TESTIMONY OF
ANNA M. WHITE
BLACK & VEATCH

Q. Please state your name and business address.

A. My name is Ms. Anna M. White. My business address is 11401 Lamar, Overland Park, Kansas, 66211.

Q. What is your occupation?

A. I am a Principal Consultant with Black & Veatch Management Consulting, LLC.

Q. Please describe the firm of Black & Veatch Management Consulting, LLC.

A. Black & Veatch Management Consulting, LLC (Black & Veatch) is a wholly-owned subsidiary of Black & Veatch Holding Company. It brings together over 250 professionals, including experienced industry executives; senior analysts; and technology experts from across the electric, water, oil, natural gas, and technology industries; special districts; and companies involved in the supply, treatment, and distribution of drinking water; as well as the collection, treatment, and disposal of wastewater.

More specifically, Black & Veatch assists utilities with utility financial planning, cost of service rate studies, bond feasibility studies, affordability analyses, system valuation, utility business efficiency and transformation services, operations technology planning and integration services, customer engagement and advanced metering/billing solutions implementation, expert testimony during rate proceedings, litigation support, and regulatory review.

Q. How long have you been associated with the firm Black & Veatch?

A. I have been with Black & Veatch continuously since May 1998.

Q. What is your educational background?

A. I received a Bachelor of General Studies in Economics from the University of Kansas in 1994 and a Masters of Business Administration from the University of Kansas in 1998.

Q. What is your professional experience?

A. I joined Black & Veatch in 1998 as an analyst in Black & Veatch's Management Consulting group in Kansas City, Missouri. During this time, I conducted various analyses related to water and wastewater cost of service and rate design studies. I was promoted to Principal Consultant in 2013 and have served as a Project Manager primarily in the eastern two-thirds of the Unities States since then. As a Project Manager, I have led strategic financial planning studies, cost of service and rate design studies, and bond feasibility studies. In the past decade, I have conducted studies regarding water rates and related matters for clients including Topeka, KS; Kansas City and Blue Springs, MO; Broken Arrow, OK; New Orleans, LA; Fayetteville, AR, and Charleston, SC A full listing of my experience record is included in this document, designated as Exhibit AMW-1.

I am a member of the Water Environment Federation and the American Water Works Association.

Q. Did any of the studies referenced above involve providing testimony before a public service commission or appearing before a decision-making body such as a city council or utility board?

A. Yes, most of the utility clients I have worked with are municipally-owned utilities. Approval of rates for these utilities typically requires presenting our cost

of service study and proposed rates to the appropriate rate-making body, such as city councils and utility boards or commissions.

Q. Will you please briefly state the nature of your firm's engagement in this matter for the Board of Public Utilities (BPU)?

A. The scope of our services in this proceeding includes a study of the water utility's costs of providing water service and recommending appropriate cost-based rates. The results of that study of the water utility's revenue requirements, cost of water service, and rate structure are included as Petitioner's Exhibit AMW-2 and referred to as our Report.

Q. Does your firm specialize in water utility cost of service studies?

A. Yes, our firm specializes in, among other things, water utility cost of service studies, and I have been involved in them since I started at Black & Veatch in 1998.

Q. Was the cost of service study in this proceeding performed consistent with generally accepted industry guidelines?

A. Yes, Black & Veatch utilized the principles and guidelines from the American Water Works Association's (AWWA) "Principles of Water Rates, Fees, and Charges" Manual of Water Supply Practices M1 (M1 Manual) in performing its cost of service study in this proceeding. This manual serves as the generally accepted industry guidelines used by rate practitioners.

Q. Please describe the purpose of a cost of service study.

A. A cost of service study aims to develop an equitable water rate structure that recovers the cost of providing water service from various customer classes in

proportion to the service received.

Q. In performing your study in this case, have you become familiar with BPU's water utility system and its costs?

A. Yes.

Q. Please describe the various components of a cost of service study.

A. Consistent with the principles and guidelines in the above referenced manual, the Cost of Service Study undertaken in this proceeding consists of three parts:

1. Revenue & Revenue Requirements,
2. Cost of Service Analysis, and
3. Rate Design.

As a general proposition, the cost of service analysis provides the basis for designing a rate structure that allows the utility to recover costs from its customers equitably. As a part of this analysis, the costs of providing service to various customer types are matched with their associated service demands. As it is not practical to perform this matching of costs of service at an individual customer level, the cost of service is determined by customer type. The three components of the cost of service study are discussed below.

Revenue & Revenue Requirements: The first step in the Cost of Service Study is to establish how much money the utility needs to meet its fiscal year operating and capital obligations over a multi-year period. This step includes a review of operations and maintenance (O&M) expenses, debt service payments, funding for specific deposits and reserves, and the cost of capital improvement projects that the utility does not fund via debt, grants, or contributions from third parties.

When the revenues generated from existing user rates and charges and other sources of revenue are insufficient to cover operating and capital costs, the utility may require one or more revenue adjustments as part of the revenue requirements analysis.

Cost of Service Analysis: The Cost of Service analysis begins after determining the revenue requirements for the utility over the Study Period. In this rate proceeding, the cost of service analysis is performed for a specific prospective fiscal year (or "test year"). We use the test year to illustrate the allocation of costs to customer types and the design of rate schedules to recover those costs from the various customer types.

The term annual cost of service refers to the "net" revenue requirement (less any other operating and or non-operating revenues) that needs to be recovered from rates and charges. The cost of service analysis involves multiple levels of cost allocation, namely:

(i) Allocation of identified costs (e.g., O&M, debt service, reserves, cash-funded capital) to functional cost centers and then to cost components;

(ii) Calculation of unit cost for each cost component; and

(iii) Determination of the cost for each customer type by multiplying the unit cost of each component by the number of units of service associated with each customer type.

Rate Design: The final step in conducting a Cost of Service study involves developing the rate structure that allows the utility to recover its costs for a given test year.

Q. Please describe the study period in the Cost of Service Study.

A. The study period used in the cost of service study is fiscal year 2022 to 2027

(Study Period). The revenue and revenue requirements projections and the associated revenue adjustment projections span this six-year period.

Q. What is the period for which rates are being proposed?

A. Rate schedules for the forecasted fiscal years 2023, 2024, and 2025 are being proposed.

Q. Would you describe the revenue requirement projection phase of your study?

A. Yes. We reviewed five years of historical data (2017 – 2021), including the number of customers, metered consumption, revenues under existing rates by customer group, miscellaneous operating revenue and non-operating income, operation and maintenance expenses, and other historical expense and operating data. In addition, we reviewed the then-current year operating budget for the fiscal year ending December 31, 2022, and the current operating budget for the fiscal year ending December 31, 2023. and took into account allowances for inflation and other anticipated changes. Collectively, this information was used to make a projection of revenues under existing rates and operation and maintenance expenses for the Study Period. Tables 1 through 5 and Table 8 of our Report summarize this historical and projected information.

We also reviewed the proposed capital improvement program for BPU for the Study Period, and in conjunction with BPU staff, we developed a plan for financing the capital improvement program. The identified funding sources include grants provided by the United States Environmental Protection Agency (EPA) and Federal Emergency Management Agency (FEMA), Kansas Department of Health and Environment (KDHE) loan proceeds, system revenues,

and other funds available. This information is presented in Tables 6 and 7 of the Report.

Table 10 of the Report provides a summary of projected revenues under existing rates and revenue projections for the Study Period. As indicated on Lines 3 through 7 of Table 10, a series of annual revenue increases are necessary to fund the capital improvement program and water operations of BPU. These proposed increases reflect a 6.0 percent increase effective July 1 of each year from 2023 through 2027.

The BPU is seeking approval for revenue increases for 2023, 2024, and 2025. Using the annual increases presented on Lines 3 through 5 of Table 10, the cumulative impact of these adjustments is 19.1 percent.

Q. Please explain the reasons for the increases of 6.0 percent in 2023, 2024, and 2025 indicated to be required, which results in an overall increase of 19.1 percent by 2025.

A. The BPU's Funds and Reserves Guidelines indicate that the Water utility has the following requirements:

1. Debt Service Coverage Ratios: The BPU must maintain at least the minimum bond coverage requirements as stated in the bond indenture document, which indicates that utility rates shall be maintained such that net revenues during each fiscal year will be equal to or greater than 120 percent of the maximum annual debt service in each year. The BPU has established a guideline that net revenues including the payment in lieu of taxes (PILOT) will be 200 percent of the maximum annual debt service, and net revenues excluding PILOT will be 160

percent of the maximum annual debt service.

2. Operating Reserve: The guideline is a working capital reserve of 60 days of operating expenses requirements; however, to achieve greater financial stability, the BPU's goal is to maintain 100 days.

3. Construction Reserve: The guideline is a cash reserve equal to 50 percent of next year's construction budget. The goal for the water utility is to achieve a cash reserve equal to 50 percent for each year of the Study Period.

In 2023, the BPU meets and exceeds the bond coverage requirement including the PILOT (Line 13 of Table 11), the operating reserve requirement, as shown on Line 42 of Table 10, and the cash balance in the construction reserve shown on Line 15 of Table 7. The bond coverage requirement excluding the PILOT will be met in 2024 following implementation of the July 1 2023 revenue increase.

With no future revenue increases, the BPU will not be able to simultaneously maintain 100 days of cash in the Operating Reserve and maintain the Construction Reserve throughout the Study Period. In addition, with no future revenue increases, the BPU will not meet the financial guideline for debt service coverage excluding PILOT.

Execution of the capital improvement program is one of the primary contributors to the level of proposed revenue increases. The BPU proactively applied for and was granted two grants totaling $15 million to fund critical improvements to the distribution system and Nearman Water Treatment Plant. In addition, to mitigate the level of future revenue increases, the BPU applied for, and was granted an increase in its existing KDHE loan's original loan amount from $25,000,000 to

$39,500,000 to fund capital projects in the study period. It is expected that the BPU will require future loan debt to be issued in 2023 and 2026. The anticipated drawdown of the existing KDHE loan is shown on Line 5 of Table 7, and the proposed KDHE loans are on Line 6. Debt service associated with existing and proposed debt is shown in Table 9.

Implementation of the proposed revenue increases will allow for the funding of the 2023 – 2025 capital program, the balance in the Operating Reserve to remain above 100 days, the balance in the Construction Reserve to remain above 50 percent of the following year's construction budget, and the required debt service coverage and targeted guideline debt service coverage will be maintained throughout the Study Period.

Q. Given the analyses presented in Tables 10 and 11 of the Report, what is the test year cost of service utilized in the cost of service and rate design portions of the study?

A. Fiscal year 2023 was chosen as the test year for the purpose of the cost of service allocations and rate design. The total test year 2023 cost of service to be recovered from rates for water service, after recognizing the credits for miscellaneous operating revenues and non-operating income, amounts to $47,168,500. This is separated into operation and maintenance expenses of $30,443,100 and capital-related costs of $16,725,400.

Q. Please explain the general procedures that you used to develop the cost of service water rates.

A. We followed the cost of service allocation procedures recommended by AWWA's

M1 Manual**.** We first allocated the utility's costs of service to the applicable functional cost components and then distributed the functionalized costs for each component to the various customer groups. We then developed rates designed to recover these costs from each customer group.

Q. Please explain the basis for allocating the test year costs of service to the various functional cost components.

A. Generally, costs are allocated to that function for which the cost is incurred or, in the case of plant investment, to the component for which the investment was made.

Q. What are the functional cost components you have used?

A. We used the Base - Extra Capacity method in this water rate study. This method allocates costs to the functional cost components of base costs, maximum day extra capacity costs, maximum hour extra capacity costs, meters reading and billing, meters and services costs, and direct fire protection costs.

Q. Please explain the basis of your allocation to these functional cost components.

A. Yes, the BPU water system comprises various facilities, each designed and operated to fulfill a given function. To provide adequate service to its customers at all times, the system must be capable of providing the average annual amount of water used and supplying water at maximum rates of demand. However, because all customers do not exert maximum demands at the same time, capacities of the various system components are established to meet the maximum coincidental demand of all classes of customers. The capacities of some facilities, such as the source pumping facilities and water treatment plant, are designed to

meet maximum day demands. Other facilities, such as filtered water storage and distribution mains, are designed to meet maximum hourly rates of water use. These requirements result in different ratios of maximum to average demands to be met by the various parts of the system. The demand ratios, in turn, are the basis for allocating the costs of respective facilities to the base and extra capacity cost components.

Q. Did the allocations recognize any differences between retail and wholesale service?

A. Yes. BPU provides service to five wholesale customers on a contractual basis. Since wholesale service is provided through connections on 8-inch and larger mains, the costs associated with mains less than 8-inches were allocated only to retail customers. Direct costs associated with meters and services are also allocated only to retail customers.

Q. How did you proceed in the development of allocations?

A. The total cost of service was allocated in two parts – the allocation of capital-related costs of service to be met from rate revenue and the allocation of operation and maintenance expenses to be met from rate revenue. From Table 12, the annual capital-related costs of service include debt service payments and capital improvements financed directly from annual revenues, less available fund balances. Capital-related costs to be met from rates amounts to $16,725,400.

As shown in Table 13 of the Report, the portion of test year capital costs related to existing debt service (shown on Line 9) was allocated to cost components based upon an allocation of estimated test year plant investment (Line 8). The

total test year plant investment of $243,990,300 reflects the original cost of plant investment as of December 31, 2021, less accumulated depreciation, plus the anticipated capital projects to be completed in 2022 and 2023. To determine the test year values, the assets were allowed to depreciate in accordance with existing BPU practices to determine the value of the utility's existing assets as of 2023.

Q. Please explain your allocation of capital costs between retail and wholesale customers in Table 13.

A. Plant investment and capital costs associated with small distribution mains, meters and services, and fire protection were not allocable to wholesale customers.

Q. Please explain your allocation of costs related to the capital improvement plan.

A. The cost of service related to the capital improvement program is defined as the total of debt service on proposed bonds and cash financing of revenue, less revenue from other sources, which amount to $4,908,500 for test year 2023. The basis for the allocation of this cost reflects both the net investment in existing facilities, as previously shown in Table 13, in addition to the allocation of the 2022 and 2023 capital plans, as previously documented in Table 6. The allocation of the planned capital program is shown on lines 1 through 6 of Table 14, which is subsequently added to the allocation of the existing plant in service to develop the total plant investment on Line 8.

Q. Please explain your allocation of operation and maintenance expense.

A. The allocation of test year operation and maintenance expense to functional cost components is shown in Table 15. In general, the allocation of test year operation

and maintenance expense related to treated water service cost components is similar to the allocation of plant in Tables 13 and 14. Production costs generally relate to the treatment of water; therefore, such costs are allocated to the base and maximum day components, with the exception of chemical and lab costs, which are allocated only to the base component.

The allocation of transmission and distribution operating costs generally follows the allocation of the investment in the underlying assets.

Customer service costs are largely assigned directly to the common to all - meter reading and billing component. General and administrative costs, shown on Line 4, are allocated based on all other O&M costs excluding power and chemicals.

Total net operation and maintenance expenses of $30,443,100 are allocated in Table 15 and are shown on Line 6.

Q. After performing the described allocations, how did you apportion the allocated costs to customer classes?

A. To make this apportionment, it was necessary to develop the total system and customer class units of service. These units of service are shown in Table 16.

Q. How were units of service developed?

A. The annual units of service, or "base" units, were based upon projected water sales as previously developed in Table 2 of the Report. The estimated maximum day and maximum hour capacity factors, or the noncoincidental demands, for the retail customers and wholesale service, were based on an analysis of the monthly consumption by customer class and recognition of the overall system coincidental demand characteristics.

Q. How were the Maximum Day and Maximum Hour Capacity Factors determined?

A. Maximum Day and Maximum Hour factors represent comparative usage of the system by customer classes developed on a non-coincidental basis. These factors are expressed as a percentage of average daily use and are intended to show the relative use of the system on maximum days and maximum hours. Non-coincidental maximum day and maximum hour capacity requirements of customer classes provide the basis for distribution of total system extra capacity costs. Estimates of the capacity factors, that is, the ratios of peak demands to average demands, are based upon an analysis of the historical monthly pattern of water use of BPU and from experience with other waterworks systems. The demand factors used for each of the customer classes in Table 16 represent our engineering judgment on the use of the water system by these classes. The ratio of non to coincidental demand (diversity factor) for the system is 1.17 for the maximum day and 1.14 for the maximum hour. The typical range of ratios for utilities recommended by AWWA is 1.10 to 1.40.

Q. How were the units of service shown in Table 16 used to apportion costs to customer classes?

A. The sum of the units of service in each functional category is divided into the total allocated cost of that category to determine a unit cost of service for each functional category, as shown in Table 17. Cost items include operation and maintenance expense, and existing and proposed net debt service. A total unit cost of service is developed for each functional cost category by adding the unit costs for each cost item. Unit costs for each functional category are multiplied by

customer class units in each functional category to distribute costs to each customer class. The allocation of costs to customer classes is shown in Table 18.

Q. How does the allocated cost of service compare to the revenues that are in effect during the test year?

A. The comparison of test year revenues under existing rates to the allocated cost of service for each customer class is shown in Table 19. The allocated cost of service by customer class resulting from the process described in this testimony thus far is shown in column 1 of Table 19. Some adjustments are necessary to these results. First, some costs are not recovered through direct charges, such as City service and public fire protection. Instead, the costs for these services are allocated back to retail customers in proportion to their allocated cost of service as shown in Column 2 on Lines 5 and 6. Additionally, wholesale customers receive a facility credit for customer-owned storage facilities that reduce the BPU's cost of providing service. The amount of this credit, as shown in Column 2 on Line 9, is reallocated to all other retail customers in proportion to their allocated cost of service. After adjustments, increases in the BPU's rates are necessary to fairly recover the cost of providing water service to the various customer classes. Compared to a system average increase of 6.0 percent, Retail customers are indicated to have an increase of 5.6 percent, while Wholesale is indicated to increase by 18.5 percent.

Q. Have you designed water rates that will recover the cost of service?

A. Yes, the water rates are shown in Table ES-1 for FY 2023, FY 2024, and FY 2025.

Q. From a design perspective, do these rates differ from the existing rates?

A. No.

Q. What considerations were recognized in the derivation of the proposed water rates shown in Table ES-1?

A. Considerations include the desire of the BPU to recover revenues from each class of water customer approximately equal to the allocated costs of providing service and to the extent possible, permit no decreases in existing rates of charge to any class of customers at a time when rates to other classes are to be increased.

Q. Did any of these considerations impact the proposed rates in Table ES-1?

A. Yes. Line 7 of Table 17 indicates that the rates of charge for private fire connections are over recovering; however, the BPU elected to hold these rates at the current level.

Q. Were any other factors taken into consideration?

A. Yes, while the cost of service study previously described provides a basis for the design of rate schedules to recover those costs, judgment must enter into the final choice of rates. Factors such as previous rate levels, economic impact on customers, and public reaction to the extent of changes are commonly recognized in making rate adjustments.

Q. Did any of these factors impact the proposed rates in Table A?

A. Yes. As shown on Line 9 of Table 19, the indicated revenue increase for the Wholesale customer class was significantly greater than the overall revenue increase of 6.0 percent. As such, the BPU elected to limit the revenue increase for this customer class to approximately 6.0 percent.

Q. Do the proposed water service rates adequately recover the service cost from customers?

A. Yes, as shown in Table 22, in FY 2023, the proposed rates for customers recover 100 percent of the retail costs and 100 percent of total costs. The cost recovery for the retail customers ranges from 98.5 percent and 103.8 percent of the cost of service allocated to each customer class, except for Private Fire Connections, whose rate is unchanged over the study period. The rates do not recover exactly 100 percent from each customer class due to variances in usage characteristics within the customer classes. The percent recovery for the Wholesale class is 89.6, reflecting the BPU's decision to limit the increase to this class to the overall system revenue increase of approximately 6 percent.

Q. For the FY 2023 Test Year, is it your opinion that the proposed level of revenues shown in your Report is reasonable and necessary to meet the projected revenue requirements of the utility and that the proposed rates recover the revenue requirements from customer classes with a reasonable level of equity?

A. Yes, it is my opinion that it is.

Q. Does this conclude your prepared direct testimony in this matter?

A. Yes, it does.