

**TITLE 252. DEPARTMENT OF ENVIRONMENTAL QUALITY  
CHAPTER 631. PUBLIC WATER SUPPLY OPERATION**

**SUBCHAPTER 1. INTRODUCTION**

**252:631-1-3. Adoption of U.S. EPA regulations by reference**

The provisions of Parts 141, "National Primary Drinking Water Regulations," and 143, "National Secondary Drinking Water Regulations," of Title 40 of the Code of Federal Regulations (CFR) as published on July 1, ~~2012~~ 2013, and the requirements contained therein are, unless otherwise specified, adopted and incorporated by reference.

**SUBCHAPTER 3. OPERATIONS**

**252:631-3-3. Disinfection requirements**

(a) **Mandatory disinfection.** Full-time disinfection is mandatory for:

- (1) surface water, groundwater under the direct influence of surface water, and spring water supplies unless an alternative has been approved by the DEQ. Each of these systems shall provide disinfection in accordance with 40 CFR Section 141.72(b) and meet the monitoring requirements contained in 40 CFR Section 141.74(c).
- (2) groundwater supplies or purchase water systems whenever their record of bacteriological tests show:
  - (A) a persistent presence of Total Coliform; or
  - (B) a verified Fecal Coliform, or E. Coli MCL exceedance;
- (3) PWS systems that purchase water from a public water supply under mandatory disinfection, unless the purchase water system verifies chlorine residuals that are in compliance with (c) or, if chloramines are used, (d) of this Section; and
- (4) any new well in a system where the initial bacteriological tests of the well do not show a safe record with the DEQ for two (2) consecutive days after completion and testing of the well.

(b) **Modification of disinfection methods.** When any change in the disinfection process is contemplated, contact the DEQ. Submittal of an application, including plans, specifications, engineering reports, disinfection profile and disinfection benchmark justifying such a change may be required in order to obtain approval from the DEQ.

(c) **Chlorine.** The minimum free chlorine residuals shall be as follows:

- (1) **Most distant points.** The minimum free chlorine residual at the most distant points in a water distribution system must be 0.2 mg/l.
- (2) **Point of entry.** The minimum free chlorine residual at the POE shall be at 1.0 mg/l. For supplies that document they meet or exceed the inactivation requirements in OAC 252:631-3-3(a)(1), the minimum free chlorine residual at the POE shall be 0.2 mg/l.

(d) **Chloramines.**

- (1) **Prior public notice.** Systems must notify all users of kidney dialysis machines at least one month before introducing chloramines into the distribution system or starting chloramination.
- (2) **Chloramines engineering study.** Before changing to chloramines as the residual disinfectant in the distribution system, the system must conduct and submit to the DEQ for approval an engineering study and weekly analyses for at least six (6) weeks prior to and quarterly for one year following such a change of disinfectant. The engineering study and analysis must address the following:
  - (A) Select at least four (4) sample points for each treatment plant used by the system. At least twenty-five percent (25%) of the sample points must be at locations within the distribution system reflecting the maximum residence time of water in the system; and
  - (B) Collect samples from the selected points weekly for six (6) weeks and perform the following analyses using the methods approved in 40 CFR 141.74(a)(1) before modification of treatment is initiated:

- (i) Total coliform;
  - (ii) Fecal coliform; and
  - (iii) Heterotrophic Plate Count.
- (3) **Continuing testing.** After modification of the treatment process, perform the bacteriological tests for samples collected at each of the selected points at quarterly intervals for one year, and then annually, when samples are collected for total trihalomethane determination. Submit the results to the DEQ.
- (4) **Primary Disinfection.** A disinfectant must be added to provide the required log inactivation of *Giardia Lamblia* cysts before ammonia is added.
- (5) **Total chlorine.** The minimum total chlorine residual at the most distant points in a water distribution system must be 1.0 mg/l and at least 2.0 mg/l at the POE. Higher residuals may be required depending on pH, temperature and other characteristics of the water.
- (e) **Other disinfectants.** Iodine or bromine compounds must not be used as a disinfectant. Ozone or ultraviolet light may be used for in-plant treatment or disinfection provided an approved residual disinfectant is added prior to distribution and maintained according to this chapter. Chlorine dioxide may be used as long as the requirements in this ~~chapter~~ Subchapter are met.
- ~~(f) **Process control tests for disinfectants.** Control tests must be performed by all systems that disinfect in accordance with procedures approved by the DEQ. Sampling points must be changed regularly so that the system is sampled completely at least once each week.~~
- ~~— (1) **Chlorine.** Systems that use chlorine must test for free chlorine and total chlorine residual twice a day in the distribution system.~~
  - ~~— (2) **Chloramines.**~~
    - ~~— (A) Systems that use chloramines must test for total chlorine residual twice a day in the distribution system.~~
    - ~~— (B) Systems that use chloramines must submit yearly Heterotrophic Plate Count from the distribution system in order to document that no microbiological regrowth is occurring in the distribution system.~~
    - ~~— (C) The minimum total chlorine residual at the most distant points in a water distribution system must be 1.0 mg/l.~~
    - ~~— (D) Total chlorine residuals must be at least 2.0 mg/l at the POE. Higher residuals may be required depending on pH, temperature and other characteristics of the water.~~
  - ~~— (3) **Other disinfectants.**~~
    - ~~— (A) Systems that use chlorine dioxide, ozone or ultraviolet light must maintain a free chlorine residual, or total chlorine residual, where chloramines are used, in accordance with OAC 252:631-3-3(a).~~
    - ~~— (B) Systems that use ozone or chlorine dioxide must perform process control tests in accordance with 40 CFR Section 141.132.~~

### 252:631-3-10. Process control tests

Control tests must be performed in accordance with procedures approved by the DEQ.

#### (1) **Surface water, groundwater under the direct influence of surface water, and springs.**

- (A) Systems that use coagulation, settling, softening or filtration must do the following chemical control tests on the filtered water twice a day, record the results on a report form provided or approved by the DEQ, and submit the form to the DEQ Water Quality Division each month, with a copy to the local DEQ representative:
  - (i) Alkalinity - Phenolphthalein (P);
  - (ii) Alkalinity - Total;
  - (iii) Hardness (where softening is used);
  - (iv) pH value; and
  - (v) Stability to calcium carbonate (once per day);
- (B) Perform jar tests as needed to determine the optimum coagulant dosages for plant control and operation to meet turbidity requirements.

(C) Turbidity and residual disinfection samples must be collected and analyzed in accordance with 40 CFR Part 141, Subparts H and P.

(2) **Groundwater supplies.** The following tests are required for ~~community and non-transient non-community~~ public water supply systems utilizing groundwater as a source. Test results must be listed as indicated on the appropriate forms and submitted to ~~the~~ DEQ:

(A) For all public water supply systems that practice chlorination, the chlorine residual shall be recorded twice daily in the distribution system and once daily at the POE;

(B) For community and non-transient non-community public water supply systems:

~~(A)~~ Static level and pumping level of each well must be determined quarterly;

~~(B)~~(i) Alkalinity, pH, and stability must be determined at least monthly for community systems and at least quarterly for non-transient non-community water systems;

~~(C)~~ Where chlorination is practiced, determine the chlorine residual twice daily in the distribution system and once daily at the POE;

~~(D)~~(ii) Where ion-exchange softening is provided, determine the hardness of the finished water once a day; and

~~(E)~~(iii) Where nanofiltration, reverse osmosis or electrodialysis is provided, perform the following chemical control tests on the treated water once a day:

~~(i)~~(I) Alkalinity – Phenolphthalein (P),

~~(ii)~~(II) Alkalinity – Total,

~~(iii)~~(III) Hardness,

~~(iv)~~(IV) pH value, and

~~(v)~~(V) Stability to calcium carbonate.

(3) **Purchase water systems.** Purchase water ~~community~~ systems that ~~provide supplemental chlorination~~ are required to maintain a disinfection residual must determine the chlorine residual twice daily in the distribution system and once daily at the ~~POE~~ point(s) of connection to the wholesale system.

(4) **Special tests.**

(A) Systems that remove iron or manganese must test the raw and finished water weekly for those metals.

(B) Systems that treat or blend for the reduction in concentration of regulated contaminants must monitor the raw and finished water for those contaminants daily in addition to collecting compliance samples.

(C) Threshold odor and other tests may be required by the DEQ based on local conditions.

(D) Systems that treat or blend for the reduction in concentration of nitrates must test the raw and finished water at least once a day for nitrates.

(E) Systems that apply phosphate chemicals in the treatment process must test the finished water at least once a day for phosphates.

(5) **Fluoridation.** Where fluoridation is practiced, the system must:

(A) analyze the water twice a day for fluoride content, both before and after fluoridation;

(B) forward a copy of the analytical report (DEQ form No. 631-001) to the DEQ monthly and keep a copy at the plant; and

(C) submit a sample of treated water to the DEQ State Environmental Laboratory, or to a DEQ-accredited laboratory, for analysis of fluoride content every month.

(6) **Disinfectants.** The following control tests shall be performed by all systems that disinfect. Sampling points shall be changed regularly so that the system is sampled completely at least once each week or in accordance with a sampling plan approved by DEQ.

(A) Chlorine. Systems that use chlorine shall test for free chlorine and total chlorine residual twice a day in the distribution system.

(B) Chloramines. Systems that use chloramines shall test for total chlorine residual twice a day in the distribution system. See 252:631-3-3(d) for the requirements for Heterotrophic Plate Counts.

(C) **Other disinfectants.** Systems that use ozone or chlorine dioxide shall perform process control tests in accordance with 40 CFR Section 141.132.

**252:631-3-11. Operating records & reports**

(a) **Immediate notification to DEQ.** Each system must report to the DEQ by the end of the next business day if any of the following occur:

- (1) Waterborne disease outbreak;
- (2) Finished water turbidity exceeds one (1) NTU;
- (3) Chlorine residual falls below 0.2 mg/l at the POE and whether the residual was restored to at least 0.2 mg/l within four (4) hours;
- (4) Nitrate level exceeds 10 mg/l;
- (5) Verification of a positive Fecal Coliform or E. Coli sample; and
- (6) Exceedance of the Chlorine Dioxide MRDL.

(b) **Records.** All systems must keep a daily record of the results of required process control tests and list the results of microbiological checks on the dates sampled. The records of all laboratory checks and control tests must indicate when, where, and by whom the tests were made. The PWS system must complete and submit the original of the DEQ-approved monthly operational report form to the DEQ with a copy to the appropriate local DEQ representative no later than the tenth (10th) day of the following month.

(c) **Water treatment systems.**

(1) Systems that provide water treatment must keep:

- (A) a daily record of the operations performed in the treatment process;
- (B) observations, cost and occurrences related to the operation of the plant; and
- (C) the control tests and laboratory checks previously described in OAC 252:631-3-10.

(2) In addition, water treatment plants designed for turbidity and microbial removal must keep:

- (A) the number of filtered water turbidity samples taken during the month;
- (B) the number and percentage of turbidity samples that are less than or equal to the standards; and
- (C) the date and value of any turbidity measurements that exceed one (1) and five (5) NTU. Where continuous monitoring is used, measurements must be recorded every four (4) hours during plant operation.

(d) **Groundwater systems.** Operators of groundwater systems must keep a daily record of all well operations, in addition to the process control tests and laboratory checks required for ground water supplies.

(e) **Purchase water systems.** ~~Operators of systems that purchase~~ Purchase water as their sole source and systems that are required provide supplemental chlorination to maintain a disinfection residual must submit a monthly operational report to the DEQ of the operation of the system, in addition to required laboratory checks. ~~Monthly reports are not required from purchase water systems that do not add a disinfectant.~~

(f) **Record keeping.** All records must be available for inspection by the DEQ and maintained for at least ten (10) years unless otherwise specified.

**252:631-3-23. Source water development**

(a) **Continued protection for all sources.** A PWS system shall provide protection for all sources of water from potential sources of contamination through ownership, zoning, easements, leasing or other legal means.

(b) **Reservoir and lake protection.** PWS systems shall provide protection for a reservoir or lake used as a source of water. Control the marginal shoreline land by purchase or ordinance. If control is through the use of an ordinance, the ordinance must describe the water district boundaries and enforcement rules which shall include:

- (1) regulating the public health aspects of the water supply, waste and sewage disposal and recreation activities;

- (2) regulating the building of structures within the control area;
- (3) regulating aquatic activities involving human body contact with the water, including restricting body contact with the water during recreational or other activities when the water quality or public health may be adversely affected; and
- (4) regulating the removal of brush and trees to the high water elevation, regulating the protection from floods during construction within the control district, and regulating the plugging of wells which are inundated, in accordance with OWRB requirements.

(c) **Groundwater source protection.** To protect all groundwater wells from microbiological contamination:

- (1) disinfect every new, modified or reconditioned groundwater well in accordance with AWWA standard specifications after completion of work on the well and the placement of the permanent pumping equipment;
- (2) upon completion of the well, the PWS system shall submit a copy of the well driller's log to the DEQ;
- (3) upon completion of the well, collect at least two (2) bacteriologically safe samples on consecutive days. Collect samples after chlorine used to disinfect the well has been completely dissipated and submit the sampling records to the DEQ;
- (4) if any samples show the presence of coliform bacteria, additional samples shall be taken to determine the degree of contamination and the treatment required; and
- (5) if any of the samples show the presence of fecal coliform, a study shall be conducted and a determination made whether the groundwater source is under the direct influence of surface water.

~~(6) provide sufficient distance from a well to possible sources of pollution to assure that a subsurface flow of contaminated water will not reach the well. Minimum separation distances are:~~

- ~~(A) one hundred feet from a property line;~~
- ~~(B) fifty feet from all septic tank and sewer lines, and~~
- ~~(C) fifty feet from lateral fields, unless the percolation rate is one inch in less than five minutes, then the separation distance shall be one hundred feet.~~