COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF KENTUCKY-AMERICAN WATER COMPANY FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY AUTHORIZING THE CONSTRUCTION OF WATER TRANSMISSION MAINS, BOOSTER PUMP STATION AND TWO ELEVATED STORAGE TANKS FOR THE NORTHERN DIVISION CONNECTION	)))))))	CASE NO. 2012-00096

DIRECT TESTIMONY OF LANCE E. WILLIAMS, P.E.

July 2, 2012

Q. Please state your name and business address.

A. My name is Lance E. Williams and my business address is 2300 Richmond Road, Lexington, Kentucky 40502.

Q. By whom are you employed and in what capacity?

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

Q. Have you previously filed testimony before this Commission?

A. Yes, I filed testimony before this Commission in KAW's last rate case, which was Case No. 2010-00036, *In the Matter of: Application of Kentucky-American Water Company for an Adjustment of Rates on and After March 28, 2010.*

Q. Please state your educational and professional background.

A. I received a M.B.A. from Midway College in 2012, and a B.S. degree in Civil Engineering from the West Virginia Institute of Technology (West Virginia University Institute of Technology) in 1990. I am a registered Professional Engineer in Kentucky and West Virginia. I worked for Howard K. Bell, Consulting Engineers Inc. ("HKB") from 1990 to 2003. While working for HKB, I was responsible for various projects, including water and wastewater treatment, distribution, collection and landfill design. In 2003, I went to work for BridgeTek, Inc. (which was later purchased by CONTECH, Construction Products) as the Region Manager for Kentucky.

Q. How long have you held the position of Director of Engineering for KAW?

A. I have held this position since June 2008.

Q. What are your duties as Director of Engineering?

A. I am responsible for the coordination of the Engineering Department at KAW, which includes the planning, development, and implementation of all aspects of construction projects. This includes working with all new main extensions and developers, water treatment plant upgrades, new construction, and network facilities improvements. I coordinate the provision of technical assistance to all other company departments as needed and oversee the capital budget development and implementation.

Q. What is the purpose of your testimony?

A. I will provide an overview of KAW's plan to ensure that its Northern Division customers have a reliable supply of high quality finished water on a least cost basis. That plan includes the proposed construction for which KAW is seeking a certificate of public convenience and necessity in this proceeding. I will explain the alternatives the Company considered, the costs to construct and/or operate the different alternatives, and KAW's decision making regarding same.

Q. Please provide an overview of KAW's Northern Division.

A. KAW's Northern Division includes customers in Gallatin, Owen, and Grant Counties. Currently, Northern Division customers are served by a water treatment plant the Company owns and operates in Owenton, Kentucky ("Owenton WTP"). KAW also purchases treated water from Georgetown Municipal Water and Sewer Services, Gallatin County Water District, and Carroll County Water District for small areas of the system that cannot hydraulically be served from the treatment plant. KAW purchased the Owenton WTP, which was constructed in 1995, in 2005. The plant has a design capacity of 1.44 million gallons per day ("MGD"), but has averaged approximately 0.83 MGD from 2006 to present. The primary source of supply for the Owenton WTP consists of

an intake on Severn Creek, which is near the Kentucky River, and an impoundment owned by the City of Owenton.

Q. Please describe the events that led to KAW's decision to construct new transmission facilities for its Northern Division customers.

A. When KAW was in the process of acquiring the Owenton system, it recognized there were issues with the facilities. As such, in evaluating whether to purchase the system, KAW identified long-term capital expenditures that would be needed to repair and maintain the system in a manner that would afford Northern Division customers high quality finished water that is reliably delivered. In the last several years, KAW has identified other limitations and concerns through its operation of the plant. Based upon the pressing concerns facing the Owenton WTP, KAW proceeded to identify and analyze the various measures by which the issues could be addressed.

Limitations and Concerns with the Owenton WTP

Q. Please describe the lack of redundancy at the Owenton WTP.

A. The Owenton WTP has significant limitations, the most important of which is its lack of redundancy. The facility operates with a single treatment process train that utilizes a clarifier in transferring raw water through the sedimentation process. The lack of redundancy is closely related to a lack of reliability because the single treatment process prevents KAW from maintaining safe operations if the treatment process is in any way disrupted. The treatment process can be disrupted in a number of ways, such as from a heavy rain event, a mechanical issue, or other equipment failure. If the clarifier fails, because the Owenton WTP utilizes a single treatment process train, the plant is incapable of producing finished water.

It is important to understand that the lack of redundancy is not simply an issue when there is a complete failure of the clarifier. Instead, even minor treatment upsets, such as the need to complete maintenance or repairs, can require the system to rely solely on the facility's limited storage capacity until the treatment process can be restarted. While certain Northern Division customer segments can be served by water districts with which KAW has purchase agreements, a significant portion of the Northern Division would be un-served if the clarifier is out of service for more than a few hours because of the very limited water storage capabilities at the site.

Q. In addition to the lack of redundancy, are there concerns regarding chemical storage facilities?

A. Yes, as the chemical storage facilities are undersized. To work around this problem, KAW must purchase chemicals in smaller quantities than would normally be purchased, which is inefficient and consequently more expensive than a larger, bulk purchase. The lack of storage is even more pronounced with certain chemicals, as even small quantities cannot be stored on-site because there are no formally constructed feed areas with storage and containment, which can result in environmental risks. KAW is currently forced to use off-site storage for these chemicals and use temporary containment for a single drum in use.

Q. Please describe KAW's concerns with the filters at the Owenton WTP.

A. The Owenton WTP only has two filters, both of which are required for the plant to operate. Similar to the concerns regarding the clarifier, if one filter is out of service for maintenance or repairs, the plant is often unable to satisfy its normal production demands. As with the clarifier, when this occurs, KAW must rely on its storage tanks to

meet demand when there is a problem with the operation of either filter. Because of the pressing need to keep both filters operational at all times, KAW is largely prevented from performing extended maintenance on either filter, which can result in water quality issues.

Q. Are there limitations with regard to the ability to process residuals at the Owenton WTP?

A. Yes, this is another serious concern. As part of the treatment process, the plant utilizes a traditional sand filtration system to remove particulates from the water. The particulates captured as part of the filtering process are known as residuals. Currently, residuals and filter backwash water are piped to a basin on an adjacent property. There are two problems with this method. First, the walls of the basin itself are deteriorating. Second, KAW is very limited in its ability to remove sludge from the basin. These two problems must be resolved in order for KAW to continue to comply with applicable regulations.

Q. Are there issues with the reliability of the entire distribution system, and not just the Owenton WTP?

A. Unfortunately, yes. In addition to the several serious issues with the Owenton WTP, the entire distribution system is lacking in two critical ways. First, the entire system does not have adequate storage. The water storage issue is so dire that one particular tank cannot be out of service at all, despite the fact there is an immediate need to perform maintenance on it, which has repeatedly been noted as a concern by the Division of Water and the Commission.

Second, the system lacks back-up emergency power, which means that during any loss of electric service at the plant, the system can only be provided water through the

storage tanks. As discussed, the tanks lack sufficient capacity, meaning that during a loss of electric service, only a few hours of water service can be provided.

Q. In addition to the various limitations with the facilities at the Owenton WTP, are there also concerns regarding the primary source of water for the plant?

A. Yes. As I indicated above, the primary source of water for the plant is Severn Creek. Even before KAW acquired the plant, the Division of Water identified an issue with the location of the raw water intake on Severn Creek. The concern pertains to the high organic content of the raw water that results from the intake's proximity to Pool 2 in the Kentucky River and the very low flow within Severn Creek during the warmer months. The stagnating water and high organic content brings about very poor water quality. KAW has thus far been able to reduce the level of organic content in the finished water to suitable levels, thus delaying the need to relocate the intake, but with the advent of more stringent water quality standards, KAW does not reasonably believe it will be able to do so without relocating the intake.

Q. What is the cumulative impact of the limitations and concerns facing the Owenton WTP?

A. The cumulative impact of the limitations and concerns is that KAW must act to alleviate these problems in order to provide its Northern Division customers with high quality water that is reliably delivered. The issues identified above are not trivial; to the contrary, these represent some of the most central components of providing finished water: having a redundant treatment process; the capability to store necessary chemicals; the storage of water; and processing residuals in a safe and environmentally conscious manner.

Although KAW has been able to manage the problems associated with the Owenton WTP, the present conditions by which water is provided to the Northern Division includes an unacceptable level of risk with regard to both the quality of water and the Company's ability to satisfy normal demand. Many Northern Division customers are aware of the issues with the Owenton WTP and are supportive of the Company's request in this proceeding, as evidenced by the resolution of support passed by the City of Owenton on June 5, 2012 and filed as part of the record in this proceeding on June 8, 2012.

KAW takes it obligation of providing high quality finished water seriously, and neither the Company nor its customers should lose confidence in its ability to do so. In order to ensure that KAW can perform its service obligations in an appropriate manner, capital improvements are necessary.

Development and Analysis of Possible Solutions

Q. Did KAW conduct a study to identify how to resolve these issues?

A. Yes, KAW developed a Feasibility Study that identified and evaluated the alternatives to supplying service to the Northern Division customers. A copy of the study was provided as Exhibit A to the Application in this proceeding. The study identified and evaluated the following two options: (1) the feasibility of supplying the Northern Division from Kentucky River Station II, which is the water treatment plant KAW recently completed constructing on the Kentucky River ("Northern Division Connection") or (2) continuing to operate the Owenton WTP to supply Northern Division customers by upgrading the Owenton WTP.

Q. How did KAW evaluate the two alternatives?

A. The Company looked not only at the capital expenditures required under each option, but also considered the operation and maintenance costs of operating the facilities once construction is complete. It is prudent for KAW to have examined not only the capital expenditures associated with constructing each option, but instead broaden its examination to review operation and maintenance expenses, as well. In so doing, KAW can be assured it selected the least-cost and most reasonable option to provide service to its Northern Division customers.

Q. Which option did KAW select, and please explain why.

A. As stated above, the Company considered both the capital expenditures and operation and maintenance costs associated with each option. The total estimated capital cost of the first option, which is to connect the Northern Division customers to KRS II, is $14,104,868. The total estimated capital cost of the second option, which is to improve the Owenton WTP to an acceptable level, is $11,400,000

When KAW began evaluating the associated operation and maintenance expenses with each option, it became evident that it was financially prudent to select the first option, which is the Northern Division Connection. The Feasibility Study demonstrated that the operation and maintenance cost savings in the first year of operating the Northern Division Connection versus improving the Owenton WTP exceeded $600,000. Because of the significantly reduced operation and maintenance costs, connecting the Northern Division to KRS II costs less than upgrading the Owenton WTP in only a few years. In fact, by the seventh year of operation, the operation and maintenance savings exceed $4.5 million.

Q. Did KAW consider other proposed routes for the connection?

A. Yes, the Company considered two alternate routes. Neither alternate route proved to be a viable option, however, because neither resolved the existing issues with regard to storage volume and capacity.

Overview of the Northern Division Connection Project

Q. Please provide an overview of the option KAW selected, which is the Northern Division Connnection.

A. Currently, the KRS II water treatment plant is not connected to the Northern Division such that it can provide service to those customers. Thus, under this option, KAW will construct the facilities necessary for this connection, which include water transmission mains, a booster pump station, and two elevated storage tanks. These facilities would permit the Company to interconnect KRS II with the Northern Division.

Q. Please provide an overview of the KRS II water treatment plant.

A. KAW completed the KRS II project in September 2010, which consisted of a new water treatment plant on Pool 3 of the Kentucky River. It has a 20 MGD capacity and currently supplies water primarily to Fayette, Scott, Bourbon and Harrison counties. KRS II is located near Monterey, which is a city in Owen County.

Q. Please describe how KAW proposes to complete the construction.

A. KAW proposes to complete the Northern Division Connection in three phases. During Phase I, KAW will construct a 16-inch transmission main from KRS II to the north of Monterey. The Company estimates that this will require 39,620 linear feet of transmission main and necessary appurtenances. When this is complete, this connection will allow service to residents that reside south of Monterey along U.S. Route 127 that are currently served by the Owenton WTP. When the entire project is complete, this transmission main's principal purpose will be to supply water to the 600,000 gallon

elevated storage tank the Company has proposed to construct. The proposed tank will be discussed below.

During Phase II, the Company will continue installing 16-inch transmission main north along U.S. Route 127. From Monterey, the main will continue into Owenton and will connect into the Owenton system in three locations: first, into an existing line near the intersection of Kentucky State Route 845 and U.S. Route 127; second, into an existing line on U.S. Route 127 near the intersection of U.S. Route 127 and Kentucky State Route 22; and third into an existing line on Kentucky State Route 22 near Thomner Trailer Park Road. Completion of this second phase will require the installation of an estimated 44,945 linear feet of transmission main and necessary appurtenances.

In Phase III, which is the final phase, KAW will construct two elevated storage tanks and a booster pump station. One storage tank will be constructed on the northern side of Monterey and will have a capacity of 300,000 gallons. The second tank, which is referred to above, will be located outside of Owenton and will have a capacity of 600,000 gallons. The booster pump station will be rated for 2 MGD, and will have the ability to pump directly from the new 300,000 gallon tank to the new 16-inch transmission main.

Q. Is KAW required to obtain permits to complete the project? If so, what is the status of the permits?

A. Yes, KAW is required to obtain five permits and/or authorizations in order to complete the Northern Division Connection. As indicated in the Application, the Company has received all of the necessary authorizations and provided the documents evidencing same collectively as Exhibit C to the Application.

<u>Proposed Financing of the Northern Division Connection Project</u>

Q. Please explain the costs associated with the proposed construction.

A. As stated above, the projected total capital cost associated with all three phases of the Northern Division Connection is $14,104,868. During Phase I, KAW expects to incur capital costs of $4,264,479. During Phase II, KAW expects to incur capital expenditures of $4,038,117, with projected costs of $3,664,100 in Phase III.

In addition to these capital expenditures, KAW also expects to incur capital costs associated with design; easement development and acquisition; the booster pump station and tank site purchase; easement purchases; and construction administration and inspection. These expenditures are included in the total estimated cost listed above.

Q. How does KAW plan to finance the project?

A. KAW will finance the project with funds available from financings previously approved by the Commission or through short-term bank borrowings. The Company does not anticipate issuing any debt in order to construct this project.

Q. Will KAW be able to utilize existing road right-of-way in installing the transmission main?

A. Yes. Approximately 89% of the transmission main will be installed in existing road right-of-way. Approximately 11% of the transmission main will be installed in easements from private landowners.

Conclusion and Recommendation

Q. What is your recommendation?

A. My recommendation is that KAW be permitted to construct the Northern Division Connection. Long-term, continued use of the Owenton WTP is simply untenable in its current state. KAW thoroughly examined the alternative means of providing service to its Northern Division customers and connecting the Owenton system with KRS II is the least-cost, most reasonable option for our customers.

Q. Does that conclude your testimony?

A. Yes, it does.

VERIFICATION

COMMONWEALTH OF KENTUCKY)
) SS:
COUNTY OF FAYETTE)

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

LANCE E. WILLIAMS

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 29th day of June, 2012.

Carol C. Pence (SEAL)
Notary Public

My Commission Expires:
9-5-2015

CAROL C. PENCE NOTARY PUBLIC STATE AT LARGE, KENTUCKY My Comm. Expires September 5, 2015 No. 450069