Promoting Effective Water Loss Control

BY GEORGE KUNKEL, P.E.

Water loss control is important because it minimizes lost volumes of water that have been treated and energized, limiting unneeded source water withdrawals, excess infrastructure capacity, and operating costs. Water utilities often find that loss-control programs recover additional revenue. Until recently, quantifying losses and implementing effective loss-reduction programs suffered from a lack of proactive, standard methods, with many utilities employing imprecise "unaccounted-for" water practices. Not only is the term "unaccounted-for" water inconsistently defined, it frequently falls prey to manipulation, with many utilities employing imprecise "unaccounted-for" water practices. Not only is the term "unaccounted-for" water percentage without revealing source data or loss-control program details.

The accompanying figure shows the standard water balance summary of the IWA/AWWA Water Audit Method. The fundamental tenet of this method is that all water supplied by a water utility is accounted for as either a valid consumption or a wasteful loss. No water is unaccounted-for. By following the columns from left to right, the water balance tracks all water managed by the water utility from source to customer. In each column, the total volume from all components is the same, so all columns balance. It's recognized that some of the components of water consumption and loss must be quantified via estimates, so a degree of error always exists in a water audit. However, this error isn't unaccounted-for water. The method highlights water consumption and water loss by volume and cost impact as the primary performance indicators.

The term "nonrevenue" water represents the inefficiency in the supply process and is expressed as an annual volume. Nonrevenue water is defined as the sum of unbilled authorized consumption (water for firefighting, flushing, etc.), apparent losses (nonphysical losses), and real losses (physical losses—largely leakage). Cost impacts of the nonrevenue water should also be determined. The term "nonrevenue" water should be used in place of the term "unaccounted-for" water. The IWA/AWWA Water Audit Method features several performance indicators that specifically assess the level of apparent loss, real loss, and nonrevenue water existing in the supply process. See the Water Loss Control pages of the WaterWiser Web site for details of...

Water utilities are encouraged to conduct an IWA/AWWA water audit on an annual basis as a standard business practice. Regulatory agencies are encouraged to consider revising their existing water loss statutes to employ the IWA/AWWA Water Audit Method.

To effectively apply this method, the drinking water industry must be willing to discard its use of the term “unaccounted-for” water and embrace the IWA/AWWA Water Audit Method. Readers are urged to download the committee’s Free Water Audit Software and begin assessing water loss standing in this reliable manner.

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