COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:	**)**	
	)	
THE APPLICATION OF KENTUCKY-AMERICAN WATER COMPANY FOR AN ADJUSTMENT OF RATES ON AND AFTER JANUARY 27, 2013	**)))**	**CASE NO. 2012-00520**
	)	

DIRECT TESTIMONY OF JERMAINE K. BATES

December 28, 2012

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS FOR THE RECORD.

A. My name is Jermaine K. Bates and my business address is 727 Craig Road, St. Louis, Missouri 63141.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by the American Water Works Service Company, Inc. ("Service Company") as a Rates Analyst III for the Central Regional Service Company Office.

Q. PLEASE ELABORATE UPON YOUR DUTIES AS RATES ANALYST FOR THE CENTRAL REGIONAL SERVICE COMPANY.

A. My responsibilities include the preparation of rate filings requested by the seven operating companies in the Central Division of American Water. I also assist in the implementation of these rates for billing to customers.

Q. HAVE YOU PREVIOUSLY PARTICIPATED IN REGULATORY MATTERS?

A. No.

Q. WOULD YOU PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND BUSINESS EXPERIENCE?

A. Yes. In 1983, I graduated with a Bachelor of Science degree from Washington University in St. Louis with a major in Finance.

I have worked in the finance and accounting field for 15 years and began my career in June 1997 as an Accounting Assistant. In that capacity I worked for Stout Marketing.

I assisted in the areas of cost accounting, payroll, accounts payable, and accounts receivable. From 2001-2004 I worked for Emerson where I held various positions from credit manager to staff accountant. My duties included fixed asset and cost accounting, income statement and balance sheet preparation, and analysis. From 2004-2008, I worked for Spartech Corporation. As a Senior Accountant, my task included debt compliance preparation, corporate and company-wide consolidated budgets, verification of internal controls in line with Sarbanes-Oxley, drafting 10-K and 10-Q filings, and account reconciliations. From 2008-2012, I worked for Belden Inc. In my role as a Senior Financial Analyst, I was responsible for performing audits of international business units and revenue recognition. I led the financial integration of a $152 million acquisition. I also performed account analysis, audited financial statements, and supervised Accounts Payable/Accounts Receivable personnel.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS CASE?

A. The purpose of my testimony is to support Kentucky American Water's ("KAW") adjustments to forecasted Customer Accounting and Public Service Commission ("PSC") Fees.

Q. PLEASE DISCUSS KAW'S FORECASTED LEVEL OF CUSTOMER ACCOUNTING EXPENSE.

A. KAW's customer accounting expense includes costs for such items as postage, telephone, forms utilized for customer service and billings, uncollectible accounts and collection agencies. This is not a complete listing but it does represent most of the larger dollar items in this expense. The base year expense is $1,437,455. KAW included in the adjustment a reduction in postage expenses for the elimination of third party billing. Although most customers were also water customers, there were a few customers that received only a bill for LFUCG. The billing ended September 1, 2012 so the base year was adjusted $8,859 to eliminate that additional postage expense that will not continue going forward. The forecast reflects an expense of $1,675,735 for customer accounting costs.

Q. HOW WAS THE UNCOLLECTIBLE PERCENTAGE CALCULATED?

A. The uncollectible percentage was calculated by applying the 3 year average of net-charge offs to billed revenue for twelve months ending September 2010, September 2011 and September 2012. That percentage was applied to forecasted revenues at present rates. This methodology is similar to previous years.

<u>REGULATORY ASSESSMENT FEE</u>

Q. WHAT IS THE REGULATORY ASSESSMENT FEE IN THIS CASE?

A. One component included in General Taxes is the Public Service Commission Fee. The Company has forecasted its PSC fee for the forecasted test period by arriving at an average PSC fee rate of .14780%. The percent was calculated by dividing the actual tax payments for 2010-2012 by their associated revenues and then calculating a three-year average PSC fee rate. By applying this three-year average PSC fee rate to the total forecasted revenues, less AFUDC, the Company's forecasted level of PSC fee is $123,659 at present rates. This method is similar to the calculation methodology in previous cases. Additional components of General Taxes are discussed in Ms. Melissa Schwarzell's testimony.

Q. **DOES THIS CONCLUDE YOUR TESTIMONY?**

A Yes.

VERIFICATION

STATE OF MISSOURI)
) **SS:**
CITY OF ST. LOUIS)

The undersigned, **Jermaine K. Bates,** being duly sworn, deposes and says he is a Rates Analyst III for Kentucky-American Water Company, that he has personal knowledge of the matters set forth in the foregoing testimony, and the answers contained therein are true and correct to the best of his information, knowledge, and belief.

Jermaine K Bates
JERMAINE K. BATES

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 19th day of December, 2012.

Staci A. Olsen (SEAL)
Notary Public

My Commission Expires:

STACI A. OLSEN
Notary Public – Notary Seal
STATE OF MISSOURI
St. Charles County
Commission Number 09519210
My commission expires March 20, 2013

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WATER COMPANY FOR AN ADJUSTMENT OF	**)**	
RATES ON AND AFTER JANUARY 27, 2013	**)**	

DIRECT TESTIMONY OF LINDA C. BRIDWELL, P.E.

December 28, 2012

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Linda C. Bridwell and my business address is 2300 Richmond Road, Lexington, Kentucky 40502.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by the Central Division of American Water Works Company ("AWW") as Manager of Rates and Regulation for Kentucky and Tennessee.

Q. HAVE YOU PREVIOUSLY FILED TESTIMONY BEFORE THIS OR ANY OTHER COMMISSION?

A. Yes. I have provided both written and oral testimony in at least fourteen different proceedings before the Kentucky Public Service Commission including rate cases, special investigations, and applications for a Certificate of Public Convenience and Necessity. I have also provided written testimony before the Tennessee Regulatory Authority.

Q. PLEASE STATE YOUR EDUCATIONAL AND PROFESSIONAL BACKGROUND.

A. I received a B.S. degree in Civil Engineering from the University of Kentucky in 1988 and I received a M.S. degree in Civil Engineering from the University of Kentucky in 1992 with an emphasis in water resources. I completed a Masters of Business Administration from Xavier University in Cincinnati, Ohio in 2000. I am a registered Professional Engineer in the Commonwealth of Kentucky.

I have been employed by AWW since 1989. I began as a distribution supervisor for Kentucky American Water ("KAW" or "Company") until 1990 when I was promoted to Planning Engineer, then Engineering Manager, and later Director of Engineering in

1998. In July 2004, I accepted the position of Project Delivery and Developer Services Manager for the Southeast Region of AWW, responsible for Kentucky, Tennessee, and West Virginia. In 2008, I became the KAW Project Delivery Manager for the construction of a new water treatment plant, booster station, and transmission main in Kentucky. This project was the largest project completed by American Water, in any of its regulated businesses, at $164 million. Upon completion of the project in October 2010, I became the Director of Environmental Compliance and Water Quality for KAW and in February of this year I accepted my current position. I am an active member of the American Water Works Association (AWWA), served as president of the local chapter and state section of the American Society of Civil Engineering (ASCE), and served as an officer in the local chapter of the National Society of Professional Engineers (NSPE) and as a State officer. I have served periodically as an Adjunct Professor at the University of Kentucky in the Civil Engineering Department, teaching "Water Quality and Pollution Control" and the "Introduction to Environmental Engineering." I served as a member of the Civil Engineering Industrial Advisory Committee at the University of Kentucky from 2005 until 2012. I served as a Commissioner on the Kentucky Water Resources Development Commission established by Governor Patton and currently serve on the Board of Directors for the Kentucky Infrastructure Authority.

Q. WHAT ARE YOUR DUTIES AS MANAGER OF RATES AND REGULATION?

A. My primary responsibilities encompass the coordination of regulatory issues in Kentucky and Tennessee. This includes coordinating all reports and filings, working with regulatory staff to make sure that all information produced addresses the requirements or requests, and overseeing the preparation and filing of rate cases and tariff changes. I work with the senior management in both states on planning. I am also responsible for keeping abreast of changes in regulation, or trends in regulatory oversight across the United States that may impact our local operations. I report to the Director of Rates for the Central Division of American Water and am accountable to the Presidents of KAW and Tennessee American Water ("TAW"). I am located in Kentucky, but work closely with the staff in Tennessee as well.

Q. WHAT TOPICS WILL YOUR TESTIMONY ADDRESS?

A. My testimony will 1) review in general the exhibits and schedules that are required as part of the application which support the proposed revenue increase of $12,317,702, 2) address the Company's forecasted test year level of Revenues, Support Services, Regulatory Expense and Regulatory Deferrals, Depreciation Expense, Amortization Expense, Cost of Removal, and Rate Base, 3) review the proposed changes to the tariffs, and 4) describe the calculation of Declining Use factors that is included in revenue calculations and has replaced the weather normalization of previous revenue projections.

Q. WERE THE COMPANY'S FINANCIAL EXHIBITS PREPARED BY YOU OR UNDER YOUR SUPERVISION?

A. Yes.

Q. WHAT IS THE SOURCE OF INFORMATION USED IN THE COMPANY'S FINANCIAL EXHIBITS?

A. The information contained in the Exhibits and Schedules filed with KAW's Application was obtained from KAW's financial and operational records.

Q. WHAT IS THE INCREASE IN THE ANNUAL REVENUE REQUIREMENT THE COMPANY IS SEEKING?

A. The Company is seeking rates that would produce additional annual revenues of $12,317,702 which is an overall increase of 14.64%.

Q. WHEN DID THE COMPANY LAST INCREASE RATES?

A. The Company last filed for a rate increase on February 26, 2010. By Commission Order dated December 14, 2010, the Commission approved rates effective September 28, 2010.

Q. WHAT IS THE TEST PERIOD REFLECTED IN THIS CASE?

A. The Company has used a base period of twelve months ending March 31, 2013 to reflect recent actual expenses and revenues. This base period data reflects six months of actual data and six months of estimated data. The Company has adjusted the base period for any known or projected increases or decreases to arrive at the forecasted year expenses and revenues on which KAW proposes to base its rates.

Q. WHAT IS THE FORECASTED YEAR PROPOSED IN THIS CASE?

A. The Company has used a forecasted test period of the twelve months ending July 31, 2014.

Q. CAN YOU DESCRIBE THE GUIDELINES THE COMPANY FOLLOWED IN ADJUSTING THE BASE PERIOD DATA?

A. Yes. The Company used the same guidelines in developing its forecasted test period as it uses in its budgeting process. These guidelines are designed to reflect, as accurately as possible, the Company's requirements to operate and maintain its assets, provide quality service to its customers and provide a reasonable return to its stockholders.

Q. WOULD YOU PLEASE SUMMARIZE THE COMPANY'S RATE FILING?

A. Yes. As noted earlier, the Company is filing this application for an increase in rates based upon a fully forecasted test period of 12 months ending July 31, 2014, as currently allowed by 807 KAR 5:001 Section 10(1)(b). The Commission has outlined various filing requirements concerning a forecasted test period. The Company's filing is supported by a series of 37 exhibits. We have allocated direct and indirect costs between the water and sewer operations, similar to previous rate cases.

Q. DO YOU WISH TO COMMENT ON ANY SPECIFIC EXHIBITS?

Yes. I would like to briefly discuss Exhibit 37. Exhibit 37 represents the standard schedules required by the Commission when a utility files a general adjustment in rates supported by a forecasted test period. This exhibit contains 14 schedules identified as Schedules A through N. I would like to identify each schedule. Please note that the requirements for the filing are for jurisdictional information. 100% of Kentucky American Water's operations are jurisdictional, so the schedules reflect the full 100% jurisdictional information. Some schedules do not have a specific calculation for jurisdictional percentage on each schedule as in previous rate case filings.

Schedule A is a jurisdictional financial summary for both the base period and the forecasted period, which details how the utility derived the amount of the requested revenue increase.

Schedule B is a jurisdictional rate base summary for the base period and the forecasted period with the supporting schedules, which include detailed analyses of each component of rate base.

Schedule C is a jurisdictional operating income summary for the base period and the forecasted period with supporting schedules that are broken down by major account group and by individual account.

Schedule D is a summary of jurisdictional adjustments to operating income by major account with supporting schedules for individual adjustments and jurisdictional factors. The format of this schedule has changed from previous filings in an effort to clarify the summary and review of the adjustments.

Schedule E is the jurisdictional federal and state income tax summary for the base period and the forecasted period with supporting schedules of the various components of jurisdictional income taxes.

Schedule F contains summary schedules for the base period and the forecasted period of organization membership dues, initiation fees, expenditures at country clubs, charitable contributions, marketing, sales, and advertising expenditures, professional service expenses, civic and political expenses, expenditures for employee awards functions and outings, employee gift expenses, and rate case expenses.

Schedule G is an analysis of payroll costs including schedules for wages and salaries, employee benefits, payroll taxes, straight time and overtime hours, and executive compensation.

Schedule H is a computation of the gross revenue conversion factor for the forecasted period.

Schedule I provides comparative income statements, revenue statistics and sales statistics for the five most recent calendar years from the application filing date, the base period, the forecasted period, and two calendar years beyond the forecast period.

<u>Schedule J</u> provides a cost of capital summary for both the base period and forecasted period and supporting schedules providing detail on each component of the capital structure.

<u>Schedule K</u> provides comparative financial data and earnings measures with the 10 most recent calendar years, the base period and the forecasted period.

<u>Schedule L</u> provides a narrative explanation of all proposed tariff changes.

<u>Schedule M</u> provides a revenue summary for both the base period and forecasted period with supporting schedules, which provide detailed billing analyses for all customer classes.

<u>Schedule N</u> provides a typical bill comparison of the present and proposed rates for all customer classes.

Q. HOW DID THE COMPANY DETERMINE THE OPERATING REVENUES SHOWN IN ITS EXHIBITS?

A. The Company's operating revenues are obtained from (i) metered sales, (ii) private fire service, and (iii) miscellaneous, service revenues, rents from property, and other water revenues. The Company uses a bill analysis reflecting the actual billing determinants for the base year, the twelve months ended March 31, 2013. Exhibit 37, Schedule M-3 sets forth the individual bill analysis by customer class. The base year billing determinants are then adjusted to: (i) include customer growth through the forecasted test year, and (ii) adjust residential, commercial and Other Public Authority classes for declining usage trends for the forecasted test year. These trends and the revenues will be addressed in more detail later in my testimony. The schedules then multiply forecasted test year billing determinants by present and proposed rates.

Q. HOW WERE THE OPERATING EXPENSE ADJUSTMENTS IN THE SUMMARY EXPENSES EXHIBIT CALCULATED?

A. The adjustments reflect an ongoing level of operating expenses consistent with the base year matching principles. Known and measurable price adjustments have been reflected to restate the consistent test year expense levels to forecasted rate year levels.

Q. ARE THERE OTHER CHANGES TO FINANCIAL INFORMATION IN THIS CASE COMPARED TO PREVIOUS CASES THAT YOU WOULD LIKE TO DISCUSS?

A. Yes. In addition to the schedule changes that I have just discussed, American Water has revised its Financial Statements with the conversion to the new financial software in 2012. Certain lines of expense including General Office, Miscellaneous, and Customer Accounting have been separated into more detail to more robustly reflect our business. These new details appear on the Income Statement and include Other Benefits; Contract Services; Building Maintenance and Services; Telecommunications; Postage, Printing and Stationary; Other Supplies and Services; Employee Related Expense; Transportation; and Uncollectible Accounts. Moving forward, our previous line for General Office has been eliminated entirely. This presentation of financial information will help summarize expense information in a more detailed and descriptive manner.

<u>Other Operations</u>

Q. HAS KAW EXCLUDED FROM THIS CASE REVENUES AND EXPENSES RELATED TO ANY OF ITS OPERATIONS?

A. Yes. The case presented is limited only to KAW's regulated water service operations. Since its last case, KAW discontinued its non-regulated operations contract with

Bluegrass Station. In addition, the Company examined its expenses in the base and forecast years and removed all sewer operation expenses. Since the previous case, KAW has been diligent in its attempts to directly charge appropriate expenses to sewer operations, and has been budgeting in the same manner.

Revenues

Q. PLEASE DESCRIBE THE REVENUES THE COMPANY IS PROPOSING IN THE CASE?

A. Certainly. Exhibit 37, Schedule M-1 summarizes the adjustments to operating revenue by customer class and other operating revenue type. The subsequent revenue exhibits and supporting schedules further detail the operating revenue adjustments made to the Forecast Year at Present Rates and the Forecast Year at Proposed Rates. Exhibit 37, Schedule M-2 presents a summary and detail by district of the Company's revenues by customer class. The revenues are classified in four different categories: base period at present rates, base period at proposed rates, forecast year at present rates and forecast year at proposed rates. The proposed rates are primarily based on a cost of service study and other rate design adjustments that are addressed in Mr. Paul Herbert's testimony.

Q. HOW ARE THE REVENUES CALCULATED?

A. The revenues are simply a sum of the projected revenues by customer classification, added to projected revenues from other tariffs and fees. For Residential, Commercial, and Other Public Authority classes, KAW calculates the per customer usage, by month based on billing history. An average of the previous two years of history is utilized. A declining use factor is then applied to that per customer usage amount to arrive at the forecasted per customer usage. The usage amount is then multiplied by the projected number of customers for that class to arrive at the projected revenues by month. The declining use factor replaces KAW's previous weather normalization calculation and is discussed later in my testimony.

For industrial and sale for resale customer classifications, KAW made a forecast based on its best judgment from the historical usage. In the case of both customer classifications, each individual customer's historical usage was reviewed and projection made.

Other revenues were based on historical averages depending on the tariff or fee, and adjusted as appropriate for projected changes. The other revenues are discussed in more detail later in my testimony.

Q. ARE THERE ADJUSTMENTS TO THE BASE PERIOD LEVEL OF REVENUES?

A. Yes. The adjustments to the base period level of revenues can be characterized as follows:

1) Adjust for the change in billing determinants at present rates for the forecast year.
2) Adjust Owenton wastewater plant revenue.
3) Eliminate unbilled revenues.
4) Adjust for private fire usage charges.
5) Adjust other operating revenue for reconnect charge.
6) Proposed rates for activation fee and reconnect charge.

Q. WHAT IS THE CHANGE IN BILLING DETERMINANTS AT PRESENT RATES FOR THE FORECAST YEAR?

A. The base period was adjusted in order to produce a representative level of revenues for KAW for the forecasted period. The change in billing determinates represents the projected level of sales and customer growth reflected in the forecast year.

Q. DID THE COMPANY MAKE ANY CHANGES TO THE FORECASTED TEST YEAR REVENUES?

A. Yes. The Company adjusted the level of miscellaneous sales based on data reflected in the actual six months of the base period. The Company used a six month average of usage to adjust the forecast year. The change to miscellaneous sales is related to Company usage and therefore has no effect on revenue.

Q. WOULD YOU PLEASE EXPLAIN THE ADJUSTMENT TO OWENTON REVENUE?

A. The Owenton sewer treatment plant uses potable water supplied by KAW to maintain and operate the plant. During the base period, the water supplied to the wastewater treatment plant in Owenton was mistakenly recorded to sale for resale revenue. The Company adjusted the base period to remove the Owenton sale for resale revenue. The Owenton water usage was re-classed and was properly adjusted in the rate case.

Q. WHAT IS THE ADJUSTMENT TO UNBILLED REVENUE?

A. A bill analysis, which summarizes the actual customer billings for the twelve months of the forecast year, was utilized to develop the billing determinants. A full twelve months of revenue is reflected for the customers at July 2014, and the inclusion of unbilled revenue at the end of the forecast year is inappropriate. If unbilled revenues were not eliminated, forecast year revenues at present rates would have been overstated. This approach is consistent with the Company filing in recent cases.

Q. WHY DID THE COMPANY MAKE AN ADJUSTMENT FOR PRIVATE FIRE USAGE CHARGES?

A. In November 2012, the Company implemented its previously approved tariff to permit the assessment of meters and usage charges on all non-fire prevention and testing related flows when a reasonable belief exists that water is being used for non-fire protection purposes. The Company performed an analysis of non-fire related flows for the period of November 2011 – October 2012. The analysis was based on the Company's actual experience of non-fire related usage, using monthly meter readings from detector meters. The analysis eliminated errors on meter readings or non-recurring usage that was for fire prevention or testing. During the 12 month period, the Company experienced 6,744 hundred cubic feet ("CCF") of usage from metered fire services. The Company then used the adjusted experience as an estimate to determine non-fire related flow revenue for the forecast year. The Company made an adjustment of $30,748 to increase revenues to the forecast year. While not a significant amount of revenues, KAW is hoping the implementation of this billing will help reduce non-revenue water levels as explained in Mr. Keith Cartier's testimony.

Q. WHAT IS THE COMPANY'S PROPOSED ALLOWANCE FOR FUNDS USED DURING CONSTRUCTION ("AFUDC")?

A. The Company's proposed amount for AFUDC for present rate revenues is $491,629 and is based upon the capital spending levels and projects included in the forecasted test year.

Q. WHAT IS THE ADJUSTMENT FOR OTHER OPERATING REVENUE?

A. In May 2012, the Company changed the outstanding balance threshold used to shut off a customer from $25 to $75. In June, the Company saw the impact of changing the threshold -- the amount of reconnects decreased by more than 50%. Given this decrease, the Company made an adjustment to the forecast year. The adjustment to reconnect revenue is a decrease of $212,152.

Q. WHY DID THE COMPANY CHANGE THE BALANCE OWED THRESHOLD LEVEL FOR DISCONNECTIONS?

A. There is a significant cost in collections and the Company is hoping to reduce the overall level of expense in collection efforts, without raising the level to a point where it makes payment too large of an obstacle. This effort has been coupled with a moderate late fee implementation on November 1, 2012 in an effort to reduce collection costs while encouraging customers who are able to make timely payments.

Q. DOES THE COMPANY PROPOSE A CHANGE TO THE ACTIVATION FEE?

A. Yes. Currently, an activation fee of $26 is charged to cover the expense related to customers who request a new service or a change in ownership of on existing account. The proposed rate for the activation fee is $28. An analysis was made of the costs to provide a service trip for fees relating to activation, disconnect and reconnect. The analysis was based on costs in 2010 and 2011. The base year forecast is determined based on actual and projected activations at the current rate. The revenues were then adjusted to the forecasted number of activations at the increased activation rate. The forecasted revenues are at $657,841.

Q. WHY HAS KENTUCKY AMERICAN PROPOSED TO REVISE ITS ACTIVATION FEE?

A. The activation fee was last revised in 2007. KAW's efforts in integrating technology and driving efficiencies have helped keep the costs of service trips very flat. However, we feel that it is appropriate to adjust the activation fee closer to the actual costs.

Q. HAS KENTUCKY AMERICAN ALSO ADJUSTED THE RECONNECTION CHARGE?

A. Yes. The reconnection charge was based on the same analysis that was used in determining the activation fee. However, the reconnection fee differs from the activation fee in that two trips are associated with the reconnection charge. One trip is to disconnect the customer and the second trip is to reconnect the customer. Each trip costs on average $28 to the Company, so the proposed reconnection charge is $56. The addition of the second trip to this cost is a change to the reconnection charge. The methodology for calculating the adjustment to the reconnection charge mirrors that of the activation fee. The forecasted revenues are $558,432.

Q. WHY IS THE COMPANY PROPOSING TO ADD THE SECOND TRIP COSTS TO THE RECONNECT FEE?

A. When KAW proposed the reconnect fee at $26, the Company recognized that this was not the full cost of a disconnect/reconnection. However, it was a shift in cost allocation for customers who are disconnected to bear part of the burden of the costs for their delinquency in payment. The Company recognized that many of these customers may not always have the financial resources to make timely payments, and the Company proposed at first the introduction of the fee at a more modest level. In the subsequent years, KAW has attempted to find the right balance of charging customers who are causing significantly higher costs to carry more of the burden of those costs. As discussed earlier, we have raised the threshold level of an outstanding balance that will trigger a disconnect for non-payment in order to reduce the number of disconnects, and this appears to be working. We have implemented a moderate late fee to encourage timely payment from customers. When we moved to the National Call Center, we were able to introduce bill payment services by telephone 24 hours per day. We offer electronic funds transfers for customers who wish to automate their payments and are moving toward electronic billing and payments in a secure online manner. With all of these changes, we also believe it is appropriate that when a disconnection does occur, the customer pay more of the true cost of the disconnection.

Q. HAS THE COMPANY PROPOSED A CHANGE TO ITS AFTER-HOURS ACTIVATION OR RECONNECTION CHARGES?

A. Yes. KAW is proposing to eliminate the increased after-hours charge for both service activations and reconnections. As KAW has streamlined its organization, the responsibility for these services shifted to senior field services employees who worked during the day. In recent years, KAW has encouraged customers to utilize after hours activations or reconnections only on an emergency basis. While encouraging the service only on an emergency basis reduces overtime expenses, it also reduces the frequent sleep disruptions for the employees who provide the service. In addition, applying the higher fee requires a multi-step manual adjustment by the call service representative based on the time the call was received and verification that the service order was completed successfully within the after-hours time period. Consequently, KAW is proposing to eliminate the additional charge and continue to encourage customers to use after hours activations or reconnections only on an emergency basis.

Expense Adjustments

Q. PLEASE DESCRIBE AWWSCSUPPORT SERVICES?

A. The Company's filing includes the costs of support services provided by American Water Works Service Company ("AWWSC"). KAW's customers realize significant benefits from AWWSC's support services, including savings. These services include the use of centralized call centers, water quality testing lab, IT support, accounts payable and accounts receivable, tax support and insurance, as well as corporate governance. These fees have been referred to in the past as Management Fees, which was not an accurate description of the support services functions that are provided at great efficiency for KAW.

Q. PLEASE DESCRIBE THE COMPANY'S FILING REGARDING SUPPORT SERVICES FEES.

A. The Company's filing includes $9.324 million for AWWSC Support Services costs. . The Company started with the base year expenses of $8.951 million, and adjusted non-recurring expenses. In addition, KAW has attempted to make appropriate adjustments based on the Commission's Orders from previous rate cases. The adjustments include the removal of incentive compensation that has not been authorized by the Commission in past rate cases. As discussed in Ms. Norton's testimony, while KAW still believes that the incentive compensation costs are appropriate and that our customers receive significant benefit from the program, we recognize that the Commission has asked for additional information on the program that has not been fully developed prior to this case filing.

The Company then increased the base year expense level based on projected expenses through July 2014, the end of the forecasted test year. This included estimated merit labor increases for 2013 and 2014. It also included inflationary increases of 1.8% in 2013 and 1.9% in 2014 for other expenses. This resulted in the $9.324 million of AWWSC costs included in the Company's filing. This is a difference from previous filings that used an inflationary factor for Support Services labor and expenses.

Q. WHAT HAS BEEN THE INCREASE IN SUPPORT SERVICES FEES FROM THE COMPANY'S PREVIOUS RATE CASE TO THE LEVEL REQUESTED IN THIS CASE?

A. In Case No. 2010-00036, KAW requested $9.028 million based on forecasted year ending September 30, 2011. The filing in this case represents an increase in requested Support Services expenses of $296,112 from the last case.

Q. HAVE THERE BEEN CHANGES FOR SUPPORT SERVICES THAT ARE IMPACTING THIS INCREASE SINCE THE LAST CASE?

A. Yes. Although KAW has removed incentive pay from support services expenses, this reduction has been offset by other areas of increased expenses. The primary driver behind this is the Customer Service Center cost allocation.

Through 2011, the costs for the Customer Service Center were allocated strictly by the proportionate number of customers. However, when the call center began tracking the calls by state and the average call handling time, they noted a disproportionate level of calls, and call handling time by state. Therefore, beginning in January 2012, the Customer Service Center costs are directly charged to KAW and its affiliates based on the proportionate number of calls and average call handling time. The proportionate costs are adjusted monthly and are estimated in 2013, based on the January – May 2012 actual average levels. For KAW, this change nearly doubled the call center charges from previous levels from 3.65% in 2011 to a projected 6.11% in 2013 and 2014. Please refer to Exhibit LB-1 attached to my testimony for the comparison of 2013 budgeted level of calls and average call handling time to customer counts. Additionally, the Field Resources Coordination Center has transitioned to the Customer Service Center business unit, which also directly charges KAW based on the number of KAW customer calls. Overall the call center costs increased $653,760 from the forecasted period in the last case to the base period in this case.

Q. WHAT ARE THE MAJOR DRIVERS OF THE INCREASE IN AWWSC COSTS FROM THE BASE YEAR THROUGH THE FORECASTED TEST YEAR ENDING JULY 31, 2014?

A. There are two major changes in the Support Services fees between the test year and the forecasted test year:

1. Labor and Labor Related Costs were $5,638,246 in the base year and increased to $6,020,301 in the forecasted test year. This represents an increase of $382,055 primarily for merit increases in 2013 and 2014, and additional IT support for Business Transformation ("BT") which is discussed in Mr. VerDouw's testimony.

2. Other Costs increased from $3,427,206 in the base year to $3,842,229 in the forecasted test year or $415,023 due to increases in Information Technology Systems ("ITS"), or 81% of the increase. This represents the increased maintenance and depreciation expenses from the BT implementation along with expenses to continue operations of the old financial systems. This is necessary to maintain financial information for as long as ten years in some cases. Other areas are increased 1.8% for inflation in 2013 and 1.9% for inflation in 2014.

Q. ARE THERE FUNCTIONS (AND COSTS) THAT HAVE SPECIFICALLY SHIFTED FROM KAWC TO AWWSC SINCE THE LAST CASE THROUGH THE FORECASTED TEST YEAR?

A. No, there have not been significant changes. Although KAW has gone through organizational changes, as a whole, the responsibilities have remained essentially the same. Two positions from KAW have shifted to AWWSC and now split their time and responsibilities with TAW as discussed in Ms. Melissa Schwarzell's testimony. Additionally, KAW labor expenses have actually decreased from the previous case. KAW presented testimony in the last case regarding the savings to the Company realized through the Support Services provided, as well as the additional services directly impacting KAW's customers. The significant change in this case is the implementation of the BT project. As noted above, in addition to the capital expenditures, there are increased expenses related to maintenance and depreciation of this investment.

Q. CAN YOU PLEASE DESCRIBE THE REGULATORY EXPENSE REQUEST IN THIS CASE?

A. Yes. The Company is seeking recovery of $274,995 of regulatory expenses in this case. Regulatory expenses are estimated costs incurred for the presentation of this case, including studies and investigations. We are requesting a three-year amortization of rate case expense and cost of service study expense.

Q. WHAT IS DEPRECIATION EXPENSE?

A. Every physical asset, when it is purchased or constructed, is assigned to a utility plant account. Depreciation is the recovery, over time, of these capital expenditures. Utility Plant In Service ("UPIS") depreciation expense is driven by two factors: the remaining original cost of UPIS for each plant account, and the depreciation rates assigned to those account. Each month, depreciation is recognized for 1/12th of each account's annual depreciation rate, multiplied by each account's prior month UPIS balance.

Depreciation expense is also influenced by the amortization of Contributions in Aid of Construction ("CIAC"). These amortizations offset depreciation expense, and thus reduce both recognition and recovery of UPIS. Like depreciation, amortization of CIAC is based on two factors: the original value of CIAC for each CIAC account, and the amortization rate for those accounts.

Q. WHAT IS COST OF REMOVAL ("COR") EXPENSE?

A. COR is the recognition over time, of the costs required to retire certain UPIS infrastructure. Like depreciation expense, it is driven by two factors: the original cost of UPIS for each plant account, and the COR rates assigned to each account. The forecasted test year COR expense is equal to the net of $2,127,563 in COR accruals and ($523,584) in CIAC COR. The net forecasted test year amount is $1,603,979.

Q. CAN YOU DESCRIBE THE FORECASTED TEST YEAR AMOUNTS AND ADJUSTMENTS FOR DEPRECIATION EXPENSE?

A. Yes. The forecasted test year depreciation expense is equal to the net of $12,577,367 in depreciation accruals and ($1,059,744) in CIAC amortization. The net forecasted test year amount is $11,517,623.

Q. WERE THERE ANY ADJUSTMENTS TO DEPRECIATION EXPENSE FOR THE FORECASTED TEST YEAR?

A. Yes. The base year depreciation expenses are adjusted for changes associated with the Company's UPIS investments and CIAC balances, and also to reflect the depreciation rate requested by the Company for account 340315 (our Business Transformation assets).

Q. WHY IS KAW PROPOSING TO CHANGE THE DEPRECIATION RATE FOR BT?

A. The depreciation expense is adjusted for a new depreciation rate for our BT assets, which differs from the rate currently authorized for the existing software depreciation rate. The relevant assets are in account 340315 "Computer Software Special Dep" and the Company requests a depreciation rate of 10%. Mr. VerDouw discusses BT depreciation further in his testimony. Currently this account has a depreciation rate of 20%. This rate adjustment, compared to available software rates, decreases the depreciation expense by $1,152,023, and is included within the forecasted test year adjustment for depreciation accrual referred to above. KAW does not believe that 20% is the appropriate depreciation rate for the BT assets based on the anticipated useful life of the new BT systems.

Q. WHY DID THE COMPANY ELECT NOT TO DO A DEPRECIATION STUDY?

A. KAW last did a full depreciation study in 2010. Given the recent nature of that comprehensive depreciation study, KAW believes that the depreciation rates continue to be appropriate. The one departure from those rates, the former 20% software depreciation rate for the account with the BT assets, although significant due to the large investment it represents, is only one account. The proposed 10% rate has been recognized in other American Water jurisdictions as an appropriate rate for the BT assets. In this case, KAW believed that the one exception of appropriate depreciation rates did not warrant the expense to its customers for a full depreciation study, knowing that a study would be appropriate prior to the next case. The impact of this change is that KAW is not recovering the cost of the software from its customers as quickly, reducing expenses by $1,152,023.

Q. COULD YOU PLEASE DISCUSS THE COMPANY'S AMORTIZATION EXPENSE ADJUSTMENT?

A. Yes. Amortization Expense is the recovery of expenses over a set period of time. Forecasted test year amortization expense is $210,261. The first adjustment is made to remove amortization of the Utility Plant Acquisition Adjustment ("UPAA"). This adjustment reduces the base year expense by ($6,421). An adjustment was also made to remove $6,900 in expense previously disallowed. Summarizing, the base test year amortization of $207,018 is decreased ($13,321) to adjust UPAA amortizations and previously disallowed amortization. An adjustment then increases amortization expense by $16,562 resulting in a forecasted test year amount of $210,261.

Rate Base

Q. WHAT IS RATE BASE?

A. Rate Base is the total value of all of the used and useful facilities and property of KAW. In large part, this represents the costs that KAW has had to incur to provide facilities to withdraw, treat, and deliver potable water. It is funded partially through investment by shareholders and partially from borrowing money. The cost of all construction is assigned to an account of UPIS, which is the fundamental basis of Rate Base. Additions and deductions from that account occur regularly. Additions include construction costs ongoing at the time of the rate case, materials and supplies, deferred maintenance, deferred debits and working capital. Deductions include accumulated depreciation, deferred taxes, customers' advances, facilities paid for by others, and other rate base elements. The details of these are described below. Establishing the level of Rate Base is important because this measurement determines the amount of investment on which the company may earn a return.

Q. HAS THE COMPANY CHANGED THE METHODOLOGY IN CALCULATING REQUESTED RATE BASE FROM THE APPROACH ADVOCATED IN ITS LAST CASE?

A. No. The Company utilized a thirteen month average rate base calculation for most of the items shown on Schedule B-1. Many of the rate base elements shown on this schedule, including UPIS, accumulated depreciation, customer advances, etc. were analyzed from actual per books data as of September 30, 2012. Using data and projections for each of the rate base elements, the Company developed a 13-month average for the forecasted test period ending July 31, 2014. Shown on Schedule B-1, page 1 of 2 is the rate base for the base year totaling $373,897,185. On Schedule B-2, page 2 of 2, the Company has further reflected its requested rate base for the forecasted year of $385,994,705.

Q. PLEASE DESCRIBE THE UPIS COMPONENT THAT IS INCLUDED IN THE RATE BASE.

A. UPIS includes the original cost of all land, land rights, easements, structures and improvements, together with equipment in service at September 30, 2012. The Utility Plant balance was calculated through July 31, 2014, by adding net additions and retirements through the end of the forecasted test period. The 13 month average of the Utility Plant balances from August 1, 2013 through July 31, 2014 was calculated to arrive at the utility plant balance for the forecasted test period. The monthly in-service additions and monthly retirements which support these balances have been calculated by project and/or account. The total UPIS in the forecasted year is $627,540,378. These additions and retirements are addressed in greater detail in Mr. Lance Williams' testimony.

Q. PLEASE DESCRIBE THE CONSTRUCTION WORK IN PROGRESS ("CWIP") INCLUDED IN THE RATE BASE.

A. Certainly. This amount, shown in Schedule B-4, is the September 2012 actual balance adjusted for construction expenditures and transfers to utility plant that occur through the forecasted test year. The 13-month average CWIP is determined by totaling the monthly balances for August 1, 2013 to July 31, 2014 and dividing by 13 months. The CWIP balance in the forecasted test year is $6,851,268

Q. WHAT IS WORKING CAPITAL AS A RATE BASE ADJUSTMENT?

A. Working capital is included in a utility's rate base to recognize the cost of funding the lag between the time utility service is rendered to the customer and the time it takes to collect revenues from the customer to pay for that service. In other words, investors had to provide "upfront" capital to fund the daily operations of the business before customers pay their bills. The working capital calculation can also properly reflect the impact of the delay in receiving revenues from customers and the disbursement of cash for expenses.

Q. WHAT LEVEL OF WORKING CAPITAL DID THE COMPANY INCLUDE IN ITS REQUESTED RATE BASE?

A. The calculated base year working capital is $2,700,000. The Company is requesting working capital of $3,946,000. This amount was determined in a manner consistent with working capital in the previous case, and is reflected on Schedule B-5. The change is based on the increase in Total Operating Funds and an increase in the net interval between Date Service Furnished and the Date Expenses are incurred from the Lead/Lag Study. Materials and Supplies are calculated based on an average of the thirteen month ending balance for the forecasted test year ending July 31, 2014 at $727,081.

Q. IS KAW UTILIZING A LEAD-LAG STUDY IN THIS CASE?

A. Yes. The Company is utilizing a Lead/Lag Study that was performed based on historical data for the twelve months ending June 30, 2012. The Lead/Lag Study will be discussed below.

Q. HOW WAS THE LEVEL OF LEAD/LAG WORKING CASH REQUIREMENT DETERMINED?

A. The determination of the amount of lead/lag working cash for a specific item is a complex calculation. The daily Lead/Lag Factor is calculated by starting with Revenue Lag Days, subtracting Expense Lag Days and Check Clear Time Days for each expense category to arrive at the Net Lag Days. These Net Lag Days are divided by 365 (number of days per year) to arrive at the Lead/Lag Factor. This Lead/Lag Factor is then multiplied by the annual amount of forecasted test year expenses per expense category.

Q. WHAT IS THE LEVEL OF ACCUMULATED DEPRECIATION IN THIS CASE?

A. The accumulated depreciation balance begins with the actual balance as of September 30, 2012. This base year balance excludes the accumulated depreciation of the AFUDC regulatory asset, and is reduced by the accumulated cost of removal. Accumulated depreciation and accumulated cost of removal was then calculated through the end of the forecasted test period utilizing current depreciation rates from the 2010 Depreciation Study.

Additional monthly adjustments were made to the accumulated depreciation to account for plant retirements, salvage credits and the cost of removals. Under utility plant accounting, when an asset is retired, the UPIS is reduced by the original cost of the asset and the accumulated depreciation account is reduced by an equal amount. When scrap value is obtained from retired plant, the salvage amount is added to the depreciation liability. The cost of removal is based on an average of the past two years by month.

The forecasted test year accumulated depreciation was then calculated by averaging the month end accumulated depreciation balances from August 1, 2013 to July 31, 2014. Depreciation is calculated at $136,601,885.

Q. WERE THERE ANY DEPRECIATION RATES THAT VARIED FROM THE 2010 DEPRECIATION STUDY?

A. Yes. As mentioned previously, the proposed implementation of the BT project represents a significant capital investment. While AWW has previously invested in other business software systems, they have either come with significant individual programming or implemented on a much smaller scale. KAW does not believe that the current utility plant accounts adequately represent the type of investment or expected service life. Therefore, the investment has been allocated to utility plant account 340315 and KAW proposes to change the assigned depreciation rate of 20% to 10%. This assumes a 10-year life of the system. Considering the current systems are 12 and 15 years old, but so antiquated they are very inefficient, this is an appropriate rate.

Q. WHAT LEVEL OF ACCUMULATED DEFERRED INCOME TAX DID THE COMPANY DEDUCT FROM RATE BASE?

A. The Company deducted $57,007,044 of accumulated deferred income taxes in arriving at its rate base requested in this case. This is detailed in Mr. Scott Rungren's testimony.

Q. WHAT ARE THE OTHER COMPONENTS OF RATE BASE?

<u>Customer Advances</u>

Customer Advances are a reduction to rate base to recognize money collected for new mains that are held in an account and refunded to the original customer as new customers tap onto a main. This allows KAW to avoid the risk of investing in speculative developments by having a developer pay the initial investment upfront. But then it recognizes the benefit of the investment based on a new customer by refunding a portion of the amount by contract for each bona fide new customer KAW receives. The forecasted test year customer advances balance is based on an average of the thirteen-month end balances from August 2013, through July 2014. The balance is $13,997,843.

Contribution in Aid of Construction

This item is a reduction in rate base that recognizes the value of mains, meters, services or hydrants that are paid for by a third party and thus are not an investment by KAW, but fully owned and maintained by the Company. An example would be a portion of main paid for by a developer that is not eligible for refunds under the contract, or a portion of main that was relocated to accommodate road alignment changes and the relocation was funded by the Kentucky Transportation Cabinet or a local municipality.

The Company's forecasted CIAC balance includes the impact of the Company's proposed revision to the tap fee tariff. The revised tap fee tariff is found under Exhibit 2 of the Company's filing.

The revised tap fee tariff indicates the Company will collect from homebuilders or developers $1,078 for residential service with a 5/8" meter, $1,576 for 1" service, and $3,563 for 2" service. The tap fee for services over 2" is based on the actual cost of installation. The calculation of the proposed revision to the tap fee tariff is discussed in Mr. Williams' testimony.

CIAC balances are calculated by adjusting the prior months' account balances for activity related to contributions received, and CIAC amortizations. The forecasted test year

CIAC balance is then is calculated as an average of the thirteen month end balance for the forecasted test year ending July 31, 2014. The balance is $52,238,690.

Unamortized Investment Tax Credit

This item is calculated as an average of the thirteen month end balance of unamortized investment tax credit at the end of the forecasted test year July 31, 2014. This calculation is similar to previous rate cases. The amount in the forecasted test year is $55,276.

Deferred Maintenance

This item is calculated as an average of the thirteen month of deferred maintenance projects based upon both actual projects deferred and projects forecasted to be deferred. These projects include the repainting and repairs of system water storage tanks, and other major repairs as shown in the workpapers that support Schedule B. New deferred maintenance items include six new tank paintings while other items have completed amortizations. These types of deferred maintenance expenses have been afforded rate base treatment by the Commission in past proceedings. Based upon these actual expenditures and the forecasted expenditures for 2013 through July 2014, as adjusted for amortizations, the Company has developed a 13-month average of these deferred maintenance items totaling $4,644,233.

Deferred Debits

The Company is requesting a rate base addition of $1,536,404 for deferred debit items. These amounts are offset by their applicable deferred taxes. The Company developed its 13-month average addition to rate base items for deferred and recognized in prior cases by the Commission.

Other Rate Base Elements

In Case No. 2004-00103, the Commission reduced rate base for Contract Retentions, Unclaimed Extension Deposit Refunds, Retirement Work in Progress, Deferred Compensation and Accrued Pension. The Company has calculated a rate base increase of $650,081 for these items consistent with the Commission's Order in Case No. 2004-00103.

WATER EFFICIENCY TRENDS

Q. HAS KAW MOVED AWAY FROM THE WEATHER NORMALIZATION ANALYSIS THAT WAS UTILIZED IN PREVIOUS RATE CASES?

A. Yes. KAW has worked with the AWWSC staff on analysis and trends in overall water usage beyond what may be an impact from weather alone. AWWSC staff has been analyzing water usage patterns in many of the jurisdictions it serves as part of a company wide effort because those trends impact both our short-term and long-term business approach. The KAW analysis reviewed water usage trends by KAW's residential, commercial and "other public authority" (OPA) customers. A significant and continuing trend of water efficiency by these customers has been experienced by KAWC, and I will discuss the magnitude and causes of this change in consumption patterns. Specifically, the analysis has shown that there is a continuing annual decline of 780 gallons per residential customer per year, or approximately 2.1 gallons per residential customer per day (gpcd); a decline of 7,584 gallons per commercial customer per year, or approximately 20.8 gallons per commercial customer per day; and a decline of 49,344 gallons per "other public authority" customer per year, or approximately 135.2 gallons per OPA customer per day. This relates to approximate annual rates of decline of 1.43%, 1.80%, and 1.85% per year respectively at present customer usage levels. Later in my testimony, I will describe in detail the methodology used in the analysis.

Q. WHAT ARE THE CAUSES OF THIS WATER EFFICIENCY TREND?

A. The pattern of declining usage per customer is attributed to several key factors, including but not limited to: increasing prevalence of low flow (water efficient) plumbing fixtures within residential households and commercial establishments, conservation ethic of the customers, conservation programs implemented by the utility or other entities, and price elasticity.

Q. PLEASE EXPLAIN WHAT YOU MEAN BY THE "PREVALENCE OF LOW FLOW FIXTURES AND APPLIANCES."

A. Plumbing fixtures such as toilets, showerheads, and faucets are more water efficient today than they were in the past, with newer and more efficient models coming out continuously. Similarly, appliances such as dishwashers and washing machines are also more water efficient. Very simply, when a customer replaces an older toilet, washing machine, or dishwasher, the new unit will use less water than the one it replaced. New homes will have water efficient fixtures. Similarly, if a customer remodels an older kitchen, bathroom or laundry room, he or she will use less water in the future.

Q. HOW MUCH WATER DO THE NEW FIXTURES AND APPLIANCES SAVE?

A. The Energy Policy and Conservation Act of 1992 mandated the manufacture of water efficient toilets, showerheads and faucet fixtures. For example, a toilet manufactured after 1994 uses 1.6 gallons per flush, compared to a pre-1994 toilet which uses 3.5 to 7 gallons per flush. In fact, toilets using 1.28 gallons or less per flush are now becoming more prevalent in the marketplace. That is a savings of 2 to nearly 6 gallons for every flush for every toilet that is replaced with a more efficient model. USEPA has estimated that there are over 220 million toilets in the U.S.[1], and that 10 million new toilets are sold each year for installation in new homes and businesses, or replacement of aging fixtures in existing homes and businesses.[2] But how much each fixture will save depends on the type of fixture purchased and the type of fixture being replaced.

A recently enacted law will impact indoor water usage further, and could perpetuate and further accelerate the downward trend. The Energy Independence & Security Act of 2007 (Public Law 110–140) has established high efficiency standards for dishwashers and clothes washers. Dishwashers manufactured after 2009 and clothes washers manufactured after 2010 must meet water usage requirements that could reduce water used by these appliances by 54% and 30%, respectively. Overall, with all other factors being equal, a typical residential household in a new home constructed in 2012 would use 35% less water for indoor purposes than a non-retrofitted home built prior to 1994. In addition, recent water efficiency standards on pre-rinse spray valves will result in significant savings for restaurants, which are classified within the commercial customer class.

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[1] US EPA, WaterSense Tank-Type High-Efficiency Toilet Specification Supporting Statement, February 9, 2007.

[2] D&R International, Plumbing Fixtures Market Overview: Water Savings Potential for Residential and Commercial Toilet and Urinals, September 30, 2005.

Exhibit LB-2 attached to my testimony contains more details on the requirements of the laws, and the typical expected impact on residential water usage. Because how each homeowner uses their appliances impacts the amount of water efficiency as much as the appliances themselves, it is difficult to quantify exact water savings per household, per person or per appliance. But the trends are obvious that water efficiency is being realized throughout the country.

Q. WOULD YOU PLEASE ELABORATE ON OTHER FACTORS CAUSING THE DECLINES IN RESIDENTIAL, COMMERCIAL AND OTHER PUBLIC AUTHORITY WATER CONSUMPTION?

A. Certainly. Customer awareness and interest in the benefits of conserving water and energy continues to increase. As awareness of water and energy efficiency increases, customers may decide to replace a fixture or appliance even before it has broken. Or when an appliance is being replaced, customers may opt for appliances that are even more efficient but higher priced. Also, customers may further reduce consumption by changing their household water use habits in other various ways. As discussed above, KAWC's residential customers are reducing their base usage by 2.1 gallons per customer per day. A 2.1 gallon per day decrease can be achieved by subtle changes in individual customer behavior. For instance, here are some ways a customer can reduce their water use by about 2.1 gallons per day:

- A shorter shower by 1 minute
- One flush per day with a newer low-flow toilet fixture vs. an older toilet
- Running the dishwasher 5 times per week instead of 7
- Turning off the water for 1 minute while brushing your teeth

In addition, there is some elasticity to price that will contribute to a reduction in usage as water or sewer rates increase.

Q. PLEASE DESCRIBE THE ANALYSIS METHODOLOGY.

A. An analysis of monthly customer consumption by KAWC's residential and OPA customers during winter months over the past ten years was undertaken. Specifically, monthly water sales recorded in December through April for each of the last ten years was reviewed. In each customer class, an analysis of five years was also conducted to determine if trends were more statistically significant in shorter or longer timeframes.

Q. WHY DID KAW FOCUS ON WINTER CONSUMPTION?

A. By studying winter consumption, we have attempted to isolate base, non-discretionary usage. In a climate such as Kentucky's, outdoor usage by residential customers is seasonal. Outdoor usage during the summer season includes discretionary usage such as lawn and landscape irrigation, car washing, filling swimming pools, etc. There is some weather related discretionary usage during winter months, but outdoor usage is very low during the winter months. Therefore, studying usage in the winter months helps us see the underlying trends in indoor (or "base") usage, which are largely independent of discretionary usage in these months.

Q. PLEASE CONTINUE DESCRIBING YOUR ANALYSIS METHODOLOGY.

A. In order to calculate the usage per customer trend, a four-step calculation was performed for each customer category. I have attached graphs of the calculations described below. These graphs are attached as Exhibit LB – 3a, 3b and 3c. The four steps are:

1) Monthly water sales data were recorded and divided by the number of customers to yield the average usage per customer. For graphing purposes, the time

variable in months was plotted on the x-axis, and the consumption per customer variable was plotted on the y-axis. (Note that water sales data lag actual consumption by approximately one month for customers on a monthly meter reading cycle).

2) Winter consumption, expressed in gallons per customer per month, was calculated for each year from 2003 through 2012 for residential and OPA customers, and 2008 through 2012 for commercial customers. For each year, a single point, representing the average monthly usage for that winter was plotted. (Note: For purposes of this discussion, the term “winter” is used to describe sales recorded for the months of December through April, as this represents a period of the year generally not influenced by outdoor usage).

3) A “best-fit” linear regression trend line was created using the 10 year winter usage per residential and OPA customer history and the 5 year winter usage per commercial customer history.

4) In order to apply the trend in “base” usage to the full year usage by customers, that portion of consumption which is constant throughout the year was calculated (and therefore is considered to be baseline indoor usage) vs. the amount of increased usage that occurs during the discretionary summer usage period. This is done by calculating the daily usage per customer during winter months vs. the daily usage per customer for the entire year. This correlation was studied as available for the years 2002-2011. The details of the calculations and the results are found on Exhibit LB-4a, 4b and 4c attached to my testimony. For example, the results show that 90.5% of residential usage is considered base usage. The 10 year average non base usage was added to the base use trend to yield the total trend. The winter trend was then applied to the full year consumption.

Q. EXPLAIN HOW THE ANALYSIS PRODUCES A RESULT THAT IS "WEATHER NEUTRAL."

A. It is well known that water usage will vary during the summer months based on weather conditions. Customers use more water for outdoor purposes such as lawn irrigation during hot, dry summers than they do during cool, wet summers. As described in step #4 above, we add the average non-base (i.e., outdoor) usage from ten years of history to our projected base (indoor) use. In other words, KAW is demonstrating that a distinct and continuing declining trend is happening in base, indoor use for the reasons I have described previously. Summer usage will vary year to year based on summer weather patterns, and our ten year average represents the "most likely" outcome in a given year. In this way, we achieve a forecast of residential, commercial and OPA usage that is weather neutral.

Q. WHAT ARE THE RESULTS OF YOUR ANALYSIS?

A. As mentioned above, the analysis shows that residential usage per customer is declining at a rate of 780 gallons per customer per year, or 2.1 gallons per customer per day (gpcd); that the commercial usage per customer is declining at a rate of 7,584 gallons per customer per year, or 20.8 gallons per customer per day (gpcd) and that the other public authority usage per customer is declining at a rate of 49,344 gallons per customer per year, or 135.2 gallons per customer per day (gpcd).

Q. HAS AMERICAN WATER STUDIED WATER CONSUMPTION TRENDS FOR OTHER AMERICAN WATER SUBSIDIARIES BESIDES KAW?

A. Yes. AWWSC has studied the residential consumption patterns for other American Water state operating systems and it has become clear that the trend exhibited by KAW customers is very similar to the trends being experienced in other states. The results are shown on Exhibit LB-5, and show a consistent trend across a number of states spanning a wide range of geographic and demographic characteristics. This Exhibit shows that other American Water states have experienced a decline in residential usage per customer averaging 1.52% per year over the last 10 years.

Q. IS THIS TREND HAPPENING ACROSS THE INDUSTRY BEYOND KAW AND OTHER AMERICAN WATER COMPANIES?

A. Yes. According to the 2010 Water Research Foundation (WRF) report, "many water utilities across the United States and elsewhere are experiencing declining water sales among households."[3] (WRF Report, p. 1) The report further states: "A pervasive decline in household consumption has been determined at the national and regional levels." (WRF Report, p. xxviii).

Q. DO YOU EXPECT THE DECLINING USAGE TREND TO CONTINUE IN THE FUTURE?

A. Yes. It is clear that water efficient fixtures and conservation actions by utilities and customers will continue to drive further efficiency into usage per customer. In fact, the trend could accelerate. According to the 2010 American Housing Survey, 75% of homes in the Lexington-Fayette urban county area were built prior to 1994.[4] These homes were constructed with toilets, washing machines, and dishwashers that are more water-intensive than newer fixtures and appliances now on the market. Water usage declines when a resident changes from an older, less efficient fixture, to a new, efficient fixture.

[3] Coomes, Paul et al., North America Residential Water Usage trends since 1992 – Project # 4031. (Water Research Foundation, 2010). (Hereinafter referred to as the "WRF Report").
[4] U.S. Census Bureau, 2010 American Community Survey 5-Year Estimates, http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_10_5YR_DP04&prodType=table

This occurs (1) when a resident remodels his or her existing bathroom, kitchen or laundry, replacing older fixtures and appliances with new, water-efficient ones; and (2) as new homes and businesses that include water-efficient fixtures and appliances are built. As discussed, a new toilet will use 1.6 (or 1.28) gallons per flush, compared to 3.5 to 7.0 gallons per flush for a pre-1994 toilet. As turnover of household fixtures and appliances continues to occur over time, residential, commercial and OPA usage per customer will continue to decline accordingly.

The regulations mandating washing machines and dishwashers that are more energy and water efficient are relatively new. Given the life expectancy of appliances, it is likely that the replacement of existing appliances, and the corresponding reduction in water used, will continue to occur over time for the next fifteen years or more.

Q. WHY WAS TEN YEARS OF DATA USED FOR THE RESIDENTIAL AND OTHER PUBLIC AUTHORITY CUSTOMER ANALYSIS AND FIVE YEARS OF DATA USED FOR THE COMMERCIAL CUSTOMER ANALYSIS?

A. We utilized a period of time that best matches the best statistical fit of the trend for the analysis. For residential and OPA customers, ten years of historic data both were statistically better fit trends than the five year analysis. For commercial customers, the five year trend was a better statistical fit. This may reflect that commercial customers react more quickly, particularly in the recent economic situation, to opportunities for cost savings through efficiencies.

Q. IN ADDITION TO THE EXTERNAL FACTORS IMPACTING USAGE, ARE THERE INITIATIVES KAW IS UNDERTAKING THAT IMPACT THE WATER USAGE TRENDS AND PROMOTE WATER EFFICIENCY?

A. Yes. KAW has taken numerous steps to promote customer conservation activities. These initiatives include customer education literature, radio, television and billboard advertising, and information provided at workshops, community events, and speaking engagements. KAW also provides information on its website regarding wise water use and conservation and has information on how customers can obtain a leak detection kit. KAW has continued to perform outreach for developing partnerships for additional conservation programs over the last few years, see Exhibit LB-6.

Q. ARE THERE BENEFITS FROM REDUCED WATER USAGE BY RESIDENTIAL, COMMERCIAL AND OPA CUSTOMERS?

A. Yes. There are environmental and operational benefits from lower water usage by residential, commercial and OPA customers. Reduced usage helps maintain source water supplies or may prolong the periods between the needs for capacity and source water expansions due to growth. Reductions in the growth of power consumption, chemical usage, and waste disposal not only reduce water utility operating costs but also provide environmental benefits such as overall reduced carbon footprint and waste streams. Furthermore, reduced water usage by customers also reduces energy consumption within the customer's property, for instance, through lower hot water heating needs.

Q. HAS KAW FACTORED THIS ONGOING DECLINE IN USAGE PER CUSTOMER INTO ITS DEMAND MODELING AND WATER SUPPLY AND TREATMENT PLANT CAPACITY PLANNING?

A. Yes. The phenomenon of declining use has been a part of KAW's demand model for years and was specifically a part of the demand modeling that was the basis for the projections that proved the necessity of KAW's Kentucky River Station II project which was approved by the Commission in Case No. 2007-00134. KAW has used its demand model for over 20 years and the model specifically incorporates the effects of water efficiency and price elasticity. In Case No. 93-434, the Commission found that "Kentucky-American has used reputable sources for data and nationally accepted methodologies in developing its demand projections. Over the years, Kentucky-American has made numerous revisions to its methodology for projecting water demand resulting in a state of the art, dynamic process."[5] The output of the demand model has formed the basis for KAW's source of supply and capacity planning for years, and is consistent with the water efficiency trend I have described here. It is important to recognize that capacity planning also considers peak day capacity, and supply constraints such as safe yield in a drought and passing flow requirements.

Q. DO THE WATER EFFICIENCY TRENDS YOU HAVE DESCRIBED HAVE ANY EFFECT OF THE NEED FOR KENTUCKY RIVER STATION II?

A. Absolutely not. As discussed above, the phenomenon of declining use was a part of the demand modeling that proved the necessity of Kentucky River Station II. That modeling included all of the factors that are related to declining use (such as water efficiency and price elasticity) in its demand forecast model. As I testified at the hearing in Case No.

[5] PSC Order, Case No. 93-434, March 14, 1995, pp.4-5.

2012-0096, recent updates to that model show that the current increased water efficiency trends will offset increased projections in population growth that have also occurred since the plant was originally designed. As demonstrated as recently as the summer of 2012 when KAW utilized 72.8% of its water treatment capacity including Kentucky River Station II, the plant was and is necessary for KAW to meet the reasonable demands of its customers.

Q. HAS KAW FACTORED THE OBSERVED TREND IN RESIDENTIAL CUSTOMER USAGE INTO ITS REQUESTED REVENUE REQUIREMENT IN THIS CASE?

A. Yes. The development of KAW's requested revenue requirement, including the adjustment to base year data to reflect the observed trend in residential customer usage, is a part of the requested revenue requirement.

<u>Tariffs</u>

Q. OTHER THAN THE CHANGES TO METERED TARIFFS, WHAT NEW TARIFFS OR ADJUSTMENTS TO EXISTING TARIFFS IS THE COMPANY PROPOSING?

A. As I mentioned previously, KAW is proposing a revision to its tap fee as supported in Mr. Williams' testimony. KAW is also proposing a revision to its Activation Fee and Reconnection Fee, and is proposing to eliminate its After Hours Activation Fee and After Hours Reconnection Fee.

KAW is proposing a Distribution System Infrastructure Charge tariff and Purchased Power and Chemicals tracker tariff, both supported in Mr. VerDouw's testimony. KAW is proposing minor changes to the index sheets as appropriate, and text changes to revise the returned check fee to an insufficient funds fee for either paper checks or electronic fund transfers. The proposed tariffs are included in Exhibit 2 of the filing.

Q. IS KAW PROPOSING TO INCLUDE CUSTOMER SERVICE CLASSIFICATION DEFINITIONS IN ITS TARFF?

A. Yes, in addition to the changes discussed above, KAW is proposing language for customer service classifications to be included in its tariff. Currently, KAW's tariff does not include definitions for each customer class. KAW has therefore proposed language that clearly defines each service classification so that customers can more easily determine which service is applicable to their usage. As with the other proposed tariff changes, these changes are included in Exhibit 2 of the filing.

Q. WHY HAS KAW PROPOSED INTENTIONALLY BLANK TARIFF SHEETS?

A. There are four tariff sheets that were related to service areas that KAW had previously acquired and the tariffs were discontinued in Case No. 2007-00143. Those sheets, 50.1, 50.2, 50.3 and 58.5 have been revised in this filing to be intentionally blank for future use. Occasionally, KAW will get questions regarding those tariff sheets from either customers who have looked up the tariffs electronically or even from our own employees, and are confused because the tariffs are still included, even though the approved tariff sheet shows them as discontinued. This is an effort by KAW to eliminate confusion and help clean up at least that portion of its tariffs.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.

VERIFICATION

COMMONWEALTH OF KENTUCKY)
) **SS:**
COUNTY OF FAYETTE)

The undersigned, **Linda C. Bridwell,** being duly sworn, deposes and says she is the Manager of Rates and Regulation for Kentucky-American Water Company, that she has personal knowledge of the matters set forth in the foregoing testimony, and the answers contained therein are true and correct to the best of her information, knowledge, and belief.

Linda C. Bridwell
LINDA C. BRIDWELL

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 17th day of December, 2012.

Peggy A. Slone (SEAL)
Notary Public

My Commission Expires:

10/3/2016

Kentucky American Water
Case No. 2012-00520
Customer Call Handling and Average Call Handling Time

Co. #	Company Name	2012 Actual Customer Call Handling & Average Handling Time Jan Percentage of total	Feb Percentage of total	Mar Percentage of total	Apr Percentage of total	May Percentage of total	2012 Actual Average - Jan - May	2013 Budgeted Recast - based on 2012 Budgeted Recast	Customer Count Allocation
5	California-American	4.67%	4.44%	4.26%	4.52%	4.42%	4.46%	4.69013%	5.42%
9	Illinois-American	9.42%	9.53%	9.22%	9.60%	9.33%	9.42%	9.86349%	9.59%
10	Indiana-American	10.37%	10.48%	10.86%	10.91%	11.01%	10.73%	10.85413%	8.91%
11	Iowa-American	1.78%	1.66%	1.83%	2.11%	2.10%	1.90%	1.92315%	1.91%
12	Kentucky-American	5.88%	5.95%	5.52%	5.80%	5.91%	5.81%	6.10550%	3.79%
13	Maryland-American	0.54%	0.51%	0.46%	0.75%	0.67%	0.59%	0.66722%	0.15%
16	Michigan-American		0.00%	0.00%	0.00%	0.00%	0.00%	0.00000%	0.00%
17	Missouri-American	10.15%	9.63%	10.19%	10.62%	10.43%	10.20%	10.51996%	14.19%
18	New Jersey-American	13.25%	14.25%	14.58%	15.17%	14.83%	14.42%	15.10850%	20.22%
19	New Mexico-American	1.18%	1.17%	1.16%	0.00%	0.00%	0.70%	0.00000%	0.00%
22	Ohio-American	2.38%	2.30%	2.33%	2.65%	0.00%	1.93%	0.00000%	0.00%
23	Arizona-American	4.01%	4.10%	4.31%	0.00%	0.00%	2.48%	0.00000%	0.00%
24	Pennsylvania-American	18.27%	18.19%	17.52%	18.17%	20.67%	18.56%	20.83386%	20.47%
26	Tennessee-American	4.29%	4.14%	4.31%	4.49%	4.45%	4.34%	4.27953%	2.35%
27	Virginia-American	2.18%	2.15%	2.16%	2.66%	2.52%	2.33%	2.55587%	1.81%
28	West Virginia-American	8.05%	7.89%	7.83%	8.44%	7.68%	7.98%	8.22339%	5.37%
30	Hawaii-American	0.52%	0.54%	0.46%	0.73%	0.60%	0.57%	0.64759%	0.31%
31	AW Products & Services Grp	0.64%	0.64%	0.64%	0.64%	2.80%	1.07%	1.07000%	0.68%
38	Long Island Water/New York	1.53%	1.54%	1.47%	1.85%	1.69%	1.62%	1.76616%	3.88%
	Edison Water Company	0.36%	0.36%	0.36%	0.36%	0.36%	0.36%	0.36000%	0.38%
55	Liberty Water Company	0.53%	0.53%	0.53%	0.53%	0.53%	0.53%	0.53200%	0.57%
56	Etown Service LLC				0.00%	0.00%	0.00%	0.00000%	0.00%
							100.00%	100.0005%	100.00%

Exhibit LB-2

The following regulations are listed in the "*Energy Independence & Security Act of 2007,*" Public Law 110–140 – Dec. 19, 2007:

1. A top-loading or front-loading standard-size residential clothes washers manufactured on or after January 1, 2011 shall have a water factor of not more than 9.5. (water factor is equal to gallons/cycle/cubic feet)

2. Dishwashers manufactured on or after January 1, 2010, shall—
   a. for standard size dishwashers (≥ 8 place settings + six serving pieces) not exceed **6.5 gallon per cycle**; and
   b. for compact size dishwashers (< 8 place settings + six serving pieces) not exceed **4.5 gallons per cycle**.

TABLE 1
Flow rates from typical fixtures and appliances before and after Federal Standards

Type of Use	Pre-Regulatory Flow*	New Standard (maximum)	Federal Standard	Year Effective	WaterSense / ENERGY STAR Current Specification+ (maximum)
Toilets	3.5 gpf	1.6 gpf	**U.S. Energy Policy Act**	1994	**1.28 gpf**
Clothes washers**	41 gpl (14.6 WF)	Estimated 26.6 gpl (9.5 WF)	**Energy Independence & Security Act of 2007**	2011	**Estimated 16.8 gpl (6.0 WF)**
Showers	2.75 gpm	2.5 gpm	**U.S. Energy Policy Act**	1994	**2.0 gpm**
Faucets***	2.75 gpm	2.5 gpm (1.5 gpm)	**U.S. Energy Policy Act**	1994	**1.5 gpm at 60 psi**
Dishwashers	14.0 gpc	6.5 gpc for standard; 4.5 gpc for compact	**Energy Independence & Security Act of 2007**	2010	**4.25 gpc for standard; 3.5 gpc for compact**
Commercial Pre Rinse Spray Valves	1.8 to 6 gpm	1.6 gpm	**U.S. Energy Policy Act of 2005**	2006	**Under development**

* Source: *Handbook of Water Use and Conservation*, Amy Vickers, May 2001
** Average estimated gallons per load and water factor (see calculations)
*** Regulation maximum of 2.5 gpm at 80 psi, but lavatory faucets available at 1.5 gpm maximum (see calculations)
+Source: http://www.epa.gov/watersense/ and http://www.energystar.gov websites

ABBREVIATIONS USED	
gpcd	gallons per capita per day
gpf	gallons per flush
gpl	gallons per load
gpm	gallons per minute
gpc	gallons per cycle
WF	water factor, or gallons per cycle per cubic feet capacity of the washer (the smaller the water factor, the more water efficient the clothes washer)

TABLE 2
Daily indoor per capita water use from various fixtures and appliances in a typical single family home before and after Federal Regulations

Type of Use	Pre-Regulatory Standards		Post-Regulatory Standards		Savings
	Amount** (gpcd)	Percent of Total	Amount** (gpcd)	Percent of Total	
Toilets	17.9	30.4%	8.2	21.4%	54%
Clothes washers*	15	25.5%	9.8	25.6%	30%
Showers	9.7	16.5%	8.8	23.0%	9%
Faucets	14.9	25.3%	10.8	28.2%	28%
Dishwashers*	1.4	2.4%	0.65	1.7%	54%
Total Indoor Water Use	**58.9**	**100%**	**38.3**	**100%**	**35%**
Note: List only includes common household fixtures and appliances and excludes leaks and "other domestic uses" in order to be conservative.					

*Regulatory Standards effective in 2010 and 2011. For calculations of amount in gpcd, refer to the calculation below.
**Source: *Handbook of Water Use and Conservation*, Amy Vickers, May 2001

CALCULATIONS

Clothes washer (pre-regulatory):

Number of times clothes washer used everyday *	= 0.37 loads per day
Clothes washer water use rate range *	= 39 gpl to 43 gpl
Average water use rate	= **41 gpl**
Water usage per capita	= 41 gpl * 0.37 loads/day
	= **15 gpcd**
Water factor (WF) as gallons/cycle/cu. ft	= 41 gpl / 2.8 cu. ft (assuming capacity of an average washer to be 2.8 cu. ft, most washers range between 2.7 – 2.9 cu. ft)
	= **14.6**

Clothes washer (new standard):

Number of times clothes washer used everyday *	= 0.37 loads per day
New regulatory standard	= **9.5 WF**
	= 9.5 gallons/per cycle/cubic feet
	= **26.6 gpl** (Assuming capacity of an average washer to be 2.8 cu. ft, most washers range between 2.7 – 2.9 cu. ft)
Therefore, new usage per capita	= 26.6 gpl * 0.37 loads/day
	= **9.8 gpcd**

Dishwasher:

Number of times dishwasher used everyday*	= 0.10 times
New regulatory standard	= **6.5 gallons/per cycle** (for standard dishwashers only)
Therefore, new usage per capita	= 6.5 gallons/per cycle * 0.1
	= **0.65 gpcd**

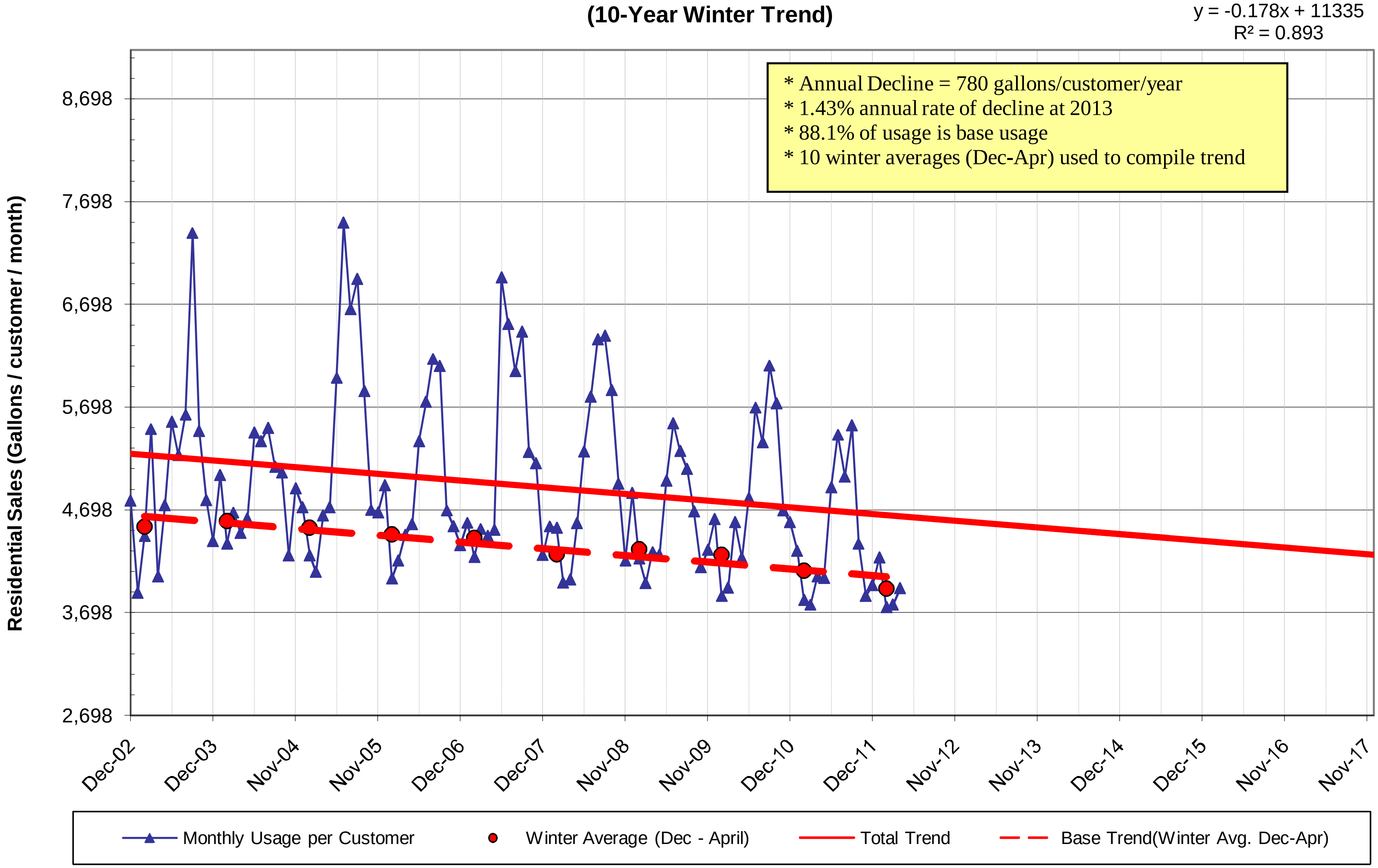
Faucet:

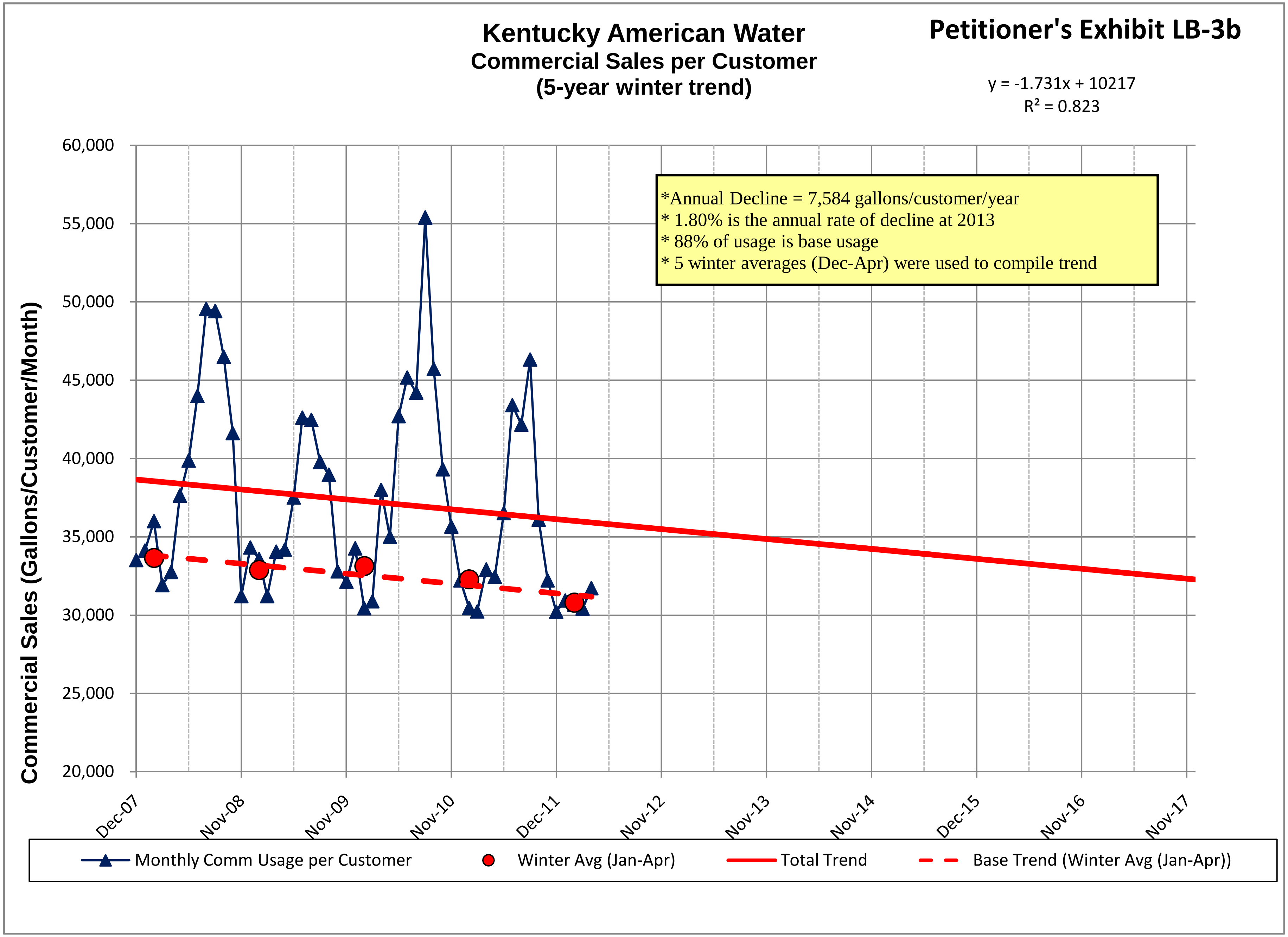
Actual faucet flow during use*	= 67% rated flow
Rated flow*	= **1.5 gpm** to **2.5 gpm**
Frequency of faucet use*	= 8.1 min/day
Range of usage per capita	= 8.1 gpcd to 13.5 gpcd
Assume average of range for estimated gpcd	= **10.8 gpcd**

*Source: *Handbook of Water Use and Conservation,* Amy Vickers, May, 2001

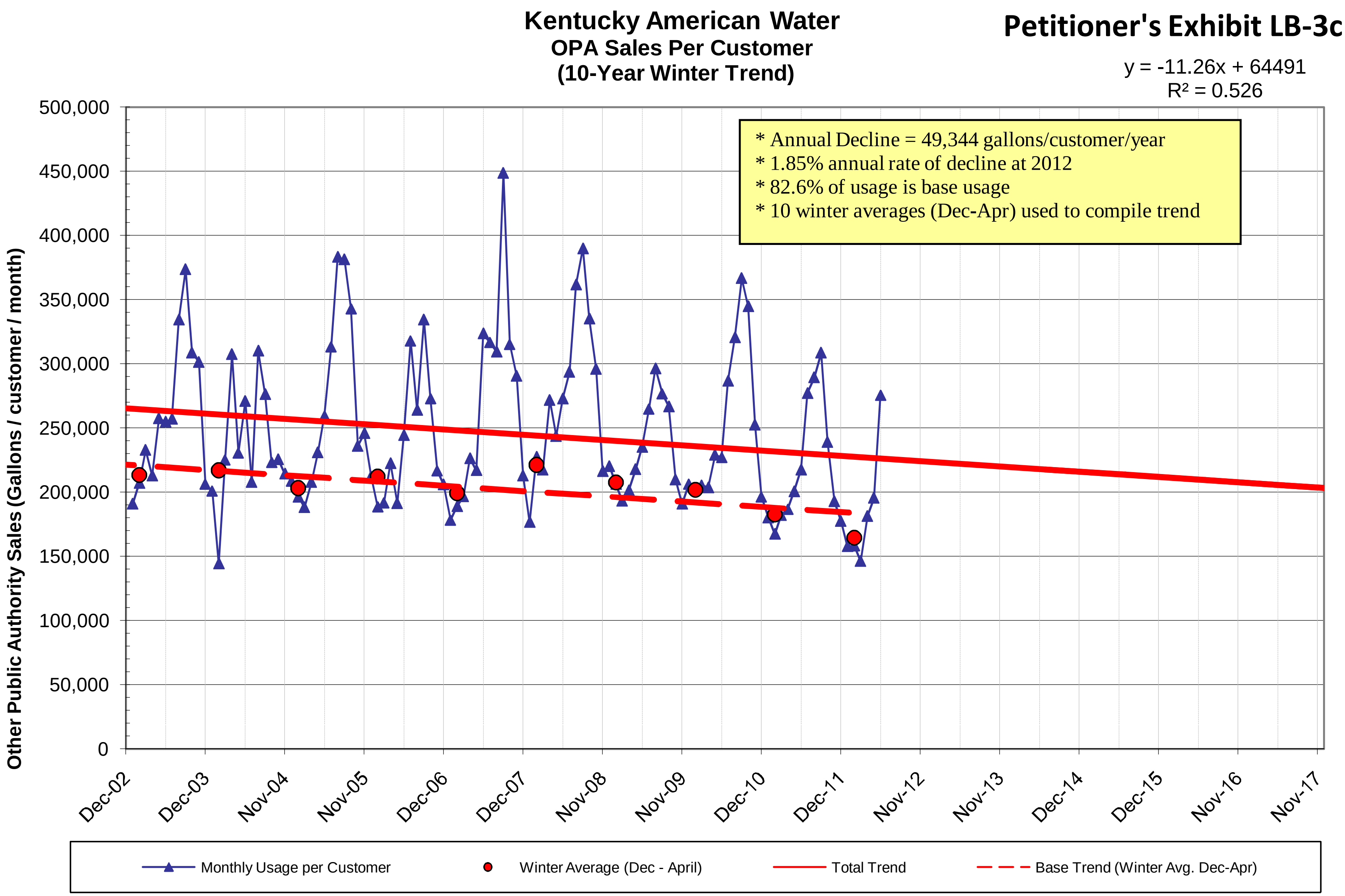
Kentucky American Water
Residential Sales Per Customer
(10-Year Winter Trend)

Petitioner's Exhibit LB-3a



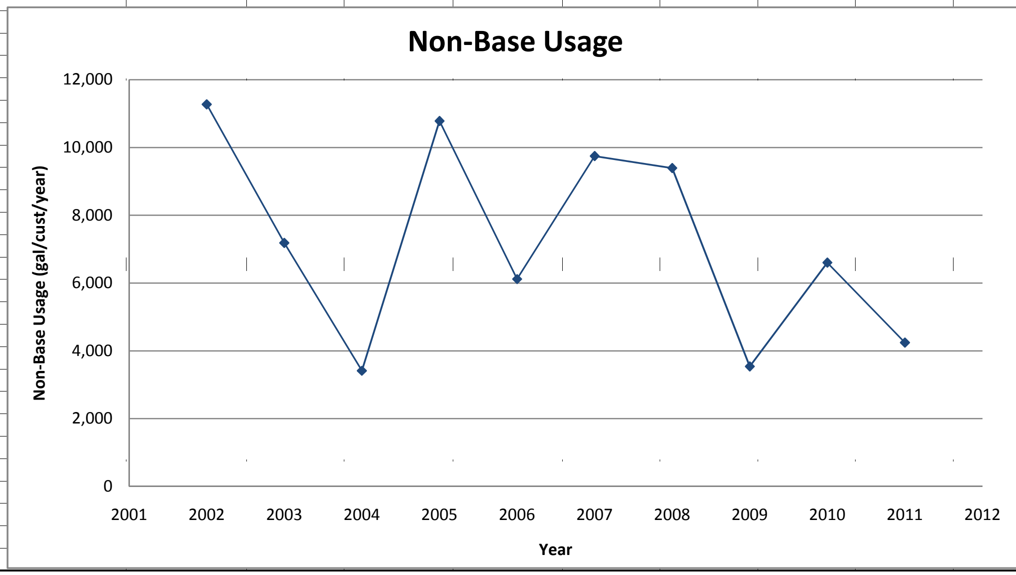

Kentucky American Water
Commercial Sales per Customer
(5-year winter trend)
Petitioner's Exhibit LB-3b
y = -1.731x + 10217
R² = 0.823
*Annual Decline = 7,584 gallons/customer/year
* 1.80% is the annual rate of decline at 2013
* 88% of usage is base usage
* 5 winter averages (Dec-Apr) were used to compile trend
Commercial Sales (Gallons/Customer/Month)
60,000
55,000
50,000
45,000
40,000
35,000
30,000
25,000
20,000
Dec-07
Nov-08
Nov-09
Nov-10
Dec-11
Nov-12
Nov-13
Nov-14
Dec-15
Nov-16
Nov-17
Monthly Comm Usage per Customer
Winter Avg (Jan-Apr)
Total Trend
Base Trend (Winter Avg (Jan-Apr))

Petitioner's Exhibit LB-3c



Petitioner's Exhibit LB-4a

Calculation of Percentage of Residential Usage that is Base Usage	Basis of Calc.	Unit	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	10-YR AVG
Kentucky														
Winter Residential Usage	Dec-Apr	KGAL	2,147,242	2,169,946	2,243,778	2,253,406	2,285,867	2,322,464	2,264,133	2,308,009	2,294,933	2,227,369	2,152,752	
Winter Residential Usage Per Day	Divide by 151 or 152	KGAL/DAY	14,220	14,371	14,762	14,923	15,138	15,381	14,896	15,285	15,198	14,751		
Annual Base Residential Usage	Multiply by 365 or 366	KGAL	5,190,353	5,245,234	5,402,781	5,446,975	5,525,440	5,613,903	5,451,794	5,578,962	5,547,355	5,384,038		
Total Annual Residential Usage	Dec - Nov		6,265,745	5,943,443	5,740,475	6,537,838	6,163,884	6,645,145	6,456,090	5,959,417	6,262,714	5,847,467		
Percent Base Residential Usage		%	82.8%	88.3%	94.1%	83.3%	89.6%	84.5%	84.4%	93.6%	88.6%	92.1%		88.1%
Annual Non-Base Residential Usage		KGAL	1,075,392	698,209	337,694	1,090,863	638,444	1,031,242	1,004,296	380,455	715,359	463,429		
Average Number of Customers	May - Nov		95,425	97,216	98,905	101,176	104,336	105,819	106,941	107,506	108,332	109,189		
Non-Base Usage	May - Nov	GAL/CUST/YR	11,269	7,182	3,414	10,782	6,119	9,745	9,391	3,539	6,603	4,244		7,229



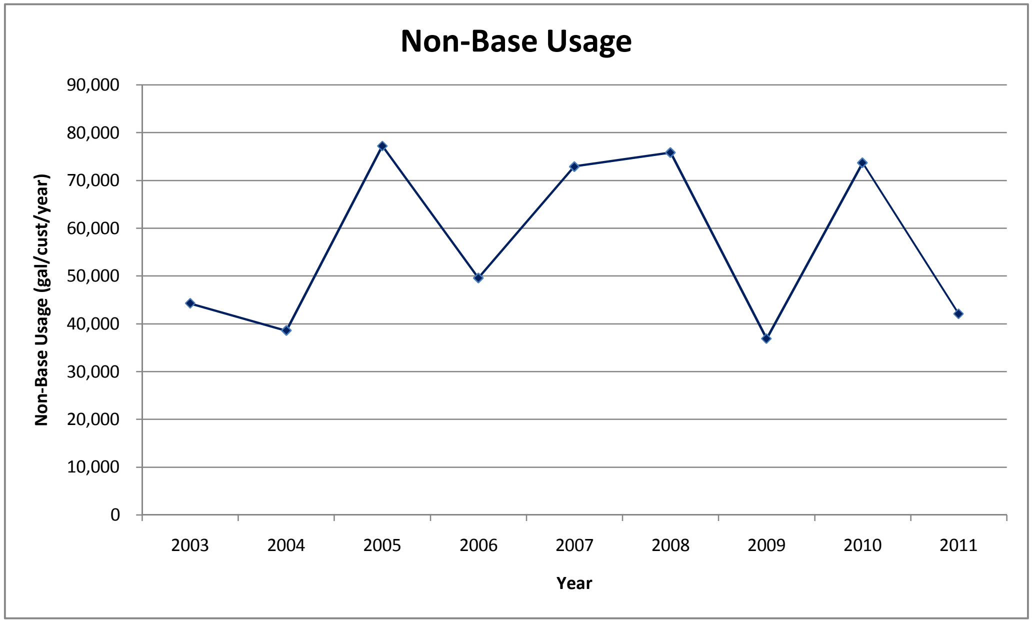
Calculation of Percentage of Commercial Usage that is Base Usage

Petitioner's Exhibit LB-4b

	Basis of Calc.	Unit	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	10-YR AVG
KENTUCKY													
Winter Commercial Usage*	Dec-Apr	KGAL	1,583,159	1,542,751	1,527,520	1,502,406	1,528,964	1,449,315	1,436,103	1,425,295	1,405,689	1,343,126	
Winter Commercial Usage Per Day	Divide by 151 or 152	KGAL/DAY	10,484	10,150	10,116	9,950	10,126	9,535	9,511	9,439	9,309	8,836	
Annual Base Commercial Usage	Multiply by 365 or 366	KGAL	3,826,841	3,714,782	3,692,350	3,631,644	3,695,840	3,489,798	3,471,375	3,445,250	3,397,858		
Total Annual Commercial Usage**	Dec-Nov	KGAL	4,189,987	4,030,602	4,331,416	4,055,726	4,326,534	4,154,834	3,795,906	4,082,414	3,767,272		
Percent Base Commercial Usage		%	91%	92%	85%	90%	85%	84%	91%	84%	90%		88.2%
Annual Non-Base Commercial Usage		KGAL	363,146	315,820	639,066	424,082	630,694	665,036	324,531	637,164	369,414		
Average Number of Customers	May - Nov		8,198	8,180	8,271	8,547	8,646	8,766	8,793	8,639	8,772		
Non-Base Usage	May - Nov	GAL/CUST/YR	44,297	38,609	77,266	49,619	72,950	75,865	36,907	73,752	42,115		56,820

** 2003 Winter usage is based on January to May (since 2002 data was unavailable)*

*** 2003 Total annual usage is based on January to December (since 2002 data was unavailable)*



Petitioner's Exhibit LB-4c

Calculation of Percentage of OPA Usage that is Base Usage

	Basis of Calc.	Unit	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	9-YR AVG
Kentucky													
Winter OPA Usage	Dec-Apr	KGAL	503,922	527,727	490,409	513,741	483,285	544,973	521,413	529,987	480,249	436,065	
Winter OPA Usage Per Day	Divide by 151 or 152	KGAL/DAY	3,337	3,472	3,248	3,402	3,201	3,585	3,453	3,510	3,180		
Annual Base OPA Usage	Multiply by 365 or 366	KGAL	1,218,090	1,270,711	1,185,426	1,241,824	1,168,205	1,312,238	1,260,369	1,281,094	1,160,867		
Total Annual OPA Usage	Dec - Nov		1,517,920	1,375,362	1,526,202	1,408,013	1,567,420	1,647,203	1,432,380	1,605,772	1,395,716		
Percent Base OPA Usage		%	80.2%	92.4%	77.7%	88.2%	74.5%	79.7%	88.0%	79.8%	83.2%		82.6%
Annual Non-Base OPA Usage		KGAL	299,830	104,651	340,776	166,189	399,215	334,965	172,011	324,678	234,849		
Average Number of Customers	May - Nov		486	486	482	486	488	502	515	531	530		
Non-Base Usage	May - Nov	GAL/CUST/YR	617,298	215,394	706,377	342,254	818,302	666,693	333,909	611,939	442,754		528,324

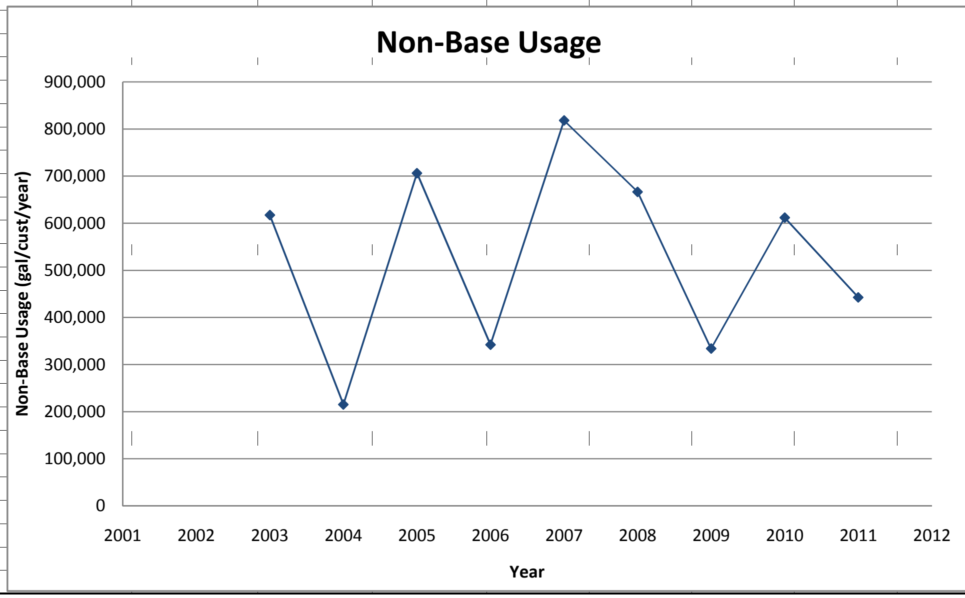


Exhibit LB - 5

Residential Usage Trends For American Water State Subsidiaries

Based on Winter Usage Trends except where noted below

State	Annual Decline (GPCY)*** 10-year (2003-2012)	Rate of Decline 2011-2012 (%)*** 10-year (2003-2012)
California*	-4,193	-3.14%
Illinois	-864	-1.48%
Indiana	-854	-1.54%
Iowa	-898	-1.75%
Kentucky	-780	-1.43%
Maryland**	-800	-1.55%
Missouri	-792	-0.97%
New Jersey (SA1)	-883	-1.17%
New Jersey (SA2)	-1,558	-1.89%
New York	-2,484	-2.64%
Pennsylvania	-720	-1.50%
Tennessee	-648	-1.32%
Virginia	-840	-1.46%
Michigan**	-627	-1.70%
Weighted Average	-1,102	-1.52%

Notes:

*California used the 12 Month Running Average Method for trending using a 10 yr (2002-2011) history.

**Maryland used the Annual Average method for trending due to data reliability issues (2002-2011).

*** NJ analyses are based upon 6 years of data.

WISE WATER USE REPORT

KENTUCKY AMERICAN WATER

Water supply for customers is secure.

With the completion of our newest water treatment plant in 2010, Central Kentucky customers will have access to ample water supply for at least the next 20 to 30 years.

Water supply for our customers can now be served from two different "pools" on the Kentucky River, as well as Jacobson Reservoir in Fayette County. Our newest plant in Owen County and its related facilities were the result of approximately 20 years of rigorous analysis and discussions about solving Central Kentucky's water supply deficit. Resolution to this issue was critical for meeting residential and commercial customers' needs today and in the future, and for ensuring that this region is positioned well for continued economic development.

Despite our Central Kentucky customers' ample new water supply, we at Kentucky American Water have continued our long-term efforts to provide our customers with practical information about wise water use, which supports our company's overall commitment to environmental stewardship and sustainability.

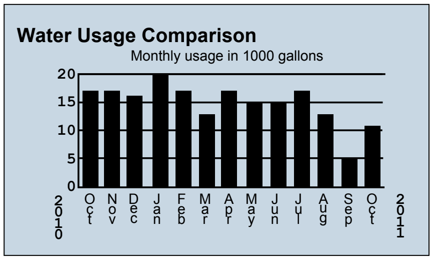
Our conservation outreach includes numerous activities and partnerships that we believe are contributing to the Bluegrass community's efforts to make our region more "green" than ever before. Here are some examples of our conservation activities since 2010.

To learn more about any of these efforts, please contact our External Affairs department at (859) 268-6364 or e-mail kentuckyamericanwater@amwater.com.

CUSTOMER NOTIFICATIONS

Monitoring Usage via Your Water Bill

Our customers can easily monitor their water usage patterns each month by referring to a bar graph on their water bills. The graph indicates the past 12 months of usage. Receiving water bills on a monthly, rather than quarterly, basis also assists customers in identifying unusually high usage patterns in a more timely fashion.



Conservation Tips included with Bills

Periodically, we include inserts with our customer bills to highlight simple steps customers can take to use water wisely. These inserts are typically sent in the summer and late fall, providing seasonal tips for indoor and outdoor usage and tips on preventing frozen indoor water pipes that can lead to significant damage and water loss.

KENTUCKY AMERICAN WATER

MEDIA CAMPAIGNS

Kentucky American Water's media campaigns on wise water use continued in 2010 and 2011. Seasonal tips on indoor and outdoor water use were provided through print and radio campaigns to convey simple strategies to use water more efficiently, from checking for toilet leaks to turning off the tap while you brush your teeth or shave.

In 2010, we conducted a conservation-themed campaign in Rupp Arena using posters in arena restrooms and electronic signage above the arena floor. Each of these signs included different water-wise tips.

ASSISTANCE FOR LOWER-INCOME RESIDENTS

In 2010 and 2011 Kentucky American Water provided assistance to Community Action Council's WinterBlitz program, whereby more than 60 low-income homes are prepared for the winter months with energy-saving and now water-saving measures. Kentucky American Water provided low-flow showerheads and faucet aerators for this effort, in addition to volunteer assistance.

In 2011, Kentucky American Water also partnered with Lexington Habitat for Humanity and other sponsors for Habitat's first Green Build home in Fayette County, constructing a home on Shawnee Avenue with numerous green features. Kentucky American Water's sponsorship assisted in covering the cost for water-efficient fixtures in the home, as well as for providing broader outreach about wise water use through social media posts, displays at Habitat's ReStore in Lexington and local home and garden conferences, and by providing conservation information during Habitat partner families' classes.

RAIN BARREL AND RAIN GARDEN AWARENESS

We have enjoyed a long-standing relationship with Bluegrass PRIDE, a regional environmental education organization celebrating its 10th anniversary in 2011. Recent partnerships with this organization included sponsorship of Bluegrass PRIDE's artistic rain barrel program and community rain barrel and rain garden workshops. Attendees at these workshops receive materials and instruction for building their own rain barrel.


RAIN BARREL WORKSHOP

WATERFEST

WATERFEST

Bluegrass PRIDE outreach on behalf of Kentucky American Water also included placing water conservation kits in Scott County's public library for visitors to check out, so that they can perform audits of their home water usage and gain insight on how to become more water efficient. Each kit includes a rain gauge, drip gauge, flow measuring bag, toilet drip tablets and a home water audit kit booklet.

Kentucky American Water has continued to offer an Environmental Grant Program since 2006 to assist community organizations with environmental projects aimed at protecting watersheds. Since that time, Kentucky American Water has provided nearly $95,000 for such projects in its service area. Many of the projects receiving grant assistance have included water conservation awareness components in addition to watershed protection efforts.

One of the 2011 grant recipients was the Living Arts and Science Center, which partnered with Bluegrass PRIDE and the Martin Luther King Neighborhood Association on a rain garden and rain barrel project for the Martin Luther King and William Wells Brown neighborhoods in downtown Lexington.

COMMUNITY EVENTS & SPEAKING ENGAGEMENTS

In 2011, Kentucky American Water launched WaterFest, a new opportunity for people of all ages to tour our treatment facilities and learn about water conservation, watershed management and water treatment. WaterFest attracted over 300 people. We held community open houses at two of our treatment plants in 2010, too.

Kentucky American Water is also a long-standing sponsor and participant of Arbor Day at The Arboretum, Reforest the Bluegrass, Founders' Day at McConnell Springs, and many other community events in the region. These events provide great opportunities to share water quality and water conservation information with the community, as well as to provide items such as rain gauges, leak detection kits, shower timers and children's conservation booklets.

Kentucky American Water is an annual sponsor of River Sweep, an early summer event coordinated by the Ohio River Valley Sanitation Commission for the betterment of the Ohio River and its tributaries. Each year, many Kentucky American Water employees and their family members can be found at Fort Boonesboro State Park, on the banks of the Kentucky River, helping to clear debris from the primary source of water for Central Kentucky customers.

RIVER SWEEP

Our team members are also available for speaking engagements at meetings of civic groups, neighborhood associations and other organizations to answer questions about the water service we provide and general information about water conservation.

LEAK DETECTION BOOKLETS

Leaky pipes and toilets waste thousands of gallons of water each year. Leak detection kits are available at no charge for Kentucky American Water customers. Kits with booklets and leak detection dye tablets may be picked up at Kentucky American Water or provided upon request. A copy of the booklet in PDF form may also be downloaded from the Kentucky American Water website.

INSPIRING FUTURE CUSTOMERS

Own It! Video Contest

In 2011, we pursued a unique, viral online video contest with area high school students to engage them in a project related to wise water use. Through a partnership with iHigh.com, a national online high school network based in Lexington, and Group CJ Advertising, Kentucky American Water sponsored the


CONTEST WINNERS

Own It! video contest in the fall. Contest participants created 30-second videos featuring some aspect of water conservation and posted them to the designated contest page on iHigh.com, with the winner determined by online voting. The winning team secured first place by earning more than 8,000 votes, with the second place finishers not far behind, earning more than 6,000 votes. Overall the contest garnered more than 30,000 video and online submission views.

School Presentations and Facility Tours

Our team of water professionals educates students about water conservation and water treatment by participating in science fun days, school presentations, summer camp events, after school activities and by hosting student groups for tours at our treatment plants. All children who participate in these activities receive fun and educational items about conservation that can be used in the classroom or at home for additional instruction.


WONDERS OF WATER

The company also continues to partner with other groups to raise awareness regarding the protection of our water sources, such as our partnership with Trout Unlimited to bring the Trout in the Classroom program to area elementary school students as well as with the Lexington-Fayette Urban County Government and others to sponsor watershed festivals in Fayette County.

ONLINE OUTREACH

We launched our social media presence in December 2010 with Facebook and Twitter accounts. We frequently post conservation tips on our Facebook page for fans to use and share. The page is also used to highlight company-supported community events and environmental initiatives to further engage customers in their community, water conservation and watershed protection.

Customers can always find wise water use tips online at our website at www.kentuckyamwater.com.

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:	**)**	
	)	
THE APPLICATION OF KENTUCKY-AMERICAN	**)**	**CASE NO. 2012-00520**
WATER COMPANY FOR AN ADJUSTMENT OF	**)**	
RATES ON AND AFTER JANUARY 27, 2013	**)**	
	)	

DIRECT TESTIMONY OF KEITH L. CARTIER

December 28, 2012

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Keith Cartier and my business address is 2300 Richmond Road, Lexington, Kentucky 40502.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by the Kentucky-American Water Company, Inc. (KAW) as the Vice President of Operations.

Q. HAVE YOU PREVIOUSLY FILED TESTIMONY BEFORE THIS COMMISSION?

A. Yes.

Q. PLEASE STATE YOUR EDUCATIONAL AND PROFESSIONAL BACKGROUND.

A. I earned a Bachelor of Science degree in Civil Engineering from the University of Pittsburgh in 1979 and a Masters in Business Administration from the University of Pittsburgh's Katz School of Business in 1980.

I have worked in the utility industry since 1982, beginning as an Engineer/Commercial Representative at Duquesne Light Company in Pittsburgh, Pennsylvania. I served in a number of positions during my seventeen years at Duquesne, the first seven years in customer service roles, and the last ten in a number of roles primarily focused on improving operational and business performance. During that latter span, I also served for one year as project manager for merger integration planning on the proposed merger of DQE (Duquesne's parent company) and Allegheny Energy. In 1999, I joined UMS Group, an international management consulting firm headquartered in Parsippany, New

Jersey. I worked with UMS for nearly three years, providing operational and business performance consulting services to utility clients throughout the United States and Canada. I have been with the American Water family of companies since 2003, first joining Pennsylvania American Water as Superintendent for the Pittsburgh operations, which provides water service to approximately 140,000 customers in the suburban Pittsburgh area. I moved to Contract Operations Manager with American Water Enterprises (AWE) in 2004 with responsibility for managing operations for a number of client water authorities. My responsibilities expanded in 2005 as I joined American Water Services' Southeast Region in the role of Director of Business Performance. In that role, I assumed responsibility for helping improve operations of the regulated businesses in American Water's Southeast Region, as well as expanding my responsibilities to include oversight for all water and wastewater contract operations in American Water's Southeast Region. In February 2008, I joined KAW as Vice President, Operations.

In addition to my role with Kentucky American Water, I serve on the Board of the Kentucky River Authority (KRA). The KRA maintains and manages water resources of the Kentucky River Basin to ensure water supply, water quality and recreational activities associated with the Kentucky River.

Q. WHAT ARE YOUR RESPONSIBILITIES AS VICE PRESIDENT OF OPERATIONS?

A. My responsibilities encompass all activity related to water production, water quality, water distribution and local customer service. I also work closely with KAW's Director of Engineering, Lance Williams, to assess and plan system improvements and prioritize capital investment project.

Q. WHAT WILL YOUR TESTIMONY ADDRESS?

A. My testimony will describe the operations of KAW's production and distribution systems. I will address fuel and power costs, chemical costs, and operational efforts including water loss and water quality.

Q. PLEASE DESCRIBE THE OPERATIONS OF KAW FACILITIES.

A. KAW currently operates four water treatment facilities. Three water treatment facilities provide treated water to retail and bulk water customers in Fayette and surrounding counties in our Central Division. These are the Kentucky River Station I (KRS I), the Kentucky River Station II (KRS II) and the Richmond Road Station (RRS). The combined treatment capacity at these facilities is 85 million gallons per day (MGD) – 40 at KRS I, 25 mgd at RRS, and 20 mgd at KRS II. Prior to completion of KRS II in 2010, both KRS I and RRS demonstrated ability to produce greater volume than their rated capacity (up to 45 mgd at KRS I and, on a temporary basis, up to 30 mgd at RRS). The fourth water treatment facility provides treated water to residents of Owen County as well as portions of Grant and Gallatin Counties comprising our Northern Division. The Owenton Water Treatment Plant is rated at 1.4 mgd.

KAW withdraws water from Pool 9 of the Kentucky River for KRS I and RRS. An intake pumping facility at river level withdraws water and pumps the raw water up a 380-

foot bluff. The raw water is then directed to the KRS I treatment plant and as necessary may also be directed through a pipeline to the RRS or to Jacobson Reservoir. The RRS may utilize raw untreated water supplied directly from the Kentucky River pipeline or withdraw water from Jacobson Reservoir, located on US 25 south of Lexington. On an emergency basis, RRS has the capability to withdraw water from Lake Ellerslie, located on Richmond Road next to the RRS.

KAW withdraws water from Pool 3 of the Kentucky River for KRS II. Similar to KRS I, river water is pumped up a steep bluff (approximately 300 feet) to the water treatment facility. Treated water is pumped through a 31 mile water transmission main into KAW's Central Division distribution system. A storage tank and booster pump are located approximately half-way along the route to facilitate the transmission of water over that distance.

For the Owenton plant, KAW withdraws water from Severn Creek, which flows into Pool 2 of the Kentucky River. Raw water is pumped from the Severn Creek intake through a pipeline to the Owenton treatment plant site. The raw water may be directed immediately into the plant or to Lower Thomas Lake. The Owenton plant is capable of accepting water directly from the creek or withdrawing water from Lower Thomas Lake.

KAW's treatment facilities utilize a chemical-mechanical process. Both RRS and KRS II utilize a conventional coagulation and sedimentation process, followed by filtration through sand filters. RRS also employs granular activated carbon as an additional filter media. Both KRS I and Owenton utilize an up-flow solid contact process followed by filtration. For KRS I, that process occurs through mixed media high rate filters; for Owenton, through mixed media in two separate filters. The KRS I, KRS II and RRS facilities use chloramination to maintain residual disinfectant within the distribution system; the Owenton facility uses free chlorine but is able to switch to chloramination. Each facility is fully staffed by water treatment plant operators certified by the Kentucky Division of Water. Operations of the KAW treatment facilities meet or exceed all federal and state water quality regulations.

KAW transmits water to nine bulk water customers from various points in the distribution system. Those customers are Jessamine South Elkhorn Water District, the City of Nicholasville, the Georgetown Municipal Water and Sewer Service, the City of Versailles, the City of Midway, the City of North Middletown, East Clark County Water District, the Harrison County Water Association and Peaks Mill Water District.

Q. HOW HAS THE ADDITION OF KRS II BENEFITED KAW'S OPERATIONS?

A. In addition to addressing the source of supply deficit, KRS II has enabled a more efficient and flexible dispatch among all three plants. Prior to the addition of KRS II, KAW was very limited in the timing and conduct of required routine maintenance at KRS I and RRS. Both plants were required to be available for dispatch throughout the late spring, summer and early fall seasons when customer demand for water typically peaks, increasing risk to KAW's ability to meet demand when any equipment failure occurred.

KAW is now better positioned to plan and schedule required maintenance as well as address emergency maintenance by shifting production to one of the other plants.

Another benefit was realized this past summer when during the hot dry period of late June to early July, production at KRS II increased to 19 MGD, effectively reducing the water withdrawal demand at Pool 9 by a similar amount.

Q. KAW HAS REQUESTED AN ORDER AUTHORIZING CONSTRUCTION OF A PIPELINE AND BOOSTER STATION TO DELIVER WATER FROM KRS II TO OWENTON. HOW WILL THAT CHANGE IMPACT THE OPERATIONS OF KRS II AND OF THE CURRENT OWENTON WATER TREATMENT FACILITY?

A. KRS II is located within the Northern Division service area, with the distribution system traversing the KRS II road frontage. Once the transmission line, tank and booster station are completed, KRS II will provide treated water to the Northern Division. From an operational perspective, KRS II will operate essentially the same as it is currently operated. There will be incremental costs for fuel & power and chemicals of the additional water treated, but no change in how the plant operates. The Owenton Water Treatment facility would not be used for production, so all fuel & power, chemical waste disposal and labor costs associated with that operation would no longer be required. Both the incremental costs at KRS II and the elimination of costs associated with the Owenton Water Treatment plant are reflected in this case.

Q. KAW'S WATER LOSS HAS BEEN DISCUSSED IN PRIOR CASES. WHAT IS THE CURRENT STATUS OF KAW'S WATER LOSS CONTROL EFFORTS?

A. KAW monitors total non-revenue water (NRW) results closely and reports water loss results monthly to the Public Service Commission (PSC). The PSC categorizes NRW into two primary categories – Other Water Used and Water Loss. The "Other Water Used" category includes estimates for water used for system flushing and for fire fighting. The "Water Loss" category is further delineated into water lost from tank overflows, line breaks and other loss, which is comprised of leaks, theft of service, non-metered usage, and any other usage that may not otherwise be known. KAW reported a Water Loss Percentage of 13% year to date through October 2012.

KAW also employs water loss monitoring methodology endorsed by the International Water Association (IWA) and the American Water Works Association (AWWA). The IWA/AWWA methodology defines a number of industry standard performance indicators, including Unavoidable Annual Real Losses (UARL) and Infrastructure Leakage Index (ILI) as additional parameters to help manage activities and investments. The IWA/AWWA methodology suggests ILI target ranges based on factors such as availability of water resources for development, and the cost of developing and treating water sources. The various target ranges are intended to address the economic balance of water treatment and infrastructure investment. KAW's ILI, calculated as a ratio of Real Losses to UARL, was 1.82 through October 2012 (a reduction from the 2007 level of 2.51 level reported in the 2009 Gannett Fleming study), and within the IWA/AWWA's most stringent target range of 1.0 – 3.0.

In any water infrastructure, new leaks will develop even as discovered leaks are repaired. KAW continues to focus on aggressive leak detection that incorporates many industry best practices. KAW personnel conducted 60,478 manual soundings on services, hydrants, mains and valves during the past two years. KAW routinely inspects pipelines that cross streams and those in right of ways. KAW inspected 44 stream crossings each of the last two years, and also inspected 50 right of way locations for non-surfacing leaks.

In addition to managing the "leak" aspect of water loss, KAW continues to assess and implement approaches to managing other aspects of water loss. KAW recently began billing for non-fire prevention related water use on fire services, and has been billing contractors for any water loss incurred as a result of third party damage to water mains and hydrants. KAW continues to evaluate water quality related flushing to optimize the volume of treated water used for these purposes. KAW also actively manages accounts with zero consumption registered on the meter, as well as those vacant accounts that show usage. All these activities combined constitute KAW's non-revenue water management program.

Q. WATER QUALITY CONTINUES TO BE A TOPIC OF MAJOR EMPHASIS WITH ONGOING REGULATIONS. WHAT IS THE STATUS OF KENTUCKY AMERICAN WATER'S PARTICIPATION IN THE PARTNERSHIP FOR SAFE WATER ("PARTNERSHIP")?

A. As we have discussed in prior cases, KAW voluntarily joined this Partnership in 1996. The Partnership was created by the United States Environmental Protection Agency, the American Water Works Association, the National Council of Water Companies, the Association of Safe Drinking Water Administrators, the American Water Works Research Foundation and the Association of Metropolitan Water Agencies. The purpose of the Partnership is to encourage participants to identify processes that will enhance the quality of potable water and to voluntarily implement those processes with minimum capital investment. As an example, Kentucky American Water set as one of its goals filtered water turbidity less than the current regulatory requirement. Through a process of extensive data collection, evaluation and correction, we have met that target, which we believe increases the microbial safety of our water for all of our customers.

In 1998, KAW was one of only 20 utilities nationally recognized for completion of the Phase III self-assessment of the Partnership. In 2003 our facilities were recognized as one of only 17 nationally to receive five-year awards for ongoing plant performance excellence. In 2008, KAW was awarded the Partnership for Safe Water Ten-Year Directors Award for its commitment to superior water quality at Kentucky River Station I and Richmond Road Station plants. From the initial Phase III award in 1998 through today, KAW continues to meet Partnership Goals and remains in good standing at both KRS I and RRS. Since coming online in October of 2010, KRS II has been performing like a fully optimized Phase III Partnership for Safe Water treatment plant, a significant accomplishment for a new facility. KAW will be evaluating this plant fully and applying for the Phase III Partnership award in the next few years.

In 2006, Kentucky American began the Partnership program for our Northern Division Owenton Water Treatment facility. While we have done a good job of optimizing treatment at the facility, we have not attempted to complete the Phase III self-assessment at this plant due to the numerous capital expenditures that are needed to fully optimize the facility.

As a result of our voluntary participation in the Partnership, we have improved the quality of our potable water and are better prepared to meet new, more stringent water quality regulations as they are adopted.

Q. ARE THERE NEW REGULATIONS THAT KAW IS REQUIRED TO MEET?

A. Yes. There are two new regulations that KAW is required to meet. The regulations are the Stage 2 Disinfection Byproduct Rule ("Stage 2 DBPs"), and the Unregulated Contaminant Monitoring Rule 3 ("UCMR 3"). The new regulations require detailed evaluations of the treatment and distribution processes, and also require additional water sampling, analysis and reporting.

KAW has been completing analyses and evaluating processes to prepare for meeting the Stage 2 rule. Compliance with new Stage 2 DBP regulations for location running annual average requirements began in 2012 for the Central Division system and will begin in October 2013 for the Northern Division system. KAW continues to evaluate process modifications in the Central Division system, including a change in the disinfection points at each facility, coagulant changes and chemical feed improvements. KAW does not currently anticipate additional process changes for compliance in the Owen County system, assuming that KRS II will be connected to the system in late 2013.

The UCMR 3 regulation increases the monitoring and reporting requirements associated with contaminants suspected to be present in drinking water, but that may not have health-based standards established under the SDWA. KAW is required to begin testing and reporting in January of 2013 for our Central Division.

Q. PLEASE EXPLAIN HOW YOUR FUEL & POWER AND CHEMICALS ARE DETERMINED FOR THE FORECASTED TEST-YEAR.

A. These expenses are directly related to how much water is forecast to be treated and delivered (i.e., system delivery). The volume of water sales is based on projections determined from the bill analysis for the forecasted test-year as adjusted for declining use and other factors. System delivery volume is projected directly from this base of forecasted sales volume, adjusted for historical percentages of NRW. This forecasted system delivery is then used as the basis to calculate fuel and power and chemical expense for the forecasted test-year. This method matches the system delivery to the water sales developed for the forecasted test-year. Total system delivery for the forecast period is 13.886 billion gallons.

Once the production volume is established, an assessment is made of how much volume will be produced at each treatment plant over the course of the year. Anticipated fuel and power costs at each location are then calculated based on the projected power usage to meet the production volume and electric provider tariff pricing for that location, taking into consideration both power demand and consumption. The total fuel and power expense for the forecast period is approximately $3.8 million.

KAW expects to use 21 different chemicals in the water treatment process. Chemical expenses are projected based on the most recent four-year average consumption for each chemical (in pounds per million gallons treated), adjusted if warranted based on operating experience. This average consumption factor (pounds per million gallons treated) is then applied to the forecasted test-year production at each plant to determine the pounds of each chemical to be used in the forecasted test-year. The pounds of each chemical are then multiplied by unit price for each chemical. Contract pricing in place through December 2012 was adjusted (up or down) based on guidance from American Water's supply chain function, which helps procure KAW's chemicals through a national competitive bidding process. The chemical expense for the forecast period is approximately $1.8 million.

Q. DOES THE WATER TREATEMENT PROCESS GENERATE WASTE MATERIAL?

A. Yes**.** Source water always contains some amount of solid matter in very small suspended particles that must be removed during the treatment process. The process to remove that suspended matter varies across KAW treatment plants. For example, the RRS and KRS II processes use a coagulation and flocculation process, which helps the solid matter form particles large enough, and heavy enough, to settle out of the water. A chemical coagulant is rapidly mixed into the water to help bind the solid matter together. The water continues though chambers at slowing mix speeds into sedimentation processes that allow these larger particles to fall to the bottom of the chambers. A mechanical piping device is slowly dragged along the bottom of the chambers to extract this solid waste material. The waste is pumped to a separate holding tank where further settling occurs, and the wet sludge that results is run through a filter belt press to squeeze the water from the sludge, resulting in a dryer sludge material. At KRS I, the up-flow clarifiers serve a similar function, but the final waste product is dewatered in a series of dewatering lagoons as opposed to the use of the filter belt presses used at RRS and KRS II. KAW incurs costs in disposing of this residual material.

Q. PLEASE EXPLAIN HOW KAW'S WASTE DISPOSAL EXPENSE IS DETERMINED FOR THE FORECASTED TEST-YEAR.

A. Waste disposal costs are projected based on anticipated routine expenses to operate the waste treatment processes, typical source water conditions and periodic expenses related to sludge removal. KAW has mitigated typical disposal costs with its beneficial use permit-by-rule from the Division of Waste Management that allows the beneficial reuse of residuals on site at KRS I, KRS II and RRS. Waste disposal expenses are projected to be $0.3 million.

Q. HOW HAS THE PROCESS OF BENEFICIAL REUSE OF RESIDUALS ON SITE BENEFITED KAW?

A. Many water facilities around the country experience significant costs associated with transporting residuals and paying to dispose of the material in a permitted landfill. KAW has avoided the costs associated with trucking and landfilling by beneficially reusing these residuals on its property.

Q. PLEASE EXPLAIN HOW MAINTENACE EXPENSES ARE DETERMINED FOR THE FORECASTED TEST YEAR.

A. Maintenance expense is projected based on historic trends and anticipated activity. These programs include items such as valve operation, hydrant inspections, hydrant flow testing, flushing dead end mains, maintenance of equipment at treatment plants, and maintenance of building and grounds. KAW projects maintenance related expenses to be approximately $1.6 million for the forecast period.

In addition to our programmed maintenance programs, KAW forecasts unscheduled maintenance based on historical levels. As of December 1, 2012, KAW has repaired 185 main breaks and 153 service line leaks this year. Mr. Lance Williams has provided in his testimony the age and size of pipes in KAW's distribution system. While new leaks will continue to occur even as older leaks are discovered and repaired, there is no question that replacing distribution infrastructure that is beyond its expected useful life helps to maintain or even reduce water loss and maintenance expenses.

Q. HYDRANT MAINTENANCE HAS BEEN A TOPIC IN PRIOR PROCEEDINGS. WHAT TYPE OF MAINTENANCE IS ASSOCIATED WITH FIRE HYDRANTS?

A. Generally, each fire hydrant is inspected annually with maintenance performed at that time. Hydrants are tested to ensure that each is operational and to confirm flow rates available at each hydrant. A KAW technician opens the valve and flows water through the hydrant, as would a fire fighter. The technician visually inspects all parts, checks for leakage, and confirms that the control valve is fully open and operational. The technician also lubricates threads and moving parts and addresses any minor maintenance issues identified during the inspection. Any additional repair not addressed as part of the inspection is reported for follow up and resolution. Any vegetation growing around the hydrant is removed and the hydrant is cleaned. The results from the flow test (measured in gallons per minute) are then documented. For hydrants located in Fayette County, these test results are provided to Lexington Fayette Urban County Government.

Q. WHAT HAS KAW DONE TO CONTROL COSTS OF OPERATIONS?

A. KAW routinely reviews expenses as a normal course of business, reviewing expenditures at least monthly, and more often as may be necessary, to ensure that the company is controlling expenses as planned. Technology often plays a role in enabling work to be completed in a more efficient fashion. One recent example of implementing technology to improve efficiency is the expanded use of Automatic Meter Reading (AMR) meters which enable an individual to obtain electronic readings while driving by a location. At the end of 2012, KAW will have AMR meters installed at approximately 82% of metering locations, and expects to be at or near 100% by the end of 2013. Efficiencies gained include a reduction in the number of meter reading personnel, as well as 54%

reduction in number of meter reading related service orders and a 28% reduction in the number of estimated bills issued.

In my testimony for Case No. 2010-00036, I mentioned that KAW had begun implementation of a new computerized maintenance management system (CMMS) to better manage distribution maintenance work orders and expand the use of mobile computing to our distribution field crews. At the time I indicated that KAW expected CMMS to enhance efficiency by reducing duplicative field visits through better work tracking and aggregation of work on a given asset. Our experience has borne out those expectations. KAW reduced its backlog of distribution work orders by 77%, and currently maintains a backlog of less than 400 orders.

KAW continues to explore opportunities as a normal course of business in its ongoing attempts to provide services for our customers in an efficient and responsible manner. For example, KAW began a pilot to assess alternatives to wholesale change out of the granular activated carbon in the Richmond Road Treatment Plant filters every three years. Historically, about one third of filters are changed out every year such that all filters are changed out over a three-year period. We are performing a plant trial and studying whether performance can still achieved by refreshing that component of the filter media without removing and replacing that entire component of filter media.

KAW also recently began a pilot to assess a staged change in corrosion inhibitor (from a 10:1 blend of zinc orthophosphate/75% phosphoric acid, to a orthophosphate and polyphosphate blend). KAW expects the change to offer a long term benefit in reduced hardness buildup on equipment, less tuberculation inside of mains, and the potential to lower chlorine demand as a result. Along with additional potential treatment modifications, the long term impacts are likely to be an improvement in water quality and a reduction in flushing for water quality related issues.

Anticipating continued pressure on electric rates, KAW has also embarked on a series of energy saving related initiatives to mitigate the impacts those increases may have on our customers. KAW joined Kentucky Utilities Company's energy load shedding program in 2012, and when requested, reduced equipment use to reduce electric demand from Kentucky Utilities Company. Any incentives earned are passed back to customers in the form of a credit against fuel and power.

KAW also recently conducted a series of energy and lighting audits within its facilities to identify potential energy saving changes. Lighting fixtures were updated with more efficient fixtures in areas of the Kentucky River Station and Richmond Road Station water treatment plants, and in the Richmond Road office facility.

Another project already underway is the replacement of an aged high service pump at the Richmond Road Station with a newer, more energy efficient model. We are also replacing three pumps and motors at Jacobson reservoir with more efficient pumps and variable frequency drive motors. The combination of more efficient pumps and the variable frequency drives installed on the motors will allow us to better match pumpage to demands, and ultimately reduce electrical consumption and demand. This project is scheduled to be complete by mid-2013.

KAW's efforts also extend to areas that benefit both environmentally and economically. KAW recently partnered with the Kentucky Division of Fish and Wildlife and the Kentucky Division of Forestry to identify vegetation alternatives for a four acre area of the Richmond Road property. In 2013, KAW plans to remove existing vegetation (primarily grass) and return the land to native grasses and wildflowers. The project will take about three years to fully develop. In addition to the reduction in mowing expenses, the plantings are expected to provide additional wildlife habitat at the facility.

KAW has also recently partnered with Bluegrass Pride (a local environmental group) to assess waste and recycling streams that result from our operations. KAW now recycles meters, batteries, electronics, plastic bags, halogen lights, cardboard, pallets, and aluminum cans in addition to the more traditional paper and plastic. The increased awareness and use of recycling ultimately reduces the volume of waste that must be removed and landfilled.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

VERIFICATION

STATE OF MISSOURI	)	
	)	**SS:**
CITY OF ST. LOUIS	)	

The undersigned, **Keith L. Cartier,** being duly sworn, deposes and says he is the Vice President of Operations of Kentucky-American Water Company, that he has personal knowledge of the matters set forth in the foregoing testimony, and the answers contained therein are true and correct to the best of his information, knowledge, and belief.

Keith Carter

KEITH L. CARTIER

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 19th day of December, 2012.

Staci A. Olsen (SEAL)

Notary Public

My Commission Expires:

STACI A. OLSEN
Notary Public – Notary Seal
STATE OF MISSOURI
St. Charles County
Commission Number 09519210
My commission expires March 20, 2013

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2012-00520

DIRECT TESTIMONY OF
PAUL R. HERBERT

CONCERNING
COST OF SERVICE ALLOCATION
AND
CUSTOMER RATE DESIGN

BEFORE THE

KENTUCKY PUBLIC SERVICE COMMISSION

December 28, 2012

BEFORE THE KENTUCKY PUBLIC SERVICE COMMISSION

RE: KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2012-00520

DIRECT TESTIMONY OF PAUL R. HERBERT

Line
No.

QUALIFICATIONS

1. Q. Please state your name and address.

A. My name is Paul R. Herbert. My business address is 207 Senate Avenue, Camp Hill, Pennsylvania.

2. Q. By whom are you employed?

A. I am employed by Gannett Fleming, Inc.

3. Q. What is your position with Gannett Fleming, Inc., and briefly state your general duties and responsibilities.

A. I am President of the Valuation and Rate Division. My duties and responsibilities include the preparation of accounting and financial data for revenue requirement and cash working capital claims, the allocation of cost of service to customer classifications, and the design of customer rates in support of public utility rate filings.

4. Q. Have you presented testimony in rate proceedings before a regulatory agency?

A. Yes. I have testified before the Pennsylvania Public Utility Commission, the New Jersey Board of Public Utilities, the Public Utilities Commission of Ohio, the Public Service Commission of West Virginia, the Kentucky Public Service Commission, the Iowa State Utilities Board, the Virginia State Corporation Commission, the Illinois Commerce Commission, the Tennessee Regulatory Authority, the California Public Utilities Commission, New Mexico Public Regulation Commission, the Delaware Public Service Commission, the Arizona Corporate Commission, the Connecticut Department of Public

Utility Control, the Idaho Public Utilities Commission, and the Missouri Public Service Commission concerning revenue requirements, cost of service allocation, rate design and cash working capital claims.

A list of the cases in which I have testified is provided at the end of my direct testimony.

5. Q. What is your educational background?

A. I have a Bachelor of Science Degree in Finance from the Pennsylvania State University, University Park, Pennsylvania.

6. Q. Would you please describe your professional affiliations?

A. I am a member of the American Water Works Association and serve as a member of the Management Committee for the Pennsylvania Section. I am also a member of the Pennsylvania Municipal Authorities Association. In 1998, I became a member of the National Association of Water Companies as well as a member of its Rates and Revenue Committee.

7. Q. Briefly describe your work experience.

A. I joined the Valuation Division of Gannett Fleming Corddry and Carpenter, Inc., predecessor to Gannett Fleming Valuation and Rate Consultants, Inc., in September 1977, as a Junior Rate Analyst. Since then, I advanced through several positions and was assigned the position of Manager of Rate Studies on July 1, 1990. On June 1, 1994, I was promoted to Vice President and on November 1, 2003, I was promoted to Senior Vice President. On July 1, 2007, I was promoted to my current position as President of the Valuation and Rate Division of Gannett Fleming, Inc.

While attending Penn State, I was employed during the summers of 1972, 1973 and 1974 by the United Telephone System - Eastern Group in its accounting department. Upon graduation from college in 1975, I was employed by Herbert Associates, Inc., Consulting Engineers (now Herbert Rowland and Grubic, Inc.), as a field office manager until September 1977.

COST OF SERVICE ALLOCATION

8. Q. What is the purpose of your testimony in this proceeding?

A. My testimony is in support of the cost of service allocation and rate design study conducted under my direction and supervision for the Kentucky-American Water Company, (the "Company").

9. Q. Have you prepared an exhibit presenting the results of your study?

A. Yes. Exhibit No. 36 presents the results of the allocation of the pro forma cost of service to the several customer classifications, and the proposed rate design.

10. Q. Briefly describe the purpose of your cost allocation study.

A. The purpose of the study was to allocate the total cost of service, which is the total revenue requirement, to the several customer classifications. The cost of service includes operation and maintenance expenses, depreciation expense and amortizations, taxes other than income, income taxes and income available for return. In the study, the total costs were allocated to the residential, commercial, industrial, public authority, sales for resale, private fire protection and public fire protection classifications in accordance with generally-accepted principles and procedures. The cost of service allocation results in indications of the relative cost responsibilities of each class of customers. The allocated cost of service is one of several criteria appropriate for consideration in designing customer rates to produce the required revenues.

11. Q. Please describe the method of cost allocation that was used in your study.

A. The base-extra capacity method, as described in the 2012 and prior Water Rates Manuals (M1) published by the American Water Works Association (AWWA), was used to allocate the pro forma costs. The method is a recognized method for allocating the cost of providing water service to customer classifications in proportion to the classifications' use of the commodity, facilities and services. It is generally accepted as a sound method for allocating the cost of water service and has been used by the Company in previous rate cases.

12. Q. Is the method described in Exhibit No. 36?

A. Yes. It is described on pages 3 and 4 of the exhibit.

13. Q. Please describe the procedure followed in the cost allocation study.

A. Each element of cost in the pro forma cost of service was allocated to cost functions and customer classifications through the use of appropriate allocation factors. This allocation is presented in Schedule B on pages 8 through 15 of Exhibit No. 36. The customer classifications include residential, commercial, industrial, public authority, sales for resale and private and public fire protection classifications. The items of cost, which include operation and maintenance expenses, depreciation and amortization expenses, taxes and income available for return, are identified in column 1 of Schedule B. The cost of each item, shown in column 3, is allocated to the several customer classifications based on allocation factors referenced in column 2. The development of the allocation factors is presented in Schedule C of the exhibit.

The four basic cost functions are base, extra capacity, customer and fire protection costs. <u>Base Costs</u> are costs that tend to vary with the quantity of water used, plus costs associated with supplying, treating, pumping and distributing water to customers under average load conditions, without the elements necessary to meet peak demands. Base costs are allocated to customer classifications based on average daily usage.

<u>Extra Capacity Costs</u> are costs associated with meeting usage requirements in excess of average. They include the operating and capital costs for additional plant and system capacity beyond that required for average use. Extra capacity costs were subdivided into costs to meet maximum day extra capacity and maximum hour extra capacity requirements. Extra capacity costs are allocated to customer classifications based on estimated maximum day and hour demands in excess of average use for each classification.

<u>Customer Costs</u> are costs associated with serving customers regardless of their usage or demand characteristics. Customer costs are subdivided into customer facilities costs,

which include meters and services, and customer accounting costs, which include billing and meter reading functions. Customer costs are allocated to classes based on the number and size of meters and the number of bills.

Fire Protection Costs are costs associated with providing the facilities to meet the potential peak demand of fire protection service as well as direct costs such as the cost for fire hydrants. The demand costs for fire protection are subdivided into costs for Private Fire Protection and Public Fire Protection on the basis of relative potential demands.

14. Q. Please provide examples of the cost allocation process.

A. I will use some of the larger cost items to illustrate the principles and considerations used in the cost allocation methodology. Water purchased for resale, purchased electric power, treatment chemicals and sludge handling costs are examples of costs that tend to vary with the amount of water consumed and are considered base costs. Thus, Factor 1 assigns these costs to customer classifications based on average daily usage.

Other source of supply, pumping, purification and transmission costs are associated with meeting usage requirements in excess of the average, generally to meet maximum day requirements. Costs of this nature are allocated partially as base costs, proportional to average daily consumption, partially as maximum day extra capacity costs, in proportion to maximum day extra capacity, and, in the case of certain pumping stations and transmission mains, partially as fire protection costs, through the use of Factors 2 and 3. The development of the allocation factors, referenced as Factors 2 and 3 shown in Schedule C, pages 16 through 19, is based on the system peak day ratio and the potential demand of fire protection.

Costs associated with distribution mains and storage facilities are allocated partly on the basis of average consumption and partly on the basis of maximum hour extra demand, including the demand for fire protection service, because these facilities are designed to meet maximum hour and fire demand requirements. The development of the factors, referenced as

Factors 4 and 5, used for these allocations is shown in Schedule C, on pages 20 through 23, of Exhibit No. 36.

Factor 4 was modified to exclude the allocation of distribution mains to the sales for resale classification. This recognizes that sales for resale customers are served from the transmission system and do not benefit from smaller distribution mains.

Fire demand costs are allocated to public and private fire protection service in proportion to the relative potential demands on the system by public fire hydrants as compared to the demands for private fire services and hydrants. The demand for private fire units are increased by a factor of 1.5 over the public fire units to recognize the greater flow rate required for a fire at a private service than for a public hydrant.

Costs associated with pumping facilities are allocated on a combined bases of maximum day, maximum day including fire and maximum hour extra capacity because pumping facilities serve these functions. The relative weightings of Factor 2 (maximum day), Factor 3 (maximum day with fire) and Factor 4 (maximum hour) for pumping facilities were based on the horsepower of the pumps serving these functions. The development of these weighted factors, referenced as Factor 6, is presented on page 24 of Exhibit No. 36.

Operation and maintenance costs for transmission and distribution mains are allocated on a combined bases of Factor 3 (maximum day with fire) for transmission mains and Factor 4 (maximum hour) for distribution mains. The weighting of the factors is based on the footage of mains and is referenced as Factor 7.

Costs associated with meters and services facilities are allocated to customer classifications based on meter and service equivalents using Factors 9 and 10. Billing and collecting costs and meter reading are assigned to customer classifications based on the number of bills using Factors 13 and 14. Uncollectible accounts are allocated based on net write-offs by class (Factor 20). Operating and capital costs associated with public fire hydrants were assigned directly to the public fire protection class (Factor 8).

Administrative and general costs are allocated on the basis of allocated direct costs excluding those costs such as purchased water, power and chemicals, which require little administrative and general expense. The development of factors for this allocation, referenced as Factor 15, is presented on page 32 of Exhibit No. 36. Factor 15A, used to allocate cash working capital, was based on the allocation of all operation and maintenance expenses.

Annual depreciation accruals are allocated on the basis of the function of the facilities represented by the depreciation expense for each depreciable plant account. The original cost less depreciation of utility plant in service is similarly allocated for the purpose of developing factors, referenced as Factor 18, for allocating items such as income taxes and return. The development of Factor 18 is presented on pages 34 through 36 of Exhibit No. 36.

Factor 18, as well as Factors 15 and 15A discussed earlier, are composite allocation factors. Composite factors are generated internally in the cost allocation program based on the results of allocating other costs. Factors 11, 12, 16, 17 and 19 also are composite factors. Refer to Schedule C of Exhibit No. 36 for a description of the basis of each composite factor.

15. Q. What was the source of the total cost of service data set forth in column 3 of Schedule C of Exhibit No. 36?

A. The pro forma costs of service were furnished by the Company, and are set forth in Company Schedules B, D and E.

16. Q. Refer to Factors 2 and 3 and explain what factors were considered in estimating the maximum day extra capacity and maximum hour extra capacity demands used for the customer classifications.

A. The estimated demands were based on judgment which considered field studies of customer class demands conducted for the Company, field observations of the service areas of the Company, the class factors used in the last cost of service study, and generally-accepted customer class maximum day and maximum hour demand ratios.

17. Q. Have you summarized the results of your cost allocation study?

A. Yes. The results are summarized in columns 1, 2 and 3 of Schedule A on page 6 of Exhibit No. 36. The total allocated pro forma cost of service as of July 31, 2014, for each customer classification identified in column 1 is brought forward from Schedule B and shown in column 2. Column 3 presents each customer classification's cost responsibility as a percent of the total cost.

18 Q. Have you compared these cost responsibilities with the proportionate revenue under existing rates for each customer classification?

A. Yes. A comparison of the allocated cost responsibilities and the percentage of revenue under existing rates can be made by comparing columns 3 and 5 of Schedule A of Exhibit No. 36. A similar comparison of the percentage cost responsibilities (relative cost of service) and the percentage of pro forma revenues (relative revenues) under proposed rates can be made by comparing columns 3 and 7 of Schedule A of Exhibit No. 36. The proposed increase and the percent increase by class are shown in columns 8 and 9, respectfully.

CUSTOMER RATE DESIGN

19. Q. Are you responsible for the design of the rate schedules proposed by the Company in this proceeding?

A. Yes, I am.

20. Q. Is the proposed rate structure presented in an exhibit?

A. Yes. A comparison of the present and proposed rate schedules is presented in Schedule G on page 42 of Exhibit No. 36.

21. Q. What are the appropriate factors to be considered in the design of the rate structure?

A. In preparing a rate structure, one should consider the allocated costs of service, the impact of radical changes from the present rate structure, the understandability and ease of application of the rate structure, community and social influences, and the value of service.

General guidelines should be developed with management to determine the extent to which each of these criteria is to be incorporated in the rate structure to be designed, inasmuch as the pricing of a commodity or service ultimately should be a function of management.

22. Q. Did you discuss rate design guidelines with Company management?

A. Yes, I did. The guidelines established were: (1) maintain the existing rate structure applicable to all divisions that includes a service charge by meter size applicable to all classes of customers and a separate one-block volumetric charge for each classification, (2) increase customer charges to recover a greater percentage of customer costs, (3) increase public fire service class as indicated by the cost of service, and (4) adjust revenues among the remaining classes in conformity with or toward the indicated cost of service.

23. Q. Do the proposed rates comply with the guidelines enumerated in the answer to question 22?

A. Yes, they do.

24. Q. Do you support the concept of single-tariff pricing and to maintain the consolidation of the rate divisions achieved in prior cases?

A. Yes, I do.

25. Q. Please explain the development of the service charges.

A. The development of the service charges is set forth on Schedule F on page 41 of the Exhibit. Service charges should recover the cost of customer facilities such as meters and services and the cost of customer accounting including billing and collecting and meter reading costs.

Schedule F shows the cost of service for these cost functions in column 2. These amounts were taken from an analysis of customer costs generated within the cost allocation study. The costs associated with meters are divided by the total 5/8-inch meter equivalents and by 12 months to determine the monthly cost related to a 5/8-inch meter. The costs associated with services are divided by 3/4-inch service equivalents and by 12 months to determine the monthly cost related to a 3/4-inch service. Costs associated with billing and collecting, and meter reading are divided by the number of customers and metered customers, respectively, and by 12 months to determine the monthly cost per customer for these functions.

The increase in the customer costs from the last case is a result of the significant increase in the investment in meters. The Company installed AMR devices on all meters since the last case in order to increase efficiency in the cost for meter reading. The sum of the monthly customer costs for a 5/8-inch meter is $14.48 and the monthly rate is proposed at $14.00 per month 5/8-inch service charge. The rates for the larger-sized meters are determined by multiplying the meter capacity ratios times the $14.00 rate for the 5/8-inch meter, as shown at the bottom on the schedule. Meter capacity ratios also were used to determine the larger-sized service charges under the existing rate structure.

26. Q. How were the volumetric rates determined?

A. After the proposed service charges were applied to the bill analysis, the existing volumetric rates for each classification were increased so that revenues from each class moved toward the indicated cost of service and that total revenues equaled the proposed revenue requirement.

27. Q. Does that conclude your direct testimony?

A. Yes, it does.

	Year	Jurisdiction	Docket No.	Client/Utility	Subject
1.	1983	Pa. PUC	R-832399	T. W. Phillips Gas and Oil Co.	Pro Forma Revenues
2.	1989	Pa. PUC	R-891208	Pennsylvania-American Water Company	Bill Analysis and Rate Application
3.	1991	PSC of W. Va.	91-106-W-MA	Clarksburg Water Board	Revenue Requirements (Rule 42)
4.	1992	Pa. PUC	R-922276	North Penn Gas Company	Cash Working Capital
5.	1992	NJ BPU	WR92050532J	The Atlantic City Sewerage Company	Cost Allocation and Rate Design
6.	1994	Pa. PUC	R-943053	The York Water Company	Cost Allocation and Rate Design
7.	1994	Pa. PUC	R-943124	City of Bethlehem	Revenue Requirements, Cost Allocation, Rate Design and Cash Working Capital
8.	1994	Pa. PUC	R-943177	Roaring Creek Water Company	Cash Working Capital
9.	1994	Pa. PUC	R-943245	North Penn Gas Company	Cash Working Capital
10.	1994	NJ BPU	WR94070325	The Atlantic City Sewerage Company	Cost Allocation and Rate Design
11.	1995	Pa. PUC	R-953300	Citizens Utilities Water Company of Pennsylvania	Cost Allocation and Rate Design
12.	1995	Pa. PUC	R-953378	Apollo Gas Company	Revenue Requirements and Rate Design
13.	1995	Pa. PUC	R-953379	Carnegie Natural Gas Company	Revenue Requirements and Rate Design
14.	1996	Pa. PUC	R-963619	The York Water Company	Cost Allocation and Rate Design
15.	1997	Pa. PUC	R-973972	Consumers Pennsylvania Water Company - Shenango Valley Division	Cash Working Capital
16.	1998	Ohio PUC	98-178-WS-AIR	Citizens Utilities Company of Ohio	Water and Wastewater Cost Allocation and Rate Design
17.	1998	Pa. PUC	R-984375	City of Bethlehem - Bureau of Water	Revenue Requirement, Cost Allocation and Rate Design
18.	1999	Pa. PUC	R-994605	The York Water Company	Cost Allocation and Rate Design
19.	1999	Pa. PUC	R-994868	Philadelphia Suburban Water Company	Cost Allocation and Rate Design
20.	1999	PSC of W.Va.	99-1570-W-MA	Clarksburg Water Board	Revenue Requirements (Rule 42), Cost Allocation and Rate Design
21.	2000	Ky. PSC	2000-120	Kentucky-American Water Company	Cost Allocation and Rate Design
22.	2000	Pa. PUC	R-00005277	PPL Gas Utilities	Cash Working Capital
23.	2000	NJ BPU	WR00080575	Atlantic City Sewerage Company	Cost Allocation and Rate Design
24.	2001	Ia. St Util Bd	RPU-01-4	Iowa-American Water Company	Cost Allocation and Rate Design
25.	2001	Va. St. Corp	PUE010312	Virginia-American Water Company	Cost Allocation and Rate Design
26.	2001	WV PSC	01-0326-W-42T	West-Virginia American Water Company	Cost Allocation And Rate Design
27.	2001	Pa. PUC	R-016114	City of Lancaster	Tapping Fee Study
28.	2001	Pa. PUC	R-016236	The York Water Company	Cost Allocation and Rate Design
29.	2001	Pa. PUC	R-016339	Pennsylvania-American Water Company	Cost Allocation and Rate Design
30.	2001	Pa. PUC	R-016750	Philadelphia Suburban Water Company	Cost Allocation and Rate Design
31.	2002	Va. St. Corp Cm	PUE-2002-00375	Virginia-American Water Company	Cost Allocation and Rate Design
32.	2003	Pa. PUC	R-027975	The York Water Company	Cost Allocation and Rate Design
33.	2003	Tn Reg. Auth	03-	Tennessee-American Water Company	Cost Allocation and Rate Design
34.	2003	Pa. PUC	R-038304	Pennsylvania-American Water Company	Cost Allocation and Rate Design
35.	2003	NJ BPU	WR03070511	New Jersey-American Water Company	Cost Allocation and Rate Design
36.	2003	Mo. PSC	WR-2003-0500	Missouri-American Water Company	Cost Allocation and Rate Design
37.	2004	Va. St. Corp Cm	PUE-200 -	Virginia-American Water Company	Cost Allocation and Rate Design
38.	2004	Pa. PUC	R-038805	Pennsylvania Suburban Water Company	Cost Allocation and Rate Design
39.	2004	Pa. PUC	R-049165	The York Water Company	Cost Allocation and Rate Design
40.	2004	NJ BPU	WRO4091064	The Atlantic City Sewerage Company	Cost Allocation and Rate Design
41.	2005	WV PSC	04-1024-S-MA	Morgantown Utility Board	Cost Allocation and Rate Design
42.	2005	WV PSC	04-1025-W-MA	Morgantown Utility Board	Cost Allocation and Rate Design
43.	2005	Pa. PUC	R-051030	Aqua Pennsylvania, Inc.	Cost Allocation and Rate Design
44.	2006	Pa. PUC	R-051178	T. W. Phillips Gas and Oil Co.	Cost Allocation and Rate Design
45.	2006	Pa. PUC	R-061322	The York Water Company	Cost Allocation and Rate Design
46.	2006	NJ BPU	WR-06030257	New Jersey American Water Company	Cost Allocation and Rate Design
47.	2006	Pa. PUC	R-061398	PPL Gas Utilities, Inc.	Cost Allocation and Rate Design
48.	2006	NM PRC	06-00208-UT	New Mexico American Water Company	Cost Allocation and Rate Design
49.	2006	Tn Reg Auth	06-00290	Tennessee American Water Company	Cost Allocation and Rate Design

	Year	Jurisdiction	Docket No.	Client/Utility	Subject
50.	2007	Ca. PUC	U-339-W	Suburban Water Systems	Water Conservation Rate Design
51.	2007	Ca. PUC	U-168-W	San Jose Water Company	Water Conservation Rate Design
52.	2007	Pa. PUC	R-00072229	Pennsylvania American Water Company	Cost Allocation and Rate Design
53.	2007	Ky. PSC	2007-00143	Kentucky American Water Company	Cost Allocation and Rate Design
54.	2007	Mo. PSC	WR-2007-0216	Missouri American Water Company	Cost Allocation and Rate Design
55.	2007	Oh. PUC	07-1112-WS-AIR	Ohio American Water Company	Cost Allocation and Rate Design
56.	2007	Il. CC	07-0507	Illinois American Water Company	Customer Class Demand Study
57.	2007	Pa. PUC	R-00072711	Aqua Pennsylvania, Inc.	Cost Allocation and Rate Design
58.	2007	NJ BPU	WR07110866	The Atlantic City Sewerage Company	Cost Allocation and Rate Design
59.	2007	Pa. PUC	R-00072492	City of Bethlehem – Bureau of Water	Revenue Reqmts, Cost Alloc.
60.	2007	WV PSC	07-0541-W-MA	Clarksburg Water Board	Cost Allocation and Rate Design
61.	2007	WV PSC	07-0998-W-42T	West Virginia American Water Company	Cost Allocation and Rate Design
62.	2008	NJ BPU	WR08010020	New Jersey American Water Company	Cost Allocation and Rate Design
63.	2008	Va St Corp Com	PUE-2008-00009	Virginia American Water Company	Cost Allocation and Rate Design
64.	2008	Tn. Reg. Auth.	08-00039	Tennessee American Water Company	Cost Allocation and Rate Design
65.	2008	Mo PSC	WR-2008-0311	Missouri American Water Company	Cost Allocation and Rate Design
66.	2008	De PSC	08-96	Artesian Water Company, Inc.	Cost Allocation and Rate Design
67.	2008	Pa PUC	R-2008-2032689	Penna. American Water Co. – Coatesville Wastewater	Cost Allocation and Rate Design
68.	2008	AZ Corp. Com.	W-01303A-08-0227 SW-01303A-08-0227	Arizona American Water Co. - Water - Wastewater	Cost Allocation and Rate Design
69.	2008	Pa PUC	R-2008-2023067	The York Water Company	Cost Allocation and Rate Design
70.	2008	WV PSC	08-0900-W-42T	West Virginia American Water Company	Cost Allocation and Rate Design
71.	2008	Ky PSC	2008-00250	Frankfort Electric and Water Plant Board	Cost Allocation and Rate Design
72.	2008	Ky PSC	2008-00427	Kentucky American Water Company	Cost Allocation and Rate Design
73.	2009	Pa PUC	2008-2079660	UGI – Penn Natural Gas	Cost of Service Allocation
74.	2009	Pa PUC	2008-2079675	UGI – Central Penn Gas	Cost of Service Allocation
75.	2009	Pa PUC	2009-2097323	Pennsylvania American Water Co.	Cost Allocation and Rate Design
76.	2009	Ia St Util Bd	RPU-09-	Iowa-American Water Company	Cost Allocation and Rate Design
77.	2009	Il CC	09-0319	Illinois-American Water Company	Cost Allocation and Rate Design
78.	2009	Oh PUC	09-391-WS-AIR	Ohio-American Water Company	Cost Allocation and Rate Design
79.	2009	Pa PUC	R-2009-2132019	Aqua Pennsylvania, Inc.	Cost Allocation and Rate Design
80.	S009	Va St Corp Com	PUE-2009-00059	Aqua Virginia, Inc.	Cost Allocation (only)
81.	2009	Mo PSC	WR-2010-0131	Missouri American Water Company	Cost Allocation and Rate Design
82.	2010	Va St Corp Com	PUE-2010-00001	Virginia American Water Company	Cost Allocation and Rate Design
83.	2010	Ky PSC	2010-00036	Kentucky American Water Company	Cost Allocation and Rate Design
84.	2010	NJ BPU	WR10040260	New Jersey American Water Company	Cost Allocation and Rate Design
85.	2010	Pa PUC	2010-2167797	T.W. Phillips Gas and Oil Co.	Cost Allocation and Rate Design
86.	2010	Pa PUC	2010-2166212	Pennsylvania American Water Co. - Wastewater	Cost Allocation and Rate Design
87.	2010	Pa PUC	R-2010-2157140	The York Water Company	Cost Allocation and Rate Design
88.	2010	Ky PSC	2010-00094	Northern Kentucky Water District	Cost Allocation and Rate Design
89.	2010	WV PSC	10-0920-W-42T	West Virginia American Water Co.	Cost Allocation and Rate Design
90.	2010	Tn Reg Auth	10-00189	Tennessee American Water Company	Cost Allocation and Rate Design
91.	2010	Ct Dept PU Cntrl	10-09-08	United Water Connecticut	Cost Allocation and Rate Design
92.	2010	Pa PUC	R-2010-2179103	City of Lancaster-Bureau of Water	Rev Rqmts, Cst Alloc/Rate Dsgn
93.	2011	Pa PUC	R-2010-2214415	UGI Central Penn Gas, Inc.	Cost Allocation
94.	2011	Pa PUC	R-2011-2232359	The Newtown Artesian Water Co.	Revenue Requirement
95.	2011	Pa PUC	R-2011-2232243	Pennsylvania American Water Co.	Cost Allocation and Rate Design
96.	2011	Pa PUC	R-2011-2232985	United Water Pennsylvania Inc.	Demand Study, COS/Rate Dsgn
97.	2011	Pa PUC	R-2011-2244756	City of Bethlehem-Bureau of Water	Rev. Rqmts/COS/Rate Dsgn
98.	2011	Mo PSC	WR-2011-0337,338	Missouri American Water Company	Cost Allocation and Rate Design
99.	2011	Oh PUC	11-4161-WS-AIR	Ohio American Water Company	Cost Allocation and Rate Design
100.	2011	NJ BPU	WR11070460.	New Jersey American Water Company	Cost Allocation and Rate Design
101.	2011	ID PUC	UWI-W-11-02	United Water Idaho Inc.	Cost Allocation and Rate Design
102	2011	Il CC	11-0767	Illinois-American Water Company	Cost Allocation and Rate Design
103.	2011	Pa PUC	R-2011-2267958	Aqua Pennsylvania, Inc.	Cost Allocation and Rate Design

	Year	Jurisdiction	Docket No.	Client/Utility	Subject
104.	2011	Va St Corp Com	2011-00127	Virginia American Water Company	Cost Allocation and Rate Design
105.	2012	Tn Reg Auth	12-00049	Tennessee American Water Company	Cost Allocation and Rate Design
106.	2012	Ky PSC	2012-00072	Northern Kentucky Water District	Cost Allocation and Rate Design
107.	2012	Pa PUC	R-2012-2310366	Lancaster, City of – Sewer Fund	Cost Allocation and Rate Design

VERIFICATION

COMMONWEALTH OF PENNSYLVANIA	)	
	)	**SS:**
COUNTY OF CUMBERLAND	)	

The undersigned, **Paul R. Herbert,** being duly sworn, deposes and says he is employed by Gannett Fleming, Inc., that he has personal knowledge of the matters set forth in the foregoing testimony, and the answers contained therein are true and correct to the best of his information, knowledge, and belief.

Paul R Herbert

PAUL R. HERBERT

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 17th day of December, 2012.

(SEAL)

Notary Public

My Commission Expires:

February 20, 2015

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Cheryl Ann Rutter, Notary Public
East Pennsboro Twp., Cumberland County
My Commission Expires Feb. 20, 2015
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:	**)**	
	)	
THE APPLICATION OF KENTUCKY-AMERICAN	**)**	**CASE NO. 2012-00520**
WATER COMPANY FOR AN ADJUSTMENT OF	**)**	
RATES ON AND AFTER JANUARY 27, 2013	**)**	
	)	

DIRECT TESTIMONY OF LEWIS E. KEATHLEY

DECEMBER 28, 2012

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Lewis E. Keathley. My business address is 727 Craig Road, St. Louis, Missouri 63141.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by American Water Works Service Company, Inc. ("Service Company") as a Financial Analyst II. The Service Company is a subsidiary of American Water Works Company, Inc. ("American Water") that provides support services to American Water's subsidiaries. I work in the Central Division on the Rates Team, which provides support to seven state regulated operations including Kentucky American Water Company, Inc. ("Kentucky American" or "Company").

Q. PLEASE SUMMARIZE YOUR EDUCATION AND BUSINESS EXPERIENCE.

A. I graduated from the University of Missouri – St. Louis, College of Business in 1988 with a Bachelor of Science degree in Business Administration and earned an MBA from Lindenwood University in 2008.

My business experience includes:

1) 1988-1990 - Asset Manager with Missouri Savings Association in St. Louis Missouri where I managed and marketed real estate owned property;
2) 1990-1993 - Corporate Consultant for Accountants on Call in St. Louis, Missouri specializing in financial analysis and long range planning;
3) Starting in 1993, I joined Anheuser-Busch Adventure Parks in St. Louis, Missouri as a Senior Business Analyst working on budget planning and project management;

4) In 2009 I started at the Service Company in the Rates and Regulation department. My responsibilities as a Financial Analyst II, Rates & Regulation involve providing the following services to American Water's utility subsidiaries in the Central Division, including Kentucky American:

   a) Preparing and presenting rate change applications and supporting documents and exhibits according to management policies and guidelines along with state regulatory commission requirements;
   b) Implementation of rate orders to produce the approved revenue level;
   c) Verification and testing of all rate changes to ensure that the billed amounts and bill calculations are accurate;
   d) Provide financial analysis of special contracts, and ad-hoc financial analysis of various other issues.

I have attended the Utility Rate Seminar sponsored by the National Association of Regulatory Utility Commissioners ("NARUC") water committee and I have participated in rates seminars sponsored by the Service Company.

Q. HAVE YOU PREVIOUSLY PARTICIPATED IN REGULATORY MATTERS?

A. Yes. I assisted with the preparation of a 2009 rate case before the Indiana Utility Regulatory Commission (Cause No. 43680), prepared schedules and presented testimony to the Indiana Utility Regulatory Commission for a 2011 rate case (Cause No. 44022), prepared schedules and presented testimony to the Public Utilities Commission of Ohio in Ohio American Water's 2009 rate case (Case No. 09-391-WS-AIR), prepared schedules and presented testimony to the Public Utilities

Commission of Ohio in Ohio American Water's 2011 rate case (Case No. 11-4161-WS-AIR), and prepared schedules and presented testimony to the Tennessee Regulatory Authority in Tennessee American Water’s 2012 rate case (12-00049).

PURPOSE OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. The purpose of my testimony is to explain the pro forma adjustments presented in several of the Company’s expense schedules. For example, based on my analysis, the Company proposes a pro forma adjustment to its Purchased Water Expense in an effort to present to the Commission the expense the Company will incur for purchasing water in the relevant time period. The Company proposes, and I support, such pro forma adjustments to the following schedules: Adjustment of Purchased Water, Adjustment of Fuel and Power, Adjustment of Chemical, Adjustment of Waste Disposal, and Adjustment of Maintenance. Each of these schedules was prepared by me or under by supervision.

PURCHASED WATER

Q. PLEASE DESCRIBE THE METHODOLOGY USED TO DETERMINE THE ADJUSTMENT FOR PURCHASED WATER.

A. As discussed in Ms. Linda Bridwell’s testimony, we began the preparation for this case by taking the annual business plan, and made adjustments for known changes since the annual business plan was developed in June 2012. In many cases, the budget assumptions and calculations were deemed to still be accurate. An adjustment was then made from the base year to the forecasted year period which then matches the amount that was reflected in the 2013 and 2014 budget amounts for those months.

Q. WHAT IS INCLUDED IN THE PURCHASE WATER EXPENSES?

A. The Purchased Water expense includes the costs for purchasing water from other utilities in the forecasted test period. Kentucky American has portions of its system in both the Central Division and the Northern Division that are served through the purchase of treated water from other utilities. The amount that the Company anticipates for Purchased Water through the Forecast Year of 7/31/2014 is $207,227. This is less than the Base Year amount of $335,669, because the Company will no longer be purchasing water from Georgetown Municipal as a result of the anticipated Northern Division Connection project, which is explained in Mr. Lance Williams' direct testimony. This results in an adjustment of ($128,442).

FUEL AND POWER

Q. PLEASE EXPLAIN THE FUEL AND POWER ADJUSTMENTS PROPOSED IN THIS CASE.

A. As discussed in the written testimony pertaining to the Purchased Water adjustment, there is a similar adjustment for Fuel and Power based on the business plan which results in an adjustment of ($174,816). In the case of Fuel and Power, we updated several assumptions that had been made in the original business plan model for fuel and power for 2013 and 2014.

Q. WHAT ARE THE ADJUSTMENTS PROPOSED FOR FUEL AND POWER?

A. There are three adjustments that the company is making to the Fuel and Power forecasted amount. The first of these adjustments pertains to the proposed change to rates by energy provider Kentucky Utilities Company ("KU"). When the Company's forecast was prepared, it was anticipated that KU would be seeking a rate increase of

10%, however, the current KU rate case is requesting an increase of 6.5%. Therefore, we have made an adjustment of ($106,171) which represents a 3.5% decrease for the KU portion of our fuel and power forecast. At the time of this filing, there is a proposed settlement agreement for KU that may require an additional adjustment to Fuel and Power so that the future costs are reflected in this case. The second adjustment is the result of delaying the retirement of the Company's Owenton plant. The plant was forecasted to shut down in August 2013, but the plan has been revised so that the plant will remain open through December 2013 which adds four months of additional Fuel and Power expense, or an adjustment of $29,422. The forecast also did not include changes to the Northern Booster Station. Closing the Owenton plant will result in additional pumping for the Northern Booster Station. This booster station will have additional pumping requirements from January through July 2014 resulting in additional fuel and power expense of $25,467 and a total Fuel and Power expense for the forecast year of $3,768,292.

CHEMICALS

Q. PLEASE EXPLAIN THE CHEMICAL EXPENSE ADJUSTMENTS.

A. The chemical expense includes the adjustments for costs the Company incurs in purchasing the chemicals it needs to provide safe water that is compliant with all state and federal water quality standards. Similar to the Fuel and Power adjustment, the original business plan forecast was reviewed and adjustments were made to reflect known changes in the projected chemical expense. The chemical expense adjustment from the base year to the forecasted year results in an adjustment of ($109,356).

Q. WHAT ARE THE OTHER ADJUSTMENTS TO THE CHEMICAL EXPENSE AMOUNT?

A. There is an adjustment which is the result of delaying the retirement of the Company's Owenton plant. The plant was forecasted to shut down in August 2013, but the plan has been revised so that the plant will remain open through December 2013 which adds four months of additional Chemical expense, or an adjustment of $54,526.

Q. WHAT ARE THE FORECASTED CHEMICAL EXPENSES?

A. The chemical expenses proposed in the forecasted period ending July 31, 2014 are $1,779,872.

WASTE DISPOSAL

Q. WHAT ARE THE WASTE DISPOSAL EXPENSES PROJECTED IN THE FORECASTED PERIOD?

A. The Company incurs waste disposal costs as a result of the need to properly dispose of sludge and other by-products of the water treatment process. The proposed expenses are $336,750 which results in an adjustment of $12,090 from the base year. This adjustment is the result of needing to increase the sludge removal from the Richmond Road Station. There is also an adjustment of $6,200 for four additional months of waste disposal expense due to the Owenton Plant remaining in service from October 2013 to December 2013.

OTHER MAINTENANCE

Q. CAN YOU EXPLAIN THE MAINTENANCE EXPENSE PROPOSED?

A. The Company incurs maintenance costs for the general operation of the business. The proposed maintenance expense is $1,590,449, which is $103,284 less than the base year amount.

INSURANCE OTHER THAN GROUP

Q. DESCRIBE THE PROPOSED EXPENSES FOR INSURANCE OTHER THAN GROUP.

A. The expense category Insurance Other than Group includes costs for general liability, workers compensation, and property insurance. The only adjustment that the Company is proposing is an adjustment based on the difference between the base year amount and the Forecast Year which results in an adjustment of $23,814 and a forecast amount of $670,126. Insurance Other than Group is projected to be steady, with some variance due to retrospective insurance adjustments.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, it does.

VERIFICATION

STATE OF MISSOURI)
) **SS:**
CITY OF ST. LOUIS)

The undersigned, **Lewis E. Keathley,** being duly sworn, deposes and says he is a Financial Analyst II for Kentucky-American Water Company, that he has personal knowledge of the matters set forth in the foregoing testimony, and the answers contained therein are true and correct to the best of his information, knowledge, and belief.

LEWIS E. KEATHLEY

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 19th day of December, 2012.

(SEAL)
Notary Public

My Commission Expires:

STACI A. OLSEN
Notary Public – Notary Seal
STATE OF MISSOURI
St. Charles County
Commission Number 09519210
My commission expires March 20, 2013

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:	**)**	
	)	
THE APPLICATION OF KENTUCKY-AMERICAN WATER COMPANY FOR AN ADJUSTMENT OF RATES ON AND AFTER JANUARY 27, 2013	**)))**	**CASE NO. 2012-00520**

DIRECT TESTIMONY OF CHERYL D. NORTON

December 28, 2012

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Cheryl D. Norton and my business address is 2300 Richmond Road, Lexington, Kentucky 40502.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by Kentucky-American Water Company ("KAW" or "Company") as President.

Q. WHAT IS YOUR EDUCATIONAL BACKGROUND?

A. I earned a Bachelor of Science degree, with a major in Biology, and a Masters degree in Environmental Studies from Southern Illinois University at Edwardsville in 1987 and 1994, respectively.

Q. PLEASE DESCRIBE YOUR BUSINESS EXPERIENCE.

A. I started at American Water Works Service Company as a Research Analyst beginning November, 1988 and was responsible for conducting drinking water related microbiological research. I continued to work in the research department through May, 2000, holding Senior Research Analyst and Environmental Scientist positions. I was promoted to Laboratory Director in June, 2000 for the American Water Central Laboratory in Belleville, Illinois. In 2007, I became the Vice President of Operations for Illinois American Water in Belleville, Illinois assuming oversight of all operational areas of Illinois American Water including water quality, field operations, production and maintenance for water and wastewater. I assumed my current role as President at Kentucky American Water on January 10, 2011.

Q. WHAT ARE YOUR DUTIES AS PRESIDENT OF KAW?

A. I am responsible for the development, management and operations of Kentucky American Water's system in the Commonwealth of Kentucky. Among those responsibilities is establishing and maintaining the standards of service, directing the preparation of the investment, revenue, operations and maintenance budgets, establishing controls to accomplish delivery of the approved budgets, making sure that necessary funding is available to carry out all plans, and ensuring the safety and integrity of the systems for the protection of the customers, employees and operations. My responsibilities also entail developing and carrying out the business strategy for KAW and incorporating that strategy into its business plans. My goal is to ensure that all activities of the Company are carried out in compliance with all local, state and federal laws and regulations, and standards of good business practice. I report to the Senior Vice President of the Central Division of American Water.

Q. CAN YOU DESCRIBE IN GENERAL THE AREA SERVED BY KAW?

A. Yes. KAW supplies water and/or wastewater services, and public and private fire service to over 121,000 customers in Lexington and portions of 10 counties including Bourbon, Clark, Fayette, Gallatin, Grant, Harrison, Jessamine, Owen, Scott and Woodford. We enjoy a number of long-standing relationships in the communities we serve, including numerous ones with the Lexington-Fayette Urban County Government, the city of Owenton and Owen County, in areas such as education, economic development, environmental protection, fire safety and assistance for low-income families.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE KENTUCKY PUBLIC SERVICE COMMISSION OR ANY OTHER COMMISSION?

A. Yes. I testified in Case No. 2012-00096 in which KAW sought a certificate of public convenience and necessity for the construction of a transmission connection between Kentucky River Station II (KRS II) and the distribution system serving Owenton. I have also testified before the Illinois Commerce Commission.

PURPOSE OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. I will generally describe KAW and provide an overview of the request for rate relief that we have filed, including the significant drivers for the proposed new rates. I will introduce the witnesses that will be testifying in this case. In addition, I will describe the Company's organizational structure, the responsibilities of the KAW management team, and all reporting relationships. I will explain the Company's progress and plans related to the implementation of the new information systems, which we refer to as "Business Transformation" (BT).

RELIEF REQUESTED, REASON FOR RATE INCREASE, AND SUMMARY OF WITNESSES

Q. WHAT RELIEF IS KAW SEEKING IN THIS CASE?

A. KAW is seeking a rate increase to produce additional revenues of $12,317,702 per year.

Q. WHAT ARE THE BASIC FACTORS THAT CAUSE KAW TO SEEK A RATE INCREASE AT THIS TIME?

A. The company last filed for a rate increase on February 26, 2010. By Commission Order dated December 14, 2010, the Commission approved rates effective September 28, 2010. Since that time, KAW has continued to invest substantial capital to maintain and upgrade its facilities, including main replacements, treatment plant upgrades and energy efficiency projects, and information technology systems. A reduction in revenues has been realized due to declining use per customer and the termination of the sewer, storm water and landfill billing contracts throughout KAW. Ms. Linda Bridwell will discuss details of declining usage in her testimony.

Q. HAS KAW ATTEMPTED TO OFFSET THE REDUCTION IN REVENUES IT HAS OBSERVED?

A. Yes. KAW has done so by pursuing projects focused on operational efficiencies which have helped minimize the increase in routine operating costs. However, without an increase in rates, our forecasted return on common equity for the forecasted test year in this case will clearly be deficient. If KAW is to continue to meet its service obligations, construct needed capital improvements, and obtain capital at a reasonable cost, it must be able to attract capital at reasonable rates and therefore must have an increase in its revenues. KAW is strongly committed to meeting our customers' needs and expectations, and the integrity of our service cannot be maintained without adequate capital.

Q. DOES KAW ANTICIPATE SIGNIFICANT EXPENDITURES OF CAPITAL IN THE NEAR FUTURE?

A. Yes. We propose to spend $23.7 million for system improvements in 2013 (net of customer advances, contributions and refunds). Mr. Lance Williams has detailed information about KAW's past and future capital investments in his testimony.

Q. WHY DID KAW DECIDE TO TERMINATE BILLING SERVICES?

A. The decision to terminate the billing contracts was not an easy one, however, after evaluating the confusion by our customers related to the combined bills, computer system capabilities following our Business Transformation project and the fact that billing for third parties is not our core business, we felt that there was no other logical decision for KAW and our customers. Customers were routinely confused and asked questions regarding portions of their bills unrelated to KAW. Fee increases by other entities led to customers' beliefs that their water rates were increasing more rapidly, therefore eliminating transparency regarding the true value of water service. One of our key missions is to help customers understand the value of the water service they receive and a key component of that understanding it to make the bills as transparent and uncomplicated as possible. The additional services contained in a combined bill continued to undermine that mission.

Q. HAS KAW INCLUDED ANY COST TRACKERS OR DISTRIBUTION SYSTEM IMPROVEMENT CHARGES IN THIS CASE?

A. Yes. We have included purchased power and chemical trackers as well as a distribution system improvement charge (DSIC). Mr. Gary VerDouw will provide further details about these surcharges in his testimony, but cost recovery trackers and the DSIC mechanism are regulatory mechanisms that are common practices in many of the jurisdictions in which American Water operates. Trackers can be very beneficial as they provide a mechanism to provide for the proper recovery of costs that are often difficult to predict accurately. The ability of a utility to pass a specific operational cost increase or decrease (e.g., purchased power or chemicals) on to customers as it is incurred is important to the establishment of an effective ratemaking regime. The DSIC is a regulatory mechanism that allows for the recovery of costs between general rate cases related to specific distribution system improvement projects. Such projects are generally those designed to enhance water quality, fire protection reliability and long-term system viability. Both cost trackers and the DSIC are rate mechanisms that result in gradual increases in customer bills rather than the accumulation of costs to be applied all at once following a general rate increase.

Q. WHAT WITNESSES WILL BE TESTIFYING IN KAW'S CASE-IN-CHIEF AND WHAT SUBJECTS WILL THEY BE ADDRESSING IN THEIR TESTIMONY?

A. In addition to myself, our witnesses are:

Linda Bridwell	Ms. Bridwell will testify on revenues, tariffs, support services, rate case expense, regulatory deferrals, depreciation/amortization, Rate base including working capital, and declining usage.
Gary VerDouw	Mr. VerDouw will discuss Business Transformation, alternative rate making including trackers and DSIC, and risk factors affecting ROE.

Melissa Schwarzell	Ms. Schwarzell will testify on labor and labor related expenses, property taxes and rents.
Lew Keathley	Mr. Keathley will discuss purchased water, fuel and power, chemicals, waste disposal, maintenance expense and insurance other than group.
Keith Cartier	Mr. Cartier will discuss KAW operations including the integration of the KRS II plant, Northern Division operations, the meter replacement program, water quality, non-revenue water and the cost savings measures implemented by KAW.
Lance Williams	Mr. Williams will discuss capital expenditures, tap fees, construction of the Northern Division connection project, and infrastructure descriptions and proposed replacements.
Paul Herbert	Mr. Herbert will discuss cost of service.
Dr. James Vander Weide	Dr. Vander Weide will discuss cost of capital.
Scott Rungren	Mr. Rungren will discuss general office, miscellaneous expenses, deferred taxes and capital structure.
Jermaine Bates	Mr. Bates will testify on customer accounting, uncollectibles, and PSC fees.

ORGANIZATIONAL STRUCTURE

Q. PLEASE DISCUSS THE ORGANIZATIONAL STRUCTURE OF KAW AND ANY SIGNIFICANT CHANGES SINCE THE LAST GENERAL RATE CASE.

A. Since the last case, KAW conducted an extensive review of the organizational structure to optimize the layers of management, as well as determine that all resources were in place to operate as efficiently and effectively as possible. As a result of that review, several positions were eliminated from the business and other positions were created. The attached organization chart, Exhibit CDN-1, shows the current management structure. Significant changes include the elimination of the full-time Operational Risk Management Supervisor, Director of

Environmental Stewardship, and Director of Government Affairs positions. Operational risk management duties were combined with an existing supervisory role allowing better integration and improved efficiencies. Environmental duties were included in the water quality department with no additional personnel. Responsibility for regulatory and legislative relationships has shifted to our Manager of External and Governmental Affairs (Susan Lancho) and me. Ms. Lancho continues to be responsible for external relations as well. Based on customer research, a new position, Major Accounts/External Affairs Specialist, was created to better serve our larger customers. This position reports to Ms. Lancho. In addition, specific positions are now shared with Tennessee American Water including Director – Engineering, Manager – Human Resource Business Partner, Manager – Finance and Manager – Rates.

Routine operational and staffing reviews are conducted to ensure that adequate staffing levels exist to address customer and business needs appropriately. The intention of these reviews is to improve efficiencies, customer service, and to control cost to the customer. KAW routinely evaluates the total number of employees needed to properly manage its operations more efficiently and has seen that improvements in processes, along with the addition of technology, allow certain operating efficiencies to be realized. In addition to the changes in staffing mentioned in the above paragraph, these reviews have resulted in other operational staffing changes including frontline employees as described in Ms. Melissa Schwarzell's testimony. Mr. Keith Cartier will testify regarding the specifics of some of these initiatives undertaken since the last case. KAW will continue to utilize these concepts to ensure that customers continue to receive high quality water at a reasonable cost.

Q. ARE THERE ANY OTHER CHANGES IN THE COMPANY'S FILING FOR LABOR RELATED COSTS SINCE THE LAST RATE CASE?

A. In prior cases, the Company has included incentive compensation expense in its forecasted revenue requirement. The Company uses incentive compensation to drive individual employee performance in areas such as safety, water quality, customer service, and operational excellence. Without question, incentive compensation adds value for the customer by incenting these key areas of service. However, KAW recognizes that the Commission has not allowed rate recovery of that legitimate expense in recent cases based on the lack of an acceptable study on the topic. At this time, KAW has not completed a study and, therefore, incentive compensation expense is not included in this case.

BUSINESS TRANSFORMATION PROJECT

Q. ARE YOU OFFERING TESTIMONY ON AMERICAN WATER'S BUSINESS TRANSFORMATION PROGRAM?

A. Yes. I will introduce American Water's Business Transformation program, explain why the program is reasonable and necessary, and summarize the BT implementation schedule.

Q. PLEASE PROVIDE A BRIEF OVERVIEW OF THE SCOPE OF THE PROJECTS THAT COMPRISE THE BT PROGRAM?

A. In 2008-09, American Water's BT team (consisting of American Water employees) embarked on a comprehensive review and analysis of the state of its information technology systems and then made recommendations for its improvement. As a result of this comprehensive review and analysis, American Water identified the investments necessary to replace and upgrade applicable system components. The scope of the BT program includes a range of core functional areas, including: human resources, finance and accounting, purchasing and inventory management, capital planning, cash management, and customer and field services.

Q. WHY WAS IT NECESSARY FOR AMERICAN WATER TO UNDERTAKE ITS BT PROGRAM?

A. To state it simply, our technology has become antiquated, and our information technology systems need to be replaced. ECIS (the customer service and information system) was first implemented for American Water in 2001 and for KAW in 2003. JD Edwards, the system for accounting procurement, and human resources functions was first implemented for American Water in 1997 and for KAW in 1998. The JD Edwards system is well beyond its useful life and ECIS is approaching the end of its useful life. Astounding technological advances have taken place over just the last five years. Today, our customers and employees can access the internet on a handheld smartphone at a faster speed than they could from a personal computer only five years ago. KAW's existing technologies were all developed when use of the internet was in its infancy. The American Water BT review effort demonstrated that the information technology systems of American Water, which support many American Water core processes, are at or approaching the end of their useful life cycles. The technology now being used is outdated, and lacks the functionality to meet today's customer expectations.

Q. DO THE CURRENT INFORMATION SYSTEMS ADEQUATELY SUPPORT KAW'S CUSTOMER AND BUSINESS REQUIREMENTS?

A. No. When American Water's information technology systems were acquired in the mid-1990s and early 2000s, they met the customer expectations of the time. KAW's customer requirements still are being met through our existing systems, but American Water's non-integrated systems have limited automation and functionality, and over the last 10 to 15 years, more has changed than just technology. Customer expectations have also shifted. As always, KAW's customers expect to receive high quality, reliable supplies of water. But today's customers also expect more functionality (including internet billing, self-service inquiry, and appointments for repair calls) than our existing information technology systems can readily support.

Mr. Gary VerDouw is the witness on this topic and explains, in detail, the many reasons why the BT effort was vital. In general, however, American Water had fully maximized its software and systems by implementing significant customizations or workarounds, in part, to meet requirements and expectations that the original software was not equipped to support, and we have reached a point where additional customizations would be inefficient and increasingly expensive to maintain. In addition, when customizations were too costly or impractical, manual processes were put in place. These manual solutions are not optimal because they introduce redundancy and inconsistency of data, require additional manual steps, and limit information availability. For all of the above reasons, the BT investment is a prudent one. All companies in America, regulated or not, have made significant investments in IT. KAW, like those other companies, must modernize its systems.

Q. WHAT PROGRESS HAS BEEN MADE REGARDING THE LOW INCOME AFFORDABILITY ISSUES SINCE THE LAST CASE?

A. KAW officials have met numerous times with representatives from the AG's office, Community Action Council and LFUCG. A legislative bill has been drafted to enable a low income or discounted tariff for qualified customers that would help address low-income rate concerns expressed by the Commission in its order in Case No. 2004-00103 (a previous KAW rate case in which KAW proposed a form of low-income assistance). The parties continue to discuss concerns and suggestions while they move forward on this topic.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

VERIFICATION

COMMONWEALTH OF KENTUCKY)
) SS:
COUNTY OF FAYETTE)

The undersigned, **Cheryl D. Norton,** being duly sworn, deposes and says she is the President of Kentucky-American Water Company, that she has personal knowledge of the matters set forth in the foregoing testimony, and the answers contained therein are true and correct to the best of her information, knowledge, and belief.

Cheryl D. Norton
CHERYL D. NORTON

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 17th day of December, 2012.

Peggy A. [illegible] (SEAL)
Notary Public

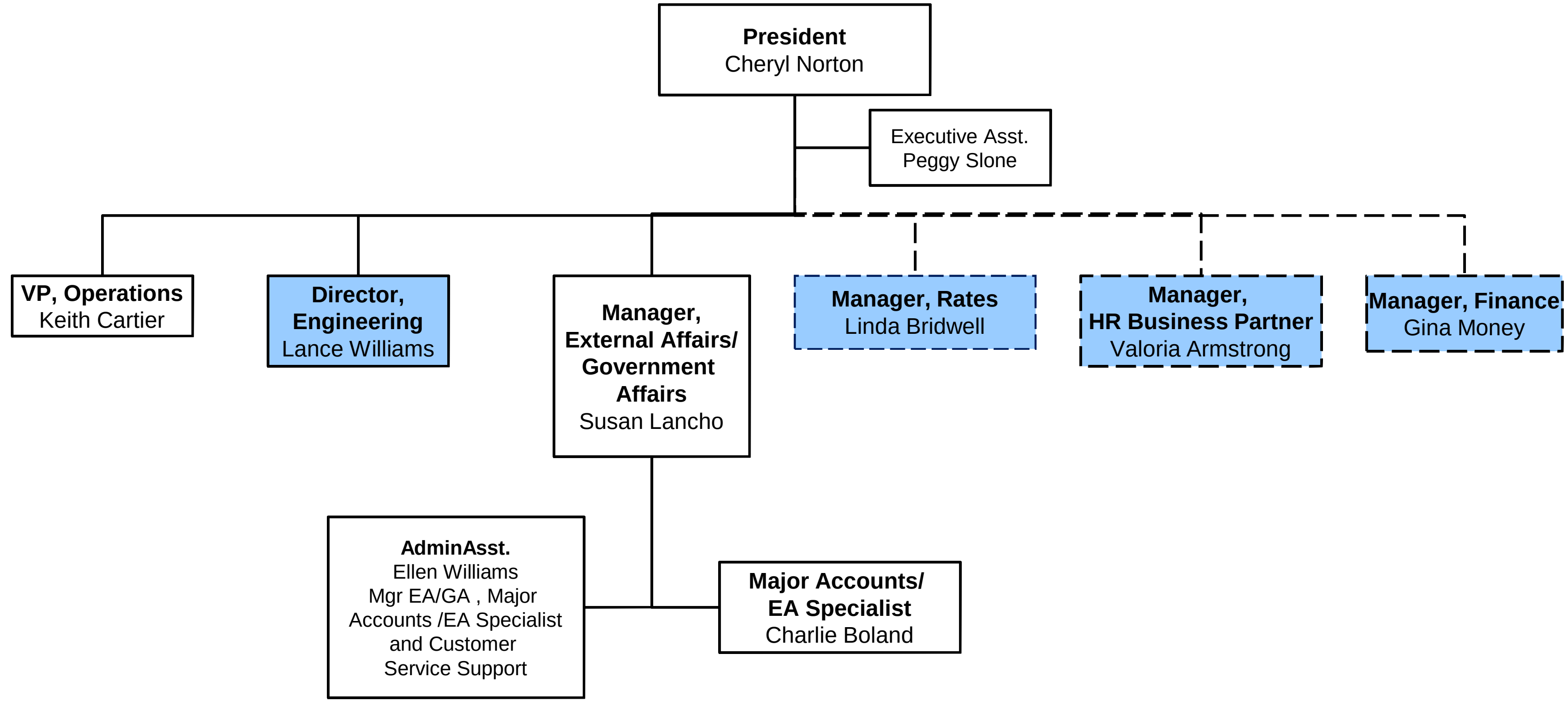
My Commission Expires:

10/3/2016

AMERICAN WATER

Kentucky American Water

Sr. Leadership



COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:	**)**	
	)	
THE APPLICATION OF KENTUCKY-AMERICAN	**)**	**CASE NO. 2012-00520**
WATER COMPANY FOR AN ADJUSTMENT OF	**)**	
RATES ON AND AFTER JANUARY 27, 2013	**)**	

DIRECT TESTIMONY OF SCOTT W. RUNGREN

December 28, 2012

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Scott Rungren. My business address is 727 Craig Road, St. Louis, Missouri 63141.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by American Water Works Service Company ("Service Company") as a Financial Analyst III. The Service Company is a subsidiary of American Water Works Company, Inc. ("American Water") that provides various services to American Water's utility subsidiaries. In this proceeding, I am testifying on behalf of Kentucky-American Water Company ("KAW" or "the Company").

Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND.

A. In May of 1983, I received a Bachelor of Science degree in Business Administration with a major in Energy Management from Eastern Illinois University. In May of 1986, I received a Master of Business Administration degree with a specialization in Finance from Northern Illinois University.

Q. PLEASE SUMMARIZE YOUR EMPLOYMENT EXPERIENCE.

A. From 1986 to 1999, I was employed by the Illinois Commerce Commission ("Commission"). I held various positions while employed there. I joined the Finance Department of the Commission in 1987, and was promoted to Senior Financial Analyst in 1989. In 1993, I transferred to what was then called the Energy Programs Division, returning to the Finance Department in 1995, again as a Senior Financial Analyst. I remained in the Finance Department at the Commission until February of 1999. In March of 1999, I began employment with Cinergy Corp., working in the Retail

Commodity Services group and focusing on their Real Time Pricing program. In 2001, I began performing long-run generation planning studies for Cinergy's Kentucky and Indiana service areas. In May of 2007, I joined the Service Company as a Senior Financial Analyst. My present duties with the Service Company include the preparation of financing and rate-related filings for American Water's Central Division operating companies, including KAW.

Q. HAVE YOU PREVIOUSLY FILED TESTIMONY BEFORE THIS OR ANY OTHER COMMISSION?

A. Yes. Although I have not previously presented testimony before this Commission, I have testified several times before the Illinois Commerce Commission. I have also testified before the Missouri Public Service Commission, the Indiana Utility Regulatory Commission, and the Public Utilities Commission of Ohio.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS CASE?

A. The purpose of my testimony is to: (i) present and describe the Company's recommended capital structure and the overall cost of capital, which reflects the rate of return on equity recommendation by Company witness Dr. James Vander Weide; (ii) present certain operations and maintenance ("O&M") expenses; and (iii) address income taxes.

Q. DID YOU PREPARE, OR CAUSE TO BE PREPARED UNDER YOUR DIRECTION AND SUPERVISION, THE SCHEDULES THAT YOU ARE SPONSORING?

A. Yes, I did.

Q. WHAT IS THE SOURCE OF INFORMATION USED IN THOSE SCHEDULES?

A. The information contained in the Exhibits and Schedules I am sponsoring was prepared from the financial and operational records of the company.

Q. WHAT FORECAST PERIOD HAS THE COMPANY PROPOSED IN THIS CASE?

A. The Company's proposed forecast year is the twelve months ending July 31, 2014.

CAPITAL STRUCTURE & OVERALL COST OF CAPITAL

Q. WHAT IS THE PURPOSE OF DETERMINING THE COMPANY'S CAPITAL STRUCTURE?

A. The capital structure is used to compute KAW's weighted average cost of capital ("WACC") in this proceeding. The WACC is the allowed rate of return that is applied to the Company's rate base.

Q. WHAT CAPITAL STRUCTURE DID THE COMPANY USE IN CALCULATING THE COST OF SERVICE (REVENUE REQUIREMENT) IN THIS CASE?

A. The Company used the capital structure for the thirteen month average of the forecasted test-year ending July 31, 2014. The capital structure proposed by the Company is attached to this testimony as Exhibit SWR-1 and is also included in the filing documents on schedules J-1 thru J-4 of Exhibit 37. Exhibit SWR- 1 indicates the thirteen-month average capital structure on which the Company based its cost of service and revenue requirement in this case. The proposed capital structure is comprised of 2.041% short-term debt, 52.037% long-term Debt (54.078% total debt), 1.168% preferred stock, and 44.754% common equity.

Q. IS THE CAPITAL STRUCTURE PROPOSED BY THE COMPANY IN LINE WITH THE CAPITAL STRUCTURES HISTORICALLY APPROVED BY THE COMMISSION FOR SETTING THE COMPANY'S RATES?

A. Yes, it is. The Company has historically maintained its debt ratio in the 53-57% range and its common equity ratio in the 40-45% range. The Company believes this mix of debt and equity is in line with rating agency expectations and in line with capital structures previously approved by the Commission. A capital structure composed of 55.246% debt and preferred stock, and 44.754% common equity enables the Company to attract capital at a reasonable cost and balances the interests of stockholders and ratepayers.

Q. IN WHAT MANNER DOES THE COMPANY CURRENTLY OBTAIN ITS LONG-TERM AND SHORT-TERM DEBT?

A. The Company utilizes the services of American Water Capital Corp. ("AWCC") to meet its long-term ("LT") and short-term ("ST") debt requirements. AWCC is an American Water Company subsidiary, and an affiliate of KAW. AWCC was created to consolidate the financing activities of the operating subsidiaries, to effect economies of scale on debt issuance and legal costs, to obtain lower interest rates through larger debt issues in the public/private markets, and to use more cost-effective means of obtaining ST debt (to bridge the gap between permanent debt financings) than the historical bank lines of credit used previously. The use of AWCC has permitted the Company to issue debt at lower interest rates and incur lower issuance and transaction costs by utilizing the combined size and resources of the entire American Water System.

Q. HAS THE COMMISSION APPROVED THE COMPANY OBTAINING ITS DEBT THROUGH AWCC?

A. Yes, it has. By Order entered July 21, 2000 in Case No. 2000-189, the Commission authorized the Company to enter into a Financial Services Agreement with AWCC which enables the Company to periodically issue debt securities in the form of notes or debentures for the purpose of replacing ST debt or refinancing maturities of existing long-term debt. In case 2006-00418 the Commission reaffirmed the Company's authorization to use AWCC for the attainment of its debt financing. In its Order in Case No. 2009-00156, the Commission again authorized the Company's use of AWCC as a source for its LT and ST debt funding. And most recently, in its Order in Case No. 2012-00393, the Commission reaffirmed the Company's continued participation in the AWCC borrowing program. The Company expects the benefits of using AWCC to continue.

Q. WHAT FACTORS REQUIRE THE COMPANY TO SEEK ADDITIONAL CAPITAL?

A. The Company has documented in past rate cases and in this filing that capital improvements to meet the new and changing regulations in the water industry, replace aged treatment and distribution facilities, and provide quality, reliable water service to its customers have driven and will continue to drive the need for new capital. The Company's business plan includes three new LT debt financings totaling $17 million and two equity infusions totaling $7 million through the forecast period ending July 31, 2014.

It is important that the Company maintain a strong financial position to allow it to continue to attract capital at a reasonable cost, which will assist the Company in its effort to provide service improvements at the least possible cost to its customers.

Q. WHY IS THE LEVEL OF SHORT TERM DEBT INCLUDED IN THE COMPANY'S FORECAST PERIOD CAPITAL STRUCTURE APPROPRIATE FOR SETTING RATES IN THIS CASE?

A. The Company uses ST debt to finance capital improvements. This type of financing is used to bridge the gap between the placement of permanent financings, such as LT debt or common equity. This permits the Company to time permanent financings in a cost-effective manner and to take advantage of attractive LT debt interest rate opportunities when they occur. The capital structure used to set rates in this proceeding should reflect the capital component mix that will be in place to finance the rate base upon which rates will be set, since the capital structure is used to calculate the overall rate of return that is applied to rate base. The level of ST debt in the Company's proposed capital structure in this case is the thirteen month average balance for the forecasted test-year ending July 2014. That level of ST debt is reflective of the level that will be utilized to fund the construction and other cash requirements during the forecasted test-year.

Q. PLEASE DESCRIBE THE NEW LT DEBT FINANCINGS INCLUDED IN THIS FILING.

A. The Company's proposed capital structure includes $11.0 million of new LT debt to be placed in May 2013, $3 million of new LT debt to be placed in November 2013, and $3.0 million of new LT debt to be placed in May 2014. The Company used an expected taxable interest rate of 5.20% for each of the planned new LT debt financings scheduled for 2013 and 2014. This rate is based on projected rates for 30-year U.S. Treasuries for the 2013-2014 period plus a credit spread.

Q. PLEASE EXPLAIN WHY YOU ASSUMED A 30-YEAR TERM TO ESTIMATE THE INTEREST RATE ON THE NEW LT DEBT.

A. The Company's expectation is that the new LT debt will be a 30-year taxable offering by AWCC, for which KAW will issue a Note to AWCC for its share of the total debt placement. The basis for assuming a 30-year term is that it more closely matches the expected life of the utility plant assets being financed than would the use of shorter term maturities.

Q. HOW DID YOU DETERMINE THE COST RATE FOR THE NEW LT DEBT ISSUANCES?

A. The projection developed for new LT debt issues in 2013 and 2014 is based on the rates for 30-year Treasuries taken from Bloomberg's forward yield curve on September 7, 2012. The projected rate for each quarter of 2013 and the first two quarters of 2014 were averaged, resulting in a base rate of 3.18%. To that rate I added 2.0% to capture the estimated spread at which BBB+ rated utilities have issued above the 30-year Treasury rate. In other words, the spread is reflective of transactions comparable to that which would be expected of an AWCC issuance. The resulting rate is 5.18%, which was rounded to 5.20%. Attached to this testimony as Exhibit SWR-2 is a schedule that shows the projected 30-year Treasury rates and the calculation of the overall rate estimate. Based on the assumption that the Company will issue 30-year bonds, and on the information contained in Exhibit SWR-2, the estimated interest rate of 5.20% on the new LT debt is reasonable.

Q. HOW WAS THE COST RATE FOR SHORT-TERM DEBT DETERMINED?

A. The Company compiled projections of the one-month LIBOR rate for the quarters ending December 31, 2012 through December 31, 2013, and then applied 25 basis points to reflect the spread between the one-month LIBOR rate and the Company's actual cost of short-term debt at the time the forecast was developed. As shown on Exhibit SWR-3, these projections were averaged, resulting in a ST debt interest rate of 0.81%. This cost rate was then used to calculate the weighted cost of ST debt in the Company's proposed capital structure. The Company will continue to monitor ST debt rates as the case progresses and will update the ST interest rate as more up-to-date forecast information becomes available.

Q. HOW WERE THE WEIGHTED COSTS OF LONG-TERM DEBT AND PREFERRED STOCK DETERMINED?

A. The face value of each issue was reduced by the unamortized issuance cost and the result was divided by the interest or dividends to arrive at the effective interest rate that will include recovery of the amortization of the issuance costs. This result was then multiplied by the percentage of each issue to the total capital to arrive at the weighted cost for each series. The weighted cost for each series of LT Debt and Preferred Stock was totaled to arrive at the overall weighted cost of LT Debt and Preferred Stock. The overall embedded cost of LT debt for the forecast year is 6.14%, and the cost of preferred stock is 8.52%. These costs are shown on Exhibit SWR-1 attached to this testimony.

Q. HAS THE COMMISSION PREVIOUSLY ADDRESSED THE METHOD BY WHICH THE WEIGHTED COSTS OF LONG-TERM DEBT AND PREFERRED STOCK ARE DETERMINED?

A. Yes, it has. The method used to determine the weighted costs of LT Debt and Preferred Stock was an issue in the Company's case number 2000-00120. The Commission Order in that case indicates that the methodology described in the previous answer (and used historically by the Commission) for setting KAW's rates was appropriate and was approved. The Company has continued to utilize this method in subsequent rate filings.

Q. WHAT WEIGHTED AVERAGE COST OF CAPITAL IS THE COMPANY REQUESTING IN THIS CASE?

A. The overall weighted average cost of capital being requested is 8.20%, as shown on Exhibit SWR-1 attached to this testimony. The Company's complete capital structure and cost of capital presentation is shown on Schedules J-1 through J-4 to Exhibit 37. The Company is requesting the return on equity ("ROE") be set at 10.9%, which is within the ROE range recommended by Company witness Dr. James Vander Weide.

O&M EXPENSES

Q. ARE THERE ANY ITEMS INCLUDED IN THE ADVERTISING AND MARKETING CATEGORY?

A. No, there are not. There are no items included in the Advertising and Marketing category. Thus, the Company's forecasted expense is $0.00.

Q. WHAT IS INCLUDED IN THE BUILDING MAINTENANCE AND SERVICE CATEGORY?

A. Items included in this category are building costs that are incurred throughout the year that are part of maintaining office facilities. Included in this category are costs for electricity, grounds keeping, heating, janitorial, security services, trash removal, water, and waste water. The Company's forecast for building maintenance and service category is $478,958. In the Company's prior rate case these costs were included in General Office Expense and Miscellaneous Expense.

Q. PLEASE EXPLAIN THE ITEMS INCLUDED IN CONTRACT SERVICES.

A. Items in this category include other contract services for items such as snow removal, mowing, and landscaping. Also included are expenditures for lab testing, accounting, audit and legal fees. The contract services expense included in the forecast is $858,406. In the Company's prior rate case these costs were included in Maintenance Expense and Miscellaneous Expense.

Q. WHAT IS INCLUDED IN THE CATEGORY OF EMPLOYEE RELATED EXPENSES?

A. Items included are employee expenditures related to continuing education, conferences, seminars, commerce fees, and meals. The Company's forecasted expense is $190,707. In the Company's prior rate case these costs were included in General Office Expense.

Q. WHAT ITEMS ARE INCLUDED IN THE CATEGORY OF MISCELLANEOUS EXPENSES?

A. Included in this category are various expense items that are incurred throughout the year that are part of carrying out normal business functions. Miscellaneous expenses include customer education items, community relations, company dues and memberships, director's fees, hiring costs, injuries and damages, lab supplies, and operating expenses. The miscellaneous expense included in the forecast is $1,170,548. In the Company's prior rate case these costs were included in General Office Expense and Miscellaneous Expense.

Q. PLEASE EXPLAIN WHAT ITEMS ARE INCLUDED IN OFFICE SUPPLIES AND EXPENSES.

A. Included in this category are credit line fees, office and administrative supplies such as pens, pencils, paper, etc., software licenses, and uniforms. The Company's forecast for office supplies and expenses is $377,375. In the Company's prior rate case these costs were included in Customer Accounting Expense and Miscellaneous Expense.

Q. WHAT IS INCLUDED IN THE CATEGORY OF TELECOMMUNICATION EXPENSE?

A. Telecommunication expense items include office telephone and cell phone charges. This item was not broken out as a separate line in the previous case and was part of the prior General Office Expense line. The forecasted expense is $257,369.

Q. WHAT ITEMS ARE INCLUDED IN TRANSPORTATION EXPENSE?

A. Items included are transportation operation and maintenance and fuel costs. This item was not broken out as a separate line in the previous case and was part of the prior Miscellaneous Expense line. KAW's forecast for transportation expense is $481,064.

INCOME TAXES

Q. PLEASE EXPLAIN THE COMPANY'S FORECASTED LEVEL OF INCOME TAXES.

A. The Company's filing is based on a calculation of current federal and state income taxes at the statutory income tax rates of 35% and 6%, respectively. The 6% state income tax rate was effective January 1, 2007. The Company has forecasted a level of income taxes for the forecasted test year in the amount of $7,639,106 at current rates. The current provision for federal and state income taxes of $3,658,209 and $491,703 is shown on Schedules E-1.3 and E-1.4, respectively, to Exhibit 37. Deferred federal and state income taxes of $2,814,402 and $674,793 are also shown on Schedules E-1.3 and E-1.4, respectively, of Exhibit 37.

To arrive at the total current provision, forecasted expenses were deducted from operating revenues to arrive at income before income taxes. This was done for both the federal and state tax calculations. From this number statutory add backs and deductions were made to arrive at the taxable income. These statutory adjustments are shown on Schedules E-1.3 and E-1.4 of Exhibit 37 and are labeled as reconciling items.

Q. WAS THE SAME METHOD USED TO CALCULATE DEFERRED INCOME TAXES AS WAS USED IN THE COMPANY'S LAST RATE CASE?

A. Yes. The Company has continued to use SFAS 109 in recording deferred income taxes and that method has been recognized for rate recovery in prior Company rate cases.

Q. HOW DID THE COMPANY CALCULATE THE DEFERRED TAX LIABILITY SHOWN ON EXHIBIT 37, SCHEDULE B-6, PAGE 2 OF 2, WHICH IS A REDUCTION TO RATE BASE?

A. The deferred tax liabilities for Deferred Debits and Deferred Maintenance are calculated by applying the statutory federal and state income tax rates to the 13-month average balance included in rate base. This represents the proper method of calculating the deferred tax liability using SFAS 109.

The amount shown on Exhibit 37, Schedule B-6, page 2 of 2 for Deferred Taxes related to Utility Plant in Service entails analyzing and determining the net change in a number of balance sheet accounts both for book and tax basis. This analysis includes UPIS, accumulated depreciation reserve, regulatory assets and regulatory liabilities, and Customer Advances and CIAC.

SFAS 109 is a balance sheet approach to deferred income taxes that requires the deferred income tax provision be shown in total, but also recognizes the regulatory assets and liabilities that will be recovered in rates in future years.

Q. HOW DID THE COMPANY ADJUST THE PER BOOKS DEFERRED TAX EXPENSE TO DETERMINE THE FORECASTED TEST-YEAR EXPENSE?

A. Beginning with the deferred tax expense at September 2012, adjustments were made to reflect calculations of deferred taxes associated with UPIS through the end of the forecasted test period. This was done for both book and tax basis accounts and incorporated all temporary timing differences through the forecasted test-year. The statutory tax rates were applied to these changes between book and tax basis property to calculate each individual month's deferred tax expense or benefit.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, it does.

VERIFICATION

STATE OF MISSOURI	)	
	)	**SS:**
CITY OF ST. LOUIS	)	

The undersigned, **Scott W. Rungren,** being duly sworn, deposes and says he is a Financial Analyst III for Kentucky-American Water Company, that he has personal knowledge of the matters set forth in the foregoing testimony, and the answers contained therein are true and correct to the best of his information, knowledge, and belief.

Scott W. Rungren

SCOTT W. RUNGREN

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 19th day of December, 2012.

_________________________ (SEAL)
Notary Public

My Commission Expires:

STACI A. OLSEN
Notary Public – Notary Seal
STATE OF MISSOURI
St. Charles County
Commission Number 09519210
My commission expires March 20, 2013

KENTUCKY-AMERICAN WATER COMPANY
Case No. 2012-00520
COST OF CAPITAL SUMMARY AT CURRENT AND PROPOSED RATES
13 MONTH AVERAGE

Exhibit SWR-1

DATA: ___ BASE PERIOD _X_ FORECASTED PERIOD
DATE OF CAPITAL STRUCTURE: AVERAGE FOR FORECASTED PERIOD
TYPE OF FILING: _X_ ORIGINAL __ UPDATED __ REVISED
WORKPAPER REFERENCE NO(S).: W/P-7

SCHEDULE J-1.1/J-1.2

Witness Responsible: Scott Rungren

Line No.	Class of Capital	13 Month Average Amount	% of Total	Add (1)	Adjusted Capital	Cost Rate	Average Weighted Cost
1							
2	Short-Term Debt	$7,832,734	2.041%	$ 13,199	$7,845,933	0.810%	0.02%
3							
4	Long-Term Debt	199,750,138	52.037%	336,517	200,086,655	6.140%	3.20%
5							
6	Preferred Stock	4,482,398	1.168%	7,553	4,489,951	8.520%	0.10%
7							
8	Common Equity	171,796,415	44.754%	289,418	172,085,833	10.900%	4.88%
9							
10	Total Capital	$383,861,686	100.000%	$ 646,687	$384,508,373		8.20%
11							
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13							
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15							
16	(1) JDITC: $ 646,687						
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Kentucky-American Water Company
Case No. 2012-00520
Long-Term Interest Rate Projection

Exhibit SWR-2

Projected Date	30-Year U.S. Treasury	Estimated Spread to Treasury	Estimated AWCC 30-Year Interest Rate
3/31/2013	3.106%	2.00%	5.106%
6/30/2013	3.136%	2.00%	5.136%
9/30/2013	3.166%	2.00%	5.166%
12/31/2013	3.195%	2.00%	5.195%
2013 Average			5.151%
3/31/2014	3.224%	2.00%	5.224%
6/30/2014	3.252%	2.00%	5.252%
2014 Average			5.238%
Six-Quarter Average			5.18%

Kentucky - American Water Company
Case No. 2012-00520
Short-Term Interest Rate Projection

Exhibit SWR-3

Projected Date	1 Month LIBOR	Spread To LIBOR	Estimated AWCC Short-Term Interest Rate
12/31/2012	0.5380%	0.2500%	0.7880%
3/31/2013	0.5280%	0.2500%	0.7780%
6/30/2013	0.5390%	0.2500%	0.7890%
9/30/2013	0.5760%	0.2500%	0.8260%
12/31/2013	0.6230%	0.2500%	0.8730%
Average			0.8108%

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:	**)**	
	)	
THE APPLICATION OF KENTUCKY-AMERICAN	**)**	**CASE NO. 2012-00520**
WATER COMPANY FOR AN ADJUSTMENT OF	**)**	
RATES ON AND AFTER JANUARY 27, 2013	**)**	

DIRECT TESTIMONY OF MELISSA L. SCHWARZELL

December 28, 2012

Q. PLEASE STATE YOUR NAME, POSITION, AND BUSINESS ADDRESS.

A. My name is Melissa L. Schwarzell. I am employed by American Water Works Service Company ("Service Company") as a Financial Analyst II for American Water's seven-state Central Division, which includes Kentucky-American Water Company ("Kentucky American" or the "Company"). The Service Company is a subsidiary of American Water Works Company, Inc. ("American") that provides support services to American's subsidiaries, including Kentucky American. My business address is 2300 Richmond Road, Lexington, Kentucky 40502.

Q. PLEASE SUMMARIZE YOUR EDUCATION AND BUSINESS EXPERIENCE.

A. I graduated from The Ohio State University in 2001, with a Bachelor of Science degree. I began my employment in 2001 when I was hired by the Bluegrass Area Agency on Aging as a Financial / Administrative Assistant. My responsibilities in that role included bookkeeping, computer system training and implementation, administrative support, and the development and maintenance of data tools to track service delivery, administration, and funding allocations for various social service programs. I joined American in 2009 as an Executive Assistant to the Vice President of Finance, Eastern Division. In addition to providing administrative support, my job responsibilities included labor budgeting and analysis, development and maintenance of Service Company review tools, and revenue analytic development. I was promoted to Financial Analyst I Rates in February 2011 and to Financial Analyst II Rates in December 2011. In my current position, I work with rates and rate issues for regulated subsidiaries of American, including Kentucky American. I attended the American Water Rate School in 2010 and completed the Institute for Public Utilities Advanced Regulatory Program in 2011.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. The purpose of my testimony is to address various adjustments to Operating Expenses. These include all labor-related adjustments, such as Salaries and Wages, Group Insurance including Other Post Employment Benefits ("OPEBs"), Pension Expense, Other Benefits, and most components of General Tax, including Payroll Tax, Property Tax, and Other Taxes and Licenses. I am also testifying regarding Rent Expense. All adjustments may be found on Exhibit 37 C-1 and Exhibit 37 D-2.

SALARIES AND WAGES

Q. CAN YOU PLEASE BEGIN BY DESCRIBING THE TOTAL ADJUSTMENT TO SALARIES AND WAGES FOR THE FORECAST YEAR?

A. Certainly. Base year Salaries and Wages expense is $7,150,158, for the twelve months ending March 31, 2013. The forecast year salaries and wages expense is $6,880,213 for the twelve months ended July 31, 2014. The forecast adjustment therefore reduces the expense by $269,945.

Q. **BEFORE YOU DISCUSS THE CALCULATION OF FORECASTED SALARIES AND WAGES, IS THERE ANY SIGNIFICANT CHANGE IN THE COMPANY'S FILING FOR THIS TYPE OF EXPENSE SINCE THE MOST RECENT RATE CASE?**

A. Yes. Unlike prior proceedings, the Company has not included Incentive Plan expense in its Salaries and Wages revenue requirement in this case. Please see the testimony of Cheryl Norton for further discussion as to why Incentive Plan expense was not included.

Q. CAN YOU DISCUSS THE PRIMARY FOUNDATIONS FOR THE CALCULATION OF THE COMPANY'S FORECASTED SALARIES & WAGES EXPENSE?

A. The forecast year pro forma Salaries & Wages expense was calculated on a position-by-position basis. In August 2013, at the onset of the forecast year, calculations are based on 137 full-time positions. By the end of the forecast year, in July 2014, calculations are based on 131 full-time positions. Reductions to headcount during the forecast year are driven by a number of factors. The first is the result of ongoing efficiencies from the Company's accelerated meter replacement program, which are expected to result in the reduction of three full-time meter reading positions by the end of the forecast year. Also, pending Commission approval of the proposed facilities in Case No. 2012-00096, reflected in this change are four headcount reductions resulting from the discontinued operation of the Owenton Water Treatment Plant. The final change to headcount during the forecast year is the addition of one Production Technician position at Kentucky River Station II at Hardin's Landing ("KRS II"). This position is currently being held open until the Owenton Water Treatment Plant is no longer operating (pending approval of the proposed facilities from Case No. 2012-00096), to allow the Owenton Water Treatment Plant's employees an opportunity to apply.

Changes to headcount that have occurred prior to the beginning of the forecast year also merit discussion, as the August 2013 starting headcount of 137 reflects recent organizational changes and efficiencies at the Company. For example, the nine Meter Reader positions reflected at the start of the forecast year are five fewer than in 2010, as a result of the ongoing accelerated meter replacement program. Recent streamlining also resulted in the elimination of four positions, including: Operational Risk Management Supervisor (Supervisor Loss Control), Director of Governmental Affairs, Supervisor Business Process, and one Clerk of Operations. One additional headcount reduction was achieved with the consolidation of the Supervisor Water Quality and Director of Water Quality & Environmental Compliance positions into a single Superintendent of Water Quality position. The Company has also allowed some attrition resulting in one less Supervisor of Field Operations and two fewer positions for the Owenton operation. Two positions have been transferred to the Service Company since 2010 as well, including Finance Manager & Director of Engineering. There have also been two additions, including an operating company Kentucky American President (to replace a Service Company President position) and a Major Accounts/External Affairs Specialist.

Q. CAN YOU EXPLAIN THE VARIOUS COMPONENTS OF SALARIES & WAGES EXPENSE AND HOW THEY WERE CALCULATED IN GROSS?

Yes. The first component of Salaries & Wages is regular-time expense. To calculate the gross regular-time cost, wages were applied to each month's working hours and totaled for the forecast year. Wages for union positions are calculated based on the negotiated union contract, which is in effect through October 31, 2014. Wages for non-union positions are based on employees' wages or on salary mid-points, with merit increases of 3% estimated for April 2013 and April 2014. Gross regular time expense for the forecast year equals $7,654,813.

The next component of Salaries & Wages is overtime expense. Overtime hours are based on each month's budgeted overtime hours for each position. The overtime multiplier is based upon the recent average. Each associate's overtime gross expense is calculated by multiplying the associate's hourly wage by the overtime multiplier by the overtime hours. Gross overtime expense for the forecast year equals an additional $596,959.

A third component of Salaries & Wages expense is Shift premiums. These are differentials in hourly rates paid to employees for working the 2nd or 3rd shift, per the negotiated union contract. A two-year average annual gross shift premium amount of an additional $7,193 was spread by position according to payroll history.

All of these elements in sum equal a gross expense of $8,258,965.

Q. ONCE THE GROSS COSTS ARE CALCULATED, HOW IS FORECAST YEAR OPERATIONS & MAINTENANCE (O&M) SALARIES & WAGES EXPENSE DERIVED?

A. To derive O&M Water Salaries & Wages, each position's gross costs are multiplied by both a "Water %" and an "O&M %". (Scheduled overtime is only multiplied by the "Water %," as these are production O&M hours.) The "Water %" is assessed by position and is based on a two-year average of payroll charges to water districts. Applying this percent has the affect of stripping out projected labor utilized in support of the sewer operations. The "O&M %" is based on each position's budgeted percent of charges to operations and maintenance. This eliminates the labor expense that is projected to be included in capital projects and programs. When the gross costs of $8,258,965 are netted for Water and for O&M, the resulting total is $6,880,213 of expense.

Q. WAS INCENTIVE PAY EXPENSE CALCULATED AT ALL?

A. Yes, incentive pay was also calculated. It totaled $349,221 of Water O&M Incentive pay. As mentioned above and discussed more fully in Ms. Norton's testimony, Incentive pay is not included in the Company's revenue requirement in this proceeding.

Q. CAN YOU SUMMARIZE THE SALARIES AND WAGES EXPENSE ADJUSTMENTS?

A. To summarize, total forecast year regular, overtime, and shift premium expense of $6,880,213 would normally be added to Incentive expense of $349,221, to yield a total expense of $7,229,434. This would be a $79,276 adjustment for the forecast year. However, incentive pay is removed for the purposes of this proceeding from the total expense to arrive at an adjusted total of $6,880,213.

GROUP INSURANCE INCLUDING OPEB'S

Q. COULD YOU DISCUSS THE ADJUSTMENT TO OPERATING EXPENSES FOR GROUP INSURANCE INCLUDING OPEB'S?

A. Certainly. The adjustment to group insurance expense is comprised of two components: other post employment benefits ("OPEB"s), and Non-OPEB group insurances.

Q. WHAT ARE THE NON-OPEB GROUP INSURANCES?

A. Non-OPEB group insurances include the basic life, short and long term disability, accidental death and disability ("AD&D"), voluntary employee beneficiary association

("VEBA"), and health, dental and vision coverages that Kentucky American provides for its associates.

Q. WHAT WAS THE BASE YEAR EXPENSE FOR NON-OPEB GROUP INSURANCE?

A. The base year expense level for these costs was $1,275,452.

Q. CAN YOU PLEASE DESCRIBE THE FORECAST YEAR CALCULATION FOR NON-OPEB INSURANCES?

A. Certainly. There are several types of insurance calculations to describe which fit into three categories: 1) Basic Life, Short and Long term disability, and AD&D; 2) VEBA, and; 3) Health, Dental and Vision insurance. Each is described below.

The first category (Basic Life, Short and Long term disability, and AD&D) was calculated based on the 2012 plan rates, with no increase in cost until October 2013, after which an 8% increase is projected. The forecasted rates are used to calculate costs for each associate, according to the insurance stipulations and with any differences for union and non-union associates applied appropriately. The gross forecast year cost for these types of insurance is $38,782.

The second category, VEBA, is a trust designed to help finance post-employment benefits for some non-pension-eligible employees. It has a gross cost of $500 per eligible employee. Eligible employees for VEBA include union employees hired between January 1, 2006 and December 31, 2010. The gross forecast year VEBA cost is $10,042.

The third category - Health, Dental, and Vision insurance – involves a gross Company cost net of an employee contribution. The costs and contributions vary by plan type (e.g. family, employee, or employee + spouse). Costs and contributions are calculated on a position by position basis, according to actual employee plan selections.

Plan costs for the forecast year were calculated based on the 2012 rates, with no expected increase until October 2013. After October 2013 through 2014, the Company's gross monthly plan cost is expected to be 8% higher.

Employee contributions for the first months of the forecast year are based on 2013 actual contributions. Employee contribution levels change annually on January 1, so the 8% increase discussed in the last paragraph is reflected in employee contributions beginning in January 2014.

When each associate's health, dental, and vision plan costs are totaled, the gross Company cost is $2,009,240. When employee contributions are totaled, they equal $352,096. The net Company expense is thus $1,657,143 for the forecast year.

Finally, Water O&M totals for non-OPEB group insurances are calculated by totaling these three categories of insurance expense for each associate, then multiplying the total by each associate's Water O&M percentage. This net O&M expense is $1,418,433 (see table below). This constitutes an adjustment of $142,990 from the test year.

Line No.	Type of Group Insurance	Gross Plan Cost	Employee Contributions	Gross Plan Cost Less Employee Contributions
1	Life, AD&D, Disability	$ 38,872		$ 38,782
2	VEBA	$ 10,042		$ 10,042
3	Health, Vision, Dental	$ 2,009,240	($ 352,096)	$ 1,657,143
4	**Gross Total (Line 1 + Line 2 + Line 3)**			**$ 1,705.967**
5				
6	**Overall Group Insurance Water O&M Rate (Line 8 / Line 4)**			**83.15%**
7				
8	**Water O&M Total (Line 4 for Each Associate x Associate's O&M Rate)**			**$ 1,418,443**

Q. CAN YOU DESCRIBE THE OPEB COMPONENT OF GROUP INSURANCE EXPENSE?

A. The second component of group insurance expense relates to the accrual cost of OPEBs under the FASB Accounting Standards Codification Topic 715 (formerly Statement of Financial Accounting Standards 106). Depending on their start date, some Kentucky American associates are eligible for OPEBs upon their retirement. Non-union associates hired before January 1, 2006 and union associates hired before January 1, 2001 are eligible for OPEBs. For those associates who are eligible, the Company offers various levels of coverage for medical, dental, and prescription drug benefits, depending upon retirement date and age.

Q. WHAT IS THE BASE YEAR AMOUNT?

A. Base year OPEB expense is $689,064.

Q. HOW WAS FORECAST YEAR OPEB EXPENSE CALCULATED?

A. Pro forma forecast year OPEB costs are calculated based on the latest estimates for 2013 and 2014 post-retirement welfare costs. The annual estimates for American are $33.3 million and $30.7 million respectively. Amounts for each forecast month are calculated by dividing the appropriate annual amount by twelve, then multiplying by 2.61%, which is Kentucky American's 2012 OPEB allocation. This calculation yields a gross expense of $829,545.

To calculate the Water O&M portion of OPEB expense, an overall Water O&M percentage was applied. This overall O&M percentage was calculated by dividing grand total Water O&M Labor by grand total gross labor ($6,880,213 / $8,258,965 = 83.31%). When this percentage is multiplied by gross OPEB expense, a forecast year Water O&M expense level of $691,061 is derived. This constitutes an adjustment of $1,997 from the base year.

Q. WHAT IS THE RESULTING GRAND TOTAL GROUP INSURANCE EXPENSE, FOR BOTH COMPONENTS?

A. Total O&M health, disability, VEBA, and life-related insurance expense is $1,418,443. Total O&M OPEB expense is $691,061. When these two components of group insurance expense are added together, the total forecast year sum is $2,109,504.

OTHER BENEFITS

Q. CAN YOU DESCRIBE THE ADJUSTMENT TO "OTHER BENEFITS"?

A. Certainly. The "Other Benefits" line of the income statement contains a variety of labor-related expenses. Two of these expenses, 401k and DCP, are calculated on a position-by-position basis. Other expenses in this category are reflected per the Company's forecasted operational costs.

Q. CAN YOU DISCUSS THE 401K EXPENSE FOUND IN "OTHER BENEFITS"?

A. Kentucky American incurs 401k expense when it matches employee contributions to 401k retirement accounts. The match amounts are determined by each employee's benefit group or hire date. For employees whose benefit group falls into an "Original" category (benefit groups UPRE01 and AMERST), the Company matches 50% of the first 5% of the employee's contribution (for a maximum of 2.5%). For employees whose benefit group falls into an "Enhanced" category (benefit groups UP0S01, UPOS06, and AMER06), the Company matches 100% of the first 3% and 50% of the next 2% of the employee's contributions (for a maximum of 4%). The base year 401k expense amount for these matching contributions was $124,791.

Q. HOW WAS 401K CALCULATED FOR THE FORECAST YEAR?

A. Forecast year gross 401k costs were calculated for each associate based on his or her forecast year wages, his or her 2012 employee contribution levels, and the corresponding match for his or her benefit group. Each associate's Water % and O&M % were then applied to the Company's 401k match cost, to derive a total net Water O&M cost. These calculations yield a forecast year gross cost of $170,223 and a net Water O&M cost of $137.645. This O&M costs constitutes a $12,884 adjustment from the base year. The amount had a further adjustment to reduce 401k match to certain employee's incentive plan-based contributions. This additional adjustment of $2,040 brings the forecast total down to $135,635.

Q. WHAT IS THE DCP EXPENSE FOUND IN "OTHER BENEFITS"?

A. DCP is a retirement savings program for employees not eligible for the defined benefit pension program based on their hire date. The DCP program entails Kentucky American contributing an amount equal to 5.25% of an employee's base pay into a retirement account. Kentucky American associates with a benefit group of UP0S01, UPOS06, DCPT01, or AMER06 are eligible for DCP. The base year expense for DCP was $157,976.

Q. HOW WAS DCP CALCULATED FOR THE FORECAST YEAR?

A. Forecast year DCP was calculated by multiplying the pro forma regular time pay of each eligible associate by 5.25%. Each associate's Water % and O&M % were then applied to their gross DCP costs. These calculations yield gross forecast year DCP costs of $209,193 and a net O&M DCP expense of $170,708. This constitutes a $12,733 increase or adjustment from the base year.

It is noteworthy that DCP and 401k expenses trend upward more quickly than other labor expenses due to natural workforce transition. This is because new employees are all eligible for DCP and higher 401k matches, while longer-term employees are not. As a consequence, the number of DCP and Enhanced 401k eligible employees increases over time as new employees join the Company and longer-term employees leave the Company.

Q. **WHAT OTHER EXPENSES ARE INCLUDED IN "OTHER BENEFITS"?**

A. Various other expenses reflected here include tuition assistance, training, drug screenings, health incentives, biological exposure vaccinations, and safety incentives. These are reflected based on the Company's forecast for these expenses.

Q. WHAT IS THE GRAND TOTAL ADJUSTMENT TO "OTHER BENEFITS"?

A. Total "Other Benefits" expense is $354,192 for the base year and $403,472 for the forecast year, resulting in a total adjustment of $49,280.

PENSION

Q. CAN YOU DISCUSS THE ADJUSTMENT TO PENSION EXPENSE?

A. Yes**.** Kentucky American records pension expense according to FASB Accounting Standards Codification Topic 715 or "ASC 715", (formerly Statement of Financial Accounting Standards 87). The base year O&M defined benefit pension expense totaled $1,025,878. Forecast year pension expense is $983,207, which is an adjustment of ($42,671.)

Q. HOW DID YOU CALCULATE THE FORECAST YEAR DEFINED BENEFIT PENSION EXPENSE?

A. The forecast year calculation of defined benefit pension expense is based on the latest estimates for American' 2013 & 2014 ASC 715 defined benefit pension expense. Total American accruals are expected to be $64,500,000 and $55,600,000 respectively. Amounts for each forecast year month are calculated by multiplying the appropriate annual amount by 1.99%, which is Kentucky American's 2012 pension expense allocation. This yields a gross expense of $1,180,236. The forecast year grand total Water O&M % of 83.31% is then applied to arrive at a net expense of $983,207.

GENERAL TAX

Q. WHAT ARE THE VARIOUS COMPONENTS OF GENERAL TAX?

A. General Tax includes expenses incurred for property tax, payroll taxes, other taxes and licenses, and regulatory assessment fees. I will discuss the adjustments to the first three items. Please see the testimony of Mr. Jermaine Bates for discussion of regulatory assessment fees.

Payroll Tax

Q. COULD YOU PLEASE DISCUSS THE ADJUSTMENT TO GENERAL TAX FOR PAYROLL TAXES?

A. Certainly. Payroll taxes are related to Salaries and Wages. Taxes must be paid to fund the Federal Insurance Contributions Act, which is divided into two pieces: Old Age Survivors & Disability Insurance ("OASDI," or more commonly "FICA"), and Hospital Insurance (or more commonly "FICA Medicare"). Payroll taxes must also be paid for Federal Unemployment Tax ("FUTA") and State Unemployment Tax ("SUTA").

Q. WHAT ARE THE BASE YEAR AND FORECAST YEAR AMOUNTS FOR PAYROLL TAX?

A. Base year O&M payroll taxes equaled $535,417.

Forecast year O&M payroll taxes were calculated on a position-by-position basis, using current 2012 tax rates and pro forma wages.

Resulting forecast year gross payroll taxes total $658,837. Each associate's gross payroll taxes are multiplied by the associate's Water % and O&M %, to arrive at Water O&M payroll tax expense for each associate. When totaled, these O&M payroll taxes equal $547,067. This represents a forecast year adjustment of $11,650. An additional adjustment is made to remove $14,466 of payroll taxes related to Incentive pay. The resulting net O&M Water Payroll taxes are $532, 600.

Property Tax

Q. CAN YOU DISCUSS THE PROPERTY TAX ADJUSTMENTS TO KENTUCKY AMERICAN'S "GENERAL TAX" EXPENSE?

A. Yes. Property taxes for the base year were $4,132,859. To calculate property tax expense for the forecast year, a baseline tax rate was established then applied to the forecast year property.

To establish the baseline tax rate, 2012 tax year information was used. First, measured 2012 property was established by totaling the 12/31/2011 balances for the following: Utility Plant in Service (UPIS) $580,644,329, Construction Work in Progress (CWIP) $10,176,232, and Materials & Supplies (M&S) $691,214. This yields total property of $591,511,776. This was compared to the 2012 year property tax amounts. All counties and the State of Kentucky have established their 2012 assessments. Several counties and the State of Kentucky have also established their 2012 rates. That said, about 3% of the Company's assessed property value resides in counties which have not yet set their 2012 rates. In these counties, the 2011 tax rates were used to calculate 2012 property tax. Using these latest known and measurable metrics, 2012 property tax is calculated to be $4,215,160. When compared against the 12/31/2011 property, a baseline tax rate of 0.7126% is indicated ($4,215,160 / $591,511,776 = 0.7126%).

This baseline tax rate of 0.7126% is then used to calculate the property taxes for the months of August 2013 – July 2014. Property applicable to the five month period of August 2013 – December 2013 is the UPIS, CWIP, and M&S as of 12/31/2012, which totals $610,932,457. Property applicable to the seven month period of January 2014 – July 2014 months is UPIS, CWIP, and M&S of $635,522,609. The weighted average of these amounts is $625,276,712. When multiplied by the baseline tax rate, a forecast year property tax expense of $4,455,772 is derived ($625,276,712 x 0.7126% = $4,455,772). This indicates an adjustment of $322,912 over the base period.

Tax Discounts and Other Taxes & Licenses

Q. ARE THERE ANY OTHER ADJUSTMENTS TO GENERAL TAX?

A. There are two more small adjustments, to "Tax Discounts" and to "Other Taxes & Licenses."

The first of these adjustments is to remove the Tax Discounts amount of $7,847. This account was only recently utilized to reflect tax discounts, which previously were booked to the "Other Water Revenue" 40189900 account. Due to the very recent nature of this change, these funds are still reflected in the "Other Water Revenue" 40189900 account in this case. With either accounting treatment, whether this credit serves as a reduction to expense or increase to revenue, the revenue requirement reducing effect is materially the same.

The second of these adjustments is to "Other Taxes & Licenses." The base year amount for this account is $10,000. Entries to this account generally comprise payments to Bourbon County and Georgetown / Scott County for license fees. The 2012 amounts for these fees total $2,740. The same amount was presumed for the forecast year. Thus an adjustment of $7,260 is made.

RENT EXPENSE

Q. WHAT IS THE ADJUSTMENT TO RENT EXPENSE PROPOSED BY KAW?

A. Base year rent expense was $35,782. This includes rent expense for copiers, postage machines, and various real estate rental payments. There is a $2,137 adjustment to the base year to reflect the costs of a renewed copier contract as well as for an increase in real estate rent to CSX, RJ Corman, and Norfolk Southern. After this adjustment, forecasted rent expense totals $37,919.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.

VERIFICATION

COMMONWEALTH OF KENTUCKY)
) SS:
COUNTY OF FAYETTE)

The undersigned, **Melissa L. Schwarzell,** being duly sworn, deposes and says she is a Financial Analyst II for Kentucky-American Water Company, that she has personal knowledge of the matters set forth in the foregoing testimony, and the answers contained therein are true and correct to the best of her information, knowledge, and belief.

____
MELISSA L. SCHWARZELL

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 17th day of December, 2012.

______________________(SEAL)
Notary Public

My Commission Expires:

10/3/2016

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

	)	
IN THE MATTER OF:	)	
	)	
THE APPLICATION OF KENTUCKY-AMERICAN	)	
WATER COMPANY FOR AN ADJUSTMENT	)	
OF RATES ON AND AFTER JANUARY 27, 2013	)	**DOCKET NO. 2012-000520**
	)	
	)	

DIRECT TESTIMONY
OF
DR. JAMES H. VANDER WEIDE
ON BEHALF OF

KENTUCKY-AMERICAN WATER COMPANY

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I. WITNESS IDENTIFICATION

Q. 1 What is your name and business address?

A. 1 My name is James H. Vander Weide. I am Research Professor of Finance and Economics at Duke University, the Fuqua School of Business. I am also President of Financial Strategy Associates, a firm that provides strategic and financial consulting services to business clients. My business address is 3606 Stoneybrook Drive, Durham, North Carolina.

Q. 2 Would you please describe your educational background and prior academic experience?

A. 2 I graduated from Cornell University with a Bachelor's Degree in Economics and from Northwestern University with a Ph.D. in Finance. After joining the faculty of the School of Business at Duke University, I was named Assistant Professor, Associate Professor, and then Professor. I have published research in the areas of finance and economics and taught courses in corporate finance, investment management, and management of financial institutions at Duke for more than thirty-five years. My research publications and teaching experience are described in Appendix 1. I am now retired from my teaching duties at Duke.

Q. 3 Have you previously testified on financial or economic issues?

A. 3 Yes. As an expert on financial and economic theory and practice, I have participated in more than 400 regulatory and legal proceedings before the U.S. Congress, the Federal Energy Regulatory Commission, the National Energy Board (Canada), the Federal Communications Commission, the National Telecommunications and Information Administration, the Canadian Radio-Television and Telecommunications Commission, the public service commissions of forty-three states and four Canadian provinces, the insurance commissions of five states, the U.S. Tax Court, the Iowa State Board of Tax Review, the National Association of Securities Dealers, and the North Carolina Property Tax Commission. In addition, I have prepared expert testimony in proceedings before the U.S. District Court for the District of Nebraska; the U.S. District Court for the District of New Hampshire; the U.S. District Court for the District of Northern Illinois; the U.S. District Court for the Eastern District of North Carolina; the Montana Second Judicial District Court, Silver Bow County; the U.S. District Court for the Northern District of California; the Superior Court, North Carolina; the U.S. Bankruptcy Court for the Southern District of West Virginia; and the U. S. District Court for the Eastern District of Michigan.

II. PURPOSE OF TESTIMONY

Q. 4 What is the purpose of your testimony?

A. 4 I have been asked by Kentucky American Water Company (KAWC) to prepare an independent appraisal of its cost of equity capital and to recommend a rate of return on equity that is fair, that allows KAWC to attract capital on reasonable terms, and that allows KAWC to maintain its financial integrity.

Q. 5 How do you estimate KAWC's cost of equity?

A. 5 I estimate KAWC's cost of equity by applying several standard cost of equity estimation techniques, including the discounted cash flow (DCF) model, the risk premium method, and the Capital Asset Pricing Model (CAPM) to groups of comparable risk companies.

Q. 6 Do you generally give equal weight to the results of these standard cost of equity methods?

A. 6 I generally give equal weight to the results of these standard cost of equity methods when the average Value Line beta for the proxy companies is relatively close to 1.0, and the average company in my proxy group has a relatively large market value capitalization. If the average Value Line beta for the proxy companies is significantly less than 1.0, as it is in this present case, and/or the average market value capitalization for the proxy companies is relatively small, I generally give little or no weight to the results of the application of the CAPM.

Q. 7 Why do you give little or no weight to the result of the CAPM when the average Value Line beta is significantly less than 1.0?

A. 7 I give little or no weight to the result of the CAPM when the average Value Line beta is significantly less than 1.0 because financial research provides strong support for the conclusion that the CAPM underestimates the cost of equity for companies whose betas are significantly less than 1.0. I present a summary of this research in the CAPM section of my testimony.

Q. 8 Why is it appropriate to give less weight to the result of the CAPM when the companies in the proxy group have small market capitalization?

A. 8 It is appropriate to give less weight to the result of the CAPM in this case because financial research also supports the conclusion that the CAPM underestimates the cost of equity for small market capitalization companies.

Q. 9 What cost of equity do you find for your comparable companies in this proceeding?

A. 9 I find that the cost of equity for my comparable companies is in the range 10.8 percent to 11.4 percent. Because the average beta of my proxy companies is significantly less than 1.0, my conclusion is based on the results of my DCF and risk premium studies.

Q. 10 What is your recommendation regarding KAWC's cost of equity?

A. 10 I recommend that KAWC be allowed a fair rate of return on common equity in the range 10.4 percent to 11.4 percent.

Q. 11 Do you have an exhibit to accompany your testimony?

A. 11 Yes. I have an Exhibit___(JVW-1), consisting of eight schedules and five appendices that were prepared by me or under my direction and supervision.

III. ECONOMIC AND LEGAL PRINCIPLES

Q. 12 How do economists define the required rate of return, or cost of capital, associated with particular investment decisions such as the decision to invest in water treatment, storage, and distribution facilities?

A. 12 Economists define the cost of capital as the return investors expect to receive on alternative investments of comparable risk.

Q. 13 How does the cost of capital affect a firm's investment decisions?

A. 13 The goal of a firm is to maximize the value of the firm. This goal can be accomplished by accepting all investments in plant and equipment with an expected rate of return greater than or equal to the cost of capital. Thus, a firm should continue to invest in plant and equipment only so long as the return on its investment is greater than or equal to its cost of capital.

Q. 14 How does the cost of capital affect investors' willingness to invest in a company?

A. 14 The cost of capital measures the return investors can expect on investments of comparable risk. The cost of capital also measures the investor's required rate of return on investment because rational investors will not invest in a particular investment opportunity if the expected return on that opportunity is less than the cost of capital. Thus, the cost of capital is a hurdle rate for both investors and the firm.

Q. 15 Do all investors have the same position in the firm?

A. 15 No. Debt investors have a fixed claim on a firm's assets and income that must be paid prior to any payment to the firm's equity investors. Since the firm's equity investors have a residual claim on the firm's assets and income, equity investments are riskier than debt investments. Thus, the cost of equity exceeds the cost of debt.

Q. 16 What is the economic definition of the cost of equity?

A. 16 As I noted above, the cost of equity is the return investors expect to receive on alternative equity investments of comparable risk. Since the return on an equity investment of comparable risk is not a contractual return, the cost of equity is more difficult to measure than the cost of debt. However, as I have already noted, the cost of equity is greater than the cost of debt. The cost of equity, like the cost of debt, is both forward looking and market based.

Q. 17 How do economists measure the percentages of debt and equity in a firm's capital structure?

A. 17 Economists measure the percentages of debt and equity in a firm's capital structure by first calculating the market value of the firm's debt and the market value of its equity. Economists then calculate the percentage of debt by the ratio of the market value of debt to the combined market value of debt and equity, and the percentage of equity by the ratio of the market value of equity to the combined market values of debt and equity. For example, if a firm's debt has a market value of $25 million and its equity has a market value of $75 million, then its total market capitalization is $100 million, and its capital structure contains 25 percent debt and 75 percent equity.

Q. 18 Why do economists measure a firm's capital structure in terms of the market values of its debt and equity?

A. 18 Economists measure a firm's capital structure in terms of the market values of its debt and equity because: (1) the weighted average cost of capital is defined as the return investors expect to earn on a portfolio of the company's debt and equity securities; (2) investors measure the expected return and risk on their portfolios using market value weights, not book value weights; and (3) market values are the best measures of the amounts of debt and equity investors have invested in the company on a going forward basis.

Q. 19 Why do investors measure the expected return and risk on their investment portfolios using market value weights rather than book value weights?

A. 19 Investors measure the expected return and risk on their investment portfolios using market value weights because market values are the best measure of the amounts the investors currently have invested in each security in the portfolio. From the point of view of investors, the historical cost or book value of their investment is irrelevant for the purpose of assessing the current risk and required return on their portfolios because if they were to sell their investments, they would receive market value, not historical cost. Thus, the return can only be measured in terms of market values.

Q. 20 Is the economic definition of the weighted average cost of capital consistent with regulators' traditional definition of the average cost of capital?

A. 20 No. The economic definition of the weighted average cost of capital is based on the market costs of debt and equity, the market value percentages of debt and equity in a company's capital structure, and the future expected risk of investing in the company. In contrast, regulators have traditionally defined the weighted average cost of capital using the embedded cost of debt and the book values of debt and equity in a company's capital structure.

Q. 21 Are these economic principles regarding the fair return for capital recognized in any Supreme Court cases?

A. 21 Yes. These economic principles, relating to the supply of and demand for capital, are recognized in two United States Supreme Court cases: (1) *Bluefield Water Works and Improvement Co. v. Public Service Comm'n.*; and (2) *Federal Power Comm'n v. Hope Natural Gas Co*. In the *Bluefield Water Works* case, the Court states:

> A public utility is entitled to such rates as will permit it to earn a return upon the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties, but it has no constitutional right to profits such as are realized or anticipated in highly profitable enterprises or speculative

> ventures. The return…should be reasonably sufficient to assure confidence in the financial soundness of the utility, and should be adequate, under efficient and economical management, to maintain and support its credit, and enable it to raise the money necessary for the proper discharge of its public duties. [*Bluefield Water Works and Improvement Co. v. Public Service Comm'n.* 262 U.S. 679, 692 (1923)].

The Court clearly recognizes here that: (1) a regulated firm cannot remain financially sound unless the return it is allowed an opportunity to earn on the value of its property is at least equal to the cost of capital (the principle relating to the demand for capital); and (2) a regulated firm will not be able to attract capital if it does not offer investors an opportunity to earn a return on their investment equal to the return they expect to earn on other investments of the same risk (the principle relating to the supply of capital).

In the *Hope Natural Gas* case, the Court reiterates the financial soundness and capital attraction principles of the *Bluefield* case:

> From the investor or company point of view it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business. These include service on the debt and dividends on the stock... By that standard the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital. [*Federal Power Comm'n v. Hope Natural Gas Co.*, 320 U.S. 591, 603 (1944)].

IV. BUSINESS AND FINANCIAL RISKS IN THE WATER UTILITY INDUSTRY

Q. 22 Are the returns on investment opportunities, such as an investment in KAWC, known with certainty at the time an investment is made?

A. 22 No. The return on an investment in a company depends on the company's expected future cash flows over the life of the investment. Since the company's expected future cash flows are uncertain at the time the investment is made, the return on the investment is also uncertain.

Q. 23 As you discuss above, investors require a return on investment that is equal to the return they expect to receive on other investments of similar risk. Does the required return on an investment depend on the risk of that investment?

A. 23 Yes. Since investors are averse to risk, they require a higher rate of return on investments with greater risk.

Q. 24 What fundamental risk do investors face when they invest in a company such as KAWC?

A. 24 Investors face the fundamental risk that their realized, or actual, return on investment will be less than their required return on investment.

Q. 25 How do investors measure investment risk?

A. 25 Investors generally measure investment risk by estimating the probability, or likelihood, of earning less than the required return on investment. For investments or projects with potential returns distributed symmetrically about the expected, or mean, return, investors can also measure investment risk by estimating the variance, or volatility, of the potential return on investment.

Q. 26 Do investors distinguish between business and financial risk?

A. 26 Yes. Business risk is the underlying risk that investors will earn less than their required return on investment when the investment is financed entirely with equity. Financial risk is the additional risk of earning less than the required return when the investment is financed with both fixed-cost debt and equity.

Q. 27 What are the primary determinants of a water utility's business risk?

A. 27 The business risk of investing in water utilities such as KAWC is caused by: (1) demand uncertainty; (2) operating expense uncertainty; (3) investment cost uncertainty; (4) high operating leverage; and (5) regulatory uncertainty.

Q. 28 How does demand uncertainty affect a water utility's business risk?

A. 28 Demand uncertainty affects a water utility's business risk through its impact on the variability of the company's revenues and its return on investment. The greater the uncertainty in demand, the greater is the uncertainty in the company's revenues and its return on investment.

Q. 29 What causes the demand for water services to be uncertain?

A. 29 Demand uncertainty is caused by the sensitivity of demand to (1) the state of the economy and population growth; (2) changes in rates; (3) customer efforts to conserve water usage; (4) customer use of more efficient appliances; (5) fluctuations in average temperatures and rainfall from year to year; and (6) potential service restrictions due to severe weather conditions and/or lack of water supply.

Q. 30 Why are a water utility's operating expenses uncertain?

A. 30 Operating expense uncertainty arises as a result of variability in (1) production costs such as fuel and power costs, chemical costs, purchased water and waste disposal costs; (2) employee-related costs such as salaries and wages, pensions, and insurance; (3) operating supply and service costs such as contracted services, office supplies and services, transportation and rent; (4) maintenance and materials costs; and (5) customer billing and accounting expenses.

Q. 31 Why are a water utility's investment costs uncertain?

A. 31 The water utility business requires large investments in the reservoirs and dams, water treatment plants, trunk mains, pumping stations, and distribution facilities required to deliver water service to customers. The future amounts of required investment in water plant and equipment are uncertain due to: (1) long-run demand uncertainty; (2) uncertainty of the investment costs required to comply with environmental, water quality, and health and safety laws and regulations; (3) uncertainty of the investment costs required to maintain and replace aging plant and equipment; and (4) uncertainty in the investment costs required to assure sufficient water supply to meet forecasted demand for water services.

Q. 32 You note above that high operating leverage contributes to the business risk of utilities. What is operating leverage?

A. 32 Operating leverage is the increased sensitivity of a company's earnings to sales variability that arises when some of the company's costs are fixed.

Q. 33 How do economists measure operating leverage?

A. 33 Economists typically measure operating leverage by the ratio of a company's fixed expenses to its operating margin (revenues minus variable expenses).

Q. 34 What is the difference between fixed and variable expenses?

A. 34 Fixed expenses are expenses that do not vary with output, and variable expenses are expenses that vary directly with output. For water utilities, fixed expenses include the fixed component of operating and maintenance costs, depreciation and amortization, and taxes.

Q. 35 Do water utilities typically experience high operating leverage?

A. 35 Yes. As noted above, operating leverage increases when a firm's commitment to fixed costs rises in relation to its operating margin on sales. The relatively high degree of fixed costs in the water utility business arises primarily from: (1) the average water utility's large investment in fixed plant and equipment; and (2) the relative "fixity" of a water utility's operating and maintenance costs. High operating leverage causes the average water utility's operating income to be highly sensitive to demand and revenue fluctuations.

Q. 36 How does operating leverage affect a company's business risk?

A. 36 Operating leverage affects a company's business risk through its impact on the variability of the company's profits or income. Generally speaking, the higher a company's operating leverage, the higher is the variability of the company's operating profits.

Q. 37 How does the typical water utility's operating leverage compare to the operating leverage of electric and natural gas utilities?

A. 37 Operating leverage is sometimes measured by the ratio of fixed plant and equipment to revenues. The typical water utility's ratio of fixed plant and equipment to revenues is generally higher than that of a typical electric or natural gas distribution utility.

Q. 38 Does regulation create uncertainty for water utilities?

A. 38 Yes. Investors' perceptions of the business and financial risks of water utilities are strongly influenced by their views of the quality of regulation. Investors are aware that regulators in some jurisdictions may be unwilling at times to set rates that allow companies an opportunity to recover their cost of service in a timely manner and earn a fair and reasonable return on investment. If investors perceive that regulators may not provide an opportunity to earn a fair rate of return on investment, investors may demand a higher rate of return for water utilities operating in such jurisdictions. On the other hand, if investors perceive that regulators will provide a reasonable opportunity for the company to maintain its financial integrity and earn a fair rate of return on its investment, investors will view regulatory risk as minimal.

Q. 39 You note that financial leverage increases the risk of investors in water utilities such as KAWC. How do economists measure financial leverage?

A. 39 Economists generally measure financial leverage by the percentages of debt and equity in a company's market value capital structure. Companies with a high percentage of debt compared to equity are considered to have high financial leverage.

Q. 40 Why does high financial leverage affect the risk of investing in a water utility's stock?

A. 40 High financial leverage is a source of additional risk to utility stock investors because it increases the percentage of the firm's costs that are fixed, and the presence of higher fixed costs increases the variability of the equity investors' return on investment.

Q. 41 Can the risk of investing in KAWC be distinguished from the risks of investing in companies in other industries?

A. 41 Yes. The risks of investing in water utilities such as KAWC can be distinguished from the risks of investing in companies in many other industries in several ways. First, the risks of investing in water utilities are increased because of the greater capital intensity of the water utility business and the fact that most investments in water facilities are largely irreversible once they are made. Second, unlike returns in competitive industries, the returns from investment in water utilities are largely asymmetric. That is, there is little opportunity for water utilities to earn more than the required return, and a significant chance that the utilities will earn less than the required return.

V. COST OF EQUITY ESTIMATION METHODS

Q. 42 What methods do you use to estimate the cost of common equity capital for KAWC?

A. 42 I review the results of three generally accepted methods for estimating the cost of common equity. These are the Discounted Cash Flow (DCF), the risk premium method, and the Capital Asset Pricing Model (CAPM). The DCF method assumes that the current market price of a firm's stock is equal to the discounted value of all expected future cash flows. The risk premium method assumes that the investor's required return on an equity investment is equal to the interest rate on a long-term bond plus an additional equity risk premium to compensate the investor for the risks of investing in equities compared to bonds. The CAPM assumes that the investor's required rate of return on equity is equal to a risk-free rate of interest plus the product of a company-specific risk factor, beta, and the expected risk premium on the market portfolio.

VI. DISCOUNTED CASH FLOW (DCF) APPROACH

Q. 43 Please describe the DCF model.

A. 43 The DCF model is derived from the assumption that investors value an asset on the basis of the future cash flows they expect to receive from owning the asset. Thus, investors value an investment in a bond because they expect to receive a sequence of semi-annual coupon payments over the life of the bond and a terminal payment equal to the bond's face value at the time the bond matures. Likewise, investors value an investment in a firm's stock because they expect to receive a sequence of dividend payments and, perhaps, expect to sell the stock at a higher price sometime in the future.

A second fundamental principle of the DCF approach is that investors value a dollar received in the future less than a dollar received today. A future dollar is valued less than a current dollar because investors could invest a current dollar in an interest earning account and increase their wealth. This principle is called the time value of money.

Applying the two fundamental DCF principles noted above to an investment in a bond leads to the conclusion that investors value their investment in the bond on the basis of the present value of the bond's future cash flows. Thus, the price of the bond should reflect the timing, magnitude, and relative risk of the expected cash flows. Algebraically this can be expressed as:

EQUATION 1

$$P_B = \frac{C}{(1+i)} + \frac{C}{(1+i)^2} + \cdots + \frac{C+F}{(1+i)^n}$$

where:

P_B	=	Bond price;
C	=	Cash value of the constant coupon payment (assumed for notational convenience to occur annually rather than semi-annually);
F	=	Face value of the bond;
i	=	The rate of interest investors could earn by investing their money in an alternative bond of equal risk; and
n	=	The number of periods before the bond matures.

Applying these same principles to an investment in a firm's stock suggests that the price of the stock should be equal to:

EQUATION 2

$$P_s = \frac{D_1}{(1+k)} + \frac{D_2}{(1+k)^2} + \cdots + \frac{D_n + P_n}{(1+k)^n}$$

where:

P_S	=	Current price of the firm's stock;
D_1, D_2...D_n	=	Expected annual dividend per share on the firm's stock;
P_n	=	Price per share of stock at the time the investor expects to sell the stock; and
k	=	Return the investor expects to earn on alternative investments of the same risk, i.e., the investor's required rate of return.

Equation (2) is frequently called the annual discounted cash flow model of stock valuation. Assuming that dividends grow at a constant annual rate, *g*, this equation can be solved for *k*, the cost of equity. The resulting cost of equity equation is $k = D_1/P_s + g$, where *k* is the cost of equity, D_1 is the expected next period annual dividend, P_s is the current price of the stock, and *g* is the constant annual growth rate in earnings, dividends, and book value per share. The term D_1/P_s is called the dividend yield component of the annual DCF model, and the term *g* is called the growth component of the annual DCF model. As in the case of the price of a bond, the price of a stock is related to the timing, magnitude, and relative risk of the expected cash flows.

Q. 44 Are you recommending that the annual DCF model be used to estimate KAWC's cost of equity?

A. 44 No. The DCF model assumes that a company's stock price is equal to the present discounted value of all expected future dividends. The annual DCF model is only a correct expression for the present discounted value of future dividends if dividends are paid annually at the end of each year. Since the companies in my proxy group all pay dividends quarterly, the current market price that investors are willing to pay reflects the expected quarterly receipt of dividends. Therefore, a quarterly DCF model must be used to estimate the cost of equity for these firms. The quarterly DCF model differs from the annual DCF model in that it expresses a company's price as the present discounted value of a quarterly stream of dividend payments. A complete analysis of the implications of the quarterly payment of dividends on the DCF model is provided in Exhibit__(JVW-1), Appendix 2. For the reasons cited there, I employ the quarterly DCF model throughout my calculations.

Q. 45 Please describe the quarterly DCF model you used.

A. 45 The quarterly DCF model I used is described on Exhibit___(JVW-1) Schedule 1 and in Appendix 2. The quarterly DCF equation shows that the cost of equity is: the sum of the future expected dividend yield and the growth rate, where the dividend in the dividend yield is the equivalent future value of the four quarterly dividends at the end of the year, and the growth rate is the expected growth in dividends or earnings per share.

Q. 46 In Appendix 2, you demonstrate that the quarterly DCF model provides the theoretically correct valuation of stocks when dividends are paid quarterly. Do investors, in practice, recognize the actual timing and magnitude of cash flows when they value stocks and other securities?

A. 46 Yes. In valuing long-term government or corporate bonds, investors recognize that interest is paid semi-annually. Thus, the price of a long-term government or corporate bond is simply the present value of the semi-annual interest and principal payments on these bonds. Likewise, in valuing mortgages, investors recognize that interest is paid monthly. Thus, the value of a mortgage loan is simply the present value of the monthly interest and principal payments on the loan. In valuing stock investments, stock investors correctly recognize that dividends are paid quarterly. Thus, a firm's stock price is the present value of the stream of quarterly dividends expected from owning the stock.

Q. 47 When valuing bonds, mortgages, or stocks, would investors assume that cash flows are received only at the end of the year, when, in fact, the cash flows are received semi-annually, quarterly, or monthly?

A 47 No. Assuming that cash flows are received at the end of the year when they are received semi-annually, quarterly, or monthly would lead investors to make serious mistakes in valuing investment opportunities. No rational investor would make the mistake of assuming that dividends or other cash flows are paid annually when, in fact, they are paid more frequently.

Q. 48 How do you estimate the growth component of the quarterly DCF model?

A. 48 I use both the average analysts' estimates of future earnings per share (EPS) growth reported by I/B/E/S Thomson Reuters (I/B/E/S) and the estimate of future earnings per share growth reported by Value Line.

Q. 49 Do you generally rely on EPS growth estimates from both I/B/E/S and Value Line?

A. 49 In applying the DCF model, I generally rely on the analysts' estimates reported by I/B/E/S. However, as I discuss in this testimony, the water companies have such small market capitalization that there are generally only one or two I/B/E/S analysts' long-term growth forecasts available. To supplement the available I/B/E/S growth forecasts, I therefore also rely on the earnings growth forecasts reported by Value Line.

Q. 50 What are the analysts' estimates of future EPS growth?

A. 50 As part of their research, financial analysts working at Wall Street firms periodically estimate EPS growth for each firm they follow. The EPS forecasts for each firm are then published. Investors who are contemplating purchasing or selling shares in individual companies review the forecasts. These estimates represent five-year forecasts of EPS growth.

Q. 51 What is I/B/E/S?

A. 51 I/B/E/S is a division of Thomson Reuters that reports analysts' EPS growth forecasts for a broad group of companies. The forecasts are expressed in terms of a mean forecast and a standard deviation of forecast for each firm. Investors use the mean forecast as an estimate of future firm performance.

Q. 52 Why do you use the I/B/E/S growth estimates?

A. 52 The I/B/E/S growth rates: (1) are widely circulated in the financial community, (2) include the projections of reputable financial analysts who develop estimates of future EPS growth, (3) are reported on a timely basis to investors, and (4) are widely used by institutional and other investors.

Q. 53 Why do you rely on analysts' projections of future EPS growth in estimating the investors' expected growth rate rather than looking at historical growth rates?

A. 53 I rely on analysts' projections of future EPS growth because there is considerable empirical evidence that investors use analysts' forecasts to estimate future earnings growth.

Q. 54 Have you performed any studies concerning the use of analysts' forecasts as an estimate of investors' expected growth rate, g?

A. 54 Yes, I prepared a study in conjunction with Willard T. Carleton, Professor Emeritus of Finance at the University of Arizona, on why analysts' forecasts are the best estimate of investors' expectation of future long-term growth. This study is described in a paper entitled "Investor Growth Expectations and Stock Prices: the Analysts versus History," published in the Spring 1988 edition of *The Journal of Portfolio Management*.

Q. 55 Please summarize the results of your study.

A. 55 First, we performed a correlation analysis to identify the historically oriented growth rates which best described a firm's stock price. Then we did a regression study comparing the historical growth rates with the average analysts' forecasts. In every case, the regression equations containing the average of analysts' forecasts statistically outperformed the regression equations containing the historical growth estimates. These results are consistent with those found by Cragg and Malkiel, the early major research in this area (John G. Cragg and Burton G. Malkiel, *Expectations and the Structure of Share Prices*, University of Chicago Press, 1982). These results are also consistent with the hypothesis that investors use analysts' forecasts, rather than historically oriented growth calculations, in making stock buy and sell decisions. They provide overwhelming evidence that the analysts' forecasts of future growth are superior to historically oriented growth measures in predicting a firm's stock price.

Q. 56 Has your study been updated?

A. 56 Yes. Researchers at State Street Financial Advisors updated my study using data through year-end 2003. Their results continue to confirm that analysts' growth forecasts are superior to historically-oriented growth measures in predicting a firm's stock price.

Q. 57 What price do you use in your DCF model?

A. 57 I use a simple average of the monthly high and low stock prices for each firm for the three-month period ending September 2012. These high and low stock prices were obtained from Thomson Reuters.

Q. 58 Why do you use the three-month average stock price in applying the DCF method?

A. 58 I use the three-month average stock price in applying the DCF method because stock prices fluctuate daily, while financial analysts' forecasts for a given company are generally changed less frequently, often on a quarterly basis. Thus, to match the stock price with an earnings forecast, it is appropriate to average stock prices over a three-month period.

Q. 59 Do you include an allowance for flotation costs in your DCF analysis?

A. 59 Yes. I include a five percent allowance for flotation costs in my DCF calculations.

Q. 60 Please explain your inclusion of flotation costs.

A. 60 All firms that have sold securities in the capital markets have incurred some level of flotation costs, including underwriters' commissions, legal fees, printing expense, etc. These costs are withheld from the proceeds of the stock sale or are paid separately, and must be recovered over the life of the equity issue. Costs vary depending upon the size of the issue, the type of registration method used and other factors, but in general these costs range between three and five percent of the proceeds from the issue [see Lee, Inmoo, Scott Lochhead, Jay Ritter, and Quanshui Zhao, "The Costs of Raising Capital," *The Journal of Financial Research*, Vol. XIX No 1 (Spring 1996), 59-74, and Clifford W. Smith, "Alternative Methods for Raising Capital," *Journal of Financial Economics* 5 (1977) 273-307]. In addition to these costs, for large equity issues (in relation to outstanding equity shares), there is likely to be a decline in price associated with the sale of shares to the public. On average, the decline due to market pressure has been estimated at two to three percent [see Richard H. Pettway, "The Effects of New Equity Sales Upon Utility Share Prices," *Public Utilities Fortnightly*, May 10, 1984, 35—39]. Thus, the total flotation cost, including both issuance expense and market pressure, could range anywhere from five to eight percent of the proceeds of an equity issue. I believe a combined five percent allowance for flotation costs is a conservative estimate that should be used in applying the DCF model in this proceeding.

Q. 61 Does KAWC issue equity in the capital markets?

A. 61 No. Although KAWC does not issue equity in the capital markets, its parent must issue equity to provide KAWC the necessary financing to make investments in its water supply operations. If the parent is not able to recover its flotation costs through KAWC's rates, it will have no incentive to invest in KAWC.

Q. 62 Is a flotation cost adjustment only appropriate if a company issues stock during the test year?

A. 62 No. As described in Exhibit__(JVW-1), Appendix 3, a flotation cost adjustment is required whether or not a company issued new stock during the test year. Previously incurred flotation costs have not been recovered in previous rate cases; rather, they are a permanent cost associated with past issues of common stock. Just as an adjustment is made to the embedded cost of debt to reflect previously incurred debt issuance costs (regardless of whether additional bond issuances were made in the test year), so should an adjustment be made to the cost of equity regardless of whether additional stock was issued during the test year.

Q. 63 How do you apply the DCF approach to obtain the cost of equity capital for KAWC?

A. 63 I apply the DCF approach to the publicly-traded water companies shown on Exhibit___(JVW-1) Schedule 1 and the publicly-traded natural gas distribution companies (LDCs) shown on Exhibit___(JVW-1) Schedule 2.

Q. 64 How do you select your group of publicly-traded water companies?

A. 64 I select all the water companies included in the Value Line Investment Survey that: (1) pay dividends; (2) did not decrease dividends during any quarter of the past two years; (3) have an analyst's long-term growth forecast; and (4) are not the subject of a merger that has not been completed. In addition, all of the companies included in my group have a Value Line Safety Rank of 2 or 3, where 3 is the average Safety Rank of the Value Line universe of companies.

Q. 65 Why do you eliminate companies that have either decreased or eliminated their dividend in the past two years?

A. 65 The DCF model requires the assumption that dividends will grow at a constant rate into the indefinite future. If a company has either decreased or eliminated its dividend in recent years, an assumption that the company's dividend will grow at the same rate into the indefinite future is questionable.

Q. 66 Why do you eliminate companies that do not have any analyst's long-term growth forecasts?

A. 66 As noted above, my studies indicate that the analysts' growth forecasts best approximate the growth forecasts used by investors in making stock buy and sell decisions; and thus, the average of the analysts' growth forecasts is the best available estimate of the growth term in the DCF Model. In my opinion, it is difficult to apply the DCF model to companies that do not have any analysts' long-term growth estimates.

Q. 67 Are the Value Line water companies widely followed by analysts in the investment community?

A. 67 As a result of their small size and low investor turnover, the water companies are generally followed by few analysts.

Q. 68 Recognizing the greater uncertainty associated with DCF results based on fewer analysts' forecasts, do you supplement your DCF results for the water companies with a DCF analysis of an additional proxy group

A. 68 Yes. Given the uncertainty in applying the DCF model to companies with fewer analysts' growth forecasts, I also apply the DCF model to an additional proxy group consisting of natural gas distribution companies ("LDCs").

Q. 69 Why do you eliminate companies that are being acquired in transactions that are not yet completed?

A. 69 A merger announcement generally increases the target company's stock price, but not the acquiring company's stock price. Analysts' growth forecasts for the target company, on the other hand, are necessarily related to the company as it currently exists. The use of a stock price that includes the growth-enhancing prospects of potential mergers in conjunction with growth forecasts that do not include the growth-enhancing prospects of potential mergers produces DCF results that tend to distort a company's cost of equity.

Q. 70 Please summarize the result of your application of the DCF model to your water company proxy group.

A. 70 As shown in Exhibit__(JVW-1), Schedule 1, my application of the DCF model to the Value Line water companies produces a market-weighted average DCF result of 10.6 percent and a simple average DCF result of 10.5 percent. Because American Water Works represents approximately fifty-three percent of the market capitalization of all the water companies in the group, I will use the midpoint of market-weighted and simple average results, 10.5 percent.

Q. 71 You note above that you also apply your DCF method to a proxy group of LDCs. Why do you apply your DCF model to a proxy group of LDCs?

A. 71 I apply my DCF model to a proxy group of LDCs because: (1) the sample of publicly-traded water companies with sufficient information to estimate the cost of equity is relatively small; (2) the LDCs are a conservative proxy for the risk of investing in water companies, and (3) it is useful to examine the cost of equity results for a group of companies of similar risk in order to test the reasonableness of the results obtained by applying cost of equity methodologies to the group of publicly-traded water companies. Financial theory does not require that companies be in exactly the same industry to be comparable in risk.

Q. 72 How do you select your proxy group of LDCs?

A. 72 I select all the companies in Value Line's natural gas industry groups that: (1) are in the business of natural gas distribution; (2) paid dividends during every quarter of the last two years; (3) did not decrease dividends during any quarter of the past two years; (4) have an available I/B/E/S long-term growth estimate; and (5) are not the subject of a merger offer that has not been completed. In addition, all of the LDCs included in my group have an investment grade bond rating and a Value Line Safety Rank of 1, 2, or 3. The LDCs in my DCF proxy group and the average DCF result are shown on Exhibit___(JVW-1) Schedule 2.

Q. 73 How are the LDCs similar to KAWC?

A. 73 Like KAWC, the LDCs invest primarily in a capital-intensive physical network that connects the customer to the source of supply, and sell their products and services at regulated rates to customers whose demand is primarily dependent on weather and the state of the economy.

Q. 74 Does your LDC proxy group meet the standards of the *Hope* and *Bluefield* cases you cite above?

A. 74 Yes. The *Hope* and *Bluefield* standard states that a public utility should be allowed to earn a return on its investment that is commensurate with the returns investors are able to earn on investments having similar risk. The LDCs are a group of companies that meet the standards of the *Hope* and *Bluefield* cases because they are a conservative proxy for the risk of investing in KAWC.

Q. 75 Do you have any empirical evidence that the LDCs in your proxy group are a conservative proxy for KAWC?

A. 75 Yes. The average Value Line Safety Rank for my proxy group of LDCs is approximately 2, on a scale where 1 is the most safe and 5 is the least safe, whereas the water companies have an average Value Line Safety Rank of approximately 3.

Q. 76 Please summarize the results of your application of the DCF method to the LDC proxy group.

A. 76 My application of the DCF method to the LDC proxy group produces a market-weighted average result of 10.4 percent, as shown on Exhibit___(JVW-1) Schedule 2.

VII. RISK PREMIUM APPROACH

Q. 77 Please describe the risk premium approach to estimating KAWC's cost of equity.

A. 77 The risk premium approach is based on the principle that investors expect to earn a return on an equity investment in KAWC that reflects a "premium" over and above the return they expect to earn on an investment in a portfolio of long-term bonds. This equity risk premium compensates equity investors for the additional risk they bear in making equity investments versus bond investments.

Q. 78 Does the risk premium approach specify what debt instrument should be used to estimate the interest rate component in the methodology?

A. 78 No. The risk premium approach can be implemented using virtually any debt instrument. However, the risk premium approach does require that the debt instrument used to estimate the risk premium be the same as the debt instrument used to calculate the interest rate component of the risk premium approach. For example, if the risk premium on equity is calculated by comparing the returns on stocks and the returns on A-rated utility bonds, then the interest rate on A-rated utility bonds must be used to estimate the interest rate component of the risk premium approach.

Q. 79 How do you measure the required risk premium on an equity investment in KAWC?

A. 79 I use two methods to estimate the required risk premium on an equity investment in KAWC. The first is called the ex ante risk premium method, and the second is called the ex post risk premium method.

A. Ex Ante Risk Premium Approach

Q. 80 Please describe your ex ante risk premium approach for measuring the required risk premium on an equity investment in KAWC.

A. 80 My ex ante risk premium method is based on studies of the DCF expected return on a comparable group of natural gas distribution companies, which I compared to the interest rate on Moody's A-rated utility bonds. Specifically, for each month in my study period, I calculate the risk premium using the equation,

$$RP_{PROXY} = DCF_{PROXY} - I_A$$

where:

RP_{PROXY}	=	the required risk premium on an equity investment in the proxy group of companies;
DCF_{PROXY}	=	average DCF estimated cost of equity on a portfolio of proxy companies; and
I_A	=	the yield to maturity on an investment in A-rated utility bonds.

I then perform a regression analysis to determine if there is a relationship between the calculated risk premium and interest rates. Finally, I use the results of the regression analysis to estimate the investors' required risk premium. To estimate the cost of equity, I then add the required risk premium to the interest rate on A-rated utility bonds. A detailed description of my ex ante risk premium studies is contained in Appendix 4, and the underlying DCF results and interest rates are displayed in Exhibit___(JVW-1) Schedule 3.

Q. 81 Why do you apply your ex ante risk premium study to LDCs rather than to water companies?

A. 81 I apply my ex ante risk premium approach to LDCs rather than to water companies because the LDCs are similar in risk to the water companies and there is sufficient data to apply the DCF method to the sample companies over a relatively long period of time. In contrast, there are few water utilities with consistent data extending back for a reasonably long study period.

Q. 82 What estimated risk premium do you obtain from your ex ante risk premium method?

A. 82 As described in Appendix 4, my analyses produce an estimated risk premium over the yield on A-rated utility bonds equal to 4.77 percent.

Q. 83 What cost of equity result do you obtain from your ex ante risk premium study?

A. 83 To estimate the cost of equity using the ex ante risk premium method, one may add the estimated risk premium over the yield on A-rated utility bonds to the forecasted yield to maturity on A-rated utility bonds. In my studies, I choose to use the yield on A-rated utility bonds because it is a frequently-used benchmark for utility bond yields. I obtain the forecasted yield to maturity on A-rated utility bonds, 6.6 percent, by averaging forecast data from Value Line and the U.S. Energy Information Administration ("EIA").[1] My analyses produce an estimated risk premium over the yield on A-rated utility bonds equal to 4.8 percent. Adding an estimated risk premium of 4.8 percent to the 6.6 percent forecasted yield to maturity on A-rated utility bonds produces a cost of equity estimate of 11.4 percent using the ex ante risk premium method (see Appendix 4).

B. Ex Post Risk Premium Approach

Q. 84 Please describe your ex post risk premium approach for measuring the required risk premium on an equity investment in KAWC.

[1] Value Line Selection & Opinion (August 24, 2012) projects a AAA-rated Corporate bond yield equal to 5.50 percent. The September 2012 average spread between A-rated utility bonds and Aaa-rated Corporate bonds is fifty-three basis points (A-rated utility, 4.02 percent, less Aaa-rated Corporate, 3.49 percent, equals fifty-three basis points). Adding fifty-three basis points to the 5.50 percent Value Line forecast equals a forecast yield of 6.03 percent. The U.S. Energy Information Administration ("EIA") forecasts an AA-rated utility bond yield equal to 6.74 percent. The average spread between AA-rated utility and A-rated utility bonds at September 2012 is forty-three basis points (4.02 percent less 3.59 percent). Adding forty-three basis points to the 6.74 percent forecast equals a forecast yield for A-rated utility bonds equal to 7.17 percent. The average of the forecasts (6.03 percent using Value Line data and 7.17 percent using EIA data) is 6.6 percent.

A. 84 I first perform a study of the comparable returns received by bond and stock investors over the seventy-five years of my study. I estimate the returns on stock and bond portfolios, using stock price and dividend yield data on the S&P 500 and bond yield data on Moody's A-rated Utility Bonds. My study consists of making an investment of one dollar in the S&P 500 and Moody's A-rated utility bonds at the beginning of 1937, and reinvesting the principal plus return each year to 2012. The return associated with each stock portfolio is the sum of the annual dividend yield and capital gain (or loss) which accrued to this portfolio during the year(s) in which it was held. The return associated with the bond portfolio, on the other hand, is the sum of the annual coupon yield and capital gain (or loss) which accrued to the bond portfolio during the year(s) in which it was held. The resulting annual returns on the stock and bond portfolios purchased in each year from 1937 to 2012 are shown on Exhibit___(JVW-1) Schedule 4). The average annual return on an investment in the S&P 500 stock portfolio is 11.0 percent, while the average annual return on an investment in the Moody's A-rated utility bond portfolio is 6.7 percent. The risk premium on the S&P 500 stock portfolio is, therefore, 4.3 percent.

I also conduct a second study using stock data on the S&P Utilities rather than the S&P 500. As shown on Exhibit___(JVW-1) Schedule 5, the S&P Utility stock portfolio shows an average annual return of 10.6 percent per year. Thus, the return on the S&P Utility stock portfolio exceeds the return on the Moody's A–rated utility bond portfolio by 3.8 percent (apparent discrepancy due to rounding).

Q. 85 Why is it appropriate to perform your ex post risk premium analysis using both the S&P 500 and the S&P Utility Stock indices?

A. 85 I perform my ex post risk premium analysis on both the S&P 500 and the S&P Utilities because I believe utilities today face risks that are somewhere in between the average risk of the S&P Utilities and the S&P 500 over the years 1937 to 2012. Thus, I use the average of the two historically-based risk premiums as my estimate of the required risk premium in my ex post risk premium method.

Q. 86 Why do you analyze investors' experiences over such a long time frame?

A. 86 Because day-to-day stock price movements can be somewhat random, it is inappropriate to rely on short-run movements in stock prices in order to derive a reliable risk premium. Rather than buying and selling frequently in anticipation of highly volatile price movements, most investors employ a strategy of buying and holding a diversified portfolio of stocks. This buy-and-hold strategy will allow an investor to achieve a much more predictable long-run return on stock investments and at the same time will minimize transaction costs. The situation is very similar to the problem of predicting the results of coin tosses. I cannot predict with any reasonable degree of accuracy the result of a single, or even a few, flips of a balanced coin; but I can predict with a good deal of confidence that approximately fifty heads will appear in one hundred tosses of this coin. Under these circumstances, it is most appropriate to estimate future experience from long-run evidence of investment performance.

Q. 87 Would your study provide a different ex post risk premium if you started with a different time period?

A. 87 Yes, the ex post risk premium results vary somewhat depending on the historical time period chosen. My policy is to go back as far in history as I can get reliable data. I believe it is most meaningful to begin after the passage and implementation of the Public Utility Holding Company Act of 1935. This Act significantly changed the structure of the public utility industry. Since the Public Utility Holding Company Act of 1935 was not implemented until the beginning of 1937, I feel that numbers taken from before this date are not comparable to those taken after. (The repeal of the 1935 Act does not have a material impact on the structure of the public utility industry; thus, the Act's repeal does not have any impact on my choice of time period.)

Q. 88 Why is it necessary to examine the yield from debt investments in order to determine the investors' required rate of return on equity capital?

A. 88 As previously explained, investors expect to earn a return on their equity investment that exceeds currently available bond yields because the return on equity, as a residual return, is less certain than the yield on bonds; and investors must be compensated for this uncertainty. Second, investors' current expectations concerning the amount by which the return on equity will exceed the bond yield could be influenced by historical differences in returns to bond and stock investors. For these reasons, we can estimate investors' current expected returns on equity investments from knowledge of current bond yields and past differences between returns on stocks and bonds.

Q. 89 Has there been any significant trend in the ex post equity risk premium over the 1937 to 2012 time period of your study?

A. 89 No. Statisticians test for trends in data series by regressing the data observations against time. I have performed such a time series regression on my two data sets of historical risk premiums. As shown below in TABLE 1 and TABLE 2, there is no statistically significant trend in my risk premium data. Indeed, the coefficient on the time variable is insignificantly different from zero (if there were a trend, the coefficient on the time variable should be significantly different from zero).

TABLE 1
REGRESSION OUTPUT FOR RISK PREMIUM ON S&P 500

LINE NO.		INTERCEPT	TIME	ADJUSTED R SQUARE	F
1	Coefficient	3.013	(0.002)	0.024	2.83
2	T Statistic	1.706	(1.682)		

TABLE 2
REGRESSION OUTPUT FOR RISK PREMIUM ON S&P UTILITIES

LINE NO.		INTERCEPT	TIME	ADJUSTED R SQUARE	F
1	Coefficient	1.990	(0.001)	0.008	1.56
2	T Statistic	1.275	(1.251)		

Q. 90 Is your conclusion that there is no significant trend in the equity risk premium supported in the financial literature?

A. 90 Yes. Ibbotson® SBBI® 2012 Valuation Edition Yearbook Stocks, Bonds, Bills, and Inflation® ("Ibbotson® SBBI®") published by Morningstar, Inc., contains an analysis of "trends" in historical risk premium data. Ibbotson® SBBI® uses correlation analysis to determine if there is any pattern or "trend" in risk premiums over time. This analysis also demonstrates that there are no trends in risk premiums over time.

Q. 91 Why is it significant that historical risk premiums have no trend or other statistical pattern over time?

A. 91 The significance of this evidence is that, if one is forecasting the future based solely on historical risk premium evidence, the average historical risk premium is a reasonable estimate of the future expected risk premium. As noted in Ibbotson® SBBI®:

> The significance of this evidence is that the realized equity risk premium next year will not be dependent on the realized equity risk premium from this year. That is, there is no discernible pattern in the realized equity risk premium—it is virtually

> impossible to forecast next year's realized risk premium based on the premium of the previous year. For example, if this year's difference between the riskless rate and the return on the stock market is higher than last year's, that does not imply that next year's will be higher than this year's. It is as likely to be higher as it is lower. The best estimate of the expected value of a variable that has behaved randomly in the past is the average (or arithmetic mean) of its past values. [Ibbotson® SBBI®, page 58.]

Q. 92 What conclusions do you draw from your ex post risk premium analyses about the required return on an equity investment in KAWC?

A. 92 My studies provide strong evidence that investors today require an equity return of approximately 3.8 to 4.3 percentage points above the expected yield on A-rated utility bonds. As discussed above, the forecast yield on A-rated utility bonds is 6.6 percent. Adding a 3.8 to 4.3 percentage point risk premium to a yield of 6.6 percent on A-rated utility bonds, I obtain an expected return on equity in the range 10.4 percent to 10.9 percent, with a midpoint of 10.65 percent. Adding a seventeen-basis-point allowance for flotation costs, I obtain an estimate of 10.8 percent as the ex post risk premium cost of equity for KAWC. (I determine the flotation cost allowance by calculating the difference in my DCF results with and without a flotation cost allowance.).

VIII. CAPITAL ASSET PRICING MODEL

Q. 93 What is the CAPM?

A. 93 The CAPM is an equilibrium model of the security markets in which the expected or required return on a given security is equal to the risk-free rate of interest, plus the company equity “beta,” times the market risk premium:

Cost of equity = Risk-free rate + Equity beta x Market risk premium

The risk-free rate in this equation is the expected rate of return on a risk-free government security, the equity beta is a measure of the company’s risk relative to the market as a whole, and the market risk premium is the premium investors require to invest in the market basket of all securities compared to the risk-free security.

Q. 94 How do you use the CAPM to estimate the cost of equity for your proxy companies?

A. 94 The CAPM requires an estimate of the risk-free rate, the company-specific risk factor or beta, and the expected return on the market portfolio. For my estimate of the risk-free rate, I use the forecasted yield to maturity on 20-year Treasury bonds of 5.1 percent, using forecast data from Value Line and EIA.[2] I use the 20-year Treasury bond to estimate the risk-free rate because SBBI® estimates the risk premium using 20-year Treasury bonds, and one should use the same maturity

2 Value Line forecasts a yield on 10-year Treasury notes equal to 4.0 percent. The current spread between the average September 2012 yield on 10-year Treasury notes (1.72 percent) and 20-year Treasury bonds (2.49 percent) is seventy-seven basis points. Adding seventy-seven basis points to Value Line’s 4.0 percent forecast produces a forecasted yield of 4.77 percent for 20-year Treasury bonds (see Value Line Investment Survey, Selection & Opinion, August 24, 2012). The EIA forecasts a yield of 4.67 percent on 10-year Treasury notes. Adding the seventy-seven basis point spread between 10-year Treasury notes and 20-year Treasury bonds to the EIA forecast of 4.67 percent equals a EIA forecast for 20-year Treasury bonds equal to 5.44 percent. The average of the forecasts (4.77 percent using Value Line data and 5.44 percent using EIA data) is 5.1 percent.

to estimate the risk-free rate as is used to estimate the risk premium on the market portfolio.

For my estimate of the company-specific risk, or beta, I use the average 0.65 Value Line beta for my proxy water companies. For my estimate of the expected risk premium on the market portfolio, I use two approaches. First, I estimate the risk premium on the market portfolio using historical risk premium data reported by SBBI®. Second, I estimate the risk premium on the market portfolio from the difference between the DCF cost of equity for the S&P 500 and the forecasted yield to maturity on 20-year Treasury bonds.

Q. 95 How do you estimate the expected risk premium on the market portfolio using historical risk premium data reported by SBBI®?

A. 95 I estimate the expected risk premium on the market portfolio by calculating the difference between the arithmetic mean return on the S&P 500 from 1926 through 2011 (11.77 percent) and the average income return on 20-year U.S. Treasury bonds over the same period (5.15 percent) (see Ibbotson® SBBI® 2012 Valuation Yearbook, published by Morningstar®). Thus, my historical risk premium method produces a risk premium of 6.6 percent (11.77 – 5.15 = 6.62).

Q. 96 Why do you recommend that the risk premium on the market portfolio be estimated using the arithmetic mean return on the S&P 500?

A. 96 As explained in SBBI®, the arithmetic mean return is the best approach for calculating the return investors expect to receive in the future:

> The equity risk premium data presented in this book are arithmetic average risk premia as opposed to geometric average risk premia. The arithmetic average equity risk premium can be demonstrated to be most appropriate when discounting future cash flows. For use as the expected equity risk premium in either the CAPM or the building block approach, the arithmetic mean or the simple difference of the arithmetic means of stock market returns and riskless rates is the relevant number. This is because both the CAPM and the building block approach are additive models, in which the cost of capital is the sum of its parts. The geometric average is more appropriate for reporting past performance, since it represents the compound average return. [SBBI®, p. 56.]

A discussion of the importance of using arithmetic mean returns in the context of CAPM or risk premium studies is contained in Exhibit___(JVW-1) Schedule 6.

Q. 97 Why do you recommend that the risk premium on the market portfolio be estimated using the income return on 20-year Treasury bonds rather than the total return on these bonds?

A. 97 As discussed above, the CAPM requires an estimate of the risk-free rate of interest. When Treasury bonds are issued, the income return on the bond is risk free, but the total return, which includes both income and capital gains or losses, is not. Thus, the income return should be used in the CAPM because it is only the income return that is risk free.

Q. 98 What CAPM result do you obtain when you estimate the expected return on the market portfolio from the arithmetic mean difference

between the return on the market and the yield on 20-year Treasury bonds?

A. 98 I obtain a CAPM estimate of 9.6 percent (see Exhibit___(JVW-1) Schedule 7).

Q. 99 What CAPM result do you obtain when you estimate the risk premium on the market portfolio by applying the DCF model to the S&P 500?

A. 99 I obtain a CAPM result of 10.1 percent (see Exhibit___(JVW-1) Schedule 8).

Q. 100 Can a reasonable application of the CAPM produce higher cost of equity results than you have just reported?

A. 100 Yes. The CAPM tends to underestimate the cost of equity for small market capitalization companies such as my water companies.

Q. 101 Does the finance literature support an adjustment to the CAPM equation to account for a company's size as measured by market capitalization supported in the finance literature?

A. 101 Yes. For example, Ibbotson® SBBI® supports such an adjustment. Their estimates of the size premium required to be added to the basic CAPM cost of equity are shown below in TABLE 3.

TABLE 3
IBBOTSON® ESTIMATES OF PREMIUMS FOR COMPANY SIZE[3]

DECILE	SMALLEST MKT. CAP. ($MILLIONS)	LARGEST MKT. CAP. ($MILLIONS)	PREMIUM
Large-Cap (No Adjustment)	>6,896.389		--
Mid-Cap (3-5)	1,621.096	6,896.389	1.14%
Low-Cap (6-8)	422.999	1,620.860	1.88%
Micro-Cap (9-10)	1.028	422.811	3.89%

Q. 102 Are there other reasons to believe that the CAPM may produce cost of equity estimates at this time that are unreasonably low?

A. 102 Yes. There is considerable evidence in the finance literature that the CAPM tends to underestimate the cost of equity for companies whose equity beta is less than 1.0 and to overestimate the cost of equity for companies whose equity beta is greater than 1.0.[4]

Q. 103 Can you briefly summarize the evidence that the CAPM underestimates the required returns for securities or portfolios with betas less than 1.0 and overestimates required returns for securities or portfolios with betas greater than 1.0?

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3 2012 Ibbotson® SBBI® Valuation Yearbook.

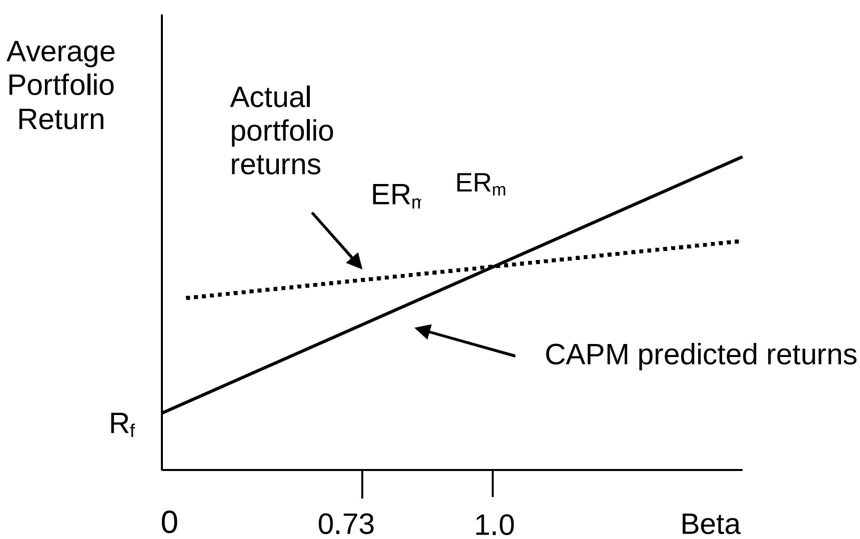
4 *See*, for example, Fischer Black, Michael C. Jensen, and Myron Scholes, “The Capital Asset Pricing Model: Some Empirical Tests,” in *Studies in the Theory of Capital Markets*, M. Jensen, ed. New York: Praeger, 1972; Eugene Fama and James MacBeth, “Risk, Return, and Equilibrium: Empirical Tests,” *Journal of Political Economy* 81 (1973), pp. 607-36; Robert Litzenberger and Krishna Ramaswamy, “The Effect of Personal Taxes and Dividends on Capital Asset Prices: Theory and Empirical Evidence,” *Journal of Financial Economics* 7 (1979), pp. 163-95.; Rolf Banz, “The Relationship between Return and Market Value of Common Stocks,” *Journal of Financial Economics* (March 1981), pp. 3-18; and Eugene Fama and Kenneth French, “The Cross-Section of Expected Returns,” *Journal of Finance* (June 1992), pp. 427-465.

A. 103 Yes. The CAPM conjectures that security returns increase with increases in security betas in line with the equation

$$ER_i = R_f + \beta_i \left[ER_m - R_f \right],$$

where ER_i is the expected return on security or portfolio *i,* R_f is the risk-free rate, $ER_m - R_f$ is the expected risk premium on the market portfolio, and β_i is a measure of the risk of investing in security or portfolio *i*. If the CAPM correctly predicts the relationship between risk and return in the marketplace, then the realized returns on portfolios of securities and the corresponding portfolio betas should lie on the solid straight line with intercept R_f and slope $[R_m - R_f]$ shown below.

FIGURE 1
AVERAGE RETURNS COMPARED TO BETA
FOR PORTFOLIOS FORMED ON PRIOR BETA



Financial scholars have found that the relationship between realized returns and betas is inconsistent with the relationship posited by the

CAPM. As described in Fama and French (1992) and Fama and French (2004), the actual relationship between portfolio betas and returns is shown by the dotted line in the figure above. Although financial scholars disagree on the reasons why the return/beta relationship looks more like the dotted line in the figure than the solid line, they generally agree that the dotted line lies above the solid line for portfolios with betas less than 1.0 and below the solid line for portfolios with betas greater than 1.0. Thus, in practice, scholars generally agree that the CAPM underestimates portfolio returns for companies with betas less than 1.0, and overestimates portfolio returns for portfolios with betas greater than 1.0.

Q. 104 What conclusions do you reach from your review of the literature on the CAPM to predict the relationship between risk and return in the marketplace?

A. 104 I conclude that the financial literature strongly supports the proposition that the CAPM underestimates the cost of equity for companies such as public utilities with betas less than 1.0. I also conclude that the results of the CAPM should be given little or no weight in this proceeding because the average beta for my proxy group of water companies is significantly less than 1.0.

IX. FAIR RATE OF RETURN ON EQUITY

Q. 105 Please summarize your findings concerning KAWC's cost of equity.

A. 105 Based on my application of several cost of equity methods to my comparable companies, I conclude that my comparable companies' cost of equity is in the range 10.4 percent to 11.4 percent.

TABLE 4
COST OF EQUITY MODEL RESULTS

Method	Model Result
DCF--Water	10.5%
DCF--LDC	10.4%
Ex Ante Risk Premium	11.4%
Ex Post Risk Premium	10.8%
Range of Results	10.4% - 11.4%

Q. 106 What is your recommendation as to a fair rate of return on common equity for KAWC?

A. 106 I recommend that KAWC be allowed a fair rate of return on common equity in the range 10.4 percent to 11.4 percent.

Q. 107 Does this conclude your testimony?

A. 107 Yes, it does.

VERIFICATION

STATE OF NORTH CAROLINA)
) **SS:**
COUNTY OF DURHAM)

The undersigned, **James H. Vander Weide, Ph.D.**, being duly sworn, deposes and says he is a Research Professor of Finance and Economics at Duke University, the Fuqua School of Business and President of Financial Strategy Associates, that he has personal knowledge of the matters set forth in the foregoing testimony, and the answers contained therein are true and correct to the best of his information, knowledge, and belief.

James H. Vander Weide Ph.D
JAMES H. VANDER WEIDE, PH.D.

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 20th day of December, 2012.

Sandra W. Bumpass (SEAL)
Notary Public

My Commission Expires:
05-11-2013

SANDRA W. BUMPASS NOTARY PUBLIC

LIST OF SCHEDULES AND APPENDICES

KENTUCKY AMERICAN WATER COMPANY
EXHIBIT__(JVW-1)
SCHEDULE 1
SUMMARY OF DISCOUNTED CASH FLOW ANALYSIS
FOR PROXY WATER COMPANY COMPANIES

LINE NO.	COMPANY	D_0	P_0	VALUE LINE EPS GROWTH	I/B/E/S GROWTH	AVE EPS GROWTH	MARKET CAP $ (MIL)	MODEL RESULT
1	Amer. States Water	0.355	42.363	5.50%	4.00%	4.75%	834	7.9%
2	Amer. Water Works	0.250	36.617	8.00%	7.80%	7.90%	6,524	10.9%
3	Aqua America	0.165	25.415	7.00%	6.90%	6.95%	3,451	10.0%
4	California Water	0.158	18.563	6.00%	5.00%	5.50%	782	9.4%
5	Middlesex Water	0.185	19.002	7.00%	NA	7.00%	303	11.6%
6	SJW Corp.	0.178	24.070	6.50%	14.00%	10.25%	468	13.8%
7	Average							10.6%
8	Market-weighted Average							10.5%

Notes:

d_0	=	Most recent quarterly dividend.
d_1,d_2,d_3,d_4	=	Next four quarterly dividends, calculated by multiplying the last four quarterly dividends per *Value Line* and Yahoo Finance, by the factor (1 + g).
P_0	=	Average of the monthly high and low stock prices during the three months ending September 2012 per Thomson Reuters.
FC	=	Flotation costs expressed as a percent of gross proceeds.
g	=	Average of I/B/E/S and Value Line forecasts of future earnings growth September 2012.
k	=	Cost of equity using the quarterly version of the DCF model shown by the formula below:

$$k = \frac{d_1(1+k)^{.75} + d_2(1+k)^{.50} + d_3(1+k)^{.25} + d_4}{P_0(1-FC)} + g$$

KENTUCKY AMERICAN WATER COMPANY
EXHIBIT__(JVW-1)
SCHEDULE 2
SUMMARY OF DISCOUNTED CASH FLOW ANALYSIS
FOR NATURAL GAS DISTRIBUTION COMPANIES

LINE NO.	COMPANY	D_0	P_0	GROWTH	MARKET CAP $ (MIL)	MODEL RESULT
1	AGL Resources	0.460	40.313	4.05%	4,821	9.2%
2	Atmos Energy	0.345	35.958	5.50%	3,195	9.9%
3	NiSource Inc.	0.240	25.095	8.00%	7,294	12.4%
4	Northwest Nat. Gas	0.445	48.397	4.50%	1,336	8.7%
5	Piedmont Natural Gas	0.300	32.060	5.35%	2,308	9.6%
6	South Jersey Inds.	0.403	52.210	6.00%	1,624	9.6%
7	WGL Holdings Inc.	0.400	40.205	5.60%	2,050	10.1%
8	Average					9.9%
9	Market-weighted Average					10.4%

Notes:

d_0	=	Most recent quarterly dividend.
d_1,d_2,d_3,d_4	=	Next four quarterly dividends, calculated by multiplying the last four quarterly dividends per *Value Line* and Yahoo Finance by the factor (1 + g).
P_0	=	Average of the monthly high and low stock prices during the three months ending September 2012 from Thomson Reuters.
FC	=	Flotation costs expressed as a percent of gross proceeds.
g	=	I/B/E/S forecast of future earnings growth September 2012.
k	=	Cost of equity using the quarterly version of the DCF model shown by the formula below:

$$k = \frac{d_1(1+k)^{.75} + d_2(1+k)^{.50} + d_3(1+k)^{.25} + d_4}{P_0(1-FC)} + g$$

KENTUCKY AMERICAN WATER COMPANY
EXHIBIT__(JVW-1)
SCHEDULE 3
COMPARISON OF DCF EXPECTED RETURN
ON AN EQUITY INVESTMENT IN NATURAL GAS DISTRIBUTION COMPANIES
TO THE INTEREST RATE ON A-RATED UTILITY BONDS

DATE	DCF	BOND YIELD	RISK PREMIUM
Jun-98	0.1154	0.0703	0.0451
Jul-98	0.1186	0.0703	0.0483
Aug-98	0.1234	0.0700	0.0534
Sep-98	0.1273	0.0693	0.0580
Oct-98	0.1260	0.0696	0.0564
Nov-98	0.1211	0.0703	0.0508
Dec-98	0.1185	0.0691	0.0494
Jan-99	0.1195	0.0697	0.0498
Feb-99	0.1243	0.0709	0.0534
Mar-99	0.1257	0.0726	0.0531
Apr-99	0.1260	0.0722	0.0538
May-99	0.1221	0.0747	0.0474
Jun-99	0.1208	0.0774	0.0434
Jul-99	0.1222	0.0771	0.0451
Aug-99	0.1220	0.0791	0.0429
Sep-99	0.1226	0.0793	0.0433
Oct-99	0.1233	0.0806	0.0427
Nov-99	0.1240	0.0794	0.0446
Dec-99	0.1280	0.0814	0.0466
Jan-00	0.1301	0.0835	0.0466
Feb-00	0.1344	0.0825	0.0519
Mar-00	0.1344	0.0828	0.0516
Apr-00	0.1316	0.0829	0.0487
May-00	0.1292	0.0870	0.0422
Jun-00	0.1295	0.0836	0.0459
Jul-00	0.1317	0.0825	0.0492
Aug-00	0.1290	0.0813	0.0477
Sep-00	0.1257	0.0823	0.0434
Oct-00	0.1260	0.0814	0.0446
Nov-00	0.1251	0.0811	0.0440
Dec-00	0.1239	0.0784	0.0455
Jan-01	0.1261	0.0780	0.0481
Feb-01	0.1261	0.0774	0.0487
Mar-01	0.1275	0.0768	0.0507
Apr-01	0.1227	0.0794	0.0433
May-01	0.1302	0.0799	0.0503
Jun-01	0.1304	0.0785	0.0519
Jul-01	0.1338	0.0778	0.0560
Aug-01	0.1327	0.0759	0.0568
Sep-01	0.1268	0.0775	0.0493

DATE	DCF	BOND YIELD	RISK PREMIUM
Oct-01	0.1268	0.0763	0.0505
Nov-01	0.1268	0.0757	0.0511
Dec-01	0.1254	0.0783	0.0471
Jan-02	0.1236	0.0766	0.0470
Feb-02	0.1241	0.0754	0.0487
Mar-02	0.1189	0.0776	0.0413
Apr-02	0.1159	0.0757	0.0402
May-02	0.1162	0.0752	0.0410
Jun-02	0.1170	0.0741	0.0429
Jul-02	0.1242	0.0731	0.0511
Aug-02	0.1234	0.0717	0.0517
Sep-02	0.1260	0.0708	0.0552
Oct-02	0.1250	0.0723	0.0527
Nov-02	0.1221	0.0714	0.0507
Dec-02	0.1216	0.0707	0.0509
Jan-03	0.1219	0.0706	0.0513
Feb-03	0.1232	0.0693	0.0539
Mar-03	0.1195	0.0679	0.0516
Apr-03	0.1162	0.0664	0.0498
May-03	0.1126	0.0636	0.0490
Jun-03	0.1114	0.0621	0.0493
Jul-03	0.1127	0.0657	0.0470
Aug-03	0.1139	0.0678	0.0461
Sep-03	0.1127	0.0656	0.0471
Oct-03	0.1123	0.0643	0.0480
Nov-03	0.1089	0.0637	0.0452
Dec-03	0.1071	0.0627	0.0444
Jan-04	0.1059	0.0615	0.0444
Feb-04	0.1039	0.0615	0.0424
Mar-04	0.1037	0.0597	0.0440
Apr-04	0.1041	0.0635	0.0406
May-04	0.1045	0.0662	0.0383
Jun-04	0.1036	0.0646	0.0390
Jul-04	0.1011	0.0627	0.0384
Aug-04	0.1008	0.0614	0.0394
Sep-04	0.0976	0.0598	0.0378
Oct-04	0.0974	0.0594	0.0380
Nov-04	0.0962	0.0597	0.0365
Dec-04	0.0970	0.0592	0.0378
Jan-05	0.0990	0.0578	0.0412
Feb-05	0.0979	0.0561	0.0418
Mar-05	0.0979	0.0583	0.0396
Apr-05	0.0988	0.0564	0.0424
May-05	0.0981	0.0553	0.0427
Jun-05	0.0976	0.0540	0.0436
Jul-05	0.0966	0.0551	0.0415

DATE	DCF	BOND YIELD	RISK PREMIUM
Aug-05	0.0969	0.0550	0.0419
Sep-05	0.0980	0.0552	0.0428
Oct-05	0.0990	0.0579	0.0411
Nov-05	0.1049	0.0588	0.0461
Dec-05	0.1045	0.0580	0.0465
Jan-06	0.0982	0.0575	0.0407
Feb-06	0.1124	0.0582	0.0542
Mar-06	0.1127	0.0598	0.0529
Apr-06	0.1100	0.0629	0.0471
May-06	0.1056	0.0642	0.0414
Jun-06	0.1049	0.0640	0.0409
Jul-06	0.1087	0.0637	0.0450
Aug-06	0.1041	0.0620	0.0421
Sep-06	0.1053	0.0600	0.0453
Oct-06	0.1030	0.0598	0.0432
Nov-06	0.1033	0.0580	0.0453
Dec-06	0.1035	0.0581	0.0454
Jan-07	0.1013	0.0596	0.0417
Feb-07	0.1018	0.0590	0.0428
Mar-07	0.1018	0.0585	0.0433
Apr-07	0.1007	0.0597	0.0410
May-07	0.0967	0.0599	0.0368
Jun-07	0.0970	0.0630	0.0340
Jul-07	0.1006	0.0625	0.0381
Aug-07	0.1021	0.0624	0.0397
Sep-07	0.1014	0.0618	0.0396
Oct-07	0.1080	0.0611	0.0469
Nov-07	0.1083	0.0597	0.0486
Dec-07	0.1084	0.0616	0.0468
Jan-08	0.1113	0.0602	0.0511
Feb-08	0.1139	0.0621	0.0518
Mar-08	0.1147	0.0621	0.0526
Apr-08	0.1167	0.0629	0.0538
May-08	0.1069	0.0627	0.0442
Jun-08	0.1062	0.0638	0.0424
Jul-08	0.1086	0.0640	0.0446
Aug-08	0.1123	0.0637	0.0486
Sep-08	0.1130	0.0649	0.0481
Oct-08	0.1213	0.0756	0.0457
Nov-08	0.1221	0.0760	0.0461
Dec-08	0.1162	0.0654	0.0508
Jan-09	0.1131	0.0639	0.0492
Feb-09	0.1155	0.0630	0.0524
Mar-09	0.1198	0.0642	0.0556
Apr-09	0.1146	0.0648	0.0498
May-09	0.1225	0.0649	0.0576

DATE	DCF	BOND YIELD	RISK PREMIUM
Jun-09	0.1208	0.0620	0.0588
Jul-09	0.1145	0.0597	0.0548
Aug-09	0.1109	0.0571	0.0538
Sep-09	0.1109	0.0553	0.0556
Oct-09	0.1146	0.0555	0.0592
Nov-09	0.1148	0.0564	0.0584
Dec-09	0.1123	0.0579	0.0544
Jan-10	0.1198	0.0577	0.0621
Feb-10	0.1167	0.0587	0.0580
Mar-10	0.1074	0.0584	0.0490
Apr-10	0.0934	0.0582	0.0352
May-10	0.0970	0.0552	0.0418
Jun-10	0.0953	0.0546	0.0407
Jul-10	0.1050	0.0526	0.0524
Aug-10	0.1038	0.0501	0.0537
Sep-10	0.1034	0.0501	0.0533
Oct-10	0.1050	0.0510	0.0540
Nov-10	0.1041	0.0536	0.0505
Dec-10	0.1029	0.0557	0.0472
Jan-11	0.1019	0.0557	0.0462
Feb-11	0.1004	0.0568	0.0436
Mar-11	0.1014	0.0556	0.0458
Apr-11	0.1031	0.0555	0.0476
May-11	0.1018	0.0532	0.0486
Jun-11	0.1020	0.0526	0.0494
Jul-11	0.1035	0.0527	0.0508
Aug-11	0.1179	0.0469	0.0710
Sep-11	0.1155	0.0448	0.0707
Oct-11	0.1150	0.0452	0.0698
Nov-11	0.1120	0.0425	0.0695
Dec-11	0.1092	0.0435	0.0657
Jan-12	0.1078	0.0434	0.0644
Feb-12	0.1081	0.0436	0.0645
Mar-12	0.1081	0.0448	0.0633
Apr-12	0.1131	0.0440	0.0691
May-12	0.1201	0.0420	0.0781
Jun-12	0.1011	0.0408	0.0603
Jul-12	0.0977	0.0393	0.0584
Aug-12	0.1023	0.0400	0.0623
Sep-12	0.1038	0.0402	0.0636

Notes: A-rated utility bond yield information from the Mergent Bond Record. DCF results are calculated using a quarterly DCF model as follows:

D_0	=	Latest quarterly dividend per *Value Line* and Yahoo Finance.
P_0	=	Average of the monthly high and low stock prices for each month from Thomson Reuters.
FC	=	Flotation costs expressed as a percent of gross proceeds.
g	=	I/B/E/S forecast of future earnings growth for each month.
k	=	Cost of equity using the quarterly version of the DCF model shown by the formula below:

$$k = \left[\frac{d_0 (1+g)^{\frac{1}{4}}}{P_0 (1-FC)} + (1+g)^{\frac{1}{4}} \right]^4 - 1$$

KENTUCKY AMERICAN WATER COMPANY
EXHIBIT__(JVW-1)
SCHEDULE 4
COMPARATIVE RETURNS ON S&P 500 STOCK INDEX
AND MOODY'S A-RATED BONDS 1937 – 2012

LINE NO.	YEAR	S&P 500 STOCK PRICE	STOCK DIVIDEND YIELD	STOCK RETURN	A-RATED BOND PRICE	BOND RETURN	RISK PREMIUM
1	2012	1,300.58	0.0214		$94.36		
2	2011	1,282.62	0.0185	3.25%	$77.36	27.14%	-23.89%
3	2010	1,123.58	0.0203	16.18%	$75.02	8.44%	7.74%
4	2009	865.58	0.0310	32.91%	$68.43	15.48%	17.43%
5	2008	1,378.76	0.0206	-35.16%	$72.25	0.24%	-35.40%
6	2007	1,424.16	0.0181	-1.38%	$72.91	4.59%	-5.97%
7	2006	1,278.72	0.0183	13.20%	$75.25	2.20%	11.01%
8	2005	1,181.41	0.0177	10.01%	$74.91	5.80%	4.21%
9	2004	1,132.52	0.0162	5.94%	$70.87	11.34%	-5.40%
10	2003	895.84	0.0180	28.22%	$62.26	20.27%	7.95%
11	2002	1,140.21	0.0138	-20.05%	$57.44	15.35%	-35.40%
12	2001	1,335.63	0.0116	-13.47%	$56.40	8.93%	-22.40%
13	2000	1,425.59	0.0118	-5.13%	$52.60	14.82%	-19.95%
14	1999	1,248.77	0.0130	15.46%	$63.03	-10.20%	25.66%
15	1998	963.35	0.0162	31.25%	$62.43	7.38%	23.87%
16	1997	766.22	0.0195	27.68%	$56.62	17.32%	10.36%
17	1996	614.42	0.0231	27.02%	$60.91	-0.48%	27.49%
18	1995	465.25	0.0287	34.93%	$50.22	29.26%	5.68%
19	1994	472.99	0.0269	1.05%	$60.01	-9.65%	10.71%
20	1993	435.23	0.0288	11.56%	$53.13	20.48%	-8.93%
21	1992	416.08	0.0290	7.50%	$49.56	15.27%	-7.77%
22	1991	325.49	0.0382	31.65%	$44.84	19.44%	12.21%
23	1990	339.97	0.0341	-0.85%	$45.60	7.11%	-7.96%
24	1989	285.41	0.0364	22.76%	$43.06	15.18%	7.58%
25	1988	250.48	0.0366	17.61%	$40.10	17.36%	0.25%
26	1987	264.51	0.0317	-2.13%	$48.92	-9.84%	7.71%
27	1986	208.19	0.0390	30.95%	$39.98	32.36%	-1.41%
28	1985	171.61	0.0451	25.83%	$32.57	35.05%	-9.22%
29	1984	166.39	0.0427	7.41%	$31.49	16.12%	-8.72%
30	1983	144.27	0.0479	20.12%	$29.41	20.65%	-0.53%
31	1982	117.28	0.0595	28.96%	$24.48	36.48%	-7.51%
32	1981	132.97	0.0480	-7.00%	$29.37	-3.01%	-3.99%
33	1980	110.87	0.0541	25.34%	$34.69	-3.81%	29.16%
34	1979	99.71	0.0533	16.52%	$43.91	-11.89%	28.41%
35	1978	90.25	0.0532	15.80%	$49.09	-2.40%	18.20%
36	1977	103.80	0.0399	-9.06%	$50.95	4.20%	-13.27%
37	1976	96.86	0.0380	10.96%	$43.91	25.13%	-14.17%
38	1975	72.56	0.0507	38.56%	$41.76	14.75%	23.81%
39	1974	96.11	0.0364	-20.86%	$52.54	-12.91%	-7.96%

LINE NO.	YEAR	S&P 500 STOCK PRICE	STOCK DIVIDEND YIELD	STOCK RETURN	A-RATED BOND PRICE	BOND RETURN	RISK PREMIUM
40	1973	118.40	0.0269	-16.14%	$58.51	-3.37%	-12.77%
41	1972	103.30	0.0296	17.58%	$56.47	10.69%	6.89%
42	1971	93.49	0.0332	13.81%	$53.93	12.13%	1.69%
43	1970	90.31	0.0356	7.08%	$50.46	14.81%	-7.73%
44	1969	102.00	0.0306	-8.40%	$62.43	-12.76%	4.36%
45	1968	95.04	0.0313	10.45%	$66.97	-0.81%	11.26%
46	1967	84.45	0.0351	16.05%	$78.69	-9.81%	25.86%
47	1966	93.32	0.0302	-6.48%	$86.57	-4.48%	-2.00%
48	1965	86.12	0.0299	11.35%	$91.40	-0.91%	12.26%
49	1964	76.45	0.0305	15.70%	$92.01	3.68%	12.02%
50	1963	65.06	0.0331	20.82%	$93.56	2.61%	18.20%
51	1962	69.07	0.0297	-2.84%	$89.60	8.89%	-11.73%
52	1961	59.72	0.0328	18.94%	$89.74	4.29%	14.64%
53	1960	58.03	0.0327	6.18%	$84.36	11.13%	-4.95%
54	1959	55.62	0.0324	7.57%	$91.55	-3.49%	11.06%
55	1958	41.12	0.0448	39.74%	$101.22	-5.60%	45.35%
56	1957	45.43	0.0431	-5.18%	$100.70	4.49%	-9.67%
57	1956	44.15	0.0424	7.14%	$113.00	-7.35%	14.49%
58	1955	35.60	0.0438	28.40%	$116.77	0.20%	28.20%
59	1954	25.46	0.0569	45.52%	$112.79	7.07%	38.45%
60	1953	26.18	0.0545	2.70%	$114.24	2.24%	0.46%
61	1952	24.19	0.0582	14.05%	$113.41	4.26%	9.79%
62	1951	21.21	0.0634	20.39%	$123.44	-4.89%	25.28%
63	1950	16.88	0.0665	32.30%	$125.08	1.89%	30.41%
64	1949	15.36	0.0620	16.10%	$119.82	7.72%	8.37%
65	1948	14.83	0.0571	9.28%	$118.50	4.49%	4.79%
66	1947	15.21	0.0449	1.99%	$126.02	-2.79%	4.79%
67	1946	18.02	0.0356	-12.03%	$126.74	2.59%	-14.63%
68	1945	13.49	0.0460	38.18%	$119.82	9.11%	29.07%
69	1944	11.85	0.0495	18.79%	$119.82	3.34%	15.45%
70	1943	10.09	0.0554	22.98%	$118.50	4.49%	18.49%
71	1942	8.93	0.0788	20.87%	$117.63	4.14%	16.73%
72	1941	10.55	0.0638	-8.98%	$116.34	4.55%	-13.52%
73	1940	12.30	0.0458	-9.65%	$112.39	7.08%	-16.73%
74	1939	12.50	0.0349	1.89%	$105.75	10.05%	-8.16%
75	1938	11.31	0.0784	18.36%	$99.83	9.94%	8.42%
76	1937	17.59	0.0434	-31.36%	$103.18	0.63%	-31.99%
77	Average			11.0%		6.7%	4.3%

Note: See Appendix 5 for an explanation of how stock and bond returns are derived and the source of the data presented.

KENTUCKY AMERICAN WATER COMPANY
EXHIBIT__(JVW-1)
SCHEDULE 5
COMPARATIVE RETURNS ON S&P UTILITY STOCK INDEX
AND MOODY'S A-RATED BONDS 1937 – 2012

LINE NO.	YEAR	S&P UTILITY STOCK PRICE	STOCK DIVIDEND YIELD	STOCK RETURN	A-RATED BOND PRICE	BOND RETURN	RISK PREMIUM
1	2012				$94.36		
2	2011			19.99%	$77.36	27.14%	-7.15%
3	2010			7.04%	$75.02	8.44%	-1.40%
4	2009			10.71%	$68.43	15.48%	-4.77%
5	2008			-25.90%	$72.25	0.24%	-26.14%
6	2007			16.56%	$72.91	4.59%	11.96%
7	2006			20.76%	$75.25	2.20%	18.56%
8	2005			16.05%	$74.91	5.80%	10.25%
9	2004			22.84%	$70.87	11.34%	11.50%
10	2003			23.48%	$62.26	20.27%	3.21%
11	2002			-14.73%	$57.44	15.35%	-30.08%
11	2001	307.70	0.0287	-17.90%	$56.40	8.93%	-26.83%
12	2000	239.17	0.0413	32.78%	$52.60	14.82%	17.96%
13	1999	253.52	0.0394	-1.72%	$63.03	-10.20%	8.48%
14	1998	228.61	0.0457	15.47%	$62.43	7.38%	8.09%
15	1997	201.14	0.0492	18.58%	$56.62	17.32%	1.26%
16	1996	202.57	0.0454	3.83%	$60.91	-0.48%	4.31%
17	1995	153.87	0.0584	37.49%	$50.22	29.26%	8.23%
18	1994	168.70	0.0496	-3.83%	$60.01	-9.65%	5.82%
19	1993	159.79	0.0537	10.95%	$53.13	20.48%	-9.54%
20	1992	149.70	0.0572	12.46%	$49.56	15.27%	-2.81%
21	1991	138.38	0.0607	14.25%	$44.84	19.44%	-5.19%
22	1990	146.04	0.0558	0.33%	$45.60	7.11%	-6.78%
23	1989	114.37	0.0699	34.68%	$43.06	15.18%	19.51%
24	1988	106.13	0.0704	14.80%	$40.10	17.36%	-2.55%
25	1987	120.09	0.0588	-5.74%	$48.92	-9.84%	4.10%
26	1986	92.06	0.0742	37.87%	$39.98	32.36%	5.51%
27	1985	75.83	0.0860	30.00%	$32.57	35.05%	-5.04%
28	1984	68.50	0.0925	19.95%	$31.49	16.12%	3.83%
29	1983	61.89	0.0948	20.16%	$29.41	20.65%	-0.49%
30	1982	51.81	0.1074	30.20%	$24.48	36.48%	-6.28%
31	1981	52.01	0.0978	9.40%	$29.37	-3.01%	12.41%
32	1980	50.26	0.0953	13.01%	$34.69	-3.81%	16.83%
33	1979	50.33	0.0893	8.79%	$43.91	-11.89%	20.68%
34	1978	52.40	0.0791	3.96%	$49.09	-2.40%	6.36%
35	1977	54.01	0.0714	4.16%	$50.95	4.20%	-0.04%
36	1976	46.99	0.0776	22.70%	$43.91	25.13%	-2.43%
37	1975	38.19	0.0920	32.24%	$41.76	14.75%	17.49%
38	1974	48.60	0.0713	-14.29%	$52.54	-12.91%	-1.38%
39	1973	60.01	0.0556	-13.45%	$58.51	-3.37%	-10.08%
40	1972	60.19	0.0542	5.12%	$56.47	10.69%	-5.57%
41	1971	63.43	0.0504	-0.07%	$53.93	12.13%	-12.19%
42	1970	55.72	0.0561	19.45%	$50.46	14.81%	4.64%

LINE NO.	YEAR	S&P UTILITY STOCK PRICE	STOCK DIVIDEND YIELD	STOCK RETURN	A-RATED BOND PRICE	BOND RETURN	RISK PREMIUM
43	1969	68.65	0.0445	-14.38%	$62.43	-12.76%	-1.62%
44	1968	68.02	0.0435	5.28%	$66.97	-0.81%	6.08%
45	1967	70.63	0.0392	0.22%	$78.69	-9.81%	10.03%
46	1966	74.50	0.0347	-1.72%	$86.57	-4.48%	2.76%
47	1965	75.87	0.0315	1.34%	$91.40	-0.91%	2.25%
48	1964	67.26	0.0331	16.11%	$92.01	3.68%	12.43%
49	1963	63.35	0.0330	9.47%	$93.56	2.61%	6.86%
50	1962	62.69	0.0320	4.25%	$89.60	8.89%	-4.64%
51	1961	52.73	0.0358	22.47%	$89.74	4.29%	18.18%
52	1960	44.50	0.0403	22.52%	$84.36	11.13%	11.39%
53	1959	43.96	0.0377	5.00%	$91.55	-3.49%	8.49%
54	1958	33.30	0.0487	36.88%	$101.22	-5.60%	42.48%
55	1957	32.32	0.0487	7.90%	$100.70	4.49%	3.41%
56	1956	31.55	0.0472	7.16%	$113.00	-7.35%	14.51%
57	1955	29.89	0.0461	10.16%	$116.77	0.20%	9.97%
58	1954	25.51	0.0520	22.37%	$112.79	7.07%	15.30%
59	1953	24.41	0.0511	9.62%	$114.24	2.24%	7.38%
60	1952	22.22	0.0550	15.36%	$113.41	4.26%	11.10%
61	1951	20.01	0.0606	17.10%	$123.44	-4.89%	21.99%
62	1950	20.20	0.0554	4.60%	$125.08	1.89%	2.71%
63	1949	16.54	0.0570	27.83%	$119.82	7.72%	20.10%
64	1948	16.53	0.0535	5.41%	$118.50	4.49%	0.92%
65	1947	19.21	0.0354	-10.41%	$126.02	-2.79%	-7.62%
66	1946	21.34	0.0298	-7.00%	$126.74	2.59%	-9.59%
67	1945	13.91	0.0448	57.89%	$119.82	9.11%	48.79%
68	1944	12.10	0.0569	20.65%	$119.82	3.34%	17.31%
69	1943	9.22	0.0621	37.45%	$118.50	4.49%	32.96%
70	1942	8.54	0.0940	17.36%	$117.63	4.14%	13.22%
71	1941	13.25	0.0717	-28.38%	$116.34	4.55%	-32.92%
72	1940	16.97	0.0540	-16.52%	$112.39	7.08%	-23.60%
73	1939	16.05	0.0553	11.26%	$105.75	10.05%	1.21%
74	1938	14.30	0.0730	19.54%	$99.83	9.94%	9.59%
75	1937	24.34	0.0432	-36.93%	$103.18	0.63%	-37.55%
76	Average			10.6%		6.7%	3.8%

See Appendix 5 for an explanation of how stock and bond returns are derived and the source of the data presented. Standard & Poor's discontinued its S&P Utilities Index in December 2001 and replaced its utilities stock index with separate indices for electric and natural gas utilities. In this study, the stock returns beginning in 2002 are based on the total returns for the EEI Index of U.S. shareholder-owned electric utilities, as reported by EEI on its website.
http://www.eei.org/whatwedo/DataAnalysis/IndusFinanAnalysis/Pages/QtrlyFinancialUpdates.aspx

KENTUCKY AMERICAN WATER COMPANY
EXHIBIT__(JVW-1)
SCHEDULE 6
USING THE ARITHMETIC MEAN TO ESTIMATE
THE COST OF EQUITY CAPITAL

Consider an investment that in a given year generates a return of 30 percent with probability equal to .5 and a return of -10 percent with a probability equal to .5. For each dollar invested, the possible outcomes of this investment at the end of year one are:

Ending Wealth	Probability
$1.30	0.50
$0.90	0.50

At the end of year two, the possible outcomes are:

Ending Wealth			Probability	Value x Probability
(1.30) (1.30)	=	$1.69	0.25	0.4225
(1.30) (.9)	=	$1.17	0.50	0.5850
(.9) (.9)	=	$0.81	0.25	0.2025
Expected Wealth	=			$1.21

The expected value of this investment at the end of year two is $1.21. In a competitive capital market, the cost of equity is equal to the expected rate of return on an investment. In the above example, the cost of equity is that rate of return which will make the initial investment of one dollar grow to the expected value of $1.21 at the end of two years. Thus, the cost of equity is the solution to the equation:

$$1(1+k)^2 = 1.21 \text{ or}$$

$$k = (1.21/1)^{.5} - 1 = 10\%.$$

The arithmetic mean of this investment is:

$$(30\%)\ (.5) + (-10\%)\ (.5) = 10\%.$$

Thus, the arithmetic mean is equal to the cost of equity capital.

The geometric mean of this investment is:

$$[(1.3)\ (.9)]^{.5} - 1 = .082 = 8.2\%.$$

Thus, the geometric mean is not equal to the cost of equity capital.

The lesson is obvious: for an investment with an uncertain outcome, the arithmetic mean is the best measure of the cost of equity capital.

KENTUCKY AMERICAN WATER COMPANY
EXHIBIT__(JVW-1)
SCHEDULE 7
CALCULATION OF CAPITAL ASSET PRICING MODEL COST OF EQUITY
USING THE IBBOTSON® SBBI® 6.6 PERCENT RISK PREMIUM

LINE	FACTOR	VALUE	DESCRIPTION
1	Risk-free Rate	5.11%	Long-term Treasury bond yield forecast
2	Beta	0.65	Average Beta Proxy Water Companies
3	Risk Premium	6.62%	Long-horizon SBBI risk premium
4	Beta x Risk Premium	4.30%	
5	Flotation	0.17%	
6	CAPM cost of equity	9.6%	

Ibbotson SBBI risk premium from 2012 Ibbotson® SBBI® Stocks, Bonds, Bills, and Inflation® Valuation Yearbook; Value Line beta for comparable companies from Value Line September 2012. Forecast 20-year Treasury bond yield using data from Value Line Selection & Opinion, August 24, 2012, and Energy Information Administration 2012.

COMPARABLE COMPANY BETAS

LINE	COMPANY	VALUE LINE BETA	MARKET CAP $ (MIL)
1	Amer. States Water	0.70	834
2	Amer. Water Works	0.65	6,524
3	Aqua America	0.60	3,451
4	California Water	0.65	782
5	Middlesex Water	0.70	303
6	SJW Corp.	0.85	468
7	Average	0.69	
8	Market-weighted Average	0.65	

Data from Value Line September 2012.

KENTUCKY AMERICAN WATER COMPANY
EXHIBIT__(JVW-1)
SCHEDULE 8
CALCULATION OF CAPITAL ASSET PRICING MODEL COST OF EQUITY
USING DCF ESTIMATE OF THE EXPECTED RATE OF RETURN
ON THE MARKET PORTFOLIO

LINE	FACTOR	VALUE	DESCRIPTION
1	Risk-free Rate	5.11%	Long-term Treasury bond yield forecast
2	Beta	0.65	Average Beta Proxy Water Companies
3	DCF S&P 500	12.60%	DCF Cost of Equity S&P 500 (see following)
4	Risk Premium	7.49%	
5	Beta * Risk Premium	4.87%	
6	Flotation cost	0.17%	
7	Cost of Equity	10.1%	

Value Line beta for comparable companies from Value Line September 2012. Forecast 20-year Treasury bond yield using data from Value Line Selection & Opinion, August 24, 2012, and Energy Information Administration 2012.

KENTUCKY AMERICAN WATER COMPANY
EXHIBIT__(JVW-1)
SCHEDULE 8 (CONTINUED)
CALCULATION OF CAPITAL ASSET PRICING MODEL COST OF EQUITY
USING DCF ESTIMATE OF THE EXPECTED RATE OF RETURN
ON THE MARKET PORTFOLIO
SUMMARY OF DISCOUNTED CASH FLOW ANALYSIS FOR S&P 500 COMPANIES

LINE	COMPANY	P_0	D_0	GROWTH	COST OF EQUITY
1	3M	90.92	2.36	9.48%	12.3%
2	ABBOTT LABORATORIES	66.31	2.04	8.85%	12.2%
3	ACCENTURE	61.56	1.62	11.27%	14.2%
4	AETNA	38.18	0.70	9.36%	11.4%
5	AFLAC	45.10	1.32	11.07%	14.4%
6	AGILENT TECHS.	38.24	0.40	12.14%	13.3%
7	ALCOA	8.74	0.12	11.45%	13.0%
8	ALLERGAN	88.30	0.20	13.58%	13.8%
9	ALLSTATE	36.84	0.88	8.75%	11.4%
10	ALTRIA GROUP	34.57	1.76	6.20%	11.7%
11	AMERICAN EXPRESS	57.22	0.80	11.43%	13.0%
12	AMERIPRISE FINL.	53.55	1.40	10.70%	13.6%
13	AMERISOURCEBERGEN	38.45	0.52	11.76%	13.3%
14	AMGEN	81.47	1.44	11.32%	13.3%
15	ANALOG DEVICES	39.20	1.20	9.09%	12.5%
16	AUTOMATIC DATA PROC.	57.24	1.58	9.19%	12.2%
17	BANK OF NEW YORK MELLON	22.21	0.52	12.18%	14.8%
18	BAXTER INTL.	58.33	1.80	8.09%	11.5%
19	BB&T	31.94	0.80	10.31%	13.1%
20	BEAM	60.39	0.82	12.44%	14.0%
21	BOEING	72.30	1.76	10.51%	13.2%
22	BROWN-FORMAN 'B'	63.91	0.93	11.47%	13.1%
23	CA	25.74	1.00	9.33%	13.6%
24	CABLEVISION SYS.	15.36	0.60	9.07%	13.4%
25	CARDINAL HEALTH	40.75	0.95	9.92%	12.5%
26	CARNIVAL	34.61	1.00	11.42%	14.7%
27	CF INDUSTRIES HDG.	206.37	1.60	10.68%	11.5%
28	CHARLES SCHWAB	12.99	0.24	11.38%	13.5%
29	CHUBB	73.16	1.64	8.88%	11.3%
30	CINTAS	40.09	0.54	9.23%	10.7%
31	CISCO SYSTEMS	17.55	0.56	7.85%	11.3%
32	CLIFFS NATURAL RESOURCES	41.13	2.50	6.96%	13.6%
33	CLOROX	71.91	2.56	8.27%	12.2%
34	CME GROUP	53.90	1.80	8.47%	12.1%
35	COLGATE-PALM.	105.81	2.48	8.31%	10.9%
36	CONAGRA FOODS	25.34	1.00	7.23%	11.5%
37	COOPER INDUSTRIES	72.06	1.24	12.22%	14.2%
38	COSTCO WHOLESALE	97.52	1.10	12.96%	14.2%
39	COVENTRY HEALTH CARE	36.95	0.50	10.07%	11.6%
40	COVIDIEN	55.93	1.04	8.78%	10.8%
41	CVS CAREMARK	46.10	0.65	13.01%	14.6%
42	DEERE	77.72	1.84	11.00%	13.7%
43	DENTSPLY INTL.	36.98	0.22	12.13%	12.8%

LINE	COMPANY	P_0	D_0	GROWTH	COST OF EQUITY
44	DIAMOND OFFS.DRL.	66.41	0.50	13.73%	14.6%
45	DISCOVER FINANCIAL SVS.	36.94	0.40	10.67%	11.9%
46	DOVER	55.79	1.40	9.37%	12.1%
47	DR PEPPER SNAPPLE GROUP	44.57	1.36	7.80%	11.1%
48	E I DU PONT DE NEMOURS	49.73	1.72	8.57%	12.4%
49	EATON	43.69	1.52	9.20%	13.0%
50	EMERSON ELECTRIC	48.40	1.60	8.50%	12.1%
51	EQUIFAX	46.84	0.72	12.18%	13.9%
52	EXPEDIA	53.86	0.52	12.14%	13.2%
53	FEDEX	88.70	0.56	13.09%	13.8%
54	FLIR SYS.	20.14	0.28	12.55%	14.1%
55	FLUOR	52.21	0.64	11.85%	13.2%
56	FMC	54.44	0.36	10.53%	11.3%
57	GAMESTOP 'A'	18.78	1.00	6.88%	12.7%
58	GAP	32.38	0.50	10.03%	11.7%
59	GENERAL MILLS	39.04	1.32	7.07%	10.7%
60	HASBRO	36.53	1.44	7.37%	11.7%
61	ILLINOIS TOOL WORKS	56.34	1.52	8.60%	11.6%
62	INGERSOLL-RAND	43.73	0.64	11.18%	12.8%
63	INTERNATIONAL BUS.MCHS.	196.05	3.40	9.97%	11.9%
64	INTERPUBLIC GP.	10.81	0.24	12.09%	14.6%
65	INTL.GAME TECH.	12.66	0.24	10.87%	13.0%
66	J M SMUCKER	80.69	2.08	8.05%	10.9%
67	KOHL'S	50.33	1.28	10.84%	13.7%
68	KROGER	22.43	0.60	9.54%	12.5%
69	LEGG MASON	25.44	0.44	12.60%	14.6%
70	LIMITED BRANDS	48.10	1.00	11.87%	14.2%
71	LOCKHEED MARTIN	90.22	4.60	6.08%	11.6%
72	LYONDELLBASELL INDS.CL.A	46.20	1.60	8.60%	12.4%
73	M&T BK.	87.70	2.80	7.70%	11.2%
74	MARSH & MCLENNAN	33.49	0.92	10.67%	13.7%
75	MATTEL	34.52	1.24	8.40%	12.3%
76	MCDONALDS	90.04	3.08	9.20%	13.0%
77	MCKESSON	89.81	0.80	12.13%	13.1%
78	MEAD JOHNSON NUTRITION	74.25	1.20	10.88%	12.7%
79	MICROSOFT	30.15	0.92	8.70%	12.1%
80	MOLEX	25.72	0.88	9.55%	13.3%
81	MONDELEZ INTERNATIONAL CL.A	26.17	0.76	10.30%	13.5%
82	MONSANTO	86.98	1.20	10.43%	12.0%
83	MURPHY OIL	52.79	1.25	8.53%	11.1%
84	NASDAQ OMX GROUP	23.14	0.52	9.62%	12.1%
85	NORDSTROM	54.57	1.08	12.47%	14.7%
86	NUCOR	38.72	1.46	8.82%	13.0%
87	NYSE EURONEXT	25.54	1.20	8.18%	13.4%
88	OMNICOM GP.	50.88	1.20	9.43%	12.0%
89	ORACLE	30.94	0.24	12.13%	13.0%
90	PATTERSON COMPANIES	34.55	0.56	11.77%	13.6%
91	PAYCHEX	32.90	1.28	9.54%	13.9%
92	PERKINELMER	26.83	0.28	11.76%	12.9%
93	PERRIGO	113.50	0.32	10.92%	11.2%
94	PHILIP MORRIS INTL.	89.87	3.40	9.92%	14.1%
95	PIONEER NTRL.RES.	96.76	0.08	13.27%	13.4%
96	PPG INDUSTRIES	109.80	2.36	10.40%	12.8%

LINE	COMPANY	P_0	D_0	GROWTH	COST OF EQUITY
97	PREC.CASTPARTS	160.48	0.12	13.42%	13.5%
98	PROCTER & GAMBLE	65.70	2.25	8.27%	12.0%
99	PROGRESSIVE OHIO	20.04	0.41	8.67%	10.9%
100	QUEST DIAGNOSTICS	60.58	0.68	11.72%	13.0%
101	RALPH LAUREN CL.A	149.69	1.60	13.32%	14.5%
102	RAYTHEON 'B'	56.11	2.00	8.63%	12.6%
103	REYNOLDS AMERICAN	45.49	2.36	7.33%	13.0%
104	ROPER INDS.NEW	103.37	0.55	13.77%	14.4%
105	ROSS STORES	66.81	0.56	13.50%	14.5%
106	RYDER SYSTEM	39.13	1.24	8.93%	12.4%
107	SAFEWAY	16.14	0.70	9.65%	14.5%
108	SAIC	11.97	0.48	8.67%	13.1%
109	ST.JUDE MEDICAL	38.70	0.92	9.21%	11.8%
110	STAPLES	12.16	0.44	7.62%	11.6%
111	STATE STREET	41.96	0.96	8.65%	11.2%
112	STRYKER	53.45	0.85	9.89%	11.6%
113	SYSCO	29.79	1.08	7.00%	10.9%
114	TARGET	62.04	1.44	12.13%	14.8%
115	TE CONNECTIVITY	33.86	0.84	9.16%	11.9%
116	THE HERSHEY COMPANY	71.70	1.52	9.27%	11.6%
117	THERMO FISHER SCIENTIFIC	55.88	0.52	11.17%	12.2%
118	TIFFANY & CO	58.26	1.28	11.89%	14.4%
119	TIME WARNER	40.84	1.04	11.43%	14.3%
120	TJX COS.	44.73	0.46	12.44%	13.6%
121	TORCHMARK	50.87	0.60	9.87%	11.2%
122	TOTAL SYSTEM SERVICES	23.65	0.40	10.00%	11.9%
123	TRAVELERS COS.	64.48	1.84	10.68%	13.9%
124	UNITED PARCEL SER.'B'	75.15	2.28	11.12%	14.5%
125	UNITED TECHNOLOGIES	76.81	2.14	10.77%	13.9%
126	UNITEDHEALTH GP.	54.15	0.85	10.02%	11.8%
127	UNUM GROUP	19.33	0.42	8.67%	11.1%
128	WAL MART STORES	73.08	1.59	8.38%	10.8%
129	WALT DISNEY	49.80	0.60	12.43%	13.8%
130	WELLPOINT	58.36	1.15	9.93%	12.1%
131	WESTERN UNION	17.55	0.40	11.11%	13.7%
132	XL GROUP	22.16	0.44	8.75%	10.9%
133	ZIMMER HDG.	62.22	0.72	9.69%	11.0%
134	ZIONS BANCORP.	19.29	0.04	13.57%	13.8%
135	Market-weighted Average				12.6%

Notes: In applying the DCF model to the S&P 500, I included in the DCF analysis only those companies in the S&P 500 group which pay a dividend, have a positive growth rate, and have at least three analysts' long-term growth estimates. To be conservative, I also eliminated those 25% of companies with the highest and lowest DCF results.

D_0	=	Current dividend per Thomson Reuters.
P_0	=	Average of the monthly high and low stock prices during the three months ending September 2012 per Thomson Reuters.
g	=	I/B/E/S forecast of future earnings growth September 2012.
k	=	Cost of equity using the quarterly version of the DCF model shown below:

$$k = \left[\frac{d_0 (1 + g)^{\frac{1}{4}}}{P_0} \right]^4 - 1$$

APPENDIX 1
QUALIFICATIONS OF JAMES H. VANDER WEIDE, PH.D.

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James H. Vander Weide is Research Professor of Finance and Economics at Duke University, the Fuqua School of Business. Dr. Vander Weide is also founder and President of Financial Strategy Associates, a consulting firm that provides strategic, financial, and economic consulting services to corporate clients, including cost of capital and valuation studies.

Educational Background and Prior Academic Experience

Dr. Vander Weide holds a Ph.D. in Finance from Northwestern University and a Bachelor of Arts in Economics from Cornell University. He joined the faculty at Duke University and was named Assistant Professor, Associate Professor, Professor, and then Research Professor of Finance and Economics.

Since joining the faculty at Duke, Dr. Vander Weide has taught courses in corporate finance, investment management, and management of financial institutions. He has also taught courses in statistics, economics, and operations research, and a Ph.D. seminar on the theory of public utility pricing. In addition, Dr. Vander Weide has been active in executive education at Duke and Duke Corporate Education, leading executive development seminars on topics including financial analysis, cost of capital, creating shareholder value, mergers and acquisitions, real options, capital budgeting, cash management, measuring corporate performance, valuation, short-run financial planning, depreciation policies, financial strategy, and competitive strategy. Dr. Vander Weide has designed and served as Program Director for several executive education programs, including the Advanced Management Program, Competitive Strategies in Telecommunications, and the Duke Program for Manager Development for managers from the former Soviet Union.

Publications

Dr. Vander Weide has written a book entitled *Managing Corporate Liquidity: An Introduction to Working Capital Management* published by John Wiley and Sons, Inc. He has also written a chapter titled, “Financial Management in the Short Run” for *The Handbook of Modern Finance*; a chapter titled “Principles for Lifetime Portfolio Selection: Lessons from Portfolio Theory” for *The Handbook of Portfolio Construction: Contemporary Applications of*

Markowitz Techniques; and written research papers on such topics as portfolio management, capital budgeting, investments, the effect of regulation on the performance of public utilities, and cash management. His articles have been published in *American Economic Review, Financial Management, International Journal of Industrial Organization, Journal of Finance, Journal of Financial and Quantitative Analysis, Journal of Bank Research, Journal of Portfolio Management, Journal of Accounting Research, Journal of Cash Management, Management Science, Atlantic Economic Journal, Journal of Economics and Business,* and *Computers and Operations Research*.

Professional Consulting Experience

Dr. Vander Weide has provided financial and economic consulting services to firms in the telecommunications, electric, gas, insurance, and water industries for more than twenty-five years. He has testified on the cost of capital, competition, risk, incentive regulation, forward-looking economic cost, economic pricing guidelines, depreciation, accounting, valuation, and other financial and economic issues in more than 400 cases before the United States Congress, the Canadian Radio-Television and Telecommunications Commission, the Federal Communications Commission, the National Energy Board (Canada), the National Telecommunications and Information Administration, the Federal Energy Regulatory Commission, the public service commissions of forty-three states, the District of Columbia, four Canadian provinces, the insurance commissions of five states, the Iowa State Board of Tax Review, the National Association of Securities Dealers, and the North Carolina Property Tax Commission. In addition, he has testified as an expert witness in telecommunications-related proceedings before the United States District Court for the District of New Hampshire, United States District Court for the Northern District of California, United States District Court for the Northern District of Illinois, Montana Second Judicial District Court Silver Bow County, the United States Bankruptcy Court for the Southern District of West Virginia, and United States District Court for the Eastern District of Michigan. He also testified as an expert before the United States Tax Court, United States District Court for the Eastern District of North Carolina; United States District Court for the District of Nebraska, and Superior Court of North Carolina. Dr. Vander Weide has testified in thirty states on issues relating to the pricing of unbundled network elements and universal service cost studies and has consulted with Bell Canada, Deutsche Telekom, and Telefónica on similar issues. He has also provided expert testimony on issues related to electric and natural gas restructuring. He has worked for Bell Canada/Nortel on a special task force to study the effects of vertical integration in the Canadian telephone industry and has worked for Bell Canada as an expert witness on the cost of capital. Dr. Vander Weide has provided consulting and expert witness testimony to the following companies:

ELECTRIC, GAS, WATER, OIL COMPANIES	
Alcoa Power Generating, Inc.	Kinder Morgan Energy Partners
Alliant Energy and subsidiaries	Maritimes & Northeast Pipeline
AltaLink, L.P.	MidAmerican Energy and subsidiaries
Ameren	National Fuel Gas
American Water Works	Nevada Power Company
Atmos Energy and subsidiaries	NICOR
BP p.l.c.	North Carolina Natural Gas
Central Illinois Public Service	North Shore Gas
Centurion Pipeline L.P.	Northern Natural Gas Company
Citizens Utilities	NOVA Gas Transmission Ltd.
Consolidated Natural Gas and subsidiaries	PacifiCorp
Dominion Resources and subsidiaries	Peoples Energy and its subsidiaries
Duke Energy and subsidiaries	PG&E
Empire District Electric Company	Progress Energy
EPCOR Distribution & Transmission Inc.	PSE&G
EPCOR Energy Alberta Inc.	Public Service Company of North Carolina
FortisAlberta Inc.	Sempra Energy/San Diego Gas and Electric
Hope Natural Gas	South Carolina Electric and Gas
Interstate Power Company	Southern Company and subsidiaries
Iberdrola Renewables	Tennessee-American Water Company
Iowa Southern	The Peoples Gas, Light and Coke Co.
Iowa-American Water Company	TransCanada
Iowa-Illinois Gas and Electric	Trans Québec & Maritimes Pipeline Inc.
Kentucky Power Company	Union Gas
Kentucky-American Water Company	United Cities Gas Company
Newfoundland Power Inc.	Virginia-American Water Company
	Xcel Energy

TELECOMMUNICATIONS COMPANIES	
ALLTEL and subsidiaries	Phillips County Cooperative Tel. Co.
Ameritech (now AT&T new)	Pine Drive Cooperative Telephone Co.
AT&T (old)	Roseville Telephone Company (SureWest)
Bell Canada/Nortel	SBC Communications (now AT&T new)
BellSouth and subsidiaries	Sherburne Telephone Company
Centel and subsidiaries	Siemens
Cincinnati Bell (Broadwing)	Southern New England Telephone
Cisco Systems	Sprint/United and subsidiaries

TELECOMMUNICATIONS COMPANIES	
Citizens Telephone Company	Telefónica
Concord Telephone Company	Tellabs, Inc.
Contel and subsidiaries	The Stentor Companies
Deutsche Telekom	U S West (Qwest)
GTE and subsidiaries (now Verizon)	Union Telephone Company
Heins Telephone Company	United States Telephone Association
JDS Uniphase	Valor Telecommunications (Windstream)
Lucent Technologies	Verizon (Bell Atlantic) and subsidiaries
Minnesota Independent Equal Access Corp.	Woodbury Telephone Company
NYNEX and subsidiaries (Verizon)	
Pacific Telesis and subsidiaries	

INSURANCE COMPANIES
Allstate
North Carolina Rate Bureau
United Services Automobile Association (USAA)
The Travelers Indemnity Company
Gulf Insurance Company

Other Professional Experience

Dr. Vander Weide conducts in-house seminars and training sessions on topics such as creating shareholder value, financial analysis, competitive strategy, cost of capital, real options, financial strategy, managing growth, mergers and acquisitions, valuation, measuring corporate performance, capital budgeting, cash management, and financial planning. Among the firms for whom he has designed and taught tailored programs and training sessions are ABB Asea Brown Boveri, Accenture, Allstate, Ameritech, AT&T, Bell Atlantic/Verizon, BellSouth, Progress Energy/Carolina Power & Light, Contel, Fisons, GlaxoSmithKline, GTE, Lafarge, MidAmerican Energy, New Century Energies, Norfolk Southern, Pacific Bell Telephone, The Rank Group, Siemens, Southern New England Telephone, TRW, and Wolseley Plc. Dr. Vander Weide has also hosted a nationally prominent conference/workshop on estimating the cost of capital. In 1989, at the request of Mr. Fuqua, Dr. Vander Weide designed the Duke Program for Manager Development for managers from the former Soviet Union, the first in the United States designed exclusively for managers from Russia and the former Soviet republics.

Early in his career, Dr. Vander Weide helped found University Analytics, Inc., which was one of the fastest growing small firms in the country. As an officer at University Analytics, he designed cash management models, databases, and software packages that are still used by most major U.S. banks in consulting with their corporate clients. Having sold his interest in University Analytics, Dr. Vander Weide now concentrates on strategic and financial consulting, academic research, and executive education.

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APPENDIX 2
THE QUARTERLY DCF MODEL

The simple DCF Model assumes that a firm pays dividends only at the end of each year. Since firms in fact pay dividends quarterly and investors appreciate the time value of money, the annual version of the DCF Model generally underestimates the value investors are willing to place on the firm's expected future dividend stream. In this appendix, we review two alternative formulations of the DCF Model that allow for the quarterly payment of dividends.

When dividends are assumed to be paid annually, the DCF Model suggests that the current price of the firm's stock is given by the expression:

$$P_0 = \frac{D_1}{(1+k)} + \frac{D_2}{(1+k)^2} + \ldots + \frac{D_n + P_n}{(1+k)^n} \quad \textbf{(1)}$$

where

P_0	=	current price per share of the firm's stock,
$D_1, D_2, \ldots, D_n$	=	expected annual dividends per share on the firm's stock,
P_n	=	price per share of stock at the time investors expect to sell the stock, and
k	=	return investors expect to earn on alternative investments of the same risk, i.e., the investors' required rate of return.

Unfortunately, expression (1) is rather difficult to analyze, especially for the purpose of estimating k. Thus, most analysts make a number of simplifying assumptions. First, they assume that dividends are expected to grow at the constant rate g into the indefinite future. Second, they assume that the stock price at time n is simply the present value of all dividends expected in periods subsequent to n. Third, they assume that the investors' required rate of return, k, exceeds the expected dividend growth rate g. Under the above simplifying assumptions, a firm's stock price may be written as the following sum:

$$P_0 = \frac{D_0(1+g)}{(1+k)} + \frac{D_0(1+g)^2}{(1+k)^2} + \frac{D_0(1+g)^3}{(1+k)^3} + \ldots , \qquad \textbf{(2)}$$

where the three dots indicate that the sum continues indefinitely.

As we shall demonstrate shortly, this sum may be simplified to:

$$P_0 = \frac{D_0(1+g)}{(k - g)}$$

First, however, we need to review the very useful concept of a geometric progression.

Geometric Progression

Consider the sequence of numbers 3, 6, 12, 24,…, where each number after the first is obtained by multiplying the preceding number by the factor 2. Obviously, this sequence of numbers may also be expressed as the sequence 3, 3 x 2, 3 x 2^2, 3 x 2^3, etc. This sequence is an example of a geometric progression.

Definition: A geometric progression is a sequence in which each term after the first is obtained by multiplying some fixed number, called the common ratio, by the preceding term.

A general notation for geometric progressions is: a, the first term, r, the common ratio, and n, the number of terms. Using this notation, any geometric progression may be represented by the sequence:

$$a, ar, ar^2, ar^3, \ldots, ar^{n-1}.$$

In studying the DCF Model, we will find it useful to have an expression for the sum of n terms of a geometric progression. Call this sum S_n. Then

$$S_n = a + ar + \ldots + ar^{n-1} . \qquad \textbf{(3)}$$

However, this expression can be simplified by multiplying both sides of equation (3) by r and then subtracting the new equation from the old. Thus,

$$rS_n = ar + ar^2 + ar^3 + \ldots + ar^n$$

and

$$S_n - rS_n = a - ar^n \quad ,$$

or

$$(1 - r)\, S_n = a\,(1 - r^n) \; .$$

Solving for S_n, we obtain:

$$S_n = \frac{a(1 - r^n)}{(1 - r)} \qquad \textbf{(4)}$$

as a simple expression for the sum of n terms of a geometric progression. Furthermore, if $|r| < 1$, then S_n is finite, and as n approaches infinity, S_n approaches $a \div (1-r)$. Thus, for a geometric progression with an infinite number of terms and $|r| < 1$, equation (4) becomes:

$$S = \frac{a}{1 - r} \qquad \textbf{(5)}$$

<u>Application to DCF Model</u>

Comparing equation (2) with equation (3), we see that the firm's stock price (under the DCF assumption) is the sum of an infinite geometric progression with the first term

$$a = \frac{D_0(1+g)}{(1+k)}$$

and common factor

$$r = \frac{(1+g)}{(1+k)}$$

Applying equation (5) for the sum of such a geometric progression, we obtain

$$S = a \bullet \frac{1}{(1 - r)} = \frac{D_0(1+g)}{(1+k)} \bullet \frac{1}{1 - \frac{1+g}{1+k}} = \frac{D_0(1+g)}{(1+k)} \bullet \frac{1+k}{k - g} = \frac{D_0(1+g)}{k - g}$$

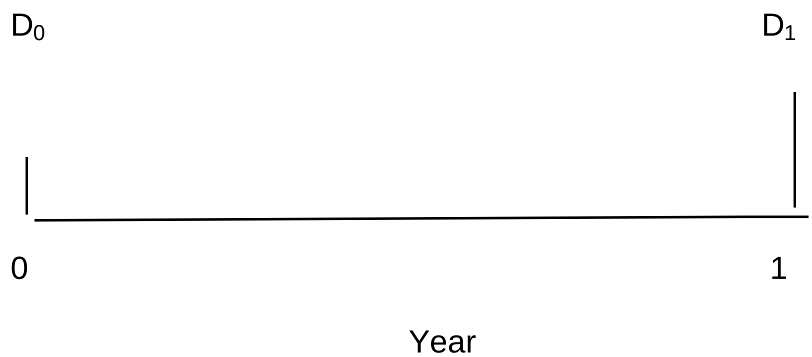
as we suggested earlier.

Quarterly DCF Model

The Annual DCF Model assumes that dividends grow at an annual rate of g% per year (see Figure 1).

Figure 1

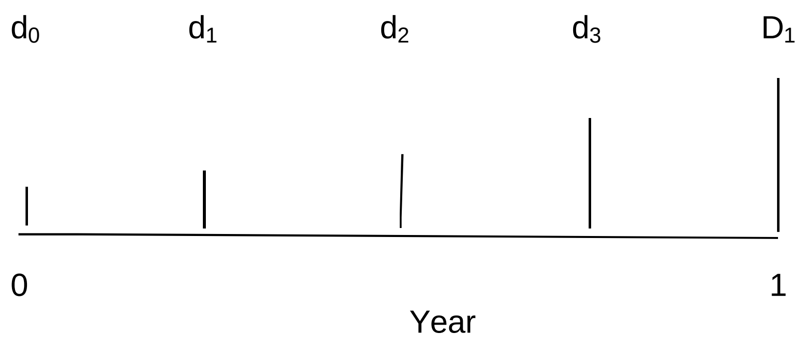
Annual DCF Model



$D_0 = 4d_0$ $\qquad\qquad$ $D_1 = D_0(1 + g)$

Figure 2

Quarterly DCF Model (Constant Growth Version)



$d_1 = d_0(1{+}g)^{.25}$ $\qquad\qquad$ $d_2 = d_0(1{+}g)^{.50}$

$d_3 = d_0(1{+}g)^{.75}$ $\qquad\qquad$ $d_4 = d_0(1{+}g)$

In the Quarterly DCF Model, it is natural to assume that quarterly dividend payments differ from the preceding quarterly dividend by the factor $(1 + g)^{.25}$, where g is expressed in terms of percent per year and the decimal .25 indicates that the growth has only occurred for one quarter of the year. (See Figure 2.) Using this assumption, along with the assumption of constant growth and ***k*** > ***g***, we obtain a new expression for the firm's stock price, which takes account of the quarterly payment of dividends. This expression is:

$$P_0 = \frac{d_0(1+g)^{\frac{1}{4}}}{(1+k)^{\frac{1}{4}}} + \frac{d_0(1+g)^{\frac{2}{4}}}{(1+k)^{\frac{2}{4}}} + \frac{d_0(1+g)^{\frac{3}{4}}}{(1+k)^{\frac{3}{4}}} + \dots \quad \textbf{(6)}$$

where d_0 is the last quarterly dividend payment, rather than the last annual dividend payment. (We use a lower case d to remind the reader that this is not the annual dividend.)

Although equation (6) looks formidable at first glance, it too can be greatly simplified using the formula [equation (4)] for the sum of an infinite geometric progression. As the reader can easily verify, equation (6) can be simplified to:

$$P_0 = \frac{d_0(1+g)^{\frac{1}{4}}}{(1+k)^{\frac{1}{4}} - (1+g)^{\frac{1}{4}}} \qquad \textbf{(7)}$$

Solving equation (7) for *k*, we obtain a DCF formula for estimating the cost of equity under the quarterly dividend assumption:

$$k = \left[\frac{d_0(1+g)^{\frac{1}{4}}}{P_0} + (1+g)^{\frac{1}{4}} \right]^4 - 1 \qquad \textbf{(8)}$$

An Alternative Quarterly DCF Model

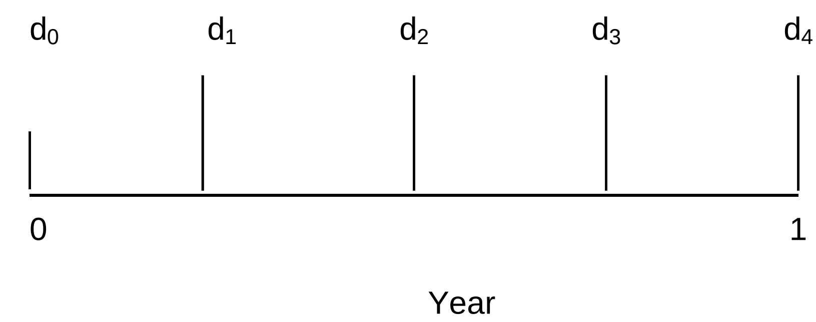
Although the constant growth Quarterly DCF Model [equation (8)] allows for the quarterly timing of dividend payments, it does require the assumption that the firm increases its dividend payments each quarter. Since this assumption is difficult for some analysts to accept, we now discuss a second Quarterly DCF Model that allows for constant quarterly dividend payments within each dividend year.

Assume then that the firm pays dividends quarterly and that each dividend payment is constant for four consecutive quarters. There are four cases to consider, with each case distinguished by varying assumptions about where we are evaluating the firm in relation to the time of its next dividend increase. (See Figure 3.)

Figure 3

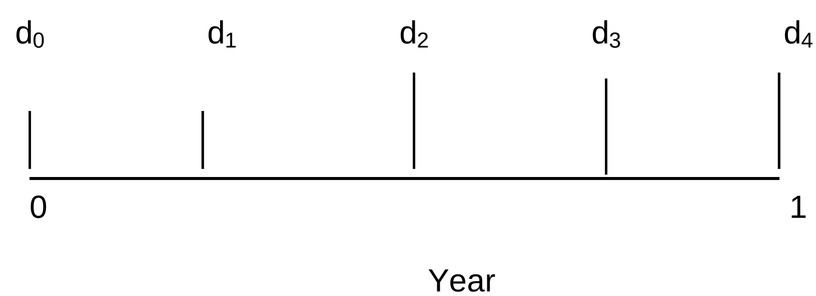
Quarterly DCF Model (Constant Dividend Version)

Case 1



$d_1 = d_2 = d_3 = d_4 = d_0(1+g)$

Case 2

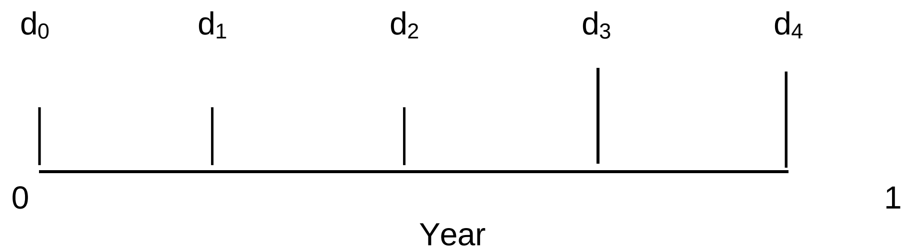


$d_1 = d_0$

$d_2 = d_3 = d_4 = d_0(1+g)$

<u>Figure 3</u> (continued)

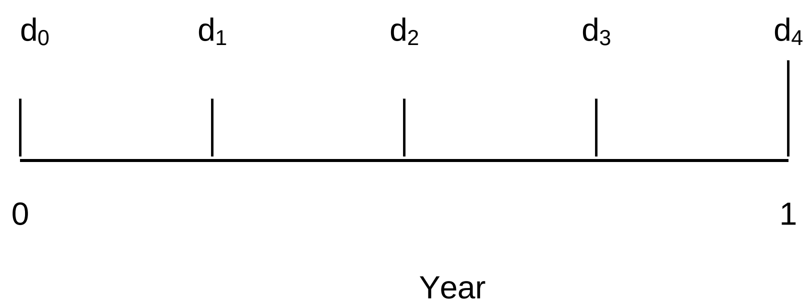
<u>Case 3</u>



$d_1 = d_2 = d_0$

$d_3 = d_4 = d_0(1+g)$

<u>Case 4</u>



$d_1 = d_2 = d_3 = d_0$

$d_4 = d_0(1+g)$

If we assume that the investor invests the quarterly dividend in an alternative investment of the same risk, then the amount accumulated by the end of the year will in all cases be given by

$$D_1^* = d_1\,(1+k)^{3/4} + d_2\,(1+k)^{1/2} + d_3\,(1+k)^{1/4} + d_4$$

where d_1, d_2, d_3 and d_4 are the four quarterly dividends. Under these new assumptions, the firm's stock price may be expressed by an Annual DCF Model of the form (2), with the exception that

$$D_1^* = d_1\,(1 + k)^{3/4} + d_2\,(1 + k)^{1/2} + d_3\,(1 + k)^{1/4} + d_4 \qquad \textbf{(9)}$$

is used in place of $D_0(1+g)$. But, we already know that the Annual DCF Model may be reduced to

$$P_0 = \frac{D_0\,(1 + g)}{k - g}$$

Thus, under the assumptions of the second Quarterly DCF Model, the firm's cost of equity is given by

$$k = \frac{D_1^*}{P_0} + g \quad \textbf{(10)}$$

with D_1^* given by (9).

Although equation (10) looks like the Annual DCF Model, there are at least two very important practical differences. First, since D_1^* is always greater than $D_0(1+g)$, the estimates of the cost of equity are always larger (and more accurate) in the Quarterly Model (10) than in the Annual Model. Second, since D_1^* depends on k through equation (9), the unknown “k” appears on both sides of (10), and an iterative procedure is required to solve for k.

APPENDIX 3
ADJUSTING FOR FLOTATION COSTS IN DETERMINING
A PUBLIC UTILITY'S
ALLOWED RATE OF RETURN ON EQUITY

Introduction

Regulation of public utilities is guided by the principle that utility revenues should be sufficient to allow recovery of all prudently incurred expenses, including the cost of capital. As set forth in the 1944 *Hope Natural Gas* Case [*Federal Power Comm'n v. Hope Natural Gas Co*. 320 U. S. 591 (1944) at 603], the U. S. Supreme Court states:

> From the investor or company point of view it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business. These include service on the debt and dividends on the stock.…By that standard the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks.

Since the flotation costs arising from the issuance of debt and equity securities are an integral component of capital costs, this standard requires that the company's revenues be sufficient to fully recover flotation costs.

Despite the widespread agreement that flotation costs should be recovered in the regulatory process, several issues still need to be resolved. These include:

1. How is the term "flotation costs" defined? Does it include only the out-of-pocket costs associated with issuing securities (e. g., legal fees, printing costs, selling and underwriting expenses), or does it also include the reduction in a security's price that frequently accompanies flotation (i. e., market pressure)?
2. What should be the time pattern of cost recovery? Should a company be allowed to recover flotation costs immediately, or should flotation costs be recovered over the life of the issue?
3. For the purposes of regulatory accounting, should flotation costs be included as an expense? As an addition to rate base? Or as an additional element of a firm's allowed rate of return?
4. Do existing regulatory methods for flotation cost recovery allow a firm ***full*** recovery of flotation costs?

In this paper, I review the literature pertaining to the above issues and discuss my own views regarding how this literature applies to the cost of equity for a regulated firm.

Definition of Flotation Cost

The value of a firm is related to the future stream of net cash flows (revenues minus expenses measured on a cash basis) that can be derived from its assets. In the process of acquiring assets, a firm incurs certain expenses which reduce its value. Some of these expenses or costs are directly associated with revenue production in one period (e. g., wages, cost of goods sold), others are more properly associated with revenue production in many periods (e. g., the acquisition cost of plant and equipment). In either case, the word "cost" refers to any item that reduces the value of a firm.

If this concept is applied to the act of issuing new securities to finance asset purchases, many items are properly included in issuance or flotation costs. These include: (1) compensation received by investment bankers for underwriting services, (2) legal fees, (3) accounting fees, (4) engineering fees, (5) trustee's fees, (6) listing fees, (7) printing and engraving expenses, (8) SEC registration fees, (9) Federal Revenue Stamps, (10) state taxes, (11) warrants granted to underwriters as extra compensation, (12) postage expenses, (13) employees' time, (14) market pressure, and (15) the offer discount. The finance literature generally divides these flotation cost items into three categories, namely, underwriting expenses, issuer expenses, and price effects.

Magnitude of Flotation Costs

The finance literature contains several studies of the magnitude of the flotation costs associated with new debt and equity issues. These studies differ primarily with regard to the time period studied, the sample of companies included, and the source of data. The flotation cost studies generally agree, however, that for large issues, underwriting expenses represent approximately one and one-half percent of the proceeds of debt issues and three to five percent of the proceeds of seasoned equity issues. They also agree that issuer expenses represent approximately 0.5 percent of both debt and equity issues, and that the announcement of an equity issue reduces the company's stock price by at least two to three percent of the proceeds from the stock issue. Thus, total flotation costs represent approximately two percent[5] of the proceeds from debt issues, and five and one-half to eight and one-half percent of the proceeds of equity issues.

Lee *et. al.* [14] is an excellent example of the type of flotation cost studies found in the finance literature. The Lee study is a comprehensive recent study of the underwriting and issuer costs associated with debt and equity issues for both utilities and non-utilities. The results of the Lee *et. al.* study are reproduced in Tables 1 and 2. Table 1 demonstrates that the total underwriting and issuer expenses for the 1,092 debt issues in their study averaged 2.24 percent of the proceeds of the issues, while the total underwriting and issuer costs for the 1,593 seasoned equity issues in their study averaged 7.11 percent of the proceeds of the new issue. Table 1 also demonstrates that the total underwriting and issuer costs of seasoned equity offerings, as a percent of proceeds, decline with the size of the issue. For issues above $60 million, total underwriting and issuer costs amount to from three to five percent of the amount of the proceeds.

Table 2 reports the total underwriting and issuer expenses for 135 utility debt issues and 136 seasoned utility equity issues. Total underwriting and issuer expenses for utility bond offerings averaged 1.47 percent of the amount of the proceeds and for seasoned utility equity offerings averaged 4.92 percent of the amount of the proceeds. Again, there are some economies of scale associated with larger equity offerings. Total underwriting and issuer expenses for equity offerings in excess of 40 million dollars generally range from three to four percent of the proceeds.

The results of the Lee study for large equity issues are consistent with results of earlier studies by Bhagat and Frost [4], Mikkelson and Partch [17], and Smith [24]. Bhagat and Frost found that total underwriting and issuer expenses average approximately four and one-half percent of the amount of proceeds from negotiated utility offerings during the period 1973 to 1980, and approximately three and one-half percent of the amount of the proceeds from competitive utility offerings over the

[5] The two percent flotation cost on debt only recognizes the cost of newly-issued debt. When interest rates decline, many companies exercise the call provisions on higher cost debt and reissue debt at lower rates. This process involves reacquisition costs that are not included in the academic studies. If reacquisition costs were included in the academic studies, debt flotation costs could increase significantly.

same period. Mikkelson and Partch found that total underwriting and issuer expenses average five and one-half percent of the proceeds from seasoned equity offerings over the 1972 to 1982 period. Smith found that total underwriting and issuer expenses for larger equity issues generally amount to four to five percent of the proceeds of the new issue.

The finance literature also contains numerous studies of the decline in price associated with sales of large blocks of stock to the public. These articles relate to the price impact of: (1) initial public offerings; (2) the sale of large blocks of stock from one investor to another; and (3) the issuance of seasoned equity issues to the general public. All of these studies generally support the notion that the announcement of the sale of large blocks of stock produces a decline in a company's share price. The decline in share price for initial public offerings is significantly larger than the decline in share price for seasoned equity offerings; and the decline in share price for public utilities is less than the decline in share price for non-public utilities. A comprehensive study of the magnitude of the decline in share price associated specifically with the sale of new equity by public utilities is reported in Pettway [19], who found the market pressure effect for a sample of 368 public utility equity sales to be in the range of two to three percent. This decline in price is a real cost to the utility, because the proceeds to the utility depend on the stock price on the day of issue.

In addition to the price decline associated with the announcement of a new equity issue, the finance literature recognizes that there is also a price decline associated with the actual issuance of equity securities. In particular, underwriters typically sell seasoned new equity securities to investors at a price lower than the closing market price on the day preceding the issue. The Rules of Fair Practice of the National Association of Securities Dealers require that underwriters not sell shares at a price above the offer price. Since the offer price represents a binding constraint to the underwriter, the underwriter tends to set the offer price slightly below the market price on the day of issue to compensate for the risk that the price received by the underwriter may go down, but can not increase. Smith provides evidence that the offer discount tends to be between 0.5 and 0.8 percent of the proceeds of an equity issue. I am not aware of any similar studies for debt issues.

In summary, the finance literature provides strong support for the conclusion that total underwriting and issuer expenses for public utility debt offerings represent approximately two percent of the amount of the proceeds, while total underwriting and issuer expenses for public utility equity offerings represent at least four to five percent of the amount of the proceeds. In addition, the finance literature supports the conclusion that the cost associated with the decline in stock price at the announcement date represents approximately two to three percent as a result of a large public utility equity issue.

TIME PATTERN OF FLOTATION COST RECOVERY

Although flotation costs are incurred only at the time a firm issues new securities, there is no reason why an issuing firm ought to recognize the expense only in the current period. In fact, if assets purchased with the proceeds of a security issue produce revenues over many years, a sound argument can be made in favor of recognizing flotation expenses over a reasonably lengthy period of time. Such recognition is certainly consistent with the generally accepted accounting principle that the time pattern of expenses match the time pattern of revenues, and it is also consistent with the normal treatment of debt flotation expenses in both regulated and unregulated industries.

In the context of a regulated firm, it should be noted that there are many possible time patterns for the recovery of flotation expenses. However, if it is felt that flotation expenses are most appropriately recovered over a period of years, then it should be recognized that investors must also be compensated for the passage of time. That is to say, the value of an investor's capital will be reduced if the expenses are merely distributed over time, without any allowance for the time value of money.

ACCOUNTING FOR FLOTATION COST IN A REGULATORY SETTING

In a regulatory setting, a firm's revenue requirements are determined by the equation:

Revenue Requirement = Total Expenses + Allowed Rate of Return x Rate Base

Thus, there are three ways in which an issuing firm can account for and recover its flotation expenses: (1) treat flotation expenses as a current expense and recover them immediately; (2) include flotation expenses in rate base and recover them over time; and (3) adjust the allowed rate of return upward and again recover flotation expenses over time. Before considering methods currently being used to recover flotation expenses in a regulatory setting, I shall briefly consider the advantages and disadvantages of these three basic recovery methods.

Expenses. Treating flotation costs as a current expense has several advantages. Because it allows for recovery at the time the expense occurs, it is not necessary to compute amortized balances over time and to debate which interest rate should be applied to these balances. A firm's stockholders are treated fairly, and so are the firm's customers, because they pay neither more nor less than the actual flotation expense. Since flotation costs are relatively small compared to the total revenue requirement, treatment as a current expense does not cause unusual rate hikes in the year of flotation, as would the introduction of a large generating plant in a state that does not allow Construction Work in Progress in rate base.

On the other hand, there are two major disadvantages of treating flotation costs as a current expense. First, since the asset purchased with the acquired funds will likely generate revenues for many years into the future, it seems unfair that current ratepayers should bear the full cost of issuing new securities, when future ratepayers share in the benefits. Second, this method requires an estimate of the underpricing effect on each security issue. Given the difficulties involved in measuring the extent of underpricing, it may be more accurate to estimate the average underpricing allowance for many securities than to estimate the exact figure for one security.

Rate Base. In an article in *Public Utilities Fortnightly*, Bierman and Hass [5] recommend that flotation costs be treated as an intangible asset that is included in a firm's rate base along with the assets acquired with the stock proceeds. This approach has many advantages. For ratepayers, it provides a better match between benefits and expenses: the future ratepayers who benefit from the financing costs contribute the revenues to recover these costs. For investors, if the allowed rate of return is equal to the investors' required rate of return, it is also theoretically fair since they are compensated for the opportunity cost of their investment (including both the time value of money and the investment risk).

Despite the compelling advantages of this method of cost recovery, there are several disadvantages that probably explain why it has not been used in practice. First, a firm will only recover the proper amount for flotation expenses if the rate base is multiplied by the appropriate cost of capital. To the extent that a commission under or over estimates the cost of capital, a firm will under or over recover its flotation expenses. Second, it is may be both legally and psychologically difficult for commissioners to include an intangible asset in a firm's rate base. According to established legal doctrine, assets are to be included in rate base only if they are “used and useful” in the public service. It is unclear whether intangible assets such as flotation expenses meet this criterion.

<u>Rate of Return</u>. The prevailing practice among state regulators is to treat flotation expenses as an additional element of a firm’s cost of capital or allowed rate of return. This method is similar to the second method above (treatment in rate base) in that some part of the initial flotation cost is amortized over time. However, it has a disadvantage not shared by the rate base method. If flotation cost is included in rate base, it is fairly easy to keep track of the flotation cost on each new equity issue and see how it is recovered over time. Using the rate of return method, it is not possible to track the flotation cost for specific issues because the flotation cost for a specific issue is never recorded. Thus, it is not clear to participants whether a current allowance is meant to recover (1) flotation costs actually incurred in a test period, (2) expected future flotation costs, or (3) past flotation costs. This confusion never arises in the treatment of debt flotation costs. Because the exact costs are recorded and explicitly amortized over time, participants recognize that current allowances for debt flotation costs are meant to recover some fraction of the flotation costs on all past debt issues.

EXISTING REGULATORY METHODS

Although most state commissions prefer to let a regulated firm recover flotation expenses through an adjustment to the allowed rate of return, there is considerable controversy about the magnitude of the required adjustment. The following are some of the most frequently asked questions: (1) Should an adjustment to the allowed return be made every year, or should the adjustment be made only in those years in which new equity is raised? (2) Should an adjusted rate of return be applied to the entire rate base, or should it be applied only to that portion of the rate base financed with paid-in capital (as opposed to retained earnings)? (3) What is the appropriate formula for adjusting the rate of return?

This section reviews several methods of allowing for flotation cost recovery. Since the regulatory methods of allowing for recovery of debt flotation costs is well known and widely accepted, I will begin my discussion of flotation cost recovery procedures by describing the widely accepted procedure of allowing for debt flotation cost recovery.

Debt Flotation Costs

Regulators uniformly recognize that companies incur flotation costs when they issue debt securities. They typically allow recovery of debt flotation costs by making an adjustment to both the cost of debt and the rate base (see Brigham [6]). Assume that: (1) a regulated company issues $100 million in bonds that mature in 10 years; (2) the interest rate on these bonds is seven percent; and (3) flotation costs represent four percent of the amount of the proceeds. Then the cost of debt for regulatory purposes will generally be calculated as follows:

$$\begin{aligned}\text{Cost of Debt} &= \frac{\text{Interest expense} + \text{Amortization of flotation costs}}{\text{Principal value - Unamortized flotation costs}}\\ &= \frac{\$7{,}000{,}000 + \$400{,}000}{\$100{,}000{,}000 - \$4{,}000{,}000}\\ &= 7.71\%\end{aligned}$$

Thus, current regulatory practice requires that the cost of debt be adjusted upward by approximately 71 basis points, in this example, to allow for the recovery of debt flotation costs. This example does not include losses on reacquisition of debt. The flotation cost allowance would increase if losses on reacquisition of debt were included.

The logic behind the traditional method of allowing for recovery of debt flotation costs is simple. Although the company has issued $100 million in bonds, it can only invest $96 million in rate base because flotation costs have reduced the amount of funds received by $4 million. If the company is not allowed to earn a 71 basis point higher rate of return on the $96 million invested in rate base, it will not generate sufficient cash flow to pay the seven percent interest on the $100 million in bonds it has issued. Thus, proper regulatory treatment is to increase the required rate of return on debt by 71 basis points.

Equity Flotation Costs

The finance literature discusses several methods of recovering equity flotation costs. Since each method stems from a specific model, (i. e., set of assumptions) of a firm and its cash flows, I will highlight the assumptions that distinguish one method from another.

Arzac and Marcus. Arzac and Marcus [2] study the proper flotation cost adjustment formula for a firm that makes continuous use of retained earnings and external equity financing and maintains a constant capital structure (debt/equity ratio). They assume at the outset that underwriting expenses and underpricing apply only to new equity obtained from external sources. They also assume that a firm has previously recovered all underwriting expenses, issuer expenses, and underpricing associated with previous issues of new equity.

To discuss and compare various equity flotation cost adjustment formulas, Arzac and Marcus make use of the following notation:

k	=	an investors' required return on equity
r	=	a utility's allowed return on equity base
S	=	value of equity in the absence of flotation costs
S_f	=	value of equity net of flotation costs
K_t	=	equity base at time t
E_t	=	total earnings in year t
D_t	=	total cash dividends at time t
b	=	$(E_t\text{-}D_t) \div E_t$ = retention rate, expressed as a fraction of earnings
h	=	new equity issues, expressed as a fraction of earnings
m	=	equity investment rate, expressed as a fraction of earnings, $m = b + h < 1$
f	=	flotation costs, expressed as a fraction of the value of an issue.

Because of flotation costs, Arzac and Marcus assume that a firm must issue a greater amount of external equity each year than it actually needs. In terms of the above notation, a firm issues $hE_t \div (1\text{-}f)$ to obtain hE_t in external equity funding. Thus, each year a firm loses:

Equation 3

$$L = \frac{hE_t}{1-f} - hE_t = \frac{f}{1-f} \times hE_t$$

due to flotation expenses. The present value, V, of all future flotation expenses is:

Equation 4

$$V = \sum_{t=1}^{\infty} \frac{fhE_t}{(1-f)(1+k)^t} = \frac{fh}{1-f} \times \frac{rK_0}{k-mr}$$

To avoid diluting the value of the initial stockholder's equity, a regulatory authority needs to find the value of r, a firm's allowed return on equity base, that equates the value of equity net of flotation costs to the initial equity base ($S_f = K_0$). Since the value of equity net of flotation costs equals the value of equity in the absence of flotation costs minus the present value of flotation costs, a regulatory authority needs to find that value of *r* that solves the following equation:

$$S_f = S - L.$$

This value is:

Equation 5

$$r = \frac{k}{1 - \frac{fh}{1-f}}$$

To illustrate the Arzac-Marcus approach to adjusting the allowed return on equity for the effect of flotation costs, suppose that the cost of equity in the absence of flotation costs is 12 percent. Furthermore, assume that a firm obtains external equity financing each year equal to 10 percent of its earnings and that flotation expenses equal 5 percent of the value of each issue. Then, according to Arzac and Marcus, the allowed return on equity should be:

$$r = \frac{.12}{1 - \frac{(.05).(.1)}{.95}} = .1206 = 12.06\%$$

<u>Summary</u>. With respect to the three questions raised at the beginning of this section, it is evident that Arzac and Marcus believe the flotation cost adjustment should be applied each year, since continuous external equity financing is a fundamental assumption of their model. They also believe that the adjusted rate of return should be applied to the entire equity-financed portion of the rate base because their model is based on the assumption that the flotation cost adjustment mechanism will be applied to the entire equity financed portion of the rate base. Finally, Arzac and Marcus recommend a flotation cost adjustment formula, Equation (3), that implicitly excludes recovery of financing costs associated with financing in previous periods and includes only an allowance for the fraction of equity financing obtained from external sources.

Patterson. The Arzac-Marcus flotation cost adjustment formula is significantly different from the conventional approach (found in many introductory textbooks) which recommends the adjustment equation:

Equation 6

$$r = \frac{D_t}{P_{t-1}(1-f)} + g$$

where P_{t-1} is the stock price in the previous period and g is the expected dividend growth rate. Patterson [18] compares the Arzac-Marcus adjustment formula to the conventional approach and reaches the conclusion that the Arzac-Marcus formula effectively expenses issuance costs as they are incurred, while the conventional approach effectively amortizes them over an assumed infinite life of the equity issue. Thus, the conventional formula is similar to the formula for the recovery of debt flotation costs: it is not meant to compensate investors for the flotation costs of future issues, but instead is meant to compensate investors for the flotation costs of previous issues. Patterson argues that the conventional approach is more appropriate for rate making purposes because the plant purchased with external equity funds will yield benefits over many future periods.

Illustration. To illustrate the Patterson approach to flotation cost recovery, assume that a newly organized utility sells an initial issue of stock for $100 per share, and that the utility plans to finance all new investments with retained earnings. Assume also that: (1) the initial dividend per share is six dollars; (2) the expected long-run dividend growth rate is six percent; (3) the flotation cost is five percent of the amount of the proceeds; and (4) the payout ratio is 51.28 percent. Then, the investor's required rate of return on equity is [k = (D/P) + g = 6 percent + 6 percent = 12 percent]; and the flotation-cost-adjusted cost of equity is [6 percent (1/.95) + 6 percent = 12.316 percent].

The effects of the Patterson adjustment formula on the utility's rate base, dividends, earnings, and stock price are shown in Table 3. We see that the Patterson formula allows earnings and dividends to grow at the expected six percent rate. We also see that the present value of expected future dividends, $100, is just sufficient to induce investors to part with their money. If the present value of expected future dividends were less than $100, investors would not have been willing to invest $100 in the firm. Furthermore, the present value of future dividends will only equal $100 if the firm is allowed to earn the 12.316 percent flotation-cost-adjusted cost of equity on its entire rate base.

Summary. Patterson's opinions on the three issues raised in this section are in stark contrast to those of Arzac and Marcus. He believes that: (1) a flotation cost adjustment should be applied in every year, regardless of whether a firm issues any new equity in each year; (2) a flotation cost adjustment should be applied to the entire equity-financed portion of the rate base, including that portion financed by retained earnings; and (3) the rate of return adjustment formula should allow a firm to recover an appropriate fraction of all previous flotation expenses.

CONCLUSION

Having reviewed the literature and analyzed flotation cost issues, I conclude that:

Definition of Flotation Cost: A regulated firm should be allowed to recover both the total underwriting and issuance expenses associated with issuing securities and the cost of market pressure.

<u>Time Pattern of Flotation Cost Recovery</u>. Shareholders are indifferent between the alternatives of immediate recovery of flotation costs and recovery over time, as long as they are fairly compensated for the opportunity cost of their money. This opportunity cost must include both the time value of money and a risk premium for equity investments of this nature.

<u>Regulatory Recovery of Flotation Costs</u>. The Patterson approach to recovering flotation costs is the only rate-of-return-adjustment approach that meets the *Hope* case criterion that a regulated company's revenues must be sufficient to allow the company an opportunity to recover all prudently incurred expenses, including the cost of capital. The Patterson approach is also the only rate-of-return-adjustment approach that provides an incentive for investors to invest in the regulated company.

<u>Implementation of a Flotation Cost Adjustment</u>. As noted earlier, prevailing regulatory practice seems to be to allow the recovery of flotation costs through an adjustment to the required rate of return. My review of the literature on this subject indicates that there are at least two recommended methods of making this adjustment: the Patterson approach and the Arzac-Marcus approach. The Patterson approach assumes that a firm's flotation expenses on new equity issues are treated in the same manner as flotation expenses on new bond issues, i. e., they are amortized over future time periods. If this assumption is true (and I believe it is), then the flotation cost adjustment should be applied to a firm's entire equity base, including retained earnings. In practical terms, the Patterson approach produces an increase in a firm's cost of equity of approximately thirty basis points. The Arzac-Marcus approach assumes that flotation costs on new equity issues are recovered entirely in the year in which the securities are sold. Under the Arzac-Marcus assumption, a firm should not be allowed any adjustments for flotation costs associated with previous flotations. Instead, a firm should be allowed only an adjustment on future security sales as they occur. Under reasonable assumptions about the rate of new equity sales, this method produces an increase in the cost of equity of approximately six basis points. Since the Arzac-Marcus approach does not allow the company to recover the entire amount of its flotation cost, I recommend that this approach be rejected and the Patterson approach be accepted.

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Table 1

Direct Costs as a Percentage of Gross Proceeds
for Equity (IPOs and SEOs) and Straight and Convertible Bonds
Offered by Domestic Operating Companies 1990—1994[6]

Equities

	IPOs				SEOs			
Proceeds ($ in millions)	No. of Issues	Gross Spreads	Other Direct Expenses	Total Direct Costs	No. of Issues	Gross Spreads	Other Direct Expenses	Total Direct Costs
2-9.99	337	9.05%	7.91%	16.96%	167	7.72%	5.56%	13.28%
10-19.99	389	7.24%	4.39%	11.63%	310	6.23%	2.49%	8.72%
20-39.99	533	7.01%	2.69%	9.70%	425	5.60%	1.33%	6.93%
40-59.99	215	6.96%	1.76%	8.72%	261	5.05%	0.82%	5.87%
60-79.99	79	6.74%	1.46%	8.20%	143	4.57%	0.61%	5.18%
80-99.99	51	6.47%	1.44%	7.91%	71	4.25%	0.48%	4.73%
100-199.99	106	6.03%	1.03%	7.06%	152	3.85%	0.37%	4.22%
200-499.99	47	5.67%	0.86%	6.53%	55	3.26%	0.21%	3.47%
500 and up	10	5.21%	0.51%	5.72%	9	3.03%	0.12%	3.15%
Total/Average	**1,767**	**7.31%**	**3.69%**	**11.00%**	**1,593**	**5.44%**	**1.67%**	**7.11%**

Bonds

	Convertible Bonds				Straight Bonds			
Proceeds ($ in millions)	No. of Issues	Gross Spreads	Other Direct Expenses	Total Direct Costs	No. of Issues	Gross Spreads	Other Direct Expenses	Total Direct Costs
2-9.99	4	6.07%	2.68%	8.75%	32	2.07%	2.32%	4.39%
10-19.99	14	5.48%	3.18%	8.66%	78	1.36%	1.40%	2.76%
20-39.99	18	4.16%	1.95%	6.11%	89	1.54%	0.88%	2.42%
40-59.99	28	3.26%	1.04%	4.30%	90	0.72%	0.60%	1.32%
60-79.99	47	2.64%	0.59%	3.23%	92	1.76%	0.58%	2.34%
80-99.99	13	2.43%	0.61%	3.04%	112	1.55%	0.61%	2.16%
100-199.99	57	2.34%	0.42%	2.76%	409	1.77%	0.54%	2.31%
200-499.99	27	1.99%	0.19%	2.18%	170	1.79%	0.40%	2.19%
500 and up	3	2.00%	0.09%	2.09%	20	1.39%	0.25%	1.64%
Total/Average	**211**	**2.92%**	**0.87%**	**3.79%**	**1,092**	**1.62%**	**0.62%**	**2.24%**

Notes:

Closed-end funds and unit offerings are excluded from the sample. Rights offerings for SEOs are also excluded. Bond offerings do not include securities backed by mortgages and issues by Federal agencies. Only firm commitment offerings and non-shelf-registered offerings are included.
Gross Spreads as a percentage of total proceeds, including management fee, underwriting fee, and selling concession.
Other Direct Expenses as a percentage of total proceeds, including management fee, underwriting fee, and selling concession.
Total Direct Costs as a percentage of total proceeds (total direct costs are the sum of gross spreads and other direct expenses).

[6] Inmoo Lee, Scott Lochhead, Jay Ritter, and Quanshui Zhao, "The Costs of Raising Capital," *Journal of Financial Research* Vol 19 No 1 (Spring 1996) pp. 59—74.

Table 2

Direct Costs of Raising Capital 1990—1994
Utility versus Non-Utility Companies[7]

Equities

Non-Utilities	IPOs			SEOs		
Proceeds ($ in millions)	No. of Issues	Gross Spreads	Total Direct Costs	No. Of Issues	Gross Spreads	Total Direct Costs
2-9.99	332	9.04%	16.97%	154	7.91%	13.76%
10-19.99	388	7.24%	11.64%	278	6.42%	9.01%
20-39.99	528	7.01%	9.70%	399	5.70%	7.07%
40-59.99	214	6.96%	8.71%	240	5.17%	6.02%
60-79.99	78	6.74%	8.21%	131	4.68%	5.31%
80-99.99	47	6.46%	7.88%	60	4.35%	4.84%
100-199.99	101	6.01%	7.01%	137	3.97%	4.36%
200-499.99	44	5.65%	6.49%	50	3.27%	3.48%
500 and up	10	5.21%	5.72%	8	3.12%	3.25%
Total/Average	1,742	7.31%	11.01%	1,457	5.57%	7.32%
Utilities Only						
2-9.99	5	9.40%	16.54%	13	5.41%	7.68%
10-19.99	1	7.00%	8.77%	32	4.59%	6.21%
20-39.99	5	7.00%	9.86%	26	4.17%	4.96%
40-59.99	1	6.98%	11.55%	21	3.69%	4.12%
60-79.99	1	6.50%	7.55%	12	3.39%	3.72%
80-99.99	4	6.57%	8.24%	11	3.68%	4.11%
100-199.99	5	6.45%	7.96%	15	2.83%	2.98%
200-499.99	3	5.88%	7.00%	5	3.19%	3.48%
500 and up	0			1	2.25%	2.31%
Total/Average	25	7.15%	10.14%	136	4.01%	4.92%

[7] Lee *et al, op. cit*.

Table 2 (continued)
Direct Costs of Raising Capital 1990—1994
Utility versus Non-Utility Companies[8]

Bonds

Non- Utilities	Convertible Bonds			Straight Bonds		
Proceeds ($ in millions)	No. of Issues	Gross Spreads	Total Direct Costs	No. of Issues	Gross Spreads	Total Direct Costs
2-9.99	4	6.07%	8.75%	29	2.07%	4.53%
10-19.99	12	5.54%	8.65%	47	1.70%	3.28%
20-39.99	16	4.20%	6.23%	63	1.59%	2.52%
40-59.99	28	3.26%	4.30%	76	0.73%	1.37%
60-79.99	47	2.64%	3.23%	84	1.84%	2.44%
80-99.99	12	2.54%	3.19%	104	1.61%	2.25%
100-199.99	55	2.34%	2.77%	381	1.83%	2.38%
200-499.99	26	1.97%	2.16%	154	1.87%	2.27%
500 and up	3	2.00%	2.09%	19	1.28%	1.53%
Total/Average	203	2.90%	3.75%	957	1.70%	2.34%
Utilities Only						
2-9.99	0			3	2.00%	3.28%
10-19.99	2	5.13%	8.72%	31	0.86%	1.35%
20-39.99	2	3.88%	5.18%	26	1.40%	2.06%
40-59.99	0			14	0.63%	1.10%
60-79.99	0			8	0.87%	1.13%
80-99.99	1	1.13%	1.34%	8	0.71%	0.98%
100-199.99	2	2.50%	2.74%	28	1.06%	1.42%
200-499.99	1	2.50%	2.65%	16	1.00%	1.40%
500 and up	0			1	3.50%	na[9]
Total/Average	8	3.33%	4.66%	135	1.04%	1.47%

Notes:
Total proceeds raised in the United States, excluding proceeds from the exercise of over allotment options.
Gross spreads as a percentage of total proceeds (including management fee, underwriting fee, and selling concession).
Other direct expenses as a percentage of total proceeds (including registration fee and printing, legal, and auditing costs).

[8] Lee *et al, op. cit*.

[9] Not available because of missing data on other direct expenses.

Table 3
Illustration of Patterson Approach to Flotation Cost Recovery

Time Period	Rate Base	Earnings @ 12.32%	Earnings @ 12.00%	Dividends	Amortization Initial FC
0	95.00				
1	100.70	11.70	11.40	6.00	0.3000
2	106.74	12.40	12.08	6.36	0.3180
3	113.15	13.15	12.81	6.74	0.3371
4	119.94	13.93	13.58	7.15	0.3573
5	127.13	14.77	14.39	7.57	0.3787
6	134.76	15.66	15.26	8.03	0.4015
7	142.84	16.60	16.17	8.51	0.4256
8	151.42	17.59	17.14	9.02	0.4511
9	160.50	18.65	18.17	9.56	0.4782
10	170.13	19.77	19.26	10.14	0.5068
11	180.34	20.95	20.42	10.75	0.5373
12	191.16	22.21	21.64	11.39	0.5695
13	202.63	23.54	22.94	12.07	0.6037
14	214.79	24.96	24.32	12.80	0.6399
15	227.67	26.45	25.77	13.57	0.6783
16	241.33	28.04	27.32	14.38	0.7190
17	255.81	29.72	28.96	15.24	0.7621
18	271.16	31.51	30.70	16.16	0.8078
19	287.43	33.40	32.54	17.13	0.8563
20	304.68	35.40	34.49	18.15	0.9077
21	322.96	37.52	36.56	19.24	0.9621
22	342.34	39.77	38.76	20.40	1.0199
23	362.88	42.16	41.08	21.62	1.0811
24	384.65	44.69	43.55	22.92	1.1459
25	407.73	47.37	46.16	24.29	1.2147
26	432.19	50.21	48.93	25.75	1.2876
27	458.12	53.23	51.86	27.30	1.3648
28	485.61	56.42	54.97	28.93	1.4467
29	514.75	59.81	58.27	30.67	1.5335
30	545.63	63.40	61.77	32.51	1.6255
Present Value@12%		195.00	190.00	100.00	5.00

APPENDIX 4
EX ANTE RISK PREMIUM APPROACH

My ex ante risk premium method is based on studies of the DCF expected return on proxy companies compared to the interest rate on Moody's A-rated utility bonds. Specifically, for each month in my study period, I calculate the risk premium using the equation,

$$RP_{PROXY} = DCF_{PROXY} – I_A$$

where:

RP_{PROXY}	=	the required risk premium on an equity investment in the proxy group of companies,
DCF_{PROXY}	=	average DCF estimated cost of equity on a portfolio of proxy companies; and
I_A	=	the yield to maturity on an investment in A-rated utility bonds.

For my ex ante risk premium analysis, I begin with my comparable group of natural gas companies shown in Schedule 2. Previous studies have shown that the ex ante risk premium tends to vary inversely with the level of interest rates, that is, the risk premium tends to increase when interest rates decline, and decrease when interest rates go up. To test whether my studies also indicate that the ex ante risk premium varies inversely with the level of interest rates, I perform a regression analysis of the relationship between the ex ante risk premium and the yield to maturity on A-rated utility bonds, using the equation,

$$RP_{PROXY} \quad = \quad a + (b \times I_A) + e$$

where:

RP_{PROXY} = risk premium on proxy company group;

I_A = yield to maturity on A-rated utility bonds;

e = a random residual; and

a, b = coefficients estimated by the regression procedure.

Regression analysis assumes that the statistical residuals from the regression equation are random. My examination of the residuals reveals that there is a significant probability that the residuals are serially correlated (non-zero serial correlation indicates that the residual in one time period tends to be correlated with the residual in the previous time period). Therefore, I make adjustments to my data to correct for the possibility of serial correlation in the residuals.

The common procedure for dealing with serial correlation in the residuals is to estimate the regression coefficients in two steps. First, a multiple regression analysis is used to estimate the serial correlation coefficient, *r*. Second, the estimated serial correlation coefficient is used to transform the original variables into new variables whose serial correlation is approximately zero. The regression coefficients are then re-estimated using the transformed variables as inputs in the regression equation. Based on my knowledge of the statistical relationship between the yield to maturity on A-rated utility bonds and the required risk premium, my estimate of the ex ante risk premium on an investment in my proxy natural gas company group as compared to an investment in A-rated utility bonds is given by the equation:

$$RP_{PROXY} = \underset{(11.29)}{8.59} \quad \underset{(-4.96)}{-0.579} \times I_A.$$ [10]

[10] The t-statistics are shown in parentheses.

Using a 6.6 percent forecasted yield to maturity on A-rated utility bonds at September 2012,[11] the regression equation produces an ex ante risk premium based on the natural gas proxy group equal to 4.77 percent (8.59 – . x 5.79= 4.77).

To estimate the cost of equity using the ex ante risk premium method, one may add the estimated risk premium over the yield on A-rated utility bonds to the forecasted yield to maturity on A-rated utility bonds. As described above, my analyses produce an estimated risk premium over the yield on A-rated utility bonds equal to 4.8 percent. Adding an estimated risk premium of 4.8 percent to the 6.6 percent forecasted yield to maturity on A-rated utility bonds produces a cost of equity estimate of 11.4 percent using the ex ante risk premium method.

[11] As described above, I obtain the forecasted bond yield using data from Value Line and Global Insight. Value Line Selection & Opinion (August 24, 2012) projects a AAA-rated Corporate bond yield equal to 5.50 percent. The September 2012 average spread between A-rated utility bonds and Aaa-rated Corporate bonds is fifty-three basis points (A-rated utility, 4.02 percent, less Aaa-rated Corporate, 3.49 percent, equals fifty-three basis points). Adding fifty-three basis points to the 5.50 percent Value Line forecast equals a forecast yield of 6.03 percent. The U.S. Energy Information Administration ("EIA") forecasts an AA-rated utility bond yield equal to 6.74 percent. The average spread between AA-rated utility and A-rated utility bonds at September 2012 is forty-three basis points (4.02 percent less 3.59 percent). Adding forty-three basis points to the 6.74 percent forecast equals a forecast yield for A-rated utility bonds equal to 7.17 percent. The average of the forecasts (6.03 percent using Value Line data and 7.17 percent using EIA data) is 6.6 percent.

APPENDIX 5
RISK PREMIUM APPROACH

Source

Stock price and yield information is obtained from Standard & Poor's Security Price publication. Standard & Poor's derives the stock dividend yield by dividing the aggregate cash dividends (based on the latest known annual rate) by the aggregate market value of the stocks in the group. The bond price information is obtained by calculating the present value of a bond due in thirty years with a $4.00 coupon and a yield to maturity of a particular year's indicated Moody's A-rated utility bond yield. The values shown in the exhibits are the January values of the respective indices. Standard & Poor's discontinued its S&P Utilities Index in December 2001, replacing its utilities stock index with separate indices for electric and natural gas utilities. Thus, to continue my study, I based the stock returns beginning in 2002 on the total returns for the EEI Index of U.S. shareholder-owned electric utilities, as reported by EEI on its website.
http://www.eei.org/whatwedo/DataAnalysis/IndusFinanAnalysis/Pages/QtrlyFinancialUpdates.aspx

Calculation of Stock and Bond Returns

Sample calculation of "Stock Return" column:

$$\text{StockReturn(2010)} = \left[\frac{\text{StockPrice(2011)} - \text{StockPrice(2010)} + \text{Dividend(2010)}}{\text{StockPrice(2010)}}\right]$$

where Dividend (2010) = Stock Price (2010) x Stock Div. Yield (2010)

Sample calculation of "Bond Return" column:

$$\text{Bond Return (2010)} = \left[\frac{\text{Bond Price (2011)} - \text{Bond Price (2010)} + \text{Interest (2010)}}{\text{Bond Price (2010)}}\right]$$

where Interest = $4.00.

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:	**)**	
	)	
THE APPLICATION OF KENTUCKY-AMERICAN	**)**	**CASE NO. 2012-00520**
WATER COMPANY FOR AN ADJUSTMENT OF	**)**	
RATES ON AND AFTER JANUARY 27, 2013	**)**	
	)	

DIRECT TESTIMONY OF GARY M. VERDOUW

December 28, 2012

KENTUCKY AMERICAN WATER COMPANY
CASE NO. 2012-00520
DIRECT TESTIMONY
GARY M. VERDOUW

BACKGROUND

Q. Please state your name and business address.

A. My name is Gary M. VerDouw and my business address is 727 Craig Road, Saint Louis, Missouri 63141.

Q. By whom are you employed and in what capacity?

A. I am employed by American Water Works Service Company ("Service Company") as the Director of Rates for American Water's seven-state Central Division, which includes Kentucky-American Water Company ("Kentucky American" or the "Company"). The Service Company is a subsidiary of American Water Works Company, Inc. ("American Water") that provides support services to American Water's subsidiaries, including Kentucky American.

Q. Please summarize your educational and professional qualifications.

A. I graduated from the University of Mary in Bismarck, North Dakota in 1981 with a Bachelor of Science degree in Business Administration. I returned to the University of Mary and completed a second major in Accounting in May of 1988. I have attended the Utility Rate Seminar sponsored by the National Association of Regulatory Utility Commissioners ("NARUC") Water Committee and have participated in various continuing education programs sponsored by my former employers and by the Service Company. I am a member of the American Water Works Association ("AWWA") and I will be joining the University of Missouri Financial Research Institute ("FRI") as a member of their Advisory Committee in January 2013.

Q. Please outline your business experience.

A. I began my employment in February of 1981 when I was hired as Reconciliation and Funds Administrator for the North Dakota State Treasurer's Office. In December of 1981, I was hired as a Field Accountant for ANG Coal Gasification Company, which was constructing North America's first commercial scale coal gasification project near Beulah, North Dakota. While employed with ANG, I was hired as the project's first permanent hire for its 80-person Accounting team and promoted to Accounts Payable Supervisor in 1982. I was again promoted to Cash Manager in 1984, where I oversaw daily cash management of over $1.5 billion in secured debt and over $400 million in daily cash balances. In January, 1988, I was hired as Business Manager for Capital Electric Cooperative, Inc., which is located in Bismarck, North Dakota. My responsibilities there included the supervision and oversight of all accounting, finance, billing, budget, insurance, human resources, cash management, rate studies, and other functions for a growing electric distribution cooperative that currently serves over 16,000 consumers. In February, 2005, I accepted the position of Senior Financial Analyst – Rates and Regulations with the Service Company. I was promoted to Manager of Rates and Regulation in April of 2008, where I was responsible for all rate and regulatory issues for American Water operations in the states of Indiana, Ohio, and Michigan. I was promoted to Director of Rates – Eastern Division in January 2011, where I was responsible for rates and rate issues for the nine regulated subsidiaries that comprised the Eastern Division of American Water, including Kentucky American. In November of

2011, American Water restructured its divisional alignment, and I was named Director of Rates for the newly created Central Division, where I am responsible for rates and rate issues for the seven regulated subsidiaries that comprise the Central Division of American Water, including Kentucky American.

Q. Have you previously testified before any regulatory agencies with respect to regulatory matters?

A. Yes. I have testified in numerous regulatory proceedings before the Tennessee Regulatory Authority, the Indiana Utility Regulatory Commission, the Public Utilities Commission of Ohio, and the Illinois Commerce Commission.

SCOPE OF TESTIMONY

Q. What is the purpose of your testimony in this rate proceeding?

A. The purpose of my testimony in this proceeding is to address for the following:

i. the revenue requirement that Kentucky American is requesting in this rate case proceeding;

ii. risk factors specific to Kentucky American that further support the request for the Return on Equity recommendation of Company Witness James Vander Weide;

iii. the Company's request in this proceeding to implement an infrastructure replacement recovery program, which will be referred to as a Distribution System Improvement Charge, or "DSIC";

iv. the Company's request in this proceeding to implement pass through charges for future changes in purchased power and chemical expenses; and

v. the development and implementation of a new SAP-based software platform to support our core functional areas, including: human resources, finance and accounting, purchasing and inventory management, capital planning, and customer and field services, which will be referred to as Business Transformation, or "BT".

I will discuss each of these items in further detail in my testimony below.

Q. Please identify the exhibits you are sponsoring and describing in your testimony.

A. I am sponsoring the following exhibits:

- Exhibit 37, Schedule A
  Jurisdictional Financial Summary for the Base and Forecast Period Detailing Derivation of the Requested Revenue Increase as part of the filing
- Exhibit 37, Schedule H
  Computation of the Gross Revenue Conversion Factor for the Forecast Period as part of the filing
- Exhibit 37, Schedule C-1
  Jurisdictional Operating Income Summary for the Base and Forecast Periods, Including Breakdown by Major Account Group (Pro Forma Income Statement) as part of the filing
- Exhibit PPACC-1 Sample Calculation-GMV (attached to my testimony)
  Sample Calculation of Purchased Power and Chemical Charge
- Exhibit BT-1-Business Transformation Summary Costs-GMV (attached to my testimony)
  Business Transformation Costs for American Water and Kentucky American Water

Q. Were each of the Exhibits listed above prepared by you or under your direction and supervision?

A. Yes.

Q. What were the sources of the data used to prepare the Exhibits listed above?

A. The data used to prepare these exhibits was acquired from the books of account and business records of Kentucky American, the officers and associates of Kentucky American with knowledge of the facts based on their job responsibilities and activities, and other sources which I examined in the course of my investigation of the matters addressed in this testimony.

Q. Do you consider this data to be reliable and of a type that is normally used and relied on in your business for such purposes?

A. Yes.

Q. Do the Exhibits listed above accurately summarize such data and the results of analysis using such data?

A. Yes.

BACKGROUND INFORMATION ON THIS FILING

Q. Please provide background information about Kentucky American as a water utility in Central Kentucky.

A. Kentucky American has a proud history of providing safe, reliable drinking water to it consumers. The employees, management, and support staff of Kentucky American take the job of providing safe and reliable drinking water to its customers very seriously. In fact, I believe most of our customers have come to assume without thought that our product (water) and our obligation to serve (safe, clean drinking water that is always available to them) will happen. Personally, I take that as a compliment to our employees and our commitment to the Central Kentucky area. We have very dedicated employees with years and years of experience who take a lot of pride in their provision of safe, clean, reliable water to the area. Although our customers assume that they will be provided with safe, clean and reliable water supply, they may not realize that we operate a business that is the most capital intensive of any regulated utility. The United States Environmental Protection Agency ("USEPA") has estimated that the nation's water utilities will need to make more than $335 billion in infrastructure improvements over the next 20 years to replace thousands of miles of pipe and for upgrades to treatment plants, storage tanks, and other assets to protect public health. Ideally, Kentucky American's investment level for infrastructure replacements and rehabilitation should be adequate to keep pace with the anticipated remaining useful life of the system infrastructure. Expecting the distribution system infrastructure to continue to provide service long beyond its anticipated useful life generally results in higher levels of service failures and disruptions to customers. If capital replacements are deferred or neglected, the magnitude of the infrastructure costs to be deferred to future generations is, in essence, only kicking an ever growing can down the road. To ensure that we continue to have capital available to accelerate our infrastructure replacement and upgrades, it is important that we are able to recover a fair, equitable, and timely return on our capital investments.

We continually strive to find more efficient and cost effective ways to operate and maintain our business. However, we need to be able to recover the ongoing and prudent costs that are a part of providing safe and reliable water, in addition to recovering a fair, equitable, and timely return on our investments. That is why Kentucky American has initiated this filing and has requested an increase in its rates. The increase that Kentucky American has requested is fully documented in the testimony and exhibits of this proceeding. We look forward to working with the Kentucky Public Service Commission ("Commission"), the Office of the Attorney General, and any other parties that may intervene in these proceedings to resolve this case in the best interests of all parties.

Q. What test year has Kentucky American utilized in this proceeding?

A. The Company is filing this rate proceeding on December 28, 2012. Kentucky American has used a base year that reflects six months of actual (April 1, 2012 through September 30, 2012) and six months projected (October 1, 2012 through March 31, 2013). The base year has then been adjusted to reflect a Forecast test year of the twelve months ended July 31, 2014 (August 1, 2013 through July 31, 2014).

Q. What rate base valuation date has Kentucky American used for purposes of this proceeding?

A. The rate base valuation date the Company has used is a thirteen month average of projected plant and rate base as of the end of the Forecast test year, or as of July 31, 2014. Rate base balances as of the end of the six month actual base year ending September 30, 2012 were used as beginning balances for all rate base calculations. From there, projected changes in rate base were reflected through July 31, 2013, and have been further adjusted to reflect a thirteen month average of rate base balances for the Forecast test year of August 1, 2013 through July 31, 2014.

Q. Does the Company have an exhibit which sets forth the rate base calculation?

A. Yes. Kentucky American's proposed rate base is shown in Exhibit 37, Schedule B-1 and is part of the filing application. This exhibit starts with the net original cost of Kentucky American's utility plant in service and other rate base items as of the close of the base year (March 31, 2013) and then updates each rate base item to the Company's projected 13 month average (July, 2013 through July, 2014) to bring it to the end of the Company's proposed Forecast Year.

RATE CASE SUMMARY – REVENUE REQUIREMENT

Q. Would you please describe the contents of Exhibit 37, Schedule A, which is entitled "Jurisdictional Financial Summary for the Base and Forecast Period Detailing Derivation of the Requested Revenue Increase"?

A. Exhibit 37, Schedule A summarizes the determination of the requested revenue increase for this proceeding for Kentucky American. The present rate utility operating income statement is taken from Exhibit 37, Schedule C-1 (Lines 4, 7-15, and 18), the net original cost rate base from Exhibit 37, Schedule B1 (Line 24), and the weighted cost of capital from Exhibit 37, Schedule J-1 (Line 25). The Gross Revenue Conversion Factor of 164.8591% is shown on Exhibit 37, Schedule H (Line 33).

Q. What net operating income ("NOI") is reflected in the Company's proposed rate increase?

A. As shown on Line 35, page 1 of 1 of Exhibit 37, Schedule A, the Company proposes an increase in revenues of $12,317,702 over present rate revenues based upon a proposed NOI of $31,651,566 as shown on Line 27 of the same schedule.

Q. How did the Company calculate the proposed NOI level?

A. The proposed NOI level was derived by multiplying the Company's net rate base of $385,994,705 (as shown on Line 24, page 1 of 1 of Exhibit 37, Schedule A times the proposed weighted cost of capital of 8.20%, which is shown on Line 25, page 1 of 1 of Exhibit 37, Schedule A.

CAPITAL STRUCTURE AND OVERALL COST OF CAPITAL

Q. Please describe the company's current capital structure.

A. As shown on Schedule Exhibit 37, Schedule J-1.1, and supported in testimony by Company witness Scott W. Rungren, the Company's 13 month average weighted cost of capital reflected in this proceeding is composed of 2.041% short-term debt, 52.037% long-term debt, 1.168% preferred stock, and 44.755% common equity.

Q. Have you reviewed the testimony of Company witness Dr. Vander Weide in this case regarding the cost of common equity?

A. Yes, I have. The Company has elected to base its filing on a requested cost of common equity of 10.90%, which is within the cost of equity range determined by Dr. Vander Weide. The cost of common equity used by the Company incorporates risk factors specific to Kentucky American that are not in the calculation provided by Dr. Vander Weide. Those risk factors are explained below. The Company has incorporated the 10.90% cost of equity into the weighted average cost of capital utilized by the Company in its filing.

KENTUCKY AMERICAN RISK FACTORS

Q. Are the factors driving your rate increase request a result of issues unique to the water industry?

A. Yes, many are. Reduced sales, for example, have been caused by a number of factors, some of which may impact other industries and others that are unique to water operations. The decline in demand has resulted from persistent conservation messages communicated to water customers, and the increased efficiency of water using fixtures and appliances. Moreover, weather impacts water consumption not only as a result of cooling degree day variations, but also because of ground moisture, rain and even the threat of rain.

Q. Can you identify other risks that have a greater impact on the financial results of water companies as opposed to electric and gas utility operations?

A. Yes. The water industry is extremely capital intensive, much more so than electric, gas or any other utility industry regulated by the Commission. A 2008 study by AUS (an entity that provides financial, engineering, and other consulting services to the utility industry) indicated that the ratio of dollars invested in utility plant per dollar of revenue for the water industry is slightly more than double that of the comparable ratio for the electric utility industry, nearly three times that of the gas distribution utility industry and more than ten times that of the S&P 500. This fact often goes unacknowledged because much of the water industry infrastructure is out of public view. Because of the large amount of capital required to develop water infrastructure and the need to replace existing infrastructure, issues related to capital utilization and financing are more significant for water utilities than other utilities.

The immediacy of the problem of aging water infrastructure is not well understood but is becoming better known. It is clear that the general public does not understand the immediacy of the problem or the substantial cost to fix the problem. This lack of understanding adds to the risk faced by those companies in need of funds to meet the challenge of maintaining and replacing a failing system. Much of this country's investment in water and wastewater systems was made near the beginning of the twentieth century and is in dire need of replacement. This is coming at a time when there are significant competing demands for capital for other infrastructure. "The Story of Our Water Infrastructure, 2009," a documentary of the Pennsylvania State University broadcast on the PBS network, cites the need for hundreds of billions of dollars nationwide for water and wastewater investment over the next twenty years.

The USEPA Office of Water, Drinking Water Infrastructure Needs Survey issued in 2009 found that the total nationwide infrastructure need is $334.8 billion (in 2007 dollars) over the subsequent 20-year period. The USEPA Office of Clean Water Needs Survey issued in 2008 reported that approximately $190 billion was needed for wastewater treatment, collection systems, and sewer overflow corrections. The American Society of Civil Engineers ("ASCE") in 2009 gave water infrastructure in America a grade of D- and stated that the nation's drinking water and wastewater systems require a $255 billion dollar investment in the next five years. Along with the risk associated with replacing existing infrastructure, the water industry faces increasing maintenance costs, not covered by rates due to regulatory lag. Main breaks from aging infrastructure can cause fish kills from discharge into ponds and streams resulting in fines and lawsuits. Moreover, greater capital expenditures result in higher business risk associated with contracts and vendors.

In addition to infrastructure concerns, the water industry provides a product that is critical for the health and safety of every living person. As a result, the standards of availability and provision of water resources are established by governmental entities and statute. Water and wastewater operations are subject to federal, state and local laws and regulations which control environmental protection, health and safety, water quality, and collection, treatment and discharge of wastewater. Under the Safe Drinking Water Act, the requirements for monitoring and/or treatment of additional contaminants continue to increase over time and are subject to some uncertainty. Today the Safe Drinking Water Act requires the monitoring and/or treatment of 98 potential contaminants. The USEPA recently issued a list of 105 new contaminants from which candidates for new monitoring and/or treatment may be developed.

With respect to constituent limits placed on new or renewed National Pollution Discharge Elimination System ("NPDES"), permits issued by the USEPA are becoming increasingly stringent, requiring investment in new technology and infrastructure for the treatment prior to discharging any water into receiving streams. Security of water facilities is critical for the health and safety of customers and, therefore, a failure in security systems is more substantial than in other industries. Increased oversight results in protection for consumers but also in increased risks of fines and litigation in the event of system failures or even perceived failures. For example, changes in system pressure as a result of a power outage outside the control or influence of the water company can, as a result of existing regulations, result in costly and widespread boil advisories, even though the water treatment and delivery system may be minimally impacted and little to no health risk was involved.

Q. Does Kentucky American face environmental risks with respect to wastewater collection at the plant site, treatment, and disposal?

A. Yes, it does. The collection, treatment, and disposal of wastewater relative to the water treatment operations of the Company are subject to substantial regulation and involve significant environmental risks. The collection systems themselves are confined to the plant properties, but connect to each of the different processes, and at two plants run between multiple buildings. If collection systems fail, overflow, or do not operate properly, wastewater or other contaminants could spill onto nearby properties or into nearby streams and rivers, causing damage to persons or property, injury to aquatic life and economic damages, which may not be recoverable in rates. This risk is most acute during periods of substantial rainfall or flooding, which are the main causes of overflow and system failure. Liabilities resulting from such damage could adversely and materially affect our business, results of operations and financial condition. Outcomes may include increased regulatory pressure resulting from more stringent permit requirements related to system maintenance and discharge limits. Moreover, in the event that we are deemed liable for any damage caused by an overflow, our losses might not be covered by insurance policies, and such losses may make it difficult for us to secure insurance in the future at acceptable rates.

Q. What additional risk does the Company face as a result of its physical make-up and service territory?

A. The Company's concentration of resources in a single area (i.e., Central Kentucky) increases the potential impact from a catastrophic event, such as a tornado or an earthquake, and can be impacted by ice storms and other storms that disrupt power and transportation in the area. Again, Kentucky American has developed its system in a manner to reduce those risks, but a widespread catastrophic event is a significant risk.

Q. Could the loss of sale for resale customers impact Kentucky American's other ratepayers?

A. Yes. Any loss of a sale for resale customer would result in retail customers absorbing the revenue increase required to offset the proportional share of fixed costs that were covered by the sale for resale revenue. Kentucky American currently supplies sales for resale to nine entities throughout the Central Kentucky area.

Q. Does Kentucky American have specific regulatory risks?

A. Yes, it does. Kentucky American's water operations are subject to federal, state and local laws and regulations which control environmental protection, health and safety, water quality, water withdrawal permits and discharge monitoring and reporting requirements. The Company must comply with a wide range of regulatory requirements that impact groundwater and surface water sources, water main distribution systems, and discharge points.

Many requirements related to the operation of Kentucky American's water business are included in the United States Clean Water Act of 1972 and the United States Safe

Drinking Water Act of 1974. The Safe Drinking Water Act is considered a "moving target" because the requirement for monitoring and control of additional contaminants increases over time. In addition, numerous regulatory agencies require permits for various aspects of the business and the Commission sets standards for the Company's operations.

Given the nature of Kentucky American's business, which in part involves supplying water for human consumption, any potential non-compliance with environmental laws or regulations (whether or not within the control of the Company) represents a relatively greater risk for Kentucky American as compared to entities not similarly involved in the water industry. The security of the Company's operations, including treatment plants, storage facilities and distribution systems is critical to ensure protection of the Company's customers. Any failure of Kentucky American's security systems could result in a significant vulnerability.

DISTRIBUTION SYSTEM INFRASTRUCTURE CHARGE ("DSIC")

Q. Please explain why Kentucky American is proposing the adoption of a Distribution System Infrastructure Charge ("DSIC"), a tariff rate adjustment mechanism for the replacement of aging infrastructure.

A. As is true with many water service providers in Kentucky and nationwide, Kentucky American has infrastructure nearing the end of its life expectancy and must be replaced. Kentucky American has an obligation to provide safe, adequate and reliable service, and the quality of the service it provides is dependent, in part, upon the ongoing replacement of this aging infrastructure. However, the cost of infrastructure replacement is substantial, and if Kentucky American must not only advance the cost of the investment, which incrementally has increased significantly over the years, but also to bear the burden of the associated carrying costs of depreciation and interest while waiting for a Base Rate case filing and the completion of such case to be able to recover these necessary costs, it simply will not have the opportunity to achieve the rate of return set by the Commission and therefore risks not being able to adequately or efficiently attract capital. Kentucky American is thus proposing the DSIC, a well-accepted regulatory approach, to mitigate this problem, while providing the Company with a tool to help address the DSIC's primary objective of accelerating the pace of essential infrastructure upgrades and replacements. In addition, the DSIC mechanism has many other customer benefits and protections that will be addressed later in this testimony, one of which is to help mitigate the potential "rate shock" associated with Base Rate cases that recognize on-going plant investments into Rate Base on a lump sum basis rather than on a systematic annual basis as contained in the Company's DSIC proposal.

Q. Do you know of any assessments of the state of the infrastructure and costs of replacement?

A. Yes. In 2009, ASCE published a report entitled, "2009 Report Card for America's Infrastructure," in which it graded the nation's water infrastructure at a 'D-' level, or poor. In its report, the ASCE states that the nation's drinking water and wastewater systems require a $255 billion dollar investment in the next five years. The report also identifies a shortfall of $11 billion of investment funding each year over the next 20 years to replace aging infrastructure and maintain reliable and safe drinking water systems.

Q. Are there other estimates of infrastructure replacement costs?

A. Yes. In its Fourth Report to Congress, published in February 2009 (the "2009 Report"), USEPA presented the results of its fourth Drinking Water Infrastructure Needs Survey and Assessment. In the 2009 Report, the USEPA estimated that $334.8 billion (in 2007 dollars) would be needed nationwide to replace aging drinking water infrastructure and comply with regulatory requirements over the next 20 years. A similar USEPA Report published in 2001, based on 1999 dollars, estimated that $150.9 billion ($198.2 billion adjusted to January 2007 dollars) would be required for these purposes over the next 20 years. In unadjusted dollars, therefore, infrastructure replacement needs have increased in excess of 100% (or about 70% on an adjusted basis) in just eight years.[1]

Q. Do you know of estimates of infrastructure replacement needs for the Commonwealth of Kentucky?

A. Yes. The 2009 Report indicates that $5.0 billion of investment is needed for the Commonwealth of Kentucky over the next 20 years for replacement of aging infrastructure and other regulatory costs. The 2001 Report referenced above, adjusted to January 2007 dollars, indicated that the 1999 need for Kentucky was about $2.3 billion. Kentucky's infrastructure investment needs have, therefore, also significantly increased over the last decade. See 2009 Report, p. 23, Exhibit 2.5.

Q. Why is Kentucky American requesting a DSIC in this rate case?

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1 The 2009 Report can be found at: http://water.epa.gov/infrastructure/drinkingwater/dwns/index.cfm The 2001 Report can be obtained using the same link and clicking the "Past Surveys" link on the bottom of the page.

A. A portion of Kentucky American's infrastructure is between 50 and 100 years old and is nearing the end of its useful service life. The pace of infrastructure replacement is an increasing concern for Kentucky American. The anticipated level of infrastructure improvement projects is increasing at a rapid pace, in part due to the advanced age of the Company's water facilities. A DSIC will more accurately reflect the ongoing investments and improvements that are made in the water distribution system versus the less frequent but larger step increases that would result from base rate increases without a DSIC. The timely recovery of the fixed costs of infrastructure replacement through the DSIC provides an incentive for increased and continued levels of capital infusion. This results in a stronger and more reliable water distribution system for both current and future customers. As described by Company Witness Mr. Lance E. Williams, the Company is focusing its replacement program on small diameter mains (6" in diameter and less), which are responsible for the majority of distribution system leaks and failures. The larger mains are also increasing in age and must be considered in our infrastructure replacement planning. In addition, the need to replace service lines, meters and hydrants, which is necessary to maintain public safety, is continuous and cannot be delayed.

Q. Beyond the DSIC being a regulatory tool to help enable water utilities to accelerate the improvement of critical infrastructure on a continuing basis while mitigating the impact of large rate increases, are there other customer benefits?

A. Yes. Replacing aged infrastructure on an accelerated basis and on a proactive rather than reactive basis will achieve direct customer benefits in the form of improved and sustained water quality, increased pressure, improved fire protection, fewer service disruptions and lower operating and maintenance costs over time. Capital cost savings may also be achieved through increased coordination and sharing of paving costs with the Kentucky Transportation Cabinet ("KTC"), local government, and other utilities. The Lexington-Fayette Urban County Government ("LFUCG") is in the early stages of a widespread sewer and stormwater infrastructure upgrade program that will likely continue for years, and will involve replacing or installing mains in areas that Kentucky American may also have aging infrastructure. There is further opportunity for cost efficiencies through becoming a partner with the LFUCG on projects; however, Kentucky American recognizes that the LFUCG program cannot be delayed or hindered in any way due to the LFUCG regulatory deadlines. Permitting the Company to coordinate replacements with the LFUCG and recovering the attendant costs through a DSIC will pay dividends in the future through realizing a more modern system at a lower cost than if the Company pursued a main replacement project on its own.

Q. Are there other benefits as well?

A. Yes. An effective DSIC will also benefit the Commonwealth of Kentucky, the City of Lexington, and the surrounding communities through an increase in construction jobs brought about by the increased investment in infrastructure provided for by a DISC program. An improved water distribution system and the resulting customer benefits noted above can also attract new business to the area and support economic development goals.

Q. Have any other states adopted tariff riders similar to Kentucky American's proposed DSIC?

A. Yes. The States of Pennsylvania, Indiana, Illinois, Missouri, Ohio, Delaware, Connecticut, and New Hampshire (pilot authorized in 2009) have adopted similar programs. Most recently, the State of New Jersey on May 1, 2012 approved a new rule creating a Distribution System Improvement Charge. Also in 2012, the State of Pennsylvania enacted legislation, effective January 2013, that expands the availability of its longstanding DSIC for water utilities to its jurisdictional electric and natural gas distribution companies and to wastewater utilities. The State of New York, which has had a DSIC program in place since approximately the mid-2000's, has begun in recent base rate case filings to allow rate recovery of what was previously included in the DSIC surcharge instead in base rates through future annual base rate step increases. The future step base rate increases reflect recovery based on a pre-established Company committed level of DSIC investment for a future rate year. The revenue requirement on any shortfall in that level of DSIC investment is deferred for return to customers. New York continues to provide a System Improvement Charge ("SIC") tariff rider mechanism. The SIC surcharge is applicable to costs for the construction of specific reviewed and approved projects, such as well or treatment plant rehabilitations. Although the mechanisms employed in these other states may go by a different name, (e.g. the Illinois rider is referred to as Qualified Infrastructure Plant ("QIP") and the Missouri rider is referred to as Infrastructure System Replacement Surcharge ("ISRS")), they are similarly defined and share the same objectives.

Q. Please describe the categories of utility plant that would qualify for inclusion in the Company's proposed DSIC.

A. The specific utility plant categories proposed for inclusion in the DSIC are: (1) Account 331, Transmission and Distribution Mains, including main rehabilitation (cleaning and lining) and valves; (2) Account 333, Services; (3) Account 334, Meters and Meter Installations; and (4) Account 335, Hydrants. The above would include main extensions to eliminate dead ends and the unreimbursed costs associated with relocations of mains, services, and hydrants occasioned by street or highway construction. Mains installed to provide service to new customers would not be included in the DSIC.

Q. Please discuss the general operation of the proposed DSIC mechanism.

A. The DSIC mechanism is a regulatory tool to provide for the recovery of the costs of capital, depreciation, and property tax (return on and return of) associated with qualified infrastructure investment between Base Rate case filings. The DSIC will apply only to qualified, non-revenue producing plant investment that has not been included in rate base in a prior Base Rate case proceeding. The DSIC would be established on an annual prospective basis utilizing 13 month average end-of-month balances and would reflect only those qualified plant additions installed after the conclusion of the initial rate year after the Commission's final order in this case. The qualified plant additions would be reduced by the projected retirements associated with the DSIC additions in the calculation of applicable depreciation and property tax expense.

The Company would make its annual DSIC filing establishing the applicable DSIC not later than 90 days prior to the effective date of each DSIC implementation.[2] The

[2] For illustrative purposes, assuming the Commission were to issue its Order in this Base Rate case proceeding with Base Rates effective 8/1/13, with such rates inclusive of utility plant additions based on 13 month average month-

Company's proposed DSIC also includes an annual Reconciliation filing made not later 60 days after the conclusion of each DSIC year. That filing would include a detailed listing of each qualifying DSIC project completed and placed in service to the Company's customers during the immediately preceding DSIC year. The Company would then calculate the applicable DSIC revenue requirement based on the DSIC formula utilizing the actual completed qualifying DSIC projects. The Commission would review all aspects of the Reconciliation filing including verification that the included projects are DSIC qualifying and the prudence of the projects. Based on its review, the Commission would make any necessary adjustments to the Company calculated revenue requirement.

The final revenue requirement as determined by the Commission will be compared to the actual DSIC revenues collected under the DSIC rider in effect for the preceding DSIC year. Any over or under recovery of DSIC revenue represents the "R" factor in the DSIC formula and is included in the calculation of the next adjustment to the DSIC. Ultimately therefore, the DSIC reflects only actual projects completed and placed in service. The DSIC would be cumulative and remain in place until reset at zero at the conclusion of the Company's next Base Rate case filing, at which point the capital costs, property tax, and depreciation previously recovered through the DSIC are then subsumed within Base Rates. The Company proposes to cap the DSIC between Base Rate cases at 10.0% of the total authorized revenue level as established by the Commission in the Company's most recent rate proceeding, prior to the inclusion of any other surcharges.

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end balances for the forecasted test period 8/1/13 to 7/31/14, then the first prospective DSIC year would be 8/1/14-7/31/15, with the DSIC filing not later than 5/3/14 for rates implementation on 8/1/14.

Q. Please discuss any specifics to the operation of the proposed DSIC not addressed above.

A. Kentucky American will utilize an annual prospective approach to the utility plant additions that would be included for recovery through the DSIC. The DSIC will provide for the recovery of revenue sufficient to cover the capital cost related to: the average forecasted investment in qualified utility plant for the DSIC year, net of the associated accumulated depreciation, including related retirements, ("NetDSIC"); and associated depreciation and property tax expense. The average forecasted investment in DSIC plant for the period, net of depreciation, would be computed by using an average of 13 end-of-month balances. The current Commission approved pre-tax rate of return ("PTROR") would then be applied to this net amount to determine the revenue requirement of the rate base portion to which the related depreciation expense ("NetDep"), utilizing the current Commission approved depreciation rates by account, would be added. Next, incremental new property taxes ("PT") would be added. Then, any over or under DSIC collection of prior periods would be added or subtracted as applicable ("R").

The sum of these components would be grossed-up to include the recovery of the associated additional revenue taxes (PSC Assessment) and Uncollectible expense ("RT") to derive the final revenue requirement. This total would then be divided by the projected annual level of general metered service and private fire service customer revenues subject to the DSIC, i.e. not including any other revenues, ("PAR") to render the new DSIC percentage. Prior to the implementation of the next year's DSIC, a similar analysis and approval process will occur and the DSIC will be adjusted accordingly on a cumulative basis until Base Rates are established in a Base Rate case and the DSIC is reset to zero.

Q. Can the above described DSIC mechanism be shown as a formula?

A. Yes, the calculation of the DSIC would be as follows:

$$\text{DSIC \%} = \frac{\{(\text{NetDSIC} \times \text{PTROR}) + \text{NetDep} + \text{PT} + \text{R}\} / 1 - \text{RT}}{\text{PAR}}$$

where:

(i) NetDSIC: average forecasted cost of the investment in DSIC plant (DSIC additions net of associated DSIC retirements) for the DSIC year less forecasted accumulated depreciation on the DSIC plant for the DSIC year. The average forecasted cost of DSIC plant, net of depreciation, shall be computed by using an average of 13 end-of-month balances of DSIC plant and accumulated depreciation for the annual prospective DSIC year.

(ii) PTROR: current Commission approved pre-tax rate of return from most recent Base Rate case Order.

(iii) NetDep: net annual depreciation expense related to the average forecasted DSIC additions, net of retirements, per application of current Commission approved depreciation rates by account.

(iv) PT: property taxes

(v) R: reconciliation component related to over/under recovery of DSIC costs during the prior DSIC year.

(vi) RT: sum of revenue taxes % (PSC Assessment) and uncollectible expense %, expressed as a decimal.

(vii) PAR: projected annual base revenue subject to DSIC.

Q. How will the DSIC revenue be recovered?

A. The DSIC would be expressed as a percentage and would be applied to the total amount billed to each customer under the otherwise applicable rates and charges for basic service, metered usage charges, and private fire charges, and would be applied prior to the inclusion of any other surcharge. The DSIC would be reflected as a line item on the bill of each customer.

Q. What will happen to the DSIC upon approval of new rates in a rate case proceeding?

A. The DSIC will be reset to zero as of the effective date of the new base rates which Base Rates then provide for the recovery of the annual costs that had theretofore been recovered through the DSIC. Thereafter, only the new DSIC qualified plant additions not previously included in rate base and Base Rates will be reflected in the future DSIC filings.

Q. What cost of capital will be utilized in the DSIC formula?

A. The cost of capital will be the approved overall rate of return (on a pre-tax basis) established by the Commission in the Company's immediately preceding Base Rate Case Order.

Q. What depreciation rates will be used to determine the depreciation expense to be recovered by the DSIC?

A. The depreciation rates last approved by the Commission, for the respective plant accounts in which the specific items of qualified DSIC plant are recorded, would be used to determine the depreciation expense.

Q. Could the amount of DSIC revenue collected from Kentucky American's customers vary from the actual amount of revenue needed to cover a return of and a return on the Company's DSIC infrastructure investment and taxes?

A. Yes. This could occur as a result of a difference between the actual and the allowed water operating revenues upon which the DSIC is based.

Q. Does the DSIC include a reconciliation mechanism for the protection of the Company's customers in the event that the level of revenue varies from the actual costs?

A. Yes. As discussed earlier, the DSIC will be subject to an annual reconciliation whereby the revenue received under the DSIC for the reconciliation period will be compared to the revenue necessary for the Company to recover its return of and return on investment plus taxes, for that DSIC year. Any over or under recovery will be included in the calculation of the next adjustment to the DSIC.

Q. In addition to the protections provided to customers through the Company's proposed annual reconciliation filings, are there others?

A. Yes. The DSIC mechanism will ensure smaller, more gradual increases to customers' bills rather than the larger rate increases associated with Base Rate cases resulting in part from the recognition in rates of the Company's plant investments on single lump sum basis. Also, the Company is proposing a cap on the amount of the customer bill increase of 10.0% between base rate cases. Lastly, qualifying plant for the DSIC will not include infrastructure investments made by the Company that would produce new customer sales revenues.

Q. Has Kentucky American filed a tariff rider addressing the proposed DSIC as a part of this proceeding?

A. Yes. A DSIC tariff rider has been included in the tariffs filed with this proceeding and supported by Company Witness Linda C. Bridwell.

PROPOSAL FOR IMPLEMENTATION OF AN ADJUSTMENT MECHANISM TO ADJUST FOR FUTURE PURCHASED POWER AND CHEMICAL EXPENSE CHANGES

Q. Please describe the Company's proposal for the adoption of a Tariff Rider for the recovery of incremental changes in purchased power and chemical costs.

A. The Company is proposing a Purchased Power and Chemicals Charge ("PPACC") Tariff Rider, which is a Tariff rate adjustment mechanism, for recovery or crediting to customers incremental changes in purchased power and purchased chemical costs above or below the level authorized for recovery in a Base Rate case proceeding through Base Tariff Rates. The reasons for the Company's PPACC Rider proposal and a description of the mechanism are provided below.

Q. Please explain why the PPACC is being proposed.

A. The combined cost of purchased power and chemicals is the largest non-labor related component of the Company's operations and maintenance expenses. Additionally, the cost of purchasing these commodities is generally outside the control of the Company's management, while at the same time very volatile in nature. The ever-changing nature of purchased power and chemical costs does not fit well within the traditional test year ratemaking framework that requires pro forma rate case adjustments to be fixed, known and measurable and occurring before the end of the forecasted test period. The Company therefore does not have the opportunity to recover or credit changes in these significant and potentially volatile costs beyond that timeframe. The timely recovery of prudently incurred costs is reasonable from a ratemaking perspective, in that a basic tenet of regulation is that the utility should have a reasonable opportunity to recover its prudently-incurred costs of providing service to its customers. The nature and basis of the Company's pro forma purchased power and purchased chemical expenses for inclusion in base rates in this proceeding is described in the direct testimony of Company witness Lewis Keathley.

Q. In your opinion, what factors should the Commission consider in evaluating whether a PPACC tariff rider is an appropriate ratemaking tool for the recovery or crediting of these costs?

A. In my opinion, the traditional ratemaking approach described above is not the appropriate means for recovery when the following characteristics are present:

- Costs are certain to occur and necessary, but future levels are variable from year to year, and accurate projections for pro forma adjustments are not easily determined;
- Costs are to a great extent beyond the control of the utility;
- Costs are a significant expense of the utility and have a significant probability of cost increases or decreases;
- Cost over-recovery or under-recovery is possible due to the above factors, creating the possibility of a detrimental impact on customers or shareholders.

When these characteristics are present, the most accurate, fair and efficient means of matching recoveries with costs is through the use of the tracker regulatory ratemaking mechanism.

Q. Are the above characteristics present with respect to the purchased power and chemical costs that are proposed to be subject to the PPACC?

A. Yes. These costs are certain to occur and necessary, while substantial uncertainties exist with respect to the level of those costs. Moreover, purchased power and chemical costs are to a great extent beyond the control of the utility. Finally, these costs represent the largest non-labor component of the Company's operation and maintenance expenses.

Q. Can you further explain why you have stated purchased power and chemical cost are to a great extent outside the control of the Company?

A. Yes. First it should be understood that the Company takes rigorous steps to ensure that it obtains the best pricing possible when it purchases these commodities. Regarding chemicals, Kentucky American utilizes the Service Company procurement team to purchase chemicals. The Request for Proposal ("RFP") issued for chemical bids reflect the total volume of chemicals used by all American Water operating subsidiaries. The purchase criteria used is based on responses to the RFP, and include: price, reliability and financial stability of the supplier, quality of the product, delivery capabilities, and National Sanitation Foundation ("NSF") certification. Ultimately, the procurement team negotiates the contractual term and conditions. Regarding electric power, the electricity supply market in Kentucky is not deregulated. As such, Kentucky American obtains its electrical supply from local distribution companies. However, Kentucky American, on an ongoing basis, undertakes a tariff evaluation to ensure that each of its accounts is purchasing supply under the applicable tariff that produces the lowest cost. In addition, Kentucky American actively manages its energy usage through a capital plan that emphasizes the most energy efficient facilities, equipment, and operating procedures that consider energy efficient and cost management.

Q. Why then does the Company state that these costs are to a great extend outside the control of the Company?

A. By utilizing procedures outlined above, Kentucky American ensures it is getting the best prices available and is operating as efficiently as possible, which ultimately benefits the Company's customers as those prices will be reflected in the expense levels upon which its base tariff rates are established. The issue is what occurs after base tariff rates are established, which is why the Company has made the PPACC proposal. Various market forces can affect the price of chemicals year to year, both on an increasing and decreasing basis. The Company has no control over these market forces which ultimately impact the bid prices of the suppliers responding to the Company's RFP's. Regarding power, each of the local distribution companies from which the Company purchases power have both a "fuel adjustment clause" and an "environmental surcharge". These surcharges are passed through to Kentucky American and fluctuate from month to month. Kentucky American has no control over either of these pass through charges. These price fluctuations in both purchased power and chemical are outside the control of Kentucky American and occur after the setting of the Company's base tariff rates. The proposed PPACC as stated earlier is intended to identify and defer the unit price changes in the necessary and prudently incurred costs between that which was established in base tariff rates and the actual costs.

Q. Please describe the Company's proposed PPACC Rider.

A. The proposed PPACC Tariff Rider would have the following features:

- An appropriate pro forma amount of purchased power and chemical costs would be determined and included within base rates. The PPACC, then, would reflect only the incremental increase or decrease in actual purchased power and chemical costs from

- the amount included in base rates, which amount would be reflected as a deferral on the Company's accounting books.
- The PPACC would be based on actual historical purchased power and chemical costs incurred during a previous twelve month period. To allow for Commission examination and approval of each PPACC, the Company would make an annual filing with the Commission that would consist of the actual purchased power and chemical costs incurred, as well as the reconciliation of any prior period PPACC Rider over or under-recoveries.
- The PPACC would be determined by dividing the cumulative annual incremental increase or decrease in purchased power and chemical costs, grossed-up for the associated impact of revenue taxes, by projected annual base rate revenue subject to the PPACC Rider.
- The PPACC Rider would be expressed as a percentage and would be applied to the amount billed to each customer under the otherwise applicable rates and charges for basic service, metered usage charges and private fire charges and would be applied to the inclusion of any other charge. The PPACC Rider amount would be reflected as a separate line item on the bill of each customer.
- The PPACC Rider would be subject to an annual reconciliation to determine the amount of any prior period PPACC Rider over or under-recovery which amount would be deferred and included in the Company's next PPACC for return to or recovery from customers.

Q. How will the historical actual purchased power and chemical costs be determined?

A. Purchased power costs are segregated and recorded in Accounts 51510000 - 51520000 and chemicals in account 51800000. Therefore the historical actual costs recorded in these accounts for the previous 12 months would be used as the basis for comparison to the amounts included in base rates.

Q. How will the incremental difference between the actual cost and the base rate cost level be determined and then deferred for inclusion in a future PPACC?

A. The purchased power and chemical costs per 1,000 gallons of water sales as authorized in the Company's prior Base Rate case for recovery in Base Rates will be compared to the corresponding actual costs on a per 1,000 gallons of water sales basis on a current monthly basis. The unit cost difference would be applied against the authorized Base

Rate case water sales level on a monthly basis. The resulting amount would be deferred for recovery or crediting through the PPACC Rider. This methodology ensures that only the incremental changes in the unit costs of purchased power and chemicals is deferred and not changes in the expense resulting from increases/decreases in water sales. The purchased power and chemical costs per 1,000 gallons of water sales as authorized in the Company's Base Rate case would be identified as part of the PPACC Tariff Rider and utilized in comparison to the current actual cost for the monthly deferral calculation.

Q. Please discuss the general operation of the proposed PPACC Tariff Rider mechanism.

A. The PPACC Rider would provide for the implementation of a charge/credit between Base Rate case filings for the recovery or crediting of incremental changes in purchased power and chemical costs, with such amount grossed-up for the associated impact of revenue taxes (sum of PSC Assessment and Uncollectible expense). The PPACC Rider would be implemented on an annual basis reflecting the 12 month cumulative deferral amount (the PPACC deferral period) calculated in accordance with the description above, and billed for recovery, or crediting as applicable, to customers over a 12 month period (the PPACC Rider year).[3]

Q. Has a schedule been presented that demonstrates the various calculations supporting the proposed PPACC?

[3] For illustrative purposes, assuming the Commission were to issue its Order in this Base Rate case proceeding with Base Rates effective 8/1/13, with such Base Rates reflecting purchased power and chemical costs for the forecasted test period 8/1/13 to 7/31/14, then the initial PPACC deferral period would be 8/1/13-7/31/14, with the initial PPACC filing not later than 60 days thereafter or 9/29/14. It is proposed that the Commission would have 60 days to review the PPACC filing. Accordingly, the effective date of the initial PPACC Rider year would be 12/1/14-11/30/15.

A. Yes. Attached to this testimony is Exhibit PPACC-1 Sample Calculation-GMV, Schedule PPACC-1.1, which contains calculations, based on hypothetical amounts, demonstrating the following:

(i) calculation of the Base Rate Cost of purchased power and chemicals as determined and authorized in the Base Rate case;

(ii) deferral calculation of Actual Cost of purchased power and chemicals vs. Base Rate Cost; and

(iii) calculation of PPACC Rider percentage.

Q. Please explain the calculations that are shown in Exhibit PPACC-1 Sample Calculation-GMV.

A. The calculations shown in Exhibit PPACC-1 Sample Calculation-GMV, Schedule PPACC-1.1, are fairly self-explanatory in the fact that each of the calculations made references the line numbers used in making that calculation. Essentially, the calculation starts with levels of purchased power and chemicals (Line 1) and water sales (Line 2) that are authorized in the Company's most recent rate case. In this hypothetical example, an authorized level of purchased power and chemicals of $6,000,000 and an authorized level of water sales in thousand gallons (1,000 gallons) of 12,600,000 are assumed. From there, the example goes on to show a hypothetical "actual" level of purchased power and chemical expense (Line 4) and water sales (Line 5). Please note that in this example the "actual" level of purchased power and chemicals shown on Line 4 has decreased from the authorized level shown on Line 1, while "actual" water sales (Line 5) has increased from the authorized level of sales (Line 2). In this example, the combination of lower power and chemical expense and increased sales would result in a calculated PPACC decrease (Line 14) to Kentucky American's customers. What this example shows is that the PPACC calculation can result in either an increase or a decrease to the Company's customers.

Q. Please continue with your description of the operation of the proposed PPACC.

A. The PPACC Rider would be subject to an annual reconciliation to determine the amount of any prior period PPACC Rider over or under-recovery. Any such amount would be deferred separately from the purchased power and chemical cost deferral and would be included in the Company's next PPACC for return to or recovery from customers.

Q. Has the Company filed a Tariff Rider addressing the proposed PPACC?

A. Yes. A PPACC Rider schedule has been included as part of the Company's overall proposed tariffs filed with this proceeding and supported by Company Witness Linda C. Bridwell.

BUSINESS TRANSFORMATION PROGRAM

Q. What is the purpose of your testimony on Business Transformation?

A. I will introduce the Business Transformation ("BT") program and explain why the program is reasonable and necessary. In addition, I will provide the estimated costs for BT, both in total and those to be incurred by Kentucky American, and will explain why those cost estimates are reasonable and should be approved. Finally, I will explain the proposed ratemaking treatment for Kentucky American's BT costs.

Q. Are you sponsoring any exhibits related to BT testimony?

A. Yes. I am sponsoring Exhibit BT-1-Business Transformation Summary Costs-GMV, which provides a breakdown of BT costs by year and by category, as part of my testimony.

Overview of the Business Transformation Program

Q. What is Business Transformation, or BT?

A. The term "Business Transformation" or "BT" refers to the development and system-wide deployment of new, integrated information technology systems and the process of implementing the new systems in a manner that properly aligns business processes with the increased capabilities of the new systems. Over the life of the BT program, there will be four primary areas of focus:

- Replace legacy systems that are at or near the end of their useful lives;
- Promote operating excellence, efficiency, and economies of scale;
- Enhance the customer experience; and
- Increase employee effectiveness and satisfaction.

The scope of the BT program includes a range of core functional areas, including: human resources, finance and accounting, purchasing and inventory management, capital planning, cash management, and customer and field services.

Q. What are the projects that comprise the BT program?

A. The BT program is a unique capital project both in scope and complexity. There are three projects that comprise the core of the BT program: Enterprise Resource Planning ("ERP"); Enterprise Asset Management ("EAM"), and Customer Information System ("CIS"). ERP includes human resource, finance and accounting, supply chain, and procurement management. EAM includes the management of asset lifecycles including the design, construction, commissioning, operations, maintenance and decommissioning/replacement of plant, equipment and facilities as well as work management for both customer service field work (service turn-ons, leak inspections, etc.) and Transmission & Distribution system work. CIS includes all billing and personal data about our customers, including billing rates, water consumption, associated charges, meter information, and the strategy for managing and nurturing our interactions with our customers. Through these projects, Kentucky American will enhance its ability to continue delivering high-quality water and wastewater services to its customers.

Q. What is the estimated cost of BT to Kentucky American?

A. The capital cost of BT to Kentucky American is estimated to be $12.3 million, which is based upon a total estimated BT program cost of $320.3 million to American Water. This equates to a cost of just over $100 per Kentucky American customer, or approximately $10 per year per customer based on the anticipated life of ten years for the BT assets. The costs of BT are being allocated to Kentucky American and each of the American Water regulated utilities based on the percentage of their customer counts to the overall regulated utility customer count of American Water, as provided for in the Service Company Agreement. The measures taken by the Service Company to ensure that the BT program cost is reasonable and that costs are controlled are discussed below.

<u>Need For BT Program</u>

Q. Why is it necessary for Kentucky American to undertake the BT program?

A. To state it simply, Kentucky American's technology has become antiquated, and its information technology systems need to be replaced. In 2008-09, the BT team completed a comprehensive review and analysis of American Water's information technology systems and then made recommendations for their improvement. As a result of this comprehensive review and analysis, American Water identified the investments necessary to replace and upgrade applicable system components.

Q. What did the review find with respect to Kentucky American's existing information technology systems?

A. The Company's existing information technology systems are customized, stand-alone systems for use by specific departments or functions within a company, and the lack of systems integrations has resulted in isolated information "silos." These information technology systems are reaching or have reached the end of their useful life. JD Edwards (the system for accounting, procurement, and human resources functions) was first implemented for American Water in 1997 and for Kentucky American in 1998. ECIS (the customer service and information system) was first implemented for American Water in 2001 and for Kentucky American in 2003. The JD Edwards system is well beyond its useful life, and ECIS is at the end of its useful life.

Q. Are these current information technology systems adequate to support Kentucky American's customer and business requirements?

A. No. When Kentucky American's existing information technology systems were implemented in the mid-1990s and early 2000s, they met its customer and business needs at that time. The Company continues to run on the software and hardware solutions that were implemented a decade and a half ago. Although Kentucky American's requirements still are being met through these existing systems, the systems are not integrated and have limited automation and functionality. At this point, American Water has fully maximized the software and systems used by its operating subsidiaries by implementing significant customizations or workarounds, in part, to meet requirements and expectations that the original software was not equipped to support. For example, there have been approximately 65 JD Edwards and approximately 305 ECIS customizations. These customizations have addressed the needs of the business, but the systems have reached a point where additional customizations would be inefficient and increasingly costly to maintain.

Because the software has such a large number of customizations, system upgrades would be cost prohibitive and still would result in limited functionality. In addition, when customizations were too costly or impractical, manual processes were put in place. These manual solutions are not optimal because they introduce redundancy and inconsistency of data, require additional manual steps, and limit information availability. The increasing complexity of today's business and customer needs have grown beyond what the existing systems were designed to accommodate, and the information technology systems have become outdated and inflexible. Over the last 10 to 15 years, more has changed than just technology. Customer expectations have also shifted. As always, Kentucky American's customers expect to receive high quality, reliable water service. Service, however, consists of more than just delivering water to the tap. Consider the technological advances that have taken place over just the last five years. Today, our customers and employees can access the internet on a hand-held smart phone at a faster speed than they could from a personal computer only five years ago. Consequently, today's customers also expect more functionality than our existing information technology systems can readily support. The technology now being used at the Company is outdated, and lacks the functionality to meet today's customer expectations. BT will enable Kentucky American to meet those expectations**.**

<u>Key Service Providers for the BT Program</u>

Q. Please describe core enterprise software for the BT program.

A. American Water selected SAP as its new core software solution platform. Employees from across the organization, including Kentucky American, assisted in the review process. Based on the information gathered, the BT team determined that SAP was the best platform for our enterprise-wide systems. SAP is a leader in "enterprise" software development and its products and services have an excellent track record and are used widely by successful companies around the world. The "enterprise" software concept, which was pioneered by SAP, integrates functions and departments across a company into a single technology system, allowing all business processes to operate in a common data base sharing the information simultaneously across all functions in real time. Thus, enterprise computing is best understood in contrast to older software systems, which were customized, stand-alone systems for use by specific departments or functions within a company, resulting in isolated departments and functions in its own information "silo." Enterprise computing breaks down information barriers while also giving each department or function within a company the enterprise-compatible module it needs to do its job. In this way, enterprise computing bridges information gaps, reduces redundancy and opportunities for error, and is a more powerful tool for effectively managing the business. The SAP software solution is a fully integrated software application that offers better real-time functionality to meet our current and future business requirements.

Q. Please describe the solution implementer selected for the BT program.

A. American Water selected Accenture to help implement the new software solutions. As the solution implementer, Accenture is responsible for working closely with American Water operating utilities and the BT team to realize the full potential of our new technology implementation by helping to confirm that American Water's business processes are aligned with the new software. Accenture has worked successfully with many companies over the years to implement SAP software and, like SAP, is highly regarded and has a strong track record of effectively meeting its customers' needs. Accenture and SAP will provide support and guidance and share their skills and knowledge about the new systems with American Water throughout the implementation process.

Q. How were the key service providers selected?

A. Key service providers (*e.g.*, SAP and Accenture) were selected through competitive bidding processes. The BT team, advisory council members, and other American Water employees, including Kentucky American employees, participated in this process. They attended software demonstrations and considered both core software applications (Oracle and SAP) and potential bolt-on software functionality. BT team members also participated in site visits to companies currently using enterprise software, conducted telephone reference checks, and made visits to companies that use Oracle and SAP. American Water chose SAP based on a number of factors including the lower estimated total cost of ownership. For its solution implementer, American Water considered several consultants who are experts in the field, including: Accenture, CSC, Deloitte, HCL AXON, IBM and Quintel. A Request for Proposal ("RFP") was developed to create a competitive bidding process to determine the right consultant for the job. The high and low bids were separated by approximately $50 million. As part of the solution implementer evaluation process, the BT team reviewed and evaluated several iterations of RFP responses from multiple candidates, reviewed and evaluated additional written question and answer ("Q&A") responses from multiple candidates, hosted several group oral presentations and Q&A sessions with some of the candidates, and conducted dozens of individual interviews over approximately a six month period. In July of 2010, the field of solution implementers was narrowed to two—Accenture and HCL AXON. The BT team then pursued parallel negotiations with both Accenture and HCL AXON. Accenture was the lowest bidder that met the RFP requirements, and ultimately, American Water determined that Accenture was the consultant best able to deliver the program needed.

Q. In addition to the competitive bidding process, what other steps were taken to ensure BT as undertaken at a reasonable cost?

A. American Water negotiated fixed price agreements with Accenture for its support and guidance throughout the entire BT program. Kentucky American is a registered licensee for the SAP software and, therefore, will be able to access the full and complete software applications resulting from the BT project. This is an example of how the Service Company model benefits the American Water operating subsidiaries' customers.

<u>Status of BT Implementation</u>

Q. What is the current status of the BT program?

A. American Water is implementing the projects in two phases. The ERP system was deployed as planned in August 2012. EAM and CIS will be deployed in multiple waves in 2013, and it is anticipated that EAM and CIS will be deployed for Kentucky American in May 2013.

Q. Is Kentucky American participating in the design and implementation of the new systems?

A. Yes. Employees of Kentucky American have had, and continue to have, extensive involvement in the recommended improvements to the BT program and have actively participated in various roles throughout the process. In fact, Kentucky American employees must be involved in the BT program to ensure Company business needs are properly served by the program at all stages of the program. On a personal note, I have been involved in the BT process as well. I participate in our internal BT Rates and Regulatory Council, which was set up to ensure that our BT software is being designed to optimize our regulatory compliance across the country. I have also attended several software design meetings to add input from a regulatory perspective. I am also a member of the Company's Service Delivery Council, which evaluates analysis prepared for potential system enhancements and makes recommendations as to the priority or the need for those potential system enhancements. I have led training sessions to help prepare employees for some of the changes that will be occurring with BT. In addition, I am participating in the many training sessions that all employees are attending to ensure that our employees are ready for the new software as it is implemented across our regulated water subsidiaries.

Benefits of the BT Program

Q. What are some of the anticipated benefits of BT to Kentucky American?

A. BT will provide the Company with an integrated information technology platform across all functions and departments, allowing all business processes to share information in real time. The process of aligning business processes with the increased capabilities of the new, integrated technology systems will enable the Company to capture, use and maintain critical business information, making it easier to access and share information across systems—breaking down information barriers—while also giving each department or function within the Company the compatible "module" it needs to do its job. In this way, BT will enable Kentucky American to bridge information gaps, reduce redundancies and opportunities for error, and provide the Company a more powerful tool for effectively managing the business.

The ERP system will enable Kentucky American to automate processes, replace less efficient manual processes, improve workflow, and enhance back-office operations (*e.g*. accounting, procurement, and human resources) by automating and integrating the Company's data so it is readily accessible to multiple functions and sites at once, reducing the manual re-keying and validation processes that exist today. ERP benefits also will include:

- Improved purchase order processing from identifying the need through supplier completion;
- Improved tracking of vendor contracts and better electronic records to measure

and monitor vendor performance across the company; and

- Increased Human Resource ("HR") focus on value-added activities such as training and ensuring compliance to human resources policies and practices versus providing manual transactional activity support.

The EAM module is integrated into the ERP system and will enable the Company to manage information about its physical assets more effectively. It allows for a holistic view of an organization's asset base, better enabling managers to optimize their operations for quality and efficiency. The CIS supports all processes involving direct customer contact throughout the entire customer relationship life cycle, from market segmentation and customer inquiry, to billing and collecting for services provided and post-services communication. Customer information will be captured and stored in a centralized database that is integrated with other systems throughout the Company. Currently, these systems are not integrated; multiple systems and manual processes must be utilized in order to receive required information and data. Some of the anticipated customer benefits include:

- More system functionality, such as group billing and budget billing, which will better meet customer needs;
- Opportunities for enhanced bill presentment options including additional detail of billed charges and transactional account activity (*e.g.* charges, payments, transfers, and adjustments);
- Greater first contact resolution because of greater automation in the billing process and redirected resources providing the opportunity to resolve customer requests in a timely manner; and
- Ability to introduce tools that would reduce or eliminate manually intensive processes and allow employees to work more efficiently.

BT Cost Allocation, Accounting and Rate Treatment

Q. Please explain Kentucky American's ratemaking proposal for BT costs.

A. The Company is proposing that all costs incurred in connection with BT be capitalized and that these capitalized expenditures associated with the multi-year BT program be treated as construction work in progress until the various projects that comprise BT are in service.

Q. What is the current estimated cost of the BT program, and how are these costs allocated to Kentucky American?

A. The overall BT budget for all of American Water is $320.3 million. As illustrated on Exhibit BT-1 Business Transformation Summary Costs – GMV, Schedule BT 1.1, Kentucky American's allocated share of BT costs is $12.3 million based on a 3.84 percent customer count allocation. Kentucky American's cost allocation corresponds to Kentucky American's share of total, system-wide regulated utility customers at year end, through each year of the project, 2009-2014. BT costs are allocated to each American Water regulated utility based on customer count at the prior year end. This is a credible and fair way to allocate costs of the project across the American Water system, including customers served by Kentucky American. Again, this equates to a cost of just over $100 per customer at Kentucky American, or approximately $10 per year per customer based on the anticipated life of ten years for the BT assets.

Q. Please describe how the cost allocation factor of 3.84% for the Kentucky American share was derived.

A. The cost allocation factor of 3.84% was derived by taking Kentucky American's total customer count as a percent of the entire American Water customer count for the years 2009 through 2014, at each year's end. The allocation factors for 2009 through 2011 are derived from historical data values. The allocation factors for the years 2012 through 2014 are derived from budget values. As shown in Exhibit BT-1 Business

Transformation Summary Costs – GMV, Schedule BT 1.1, the total project allocation factor for Kentucky American of 3.84% is the result of the sum of each year's allocation to Kentucky American, $12.3 million, divided by the total BT project cost for American Water, $320.3 million, resulting in the total project allocation factor to Kentucky American of 3.84% at project's end.

Q. Would you please provide an annual budget of the proposed cost for the American Water BT program by functional system?

A. Included with my testimony is Exhibit BT-1 Business Transformation Summary Costs – GMV, Schedule BT 1.1, which shows the functional expenditures, by year, of American Water's BT program for the years 2009 through 2014. The total BT project cost for American Water by year is summarized in the Table 1 below.

Table 1
American Water BT Expenditures by Year
($ Millions)

2009	$ 5.9
2010	28.2
2011	121.6
2012	114.5
2013	47.1
2014	3.0
Total Project	$ 320.3

Q. Would you please provide a proposed breakdown of the BT costs allocated to Kentucky American?

A. I have appended to my testimony Exhibit BT-1 Business Transformation Summary Costs – GMV, Schedule BT 1.1, which details the total cost and breakdown, by year, of those expenditures allocated to Kentucky American by each functional system component of the total BT program. Those cost allocations are reported for each year, 2009 through

2014, by functional item, based on the annual allocation factors reported in Table 1 above. The total BT consolidated project cost allocated to Kentucky American by year is summarized in the Table 2 below.

Table 2:
Kentucky American BT Expenditures Allocated by Year
($ Millions)

2009	$ 0.2
2010	1.1
2011	4.7
2012	4.4
2013	1.8
2014	0.1
Total Project	$ 12.3

Q. Why does Kentucky American treat BT program costs as capital expenditures rather than expense them?

A. The costs associated with the BT program are both significant and are being incurred over an extended period of time (2009-2014). A portion of these costs would be expensed as they are incurred if we are not permitted to capitalize the entire project. Given the sheer magnitude and timing of the costs of the BT program, it would be problematic to expense these costs as incurred. First, expensing the costs would require a more significant increase to the revenue requirement for the years the expenditures were made than if they were given rate base treatment. By using the rate base treatment we propose, those costs will be spread over the useful life of the project and be recovered on a levelized basis. Further, as the BT expenditures will provide service to ratepayers over their useful life, the recovery of these significant costs on a levelized basis over that useful life is a better matching of the revenue with the expense and a more equitable ratemaking method than seeking to recover the costs over the shorter period during which these costs are initially incurred. Finally, recovering the costs of these assets on a levelized basis over their useful lives more properly assigns the cost responsibility to the customers who will actually benefit from the implementation of assets over their useful lives as opposed to the singular year in which the systems were first placed into service.

Q. Please describe the cost categories for the BT program.

A. There are four distinct areas of cost related to the BT project: (i) physical assets (e.g., primarily servers, networking equipment, etc.), (ii) software licenses, (iii) capitalized labor costs required to design, modify the base software package as required, develop transition routines to transfer historical data from existing systems, modify business processes to be compatible with the new software, implement the go-live use of the software, and train employees on the use of the new software, and (iv) the initial planning studies. The accounting for each of the four areas of BT costs will be described separately below.

Q. Please describe the accounting for the hardware portion of the BT costs.

A. The hardware procured for BT will be purchased by Laurel Oak Properties, leased to the Service Company, and a percentage of that leasing expense will be distributed to each of the regulated utilities based on the percentage of their customer base to the overall regulated utility customer base of American Water. The capital lease charges to the regulated utilities will include the equivalent of depreciation expense plus a finance cost.

Q. Please describe the accounting for the SAP software licenses for the BT costs?

A. A portion of the SAP software license fees included in the BT project is being accounted for on the books of the Company. Kentucky American is an authorized licensee and has the right to use the licensed software as a permitted licensee under the license agreements. The license fees will be billed to Kentucky American by the Service Company, but appropriately capitalized because Kentucky American is a separate licensee for the software. Kentucky American will pay its share of the license fees through the Service Company to be more efficient so that the vendor will not issue individual invoices to each participating regulated utility. The method of payment does not change the appropriate accounting for costs at the regulated utilities. The regulated utilities' assets listed as software are licenses, and legal ownership of the software is retained by the licensor, SAP. Given that Kentucky American is a registered licensee for the software and the cost of the license is paid for by the Company, that software is an appropriate utility plant asset under generally accepted accounting principles and NARUC accounting guidelines and should be capitalized by the operating companies.

Q. Please describe the accounting for the capitalized labor portion of the BT costs.

A. The capitalized labor and overheads portion of the BT costs are being accounted for in the same manner that the regulated utilities have accounted for comparable costs in the past. They are being charged to the utility plant asset created at each regulated utility, including Kentucky American. Capitalization of Service Company labor charges to Kentucky American is a normal process and is consistent with the Service Company Agreement.

Q. Please describe the accounting for the BT Planning Studies.

A. The Company has requested that the proportionate share of the costs related to the planning studies be deferred and accounted for as capitalized costs and will be capitalized as part of the BT costs when it is placed in service. This is consistent with the accounting for a preliminary engineering or planning study associated with a particular project.

Q. What is the anticipated life cycle of the BT assets?

A. The anticipated life cycle of the BT assets is ten years.

Q. What is the appropriate depreciation rate for the assets that comprise the BT program?

A. Given an estimated service life of ten years, the appropriate annual depreciation rate for the BT assets is ten percent.

Q. Does Kentucky American currently have an approved depreciation rate that would encompass the BT assets?

A. Currently, BT assets that are included in Utility Plant in Service on Kentucky American Water's books are included in NARUC Account 340.5 (Company Asset Accounts 340300 and 340200) and NARUC Account 339.1 (Company Asset Account 339600). The vast majority of these assets are in NARUC Account 340.5, which has an approved 20% amortization rate, or a five year life.

Q. Do you feel that this depreciation rate is representative of the length of service that can be expected from the Company's BT assets?

A. No, I do not. The BT assets are designed for a ten year life. As such, I do not feel that a five year (20%/year) depreciation rate is appropriate.

Q. What is your recommendation for an appropriate depreciation rate for Business Transformation assets?

A. My recommendation is that Business Transformation assets included in NARUC Account 340.5 be reclassed to Company Asset Account 340315, which is entitled "Computer Software – Special", and that they be depreciated at a ten year (10%/year) rate on a going forward basis. The only assets included in Account 340315 in this proceeding are the assets relative to Business Transformation. The BT assets were designed for a ten year life. As such, I am asking that the Commission grant the Company, as part of this proceeding, authorization to set up a ten year depreciation rate for BT assets so they may be properly depreciated over the estimated service life of those assets as they are placed in service.

Q. Please summarize the BT program.

A. Kentucky American's current information technology systems are at or near the end of their useful life and need to be replaced. Therefore, the decision to replace these systems is prudent. The BT program is a unique capital project both in scope and complexity, and is prudent and necessary for Kentucky American. As indicated above, the costs of BT are reasonable, and the BT team has carefully managed the costs of the BT program in an effort to provide its customers and other stakeholders with the greatest value at a reasonable cost. American Water has conscientiously and successfully pursued the goal of choosing the best solutions and consultants for the BT program at the most reasonable price.

Q. Does this conclude your prepared direct testimony?

A. Yes it does.

VERIFICATION

STATE OF MISSOURI)
) **SS:**
CITY OF ST. LOUIS)

The undersigned, **Gary M. VerDouw,** being duly sworn, deposes and says he is the Director of Rates for Kentucky-American Water Company, that he has personal knowledge of the matters set forth in the foregoing testimony, and the answers contained therein are true and correct to the best of his information, knowledge, and belief.

Gary M. VerDouw

GARY M. VERDOUW

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 19th day of December, 2012.

Staci A. Olsen (SEAL)

Notary Public

My Commission Expires:

STACI A. OLSEN
Notary Public – Notary Seal
STATE OF MISSOURI
St. Charles County
Commission Number 09519210
My commission expires March 20, 2013

Kentucky American Water Company
Case No. 2012- 00520
Sample Calculation (*) of Purchased Power and Chemical Charge ("PPACC")
To Determine PPACC Tariff Rider

Line Number	Description		Amount
	I. Calculation of the Base Rate Cost of Purchased Power and Chemicals as authorized in the Base Rate case:		
1	Pro Forma Purchased Power and Chemicals Expense	$	6,000,000
2	Pro Forma Water Sales (WS) in 1,000 Gallons ("1000g")		12,600,000
3	Base Rate Cost per 1000g WS (Line 1 / Line 2)	$	0.47619
	II. Deferral Calculation - Actual Cost Purchased Power and Chemicals vs. the Base Rate Cost:		
4	Actual Purchased Power & Chemicals Expense	$	5,850,000
5	Actual Water Sales (1000g)		12,712,500
6	Actual Rate Cost Purchasd Power & Chemical per 1000g WS (Line 4 / Line 5)	$	0.46018
7	Base Rate Cost per 1000g WS (Line 3)		0.47619
8	Incremental Change in Purchased Power and Chemical Costs per 1000g WS	$	(0.01601)
9	Base Rate Case Water Sales 1000g (Line 2)		12,600,000
10	Deferral Amount (Line 8 * Line 9)	$	(201,726)
	III. Calculation of Purchased Power and Chemicals Charge ("PPACC") Tariff Rider:		
11	Total Deferred Amount (Line 10)	$	(201,726)
12	Total Deferred Amount Grossed Up for revenue taxes (sum of PSC Assessment and Uncollectibles (Line 11 / (1.0-.007278)) (**)		(203,205)
13	Projected Annual Base Rate Revenue subject to PPACC	$	85,000,000
14	PPACC % (Line 12 / Line 13)		-0.24%

Notes:
(*) The numbers and calculations shown on this schedule are for illustrative purposes only and do not necessarily represent actuals.
(**) Assumes PSC Assessment @ 0.1478% and Uncollectibles @ 0.58%, totalling totals 0.7278%

Kentucky American Water Company
Docket No. 12-00520
Business Transformation ("BT") Costs (2009-2014) for American Water Company (Total)
Including Kentucky American Water Company's Allocation of Those Costs

Consolidated Totals (ERP, EAM, and CIS in Total)

Line Number	Description	Total	2009	2010	2011	2012	2013	2014
			Year					
1.	**Labor**							
2.	Internal - Business	$ 50,217,502	$ -	$ 3,407,264	$ 14,223,384	$ 19,828,003	$ 10,812,021	$ 1,946,830
3.	Internal - ITS	21,942,489	-	600,000	7,597,272	8,540,443	5,204,774	-
4.	External - Support	110,076,964	-	4,584,586	54,228,792	41,704,262	9,559,324	-
5.	External - Other	7,572,960	-	546,374	4,569,587	2,245,800	207,300	3,899
6.	**Labor Subtotal (Total of Lines 2. - 5.):**	$ 189,809,915	$ -	$ 9,138,224	$ 80,619,035	$ 72,318,508	$ 25,783,419	$ 1,950,729
7.	Employee Expenses	$ 18,997,741	$ -	$ 965,675	$ 3,504,691	$ 6,937,128	$ 7,400,477	$ 189,770
8.	Hardware	18,181,054	-	-	11,272,267	5,417,909	1,490,428	450
9.	Software	28,780,876	-	15,911,971	9,250,137	2,712,468	906,300	-
10.	Program Operations	3,996,660	-	562,704	1,010,296	1,172,640	1,043,270	207,750
11.	Comprehensive Planning Study	6,341,302	5,725,099	616,203	-	-	-	-
12.	Contingency	14,300,003	-	-	3,407,740	6,970,146	3,279,147	642,970
13.	**BT Subtotal (Lines 6. + Lines 7. - 12.):**	$ 280,407,551	$ 5,725,099	$ 27,194,777	$ 109,064,166	$ 95,528,799	$ 39,903,041	$ 2,991,669
14.	**Other**							
15.	AFUDC - BT	$ 20,238,249	$ 127,375	$ 993,388	$ 4,121,353	$ 8,807,960	$ 6,188,173	$ -
16.	**Total BT (Line 13. + Line 15.):**	$ 300,645,800	$ 5,852,474	$ 28,188,165	$ 113,185,519	$ 104,336,759	$ 46,091,214	$ 2,991,669
17.	BT Controls/Organizational Integration	$ 18,345,618	$ -	$ -	$ 8,361,387	$ 9,429,998	$ 554,233	$ -
18.	BT Controls/Organizational Integration - AFUDC	1,289,735	-	-	70,667	742,787	476,281	-
19.	**Total BT Controls/Organizational Integration (Line 17. + Line 18.):**	$ 19,635,353	$ -	$ -	$ 8,432,054	$ 10,172,785	$ 1,030,514	$ -
20.	**BT Grand Total - American Water (Line 16. + Line 19.):**	$ 320,281,153	$ 5,852,474	$ 28,188,165	$ 121,617,573	$ 114,509,544	$ 47,121,728	$ 2,991,669
21.	**Kentucky American Water Allocation Percentage:**	3.84%	3.58%	3.59%	3.89%	3.85%	3.85%	3.85%
22.	**Total Cost Applicable to Kentucky American (Line 20. * Line 21.):**	$ 12,290,381	$ 209,519	$ 1,011,955	$ 4,730,924	$ 4,408,617	$ 1,814,187	$ 115,179

Kentucky American Water Company
Docket No. 12-00520
Business Transformation ("BT") Costs (2009-2014) for American Water Company (Total)
Including Kentucky American Water Company's Allocation of Those Costs

Enterprise Resource Planning ("ERP") Costs

Line Number	Description	Total	2009	2010	2011	2012	2013	2014
1.	**Labor**							
2.	Internal - Business	$ 23,289,266	$ -	$ 1,779,595	$ 8,118,252	$ 11,176,115	$ 1,989,249	$ 226,055
3.	Internal - ITS	9,109,068	-	300,000	4,480,206	4,002,368	326,494	-
4.	External - Support	54,220,088	-	1,828,042	29,912,071	22,252,578	227,397	-
5.	External - Other	3,595,430	-	272,688	2,195,748	1,113,047	12,204	1,743
6.	**Labor Subtotal (Total of Lines 2. - 5.):**	$ 90,213,852	$ -	$ 4,180,325	$ 44,706,277	$ 38,544,108	$ 2,555,344	$ 227,798
7.	Employee Expenses	$ 7,277,334	$ -	$ 481,303	$ 1,622,077	$ 3,340,194	$ 1,817,850	$ 15,910
8.	Hardware	6,969,823	-	-	4,610,660	2,358,023	939	201
9.	Software	10,866,449	-	5,223,787	5,049,288	593,374	-	-
10.	Program Operations	1,792,768	-	282,646	493,716	527,145	396,386	92,875
11.	Comprehensive Planning Study	3,216,567	2,908,464	308,103	-	-	-	-
12.	Contingency	7,227,333	-	-	2,121,800	4,398,266	707,267	-
13.	**BT Subtotal (Lines 6. + Lines 7. - 12.):**	$ 127,564,126	$ 2,908,464	$ 10,476,164	$ 58,603,818	$ 49,761,110	$ 5,477,786	$ 336,784
14.	**Other**							
15.	AFUDC - BT	$ 6,044,224	$ 63,687	$ 387,370	$ 1,993,194	$ 3,599,973	$ -	$ -
16.	**Total BT (Line 13. + Line 15.):**	$ 133,608,350	$ 2,972,151	$ 10,863,534	$ 60,597,012	$ 53,361,083	$ 5,477,786	$ 336,784
17.	BT Controls/Organizational Integration	$ 9,255,439	$ -	$ -	$ 4,180,693	$ 4,890,002	$ 184,744	$ -
18.	BT Controls/Organizational Integration - AFUDC	320,059	-	-	35,320	284,739	-	-
19.	**Total BT Controls/Organizational Integration (Line 17. + Line 18.):**	$ 9,575,498	$ -	$ -	$ 4,216,013	$ 5,174,741	$ 184,744	$ -
20.	**BT Grand Total - American Water (Line 16. + Line 19.):**	$ 143,183,848	$ 2,972,151	$ 10,863,534	$ 64,813,025	$ 58,535,824	$ 5,662,530	$ 336,784
21.	**Kentucky American Water Allocation Percentage:**	3.84%	3.58%	3.59%	3.89%	3.85%	3.85%	3.85%
22.	**Total Cost Applicable to Kentucky American (Line 20. * Line 21.):**	$ 5,502,233	$ 106,403	$ 390,001	$ 2,521,227	$ 2,253,629	$ 218,007	$ 12,966

Kentucky American Water Company
Docket No. 12-00520
Business Transformation ("BT") Costs (2009-2014) for American Water Company (Total)
Including Kentucky American Water Company's Allocation of Those Costs

Enterprise Asset Management ("EAM") Costs

Line Number	Description	Total	2009	2010	2011	2012	2013	2014
1.	**Labor**							
2.	Internal - Business	$ 11,336,802	$ -	$ 838,190	$ 2,717,054	$ 3,308,777	$ 3,816,831	$ 655,950
3.	Internal - ITS	6,358,514	-	150,000	1,748,542	2,290,406	2,169,566	-
4.	External - Support	25,906,674	-	1,571,510	11,844,190	8,737,851	3,753,123	-
5.	External - Other	1,966,049	-	136,843	1,087,042	596,241	144,933	990
6.	**Labor Subtotal (Total of Lines 2. - 5.):**	$ 45,568,039	$ -	$ 2,696,543	$ 17,396,828	$ 14,933,275	$ 9,884,453	$ 656,940
7.	Employee Expenses	$ 4,730,908	$ -	$ 267,234	$ 740,380	$ 1,265,805	$ 2,402,735	$ 54,754
8.	Hardware	6,171,451	-	-	3,196,776	1,763,196	1,211,365	114
9.	Software	8,215,157	-	4,778,431	2,112,144	926,582	398,000	-
10.	Program Operations	1,042,107	-	139,261	247,257	299,361	303,470	52,758
11.	Comprehensive Planning Study	1,541,266	1,387,216	154,050	-	-	-	-
12.	Contingency	3,536,335	-	-	642,970	1,285,940	1,285,940	321,485
13.	**BT Subtotal (Lines 6. + Lines 7. - 12.):**	$ 70,805,263	$ 1,387,216	$ 8,035,519	$ 24,336,355	$ 20,474,159	$ 15,485,963	$ 1,086,051
14.	**Other**							
15.	AFUDC - BT	$ 6,017,611	$ 31,844	$ 288,231	$ 893,504	$ 2,178,040	$ 2,625,992	$ -
16.	**Total BT (Line 13. + Line 15.):**	$ 76,822,874	$ 1,419,060	$ 8,323,750	$ 25,229,859	$ 22,652,199	$ 18,111,955	$ 1,086,051
17.	BT Controls/Organizational Integration	$ 4,077,539	$ -	$ -	$ 1,843,656	$ 2,095,324	$ 138,559	$ -
18.	BT Controls/Organizational Integration - AFUDC	433,568	-	-	11,773	208,097	213,698	-
19.	**Total BT Controls/Organizational Integration (Line 17. + Line 18.):**	$ 4,511,107	$ -	$ -	$ 1,855,429	$ 2,303,421	$ 352,257	$ -
20.	**BT Grand Total - American Water (Line 16. + Line 19.):**	$ 81,333,981	$ 1,419,060	$ 8,323,750	$ 27,085,288	$ 24,955,620	$ 18,464,212	$ 1,086,051
21.	**Kentucky American Water Allocation Percentage:**	3.83%	3.58%	3.59%	3.89%	3.85%	3.85%	3.85%
22.	**Total Cost Applicable to Kentucky American (Line 20. * Line 21.):**	$ 3,116,719	$ 50,802	$ 298,823	$ 1,053,618	$ 960,791	$ 710,872	$ 41,813

Kentucky American Water Company
Docket No. 12-00520
Business Transformation ("BT") Costs (2009-2014) for American Water Company (Total)
Including Kentucky American Water Company's Allocation of Those Costs

Customer Information System ("CIS") Costs

Line Number	Description	Total	2009	2010	2011	2012	2013	2014
			Year					
1.	**Labor**							
2.	Internal - Business	$ 15,591,434	$ -	$ 789,479	$ 3,388,078	$ 5,343,111	$ 5,005,941	$ 1,064,825
3.	Internal - ITS	6,474,907	-	150,000	1,368,524	2,247,669	2,708,714	-
4.	External - Support	29,950,202	-	1,185,034	12,472,531	10,713,833	5,578,804	-
5.	External - Other	2,011,481	-	136,843	1,286,797	536,512	50,163	1,166
6.	**Labor Subtotal (Total of Lines 2. - 5.):**	$ 54,028,024	$ -	$ 2,261,356	$ 18,515,930	$ 18,841,125	$ 13,343,622	$ 1,065,991
7.	Employee Expenses	$ 6,989,499	$ -	$ 217,138	$ 1,142,234	$ 2,331,129	$ 3,179,892	$ 119,106
8.	Hardware	5,039,780	-	-	3,464,831	1,296,690	278,124	135
9.	Software	9,699,270	-	5,909,753	2,088,705	1,192,512	508,300	-
10.	Program Operations	1,161,785	-	140,797	269,323	346,134	343,414	62,117
11.	Comprehensive Planning Study	1,583,469	1,429,419	154,050	-	-	-	-
12.	Contingency	3,536,335	-	-	642,970	1,285,940	1,285,940	321,485
13.	**BT Subtotal (Lines 6. + Lines 7. - 12.):**	$ 82,038,162	$ 1,429,419	$ 8,683,094	$ 26,123,993	$ 25,293,530	$ 18,939,292	$ 1,568,834
14.	**Other**							
15.	AFUDC - BT	$ 8,176,414	$ 31,844	$ 317,787	$ 1,234,655	$ 3,029,947	$ 3,562,181	$ -
16.	**Total BT (Line 13. + Line 15.):**	$ 90,214,576	$ 1,461,263	$ 9,000,881	$ 27,358,648	$ 28,323,477	$ 22,501,473	$ 1,568,834
17.	BT Controls/Organizational Integration	$ 5,012,640	$ -	$ -	$ 2,337,038	$ 2,444,672	$ 230,930	$ -
18.	BT Controls/Organizational Integration - AFUDC	536,108	-	-	23,574	249,951	262,583	-
19.	**Total BT Controls/Organizational Integration (Line 17. + Line 18.):**	$ 5,548,748	$ -	$ -	$ 2,360,612	$ 2,694,623	$ 493,513	$ -
20.	**BT Grand Total - American Water (Line 16. + Line 19.):**	$ 95,763,324	$ 1,461,263	$ 9,000,881	$ 29,719,260	$ 31,018,100	$ 22,994,986	$ 1,568,834
21.	**Kentucky American Water Allocation Percentage:**	3.83%	3.58%	3.59%	3.89%	3.85%	3.85%	3.85%
22.	**Total Cost Applicable to Kentucky American (Line 20. * Line 21.):**	$ 3,671,428	$ 52,313	$ 323,132	$ 1,156,079	$ 1,194,197	$ 885,307	$ 60,400

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:	**)**	
	)	
THE APPLICATION OF KENTUCKY-AMERICAN	**)**	**CASE NO. 2012-00520**
WATER COMPANY FOR AN ADJUSTMENT OF	**)**	
RATES ON AND AFTER January 27, 2013	**)**	

DIRECT TESTIMONY OF LANCE E. WILLIAMS, P.E.

December 28, 2012

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Lance E. Williams and my business address is 2300 Richmond Road, Lexington, Kentucky 40502.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by the American Water Works Service Company ("AWWSC") as Director of Engineering for Kentucky and Tennessee.

Q. HAVE YOU PREVIOUSLY FILED TESTIMONY BEFORE THIS COMMISSION?

A. Yes.

Q. PLEASE STATE YOUR EDUCATIONAL AND PROFESSIONAL BACKGROUND.

A. I received a M.B.A. from Midway College in 2012, and a B.S. degree in Civil Engineering from the West Virginia Institute of Technology (West Virginia University Institute of Technology) in 1990. I am a registered Professional Engineer in Kentucky and West Virginia. I worked for Howard K. Bell, Consulting Engineers Inc. ("HKB") from 1990 – 2003. While working for HKB I was responsible for various projects, including water and wastewater treatment, distribution, collection and landfill design. In 2003, I went to work for BridgeTek, Inc. (which was later purchased by CONTECH, Construction Products) as the Region Manager for Kentucky. I joined Kentucky American Water ("KAW") in June 2008 and in 2011 moved to the combined role with the AWWSC as Director of Engineering Kentucky and Tennessee.

Q. WHAT ARE YOUR DUTIES AS DIRECTOR OF ENGINEERING?

A. I am responsible for the coordination of both the Engineering Department at KAW, and the Engineering Department at Tennessee American Water ("TAW"). This includes the planning, development, and implementation of all aspects of construction projects. This also includes working with all new main extensions and developers, water treatment plant upgrades, new construction, and network facilities improvements. I coordinate the provision of technical assistance to all other company departments as needed and oversee the capital budget development and implementation.

Q. WHAT WILL YOUR TESTIMONY ADDRESS?

A. My testimony will describe the calculation of tap fees as submitted in this case, the preparation of the investment plan, and detail the information for the construction projects.

Q. DOES KAW PROPOSE TO INCREASE ITS TAP FEES?

A. Yes. KAW requested the addition of a tap fee in Case No. 2000-00120. The tap fees were approved for all customers in that proceeding. At that time, the tap fees were based on a three-year average cost of the installation of new services. New services are installed through a contractor, who competitively bids on an annual contract for this work. KAW employees oversee the installation of all new service and meter settings. The tap fees were increased in 2004 and again in 2007, 2008, and 2010 based on increased contractor and materials pricing. In 2010, KAW proposed a slight alteration to its tap fee calculation, using a five-year average of actual construction costs because of the unusual economic situation.

Since 2010, the cost of installing taps has continued to increase. With the economy growing at a slower rate than in prior periods, KAW proposes to continue using a five-year average of actual construction costs rather than the previous three-year average. The proposed tap fees are:

¾" x 5/8" meter	$1,078 (increased from $817)
1" meter	$1,576 (increased from $1,569)
2" meter	$3,563 (increased from $3,536)

Q. HAS THE METHODOLOGY USED TO CALCULATE THE TAP FEES CHANGED IN ANY OTHER WAY?

A. No. The methodology used is otherwise the same as approved in the previous five rate cases.

Q. PLEASE DESCRIBE THE FACTORS USED IN THE PREPARATION OF THE FORECAST PERIOD DATA AS IT RELATES TO THE CAPITAL CONSTRUCTION.

A. The Company's capital investment plan can be divided into three distinct areas: 1) Developer Projects (DV), 2) recurring projects (RP), 3) major projects identified as investment projects (IP). Normal recurring construction includes water main installation for new development, smaller main projects for reinforcement and replacement, service line and meter setting installation, meter purchases and the purchase of tools, furniture, equipment and vehicles.

Recurring construction costs are trended from historical and forecasted data. Estimates are prepared for the installation of new mains, service lines, meter settings and the purchase of new meters based on preliminary plats from the appropriate governmental planning agencies and consultations with developers, homebuilders and engineering firms.

Purchase of tools, furniture, equipment and vehicles are based on needs. KAW reviews each item independently and prepares an itemized list of expenditures. Estimates are made based on current year pricing.

The intent of the planning process is to provide a broad and comprehensive review of facility needs that will allow us then to establish a general guide for needed improvements over the planning horizon. These improvements will enable KAW to provide safe, adequate and reliable service to its customers to meet their domestic, commercial and industrial needs; provide flows adequate for fire protection; and satisfy all regulatory requirements. The plan provides the general scope of each project along with a preliminary design. The criteria for evaluating the various system components are: engineering requirements; consideration of national, state and local trends; environmental impact evaluations; and water resource management.

KAW uses engineering criteria based on accepted engineering standards and practices that provide adequate capacity and appropriate levels of reliability to satisfy residential, commercial, industrial, and public authority needs, and provide flows for fire protection. The criteria are developed from regulations, professional standards and KAW engineering policies and procedures. KAW uses demand projections based on historical data and usage trends to evaluate future system needs.

Sources of supply are evaluated based on quantity and quality. There must be sufficient quantity to supply the system's needs. There must be sufficient quality to provide, through treatment, finished water that meets or exceeds all federal and state regulations. Sources of supply must also have sufficient allocation rights to enable average and maximum demands to be met.

Treatment and pumping facilities are designed to meet projected maximum day needs reliably. Storage facilities are designed to provide the recommended volume to equalize the plant's pumping rate on a maximum demand day. With this approach, treatment facilities need only be designed to meet the projected maximum day demand, although during that day hourly demands will exceed the treatment capacity's maximum rate. Storage facilities are also designed to provide the volume of water necessary for fire protection up to the maximum flow and duration addressed in the most recent Insurance Services Office (ISO) municipal grading schedule and the volume necessary for reliability.

Pipelines are designed to meet two conditions of service. They are expected to deliver projected peak hour customer demands while maintaining system pressures at 30 psi or greater in accordance with the Public Service Commission (PSC) regulations and to provide adequate fire flow identified by the ISO while maintaining distribution system pressure at 20 psi or greater.

Q. DOES KAW FOCUS ON COST CONTROL OF CAPITAL EXPENDITURES IN ITS NORMAL DAY-TO-DAY ACTIVITIES?

A. Yes. All significant construction work performed by independent contractors and significant purchases are completed pursuant to a bid solicitation process. We maintain a list of qualified bidders and we believe that our construction costs are very reasonable. American Water annually takes competitive bids for material and supplies that are either manufactured or distributed regionally and nationally through its centralized procurement group. We have the advantage of being able to purchase these materials and supplies on an as-needed basis at favorable prices. In the past eleven years, American Water also has undertaken a number of procurement initiatives for services and materials to reduce costs through either streamlined selection or utilization of large volume purchasing power. Some of these initiatives that have directly impacted capital expenditures include the use of master services agreements with pre-qualified engineering consultants, national vehicle fleet procurement, and national preferred vendor identification.

Q. HOW DOES KAW MANAGE THE IMPLEMENTATION OF ITS CAPITAL PLAN?

A. Since 2003, the entire American Water system has used a process for developing and reviewing capital expenditures that incorporates the best practices implemented at KAW. This process includes a regional Capital Investment Management Committee ("CIMC") to ensure capital expenditure plans meet the strategic intent of the business, including introducing new technology and process efficiency, assuring that capital expenditure plans are integrated with operating expense plans, and providing more effective controls on budgets and individual capital projects.

CIMC members include the KAW President, KAW Vice President-Operations, KAW Director of Engineering, and KAW Manager – Finance. The CIMC receives capital expenditure plans from project managers and approves them for submission to an analogous committee organized by American Water, the Corporate CIMC. Once budgets are approved the CIMC meets monthly to review capital expenditures compared to budgeted levels.   The process includes five stages of project review: 1) a Preliminary Need Identification defining the project at an early stage; 2) a Project Implementation Proposal that confirms all aspects of the project are in a position to begin work; 3) Project Justification Approval Process, in which the committee reviews Investment Projects exceeding released funds by 30% in the preliminary stage or 10% in the implementation or direct stage for the month; 4) a Post Project Review; and 5) Asset Management. KAW personnel handle all of the stages, with oversight by the CIMC. All projects, including normal recurring items, have an identified project manager responsible for processing the stages of the project. The CIMC allows KAW to be more flexible with changes that inevitably occur during the course of implementing large construction projects.

As an added level of coordination, a "Functional Sign-Off" Committee meets monthly to give final approval on projects. This committee includes the KAW Vice President-Operations; the KAW Director of Engineering; and the appropriate Operations supervisors and project managers. The purpose of the committee is to review projects that are moving forward in the next step of approval or that require a change. This process allows the project manager and operational area supervisors to communicate about the project on a monthly basis and help coordinate projects from initial development through in-service.

Q. PLEASE EXPLAIN THE MAJOR PROJECTS PROPOSED FOR 2013/2014.

A. A brief description of the projects listed in Exhibit 13 of the Application in this case follows.

Item DV (Projects Funded by Others) - This investment plan item is for the installation of new mains, valves and hydrants that are funded entirely by others. This investment plan item may also include the replacement of existing components of water supply, water treatment, water pumping, water storage, and water pressure regulation facilities not funded by company expenditures. The majority of these expenditures are made through deposit agreements and as non-refundable contributions. The projected expenditure amount is developed through discussions with homebuilders and developers as well as a review of plats. Developers deposit projected expenditures based on average pipe installation costs from the previous year pursuant to our on-site main extension agreement. This item also includes fire services that are paid by the requesting new customer, at the cost of installation.

Item A - This investment plan item is for new water mains, valves, and other appurtenances that are necessary to perform the work that is funded by the company, including upsizing of developer initiated extensions; company initiated and funded new mains that are not related to immediate growth, such as new mains that eliminate existing dead ends or provide new transmission capacity; and new customer initiated extensions in accordance with tariffs that may include some customer contribution. This item may also include new mains that parallel existing mains to increase transmission capacity, provide reliability, or establish an additional pressure gradient.

Item B - This investment plan item is for the scheduled replacement, renewal or improvement of existing water mains including valves and other appurtenances that are necessary to perform the work.

Item C - This investment plan item is for the unscheduled replacement or restoration of existing water mains, including valves and other appurtenances that are necessary to perform the work. This item is primarily used for emergency replacements.

Item D - This investment plan item is for the relocation of existing water mains, including valves and other appurtenances that are necessary to perform the work, as required by municipal or state agencies. This investment line item now includes replacement of services in conjunction with these projects, which was previously budgeted in the cost of service replacements. These costs are not reimbursable.

Item E - This investment plan item is for the installation of new hydrants, including hydrant assemblies and valves that are installed on existing mains or installed in conjunction with main extension projects, which are company funded. This item generally includes all public hydrants.

Item F - This investment plan item is for the replacement of leaking, failed or obsolete hydrants, including hydrant assemblies and valves that are company funded.

Item G - This investment plan item is for the installation of new water services or improvements, including corporation stops and shut-off valves.

Item H - This investment plan item is for the replacement of water services or improvements, including the replacement of corporation stops, or shut-off valves.

Item I - This investment plan item is for the installation of new meters and meter settings.

Item J - This investment plan item is for the replacement or improvement of existing customer meters and meter settings with or without technology changes.

Item K - This investment plan item is for the replacement of existing Information Technology System Equipment and systems due to failure or obsolescence and new items to achieve efficiency or address new requirements.

Item L - This investment item is for the installation or replacement of existing SCADA Equipment and Systems. The acronym SCADA can be defined in several slightly different ways, but KAW generally defines it as System Control and Data Acquisition, which is the computerized system for monitoring and operating the treatment plants and network facilities. We believe it more appropriate to subdivide these important investment costs from general Information Technology Equipment costs.

Item M - This investment item is a division for Security Equipment and Systems. This may include fencing, alarm systems, cameras, barricades, electronic detection or locking systems, software, or other assets related directly to Security.

Item N - This investment plan item is for the replacement or improvement of building systems, equipment or furnishings for offices and operations centers, including copy machines, and communication systems other than computers.

Item O - This investment plan item is for replacement of vehicles, including utility trucks, cars and light and medium trucks and accessories.

Item P - This investment plan item is for the replacement or purchase of construction, shop, garage, meter reading, and storeroom equipment.

Item Q - This investment plan item is for the new purchase or replacement of existing components of water supply, treatment, pumping, storage, and pressure regulation facilities, including associated building components and equipment. Replacements may be planned or made because of failure, or may include improvements. This item also includes laboratory equipment and replacement of filter media used in the treatment process if capitalized.

Item R - This investment plan item is for capitalized tank painting and tank rehabilitation. However, KAW does not capitalize tank painting, and this line is used strictly for capital improvements at the tanks as necessary.

Item S - This investment item is for preliminary engineering studies primarily used for planning purposes. At the initiation of a project, these capital dollars are transferred to the appropriate construction project. If no project is developed as a result of the study, the expenditures are then transferred from CWIP.

Investment Projects

These projects are for facilities that are substantial in cost. Projects approved in the immediate investment plan are identified by three types of numbers. With the implementation of SAP, a new integrated information technology system, American

Water has converted all IP projects to a new numbering system. The Strategic Capital Expenditure Plan ("SCEP") provided in this case will show both numbers for the transition of projects. The first number is located in the column labeled "SAP WBS," which is the SAP number. The hyphenated identification is a letter followed by a two digit number, a hyphen and then a six digit number which is unique to each project. The "I" indicates that the project is an investment project followed by the number 12, which is KAW's business unit followed by a six digit number. The second identification used on the SCEP is in the column labeled Business Unit No., is a hyphenated numerical system, the first number being the originating subsidiary and district of the project and the second number being the number of the project. If the project is proposed but has not yet been approved it will be identified only by its description.

I12-020010 and IP-1202-19 Leestown Road - The Leestown Road Main Relocation Project is located along Leestown Road between New Circle Road and Masterson Station Park in Fayette County. The project is necessary due to the Kentucky Department of Transportation's proposed project for the widening and relocation of Leestown Road. The proposed project will replace approximately 9,300 feet of 8-inch Cast Iron main. The proposed project includes the installation of approximately 8,400 feet of 16-inch Ductile Iron main and 1,400 feet of 8-inch DI main. The project will create a continuous extension of 16-inch main from New Circle Road to Masterson Station Park. The total projected cost of the project is $1,773,269, with $909,612 spent in 2011, $423,657 in 2012, and $440,000 in projected costs for 2013.

I12-020025 and IP-1202-36 Pump Efficiency Replacement Phase - The Jacobson Reservoir Pump Station Project is located off Squires Road in Lexington. This project consists of the design and construction of changing the existing 2300 volt electric service to 480 volts; replacing existing switchgear; installation of a stand by generator; installation of variable frequency drive pumps; replacing 3 pumps and motors; installation of a new potassium permanganate feed system; installation of a flow meter; replacing existing building exhaust fans and lights;

associated instrumentation work. The project was recently awarded to the design/build team of Layne/Gannett Fleming. The project is currently in the design phase. A targeted date of April 2013 has been set to have at minimum pump capacity of 12 MGD available from Jacobson Reservoir to the Richmond Road Station Water Treatment Plant. The expenditure for 2012 is $1,586,565 and the proposed for 2013 is $831,596 and the total project cost is $2,418,161.

I12-300003 and IP-1235-5 Northern Division Connection - This project is the installation of 16 miles of 16-inch main along US 127 from the Pool 3 WTP to the intersection of KY 22/US127 in Owenton. This project would require a booster station and storage tank. This project would connect to the existing 8-inch supply mains in the City of Owenton which then branch out and supply the rural areas of Owen County. This project will enable KAW to better serve our existing customers with a backup supply. The current distribution system has minimum connections to other water systems which would limit the amount of water KAW could purchase if needed during an emergency. KAW filed an application with the Commission to obtain a certificate of public convenience and necessity for the projected and the case is currently under submission. The total expected cost of the project, through 2014, is $14,104,868.

I12-020031 and IP-1202-9 Todds and Cleveland Rd Main Extension – This project is the installation of 4 miles of 8-inch main on Todds Road between Cleveland Road and Combs Ferry Road in Fayette County. This project will reinforce the eastern portion of the Central Division and would replace existing 4-inch or 6-inch pipelines. This will improve pressures in this area. The proposed expenditure for 2014 is $2,400,000.

IP-1202-10 KRS Clearwell Improvements (332) - This project will include the installation of baffling inside the existing clearwell as well as the addition of additional clearwell storage at KRS I. The proposed expenditure for 2014 is $3,000,000.

IP-1202-11 I-75 Main Extension - This project is the installation of 3 miles of 12-inch main on Lisle Road from US 25 to Lemons Mill Road in Scott County. This project will increase the flow capacity in the central part of the system into northern Fayette County and Scott County and reinforce the area west of I-75. The proposed expenditure for 2014 is $2,000,000.

IP-1202-13 Greenwich Rd Main Extension - This project is the installation of 2 miles of 8-inch main on Greenwich Pike between Hume-Bedford Pike and Ferguson Road. This project will reinforce the central part of the system and increase pressures. The proposed expenditure for 2014 is $1,300,000.

IP-1202-16 North Upper St. Main Replacement (343) – This project is the installation of 1 mile of 12-inch main to replace existing main along North Upper Street between Church Street and Seventh Street. This project will address water quality and age and deterioration issues within the existing main cast iron main that is in places over 100 years old. The proposed expenditure for 2014 is $1,500,282.

IP-1202-20 KY Major Highway – This project will cover various relocation projects that have not been scheduled yet, which will be necessary to address conflicts with proposed highway relocation/reconstruction work by the Kentucky Transportation Department and the Lexington-Fayette Urban County Government. The proposed expenditure for 2014 is $1,000,000.

IP-1202-23 RRS Carbon and Pre-Chlorine Feed – This project will relocate the carbon, chlorine, and ammonia feed lines at the Richmond Road Station to optimize removal of organics. The proposed expenditure for 2014 is $500,000.

IP-1202-27 KRS Hydrotreater Valve & Flow Meter – This project will include the installation of new flow meters and effluent valves with controllers at the hydrotreators at KRS I. The project replaces existing meters, valves and controllers which have deteriorated and have outlived their useful life. The proposed expenditure for 2014 is $250,000.

IP-1202-39 Pump Efficiency Replacement – This project will address issues with the KRS I Transfer Pumps. The pumps are currently throttled in order to modulate flow to Richmond Road Station and/or Jacobson Reservoir. This project will include the trimming of impellers and installation of variable frequency drives (VFDs) in order to operate the pumps at the appropriate head and flow conditions, rather than decreasing flow via throttling. The proposed expenditure for 2014 is $457,866.

Q. WHAT ARE THE CAPITAL ASSETS THAT MAKE UP THE KAW DISTRIBUTION SYSTEM?

A. As of the end of November, 2012, KAW's distribution system contained 1981.7 miles of pipeline mains of various materials, ranging in size from 2 to 42 inches. The system also contains 26 tanks, 29,764 valves, and 8,953 hydrants.

Q. WHAT IS THE CURRENT AGE OF EXISTING WATER MAINS BY DECADE AND SIZE IN THE KAW SYSTEM?

A. Please see Exhibit LEW-1, which is attached to my testimony that shows the pipe diameter, year installed and total footage.

Q. WHAT IS THE EXPECTED LIFE OF WATER MAINS?

A. The expected useful life of water mains is 75 years. Portions of KAW's distribution system are over 75 years old and need to be replaced at a faster rate than the current replacement rate. The areas where the system has exceeded its useful life have restricted flow, as well as increased the potential for main breaks.

Q. WHAT IS THE AVERAGE RATE OF MAIN REPLACEMENT?

A. The current replacement rate is approximately 2 miles per year. This is derived from line "B" of the SCEP which is Mains – Replaced/Restored. Approximately $2 million is spent each year replacing 6-inch or smaller mains within the system.

Q. HOW MANY MILES OF MAIN WERE INSTALLED BEFORE 1938? AND HOW

MUCH OF THAT IS 6-INCH OR SMALLER THAT IS AT LEAST 75 YEARS OLD?

A. Approximately 107 miles of main were installed before 1938 and are currently still being used today to serve KAW customers. There are approximately 82 miles of main that are 6-inch or smaller and at least 75 years old.

Q. AT KAW'S CURRENT REPLACEMENT RATE HOW LONG WOULD IT TAKE TO REPLACE EVERYTHING THAT IS CURRENTLY 75 YEARS OR OLDER? ALSO, AT KAW'S CURRENT REPLACEMENT RATE, HOW LONG WOULD IT TAKE TO REPLACE THE 6-INCH OR SMALLER AND OVER 75 YEARS OR OLDER MAINS?

A. Are KAW's current replacement rate it would take 50 years to replace all water mains in the system that are currently 75 years or older and it would take 41 years to replace all mains that are 6-inch or smaller and 75 years or older.

Q. AT KAW'S CURRENT RATE OF REPLACEMENT, IN 50 YEARS, HOW MANY MILES WOULD BE 75 YEARS OR OLDER?

A. This would encompass all mains installed between 1937 and 1988 and would total approximately 947.77 miles which would take approximately 474 years to replace.

Q. DO YOU BELIEVE THAT KAW NEEDS A DISTRIBUTION SYSTEM IMPROVEMENT CHARGE ("DSIC") PROGRAM?

A. Yes a DSIC program would help accelerate the replacement of aging mains in the system.

Q. IS THERE TESTIMONY IN THIS RATE CASE TO SUPPORT DSIC?

A. Yes, DSIC is discussed in Gary VerDouw's testimony.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

VERIFICATION

COMMONWEALTH OF KENTUCKY)
) SS:
COUNTY OF FAYETTE)

The undersigned, **Lance E. Williams,** being duly sworn, deposes and says he is the Director of Engineering for Kentucky-American Water Company, that he has personal knowledge of the matters set forth in the foregoing testimony, and the answers contained therein are true and correct to the best of his information, knowledge, and belief.

LANCE E. WILLIAMS

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 17th day of December, 2012.

(SEAL)
Notary Public

My Commission Expires:
10/3/2016

Kentucky American Water Installs Summary											
	Decades										
	1930's	1940's	1950's	1960's	1970's	1980's	1990's	2000's	2010's	Totals	
SIZE											**SIZE**
42									162303	162303	**42**
36	0	0	0	0	0	0	368	0	162303	368	**36**
30	0	0	0	31726	1078.5	38413	2771.5	377	0	74366	**30**
24	130	0	20925	36045	2981	239120.5	74781.5	15635	0	389618	**24**
20	0	0	0	0	698	14740.5	1498	4500	759	21436.5	**20**
18	0	0	0	0	18	0	0	0	6366	18	**18**
16	25914	0	13700	32966	28550	75806	44963.5	25327	0	247226.5	**16**
14	0	0	0	0	0	0	3450	0	372	3450	**14**
12	11380	12913	30845	155655	272117	141907	275179.5	313715	0	1213712	**12**
10	2659	0	0	0	3083	68	57	7	25229	5874	**10**
8	91659	10845	132330	509258	538725	581710	971033.5	1244592	0	4080152	**8**
6	344846	86224	596173	352999	440713.5	222069.1	171966.5	430098.9	68829	2645090	**6**
4	80299	9114	1607	70335	186735	7111	16538.5	484282.6	1054	856022.1	**4**
3	0	69	0	8809	35381	749	58244	331608	9670	434860	**3**
2.5	0	72	0	0	52789	5883	0	0	13602	58744	**2.5**
2.25	0	0	0	0	11903	0	0	0	0	11903	**2.25**
2	37940	26221	9303	52663	25519	1223	11618	67194	0	231681	**2**
1.5	0	0	0	0	0	0	0	0	1516	0	**1.5**
1.25	0	0	0	0	0	0	0	2086	0	2086	**1.25**
1	0	23756	175	0	0	0	688	11	0	24630	**1**
FEET	**594827**	**169214**	**805058**	**1250456**	**1600453**	**1328800**	**1633158**	**2919433**	**0**	**10463540**	***FEET***
MILEAGE	**112.6566**	**32.04811**	**152.4731**	**236.8288**	**303.1161**	**251.6667**	**309.3101**	**552.9229**	**289700**	**1981.731**	***MILEAGE***
	1930's	**1940's**	**1950's**	**1960's**	**1970's**	**1980's**	**1990's**	**2000's**	**54.86742**		

Kentucky American Water
Pipe Installed 2010's

	YEAR											
SIZE	2010	2011	2012**	2013	2014	2015	2016	2017	2018	2019	TOTALS	SIZE
42	162303										162303	42
36											0	36
30											0	30
24	272	487									759	24
20	6134	232									6366	20
18											0	18
16		372									372	16
14											0	14
12	17397	7832									25229	12
10											0	10
8	26094	28361	14374								68829	8
6	1042		12								1054	6
4	7464	740	1466								9670	4
3	7626	1802	4174								13602	3
2.5											0	2.5
2.25											0	2.25
2		1516									1516	2
1.5											0	1.5
1.25											0	1.25
1											0	1
FEET	228332	41342	20026	0	0	0	0	0	0	0	289700	FEET
MILEAGE	43.2447	7.829924	3.792803	0	0	0	0	0	0	0	54.86742	MILEAGE

Kentucky American Water Pipe Installed 2000's												
	YEAR											
SIZE	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	TOTALS	SIZE
36											0	36
30			377								377	30
24					400		1042		12413	1780	15635	24
20				2250	2250						4500	20
18											0	18
16		3357		1727	8874		7494	316	2182	1377	25327	16
14											0	14
12	41383	48803	11348	7330	66175	19921	20233	47301	36532	14689	313715	12
10			5			2					7	10
8	156400	95279	138364	59781	207398	93929	103070.5	214319	101219	74832	1244592	8
6	12217.9	2713	4319	1721	6831	5929	937	274323	88398	32710	430098.9	6
4	2528.1	10560	4572	484	12798	2061	4026.5	370417	67471	9365	484282.6	4
3	14247	14632	17117	15316	14019	7224	13490	215236	13175	7152	331608	3
2.5											0	2.5
2.25											0	2.25
2						856	33	66148		157	67194	2
1.5											0	1.5
1.25				2086							2086	1.25
1				11							11	1
FEET	226776	175344	176102	90706	318745	129922	150326	1188060	321390	142062	2919433	FEET
MILEAGE	42.95	33.20909	33.35265	17.17917	60.36837	24.60644	28.47083	225.0114	60.86932	26.90568	552.9229	MILEAGE

Kentucky American Water Pipe Installed 1990's												
	YEAR											
SIZE	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	*TOTALS*	SIZE
36							368				***368***	**36**
30				42	123.5	284	2126	196			***2771.5***	**30**
24	1578	278	4434	568.5	48943			13363	924	4693	***74781.5***	**24**
20	474		38	65	286		363		272		***1498***	**20**
18											***0***	**18**
16	2414	1516	6703	10843.5	4189	27	1994	6479	842	9956	***44963.5***	**16**
14						3450					***3450***	**14**
12	40408	13021.5	11739.5	7953.5	22266	32695	43018	41680	22089	40309	***275179.5***	**12**
10	1	10		6	35		5				***57***	**10**
8	73384.5	33692	68153.5	60673	82260.5	80012	141507	101448	143830	186073	***971033.5***	**8**
6	16998.5	15569	16568.5	22687.5	29115	12665.5	13193.5	19732	10609	14828	***171966.5***	**6**
4	65	944	611	147	668.5	864	2954	470	1175	8640	***16538.5***	**4**
3		72			216	5753	13811	11474	11107	15811	***58244***	**3**
2.5											***0***	**2.5**
2.25											***0***	**2.25**
2	74		1116	520	430	782	7896	140	660		***11618***	**2**
1.5											***0***	**1.5**
1.25											***0***	**1.25**
1		48	98				542				***688***	**1**
FEET	**135397**	**65150.5**	**109461.5**	**103506**	**188532.5**	**136532.5**	**227777.5**	**194982**	**191508**	**280310**	***1633158***	FEET
MILEAGE	**25.64337**	**12.33911**	**20.73134**	**19.60341**	**35.70691**	**25.85843**	**43.13968**	**36.92841**	**36.27045**	**53.08902**	***309.3101***	MILEAGE

Kentucky American Water Pipe Installed 1980's												
	YEAR											
SIZE	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	*TOTALS*	SIZE
36											*0*	36
30			279		482	1147		2197		34308	*38413*	30
24			623	4	14	46333.5	90200	99005	2914	27	*239120.5*	24
20	479	283	215	158	716.5	113	353	547	333	11543	*14740.5*	20
18											*0*	18
16	2887		214	4	4981	18869	3947	11220	30156	3528	*75806*	16
14											*0*	14
12	8911	2637.5	851	1294	7183.5	12034.5	28603	29698.5	35554	15140	*141907*	12
10	8			4	18	18	7			13	*68*	10
8	34937	21860	14246	22242.5	74522	72856	82208	79681.5	114996	64161	*581710*	8
6	23601	10250	6132	11142	17566	24385.6	29038	31391	47908.5	20655	*222069.1*	6
4	336	494	440	89	220	2492	1672	688	489	191	*7111*	4
3		16		20	3		710				*749*	3
2.5	5883										*5883*	2.5
2.25											*0*	2.25
2		30		34	116				796	247	*1223*	2
1.5											*0*	1.5
1.25											*0*	1.25
1											*0*	1
FEET	**77042**	**35570.5**	**23000**	**34991.5**	**105822**	**178248.6**	**236738**	**254428**	**233146.5**	**149813**	***1328800***	FEET
MILEAGE	**14.59129**	**6.736837**	**4.356061**	**6.627178**	**20.04205**	**33.7592**	**44.83674**	**48.18712**	**44.15653**	**28.37367**	***251.6667***	MILEAGE

Kentucky American Water Pipe Installed 1970's												
	YEAR											
SIZE	**1970**	**1971**	**1972**	**1973**	**1974**	**1975**	**1976**	**1977**	**1978**	**1979**	***TOTALS***	**SIZE**
36											***0***	**36**
30							421	193.5		464	***1078.5***	**30**
24							90			2891	***2981***	**24**
20						38	127	261	154	118	***698***	**20**
18	18	18	18	18	18	18	18	18	18	18	***18***	**18**
16	4951	3022	1960	50	18323		21		126	97	***28550***	**16**
14											***0***	**14**
12	3784	13906	67600	43643	62704	10864	7673	13729	19070	29144	***272117***	**12**
10					3063	20					***3083***	**10**
8	28814	39282	106127	36930	41719	29652	65050	67196	62528	61427	***538725***	**8**
6	9173	13431	97637	4674	141453	18130	44687	50431.5	41101	19996	***440713.5***	**6**
4			53380	14	112278	7040	1959	7126	363	4575	***186735***	**4**
3			27277		5764		880	800		660	***35381***	**3**
2.5						5635	7517	15486	16009	8142	***52789***	**2.5**
2.25			11883							20	***11903***	**2.25**
2	3054	7850	10869	3615	1			130			***25519***	**2**
1.5											***0***	**1.5**
1.25											***0***	**1.25**
1											***0***	**1**
FEET	**49794**	**77509**	**376751**	**88944**	**385323**	**71397**	**128443**	**155371**	**139369**	**127552**	***1600453***	FEET
MILEAGE	**9.430682**	**14.67973**	**71.35436**	**16.84545**	**72.97784**	**13.52216**	**24.32633**	**29.42633**	**26.39564**	**24.15758**	***303.1161***	MILEAGE

Kentucky American Water Pipe Installed 1960's											
	YEAR										
SIZE	**1960**	**1961**	**1962**	**1963**	**1964**	**1965**	**1966**	**1967**	**1968**	**1969**	***TOTALS***	**SIZE**
36											***0***	**36**
30							31726				***31726***	**30**
24							34161	1852	32		***36045***	**24**
20											***0***	**20**
18											***0***	**18**
16							24395	3180	2476	2915	***32966***	**16**
14											***0***	**14**
12	6173	4889	6087	300	11426	6948	75390	13944	24986	5512	***155655***	**12**
10											***0***	**10**
8	33973	21642	25022	35644	48524	66388	133726	46958	44487	52894	***509258***	**8**
6	30874	43553	33236	32533	44516	23373	72016	48416	8993	15489	***352999***	**6**
4				52			58240	11623	420		***70335***	**4**
3							2229	6580			***8809***	**3**
2.5											***0***	**2.5**
2.25											***0***	**2.25**
2	330	243	1698		2513	2225	28529	7306	5922	3897	***52663***	**2**
1.5											***0***	**1.5**
1.25											***0***	**1.25**
1											***0***	**1**
FEET	**71350**	**70327**	**66043**	**68529**	**106979**	**98934**	**460412**	**139859**	**87316**	**80707**	***1250456***	FEET
MILEAGE	**13.51326**	**13.31951**	**12.50814**	**12.97898**	**20.26117**	**18.7375**	**87.19924**	**26.48845**	**16.53712**	**15.28542**	***236.8288***	MILEAGE

Kentucky American Water
Pipe Installed 1950's

	YEAR											
SIZE	**1950**	**1951**	**1952**	**1953**	**1954**	**1955**	**1956**	**1957**	**1958**	**1959**	***TOTALS***	**SIZE**
36											***0***	**36**
30											***0***	**30**
24						20216		709			***20925***	**24**
20											***0***	**20**
18											***0***	**18**
16	1529						390	11781			***13700***	**16**
14											***0***	**14**
12	155		4243	616	3154	6959	38	3803	6104	5773	***30845***	**12**
10											***0***	**10**
8	34355		1819	16391	12664	15936	21603		29562		***132330***	**8**
6	36536	13242	31929	33375	35222	37805	255456	47395	50635	54578	***596173***	**6**
4	15			8	19	1565					***1607***	**4**
3											***0***	**3**
2.5											***0***	**2.5**
2.25											***0***	**2.25**
2	2803	407	918	848	1174		702	258	580	1613	***9303***	**2**
1.5											***0***	**1.5**
1.25											***0***	**1.25**
1									175		***175***	**1**
FEET	**75393**	**13649**	**38909**	**51238**	**52233**	**82481**	**278189**	**63946**	**87056**	**61964**	***805058***	FEET
MILEAGE	**14.27898**	**2.585038**	**7.369129**	**9.704167**	**9.892614**	**15.6214**	**52.68731**	**12.11098**	**16.48788**	**11.73561**	***152.4731***	MILEAGE

Kentucky American Water
Pipe Installed 1940's

	YEAR											
SIZE	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	TOTALS	SIZE
36											0	36
30											0	30
24											0	24
20											0	20
18											0	18
16											0	16
14											0	14
12									7520	5393	12913	12
10											0	10
8	43		34			2084		4218	1068	3398	10845	8
6	8699	14644		1022				27307	21807	12745	86224	6
4							9114				9114	4
3									69		69	3
2.5									72		72	2.5
2.25											0	2.25
2	2912	1170	2070	72			1267	8290	8376	2064	26221	2
1.5											0	1.5
1.25											0	1.25
1		156								23600	23756	1
FEET	11654	15970	2104	1094	0	2084	10381	39815	38912	47200	169214	FEET
MILEAGE	2.207197	3.024621	0.398485	0.207197	0	0.394697	1.966098	7.54072	7.369697	8.939394	32.04811	MILEAGE

Kentucky American Water
Pipe Installed 1930's

	YEAR											
SIZE	**1930**	**1931**	**1932**	**1933**	**1934**	**1935**	**1936**	**1937**	**1938**	**1939**	***TOTALS***	**SIZE**
36											***0***	**36**
30											***0***	**30**
24					130						***130***	**24**
20											***0***	**20**
18											***0***	**18**
16					25914						***25914***	**16**
14											***0***	**14**
12					8403	399	2578				***11380***	**12**
10					93	916	1650				***2659***	**10**
8					71355	18624	1660		20		***91659***	**8**
6					295021	6731	13711	10912	6870	11601	***344846***	**6**
4					79686		613				***80299***	**4**
3											***0***	**3**
2.5											***0***	**2.5**
2.25											***0***	**2.25**
2					7898	524	8468	9979	8509	2562	***37940***	**2**
1.5											***0***	**1.5**
1.25											***0***	**1.25**
1											***0***	**1**
FEET	**0**	**0**	**0**	**0**	**488500**	**27194**	**28680**	**20891**	**15399**	**14163**	***594827***	FEET
MILEAGE	**0**	**0**	**0**	**0**	**92.51894**	**5.150379**	**5.431818**	**3.956629**	**2.916477**	**2.682386**	***112.6566***	MILEAGE