Requesting an Exception to Blend Chloraminated and Chlorinated Waters

Public water systems (PWS) that blend chloraminated and chlorinated waters, or use both chloramines and free chlorine, must request an exception to the rule as stated in Title 30 of the Texas Administrative Code (30 TAC) §290.42(e)(3)(G). A PWS must first determine the blending scenario that best represents the operations of their system and then provide carefully documented data that demonstrates continuous and adequate disinfection levels to support their exception request as required in 30 TAC §290.39(l).

Any PWS that blends chloraminated and chlorinated water must submit an exception request to the TCEQ Technical Review and Oversight Team at the following address:

Technical Review and Oversight Team (MC 159)

Texas Commission on Environmental Quality

P.O. Box 13087

Austin, TX 78711-3087

Please note that the chloramine effectiveness monitoring, operation, notification, design, calibration, and record-keeping requirements are applicable to a PWS distributing a chloramine residual, even under a blending scenario.

Please review the blending scenarios listed below to determine the appropriate documentation to submit with your exception request.

Blending Scenarios

1. Blending Chloraminated and Chlorinated Water in the Distribution System: **Managing Controlled Blending.** Mixing chlorinated and chloraminated water is not recommended. However, if the PWS needs to request an exception to blend in distribution, under this scenario, the following information must be provided to support the exception request:
   * + Documentation showing how blending occurs. For example, describe the potable water sources your PWS uses, the disinfectant each source utilizes, and how the sources with different disinfectants blend in the distribution system.
     + A map that identifies the area(s) of blending (“blending zones”). The area of blending is where the water with chloramines and the water with chlorine meet and mix together.
     + Information explaining how the areas of blending will be monitored and documented during actual operations. As demands change, this area can also change. For example, how will a PWS determine where the blending area is located if one of their potable water sources is inactive for a period of time? Also, how does increased demand in summer or decreased demand in winter impact the area of blending?
     + Documentation of the locations, analytical tests, and frequency that the PWS uses to ensure adequate chlorine/chloramine residuals.
     + Documentation of the locations, analytical tests, and frequency that the PWS will use to ensure monochloramine, not dichloramine or trichloramine, is being formed.
     + Documentation of the locations, analytical tests and frequency that the PWS will use to ensure nitrification is not present in the blending area.
     + Documentation of the corrective actions to be taken if the sample results show inadequate disinfectant residuals, taste and odor issues, bacteriological contamination, or potential nitrification.

All the information listed above must be included in the PWS’s Nitrification Action Plan (NAP).

1. **Blending Chloraminated and Chlorinated Water in the Distribution System: Isolating disinfectants.** A PWS may physically isolate areas of the distribution system with free chlorine from areas with chloramines. Free chlorine should be monitored in the portion of the PWS that utilizes free chlorine disinfection, while the portion of the PWS that utilizes chloramines must meet the chloramine monitoring requirements in 30 TAC §290.110(c)(5) and the NAP requirement in 30 TAC §290.46(z). If the PWS wishes to pursue this option, the following information must be provided for an exception:
   * + A distribution map of the PWS, showing how the areas of different disinfectants will be divided, and identifying all entry points, storage tanks, treatment facilities, and all sources of potable water. The PWS should indicate which portion(s) of the distribution system will be disinfected with free chlorine, and which portions will be disinfected with chloramines.
     + If the PWS is proposing the use of valves to isolate the areas with different disinfectants, each valve must be identified by location, such as an address or geological coordinates.
2. Blending Chloraminated and Chlorinated Water in a Storage Tank: **Ensuring Chloramine Formation after Mixing the Sources in the Tank.** Mixing chlorinated and chloraminated water is not recommended. For this option, a PWS must develop a method that will ensure that chlorine residuals will remain acceptable in treated water leaving the tank by injecting the appropriate amount of chlorine and ammonia at all times. Under this scenario, the following information must be provided to support an exception request:
   * + Documentation showing that the tank is completely mixed.
     + Documentation of the free chlorine, total chlorine, free ammonia, and monochloramine sampling locations and frequency that the PWS uses to know the appropriate amount of chlorine and ammonia dose.
     + Documentation of the calculations used to determine the dose of chlorine and ammonia to apply. Please include the volume of the tank, the volume or flow of each sources with differing residuals entering or contained in the tank, and the flow of the water existing the tank in the calculations.
     + Documentation of the locations, analytical tests and frequency that the PWS will uses to ensure monochloramine, not dichloramine or trichloramine, is being formed.
     + Documentation of the corrective actions to be taken if the sample results shows inadequate disinfectant residuals, taste and odor issues, bacteriological sample issues, or potential nitrification. This should be a part of the Nitrification Action Plan (NAP) required by 290.46(z).
3. Blending Disinfectants under an Emergency. If a PWS maintains an emergency source or interconnect that contains a different disinfectant than what the PWS distributes under normal operations, the PWS must ensure that if the emergency source is utilized, blending occurs in a controlled manner. An exception will be required to address specific monitoring and notification activities when an emergency source is utilized. Under this scenario, the following information must be provided to support an exception request:
   * + A distribution map of the PWS, identifying all entry points, storage tanks, treatment facilities, and all sources (and disinfectant type) of potable water.
     + A description of which sources (and associated disinfectant type) will be utilized during normal operating procedures and during an emergency.
4. **“Seasonal” Blending.** If a PWS utilizes one disinfectant – either free chlorine or chloramines – for the majority of a calendar year, but utilizes a seasonal source with a different disinfectant to meet peak demand, an exception must be obtained for blending two different disinfectants during peak or seasonal demand. Under this scenario, the following information must be provided to support an exception request:
   * + The PWS must determine which blending scenario best applies when their seasonal source is utilized (Please see Items 1-3 above). The PWS must then submit the documentation specific to their blending scenario.
     + In addition, the PWS must also provide detailed information regarding the PWS’s procedures when the seasonal source is utilized, such as the frequency in which the seasonal source is utilized, the duration of the seasonal source use, etc.