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3745-81-32 **Public notification.**

(A) General requirements for public notification by public water systems.

(1) The owner or operator of a public water system shall provide public notice to persons served by that public water system in accordance with this rule. 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 in accordance with this rule to the owner or operator of the consecutive system; the consecutive system is responsible for providing public notice in accordance with this rule to the persons it serves.

(2) If a community 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 as described in the emergency contingency plan required by Chapter 3745-85 of the Administrative Code, the director may allow the system to limit distribution of the public notice to only persons served by that portion of the system which is out of compliance. Permission for limited distribution shall be granted in writing by the director.

(3) The public water system, within ten days of completing the public notification requirements under this rule for the initial public notice and any repeat notices, ~~must~~ shall submit to the director a completed verification form indicating that ~~is~~ the system has fully complied with the public notification regulations. The public water system ~~must~~ shall include with this certification a representative copy of each type of notice distributed, published, posted~~,~~ and made available to the persons served by the system and to the media.

(B) Tier 1 public notification requirements.

(1) The owner or operator of a public water system with any of the following violations or situations that may pose an acute risk to human health, shall notify the persons served by the public water system in accordance with paragraph (B)(3) of this rule:

(a) Any violation or situation specified by the director as posing an acute risk to human health including, but not limited to, situations revealed through a level one assessment or level two assessment conducted pursuant to rule 3745-81-53 of the Administrative Code.

(b) Violation of the maximum contaminant level (MCL) for nitrate and nitrite as established in rule 3745-81-11 of the Administrative Code and determined according to rule 3745-81-23 of the Administrative Code.

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(c) ~~Violation~~Until March 31, 2016, violation of the maximum contaminant level for total coliforms, as specified in paragraph (C) of rule 3745-81-14 of the Administrative Code.

(d) ~~Violation~~Until March 31, 2016, violation of monitoring and reporting repeat samples for total coliforms, as specified in paragraph (B) of rule 3745-81-21 of the Administrative Code.

(e) Beginning April 1, 2016, violation of the maximum contaminant level for Escherichia coli (E. coli), as specified in paragraph (D) of rule 3745-81-14 of the Administrative Code.

~~(e)~~(f) Occurrence of a waterborne disease outbreak in a public water system, as defined in rule 3745-81-01 of the Administrative Code, or waterborne emergency as specified by the director.

~~(f)~~(g) Violation of the maximum residual disinfectant level (MRDL) for chlorine dioxide as defined in rule 3745-81-10 of the Administrative Code and determined according to rule 3745-81-70 of the Administrative Code.

~~(g)~~(h) Exceedance of the turbidity level in representative samples of filtered water as specified in paragraph (E) of rule 3745-81-75 of the Administrative Code and one or more of the following occurs:

(i) The public water system fails to consult with the director within twenty-four hours after learning of the violation~~;~~.

(ii) Any failure in an individual treatment process where the treatment process does not operate as designed and approved~~;~~.

(iii) The director determines after consultation that a Tier 1 notice is required.

~~(h)~~(i) Public water systems with a fecal indicator-positive ground water source sample collected under paragraph (A) or (B) of rule 3745-81-42 of the Administrative Code. This requirement also applies to consecutive systems supplied by the ground water source.

(2) The owner or operator of a public water system with a physical or operational disruption shall notify the persons served in the affected area of the public

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water system in accordance with paragraph (B)(3) of this rule when any sample (including special purpose samples) taken after minimum pressure falls below twenty pounds per square inch gauge at ground level and within the affected area of disruption is determined to be E. coli positive or fecal coliform positive.

(a) Tier 1 notice is not required if the system issued a precautionary notice as approved by the director through the public water system's contingency plan required by Chapter 3745-85 of the Administrative Code and a follow-up notice identifying the E. coli or fecal coliform results is issued to persons who received the preliminary notice.

(b) The Tier 1 notice shall remain in effect until total coliforms are not detected in consecutive samples collected twenty-four hours apart. The number of samples to be collected each day must be representative of the affected area, but shall not be less than two samples per day.

(3) Public water systems shall do the following:

(a) Provide a public notice as soon as practical but no later than twenty-four hours after the system learns of the violation or situation, using one or more of the following forms of delivery in order to reach all persons served~~:~~.

(i) Appropriate broadcast media (such as radio and television)~~;~~.

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

(iii) Hand delivery of the notice to persons served by the water system~~; or~~.

(iv) Another delivery method approved in writing by the director.

(b) Initiate consultation with the director as soon as practical, but no later than twenty-four hours after the public water system learns of the violation or situation, to determine additional public notice requirements~~; and~~.

(c) 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 director.

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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.

(C) Tier 2 public notification requirements.

(1) The owner or operator of a public water system with any of the following violations or situations shall notify the persons served by the public water system in accordance with paragraph (C)(2) of this rule:

(a) All violations of the MCL, MRDL, and treatment technique requirements pursuant to this chapter, except those specified in paragraph (B)(1) of this rule.

(b) Failure to collect any three samples of source water monitoring as specified in paragraph (C) of rule 3745-81-65 of the Administrative Code for the "Long Term 2 Enhanced Surface Water Treatment Rule."

(c) Failure to determine and report bin classification or mean Cryptosporidium level required by paragraphs (A) to (D) of rule 3745-81-65 of the Administrative Code for the "Long Term 2 Enhanced Surface Water Treatment Rule."

(d) Any other violation or situation specified by the director.

(2) Public water systems shall do the following:

(a) Provide a public notice as soon as practical, but no later than thirty days after the system learns of the violation or situation.

(i) Community public water systems shall provide notice using the following forms of delivery in order to reach all persons served:

(a) ~~Mail~~At least, 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~~.

(b) Any other method reasonably calculated to reach other persons regularly served by the system, if they would not normally be reached by the notice required in paragraph

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(C)(2)(a)(i)(a) of this rule. Such persons may include those who do not pay water bills or do not have service connection addresses (e.g., house renters, apartment dwellers, university students, nursing home patients, prison inmates, etc.). Other methods may include: publication in a local newspaper; delivery of multiple copies for distribution by customers that provide their drinking water to others (e.g., apartment building owners or large private employers); posting in public places served by the system or on the Internet; or delivery to community organizations. If the public notice is posted, the notice shall remain in place for as long as the violation or situation persists, but in no case for less than seven days, even if the violation or situation is resolved.

(ii) Noncommunity public water systems shall provide notice using the following forms of delivery in order to reach all persons served:

(a) ~~Posting~~At least, 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). If the public notice is posted, the notice shall remain in place for as long as the violation or situation persists, but in no case for less than seven days, even if the violation or situation is resolved~~; and~~.

(b) Any other method reasonably calculated to reach other persons served by the system if they would not normally be reached by the notice required in paragraph (C)(2)(a)(ii)(a) of this rule. Such persons may include those served who may not see a posted notice because the posted notice is not in a location they routinely pass by. When the persons served are children, such as in schools, their parents or legal guardians shall be notified. Other methods may include: publication in a local newspaper or newsletter distributed to customers; use of E-mail to notify employees or students and parents or legal guardians; or delivery of multiple copies in central locations (e.g., community centers).

(b) The public water system shall repeat the notice every three months as long as the violation or situation persists, unless the director determines that appropriate circumstances warrant a different repeat notice frequency. In no circumstances may the repeat notice be given less frequently than

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once per year. Less frequent repeat public notices shall not be allowed for an MCL or treatment technique violation under rules 3745-81-14 or 3745-81-54 of the Administrative Code or a treatment technique violation under rules 3745-81-64 to 3745-81-74 of the Administrative Code. Permission to issue repeat notices less frequently than once every three months must be granted in writing by the director.

(c) For turbidity violations specified in paragraph (E) of rule 3745-81-75 of the Administrative Code, public water systems shall consult with the director as soon as practical but no later than twenty-four hours after the public water system learns of the violation. When the director determines after consultation that a Tier 1 notice is required, or when consultation does not take place within the twenty-four hour period, the water system shall distribute notice of the violation within the next twenty-four hours (i.e., no later than forty-eight hours after the system learns of the violation) in accordance with paragraph (B) of this rule.

(D) Tier 3 public notification requirements.

(1) The owner or operator of a public water system with any of the following violations or situations shall notify the persons served by the public water system in accordance with paragraphs (D)(2) and (D)(3) of this rule:

(a) Violations of the monitoring and testing procedure requirements pursuant to this chapter~~;~~.

(b) Exceedance of the fluoride secondary maximum contaminant level (SMCL) as specified in Chapter 3745-82 of the Administrative Code~~;~~.

(c) Availability of unregulated contaminant monitoring results, as required by 40 C.F.R. Section 141.207 ~~(March 25, 2003); or~~(May 4, 2000).

(d) Reporting and recordkeeping violations under rules 3745-81-50 to 3745-81-55 of the Administrative Code.

~~(d)~~(e) Any other violation or situation specified by the director.

(2) Community public water systems shall provide notice as soon as practical, but no later than one year after the public water system learns of the violation or situation. The following forms of delivery shall be used in order to reach all persons served:

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(a) 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~~.

(b) Any other method reasonably calculated to reach other persons regularly served by the system, if they would not normally be reached by the notice required in paragraph (D)(2)(a) of this rule. Such persons may include those who do not pay water bills or do not have service connection addresses (e.g., house renters, apartment dwellers, university students, nursing home patients, prison inmates, etc.). Other methods may include: publication in a local newspaper; delivery of multiple copies for distribution by customers that provide their drinking water to others (e.g., apartment building owners or large private employers); posting in public places or on the Internet; or delivery to community organizations. If the public notice is posted, the notice shall 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).

(c) The consumer confidence report (CCR) required under Chapter 3745-96 of the Administrative Code may be used as a vehicle for the initial public notice and all required repeat notices, as long as~~:~~ each of the following is met:

(i) The CCR is provided to persons served within the time frames specified in paragraph (D)(2) of this rule~~; and~~.

(ii) The notice contained in the CCR follows the content requirements under this rule~~; and~~.

(iii) The CCR is distributed following the delivery requirements in this rule.

(3) Noncommunity water systems shall provide notice as soon as practical, but no later than thirty days after the public water system learns of the violation or situation. The following forms of delivery shall be used in order to reach all persons served:

(a) Posting the notice in conspicuous locations through the distribution system frequented by persons served by the system, or by mail or direct delivery to each customer and service connection (where known). If the public notice is posted, the notice shall remain in place for as long as

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the violation or other situation persists, but in no case less than seven days (even if the violation or situation is resolved)~~; and~~.

(b) Any other method reasonably calculated to reach other persons served by the system, if they would not normally be reached by the notice required in paragraph (D)(3)(a) of this rule. Such persons may include those who may not see a posted notice because the notice is not in a location they routinely pass by. When the persons served are children, such as in schools, their parents or legal guardians shall be notified. Other methods may include: publication in a local newspaper or newsletter distributed to customers; use of E-mail to notify employees or students and parents or legal guardians; or, delivery of multiple copies in central locations (e.g., community centers).

(4) For methods other than posting, the public water system shall repeat the notice annually for as long as the violation or other situation persists.

(5) For violations of the fluoride SMCL, the public water system shall send a copy of the notice to the local health department and the "Ohio Department of Health, Bureau of Oral Health Services."

(E) Content of public notices.

(1) Each public notice, except the public notice required in paragraphs (C)(1)(b) and (C)(1)(c) of this rule, shall include all of the following elements:

(a) A description of the violation or situation, including the ~~contaminant(s)~~ contaminant of concern, the MCL, and (as applicable) the contaminant ~~level(s)~~level.~~;~~

(b) When the violation or situation occurred~~;~~.

(c) Any potential adverse health effects from the violation or situation, including one or both of the following:

(i) Standard health effects language specified in table 1 of this rule, including the language necessary to fill in the blanks, for MCL, MRDL, treatment technique~~,~~ or fluoride SMCL exceedances~~, or~~.

(ii) Standard language for monitoring and testing procedure violations, including the language necessary to fill in the blanks: "We are

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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 "did not monitor or test" or "did not complete all monitoring or testing" for [contaminant(s)], and therefore cannot be sure of the quality of your drinking water during that time."

(d) The population at risk, including subpopulations particularly vulnerable if exposed to the contaminant in their drinking water~~;~~.

(e) Whether alternative water supplies should be used~~;~~.

(f) What actions consumers should take, including when they should seek medical help, if known~~;~~.

(g) What the system is doing to correct the violation or situation~~;~~.

(h) When the water system expects to return to compliance or resolve the situation~~;~~.

(i) The name, business address, and phone number of the water system owner, operator, or designee of the public water system as a source of additional information concerning the notice~~; and~~.

(j) A statement to encourage the notice recipient to distribute the public notice to other persons served, using the following standard language: "Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, 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."

(2) Each public notice required by paragraphs (C)(1)(b) and (C)(1)(c) of this rule shall include all of the following elements:

(a) The public notice for repeated failure to conduct monitoring as specified in paragraph (C)(1)(b) of this rule shall contain the following language:

"We are required to monitor the source of your drinking water for Cryptosporidium. Results of the monitoring are to be used to determine

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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 deadline required, [date]."

"For more information, please call [contact name] of [public water system name] at [phone number]."

(b) The public notice for failure to determine bin classification or mean Cryptosporidium level as specified in paragraph (C)(1)(c) of this rule shall contain the following language:

"We are required to monitor the source of your drinking water for Cryptosporidium in order to determine by [date] whether water treatment at the [public water system 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 [contact name] of [public water system name] at [phone number]."

(c) Each public 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.

(3) Presentation of the public notice.

(a) Each public notice required by this section shall meet all of the following:

(i) Shall be displayed in a conspicuous way when printed or posted~~;~~.

(ii) Shall not contain overly technical language or very small print~~;~~.

(iii) Shall not be formatted in a way that defeats the purpose of the notice~~; and~~.

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(iv) Shall not contain language which nullifies the purpose of the notice.

(b) For public water systems serving a large proportion of non-English speaking consumers, defined as ten per cent or more of the residents speaking the same non-English language, the public notice shall contain information in the appropriate ~~language(s)~~ language 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 notice or to request assistance in the appropriate language.

(4) Notice to new billing units or new customers.

(a) Community water systems shall 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 shall 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.

(F) The director may give the notice required by this rule when the owner or operator of a public water system fails or refuses to comply with ~~the requirements of~~ this rule. However, the owner or operator of a public water system remains responsible for ensuring that ~~the requirements of~~ this rule ~~are~~ is satisfied.

Table 1: Standard Health Effects Language for Public Notification	
Contaminant	Standard Health Effects Language for Public Notification
A. Microbiological Contaminants	
1a. Total coliform †	Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.
1b. Fecal coliform/E. coli †	Fecal coliforms and E. coli are bacteria whose

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	presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term 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.
1c. Fecal indicators Ground Water Rule (GWR): E. coli, enterococci, or 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.
1d. GWR, 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.
1e. Revised Total Coliform Rule (RTCR), Coliform Assessment and Corrective Action Violations ‡	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 were found. [The system shall use the following applicable sentences.] We failed to conduct the required assessment. We failed to correct all identified significant deficiencies that were found during the assessment.
1f. RTCR, E. coli Assessment and/or Corrective Action Violations ‡	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 violated the standard for E. coli, indicating the need to look for potential

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	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 shall use the following applicable sentences.] We failed to conduct the required assessment. We failed to correct all identified significant deficiencies that were found during the assessment that we conducted.
1g. E. coli ‡	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.
1h. RTCR, Seasonal System TT Violations ‡	When this violation includes the failure to monitor for total coliforms or E. coli prior to serving water to the public, the standard language found in paragraph (E)(1)(c)(ii) of this rule shall be used. When this violation includes failure to complete other actions, the appropriate elements found in paragraph (E)(1) of this rule to describe the violation shall be used.
2. 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, and parasites that can cause symptoms such as nausea, cramps, diarrhea and associated headaches.
B. Surface Water Treatment Rule[1], Interim Enhanced Surface Water Treatment Rule[2], Long Term 1 Enhanced Surface Water Treatment Rule[3] , and Filter Backwash Recycling Rule[4] Violations.	

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3. Giardia lamblia[5]	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.
4. Viruses[5]	
5. Heterotrophic plate count (HPC) bacteria[6]	
6. Legionella[5]	
7. Cryptosporidium[5]	
C. Inorganic Chemicals (IOCs)	
8. 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.
9. 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.
10. Asbestos (>10 em)	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.
11. Barium	Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure.
12. Beryllium	Some people who drink water containing beryllium well in excess of the MCL over many years could develop intestinal lesions.
13. Cadmium	Some people who drink water containing cadmium in excess of the MCL over many years could experience kidney damage.
14. Chromium (total)	Some people who use water containing chromium well in excess of the MCL over many years could experience allergic dermatitis.
15. Cyanide (as free 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

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	thyroid.
16a. Fluoride (MCL)	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 or more may cause mottling of children's teeth, usually in children less than nine years old. Mottling, also known as dental fluorosis, may include brown staining ~~and/~~or pitting of the teeth, and occurs only in developing teeth, before they erupt from the gums.
16b. Fluoride (Secondary MCL)	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 (dental fluorosis). The drinking water provided by your public water system [name] has a fluoride concentration of [insert value] mg/L. Dental fluorosis, in its moderate or severe forms, may result in a brown staining and/or 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 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 mg/L of fluoride, but we're required to notify you when we discover that the fluoride levels in your drinking water exceed 2 mg/L because of this cosmetic dental problem. For more information, please call [name of water system contact] of [name of water system] at [phone number]. Some home water treatment units are also available to remove fluoride from drinking water. To learn more about available home water treatment units, you may call

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	NSF International at 1-877-8-NSF-HELP.
17. Mercury (inorganic)	Some people who drink water containing inorganic mercury well in excess of the MCL over many years could experience kidney damage.
18. 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.
19. 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.
20. 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.
21. Selenium	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.
22. 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.
D. Lead and Copper	
23. 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.
24. Copper	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

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	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.
E. Synthetic Organic Chemicals (SOCs)	
25. 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.
26. 2,4,5-TP (Silvex)	Some people who drink water containing silvex in excess of the MCL over many years could experience liver problems.
27. 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.
28. 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 reproductive difficulties.
29. 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.
30. 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.
31. 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.
32. Dalapon	Some people who drink water containing dalapon well in excess of the MCL over many years could experience minor kidney changes.

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33. 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 general toxic effects or reproductive difficulties.
34. Di (2-ethylhexyl) phthalate	Some people who drink water containing di (2-ethylhexyl) phthalate 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.
35. 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.
36. Dinoseb	Some people who drink water containing dinoseb well in excess of the MCL over many years could experience reproductive difficulties.
37. 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.
38. Diquat	Some people who drink water containing diquat in excess of the MCL over many years could get cataracts.
39. Endothall	Some people who drink water containing endothall in excess of the MCL over many years could experience problems with their stomach or intestines.
40. Endrin	Some people who drink water containing endrin in excess of the MCL over many years could experience liver problems.
41. 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.
42. 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.

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43. 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.
44. 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.
45. 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.
46. Hexachlorocyclopentadiene	Some people who drink water containing hexachlorocyclopentadiene well in excess of the MCL over many years could experience problems with their kidneys or stomach.
47. Lindane	Some people who drink water containing lindane in excess of the MCL over many years could experience problems with their kidneys or liver.
48. Methoxychlor	Some people who drink water containing methoxychlor in excess of the MCL over many years could experience reproductive difficulties.
49. Oxamyl (Vydate)	Some people who drink water containing oxamyl in excess of the MCL over many years could experience slight nervous system effects.
50. 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.
51. Picloram	Some people who drink water containing picloram in excess of the MCL over many years could experience problems with their liver.
52. Polychlorinated biphenyls (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

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	nervous system difficulties, and may have an increased risk of getting cancer.
53. Simazine	Some people who drink water containing simazine in excess of the MCL over many years could experience problems with their blood.
54. Toxaphene	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.
F. Volatile Organic Chemicals (VOCs)	
55. 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.
56. 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.
57. 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.
58. 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 systems.
59. 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.
60. 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.
61. 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.
62. cis-1,2-Dichloroethylene	Some people who drink water containing cis-1,2-dichloroethylene in excess of the MCL over

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	many years could experience problems with their liver.
63. 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.
64. 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.
65. 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.
66. 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.
67. 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.
68. 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.
69. Toluene	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.
70. 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.
71. 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.
72. 1,1,2-Trichloroethane	Some people who drink water containing

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	1,1,2-trichloroethane well in excess of the MCL over many years could have problems with their liver, kidneys, or immune systems.
73. 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.
74. 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.
75. Xylenes (total)	Some people who drink water containing xylenes in excess of the MCL over many years could experience damage to their nervous system.
G. Radioactive Contaminants	
76. 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.
77. Alpha emitters (Gross alpha)	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.
78. 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.
79. 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.
H. Disinfection Byproducts (DBPs), Byproduct Precursors, and Disinfectant Residuals: Where disinfection is used in the treatment of drinking water, disinfectants combine with organic and inorganic matter present in water to form chemicals called disinfection byproducts (DBPs). EPA sets standards for controlling the levels of disinfectants and DBPs in drinking water, including trihalomethanes (THMs) and haloacetic acids (HAAs).	
80. Total trihalomethanes	Some people who drink water containing

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(TTHMs)	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.
81. 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.
82. Bromate	Some people who drink water containing bromate in excess of the MCL over many years may have an increased risk of getting cancer.
83. 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.
84. Chlorine	Some people who use drinking 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.
85. Chloramines	Some people who use drinking 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.
86a. Chlorine dioxide, where any 2 consecutive daily samples taken at the entrance 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.

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86b. Chlorine dioxide, where one or more distribution system samples 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 include exceedances of the EPA 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.
87. Control of DBP precursors (TOC)	Total organic carbon (TOC) has not 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.
I. Other Treatment Techniques	
88. 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.
89. 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.

† Until March 31, 2016.

‡ Beginning April 1, 2016.

[1] U.S. EPA Surface Water Treatment Rule (SWTR), 54 Fed Reg 27486 (June 29, 1989).

[2] U.S. EPA Interim Enhanced Surface Water Treatment Rule (IESWTR), 63 Fed Reg

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69478 (December 16, 1998).
[3]U.S. EPA Long Term 1 Enhanced Surface Water Treatment Rule (LT1ESWTR), 67 Fed Reg 1812 (January 14, 2002).
[4]U.S. EPA Filter Backwash Recycling Rule (FBRR), 66 Fed Reg 31103 (June 8, 2001).
[5]SWTR, IESWTR, LT1EWSTR ~~an~~ and FBRR treatment technique violations that involve turbidity exceedances may use the health effects language for turbidity instead.
[6]The bacteria detected by heterotrophic plate count (HPC) are not necessarily harmful. HPC is simply an alternative method of determining disinfectant residual levels. The number of such bacteria is an indicator of whether there is enough disinfectant in the distribution system.

[Comment: The 40 C.F.R. 141.207 refers to the "Code of Federal Regulations" published on May 4, 2000. A copy of this code may be obtained from the "U.S. Government Bookstore" toll-free at (866) 512-1800 or https://bookstore.gpo.gov, or from "Ohio EPA, Lazarus Government Center, 50 West Town Street, Suite 700, Columbus, OH, 43215," (614) 644-2752. The code is available for review at, "Ohio EPA, Lazarus Government Center, 50 West Town Street, Suite 700, Columbus, OH, 43215."]