

DELAWARE RIVER BASIN COMMISSION

FINAL

ORDER

Amendments to the Water Code and Comprehensive Plan to Implement a Revised Water Audit Approach to Identify and Control Water Loss

Proposed: Delaware *Register of Regulations* (12 DE Reg. 275-278(09/01/2008)) on September 1, 2008.

Adopted: March 11, 2009 by the Delaware River Basin Commission, Pamela M. Bush, Esq., Secretary.

Filed: December 13, 2012 as a final regulation.

Authority: 53 Delaware Laws, Chapter 71, Approved May 26, 1961 (*Delaware River Basin Compact*).

Effective Date:

Upon publication in the *Delaware Register*. The rule was incorporated by reference into the *Code of Federal Regulations* effective November 20, 2009 (74 FR 60154).

Applicability Date:

The amendments to the Comprehensive Plan and Article 2 of the Water Code finalized by the Delaware River Basin Commission on March 11, 2009 phase in a program requiring water purveyors to perform a water audit and report their findings in accordance with a new audit structure established by the American Water Works Association (AWWA) and the International Water Association (IWA). Effective January 1, 2012, the owners of water supply systems serving the public with sources or service areas located in the Delaware River Basin must implement an annual calendar year water audit program conforming to the IWA/AWWA Water Audit Methodology and corresponding AWWA guidance. Effective January 1, 2013, reported "non-revenue water" must be computed in accordance with the new methodology and guidance. During the period between the effective date of the rule, November 20, 2009, and December 31, 2011 water purveyors were encouraged to implement the new methodology and guidance on a voluntary basis.

Expiration Date: N/A

The Delaware River Basin Commission (DRBC or Commission) is a federal-interstate regional agency charged with managing the water resources of the Delaware River Basin without regard to political boundaries. Its members are the governors of the four basin states – Delaware, New Jersey, New York, and Pennsylvania – and the North Atlantic Division Commander of the U.S. Army Corps of Engineers, representing the federal government. The DRBC is not subject to the requirements of the Delaware Administrative Procedure Act. The purpose of this notice is to advise the public that duly adopted regulations of the Commission have been filed with the State of Delaware in accordance with Section 14.2 of the Delaware River Basin Compact.

Summary:

By Resolution No. 2009-01 on March 11, 2009, the Commission approved amendments to its Water Code and Comprehensive Plan to implement a requirement for water purveyors to follow an updated water audit approach to identify and control water loss in the Delaware River Basin.

Supplemental Information:

An estimated 150 million gallons of treated and pressurized water is physically lost from public water supply distribution systems in the Delaware River Basin per day and current methods to account for, track and reduce this loss are inadequate. Water suppliers are experiencing real water losses due to physical infrastructure failures and apparent losses resulting from inaccurate meter readings and erroneous billing practices. As demand for water increases, it is essential to ensure that water supplies and the infrastructure delivering water are dependable and efficiently move water from source to customer.

The purpose of the proposed amendments is to phase in a program requiring water purveyors to perform water audits and report their findings in accordance with a new audit structure established by the AWWA and the IWA.

These new methods are widely regarded as superior to the existing approach, which entails tracking “unaccounted for water,” which is no longer considered best practice.

The new water audit methodology provides a rational approach that will facilitate more consistent tracking and reporting than the existing approach allows. It will help water managers and regulators, including the Commission, state agencies, and utility managers, target their efforts to improve water supply efficiency, thereby reducing water withdrawals. Improving water accountability will contribute to achieving objective 1.3.C of the *Water Resources Plan for the Delaware River Basin*, which calls for ensuring maximum feasible efficiency of water use across all sectors.

The Commission’s Water Management Advisory Committee (WMAC), which has taken primary responsibility for reviewing the proposed audit methodology and developing these amendments, is composed of representatives from a wide range of public and private sector organizations. Six water purveyors from the Delaware River Basin were identified to participate in the nationwide pilot study. The comments and feedback provided to AWWA led to improvements in the software. The software was approved by the AWWA Water Loss Control Committee and is available on the AWWA website, at no charge to all users.

The WMAC and its subcommittee determined that the IWA/AWWA water audit methodology represents an improvement to the Commission’s current practices and can lead to multiple benefits for water utilities and other stakeholders. It is anticipated that adoption of the IWA/AWWA approach will:

- Improve upon the traditional approach for identifying “unaccounted for water,” which lacks standardized terminology and a clearly defined water audit structure.
- Provide a rational water audit structure to help identify water losses and improve water supply system efficiency.
- Provide meaningful performance indicators to help identify systems with the greatest losses. These indicators allow water utility managers to make reliable comparisons of performance and to identify best practices to control water loss in an economical way.
- Identify ways to improve water supply efficiency and thereby reduce water withdrawals that have no beneficial end use.
- Help to target efforts to reduce the estimated 150 million gallons per day that is physically lost from public water supply distribution systems in the Delaware River Basin.
- Enhance utility revenues by enabling utility managers to recover the significant revenue that is otherwise lost due to *apparent losses* such as theft of service, unbilled connections, meter discrepancies and data errors.
- Help utility managers and regulators identify *real losses* (such as leakage) that waste treated and pressurized water and increase operating costs. Significant real losses indicate opportunities for improved asset management that can reduce the vulnerability of utilities to disruptive water main breaks, other service disruptions and water quality upsets.

Because the water audit approach is relatively new in a regulatory context, the amendments called for phased implementation. Information was gathered from within the Delaware River Basin and nationwide to assist in the establishment of performance indicators for water loss, which ultimately will replace the “unaccounted for water” targets. The amendments require water purveyors to perform an annual water audit conforming to the IWA/AWWA methodology and require changes in the way data pertaining to water loss is collected by the state agencies and shared with DRBC.

Notice of the proposed amendments appeared in the Delaware Register of Regulations (12 DE Reg. 275-278 (09/01/2008)) on September 1, 2008, as well as in the Federal Register (73 FR 44945) on August 1, 2008, the New Jersey Register (40 N.J.R. 4499) on August 4, 2008, the New York State Register (p. 2) on August 20, 2008, and the Pennsylvania Bulletin (38 Pa. B. 4373) on August 9, 2009. A public hearing was held on September 25, 2008 and written comments were accepted through October 3, 2008. The Commission received one written submission and no oral testimony on the proposed changes. The Commission made minor revisions to the proposed amendments on its own initiative for clarification. A comment and response document setting forth the Commission’s responses and revisions in detail was approved by the Commission simultaneously with adoption of the final rule.

The final form of the rule differs from the proposed rule in the following respects: 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. The definition of “unaccounted-for-water” in the same section was amended to include a definition of “unaccounted-for water percent.” This change was made because the computation must return a percentage value

so that it can be measured against the performance target of less than 15% unaccounted-for water.

The Commission also added language to establish that until January 1, 2012, Drib's regulatory standards for leak detection and repair (*i.e.*, measurement and control of unaccounted-for-water), set forth in Section 2.1.6 of the Water Code, remained in force. System operators who voluntarily submitted audits in a form consistent with the new methodology prior to January 1, 2012, were advised in the Commission's comment and response document that non-revenue water volume expressed as a percentage of input volume will be treated as the equivalent of unaccounted-for-water, the measure applicable under the existing rule. The comment and response document explains that once the Water Audit method is introduced through the Delaware River Basin and a body of data is available for analysis, a more meaningful measure of system performance will be established.

DRBC Resolution No. 2009-01 and a copy of the comment and response document are available on the Commission's web site, at <http://drbc.net>. Resolution 2009-1 incorporates Article 2 of the Water Code, showing the amendments as proposed in August 2008, as finally approved by the Commission on March 11, 2009 and incorporated by reference into the *Code of Federal Regulations* effective November 20, 2009.

Rule Text:

DRBC Resolution No. 2009-01 amends the Comprehensive Plan and Article 2 of the *Water Code* as set forth below. additions appear in **bold face type**. Deletions appear in **[bold face type within brackets]**. changes not included in the proposed rulemaking appear in **bold face type with underscore**, except that restored text (existing rule text originally proposed to be deleted) appears in Normal type with Underscore. *Italics denote editor's notes*.

2.1.2 New and Existing Users (Resolution Nos. 76-17 and 92-2).

C. Owners of water supply systems serving the public (purveyors) seeking approval under Section 3.8 of the Compact for a new or an expanded water withdrawal shall include as part of the application a water conservation plan. The plan shall describe the various programs adopted by the purveyor to achieve maximum feasible efficiency in the use of water.

1. The water conservation plan shall, at a minimum, describe the implementation of the following programs as required by the Commission:

a. Source metering (Resolution No. 86-12);

* * *

e. **An ongoing water auditing program in accordance with section 2.1.8.**

* * *

2.1.6 Leak detection and repair (Resolution No. 87-6 Revised).

A. Owners of water supply systems serving the public (purveyors) in the Delaware River Basin that distribute water supplies in excess of an average of 100,000 gallons per day (gpd) during any 30-day period shall develop and undertake a systematic program to monitor and control leakage within their water supply system. Such a program shall at a minimum include: periodic surveys to monitor leakage, **enumerate non-revenue water (or in instances where AWWA methodology as set forth in Section 2.1.8 below has not yet been adopted, enumerate unaccounted-for water)**, and determine the current status of system infrastructure; recommendations to monitor and control leakage; and a schedule for the implementation of such recommendations. Each purveyor's program shall be subject to review and approval by the designated agency in the state where the system is located. "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 percent.

"Unaccounted-for water" is defined as the **amount of water entering the distribution system minus the amount of water delivered through service meters. [difference between the "metered ratio" and 100 percent. The metered ratio is 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 percent.**

The designated state agencies are: Delaware Department of Natural Resources and Environmental Control; New Jersey Department of Environmental Protection; New York Department of Health, and Pennsylvania Department of Environmental Protection.

B. **[Each purveyor that distributes in excess of one million gallons per day (mgd) shall submit its initial program to monitor and control leakage to the appropriate designated agency, within two years and each purveyor that distributes between 100,000 gpd and 1 mgd shall submit its initial program to monitor and control leakage to the appropriate designated agency within five years of the effective date of this**

regulation or at such earlier date as shall be fixed by the designated state agency. Each] After a purveyor has submitted to the appropriate designated agency its initial program to monitor and control leakage, the purveyor shall prepare and submit a revised and updated program [to monitor and control leakage] every three years thereafter or at such greater frequency [earlier date] as [may] [shall] be required by the designated state agency. The designated state agency may require more frequent program submission from purveyors with unaccounted-for or non-revenue water that is in excess of 15 percent.

C. Any project approvals hereafter granted pursuant to Section 3.8 of the DRBC Compact or any renewal of a project approval shall be subject to the provisions of this regulation.

[D. To avoid duplication of effort and to insure proper enforcement of this regulation, the Executive Director shall enter into administrative agreements with each of the designated agencies . . .]

* * *

2.1.8 Water Auditing (Resolution No. 2009-1).

A. Policy Statement. It shall be the policy of the Commission to establish [encourage owners of water supply systems serving the public to implement] a standardized water audit methodology for owners of water supply systems serving the public to ensure accountability in the management of water resources.

B. Voluntary Water Audit. [For the period beginning EFFECTIVE DATE and ending] Through December 31, 2011, owners of water supply systems serving the public[,] with sources or service areas located in the Delaware River Basin[,] are encouraged to implement an annual calendar year water audit program conforming to the IWA/AWWA Water Audit Methodology (AWWA Water Loss Control Committee (WLCC) Water Audit Software) and corresponding AWWA guidance.

C. Mandatory Water Audit. Effective January 1, 2012, the owners of each water supply system serving the public[,] with sources or service areas located in the Delaware River Basin[,] shall implement an annual calendar year water audit program conforming to IWA/AWWA Water Audit Methodology (AWWA Water Loss Control Committee (WLCC) Water Audit Software) and corresponding AWWA guidance.

D. Mandatory Reporting. Effective January 1, 2013, "Non-revenue water" reported under section 2.50.3. (Reporting Requirements), subsection B.1.b.ii. of this Water Code shall be computed in accordance with IWA/AWWA Water Audit Methodology (AWWA Water Loss Control Committee (WLCC) Water Audit Software) and corresponding AWWA guidance.

2.50.3 Reporting Requirements (Resolutions Nos. 2001-8 and 2009-1)

Existing subsection 2.50.3 A. (Year 2000 Reporting Requirements) in its entirety is deleted.

A[B].Annual Reporting Requirements [for Subsequent Years]

1. Water Supply Systems Serving the Public. [Commencing with reporting year 2001, t]The owner(s) of each water supply system serving the public and subject to requirements under subsection 2.50.1, subsection 2.50.2, and the Ground water Protected Area for Southeastern Pennsylvania[,] shall report the following data on an annual basis to the designated agency. [Changes to any other information required under Section A above shall also be reported. All information required under Section A above shall be completed for new withdrawals for the first year of operation.]

a. Source Data

* * *

b. Service Area Data. The following data shall be reported separately for each county served.

i. Service Area Name(s)

ii. Total Annual Water Use by Category (MG). [All usage shall be reported according to the following categories:]

- Residential metered (including apartment complexes)
- Commercial metered
- Institutional metered
- Industrial metered
- Bulk Sales
- Other metered (Specify)
- **Non-revenue water, including unbilled authorized consumption, apparent losses,**

and real losses computed in accordance with Section 2.1.8 D. of this Water Code

– Unaccounted for water (defined as the amount of water entering the distribution system minus the amount of water delivered through service meters)**

- Total

2. Other Withdrawals. **[Commencing with reporting year 2001, e] Each** person, firm, corporation or other entity, except water supply systems serving the public[,] subject to requirements under subsection 2.50.2 and the Ground Water Protected Area Regulations for Southeastern Pennsylvania[,] shall report the following data on an annual basis to the designated agency.

[C]. To avoid duplication of effort and to insure proper enforcement of this regulation, the Executive Director is hereby authorized to enter into administrative agreements with the following designated agencies:

* * *

Dated: December 12, 2012

Pamela M. Bush, Esquire

Commission Secretary

16 DE Reg. 750 (01/01/13) (Final)