

Exception Requests Related to Chloramine Residual Control Systems

General Information

A public water system (PWS) that does not meet a TCEQ standard (rule) in Title 30 of the Texas Administrative Code (30 TAC) Chapter 290 Subchapter D may request an exception by proposing an alternative to meet the intent of the rule. This TCEQ external guidance provides information the TCEQ requires to ensure a consistent review of exception requests related to chloramine residual control systems (RCS) for boosting and maintaining a compliant chloramine (total chlorine) in a public water system. The current version of this guidance is located at the TCEQ website [Requesting an Exception to Rules and Regulations for Public Water Systems](#).

For specific information related to this guidance, contact the TCEQ Technical Review and Oversight Team (TROT) at (512) 239-4691.

Table of Contents

General Information	1
Acronyms and Definitions.....	1
Regulatory Reference	2
TCEQ Contact Information.....	2
Purpose or Introduction	2
Procedure.....	3
Document Approval.....	5

Acronyms and Definitions

Term	Definition
EG	External Guidance
TCEQ	Texas Commission on Environmental Quality
WSD	Water Supply Division
PTRS	Plan and Technical Review Section
TROT	Technical Review and Oversight Team
RCS	Residual Control System
OSGS	Onsite Hypochlorite Generator System
MRDL	Maximum Residual Disinfection Level

EXTERNAL GUIDANCE for the Water Supply Division (WSD)—Plan and Technical Review Section (PTRS)

SCADA	Supervisory Control and Data Acquisition
PWS	Public Water System
THM	Trihalomethane
HAA5s	Total Haloacetic Acids
DWW	Drinking Water Watch

Regulatory Reference

The rules in Title 30 of the Texas Administrative Code (30 TAC) Chapter 290, Subchapter D Rules and Regulations for Public Water Systems specify chloramine-related treatment plant design, operation, and maintenance requirements for public water systems (PWSs). Additionally, TCEQ regulation 30 TAC §290.39(l) states when it is not possible for a PWS to meet the requirements in the regulations, a PWS has the option of proposing an alternative method to meet a rule by requesting an exception.

These and other PWS rules and regulations can be found at http://www.tceq.texas.gov/drinkingwater/pdw_rules.html.

TCEQ Contact Information

If you have any questions related to this EG or would like additional information regarding submitting an exception request for this topic, please contact the TCEQ Technical Review and Oversight Team (TROT) at (512) 239-4691 or by email at PTRS@tceq.texas.gov. Additional information is located on the TCEQ webpage at <https://www.tceq.texas.gov/drinkingwater/trot/exception>.

Purpose or Introduction

Many PWSs use chloramines (total chlorine) as a disinfectant in treatment processes and throughout the distribution system. Chloramines maintain a longer-lasting disinfectant residual and help reduce the levels of regulated disinfection byproducts, such as trihalomethanes (THMs) and total haloacetic acids (HAA5s) which occur using chlorine disinfectants. With chloramines, there is less free chlorine available for interaction with naturally-occurring organic matter, thus reducing the potential to form THMs and HAA5s.

Some PWSs have begun implementing chloramine management systems that utilize an automated disinfectant boosting system and mechanical tank mixing to assist PWS operators in maintaining compliant chloramine residual levels in all areas of the PWS distribution system. Often, the design and operation of the automated residual control systems conflict with the chloramine disinfection design and monitoring requirements in 30 TAC §290.42(e)(7). As such, exception requests to the chloramine disinfection design requirements may be requested by the PWS prior to submitting plans and specifications to the TCEQ for approval. This EG provides the regulations requiring an exception, along with the information required by the TCEQ for review of the exception requests.

Exception Requests Related to Chloramine Residual Control Systems

EXTERNAL GUIDANCE for the Water Supply Division (WSD)—Plan and Technical Review Section (PTRS)

Procedure

The following regulations often require an exception to utilize an automated chloramine residual control system:

- 30 TAC §290.42(e)(7)(C)(ii) – Middle Sample Tap Requirement
- 30 TAC §290.42(f)(1)(B) – Day Tank Requirement

To support your exception requests, the following information should be provided for the TCEQ's review.

General Facility Information

1. Provide a site map/schematic detailing where the proposed chloramine RCS(s) will be installed.
2. Provide information about the relevant elevated or ground storage tank, respective capacity(ies), treatment plant location, and associated entry point. Please include the associated facility Drinking Water Watch (DWW) designations, found at the following TCEQ website: <https://dww2.tceq.texas.gov/DWW/>.
3. Provide an inventory of the PWS's potable water sources and their locations. Please include the associated facility Drinking Water Watch (DWW) designations, found at the following TCEQ website: <https://dww2.tceq.texas.gov/DWW/>.

Equipment Specifications

Please send the equipment specifications or technical information to address the following:

4. Mechanical Tank Mixers (if applicable).
 - a. Information about the type and mixing capacity of the mixers that will be placed into each tank;
 - b. Information about how often the tank mixer will operate (for example, all the time, during the summer months, 4 hours a day, etc.);
 - c. The locations of the mixers, chemical injection points, and sample collection point (both horizontally and vertically if they are at different elevations) in each tank; and
 - d. The time it will take for the injected chemicals to disperse to the far reaches of each tank after chemical injection.
5. RCS Internal Analytical Testing Process:
 - e. What analytical tests will be used to monitor the water in the tank?
 - f. What method will each test use?
 - g. What frequency are the tests performed?
 - h. How often are the results of the monitoring recorded?
 - i. How can the operators review past results?
6. On-site hypochlorite generator (OSGS), if one will be installed.
 - j. If the OSGS utilizes a water softener for motive water, please confirm that the water softener is NSF-61 certified or NSF-44 certified.

EXTERNAL GUIDANCE for the Water Supply Division (WSD)—Plan and Technical Review Section (PTRS)

Chemical Feed System Information

7. If multiple tanks will be utilized, please clarify if each tank will have its own dedicated RCS, or if one RCS will be used to monitor multiple tanks.
8. Provide information explaining how the chemical feed system will determine if chlorine only or chlorine and ammonia will need to be added to the tank.
9. Explain how the equipment will determine if a total chlorine result is indicative of a monochloramine residual vs. a di- or tri-chloramine residual. Additionally, explain how the equipment will be able to determine what dose of chlorine and/or ammonia to add to the tank.

Alarms and Shutdowns

10. Provide a list of alarms and shutdowns that will be programmed into the RCS to prevent the over (or under) feeding of chemicals.
11. Explain how the PWS will program alarms/shut-downs to prevent the overfeeding of disinfectant chemical(s) to ensure that the total chlorine level does not go above the Maximum Residual Disinfection Level (MRDL) in the distribution system (the MRDL is measured as a 12-month rolling average).
12. Please provide a description of how the operators will be notified of alarms/shutdowns. For example, will the RCS communicate with a central SCADA system, send an email to PWS employees directly, or will the alarm only be seen/heard on-site at the RCS?

Chloramine Residual Monitoring

13. Provide information showing how the PWS will comply with collecting monochloramine, free ammonia, and total chlorine residuals at the inlet and outlet of the tank at least weekly per 30 TAC §290.110(c)(5).
14. Provide a schematic illustrating the location of the sample taps for the collection of chloramine effectiveness monitoring.
15. Explain how the PWS operators will use the results with the RCS if the results show adjustments are needed to meet the PWS's treatment goals.
16. Provide information regarding required training for PWS staff and operators to understand how to operate the RCS.

Please note that a review of the information submitted could result in the need for follow-up information and/or discovering that additional or other exceptions may be required.

EXTERNAL GUIDANCE for the Water Supply Division (WSD)—Plan and Technical Review Section (PTRS)

Document Approval



Joel Klumpp: _____

Date: January 8, 2024

Manager, PTRS