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ELECTRONIC LEAK DETECTION The Hi-Tech Conservation Tool

By Sam Godfrey, SAMCO

Does a consistent monthly water loss seem to haunt you? If a water audit indicates a steady loss and it appears you have checked your entire system, it may be time to perform sonic leak detection. Today's technology offers various models of leak locating equipment which detect underground water leak sounds. The specific audible sounds of water escaping from leaks can be identified and the culprits of the unaccountable loss is eliminated.

Calculating Losses

Just recently, an individual performed a water audit for his company and calculated that the small water system produced a yearly loss of 17%. He indicated his loss equated to a 4.6 gallons per minute leak. He felt the loss was insignificant and was not interested in performing a sonic leak survey. Not only was the 4.6 gallons per minute a substantial leak for a small system, but the audit was completed in January 1999 indicating an existing loss. Sonic leak detection will pinpoint the problem and allow the utility to repair the leak well before it becomes a costly predicament over an extended period

of time.

The following equation will calculate the actual loss of the 4.6 gallons per minute leak:

4.6 gal. per minute X (1440 in a 24 hour period) 3D 6624 gallons per day

6624 gallons per day X (30 days per month) 3D 198,720 gallons per month
198,720 X 12 months of loss 3D 2,384,640 gallons a year

Water is a form of revenue for the utility and a cost for the customer.

Leaks or mismanaged water will drain you financially if not properly corrected.

Sonic Leak Detection

The objective of a sonic survey is to identify subsurface leaks with electronic equipment. A leak sound can vary, depending on the type, diameter, and pressure of the leaking pipe. The size of the leak and type of bedding also effects sound as it resonates from the leak source to the sound ing point. Metal pipe transmits leak noise much further in harder metal than softer asbestos concrete and plastic pipe type

materials 2E Soft piping material will absorb sound waves as they travel through the column of water. For best results during sonic field surveys, sounding on as many listening points as possible in a water distribution system will increase the odds of hearing a leak sound. Listening on all service angle stops, valves and fire hydrants and any other exposed section of the system will enable a thorough survey. A partial type survey will only allow a partial result, unless a known leak area has been predetermined 2E Sonic leak detection requires patience and plenty of practice to become proficient. An accurate system map and knowledgeable person associated with the utility is helpful during the survey of the underground piping configuration. The success of a sonic leak survey relies on the operators' experience, confidence and application procedures while identifying sounds afield.

Identifying The Sound

A leak sound is a pressure differential from a known higher pressure to a lesser pressure. A few sounds that may create "false leak sounds" and interfere with sonic leak detection equipment include:

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- Leaking pressure plane valves
- Partially closed system valves
- Leaking air release valves
- Distant vehicle road noise
- Electrical noise (distant air conditioners, appliances, etc...)
- Inaccurate water meters (not registering flow)

Pinpointing The Leak

Pinpointing a leak with a sounding device to an exact location before excavation will eliminate unnecessary cost. Underground utilities can create a problem when digging. Utility locates by a professional service will provide an exact area of buried water and electrical utilities. As mentioned earlier, a leak will take the least path of resistance. Before digging where water is surfacing, it's important to listen for the exact locale of the leak.

Editors Note: *For leak detection information, contact the author Sam Godfrey at (512) 263-7043.*