Water Conservation Analysis

Line	Description	2005 (1)	2006 (2)	2007 (3)
	Residential			
1	Annual Water Usage	3,302,016,000	3,572,024,000	3,578,059,000
2	Annual Bills	726,757	790,087	763,175
3	Avg. Usage per Bill	4,543.49	4,521.05	4,688.39
4	Daily Usage	149.38	148.64	154.14
5	Spitznagel Usage- 07 Case			141.81
6	Spitznagel Usage-06 Case			146.23
	Commercial			
7	Annual Water Usage	3,168,765,000	3,296,177,000	3,226,205,000
8	Annual Bills	96,064	102,716	98,271
9	Avg. Usage per Bill	32,985.98	32,090.20	32,829.68
10	Daily Usage	1,084.47	1,055.02	1,079.33
11	Spitznagel Usage - 07 Case			1029.41
12	Spitznagel Usage - 06 Case			1055.43

Spitznagel Usage Gallons per Day

Line	Year	Residential (1)	Annual Report Residential (2)	Commercial (3)	Annual Report Commercial (4)
13	1994	161		1148	
14	1995	163		1152	
15	1996	163		1149	
16	1997	160		1112	
17	1998	164		1134	
18	1999	161		1128	
19	2000	158		1118	
20	2001	154		1059	
21	2002	157		1055	
22	2003	158		1033	
23	2004	146		1097	
24	2005	143	149	1050	1084
25	2006	147	149	1056	1055
26	2007	152	154	1070	1079
27	**10-Year Average**	**154.0**		**1080.0**	
28	**5-Year Average**	**149.2**		**1061.2**	
29	**3-Year Average**	**147.3**	**150.7**	**1058.7**	**1072.7**

Tennessee - American Water Company

Rate of Return

Line	Description		Amount (1)	Weight (2)	Cost (3)	Weighted Cost (4)
1	**TAWC's Total Capital**	$	119,552,007	100.00%		
	External Financing					
2	9.250% Series	$	2,500,000	2.09%	9.25%	2.62%
3	7.840% Series	$	5,700,000	4.77%	7.84%	5.06%
4	9.489% Capital Leases	$	632,018	0.53%	9.49%	0.68%
5	Total	$	8,832,018	7.39%		8.36%
6	Internal Financing	$	110,719,989	92.61%		
	Parent*					
7	Long-Term Debt	$	4,756,799,000	65.77%	6.26%	4.12%
8	Short-Term Debt**	$	368,137,000	5.09%	3.25%	0.17%
9	Preferred Stock	$	4,568,000	0.06%	5.00%	0.00%
10	Common Stock	$	2,102,471,000	29.07%	**10.20%**	2.97%
11	Total	$	7,231,975,000	100.00%		7.25%
	TAWC					
12	TAWC Financing	$	8,832,018	7.39%	8.36%	0.62%
13	Parent Financing	$	110,719,989	92.61%	7.25%	6.72%
14	Total	$	119,552,007	100.00%		7.33%

Source:
   Docket No. 06-00290 and Exhibit MAM-3.
   * American Water Works Company, Inc.10-Q, March 31, 2008.
   ** Adjusted to reflect the Projected 3-Mo LIBOR of 3.00% + 0.25%.

Tennessee - American Water Company

Rate of Return

Water Proxy Group

Line	Proxy Group	Bond Ratings[1]		Common Equity Ratios	
		S&P	Moody's	AUS[1]	Value Line[2]
		(1)	(2)	(3)	(4)
1	American States Water Co.	A	A2	49.0%	51.4%
2	Aqua America Water Co.	AA-	N/R	43.0%	48.4%
3	California Water Service Group	N/R	N/R	57.0%	55.9%
4	Connecticut Water Services	AAA	N/R	49.0%	55.1%
5	Middlesex Water Company	A	N/R	48.0%	49.0%
6	SJW Corporation	N/R	N/R	52.0%	58.2%
7	Southwest Water Company	N/R	N/R	46.0%	56.3%
8	York Water Company	A-	N/R	47.0%	51.7%
9	**Average**	**A+**	**A2**	**48.9%**	**53.3%**
10	American Water Capital Corp.	A-	Baa2	42.9%[3]	45.3%[3]

Sources:
[1] *AUS Utility Reports*; June 2008.
[2] *The Value Line Investment Survey;* April 25, 2008.
[3] Exhibit MAM-3 at page 1.

Tennessee - American Water Company

Rate of Return

Gas Proxy Group

Line	Proxy Group	Bond Ratings[1]		Common Equity Ratios	
		S&P (1)	Moody's (2)	_AUS_[1] (3)	_Value Line_[2] (4)
1	AGL Resources	A-	A3	47.0%	49.8%
2	Atmos Energy	BBB	Baa3	50.0%	48.0%
3	Laclede Group	A	A3	40.0%	54.6%
4	New Jersey Resources	A+	N/R	55.0%	62.7%
5	Nicor, Inc.	AA	A1	65.0%	69.0%
6	Northwest Natural Gas	AA-	A2	52.0%	53.7%
7	Piedmont Natural Gas	A	A3	45.0%	51.6%
8	South Jersey Industries	A	Baa1	56.0%	57.3%
9	Southwest Gas	BBB-	Baa3	46.0%	41.9%
10	WGL Holdings, Inc.	AA-	A2	58.0%	60.3%
11	**Average**	**A**	**A3**	**51.4%**	**54.9%**
12	American Water Capital Corp.	A-	Baa2	42.9%[3]	45.3%[3]

Sources:

[1] _AUS Utility Reports_; June 2008.

[2] _The Value Line Investment Survey;_ June 13, 2008.

[3] Exhibit MAM-3 at page 1.

Tennessee - American Water Company

Rate of Return

Water Proxy Group
(Growth Rate Estimates)

Line	Proxy Group	Zacks Estimated Growth %[1] (1)	Zacks Number of Estimates[1] (2)	AVG of Growth Rates (3)
1	American States Water Co.	10.00%	1	10.00%
2	Aqua America Water Co.	9.60%	5	9.60%
3	California Water Service Group	8.00%	5	8.00%
4	Connecticut Water Services	N/A	N/A	N/A
5	Middlesex Water Company	8.00%	1	8.00%
6	SJW Corporation	10.00%	1	10.00%
7	Southwest Water Company	8.50%	2	8.50%
8	York Water Company	11.50%	2	11.50%
9	**Average**	**9.37%**	**2**	**9.37%**

Sources:

[1] www.zackselite.com; downloaded on June 23, 2008.

Tennessee - American Water Company

Rate of Return

Gas Proxy Group
(Growth Rate Estimates)

Line	Proxy Group	Zacks Estimated Growth %[1] (1)	Zacks Number of Estimates[1] (2)	SNL Estimated Growth %[2] (3)	SNL Number of Estimates[2] (4)	AVG of Growth Rates (5)
1	AGL Resources	4.75%	4	5.30%	2	5.03%
2	Atmos Energy	5.29%	7	5.00%	3	5.15%
3	Laclede Group	10.00%	1	N/A	N/A	10.00%
4	New Jersey Resources	7.33%	3	6.00%	2	6.67%
5	Nicor, Inc.	5.75%	4	4.20%	2	4.98%
6	Northwest Natural Gas	6.20%	5	5.00%	4	5.60%
7	Piedmont Natural Gas	6.28%	6	5.00%	5	5.64%
8	South Jersey Industries	7.88%	4	6.50%	5	7.19%
9	Southwest Gas	8.00%	2	6.00%	2	7.00%
10	WGL Holdings, Inc.	7.33%	3	4.00%	3	5.67%
11	**Average**	**6.88%**	**4**	**5.22%**	**3**	**6.29%**

Sources:

[1] www.zackselite.com; downloaded on June 23, 2008.

[2] www.snl.com; downloaded on June 23, 2008.

Tennessee - American Water Company

Rate of Return

Water Proxy Group
(Constant Growth DCF Model)

Line	Proxy Group	13-Week AVG Stock Price[1] (1)	AVG (%) Growth (2)	Annual Dividend[2] (3)	Adjusted Yield (4)	Constant Growth DCF (5)
1	American States Water Co.	$35.50	10.00%	$1.00	3.10%	13.10%
2	Aqua America Water Co.	$17.99	9.60%	$0.50	3.05%	12.65%
3	California Water Service Group	$37.63	8.00%	$1.17	3.36%	11.36%
4	Connecticut Water Services	$24.25	N/A	$0.87	N/A	N/A
5	Middlesex Water Company	$18.47	8.00%	$0.70	4.09%	12.09%
6	SJW Corporation	$30.29	10.00%	$0.64	2.34%	12.34%
7	Southwest Water Company	$10.90	8.50%	$0.24	2.39%	10.89%
8	York Water Company	$15.29	11.50%	$0.48	3.53%	15.03%
9	**Average**	**$23.79**	**9.37%**	**$0.70**	**3.12%**	**12.49%**

Sources:

[1] http://moneycentral.msn.com, downloaded on June 23, 2008.

[2] *The Value Line Investment Survey*; April 25, 2008.

Tennessee - American Water Company

Rate of Return

Gas Proxy Group
(Constant Growth DCF Model)

Line	Proxy Group	13-Week AVG Stock Price[1] (1)	AVG (%) Growth (2)	Annual Dividend[2] (3)	Adjusted Yield (4)	Constant Growth DCF (5)
1	AGL Resources	$35.08	5.03%	$1.68	5.03%	10.05%
2	Atmos Energy	$27.09	5.15%	$1.30	5.05%	10.19%
3	Laclede Group	$38.51	10.00%	$1.50	4.28%	14.28%
4	New Jersey Resources	$32.62	6.67%	$1.12	3.66%	10.33%
5	Nicor, Inc.	$37.88	4.98%	$1.86	5.15%	10.13%
6	Northwest Natural Gas	$44.93	5.60%	$1.50	3.53%	9.13%
7	Piedmont Natural Gas	$26.70	5.64%	$1.04	4.11%	9.75%
8	South Jersey Industries	$37.34	7.19%	$1.08	3.10%	10.29%
9	Southwest Gas	$29.73	7.00%	$0.90	3.24%	10.24%
10	WGL Holdings, Inc.	$33.97	5.67%	$1.44	4.48%	10.14%
11	**Average**	**$34.38**	**6.29%**	**$1.34**	**4.16%**	**10.45%**

Sources:

[1] http://moneycentral.msn.com, downloaded on June 23, 2008.

[2] *The Value Line Investment Survey*; June 13, 2008.

Tennessee - American Water Company

Rate of Return

U.S. Economic Growth Is Linked
To Electricity Growth

190
180   Index 1985 =100   Real GDP
170
160
150
140   Electricity Use
130
120   Total Energy Use
110
100
90
1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005
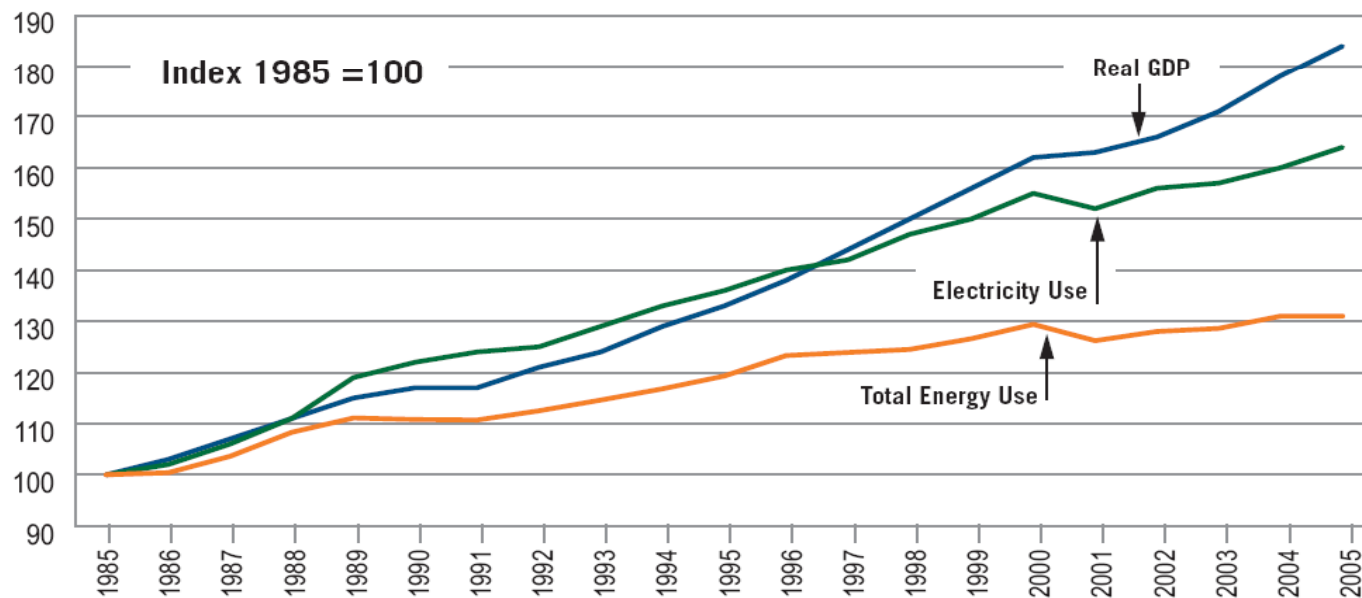
1985 represents the base year. Graph depicts increases or decreases from the base year.

Source: U.S. Department of Energy, Energy Information Administration (EIA).

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Tennessee - American Water Company

Rate of Return

Water Comparable Group
(GDP and Dividend Growth Rates)

Line	Comparable Group	Dividend Growth			Inflation (CPI)			Nominal GDP			
		Past		3-5 Years	Past		3-5 Years	Past		Projected*	
		10 Years	5 Years	Projection	10 Years	5 Years	Projection	5 Years	10 Years	5 Years	10 Years
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	American States Water Co.	1.0%	1.5%	5.0%							
2	Aqua America Water Co.	6.5%	7.0%	9.5%							
3	California Water Service Group	1.0%	0.5%	1.0%							
4	Connecticut Water Services	N/A	1.5%	N/A							
5	Middlesex Water Company	N/A	2.0%	N/A							
6	SJW Corporation	N/A	5.5%	N/A							
7	Southwest Water Company	9.5%	9.0%	7.5%							
8	York Water Company	N/A	N/A	N/A							
9	**Average**	**4.5%**	**3.9%**	**5.8%**	**2.9%**	**2.6%**	**2.5%**	**5.8%**	**5.3%**	**5.0%**	**4.8%**

Source:
The Value Line Investment Survey; April 25, 2008.
* *Blue Chip Economic Indicators,* March 10, 2008, at 15.

Tennessee - American Water Company

Rate of Return

Gas Comparable Group
(GDP and Dividend Growth Rates)

		Dividend Growth			Inflation (CPI)			Nominal GDP			
		Past		3-5 Years	Past		3-5 Years	Past		Projected*	
Line	Comparable Group	10 Years (1)	5 Years (2)	Projection (3)	10 Years (4)	5 Years (5)	Projection (6)	5 Years (7)	10 Years (8)	5 Years (9)	10 Years (10)
1	AGL Resources	2.5%	4.0%	4.0%							
2	Atmos Energy	2.5%	1.5%	2.0%							
3	Laclede Group	1.0%	1.0%	2.5%							
4	New Jersey Resources	3.5%	4.0%	6.0%							
5	Nicor, Inc.	3.5%	1.0%	N/A							
6	Northwest Natural Gas	1.5%	2.0%	5.5%							
7	Piedmont Natural Gas	5.0%	4.5%	4.0%							
8	South Jersey Industries	2.0%	3.5%	5.5%							
9	Southwest Gas	N/A	N/A	4.0%							
10	WGL Holdings, Inc.	1.5%	1.5%	2.5%							
11	**Average**	**2.6%**	**2.6%**	**4.0%**	**2.9%**	**2.6%**	**2.5%**	**5.8%**	**5.3%**	**5.0%**	**4.8%**

Source:
The Value Line Investment Survey; June 13, 2008.
* *Blue Chip Economic Indicators,* March 10, 2008, at 15.

Tennessee - American Water Company

Rate of Return

Water Proxy Group
(Two-Stage Growth DCF Model)

Line	Proxy Group	13-Week AVG Stock Price[1] (1)	Annual Dividend[2] (2)	First Stage Growth (3)	Second Stage Growth[3] (4)	Two-Stage Growth DCF (5)
1	American States Water Co.	$35.50	$1.00	10.00%	4.90%	8.59%
2	Aqua America Water Co.	$17.99	$0.50	9.60%	4.90%	8.48%
3	California Water Service Group	$37.63	$1.17	8.00%	4.90%	8.64%
4	Connecticut Water Services	$24.25	$0.87	N/A	4.90%	N/A
5	Middlesex Water Company	$18.47	$0.70	8.00%	4.90%	9.45%
6	SJW Corporation	$30.29	$0.64	10.00%	4.90%	7.68%
7	Southwest Water Company	$10.90	$0.24	8.50%	4.90%	7.60%
8	York Water Company	$15.29	$0.48	11.50%	4.90%	9.31%
9	**Average**	**$23.79**	**$0.70**	**9.37%**	**4.90%**	**8.53%**

Sources:

[1] http://moneycentral.msn.com, downloaded on June 23, 2008.

[2] *The Value Line Investment Survey*; April 25, 2008.

[3] *Blue Chip Economic Indicators*, March 10, 2008.

Tennessee - American Water Company

Rate of Return

Gas Proxy Group
(Two-Stage Growth DCF Model)

Line	Proxy Group	13-Week AVG Stock Price[1] (1)	Annual Dividend[2] (2)	First Stage Growth (3)	Second Stage Growth[3] (4)	Two-Stage Growth DCF (5)
1	AGL Resources	$35.08	$1.68	5.03%	4.90%	9.95%
2	Atmos Energy	$27.09	$1.30	5.15%	4.90%	9.99%
3	Laclede Group	$38.51	$1.50	10.00%	4.90%	9.98%
4	New Jersey Resources	$32.62	$1.12	6.67%	4.90%	8.79%
5	Nicor, Inc.	$37.88	$1.86	4.98%	4.90%	10.07%
6	Northwest Natural Gas	$44.93	$1.50	5.60%	4.90%	8.51%
7	Piedmont Natural Gas	$26.70	$1.04	5.64%	4.90%	9.12%
8	South Jersey Industries	$37.34	$1.08	7.19%	4.90%	8.25%
9	Southwest Gas	$29.73	$0.90	7.00%	4.90%	8.38%
10	WGL Holdings, Inc.	$33.97	$1.44	5.67%	4.90%	9.50%
11	**Average**	**$34.38**	**$1.34**	**6.29%**	**4.90%**	**9.25%**

Sources:

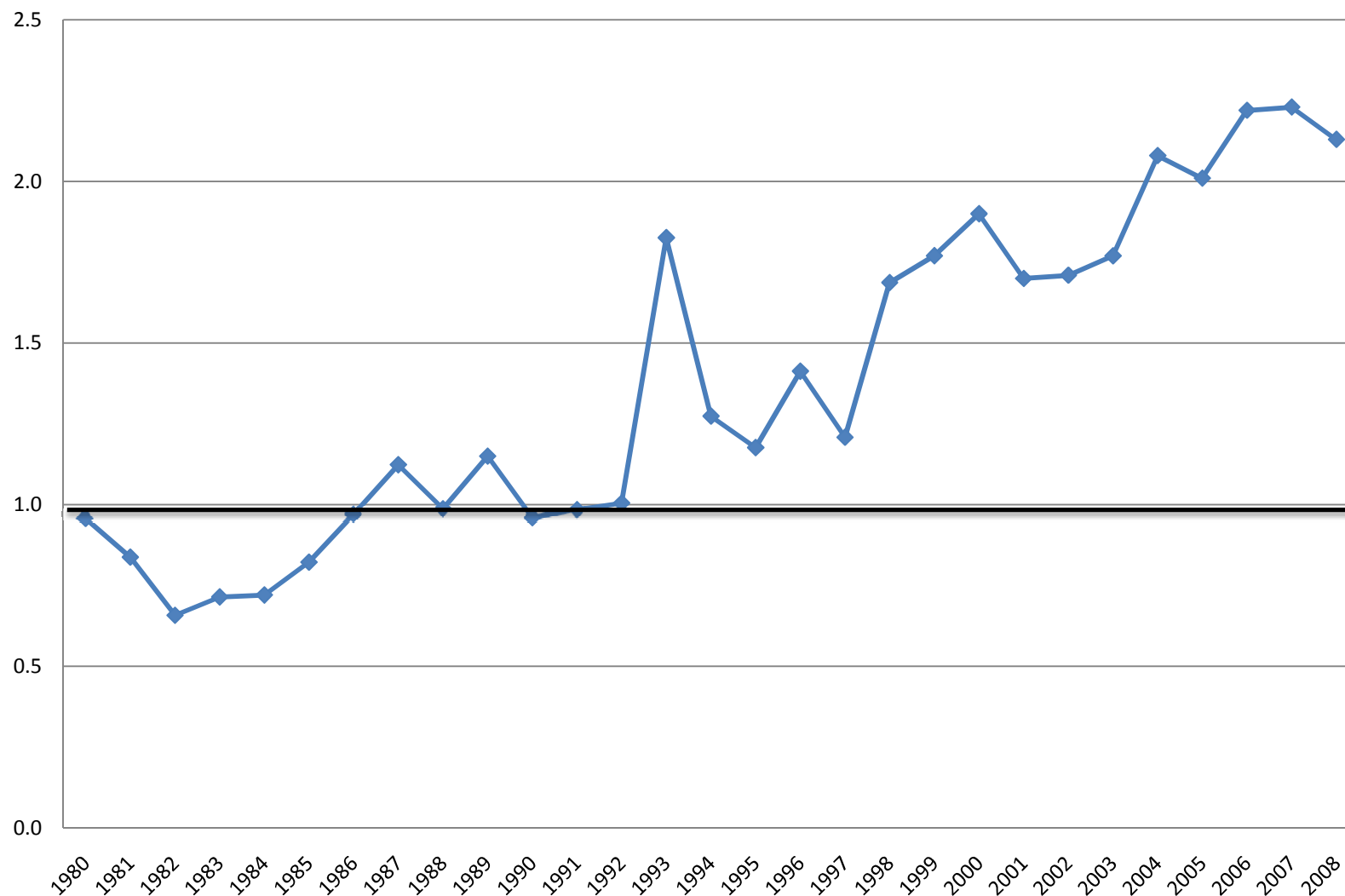[1] http://moneycentral.msn.com, downloaded on June 23, 2008.

[2] *The Value Line Investment Survey*; June 13, 2008.

[3] *Blue Chip Economic Indicators*, March 10, 2008.

Tennessee - American Water Company

Rate of Return

Gas Common Stock Market/Book Ratio

Tennessee - American Water Company

Rate of Return

Equity Risk Premium - Treasury Bond

Line	Date	Treasury Bond Yield[1] (1)	Authorized Gas Returns[2] (2)	Indicated Risk Premium (3)
1	1986	7.78%	13.46%	5.68%
2	1987	8.59%	12.74%	4.15%
3	1988	8.96%	12.85%	3.89%
4	1989	8.45%	12.88%	4.43%
5	1990	8.61%	12.67%	4.06%
6	1991	8.14%	12.46%	4.32%
7	1992	7.67%	12.01%	4.34%
8	1993	6.59%	11.35%	4.76%
9	1994	7.37%	11.35%	3.98%
10	1995	6.88%	11.43%	4.55%
11	1996	6.71%	11.19%	4.48%
12	1997	6.61%	11.29%	4.68%
13	1998	5.58%	11.51%	5.93%
14	1999	5.87%	10.66%	4.79%
15	2000	5.94%	11.39%	5.45%
16	2001	5.49%	10.95%	5.46%
17	2002	5.43%	11.03%	5.60%
18	2003	4.96%	10.99%	6.03%
19	2004	5.05%	10.59%	5.54%
20	2005	4.65%	10.46%	5.81%
21	2006	4.91%	10.44%	5.53%
22	2007[3]	4.84%	10.24%	5.40%
23	2008[3]	4.41%	10.44%	6.03%
24	**Average**	**6.50%**	**11.49%**	**5.00%**

Sources:

[1] Economic Report of the President 2007: Table 73.
The yields from 2002 to 2005 represent the 20-Year
Treasury yields obtained from the Federal Reserve Bank.

[2] Regulatory Research Associates, Inc., *Regulatory Focus*,
Jan. 85 - Dec. 06.

[3] Regulatory Research Associates, Inc. *Special Report -
January-March 2008, Major Rate Case Decisions.*

Tennessee - American Water Company

Rate of Return

Equity Risk Premium - Utility Bond

Line	Date	Average "A" Rating Utility Bond Yield[1] (1)	Authorized Gas Returns[2] (2)	Indicated Risk Premium (3)
1	1986	9.58%	13.46%	3.88%
2	1987	10.10%	12.74%	2.64%
3	1988	10.49%	12.85%	2.36%
4	1989	9.77%	12.88%	3.11%
5	1990	9.86%	12.67%	2.81%
6	1991	9.36%	12.46%	3.10%
7	1992	8.69%	12.01%	3.32%
8	1993	7.59%	11.35%	3.76%
9	1994	8.31%	11.35%	3.04%
10	1995	7.89%	11.43%	3.54%
11	1996	7.75%	11.19%	3.44%
12	1997	7.60%	11.29%	3.69%
13	1998	7.04%	11.51%	4.47%
14	1999	7.62%	10.66%	3.04%
15	2000	8.24%	11.39%	3.15%
16	2001	7.76%	10.95%	3.19%
17	2002	7.37%	11.03%	3.66%
18	2003	6.58%	10.99%	4.41%
19	2004	6.16%	10.59%	4.43%
20	2005	5.65%	10.46%	4.81%
21	2006	6.07%	10.44%	4.37%
22	2007[3]	6.07%	10.24%	4.17%
23	2008[3]	6.17%	10.44%	4.27%
24	**Average**	**7.90%**	**11.49%**	**3.59%**

Sources:

[1] *Mergent Public Utility Manual*, Mergent Weekly News Reports, 2003. The utility yields for the period 2001-2006 were obtained from the Mergent Bond Record.

[2] Regulatory Research Associates, Inc., *Regulatory Focus*, Jan. 85 - Dec. 06.

[3] Regulatory Research Associates, Inc. *Special Report - January-March 2008, Major Rate Case Decisions.*

Tennessee - American Water Company

Rate of Return

Utility-Treasury Spreads

Line	Year	T-Bond Yield[1] (1)	Public Utility Bond Yields				Corporate Bond Yields			
			A[2] (2)	Baa[2] (3)	A-T-Bond Spread (4)	Baa-T-Bond Spread (5)	Aaa[1] (6)	Baa[1] (7)	Aaa-T-Bond Spread (8)	Baa-T-Bond Spread (9)
1	1980	11.27%	13.34%	13.95%	2.07%	2.68%	11.94%	13.67%	1.73%	2.40%
2	1981	13.45%	15.95%	16.60%	2.50%	3.15%	14.17%	16.04%	1.87%	2.59%
3	1982	12.76%	15.86%	16.45%	3.10%	3.69%	13.79%	16.11%	2.32%	3.35%
4	1983	11.18%	13.66%	14.20%	2.48%	3.02%	12.04%	13.55%	1.51%	2.37%
5	1984	12.41%	14.03%	14.53%	1.62%	2.12%	12.71%	14.19%	1.48%	1.78%
6	1985	10.79%	12.47%	12.96%	1.68%	2.17%	11.37%	12.72%	1.35%	1.93%
7	1986	7.78%	9.58%	10.00%	1.80%	2.22%	9.02%	10.39%	1.37%	2.61%
8	1987	8.59%	10.10%	10.53%	1.51%	1.94%	9.38%	10.58%	1.20%	1.99%
9	1988	8.96%	10.49%	11.00%	1.53%	2.04%	9.71%	10.83%	1.12%	1.87%
10	1989	8.45%	9.77%	9.97%	1.32%	1.52%	9.26%	10.18%	0.92%	1.73%
11	1990	8.61%	9.86%	10.06%	1.25%	1.45%	9.32%	10.36%	1.04%	1.75%
12	1991	8.14%	9.36%	9.55%	1.22%	1.41%	8.77%	9.80%	1.03%	1.66%
13	1992	7.67%	8.69%	8.86%	1.02%	1.19%	8.14%	8.98%	0.84%	1.31%
14	1993	6.59%	7.59%	7.91%	1.00%	1.32%	7.22%	7.93%	0.71%	1.34%
15	1994	7.37%	8.31%	8.63%	0.94%	1.26%	7.96%	8.62%	0.66%	1.25%
16	1995	6.88%	7.89%	8.29%	1.01%	1.41%	7.59%	8.20%	0.61%	1.32%
17	1996	6.71%	7.75%	8.17%	1.04%	1.46%	7.37%	8.05%	0.68%	1.34%
18	1997	6.61%	7.60%	7.95%	0.99%	1.34%	7.26%	7.86%	0.60%	1.25%
19	1998	5.58%	7.04%	7.26%	1.46%	1.68%	6.53%	7.22%	0.69%	1.64%
20	1999	5.87%	7.62%	7.88%	1.75%	2.01%	7.04%	7.87%	0.83%	2.00%
21	2000	5.94%	8.24%	8.36%	2.30%	2.42%	7.62%	8.36%	0.74%	2.42%
22	2001	5.49%	7.76%	8.02%	2.27%	2.53%	7.08%	7.95%	0.87%	2.46%
23	2002	5.42%	7.37%	8.02%	1.95%	2.60%	6.49%	7.80%	1.31%	2.38%
24	2003	4.96%	6.57%	6.83%	1.61%	1.87%	5.67%	6.77%	1.10%	1.81%
25	2004	5.05%	6.14%	6.37%	1.09%	1.32%	5.63%	6.39%	0.58%	1.34%
26	2005	4.65%	5.66%	5.93%	1.01%	1.29%	5.24%	6.06%	0.59%	1.41%
27	2006	4.91%	6.07%	6.32%	1.16%	1.41%	5.59%	6.48%	0.68%	1.57%
28	2007	4.84%	6.07%	6.33%	1.23%	1.49%	5.56%	6.48%	0.72%	1.64%
29	2008[3]	4.41%	6.17%	6.55%	1.76%	2.14%	5.46%	6.75%	1.05%	2.34%
30	Average	7.63%	9.21%	9.57%	1.57%	1.94%	8.45%	9.52%	1.04%	1.89%

Yield Spreads
Treasury Vs. Corporate   &   Treasury Vs. Utility
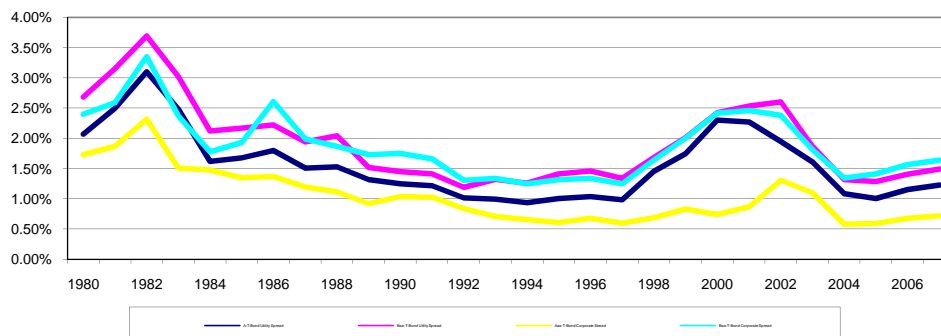
Sources:
[1] Economic Report of the President 2007: Table 73 at 316. The yields from 2002 to 2005
  represent the 20-Year Treasury yields obtained from the Federal Reserve Bank.
[2] *Mergent Public Utility Manual* 2003. Moody's Daily News Reports.
[3] The data for 2008 includes the period January - March 2008.

Tennessee - American Water Company

Rate of Return

Utility Bond Yields

Line	Date	"A" Rating Utility Bond Yield (1)	"Baa" Rating Utility Bond Yield (2)
1	06/20/08	6.40%	6.95%
2	06/13/08	6.48%	7.03%
3	06/06/08	6.29%	6.85%
4	05/30/08	6.36%	6.93%
5	05/23/08	6.22%	6.78%
6	05/16/08	6.27%	6.78%
7	05/09/08	6.20%	6.69%
8	05/02/08	6.24%	6.73%
9	04/25/08	6.38%	6.91%
10	04/18/08	6.32%	6.85%
11	04/11/08	6.20%	6.72%
12	04/04/08	6.23%	6.74%
13	03/28/08	6.25%	6.77%
14	**Average**	**6.30%**	**6.83%**

Source:
www.moodys.com, Bond Yields and Key Indicators.

Tennessee - American Water Company

Rate of Return

Water Proxy Group
(Beta)

Line	Proxy Group*	2003 (1)	2004 (2)	2005 (3)	2006 (4)	2007 (5)
1	American States Water Co.	0.65	0.70	0.70	0.80	1.00
2	Aqua America Water Co.	0.70	0.75	0.80	0.85	0.95
3	California Water Service Group	0.60	0.70	0.75	0.85	1.10
4	Connecticut Water Services	0.60	0.65	0.70	0.85	0.80
5	Middlesex Water Company	0.55	0.60	0.70	0.80	0.90
6	SJW Corporation	0.50	0.55	0.60	0.75	1.10
7	Southwest Water Company	0.60	0.65	0.65	0.80	1.00
8	York Water Company	0.50	0.55	0.50	0.50	0.45
9	**Average**	**0.59**	**0.64**	**0.68**	**0.78**	**0.91**

Source:
The Value Line Investment Survey; April 25, 2008.
* The historical data was obtained from the *Value Line Investment Analyzer*.

Tennessee - American Water Company

Rate of Return

Gas Proxy Group
(Beta)

Line	Comparable Group*	2003 (1)	2004 (2)	2005 (3)	2006 (4)	2007 (5)
1	AGL Resources	0.75	0.80	0.85	0.95	0.85
2	Atmos Energy	0.65	0.65	0.70	0.75	0.85
3	Laclede Group	0.65	0.70	0.75	0.85	0.90
4	New Jersey Resources	0.65	0.70	0.75	0.80	0.85
5	Nicor, Inc.	0.95	1.00	1.10	1.20	0.95
6	Northwest Natural Gas	0.60	0.65	0.70	0.75	0.80
7	Piedmont Natural Gas	0.70	0.75	0.75	0.80	0.85
8	South Jersey Industries	0.50	0.55	0.60	0.70	0.85
9	Southwest Gas	0.70	0.80	0.75	0.85	0.90
10	WGL Holdings, Inc.	0.65	0.75	0.80	0.80	0.90
11	**Average**	**0.68**	**0.74**	**0.78**	**0.85**	**0.87**

Source:
The Value Line Investment Survey; March 14, 2008.
* The historical data was obtained from the *Value Line Investment Analyzer*.

Tennessee - American Water Company

Rate of Return

CAPM

Line	Description	Historical Premium (1)
1	Risk-Free Rate[1]	4.90%
2	Risk Premium[2]	6.50%
3	Beta[3]	0.87
4	CAPM	10.56%

Line	Description	Prospective Premium (1)
5	Risk-Free Rate[1]	4.90%
6	Risk Premium[2]	6.83%
7	Beta[3]	0.87
8	CAPM	10.84%
9	**CAPM Average**	**10.70%**

Sources:

[1] *Blue Chip Financial Forecasts*; June 1, 2008, at 2.

[2] *SBBI*; 2008 at 31 and 120.

[3] *The Value Line Investment Survey*; March 14, 2008.

Tennessee - American Water Company

Company Proposed Rate Increase
(Company Revenue Requirement)

Line	Description	Revenues at Current Rates (1)	Revenues at Company Proposed Rates (2)	Proposed Increase Amount (3)	Percent (4)
1	Chattanooga	$ 30,778,336	$ 37,470,466	$ 6,692,130	**21.7%**
2	Lookout Mountain	$ 1,332,426	$ 1,507,402	$ 174,975	**13.1%**
3	Lakeview	$ 799,649	$ 1,016,327	$ 216,678	**27.1%**
4	Lone Oak	$ 61,025	$ 62,101	$ 1,076	**1.8%**
5	Suck Creek	$ 91,984	$ 91,414	$ (571)	**-0.6%**
6	Private Fire Protection	$ 1,489,608	$ 1,810,466	$ 320,858	**21.5%**
7	Other Water Utility *	$ 1,309,818	$ 1,504,551	$ 194,733	**14.9%**
8	Total	$ 35,862,846	$ 43,462,726	$ 7,599,880	**21.2%**
9	Other Water Revenues	$ 1,369,193	$ 1,433,404	$ 64,211	**4.7%**
10	Total All Revenues	$ 37,232,039	$ 44,896,130	$ 7,664,091	**20.6%**

Note: * Excludes Walden Ridge

Tennessee - American Water Company

Equal Percentage Rate Increase
(Company Revenue Requirement)

Line	Description	Revenues at Current Rates (1)		Revenues at Equal Percentage Rates (2)		Proposed Increase Amount (3)	Percent (4)
1	Chattanooga	$	30,778,336	$	37,057,116	$ 6,278,781	**20.4%**
2	Lookout Mountain	$	1,332,426	$	1,604,241	$ 271,815	**20.4%**
3	Lakeview	$	799,649	$	962,777	$ 163,128	**20.4%**
4	Lone Oak	$	61,025	$	73,474	$ 12,449	**20.4%**
5	Suck Creek	$	91,984	$	110,749	$ 18,765	**20.4%**
6	Private Fire Protection	$	1,489,608	$	1,793,488	$ 303,880	**20.4%**
7	Other Water Utility *	$	1,744,628	$	2,100,532	$ 355,904	**20.4%**
8	Total	$	36,297,656	$	43,702,378	$ 7,404,722	**20.4%**
9	Other Water Revenues	$	1,369,193	$	1,648,508	$ 279,315	**20.4%**
10	Total All Revenues	$	37,666,849	$	45,350,886	$ 7,684,037	**20.4%**

Note: * Includes Walden Ridge

Tennessee - American Water Company

Equal Percentage Rate Increase
(Gorman Revenue Requirement)

Line	Description	Revenues at Current Rates (1)		Revenues at Equal Percentage Rates (2)		Proposed Increase Amount (3)	Proposed Increase Percent (4)
1	Chattanooga	$	30,778,336	$	32,734,607	$ 1,956,271	6.4%
2	Lookout Mountain	$	1,332,426	$	1,417,115	$ 84,689	6.4%
3	Lakeview	$	799,649	$	850,474	$ 50,826	6.4%
4	Lone Oak	$	61,025	$	64,904	$ 3,879	6.4%
5	Suck Creek	$	91,984	$	97,831	$ 5,847	6.4%
6	Private Fire Protection	$	1,489,608	$	1,584,288	$ 94,679	6.4%
7	Other Water Utility *	$	1,744,628	$	1,855,516	$ 110,888	6.4%
8	Total	$	36,297,656	$	38,604,735	$ 2,307,079	6.4%
9	Other Water Revenues	$	1,369,193	$	1,456,219	$ 87,026	6.4%
10	Total All Revenues	$	37,666,849	$	40,060,954	$ 2,394,105	6.4%

Note: * Includes Walden Ridge

Tennessee - American Water Company

Analysis of Walden Ridge Special Contract

Line	Description	Company Proposed (1)	As Adjusted (2)
1	Plant In Service	$4,455,819	$4,455,819
2	Accum. Depr. Reserve	$187,014	$187,014
3	Net Plant	$4,268,805	$4,268,805
4	Pre Tax Return	11.81%	9.11%
5	Return on Net Plant	$504,146	$388,888
6	Chemicals Expense	$35,402	$35,402
7	Waste Disposal Expense	$5,765	$5,765
8	Power Expense	$264,713	$264,713
9	Total Revenue Requirement	$810,026	$694,768
10	Current Revenues - Walden Ridge	$434,810	$434,810
11	Revenue Below/(Above) Direct Costs	**$375,216**	**$259,958**
12	Percent of Direct Costs Unrecovered	46.32%	37.42%