

October 31, 2022

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street
Harrisburg, PA 17120
Re: Proposed revisions to Water Audit

Proposed Water Audit Methodology Regulation
52 Pa. Code § 65.20
Water Conservation Measures
Docket No. L-2020-3021932
Reply Comments to Comments submitted by the
National Association of Water Companies -
Pennsylvania Chapter

Dear Secretary Chiavetta:

Attached for electronic filing are the Reply Comments to comments to the NOPR submitted by the National Association of Water Companies – Pennsylvania Chapter dated September 20, 2022. These reply comments are offered with regard to the above proposed regulation from the below interested parties working to promote the best practice water audit methodology advocated by the American Water Works Association (AWWA).

George Kunkel, Kunkel Water Efficiency Consulting
Edward Osann, Natural Resources Defense Council
David Sayers, Black & Veatch
Gary Trachtman, Arcadis
Steve Cavanaugh, Cavanaugh
Will Jernigan, Cavanaugh
Drew Blackwell, Cavanaugh

Very truly yours, on behalf of the AWWA Committee Members

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Enclosures:

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BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Proposed Revisions To Water Audit:
Methodology 52 Pa. Code § 65.20:
Water Conservation Measures - Statement
of Policy

Docket No. L-2020-3021932

INTERESTED PARTIES – MEMBERS OF THE AWWA WATER LOSS CONTROL COMMITTEE
REPLY COMMENTS TO THE COMMENTS FROM THE NATIONAL ASSOCIATION OF
WATER COMPANIES – PENNSYLVANIA CHAPTER TO THE NOTICE OF PROPOSED
RULEMAKING

Interested members of the American Water Works Association’s (AWWA) Water Loss Control Committee (collectively AWWA Committee Members) submit these Reply Comments to comments provided by the National Association of Water Companies – Pennsylvania Chapter (NAWC) dated September 20, 2022, in response to the Public Utility Commission’s (Commission’s) November 18, 2021, Notice of Proposed Rulemaking Order (NOPR). The Commission’s Order was published in the Pennsylvania Bulletin on August 6, 2022. 50 Pa. Bull at 4406-4411. In the NOPR, the Commission asks stakeholders for comments on proposed language that will serve as a replacement of the Policy Statement at 52 Pa. Code § 65.20 with a Commission Regulation which will “develop a more comprehensive codified water audit method as a tool to increase the efficiency of a water public utility’s efforts to conserve water, account for lost water, increase water supply sustainability, remediate infrastructure, and improve overall service reliability.” 52 Pa. Bull. at 4407.

Note that the AWWA Committee Members provided extensive comments to the Advanced Notice of Proposed Rulemaking (ANOPR) on November 24, 2020, and November 25, 2020, and provided comments to the Notice of Proposed Rulemaking (NOPR) on September 19, 2022. As set forth below, the AWWA Committee Members provide the following reply comments to the NAWC comments on the NOPR.

I. COMMENTS (Note: NAWC comments shown in *italic text*)

The AWWA Committee Members respect the comments provided by the National Association of Water Companies – Pennsylvania Chapter (NAWC) but believe that many of these comments work against the stated intentions of the rulemaking and do not advance the ability of Pennsylvania’s water utilities to increase the efficiency of their operations. Specific Reply Comments offered to the NAWC comments include:

1. Pg 3, first bulleted item: NAWC states “*the hiring of additional staff to prepare water loss audits for each system and to locate and repair leaks*” The AWWA Committee Members disagree with NAWC’s comment. NAWC’s framing implies that the requirement to prepare and submit a water audit for each discrete system will be compounded by the added cost of locating and repairing leaks for each discrete system. However, the NOPR does not include a new requirement for locating and repairing leaks within each discrete system. Rather, it builds upon the policy guidance already found in Subsection 65.20(5) that encouraged the regular employment of leak detection systems with the requirement in 65.20a(e) for water suppliers to do so.
2. Pg 3, second bulleted item: “*The hiring of consultants to validate audit results for each system and engineer solutions,*” Note that hiring of consultants would not be necessary if the commission adopts a certification protocol for company staff to perform validation, as is done in several US states.
3. Pg 3, third bulleted item: “*the additional investment in system renewal projects that were not anticipated prior to the audit.*” This conflates performing an audit with water loss interventions, which are generally not specified by the proposed rule.
4. Pg 3, last paragraph/continued on Pg 4, regarding the statement: “*While NAWC estimates that the reduction of avoidable loss of water will incur savings on production costs of roughly \$500 per million gallons for surface water systems and \$250 per million gallons for well systems, the potential costs associated with additional staff and program implementation would diminish the savings associated with reduced avoidable water loss.*” The AWWA Committee Members agree that the production costs savings of \$500 per million gallons (surface water) and \$250 per million gallons (ground water) are reasonable values; however, these costs apply only to leakage and should be compared only to the

costs of leakage reduction activities. NAWC fails to mention that apparent losses also exist in all water systems with a cost rate represented by the Customer Retail Unit Charge (CRUC). The CRUC is typically several orders of magnitude greater than production costs. This allows for a much stronger potential for cost-effective apparent loss reduction programs such as meter testing and replacement, Advanced Metering Infrastructure, unauthorized consumption detection, etc.

5. Pg 4, last sentence in first paragraph: *“For some systems (particularly small systems), the costs of the infrastructure upgrades would not justify the savings from making those upgrades.”* This conflates the audit requirement with meeting a performance standard, and leaps ahead to a cost-effectiveness test for interventions to reduce losses -- which is not part of this rule.
6. Pg 4, last sentence in the paragraph labelled Discrete System: *“it appears that a ‘stand-alone pipe network’ does not include treatment works.”* It may, but it need not. A system relying on the purchase of treated water is an example of "stand-alone pipe network" that should be subject to the water loss audit requirement.
7. Pg 4, last paragraph, first sentence: *NAWC recommends that the definition of “discrete system” be revised to include a large interconnected system with multiple water sources.* NAWC recommends the use of an overly broad and vague wording “large interconnected system with multiple water sources” to define a “discrete” system. The AWWA Committee Members disagree with this recommendation. A straightforward definition of a discrete system is a system identified by the unique public water system identification number (PWSID#). Each system with a unique PWSID# should be required to submit an individual water audit for that system.
8. Pg 4, last paragraph, next-to-last sentence: *The combined effort to collect the data and file the report for each system is estimated to require 50 hours or more throughout the year and cost around \$2,500 per report. To engage a third-party consultant would likely double the amount and still require considerable review time from the utility.* NAWC is accurate in estimating an effort of 50 hours of work per system each year at a cost of around \$2,500 per report, although it should be noted that economies of scale are likely to be achieved when audits for multiple systems under company ownership are prepared. However, NAWC describes this effort in the context of a hardship upon water companies, when, in

fact, the cost of only \$2,500 per report is a true bargain of an investment to efficiently steward the precious water resources that a water company manages, especially if the report identifies losses that can bring about benefits worth many times the investment in loss control interventions to reduce the losses. As mentioned previously, hiring of consultants would not be necessary if the commission adopts a certification protocol for company staff to perform validation, as is done in several US states.

9. Pg 5, first full paragraph, first sentence: *NAWC suggests that each utility be able to determine how to designate a large customer, because the utility's tariff may not designate "large usage" as described and suggested by the proposed regulation.* The AWWA Committee Members agree that the definition of "large customer" needs further refinement.
10. Pg 5, second paragraph: *NAWC recommends the following change to this definition to improve clarity: "Real loss—A physical loss of water that has been treated and placed in the distribution system but does not provide usefulness of benefit.* The AWWA Committee Members disagree with this recommendation as it is unnecessary and misleading. AWWA defines real losses as 'the physical volumes lost through all types of failures (leaks, breaks, bursts) on water mains and service connections up to the point of custody transfer to customer metering; along with overflows from distribution system water storage tanks and reservoirs.' There is no need to create an 'alternative' definition of an industry-defined term that is applied by thousands of North American water utilities and is part of regulations in numerous states.
11. Pg 5, final paragraph: *UFW—Unaccounted-for water – NAWC recommends the following change to this definition to improve clarity:* The AWWA Committee Members disagree with this comment and believe that the entire paragraph serves as an attempt to define away many losses that water utilities typically incur. Disagreement stems from 1) the 'unaccounted-for' approach is unworkable (as the AWWA Committee Members have consistently described previously) and 2) the recommendation strives to purely wordsmith away losses that many utilities find to be economic to recover. NAWC puts forth that *examples of unavoidable losses would be: theft, inaccurate meter recording, faulty meters, and background leakage, among other reasons.* The issues of *theft* (better defined by AWWA as unauthorized consumption), *inaccurate meter recording* (systematic data

handling), *faulty meters* (customer meter inaccuracy) and *background leakage* (real losses) are all losses as defined by AWWA, all of which create inefficiencies in the supply and create costs that inflate utility expenses and rates charged to customers, while also potentially reducing revenue. These losses should not be defined as “unavoidable” with an intention to waive utility responsibility to manage them. Water companies have a responsibility to manage such inefficiencies to reasonable, cost-efficient levels. It is recognized that losses cannot be reduced to zero and an “unavoidable” level exists in each of the types of loss. However, “unavoidable” levels are typically very low, and many water utilities operate with loss levels much higher than the “unavoidable” level. It is these excessive levels of loss that should be controlled, and for that reason, they should not be defined away as being “unavoidable” as NAWC proposes.

12. Pg. 6 first paragraph: *NAWC suggests that utilities be permitted to submit a single document to the Commission, rather than a separate report for each discrete system as directed under this subsection. Each utility’s report should include: (a) reports of the audits completed for each large system, together with (b) reports of the audits completed for collections of systems that are proximately located and operate under the same management structure or unit.* The AWWA Committee Members strongly disagree with NAWC’s proposal. Every water system is unique in its structure – its source or purchased water, its distribution system characteristics, pressure variations, environmental impacts, and other factors. The cost to operate a system is also unique. Likewise, the efficiency of operations of water systems is unique, and the way to assess efficiency is to compile the annual water audit on an individual system. Without objectively assessing the efficiency of an individual system, strategic actions to economically reduce excessive losses cannot be identified for that individual system. By submitting a composite water audit for multiple systems, the efficiency of low efficiency systems is blurred, and these systems are not properly prioritized for loss control interventions, and level of service to customers is reduced. This particularly disenfranchises small water systems and their customers as the larger systems owned by water companies will see funding for loss control activities directed to them since they can exert a greater impact on the numeric indicators of efficiency within the collective group of water audits.

13. Pg 6, second paragraph: *NAWC also suggests that the Commission define “performance indicators” as used in Subsection (c)(2)(vii) to ensure the comparability of financial calculations and operational efficiency calculations submitted by different utilities. The AWWA Committee Members disagree with this recommendation. The proposed rule requires “performance indicators, **including** financial indicators **and** operational efficiency indicators.” AWWA’s key performance indicators are well established and used by thousands of water systems across North America. The proposed language of the rulemaking strives for consistency in the methodology including distinct financial and operational performance indicators, which are well-defined by AWWA and employed in the AWWA Free Water Audit Software.*
14. Pg 6, Third paragraph: *In addition, NAWC recommends that the Commission modify Subsection (c)(2)(viii)(A), which requires an explanation for each reported metric value that varies by more than 10% in either direction from the previous year’s value. Particularly for small “discrete systems,” such a variation is not uncommon. NAWC recommends that a variation of 20% be used to trigger the explanation requirement. The AWWA Committee Members disagree with NAWC’s suggestion. The Members agree with the 10% variation as proposed, as this is not unreasonable.*
15. Pg 6, Fourth paragraph: *Similarly, NAWC does not support requiring an explanation of each reported metric that has not improved in three years, as required by Section 65.20(c)(2)(viii)(B). In many cases, explanations of why metrics have not improved in three years would be irrelevant, as many metrics are currently in good standing or are intended to maintain current levels. The AWWA Committee Members do not disagree with the example posed by NAWC here, but, if metrics are truly unimproved due to being “in good standing” then that will be the explanation provided by the water company.*
16. Pg 6, Fourth paragraph: *Additionally, NAWC questions the need for Section 65.20(c)(2)(ix) (directing that the water loss audit include “an indication of the statistical confidence in the validity and accuracy of the values reported for each required metric and a summation of the overall validity and accuracy of the data reported”). As a practical matter, assigning a validity value for the metrics in Section 65.20(c)(2)(i)-(vii) would be overly time consuming and costly. The AWWA Committee Members recognize that this paragraph was written to describe the required features of the data submittal method if the AWWA*

Free Water Audit Software is not submitted. The AWWA Free Water Audit Software features a capability to grade the data inputs and to calculate a composite Data Validity Score to represent the validity of the complete water audit. The AWWA Committee Members interpret the proposed wording as intending to be equivalent to this capability. However, the AWWA Committee Members believe that the proposed wording is awkward, particularly “statistical confidence” and “values reported for each metric.” The grading system employed by the AWWA Free Water Audit Software is a rating system that does not employ statistical methods such as confidence intervals, thus the word “statistical” should not be employed. Also, the word “metric” is not clearly defined. The AWWA Free Water Audit Software relies on data “inputs” to populate the Software, which then calculates outputs of “system attributes” and “performance indicators.” The Software does not employ the term “metric” so an equivalent method should also avoid this term. It is recommended that the proposed language be modified as: *“an indication of the statistical confidence in the validity of the water audit input values and accuracy of the values reported for each required metric and a summation of the overall composite data validity score and accuracy of the data inputs. reported”* If a water company employs the AWWA Free Water Audit Software to compile their water audit, the grading capability will be utilized as a normal part of the process to compile the water audit. Under this approach, if a water company determines to not employ the AWWA Free Water Audit Software, they must devise a data grading capability that is analogous to that of the AWWA Free Water Audit Software.

17. Pg 7, First paragraph: *NAWC suggests that it clarify whether the “priority area” should be a specific segment of a specific system or a more generalized area within the utility’s service territory.* The AWWA Committee Members agree with NAWC in questioning the wording proposed in this paragraph and recommend that it be revised and improved. The existing wording lacks specificity, and thus is leading to a misunderstanding for NAWC. As noted in item 16, the AWWA Free Water Audit Software includes a grading capability to rate data inputs and the calculation of the composite Data Validity Score to represent the overall validity of the water audit. Additionally, the Software lists **“Priority areas for attention to improve data validity”** and the word “priority” refers to areas that can **“improve data validity”** not to **“reduce future water loss.”** The Software lists the top

three priority areas based upon the grading of the individual input components and weighting factors built into the Software. If a water company employs the Software, the three priority areas are determined by the Software and the company need not take additional action to identify these areas. If a water company determines to not employ the AWWA Free Water Audit Software, they must devise an equivalent means of determining the top three “priority areas to improve data validity.” The AWWA Committee Members recommend revising the proposed wording to read: “(x) Description of priority areas the utility intends to address to ~~reduce future water loss~~ **improve data validity.**”

18. Pg 7, Section 3, Second Paragraph: *“Levels above 20% have been considered by the Commission to be excessive,” NAWC does not believe this statement should be included in a regulation because the term “excessive” is ambiguous.*” The AWWA Committee Members agree with NAWC’s statement, but with the additional reasons that the term “unaccounted-for” water and the use of a volumetric percentage indicator – which is the method proposed – are imprecise and misleading and should not be employed. The AWWA Committee Members have commented extensively during the ANOPR and the NOPR against the use of this longstanding and archaic “unaccounted-for” water approach by the Commission. This approach is specifically recommended against by the American Water Works Association and is considered poor practice. The AWWA Committee Members believe that the Commission will place itself in an indefensible position if it retains the “unaccounted-for” water approach in the new rule.
19. Pg 8, First Full Paragraph: *In addition, the last sentence of this paragraph, stating that the metering obligations of Section 65.8 include metering sources of supply, seems to be an amendment of Section 65.8. It should not be included in this regulation. NAWC also believes that this sentence is inconsistent with the rest of the proposal, which focuses on the loss of water after it has been treated. Metering the source of supply is more appropriately addressed by the DRBC and the SRBC.* The AWWA Committee Members strongly disagree with the comments put forth by NAWC. This rulemaking is focused on the “Proposed Water Audit Methodology Regulation” and specifically requires use of the AWWA Water Audit Methodology. This methodology relies on obtaining the annual volume of water measured from a water company’s own sources and/or purchased from other water suppliers, along with the cumulative annual volume of water consumed by

water company customers. Hence, accurate measurement of both source water and water consumed by customers is needed to compile a reliable water audit. The statement that an inconsistency exists because the rest of the proposal “focuses on the loss of water after it has been treated” is inaccurate. Water audits provide accountability and provide the means for accurate quantification of Non-Revenue Water volumes. Knowing these volumes, water companies can strategically plan for cost-effective loss control activities. Some of these activities include testing, repair, and replacement of production flowmeters, which are essential to provide accurate source volume data to the water audit. Not only are source water volumes a part of the water audit process, but they are also arguably the most critical part because they provide the data that is the first input to the water audit, are usually the largest volumes in the water audit, and usually measured by the largest flowmeters in the system. Consistent and accurate metering of source water volumes is essential to the proposed rule.

20. Pg 8, Final Paragraph: *The statement of policy currently states that large nonresidential customers “should receive, or be directed to the availability of the large water user audit procedure.” NAWC disagrees with the proposal to create a regulation requiring utilities to provide this information on a large customer’s bill annually. This change seems unnecessary because many large nonresidential customers are sophisticated businesses that already take steps to control utility expenses. NAWC recommends that the current permissive language continue to be used.* The AWWA Committee Members disagree with NAWC’s comments that “many large nonresidential customers are sophisticated businesses that already take steps to control utility expenses.” This is a broad assertion that is not persuasive. The AWWA Committee Members agree that many large nonresidential customers take steps to control utility expenses, but many – likely more – do not. Many customer buildings – residential and nonresidential – suffer from internal plumbing leaks or service connection leaks that are often unknown to the property owner. Making property owners aware of the opportunity to audit their water usage patterns is an effective way to conserve valuable water resources and manage costs.
21. Pg 9, Final Section: *NAWC continues to encourage the Commission to favor bringing utilities into compliance with the Pennsylvania Public Utility Code, Commission regulations and Orders, rather than imposing penalties on non-compliant utilities. Various*

factors outside the utility's control (such as customer-owned service line leaks) can impact the utility's compliance with the proposed regulation. The AWWA Committee Members disagree with the NAWC comments. First, customer-side leakage does not impact compliance with the regulation. More broadly, since the tentative order was issued in 2008 many water companies have failed to consistently submit water audits as requested or submitted only partial information. Many water companies operate systems with high losses that have not improved since 2008. These experiences prove that many water companies will not improve in a voluntary environment and that penalties should be assessed to non-compliant water companies at graduated levels as the situation requires to achieve compliance.

II. CONCLUSION

The afore-mentioned AWWA Water Loss Control Committee Members appreciate the opportunity to provide these Reply Comments on the Commission's Notice of Proposed Rulemaking regarding 52 Pa. Code 65.20.

Respectfully Submitted for AWWA Committee Members,



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