

# Plan Review Policy for Dichlor and Trichlor Installations

## Utah Division of Drinking Water

### **Background**

Current regulations regarding measurements of chlorine residual concentrations in drinking water are based on measurements of free chlorine, or total chlorine (i.e., free chlorine plus chloramine chlorine species when chloramines are used). The DPD method, an EPA-approved analytical method, measures chlorine residuals and can be used to distinguish between free chlorine and total chlorine.

Utah Division of Drinking Water (the Division) reviewed the available literature and communicated with US EPA regarding analytical methods to measure free chlorine concentration in drinking water in the presence of chlorocyanurate chlorine species (i.e., Dichlor and Trichlor dissolution products). The consensus is that Dichlor and Trichlor interfere with the EPA-approved analytical method to measure free chlorine residuals accurately. The interference likely results in erroneously high readings of free chlorine concentration. Currently, there is no EPA-accepted alternative analytical method to accurately measure free chlorine concentration in the presence of chlorocyanurates.

Utah Rule *R309-520-4* stipulates that the effectiveness of **primary disinfection** is measured as CT, a function of disinfectant residual concentration and contact time. The effectiveness of **secondary disinfection** in distribution systems usually is measured in terms of C, disinfectant residual concentration. Public health could be compromised if overestimated CT or C were used in monitoring and reporting due to overestimation of free chlorine residual concentrations because of chlorocyanurate presence.

### **Plan Review Policy for Dichlor and Trichlor Installations**

1. **Primary Disinfection** – The Division will **not** approve the use of chlorocyanurates as primary disinfectants if a water system is required to disinfect and meet the disinfection CT requirements to comply with the surface water treatment or groundwater disinfection regulations.
2. **Secondary Disinfection** – The Division will **not** approve the use of chlorocyanurates to meet the secondary disinfection requirements if a water system is required to disinfect to comply with the surface water treatment or groundwater disinfection regulations.
3. **Treatment Other Than Disinfection** – The Division may approve the use of ANSI/NSF 60-certified chlorocyanurates (e.g., Dichlor or Trichlor) if a water system proposes using chlorocyanurates for maintenance of pipes/reservoirs/tanks or for treatment purposes other than disinfection, unless it interferes with disinfection CT.
  - a) The approval will not include primary disinfection CT credit nor include fulfillment of any secondary disinfectant residual (C) requirement.

- b) Water systems not already monitoring and reporting **regulated disinfection by-products** (DBPs), i.e., TTHMs and HAAs, in the distribution system will be required to measure the concentrations of DBPs at the sampling frequency and sampling sites specified per the DBPs regulations, and report the results to the Division.
  - c) Water systems not already monitoring and reporting disinfectant residuals will be required to comply with the **monthly monitoring and reporting requirements related to disinfectant residuals** in the distribution system per the DBPs regulations. The disinfectant residual measurement must be taken at the time of the coliform sampling with sufficient additional residual samples to equal 3 residual samples per week.
4. **Existing Installation prior to Implementation of this Policy** – For a water system that received approval from the Division and installed Dichlor or Trichlor facilities for disinfection prior to implementation of this policy in August of 2016:
  - a) The Division will notify these water systems in writing of this policy, specifically the following requirements in (b) and (c).
  - b) The water system is required to continue to monitor disinfectant residuals and DBPs in the distribution system and report them to the Division to comply with the surface water treatment or groundwater disinfection regulations.
  - c) If the water system has a confirmed coliform positive sample when a detectable disinfectant residual is present and the required RTCR assessment finds no obvious cause of contamination:
    - The use of chlorocyanurates will not be considered acceptable in meeting the primary or secondary disinfection requirements.
    - The water system will be required to seek an alternative disinfection method that can be verified by an EPA-approved analytical method.
5. In the Division's SDWIS database, a facility indicator (CDCC) will be added to track this type of treatment facility. The Division will develop a means of connecting the water systems with the CDCC indicator to confirmed *E. coli* positive results in the database. This tracking will trigger a SDWIS compliance schedule wherein DDW follows through with the requirements for 4(c) above. The compliance schedule will give a timeframe for the water system to seek alternative disinfection upon any confirmed *E. coli* event. Failure to meet the acceptable time frame for installation of alternative disinfection will result in a treatment technique violation.
6. This policy may be reevaluated if additional information becomes available, for example, EPA-approved analytical method for measurement of free chlorine concentration in the presence of Dichlor or Trichlor, EPA policy or publication of CT values specific to Dichlor or Trichlor.