

# Water Loss Control in Tennessee

Issue I

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*“..a high percentage of unaccounted for water doesn’t necessarily mean excessive losses.”*

## New Tennessee Water Loss Legislation

**House Bill No. 743 (Curtiss) / Senate Bill No. 738 (Southerland) came into effect on July 1, 2007. This enacted bill amends the Tennessee Code relating to Utility Districts and, as a result, all Tennessee Utility Districts are now required to include their annual average unaccounted for water loss percentage in their annual audit reports.** The amended Code gives the Utility Management Review Board authority to investigate those Utility Districts whose unaccounted for water loss is “excessive”, and to require those Utility Districts to take the appropriate action to reduce their unaccounted for water loss to an acceptable level.

### How prepared are you to deal with this issue?

The rules for calculating percentage unaccounted for water are still being formulated, but in another section of this newsletter we will briefly describe the new methodology that is recommended by American Water Works Association. The good news is that the new methodology shows that a high percentage of unaccounted for water doesn’t necessarily mean excessive losses. All the factors that can cause a high percentage of unaccounted for water, such as having to operate at high pressure or having to pump water over long distances for relatively few customers, are taken into account with the new methodology.

The full text of the new bill is available at  
[www.tennessee.gov/sos/acts/105/pub/pc0243.pdf](http://www.tennessee.gov/sos/acts/105/pub/pc0243.pdf)

## AWWA new methodology for calculating water losses

A recent AWWA Water Loss Control Committee report on applying best management practice in water loss control concluded that “..the term unaccounted for water – lacking a consistent definition – should no longer be used”.

**AWWA now recommends that all water utilities use the new methodology as presented in the 2003 Committee Report in calculating water losses and use the Infrastructure Leakage Index (ILI) to compare their water losses against a guideline figure.**

The new methodology has several essential features that have been lacking in

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previous audit procedures. These include standard terms and definitions for all components of water use; all water use is accounted for as either consumptive use or water loss; all components of consumptive use and water loss are expressed in units of volume for the audit period; an array of robust performance indicators that outperform simplistic, poorly defined percentage indicators.

The most robust water loss performance indicator that is recommended by AWWA is the Infrastructure Leakage Index or ILI. This performance indicator takes into account all the factors that affect leakage losses in a utilities water supply system and compares them against the theoretical minimum level of leakage that could exist if all possible leakage reduction actions were taken. An ILI of 1 would indicate that the theoretical minimum level of leakage has

been achieved.

ILI takes into account the system pressure because a system that has to be operated at high pressure, due to pumping over long distances or across highly variable grades, will naturally have a higher intrinsic leakage level than a system operated at lower pressure. ILI also takes into account the amount of underground infrastructure that is needed to supply water to your customers. For example, rural water supply systems typically require long lengths of water mains to supply relatively few customers. Rural systems therefore tend to have a larger amount of underground infrastructure per customer than would be the case in a dense urban system. And more mains and higher pressure means higher losses.

The full text of the AWWA Water Loss Control Committee report is available for AWWA members at [www.awwa.org/communications/journal/2003/august/execsumm/ES2commrept0803.cfm](http://www.awwa.org/communications/journal/2003/august/execsumm/ES2commrept0803.cfm) or call WSO for a copy.

## A Tennessee Water Audit

WSO recently carried out a water audit for a small rural water utility in Tennessee. The traditional percentage water loss figure was over 40% (is that going to be considered excessive?).

However, the ILI for this utility was 3, and according to AWWA guidelines the level of water loss by the ILI measure was considered to be acceptable for the type of utility. The utility could technically do more to reduce water losses, but from an economic standpoint, additional leakage control actions over and above what they are currently doing is not justified.

The conclusions of this study are that a high percentage of water loss doesn't mean excessive, and that the new AWWA methodology can be applied in water utilities of any size.

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## Introduction to WSO

WSO was established in 2002 and has since become a world leader in water loss control. WSO is an active member of the AWWA Water Loss Control Committee and the International Water Association Water Loss Task Force. You can find comprehensive information about our company, the services we provide and case studies of the projects we have carried out at [www.wso.us](http://www.wso.us). Contact WSO today for help with your water audit.

Our past and present clients include:

In Tennessee: Nashville Metro Water Services, Savannah Valley Utility District, First Utility District of Knox County, City of Johnson City, Elizabethton Water Utilities

Other States: Philadelphia Water Department (PA), San Francisco Public Utilities Commission (CA), Orlando Utilities Commission (FL), Orange County Utilities (FL), Los Angeles Power and Water Department (CA), Phoenix Water Department (AZ)