



P.O. Box 226 • Seneca, KS 66538 • 785/336-3760  
FAX 785/336-2751 • <http://www.krwa.net>

July 3, 2009

Ben Leatherman, Chairman  
Doniphan Co. RWD #3  
606 Arbor  
Denton, Kansas 66017

Re: Water Supply Operations

Dear Ben,

I wish to thank Penny Kuhnert for the opportunity to discuss the water supply operations on July 2. The main topics of discussion were bacteriological samplings and chlorine residuals.

The June bacteriological sample from a house in Severance showed coliform bacteria. The house was resampled along with two houses nearby. All three resamples showed coliform bacteria.

The combined chlorine residuals in your system for the last several months have been low -- that is, the residuals have been less than the KDHE required 1.0 mg/l. At the time of my visit we measured a residual of less than 0.1 mg/l at you house.

The cause of the low chlorine residuals in your system is low chlorine residual from Atchison County Cons. RWD 5. RWD 5 had recently begun adding additional combined chlorine at its pumping station northwest of Lancaster. However, there are two other factors are affecting chlorine loss in RWD 5 system and your system.

It is common for some water supply systems to loose combined chlorine residuals especially during the warmer weather months. This problem usually starts in July or August but can occur earlier depending on warmer seasonal temperatures. The cause of the combined chlorine loss is the presence of bacteria on the inside surfaces of storage tanks and water lines. This bacteria is called nitrifying bacteria.

This combined chlorine residual loss problem has recently caused the city of Atchison to begin using free chlorine in order to eliminate the nitrifying bacteria in storage tanks and the distribution system. This use of free chlorine will be only for a short period of time, perhaps one month. The nitrifying bacteria causing the combined chlorine loss are not coliform bacteria that are the type found in Severance.

The second factor that further exacerbates combined chlorine residual loss is water storage tanks. The amount of residual loss is dependant on the amount of water storage and water usage of a particular tank. The RWD 5 tank west of Huron affects the chlorine loss in RWD 5 system and, thus, your system. Also, the storage tanks in Denton and the standpipe in Severance will affect residual loss in your system.

KRWA is assisting RWD 5 in addressing the residual loss in their system. This is complicated by RWD 5's extensive distribution lines and elevated storage tank. Rechlorinating at the RWD 5 pumping station, monitoring residuals beyond that station, and overflowing the elevated storage tank are needed to bring higher residual to your system.

When the free chlorine residual begins to enter your distribution system, it is important to flush water lines and to overflow the Denton elevated storage tank and Severance standpipe to enable the free chlorine residual to eliminate/kill the nitrifying bacteria. This will also address the problem of coliform bacteria in your system. KRWA is available to assist your system in the flushing and overflowing.

Funding for the above assistance was provided through a contractual arrangement between the Kansas Dept. of Health & Environment (State Revolving Loan Program set-aside) and KRWA. Also, visit the KRWA website [www.krwa.net](http://www.krwa.net) for news and information concerning water and wastewater utilities, training opportunities and other KRWA programs.

Again, thanks for opportunity to meet with you.

Respectfully,

S. Patrick McCool, P.E.  
KRWA Consultant

C: Penny Kuhnert  
Dwight Scholz, Atchison Cons. RWD 5  
Todd Smith  
Tom Roberts  
Vic Montgomery, KDHE