



Action Item: Consideration of Water Loss Audit Reporting Regulations

SUMMARY

Urban water suppliers were first required to include water loss audits of their distribution systems with their 2015 urban water management plans. SB 555 (2014) now requires that retail urban water suppliers submit validated water loss audit reports annually to the Department of Water Resources (the Department or DWR) on or before October 1 of each year, starting in 2017. The Department is adopting regulations that govern how water suppliers submit these audits. The proposed regulations specify water loss audit and validation standards, qualifications for those who validate water loss audits, and the requirements of water loss audit reporting. Although DWR intended to have the regulations in place in advance of the October 1 submittal date, extensive comments and policy discussions delayed bringing the matter before the Commission.

The Department made two revisions to the draft regulations based on public comments received. Department staff will present background information, the process of developing the regulations, significant issues that were raised, and the final proposed regulations for consideration and possible approval by the Commission.

The data from the first two years of water loss audit reporting are expected to provide a base for water loss performance standards that the State Water Resources Control Board will establish by July 1, 2020, per SB 555.

BACKGROUND

SB 555 (Water Code Section 10608.34) was intended to help achieve the State's target of 20% reduction in urban per capita water use by 2020. This statute directs DWR to establish regulations governing the conduct and validation of water loss audits, establishes the technical qualifications of water loss validators, and includes reporting requirements for submitting the validated water loss audits to the Department. Section 10608.34(a) required the Department to adopt these regulations by January 1, 2017. The statute specifies that water loss audits must be performed in accordance with the method set forth in the "American Water Works Association in the third edition of Water Audits and Loss Control Programs, Manual M36 and in the Free Water Audit Software, version 5.0." (Water Code section 10608.34(a)(1)(B).) The

statute also requires the validated water loss audit reports be submitted on or before October 1, 2017 and annually after. (Water Code section 10608.34(b).)

The Department published the notice of public availability for the regulations on March 3, 2017. The first 15-day notice was published on May 18, 2017. The second 15-day notice was published on June 16, 2017.

ISSUES

During the first comment period, the Irvine Ranch Water District asked DWR to confirm that the regulations apply only to potable water and not to recycled water. DWR subsequently added the word “potable” as appropriate throughout the regulations to clarify that the focus was on drinking water. In the public comments following, DWR received a letter signed by 12 members of the Legislature and another from 6 non-government organizations objecting to the limitation of the water loss audits to drinking water systems.

The statute is silent regarding whether non-potable water distribution systems should be regulated under SB 555. The Water Code defines “urban retail water supplier” as a supplier of potable municipal water (WC §10608.12(p)). As mentioned above, some commented that urban retail water suppliers should be covered by the regulations for their recycled as well as potable water systems, asserting essentially, that silence means the Legislature intended to include them. DWR believes that its focus on potable water is consistent with statutory intent and authority. In addition, the AWWA Manual, which DWR must use as the basis of the water loss audits, specifically applies to potable water systems.

The regulations will take effect after the statutory deadlines for adopting the regulations (January 1, 2017) and submitting the required audits (October 1, 2017). This may be noted by the Office of Administrative Law during its review, but does not affect the statutory requirement to adopt the regulations or submit the audits. Some water agencies have already submitted water loss audits to DWR.

CONCLUSION AND RECOMMENDATION

DWR requests the Commission approve the regulations pursuant to the Commission’s authority in Water Code section 161. If the Commission approves the regulations, DWR will submit the regulations to OAL for review and approval.

The Commission’s authority is limited to approval or rejection of the regulations; it cannot direct DWR to make specific changes. Staff recommends the Commission deliberate as

appropriate and approve or reject the regulations as it determines is best for the State of California.

ADDITIONAL INFORMATION RESOURCES

Comment letter from Legislators (May 31)

<http://www.water.ca.gov/wateruseefficiency/wlaudits/docs/comments/CA%20Legislators%20%20comment%20letter.pdf>

Comment letter from NGOs (June 1)

<http://www.water.ca.gov/wateruseefficiency/wlaudits/docs/comments/NGO%20Ltr%20DWR%20Water%20Loss%20Regs%2015-day%20-%206-1-17.pdf>

Water Code 10608.12 (Definitions)

https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=WAT§ionNum=10608.12.

SB 555

https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB555

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DWR

PROPOSED REGULATIONS
TITLE 23. WATERS
DIVISION 2. DEPARTMENT OF WATER RESOURCES
CHAPTER 7. WATER LOSS AUDITS AND WATER LOSS CONTROL
REPORTING

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Title 23. Waters
Division 2. Department of Water Resources
Chapter 7. Water Loss Audits and Water Loss Control Reporting (New)

23 CCR § 700
§ 700 Validated Water Loss Audits by Urban Water Suppliers.

(a) The Department is directed, under California Water Code (CWC) §10608.34, to adopt rules for:

- (1) the conduct of standardized water loss audits by urban retail water suppliers of their potable water systems;
- (2) the process for validating a water loss audit;
- (3) the technical qualifications required of a person to engage in validating a water loss audit;
- (4) the additional requirements for a person selected by an urban retail water supplier to provide validation of its own Report; and
- (5) the method of submitting a Report to the Department.

(b) The Department is further directed, under California Water Code §10608.34, to update the rules described in subsection (a) as necessary, within six months after the release of a new edition of the AWWA's Water Audits and Loss Control Programs, Manual M36.

(c) The Department will update these regulations within six months after AWWA's issuance of a new edition of its Water Audits and Loss Control Programs, Manual M36.

Note: Authority cited: CWC Section 10608.34; Reference: CWC Section 10608.34(a).

23 CCR § 700.1
§ 700.1. Definitions.

As used in this Chapter, the following terms are defined as follows:

- (a) “Apparent losses” means losses due to unauthorized consumption and/or nonphysical (paper) losses attributed to inaccuracies associated with customer metering, or systematic handling errors.
- (b) “Authorized consumption” means the volume of water taken by registered customers, the water supplier, and others who are implicitly or explicitly authorized to do so. Authorized consumption may be billed or unbilled, metered or unmetered.
- (c) “AWWA” means the American Water Works Association.
- (d) “CA-NV AWWA” means the California-Nevada Section of the American Water Works Association.
- (e) “Data grading values” means specific grade scores (on a scale from 1 to 10) applied to each input component in the AWWA Free Water Audit Software spreadsheet.
- (f) “Data Validity Score (DVS)” means a measure of the overall trustworthiness of the data entered in the AWWA Free Water Audit Software. The DVS represents the validity of the water audit data and is a reflection of the level of best practices employed by the water supplier associated with the water supply system subject to the audit.
- (g) “Department” means the Department of Water Resources.
- (h) “General manager” means a person that has an executive position with the urban retail water supplier with overall responsibility for managing operations, revenue, and costs. Such a position can also be described as a water department director, city manager, utilities manager, or the director of public works.
- (i) “Level 1 validation” means a review of the water loss audit that includes an examination of the data sources used for each input and an evaluation of the DVS selected for each input of the audit, as described in Section 700.3.
- (j) “Non-revenue water” means the portion of water consumption that is not billed and does not produce revenue. It equals the unbilled authorized consumption plus apparent and real losses.

(k) "Real Losses" means the physical water losses from the pressurized potable water system and the utility's potable water storage tanks, up to the point of customer consumption.

(l) "Report" means the water loss audit report of a potable water supply required to be submitted to the Department as specified in Section 700.5.

(m) "Standardized water loss audits" means water loss audits conducted in accordance with the method adopted by the AWWA, Water Audits and Loss Control Programs Manual M36, and applied in the AWWA Free Water Audit Software, as specified in Section 700.2.

(n) "Urban retail water supplier" means a water supplier, either publicly or privately owned, that directly provides potable municipal water to more than 3,000 end users or that supplies more than 3,000 acre-feet of potable water annually at retail for municipal purposes.

(o) "Validating" means a process whereby an urban retail water supplier uses a water audit validator to confirm the basis of data entries in the Reports and to characterize the quality of the reported data. All references herein to "validating" or "validation" refer to "Level 1 validation."

(p) "Water audit validation" refers to the process of examining water loss audit inputs to consider the water audit's accuracy and document the sources of uncertainty.

(q) "Water audit validator" means a person who meets the requirements of Section 700.4 to perform the validation of a water loss audit.

Note: Authority cited: CWC Section 10608.34, Reference: CWC Sections 10608.34(a)(1)(A), 10608.34(a)(1)(B), 10608.34(a)(1)(C), 10608.34(b), 10608.34(d), and 10608.34(f).

23 CCR § 700.2
§ 700.2. Audit Standards and Frequency.

Urban retail water suppliers shall, on an annual basis, conduct water loss audits of their potable water systems in accordance with the methods in Chapter 3 of the American Water Works Association Water Audits and Loss Control Programs, Manual of Water Supply Practices – M36, Water Audits and Loss Control Programs, 4th Edition, American Water Works Association, 6666 West Quincy Avenue, Denver, CO 80325-3098, 2016, and the AWWA Free Water Audit Software, version 5.0, American Water Works Association, 6666 West Quincy Avenue, Denver, CO 80325-3098 Copyright, 2014, both hereby incorporated by reference into these regulations.

Note: Authority cited: CWC Section 10608.34, Reference: CWC Sections 10608.34(a)(1)(A), 10608.34(b)

23 CCR § 700.3

§ 700.3. Standardized Conduct for Validation of Water Loss Audits.

- (a) All water loss audits shall receive a Level 1 validation.
- (b) A Level 1 validation shall include:
 - (1) An interview between the water audit validator and the person or persons that prepared the water loss audit, and any member of the utility staff with information that the water audit validator believes is necessary to complete the Level 1 audit validation.
 - (2) A review and evaluation of the following documentation:
 - (A) The completed AWWA Free Water Audit Software specified in Section 700.2.
 - (B) The reported water volume from own sources, as documented by the supply meter(s) or other means, as applicable.
 - (C) The reported volume of water imported and exported each month by connection.
 - (D) The documentation of the customer meter and supply meter accuracy testing and calibration.
 - (E) The reported volume of authorized consumption each month broken down by water rate, if different rates are applied to water users.
 - (3) A review and evaluation of the accuracy of performance indicators included in the AWWA Free Audit Software.
 - (4) A review of audit inputs and data grading values to confirm a correct application of methodology, and follow-up reviews (if indicated).
 - (5) A summary of the validation, including:
 - (A) Name and contact information of the water audit validator.
 - (B) A summary of the Level 1 validation utility staff interview, including the basis for the input derivations and the DVS selections.
 - (C) Any recommended changes to the water audit inputs by the water audit validator that were not accepted by the urban retail water supplier and the rationale for not accepting the recommendations.
 - (D) A summary of any follow up performance indicator reviews.
 - (E) Overall impressions, including the consistency of performance indicators with system conditions and water loss management practices.

(F) Any recommendations for [further] validation or water loss audit improvements.

Note: Authority cited: CWC Section 10608.34, Water Code. Reference: CWC Section 10608.34(a)(1)(B).

23 CCR § 700.4

§ 700.4. Technical Qualifications for a Water Audit Validator.

(a) For purposes of Reports submitted on or before June 30, 2019, a water audit validator means:

(1) a contractor working in the CA-NV AWWA Water Loss Technical Assistance Program (“Water Loss TAP”) performing water loss audit training and conducting audit validations, or

(2) a person who can demonstrate having conducted water loss audits in accordance with the AWWA’s Water Audits and Loss Control Programs, Manual M36 (4th edition), and the AWWA Free Water Audit Software, version 5.0, and having conducted a minimum of 10 Level 1 audit validations in accordance with the Water Research Foundation Level 1 Water Audit Validation: Guidance Manual 4639A (Water Audit Validation), or

(3) an individual certified by the CA-NV AWWA as a water audit validator.

(b) For purposes of Reports submitted on or after July 1, 2019, a water audit validator means an individual certified by the CA-NV AWWA as a water audit validator.

(c) An urban retail water supplier may conduct a water loss audit validation for its own water loss audit provided the person performing the validation meets the requirements in this Section.

(d) A water audit validator may not conduct a water loss audit validation if he or she participated in compiling the water loss audit.

Note: Authority cited: CWC Section 10608.34,. Reference: CWC Sections 10608.34(b) and Section 10608.34(a)(1)(C) of the Water Code.

23 CCR § 700.5

§ 700.5. Audit Reporting Requirements.

- (a) Not later than October 1, 2017, and by October 1 of every year thereafter, urban retail water suppliers shall submit a Level 1 validated Report to the Department. The Report shall include data spanning 12 consecutive months, as follows:
- (1) For utilities that prefer to provide Reports on a calendar year basis the reporting period shall be for calendar year 2016 and annually thereafter.
 - (2) For utilities that prefer to provide Reports on a fiscal year basis that is not on the calendar year, the first reporting period shall be for their 2016-2017 fiscal year and annually thereafter.
- (b) Reports under subsection (a) shall be submitted in two separate files. One file shall be in a complete and fully operational water loss audit spreadsheet format generated from the AWWA Free Water Audit Software that contains the water audit information specified in subsection (1) below. The second file shall be a document file in Adobe Acrobat that contains the information specified in subsection (2) thru subsection (4) below:
- (1) System-specific data entered into each field in the water loss audit spreadsheet worksheets of the AWWA Free Water Audit Software, with a DVS.
 - (2) In 2017, information identifying steps taken by the urban retail water supplier in the previous year to increase the validity of data entered into the final audit, reduce the volume of apparent losses, and reduce the volume of real losses, as informed by the annual validated water audit.
 - (3) Beginning in 2018, information identifying steps taken by the urban retail water supplier in the preceding 3 years to increase the validity of data entered into the final audit, reduce the volume of apparent losses, and reduce the volume of real losses, as informed by the annual validated water audit.
 - (4) A statement confirming the Level 1 validation of the submitted water loss audit, including the validation findings, and documenting the following:
 - (A.) Identification of the water audit validator.
 - (B.) Qualification of the water audit validator.
 - (C.) Date of the Level 1 validation review.
 - (5) The following Water Loss Audit Certification Statement, signed by the chief financial officer, the chief engineer or the general manager of an urban retail water supplier:

“This water loss audit report meets the requirements of California Code of Regulations Title 23, Division 2, Chapter 7 and the California Water Code Section 10608.34 and has been prepared in accordance with the method adopted by the American Water Works Association, as contained in their manual, *Water Audits and Loss Control Programs, Manual M36, Fourth Edition* and in the Free Water Audit Software version 5.0.”

- (c) In the case of urban retail water suppliers with two or more separate public potable water systems, the urban retail water supplier shall submit a separate AWWA Free Water Audit Software spreadsheet worksheet meeting the requirements in Section 700.5(b)(1) for each potable water system.
- (d) Reports required under subsection (a) shall be submitted using the Department’s online submittal tool for validated water loss audit Reports.
- (e) The Department shall make the online submittal tool available on its internet website prior to submission periods.

Note: Authority cited: CWC Section 10608.34, Reference: CWC Sections 10608.34(a)(1)(B), 10608.34(a)(1)(E), 10608.34(b), and 10608.34(e).

23 CCR § 700.6

§ 700.6. Validated Water Loss Audit Acceptance Criteria.

(a) The Department shall evaluate Reports submitted under Section 700.5. A Report shall be accepted if it contains the elements required under Section 700.5(b) and meets the following criteria:

(1) The Report was properly validated, including whether it was validated by an individual with the qualifications specified in Section 700.4 of this Chapter.

(2) The data and data grading values in the audit sheet indicate that the system is operating in a manner that is congruent with known characteristics of potable water system operations. To evaluate congruency, the Department may consider the presence and significance of any of the following conditions:

(A.) The real losses are less than 0.0.

(B.) The cost of the non-revenue water is greater than 100% of operating costs.

(b) If the Department does not accept a Report as described in subsection (a), the Department shall return the Report to the urban retail water supplier. The urban retail water supplier shall resubmit a completed Report within 90 days of a Report being returned.

Note: Authority cited: CWC Section 10608.34, Reference: CWC Section 10608.34(f).