Virginia State Corporation Commission
eFiling CASE Document Cover Sheet

Case Number (if already assigned)	PUR-2018-00175
Case Name (if known)	APPLICATION OF VIRGINIA-AMERICAN WATER CO. For a general increase in rates
Document Type	EXTE
Document Description Summary	Direct Testimony of the City of Alexandria (Carl W. Eger, III, and J. Bartholomew Kreps)
Total Number of Pages	83
Submission ID	16732
eFiling Date Stamp	5/28/2019 4:49:47PM

AQUALAW

JUSTIN W. CURTIS
JUSTIN@AQUALAW.COM

PH: 804.716.9021
FX: 804.716.9022

May 28, 2019

BY ELECTRONIC FILING

Hon. Joel H. Peck, Clerk
State Corporation Commission
Tyler Building, 1st Floor
1300 East Main Street
Richmond, Virginia 23219

Re: Application of Virginia-American Water Company
For a general rate increase
Case No. PUR-2018-00175
City of Alexandria, Virginia's Notice of Participation

Dear Mr. Peck:

Enclosed for electronic filing in the above-referenced matter is the Direct Testimony of Carl W. Eger, III, and the Direct Testimony of J. Bartholomew Kreps submitted on behalf of the City of Alexandria. Thank you for your assistance.

Sincerely,

Justin W. Curtis

Enclosure (as stated)

C: Service List

AquaLaw PLC · 6 South 5th Street · Richmond, Virginia · 23219
www.AquaLaw.com

BEFORE THE STATE CORPORATION COMMISSION

CASE NO. PUR-2018-00175

DIRECT TESTIMONY

OF

CARL W. EGER, III

ON BEHALF OF

THE CITY OF ALEXANDRIA

MAY 28, 2019

Summary of Direct Testimony

My testimony addresses the City of Alexandria's concerns related to consolidated tariff pricing, the inclusion of the prospective purchase of the City's hydrants in the rate case, and the request to end the pilot designation of the WWISC program.

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

A. Carl W. Eger III. My business address is 301 King Street, Alexandria, Virginia 22314.

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

A. I am the Energy Manager for the City of Alexandria. My responsibilities include leading the City's Office of Energy Management. In this capacity, I lead an office responsible for, though not limited to, delivering the City's energy management and water efficiency programs for City-owned or operated properties and facilities; delivering energy efficiency and renewable energy programs to the Alexandria community; ensuring reliable and resilient power systems to critical City infrastructure; providing engineering and operations support to facility management and capital projects teams; servicing utility billings, including billings for water resource services, for City-owned or operated properties and facilities; and providing public utility policy and regulatory issues guidance to the Alexandria City Council, City Attorney's Office, City Manager's Office, and City departments and agencies.

Q. HOW LONG HAVE YOU HELD THIS POSITION?

A. I have held this position since January 4, 2010.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND WORK EXPERIENCE.

A. A. I hold a Bachelor of Science in Electrical Engineering, a Bachelor of Science in Computer Engineering, and a Master of Science in Engineering (Mechanical

Engineering and Energy Engineering concentrations with additional graduate-level education in economics, econometrics, and public policy) from the University of Dayton in Dayton, Ohio. I am currently completing a Masters of Professional Studies in Sustainable Urban Planning from the George Washington University. I am a registered Professional Engineer in the State of Ohio, a Leadership in Energy and Environmental Design (LEED) Accredited Professional, an International Society of Sustainability Professionals Sustainability Association, and a Certified Public Manager. In 2018, I completed the Michigan State University Institute of Public Utilities Advanced Regulatory Studies Program training. In 2017, I completed the Harvard University Executive Education in Sustainability Leadership and Urban Land Institute-Washington Regional Land Use Leadership Institute programs. In 2013, I completed the Michigan State University Institute of Public Utilities Annual Regulatory Studies Program ("Camp NARUC") training. From 2012 to present, I have served on the Virginia Energy Purchasing Government Authority (VEPGA) Board of Directors. I serve on numerous other boards and commissions throughout the Metropolitan Washington DC area, and in the Commonwealth of Virginia in service to the public.

I joined the City of Alexandria in 2010 as Energy Manager. In 2011, I was promoted to the City of Alexandria's Senior Management Group.

Before serving the citizens and City of Alexandria, from 2004 – 2006, I was Lead Engineer of the US Department of Energy Industrial Assessment Center at the University of Dayton with specializations that include industrial pumping systems,

including water treatment and conveyance. From 2007 – 2008, I held position as Energy Manager for the City of Cleveland Division of Water before promotion in 2008 to the position of Energy Manager for the City of Cleveland Mayor's Office of Sustainability.

Q. **HAVE YOU PREVIOUSLY PROVIDED TESTIMONY BEFORE ANY REGULATORY AGENCY AS TO MATTERS AFFECTING WATER UTILITY COMPANIES?**

A. Yes. I have previously testified before this commission in case numbers PUE-2014-00066, PUE-2015-00097, PUE-2016-0001, and PUR-2017-00149.

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

A. The purpose of my testimony is to address the City of Alexandria's concerns regarding impacts to City residents from the abrupt transition to consolidated tariff pricing and the premature termination of the Water and Wastewater Infrastructure Service Charge ("WWISC") pilot.

Q. **DO YOU SPONSOR ANY EXHIBITS?**

A. No.

I. IMPACTS ON CITY OF ALEXANDRIA

Q. **HAVE YOU REVIEWED THE DIRECT TESTIMONY OF GARY L. AKMENTINS AND JOHN S. TOMAC OF VIRGINIA-AMERICAN WATER COMPANY (VAWC) FILED IN THIS PROCEEDING?**

A. Yes.

Q. DO YOU HAVE AN OPINION ON VAWC'S PROPOSAL TO INSTITUTE CONSOLIDATED TARIFF PRICING OVER A THREE-YEAR PERIOD?

A. Yes. I acknowledge that consolidated tariff pricing was authorized by the Virginia General Assembly in 2017 and is enacted in Section 56-235.11 of the Code of Virginia; however, it is my opinion VAWC's proposed implementation is discriminatory and unfair to Alexandria district ratepayers.

The law requires "reasonable and gradual increases." In the case of VAWC's proposed rates, this is far from the case. While VAWC proposes no changes to the monthly fixed service charge for Alexandria residents and ratepayers – for example, the service charge (includes a meter charge and the first 2,000 gallons of water used) remains at $15.00 a month for 5/8" meters and $22.50 per month for 3/4" meters – VAWC does propose significant increases to Alexandria residents and ratepayers volumetric rates. For example, in Year 1 the current volumetric rate of $0.19644 per hundred gallons will increase to $0.45247 per hundred gallons, representing a 130% increase. Moreover, in Year 2, the proposed volumetric rate for Alexandria residents and ratepayers will increase to $0.58287 per hundred gallons, and in Year 3 to $0.71288 per hundred gallons. As such, over a three-year period, Alexandria residents and ratepayers would be asked to bear a $0.51644 per hundred gallons increase in the volumetric rate – or nearly a 263% increase – from the current rate. As City of Alexandria witness Kreps notes in his testimony, an "average" Alexandria resident and ratepayer – for purposes of "average", a 5/8"-inch residential customer using about 4,500 gallons serves as a reasonable proxy – will see a 34% increase in their monthly bill in Year 1, an additional

12% increase in Year 2, and an additional 11% increase in Year 3. The total change in a monthly bill will be about 67% over a three-year period for this "average" residential customer. For a 3/4" residential customer with similar use would experience a 49% total change in monthly billing over the three-year period. I believe this hardly reflects what one can consider is "reasonable and gradual". While these examples reflect Alexandria residential customers, similar increases exist for Alexandria's commercial customers.

In the process of implementing a consolidated rate tariff, Alexandria customers are now being asked arguably subsidize VAWC's other districts while at the same time bear substantial increases in costs. In so doing, I reiterate VAWC's proposed implementation of a consolidated rate tariff in this rate application is discriminatory and unfair to Alexandria district ratepayers. As implementation of consolidated rate tariffs are permitted by law, I recommend VAWC's application be amended to phase in consolidated rate tariffs over a longer period of time to allow for more reasonable and gradual increases to Alexandria customers.

Q. IF VAWC'S PROPOSED RATES ARE APPROVED, WHAT IMPACT WILL THIS HAVE ON RATEPAYERS IN THE CITY?

A. If VAWC's proposed rates are approved, impact to Alexandria ratepayers will be substantial. As previously stated, monthly billing stands to increase substantially as a function primarily of the consolidation of rate tariffs. Notwithstanding, the continuation of VAWC's WWISC pilot will result in a massive rate increase to Alexandria residents. The City of Alexandria has significant concern that such massive rate

increase will result in rate shock to its residents, including those who are most financially vulnerable, including the City's low- and fixed-income residents where utility costs can often represent a significant portion of a resident's monthly expenditures. Moreover, the City of Alexandria has concern that such massive rate increases will make Alexandria less competitive for development in an ultra-competitive Metropolitan Washington DC real estate market where all costs are hyper-scrutinized when considering where to locate, and less desirable for those considering to relocate to Alexandria to live and work.

II. PURCHASE OF CITY'S FIRE HYDRANTS

Q. HAVE YOU REVIEWED THE DIRECT TESTIMONY OF MOSES A. THOMPSON SR. OF VIRGINIA-AMERICAN WATER COMPANY (VAWC) FILED IN THIS PROCEEDING?

A. Yes.

Q. DO YOU HAVE AN OPINION ON VAWC'S PROPOSAL TO INCLUDE A PROSPECTIVE PURCHASE OF THE CITY'S FIRE HYDRANTS IN ITS PROPOSED RATE BASE?

A. It is my understanding the proposal to include the prospective purchase of the City of Alexandria's fire hydrants has been removed from consideration in this rate case. On behalf of the City of Alexandria, I agree with removing the prospective purchase of the City's hydrants from the rate case. The proposed prospective purchase of the City's hydrants was premature. Sale of such City property must go through appropriate City

processes – including appropriate valuation, public comment, and City Council determination – before any such property transfer may occur. If the City chooses to convey its hydrants to the Virginia American Water Company, it will do so at a later date after conducting appropriate City processes.

III. PREMATURE CONCLUSION OF WATER AND WASTEWATER INFRASTRUCTURE SERVICE CHARGE PILOT PROGRAM

Q. HAVE YOU REVIEWED THE DIRECT TESTIMONIES OF KRISTINA E. MCGEE AND GARY L. AKMENTINS THAT VAWC FILED IN THIS PROCEEDING?

A. Yes.

Q. ARE YOU FAMILIAR WITH VAWC'S PILOT WATER AND WASTEWATER INFRASTRUCTURE SERVICE CHARGE (WWISC)?

A. Yes.

A. Summary of City's Longstanding Concerns about the WWISC

Q. DO YOU RECALL WHEN VAWC PROPOSED THE WWISC IN ITS 2014 RULEMAKING PETITION (CASE NO. PUE-2014-00066)?

A. Yes.

Q. DID YOU PROVIDE TESTIMONY ON BEHALF OF THE CITY IN THAT CASE?

A. Yes. I provided testimony on behalf of the City of Alexandria to oppose the proposed – at the time – Water and Wastewater Infrastructure Service Charge (WWISC), including the City's concerns about the WWISC's implementation and to address the impact on Alexandria ratepayers.

Q. PLEASE BRIEFLY SUMMARIZE THE CITY'S CONCERNS ABOUT THE WWISC IN THAT CASE.

A. In that case, a summary of the City's concerns regarding the WWISC included:

(1) Proposal would allow VAWC to consider enhancements to capacity to accommodate future system growth requirements which would include the potential for connection of new customers and opportunity for generation of additional revenue;

(2) Investments would likely have countervailing operating cost reductions where such cost reductions can have similar effects as additional revenue despite not adding new customers to the system;

(3) Proposal did not limit the maximum annual increase to customer bills;

(4) Proposal did not limit the maximum investment amount as a percentage of total system revenue;

(5) Provided a limited ability for public's right to participate in an open and public process through a base-rate case to sufficiently evaluate and scrutinize the costs and benefits of VAWC's infrastructure replacements;

(6) Eliminates the incentive for VAWC to control costs between rate case;

(7) Reduces rate stability from more frequent rate cases;

(8) Rewards VAWC for falling behind in infrastructure investment;

(9) Shifts business risks from VAWC to ratepayers.

Moreover, the City had concerns with VAWC's suggestion that ratepayers may enjoy lower costs from reduced base-rate cases as a merit of the WWISC. VAWC provided no evidence that frequency of base rate cases would decrease if WWISC were approved.

Q. WAS VAWC'S WWISC REQUEST APPROVED IN THAT CASE?

A. No.

Q. DO YOU RECALL VAWC'S 2015 RATE CASE (CASE NO. PUE-2015-00097)?

A. Yes.

Q. DID VAWC PROPOSE A WWISC IN THAT CASE?

A. Yes.

Q. DID YOU PROVIDE TESTIMONY ON BEHALF OF THE CITY IN THAT CASE AS WELL?

A. Yes. I testified on behalf of the City of Alexandria on a number of issues, including the proposed – at that time – Water and Wastewater Infrastructure Service Charge (WWISC).

Q. PLEASE BRIEFLY SUMMARIZE THE CITY'S CONCERNS IN THAT CASE RELATING TO THE WWISC.

A. Immediately after the Commission's ruling in PUE-2014-00066 on September 5, 2015 the Company filed an application for PUE-2015-00097 on October 30, 2015 which included a proposed WWISC. During that interim period, no material facts had changed. The City's concerns were the same as previously stated for case PUE-2014-00066.

Q. WAS VAWC'S WWISC REQUEST APPROVED IN THAT CASE?

A. Yes, over the City's objections. In that case, the Commission approved a limited, "three-year pilot WWISC" for the Alexandria district subject to a number of "safeguards and limitations" (Final Order 6). As such, VAWC was permitted to file an application for a WWISC rider no sooner than June 1, 2017.

Q. WERE THE "SAFEGUARDS AND LIMITATIONS" IMPOSED BY THE COMMISSION ADEQUATE TO ADDRESS THE CITY'S CONCERNS ABOUT THE WWISC?

A. No. While the City appreciates the various "safeguards and limitations" imposed by the Commission including, but not limited to, approval of WWISC rider expenditures, a 7.5% cap on adjustments, the WWISC plan should be subject to docketed proceedings, and limited to main and main-related infrastructure. That said, the various "safeguards and limitations" did not fully address the City's previously-stated concerns regarding the WWISC's implementation; especially any of the City's concerns regarding any misuse counter to the public's interest.

Q. DO YOU RECALL VAWC'S APPLICATION FOR A WWISC RIDER IN 2017 (PUR-2017-00149)?

A. Yes.

Q. DID YOU PROVIDE TESTIMONY ON BEHALF OF THE CITY IN THAT CASE OPPOSING THE WWISC APPLICATION?

A. Yes.

Q. PLEASE BRIEFLY SUMMARIZE THE CITY'S CONCERNS ABOUT THE WWISC IN THAT CASE.

A. The City's concerns included:

(1) Several of the WWISC Plan's proposed projects did not appear to meet eligibility criteria for the Commission's definition of eligible infrastructure investment or meet the goals VAWC outlined in their application.

(2) Nearly all – 23 of the 32 projects - included some form of increase in size and did not necessarily appear to be in-kind replacements. There was significant concern the Company was proposing betterments especially since the WWISC projects were primarily directed in high-growth areas of Alexandria. As such, the City questioned whether these projects supported improvements likely to be used to increase the number of customers and revenue.

(3) VAWC did not consult with the City on which specific projects would be funded by WWISC rider.

Q. WAS VAWC'S PROPOSED WWISC APPROVED IN THAT CASE?

A. Yes. The Commission approved a WWISC pilot with various modifications proposed by Commission staff.

Q. WHEN DID THE FIRST WWISC RIDER RATE YEAR BEGIN?

A. My understanding is the first WWISC rider rate year began on March 1, 2018.

Q. WHAT WAS THE END DATE FOR THE FIRST WWISC RIDER?

A. My understanding is the end date for the first WWISC rider was February 28, 2019.

Q. WHEN WAS THE FIRST WWISC RIDER RECONCILIATION FACTOR TO BE FILED?

A. My understanding is the first WWISC rider reconciliation factor is to be filed on, or about, October 31, 2019.

Q. WHEN WAS THE APPROVED WWISC PILOT PLAN SCHEDULED TO END?

A. The approved WWISC pilot is to conclude on February 28, 2021.

Q. HAS THE WWISC PILOT BEEN COMPLETED?

A. No. As of the filing of this case, the first WWISC rider and its reconciliation has not completed. In fact, there are still two years remaining in the Company's authorized WWISC pilot.

B. City's Concerns about Early Termination of Limited WWISC Pilot

Q. WHAT IS YOUR OPINION OF THE COMMISSION'S DECISION IN VAWC'S 2015 RATE CASE TO LIMIT THE WWISC TO THE ALEXANDRIA DISTRICT FOR A THREE-YEAR PILOT PERIOD?

A. On behalf of the City of Alexandria, I generally disagree with the Commission's decision. However, the introduction of safeguards and limitations were very important for two reasons. First, the WWISC's short pilot implementation period gives the City of Alexandria, the public, and the Commission the opportunity review implementation of the WWISC to ensure it is in the public interest. This includes, but is not limited to, making sure the WWISC program is not being misused, is not being used to add new customers or generate revenue, does not lead to undue returns, does not lead to "gold plating" of investments, and does not reward VAWC for falling behind in infrastructure investment. Upon approval as a pilot, the City of Alexandria reasonably believed that the WWISC pilot program would be followed by a thorough review of the program's costs and benefits, and whether the WWISC program is in the public's interest.

Second, limiting the WWISC pilot program to the Alexandria district limits the scope of potential adverse impacts to ratepayers from all VAWC's districts if the WWISC program is not functioning as intended.

Q. DO YOU AGREE WITH MS. MCGEE'S TESTIMONY THAT THE WWISC PILOT PROGRAM FOR THE ALEXANDRIA DISTRICT HAS ACHIEVED ITS GOALS?

A. No. I do not agree with Ms. McGee's testimony that the WWISC pilot program for the Alexandria district has achieved its goals. Asserting the WWISC pilot program has

achieved its goals after being in effect for only about one year is premature. First, the WWISC rider has yet to even reach its first reconciliation period. Second, while Ms. McGee discusses the increased infrastructure replacement rate – which is positive – her testimony fails to comprehensively discuss whether the WWISC pilot program has fulfilled its objectives; especially those objectives that reflect protecting the public's interest. The "WWISC Report" (KEM-1) attached to Ms. McGee's testimony is arguably self-serving and sheds no light on whether the WWISC pilot program protects ratepayers or the public's interest. The City of Alexandria, the public, and the Commission deserve the opportunity to conduct a full and fair evaluation of the WWISC pilot program's implementation, including whether costs and benefits are in the public interest, before determining the WWISC program to continue as is, undergo modification, or allow for termination.

Q. SINCE THE WWISC PILOT PROGRAM TOOK EFFECT ON MARCH 1, 2018, HAVE THE CITY'S CONCERNS ABOUT THE WWISC HAVING A NEGATIVE IMPACT ON RATEPAYERS BEEN ALLEVIATED?

A. No. I reiterate the City of Alexandria's previously-stated concerns from previous cases on the potential for negative impact on ratepayers. It is my opinion that the City of Alexandria's concerns still remain unresolved and nothing in this Application provides assurances that the City's concerns are misplaced or inappropriate. Moreover, the WWISC pilot program has not fully concluded its three-year pilot status such that the Commission, the public, or the City of Alexandria have been given due opportunity to conduct a full and fair evaluation of the WWISC pilot program's implementation,

including whether costs and benefits are in the public interest, or whether the program has been fulfilled its objectives.

Q. WHAT IS YOUR OPINION OF VAWC'S REQUEST TO EXPAND THE WWISC TO OTHER DISTRICTS?

A. I believe VAWC's request to expand the WWISC to other districts is premature and imprudent. As previously stated, there are many outstanding concerns that have yet to be resolved. Should the WWISC program be expanded to VAWC's other districts, this only amplifies potentially negative impacts to ratepayers. Until such time the WWISC pilot program undergoes a full and fair evaluation of its implementation at the conclusion of the three-year pilot period in the Alexandria district should the Commission consider expanding the WWISC program.

Q. WHAT IS YOUR OPINION OF VAWC'S REQUEST TO END THE PILOT DESIGNATION OF THE WWISC?

A. The Commission authorized the implementation of a three-year pilot implementation of the WWISC program. As such, the pilot should be allowed to fully conclude and undergo full evaluation of its costs and benefits in accordance with the public and ratepayer interest before determination to continue as is, undergo modification, or allow for termination.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

BEFORE THE STATE CORPORATION COMMISSION

CASE NO. PUR-2018-00175

DIRECT TESTIMONY

OF

J. BARTHOLOMEW KREPS

ON BEHALF OF

THE CITY OF ALEXANDRIA

MAY 28, 2019

Summary of Direct Testimony

My direct testimony is organized into four sections including:

1. **Cost of Capital** – I recommend that a fair and reasonable return on equity ("ROE") for the Virginia American Water Company ("VAWC") for this rate proceeding be in the range of 9.07 % - 9.33%. This recommendation is based on the results of both a Discounted Cash Flow ("DCF") analysis and a Capital Asset Pricing Model ("CAPM") analysis. My testimony responds to VAWC witness Ms. Bulkley's direct testimony including her recommended ROE of 10.80%. The differences in my calculated ROE range compared to Ms. Bulkley's relate predominantly to her deemphasizing the use of her DCF analysis, use of projected interest rates in her CAPM analysis, and use of an exceptionally high market rate of return in her CAPM analysis.

2. **Unfair and Inequitable Pace of Rate Consolidation** – The proposed rate impacts on City of Alexandria customers do not meet the standard of gradualism generally recognized in the industry and which has been codified in Virginia State law. On average, City of Alexandria residential customers will experience a cumulative increase in water rates of more than 60% over a three-year period. Individual customer impacts will vary based on the level of consumption, with certain customers seeing their water bill more than double over the next three years. In all cases residential customers will experience annual increases which are significantly higher than national trends, such as those identified in the American Water Works Association (AWWA)/Raftelis Financial Consultants, Inc. rate survey, which details average annual increases in rates of approximately 5.0% over the past 20 years.

3. **Cost of Service Analysis** – Elements of VAWC's cost of service analysis as described in the direct testimony of Mr. Rea deviate both from past VAWC practices and industry standards, and – in doing so – unfairly allocates a greater portion of costs to residential and commercial customers. This shift in costs disproportionately affects the City of Alexandria due to its higher composition of residential and commercial customers as compared to other Districts. The three primary issues in the cost of service analysis include:

    a. Mr. Rea allocates no costs associated with distribution mains below 10 inches to the industrial class.
    b. Mr. Rea calculates customer class peaking factors but employs alternative factors in the cost of service analysis.
    c. Weekly adjustments are made to peaking factors without any supporting analysis.

4. **Water and Wastewater Infrastructure Surcharge PILOT Program** –VAWC has requested to make the Water and Wastewater Infrastructure Surcharge ("WWISC") permanent and extend its application to all Districts. While the general concept of accelerated infrastructure investment has merit, the City of Alexandria has expressed concerns such as the advanced recovery of costs outside of the general rate case process and the subjective nature of which mains would be selected for replacement. These concerns are valid, and it would be premature to end the PILOT without enough time evaluate its benefits and determine if it should be terminated, continued, or continued with modifications.

Direct Testimony of J. Bartholomew Kreps

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

A. My name is Jason Bartholomew Kreps and my business address is 227 W. Trade Street (Suite 1400), Charlotte, NC 28202.

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

A. I am a Vice President with Raftelis Financial Consultants, Inc., a firm specializing in the provision of financial and management consulting services to the water and wastewater utility industry.

Q. HOW LONG HAVE YOU HELD THIS POSITION?

A. I have been with Raftelis since 2002.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND WORK EXPERIENCE.

A. My background and work experience are focused predominantly on public finance. Since 2002, I have worked with many water, wastewater, and stormwater utilities across the country in addressing economic and financial issues. Key areas of focus include: utility rate, cost of service, and financial planning studies; capital financing plan development; bond forecast and feasibility studies; economic impact assessments; and system development fee studies. I am the current lead of the Virginia Chapter of the American Water Works Association ("AWWA") and Virginia Chapter of the Water Environment Association ("WEA") Utility Management subcommittee on financial

management. I have a BBA in Finance from James Madison University and a MBA in Finance and Environmental Management from the University of Tennessee. I hold a Series 50 certification as a Municipal Advisor Representative with the Municipal Securities Rulemaking Board and the Securities and Exchange Commission. A detailed resume is provided in Exhibit JBK1.

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

A. I have been retained as an expert witness by the City of Alexandria, Virginia to analyze the testimony and workpapers provided by the Virginia American Water Company ("VAWC") in this proceeding. My testimony addresses the return on equity ("ROE"), pace of rate consolidation, cost of service analysis, and water and wastewater infrastructure surcharge elements of the rate filing.

Q. DO YOU SPONSOR ANY EXHIBITS?

A. Yes. I am sponsoring Exhibits JBK1 through JBK4.

I. COST OF CAPITAL

Q. HAVE YOU REVIEWED THE DIRECT TESTIMONY OF ANN E. BULKLEY, GREGORY P. ROACH, AND CHARLES B. REA OF VIRGINIA-AMERICAN WATER COMPANY (VAWC) FILED IN THIS PROCEEDING?

A. Yes.

Q. HAVE REVIEWED SCHEDULES AEB-1 THROUGH AEB-10, SCHEDULES 40 – 43, EXIBITS CBR1 THROUGH CBR-3, AND EXHIBITS GPR-1 THROUGH GPR-5?

A. Yes.

Q. DO YOU AGREE WITH MS. BULKLEY'S TESTIMONY THAT UTILITIES AND THEIR INVESTORS ARE ENTITLED TO A "FAIR AND REASONABLE RETURN"?

A. Yes, I agree with Ms. Bulkley's testimony that utilities and their investors are entitled to a fair and reasonable return, which is supported by the United States Supreme Court's *Hope* and *Bluefield* decisions. However, rates also must be fair and reasonable to the ratepayers. Water utilities are monopolistic entities with no substitute for their product. This lack of competition and limited business risk is relevant and should be considered heavily by the Commission when determining a fair and reasonable return for VAWC since overall risk in the water sector is low.

Q. MS. BULKLEY TESTIFIED THAT VAWC'S PROPOSED 10.8% RETURN ON COMMON EQUITY (ROE) IS FAIR AND REASONABLE. DO YOU AGREE?

A. No, I do not agree that VAWC's proposed 10.8% ROE is fair and reasonable. First, Ms. Bulkley's recommended ROE relies primarily on the results of a forward-looking CAPM analysis and the projected ROEs for the water utilities identified in her proxy group. While I agree an estimate of a reasonable ROE may consider forward-looking factors, certain assumptions associated with future market conditions, particularly the level of anticipated interest rates, should, at a minimum, be updated and reflective of the current environment. Updating her inputs to reflect current market conditions yields a lower ROE range than what she is proposing. Second, Ms. Bulkley's estimated market return used in her CAPM analysis of 15.25% is unrealistic and significantly

higher than what the S&P 500 has returned historically based on any acceptable measure. Third, Ms. Bulkley does not fully consider various risk-mitigating programs such as the use of a future test-year and the Water and Wastewater Infrastructure Surcharge ("WWISC"), which, along with other business structural characteristics, support using—at most—the mid-range of her ROE analysis, rather than the high end as she has proposed.

A. Effect of Stable Interest Rate Environment on VAWC's Proposed ROE

Q. HOW DO ANTICIPATED CHANGES IN INTEREST RATES AFFECT THE DETERMINATION OF A FAIR AND REASONABLE ROE FOR REGULATED UTILITIES?

A. Changes in interest rates affect both the cost of debt and equity capital. In general, rising interest rates increase the cost of capital and typically yield higher ROE's while falling interest rates decrease the cost of capital and typically result in lower ROE's. In her testimony Ms. Bulkley anticipates that interest rates will increase, leading her to propose a higher ROE to reflect her expected changes in market conditions and investor expectations. If, in contrast to Ms. Bulkley's expectations, interest rates were to remain stable or decrease, ROEs could remain the same or even decrease.

Q. MS. BULKLEY'S TESTIMONY CITED PROJECTIONS THAT THE FEDERAL FUNDS RATE, 10-YEAR TREASURY RATE, 30-YEAR TREASURY RATE, AND UTILITY BOND RATES WERE EXPECTED TO INCREASE THROUGH 2018 AND 2019. WHAT HAS HAPPENED TO THESE

RATES SINCE THE DATE OF MS. BULKLEY'S TESTIMONY (NOVEMBER 2, 2018)?

A. The federal funds rate increased by 25 basis points on December 19, 2018. No additional increases have occurred since that date. The current target range for the federal funds rate is 2.25% - 2.50%.

The 10-year U.S. Treasury Bond yield, 30-year U.S. Treasury Bond Yield, and utility bond interest rates (based on treasury.gov and S&P Municipal Bond Index) have decreased since November 2, 2018. Specifically, as of May 9, the yield on the 10-year U.S. Treasury Bond decreased by 77 basis points from 3.22% to 2.45%; the yield on the 30-year U.S. Treasury Bond decreased by 59 basis points from 3.46% to 2.87%; and the S&P Municipal Bond Index, which is a broad, market value-weighted index measuring performance of the U.S. municipal bond market, decreased by 50 basis points from 3.52% - 3.02%. It should be noted tax-exempt utility bonds were used as a general proxy to assess the directional change in utility bond rates due to limited information on the taxable utility sector. Figures 1 through 3 present changes in the 10-year U.S. Treasury Bond, 30-year U.S. Treasury Bond, and S&P Municipal Bond Index, respectively, since October 1, 2018.

Figure 1 – 10-Year Treasury Yield

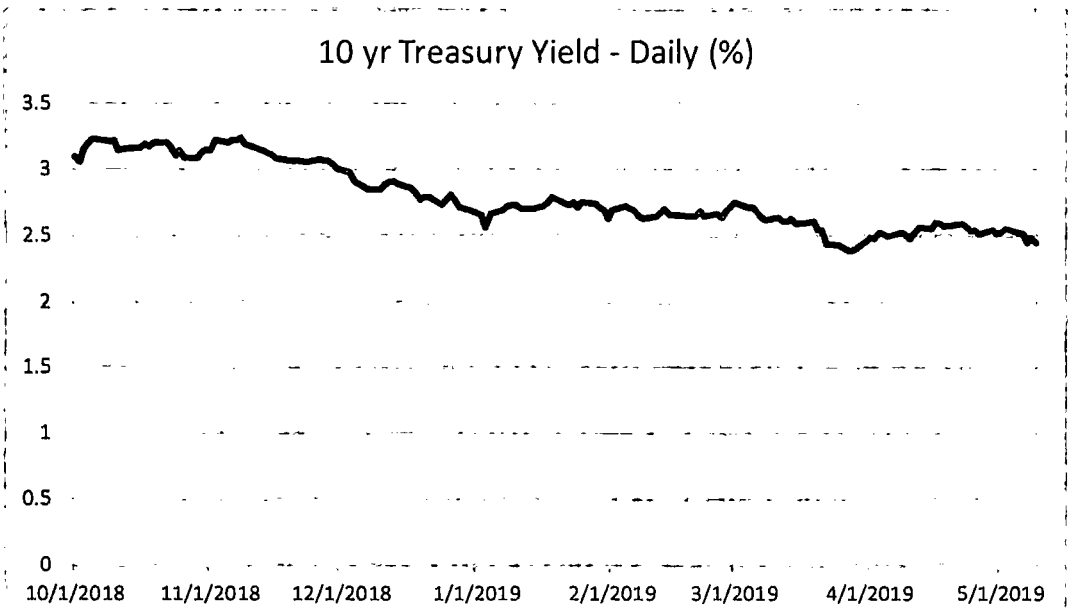


Figure 2 – 30-Year Treasury Yield

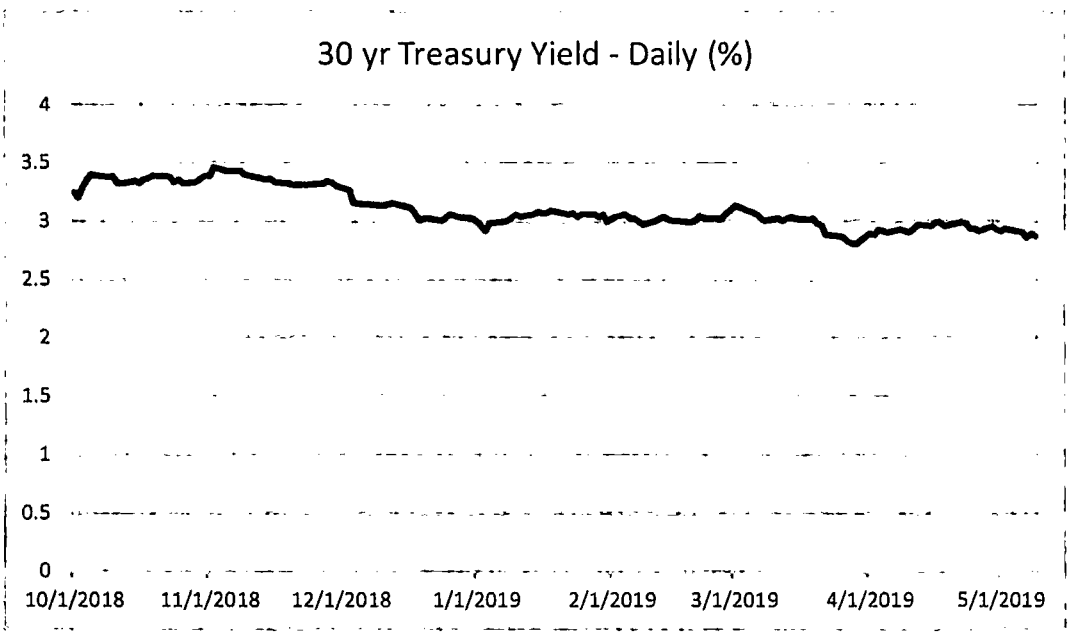
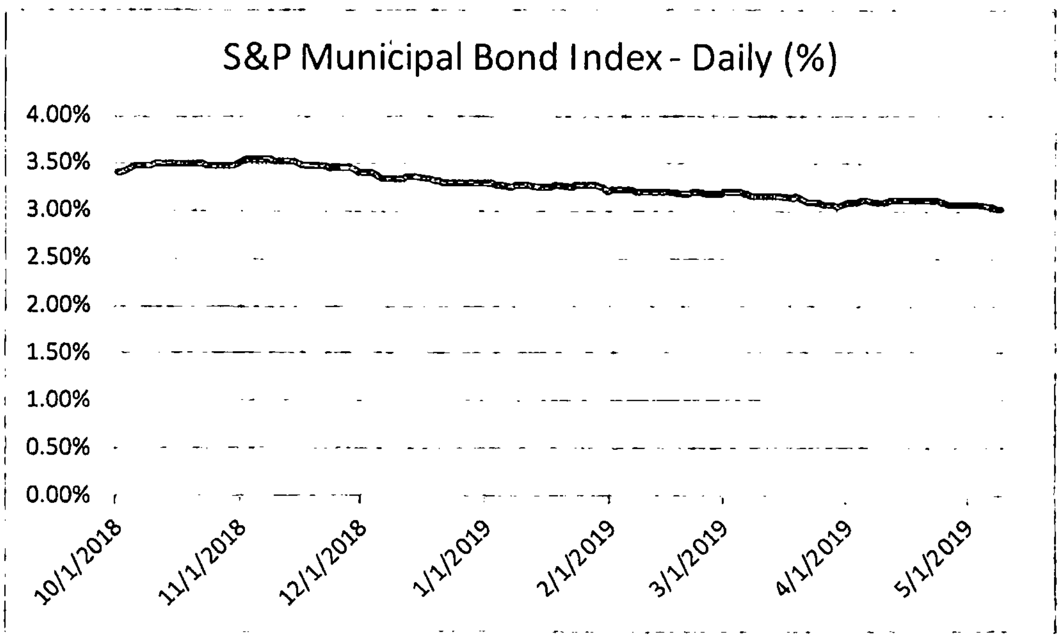


Figure 3 – Municipal Bond Yield



Q. PLEASE SUMMARIZE CURRENT PROJECTIONS OF THESE KEY RATES OVER THE COMING YEAR.

A. The Federal Reserve has taken a patient approach to changes in monetary policy. More challenging global market conditions, trade policy issues with China, and muted inflation pressures, in particular, have reduced the likelihood of future increases in the federal funds rate in the near term. In its most recent press release on the issue dated May 1, 2019 the Fed stated:

> Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. In support of these goals, the Committee decided to maintain the target range for the federal funds rate at 2-1/4 to 2-1/2 percent. The Committee continues to view sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's systematic 2 percent objective as the most likely outcomes. In light of global economic and financial developments and muted inflation pressures, the Committee will be patient as it

> determines what future adjustments to the target range for the federal funds rate may be appropriate to support these outcomes.[1]

Recent data provided from the Federal Reserve Bank of St. Louis shows a projected federal funds rate of 2.9% in both 2020 and 2021. Median inflation projections provided in the Federal Reserve Open Market Committee (FOMC) minutes from its meeting in March of 2019 are 1.8% in 2019; 2.0% in 2020; and 2.0% in 2021.

There is a growing consensus in the market that the Federal Reserve is unlikely to change the federal funds rate in 2019. Kiplinger's latest forecast on interest rates states:

> The Federal Reserve will not hike interest rates in 2019. Committee members are acknowledging that the global economic slowdown has created enough uncertainty that the Fed should stand pat.[2]

The federal funds rate is the interest rate that banks and other depository institutions charge each other for overnight lending. Although the federal funds rate does not directly change yields on longer-term securities, since market forces also play a role, numerous investment banks have cut their forecast for 10-year U.S. Treasury Bond yields based on concerns of more constrained economic growth. A recent note from Bloomberg on April 1, 2019 stated:

> Wall street banks are cutting their forecast for Treasury yields and shelving calls for the Federal Reserve to hike interest rates this year amid signs of slowing economic growth. Goldman Sachs Group, Inc. and JP Morgan & Company still forecast yields rising over this year, but less than expected – to 2.85% and 2.75%,

[1] Federal Reserve Open Market Committee, press release (May 1, 2019), https://www.federalreserve.gov/newsevents/pressreleases/monetary20190501a.htm.
[2] David Payne, Kiplinger, Yield Curve Inversion Won't Cause Recession (April 5, 2019).

respectively, from 2.44% now. Morgan Stanley now sees 10-year Treasury yields ending 2019 at 2.25%, down from 2.35% previously.[3]

Q. BASED ON THAT INFORMATION, DO YOU AGREE WITH MS. BULKLEY'S CONCLUSION THAT "RISING INTEREST RATES SUPPORT SELECTION OF A RETURN TOWARD THE UPPER END OF A REASONABLE RANGE OF ROE ESTIMATES"?

A. No, I do not. Ms. Bulkley's expectation of rising interest rates has not materialized and does not support the selection of a ROE at the upper end of her range. A focal point of her testimony suggests that rising interest rates will create competition for utility stock investments as income-oriented investors seek alternatives at comparable yields with lower risk. This will depress utility stock valuations and subsequently increase dividend yields, suggesting that ROE calculations using historical market data in the DCF model are understated. However, interest rates are considerably lower than when Ms. Bulkley's testimony was submitted, and there is a consensus that interest rates will remain low for the foreseeable future. Thus, the premise of a shift in investor preference to U.S. Treasury securities from utility bonds may be overstated, as investors will continue to seek additional yield in the relatively low-risk utility sector.

[3] John Ainger and Chris Anstey, Goldman Joins Wall Street Wave of Lower Treasury Yield Calls (March 31, 2019).

B. Review of VAWC's Calculated Range of Estimated Cost of Equity

Q. ARE YOU FAMILIAR WITH THE CONSTANT GROWTH DISCOUNTED CASH FLOW (DCF) MODEL?

A. Yes. The constant growth DCF Model assumes the value of an asset is based on the present value of its future cash flows in perpetuity. The general equation for the DCF model is:

$$P_0 = D_1 / (K - g)$$

Where:

P_0 = the current stock price

$D_1 - D_\infty$ = all expected future dividends;

g = expected growth rate

K = the discount rate or required rate of return

This equation above can be rearranged into a form that assumes a constant growth in dividends to estimate the discount rate or required rate of return. This equation, which is typically referred to as the constant growth DCF, is:

$$K = (D_1 / P_0) + g$$

Q. HOW DOES VAWC'S PROPOSED ROE COMPARE TO THE RESULTS OF MS. BULKLEY'S DCF MODEL CALCULATIONS?

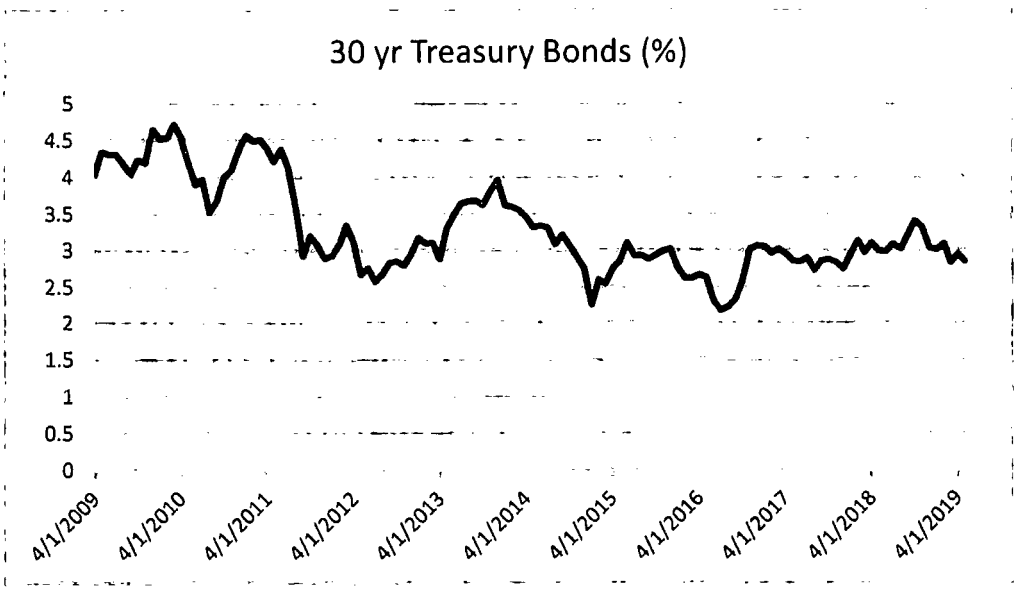
A. Ms. Bulkley's constant growth DCF calculations show a ROE range of 9.03%-11.36% with a mean of 9.35% including American Water Works Company, Inc. (AWK) in the proxy group and a ROE range of 8.69%-10.57% with a mean of 8.99% excluding AWK in the proxy group. DCF calculations using a *projected* constant growth DCF model show a ROE range of 9.53%-11.91% with a mean of 9.90% including AWK in the proxy group and a ROE range of 9.16%-11.11% with a mean of 9.53% excluding AWK in the proxy group. The means of these calculations are lower than the 10.0%-10.8% range that VAWC is proposing.

Q. MS. BULKLEY TESTIFIED THAT THE RESULTS OF HER DCF MODEL CALCULATIONS SHOULD BE VIEWED "WITH CAUTION" BECAUSE UTILITY STOCK VALUES MAY BE UNSUSTAINABLY HIGH. DO YOU AGREE?

A. No, I do not agree. Both models (DCF and CAPM) have limitations which why it is important to calculate ROE using multiple methods. As noted previously, Ms. Bulkley's cautionary note regarding the DCF model calculations is predicated on the expectation of rising interest rates and falling utility stock prices. While this general premise may be true, these expectations have not been borne out. Although interest rates have risen due to the Federal Reserve unwinding extraordinary policy actions taken in response to the financial crisis beginning in 2008, interest rates remain well below historical averages, and they are not expected to increase meaningfully in the foreseeable future. Figure 4 presents the 30-year U.S. Treasury bond yield over the past

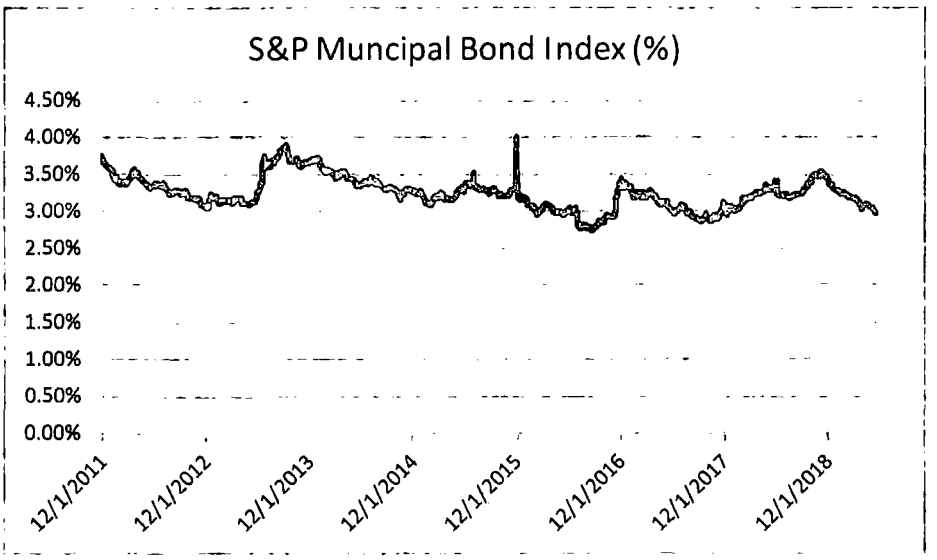
10 years. Utility bond yields have also been correspondingly low. Figure 5 presents the S&P Municipal Bond index historical yields since December of 2011.[4]

Figure 4 – 30-Year U.S Treasury Bond Yields (2009 – 2019)



[4] Data for this index was not available prior to 2011.

Figure 5 – 30-Year Municipal Utility Bond Yields (2011 – 2019)



Thus, the historically low interest rate environment that has persisted over past decade is likely to continue, suggesting that Ms. Bulkley's concerns regarding her constant growth DCF calculation, which cause her to discount this approach for the purposes of determining an appropriate ROE, are invalid.

Q. IS MS. BULKLEY'S APPROACH TO EXCLUDING LOW-END CONSTANT GROWTH DCF RESULTS FOR HER PROXY GROUP REASONABLE?

No. Eliminating the low-end DCF results while including the high-end DCF results appears to be imbalanced and inappropriate. Ms. Bulkley's proxy group includes six water utilities. While I understand there are a limited number of utilities to include in the proxy group, further limiting its already small size skews the results.

Q. DO YOU HAVE CONCERNS WITH MS. BULKLEY'S USE OF A PROJECTED CONSTANT GROWTH DCF MODEL?

Yes. Calculating a ROE based on *projected* stock prices and dividends yields is highly speculative. Investors must purchase utility common stock based on today's prices. Current stock prices are reflective of investor expectations of future earnings and growth. There is no way to precisely predict future stock prices and corresponding dividend yields. Accordingly, using these assumptions in the constant DCF model is not appropriate.

Q. DO YOU BELIEVE MS. BULKLEY'S ANALYSIS GAVE PROPER WEIGHT TO HER DCF MODEL CALCULATION?

A. No. Ms. Bulkley does not give proper weight to her DCF model calculations. While it can be argued the DCF model calculations contain flaws, some of the basic rationale used by Ms. Bulkley to deemphasize the value of its results, such as the expectation of a return to more normalized dividend yields, are not supported based on current market conditions. Additionally, Ms. Bulkley discusses the limitations of the DCF model without acknowledging that the CAPM approach also has limitations. It is appropriate to consider both common approaches (DCF and CAPM) and analyze the results as a basis for estimating a fair and reasonable ROE.

Q. DID YOU DEVELOP A CONSTANT GROWTH DCF CALCULATION?

Yes, I developed a constant growth DCF calculation using Ms. Bulkley's proxy group of utilities (see JBK Exhibit-2).

Q. PLEASE DESCRIBE THE RESULTS OF YOUR ANALYSIS.

Ms. Bulkley's proxy group encompasses six water utilities including VAWC's parent company, AWK. The dividend yields used in my constant growth DCF calculation are based on the proxy companies' current annual dividend and average stock closing prices over the 30, 90, and 180 trading days as of May 10, 2019. Using average stock closing prices normalizes market conditions. Historical stock prices were obtained from Yahoo! Finance. The annualized dividends were the same as what Ms. Bulkley used in her analysis and based on information from Bloomberg Professional. The annual dividend yields were adjusted by one-half of the average annual growth rate to calculate the expected dividend yield, which ensures the expected first year dividend yield accounts for dividend increases occurring over the next 12 months. For growth rates, I used three of the sources that Ms. Bulkley used in the her constant DCF formula. These sources include the Value Line Investment Survey, Zacks, and Yahoo! Finance. ROEs were then calculated for each company and the proxy group collectively based on the low, mean, and high growth rates. The results are presented in Figure 6.

Figure 6 – Constant Growth DCF Results

	Mean Low	Mean	Mean High
	Including AWK		
30-Day Average	7.70%	9.10%	10.70%
90-Day Average	7.69%	9.09%	10.69%
180-Day Average	7.82%	9.22%	10.82%
Mean	7.74%	9.14%	10.74%
	Excluding AWK		
30-Day Average	7.27%	8.84%	10.58%
90-Day Average	7.25%	8.83%	10.56%
180-Day Average	7.37%	8.94%	10.68%
Mean	7.30%	8.87%	10.61%

For the water proxy group including AWK the ROE results range from 7.74% to 10.74% with a mean of 9.14%. For the water proxy group excluding AWK the ROE results range from 7.30% to 10.61% with a mean of 8.87%.

Q. ARE YOU FAMILIAR WITH THE CAPITAL ASSET PRICING MODEL (CAPM)?

A. Yes. The CAPM is a widely used method to calculate the cost of equity. CAPM is based on the relationship between risk and expected return for a company's assets. Its theory relies on the premise that an individual investment contains both systematic and unsystematic risk. Systematic risks are market risks that cannot be eliminated through a diversified portfolio. Examples of systematic risks include interest rates, inflation, business cycles, and war. Unsystematic risks are risks specific to individual companies that are not correlated with general market fluctuations. Unsystematic risks can be

eliminated through portfolio diversification, leaving and investor with only systematic, or market risk.

Q. WHAT ARE THE PRIMARY VARIABLES IN THE CAPM?

A. The primary variables in the CAPM are the Risk-free rate, Beta, and the Market risk premium. The Risk-free rate should represent a theoretically riskless investment. U.S. Treasury Notes or Bonds are typically used to represent the Risk-free rate, as the likelihood of default by the United States government is extremely low. Beta is a measure of a stock's fluctuation in relation the general movement the broader market. For example, a stock with a Beta of 1.0 perfectly correlates with market moves. A stock with a Beta less than 1.0 will rise or fall less than the market while a stock with a Beta greater than 1.0 will rise or fall more than the market. The Beta is multiplied by the projected return for the overall market less the Risk-free rate, which represents the Market risk premium. The Market risk premium is effectively the additional compensation an investor demands for the extra risk they incur for a specific investment above and beyond a theoretically riskless investment (e.g., US Treasury Bonds).

The equation for estimated the ROE based on the CAPM is:

$$K = R_f + \beta\,(R_m - R_f)$$

Where:

R_f = Risk Free Rate of Return

B = Beta, or the stock's market risk… how sensitive it is to fluctuations in the market

R_m = Market Equity Return

$(R_m - R_f)$ = Expected Market Equity Risk Premium

Q. ARE THE DATA MS. BULKLEY USED TO DERIVE THE CURRENT AND PROJECTED RISK-FREE RETURN RATES STALE?

A. Yes, the data used in her analysis should be updated. Ms. Bulkley uses the 30-year U.S. Treasury Bond as her Risk-free rate as of August 31, 2018. At that point the 30-year U.S. Treasury Bond yield was 3.05%. As of May 9, 2019, the 30-year U.S. Treasury Bond is currently yielding 2.87%. Ms. Bulkley also assumed two forward looking Risk-free rates in her CAPM calculations including the *projected* 30-year U.S. Treasury Bond yield for 2018 through 2019 and the *projected* 30-year U.S. Treasury Bond yield for 2020 through 2024. In each case these projections assume increasing yields. Interest rates have declined since Ms. Bulkley submitted her testimony, and the general expectation is that rates will remain stable. Ultimately, no one precisely knows the direction of interest rates, so it is not prudent to include speculative assumptions on their directional change in a CAPM analysis. Thus, a fair and reasonable ROE should be based on current, not forecasted rates. Additionally, if the Beta coefficients were updated (using the most recent Value Line report from April 12, 2019), they would now be 0.70 (with AWK in the proxy group) and 0.72 (excluding AWK). Figure 7 presents the updated Betas for the proxy group.

Figure 7 - Proxy Group Betas

PROXY COMPANY
BETAS

		[1] Value Line
American States Water Co	AWR	0.70
American Water	AWK	0.60
Aqua America, Inc.	WTR	0.70
California Water Service Group	CWT	0.70
Middlesex Water Company	MSEX	0.75
York Water Company	YORW	0.75
	Mean	0.700
	Mean excl AWK	0.720

Notes:
[1] Source: Value Line Reports; dated April 12, 2019

These changes would result in a lower ROE than what Ms. Bulkley has calculated. Specifically, updating Ms. Bulkley's CAPM calculation using current yields on the 30-year U.S. Treasury Bond, Betas for the proxy group provided by Value Line's most recent report dated April 12, 2019, and her market rate of return (15.25%), results in a ROE of 11.46% including AWK and 11.80% excluding AWK.

Q. DO YOU AGREE WITH THE MS. BULKLEY'S ESTIMATE OF THE MARKET RISK PREMIUM?

A. No, the Risk-free rate used by Ms. Bulkley is lower (as discussed above) and her average return of the market of 15.25% is exceedingly higher than any measurement of historical returns on the S&P 500. For example, based on data from Yahoo! Finance the average return on S&P 500 from 1926 through 2018 is 11.95% (arithmetic mean) and 10.02% (geometric mean). The geometric mean represents the compound annual

growth rate while the arithmetic mean is the simple average. The projected market return used in Ms. Bulkley's analysis is unrealistically high and should not be used to estimate the cost of equity.

Q. BASED ON CONCLUSIONS ABOUT THE RISK-FREE RETURN RATE AND MARKET RISK PREMIUM FACTORED INTO MS. BULKLEY'S CAPM ANALYSIS, WHAT IS YOUR OPINION OF THE RESULTS OF HER ANALYSIS?

A. Her results overstate the ROE. Figure 8 presents my revised ROE calculations based on both the arithmetic and geometric historical returns for the S&P 500 as a proxy for the projected market return. Full calculations are provided in JBK Exhibit – 3.

Figure 8- Revised CAPM Results

	Including AWK	Excluding AWK
Market Return		
Historical S&P 500 (Arithmetic)	9.24%	9.42%
Historical S&P 500 (Geometric)	7.89%	8.03%

C. Analysis of VAWC's Business Risk Profile

Q. MS. BULKLEY TESTIFIED THAT BUSINESS RISKS ARE IMPORTANT FACTORS USEFUL TO DETERMINE WHERE THE APPROPRIATE ROE FALLS WITHIN THE RANGE OF RESULTS PRODUCED BY THE DCF AND CAPM ANALYSES. DO YOU AGREE?

A. Yes, business risk is an important factor when calculating what a fair and appropriate ROE should be.

Q. MS. BULKLEY TESTIFIED THAT THE VAWC IS EXPOSED TO A NUMBER OF BUSINESS RISKS THAT JUSTIFY A HIGHER ROE THAN THE PROXY GROUP OF WATER UTILITIES DISCUSSED IN MS. BULKLEY'S TESTIMONY. DO YOU AGREE?

A. No. VAWC has a relatively low risk profile overall and comparable risk in relation to the proxy group. Ms. Bulkley's testimony largely relies on VAWC's higher levels of projected capital spending as justification for using the higher end of her ROE range. However, VAWC uses multiple risk mitigating mechanisms including (1) the Water and Wastewater Infrastructure Surcharge ("WWISC"), (2) fixed charge revenue recovery, (3) estimate for declining water consumption, (4) changing capital structure and (5) use of a future test year that counter-balance the risk of higher capital spending.

Additionally, VAWC and others in the proxy group are regulated monopolies with no substitute for their product. This lack of competition and limited business risk is relevant and serves as a point of differentiation with other types of regulated utilities,

such as those in the energy sector. This fact, alone, should be considered heavily by the Commission when determining a fair and reasonable return for VAWC since overall risk in the water sector is low.

Q. HOW DOES THE WWISC AFFECT VAWC'S RISK PROFILE?

A. The WWISC was put in place in March of 2018 as a PILOT program in the City of Alexandria water distribution system to aid in the acceleration of infrastructure renewal. The WWSIC is a separate infrastructure surcharge, or rate rider, allowing VAWC to accelerate the recovery of costs associated with distribution infrastructure repair and replacement before projects are completed, booked, and included within rate base. As noted in Ms. Bulkley's testimony (see Bulkley p. 47) the WWISC will partially offset costs associated with VAWC's projected capital expenditures, which serves to mitigate some of the business risk of VAWC's capital improvement program. Excluding AWK, 41% of the proxy companies do not have a similar infrastructure surcharge mechanism. This suggests a lower level of risk for VAWC compared to these utilities serviced by the proxy group. Further, if VAWC's request to expand the WWISC to all of its Districts is granted, this will further mitigate its business risk.

Q. HOW DOES FIXED CHARGED REVENUE AFFECT VAWC'S RISK PROFILE?

A. VAWC's rate structure includes a monthly service charge of $15 for a 5/8" meter customer that escalates based on meter size. This monthly service charge, which is the fixed component of VAWC's rate structure, also includes an allowance of 2,000

gallons of consumption per month. Approximately 37%[5] of VAWC's revenue is recovered through the fixed component of the rate structure. Fixed revenue recovery helps to mitigate risks related to weather and other factors which causes customer usage to vary, and it lowers VAWC's volumetric risk.

Q. HOW DOES VAWC'S VOLUMETRIC RISK AFFECT ITS RISK PROFILE?

A. The remaining portion of VAWC's user charge revenue is based on water consumption. Annual water consumption is affected by numerous variables including, in particular, temperature and precipitation. There has also been a trend throughout the water industry of declining per capita consumption; this was highlighted in the testimony of Mr. Roach. Declining per capita consumption is a result of various factors including the prevalence and use of high efficiency fixtures, a broader awareness of resource conservation, price elasticity, economic conditions, and other factors. As a result, VAWC has projected a continuing annual decline in water consumption of 1.53% or 835 gallons per customer per year to mitigate its volumetric risk.

While I agree volumetric risk has been heightened by the continuing and persistent trend of declining per capita consumption, other utilities in the proxy group are also affected by this trend, and only a limited number (18% of the proxy group) utilize a revenue decoupling mechanism to further mitigate this risk. As such, VAWC's volumetric risk is comparable to the proxy group.

---

[5] Percentage based on the consolidated composition of fixed and variable revenue as provided in VAWC Excel File Hopewell 02-002_Attachment 2a (Sch. 42 Wtr).

Q. HOW DOES VAWC'S PROPOSED CHANGE IN CAPITAL STRUCTURE AFFECT ITS RISK PROFILE?

A. VAWC's proposed capital structure, if granted, increases the expected level of equity financing and reduces the expected level of debt financing compared to its most recent rate case (case no. PUE-2015-00097) that ordered use of AWK's consolidated capital structure. This shift will increase VAWC's cost of capital because equity holders require higher rates of return than creditors. However, it also reduced VAWC's business risk since it will reduce the amount of debt on its balance sheet than it otherwise would have under its prior capital structure. This reduction in business risk helps to counter balance the increased weighted average cost of capital.

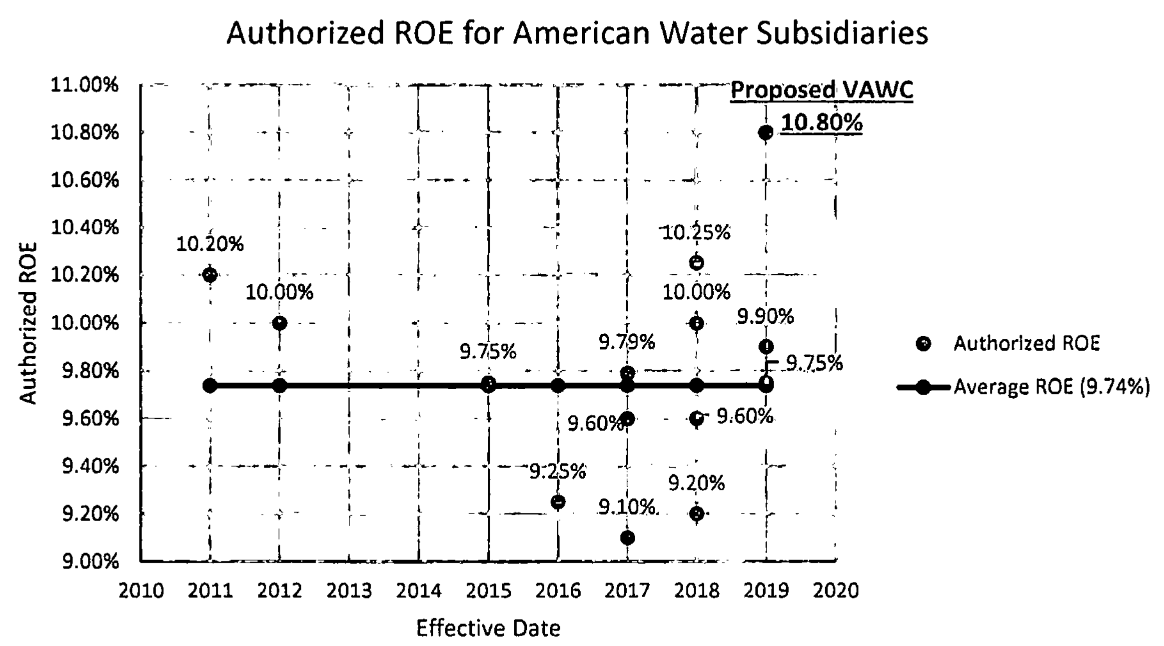
Q. PLEASE ASSUME FOR THE SAKE OF ARGUMENT MS. BULKLEY'S RANGE OF ROE RESULTS (i.e., 10.00% TO 10.80%). BASED YOUR REVIEW OF VAWC'S RISK PROFILE, HAVE YOU FORMED AN OPINION AS TO WHERE A "FAIR AND REASONABLE" ROE WOULD LIE WITHIN THAT RANGE?

A. Yes. Assuming for the sake of argument that this range is appropriate a reasonable ROE would lie, at most, in the mid-point of the range, rather than absolute high-end as Ms. Bulkley has suggested.

Q. HAVE YOU REVIEWED THE CURRENTLY APPROVED ROEs FOR OTHER AMERICAN WATER SUBSIDIARIES?

A. Yes, an American Water subsidiary in Indiana also proposed a ROE of 10.8% but settled on a ROE below 10% in a rate case (cause no. 45142) that was filed within a

few months of this proceeding. Additionally, ROE's of 9.90% and 9.75% were approved in February of this year for Maryland-American Water (case no. 9487) and West Virginia American-Water respectively (case no. 18-0573-W-42T). Below is a table[6] that shows the most recently authorized ROE for American Water subsidiaries, and how VAWC's proposed ROE compares.



[6] Case 2018-00358, Bulkley_KAWC_Rebuttal_Attachments_AEB-1-R.xls. Michigan-American Water (10.25%); Pennsylvania-American Water (10.0%); Missouri-American Water 10.0%; New Jersey-American Water (9.60%); California-American Water; 9.20%; Iowa-American Water 9.60%; Indiana-American Water (9.75%); Maryland-American Water (9.90%); West Virginia-American Water (9.75%); Hawaii-American Water (10.20%); Virginia-American Water (9.25%); New York-American Water (9.10%); Tennessee-American Water (10.0%).

Q. HOW DO RECENTLY APPROVED ROEs FOR THESE OTHER COMPANIES COMPARE TO VAWC'S PROPOSED ROE?

A. As seen in the chart above, VAWC's proposed ROE is significantly higher than the ROEs granted for any of AWK's subsidiary companies. Specifically, VAWC's proposed ROE of 10.8% is 106 basis points higher than the average authorized ROE of 9.74% for AWK's subsidiaries granted since 2011.

Q. DO YOU EXPECT THE TREND OF APPROVED ROEs FOR THESE COMPANIES TO SUBSTANTIALLY CHANGE IN THE NEXT FEW YEARS?

A. No. There are numerous variables to consider, but the same interest rate factors previously discussed will affect all regulated utilities more or less equally. Based on current conditions, there is no reason to assume that there will be a trend of increasing ROEs in the near future.

Q. HOW DOES THIS COMPARISON OF RECENTLY APPROVED ROEs FOR COMPARABLE UTILITIES AND FACTORS AFFECTING RETURNS?

A. It further validates why the commission should not grant VAWC's request to increase their ROE to 10.8%.

E. Conclusion as to "Fair and Reasonable" ROE

Q. DO YOU HAVE AN OPINION AS TO A "FAIR AND REASONABLE" ROE FOR VAWC?

A. Yes. My DCF analysis resulted in a mean ROE range of 8.87% - 9.27% with a mid-point of 9.07%. My CAPM analysis resulted in a ROE range of 9.24% - 9.42% using

the historical arithmetic mean of the S&P 500 as the market return with a mid-point of 9.33%. Thus, in my opinion, a ROE in the range of 9.07% - 9.33% would be fair and reasonable for VAWC in this proceeding.

II. UNFAIR AND INEQUITABLE PACE OF RATE CONSOLIDATION

Q. HAVE YOU REVIEWED THE DIRECT TESTIMONY OF JOHN S. TOMAC THAT VIRGINIA-AMERICAN WATER COMPANY (VAWC) FILED IN THIS PROCEEDING?

A. Yes.

Q. WHAT RATES DO RESIDENTIAL CUSTOMERS CURRENTLY PAY FOR WATER IN THE CITY OF ALEXANDRIA?

A. The monthly service charge includes the meter charge and the first 2,000 gallons used. Currently for Alexandria, the service charge is $15.00 a month for 5/8" meters and $22.50 for 3/4" meters. For all consumption greater than 2,000 gallons, the volumetric charge is $0.19644 per hundred gallons.

Q. IS VAWC PROPOSING TO INCREASE THE METER CHARGE FOR RESIDENTIAL CUSTOMERS IN THE CITY OF ALEXANDRIA?

A. No, VAWC is not proposing any changes to the monthly meter charge.

Q. WHAT VOLUMETRIC RATE WILL RESIDENTIAL CUSTOMERS IN THE CITY OF ALEXANDRIA PAY FOR WATER IN YEAR 1 UNDER VAWC'S PROPOSED RATES?

A. The volumetric rate for City of Alexandria residential customers will increase to $0.45247 per hundred gallons, which is a $0.25603 increase from the current rate of $0.19644 per hundred gallons. This results in a 130% increase in the volumetric rate in Year 1 for Alexandria's residential customers.

Q. WHAT ACCOUNTS FOR THIS SHARP RISE IN RATES FOR RESIDENTIAL CUSTOMERS IN THE CITY OF ALEXANDRIA?

A. The sharp rate of increase is the result of the general rate increase, impacts from consolidated pricing, and impacts from the cost of service analysis. In general, since the City Alexandria has the lowest relevant volumetric rates in the consolidated group, they see the largest increase.

Q. HOW WILL THIS RATE INCREASE AFFECT THE AVERAGE RESIDENTIAL CUSTOMER'S WATER BILL?

A. A 4,500-gallon,[7] 5/8-inch residential customer, will see a 32% increase in their bill in Year 1. In general, low-volume residential customers will experience less of an increase while high-volume residential customers will experience more of an increase. The tables below consider various consumption levels, and the related impact that volumetric rate increases will have on residential bills. The tables are for three different meter sizes, 5/8", 3/4", and 6". 5/8" and 3/4" meters are used as these are the most common meter sizes for single-family residential customers. A 6-inch meter is assumed for multi-family residential customers, since many of these customers, which are

[7] Mr. Roach's testimony identified an average of approximately 4,500 gallons per month for residential users

common in the City of Alexandria, are supplied through a master-meter. Although multi-family residential customers served by a master meter are not direct customers of the utility system, it is reasonable to assume rate increases will be passed along from the property owners to the tenants through rental agreements. As seen below, the 5/8", 3/4", and 6" customers will be heavily impacted by the Year 1 rate increase. Note that these impacts do not include the WWISC Rider, which if approved at the maximum increase of 7.5% each year, will place further upward pressure on Alexandria customers' bills.

5/8" meter	Current Monthly Bill	Year 1 Monthly Bill	% Change
3,740 Gallons	$ 18.42	$ 22.87	24%
4,500 Gallons	$ 19.91	$ 26.31	32%
6,400 Gallons	$ 23.64	$ 34.91	48%
7,480 Gallons	$ 25.76	$ 39.80	54%
10,000 Gallons	$ 30.72	$ 51.20	67%

3/4" meter	Current Monthly Bill	Year 1 Monthly Bill	% Change
3,740 Gallons	$ 25.92	$ 30.37	17%
4,500 Gallons	$ 27.41	$ 33.81	23%
6,400 Gallons	$ 31.14	$ 42.41	36%
7,480 Gallons	$ 33.26	$ 47.30	42%
10,000 Gallons	$ 38.22	$ 58.70	54%

6" meter	Current Monthly Bill	Year 1 Monthly Bill	% Change
300,000 Gallons	$ 1,335.39	$ 2,098.36	57%

Q. WHEN WOULD THAT RATE INCREASE TAKE EFFECT IF VAWC'S PROPOSED RATES ARE APPROVED?

A. The rates determined by VAWC in this rate case went into effect on May 1, 2019 on an interim basis. These rates will be used until the commission gives a final order, which will change the rates to whatever the commission decides. The difference between the interim and final rates will then be reimbursed depending on whether the interim rates were higher (in which case VAWC will reimburse its customers the difference in what they paid plus interest) or lower (in which case the customers will pay the difference plus interest).

Q. WHAT RATES WILL RESIDENTIAL CUSTOMERS IN THE CITY OF ALEXANDRIA PAY FOR WATER IN YEARS 2 AND 3 IF VAWC'S PROPOSED RATES TAKE EFFECT?

A. In Year 2, City of Alexandria residential customers will see their volumetric rate increase to $0.58287 per hundred gallons. This represents an increase of $0.13040 from the previous Year 1 rate of $0.45247, or a 28.8% increase. In Year 3, the volumetric rate will increase to $0.71288. This represents a $0.13001 increase from the Year 2 rate of $0.58287, which is a 22.3% increase. In total, the proposed volumetric rate per hundred gallons would result in a $0.51644 – or 263% – increase from the current rate.

Q. HOW WOULD THOSE RATE INCREASES AFFECT THE AVERAGE RESIDENTIAL CUSTOMER'S WATER BILL?

A. Residential bills would once again see large increases. The tables below show the impacts from the current rates through Year 3 rates for both 5/8" meters and 3/4" meters single-family residential customers and a 6-inch multi-family residential customer served by a master meter.

5/8" meter	Current	Year 1	%Change (Current-Year 1)	Year 2	%Change(Year 1-Year 2)	Year 3	%Change(Year 2-Year 3)	%Change (Current-Year 3)
3,740 Gallons	$18.42	$22.87	24%	$25.14	10%	$27.40	9%	49%
4,500 Gallons	$19.91	$26.31	32%	$29.57	12%	$32.82	11%	65%
6,400 Gallons	$23.64	$34.91	48%	$40.65	16%	$46.37	14%	96%
7,480 Gallons	$25.76	$39.80	54%	$46.94	18%	$54.07	15%	110%
10,000 Gallons	$30.72	$51.20	67%	$61.63	20%	$72.03	17%	135%

3/4" meter	Current	Year 1	%Change	Year 2	%Change(Year 1-Year 2)	Year 3	%Change(Year 2-Year 3)	%Change (Current-Year 3)
3,740 Gallons	$25.92	$30.37	17%	$32.64	7%	$34.90	7%	35%
4,500 Gallons	$27.41	$33.81	23%	$37.07	10%	$40.32	9%	47%
6,400 Gallons	$31.14	$42.41	36%	$48.15	14%	$53.87	12%	73%
7,480 Gallons	$33.26	$47.30	42%	$54.44	15%	$61.57	13%	85%
10,000 Gallons	$38.22	$58.70	54%	$69.13	18%	$79.53	15%	108%

6" meter	Current	Year 1	%Change (Current-Year 1)	Year 2	%Change (Year 1-Year 2)	Year 3	%Change (Year 2-Year 3)	%Change (Current-Year 3)
300,000 Gallons	$1,335.39	$2,098.36	57%	$2,486.95	19%	$2,874.38	16%	115%

Q. MR. TOMACS STATES IN HIS DIRECT TESTIMONY THAT THE THREE-YEAR PERIOD TO EQUALIZE THE CONSOLIDATED TARIFF PRICING "PROVIDES A REASONABLE, GRADUAL TRANSITION OF CURRENT RATES TO CTP COST-BASED RATES." DO YOU AGREE WITH THIS STATEMENT?

A. No, this increase is certainly not a reasonable or gradual transition. On average, residential customers will see more than a 60% increase over a three-year period, which is based on the projected Year 3 residential revenues compared to current revenues. As noted previously, individual customer impacts will vary based on consumption. At the consumption levels shown in the tables above, a 5/8" metered customer will see increases ranging from 49%-135% over a three-year period. A 3/4" metered customer will see increases ranging from 35% to 108% depending on consumption over a three-year period. Multi-family residential customers served by master meters will likely see

the utility portion of their monthly rental agreements increase substantially over a three-year period.

Q. WHAT IS THE BASIS FOR THIS CONCLUSION?

A. The proposed rate increase for residential customers in the City of Alexandria are significantly higher than prior rate cases. As noted above, many residential bills will increase by more than 30% in Year 1 alone. According to a national rate survey developed collaboratively by the AWWA and Raftelis, the average annual water rate increase is approximately 5.0% for residential customers. Obviously, the level of increase on residential customers in the City of Alexandria is a much more extreme by comparison and cannot be classified as "gradual" and may cause rate shock. In other consolidation cases where rate shock could harm certain groups, commissions have protected residential customers by ordering longer phase-in periods or spreading out the consolidation process over multiple rate cases.

Q. HAVE YOU REVIEWED OTHER UTILITIES THAT HAVE TRANSITIONED TO CONSOLIDATED RATES?

A. Yes, I have reviewed the New York American Water rate case (Case 16-W-0259), EPCOR Arizona case (docket no. WS-01303A-09-0343) and the Aqua Virginia rate case (case no. PUE-2009-00059).

Q. WHAT CONCLUSIONS WERE YOU ABLE TO DRAW ABOUT TRANSITION PERIODS?

A. It is not uncommon for commissions to rule for phase-in periods greater than three-years. In the New York American case, a four-year rate period was settled on to reduce the impact of the rate increases on residential customers. In the EPCOR Arizona case rates were required to be phased in over a five-year period to mitigate the impact of the increase on ratepayers. In the Aqua Virginia case, it was determined that the consolidated district would be broken into different groups based on their current rates. The lower tariffed communities would be consolidated into one group and the higher tariffed communities would be another group. The consolidated rates would be phased-in over numerous rate cases, with the lower tariffed group getting the higher portion of future increases to narrow the gap and eventually achieve the uniform, consolidated rates. It is not uncommon for consolidation efforts to lead to significant rate increases, and there is a precedent to increase phase-in periods or even phase-in consolidated tariffs over multiple rate cases to reduce the impact on ratepayers.

Q. ARE YOU FAMILIAR WITH WATER AND WASTEWATER RATE INCREASES OUTSIDE OF THE CONSOLIDATED RATE CONTEXT?

A. Yes, I am familiar with water and wastewater rate increases outside of the consolidated rate context. One of the most comprehensive sources for this type of information is the AWWA/Raftelis national rate survey. The AWWA/Raftelis rate survey includes rate increase and rate structure trends for more than 25 years. The most recent rate survey (2019) analyzes residential rates for two different consumption levels over a twenty-year period. For residential customers consuming 500 cf (or 3,740 gallons) the average

annual rate increase has been 5.0%. For residential customers consuming 1,000 cf (7,480 gallons) the average annual rate increase has been 4.8%.

Q. HOW DOES THE PROPOSED RATE INCREASE FOR RESIDENTIAL CUSTOMERS IN THE CITY OF ALEXANDRIA COMPARE TO TYPICAL ANNUAL RATE INCREASES FOR OTHER UTILITIES?

A. The proposed rate increase for residential customers in the City of Alexandria is extraordinarily high in comparison to the typical annual rate increase for other utilities. As noted above, for customers consuming 3,740 gallons per month, the average annual increase based on the AWWA/Raftelis rate survey is 5.0% while in the City of Alexandria it is 24% for 5/8" customers in Year 1 and 17% for 3/4" customers in Year 1. For customers consuming 7,480 gallons per month, the average annual rate increase based on the AWWA/Raftelis rate survey is 4.8% while in the City of Alexandria it is 54% for 5/8" customers in Year 1 and 42% for 3/4" customers in Year 1.

Q. HOW WILL THE PROPOSED CONSOLIDATED RATES AFFECT RESIDENTIAL CUSTOMERS IN THE CITY OF ALEXANDRIA?

A. The proposed consolidated rates will negatively affect residential customers in the City of Alexandria. The drastic increase in rates, or rate shock, in the first year is unreasonable and will disproportionately impact Alexandria ratepayers. The proposed increase in the volumetric rate of 263% over a three-year period is well in excess of typical rate increases in the water industry. It is important for the Commission to reexamine the proposed rates and consider a more gradual transition to reduce rate shock and mitigate the impact on Alexandria ratepayers.

III. COST OF SERVICE ANALYSIS

Q. HAVE YOU REVIEWED THE ALLOCATIONS BETWEEN RESIDENTIAL, COMMERCIAL, AND INDUSTRIAL CUSTOMER CLASSES UNDER THE PROPOSED CONSOLIDATED RATES?

A. Yes, I have reviewed customer classes cost allocations under the proposed rates.

Q. DO RESIDENTIAL, COMMERCIAL, AND INDUSTRIAL CUSTOMERS IN THE CITY OF ALEXANDRIA PAY THE SAME METER CHARGES AND VOLUMETRIC RATES FOR POTABLE WATER?

A. Yes, they do.

Q. IS THAT TRUE FOR VAWC'S OTHER DISTRICTS?

A. Yes.

Q. HOW DOES THE PROPOSED CONSOLIDATED RATE ALLOCATE VOLUMETRIC RATES FOR THE RESPECTIVE CUSTOMER CLASSES?

A. Residential rates are the most impacted by this consolidation. For the City of Alexandria, the residential volumetric rate is proposed to increase 263% over a three-year period. Commercial volumetric rates are proposed to increase 67% while industrial rates are proposed to increase 60% on the first 7,480,0000 gallons and *decrease* 42% on usage above 7,480,000 gallons.

Q. IS THIS ALLOCATION FAIR AND REASONABLE?

A. No, it is not. Mr. Rea's approach to the water cost of service analysis under consolidation deviates both from past Virginia American practices and industry

standards, and—in so doing—unfairly attributes a greater proportion of costs to City of Alexandria customers as compared to the other Districts being consolidated.

Q. AT A HIGH LEVEL, HOW DOES THE APPROACH USED BY MR. REA RESULT IN A GREATER PROPORTION OF COSTS BEING ATTRIBUTED TO CITY OF ALEXANDRIA CUSTOMERS?

A. Prior to consolidation, each District had distinct rates by customer class. As noted above, the rates proposed by Virginia American will decrease revenue recovery from industrial customers and substantially increase revenue recovery from residential and commercial customers. The result is residential volumetric rates which are more than 6 times the Tier 2 industrial volumetric rate ($0.71288 vs. $0.11261) and commercial volumetric rates which are more than double the Tier 2 industrial volumetric rate ($0.32270 vs. $0.11261). Since the City of Alexandria is made up predominantly of residential and commercial customers, a much greater share of the overall increase falls on City customers as opposed to those from the other Districts.

Q. DOESN'T THE MERE ACT OF CONSOLIDATING MEAN SOME RATES WILL INCREASE AND SOME WILL DECREASE, EVEN WITHIN A CLASS?

A. Yes. Alexandria's current rates are the lowest of the four districts for each customer class. This means that equalizing them will require some level of increase to the City of Alexandria's rates. That said, the impact is exacerbated by the results of the cost of service analysis performed by Mr. Rea. Figure 9 demonstrates the additional impact.

Column 1 represents the revenue, by District, under VAWC's existing rates. Column 2 represents the consolidated revenue by class, under VAWC' existing rates. Column 3 represents an allocation of the overall requested increase in rate revenues ($6 Million) to each consolidated class in proportion to the distribution of consolidated revenue under VAWC's existing rates.

In other words, if VAWC merely consolidated rates, and did not make any adjustments based on a cost of service analysis then the distribution of the additional $6 Million being requested would be spread proportionally among the newly consolidated classes, as shown in Column 3.

The impact of Mr. Rea's cost of service analysis indicated in Column 4. The impact of the cost of service analysis is to recover a greater proportion of the additional $6 Million from residential and commercial customers, as compared to industrial and non-potable customers. The overall increase of approximately $6 Million is accomplished via an $7.5 Million *increase* to residential and commercial customers and a $1.5 Million *decrease* to industrial and non-potable customers. Put another way, the impact of Mr. Rea's cost of service analysis is to recover an additional $3.0 Million from residential and commercial customers as compared to what would be the case under consolidation alone.

Figure 9: VAWC Proposal vs. Pure Consolidation

	1	2	3	4	5
Present Classes	**Present Revenue**	**Consolidated Revenue**	**Proportional Adjustment**	**VAWC Proposal**	**COS Impact**
Residential					
Alexandria	$ 6,081,438				
Prince William	7,106,928				
Eastern	2,211,606				
Hopewell	3,236,537				
Consolidated Total	**$ 18,636,509**	**$ 18,636,509**	**$ 2,744,534**	**$ 4,152,629**	**$ 1,408,095**
			14.7%	22.3%	
Commercial					
Alexandria	$ 9,667,590				
Prince William	1,593,725				
Hopewell	1,150,724				
Consolidated Total	**$ 12,412,039**	**$ 12,412,039**	**$ 1,827,878**	**$ 3,384,167**	**$ 1,556,289**
			14.7%	27.3%	
Industrial					
Alexandria	$ 381,011				
Hopewell	3,983,583				
Consolidated Total	**$ 4,364,594**	**$ 4,364,594**	**$ 642,759**	**$ (793,834)**	**$ (1,436,593)**
			14.7%	-18.2%	
Non-Potable					
Hopewell	$ 5,328,051				
Consolidated Total	**$ 5,328,051**	**$ 5,328,051**	**$ 784,644**	**$ (743,173)**	**$ (1,527,817)**
			14.7%	-13.9%	
	$ 40,741,193	**$ 40,741,193**	**$ 5,999,815**	**$ 5,999,789**	**$ (26)**
			14.7%	14.7%	

Q. ARE YOU ARGUING THAT THE CONSOLIDATED RATES SHOULD NOT BE BASED ON COST OF SERVICE?

A. No. They should be based on cost of service, but certain aspects of Mr. Rea's cost of service analysis deviate from industry norms and VAWC past practice resulting in a subsidization of the industrial and non-potable classes at the expense of residential and commercial.

Q. WHICH ASPECTS OF MR. REA'S ANALYSIS ARE MOST PROBLEMATIC?

A. There are 3 issues:

1. Mr. Rea allocates no costs associated with distribution mains below 10 inches to the industrial class.
2. Mr. Rea calculates customer class peaking factors but employs alternative factors in the cost of service analysis.
3. Weekly adjustments are made to peaking factors without any supporting analysis.

Q. PLEASE EXPLAIN THE ISSUE OF THE DISTRIBUTION MAIN ALLOCATION.

A. Mr. Rea splits the operating and capital costs associated with the pipe network in all 4 Districts between transmission and distribution based on the diameter of pipe, with below 10 inches being considered distribution mains and 10 inches and above being considered transmission mains. Distribution mains are then allocated solely to residential and commercial customer with no assignment to industrial customers.

Q. WHAT RATIONALE DOES MR. REA OFFER IN SUPPORT OF THIS DISTINCTION?

A. Mr. Rea's testimony indicates that "the vast majority of water provided to industrial customers is provided directly from the transmission system and therefore no distribution costs are allocated are allocated to industrial customers."[8]

[8] See Direct Testimony of Charles B. Rea Page 13 of 26

Q. BASED ON YOUR UNDERSTANDING OF HOW WATER SYSTEMS OPERATE ARE THERE MAINS THAT SERVE A PURE TRANSMISSION OR DISTRIBUTION FUNCTION AS SUGGESTED BY MR. REA'S DISTINCTION?

A. I am not a professional engineer but based on my experience developing rates for utilities across the country and discussions with utility clients it is my understanding that water pipe networks are generally looped and interconnected as much as possible to add redundancy. In general, the smallest pipes, such as those that run down a residential street, are typically considered distribution and the largest pipes can generally be considered transmission. The pipes in the middle may serve both functions.

Q. HOW MIGHT A UTILITY DETERMINE WHAT SIZE PIPES SERVE WHAT FUNCTION?

A. My understanding is that the only way to know this with any certainty is to develop a hydraulic model of the water system in question. A hydraulic model is a computer model of a water system that, when calibrated, mimics the actual operation of the system, allowing utility operators the ability to evaluate system operations and changes without physically disrupting the water system.

Q. DID MR. REA INDICATE ANYWHERE IN HIS TESTIMONY THAT THE 10 INCH DISTINCTION WAS BASED ON A HYDRAULIC MODEL?

A. No, he did not.

Q. WOULD THERE BE ANY CHALLENGES TO SUCH AN APPROACH UNDER CONSOLIDATION?

A. The biggest issue is that the systems of each District are not contiguous or interconnected, making a hydraulic model of the consolidated system impossible.

Q. IS IT UNUSUAL TO DISTINGUISH BETWEEN TRANSMISSION AND DISTRIBUTION MAINS IN A COST OF SERVICE STUDY?

A. It is not. Many studies make this distinction because the costs for the transmission and distribution functions performed by water utilities are often allocated differently. For example, it is typical for distribution main costs to be allocated based on base, maximum day, and maximum hour demand, whereas transmission main costs are typically only allocated based on base and maximum day demand, excluding the maximum hour component.

Q. EVEN WHEN THIS DISTINCTION IS MADE, IS IT TYPICAL TO PICK A PIPE SIZE AND COMPLETELY EXCLUDE IT FROM ALLOCATION TO A PARTICULAR CLASS?

A. No, it is not typical. Usually each class would pay based on its proportionate share of demand. In other words, each class would pay for distribution based on a proportionate share of base, maximum day and maximum hour and for transmission based on a proportionate share of base and maximum day. Under this approach no classes would be excluded from being allocated any portion of the system.

Q. IS IT EVER APPROPRIATE TO EXCLUDE ALLOCATION OF CERTAIN SYSTEM ASSETS (E.G., BELOW 10 INCH MAINS) TO CERTAIN CLASSES OF CUSTOMERS?

A. Yes, there are circumstances under which this is typically done. Generally, these involve a wholesale purchaser who might only be allocated a portion of the transmission system. Wholesale customers generally have their own storage and distribution systems within their boundaries and are often not considered direct users of the distribution systems of the utilities from which they purchase the water. Generally, if an asset is used and useful by a customer class, the costs associated with that asset will be allocated to that class.

Q. ARE THERE INDUSTRIAL CUSTOMERS IN ANY OF THE FOUR DISTRICTS WHICH DIRECTLY USE MAINS SMALLER THAN 10 INCHES?

A. Yes. In response to OAG Request 01-005 VAWC provided a breakdown of industrial customers by the size of main to which they were directly connected. According to this response, nine industrial customers (or 39% of industrial customers) are connected to mains which are smaller than 10 inches. Numerous additional industrial customers are connected to service lines smaller than 10-inches; however, it is unclear whether these represent lines owned and maintained by VAWC. If so, most industrial customers utilize piping infrastructure smaller than 10-inches. Figure 10 summarizes the industrial customers by main and service line connection size as of June 30, 2018.

Figure 10 - Industrial Customer Connections

Main Size	Number of Industrial Customer Connections
6"	6
8"	3
12"	10
16"	2
20"	2

Service Size	Number of Industrial Customer Connections
1"	2
2"	4
3"	1
4"	2
6"	3
8"	3
12"	5
16"	1

Q. UNDER MR. REA'S COST OF SERVICE ANALYSIS, WHAT PROPORTION OF COSTS WOULD THESE CUSTOMERS PAY FOR THESE MAINS, TO WHICH THEY ARE DIRECTLY CONNECTED?

A. They would not pay anything.

Q. DO THE VOLUMES OF THESE CUSTOMERS IMPACT WHETHER OR NOT THEY SHOULD HAVE TO PAY FOR MAINS TO WHICH THEY ARE DIRECTLY CONNECTED?

A. No. These customers are clearly using mains smaller than 10-inches, so they should be allocated a proportionate share of the costs. Additionally, the cost of these mains is not dependent on how much water these customers use but is incurred to make the service

available to these customers. These fixed costs would be incurred to serve these customers even if they did not use a gallon of water.

Q. IS MR. REA'S APPROACH TO ALLOCATING DISTRIBUTION SYSTEM COSTS CONSISTENT WITH HOW NEARLY ALL OTHER COSTS ARE BEING ALLOCATED UNDER THE CONSOLIDATED COST OF SERVICE?

A. No. The 10-inch distinction implies that these smaller mains are not being used by industrial customers. This is inconsistent with VAWC's approach on nearly every asset in the water system. As I noted above, the four Districts are not contiguous and do not share an interconnected water system. Customers in Alexandria do not "use" mains in Hopewell which is located over 100 miles away and vice versa. Under the consolidated tariff approach, all customer will pay a proportionate share of the assets in all Districts, regardless of where they are located. The 10-inch main distinction is completely inconsistent with this approach because it excludes certain customers from paying for certain assets of the system based on the use of those assets. It is not consistent to say City of Alexandria customers should pay for assets located over 100 miles away, but also say that industrial customers should not pay for smaller mains located directly within the boundaries of their District. This is especially true when many of the industrial customers are directly connected to mains smaller than 10 inches.

Q. IS MR. REA'S APPROACH TO ALLOCATING DISTRIBUTION SYSTEM COSTS CONSISTENT WITH VAWC'S PAST PRACTICE?

A. No, in its last rate case (PUE-2015-00097) VAWC did not propose to allocate their transmission and distribution system using a 10-inch main distinction.

Q. WHAT IS THE IMPACT OF MAKING THIS DISTINCTION AS OPPOSED TO THE APPROACH USED BY VAWC IN PUE-2015-00097?

A. The impact of making this distinction shifts costs towards residential and commercial classes. Specifically, this approach *increases* the revenue requirement allocated to the residential and commercial classes by $860,000 and $880,000, respectively, while *decreasing* the industrial revenue requirement by $1,740,000.

Q. PLEASE EXPLAIN THE ISSUE REGARDING PEAKING FACTORS.

A. Mr. Rea calculates peaking factors for each customer class, but then employs alternative peaking factors in his cost of service analysis. Specifically, despite calculating factors of 1.78 and 1.65 for residential and commercial customers, respectively, Mr. Rea employs higher factors (1.80 and 1.70) for the purposes of the cost of service analysis. For industrial potable customers 1.65 is used for the cost allocations in place of the calculated factor of 1.80. This issue is also present in the estimated maximum hour demands which are assumed to be 1.45 times maximum day demands.

Q. DOES MR. REA OFFER ANY EXPLANATION AS TO WHY HE EMPLOYS THE <u>ALTERNATIVE</u> FACTORS, IN PLACE OF THOSE WHICH HE ACTUALLY CALCULATES.

A. No.

Q. WHAT IS THE IMPACT OF USING THE <u>ALTERNATIVE</u> PEAKING FACTORS EMPLOYED BY MR. REA, AS OPPOSED TO THOSE CALCULATED IN HIS CAPACITY FACTOR ANALYSIS?

A. The impact is to shift costs from industrial customers to residential and commercial customers. The factors Mr. Rea calculates clearly demonstrate that residential and commercial customers place a lower peak demand on the water systems of the four Districts. Accordingly, these customer classes should be allocated a smaller proportion of the maximum day and hour costs. The alternative factors Mr. Rea employs in his analysis push costs in the opposite direction, by employing an alternative peaking factor for industrial, which is the lowest of the three potable classes, as opposed the calculated value, which is the highest.

Q. PLEASE EXPLAIN THE ISSUE REGARDING THE WEEKLY ADJUSTMENT.

A. Mr. Rea employs a "weekly adjustment" in the development of his peaking factors, which exaggerates the differences in peak demand by customer class, unfairly increasing costs to the residential and commercial customer classes.

Q. PLEASE EXPLAIN THE CONCEPT OF A WEEKLY ADJUSTMENT.

A. In the absence of actual daily customer demand information, many cost of service analyses estimate customer class peaking characteristics through the use of peaking factors. Typically, these factors use monthly billing data to calculate the ratio of the average day in the highest usage month to the annual average day. To the extent that the maximum day production of the system is known, this information can be used to

adjust the factors upward making them closer to true maximum day peak demands.[9] This step is shown in the column labeled System MM/MD ratio in Mr. Rea's analysis. The weekly adjustment is an additional adjustment based on the number of days (out of a 7-day week) where customer class water use is generally concentrated. The factor of 1.2 for residential assumes that the vast majority of residential water use occurs approximately 5 to 6 days out of 7. The lower number for industrial assumes their use is more consistent, closer to between 6 and 7 days, out of 7.

Q. IS THIS APPROACH DISCUSSED IN AMERICAN WATER WORKS MANUAL M1: PRINCPLES OF WATER RATES FEES AND CHARGES (MANUAL M1)?

A. The approach is discussed in Manual M1. Specifically, weekly adjustment factors are discussed in Appendix A (p. 376 of the 7th edition). M1 discusses this adjustment as a potential method for accounting for the difference between maximum month information and true maximum day information. However, Manual M1 also states that "consideration should be given to the particular usage characteristics and periods of demands for the various classes of each individual utility when analyzing and determining the applicable class peaking factors."

[9] This is done by calculating the ratio of the system maximum day production, which can usually be identified, to the system average day in the maximum month. This ratio is then multiplied by the ratio of the average day in the maximum month to the annual average day for each customer class. The presumption is that the relationship between monthly demand and daily demand is similar between the system as a whole and the individual customer classes.

Q. DOES MR. REA'S TESTIMONY OR WORKPAPERS OFFER ANY SUPPORTING ANALYSIS FOR THE SPECIFIC WEEKLY ADJUSTMENT FACTORS HE HAS SELECTED?

A. No.

Q. WHAT IS THE APPROXIMATE DOLLAR IMPACT OF THESE TWO PEAKING FACTOR ISSUES?

A. These issues increase the costs allocated to residential customers by approximately $225,000 and decrease industrial customer costs (potable and non-potable) by nearly the same amount. The impact to commercial customers is de minimis (<$1,000 decrease, under this approach).

Q. ARE CONSOLIDATED RATES BAD FOR RATEPAYERS?

A. No, consolidated rates are not necessarily bad for ratepayers. Consolidated rates may offer certain advantages and economies of scale to spread increasing utility costs over a broader customer base. However, consolidated rates should be implemented in a fair, reasonable, and gradual manner.

Q. IN YOUR PROFESSIONAL OPINION, AND ASSUMING VAWC'S PROPOSED GENERAL RATE INCREASE WERE OTHERWISE APPROVED, HOW COULD A "REASONABLE" AND "GRADUAL" TRANSITION TO CONSOLIDATED TARIFF PRICING BE ACCOMPLISHED?

A. Assuming VAWC's proposed general rate increase was otherwise approved, increasing the phase-in period would help mitigate the transition to a consolidated rate for City of Alexandria ratepayers. By extending the phase in period to at least 5 years with a more moderate shift of costs to Alexandria customers, VAWC can better meet the requirement of gradualism generally recognized in the industry and which has been as codified in Virginia state law, suggesting that changes in rate design should be made to avoid inappropriate levels of rate shock. This way, VAWC would still be able to meet their revenue requirement, while Alexandria would not experience such a drastic rate increases over a very short period of time.

Figure 11 presents an alternative 5-year phase in of the projected rate increases. The 5-year phase in assumes all Districts will experience the same Year 1 rate increase, which is equal to the underlying revenue increases as submitted in VAWC's revenue requirement. Consolidated rates can then be achieved over the next four years with a target of meeting the projected Year 3 revenue for each District by Year 5 (see JBK Exhibit – 4).

Figure 11 – Sample 5-Year Consolidated Phase-In

		Year 1 Increase	Year 2 Increase	Year 3 Increase	Year 4 Increase	Year 5 Increase	5-year Compound Change	3-year Compound Change
Alexandria	Residential	14.7%	11.0%	10.0%	9.0%	4.9%	9.9%	17.0%
	Commercial	14.7%	6.0%	6.0%	6.0%	4.3%	7.3%	12.5%
	Industrial	14.7%	-2.0%	-2.0%	-2.0%	-2.0%	1.2%	2.0%
Prince William	Residential	14.7%	3.0%	3.0%	3.0%	1.4%	4.9%	8.3%
	Commercial	14.7%	-8.8%	-8.8%	-8.8%	-8.8%	-4.5%	-7.4%
Eastern	Residential	14.7%	-22.0%	-22.0%	-22.0%	-28.8%	-17.3%	-27.1%
Hopewell	Residential	14.7%	-4.0%	-4.0%	-4.0%	-4.0%	-0.5%	-0.8%
	Commercial	14.7%	-11.0%	-10.0%	-15.0%	-16.6%	-8.2%	-13.3%
	Industrial	14.7%	-5.1%	-11.2%	-16.4%	-1.7%	-4.5%	-7.4%
	Non-Potable	14.7%	-6.9%	-6.9%	-6.9%	-6.9%	-3.0%	-4.9%

District	Class	Present Revenues	Year 1 Revenues	Year 2 Revenues	Year 3 Revenues	Year 4 Revenues	Year 5 Revenues
Alexandria	Residential	$ 6,081,438	$ 6,977,030	$ 7,744,504	$ 8,518,954	$ 9,285,660	$ 9,741,790
	Commercial	$ 9,667,590	$ 11,091,303	$ 11,756,781	$ 12,462,188	$ 13,209,919	$ 13,782,395
	Industrial	$ 381,011	$ 437,121	$ 428,574	$ 420,194	$ 411,978	$ 403,922
Prince William	Residential	$ 7,106,928	$ 8,153,541	$ 8,398,147	$ 8,650,091	$ 8,909,594	$ 9,033,903
	Commercial	$ 1,593,725	$ 1,828,427	$ 1,667,330	$ 1,520,427	$ 1,386,466	$ 1,264,309
Eastern	Residential	$ 2,211,606	$ 2,537,302	$ 1,979,095	$ 1,543,694	$ 1,204,082	$ 857,607
Hopewell	Residential	$ 3,236,537	$ 3,713,171	$ 3,564,644	$ 3,422,621	$ 3,286,257	$ 3,155,846
	Commercial	$ 1,150,724	$ 1,320,187	$ 1,174,967	$ 1,057,470	$ 898,849	$ 749,506
	Industrial	$ 3,983,583	$ 4,570,232	$ 4,338,384	$ 3,851,430	$ 3,221,529	$ 3,166,827
	Non-Potable	$ 5,328,051	$ 6,112,695	$ 5,688,614	$ 5,293,955	$ 4,926,676	$ 4,584,878
Miscellaneous		$ 866,210	$ 890,725	$ 890,725	$ 890,725	$ 890,725	$ 890,725
Total		$ 41,607,403	$ 47,631,733	$ 47,631,765	$ 47,631,750	$ 47,631,736	$ 47,631,708
Revenue Requirement			$ 47,631,752	$ 47,631,752	$ 47,631,752	$ 47,631,752	$ 47,631,752

The sample 5-year phase-in identified above does not reflect recommended adjustments to the ROE, changes in the cost of service analysis, or additional rate filings that may occur after Year 3. Rather, its intent is to support an alternative, and more gradual, shift in costs to City of Alexandria ratepayers, who are most impacted by rate consolidation. The 3-year phase-in proposed by VAWC results in *double digit* annual increases for City of Alexandria residential and commercial customers and large *decreases* for most of the other classes and Districts. The 5-year approach is more gradual, as it increases the rates for Alexandria at a more moderate pace, making up the difference with more moderate decreases from the other Districts, while remaining

revenue neutral in each year. However, even with this more gradual rate transition the impact to Alexandria customers is almost double the average annual increase of approximately 5.0% as noted in the AWWA/Raftelis survey.

Q. **YOU PREVIOUSLY TESTIFIED THAT ADJUSTMENTS SHOULD BE MADE TO VAWC'S ROE AND COST OF SERVICE ANALYSIS. WOULD YOUR OPINION ABOUT A REASONABLE AND GRADUAL TRANSITION TO CONSOLIDATED RATES CHANGE IF THOSE ADJUSTMENTS WERE FACTORED INTO VAWC'S PROPOSED RATES?**

A. No, it would not. Even with proposed changes to the ROE and cost of service analysis the impacts on City of Alexandria customers would be significant. Rate consolidation is disproportionately affecting City of Alexandria customers and a more measured and gradual approach to this transition is warranted.

IV. PREMATURE CONCLUSION OF WATER AND WASTEWATER INFRASTRUCTURE SERVICE CHARGE PILOT PROGRAM

Q. **HAVE YOU REVIEWED THE DIRECT TESTIMONIES OF KRISTINA E. MCGEE AND GARY L. AKMENTINS THAT VAWC FILED IN THIS PROCEEDING?**

A. Yes.

Q. **HAVE REVIEWED THE "WWISC REPORT" (KEM-1) ATTACHED TO MS. MCGEE'S TESTIMONY?**

A. Yes.

Q. DO YOU AGREE WITH MS. MCGEE'S TESTIMONY THAT IT IS IMPORTANT TO HAVE A PROGRAM IN PLACE TO TIMELY REPLACE INFRASTRUCTURE?

A. Yes. Aging infrastructure is one of the major challenges faced by utilities across the nation. Much the water and wastewater infrastructure in this country was funded initially through federal grants because of the Clean Water Act. However, funding for the replacement of these assets is largely being pushed down to the local level and will require significant investment over the next several decades.

Q. IS A WWISC THE ONLY VEHICLE AVAILABLE TO ENSURE THAT INFRASTRUCTURE IS REPLACED IN A TIMELY MANNER?

A. No. Utilities can fund infrastructure replacement through normal capital improvement programs. Although it can be argued this creates regulatory lag, many utilities function without an infrastructure rate decoupling mechanism.

Q. ARE THERE ANY POTENTIAL RISKS TO IMPLEMENTING A WWISC OUTSIDE OF TRADITIONAL RATE CASES?

A. Yes. Rate cases provide important protection to ratepayers. It is my understanding the WWISC program has certain built in limitations and is subject to some level of scrutiny, but this should not be equated with level of protection offered by a general rate case. As Ms. McGee's testimony illustrates the amount of capital reinvestment that VAWC will likely need to make in WWISC eligible projects is substantial. As the WWISC program is expanded an increasing amount of capital reinvestment costs will be recovered via the WWISC rather than through a general rate case.

Q. ARE YOU AWARE OF THE CITY'S PREVIOUSLY RAISED OBJECTIONS TO THE WWISC AS IT WAS INITIALLY PROPOSED?

A. Yes. My understanding is that the City's primary concerns relate to the advanced recovery of costs, the ability of the public to participate in the ratemaking process as in a general rate case, and the potentially subjective nature of which mains would be selected for replacement and what they would be replaced with.

Q. DOES THE WWISC REPORT DEMONSTRATE THAT THOSE CONCERNS HAVE BEEN ADEQUATELY ADDRESSED THROUGH THIS SHORT PILOT PERIOD?

A. No. The report merely demonstrates that VAWC has a process for prioritizing mains for replacement, which is important, but does not allay the biggest concerns of the City. Namely, the process for review of what is truly WWISC eligible and ensuring that the ratepayer protections included in the program (e.g., the true-up provision) are sufficient to adequately protect the public interest.

Q. DO YOU HAVE AN OPINION ON VAWC'S PROPOSAL TO MAKE EXPAND THE WWISC TO ALL DISTRICTS AND MAKE IT PERMANENT?

A. Yes. The WWSIC was adopted as a pilot program, and I see no reason why it should be made permanent before allowing the program to run its full course. It would be premature to end the pilot without enough time to fully evaluate the benefits of the program and determine if it should be terminated, continued, or continued with modifications.

While the WWISC may be simple in concept, it is not a formulaic exercise. It involves significant judgment on the part of all involved to ensure that the public interest is protected. The entire purpose of the pilot program is to ensure that all of the details are worked out prior to expanding it or making it permanent. Clearly the Commission understood this when it initially required the 3-year pilot period. Nothing has fundamentally changed about the nature of the program, or the nature of the VAWC water systems since the initiation of the pilot. Ending the pilot early undercuts the its entire purpose: to allow time to thoroughly evaluate the program and ensure the public interest is protected.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

Bart Kreps
Vice President

Specialties

Utility cost of service and rate studies
Bond forecasts and feasibility studies
Capital financing plan development
Development and impact fee studies
Economic feasibility studies
Regionalization studies
Alternative project delivery studies

Professional History

Raftelis: Vice President (2018-present); Senior Manager (2014-2017); Manager (2010-2013); Senior Consultant (2005-2009); Staff Consultant (2002-2004)
Wells Fargo Securities: Fixed Income Analyst (1998-2000)

Education

Master of Business Administration in Finance & Environmental Management - The University of Tennessee (2002)
Bachelor of Business Administration in Finance - James Madison University (1998)

Professional Memberships

North Carolina AWWA
Tennessee/Kentucky AWWA
Virginia AWWA
Virginia AWWA/WEF Utility Management Committee - Financial Management Subcommittee lead

Certifications

Series 50 Municipal Advisor Representative

Profile

Mr. Kreps has been with Raftelis since 2002, managing a variety of projects to assist water, wastewater, and stormwater utilities in addressing economic and financial issues. Key areas of focus include: utility rate, cost of service, and financial planning studies; capital financing plan development; bond forecast and feasibility studies; economic impact assessments; and system development fees studies. Mr. Kreps has extensive experience in financial forecasting and modeling including the application of advanced techniques in risk management. Mr. Kreps' background is focused predominantly on public finance. He has assisted many utilities in designing optimal capital financing plans and has developed numerous financial feasibility reports and forecasts related to more than $1 billion in revenue bond sales. Mr. Kreps is the current lead of the Virginia AWWA/WEA Financial Management Subcommittee. He also authored a chapter entitled, "Evaluating Risk in Capital Planning, Financing, and Rate Setting," for the Fourth Edition of the industry guidebook, *Water and Wastewater Finance and Pricing: The Changing*

Landscape. Prior to joining Raftelis, Mr. Kreps served as fixed income analyst for Wells Fargo Securities, in the company's Capital Markets Group.

Relevant Project Experience

Northeast Ohio Regional Sewer District (Cleveland, OH)

Mr. Kreps served as Project Manager in the development of a comprehensive financial plan for the five-year period 2007-2011 and 2012-2016, as well as various other engagements for the District since 2004. The District was facing a $3.2 billion capital program, and it was critical to develop an optimal financing plan that balanced revenue requirements and customer impacts. The financial plan included projections of customers, water usage and revenues under the existing rates, projections of operating and maintenance expense, debt service on existing bonds and additional bonds necessary to fund the capital improvement program, and reserve fund deposits. In addition, Raftelis recommended a rate adjustment program over the five-year study period to meet the projected revenue requirements and maintain the District's financial sustainability. A user-friendly computer model was also developed for use by District staff to analyze different planning scenarios.

City of Durham (NC)

Mr. Kreps served as Project Manager on numerous engagements with the City of Durham, North Carolina (City) related to water and wastewater finance and pricing. In 2007, he assisted the City with a cost of service water and wastewater rate study focusing primarily on water conservation pricing. Due to an extreme drought in 2007, the City was faced with an unprecedented challenge related to preserving its water supply, and the addition of a pricing mechanism within its water rate structure became an immediate priority. Mr. Kreps worked closely with the City to develop defensible, cost-justified tiered water rates that included pricing incentives to promote the efficient use of water resources. Mr. Kreps developed a comprehensive cost of service based rate model that is currently used by the City as a financial planning tool and prepared financial forecast and opinion letter related to the City's $60.0 million 2011 Utility Revenue and Revenue Refunding Bonds. Mr. Kreps also provided valuation services to the City related to the potential acquisition of Durham County's wastewater treatment facility. Most recently, Mr. Kreps developed a recapitalized value of both the water and wastewater system to support a calculation of the City's capacity fees.

City of Newport News (VA)

Mr. Kreps served as Lead Consultant on a financial feasibility evaluation for the City of Newport News Department of Public Utilities, Waterworks Division (Waterworks) related to the proposed issuance of revenue bonds in 2007. Waterworks, in partnership with other Virginia Peninsula localities, was seeking capital market funds to develop and implement a long-term solution to the area's water supply needs. The most significant project in the capital plan was the development of a new 12.0 billion gallon off stream reservoir and pumping station on the Mattaponi River in King William County, Virginia. Our analysis included a forecast of revenues, expenses, and debt service over a five-year period, to ensure compliance with all bond covenants and debt service coverage requirements.

Raftelis also assisted Waterworks with defining appropriate and effective financial policies to mitigate operational risk, ensure adequate reserves, and improve the credit profile of the utility. Recommendations were provided for specific categories of reserves including rate stabilization funds, operating reserves and capital reserves, among others. Specific metrics were identified that defined target fund levels that balanced risk mitigation and funding requirements with the potential impact on rates and charges. Raftelis is currently assisting the City with various financial and rate setting services on an on-call basis.

City of Richmond (VA)

In 2007, Mr. Kreps managed the development of a comprehensive rate and financial planning model (Model) for the City of Richmond Department of Public Utilities (DPU). The Model incorporates all utility systems: water, wastewater, natural gas, street lighting, and stormwater. DPU currently uses the Model to set rates, determine optimal capital financing scenarios, and report on utility system financial conditions. The financial planning output from includes a projection of units of service (customer accounts and usage), operating expenses and capital expenditures, as well as a projection of net revenues available for debt service and debt service coverage. The Model provides the flexibility to evaluate the impacts of various capital funding sources including revenue bonds, general obligation bonds, Virginia Resource Authority (VRA) loans, and grants.

In 2010, Mr. Kreps managed a comprehensive cost of service study for the DPU's natural gas, water, wastewater, stormwater, and natural gas utilities. The results of the study included numerous recommended rate structure changes to better align DPU's rates and charge with its pricing objectives. A comprehensive affordability analysis was also conducted resulting in the recommendation and implementation of several customer assistance programs. Mr. Kreps currently provides the DPU with various rate, financial, and management services on an ongoing basis.

City of Philadelphia (PA)

Mr. Kreps has assisted the City of Philadelphia's (City) water and wastewater utilities (Philadelphia Water) with debt issuance support services. These services included the preparation of a financial feasibility report for the City's Series 2016 Revenue Bonds and Bring Down Letters for the City's Series 2017A and Series 2017B Revenue Bonds. Raftelis is currently assisting Philadelphia Water with implementation of its tiered income customer assistance program.

Other Relevant Project Experience

City of Alcoa (TN) – Wholesale Water Rate Analysis
Berkeley County (SC) – Development Impact Fee Study, Industrial Water and Sewer Rate Study, and Industrial Rate Update
Bowling Green (KY) – Water and Wastewater Rate Study
City of Buffalo (NY) – Water Cost of Service Study
Borough of Carlisle (PA) – Water and Wastewater Rate Study
Chester Wastewater Recover (SC) – Wastewater Rate and Financial Planning
City of Concord (NC) – Wholesale Wheeling Charge Study
City of Cookeville (TN) – Water and Wastewater Rate Study, Capacity Fee, and Wholesale Rate Study

Clark County (OH) – Water and Wastewater Rate Study
D.C. Water (DC) – Water and Wastewater Cost of Service Study
District of Sooke (British Columbia) – Contract Operations Review
Durham County (NC) – Bond Feasibility Study and Rate Model Update
City of Durham (NC) – Water Conservation Rate Study
Erie County (NY) – Wastewater Utility Consolidation Study
City of Florence (SC) – Capital Planning Analysis
Franklin County (OH) – Rate, Financial Planning and Organizational Management
Gloucester County (VA) – Water and Wastewater Organizational Assessment
Greenville Water (SC) – Rate and Financial Planning
Hallsdale-Powell Utility District (TN) – Water and Wastewater Rate Study
Hardin County Water District #1 (KY) – Water and Wastewater Rate Study and PSC Filing
City of Hopewell (VA) – Wholesale Cost of Service Study
City of Johnson City (TN) – Water and Wastewater Rate Study (Retail and Wholesale) and Rate Model Updates
City of Kinston (NC) – Water and Wastewater Rate Study
City of Lakewood (OH) – Water and Wastewater Rate Study
Laurens County (SC) – Water and Wastewater Rate Study
City of Manassas (VA) – Water and Wastewater Valuation
City of Maryville (TN) – Wholesale Water Rate Analysis
City of Myrtle Beach (SC) – Water and Wastewater Rate Study
City of Newport News (VA) – Bond Feasibility Study
Northeast Ohio Sewer District (OH) – Wastewater Rate Analysis and Stormwater Rate Study
City of Oxford (NC) – Rate Study and Model Update
City of Peoria (AZ) - Water and Wastewater Rate and Impact Fee Study
City of Philadelphia – Debt Issuance Support
City of Phoenix (AZ) - Organizational Management Study
Pima County (AZ) – Wastewater Planning and Rate Study and CIP Analysis
City of Richmond (VA) – Water, Wastewater, Gas, Electric, and Stormwater Rate and Financial Planning Model
Rivanna Water and Sewer Authority (VA) – Wholesale Rate Review
City of Rock Hill (SC) - Development Fee Study and Wholesale Rate Study
San Diego County Water Authority (CA) – Wholesale Wheeling Charge Study
Sewanee Utility District (TN) – Water and Wastewater Rate Study and Developer Charge Study
City of Smyrna (GA) – Water, Wastewater, and Stormwater Rate Study
Stanly County (NC) – Water and Wastewater Rate Study
Town of Sahuarita (AZ) – Wastewater Rate Study
United States Navy – Privatization Procurement
Watauga River Regional Water Authority (TN) – Regionalization Study
Water and Sewer Authority of Cabarrus County (NC) – Water Consolidation Study
Webb Creek Utility District (TN) – Water and Wastewater Rate Study
White House Utility District (TN) – Water and Wastewater Rate Study (Retail and Wholesale)
City of Wilmington (DE) – Litigation Support

York County (SC) – Wholesale Wheeling Charge Study and Water and Wastewater Rate Study

Speaking Engagements

"2006 Water and Wastewater Rate Survey Results and Industry Trends": Tennessee/Kentucky AWWA Annual Conference, 2006; Virginia AWWA Annual Conference, 2006

"Financing and Prioritizing Your Utility's Capital Needs": Tennessee/Kentucky AWWA Annual Conference, 2008

"Are Your Rates Affordability?": WEF Webcast – Managing Rates and Charges in Challenging Economic Times, 2009

"Pima County Regional Optimization Financial Plan": WESTCAS Fall Conference, 2009

"Securing Financing in Challenging Economic Times – Case Study: Town of Oak Island, NC": North Carolina AWWA Annual Conference, 2009

"Quantify Risk in Project Procurement": Utility Management Conference, 2010.

"Creative Financial Strategies for Virginia Utilities": AWWA/WEF Webcast, 2011.

"Rates 101: Basic Fundamentals of Financial Planning and Rate Setting": Virginia Rural Water Association Annual Conference, 2012.

"Strategies for Financing a $3.0 Billion Long-Term CSO Control Plan": Utility Management Conference, 2012.

"Fixed vs. Variable Charges: Finding a Balance": VA AWWA | WEA Webcast, 2013; WEF Webcast, 2013

"Addressing Affordability Challenges with Data Driven Management": Water Finance Conference, 2015

"Customer Data Mining for Gold: Affordability and Integrated Planning": Utility Management Conference, 2016

"The City of Richmond: Integration, Innovation, and Affordability": NACWA Winter Conference, 2017

"Infrastructure: "So Much to Do and Not Enough Money to Do It With": TN/KY Utility Management Conference, 2017

"A New Water Rate Structure for DC Water Prioritizing Infrastructure and Affordability": Water Finance Conference, 2018

Publications

"Municipal Advisor Registration: What You Need to Know": AWWA Journal, March 2013

"The Cost of Borrowing: Understanding Credit Ratings": AWWA Journal, November 2105

"Evaluating Risk in Capital Planning, Financing, and Rate Setting," for the Fourth Edition of the industry guidebook, *Water and Wastewater Finance and Pricing: The Changing Landscape.*

JBK Exhibit - 2

30-DAY CONSTANT GROWTH DCF

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]				With Exclusions		
Company		Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Growth Rate	Low ROE	Mean ROE	High ROE	Low ROE	Mean ROE	High ROE
American States Water Co	AWR	$1.10	$ 70.03	1.57%	1.62%	8.00%	6.00%	6.00%	6.67%	7.62%	8.29%	9.63%	7.62%	8.29%	9.63%
American States Water Co	AWK	$1.82	$ 105.29	1.73%	1.80%	9.50%	8.20%	8.08%	8.59%	9.88%	10.40%	11.31%	9.88%	10.40%	11.31%
Aqua America, Inc.	WTR	$0.88	$ 37.26	2.35%	2.43%	8.50%	5.00%	6.00%	6.50%	7.41%	8.93%	10.95%	7.41%	8.93%	10.95%
California Water Service Group	CWT	$0.75	$ 50.53	1.48%	1.55%	8.50%	9.80%	10.00%	9.43%	10.05%	10.99%	11.56%	10.05%	10.99%	11.56%
Middlesex Water Company	MSEX	$0.90	$ 55.76	1.61%	1.65%	7.50%	2.70%	n/a	5.10%	4.33%	6.75%	9.17%	4.33%	6.75%	9.17%
York Water Company	YORW	$0.67	$ 33.55	1.99%	2.06%	9.50%	4.90%	n/a	7.20%	6.93%	9.26%	11.58%	6.93%	9.26%	11.58%
Mean				1.79%	1.85%	8.58%	6.10%	7.52%	7.25%	7.70%	9.10%	10.70%	7.70%	9.10%	10.70%
Mean excluding AWK				1.80%	1.86%	8.40%	5.68%	7.33%	6.98%	7.27%	8.84%	10.58%	7.27%	8.84%	10.58%

Notes:
[1] Source: Bulkley Testimony
[2] Source: Yahoo Finance
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.50 x [11])
[5] Source: Value Line
[6] Source: Yahoo! Finance
[7] Source: Zacks
[8] Equals Average ([5], [6], [7])

90-DAY CONSTANT GROWTH DCF

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]				With Exclusions		
Company		Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Growth Rate	Low ROE	Mean ROE	High ROE	Low ROE	Mean ROE	High ROE
American States Water Co	AWR	$1.10	$70.39	1.56%	1.61%	8.00%	6.00%	6.00%	6.67%	7.61%	8.28%	9.63%	7.61%	8.28%	9.63%
American States Water Co	AWK	$1.82	$104.05	1.75%	1.82%	9.50%	8.20%	8.08%	8.59%	9.90%	10.42%	11.33%	9.90%	10.42%	11.33%
Aqua America, Inc.	WTR	$0.88	$36.68	2.39%	2.47%	8.50%	5.00%	6.00%	6.50%	7.45%	8.97%	10.99%	7.45%	8.97%	10.99%
California Water Service Group	CWT	$0.75	$51.72	1.45%	1.52%	8.50%	9.80%	10.00%	9.43%	10.01%	10.95%	11.52%	10.01%	10.95%	11.52%
Middlesex Water Company	MSEX	$0.90	$56.82	1.58%	1.62%	7.50%	2.70%	n/a	5.10%	4.30%	6.72%	9.13%	4.30%	6.72%	9.13%
York Water Company	YORW	$0.67	$34.18	1.95%	2.02%	9.50%	4.90%	n/a	7.20%	6.90%	9.22%	11.54%	6.90%	9.22%	11.54%
Mean				1.78%	1.84%	8.58%	6.10%	7.52%	7.25%	7.69%	9.09%	10.69%	7.69%	9.09%	10.69%
Mean Excluding AWK				1.79%	1.85%	8.40%	5.68%	7.33%	6.98%	7.25%	8.83%	10.56%	7.25%	8.83%	10.56%

Notes:
[1] Source: Bulkley Testimony
[2] Source: Yahoo Finance
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.50 x [11])
[5] Source: Value Line
[6] Source: Yahoo! Finance
[7] Source: Zacks
[8] Equals Average ([5], [6], [7])

180-DAY CONSTANT GROWTH DCF

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]				With Exclusions		
Company		Annualized Dividend	Stock Price	Dividend Yield	Expected Dividend Yield	Value Line Earnings Growth	Yahoo! Finance Earnings Growth	Zacks Earnings Growth	Average Growth Rate	Low ROE	Mean ROE	High ROE	Low ROE	Mean ROE	High ROE
American States Water Co	AWR	$1.10	$68.00	1.67%	1.72%	8.00%	6.00%	6.00%	6.67%	7.72%	8.39%	9.73%	7.72%	8.39%	9.73%
American States Water Co	AWK	$1.82	$95.40	1.91%	1.99%	9.50%	8.20%	8.08%	8.59%	10.06%	10.58%	11.50%	10.06%	10.58%	11.50%
Aqua America, Inc.	WTR	$0.88	$35.69	2.45%	2.53%	8.50%	5.00%	6.00%	6.50%	7.52%	9.03%	11.06%	7.52%	9.03%	11.06%
California Water Service Group	CWT	$0.75	$46.88	1.60%	1.68%	8.50%	9.80%	10.00%	9.43%	10.17%	11.11%	11.68%	10.17%	11.11%	11.68%
Middlesex Water Company	MSEX	$0.90	$52.35	1.71%	1.75%	7.50%	2.70%	n/a	5.10%	4.43%	6.85%	9.27%	4.43%	6.85%	9.27%
York Water Company	YORW	$0.67	$32.50	2.05%	2.12%	9.50%	4.90%	n/a	7.20%	7.00%	9.32%	11.65%	7.00%	9.32%	11.65%
Mean				1.90%	1.97%	8.58%	6.10%	7.52%	7.25%	7.82%	9.22%	10.82%	7.82%	9.22%	10.82%
Mean Excluding AWK				1.90%	1.96%	8.40%	5.68%	7.33%	6.98%	7.37%	8.94%	10.68%	7.37%	8.94%	10.68%

Notes:
[1] Source: Bulkley Testimony
[2] Source: Yahoo Finance
[3] Equals [1] / [2]
[4] Equals [3] x (1 + 0.50 x [11])
[5] Source: Value Line
[6] Source: Yahoo! Finance
[7] Source: Zacks
[8] Equals Average ([5], [6], [7])

JBK Exhibit - 3

CAPITAL ASSET PRICING MODEL

$$K = R_f + \beta (R_m - R_f)$$

Including AWK	Risk-Free Rate (R_f)	Beta (β)	Market Return (R_m)	Market Risk Premium ($R_m - R_f$)	ROE (K)
Proxy Group Average Value Line Beta and Geometric Mean					
Current 30-day average of 30-year U.S. Treasury bond yield	2.92%	0.700	11.95%	9.03%	9.24%
Proxy Group Average Value Line Beta and Arithmetic Mean					
Current 30-day average of 30-year U.S. Treasury bond yield	2.92%	0.700	10.02%	7.10%	7.89%

Excluding AWK	Risk-Free Rate (Rf)	Beta (β)	Market Return (Rm)	Market Risk Premium (Rm - Rf)	ROE (K)
Proxy Group Average Value Line Beta and Geometric Mean					
Current 30-day average of 30-year U.S. Treasury bond yield	2.92%	0.720	11.95%	9.03%	9.42%
Proxy Group Average Value Line Beta and Arithmetic Mean					
Current 30-day average of 30-year U.S. Treasury bond yield	2.92%	0.720	10.02%	7.10%	8.03%

JBK Exhibit - 4

VAWC Proposed District	Class	Present Revenues	Year 1 Revenues	Year 2 Revenues	Year 3 Revenues	Year 1 Increase	Year 2 Increase	Year 3 Increase	Year 1 Increase	Year 2 Increase	Year 3 Increase
Alexandria	Residential	6,081,418	7,897,733	8,821,135	9,741,787	29.9%	11.7%	10.4%	1,816,204	923,413	920,652
	Commercial	9,667,590	11,987,335	12,838,733	13,782,394	24.0%	7.5%	7.0%	2,319,745	898,897	896,067
	Industrial	381,011	513,911	458,838	403,922	34.9%	-10.7%	-12.0%	132,900	(55,073)	(54,916)
Prince William	Residential	7,108,928	8,448,710	8,748,728	9,033,899	18.9%	3.5%	3.4%	1,339,782	294,018	293,171
	Commercial	1,593,725	1,640,576	1,452,161	1,264,309	2.9%	-11.5%	-12.9%	46,851	(188,415)	(187,852)
Eastern	Residential	2,211,606	1,977,964	1,416,946	857,606	-10.6%	-28.4%	-39.5%	(233,642)	(561,018)	(559,340)
Hopewell	Residential	3,236,517	3,527,579	3,341,438	3,155,846	9.0%	-5.3%	-5.6%	291,042	(186,141)	(185,592)
	Commercial	1,150,724	1,130,147	939,530	749,503	-1.8%	-16.9%	-20.2%	(20,577)	(190,597)	(190,047)
	Industrial	3,983,581	4,015,024	3,590,361	3,166,838	0.8%	-10.6%	-11.8%	31,443	(424,663)	(423,523)
	Non-Potable	5,328,051	5,604,038	5,093,530	4,584,878	5.2%	-9.1%	-10.0%	275,987	(510,508)	(508,652)
Miscellaneous		866,210	890,723	890,776	890,723	2.8%	0.0%	0.0%	24,513	0	(0)
Total		41,607,403	47,631,733	47,631,745	47,631,707	14.5%	0.0%	0.0%	6,024,330	11	(37)
Revenue Requirement			47,631,752	47,631,752	47,631,752						
Variance			(18)	(7)	(44)						

JBK Sample 5-Year Consolidated Phase-In District	Class	Present Revenues	Year 1 Revenues	Year 2 Revenues	Year 3 Revenues	Year 4 Revenues	Year 5 Revenues	
Alexandria	Residential	6,081,418	6,577,030	7,344,504	8,318,954	9,283,660	9,741,790	1
	Commercial	9,667,580	11,091,303	11,756,783	12,462,188	13,209,919	13,782,395	1
	Industrial	381,011	437,121	428,574	420,184	411,978	403,922	
Prince William	Residential	7,108,922	8,153,541	8,398,147	8,650,091	8,909,594	9,033,903	4
	Commercial	1,593,725	1,828,427	1,667,330	1,520,477	1,386,468	1,264,303	
Eastern	Residential	2,211,606	2,537,303	1,979,095	1,543,694	1,204,083	857,607	1
Hopewell	Residential	3,236,537	3,713,171	3,564,644	3,422,821	3,286,257	3,155,846	(6)
	Commercial	1,150,724	1,320,197	1,174,967	1,057,470	898,849	749,508	5
	Industrial	3,983,581	4,570,233	4,338,384	3,851,430	3,221,829	3,166,827	(11)
	Non-Potable	5,328,051	6,112,695	5,688,614	5,291,885	4,938,976	4,584,878	-
Miscellaneous		866,210	890,723	890,725	890,723	890,725	890,725	
Total		41,607,403	47,631,733	47,631,763	47,631,798	47,631,738	47,631,708	
Revenue Requirement			47,631,752	47,631,752	47,631,752	47,631,752	47,631,752	
Variance			(19)	11	[illegible]	[illegible]	(44)	

District	Class	Year 1 Increase	Year 2 Increase	Year 3 Increase	Year 4 Increase	Year 5 Increase	5-year Compound Change	Year 1 Increase	Year 2 Increase	Year 3 Increase	Year 4 Increase	Year 5 Increase
Alexandria	Residential	14.7%	11.0%	10.0%	9.0%	4.9%	9.9%	835,593	767,473	774,450	764,706	456,310
	Commercial	14.7%	6.0%	6.0%	6.0%	4.3%	7.3%	1,423,713	665,478	705,407	747,731	572,476
	Industrial	14.7%	-2.0%	-2.0%	-2.0%	-2.0%	1.2%	56,110	(8,547)	(8,380)	(8,216)	(8,056)
Prince William	Residential	14.7%	3.0%	3.0%	3.0%	1.4%	4.9%	1,044,619	244,606	251,944	259,503	134,308
	Commercial	14.7%	-8.8%	-8.8%	-8.8%	-8.8%	-4.5%	234,702	(161,097)	(146,853)	(133,980)	(122,137)
Eastern	Residential	14.7%	-22.0%	-22.0%	-22.0%	-28.8%	-17.3%	325,696	(558,208)	(435,401)	(339,611)	(346,474)
Hopewell	Residential	14.7%	-4.0%	-4.0%	-4.0%	-4.0%	-0.5%	476,634	(148,527)	(142,022)	(136,364)	(130,412)
	Commercial	14.7%	-11.0%	-10.0%	-15.0%	-16.6%	-8.2%	169,463	(145,231)	(117,497)	(158,620)	(149,344)
	Industrial	14.7%	-5.1%	-11.2%	-16.4%	-1.7%	-4.5%	586,649	(231,848)	(486,953)	(629,601)	(54,702)
	Non-Potable	14.7%	-6.9%	-6.9%	-6.9%	-6.9%	-3.0%	784,644	(424,081)	(394,659)	(367,270)	(341,780)
Miscellaneous								24,513	-	-	-	-
Total								6,024,330	31	(14)	(14)	(29)

PURE CAGR District	Class	Present Revenues	Year 1 Revenues	Year 2 Revenues	Year 3 Revenues	Year 4 Revenues	Year 5 Revenues
Alexandria	Residential	6,081,430	6,577,030	7,584,250	8,244,316	8,961,828	9,741,787
	Commercial	9,667,590	11,091,303	11,710,302	12,363,847	13,053,866	13,782,394
	Industrial	381,011	437,121	428,574	420,154	411,978	403,922
Prince William	Residential	7,108,925	8,153,541	8,365,243	8,582,435	8,805,270	9,033,899
	Commercial	1,593,725	1,828,427	1,667,330	1,520,477	1,386,464	1,264,308
Eastern	Residential	2,211,606	2,537,302	1,934,644	1,475,129	1,124,737	857,606
Hopewell	Residential	3,236,537	3,713,171	3,565,231	3,423,185	3,286,780	3,155,846
	Commercial	1,150,724	1,320,187	1,145,961	994,728	863,453	749,502
	Industrial	3,983,583	4,570,232	4,169,751	3,804,364	3,470,995	3,166,838
	Non-Potable	5,328,051	6,112,695	5,678,414	5,273,833	4,976,676	4,584,876
Miscellaneous		866,210	890,725	890,725	890,723	890,725	890,725
Total		41,607,403	47,631,733	47,150,623	47,013,396	47,182,838	47,631,707
Revenue Requirement			47,631,751	47,631,752	47,631,752	47,631,752	47,631,752
Variance			[illegible]	[illegible]	[illegible]	[illegible]	(14)

District	Class	Year 1 Increase	Year 2 Increase	Year 3 Increase	Year 4 Increase	Year 5 Increase	5-year Compound Change	Year 1 Increase	Year 2 Increase	Year 3 Increase	Year 4 Increase	Year 5 Increase
Alexandria	Residential	14.7%	8.7%	8.7%	8.7%	8.7%	9.9%	895,353	607,219	660,066	717,511	779,959
	Commercial	14.7%	5.6%	5.6%	5.6%	5.6%	7.3%	1,423,713	618,999	653,545	690,019	728,528
	Industrial	14.7%	-2.0%	-2.0%	-2.0%	-2.0%	1.2%	56,110	(8,547)	(8,380)	(8,216)	(8,056)
Prince William	Residential	14.7%	2.6%	2.6%	2.6%	2.6%	4.9%	1,044,616	211,701	217,190	222,837	228,623
	Commercial	14.7%	-8.8%	-8.8%	-8.8%	-8.8%	-4.5%	234,702	(161,097)	(146,903)	(133,980)	(122,157)
Eastern	Residential	14.7%	-23.8%	-23.8%	-23.8%	-23.8%	-17.3%	325,696	(602,658)	(459,515)	(350,371)	(267,131)
Hopewell	Residential	14.7%	-4.0%	-4.0%	-4.0%	-4.0%	-0.5%	476,634	(147,940)	(142,046)	(136,386)	(130,933)
	Commercial	14.7%	-13.2%	-13.2%	-13.2%	-13.2%	-8.2%	169,463	(174,226)	(151,233)	(131,276)	(113,950)
	Industrial	14.7%	-8.8%	-8.8%	-8.8%	-8.8%	-4.5%	586,649	(400,481)	(365,387)	(333,369)	(304,157)
	Non-Potable	14.7%	-6.9%	-6.9%	-6.9%	-6.9%	-3.0%	784,644	(434,081)	(394,650)	(367,279)	(341,780)
Miscellaneous								24,513	-	-	-	-
Total								6,024,330	(481,110)	(137,315)	169,531	448,869

CERTIFICATE OF SERVICE

I certify that a true copy of the foregoing Direct Testimony was served this 28th day of May, 2019, by first-class mail, postage prepaid, to the parties listed below.

Timothy E. Biller, Esq.
Lonnie, D. Nunley, III, Esq.
Christopher A. Alderman, Esq.
Hunton Andrews Kurth LLP
Riverfront Plaza, East Tower
951 East Byrd Street
Richmond, Virginia 23219

C. Meade Browder, Jr., Esq.
Katherine C. Creef, Esq.
Division of Consumer Counsel
Office of the Attorney General
900 East Main Street, 2d Floor
Richmond, Virginia 23219

Frederick D. Ochsenhirt, Esq.
Austin Skeens, Esq.
Kelli Cole, Esq.
Office of the General Counsel
State Corporation Commission
P.O. Box 1197
Richmond, Virginia 23218

Cliona M. Robb, Esq
Louis R. Monacell, Esq.
Christian & Barton, LLP
909 E. Main Sheet
Richmond, VA 23219

Justin W. Curtis