Chloramine Disinfection Construction Checklist

Texas Commission on Environmental Quality
Water Supply Division
Plan Review Team MC-159
P.O. Box 13 087, Austin, Texas 78711-3087

Public Water System I.D. No._____
TCEQ Log No. P-_____

The following list is a brief outline of the "Rules for Public Water Systems", 30 TAC Chapter 290 regarding proposed chloramine system installation or improvements. Plans and specifications meeting, but not limited to, the minimum requirements cited here shall be prepared under the supervision of a Texas licensed professional engineer and submitted to TCEQ for approval. This list is not a substitute for the rules and this checklist cannot be accepted in lieu of the required engineering submittals. Failure to submit the following items may delay project approval. Copies of the rules may be obtained from Texas Register, 1019 Brazos St, Austin, TX, 78701-2413, Phone: (512) 463-5561 or downloaded from the website: http://www.tceq.texas.gov/rules/indxpdf.html

1. ☐ If water containing chloramines and water containing free chlorine are blended, then a case-by-case review (exception) under §290.39(l) of this title will be required; [§290.42(e)(3)(G)]
2. ☐ Systems that use chlorine gas must ensure that the risks associated with its use are limited as follows: [§290.42(e)(4)]
   - ☐ (i) Housing for gas chlorination equipment and cylinders of chlorine shall be in separate buildings or separate rooms with impervious walls or partitions separating all mechanical and electrical equipment from the chlorine facilities. Housing shall be located above ground level as a measure of safety. Equipment and cylinders may be installed on the outside of the buildings when protected from adverse weather conditions and vandalism; and
   - ☐ (ii) Adequate ventilation, which includes both high level and floor level screened vents, shall be provided for all enclosures in which gas chlorine is being stored or fed. Enclosures containing more than one operating 150-pound cylinder of chlorine shall also provide forced air ventilation which includes: screened and louvered floor level and high level vents; a fan which is located at and draws air in through the top vent and discharges to the outside atmosphere through the floor level vent; and a fan switch located outside the enclosure. Alternatively, systems may install negative pressure ventilation as long as the facilities also have gas containment and treatment as prescribed by the current International Fire Code (IFC).
3. ☐ Where anhydrous ammonia feed equipment is utilized, it must be housed in a separate enclosure equipped with both high and low-level ventilation to the outside atmosphere. The enclosure must be provided with forced air ventilation which includes: screened and louvered floor level and high-level vents; a fan which is located at and draws air in through the floor vent and discharges through the top vent; and a fan switch located outside the enclosure. Alternately, systems may install negative pressure ventilation as long as the facilities also have gas containment and treatment as prescribed by the current IFC; [§290.42(e)(6)]

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4. ☐ The order of chlorine and ammonia injection must be accomplished in a manner which allows inactivation of viruses and oxidation of cyanide; [§290.42(e)(7)(A)]
   - ☐ (i) When chlorine is injected upstream of any other disinfectant, the ammonia injection point must be downstream of the chlorine injection point;
   - ☐ (ii) When chlorine and ammonia are added to distribution water that has a chloramine residual, ammonia should be added first; and
   - ☐ (iii) When chlorine and ammonia are added to distribution water that has a free chlorine residual, chlorine should be added first.
5. ☐ Mixing shall be provided to disperse chemicals; [§290.42(e)(7)(B)]
6. ☐ Sampling taps must be provided at locations that allow for chlorine and ammonia to be added to the water to form monochloramine as the primary chloramine species. Sample taps must be provided as follows: [§290.42(e)(7)(C)]
   - ☐ (i) Upstream of the chlorine or ammonia chemical injection point, whichever is furthest upstream;
   - ☐ (ii) Between the addition of the chloramine chemicals at chloramination facilities submitted for plan review after December 31, 2015. For these facilities, an installation without this sample tap may be approved if an acceptable technical reason is described in the plan review documents. Technical reasons, such as disinfection byproduct control, must be supported by bench scale sampling results. Other technical reasons, such as membrane integrity, must be supported by documentation; and
   - ☐ (iii) At a point after mixing to be able to measure fully-formed monochloramine levels.
7. ☐ A signed and sealed schematic or drawing of the water system, including current and proposed disinfection, chlorine, and ammonia injection point locations. Show all plant items such as water sources, pressure tanks, storage tanks, pumps, and treatment units. Include the type of chlorine and chemicals used (i.e. liquid to gaseous);
8. ☐ Submit System Monitoring Plan for review of sampling locations. Sampling tap locations must be listed in the system's monitoring plan as described in §290.121 of this title (relating to Monitoring Plans); [§290.42(e)(7)(C)]
9. ☐ The calculations for sizing feed pump(s) and chemical storage tank(s) must be submitted to demonstrate that a project meets chemical feed and storage capacity requirements; [§290.39(e)(8)]
10. ☐ Documentation that the all chemicals to be used are ANSI/NSF Standard 60 certified; [§290.42(j)]
11. ☐ Specifications for feed pump(s) which shall include model number(s) and feed rate for all metering pumps; and
12. ☐ Specifications for chemical storage tank(s) to demonstrate it meets requirements in §290.42(f).