

# CONTAMINATION OF WATER STORAGE TANKS BY BIRDS — TOO FREQUENT AND VERY DANGEROUS

Dead birds in a water tower is a serious deficiency. Two bird skulls seen in the circles above were found in a Kansas storage tank.

In 1993 a small community located in the “boot-heel” of Missouri suddenly experienced a large waterborne disease outbreak. In a community with a population of slightly more than 1100 people, there was an estimated 650 cases of gastroenteritis. Of these, fifteen individuals required hospitalization and seven residents of a local nursing home died. The resulting investigation by federal and state authorities determined, that among other problems with the water system, pigeon droppings had found access to the water in the community’s 100,000-gallon water tower and had contaminated the city’s drinking water. An inspection of the water tank showed that access had been allowed by an improper roof vent and an uncovered hatch. Bird feathers were observed inside the tower indicating not only bird droppings in the water but also the possibility of dead birds and other contaminants.

Occurrences like this are all too common. Recent cases have happened in Kansas, Maine, Massachusetts, and other states across the country. One Midwest tank inspection firm reports that 20 to 25 percent of the tanks they inspect have serious sanitary defects. Improperly designed roof hatch systems and vents that do not provide a watertight seal are the cause of most of these defects. Damage or holes that have been cut in the tank’s roof and not

properly sealed or open and unlocked accesses, and in some cases, the construction practices in some tanks more than 30 years old, are typical defects. Sometimes hanging cathodic protection systems do not provide a tight seal. If you can stand inside your tank and see daylight through the roof, you’ve got problems.

Why are these defects problems? Even if the openings in the roof aren’t large enough for birds to enter, tank roofs are basically flat structures and birds defecate on the roof. These bird

droppings dry up and the wind blows the materials, or rain washes it under poorly fitting roof vents and hatches, into poorly fitting cathodic protection

systems, and in the case of older, bolted tanks, into the openings left when bolts have disintegrated or have worked loose. Any section of the roof that has rusted through, even if not large enough to allow bird entry to the tank, will allow the dried bird droppings access to a water supply.

What can water system owners and operators do to ensure that the system is not affected by a waterborne disease outbreak? A regular, thorough personal inspection of all water storage tanks is a good starting point. Examine the vents and hatches to ensure they fit properly and are properly screened. Then examine the overflow on the tank. It should come to near grade and

be fitted with a 0.25-inch mesh screen which is inside a close fitting flap gate.

The American Water Works Association recommends tanks be drained and inspected every three years. This would be a good time to have a professional tank inspection firm, knowledgeable in the sanitary aspects of tanks, to do the inspection. Not only can they address the issues of screens, access openings, cathodic protection devices, and problems inherent to radio antennas that may be on water storage tanks, they can also do an ultra-sound to determine areas of your tank that may be susceptible to rusting through and causing more openings. A professional firm should also provide you with a written report of their findings and recommendations.

Contamination from birds is a major water quality problem in storage tanks. A lot of the contamination occurs because of a lack of attention to the sanitary integrity of the water tank. Routine inspections of tanks should be done on a daily or at least weekly basis to monitor the exterior of the tank for evidence of intrusion, security, or vandalism. Periodic inspections should be done to review areas of the tank not normally accessible from the ground, in other words, the roof. And a comprehensive inspection regularly (at least every three years as recommended by AWWA) should be done to evaluate the current conditions of the tank components.

**An inspection of the water tank showed that access had been allowed by an improper roof vent and an uncover hatch.**

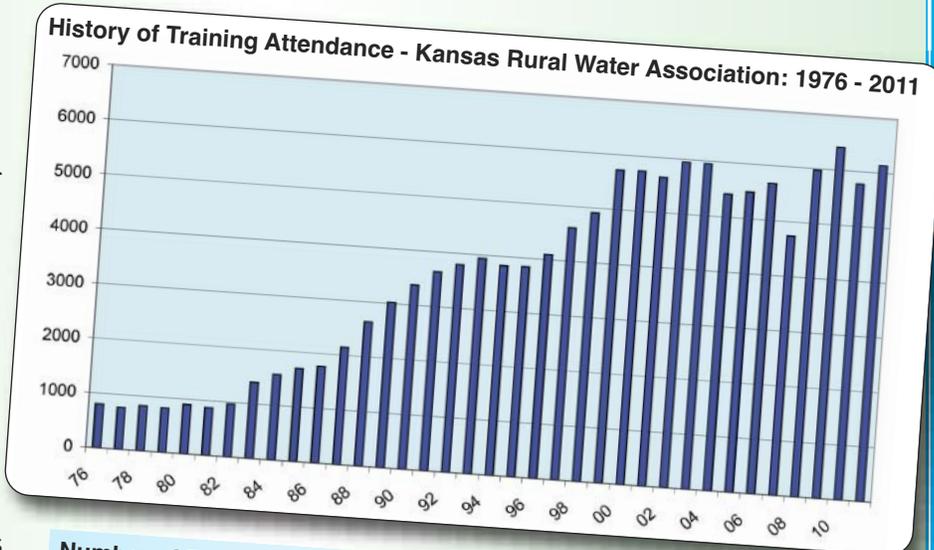
*Don Johnston is the owner of Pittsburg Tank & Tower Company, Inc., Box 913, Henderson, KY 42419. Ph. 270-826-9000 ext 330. Web site: [www.watertank.com](http://www.watertank.com)*

# At KRWA, Training is JOB #1 . . .

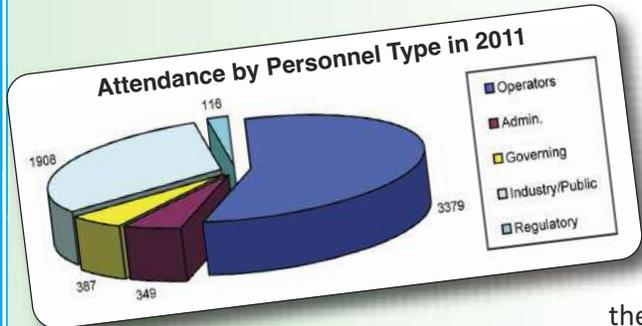
The Mission Statement of the Kansas Rural Water Association is as follows:  
***To provide leadership, education, and technical assistance to public water and wastewater utilities to enhance the public health and to sustain Kansas' communities.***

## Training is Job #1

Since 1976, KRWA has sponsored, facilitated and conducted training sessions to help cities and rural water districts deal with operation, management and financial issues. Training is not just for operators because of state requirements. Good training is not only the basis for establishing minimal professional standards, training also gives city councils and RWD boards of directors the knowledge and understanding they



**Number of Training Sessions held in 2011: 81**  
**Number of Training Sessions held from 1976 to Dec. 31, 2011: 1,928**  
**Total Attendance 1976 to December 31, 2011: 130,969**



need to help their operators provide safe, adequate drinking water supplies to their customers and sound operation of wastewater treatment facilities. It takes a team effort.

KRWA is committed to providing training – not just for operators – but for boards and councils as well. Watch the KRWA training calendar in

the coming weeks for new and exciting programs that will be offered in 2012. These will include small workshop sessions to learn more about using Excel spreadsheets and other software, employment law and conflict resolution. And, KRWA will conduct more regional sessions for small systems.

When it comes to workplace training, if not implemented correctly, the costs associated are great not just in dollars but in morale and productivity. By being proactive in their approach to training, communication and policies, cities and RWDs can truly make their staff members be better prepared and feel protected and supported.

Last, if your city or RWD has a special interest in a training topic, KRWA will gladly attempt to fill that need. Your Association is only a call or email away.



The *Water Board Bible* Series –  
more than 42,000 copies sold nationally!

## Check out the “Water Board Bible” series to help you with your water or wastewater and governance issues.



The *Water Board Bible* Series is the only set of handbooks written specifically for water and wastewater operators, managers, superintendents, boards and councils/mayors. They include case histories, samples, practical tips and ready-to-use forms. Busy operators need down-home help that works!

For example *The Operator's Handbook: Facts, Figures & More* has the definitions, formulas, examples and basic math to handle daily problems. This 7th KRWA handbook covers:

- Safety
- Pipes and piping
- Fittings
- Valves
- Flow
- Disinfection ... and much more

Hundreds of cities and rural water districts and more than 35 state and national associations have purchased the *Water Board Bible* series. Check these publications that can help your system:

- Worried about unproductive monthly meetings or micromanagement? See the original *Water Board Bible*, vol. 1
- Need protection against lawsuits and grievances? Check out *Practical Personnel Management for Small Systems*, vol. 2



- Unsure how to prepare and use financial reports or audits? Get the *Financial Accounting Guide for Small Water Utilities*, vol. 3
- Frustrated by customer communications? Use *Practical Communications for Small Systems*, vol. 4
- Having trouble getting construction projects to come in on time, within budget, meeting specs? You need *Getting Results from Your Experts: Engineers, Attorneys and More!*, vol. 5
- Unsure what tools you need to handle development? Get *Developers: Coming Your Way Fast!*, vol. 6
- Spending too much time finding formulas and facts? Order *The Operator's Handbook: facts, Figures & More*, vol. 7

**Special alert to boards/councils, managers and superintendents:** Capacity development by systems of all sizes is a requirement of the 1996 Safe Drinking Water Amendments. These handbooks help you rate your system's technical, managerial and financial capacity.

The *Water Board Bible* series  
available through:  
Kansas Rural Water Association  
PO Box 226  
Seneca, KS 66538  
ph: 785.336.3760 or e-mail us at  
krwa@krwa.net for more information.