

AGENDA ITEM MEMO

BOARD MEETING DATE: February 2, 2023

TO: Board Members

THROUGH: Jeff Walker, Executive Administrator
John T. Dupnik, P.G., Deputy Executive Administrator, Water Science
and Conservation
Ashley Harden, General Counsel

FROM: John Sutton, Manager, Conservation

SUBJECT: Adopting amendments to rules relating to water loss thresholds and audit
validation requirements

ACTION REQUESTED

Consider adopting and authorizing the publication of amendments to 31 Texas
Administrative Code (TAC) §358.6 relating to water loss audits.

BACKGROUND

In 2013, the 83rd Texas Legislature passed House Bill 3605 amending Texas Water Code §16.0121, effective September 1, 2013, regarding water loss audits that are required of all retail public utilities providing potable water. House Bill 3605 required a retail public utility (utility) providing potable water that receives financial assistance from the Texas Water Development Board (TWDB) to use a portion of that financial assistance to mitigate the utility's water loss if the utility's water loss meets or exceeds a threshold to be established by TWDB rule. The utility may request a waiver from utilizing some of the financial assistance funds to mitigate its water loss if the utility is currently working to mitigate its water loss or has plans to mitigate its water loss.

Over the last nine years water loss audits and data have evolved, including development of new water loss performance indicators, and there is data from more recent water loss audits to better determine water loss thresholds. The industry has also developed a water loss audit validation process that the TWDB tested and demonstrated can lead to better data. As a result, we reexamined water loss thresholds and validation requirements and propose this rulemaking to address our findings.

Our Mission

Leading the state's efforts in
ensuring a secure water future
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Board Members

Brooke T. Paup, Chairwoman | George B. Peyton V, Board Member | L'Oreal Stepney, P.E., Board Member
Jeff Walker, Executive Administrator

The TWDB approved initial water loss thresholds in 2014 that were based on statewide data from 2010 water loss audits and water loss metrics that were industry standard at that time. Since those initial thresholds were approved, new performance indicators for water loss have been developed by the American Water Works Association Water Loss Control Committee, a group of water industry leaders in water loss. The thresholds were reexamined using quality-controlled statewide data from 2015 to 2020 water loss audits and these new performance indicators. The new indicators and methods, which primarily affect real loss (water loss due to leaks and breaks, including unknown loss), were accounted for when developing the proposed rule revisions and threshold changes.

The publication of proposed amendments to 31 TAC §358.6 was approved at the November 17, 2022, Board meeting. The proposed rules were posted to *Texas Register* on December 2, 2022, (47 *Texas Register* 8028), with a 30-day comment period that ended on January 2, 2023. Several public comments were received related to the rulemaking. These comments are addressed in the attached rulemaking proposed for adoption. No changes were made to the proposed amendments in response to public comments received.

KEY ISSUES

The amendments simplify the application of real loss thresholds and lower thresholds to address concerns with utilities with a high volume of real loss. These thresholds apply only to a utility that requests financial assistance from the TWDB for a water supply project and will be used in calculating water loss thresholds for applications for financial assistance received after July 1, 2023.

The amendments also include new requirements for water loss validation, a process currently used by several states across the country. This new section requires all utilities receiving financial assistance from the TWDB to have their required annual water loss audit to be validated starting January 1, 2025. TWDB staff would validate the submitted water loss audit in conference with the utility. If the utility elects to have the water loss audit validated by others, then the validation must (1) follow the TWDB's guidelines and (2) be performed by a person other than the person submitting the water loss audit provided that person has completed the water loss audit validation training and has been certified to conduct such validation. We plan to begin offering validation services in early 2023 on a voluntary basis to help facilitate utility compliance with this requirement.

RECOMMENDATION

In order to be current with recent water loss data, industry performance indicators, and industry standard practices such as water loss audit validation, the Executive Administrator recommends adopting and authorizing the publication of amendments to 31 TAC §358.6 relating to water loss.

Attachment

1. Adoption of amendments for 31 Texas Administrative Code §358.6 for publication in the Texas Register

The Texas Water Development Board (TWDB) adopts 31 Texas Administrative Code §358.6. The proposal is adopted without changes as published in the December 2, 2022, issue of the Texas Register (47 Texas Register 8028).

BACKGROUND AND SUMMARY OF THE FACTUAL BASIS FOR THE ADOPTED AMENDMENT.

Certain retail public utilities are required by Texas Water Code, Chapter 16 to submit water loss audits to the TWDB. The TWDB proposes a new validation requirement on water loss audits required by certain retail public utilities. Additionally, the TWDB is clarifying how it will apply water loss thresholds to retail public utilities based on a utility's service connection density and is adjusting the water loss threshold values to better ensure water loss mitigation is included as an effective strategy of utilities receiving financial assistance for drinking water projects.

SECTION BY SECTION DISCUSSION OF ADOPTED AMENDMENTS.

Subchapter B. Data Collection.

Section 358.6. Water Loss Audits.

Section 358.6(a) is revised to remove the definition of "Category or Categories" in §358.6(a)(5) to add a new definition of "Validation," relating to the process of review of water loss audits and related data submitted to the TWDB for administrative completeness.

Section 358.6(a) is revised to remove the definition of "Unavoidable annual real loss" in §358.6(a)(12) because it is no longer used in the rule.

Section 358.6(b) is revised to remove the stated effective date of §358.6(b)(4) as it has occurred, and the section is currently effective and operative.

Section 358.6(b) is revised to add new §358.6(b)(5) to provide a validation requirement for water loss audits and related data submitted to the TWDB and require the TWDB to create new validation guidelines.

Section 358.6(c) is revised to require that validation of a water loss audit is also required for the executive administrator to determine whether a water loss audit is administratively complete.

Section 358.6(e) is revised to clarify which water loss thresholds the TWDB will apply to certain retail public utilities.

Previous Section 358.6(e)(1) is removed to help clarify how the TWDB applies water loss thresholds of retail public utilities by service connection density.

Section 358.6(e)(2) is renumbered to §358.6(e)(1).

New §358.6(e)(1) clarifies how the TWDB will apply water loss thresholds to certain retail public utilities to conform with industry standard. It applies to those retail public utilities with more than or equal to 32 service connections per mile rather than population of 10,000 or fewer persons and a service connection density of more than or equal to 32 connections per mile.

New §358.6(e)(1)(B) revises the real loss threshold for these retail public utilities to be less than 30 gallons per connection per day from 50 gallons per connection per day based on currently available water loss data to the TWDB.

Previous Section 358.6(e)(3) is renumbered to §358.6(e)(2).

New §358.6(e)(2) clarifies how the TWDB will apply water loss thresholds to certain retail public utilities to conform with industry standard. It applies new water loss thresholds to certain retail public utilities with less than 32 service connections per mile rather than a population of 10,000 or fewer persons and a service connection density less than 32 connections per mile.

New §358.6(e)(2)(B) clarifies that real loss will be calculated based on a connection per day standard rather than a connection per mile standard to conform with industry standard. It revises the real loss threshold for these retail public utilities to be less than 57 gallons per connection per day from 1,600 gallons per mile per day.

Previous Section 358.6(e)(4) is renumbered to §358.6(e)(3).

New §358.6(e)(3) applies new water loss thresholds to utilities with a volume of wholesale water sales that flow through the retail distribution system.

New §358.6(e)(3)(A) removes the use of a modified calculation that includes wholesale volume to calculate apparent water loss and instead requires that apparent water loss expressed as gallons per connection per day must be less than the utility's allowed apparent water loss.

New §358.6(e)(3)(B) removes the use of a utility's unavoidable annual real loss as a method for calculating real loss. It instead requires that real loss, expressed as gallons per connection per day and including a wholesale factor that accounts for wholesale water volume must be less than the applicable real water loss thresholds as stated in proposed new §§358.6(e)(1) or (e)(2).

REGULATORY IMPACT ANALYSIS DETERMINATION (Texas Government Code §2001.0225)

The TWDB reviewed the rulemaking in light of the regulatory analysis requirements of Texas Government Code §2001.0225 and determined that the rulemaking is not subject to Texas Government Code §2001.0225, because it does not meet the definition of a "major environmental rule" as defined in the Administrative Procedure Act. A "major environmental rule" is defined as a rule with the specific intent to protect the environment or reduce risks to human health from environmental exposure, a rule that may adversely affect in a material way the economy or a sector of the economy, productivity, competition, jobs, the environment, or the public health and safety of the state or a sector of the state. The

intent of the rulemaking is to clarify how the TWDB will evaluate water loss audits submitted to it that are statutorily required for certain retail public utilities in compliance with Texas Water Code Chapter 16.

Even if the rule were a major environmental rule, Texas Government Code §2001.0225 still would not apply to this rulemaking because Texas Government Code §2001.0225 only applies to a major environmental rule, the result of which is to: (1) exceed a standard set by federal law, unless the rule is specifically required by state law; (2) exceed an express requirement of state law, unless the rule is specifically required by federal law; (3) exceed a requirement of a delegation agreement or contract between the state and an agency or representative of the federal government to implement a state and federal program; or (4) adopt a rule solely under the general powers of the agency instead of under a specific state law. This rulemaking does not meet any of these four applicability criteria because it: (1) does not exceed any federal law; (2) does not exceed an express requirement of state law; (3) does not exceed a requirement of a delegation agreement or contract between the state and an agency or representative of the federal government to implement a state and federal program; and (4) is not proposed solely under the general powers of the agency, but rather complies instead with Section 16.0121, Texas Water Code. Therefore, this rule does not fall under any of the applicability criteria in Texas Government Code §2001.0225.

TAKINGS IMPACT ASSESSMENT (Texas Government Code §2007.043)

The TWDB evaluated this rulemaking and performed an analysis of whether it constitutes a taking under Texas Government Code, Chapter 2007. The specific purpose of this rule is to clarify water loss audit thresholds for certain retail public utilities. The rule would substantially advance this stated purpose by requiring validation of water loss audit data submitted to the TWDB while also measuring water loss based on a retail public utility's service connection density rather than population and service connection density to match industry standards.

The TWDB's analysis indicates that Texas Government Code, Chapter 2007 does not apply to this rule because this is an action that is reasonably taken to fulfill an obligation mandated by state law which is exempt under Texas Government Code §2007.003(b)(4). The TWDB is the agency charged with compiling this information for the appropriate development of water management strategies to be included in local, regional water plans.

Nevertheless, the TWDB further evaluated this rule and performed an assessment of whether it constitutes a taking under Texas Government Code Chapter 2007. Promulgation and enforcement of this rule would be neither a statutory nor a constitutional taking of private real property. Specifically, the subject proposed regulation does not affect a landowner's rights in private real property because this rulemaking does not burden, restrict, or limit the owner's right to property and reduce its value by 25% or more beyond that which would otherwise exist in the absence of the regulation. In other words, this rule requires compliance with existing statewide water loss auditing requirements in Chapter 16, Texas Water Code without burdening or restricting or limiting the owner's right to property and reducing its value by 25% or more. Therefore, the proposed rule does not constitute a taking under Texas Government Code, Chapter 2007.

PUBLIC COMMENTS (Texas Government Code §2001.033(a)(1))

The public comment period for this rulemaking ended on January 2, 2022. The following is a compilation of the public comments received including a response to each.

Section 358.6(b)(5) Validation Requirements for Water Loss Audits

Comment:

Several commenters submitted comments related to the proposed validation requirements for water loss audits. The National Wildlife Federation commends the TWDB for its efforts in implementing a new program. San Antonio Water System (SAWS) supports better audit data and performing water loss audits. SAWS requested to review the proposed TWDB guidelines for training certified validators. The City of Irving (City) also inquired about proposed TWDB validation guidelines, the timing related to it, for training related to water loss audit validation and for scheduling validations, and what impact the failure to schedule a validation audit will have on an entity requesting financial assistance. The City also asked if there were any proposed exemptions from the validation requirement related to water loss audits. El Paso Water requested the TWDB to provide training for water loss audit validations.

Response:

The TWDB acknowledges these comments. The first required water loss audit validation will be for the 2024 water loss audit that is due to the TWDB by May 1, 2025. The TWDB will be working with interested utilities prior to that date as the program is established. The TWDB water loss audit validation guidelines will be based on current validation guidelines developed by the Water Research Foundation, a leading research organization made up of the WaterReuse Association, the Water and the Environment Federation, and the American Water Works Association, that works towards advancing the science of all water to meet the evolving needs of the water sector. The water loss audit validation guidelines will also be based on the recognized methodology used by the American Water Works Association Water Loss Control Committee. The TWDB is still in the process of finalizing its water loss audit validation guidelines. These guidelines will be complete prior to the 2025 effective date of the requirement as proposed in the rule.

The TWDB does not plan to provide training to certify validators. Further, the TWDB intends to provide validation services directly to utilities when the validation requirements become effective. Should a utility prefer, there are firms that provide training certifying water loss audit validators and are recognized as providing certification through recognized training. The TWDB does not anticipate that financial assistance applications of affected utilities will be negatively affected by the requirement to perform a validation of a water loss audits and there are currently no exemptions provided in rule to the validation requirement related to water loss audits. The TWDB is in the process of determining which utilities may be asked to participate in validation prior to 2025.

The TWDB proposes no changes to the rule in response to these comments.

Section 358.6(e), Water Loss Data and Related Thresholds

Comment:

Several commenters asked about the new proposed water loss thresholds. SAWS asked how the 30 gallons per connection per day was derived, whether the standard was “achievable” and “appropriate,” and how the TWDB will address variability and anomalies, e.g. drought, extreme temperatures and “workforce constraints,” in terms of compliance with the thresholds? The National Wildlife Federation, El Paso Water, and Mr. Alan Wyatt also inquired how the proposed gallons per connection per day was derived. Mr. Wyatt asked additionally if other frameworks were considered and why thresholds for “apparent loss” were being dropped. The City questioned how the TWDB defined “connection.” El Paso Water also submitted comments about service connection density. It asked how “allowed apparent loss” was calculated and submitted additional comments inquiring about the effects on a utility when it exceeds the water loss thresholds for both apparent loss and real loss. El Paso Water also inquires about why “unavoidable real loss” has been deleted from the rule.

Response:

The real loss threshold of 30 gallons per connection per day, for utilities with 32 or more connections per mile, was derived from quality-controlled water loss audit data submitted to the TWDB from 2015 to 2020. TWDB staff analyzed the water loss audit data submitted from 2015 to 2020 and determined the median value as an appropriate threshold for each connection density used for setting the thresholds for real water loss. Connection means service connection, the number of connections extending from the water main to supply water to a customer or use, excluding fire hydrants or flushing. It includes pressurized piping connections, including fire connections, whether active or inactive. This may differ from the number of customer or accounts the utility serves. Connection density and the use of a single delineation at 32 connections was used for a simplified approach to determining the threshold (as is used by the American Water Works Association's Water Loss Control Committee) and has been used as a delineation between high density and low density water utilities since the thresholds were originally established. The water loss thresholds are used as an indicator of water loss that exceeds that of comparable utilities and are used by the TWDB to determine when mitigation of water loss is required by utilities requesting financial assistance for a water supply project from TWDB. The thresholds are not intended to be targets for water loss performance.

With respect to issues related to variability, neither the current water loss rules nor the proposed amendments address the commenters concerns. The TWDB works with all utilities in reviewing their water loss audits and considers all pertinent information when reviewing a request for financial assistance. Additionally, the thresholds were developed using data from six years of quality-controlled water loss audits; therefore, any variability in the data used to derive the threshold is likely minimal.

The thresholds for apparent loss remain. Allowed apparent loss as a threshold for apparent loss is a utility-specific value derived from a calculation that accounts for the components of apparent loss: customer meter accuracy loss, data handling errors, and unauthorized consumption. $\text{Apparent loss} = ((0.053 \times V_m) + (0.0025 \times V_{ba}) + (0.0025 \times V_{ba})) (365 \times N_c)$. Where V_m is the billed metered volume of the water loss audit, V_{ba} is the billed authorized volume of water from the audit, and N_c is the number of service connections. A reference to apparent loss as part of the wholesale factor was removed because it was not necessary.

The wholesale factor calculation does not consider a utility's apparent loss. Under the proposed rules, unavoidable real loss will no longer be used as a metric for real loss thresholds or elsewhere, therefore, the definition is no longer necessary. Unavoidable real loss remains as a calculated value on the water loss audit worksheet.

Thresholds are applied when a utility is applying for financial assistance for a water supply project. If the utility's water loss meets or exceeds the applicable threshold for that utility, the retail public utility must use a portion of any financial assistance received from the board to mitigate the utility's water loss. The retail public utility in conjunction with the executive administrator determine the mitigation required for the project.

The TWDB proposes no changes to the rule in response to these comments.

Comments Related to Combined Real Loss Indicator

Comment:

Mr. Wyatt commented that the TWDB should use Combine Real Loss Indicator (CRLI) in its water loss audit calculations for future usefulness. Both Mr. Wyatt and the National Wildlife Federation commented that the TWDB should consider using a “Good Performance Level” as that term is used in a report published by the National Wildlife Federation.

Response:

The TWDB acknowledges these comments. TWDB’s proposed water loss thresholds are based on six years of quality-controlled water loss audit data. These proposed thresholds, along with the current threshold framework, balances the need for many utilities to mitigate water loss with the efficient use of state resources and the variability in factors for the cause and the mitigation of losses. Our proposed thresholds do increase the number of potentially affected utilities from the current thresholds.

The TWDB proposes no changes to the rule in response to these comments.

AGENCY REVIEW OF EXISTING RULES (Texas Government Code §2001.039)

The TWDB reviewed the rulemaking in light of the statutory requirement for the Agency to review existing rules in Texas Government Code §2001.039 and has determined that the rulemaking to 31 TAC §358.6 is necessary to comply with §6.101, which provides the TWDB with the authority to adopt rules necessary to carry out the powers and duties in the Water Code and also specifically under §16.0121, Texas Water Code, which imposes a requirement on the TWDB to develop methodologies for water loss audits. Therefore, the rulemaking is re-adopted with amendments.

STATUTORY AUTHORITY (Texas Government Code §2001.033(a)(2))

The amendment is proposed under the authority of Texas Water Code §6.101, which provides the TWDB with the authority to adopt rules necessary to carry out the powers and duties in the Water Code and other laws of the State, and also under the authority of Texas Water Code Section 6.0121.

Cross-reference to statute: This rulemaking affects Texas Water Code, Chapter 16, Subchapter B.

TITLE 31 NATURAL RESOURCES AND CONSERVATION

PART 10 TEXAS WATER DEVELOPMENT BOARD

CHAPTER 358 STATE WATER PLANNING GUIDELINES

SUBCHAPTER B DATA COLLECTION

§358.6 Water Loss Audits

(a) Definitions. Unless otherwise indicated, in this section the following terms shall have the meanings assigned.

- (1) Allowed apparent loss--A unique number for allowable apparent loss calculated for each utility.
- (2) Annual real loss--A unique number calculated for each utility based on the utility's real loss on an annualized basis.
- (3) Apparent loss--Unauthorized consumption, meter inaccuracy, billing adjustments, and waivers.
- (4) Average system operating pressure--System operating pressure in pounds per square inch calculated using a weighted average approach as identified in the American Water Works Association M36 Manual.
- (5) Validation - The process of examining water loss audit inputs to identify and correct inaccuracies in water loss audit data and the application of methodology to evaluate and communicate the uncertainty inherent in water loss audit data.
- (6) Executive Administrator--The executive administrator of the Board.
- (7) Mitigation--An action or actions taken by a retail public utility to reduce the amount of total water loss in a system. Mitigation may include a detailed water loss assessment, pipe or meter replacement, or addition or improvement of monitoring devices to detect water loss.
- (8) Real loss--Loss from main breaks and leaks, storage tank overflows, customer service line breaks, and line leaks.
- (9) Retail public utility or utility--A retail public utility as defined by Texas Water Code §13.002.
- (10) Service connection density--The number of a retail public utility's connections on a per mile basis.

(11) Total water loss--The sum of a utility's real loss and apparent loss.

(b) A retail public utility that provides potable water shall perform a water loss audit and file with the executive administrator a water loss audit computing the utility's system water loss during the preceding calendar year, unless a different 12-month period is allowed by the executive administrator. The water loss audit may be submitted electronically.

(1) Audit required annually. The utility must file the water loss audit with the executive administrator annually by May 1st if the utility:

(A) has more than 3,300 connections; or

(B) is receiving financial assistance from the board, regardless of the number of connections. A retail public utility is receiving financial assistance from the board if it has an outstanding loan, loan forgiveness agreement, or grant agreement from the board.

(2) Audit required every five years. The utility must file the water loss audit with the executive administrator by May 1, 2016, and every five years thereafter by May 1st if the utility has 3,300 or fewer connections and is not receiving financial assistance from the board.

(3) The water loss audit must be performed in accordance with methodologies developed by the executive administrator based on the population served by the utility and taking into consideration the financial feasibility of performing the water loss audit, population density in the service area, the retail public utility's source of water supply, the mean income of the service population, and any other factors determined by the executive administrator. The executive administrator will provide the necessary forms and methodologies to the retail public utility.

(4) A water loss audit must be performed by a person who has completed water loss audit training developed by the executive administrator. The executive administrator will make such training available without charge on the agency website and may also provide such training in person or by video.

(5) Effective January 1, 2025, a utility required to submit a water loss audit annually as described in paragraph (1)(B) of this subsection or that is applying for financial assistance will be required to have its most current water loss audit validated within three months of submittal or prior to consideration of a request for financial assistance from the board. The executive administrator will validate the submitted water loss audit in conference with the retail public utility. Alternatively, the utility may elect to have the water loss audit validated by a person other than the executive administrator. Should a water loss audit be validated by a person other than the executive administrator's staff, validation must follow TWDB's validation guidelines and be performed by a person other than the person submitting the water loss audit, who has completed water loss audit validation training and is certified to conduct such validation.

(c) The executive administrator shall determine if the water loss audit is administratively complete. A water loss audit is administratively complete if all required responses are provided, ~~and~~ the audit is completed by a person who has been trained to conduct water loss auditing as described in subsection (b)(4) of this section, and the audit has been validated as described in subsection (b)(5) of this section. In

the event the executive administrator determines that a retail public utility's water loss audit is incomplete, the executive administrator shall notify the utility.

(d) A retail public utility that provides potable water that fails to submit a water loss audit or that fails to correct a water loss audit that is not administratively complete within the timeframe provided by the executive administrator is ineligible for financial assistance for water supply projects under Texas Water Code, Chapter 15, Subchapters C, D, E, F, G, H, J, O, Q, and R; Chapter 16, Subchapters E and F; and Chapter 17, Subchapters D, I, K, and L. The retail public utility will remain ineligible for financial assistance until a complete water loss audit has been filed with and accepted by the executive administrator.

(e) The following thresholds shall apply to certain retail public utilities:

(1) For a retail public utility with a service connection density more than or equal to 32 connections per mile:

(A) Apparent loss expressed as gallons per connection per day must be less than the utility's allowed apparent loss.

(B) Real loss expressed as gallons per connection per day must be less than 30 [~~50~~] gallons per connection per day.

(2) For a retail public utility with a service connection density less than 32 connections per mile:

(A) Apparent loss expressed as gallons per connection per day must be less than the utility's allowed apparent loss.

(B) Real loss expressed as gallons per connection per day must be less than 57 gallons per connection per day.

(3) For a utility that has a volume of wholesale water sales that flow through the retail water distribution system:

(A) Apparent loss expressed as gallons per connection per day must be less than the utility's allowed apparent loss.

(B) Real loss, expressed as gallons per connection per day and including a wholesale factor that takes into account the wholesale water volume, must be less than the applicable real loss threshold described in subsections (e)(1)(B) or (e)(2)(B) of this section.

(f) If a retail public utility's total water loss meets or exceeds the threshold for that utility, the retail public utility must use a portion of any financial assistance received from the board for a water supply project to mitigate the utility's water loss. Mitigation will be in a manner determined by the retail public utility and the executive administrator in conjunction with the project proposed by the utility and funded by the board. On the request of a retail public utility, the board may waive the requirements of this subsection if

the board finds that the utility is satisfactorily mitigating the utility's system water loss. The request for waiver should be addressed to the executive administrator and include information about the utility's current or planned activities to mitigate their water loss and their source of funding for that mitigation.