N.J.A.C. 7:10-11.16

This file includes all Regulations adopted and published through the New Jersey Register, Vol. 47 No. 11, June 1, 2015

New Jersey Administrative Code > ***TITLE 7. ENVIRONMENTAL PROTECTION*** > ***CHAPTER 10. SAFE DRINKING WATER ACT*** > ***SUBCHAPTER 11. STANDARDS FOR THE CONSTRUCTION OF PUBLIC COMMUNITY WATER SYSTEMS***

§ 7:10-11.16 Disinfection of public community water system water supplies

(a) General regulations for disinfection are as follows:

1. Disinfection of public community water supplies shall be accomplished with chlorine or chlorine compounds. The Department shall approve use of other disinfecting agents if post-chlorination is used to provide an adequate chlorine ***residual*** in the finished water.

2. Chlorination shall be the last treatment process in a treatment plant with multiple treatment processes. Prechlorination may be practiced if it is applied in conjunction with post-chlorination.

(b) Disinfection equipment requirements are as follows:

1. Gas chlorinators shall be of the solution feed type and hypochlorite feeders shall be of the positive displacement type.

2. If chlorine dioxide is used as the ***disinfectant***, sodium chlorite shall be injected into the discharge line of a solution feed chlorinator, with subsequent formation of the chlorine dioxide in the reaction chamber.

3. If ammonia is added in conjunction with chlorine for chloramine disinfection, the ammonia treatment unit shall be separate from the chlorine treatment unit so that the ammonia and chlorine gases do not mix.

4. Superchlorination followed by dechlorination may be used, provided the minimum chlorine contact periods set forth at (e) below are employed.

(c) Post-chlorination treatment units shall have the capacity to produce free chlorine ***residuals*** in accordance with (e) below, even if the maximum water flow rates coincide with the anticipated maximum chlorine demand.

(d) The chlorination treatment system shall have sufficient capacity to disinfect all water within the treatment plant if one treatment unit is out of service.

(e) Regulations for chlorine contact period and chlorine ***residual*** are as follows:

1. To afford adequate protection for both surface water and ground water, chlorination treatment systems shall be designed to ensure the following minimum chlorine contact periods before the water enters the public community water system distribution system. The engineer's report submitted with the application for a permit under this subchapter shall demonstrate that these requirements are met.

i. Ground water shall be treated for a minimum chlorine contact period of at least five minutes to produce the minimum free chlorine ***residual*** level required pursuant to (e)3 below or at least 30 minutes to produce the minimum combined chlorine ***residual*** level required pursuant to (e)3 below.

ii. Surface water or ground water under the direct influence of surface water shall be treated for a minimum chlorine contact period of 30 minutes to produce the minimum free chlorine ***residual*** level required pursuant to (e)3 below.

2. A post-chlorination treatment with a minimum of five minutes chlorine contact time shall be employed by all public community water systems.

3. Chlorination treatment units shall be designed to produce the following chlorine ***residuals*** at the specified pH values.

Required Chlorine ***Residuals*** at Specified pH Values

pH Value	Available Chlorine ***Residual***	
	Free	Combined
Up to 7.0	0.2 ppm	1.0 ppm
7.0 to 8.0	0.3 ppm	1.5 ppm
8.0 to 9.0	0.4 ppm	2.0 ppm

(f) Regulations for gas chlorinators are as follows:

1. Gas chlorinating devices shall be located in above-grade separate rooms with an outside entrance only and shall have proper ventilation including an exhaust fan near floor level with an outside switch. The doors of such rooms shall open outward and shall be provided with panic type hardware (that is, a push bar for opening the door) on the inside of the door. A room heater shall be provided. Chlorine scale and storage rooms shall be equipped in the same manner.

2. An automatic chlorine leak alarm, or observation window to facilitate visual inspection without opening the door of the chlorination room, shall be provided.

3. Gas chlorinating devices shall be equipped with a minimum of two chlorine cylinders interconnected by a manifold and valved to permit rapid changeover when the in-use cylinder becomes exhausted. An automatic switch over valve shall be used in water treatment plants at which an operator is not present 24 hours per day.

4. Scales shall be provided for determining the changes in weight of chlorine cylinders.

5. A sufficient supply of water shall be available for operating the chlorinator and shall be adequately protected against backsiphonage.

6. The rotameter used in a gas chlorinator shall be appropriately sized to prevent an abnormally high chlorine application rate in the event that the rotameter is accidentally misadjusted to apply chlorine at a rate higher than intended.

7. Automatic chlorinators with chlorine ***residual*** recorders and alarm systems to indicate chlorinator failure shall be installed at all surface water treatment plants and at other types of water treatment plants if the source water does not meet the microbiological standards specified in the State primary drinking water regulations, N.J.A.C. 7:10-5.

8. A gas mask, preferably with air pack or air hose to the exterior, shall be stored in a readily accessible location outside the chlorine room or other appropriate location and maintained in good operating condition in accordance with the manufacturer's specifications.

(g) Regulations for hypochlorinators are as follows:

1. The room in which a hypochlorinator is housed shall be heated.

2. Hypochlorinators shall meet the requirements of *N.J.A.C. 7:10-11.12*.

3. A solution tank with minimum storage capacity of 36 hours shall be used, and shall be of durable material resistant to fracture and inert to reaction with the hypochlorite solution.

(h) Regulations for auxiliary equipment are as follows:

1. A comparator, suitable for determining chlorine ***residuals*** by the D.P.D. method in accordance with Part 4500CL-G of Standard Methods for the Examination of Water and Wastewater, 17th Edition, as amended and supplemented, incorporated herein by reference, shall be used. Supplies of the necessary reagents shall be adequate and available. A copy of the Standard Methods is available from the American Public Health Association, 1015 Fifteenth Street NW, Washington, D.C. 20005.

2. Where gas chlorination is used, an ammonia solution shall be available for testing for chlorine leaks.

(i) Regulations for ozonators are as follows:

1. Ozonation may be used for primary disinfection but not as a substitute for post-chlorination.

2. Equipment used for ozonation shall be durable and corrosion resistant.

(j) Regulations for chlorine dioxide generators are as follows:

1. The chlorine dioxide maximum feed rate shall be 1.5 mg/l.

2. Each chlorine dioxide generator shall be at least 95 percent efficient in producing chlorine dioxide and the production of by-products (for example, chlorates, chlorites) shall not exceed five percent.

3. A comparator, suitable for determining chlorine dioxide ***residuals*** by the D.P.D. method in accordance with Part 4500-C1O2D of the Standard Methods for the Examination of Water and Wastewater, 17th Edition, as amended and supplemented, incorporated herein by reference, shall be used. Supplies of the necessary reagents shall be adequate and available. A copy of the standards may be obtained as provided at (h)1 above.

4. A test kit, using amperometric titration or an approved equivalent, shall be used to monitor chlorine dioxide from the generator product stream.

(k) Disinfection equipment, contact tanks and conduits shall be designed to provide for the minimum ***disinfectant*** contact periods established under the National Regulations, *40 CFR 141.70*.

Annotations

Notes

Chapter Notes

NEW JERSEY ADMINISTRATIVE CODE
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N.J.A.C. 7:10-1.3

This file includes all Regulations adopted and published through the New Jersey Register, Vol. 47 No. 11, June 1, 2015

New Jersey Administrative Code > ***TITLE 7. ENVIRONMENTAL PROTECTION*** > ***CHAPTER 10. SAFE DRINKING WATER ACT*** > ***SUBCHAPTER 1. GENERAL PROVISIONS***

§ 7:10-1.3 Definitions

The following words and terms, when used in this chapter, shall have the following meanings unless the context clearly indicates otherwise. Additional definitions specifically applicable to N.J.A.C. 7:10-11, 12 and 13 are set forth at *N.J.A.C. 7:10-11.4*, *12.3* and *13.2*, respectively.

"Detectable ***disinfectant residual***" means a chlorine ***residual*** of at least 0.05 mg/l (free chlorine, combined chlorine or chlorine dioxide), or a heterotrophic plate count of 500/ml or less, at the point of collection.

"Distribution system" means all pipes and conveyances from a well or water treatment plant, including storage facilities.