

# DELAWARE RIVER BASIN COMMISSION

## RESPONSE TO COMMENTS ON A PROPOSAL TO AMEND THE COMMISSION'S WATER CODE AND COMPREHENSIVE PLAN TO IMPLEMENT WATER AUDITING TO IDENTIFY AND CONTROL WATER LOSS

December 2008

### Introduction

DRBC thanks New Jersey American Water (NJAW) for taking the time to review and submit written comment on the proposed rule and for its support of the Water Audit rulemaking. NJAW's letter dated October 1, 2008 was the sole written comment submitted on the proposal. Ongoing discussion among interested parties during the public comment period identified the need for DRBC to keep its current water loss accounting requirements in place during the period in which use of the Water Audit methodology remains voluntary. Although the proposed rule did not so provide, the final rule presented by staff to the Commission for action on December 10, 2008 does. Comments received during the comment period are shown in bold face type below, followed by DRBC's responses.

### Comments and Responses

- 1. It is recommended that the DRBC coordinate reporting efforts with other regulatory agencies or bodies to avoid duplication of effort on behalf of the utilities.**

DRBC will make every effort to continue coordination with the Basin states to avoid duplication of effort by utilities in submitting water audit reports. It is likely that water audits performed using the freely available American Water Works Association (AWWA) Water Audit software will provide the information that DRBC requires to make decisions regarding water loss performance.

- 2. It is suggested that the DRBC notify all water systems in writing of the pending phase-in of the new Water Audit methodology to give the utilities advance notice of the change in rules.**

DRBC will make every effort to contact all water systems subject to the new Water Audit regulation. DRBC is currently developing a new database that should facilitate a mailing or other outreach to water system operators.

- 3. It is suggested that the DRBC offer assistance to utilities in the form of workshops or a “helpdesk” to introduce them to the new Water Audit methodology and possibly offer training for the software.**

DRBC will conduct outreach to affected purveyors during the phase-in of the new Water Audit methodology. The outreach effort will include hosting information and advice on the DRBC website, including links to existing resources such as those provided by AWWA and the International Water Association (IWA). Targeted workshops for system operators are also planned. DRBC does not have the resources necessary to maintain a “help desk” dedicated to this program, but as always, staff will work with applicants and docket holders to answer questions related to DRBC regulations.

- 4. IWA/AWWA’s Water Audit methodology can be used to express the volume of non-revenue water as a percentage of system input volume. As a performance indicator, this expression can be misleading as a measure of operational efficiency. A more meaningful indicator would be volume in gallons per connection per day.**

DRBC agrees that use of a performance indicator based on non-revenue water volume expressed as a percentage of input volume has limitations. This performance indicator is similar to the concept of “unaccounted for water” in DRBC’s current regulations and can be similarly misleading as a measure of operational efficiency. The AWWA software generates a number of performance indicators, including actual (physical) water losses expressed in gallons per connection per day. It is anticipated that as more data are gathered during the phase-in period and through other studies, performance indicators such as gallons per connection per day may be identified as more meaningful, and corresponding metrics established.

- 5. The quality of the data used to prepare the audit will directly influence the derived performance indicators. We encourage the use of data rating which will be incorporated in the AWWA Water Audit software, version 4. This will help minimize the number of instances in which utilities dedicate resources to the incorrect operational areas.**

DRBC agrees with this comment and understands the importance of data rating in interpreting the results of the water audit. The new Water Audit methodology may require water system operators to track components of water use that may not have been previously considered. One of the anticipated benefits of the new approach is that it is expected to help water system operators thoroughly understand how and where water losses may occur in their system as well as the financial and water management impacts of these losses. Version 4 of the AWWA Water Audit software includes data rating, which allows the system operator to grade each input component. Before a meaningful assessment of water loss can occur, the system operator may need to improve his or her ability to measure certain components within the distribution system.

- 6. For the small systems, the facility operator may be overwhelmed and intimidated by the Water Audit methodology and software. Consideration should be given to creating a simplified Water Audit methodology for systems under a certain size, either by total system delivery or possibly customer counts. We recommend the Commission review materials produced by and for the Texas Water Development Board and consider preparing similar materials.**

Earlier versions of the Water Audit software have been beta tested with systems covering a range of sizes. The consensus is that the software is user friendly, but DRBC will continue to provide assistance where possible. DRBC is familiar with water audit materials developed by the Texas Water Development Board. Alternatives to the Water Audit methodology will be considered based on actual user experience and information gathered during the phase-in period.

- 7. It is recommended that a public forum for feedback or knowledge exchange, such as an electronic bulletin board that is monitored by the DRBC, be created and maintained to assist with problems and to cultivate solutions.**

DRBC believes that existing electronic bulletin boards such as AWWA's Waterwiser forum would work well for general questions related to the Water Audit methodology. This bulletin board is frequented by national and international participants and as such would allow for a wide range of input and solutions. Users of the water audit software can also email specific questions related to use of the software to [wlc@awwa.org](mailto:wlc@awwa.org). This site is monitored by members of the AWWA WLCC who were responsible for developing the software.

- 8. It needs to be recognized that component based analysis methodology and the performance indicators that can be derived, are constantly being refined and updated. For example, the AWWA Water Audit software is currently in its fourth beta version, and additions and amendments to be published to the rewrite of the AWWA M-36 are already under consideration by the AWWA WLCC.**

Version 4 of the AWWA Water Audit software is currently being beta tested nationally, including in water systems from the Delaware River Basin. Each version of the software has added new features and functionality, but the analysis methodology and performance indicators have essentially remained the same. DRBC recognizes that the specific metrics for the chosen performance indicator still need to be determined. Metrics will be selected with the aid of information gathered during the three-year phase-in period.

- 9. It is recommended that the DRBC utilize the Water Audit software as a constructive tool to assist water systems under Commission jurisdiction to improve operational efficiency and cut expenses rather than a means to assess penalties for non-compliance.**

DRBC believes that the IWA/AWWA Water Audit methodology offers an opportunity to improve water supply efficiency through more informed water loss reduction efforts, thus reducing water demand at the source and enabling water systems to cut costs associated with actual water losses and perceived (accounting-only) water losses.

- 10. The DRBC should consider holding informal conferences with those operators of systems with water audit analyses that reflect unusually high non-revenue water performance indicators to help identify areas of concern and jointly explore solutions to improve system results. The final decision as to the solutions utilized to improve performance should, however, remain the purview of the water utility.**

DRBC will continue to work with water systems under its jurisdiction to ensure they meet the standards defined in DRBC's *Water Code*; the solutions utilized to address water loss issues would typically be determined by the water utility, as long as they will achieve the required performance level. DRBC believes that addressing water loss issues requires a long-term strategy built on accurate data from system monitoring and sound principles of asset management. Improving water accountability and controlling water losses will help system managers increase operational efficiency and regulators ensure sustainable supplies. DRBC will work cooperatively with water systems to achieve these objectives.

- 11. What regulatory approach and performance indicators will be used by DRBC during the phase-in period for the new regulations?**

Because the Water Audit methodology is relatively new in a regulatory context, the proposed amendments call for phased implementation. During the phase-in period (from the date of adoption of the new rule through calendar year 2011), DRBC will promote voluntary use of the IWA/AWWA Water Audit methodology. During this time, DRBC's regulatory standards for compliance with the current approach to Leak Detection and Repair (i.e., measurement and control of unaccounted-for-water) shall remain in force as specified in Resolution No. 87-6 Revised. For system operators submitting audits in a form consistent with the IWA/AWWA Water Audit methodology during the phase-in period, non-revenue water volume expressed as a percentage of input volume will be treated as a surrogate for unaccounted-for-water.

## 12. Additional Changes for Clarification

When DRBC proposed to replace the existing requirement for purveyors to measure and report “unaccounted-for water” with the preferred AWWA Water Audit methodology, the Commission did not intend to eliminate the performance requirement entirely during the Water Audit phase-in period. Consistent with the Commission’s intent, the text of the rule in its proposed final form has been amended to restore language that requires operators who do not voluntarily implement the Water Audit methodology prior to 2012 to continue during the phase-in period to report their unaccounted-for water percentage. Less than fifteen percent (15%) unaccounted-for water will remain the performance target for these systems. For water systems utilizing the Water Audit methodology during this period, non-revenue water percent will be treated as the equivalent of unaccounted-for water percent. Once the Water Audit method is established throughout the Delaware Basin and a body of data is available for analysis, a more meaningful measure of system performance will be established, as discussed in response to comment no. 4, above. Non-revenue water is presented within the framework of the larger Water Audit methodology in Table 1 below.

For purposes of clarity, a definition of “non-revenue water” consistent with the AWWA definition was added to Section 2.1.6 A. of the rule, and the existing definition of “unaccounted-for water” contained in that section was amended to clarify that the computation should return a percentage value so that it can be measured against the 15% maximum established by the rule. The definitions in their final form read as follows:

“Non-revenue water” is defined by AWWA as the sum of unbilled authorized consumption, apparent losses and real losses. “Non-revenue water percent” is defined as non-revenue water divided by the amount of water entering the distribution system times 100%.

“Unaccounted-for water” is defined as the amount of water entering the distribution system minus the amount of water delivered through service meters. “Unaccounted-for water percent” is defined as unaccounted-for water divided by the amount of water entering the distribution system times 100%.

Table 1. IWA/AWWA Water Audit Methodology Framework

System Input Volume (corrected for known errors)	Authorized Consumption	Billed Authorized Consumption	Billed Metered Consumption (including water exported)	Revenue Water
			Billed Unmetered Consumption	
		Unbilled Authorized Consumption	Unbilled Metered Consumption	Non-Revenue Water (NRW)
			Unbilled Unmetered Consumption	
	Water Losses	Apparent Losses	Unauthorized Consumption	
			Customer Metering Inaccuracies	
			Data Handling Errors	
		Real Losses	Leakage on Transmission and Distribution Mains	
			Leakage and Overflows at Utility's Storage Tanks	
			Leakage on Service Connections up to point of Customer metering	

**A Note on Inter-Agency Coordination**

DRBC notes that on September 11, 2008 the Pennsylvania Public Utility Commission (PUC) held a public meeting to discuss the AWWA/IWA methodology and concluded that implementation of the new methodology will help achieve a number of public benefits. Additionally, the PUC found that the new Water Audit will further overall infrastructure reliability, help preserve water resources, limit water leakage, reduce overall company risk and enhance customer service. The PUC has invited its jurisdictional water utilities to voluntarily participate in a pilot program to implement the new methodology. The DRBC will participate on the PUC technical support group. Although the PUC initiative is specific to Pennsylvania, it is anticipated that the effort will provide an excellent opportunity for regulators and purveyors to develop a better understanding of implementation of the new method and to gather data that will benefit implementation basin-wide.