

CHAPTER 42  
PUBLIC NOTIFICATION, PUBLIC EDUCATION,  
CONSUMER CONFIDENCE REPORTS, REPORTING,  
AND RECORD MAINTENANCE

**567—42.1(455B) Public notification.**

**42.1(1) Applicability.** Each owner or operator of a public water system must give notice for all violations of public drinking water rules and for other situations, as listed in this subrule. The term “violations” includes violations of, or failure to comply with, the maximum contaminant level, maximum residual disinfection level, treatment technique, monitoring requirements, and testing procedures in 567—Chapters 40 through 43. The term “other situations” includes all situations determined by the department to require a public notice, such as a waterborne disease outbreak or other waterborne emergency; exceedance of the nitrate MCL by noncommunity systems where granted permission by the department under 567—paragraph 41.3(1)“a”; exceedance of fluoride level over 2.0 mg/L; availability of unregulated contaminant monitoring data in accordance with CFR Title 40, Part 141.40, failure to meet the terms of a compliance schedule; exceedance of a health advisory as determined by the department; failure to comply with the public notification requirements, public education requirements, or consumer confidence report requirements; failure to meet the terms of an administrative or court order; failure to meet the data and other reporting requirements; failure to retain a certified operator in accordance with 567—subrule 43.1(5); and any other situation where the department determines public notification is needed. Public notification is not required for ammonia monitoring conducted pursuant to 567—subrule 41.11(2).

*a. Types of public notice.* Public notice requirements are divided into three tiers, to take into account the seriousness of the violation or situation and of any potential adverse health effects that may be involved. The public notice requirements for each violation or situation are determined by the tier to which it is assigned.

(1) Tier 1 public notice is required for all drinking water violations and situations with significant potential to have serious adverse effects on human health as a result of short-term exposure.

(2) Tier 2 public notice is required for all other drinking water violations and situations with potential to have serious adverse effects on human health.

(3) Tier 3 public notice is required for all other drinking water violations and situations not included in Tier 1 or Tier 2.

*b. Notification.* Each public water system must provide public notice to persons served by the water system, in accordance with this rule. A copy of the notice must also be sent to the department, in accordance with the requirements under paragraph 42.4(1)“c.”

(1) Consecutive systems. Public water systems that sell or otherwise provide drinking water to other public water systems (i.e., to consecutive systems) are required to give public notice to the owner or operator of the consecutive system. The consecutive system is responsible for providing public notice to the persons it serves, and must meet the appropriate Tier requirements for the violation.

(2) Systems with multiple physically or hydraulically isolated distribution systems. If a public water system has a violation in a portion of the distribution system that is physically or hydraulically isolated from other parts of the distribution system, the department may allow the system to limit distribution of the public notice only to persons served by that portion of the system which is out of compliance. Permission by the department to limit distribution of the notice must be granted in writing.

**42.1(2) Tier 1 public notice requirements.**

*a. Violations and situations which require Tier 1 notice.* The following types of violations or situations require Tier 1 public notice:

(1) Violation of the MCL for *E. coli*, as specified in 567—paragraph 41.2(1)“a.”

(2) Rescinded IAB 4/11/18, effective 5/16/18.

(3) Violation of the MCL for nitrate or nitrite, as defined in 567—subparagraph 41.3(1)“b”(1).

(4) Failure by the water system to collect a confirmation sample within 24 hours of the system's receipt of the first sample result showing an exceedance of the nitrate or nitrite MCL, when directed by the department, as specified in 567—paragraph 41.3(1)“c”(7)“2.”

(5) Exceedance of the nitrate MCL by noncommunity water systems, where permitted to exceed the MCL by the department under 567—paragraph 41.3(1)“a,” as required under 42.1(7)“c.”

(6) Violation of the MRDL for chlorine dioxide when one or more samples, taken in the distribution system on the day following an exceedance of the MRDL in the sample collected at the entrance to the distribution system, exceeds the MRDL, as defined in 567—paragraph 43.6(1)“b.”

(7) Failure by the water system to collect the required chlorine dioxide samples in the distribution system on the day following an exceedance of the MRDL in the sample collected at the entrance to the distribution system.

(8) Violation of the treatment technique requirement by a surface water or influenced groundwater public water system resulting from a single exceedance of the maximum allowable turbidity limit, as specified in rule 567—43.5(455B), 567—43.9(455B), or 567—43.10(455B), where the department determines after consultation with the system that a Tier 1 notice is required, or where the consultation with the department does not take place within 24 hours after the system learns of the violation.

(9) Occurrence of a waterborne disease outbreak, as defined in rule 567—40.2(455B), or other waterborne emergency, such as a failure or significant interruption in key water treatment processes, a natural disaster that disrupts the water supply or distribution system, or a chemical spill or unexpected loading of possible pathogens into the source water that significantly increases the potential for drinking water contamination.

(10) Other violations or situations with significant potential to have serious adverse effects on human health as a result of short-term exposure, as determined by the department either in its rules or on a case-by-case basis.

(11) Detection of *E. coli*, enterococci, or coliphage in source water samples, as specified in 567—paragraphs 41.7(3)“a” and 41.7(3)“b.”

*b. Timing of Tier 1 public notice.* Public water systems must:

(1) Provide a public notice as soon as practical but no later than 24 hours after the system learns of the violation;

(2) Initiate consultation with the department as soon as practical, but no later than 24 hours after the system learns of the violation or situation, to determine additional public notice requirements. For consultation with department staff after normal business hours, the system should contact the department via the department's Environmental Emergency Reporting Hotline telephone number (515)725-8694; and

(3) Comply with any additional public notification requirements, including any repeat notices or direction on the duration of the posted notices, that are established as a result of the consultation with the department. Such requirements may include the timing, form, manner, frequency, and content of repeat notices (if any) and other actions designed to reach all persons served. All NTNCs must notify the parent or legal guardian of each child under 18 years of age and of any nursing home resident of the Tier 1 violation as soon as possible and within 72 hours, including the information required in the public notice under subrule 42.1(5).

*c. Form and manner of Tier 1 public notice.* Public water systems must provide the notice within 24 hours in a form and manner reasonably calculated to reach all persons served. The form and manner used by the public water system must fit the specific situation, and must be designed to reach residential, transient, and nontransient users of the water system. In order to reach all persons served, water systems are to use, at a minimum, one or more of the following forms of delivery. The department may require that multiple forms of notification be used in a specific situation.

(1) Appropriate broadcast media, such as radio or television;

(2) Posting of the notice in conspicuous locations throughout the area served by the water system;

(3) Hand delivery of the notice to persons served by the water system; or

(4) Another delivery method approved in writing by the department.

**42.1(3) Tier 2 public notice requirements.**

*a. Violations and situations which require Tier 2 notice.* The following types of violations or situations require Tier 2 public notice:

(1) All violations of the MCL, MRDL, and treatment technique requirements, except where a Tier 1 notice is required under subrule 42.1(2);

(2) Violations of the monitoring and testing procedure requirements, where the department determines that a Tier 2 rather than a Tier 3 public notice is required, taking into account potential health impacts and persistence of the violation;

(3) Failure to comply with the requirements of any compliance schedule prescribed in an operation permit, administrative order, or court order pursuant to 567—subrule 43.2(5);

(4) Failure to comply with a health advisory as determined by the department; and

(5) Failure to take corrective action or failure to maintain at least 4-log treatment of viruses (using inactivation, removal, or a department-approved combination of 4-log virus inactivation and removal) before or at the first customer under 567—paragraph 41.7(4)“a.”

*b. Timing of Tier 2 public notice.* Public water systems must:

(1) Provide the initial public notice as soon as practical, but no later than 30 days after the system learns of the violation. If the public notice is posted, the notice must remain in place for as long as the violation or situation persists, but in no case for less than 7 days, even if the violation or situation is resolved. The department may allow additional time for the initial notice of up to three months from the date the system learns of the violation; however, such an extension must be on a case-by-case basis and be made in writing by the department.

(2) The public water system must repeat the notice every three months as long as the violation or situation persists, unless the department determines that appropriate circumstances warrant a different repeat frequency. If the department determines that a repeat notice frequency of longer than every three months is allowed, that decision must be made in writing by the department and must be on a case-by-case basis. In no circumstance may the repeat notice be given less frequently than once per year. Repeat notices for a coliform bacteria MCL, a treatment technique violation under 567—paragraph 41.2(1)“a” or 41.2(1)“l,” or a turbidity treatment technique violation under rule 567—43.9(455B) or 567—43.10(455B) must be made every three months or more frequently.

(3) A public water system using surface water or influenced groundwater with a treatment technique violation resulting from a single exceedance of the maximum allowable turbidity limit pursuant to 567—43.9(455B) or 567—43.10(455B) must consult with the department as soon as practical, but no later than 24 hours after the public water system learns of the violation, to determine whether a Tier 1 or Tier 2 public notice is required to protect public health. For consultation with department staff after normal business hours, the system should contact the department via the department’s Environmental Emergency Reporting Hotline telephone number (515)725-8694. If the consultation does not occur within the 24-hour period, the public water system must distribute a Tier 1 notice of the violation within the next 24 hours, or no later than 48 hours after the system learns of the violation, following the requirements of paragraphs 42.1(2)“b” and 42.1(2)“c.”

*c. Form and manner of Tier 2 public notice.* Public water systems must provide the initial public notice and any repeat notices in a form and manner that is reasonably calculated to reach persons served in the required time period. The form and manner of the public notice may vary based on the specific situation and type of public water system, but it must at a minimum meet the following requirements:

(1) Community water systems must provide notice by the following methods, unless directed otherwise in writing by the department:

1. Mail or other direct delivery to each customer receiving a bill and to other service connections to which water is delivered by the public water system; and

2. Any other method reasonably calculated to reach other persons regularly served by the system, if they would not normally be reached by mail or direct delivery. Such persons may include those who do not pay water bills or do not have service connection addresses, such as house renters, apartment dwellers, university students, nursing home patients, or prison inmates. Other methods may include:

- Publication in a local newspaper;

- Delivery of multiple copies for distribution by customers that provide their drinking water to others, such as apartment building owners or large private employers;
- Posting in public places served by the system or on the Internet; or
- Delivery of the notice to community organizations.

(2) Noncommunity water systems (TNC and NTNC) must provide notice by the following methods, unless directed otherwise in writing by the department:

1. Posting the notice in conspicuous locations throughout the distribution system frequented by persons served by the system, or by mail or direct delivery to each customer and service connection (where known); and

2. Any other method reasonably calculated to reach other persons served by the system who would not normally be reached by posting, mail, or direct delivery. Such persons may include those served who may not see a posted notice because the posted notice is not in a location they routinely visit. Other methods may include:

- Publication in a local newspaper or newsletter distribution to customers;
- Use of electronic mail (email) to notify employees or students; or
- Delivery of multiple copies in central locations, such as community centers.

3. In addition to the requirements in 42.1(3)“c”(2)“1” and “2,” nontransient noncommunity public water systems that serve children under 18 years of age, such as child care facilities, schools, and hospitals, or nursing home residents, including elder care facilities, shall provide the public notice in writing to the parent or legal guardian of each person within the time period specified by the department. The content of the public notice must meet the requirements of subrule 42.1(5).

**42.1(4) Tier 3 public notice requirements.**

*a. Violations and situations which require Tier 3 notice.* The following types of violations or situations require Tier 3 public notice:

(1) Monitoring violations under 567—Chapters 41, 42, and 43, except where a Tier 1 notice is required under subrule 42.1(2) or where the department determines that a Tier 2 notice is required;

(2) Failure to comply with a testing procedure established in 567—Chapters 41, 42, and 43, except where a Tier 1 notice is required under subrule 42.1(2) or where the department determines that a Tier 2 notice is required;

(3) Availability of unregulated contaminant monitoring results, as required of certain public water supply systems by CFR Title 40, Part 141.40, as required under paragraph 42.1(7)“a”;

(4) Exceedance of the fluoride level of 2.0 mg/L and not exceeding the MCL of 4.0 mg/L, as required under paragraph 42.1(7)“b”;

(5) Failure to report data or analytical results required under 567—Chapters 41, 42, and 43 to the department;

(6) Failure to meet the requirements of this chapter for public notification, public education, or the development and distribution of the Consumer Confidence Report;

(7) Failure to retain a certified operator in accordance with 567—subrule 43.1(5) and the department determines that public notification is required;

(8) Failure to maintain records required under 567—Chapters 41, 42, and 43; and

(9) Any other situation where the department determines public notification is needed.

*b. Timing of Tier 3 public notice.*

(1) Initial notice.

1. For violations or situations listed in subparagraphs 42.1(4)“a”(1), (2), (5), and (6), public water systems must provide the initial public notice within 12 months after the public water system learns of the violation or situation. If the violation pertains to a contaminant that could have acute health effects as determined by the department, such as coliform bacteria, nitrate, nitrite, or turbidity, the initial public notice must be provided within 3 months. If the public notice is posted, the notice must remain in place for as long as the violation or other situation persists, but in no case less than seven days, even if the violation or situation is resolved.

2. For availability of unregulated contaminant monitoring results pursuant to subparagraph 42.1(4)“a”(3), the system must provide the initial public notice within 12 months of receiving the unregulated contaminant monitoring results.

3. For subparagraphs 42.1(4)“a”(4), (7), and (8), the timing of the initial notice is at the discretion of the department, but the notice must be made within 12 months of the violation or situation.

(2) Repeat notice.

1. For violations or situations listed in subparagraphs 42.1(4)“a”(1), (2), (4), (5), and (6), public water systems must repeat the public notice every 12 months in which the violation or situation persists. If the violation pertains to a contaminant that could have acute health effects, such as coliform bacteria, nitrate, nitrite, or turbidity, the system must repeat the public notice every 3 months in which the violation or situation persists. If the public notice is posted, the notice must remain in place for as long as the violation or other situation persists, but in no case less than seven days, even if the violation or situation is resolved.

2. For availability of unregulated contaminant monitoring results pursuant to subparagraph 42.1(4)“a”(3), the system is not required to repeat the public notice, once the initial public notice requirement has been met.

3. For subparagraphs 42.1(4)“a”(4), (7), and (8), the requirement for and timing of the repeat notice is at the discretion of the department and, if required, the notice must be made within 12 months of the initial notice.

*c. Form and manner of Tier 3 public notice.* Public water systems must provide the initial notice and any repeat notices in a form and manner that is reasonably calculated to reach persons served in the required time period. The form and manner of the public notice may vary based on the specific situation and type of water system, but it must at a minimum meet the following requirements:

(1) Community water systems. Unless directed otherwise in writing by the department, community water systems must provide notice by:

1. Mail or other direct delivery to each customer receiving a bill and to other service connections to which water is delivered by the public water system; and

2. Any other method reasonably calculated to reach other persons regularly served by the system, if they would not normally be reached by mail or direct delivery notice. Such persons may include those who do not pay water bills or do not have service connection addresses, such as house renters, apartment dwellers, university students, nursing home patients, or prison inmates. Other methods may include:

- Publication in a local newspaper;
- Delivery of multiple copies for distribution by customers that provide their drinking water to others, such as apartment building owners or large private employers;
- Posting in public places or on the Internet; or
- Delivery of the notice to community organizations.

3. Use of the Consumer Confidence Report for initial and repeat notices. For community water systems, the Consumer Confidence Report (CCR) required under 567—42.3(455B) may be used as a vehicle for the initial Tier 3 public notice and all required repeat notices, as long as:

- The CCR is provided to persons served within the time frames specified in 42.1(4)“b”;
- The Tier 3 notice contained in the CCR follows the content requirements under 42.1(5); and
- The CCR is distributed following the delivery requirements under 42.1(4)“c”(1) and (2).

(2) Noncommunity systems (TNC and NTNC). Unless directed otherwise in writing by the department, noncommunity water systems must provide notice by:

1. Posting the notice in conspicuous locations throughout the distribution system frequented by persons served by the system, or by mail or direct delivery to each customer and service connection (where known); and

2. Any other method reasonably calculated to reach other persons served by the system, if they would not normally be reached by the posted, mailed, or delivered notice. Such persons may include those who may not see a posted notice because the notice is not in a location they routinely visit. Other methods may include:

- Publication in a local newspaper or newsletter distributed to employees;

- Use of electronic mail (email) to notify employees or students; or
- Delivery of multiple copies in central locations, such as community centers.

**42.1(5) Content of the public notice.**

*a. Required public notice elements.* Each public notice must include the following elements:

- (1) A description of the violation or situation, including the contaminant(s) of concern and, as applicable, the contaminant level(s);
- (2) When the violation or situation occurred;
- (3) Any potential adverse health effects from the violation or situation, including the standard language under subparagraph 42.1(5) "c"(1) or (2), whichever is applicable;
- (4) The population at risk, including subpopulations particularly vulnerable if exposed to the contaminant in their drinking water;
- (5) Whether alternative water supplies or bottled water should be used, or require a boil-water order;
- (6) What actions consumers should take, including when they should seek medical help, if known;
- (7) What the system is doing to correct the violation or situation;
- (8) When the water system expects to return to compliance or resolve the situation;
- (9) The name, business address, and telephone number of the water system owner, operator, or designee of the public water system as a source of additional information concerning the notice; and
- (10) A statement to encourage the notice recipient to distribute the public notice to other persons served, using the standard language under subparagraph 42.1(5) "c"(3), where applicable.

*b. Appearance and presentation of the public notice.*

- (1) Each public notice must:
  1. Be displayed in a conspicuous way when printed or posted;
  2. Not contain overly technical language or very small print;
  3. Not be formatted in a way that defeats the purpose of the notice; and
  4. Not contain language that nullifies the purpose of the notice.
- (2) Each public notice must comply with multilingual requirements, as follows:
  1. For public water systems serving a large proportion of non-English speaking consumers, as determined by the department, the public notice must contain information in the appropriate language(s) about the importance of the notice. Alternately, the public notice must contain a telephone number or address where persons served may contact the water system to obtain a translated copy of the notice or to request assistance in the appropriate language.
  2. In cases where the department has not determined what constitutes a large proportion of non-English speaking consumers, the public water system must include in the public notice the same information as in 42.1(5) "b"(2)"1," where appropriate, to reach a large proportion of non-English speaking persons served by the water system.

*c. Standard language requirements.* Public water systems are required to include the following standard language in their public notice:

(1) Standard language about health effects for MCL violations, MRDL violations, or treatment technique violations. Public water systems must include in each public notice the language about health effects specified in Appendix A for the specific contaminant, disinfectant residual, or treatment technique that incurred the violation.

(2) Standard language for monitoring and testing procedure violations. Public water systems must include the following language in their notice, including the bracketed language necessary to complete the notice, for all monitoring and testing procedure violations:

We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not your drinking water meets health standards. During [compliance period], we [use either the phrase "did not monitor or test" or "did not complete all monitoring or testing," whichever is more applicable] for [contaminant(s)], and therefore cannot be sure of the quality of your drinking water during that time.

(3) Standard language to encourage the distribution of the public notice to all persons served. Public water systems must include in their notice the following language, where applicable:

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly, such as people in apartments, nursing homes, schools, and businesses. You can do this by posting this notice in a public place or distributing copies by hand or mail.

**42.1(6) Notice to new billing units or new customers.**

*a. Community water systems.* Community water systems must give a copy of the most recent public notice for any continuing violation or other ongoing situations requiring a public notice to all new billing units or new customers prior to or at the time service begins.

*b. Noncommunity water systems.* Noncommunity water systems must continuously post the public notice in conspicuous locations in order to inform new consumers of any continuing violation or other situation requiring a public notice for as long as the violation or other situation persists.

**42.1(7) Special notices.**

*a. Availability of unregulated contaminant monitoring results.*

(1) **Applicability.** The owner or operator of a community water system or nontransient noncommunity water system required to monitor under the federal unregulated contaminant monitoring rule must notify persons served by the system of the availability of the results of such sampling no later than 12 months after the monitoring results are known.

(2) **Form and manner of notice.** The form and manner of the public notice must follow the requirements for a Tier 3 public notice prescribed in paragraph 42.1(4)“c.” The notice must also identify a person and provide the telephone number to contact for information on the monitoring results.

*b. Fluoride level between 2.0 and 4.0 mg/L at community or nontransient noncommunity water systems.*

(1) **Applicability.** Community and nontransient noncommunity water systems that exceed the fluoride level of 2.0 mg/L as determined by the last single sample taken in accordance with 567—paragraph 41.3(1)“c” but do not exceed the MCL of 4.0 mg/L, must provide the public notice in subparagraph 42.1(7)“b”(5) to persons served. If the nontransient noncommunity public water system is a school or child care facility that serves children under nine years of age, the public water system shall provide the public notice in writing to the legal guardians of each child within the time period specified by the department.

(2) **Initial notice.** Public notice must be provided as soon as practical but no later than three months from the day the water system learns of the exceedance. A copy of the notice must also be sent to all new billing units and new customers at the time service begins and to the Public Health Dental Director, Iowa Department of Public Health, Lucas State Office Building, Des Moines, Iowa 50319-0075.

(3) **Repeat notice.** The public water system must repeat the notice at least every three months for as long as the fluoride level exceeds 2.0 mg/L. If the public notice is posted, the notice must remain in place for as long as the fluoride level exceeds 2.0 mg/L, but in no case less than seven days (even if the exceedance is eliminated). The department may require the repeat notice to be conducted more frequently.

(4) **Form and manner of notice.** The form and manner of the public notice, including repeat notices, must follow the requirements for a Tier 3 public notice in paragraph 42.1(4)“c.”

(5) **Mandatory language.** The notice must contain the following language, including the bracketed language necessary to complete the notice:

This is an alert about your drinking water and a cosmetic dental problem that might affect children under nine years of age. At low levels, fluoride can help prevent cavities, but children drinking water containing more than 2 milligrams per liter (mg/L) of fluoride may develop cosmetic discoloration of their permanent teeth, called dental fluorosis. The drinking water provided by your public water system [PWS name] has a fluoride concentration of [analytical result] mg/L.

Dental fluorosis, in its moderate or severe forms, may result in a brown staining and pitting of the permanent teeth. This problem occurs only in developing teeth, before they erupt from the gums. Children under nine should be provided with alternative sources of drinking water or water that has been treated to remove the fluoride to avoid the possibility of staining and pitting of their

permanent teeth. You may also want to contact your dentist about proper use by young children of fluoride-containing products. Older children and adults may safely drink the water.

Drinking water containing more than 4.0 mg/L of fluoride (the U.S. Environmental Protection Agency's drinking water standard) can increase your risk of developing bone disease. Your drinking water does not contain more than 4.0 mg/L of fluoride, but we are required to notify you when we discover that the fluoride levels in your drinking water exceed 2.0 mg/L because of this cosmetic dental problem.

For more information, please call [name of the person designated as the water system contact] of [name of public water system] at [telephone number]. Some home water treatment units are also available to remove fluoride from drinking water. In Iowa, home water treatment units are regulated under 641—Chapter 14, with the water treatment unit registration program administered by the Iowa department of public health's environmental health division. In addition, you may call the National Sanitation Foundation (NSF) International, at 1-877-867-3435.

*c. Nitrate level between 10 and 20 mg/L for noncommunity water systems, where allowed by the department.*

(1) Applicability. The owner or operator of a noncommunity water system granted permission by the department under 567—paragraph 41.3(1)“a” to exceed the nitrate MCL must provide notice to persons served according to the requirements for a Tier 1 notice under paragraphs 42.1(2)“a” and “b.”

(2) Form and manner of notice. Noncommunity water systems granted permission by the department to exceed the nitrate MCL under 567—paragraph 41.3(1)“a” must provide continuous posting of the fact that nitrate levels exceed 10 mg/L and the potential health effects of exposure, according to the requirements for Tier 1 notice delivery under paragraph 42.1(2)“c” and the content requirements under subrule 42.1(5).

*d. Repeated failure to conduct monitoring of the source water for Cryptosporidium.*

(1) Applicability. The owner or operator of any public water system that is required to monitor source water under 567—43.11(455B) must notify persons served by the water system that monitoring has not been completed as specified no later than 30 days after the system has failed to collect samples in any three months of monitoring as specified in 567—paragraph 43.11(3)“a.” The notice must be repeated as specified in 42.1(3).

(2) Form and manner of notice. The form and manner of the special notice must follow the Tier 2 public notice requirements in 42.1(3) and be presented as required in 42.1(5)“b.”

(3) Mandatory language. The special notice must contain the following language, including the language necessary to fill in the brackets.

“We are required to monitor the source of your drinking water for *Cryptosporidium*. Results of the monitoring are to be used to determine whether water treatment at the [treatment plant name] is sufficient to adequately remove *Cryptosporidium* from your drinking water. We are required to complete this monitoring and make this determination by [required bin determination date]. We [“did not monitor or test” or “did not complete all monitoring or testing”] on schedule and, therefore, we may not be able to determine by the required date what treatment modifications, if any, must be made to ensure adequate *Cryptosporidium* removal. Missing this deadline may, in turn, jeopardize our ability to have the required treatment modifications, if any, completed by the required deadline of [date]. For more information, please call [name of water system contact] of [name of water system] at [telephone number].”

(4) Each special notice must also include a description of what the system is doing to correct the violation and when the system expects to return to compliance or resolve the situation.

*e. Failure to determine bin classification or mean Cryptosporidium level.*

(1) Applicability. The owner or operator of a public water system that is required to determine a bin classification under 567—subrule 43.11(5) must notify persons served by the water system that the determination has not been made as required no later than 30 days after the system has failed to report the determination as specified in 567—paragraph 43.11(5)“c.” The notice must be repeated as specified in 42.1(3). The notice is not required if the system is in compliance with a department-approved schedule to address the violation.

(2) Form and manner of notice. The form and manner of the special notice must follow the Tier 2 public notice requirements in 42.1(3) and be presented as required in 42.1(5) “b.”

(3) Mandatory language. The special notice must contain the following language, including the language necessary to fill in the brackets.

“We are required to monitor the source of your drinking water for *Cryptosporidium* in order to determine by [date] whether water treatment at the [treatment plant name] is sufficient to adequately remove *Cryptosporidium* from your drinking water. We have not made this determination by the required date. Our failure to do this may jeopardize our ability to have the required treatment modifications, if any, completed by the required deadline of [date]. For more information, please call [name of water system contact] of [name of water system] at [telephone number].”

(4) Each special notice must also include a description of what the system is doing to correct the violation and when the system expects to return to compliance or resolve the situation.

**42.1(8) Notice by department on behalf of the public water system.** The department may give the public notice on behalf of the owner or operator of the public water system if the department complies with the public notification requirements of this rule. However, the owner or operator of the public water system remains responsible for ensuring the public notification requirements of this rule are met.

**42.1(9) Public notice requirements in the operation permit compliance schedule.** When the department determines that a public water supply system cannot promptly comply with one or more maximum contaminant levels pursuant to 567—Chapter 41, and that there is no immediate, unreasonable risk to the health of persons served by the system, an operation permit will be drafted that may include interim contaminant levels or a compliance schedule. The permit applicant may be required by the department to present the reasons the system cannot come into immediate compliance. Prior to issuance of a final permit, notice and opportunity for public participation must be given in accordance with this subrule. The notice shall be circulated in a manner designed to inform interested and potentially interested persons of any proposed interim contaminant level or compliance schedule.

*a. Preparation of notice.* The public notice shall be prepared by the department and circulated by the applicant within its geographical area through publication in a local newspaper with general circulation or through mail or direct delivery to the system’s customers. The public notice shall be mailed by the department to any person upon request.

*b. Public comment period.* The department shall provide a period of at least 30 days following the date of the public notice during which time interested persons may submit their written views on the tentative determinations with respect to the operation permit. All written comments submitted during the 30-day comment period shall be retained by the department and considered in the formulation of the department’s final determination with respect to the operation permit. The department may extend the comment period.

*c. Content of notice.* The content of the public notice of a proposed operation permit shall include at least the following:

- (1) The name, address, and telephone number of the department.
- (2) The name and address of the applicant.
- (3) A statement of the department’s tentative determination to issue the operation permit.
- (4) A brief description of each applicant’s water supply operations which necessitate the proposed permit conditions.

(5) A brief description of the procedures for the formulation of final determinations, including the 30-day comment period required by 42.1(9) “b.”

(6) The right to request a public hearing pursuant to 42.1(9) “d” and any other means by which interested persons may influence or comment upon those determinations.

(7) The address and telephone number of places at which interested persons may obtain further information, request a copy of the proposed operation permit prepared pursuant to 42.1(9), and inspect and copy the application forms and related documents.

*d. Public hearings on proposed operation permits.* The applicant or any interested agency, person or group of persons may request or petition for a public hearing with respect to the proposed action. Any such request shall clearly state issues and topics to be addressed at the hearing. Any such request

or petition for public hearing must be filed with the department within the 30-day period prescribed in 42.1(9) “b” and shall indicate the interest of the party filing such request and the reasons why a hearing is warranted. The department shall hold an informal and noncontested case hearing if there is a significant public interest (including the filing of requests or petitions for such hearing) in holding such a hearing. Frivolous or insubstantial hearing requests may be denied by the department. Instances of doubt should be resolved in favor of holding the hearing. Any hearing held pursuant to this subrule shall be held in the geographical area of the system, or other appropriate area at the discretion of the department. The department may, as appropriate, consider related groups of permit applications at the hearing.

*e. Public notice of public hearings.*

(1) Public notice of any hearing held pursuant to 42.1(9) shall be circulated at least as widely as the notice under 42.1(9) “a” at least 30 days in advance of the hearing.

(2) The contents of the public notice of any hearing held pursuant to 42.1(9) shall include at least the following:

1. The name, address, and telephone number of the department;
2. The name and address of each applicant whose application will be considered at the hearing;
3. A brief reference to the public notice previously issued, including identification number and date of issuance;
4. Information regarding the time and location for the hearing;
5. The purpose of the hearing;
6. A concise statement of the issues raised by the person requesting the hearing;
7. The address and telephone number of the premises where interested persons may obtain further information, request a copy of the draft operation permit or modification prepared pursuant to 42.1(9), and inspect and copy the application forms and related documents; and
8. A brief description of the nature of the hearing, including the rules and procedures to be followed.

*f. Decision by the department.* The department shall issue or deny the operation permit within 30 days after the termination of the public hearing held pursuant to 42.1(9), or, if no public hearing is held, within 30 days after the termination of the period for requesting a hearing.

[ARC 9915B, IAB 12/14/11, effective 1/18/12; ARC 3735C, IAB 4/11/18, effective 5/16/18]

**567—42.2(455B) Lead consumer notice and public education for lead action level exceedance.** All CWS and NTNC systems must comply with the lead consumer notice in accordance with 42.2(1). A CWS or NTNC system that exceeds the lead action level based on tap water samples collected in accordance with 567—paragraph 41.4(1) “c” must comply with the public education requirements in accordance with 42.2(2).

**42.2(1) Lead consumer notice.** All CWS and NTNC systems must provide a consumer notice of lead tap water monitoring results to persons served at the sites (taps) that are tested as listed in 567—42.2(455B). Any system exceeding the lead action level shall also implement the public education requirements of 42.2(2).

*a. Reporting requirement.* All CWS and NTNC systems must provide a notice of the individual tap results from lead tap water monitoring carried out under the requirements of 567—paragraph 41.4(1) “c” to the persons served by the water system at the specific sampling site from which the sample was taken (e.g., the occupants of the residence where the tap was tested).

*b. Timing of notification.* A water system must provide the consumer notice as soon as practical, but no later than 30 days after the system learns of the tap monitoring results.

*c. Content of notice.* The consumer notice must include the following:

- (1) Results of the lead tap water monitoring for the tap that was tested,
- (2) An explanation of the health effects of lead,
- (3) A list of steps consumers can take to reduce exposure to lead in drinking water,
- (4) Contact information for the water utility, and
- (5) The lead maximum contaminant level goal of 0 mg/L and the 90th percentile lead action level of 0.015 mg/L and the definitions for these two terms from rule 567—40.2(455B).

*d. Delivery of notice.* The consumer notice must be provided to persons served at the tap that was tested, either by mail or by another method approved by the department. For example, upon approval by the department, an NTNC system could post the results on a bulletin board in the facility to allow users to review the information. The system must provide the notice to customers at sample taps tested, including consumers who do not receive water bills.

*e. Inclusion of copper results.* The system may also include results of copper testing in the notice along with the 90th percentile copper action level of 1.3 mg/L, copper MCLG of 1.3 mg/L, and health effects language.

**42.2(2) Lead public education for lead action level exceedance.** A water system that exceeds the lead action level based on tap water samples collected in accordance with 567—paragraph 41.4(1) “c” shall deliver the public education materials contained in 42.2(2) “a” in accordance with 42.2(2) “b.” Water systems that exceed the lead action level must sample the tap water of any customer who requests it in accordance with 42.2(2) “c.”

*a. Content of written public education materials.* CWS and NTNC systems must include the following elements in printed materials (e.g., brochures and pamphlets) in the same order as listed in this paragraph. In addition, language in 42.2(2) “a” (1), (2), and (6) must be included in the materials exactly as written, except for the text in brackets in these paragraphs for which the water system must substitute system-specific information. Any additional information presented by a water system must be consistent with the information in 42.2(2) “a” and be in plain language that can be understood by the general public. Water systems must submit all written public education materials to the department prior to delivery. The department may require the system to obtain approval of the content of written public education materials prior to delivery.

(1) The following information must be included exactly as written. “IMPORTANT INFORMATION ABOUT LEAD IN YOUR DRINKING WATER. [*Insert name of water system*] found elevated levels of lead in drinking water in some homes/buildings. Lead can cause serious health problems, especially for pregnant women and young children. Please read this information closely to see what you can do to reduce lead in your drinking water.”

(2) The following information must be included exactly as written. “Health effects of lead. Lead can cause serious health problems if too much enters your body from drinking water or other sources. It can cause damage to the brain and kidneys, and can interfere with the production of red blood cells that carry oxygen to all parts of your body. The greatest risk of lead exposure is to infants, young children, and pregnant women. Scientists have linked the effects of lead on the brain with lowered IQ in children. Adults with kidney problems and high blood pressure can be affected by low levels of lead more than healthy adults. Lead is stored in the bones, and it can be released later in life. During pregnancy, the child receives lead from the mother’s bones, which may affect brain development.”

(3) Sources of lead. The printed materials must:

1. Explain what lead is.
2. Explain possible sources of lead in drinking water and how lead enters drinking water and include information on home/building plumbing materials and service lines that may contain lead.

3. Discuss other important sources of lead exposure in addition to drinking water (e.g., paint).

(4) Discuss the steps the consumers can take to reduce their exposure to lead in drinking water as follows:

1. Encourage running the water to flush out the lead.
2. Explain concerns with using hot water from the tap and specifically caution against the use of hot water for preparing baby formula.

3. Explain that boiling the water does not reduce lead levels.

4. Discuss other options consumers can take to reduce exposure to lead in drinking water, such as alternative sources or treatment of water.

5. Suggest that parents have their child’s blood tested for lead.

(5) The printed materials must explain why there are elevated levels of lead in the system’s drinking water (if known) and what the water system is doing to reduce the lead levels in homes/buildings in this area.

(6) The following information must be included exactly as written. “For more information, call us at [*insert your telephone number*] or visit our website at [*insert your website link here*]. For more information on reducing lead exposure around your home/building and the health effects of lead, visit EPA’s website at [www.epa.gov/lead](http://www.epa.gov/lead) or contact your health care provider.”

(7) Community water systems must also include the following elements:

1. Tell consumers how to get their water tested.
2. Discuss lead in plumbing components and the difference between low lead and lead free.
- b. Delivery of public education materials.*

(1) Outreach to non-English speaking consumers. For public water systems serving a large proportion of non-English speaking consumers, as determined by the department, the public education materials must contain information in the appropriate language(s) regarding the importance of the notice or contain a telephone number or address where persons served may contact the water system to obtain a translated copy of the public education materials or to request assistance in the appropriate language.

(2) Delivery of public education at CWS. A CWS that exceeds the lead action level on the basis of tap water samples collected in accordance with 567—paragraph 41.4(1)“c” and that is not already conducting public education tasks under 42.2(2) must conduct the public education tasks within 60 days of the date of notification of the action level exceedance:

1. Deliver printed materials meeting the content requirements of 42.2(2)“a” to all bill-paying customers.

2. Contact customers who are most at risk by delivering education materials that meet the content requirements of 42.2(2)“a” to local public health agencies even if they are not located within the water system’s service area, along with an informational notice that encourages distribution to all the organization’s potentially affected customers or CWS’s users. The water system must contact the local public health agencies directly by phone or in person. The local public health agencies may provide a specific list of additional community-based organizations serving target populations, which may include organizations outside the service area of the water system. If such lists are provided, systems must deliver education materials that meet the content requirement of 42.2(2)“a” to all organizations on the provided lists.

3. Contact customers who are most at risk by delivering materials that meet the content requirements of 42.2(2)“a” to the following organizations that are located within the water system’s service area, along with an informational notice that encourages distribution to all the organization’s potentially affected customers or community public water supply system’s users:

- Public and private schools or school boards;
- Women, Infants, and Children (WIC) and Head Start programs;
- Public and private hospitals and medical clinics;
- Pediatricians;
- Family planning clinics; and
- Local welfare agencies.

4. Make a good-faith effort to locate the following organizations within the service area and to deliver to them materials that meet the content requirements of 42.2(2)“a,” along with an informational notice that encourages distribution to all potentially affected customers or users. The good-faith effort to contact at-risk customers may include requesting a specific contact list of these organizations from the local public health agencies, even if the agencies are not located within the water system’s service area:

- Licensed child care centers;
- Public and private preschools;
- Obstetricians, gynecologists, and midwives.

5. No less often than quarterly, provide information on or in each water bill as long as the system exceeds the action level for lead. The message on the water bill must include the following statement exactly as written except for the text in brackets for which the water system must substitute system-specific information: “[*insert name of water system*] found high levels of lead in drinking water in some homes. Lead can cause serious health problems. For more information, please call [*insert telephone number of water system*] or visit [*insert your website link here*].”

The message or delivery mechanisms can be modified in consultation with the department; specifically, the department may allow a separate mailing of public education materials to customers if the water system cannot place the information on water bills.

6. Post material meeting the content requirements of 42.2(2)“a” on the water system’s website if the system serves a population greater than 100,000.

7. Submit a press release to newspaper, television, and radio stations.

8. In addition to including those items previously listed, systems must implement at least three activities from one or more of the following categories. The educational content and selection of these activities must be determined in consultation with the department.

- Public service announcement;
- Paid advertisement;
- Public area information displays;
- Emails to customers;
- Public meetings;
- Household deliveries;
- Targeted individual customer contact;
- Direct material distribution to all multifamily homes and institutions; and
- Other methods approved by the department.

For systems that are required to conduct monitoring annually or less frequently, the end of the monitoring period is September 30 of the calendar year in which the sampling occurs, or if the department has established an alternate monitoring period, the last day of that period.

(3) Continuing public education at a CWS. As long as a CWS exceeds the action level, it must repeat the activities pursuant to 42.2(2)“b”(2) as follows:

1. A CWS shall repeat the tasks contained in 42.2(2)“b”(2)“1,” “2,” and “8” every 12 months.
2. A CWS shall repeat the tasks contained in 42.2(2)“b”(2)“5” with each billing cycle.
3. A CWS serving a population greater than 100,000 shall post and retain material on a publicly accessible website pursuant to 42.2(2)“b”(2)“6.”
4. A CWS shall repeat the task in 42.2(2)“b”(2)“7” twice every 12 months on a schedule agreed upon with the department. The department can allow activities in 42.2(2)“b”(2) to extend beyond the 60-day requirement if needed for implementation purposes on a case-by-case basis; however, this extension must be approved in writing by the department in advance of the 60-day deadline, and the system must already have initiated public education activities prior to the end of the 60-day deadline.

(4) Delivery of public education at an NTNC system. Within 60 days of the date of notification of the action level exceedance, an NTNC system shall deliver the public education materials specified as follows:

1. Post informational posters on lead in drinking water in a public place or common area in each of the buildings served by the system; and
2. Distribute informational pamphlets or brochures on lead in drinking water to each person served by the nontransient noncommunity water system. The department may allow the system to utilize electronic transmission in lieu of or combined with printed materials as long as at least the same coverage is achieved. If the system serves children 18 years of age and under, such as a school or child care facility, the public education notice must be provided to the parents or legal guardians of the children.

For systems that are required to conduct monitoring annually or less frequently, the end of the monitoring period is September 30 of the calendar year in which the sampling occurs or, if the department has established an alternate monitoring period, the last day of that period.

(5) Continuing public education at an NTNC system. An NTNC system shall repeat the tasks contained in 42.2(2)“b”(4) at least once during each calendar year in which the system exceeds the lead action level. The department can allow activities in 42.2(2)“b”(4) to extend beyond the 60-day requirement if needed for implementation purposes on a case-by-case basis; however, this extension must be approved in writing by the department in advance of the 60-day deadline, and the system must already have initiated public education activities prior to the end of the 60-day deadline.

(6) Discontinuation of public education activities. A CWS or NTNC system may discontinue delivery of public education materials if the system has met the lead action level during the most recent six-month monitoring period conducted pursuant to 567—paragraph 41.4(1)“c.” Such system shall recommence public education in accordance with 42.2(2) if the system subsequently exceeds the lead action level during any monitoring period.

(7) Special population CWS allowance. A CWS that meets the following criteria may apply to the department in writing for reduced public education and notification requirements:

1. The CWS is a facility, such as a prison or hospital, where the population served is not capable of or is prevented from making improvements to plumbing or installing point-of-use treatment devices; and

2. The CWS provides water as part of the cost of services provided and does not separately charge for water consumption.

If the department approves the request in writing, the CWS is not required to include the language in 42.2(2)“a”(7) and must deliver the public education in accordance with 42.2(2)“b”(4) and (5), in lieu of 42.2(2)“b”(2) and (3).

(8) CWS serving 3,300 or fewer people. A CWS serving 3,300 or fewer people may limit certain aspects of its public education programs as follows:

1. The system must implement at least one of the activities listed in 42.2(2)“b”(2)“8.”

2. The system may limit the distribution of the public education materials in 42.2(2)“b”(2)“2” and “3” to facilities and organizations served by the system that are most likely to be visited regularly by pregnant women and children.

3. The department may waive the requirements of 42.2(2)“b”(2)“7” for the system provided the system distributes notices to every household served by the system.

*c. Supplemental monitoring and notification of results.* A water system that fails to meet the lead action level on the basis of tap samples collected in accordance with 567—paragraph 41.4(1)“c” shall offer to sample the tap water of any customer who requests it. The system is not required to pay for collecting or analyzing the sample, nor is the system itself required to collect and analyze the sample.

[ARC 3735C, IAB 4/11/18, effective 5/16/18]

### **567—42.3(455B) Consumer confidence reports.**

**42.3(1) Applicability and purpose.** This rule applies to all community public water supply systems. The purpose of this rule is to establish the minimum requirements for the content of annual reports that community water systems must deliver to their customers. These reports must contain information on the quality of the water delivered by the systems and characterize the risks (if any) from exposure to contaminants in the drinking water in an accurate and understandable manner. The department may assign public notification requirements and assess administrative penalties to any community public water supply system which fails to fulfill the requirements of this rule.

#### **42.3(2) Reporting frequency.**

*a. Existing community water systems.* Existing community water systems must deliver the first report by October 19, 1999; the second report by July 1, 2000; and subsequent reports annually by July 1 thereafter.

*b. New community water systems.* New community water systems must deliver their first report by July 1 of the year after their first full calendar year in operation, and annually thereafter.

*c. A CWS which sells water to another CWS.* A community water system that sells water to another community water system must deliver the applicable information required in subrule 42.3(3) to the buyer (or consecutive) system:

(1) No later than April 19, 1999, for the 1998 report; by April 1, 2000, for the 1999 report; and annually by April 1 thereafter, or

(2) On a date mutually agreed upon by the seller and the purchaser, and specifically included in a contract between the parties.

When a consecutive system sells water to another community water system, the seller must provide all applicable information in 42.3(3) to the CWS buying the water from them.

**42.3(3) Content of the reports.** Each annual consumer confidence report must contain the following information, at a minimum:

*a. Source water identification.* The report must identify the source(s) of water delivered by the community public water supply system, including the following:

(1) Type of water (e.g., surface water, groundwater, groundwater purchased from another public water supply).

(2) Commonly used name of the aquifer, reservoir, or river (if any) and location of the body (or bodies) of water.

(3) If a source water assessment has been completed, notify consumers of the availability of this information and the means to obtain it. In addition, systems are encouraged to highlight in the report significant sources of contamination in the source water area if they have readily available information. Where a system has received a source water assessment from the department, the report must include a brief summary of the system's susceptibility to potential sources of contamination, using language provided by the department or its designee, or written by the owner or operator.

*b. Definitions.* Each report using any of the following terms must include the applicable definitions:

(1) "Maximum Contaminant Level Goal (MCLG)" means the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

(2) "Maximum Contaminant Level (MCL)" means the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

(3) "Maximum Residual Disinfectant Level Goal (MRDLG)" means the level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

(4) "Maximum Residual Disinfectant Level (MRDL)" means the highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

(5) A report which contains data on a contaminant for which EPA has set a treatment technique or an action level must include one or both of the following definitions, as applicable:

1. "Treatment technique (TT)" means a required process intended to reduce the level of a contaminant in drinking water.

2. "Action level (AL)" means the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

(6) A report that contains information regarding a Level 1 or Level 2 assessment required under 567—subrule 41.2(1) must include the applicable definitions:

1. "Level 1 Assessment" is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.

2. "Level 2 Assessment" is a very detailed study of the water system to identify potential problems and determine (if possible) why an *E. coli* MCL violation has occurred or why total coliform bacteria have been found in our water system on multiple occasions.

*c. Information on detected contaminants.* This paragraph specifies the requirements for information to be included in each report for contaminants subject to mandatory monitoring (except *Cryptosporidium*, which is listed in 42.3(3)"c"(2)) as follows: contaminants subject to an MCL, action level, MRDL, or treatment technique (regulated contaminants); contaminants for which monitoring is required by CFR Title 40, Part 141.40 (unregulated contaminants), 567—subrule 41.11(1) (sodium monitoring), and 567—41.15(455B) (other contaminants); and disinfection byproducts or microbial contaminants for which monitoring is required by 567—Chapters 40 to 43, except as provided under 42.3(3)"e"(1), and which are detected in the finished water. The ammonia monitoring conducted pursuant to 567—subrule 41.11(2) is not subject to this paragraph. For the purposes of this subrule, "detected" means at or above the levels prescribed by the following: inorganic

contaminants in 567—subparagraph 41.3(1)“e”(1); volatile organic contaminants in 567—paragraph 41.5(1)“b”; synthetic organic contaminants in 567—paragraph 41.5(1)“b”; radionuclide contaminants in 567—paragraph 41.8(1)“c”; disinfection byproducts in 567—paragraph 83.6(7)“a”(6)“3”; and other contaminants with health advisory levels, as assigned by the department.

(1) The data relating to these contaminants must be displayed in one table or in several adjacent tables. Any additional monitoring results which a community water system chooses to include in its report must be displayed separately.

1. The data must be derived from data collected to comply with departmental monitoring and analytical requirements during calendar year 1998 for the first report and subsequent calendar years thereafter. Where a system is allowed to monitor for contaminants less often than once a year, the table(s) must include the results and date of the most recent sampling and a brief statement indicating that the data presented in the report are from the most recent testing done in accordance with the regulations. No data older than five years need be included.

2. For detected regulated contaminants, which are listed in Appendix C, the table(s) must contain:

- The MCL for that contaminant, expressed as a number equal to or greater than 1.0 (as provided in Appendix C);

- The MCLG for that contaminant, expressed in the same units as the MCL;

- If there is no MCL for a detected contaminant, the table must indicate that there is a treatment technique, or specify the action level, applicable to that contaminant, and the report must include the definition for treatment technique or action level, as appropriate, specified in 42.3(3)“b”(4).

3. For contaminants subject to an MCL, except turbidity and total coliforms, the table must contain the highest contaminant level used to determine compliance with a primary drinking water standard and the range of detected levels, as follows:

- When compliance with the MCL is determined annually or less frequently: the highest detected level at any sampling point and the range of detected levels expressed in the same units as the MCL (such as inorganic compounds).

- When compliance with the MCL is determined by calculating a running annual average of all samples taken at a sampling point: the highest average of any of the sampling points and the range of all sampling points expressed in the same units as the MCL (such as organic compounds and radionuclides). For TTHM and HAA5 MCLs, systems must include the highest locational running annual average for TTHM and HAA5 and the range of individual sample results for all monitoring locations expressed in the same units as the MCL. If more than one location exceeds the TTHM or HAA5 MCL, the system must include the locational running annual averages for all locations that exceed the MCL.

- When compliance with an MCL is determined on a systemwide basis by calculating a running annual average of all samples at all sampling points: the average and range of detection expressed in the same units as the MCL.

NOTE: When rounding of results to determine compliance with the MCL is allowed by the regulations, rounding should be done prior to multiplying the results by the factor listed in Appendix C.

4. For turbidity: When it is reported pursuant to 567—43.5(455B), 567—43.9(455B), or 567—43.10(455B): the highest single measurement and the lowest monthly percentage of samples meeting the turbidity limits specified in 567—43.5(455B), 567—43.9(455B), or 567—43.10(455B) for the filtration technology being used. The report should include an explanation of the reasons for measuring turbidity.

5. For lead and copper: the 90th percentile value of the most recent round of sampling and the number of sampling sites exceeding the action level.

6. Rescinded IAB 4/11/18, effective 5/16/18.

7. For *E. coli* analytical results under 567—subrule 41.2(1), the total number of positive samples.

8. The likely source(s) of detected contaminants to the best of the owner’s or operator’s knowledge. Specific information regarding contaminants may be available in sanitary surveys and source water assessments, and should be used when available to the owner or operator. If the owner or operator lacks specific information on the likely contaminant source, the report must include one or

more of the typical sources for that contaminant listed in Appendix C, which are most applicable to the system.

9. If a community water system distributes water to its customers from multiple hydraulically independent distribution systems that are fed by different raw water sources, the table should contain a separate column for each service area and the report should identify each separate distribution system. Alternatively, systems may produce separate reports tailored to include data for each service area.

10. The table(s) must clearly identify any data indicating MCL, MRDL, or TT violations, and the report must contain a clear and readily understandable explanation of the violation including:

- The length of the violation,
- The potential adverse health effects,
- Actions taken by the system to address the violation, and
- The relevant language from Appendix C to describe the potential health effects.

11. For detected unregulated contaminants for which monitoring is required, except *Cryptosporidium*, the table(s) must contain the average and range at which the contaminant was detected. The report may include a brief explanation of the reasons for monitoring for unregulated contaminants.

12. Community public water supply systems may list the most recent results of the special sodium monitoring requirement according to 567—subrule 41.11(1) in the annual report, instead of providing a separate public notification.

13. If a contaminant which does not have an MCL, MRDL, TT, or AL is detected in the water, the PWS must contact the department for the specific health effects language, health advisory level, and contamination sources.

(2) If monitoring indicates that *Cryptosporidium* may be present in the source water or the finished water, or that radon may be present in the finished water, the report must include:

1. A summary of the *Cryptosporidium* monitoring results;
2. The radon monitoring results; and
3. An explanation of the significance of the results.

(3) If the system has performed additional monitoring which indicates the presence of other contaminants in the finished water, the system must report any results which may indicate a health concern. To determine if results may indicate a health concern, the community public water supply can determine if there is a current or proposed maximum contaminant level, maximum residual disinfectant level, treatment technique, action level, or health advisory by contacting the department or by calling the national Safe Drinking Water Hotline ((800)426-4791). The department considers the detection of a contaminant above a proposed MCL or health advisory to indicate possible health concerns. For such contaminants, the report should include:

1. The results of the monitoring; and
2. An explanation of the significance of the results noting the existence of a health advisory or a proposed regulation.

(4) If the system was required to comply with the federal Information Collection Rule pursuant to the Code of Federal Regulations Title 40 Part 141, it must include the results of monitoring in compliance with Sections 141.142 and 141.143. These results need only be included for five years from the date of the sample or until any of the detected contaminants become regulated and subject to routine monitoring requirements, whichever comes first.

*d. Compliance with 567—Chapters 40, 41, 42, and 43.* In addition to the requirements of paragraph 42.3(3)“c”(1)“9,” the report must note any violation that occurred during the year covered by the report of a requirement listed below and include a clear and readily understandable explanation of the violation, any potential adverse health effects, and the steps the system has taken to correct the violation. Note any violation of the following requirements:

(1) Monitoring and reporting of compliance data pursuant to 567—Chapters 41 and 43, which includes any contaminant with a maximum contaminant level, treatment technique, action level, or health advisory;

(2) Treatment techniques:

1. Filtration and disinfection prescribed by 567—43.5(455B). For systems which have failed to install adequate filtration or disinfection equipment or processes, or have had a failure of such equipment or processes which constitutes a violation, the report must include the following language as part of the explanation of potential adverse health effects: Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

2. Lead and copper control requirements. For systems which fail to take one or more actions prescribed by 567—Chapters 41 to 43 pertaining to lead and copper, the report must include the applicable language of Appendix C to this chapter for lead or copper, or both.

3. Acrylamide and epichlorohydrin control technologies prescribed by 567—subparagraph 41.5(1) “b”(3). For systems which violate the requirements of 567—subparagraph 41.5(1) “b”(3), the report must include the relevant language from Appendix C to this chapter.

(3) Record keeping of compliance data pursuant to 567—Chapters 40 to 43;

(4) Special monitoring requirements; and

(5) Violation of the terms of operation permit compliance schedule, or an administrative order or judicial order.

*e. Operation permit or administrative order with a schedule which extends the time period in which compliance must be achieved.* If a system has been issued a compliance schedule with an extension for compliance, the report must contain:

(1) An explanation of the reasons for the extension;

(2) The date on which the extension was issued;

(3) A brief status report on the steps the system is taking to install treatment, find alternative sources of water, or otherwise comply with the terms of the compliance schedule; and

(4) A notice of any opportunity for public input in the review or renewal of the compliance schedule.

*f. Mandatory report language for explanation of contaminant occurrence.* The reports must contain a brief explanation regarding contaminants which may reasonably be expected to be found in drinking water including bottled water. This explanation may include the language of the following subparagraphs (1) to (3). Subparagraph (4) is provided as a minimal alternative to subparagraphs (1) to (3). Systems may also develop their own comparable language. The report also must include the language of 42.3(3) “g.”

(1) The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

(2) Contaminants that may be present in source water include:

1. Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

2. Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban storm runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

3. Pesticides and herbicides, which may come from a variety of sources such as agriculture, storm water runoff, and residential uses.

4. Organic chemical contaminants, including synthetic and volatile organics, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff and septic systems.

5. Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

(3) In order to ensure that tap water is safe to drink, the department prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. The United States Food and Drug Administration regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

(4) Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the national Safe Drinking Water Hotline ((800)426-4791).

*g. Required additional health information.*

(1) All systems. All reports must prominently display the following language: Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the national Safe Drinking Water Hotline ((800)426-4791).

(2) Arsenic levels greater than 0.005 mg/L.

1. A system which detects arsenic at levels above 0.005 mg/L and less than or equal to 0.010 mg/L:

- Must include in its report a short information statement about arsenic, using language such as: While your drinking water meets EPA's standard for arsenic, it does contain low levels of arsenic. EPA's standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

- May write its own educational statement, but only in consultation with the department.

2. A community water system that detects arsenic above 0.010 mg/L and less than or equal to 0.05 mg/L must include the arsenic health effects language prescribed by Appendix C to this chapter.

(3) Nitrate levels greater than half the MCL (5.0 mg/L). A system which detects nitrate at levels above 5.0 mg/L, but below the MCL:

1. Must include a short informational statement about the impacts of nitrate on children using language such as: Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant you should ask advice from your health care provider.

2. May write its own education statement, but only in consultation with the department.

(4) Nitrite levels greater than half the MCL (0.50 mg/L). A system which detects nitrite at levels above 0.50 mg/L, but below the MCL:

1. Must include a short informational statement about the impacts of nitrite on children using language such as: Nitrite in drinking water at levels above 1 ppm is a health risk for infants of less than six months of age. High nitrite levels in drinking water can cause blue baby syndrome. If you are caring for an infant you should ask advice from your health care provider.

2. May write its own education statement, but only in consultation with the department.

(5) Lead information statement for all CWS. Every report must include the following lead-specific information:

1. A short informational statement about lead in drinking water and the effects it has on children. The statement must include the following information:

"If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from material and components associated with service lines and home plumbing. [insert name of system] is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water,

testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline (800)426-4791 or at [www.epa.gov/safewater/lead](http://www.epa.gov/safewater/lead).”

2. A system may write its own educational statement, but only in consultation with the department.

(6) Total trihalomethane (TTHM) levels above 0.080 mg/L but less than the MCL. Community water systems that detect TTHM above 0.080 mg/L, but below the MCL in 567—subrule 41.5(1), as an annual average, monitored and calculated under the provisions of 567—paragraph 41.5(1) “e,” must include the health effects language for total trihalomethanes listed in Appendix C.

*h. Additional mandatory report requirements.*

(1) The report must include the telephone number of the owner, operator, or designee of the community water system as a source of additional information concerning the report.

(2) In communities with a large proportion of non-English speaking residents, as determined by the department, the report must contain information in the appropriate language(s) regarding the importance of the report or contain a telephone number or address where such residents may contact the system to obtain a translated copy of the report or assistance in the appropriate language.

(3) The report must include information (e.g., time and place of regularly scheduled board meetings) about opportunities for public participation in decisions that may affect the quality of the water.

(4) The systems may include such additional information as they deem necessary for the public education consistent with, and not detracting from, the purpose of the report.

(5) Systems required to comply with 567—41.7(455B), the groundwater rule, must include the following when applicable:

1. Any groundwater system that receives notice from the department of a significant deficiency must inform its customers of any significant deficiency that is uncorrected at the time of the next report. The system must continue to inform the public annually until the department determines that particular significant deficiency is corrected. Each report must include the following elements:

- The nature of the particular significant deficiency and the date the significant deficiency was identified by the department; and
- For each significant deficiency, the department-approved plan and schedule for correction, including interim measures, progress to date, and any interim measures completed.

Only if directed by the department, a system with significant deficiencies that have been corrected before the next report is issued must inform its customers of the significant deficiency, how the deficiency was corrected, and the date of correction.

2. Any groundwater system that receives notice from the department or laboratory of a fecal indicator-positive groundwater source sample that is not invalidated by the department under 567—paragraph 41.7(3) “d” must inform its customers of any fecal indicator-positive groundwater source sample in the next report. The system must continue to inform the public annually until the department determines that the fecal contamination in the groundwater source is addressed under 567—paragraph 41.7(4) “a.” Each report must include the following elements:

- The source of the fecal contamination (if the source is known) and the dates of the fecal indicator-positive groundwater source samples;
- Whether the fecal contamination in the groundwater source has been addressed under 567—paragraph 41.7(4) “a” and the date of such action;
- For each fecal contamination in the groundwater source that has not been addressed under 567—paragraph 41.7(4) “a,” the department-approved plan and schedule for correction, including interim measures, progress to date, and any interim measures completed; and
- If the system receives notice of a fecal indicator-positive groundwater source sample that is not invalidated by the department under 567—paragraph 41.7(3) “d,” the potential health effects, using the “Fecal coliform or *E. coli*” or “Fecal Indicators (enterococci or coliphage)” health effects language of Appendix C in Chapter 42.

(6) Pursuant to 567—subrule 41.2(1), any system required to comply with the Level 1 assessment requirement or a Level 2 assessment requirement that is not due to an *E. coli* MCL violation must include

in the report the text in 42.3(3)“h”(6)“1” to “3” as appropriate, filling in the blanks accordingly and including the text found in the bulleted paragraphs of 42.3(3)“h”(6)“4” if appropriate.

1. Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that the potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and to correct any problems that were found during these assessments.

2. During the past year, we were required to conduct [*insert number of required Level 1 assessments*] Level 1 assessment(s). [*insert number of completed Level 1 assessments*] Level 1 assessment(s) were completed. In addition, we were required to take [*insert number of required corrective actions*] corrective actions, and we completed [*insert number of completed corrective actions*] of these actions.

3. During the past year, [*insert number of required Level 2 assessments*] Level 2 assessments were required to be completed for our water system. [*insert number of completed Level 2 assessments*] Level 2 assessment(s) were completed. In addition, we were required to take [*insert number of required corrective actions*] corrective actions, and we completed [*insert number of completed corrective actions*] of these actions.

4. Any system that has failed to complete all the required assessments or correct all identified sanitary defects is in violation of the treatment technique requirement and must also include one or both of the following statements, as appropriate:

- During the past year, we failed to conduct all of the required assessment(s).
- During the past year, we failed to correct all identified defects that were found during the assessment.

(7) Pursuant to 567—subrule 41.2(1), any system required to conduct a Level 2 assessment due to an *E. coli* MCL violation must include in the report the text in 42.3(3)“h”(7)“1” and “2” as appropriate, filling in the blanks accordingly and including the text found in the bulleted paragraphs of 42.3(3)“h”(7)“3” if appropriate.

1. *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems. We found *E. coli* bacteria, indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and to correct any problems that were found during these assessments.

2. We were required to complete a Level 2 assessment because we found *E. coli* bacteria in our water system. In addition, we were required to take [*insert number of required corrective actions*] corrective actions, and we completed [*insert number of completed corrective actions*] of these actions.

3. Any system that has failed to complete the required assessment or correct all identified sanitary defects is in violation of the treatment technique requirement and must also include one or both of the following statements, as appropriate:

- We failed to conduct the required assessment.
- We failed to correct all sanitary defects that were identified during the assessment that we conducted.

(8) Pursuant to 567—subrule 41.2(1), if a system detects *E. coli* and violated the *E. coli* MCL, in addition to completing the table as required in 42.3(3)“c,” the system must include one or more of the following statements to describe any noncompliance, as applicable:

1. We had an *E. coli*-positive repeat sample following a total coliform-positive routine sample.
2. We had a total coliform-positive repeat sample following an *E. coli*-positive routine sample.
3. We failed to take all required repeat samples following an *E. coli*-positive routine sample.
4. We failed to test for *E. coli* when any repeat sample tested positive for total coliform.

(9) Pursuant to 567—subrule 41.2(1), if a system detects *E. coli* and has not violated the *E. coli* MCL, in addition to completing the table as required in 42.3(3)“c,” the system may include a statement that explains that although the system has detected *E. coli*, the system is not in violation of the *E. coli* MCL.

**42.3(4) Report delivery.**

*a. Required report recipients.* Each community water system must mail or otherwise directly deliver one copy of the report to each customer.

(1) The system must make a good-faith effort to reach consumers who do not get water bills, using means recommended by the department. An adequate good-faith effort will be tailored to the consumers who are served by the system but are not bill-paying customers, such as renters or workers. A good-faith effort to reach consumers would include a mix of methods appropriate to the particular system such as:

1. Posting the reports on the Internet;
2. Mailing to postal patrons in metropolitan areas;
3. Advertising the availability of the report in the news media;
4. Publication in a local newspaper;
5. Posting in public places such as cafeterias or lunchrooms of public buildings;
6. Delivery of multiple copies for distribution by single-billed customers such as apartment buildings or large private employers;
7. Delivery to community organizations.

(2) No later than the date the system is required to distribute the report to its customers, each community water system must mail a copy of the report to the department, followed within three months by a certification that the report has been distributed to customers, and that the information is correct and consistent with the compliance monitoring data previously submitted to the department.

(3) No later than the date the system is required to distribute the report to its customers, each community water system must deliver the report to any other agency or clearinghouse identified by the department, such as the Iowa department of public health or county board of health.

*b. Availability of report.* Each community water system must make its report available to the public upon request. Each community water system serving 100,000 or more persons must post its current year’s report to a publicly accessible site on the Internet.

*c. Waiver from mailing requirements for systems serving fewer than 10,000 persons.* All community public water supply systems with fewer than 10,000 persons served will be granted the waiver, except for those systems which have the following: one or more exceedances of a maximum contaminant level, treatment technique, action level, or health advisory; an administrative order; a court order; significant noncompliance with monitoring or reporting requirements; or an extended compliance schedule contained in the operation permit. Even though a public water supply system has been granted a mailing waiver, subparagraphs 42.3(4)“a”(2) and (3) and paragraph 42.3(4)“b” still apply to all community public water supply systems. A mailing waiver is not allowed for the report covering the year during which one of the previously listed exceptions occurred. Systems which use the mailing waiver must:

(1) Publish the reports in one or more local newspapers serving the area in which the system is located;

(2) Inform the customers that the reports will not be mailed, either in the newspapers in which the reports are published or by other means approved by the department; and

(3) Make the reports available to the public upon request.

*d. Waiver from mailing requirements for systems serving 500 or fewer in population.* All community public water supply systems serving 500 or fewer persons will be granted the waiver, except for those systems which have the following: one or more exceedances of a maximum contaminant level, treatment technique, action level, or health advisory; an administrative order; a court order; significant noncompliance with monitoring or reporting requirements; or an extended compliance schedule contained in the operation permit. Systems serving 500 or fewer persons which use the waiver may forego the requirements of subparagraphs 42.3(4)“c”(1) and (2) if they provide notice at least once per year to their customers by mail, door-to-door delivery, or by posting that the report is available upon

request, in conspicuous places within the area served by the system acceptable to the department. A mailing waiver is not allowed for the report covering the year during which one of the previously listed exceptions occurred. Even though a public water supply system has been granted a mailing waiver, subparagraphs 42.3(4)“a”(2) and (3) and paragraph 42.3(4)“b” still apply to all community public water supply systems.

[ARC 9915B, IAB 12/14/11, effective 1/18/12; ARC 3735C, IAB 4/11/18, effective 5/16/18]

#### **567—42.4(455B) Reporting.**

##### **42.4(1) Reporting requirements other than for lead and copper.**

a. When required by the department, the supplier of water shall report to the department within ten days following a test, measurement or analysis required to be made by 567—Chapter 40, 41, 42, or 43 the results of that test, measurement or analysis in the form and manner prescribed by the department. This shall include reporting of all positive detects within the same specific analytical method.

b. Except where a different reporting period is specified in this rule or 567—Chapters 41 and 43, the supplier of water shall report to the department within 48 hours after any failure to comply with the monitoring requirements set forth in 567—Chapters 41 and 43. The supplier of water shall also notify the department within 48 hours of failure to comply with any primary drinking water regulations.

c. The public water supply system, within ten days of completion of each public notification required pursuant to 567—42.1(455B) for the initial public notice and any repeat notices, shall submit to the department a certification that it has fully complied with the public notification rules. The public water system must include with this certification a representative copy of each type of notice distributed, published, posted, or made available to the persons served by the system or to the media.

d. Groundwater rule. Additional reporting requirements for the groundwater rule are listed in 567—paragraph 41.7(6)“a.”

e. Coliform rule. Additional reporting requirements for the coliform rule are listed in 567—paragraph 41.2(1)“n.”

**42.4(2) Lead and copper reporting requirements.** All water systems shall report all of the following information to the department in accordance with this subrule.

a. *Reporting requirements for tap water monitoring for lead and copper and for water quality parameter monitoring.*

(1) Except as provided in 42.4(2)“a”(1)“8,” a water system shall report the information specified below for all tap water samples specified in 567—paragraph 41.4(1)“c” and for all water quality parameter samples specified in 567—paragraph 41.4(1)“d” within the first ten days following the end of each applicable monitoring period specified in 567—41.4(455B) (i.e., every six months, annually, or every three years). For monitoring periods with a duration of less than six months, the end of the monitoring period is the last date samples can be collected during that period as specified in 567—paragraphs 41.4(1)“c” and 41.4(1)“d.”

1. The results of all tap samples for lead and copper including the location of each site and the criteria under which the site was selected for the system’s sampling pool;

2. Documentation for each tap water lead or copper sample for which the water system requests invalidation pursuant to 567—paragraph 41.4(1)“c”(6)“2”;

3. Rescinded IAB 1/7/04, effective 2/11/04;

4. The 90th percentile lead and copper concentrations measured from among all lead and copper tap water samples collected during each monitoring period (calculated in accordance with 567—subparagraph 41.4(1)“b”(3));

5. With the exception of initial tap sampling conducted pursuant to 567—paragraph 41.4(1)“c”(4)“1,” the system shall designate any site which was not sampled during previous monitoring periods, and include an explanation of why sampling sites have changed;

6. The results of all tap samples for pH and, where applicable, alkalinity, calcium, conductivity, temperature, and orthophosphate or silica collected under 567—subparagraphs 41.4(1)“d”(2) through (5);

7. The results of all samples collected at the entry point(s) to the distribution system for applicable water quality parameters under 567—subparagraphs 41.4(1)“d”(2) and (5); and

8. A water system shall report the results of all water quality parameter samples collected under 567—subparagraphs 41.4(1)“d”(3) through (6) during each six-month monitoring period specified in 567—subparagraph 41.4(1)“d”(4) within the first ten days following the end of the monitoring period, unless the department has specified a more frequent reporting requirement.

(2) Certain systems that do not have enough taps that can provide first-draw samples that have met the six-hour stand time criteria, such as an NTNC that has 24-hour operation or a CWS that meets the criteria of 42.2(2)“b”(7), must either:

1. In the case where the department has not approved the non-first-draw sample sites, provide written documentation to the department identifying stand times and locations for enough non-first-draw samples to make up its sampling pool under 567—paragraph 41.4(1)“c”(2)“5” by July 1, 2003; or

2. If the department has already approved the non-first-draw sample sites selected by the system, identify each site that did not meet the six-hour minimum stand time and the length of stand time for that particular substitute sample collected pursuant to 567—paragraph 41.4(1)“c”(2)“5.” Certain systems include this information in writing with the lead and copper tap sample results required to be submitted pursuant to 567—paragraph 41.4(1)“d”(1)“1.”

(3) At a time specified by the department or, if no specific time is designated by the department, then as early as possible prior to the addition of a new source or any long-term change in water treatment, a water system that has optimized corrosion control under 567—subparagraph 43.7(1)“b”(3), a water system subject to reduced monitoring pursuant to 567—paragraph 41.4(1)“c”(4)“4,” or a water system subject to a monitoring waiver pursuant to 567—subparagraph 41.4(1)“c”(7) shall send written documentation to the department describing the change or addition. The department must review and approve the addition of a new source or long-term change in treatment before it is implemented by the water system. Examples of long-term treatment changes include the addition of a new treatment process or modification of an existing treatment process. Examples of modifications include the switching of secondary disinfectants, switching of coagulants (e.g., alum to ferric chloride), and switching of corrosion inhibitor products (e.g., orthophosphate to blended phosphate). Long-term changes can include dose changes to existing chemicals if the system is planning long-term changes to its finished water pH or residual inhibitor concentration. Long-term treatment changes would not include chemical dose fluctuations associated with daily water quality changes. In those instances where prior department approval of the treatment change or new source is not required, water systems are encouraged to provide the notification to the department beforehand to minimize the risk that the treatment change or new source will adversely affect optimal corrosion control.

(4) Any small system applying for a monitoring waiver under 567—subparagraph 41.4(1)“c”(7), or subject to a waiver granted pursuant to 567—paragraph 41.4(1)“c”(7)“3,” shall provide the following information to the department in writing by the specified deadline:

1. By the start of the first applicable monitoring period in 567—subparagraph 41.4(1)“c”(4), any small water system applying for a monitoring waiver shall provide the documentation required to demonstrate that it meets the waiver criteria of 567—paragraphs 41.4(1)“c”(7)“1” and “2.”

2. No later than nine years after the monitoring previously conducted pursuant to 567—paragraph 41.4(1)“c”(7)“2” or 567—paragraph 41.4(1)“c”(7)“4,” first bulleted paragraph, each small system desiring to maintain its monitoring waiver shall provide the information required by 567—paragraph 41.4(1)“c”(7)“4,” first and second bulleted paragraphs.

3. No later than 60 days after the system becomes aware that it is no longer free of lead-containing or copper-containing materials, as appropriate, each small system with a monitoring waiver shall provide written notification to the department, setting forth the circumstances resulting in the lead-containing or copper-containing materials being introduced into the system and what corrective action, if any, the system plans to remove these materials.

(5) Each groundwater system that limits water quality parameter monitoring to a subset of entry points under 567—paragraph 41.4(1)“d”(3)“3” shall provide, by the commencement of such monitoring, written correspondence to the department that identifies the selected entry points and

includes information sufficient to demonstrate that the sites are representative of water quality and treatment conditions throughout the system.

*b. Source water monitoring reporting requirements.*

(1) A water system shall report the sampling results for all source water samples collected in accordance with 567—paragraph 41.4(1)“e” within the first ten days following the end of each source water monitoring period (i.e., annually, per compliance period or per compliance cycle) specified in 567—paragraph 41.4(1)“e.”

(2) With the exception of the first round of source water sampling conducted pursuant to 567—subparagraph 41.4(1)“e”(2), the system shall specify any site which was not sampled during previous monitoring periods, and include an explanation of why the sampling point has changed.

*c. Corrosion control treatment reporting requirements.* By the applicable dates under 567—subrule 43.7(1), systems shall report the following information:

(1) For systems demonstrating that they have already optimized corrosion control, information required in 567—subparagraph 43.7(1)“b”(2) or (3).

(2) For systems required to optimize corrosion control, their recommendation regarding optimal corrosion control treatment under 567—paragraph 43.7(2)“a.”

(3) For systems required to evaluate the effectiveness of corrosion control treatments under 567—paragraph 43.7(2)“c,” the information required by that paragraph.

(4) For systems required to install optimal corrosion control designated by the department under 567—paragraph 43.7(2)“d,” a letter certifying that the system has completed installing that treatment.

*d. Source water treatment reporting requirements.* By the applicable dates in 567—subparagraph 43.7(3)“b”(1), systems shall provide the following information to the department:

(1) If required under 567—subparagraph 43.7(3)“b”(1), their recommendation regarding source water treatment;

(2) For systems required to install source water treatment under 567—subparagraph 43.7(3)“b”(1), a letter certifying that the system has completed installing the treatment designated by this department within 24 months after the department designated the treatment.

*e. Lead service line replacement reporting requirements.* Systems shall report the following information to demonstrate compliance with the requirements of 567—subrule 43.7(4):

(1) No later than 12 months after the end of a monitoring period in which a system exceeds the lead action level in sampling referred to in 567—paragraph 43.7(4)“a,” the system must submit to the department written documentation of the material evaluation pursuant to 567—subparagraph 41.4(1)“c”(1), identify the initial number of lead service lines in its distribution system at the time the system exceeds the lead action level, and provide the department with the system’s schedule for replacing annually at least 7 percent of the initial number of lead service lines in its distribution system.

(2) No later than 12 months after the end of a monitoring period in which a system exceeds the lead action level in sampling referred to in 567—paragraph 43.7(4)“a” and every 12 months thereafter, the system shall demonstrate in writing that the system has either:

1. Replaced in the previous 12 months at least 7 percent of the initial lead service lines (or a greater number of lines specified by the department under 567—paragraph 43.7(4)“e” in its distribution system), or

2. Conducted sampling which demonstrates that the lead concentration in all service line samples from individual line(s), taken pursuant to 567—paragraph 41.4(1)“c”(2)“3,” is less than or equal to 0.015 mg/L. In such cases, the total number of lines replaced and those lines which meet the criteria in 567—paragraph 43.7(4)“c” shall equal at least 7 percent of the initial number of lead lines identified under 42.4(2)“e”(1) or the percentage specified by the department under 567—paragraph 43.7(4)“e.” A lead service line meeting the criteria of 567—paragraph 43.7(4)“c” may only be used to comply with the 7 percent criteria for a specific year, and may not be used again to calculate compliance with the 7 percent criteria in future years.

(3) The annual letter submitted to the department under 42.4(2)“e”(2) shall contain the following information:

1. The number of lead service lines scheduled to be replaced during the previous year of the system's replacement schedule;

2. The number and location of each lead service line replaced during the previous year of the system's replacement schedule;

3. If measured, the water lead concentration and location of each lead service line sampled, the sampling method, and the date of sampling.

(4) Any system which collects lead service line samples following partial lead service line replacement required by 567—subrule 43.7(4) shall report the results to the department within the first ten days of the month following the month in which the system receives the laboratory results, or as specified by the department. Systems shall also report any additional information as specified by the department, and in a time and manner prescribed by the department, to verify that all partial lead service line replacement activities have taken place.

*f. Public education program reporting requirements.*

(1) Any water system that is subject to the public education requirements in 42.2(2) shall, within ten days after the end of each period in which the system is required to perform public education in accordance with 42.2(2) "b," send written documentation to the department that contains:

1. A demonstration that the system has delivered the public education materials that meet the content requirements in 42.2(2) "a" and the delivery requirements in 42.2(2) "b"; and

2. A list of all the newspapers, radio stations, television stations, facilities and organizations to which the system delivered public education materials during the period in which the system was required to perform public education tasks.

(2) Unless required by the department, a system that previously has submitted the information required by 42.4(2) "f"(1) "2" need not resubmit the same information, provided there have been no changes in the distribution list and the system certifies that the public education materials were distributed to the same list previously submitted. The certification is due within ten days after the end of each period in which the system is required to perform public education.

(3) No later than three months following the end of the monitoring period, each system must mail a sample copy of the consumer notification of tap results to the department along with a certification that the notification has been distributed in a manner consistent with the requirements of 42.2(1).

*g. Reporting of additional monitoring data.* A system which collects sampling data in addition to that required by 567—Chapters 41 and 43 shall report the results to the department within the first ten days following the end of the applicable monitoring period under 567—paragraphs 41.4(1) "c," "d," and "e" during which the samples are collected.

**42.4(3) Operation and maintenance for PWS.**

*a. Required records of operation.*

(1) Applicability. Monthly records of operation shall be completed by all public water supplies, on forms provided by the department or on similar forms, unless a public water supply meets all of the following conditions:

1. Supplies an annual average of not more than 25,000 gpd or serves no more than an average of 250 individuals daily;

2. Is a community public water supply and does not provide any type of treatment, or is a noncommunity system (NTNC and TNC) which has only a cation-exchange softening or iron/manganese removal treatment unit, and meets the requirements of 42.4(3) "a"(2) "7";

3. Does not utilize either a surface water or a groundwater under the direct influence of surface water either in whole or in part as a water source;

4. Does not use a treatment technique such as blending to achieve compliance with a maximum contaminant level, treatment technique, action level, or health advisory.

The reports shall be completed as described in 42.4(3) "a"(2) and maintained at the facility for inspection by the department for a period of five years. For CWS and NTNC PWSs, the monthly operation report must be signed by the certified operator in charge. For TNC PWSs, the monthly operation report, if required by the department, must be signed by the owner or the owner's designee.

All public water supplies using a surface water or influenced groundwater source must also comply with the applicable record-keeping requirements in 567—43.5(455B), 567—43.9(455B), 567—43.10(455B), and 567—43.11(455B).

(2) Contents. Monthly operation reports shall be completed as follows:

1. Pumpage or flow. Noncommunity supplies shall measure and record the total water used each week. It is recommended that a daily measurement and recording be made. Community supplies shall measure and record daily water used. Reporting of pumpage or flow may be required in an operation permit where needed to verify MCL compliance.

2. Treatment effectiveness. Where treatment is practiced, the intended effect of the treatment shall be measured at locations and by methods which best indicate effectiveness of the treatment process. These measurements shall be made pursuant to Appendix B of this chapter. Daily monitoring is seven days a week unless otherwise specified by the department.

3. Treatment effectiveness for a primary standard. Where the raw water quality does not meet the requirements of 567—Chapters 41 and 43 and treatment is practiced for the purpose of complying with a maximum contaminant level, action level, health advisory, or treatment technique criteria, daily measurement of the primary standard constituent or an appropriate indicator constituent designated by the department shall be recorded. The department will require reporting of these results in the operation permit to verify MCL compliance.

4. Treatment effectiveness for a secondary standard. Where treatment is practiced for the purpose of achieving the recommended level of any constituent designated in the federal secondary standards, measurements shall be measured and recorded at a frequency specified in Appendix B. Daily monitoring is seven days a week unless otherwise specified by the department.

5. Chemical application. Chemicals such as fluoride, iodine, bromine and chlorine, which are potentially toxic in excessive concentration, shall be measured and recorded daily. Recording shall include the amount of chemical applied each day. Where the supplier of water is attempting to maintain a residual of the chemical throughout the system, such as chlorine, the residual in the system shall be recorded daily. The quantity of all other chemicals applied shall be measured and recorded at least once each week.

6. Static water levels and pumping water levels must be measured and recorded once per month for all groundwater sources. More or less frequent measurements may be approved by the department where historical data justifies it.

7. Noncommunity systems (NTNC and TNC) are exempt from the self-monitoring requirements for cation-exchange softening and iron/manganese removal if the treatment unit:

- Is a commercially available “off-the-shelf” unit designed for home use;
- Is self-contained, requiring only a piping connection for installation;
- Operates throughout a range of 35 to 80 psi; and
- Has not been installed for the purpose of removing a contaminant which has a maximum contaminant level, treatment technique, action level, or health advisory.

*b. Chemical quality and application.* Any drinking water system chemical which is added to raw, partially treated, or finished water must be suitable for the intended use in a potable water system. Effective on October 1, 2000, the chemical must be certified by an American National Standards Institute (ANSI) accredited third party for conformance with American National Standards Institute/National Sanitation Foundation (ANSI/NSF) Standard 60, if such certification exists for the particular product, unless certified chemicals are not reasonably available for use, in accordance with guidelines provided by the department. If the chemical is not certified to meet the ANSI/NSF Standard 60 or no certification is available, the person seeking to supply or use the chemical must prove to the satisfaction of the department that the chemical is not toxic or otherwise a potential hazard in a potable public water supply system.

The supplier of water shall keep a record of all chemicals used. This record should include a clear identification of the chemical by brand or generic name and the dosage rate. When chemical treatment is applied with the intent of obtaining an in-system residual, the residuals will be monitored regularly.

When chemical treatment is applied and in-system residuals are not expected, the effectiveness of the treatment will be monitored through an appropriate indicative parameter.

(1) Continuous disinfection.

1. When required. Continuous disinfection must be provided at all public water supply systems, except for the following: groundwater supplies that have no treatment facilities or have only fluoride, sodium hydroxide or soda ash addition and that meet the bacterial standards as provided in 567—subrule 41.2(1) and do not show other actual or potential hazardous contamination by microorganisms. For a noncommunity system that only uses a cation-exchange softening unit that meets the requirements of 42.3(4)“a”(7), the requirement for continuous disinfection is based upon the system’s history of both coliform bacteria detection and compliance with the coliform bacteria monitoring requirements as provided in 567—subrule 41.2(1).

2. Method. Chlorine is the preferred disinfecting agent. Chlorination may be accomplished with liquid chlorine, calcium or sodium hypochlorites or chlorine dioxide. Other disinfecting agents will be considered, provided a residual can be maintained in the distribution system, reliable application equipment is available and testing procedures for a residual are recognized in Standard Methods for the Analysis of Water and Wastewater.

3. Chlorine residual. A minimum free available chlorine residual of 0.3 mg/L or a minimum total available chlorine residual of 1.5 mg/L must be continuously maintained throughout the water distribution system, except for those points in the distribution system that terminate as dead ends or areas that represent very low use when compared to usage throughout the rest of the distribution system as determined by the department. All systems using water to which chlorine has been added must monitor daily in the distribution system to ensure the minimum disinfectant residual concentration is met, including both wholesale systems and consecutive systems.

4. Test kit. A test kit capable of measuring free and combined chlorine residuals in increments no greater than 0.1 mg/L in the range below 0.5 mg/L, and in increments no greater than 0.2 mg/L in the range from 0.5 mg/L to 1.0 mg/L, and in increments no greater than 0.3 mg/L in the range from 1.0 mg/L to 2.0 mg/L must be provided at all chlorination facilities. The test kit must use a method of analysis that is recognized in Standard Methods for the Examination of Water and Wastewater.

5. Leak detection, control and operator protection. A bottle of at least 56 percent ammonium hydroxide must be provided at all gas chlorination installations for leak detection. Leak repair kits must be available where ton chlorine cylinders are used.

6. Other disinfectant residuals. If an alternative disinfecting agent is approved by this department, the residual levels and type of test kit used will be assigned by the department in accordance with and based upon analytical methods contained in Standard Methods for the Examination of Water and Wastewater.

(2) Phosphate compounds.

1. When phosphate compounds are to be added to any public water supply system which includes iron or manganese removal or ion-exchange softening, such compounds must be applied after the iron or manganese removal or ion-exchange softening treatment units, unless the director has received and approved an engineering report demonstrating the suitability for addition prior to these units in accordance with the provisions of 567—subrule 43.3(2). The department may require the discontinuance of phosphate addition where it interferes with other treatment processes, the operation of the water system or if there is a significant increase in microorganism populations associated with phosphate application.

2. The total phosphate concentration in the finished water must not exceed 10 mg/L as PO<sub>4</sub>.

3. Chlorine shall be applied to the phosphate solution in sufficient quantity to give an initial concentration of 10 mg/L in the phosphate solution. A chlorine residual must be maintained in the phosphate solution at all times.

4. Test kits capable of measuring polyphosphate and orthophosphate in a range from 0.0 to 10.0 mg/L in increments no greater than 0.1 mg/L must be provided.

5. Continuous application or injection of phosphate compounds directly into a well is prohibited.

(3) Fluorosilicic acid. Where fluorosilicic acid ( $\text{H}_2\text{SiF}_6$ , also called hydrofluosilicic acid) is added to a public water supply, the operator shall be equipped with a fluoride test kit with a minimum range of from 0.0 to 2.0 mg/L in increments no greater than 0.1 mg/L. Distilled water and standard fluoride solutions of 0.2 mg/L and 1.0 mg/L must be provided.

*c. Reporting and record-keeping requirements for systems using surface water and groundwater under the direct influence of surface water.* In addition to the monitoring requirements required by 42.4(3) "a" and "b," a public water system that uses a surface water source or a groundwater source under the direct influence of surface water must report monthly to the department the information specified in this subrule beginning June 29, 1993, or when filtration is installed, whichever is later.

(1) Turbidity measurements as required by 567—subrule 43.5(3) must be reported within ten days after the end of each month the system serves water to the public. Information that must be reported includes:

1. The total number of filtered water turbidity measurements taken during the month.
2. The number and percentage of filtered water turbidity measurements taken during the month which are less than or equal to the turbidity limits specified in 567—paragraphs 43.5(3) "b" through "e" for the filtration technology being used.
3. The date and value of any turbidity measurements taken during the month which exceed 5 NTU. If at any time the turbidity exceeds 5 NTU, the system must inform the department as soon as possible, but no later than 24 hours after the exceedance is known, in accordance with the public notification requirements in 42.1(2). This requirement is in addition to the monthly reporting requirement, pursuant to 567—43.5(455B).

(2) Disinfection information specified in 567—subrule 43.5(2) and paragraph 42.4(3) "b" must be reported to the department within ten days after the end of each month the system serves water to the public. Information that must be reported includes:

1. For each day, the lowest measurement of residual disinfectant concentration in mg/L in water entering the distribution system.
2. The date and duration of each period when the residual disinfectant concentration in water entering the distribution system fell below 0.3 mg/L free residual chlorine or 1.5 mg/L total residual chlorine and when the department was notified of the occurrence.

If at any time the residual falls below 0.3 mg/L free residual chlorine or 1.5 mg/L total residual chlorine in the water entering the distribution system, the system must notify the department as soon as possible, but no later than by the end of the next business day. The system also must notify the department by the end of the next business day whether or not the residual was restored to at least 0.3 mg/L free residual chlorine or 1.5 mg/L total residual chlorine within four hours. This requirement is in addition to the monthly reporting requirement, pursuant to 567—43.5(455B).

3. The information on the samples taken in the distribution system in conjunction with total coliform monitoring listed in 567—paragraph 43.5(2) "d" and pursuant to 567—subparagraph 41.2(1) "c"(7).

(3) Total inactivation ratio. The total inactivation ratio must be calculated each day the treatment plant is in operation, pursuant to 567—paragraph 43.5(2) "a," and reported on the monthly operation report. If the total inactivation ratio is below 1.0, the system must notify the department within 24 hours.

*d. Reporting and record-keeping requirements for disinfection byproducts, disinfectants, and disinfection byproduct precursors.*

(1) General requirements.

1. In addition to the monitoring requirements required by 42.4(3) "a" and "b," a CWS or NTNC public water system that adds a chemical disinfectant to the water in any part of the drinking water treatment process or which provides water that contains a chemical disinfectant must report monthly to the department the information specified in this paragraph by the dates listed in 567—subparagraphs 41.6(1) "a"(3) and 43.6(1) "a"(3). A TNC public water system which adds chlorine dioxide as a disinfectant or oxidant must report monthly to the department the information specified in this paragraph by the dates listed in 567—paragraph 43.6(1) "a"(3) "3."

2. Systems required to sample quarterly or more frequently must report to the department within ten days after the end of each quarter in which samples were collected, notwithstanding the public

notification provisions of 567—42.1(455B). Systems required to sample less frequently than quarterly must report to the department within ten days after the end of each monitoring period in which samples were collected.

(2) Disinfection byproducts. Systems must report the information specified in the following table:

Disinfection Byproducts Reporting Table

| If you are a ...  | You must report ...  |
|---|--|
| System monitoring for TTHMs and HAA5 under the requirements of 567—subparagraph 41.6(1)“c”(4) on a quarterly or more frequent basis                 | <ol style="list-style-type: none"> <li>1. The number of samples taken during the last quarter.</li> <li>2. The location, date, and result of each sample taken during the last quarter.</li> <li>3. The arithmetic average of all samples taken in the last quarter.</li> <li>4. The annual arithmetic average of the quarterly arithmetic averages for the last four quarters.*</li> <li>5. Whether the MCL was exceeded.</li> <li>6. Under Stage 2, any operational evaluation levels that were exceeded during the quarter, including the location and date and the calculated TTHM and HAA5 levels.</li> </ol> |
| System monitoring for TTHMs and HAA5 under the requirements of 567—subparagraph 41.6(1)“c”(4) less frequently than quarterly, but at least annually | <ol style="list-style-type: none"> <li>1. The number of samples taken during the last year.</li> <li>2. The location, date, and result of each sample taken during the last monitoring period.</li> <li>3. The arithmetic average of all samples taken over the last year.*</li> <li>4. Whether the MCL was exceeded.</li> </ol>   |
| System monitoring for TTHMs and HAA5 under the requirements of 567—subparagraph 41.6(1)“c”(4) less frequently than annually                         | <ol style="list-style-type: none"> <li>1. The location, date, and result of the last sample taken.</li> <li>2. Whether the MCL was exceeded.</li> </ol>  |
| System monitoring for chlorite under the requirements of 567—subparagraph 41.6(1)“c”(3)   | <ol style="list-style-type: none"> <li>1. The number of samples taken each month for the last 3 months.</li> <li>2. The location, date, and result of each sample taken during the last quarter.</li> <li>3. For each month in the reporting period, the arithmetic average of all samples taken in each three sample set taken in the month.</li> <li>4. Whether the MCL was exceeded, and in which month it was exceeded.</li> </ol>   |
| System monitoring for bromate under the requirements of 567—subparagraph 41.6(1)“c”(2)  | <ol style="list-style-type: none"> <li>1. The number of samples taken during the last quarter.</li> <li>2. The location, date, and result of each sample taken during the last quarter.</li> <li>3. The arithmetic average of the monthly arithmetic averages of all samples taken in the last year.</li> <li>4. Whether the MCL was exceeded.</li> </ol>  |

\*The calculation of the running annual average will transition from a system-wide RAA calculation under Stage 1 to a locational running annual average (LRAA) under Stage 2. The transition will commence according to the system schedule listed in 567—paragraph 41.6(1)“b.” Beginning at the end of the fourth calendar quarter that follows the compliance date, and at the end of each subsequent quarter, the system must report the arithmetic average of quarterly results for the last four quarters of each monitoring location. If the calculated LRAA based on fewer than four quarters of data would cause the MCL to be exceeded regardless of the monitoring results of subsequent quarters, the system must report this information to the department no later than the due date of the next compliance report.

(3) Disinfectants. In addition to the requirements in 567—subparagraph 41.2(1)“c”(7), systems must report the information specified in the following table:

Disinfectants Reporting Table

| If you are a ...  | You must report ...   |
|---|---|
| System monitoring for chlorine or chloramines under the requirements of 567—paragraph 43.6(1) “c”(1)“2” | <ol style="list-style-type: none"> <li>1. The number of samples taken during each month of the last quarter.</li> <li>2. The monthly arithmetic average of all samples taken in each month for the last 12 months.</li> <li>3. The arithmetic average of all monthly averages for the last 12 months.</li> <li>4. Whether the MRDL was exceeded.</li> </ol> |
| System monitoring for chlorine dioxide under the requirements of 567—paragraph 43.6(1) “c”(1)“3”        | <ol style="list-style-type: none"> <li>1. The dates, results, and locations of samples taken during the last quarter.</li> <li>2. Whether the MRDL was exceeded.</li> <li>3. Whether the MRDL was exceeded in any two consecutive daily samples and whether the resulting violation was acute or nonacute.</li> </ol>                                       |

(4) Disinfection byproduct precursors and enhanced coagulation or enhanced softening. Systems must report the information specified in the following table:

Disinfection Byproduct Precursors and Enhanced Coagulation or  
Enhanced Softening Reporting Table

| If you are a ...  | You must report ...   |
|---|---|
| System monitoring monthly or quarterly for TOC under the requirements of 567—subparagraph 43.6(1)“c”(2) and required to meet the enhanced coagulation or enhanced softening requirements in 567—subparagraph 43.6(3)“b”(2) or (3) | <ol style="list-style-type: none"> <li>1. The number of paired (source water and treated water, prior to continuous disinfection) samples taken during the last quarter.</li> <li>2. The location, date, and result of each paired sample and associated alkalinity taken during the last quarter.</li> <li>3. For each month in the reporting period that paired samples were taken, the arithmetic average of the percent reduction of TOC for each paired sample and the required TOC percent removal.</li> <li>4. Calculations for determining compliance with the TOC percent removal requirements, as provided in 567—subparagraph 43.6(3)“c”(1).</li> <li>5. Whether the system is in compliance with the enhanced coagulation or enhanced softening percent removal requirements in 567—paragraph 43.6(3)“b” for the last four quarters.</li> </ol>   |
| System monitoring monthly or quarterly for TOC under the requirements of 567—subparagraph 43.6(1)“c”(2) and meeting one or more of the alternative compliance criteria in 567—subparagraph 43.6(3)“a”(2) or (3)                   | <ol style="list-style-type: none"> <li>1. The alternative compliance criterion that the system is using.</li> <li>2. The number of paired samples taken during the last quarter.</li> <li>3. The location, date, and result of each paired sample and associated alkalinity taken during the last quarter.</li> <li>4. The running annual arithmetic average based on monthly averages (or quarterly samples) of source water TOC for systems meeting a criterion in 567—paragraph 43.6(3)“a”(2)“1” or “3” or of treated water TOC for systems meeting the criterion in 567—paragraph 43.6(3)“a”(2)“2.”</li> <li>5. The running annual arithmetic average based on monthly averages (or quarterly samples) of source water SUVA for systems meeting the criterion in 567—paragraph 43.6(3)“a”(2)“5” or of treated water SUVA for systems meeting the criterion in 567—paragraph 43.6(3)“a”(2)“6.”</li> <li>6. The running annual average of source water alkalinity for systems meeting the criterion in 567—paragraph 43.6(3)“a”(2)“3” and of treated water alkalinity for systems meeting the criterion in 567—paragraph 43.6(3)“a”(3)“1.”</li> <li>7. The running annual average for both TTHM and HAA5 for systems meeting the criterion in 567—paragraph 43.6(3)“a”(2)“3” or “4.”</li> <li>8. The running annual average for the amount of magnesium hardness removal (as CaCO<sub>3</sub>, in mg/L) for systems meeting the criterion in 567—paragraph 43.6(3)“a”(3)“2.”</li> </ol> <p>Whether the system is in compliance with the particular alternative compliance criterion in 567—subparagraph 43.6(3)“a”(2) or (3).</p> |
| SW/IGW system on reduced monitoring for TTHM/HAA5 under the requirements of 567—paragraph 41.6(3)“d”  | <p>For each treatment plant that treats surface or IGW source water, report the following:</p> <ol style="list-style-type: none"> <li>1. The number of source water TOC samples taken each month during the last quarter.</li> <li>2. The date and result of each sample taken during the last quarter.</li> <li>3. The quarterly average of monthly samples taken during the last quarter or the result of the quarterly sample.</li> <li>4. The running annual average (RAA) of quarterly averages from the past four quarters.</li> <li>5. Whether the TOC RAA exceeded 4.0 mg/L.</li> </ol>   |

[ARC 9915B, IAB 12/14/11, effective 1/18/12; ARC 3735C, IAB 4/11/18, effective 5/16/18]

**567—42.5(455B) Record maintenance.**

**42.5(1) Record maintenance requirements.** Any owner or operator of a public water system subject to the provisions of this rule shall retain on its premises or at a convenient location near its premises the following records:

*a. Analytical records.*

(1) Actual laboratory reports shall be kept, or data may be transferred to tabular summaries, provided that the following information is included:

1. The date, place, and time of sampling, and the name of the person who collected the sample;

2. Identification of the sample as to whether it was a routine distribution system sample, check sample, raw or process water sample or other special purpose sample;
  3. Date of analysis;
  4. Laboratory and person responsible for performing analysis;
  5. The analytical technique or method used; and
  6. The results of the analysis.
- (2) Record retention for specific analytes.
1. Microbiological and turbidity: Records of microbiological analyses and turbidity analyses made pursuant to 567—Chapters 41 and 43 shall be kept for not less than five years.
  2. Chemical: radionuclide, inorganic compounds, organic compounds. Records of chemical analyses made pursuant to 567—Chapter 41 shall be kept for not less than ten years. Additional lead and copper requirements are listed in 42.5(1)“b.”
    - b. Lead and copper record-keeping requirements.* A system subject to the requirements of 42.4(2) shall retain on its premises original records of all data and analyses, reports, surveys, public education, letters, evaluations, schedules, and any other information required by 567—41.4(455B) and 567—Chapter 43. Each water system shall retain the records required by this subrule for 12 years.
    - c. Records of action (violation correction).* Records of action taken by the system to correct violations of primary drinking water regulations (including administrative orders) shall be kept for not less than five years after the last action taken with respect to the particular violation involved.
    - d. Reports and correspondence relating to sanitary surveys.* Copies of any written reports, summaries, or communications relating to sanitary surveys of the system conducted by the system itself, by a private consultant, or by any local, state or federal agency, shall be kept for a period of not less than ten years after completion of the sanitary survey involved.
    - e. Operation or construction permits.* Records concerning an operation or a construction permit issued pursuant to 567—Chapter 43 to the system shall be kept for a period ending not less than ten years after the system achieves compliance with the maximum contaminant level, treatment technique, action level, or health advisory, or after the system in question completes the associated construction project.
    - f. Public notification.* Records of public notification, including the Consumer Confidence Report, public notification examples, and public notice certifications, must be kept for at least five years.
    - g. Self-monitoring requirement records.* The monthly records of operation must be completed as described in 42.4(3)“a”(2) and maintained at the facility for inspection by the department for a period of at least five years. All data generated at the facility to comply with the self-monitoring requirements must be retained for a period of at least five years, and must be maintained at the facility for inspection by the department. The data shall be in a form that allows easy retrieval and interpretation. Examples of data that must be retained include, but are not limited to, recorder charts, logbooks, bench sheets, SCADA records, and electronic files.
    - h. Monitoring plans.* Copies of monitoring plans developed pursuant to 567—Chapters 41, 42, and 43 shall be kept for the same period of time as the records of analyses taken under the plans are required to be kept, unless otherwise specified.
    - i. Groundwater rule.* Additional record-keeping requirements for the groundwater rule are listed in 567—paragraph 41.7(6)“b.”
    - j. Level 1 and 2 assessment forms and corrective action.* These record-keeping requirements pertain to the coliform bacteria requirements in 567—subrule 41.2(1).
      - (1) The system must maintain any assessment form, regardless of who conducts the assessment, and documentation of corrective actions completed as a result of those assessments, or other available summary documentation of the sanitary defects and corrective actions taken under 567—paragraph 41.2(1)“m” for department review. This record must be maintained by the system for a period not less than five years after completion of the assessment or corrective action.
      - (2) The system must maintain a record of any repeat sample taken that meets department criteria for an extension of the 24-hour period for collecting repeat samples as provided for under 567—paragraph 41.2(1)“j.”

**42.5(2)** Reserved.

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12; **ARC 3735C**, IAB 4/11/18, effective 5/16/18]

These rules are intended to implement Iowa Code sections 455B.171 through 455B.188 and 455B.190 through 455B.192.

APPENDIX A:  
STANDARD HEALTH EFFECTS LANGUAGE FOR PUBLIC NOTIFICATION

| Contaminant  | Standard Health Effects Language  |
|--|---|
| Microbiological Contaminants   |   |
| Coliform assessment and/or corrective action violations, under 567—subrule 41.2(1)       | <p>Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other potentially harmful waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessments to identify problems and to correct any problems that are found. [THE SYSTEM MUST INCLUDE THE FOLLOWING APPLICABLE SENTENCES]</p> <ul style="list-style-type: none"> <li>● We failed to conduct the required assessment.</li> <li>● We failed to correct all identified sanitary defects that were found during the assessment(s).</li> </ul>   |
| <i>E. coli</i>   | <i>E. coli</i> are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems.   |
| <i>E. coli</i> assessment and/or corrective action violations, under 567—subrule 41.2(1) | <p><i>E. coli</i> are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems. We violated the standard for <i>E. coli</i>, indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct a detailed assessment to identify problems and to correct any problems that are found. [THE SYSTEM MUST INCLUDE THE FOLLOWING APPLICABLE SENTENCES]</p> <ul style="list-style-type: none"> <li>● We failed to conduct the required assessment.</li> <li>● We failed to correct all identified sanitary defects that were found during the assessment(s).</li> </ul> |
| Seasonal system treatment technique violation  | <ul style="list-style-type: none"> <li>● When this violation includes the failure to monitor for total coliforms or <i>E. coli</i> prior to serving water to the public, the mandatory language for monitoring violation in 42.1(5) “c”(2) must be used.</li> <li>● When this violation includes failure to complete other actions, the appropriate elements found in 42.1(5) “c” to describe the violation must be used.</li> </ul>  |
| Fecal indicators for the groundwater rule ( <i>E. coli</i> , enterococci, and coliphage) | Fecal indicators are microbes whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term health effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.   |
| Groundwater Treatment Technique Requirements   |   |
| Groundwater rule treatment technique violations  | Inadequately treated or inadequately protected water may contain disease-causing organisms. These organisms can cause symptoms such as diarrhea, nausea, cramps, and associated headaches.  |
| Surface Water Treatment Technique Requirements   |   |
| Turbidity  | Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, protozoa, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches, and can lead to death.  |

| Contaminant   | Standard Health Effects Language  |
|---|---|
| Surface water/IGW system treatment technique requirements: CT ratio; residual disinfectant; log removal/inactivation of <i>Giardia</i> , viruses, and <i>Cryptosporidium</i> ; or filter backwash recycling | Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, protozoa, and parasites, which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches, and can lead to death.   |
| Inorganic Chemical Contaminants   |   |
| Antimony  | Some people who drink water containing antimony well in excess of the MCL over many years could experience increases in blood cholesterol and decreases in blood sugar.   |
| Arsenic   | Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.   |
| Asbestos  | Some people who drink water containing asbestos in excess of the MCL over many years may have an increased risk of developing benign intestinal polyps.   |
| Barium  | Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure.  |
| Beryllium   | Some people who drink water containing beryllium well in excess of the MCL over many years could develop intestinal lesions.  |
| Cadmium   | Some people who drink water containing cadmium in excess of the MCL over many years could experience kidney damage.   |
| Chromium, total   | Some people who drink water containing chromium well in excess of the MCL over many years could experience allergic dermatitis.   |
| Copper  | Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.  |
| Cyanide   | Some people who drink water containing cyanide well in excess of the MCL over many years could experience nerve damage or problems with their thyroid.  |
| Fluoride  | Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Fluoride in drinking water above 2.0 mg/L may cause mottling of children's teeth, usually in children less than nine years of age. Mottling, also known as dental fluorosis, may include brown staining and pitting of the teeth, and occurs only in developing teeth before they erupt from the gums. |
| Lead  | Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.   |
| Mercury, inorganic  | Some people who drink water containing inorganic mercury well in excess of the MCL over many years could experience kidney damage.  |
| Nitrate   | Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.   |
| Nitrite   | Infants below the age of six months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.   |
| Total Nitrate and Nitrite   | Infants below the age of six months who drink water containing nitrate and nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.   |
| Selenium  | Selenium is an essential nutrient. However, some people who drink water containing selenium in excess of the MCL over many years could experience loss of hair or fingernails, numbness in fingers or toes, or problems with their circulation.   |

| Contaminant                             | Standard Health Effects Language  |
|---|---|
| Thallium                                | Some people who drink water containing thallium in excess of the MCL over many years could experience hair loss, changes in their blood, or problems with their kidneys, intestines, or liver.  |
| Synthetic Organic Chemical Contaminants |   |
| 2,4-D                                   | Some people who drink water containing the weed killer 2,4-D well in excess of the MCL over many years could experience problems with their kidneys, liver, or adrenal glands.  |
| 2,4,5-TP (Silvex)                       | Some people who drink water containing Silvex in excess of the MCL over many years could experience liver problems.   |
| Alachlor                                | Some people who drink water containing alachlor in excess of the MCL over many years could have problems with their eyes, liver, kidneys, or spleen, or experience anemia, and may have an increased risk of getting cancer.              |
| Atrazine                                | Some people who drink water containing atrazine well in excess of the MCL over many years could experience problems with their cardiovascular system or have reproductive difficulties.   |
| Benzo(a)pyrene (PAHs)                   | Some people who drink water containing benzo(a)pyrene in excess of the MCL over many years may experience reproductive difficulties and may have an increased risk of getting cancer.   |
| Carbofuran                              | Some people who drink water containing carbofuran in excess of the MCL over many years could experience problems with their blood, or nervous or reproductive systems.  |
| Chlordane                               | Some people who drink water containing chlordane in excess of the MCL over many years could experience problems with their liver or nervous system, and may have an increased risk of getting cancer.                                     |
| Dalapon                                 | Some people who drink water containing dalapon well in excess of the MCL over many years could experience minor kidney changes.   |
| Di(2-ethylhexyl)adipate                 | Some people who drink water containing di(2-ethylhexyl)adipate well in excess of the MCL over many years could experience toxic effects such as weight loss, liver enlargement, or possible reproductive difficulties.                    |
| Di(2-ethylhexyl)-phthalate              | Some people who drink water containing di(2-ethylhexyl)phthalate well in excess of the MCL over many years may have problems with their liver, or experience reproductive difficulties, and may have an increased risk of getting cancer. |
| Dibromochloropropane (DBCP)             | Some people who drink water containing DBCP in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer.   |
| Dinoseb                                 | Some people who drink water containing dinoseb well in excess of the MCL over many years could experience reproductive difficulties.  |
| Dioxin (2,3,7,8-TCDD)                   | Some people who drink water containing dioxin in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer.   |
| Diquat                                  | Some people who drink water containing diquat in excess of the MCL over many years could get cataracts.   |
| Endothall                               | Some people who drink water containing endothall in excess of the MCL over many years could experience problems with their stomach or intestines.   |
| Endrin                                  | Some people who drink water containing endrin in excess of the MCL over many years could experience liver problems.   |
| Ethylene dibromide                      | Some people who drink water containing ethylene dibromide in excess of the MCL over many years could experience problems with their liver, stomach, reproductive system, or kidneys, and may have an increased risk of getting cancer.    |
| Glyphosate                              | Some people who drink water containing glyphosate in excess of the MCL over many years could experience problems with their kidneys or reproductive difficulties.   |

| Contaminant                                   | Standard Health Effects Language  |
|---|---|
| Heptachlor                                    | Some people who drink water containing heptachlor in excess of the MCL over many years could experience liver damage and may have an increased risk of getting cancer.  |
| Heptachlor epoxide                            | Some people who drink water containing heptachlor epoxide in excess of the MCL over many years could experience liver damage, and may have an increased risk of getting cancer.   |
| Hexachlorobenzene                             | Some people who drink water containing hexachlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys, or adverse reproductive effects, and may have an increased risk of getting cancer.   |
| Hexachloro-cyclopentadiene                    | Some people who drink water containing hexachlorocyclopentadiene well in excess of the MCL over many years could experience problems with their kidneys or stomach.   |
| Lindane                                       | Some people who drink water containing lindane in excess of the MCL over many years could experience problems with their kidneys or liver.  |
| Methoxychlor                                  | Some people who drink water containing methoxychlor in excess of the MCL over many years could experience reproductive difficulties.  |
| Oxamyl (Vydate)                               | Some people who drink water containing oxamyl in excess of the MCL over many years could experience slight nervous system effects.  |
| Pentachlorophenol                             | Some people who drink water containing pentachlorophenol in excess of the MCL over many years could experience problems with their liver or kidneys, and may have an increased risk of getting cancer.  |
| Picloram                                      | Some people who drink water containing picloram in excess of the MCL over many years could experience problems with their liver.  |
| Polychlorinated byphenyls (PCBs)              | Some people who drink water containing PCBs in excess of the MCL over many years could experience changes in their skin, problems with their thymus gland, immune deficiencies, or reproductive or nervous system difficulties, and may have an increased risk of getting cancer. |
| Simazine                                      | Some people who drink water containing simazine in excess of the MCL over many years could experience problems with their blood.  |
| Toxaphene                                     | Some people who drink water containing toxaphene in excess of the MCL over many years could experience problems with their kidneys, liver, or thyroid, and may have an increased risk of getting cancer.  |
| Volatile Organic Chemical Contaminants (VOCs) |   |
| Benzene                                       | Some people who drink water containing benzene in excess of the MCL over many years could experience anemia or a decrease in blood platelets, and may have an increased risk of getting cancer.   |
| Carbon tetrachloride                          | Some people who drink water containing carbon tetrachloride in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.   |
| Chlorobenzene (monochlorobenzene)             | Some people who drink water containing chlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys.  |
| o-Dichlorobenzene                             | Some people who drink water containing o-dichlorobenzene well in excess of the MCL over many years could experience problems with their liver, kidneys, or circulatory system.  |
| p-Dichlorobenzene                             | Some people who drink water containing p-dichlorobenzene in excess of the MCL over many years could experience anemia, damage to their liver, kidneys, or spleen, or changes in their blood.  |
| 1,2-Dichloroethane                            | Some people who drink water containing 1,2-dichloroethane in excess of the MCL over many years may have an increased risk of getting cancer.  |
| 1,1-Dichloroethylene                          | Some people who drink water containing 1,1-dichloroethylene in excess of the MCL over many years could experience problems with their liver.  |
| cis-1,2-Dichloroethylene                      | Some people who drink water containing cis-1,2-dichloroethylene in excess of the MCL over many years could experience problems with their liver.  |

| Contaminant                 | Standard Health Effects Language  |
|-----------------------------|---|
| trans-1,2-Dichloroethylene  | Some people who drink water containing trans-1,2-dichloroethylene well in excess of the MCL over many years could experience problems with their liver.   |
| Dichloromethane             | Some people who drink water containing dichloromethane in excess of the MCL over many years could have liver problems and may have an increased risk of getting cancer.   |
| 1,2-Dichloropropane         | Some people who drink water containing 1,2-dichloropropane in excess of the MCL over many years may have an increased risk of getting cancer.   |
| Ethylbenzene                | Some people who drink water containing ethylbenzene well in excess of the MCL over many years could experience problems with their liver or kidneys.  |
| Styrene                     | Some people who drink water containing styrene well in excess of the MCL over many years could have problems with their liver, kidneys, or circulatory system.  |
| Tetrachloroethylene         | Some people who drink water containing tetrachloroethylene in excess of the MCL over many years could have problems with their liver, and may have an increased risk of getting cancer.   |
| Toluene                     | Some people who drink water containing toluene in excess of the MCL over many years could have problems with their nervous system, kidneys, or liver.   |
| 1,2,4-Trichlorobenzene      | Some people who drink water containing 1,2,4-trichlorobenzene well in excess of the MCL over many years could experience changes in their adrenal glands.   |
| 1,1,1-Trichloroethane       | Some people who drink water containing 1,1,1-trichloroethane in excess of the MCL over many years could experience problems with their liver, nervous system, or circulatory system.  |
| 1,1,2-Trichloroethane       | Some people who drink water containing 1,1,2-trichloroethane well in excess of the MCL over many years could have problems with their liver, kidneys, or immune system.   |
| Trichloroethylene           | Some people who drink water containing trichloroethylene in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.  |
| Vinyl chloride              | Some people who drink water containing vinyl chloride in excess of the MCL over many years may have an increased risk of getting cancer.  |
| Xylene (total)              | Some people who drink water containing total xylene in excess of the MCL over many years could experience damage to their nervous system.   |
| Radionuclide Contaminants   |   |
| Alpha emitters              | Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.  |
| Beta/photon emitters        | Certain minerals are radioactive and may emit forms of radiation known as photons and beta radiation. Some people who drink water containing beta and photon emitters in excess of the MCL over many years may have an increased risk of getting cancer.                              |
| Combined radium (226 & 228) | Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer.   |
| Uranium                     | Some people who drink water containing uranium in excess of the MCL over many years may have an increased risk of getting cancer and kidney toxicity.   |
| Disinfection Byproducts     |   |
| Bromate                     | Some people who drink water containing bromate in excess of the MCL over many years may have an increased risk of getting cancer.   |
| Chlorite                    | Some infants and young children who drink water containing chlorite in excess of the MCL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorite in excess of the MCL. Some people may experience anemia. |
| Haloacetic Acids (HAA)      | Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.  |

| Contaminant  | Standard Health Effects Language   |
|--|--|
| Total Trihalomethanes (TTHMs)  | Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer.  |
| Residual Disinfectants   |  |
| Chloramines  | Some people who use water containing chloramines well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chloramines well in excess of the MRDL could experience stomach discomfort or anemia.   |
| Chlorine   | Some people who use water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort.   |
| Chlorine dioxide—acute (one or more distribution samples exceed the MRDL)  | Some infants and young children who drink water containing chlorine dioxide in excess of the MRDL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorine dioxide in excess of the MRDL. Some people may experience anemia. The chlorine dioxide violations reported today include exceedances of the standard within the distribution system which delivers water to consumers. Violations of the chlorine dioxide standard within the distribution system may harm human health based on short-term exposures. Certain groups, including fetuses, infants, and young children, may be especially susceptible to nervous system effects from excessive chlorine dioxide exposure. |
| Chlorine dioxide—non-acute (two consecutive daily samples taken at the source entry point to the distribution system are above the MRDL) | Some infants and young children who drink water containing chlorine dioxide in excess of the MRDL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorine dioxide in excess of the MRDL. Some people may experience anemia. The chlorine dioxide violations reported today are the result of exceedances at the treatment facility only, not within the distribution system which delivers water to consumers. Continued compliance with chlorine dioxide levels within the distribution system minimizes the potential risk of these violations to consumers.   |
| Disinfection Byproduct Precursors  |  |
| Total Organic Carbon (TOC)   | Total organic carbon has no health effects. However, total organic carbon provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes and haloacetic acids. Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver, or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer.  |
| Other Treatment Techniques   |  |
| Acrylamide   | Some people who drink water containing high levels of acrylamide over a long period of time could have problems with their nervous system or blood, and may have an increased risk of getting cancer.  |
| Epichlorohydrin  | Some people who drink water containing high levels of epichlorohydrin over a long period of time could experience stomach problems, and may have an increased risk of getting cancer.  |

[ARC 3735C, IAB 4/11/18, effective 5/16/18]

**APPENDIX B:  
MINIMUM SELF-MONITORING REQUIREMENTS (SMR)**

**I. Minimum Self-Monitoring Requirements for TNCs (excluding surface water or influenced groundwater PWSs)**

Notes:

- The self-monitoring requirements (SMRs) only apply to those supplies meeting the required operation records applicability criteria in 42.4(3) “a”(1).
- TNCs are exempt from the self-monitoring requirements for point-of-use treatment devices, unless the device is used to remove a contaminant which has a maximum contaminant level or treatment technique, in which case additional SMRs will be assigned by the department.
  - Daily monitoring for TNCs applies only when the facility is in operation.
  - Additional or more frequent monitoring requirements may be assigned by the department in the operation permit.
- Additional SMRs are required if treatment is used to remove a regulated contaminant. See Section II for the requirements under the specific treatment type.

**General Requirements**

All TNCs which meet the required operation records applicability criteria in 42.4(3) “a”(1) must measure the following parameters, where applicable. Additional SMRs are required if treatment is used to remove a contaminant which has a maximum contaminant level or treatment technique. See Section II for the requirements under the specific treatment type.

|  | PWS Type:                        | TNC*             |
|--|----------------------------------|------------------|
| Parameter  | Sample Site                      | Frequency        |
| Pumpage (Flow)                                   | raw:<br>final:                   | 1/week<br>1/week |
| Disinfectant Residual***                         | final:<br>distribution system**: | 1/day<br>1/day   |
| Disinfectant, quantity used                      | day tank/scale:                  | 1/day            |
| Static Water and Pumping Water Levels (Drawdown) | each active well:                | 1/month          |

\*TNCs must measure and record the total water used each week, but daily measurements are recommended, and may be required by the department in specific PWSs.

\*\*Monitoring is to be conducted at representative points in the distribution system which adequately demonstrate compliance with 42.4(3) “b”(1).

\*\*\*The department may reduce the required sample site locations for a system with a minimal distribution system and only hydropneumatic tank storage.

**II. Minimum Self-Monitoring Requirements for CWS, NTNC, and IGW/SW TNC**

Notes:

- The self-monitoring requirements (SMR) only apply to those supplies meeting the required operation records applicability criteria in 42.4(3) “a”(1).
- NTNCs are exempt from the self-monitoring requirements for point-of-use treatment devices, unless the device is used to remove a contaminant which has a maximum contaminant level, treatment technique, action level, or health advisory, in which case additional SMRs will be assigned by the department.
  - Daily monitoring for NTNCs applies only when the facility is in operation.
  - These are the minimum self-monitoring requirements. Additional or more frequent monitoring requirements may be assigned by the department in the operation permit.

### A. General Requirements

All PWSs which meet the required operation records applicability criteria in 42.4(3) "a"(1) must measure the following parameters, where applicable:

|  | PWS Type:                 | NTNC* &<br>IGW/SW TNC      | CWS                     |
|--|---------------------------|----------------------------|-------------------------|
| Parameter  | Sample Site               | Frequency                  | Frequency               |
| Pumpage (Flow)                                   | raw:<br>bypass:<br>final: | 1/week<br>1/week<br>1/week | 1/day<br>1/day<br>1/day |
| Static Water and Pumping Water Levels (Drawdown) | each active well:         | 1/month                    | 1/month                 |

\*NTNCs must measure and record the total water used each week, but daily measurements are recommended, and may be required by the department in specific PWSs.

### B. Chemical Addition

All PWSs which apply chemicals in the treatment process must monitor the following parameters, for the applicable processes:

|                               | Pumpage or Flow:                | <0.1 MGD           | 0.1-0.5 MGD      | >0.5 MGD         |
|-------------------------------|---------------------------------|--------------------|------------------|------------------|
| Parameter                     | Sample Site                     | Frequency          | Frequency        | Frequency        |
| <b>DISINFECTION</b>           |                                 |                    |                  |                  |
| Disinfectant Residual**       | final:<br>distribution system*: | 1/day<br>1/day     | 1/day<br>1/day   | 1/day<br>1/day   |
| Disinfectant, quantity used   | day tank/scale:                 | 1/day              | 1/day            | 1/day            |
| <b>FLUORIDATION</b>           |                                 |                    |                  |                  |
| Fluoride                      | raw:<br>final:                  | 1/quarter<br>1/day | 1/month<br>1/day | 1/month<br>1/day |
| Fluoride, quantity used       | day tank/scale:                 | 1/day              | 1/day            | 1/day            |
| <b>pH ADJUSTMENT</b>          |                                 |                    |                  |                  |
| pH                            | final:                          | 1/week             | 2/week           | 1/day            |
| Caustic Soda, quantity used   | day tank/scale:                 | 1/week             | 1/week           | 1/week           |
| <b>PHOSPHATE ADDITION</b>     |                                 |                    |                  |                  |
| Phosphate, as PO <sub>4</sub> | final:                          | 1/week             | 2/week           | 1/day            |
| Phosphate, quantity used      | day tank/scale:                 | 1/week             | 1/week           | 1/week           |
| <b>OTHER CHEMICALS</b>        |                                 |                    |                  |                  |
| Chemical                      | final:                          | 1/week             | 2/week           | 1/day            |
| Chemical, quantity used       | day tank/scale:                 | 1/week             | 1/week           | 1/week           |

\*Monitoring is to be conducted at representative points in the distribution system which adequately demonstrate compliance with 42.4(3) "b"(1).

\*\*The department may reduce the required sample site locations for a system with a minimal distribution system, only hydropneumatic tank storage, and, if a CWS, it serves less than 100 persons.

### C. Iron or Manganese Removal

Nonmunicipalities except rural water systems, benefited water districts, and publicly owned PWSs are exempt from monitoring of iron/manganese removal equipment unless the treatment is or was installed to remove a contaminant which has a maximum contaminant level, treatment technique, action level, or health advisory. Any chemicals which are applied during the treatment process must be measured under section “B. Chemical Addition” of this table.

|           | Pumpage or Flow: | <0.1 MGD  | 0.1-0.5 MGD | >0.5 MGD  |
|-----------|------------------|-----------|-------------|-----------|
| Parameter | Sample Site      | Frequency | Frequency   | Frequency |
| Iron      | raw:             | 1/quarter | 1/month     | 1/month   |
|           | final:           | 1/week    | 2/week      | 1/day     |
| Manganese | raw:             | 1/quarter | 1/month     | 1/month   |
|           | final:           | 1/week    | 2/week      | 1/day     |

D. pH Adjustment for Iron and Manganese Removal, by precipitation and coagulation processes utilizing lime, soda ash, or other chemical additions. Testing is only required if a specific chemical is added.

|            | Pumpage or Flow: | <0.1 MGD  | 0.1-0.5 MGD | >0.5 MGD  |
|------------|------------------|-----------|-------------|-----------|
| Parameter  | Sample Site      | Frequency | Frequency   | Frequency |
| Alkalinity | raw:             | 1/quarter | 1/month     | 1/month   |
|            | final:           | 1/week    | 2/week      | 1/day     |
| Iron       | raw:             | 1/quarter | 1/month     | 1/month   |
|            | final:           | 1/week    | 2/week      | 1/day     |
| Manganese  | raw:             | 1/quarter | 1/month     | 1/month   |
|            | final:           | 1/week    | 2/week      | 1/day     |
| pH         | raw:             | 1/week    | 1/week      | 1/week    |
|            | final:           | 1/week    | 2/week      | 1/day     |

### E. Cation Exchange (Zeolite) Softening

Nonmunicipalities except for rural water systems and benefited water districts are exempt from the monitoring of water quality parameters associated with ion-exchange softening unless the treatment is or was installed to remove a contaminant which has a maximum contaminant level, treatment technique, action level, or health advisory. An annual sodium sample of the final water is required of all community systems that use cation exchange softening, and will also meet the special sodium monitoring requirement of 567—paragraph 41.11(1)“f.”

|                               | Pumpage or Flow: | <0.1 MGD  | 0.1-0.5 MGD | >0.5 MGD  |
|-------------------------------|------------------|-----------|-------------|-----------|
| Parameter                     | Sample Site      | Frequency | Frequency   | Frequency |
| Hardness as CaCO <sub>3</sub> | raw:             | 1/quarter | 1/month     | 1/month   |
|                               | final:           | 1/week    | 2/week      | 1/day     |
| pH                            | final:           | 1/week    | 2/week      | 1/day     |
| Sodium*                       | final:           | 1/year    | 1/year      | 1/year    |

\*The annual sodium sample required in 567—paragraph 41.11(1)“f” will satisfy this requirement.

## F. Direct Filtration of Surface Waters or Influenced Groundwaters

|                             | Pumpage or Flow:                             | All  |
|-----------------------------|--|--|
| Parameter                   | Sample Site                                  | Frequency  |
| CT Ratio                    | final:                                       | 1/day  |
| Disinfectant Residual*      | source/entry point:<br>distribution system*: | continuous daily   |
| Disinfectant, quantity used | day tank/scale:                              | 1/day  |
| pH                          | final:                                       | 1/day  |
| Temperature                 | raw:   | 1/day  |
| Turbidity                   | raw:<br>final:                               | see 567—subrules 43.5(3) and 43.5(4),<br>and 567—43.9(455B) for the specific<br>requirements |

\*Monitoring is to be conducted to demonstrate compliance with paragraph 42.4(3) “b,” 567—subrules 43.5(2) and 43.5(4), and 567—43.6(455B).

## G. Clarification or Lime Softening of Surface Waters or Influenced Groundwaters

|                               | Pumpage or Flow:                             | All  |
|-------------------------------|--|--|
| Parameter                     | Sample Site                                  | Frequency  |
| Alkalinity                    | raw:<br>final:                               | 1/day<br>1/day   |
| Caustic Soda, quantity used   | day tank/scale:                              | 1/week   |
| CT Ratio                      | final:                                       | 1/day  |
| Disinfectant Residual*        | source/entry point:<br>distribution system*: | continuous daily   |
| Disinfectant, quantity used   | day tank/scale:                              | 1/day  |
| Hardness as CaCO <sub>3</sub> | raw:<br>final:                               | 1/day<br>1/day   |
| Odor                          | raw:<br>final:                               | 1/week<br>1/day  |
| pH                            | raw:<br>final:                               | 1/day<br>1/day   |
| Temperature                   | raw:   | 1/day  |
| Turbidity                     | raw:<br>final:                               | see 567—subrules 43.5(3) and 43.5(4),<br>and 567—43.9(455B) for the specific<br>requirements |

\*Monitoring is to be conducted to demonstrate compliance with paragraph 42.4(3) “b,” 567—subrules 43.5(2) and 43.5(4), and 567—43.6(455B).

## H. Lime Softening of Groundwaters (excluding IGW)

|                               | Pumpage or Flow: | <0.1 MGD  | >0.1 MGD  |
|-------------------------------|------------------|-----------|-----------|
| Parameter                     | Sample Site      | Frequency | Frequency |
| Alkalinity                    | raw:             | 1/quarter | 1/month   |
|                               | final:           | 1/day     | 1/day     |
| Hardness as CaCO <sub>3</sub> | raw:             | 1/quarter | 1/month   |
|                               | final:           | 1/day     | 1/day     |
| pH                            | raw:             | 1/week    | 1/week    |
|                               | final:           | 1/day     | 1/day     |
| Temperature                   | raw:             | 1/week    | 1/week    |

## I. Reverse Osmosis or Electrodialysis

|                               | Pumpage or Flow: | <0.1 MGD  | >0.1 MGD  |
|-------------------------------|------------------|-----------|-----------|
| Parameter                     | Sample Site      | Frequency | Frequency |
| Alkalinity                    | raw:             | 1/quarter | 1/month   |
|                               | final:           | 1/day     | 1/day     |
| Hardness as CaCO <sub>3</sub> | raw:             | 1/quarter | 1/month   |
|                               | final:           | 1/day     | 1/day     |
| Iron                          | raw:             | 1/day     | 1/day     |
| Manganese                     | raw:             | 1/day     | 1/day     |
| pH                            | raw:             | 1/week    | 1/week    |
|                               | final:           | 1/day     | 1/day     |
| Total Dissolved Solids        | raw:             | 1/month   | 1/month   |

## J. Anion Exchange (i.e., Nitrate Reduction)

|           | Pumpage or Flow: | <0.1 MGD  | >0.1 MGD  |
|-----------|------------------|-----------|-----------|
| Parameter | Sample Site      | Frequency | Frequency |
| Nitrate   | raw:             | 1/day     | 1/day     |
|           | final:           | 1/day     | 1/day     |
| Sulfate   | raw:             | 1/week    | 1/week    |
|           | final:           | 1/week    | 1/week    |

## K. Activated Carbon for TTHM, VOC, or SOC Removal (GAC or PAC)

|                            | Pumpage or Flow: | <0.1 MGD  | >0.1 MGD  |
|----------------------------|------------------|-----------|-----------|
| Parameter                  | Sample Site      | Frequency | Frequency |
| Total Organic Carbon (TOC) | final:           | 1/quarter | 1/month   |

## L. Air-Stripping for TTHM, VOC, or SOC Removal

|                            | Pumpage or Flow: | <0.1 MGD  | >0.1 MGD  |
|----------------------------|------------------|-----------|-----------|
| Parameter                  | Sample Site      | Frequency | Frequency |
| Total Organic Carbon (TOC) | final:           | 1/quarter | 1/month   |

M. Lead and Copper: Corrosion Control and Water Quality Parameters

The specific SMRs for corrosion control and water quality parameters are listed in 567—paragraph 41.4(1) “d” and 567—subrules 43.8(1) and 43.8(2).

N. Consecutive PWSs Supplied by a Surface Water or IGW PWS

|   | Pumpage or Flow:      | All       |
|---|-----------------------|-----------|
| Parameter                                   | Sample Site           | Frequency |
| Disinfectant Residual                       | source/entry point:   | 1/day     |
|   | distribution system*: | 1/day     |
| Disinfectant, quantity used (if applicable) | day tank/scale:       | 1/day     |
| Pumpage or Flow                             | master meter:         | 1/day     |

\*Monitoring is to be conducted at representative points in the distribution system.

APPENDIX C:  
REGULATED CONTAMINANTS TABLE FOR CONSUMER CONFIDENCE REPORT

| Key                          |              |  |                     |                      |                                      |   |
|------------------------------|--------------|--|---------------------|----------------------|--------------------------------------|---|
|                              | AL           | Action Level   |                     |                      |                                      |   |
|                              | MCL          | Maximum Contaminant Level  |                     |                      |                                      |   |
|                              | MCLG         | Maximum Contaminant Level Goal                                   |                     |                      |                                      |   |
|                              | MFL          | million fibers per liter   |                     |                      |                                      |   |
|                              | MRDL         | Maximum Residual Disinfectant Level                              |                     |                      |                                      |   |
|                              | MRDLG        | Maximum Residual Disinfectant Level Goal                         |                     |                      |                                      |   |
|                              | mrem/year    | millirems per year (a measure of radiation absorbed by the body) |                     |                      |                                      |   |
|                              | n/a          | not applicable   |                     |                      |                                      |   |
|                              | NTU          | nephelometric turbidity units (a measure of water clarity)       |                     |                      |                                      |   |
|                              | pCi/L        | picocuries per liter (a measure of radioactivity)                |                     |                      |                                      |   |
|                              | ppb          | parts per billion, or micrograms per liter (µg/L)                |                     |                      |                                      |   |
|                              | ppm          | parts per million, or milligrams per liter (mg/L)                |                     |                      |                                      |   |
|                              | ppq          | parts per quadrillion, or picograms per liter (pg/L)             |                     |                      |                                      |   |
|                              | ppt          | parts per trillion, or nanograms per liter (ng/L)                |                     |                      |                                      |   |
|                              | TT           | Treatment Technique  |                     |                      |                                      |   |
| Contaminant<br>(CCR units)   | MCL, in mg/L | To convert<br>for CCR,<br>multiply by                            | MCL<br>in CCR units | MCLG<br>in CCR units | Major sources in<br>drinking water   | Health effects language   |
| Microbiological Contaminants |              |  |                     |                      |                                      |   |
| Total coliform bacteria      | TT           |  | TT                  | n/a                  | Naturally present in the environment | Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. |

| Contaminant (CCR units)  | MCL, in mg/L   | To convert for CCR, multiply by | MCL in CCR units   | MCLG in CCR units | Major sources in drinking water      | Health effects language   |
|--|--|---------------------------------|--|-------------------|--------------------------------------|---|
| <i>E. coli</i>   | Routine and repeat samples are total coliform-positive and either is <i>E. coli</i> -positive, or system fails to take repeat samples following <i>E. coli</i> -positive routine sample, or system fails to analyze total coliform-positive repeat sample for <i>E. coli</i> |                                 | Routine and repeat samples are total coliform-positive and either is <i>E. coli</i> -positive, or system fails to take repeat samples following <i>E. coli</i> -positive routine sample, or system fails to analyze total coliform-positive repeat sample for <i>E. coli</i> | 0                 | Human and animal fecal waste         | <i>E. coli</i> are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems.   |
| Fecal indicators (enterococci or coliphage)  | TT   |                                 | TT   | n/a               | Human and animal fecal waste         | Fecal indicators are microbes whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term health effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.   |
| Disinfection Byproduct Precursor Removal Requirements for Surface & Influenced Groundwater Systems |  |                                 |  |                   |                                      |   |
| Total organic carbon (ppm)   | TT   |                                 | TT   | n/a               | Naturally present in the environment | Total organic carbon (TOC) has no health effects. However, total organic carbon provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes (THMs) and haloacetic acids (HAAs). Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver, or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer. |
| Surface Water & Influenced Groundwater System Treatment Requirements                               |  |                                 |  |                   |                                      |   |

| Contaminant (CCR units)   | MCL, in mg/L         | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water   | Health effects language  |
|---|----------------------|---------------------------------|------------------|-------------------|---|--|
| Turbidity (NTU)   | TT                   |                                 | TT               | n/a               | Soil runoff   | Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, protozoa, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches, and can lead to death. |
| Surface water/IGW system treatment technique requirements: CT ratio; residual disinfectant; log removal/inactivation of <i>Giardia</i> , viruses, and <i>Cryptosporidium</i> ; or filter backwash recycling | TT                   |                                 | TT               | n/a               | Soil runoff   | Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, protozoa, and parasites, which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches, and can lead to death.  |
| Radionuclide Contaminants   |                      |                                 |                  |                   |   |  |
| Gross alpha emitters (pCi/L)  | 15 pCi/L             |                                 | 15               | 0                 | Erosion of natural deposits   | Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.   |
| Beta/photon emitters (mrem/yr)  | 4 mrem/yr            |                                 | 4                | 0                 | Decay of natural and man-made deposits  | Certain minerals are radioactive and may emit forms of radiation known as photons and beta radiation. Some people who drink water containing beta and photon emitters in excess of the MCL over many years may have an increased risk of getting cancer.   |
| Radium, combined 226 and 228 (pCi/L)  | 5 pCi/L              |                                 | 5                | 0                 | Erosion of natural deposits   | Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer.  |
| Uranium (µg/L)  | 30 µg/L (footnote 2) |                                 | 30               | 0                 | Erosion of natural deposits   | Some people who drink water containing uranium in excess of the MCL over many years may have an increased risk of getting cancer and kidney toxicity.  |
| Inorganic Contaminants  |                      |                                 |                  |                   |   |  |
| Antimony (ppb)  | 0.006                | 1000                            | 6                | 6                 | Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder | Some people who drink water containing antimony well in excess of the MCL over many years could experience increases in blood cholesterol and decreases in blood sugar.  |

| Contaminant (CCR units)    | MCL, in mg/L       | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water   | Health effects language  |
|----------------------------|--------------------|---------------------------------|------------------|-------------------|---|--|
| Arsenic (ppb) <sup>3</sup> | 0.010 <sup>3</sup> | 1000                            | 10 <sup>3</sup>  | 0 <sup>3</sup>    | Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes                              | Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.  |
| Asbestos (MFL)             | 7 MFL              |                                 | 7                | 7                 | Decay of asbestos cement water mains; erosion of natural deposits   | Some people who drink water containing asbestos in excess of the MCL over many years may have an increased risk of developing benign intestinal polyps.  |
| Barium (ppm)               | 2                  |                                 | 2                | 2                 | Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits  | Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure.   |
| Beryllium (ppb)            | 0.004              | 1000                            | 4                | 4                 | Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries            | Some people who drink water containing beryllium well in excess of the MCL over many years could develop intestinal lesions.   |
| Bromate (ppb)              | 0.010              | 1000                            | 10               | 0                 | Byproduct of drinking water disinfection  | Some people who drink water containing bromate in excess of the MCL over many years may have an increased risk of getting cancer.  |
| Cadmium (ppb)              | 0.005              | 1000                            | 5                | 5                 | Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints | Some people who drink water containing cadmium in excess of the MCL over many years could experience kidney damage.  |
| Chloramines (ppm)          | MRDL = 4.0         |                                 | MRDL = 4.0       | MRDLG = 4.0       | Water additive used to control microbes   | Some people who use water containing chloramines well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chloramines well in excess of the MRDL could experience stomach discomfort or anemia. |

| Contaminant (CCR units) | MCL, in mg/L | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water   | Health effects language   |
|-------------------------|--------------|---------------------------------|------------------|-------------------|---|---|
| Chlorine (ppm)          | MRDL = 4.0   |                                 | MRDL = 4.0       | MRDLG = 4.0       | Water additive used to control microbes   | Some people who use water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort.  |
| Chlorine dioxide (ppb)  | MRDL = 0.8   | 1000                            | MRDL = 800       | MRDLG = 800       | Water additive used to control microbes   | Some infants and young children who drink water containing chlorine dioxide in excess of the MRDL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorine dioxide in excess of the MRDL. Some people may experience anemia.   |
| Chlorite (ppm)          | 1.0          |                                 | 1.0              | 0.8               | Byproduct of drinking water disinfection  | Some infants and young children who drink water containing chlorite in excess of the MCL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorite in excess of the MCL. Some people may experience anemia.   |
| Chromium (ppb)          | 0.1          | 1000                            | 100              | 100               | Discharge from steel and pulp mills; erosion of natural deposits  | Some people who use water containing chromium well in excess of the MCL over many years could experience allergic dermatitis.   |
| Copper (ppm)            | AL = 1.3     |                                 | AL = 1.3         | 1.3               | Corrosion of household plumbing systems; erosion of natural deposits  | Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.   |
| Cyanide (ppb)           | 0.2          | 1000                            | 200              | 200               | Discharge from steel, metal, plastic, and fertilizer factories  | Some people who drink water containing cyanide well in excess of the MCL over many years could experience nerve damage or problems with their thyroid.  |
| Fluoride (ppm)          | 4.0          |                                 | 4.0              | 4.0               | Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories | Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Fluoride in drinking water at half the MCL (2.0 ppm) or more may cause mottling of children's teeth, usually in children less than nine years of age. Mottling, also known as dental fluorosis, may include brown staining or pitting of the teeth, and occurs only in the developing teeth before they erupt from the gums. |

| Contaminant (CCR units)        | MCL, in mg/L | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water  | Health effects language   |
|--------------------------------|--------------|---------------------------------|------------------|-------------------|--|---|
| Lead (ppb)                     | AL = 0.015   | 1000                            | AL = 15          | 0                 | Corrosion of household plumbing systems; erosion of natural deposits   | Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure. |
| Mercury, inorganic (ppb)       | 0.002        | 1000                            | 2                | 2                 | Erosion of natural deposits; discharge from refineries and factories; runoff from landfills; runoff from cropland    | Some people who drink water containing inorganic mercury well in excess of the MCL over many years could experience kidney damage.  |
| Nitrate, as N (ppm)            | 10           |                                 | 10               | 10                | Runoff from fertilizer use; leaching from septic tanks or sewage; erosion of natural deposits                        | Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.   |
| Nitrite, as N (ppm)            | 1.0          |                                 | 1.0              | 1.0               | Conversion of ammonia; runoff from fertilizer use; leaching from septic tanks or sewage; erosion of natural deposits | Infants below the age of six months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.   |
| Selenium (ppb)                 | 0.05         | 1000                            | 50               | 50                | Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines                     | Selenium is an essential nutrient. However, some people who drink water containing selenium in excess of the MCL over many years could experience hair or fingernail losses, numbness in fingers or toes, or problems with their circulation.   |
| Thallium (ppb)                 | 0.002        | 1000                            | 2                | 0.5               | Leaching from ore-processing sites; discharge from electronics, glass, and drug factories                            | Some people who drink water containing thallium in excess of the MCL over many years could experience hair loss, change in their blood, or problems with their kidneys, intestines, or liver.   |
| Synthetic Organic Contaminants |              |                                 |                  |                   |  |   |

| Contaminant (CCR units)       | MCL, in mg/L | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water                                     | Health effects language  |
|-------------------------------|--------------|---------------------------------|------------------|-------------------|---|--|
| 2,4-D (ppb)                   | 0.07         | 1000                            | 70               | 70                | Runoff from herbicide used on row crops                             | Some people who drink water containing the weed killer 2,4-D well in excess of the MCL over many years could experience problems with their kidneys, liver, or adrenal glands.   |
| 2,4,5-TP Silvex (ppb)         | 0.05         | 1000                            | 50               | 50                | Residue of banned herbicide   | Some people who drink water containing Silvex in excess of the MCL over many years could experience liver problems.  |
| Acrylamide                    | TT           |                                 | TT               | 0                 | Added to water during sewage/wastewater treatment                   | Some people who drink water containing high levels of acrylamide over a long period of time could have problems with their nervous system or blood, and may have an increased risk of getting cancer.                        |
| Alachlor (ppb)                | 0.002        | 1000                            | 2                | 0                 | Runoff from herbicide used on row crops                             | Some people who drink water containing alachlor in excess of the MCL over many years could have problems with their eyes, liver, kidneys, or spleen, or experience anemia, and may have an increased risk of getting cancer. |
| Atrazine (ppb)                | 0.003        | 1000                            | 3                | 3                 | Runoff from herbicide used on row crops                             | Some people who drink water containing atrazine well in excess of the MCL over many years could experience problems with their cardiovascular system or reproductive difficulties.   |
| Benzo(a)pyrene, PAH (ppt)     | 0.0002       | 1,000,000                       | 200              | 0                 | Leaching from linings of water storage tanks and distribution lines | Some people who drink water containing benzo(a)pyrene in excess of the MCL over many years may experience reproductive difficulties and may have an increased risk of getting cancer.  |
| Carbofuran (ppb)              | 0.04         | 1000                            | 40               | 40                | Leaching of soil fumigant used on rice and alfalfa                  | Some people who drink water containing carbofuran in excess of the MCL over many years could experience problems with their blood, or nervous or reproductive systems.   |
| Chlordane (ppb)               | 0.002        | 1000                            | 2                | 0                 | Residue of banned termiticide                                       | Some people who drink water containing chlordane in excess of the MCL over many years could experience problems with their liver or nervous system, and may have an increased risk of getting cancer.                        |
| Dalapon (ppb)                 | 0.2          | 1000                            | 200              | 200               | Runoff from herbicide used on rights of way                         | Some people who drink water containing dalapon well in excess of the MCL over many years could experience minor kidney changes.  |
| Di(2-ethylhexyl)adipate (ppb) | 0.4          | 1000                            | 400              | 400               | Discharge from chemical factories                                   | Some people who drink water containing di(2-ethylhexyl)adipate well in excess of the MCL over many years could experience toxic effects such as weight loss, liver enlargement, or possible reproductive difficulties.       |

| Contaminant (CCR units)           | MCL, in mg/L | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water   | Health effects language   |
|-----------------------------------|--------------|---------------------------------|------------------|-------------------|---|---|
| Di(2-ethylhexyl)phthalate (ppb)   | 0.006        | 1000                            | 6                | 0                 | Discharge from rubber and chemical factories  | Some people who drink water containing di(2-ethylhexyl)phthalate well in excess of the MCL over many years may have problems with their liver, or experience reproductive difficulties, and may have an increased risk of getting cancer. |
| Dibromochloropropane [DBCP] (ppt) | 0.0002       | 1,000,000                       | 200              | 0                 | Runoff/leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards       | Some people who drink water containing DBCP in excess of the MCL over many years could experience reproductive problems and may have an increased risk of getting cancer.   |
| Dinoseb (ppb)                     | 0.007        | 1000                            | 7                | 7                 | Runoff from herbicide used on soybeans and vegetables                                       | Some people who drink water containing dinoseb well in excess of the MCL over many years could experience reproductive difficulties.  |
| Diquat (ppb)                      | 0.02         | 1000                            | 20               | 20                | Runoff from herbicide use   | Some people who drink water containing diquat in excess of the MCL over many years could get cataracts.   |
| Dioxin [2,3,7,8-TCDD] (ppq)       | 0.00000003   | 1,000,000,000                   | 30               | 0                 | Emissions from waste incineration and other combustion; discharge from chemical factories   | Some people who drink water containing dioxin in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer.   |
| Endothall (ppb)                   | 0.1          | 1000                            | 100              | 100               | Runoff from herbicide use   | Some people who drink water containing endothall in excess of the MCL over many years could experience problems with their stomach or intestines.   |
| Endrin (ppb)                      | 0.002        | 1000                            | 2                | 2                 | Residue of banned insecticide   | Some people who drink water containing endrin in excess of the MCL over many years could experience liver problems.   |
| Epichlorohydrin                   | TT           |                                 | TT               | 0                 | Discharge from industrial chemical factories; an impurity of some water treatment chemicals | Some people who drink water containing high levels of epichlorohydrin over a long period of time could experience stomach problems, and may have an increased risk of getting cancer.   |
| Ethylene dibromide (ppt)          | 0.0005       | 1,000,000                       | 50               | 0                 | Discharge from petroleum refineries   | Some people who drink water containing ethylene dibromide in excess of the MCL over many years could experience problems with their liver, stomach, reproductive system or kidneys, and may have an increased risk of getting cancer.     |

| Contaminant (CCR units)         | MCL, in mg/L | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water   | Health effects language   |
|---------------------------------|--------------|---------------------------------|------------------|-------------------|---|---|
| Glyphosate (ppb)                | 0.7          | 1000                            | 700              | 700               | Runoff from herbicide use   | Some people who drink water containing glyphosate in excess of the MCL over many years could experience problems with their kidneys or reproductive difficulties.   |
| Haloacetic Acids (HAA) (ppb)    | 0.060        | 1000                            | 60               | (footnote 4)      | Byproduct of drinking water disinfection  | Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.  |
| Heptachlor (ppt)                | 0.0004       | 1,000,000                       | 400              | 0                 | Residue of banned pesticide   | Some people who drink water containing heptachlor in excess of the MCL over many years could experience liver damage and may have an increased risk of getting cancer.  |
| Heptachlor epoxide (ppt)        | 0.0002       | 1,000,000                       | 200              | 0                 | Breakdown of heptachlor   | Some people who drink water containing heptachlor epoxide in excess of the MCL over many years could experience liver damage, and may have an increased risk of getting cancer.   |
| Hexachlorobenzene (ppb)         | 0.001        | 1000                            | 1                | 0                 | Discharge from metal refineries and agricultural chemical factories             | Some people who drink water containing hexachlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys, or adverse reproductive effects, and may have an increased risk of getting cancer. |
| Hexachlorocyclopentadiene (ppb) | 0.05         | 1000                            | 50               | 50                | Discharge from chemical factories   | Some people who drink water containing hexachlorocyclopentadiene well in excess of the MCL over many years could experience problems with their kidneys or stomach.   |
| Lindane (ppt)                   | 0.0002       | 1,000,000                       | 200              | 200               | Runoff/leaching from insecticide used on cattle, lumber, gardens                | Some people who drink water containing lindane in excess of the MCL over many years could experience problems with their kidneys or liver.  |
| Methoxychlor (ppb)              | 0.04         | 1000                            | 40               | 40                | Runoff/leaching from insecticide used on fruits, vegetables, alfalfa, livestock | Some people who drink water containing methoxychlor in excess of the MCL over many years could experience reproductive difficulties.  |
| Oxamyl [Vydate] (ppb)           | 0.2          | 1000                            | 200              | 200               | Runoff/leaching from insecticide used on apples, potatoes, and tomatoes         | Some people who drink water containing oxamyl in excess of the MCL over many years could experience slight nervous system effects.  |

| Contaminant (CCR units)                | MCL, in mg/L | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water  | Health effects language   |
|--|--------------|---------------------------------|------------------|-------------------|--|---|
| PCBs [polychlorinated byphenyls] (ppt) | 0.0005       | 1,000,000                       | 500              | 0                 | Runoff from landfills; discharge of waste chemicals                          | Some people who drink water containing PCBs in excess of the MCL over many years could experience changes in their skin, problems with their thymus gland, immune deficiencies, or reproductive or nervous system difficulties, and may have an increased risk of getting cancer. |
| Pentachlorophenol (ppb)                | 0.001        | 1000                            | 1                | 0                 | Discharge from wood preserving factories                                     | Some people who drink water containing pentachlorophenol in excess of the MCL over many years could experience problems with their liver or kidneys, and may have an increased risk of getting cancer.  |
| Picloram (ppb)                         | 0.5          | 1000                            | 500              | 500               | Herbicide runoff   | Some people who drink water containing picloram in excess of the MCL over many years could experience problems with their liver.  |
| Simazine (ppb)                         | 0.004        | 1000                            | 4                | 4                 | Herbicide runoff   | Some people who drink water containing simazine in excess of the MCL over many years could experience problems with their blood.  |
| Toxaphene (ppb)                        | 0.003        | 1000                            | 3                | 0                 | Runoff/ leaching from insecticide used on cotton and cattle                  | Some people who drink water containing toxaphene in excess of the MCL over many years could have problems with their kidneys, liver, or thyroid, and may have an increased risk of getting cancer.  |
| Volatile Organic Contaminants          |              |                                 |                  |                   |  |   |
| Benzene (ppb)                          | 0.005        | 1000                            | 5                | 0                 | Discharge from factories; leaching from gasoline storage tanks and landfills | Some people who drink water containing benzene in excess of the MCL over many years could experience anemia or a decrease in blood platelets, and may have an increased risk of getting cancer.   |
| Carbon tetrachloride (ppb)             | 0.005        | 1000                            | 5                | 0                 | Discharge from chemical plants and other industrial activities               | Some people who drink water containing carbon tetrachloride in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.   |
| Chlorobenzene (ppb)                    | 0.1          | 1000                            | 100              | 100               | Discharge from chemical and agricultural chemical factories                  | Some people who drink water containing chlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys.  |
| o-Dichlorobenzene (ppb)                | 0.6          | 1000                            | 600              | 600               | Discharge from industrial chemical factories                                 | Some people who drink water containing o-dichlorobenzene well in excess of the MCL over many years could experience problems with their liver, kidneys, or circulatory system.  |

| Contaminant (CCR units)          | MCL, in mg/L | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water   | Health effects language  |
|----------------------------------|--------------|---------------------------------|------------------|-------------------|---|--|
| p-Dichlorobenzene (ppb)          | 0.075        | 1000                            | 75               | 75                | Discharge from industrial chemical factories  | Some people who drink water containing p-dichlorobenzene in excess of the MCL over many years could experience anemia, damage to their liver, kidneys, or spleen, or changes in their blood. |
| 1,2-Dichloroethane (ppb)         | 0.005        | 1000                            | 5                | 0                 | Discharge from industrial chemical factories  | Some people who drink water containing 1,2-dichloroethane in excess of the MCL over many years may have an increased risk of getting cancer.   |
| 1,1-Dichloroethylene (ppb)       | 0.007        | 1000                            | 7                | 7                 | Discharge from industrial chemical factories  | Some people who drink water containing 1,1-dichloroethylene in excess of the MCL over many years could experience problems with their liver.   |
| cis-1,2-Dichloroethylene (ppb)   | 0.07         | 1000                            | 70               | 70                | Discharge from industrial chemical factories  | Some people who drink water containing cis-1,2-dichloroethylene in excess of the MCL over many years could experience problems with their liver.   |
| trans-1,2-Dichloroethylene (ppb) | 0.1          | 1000                            | 100              | 100               | Discharge from industrial chemical factories  | Some people who drink water containing trans-1,2-dichloroethylene well in excess of the MCL over many years could experience problems with their liver.                                      |
| Dichloromethane (ppb)            | 0.005        | 1000                            | 5                | 0                 | Discharge from industrial chemical factories  | Some people who drink water containing dichloromethane in excess of the MCL over many years could have liver problems and may have an increased risk of getting cancer.                      |
| 1,2-Dichloropropane (ppb)        | 0.005        | 1000                            | 5                | 0                 | Discharge from industrial chemical factories  | Some people who drink water containing 1,2-dichloropropane in excess of the MCL over many years may have an increased risk of getting cancer.  |
| Ethyl benzene (ppb)              | 0.7          | 1000                            | 700              | 700               | Discharge from petroleum refineries; leaching from gasoline storage tanks and landfills | Some people who drink water containing ethyl benzene well in excess of the MCL over many years could experience problems with their liver or kidneys.  |
| Styrene (ppb)                    | 0.1          | 1000                            | 100              | 100               | Discharge from rubber and plastic factories; leaching from landfills                    | Some people who drink water containing styrene well in excess of the MCL over many years could have problems with their liver, kidneys, or circulatory system.                               |
| Tetrachloroethylene (ppb)        | 0.005        | 1000                            | 5                | 0                 | Discharge from factories and dry cleaners   | Some people who drink water containing tetrachloroethylene in excess of the MCL over many years could have problems with their liver, and may have an increased risk of getting cancer.      |

| Contaminant (CCR units)            | MCL, in mg/L | To convert for CCR, multiply by | MCL in CCR units | MCLG in CCR units | Major sources in drinking water   | Health effects language   |
|------------------------------------|--------------|---------------------------------|------------------|-------------------|---|---|
| 1,2,4-Trichlorobenzene (ppb)       | 0.07         | 1000                            | 70               | 70                | Discharge from textile-finishing factories  | Some people who drink water containing 1,2,4-trichlorobenzene well in excess of the MCL over many years could experience changes in their adrenal glands.   |
| 1,1,1-Trichloroethane (ppb)        | 0.2          | 1000                            | 200              | 200               | Discharge from metal degreasing sites and other factories   | Some people who drink water containing 1,1,1-trichloroethane in excess of the MCL over many years could experience problems with their liver, nervous system, or circulatory system.  |
| 1,1,2-Trichloroethane (ppb)        | 0.005        | 1000                            | 5                | 3                 | Discharge from industrial chemical factories  | Some people who drink water containing 1,1,2-trichloroethane well in excess of the MCL over many years could have problems with their liver, kidneys, or immune system.   |
| Trichloroethylene (ppb)            | 0.005        | 1000                            | 5                | 0                 | Discharge from metal degreasing sites and other factories   | Some people who drink water containing trichloroethylene in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.                                  |
| Total trihalomethanes (TTHM) (ppb) | 0.080        | 1000                            | 80               | (footnote 4)      | Byproduct of drinking water disinfection  | Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer. |
| Toluene (ppm)                      | 1            |                                 | 1                | 1                 | Discharge from petroleum factories; leaching from gasoline storage tanks and landfills                                    | Some people who drink water containing toluene well in excess of the MCL over many years could have problems with their nervous system, kidneys, or liver.  |
| Vinyl chloride (ppb)               | 0.002        | 1000                            | 2                | 0                 | Leaching from PVC piping; discharge from plastics factories   | Some people who drink water containing vinyl chloride in excess of the MCL over many years may have an increased risk of getting cancer.  |
| Xylenes (ppm)                      | 10           |                                 | 10               | 10                | Discharge from petroleum factories; discharge from chemical factories; leaching from gasoline storage tanks and landfills | Some people who drink water containing xylenes in excess of the MCL over many years could experience damage to their nervous system.  |

<sup>1</sup>MCL (for systems that collect >40 samples per month): 5% of monthly samples are positive. MCL (for systems that collect <40 samples per month): 1 positive monthly sample.

<sup>2</sup>Uranium MCL is effective on December 8, 2003. Until then, there is no MCL.

<sup>3</sup>Beginning on January 23, 2006, the arsenic MCL is 0.010 mg/L and the MCLG is 0. Until then, the MCL is 0.05 mg/L, and there is no MCLG.

<sup>4</sup>The MCLGs for total trihalomethanes and haloacetic acids:

| Disinfection Byproduct | MCLG, mg/L | MCLG in CCR units |
|------------------------|------------|-------------------|
| Bromodichloromethane   | 0          | 0                 |
| Bromoform              | 0          | 0                 |
| Chloroform             | 0.07       | 70                |
| Dibromochloromethane   | 0.06       | 60                |
| Dichloroacetic acid    | 0          | 0                 |
| Monochloroacetic acid  | 0.07       | 70                |
| Trichloroacetic acid   | 0.02       | 20                |

[ARC 9915B, IAB 12/14/11, effective 1/18/12; ARC 3735C, IAB 12/14/11, effective 5/16/18]

APPENDIX D:  
REGULATED CONTAMINANTS TABLES FOR CONSUMER CONFIDENCE REPORTS  
Rescinded IAB 1/7/04, effective 2/11/04

APPENDIX E:  
HEALTH EFFECTS LANGUAGE FOR CONSUMER CONFIDENCE REPORTS  
Rescinded IAB 1/7/04, effective 2/11/04

APPENDIX F:  
HEALTH EFFECTS LANGUAGE FOR FLUORIDE LEVELS BETWEEN 2 AND 4 MG/L  
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