



# LOCAL GOVERNMENT FINANCIAL TOOLBOX

## Testing the Efficiency of Your Water Delivery System

An effective water accounting system is a necessary first step in controlling water losses and reducing water system costs. The quantity of water lost from the water and distribution system will vary depending on how well the system is operated and maintained. The Federal Environmental Protection Agency (EPA) has established an industry goal of 10 percent for unaccounted water system losses.

All water systems can benefit from a water accounting system to help track water throughout the system and identify areas that may need attention, particularly large volumes of unaccounted-for water. Unaccounted-for water includes losses that usually result from source meter errors, customer meter under-registrations, accounting procedure errors, illegal connections, malfunctioning distribution system controls, storage tank overflows, theft and underground leaks.

There may be opportunities to save money by decreasing the amount of unaccounted-for system losses. Turn the page and take our quiz to determine if your water system has more unaccounted for losses than the EPA standard, and to calculate how much this may be costing your municipality. Then work through our checklist of suggestions for proper accounting of water system usage.



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## STEP 1: Audit your current water use

### A. Identify and quantify all WATER SOURCES:

Source	Amount (gal.)
_____	_____
_____	_____
_____	_____
Total	_____

### B. Identify and quantify all METERED USES:

Use	Amount
_____	_____
_____	_____
_____	_____
Total	_____

### C. Identify and estimate all AUTHORIZED UNMETERED USES:

(Include unmetered public buildings, firefighting, main flushing, water quality and other testing)

Use	Amount
_____	_____
_____	_____
_____	_____
Total	_____

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## STEP 2: Calculate your current costs

### Calculate water loss unaccounted for:

1. Number of gallons produced by your Municipal Water System in a year = A \_\_\_\_\_
2. Number of gallons of authorized water used = B + C \_\_\_\_\_
3. Subtract line 2 from line 1. This is your unaccounted-for water = D \_\_\_\_\_
4. Divide line 3 by line 1. This is the percentage of unaccounted-for water. \_\_\_\_\_
5. Subtract 10 from this percentage - 10 percent is the industry goal for losses. \_\_\_\_\_

**This shows how near you are to the Industry Standard for Unaccounted-for Water. Your Goal is to reduce this number as much as possible!**

6. Next, multiply line 1 by line 5. \_\_\_\_\_
7. Multiply line 6 by your existing water rate. This is the dollar value of excess unaccounted-for water. \_\_\_\_\_

## STEP 3: Perform a Cost-Benefit Analysis

Now that you know what your current situation is costing you, you will want to examine the feasibility of different solutions to save money. Some ways of doing this could be:

- **Detailed water audits**
- **Meter replacement**
- **Better billing and accounting software**
- **Infrastructure replacement**
- **Better internal controls to adequately measure unmetered usage**
- **Reductions to authorized unmetered use**
- **Distribution system controls**

## STEP 4: Take Action

**Make sure you have accurate information to determine the best cause of action.**

Once you have confidence that inadequate records and miscalculations have been eliminated, you should implement control systems to make sure better production and delivery information guides investment decisions regarding meter replacements, infrastructure upgrades, and other improvements. This will help ensure you get the best for your user system buck.

**Remember - Periodically reassess your water distribution system!**

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## CHECKLIST FOR YOUR WATER USAGE REPORTING AND ACCOUNTING SYSTEM

**Adequate and accurate records are essential to the effective management of water system operations. You should maintain timely and reliable information concerning your water system's production, metered use, estimated authorized unmetered use, and estimated water losses in order to monitor and evaluate the effect of your policies and efforts to identify areas needing improvement.**

### **Here are some questions to consider:**

- Are there controls to avoid mathematical and errors in calculating daily gallons produced?
- Are there controls to avoid errors in transferring daily production records to monthly reports?
- Are there sufficient production records for extended periods of time?
- Does your water accounting and billing software provide annual consumption totals for each customer?
- Does it report all consumption in summary format?
- Does it calculate usage correctly?
- Are there adequate records on authorized unmetered use to identify and address potential problems?
- Are amounts estimated closely enough to permit managers to detect and correct water system losses?
- Is the governing board periodically informed about the information provided by the water accounting system?
- Is the information provided by the water accounting system acted upon as necessary?

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If you answered "no" to any of these questions, there may be opportunities for improving your water accounting system and saving you money.

For more detailed information, please see our report entitled:

### **A Study of Water Delivery System Efficiencies 2002-MR-1**

<http://www.osc.state.ny.us/localgov/audits/swr/2002mrl.pdf>



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