

Rural Water Training & Tech Assistance Program

Small Water System Case Study

This report showcases an example of technical assistance provided by Kansas Rural Water Association through a contract funded by EPA and administered through the National Rural Water Association.



★ City of Dearing

City of Dearing, Kansas
Population Served: 415

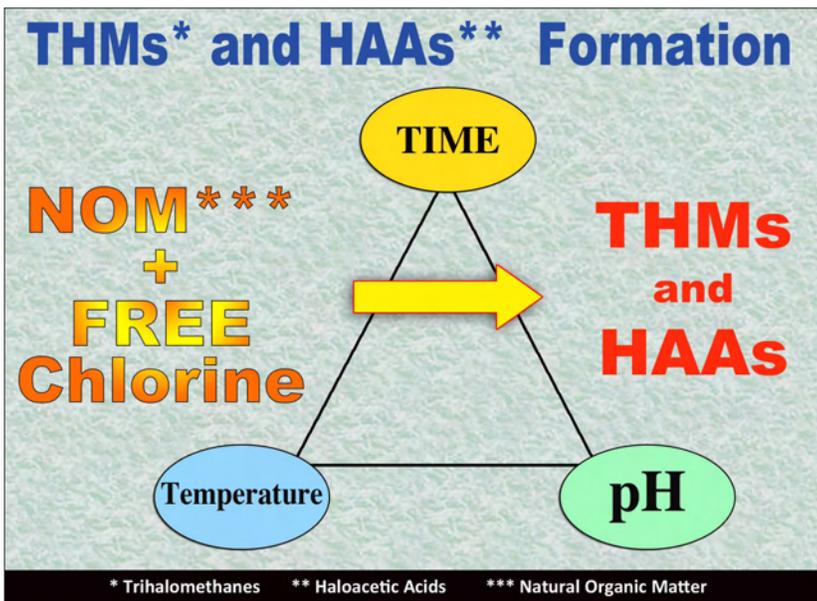
Stage 2 DBPR
Compliance

Background

The city of Dearing is located in southeast Kansas with a population of approximately 415 people. The water supply for Dearing is purchased from the city of Coffeyville, Kansas. Coffeyville operates a surface water treatment plant that produces water with combined chlorine (chlorine combined with ammonia). The city of Dearing re-chlorinates the purchased water when needed.

Technical Assistance

On August 28, 2015, Kansas Rural Water Association Consultant Pat McCool met with Kenny Campbell, Superintendent, and other representatives from the City of Dearing. The city requested assistance from KRWA regarding disinfection byproducts (DBPs), rechlorination, and chlorine residuals. The city's July 2015 compliance sampling for DBPs showed high levels of trihalomethanes (THMs) of 190 µg/L and high levels of haloacetic acids (HAAs) of 230 µg/L. McCool explained to the city that sometimes during the warmer water temperature months, many water treatment plants, like Coffeyville, conduct free chlorine "burnout", that is, the city produces water with free chlorine residual that is not combined with ammonia. This free residual results in high



levels of THMs and HAAs in the water. McCool investigated the timing of the most recent free chlorine “burnout” conducted at Coffeyville. He concluded that the high levels of DBPs detected by the city of Dearing occurred in the same timeframe. McCool explained to the city that required samples for DBPs should not be taken during free chlorine “burnout” as the DBPs results will most likely be in excess of the Maximum Contaminant Levels for THMs and HAAs. Samples taken during free chlorine “burnouts” are most likely not representative of the overall water quality provided to the city customers throughout the year.

State To Allow Resampling

Due to the July sampling results, the state primacy agency, the Kansas Department of Health and Environment (KDHE), would most likely require the city to increase their sampling frequency for THMs and HAAs from annually to quarterly. McCool contacted the KDHE and explained the city of Dearing’s situation. KDHE agreed to allow the city to resample in September to obtain results that are not from free chlorine “burnout”.

McCool stressed to both the city of Dearing and the city of Coffeyville that they should strive in the future to better communicate when free chlorine “burnouts” are occurring. This will avoid taking samples during the period of “burnout”.

McCool also spent considerable time with Mr. Campbell at the city’s pumping station where the city rechlorinates the water when needed. During the week beginning on August 24 the

rechlorination, resultant residual began to decrease. They determined that the most likely cause was fluctuating, lower residual in the Coffeyville water coming to the station. McCool suggested that the city begin recording the residual of the water from Coffeyville before rechlorination and they also decided to begin residual die-off testing to determine how stable the residual leaving the station is. McCool also recommended that the city consider adding ammonia at the pumping station. Adding ammonia would better allow the city to determine and control the combined residual leaving the station.

McCool also reviewed THM and HAA data from other public water supply systems that purchase water from the city of Coffeyville. He also discovered that Labette County RWD 6 and Montgomery County RWD 14 also sampled during the free chlorine burnout period and had THMs and HAAs above the MCLs. He then met with the two water districts and the city of Dearing in a joint meeting to discuss the situation that was and is common to them all.

Once the city collects additional rechlorination data, McCool will further evaluate and assist the city with adjusting rechlorination if necessary. Also as a result of the review by KRWA, the Kansas Department of Health and Environment allowed these systems to resample for disinfection byproducts.

Follow-up letter provided by KRWA to the city appears at left.

