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W. Marshall Taylor Jr., Acting Director
Promoting and protecting the health of the public and the environment
BUREAU OF WATER

February 12, 2015

Ms. Janine Morris
Drinking Water Section
U.S. Environmental Protection Agency, Region IV
Atlanta Federal Center
61 Forsyth Street
Atlanta, Georgia 30303-8960

Dear Ms. Morris:

As you are aware, the State of South Carolina has been granted interim primacy for the Lead and Copper Rule Short Term Revisions and the Ground Water Rule pending required corrections to the South Carolina State Primary Drinking Water Regulations (R.61-58) to make them consistent with 40 CFR 141. As agreed, those corrections were made during the regulatory promulgation process for the state's adoption of the Revised Total Coliform Rule. Therefore, we are at this time requesting that South Carolina be granted full primacy for the Lead and Copper Rule Short Term Revisions and the Ground Water Rule and that the corresponding implementation agreement (copy attached) be deemed null and void. If you have any question or comments concerning this matter, please contact me at 803-898-3543 or kinarddb@dhec.sc.gov.

Sincerely,

Doug Kinard, Director
Drinking Water Protection Division

Ground Water Rule Implementation Agreement
Between the South Carolina Department of Health and Environmental Control
and the U.S. Environmental Protection Agency – Region 4

The South Carolina Department of Health and Environmental Control (DHEC) is working with the U.S. Environmental Protection Agency (EPA) to implement the Ground Water Rule within the scope of DHEC's current authority, as presented in its application for primacy submitted to EPA October 27, 2008. DHEC has been designated by EPA as having interim primacy for the Ground Water Rule. EPA's review comments on the primacy application requested that the following state regulatory provision be adjusted to address an inconsistency between the first and second sentences and to minimize potential confusion among regulated water systems.

> R.61-58.12.C(11)(f)(i) – Any ground water system that receives notice from the Department of a significant deficiency or notice from a laboratory of a fecal indicator positive ground water source sample that is not invalidated by the Department must inform its customers in the next report. The report must contain information on any significant deficiency that is uncorrected or any fecal indicator positive ground water source sample. The system must continue to inform the public annually until the Department determines that particular significant deficiency is corrected or the fecal contamination in the ground water source is addressed under R.61-58.16.F(1). Each report must include the following elements.
> *Corresponding federal regulation is 40 CFR § 141.153(h)(6)(i)*

In addition, EPA's review of the primacy application identified the following state regulatory provision as less stringent than its corresponding federal provision.

> R.61-58.12.C(11)(f)(i)(C) – For each significant deficiency or fecal contamination in the ground water source that has not been addressed under R.61-58.16.F(1), the Department approved plan and schedule for correction, including any interim measures completed.
> *Corresponding federal regulation is 40 CFR § 141.153(h)(6)(i)(C)*

In circumstances where water systems in South Carolina violate provisions of 40 CFR § 141.153(h)(6)(i), DHEC will refer the violation to EPA Region 4 for enforcement if the violation is not resolved to the satisfaction of DHEC within 60 days of the incident that triggered the violation. Referrals to EPA Region 4 will include information identified in the state's PWSS Program workplan for the applicable Fiscal Year.

In circumstances where water systems in South Carolina violate a provision of 40 CFR § 141.153(h)(6)(i)(C) that is not covered by state regulatory authority contained in R.61-58.12.C(11)(f)(i)(C), DHEC will refer the violation to EPA Region 4 for potential enforcement action if the violation has not been resolved to the satisfaction of DHEC within 60 days of the incident that triggered the violation. Referrals to EPA Region 4 will include information identified in the state's PWSS Program workplan for the applicable Fiscal Year.

When necessary, DHEC will assist EPA in the development of technical aspects of potential enforcement actions pertaining to these two federal regulatory provisions.

This Ground Water Rule Implementation Agreement will take effect upon the date of the last signature, below. It will remain in effect for two years from the date of EPA's promulgation of the Revised Total Coliform Rule or the date that South Carolina adopts revisions to R.61-58.12.C(11)(f)(i) and R.61-58.12.C(11)(f)(i)(C) that are satisfactory to EPA, whichever is earlier.

Doug Kinard, Director
Division of Drinking Water Protection
South Carolina Department of Health and Environmental Control

7/6/11
Date

E. Stallings Howell, Chief
Safe Drinking Water Branch
Water Protection Division
U.S. Environmental Protection Agency - Region 4

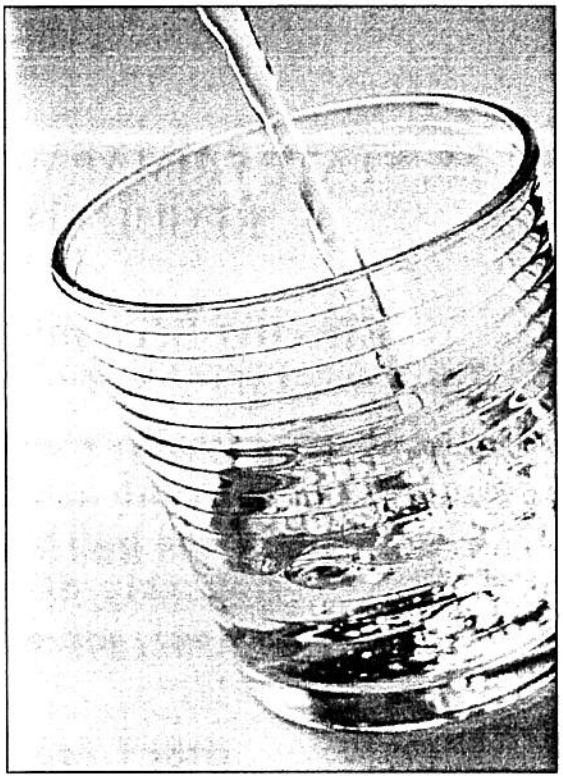
6/29/11
Date

Bureau of Water

South Carolina Department of Health and Environmental Control

State Primary Drinking Water Regulation: R.61-58

Current through September 26, 2014 State Register.



October 2014

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http://www.scdhec.gov/HomeAndEnvironment/

South Carolina Department of Health
and Environmental Control

R.61-58, STATE PRIMARY DRINKING WATER REGULATIONS

Effective September 26, 2014

(This regulation replaces and supercedes any former regulations)

Environmental Quality Control Administration
S.C. Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201
(803) 896-8940

DISCLAIMER

This copy of the regulation is provided by DHEC for the convenience of the public. Every effort has been made to ensure its accuracy; however, it is not the official text. DHEC reserves the right to withdraw or correct this text if deviations from the official text, as published in the *State Register*, are found.

R.61-58.5 MAXIMUM CONTAMINANT LEVELS IN DRINKING WATER

A. Applicability.

This regulation shall apply to each public water system, unless the water system meets all of the following conditions:

(1) Consists only of distribution and storage facilities (and does not have any collection and treatment facilities);

(2) Obtains all of its water from, but is not owned or operated by, a public water system to which such regulations apply;

(3) Does not sell water to any person; and

(4) Is not a carrier which conveys passengers in interstate commerce.

B. Maximum Contaminant Levels for Inorganic Chemicals.

(1) The Maximum Contaminant Levels (MCLs) for inorganic contaminants specified in R.61-58.5(B)(2) shall apply to all public water systems. Compliance with maximum contaminant levels for inorganic chemicals are calculated pursuant to Section (C) below:

(2) The maximum contaminant levels for inorganic chemicals are as follows:

	Contaminant	Level (mg/L)
(a)	Arsenic	0.010**
(b)	Asbestos	7 Million Fibers/liter (longer than 10μm)
(c)	Barium	2.0
(d)	Cadmium	0.005
(e)	Chromium	0.1
(f)	Fluoride	4.0
(g)	Mercury	0.002
(h)	Nitrate (as Nitrogen)	10
(i)	Nitrite (as Nitrogen)	1
(j)	Total Nitrate and Nitrite (as Nitrogen)	10
(k)	Selenium	0.05
(l)	Antimony	0.006
(m)	Beryllium	0.004
(n)	Cyanide (as free Cyanide)	0.2
(o)	Thallium	0.002

** The MCL for arsenic is 0.05 milligrams per liter (mg/L) for all public water systems until January 23, 2006.

(3) At the discretion of the Department, nitrate levels not to exceed twenty milligrams per liter may be allowed in a non-community water system if the supplier of water demonstrates to the satisfaction of the Department that:

(a) Such water will not be available to children under six months of age; and,

Regulation History

Promulgated pursuant to South Carolina Code Section 48-2-10 et seq. (Act 122, 1993) and Section 48-39-10 et seq.

Added by Document No. 1822 in S.C. State Register 19-6, June 23, 1995, effective July 1, 1995

Amended by Document No. 2281 in S.C. State Register 22-6 Part 2, effective June 26, 1998

Amended by Document No. 2374 in S.C. State Register 23-6, effective June 25, 1999

Amended by Document No. 2504 in S.C. State Register 25-2, effective February 23, 2001

Amended by Document Nos. 2673 and 2697 in S.C. State Register 26-6, effective June 28, 2002

Amended by Document Nos. 2815, 2816, and 2824 in S.C. State Register 27-3, effective March 26, 2004

Amended by Document No. 2800 in S.C. State Register 29-3, effective March 25, 2005

Amended by Document No. 3001 in S.C. State Register 30-6, effective June 23, 2006

Amended by Document No. 4079 in S.C. State Register 33-8, effective April 25, 2008

Amended by Document No. 4469 in S.C. State Register 38-9, effective September 26, 2014

On September 26, 2014, Regulation 61-58 was amended. This copy is a reprint of the State Register version and reflects R.61-51 in its entirety. If there are inconsistencies between this version and the version printed in the State Register, the State Regisger versions take priority. The State Register's internet website is: http://www.scstatehouse.gov/state_register.php

Authority for this regulation comes from Sections 44-55-30 et seq. of the 1976 South Carolina Code of Laws. For questions, contact DHEC at:

Bureau of Water
2600 Bull Street
Columbia, SC 29201
(803) 898-4300

(b) The non-community water system is meeting the public notification requirements under R.61-58.6(E)(9), including continuous posting of the fact that nitrate levels exceed ten (10) milligrams per liter and the potential health effects of exposure; and,

(c) No adverse health effects shall result from the consumption of this water.

C. Primary Inorganic Chemical Sampling and Analytical Requirements.

(1) The monitoring requirements for inorganic contaminants specified in Section B (2)(b), (c), (d), (e), (g), (k), (l), (m), (n), and (o) above apply to community water systems and non-transient non-community water systems. The monitoring requirements for inorganic contaminants specified in Section B (2)(a) and (f) above only apply to community water systems. Beginning January 22, 2004, the monitoring requirements for the inorganic contaminant specified in Section B (2)(a) above will apply to community water systems and non-transient, non-community water systems. The monitoring required for inorganic contaminants specified in Section B (2)(h), (i) and (j) above apply to community, non-transient non-community and transient non-community water systems.

(2) Analytical methods used to comply with Section B above, shall be made using EPA-approved methods listed in 40 CFR 141. Analyses for the purpose of determining compliance with Section B above are required as follows:

(a) Analyses for all community water systems utilizing surface water sources, in whole or in part, shall be completed within one year following the effective date of this regulation. These analyses shall be repeated at yearly intervals.

(b) Analyses for all community water systems utilizing only groundwater sources shall be completed within two years following the effective date of this regulation. These analyses shall be repeated at three-year intervals.

(c) For non-community water systems, whether supplied by surface or groundwater sources, analyses for nitrate shall be completed within two years following the effective date of this regulation. These analyses shall be repeated at intervals determined by the Department.

(d) The Department shall have the authority to determine compliance or to initiate enforcement action based upon analytical results and other information compiled by the Department.

(3) If the result of an analysis made pursuant to subsection (2) above indicates that the level of any contaminant listed in Section B above exceeds the maximum contaminant level, the supplier of water shall report to the Department within seven days.

(4) When the maximum contaminant level for any contaminant listed in Section B above is exceeded as determined in accordance with subsection (15) below, the supplier of water shall notify the Department and give notice to the public pursuant to R. 61-58.6, Reports, Record Retention, and Public Notification, Sections B and E. Monitoring after public notification shall be at a frequency designated by the Department and shall continue until the maximum contaminant level has not been exceeded in two successive samples or until a monitoring schedule as a condition to a variance, exemption, or enforcement action shall become effective.

(5) The provisions of subsections (3) and (4) above notwithstanding, compliance with the maximum contaminant level for nitrate and nitrite shall be determined in accordance with subsection (12)(b) below.

(6) For the initial analyses required by items (2)(a), (b), or (c) above, data for surface waters acquired within one year prior to the effective date and data for groundwater acquired within three years prior to the effective date of this regulation may be substituted at the discretion of the Department. Analyses conducted to determine compliance with Section B above shall be made in accordance with the analytical methods adopted by the Department.

(7) Monitoring for the purpose of determining compliance with the maximum contaminant levels specified in Section B (2) above, shall be conducted as follows:

(a) Groundwater systems shall take a minimum of one sample at every entry point to the distribution system which is representative of each well after treatment (hereafter called a sampling point) beginning in the initial compliance period. The system shall take each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

(b) Surface water systems shall take a minimum of one sample at every entry point to the distribution system after any application of treatment or in the distribution system at a point which is representative of each source after treatment (hereafter called a sampling point) beginning in the initial compliance period. The system shall take each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant. [Note: For purposes of this paragraph, surface water systems include systems with a combination of surface and ground sources.]

(c) If a system draws water from more than one source and the sources are combined before distribution, the system must sample at an entry point to the distribution system during periods of normal operating conditions (i.e., when water is representative of all sources being used).

(d) The Department may reduce the total number of samples which must be analyzed by allowing the use of compositing. Composite samples from a maximum of five samples are allowed, provided that the detection limit of the method used for analysis is less than one-fifth of the MCL. Compositing of samples must be done in the laboratory.

(i) If the concentration in the composite sample is greater than or equal to one-fifth of the MCL of any inorganic chemical, then a follow-up sample must be taken within 14 days at each sampling point included in the composite. These samples must be analyzed for the contaminants which exceeded one-fifth of the MCL in the composite sample. Detection limits for each analytical method and inorganic contaminant shall be in accordance with those listed in 40 CFR 141

(ii) If the population served by the system is greater than 3,300 persons, then compositing may only be permitted by the Department at sampling points within a single system. In systems serving 3,300 persons or less, the Department may permit compositing among different systems provided the 5-sample limit is maintained.

(e) The frequency of monitoring for asbestos shall be in accordance with paragraph (8) of this section; the frequency of monitoring for antimony, arsenic, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium and thallium shall be in accordance with paragraph (9) of this section; the frequency of monitoring for nitrate shall be in accordance with paragraph

(10) of this section; and the frequency of monitoring for nitrite shall be in accordance with paragraph (11) of this section.

(8) The frequency of monitoring conducted to determine compliance with the maximum contaminant level for asbestos specified in Section B(2) above shall be conducted as follows:

(a) Each community and non-transient, non-community water system is required to monitor for asbestos during the first three-year compliance period of each nine-year compliance cycle beginning in the compliance period starting January 1, 1993.

(b) If the system believes it is not vulnerable to either asbestos contamination in its source water or due to corrosion of asbestos-cement pipe, or both, it may apply to the Department for a waiver of the monitoring requirement in paragraph (8)(a) of this section. If the Department grants the waiver, the system is not required to monitor.

(c) The Department may grant a waiver based on a consideration of the following factors:

(i) Potential asbestos contamination of the water source; and,

(ii) The use of asbestos-cement pipe for finished water distribution and the corrosive nature of the water.

(d) A waiver remains in effect until the completion of the three-year compliance period. Systems not receiving a waiver must monitor in accordance with the provisions of paragraph (8)(a) of this section.

(e) A system vulnerable to asbestos contamination due solely to corrosion of asbestos-cement pipe shall take one sample at a tap served by asbestos-cement pipe and under conditions where asbestos contamination is most likely to occur.

(f) A system vulnerable to asbestos contamination due solely to source water shall monitor in accordance with the provision of paragraph (7) of this section.

(g) A system vulnerable to asbestos contamination due both to its source water supply and corrosion of asbestos-cement pipe shall take one sample at a tap served by asbestos-cement pipe and under conditions where asbestos contamination is most likely to occur.

(h) A system which exceeds the maximum contaminant levels as determined in paragraph (15) of this section shall monitor quarterly beginning in the next quarter after the violation occurred.

(i) The Department may decrease the quarterly monitoring requirement to the frequency specified in paragraph (8)(a) of this section provided the Department has determined that the system is reliably and consistently below the maximum contaminant level. In no case can the Department make this determination unless a groundwater system takes a minimum of two quarterly samples and a surface (or combined surface/ground) water system takes a minimum of four quarterly samples.

(j) If monitoring data collected after January 1, 1990 are generally consistent with the requirements of paragraph (8) of this section, then the Department may allow systems to use that data to satisfy the monitoring requirement for the initial compliance period

beginning January 1, 1993.

(9) The frequency of monitoring conducted to determine compliance with the maximum contaminant levels in Section B(2) above for antimony, arsenic, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium, and thallium shall be as follows:

(a) Groundwater systems shall take one sample at each sampling point during each compliance period. Surface water systems (or combined surface/ground) shall take one sample annually at each sampling point.

(b) The system may apply to the Department for a waiver from the monitoring frequencies specified in paragraph (9)(a) of this section. The Department may grant a public water system a waiver for monitoring of cyanide, provided that the Department determines that the system is not vulnerable due to lack of any industrial source of cyanide.

(c) A condition of the waiver shall require that a system shall take a minimum of one sample while the waiver is effective. The term during which the waiver is effective shall not exceed one compliance cycle (i.e., nine years).

(d) The Department may grant a waiver provided surface water systems have monitored annually for at least three years and groundwater systems have conducted a minimum of three rounds of monitoring. (At least one sample shall have been taken since January 1, 1990.) Both surface and groundwater systems shall demonstrate that all previous analytical results were less than the maximum contaminant level. Systems that use a new water source are not eligible for a waiver until three rounds of monitoring from the new source have been completed.

(e) In determining the appropriate reduced monitoring frequency, the Department shall consider:

(i) Reported concentrations from all previous monitoring;

(ii) The degree of variation in reported concentrations; and

(iii) Other factors which may affect contaminant concentrations such as changes in groundwater pumping rates, changes in the system's configuration, changes in the system's operating procedures, or changes in stream flows or characteristics.

(f) A decision by the Department to grant a waiver shall be made in writing and shall set forth the basis for the determination. The determination may be initiated by the Department or upon an application by the public water system. The public water system shall specify the basis for its request. The Department shall review and, where appropriate, revise its determination of the appropriate monitoring frequency when the system submits new monitoring data or when other data relevant to the system's appropriate monitoring frequency become available.

(g) Systems which exceed the maximum contaminant levels as calculated in paragraph (15) of this section shall monitor quarterly beginning in the next quarter after the violation occurred.

(h) The Department may decrease the quarterly monitoring requirement to the

frequencies specified in paragraphs (9)(a) and (9)(c) of this section provided it has determined that the system is reliably and consistently below the maximum contaminant level. In no case can the Department make this determination unless a groundwater system takes a minimum of two quarterly samples and a surface water system takes a minimum of four quarterly samples.

(i) All new systems or systems that use a new source of water that begin operation after January 22, 2004 must demonstrate compliance with the MCL within a period of time specified by the Department. The system must also comply with the initial sampling frequencies specified by the Department to ensure a system can demonstrate compliance with the MCL. Routine and increased monitoring frequencies shall be conducted in accordance with the requirements in this section.

(10) All public water systems (community; non-transient, non-community; and transient, non-community) shall monitor to determine compliance with the maximum contaminant level for nitrate in Section B above.

(a) Community and non-transient, non-community water systems served by groundwater systems shall monitor annually beginning January 1, 1993; systems served by surface water shall monitor quarterly beginning January 1, 1993.

(b) For community and non-transient, non-community water systems, the repeat monitoring frequency for ground water systems shall be quarterly for at least one year following any one sample in which the concentration is 50 percent or more of the MCL. The Department may allow a groundwater system to reduce the sampling frequency to annually after four consecutive quarterly samples are reliably and consistently less than the MCL.

(c) For community and non-transient, non-community water systems, the Department may allow a surface water system to reduce the sampling frequency to annually if all analytical results from four consecutive quarters are less than 50 percent of the MCL. A surface water system shall return to quarterly monitoring if any one sample is 50 percent or more of the MCL.

(d) Each transient non-community water system shall monitor annually beginning January 1, 1993.

(e) After the initial round of quarterly sampling is completed, each community and non-transient non-community system which is monitoring annually shall take subsequent samples during the quarter(s) which previously resulted in the highest analytical result.

(11) All public water systems (community; non-transient, non-community; and transient, non-community systems) shall monitor to determine compliance with the maximum contaminant level for nitrite in Section B above.

(a) All public water systems shall take one sample at each sampling point in the compliance period beginning January 1, 1993 and ending December 31, 1995

(b) After the initial sample, systems where an analytical result for nitrite is less than 50 percent of the MCL shall monitor at the frequency specified by the Department.

(c) For community, non-transient, non-community, and transient non-community water systems, the repeat monitoring frequency for any water system shall be quarterly for at least one year following any one sample in which the concentration is 50 percent or more of the MCL. The Department may allow a system to reduce the sampling frequency to annually after determining the system is reliably and consistently less than the MCL.

(d) Systems which are monitoring annually shall take each subsequent sample during the quarter(s) which previously resulted in the highest analytical result

(12) Confirmation samples:

(a) Where the results of sampling for asbestos, antimony, arsenic, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium or thallium indicate an exceedance of the maximum contaminant level, the Department may require that one additional sample be collected as soon as possible after the initial sample was taken (but not to exceed two weeks) at the same sampling point.

(b) Where nitrate or nitrite sampling results indicate an exceedance of the maximum contaminant level, the system shall take a confirmation sample within twenty-four (24) hours of the system's receipt of notification of the analytical results of the first sample. Systems unable to comply with the twenty (24) hour sampling requirement must immediately notify the consumers served by the area served by the public water system in accordance with R.61-58.6.B and E and meet other Tier 1 public notification requirements under this regulation. Systems exercising this option must take and analyze a confirmation sample within two weeks of notification of the analytical results of the first sample.

(c) If a Department-required confirmation sample is taken for any contaminant, then the results of the initial and confirmation sample shall be averaged. The resulting average shall be used to determine the system's compliance in accordance with paragraph (15) of this section. The Department has the discretion to delete results of obvious sampling errors.

(13) The Department may require more frequent monitoring than specified in paragraphs (8), (9), (10) and (11) of this section or may require confirmation samples for positive and negative results at its discretion.

(14) Systems may apply to the Department to conduct more frequent monitoring than the minimum monitoring frequencies specified in this section.

(15) Compliance with Section B(2) above (as appropriate) shall be determined based on the analytical result(s) obtained at each sampling point.

(a) For systems which are conducting monitoring at a frequency greater than annual, compliance with the maximum contaminant levels for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium, or thallium is determined by a running annual average at any sampling point. If the average at any sampling point is greater than the MCL, then the system is out of compliance. If any one sample would cause the annual average to be exceeded, then the system is out of compliance immediately. Any sample below the method detection limit shall be calculated at zero for the purpose of determining the annual average. If a system fails to collect the required number of samples, compliance (average concentration) will be based

on the total number of samples collected.

(b) For systems which are monitoring annually, or less frequently, the system is out of compliance with the maximum contaminant levels for arsenic, asbestos, antimony, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury nickel, selenium or thallium if the level of a contaminant at any sampling point is greater than the MCL. If a confirmation sample is required by the Department, the determination of compliance will be based on the average of the two samples. If a system fails to collect the required number of samples, compliance (average concentration) will be based on the total number of samples collected.

(c) Compliance with the maximum contaminant levels for nitrate and nitrite is determined based on one sample if the levels of these contaminants is below the MCLs. If the levels of nitrate and/or nitrite exceed the MCLs in the initial sample, a confirmation sample is required in accordance with paragraph (12)(b) of this section, and compliance shall be determined based on the average of the initial and confirmation samples

(d) Arsenic sampling results will be reported to the nearest 0.001 mg/L.

(16) Each public water system shall monitor at the time designated by the Department during each compliance period

(17) Inorganic Analysis

(a) Analysis for antimony, arsenic, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, nitrate, nitrite, selenium, and thallium shall be conducted using EPA-approved methods listed in 40 CFR 141.

(b) Sample collection for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, nitrate, nitrite, selenium, and thallium under this section shall be conducted using EPA-approved methods listed in 40 CFR 141.

(c) Analysis under this section shall only be conducted by laboratories that have been certified by the Department.

D. Maximum Contaminant Levels for Organic Chemicals.

(1) The following are the maximum contaminant levels for organic chemicals. The MCLs specified in R.61-58.5(D)(2) below, apply to all public water systems. The maximum contaminant level for total trihalomethanes is pursuant to Section P below.

(2) The maximum contaminant levels for organic chemicals are as follows:

Contaminant			Level, mg/L
(a)	Reserved		
(b)	(i)	Alachlor	0.002
	(ii)	Atrazine	0.003
	(iii)	Carbofuran	0.04
	(iv)	Chlordane	0.002
	(v)	Dibromochloropropane	0.0002
	(vi)	2,4-D	0.07
	(vii)	Ethylene dibromide (EDB)	0.00005

(viii)	Heptachlor	0.0004
(ix)	Heptachlor epoxide	0.0002
(x)	Lindane	0.0002
(xi)	Methoxychlor	0.04
(xii)	Polychlorinated biphenyls(PCBs)	0.0005
(xiii)	Pentachlorophenol	0.001
(xiv)	Toxaphene	0.003
(xv)	2,4,5-TP	0.05
(xvi)	Benzo[a]pyrene	0.0002
(xvii)	Dalapon	0.2
(xviii)	Di(2-ethylhexyl)adipate	0.4
(xvix)	Di(2-ethylhexyl)phthalate	0.006
(xx)	Dinoseb	0.007
(xxi)	Diquat	0.02
(xxii)	Endothall	0.1
(xxiii)	Endrin	0.002
(xxiv)	Glyphosate	0.7
(xxv)	Hexachlorobenzene	0.001
(xxvi)	Hexachlorocyclopentadiene	0.05
(xxvii)	Oxamyl (vydate)	0.2
(xxviii)	Picloram	0.5
(xxvix)	Simazine	0.004
(xxx)	2,3,7,8-TCDD (Dioxin)	3×10^{-8}

E. Organic Chemicals Other Than Total Trihalomethanes, Sampling and Analytical Requirements.

(1) The monitoring requirements for organic contaminants specified in R.61-58.5(D)(2)(a) shall apply to all community water systems. The monitoring requirements for organic contaminants specified in 61-58.5(D)(2)(b) shall apply to community water systems and non-transient non-community water systems.

(2) Reserved.

(3) Reserved.

(4) Reserved.

(5) Reserved.

(6) Reserved.

(7) Analytical methods used to comply with Section D(2)(b) above, shall be made using EPA-approved methods listed in 40 CFR 141. Analysis of the contaminants listed in Section D(2)(b) above, for the purposes of determining compliance with the maximum contaminant level shall be conducted as follows:

(a) Groundwater systems shall take a minimum of one sample at every entry point to the distribution system which is representative of each well after treatment (hereafter called a sampling point). Each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

(b) Surface water systems shall take a minimum of one sample at points in the distribution system that are representative of each source or at each entry point to the distribution system after treatment (hereafter called a sampling point). Each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant. [Note: For purposes of this paragraph, surface water systems include systems with a combination of surface and ground sources.]

(c) If the system draws water from more than one source and the sources are combined before distribution, the system must sample at an entry point to the distribution system during periods of normal operating conditions (i.e., when water representative of all sources is being used).

(d) Monitoring frequency:

(i) Each community and non-transient non-community water system shall take four consecutive quarterly samples for each contaminant listed in Section D(2)(b) above, during each compliance period beginning with the initial compliance period.

(ii) Systems serving more than 3,300 persons which do not detect a contaminant in the initial compliance period, may reduce the sampling frequency to a minimum of two quarterly samples in one year during each repeat compliance period.

(iii) Systems serving 3,300 persons or less which do not detect a contaminant in the initial compliance period may reduce the sampling frequency to a minimum of one sample during each repeat compliance period.

(e) Each community and non-transient water system may apply to the Department for a waiver from the requirement of paragraph (7)(d) of this section. A system must reapply for a waiver for each compliance period.

(f) The Department may grant a waiver after evaluating the following factor(s): Knowledge of previous use (including transport, storage, or disposal) of the contaminant within the watershed or zone of influence of the system. If a determination by the Department reveals no previous use of the contaminant within the watershed or zone of influence, a waiver may be granted. If previous use of the contaminant is unknown or it has been used previously, then the following factors shall be used to determine whether a waiver is granted.

(i) Previous analytical results.

(ii) The proximity of the system to a potential point or non-point source of contamination. Point sources include spills and leaks of chemicals at or near a water treatment facility or at manufacturing, distribution, or storage facilities, or from hazardous and municipal waste landfills and other waste handling or treatment facilities. Non-point sources include the use of pesticides to control insect and weed pests on agricultural areas, forest lands, home and gardens, and other land application uses.

(iii) The environmental persistence and transport of the pesticide or PCBs.

(iv) How well the water source is protected against contamination due to such factors as depth of the well and the type of soil and the integrity of the well casing.

(v) Elevated nitrate levels at the water supply source.

(vi) Use of PCBs in equipment used in the production, storage, or distribution of water (i.e., PCBs used in pumps, transformers, etc.).

(g) If an organic contaminant listed in Section D(2)(b) above, is detected (as defined by paragraph (7)(r) of this section) in any sample, then:

(i) Each system must monitor quarterly at each sampling point which resulted in a detection.

(ii) The Department may decrease the quarterly monitoring requirement specified in paragraph (7)(g)(i) of this section provided it has determined that the system is reliably and consistently below the maximum contaminant level. In no case shall the Department make this determination unless a groundwater system takes a minimum of two quarterly samples and a surface water system takes a minimum of four quarterly samples.

(iii) After the Department determines the system is reliably and consistently below the maximum contaminant level the Department may allow the system to monitor annually. Systems which monitor annually must monitor during the quarter that previously yielded the highest analytical result.

(iv) Systems which have 3 consecutive annual samples with no detection of a contaminant may apply to the Department for a waiver as specified in paragraph (7)(f) of this section.

(v) Groundwater systems which have detected one or more of the following two-carbon organic compounds: trichloroethylene, tetrachloroethylene, 1,2,-dichloroethane, 1,1,1-trichloroethane, cis-1,2-dichloroethylene, trans-1,2-dichloroethylene, or 1,1-dichloroethylene shall monitor quarterly for vinyl chloride. A vinyl chloride sample shall be taken at each sampling point at which one or more of the two-carbon organic compounds was detected. If the results of the first analysis do not detect vinyl chloride, the Department may reduce the quarterly monitoring frequency of vinyl chloride monitoring to one sample during each compliance period. Surface water systems are required to monitor for vinyl chloride as specified by the Department.

(h) Systems which violate the requirements of Section D(2)(b) above, as determined by paragraph (7)(k) of this section must monitor quarterly. After a minimum of four quarterly samples show the system is in compliance and the Department determines the system is reliably and consistently below the MCL, as specified in paragraph (7)(k) of this section, the system shall monitor at the frequency specified in paragraph (7)(g)(iii) of this section.

(i) The Department may require a confirmation sample for positive or negative results. If a confirmation sample is required by the Department, the result must be averaged with the first sampling result and the average used for the compliance determination as specified by paragraph (7)(k) of this section. The Department has the

discretion to delete results of obvious sampling errors from this calculation.

(j) The Department may reduce the total number of samples a system must analyze by allowing the use of compositing. Composite samples from a maximum of five sampling points are allowed, provided that the detection limit of the method used for analysis is less than one-fifth of the MCL. Compositing of samples must be done in the laboratory and analyzed within 14 days of sample collection.

(i) If the concentration in the composite sample detects one or more contaminants listed in Section D(2)(b) above, then a follow-up sample must be taken 14 days at each sampling point included in the composite, and be analyzed for that contaminant.

(ii) If duplicates of the original sample taken from each sampling point used in the composite are available, the system may use these duplicates instead of resampling. The duplicate must be analyzed and the results reported to the Department within 14 days of collection.

(iii) If the population served by the system is more than 3,300 persons, then compositing may only be permitted by the Department at sampling points within a single system. In systems serving 3,300 persons or less, the Department may permit compositing among different systems provided the 5-sample limit is maintained.

(k) Compliance with Section D(2)(b) above, shall be determined based on the analytical results obtained at each sampling point. If one sampling point is in violation of an MCL, the system is in violation of the MCL.

(i) For systems monitoring more than once per year, compliance with the MCL is determined by a running annual average at each sampling point.

(ii) Systems monitoring annually or less frequently whose sample result exceeds the regulatory detection level as defined by paragraph (7)(r) of this section must begin quarterly sampling. The system will not be considered in violation of the MCL until it has completed one year of quarterly sampling.

(iii) If any sample result will cause the running annual average to exceed the MCL at any sampling point, the system is out of compliance with the MCL immediately.

(iv) If a system fails to collect the required number of samples, compliance will be based on the total number of samples collected.

(v) If a sample result is less than the detection limit, zero will be used to calculate the annual average.

(l) [Reserved]

(m) Analysis for PCBs shall be conducted using EPA-approved methods listed in 40 CFR 141.

(i) [Reserved]

(ii) [Reserved]

(iii) Compliance with the PCB MCL shall be determined based upon the quantitative results of analyses using EPA-approved methods listed in 40 CFR 141.

(n) If monitoring data collected after January 1, 1990, are generally consistent with the requirements of this section, then the Department may allow systems to use that data to satisfy the monitoring requirement for the initial compliance period beginning January 1, 1993.

(o) The Department may increase the required monitoring frequency, where necessary, to detect variations within the system (e.g., fluctuations in concentration due to seasonal use, changes in water source).

(p) The Department has the authority to determine compliance or initiate enforcement action based upon analytical results and other information compiled by the Department.

(q) Each public water system shall monitor at the time designated by the Department within each compliance period.

(r) Detection as used in this paragraph shall be defined as greater than or equal to the following concentrations for each contaminant.

Contaminant	**Detection Limit**
Alachlor	0.0002 mg/L
Atrazine	0.0001 mg/L
Benzo[a]pyrene	0.00002 mg/L
Carbofuran	0.0009 mg/L
Chlordane	0.0002 mg/L
Dalapon	0.001 mg/L
Dibromochloropropane (DBCP)	0.00002 mg/L
Di (2-ethylhexly) adipate	0.0006 mg/L
Di (2-ethylhexly) phthalate	0.0006 mg/L
Dinoseb	0.0002 mg/L
Diquat	0.0004 mg/L
2,4-D	0.0001 mg/L
Endothall	0.009 mg/L
Endrin	0.00001 mg/L
Ethylene dibromide (EDB)	0.00001 mg/L
Glyphosate	0.006 mg/L
Heptachlor	0.00004 mg/L
Heptachlor epoxide	0.00002 mg/L
Hexachlorobenzene	0.0001 mg/L
Hexachlorocyclopentadiene	0.0001 mg/L
Lindane	0.00002 mg/L
Methoxychlor	0.0001 mg/L
Oxamyl	0.002 mg/L
Picloram	0.0001 mg/L
Polychlorinated biphenyls (PCBs) (as decachlorobiphenyl)	0.0001 mg/L
Pentachlorophenol	0.00004 mg/L

Simazine	0.00007 mg/L
Toxaphene	0.001 mg/L
2,3,7,8-TCDD (Dioxin)	0.000000005 mg/L
2,4,5-TP (Silvex)	0.0002 mg/L

(s) All new systems or systems that used a new source of water that begin operation after January 22, 2004 must demonstrate compliance with the MCL within a period of time specified by the Department. The system must also comply with the initial sampling frequencies specified by the Department to ensure a system can demonstrate compliance with the MCL. Routine and increased monitoring frequencies shall be conducted in accordance with the requirements in this section.

F. Maximum Contaminant Levels (MCLs) for Microbiological Contaminants.

These maximum contaminant levels shall apply to all public water systems.

(1) Until March 31, 2016, the total coliform MCL is based on the presence or absence of total coliforms in a sample, rather than coliform density.

(a) For a system which collects at least forty (40) samples per month, if no more than five (5.0) percent of the samples collected during a month are total coliform-positive, the system is in compliance with the MCL for total coliforms.

(b) For a system which collects fewer than forty (40) samples per month, if no more than one (1) sample collected during a month is total coliform -positive, the system is in compliance with the MCL for total coliforms.

(2) Until March 31, 2016, any fecal coliform-positive repeat sample or E. coli-positive repeat sample, or any total coliform-positive repeat sample following a fecal coliform-positive or E. coli-positive routine sample constitutes a violation of the MCL for total coliforms. For purposes of the public notification requirements in R.61 58.6.E, this is a violation that may pose an acute risk to health.

(3) Beginning April 1, 2016, a system is in compliance with the MCL for E. coli for samples taken under provisions of R.61-58.17 unless any of the conditions identified in R.61-58.5.F(3)(a) through (d) occur. For purposes of the public notification requirements in R.61-58.6.E, violation of the MCL may pose an acute risk to health.

(a) The system has an E. coli-positive repeat sample following a total coliform-positive routine sample.

(b) The system has a total coliform-positive repeat sample following an E. coli-positive routine sample.

(c) The system fails to take all required repeat samples following an E. coli-positive routine sample.

(d) The system fails to test for E. coli when any repeat sample tests positive for total coliform.

(4) Until March 31, 2016, a public water system must determine compliance with the MCL for total coliforms in R.61-58.5.F(1) and (2) for each month in which it is required to monitor for total coliforms. Beginning April 1, 2016, a public water system must determine compliance with the MCL for E. coli in R.61-58.5.F(3) for each month in which it is required to monitor for total coliforms.

(5) The United States Environmental Protection Agency Administrator, pursuant to section 1412 of the federal Safe Drinking Water Act, has identified the following as the best technology, treatment techniques, or other means available for achieving compliance with the maximum contaminant level for total coliforms in R.61-58.5.F (1)and (2) and for achieving compliance with the maximum contaminant level for E. coli in R.61-58.5.F(3):

(a) Protection of wells from fecal contamination by appropriate placement and construction;

(b) Maintenance of a disinfection residual throughout the distribution system;

(c) Proper maintenance of the distribution system including appropriate pipe placement and repair procedures, main flushing programs, proper operation and maintenance of storage tanks and reservoirs, cross connection control, and continual maintenance of positive water pressure in all parts of the distribution system;

(d) Filtration and/or disinfection of surface water, as described in R.61-58.10, or disinfection of ground water, as described in R.61-58.16, using strong oxidants such as chlorine, chlorine dioxide, or ozone; and

(e) For systems using ground water, compliance with the requirements of an EPA-approved Department Wellhead Protection Program developed and implemented under section 1428 of the federal Safe Drinking Water Act.

(6) The United States Environmental Protection Agency Administrator, pursuant to section 1412 of the federal Safe Drinking Water Act, identifies the technology, treatment techniques, or other means available identified in R.61-58.5.F(5) as affordable technology, treatment techniques, or other means available to systems serving 10,000 or fewer people for achieving compliance with the maximum contaminant level for total coliforms in R.61-58.5.F(1) and (2) and for achieving compliance with the maximum contaminant level for E. coli in R.61-58.5.F(3).

G. Microbiological Contaminant Sampling and Analytical Requirements.

These sampling and analytical requirements shall apply to community and non-community water systems. Analytical methods used to comply with Section F above, shall be made using EPA-approved methods listed in 40 CFR 141.

(1) Routine Monitoring.

(a) Community and non-community water systems shall collect total coliform samples at sites which are representative of water throughout the distribution system according to a written sample siting plan. These plans are subject to Department review and revision.

(b) The monitoring frequency for total coliforms for community water systems is based on the population served by the system, as follows:

Population Served			Minimum # of Samples Per Month
25	to	1,000[1]	1
1,001	to	2,500	2
2,501	to	3,300	3
3,301	to	4,100	4
4,101	to	4,900	5
4,901	to	5,800	6
5,801	to	6,700	7
6,701	to	7,600	8
7,601	to	8,500	9
8,501	to	12,900	10
12,901	to	17,200	15
17,201	to	21,500	20
21,501	to	25,000	25
25,001	to	33,000	30
33,001	to	41,000	40
41,001	to	50,000	50
50,001	to	59,000	60
59,001	to	70,000	70
70,001	to	83,000	80
83,001	to	96,000	90
96,001	to	130,000	100
130,001	to	220,000	120
220,001	to	320,000	150
320,001	to	450,000	180
450,001	to	600,000	210
600,001	to	780,000	240
780,001	to	970,000	270
970,001	to	1,230,000	300
1,230,001	to	1,520,000	330
1,520,001	to	1,850,000	360
1,850,001	to	2,270,000	390
2,270,001	to	3,020,000	420
3,020,001	to	3,960,000	450
3,960,001	or more		480

[1]Includes public water systems which have at least fifteen (15) service connections, but serve fewer than twenty-five (25) persons.

If a community water system serving twenty-five (25) to one-thousand (1,000) persons has no history of total coliform contamination in its current configuration and a sanitary survey conducted in the past five years shows that the system is supplied solely by a protected groundwater source and is free of sanitary defects, the Department may reduce the monitoring frequency specified above, except that in no case may the Department reduce the monitoring frequency to less than one sample per quarter. The Department must approve the reduced monitoring frequency in writing.

(i) [Reserved]

(ii) Community water systems shall make at a minimum one fecal or total coliform density measurement each day from the raw water source, and one coliform density or presence/absence measurement from the finished water, if treating surface water. This requirement may be waived by the Department on a

case-by-case basis if a public water supply can demonstrate that such monitoring is unnecessary.

(c) The monitoring frequency for total coliforms for non-community water systems is as follows:

(i) A non-community water system using only ground water (except ground water under the direct influence of surface water) and serving one-thousand (1,000) persons or fewer shall monitor each calendar quarter that the system provides water to the public, except that the Department may reduce this monitoring frequency, in writing, if a sanitary survey shows that the system is free of sanitary defects. Beginning June 29, 1994, the Department cannot reduce the monitoring frequency for a non-community water system using only ground water (except ground water under the direct influence of surface water) and serving one-thousand (1,000) persons or fewer to less than once per year.

(ii) A non-community water system using only ground water (except ground water under the direct influence of surface water) and serving more than one-thousand (1,000) persons during any month shall monitor at the same frequency as a like-sized community water system, as specified in paragraph (1)(b) of this section, except that the Department may reduce this monitoring frequency, in writing, for any month the system serves one-thousand (1,000) persons or fewer. The Department cannot reduce the monitoring frequency to less than once per year. For systems using ground water under the direct influence of surface water, paragraph (1)(c)(iv) of this section applies.

(iii) A non-community water system using surface water, in total or in part, shall monitor at the same frequency as a like-sized community water system, as specified in paragraph (1)(b) of this section, regardless of the number of persons it serves.

(iv) A non-community water system using ground water under the direct influence of surface water shall monitor at the same frequency as a like-sized community water system, as specified in paragraph (1)(b) of this section. The system shall begin monitoring at this frequency beginning six (6) months after the Department determines that the ground water is under the direct influence of surface water.

(d) The community or non-community water system shall collect samples at regular time intervals throughout the month, except that a system which uses ground water (except ground water under the direct influence of surface water), and serves 4,900 persons or fewer, may collect all required samples on a single day if they are taken from different sites.

(e) A community or non-community water systems that uses surface water or ground water under the direct influence of surface water and does not practice filtration in compliance with R.61-58.10 shall collect at least one sample near the first service connection each day the turbidity level of the source water, measured as specified in R.61-58.10.F(2)(b), exceeds 1 NTU. This sample shall be analyzed for the presence of total coliforms. When one or more turbidity measurements in any day exceed 1 NTU, the system shall collect this coliform sample within 24 hours of the first exceedance, unless the Department determines that the system, for logistical reasons outside the system's control, cannot have the sample analyzed within thirty (30) hours of collection. Sample

results from this coliform monitoring shall be included in determining compliance with the MCL for total coliforms in Section F above.

(f) Special purpose samples, such as those taken to determine whether disinfection practices are sufficient following pipe placement, replacement, or repair, shall not be used to determine compliance with the MCL for total coliforms in Section F above. Repeat samples taken pursuant to paragraph (2) of this section are not considered special purpose samples, and shall be used to determine compliance with the MCL for total coliforms in Section F above.

(2) Repeat Monitoring.

(a) If a routine sample is total coliform-positive, the community or non-community water system shall collect a set of repeat samples within twenty-four (24) hours of being notified of the positive result. A system which collects more than one routine sample per month shall collect no fewer than three repeat samples for each total coliform-positive sample found. A system which collects one routine sample per month or fewer shall collect no fewer than four repeat samples for each total coliform-positive sample found. The Department may extend the twenty-four (24) hour limit on a case-by-case basis if the system has a logistical problem in collecting the repeat samples within twenty-four (24) hours that is beyond its control. In the case of an extension, the Department shall specify how much time the system has to collect the repeat samples.

(b) The system shall collect at least one repeat sample from the sampling tap where the original total coliform-positive sample was taken, and at least one repeat sample at a tap within five service connections upstream and at least one repeat sample at a tap within five (5) service connections downstream of the original sampling site. If a total coliform-positive sample is at the end of the distribution system, or one away from the end of the distribution system, the Department may waive the requirement to collect at least one repeat sample upstream or downstream of the original sampling site.

(c) The system shall collect all repeat samples on the same day, except that the Department may allow a system with a single service connection to collect the required set of repeat samples over a four-day period or to collect a larger volume repeat sample(s) in one or more sample containers of any size, as long as the total volume collected is at least 400 ml (300 ml for systems which collect more than one routine sample per month).

(d) If one or more repeat samples in the set is total coliform-positive, the water system shall collect an additional set of repeat samples in the manner specified in paragraphs (2)(a) through (c) of this section. The additional samples shall be collected within twenty-four (24) hours of being notified of the positive result, unless the Department extends the limit as provided in paragraph (2)(a) of this section. The system shall repeat this process until either total coliforms are not detected in one complete set of repeat samples or the system determines that the MCL for total coliforms in Section F above, has been exceeded and notifies the Department.

(e) If a system collecting fewer than five routine samples per month has one or more total coliform-positive samples and the Department does not invalidate the sample(s) under paragraph (3) of this section, it shall collect at least five routine samples during the next month the system provides water to the public, except that the Department may waive this requirement if the conditions of paragraph (2)(e)(i) or (ii) of this section are met. The Department cannot waive the requirement for a system to collect repeat samples in paragraphs (2)(a) through (d) of this section.

(i) The Department may waive the requirement to collect five routine samples the next month the system provides water to the public if the Department, or an agent approved by the Department, performs a site visit before the end of the next month the system provides water to the public. Although a sanitary survey need not be performed, the site visit shall be sufficiently detailed to allow the Department to determine whether additional monitoring and/or any corrective action is needed. The Department cannot approve an employee of the system to perform this site visit, even if the employee is an agent approved by the Department to perform sanitary surveys.

(ii) The Department may waive the requirement to collect five routine samples the next month the system provides water to the public if the Department has determined why the sample was total coliform-positive and establishes that the system has corrected the problem or will correct the problem before the end of the next month the system serves water to the public. In this case, the Department shall document this decision to waive the following month's additional monitoring requirement in writing, have it approved and signed by the supervisor of the Department official who recommends such a decision, and make this document available to the EPA and public. The written documentation shall describe the specific cause of the total coliform-positive sample and what action the system has taken and/or will take to correct this problem. The Department cannot waive the requirement to collect five routine samples the next month the system provides water to the public solely on the grounds that all repeat samples are total coliform-negative. Under this paragraph, a system shall still take at least one routine sample before the end of the next month it serves water to the public and use it to determine compliance with the MCL for total coliforms in R.61-58.5.F, unless the Department has determined that the system has corrected the contamination problem before the system took the set of repeat samples required in paragraphs (2)(a) through (d) of this section, and all repeat samples were total coliform-negative.

(f) After a system collects a routine sample and before it learns the results of the analysis of that sample, if it collects another routine sample(s) from within five adjacent service connections of the initial sample, and the initial sample, after analysis, is found to contain total coliforms, then the system may count the subsequent sample(s) as a repeat sample instead of as a routine sample.

(g) Results of all routine and repeat samples not invalidated by the Department shall be included in determining compliance with the MCL for total coliforms in Section F above.

(3) Invalidation of total coliform samples.

A total coliform-positive sample invalidated under this paragraph does not count towards meeting the minimum monitoring requirements of this section.

(a) The Department may invalidate a total coliform-positive sample only if the conditions of paragraph (3)(a)(i), (ii) or (iii) of this section are met.

(i) The laboratory establishes that improper sample analysis caused the total coliform-positive result.

(ii) The Department, on the basis of the results of repeat samples collected as required by paragraphs (2)(a) through (d) of this section, determines that the total coliform-positive sample resulted from a domestic or other non-distribution system plumbing problem. The Department cannot invalidate a sample on the basis of repeat sample results unless all repeat sample(s) collected at the same tap as the original total coliform- positive sample are also total coliform-positive, and all repeat samples collected within five service connections of the original tap are total coliform-negative (e.g., the Department cannot invalidate a total coliform-positive sample on the basis of repeat samples if all the repeat samples are total coliform- negative, or if the public water system has only one service connection).

(iii) The Department has substantial grounds to believe that a total coliform-positive result is due to a circumstance or condition which does not reflect water quality in the distribution system. In this case, the system shall still collect all repeat samples required under paragraphs (2)(a) through (d) of this section, and use them to determine compliance with the MCL for total coliforms in Section F above. To invalidate a total coliform-positive sample under this paragraph, the decision with the rationale for the decision shall be documented in writing, and approved and signed by the supervisor of the Department official who recommended the decision. The Department shall make this document available to the EPA and the public. The written documentation shall state the specific cause of the total coliform-positive sample, and what action the system has taken, or will take, to correct this problem. The Department may not invalidate a total coliform-positive sample solely on the grounds that all repeat samples are total coliform-negative.

(b) A laboratory shall invalidate a total coliform sample (unless total coliforms are detected) if the sample produces a turbid culture in the absence of gas production using an analytical method where gas formation is examined (e.g., the Multiple-Tube Fermentation Technique), produces a turbid culture in the absence of an acid reaction in the Presence-Absence (P-A) Coliform Test, or exhibits confluent growth or produces colonies too numerous to count with an analytical method using a membrane filter (e.g., Membrane Filter Technique). If a laboratory invalidates a sample because of such interference, the Department shall be notified, and the system shall collect another sample from the same location as the original sample within twenty-four (24) hours of being notified of the interference problem, and shall have it analyzed for the presence of total coliforms. The system shall continue to re-sample within twenty-four (24) hours and have the samples analyzed until it obtains a valid result. The Department may waive the twenty-four (24) hour time limit on a case-by-case basis.

(4) Sanitary Surveys.

(a) (i) Public water systems which do not collect five (5) or more routine samples per month shall undergo an initial sanitary survey by June 29, 1994, for community water systems and June 29, 1999, for non-community water systems. hereafter, systems shall undergo another sanitary survey every five (5) years, except that non-community water systems using only protected and disinfected ground water, as defined by the Department, shall undergo subsequent sanitary surveys at least every ten (10) years after the initial sanitary survey. The Department shall review the results of each sanitary survey to determine whether the existing monitoring frequency is adequate and what additional measures, if any, the system needs to undertake to improve drinking water quality.

(ii) In conducting a sanitary survey of a system using ground water in a State having an EPA-approved wellhead protection program under the Federal Safe Drinking Water Act, information on sources of contamination within the delineated wellhead protection area that was collected in the course of developing and implementing the program should be considered instead of collecting new information if the information was collected since the last time the system was subject to a sanitary survey.

(b) Sanitary surveys shall be performed by the Department or an agent approved by the Department. The system is responsible for ensuring the survey takes place.

(c) Sanitary surveys conducted by the Department under the provisions of 40 CFR 142.16(o)(2) may be used to meet the sanitary survey requirements of R.61-58.5.G(4).

(5) Fecal coliforms/Escherichia coli (E. coli) testing.

(a) If any routine or repeat sample is total coliform positive, the system shall analyze that total coliform-positive culture medium to determine if fecal coliforms are present, except that the system may test for E. coli in lieu of fecal coliforms. If fecal coliforms or E. coli are present, the system shall notify the Department by the end of the day when the system is notified of the test result, unless the system is notified of the result after the Department is closed, in which case the system shall notify the Department before the end of the next business day.

(b) The Department has the discretion to allow a public water system, on a case-by-case basis, to forego fecal coliform or E. coli testing on a total coliform-positive sample if that system assumes that the total coliform-positive sample is fecal coliform-positive or E. coli-positive. Accordingly, the system shall notify the Department as specified in paragraph (5)(a) of this section and the provisions of Section F(2) above, apply.

(6) Analytical methodology.

(a) The standard sample volume required for total coliform analysis, regardless of analytical method used, is 100 ml.

(b) Water systems need only determine the presence or absence of total coliforms; a determination of total coliform density is not required.

(c) Analytical methods used to comply with R.61-58.5.G shall be in accordance with EPA-approved methods listed in 40 CFR 141 (11-8-06 edition).

(d) Water systems must conduct fecal coliform analysis in accordance with the procedure outlined in 40 CFR 141.21(f)(5) (11-8-06 edition).

(e) Water systems must conduct Escherichia coli analysis in accordance with the analytical methods outlined in 40 CFR 141.21(f)(6) (11-8-06 edition).

(7) Response to violation.

(a) A water system which has exceeded the MCL for total coliforms in Section F above, shall report the violation to the Department no later than the end of the next business day after it learns of the violation, and shall notify the public in accordance with

R.61-58.6.E.

(b) A water system which has failed to comply with a coliform monitoring requirement, including the sanitary survey requirement, shall report the monitoring violation to the Department within ten days after the system discovers the violation, and shall notify the public in accordance with R.61-58.6.E.

(8) The provisions of R.61-58.5.G(1) and (4) are applicable until March 31, 2016. The provisions of R.61-58.5.G(2), (3), (5), (6), and (7) are applicable until all required repeat monitoring under R.61-58.5.G(2) and fecal coliform or E. coli testing under R.61-58.5.G(5) that was initiated by a total coliform-positive sample taken before April 1, 2016 is completed, as well as analytical method, reporting, recordkeeping, public notification, and consumer confidence report requirements associated with that monitoring and testing. Beginning April 1, 2016, the provisions of R.61-58.17 are applicable, with systems required to begin regular monitoring at the same frequency as the system-specific frequency required on March 31, 2016.

H. Maximum Contaminant Levels for Radionuclides.

(1) The maximum contaminant level for radionuclides are applicable to all public water systems. Compliance with the maximum contaminant levels for radionuclides is calculated pursuant to Section I below.

(2) MCL for combined radium-226 and -228. The maximum contaminant level for combined radium-226 and radium-228 is 5 pCi/L. The combined radium-226 and radium-228 value is determined by the addition of the results of the analysis for radium-226 and the analysis for radium-228.

(3) MCL for gross alpha particle activity (excluding radon and uranium). The maximum contaminant level for gross alpha particle activity (including radium-226 but excluding radon and uranium) is 15 pCi/L.

(4) MCL for beta particle and photon radioactivity.

(a) The average annual concentration of beta particle and photon radioactivity from man-made radionuclides in drinking water must not produce an annual dose equivalent to the total body or any internal organ greater than 4 millirem/year (mrem/year).

(b) Except for the radionuclides listed in Table A, the concentration of man-made radionuclides causing 4 mrem total body or organ dose equivalents must be calculated on the basis of two (2) liters per day drinking water intake using the 168 hour data list in "Maximum Permissible Body Burdens and Maximum Permissible Concentrations of Radionuclides in Air and in Water for Occupational Exposure," NBS (National Bureau of Standards) Handbook 69 as amended August 1963, U.S. Department of Commerce. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies of this document are available from the National Technical Information Service, NTIS ADA 280 282, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161. The toll-free number is 800-553-6847. Copies may be inspected at EPA's Drinking Water Docket, 401 M Street, SW, Washington, DC 20460; or at the Office of the Federal Register, 800 North Capitol Street, NW, Suite 700, Washington, DC. If two or more radionuclides are present, the sum of their annual dose equivalent to the total body or to any organ shall not exceed 4 mrem/year.

TABLE A: AVERAGE ANNUAL CONCENTRATIONS ASSUMED TO PRODUCE A TOTAL BODY OR ORGAN DOSE OF 4 MREM/YR

Radionuclide	Critical organ	pCi per liter
1. Tritium	Total body	20,000
2. Strontium-90	Bone Marrow	8

(5) MCL for uranium. The maximum contaminant level for uranium is 30 μg/L.

(6) Compliance dates. Compliance dates for combined radium-226 and -228, gross alpha particle activity, gross beta particle and photon radioactivity, and uranium: Community water systems must comply with the MCLs listed in paragraphs (2), (3), (4), and (5) of this section beginning December 8, 2003 and compliance shall be determined in accordance with the requirements of Sections I and K below. Compliance with reporting requirements for the radionuclides under Appendix D to R.61-58.12 and Appendices A , B and C to R.61-58.6 is required on December 8, 2003.

(7) Best available technologies (BATs) for radionuclides. The Administrator, pursuant to section 1412 of the Federal Safe Drinking Water Act, hereby identifies as indicated in the following table the best technology available for achieving compliance with the maximum contaminant levels for combined radium-226 and -228, uranium, gross alpha particle activity, and beta particle and photon radioactivity.

TABLE B: BAT FOR COMBINED RADIUM-226 AND RADIUM-228, URANIUM, GROSS ALPHA PARTICLE ACTIVITY, AND BETA PARTICLE AND PHOTON RADIOACTIVITY

CONTAMINANT	BAT
1. Combined radium-226 and radium-228	Ion exchange, reverse osmosis, lime softening.
2. Uranium	Ion exchange, reverse osmosis, lime softening, coagulation/filtration.
3. Gross alpha particle activity (excluding Radon and Uranium)	Reverse osmosis.
4. Beta particle and photon radioactivity	Ion exchange, reverse osmosis.

(8) Small systems compliance technologies list for radionuclides.

TABLE C: LIST OF SMALL SYSTEMS COMPLIANCE TECHNOLOGIES FOR RADIONUCLIDES AND LIMITATIONS TO USE

Unit technologies	Limitations (see foot-notes)	Operator skill level required. [1]	Raw water quality range and considerations.[1]
1. Ion exchange (IE)	(a)	Intermediate	All ground waters.
2. Point of use (POU 2) IE	(b)	Basic	All ground waters.
3. Reverse osmosis (RO)	(c)	Advanced	Surface waters usually require pre-filtration.
4. POU[2] RO	(b)	Basic	Surface waters usually require pre-filtration.
5. Lime softening	(d)	Advanced	All waters.
6. Green sand filtration	(e)	Basic.	
7. Co-precipitation with Barium sulfate	(f)	Intermediate to Advanced	Ground waters with suitable water quality.
8. Electrodialysis/ electrodialysis reversal	.....	Basic to Intermediate	All ground waters.
9. Pre-formed hydrous Manganese oxide filtration	(g)	Intermediate	All ground waters.
10. Activated alumina	(a), (h)	Advanced	All ground waters; competing anion con-centrations may affect regeneration frequency.
11. Enhanced coagulation/ filtration	(i)	Advanced	Can treat a wide range of water qualities.

[1] National Research Council (NRC). Safe Water from Every Tap: Improving Water Service to Small Communities. National Academy Press. Washington, D.C. 1997.

[2] A POU, or "point-of-use" technology is a treatment device installed at a single tap used for the purpose of reducing contaminants in drinking water at that one tap. POU devices are typically installed at the kitchen tap. See the April 21, 2000 NODA for more details.

Limitations Footnotes: Technologies for Radionuclides:

[a] The regeneration solution contains high concentrations of the contaminant ions. Disposal options should be carefully considered before choosing this technology.

[b] When POU devices are used for compliance, programs for long-term operation, maintenance, and monitoring must be provided by water utility to ensure proper performance.

[c] Reject water disposal options should be carefully considered before choosing this technology. See other RO limitations described in the SWTR Compliance Technologies Table.

[d] The combination of variable source water quality and the complexity of the water chemistry involved may make this technology too complex for small surface water systems.

[e] Removal efficiencies can vary depending on water quality.

[f] This technology may be very limited in application to small systems. Since the process requires static mixing, detention basins, and filtration, it is most applicable to systems with sufficiently high sulfate

levels that already have a suitable filtration treatment train in place.

[g] This technology is most applicable to small systems that already have filtration in place.

[h] Handling of chemicals required during regeneration and pH adjustment may be too difficult for small systems without an adequately trained operator.

[i] Assumes modification to a coagulation/filtration process already in place.

TABLE D: COMPLIANCE TECHNOLOGIES BY SYSTEM SIZE CATEGORY FOR RADIONUCLIDES

Contaminant	Compliance technologies [1] for system size categories (population served)		
	25B500	501B3,300	3,300B10,000
1. Combined radium-226 and radium-228	1, 2, 3, 4, 5, 6, 7, 8, 9	1, 2, 3, 4, 5, 6, 7, 8, 9	1, 2, 3, 4, 5, 6, 7, 8, 9
2. Gross alpha particle activity	3, 4	3, 4	3, 4
3. Beta particle activity and photon activity	1, 2, 3, 4	1, 2, 3, 4	1, 2, 3, 4
4. Uranium	1, 2, 4, 10, 11	1, 2, 3, 4, 5, 10, 11	1, 2, 3, 4, 5, 10, 11

Note: [1] Numbers correspond to those technologies found listed in the Table C above.

I. Monitoring Frequency and Compliance Requirements for Radionuclides in Community Water Systems.

(1) This section shall apply only to community water systems which serve at least fifteen (15) service connections used by year-round residents or systems which regularly serve at least twenty-five (25) year -round residents. Suppliers of water for applicable community water systems shall analyze for radionuclides to determine compliance with Section H above.

(2) The monitoring and compliance requirements for gross alpha particle activity, radium-226, radium-228, and uranium.

(a) Community water systems (CWSs) must conduct initial monitoring to determine compliance with Section H(2), (3) and (5) above by December 31, 2007. For the purposes of monitoring for gross alpha particle activity, radium-226, radium-228, uranium, and beta particle and photon radioactivity in drinking water, "detection limit" is defined as in Section K(3) below.

(i) Applicability and sampling location for existing community water systems or sources. All existing CWSs using ground water, surface water or systems using both ground and surface water (for the purpose of this section hereafter referred to as systems) must sample at every entry point to the distribution system that is representative of all sources being used (hereafter called a sampling point) under normal operating conditions. The system must take each sample at the same sampling point unless conditions make another sampling point more representative of each source or the Department has designated a distribution system location, in accordance with paragraph (2)(b)(ii)(C) of this section.

(ii) Applicability and sampling location for new community water systems or sources. All new CWSs or CWSs that use a new source of water must begin to conduct initial monitoring for the new source within the first quarter after initiating use of the source. CWSs must conduct more frequent monitoring when ordered by the Department in the event of possible contamination or when changes in the distribution system or treatment processes occur which may increase the concentration of radioactivity in finished water.

(b) Initial monitoring: Systems must conduct initial monitoring for gross alpha particle activity, radium-226, radium-228, and uranium as follows:

(i) Systems without acceptable historical data, as defined below, must collect four consecutive quarterly samples at all sampling points before December 31, 2007.

(ii) Grandfathering of data: The Department may allow historical monitoring data collected at a sampling point to satisfy the initial monitoring requirements for that sampling point, for the following situations:

(A) To satisfy initial monitoring requirements, a community water system having only one entry point to the distribution system may use the monitoring data from the last compliance monitoring period that began between June 2000 and December 8, 2003.

(B) To satisfy initial monitoring requirements, a community water system with multiple entry points and having appropriate historical monitoring data for each entry point to the distribution system may use the monitoring data from the last compliance monitoring period that began between June 2000 and December 8, 2003.

(C) To satisfy initial monitoring requirements, a community water system with appropriate historical data for a representative point in the distribution system may use the monitoring data from the last compliance monitoring period that began between June 2000 and December 8, 2003, provided that the Department finds that the historical data satisfactorily demonstrate that each entry point to the distribution system is expected to be in compliance based upon the historical data and reasonable assumptions about the variability of contaminant levels between entry points. The Department must make a written finding indicating how the data conforms to these requirements.

(iii) For gross alpha particle activity, uranium, radium-226, and radium-228 monitoring, the Department may waive the final two quarters of initial monitoring for a sampling point if the results of the samples from the previous two (2) quarters are below the detection limit.

(iv) If the average of the initial monitoring results for a sampling point is above the MCL, the system must collect and analyze quarterly samples at that sampling point until the system has results from four (4) consecutive quarters that are at or below the MCL, unless the system enters into another schedule as part of a formal compliance agreement with the Department.

(c) Reduced monitoring: The Department may allow community water systems to reduce the future frequency of monitoring from once every three (3) years to once every six (6) or nine (9) years at each sampling point, based on the following criteria.

(i) If the average of the initial monitoring results for each contaminant (i.e., gross alpha particle activity, uranium, radium-226, or radium-228) is below the detection limit specified in Table B, in Section K(3)(a) below, the system must collect and analyze for that contaminant using at least one (1) sample at that sampling point every nine (9)years.

(ii) For gross alpha particle activity and uranium, if the average of the initial monitoring results for each contaminant is at or above the detection limit but at or below one-half (1/2) the MCL, the system must collect and analyze for that contaminant using at least one (1) sample at that sampling point every six (6) years. For combined radium-226 and radium-228, the analytical results must be combined. If the average of the combined initial monitoring results for radium-226 and radium-228 is at or above the detection limit but at or below one-half (1/2) the MCL, the system must collect and analyze for that contaminant using at least one (1) sample at that sampling point every six (6) years.

(iii) For gross alpha particle activity and uranium, if the average of the initial monitoring results for each contaminant is above one-half (1/2) the MCL but at or below the MCL, the system must collect and analyze at least one (1) sample at that sampling point every three (3) years. For combined radium-226 and radium-228, the analytical results must be combined. If the average of the combined initial monitoring results for radium-226 and radium-228 is above one-half (1/2) the MCL but at or below the MCL, the system must collect and analyze at least one (1) sample at that sampling point every three (3) years.

(iv) Systems must use the samples collected during the reduced monitoring period to determine the monitoring frequency for subsequent monitoring periods (e.g., if a system's sampling point is on a nine (9) year monitoring period, and the sample result is above one-half (1/2) MCL, then the next monitoring period for that sampling point is three (3) years).

(v) If a system has a monitoring result that exceeds the MCL while on reduced monitoring, the system must collect and analyze quarterly samples at that sampling point until the system has results from four (4) consecutive quarters that are below the MCL, unless the system enters into another schedule as part of a formal compliance agreement with the Department.

(d) Compositing: To fulfill quarterly monitoring requirements for gross alpha particle activity, radium-226, radium-228, or uranium, a system may composite up to four (4) consecutive quarterly samples from a single entry point if analysis is done within a year of the first sample. The Department will treat analytical results from the composited as the average analytical result to determine compliance with the MCLs and the future monitoring frequency. If the analytical result from the composited sample is greater than one-half (1/2) MCL, the Department may direct the system to take additional quarterly samples before allowing the system to sample under a reduced monitoring schedule.

(e) A gross alpha particle activity measurement may be substituted for the required radium-226 measurement provided that the measured gross alpha particle activity does not exceed 5 pCi/l. A gross alpha particle activity measurement may be substituted for

the required uranium measurement provided that the measured gross alpha particle activity does not exceed 15 pCi/l.

The gross alpha measurement shall have a confidence interval of 95 percent (1.65 sigma, where sigma is the standard deviation of the net counting rate of the sample) for radium-226 and uranium. When a system uses a gross alpha particle activity measurement in lieu of a radium-226 and/or uranium measurement, the gross alpha particle activity analytical result will be used to determine the future monitoring frequency for radium-226 and/or uranium. If the gross alpha particle activity result is less than detection, one-half (1/2) the detection limit will be used to determine compliance and the future monitoring frequency.

(3) Monitoring and compliance requirements for beta particle and photon radioactivity.

To determine compliance with the maximum contaminant levels in paragraph (4) of this section for beta particle and photon radioactivity, a system must monitor at a frequency as follows:

(a) Community water systems (both surface and ground water) designated by the Department as vulnerable must sample for beta particle and photon radioactivity. Systems must collect quarterly samples for beta emitters and annual samples for tritium and strontium-90 at each entry point to the distribution system (hereafter called a sampling point), beginning within one quarter after being notified by the Department. Systems already designated by the Department must continue to sample until the Department reviews and either reaffirms or removes the designation.

(i) If the gross beta particle activity minus the naturally occurring potassium-40 beta particle activity at a sampling point has a running annual average (computed quarterly) less than or equal to 50 pCi/L (screening level), the Department may reduce the frequency of monitoring at that sampling point to once every three (3) years. Systems must collect all samples required in paragraph (2)(a) of this section during the reduced monitoring period.

(ii) For systems in the vicinity of a nuclear facility, the Department may allow the CWS to utilize environmental surveillance data collected by the nuclear facility in lieu of monitoring at the system's entry point(s), where the Department determines if such data is applicable to a particular water system. In the event that there is a release from a nuclear facility, systems which are using surveillance data must begin monitoring at the community water system's entry point(s) in accordance with paragraph (2)(a) of this section.

(b) Community water systems (both surface and ground water) designated by the Department as utilizing waters contaminated by effluents from nuclear facilities must sample for beta particle and photon radioactivity. Systems must collect quarterly samples for beta emitters and iodine-131 and annual samples for tritium and strontium-90 at each entry point to the distribution system (hereafter called a sampling point), beginning within one quarter after being notified by the Department. Systems already designated by the Department as systems using waters contaminated by effluents from nuclear facilities must continue to sample until the Department reviews and either reaffirms or removes the designation.

(i) Quarterly monitoring for gross beta particle activity shall be based on the analysis of monthly samples or the analysis of a composite of three monthly samples. The former is recommended.

(ii) For iodine-131, a composite of five consecutive daily samples shall be analyzed once each quarter. As ordered by the Department, more frequent monitoring shall be conducted when iodine-131 is identified in the finished water.

(iii) Annual monitoring for strontium-90 and tritium shall be conducted by means of the analysis of a composite of four consecutive quarterly samples or analysis of four quarterly samples. The latter procedure is recommended.

(iv) If the gross beta particle activity beta minus the naturally occurring potassium-40 beta particle activity at a sampling point has a running annual average (computed quarterly) less than or equal to 15 pCi/L (screening level), the Department may reduce the frequency of monitoring at that sampling point to every three (3) years. Systems must collect all samples required in paragraph (2)(a) of this section during the reduced monitoring period.

(v) For systems in the vicinity of a nuclear facility, the Department may allow the CWS to utilize environmental surveillance data collected by the nuclear facility in lieu of monitoring at the system's entry point(s), where the Department determines if such data is applicable to a particular water system. In the event that there is a release from a nuclear facility, systems which are using surveillance data must begin monitoring at the community water system's entry point(s) in accordance with paragraph (2)(a) of this section.

(c) Community water systems designated by the Department to monitor for beta particle and photon radioactivity can not apply to the Department for a waiver from the monitoring frequencies specified in paragraph (2)(a) or (2)(b) of this section.

(d) Community water systems may analyze for naturally occurring potassium-40 beta particle activity from the same or equivalent sample used for the gross beta particle activity analysis. Systems are allowed to subtract the potassium-40 beta particle activity value from the total gross beta particle activity value to determine if the screening level is exceeded. The potassium-40 beta particle activity must be calculated by multiplying elemental potassium concentrations (in mg/L) by a factor of 0.82.

(e) If the gross beta particle activity minus the naturally occurring potassium-40 beta particle activity exceeds the appropriate screening level, an analysis of the sample must be performed to identify the major radioactive constituents present in the sample and the appropriate doses must be calculated and summed to determine compliance with Section H(4)(a) above , using the formula in Section H(4)(b) above. Doses must also be calculated and combined for measured levels of tritium and strontium to determine compliance.

(f) Systems must monitor monthly at the sampling point(s) which exceed the maximum contaminant level in R.61-58.5.H(4)(a), beginning the month after the exceedance occurs. Systems must continue monthly monitoring until the system has established, by a rolling average of three (3) monthly samples, that the MCL is being met. Systems who establish that the MCL is being met must return to quarterly monitoring until they meet the requirements set forth in paragraphs (3)(a)(i) or (3)(b)(iv) of this section.

(4) General monitoring and compliance requirements for radionuclides.

(a) The Department may require more frequent monitoring than specified R.61-58.5.I(1) or (2), or may require confirmation samples at its discretion. The results of the initial and confirmation samples will be averaged for use in compliance determinations.

(b) Each public water systems shall monitor at the time designated by the Department during each compliance period.

(c) Compliance: Compliance with Section H(2) through (5) above, will be determined based on the analytical result(s) obtained at each sampling point. If one (1) sampling point is in violation of an MCL, the system is in violation of the MCL.

(i) For systems monitoring more than once per year, compliance with the MCL is determined by a running annual average at each sampling point. If the average of any sampling point is greater than the MCL, then the system is out of compliance with the MCL.

(ii) For systems monitoring more than once per year, if any sample result will cause the running average to exceed the MCL at any sample point, the system is out of compliance with the MCL immediately.

(iii) Systems must include all samples taken and analyzed under the provisions of this section in determining compliance, even if that number is greater than the minimum required.

(iv) If a system does not collect all required samples when compliance is based on a running annual average of quarterly samples, compliance will be based on the running average of the samples collected.

(v) If a sample result is less than the detection limit, zero will be used to calculate the annual average, unless a gross alpha particle activity is being used in lieu of radium-226 and/or uranium. If the gross alpha particle activity result is less than detection, one-half (1/2) the detection limit will be used to calculate the annual average.

(d) The Department has the discretion to delete results of obvious sampling or analytic errors.

(e) If the MCL for radioactivity set forth in Section H(2) through (5) above, is exceeded, the operator of a community water system must give notice to the Department pursuant to R.61-58.6.

J. Maximum Contaminant Level Goals for Radionuclides.

MCLGs for radionuclides are as indicated in the following table:

Contaminant	MCLG
1. Combined radium-226 and radium-228	Zero.
2. Gross alpha particle activity (excluding radon and uranium)	Zero.
3. Beta particle and photon radioactivity	Zero.
4. Uranium	Zero.

K. Analytical Methods for Radionuclides.

(1) Analysis for the following contaminants shall be conducted to determine compliance with Section H above, (radioactivity) in accordance with the methods adopted by the Department.

(2) For the purpose of monitoring radioactivity concentrations in drinking water, the required sensitivity of the radio-analysis is defined in terms of detection limit. The detection limit shall be that concentration which can be counted with a precision of plus or minus one hundred percent at the ninety-five percent confidence level (1.96 sigma where sigma is the standard deviation of the net counting rate of the sample). To determine compliance with Sections H and J above, the detection limits shall not exceed those set form by the Administrator.

(3) To judge compliance with the maximum contaminant levels listed in Sections H and J above, averages of data shall be used and shall be round to the same number of significant figures as the maximum contaminant level for the substance in question.

(a) To determine compliance with Section H(2), (3), and (5), above the detection limit shall not exceed the concentrations in Table B to this paragraph.

TABLE B DETECTION LIMITS FOR GROSS ALPHA PARTICLE ACTIVITY, RADIUM 226, RATIUM 228, AND URANIUM

Contaminant	Detection limit
Gross alpha particle activity	3 pCi/L.
Radium 226	1 pCi/L.
Radium 228	1 pCi/L.
Uranium	I microgram/L

(b) To determine compliance with Section H(4) above, the detection limits shall not exceed the concentrations listed in Table C to this paragraph.

TABLE C: DETECTION LIMITS FOR MAN-MADE BETA PARTICLES AND PHOTON EMITTERS

Contaminant	Detection limit
Tritium	1,000 pCi/l
Strontium-89	10 pCi/l
Strontium - 90	2 pCi/l
Iodine-131	1 pCi/l
Cesium-134	10 pCi/l
Gross Beta	4 pCi/l
Other radionuclides	1/10 of the applicable limit

(4) To judge compliance with the maximum contaminant levels listed in Section H above, averages of data shall be used and shall be rounded to the same number of significant figures as the maximum contaminant level for the substance in question.

L. [Reserved]

M. [Reserved]

N. Maximum Contaminant Levels for Volatile Synthetic Organic Chemicals (VOCs).

(1) The maximum contaminant levels for volatile synthetic organic chemicals (VOCs) apply to all public water systems.

(2) The maximum contaminant levels for volatile synthetic organic chemicals (VOCs) are as follows:

	Contaminant	MCL (mg/L)
(a)	Vinyl chloride	0.002
(b)	Benzene	0.005
(c)	Carbon tetrachloride	0.005
(d)	1,2-Dichloroethane	0.005
(e)	Trichloroethylene	0.005
(f)	para-Dichlorobenzene	0.075
(g)	1,1,-Dichloroethylene	0.007
(h)	1,1,1-Trichloroethane	0.2
(i)	cis-1,2-Dichloroethylene	0.07
(j)	1,2-Dichloropropane	0.005
(k)	Ethylbenzene	0.7
(l)	Monochlorobenzene	0.1
(m)	o-Dichlorobenzene	0.6
(n)	Styrene	0.1
(o)	Tetrachloroethylene	0.005
(p)	Toluene	1
(q)	trans-1,2-Dichloroethylene	0.1
(r)	Xylenes (total)	10
(s)	Dichloromethane	0.005
(t)	1,2,4-Trichlorobenzene	0.07
(u)	1,1,2-Trichloroethane	0.005

O. VOC Monitoring, Sampling and Analytical Requirements.

(1) This section shall apply to community and non-transient non-community water systems.

(2) Beginning with the initial compliance period analysis of the contaminants listed in Section N(2) above, for the purpose of determining compliance with the maximum contaminant level shall be conducted as follows:

(a) Groundwater systems shall take a minimum of one (1) sample at every entry point to the distribution system which is representative of each well after treatment (hereafter called a sampling point). Each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

(b) Surface water systems (or combined surface/ground) shall take a minimum of one (1) sample at points in the distribution system that are representative of each source or at each entry point to the distribution system after treatment (hereafter called a sampling point). Each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source, treatment plant, or within the distribution system.

(c) If the system draws water from more than one (1) source and the sources are combined before distribution, the system must sample at an entry point to the distribution system during periods of normal operating conditions (i.e., when water representative of all sources is being used).

(d) Each community and non-transient non-community water system shall take four consecutive quarterly samples for each contaminant listed in Section N(2)(b) through (u) above, during each compliance period beginning in the initial compliance period.

(e) If the initial monitoring for contaminants listed in Section N(2)(a) through (h) and the monitoring for the contaminants listed in Section N(2)(i) through (u) as allowed in paragraph (2)(r) of this section, has been completed by December 31, 1992, and the system did not detect any contaminant listed in Section N(2) above, then each ground and surface water system shall take one (1) sample annually beginning with the initial compliance period.

(f) After a minimum of three (3) years of annual sampling, the Department may allow groundwater systems with no previous detection of any contaminant listed in Section N(2) above, to take one (1) sample during each compliance period.

(g) Each community and non-transient non-community ground water system which does not detect a contaminant listed in Section N(2) above, may apply to the Department for a waiver from the requirement of paragraphs (4)(e) and (4)(f) of this section after completing the initial monitoring. (For the purposes of this section, detection is defined as □0.0005 mg/L.) A waiver shall be effective for no more than six (6) years (two compliance periods). The Department may also issue waivers to small systems for the initial round of monitoring for 1,2,4-trichlorobenzene.

(h) The Department may grant a waiver after evaluating the following factor(s):

(i) Knowledge of previous use (including transport, storage, or disposal) of the contaminant within the watershed or zone of influence of the system. If a

determination by the Department reveals no previous use of the contaminant within the watershed or zone of influence, a waiver may be granted.

(ii) If previous use of the contaminant is unknown or it has been used previously, then the following factors shall be used to determine whether a waiver is granted.

(A) Previous analytical results.

(B) The proximity of the system to a potential point or non-point source of contamination. Point sources include spills and leaks of chemicals at or near a water treatment facility or at manufacturing, distribution, or storage facilities, or from hazardous and municipal waste landfills and other waste handling or treatment facilities.

(C) The environmental persistence and transport of the contaminants.

(D) The number of persons served by the public water system and the proximity of a smaller system to a larger system.

(E) How well the water source is protected against contamination such as whether it is a surface or groundwater system. Groundwater systems must consider factors such as depth of the well, the type of soil, and wellhead protection. Surface water systems must consider watershed protection.

(i) As a condition of the waiver a groundwater system must take one (1) sample at each sampling point during the time the waiver is effective (i.e., one sample during two compliance periods or six years) and update its vulnerability assessment considering the factors listed in paragraph (2)(h) of this section. Based on this vulnerability assessment the Department must reconfirm that the system is non-vulnerable. If the Department does not make this reconfirmation within three (3) years of the initial determination, then the waiver is invalidated and the system is required to sample annually as specified in paragraph (e) of this section.

(j) Each community and non-transient non-community surface water system which does not detect a contaminant listed in Section N(2) above may apply to the Department for a waiver from the requirements of paragraph (4)(e) of this section after completing the initial monitoring. Composite samples from a maximum of five sampling points are allowed, provided that the detection limit of the method used for analysis is less than one-fifth of the MCL. Systems meeting this criteria must be determined by the Department to be non-vulnerable based upon a vulnerability assessment during each compliance period. Each system receiving a waiver shall sample at the frequency specified by the Department (if any).

(k) If a contaminant listed in Section N (2)(b) through (u) above, is detected at a level exceeding 0.0005 mg/L in any sample, then:

(l) Systems which violate the requirements of Section N(2) above, as determined by paragraph (2)(o) of this section must monitor quarterly. After a minimum of four (4) consecutive quarterly samples which shows the system is in compliance as specified in paragraph (2)(o) of this section, the system and the Department determines that the

system is reliably and consistently below the maximum contaminant level, the system may monitor at the frequency and time specified in paragraph (4)(k)(iii) of this section.

(m) The Department may require a confirmation sample for positive or negative results. If a confirmation sample is required by the Department, the result must be averaged with the first sampling result and the average is used for the compliance determination as specified by paragraph (2)(o) of this section. The Department has the discretion to delete results of obvious sampling errors from this calculation.

(n) The Department may reduce the total number of samples a system must analyze by allowing the use of compositing. Composite samples from a maximum of five sampling points are allowed, provided that the detection limit of the method used for analysis is less than one-fifth of the MCL. Compositing of samples must be done in the laboratory and analyzed within fourteen (14) days of sample collection.

(i) If the concentration in the composite sample is □0.0005 mg/L for any contaminant listed in Section N(2) above, then a follow-up sample must be taken within fourteen (14) days at each sampling point included in the composite, and be analyzed for that contaminant.

(ii) If duplicates of the original sample taken from each sampling point used in the composite are available, the system may use these instead of resampling. The duplicate must be analyzed and the results reported to the Department within fourteen (14) days of collection.

(iii) If the population served by the system is greater than 3,300 persons, then compositing may only be permitted by the State at sampling points within a single system. In systems serving □3,300 persons, the Department may permit compositing among different systems provided the 5-sample limit is maintained.

(iv) Compositing samples prior to GC analysis.

(A) Add 5 ml or equal larger amounts of each sample (up to 5 samples are allowed) to a 25 ml glass syringe. Special precautions must be made to maintain zero headspace in the syringe.

(B) The samples must be cooled at 4°C during this step to minimize volatilization losses.

(C) Mix well and draw out a 5-ml aliquot for analysis.

(D) Follow sample introduction, purging, and desorption steps described in the method.

(E) If less than five samples are used for compositing, a proportionately small syringe may be used.

(v) Compositing samples prior to GC/MS analysis.

(A) Inject 5-ml or equal larger amounts of each aqueous sample (up to 5 samples are allowed) into a 25-ml purging device using the sample introduction technique described in the method.

(B) The total volume of the sample in the purging device must be 25 ml.

(C) Purge and desorb as described in the method.

(o) Compliance with Section N(2) above, shall be determined based on the analytical results obtained at each sampling point. If one sampling point is in violation of an MCL, the system is in violation of the MCL.

(i) For systems monitoring more than once per year, compliance with the MCL is determined by a running annual average at each sampling point.

(ii) Systems monitoring annually or less frequently whose sample result exceeds the MCL must begin quarterly sampling. The system will not be considered in violation of the MCL until it has completed one year of quarterly sampling.

(iii) If any sample result will cause the running annual average to exceed the MCL at any sampling point, the system is out of compliance with the MCL immediately.

(iv) If a system fails to collect the required number of samples, compliance will be based on the total number of samples collected.

(v) If a sample result is less than the detection limit, zero will be used to calculate the annual average.

(p) Analysis for the contaminants listed in Section N(2) above, shall be conducted using EPA-approved methods listed in 40 CFR 141.

(q) Analysis under this section shall only be conducted by laboratories that are certified by the Department.

(r) The Department may allow the use of monitoring data collected after January 1, 1988, for purposes of initial monitoring compliance. If the data are generally consistent with the other requirements in this section, the Department may use those data (i.e., a single sample rather than four quarterly samples) to satisfy the initial monitoring requirement of paragraph (2)(d) of this section. Systems which use grandfathered samples and did not detect any contaminant listed in Section N(2)(b) through (u) above shall begin monitoring annually in accordance with paragraph (2)(e) of this section beginning with the initial compliance period.

(s) The Department may increase required monitoring where necessary to detect variations within the system.

(t) Each public water system shall monitor at the time designated by the Department within each compliance period.

(u) All new systems or systems that use a new source of water that begin operation after January 22, 2004 must demonstrate compliance with the MCL within a period of time specified by the Department. The system must also comply with the initial sampling frequencies specified by the Department to ensure a system can demonstrate compliance with the MCL. Routine and increased monitoring frequencies shall be conducted in

accordance with the requirements in this section.

(3) If a community or a non-transient non-community water system fails to comply with an applicable VOC MCL, that system shall give notice to the customers served by the system in accordance with the requirements of R.61-58.6.E.

P. Maximum Contaminant Levels for Disinfection Byproducts.

(1) Bromate and Chlorite

The maximum contaminant levels (MCLs) for bromate and chlorite are as follows:

Disinfection Byproduct	MCL (mg/L)
Bromate	0.010
Chlorite	1.0

(a) Compliance Dates. Community water systems and non-transient non-community water systems that use a surface water source or a ground water source under the influence of surface water serving 10,000 or more persons must comply with this section beginning January 1, 2002. Community water systems and non-community non-transient water systems that use a surface water source or a ground water source under the influence of surface water serving fewer than 10,000 persons and community water systems and non-community non-transient water systems using only ground water not under the direct influence of surface water must comply with this section beginning January 1, 2004.

(b) Best technology, treatment techniques, or other means available for achieving compliance with the maximum contaminant levels for bromate and chlorite identified in this section are specified in 40 CFR 141.64 (a)(2) (1-04-06 edition).

(2) TTHM and HAA5.

(a) Stage 1 DBP Rule Running Annual Average (RAA) compliance.

The maximum contaminant levels (MCLs) for TTHM and HAA5 are as follows:

Disinfection Byproduct	MCL (mg/L)
Total Trihalomethanes (TTHM)	0.080
Haloacetic Acids (five) (HAA5)	0.060

(i) Compliance dates. Subpart H systems serving 10,000 or more persons must comply with this paragraph (2)(a) beginning January 1, 2002. Subpart H systems serving fewer than 10,000 persons and systems using only ground water not under the direct influence of surface water must comply with this paragraph (2)(a) beginning January 1, 2004. All systems must comply with these MCLs until the date specified for Stage 2 DBP Rule compliance in R.61-58.15.B(2).

(ii) Best technology, treatment techniques, or other means available for achieving compliance with the maximum contaminant levels for TTHM and HAA5 identified in this section are specified in 40 CFR 141.64 (b)(1)(ii) (1-04-06 edition).

(b) Stage 2 DBP Rule Locational Running Annual Average (LRAA) compliance.

The maximum contaminant levels (MCLs) for TTHM and HAA5 are as follows:

Disinfection Byproduct	MCL (mg/L)
Total Trihalomethanes (TTHM)	0.080
Haloacetic Acids (five) (HAA5)	0.060

(i) Compliance dates. The MCLs for TTHM and HAA5 must be complied with as a locational running annual average at each monitoring location beginning the date specified in R.61-58.15.B(2).

(ii) Best technology, treatment techniques, or other means available for achieving compliance with the maximum contaminant levels for TTHM and HAA5 identified in this section are specified in 40 CFR 141.64 (b)(2)(ii), and 40 CFR 141.64 (b)(2)(iii) (1-04-06 edition).

Q. Maximum Residual Disinfectant Levels (MRDLs) for Disinfectants.

(1) Maximum residual disinfectant levels (MRDLs) are as follows:

Disinfectant Residual	MRDL (mg/L)
Chlorine	4.0 (as Cl_2)
Chloramines	4.0 (as Cl_2)
Chlorine dioxide	0.8 (as ClO_2)

(2) Compliance dates.

(a) Community water systems and non-transient non-community water systems that use a surface water source or a ground water source under the influence of surface water serving 10,000 or more persons must comply with this section beginning January 1, 2002. Community water systems and non-community non-transient water systems that use a surface water source or a ground water source under the influence of surface water serving fewer than 10,000 persons and community water systems and non-community non-transient water systems using only ground water not under the direct influence of surface water must comply with this section beginning January 1, 2004.

(b) Transient non-community water systems that use a surface water source or a ground water source under the influence of surface water serving 10,000 or more persons and using chlorine dioxide as a disinfectant or oxidant must comply with the chlorine dioxide MRDL beginning January 1, 2002. Transient non-community water systems that use a surface water source or a ground water source under the influence of surface water systems serving fewer than 10,000 persons and using chlorine dioxide as a disinfectant or oxidant and transient non-community water systems using only ground water not under the direct influence of surface water and using chlorine dioxide as a disinfectant or oxidant must comply with the chlorine dioxide MRDL beginning January 1, 2004.

R. Secondary Maximum Contaminant Levels.

(1) The secondary maximum contaminant levels are applicable to all public water systems.

(2) The secondary maximum contaminant levels are as follows:

Contaminant	Level
Aluminum	0.05 to 0.2 mg/L
Chloride	250 mg/L
Color	15 color units
Copper	1 mg/L
Corrosivity	Noncorrosive
Fluoride	2.0 mg/L
Foaming agents	0.5 mg/L
Iron	0.3 mg/L
Manganese	0.05 mg/L
Odor	3 threshold odor number
pH	6.5 to 8.5 s.u.
Silver	0.1 mg/L
Sulfate	250 mg/L
Total Dissolved Solids (TDS)	500 mg/L
Zinc	5 mg/L

(3) The Department may establish higher or lower levels which may be appropriate depending upon local conditions provided the supplier of water is able to demonstrate that use of the water will not adversely affect the public health and welfare. In evaluating the affect to the public health and welfare, the supplier of water may evaluate the unavailability of alternate water sources; the economic evaluation of necessary treatment or other compelling factors that may prevent compliance.

(4) Community water systems that exceed the secondary MCL for fluoride, as determined by the last single sample taken in accordance with the requirements of these regulations, shall send the notice described in paragraph (5) of this section, to: (1) all existing billing units, (2) all new billing units at the time service begins, and (3) the Department.

(5) The public notice that shall be used by systems which exceed the secondary MCL for fluoride shall contain the specific language outlined in R.61-58.6.E(8), and no additional language except as necessary to complete the notice.

S. Secondary Maximum Contaminant Levels Sampling and Analytical Requirements.

(1) This section shall apply only to community and non-community water systems which serve at least fifteen service connections or regularly serve an average of at least twenty-five individuals daily at least sixty (60) days out of the year.

(2) At the discretion of the Department any community or non-community water system may be required to monitor, in whole or in part, for secondary maximum contaminant levels listed in Section R(2) or for any other secondary standard designated by the Department.

(3) For the initial analyses required by paragraph (2) of this section, data for surface waters acquired within one (1) year prior to the effective date and data for groundwaters acquired within three (3) years prior to the effective date of this regulation may be substituted at the discretion of the Department. Analyses conducted to determine compliance with Section R above shall be made using EPA-approved methods listed in 40 CFR 141.

T. Special Monitoring for Inorganic and Organic Contaminants.

(1) All community and non-transient non-community water supply systems shall conduct special monitoring for the following contaminants. Systems serving 10,000 or fewer persons are not required to monitor for the contaminants in the section after December 31, 1998.

Chloroform	1,3-Dichloropropane
Bromodichloromethane	Chloromethane
Chlorodibromomethane	Bromomethane
Bromoform	1,2,3-Trichloropropane
Chlorobenzene	1,1,1,2-Tetrachloroethane
m-Dichlorobenzene	Chloroethane
2,2-Dichloropropane	1,1-Dichloropropene
o-Chlorotoluene	1,1-Dichloroethane
Bromobenzene	1,1,2,2-Tetrachloroethane
1,3-Dichloropropene	p-Chlorotoluene

(2) Monitoring for the organic compounds listed in paragraph (1) of this section, shall begin no later than the date specified below:

Population Served	Initial Monitoring Date
>10,000	No later than January 1, 1988
3,300 - 10,000	No later than January 1, 1989
<3,300	No later than January 1, 1991

(3) Surface water systems shall sample at points in the distribution system representative of each water source or at entry points to the distribution system after any application of treatment. The minimum number of samples is one year of quarterly samples per water source.

(4) Ground water systems shall sample at points of entry to the distribution system representative of each well after any application of treatment. The minimum number of samples is one (1) sample per entry point to the distribution system.

(5) The Department may require confirmation samples for positive or negative results.

(6) (Reserved)

(7) Analysis under this section shall be conducted using EPA-approved methods listed in 40 CFR 141.

(8) Analysis under this section shall only be performed by laboratories which are certified by the Department.

(9) Public water systems may use monitoring data collected any time after January 1, 1983, to meet the requirements of paragraph (1) of this section, provided that the monitoring program was consistent with the requirements of this section. In addition, the results of EPA's Ground Water Supply Survey may be used in a similar manner for systems supplied by a single well.

(10) At the Department's discretion, community water systems and non-transient non-community water systems may be required to conduct special monitoring for the following contaminants:

1,2,4-Trimethylbenzene	p-Isopropyltoluene
1,2,4-Trichlorobenzene	Isopropylbenzene
1,2,3-Trichlorobenzene	Tert-butylbenzene
n-Propylbenzene	Sec-butylbenzene
n-Butylbenzene	Fluorotrichloromethane
Naphthalene	Dichlorodifluoromethane
Hexachlorobutadiene	Bromochloromethane
1,3,5-Trimethylbenzene	

(11) All community and non-transient non-community water systems shall repeat the monitoring required by this Section no less frequently than every five (5) years from the dates specified in paragraph (2) of this section.

(12) The Department or public water systems may composite up to five samples when monitoring for the organic contaminants in paragraphs (1) and (10) of this section.

(13) Monitoring of the contaminants listed in paragraphs (13)(k) and (l) of this section, shall be conducted as follows:

(a) Each community and non-transient, non-community water system shall take four consecutive quarterly samples at each sampling point for each contaminant listed in paragraph (13)(k) of this section and report the results to the Department. Monitoring must be completed by December 31, 1995.

(b) Each community and non-transient non-community water system shall take one sample at each sampling point for each contaminant listed in paragraph (13)(l) of this section and report the results to the Department. Monitoring must be completed by December 31, 1995.

(c) Each community and non-transient non-community water system may apply to the Department for a waiver from the requirements of paragraph (13)(a) and (b) of this section.

(d) The Department may grant a waiver for the requirement of paragraph (13)(a) of this section based on the criteria specified in Section E(7)(f) above. The Department may grant a waiver from the requirement of paragraph (13)(b) of this section if previous analytical results indicate contamination would not occur, provided this data was collected after January 1, 1990.

(e) Groundwater systems shall take a minimum of one (1) sample at every entry point to the distribution system which is representative of each well after treatment (hereafter called a sampling point). Each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

(f) Surface water systems shall take a minimum of one (1) sample at points in the distribution system that are representative of each source or at each entry point to the distribution system after treatment (hereafter called a sampling point). Each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant. [Note: For purposes of this paragraph, surface water systems include systems with a combination of surface and ground sources.]

(g) If the system draws water from more than one (1) source and the sources are combined before distribution, the system must sample at an entry point to the distribution system during periods of normal operating conditions (i.e., when water representative of all sources is being used).

(h) The Department may require a confirmation sample for positive or negative results.

(i) The Department may reduce the total number of samples a system must analyze by allowing the use of compositing. Composite samples from a maximum of five (5) sampling points are allowed. Compositing of samples must be done in the laboratory and the composite sample must be analyzed within fourteen (14) days of collection. If the population served by the system is greater than3,300 persons, then compositing may only be permitted by the Department at sampling points within a single system. In systems serving 3,300 persons or less, the Department may permit compositing among different systems provided the 5-sample limit is maintained.

(j) Instead of performing the monitoring required by this section, a community water system or non-transient non-community water system serving fewer than 150 service connections may send a letter to the Department stating that the system is available for sampling. This letter must be sent to the Department by January 1, 1994. The system shall not send such samples to the Department, unless requested to do so by the Department.

(k) List of Unregulated Organic Contaminants:

Organic Contaminants	EPA Analytical Method
Aldicarb	531.1
Aldicarb sulfone	531.1
Aldicarb sulfoxide	531.1
Aldrin	505, 508, 525.1
Butachlor	507, 525.1
Carbaryl	531.1
Dicamba	515.1
Dieldrin	505, 508, 525.1
3-Hydroxycarbofuran	531.1
Methomyl	531.1
Metolachlor	507, 525.1
Metribuzin	507, 525.1
Propachlor	508, 525.1

(l) List of Unregulated Inorganic Contaminants:

Inorganic Contaminant	EPA Analytical Method
Sulfate	Colorimetric

(14) The owner or operator of a community or non-transient non-community water system that is required to monitor in accordance with this section shall send a copy of the results of such monitoring within thirty (30) days of receipt, and a copy of any public notice under paragraph (15) of this section, to the Department.

(15) The owner or operator shall notify the persons served by the system of the availability of the results of sampling conducted in accordance with this section by including a notice in the first set of water bills issued by the system after the receipt of the results or written notice within three (3) months. The notice shall identify a person and supply the telephone number to contact for information on the monitoring results. For surface water systems, public notification is required only after the first quarter's monitoring and must include a statement that additional monitoring will be conducted for three (3) more quarters with the results available upon request.

U. Special Monitoring for Sodium.

(1) Suppliers of water for community public water systems shall collect and analyze one (1) sample per plant at the entry point of the distribution system for the determination of sodium concentration levels; samples must be collected and analyzed annually for systems utilizing surface water sources in whole or in part, and at least every three (3) years for systems utilizing solely ground water sources. The minimum number of samples required to be taken by the system shall be based on the number of treatment plants used by the system, except that multiple wells drawing raw water from a single aquifer may, with the Department's approval, be considered one (1) treatment plant for determining the minimum number of samples. The supplier of water may be required by the Department to collect and analyze water samples for sodium more frequently in locations where the sodium content is variable.

(2) The supplier of water shall report to the Department the results of the analyses for sodium within the first ten (10) days of the month following the month in which the sample results were received or within the first ten (10) days following the end of the required monitoring period as stipulated by the Department, whichever of these is first. If more than annual sampling is required the supplier shall report the average sodium concentration within ten (10) days of the month following the month in which the analytical results of the last sample used for the annual average was received.

(3) The supplier of water shall notify the appropriate local public health officials of the sodium levels in the water by written notice by direct mail within three (3) months after receiving the results of analyses. Within ten (10) days after notifying the local public health officials, the supplier of water shall forward a copy of such written notice to the Department. The supplier of water is not required to notify local public health officials where the Department provides such notices.

(4) Analysis for sodium shall be conducted using EPA-approved methods listed in 40 CFR 141.

V. Special Monitoring for Corrosivity Characteristics.

(1)-(3)[Reserved]

(4) The supplier of water for applicable community water systems shall identify and report to the Department whether the following construction materials are present in their distribution system:

(a) Lead from piping, solder, caulking, interior lining of distribution mains, alloys and home plumbing.

(b) Copper from piping and alloys, service lines and home plumbing.

(c) Galvanized piping, service lines and home plumbing.

(d) Ferrous piping materials such as cast iron and steel.

(e) Vinyl lined asbestos cement pipe.

(f) Coal tar lined pipes and tanks.

(g) Asbestos cement pipe.

W. Special Monitoring and Notification Requirements.

The Department shall perform such monitoring as is necessary to insure the quality and integrity of results of tests, measurements, or analyses reported by the supplier of water. Should such monitoring by the Department indicate a violation of the maximum contaminant levels, or the presence of any contaminant at levels considered to be a real or potential threat to the public's health, the Department at its discretion may notify the public or require the supplier of water to notify the public pursuant to R.61-58.6.E, or other method deemed appropriate by the Department and initiate the necessary action to eliminate the violation or contaminant.

X. Monitoring of Consecutive Public Water Systems.

When a public water system supplies water to one or more other public water systems, the Department may modify the monitoring requirements imposed by this regulation to the extent that the interconnection of the systems justifies treating them as a single system for monitoring purposes. Any modified monitoring shall be conducted pursuant to a schedule specified by the Department and concurred in by the Administrator.

Y. Criteria and Procedures for Public Water Systems using Point-of-Entry Devices.

(1) Public water systems may use point-of-entry devices to comply with maximum contaminant levels only if they meet the requirements of this section.

(2) It is the responsibility of the public water system to operate and maintain the point-of-entry treatment system.

(3) The public water system must develop and obtain Department approval for a monitoring plan before point-of-entry devices are installed for compliance. Under the plan approved by the Department, point-of-entry devices must provide health protection equivalent to central water treatment. "Equivalent" means that the water would meet all State primary drinking water regulations and would be of acceptable quality similar to water distributed by a well-operated central treatment plant. In addition to the VOCs, monitoring must include physical measurements and observations such as total flow treated and mechanical condition of the treatment equipment.

(4) The public water system must properly apply effective technology under a plan approved by the Department and must maintain the microbiological safety of the water.

(a) The public water system must provide adequate certification of performance, field testing, and, if not included in the certification process, a rigorous engineering design review of the point-of-entry devices.

(b) The design and application of the point-of-entry devices must consider the tendency for an increase in heterotrophic bacteria concentrations in water treated with activated carbon. It may be necessary to use frequent backwashing, post-contactor disinfection, and Heterotrophic Plate Count monitoring to ensure that the microbiological safety of the water is not compromised.

(5) The public water system must protect all consumers. Every building connected to the

system must have a point-of-entry device installed, maintained, and adequately monitored. The public water system must assure that every building is subject to treatment and monitoring, and that the rights and responsibilities of the public water system customer convey with title upon sale of property.

Z. Use of Other Non-Centralized Treatment Devices.

Public water systems shall not use bottled water or point-of-use devices to achieve compliance with an established maximum contaminant level. Bottled water or point-of-use devices may be used on a temporary basis to avoid an unreasonable risk to health.

AA. Treatment Techniques.

(1) This section establishes criteria and requirements for treatment techniques in lieu of maximum contaminant levels for specified contaminants. This section applies to all public water systems.

(2) Treatment techniques for acrylamide and epichlorohydrin. Each public water system must certify annually in writing to the Department (using third party or manufacturer's certification) that when acrylamide and epichlorohydrin are used in drinking water systems, the combination (or product) of dose and monomer level does not exceed the levels specified as follows:

Acrylamide	=	0.05% dosed at 1 ppm (or equivalent)
Epichlorohydrin	=	0.01% dosed at 20 ppm (or equivalent)

Certifications can rely on manufacturers or third parties, as approved by the Department.

BB. Approved Laboratories.

For the purpose of determining compliance with R.61-58.5.B through R.61-58.5.V, R.61-58.5.CC, R.61-58.10.F, R.61-58.11.D, and R.61-58.16.E, samples may be considered only if they have been analyzed by a laboratory approved by the Department, except that measurements for turbidity may be performed by a properly certified water treatment plant operator.

CC. Alternative Analytical Techniques.

With express written permission of the Department, concurred in by the Administrator, an alternative analytical technique may be employed. An alternative technique shall be acceptable only if it is substantially equivalent to the prescribed test in both precision and accuracy as it relates to the determination of compliance with any maximum contaminant level. The use of the alternative analytical technique shall not decrease the frequency of monitoring required by this regulation.

R.61-58.6 REPORTS, RECORD RETENTION AND PUBLIC NOTIFICATION OF DRINKING WATER VIOLATIONS

A. Applicability.

This regulation specifies the information public water supplies are required to report to the Department; the information they are required to retain; and the conditions and procedure for making public notification of a violation. This regulation shall apply to each public water system, unless the public water system meets all of the following conditions:

(1) Consists only of distribution and storage facilities (and does not have any collection and treatment facilities);

(2) Obtains all of its water from, but is not owned or operated by, a public water system to which such regulations apply;

(3) Does not sell water to any person; and

(4) Is not a carrier which conveys passengers in interstate commerce.

B. Reporting Requirements.

(1) Except where a shorter reporting period is specified in this regulation, the supplier of water shall report to the Department the results of any test, measurement or analysis required to be made by the primary drinking water regulation within ten calendar days following the end of the month in which the result is received or within ten calendar days following the end of the monitoring period specified by the Department, whichever of these is shortest. Such report shall be in form established by the Department.

(2) If the result of an analysis made pursuant to the requirements of R.61-58.5, Maximum Contaminant Levels in Drinking Water, indicates that the level of any contaminant listed in said regulation exceeds the maximum contaminant level, the supplier of water shall report these findings to the Department within seven days of receiving the results.

(3) Except where a different reporting period is specified in these regulations, the supplier of water shall report to the Department within 48 hours the failure to comply with any national primary drinking water regulations (including failure to comply with monitoring requirements) as set forth in these regulations.

(4) The supplier of water is not required to report analytical results to the Department in cases where a State Laboratory performs the analysis and reports the results to the Department.

(5) The public water system, within ten (10) days of completing the public notification requirements under Section E below for the initial public notice and any repeat notices, must submit to the Department a certification that it has fully complied with the public notification regulations. The public water system must 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.

(6) The public water system shall submit to the Department, when requested, within the time stated in the request, copies of any records required to be maintained under R.61-58.6.D or copies of any documents then in existence which the Department or the EPA Administrator is entitled to inspect pursuant to the authority of section 1445 of the Safe Drinking Water Act or the equivalent provisions of State law.

C. Reports To Be Submitted.

All reports listed below are to be on a form or in a format (written or electronic) approved by the Department.

(1) By the tenth calendar day of each month, the supplier of water for each surface water treatment plant shall complete and submit to the Department, as a minimum, the following reports for the previous month:

(a) Surface Water Supply Monthly Operation Report

(b) Bacteriological Summary Analysis Report

(c) Turbidity Summary Analysis Report

(2) By the tenth calendar day of each month, the supplier of water, who operates a groundwater treatment plant that provides water to a community water system serving at least fifteen service connections or twenty-five individuals on a continuous basis, shall complete and submit to the Department, as a minimum, the following reports for the previous month:

(a) Ground Water Supply Monthly Operation Report

(b) Bacteriological Summary Analysis Report (if eight or more bacteriological samples are collected each month)

(3) By the tenth calendar day of each month, the supplier of water, who uses wells as a sole source of supply for a community water system serving at least fifteen service connections or twenty-five individuals on a continuous basis, and does not treat the water, shall complete and submit to the Department, as a minimum, the following reports for the previous month:

(a) Bacteriological Summary Analysis Report (if eight or more bacteriological samples are collected each month)

(b) Bacteriological Analysis Report (if seven or less bacteriological samples are collected each month)

(c) The total amount of water pumped from the wells each month and the total volume of water delivered to the customers each month, if the information is available

(4) By the tenth calendar day of each month, the supplier of water, who obtains water from another public water supply and provides it to a community water system serving at least fifteen service connections or twenty-five individuals on a continuous basis, shall complete and submit to the Department, as a minimum, the following reports for the previous month:

(a) Bacteriological Summary Analysis Report (if eight or more bacteriological samples are collected each month)

(b) Bacteriological Analysis Report (if seven or less bacteriological samples are collected each month)

(c) The total amount of water purchased each month and the total amount of water delivered to the customers each month, where required by the Department

(5) By the tenth calendar day of each month, the supplier of water, who operates a groundwater treatment plant using treatment processes other than the addition of chlorine or corrosion inhibitor or the adjustment of pH, and which provides water to a non-community water system serving at least fifteen service connections or an average of at least twenty-five individuals daily at least sixty days out of the year, shall complete and submit to the Department, as a minimum, the following reports for the previous month:

(a) Ground Water Supply Monthly Operation Report

(b) Bacteriological Summary Analysis Report (if eight or more bacteriological samples are collected each month)

(c) Bacteriological Analysis Report (if seven or less bacteriological samples are collected each month)

(6) Based on complaints received, the results of chemical, or bacteriological testing or the findings of sanitary surveys, the Department may require the supplier of water for any community or non-community water system not described in subsections (1) through (5) above to submit any necessary reports or monitoring data at a frequency established by the Department.

(7) If a water level measuring device has been installed in a well serving a public water supply, the supplier of water shall measure and record the static and pumping water levels on a quarterly basis. The results shall be forwarded to the Department by the tenth calendar day of the following month.

(8) The supplier of water for a community water system that serves more than one hundred service connections shall monitor the operating pressure in the distribution system annually and shall record the date and location where each pressure test was made and the pressure in pounds per square inch. A copy of the results shall be made available to the Department upon request. Records of these results shall be maintained for a period not less than three years.

(9) In the event the Department finds it necessary to require a supplier of water to monitor for chemical parameters on a schedule more stringent than required for routine monitoring, the supplier of water shall submit the monitoring data by the tenth calendar day of the month following the month in which the data was received.

D. Record Keeping.

(1) Any supplier of water subject to the provisions of this regulation and R.61-58.5, Maximum Contaminant Levels in Drinking Water, shall retain on the premises at a convenient location near the premises all appropriate records, and make them available for inspection by the Department and the public upon request.

(2) These records shall include the following:

(a) Records of microbiological analyses and turbidity analyses made pursuant to the State Primary Drinking Water Regulation: R.61-58 shall be kept for not less than five (5) years. Records of chemical analyses made pursuant to the State Primary Drinking Water Regulation: R.61-58 shall be kept for not less than ten years. Actual laboratory reports may be kept, or data may be transferred to tabular summaries, provided that the following information is included:

(i) The date, place, and time of sampling, and the name of the person who

collected the sample.

(ii) 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.

(iii) Date of analysis.

(iv) Laboratory and person responsible for performing analysis.

(v) The analytical technique or method used.

(vi) The results of the analysis.

(b) Records of action taken by the supplier of water to correct violation of regulations, shall be kept for a period not less than three years after the last action with respect to the particular violation involved.

(c) Copies of any written reports, summaries, or communications relating to sanitary surveys or operational inspections of the public water supply conducted by the supplier of water, by a private consultant, or by any local, state, or federal agency, shall be kept for a period not less than ten years after completion of the sanitary survey involved.

(d) Records concerning a variance or exemption granted to the public water supply shall be kept for a period ending not less than five years following the expiration of such variance or exemption.

(e) Copies of public notices issued pursuant to Section E below and certifications made to the Department pursuant to the provisions of this regulation must be kept for three (3) years after issuance.

(f) Copies of monitoring plans developed pursuant to the State Primary Drinking Water Regulation: R.61-58 shall be kept for the same period of time as the records of analyses taken under the plan are required to be kept under paragraph (a) of this section, except as specified elsewhere in this regulation.

E. Public Notification of Drinking Water Violations.

(1) General public notification requirements:

(a) ***Who must give public notice?*** Each owner or operator of a public water system (community water systems, non-transient non-community water systems, and transient non community water systems) must give notice for all violations of State Primary Drinking Water Regulations (SPDWR) and for other situations, as listed in Table 1. The term "SPDWR violations" is used in this regulation to include violations of the maximum contaminant level (MCL), maximum residual disinfection level (MRDL), treatment technique (TT), monitoring requirements, and testing procedures in this regulation. Appendix A to this regulation identifies the tier assignment for each specific violation or situation requiring a public notice.

TABLE 1: VIOLATION CATEGORIES AND OTHER SITUATIONS REQUIRING A PUBLIC NOTICE

(1) SPDWR violations:
- (i) Failure to comply with an applicable maximum contaminant level(MCL) or maximum residual disinfectant level (MRDL).
- (ii) Failure to comply with a prescribed treatment technique (TT).
- (iii) Failure to perform water quality monitoring, as required by the drinking water regulations.
- (iv) Failure to comply with testing procedures as prescribed by a drinking water regulation.

(2) Variance and exemptions under R.61-58.9:
- (i) Operation under a variance or an exemption.
- (ii) Failure to comply with the requirements of any schedule that has been set under a variance or exemption.

(3) Special public notices:
- (i) Occurrence of a waterborne disease outbreak or other waterborne emergency.
- (ii) Exceedance of the nitrate MCL by non-community water systems (NCWS), where granted permission by the Department under R.61-58.5.B(3).
- (iii) Exceedance of the secondary maximum contaminant level (SMCL) for fluoride.
- (iv) Availability of unregulated contaminant monitoring data.
- (v) Other violations and situations determined by the Department to require a public notice under this regulation, not already listed in Appendix A to this regulation.

(b) ***What type of public notice is required for each violation or situation?*** Public notice requirements are divided into three (3) 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 listed in Table 1 of this section are determined by the tier to which it is assigned. Table 2 of this section provides the definition of each tier. Appendix A to this regulation identifies the tier assignment for each specific violation or situation.

TABLE 2: DEFINITION OF PUBLIC NOTICE TIERS

(1) Tier 1 public notice -- required for SPDWR 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 -- required for all other SPDWR violations and situations with potential to have serious adverse effects on human health.

(3) Tier 3 public notice -- required for all other SPDWR violations and situations not included in Tier 1 and Tier 2.

(c) ***Who must be notified?***

(i) Each public water system must provide public notice to persons served by the water system, in accordance with this regulation. 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.

(ii) 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 to only persons served by that portion of the system which is out of compliance. Permission by the Department for limiting distribution of the notice must be granted in writing.

(iii) A copy of the notice must also be sent to the Department, in accordance with the requirements of R.61-58.6.B(5).

(2) Tier 1 Public Notice: Form, Manner, and Frequency of Notice

(a) ***Which violations or situations require a Tier 1 public notice?*** Table 1 of this section lists the violation categories and other situations requiring a Tier 1 public notice. Appendix A to this regulation identifies the tier assignment for each specific violation or situation.

TABLE 1: VIOLATION CATEGORIES AND OTHER SITUATIONS REQUIRING A TIER 1 PUBLIC NOTICE

(1) Violation of the MCL for total coliforms when fecal coliform or E. coli are present in the water distribution system (as specified in R.61-58.5.F(2)), or when the water system fails to test for fecal coliforms or E. coli when any repeat sample tests positive for coliform (as specified in R.61-58.5.G(5)), violation of the MCL for E. coli (as specified in R.61-58.5.F);
(2) Violation of the MCL for nitrate, nitrite, or total nitrate and nitrite, as defined in R.61-58.5.B, or when the water system fails to take a confirmation sample within 24 hours of the system's receipt of the first sample showing an exceedance of the nitrate or nitrite MCL, as specified in R.61-58.5.C(12)(b);
(3) Exceedance of the nitrate MCL by non-community water systems, where permitted to exceed the MCL by the Department under R.61-58.5.B(3), as required under paragraph (9) of this section;
(4) Violation of the MRDL for chlorine dioxide, as defined in R.61-58.5.Q(1), when one or more samples taken in the distribution system the day following an exceedance of the MRDL at the entrance of the distribution system exceed the MRDL, or when the water system does not take the required samples in the distribution system, as specified in R.61-58.13.D(3)(b)(i);
(5) Violation of the turbidity MCL under R.61-58.10(C), (E), (H), or (I), where the Department determines after consultation that a Tier 1 notice is

required or where consultation does not take place within 24 hours after the system learns of the violation;

(6) Violation of the Surface Water Treatment Rule (SWTR), Interim Enhanced Surface Water Treatment Rule (IESWTR) or Long Term 1 Enhanced Surface Water Treatment Rule (LT1EWSTR) treatment technique requirement resulting from a single exceedance of the maximum allowable turbidity limit (as identified in Appendix A to this regulation), where the Department determines after consultation that a Tier 1 notice is required or where consultation does not take place within twenty-four (24) hours after the system learns of the violation;

(7) Occurrence of a waterborne disease outbreak, as defined in R.61-58(B)(179), 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);

(8) Detection of E. coli, enterococci, or coliphage in source water samples as specified in R.61-58.16.E(1) or R.61-58.16.E(2).

(9) 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 regulations or on a case-by-case basis.

(b) ***When is the Tier 1 public notice to be provided? What additional steps are required?*** Public water systems must:

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

(ii) Initiate consultation with the Department as soon as practical, but no later than twenty-four (24) hours after the public water system learns of the violation or situation, to determine additional public notice requirements; and

(iii) 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.

(c) ***What is the form and manner of the public notice?*** Public water systems must provide the notice within twenty-four (24) hours in a form and manner reasonably calculated to reach all persons served. The form and manner used by the public water system are to fit the specific situation, but must be designed to reach residential, transient, and non-transient 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:

(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 Department.

(3) Tier 2 Public Notice: Form, Manner, and Frequency of Notice.

(a) ***Which violations or situations require a Tier 2 public notice?*** Table 1 of this section lists the violation categories and other situations requiring a Tier 2 public notice. Appendix A to this regulation identifies the tier assignment for each specific violation or situation.

TABLE 1: VIOLATION CATEGORIES AND OTHER SITUATIONS REQUIRING A TIER 2 PUBLIC NOTICE

(1) All violations of the MCL, MRDL, and treatment technique requirements, except where a Tier 1 notice is required under paragraph (2)(a) of this section or where the Department determines that a Tier 1 notice is required;
(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; and
(3) Failure to comply with the terms and conditions of any variance or exemption in place.
(4) 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 R.61-58.16.F(1).

(b) ***When is the Tier 2 public notice to be provided?***

(i) Public water systems must provide the public notice as soon as practical, but no later than thirty (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 seven (7) days, even if the violation or situation is resolved. The Department may, in appropriate circumstances, allow additional time for the initial notice of up to three (3) months from the date the system learns of the violation. It is not appropriate for the Department to grant an extension to the thirty (30) day deadline for any unresolved violation or to allow across-the-board extensions by rule or policy for other violations or situations requiring a Tier 2 public notice. Extensions granted by the Department must be in writing.

(ii) The public water system must repeat the notice every three (3) months as long as the violation or situation persists, unless the Department determines that

appropriate circumstances warrant a different repeat notice frequency. In no circumstance may the repeat notice be given less frequently than once per year. It is not appropriate for the Department to allow less frequent repeat notice for an MCL or treatment technique violation under the Total Coliform Rule or the Revised Total Coliform Rule (R.61-58.17) or a treatment technique violation under the Surface Water Treatment Rule or Interim Enhanced Surface Water Treatment Rule. It is also not appropriate for the Department to allow through its rules or policies across the board reductions in the repeat notice frequency for other ongoing violations requiring a Tier 2 repeat notice. Department determinations allowing repeat notices to be given less frequently than once every three (3) months must be in writing.

(iii) For the turbidity violations specified in this paragraph, public water systems must consult with the Department as soon as practical but no later than twenty-four (24) hours after the public water system learns of the violation, to determine whether a Tier 1 public notice under paragraph (2)(a) of this section is required to protect public health. When consultation does not take place within the twenty-four (24) hour period, the water system must distribute a Tier 1 notice of the violation within the next twenty-four (24) hours (i.e., no later than forty-eight (48) hours after the system learns of the violation), following the requirements under paragraphs (b) and (c) of this section. Consultation with the Department is required for:

(A) Violation of the turbidity MCL under R.61-58.10(C), (E), (H), or (I); or

(B) Violation of the SWTR, IESWTR or LT1ESWTR treatment technique requirement resulting from a single exceedance of the maximum allowable turbidity limit.

(c) ***What is the form and manner of the 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 water system, but it must at a minimum meet the following requirements:

(i) Unless directed otherwise by the Department in writing, community water systems must provide notice by:

(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 R.61-58.6.E(3)(c)(i)(A). 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.

(ii) Unless directed otherwise by the Department in writing, non-community water systems must provide notice by:

(A) 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

(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 R.61-58.6.E(3)(c)(ii)(A). 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. Other methods may include: Publication in a local newspaper or newsletter distributed to customers; use of E-mail to notify employees or students; or, delivery of multiple copies in central locations (e.g., community centers).

(4) Tier 3 Public Notice: Form, Manner, and Frequency of Notice.

(a) ***Which violations or situations require a Tier 3 public notice?*** Table 1 of this section lists the violation categories and other situations requiring a Tier 3 public notice. Appendix A to this regulation identifies the tier assignment for each specific violation or situation.

TABLE 1: VIOLATION CATEGORIES AND OTHER SITUATIONS REQUIRING A TIER 3 PUBLIC NOTICE

(1) Monitoring violations under R.61-58.5, except where a Tier 1 notice is required under paragraph (2)(a) of this section or where the Department determines that a Tier 2 notice is required;
(2) Failure to comply with a testing procedure established in R.61-58.5, except where a Tier 1 notice is required under paragraph (2)(a) of this section or where the Department determines that a Tier 2 notice is required;
(3) Operation under a variance or an exemption granted under R.61-58.9;
(4) Availability of unregulated contaminant monitoring results, as required under R.61-58.6.E(7);
(5) Exceedance of the fluoride secondary maximum contaminant level (SMCL), as required under R.61-58.6.E(8); and
(6) Reporting and Recordkeeping violations under R.61-58.17.

(b) ***When is the Tier 3 public notice to be provided?***

(i) Public water systems must provide the public notice not later than one (1) year after the public water system learns of the violation or situation or begins

operating under a variance or exemption. Following the initial notice, the public water system must repeat the notice annually for as long as the violation, variance, exemption, or other situation persists. If the public notice is posted, the notice must remain in place for as long as the violation, variance, exemption, or other situation persists, but in no case less than seven (7) days (even if the violation or situation is resolved).

(ii) Instead of individual Tier 3 public notices, a public water system may use an annual report detailing all violations and situations that occurred during the previous twelve months, as long as the timing requirements of paragraph (b)(i) of this section are met.

(c) ***What is the form and manner of the 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:

(i) Unless directed otherwise by the Department in writing, community water systems must provide notice by:

(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 (c)(i)(A) of this section. 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.

(ii) Unless directed otherwise by the Department in writing, non-community water systems must provide notice by:

(A) 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

(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)(ii)(A) of this section. Such persons may include those who may not see a posted notice because the notice is not in a location they routinely pass by. Other methods may include: Publication in a local newspaper or newsletter distributed to customers; use of E-

mail to notify employees or students; or, delivery of multiple copies in central locations (e.g., community centers).

(d) ***In what situations may the Consumer Confidence Report be used to meet the Tier 3 public notice requirements?*** For community water systems, the Consumer Confidence Report (CCR) required under R.61-58.12 of this regulation may be used as a vehicle for the initial Tier 3 public notice and all required repeat notices, as long as:

(i) The CCR is provided to persons served no later than twelve (12) months after the system learns of the violation or situation as required under paragraph (4)(b) of this section;

(ii) The Tier 3 notice contained in the CCR follows the content requirements under paragraph (5) of this section; and

(iii) The CCR is distributed following the delivery requirements under paragraph (4)(c) of this section.

(5) Content of the Public Notice.

(a) ***What elements must be included in the public notice for violations of State Primary Drinking Water Regulations (SPDWR) or other situations requiring a public notice?*** When a public water system violates a SPDWR or has a situation requiring public notification, each public notice must include the following elements:

(i) A description of the violation or situation, including the contaminant(s) of concern, and (as applicable) the contaminant level(s);

(ii) When the violation or situation occurred;

(iii) Any potential adverse health effects from the violation or situation, including the standard language under paragraphs (d)(i) or (d)(ii) of this section, whichever is applicable;

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

(v) Whether alternative water supplies should be used;

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

(vii) What the system is doing to correct the violation or situation;

(viii)When the water system expects to return to compliance or resolve the situation;

(ix) 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

(x) A statement to encourage the notice recipient to distribute the public notice to other persons served, using the standard language under paragraph (d)(iii) of this section, where applicable.

(b) ***What elements must be included in the public notice for public water systems operating under a variance or exemption?***

(i) If a public water system has been granted a variance or an exemption, the public notice must contain:

(A) An explanation of the reasons for the variance or exemption;

(B) The date on which the variance or exemption was issued;

(C) 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 and schedules of the variance or exemption; and

(D) A notice of any opportunity for public input in the review of the variance or exemption.

(ii) If a public water system violates the conditions of a variance or exemption, the public notice must contain the ten elements listed in paragraph (a) of this section.

(c) ***How is the public notice to be presented?***

(i) Each public notice required by this section:

(A) Must be displayed in a conspicuous way when printed or posted;

(B) Must not contain overly technical language or very small print;

(C) Must not be formatted in a way that defeats the purpose of the notice;

(D) Must not contain language which nullifies the purpose of the notice.

(ii) Each public notice required by this section must comply with multilingual requirements, as follows:

(A) 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) 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.

(B) 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 paragraph (c)(ii)(A) of this section, where appropriate to reach a large proportion of non-English speaking persons served by the water system.

(d) ***What standard language must public water systems include in their public notice?*** Public water systems are required to include the following standard language in their public notice:

(i) Standard health effects language for MCL or MRDL violations, treatment technique violations, and violations of the condition of a variance or exemption. Public water systems must include in each public notice the health effects language specified in Appendix B to this regulation corresponding to each MCL, MRDL, and treatment technique violation listed in Appendix A to this regulation, and for each violation of a condition of a variance or exemption.

(ii) Standard language for monitoring and testing procedure violations. Public water systems must include the following language in their notice, including the language necessary to fill in the blanks, for all monitoring and testing procedure violations listed in Appendix A to this regulation:

"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 "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."

(iii) 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 (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.

(6) Notice to New Billing Units or New Customers.

(a) ***What is the requirement for community water systems?*** Community water systems must give a copy of the most recent public notice for any continuing violation, the existence of a variance or exemption, 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) What is the requirement for non-community water systems? Non-community water systems must continuously post the public notice in conspicuous locations in order to inform new consumers of any continuing violation, variance or exemption, or other situation requiring a public notice for as long as the violation, variance, exemption, or other situation persists.

(7) Special Notice of the Availability of Unregulated Contaminant Monitoring Results.

(a) ***When is the special notice to be given?*** The owner or operator of a community water system or non-transient, non-community water system required to monitor under

R.61-58.5.T 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.

(b) ***What is the form and manner of the special notice?*** The form and manner of the public notice must follow the requirements for a Tier 3 public notice prescribed in paragraphs (4)(c), (d)(i), and (d)(iii) of this section. The notice must also identify a person and provide the telephone number to contact for information on the monitoring results.

(8) Special Notice for Exceedance of the SMCL for Fluoride.

(a) ***When is the special notice to be given?*** Community water systems that exceed the fluoride secondary maximum contaminant level (SMCL) of 2 mg/L as specified in R.61-58.5.R (determined by the last single sample taken in accordance with R.61-58.5.C, but do not exceed the maximum contaminant level (MCL) of 4 mg/L for fluoride (as specified in R.61-58.5.B), must provide the public notice in paragraph (c) of this section to persons served. Public notice must be provided as soon as practical but no later than twelve (12) 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 State public health officer. The public water system must repeat the notice at least annually for as long as the SMCL is exceeded. If the public notice is posted, the notice must remain in place for as long as the SMCL is exceeded, but in no case less than seven (7) days (even if the exceedance is eliminated). On a case-by-case basis, the Department may require an initial notice sooner than twelve (12) months and repeat notices more frequently than annually.

(b) ***What is the form and manner of the special notice?*** The form and manner of the public notice (including repeat notices) must follow the requirements for a Tier 3 public notice in paragraphs (4)(c) and (d)(i) and (d)(iii) of this section.

(c) ***What mandatory language must be contained in the special notice?*** The notice must contain the following language, including the language necessary to fill in the blanks:

"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 community 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 community 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 NSF International at 1-877-8-NSF-HELP."

(9) Special notice for Nitrate Exceedances Above MCL by Non-Community Water Systems (NCWS), Where Granted Permission by the Department under R.61-58.5.B(3).

(a) ***When is the special notice to be given?*** The owner or operator of a non-community water system granted permission by the Department under R.61-58.5.B(3) to exceed the nitrate MCL must provide notice to persons served according to the requirements for a Tier 1 notice under paragraphs (2)(a) and (b) of this section.

(b) ***What is the form and manner of the special notice?*** Non-community water systems granted permission by the Department to exceed the nitrate MCL under R.61-58.5.B(3) 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 (2)(c) of this section and the content requirements under paragraph (5) of this section.

(10) Notice by Department on Behalf of the Public Water System.

(a) ***May the Department give the notice on behalf of the public water system?*** The Department may give the notice required by this regulation on behalf of the owner and operator of the public water system if the Department complies with the requirements of this regulation.

(b) ***What is the responsibility of the public water system when notice is given by the primacy agency?*** The owner or operator of the public water system remains responsible for ensuring that the requirements of this regulation are met.

(11) Special notice for repeated failure to conduct monitoring of the source water for Cryptosporidium and for failure to determine bin classification or mean Cryptosporidium level

(a) Special notice for repeated failure to monitor.

The owner or operator of a community or non-community water system that is required to monitor source water under R.61-58.10.K(2) 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 any 3 months of monitoring as specified in R.61-58.10.K(2)(c). The notice must be repeated as specified in R.61-58.6.E(3)(b).

(b) Special notice for failure to determine bin classification or mean Cryptosporidium level.

The owner or operator of a community or non-community water system that is required to determine a bin classification under R.61-58.10.K(11), or to determine mean Cryptosporidium level under R.61-58.10.K(13), 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 R.61-58.10.K(11)(e) or

R.61-58.10.K(13)(a). respectively. The notice must be repeated as specified in R.61-58.6.E(3)(b). The notice is not required if the system is complying with a Department-approved schedule to address the violation.

(c) Form and manner of the special notice.

The form and manner of the public notice must follow the requirements for a Tier 2 public notice prescribed in R.61-58.6.E(3)(c). The public notice must be presented as required in R.61-58.6.E(5)(c).

(d) Mandatory language that must be contained in the special notice.

The notice must contain the following language, including the language necessary to fill in the blanks.

(i) The special notice for repeated failure to conduct monitoring must 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 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 (name of water system contact) of (name of water system) at (phone number)".

(ii) The special notice for failure to determine bin classification or mean Cryptosporidium level must 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 (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 (phone number)".

(3) 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.

R.61-58.12 CONSUMER CONFIDENCE REPORTS

A. Applicability.

(1) This regulation establishes the minimum requirements for the content of annual reports that community water systems shall deliver to their customers. These reports shall contain information on the quality of the water delivered by the systems and characterize the risks (if any) from exposure to contaminants detected in the drinking water in an accurate and understandable manner. This regulation shall apply only to community water systems.

(2) For the purpose of this regulation, customers are defined as billing units or service connections to which water is delivered by a community water system.

(3) For the purpose of this regulation, detected means: at or above the levels prescribed in R.61-58.5, Maximum Contaminant Levels in Drinking Water.

B. Effective Dates.

(1) Each existing community water system shall deliver its first report by October 19, 1999, its second report by July 1, 2000, and subsequent reports by July 1 annually thereafter. The first report shall contain data collected during, or prior to, calendar year 1998 as prescribed in Section C. below. Each report thereafter shall contain data collected during, or prior to, the previous calendar year.

(2) A new community water system shall deliver its first report by July 1 of the year after its first full calendar year in operation and annually thereafter.

(3) A community water system that sells water to another community water system shall deliver the applicable information required in Section C below, to the buyer system:

(a) No later than April 19, 1999, by April 1, 2000, and by April 1 annually thereafter or

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

C. Content of the Reports.

(1) Each community water system shall provide to its customers an annual report that contains the information specified in this section and Section D below.

(2) Information on the source of the water delivered:

(a) Each report shall identify the source(s) of the water delivered by the community water system by providing information on:

(i) The type of the water: e.g., surface water, ground water; and

(ii) The commonly used name (if any) and location of the body (or bodies) of water.

(b) If a source water assessment has been completed, the report shall 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 shall include a brief summary of the system's susceptibility to potential sources of contamination, using language provided by the Department or written by the operator.

(3) Definitions.

(a) Each report shall include the following definitions:

(i) Maximum Contaminant Level Goal or MCLG: 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.

(ii) Maximum Contaminant Level or MCL: 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.

(b) A report for a community water system operating under a variance or an exemption issued under R. 61-58.9, Variances and Exemptions, shall include the following definition: Variances and Exemptions: the Department or EPA permission not to meet an MCL or a treatment technique under certain conditions.

(c) A report which contains data on a contaminants that the Department regulates using any of the following terms must include the applicable definitions:

(i) Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.

(ii) Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system shall follow.

(iii) Maximum residual disinfectant level goal or MRDLG: 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 the disinfectants to control microbial contaminants.

(iv) Maximum residual disinfectant level or MRDL: 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.

(d) A report that contains information regarding a Level 1 or Level 2 Assessment required under R,61-58.17 must include the applicable definitions:

(i) Level 1 Assessment: A 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.

(ii) Level 2 Assessment: A 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 occrred and/or why total coliform bacteria have been found in our water system on multiple occasions.

(4) Information on Detected Contaminants.

(a) This sub-section specifies the requirements for information to be included in each report for contaminants subject to mandatory monitoring (except *Cryptosporidium*). It applies to:

(i) Contaminants subject to an MCL, action level, maximum residual disinfectant level or treatment technique (regulated contaminants);

(ii) Contaminants for which monitoring is required by R.61-58.5.T, Special Monitoring for Inorganic and Organic Contaminants (unregulated contaminants); and

(iii) Disinfection by-products or microbial contaminants for which monitoring is required by Secs. 141.142 and 141.143 (Information Collection Rule for disinfection by-products (DBP) and Microbials (ICR)), of the National Primary Drinking Water Regulations (NPDWR), and which are detected in the finished water.

(b) The data relating to these contaminants shall 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 shall be displayed separately.

(c) The data shall be derived from data collected to comply with EPA and Department monitoring and analytical requirements during calendar year 1998 for the first report and subsequent calendar years thereafter except that:

(i) Where a system is allowed to monitor for regulated contaminants less often than once a year, the table(s) shall include the date and results of the most recent sampling and the report shall include 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 5 years need be included.

(ii) Results of monitoring in compliance with the ICR (Secs. 141.142 and 141.143 of the NPDWR), need only be included for 5 years from the date of last sample or until any of the detected contaminants becomes regulated and subject to routine monitoring requirements, whichever comes first.

(d) For detected regulated contaminants (listed in Appendix D to this regulation), the table(s) shall contain:

(i) The MCL for that contaminant expressed as a number equal to or greater than 1.0 (as provided in Appendix D to this regulation);

(ii) The MCLG for that contaminant expressed in the same units as the MCL;

(iii) If there is no MCL for a detected contaminant, the table shall indicate that there is a treatment technique, or specify the action level, applicable to that contaminant, and the report shall include the definitions for treatment technique and/or action level, as appropriate, specified in paragraph(3)(c) of this section;

(iv) For contaminants subject to an MCL, except turbidity, total coliforms, fecal coliform and E.coli, the highest contaminant level used to determine

compliance with R.61-58.5, Maximum Contaminant Levels in Drinking Water, and the range of detected levels, as follows:

(A) 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.

(B) When compliance with the MCL is determined by calculating a running annual average of all samples taken at a monitoring location: the highest average of any of the monitoring locations and the range of all monitoring locations expressed in the same units as the MCL. For the MCLs for TTHM and HAA5 in R.61 58.5.P(2)(b), 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.

(C) When compliance with the MCL is determined on a system wide basis by calculating a running annual average of all samples at all monitoring locations: the average and range of detection expressed in the same units as the MCL. The system is required to include individual sample results for the IDSE conducted under R.61 58.14 when determining the range of TTHM and HAA5 results to be reported in the annual consumer confidence report for the calendar year that the IDSE samples were taken.

Note to paragraph (4)(d)(iv): 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 D of this regulation;

(v) For turbidity.

(A) When it is reported pursuant to the requirements of R.61-58.10.C, Filtration and Disinfection [criteria for avoiding filtration]: the highest monthly value. The report should include an explanation of the reasons for measuring turbidity.

(B) When it is reported pursuant to R.61-58.10.E, Filtration and Disinfection [filtration], or R.61-58.10.H(4): The highest single measurement and the lowest monthly percentage of samples meeting the turbidity limits specified in R.61-58.10.E, Filtration, or R.61-58.10.H(4): for the filtration technology being used. The report should include an explanation of the reasons for measuring turbidity;

(C) When it is reported pursuant to R.61-58.10.E or R.61-58.10.H(4) or R.61-58.10.I(6): the highest single measurement and the lowest monthly percentage of samples meeting the turbidity limits specified in R.61-58.10.E or R.61-58.10.H(4) or R.61-58.10.I(6) for the filtration technology being used. The report should include an explanation of the reasons for measuring turbidity.

(vi) 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;

(vii) For total coliform analytical results until March 31, 2016:

(A) The highest monthly number of positive samples for systems collecting fewer than forty (40) samples per month; or

(B) The highest monthly percentage of positive samples for systems collecting at least forty (40) samples per month.

(viii) For fecal coliform and E.coli. until March 31, 2016: The total number of positive samples;

(ix) The likely source(s) of detected contaminants to the best of the 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 operator. If the operator lacks specific information on the likely source, the report shall include one or more of the typical sources for that contaminant listed in Appendix D to this regulation which are most applicable to the system.

(x) For E.coli analytical results under R.61-58.17: The total number of positive samples.

(5) 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 could produce separate reports tailored to include data for each service area.

(6) The table(s) shall clearly identify any data indicating violations of MCLs or treatment techniques and the report shall contain a clear and readily understandable explanation of the violation including: the length of the violation, the potential adverse health effects, and actions taken by the system to address the violation. To describe the potential health effects, the system shall use the relevant language of Appendix D to this regulation.

(7) For detected unregulated contaminants for which monitoring is required (except *Cryptosporidium*), the table(s) shall 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.

(8) Information on *Cryptosporidium*, radon, and other contaminants:

(a) If the system has performed any monitoring for *Cryptosporidium*, including monitoring performed to satisfy the requirements of Sec. 141.143 (NPDWR Microbial Monitoring), which indicates that Cryptosporidium may be present in the source water or the finished water, the report shall include:

(i) A summary of the results of the monitoring; and

(ii) An explanation of the significance of the results.

(b) If the system has performed any monitoring for radon which indicates that radon may be present in the finished water, the report shall include:

(i) The results of the monitoring; and

(ii) An explanation of the significance of the results.

(c) If the system has performed additional monitoring which indicates the presence of other contaminants in the finished water, the Department strongly encourages systems to report any results which may indicate a health concern. To determine if results may indicate a health concern, the Department recommends that systems find out if EPA has proposed an NPDWR or issued a health advisory for that contaminant by calling the Safe Drinking Water Hotline (800-426-4791). EPA and the Department considers detects above a proposed MCL or health advisory level to indicate possible health concerns. For such contaminants, EPA and the Department recommends that the report include:

(i) The results of the monitoring; and

(ii) An explanation of the significance of the results noting the existence of a health advisory or a proposed regulation.

(9) Compliance with the State Primary Drinking Water Regulations (SPDWR). In addition to the requirements of this regulation, the report shall 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:

(a) Monitoring and reporting of compliance data;

(b) Filtration and disinfection prescribed by R.61-58.10, Filtration and Disinfection. For systems which have failed to install adequate filtration or disinfection equipment or processes, or have had a failure of such equipment or process which constitutes a violation, the report shall 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;"

(c) Lead and copper control requirements prescribed by R.61-58.11, Lead and Copper. For systems which fail to take one or more actions prescribed by R.61-58.11.B(2) [Corrosion Control Treatment Requirements], R.61-58.11.C [Applicability of Corrosion Control Treatment Steps to Small, Medium-Size and Large Water Systems], R.61-58.11(D) [Description of Corrosion Control Treatment Requirements], R.61-58.11.E [Source Water Treatment Requirements], R.61-58.11.F [Lead Service Line Replacement Requirements], the report shall include the applicable language of Appendix D to this regulation for lead, copper, or both;

(d) Treatment techniques for Acrylamide and Epichlorohydrin prescribed by R.61-58.5.AA, Treatment Techniques. For systems which violate the requirements of R.61-58.5.AA, the report shall include the relevant language from Appendix D to this regulation;

(e) Recordkeeping of compliance data;

(f) Special monitoring requirements prescribed by R.61-58.5.T, Special Monitoring for Inorganic and Organic Contaminants, and R.61-58.5.U, Special Monitoring for Sodium; and

(g) Violation of the terms of a variance, an exemption, or an administrative or judicial order.

(10) Variances and Exemptions: If a system is operating under the terms of a variance or an exemption issued under R.61-58.9, Variances and Exemptions, the report shall contain:

(a) An explanation of the reasons for the variance or exemption;

(b) The date on which the variance or exemption was issued;

(c) 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 and schedules of the variance or exemption; and

(d) A notice of any opportunity for public input in the review, or renewal, of the variance or exemption.

(11) Additional information:

(a) The report shall 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 paragraphs (i) through (iii) below or systems may use their own comparable language. The report also shall include the language of paragraph (iv) below:

(i) "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, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity."

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

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

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

(C) Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

(D) Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.

(E) Radioactive contaminants, which can be naturally-occurring or

be the result of oil and gas production and mining activities."

(iii) "In order to ensure that tap water is safe to drink, EPA and the Department prescribe regulations which limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water which shall provide the same protection for public health."

(iv) "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 Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791)."

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

(c) In communities with a large proportion of non-English speaking residents, as determined by the Department, the report shall 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.

(d) The report shall 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.

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

(f) Systems required to comply with R.61-58.16.

(i) Any ground water system that receives notice from the Department of a significant deficiency or notice from a laboratory of a fecal indicator positive ground water source sample that is not invalidated by the Department must inform its customers of any significant deficiency that is uncorrected at the time of the next report or of any fecal indicator positive ground water source sample in the next report. The system must continue to inform the public annually until the Department determines that particular significant deficiency is corrected or the fecal contamination in the ground water source is addressed under R.61 58.16.F(1). Each report must include the following elements.

(A) The nature of the particular significant deficiency or the source of the fecal contamination (if the source is known) and the date the significant deficiency was identified by the Department or the dates of the fecal indicator positive ground water source samples.

(B) If the fecal contamination in the ground water source has been addressed under R.61 58.16.F(1) and the date of such action.

(C) For each significant deficiency or fecal contamination in the

ground water source that has not been addressed under R.61 58.16.F(1), the Department approved plan and schedule for correction, including interim measures, progress to date, and any interim measures completed; and

(D) If the system receives notice of a fecal indicator positive ground water source sample that is not invalidated by the Department, the potential health effects using the health effects language of Appendix D of R.61 58.12.

(ii) 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.

(g) Systems required to comply with R.61-58.17:

(i) 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 found in paragraph R.61-58.12.C(11)(g)(i)(A) and paragraphs R.61-58.12.C(11)(g)(i)(B) and R.61-58.12.C(11)(g)(i)(C) as appropriate, filling in the blanks accordingly and the text found in paragraphs R.61-58.12.C(11)(g)(i)(D)(1) and R.61-58.12.C(11)(g)(i)(D)(2) if appropriate.

(A) 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 assessment(s) to identify problems and to correct any problems that were found during these assessments.

(B) During the past year we were required to conduct [INSERT NUMBER OF LEVEL 1 ASSESSMENTS] Level 1 assessment(s). [INSERT NUMBER OF LEVEL 1 ASSESSMENTS] Level 1 assessment(s) were completed. In addition, we were required to take [INSERT NUMBER OF CORRECTIVE ACTIONS] corrective actions and we completed [INSERT NUMBER OF CORRECTIVE ACTIONS] of these actions.

(C) During the past year [INSERT NUMBER OF LEVEL 2 ASSESSMENTS] Level 2 assessments were required to be completed for our water system. [INSERT NUMBER OF LEVEL 2 ASSESSMENTS] Level 2 assessments were completed. In addition, we were required to take [INSERT NUMBER OF CORRECTIVE ACTIONS] corrective actions and we completed [INSERT NUMBER OF CORRECTIVE ACTIONS] of these actions.

(D) 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:

(1) During the past year we failed to conduct all of the required assessment(s).

(2) During the past year we failed to correct all identified defects that were found during the assessment.

(ii) Any system required to conduct a Level 2 assessment due to an E. coli MCL violation must include in the report the text found in paragraphs R.61-58.12.C(11)(g)(ii)(A) and R.61-58.12.C(11)(g)(ii) (B), filling in the blanks accordingly and the text found in paragraphs R.61-58.12.C(11)(g)(ii)(C)(1) and R.61-58.12.C(11)(g)(ii)(C)(2), if appropriate.

(A) 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.

(B) We were required to complete a Level 2 assessment because we found E. coli in our water system. In addition, we were required to take [INSERT NUMBER OF CORRECTIVE ACTIONS] corrective actions and we completed [INSERT NUMBER OF CORRECTIVE ACTIONS] of these actions.

(C) 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:

(1) We failed to conduct the required assessment.

(2) We failed to correct all sanitary defects that were identified during the assessment that we conducted.

(iii) If a system detects E. coli and has violated the E. coli MCL, in addition to completing the table as required in R.61-58.12.C(4)(d), the system must include one or more of the following statements to describe any noncompliance, as applicable:

(A) We had an E. coli-positive repeat sample following a total coliform-positive routine sample.

(B) We had a total coliform-positive repeat sample following an E. coli-positive routine sample.

(C) We failed to take all required repeat samples following an E. coli-positive routine sample.

(D) We failed to test for E. coli when any repeat sample tests positive for total coliform.

(iv) If a system detects E. coli and has not violated the E. coli MCL, in addition to completing the table as required in paragraph R.61-58.12.C(4)(d), the system may include a statement that explains that although they have detected E. coli, they are not in violation of the E. coli MCL.

D. Required Additional Health Information.

(1) All reports shall 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. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791)."

(2) Ending in the report due by July 1, 2001, a system which detects arsenic at levels above 0.025 mg/L, but below the 0.05 mg/L, and beginning in the report due by July 1, 2002, a system that detects arsenic above 0.005 mg/L and up to and including 0.01 mg/L:

(a) Shall include in its report a short informational statement about arsenic, using language such as: While your drinking water meets State and Federal standards for arsenic, it does contain low levels of arsenic. The Federal standard balances the current understanding of arsenic's possible health effects against the cost of removing arsenic from drinking water. EPA continues to research 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.

(b) May write its own educational statement, but only in consultation with the Department.

(3) A system which detects nitrate at levels above 5 mg/L, but below the MCL:

(a) Shall 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.

(b) May write its own educational statement, but only in consultation with the Department.

(4) Every report must include the following lead-specific information:

(a) A short informational statement about lead in drinking water and its effect 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 materials and components associated with service lines and home plumbing. [NAME OF UTILITY] 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 or http://www.epa.gov/safewater/lead.

(b) A system may write its own educational statement, but only in consultation with the Department.

(5) Community water systems that detect TTHM above 0.080 mg/L, but below the MCL in R.61-58.5.L, as an annual average, monitored and calculated under the provisions of R.61-58.5.M, must include health effects language prescribed by of Appendix D to of this regulation.

(6) Beginning in the report due by July 1, 2002 and ending January 22, 2006, a community water system that detects arsenic above 0.01 mg/L and up to and including 0.05 mg/L must include the arsenic health effects language prescribed by Appendix D to this regulation.

E. Report Delivery and Recordkeeping.

(1) Except as provided in paragraph (7) below, each community water system shall mail or otherwise directly deliver one copy of the report to each customer.

(2) The system shall make a good faith effort to reach consumers who do not get water bills, using means recommended by the Department. The Department expects that 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: Posting the reports on the Internet; mailing to postal patrons in metropolitan areas; advertising the availability of the report in the news media; publication in a local newspaper; posting in public places such as cafeterias or lunch rooms of public buildings; delivery of multiple copies for distribution by single-billed customers such as apartment buildings or large private employers; delivery to community organizations.

(3) No later than the date the system is required to distribute the report to its customers, each community water system shall mail a copy of the report to the Department, followed within 3 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 either provided by or submitted to the Department.

(4) No later than the date the system is required to distribute the report to its customers, each community water system shall deliver the report to any other agency or clearinghouse identified by the Department.

(5) Each community water system shall make its reports available to the public upon request.

(6) Each community water system serving 100,000 or more persons shall post its current year's report to a publicly-accessible site on the Internet.

(7) The Department can waive the requirement of paragraph (1) of this section for community water systems serving fewer than 10,000 persons.

(a) Such systems shall:

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

(ii) 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

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

(b) Systems serving 500 or fewer persons may forego the requirements of paragraphs (7)(a)(i) above, if they provide notice at least once per year to their customers by mail, door-to-door delivery or by posting in an appropriate location that the report is available upon request.

(8) Any system subject to this regulation shall retain copies of its Consumer Confidence Report for no less than three (3) years.

R.61-58.16 GROUND WATER RULE

A. Applicability.

This part R.61-58.16 applies to all public water systems that use ground water except that it does not apply to public water systems that combine all of their ground water with surface water or with ground water under the direct influence of surface water prior to treatment under 40 CFR 141, Subpart H. For the purposes of this part, "ground water system" is defined as any public water system meeting this applicability statement, including consecutive systems receiving finished ground water.

B. General Requirements.

The requirements of R.61-58.16 constitute national primary drinking water regulations. Systems subject to this part must comply with the following requirements:

(1) Sanitary survey information requirements for all ground water systems as described in R.61-58.16.D.

(2) Microbial source water monitoring requirements for ground water systems that do not treat all of their ground water to at least 99.99 percent (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 as described in R.61-58.16.E

(3) Treatment technique requirements, described in R.61-58.16.F, that apply to ground water systems that have fecally contaminated source waters, as determined by source water monitoring conducted under R.61-58.16.E, or that have significant deficiencies that are identified by the Department or that are identified by EPA under the Safe Drinking Water Act section 1445. A ground water system with fecally contaminated source water or with significant deficiencies subject to the treatment technique requirements of R.61-58.16.F must implement one or more of the following corrective action options: correct all significant deficiencies; provide an alternate source of water; eliminate the source of contamination; or provide treatment that reliably achieves 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.

(4) Ground water systems that provide 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 are required to conduct compliance monitoring to demonstrate treatment effectiveness, as described in R.61-58.16.F(2).

(5) If requested by the Department, ground water systems must provide the Department with any existing information that will enable the Department to perform a hydrogeologic sensitivity assessment. For the purposes of this part R.61-58.16, "hydrogeologic sensitivity assessment" is a determination of whether ground water systems obtain water from hydrogeologically sensitive settings.

C. Compliance Date.

Ground water systems must comply, unless otherwise noted, with the requirements of R.61-58.16 beginning December 1, 2009.

D. Sanitary Surveys For Ground Water Systems.

(1) Ground water systems must provide the Department, at the Department's request, any existing information that will enable the Department to conduct a sanitary survey.

(2) For the purposes of R.61 58.16, a "sanitary survey," as conducted by the Department, includes, but is not limited to, an onsite review of the water source(s) (identifying sources of contamination by using results of source water assessments or other relevant information where available), facilities, equipment, operation, maintenance, and monitoring compliance of a public water system to evaluate the adequacy of the system, its sources and operations and the distribution of safe drinking water.

(3) The sanitary survey must include an evaluation of the applicable components listed in paragraphs R.61-58.16.D(3)(a) through (h).

(a) Source,

(b) Treatment,

(c) Distribution system

(d) Finished water storage

(e) Pumps, pump facilities, and controls,

(f) Monitoring, reporting, and data verification,

(g) System management and operation, and

(h) Operator compliance with Department requirements.

E. Ground Water Source Microbial Monitoring and Analytical Methods.

(1) Triggered source water monitoring.

(a) General Requirement. A ground water system must conduct triggered source water monitoring if the conditions identified in paragraphs (1)(a)(i) and either (1)(a)(ii) or 1(a)(iii) of this section exist.

(i) The system does not provide 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 for each ground water source; and either

(ii) The system is notified that a sample collected under R.61 58.5.G(1) is total coliform-positive and the sample is not invalidated under R.61 58.5.G(3) until March 31, 2016, or

(iii) The system is notified that a sample collected under R.61-58.17.E through R.61-58.17.H is total coliform-positive and the sample is not invalidated under R.61-58.17.D(3) beginning April 1, 2016.

(b) Sampling Requirements. A ground water system must collect, within 24 hours of notification of the total coliform-positive sample, at least one ground water source sample from each ground water source in use at the time the total coliform-positive sample was collected under R.61 58.5.G(1) until March 31, 2016, or collected under R.61-58.17.E through R.61-58.17.H beginning April 1, 2016, except as provided in R.61

58.16.E(1)(b)(ii).

(i) The Department may extend the 24 hour time limit on a case by case basis if the system cannot collect the ground water source sample within 24 hours due to circumstances beyond its control. In the case of an extension, the Department must specify how much time the system has to collect the sample.

(ii) If approved by the Department, systems with more than one ground water source may meet the requirements of R.61 58.16.E(1)(b) by sampling a representative ground water source or sources. If directed by the Department, systems must submit a triggered source water monitoring plan for Department approval that identifies one or more ground water sources that are representative of each monitoring site in the system's sample siting plan under R.61 58.5.G(1) until March 31, 2016, or under R.61-58.17.D beginning April 1, 2016, and that the system intends to use for representative sampling under this paragraph.

(iii) Until, March 31, 2016, a ground water system serving 1,000 or fewer people may use a repeat sample collected from a ground water source to meet both the requirements of R.61 58.5.G(2) and to satisfy the monitoring requirements of R.61 58.16.E(1)(b) for that ground water source only if the Department approves the use of E.coli as a fecal indicator for source water monitoring under R.61-58.16.E(1). If the repeat sample collected from the ground water source is E.coli-positive, the system must comply with R.61 58.16.E(1)(c).

(iv) Beginning April 1, 2016, a ground water system serving 1,000 or fewer people may use a repeat sample collected from a ground water source to meet both the requirements of R.61-58.17 and to satisfy the monitoring requirements of R.61-58.16.E(1)(b) for that ground water source only if the Department approves the use of E. coli as a fecal indicator for source water monitoring under R.61-58.16.E(1) and approves the use of a single sample for meeting both the triggered source water monitoring requirements in R.61-58.16.E(1) and the repeat monitoring requirements in R.61-58.17.I. If the repeat sample collected from the ground water source is E. coli-positive, the system must comply with R.61-58.16.E(1)(c).

(c) Additional Requirements. If the Department does not require corrective action under R.61 58.16.F(1)(b) for a fecal indicator positive source water sample collected under R.61 58.16.E(1)(b) that is not invalidated under R.61 58.16.E(4), the system must collect five additional source water samples from the same source within 24 hours of being notified of the fecal indicator positive sample.

(d) Consecutive and wholesale systems.

(i) In addition to the other requirements of R.61 58.16.E(1), a consecutive ground water system that has a total coliform-positive sample collected under R.61 58.5.G(1) until March 31, 2016, or under R.61-58.17.E through R.61-58.17.H beginning April 1, 2016 must notify the wholesale system(s) within 24 hours of being notified of the total coliform-positive sample.

(ii) In addition to the other requirements of R.61 58.16.E(1), a wholesale ground water system must comply with R.61 58.16.E(1)(d)(ii)(A) and R.61 58.16.E(1)(d)(ii)(B).

(A) A wholesale ground water system that receives notice from a consecutive system it serves that a sample collected under R.61 58.5.G(1) until March 31, 2016, or collected under R.61-58.17.E through R.61-58.17.H beginning April 1, 2016, is total coliform-positive must, within 24 hours of being notified, collect a sample from its ground water source(s) under R.61 58.16.E(1)(b) and analyze it for a fecal indicator under R.61 58.16.E(3).

(B) If the sample collected under R.61 58.16.E(1)(d)(ii)(A) is fecal indicator positive, the wholesale ground water system must notify all consecutive systems served by that ground water source of the fecal indicator positive sample within 24 hours of being notified of the ground water source sample monitoring result and must meet the requirements of R.61 58.16.E(1)(c).

(e) Exceptions to the triggered source water monitoring requirements. A ground water system is not required to comply with the source water monitoring requirements of R.61 58.16.E(1) if either one of the following conditions exists:

(i) The Department determines, and documents in writing, that the total coliform-positive sample collected under R.61 58.5(G)(1) until March 31, 2016, or under R.61-58.17.E through R.61-58.17.H beginning April 1, 2016, is caused by a distribution system deficiency; or

(ii) The total coliform-positive sample collected under R.61 58.5(G)(1) until March 31, 2016, or under R.61-58.17.E through R.61-58.17.H beginning April 1, 2016, is collected at a location that meets Department criteria for distribution system conditions that will cause total coliform-positive samples.

(2) Assessment source water monitoring. If directed by the Department, ground water systems must conduct assessment source water monitoring that meets Department-determined requirements for such monitoring. A ground water system conducting assessment source water monitoring may use a triggered source water sample collected under R.61-58.16.E(1)(b) to meet the requirements of R.61-58.16.E(2). Department-determined assessment source water monitoring may include, but not be limited to the following:

(a) Collection of a total of 12 ground water source samples that represent each month the system provides ground water to the public.

(b) Collection of samples from each well unless the system obtains written Department approval to conduct monitoring at one or more wells within the ground water system that are representative of multiple wells used by that system and that draw water from the same hydrogeologic setting.

(c) Collection of a standard sample volume of at least 100 mL for fecal indicator analysis regardless of the fecal indicator or analytical method used.

(d) Analysis of all ground water source samples using one of the analytical methods listed in R.61-58.16.E(3) for the presence of E. coli, enterococci, or coliphage.

(e) Collection of ground water source samples at a location prior to any treatment of the ground water source unless the Department approves a sampling location after treatment.

(f) Collection of ground water source samples at the well itself unless the system's configuration does not allow for sampling at the well itself and the Department approves an alternate sampling location that is representative of the water quality of that well.

(3) Analytical methods.

(a) A ground water system subject to the source water monitoring requirements of R.61-58.16.E(1) must collect a standard sample volume of at least 100 ml for fecal indicator analysis regardless of the fecal indicator or analytical method used.

(b) A ground water system must analyze all ground water source samples collected under R.61-58.16.E(1) for E.coli, enterococci, or coliphage using EPA-approved methods listed in 40 CFR 141.402(c)(2) (Federal Register 11-8-2006 edition).

(4) Invalidation of a fecal indicator positive ground water source sample.

(a) A ground water system may obtain Department invalidation of a fecal indicator positive ground water source sample collected under R.61-58.16.E(1) only under the conditions specified as follows:

(i) The system provides the Department with written notice from the laboratory that improper sample analysis occurred.

(ii) The Department determines and documents in writing that there is substantial evidence that a fecal indicator positive ground water source sample is not related to source water quality.

(b) If the Department invalidates a fecal indicator positive ground water source sample, the ground water system must collect another source water sample under R.61-58.16.E(1) within 24 hours of being notified by the Department of its invalidation decision and have it analyzed for the same fecal indicator using the analytical methods listed in 40 CFR 141.402(c)(2) (Federal Register 11-8-2006 edition). The Department may extend the 24-hour time limit on a case-by-case basis if the system cannot collect the source water sample within 24 hours due to circumstances beyond its control. In the case of an extension, the Department will specify how much time the system has to collect the sample.

(5) Sampling location.

(a) Any ground water source sample required under R.61-58.16.E(1) must be collected at a location prior to any treatment of the groundwater source unless the Department approves a sampling location after treatment.

(b) If the system's configuration does not allow for sampling at the well itself, the system may collect a sample at a Department-approved location to meet the requirements under R.61-58.16.E(1) if the sample is representative of the water quality of that well.

(6) New sources. If directed by the Department, a ground water system that places a new ground water source into service after November 30, 2009, must conduct assessment source water monitoring under R.61-58.16.E(2). If directed by the Department, the system must begin monitoring before the ground water source is used to provide water to the public.

(7) Public notification. A ground water system with a ground water source sample collected under R.61-58.16.E(1) or (2) that is fecal indicator positive and that is not invalidated under R.61-58.16.E(4), including consecutive systems served by the ground water source, must conduct public notification under R.61-58.6.E(2).

(8) Monitoring violations. Failure to meet the requirements of R.61-58.16.E(1) through (6) is a monitoring violation and requires the ground water system to provide public notification under R.61-58.6.E(4).

F. Treatment technique requirements for ground water systems.

(1) Ground water systems with significant deficiencies or source water fecal contamination.

(a) The treatment technique requirements of R.61-58.16.F must be met by ground water systems when a significant deficiency is identified or when a ground water source sample collected under R.61-58.16.E(1)(c) is fecal indicator positive.

(b) If directed by the Department, a ground water system with a ground water source sample collected under R.61-58.16.E(1)(b), R.61-58.16.E(1)(d), or R.61-58.16.E(2) that is fecal indicator positive must comply with the treatment technique requirements of R.61-58.16.F.

(c) When a significant deficiency is identified at a Subpart H public water system that uses both ground water and surface water or GWUDI, the system must comply with R.61-58.16.F except in cases where the Department determines that the significant deficiency is in a portion of the distribution system that is served solely by surface water or GWUDI.

(d) Unless the Department directs the ground water system to implement a specific corrective action, the ground water system must consult with the Department regarding the appropriate corrective action within 30 days of receiving written notice from the Department of a significant deficiency, written notice from a laboratory that a ground water source sample collected under R.61-58.16.E(1)(c) was found to be fecal indicator positive, or direction from the Department that a fecal indicator positive sample collected under R.61-58.16.E(1)(b), R.61-58.16.E(1)(d), or R.61-58.16.E(2) requires corrective action. For the purposes of R.61-58.16, significant deficiencies include, but are not limited to, defects in design, operation, or maintenance, or a failure or malfunction of the sources, treatment, storage, or distribution system that the Department determines to be causing, or have the potential for causing, the introduction of contamination into the water delivered to consumers.

(e) Within 120 days, or earlier if directed by the Department, of receiving written notification from the Department of a significant deficiency, written notice from a laboratory that a ground water source sample collected under R.61-58.16.E.(1)(c) was found to be fecal indicator positive, or direction from the Department that a fecal indicator positive sample collected under R.61-58.16.E(1)(b), R.61-58.16.E(1)(d), or R.61-58.16.E(2) requires corrective action, the ground water system must either:

(i) Have completed corrective action in accordance with applicable Department plan review processes or other Department guidance or direction, if any, including Department-specified interim measures; or

(ii) Be in compliance with a Department-approved corrective action plan and

schedule subject to the following conditions:

(A) Any subsequent modifications to a Department-approved corrective action plan and schedule must also be approved by the Department.

(B) If the Department specifies interim measures for the protection of public health pending Department approval of the corrective action plan and schedule or pending completion of the corrective action plan, the system must comply with these interim measures as well as with any schedule specified by the Department.

(f) Corrective action alternatives. Ground water systems that meet the conditions of R.61-58.16.F(1)(a) or (b) must implement one or more of the following corrective action alternatives:

(i) Correct all significant deficiencies.

(ii) Provide an alternate source of water.

(iii) Eliminate the source of contamination.

(iv) Provide treatment that reliably achieves 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 for the ground water source.

(g) Special notice to the public of significant deficiencies or source water fecal contamination.

(i) In addition to the applicable public notification requirements of R.61-58.6.E(2), a community ground water system that receives notice from the Department of a significant deficiency or notification of a fecal indicator positive ground water source sample that is not invalidated by the Department must inform the public served by the water system under R.61-58.12.C(11)(f) of the fecal indicator positive source sample or of any significant deficiency that has not been corrected. The system must continue to inform the public annually until the significant deficiency is corrected or the fecal contamination in the ground water source is determined by the Department to be corrected under R.61-58.16.F(1)(e).

(ii) In addition to the applicable public notification requirements of R.61-58.6.E(2), a non-community ground water system that receives notice from the Department of a significant deficiency must inform the public served by the water system in a manner approved by the Department of any significant deficiency that has not been corrected within 12 months of being notified by the Department, or earlier if directed by the Department. The system must continue to inform the public annually until the significant deficiency is corrected. The information must include:

(A) The nature of the significant deficiency and the date the significant deficiency was identified by the Department.

(B) The Department-approved plan and schedule for correction of the significant deficiency, including interim measures, progress to date, and any interim measures completed.

(C) For systems with a large proportion of non-English speaking consumers, as determined by the Department, information in the appropriate language(s) regarding the importance of the notice or a telephone number or address where consumers may contact the system to obtain a translated copy of the notice or assistance in the appropriate language.

(iii) If directed by the Department, a non-community water system with significant deficiencies that have been corrected must inform its customers of the significant deficiencies, how the deficiencies were corrected, and the dates of correction under R.61-58.16.F(1)(g)(ii).

(2) Compliance monitoring

(a) Existing ground water sources. A ground water system that is not required to meet the source water monitoring requirements of R.61-58.16 because it provides 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 for any ground water source before December 1, 2009, must notify the Department in writing that it provides 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 for the specified ground water source and begin compliance monitoring in accordance with R.61-58.16.F(2)(c) by December 1, 2009. Notification to the Department must include engineering, operational, or other information that the Department requests to evaluate the submission. If the system subsequently discontinues 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 for a ground water source, the system must conduct ground water source monitoring as required under R.61-58.16.E.

(b) New ground water sources. A ground water system that places a ground water source in service after November 30, 2009, that is not required to meet the source water monitoring requirements of R.61-58.16 because the system provides 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 for the ground water source must comply with all of the requirements of R.61-58.16.F(2)(b)(i) to (iii).

(i) The system must notify the Department in writing that it provides 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 for the ground water source. Notification to the Department must include engineering, operational, or other information that the Department requests to evaluate the submission.

(ii) The system must conduct compliance monitoring under R.61-58.16.F(2)(c) within 30 days of placing the source in service.

(iii) The system must conduct ground water source monitoring under R.61-58.16.E if the system subsequently discontinues 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 for the ground water source.

(c) Monitoring requirements. A ground water system subject to the requirements of R.61-58.16.F(1), R.61-58.16.F(2)(a), or R.61-58.16.F(2)(b) must monitor the effectiveness and reliability of treatment for that ground water source before or at the first customer as follows:

(i) Chemical disinfection

(A) A ground water system that serves greater than 3,300 people must continuously monitor the residual disinfectant concentration using analytical methods specified in 40 CFR 141.74(a)(2) at a location approved by the Department and must record the lowest residual disinfectant concentration each day that the water from the ground water source is served to the public. The ground water system must maintain the Department determined residual disinfectant concentration every day the ground water system serves the water from the ground water source to the public. If there is a failure in the continuous monitoring equipment, the ground water system must conduct grab sampling every four hours until the continuous monitoring equipment is returned to service. The system must resume continuous residual disinfectant monitoring within 14 days.

(B) A ground water system that serves 3,300 or fewer people must monitor the residual disinfectant concentration using analytical methods specified in 40 CFR 141.74(a)(2) at a location approved by the Department and record the residual disinfection concentration each day that the water from the ground water source is served to the public. The ground water system must maintain the Department-determined residual disinfectant concentration every day the ground water system serves water from the ground water source to the public. The ground water system must take a daily grab sample during the hour of peak flow or at another time specified by the Department. If any daily grab sample measurement falls below the Department-determined residual disinfectant concentration, the ground water system must take follow up samples every four hours until the residual disinfectant concentration is restored to the Department-determined level. Alternatively, a ground water system that serves 3,300 or fewer people may monitor continuously and meet the requirements of R.61-58.16.F.(2)(c)(i)(A).

(ii) Membrane filtration. A ground water system that uses membrane filtration to meet the requirements of R.61-58.16 must monitor the membrane filtration process in accordance with all Department-specified monitoring requirements and must operate the membrane filtration in accordance with all Department-specified compliance requirements. A ground water system that uses membrane filtration is in compliance with the requirement to achieve at least 4-log removal of viruses when the following conditions are met:

(A) The membrane has an absolute molecular weight cut-off or an alternate parameter that describes the exclusion characteristics of the membrane that can reliably achieve at least 4-log removal of viruses.

(B) The membrane process is operated in accordance with Department-specified compliance requirements.

(C) The integrity of the membrane is intact.

(iii) Alternative treatment. A ground water system that uses a Department-approved alternative treatment to meet the requirements of R.61-58.16 by providing 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 must:

(A) Monitor the alternative treatment in accordance with all Department-specified monitoring requirements.

(B) Operate the alternative treatment in accordance with all compliance requirements that the Department determines to be necessary to achieve at least 4-log treatment of viruses.

(3) A ground water system may discontinue 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 for a ground water source if the Department determines and documents in writing that 4-log treatment of viruses is no longer necessary for that ground water source. A system that discontinues 4-log treatment of viruses is subject to the source water monitoring and analytical methods requirements of R.61-58.16.E.

(4) Failure to meet the monitoring requirements of R.61-58.16.F(2) is a monitoring violation and requires the ground water system to provide public notification under R.61-58.6.E(4).

G. Treatment technique violations for ground water systems.

(1) A ground water system with a significant deficiency is in violation of the treatment technique requirement if, within 120 days (or earlier if directed by the Department) of receiving written notice from the Department of the significant deficiency, the system:

(a) Does not complete corrective action in accordance with any applicable Department plan review processes or other Department guidance and direction, including Department specified interim actions and measures, or

(b) Is not in compliance with a Department-approved corrective action plan and schedule.

(2) Unless the Department invalidates a fecal indicator positive ground water source sample under R.61-58.16.E(4), a ground water system is in violation of the treatment technique requirement if, within 120 days (or earlier if directed by the Department) of meeting the conditions of R.61-58.16.F(1)(a) or R.61-58.16.F(1)(b), the system:

(a) Does not complete corrective action in accordance with any applicable Department plan review processes or other Department guidance and direction, including Department-specified interim measures, or

(b) Is not in compliance with a Department-approved corrective action plan and schedule.

(3) A ground water system subject to the requirements of R.61-58.16.F(2)(c) that fails 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 for a ground water source is in violation of the treatment technique requirement if the failure is not corrected within four hours of determining the system is not maintaining at least 4-log treatment of viruses before or at the first customer.

(4) Ground water systems must give public notification under R.61-58.6.E(3) for the treatment technique violations specified in R.61-58.16.G(1), G(2), and G(3).

H. Reporting and recordkeeping for ground water systems.

(1) Reporting. In addition to the requirements of R.61-58.6.B, a ground water system regulated under R.61-58.16 must provide the following information to the Department:

(a) A ground water system conducting compliance monitoring under R.61-58.16.F(2) must notify the Department any time the system fails to meet any Department-specified requirements including, but not limited to, minimum residual disinfectant concentration, membrane operating criteria or membrane integrity, and alternative treatment operating criteria, if operation in accordance with the criteria or requirements is not restored within four hours. The ground water system must notify the Department as soon as possible, but in no case later than the end of the next business day.

(b) After completing any corrective action under R.61-58.16.F(1), a ground water system must notify the Department within 30 days of completion of the corrective action.

(c) If a ground water system subject to the requirements of R.61-58.16.E(1) does not conduct source water monitoring under R.61-58.16.E(1)(e)(ii), the system must provide documentation to the Department within 30 days of the total coliform positive sample that it met the Department criteria.

(2) Recordkeeping. In addition to the requirements of R.61-58.6.D, a ground water system regulated under R.61-58.16 must maintain the following information in its records:

(a) Documentation of corrective actions shall be kept for a period of not less than ten years.

(b) Documentation of notice to the public as required under R.61-58.16.F(1)(g) shall be kept for a period of not less than three years.

(c) Records of decisions under R.61-58.16.E(1)(e)(ii) and records of invalidation of fecal indicator positive ground water source samples under R.61-58.16.E(4) shall be kept for a period of not less than five years.

(d) For consecutive systems, documentation of notification to the wholesale system(s) of total coliform-positive samples that are not invalidated under R.61 58.5.G(3) until April 1, 2016, or under R.61-58.17.D beginning April 1, 2016, shall be kept for a period of not less than five years.

(e) For systems. including wholesale systems, that are required to perform compliance monitoring under R.61-58.16.F(2):

(i) Records of the Department-specified minimum disinfectant residual shall be kept for a period of not less than ten years.

(ii) Records of the lowest daily residual disinfectant concentration and records of the date and duration of any failure to maintain the Department-specified minimum residual disinfectant concentration for a period of more than four hours shall be kept for a period of not less than five years.

(iii) Records of Department-specified compliance requirements for membrane filtration and of parameters specified by the Department for Department-approved alternative treatment and records of the date and duration of any failure to meet the membrane operating, membrane integrity, or alternative treatment operating requirements for more than four hours shall be kept for a period of not less than five years.

R.61-58.17 REVISED TOTAL COLIFORM RULE

A. Applicability.

The provisions of R.61-58.17 apply to all community and non-community public water systems.

B. General Requirements.

(1) General.

The provisions of R.61-58.17 include both maximum contaminant level and treatment technique requirements.

(2) Compliance date.

Systems must comply with the provisions of R.61-58.17 beginning April 1, 2016, unless otherwise specified in R.61-58.17.

(3) Violations of State Primary Drinking Water Regulations.

Failure to comply with the applicable requirements of this regulation R.61-58.17 shall constitute a violation of the State Primary Drinking Water Regulations.

C. Analytical Methods and Laboratory Certification

(1) Analytical methodology.

(a) The standard sample volume required for analysis, regardless of analytical method used, is 100 ml.

(b) Systems need only determine the presence or absence of total coliforms and E. coli; a determination of density is not required.

(c) The time from sample collection to initiation of test medium incubation may not exceed 30 hours. Systems are encouraged but not required to hold samples below 10 deg. C during transit.

(d) If water having residual chlorine (measured as free, combined, or total chlorine) is to be analyzed, sufficient sodium thiosulfate (Na2S2O3) must be added to the sample bottle before sterilization to neutralize any residual chlorine in the water sample. Dechlorination procedures are addressed in Section 9060A.2 of Standard Methods for the Examination of Water and Wastewater (20th and 21st editions).

(e) Systems must conduct total coliform and E. coli analyses in accordance with one of the analytical methods in 40 CFR 141.852 or one of the alternative methods listed in Appendix A to subpart C of CFR 141.

(2) Laboratory Certification.

Systems must have all compliance samples required under R.61-58.17 analyzed by a laboratory certified by the EPA or the Department to analyze drinking water samples. The laboratory used by the system must be certified for each method (and associated contaminant(s)) used for compliance monitoring analyses under this rule.

D. General Monitoring Requirements for All Public Water Systems.

(1) Sample siting plans.

(a) Systems must develop a written sample siting plan that identifies sampling sites and a sample collection schedule that are representative of water throughout the distribution system not later than March 31, 2016. These plans are subject to Department review and revision. Systems must collect total coliform samples according to the written sample siting plan. Monitoring required by R.61-58.17.E through R.61-58.17.I may take place at a customer's premise, dedicated sampling station, or other designated compliance sampling location. Routine and repeat sample sites and any sampling points necessary to meet the requirements of R.61-58.16 must be reflected in the sampling plan.

(b) Systems must collect samples at regular time intervals throughout the month, except that systems that use only ground water and serve 4,900 or fewer people may collect all required samples on a single day if they are taken from different sites.

(c) Systems must take at least the minimum number of required samples even if the system has had an E. coli MCL violation or has exceeded the coliform treatment technique triggers in R.61-58.17.J(1).

(d) A system may conduct more compliance monitoring than is required by R.61-58.17 to investigate potential problems in the distribution system and use monitoring as a tool to assist in uncovering problems. A system may take more than the minimum number of required routine samples and must include the results in calculating whether the coliform treatment technique trigger in R.61-58.17.J(1)(a)(i) and (ii) has been exceeded only if the samples are taken in accordance with the existing sample siting plan and are representative of water throughout the distribution system.

(e) Systems must identify repeat monitoring locations in the sample siting plan. Unless the provisions of R.61-58.17.D(1)(e)(i) or (1)(e)(ii) are met, the system must collect at least one repeat sample from the sampling tap where the original total coliform-positive sample was taken, and at least one repeat sample at a tap within five service connections upstream and at least one repeat sample at a tap within five service connections downstream of the original sampling site. If a total coliform-positive sample is at the end of the distribution system, or one service connection away from the end of the distribution system, the system must still take all required repeat samples. However, the Department may allow an alternative sampling location in lieu of the requirement to collect at least one repeat sample upstream or downstream of the original sampling site. Except as provided for in R.61-58.17.D (1)(e)(ii), systems required to conduct triggered source water monitoring under R.61-58.16.E(1) must take ground water source sample(s) in addition to repeat samples required under R.61-58.17.

(i) Systems may propose repeat monitoring locations to the Department that the system believes to be representative of a pathway for contamination of the distribution system. A system may elect to specify either alternative fixed locations or criteria for selecting repeat sampling sites on a situational basis in a standard operating procedure (SOP) in its sample siting plan. The system must design its SOP to focus the repeat samples at locations that best verify and determine the extent of potential contamination of the distribution system area based on specific situations. The Department may modify the SOP or require alternative monitoring locations as needed.

(ii) Ground water systems serving 1,000 or fewer people may propose repeat sampling locations to the Department that differentiate potential source water and distribution system contamination (e.g., by sampling at entry points to the distribution system). A ground water system with a single well required to

conduct triggered source water monitoring may, with written Department approval, take one of its repeat samples at the monitoring location required for triggered source water monitoring under R.61-58.16.E(1) if the system demonstrates to the Department's satisfaction that the sample siting plan remains representative of water quality in the distribution system. If approved by the Department, the system may use that sample result to meet the monitoring requirements in both R.61-58.16.E(1) and this section R.61-58.17.D.

(A) If a repeat sample taken at the monitoring location required for triggered source water monitoring is E. coli-positive, the system has violated the E. coli MCL and must also comply with R.61-58.16.E(1)(c). If a system takes more than one repeat sample at the monitoring location required for triggered source water monitoring, the system may reduce the number of additional source water samples required under R.61-58.16.E(1)(c) by the number of repeat samples taken at that location that were not E. coli-positive.

(B) If a system takes more than one repeat sample at the monitoring location required for triggered source water monitoring under R.61-58.16.E(1), and more than one repeat sample is E. coli-positive, the system has violated the E. coli MCL and must also comply with R.61-58.16.F(1)(a).

(C) If all repeat samples taken at the monitoring location required for triggered source water monitoring are E. coli-negative and a repeat sample taken at a monitoring location other than the one required for triggered source water monitoring is E. coli-positive, the system has violated the E. coli MCL, but is not required to comply with R.61-58.16.E(1)(c).

(f) The Department may review, revise, and approve, as appropriate, repeat sampling proposed by systems under R.61-58.17.D(1)(e)(i) and (ii). The system must demonstrate that the sample siting plan remains representative of the water quality in the distribution system. The Department may determine that monitoring at the entry point to the distribution system (especially for undisinfected ground water systems) is effective to differentiate between potential source water and distribution system problems.

(2) Special purpose samples.

Special purpose samples, such as those taken to determine whether disinfection practices are sufficient following pipe placement, replacement, or repair, must not be used to determine whether the coliform treatment technique trigger has been exceeded. Repeat samples taken pursuant to R.61-58.17.I are not considered special purpose samples, and must be used to determine whether the coliform treatment technique trigger has been exceeded.

(3) Invalidation of total coliform samples.

A total coliform-positive sample invalidated under R.61-58.17.D(3) does not count toward meeting the minimum monitoring requirements of this R.61-58.17.

(a) The Department may invalidate a total coliform-positive sample only if the conditions of R.61-58.17.D(3)(a)(i), (ii), or (iii) are met.

(i) The laboratory establishes that improper sample analysis caused the total coliform-positive result.

(ii) The Department, on the basis of the results of repeat samples collected as required under R.61-58.17.I(1), determines that the total coliform-positive sample resulted from a domestic or other non-distribution system plumbing problem. The Department cannot invalidate a sample on the basis of repeat sample results unless all repeat sample(s) collected at the same tap as the original total coliform-positive sample are also total coliform-positive, and all repeat samples collected at a location other than the original tap are total coliform negative (e.g., the Department cannot invalidate a total coliform-positive sample on the basis of repeat samples if all the repeat samples are total coliform negative, or if the system has only one service connection).

(iii) The Department has substantial grounds to believe that a total coliform-positive result is due to a circumstance or condition that does not reflect water quality in the distribution system. In this case, the system must still collect all repeat samples required under R.61-58.17.I(1), and use them to determine whether a coliform treatment technique trigger in R.61-58.17.J has been exceeded. To invalidate a total coliform-positive sample under this paragraph, the decision and supporting rationale must be documented in writing, and approved and signed by the supervisor of the Department official who recommended the decision. The Department must make this document available to EPA and the public. The written documentation must state the specific cause of the total coliform-positive sample, and what action the system has taken, or will take, to correct this problem. The Department may not invalidate a total coliform-positive sample solely on the grounds that all repeat samples are total coliform negative.

(b) A laboratory must invalidate a total coliform sample (unless total coliforms are detected) if the sample produces a turbid culture in the absence of gas production using an analytical method where gas formation is examined (e.g., the Multiple-Tube Fermentation Technique), produces a turbid culture in the absence of an acid reaction in the Presence-Absence (P-A) Coliform Test, or exhibits confluent growth or produces colonies too numerous to count with an analytical method using a membrane filter (e.g., Membrane Filter Technique). If a laboratory invalidates a sample because of such interference, the system must collect another sample from the same location as the original sample within 24 hours of being notified of the interference problem, and have it analyzed for the presence of total coliforms. The system must continue to re-sample within 24 hours and have the samples analyzed until it obtains a valid result. The Department may waive the 24-hour time limit on a case-by-case basis. Alternatively, the Department may implement criteria for waiving the 24-hour sampling time limit to use in lieu of case-by-case extensions.

E. Routine monitoring requirements for non-community water systems serving 1,000 or fewer people using only ground water.

(1) General.

(a) The provisions of this section apply to non-community water systems using only ground water (except ground water under the direct influence of surface water, as defined in R.61-58.B - Definitions) and serving 1,000 or fewer people.

(b) Following any total coliform-positive sample taken under the provisions of this section, systems must comply with the repeat monitoring requirements and E. coli analytical requirements in R.61-58.17.I.

(c) Once all monitoring required by this section R.61-58.17.E and R.61-58.17.I for a calendar month has been completed, systems must determine whether any coliform treatment technique triggers specified in R.61-58.17.J have been exceeded. If any trigger has been exceeded, systems must complete assessments as required by R.61-58.17.J.

(d) For the purpose of determining eligibility for remaining on or qualifying for quarterly monitoring under the provisions of R.61-58.17.E(6)(d) and (7)(b), respectively, of this section R.61-58.17.E for transient non-community water systems, the Department may elect to not count monitoring violations under R.61-58.17.K(3)(a) if the missed sample is collected no later than the end of the monitoring period following the monitoring period in which the sample was missed. The system must collect the make-up sample in a different week than the routine sample for that monitoring period and should collect the sample as soon as possible during the monitoring period. The Department may not use this provision under R.61-58.17.E(8). This authority does not affect the provisions of R.61-58.17.K(3)(a) and R.61-58.17.L(1)(d).

(2) Monitoring frequency for total coliforms.

Systems must monitor each calendar quarter that the system provides water to the public, except for seasonal systems or as provided under R.61-58.17.E(3) through R.61-58.17.E(8) and R.61-58.17.E(10). Seasonal systems must meet the monitoring requirements of R.61-58.17.E(9).

(3) Transition to R.61-58.17 - Revised Total Coliform Rule.

(a) Systems, including seasonal systems, must continue to monitor according to the total coliform monitoring schedules under R.61-58.5.G(1) that were in effect on March 31, 2016, unless any of the conditions for increased monitoring in R.61-58.17.E(6) are triggered on or after April 1, 2016, or unless otherwise directed by the Department.

(b) Beginning April 1, 2016, the Department must perform a special monitoring evaluation during each sanitary survey to review the status of the system, including the distribution system, to determine whether the system is on an appropriate monitoring schedule. After the Department has performed the special monitoring evaluation during each sanitary survey, the Department may modify the system's monitoring schedule, as necessary, or it may allow the system to stay on its existing monitoring schedule, consistent with the provisions of R.61-58.17.E. The Department may not allow systems to begin less frequent monitoring under the special monitoring evaluation unless the system has already met the applicable criteria for less frequent monitoring in R.61-58.17.E. For seasonal systems on quarterly or annual monitoring, this evaluation must include review of the approved sample siting plan, which must designate the time period(s) for monitoring based on site-specific considerations (e.g., during periods of highest demand or highest vulnerability to contamination). The seasonal system must collect compliance samples during these time periods.

(4) Annual site visits.

Beginning no later than calendar year 2017, systems on annual monitoring, including seasonal systems, must have an initial and recurring annual site visit by the Department that is equivalent to a Level 2 assessment or an annual voluntary Level 2 assessment that meets the criteria in R.61-58.17.J(2) to remain on annual monitoring. The periodic required sanitary survey may be used to meet the requirement for an annual site visit for the year in which the sanitary survey was completed.

(5) Criteria for annual monitoring. Beginning April 1, 2016, the Department may reduce the monitoring frequency for a well-operated ground water system from quarterly routine monitoring to no less than annual monitoring, if the system demonstrates that it meets the criteria for reduced monitoring in R.61-58.17.E(5)(a) through (5)(c), except for a system that has been on increased monitoring under the provisions of R.61-58.17.E(6). A system on increased monitoring under R.61-58.17.E(6) must meet the provisions of R.61-58.17.E(7) to go to quarterly monitoring and must meet the provisions of R.61-58.17.E(8) to go to annual monitoring.

(a) The system has a clean compliance history for a minimum of 12 months;

(b) The most recent sanitary survey shows that the system is free of sanitary defects or has corrected all identified sanitary defects, has a protected water source, and meets approved construction standards; and

(c) The Department has conducted an annual site visit within the last 12 months and the system has corrected all identified sanitary defects. The system may substitute a Level 2 assessment that meets the criteria in R.61-58.17.J(2) for the Department annual site visit.

(6) Increased Monitoring Requirements for systems on quarterly or annual monitoring.

A system on quarterly or annual monitoring that experiences any of the events identified in R.61-58.17.E(6)(a) through (6)(d) must begin monthly monitoring the month following the event. A system on annual monitoring that experiences the event identified in R.61-58.17.E(6)(e) must begin quarterly monitoring the quarter following the event. The system must continue monthly or quarterly monitoring until the requirements in R.61-58.17.E(7) for quarterly monitoring or R.61-58.17.E(8) for annual monitoring are met. A system on monthly monitoring for reasons other than those identified in R.61-58.17.E(6)(a) through (6)(d) is not considered to be on increased monitoring for the purposes of R.61-58.17.E(7) and (8).

(a) The system triggers a Level 2 assessment or two Level 1 assessments under the provisions of R.61-58.17.J in a rolling 12-month period.

(b) The system has an E. coli MCL violation.

(c) The system has a coliform treatment technique violation.

(d) The system has two monitoring violations under R.61-58.17 or one monitoring violation under R.61-58.17 and one Level 1 assessment under the provisions of R.61-58.17.J in a rolling 12-month period for a system on quarterly monitoring.

(e) The system has one monitoring violation under R.61-58.17 for a system on annual monitoring.

(7) Requirements for returning to quarterly monitoring.

The Department may reduce the monitoring frequency for a system on monthly monitoring triggered under R.61-58.17.E(6) to quarterly monitoring if the system meets the criteria in R.61-58.17.E(7)(a) and (7)(b).

(a) Within the last 12 months, the system must have a completed sanitary survey or a site visit by the Department or a voluntary Level 2 assessment by a party approved by the Department, be free of sanitary defects, and have a protected water source; and

(b) The system must have a clean compliance history for a minimum of 12 months.

(8) Requirements for systems on increased monitoring to qualify for annual monitoring. The Department may reduce the monitoring frequency for a system on increased monitoring under R.61-58.17.E(6) if the system meets the criteria in R.61-58.17.E(7) plus the criteria in R.61-58.17.E(8)(a) and (8)(b).

(a) An annual site visit by the Department and correction of all identified sanitary defects. The system may substitute a voluntary Level 2 assessment by a party approved by the Department for the Department annual site visit in any given year.

(b) The system must have in place or adopt one or more additional enhancements to the water system barriers to contamination in R.61-58.17.E(8)(b)(i) through (8)(b)(v).

(i) Cross connection control, as approved by the Department.

(ii) An operator certified by the South Carolina Department of Labor, Licensing and Regulation - Environmental Certification Board or regular visits by a circuit rider certified by an appropriate State certification program.

(iii) Continuous disinfection entering the distribution system and a residual in the distribution system in accordance with criteria specified by the Department.

(iv) Demonstration of maintenance of at least a 4-log removal or inactivation of viruses as provided for under R.61-58.16.F(2)(c).

(v) Other equivalent enhancements to water system barriers as approved by the Department.

(9) Seasonal systems.

(a) Beginning April 1, 2016, all seasonal systems must demonstrate completion of a Department-approved start-up procedure, which may include a requirement for startup sampling prior to serving water to the public.

(b) A seasonal system must monitor every month that it is in operation unless it meets the criteria in R.61-58.17.E(9)(b)(i) through (iii) to be eligible for monitoring less frequently than monthly beginning April 1, 2016, except as provided under R.61-58.17.E(3).

(i) Seasonal systems monitoring less frequently than monthly must have an approved sample siting plan that designates the time period for monitoring based on site-specific considerations (e.g., during periods of highest demand or highest vulnerability to contamination). Seasonal systems must collect compliance samples during this time period.

(ii) To be eligible for quarterly monitoring, the system must meet the criteria in R.61-58.17.E(7).

(iii) To be eligible for annual monitoring, the system must meet the criteria under R.61-58.17.E(8).

(c) The Department may exempt any seasonal system from some or all of the requirements for seasonal systems if the entire distribution system remains pressurized

during the entire period that the system is not operating, except that systems that monitor less frequently than monthly must still monitor during the vulnerable period designated by the Department.

(10) Additional routine monitoring the month following a total coliform-positive sample.

Systems collecting samples on a quarterly or annual frequency must conduct additional routine monitoring the month following one or more total coliform-positive samples (with or without a Level 1 treatment technique trigger). Systems must collect at least three routine samples during the next month, except that the Department may waive this requirement if the conditions of R.61-58.17.E(10)(a), (b), or (c) are met. Systems may either collect samples at regular time intervals throughout the month or may collect all required routine samples on a single day if samples are taken from different sites. Systems must use the results of additional routine samples in coliform treatment technique trigger calculations under R.61-58.17.J(1).

(a) The Department may waive the requirement to collect three routine samples the next month in which the system provides water to the public if the Department, or an agent approved by the Department, performs a site visit before the end of the next month in which the system provides water to the public. Although a sanitary survey need not be performed, the site visit must be sufficiently detailed to allow the Department to determine whether additional monitoring and/or any corrective action is needed. The Department cannot approve an employee of the system to perform this site visit, even if the employee is an agent approved by the Department to perform sanitary surveys.

(b) The Department may waive the requirement to collect three routine samples the next month in which the system provides water to the public if the Department has determined why the sample was total coliform-positive and has established that the system has corrected the problem or will correct the problem before the end of the next month in which the system serves water to the public. In this case, the Department must document this decision to waive the following month's additional monitoring requirement in writing, have it approved and signed by the supervisor of the Department official who recommends such a decision, and make this document available to the EPA and public. The written documentation must describe the specific cause of the total coliform-positive sample and what action the system has taken and/or will take to correct this problem.

(c) The Department may not waive the requirement to collect three additional routine samples the next month in which the system provides water to the public solely on the grounds that all repeat samples are total coliform negative. If the Department determines that the system has corrected the contamination problem before the system takes the set of repeat samples required in R.61-58.17.I, and all repeat samples were total coliform negative, the Department may waive the requirement for additional routine monitoring the next month.

F. Routine monitoring requirements for community water systems serving 1,000 or fewer people using only ground water.

(1) General.

(a) The provisions of this section apply to community water systems using only ground water (except ground water under the direct influence of surface water, as defined in R.61-58.B - Definitions) and serving 1,000 or fewer people.

(b) Following any total coliform-positive sample taken under the provisions of this section, systems must comply with the repeat monitoring requirements and E. coli analytical requirements in R.61-58.17.I.

(c) Once all monitoring required by this section and R.61-58.17.I for a calendar month has been completed, systems must determine whether any coliform treatment technique triggers specified in R.61-58.17.J have been exceeded. If any trigger has been exceeded, systems must complete assessments as required by R.61-58.17.J.

(2) Monitoring frequency for total coliforms.

The monitoring frequency for total coliforms is one sample per month, except as provided for under R.61-58.17.F(3) through (6).

(3) Transition to R.61-58.17 - Revised Total Coliform Rule.

(a) All systems must continue to monitor according to the total coliform monitoring schedules under R.61-58.5.G that were in effect on March 31, 2016, unless any of the conditions in R.61-58.17.F(5) are triggered on or after April 1, 2016, or unless otherwise directed by the Department.

(b) Beginning April 1, 2016, the Department must perform a special monitoring evaluation during each sanitary survey to review the status of the system, including the distribution system, to determine whether the system is on an appropriate monitoring schedule. After the Department has performed the special monitoring evaluation during each sanitary survey, the Department may modify the system's monitoring schedule, as necessary, or it may allow the system to stay on its existing monitoring schedule, consistent with the provisions of R.61-58.17.F. The Department may not allow systems to begin less frequent monitoring under the special monitoring evaluation unless the system has already met the applicable criteria for less frequent monitoring in R.61-58.17.F.

(4) Criteria for reduced monitoring.

(a) The Department may reduce the monitoring frequency from monthly monitoring to no less than quarterly monitoring if the system is in compliance with Department-certified operator provisions and demonstrates that it meets the criteria in R.61-58.17.F(4)(a)(i) through (4)(a)(iii). A system that loses its certified operator must return to monthly monitoring the month following that loss.

(i) The system has a clean compliance history for a minimum of 12 months.

(ii) The most recent sanitary survey shows the system is free of sanitary defects (or has an approved plan and schedule to correct them and is in compliance with the plan and the schedule), has a protected water source and meets approved construction standards.

(iii) The system meets at least one of the following criteria:

(A) An annual site visit by the Department that is equivalent to a Level 2 assessment or an annual Level 2 assessment by a party approved by the Department and correction of all identified sanitary defects (or an approved plan and schedule to correct them and is in compliance with the plan and schedule).

(B) Cross connection control, as approved by the Department.

(C) Continuous disinfection entering the distribution system and a residual in the distribution system in accordance with criteria specified by the Department.

(D) Demonstration of maintenance of at least a 4-log removal or inactivation of viruses as provided for under R.61-58.16.F(2)(c).

(E) Other equivalent enhancements to water system barriers as approved by the Department.

(b) Reserved

(5) Return to routine monthly monitoring requirements.

Systems on quarterly monitoring that experience any of the events in R.61-58.17.F(5)(a) through (5)(d) must begin monthly monitoring the month following the event. The system must continue monthly monitoring until it meets the reduced monitoring requirements in R.61-58.17.F(4).

(a) The system triggers a Level 2 assessment or triggers two Level 1 assessments in a rolling 12-month period.

(b) The system has an E. coli MCL violation.

(c) The system has a coliform treatment technique violation.

(d) The system has two monitoring violations under R.61-58.17 in a rolling 12-month period.

(6) Additional routine monitoring the month following a total coliform-positive sample.

Systems collecting samples on a quarterly frequency must conduct additional routine monitoring the month following one or more total coliform-positive samples (with or without a Level 1 treatment technique trigger). Systems must collect at least three routine samples during the next month, except that the Department may waive this requirement if the conditions of R.61-58.17.F(6)(a), (b), or (c) are met. Systems may either collect samples at regular time intervals throughout the month or may collect all required routine samples on a single day if samples are taken from different sites. Systems must use the results of additional routine samples in coliform treatment technique trigger calculations.

(a) The Department may waive the requirement to collect three routine samples the next month in which the system provides water to the public if the Department, or an agent approved by the Department, performs a site visit before the end of the next month in which the system provides water to the public. Although a sanitary survey need not be performed, the site visit must be sufficiently detailed to allow the Department to determine whether additional monitoring and/or any corrective action is needed. The Department cannot approve an employee of the system to perform this site visit, even if the employee is an agent approved by the Department to perform sanitary surveys.

(b) The Department may waive the requirement to collect three routine samples the next month in which the system provides water to the public if the Department has determined why the sample was total coliform-positive and has established that the system has corrected the problem or will correct the problem before the end of the next month in which the system serves water to the public. In this case, the Department must

document this decision to waive the following month's additional monitoring requirement in writing, have it approved and signed by the supervisor of the Department official who recommends such a decision, and make this document available to the EPA and the public. The written documentation must describe the specific cause of the total coliform-positive sample and what action the system has taken and/or will take to correct this problem.

(c) The Department may not waive the requirement to collect three additional routine samples the next month in which the system provides water to the public solely on the grounds that all repeat samples are total coliform negative. If the Department determines that the system has corrected the contamination problem before the system takes the set of repeat samples required in R.61-58.17.I, and all repeat samples were total coliform negative, the Department may waive the requirement for additional routine monitoring the next month.

G. Routine monitoring requirements for subpart H public water systems serving 1,000 or fewer people.

(1) General.

(a) The provisions of this section apply to subpart H public water systems serving 1,000 or fewer people.

(b) Following any total coliform-positive sample taken under the provisions of R.61-58.17.G, systems must comply with the repeat monitoring requirements and E. coli analytical requirements in R.61-58.17.I.

(c) Once all monitoring required by this section and R.61-58.17.I for a calendar month has been completed, systems must determine whether any coliform treatment technique triggers specified in R.61-58.17.J have been exceeded. If any trigger has been exceeded, systems must complete assessments as required by R.61-58.17.J.

(d) Seasonal systems.

(i) Beginning April 1, 2016, all seasonal systems must demonstrate completion of a Department-approved start-up procedure, which may include a requirement for start-up sampling prior to serving water to the public.

(ii) The Department may exempt any seasonal system from some or all of the requirements for seasonal systems if the entire distribution system remains pressurized during the entire period that the system is not operating.

(2) Routine monitoring frequency for total coliforms.

Subpart H systems (including consecutive systems) must monitor monthly. Systems may not reduce monitoring.

(3) Unfiltered subpart H systems.

A subpart H system that does not practice filtration in compliance with R.61-58.10 must collect at least one total coliform sample near the first service connection each day the turbidity level of the source water, measured as specified in R.61-58.10.F(2)(b), exceeds 1 NTU. When one or more turbidity measurements in any day exceed 1 NTU, the system must collect this coliform sample within 24 hours of the first exceedance, unless the Department determines that the system, for logistical reasons outside the system's control, cannot have the sample analyzed within 30 hours of collection and identifies an

alternative sample collection schedule. Sample results from this coliform monitoring must be included in determining whether the coliform treatment technique trigger in R.61-58.17.J has been exceeded.

H. Routine monitoring requirements for public water systems serving more than 1,000 people.

(1) General.

(a) The provisions of R.61-58.17.H apply to public water systems serving more than 1,000 persons.

(b) Following any total coliform-positive sample taken under the provisions of R.61-58.17.H, systems must comply with the repeat monitoring requirements and E. coli analytical requirements in R.61-58.17.I.

(c) Once all monitoring required by this section and R.61-58.17.I for a calendar month has been completed, systems must determine whether any coliform treatment technique triggers specified in R.61-58.17.J have been exceeded. If any trigger has been exceeded, systems must complete assessments as required by R.61-58.17.J.

(d) Seasonal systems.

(i) Beginning April 1, 2016, all seasonal systems must demonstrate completion of a Department-approved start-up procedure, which may include a requirement for start-up sampling prior to serving water to the public.

(ii) The Department may exempt any seasonal system from some or all of the requirements for seasonal systems if the entire distribution system remains pressurized during the entire period that the system is not operating.

(2) Monitoring frequency for total coliforms.

The monitoring frequency for total coliforms is based on the population served by the system, as follows:

MINIMUM NUMBER OF POPULATION SERVED			MINIMUM NUMBER OF SAMPLES PER MONTH
1,001	to	2,500	2
2,501	to	3,300	3
3,301	to	4,100	4
4,101	to	4,900	5
4,901	to	5,800	6
5,801	to	6,700	7
6,701	to	7,600	8
7,601	to	8,500	9
8,501	to	12,900	10
12,901	to	17,200	15
17,201	to	21,500	20
21,501	to	25,000	25
25,001	to	33,000	30
33,001	to	41,000	40
41,001	to	50,000	50
50,001	to	59,000	60
59,001	to	70,000	70
70,001	to	83,000	80
83,001	to	96,000	90
96,001	to	130,000	100
130,001	to	220,000	120
220,001	to	320,000	150
320,001	to	450,000	180
450,001	to	600,000	210
600,001	to	780,000	240
780,001	to	970,000	270
970,001	to	1,230,000	300
1,230,001	to	1,520,000	330
1,520,001	to	1,850,000	360
1,850,001	to	2,270,000	390
2,270,001	to	3,020,000	420
3,020,001	to	3,960,000	450
3,960,001 or more			480

(3) Unfiltered subpart H systems.

A subpart H system that does not practice filtration in compliance with R.61-58.10 must collect at least one total coliform sample near the first service connection each day the turbidity level of the source water, measured as specified in R.61-58.10.F(2)(b), exceeds 1 NTU. When one or more turbidity measurements in any day exceed 1 NTU, the system must collect this coliform sample within 24 hours of the first exceedance, unless the Department determines that the system, for logisfical reasons outside the system's control, cannot have the sample analyzed within 30 hours of collection and identifies an alternative sample collection schedule. Sample results from this coliform monitoring must be included in determining whether the coliform treatment technique trigger in R.61-58.17.J has been exceeded.

(4) Reduced monitoring.

Systems may not reduce monitoring, except for non-community water systems using only ground water (and not ground water under the direct influence of surface water) serving 1,000 or fewer people in some months and more than 1,000 persons in other months. In months when more than 1,000 persons are served, the systems must monitor at the frequency specified in paragraph R.61-58.17.H(2). In months when 1,000 or fewer people are served, the Department may reduce the monitoring frequency, in writing, to a frequency allowed under R.61-58.17.E for a similarly situated system that always serves 1,000 or fewer people, taking into account the provisions in R.61-58.17.E(5) through (7).

I. Repeat monitoring and E. coli requirements.

(1) Repeat monitoring.

(a) If a sample taken under R.61-58.17.E though R.61-58.17.H is total coliform-positive, the system must collect a set of repeat samples within 24 hours of being notified of the positive result. The system must collect no fewer than three repeat samples for each total coliform-positive sample found. The Department may extend the 24-hour limit on a case-by-case basis if the system has a logistical problem in collecting the repeat samples within 24 hours that is beyond its control. Alternatively, the Department may implement criteria for the system to use in lieu of case-by-case extensions. In the case of an extension, the Department must specify how much time the system has to collect the repeat samples. The Department cannot waive the requirement for a system to collect repeat samples in R.61-58.17.I(1)(a) through (1)(c).

(b) The system must collect all repeat samples on the same day, except that the Department may allow a system with a single service connection to collect the required set of repeat samples over a three-day period or to collect a larger volume repeat sample(s) in one or more sample containers of any size, as long as the total volume collected is at least 300 ml.

(c) The system must collect an additional set of repeat samples in the manner specified in R.61-58.17.I(1)(a) through (1)(c) if one or more repeat samples in the current set of repeat samples is total coliform-positive. The system must collect the additional set of repeat samples within 24 hours of being notified of the positive result, unless the Department extends the limit as provided in R.61-58.17.I(1)(a). The system must continue to collect additional sets of repeat samples until either total coliforms are not detected in one complete set of repeat samples or the system determines that a coliform treatment technique trigger specified in R.61-58.17.J(1) has been exceeded as a result of a repeat sample being total coliform-positive and notifies the Department. If a trigger identified in R.61-58.17.J is exceeded as a result of a routine sample being total coliform-positive, systems are required to conduct only one round of repeat monitoring for each total coliform-positive routine sample.

(d) After a system collects a routine sample and before it learns the results of the analysis of that sample, if it collects another routine sample(s) from within five adjacent service connections of the initial sample, and the initial sample, after analysis, is found to contain total coliforms, then the system may count the subsequent sample(s) as a repeat sample instead of as a routine sample.

(e) Results of all routine and repeat samples taken under R.61-58.17.E through R.61-58.17.I not invalidated by the Department must be used to determine whether a coliform treatment technique trigger specified in R.61-58.17.J has been exceeded.

(2) Escherichia coli (E. coli) testing.

(a) If any routine or repeat sample is total coliform-positive, the system must analyze that total coliform-positive culture medium to determine if E. coli are present. If E. coli are present, the system must notify the Department by the end of the day when the system is notified of the test result, unless the system is notified of the result after the Department office is closed and the Department does not have either an after-hours phone line or an alternative notification procedure, in which case the system must notify the Department before the end of the next business day.

(b) The Department has the discretion to allow a system, on a case-by-case basis, to forgo E. coli testing on a total coliform-positive sample if that system assumes that the total coliform-positive sample is E. coli-positive. Accordingly, the system must notify the Department as specified in R.61-58.17.I(2)(a) and the provisions of R.61-58.5.F(3) apply.

J. Coliform treatment technique triggers and assessment requirements for protection against potential fecal contamination.

(1) Treatment technique triggers.

Systems must conduct assessments in accordance with R.61-58.17.J(2) of this section after exceeding treatment technique triggers in R.61-58.17.J(1)(a) and (1)(b).

(a) Level 1 treatment technique triggers.

(i) For systems taking 40 or more samples per month, the system exceeds 5.0% total coliform-positive samples for the month.

(ii) For systems taking fewer than 40 samples per month, the system has two or more total coliform-positive samples in the same month.

(iii) The system fails to take every required repeat sample after any single total coliform-positive sample.

(b) Level 2 treatment technique triggers.

(i) An E. coli MCL violation, as specified in R.61-58.17.K(1).

(ii) A second Level 1 trigger as defined in R.61-58.17.J(1)(a), within a rolling 12-month period, unless the Department has determined a likely reason that the samples that caused the first Level 1 treatment technique trigger were total coliform-positive and has established that the system has corrected the problem.

(iii) For systems with approved annual monitoring, a Level 1 trigger in two consecutive years.

(2) Requirements for assessments.

(a) Systems must ensure that Level 1 and 2 assessments are conducted in order to identify the possible presence of sanitary defects and defects in distribution system coliform monitoring practices. Level 2 assessments must be conducted by parties approved by the Department.

(b) When conducting assessments, systems must ensure that the assessor evaluates minimum elements that include review and identification of inadequacies in sample sites; sampling protocol; sample processing; atypical events that could affect distributed water quality or indicate that distributed water quality was impaired; changes in distribution system maintenance and operation that could affect distributed water quality (including water storage); source and treatment considerations that bear on distributed water quality, where appropriate (e.g., small ground water systems); and existing water quality monitoring data. The system must conduct the assessment consistent with any Department directives that tailor specific assessment elements with respect to the size and type of the system and the size, type, and characteristics of the distribution system.

(c) Level 1 Assessments.

A system must conduct a Level 1 assessment consistent with Department requirements if the system exceeds one of the treatment technique triggers in R.61-58.17.J(1)(a).

(i) The system must complete a Level 1 assessment as soon as practical after any trigger in R.61-58.17.J(1)(a). In the completed assessment form, the system must describe sanitary defects detected, corrective actions completed, and a proposed timetable for any corrective actions not already completed. The assessment form may also note that no sanitary defects were identified. The system must submit the completed Level 1 assessment form to the Department within 30 days after the system learns that it has exceeded a trigger.

(ii) If the Department reviews the completed Level 1 assessment and determines that the assessment is not sufficient (including any proposed timetable for any corrective actions not already completed), the Department must consult with the system. If the Department requires revisions after consultation, the system must submit a revised assessment form to the Department on an agreed-upon schedule not to exceed 30 days from the date of the consultation.

(iii) Upon completion and submission of the assessment form by the system, the Department must determine if the system has identified a likely cause for the Level 1 trigger and, if so, establish that the system has corrected the problem, or has included a schedule acceptable to the Department for correcting the problem.

(d) Level 2 Assessments.

A system must ensure that a Level 2 assessment consistent with Department requirements is conducted if the system exceeds one of the treatment technique triggers in R.61-58.17.J(1)(b). The system must comply with any expedited actions or additional actions required by the Department in the case of an E. coli MCL violation.

(i) The system must ensure that a Level 2 assessment is completed by the Department or by a party approved by the Department as soon as practical after any trigger in R.61-58.17.J(1)(b). The system must submit a completed Level 2 assessment form to the Department within 30 days after the system learns that it has exceeded a trigger. The assessment form must describe sanitary defects detected, corrective actions completed, and a proposed timetable for any corrective actions not already completed. The assessment form may also note that no sanitary defects were identified.

(ii) The system may conduct Level 2 assessments if the system has staff or management with the certification or qualifications specified by the Department unless otherwise directed by the Department.

(iii) If the Department reviews the completed Level 2 assessment and determines that the assessment is not sufficient (including any proposed timetable for any corrective actions not already completed), the Department must consult with the system. If the Department requires revisions after consultation, the system must submit a revised assessment form to the Department on an agreed-upon schedule not to exceed 30 days.

(iv) Upon completion and submission of the assessment form by the system, the Department must determine if the system has identified a likely cause for the Level 2 trigger and determine whether the system has corrected the problem, or has included a schedule acceptable to the Department for correcting the problem.

(3) Corrective Action.

Systems must correct sanitary defects found through either Level 1 or 2 assessments conducted under R.61-58.17.J(2). For corrections not completed by the time of submission of the assessment form, the system must complete the corrective action(s) in compliance with a timetable approved by the Department in consultation with the system. The system must notify the Department when each scheduled corrective action is completed.

(4) Consultation.

At any time during the assessment or corrective action phase, either the water system or the Department may request a consultation with the other party to determine the appropriate actions to be taken. The system may consult with the Department on all relevant information that may impact on its ability to comply with a requirement of R.61-58.17, including the method of accomplishment, an appropriate timeframe, and other relevant information.

K. Violations

(1) E. coli MCL Violation.

A system is in violation of the MCL for E. coli when any of the conditions identified in R.61-58.17.K(1)(a) through (1)(d) occur.

(a) The system has an E. coli-positive repeat sample following a total coliform-positive routine sample.

(b) The system has a total coliform-positive repeat sample following an E. coli-positive routine sample.

(c) The system fails to take all required repeat samples following an E. coli-positive routine sample.

(d) The system fails to test for E. coli when any repeat sample tests positive for total coliform.

(2) Treatment technique violation.

(a) A treatment technique violation occurs when a system exceeds a treatment technique trigger specified in R.61-58.17.J(1) and then fails to conduct the required assessment or corrective actions within the timeframe specified in R.61-58.17.J(2) and (3).

(b) A treatment technique violation occurs when a seasonal system fails to complete a Department-approved start-up procedure prior to serving water to the public.

(3) Monitoring violations.

(a) Failure to take every required routine or additional routine sample in a compliance period is a monitoring violation.

(b) Failure to analyze for E. coli following a total coliform-positive routine sample is a monitoring violation.

(4) Reporting violations.

(a) Failure to submit a monitoring report or completed assessment form after a system properly conducts monitoring or assessment in a timely manner is a reporting violation.

(b) Failure to notify the Department following an E. coli-positive sample as required by R.61-58.17.I(2)(a) in a timely manner is a reporting violation.

(c) Failure to submit certification of completion of Department-approved start-up procedure by a seasonal system is a reporting violation.

L. Reporting and recordkeeping.

(1) Reporting.

(a) E. coli.

(i) A system must notify the Department by the end of the day when the system learns of an E. coli MCL violation, unless the system learns of the violation after the Department office is closed and the Department does not have either an after-hours phone line or an alternative notification procedure, in which case the system must notify the Department before the end of the next business day, and notify the public in accordance with R.61-58.6.

(ii) A system must notify the Department by the end of the day when the system is notified of an E. coli-positive routine sample, unless the system is notified of the result after the Department office is closed and the Department does not have either an after-hours phone line or an alternative notification procedure, in which case the system must notify the Department before the end of the next business day.

(b) A system that has violated the treatment technique for coliforms in R.61-58.17.J must report the violation to the Department no later than the end of the next business day after it learns of the violation, and notify the public in accordance with R.61-58.6.

(c) A system required to conduct an assessment under the provisions of R.61-58.17.J must submit the assessment report within 30 days. The system must notify the Department in accordance with R.61-58.17.J(3) when each scheduled corrective action is completed for corrections not completed by the time of submission of the assessment form.

(d) A system that has failed to comply with a coliform monitoring requirement must report the monitoring violation to the Department within 10 days after the system discovers the violation, and notify the public in accordance with R.61-58.6.

(e) A seasonal system must certify, prior to serving water to the public, that it has complied with the Department-approved start-up procedure.

(2) Recordkeeping.

(a) 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 R.61-58.17.J 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.

(b) 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 R.61-58.17.I(1)(a).

APPENDIX A TO 61-58.6: Violations And Other Situations Requiring A Public Notice[1]

CONTAMINANT	MCL/MRDL/TT/VIOLATIONS[2]		MONITORING & TESTING PROCEDURE VIOLATIONS	
	TIER OF PUBLIC NOTICE REQUIRED	CITATION	TIER OF PUBLIC NOTICE REQUIRED	CITATION
I. Violations of the State Primary Drinking Water Regulations (SPDWR):[3]				
A. Microbiological Contaminants				
1.a Total coliform †	2	61-58.5.F(1)	3	61-58.5.G(1) - (5)
1.b Total coliform (TT violations resulting from failure to perform assessments or corrective actions, monitoring violations, and reporting violations) ‡	2	61-58.17.K(2)(a)	3	61-58.17.K(3)(a) 61-58.17.K(4)(a)
1.c Seasonal system failure to follow Department-approved start-up plan prior to serving water to the public or failure to provide certification to the Department. ‡	2	61-58.17.K(2)(b)	3	61-58.17.K(4)(c)
2.a Fecal coliform/E. coli †	1	61-58.5.F(2)	[4]1, 3	61-58.5.G(5)
2.b *E.coli* (MCL, monitoring, and reporting violations. ‡	1	61-58.17.K(1)	3	61-58.17.K(3)(b) 61-58.17.K(4)(a) 61-58.17.K(4)(b)
2.c E. coli (TT violations resulting from failure to perform level 2 Assessments or corrective action) ‡	2	61-58.17.K(2)(a)		
3. Turbidity MCL	2	61-58.10.E, H, & I	3	61-58.10.F
4. Turbidity MCL (average of 2 days samples greater than 5 NTU)	[5]2, 1	61-58.10.C, E, H & I	3	61-58.10.F
5. Turbidity (for TT violations resulting from a single exceedance of maximum allowable turbidity level)	[6]2, 1	61-58.10.C(i)(b) 61-58.10.C(3)(b) 61-58.10.F(2)(b), 61-58.10.E(1)(b), 61-58.10.E(2)(b), 61-58.10.E(3)(b), 61-58.10.E(4),	3	61-58.10.F 61-58.10.F(3) 61-58.10.H 61-58.10(I)(7)(a)(i)-(iii) & (b)

6. Surface Water Treatment Rule violations, other than violations resulting from single exceedance of max. allowable turbidity level (TT).	2	61-58.10.H(4)(a)(ii), 61-58.10.H(4)(b), 61-58.10.I(6)(b) 61-58.10.B - E		61-58.10
7. Interim Enhanced Surface Water Treatment Rule violations, other than violations resulting from single exceedance of max. turbidity level (TT)	[7]2	61-58.10.B - E 61-58.10.I(1)-(7)	3	61-58.10.H(3), (5) 61-58.10.I(4) & (5) 61-58.10.I(7)
8. Filter Backwash Recycling Rule violations	2	61-58.10.J(3)	3	61-58.10.J(2) & (4)
9. Long Term 1 Enhanced Surface Water Treatment Rule Violations.	2	61-58.10.I(1)-(7)	3	61-58.10.I.(4) & (5)
10. LT2ESWTR violations	2	61-58.10.K(11) – (21)	[22]2,3	61-58.10.I(7) 61-58.10.K(2) – (6) & 61-58.10.K(9) – (10)
11. Ground Water Rule Violations	2	61-58.16.G	3	61-58.16.E(8) 61-58.16.F(4)
B. Inorganic Chemicals (IOCs)				
1. Antimony	2	61-58.5.B(2)	3	61-58.5.C(7), (9)
2. Arsenic	2	[8]61-58.5.B(2)	3	[9]61-58.5.C(7)
3. Asbestos (fibers >10µm)	2	61-58.5.B(2)	3	61-58.5.C(7), (8)
4. Barium	2	61-58.5.B(2)	3	61-58.5.C(7), (9)
5. Beryllium	2	61-58.5.B(2)	3	61-58.5.C(7), (9)
6. Cadmium	2	61-58.5.B(2)	3	61-58.5.C(7), (9)
7. Chromium (total)	2	61-58.5.B(2)	3	61-58.5.C(7), (9)
8. Cyanide	2	61-58.5.B(2)	3	61-58.5.C(7), (9)
9. Fluoride	2	61-58.5.B(2)	3	61-58.5.C(7), (9)
10. Mercury (inorganic)	2	61-58.5.B(2)	3	61-58.5.C(7), (9)
11. Nitrate	1	61-58.5.B(2)	[10]1, 3	61-58.5.C(7), (10) 61-58.5.C(12)
12. Nitrite	1	61-58.5.B(2)	[10]1, 3	61-58.5.C (7,) (10). 61-58.5.C(12)
13. Total Nitrate and Nitrite	1	61-58.5.B(2)	3	61-58.5.C(7)
14. Selenium	2	61-58.5.B(2)	3	61-58.5.C(7), (9)
15. Thallium	2	61-58.5.B(2)	3	61-58.5.C(7), (9)

C. Lead and Copper Rule (Action Level for lead is 0.015 mg/L, for copper is 1.3 mg/L)

1. Lead and Copper Rule (TT)	2	61-58.11.B - G	3	61-58.11.H - K

D. Synthetic Organic Chemicals (SOCs)

1. 2,4-D	2	61-58.5.D	3	61-58.5.E(7)
2. 2,4,5-TP (Silvex)	2	61-58.5.D	3	61-58.5.E(7)
3. Alachlor	2	61-58.5.D	3	61-58.5.E(7)
4. Atrazine	2	61-58.5.D	3	61-58.5.E(7)
5. Benzo(a)pyrene (PAHs)	2	61-58.5.D	3	61-58.5.E(7)
6. Carbofuran	2	61-58.5.D	3	61-58.5.E(7)
7. Chlordane	2	61-58.5.D	3	61-58.5.E(7)
8. Dalapon	2	61-58.5.D	3	61-58.5.E(7)
9. Di (2-ethylhexyl) adipate	2	61-58.5.D	3	61-58.5.E(7)
10. Di (2-ethylhexyl) phthalate	2	61-58.5.D	3	61-58.5.E(7)
11. Dibromochloropropane	2	61-58.5.D	3	61-58.5.E(7)
12. Dinoseb	2	61-58.5.D	3	61-58.5.E(7)
13. Dioxin (2,3,7,8-TCDD)	2	61-58.5.D	3	61-58.5.E(7)
14. Diquat	2	61-58.5.D	3	61-58.5.E(7)
15. Endothall	2	61-58.5.D	3	61-58.5.E(7)
16. Endrin	2	61-58.5.D	3	61-58.5.E(7)
17. Ethylene dibromide	2	61-58.5.D	3	61-58.5.E(7)
18. Glyphosate	2	61-58.5.D	3	61-58.5.E(7)
19. Heptachlor	2	61-58.5.D	3	61-58.5.E(7)
20. Heptachlor epoxide	2	61-58.5.D	3	61-58.5.E(7)
21. Hexachlorobenzene	2	61-58.5.D	3	61-58.5.E(7)
22. Hexachlorocyclo-pentadiene	2	61-58.5.D	3	61-58.5.E(7)
23. Lindane	2	61-58.5.D	3	61-58.5.E(7)
24. Methoxychlor	2	61-58.5.D	3	61-58.5.E(7)
25. Oxamyl (Vydate)	2	61-58.5.D	3	61-58.5.E(7)
26. Pentachlorophenol	2	61-58.5.D	3	61-58.5.E(7)
27. Picloram	2	61-58.5.D	3	61-58.5.E(7)
28. Polychlorinated biphenyls (PCBs)	2	61-58.5.D	3	61-58.5.E(7)
29. Simazine	2	61-58.5.D	3	61-58.5.E(7)
30. Toxaphene	2	61-58.5.D	3	61-58.5.E(7)

E. Volatile Organic Chemicals (VOCs)

1. Benzene	2	61-58.5.N	3	61-58.5.O
2. Carbon tetrachloride	2	61-58.5.N	3	61-58.5.O
3. Chlorobenzene (monochlorobenzene)	2	61-58.5.N	3	61-58.5.O
4. o-Dichlorobenzene	2	61-58.5.N	3	61-58.5.O
5. p-Dichlorobenzene	2	61-58.5.N	3	61-58.5.O
6. 1,2-Dichloroethane	2	61-58.5.N	3	61-58.5.O
7. 1,1-Dichloroethylene	2	61-58.5.N	3	61-58.5.O
8. cis-1,2-Dichloroethylene	2	61-58.5.N	3	61-58.5.O
9. trans-1,2-Dichloroethylene	2	61-58.5.N	3	61-58.5.O
10. Dichloromethane	2	61-58.5.N	3	61-58.5.O
11. 1,2-Dichloropropane	2	61-58.5.N	3	61-58.5.O
12. Ethylbenzene	2	61-58.5.N	3	61-58.5.O
13. Styrene	2	61-58.5.N	3	61-58.5.O
14. Tetrachloroethylene	2	61-58.5.N	3	61-58.5.O
15. Toluene	2	61-58.5.N	3	61-58.5.O
16. 1,2,4-Trichlorobenzene	2	61-58.5.N	3	61-58.5.O
17. 1,1,1-Trichloroethane	2	61-58.5.N	3	61-58.5.O
18. 1,1,2-Trichloroethane	2	61-58.5.N	3	61-58.5.O
19. Trichloroethylene	2	61-58.5.N	3	61-58.5.O
20. Vinyl chloride	2	61-58.5.N	3	61-58.5.O
21. Xylenes (total)	2	61-58.5.N	3	61-58.5.O

F. Radioactive Contaminants

1. Beta photon emitters	2	61-58.5.H(4)	3	61-58.5.K(1), 61-58.5.I.(3)
2. Alpha emitters	2	61-58.5.H(3)	3	61-58.5.K(1), 61-58.5.I(2)
3. Combined radium (226 & 228)	2	61-58.5.H(2)	3	61-58.5.K(1), 61-58.5.I2)
4. Uranium	[11]2	61-58.5.H(5)	[12]3	61-58.5.K(1), 61-58.5.I(2)

G. Disinfection Byproducts (DBPs), Byproduct Precursors, 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).[13]

1. Total trihalomethanes (TTHMs)	2	[14] 61-58.5.L, 61-58.5.P	3	[14] 61-58.5.M 61-58.13.C(1), (2) 61-58.14, 61-58.15
2. Haloacetic Acids (HAA5)	2	61-58.5.P	3	61-58.13.C(1), (2) 61-58.14, 61-58.15
3. Bromate	2	61-58.5.P	3	61-58.13.C(1), (2)
4. Chlorite	2	61-58.5.P	3	61-58.13.C(1), (2)
5. Chlorine (MRDL)	2	61-58.5.Q	3	61-58.13.C(1), (3)
6. Chloramine (MRDL)	2	61-58.5.Q	3	61-58.13.C(1), (3)
7. Chlorine dioxide (MRDL) where any 2 consecutive daily samples at entrance to distribution system only are above MRDL	2	61-58.5.Q, 61-58.13.D	2 [15], 3	61-58.13.C(1), (3), 61-58.13.C(3)(b)
8. Chlorine dioxide (MRDL), where sample(s) in distribution system the next day are also above MRDL	[16] 1	61-58.5.Q, 61-58.13.D(3)	1	61-58.13.C(1), (3), 61-58.13.D(3)(b)
9. Control of DBP precursors--TOC (TT)	2	61-58.13.F(1), (2)	3	61-58.13.C(1), (4)
10. Bench marking and disinfection profiling.	N/A	N/A	3	61-58.10.G(3) 61-58.10.H(3) 61-58.10.I(4) & (5)
11. Development of monitoring plan	N/A	N/A	3	61-58.13.C(6)
II. Other Treatment Techniques				
1. Acrylamide (TT)	2	61-58.5.AA	N/A	N/A
2. Epichlorohydrin (TT)	2	61-58.5.AA	N/A	N/A
II. Unregulated Contaminant Monitoring: [17]				
A. Unregulated contaminants	N/A	N/A	3	61-58.5.T
B. Nickel	N/A	N/A	3	61-58.5.C(9), (17)

III. Public Notification for Variances and Exemptions:

A. Operation under a variance or exemption	3	[18]61-58.9	N/A	N/A
B. Violation of conditions of a variance or exemption	2	[19]61-58.9	N/A	N/A

IV. Other Situations Requiring Public Notification:

A. Fluoride secondary maximum contaminant level (SMCL) exceedance	3	61-58.5.R	N/A	N/A
B. Exceedance of nitrate MCL for non-community systems, as allowed by Department	1	61-58.5.B(3)	N/A	N/A
C. Availability of unregulated contaminant monitoring data	3	61-58.5.T	N/A	N/A
D. Waterborne disease outbreak	1	61-58.B(156) 61-58.10.C(3)(b)(ii)	N/A	N/A
E. Other waterborne emergency[20]	1	N/A	N/A	N/A
F. Source water sample positive for Ground Water Rule fecal indicators: E. coli, enterococci, or coliphage	1	61-58.16.E(7)	N/A	N/A
G. Other situations as determined by the Department	[21]1, 2, 3	N/A	N/A	N/A

Appendix A to R.61-58.6 - Endnotes

† Until March 31, 2016

‡ Beginning April 1, 2016

1. Violations and other situations not listed in this table (e.g., failure to prepare Consumer Confidence Reports), do not require notice, unless otherwise determined by the Department. The Department may, at its option, also require a more stringent public notice tier (e.g., Tier 1 instead of Tier 2 or Tier 2 instead of Tier 3) for specific violations and situations listed in this Appendix, as authorized under R.61-58.6.E(2)(a) and (3)(a).

2. MCL--Maximum contaminant level, MRDL--Maximum residual disinfectant level, TT--Treatment technique

3. The term Violations of State Primary Drinking Water Regulations (SPDWR) is used here to include violations of MCL, MRDL, treatment technique, monitoring, and testing procedure requirements.

4. Failure to test for fecal coliform or E. coli is a Tier 1 violation if testing is not done after any repeat sample tests positive for coliform. All other total coliform monitoring and testing procedure violations are Tier 3.

[5] Systems that violate the turbidity MCL of 5 NTU based on an average of measurements over two consecutive days must consult with the Department within 24 hours after learning of the violation. Based on this consultation, the Department may subsequently decide to elevate the violation to Tier 1. If a system is unable to make contact with the Department in the 24-hour period, the violation is automatically elevated to Tier 1.

[6] Systems with treatment technique violations involving a single exceedance of a maximum turbidity limit under the Surface Water Treatment Rule (SWTR) Interim Enhanced Surface Water Treatment Rule (IESWTR), or the Long Term 1 Enhanced Surface Water Treatment Rule (LT1ESWTR) are required to consult with the Department within 24 hours after learning of the violation. Based on this consultation, the Department may subsequently decide to elevate the violation to Tier 1. If a system is unable to make contact with the Department in the 24-hour period, the violation is automatically elevated to Tier 1.

[7] Most of the requirements of the Interim Enhanced Surface Water Treatment Rule, R.61-58.10.B - C become effective January 1, 2002 for surface water systems and ground water systems under the direct influence of surface water serving at least 10,000 persons. However, R.61-58.10.H(3) has some requirements that become effective as early as April 16, 1999. The Surface Water Treatment Rule remains in effect for systems serving at least 10,000 persons even after 2002; the Interim Enhanced Surface Water Treatment Rule adds additional requirements and does not in many cases supersede the SWTR.

[8] The arsenic MCL citations are effective January 23, 2006. Until then the citations are R.61-58.5(B)(2).

[9] The arsenic Tier 3 violations MCL citations are effective January 23, 2006. Until then, the citations are R.61-58.C(7).

[10] Failure to take a confirmation sample within 24 hours for nitrate or nitrite after an initial sample exceeds the MCL is a Tier 1 violation. Other monitoring violations for nitrate are Tier 3.

[11] The uranium MCL, Tier 2 violation citations are effective December 8, 2003 for all community water systems.

[12] The uranium Tier 3 violation citations are effective December 8, 2000 for all community water systems.

[13] Community and non-transient non-community surface water systems and ground water systems under the direct influence of surface water serving 10,000 must comply with new DBP MCLs, disinfectant MRDLs, and related monitoring requirements beginning January 1, 2002. All other community and non-transient non-community systems must meet the MCLs and MRDLs beginning January 1, 2004. Transient non-community surface water systems and ground water systems under the direct influence of surface water serving 10,000 or more persons and using chlorine dioxide as a disinfectant or oxidant must comply with the chlorine dioxide MRDL beginning January 1, 2002. Transient non-community surface water systems and ground water systems under the direct influence of surface water serving fewer than 10,000 persons and using only ground water not under the direct influence of surface water and using chlorine dioxide as a disinfectant or oxidant must comply with the chlorine dioxide MRDL beginning January 1, 2004.

[14] R.61-58.5.L, and R.61-58.13.C(1) – (2) apply until R.61-58.14 and R.61-58.15 take effect under the schedule in R.61-58.14.

[15] Failure to monitor for chlorine dioxide at the entrance to the distribution system the day after exceeding the MRDL at the entrance to the distribution system is a Tier 2 violation.

[16] If any daily sample taken at the entrance to the distribution system exceeds the MRDL for chlorine dioxide and one or more samples taken in the distribution system the next day exceed the MRDL, Tier 1 notification is required. Failure to take the required samples in the distribution system after the MRDL is exceeded at the entry point also triggers Tier 1 notification.

[17] Some water systems must monitor for certain unregulated contaminants listed in R.61-58.5.T

[18] This citation refers to the requirements of R.61-58.9 that ``a schedule prescribed ….for a public water system granted a variance [or exemption] shall require compliance by the system . . ."

[19] In addition to R.61-58.9 specifies the items and schedule milestones that must be included in a variance for small systems.

[20] Other waterborne emergencies require a Tier 1 public notice under R.61-58.6.E(2)(a) for situations that do not meet the definition of a

waterborne disease outbreak given in R.61-58.B(174) but that still have the potential to have serious adverse effects on health as a result of short-term exposure. These could include outbreaks not related to treatment deficiencies, as well as situations that have the potential to cause outbreaks, such as failures or significant interruption in water treatment processes, natural disasters that disrupt the water supply or distribution system, chemical spills, or unexpected loading of possible pathogens into the source water.

[21] The Department may place other situations in any tier they believe appropriate, based on threat to public health.

[22] Failure to collect three or more samples for Cryptosporidium analysis is a Tier 2 violation requiring special notice as specified in R.61-58.6.E(11). All other monitoring and testing procedure violations are Tier 3.

Appendix B to R.61-58.6: Standard Health Effects Language for Public Notification

Contaminant	MCLG [1] mg/L	MCL [2] mg/L	Standard health effects language for public notification
State Primary Drinking Water Regulations (SPDWR):			
A. Microbiological Contaminants:			
1a. Total coliform †	Zero	See footnote [3]	Coliforms are bacteria that are naturally present in the 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 ‡	Zero	Zero	Fecal coliforms and E. coli are bacteria whose presence indicates that the water may be contaminated 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)	Zero	TT	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.
i. E. coli	None	TT	
ii. enterococci	None	TT	
iii. coliphage			
1d. Ground Water Rule TT violations	None	TT	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 (R.61-58.17) Coliform Assessment and/or Corrective Action Violations ‡	N/A		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

		TT	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 USE THE FOLLOWING APPLICABLE SENTENCES.] We failed to conduct the required assessment. We failed to correct all identified sanitary defects that were found during the assessment(s).
1f. Revised Total Coliform Rule (R.61-58.17) E. coli Assessment and/or Corrective Action Violations ‡	N/A		E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these waters 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 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.
1g. E. coli ‡	Zero	In compliance unless one of the following conditions occurs: (1) The system has an E. coli-positive repeat sample following a total coliform-positive routine sample. (2) The system has a total coliform-positive repeat sample following an E. coli-positive routine sample. (3) The system fails to take all required repeat samples following an E. coli-positive routine sample.	[THE SYSTEM MUST USE THE FOLLOWING APPLICABLE SENTENCES.] We failed to conduct the required assessment. We failed to correct all identified sanitary defects that were found during the assessment that we conducted. 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.

		(4) The system fails to test for E. coli when any repeat sample tests positive for total coliform.	
1h. Revised Total Coliform Rule (R.61-58.17) Seasonal System TT Violations ‡	N/A	TT	When this violation includes the failure to monitor for total coliforms or E. coli prior to serving water to the public, the mandatory language found at R.61-58.6.E(5)(d)(ii) must be used. When this violation includes failure to complete other actions, the appropriate elements found in R.61-58.6.E(5)(a) to describe the violation must be used.
2a. Turbidity (MCL)[4]	None	1 NTU [5]/5 NTU	Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea and associated headaches.
2b. Turbidity (SWTR TT)[6]	None	TT[7]	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.
2c. Turbidity (IESWTR TT)[8]	None	TT	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 (SWTR), Interim Enhanced Surface Water Treatment Rule (IESWTR), Long Term 1 Enhanced Surface Water Treatment Rule (LT1ESWTR) and Filter Backwash Recycling Rule (FBRR) violations:			
3. *Giardia lamblia* (SWTR/IESWTR/LT1ESWTR)	Zero	TT[10]	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 (SWTR/IESWTR/LT1ESWTR)			

5. Heterotrophic plate count (HPC) bacteria [9]
(SWTR/IESWTR/LT1ESWTR).
6. *Legionella*
(SWTR/IESWTR/LT1ESWTR).
7. *Cryptosporidium*
(IESWTR/FBRR/LT1ESWTR).

C. Inorganic Chemicals (IOCs):

8. Antimony	0.006	0.006	Some people who drink water containing antimony well ~~in well~~ in excess of the MCL over many years could experience increases in blood cholesterol and decreases in blood sugar.
9. Arsenic[11]	Zero	0.010	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 μm)	7 MFL [12]	7 MFL	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	2	2	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	0.004	0.004	Some people who drink water containing beryllium well in excess of the MCL over many years could develop intestinal lesions.
13. Cadmium	0.005	0.005	Some people who drink water containing cadmium in excess of the MCL over many years could experience kidney damage.
14. Chromium (total)	0.1	0.1	Some people who use water containing chromium well in excess of the MCL over many years could experience allergic dermatitis.
15. Cyanide	0.2	0.2	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.
16. Fluoride	4.0	4.0	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.
17. Mercury (inorganic)	0.002	0.002	Some people who drink water containing inorganic mercury well in excess of the MCL over many years could experience kidney damage.
18. Nitrate	10	10	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	1	1	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	10	10	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	0.05	0.05	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	0.0005	0.002	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 Rule:			
23. Lead	Zero	TT[13]	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	1.3	TT[14]	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.
E.	Synthetic Organic Chemicals (SOCs):		
25.	2,4-D	0.07	0.07	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 kidneys, liver, or adrenal glands.
26.	2,4,5-TP (Silvex)	0.05	0.05	Some people who drink water containing silvex in excess of the MCL over many years could experience liver problems.
27.	Alachlor	Zero	0.002	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	0.003	0.003	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)	Zero	0.0002	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	0.04	0.04	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	Zero	0.002	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	0.2	0.2	Some people who drink water containing dalapon well in excess of the MCL over many years could minor kidney changes.
33.	Di (2-ethylhexyl) adipate	0.4	0.4	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.
34.	Di(2-ethylhexyl) phthalate	Zero	0.006	Some people who drink water containing di(2-ethylhexyl) phthalate well in excess of the MCL many years may have problems with their liver, or experience reproductive

35. Dibromochloropropane (DBCP)	Zero	0.0002	difficulties, and may have an increased risk of getting cancer. Some people who drink water containing DBCP in of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer.
36. Dinoseb	0.007	0.007	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).	Zero	3×10^{-8}	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	0.02	0.02	Some people who drink water containing diquat in excess of the MCL over many years could get cataracts.
39. Endothall	0.1	0.1	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	0.002	0.002	Some people who drink water containing endrin in excess of the MCL over many years could experience liver problems.
41. Ethylene dibromide	Zero	0.00005	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	0.7	0.7	Some people who drink water containing glyphosate in excess of the MCL over many years could experience problems with their kidneys or reproductive difficulties.
43. Heptachlor	Zero	0.0004	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	Zero	0.0002	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	Zero	0.001	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. Hexachlorocyclo pentadiene	0.05	0.05	Some people who drink water containing Hexachlorocyclo-pentadiene well in excess of the MCL over many years could experience problems with their kidneys or stomach.
47. Lindane	0.0002	0.0002	Some people who drink water containing lindane in excess of the MCL over many years could experience problems with

48. Methoxychlor	0.04	0.04	their kidneys or liver. Some people who drink water containing methoxychlor in excess of the MCL over many years could experience reproductive difficulties.
49. Oxamyl (Vydate)	0.2	0.2	Some people who drink water containing oxamyl in excess of the MCL over many years could experience slight nervous system effects.
50. Pentachlorophenol	Zero	0.001	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	0.5	0.5	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)	Zero	0.0005	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.
53. Simazine	0.004	0.004	Some people who drink water containing simazine in excess of the MCL over many years could experience problems with their blood.
54. Toxaphene	Zero	0.003	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	Zero	0.005	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	Zero	0.005	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)	0.1	0.1	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	0.6	0.6	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	0.075	0.075	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	Zero	0.005	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	0.007	0.007	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	0.07	0.07	Some people who drink water containing cis-1,2-dichloroethylene in excess of the MCL over many years could experience problems with their liver.
63. trans-1,2-Dichloroethylene	0.1	0.1	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	Zero	0.005	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	Zero	0.005	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	0.7	0.7	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	0.1	0.1	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	Zero	0.005	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	1	1	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	0.07	0.07	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	0.2	0.2	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	0.003	0.005	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 systems.
73. Trichloroethylene	Zero	0.005	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	Zero	0.002	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)	10	10	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	Zero	4 mrem/yr[15]	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	Zero	15 pCi/L[16]	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)	Zero	5 pCi/L	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[17]	Zero	30ìg/L	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.

II. 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):[18]

80. Total trihalomethanes (TTHMs)	N/A	0.08017[19, 20]	Some people who drink water containing trihalomethanes 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)	N/A	0.060[21]	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	Zero	0.010	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	0.08	1.0	Some infants and young children who ~~drinking~~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	4 (MRDLG)[22]	4.0 (MRDL)[23]	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.
85. Chloramines	4 (MRDLG)	4.0 (MRDL)	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.
86a. Chlorine dioxide, where any 2 consecutive daily samples taken at the entrance to the distribution system are above the MRDL.	0.8 (MRDLG)	0.8 (MRDL)	Some infants and young children who drink water containing chlorine dioxide in excess of a the MRDL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorine ioxide in excess of the MRDL. Some people may experience anemia. *Add for public notification only:* The chlorine dioxide violations reported today are the result of exceedances at the treatment facility only not within the distribution system which

86b. Chlorine dioxide, where one or more water distribution system are above the MRDL	0.8 (MRDLG)	0.8 (MRDL)	delivers water to consumers. Continued compliance with chlorine dioxide levels within the distribution system minimizes the potential risk of these violations to consumers. Some infants and young children who drink containing chlorine dioxide in excess of the MRDL could experience nervous 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. *Add for public notification only:* 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 (DBP)	None	TT	Total organic carbon (TOC) has no health effects However, total organic carbon provides a medium for the formation of disinfection by-products. These byproducts include trihalomethanes (THMs) and haloacetic acids (HAAs). Drinking water containing these by-products 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	Zero	TT	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	Zero	TT	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.

Appendix B to R.61-58.6 - endnotes

† Until [illegible] 31, 2016

‡ Beginning April 1, 2016

[1] MCLG - Maximum contaminant level goal
[2] MCL - Maximum contaminant level
[3] For water systems analyzing at least 40 samples per month, no more than 5.0 percent of the monthly samples may be positive for total coliforms. For systems analyzing fewer than 40 samples per month, no more than one sample per month may be positive for total coliforms.
[4] There are various regulations that set turbidity standards for different types of systems, including the 1989 Surface Water Treatment Rule, the 1998 Interim Enhanced Surface Water Treatment Rule, and the 2002 Long Term 1 Enhanced Surface Water Treatment Rule. The MCL for the monthly turbidity average is 1 NTU; the MCL for the 2-day average is 5 NTU for systems that are required to filter but have not yet installed filtration.
[5] NTU - Nephelometric turbidity unit
[6] There are various regulations that set turbidity standards for different types of systems, including the 1989 Surface Water Treatment Rule (SWTR), the 1998 Interim Enhanced Surface Water Treatment Rule (IESWTR), and the 2001 Long Term 1 Enhanced Surface Water Treatment Rule. Systems subject to the Surface Water Treatment Rule (both filtered and unfiltered) may not exceed 5 NTU. In addition, in filtered systems, 95 percent of samples each month must not exceed 0.5 NTU in systems using conventional or direct filtration and must not exceed 1 NTU in systems using slow sand or diatomaceous earth filtration or other filtration technologies approved by the Department.
[7] TT - Treatment technique
[8] There are various regulations that set turbidity standards for different types of systems, including the 1989 Surface Water Treatment Rule (SWTR), the 1998 Interim Enhanced Surface Water Treatment Rule (IESWTR), and the 2002 Long Term 1 Enhanced Surface Water Treatment Rule (LT1ESWTR). For systems subject to the IESWTR (systems serving at least 10,000 people, using surface water or ground water under the direct influence of surface water), that use conventional filtration or direct filtration, after January 1, 2002, the turbidity level of a system's combined filter effluent may not exceed 0.3 NTU in at least 95 percent of monthly measurements, and the turbidity level of a system's combined filter effluent must not exceed 1 NTU at any time. Systems subject to the IESWTR using technologies other than conventional, direct, slow sand, or diatomaceous earth filtration must meet turbidity limits set by the Department. For systems subject to the LT1ESWTR (systems serving fewer than 10,000 people, using surface water or ground water under the direct influence of surface water) that use conventional filtration or direct filtration, after January 1, 2005 the turbidity level of a system's combined filter effluent may not exceed 0.3 NTU in at least 95 percent of monthly measurements, and the turbidity level of a system's combined filter effluent must not exceed 1 NTU at any time. Systems subject to the LT1ESWTR using technologies other than conventional, direct, slow sand, or diatomaceous earth filtration must meet turbidity limits set by the Department.
[9] 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.
[10] SWTR, IESWTR, and LT1ESWTR treatment technique violations that involve turbidity exceedances may use the health effects language for turbidity instead.
[11] These arsenic values are effective January 23, 2006. Until then, the MCL is 0.05 mg/L and there is no MCLG.
[12] Millions fibers per liter.
[13] Action Level = 0.015 mg/L
[14] Action Level = 1.3 mg/L
[15] Millirems per years

[16] Picocuries per liter
[17] The uranium MCL is effective December 8, 2003 for all community water systems.
[18] Surface water systems and ground water systems under the direct influence of surface water are regulated under R.61-58.10. Community and non-transient non-community systems serving greater than, or equal to 10,000 must comply with R.61-58.13 DBP MCLs and disinfectant maximum residual disinfectant levels (MRDLs) beginning January 1, 2002. All other community and non-transient non-community systems must comply with R-61.58.13 DBP MCLs and MRDLs beginning January 1, 2004. Transient non-community surface water systems and ground water systems under the direct influence of surface water serving 10,000 or more persons and using chlorine dioxide as a disinfectant or oxidant must comply with the chlorine dioxide MRDL beginning January 1, 2002. All other transient non-community systems that use chlorine dioxide as a disinfectant or oxidant must comply with the chlorine dioxide MRDL beginning on January 1, 2004.
[19] Community and non-transient non-community systems that must comply with R.61-58.14 TTHM and HAA5 MCLs of 0.080 mg/L and 0.060 mg/L, respectively (with compliance calculated as a locational running annual average) on the schedule in R.61-58.15.
[20] The MCL for total trihalomethanes is the sum of the concentrations of the individual trihalomethanes.
[21] The MCL for haloacetic acids is the sum of the concentrations of the individual haloacetic acids.
[22] MRDLG--Maximum residual disinfectant level goal.
[23] MRDL--Maximum residual disinfectant level.

Appendix C to R.61-58.6 List of Acronyms Used in Public Notification Regulation

CCR Consumer Confidence Report
CWS Community Water System
DBP Disinfection Byproduct
EPA Environmental Protection Agency
FBR Filter Backwash Recycle Rule
GWR Ground Water Rule
HPC Heterotrophic Plate Count
IESWTR Interim Enhanced Surface Water Treatment Rule
IOC Inorganic Chemical
LCR Lead and Copper Rule
LT1ESWTR Long Term 1 Enhanced Surface Water Treatment Rule
MCL Maximum Contaminant Level
MCLG Maximum Contaminant Level Goal
MRDL Maximum Residual Disinfectant Level
MRDLG Maximum Residual Disinfectant Level Goal
NCWS Non-Community Water System
NPDWR National Primary Drinking Water Regulation
NTNCWS Non-Transient Non-Community Water System
NTU Nephelometric Turbidity Unit
OGWDW Office of Ground Water and Drinking Water
OW Office of Water
PN Public Notification
PWS Public Water System
SDWA Safe Drinking Water Act
SMCL Secondary Maximum Contaminant Level
SOC Synthetic Organic Chemical
SPDWR State Primary Drinking Water Regulations
SWTR Surface Water Treatment Rule
TCR Total Coliform Rule
TT Treatment Technique
TWS Transient Non-Community Water System
VOC Volatile Organic Chemical

APPENDIX D TO R.61-58.12: Consumer Confidence Reports: Regulated Contaminants

Contaminant (units)	Traditional MCL in mg/L	To convert for CCR, multiply by	MCL in CCR units	MCLG	Major sources in drinking water	Health effects language
Microbiological contaminants:						
Total Coliform Bacteria †	MCL: (systems that collect > 40 samples/month) 5% of monthly samples are positive; (systems that collect <40 samples/month) 1 positive monthly sample.		MCL: (systems that collect ≥40 samples/month) 5% of monthly samples are positive; (systems that collect <40 samples/month) 1 positive monthly sample.	0	Naturally present in the environment	Coliforms are bacteria that are naturally present in the 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.
Total Coliform Bacteria ‡	TT			N/A	Naturally present in the environment	Use language in R.51-58.12.C(11)(g)(i)(A)
Fecal coliform and E. coli †	0		0	0	Human and animal fecal waste	Fecal coliforms and E. Coli are bacteria whose 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.
E. coli ‡	Routine and repeat samples are total coliform-positive and either is E. coli-positive or system fails to take repeat samples		Routine and repeat samples are total coliform-positive and either is E. coli-positive or system fails to take repeat samples	0	Human and animal fecal waste	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

	following E. coli-positive routine sample or system fails to analyze total coliform-positive repeat sample for E. coli	following E. coli-positive routine sample or system fails to analyze total coliform-positive repeat sample for E. coli			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.
Total organic carbon (ppm)	TT	TT	N/A	Naturally present	Total organic carbon (TOC) has no health effects. However, total organic carbon in the environment provides a medium for the formation of disinfection by-products. These byproducts include trihalomethanes (THMs) and haloacetic acids (HAAs). Drinking water containing these by-products 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.
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, and parasites that can cause symptoms such as nausea, cramps, diarrhea and associated headaches.

Radioactive contaminants:

Beta/photon emitters (mrem/yr)	4 mrem/yr		4	N/A	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 in excess of the MCL over many years may have an increased risk of getting cancer.
Alpha emitters (pCi/L)	15 pCi/L		15	N/A	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.
Combined radium (pCi/L)	5 pCi/L		5	N/A	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 (pCi/L)	30 µg/L		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 getting cancer and kidney toxicity.

Inorganic contaminants:

Antimony (ppb)	.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.
Arsenic (ppb)	[1]0.010	1000	[1]10.	[1]0	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; production wastes; 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 ofnatural deposits.	Some people who drink water containing barium in of the MCL over many years could experience an increase in their blood pressure.
Beryllium (ppb)	.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)	.010	1000	10	0	By-product of drinking water chlorination.	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)	.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		MRDL = 4	MRDLG = 4	Water additive used to control microbes.	Some people who use water containing chloramines well in excess of the MRDL could experience irritating 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 (ppm)	MRDL = 4		MRDL = 4	MRDLG = 4	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 = .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		1	0.8	By-product of drinking water chlorination.	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)	.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. 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)	2	1000	200	200	Discharge from steel/metal factories; Discharge from 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		4	4	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 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.
Lead (ppb)	AL=.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)	.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 (ppm)	10		10	10	Runoff from fertilizer use; Leaching from septic tanks, 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 (ppm)	1		1	1	Runoff from fertilizer use; Leaching from septic tanks 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)	.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)	.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, changes in their blood, or problems with their kidneys, intestines, or liver.

Synthetic organic contaminants including pesticides and herbicides:

2,4-D (ppb)	.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)	.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 risk of getting cancer.

Alachlor (ppb)	.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)	.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 ~~on~~ problems with their cardiovascular system or reproductive difficulties.
Benzo(a)pyrene [PAH] (nanograms/l).	.0002	1,000,000	200	0	Leaching from linings of water storage tanks 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)	.04	1000	40	40	Leaching of soil fumigant used on rice and alfalfa.	Some people who drink carbofuran in excess of the MCL over many years could experience problems with their blood, or nervous or reproductive systems.
Chlordane (ppb)	.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)	.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).	.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.

Di(2-ethylhexyl) phthalate (ppb).	.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 (ppt)	.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)	.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)	.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).	.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)	.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)	.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)	.00005	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.
Glyphosate (ppb)	.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.
Heptachlor (ppt)	.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)	.0002	1,000,000	200	0	Breakdown of heptachlor.	Some people who drink water containing heptachlor epoxidein excess of the MCL over many years could experience liver damage, and may have an increased risk of getting cancer.
Hexachlorobenzene (ppb)	.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)	.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)	.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)	.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)	.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.
PCBs [Polychlorinated biphenyls] (ppt).	.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)	.001	1000	1	0	Discharge from wood preserving factories	Some people who drink water containing pentachlorophenolin 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)	.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)	.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)	.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)	.005	1000	5	0	Discharge from factories; Leaching from gas 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)	.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 in their liver and may have an increased risk of getting cancer.
Chlorobenzene (ppb)	.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)	.6	1000	600	600	Discharge from industrial chemical	Some people who drink water containing o-dichlorobenzene well in excess of the MCL over liver, kidneys, or circulatory systems.
p-Dichlorobenzene (ppb)	.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)	.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)	.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)	.07	1000	70	70	Discharge from industrial chemical factories.	Some people who drink water containing cis-1,2-dichloroethy - lene in excess of the MCL over many years could experience problems with their liver.
trans-1,2-Dichloroethylene (ppb).	.1	1000	100	10	Discharge from industrial chemical factories.	Some people who drink water containing trans-1,2-dichloro- ethy lene well in excess of the MCL over many years could experience problems with their liver.
Dichloromethane (ppb)	.005	1000	5	0	Discharge from pharmaceutical and 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 increase risk of getting cancer.
1,2-Dichloropropane (ppb)	.005	1000	5	0	Discharge from industrial chemical factories.	Some people who drink water containing 1,2-Dichloropropane excess of the MCL over many years may have an increased risk of getting cancer.
Ethylbenzene (ppb)	.7	1000	700	700	Discharge from petroleum refineries.	Some people who drink water containing ethylbenzene well in excess of the MCL over many years could experience problems with their liver or kidneys.
Haloacetic Acids (HAA) (ppb).	.060	1000	60	N/A	By-product 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.
Styrene (ppb)	.1	1000	100	100	Discharge from rubber and plastic factories and 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)	.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.

1,2,4-Trichlorobenzene (ppb)	.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)	.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).	.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 systems.
Trichloroethylene (ppb)	.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.
TTHMs [Total trihalomethanes] (ppb)	0.10/.080	1000	100/80	N/A	By-product 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 systems, and may have an increased risk of getting cancer.
Toluene (ppm)	1		1	1	Discharge from petroleum factories.	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)	.002	1000	2	0	Leaching from PVC piping; Discharge from 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.	Some people who drink water containing xylenes in excess of the MCL over many years could experience damage to their nervous system.

Key:

AL=Action Level
MCLG=Maximum Contaminant Level Goal
MRDL=Maximum Residual Disinfectant Level
mrem/year=millirems per year (a measure of radiation absorbed by the body)
N/A=Not Applicable
pCi/l=picocuries per liter (a measure of radioactivity)
ppb=parts per billion, or micrograms per liter (µg/l)
ppq=parts per quadrillion, or picograms per liter
MCL=Maximum Contaminant Level
MFL=million fibers per liter
MRDLG=Maximum Residual Disinfectant Level Goal
NTU=Nephelometric Turbidity Units (a measure of water clarity)
ppm=parts per million, or milligrams per liter (mg/L)
ppt=parts per trillion, or nanograms per liter
TT=Treatment Technique

Appendix D to R.61-58.12 - endnotes

[1] These arsenic values are effective January 23, 2006. Until then, the MCL is 0.05 mg/L and there is no MCLG.

† Until March 31, 2016

‡ Beginning April 1, 2016