

Water Loss Benchmarking Guidance for Regional Water Planning Groups

Water loss industry standards do not recommend setting a one-size-fits-all target for water loss, rather water loss performance targets should be system specific. Additionally, water loss targets should be set in the water loss key performance indicators of apparent loss per connection per day, real loss per connection per day, and/or real loss per mile per day. Uses and limitations of key performance indicators have been developed by the American Water Works Association's Water Loss Control Committee in their [AWWA Water Loss Control Committee Report \(2019\)](#) (also provided in Table 1 below).

TWDB is required to evaluate the water loss of retail public utilities that request financial assistance for a water supply project using water loss thresholds as an indicator of whether a utility must include funds for mitigating water loss as part of their request for financial assistance. TWDB has established the thresholds found in [31 §TAC 358.6\(e\)](#) and in the [Conservation Resource Guide for Development of the 2026 Regional Water Plans](#) using six years of water loss audit data and finding the median for two distinct groups of utilities for real loss, the physical leakage of water from the distribution system. Retail public utilities located in less dense communities (less than 32 connections per mile) the threshold or median of this group is 57 gallons per connection per day. Retail public utilities located in more dense communities (32 or more connections per mile) the threshold or median of this group is 30 gallons per connection per day.

Although the TWDB water loss threshold is set as one number for each distinct group, the threshold is not a target. The water loss threshold is only used for determining whether a utility may need to mitigate their water loss in addition to any other project they are requesting funds of the TWDB. A RWPG may wish to consider that these water loss threshold values are medians of sizes of utilities which can be used as benchmarking values. However, there should be an understanding that these values will change every five years as TWDB redoes its analysis, and these values do not represent all utilities in the state – only those which submitted water loss audits between 2015 and 2020 with no obvious errors (i.e. negative values). Additionally, while it is recommended to benchmark only with utilities with similar characteristics, only using connection density as a parameter for determining similar utilities can be limiting. To include other characteristics or to identify the median or similar summary statistics for identifying similar utilities please consider using the Water Loss Audit Data spreadsheets found on the [Conservation Resources for 2026 Regional Water Plan Development webpage](#).

Table 1
2020 AWWA Water Audit Method – Water Audit Outputs and Key Performance Indicators: Uses and Limitations

Type	Indicator	Description	Suitable Purposes					Uses and Limitations	Principal Users
			Assessment	Bench- marking	Target- Setting	Planning	Tracking		
Attribute	Apparent Loss Volume	Calculated by Free Water Audit Software	✓				✓	Assess loss level	Utility, Regulators
	Apparent Loss Cost	Calculated by Free Water Audit Software	✓				✓	Assess loss cost level	Utility, Regulators
	Real Loss Volume	Calculated by Free Water Audit Software	✓				✓	Assess loss level	Utility, Regulators
	Real Loss Cost	Calculated by Free Water Audit Software	✓				✓	Assess loss cost level	Utility, Regulators
	Unavoidable Annual Real Loss (UARL)	Calculated by Free Water Audit Software	✓				✓	Reveal theoretical technical low level of leakage	Utility, Regulators
Volume	Normalized Apparent losses (vol / conn / day)	Strong and understandable indicator for multiple users	✓	✓	✓	✓	✓	Used for performance tracking and target-setting	Utilities Regulators
	Normalized Real losses (vol / conn / day)	Strong and understandable indicator for multiple users	✓	✓	✓	✓	✓	Used for performance tracking and target-setting	Utilities, Regulators, Policy Makers
	Real losses (vol / pipeline length / day)	Strong and understandable indicator for use by utilities with low connection density	✓	✓	✓	✓	✓	Data collection and assessment of systems with "low" connection density	Utilities, Regulators, Policy Makers
	Normalized Water losses (vol / conn / day) New KPI	Strong and understandable indicator; suitable for high-level performance measurement	✓				✓	High level indicator for trending analysis. Not appropriate for target-setting or benchmarking	Utilities, Customers
	Real losses by pressure (vol / conn / day / pressure unit)	Robust but specialized indicator; technical rigor may be influenced by network materials.	✓	✓		✓	✓	Data collection and assessment of effects of pressure level	Utilities
	Infrastructure Leakage Index (ILI)	Robust, specialized ratio KPI; can be influenced by pressure and connection density.	✓	✓			✓	Benchmarking after pressure management is implemented	Utilities
Value	Apparent Loss Cost Rate (value / conn / year) New KPI	Indicators with sufficient technical rigor. Provide the unit financial value of each type of loss, which is very useful for planning and assessment of cost efficiency of water loss reduction and control interventions and programs.	✓			✓	✓	Data collection and assessment on AWWA indicators or contextual parameters to use in conjunction with Loss Cost Rates	Utilities, Regulators, Customers
	Real Loss Cost Rate (value / conn / year) New KPI		✓			✓	✓		Utilities, Regulators, Customers
Validity	Data Validity Tier (DVT)*	Strong indicator of water loss audit data quality, if data has been validated. Tier provides guidance on priority areas of activity.	✓	✓		✓	✓	Assess caliber of data inputs of the water audit	Regulators, Utilities

*Data Validity Tier is a new term that will appear in Version 6.0 of the FWAS (2020 release) and is a band-type grouping of Data Validity Scores: Tier I: DVS=0-25; Tier II: DVS=26-50; Tier III: DVS=51-70; Tier IV: DVS=71-90; Tier V: DVS=91-100

Source: [AWWA Water Loss Committee Report \(2019\)](#)