

# Leak Detection

*By Randy Hellbusch, Circuit Rider*

Some of the Nebraska Rural Water Association staff, myself included recently attended the annual In-service that is provided by the National Rural Water Association as part of our program contracts. It is always interesting to learn that the major problems we face as small water systems in Nebraska are the same issues facing water systems all over the nation. The two main topics of discussion are usually water rates and leak detection.

One session that I attended was presented by staff of the Virginia Rural Water Association. The session primarily focused on the importance of leak detection and the cost of unaccounted for water.

We have always claimed that if a system has 15% or more of unaccounted for water, the system should do some investigating as to where the water is going. It may be due to old meters, system leaks, firefighting, or even water theft. One of the interesting points brought out at this session was that using a percent to figure water loss does not always tell a true story. To really know how much your lost water is costing, you must first determine your cost of production.

Let's say that system #1 is producing 500,000 gals. per day and they have 20% unaccounted for water. That means they are losing 100,000 gals. per day. Let's say their production cost is \$.50/1,000. That equates to \$50.00 per day in lost water.

Let's say that system #2 is also producing 500,000 gals. per day and they only have 10% unaccounted for water. That means they are only losing 50,000 gals. per day. Assume this system has more expensive treatment or is buying their water and their production cost is \$1.50/1,000. That equates to \$75.00 in lost water.

Although it appears that system #2 is a tight system and can account for 90% of their water, their daily loss is more than system #1. Production costs vary from system to system. It is often something that decision makers aren't made aware of. Because most of our systems have their own source and distribution systems, production costs often remain (hidden) and are just part of the yearly total budget.

To truly know what your system production costs are, budget line items need to be broken down into fixed and variable cost. Variable costs those costs that change with the amount of water you pump, treat, or purchase. These costs divided by the amount of water sold will give you the cost of production per unit of water.

If NeRWA can assist you with leak detection, or conducting a water audit give us a call.