TITLE 327 WATER POLLUTION CONTROL BOARD

Proposed Rule
LSA Document #08-198

DIGEST

Amends 327 IAC 8-2-1, 327 IAC 8-2-5, 327 IAC 8-2-8.2, 327 IAC 8-2-8.6, 327 IAC 8-2-20, 327 IAC 8-2-30, 327 IAC 8-2-33, 327 IAC 8-2-36 through 327 IAC 8-2-40, 327 IAC 8-2-42 through 327 IAC 8-2-46, 327 IAC 8-2.1-3, 327 IAC 8-2.1-4, 327 IAC 8-2.1-8, 327 IAC 8-2.1-9, 327 IAC 8-2.1-16, 327 IAC 8-2.1-17, 327 IAC 8-2.5-2, 327 IAC 8-2.5-5 through 327 IAC 8-2.5-7, 327 IAC 8-2.5-9, 327 IAC 8-2.6-4, and 327 IAC 8-2.6-5 and adds 327 IAC 8-2.1-18, 327 IAC 8-2.3, 327 IAC 8-2.5-10 through 327 IAC 8-2.5-20, and 327 IAC 8-2.6-7 through 327 IAC 8-2.6-22 concerning amendments to drinking water standards rules as required by new federal rules under the Safe Drinking Water Act (SDWA). Repeals 327 IAC 8-2-5.3. Effective 30 days after filing with the Publisher.

HISTORY

First Notice of Comment Period: March 26, 2008, Indiana Register (DIN: 20080326-IR-327080198FNA).
Second Notice of Comment Period: July 8, 2009, Indiana Register (DIN: 20090708-IR-327080198SNA).
Notice of Public Hearing: July 8, 2009, Indiana Register (DIN: 20090708-IR-327080198PHA).
Date of First Hearing: August 12, 2009.

PUBLIC COMMENTS UNDER IC 13-14-9-4.5

IC 13-14-9-4.5 states that a board may not adopt a rule under IC 13-14-9 that is substantively different from the draft rule published under IC 13-14-9-4 until the board has conducted a third comment period that is at least 21 days long.

REQUEST FOR PUBLIC COMMENTS

This proposed (preliminarily adopted) rule is not substantively different from the draft rule posted on July 8, 2009, at DIN: 20090708-IR-327080198SNA. Therefore, the Indiana Department of Environmental Management (IDEM) is not requesting additional comment on the proposed rule.

SUMMARY/RESPONSE TO COMMENTS FROM THE SECOND COMMENT PERIOD

IDEM requested public comment from July 8, 2009, through August 7, 2009, on IDEM's draft rule language. No comments were received during the second comment period.

SUMMARY/RESPONSE TO COMMENTS RECEIVED AT THE FIRST PUBLIC HEARING

On August 12, 2009, the Water Pollution Control Board conducted the first public hearing/board meeting concerning amendments to drinking water standards rules, including the ground water rule, lead and copper short-term regulatory revisions, stage 2 disinfectants and disinfection byproducts rule, and long-term 2 enhanced surface water treatment rule. No comments were made at the first hearing.

327 IAC 8-2-1; 327 IAC 8-2-5; 327 IAC 8-2-5.3; 327 IAC 8-2-8.2; 327 IAC 8-2-8.6; 327 IAC 8-2-20; 327 IAC 8-2-30; 327 IAC 8-2-33; 327 IAC 8-2-36; 327 IAC 8-2-37; 327 IAC 8-2-38; 327 IAC 8-2-39; 327 IAC 8-2-40; 327 IAC 8-2-42; 327 IAC 8-2-43; 327 IAC 8-2-44; 327 IAC 8-2-45; 327 IAC 8-2-46; 327 IAC 8-2.1-3; 327 IAC 8-2.1-4; 327 IAC 8-2.1-8; 327 IAC 8-2.1-9; 327 IAC 8-2.1-16; 327 IAC 8-2.1-17; 327 IAC 8-2.1-18; 327 IAC 8-2.3; 327 IAC 8-2.5-2; 327 IAC 8-2.5-5; 327 IAC 8-2.5-6; 327 IAC 8-2.5-7; 327 IAC 8-2.5-9; 327 IAC 8-2.5-10; 327 IAC 8-2.5-11; 327 IAC 8-2.5-12; 327 IAC 8-2.5-13; 327 IAC 8-2.5-14; 327 IAC 8-2.5-15; 327 IAC 8-2.5-16; 327 IAC 8-2.5-17; 327 IAC 8-2.5-18; 327 IAC 8-2.5-19; 327 IAC 8-2.5-20; 327 IAC 8-2.6-4; 327 IAC 8-2.6-5; 327 IAC 8-2.6-7; 327 IAC 8-2.6-8; 327 IAC 8-2.6-9; 327 IAC 8-2.6-10; 327 IAC 8-2.6-11; 327 IAC 8-2.6-12; 327 IAC 8-2.6-13; 327 IAC 8-2.6-14; 327 IAC 8-2.6-15; 327 IAC 8-2.6-16; 327 IAC 8-2.6-17; 327 IAC 8-2.6-18; 327 IAC 8-2.6-19; 327 IAC 8-2.6-20; 327 IAC 8-2.6-21; 327 IAC 8-2.6-22

SECTION 1. 327 IAC 8-2-1 IS AMENDED TO READ AS FOLLOWS:

327 IAC 8-2-1 Definitions

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3; IC 13-18-16
Affected: IC 13-11-2; IC 13-18

Sec. 1. In addition to the definitions contained in IC 13-11-2 and 327 IAC 1, the following definitions apply

throughout this rule, 327 IAC 8-2.1, **327 IAC 8-2.3,** 327 IAC 8-2.5, and 327 IAC 8-2.6:

(1) "Act" means the Safe Drinking Water Act (42 U.S.C. 300f et seq.).

(2) "Action level" means the concentration of lead or copper in water specified in section 36(c) of this rule that determines, in some cases, the treatment requirements contained in sections 36 through 47 of this rule that a water system is required to complete.

(3) "Adjustment program" means the addition of fluoride to drinking water by a ~~public water system~~ **PWS** for the prevention of dental cavities.

(4) "Administrator" means the administrator of the U.S. EPA.

(5) "Bag filters" means pressure-driven separation devices that remove particulate matter larger than one (1) micrometer (µm) using an engineered porous filtration media. They are typically constructed of a nonrigid, fabric filtration media housed in a pressure vessel in which the direction of flow is from the inside of the bag to the outside.

(6) "Bank filtration" means a water treatment process that uses a well to recover surface water that has naturally infiltrated into ground water through a river bed or bank. Infiltration is typically enhanced by the hydraulic gradient imposed by a nearby pumping water supply or other well.

~~(5)~~ **(7)** "Best available technology" or "BAT" means best technology, treatment techniques, or other means that the commissioner finds are available, after examination for efficacy under field conditions, and not solely under laboratory conditions, and after taking cost into consideration. For the purpose of setting MCLs for synthetic organic chemicals, any BAT must be at least as effective as granular activated carbon.

(8) "Cartridge filters" means pressure-driven separation devices that remove particulate matter larger than one (1) micrometer (µm) using an engineered porous filtration media. They are typically constructed as rigid or semirigid, self-supporting filter elements housed in pressure vessels in which the flow is from the outside of the cartridge to the inside.

~~(6)~~ **(9)** "Coagulation" means a process using coagulant chemicals and mixing by which colloidal and suspended materials are destabilized and agglomerated into flocs.

(10) "Combined distribution system" means the interconnected distribution system consisting of the distribution system of wholesale systems and of the consecutive systems that received finished water.

~~(7)~~ **(11)** "Commissioner" means the commissioner of the Indiana department of environmental management or the designated agent of the commissioner.

~~(8)~~ **(12)** "Community water system" or "CWS" means a ~~public water system~~ **PWS** that serves at least fifteen (15) service connections used by year-round residents or regularly serves at least twenty-five (25) year-round residents.

~~(9)~~ **(13)** "Compliance cycle" means the nine (9) year calendar year cycle during which ~~public water systems~~ **PWSs** must monitor. Each compliance cycle consists of three (3) three-year compliance periods **according to the following:**

(A) The first calendar year cycle begins January 1, 1993, and ends December 31, 2001.

(B) The second **calendar year cycle** begins January 1, 2002, and ends December 31, 2010.

(C) The third **calendar year cycle** begins January 1, 2011, and ends December 31, 2019.

~~(10)~~ **(14)** "Compliance period" means a three (3) year calendar year period within a compliance cycle. Each compliance cycle has three (3) three-year compliance periods **according to the following:**

(A) Within the first compliance cycle, the **compliance periods are as follows:**

(i) The first compliance period runs from January 1, 1993, to December 31, 1995.

(ii) The second **compliance period runs** from January 1, 1996, to December 31, 1998.

(iii) The third **compliance period runs** from January 1, 1999, to December 31, 2001.

(B) Within the second compliance cycle, the **compliance periods are as follows:**

(i) The first compliance period runs from January 1, 2002, to December 31, 2004.

(ii) The second **compliance period runs** from January 1, 2005, to December 31, 2007. ~~and~~

(iii) The third **compliance period runs** from January 1, 2008, to December 31, 2010.

(C) Within the third compliance cycle, the **compliance periods are as follows:**

(i) The first compliance period runs from January 1, 2011, to December 31, 2013.

(ii) The second **compliance period runs** from January 1, 2014, to December 31, 2016. ~~and~~

(iii) The third **compliance period runs** from January 1, 2017, to December 31, 2019.

~~(11)~~ **(15)** "Comprehensive performance evaluation" or "CPE" means a thorough review and analysis of a treatment plant's performance-based capabilities and associated administrative, operation, and maintenance practices. It is conducted to identify factors that may be adversely impacting a plant's capability to achieve compliance and emphasizes approaches that can be implemented without significant capital improvements. For purposes of compliance with 327 IAC 8-2.6-1, the CPE must consist of at least the following components:

(A) Assessment of plant performance.

(B) Evaluation of major unit processes.

(C) Identification and prioritization of performance limiting factors.

(D) Assessment of the applicability of comprehensive technical assistance.
(E) Preparation of a CPE report.

~~(12)~~ **(16)** "Confluent growth" means a continuous bacterial growth covering the entire filtration area of a membrane filter, or a portion thereof, in which bacterial colonies are not discrete.

(17) "Consecutive system" means a PWS that receives some or all of its finished water from one (1) or more wholesale systems. Delivery can be through a direct connection or through the distribution system of one (1) or more consecutive systems.

~~(13)~~ **(18)** "Contaminant" means any:
(A) microorganisms;
(B) chemicals;
(C) waste;
(D) physical substance;
(E) radiological substance; or
(F) ~~any~~ wastewater;
introduced or found in the drinking water.

~~(14)~~ **(19)** "Conventional filtration treatment" means a series of processes including:
(A) coagulation;
(B) flocculation;
(C) sedimentation; and
(D) filtration;
resulting in substantial particulate removal.

~~(15)~~ **(20)** "Corrosion inhibitor" means a substance capable of reducing the corrosivity of water toward metal plumbing materials, especially lead and copper, by forming a protective film on the interior surface of those materials.

~~(16)~~ **(21)** "CT" or "CTcalc" ~~is~~ **means** the product of ×residual ×disinfectant concentration (C) in milligrams per liter ×determined before or at the first ×customer and the ×corresponding ×disinfectant contact ×time (T) in ×minutes, such as C × T. If a ~~public water system~~ **PWS** applies disinfectants ×at more than one (1) ×point prior to the first customer, ×the ~~public water system~~ **PWS** must determine the CT of each disinfectant sequence before or at the first customer to determine the total percent inactivation or total inactivation ratio. In determining the total inactivation ratio, the ~~public water system~~ **PWS** must determine the residual disinfectant concentration of each disinfection sequence and corresponding contact time before any subsequent disinfection application point. $CT_{99.9}$ is the CT value required for ninety-nine and nine-tenths percent (99.9%) (3-log) inactivation of Giardia lamblia cysts. $CT_{99.9}$ for a variety of disinfectants and conditions ×appears in ×Tables ×1.1-1.6, 2.1, ×and ×3.1 of 40× CFR 141.74(b)(3)[1].

$$\frac{CTcalc}{CT_{99.9}}$$

is the inactivation ratio. The sum of the inactivation ratios or total inactivation ratio shown as:

$$\sum \frac{(CTcalc)}{(CT_{99.9})}$$

is calculated by adding together the inactivation ratio for each disinfection sequence. A total inactivation ratio equal to or greater than one (1.0) is assumed to provide a 3-log inactivation of Giardia lamblia cysts.

~~(17)~~ **(22)** "Diatomaceous earth filtration" means a process resulting in substantial particulate removal in which:
(A) a precoat cake of diatomaceous earth filter media is deposited on a support membrane (septum); and
(B) while the water is filtered by passing through the cake on the septum, additional filter media known as body feed ~~is~~ **are** continuously added to the feed water to maintain the permeability of the filter cake.

~~(18)~~ **(23)** "Direct filtration" means a series of processes, including coagulation and filtration but excluding sedimentation resulting in substantial particulate removal.

~~(19)~~ **(24)** "Disinfectant" means any oxidant, including, but not limited to:
(A) chlorine;
(B) chlorine dioxide;
(C) chloramines; and
(D) ozone;
added to water in any part of the treatment or distribution process that is intended to kill or inactivate pathogenic microorganisms.

~~(20)~~ **(25)** "Disinfectant contact time" or "T in CT calculations" means the time in minutes that it takes for water to move from the point of disinfectant application or the previous point of disinfectant residual measurement to a point before or at the point where residual disinfectant concentration (C) is measured. Where only one (1) C is measured, T is the time in minutes that it takes for water to move from the point of disinfectant application to a point before or at where C is measured. Where more than one (1) C is measured, T is:

(A) for the first measurement of C, the time in minutes that it takes for water to move from the first or only point of disinfectant application to a point before or at the point where the first C is measured; and

(B) for subsequent measurements of C, the time in minutes that it takes for water to move from the previous C measurement point to the C measurement point for which the particular T is being calculated.

Disinfectant contact time in pipelines must be calculated based on plug flow by dividing the internal volume of the pipe by the maximum hourly flow rate through that pipe. Disinfectant contact time within mixing basins and storage reservoirs must be determined by tracer studies or an equivalent demonstration.

~~(21)~~ **(26)** "Disinfection" means a process that inactivates pathogenic organisms in water by chemical oxidants or equivalent agents.

~~(22)~~ **(27)** "Disinfection profile" means a summary of daily Giardia lamblia inactivation through a treatment plant. The procedure for developing a disinfection profile is contained in:

(A) 327 IAC 8-2.6-2 for systems serving at least ten thousand (10,000) individuals; and

(B) 327 IAC 8-2.6-2.1 for systems serving fewer than ten thousand (10,000) individuals.

~~(23)~~ **(28)** "Domestic or other nondistribution system plumbing problem" means a coliform contamination problem in a ~~public water system~~ **PWS** with more than one (1) service connection that is limited to the specific service connection from which the coliform-positive sample was taken.

~~(24)~~ **(29)** "Dose equivalent" means the product of the absorbed dose from ionizing radiation and such factors as account for differences in biological effectiveness due to the type of radiation and its distribution in the body as specified by the International Commission on Radiological Units and Measurements (ICRUM).

~~(25)~~ **(30)** "Drinking water violation" means violations of the:

(A) MCL;

(B) treatment technique (TT);

(C) monitoring requirements; and

(D) testing procedures;

in this rule. 327 IAC 8-2.1-16 identifies the tier assignment for each specific violation or situation requiring a public notice.

(31) "Dual sample set" means a set of two (2) samples collected at the same time and at the same location, with one (1) sample analyzed for TTHM and the other sample analyzed for HAA5. Dual sample sets are collected under 327 IAC 8-2.5-10 through 327 IAC 8-2.5-20.

~~(26)~~ **(32)** "Effective corrosion inhibitor residual" means a concentration sufficient to form a passivating film on the interior walls of a pipe for the purpose of sections 36 through 47 of this rule only.

~~(27)~~ **(33)** "Enhanced coagulation" means the addition of sufficient coagulant for improved removal of disinfection byproduct precursors by conventional filtration treatment.

~~(28)~~ **(34)** "Enhanced softening" means the improved removal of disinfection byproduct precursors by precipitative softening.

~~(29)~~ **(35)** "Filter profile" means a graphical representation of individual filter performance, based on continuous turbidity measurements or total particle counts versus time for an entire filter run, from startup to backwash inclusively, that includes an assessment of filter performance while another filter is being backwashed.

~~(30)~~ **(36)** "Filtration" means a process for removing particulate matter from water by passage through porous media.

(37) "Finished water" means water that is:

(A) introduced into the distribution system of a PWS; and

(B) intended for distribution and consumption without further treatment, except treatment necessary to maintain water quality in the distribution system (for example, booster disinfection or addition of corrosion control chemicals).

~~(31)~~ **(38)** "First draw sample" means a one (1) liter sample of tap water collected in accordance with section 37 of this rule that:

(A) has been standing in the plumbing pipes at least six (6) hours; and

(B) is collected without flushing the tap.

~~(32)~~ **(39)** "Flocculation" means a process to enhance agglomeration or collection of smaller floc particles into larger, more easily settleable particles through gentle stirring by hydraulic or mechanical means.

(40) "Flowing stream" means a course of running water flowing in a definite channel.

~~(33)~~ **(41)** "GAC10" means granular activated carbon filter beds with an empty-bed contact time of ten (10) minutes based on average daily flow and a carbon reactivation frequency of:

(A) every one hundred eighty (180) days; **or**

(B) one hundred twenty (120) days when the carbon reactivation frequency for GAC10 is used as a

BAT for compliance with MCLs under 327 IAC 8-2.5-2(b).

(42) "GAC20" means granular activated carbon filter beds with an empty-bed contact time of twenty (20) minutes based on average daily flow and a carbon reactivation frequency of every two hundred forty (240) days.

~~(34)~~ **(43)** "Gross alpha particle activity" means the total radioactivity due to alpha particle emission as inferred from measurements on a dry sample.

~~(35)~~ **(44)** "Gross beta particle activity" means the total radioactivity due to beta particle emission as inferred from measurements on a dry sample.

~~(36)~~ **(45)** "Ground water under the direct influence of surface water" means any water beneath the surface of the ground with:

(A) significant occurrence of insects or other macroorganisms, algae, or large-diameter pathogens such as Giardia lamblia or, for Subpart H systems serving at least ten thousand (10,000) individuals and beginning January 1, 2005, systems serving fewer than ten thousand (10,000) individuals, Cryptosporidium; or

(B) significant and relatively rapid shifts in water characteristics, such as:

(i) turbidity;

(ii) temperature;

(iii) conductivity; or

(iv) pH;

that closely correlate to climatological or surface water conditions.

Direct influence must be determined for individual sources in accordance with criteria established by the commissioner. The commissioner's determination of direct influence may be based on site-specific measurements of water quality or documentation of well construction characteristics and geology with field evaluation, or both.

~~(37)~~ **(46)** "Haloacetic acids (five)" or "HAA5" means the sum of the concentrations in milligrams per liter of the haloacetic acid compounds:

(A) monochloroacetic acid;

(B) dichloroacetic acid;

(C) trichloroacetic acid;

(D) monobromoacetic acid; and

(E) dibromoacetic acid;

rounded to two (2) significant figures after addition.

~~(38)~~ **(47)** "Halogen" means one (1) of the **following** chemical elements:

(A) Chlorine.

(B) Bromine. ~~or~~

(C) Iodine.

~~(39)~~ **(48)** "Initial compliance period" means January 1993 to December 1995 for the contaminants listed in ~~sections:~~ **the following:**

(A) Section 4 **of this rule,** other than **the following:**

(i) Arsenic.

(ii) Barium.

(iii) Cadmium.

(iv) Fluoride.

(v) Lead.

(vi) Mercury.

(vii) Selenium. ~~and~~

(viii) Silver.

(B) Section 5 ~~and~~ **of this rule.**

(C) Section 5.4(a) **of this rule,** other than **the following:**

(i) Benzene.

(ii) Vinyl chloride.

(iii) Carbon tetrachloride.

(iv) 1,2-dichloroethane.

(v) Trichloroethylene.

(vi) 1,1-dichloroethylene.

(vii) 1,1,1-trichloroethane. ~~and~~

(viii) para-dichlorobenzene. ~~of this rule.~~

(49) "Lake/reservoir" means a natural or man-made basin or hollow on the earth's surface in which water collects or is stored that can or cannot have a current or single direction of flow.

~~(40)~~ **(50)** "Large water system" means a water system that serves more than fifty thousand (50,000) people for the purpose of sections 36 through 47 of this rule only.

~~(41)~~ **(51)** "Lead service line" means a service line made of lead that connects the water main to the building

inlet and any:

(A) lead pigtail;

(B) gooseneck; or

(C) other fitting;

that is connected to ~~such~~ **the** lead line.

~~(42)~~ **(52)** "Legionella" means a genus of bacteria, some species of which have caused a type of pneumonia called Legionnaires Disease.

(53) "Locational running annual average" or "LRAA" means the average of sample analytical results for samples taken at a particular monitoring location during the previous four (4) calendar quarters.

~~(43)~~ **(54)** "Man-made beta particle and photon emitters" means all radionuclides emitting:

(A) beta particle; ~~or~~

(B) photons; or

(C) both **clauses (A) and (B);**

listed in "Maximum Permissible Body Burdens and Maximum Permissible Concentration of Radionuclides in Air or Water for Occupational Exposure", NBS Handbook 69, as amended August 1973, U.S. Department of Commerce, except the daughter products of thorium-232, uranium-235, and uranium-238.

~~(44)~~ **(55)** "Maximum contaminant level" or "MCL" means the maximum permissible level of a contaminant in water that is delivered to the free flowing outlet of the ultimate user of a ~~public water system,~~ **PWS,** except in the case of turbidity where the maximum permissible level is measured at the point of entry to the distribution system. **The term does not include** contaminants added to the water under circumstances controlled by the user, except those resulting from corrosion of piping and plumbing caused by water quality. ~~are excluded from this definition.~~

~~(45)~~ **(56)** "Maximum contaminant level goal" or "MCLG" means the maximum level of a contaminant in drinking water:

(A) at which no known or anticipated adverse effect on the health of persons would occur; and

(B) that includes an adequate margin of safety. ~~MCLGs are nonenforceable health goals.~~

~~(46)~~ **(57)** "Maximum residual disinfectant level" or "MRDL" means a level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap without an unacceptable possibility of adverse health effects.

~~(47)~~ **(58)** "Maximum residual disinfectant level goal" or "MRDLG" means the maximum level of a disinfectant added for water treatment:

(A) at which no known or anticipated adverse effect on the health of individuals would occur; and

(B) that allows an adequate margin of safety.

~~(48)~~ **(59)** "Maximum total trihalomethane potential" or "MTP" means the maximum concentration of TTHM produced in a given water containing a disinfectant residual after seven (7) days at a temperature of twenty-five (25) degrees Celsius or above.

~~(49)~~ **(60)** "Medium size water system" means a water system that serves greater than three thousand three hundred (3,300) and less than or equal to fifty thousand (50,000) persons for the purpose of sections 36 through 47 of this rule only.

(61) "Membrane filtration" means the following:

(A) A pressure or vacuum driven separation process in which:

(i) particulate matter larger than one (1) micrometer (μm) is rejected by an engineered barrier, primarily through a size-exclusion mechanism; and

(ii) a measurable removal efficiency of a target organism can be verified through the application of a direct integrity test.

(B) The term includes the common membrane technologies of:

(i) microfiltration;

(ii) ultrafiltration;

(iii) nanofiltration; and

(iv) reverse osmosis.

~~(50)~~ **(62)** "Near the first service connection" means at one (1) of the twenty percent (20%) of all service connections in the entire system that are nearest the water supply treatment facility, as measured by water transport time within the distribution system.

~~(51)~~ **(63)** "Noncommunity water system" **or "NCWS"** means a ~~public water system~~ **PWS** that:

(A) has at least fifteen (15) service connections used by nonresidents; or

(B) regularly serves twenty-five (25) or more nonresident individuals daily for at least sixty (60) days per year.

~~(52)~~ **(64)** "Nontransient noncommunity water system" or "NTNCWS" means a ~~public water system~~ **PWS** that is not a CWS that regularly serves the same twenty-five (25) or more persons at least six (6) months per year.

~~(53)~~ **(65)** "Optimal corrosion control treatment" means the corrosion control treatment that minimizes the lead and copper concentrations at users' taps while ensuring that the treatment does not cause the water system to

violate ~~any national primary drinking water regulations~~ **this article** for the purpose of sections 36 through 47 of this rule only.

~~(54)~~ **(66)** "Performance evaluation sample" or "PE sample" means a reference sample provided to a laboratory for the purpose of demonstrating that the laboratory can successfully analyze the sample within limits of performance specified by the administrator. The true value of the concentration of the reference material is unknown to the laboratory at the time of the analysis.

~~(55)~~ **(67)** "Picocuri" or "pCi" means the quantity of radioactive material producing two and twenty-two hundredths (2.22) nuclear transformations per minute.

(68) "Plant intake" means the works or structures at the head of a conduit through which water is diverted from a source, for example, a river or lake, into a treatment plant.

~~(56)~~ **(69)** "Point of disinfectant application" ~~is~~ **means** the point where:

(A) the disinfectant is applied; and

(B) water downstream of that point is not subject to recontamination by surface water runoff.

~~(57)~~ **(70)** "Point-of-entry treatment device" or "POE" ~~is~~ **means** a treatment device applied to the drinking water entering a house or building for the purpose of reducing contaminants in drinking water distributed throughout the house or building.

~~(58)~~ **(71)** "Point-of-use treatment device" or "POU" ~~is~~ **means** a treatment device to a single tap used for the purpose of reducing contaminants in drinking water at that one (1) tap.

(72) "Presedimentation" means a preliminary treatment process used to remove:

(A) gravel;

(B) sand; and

(C) other particulate material;

from the source water through settling before the water enters the primary clarification and filtration processes in a treatment plant.

~~(59)~~ **(73)** "Primacy agency" ~~is~~ **means** the department of environmental management where the department ~~exercise~~ **exercises** primary enforcement responsibility as granted by **the** EPA.

~~(60)~~ **(74)** "Public water system" **or "PWS"** means a public water supply for the provision to the public of water for human consumption through pipes or other constructed conveyances, if ~~such~~ **the** system has at least fifteen (15) service connections or regularly serves at least twenty-five (25) individuals daily at least sixty (60) days out of the year. The term includes any:

(A) collection, treatment, storage, and distribution facilities under control of the operator of ~~such~~ **the** system and used primarily in connection with ~~such~~ **the** system; and

(B) collection or pretreatment storage facilities not under such control that are used primarily in connection with ~~such~~ **the** system.

A ~~public water system~~ **PWS** is either a CWS or ~~a noncommunity water system,~~ **an NCWS,** as defined in subdivisions ~~(8)~~ **(12)** and ~~(51).~~ **(63).**

~~(61)~~ **(75)** "Rem" means the unit of dose equivalent from ionizing radiation to the total body or any internal organ or organ system. A millirem (mrem) is one-thousandth (1/1,000) of a rem.

~~(62)~~ **(76)** "Repeat compliance period" means any subsequent compliance period after the initial compliance period.

~~(63)~~ **(77)** "Residual disinfectant concentration"or "C in CT calculations" means the concentration of disinfectant measured in milligrams per liter in a representative sample of water.

~~(64)~~ **(78)** "Sanitary survey" means an on-site ~~inspection~~ **review** of the:

(A) water source;

(B) facilities;

(C) equipment; ~~construction, and~~

(D) operation; and

(E) maintenance;

of a ~~public water system~~ **PWS** for the purpose of evaluating the adequacy of ~~the source, facilities, equipment, construction, and operation and maintenance~~ **clauses (A) through (E)** for producing and distributing safe drinking water.

~~(65)~~ **(79)** "Sedimentation" means a process for removal of solids before filtration by gravity or separation.

(80) "Service interruption" means a disturbance in the provision of water to a customer affecting quality or quantity.

~~(66)~~ **(81)** "Service line sample" means a one (1) liter sample of water collected in accordance with section 37(b)(3) of this rule that has been standing at least six (6) hours in a service line.

~~(67)~~ **(82)** "Single family structure" means a building constructed as a single family residence that is currently being used as ~~either~~ a:

(A) residence; or ~~a~~

(B) place of business;

for the purpose of sections 36 through 47 of this rule only.

~~(68)~~ **(83)** "Slow sand filtration" means a process:
(A) involving passage of raw water through a bed of sand at low velocity (generally less than four-tenths (0.4) meter per hour or forty-five (45) to one hundred fifty (150) gallons per day per square foot); **and**
(B) resulting in substantial particulate removal by physical and biological mechanisms.
~~(69)~~ **(84)** "Small water system" means a water system that serves three thousand three hundred (3,300) persons or fewer for the purpose of sections 36 through 47 of this rule only.
~~(70)~~ **(85)** "Standard sample" means the aliquot of finished drinking water that is examined for the presence of coliform bacteria.
~~(71)~~ **(86)** "Subpart H system" means a ~~public water system~~ **PWS** using:
(A) surface water; or
(B) ground water under the direct influence of surface water;
as a source that is subject to 327 IAC 8-2.6.
~~(72)~~ **(87)** "Supplier of water" means any person who:
(A) owns; ~~or~~
(B) operates; or
(C) both **owns and operates;**
a ~~public water system.~~ **PWS.**
~~(73)~~ **(88)** "Surface water" means all water occurring on the surface of the ground, including water in **the following:**
(A) A stream.
(B) Natural and artificial lakes.
(C) Ponds.
(D) Swales.
(E) Marshes. ~~and~~
(F) Diffused surface water.
~~(74)~~ **(89)** "SUVA" means specific ultraviolet absorption at two hundred fifty-four (254) nanometers, an indicator of the humic content of water. SUVA is a calculated parameter obtained by dividing a sample's ultraviolet absorption at a wavelength of two hundred fifty-four (254) nanometers (UV_{254}) (in m^{-1}) by its concentration of dissolved organic carbon (DOC) (in milligrams per liter).
~~(75)~~ **(90)** "System with a single service connection" means a ~~public water system~~ **PWS** that supplies drinking water to consumers via a single service line.
~~(76)~~ **(91)** "Too numerous to count" means that the total number of bacterial colonies exceeds two hundred (200) on a forty-seven (47) millimeter diameter membrane filter used for coliform detection.
~~(77)~~ **(92)** "Total organic carbon" or "TOC" means total organic carbon in milligrams per liter, measured using:
(A) heat;
(B) oxygen;
(C) ultraviolet irradiation;
(D) chemical oxidants; or
(E) combinations of these oxidants **in clauses (A) through (D);**
that convert organic carbon to carbon dioxide, rounded to two (2) significant figures.
~~(78)~~ **(93)** "Total trihalomethanes" or "TTHM" means the sum of the concentration in milligrams per liter of the ~~trihalomethane~~ **THM** compounds:
(A) trichloromethane (chloroform);
(B) dibromochloromethane;
(C) bromodichloromethane; and
(D) tribromomethane (bromoform);
rounded to two (2) significant figures.
~~(79)~~ **(94)** "Transient noncommunity water system" or "TWS" means ~~a noncommunity water system~~ **an NCWS** that does not regularly serve at least twenty-five (25) of the same persons over six (6) months per year.
~~(80)~~ **(95)** "Trihalomethane" or "THM" means one (1) of the family of organic compounds, named as derivatives of methane, wherein three (3) of the four (4) hydrogen atoms in methane are each substituted by a halogen atom in the molecular structure.
(96) "Two-stage lime softening" means a process in which chemical addition and hardness precipitation occur in each of two (2) distinct unit clarification processes in series prior to filtration.
~~(81)~~ **(97)** "Uncovered finished water storage facility" means a **facility:**
(A) such as:
(i) a tank;
(ii) a reservoir; or ~~other~~
(iii) another facility;
open to the atmosphere that is used to store water that will undergo no further treatment **to reduce microbial pathogens** except residual disinfection; **and**

(B) that is directly open to the atmosphere.

(98) "Undetectable disinfectant residual" means a disinfectant residual level that is less than:

(A) two-tenths (0.2) milligram per liter measured as free chlorine;

(B) five-tenths (0.5) milligram per liter measured as combined chlorine (chloramines); or

(C) one-tenth (0.1) milligram per liter measured as chlorine dioxide.

The commissioner may require a system to demonstrate the level of chloramines present when measured as combined chlorine under clause (B).

~~(82)~~ **(99)** "U.S. EPA" or "EPA" means the United States Environmental Protection Agency.

~~(83)~~ **(100)** "Virus" means a virus of fecal origin that is infectious to humans by waterborne transmission.

~~(84)~~ **(101)** "Waterborne disease outbreak" means the significant occurrence of acute infectious illness epidemiologically associated with the ingestion of water from a ~~public water system~~ **PWS** that is deficient in treatment as determined by the commissioner.

(102) "Water loss" means the following:

(A) A calculation based on the difference between the following:

(i) The amount of water produced or purchased.

(ii) The annual volume of water metered, including unmetered water taken by the following:

(AA) Customers authorized to take water.

(BB) The water system.

(CC) Others authorized to take water.

(B) Inclusions of the following:

(i) Unauthorized consumption.

(ii) Metering inaccuracies.

(iii) Data handling errors.

(iv) Leaks, breaks, and overflows on the following:

(AA) Mains.

(BB) Service reservoirs.

(CC) Service connections up to the point of customer metering.

(103) "Wholesale system" means a PWS that:

(A) treats source water as necessary to produce finished water; and

(B) delivers some or all of that finished water to another PWS.

Delivery can be through a direct connection or through the distribution system of one (1) or more consecutive systems.

~~[1]Federal Register, Part II, 40 CFR 141, June 29, 1989, Volume 54, Number 124, pages 27532 through 27534.~~

(Water Pollution Control Board; 327 IAC 8-2-1; filed Sep 24, 1987, 3:00 p.m.: 11 IR 705; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1003; errata filed Jan 9, 1991, 2:30 p.m.: 14 IR 1070; errata filed Aug 6, 1991, 3:45 p.m.: 14 IR 2258; filed Apr 12, 1993, 11:00 a.m.: 16 IR 2151; filed Aug 24, 1994, 8:15 a.m.: 18 IR 19; errata filed Oct 11, 1994, 2:45 p.m.: 18 IR 531; filed Oct 24, 1997, 4:30 p.m.: 21 IR 932; filed Mar 6, 2000, 7:56 a.m.: 23 IR 1623; filed Nov 20, 2001, 10:20 a.m.: 25 IR 1075; filed May 1, 2003, 12:00 p.m.: 26 IR 2808; filed Jun 13, 2005, 2:30 p.m.: 28 IR 3184)

SECTION 2. 327 IAC 8-2-5 IS AMENDED TO READ AS FOLLOWS:

327 IAC 8-2-5 Organic chemicals other than volatile compounds; maximum contaminant levels

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3; IC 13-18-16
Affected: IC 13-18

Sec. 5. (a) The MCLs for the following synthetic organic chemicals apply to all ~~community water systems~~ **CWSs** and ~~nontransient noncommunity water systems: except as provided in subsection (c) for total trihalomethanes:~~ **NTNCWSs:**

~~Contaminant~~		~~Level in Milligrams Per Liter~~
~~Total trihalomethanes~~		~~0.10~~
CAS No.	Contaminant	MCL (mg/L)
15972-60-8	Alachlor	0.002
1912-24-9	Atrazine	0.003
50-32-8	Benzo(a)pyrene	0.0002
1563-66-2	Carbofuran	0.04

57-74-9	Chlordane	0.002
75-99-0	Dalapon	0.2
96-12-8	1,2-dibromo-3-chloropropane (DBCP)	0.0002
103-23-1	Di(2-ethylhexyl)adipate	0.4
117-81-7	Di(2-ethylhexyl)phthalate	0.006
88-85-7	Dinoseb	0.007
85-00-7	Diquat	0.02
94-75-7	2,4-D	0.07
145-73-3	Endothall	0.1
72-20-8	Endrin	0.002
106-93-4	Ethylene dibromide	0.00005
1071-53-6	Glyphosate	0.7
76-44-8	Heptachlor	0.0004
1024-57-3	Heptachlor epoxide	0.0002
118-74-1	Hexachlorobenzene	0.001
77-47-4	Hexachlorocyclopentadiene	0.05
58-89-9	Lindane	0.0002
72-43-5	Methoxychlor	0.04
23135-22-0	Oxamyl (vydate)	0.2
1918-02-1	Picloram	0.5
1336-36-3	Polychlorinated biphenyls	0.0005
87-86-5	Pentachlorophenol	0.001
122-34-9	Simazine	0.004
8001-35-2	Toxaphene	0.003
1746-01-6	2,3,7,8-TCDD (dioxin)	3×10^{-8}
93-72-1	2,4,5-TP	0.05

(b) For the synthetic organic chemicals listed in this section other than ~~total trihalomethanes:~~ **TTHM:**
(1) monitoring frequency is specified in section 5.1 of this rule; and
(2) analytical methods are specified in section 5.2 of this rule.

~~(c) The MCL of one-tenth (0.10) milligram per liter for total trihalomethanes applies as follows:~~
~~(1) A subpart H community water system which serves a population of ten thousand (10,000) or more individuals until December 31, 2001.~~
~~(2) A CWS that uses only ground water not under the direct influence of surface water and serve a population of ten thousand (10,000) or more individuals until December 31, 2003.~~
~~Compliance with the MCL for total trihalomethanes is calculated under section 5.3 of this rule. After December 31, 2003, this subsection is no longer applicable.~~

~~(d)~~ **(c)** The commissioner hereby identifies, as indicated in the following table, granular activated carbon (GAC), packed tower aeration (PTA), or oxidation (OX) as the best technology, treatment technique, or other means available for achieving compliance with the MCL for synthetic organic contaminants identified in subsection (a):

BAT for Synthetic Organic Contaminants
Listed in Subsection (a)

CAS No.	Contaminant	GAC	PTA	OX
15972-60-8	Alachlor	X		
1912-24-9	Atrazine	X		
50-32-8	Benzo(a)pyrene	X		
1563-66-2	Carbofuran	X		
57-74-9	Chlordane	X		
94-75-7	2,4-D	X		
75-99-0	Dalapon	X		
96-12-8	1,2-dibromo-3-chloropropane (DBCP)	X	X	
103-23-1	Di(2-ethylhexyl)adipate	X	X	

117-81-7	Di(2-ethylhexyl)phthalate	X		
88-85-7	Dinoseb	X		
85-00-7	Diquat	X		
145-73-3	Endothall	X		
72-20-8	Endrin	X		
106-93-4	Ethylene dibromide (EDB)	X	X	
1071-53-6	Glyphosate			X
76-44-8	Heptachlor	X		
1024-57-3	Heptachlor epoxide	X		
118-74-1	Hexachlorobenzene	X		
77-47-3	Hexachlorocyclopentadiene	X	X	
58-89-9	Lindane	X		
72-43-5	Methoxychlor	X		
23135-22-0	Oxamyl (vydate)	X		
1918-02-1	Picloram	X		
1336-36-3	Polychlorinated biphenyls (PCBs)	X		
87-86-5	Pentachlorophenol	X		
93-72-1	2,4,5-TP (silvex)	X		
122-34-9	Simazine	X		
1746-01-6	2,3,7,8-TCDD (dioxin)	X		
8001-35-2	Toxaphene	X	X	

(Water Pollution Control Board; 327 IAC 8-2-5; filed Sep 24, 1987, 3:00 p.m.: 11 IR 706; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1009; errata filed Aug 6, 1991, 3:45 p.m.: 14 IR 2258; filed Aug 24, 1994, 8:15 a.m.: 18 IR 32; errata filed Oct 11, 1994, 2:45 p.m.: 18 IR 531; filed Aug 25, 1997, 8:00 a.m.: 21 IR 43; filed May 1, 2003, 12:00 p.m.: 26 IR 2812)

SECTION 3. 327 IAC 8-2-8.2 IS AMENDED TO READ AS FOLLOWS:

327 IAC 8-2-8.2 Sanitary surveys

Authority: IC 13-13-5-1; IC 13-14-8-2; IC 13-14-8-7; IC 13-18-3-2
Affected: IC 13-12-3-1; IC 13-13-5-2; IC 13-14-9; IC 13-18-11; IC 13-18-16-6

Sec. 8.2. (a) ~~Public water systems that do not collect five (5) or more routine samples per month must undergo an initial sanitary survey by June 29, 1994, for community public water systems and June 29, 1999, for noncommunity water systems. Thereafter, for systems using ground water, and from the above date until December 31, 2001, for Subpart H systems, systems must undergo another sanitary survey every five (5) years or more frequently, as determined by the commissioner, except that noncommunity water systems using only protected and disinfected ground water, as determined by the commissioner, must undergo subsequent~~ **The following conditions apply to the conducting of** sanitary surveys: ~~at least every ten (10) years after the initial sanitary survey.~~

(1) Beginning **on:**

(A) January 1, 2002, **a** Subpart H ~~systems~~ **PWS** must undergo **a** sanitary ~~surveys~~ **survey** every three (3) years; **and**

(B) December 1, 2009, a:

(i) CWS using ground water must undergo a sanitary survey every three (3) years; and

(ii) NCWS using ground water must undergo a sanitary survey every five (5) years.

(2) The commissioner may conduct a sanitary survey at a CWS using ground water every five (5) years if the system:

(A) either:

(i) provides 4-log treatment of viruses before or at the first customer for all its ground water sources; or

(ii) has an outstanding performance record, as determined by the commissioner and documented in previous sanitary surveys; and

(B) has no history of:

(i) total coliform MCL violations; or

(ii) monitoring violations;

under sections 7, 8, and 8.1 of this rule.

(b) The commissioner ~~must~~ **shall** review the results of each sanitary survey to determine:
(1) whether the existing monitoring frequency is adequate; ~~and~~
(2) what measures the system needs to undertake to improve drinking water quality**; and**
(3) whether significant deficiencies exist.

~~(b)~~ **(c)** In conducting a sanitary survey of a ~~system~~ **PWS** using ground water after the commissioner approves a wellhead protection program under 327 IAC 8-4.1, 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.

~~(c)~~ **(d)** Sanitary surveys must be performed by the commissioner or an agent approved by the commissioner. The ~~public water system must~~ **PWS shall** ensure that the:
(1) sanitary survey takes place; ~~The public water system shall ensure that the~~ **and**
(2) commissioner or agent approved by the commissioner has access to the ~~public water system~~ **PWS** and its records in order to verify compliance with this article and the federal ~~Safe Drinking Water~~ Act (42 ~~U.S.C.~~ **U.S.C.A.** 300f through 42 ~~U.S.C.~~ **U.S.C.A.** 300j-26).

~~(d)~~ **(e)** The department shall evaluate each ~~Subpart H system~~ **PWS** during a sanitary survey in accordance with this section to determine if ~~significant~~ deficiencies exist. ~~Examples of significant~~ Deficiencies include the following:
(1) ~~Significant source~~ Deficiencies **relating to drinking water sources,** including the following:
(A) Raw water quality monitoring that is indicative of an immediate sanitary risk.
(B) Activities or pollution sources in the **sanitary setback area or** immediate source water area that will cause ~~sanitary~~ risks.
~~(C) Location of a well making it vulnerable to surface water run-off.~~
~~(D) Age of the well.~~
~~(E) Reliability of the source, including quality or quantity.~~
~~(F) A well that is not properly sealed.~~
(C) Failure by the PWS to maintain ownership or control of the sanitary setback area, where the PWS is required to maintain a setback as:
(i) permitted under 327 IAC 8-3 for wells installed after April 30, 1999; or
(ii) specified in a permit issued by the commissioner prior to April 30, 1999.
(D) Uncovered or inadequately sealed reservoirs without treatment that meets the requirements of section 8.5 of this rule.
(E) Failure by the PWS to put measures in place to prevent unauthorized access to the intakes or wells.
~~(G)~~ **(F) For a Subpart H PWS,** spring boxes that are poorly constructed or subject to flooding.
(G) For a PWS using ground water, in whole or in part, the following shall be evaluated for deficiencies:
(i) Location or condition of a well making it vulnerable to surface water runoff or flooding, including:
(AA) elevation of casing not protected from a one hundred (100) year flood; or
(BB) presence of a well not properly abandoned in accordance with 312 IAC 13-10 in the wellhead protection area for a CWS as defined by 327 IAC 8-4.1 or, for an NCWS, the sanitary setback area required to be maintained under 327 IAC 8-3 for wells installed after April 30, 1999, or as specified in a permit issued by the commissioner prior to that date.
(ii) Improperly constructed wells.
(iii) Condition of a well creating potential for source water contamination, including a:
(AA) cracked casing;
(BB) missing well cap; or
(CC) casing not properly sealed.
(iv) When required by the commissioner, a well must be evaluated as to whether it is under the influence of surface water.
(2) ~~Significant treatment~~ Deficiencies **relating to drinking water treatment,** including the following:
(A) **For a Subpart H PWS and a ground water PWS with 4-log virus inactivation at or prior to the first customer,** inadequate disinfection contact time.

(B) One (1) or more of the treatment processes is incapable of producing water that meets standards under all conditions of raw water quality.
(C) No provisions to warn operators of ~~membrane~~ **treatment** failures.
(D) Failure **by the PWS** to have a disinfection profile **as** required under 327 IAC 8-2.6-2 or 327 IAC 8-2.6-2.1.
~~(E) Evaluation of handling storage, use, and application of treatment chemicals.~~
~~(F) A review of the treatment process that includes assessment of the:~~
~~(i) operation;~~
~~(ii) maintenance;~~
~~(iii) record keeping; and~~
~~(iv) management practices;~~
~~of treatment facilities.~~
(E) Treatment processes required to meet log removal requirements under 327 IAC 8-2.3 or 327 IAC 8-2.6 are not maintained or operational.
(F) Treatment capacity for contaminants regulated under this article is not sufficient to meet peak daily demand.
(G) Unrestricted access by unauthorized personnel to any portion of the treatment components of a PWS.
(H) Treatment processes are uncovered or inadequately sealed where the treatment does not meet the requirements of sections 8.5 and 8.6 of this rule and 327 IAC 8-2.6.

(3) ~~Significant distribution and transmission~~ Deficiencies **relating to drinking water distribution and transmission,** including the following:
~~(A) Customers receiving, and using for drinking water, raw water from the raw water transmission main.~~
~~(B)~~ **(A) For a Subpart H PWS,** a raw water transmission main equipped with a bypass around the treatment.
~~(C) Disinfectant residuals in the distribution system that regularly do not meet minimum required levels.~~
(B) Improper operation of bypass on a raw water transmission line that produces finished water that does not meet the requirements of this article.
~~(D)~~ **(C)** Pressures in the distribution system below twenty (20) pounds per square inch (psi) during ~~peak~~ **all** flow conditions **except the following:**
(i) Scheduled maintenance.
(ii) Corrected distribution system failures.
(iii) Fireflow.
~~(E) High leakage rates that pose unacceptable risks of back siphonage.~~
(D) Greater than twenty-five percent (25%) water loss at a CWS based on a one (1) year average.
(E) Failure by the PWS to make treatment or operational changes to correct persistent or recurring bacteriological contamination not attributable to the source water. The commissioner may require treatment to remedy bacteriological contamination.
(F) For a PWS that serves water to the public, the following apply:
(i) The following system types shall meet the requirements under item (ii):
(AA) A ground water PWS meeting 4-log inactivation of viruses at or before first customer using chlorine or chloramine.
(BB) A ground water PWS feeding chlorine or chloramines to meet the conditions of a permit or setback requirements.
(CC) Any ground water PWS required by the commissioner to provide disinfection due to a history of persistent or recurring bacteriological contamination.
(DD) Any PWS adding a disinfectant to control bacterial regrowth in the distribution system.
(EE) Any Subpart H PWS.
(ii) The following requirements shall be met by the systems under item (i):
(AA) The residual disinfectant concentration in the distribution system, measured as free chlorine, combined chlorine, or chlorine dioxide, is undetectable in more than five percent (5%) of the samples each month for two (2) consecutive months.
(BB) A PWS may request that the commissioner allow a lower detection level than specified in section 1(98) of this rule if the system can show that the bacteriological quality of the water in the distribution system is not being compromised. The request must be made in writing, and the commissioner shall respond to the request in writing.
(CC) If necessary to maintain public health and required by the commissioner, a PWS may be required to meet higher minimum disinfectant residual levels than specified under subitem (AA).

(4) ~~Significant~~ **Deficiencies relating to** finished water storage, ~~deficiencies,~~ including the following:
(A) Inadequate ~~(i) elevation of storage facilities; or (ii)~~ sealing of **a** tank to prevent entry of contaminants.
~~(B) Failure to inspect elevated tank for sanitary defects.~~

(B) Inadequate maintenance of a storage tank that results in:
(i) a violation of standards; or
(ii) the storage tank being structurally unsound.
(C) Venting of tank that fails to prevent the entrance of:
(i) surface water;
(ii) rainwater;
(iii) birds;
(iv) animals;
(v) insects; or
(vi) dust.
(D) Construction and screening of an overflow pipe and drain that does not meet the following criteria:
(i) Located twelve (12) to twenty-four (24) inches above the ground surface.
(ii) Discharge over a drainage inlet structure or a splash plate.
(iii) Opens downward.
(iv) For ground level storage, overflow drain is screened with twenty-four (24) mesh noncorrodible screen.
(v) For elevated tanks, overflow drain is screened with a four (4) mesh noncorrodible screen.
(vi) If flapper valve is used, a screen must be provided inside the valve.
(vii) An overflow pipe of sufficient diameter to permit waste of water in excess of the filling rate.
(E) Uncovered finished water reservoir.
(F) Failure to maintain access restrictions where necessary to prevent contamination.

(5) ~~Significant~~ **Deficiencies relating to drinking water** pumps, pump facilities, and ~~control deficiencies,~~ **controls,** including the following:
(A) Storage of materials at the pumping station that:
(i) offer potential for contamination of the water; or
(ii) pose safety risks to operators.
~~(B) Cross connections are present.~~
~~(C) Auxiliary power is necessary to keep pressures above twenty (20) psi during commonly experienced power outages.~~
~~(D)~~ **(B)** Pump and facilities are not:
(i) designed appropriately; or
(ii) properly operated and maintained.

(6) ~~Significant~~ **Deficiencies relating to** monitoring, reporting, and data verification, ~~deficiencies,~~ including the following:
(A) The ~~system has multiple violations for one (1) or more contaminants or disinfectant residuals. (B) Operators are using~~ **use of** improper procedures or methods when conducting **required** on-site laboratory analyses.
~~(C) The system: (i) is not using~~ **(B) Failure to use** a certified laboratory.
~~(ii) has been falsifying~~ **(C) Falsification of** data.
~~(iii) fails~~ **(D) Failure** to collect required samples.
(E) A sampling plan required under any of the following rules is not available, not being followed, or not representative of the water distribution system:
(i) Total coliform rule (TCR), according to section 8(a) of this rule.
(ii) Stage 1 disinfectants and disinfection byproducts rule, according to 327 IAC 8-2.5-6(f).
(iii) Stage 2 disinfectants and disinfection byproducts rule, according to 327 IAC 8-2.5-13.
(iv) Ground water rule (GWR) triggered monitoring plan, according to 327 IAC 8-2.3-4(a)(2)(B).
(F) Failure to submit properly documented monthly reports of operation according to 327 IAC 8-11.

(7) ~~Significant~~ **Deficiencies relating to** system management and operations, ~~deficiencies,~~ including the following:
(A) The ~~system~~ **PWS** has inadequate personnel to meet the requirements of 327 IAC 8-12.
(B) ~~The system has not: (i) developed a~~ **Emergency response** plan ~~for provision of water during emergencies; or (ii) completed required vulnerability assessments and emergency action plans~~ **requirements are** as ~~required by Section 1433 of the Safe Drinking Water Act (42 U.S.C. 300i-2).~~ **follows:**
(i) The following systems shall develop an emergency response plan:
(AA) A CWS.
(BB) An NCWS that is required or plans to maintain operation in the event of an emergency.
(ii) An emergency response plan must include the following core elements:
(AA) System specific information.
(BB) Water system roles and responsibilities.
(CC) Communication procedures.

(DD) Personnel safety.
(EE) Identification of alternate water sources.
(FF) Replacement equipment and chemical supplies.
(GG) Property protection.
(HH) Water sampling and monitoring.

(C) The ~~system~~ **PWS** does not have an ~~annually~~ updated emergency ~~action~~ **response** plan **that includes annual certification of the following:**

(i) Proof that the emergency response plan was:
(AA) reviewed in the past year; and
(BB) updated if necessary.
(ii) That the contact information included in the emergency response plan is current.

(D) Failure by the PWS to protect the water supply from contamination when any part of the system is out of service for:

(i) repair;
(ii) construction;
(iii) alteration; or
(iv) replacement.

(E) Failure by the PWS to operate and maintain the water system in a manner to ensure providing water that meets all requirements of the Act (Title 42, U.S.C.A. 300F through 300j-26) and IC 13-18-16-6. Measures to meet these requirements must include having and implementing a written or otherwise documented approach for the following:

(i) Maintaining a record of system components, including information necessary to:
(AA) operate;
(BB) maintain; and
(CC) repair;
system components.
(ii) Ensuring system components are operated and maintained to:
(AA) meet requirements of the Act; and
(BB) provide water that is suitable for ordinary domestic consumption.
(iii) Ensuring timely response and repair in the event of component failure.
(iv) Maintaining an inventory of critical spare parts.
(v) Performing compliance monitoring.
(vi) Maintaining records pertaining to these requirements.

The requirements of this clause apply to all CWSs and any NCWS that is required to meet 410 IAC 16.2-5-1.6(d). The commissioner may also require an NCWS with unaddressed deficiencies, including service outages, monitoring and reporting violations, or public notification violations to meet the requirements of this clause.

(F) Failure by the PWS to notify the department within twenty-four (24) hours of any service interruption lasting at least eight (8) hours. Notification must be made by one (1) of the following means:

(i) E-mail.
(ii) Facsimile.
(iii) Telephone.
(iv) Other means approved by the commissioner.

(8) ~~Failure to comply with the requirements of this article, including the failure to have a certified~~ **Deficiencies relating to** operator ~~of the proper grade for more than forty-five (45) days.~~ **certification, including the system being in noncompliance with 327 IAC 8-12.**

~~(9)~~ **(f) The following may be classified as significant deficiencies:**

(1) Any ~~additional~~ **of the:**
(A) deficiencies **included in subsection (e); or**
(B) other conditions that are found during a sanitary survey or other site visit;
that may have a potential to cause an immediate risk to human health.

(2) Any deficiency:
(A) that is under the control of the PWS and was found during a previous sanitary survey but has not been corrected; or
(B) for which the PWS is not in compliance with a correction schedule approved by the commissioner.

~~(e)~~ **(g)** Subpart H systems shall respond in writing to any ~~significant~~ deficiency found during a sanitary survey

and reported to the ~~system~~ **Subpart H PWS** by the commissioner. Response requirements are as follows:

(1) The response must:

(A) be made within forty-five (45) days of receipt of the report; and

(B) indicate:

(i) how the ~~public water system~~ **PWS** will address ~~significant~~ deficiencies found during the sanitary survey; and

(ii) on what schedule the ~~public water system~~ **PWS** will address ~~significant~~ deficiencies found during the sanitary survey.

(2) The report must indicate whether ~~significant~~ deficiencies found during the sanitary survey are under the control of the ~~public water system.~~ **PWS.**

(h) Ground water systems shall respond in writing to any deficiency found during a sanitary survey and reported to the ground water PWS by the commissioner. Response requirements are as follows:

(1) The response must:

(A) be made within thirty (30) days of receipt of the report; and

(B) indicate:

(A) how the PWS will address deficiencies found during the sanitary survey; and

(B) on what schedule the PWS will address deficiencies found during the sanitary survey.

(2) The report must indicate whether deficiencies found during the sanitary survey are under the control of the PWS.

~~(f)~~ **(i)** If a ~~comprehensive performance evaluation~~ **CPE** is required under 327 IAC 8-2.6-5, the ~~public water system~~ **PWS** shall implement any follow-up recommendations that result as part of the program.

~~(g)~~ **(j)** The commissioner may require a shorter time frame **than required by this section** for response or addressing ~~significant~~ deficiencies if the commissioner determines the ~~system~~ **deficiency** poses an immediate health risk.

~~(h) The commissioner may initiate an enforcement referral for violations under this rule, including failure to do the following:~~

~~(1) Respond to the notice.~~

~~(2) Address significant deficiencies under the control of the public water system.~~

~~(3) Provide a schedule required under subsection (e)(1)(B)(ii).~~

~~(4) Follow the schedule required under subsection (e)(1)(B)(ii).~~

~~(5) Address significant deficiencies that have significant potential to have adverse effects on human health.~~

(Water Pollution Control Board; 327 IAC 8-2-8.2; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1022; filed Apr 12, 1993, 11:00 a.m.: 16 IR 2158; filed Oct 24, 2006, 3:03 p.m.: 20061122-IR-327050255FRA)

SECTION 4. 327 IAC 8-2-8.6 IS AMENDED TO READ AS FOLLOWS:

327 IAC 8-2-8.6 Disinfection treatment

Authority: IC 13-13-5-1; IC 13-14-8-7; IC 13-18-3; IC 13-18-16
Affected: IC 13-18

Sec. 8.6. Effective June 29, 1993, each ~~public water system~~ **PWS** that provides filtration treatment must provide disinfection treatment as follows:

(1) The disinfection treatment must be sufficient to ensure that the total treatment processes of that system achieve:

(A) at least ninety-nine and nine-tenths percent (99.9%) (3-log) inactivation ~~and/or~~ **or** removal of Giardia lamblia cysts; and

(B) at least ninety-nine and ninety-nine hundredths percent (99.99%) (4-log) inactivation ~~and/or~~ **or** removal of viruses, as determined by the commissioner.

(2) The residual disinfectant concentration in the water entering the distribution system, measured as specified in sections 8.7(5), ~~and 8.8(d)~~ **8.7(7), 8.7(8), and 8.8(e)** of this rule, ~~cannot~~ **may not** be less than two-tenths (0.2) milligram per liter for more than four (4) hours.

(3) The residual disinfectant concentration in the distribution system, measured as total chlorine, combined

chlorine, or chlorine dioxide, as specified in sections 8.7(5), ~~and 8.8(d)~~ **8.7(7), 8.7(8), and 8.8(c)** of this rule, ~~cannot~~ **may not** be undetectable in more than five percent (5%) of the samples each month for any two (2) consecutive months that the system serves water to the public. Water in the distribution system with a heterotrophic bacteria concentration less than or equal to five hundred (500) per milliliter, measured as heterotrophic plate count (HPC) as specified in section 8.7(3) of this rule, is deemed to have a detectable disinfectant residual for purposes of determining compliance with this requirement. Thus, the value V in the following formula ~~cannot~~ **may not** exceed five percent (5%) in one (1) month for any two (2) consecutive months:

$$V = \frac{c+d+e}{a+b} \times 100$$

Where:
- a = number of instances where the residual disinfectant concentration is measured
- b = number of instances where the residual disinfectant concentration is not measured but HPC is measured
- c = number of instances where the residual disinfectant concentration is measured but not detected and no HPC is measured
- d = number of instances where no residual disinfectant concentration is detected and where the HPC is greater than five hundred (500) per milliliter
- e = number of instances where the residual disinfectant concentration is not measured and HPC is greater than five hundred (500) per milliliter

(4) **The requirements of subdivision (3) do not apply** if the commissioner determines, based on site-specific considerations, that a ~~system~~ **PWS:**

(A) has no means for having a sample transported and analyzed for HPC by a certified laboratory under the requisite time and temperature conditions specified in section 8.7 of this rule; and ~~that the system~~

(B) is providing adequate disinfection in the distribution system. ~~the requirements of subdivision (3) do not apply.~~

(Water Pollution Control Board; 327 IAC 8-2-8.6; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1024; errata filed Jan 9, 1991, 2:30 p.m.: 14 IR 1070; filed Apr 12, 1993, 11:00 a.m.: 16 IR 2161)

SECTION 5. 327 IAC 8-2-20 IS AMENDED TO READ AS FOLLOWS:

327 IAC 8-2-20 Record maintenance

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9, IC 13-18-3; IC 13-18-16
Affected: IC 13-18

Sec. 20. Any owner or operator of a ~~public water system~~ **PWS** subject to the provisions of this rule shall retain on its premises or at a convenient location near its premises the following records:

(1) Records of ~~bacteriological~~ **microbiological and turbidity** analyses made under this rule, **327 IAC 8-2.3, 327 IAC 8-2.5, or 327 IAC 8-2.6** shall be kept for not less than five (5) years. Records of chemical and radiological analyses made under this rule shall be kept for not less than ten (10) years. Actual laboratory reports may be kept, or data may be transferred to tabular summaries, provided that the following information is included:

(A) The date, place, and time of sampling and the name of the person who collected the sample.

(B) Identification of the sample as to whether it was: ~~a:~~

(i) a routine distribution system sample;

(ii) a check sample;

(iii) a raw or process water sample; or ~~other~~

(iv) another special purpose sample.

(C) **The** date of **the** analysis.

(D) **The** laboratory and **the** person responsible for performing **the** analysis.

(E) The analytical technique **or** method used.

(F) The results of the analysis.

(2) Records of action taken by the ~~system~~ **PWS** to correct violations of this rule shall be kept for not less than three (3) years after the last action taken with respect to the particular violation involved.

(3) Copies of any written reports, summaries, or communications relating to sanitary surveys of the ~~system~~

PWS conducted by:
(A) the ~~system~~ **PWS** itself; ~~by~~
(B) a private consultant; or ~~by~~
(C) any local, state, or federal agency;
shall be kept for not less than ten (10) years after completion of the sanitary survey involved.
(4) Copies of:
(A) public notices issued ~~pursuant to~~ **under** 327 IAC 8-2.1-7 through 327 IAC 8-2.1-16; and
(B) certifications made to the primacy agency ~~pursuant to~~ **under** section 13 of this rule;
must be kept for three (3) years after issuance.
(5) Copies of monitoring plans required under this rule, 327 IAC 8-2.3, 327 IAC 8-2.5, or 327 IAC 8-2.6 must be kept for the same period of time as the records of analyses taken under the monitoring plan are required to be kept under subdivision (1), except as specified elsewhere in this rule, 327 IAC 8-2.3, 327 IAC 8-2.5, or 327 IAC 8-2.6.

(Water Pollution Control Board; 327 IAC 8-2-20; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1038; filed Nov 20, 2001, 10:20 a.m.: 25 IR 1097)

SECTION 6. 327 IAC 8-2-30 IS AMENDED TO READ AS FOLLOWS:

327 IAC 8-2-30 Maximum contaminant level goals; organic compounds

Authority: IC 13-13-5-1; IC 13-14-8-2; IC 13-14-8-7; IC 13-18-3-2
Affected: IC 13-12-3-1; IC 13-13-5-2; IC 13-14-9; IC 13-18-11

Sec. 30. (a) MCLGs are zero (0) for the following organic compounds:
(1) Benzene.
(2) Vinyl chloride.
(3) Carbon tetrachloride.
(4) 1,2-dichloroethane.
(5) Trichloroethylene.
(6) Acrylamide.
(7) Alachlor.
(8) Chlordane.
(9) Dibromochloropropane.
(10) 1,2-dichloropropane.
(11) Epichlorohydrin.
(12) Ethylene dibromide.
(13) Heptachlor.
(14) Heptachlor epoxide.
(15) Pentachlorophenol.
(16) Polychlorinated biphenyls (PCBs).
(17) Tetrachloroethylene.
(18) Toxaphene.
(19) Benzo(a)pyrene.
(20) Dichloromethane.
(21) Di(2-ethylhexyl)phthalate.
(22) Hexachlorobenzene.
(23) 2,3,7,8-TCDD (dioxin).

(b) MCLGs for the following organic compounds are as follows:

Contaminant	MCLG in Milligrams per Liter
1,1-dichloroethylene	0.007
1,1,1-trichloroethane	0.20
para-dichlorobenzene	0.075
Aldicarb	0.001
Aldicarb sulfoxide	0.001
Aldicarb sulfone	0.001
Atrazine	0.003

Carbofuran	0.04
Ortho-dichlorobenzene	0.6
cis-1,2-dichloroethylene	0.07
trans-1,2-dichloroethylene	0.1
2,4-D	0.07
Ethylbenzene	0.7
Lindane	0.0002
Methoxychlor	0.04
Monochlorobenzene	0.1
Styrene	0.1
Toluene	1
2,4,5-TP	0.05
Xylenes	10
Dalapon	0.2
Di(2-ethylhexyl)adipate	0.4
Dinoseb	0.007
Diquat	0.02
Endothall	0.1
Endrin	0.002
Glyphosate	0.7
Hexachlorocyclopentadiene	0.05
Oxamyl (vydate)	0.2
Picloram	0.5
Simazine	0.004
1,2,4-trichlorobenzene	0.07
1,1,2-trichloroethane	0.003

(c) MCLGs for the following disinfection byproducts are as follows:

Disinfection Byproduct	MCLG (mg/L)
Bromodichloromethane	0
Bromoform	0
Bromate	0
Chlorite	**0.8**
Chloroform	**0.07**
Dibromochloromethane	**0.06**
Dichloroacetic acid	0
Monochloroacetic acid	**0.07**
Trichloroacetic acid	~~0.3~~ **0.02**
~~Chlorite~~	~~0.8~~
~~Dibromochloromethane~~	~~0.06~~

(Water Pollution Control Board; 327 IAC 8-2-30; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1047; filed Aug 24, 1994, 8:15 a.m.: 18 IR 66; filed May 1, 2003, 12:00 p.m.: 26 IR 2817)

SECTION 7. 327 IAC 8-2-33 IS AMENDED TO READ AS FOLLOWS:

327 IAC 8-2-33 Laboratory compliance

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3; IC 13-18-16
Affected: IC 13-18

Sec. 33. (a) For the purpose of determining compliance with this rule, ~~samples~~ **a sample** may be considered only if ~~they have~~ **it has** been analyzed by a laboratory **certified by the commissioner or the EPA** using methods specified in this rule, **except that measurements of:**

(1) alkalinity;

(2) calcium;
(3) conductivity;
(4) disinfectant residual;
(5) orthophosphate;
(6) pH;
(7) silica;
(8) temperature; and
(9) turbidity;
may be performed by any person acceptable to the commissioner.

(b) Nothing in this rule shall be construed to preclude the commissioner or any duly designated representative of the commissioner from taking samples or from using the results from ~~such~~ **the** samples to determine compliance by a supplier of water with the applicable requirements of this rule.

(Water Pollution Control Board; 327 IAC 8-2-33; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1047; filed Oct 24, 1997, 4:30 p.m.: 21 IR 940; filed Jul 23, 2001, 1:02 p.m.: 24 IR 3978)

SECTION 8. 327 IAC 8-2-36 IS AMENDED TO READ AS FOLLOWS:

327 IAC 8-2-36 General requirements; lead and copper

Authority: IC 13-13-5-1; IC 13-14-8-7; IC 13-18-3; IC 13-18-16
Affected: IC 13-18

Sec. 36. (a) The requirements of this section and sections 37 through 47 of this rule constitute the ~~national primary~~ drinking water regulations for lead and copper. Unless otherwise indicated, each section applies to ~~community water systems~~ **CWSs** and ~~nontransient noncommunity water systems (hereinafter~~ **NTNCWSs (in this section and sections 37 through 47 of this rule** referred to as water systems or systems).

(b) This section and sections 37 through 47 of this rule establish a treatment technique that includes requirements for:
(1) corrosion control treatment;
(2) lead service line replacement; and
(3) public education.
These requirements are triggered, in some cases, by lead and copper action levels measured in samples collected at consumers' taps.

(c) The following are requirements for lead and copper action levels:
(1) The lead action level is exceeded if the concentration of lead in more than ten percent (10%) of tap water samples collected during any monitoring period conducted in accordance with section 37 of this rule is greater than fifteen-thousandths (0.015) milligram per liter, ~~(i.e.,~~ **for example,** if the ninetieth percentile lead level is greater than fifteen-thousandths (0.015) milligram per liter.
(2) The copper action level is exceeded if the concentration of copper in more than ten percent (10%) of tap samples collected during any monitoring period conducted in accordance with section 37 of this rule is greater than one and three-tenths (1.3) milligram per liter, ~~(i.e.,~~ **for example,** if the ninetieth percentile copper level is greater than one and three-tenths (1.3) milligram per liter.
(3) The ninetieth percentile lead and copper levels shall be computed as follows:
(A) The results of all lead or copper samples taken during a monitoring period shall be placed in ascending order from the sample with the lowest concentration to the sample with the highest concentration. Each sampling result shall be assigned a number, ascending by single integers beginning with the number one (1) for the sample with the lowest contaminant level. The number assigned to the sample with the highest contaminant level shall be equal to the total number of samples taken.
(B) The number of samples taken during the monitoring period shall be multiplied by nine-tenths (0.9).
(C) The contaminant concentration in the numbered sample yielded by the calculation in clause (B) is the ninetieth percentile contaminant level.
(D) For water systems serving fewer than one hundred (100) people that collect five (5) samples per monitoring period, the ninetieth percentile is computed by taking the average of the highest and second highest concentrations.

(E) For a PWS that has been allowed by the commissioner to collect fewer than five (5) samples in accordance with section 37(c) of this rule, the sample result with the highest concentration is considered the ninetieth percentile value.

(d) The following are requirements for corrosion control treatment:
(1) ~~All water systems~~ **A PWS** shall install and operate optimal corrosion control treatment as defined in section 41 of this rule.
(2) ~~Any water system~~ **A PWS** that complies with the applicable corrosion control treatment requirements specified by the commissioner under sections 40 and 41 of this rule shall be deemed in compliance with the treatment requirement contained in subdivision (1).

(e) ~~Any system~~ **A PWS** exceeding the lead or copper action level shall implement all applicable source water treatment requirements specified by the ~~state~~ **commissioner** under section 42 of this rule.

(f) ~~Any system~~ **A PWS** exceeding the lead action level after implementation of applicable corrosion control and source water treatment requirements shall complete the lead service line replacement requirements contained in section 43 of this rule.

(g) ~~Any system~~ **A PWS shall provide, according to section 44(d) of this rule, a consumer notice of lead tap water monitoring results to persons served at the sites (taps) that are tested. A PWS** exceeding the lead action level shall implement the public education requirements contained in section ~~44~~ **44(a)** of this rule.

(h) **The following shall be completed in compliance with sections 37 through 39 and 45 of this rule:**
(1) Tap water monitoring for lead and copper.
(2) Monitoring for water quality parameters.
(3) Source water monitoring for lead and copper. ~~and~~
(4) Analyses of the monitoring results under ~~this subsection shall be completed in compliance with sections 37 through 39 and 45 of this rule.~~ **subdivisions (1) through (3).**

(i) ~~Systems~~ **A PWS** shall **do the following:**
(1) Report to the commissioner any information required by the treatment provisions of this ~~subsection~~ **section** and section 46 of this rule.
~~(j) Systems shall~~ **(2)** Maintain records in accordance with section 47 of this rule.

~~(k)~~ **(j)** Failure to comply with the applicable requirements of this section and sections 37 through 47 of this rule shall constitute a violation of the drinking water regulations for lead or copper, or both.

(Water Pollution Control Board; 327 IAC 8-2-36; filed Aug 24, 1994, 8:15 a.m.: 18 IR 67; errata filed Oct 11, 1994, 2:45 p.m.: 18 IR 532)

SECTION 9. 327 IAC 8-2-37 IS AMENDED TO READ AS FOLLOWS:

327 IAC 8-2-37 Monitoring requirements for lead and copper in tap water

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3; IC 13-18-16
Affected: IC 13-18

Sec. 37. (a) The following are requirements for sample site locations:
(1) By the applicable date of commencement of monitoring under subsection (d)(1), each water system shall complete a materials evaluation of its distribution system in order to identify a pool of targeted sampling sites that:
(A) meet the requirements of this section; and ~~that~~
(B) are sufficiently large to ensure that the water system can collect the number of lead and copper tap samples required in subsection (c).
All sites from which first draw samples are collected shall be selected from this pool of targeted sampling sites. Sampling sites may not include faucets that have ~~point-of-use~~ **POUs** or ~~point-of-entry treatment devices~~ **POEs** designated to remove inorganic contaminants.

(2) A water system shall use the information on lead, copper, and galvanized steel that it is required to collect under section 22 of this rule (special monitoring for corrosivity characteristics) when conducting a materials evaluation. When an evaluation of the information collected under section 22(d) of this rule is insufficient to locate the requisite number of lead and copper sampling sites that meet the targeting criteria in subdivisions (3) through (7), the water system shall review the **following** sources of information ~~listed in clauses (A) through (C)~~ in order to identify a sufficient number of sampling sites: ~~In addition, the system shall seek to collect such information, where possible, in the course of its normal operations, such as checking service line materials when reading water meters or performing maintenance activities:~~

(A) All plumbing codes, permits, and records in the files of the building department ~~which~~ **that** indicate the plumbing materials that are installed within publicly or privately owned structures connected to the distribution system.

(B) All inspections and records of the distribution system that indicate the material composition of the service connections that connect a structure to the distribution system. ~~and~~

(C) All existing water quality information, which includes the results of all prior analyses of the system or individual structures connected to the system, indicating locations that may be particularly susceptible to high lead or copper concentrations.

In addition, the system shall seek to collect the information listed in clauses (A) through (C), where possible, in the course of its normal operations, such as checking service line materials when reading water meters or performing maintenance activities.

(3) The sampling sites selected for a ~~community water system's~~ **CWS's** sampling pool (tier one (1) sampling sites) shall consist of:

(A) single family structures; or

(B) multiple family residences if ~~such~~ **the** residences comprise at least twenty percent (20%) of the structures served by water systems that:

(i) contain:

(AA) copper pipes with lead solder installed after 1982; or

(BB) lead pipes;

(ii) are served by a lead service line; or

(iii) **meet** both items (i) and (ii). ~~apply.~~

(4) Any ~~community water system~~ **CWS** with insufficient tier one (1) sampling sites shall complete its sampling pool with tier two (2) sampling sites consisting of buildings, including multiple family residences that:

(A) contain:

(i) copper pipes with lead solder installed after 1982; or

(ii) lead pipes;

(B) are served by a lead service line; or

(C) **meet** both clauses (A) and (B). ~~apply.~~

(5) Any ~~community water system~~ **CWS** with insufficient tier one (1) and tier two (2) sampling sites shall complete its sampling pool with tier three (3) sampling sites consisting of single family structures that contain copper pipes with lead solder installed before 1983. A ~~community water system~~ **CWS** with insufficient tier one (1), tier two (2), and tier three (3) sampling sites shall complete its sampling pool with representative sites throughout the distribution system. For ~~the~~ purposes of this subdivision, a representative site is a site in which the plumbing materials used at that site would be commonly found at other sites served by the water system.

(6) The sampling sites selected for ~~a nontransient noncommunity water system~~ **an NTNCWS** (tier one (1) sampling sites) shall consist of buildings that:

(A) contain:

(i) copper pipes with lead solder installed after 1982; or

(ii) lead pipes;

(B) are served by a lead service line; or

(C) **meet** both clauses (A) and (B). ~~apply.~~

(7) ~~A nontransient noncommunity water system~~ **An NTNCWS** with insufficient tier one (1) sites that meet the targeting criteria in subdivision (6) shall complete its sampling pool with sampling sites that contain copper pipes with lead solder installed before 1983. If additional sites are needed to complete the sampling pool, the ~~nontransient noncommunity water system~~ **NTNCWS** shall use representative sites throughout its distribution system. For the purpose of this subdivision, a representative site is a site in which the plumbing materials used at that site would be commonly found at other sites served by the water system.

(8) Any water system whose distribution system contains lead service lines shall draw:

(A) fifty percent (50%) of the samples it collects during each monitoring period from sites that contain:

(i) lead pipes; or

(ii) copper pipes with lead solder; and

(B) fifty percent (50%) of the samples from sites served by a lead service line.

A water system that cannot identify a sufficient number of sampling sites served by a lead service line shall

collect first draw samples from all of the sites identified as being served by ~~such~~ **the** lines.

(b) The following are requirements for sample collection methods:
(1) All tap samples for lead and copper collected in accordance with this ~~subsection,~~ **section and sections 38 through 43 of this rule,** with the exception of:
(A) lead service line samples collected under section 43(c) of this rule; and
(B) samples collected under subdivision (5);
shall be first draw samples.
(2) Each first draw tap sample for lead and copper:
(A) shall:
(i) be one (1) liter in volume; and
(ii) have stood motionless in the plumbing system of each sampling site for at least six (6) hours; ~~First draw samples~~
(B) from residential housing shall be collected from the:
(i) cold water kitchen tap; or
(ii) bathroom sink tap; ~~First draw samples~~
(C) from a nonresidential building shall be:
(i) one (1) liter in volume; and ~~shall be~~
(ii) collected at an interior tap from which water is typically drawn for consumption; ~~Nonfirst draw samples collected in lieu of first draw samples pursuant to subdivision (5) shall be one (1) liter in volume~~ and ~~shall be collected at an interior tap from which water is typically drawn for consumption. First draw samples~~
(D) may be collected by the:
(i) system; or ~~the system may allow~~
(ii) residents, ~~to collect first draw samples~~ **as allowed by the system,** after instructing the residents of the sampling procedures specified in this subdivision.
To avoid problems of residents handling nitric acid, acidification of first draw samples may be done up to fourteen (14) days after the sample is collected. After acidification to resolubilize the metals, the sample must stand in the original container for the time specified in the EPA-approved method before the sample can be analyzed. If a system allows residents to perform sampling, the system may not challenge, based on alleged errors in sample collection, the accuracy of sampling results.
(3) Each service line sample shall be one (1) liter in volume and have stood motionless in the lead service line for at least six (6) hours. Lead service line samples shall be collected in one (1) of the following ~~three (3)~~ ways:
(A) At the tap after flushing the volume of water between the tap and the lead service line. The volume of water shall be calculated based on the interior diameter and length of the pipe between the tap and the lead service line.
(B) Tapping directly into the lead service line.
(C) If the sampling site is a building constructed as a single family residence, allowing the water to run until there is a significant change in temperature that would be indicative of water that has been standing in the lead service line.
(4) A water system shall collect each first draw tap sample from:
(A) the same sampling site from which it collected a previous sample; ~~If, for any reason, the water system cannot gain entry to a sampling site in order to collect a follow-up tap sample, the system may collect the follow-up tap sample from~~ **or**
(B) another sampling site in its sampling pool:
(i) if, for any reason, the water system cannot gain entry to a sampling site in order to collect a follow-up tap sample; and
(ii) as long as the new site:
(AA) meets the same targeting criteria; and
(BB) is within reasonable proximity of the original site.
(5) ~~A nontransient noncommunity water system,~~ **An NTNCWS,** or a ~~community water system~~ **CWS** meeting the criteria of section ~~44(c)(7)(A) and 44(c)(7)(B)~~ **44(b)(7)** of this rule, that does not have enough taps that can supply first draw samples, as defined in ~~section 1 of this rule,~~ **subsection (a)(1):**
(A) may apply to the commissioner in writing to substitute nonfirst draw samples; ~~Such systems~~ **and**
(B) must:
(i) collect as many first draw samples ~~from appropriate taps~~ as possible **that are:**
(AA) one (1) liter in volume; and
(BB) collected at an interior tap from which water is typically drawn for consumption; and
(ii) identify:
(AA) sampling times; and
(BB) locations;

that would likely result in the longest standing time for the remaining sites.

The commissioner has the discretion to waive the requirement for prior approval of nonfirst draw sample sites selected by the system by written notification to the system.

(c) Water systems:

(1) shall collect at least one (1) sample during each monitoring period specified in subsection (d) from the number of sites listed in the second column of the table in this subsection (standard monitoring); ~~A system~~

(2) conducting reduced monitoring under subsection (d)(4) shall collect:

(A) at least one (1) sample from the number of sites specified in the third column of the table in this subsection during each monitoring period specified in subsection (d)(4); ~~Such reduced~~ **and**

(B) from monitoring sites ~~shall be~~ **that are** representative of the sites required for standard monitoring; **and**

(3) with fewer than five (5) drinking water taps, that can be used for human consumption meeting the sample site criteria of subsection (a) to reach the required number of samples sites listed in this subsection, shall collect:

(A) at least one (1) sample from each tap; and

(B) additional samples from those taps on different days during the monitoring period to meet the required number of sites. Alternatively, the commissioner may allow these PWSs to collect a number of samples less than the number of sites specified in this subsection, provided that all taps that can be used for human consumption are sampled.

The commissioner shall approve this reduction of the minimum number of samples in writing based on a request from the system or on-site verification by the commissioner.

The commissioner may specify sampling locations when a system is conducting reduced monitoring.

System Size (Number of People Served)	Number of Sites (Standard Monitoring)	Number of Sites (Reduced Monitoring)
> 100,000	100	50
10,001 to 100,000	60	30
3,301 to 10,000	40	20
501 to 3,300	20	10
101 to 500	10	5
< 101	5	5

(d) The following are requirements for the timing of monitoring:

(1) For initial tap sampling, the first six (6) month monitoring period for small, medium size, and large systems shall begin on the following dates:

System Size (Number of People Served)	First Six Month Monitoring Period Begins On
> 50,000	January 1, 1992
3,301 to 50,000	July 1, 1992
< 3,301	July 1, 1993

The monitoring requirements are as follows:

(A) All large systems shall monitor during two (2) consecutive six (6) month periods.

(B) All small and medium size systems shall monitor during each six (6) month monitoring period until **the system:**

(i) ~~the system~~ exceeds the lead or copper action level and is therefore required to implement the corrosion control treatment requirements under section 40 of this rule, in which case the system shall continue monitoring in accordance with subdivision (2); or

(ii) ~~the system~~ meets the lead and copper action levels during two (2) consecutive six (6) month monitoring periods, in which case the system may reduce monitoring in accordance with subdivision (4).

(2) Tap water monitoring requirements for lead and copper after corrosion control and source water treatment are as follows:

(A) Any large system that installs optimal corrosion control treatment under STEP FOUR of section 40(d) of this rule shall monitor during two (2) consecutive six (6) month monitoring periods by the date specified in STEP FIVE of section 40(d) of this rule.

(B) Any small or medium size system that installs optimal corrosion control treatment under STEP FIVE of section 40(e) of this rule shall monitor during two (2) consecutive six (6) month monitoring periods by the date specified in STEP SIX of section 40(e) of this rule.

(C) Any system that installs source water treatment under STEP THREE of section 42(a) of this rule shall monitor during two (2) consecutive six (6) month monitoring periods by the date specified in STEP FOUR of section 42(a) of this rule.

(3) After the commissioner specifies the values for water quality control parameters under section 41(f) of this rule, the system shall monitor during each subsequent six (6) month monitoring period, with the first monitoring period to begin on the date the commissioner specifies optimal values under section 41(f) of this rule.

(4) Reduced monitoring requirements shall be as follows:

(A) A small or medium size water system that meets the lead and copper action levels during each of two (2) consecutive six (6) month monitoring periods **and collects:**

(i) five (5) or more samples may reduce the:

(AA) number of samples in accordance with subsection (c); and ~~reduce the~~

(BB) frequency of sampling to once per year; **or**

(ii) fewer than five (5) samples as specified in subsection (c), may reduce the frequency of sampling to once per year.

In no case may the system reduce the number of samples required below the minimum of one (1) sample per available tap. This sampling must begin during the calendar year immediately following the end of the second consecutive six (6) month monitoring period.

(B) Any water system that **meets the lead action level and** maintains the range of values for the water quality control parameters reflecting optimal corrosion control treatment specified by the commissioner under section 41(f) of this rule during each of two (2) consecutive six (6) month monitoring periods may reduce the frequency of monitoring to once per year and reduce the number of lead and copper samples in accordance with subsection (c) if it receives written approval from the commissioner. **This sampling must begin during the calendar year immediately following the end of the second consecutive six (6) month monitoring period.** The commissioner shall:

(i) review:

(AA) monitoring;

(BB) treatment; and

(CC) other relevant;

information submitted by the water system in accordance with section 46 of this rule;

(ii) notify the system in writing when the commissioner determines the system is eligible to commence reduced monitoring; and

(iii) review and, where appropriate, revise the commissioner's determination when:

(AA) the system submits new monitoring or treatment data; or ~~when~~

(BB) other data relevant to the number and frequency of tap sampling becomes available.

(C) A small or medium size water system that meets the lead and copper action levels during three (3) consecutive years of monitoring may reduce the frequency of monitoring for lead and copper from annually to once every three (3) years. Any water system that **meets the lead action level and** maintains the range of values for the water quality control parameters reflecting optimal corrosion control treatment specified by the commissioner under section 41(f) of this rule during three (3) consecutive years of monitoring may reduce the frequency of monitoring from annually to once every three (3) years if it receives written approval from the commissioner. **Samples collected once every three (3) years must be collected not later than every third calendar year.** The commissioner shall:

(i) review:

(AA) monitoring;

(BB) treatment; and

(CC) other relevant;

information submitted by the water system in accordance with section 46 of this rule;

(ii) notify the system in writing when the commissioner determines the system is eligible to reduce the frequency of monitoring to once every three (3) years; **and**

(iii) review and, where appropriate, revise the determination when:

(AA) the system submits new monitoring or treatment data; or ~~when~~

(BB) other data relevant to the number and frequency of tap sampling becomes available.

(D) A water system that reduces the number and frequency of sampling shall collect these samples from representative sites included in the pool of targeted sampling sites identified in subsection (a). Systems sampling annually or less frequently shall conduct the lead and copper tap sampling during the months of June, July, August, or September unless the commissioner has approved a different sampling period in accordance with the following:

(i) At the commissioner's discretion, a different period for conducting the lead and copper tap sampling may be approved for systems conducting a reduced number of samples. ~~Such a~~ **This different** period shall be no longer than four (4) months and must represent a time of normal operation where the highest levels of lead are most likely to occur. The commissioner shall designate a period that represents a time of normal operation for the system as follows:

(AA) For ~~a nontransient noncommunity water system~~ **an NTNCWS** that does not operate during the months of June through September.

(BB) Where the period of normal operation having the highest levels of lead that are most likely to occur is not known.

This sampling must begin during the period approved or designated by the commissioner in the calendar year immediately following the end of the second consecutive six (6) month monitoring period for systems initiating annual monitoring and during the three (3) year period following the end of the third consecutive calendar year of annual monitoring for systems initiating triennial monitoring.

(ii) Systems monitoring annually that have been collecting samples during the months of June through September and have received approval from the commissioner to alter their sample collection period ~~pursuant to~~ **under** subsection (a) shall collect their next round of samples during a period that ends ~~no~~ **not** later than twenty-one (21) months after the previous round of sampling.

(iii) Systems monitoring triennially that have been collecting samples during the months of June through September and have received approval from the commissioner to alter their sample collection period ~~pursuant to~~ **under** subsection (a) shall collect their next round of samples during a time period that ends ~~no~~ **not** more than forty-five (45) months after the previous round of sampling. Subsequent rounds of sampling shall be collected annually or triennially as required by this section.

(iv) Small systems with waivers granted ~~pursuant to~~ **under** subsection (g) that have been collecting samples during the months of June through September and have received approval from the commissioner to alter their sample collection period under item (i) must collect their next round of samples before the end of the nine (9) year period.

(E) A water system that demonstrates for two (2) consecutive six (6) month monitoring periods that the tap water lead level computed under section 36(c)(3) of this rule is less than or equal to five-thousandths (0.005) milligram per liter (mg/L) and the tap water copper level computed under section 36(c)(3) of this rule is less than or equal to sixty-five hundredths (0.65) mg/L may reduce the number of samples in accordance with subsection (c) and reduce the frequency of sampling to once every three (3) calendar years.

(F) The following apply when a small or medium size water system subject to reduced monitoring exceeds the lead or copper action level:

(i) A small or medium size water system subject to reduced monitoring that exceeds the lead or copper action level:

(AA) shall resume sampling in accordance with subdivision (3) and collect the number of samples specified for standard monitoring under subsection (c); ~~Such system~~

(BB) shall ~~also~~ conduct water quality parameter monitoring in accordance with section 38(c), 38(d), or 38(e) of this rule, as appropriate, during the monitoring period in which it exceeds the action level; ~~Any water system~~ **and**

(CC) may resume annual monitoring for lead and copper at the tap at the reduced number of sites specified in subsection (c) after it has completed two (2) subsequent consecutive six (6) month rounds of monitoring that meet the criteria of clause (A) or may resume triennial monitoring for lead and copper at the reduced number of sites after it demonstrates through subsequent rounds of monitoring that it meets the criteria of either clause (C) or (E).

(ii) A water system subject to the reduced monitoring frequency that fails to **meet the lead action level during any four (4) month monitoring period or that fails to** operate at or above the minimum value or within the range of values for the water quality parameters specified by the commissioner under section 41(f) of this rule for more than nine (9) days in any six (6) month period specified in section 38(d) of this rule shall conduct tap water sampling for lead and copper at the frequency specified in subdivision (3), collect the number of samples specified for standard monitoring under subsection (c), and ~~shall~~ resume monitoring for water quality parameters in accordance with section 38(d) of this rule. ~~Such~~ **This standard tap water sampling must begin not later than the six (6) month period beginning January 1 of the calendar year following the lead action level exceedance or the water quality parameter excursion.** A system **affected under this item** may resume reduced monitoring for lead and copper at the tap and water quality parameters within the distribution system under the following conditions:

(AA) The system may resume annual monitoring for lead and copper at the tap at the reduced number of sites specified in subsection (c) after it has completed two (2) subsequent six (6) month rounds of monitoring that meets the criteria of clause (B) and the system has received written approval from the commissioner that it is appropriate to resume reduced monitoring on an annual frequency. **This sampling must begin during the calendar year immediately following the end of the second consecutive six (6) month monitoring period.**

(BB) The system may resume triennial monitoring for lead and copper at the tap at the reduced number of sites after it demonstrates through subsequent rounds of monitoring that it meets the criteria of either clause (C) or (E) and the system has received written approval from the commissioner that it is appropriate to resume triennial monitoring.

(CC) The system may reduce the number of water quality parameter tap water samples required in

accordance with section 38(f)(1) of this rule and the frequency with which it collects ~~such~~ **the** samples in accordance with section 38(f)(2) of this rule. ~~Such~~ A system may not resume triennial monitoring for water quality parameters at the tap until it demonstrates, in accordance with the requirements of section 38(f)(2) of this rule, that it has requalified for triennial monitoring.

(G) A water system subject to a reduced monitoring frequency under this subdivision ~~that either adds a new source of water or changes any water treatment~~ shall inform the commissioner in writing in accordance with section 46(a)(3) of this rule **of any upcoming long-term change in treatment or addition of a new source as described in this section.** The commissioner:

(i) shall review and approve the addition of a:

(AA) new source; or

(BB) long-term change in water treatment;

before it is implemented by the water system; and

(ii) may require the system to:

(AA) resume sampling in accordance with subdivision (3) and collect the number of samples specified for standard monitoring under subsection (c); or

(BB) take other appropriate steps such as increased water quality parameter monitoring or reevaluation of its corrosion control treatment given the potentially different water quality considerations.

(e) The results of any monitoring conducted in addition to the minimum requirements of this section shall be considered by the system and the commissioner in making any determinations, ~~(i.e.,~~ **for example,** calculating the ninetieth percentile lead or copper level, under:

(1) section 36 of this rule;

(2) this section; and

(3) sections 38 through 47 of this rule.

(f) A sample invalidated under this subsection does not count toward determining lead or copper ninetieth percentile levels under section 36(c)(3) of this rule or toward meeting the minimum monitoring requirements of subsection (c). The following criteria specify invalidation of samples:

(1) The commissioner may invalidate a lead or copper tap water sample if at least one (1) of the following conditions is met:

(A) The laboratory establishes that improper sample analysis caused erroneous results.

(B) The commissioner determines that the sample was taken from a site that did not meet the site selection criteria of this section.

(C) The sample container was damaged in transit.

(D) There is substantial reason to believe that the sample was subject to tampering.

(2) The system must report the results of all samples to the commissioner and all supporting documentation for samples the system believes should be invalidated.

(3) To invalidate a sample under subdivision (1), the decision and the rationale for the decision must be documented in writing. The commissioner may not invalidate a sample solely on the grounds that a follow-up sample result is higher or lower than the original sample.

(4) **The following apply to replacement samples:**

(A) The water system must collect replacement samples for any samples invalidated under this section if, after the invalidation of one (1) or more samples, the system has too few samples to meet the minimum requirements of subsection (c). ~~Any such~~

(B) Replacement samples **required under clause (A)** must be taken as soon as possible, but ~~no~~ **not** later than:

(i) twenty (20) days after the date the commissioner invalidates the sample; or ~~by~~

(ii) the end of the applicable monitoring period;

whichever occurs later.

(C) Replacement samples taken after the end of the applicable monitoring period shall not also be used to meet the monitoring requirements of a subsequent monitoring period. ~~The~~

(D) Replacement samples shall be taken at:

(i) the same locations as the invalidated samples; or ~~if that is not possible, at~~

(ii) locations other than those already used for sampling during the monitoring period **if it is not possible to take samples from the locations specified in item (i).**

(g) A small system that meets the criteria of this subsection may apply to the commissioner to reduce the frequency of monitoring for lead and copper under this section to once every nine (9) years for a full waiver if it meets all of the materials criteria specified in subdivision (1) and all of the monitoring criteria specified in subdivision (2). A small system that meets the criteria of subdivisions (1) and (2) ~~only~~ for lead or ~~only for~~ copper

but not for both may apply to the commissioner for a partial waiver that may reduce the frequency of tap water monitoring for that contaminant only. The following are the criteria for lead and copper waivers **for a small system:**

(1) The system must demonstrate that the distribution system, service lines, and all drinking water supply plumbing, including plumbing conveying drinking water within all residences and buildings connected to the system, are free of lead-containing or copper-containing materials, or both, according to the following:

(A) To qualify for a lead waiver, either a full waiver or a waiver of the tap water monitoring requirements, the water system must provide certification and supporting documentation to the commissioner that the system is free of all lead-containing materials as demonstrated by the following:

(i) There are no plastic pipes or plastic service lines that contain lead plasticizers.

(ii) The system is free of lead service lines, lead pipes, lead soldered pipe joints, and leaded brass or bronze alloy fitting and fixtures unless ~~such~~ **the** fittings and fixtures meet the specifications of any standard established pursuant to the ~~Safe Drinking Water~~ Act at 42 U.S.C. 300g-6(e).

(B) To qualify for copper waiver, either a full waiver or a waiver of the tap water monitoring requirements, the water system must provide certification and supporting documentation to the commissioner that the system contains no copper pipes or copper service lines.

(2) The system must have completed at least one (1) six (6) month round of standard tap water monitoring for lead and copper at sites approved by the commissioner and from the number of sites required by subsection (c) and demonstrate that the ninetieth percentile levels for any and all rounds of monitoring conducted since the system became free of all lead-containing or copper-containing materials, or both, as appropriate, meet the following criteria:

(A) To qualify for a full waiver or a lead waiver, the system must demonstrate that the ninetieth percentile lead level does not exceed five-thousandths (0.005) mg/L.

(B) To qualify for a full waiver or a copper waiver, the system must demonstrate that the ninetieth percentile for copper does not exceed sixty-five hundredths (0.65) mg/L.

(3) The commissioner shall notify the system of its waiver determination, in writing, setting forth the basis of its decision and any condition of the waiver. The small system must continue monitoring for lead and copper at the tap as required by subsection (d), as appropriate, until it receives written notification from the commissioner that the waiver has been approved. As a condition of the waiver, the commissioner may require the system to perform specific activities to avoid the risk of lead or copper concentration of concern in tap water, including the following:

(A) Limited monitoring.

(B) Periodic outreach to customers to remind them to avoid installation of materials that might void the waiver.

(4) The monitoring requirements for systems with a full waiver, a lead waiver, or a copper waiver are as follows:

(A) A system with a full waiver shall:

(i) conduct tap water monitoring for lead and copper:

(AA) in accordance with subsection (d)(4)(D);

(BB) at the reduced number of sampling sites specified in subsection (c); **and**

(CC) at least once every nine (9) years; and

(ii) provide the materials certification specified in subdivision (1) for both contaminants along with the monitoring results.

A sample collected once every nine (9) years must be collected not later than every ninth calendar year.

(B) A system with a partial waiver shall:

(i) conduct tap water monitoring for the waived contaminant:

(AA) in accordance with subsection (d)(4)(D);

(BB) at the reduced number of sampling sites specified in subsection (c); **and**

(CC) at least once every nine (9) years; and

(ii) provide the materials certification specified in subdivision (1) pertaining to the waived contaminant along with the monitoring results.

~~Such~~ A system **with a partial waiver** must also continue to monitor for the nonwaived contaminant in accordance with the requirements of subsection (d), as appropriate.

(C) ~~If a~~ **Any water** system with a full or partial waiver ~~adds a new source of water or changes any water treatment, the system~~ must notify the commissioner in writing in accordance with section 46(a)(3) of this rule **of any upcoming long-term change in treatment or addition of a new source, as described in section 46(a)(3) of this rule.** The commissioner:

(i) shall review and approve the addition of a:

(AA) new source; or

(BB) long-term change in water treatment;

before it is implemented by the water system; and

(ii) has the authority to require the system to add or modify waiver conditions, if ~~it deems such~~ **the** modifications are necessary to address treatment or source water changes at the system. Conditions may include ~~the following:~~ **requiring:**

~~(i) Requiring~~ **(AA)** recertification that the system is free of lead-containing or copper-containing materials, or both; **and**

~~(ii) Requiring~~ **(BB)** an additional round or rounds of monitoring.

(D) If a system with a full or partial waiver becomes aware that it is no longer free of:

(i) lead-containing ~~or~~ **materials;**

(ii) copper-containing materials; or

(iii) both **items (i) and (ii),** as appropriate;

as a result of new construction or repairs, the system shall notify the commissioner in writing ~~no~~ **not** later than sixty (60) days after becoming aware of ~~such a~~ **the** change.

(5) If a system continues to satisfy the requirements of subdivision (4), the waiver will be renewed automatically unless any of the conditions **for revocation** listed in this ~~section~~ **subdivision** occurs. A system whose waiver has been revoked may reapply for a waiver at such time as it again meets the appropriate materials and monitoring criteria of subdivisions (1) and (2). The waiver may be revoked if any of the following conditions occur:

(A) A system with a full waiver or a lead wavier no longer satisfies the materials criteria of subdivision (1)(A) or has a ninetieth percentile lead level greater than five-thousandths (0.005) mg/L.

(B) A system with a full waiver or a copper waiver no longer satisfies the materials criteria of subdivision (1)(B) or has a ninetieth percentile copper level greater than sixty-five hundredths (0.65) mg/L.

(C) The commissioner notifies the system, in writing, that the waiver has been revoked, setting forth the basis of its decision.

(6) A system whose full or partial waiver has been revoked by the commissioner is subject to the corrosion control treatment and lead and copper tap water monitoring requirements as follows:

(A) If the system exceeds the lead or copper action level, the system must implement corrosion control treatment in accordance with:

(i) the deadlines specified in section 40(e) of this rule; and

(ii) any other applicable requirements of:

(AA) section 36 of this rule;

(BB) this section; and

(CC) sections 38 through 47 of this rule.

(B) If the system meets both the lead and copper action ~~level,~~ **levels,** the system must monitor for lead and copper at the tap ~~no~~ **not** less frequently than once every three (3) years using the reduced number of sample sites specified in subsection (c).

(Water Pollution Control Board; 327 IAC 8-2-37; filed Aug 24, 1994, 8:15 a.m.: 18 IR 68; errata filed Oct 11, 1994, 2:45 p.m.: 18 IR 532; filed Oct 26, 2001, 4:55 p.m.: 25 IR 764; errata filed Oct 30, 2001, 10:50 a.m.: 25 IR 813; errata filed Feb 22, 2002, 1:59 p.m.: 25 IR 2254)

SECTION 10. 327 IAC 8-2-38 IS AMENDED TO READ AS FOLLOWS:

327 IAC 8-2-38 Monitoring requirements for water quality parameters

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3; IC 13-18-16
Affected: IC 13-18

Sec. 38. (a) All:

(1) large water systems; and ~~all~~

(2) small and medium size water systems that exceed the lead or copper action level;

shall monitor water quality parameters in addition to lead and copper in accordance with this section. The requirements of this section are summarized in the table in subsection (b)(2)(A).

(b) General monitoring requirements for water quality parameters shall be as follows:

(1) Requirements for sample collection methods shall be as follows:

(A) Tap samples shall be representative of water quality throughout the distribution system taking into account:

(i) the number of persons served;

(ii) the different sources of water;
(iii) the different treatment methods employed by the system; and
(iv) seasonal variability.

Tap sampling under this section is not required to be conducted at taps targeted for lead and copper sampling under section 37(a) of this rule. (Note: Systems may find it convenient to conduct tap sampling for water quality parameters at sites used for coliform sampling under section 8 of this rule.)

(B) Except as provided in subsection (d)(3), a system shall collect two (2) samples for each applicable water quality parameter at each entry point to the distribution system during each monitoring period specified in subsection (c). Samples collected at the entry point to the distribution system shall be from locations representative of each source after treatment. If a 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, that is, when water used is representative of all sources being used.

(2) Requirements for the number of samples shall be as follows:

(A) Systems shall collect two (2) tap samples for applicable water quality parameters during each monitoring period specified under subsections (c) through (f) from the number of sites listed in the following table:

System Size (Number of People Served)	Number of Sites for Water Quality Parameters
> 100,000	25
10,001 to 100,000	10
3,301 to 10,000	3
501 to 3,300	2
101 to 500	1
< 101	1

(B) Systems shall collect two (2) samples for each applicable water quality parameter at each entry point to the distribution system during each monitoring period specified in subsection (c). During each monitoring period specified in subsections (d) through (f), systems shall collect one (1) sample for each applicable water quality parameter at each entry point to the distribution system.

(c) This subsection governs initial sampling. All large water systems shall measure the applicable water quality parameters as specified in subdivision (1) at taps and at each entry point to the distribution system during each six (6) month monitoring period specified in section 37(d)(1) of this rule. All small and medium size systems shall measure the applicable water quality parameters at the locations specified in subdivision (1) during each six (6) month monitoring period specified in section 37(d)(1) of this rule during which the system exceeds the lead or copper action level. ~~The following are~~ **Monitoring requirements for** water quality parameters **at taps are as follows:**

(1) ~~Monitoring requirements for~~ **The following are** water quality parameters: ~~at taps are as follows:~~

(A) pH.
(B) Alkalinity.
(C) Orthophosphate, when an inhibitor containing a phosphate compound is used.
(D) Silica, when an inhibitor containing a silica compound is used.
(E) Calcium.
(F) Conductivity.
(G) Water temperature.

(2) At each entry point to the distribution system, all of the applicable parameters listed in subdivision (1).

(d) This subsection governs monitoring after installation of corrosion control. Any large system ~~which~~ **that** installs corrosion control treatment under section 40(d)(4) of this rule shall measure the water quality parameters at the locations and frequencies specified in this subsection during each six (6) month monitoring period specified in section 37(d)(2)(A) of this rule. Any small or medium size system ~~which~~ **that** installs corrosion control treatment shall conduct monitoring during each six (6) month monitoring period specified in section 37(d)(2)(B) of this rule in which the system exceeds the lead or copper action level. ~~The following are~~ **Monitoring requirements for** water quality parameters **at taps are as follows:**

(1) ~~Monitoring requirements for~~ **The** water quality parameters at taps ~~are~~ **require** two (2) samples for **the following:**

(A) pH.
(B) Alkalinity.
(C) Orthophosphate, when an inhibitor containing a phosphate compound is used.
(D) Silica, when an inhibitor containing a silicate compound is used. ~~and~~
(E) Calcium, when calcium carbonate stabilization is used as part of corrosion control.

(2) Except as provided in subdivision (3), at each entry point to the distribution system are one (1) sample ~~no~~ **not** less frequently than every two (2) weeks (biweekly) for **the following:**

(A) pH.

(B) When alkalinity is adjusted as part of optimal corrosion control, a reading of the dosage rate of the chemical used to adjust alkalinity and the alkalinity concentration. ~~and~~

(C) When a corrosion inhibitor is used as part of optimal corrosion control, a reading of the dosage rate of the inhibitor used and the concentration of the orthophosphate or silica, whichever is applicable.

(3) A ground water system ~~can~~ **may** limit entry point sampling described in subdivision (2) to those entry points that are representative of water quality and treatment conditions throughout the system. If water from untreated ground water sources mixes with water from treated ground water sources, the system must monitor for water quality parameters both at representative entry points receiving treatment and representative entry points receiving no treatment. Prior to the start of any monitoring under this subdivision, the system shall provide to the commissioner written information identifying the selected entry points and documentation, including information on seasonal variability, sufficient to demonstrate that the sites are representative of water quality and treatment conditions throughout the system.

(e) This subsection governs monitoring after water quality parameter values for optimal corrosion control are specified. After the commissioner specifies the values for applicable water quality control parameters reflecting optimal corrosion control treatment under section 41(f) of this rule, ~~all~~ **the following systems shall comply as follows:**

(1) Large water systems shall:

(A) measure the applicable water quality parameters in accordance with subsection (d); and

(B) determine compliance with the requirements of section 42(g) of this rule every six (6) months with the first six (6) month period to begin on ~~the date~~ **either January 1 or July 1, whichever comes first after** the commissioner specifies the optimal values under section 41(f) of this rule.

(2) Any small or medium size system:

(A) shall conduct ~~such~~ monitoring **for the applicable water quality parameters** during each six (6) month period in which the system exceeds the lead or copper action level; ~~For any such small~~ and ~~medium size water system~~

(B) that is subject to a reduced monitoring frequency ~~pursuant to~~ **under** section 37(d)(4) of this rule at the time of the action level exceedance, ~~the end of~~ **shall start** the applicable six (6) month **monitoring** period ~~shall~~ **to** coincide with the ~~end~~ **start** of the applicable monitoring period under section 37(d)(4) of this rule.

Compliance with commissioner-designated optimal water quality parameter values shall be determined as specified under section 41(g) of this rule.

(f) The following are requirements for reduced monitoring:

(1) Any water system that maintains the range of values for the water quality parameters reflecting optimal corrosion control treatment during each of two (2) consecutive six (6) month monitoring periods under subsection (e) shall continue monitoring at the entry point to the distribution system as specified in subsection (d)(2). ~~Such~~ **The** system may collect two (2) tap samples for applicable water quality parameters from the reduced number of sites shown in the following table during each six (6) month monitoring period:

System Size (Number of People Served)	Reduced Number of Sites of Water Quality Parameters
> 100,000	10
10,001 to 100,000	7
3,301 to 10,000	3
501 to 3,300	2
101 to 500	1
< 101	1

(2) This ~~section~~ **subdivision** designates reduced monitoring requirements for water quality parameters as follows:

(A) Any water system that maintains the range of values for water quality parameters reflecting optimal corrosion control treatment specified by the commissioner under section 41(f) of this rule during three (3) consecutive years of monitoring may reduce the frequency with which it collects the number of tap samples **specified in subdivision (1)** for applicable water quality parameters ~~specified in subdivision (1)~~ from once every six (6) months to annually. **This sampling begins during the calendar year immediately following the end of the monitoring period in which the third consecutive year of six (6) month monitoring occurs.** Any water system that maintains the range of water quality parameters reflecting optimal corrosion control treatment specified by the commissioner under section 41(f) of this rule during three (3) consecutive years of annual monitoring under this subdivision may reduce the frequency with which it collects the

number of tap samples for applicable water quality parameters specified in subdivision (1) from annually to once every three (3) years. **This sampling begins not later than the third calendar year following the end of the monitoring period in which the third consecutive year of monitoring occurs.**

(B) A water system may reduce the frequency of collecting tap samples to every three (3) years for applicable water quality parameters specified in ~~subdivision (1)~~ **subsection (d)(1)** if the system demonstrates the following during two (2) consecutive monitoring periods:

(i) The system's tap water lead level at the ninetieth percentile is less than or equal to the PQL for lead as specified in section 45(b)(2) of this rule.

(ii) The system's tap water copper level at the ninetieth percentile is less than or equal to sixty-five hundredths (0.65) milligram per liter (mg/L) for copper as specified in section 36(c)(2) of this rule.

(iii) The system has maintained the range of values for the water quality parameters reflecting optimal corrosion control treatment specified by the commissioner under section 41(f) of this rule.

Monitoring done every three (3) years must be done not later than every third calendar year.

(3) A water system that conducts sampling annually shall collect these samples evenly throughout the year so as to reflect seasonal variability.

(4) Any water system subject to the reduced monitoring frequency that fails to operate at or above the minimum value or within the range of values for the water quality parameters specified by the commissioner under section 41(f) of this rule for more than nine (9) days in any six (6) month monitoring period shall resume distribution tap water sampling in accordance with the number and frequency requirements in subsection (e). ~~Such a~~ **The** system may resume:

(A) annual monitoring for water quality parameters number of sites specified in subdivision (2) after it has completed two (2) subsequent consecutive six (6) month rounds of monitoring that meet the criteria of that subsection; or ~~may resume~~

(B) triennial monitoring for water quality parameters at the tap at the reduced number of sites after it demonstrates that it meets the criteria of either subdivision (2)(A) or (2)(B).

(g) The results of any monitoring conducted in addition to the minimum requirements of this section shall be considered by the system and the commissioner in making any determinations, ~~that is,~~ **for example,** determining concentrations of water quality parameters under this section or section 41 of this rule.

(Water Pollution Control Board; 327 IAC 8-2-38; filed Aug 24, 1994, 8:15 a.m.: 18 IR 71; errata filed Oct 11, 1994, 2:45 p.m.: 18 IR 532; filed Oct 24, 1997, 4:30 p.m.: 21 IR 940; filed Oct 26, 2001, 4:55 p.m.: 25 IR 770; errata filed Oct 30, 2001, 10:50 a.m.: 25 IR 813; errata filed Feb 22, 2002, 1:59 p.m.: 25 IR 2254)

SECTION 11. 327 IAC 8-2-39 IS AMENDED TO READ AS FOLLOWS:

327 IAC 8-2-39 Monitoring requirements for lead and copper in source water

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3; IC 13-18-16
Affected: IC 13-18

Sec. 39. (a) Requirements for sample location, collection methods, and number of samples shall be as follows:

(1) A water system that fails to meet the lead or copper action level on the basis of tap samples collected in accordance with section 37 of this rule shall collect lead and copper source water samples in accordance with the following requirements regarding sample location, number of samples, and collection methods:

(A) Ground water systems shall take a minimum of one (1) sample at every entry point to the distribution system ~~which~~ **that** is representative of each well after treatment. ~~hereafter~~ **This is** called a sampling point. The system shall take one (1) sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

(B) Surface water systems, or systems with a combination of ground and surface water sources, shall take a minimum of one (1) sample:

(i) at every entry point to the distribution system after any application of treatment; or

(ii) in the distribution system at a point ~~which~~ **that** is representative of each source after treatment. ~~hereafter~~ **This is** called a sampling point.

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.

(C) If:

(i) a system draws water from more than one (1) source; and

(ii) the sources are combined before distribution;

the system must sample at an entry point to the distribution system during periods of normal operating conditions when water representative of all sources is being used.

(D) The commissioner may reduce the total number of samples that must be analyzed by allowing the use of compositing **according to the following:**

(i) Compositing of samples must be done by certified laboratory personnel.

(ii) Composite samples from a maximum of five (5) samples are allowed, provided that if the lead concentration in the composite sample is greater than one-thousandth (0.001) milligram/liter (mg/L) or the copper concentration is greater than one hundred sixty-thousandths (0.160) mg/L, then either of the following shall be done:

~~(i)~~ **(AA)** A follow-up sample shall be taken and analyzed within fourteen (14) days at each sampling point used in the composite.

~~(ii)~~ **(BB)** If duplicates of or sufficient quantities from the original samples from each sampling point used in the composite are available, the system may use these instead of resampling.

(2) Where the results of sampling indicate the maximum permissible source water levels established under section 42(b)(4) of this rule have been exceeded, the commissioner may require that one (1) additional sample be collected as soon as possible after the initial sample was taken (but not to exceed two (2) weeks) at the same sampling point. **The additional sample shall meet the following:**

(A) If a confirmation sample required by the commissioner is taken for lead or copper, then the results of the initial and confirmation sample shall be averaged in determining compliance with the maximum permissible levels specified by the commissioner.

(B) Any sample value below the detection limit shall be considered to be zero (0).

(C) Any value above the detection limit but below the practical quantitation level shall either be considered as:

(i) the measured value; or ~~be considered~~

(ii) one-half (1/2) the practical quantitation level.

(b) Any system that exceeds the lead or copper action level at the tap shall collect one (1) source water sample from each entry point to the distribution system ~~within~~ **not later than** six (6) months after the **end of the monitoring period during which the lead or copper** action level ~~has been~~ **was** exceeded. **For monitoring periods that are annual or less frequent, the end of the monitoring period is:**

(1) September 30 of the calendar year in which the sampling occurs; or

(2) the last day of an alternate monitoring period, if one is specified by the commissioner.

(c) Any system ~~which~~ **that** installs source water treatment under STEP THREE of section 42(a) of this rule shall collect an additional source water sample from each entry point to the distribution system during two (2) consecutive six (6) month monitoring periods by the deadline specified in STEP FOUR of section 42(a) of this rule.

(d) Requirements for monitoring frequency after the commissioner specifies maximum permissible source water levels or determines that source water treatment is not needed shall be as follows:

(1) A system shall monitor at the frequency specified as follows in cases where the commissioner specifies maximum permissible source water levels under STEP FOUR of section ~~42(b)~~ **42(a)** of this rule or determines that the system is not required to install source water treatment under STEP TWO of section ~~42(b)~~ **42(a)** of this rule:

(A) A water system using only ground water shall collect samples once during the three (3) year compliance period (as that term is defined in section ~~1(10)~~ **1(14)** of this rule) in effect when the applicable determination under this subdivision **and section 42 of this rule** is made by the commissioner. ~~Such systems~~ **The system** shall collect samples once during each subsequent compliance period. **Triennial samples must be collected every third calendar year.**

(B) A water system using surface water (or a combination of surface and ground water) shall collect samples once during each year, the first annual monitoring period to begin ~~on~~ **during** the ~~date on~~ **year in** which the applicable determination is made under this subdivision **and section 42 of this rule.**

(2) A system is not required to conduct source water sampling for lead or copper, or both, if the system meets the action level for the specific contaminant in tap water samples during the entire source water sampling period applicable to the system under subdivision (1).

(e) Requirements for reduced monitoring frequency shall be as follows:

(1) A water system using only ground water may reduce the monitoring frequency for lead and copper to once during each nine (9) year compliance cycle (as that term is defined in section ~~1(9)~~ **1(13)** of this rule) **provided**

the samples are collected not later than every ninth calendar year if the system meets one (1) of the following criteria:

(A) The system demonstrates that the finished drinking water entering the distribution system has been maintained below the maximum permissible lead and copper concentrations specified by the commissioner in section 42(b)(4) of this rule during at least three (3) consecutive compliance periods under subsection (d)(1).

(B) The commissioner has determined **under section 42(b)(2) of this rule** that source water treatment is not needed and the system demonstrates that, during at least three (3) consecutive compliance periods in which sampling was conducted under subsection (d)(1), the concentration of:

(i) lead in source water was less than or equal to five-thousandths (0.005) mg/L; and ~~the concentration of~~

(ii) copper in source water was less than or equal to sixty-five hundredths (0.65) mg/L.

(2) A water system using surface water (or a combination of surface water and ground water) may reduce the monitoring frequency in subsection (d)(1) to once during each nine (9) year compliance cycle (as that term is defined in section ~~1(9)~~ **1(13)** of this rule) if the system meets one (1) of the following criteria:

(A) The system demonstrates that the finished drinking water entering the distribution system has been maintained below the maximum permissible lead and copper concentrations specified by the commissioner in section 42(b)(4) of this rule for at least three (3) consecutive years.

(B) The commissioner has determined **under section 42(b)(2) of this rule** that source water treatment is not needed and the system demonstrates that, during at least three (3) consecutive years, the concentration of:

(i) lead in source water was less than or equal to five-thousandths (0.005) mg/L; and ~~the concentration of~~

(ii) copper in source water was less than or equal to sixty-five hundredths (0.65) mg/L.

(3) A water system that uses a new source of water is not eligible for reduced monitoring for:

(A) lead; ~~or~~

(B) copper; or

(C) both **lead and copper;**

until concentrations in samples collected from the new source during three (3) consecutive monitoring periods are below the maximum permissible lead and copper concentrations specified by the commissioner in STEP FIVE of section 42(a) of this rule.

(Water Pollution Control Board; 327 IAC 8-2-39; filed Aug 24, 1994, 8:15 a.m.: 18 IR 73; errata filed Oct 11, 1994, 2:45 p.m.: 18 IR 532; filed Oct 26, 2001, 4:55 p.m.: 25 IR 772)

SECTION 12. 327 IAC 8-2-40 IS AMENDED TO READ AS FOLLOWS:

327 IAC 8-2-40 Applicability of corrosion control treatment steps to small, medium size, and large water systems

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3; IC 13-18-16
Affected: IC 13-18

Sec. 40. (a) Systems shall complete the applicable corrosion control treatment requirements described in section 41 of this rule by the deadlines established as follows:

(1) A large system (serving more than fifty thousand (50,000) persons) shall complete the corrosion control treatment steps specified in subsection (d) unless it is deemed to have optimized corrosion control under subsection (b)(2) or (b)(3).

(2) A:

(A) small system (serving less than or equal to three thousand three hundred (3,300) persons); and

(B) a medium size system (serving more than three thousand three hundred (3,300) and less than or equal to fifty thousand (50,000) persons);

shall complete the corrosion control treatment steps specified in subsection (e), unless it is deemed to have optimized corrosion control under subsection (b)(1), (b)(2), or (b)(3).

(b) A system is deemed to have optimized corrosion control and is not required to complete the applicable corrosion control treatment steps identified in this section if the system satisfies one (1) of the criteria in this subsection. ~~Any such~~ **A** system deemed to have optimized corrosion control and having treatment in place shall continue to operate and maintain optimal corrosion control treatment and meet any requirements that the commissioner determines appropriate to ensure optimal corrosion control treatment is maintained as follows:

(1) A small or medium size water system is deemed to have optimized corrosion control if the system meets

the lead and copper action levels during each of two (2) consecutive six (6) month monitoring periods conducted in accordance with section 37 of this rule.

(2) Any water system may be deemed by the commissioner to have optimized corrosion control treatment if the system demonstrates to the satisfaction of the commissioner that it has conducted activities equivalent to the corrosion control steps applicable to ~~such~~ **the** system under this section. If the commissioner makes this determination, the commissioner shall provide the system with a written notice explaining the basis for the decision and shall specify water quality control parameters representing optimal corrosion control in accordance with section 41(f) of this rule. A water system deemed to have optimized corrosion control shall operate in compliance with commissioner-designated water quality control parameters in accordance with section 41(g) of this rule and continue to conduct lead and copper tap and water quality parameter sampling in accordance with section 37 of this rule. A system shall provide the following information to the commissioner in order to support a determination under this subsection:

(A) The results of all test samples collected for each of the water quality parameters in section 41(c)(3) of this rule.

(B) A report explaining the test methods used by the water system to evaluate the corrosion control treatments listed in section ~~42(c)(1)~~ **41(c)(1)** of this rule, the results of all tests conducted, and the basis for the system's selection of optimal corrosion control treatment.

(C) A report explaining how corrosion control has been installed and how it is being maintained to ensure minimal lead and copper concentrations at consumers' taps.

(D) The results of tap water samples collected in accordance with section 37 of this rule at least once every six (6) months for one (1) year after corrosion control has been installed.

(3) Any water system is deemed to have optimized corrosion control if it submits results of tap water monitoring in accordance with section 37 of this rule and source water monitoring conducted in accordance with section 39 of this rule that demonstrates for two (2) consecutive six (6) month periods that the difference between the ninetieth percentile tap water lead level computed under section 36(c)(3) of this rule and the highest source water lead concentration is less than the practical quantitation level for lead specified in section ~~45(a)(1)(B)~~ **45(d)** of this rule. Criteria for optimal corrosion control are as follows:

(A) A water system whose highest source water lead level is below the method detection limit may also be deemed to have optimized corrosion control if the ninetieth percentile tap water lead level is less than or equal to the practical quantitation level for lead for two (2) consecutive six (6) month monitoring periods.

(B) A water system deemed to have optimized corrosion control shall continue monitoring for lead and copper at the tap ~~no~~ **not** less frequently than once every three (3) calendar years using the reduced number of sites specified in section 37(c) of this rule and collecting the samples at times and locations specified in section 37(d)(4)(D) of this rule.

(C) A water system deemed to have optimized corrosion control shall notify the commissioner in writing ~~pursuant to~~ **under** section 46(c) of this rule of any **upcoming long-term** change in treatment or ~~the~~ addition of a new source **as described in that section.** The commissioner:

(i) shall review and approve the addition of a:

(AA) new source; or

(BB) long-term change in water treatment;

before it is implemented by the water system; and

(ii) may require ~~any such~~ **the** system to:

(AA) conduct additional monitoring; or ~~to~~

(BB) take other action the commissioner deems appropriate to ensure that ~~such~~ **the** systems maintain minimal levels of corrosion in the distribution system.

(D) On or after July 12, 2001, a system that is deemed not to have optimized corrosion control shall implement corrosion control treatment ~~pursuant to~~ **under** this section unless it meets the copper action level.

(E) Any system triggered into corrosion control because it is no longer deemed to have optimized corrosion control shall implement corrosion control treatment in accordance with the deadlines in subsection (e). ~~Any such~~ **A** large system shall adhere to the schedule specified for medium size systems with the time periods for completing each step being triggered by the date the system is no longer deemed to have optimized corrosion control.

(c) Any small or medium size system that is required to complete the corrosion control steps due to its exceeding the lead or copper action level may cease completing the treatment steps whenever the system meets both action levels during each of two (2) consecutive monitoring periods conducted under section 37 of this rule and submits the results to the commissioner. ~~If any such water system~~ Thereafter, **if a small or medium size system** exceeds the lead or copper action level during any monitoring period, the system (or the commissioner, as the case may be) shall recommence completion of the applicable treatment steps, beginning with the first

treatment step ~~which~~ **that** was not previously completed in its entirety. **In addition,** the commissioner:

(1) may require a system to repeat treatment steps previously completed by the system where it has been determined by the commissioner that this is necessary to implement properly the treatment requirements of this section; ~~The commissioner~~ **and**

(2) shall notify the system in writing of ~~such a~~ **the** determination and explain the basis for the decision.

The requirement for any small or medium size water system to implement corrosion control treatment steps in accordance with subsection (e) (including systems deemed to have optimized corrosion control under subsection (b)(1)) is triggered whenever any small or medium size water system exceeds the lead or copper action level.

(d) Except as provided in subsection (b)(2) and (b)(3), large systems shall complete the following corrosion control treatment steps (described in the referenced portions of sections 37, 38, and 41 of this rule) by the indicated dates:

STEP ONE: The system shall conduct initial monitoring (as required by sections 37(d)(1) and 38(c) of this rule) during two (2) consecutive six (6) month monitoring periods by January 1, 1993.

STEP TWO: The system shall complete corrosion control studies (as required by section 41(c) of this rule) by July 1, 1994.

STEP THREE: The commissioner shall designate optimal corrosion control treatment (as required by section 41(d) of this rule) by January 1, 1995.

STEP FOUR: The system shall install optimal corrosion control treatment (as required by section 41(e) of this rule) by January 1, 1997.

STEP FIVE: The system shall complete follow-up sampling (as required by sections 37(e) and 38(d) of this rule) by January 1, 1998.

STEP SIX: The commissioner shall review installation of treatment and designate optimal water quality control parameters (as required by section 41(f) of this rule) by July 1, 1998.

STEP SEVEN: The system shall operate in compliance with the optimal water quality control parameters specified by the commissioner (as required by section 41(g) of this rule) and continue to conduct tap sampling (as required by sections 37(d)(3) and 38(e) of this rule).

(e) Except as provided in subsection (b), small and medium size systems shall complete the following corrosion control treatment steps by the indicated time periods:

STEP ONE: The system shall conduct initial tap sampling until the system either exceeds the lead and copper action level or becomes eligible for reduced monitoring under section 37(d)(4) of this rule. A system exceeding the lead or copper action level shall recommend optimal corrosion control treatment within six (6) months after **the end of the monitoring period during which** it exceeds one (1) of the action levels.

STEP TWO: Within twelve (12) months after **the end of the monitoring period during which** a system exceeds the lead or copper action level, the commissioner may require the system to perform corrosion control studies. If the commissioner does not require the system to perform ~~such~~ **the** studies, optimal corrosion control treatment shall be specified by the commissioner within the following time frames:

(A) For medium size systems, within eighteen (18) months after ~~such~~ **the end of the monitoring period during which the** system exceeds the lead or copper action level.

(B) For small systems, within twenty-four (24) months after ~~such~~ **the end of the monitoring period during which the** system exceeds the lead or copper action level.

STEP THREE: If the commissioner requires a system to perform corrosion control studies under STEP TWO, the system shall complete the studies within eighteen (18) months after the commissioner requires that ~~such~~ **the** studies be conducted.

STEP FOUR: If the system has performed corrosion control studies under STEP TWO, the commissioner shall designate optimal corrosion control treatment within six (6) months after completion of STEP THREE.

STEP FIVE: The system shall install optimal corrosion control treatment within twenty-four (24) months after the commissioner designates optimal corrosion control treatment.

STEP SIX: The system shall complete follow-up sampling within thirty-six (36) months after the commissioner designates optimal corrosion control treatment.

STEP SEVEN: The commissioner shall review the system's installation of treatment and designate optimal water quality control parameters within six (6) months after completion of STEP SIX.

STEP EIGHT: The system shall operate in compliance with the optimal water quality control parameters designated by the commissioner and continue to conduct tap sampling.

(Water Pollution Control Board; 327 IAC 8-2-40; filed Aug 24, 1994, 8:15 a.m.: 18 IR 74; filed Oct 24, 1997, 4:30 p.m.: 21 IR 942; filed Oct 26, 2001, 4:55 p.m.: 25 IR 774; errata filed Feb 22, 2002, 1:59 p.m.: 25 IR 2254)

SECTION 13. 327 IAC 8-2-42 IS AMENDED TO READ AS FOLLOWS:

327 IAC 8-2-42 Source water treatment requirements

Authority: IC 13-13-5-1; IC 13-14-8-7; IC 13-18-3; IC 13-18-16
Affected: IC 13-18

Sec. 42. (a) Systems shall complete the applicable source water monitoring and treatment requirements (described in the referenced portions of subsection (b) and in sections 37 and 39 of this rule) by the following deadlines:

STEP ONE: A system exceeding the lead or copper action level shall:

(A) complete lead and copper source water monitoring (as required by section 39(b) of this rule); and

(B) make a treatment recommendation to the commissioner (as required by subsection (b)(1)); ~~within six (6) months;~~

not later than one hundred eighty (180) days after ~~exceeding~~ **the end of the monitoring period during which** the lead or copper action level **was exceeded.**

STEP TWO: The commissioner shall make a determination regarding source water treatment (as required by subsection (b)(2)) within six (6) months after submission of monitoring results under STEP ONE.

STEP THREE: If the commissioner requires installation of source water treatment, the system shall install the treatment (as required by subsection (b)(3)) within twenty-four (24) months after completion of STEP TWO.

STEP FOUR: The system shall complete follow-up:

(A) tap water monitoring (as required by section 37(d)(2) of this rule); and

(B) source water monitoring (as required by section 39(c) of this rule);

within thirty-six (36) months after completion of STEP TWO.

STEP FIVE: The commissioner shall:

(A) review the system's installation and operation of source water treatment; and

(B) specify maximum permissible source water levels (as required by subsection (b)(4));

within six (6) months after completion of STEP FOUR.

STEP SIX: The system shall:

(A) operate in compliance with the maximum permissible lead and copper source water levels (as required by subsection (b)(4)) specified by the commissioner; and

(B) continue source water monitoring (as required by section 39(d) of this rule).

(b) Description of source water treatment requirements shall be as follows:

(1) Any system ~~which~~ **that** exceeds the lead or copper action level:

(A) shall recommend in writing to the commissioner the installation and operation of one (1) of the source water treatments listed in subdivision (2); ~~A system~~ **or**

(B) may recommend that no treatment be installed based upon a demonstration that source water treatment is not necessary to minimize lead and copper levels at users' taps.

(2) The commissioner shall **do the following:**

(A) Complete an evaluation of the results of all source water samples submitted by the water system to determine whether source water treatment is necessary to minimize lead or copper levels in water delivered to users' taps. ~~If the commissioner determines~~

(B) Determine based on information submitted under clause (A) that treatment is needed, **in which case,** the commissioner shall ~~either~~ require **the** installation and operation of **either of the following:**

(i) The source water treatment recommended by the system (if any). ~~or require the installation and operation of~~

(ii) Another source water treatment from among the following:

~~(A)~~ **(AA)** Ion exchange.

~~(B)~~ **(BB)** Reverse osmosis.

~~(C)~~ **(CC)** Lime softening.

~~(D)~~ **(DD)** Coagulation/filtration. ~~If the commissioner requests~~

(C) Request additional information to aid in the review **of:**

(i) information submitted under clause (A); or

(ii) the treatment recommended by the commissioner under clause (B);

in which case, the water system shall provide the information by the date specified by the commissioner in the request. ~~The commissioner shall~~

(D) Notify the system in writing of the **commissioner's** determination **on the designated source water treatment** and set forth the basis for the decision.

(3) Each system shall properly install and operate the source water treatment designated by the commissioner under subdivision (2).

(4) The commissioner shall:
(A) review the source water samples taken by the water system both before and after the system installs source water treatment; ~~and~~
(B) determine whether the system has properly installed and operated the source water treatment designated by the commissioner; ~~Based upon the review, the commissioner shall~~
(C) designate, **based on the review under clause (A),** the maximum permissible lead and copper concentrations for finished water entering the distribution system. ~~Such levels~~ **The concentrations** shall reflect the contaminant removal capability of the treatment properly operated and maintained; ~~The commissioner shall~~ **and**
(D) notify the system in writing and explain the basis for the **commissioner's** decision **under this subdivision.**

(5) ~~Each~~ **A** water system:
(A) shall maintain lead and copper levels below the maximum permissible concentrations designated by the commissioner at each sampling point monitored in accordance with section 39 of this rule; ~~The system~~ **and**
(B) is out of compliance with this subdivision if the level of lead or copper at any sampling point is greater than the maximum permissible concentration designated by the commissioner.

(6) ~~Upon its own initiative or in response to a request by a water system or other interested party,~~
Modification of source water treatment may occur as follows:
(A) The commissioner may modify the determination of the source water treatment under subdivision (2) or maximum permissible lead and copper concentrations for finished water entering the distribution system under subdivision (4) **in response to the following:**
(i) The commissioner's own initiative.
(ii) A request by a water system.
(iii) A request from an interested person.
(B) A request for modification by a system or other interested party shall:
(i) be in writing;
(ii) explain why the modification is appropriate; and
(iii) provide supporting documentation.
(C) The commissioner may modify the determination **of source water treatment** where the commissioner:
(i) concludes that ~~such~~ **the** change is necessary to ensure that the system continues to minimize lead and copper concentrations in source water; **and**
(ii) issues a revised determination **that** shall:
(AA) be made in writing; ~~setting~~
(BB) set forth the new treatment requirements; ~~explaining~~
(CC) explain the basis for the decision; and ~~providing~~
(DD) provide an implementation schedule for completing the treatment modifications.

(Water Pollution Control Board; 327 IAC 8-2-42; filed Aug 24, 1994, 8:15 a.m.: 18 IR 77)

SECTION 14. 327 IAC 8-2-43 IS AMENDED TO READ AS FOLLOWS:

327 IAC 8-2-43 Lead service line replacement

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3; IC 13-18-16
Affected: IC 13-18

Sec. 43. (a) Systems that fail to meet the:
(1) lead action level in tap samples taken under section 37(d)(2) of this rule, after installing:
(A) corrosion control treatment; ~~or~~
(B) source water treatment; or
(C) both **clauses (A) and (B)** (whichever sampling occurs later);
shall replace lead service lines in accordance with the requirements of this section; ~~If a system is in violation~~ **and**
(2) requirements of section 40 or 42 of this rule for failure to install source water or corrosion control treatment ~~the commissioner~~ may ~~require the system~~ **be required** to commence lead service line replacement under this section after the date ~~by which~~ **has passed when** the system was required to conduct monitoring under section 37(d)(2) of this rule. ~~has passed.~~

(b) **The following requirements pertain to lead service line replacement:**

(1) A system shall replace **lead service lines according to the following:**

(A) Annually, at least seven percent (7%) of the initial number of lead service lines in its distribution system **shall be replaced, where** the initial number of lead service lines is the number of lead service lines in place at the time the replacement program begins.

(B) The system shall identify the initial number of lead service lines in its distribution system, including an identification of the portion or portions owned by the system; based upon:

(i) a materials evaluation, including the evaluation required under section 37(a) of this rule; and

(ii) relevant legal authorities, for example, to contracts and local ordinances, regarding the portion owned by the system.

(C) The first year of lead service line replacement shall begin on the ~~date~~ **first day following the end of the monitoring period in which** the action level was exceeded ~~in tap sampling referenced in~~ **under** subsection (a). **For monitoring periods that are annual or less frequent, the end of the monitoring period is:**

(i) September 30 of the calendar year in which the sampling occurs; or

(ii) the last day of an alternate monitoring period, if one is specified by the commissioner.

(2) A water system resuming a lead service line replacement program after the cessation of its lead service line replacement program as allowed by subsection (f) shall meet the following:

(A) The system shall update its inventory of lead service lines to include those sites that were previously determined not to require replacement through the sampling provision under subsection (c).

(B) After the update to its inventory under clause (A), the system will divide the updated number of remaining lead service lines by the number of remaining years in the program to determine the number of lines that must be replaced per year. Seven percent (7%) lead service line replacement is based on a fifteen (15) year replacement program, for example, systems resuming lead service line replacement after previously conducting two (2) years of replacement would divide the updated inventory by thirteen (13).

(C) For systems that have completed a fifteen (15) year replacement program, the commissioner will determine, at the time the system reexceeds the lead action level, a schedule for replacing or retesting lead lines that previously tested so as not to require replacement.

(c) A system is not required to replace an individual lead service line if the lead concentration in all service line samples from that line, taken under section 37(b)(3) of this rule, is less than or equal to fifteen-thousandths (0.015) milligram per liter.

(d) A water system shall replace that portion of the lead service line that it owns. In cases where the system does not own the entire lead service line, the system shall notify the owner of the line, or the owner's authorized agent, that the system will replace the portion of the service line that it owns and shall offer to replace the owner's portion of the line. A system is not required to bear the cost of replacing the privately-owned portion of the line, nor is it required to replace the privately-owned portion of the line where the owner chooses not to pay the cost of replacing the privately-owned portion of the line, or where replacing the privately-owned portion of the line would be precluded by state, local, or common law. A water system that does not replace the entire length of the service line also shall complete the following:

(1) **Notice to water users served by the partially replaced lead service line shall meet the following:**

(A) At least forty-five (45) days prior to commencing with the partial replacement of a lead service line, the water system shall provide notice to the resident or residents of all buildings served by the line:

(i) explaining that ~~they~~ **water users** may experience a temporary increase of lead levels in their drinking water; ~~along with~~ **and**

(ii) including guidance on measures consumers can take to minimize their exposure to lead.

(B) If the partial replacement of a lead service line is an emergency repair, the commissioner may allow the water system to provide notice less than forty-five (45) days prior to commencing **the** partial **replacement of the** lead service line. ~~replacement where such replacement is in conduction with emergency repairs. In addition,~~

(C) The water system shall:

(i) inform the resident or residents served by the line that the system will, at the system's expense, collect a sample from each partially-replaced lead service line that is representative of the water in the service line for analysis of lead content, as prescribed under section 37(b)(3) of this rule, within seventy-two (72) hours after the completion of the partial replacement of the service line; ~~The system shall collect the sample~~ and

(ii) report the results of the analysis to the owner and the resident or residents served by the line within three (3) business days of receiving the results. Mailed notices postmarked within three (3) business days of receiving the result shall be considered on time.

(2) The water system shall provide the information required by this subsection to the residents of individual

dwellings by mail or other methods approved by the commissioner. In instances where multifamily dwellings are served by the line, the water system shall have the option to post the information at a conspicuous location.

(e) The commissioner may require a system to replace lead service lines on a shorter schedule than that required by this section, taking into account:

(1) the number of lead service lines in the system; ~~where~~ **and**

(2) whether a shorter replacement schedule is feasible.

The commissioner shall make this determination in writing and notify the system of the determination within six (6) months after the system is triggered into lead service line replacement based on monitoring referenced in subsection (a).

(f) ~~Any~~ **A** system may cease replacing lead service lines whenever:

(1) first draw samples collected under section 37(d)(3) of this rule meet the lead action level during each of two (2) consecutive monitoring periods; and

(2) the system submits the results **required under subdivision (1)** to the commissioner.

If the lead tap samples in ~~any such~~ **a** water system **that has ceased replacing lead service lines** thereafter exceeds the lead action level, the system shall recommence replacing lead service lines under subsection (b).

(g) To demonstrate compliance with subsections (a) through (d), a system shall report to the commissioner the information specified in section 46(e) of this rule.

(Water Pollution Control Board; 327 IAC 8-2-43; filed Aug 24, 1994, 8:15 a.m.: 18 IR 78; filed Oct 24, 1997, 4:30 p.m.: 21 IR 944; filed Oct 26, 2001, 4:55 p.m.: 25 IR 778)

SECTION 15. 327 IAC 8-2-44 IS AMENDED TO READ AS FOLLOWS:

327 IAC 8-2-44 Public education and supplemental monitoring; lead and copper

Authority: IC 13-13-5-1; IC 13-14-8-7; IC 13-18-3; IC 13-18-16
Affected: IC 13-18

Sec. 44. (a) **A water system shall deliver a consumer notice of lead tap water monitoring results to persons served by the water system at sites that are tested, as specified in subsection (d).** A water system that exceeds the lead action level based on tap water samples collected in accordance with section 37 of this rule shall **sample, in accordance with subsection (c), the tap water of any customer who requests sampling and** deliver **to all bill paying customers** the public education materials contained in the following requirements ~~and subsection (b)~~ in accordance with the requirements in subsection ~~(c):~~ **(b):**

(1) A ~~community water system~~ **CWS or an NTNCWS** shall include the ~~text~~ **informational elements contained in this subdivision and in the same order** as established in this subdivision in all the printed materials it distributes through its lead public education program. ~~A system may delete information pertaining to lead service lines, upon approval of the commissioner, if no lead service lines exist anywhere in the water system service area. Public education language at clause (D)(ii)(EE) and (D)(iv)(BB) may be modified regarding building permit record availability and consumer access to these records, if approved by the commissioner. A system may also continue to use preprinted public education materials that meet previous versions of this rule.~~ **Language in clauses (A) through (F) must be included in the materials exactly as written except for the text in parentheses where the water system shall insert system-specific information.** Any additional information presented by a **water** system shall be consistent with the ~~following~~ information **contained under clauses (A) through (F)** and be in plain ~~English~~ **language** that can be understood by ~~lay persons~~ **the general public. A water system shall submit all written public education materials to the commissioner prior to delivery to its customers, and the commissioner may require the system to obtain approval of the content of written public materials prior to delivery. The informational elements and their order that must be contained in public education materials distributed by a CWS or an NTNCWS are as follows:**

~~(A) The Indiana department of environmental management (IDEM) and (insert name of water supplier) are concerned about lead in your drinking water. Although most homes have very low levels of lead in their drinking water, some homes in the community have lead levels above the action level of fifteen (15) parts per billion or fifteen thousandths (0.015) milligram of lead per liter of water. Under state law, we are required~~

~~to have a program in place to minimize lead in your drinking water by (insert date when corrosion control will be completed for your system). This program includes corrosion control treatment, source water treatment, and public education. We are also required to replace each lead service line that we control if the line contributes lead concentrations of more than fifteen (15) parts per billion after we have completed the comprehensive treatment program. If you have any questions about how we are carrying out the requirements of the lead regulation, please give us a call at (insert water systems phone number). This brochure explains the simple steps you can take to protect you and your family by reducing your exposure to lead in drinking water.~~

(A) "IMPORTANT INFORMATION ABOUT LEAD IN YOUR DRINKING WATER. (INSERT NAME OF WATER SYSTEM) found elevated levels of lead in drinking water in some homes or buildings. Lead can cause serious health problems, especially for pregnant women and young children. Please read this information closely to see what you can do to reduce lead in your drinking water.".

(B) **"Health effects of** lead. ~~is a common metal found throughout the environment in lead-based paint, air, soil, household dust, food, certain types of pottery, porcelain, and pewter, and water.~~ Lead can ~~pose a significant risk to your~~ **cause serious** health **problems** if too much ~~of it~~ enters your body ~~Lead builds up in the body over many years and~~ **from drinking water or other sources. It** can cause damage to the brain ~~red blood cells,~~ and kidneys **and can interfere with the production of red blood cells that carry oxygen to all parts of your body.** The greatest risk **of lead exposure** is to **infants,** young children, and pregnant women. ~~Amounts~~ **Scientists have linked the effects** of lead ~~that won't hurt~~ **on the brain with a lowered IQ in children.** Adults ~~can slow down normal mental~~ **with kidney problems** and ~~physical development in growing bodies. In addition, a child at play often comes in contact with sources~~ **high blood pressure can be affected by low levels** of lead ~~contamination, like dirt and dust, that rarely affect an adult. It is important to wash children's hands and toys often, and try to make sure they only put food in their mouths.~~ **more than healthy adults. Lead is stored in the bones, and it can be released later in life. During pregnancy, the child receives lead from the mother's bones, which may affect the child's brain development.".**

(C) ~~The following information is known about~~ **Sources of** lead ~~in drinking~~ **shall be described in the** water **system's public education materials as follows:**

(i) **The public education materials must explain what** lead ~~in drinking water, although rarely the sole cause of lead poisoning, can significantly increase a person's total lead exposure, particularly the exposure of infants who drink baby formulas and concentrated juices that are mixed with water. The EPA estimates that drinking water can make up twenty percent (20%) or more of a person's total exposure to lead.~~ **is.**

(ii) **Possible sources of** lead ~~is unusual among drinking water contaminants~~ in ~~that it seldom occurs naturally in water supplies like rivers and lakes. Lead enters~~ drinking water ~~primarily as a result of the corrosion, or wearing away, of materials containing~~ **and how** lead ~~in the~~ **enters drinking** water ~~distribution system and household plumbing. These materials include lead-based solder used to join copper pipe, brass and chrome-plated brass faucets, and in some cases, pipes made of lead that connect your house to the water main (service lines). In 1986, Congress banned the use of lead solder containing greater than two-tenths percent (0.2%) lead and restricted the lead content of faucets, pipes, and other plumbing material to eight percent (8%).~~ **must be explained, including information on:**

(AA) home and building plumbing materials; and

(BB) service lines;

that can contain lead.

(iii) ~~When water stands in~~ **Other important sources of** lead ~~pipes or plumbing systems containing lead for several hours or more, the lead may dissolve into your drinking water. This means the first water drawn from the tap~~ **exposure** in ~~the morning, or later in the afternoon after returning from work or school, can contain fairly high levels of lead.~~ **addition to drinking water, for example, paint, must be discussed.**

(D) **Discussion of** the ~~following are~~ steps ~~you~~ **the consumer** can take ~~in the home~~ to reduce **his or her** exposure to lead in drinking water, **including the following suggestions:**

(i) ~~Despite our best efforts mentioned earlier to control~~ **Encourage running the** water ~~corrosivity and remove~~ **to flush out the** lead. ~~from the water supply, lead levels in some homes or buildings can be high. To find out whether you need to take action in your own home, have your drinking water tested to determine if it contains high concentrations of lead. Testing the water is essential because you cannot see, taste, or smell lead in drinking water. Some local laboratories that can provide this service are listed at the end of this booklet. For more information on having your water tested, please call (insert phone number of water system).~~

(ii) ~~If a~~ **Explain concerns with using hot** water ~~test indicates that the drinking water drawn~~ from ~~a~~ **the** tap ~~in your home contains lead above fifteen (15) parts per billion, then you should take~~ **and specifically caution against** the ~~following precautions:~~ **use of hot water for preparing baby formula.**

~~(AA) Let the water run from the tap before using it for drinking or cooking any time the water in a faucet has gone unused for more than six (6) hours. The longer the water resides in your home's plumbing, the more lead it may contain. Flushing the tap means running the cold water faucet until the water gets~~

~~noticeably colder, usually about fifteen (15) to thirty (30) seconds. If your house has a lead service line to the water main, you may have to flush the water for a longer time, perhaps one (1) minute, before drinking. Although toilet flushing or showering flushes water through a portion of your home's plumbing system, you still need to flush the water in each faucet before using it for drinking or cooking. Flushing tap water is a simple and inexpensive measure you can take to protect your family's health. It usually uses less than one (1) or two (2) gallons of water and costs less than (insert a cost estimate based on two (2) times a day for thirty (30) days) per month. To conserve water, fill a couple of bottles for drinking water after flushing the tap, and whenever possible use the first flush water to wash the dishes or water the plants. If you live in a high rise building, letting the water flow before using it may not work to lessen your risk from lead. The plumbing systems have more and sometimes longer pipes than in smaller buildings. Ask your landlord for help in finding the source of lead and for advice on reducing the lead level.~~

~~(BB) Try not to cook with or drink water from the hot water tap. Hot water can dissolve more lead more quickly than cold water. If you need hot water, draw it from the cold tap and heat it on the stove.~~

~~(CC) Remove loose lead solder and debris from the plumbing materials in newly constructed homes, or homes where the plumbing has been recently replaced, by removing the faucet strainers from all taps and running the water for three (3) to five (5) minutes. Thereafter, periodically remove the strainers and flush out any debris that has accumulated over time.~~

~~(DD) If your copper pipes are joined with lead solder that has been installed illegally since it was banned in 1986, contact the plumber who did the work and request that he or she replace the solder with lead-free solder. Lead solder looks dull gray, and when scratched with a key looks shiny. In addition, notify the Indiana department of environmental management about the violation.~~

~~(EE) Determine whether the service line that connects your home or apartment to the water main is made of lead. The best way to determine if your service line is made of lead is by either hiring a licensed plumber to inspect the line or by contacting the plumbing contractor who installed the line. You can identify the plumbing contractor by checking the city's record of building permits which should be kept in the files of (insert the department that handles building permits). A licensed plumber can, at the same time, check to see if your home's plumbing contains lead solder, lead pipes, or pipe fittings that contain lead. The public water system that delivers the water to your home should also maintain records of the materials located in the distribution system. If the service line that connects your dwelling to the water main contributes more than fifteen (15) parts per billion to drinking water, after our comprehensive treatment program is in place, we are required to replace the line. If the line is only partially owned by the (insert name of the water system that owns the line), we are required to provide the owner of the privately-owned portion of the line with information on how to replace the privately-owned portion of the service line, and offer to replace that portion of the line at the owner's expense. If we replace only the portion of the line that we own, we are also required to notify you in advance and provide you with information on the steps you can take to minimize exposure to any temporary increase in lead levels that may result from the partial replacement, to take a follow-up sample within seventy-two (72) hours of the partial replacement, and to mail or otherwise provide you with the results of that sample within three (3) business days of receiving the results. Acceptable replacement alternatives include copper, steel, iron, and plastic pipes.~~

~~(FF) Have an electrician check your wiring. If grounding wires from the electrical system are attached to your pipes, corrosion may be greater. Check with a licensed electrician or your local electrical code to determine whether your wiring can be grounded elsewhere. DO NOT attempt to change the wiring yourself, because improper wiring can cause electrical shock and fire hazards.~~

(iii) ~~The steps described above will reduce the lead concentrations in your drinking~~ **Explain that boiling** water ~~However, if a water test indicates that the drinking water coming from your tap contains~~ **does not reduce** lead ~~in excess of fifteen (15) parts per billion after flushing, or after we have completed our actions to minimize lead~~ levels. ~~then you may want to take the following additional measures:~~

~~(AA) Purchase or lease a home treatment device. Home treatment devices are limited in that each unit treats only the water that flows from the faucet to which it is connected, and all the devices require periodic maintenance and replacement. Devices such as reverse osmosis systems or distillers can effectively remove lead from your drinking water. Some activated carbon filters may reduce lead levels at the tap, however, all lead reduction claims should be investigated. Be sure to check the actual performance of a specific home treatment device before and after installing the unit.~~

~~(BB) Purchase bottled water for drinking and cooking.~~

(iv) ~~You can consult a variety of sources for additional information. Your family doctor or pediatrician can perform a blood test for~~ **Discuss other options consumers may take to reduce exposure to** lead ~~and provide you with information about the health effects~~ **in drinking water, such as alternative sources or treatment** of ~~lead. State and local government agencies that can be contacted include:~~ **water.**

~~(AA) (insert the name of city or county department of public utilities) at (insert phone number) can provide you with information about your community's water supply and a list of local laboratories that have been~~

~~certified by the state for testing water quality;~~

~~(BB) (insert the name of city or county department that issues building permits) at (insert phone number) can provide you with information about building permit records that should contain the names of plumbing contractors that plumbed your home; and~~

~~(CC) (insert name of the state department of public health) at (insert phone number) or the (insert the name of the city or county health department) at (insert phone number) can provide you with information about the health effects of lead and how you can have your child's blood tested.~~

(v) ~~The following is~~ **Suggest that parents have their child's blood tested for lead and include** a list of some state approved laboratories in your area that you can call to have your water tested for lead. (Insert names and addresses of at least two (2) laboratories.)

(E) Explain:

(i) why there are elevated levels of lead in the system's drinking water (if known); and

(ii) what the water system is doing to reduce the lead levels in homes and buildings in this area.

(F) "For more information, call us at (INSERT YOUR TELEPHONE NUMBER) (IF APPLICABLE), or visit our website at (INSERT YOUR WEBSITE HERE). For more information on reducing lead exposure around your home or building and the health effects of lead, visit EPA's website at http://www.epa.gov/lead or contact your health care provider.".

(2) ~~A nontransient noncommunity water system shall either include the text~~ **In addition to including the informational elements** specified in subdivision (1) ~~or shall include the following text~~ in ~~all of the printed materials it distributes through its~~ public education ~~program. Water systems may delete information pertaining to lead service lines upon approval of the commissioner if no lead service lines exist anywhere in the water system service area. Any additional information presented by a system shall be in plain English that can be easily understood and is consistent with the following information:~~ **materials, CWSs shall tell consumers how to get their water tested.**

~~(A) The Indiana department of environmental management (IDEM) and (insert name of water supplier) are concerned about lead in your drinking water. Some drinking water samples taken from this facility have lead levels above the action level of fifteen (15) parts per billion (ppb), or fifteen thousandths (0.015) milligram per liter (mg/l). Under state law, we are required to have a program in place to minimize lead in your drinking water by (insert date when corrosion control will be completed for your system). This program includes corrosion control treatment, source water treatment, and public education. We are also required to replace the portion of each lead service line that we own if the line contributes more than fifteen (15) ppb after we have completed the comprehensive treatment program. If you have any questions about how we are carrying out the requirements of the lead regulation, please give us a call at (insert water system's phone number). This brochure explains the simple steps you can take to protect yourself by reducing your exposure to lead in drinking water.~~

~~(B) Lead is found throughout the environment in lead-based paint, air, soil, household dust, food, certain types of pottery, porcelain, and pewter, and water. Lead can pose a significant risk to your health if too much of it enters your body. Lead builds up in the body over many years and can cause damage to the brain, red blood cells, and kidneys. The greatest risk is to young children and pregnant women. Amounts of lead that would not hurt adults can slow down normal mental and physical development of growing bodies. In addition, a child at play often comes into contact with sources of lead contamination, like dirt and dust, that rarely affect an adult. It is important to wash children's hands and toys often, and to try to make sure they only put food in their mouths.~~

~~(C) The following explains lead contamination in drinking water:~~

~~(i) Lead in drinking water, although rarely the sole cause of lead poisoning, can significantly increase a person's total lead exposure, particularly the exposure of infants who drink baby formulas and concentrated juices that are mixed with water. The EPA estimates that drinking water can make up twenty percent (20%) or more of a person's total exposure to lead.~~

~~(ii) Lead is unusual among drinking water contaminants in that it seldom occurs naturally in water supplies like rivers and lakes. Lead enters drinking water primarily as a result of the corrosion, or wearing away, of materials containing lead in the water distribution system and household plumbing. These materials include lead-based solder used to join copper pipe, brass and chrome-plated brass faucets, and in some cases, pipes made of lead that connect houses and buildings to water mains (service lines). In 1986, Congress banned the use of lead solder containing greater than two-tenths percent (0.2%) lead, and restricted the lead content of faucets, pipes, and other plumbing materials to eight and zero-tenths percent (8.0%).~~

~~(iii) When water stands in lead pipes or plumbing systems containing lead for several hours or more, the lead may dissolve into your drinking water. This means the first draw water drawn from the tap in the morning, or later in the afternoon if the water has not been used all day, can contain fairly high levels of lead.~~

~~(D) The following are steps you can take to reduce exposure to lead in drinking water:~~

~~(i) Let the water run from the tap before using it for drinking or cooking any time the water in a faucet has~~

~~gone unused for more than six (6) hours. The longer water resides in plumbing the more lead it may contain. Flushing the tap means running the cold water faucet for about fifteen (15) to thirty (30) seconds. Although toilet flushing or showering flushes water through a portion of the plumbing system, you still need to flush the water in each faucet before using it for drinking or cooking. Flushing tap water is a simple and inexpensive measure you can take to protect your health. It usually uses less than one (1) gallon of water.~~
~~(ii) Do not cook with or drink water from the hot water tap. Hot water can dissolve lead more quickly than cold water. If you need hot water, draw water from the cold water tap and then heat it.~~
~~(iii) The steps described in items (i) and (ii) will reduce the lead concentrations in your drinking water. However, if you are still concerned, you may wish to use bottled water for drinking and cooking.~~
~~(iv) You can consult a variety of sources for additional information. Your family doctor or pediatrician can perform a blood test for lead and provide you with information about the health effects of lead. State and local government agencies that can be contacted include:~~
~~(AA) (insert name or title of facility official if appropriate) at (insert phone number) can provide you with information about your facility's water supply; and~~
~~(BB) (insert name or the Indiana state department of health) at (insert phone number) or (insert the name of the city or county health department) at (insert phone number) can provide you with information about the health effects of lead.~~

~~(b) A water system shall include the following information in all public service announcements submitted under its lead public education program to television and radio stations for broadcasting:~~
~~(1) Why should everyone want to know the facts about lead and drinking water? Because unhealthy amounts of lead can enter drinking water through the plumbing in your home. That's why I urge you to do what I did. I had my water tested for (insert free or cost in dollars per sample). You can contact the (insert the name of the city or water system) for information on testing and on simple ways to reduce your exposure to lead in drinking water.~~
~~(2) To have your water tested for lead or to get more information about this public health concern, please call (insert the phone number of the city or water system).~~

~~(c)~~ **(b)** Requirements for delivery of ~~a~~ public education ~~program~~ **materials** shall be as follows:
(1) ~~In communities where a significant portion~~ **For PWSs serving a large proportion** of ~~the population speaks a~~ **non-English speaking customers, in which twenty percent (20%) or more of the customers speak the same** language other than English, **the** public education materials ~~shall be communicated~~ **must contain information** in the appropriate **languages regarding the importance of the notice or contain a telephone number or address where persons served may contact the water system to obtain a translated copy of the public education materials or to request assistance in the appropriate** language.
(2) A ~~community water system~~ **CWS** that exceeds the lead action level on the basis of tap water samples collected in accordance with section 37 of this rule and that is not already ~~repeating~~ **conducting** public education ~~pursuant to subdivision (3), (7), or (8),~~ **under this section** shall **meet the following,** within sixty (60) days ~~do the following:~~ **after the end of the monitoring period in which the exceedance occurred:**
(A) ~~Insert notices in each customer's water utility bill containing~~ **Deliver printed materials meeting** the ~~information in subsection (a)(1), along with the following alert on the water bill itself in large print: "SOME HOMES IN THIS COMMUNITY HAVE ELEVATED LEAD LEVELS IN THEIR DRINKING WATER. LEAD CAN POSE A SIGNIFICANT RISK TO YOUR HEALTH. PLEASE READ THE ENCLOSED NOTICE FOR FURTHER INFORMATION.". A community water system that has a billing cycle that does not include a billing within sixty (60) days~~ **content requirements** of ~~exceeding the action level, or that cannot insert information in the water utility bill without making major changes~~ **subsection (a)** to ~~its billing system, may use a separate mailing to deliver the information in subsection (a)(1) as long as the information is delivered to each customer within sixty (60) days of exceeding the action level. Such water systems shall also include the alert language specified in this clause.~~ **all bill paying customers.**
~~(B) Submit the information in subsection (a)(1) to the editorial department or departments of the major daily and weekly newspapers circulated throughout the community.~~
(B) Contact customers who are most at risk by delivering public education materials that meet the content requirements of subsection (a) according to the following:
(i) The public education materials shall be:
(AA) delivered to local public health agencies even if the agencies are not located within the water system's service area;
(BB) accompanied by an informational notice that encourages distribution to all of the agencies' potentially affected customers or CWS's users; and
(CC) provided by the water system directly to the local public health agencies through phone contact or in person.

If a local public health agency provides the water system a specific list of additional community-based organizations serving target populations, including organizations outside the service area of the water system, then the water system shall deliver public education materials that meet the content requirements of subsection (a) to all organizations on the provided list.

~~(C)~~ **(ii)** Deliver ~~pamphlets or brochures, or both, that contain~~ the public education materials ~~in subsection (a)(1)(B) and (a)(1)(D)~~ to ~~facilities and organizations, including~~ the following **organizations that are located within the water system's service area, along with an informational notice that encourages distribution to all the organization's potentially affected customers or CWS's users:**

~~(i)~~ **(AA)** Public **and private** schools ~~and local~~ **or** school boards.

~~(ii) City or county health department.~~

~~(iii)~~ **(BB)** Women, infants, and children **(WIC)** and head start programs, whenever available.

~~(iv)~~ **(CC)** Public ~~or~~ **and** private hospitals and **medical** clinics.

~~(v)~~ **(DD)** Pediatricians.

~~(vi)~~ **(EE)** Family planning clinics.

~~(vii)~~ **(FF)** Local welfare agencies.

(iii) Make a good faith effort to locate the following organizations within the water system's service area, including requesting a specific contact list of these organizations from the local public health agencies, even if the agencies are not located within the water system's service area and deliver materials according to item (i):

(AA) Licensed childcare centers.

(BB) Public and private preschools.

(CC) Obstetricians-gynecologists and midwives.

(C) Not less than quarterly, the water system shall provide information on or with each water bill as long as the system exceeds the action level for lead. The message on or with the water bill shall meet the following:

(i) The statement written exactly as follows except for the text in parentheses, for which the water system must include system-specific information, must be included: "(INSERT NAME OF WATER SYSTEM) found high levels of lead in drinking water in some homes. Lead can cause serious health problems. For more information, please call (INSERT NAME OF WATER SYSTEM) (IF APPLICABLE) or visit (INSERT YOUR WEBSITE HERE).".

(ii) The delivery mechanism of the message may be modified after consultation with the commissioner. Specifically, the commissioner may allow a separate mailing of public education materials to customers if the water system cannot place the information on water bills.

(D) ~~Submit~~ **For systems serving a population greater than one hundred thousand (100,000), post** the public ~~service announcement in subsection (b) to at least five (5) of~~ **education material meeting** the ~~radio and television stations with the largest audiences that broadcast to the community served by~~ **content requirements of subsection (a) on** the water ~~system.~~ **system's website.**

(E) Submit a press release to newspapers and television and radio stations.

(F) In addition to clauses (A) through (E), systems shall implement activities that have educational content and are selected in consultation with the commissioner. A system shall implement at least three (3) activities from one (1) or more of the following categories:

(i) Public service announcements.

(ii) Paid advertisements.

(iii) Public area informational displays.

(iv) E-mails to customers.

(v) Public meetings.

(vi) Household deliveries.

(vii) Targeted individual customer contact.

(viii) Direct material distribution to all multifamily homes and institutions.

(ix) Other methods approved by the commissioner.

(G) For monitoring periods that are annual or less frequent, the end of the monitoring period is:

(i) September 30 of the calendar year in which the sampling occurs; or

(ii) the last day of an alternate monitoring period, if one is specified by the commissioner.

(3) **As long as** a ~~community water supply system shall repeat the tasks contained in subdivision (2)(A) through (2)(C) every twelve (12) months, and the tasks contained in subdivision (2)(D) every six (6) months for as long as the system~~ **CWS** exceeds the ~~lead~~ action level, **the frequency of conducting activities according to subdivision (2) shall be as follows:**

(A) A CWS shall repeat the tasks in:

(i) subdivision (2)(A), (2)(B), and (2)(D) every twelve (12) months; and

(ii) subdivision (2)(C) with each billing cycle.

(B) A CWS serving a population greater than one hundred thousand (100,000) shall post and retain

material on a publicly accessible website according to subdivision (2)(D).

(C) The CWS shall repeat the task in subdivision (2)(E) twice every twelve (12) months on a schedule agreed upon with the commissioner under the following conditions:

(i) The commissioner may allow activities in subdivision (2) to extend beyond the sixty (60) day requirement if needed for implementation purposes on a case-by-case basis.

(ii) The extension allowed under item (i) must be approved in writing by the commissioner in advance of the sixty (60) day deadline.

(4) Within sixty (60) days after ~~it exceeds~~ the ~~lead action level,~~ **end of the monitoring period in which the exceedance occurred,** unless it is already repeating public education tasks ~~pursuant~~ **according** to subdivision (5), ~~a nontransient noncommunity water system~~ **an NTNCWS** shall deliver the public education materials contained in subsection ~~(a)(1) or (a)(2)~~ **(a)** as follows:

(A) Post informational posters on lead in drinking water in a public place or common area in each of the buildings served by the system.

(B) Distribute:

(i) informational pamphlets; ~~or~~

(ii) brochures; or

(iii) both **informational pamphlets and brochures;**

on lead in drinking water to each person served by the ~~nontransient noncommunity water system.~~ **NTNCWS.**

(C) For systems that are required to conduct monitoring annually or less frequently, the end of the monitoring period is:

(i) September 30 of the calendar year in which the sampling occurs; or

(ii) the last day of an alternate monitoring period, if one is specified by the commissioner.

The commissioner may allow the system to utilize electronic transmission in lieu of or combined with printed materials as long as it achieves at least the same coverage.

(5) ~~A nontransient noncommunity water system~~ **An NTNCWS** shall repeat the tasks contained in subdivision (4) at least once during each calendar year in which the system exceeds the lead action level **on a schedule agreed upon with the commissioner under the following conditions:**

(A) The commissioner may allow activities in subdivision (4) to extend beyond the sixty (60) day requirement if needed for implementation purposes on a case-by-case basis.

(B) The extension allowed under clause (A) must be approved in writing by the commissioner in advance of the sixty (60) day deadline.

(6) A ~~water system~~ **CWS and an NTNCWS** may discontinue delivery of public education materials if the **following conditions are met:**

(A) The system has met the lead action level during the most recent six (6) month monitoring period conducted under section 37 of this rule. ~~Such a~~

(B) The system shall recommence public education in accordance with this section if it subsequently exceeds the lead action level during any monitoring period.

(7) A ~~community water system~~ **CWS** may apply to the commissioner, in writing, to use **only** the text specified in subsection ~~(a)(2)~~ **(a)(1)** in lieu of the text in subsection (a)(1) **and (a)(2)** and to perform the tasks listed in subdivisions (4) and (5) in lieu of the tasks in subdivisions (2) and (3) if the following conditions are met:

(A) **The system is a facility, such as a prison or hospital, where the population served is not capable of or is prevented from making improvements to plumbing or installing POUs.**

(B) The system:

(i) provides water as part of the costs of services provided; and

(ii) does not separately charge for water consumption.

~~(B)~~ **(8)** A ~~community water system~~ **CWS** serving three thousand three hundred (3,300) or fewer people may ~~omit the task contained in subdivision (2)(D). As long as the information contained in subsection (a)(1) to every household served by the system, such systems may further~~ limit ~~their~~ **certain aspects of its** public education program ~~as follows:~~ **if the following conditions are met:**

~~(i) Systems serving five hundred (500) or fewer people may omit the requirement~~

(A) At least one (1) of the activities listed in subdivision ~~(2)(B). Such a system may limit~~ **(2)(F) is implemented.**

(B) The distribution of the public education materials required under subdivision ~~(2)(C)~~ **(2)(B) may be limited** to facilities and organizations served by the system that are most likely to be visited regularly by pregnant women and children. ~~unless it is notified by the commissioner in writing that it must make a broader distribution. (ii) If approved by~~

(C) The commissioner ~~in writing, a system serving five hundred one (501) to three thousand three hundred (3,300) people~~ may ~~omit~~ **waive** the ~~requirement of~~ **requirements under** subdivision ~~(2)(B) or may limit~~ **(2)(E) as long as** the ~~distribution of the public education materials required under subdivision (2)(C), or both, to facilities and organizations served by the~~ system ~~that are most likely to be visited regularly by~~

~~pregnant women and children.~~ **distributes notices to every household served by the system.**
~~(C) A community water system serving three thousand three hundred (3,300) or fewer people that delivers public education in accordance with clause (A) shall repeat the required public education tasks at least once during each calendar year in which the system exceeds the lead action level.~~

~~(d)~~ **(c)** A water system that fails to meet the lead action level on the basis of tap samples collected in accordance with section 37 of this rule:
(1) shall offer to sample the tap water of any customer who requests it; ~~The system~~
(2) is not required to pay for collecting or analyzing the sample; and ~~the system~~
(3) is not required to collect and analyze the sample itself.

(d) A water system shall meet the following notification requirements regarding the results of lead and copper tap sampling:
(1) A water system shall provide a notice of the individual tap results from lead tap water monitoring carried out under the requirements of section 37 of this rule to the persons served by the water system at the specific sampling site from which the sample was taken, for example, the occupants of the residence where the tap was tested.
(2) A water system shall provide the consumer notification as soon as practical, but not later than thirty (30) days after the system learns of the tap monitoring results.
(3) The consumer notice must include the following:
(A) The results of lead tap water monitoring for the tap that was tested.
(B) An explanation of the health effects of lead.
(C) A list of the steps consumers can take to reduce exposure to lead in drinking water.
(D) The MCLG and the action level for lead and the definitions for these two (2) terms from 327 IAC 8-2.1-3.
(E) Information for contacting the water utility.
(4) The consumer notification must be provided to persons served at the tap that was tested, either by:
(A) mail; or
(B) another method approved by the commissioner. For example, upon approval by the commissioner, an NTNCWS could provide the results on a bulletin board in the facility to allow users to review the information.
The system shall provide the notice to customers at sample taps tested, including customers who do not receive water bills.

(Water Pollution Control Board; 327 IAC 8-2-44; filed Aug 24, 1994, 8:15 a.m.: 18 IR 79; errata filed Oct 11, 1994, 2:45 p.m.: 18 IR 532; filed Oct 26, 2001, 4:55 p.m.: 25 IR 779; errata filed Oct 30, 2001, 10:50 a.m.: 25 IR 813; errata filed Feb 22, 2002, 1:59 p.m.: 25 IR 2254)

SECTION 16. 327 IAC 8-2-45 IS AMENDED TO READ AS FOLLOWS:

327 IAC 8-2-45 Analytical methods; lead and copper

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3; IC 13-18-16
Affected: IC 13-11-2; IC 13-14-8; IC 13-18-1; IC 13-18-2

Sec. 45. (a) Analysis for lead, copper, pH, conductivity, calcium, alkalinity, orthophosphate, silica, and temperature shall be conducted using the following methods:
(1) Lead as follows:
(A) Atomic absorption; furnace technique, Method D 3559-90D[1]*, Method D 3559-96*, or Method 3113B[1]*.
(B) Inductively-coupled plasma; mass spectrometry, Method 200.8*.
(C) Atomic absorption; platform furnace technique, Method 200.9[1]*.
(D) Differential pulse anodic stripping voltammetry, Method 1001*.
(2) Copper as follows:
(A) Atomic absorption; furnace technique, Method D 1688-90C*, Method D 1688-95C*, or Method 3113B*.
(B) Atomic absorption; direct aspiration, Method D 1688-90A*, Method D 1688-95A*, or Method 3111B*.
(C) Inductively-coupled plasma; Method 200.7* or Method 3120B*.
(D) Inductively-coupled plasma; mass spectrometry, Method 200.8*.
(E) Atomic absorption; platform furnace, Method 200.9*.
(3) pH, electrometric, Method 150.1*, Method 150.2*, Method D 1293-84*, Method D 1293-95*, or Method

4500-H^+-B*.

(4) Conductivity, conductance, Method D 1125-91A*, Method D 1125-95A*, or Method 2510B*.

(5) Calcium as follows:

(A) EDTA titrimetric, Method D 511-93A* or Method 3500-Ca-D*.

(B) Atomic absorption; direct aspiration, Method D 511-93B* or Method 3111-B*.

(C) Inductively-coupled plasma, Method 200.7 or Method 3120B*.

(6) Alkalinity as follows:

(A) Titrimetric, Method D 1067-92B* or Method 2320B.

(B) Electrometric titration, Method I-1030-85*.

(7) Orthophosphate, unfiltered, no digestion or hydrolysis as follows:

(A) Colorimetric, automated, ascorbic acid, Method 365.1* or Method 4500-P-F*.

(B) Colorimetric, ascorbic acid, single reagent, Method D 515-88A* or Method 4500-P-E*.

(C) Colorimetric, phosphomolybdate, Method I-1601-85* or automated-segmented flow, Method I-2601-90*, or automated discrete, Method I-2598-85*.

(D) Ion chromatography, Method 300.0*, Method D 4327-97*, or Method 4110B*.

(8) Silica as follows:

(A) Colorimetric, molybdate blue, Method I-1700-85 or automated-segmented flow, Method I-2700-85*.

(B) Colorimetric, Method D 859-88* or Method D 859-95*.

(C) Molybdosilicate, Method 4500-Si-D* or Method 4500-SiO_2 C*.

(D) Heteropoly blue, Method 4500-Si-E* or Method 4500-SiO_2 D*.

(E) Automated method for molybdate-reactive silica, Method 4500-Si-F* or Method 4500-SiO_2 E*.

(F) Inductively-coupled plasma, Method 200.7* or Method 3120B*.

(9) Temperature, thermometric, Method 2550*.

[1]Because MDLs reported in EPA Methods 200.7 and 200.9 were determined using a 2× preconcentration step during sample digestion, MDLs determined when samples are analyzed by direct analysis, that is, no sample digestion, will be higher. Preconcentration may be required to direct analysis of lead by Method 200.9, Method 3113 B, and Method D 3559-90D unless multiple in-furnace depositions are made.

(b) Analyses for alkalinity, calcium, conductivity, orthophosphate, pH, silica, and temperature may be performed by any person acceptable to the commissioner. Analyses under this section for lead and copper shall only be conducted by laboratories that have been certified by the EPA or the commissioner. To obtain certification to conduct analysis for lead and copper, laboratories must do the following:

(1) Successfully analyze (PE) samples that include lead and copper provided by or acceptable to EPA or the commissioner at least once each year by each method for which the laboratory desires certification.

(2) Achieve quantitative acceptance limits as follows:

(A) For lead, plus or minus thirty percent (30%) of the actual amount in the PE sample when the actual amount is greater than or equal to five-hundredths (0.05) milligram per liter.

(B) For copper, plus or minus ten percent (10%) of the actual amount in the PE sample when the actual amount is greater than or equal to five-thousandths (0.005) milligram per liter.

(3) Achieve the method detection limit for lead of one-thousandth (0.001) milligram per liter according to the procedures in Appendix B of 40 CFR 136 (July 1, 1991). This need only be done if the laboratory will be processing source water composite samples under section 39 of this rule.

(4) Be currently certified by EPA or the state to perform analyses to the specifications described in **this** subsection. ~~(a)(2).~~

(c) The commissioner has the authority to allow the use of previously collected monitoring data for purposes of monitoring if the data were collected and analyzed in accordance with sections 36 through 44 of this rule, this section, and sections 46 and 47 of this rule.

(d) All lead levels measured between the practical quantitation level and the method detection limit must be either reported as measured or they can be reported as one-half (1/2) the practical quantitation level (twenty-five ten-thousandths (0.0025) milligram per liter). All levels below the lead method detection level must be reported as zero (0).

(e) All copper levels measured between the practical quantitation level and the method detection limit must be either reported as measured or they can be reported as one-half (½) the practical quantitation level (twenty-five thousandths (0.025) milligram per liter). All levels below the copper method detection limit must be reported as zero (0).

[1]For analyzing lead and copper, the technique applicable to total metals must be used and samples cannot be filtered.

*Methods referenced in this section may be obtained as follows:
(1) Methods 150.1 and 150.2, may be found in "Methods for Chemical Analysis of Water and Wastes", EPA/600/4-79/020, March 1983, available from NTIS, PB84-128677, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161.
(2) Methods 200.7, 200.8, and 200.9 may be found in "Methods for the Determination of Metals in Environmental Samples-Supplement 1", EPA-600/R-94-111, May 1994, available from NTIS, PB95-125472, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161.
(3) Methods D3559-90D, D1688-90C, D1688-90A, D1293-84, D1125-91A, and D859-88 may be found in "Annual Book of ASTM Standards", Vols. 11.01, 1994, American Society for Testing and Materials, available from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428. Any year containing the cited version of the method may be used.
(4) Methods D1067-92B, D511-93A, D511-93B, D1688-95C, D1688-95A, D1125-95A, D3559-96, D515-88A, D4327-91, D1293-95, and D859-95 may be found in "Annual Book of ASTM Standards, Vols. 11.01 and 11.02, 1994 and 1996, available from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428. Any year containing the cited version of the method may be used.
(5) Methods 3113B, 4500-Si-D, 4500-Si-E, and 4500-Si-F may be found in "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, and "Standard Methods for the Examination of Water and Wastewater", 19th Edition, 1995, American Public Health Association, available from the American Public Health Association, 1015 Fifteenth Street NW, Washington, D.C. 20005. Either edition may be used.
(6) Methods 2320B, 3111B, 3120B, 4500-H^+-B, 2510B, 3500-Ca-D, 2320B, 4500-P-F, 4500-P-E, 4110B, and 2550 may be found in "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, and "Standard Methods for the Examination of Water and Wastewater", 19th Edition, 1995, and "Standard Methods for the Examination of Water and Wastewater", 20th Edition, 1998, American Public Health Association, available from the American Public Health Association, 1015 Fifteenth Street NW, Washington, D.C. 20005. The cited methods published in any of the three (3) editions may be used.
(7) Methods 4500-SiO_2 C, 4500-SiO_2 D, and 4500-SiO_2 E may be found in "Standard Methods for the Examination of Water and Wastewater", 20th Edition, 1998, American Public Health Association, 1015 Fifteenth Street NW, Washington, D.C. 20005.
(8) Methods I-1030-85, I-1601-85, I-2598-85, I-1700-85, and I-2700-85 may be found in "Techniques of Water Resources Investigation of the U.S. Geological Survey", Book 5, Chapter A-1, 3rd Edition, 1989, available from Information Services, U.S. Geological Survey, Federal Center, Box 25286, Denver, Colorado 80225-0425.
(9) Method I-2601-90 may be found in "Methods for Analysis by the U.S. Geological Survey National Water Quality Laboratory - Determination of Inorganic and Organic Constituents in Water and Fluvial Sediments", Open File Report 93-125, 1993, available from Information Services, U.S. Geological Survey, Federal Center, Box 25286, Denver, Colorado 80225-0425.
(10) Methods 365.1 and 300.0 may be found in "Methods for the Determination of Inorganic Substances in Environmental Samples", EPA-600/R-93-100, August 1993, available from NTIS, PB94-120821, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161.
(11) Method 1001 is available from Palintest, LTC, 21 Kenton Lands Road, P.O. Box 18395, Erlanger, Kentucky 41018 or from the Hach Company, P.O. Box 389, Loveland, Colorado 80539-0389.

These methods are also available for copying at the Indiana Department of Environmental Management, Office of Water Quality, 100 North Senate Avenue, Room N1255, Indianapolis, Indiana 46204.

(Water Pollution Control Board; 327 IAC 8-2-45; filed Aug 24, 1994, 8:15 a.m.: 18 IR 82; errata filed Oct 11, 1994, 2:45 p.m: 18 IR 532; filed Aug 25, 1997, 8:00 a.m.: 21 IR 72; errata filed Dec 10, 1997, 3:45 p.m.: 21 IR 1349; filed Jul 23, 2001, 1:02 p.m.: 24 IR 3978; errata filed Jul 25, 2001, 3:25 p.m.: 24 IR 3991; filed Jun 13, 2005, 2:30 p.m.: 28 IR 3218; errata filed Jul 6, 2005, 3:15 p.m.: 28 IR 3583)

SECTION 17. 327 IAC 8-2-46 IS AMENDED TO READ AS FOLLOWS:

327 IAC 8-2-46 Reporting requirements; lead and copper

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3; IC 13-18-16
Affected: IC 13-18

Sec. 46. (a) Reporting requirements for tap water monitoring for lead and copper and for water quality parameter monitoring shall be as follows:

(1) ~~Except as provided in clause (G),~~ A water system shall report the following information for all tap water samples within the first ten (10) days following the end of each applicable monitoring period specified in sections 37 and 38 of this rule, that is, every six (6) months, annually, every three (3) years, or every nine (9) years:

(A) The results of all tap samples for lead and copper, including:

(i) the location of each site; and

(ii) the criteria under:

(AA) section 37(a)(3) through 37(a)(7) of this rule; or ~~any under~~

(BB) which the site was selected for the system's sampling pool.

(B) Documentation for each tap water lead or copper sample for which the system requests an invalidation under section 37(f)(2) of this rule.

(C) The ninetieth percentile lead and copper concentrations:

(i) measured from among all lead and copper tap samples collected during each monitoring period; **and**

(ii) calculated in accordance with section 36(c)(3) of this rule unless the commissioner calculates the system's ninetieth percentile lead and copper levels under subsection (h).

(D) With the exception of initial tap sampling conducted under section 37(d)(1) of this rule, the system shall:

(i) designate any site that was not sampled during previous monitoring periods; and

(ii) include an explanation of why sampling sites have changed.

(E) The results of all tap samples for:

(i) pH; and

(ii) where applicable:

(AA) alkalinity;

(BB) calcium;

(CC) conductivity;

(DD) temperature; and

(EE) orthophosphate or silica;

collected under section 38(c) through 38(f) of this rule.

(F) The results of all samples collected at the entry point to the distribution system for applicable water quality parameters under section 38(c) through 38(f) of this rule.

~~(G)~~ A water system shall report the results of all water quality parameter samples collected under section 38(c) through 38(f) of this rule during each six (6) month monitoring period specified in section 38(d) of this rule within the first ten (10) days following the end of the monitoring period unless the commissioner has specified a more frequent reporting requirement. **For monitoring periods with a duration of less than six (6) months, the end of the monitoring period is the last date samples can be collected during that period as specified in sections 36 and 37 of this rule.**

(2) For an NTNCWS or a CWS meeting the criteria of section ~~44(c)(7)(A) and 44(c)(7)(B)~~ **44(b)(7)** of this rule that does not have enough taps that can provide first-draw samples, the system ~~must~~ **shall** do either of the following:

(A) Provide written documentation to the commissioner identifying standing times and locations for enough nonfirst-draw samples to make up its sampling pool under section 37(b)(5) of this rule by the start of the first applicable monitoring period under section 37(d) of this rule that commences after April 11, 2000, unless the commissioner has waived prior approval of nonfirst-draw sample sites selected by the system under section 37(b)(5) of this rule.

(B) If the commissioner has waived prior approval of nonfirst-draw sample sites selected by the system, **the system shall:**

(i) identify, in writing, each site that did not meet the six (6) hour minimum standing time and the length of the standing time for that particular substitute sample collected under section 37(b)(5) of this rule; and

(ii) include ~~this~~ **the** information **under item (i)** with the lead and copper tap sample results required to be submitted under subdivision (1)(A).

(3) ~~No later than sixty (60) days after~~ **At a time specified by the commissioner or, if no specific time is designated by the commissioner, as early as possible prior to** the addition of a new source or any **long-term** change in water treatment, ~~unless~~ the ~~commissioner requires earlier notification, a water system deemed to have optimized corrosion control under section 40(b)(3) of this rule, a water system subject to reduced monitoring under section 37(d)(4) of this rule, or a water system subject to a monitoring waiver under section 37(g) of this rule,~~ **following apply:**

(A) The following systems shall send written documentation to the commissioner describing the change ~~In those instances where prior approval by the commissioner of the treatment change or new source is not required, water systems are encouraged to provide the notification to the commissioner beforehand to~~

~~minimize the risk the treatment change or new source will adversely affect optimal corrosion control.~~ **or addition:**

(i) A water system deemed to have optimized corrosion control under section 40(b)(3) of this rule.

(ii) A water system subject to reduced monitoring under section 37(d)(4) of this rule.

(iii) A water system subject to a monitoring waiver under section 37(g) of this rule.

(B) The commissioner, before the implementation by the water system, shall review and approve the addition of the following:

(i) A new source.

(ii) Long-term change in treatment. Examples of long-term treatment changes include the following:

(AA) The addition of a new treatment process or modification of an existing treatment process.

(BB) Switching secondary disinfectants.

(CC) Switching coagulants, for example, alum to ferric chloride.

(DD) Switching corrosion inhibitor products, for example, orthophosphate to blended phosphate.

(EE) Dose changes to existing chemicals if the system is planning long-term changes to its finished water pH or residual inhibitor concentration.

Long-term treatment changes do not include chemical dose fluctuations associated with daily raw water quality changes.

(4) Any small system applying for a monitoring waiver under section 37(g) of this rule, or subject to a waiver granted under section 37(g)(3) of this rule, shall provide the following information to the commissioner in writing by the specified deadline:

(A) By the start of the first applicable monitoring period in section 37(d) of this rule, any small water system applying for a monitoring waiver shall provide the documentation required to demonstrate that it meets the waiver criteria of section 37(g)(1) and 37(g)(2) of this rule.

(B) ~~No~~ **Not** later than nine (9) years after the monitoring previously conducted under section 37(g)(2) or 37(g)(4)(A) of this rule, each small system desiring to maintain its monitoring waiver shall provide the information required by section 37(g)(4)(A) and 37(g)(4)(B) of this rule.

(C) ~~No~~ **Not** later than sixty (60) days after the ~~public water system~~ **PWS** becomes aware that it is no longer free of lead or copper containing materials, or both, each small system with a monitoring waiver shall provide written notification to the commissioner, setting forth the circumstances resulting in the lead or copper containing materials, or both, being introduced into the system and what corrective action, if any, the system plans to remove these materials.

(D) By October 10, 2000, any small system with a waiver granted prior to April 11, 2000, and that has not previously met the requirements of section ~~37(g)(2)~~ **37(g)(1)** of this rule shall provide the information required **by section 37(g)(1) of this rule.**

(5) Each ground water system that limits water quality parameter monitoring to a subset of entry points under section 38(d)(3) of this rule shall provide, by the commencement of such monitoring, **the following:**

(A) Written correspondence to the commissioner that identifies the selected entry points. ~~and includes~~

(B) Information sufficient to demonstrate that the sites are representative of water quality and treatment conditions throughout the system.

(b) Source water monitoring reporting requirements shall be as follows:

(1) A water system shall report the sampling results for all source water samples collected in accordance with section 39 of this rule within the first ten (10) days following the end of each source water monitoring period, that is, annually, per compliance period, per compliance cycle, specified in section 39 of this rule.

(2) With the exception of the first round of source water sampling conducted under section 39(b) of this rule, the system shall:

(A) specify any site that was not sampled during previous monitoring periods; and

(B) include an explanation of why the sampling point has changed.

(c) This subsection establishes requirements for corrosion control treatment reporting. By the applicable dates under section 40 of this rule, systems shall report the following information:

(1) For systems demonstrating that they already have optimized corrosion control, information required in section 40(b)(2) or 40(b)(3) of this rule.

(2) For systems required to optimize corrosion control, their recommendation regarding optimal corrosion control treatment under section 41(a) of this rule.

(3) For systems required to evaluate the effectiveness of corrosion control treatments under section 41(c) of this rule, the information required under that subsection.

(4) For systems required to install optimal corrosion control designated by the commissioner under section 41(d) of this rule, a letter certifying that the system has completed installing that treatment.

(d) This subsection establishes requirements for source water treatment reporting. By the applicable dates in section 42 of this rule, systems shall provide the following information to the commissioner:

(1) If required under section 42(b)(1) of this rule, their recommendation regarding source water treatment.

(2) For systems required to install source water treatment under section 42(b)(2) of this rule, a letter certifying that the system has completed installing the treatment designated by the commissioner within twenty-four (24) months after the commissioner designated the treatment.

(e) This subsection establishes requirements for lead service line replacement reporting. Systems shall report the following information to the commissioner to demonstrate compliance with section 43 of this rule:

(1) ~~Within~~ **Not later than** twelve (12) months after **the end of a monitoring period in which** a system exceeds the lead action level in sampling referred to in section 43(a) of this rule, the system shall: ~~demonstrate in writing~~

(A) submit written documentation to the commissioner ~~that it has conducted a~~ **of the** material evaluation ~~including the evaluation~~ **conducted as required** in section 37(a) of this rule; ~~to~~

(B) identify the initial number of lead service lines in its distribution system **at the time the system exceeds the lead action level;** and ~~shall~~

(C) provide ~~the commissioner with~~ the system's schedule for **annually** replacing ~~annually~~ at least seven percent (7%) of the initial number of lead service lines within its distribution system.

(2) ~~Within~~ **Not later than** twelve (12) months after **the end of a monitoring period in which** a system exceeds the lead action level in sampling referred to in section 43(a) of this rule, and every twelve (12) months thereafter, the system shall demonstrate to the commissioner in writing that the system has done either of the following:

(A) Replaced in the previous twelve (12) months:

(i) at least seven percent (7%) of the initial lead service lines; or

(ii) a greater number of lines specified by the commissioner under section 43(e) of this rule;

in its distribution system.

(B) Conducted sampling that demonstrates that the lead concentration in all service line samples from an individual line, taken under section 37(b)(3) of this rule, is less than or equal to fifteen-thousandths (0.015) milligram per liter. ~~In such cases,~~ **If this sample result is met,** the total number of lines replaced and that meet the criteria in section 43(b) of this rule shall equal at least:

(i) seven percent (7%) of the initial number of lead lines identified under ~~subsection (a)~~ **subdivision (1)(B);** or

(ii) the percentage specified by the commissioner under section 43(e) of this rule.

(3) The annual letter submitted to the commissioner under subdivision (2) shall contain the following information:

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

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

(C) If measured, the:

(i) water lead concentration and location of each service line sampled; ~~the~~

(ii) sampling method; and ~~the~~

(iii) date of sampling.

(4) Any system that collects lead service line samples following partial lead service line replacement required by section 43 of this rule shall report **the following:**

(A) The results to the commissioner:

(i) within the first ten (10) days of the month following the month when the system receives the laboratory results or as specified by the commissioner; ~~A system shall also report~~ **and**

(ii) in the time and manner prescribed by the commissioner to verify that all partial lead service line replacement activities have taken place.

(B) Any additional information as specified by the commissioner. ~~The results shall be reported in the time and manner prescribed by the commissioner to verify that all partial lead service line replacement activities have taken place.~~

(f) The following are requirements for public education program reporting:

(1) Any water system that is subject to the public education requirements in section 44 of this rule shall, within ten (10) days after the end of each period in which the system is required to perform public education tasks in accordance with section ~~44(c)~~ **44(b)** of this rule, send written documentation to the commissioner that contains the following information:

(A) A demonstration that the system has delivered the public education materials that meet the:

(i) content requirements in section 44(a) ~~and 44(b)~~ of this rule; and ~~the~~
(ii) delivery requirements in section ~~44(c)~~ **44(b)** of this rule.
(B) A list of all the:
(i) newspapers;
(ii) radio stations;
(iii) television stations;
(iv) facilities; and
(v) organizations;
to which the system delivered public education materials during the period in which the system was required to perform the public education tasks.
(2) Unless required by the commissioner, a system that previously submitted the information required by subdivision (1)(B) need not resubmit the information required as long as:
(A) there have been no changes in the distribution list; and
(B) the system certifies that the public education materials were distributed to the same list submitted previously.
(3) Not later than three (3) months following the end of the monitoring period, each system shall mail the following to the commissioner:
(A) A sample copy of the consumer notification of tap results.
(B) A certification that the notification has been distributed in a manner consistent with the requirements of section 44(d) of this rule.

(g) Any system that collects sampling data in addition to that required by sections 36 through 45 of this rule, this section, and section 47 of this rule shall report the results to the commissioner within the first ten (10) days following the end of the applicable monitoring period under sections 37 through 39 of this rule during which the samples are collected.

(h) A water system is not required to report the ninetieth percentile lead and copper concentrations measured from among all lead and copper tap water samples collected in each monitoring period as required by subsection (a)(1)(C) if the following conditions are met:
(1) The commissioner has:
(A) previously notified the water system that it ~~will~~ **shall** calculate the water system's ninetieth percentile lead and copper concentrations, based on the lead and copper results submitted under subdivision (2)(A); and ~~has~~
(B) specified a date before the end of the applicable monitoring period by which the system must provide the results of lead and copper tap water samples.
(2) The system has provided the following information to the commissioner by the date specified in subdivision (1):
(A) The results of all tap samples for lead and copper including the location of each site and the criteria under section 37(a)(3), 37(a)(4), 37(a)(5), 37(a)(6), or 37(a)(7) of this rule, under which the site was selected for the system's sampling pool under subsection (a)(1)(A).
(B) An identification of the sampling sites utilized during the current monitoring period that were not sampled during previous monitoring periods and an explanation why sampling sites have changed.
(3) The commissioner has provided the results of the ninetieth percentile lead and copper calculations, in writing, to the water system before the end of the monitoring period.

(i) The information required by this section shall be submitted to the commissioner using the methods specified in section 13(e) of this rule.

(Water Pollution Control Board; 327 IAC 8-2-46; filed Aug 24, 1994, 8:15 a.m.: 18 IR 84; filed Oct 24, 1997, 4:30 p.m.: 21 IR 945; filed Jul 23, 2001, 1:02 p.m.: 24 IR 3980; filed Oct 26, 2001, 4:55 p.m.: 25 IR 784; errata filed Oct 30, 2001, 10:50 a.m.: 25 IR 813; errata filed Feb 22, 2002, 1:59 p.m.: 25 IR 2254; filed Jun 13, 2005, 2:30 p.m.: 28 IR 3220)

SECTION 18. 327 IAC 8-2.1-3 IS AMENDED TO READ AS FOLLOWS:

327 IAC 8-2.1-3 Content of the reports

Authority: IC 13-13-5-1; IC 13-13-5-2; IC 13-18
Affected: IC 13-18-16

Sec. 3. (a) A CWS shall provide to its customers an annual report that contains the information specified in this section and section 4 of this rule.

(b) The report must contain information on the source of the water delivered, including the following:
(1) The source or sources of water delivered by the CWS by including information on the following:
(A) The type of water, such as surface water or ground water.
(B) The commonly used name, if any.
(C) The location of the body or bodies of water.
(2) If, **as follows:**
(A) A source water assessment has been completed, the report must notify the consumers of the:
(i) availability of this information; and ~~the~~
(ii) 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~~
(B) A system has received a source water assessment from the commissioner, the report must include a brief summary of the system's susceptibility to potential sources of contamination, using language:
(i) provided; ~~by the commissioner;~~ or
(ii) written by the operator **and approved;**
by the commissioner.

(c) The report must include the following definitions:
(1) "Maximum contaminant level" or "MCL" means the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
(2) "Maximum contaminant level goal" or "MCLG" means the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

(d) A report that contains data on contaminants that the department or EPA regulates and uses any of the following terms must include definitions, as applicable, of the terms used:
(1) "Action level" means the concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system shall follow.
(2) "Maximum residual disinfectant level" or "MRDL" means the highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
(3) "Maximum residual disinfectant level goal" or "MRDLG" means the level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLG does not reflect the benefits of the use of disinfectants to control microbial contaminants.
(4) "Treatment technique" means a required process intended to reduce the level of a contaminant in drinking water.

(e) A report must include the information specified in this subsection for the following contaminants subject to mandatory monitoring, other than Cryptosporidium:
(1) Contaminants subject to an MCL, action level, or treatment technique, hereafter referred to as regulated contaminants.
(2) Disinfection byproducts or microbial contaminants for which monitoring is required by 40 CFR 141.142* and 40 CFR 141.143*, except as provided in subsection (f)(1) and that are detected in the finished water.
(3) Contaminants for which monitoring is required by 40 CFR 141.40* (unregulated contaminants).
(4) The data relating to these contaminants must be displayed in one (1) table or in several adjacent tables. Any additional monitoring results that a CWS chooses to include in its report must be displayed separately.
(5) The data must 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 the following:
(A) Where a system is allowed to monitor for regulated contaminants less often than once a year, the:
(i) table or tables must include the date and results of the most recent sampling; and
(ii) report must include a brief statement indicating that the data presented in the report are from the most recent testing done in accordance with 327 IAC 8-2, **327 IAC 8-2.3,** 327 IAC 8-2.5, 327 IAC 8-2.6, and 40 CFR 141.
No data older than five (5) years need be included.
(B) Results of monitoring in compliance with 40 CFR 141.142* and 40 CFR 141.143* need only be included:

(i) for five (5) years from the date of the last sample; or
(ii) until any of the detected contaminants becomes regulated and subject to routine monitoring requirements;
whichever comes first.

(6) For detected regulated contaminants listed in section 6(a) of this rule, the table or tables must contain the following information:
(A) The MCL for that contaminant expressed as a number equal to or greater than one and zero-tenths (1.0), as listed in section 6(a) of this rule.
(B) The MCLG for that contaminant expressed in the same units as the MCL.
(C) If there is no MCL for a detected contaminant, the:
(i) table must indicate that there is a treatment technique, or specify the action level, applicable to that contaminant; and
(ii) report shall include the definitions for treatment technique or action level, or both, as appropriate, specified in subsection (d).
(D) For contaminants subject to an MCL, except turbidity and total coliforms, the highest contaminant level used to determine compliance with this rule and the range of detected levels as follows:
(i) 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.
(ii) When compliance with the MCL is determined by calculating a running annual average of all samples taken at a ~~sampling point~~ **monitoring location, systems shall report the following:**
(AA) The highest average of any of the ~~sampling points~~ **monitoring locations** and the range of all ~~sampling points~~ **monitoring locations** expressed in the same units as the MCL.
(BB) For the MCLs for TTHM and HAA5 in 327 IAC 8-2.5-2(b), systems shall include the highest LRAA 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 (1) location exceeds the TTHM or HAA5 MCL, the system shall include the LRAAs for all locations that exceed the MCL.
(iii) When compliance with the MCL is determined on a system-wide basis by calculating a running annual average of all samples at all ~~sampling points~~ **monitoring locations systems shall report the following:**
(AA) The average and range of detection expressed in the same units as the MCL.
(BB) Individual sample results for the initial distribution system evaluation (IDSE) conducted under 327 IAC 8-2.5-10 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.
(E) When turbidity is reported under ~~327 IAC 8-2-8.8~~ **327 IAC 8-2-8.5** or 327 IAC 8-2.6-3, the highest single measurement and the lowest monthly percentage of samples meeting the turbidity limits specified in ~~327 IAC 8-2-8.8~~ **327 IAC 8-2-8.5** or 327 IAC 8-2.6-3 for the filtration technology being used. The report must include an explanation of the reasons for measuring turbidity.
(F) For lead and copper, the:
(i) ninetieth percentile value of the most recent round of sampling; and
(ii) number of sampling sites exceeding the action level.
(G) For total coliform, the highest monthly:
(i) number of positive samples for systems collecting fewer than forty (40) samples per month; or
(ii) percentage of positive samples for systems collecting at least forty (40) samples per month.
(H) For fecal coliform, the total number of positive samples.
(I) The likely source or sources of detected contaminants to the best of the operator's knowledge. Specific information regarding contaminants:
(i) may be available in sanitary surveys and source water assessments; and
(ii) must be used when available to the operator.
If the operator lacks specific information on the likely source, the report must include one (1) or more of the typical sources for that contaminant listed in section 6(b) of this rule that are most applicable to the system.

(7) If a CWS distributes water to its customers from multiple hydraulically independent distribution systems that are fed by different raw water sources:
(A) the table must contain a separate column for each service area, and the report must identify each separate distribution system; or
(B) the system may produce separate reports tailored to include data for each service area.

(8) The table must clearly identify any data indicating violations of MCLs or treatment techniques, and the report must contain a clear and readily understandable explanation of the violation, including the following:
(A) The length of the violation.
(B) The potential adverse health effects.
(C) Actions taken by the system to address the violation.
To describe the potential health effects, the system shall use the relevant language of section 6(c) of this rule.

(9) For detected unregulated contaminants for which monitoring is required (except Cryptosporidium), the

table must contain the average and range at which the contaminant was detected. The report may include a brief explanation of the reasons for monitoring for unregulated contaminants.

(f) Each report must contain the following information on Cryptosporidium, radon, and other contaminants:
(1) If the system has performed any monitoring for Cryptosporidium, including monitoring performed to satisfy the requirements of 40 CFR 141.143*, that indicates Cryptosporidium may be present in the source water or the finished water, the report must include the following:
(A) A summary of the results of the monitoring.
(B) An explanation of the significance of the results.
(2) If the system has performed any monitoring for radon that indicates radon may be present in the finished water, the report must include the following:
(A) The results of the monitoring.
(B) An explanation of the significance of the results.
(3) If the system has performed additional monitoring that indicates the presence of other contaminants in the finished water, the commissioner strongly encourages systems to report any results that may indicate a health concern. To determine if results may indicate a health concern, the commissioner recommends that systems find out if EPA has proposed a national primary drinking water regulation (NPDWR) or issued a health advisory for that contaminant by calling the Safe Drinking Water Hotline at (800) 426-4791. The commissioner and EPA consider levels detected above a proposed federal or state MCL or health advisory level to indicate possible health concerns. For such contaminants, the commissioner recommends that the report includes the following:
(A) The results of the monitoring.
(B) An explanation of the significance of the results noting the existence of a health advisory or a proposed regulation.

(g) In addition to the requirements of subsection (e)(6), the report must note any violation of a requirement listed in this subsection that occurred during the year covered by the report 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. Violations of the following requirements must be included:
(1) Monitoring and reporting of compliance data.
(2) Filtration and disinfection prescribed by 327 IAC 8-2-8.5 and 327 IAC 8-2-8.6. For systems that have:
(A) failed to install adequate filtration or disinfection equipment or processes; or
(B) had a failure of such equipment or processes that constitutes a violation;
the report must include the following language as part of the explanation of potential health effects, "inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.".
(3) Lead and copper control requirements prescribed by 327 IAC 8-2-36 through 327 IAC 8-2-47. For systems that fail to take one (1) or more actions prescribed by 327 IAC 8-2-36(d) or 327 IAC 8-2-40 through 327 IAC 8-2-43, the report must include the applicable language from section 6(c) of this rule for lead or copper, or both.
(4) Treatment techniques for acrylamide and epichlorohydrin prescribed by 327 IAC 8-2-35. For systems that violate 327 IAC 8-2-35, the report ~~shall~~ **must** include the relevant language from section 6(c) of this rule.
(5) Record keeping of compliance data.
(6) Special monitoring requirements prescribed by 327 IAC 8-2-21.
(7) Violation of the terms of an administrative or judicial order.

(h) The following additional information must be contained in the report:
(1) A brief explanation regarding contaminants that may reasonably be expected to be found in drinking water, including bottled water. This explanation may include the language in clauses (A) through (C), or systems may use their own comparable language. The report must also include the language of clause (D). The language is as follows:
(A) 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:
(i) dissolves naturally-occurring minerals and, in some cases, radioactive material; and
(ii) can pick up substances resulting from the presence of animals or from human activity.
(B) Contaminants that may be present in source water include the following:
(i) Microbial contaminants, such as viruses and bacteria, that may come from the following:
(AA) Sewage treatment plants.
(BB) Septic systems.
(CC) Agricultural livestock operations.

(DD) Wildlife.
(ii) Inorganic contaminants, such as salts and metals, that can be naturally-occurring or result from any of the following:
(AA) Urban stormwater runoff.
(BB) Industrial or domestic wastewater discharges.
(CC) Oil and gas production.
(DD) Mining.
(EE) Farming.
(iii) Pesticides and herbicides that may come from a variety of sources, such as the following:
(AA) Agriculture.
(BB) Urban storm water runoff.
(CC) Residential uses.
(iv) Organic chemical contaminants, including synthetic and volatile organic chemicals, that:
(AA) are byproducts of industrial processes and petroleum production; and
(BB) can also come from gas stations, urban storm water run-off, and septic systems.
(v) Radioactive contaminants that can be:
(AA) naturally-occurring; or
(BB) the result of oil and gas production and mining activities.
(C) In order to ensure that tap water is safe to drink, the department and EPA prescribe regulations that limit the amount of certain contaminants in water provided by ~~public water systems.~~ **PWS.** Federal Drug Administration (FDA) regulations establish limits for contaminants in bottled water that must provide the same protection for public health.
(D) 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 the 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 at (800) 426-4791.
(2) The telephone number of the owner, operator, or designee of the CWS as a source of additional information concerning the report.
(3) In communities with a large proportion of non-English speaking residents, in which twenty percent (20%) or more of the residents speak the same language other than English, the report must contain:
(A) information in the appropriate language or languages regarding the importance of the report; or
(B) a telephone number or address where the residents may contact the system to obtain:
(i) a translated copy of the report; or
(ii) assistance in the appropriate language.
(4) The report must include information about opportunities for public participation in decisions that may affect the quality of water. This information may include, but is not limited to, the time and place of regularly scheduled board meetings.
(5) The systems may include any additional information as they deem necessary for public education consistent with, and not detracting from, the purpose of the report.
(6) Systems required to comply with 327 IAC 8-2.3 shall provide the following notices, where applicable:
(A) A ground water system that receives notice from the commissioner of a significant deficiency or notice from a laboratory of a fecal indicator-positive ground water source sample that is not invalidated by the commissioner under 327 IAC 8-2.3-4(d) shall 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 shall continue to inform the public annually until the commissioner determines that particular significant deficiency is corrected or the fecal contamination in the ground water source is addressed under 327 IAC 8-2.3-5(a). Each report must include the following elements:
(i) The nature of the particular significant deficiency or the source of the fecal contamination, if known, and the date the significant deficiency was identified by the commissioner or the dates of the fecal indicator-positive ground water source samples.
(ii) Whether the fecal contamination in the ground water source has been addressed under 327 IAC 8-2.3-5(a) and the date of the action.
(iii) For each significant deficiency or fecal contamination in the ground water source that has not been addressed under 327 IAC 8-2.3-5(a), the commissioner-approved plan and schedule for correction, including the following:
(AA) Interim measures.
(BB) Progress to date.
(CC) Any interim measures completed.
(iv) If the system receives notice of a fecal indicator-positive ground water source sample that is

not invalidated by the commissioner under 327 IAC 8-2.3-4(d), the potential health effects using the health effects language of section 17 of this rule.

(B) If directed by the commissioner, a system with significant deficiencies that have been corrected before the next report is issued shall inform its customers of the following:

(i) The significant deficiency.

(ii) How the deficiency was corrected.

(iii) The date of the correction under clause (A).

*The Code of Federal Regulations (CFR) citations are incorporated by reference into this rule and are available from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402 or from the Indiana Department of Environmental Management, Office of Water Quality, Indiana Government Center North, 100 North Senate Avenue, Room N1255 **or N1301,** Indianapolis, Indiana 46204.

(Water Pollution Control Board; 327 IAC 8-2.1-3; filed Mar 22, 2000, 3:23 p.m.: 23 IR 1899; filed Jul 23, 2001, 1:02 p.m.: 24 IR 3982; filed Nov 20, 2001, 10:20 a.m.: 25 IR 1098; filed May 1, 2003, 12:00 p.m.: 26 IR 2818; filed Jun 13, 2005, 2:30 p.m.: 28 IR 3223; errata filed Jul 6, 2005, 3:15 p.m.: 28 IR 3583; errata filed Feb 6, 2006, 11:15 a.m.: 29 IR 1937; filed Jul 13, 2007, 11:58 a.m.: 20070808-IR-327060044FRA)

SECTION 19. 327 IAC 8-2.1-4 IS AMENDED TO READ AS FOLLOWS:

327 IAC 8-2.1-4 Required additional health information

Authority: IC 13-13-5-1; IC 13-13-5-2; IC 13-18-16-6; IC 13-18-16-7; IC 13-18-16-9
Affected: IC 13-18-16

Sec. 4. (a) A report must prominently display the 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. U.S. Environmental Protection Agency and Centers for Disease Control guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791.".

(b) Ending in the report due by July 1, 2001, a system that detects arsenic at levels above twenty-five (25) micrograms per liter, but below fifty (50) micrograms per liter, and beginning in the report due by July 1, 2002, a system that detects arsenic above five (5) micrograms per liter and up to and including ten (10) micrograms per liter shall do one (1) of the following:

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

(2) Write its own educational statement, if the statement is written in consultation with the commissioner, and include that statement in the report.

(c) If a system detects nitrate at levels above five (5) milligrams per liter, but below the MCL, the system shall do one (1) of the following:

(1) Include in its report the language: "Nitrate in drinking water at levels above ten (10) parts per million is a health risk for infants of less than six (6) 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, seek advice from your health care provider.".

(2) Write its own educational statement, if the statement is written in consultation with the commissioner, and include that statement in the report.

(d) ~~If a system detects lead above the action level in more than five percent (5%), and up to and including ten percent (10%), of homes sampled, the system shall do one (1) of~~ **Every report must include** the following

lead-specific information:

(1) ~~Include in its report the language: "Infants and young children are typically more vulnerable to~~ **A short informational statement about** lead in drinking water ~~than the general population. It is possible that~~ **and its effects on children. The statement must include the following information: "If present, elevated levels of** lead ~~levels at your home may be higher than at other homes in the community as a result of~~ **can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from** materials ~~used in your home's~~ **and components associated with service lines and home** plumbing. ~~If you are concerned about elevated lead levels in your home's~~ **(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 thirty (30) seconds to two (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. ~~and flush your tap for thirty (30) seconds to two (2) minutes before using tap water. Additional~~ 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** at ~~(800) 426-4791.".~~ **http://www.epa.gov/safewater/lead.".**

(2) **A system may** write its own educational statement, if the statement is written in consultation with the commissioner. ~~and~~ **A system that writes its own statement shall** include that statement in the report.

(e) If a system detects TTHM above eight-hundredths (0.08) milligrams per liter, but below the MCL in 327 IAC 8-2-5(a), as an annual average, monitored and calculated under 327 IAC 8-2-5.3, the system shall include in its report the health effects language in table ~~17(G)(74)~~ **17(G)(75)** contained in section 17 of this rule.

~~(f) Beginning in the report due by July 1, 2002, and ending December 31, 2005, a CWS that detects arsenic above ten-hundredths (0.10) mg/l and up to and including fifty-hundredths (0.50) mg/l must include the arsenic health effects language in Table 17(B)(4) of section 17 of this rule.~~

(Water Pollution Control Board; 327 IAC 8-2.1-4; filed Mar 22, 2000, 3:23 p.m.: 23 IR 1902; filed May 1, 2003, 12:00 p.m.: 26 IR 2821; filed Jun 13, 2005, 2:30 p.m.: 28 IR 3226)

SECTION 20. 327 IAC 8-2.1-8 IS AMENDED TO READ AS FOLLOWS:

327 IAC 8-2.1-8 Tier 1 public notice; form, manner, and frequency of notice

Authority: IC 13-13-5-1; IC 13-13-5-2; IC 13-18
Affected: IC 13-18-16

Sec. 8. (a) The following violations or situations require a Tier 1 public notice **to be provided according to subsections (b) and (c):**

(1) Violation of the MCL for total coliforms when fecal coliform or E. coli are present in the water distribution system as specified in 327 IAC 8-2-7(b), or the water system fails to test for fecal coliforms or E. coli when any repeat sample tests positive for coliform as specified in 327 IAC 8-2-8.3.

(2) Violation of the MCL for nitrate, nitrite, or total nitrate and nitrite, as defined in 327 IAC 8-2-4, or when the water system fails to take a confirmation sample within twenty-four (24) hours of the system's receipt of the first sample showing an exceedance of the nitrate or nitrite MCL, as specified in 327 IAC 8-2-4.1(h)(2).

(3) Exceedance of the nitrate MCL by ~~noncommunity water systems,~~ **NCWS,** where permitted to exceed the MCL by the commissioner under 327 IAC 8-2-4 and section 14 of this rule.

(4) Violation of the 327 IAC 8-2-8.5(c) or 327 IAC 8-2.6-1 treatment technique requirement resulting from a single exceedance of the maximum allowable turbidity limit as identified in section 16 of this rule, where:

(A) the commissioner determines after consultation that a Tier 1 notice is required; or ~~where~~

(B) consultation does not take place within twenty-four (24) hours after the system learns of the violation.

(5) Occurrence of a waterborne disease outbreak, as defined in 327 IAC 8-2-1, or other waterborne emergency. This includes:

(A) failure or significant interruption in key water treatment processes;

(B) a natural disaster that disrupts the water supply or distribution system; or

(C) a chemical spill or unexpected loading of possible pathogens into the source water that significantly increases the potential for drinking water contamination.

(6) 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 commissioner either in its regulations or on a case-by-case basis.

(7) Violation of the MRDL for chlorine dioxide as defined in 327 IAC 8-2.5-3(a) and determined according to 327 IAC 8-2.5-5 when:

(A) one (1) 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~~

(B) the water system does not take the required samples in the distribution system, as specified in 327 IAC 8-2.5-7(c)(2).

(8) Detection of:

(A) E. coli;

(B) enterococci; or

(C) coliphage;

in source water samples as specified in 327 IAC 8-2.3-4(a) and 327 IAC 8-2.3-4(b).

(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 commissioner either in this article or on a case-by-case basis.

(b) Tier 1 public notice needs to be provided as follows:

(1) Provide a public notice as soon as practical but ~~no~~ **not** later than twenty-four (24) hours after the system learns of the violation.

(2) Initiate consultation with the commissioner as soon as practical, but ~~no~~ **not** later than twenty-four (24) hours after the ~~public water system~~ **PWS** learns of the violation or situation, to determine additional public notice requirements.

(3) Comply with any additional public notification requirements that are established as a result of the consultation with the commissioner, including any repeat notices or direction on the duration of the posted notices. To reach all persons served, such requirements may include the following:

(A) Timing.

(B) Form.

(C) Manner.

(D) Frequency.

(E) Content of repeat notices and other actions designed.

(4) ~~Public water systems must~~ **PWSs shall** 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~~ **PWS** are to fit the specific situation, but **they** must be designed to reach residential, transient, and nontransient users of the water system. In order to reach all persons served, water systems are to use, at a minimum, one (1) or more of the following forms of delivery:

(A) Appropriate broadcast media, such as:

(i) radio; or

(ii) television.

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

(C) Hand delivery of the notice to persons served by the water system.

(D) Another delivery method approved in writing by the commissioner.

(5) A CWS shall give a copy of the most recent public notice to all new billing units or new hookups before or at the time service begins for any of the following outstanding violations:

(A) Any MCL.

(B) Any MRDL.

(C) Any treatment technique requirement.

(c) For violations of the MRDLs of disinfectants that may pose an acute risk to human health, a copy of the notice must be furnished to the radio and television stations serving the area served by the ~~public water system~~ **PWS** as soon as possible but in no case later than seventy-two (72) hours after the violation.

(Water Pollution Control Board; 327 IAC 8-2.1-8; filed Nov 20, 2001, 10:20 a.m.: 25 IR 1110; filed May 1, 2003, 12:00 p.m.: 26 IR 2828; filed Jun 13, 2005, 2:30 p.m.: 28 IR 3233)

SECTION 21. 327 IAC 8-2.1-9 IS AMENDED TO READ AS FOLLOWS:

327 IAC 8-2.1-9 Tier 2 notice; form, manner, and frequency of notice

Authority: IC 13-13-5-1; IC 13-13-5-2; IC 13-18-16-6; IC 13-18-16-7; IC 13-18-16-9
Affected: IC 13-18-16

Sec. 9. (a) The following violations or situations require a Tier 2 public notice **to be provided according to subsections (b) and (c):**

(1) All violations of the MCL, MRDL, and treatment technique requirements, except where:

(A) a Tier 1 notice is required under section 8(a) of this rule; or ~~where~~

(B) the commissioner determines a Tier 1 notice is required.

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

(3) Failure to:

(A) take corrective action; or

(B) maintain at least 4-log treatment of viruses using:

(i) inactivation;

(ii) removal; or

(iii) a commissioner-approved combination of 4-log virus inactivation and removal;

before or at the first customer under 327 IAC 8-2.3-5(a).

(b) Tier 2 public notice needs to be provided as follows:

(1) ~~Public water systems must~~ **PWSs shall** provide the public notice as soon as practical, but ~~no~~ **not** later than thirty (30) days after the system learns of the violation**, and in accord with the following:**

(A) 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.

(B) The commissioner 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.

(C) It is not appropriate for the commissioner to:

(i) grant an extension to the thirty (30) day deadline for any unresolved violation; or ~~to~~

(ii) allow across-the-board extensions by rule or policy for other violations or situations requiring a Tier 2 public notice.

(D) Extensions granted by the commissioner must be in writing.

(2) The ~~public water system must~~ **PWS shall** repeat the notice every three (3) months as long as the violation or situation persists ~~unless~~ **and in accord with the following:**

(A) The commissioner determines that appropriate circumstances warrant a different repeat notice frequency.

(B) In no circumstance may the repeat notice be given less frequently than once per year.

(C) It is not appropriate for the commissioner to allow less frequent repeat notice for:

(i) an MCL violation under the 327 IAC 8-2-7, 327 IAC 8-2-8, 327 IAC 8-2-8.1, and 327 IAC 8-2-8.3; or

(ii) a treatment technique violation under 327 IAC 8-2-8.5, 327 IAC 8-2-8.6, and 327 IAC 8-2-8.8.

(D) The ~~commissioner~~ **commissioner's** determinations ~~allowing~~ **must be in writing to allow** repeat notices to be given less frequently than once every three (3) months. ~~must be in writing.~~

(3) If there is a violation of the treatment technique requirement in 327 IAC 8-2-8.5(c) or 327 IAC 8-2.6-1 that results from a single exceedance of the maximum allowable turbidity limit, then ~~public water systems must~~ **PWSs shall do the following:**

(A) Consult with the commissioner as soon as practical but ~~no~~ **not** later than twenty-four (24) hours after the ~~public water system~~ **PWS** learns of the violation, to determine whether a Tier 1 public notice under section 8(a) of this rule is required to protect public health.

(B) When consultation does not take place within the twenty-four (24) hour period, the water system ~~must~~ **shall** distribute a Tier 1 notice of the violation within the next twenty-four (24) hours (for example, ~~no~~ **not** later than forty-eight (48) hours after the system learns of the violation), following the requirements under section 8(b) and 8(c) of this rule.

(c) ~~Public water systems must~~ **PWSs shall** 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 the public notice must at a minimum meet the following requirements:

(1) Unless directed otherwise by the commissioner in writing, CWSs ~~must~~ **shall** provide notice by the following methods:

(A) Mail or other direct delivery to:

(i) each customer receiving a bill; and

(ii) other service connections to which water is delivered by the ~~public water system.~~ **PWS.**

(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 clause (A). ~~Such~~ **The** persons may include those who do not pay water bills or do not have service connection addresses, including any of the following:
(i) House renters.
(ii) Apartment dwellers.
(iii) University students.
(iv) Nursing home patients.
(v) Prison inmates.
(C) Other methods may include any of the following:
(i) Publication in a local newspaper.
(ii) Delivery of multiple copies for distribution by customers that provide their drinking water to others, such as:
(AA) apartment building owners; or
(BB) large private employers.
(iii) Posting:
(AA) in public places served by the system; or
(BB) on the Internet.
(iv) Delivery to community organizations.
(2) Unless directed otherwise by the commissioner in writing, ~~noncommunity water systems must~~ **NCWSs shall** provide notice by the following methods:
(A) Posting the notice in conspicuous locations throughout the distribution system frequented by persons served by the system.
(B) By mail or direct delivery to each customer and service connection if known.
(C) 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 clauses (A) and (B). ~~Such~~ **The** 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:
(i) publication in a local newspaper or newsletter distributed to customers;
(ii) use of e-mail to notify employees or students; or
(iii) delivery of multiple copies in central locations, such as community centers.

(Water Pollution Control Board; 327 IAC 8-2.1-9; filed Nov 20, 2001, 10:20 a.m.: 25 IR 1110; filed Jun 13, 2005, 2:30 p.m.: 28 IR 3234)

SECTION 22. 327 IAC 8-2.1-16 IS AMENDED TO READ AS FOLLOWS:

327 IAC 8-2.1-16 Drinking water violations; other situations requiring public notice

Authority: IC 13-13-5-1; IC 13-13-5-2; IC 13-18
Affected: IC 13-18-16

Sec. 16. (a) Drinking water violations and other situations that require public notice according to this rule are contained in the following table:

Table 16. Drinking Water Violations and Other Situations Requiring Public Notice				
	MCL/MRDL/TT/AL Violations		Monitoring and Testing Procedure Violations	
Contaminant	Tier of Public Notice Required	Citation	Tier of Public Notice Required	Citation
I. Violations of Drinking Water Regulations:				
A. Microbiological Contaminants				
1. Total coliform	2	327 IAC 8-2-7(a)	3	327 IAC 8-2-8; 327 IAC 8-2-8.1; 327 IAC 8-2-8(f); 327 IAC 8-2-8.2; 327 IAC 8-2-8.3
2. Fecal coliform/E. coli	1	327 IAC 8-2-7(b)	1, 3	327 IAC 8-2-8.3
3. Turbidity ~~TT~~ (resulting from a single exceedance of maximum allowable turbidity levels) **(TT)**	2,1	327 IAC 8-2-8.5(a); 327 IAC 8-2.6-3(1)(B); 327 IAC 8-2.6-3(2); 327 IAC 8-	3	327 IAC 8-2-8.8(b); 327 IAC 8-2.6-4

		2.6-3(3)		
4. Surface water treatment rule violations, other than violations resulting from single exceedance of maximum allowable turbidity level (TT)	2	327 IAC 8-2-8.5; 327 IAC 8-2-8.6	3	327 IAC 8-2-8.8
5. Interim enhanced surface water treatment rule violations, other than violations resulting from single exceedance of maximum allowable turbidity level (TT)	2	327 IAC 8-2.6-1; 327 IAC 8-2.6-2; 327 IAC 8-2.6-3	3	327 IAC 8-2.6-2; 327 IAC 8-2.6-4
6. Filter backwash recycling rule	2	327 IAC 8-2.6-6	3	327 IAC 8-2.6-6
7. Long-term 1 enhanced surface water treatment rule violations, other than violations resulting from single exceedance of maximum allowable turbidity level (TT)	2	327 IAC 8-2.6-1; 327 IAC 8-2.6-2.1; 327 IAC 8-2.6-3	3	327 IAC 8-2.6-2.1; 327 IAC 8-2.6-4
8. Long-term 2 enhanced surface water treatment rule violations	**2**	**327 IAC 8-2.6-11 through 327 IAC 8-2.6-20**	**2, 3**	**327 IAC 8-2.6-8(b)(1) through 327 IAC 8-2.6-8(b)(5) and 327 IAC 8-2.6-9 and 327 IAC 8-2.6-10**
9. Ground water rule violations	**2**	**327 IAC 8-2.3-6**	**3**	**327 IAC 8-2.3-4(h); 327 IAC 8-2.3-6(d)**
B. Inorganic Chemicals (IOCs)				
1. Antimony	2	327 IAC 8-2-4(d)	3	327 IAC 8-2-4.1(c); 327 IAC 8-2-4.1(e)
2. Arsenic	2	327 IAC 8-2-4(d)	3	327 IAC 8-2-4.1(c); 327 IAC 8-2-4.1(e)
3. Asbestos (fibers >10 µm)	2	327 IAC 8-2-4(d)	3	327 IAC 8-2-4.1(c); 327 IAC 8-2-4.1(d)
4. Barium	2	327 IAC 8-2-4(d)	3	327 IAC 8-2-4.1(c); 327 IAC 8-2-4.1(e)
5. Beryllium	2	327 IAC 8-2-4(d)	3	327 IAC 8-2-4.1(c); 327 IAC 8-2-4.1(e)
6. Cadmium	2	327 IAC 8-2-4(d)	3	327 IAC 8-2-4.1(c); 327 IAC 8-2-4.1(e)
7. Chromium (total)	2	327 IAC 8-2-4(d)	3	327 IAC 8-2-4.1(c); 327 IAC 8-2-4.1(e)
8. Cyanide	2	327 IAC 8-2-4(d)	3	327 IAC 8-2-4.1(c); 327 IAC 8-2-4.1(e)
9. Fluoride	2	327 IAC 8-2-4(c)	3	327 IAC 8-2-4.1(c); 327 IAC 8-2-4.1(e)
10. Mercury (inorganic)	2	327 IAC 8-2-4(d)	3	327 IAC 8-2-4.1(c); 327 IAC 8-2-4.1(e)
11. Nitrate	1	327 IAC 8-2-4(b)	1, 3	327 IAC 8-2-4.1(c); 327 IAC 8-2-4.1(f); 327 IAC 8-2-4.1(h)(2)
12. Nitrite	1	327 IAC 8-2-4(b)	1, 3	327 IAC 8-2-4.1(c); 327 IAC 8-2-4.1(g); 327 IAC 8-2-4.1(h)(2)
13. Total nitrate and nitrite	1	327 IAC 8-2-4(b)	3	327 IAC 8-2-4.1(c)
14. Selenium	2	327 IAC 8-2-4(d)	3	327 IAC 8-2-4.1(c); 327 IAC 8-2-4.1(e)
15. Thallium	2	327 IAC 8-2-4(d)	3	327 IAC 8-2-4.1(c); 327 IAC 8-2-4.1(e)
C. Lead and Copper Rule				
1. Lead and copper rule (TT)	2	327 IAC 8-2-36; 327 IAC 8-2-40; 327 IAC 8-2-41; 327 IAC 8-2-42; 327 IAC 8-2-43;	3	327 IAC 8-2-37; 327 IAC 8-2-38; 327 IAC 8-2-39; 327 IAC 8-2-45

		327 IAC 8-2-44		
D. Synthetic Organic Chemicals (SOCs)				
1. 2,4-D	2	327 IAC 8-2-5(a)	3	327 IAC 8-2-5.1
2. 2,4,5-TP (silvex)	2	327 IAC 8-2-5(a)	3	327 IAC 8-2-5.1
3. Alachlor	2	327 IAC 8-2-5(a)	3	327 IAC 8-2-5.1
4. Atrazine	2	327 IAC 8-2-5(a)	3	327 IAC 8-2-5.1
5. Benzo[a]pyrene (PAHs)	2	327 IAC 8-2-5(a)	3	327 IAC 8-2-5.1
6. Carbofuran	2	327 IAC 8-2-5(a)	3	327 IAC 8-2-5.1
7. Chlordane	2	327 IAC 8-2-5(a)	3	327 IAC 8-2-5.1
8. Dalapon	2	327 IAC 8-2-5(a)	3	327 IAC 8-2-5.1
9. Di (2-ethylhexyl) adipate	2	327 IAC 8-2-5(a)	3	327 IAC 8-2-5.1
10. Di (2-ethylhexyl) phthalate	2	327 IAC 8-2-5(a)	3	327 IAC 8-2-5.1
11. Dibromochloropropane	2	327 IAC 8-2-5(a)	3	327 IAC 8-2-5.1
12. Dinoseb	2	327 IAC 8-2-5(a)	3	327 IAC 8-2-5.1
13. Dioxin (2,3,7,8-TCDD)	2	327 IAC 8-2-5(a)	3	327 IAC 8-2-5.1
14. Diquat	2	327 IAC 8-2-5(a)	3	327 IAC 8-2-5.1
15. Endothall	2	327 IAC 8-2-5(a)	3	327 IAC 8-2-5.1
16. Endrin	2	327 IAC 8-2-5(a)	3	327 IAC 8-2-5.1
17. Ethylene dibromide	2	327 IAC 8-2-5(a)	3	327 IAC 8-2-5.1
18. Glyphosate	2	327 IAC 8-2-5(a)	3	327 IAC 8-2-5.1
19. Heptachlor	2	327 IAC 8-2-5(a)	3	327 IAC 8-2-5.1
20. Heptachlor epoxide	2	327 IAC 8-2-5(a)	3	327 IAC 8-2-5.1
21. Hexachlorobenzene	2	327 IAC 8-2-5(a)	3	327 IAC 8-2-5.1
22. Hexachlorocyclopentadiene	2	327 IAC 8-2-5(a)	3	327 IAC 8-2-5.1
23. Lindane	2	327 IAC 8-2-5(a)	3	327 IAC 8-2-5.1
24. Methoxychlor	2	327 IAC 8-2-5(a)	3	327 IAC 8-2-5.1
25. Oxamyl (vydate)	2	327 IAC 8-2-5(a)	3	327 IAC 8-2-5.1
26. Pentachlorophenol	2	327 IAC 8-2-5(a)	3	327 IAC 8-2-5.1
27. Picloram	2	327 IAC 8-2-5(a)	3	327 IAC 8-2-5.1
28. Polychlorinated biphenyls (PCBs)	2	327 IAC 8-2-5(a)	3	327 IAC 8-2-5.1
29. Simazine	2	327 IAC 8-2-5(a)	3	327 IAC 8-2-5.1
30. Toxaphene	2	327 IAC 8-2-5(a)	3	327 IAC 8-2-5.1
E. Volatile Organic Chemicals (VOCs)				
1. Benzene	2	327 IAC 8-2-5.4(a)	3	327 IAC 8-2-5.5
2. Carbon tetrachloride	2	327 IAC 8-2-5.4(a)	3	327 IAC 8-2-5.5
3. Chlorobenzene (monochlorobenzene)	2	327 IAC 8-2-5.4(a)	3	327 IAC 8-2-5.5
4. o-Dichlorobenzene	2	327 IAC 8-2-5.4(a)	3	327 IAC 8-2-5.5
5. p-Dichlorobenzene	2	327 IAC 8-2-5.4(a)	3	327 IAC 8-2-5.5
6. 1,2-Dichloroethane	2	327 IAC 8-2-5.4(a)	3	327 IAC 8-2-5.5
7. 1,1-Dichloroethylene	2	327 IAC 8-2-5.4(a)	3	327 IAC 8-2-5.5
8. cis-1,2-Dichloroethylene	2	327 IAC 8-2-5.4(a)	3	327 IAC 8-2-5.5
9. trans-1,2-Dichloroethylene	2	327 IAC 8-2-5.4(a)	3	327 IAC 8-2-5.5
10. Dichloromethane	2	327 IAC 8-2-5.4(a)	3	327 IAC 8-2-5.5
11. 1,2-Dichloropropane	2	327 IAC 8-2-5.4(a)	3	327 IAC 8-2-5.5
12. Ethylbenzene	2	327 IAC 8-2-5.4(a)	3	327 IAC 8-2-5.5
13. Styrene	2	327 IAC 8-2-5.4(a)	3	327 IAC 8-2-5.5
14. Tetrachloroethylene	2	327 IAC 8-2-5.4(a)	3	327 IAC 8-2-5.5
15. Toluene	2	327 IAC 8-2-5.4(a)	3	327 IAC 8-2-5.5
16. 1,2,4-Trichlorobenzene	2	327 IAC 8-2-5.4(a)	3	327 IAC 8-2-5.5
17. 1,1,1-Trichloroethane	2	327 IAC 8-2-5.4(a)	3	327 IAC 8-2-5.5
18. 1,1,2-Trichloroethane	2	327 IAC 8-2-5.4(a)	3	327 IAC 8-2-5.5

19. Trichloroethylene	2	327 IAC 8-2-5.4(a)	3	327 IAC 8-2-5.5
20. Vinyl chloride	2	327 IAC 8-2-5.4(a)	3	327 IAC 8-2-5.5
21. Xylenes (total)	2	327 IAC 8-2-5.4(a)	3	327 IAC 8-2-5.5
F. Radioactive Contaminants				
1. Beta/photon emitters	2	327 IAC 8-2-10	3	327 IAC 8-2-10.2; 327 IAC 8-2-10.2(b)
2. Alpha emitters	2	327 IAC 8-2-9(2)	3	327 IAC 8-2-10.2; 327 IAC 8-2-10.2(a)
3. Combined radium (226 and 228)	2	327 IAC 8-2-9(1)	3	327 IAC 8-2-10.2; 327 IAC 8-2-10.2(a)
4. Uranium	2	327 IAC 8-2-9(3)	3	327 IAC 8-2-10.2; 327 IAC 8-2-10.2(a)
G. Disinfection Byproducts (DBPs). 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 DBPs in drinking water.				
1. ~~Total trihalomethanes~~ TTHMs	2	~~327 IAC 8-2-5(a) and 327 IAC 8-2-5(c)~~ **327 IAC 8-2.5-2**	3	327 IAC 8-2-5.3, **and 327 IAC 8-2.5-10(b)(1) through 327 IAC 8-2.5-10(b)(6), 327 IAC 8-2.5-11 through 327 IAC 8-2.5-20**
2. ~~Haloacetic acids~~ HAA5	2	~~327 IAC 8-2.5-2(a)~~ **327 IAC 8-2.5-2**	3	327 IAC 8-2.5-6(a), ~~and~~ 327 IAC 8-2.5-6(b) **and 327 IAC 8-2.5-10(b)(1) through 327 IAC 8-2.5-10(b)(6), 327 IAC 8-2.5-11 through 327 IAC 8-2.5-20**
3. Bromate	2	327 IAC 8-2.5-2(a)	3	327 IAC 8-2.5-6(a) and 327 IAC 8-2.5-6(b)
4. Chlorite	2	327 IAC 8-2.5-2(a)	3	327 IAC 8-2.5-6(a) and 327 IAC 8-2.5-6(b)
5. Chlorine (MRDL)	2	327 IAC 8-2.5-3(a)	3	327 IAC 8-2.5-6(a) and 327 IAC 8-2.5-6(c)
6. Chloramine (MRDL)	2	327 IAC 8-2.5-3(a)	3	327 IAC 8-2.5-6(a) and 327 IAC 8-2.5-6(c)
7. Chlorine dioxide (MRDL), where any 2 consecutive daily samples at entrance to distribution system only are above MRDL	2	327 IAC 8-2.5-3(a)	2, 3	327 IAC 8-2.5-6(a), 327 IAC 8-2.5-6(c), and 327 IAC 8-2.5-7(c)(2)
8. Chlorine dioxide (MRDL), where samples in distribution system the next day are also above MRDL	1	327 IAC 8-2.5-3(a)	1	327 IAC 8-2.5-6(a), 327 IAC 8-2.5-6(c), and 327 IAC 8-2.5-7(c)(2)
9. Control of DBP precursors - TOC (TT)	2	327 IAC 8-2.5-9(a) and 327 IAC 8-2.5-9(b)	3	327 IAC 8-2.5-6(a) and 327 IAC 8-2.5-6(d)
10. Benchmarking and disinfection profiling	N/A	N/A	3	327 IAC 8-2.6-2; 327 IAC 8-2.6-2.1
11. Development of monitoring plan	N/A	N/A	3	327 IAC 8-2.5-6(f)
H. Other Treatment Techniques				
1. Acrylamide (TT)	2	327 IAC 8-2-35	N/A	N/A
2. Epichlorohydrin (TT)	2	327 IAC 8-2-35	N/A	N/A
II. Unregulated Contaminant Monitoring:				
A. Nickel	N/A	N/A	3	327 IAC 8-2-4.1(e)
B. Unregulated contaminant	N/A	N/A	3	40 CFR 141.40*

monitoring				
III. Other Situations Requiring Public Notification:				
A. Fluoride secondary maximum contaminant level (SMCL) exceedance	3	40 CFR 143.3*	N/A	N/A
B. Exceedance of nitrate MCL for noncommunity systems, as allowed by the commissioner	1	327 IAC 8-2-4(b)	N/A	N/A
C. Availability of unregulated contaminant monitoring data	3	40 CFR 141.40*	N/A	N/A
D. Waterborne disease outbreak	1	327 IAC 8-2-1	N/A	N/A
E. Other waterborne emergency	1	N/A	N/A	N/A
F. Source water sample positive for GWR fecal indicators: E. coli, enterococci, or coliphage	**1**	**327 IAC 8-2.3-4(g)**	**N/A**	**N/A**
~~F.~~ **G.** Other situations as determined by the commissioner	1, 2, 3	N/A	N/A	N/A

Key:
MCL = Maximum contaminant level.
MRDL = Maximum residual disinfectant level.
TT = Treatment technique.
Violations of drinking water regulations include violations of MCL, MRDL, ~~treatment technique,~~ **TT,** monitoring, and testing procedure requirements.

(b) Drinking water violations and other situations that require public notice according to this rule are contained in the following provisions:

(1) Violations and other situations not listed in Table 16 in subsection (a), such as reporting violations and failure to prepare the consumer confidence report do not require notice, unless otherwise determined by the commissioner. The commissioner may require a more stringent public notice tier, such as:

(A) Tier 1 instead of Tier 2; or

(B) Tier 2 instead of Tier 3;

for specific violations and situations listed in Table 16 in subsection (a).

(2) 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.

(3) Systems with treatment technique violations involving a single exceedance of maximum turbidity limit under the:

(A) surface water treatment rule (SWTR) **located at 327 IAC 8-2-8.5 through 327 IAC 8-2-8.8;**

(B) interim enhanced surface water treatment rule (IESWTR)**, located at 327 IAC 8-2.6-1 through 327 IAC 8-2.6-5;** or

(C) long-term 1 enhanced surface water treatment rule (LT1ESWTR)**, located at 327 IAC 8-2.6-1 through 327 IAC 8-2.6-5;**

are required to initiate consultation with the commissioner within twenty-four (24) hours after learning of the violation. Based on this consultation, the commissioner may subsequently decide to elevate the violation to Tier 1. If a system is unable to make contact with the commissioner in the twenty-four (24) hour period, the violation is automatically elevated to Tier 1.

(4) Failure to take a confirmation sample within twenty-four (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.

(5) Failure to monitor for chlorine dioxide at the entrance to the distribution system the day after exceeding the MRDL is a Tier 2 violation.

(6) If any daily sample taken at the entrance to the distribution system exceeds the MRDL for chlorine dioxide and one (1) 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.

~~(5)~~ **(7)** Other waterborne emergencies require a Tier 1 public notice under section 8(a) of this rule for situations that do not meet the definition of a waterborne disease outbreak given in 327 IAC 8-2-1 but ~~that~~ still have the potential to have serious adverse effects on health as a result of short-term exposure. These waterborne emergencies could include outbreaks not related to treatment deficiencies, as well as situations that have the potential to cause outbreaks, such as any of the following:

(A) Failures or significant interruption in water treatment processes.

(B) Natural disasters that disrupt the water supply or distribution system.
(C) Chemical spills.
(D) Unexpected loading of possible pathogens into the source water.

~~(6)~~ **(8)** The commissioner may place other situations in any tier believed appropriate, based on threat to public health.

(9) Failure to collect three (3) or more samples for Cryptosporidium is a Tier 2 violation requiring special notice as specified in 327 IAC 8-2.1-18.

*The Code of Federal Regulations (CFR) citations are incorporated by reference and are available for copying at the Indiana Department of Environmental Management, Office of Water Quality, 100 North Senate Avenue, Room N1255, Indianapolis, Indiana 46204.

(Water Pollution Control Board; 327 IAC 8-2.1-16; filed Nov 20, 2001, 10:20 a.m.: 25 IR 1115; errata filed Feb 22, 2002, 2:01 p.m.: 25 IR 2254; filed May 1, 2003, 12:00 p.m.: 26 IR 2829; filed Jun 13, 2005, 2:30 p.m.: 28 IR 3236; errata filed Jul 6, 2005, 3:15 p.m.: 28 IR 3583; filed Jul 13, 2007, 11:58 a.m.: 20070808-IR-327060044FRA)

SECTION 23. 327 IAC 8-2.1-17 IS AMENDED TO READ AS FOLLOWS:

327 IAC 8-2.1-17 Drinking water violations; standard health effects language for public notice

Authority: IC 13-13-5-1; IC 13-13-5-2; IC 13-18
Affected: IC 13-18-16

Sec. 17. A ~~public water system must~~ **PWS shall** comply with the standard health effects language for public notification contained in the following table:

Table 17. Standard Health Effects Language for Public Notification			
Contaminant	MCLG mg/L	MCL mg/L	Standard Health Effects Language for Public Notification
Drinking Water Regulations:			
A. Microbiological Contaminants, Surface Water Treatment Rule, Interim Enhanced Surface Water Treatment Rule, and Long-Term 1 Enhanced Surface Water Treatment Rule (LT1ESWTR)			
1a. Total coliform	0	See footnote[1]	Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, bacteria may be present. Coliforms were found in more samples than allowed, and this was a warning of potential problems.
1b. Fecal coliform/E. coli	0	0	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.
1c. Fecal indicators (enterococci or coliphage)			**Fecal indicators are microbes whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term health effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.**
i. E. coli	**0**	**TT**	
ii. Enterococci	**None**	**TT**	
iii. Coliphage	**None**	**TT**	
1d. Ground Water Rule (GWR) 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.**
2a. Turbidity (MCL)[2]	None	1 NTU[2] /5 NTU	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.
2b. Turbidity (SWTR TT, IESWTR TT, and LT1ESWTR TT)[2]	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.
2c. Giardia lamblia	0	TT[4]	Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms, such as nausea, cramps, diarrhea, and associated headaches.
2d. Viruses			
2e. Heterotrophic plate county (HPC) bacteria[3]			
2f. Legionella			
2g. Cryptosporidium			
B. Inorganic Chemicals (IOCs)			
3. Antimony	0.006	0.006	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.
4. Arsenic[5]	0	0.01	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.
5. Asbestos (>10 µm)	7 MFL	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.
6. 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.
7. 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.
8. Cadmium	0.005	0.005	Some people who drink water containing cadmium in excess of the MCL over many years could experience kidney damage.
9. 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.
10. 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.
11. 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 (9) years of age. Mottling, also known as dental fluorosis, may include brown staining or pitting of the teeth, or both, and occurs only in developing teeth before they erupt from the gums.
12. 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.
13. Nitrate	10	10	Infants below six (6) months of age 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.
14. Nitrite	1	1	Infants below six (6) months of age 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.
15. Total nitrate and nitrite	10	10	Infants below six (6) months of age 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.
16. 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.
17. 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.
C. Lead and Copper Rule			
18. Lead	0	TT	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.
19. Copper	1.3	TT	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.
D. Synthetic Organic Chemicals (SOCs)			
20. 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 their kidneys, liver, or adrenal glands.
21. 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.
22. Alachlor	0	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.
23. 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.
24. Benzo(a)pyrene (PAHs)	0	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.
25. 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.
26. Chlordane	0	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.
27. Dalapon	0.2	0.2	Some people who drink water containing dalapon well in excess of the MCL over many years could experience minor kidney changes.
28. 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 general toxic effects or reproductive difficulties.
29. Di (2-ethylhexyl) phthalate	0	0.006	Some people who drink water containing di (2-ethylhexyl) phthalate in excess of the MCL over many years may have problems with their liver, or experience reproductive difficulties, and may have an increased risk of getting cancer.
30. Dibromochloropropane (DBCP)	0	0.0002	Some people who drink water containing DBCP in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer.
31. 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.
32. Dioxin (2,3,7,8-TCDD)	0	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.
33. Diquat	0.02	0.02	Some people who drink water containing diquat in excess of the MCL over many years could get cataracts.
34. 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.
35. Endrin	0.002	0.002	Some people who drink water containing endrin in excess of the MCL over many years could experience liver problems.
36. Ethylene dibromide	0	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.
37. 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.
38. Heptachlor	0	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.
39. Heptachlor epoxide	0	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.
40. Hexachlorobenzene	0	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.
41. Hexachlorocyclo-pentadiene	0.05	0.05	Some people who drink water containing hexachlorocyclopentadiene well in excess of the MCL over many years could experience problems with their kidneys or stomach.
42. Lindane	0.0002	0.0002	Some people who drink water containing lindane in excess of the MCL over many years could experience problems with their kidneys or liver.
43. Methoxychlor	0.04	0.04	Some people who drink water containing methoxychlor in excess of the MCL over many years could experience reproductive difficulties.
44. 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.
45. Pentachlorophenol	0	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.
46. 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.
47. Polychlorinated biphenyls (PCBs)	0	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.
48. 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.
49. Toxaphene	0	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.
E. Volatile Organic Chemicals (VOCs)			
50. Benzene	0	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.
51. Carbon tetrachloride	0	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.
52. 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.
53. 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.
54. 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.

55. 1,2-Dichloroethane	0	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.
56. 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.
57. 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.
58. 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.
59. Dichloromethane	0	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.
60. 1,2-Dichloropropane	0	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.
61. 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.
62. 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.
63. Tetrachloroethylene	0	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.
64. 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.
65. 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.
66. 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.
67. 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.
68. Trichloroethylene	0	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.
69. Vinyl chloride	0	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.
70. 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.
F. Radioactive Contaminants			
71. Beta/photon emitters	0	4 mrem/yr	Certain minerals are radioactive and may emit forms of radiation known as photons and beta radiation. Some people who drink water containing beta particle and photon radioactivity in excess of the MCL over many years may have an increased risk of getting cancer.
72. Alpha emitters	0	15 pCi/l	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.
73. Combined radium (226 and 228)	0	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.
74. Uranium	0	30 µg/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.
G. Disinfection Byproducts (DBPs): 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 THMs and haloacetic acids (HAAs)[8].**			
75. ~~Total trihalomethanes~~ TTHMs	N/A	0.080[6,9]	Some people who drink water containing ~~trihalomethanes~~ **THMs** in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system and may have an increased risk of getting cancer.
76. Haloacetic acids ~~(HAA)~~ **(HAA5)**	N/A	0.060[7]	Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.
77. Bromate	0	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.
78. Chlorite	0.08	1.0	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.
79. Chlorine	4 MRDLG	4.0 MRDL	Some people who use drinking water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort.
80. Chloramines	4 MRDLG	4.0 MRDL	Some people who use drinking water containing chloramines well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chloramines well in excess of the MRDL could experience stomach discomfort or anemia.
81a. Chlorine dioxide, where any two 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 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. 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 that delivers water to consumers. Continued compliance with chlorine dioxide levels within the distribution system minimizes the potential risk of these violations to consumers.
81b. Chlorine dioxide, where one or more distribution system samples are above the MRDL	0.8 MRDLG	0.8 MRDL	Some infants and young children who drink water containing chlorine dioxide in excess of the MRDL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorine dioxide in excess of the MRDL. Some people may experience anemia. Add for public notification only: The chlorine dioxide violations reported today include exceedances of the EPA standard within the distribution system that 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.
82. Control of DBP precursors (TOC)	None	TT	~~Total organic carbon~~ TOC has no health effects. However, ~~total organic carbon~~ **TOC** provides a medium for the formation of disinfection byproducts. These byproducts include ~~trihalomethanes~~ THMs and haloacetic acids (HAAs). Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver or kidney problems, or nervous system effects and may lead to an increased risk of getting cancer.
H. Other Treatment Techniques			
83. Acrylamide	0	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.
84. Epichlorohydrin	0	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.

Key:
MCLG - Maximum contaminant level goal.
MCL - Maximum contaminant level.
MRDL = Maximum residual disinfectant level.
MRDLG = Maximum residual disinfectant level goal.
NTU - Nephelometric turbidity unit.
TT - Treatment technique.
MFL - Millions of fiber per liter.
Action Level (Lead) = 0.015 mg/L.
Action Level (Copper) = 1.3 mg/L.
mrem - millirems per year.
~~ppq~~ **pCi/L** - picocuries per liter.

[1]For water systems analyzing at least forty (40) samples per month, no more than five percent (5.0%) of the monthly samples may be positive for total coliforms. For systems analyzing fewer than forty (40) samples per month, no more than one (1) sample per month may be positive for total coliforms.

[2]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 2001 Long-Term 1 Enhanced Surface Water Treatment Rule. The following apply:

(1) Systems subject to 327 IAC 8-2-8.5 through 327 IAC 8-2-8.8 (also known as the Surface Water Treatment Rule (SWTR)), for both filtered and unfiltered systems, may not exceed five (5) NTU. In addition, in filtered systems, ninety-five percent (95%) of samples each month must not exceed five-tenths (0.5) NTU in systems using conventional or direct filtration and must not exceed one (1) NTU in systems using slow sand or diatomaceous earth filtration or other filtration technologies approved by the commissioner.
(2) For systems subject to 327 IAC 8-2.6-1, 327 IAC 8-2.6-2, 327 IAC 8-2.6-3, 327 IAC 8-2.6-4, and 327 IAC 8-2.6-5 (also known as the Interim Enhanced Surface Water Treatment Rule (IESWTR)), for systems serving at least ten thousand (10,000) individuals 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 three-tenths (0.3) NTU in at least ninety-five percent (95%) of monthly measurements, and the turbidity level of a system's combined filter effluent must not exceed one (1) NTU at any time.
(3) Systems subject to 327 IAC 8-2.6-1, 327 IAC 8-2.6-2, 327 IAC 8-2.6-3, 327 IAC 8-2.6-4, and 327 IAC 8-2.6-5, the IESWTR, using technologies other than conventional, direct, slow sand, or diatomaceous earth filtration must meet turbidity limits set by the commissioner.
(4) For systems subject to 327 IAC 8-2.6-1 through 327 IAC 8-2.6-5 (also known as the Long-Term 1 Enhanced Surface Water Treatment Rule (LT1ESWTR)), for systems serving fewer than ten thousand (10,000) individuals 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 three-tenths (0.3) NTU in at least ninety-five percent (95%) of monthly measurements, and the turbidity level of a system's combined filter effluent must not exceed one (1) NTU at any time.
(5) Systems subject to 327 IAC 8-2.6-1 through 327 IAC 8-2.6-5, the LT1ESWTR, using technologies other than conventional, direct, slow sand, or diatomaceous earth filtration must meet turbidity limits set by the commissioner.

[3]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.

[4]SWTR, IESWTR, and LT1ESWTR treatment technique violations that involve turbidity exceedances may use the health effects language for turbidity instead.

[5]The arsenic MCL and MCLG are effective January 1, 2006. Until then, the MCL is 0.05 mg/L and there is no MCLG.

[6]The MCL for TTHM is the sum of the concentrations of the individual ~~trihalomethanes.~~ **THMs.**

[7]The MCL for haloacetic acids is the sum of the concentrations of the individual haloacetic acids.

[8]Surface water systems and ground water systems under the direct influence of surface water are regulated under 327 IAC 8-2-8.5, 327 IAC 8-2-8.6, 327 IAC 8-2-8.7, 327 IAC 8-2-8.8, and 327 IAC 8-2-14. Subpart H community and nontransient noncommunity systems serving greater than or equal to ten thousand (10,000) persons shall comply with 327 IAC 8-2.5-1 through 327 IAC 8-2.5-9 DBP MCLs and MRDLs beginning January 1, 2002. All other community and nontransient noncommunity systems shall comply with Subpart L DBP MCLs and disinfectant MRDLs beginning January 1, 2004. Subpart H transient noncommunity systems serving greater than or equal to ten thousand (10,000) persons that use chlorine dioxide as a disinfectant or oxidant shall comply with the chlorine dioxide MRDL beginning January 1, 2002. All other transient noncommunity systems that use chlorine dioxide as a disinfectant or oxidant shall comply with the chlorine dioxide MRDL beginning January 1, 2004.

[9]Community and nontransient noncommunity systems shall comply with 327 IAC 8-2.5-11 through 327 IAC 8-2.5-20 TTHM and HAA5 MCLs of eighty-thousandths (0.080) milligrams per liter and sixty-thousandths (0.060) milligrams per liter respectively (with compliance calculated as a LRAA) on the schedule in 327 IAC 8-2.5-11.

(Water Pollution Control Board; 327 IAC 8-2.1-17; filed Nov 20, 2001, 10:20 a.m.: 25 IR 1118; errata filed Feb 22, 2002, 2:01 p.m.: 25 IR 2254; filed May 1, 2003, 12:00 p.m.: 26 IR 2833; filed Jun 13, 2005, 2:30 p.m.: 28 IR 3240)

SECTION 24. 327 IAC 8-2.1-18 IS ADDED TO READ AS FOLLOWS:

327 IAC 8-2.1-18 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

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3-2; IC 13-18-16
Affected: IC 13-18-3-11

Sec. 18. (a) The owner or operator of a community or noncommunity PWS that is required to monitor source water under 40 CFR 141.701, as incorporated by reference in 327 IAC 8-2.6-8(b)(1), shall notify persons served by the water system that monitoring has not been completed, as specified. The notification must meet the following:

(1) Be provided not later than thirty (30) days after the PWS has failed to collect any three (3) months of monitoring, as specified in 40 CFR 141.701(c), as incorporated by reference in 327 IAC 8-2.6-8(b)(1).
(2) Be repeated as specified in section 9(b) of this rule.

(b) The owner or operator of a community or NCWS that is required to determine a bin classification under 327 IAC 8-2.6-11 shall notify persons served by the PWS that the determination has not been made as required. The notification must meet the following:

(1) Be provided not later than thirty (30) days after the PWS has failed to report the determination as specified in 40 CFR 141.710(e).
(2) Be repeated as specified in section 9(b) of this rule.
(3) The notice is not required if the PWS is complying with a schedule approved by the commissioner to address the violation.

(c) The form and manner of the public notice must:
(1) follow the requirements for a Tier 2 public notice under section 9(c) of this rule; and
(2) be presented as required under section 11(b) and 11(c) of this rule.

(d) The notice must contain the following language, including the language necessary to fill in the blanks:

(1) 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; therefore, we may not be able to determine, by the required date, what treatment modifications, if any, shall be made to ensure adequate Cryptosporidium removal. Missing this deadline can, in turn, jeopardize our ability to have the required 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).".
(2) The special notice for failure to determine bin classification 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 PWS is doing to correct the violation and when the PWS expects to return to compliance or resolve the situation.

(Water Pollution Control Board; 327 IAC 8-2.1-18)

SECTION 25. 327 IAC 8-2.3 IS ADDED TO READ AS FOLLOWS:

Rule 2.3. Ground Water Rule

327 IAC 8-2.3-1 Definitions

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3-2; IC 13-18-16
Affected: IC 13-18-3-11; IC 13-18-17

Sec. 1. In addition to the definitions included in 327 IAC 8-2-1, the following definitions apply throughout this rule:
(1) "Ground water system" means any PWS that uses ground water except for a system that combines all of its ground water with:
(A) surface water; or
(B) ground water under the direct influence of surface water;
prior to treatment under Subpart H, including a consecutive system receiving finished ground water.
(2) "Hydrogeologic sensitivity assessment" means a determination of whether ground water systems obtain water from hydrogeologically sensitive settings.

(Water Pollution Control Board; 327 IAC 8-2.3-1)

327 IAC 8-2.3-2 General requirements and applicability

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3-2; IC 13-18-16
Affected: IC 13-18-3-11; IC 13-18-17

Sec. 2. (a) This rule applies to ground water systems as defined under section 1 of this rule. Ground water systems shall comply with this rule, unless otherwise noted, beginning December 1, 2009.

(b) A ground water system subject to this rule shall comply with the following:
(1) Sanitary survey requirements for all ground water systems as described under 327 IAC 8-2-8.2.
(2) Microbial source water monitoring requirements for ground water systems that do not treat all of their ground water to at least ninety-nine and ninety-nine hundredths percent (99.99%) (4-log) treatment of viruses using:
(A) inactivation;
(B) removal; or
(C) a state-approved combination of 4-log virus inactivation and removal;

before or at the first customer as described in section 3 of this rule.
(3) Treatment technique requirements described under section 5 of this rule that must be implemented as follows:
(A) By a ground water system that has one (1) or both of the following:
(i) Fecally contaminated source waters, as determined by source water monitoring conducted under section 4 of this rule.
(ii) Significant deficiencies that are identified by the commissioner during a sanitary survey in accordance with 327 IAC 8-2-8.2.
(B) A ground water system subject under clause (A) to the treatment technique requirements under section 5 of this rule shall implement one (1) or more of the following corrective action options:
(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:
(AA) inactivation;
(BB) removal; or
(CC) a state-approved combination of 4-log virus inactivation and removal approved by the commissioner;
before or at the first customer.
(4) A ground water system that provides at least 4-log treatment of viruses using:
(A) inactivation;
(B) removal; or
(C) a state-approved combination of 4-log virus inactivation and removal approved by the commissioner;
before or at the first customer is required to conduct compliance monitoring to demonstrate treatment effectiveness, as described under section 5(b) of this rule.
(5) If requested by the commissioner, a ground water system shall provide the commissioner with any existing information that will enable the commissioner to perform a hydrogeologic sensitivity assessment.
(6) A ground water PWS subject to this rule shall have a smooth-nosed sampling tap that meets the following:
(A) Has no interior or exterior threads available for sample collection.
(B) Is located:
(i) at a point prior to any treatment or storage for each ground water source; and
(ii) in such a manner that it:
(AA) prevents contamination of the tap; and
(BB) facilitates sampling, when necessary.
Other tap installations may be approved by the commissioner on a case-by-case basis if the ground water system submits a written request to the commissioner and receives a written approval from the commissioner.

(Water Pollution Control Board; 327 IAC 8-2.3-2)

327 IAC 8-2.3-3 Sanitary surveys for ground water systems

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3-2; IC 13-18-16
Affected: IC 13-18-3-11; IC 13-18-17

Sec. 3. A ground water system shall provide the commissioner, at the commissioner's request, any existing information that will enable to commissioner to conduct a sanitary survey required under 327 IAC 8-2-8.2.

(Water Pollution Control Board; 327 IAC 8-2.3-3)

327 IAC 8-2.3-4 Ground water source microbial monitoring and analytical methods

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3-2; IC 13-18-16
Affected: IC 13-18-3-11; IC 13-18-17

Sec. 4. (a) The following applies to triggered source water monitoring required under this rule:
(1) A ground water system shall conduct triggered source water monitoring if the conditions identified in the following exist:
(A) The system does not provide at least 4-log treatment of viruses using:
(i) inactivation;
(ii) removal; or
(iii) a state-approved combination of 4-log virus inactivation and removal approved by the commissioner;
before or at the first customer for each ground water source.
(B) The system is notified that:
(i) a sample collected under 327 IAC 8-2-8(a) through 327 IAC 8-2-8(e) is total coliform-positive; and
(ii) the sample under item (i) is not invalidated under 327 IAC 8-2-8(f).
(2) A ground water system shall collect, within twenty-four (24) hours of notification of the total coliform-positive sample under subdivision (1)(B)(i), at least one (1) ground water source sample from each ground water source in use at the time the total coliform-positive sample was collected under 327 IAC 8-2-8(a) through 327 IAC 8-2-8(e), except as provided in clause (B). The commissioner may approve the following alternatives to this sampling requirement:
(A) The commissioner may extend the twenty-four (24) hour time limit on a case-by-case basis if the system cannot collect the ground water source water sample within twenty-four (24) hours due to circumstances beyond its control. In the case of an extension, the commissioner shall specify how much time the system has to collect the sample.
(B) If:
(i) approved by the commissioner, systems with more than one (1) ground water source may meet the requirements of this subdivision by sampling a representative ground water source or sources; and
(ii) directed by the commissioner, a system shall submit for commissioner approval a triggered source water monitoring plan that:
(AA) identifies one (1) or more ground water sources that are representative of each monitoring site in the system's sample siting plan under 327 IAC 8-2-8(a) through 327 IAC 8-2-8(e); and
(BB) the system intends to use for representative sampling under this subdivision.
(C) A ground water system that uses a single well and serves one thousand (1,000) people or fewer may use a repeat sample collected from a ground water source to:
(i) meet the requirements of 327 IAC 8-2-8.1; and
(ii) satisfy the monitoring requirements of this subdivision;
for only that ground water source if the commissioner approves the use of E. coli as a fecal indicator for source water monitoring under this subsection and the commissioner approves the use of the source water sample to meet the requirements of 327 IAC 8-2-8.1. If the repeat sample collected from the ground water source is E. coli positive, the system shall comply with subdivision (3).
(3) If the commissioner does not require corrective action under section 5(a)(2) of this rule for a fecal indicator-positive source water sample:
(A) collected under subdivision (2); and
(B) that is not invalidated under subsection (d);
then the system shall collect five (5) additional source water samples from the same source within twenty-four (24) hours of being notified of the fecal indicator-positive sample.
(4) Consecutive and wholesale systems shall meet the following requirements:
(A) In addition to the other requirements of this subsection, a consecutive ground water system that has a total coliform-positive sample collected under 327 IAC 8-2-8(a) through 327 IAC 8-2-8(e) shall notify the wholesale system or systems that supply water to the consecutive system within twenty-four (24) hours of being notified of the total coliform-positive sample.
(B) In addition to the other requirements of this subsection, a wholesale ground water system shall do the following:
(i) A wholesale ground water system that receives notice from a consecutive system it serves that a sample collected under 327 IAC 8-2-8(a) through 327 IAC 8-2-8(e) is total coliform-positive shall, within twenty-four (24) hours of being notified, do the following:
(AA) Collect a sample from its ground water source or sources under subdivision (2).
(BB) Analyze it for a fecal indicator under subsection (c).
(ii) If the sample collected under item (i) is fecal indicator-positive, the wholesale ground water system shall:
(AA) notify all consecutive systems served by that ground water source of the fecal

indicator-positive source water sample result within twenty-four (24) hours of being notified of the ground water source sample monitoring result; and
(BB) meet the requirements of subdivision (3).
(C) Consecutive and wholesale systems shall work together to ensure that the requirements of this subdivision are met.
(5) A ground water system is not required to comply with the source water monitoring requirements of this subsection if either of the following conditions exists:
(A) The commissioner determines and documents, in writing, that the total coliform-positive sample collected under 327 IAC 8-2-8(a) through 327 IAC 8-2-8(e) is caused by a distribution system deficiency.
(B) The total coliform-positive sample collected under 327 IAC 8-2-8(a) through 327 IAC 8-2-8(e) is collected at a location that meets criteria set by the commissioner for distribution system conditions that will cause total coliform-positive samples.

(b) If directed by the commissioner, a ground water system shall conduct assessment source water monitoring that meets the following:
(1) The requirements shall be determined by the commissioner for assessment source water monitoring.
(2) A ground water system conducting assessment source water monitoring may use a triggered source water sample collected under subsection (a)(2) to meet the requirements of this subsection.
(3) Assessment source water monitoring requirements determined by the commissioner may include the following:
(A) Collection of at least:
(i) one (1) ground water source sample per month; or
(ii) if operating fewer than twelve (12) months, twelve (12) samples split evenly through the period of operation representing each month the system provides ground water to the public.
(B) Collection of samples from each well unless the system obtains written approval from the commissioner to conduct monitoring at one (1) or more wells within the ground water system that:
(i) are representative of multiple wells used by that system; and
(ii) draw water from the same hydrogeologic setting.
(C) Collection of a standard sample volume of at least one hundred (100) milliliters for fecal indicator analysis regardless of the fecal indicator or analytical method used.
(D) Analysis of all ground water source samples using one (1) of the analytical methods listed in subsection (c)(2) for the presence of:
(i) E. coli;
(ii) enterococci; or
(iii) coliphage.
(E) Collection of ground water source samples at a location prior to any treatment of the ground water source unless the commissioner approves a sampling location after treatment.
(F) Collection of ground water source samples at the well unless the:
(i) system's configuration does not allow for sampling at the well; and
(ii) commissioner approves an alternate sampling location that is representative of the water quality of that well.

(c) The following analytical methods and requirements apply under this rule:
(1) A ground water system subject to the triggered source water monitoring requirements of subsection (a) shall collect a standard sample volume of at least one hundred (100) milliliters for fecal indicator analysis regardless of the fecal indicator or analytical method used.
(2) A ground water system shall analyze all ground water source samples collected under subsection (a) using one (1) of the analytical methods listed in the following table for the presence of E. coli, enterococci, or coliphage:

Analytical Methods for Source Water Monitoring		
Fecal indicator[1]	**Methodology**	**Method Citation***
E. coli	**Colilert[2]**	**9223 B**
	Colisure[2]	**9223 B**
	Membrane Filter Method with MI Agar	**EPA Method 1604**
	m-ColiBlue24 Test	
	E*Colite Test	

	EC-MUG[3] NA-MUG[3]	9221 F 9222 G
Enterococci	Multiple Tube Technique Membrane Filter Technique Membrane Filter Technique Enterolert	9230 B 9230 C EPA Method 1600
Coliphage	Two-Step Enrichment Presence-Absence Procedure Single Agar Layer Procedure	EPA Method 1601 EPA Method 1602

[1]The time from sample collection to initiation of analysis may not exceed thirty (30) hours. The ground water system is encouraged, but is not required, to hold samples below ten (10) degrees Centigrade during transit.

[2]Medium is available through IDEXX Laboratories, Inc., One IDEXX Drive, Westbrook, ME 04092.

[3]EC-MUG (Method 9221F) or NA-MUG (Method 9222G) can be used for E. coli testing step as described in 327 IAC 8-2-8.4(a)(5)(A) or 327 IAC 8-2-8.4(a)(5)(B) after use of Standard Methods 9221 B, 9221 D, 9222 B, or 9222 C.

(d) The commissioner may invalidate a fecal indicator-positive ground water source sample collected under subsection (a) if one (1) of the following occurs:
(1) The system provides the commissioner with written notice from the laboratory that improper sample analysis occurred.
(2) The commissioner 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.

(e) Any ground water source sample required under subsection (a) must be collected at:
(1) a location prior to any treatment of the ground water source or after treatment only if that sampling location is approved by the commissioner; and
(2) the well unless the:
(A) system's configuration does not allow for sampling at the well; and
(B) commissioner approves an alternate sampling location that:
(i) meets the requirements of subsection (a); and
(ii) is representative of the water quality of that well.

(f) If directed by the commissioner, a ground water system that places a new ground water source into service after November 30, 2009, shall:
(1) conduct assessment source water monitoring under subsection (b); and
(2) begin monitoring before the ground water source is used to provide water to the public.

(g) A ground water system with a ground water source sample collected under subsection (a) or (b) that is:
(1) fecal indicator-positive; and
(2) not invalidated under subsection (d);
including consecutive systems served by the ground water source, shall conduct public notification under 327 IAC 8-2.1-8.

(h) Failure to meet the requirements of subsections (a) through (f):
(1) is a monitoring violation; and
(2) requires the ground water system to provide public notification under 327 IAC 8-2.1-10.

*The methods referenced in this section are incorporated by reference and can be obtained as follows:
(1) Methods 9221 F, 9222 G, 9223 B, 9230 B, and 9230 C are described in Standard Methods for the Examination of Water and Wastewater 20th Edition (1998), and copies can be obtained from the American Public Health Association, 1015 Fifteenth Street, Washington, D.C. 20005-2605.
(2) EPA Method 1604: Total Coliforms and Eschericia coli in Water by Membrane Filtration Using a Simultaneous Detection Technique (MI Medium); September 2002, EPA 821-R-02-024. Method is

available at http://www.epa.gov/nerlcwww/1604so02.pdf or from EPA's Water Resource Center (RC-4100T), 1200 Pennsylvania Avenue NW, Washington, D.C. 20005-2605.
(3) A description of the m-ColiBlue24 Test, "Total Coliforms and E. coli Membrane Filtration Method with m-ColiBlue24 Broth", Method No. 10029 Revision 2, August 17, 1999, is available from Hach Company, 100 Dayton Avenue, Ames, IA 50010 or from EPA's Water Resource Center (RC-4100T), 1200 Pennsylvania Avenue NW, Washington, D.C. 20460.
(4) A description of the E*Colite Test, "Charm E*Colite Presence/Absence Test for Detection and Identification of Coliform Bacteria and Escherichia coli in Drinking Water", January 9, 1998, is available from Charm Sciences, Inc., 659 Andover Street, Lawrence, MA 01843-1032 or from EPA's Water Resource Center (RC-4100T), 1200 Pennsylvania Avenue NW, Washington, D.C. 20460.
(5) EPA Method 1600: Enterococci in Water by Membrane Filtration Using membrane-Enterococcus Indoxyl-b-D-Glucoside Agar (mEI) EPA 821-R-02-022 (September 2002) is an approved variation of Standard Method 9230C. The method is available at http://www.epa.gov/nerlcwww/1600sp02.pdf or from EPA's Water Resource Center (RC-4100T), 1200 Pennsylvania Avenue NW, Washington, D.C. 20460. The holding time and temperature for ground water samples are specified in footnote 1 above, rather than as specified in Section 8 of EPA Method 1600.
(6) EPA Method 1601: Male-specific (F+) and Somatic Coliphage in Water by Two-step Enrichment Procedure; April 2001, EPA 821-R-01-030. Method is available at http://www.epa.gov/nerlcwww/1601ap01.pdf or from EPA's Water Resource Center (RC-4100T), 1200 Pennsylvania Avenue NW, Washington, D.C. 20460.
(7) EPA Method 1602: Male-specific (F+) and Somatic Coliphage in Water by Single Agar Layer (SAL) Procedure; April 2001, EPA 821-R-01-029. Method is available at http://www.epa.gov/nerlcwww/1602ap01.pdf or from EPA's Water Resource Center (RC-4100T), 1200 Pennsylvania Avenue NW, Washington, D.C. 20460.

The methods are also available for copying at the Indiana Department of Environmental Management, Office of Water Quality, Indiana Government Center North, 100 North Senate Avenue, Room N1255, Indianapolis, Indiana 46204.

(Water Pollution Control Board; 327 IAC 8-2.3-4)

327 IAC 8-2.3-5 Treatment technique requirements for ground water systems

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3-2; IC 13-18-16
Affected: IC 13-18-3-11; IC 13-18-17

Sec. 5. (a) The following apply to a ground water system with significant deficiencies or source water fecal contamination:
(1) The treatment technique requirements of this section shall be met by a ground water system when a:
(A) significant deficiency is identified; or
(B) ground water source sample collected under section 4(a)(3) of this rule is fecal indicator-positive.
(2) If directed by the commissioner, a ground water system with a ground water source sample collected under:
(A) section 4(a)(2) of this rule;
(B) section 4(a)(4) of this rule; or
(C) section 4(b) of this rule;
that is fecal indicator-positive shall comply with the treatment technique requirements of this section.
(3) When a significant deficiency is identified at a Subpart H system that uses:
(A) both ground water and surface water; or
(B) ground water under the direct influence of surface water;
the system shall comply with this subdivision except in cases where the commissioner determines that the significant deficiency is in a portion of the distribution system that is served solely by surface water or ground water under the direct influence of surface water.
(4) Unless the commissioner directs the ground water system to implement a specific corrective action, the ground water system shall consult with the commissioner regarding the appropriate corrective action within thirty (30) days of receiving one (1) of the following:
(A) Written notice from the commissioner of a significant deficiency.
(B) Written notice from a laboratory that a ground water source sample collected under section 4(a)(3) of this rule was found to be fecal indicator-positive.

(C) Direction from the commissioner that a fecal indicator-positive sample collected under:
(i) section 4(a)(2) of this rule;
(ii) section 4(a)(4) of this rule; or
(iii) section 4(b) of this rule;
requires corrective action.

(5) Within one hundred twenty (120) days, or fewer if specified by the commissioner, of receiving notification of one (1) or more of the conditions listed in subdivision (4), the ground water system shall do one (1) of the following:
(A) Have completed corrective action in accordance with:
(i) applicable state plan review processes under 327 IAC 8-3-2 including interim measures specified by the commissioner; or
(ii) other state guidance or direction, if any.
(B) Be in compliance with a corrective action plan and schedule that meet the following:
(i) Are approved by the commissioner.
(ii) Receive approval by the commissioner to any subsequent modifications to the corrective action plan or schedule previously approved by the commissioner.
If the commissioner specifies interim measures for protection of the public health pending approval by the commissioner of the corrective action plan and schedule or pending completion of the corrective action plan, the system shall comply with these interim measures as well as with any schedule specified by the commissioner.

(6) A ground water system that meets the conditions of subdivision (1) or (2) shall implement one (1) or more of the following corrective action alternatives:
(A) Correct all significant deficiencies.
(B) Provide an alternate source of water.
(C) Eliminate the source of contamination.
(D) Provide treatment that reliably achieves at least 4-log treatment of viruses using:
(i) inactivation;
(ii) removal; or
(iii) a commissioner-approved combination of 4-log virus inactivation and removal;
before or at the first customer for the ground water source.

(7) The following requirements apply, in addition to the applicable public notification requirements of 327 IAC 8-2.1-8, to special notice to the public of significant deficiencies or source water fecal contamination:
(A) A community ground water system that receives notice from the commissioner of a significant deficiency or notification of a fecal indicator-positive ground water source sample that is not invalidated by the commissioner under section 4(d) of this rule shall do the following:
(i) Inform the public served by the water system, as required under 327 IAC 8-2.1-3(h)(6), of:
(AA) the fecal indicator-positive source sample; or
(BB) any significant deficiency that has not been corrected.
(ii) Continue to inform the public annually until the:
(AA) significant deficiency is corrected; or
(BB) fecal contamination in the ground water source is determined by the commissioner to be corrected under subdivision (5).
(B) A noncommunity ground water system that receives notice from the commissioner of a significant deficiency shall do the following:
(i) Inform the public served by the water system in a manner approved by the commissioner of any significant deficiency that has not been corrected within:
(AA) twelve (12) months of being notified by the commissioner; or
(BB) a time earlier than required under subitem (AA), if directed by the commissioner.
(ii) Continue to inform the public annually until the significant deficiency is corrected by providing information that includes the following:
(AA) The nature of the significant deficiency and the date the significant deficiency was identified by the commissioner.
(BB) The plan and schedule for correction of the significant deficiency, as approved by the commissioner, including interim measures, progress to date, and any interim measures completed.
(CC) For a system with a large proportion of non-English speaking consumers, where twenty percent (20%) or more of the customers speak the same language other than English, information in the appropriate language or languages 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 commissioner, a noncommunity ground water system with significant deficiencies that have been corrected shall inform its customers of the following:
(AA) The significant deficiencies.
(BB) How the deficiencies were corrected.
(CC) The dates of correction.

(b) The following apply to compliance monitoring under this rule:
(1) An existing ground water system that is not required to meet the source water monitoring requirements of section 4(a) of this rule for any ground water source because it provides at least 4-log treatment of viruses (using inactivation, removal, or a commissioner-approved combination of 4-log virus inactivation and removal) before or at the first customer for any ground water source before December 1, 2009, shall do the following:
(A) Notify the commissioner in writing that it provides at least 4-log treatment of viruses (using inactivation, removal, or a commissioner-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 subdivision (3) by December 1, 2009.
(B) Provide in the notice to the commissioner as required under clause (A) information that includes:
(i) engineering;
(ii) operational; or
(iii) other;
information that the commissioner requests to evaluate the submission.
(C) Conduct ground water source monitoring as required under section 4 of this rule if the system subsequently discontinues 4-log treatment of viruses using:
(i) inactivation;
(ii) removal; or
(iii) a commissioner-approved combination of 4-log virus inactivation and removal;
before or at the first customer for a ground water source.
(2) 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 section 4(a) of this rule because the system provides at least 4-log treatment of viruses (using inactivation, removal, or a commissioner-approved combination of 4-log virus inactivation and removal) before or at the first customer for the ground water source shall comply with the following:
(A) Provide notification, in writing, to the commissioner of the following:
(i) That the system provides at least 4-log treatment of viruses (using inactivation, removal, or a commissioner-approved combination of 4-log virus inactivation and removal) before or at the first customer for the ground water source.
(ii) Information that includes:
(AA) engineering;
(BB) operational; or
(CC) other;
information that the commissioner requests to evaluate the submission.
(B) Conduct the following:
(i) Compliance monitoring as required under subdivision (3) within thirty (30) days of placing the source in service.
(ii) Ground water source monitoring under section 4 of this rule if the system subsequently discontinues 4-log treatment of viruses using:
(AA) inactivation;
(BB) removal; or
(CC) a commissioner-approved combination of 4-log virus inactivation and removal;
before or at the first customer for the ground water source.
(3) A ground water system subject to the requirements of subsection (a) or this subsection shall monitor the effectiveness and reliability of treatment for that ground water source before or at the first customer according to the following:
(A) A system using chemical disinfection shall complete the following monitoring requirements:
(i) A ground water system that serves greater than three thousand three hundred (3,300) people shall comply with the following:
(AA) Continuously monitor the residual disinfectant concentration using analytical methods specified in 327 IAC 8-2-8.7(5) through 327 IAC 8-2-8.7(8) at a location approved by the commissioner.
(BB) Record the lowest residual disinfectant concentration monitored, under subitem (AA), each

day that water from the ground water source is served to the public.
(CC) Maintain the residual disinfectant concentration, determined by the commissioner using data submitted under subdivision (1) or (2), every day the ground water system serves water from the ground water source to the public.
(DD) If there is a failure in the continuous monitoring equipment, the ground water system shall conduct grab sampling every four (4) hours until the continuous monitoring equipment is returned to service. The system shall resume continuous residual disinfectant monitoring within fourteen (14) days.
(ii) A ground water system that serves three thousand three hundred (3,300) or fewer people shall comply with the following:
(AA) Each day that water from the ground water source is served to the public, monitor the residual disinfectant concentration using analytical methods specified in 327 IAC 8-2-8.7(5) through 327 IAC 8-2-8.7(8) at a location approved by the commissioner.
(BB) Record the residual disinfectant concentration each day that water from the ground water source is served to the public.
(CC) Maintain the residual disinfectant concentration, determined by the commissioner using data submitted under subdivision (1) or (2), every day the ground water system serves water from the ground water source to the public.
(DD) Take a daily grab sample, every day the ground water system serves water from the ground water source to the public, during the hour of peak flow or at another time specified by the commissioner as determined using data submitted under subdivision (1) or (2). If any daily grab sample measurement falls below the residual disinfectant concentration determined by the commissioner, the ground water system shall take follow-up samples every four (4) hours until the residual disinfectant concentration is restored to the commissioner-determined level.
Alternatively, a ground water system that serves three thousand three hundred (3,300) or fewer people may monitor continuously and meet the requirements under item (i).
(B) A ground water system that uses membrane filtration to meet the requirements of this rule shall monitor the membrane filtration process in accordance with all monitoring requirements specified by the commissioner and shall operate the membrane filtration in accordance with all compliance requirements specified by the commissioner. 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:
(i) membrane has an:
(AA) absolute molecular weight cut-off (MWCO); or
(BB) alternate parameter;
that describes the exclusion characteristics of the membrane that can reliably achieve at least 4-log removal of viruses;
(ii) membrane process is operated in accordance with compliance requirements specified by the commissioner; and
(iii) integrity of the membrane is intact.
(C) A ground water system that uses an alternative treatment approved by the commissioner to meet the requirements of this rule by providing at least 4-log treatment of viruses (using inactivation, removal, or a commissioner-approved combination of 4-log virus inactivation and removal) before or at the first customer shall do the following:
(i) Monitor the alternative treatment in accordance with all monitoring requirements specified by the commissioner.
(ii) Operate the alternative treatment in accordance with all compliance requirements that the commissioner determines to be necessary to achieve at least 4-log treatment of viruses.

(c) A ground water system that provides 4-log treatment of viruses (using inactivation, removal, or a commissioner-approved combination of 4-log virus inactivation and removal) before or at the first customer for a ground water source may discontinue providing this treatment under the following conditions:
(1) The commissioner determines and documents in writing that 4-log treatment of viruses is no longer necessary for that ground water source.
(2) The system complies with the source water monitoring and analytical methods requirements of section 4 of this rule.

(d) Failure to meet the monitoring requirements of subsection (b):
(1) is a monitoring violation; and
(2) requires the ground water system to provide public notification under 327 IAC 8-2.1-10.

(Water Pollution Control Board; 327 IAC 8-2.3-5)

327 IAC 8-2.3-6 Treatment technique violations for ground water systems

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18
Affected: IC 13-18-3-11; IC 13-18-17

Sec. 6. (a) A ground water system with a significant deficiency is in violation of the treatment technique requirement if, within one hundred twenty (120) days (or earlier, if directed by the commissioner) of receiving written notice from the commissioner of the significant deficiency, the system:

(1) does not complete corrective action as required under section 5(a)(5)(A) of this rule in accordance with any applicable state plan review processes or other state guidance and direction, including interim actions and measures specified by the commissioner; or

(2) is not in compliance with a corrective action plan and schedule approved by the commissioner.

(b) Unless the commissioner invalidates a fecal indicator-positive ground water source sample under section 4(d) of this rule, a ground water system is in violation of the treatment technique requirement if, within one hundred twenty (120) days (or earlier, if directed by the commissioner) of meeting the conditions of section 5(a)(1) or 5(a)(2) of this rule, the system:

(1) does not complete corrective action as required under section 5(a)(5)(A) of this rule in accordance with any applicable state plan review processes or other state guidance and direction, including interim measures specified by the commissioner; or

(2) is not in compliance with a corrective action plan and schedule approved by the commissioner.

(c) A ground water system subject to the requirements of section 5(b)(3) of this rule that fails to maintain at least 4-log treatment of viruses (using inactivation, removal, or a commissioner-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 (4) hours of determining the system is not maintaining at least 4-log treatment of viruses before or at the first customer.

(d) A ground water system shall give public notification under 327 IAC 8-2.1-9 for the treatment technique violations specified in this section.

(Water Pollution Control Board; 327 IAC 8-2.3-6)

327 IAC 8-2.3-7 Reporting and record keeping for ground water systems

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3-2; IC 13-18-16
Affected: IC 13-18-3-11; IC 13-18-17

Sec. 7. (a) In addition to the requirements of 327 IAC 8-2-13, a ground water system regulated under this rule shall provide the following information to the commissioner:

(1) A ground water system conducting compliance monitoring under section 5(b) of this rule shall notify the commissioner under the following circumstances:

(A) Any time the system fails to meet any of the following requirements specified by the commissioner:

(i) Minimum residual disinfectant concentration.

(ii) Membrane operating criteria or membrane integrity.

(iii) Alternative treatment operating criteria.

(B) Within a time period according to the following:

(i) Notify the commissioner within four (4) hours of a failure to meet any commissioner-specified requirement under clause (A) if operation in accordance with the criteria or requirements is not restored.

(ii) The ground water system shall notify the commissioner as soon as possible, but in no case

later than the end of the next business day.

(2) After completing any corrective action under section 5(a) of this rule, a ground water system shall notify the commissioner within thirty (30) days of completion of the corrective action.

(3) If a ground water system subject to the requirements of section 4(a) of this rule does not conduct source water monitoring under section 4(a)(5)(B) of this rule, the system shall provide documentation to the commissioner within thirty (30) days of the total coliform positive sample that it met the criteria set by the commissioner.

(b) In addition to the requirements of 327 IAC 8-2-20, a ground water system regulated under this rule shall maintain the following information in its records:

(1) Documentation of corrective actions must be kept for a period of not less than ten (10) years.

(2) Documentation of notice to the public as required under section 5(a)(7) of this rule must be kept for a period of not less than three (3) years.

(3) Records of decisions under section 4(a)(5)(B) of this rule and records of invalidation of fecal indicator-positive ground water source samples under section 4(d) of this rule must be kept for a period of not less than five (5) years.

(4) For consecutive systems, documentation of notification to the wholesale system or systems of total-coliform positive samples that are not invalidated under 327 IAC 8-2-8(f) must be kept for a period of not less than five (5) years.

(5) For systems, including wholesale systems, that are required to perform compliance monitoring under section 5(b) of this rule, records of the following must be maintained:

(A) The minimum disinfectant residual specified by the commissioner must be kept for a period of not less than ten (10) years.

(B) The lowest daily residual disinfectant concentration must be kept for a period of not less than five (5) years, including the:

(i) date; and

(ii) duration;

of any failure to maintain the minimum residual disinfectant concentration for a period of more than four (4) hours as prescribed by the commissioner.

(C) Commissioner-specified compliance requirements for membrane filtration and of parameters specified by the commissioner for commissioner-approved alternative treatment must be kept for a period of not less than five (5) years, including the:

(i) date; and

(ii) duration;

of any failure to meet the membrane operating, membrane integrity, or alternative treatment operating requirements for more than four (4) hours.

(Water Pollution Control Board; 327 IAC 8-2.3-7)

SECTION 26. 327 IAC 8-2.5-2 IS AMENDED TO READ AS FOLLOWS:

327 IAC 8-2.5-2 Maximum contaminant levels; disinfection byproducts

Authority: IC 13-13-5-1; IC 13-14-8-2; IC 13-14-8-7; IC 13-18-3-2
Affected: IC 13-12-3-1; IC 13-13-5-2; IC 13-14-9; IC 13-18-11

Sec. 2. (a) The MCLs for disinfection byproducts are as follows:

Disinfection Byproduct	MCL (mg/L)
~~Total trihalomethanes~~ TTHM	0.080
~~Haloacetic acids (five)~~ HAA5	0.060
Bromate	0.010
Chlorite	1.0

~~(b) A system that is installing GAC or membrane technology to~~ **(1) Subpart H systems shall** comply with this ~~section may apply to the commissioner for an extension of up to twenty-four (24) months past the dates in section 4(b) of this rule, but not later than December 31, 2003. In granting the extension, the commissioner shall set a schedule for compliance and may specify any interim measures that the system must take.~~ **subsection according to the following:**

(A) Beginning January 1, 2002, for a system serving ten thousand (10,000) or more persons.

(B) Beginning January 1, 2004, for systems serving fewer than ten thousand (10,000) persons and systems using only ground water not under the direct influence of surface water.

~~(c)~~ **(2)** The commissioner hereby identifies the following as the best technology, treatment techniques, or other means available for achieving compliance with the ~~maximum contaminant levels~~ **MCLs** for disinfection byproducts identified in **this** subsection: ~~(a):~~

Disinfection Byproduct	Best Available Technology
TTHM	Enhanced coagulation or enhanced softening or GAC10, with chlorine as the primary and residual disinfectant.
HAA5	Enhanced coagulation or enhanced softening or GAC10, with chlorine as the primary and residual disinfectant.
Bromate	Control of ozone treatment process to reduce production of bromate.
Chlorite	Control of treatment processes to reduce disinfectant demand and control of disinfection treatment processes to reduce disinfectant levels.

(b) This subsection relates to LRAA compliance under sections 11 through 20 of this rule. The MCLs for TTHM and HAA5 are as follows:

Disinfection Byproduct	**MCL (mg/L)**
TTHM	**0.080**
HAA5	**0.060**

(1) The MCLs for TTHM and HAA5 must be complied with as a LRAA at each monitoring location beginning at the date specified for compliance in section 11(c) of this rule.

(2) The commissioner hereby identifies the following as the best technology, treatment techniques, or other means available for achieving compliance with the MCLs for TTHM and HAA5 identified in this subsection for all systems that disinfect their source water:

Disinfection Byproduct	**Best Available Technology**
TTHM and HAA5	**Enhanced coagulation or enhanced softening plus GAC10, or nanofiltration with a molecular weight cutoff less than or equal to one thousand (1,000) Daltons, or GAC20.**

(3) The commissioner hereby identifies the following as the BAT, treatment techniques, or other means available for achieving compliance with the MCLs for TTHM and HAA5 identified in this subsection for consecutive systems and applies only to the disinfected water that consecutive systems buy or otherwise receive:

Disinfection Byproduct	**Best Available Technology**
TTHM and HAA5	**Systems serving greater than or equal to ten thousand (10,000): Improved distribution system and storage tank management to reduce residence time, plus the use of chloramines for disinfectant residual maintenance. Systems serving less than ten thousand (10,000): Improved distribution system and storage tank maintenance to reduce residence time.**

(Water Pollution Control Board; 327 IAC 8-2.5-2; filed May 1, 2003, 12:00 p.m.: 26 IR 2840)

SECTION 27. 327 IAC 8-2.5-5 IS AMENDED TO READ AS FOLLOWS:

327 IAC 8-2.5-5 Analytical requirements; disinfectant residuals, disinfection byproducts, and disinfection byproducts precursors

Authority: IC 13-13-5-1; IC 13-14-8-2; IC 13-14-8-7; IC 13-18-3-2
Affected: IC 13-12-3-1; IC 13-13-5-2; IC 13-14-9; IC 13-18-11

Sec. 5. (a) Systems shall use only one (1) or more of the analytical methods specified in this subsection **or an EPA-approved equivalent method to demonstrate compliance with this rule.** These methods are incorporated by reference and may be obtained as follows:

(1) EPA Method 552.1 is in Methods for the Determination of Organic Compounds in Drinking Water-Supplement II, U.S. EPA, August 1992, EPA/600/R-92/129 (available through National Information Technical Service (NTIS), PB92-207703).

(2) EPA Methods 502.2, 524.2, 551.1, and 552.2 are in Methods for the Determination of Organic Compounds in Drinking Water-Supplement III, U.S. EPA, August 1995, EPA/600/R-95/131 (available through NTIS,

PB95-261616).
(3) EPA Methods 300.0 and 150.1 are in Methods for the Determination of Inorganic Substances in Environmental Samples, U.S. EPA, August 1993, EPA/600/R-93/100 (available through NTIS, PB94-121811).
(4) EPA ~~Method~~ **Methods** 300.1 ~~is~~ **and 321.8 are** in ~~USEPA Method 300.1,~~ **Methods for the** Determination of **Organic and** Inorganic ~~Anions~~ **Compounds** in Drinking Water ~~by Ion Chromatography, Revision 1.0, U.S. EPA, 1997, EPA/600/R-98/118,~~ **Volume 1, U.S. EPA, August 2000, EPA 815-R-00-014** (available through NTIS, ~~PB98-169196); also available from: Chemical Exposure Research Branch, Microbiological & Chemical Exposure Assessment Research Division, National Exposure Research Laboratory, U.S. Environmental Protection Agency, Cincinnati, Ohio 45268, fax number: 513-569-7757, phone number: 513-569-7586.~~ **PB2000-106981).**
(5) EPA Method 317.0, Revision 2.0, "Determination of Inorganic Oxyhalide Disinfection By-Products in Drinking Water Using Ion Chromatography with the Addition of a Postcolumn Reagent for Trace Bromate Anaylsis", U.S. EPA, July 2001, EPA 815-B-01-001 may be accessed and downloaded directly online at http://www.epa.gov/safewater/methods/sourcalt.html.
(6) EPA Method 326.0, Revision 1.0, "Determination of Oxyhalide Disinfection By-Products in Drinking Water Using Ion Chromatography Incorporating the Addition of a Suppressor Acidified Postcolumn Reagent for Trace Bromate Analysis", U.S. EPA, June 2002, EPA 815-R-03-007 may be accessed and downloaded directly online at http://www.epa.gov/safewater/methods/sourcalt.html.
(7) EPA Method 327.0, Revision 1.1, "Determination of Chlorine Dioxide and Chlorite Ion in Drinking Water Using Lissamine Green B and Horseradish Peroxidase with Detection by Visible Spectrophotometry", U.S. EPA, May 2005, EPA 815-R-05-008 may be accessed and downloaded directly online at http://www.epa.gov/safewater/methods/sourcalt.html.
(8) EPA Method 552.3, Revision 1.0. "Determination of Haloacetic Acids and Dalapon in Drinking Water by Liquid-liquid Microextraction, Derivitization, and Gas Chromatography with Electron Capture Detection", U.S. EPA, July 2003, EPA 815-B-03-002 may be accessed and downloaded directly online at http://www.epa.gov/safewater/methods/sourcalt.html.
(9) EPA Method 415.3, Revision 1.1, "Determination of Total Organic Carbon and Specific UV Absorbance at 254 nm in Source Water and Drinking Water", U.S. EPA, February 2005, EPA/600-R-05/055 may be accessed and downloaded directly online at http://www.epa.gov/nerlcwww/ordmeth.html.
(10) EPA Method 200.7 is found in "Methods for the Determination of Metals in Environmental Samples - Supplement I", U.S. EPA, May 1994, EPA 600-R-94-111(available through NTIS PB95-125472).
(11) Standard Methods 3111 B and 3500-Mg E must be followed in accordance with Standard Methods for the Examination of Water and Wastewater, 18th Edition or 19th Edition, American Public Health Association, 1992 and 1995, respectively. The cited method published in either edition may be used. Copies may be obtained from the American Public Health Association, 1015 Fifteenth Street NW, Washington, D.C. 20005.
(12) Standard Method 3120 B must be followed in accordance with the Standard Methods for the Examination of Water and Wastewater, 18th Edition, 19th Edition, or 20th Edition, American Public Health Association, 1992, 1995, and 1998 respectively. The cited method published in any of these three (3) editions may be used. Copies may be obtained from the American Public Health Association, 1015 Fifteenth Street NW, Washington, D.C. 20005.
~~(5)~~ **(13)** Standard Methods 4500-Cl D, 4500-Cl E, 4500-Cl F, 4500-Cl G, 4500-Cl H, 4500-Cl I, 4500-ClO_2 D, 4500-ClO_2 E, 4500-H^+ B, 6251 B, and 5910 B shall be followed in accordance with Standard Methods for the Examination of Water and Wastewater, 19th Edition **or 20th Edition,** American Public Health Association, ~~1995~~ **1996 and 1998, respectively. The cited methods published in either edition may be used.** Copies may be obtained from the American Public Health Association, 1015 Fifteenth Street NW, Washington, D.C. 20005.
(14) Standard Method 3500-Mg B must be followed in accordance with Standard Methods for the Examination of Water and Wastewater, 20th Edition, American Public Health Association, 1998. Copies may be obtained from the American Public Health Association, 1015 Fifteenth Street NW, Washington, D.C. 20005.
~~(6)~~ **(15)** Standard Methods 5310 B, 5310 C, and 5310 D shall be followed in accordance with the Supplement to the 19th Edition of Standard Methods for the Examination of Water and Wastewater, American Public Health Association, 1996 **or the Standard Methods for the Examination of Water and Wastewater, 20th Edition, 1998. The cited methods published in either edition may be used.** Copies may be obtained from the American Public Health Association, 1015 Fifteenth Street NW, Washington, D.C. 20005.
(16) Standard Methods 4500-Cl D-00, 4500-Cl E-00, 4500-Cl F-00, 4500-Cl G-00, 4500-Cl H-00, 4500-Cl I-00, 4500-ClO_2 E-00, 6251 B-94, 5310 B-00, 5310 C-00, 5310 D-00, and 5910 B-00 are available at http://www.standardmethods.org or at EPA's Water Docket at 1301 Constitution Avenue NW, EPA West, Room B, Washington, D.C. 20460. The year in which each method was approved by the Standard

Methods Committee is designated by the last two (2) digits in the method number. The methods listed are the only online versions that are IBR-approved.

~~(7)~~ **(17)** ASTM Methods D 1253-86 and ~~D1293-95~~ **D 1253-86 (reapproved 1996)** shall be followed in accordance with the Annual Book of ASTM Standards, Volume 11.01, American Society for Testing and Materials, 1996 edition, **or any ASTM edition containing the IBR-approved version of the method may be used.** Copies may be obtained from the American Society for Testing and Materials, 100 Barr Harbor Drive, West ~~Conshohoken,~~ **Conshohocken,** Pennsylvania 19428.

(18) ASTM Methods D 511-93A and D 511-93B shall be followed in accordance with the Annual Book of ASTM Standards, Volumes 11.01 and 11.02, American Society for Testing and Materials, 1994, 1996, 1999, or any ASTM edition containing the IBR-approved version of the method may be used. Copies may be obtained from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428.

(19) ASTM Method D 1253-03 shall be followed in accordance with the Annual Book of ASTM Standards, Volume 11.01, American Society for Testing and Materials, 2004 or any ASTM edition containing the IBR-approved version of the method may be used. Copies may be obtained from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428.

(20) ASTM Method D 6581-00 shall be following in accordance with the Annual Book of ASTM Standards, Volume 11.01, American Society for Testing and Materials, 2001 or any ASTM edition containing the IBR-approved version of the method may be used. Copies may be obtained from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428.

These methods are also available for copying at the Indiana Department of Environmental Management, Office of Water Quality, 100 North Senate Avenue, Room N1255, Indianapolis, Indiana 46204.

(b) Analytical requirements for disinfection byproducts are as follows:

(1) Systems shall measure disinfection byproducts by the methods, as modified by the footnotes, listed in the following ~~table:~~ **tables:**

~~APPROVED METHODS FOR DISINFECTION BYPRODUCT COMPLIANCE MONITORING~~

			~~Byproduct Measured[1]~~			
~~Methodology[2]~~	~~EPA Method~~	~~Standard Method~~	~~TTHM~~	~~HAA5~~	~~Chlorite[4]~~	~~Bromate~~
~~P & T/GC/ElCD & PID~~	~~502.2[3]~~		~~X~~			
~~P & T/GC/MS~~	~~524.2~~		~~X~~			
~~LLE/GC/ECD~~	~~551.1~~		~~X~~			
~~LLE/GC/ECD~~		~~6251 B~~		~~X~~		
~~SPE/GC/ECD~~	~~552.1~~			~~X~~		
~~LLE/GC/ECD~~	~~552.2~~			~~X~~		
~~Amperometric Titration~~		~~4500-ClO_2 E~~			~~X~~	
~~IC~~	~~300.0~~				~~X~~	
~~IC~~	~~300.1~~				~~X~~	~~X~~

~~[1] X indicates method is approved for measuring specified disinfection byproduct.~~

~~[2] P & T = purge and trap; GC = gas chromatography; ElCD = electrolytic conductivity detector; PID = photoionization detector; MS = mass spectrometer; LLE = liquid/liquid extraction; ECD = electron capture detector; SPE = solid phase extractor; IC = ion chromatography.~~

~~[3] If TTHMs are the only analytes being measured in the sample, then a PID is not required.~~

~~[4] Amperometric titration may be used for routine daily monitoring of chlorite at the entrance to the distribution system, as prescribed in section 6(b)(2)(A)(i) of this rule. Ion chromatography must be used for routine monthly monitoring of chlorite and additional monitoring of chlorite in the distribution system, as prescribed in section 6(b)(2)(A)(ii) and 6(b)(2)(B) of this rule.~~

APPROVED METHODS FOR DISINFECTION BYPRODUCT COMPLIANCE MONITORING

Methodology[1]	EPA Method	Standard Method	SM Online[8]	ASTM Method[3]
P & T/GC/E1CD & PID	502.2[4]			
P & T/GC/MS	524.2			
LLE/GC/ECD	551.1			
LLE (diazomethane)		6251 B[5]	6251B-94	
SPE (acidic methanol)/GC/ECD	552.1[5]			
LLE (acidic methanol)/GC/ECD	552.2, 552.3			
IC and post column reaction	317.0, Rev 2.0[6], 326.0[6]			
IC/ICP-MS	321.8[6,7]			
Spectrophotometry	327.0, Rev 1.1[8]			
Amperometric titration		4500-ClO_2 E[8]	4500-ClO_2 E - 00[8]	
IC	300.1, 317.0, Rev 2.0, 326.0			
IC	300.1			D6581-00

[1]P & T = purge and trap; GC = gas chromatography; ElCD = electrolytic conductivity detector; PID = photoionization detector; MS = mass spectrometer; LLE = liquid/liquid extraction; ECD = electron capture detector; SPE = solid phase extractor; IC = ion chromatography.

[2]19th and 20th Editions of Standard Methods for the Examination of Water and Wastewater, 1995 and 1998, respectively, American Public Health Association; either of these editions may be used.

[3]Annual Book of ASTM Standards, 2001 or any year containing the cited version of the method, Vol 11.01.

[4]If TTHMs are the only analytes being measured in the sample, then a PID is not required.

[5]The samples must be extracted within fourteen (14) days of sample collection.

[6]Ion chromatography and post column reaction or IC-ICP/MS must be used for monitoring of bromate for purposes of demonstrating eligibility of reduced monitoring, as prescribed in section 6(b)(3)(B) of this rule.

[7]Samples must be preserved at the time of sampling with fifty (50) mg ethylenediamine (EDA)/L of sample and must be analyzed within twenty-eight (28) days.

[8]The Standard Methods Online version that is approved is indicated by the last two (2) digits in the method number, which is the year of approval by the Standard Methods Committee. Standard Methods Online are available at http://www.standardmethods.org.

METHODOLOGY APPROVED FOR EACH BYPRODUCT MEASURED[1]				
Methodology[1]	TTHM	HAA5	Chlorite[2]	Bromate
P & T/GC/E1CD & PID	X			
P & T/GC/MS	X			
LLE/GC/ECD	X			
LLE (diazomethane)		X		
SPE (acidic methanol)/GC/ECD		X		
LLE (acidic methanol)/GC/ECD		X		
IC and post column reaction			X	
IC/ICP-MS				X

Spectrophotometry				**X**
Amperometric titration			**X**	
IC			**X**	
IC			**X**	**X**

[1]X indicates method is approved for measuring specified disinfection byproduct.

[2]Amperometric titration may be used for routine daily monitoring of chlorite at the entrance to the distribution system, as prescribed in section 6(b)(2)(A)(i) of this rule. Ion chromatography must be used for routine monthly monitoring of chlorite and additional monitoring of chlorite in the distribution system, as prescribed in section 6(b)(2)(A)(ii) and 6(b)(2)(B) of this rule.

(2) Analysis under this subsection for disinfection byproducts must be conducted by laboratories that have received certification by **EPA or** the commissioner, except as specified under subdivision (3). To receive certification to conduct analyses for the **DBP** contaminants in ~~section~~ **sections** 2(a) **and 9 through 20** of this rule, the laboratory must ~~carry out annual analyses of~~ **do the following:**

(A) Analyze performance evaluation (PE) samples approved by **EPA or** the commissioner **at least once during each consecutive twelve (12) month period by each method for which the laboratory desires certification.**

(B) Until March 31, 2007, in these analyses of PE samples, the laboratory must achieve quantitative results within the acceptance limit on a minimum of eighty percent (80%) of the analytes included in each PE sample. The acceptance limit is defined as the ninety-five percent (95%) confidence interval calculated around the mean of the PE study data between a maximum and minimum acceptance limit of plus or minus fifty percent (50%) and plus or minus fifteen percent (15%) of the study mean.

(C) Beginning April 1, 2007, the laboratory must achieve quantitative results on the PE sample analyses that are within the acceptance limits shown in the following table:

DBP Group	DBP	Acceptance Limits (percent of true value)	Comments
TTHM	**Chloroform**	**± 20**	**Laboratory shall meet all four (4) individual THM acceptance limits in order to successfully pass a PE sample for TTHM**
	Bromodichloromethane	**± 20**	
	Dibromochloromethane	**± 20**	
	Bromoform	**± 20**	
HAA5	**Monochloroacetic acid**	**± 40**	**Laboratory shall meet the acceptance limit for four (4) out of five (5) of the HAA5 compounds in order to successfully pass a PE sample for HAA5**
	Dichloroacetic acid	**± 40**	
	Trichloroacetic acid	**± 40**	
	Monobromoacetic acid	**± 40**	
	Dibromoacetic acid	**± 40**	
	Chlorite	**± 30**	
	Bromate	**± 30**	

(D) Beginning April 1, 2007, the laboratory must report quantitative data for concentrations at least as low as the ones listed in the following table for all DBP samples analyzed for compliance with sections 9 through 20 of this rule:

DBP Group	DBP	Minimum Reporting Level (mg/L)[1]	Comments
TTHM[2]	**Chloroform**	**0.0010**	
	Bromodichloromethane	**0.0010**	
	Dibromochloromethane	**0.0010**	
	Bromoform	**0.0010**	
HAA5[2]	**Monochloroacetic acid**	**0.0020**	
	Dichloroacetic acid	**0.0010**	
	Trichloroacetic acid	**0.0010**	
	Monobromoacetic acid	**0.0010**	
	Dibromoacetic acid	**0.0010**	
	Chlorite	**0.020**	**Applicable to monitoring as**

			prescribed in 327 IAC 8-2.5-6(b)(2)(A)(ii) and 327 IAC 8-2.5-6(b)(2)(B)
	Bromate	**0.0050 or 0.0010**	**Laboratories that use EPA Methods 317.0, Revision 2.0, 326.0 or 321.8 shall meet 0.010 mg/L MRL for bromate.**

[1]The calibration curve must encompass the regulatory minimum reporting level (MRL) concentration. Data can be reported by concentrations lower than the regulatory MRL as long as the precision and accuracy criteria are met by analyzing an MRL check standard at the lowest reporting limit chosen by the laboratory. The laboratory shall verify the accuracy of the calibration curve at the MRL concentration by analyzing an MRL check standard with a concentration less than or equal to one hundred ten percent (110%) of the MRL with each batch of samples. The measured concentration of the MRL check standard must be plus or minus fifty percent (± 50%) of the expected value if any field sample in the batch has a concentration less than five (5) times the regulatory MRL. Method requirements to analyze higher concentration check standards and meet tighter acceptance criteria for them must be met in addition to the MRL check standard requirement.

[2]When adding the individual THM or haloacetic acid concentrations to calculate the TTHM or HAA5 concentrations, respectively, a zero (0) is used for any analytical result that is less than the MRL for that DBP, unless otherwise specified by the commissioner.

(3) A certified operator or other party as approved by the commissioner shall measure daily chlorite samples at the entrance to the distribution system.

(c) Analytical requirements for disinfectant residuals are as follows:
(1) A system shall measure residual disinfectant concentrations for free chlorine, combined chlorine (chloramines), and chlorine dioxide by the methods listed in the following ~~table:~~ **tables:**

~~APPROVED METHODS FOR DISINFECTANT RESIDUAL COMPLIANCE MONITORING~~

~~Residual Measured[1]~~

~~Methodology~~	~~Standard Method~~	~~ASTM Method~~	~~Free Chlorine~~	~~Combined Chlorine~~	~~Total Chlorine~~	~~Chlorine Dioxide~~
~~Amperometric Titration~~	~~4500-Cl D~~	~~D 1253-86~~	~~X~~	~~X~~	~~X~~	
~~Low Level Amperometric Titration~~	~~4500-Cl E~~				~~X~~	
~~DPD[2] Ferrous Titrimetric~~	~~4500-Cl F~~		~~X~~	~~X~~	~~X~~	
~~DPD[2] Colorimetric~~	~~4500-Cl G~~		~~X~~	~~X~~	~~X~~	
~~Syringaldazine (FACTS)~~	~~4500-Cl H~~		~~X~~			
~~Iodometric Electrode~~	~~4500-Cl I~~				~~X~~	
~~DPD[2]~~	~~4500-ClO_2 D~~					~~X~~
~~Amperometric Method II~~	~~4500-ClO_2 E~~					X

~~[1] X indicates method is approved for measuring specified disinfectant residual.~~

~~[2] DPD means N,N-diethyl-4-phenylene diamine.~~

APPROVED METHODS FOR DISINFECTANT RESIDUAL COMPLIANCE MONITORING				
Methodology	**Standard Method (19th or 20th Edition)**	**SM Online[1]**	**ASTM Method**	**EPA Method**
Amperometric titration	**4500-Cl D**	**4500-Cl D-00**	**D 1253-86 (96), 03**	
Low level amperometric titration	**4500-Cl E**	**4500-Cl E-00**		
DPD[2] ferrous titrimetric	**4500-Cl F**	**4500-Cl F-00**		

DPD[2] colorimetric	**4500-Cl G**	**4500-Cl G-00**		
Syringaldazine (FACTS)	**4500-Cl H**	**4500-Cl H-00**		
Iodometric electrode	**4500-Cl I**	**4500-Cl I-00**		
DPD[2]	**4500-ClO_2 D**			
Amperometric method II	**4500-ClO_2 E**	**4500-ClO_2 E-00**		
Lissamine green spectrophotometric				**327.0, Rev 1.1**

[1]The Standard Methods Online version that is approved is indicated by the last two (2) digits in the method number, which is the year of approval by the Standard Methods Committee. Standard Methods Online are available at http://www.standardmethods.org.

[2]DPD means N,N-diethyl-4-phenylene diamine.

METHODOLOGY APPROVED FOR EACH DISINFECTANT RESIDUAL MEASURED[1]				
Methodology	**Free Chlorine**	**Combined Chlorine**	**Total Chlorine**	**Chlorine Dioxide**
Amperometric titration	**X**	**X**	**X**	
Low level amperometric titration			**X**	
DPD[2] ferrous titrimetric	**X**	**X**	**X**	
DPD[2] colorimetric	**X**	**X**	**X**	
Syringaldazine (FACT)	**X**			
Iodometric electrode			**X**	
DPD[2]				**X**
Amperometric method ii				**X**
Lissamine green spectrophotometric				**X**

[1]X indicates method is approved for measuring specified disinfectant residual.

[2]DPD means N,N-diethyl-4-phenylene diamine.

(2) If approved by the commissioner, a system may also measure residual disinfectant concentrations for chlorine, chloramines, and chlorine dioxide by using DPD colorimetric test kits.
(3) Residual disinfectant concentration may be measured only by a certified operator or a party approved by the commissioner.

(d) Systems required to analyze parameters not included in subsections (b) and (c) shall use the following methods:
(1) All methods allowed in 327 IAC 8-2-45 for measuring alkalinity and pH.
(2) **A system shall use one (1) or more of the following methods** for bromide:
(A) EPA Method 300.0. ~~or~~
(B) EPA Method 300.1.
(C) EPA Method 317.0, Revision 2.0.
(D) EPA Method 326.0, Revision 1.0.
(E) ASTM Method D 6581-00.
(3) A system shall use one (1) or ~~all~~ **more** of the following methods for TOC:
(A) Standard Method 5310 B **or 5130 B-00** (High-Temperature Combustion Method).
(B) Standard Method 5310 C **or 5130 C-00** (Persulfate-Ultraviolet or Heated-Persulfate Oxidation Method).
(C) Standard Method 5310 D **or 5130 D-00** (Wet-Oxidation Method).
(D) EPA Method 415.3, Revision 1.1.
Inorganic carbon must be removed from the samples prior to analysis. TOC samples may not be filtered prior to analysis. TOC samples must ~~either~~ be ~~analyzed or must be~~ acidified **at the time of sample collection** to achieve pH less than two (2.0) by minimal addition of ~~phosphoric or sulfuric~~ **the** acid ~~as soon as practical after sampling, not to exceed twenty-four (24) hours.~~ **specified in the method or by the instrument**

manufacturer. Acidified TOC samples must be analyzed within twenty-eight (28) days.

(4) SUVA means specific ultraviolet absorption at two hundred fifty-four (254) nanometers, an indicator of the humic content of water. It is a calculated parameter obtained by dividing a sample's ultraviolet absorption at a wavelength of two hundred fifty-four (254) nanometers (UV_{254}) (in m^{-1}) by its concentration of dissolved organic carbon (DOC) (in milligrams per liter). In order to determine SUVA, UV_{254} and DOC must be measured separately. When determining SUVA, ~~systems~~ **a system** shall use the following methods:

(A) A system shall use one (1) or more of the following methods to measure DOC:

(i) Standard Method 5310 B **or 5310 B-00** (High-Temperature Combustion Method).

(ii) Standard Method 5310 C **or 5310 C-00** (Persulfate-Ultraviolet or Heated-Persulfate Oxidation Method).

(iii) Standard Method 5310 D **or 5310 D-00** (Wet-Oxidation Method).

(iv) EPA Method 415.3, Revision 1.1.

(B) ~~Prior to analysis under clause (A),~~ DOC samples must be filtered through a forty-five hundredths (0.45) micrometer pore-diameter filter **as soon as practical after sampling, not to exceed forty-eight (48) hours. After filtration, DOC samples must be acidified to achieve pH least than or equal to two (2.0) with minimal addition of the acid specified in the method or by the instrument manufacturer. Acidified DOC samples must be analyzed within twenty-eight (28) days of sample collection. Inorganic carbon must be removed from the samples prior to analysis.** Water passed through the filter prior to filtration of the sample must serve as the filtered blank. This filtered blank must be analyzed using procedures identical to those used for analysis of the samples and must meet ~~the following criteria:(i)~~ DOC **that** is less than five-tenths (0.5) milligram per liter.

~~(ii) DOC samples must be filtered through the forty-five hundredths (0.45) micrometer pore-diameter filter prior to acidification.~~

~~(iii) DOC samples must either be analyzed or must be acidified to achieve pH less than two (2.0) by minimal addition of phosphoric or sulfuric acid as soon as practical after sampling, not to exceed forty-eight (48) hours.~~

~~(iv) Acidified DOC samples must be analyzed within twenty-eight (28) days.~~

(C) The following apply to a system required to measure UV_{254} under this subdivision:

(i) A system shall use **Standard** Method 5910 B **or 5910 B-00** (Ultraviolet Absorption Method) **or EPA Method 415.3, Revision 1.1** to measure ultraviolet absorption at two hundred fifty-four (254) nanometers (UV_{254}). UV absorption must be measured at two hundred fifty-three and seven-tenths (253.7) nanometers (may be rounded off to two hundred fifty-four (254) nanometers).

(ii) Prior to analysis, UV_{254} samples must be filtered through a forty-five hundredths (0.45) micrometer pore-diameter filter.

(iii) The pH of UV_{254} samples may not be adjusted.

(iv) Samples must be analyzed as soon as practical after sampling, not to exceed forty-eight (48) hours.

SUVA must be determined on water prior to the addition of disinfectants **or** oxidants, **or both,** by the system. DOC and UV_{254} samples used to determine a SUVA value must be taken at the same time and at the same location.

(5) A system required to measure for magnesium under this subsection shall use one (1) of the following methods for magnesium:

(A) EPA Method 200.7.

(B) ASTM Method D 511-93 A or D 511-93 B.

(C) Standard Method 3111 B, 3120 B, 3500-Mg B, or 3500-Mg E.

(e) Parameters measured under subsection (d) must be measured by a certified operator or a party approved by the commissioner.

(Water Pollution Control Board; 327 IAC 8-2.5-5; filed May 1, 2003, 12:00 p.m.: 26 IR 2841; errata filed Feb 6, 2006, 11:15 a.m.: 29 IR 1937)

SECTION 28. 327 IAC 8-2.5-6 IS AMENDED TO READ AS FOLLOWS:

327 IAC 8-2.5-6 Monitoring requirements; disinfectant residuals, disinfection byproducts, and disinfection byproducts precursors

Authority: IC 13-13-5-1; IC 13-14-8-2; IC 13-14-8-7; IC 13-18-3-2
Affected: IC 13-12-3-1; IC 13-13-5-2; IC 13-14-9; IC 13-18-11

Sec. 6. (a) General monitoring requirements for disinfectant residuals, disinfection byproducts, and disinfection

byproducts precursors are as follows:

(1) Systems shall take all samples during normal operating conditions.

(2) Systems may consider multiple wells drawing water from a single aquifer as one (1) treatment plant for determining the minimum number of TTHM and HAA5 samples required. The commissioner ~~must~~ **shall** approve all instances of multiple wells that are considered a single treatment plant because they draw water from a single aquifer.

(3) Failure to monitor:

(A) in accordance with the monitoring plan required under subsection (f) is a monitoring violation; and

(B) will be treated as a violation for the entire period covered by the annual average where compliance is based on a running annual average of monthly or quarterly samples or averages and the system's failure to monitor makes it impossible to determine compliance with MCLs or MRDLs.

(4) Systems may use only data collected under the provisions of subsection (b) or 40 CFR 141.140 through 40 CFR 141.144* to qualify for reduced monitoring.

(b) Monitoring requirements for disinfection byproducts are as follows:

(1) TTHM and HAA5 monitoring requirements are as follows:

(A) For routine monitoring, systems shall monitor at the frequency indicated in the following table:

ROUTINE MONITORING FREQUENCY FOR TTHM AND HAA5		
Type of System	Minimum Monitoring Frequency	Sample Location in the Distribution System
Subpart H system serving at least 10,000 persons	4 water samples per quarter per treatment plant	At least 25% of all samples collected each quarter at locations representing maximum residence time. Remaining samples taken at locations representative of at least average residence time in the distribution system and representing the entire distribution system, taking into account number of persons served, different sources of water, and different treatment methods[1].
Subpart H system serving from 500 to 9,999 persons	1 water sample per quarter per treatment plant	Locations representing maximum residence time[1].
Subpart H system serving fewer than 500 persons	1 sample per year per treatment plant during month of warmest water temperature	Locations representing maximum residence time[1]. If the sample (or average of annual samples, if more than one sample is taken) exceeds the MCL, the system ~~must~~ **shall** increase monitoring to 1 sample per treatment plant per quarter, taken at a point reflecting the maximum residence time in the distribution system, until the system meets reduced monitoring criteria in clause (D).
System using only ground water not under direct influence of surface water using chemical disinfectant and serving at least 10,000 persons	1 water sample per quarter per treatment plant[2]	Locations representing maximum residence time[1].
System using only ground water not under direct influence of surface water using chemical disinfectant and serving fewer than 10,000 persons	1 sample per year per treatment plant[2] during month of warmest water temperature	Locations representing maximum residence time[1]. If the sample (or average of annual samples, if more than 1 sample is taken) exceeds the MCL, the system ~~must~~ **shall** increase monitoring to 1 sample per

		treatment plant per quarter, taken at a point reflecting the maximum residence time in the distribution system, until the system meets criteria in clause (D) for reduced monitoring.

[1]If a system elects to sample more frequently than the minimum required, at least twenty-five percent (25%) of all samples collected each quarter, including those taken in excess of the required frequency, must be taken at locations that represent the maximum residence time of the water in the distribution system. The remaining samples must be taken at locations representative of at least average residence time in the distribution system.

[2]Multiple wells drawing water from a single aquifer may be considered one (1) treatment plant for determining the minimum number of samples required.

(B) Systems may reduce monitoring, except as otherwise provided, in accordance with the following table:

REDUCED MONITORING FREQUENCY FOR TTHM AND HAA5		
IF YOU ARE A:	AND YOU HAVE MONITORED AT LEAST ONE YEAR AND YOUR:	YOU MAY REDUCE MONITORING TO THIS LEVEL:
Subpart H system serving at least 10,000 persons that has a source water annual average TOC level, before any treatment, ≤ 4.0 mg/L	TTHM annual average ≤ 0.040 mg/L and HAA5 annual average ≤ 0.030 mg/L	1 sample per treatment plant per quarter at distribution system location reflecting maximum residence time
Subpart H system serving from 500 to 9,999 persons that has a source water annual average TOC level, before any treatment, ≤ 4.0 mg/L	TTHM annual average ≤ 0.040 mg/L and HAA5 annual average ≤ 0.030 mg/L	1 sample per treatment plant per year at distribution system location reflecting maximum residence time during month of warmest water temperature. NOTE: Any Subpart H system serving fewer than 500 persons may not reduce its monitoring to less than 1 sample per treatment plant per year.
System using only ground water not under direct influence of surface water using chemical disinfectant and serving at least 10,000 persons	TTHM annual average ≤ 0.040 mg/L and HAA5 annual average ≤ 0.030 mg/L	1 sample per treatment plant per year at distribution system location reflecting maximum residence time during month of warmest water temperature
System using only ground water not under direct influence of surface water using chemical disinfectant and serving fewer than 10,000 persons	TTHM annual average ≤ 0.040 mg/L and HAA5 annual average ≤ 0.030 mg/L for 2 consecutive years or TTHM annual average ≤ 0.020 mg/L and HAA5 annual average ≤ 0.015 mg/L for 1 year	1 sample per treatment plant per 3 year monitoring cycle at distribution system location reflecting maximum residence time during month of warmest water temperature, with the 3 year cycle beginning on January 1 following quarter in which system qualifies for reduced monitoring

(C) Beginning April 1, 2008, or earlier if specified by the commissioner, in order to qualify for reduced monitoring for TTHM and HAA5 under clause (B), Subpart H systems not monitoring under the provisions of subsection (d), shall meet the following requirements:

(i) Take monthly TOC samples every thirty (30) days at a location before any treatment.

(ii) In addition to meeting other criteria for reduced monitoring in clause (B), the source water TOC running annual average must be less than or equal to four and zero-tenths (4.0) milligrams per liter (based on the most recent four (4) quarters of monitoring) on a continuing basis at each treatment plant to reduce or remain on reduced monitoring for TTHM and HAA5.

(iii) Once qualified for reduced monitoring for TTHM and HAA5 under clause (B), a system may reduce source water TOC monitoring to quarterly TOC samples taken every ninety (90) days at a location before any treatment.

~~(C)~~ **(D)** Systems on a reduced monitoring schedule **shall comply with the following:**

(i) Systems may remain on ~~that~~ **the** reduced schedule as long as the:

(AA) average of all samples taken in the year (for systems that must monitor quarterly); or ~~the~~

(BB) result of the sample (for systems that must monitor ~~no~~ **not** more frequently than annually);

is not more than sixty-thousandths (0.060) milligram per liter and forty-five thousandths (0.045) milligram per liter for TTHMs and HAA5, respectively.

(ii) Systems that do not meet ~~these~~ **the** levels **specified under item (i)** shall resume monitoring at the

frequency identified in the table contained in clause (A) (minimum monitoring frequency column) in the quarter immediately following the monitoring period in which the system exceeds those levels.

(iii) For systems using only ground water not under the direct influence of surface water and serving fewer than ten thousand (10,000) persons, if either the:

~~(i)~~ **(AA)** TTHM annual average is greater than eighty-thousandths (0.080) milligram per liter; or

~~(ii)~~ **(BB)** HAA5 annual average is greater than sixty-thousandths (0.060) milligram per liter;

the system shall go to the increased monitoring identified in the table contained in clause (A) (sample location column) in the quarter immediately following the monitoring period in which the system exceeds those levels.

~~(D)~~ **(E)** Systems on increased monitoring may return to routine monitoring if, after at least one (1) year of monitoring, their:

(i) TTHM annual average is equal to or less than sixty-thousandths (0.060) milligram per liter; and

(ii) HAA5 annual average is equal to or less than forty-five thousandths (0.045) milligram per liter.

~~(E)~~ **(F)** A system may return to routine monitoring at the commissioner's discretion.

(2) CWSs and NTNCWSs using chlorine dioxide for disinfection or oxidation must conduct monitoring for chlorite as follows:

(A) Routine monitoring is as follows:

(i) Systems shall take daily samples at the entrance to the distribution system. For any daily sample that exceeds the chlorite MCL, the system shall take additional samples in the distribution system the following day at the locations required by clause (B), in addition to the sample required at the entrance to the distribution system.

(ii) Systems shall take a three (3) sample set each month in the distribution system. The system shall take one (1) sample at each of the following locations:

(AA) Near the first customer.

(BB) At a location representative of average residence time.

(CC) At a location reflecting maximum residence time in the distribution system.

Any additional routine sampling must be conducted in the same manner (as three (3) sample sets, at the specified locations). The system may use the results of additional monitoring conducted under clause (B) to meet the requirement for monitoring in this clause.

(B) On each day following a routine sample monitoring result that exceeds the chlorite MCL at the entrance to the distribution system, the system shall take three (3) chlorite distribution system samples at the following locations:

(i) As close to the first customer as possible.

(ii) In a location representative of average residence time.

(iii) As close to the end of the distribution system as possible at a point reflecting maximum residence time in the distribution system.

(C) Monitoring for chlorite may be reduced as follows:

(i) Chlorite monitoring at the entrance to the distribution system required by clause (A)(i) may not be reduced.

(ii) Chlorite monitoring in the distribution system required by clause (A)(ii) **applies as follows:**

(AA) Chlorite monitoring may be reduced to one (1) three (3) sample set per quarter after one (1) year of monitoring where no individual chlorite sample taken in the distribution system under clause (A)(ii) has exceeded the chlorite MCL and the system has not been required to conduct monitoring under clause (B).

(BB) The system may remain on the reduced monitoring schedule **specified under subitem (AA)** unless one (1) of the three (3) individual chlorite samples taken monthly in the distribution system under clause (A)(ii) exceeds the chlorite MCL or the system is required to conduct monitoring under clause (B), at which time the system shall revert to routine monitoring.

(3) Monitoring for bromate is as follows:

(A) CWSs and NTNCWSs using ozone for disinfection or oxidation shall take:

(i) one (1) sample per month for each treatment plant in the system using ozone; ~~Systems shall take~~ **and**

(ii) the samples **required under item (i)** monthly at the entrance to the distribution system while the ozonation system is operating under normal conditions.

(B) **Until March 31, 2009,** systems required to analyze for bromate may reduce monitoring from monthly to ~~once per quarter if~~ **quarterly under the following conditions:**

(i) The system demonstrates that the average source water bromide concentration is less than five-hundredths (0.05) milligram per liter based upon representative monthly bromide measurements for one (1) year.

(ii) The system may remain on reduced bromate monitoring unless the running annual average source water bromide concentration, computed quarterly, is equal to or greater than five-hundredths (0.05) milligram per liter based upon representative monthly measurements.

(iii) If the running annual average source water bromide concentration is equal to or greater than

five-hundredths (0.05) milligram per liter, the system shall resume routine monitoring required by clause (A) **in the month following the result.**

(C) Beginning April 1, 2009, a system may no longer use the provisions of clause (B) to qualify for reduced monitoring but may be eligible for reduced monitoring according to the following:

(i) A system required to analyze for bromate may reduce monitoring from monthly to quarterly, if the system's running annual average bromate concentration is less than or equal to twenty-five ten-thousandths (0.0025) milligrams per liter based on monthly bromate measurements under clause (A) for the most recent four (4) quarters, with samples analyzed using EPA Method 317.0, Revision 2.0, EPA Method 326.0, or EPA Method 321.8.

(ii) If a system has qualified for reduced bromate monitoring under clause (B), that system may remain on reduced monitoring as long as the running annual average of quarterly bromate samples is less than or equal to twenty-five ten-thousandths (0.0025) milligrams per liter based on samples analyzed using EPA Method 317.0, Revision 2.0, EPA Method 326.0, or EPA Method 321.8.

(iii) If the running annual average bromate concentration is greater than twenty-five ten-thousandths (0.0025) milligrams per liter, the system shall resume routine monitoring required by clause (A)(i).

(c) Monitoring requirements for disinfectant residuals are as follows:

(1) Monitoring for chlorine and chloramines is as follows:

(A) CWSs and NTNCWSs that use chlorine or chloramines shall **comply with the following:**

(i) The systems shall measure the residual disinfectant level in the distribution system at the same points and at the same time as total coliforms are sampled, as specified in 327 IAC 8-2-8.

(ii) Subpart H systems may use the results of residual disinfectant concentration sampling conducted under 327 IAC 8-2-8.8(d) for systems that filter instead of taking separate samples.

(B) Monitoring for chlorine or chloramines may not be reduced.

(2) Monitoring for chlorine dioxide is as follows:

(A) CWSs, NTNCWSs, and TWSs that use chlorine dioxide for disinfection or oxidation shall **comply with the following:**

(i) The systems shall take daily samples at the entrance to the distribution system.

(ii) For any daily sample that exceeds the MRDL, the system shall take samples in the distribution system the following day at the locations required by clause (B) in addition to the sample required at the entrance to the distribution system.

(B) On each day following a routine sample monitoring result that exceeds the MRDL, the system is required to take three (3) chlorine dioxide distribution system samples as follows:

(i) If chlorine dioxide or chloramines are used to maintain a disinfectant residual in the distribution system, or if chlorine is used to maintain a disinfectant residual in the distribution system and there are no disinfection addition points after the entrance to the distribution system, for example, no booster chlorination, the system shall take three (3) samples as close to the first customer as possible at intervals of at least six (6) hours.

(ii) If chlorine is used to maintain a disinfectant residual in the distribution system and there are one (1) or more disinfection addition points after the entrance to the distribution system, for example, booster chlorination, the system shall take one (1) sample at each of the following locations:

(AA) As close to the first customer as possible.

(BB) In a location representative of average residence time.

(CC) As close to the end of the distribution system as possible, reflecting maximum residence time in the distribution system.

(C) Chlorine dioxide monitoring may not be reduced.

(d) Monitoring requirements for disinfection byproduct precursors (DBPP) are as follows:

(1) Routine monitoring is required as follows:

(A) Subpart H systems that use conventional filtration treatment, as defined in 327 IAC 8-2-1, shall monitor each treatment plant for TOC not later than the point of combined filter effluent turbidity monitoring and representative of the treated water.

(B) All systems required to monitor under this subdivision shall also monitor for TOC in the source water before any treatment at the same time as monitoring for TOC in the treated water. These samples, source water and treated water, are referred to as paired samples.

(C) At the same time as the source water sample is taken, all systems shall monitor for alkalinity in the source water before any treatment.

(D) Systems shall take one (1) paired sample and one (1) source water alkalinity sample per month per plant at a time representative of normal operating conditions and influent water quality.

(2) Subpart H systems with an average treated water TOC of less than:
(A) two and zero-tenths (2.0) milligrams per liter for two (2) consecutive years; or
(B) one and zero-tenths (1.0) milligram per liter for one (1) year;
may reduce monitoring for both TOC and alkalinity to one (1) paired sample and one (1) source water alkalinity sample per plant per quarter. The system shall revert to routine monitoring in the month following the quarter when the annual average treated water TOC is greater than or equal to two and zero-tenths (2.0) milligrams per liter.

(e) Systems required to analyze for bromate may reduce bromate monitoring from monthly to once per quarter if the system demonstrates that the average source water bromide concentration is less than five-hundredths (0.05) milligram per liter based upon representative monthly measurements for one (1) year. The system shall continue bromide monitoring to remain on reduced bromate monitoring.

(f) Each system required to monitor under this section shall develop and implement a monitoring plan as follows:
(1) The system shall maintain the plan and make it available for inspection by the commissioner and the general public not later than thirty (30) days following the applicable compliance dates in section 4(b) and 4(c) of this rule.
(2) All Subpart H systems serving more than three thousand three hundred (3,300) people shall submit a copy of the monitoring plan to the commissioner not later than the date of the first report required under section 8 of this rule.
(3) The commissioner may also require any other system to submit a monitoring plan.
(4) After review, the commissioner may require changes in any plan elements.
(5) The plan must include, at a minimum, the following elements:
(A) Specific locations and schedules for collecting samples for any parameters included in this section.
(B) How the system will calculate compliance with MCLs, MRDLs, and treatment techniques.
(C) If:
(i) approved for monitoring as a consecutive system; or
(ii) providing water to a consecutive system;
the sampling plan must reflect the entire distribution system.

*40 CFR 141.140 through 40 CFR 141.144 is incorporated by reference and is available for copying at the Indiana Department of Environmental Management, Office of Water Quality, 100 North Senate Avenue, Room N1255, Indianapolis, Indiana 46204.

(Water Pollution Control Board; 327 IAC 8-2.5-6; filed May 1, 2003, 12:00 p.m.: 26 IR 2844; errata filed Feb 6, 2006, 11:15 a.m.: 29 IR 1937; filed Oct 24, 2006, 3:03 p.m.: 20061122-IR-327050255FRA; errata filed Dec 6, 2006, 10:10 a.m.: 20061227-IR-327050255ACA)

SECTION 29. 327 IAC 8-2.5-7 IS AMENDED TO READ AS FOLLOWS:

327 IAC 8-2.5-7 Compliance requirements; disinfectants and disinfection byproducts

Authority: IC 13-13-5-1; IC 13-14-8-2; IC 13-14-8-7; IC 13-18-3-2
Affected: IC 13-12-3-1; IC 13-13-5-2; IC 13-14-9; IC 13-18-11

Sec. 7. (a) General compliance requirements for disinfectants and disinfection byproducts are as follows:
(1) Where compliance is based on a running annual average of monthly or quarterly samples or averages and the:
(A) system fails to monitor for TTHM, HAA5, or bromate, this failure to monitor will be treated as a monitoring violation for the entire period covered by the annual average; and
(B) system's failure to monitor makes it impossible to determine compliance with MRDLs for chlorine and chloramines, this failure to monitor will be treated as a monitoring violation for the entire period covered by the annual average.
(2) All samples taken and analyzed under this rule must be included in determining compliance, even if that number is greater than the minimum required.
(3) If, during the first year of monitoring under section 6 of this rule, any particular quarter's average will cause the running annual average of that system to exceed the MCL, the system is out of compliance at the end of

that quarter.

(b) Compliance requirements for disinfection byproducts are as follows:
(1) **PWSs shall comply with the** compliance requirements for TTHMs and HAA5 ~~are~~ **until the compliance date specified in section 11(c) of this rule** as follows:
(A) For systems monitoring quarterly, compliance with MCLs in section 2(a) of this rule will be based on a running annual arithmetic average, computed quarterly, of quarterly arithmetic averages of all samples collected by the system ~~as prescribed by~~ **according to** section 6(b)(1) of this rule.
(B) For systems monitoring less frequently than quarterly, systems demonstrate MCL compliance **according to the following:**
(i) If the average of samples taken that year under section 6(b)(1) of this rule does not exceed the MCLs in section 2 of this rule.
(ii) If the average of ~~these~~ **the** samples **taken under item (i)** exceeds the MCL, the system:
(AA) shall increase monitoring to once per quarter per treatment plant; ~~Such a system~~ **and**
(BB) is not in violation of the MCL until it has completed one (1) year of quarterly monitoring, unless the result of fewer than four (4) quarters of monitoring will cause the running annual average to exceed the MCL, in which case the system is in violation at the end of that quarter.
Systems required to increase monitoring frequency to quarterly monitoring shall calculate compliance by including the sample that triggered the increased monitoring plus the following three (3) quarters of monitoring.
(C) If the running annual arithmetic average of quarterly averages covering any consecutive four (4) quarter period exceeds the MCL, the system:
(i) is in violation of the MCL; and
(ii) ~~must~~ **shall** notify the public under 327 IAC 8-2.1-7, in addition to reporting to the commissioner under section 8 of this rule.
(D) If a ~~public water system~~ **PWS** fails to complete four (4) consecutive quarters of monitoring, compliance with the MCL for the last four (4) quarter compliance period must be based on an average of the available data.
(2) Compliance requirements for bromate will be based on a running annual arithmetic average, computed quarterly, of:
(A) monthly samples; or
(B) for months in which the system takes more than one (1) sample, the average of all samples taken during the month;
collected by the system ~~as prescribed by~~ **according to** section 6(b)(3) of this rule. If the average of samples covering any consecutive four (4) quarter period exceeds the MCL, the system is in violation of the MCL and shall notify the public under 327 IAC 8-2.1-7, in addition to reporting to the agency under section 8 of this rule. If a ~~public water system~~ **PWS** fails to complete twelve (12) consecutive months of monitoring, compliance with the MCL for the last four (4) quarter compliance period must be based on an average of the available data.
(3) Compliance requirements for chlorite will be based on an arithmetic average of each three (3) sample set taken in the distribution system ~~as prescribed by~~ **according to** section 6(b)(2)(A)(ii) and 6(b)(2)(B) of this rule. If the arithmetic average of any three (3) sample sets exceeds the MCL, the system:
(A) is in violation of the MCL; and
(B) shall notify the public under 327 IAC 8-2.1-3 through 327 IAC 8-2.1-17, in addition to reporting to the commissioner under section 8 of this rule.

(c) Compliance requirements for disinfectant residuals are as follows:
(1) Compliance requirements for chlorine and chloramines are as follows:
(A) Compliance will be based on a running annual arithmetic average, computed quarterly, of monthly averages of all samples collected by the system under section 6(c)(1) of this rule. If the average covering any consecutive four (4) quarter period exceeds the MRDL, the system:
(i) is in violation of the MRDL; and
(ii) ~~must~~ **shall** notify the public under 327 IAC 8-2.1-7, in addition to reporting to the commissioner under section 8 of this rule.
(B) Where systems switch between the use of chlorine and chloramines for residual disinfection during the year:
(i) compliance must be determined by including all monitoring results of both chlorine and chloramines in calculating compliance**; and**
(ii) reports submitted under section 8 of this rule must clearly indicate which residual disinfectant was analyzed for each sample.
(2) Compliance requirements for chlorine dioxide are as follows:

(A) Compliance requirements for acute violations are as follows:
(i) Compliance will be based on consecutive daily samples collected by the system under section 6(c)(2) of this rule.
(ii) If any daily sample taken at the entrance to the distribution system exceeds the MRDL, and on the following day one (1) or more of the three (3) samples taken in the distribution system exceed the MRDL, the system is in violation of the MRDL and ~~must:~~ **shall:**
(AA) take immediate corrective action to lower the level of chlorine dioxide below the MRDL; and
(BB) notify the public under the procedures for acute health risks in 327 IAC 8-2.1-3 through 327 IAC 8-2.1-17.
(iii) Failure to take samples in the distribution system the day following an exceedance of the chlorine dioxide MRDL at the entrance to the distribution system will ~~also~~ **result in the following:**
(AA) Be considered an MRDL violation. ~~and~~
(BB) The system shall notify the public of the violation in accordance with the provisions for acute violations under 327 IAC 8-2.1-7 through 327 IAC 8-2.1-17, in addition to reporting **to** the commissioner under section 8 of this rule.
(B) Compliance requirements for nonacute violations are as follows:
(i) Compliance will be based on consecutive daily samples collected by the system under section 6(c)(2) of this rule.
(ii) If any two (2) consecutive daily samples taken at the entrance to the distribution system exceed the MRDL and all distribution system samples taken are below the MRDL, the system is in violation of the MRDL and ~~must:~~ **shall:**
(AA) take corrective action to lower the level of chlorine dioxide below the MRDL at the point of sampling; and ~~will~~
(BB) notify the public under the procedures for nonacute health risks in 327 IAC 8-2.1-7 through 327 IAC 8-2.1-17, in addition to reporting to the commissioner under section 8 of this rule.
(iii) Failure to monitor at the entrance to the distribution system the day following an exceedance of the chlorine dioxide MRDL at the entrance to the distribution system ~~is also~~ **will result in the following:**
(AA) Be considered an MRDL violation. ~~and~~
(BB) The system ~~must~~ **shall** notify the public of the violation in accordance with the provisions for nonacute violations under 327 IAC 8-2.1-7, in addition to reporting **to** the commissioner under section 8 of this rule.

(d) Compliance for disinfection byproduct precursors (DBPP) are as follows:
(1) Compliance will be determined as specified by section 9 of this rule.
(2) Systems may begin monitoring to determine whether Step 1 TOC removals can be met twelve (12) months before the compliance date for the system. This monitoring is not required, and failure to monitor during this period is not a violation. However, any system that:
(A) does not monitor during this period; and
(B) then determines in the first twelve (12) months after the compliance date that it is not able to meet the Step 1 requirements in section 9(b)(2) of this rule and must therefore apply for alternate minimum TOC removal (Step 2) requirements;
is not eligible for retroactive approval of alternate minimum TOC removal (Step 2) requirements as allowed by section 9(b)(3) of this rule and is in violation.
(3) Systems may apply for alternate minimum TOC removal (Step 2) requirements any time after the compliance date, **unless under subdivision (2) the system is not eligible.**
(4) For systems required to meet Step 1 TOC removals, if the value calculated under section 9(c)(1)(D) of this rule is less than one and zero-hundredths (1.00), the system:
(A) is in violation of the treatment technique requirements **under section 9 of this rule;** and
(B) ~~must~~ **shall** notify the public under 327 IAC 8-2.1-7 through 327 IAC 8-2.1-17, in addition to reporting to the commissioner under section 8 of this rule.

(Water Pollution Control Board; 327 IAC 8-2.5-7; filed May 1, 2003, 12:00 p.m.: 26 IR 2847; filed Oct 24, 2006, 3:03 p.m.: 20061122-IR-327050255FRA)

SECTION 30. 327 IAC 8-2.5-9 IS AMENDED TO READ AS FOLLOWS:

327 IAC 8-2.5-9 Treatment techniques for control of disinfection byproducts precursors

Authority: IC 13-13-5-1; IC 13-14-8-2; IC 13-14-8-7; IC 13-18-3-2
Affected: IC 13-12-3-1; IC 13-13-5-2; IC 13-14-9; IC 13-18-11

Sec. 9. (a) Applicability is as follows:
(1) Subpart H systems using conventional filtration treatment shall operate with enhanced coagulation or enhanced softening to achieve the TOC percent removal levels specified in subsection (b) unless the system meets at least one (1) of the alternative compliance criteria listed in subdivision (2) or (3).
(2) Subpart H systems using conventional filtration treatment may use one (1) or ~~all~~ **more** of the following alternative compliance criteria to comply with this section instead of complying with subsection (b):
(A) The system's source water TOC level, measured according to section 5(d)(3) of this rule, is less than two and zero-tenths (2.0) milligrams per liter, calculated quarterly as a running annual average.
(B) The system's treated water TOC level, measured according to section 5(d)(3) of this rule, is less than two and zero-tenths (2.0) milligrams per liter, calculated quarterly as a running annual average.
(C) The system's source water TOC level, measured according to section 5(d)(3) of this rule, is less than four and zero-tenths (4.0) milligrams per liter, calculated quarterly as a running annual average and the following are met:
(i) The source water alkalinity, measured according to section 5(d)(1) of this rule, is greater than sixty (60) milligrams per liter (as $CaCO_3$), calculated quarterly as a running annual average.
(ii) Either of the following:
(AA) The TTHM and HAA5 running annual averages are no greater than forty-thousandths (0.040) milligram per liter and thirty-thousandths (0.030) milligram per liter, respectively.
(BB) Before the effective date for compliance in section 4(b) of this rule, the system has made a clear and irrevocable financial commitment not later than the effective date for compliance in section 4(b) of this rule to use technologies that will limit the levels of TTHMs and HAA5 to not more than forty-thousandths (0.040) milligram per liter and thirty-thousandths (0.030) milligram per liter, respectively. Systems shall submit evidence of a clear and irrevocable financial commitment, in addition to a schedule containing milestones and periodic progress reports for installation and operation of appropriate technologies, to the ~~agency~~ **commissioner** for approval not later than the effective date for compliance in section 4(b) of this rule. These technologies must be installed and operating not later than June 30, 2005.
(D) The TTHM and HAA5 running annual averages are not greater than forty-thousandths (0.040) milligram per liter and thirty-thousandths (0.030) milligram per liter, respectively, and the system uses only chlorine for primary disinfection and maintenance of a residual in the distribution system.
(E) The system's source water SUVA, before any treatment and measured monthly according to section 5(d)(4) of this rule, is less than or equal to two and zero-tenths (2.0) liters per milligram meter, calculated quarterly as a running annual average.
(F) The system's finished water SUVA, measured monthly according to section 5(d)(4) of this rule, is less than or equal to two and zero-tenths (2.0) liters per milligram meter, calculated quarterly as a running annual average.
(3) Systems practicing enhanced softening that cannot achieve the TOC removals required by subsection (b)(2) may use the following alternative compliance criteria instead of complying with subsection (b):
(A) Softening that results in lowering the treated water alkalinity to less than sixty (60) milligrams per liter (as $CaCO_3$), measured monthly according to section 5(d)(1) of this rule and calculated quarterly as a running annual average.
(B) Softening that results in removing at least ten (10) milligrams per liter of magnesium hardness (as $CaCO_3$), measured monthly **according to section 5(d)(5) of this rule** and calculated quarterly as an annual running average.
Systems shall comply with monitoring requirements in section 6(d) of this rule.

(b) Enhanced coagulation and enhanced softening performance requirements are as follows:
(1) Systems shall achieve the percent reduction of TOC specified in subdivision (2) between the source water and the combined filter effluent unless the commissioner approves a system's request for alternate minimum TOC removal (Step 2) requirements under subdivision (3).
(2) Required Step 1 TOC reductions, indicated in the following table, are based upon specified source water parameters measured in accordance with section 6(d) of this rule. Systems practicing softening are required to meet the Step 1 TOC reductions in the far right column (source water alkalinity greater than one hundred twenty (120) milligrams per liter) for the specified source water TOC:

Step 1 Required Removal of TOC by Enhanced Coagulation and Enhanced Softening for Subpart H Systems Using Conventional Treatment[1, 2]

	Source-Water Alkalinity, mg/L as $CaCO_3$

Source-Water TOC, mg/L	0-60	>60-120	>120[3]
>2.0-4.0	35.0%	25.0%	15.0%
>4.0-8.0	45.0%	35.0%	25.0%
>8.0	50.0%	40.0%	30.0%

[1]Systems meeting at least one (1) of the conditions in subsection (a)(2) are not required to operate with enhanced coagulation.

[2]Softening systems meeting one (1) of the alternative compliance criteria in subsection (a)(3) are not required to operate with enhanced softening.

[3]Systems practicing softening shall meet the TOC removal requirements in this column.

(3) Subpart H conventional treatment systems that cannot achieve the Step 1 TOC removals required by subdivision (2) due to water quality parameters or operational constraints shall **comply with the following regarding alternate minimum TOC (Step 2) removal:**

(A) The system shall apply to the commissioner, within three (3) months of failure to achieve the TOC removals required by subdivision (2), for approval of ~~alternative~~ **alternate** minimum TOC (Step 2) removal requirements submitted by the system as provided by subdivision (4).

(B) If the commissioner approves the ~~alternative~~ **alternate** minimum TOC removal (Step 2) requirements, the commissioner may make those requirements retroactive for the purposes of determining compliance. Until the commissioner approves the alternate minimum TOC removal (Step 2) requirements, the system shall meet the Step 1 TOC removals contained in subdivision (2).

(4) Alternate minimum TOC removal (Step 2) requirements are as follows:

(A) Applications made to the commissioner by enhanced coagulation systems for approval of alternate minimum TOC removal (Step 2) requirements under subdivision (3) must include, at a minimum, results of bench-scale or pilot-scale testing conducted under clause (C). The submitted bench-scale or pilot-scale testing will be used to determine the alternate enhanced coagulation level.

(B) As used in this subdivision, "alternate enhanced coagulation level" **is described by the following sequential process:**

(i) The term means coagulation at a coagulant dose and pH as determined by the method described in clause (A), this clause, and clauses (C) through (E) such that an incremental addition of ten (10) milligrams per liter of alum (or equivalent amount of ferric salt) results in a TOC removal of less than or equal to three-tenths (0.3) milligram per liter.

(ii) The percent removal of TOC ~~at this point~~ **calculated under item (i)** on the TOC removal versus coagulant dose curve is defined as the minimum TOC removal required for the system.

(iii) Once approved by the commissioner, ~~this~~ **the** minimum **TOC removal** requirement **calculated under item (ii):**

(AA) supersedes the minimum TOC removal required by the table in subdivision (2); ~~This requirement~~ **and**

(BB) will be effective until the commissioner approves a new value based on the results of a new bench-scale and pilot-scale tests.

Failure to achieve ~~alternative~~ **alternate** minimum TOC removal levels is a violation of this subsection.

(C) Bench-scale or pilot-scale testing of enhanced coagulation must be conducted by using representative water samples and adding ten (10) milligrams per liter increments of alum, or equivalent amounts of ferric salt, until the pH is reduced to a level less than or equal to the enhanced coagulation Step 2 target pH shown in the following table:

Enhanced Coagulation Step 2 Target pH	
Alkalinity (mg/L as $CaCO_3$)	Target pH
0-60	5.5
> 60-120	6.3
> 120-240	7.0
> 240	7.5

(D) For waters with alkalinities of less than sixty (60) milligrams per liter for which the addition of small amounts of alum or equivalent addition of iron coagulant drives the pH below five and five-tenths (5.5) before significant TOC removal occurs, the system shall add necessary chemicals to maintain the pH between five and three-tenths (5.3) and five and seven-tenths (5.7) in samples until the TOC removal of three-tenths (0.3) milligram per liter per ten (10) milligrams per liter alum added, or equivalent addition of iron coagulant, is reached.

(E) The system may operate at any coagulant dose or pH necessary, consistent with, the provisions of 327 IAC 8-2, 327 IAC 8-2.5, and 327 IAC 8-2.6, to achieve the minimum TOC percent removal approved under subdivision (3).

(F) If the TOC removal is consistently less than three-tenths (0.3) milligram per liter of TOC per ten (10) milligrams per liter of incremental alum dose at all dosages of alum (or equivalent addition of iron coagulant), **then** the:

(i) water is deemed to contain TOC not amenable to enhanced coagulation; ~~The~~ **and**

(ii) system may ~~then~~ apply to the commissioner for a waiver of enhanced coagulation requirements.

(c) Compliance calculations are required as follows:

(1) Subpart H systems other than those identified in subsection (a)(2) or (a)(3) shall comply with requirements contained in subsection (b)(2) or (b)(3). Systems shall calculate compliance quarterly, beginning after the system has collected twelve (12) months of data, by determining an annual average using the following method:

STEP 1: Calculate actual monthly TOC percent removal, which is equal to: (1 - (treated water TOC/source water TOC)) × one hundred (100).

STEP 2: Calculate the required monthly TOC percent removal (from either the table in subsection (b)(2) or from subsection (b)(3)).

STEP 3: Divide the value determined under STEP 1 by the value determined under STEP 2.

STEP 4: Add together the quotients determined under STEP 3 for the last twelve (12) months and divide by twelve (12).

STEP 5: If the quotient calculated in STEP 4 is less than one and zero-hundredths (1.00), the system is not in compliance with the TOC percent removal requirements.

(2) Systems may use **one (1) or more of** the following provisions instead of the calculations in subdivision (1) to determine compliance with TOC percent removal requirements:

(A) In any month that the system's treated or source water TOC level, measured according to section 5(d)(3) of this rule, is less than two and zero-tenths (2.0) milligrams per liter, the system may assign a monthly value of one and zero-tenths (1.0) (instead of the value calculated in STEP 3 of subdivision (1)) when calculating compliance under subdivision (1).

(B) In any month that a system practicing softening removes at least ten (10) milligrams per liter of magnesium hardness (as $CaCO_3$), the system may assign a monthly value of one and zero-tenths (1.0) (instead of the value calculated in STEP 3 of subdivision (1)) when calculating compliance under subdivision (1).

(C) In any month that the system's source water SUVA, before any treatment and measured according to section 5(d)(4) of this rule, is less than or equal to two and zero-tenths (2.0) liters per milligram meter, the system may assign a monthly value of one and zero-tenths (1.0) (instead of the value calculated in STEP 3 of subdivision (1)) when calculating compliance under subdivision (1).

(D) In any month that the system's finished water SUVA, measured according to section 5(d)(4) of this rule, is less than or equal to two and zero-tenths (2.0) liters per milligram meter, the system may assign a monthly value of one and zero-tenths (1.0) (instead of the value calculated in STEP 3 of subdivision (1)) when calculating compliance under subdivision (1).

(E) In any month that a system practicing enhanced softening lowers alkalinity below sixty (60) milligrams per liter (as $CaCO_3$), the system may assign a monthly value of one and zero-tenths (1.0) (instead of the value calculated in STEP 3 of subdivision (1)) when calculating compliance under subdivision (1).

(3) Subpart H systems using conventional treatment may also comply with this section by meeting the criteria in subsection (a)(2) or (a)(3).

(d) The commissioner identifies the following as treatment techniques for Subpart H systems using conventional treatment to control the level of disinfection byproduct precursors in drinking water treatment and distribution systems:

(1) Enhanced coagulation.

(2) Enhanced softening.

(Water Pollution Control Board; 327 IAC 8-2.5-9; filed May 1, 2003, 12:00 p.m.: 26 IR 2851; filed Oct 24, 2006, 3:03 p.m.: 20061122-IR-327050255FRA)

SECTION 31. 327 IAC 8-2.5-10 IS ADDED TO READ AS FOLLOWS:

327 IAC 8-2.5-10 Initial distribution system evaluations

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3-2; IC 13-18-16
Affected: IC 13-18-3-11

Sec. 10. (a) 40 CFR 141, Subpart U is incorporated by reference and consists of the following:
(1) 40 CFR 141.600, General requirements*.
(2) 40 CFR 141.601, Standard monitoring*.
(3) 40 CFR 141.602, System specific studies*.
(4) 40 CFR 141.603, 40/30 certification*.
(5) 40 CFR 141.604, Very small system waivers*.
(6) 40 CFR 141.605, Subpart V, Compliance monitoring location recommendations*.

(b) For purposes of this rule, the following substitutions must be made for terms used in the portions of 40 CFR 141* adopted by reference:
(1) "40 CFR 141.131" means section 5 of this rule.
(2) "40 CFR 141.132" means section 6 of this rule.
(3) "40 CFR 141.29" means 327 IAC 8-2-2(b).
(4) "40 CFR 141.64" means section 2 of this rule.
(5) "EPA" means the department of environmental management.
(6) "State" means the commissioner of the department of environmental management.
(7) "Subpart L" means sections 4 through 9 of this rule.
(8) "Subpart V" means sections 11 through 20 of this rule.

***These documents are incorporated by reference and are available for review and copying at the Indiana Department of Environmental Management, Office of Water Quality, 100 North Senate Avenue, Room N1255, Indianapolis, IN 46204.**

(Water Pollution Control Board; 327 IAC 8-2.5-10)

SECTION 32. 327 IAC 8-2.5-11 IS ADDED TO READ AS FOLLOWS:

327 IAC 8-2.5-11 General requirements; stage 2 disinfection byproducts requirements

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3-2; IC 13-18-16
Affected: IC 13-18-3-11

Sec. 11. (a) The requirements of this section and sections 12 through 20 of this rule establish monitoring and other requirements for achieving compliance with the following:
(1) MCLs based on LRAA for the following:
(A) TTHM.
(B) HAA5.
(2) MRDLs for:
(A) chlorine; and
(B) chloramines;
for certain consecutive systems.

(b) The requirements of this section and sections 12 through 20 of this rule apply to CWSs and NTNCWS that:
(1) use a primary or residual disinfectant other than ultraviolet light; or
(2) deliver water that has been treated with a primary or residual disinfectant other than ultraviolet light.

(c) Affected systems shall comply with the requirements in this section and sections 12 through 20 of this rule according to the schedule in the following table, based on system type:
(1) Table 11 provides compliance dates for the following:
(A) Systems that are not part of a combined distribution system and systems that serve the largest population in the combined distribution system.
(B) Other systems that are part of a combined distribution system.

Table 11

If you are this type of system:	The system shall comply with this section and sections 12 through 20 of this rule by:[1]
The following apply to systems that are not part of a combined distribution system and systems that serve the largest population in the combined distribution system:	
System serving ≥ 100,000	April 1, 2012
System serving 50,000 - 99,999	October 1, 2012
System serving 10,000 - 49,999	October 1, 2013
System serving < 10,000	October 1, 2013 if no Cryptosporidium monitoring is required under 327 IAC 8-2.6-8(b)(1); or October 1, 2014 if Cryptosporidium monitoring is required under 327 IAC 8-2.6-8(b)(1)
The following applies to other systems that are part of a combined distribution system:	
Consecutive system or wholesale system	The same time as the system with the earliest compliance date in the combined distribution system

[1]The commissioner may grant up to an additional twenty-four (24) months for compliance with MCLs and operational evaluation levels if a PWS requires capital improvements to comply with an MCL.

(2) A PWS affected by this rule shall comply with the monitoring frequency specified in section 12(a)(2) of this rule and meet the following requirements:
(A) If a PWS is required to conduct quarterly monitoring, the monitoring must begin in the first full calendar quarter that includes the compliance date in Table 11.
(B) If a PWS is required to conduct monitoring at a frequency that is less than quarterly, the PWS shall begin monitoring in the calendar month:
(i) recommended in the initial distribution system evaluation report prepared under:
(AA) 40 CFR 141.601, as incorporated by reference in section 10(a)(2) of this rule; or
(BB) 40 CFR 141.602, as incorporated by reference in section 10(a)(3) of this rule; or
(ii) identified in the monitoring plan developed under section 13 of this rule;
not later than twelve (12) months after the compliance date in Table 11.
(3) Compliance calculations shall be done as follows:
(A) For a PWS that is required to conduct quarterly monitoring, the PWS shall make compliance calculations according to the following:
(i) At the end of:
(AA) the fourth calendar quarter that follows the compliance date specified in Table 11; and
(BB) each subsequent calendar quarter.
(ii) Compliance calculations must be done earlier than specified under item (i) if the LRAA calculated based on fewer than four (4) quarters of data would cause the MCL to be exceeded regardless of the monitoring results of subsequent quarters.
(B) For a PWS that is required to conduct monitoring at a frequency that is less than quarterly, the PWS shall make compliance calculations beginning with the first compliance sample taken after the compliance date.
(4) For the purpose of the schedule in Table 11, the commissioner may determine that a combined distribution system does not include certain of the following systems:
(A) Consecutive systems based on factors such as receiving:
(i) water from a wholesale system only on an emergency basis; or
(ii) only a small percentage and a small volume of water from a wholesale system.
(B) Wholesale systems based on factors such as delivering:
(i) water to a consecutive system only on an emergency basis; or
(ii) only a small percentage and small volume of water to a consecutive system.

(d) The monitoring and compliance requirements for a PWS are as follows:
(1) For a PWS required to monitor quarterly to be in compliance with the MCLs in section 2(b)(1) of this rule, the following apply:
(A) The PWS shall:
(i) calculate LRAAs for:
(AA) TTHM; and
(BB) HAA5;
using monitoring results collected under this section and sections 12 through 20 of this rule; and

(ii) determine that each LRAA does not exceed the MCL.
(B) If a PWS fails to complete four (4) consecutive quarters of monitoring, the PWS shall calculate compliance with the MCL based on the average of the available data from the most recent four (4) quarters.
(C) If a PWS takes more than one (1) sample per quarter at a monitoring location, the PWS shall average all samples taken in a quarter at that location to determine a quarterly average to be used in the LRAA calculation.
(2) For a PWS required to monitor annually or less frequently to be in compliance with the MCLs in section 2(b)(1) of this rule, the following apply:
(A) The PWS shall determine that each sample taken is less than the MCL.
(B) If any sample exceeds the MCL, the PWS shall comply with the requirements of section 16 of this rule.
(C) If no sample exceeded the MCL, the sample result for each monitoring location is considered the LRAA for that monitoring location.

(e) A PWS is in violation of the monitoring requirements of this section and sections 12 through 20 of this rule for each quarter that a monitoring result would be used in calculating an LRAA if the PWS fails to monitor.

(Water Pollution Control Board; 327 IAC 8-2.5-11)

SECTION 33. 327 IAC 8-2.5-12 IS ADDED TO READ AS FOLLOWS:

327 IAC 8-2.5-12 Routine monitoring; stage 2 disinfection byproducts requirements

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3-2; IC 13-18-16
Affected: IC 13-18-3-11

Sec. 12. (a) The following are the routine monitoring requirements for a PWS to comply with section 11 of this rule, this section, and sections 13 through 20 of this rule:
(1) A PWS shall comply with monitoring location and schedule requirements as follows:
(A) If a PWS submitted an initial distribution system evaluation (IDSE) report as required under section 10 of this rule, the PWS shall:
(i) begin monitoring at the locations and months:
(AA) recommended in the IDSE report submitted under 40 CFR 141.605, as incorporated by reference in section 10(a)(6) of this rule; and
(BB) following the schedule in section 11(c) of this rule; or
(ii) monitor according to the directive of the:
(AA) commissioner; or
(BB) EPA;
if either requires other locations or additional locations after review of the PWS's IDSE report.
(B) A PWS shall monitor at the location or locations and dates identified in the monitoring plan submitted in accordance with section 6(f) of this rule and updated as required by section 13 of this rule if the PWS meets one (1) of the following:
(i) The PWS submitted a 40/30 certification under 40 CFR 141.603, as incorporated by reference in section 10(a)(4) of this rule.
(ii) The PWS qualified for a very small system waiver under 40 CFR 141.604, as incorporated by reference in section 10(a)(5) of this rule.
(iii) The PWS is an NTNCWS serving fewer than ten thousand (10,000) people.
(2) A PWS shall monitor at not fewer than the number of locations identified in the following table:

Table 12

Source Water Type	Population Size Category	Monitoring Frequency[1]	Distribution System Monitoring Locations Total per Monitoring Period[2]

Subpart H	< 500	per year	2
	500-3,300	per quarter	2
	3,301-9,999	per quarter	2
	10,000-49,999	per quarter	4
	50,000-249,999	per quarter	8
	250,000-999,999	per quarter	12
	1,000,000-4,999,999	per quarter	16
	≥ 5,000,000	per quarter	20
Ground water	< 500	per year	2
	500-9,999	per year	2
	10,000-99,999	per quarter	4
	100,000-499,999	per quarter	6
	≥ 500,000	per quarter	8

(3) If an undisinfected PWS begins using a disinfectant other than UV light after the dates according to 40 CFR 141.600 through 40 CFR 141.605, as incorporated in section 10(a)(6) of this rule, for complying with the IDSE requirements, the PWS shall do the following:

(A) Consult with the commissioner to identify compliance monitoring locations for section 11 of this rule, this section, and sections 13 through 20 of this rule.

(B) Develop a monitoring plan under section 13 of this rule that includes the monitoring locations identified under clause (A).

(b) A PWS shall use analytical methods approved under section 5 of this rule for TTHM and HAA5 analyses in section 11 of this rule, this section, and sections 13 through 20 of this rule. Analyses must be conducted by laboratories that have received certification by EPA or the commissioner as specified in section 5 of this rule.

(Water Pollution Control Board; 327 IAC 8-2.5-12)

SECTION 34. 327 IAC 8-2.5-13 IS ADDED TO READ AS FOLLOWS:

327 IAC 8-2.5-13 Monitoring plan; stage 2 disinfection byproducts requirements

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3-2; IC 13-18-16
Affected: IC 13-18-3-11

Sec. 13. (a) The following are PWS requirements for completion of a monitoring plan under sections 11 and 12 of this rule, this section, and sections 14 through 20 of this rule:

(1) A PWS shall develop and implement a monitoring plan to be kept on file at the system for review by the commissioner and the public. The monitoring plan must be completed not later than the date initial monitoring is conducted under sections 11 and 12 of this rule, this section, and sections 14 through 20 of this rule, and it must contain the following elements:

(A) Monitoring locations.

(B) Monitoring dates.

(C) Compliance calculation procedures.

(2) For selection of monitoring locations, the following apply:

(A) If a PWS was not required to submit an IDSE report under either 40 CFR 141.601, as incorporated by reference in section 10(a)(2) of this rule, or 40 CFR 141.602, as incorporated by reference in section 10(a)(3) of this rule, and the PWS does not have sufficient monitoring locations as required under sections 4 through 9 of this rule to identify the required number of compliance monitoring locations indicated in 40 CFR 141.605(b), as incorporated by reference in section 10(a)(6) of this rule, the PWS shall do the following:

(i) Identify additional monitoring locations by alternating selection of locations representing high TTHM levels and high HAA5 levels until the required number of compliance monitoring locations have been identified.

(ii) Provide the rationale for identifying the locations, required under item (i), as having high levels of TTHM or HAA5.

(B) If a PWS has more monitoring locations, as required under sections 4 through 9 of this rule, than

required for compliance monitoring in 40 CFR 141.605(b), as incorporated by reference in section 10(a)(6) of this rule, the PWS shall identify the locations that will be used for compliance monitoring under sections 11 and 12 of this rule, this section, and sections 14 through 20 of this rule by alternating selection of locations representing high TTHM levels and high HAA5 levels until the required number of samples under section 12 of this rule have been identified.

(b) A Subpart H system serving greater than three thousand three hundred (3,300) people shall submit a copy of the monitoring plan to the commissioner prior to the date initial monitoring is conducted under sections 11 and 12 of this rule, this section, and sections 14 through 20 of this rule, unless the initial distribution system evaluation report submitted under section 10 of this rule contains all the information required by this section.

(c) Revision of a monitoring plan may be allowed if the following are met:
(1) A PWS may revise its monitoring plan after consultation with the commissioner regarding the need for changes and the appropriateness of changes to reflect one (1) or more of the following:
(A) Changes in treatment.
(B) Changes in distribution system operations and layout (including new service areas).
(C) Other factors that can affect TTHM or HAA5 formation.
(D) Reasons approved by the commissioner.
(2) A PWS making changes to monitoring locations shall replace existing compliance monitoring locations having the lowest LRAA with new locations that reflect the current distribution system locations with expected high TTHM or HAA5 levels.
(3) Modifications to a monitoring plan required by the commissioner.
(4) Subpart H systems serving greater than three thousand three hundred (3,300) people shall submit a copy of the modified monitoring plan to the commissioner prior to the date the PWS is required to comply with the revised monitoring plan.

(Water Pollution Control Board; 327 IAC 8-2.5-13)

SECTION 35. 327 IAC 8-2.5-14 IS ADDED TO READ AS FOLLOWS:

327 IAC 8-2.5-14 Reduced monitoring; stage 2 disinfection byproducts requirements

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3-2; IC 13-18-16
Affected: IC 13-18-3-11

Sec. 14. (a) A PWS may reduce monitoring for stage 2 disinfection byproducts to the monitoring frequency specified in the following table if the following are met:
(1) The following analytical results:
(A) The LRAA is:
(i) less than or equal to forty-thousandths (0.040) milligrams per liter (mg/L) for TTHM; and
(ii) less than or equal to thirty-thousandths (0.030) mg/L for HAA5;
at all monitoring locations.
(B) The source water annual average TOC level before any treatment must be less than or equal to four and zero-tenths (4.0) mg/L at each treatment plant treating:
(i) surface water; or
(ii) ground water under the direct influence of surface water;
based on monitoring conducted under either section 6(b)(1)(C) or 6(d) of this rule.
(2) Only data results collected under sections 11 through 13 of this rule, this section, and sections 15 through 18 of this rule may be used to qualify for reduced monitoring.
(3) The reduced monitoring frequency levels and location requirements are specified by system size in Table 1 as follows:

Table 14

Source Water Type	Population Size Category	Monitoring Frequency[1]	Distribution System Monitoring Location per Monitoring Period

Subpart H	< 500		Monitoring cannot be reduced.
	500-3,300	per year	One (1) TTHM and one (1) HAA5 sample; one at the location and during the quarter with the highest TTHM single measurement; one at the location and during the quarter with the highest HAA5 single measurement; one (1) dual sample set per year if the highest TTHM and HAA5 measurements occurred at the same location and quarter.
	3,301-9,999	per year	Two (2) dual sample sets; one at the location and during the quarter with the highest TTHM single measurement; one at the location and during the quarter with the highest HAA5 single measurement.
	10,000-49,999	per quarter	Two (2) dual sample sets at the locations with the highest TTHM and highest HAA5 LRAAs.
	50,000-249,999	per quarter	Four (4) dual sample sets at the locations with the two (2) highest TTHM and two (2) highest HAA5 LRAAs.
	250,000-999,999	per quarter	Six (6) dual sample sets at the locations with the three (3) highest TTHM and three (3) highest HAA5 LRAAs.
	1,000,000-4,999,999	per quarter	Eight (8) dual sample sets at the locations with the four (4) highest TTHM and four (4) highest HAA5 LRAAs.
	≥5,000,000	per quarter	Ten (10) dual sample sets at the locations with the five (5) highest TTHM and five (5) highest HAA5 LRAAs.
Ground water	< 500	every third year	One (1) TTHM and one (1) HAA5 sample; one at the location and during the quarter with the highest TTHM single measurement; one at the location and during the quarter with the highest HAA5 single measurement; one (1) dual sample set per year if the highest TTHM and HAA5 measurements occurred at the same location and quarter.
	500-9,999	per year	One (1) TTHM and one (1) HAA5 sample; one at the location and during the quarter with the highest TTHM single measurement; one at the location and during the quarter with the highest HAA5 single measurement; one (1) dual sample set per year if the highest TTHM and HAA5 measurements occurred at the same location and quarter.
	10,000-99,999	per year	Two (2) dual sample sets; one at the location and during the quarter with the highest TTHM single measurement; one at the location and during the quarter with the highest HAA5 single measurement.
	100,000-499,999	per quarter	Two (2) dual sample sets at the locations with the highest TTHM and highest HAA5 LRAAs.
	≥ 5,000,000	per quarter	Four (4) dual sample sets at the locations with the two (2) highest TTHM and two (2) highest HAA5 LRAAs.

[1]Systems on quarterly monitoring must take dual sample sets every ninety (90) days.

(b) A PWS may remain on reduced monitoring if the following requirements, as applicable, are met:
(1) A PWS monitoring quarterly may remain on reduced monitoring as long as the:
(A) TTHM LRAA remains less than or equal to forty-thousandths (0.040) mg/L; and
(B) HAA5 LRAA remains less than or equal to thirty-thousandths (0.030) mg/L;
at each monitoring location.
(2) A PWS monitoring annually or every third year may remain on reduced monitoring if each:
(A) TTHM result is less than or equal to sixty-thousandths (0.060) mg/L; and
(B) HAA5 sample is less than or equal to forty-five thousandths (0.045) mg/L.

(3) The source water annual average TOC level, before any treatment, must be less than or equal to four and zero-tenths (4.0) mg/L at each treatment plant treating:
(A) surface water; or
(B) ground water under the direct influence of surface water;
based on monitoring conducted under either section 6(b)(1)(C) or 6(d) of this rule.

(c) A PWS shall cease reduced monitoring and resume routine monitoring under section 12 of this rule or begin increased monitoring under section 16 of this rule if one (1) or more of the following occurs:
(1) The LRAA based on quarterly monitoring at any monitoring location exceeds either:
(A) forty-thousandths (0.040) mg/L for TTHM; or
(B) thirty-thousandths (0.030) mg/L for HAA5.
(2) The annual or once every third year sample at any location exceeds either:
(A) sixty-thousandths (0.060) mg/L for TTHM; or
(B) forty-five thousandths (0.045) mg/L for HAA5.
(3) The source water annual average TOC level, before any treatment, is greater than four and zero-tenths (4.0) mg/L at any treatment plant treating:
(A) surface water; or
(B) ground water under the direct influence of surface water;
based on monitoring conducted under either section 6(b)(1)(C) or 6(d) of this rule.

(d) The commissioner may return a PWS to routine monitoring at the commissioners' discretion.

(Water Pollution Control Board; 327 IAC 8-2.5-14)

SECTION 36. 327 IAC 8-2.5-15 IS ADDED TO READ AS FOLLOWS:

327 IAC 8-2.5-15 Additional requirements for consecutive systems; stage 2 disinfection byproducts requirements

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3-2; IC 13-18-16
Affected: IC 13-18-3-11

Sec. 15. A consecutive PWS that does not add a disinfectant but delivers water that has been treated with a primary or residual disinfectant other than ultraviolet light shall:
(1) comply with:
(i) analytical and monitoring requirements for chlorine and chloramines in section 5(c) of this rule; and
(ii) the requirements in section 6(c)(1) of this rule;
beginning April 1, 2009, unless required to comply at an earlier date by the commissioner; and
(2) report monitoring results under section 7(c) of this rule.

(Water Pollution Control Board; 327 IAC 8-2.5-15)

SECTION 37. 327 IAC 8-2.5-16 IS ADDED TO READ AS FOLLOWS:

327 IAC 8-2.5-16 Conditions requiring increased monitoring; stage 2 disinfection byproducts requirements

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3-2; IC 13-18-16
Affected: IC 13-18-3-11

Sec. 16. (a) A PWS that is required to monitor at a particular location annually or less frequently than annually under section 12 or 14 of this rule shall increase monitoring to dual sample sets once per quarter (taken every ninety (90) days) at all locations if one (1) or both of the following occur:
(1) TTHM sample is greater than eighty-thousandths (0.80) milligrams per liter (mg/L).
(2) HAA5 sample is greater than sixty-thousandths (0.060) mg/L at any location.

(b) A PWS is in violation of the following:
(1) MCL when the LRAA:
(A) exceeds the MCLs contained in section 2(b) of this rule, calculated based on four (4) consecutive quarters of monitoring; or
(B) is calculated based on fewer than four (4) quarters of data and the MCL would be exceeded regardless of the monitoring results of subsequent quarters.
(2) Monitoring requirements for each quarter that a monitoring result would be used in calculating an LRAA if the PWS fails to monitor.

(c) A PWS may return to routine monitoring once it has conducted increased monitoring for at least four (4) consecutive quarters and the LRAA for every monitoring location meets the following:
(1) Less than or equal to sixty-thousandths (0.060) mg/L for TTHM.
(2) Less than or equal to forty-five thousandths (0.045) mg/L for HAA5.

(Water Pollution Control Board; 327 IAC 8-2.5-16)

SECTION 38. 327 IAC 8-2.5-17 IS ADDED TO READ AS FOLLOWS:

327 IAC 8-2.5-17 Operational evaluation levels; stage 2 disinfection byproducts requirements

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3-2; IC 13-18-16
Affected: IC 13-18-3-11

Sec. 17. (a) A PWS has exceeded the operational evaluation level at any monitoring location when one (1) or both of the following occur:
(1) The sum of the two (2) previous quarters' TTHM results plus twice the current quarter's TTHM result, divided by four (4) to determine an average, exceeds eighty-thousandths (0.080) milligrams per liter (mg/L).
(2) The sum of the two (2) previous quarters' HAA5 results plus twice the current quarter's HAA5 result, divided by four (4) to determine an average, exceeds sixty-thousandths (0.060) mg/L.

(b) The following are the requirements for a PWS if the operational evaluation level is exceeded:
(1) The PWS shall:
(A) conduct an operational evaluation; and
(B) submit a written report of the operational evaluation to the commissioner not later than ninety (90) days after being notified of the analytical result that caused the PWS to exceed the operational evaluation level.
The written report must be made available to the public upon request.
(2) The operational evaluation must include the following:
(A) Treatment and distribution operational practices, including:
(i) storage tank operations;
(ii) excess storage capacity;
(iii) distribution system flushing;
(iv) changes in sources or source water quality; and
(v) treatment changes or problems;
that can contribute to TTHM and HAA5 formation.
(B) Possible steps that could be considered to minimize future exceedances.
(3) A PWS may request and the commissioner may allow a PWS to limit the scope of the operational evaluation required under subdivision (2) if the PWS is able to identify the cause of the operational evaluation level exceedance.
(4) If the commissioner approves a PWS's request under subdivision (3) to limit the scope of the operational evaluation, the following apply:
(A) The commissioner shall approve a request for a limited scope of operational evaluation in writing.
(B) The PWS shall include the commissioner's approval with the completed report on the limited scope operational evaluation.
(C) The commissioner's approval of a limited scope operational evaluation does not extend the schedule under subdivision (1)(B) for submitting the written report.

(Water Pollution Control Board; 327 IAC 8-2.5-17)

SECTION 39. 327 IAC 8-2.5-18 IS ADDED TO READ AS FOLLOWS:

327 IAC 8-2.5-18 Requirements for remaining on reduced TTHM and HAA5 monitoring based on Subpart L requirements: stage 2 disinfection byproducts requirements

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3-2; IC 13-18-16
Affected: IC 13-18-3-11

Sec. 18. A PWS on reduced monitoring shall comply with the following:
(1) The PWS may remain on reduced monitoring after the dates identified in section 11(c) of this rule for compliance with sections 11 through 17 of this rule, this section, and sections 19 and 20 of this rule only if the PWS:
(A) qualifies for a 40/30 certification under 40 CFR 141.603, as incorporated by reference in section 10(a)(4) of this rule; or
(B) has received a very small system waiver under 40 CFR 141.604, as incorporated by reference in section 10(a)(5) of this rule.
(2) The PWS:
(A) shall meet the reduced monitoring criteria in section 14(a) of this rule; and
(B) may not change or add monitoring locations from those used for compliance monitoring under sections 1 through 9 of this rule. If the monitoring locations for a PWS differ from the monitoring locations under sections 1 through 9 of this rule, the PWS may not remain on reduced monitoring after the dates identified in section 11(c) of this rule for compliance with sections 11 through 17 of this rule, this section, and sections 19 and 20 of this rule.

(Water Pollution Control Board; 327 IAC 8-2.5-18)

SECTION 40. 327 IAC 8-2.5-19 IS ADDED TO READ AS FOLLOWS:

327 IAC 8-2.5-19 Requirements for remaining on increased TTHM and HAA5 monitoring based on Subpart L requirements; stage 2 disinfection byproducts requirements

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3-2; IC 13-18-16
Affected: IC 13-18-3-11

Sec. 19. A PWS on increased monitoring shall comply with the following:
(1) If a PWS was on increased monitoring under section 6(b)(1) of this rule, the PWS shall remain on increased monitoring until the PWS qualifies for a return to routine monitoring under section 16(c) of this rule.
(2) A PWS shall:
(A) conduct increased monitoring under section 16 of this rule at the locations in the monitoring plan developed under section 13 of this rule beginning at the date identified in section 11(c) of this rule for compliance with sections 11 through 18 of this rule, this section, and section 20 of this rule; and
(B) remain on increased monitoring until the PWS qualifies for a return to routine monitoring under section 16(c) of this rule.

(Water Pollution Control Board; 327 IAC 8-2.5-19)

SECTION 41. 327 IAC 8-2.5-20 IS ADDED TO READ AS FOLLOWS:

327 IAC 8-2.5-20 Reporting and record keeping requirements; stage 2 disinfection byproducts requirements

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3-2; IC 13-18-16
Affected: IC 13-18-3-11

Sec. 20. (a) The following are the reporting requirements for the TTHM and HAA5 monitoring under this rule:

(1) A PWS shall report the following information for each monitoring location to the commissioner within ten (10) days after the end of any quarter in which monitoring is required:

(A) The number of samples taken during the last quarter.

(B) The date and results of each sample taken during the last quarter.

(C) LRAA calculations including the following information:

(i) The arithmetic average of quarterly results for the last four (4) quarters for each monitoring location, beginning at the end of the fourth calendar quarter that follows the compliance date and at the end of each subsequent quarter.

(ii) If the LRAA, calculated based on fewer than four (4) quarters of data, would cause the MCL to be exceeded regardless of the monitoring results of subsequent quarters, the PWS shall report this information to the commissioner as part of the first report due following the compliance date or anytime thereafter that this determination is made.

(iii) If a PWS is required to conduct monitoring at a frequency that is less than quarterly, the PWS shall make compliance calculations beginning with the first compliance sample taken after the compliance date, unless the PWS is required to conduct increased monitoring under section 16 of this rule.

(D) Whether, based on sections 2(b)(1) and 11 through 19 of this rule and this section, the MCL was violated at any monitoring location.

(E) Any operational evaluation levels that were exceeded during the quarter, including the following information:

(i) The location.

(ii) The date.

(iii) The calculated TTHM and HAA5 levels.

(2) If a Subpart H system is seeking to qualify for or remain on reduced TTHM and HAA5 monitoring, the Subpart H PWS shall report the following source water TOC information for each treatment plant that treats surface water or ground water under the direct influence of surface water to the commissioner within ten (10) days after the end of any quarter in which monitoring is required:

(A) The number of source water TOC samples taken each month during the last quarter.

(B) The date and result of each sample taken during the last quarter.

(C) The quarterly average of monthly samples taken during the last quarter or the result of the quarterly sample.

(D) The running annual average (RAA) of quarterly averages from the past four (4) quarters.

(E) Whether the RAA exceeded four and zero-tenths (4.0) milligrams per liter.

The commissioner may choose to perform calculations and determine whether the MCL was exceeded or the system is eligible for reduced monitoring in lieu of having the system report that information.

(b) Each PWS subject to sections 11 through 19 of this rule and this section shall retain monitoring plans and monitoring results as required by this section.

(Water Pollution Control Board; 327 IAC 8-2.5-20)

SECTION 42. 327 IAC 8-2.6-4 IS AMENDED TO READ AS FOLLOWS:

327 IAC 8-2.6-4 Filtration sampling requirements

Authority: IC 13-13-5-1; IC 13-14-8-2; IC 13-14-8-7; IC 13-18-3-2
Affected: IC 13-12-3-1; IC 13-13-5-2; IC 13-14-9; IC 13-18-11

Sec. 4. (a) In addition to monitoring required by ~~327 IAC 8-2-8.7,~~ **327 IAC 8-2-8.8,** a Subpart H system serving a population of at least ten thousand (10,000) individuals and, beginning January 1, 2005, a Subpart H system serving a population of fewer than ten thousand (10,000) individuals that provides conventional filtration treatment or direct filtration shall comply with the following:

(1) Conduct continuous monitoring of turbidity for each individual filter using an approved method in 327 IAC 8-2-8.7.

(2) Calibrate turbidimeters using the procedure specified by the manufacturer.

(3) Record the results of individual filter monitoring every fifteen (15) minutes.

(4) Monthly reporting must be completed and records must be maintained according to section 5 of this rule.

(b) If there is a failure in the continuous turbidity monitoring equipment, Subpart H systems **must comply with the following:**

(1) A system serving a population of at least ten thousand (10,000) individuals must conduct grab sampling every four (4) hours instead of continuous monitoring, but for no more than five (5) working days following the failure of the equipment.

(2) Beginning January 1, 2005, a ~~Subpart H~~ system serving a population of fewer than ten thousand (10,000) individuals must conduct grab sampling every four (4) hours instead of continuous monitoring until the turbidimeter is back in operation.

The system has fourteen (14) days to resume continuous monitoring before a violation is incurred.

(c) Beginning January 1, 2005, if a system serving a population of fewer than ten thousand (10,000) individuals only consists of two (2) or fewer filters, **the following apply:**

(1) The system may conduct continuous monitoring of combined filter effluent turbidity instead of individual filter effluent turbidity monitoring.

(2) Continuous monitoring must meet the same requirements set forth in subsections (a) and (b).

(Water Pollution Control Board; 327 IAC 8-2.6-4; filed May 1, 2003, 12:00 p.m.: 26 IR 2857; filed Jun 13, 2005, 2:30 p.m.: 28 IR 3253)

SECTION 43. 327 IAC 8-2.6-5 IS AMENDED TO READ AS FOLLOWS:

327 IAC 8-2.6-5 Enhanced filtration and disinfection reporting and record keeping requirements

Authority: IC 13-13-5-1; IC 13-14-8-2; IC 13-14-8-7; IC 13-18-3-2
Affected: IC 13-12-3-1; IC 13-13-5-2; IC 13-14-9; IC 13-18-11

Sec. 5. Beginning January 1, 2002, a Subpart H system serving a population of at least ten thousand (10,000) individuals and, beginning January 1, 2005, a Subpart H system serving a population of fewer than ten thousand (10,000) individuals that ~~is~~ **are** subject to the requirements of section 3 of this rule and ~~provides~~ **provide** conventional filtration treatment or direct filtration shall meet the following requirements in addition to the reporting and record keeping requirements in 327 IAC 8-2-14:

(1) Turbidity measurements as required by section 3 of this rule ~~shall~~ **must** be reported within ten (10) days after the end of each month the system serves water to the public. Information that must be reported includes the following:

(A) The total number of filtered water turbidity measurements taken during the month.

(B) The number and percentage of filtered water turbidity measurements taken during the month that are less than or equal to the turbidity limits specified in section 3 of this rule.

(C) The date and value of any turbidity measurements taken during the month that exceed:

(i) one and zero-tenths (1.0) nephelometric turbidity unit for systems using conventional filtration treatment or direct filtration; or

(ii) the maximum level set by the commissioner under section 3 of this rule.

This reporting requirement is instead of the reporting specified in 327 IAC 8-2-14(b).

(2) Subpart H systems serving a population of at least ten thousand (10,000) individuals shall maintain the results of individual filter monitoring taken under section 4 of this rule for at least three (3) years. These systems shall report that they have conducted individual filter turbidity monitoring under section 3 of this rule within ten (10) days after the end of each month they serve water to the public. **These systems shall report individual filter turbidity measurement results taken under 327 IAC 8-2.5-4** if measurements demonstrate one (1) or more of the following conditions:

(A) For any individual filter that has a measured turbidity level of greater than one and zero-tenths (1.0) nephelometric turbidity unit in two (2) consecutive measurements taken fifteen (15) minutes apart, Subpart H systems serving a population of at least ten thousand (10,000) individuals shall report the:

(i) filter number;

(ii) turbidity measurement; and

(iii) date when the exceedance occurred.

In addition, the system shall either produce a filter profile for the filter within seven (7) days of the exceedance, if the system is not able to identify an obvious reason for the abnormal filter performance, and report that the profile has been produced or report the obvious reason for the exceedance.

(B) For any individual filter that has a measured turbidity level of greater than five-tenths (0.5) in two (2) consecutive measurements taken fifteen (15) minutes apart at the end of the first four (4) hours of continuous filter operation after the filter has been backwashed or otherwise taken off-line, Subpart H systems serving a population of at least ten thousand (10,000) individuals shall report the:

(i) filter number;

(ii) turbidity measurement; and

(iii) date when the exceedance occurred.

In addition, the system shall either produce a filter profile for the filter within seven (7) days of the exceedance, if the system is not able to identify an obvious reason for the abnormal filter performance, and report that the profile has been produced or report the obvious reason for the exceedance.

(C) For any individual filter that has a measured turbidity level of greater than one and zero-tenths (1.0) nephelometric turbidity unit in two (2) consecutive measurements taken fifteen (15) minutes apart at any time in each of three (3) consecutive months, Subpart H systems serving a population of at least ten thousand (10,000) shall report the filter number, the turbidity measurement, and the date when the exceedance occurred. In addition, the system shall conduct a self-assessment of the filter within fourteen (14) days of the exceedance and report that the self-assessment was conducted. The self-assessment ~~shall~~ **must** consist of at least the following components:

(i) Assessment of filter performance.

(ii) Development of a filter profile.

(iii) Identification and prioritization of factors limiting filter performance.

(iv) Assessment of the applicability of corrections.

(v) Preparation of a filter self-assessment report.

(D) For any individual filter that has a measured turbidity level of greater than two and zero-tenths (2.0) nephelometric turbidity units in two (2) consecutive measurements taken fifteen (15) minutes apart at any time in each of two (2) consecutive months, Subpart H systems serving a population of at least ten thousand (10,000) individuals shall report the:

(i) filter number;

(ii) turbidity measurement; and

(iii) date when the exceedance occurred.

In addition, the system shall arrange for the conduct of a CPE by the commissioner or a third party approved by the commissioner ~~no~~ **not** later than thirty (30) days following the exceedance and have the evaluation completed and submitted to the commissioner ~~no~~ **not** later than ninety (90) days following the exceedance.

(3) Additional reporting requirements for Subpart H systems serving a population of at least ten thousand (10,000) individuals are as follows:

(A) If at any time the turbidity exceeds one and zero-tenths (1.0) nephelometric turbidity unit in representative samples of filtered water in a Subpart H system serving a population of at least ten thousand (10,000) individuals using conventional filtration treatment or direct filtration, the system shall inform the commissioner as soon as possible, but ~~no~~ **not** later than the end of the next business day.

(B) If at any time the turbidity in representative samples of filtered water exceeds the maximum level set by the commissioner under section 3 of this rule for filtration technologies other than:

(i) conventional filtration treatment;

(ii) direct filtration;

(iii) slow sand filtration; or

(iv) diatomaceous earth filtration;

Subpart H systems serving a population of at least ten thousand (10,000) individuals shall inform the commissioner as soon as possible, but ~~no~~ **not** later than the end of the next business day.

(4) Beginning January 1, 2005, a Subpart H system serving a population of fewer than ten thousand (10,000) individuals shall maintain the results of individual filter monitoring taken under section 4 of this rule for at least three (3) years. **The system shall report that it has conducted individual filter turbidity monitoring under section 4 of this rule within ten (10) days after the end of each month the system serves water to the public.** The system shall report to the commissioner the results of conducting individual filter turbidity monitoring under section 3 of this rule within ten (10) days after the end of each month that water is served to the public if measurements demonstrate one (1) or more of the following conditions:

(A) If the turbidity of an individual filter (or the turbidity of combined filter effluent (CFE) for systems with two (2) filters that monitor CFE instead of individual filters) exceeds one and zero-tenths (1.0) NTU in two (2) consecutive recordings fifteen (15) minutes apart, a Subpart H system serving a population of fewer than ten thousand (10,000) individuals ~~must~~ **shall** report to the commissioner by the tenth day of the following month and include:

(i) the filter number or numbers;

(ii) corresponding date or dates; and

(iii) turbidity value or values;

that exceeded one and zero-tenths (1.0) NTU and the cause (if known) for the exceedance or exceedances.
(B) If a Subpart H system serving a population of fewer than ten thousand (10,000) individuals was required to report to the commissioner for three (3) months in a row and turbidity exceeded one and zero-tenths (1.0) NTU in two (2) consecutive recordings fifteen (15) minutes apart at the same filter (or CFE for systems with two (2) filters that monitor CFE instead of individual filters), the system ~~must~~ **shall** conduct a self-assessment of the filter or filters within fourteen (14) days of the day the filter exceeded one and zero-tenths (1.0) NTU in two (2) consecutive measurements for the third straight month unless a CPE as specified in clause (C) was required. Systems with two (2) filters that monitor CFE instead of individual filters ~~must~~ **shall** conduct a self- assessment on both filters. The system ~~must~~ **shall** report to the commissioner the date that the self-assessment was triggered and the date it was completed. The self-assessment must consist of at least the following components:
(i) Assessment of filter performance.
(ii) Development of a filter profile.
(iii) Identification and prioritization of factors limiting filter performance.
(iv) Assessment of the applicability of corrections.
(v) Preparation of a filter self-assessment report.
(C) If a Subpart H system serving a population of fewer than ten thousand (10,000) individuals was required to report to the commissioner for two (2) months in a row and turbidity exceeded two and zero-tenths (2.0) NTU in two (2) consecutive recordings fifteen (15) minutes apart at the same filter (or CFE for systems with two (2) filters that monitor CFE instead of individual filters), the system ~~must~~ **shall meet the following requirements:**
(i) Arrange to have a CPE conducted by the commissioner or a third party approved by the commissioner not later than sixty (60) days following the day the filter exceeded two and zero-tenths (2.0) NTU in two (2) consecutive measurements for the second straight month. ~~The system must also~~ **A CPE is further conditioned as follows:**
(AA) If a CPE has been completed by the commissioner or a third party approved by the commissioner within the twelve (12) prior months or the system and commissioner are jointly participating in an ongoing comprehensive technical assistance (CTA) project at the system, a new CPE is not required.
(BB) If conducted, a CPE must be completed and submitted to the commissioner not later than one hundred twenty (120) days following the day the filter exceeded two and zero-tenths (2.0) NTU in two (2) consecutive measurements for the second straight month.
(ii) Report to the commissioner:
(AA) that a CPE is required; and
(BB) the date that ~~it~~ **the CPE** was triggered;
within ten (10) days after the end of each month that water is served to the public. ~~If a CPE has been completed by the commissioner or a third party approved by the commissioner within the twelve (12) prior months or the system and commissioner are jointly participating in an ongoing comprehensive technical assistance (CTA) project at the system, a new CPE is not required. If conducted, a CPE must be completed and submitted to the commissioner not later than one hundred twenty (120) days following the day the filter exceeded two and zero-tenths (2.0) NTU in two (2) consecutive measurements for the second straight month.~~
(5) Beginning January 1, 2005, disinfection profiling and benchmarking reporting and record keeping requirements for Subpart H systems serving a population of fewer than ten thousand (10,000) individuals are as follows:
(A) Disinfection profiling reporting and record keeping requirements are as follows:
(i) Systems ~~must~~ **shall** report results of optional monitoring that show:
(AA) TTHM levels less than sixty-four thousandths (0.064) mg/L and HAA5 levels less than forty-eight thousandths (0.048) mg/L (only if the system is not conducting a profile); or
(BB) the system has begun disinfection profiling by July 1, 2003, for systems serving five hundred (500) to nine thousand nine hundred ninety-nine (9,999) and January 1, 2004, for systems serving fewer than five hundred (500).
(ii) Systems subject to disinfection profiling under section 2.1 of this rule ~~must~~ **shall** keep results of profiling (including raw data and analysis) indefinitely.
(B) Disinfection benchmarking reporting and record keeping requirements are as follows:
(i) A system considering a significant change to its disinfection practice that is subject to disinfection benchmarking requirements under section 2.1 of this rule ~~must~~ **shall** report the following to the commissioner:
(AA) A description of the proposed change in disinfection.
(BB) The system's disinfection profile for Giardia lamblia (and, if necessary, viruses).
(CC) The system's disinfection benchmark.

(DD) An analysis of how the proposed change will affect the current levels of disinfection.

(ii) Systems subject to disinfection benchmarking under section 2.1 of this rule ~~must~~ **shall** keep the benchmark (including raw data and analysis) indefinitely.

(6) Systems that use lime softening may apply to the commissioner for alternative exceedance levels for the levels specified in subdivisions (2) and (4) if they can demonstrate that higher turbidity levels in individual filters are due to lime carryover only and not due to degraded filter performance.

(Water Pollution Control Board; 327 IAC 8-2.6-5; filed May 1, 2003, 12:00 p.m.: 26 IR 2857; filed Jun 13, 2005, 2:30 p.m.: 28 IR 3253)

SECTION 44. 327 IAC 8-2.6-7 IS ADDED TO READ AS FOLLOWS:

327 IAC 8-2.6-7 General requirements; enhanced treatment for Cryptosporidium

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3-2; IC 13-18-16
Affected: IC 13-18-3-11

Sec. 7. (a) The requirements of this section and sections 8 through 22 of this rule establish or extend treatment technique requirements in lieu of MCLs for Cryptosporidium. These requirements are in addition to requirements for filtration and disinfection under the following:

(1) 327 IAC 8-2-8.5.
(2) 327 IAC 8-2-8.6.
(3) 327 IAC 8-2-8.7.
(4) 327 IAC 8-2-8.8.
(5) 327 IAC 8-2-14.
(6) Sections 1 through 5 of this rule.

(b) The requirements of this section and sections 8 through 22 of this rule apply to the following:
(1) Subpart H systems supplied by a surface water source.
(2) PWSs supplied by a surface water source.
(3) PWSs supplied by a ground water source under the direct influence of surface water.
(4) Wholesale systems, as defined under 327 IAC 8-2-1. These systems shall comply with the requirements of this section and sections 8 through 22 of this rule based on the population of the largest system in the combined distribution system.
(5) PWSs that are required to provide filtration treatment, whether or not the system is currently operating a filtration system.

(c) A PWS subject to this rule shall comply with the following requirements:
(1) A PWS shall conduct an initial and a second round of source water monitoring for each water treatment plant that treats a surface water or ground water under the direct influence of surface water source. This monitoring may include sampling for:
(A) Cryptosporidium;
(B) E. coli; and
(C) turbidity;
as described under 40 CFR 141.701 through 40 CFR 141.706, as incorporated by reference in section 8(a) of this rule, to determine what level, if any, of additional Cryptosporidium treatment the PWS shall provide.
(2) A PWS that plans to make a significant change to its disinfection practice shall:
(A) develop disinfection profiles; and
(B) calculate disinfection benchmarks;
as described under sections 9 and 10 of this rule.
(3) A filtered system shall comply with the following:
(A) Determine its Cryptosporidium treatment bin classification as described under section 11 of this rule.
(B) Provide additional treatment for Cryptosporidium, if required, as described under section 12 of this rule.
(C) Implement Cryptosporidium treatment according to the applicable compliance date under section 13 of this rule.
(4) A PWS with uncovered finished water storage facilities shall comply with the requirements to:

(A) cover the facility; or
(B) treat the discharge from the facility;
as described under section 14 of this rule.
(5) A PWS that is required to provide additional treatment for Cryptosporidium shall implement microbial toolbox options that are designed and operated as described under sections 15 through 20 of this rule.
(6) A PWS shall comply with the applicable record keeping and reporting requirements described under sections 21 and 22 of this rule.

(Water Pollution Control Board; 327 IAC 8-2.6-7)

SECTION 45. 327 IAC 8-2.6-8 IS ADDED TO READ AS FOLLOWS:

327 IAC 8-2.6-8 Source water monitoring requirements; enhanced treatment for Cryptosporidium

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3-2; IC 13-18-16
Affected: IC 13-18-3-11

Sec. 8. (a) 40 CFR 141, Subpart W, for source water monitoring requirements, is incorporated by reference and consists of the following:
(1) 40 CFR 141.701, Source water monitoring*.
(2) 40 CFR 141.702, Sampling schedules*.
(3) 40 CFR 141.703, Sampling locations*.
(4) 40 CFR 141.704, Analytical methods*.
(5) 40 CFR 141.705, Approved laboratories*.
(6) 40 CFR 141.706, Reporting source water monitoring results*.
(7) 40 CFR 141.707, Grandfathering previously collected data*.

(b) For purposes of this rule, the following substitutions must be made for terms used in the portions of 40 CFR 141* adopted by reference:
(1) "40 CFR 141.173(b)" means section 3(2) and 3(3) of this rule.
(2) "40 CFR 141.710" means section 11 of this rule.
(3) "40 CFR 141.710(b)(5)" means section 11(b)(5) of this rule.
(4)"40 CFR 141.717(c)" means section 17 of this rule.
(5) "EPA" means the U.S. Environmental Protection Agency.
(6) "State" means the commissioner of the department of environmental management.

(c) The following documents are secondarily incorporated in the rules cited in subsection (a):
(1) Method 1623: Cryptosporidium and Giardia in Water by Filtration/IMS/FA, 2005, U.S. Environmental Protection Agency, EPA-815-R-05-002.**
(2) Method 1622: Cryptosporidium in Water by Filtration/IMS/FA, 2005, U.S. Environmental Protection Agency, EPA-815-R-05-001.**
(3) Method 1623: Cryptosporidium and Giardia in Water by Filtration/IMS/FA, 2001, U.S. Environmental Protection Agency, EPA-821-R-01-025.**
(4) Method 1622: Cryptosporidium in Water by Filtration/IMS/FA, 2001, U.S. Environmental Protection Agency, EPA-821-R01-026.**
(5) Method 1623: Cryptosporidium and Giardia in Water by Filtration/IMS/FA, 1999, U.S. Environmental Protection Agency, EPA-821-R-99-006.**
(6) Method 1622: Cryptosporidium in Water by Filtration/IMS/FA, 1999, U.S. Environmental Protection Agency, EPA-821-R-99-001.**
Notwithstanding language to the contrary in the primarily incorporated documents, the secondarily incorporated documents, which are documents referred to in the primarily incorporated documents, must be the version in effect on the date of final adoption of this rule.

(d) The following portions of 40 CFR 141, Subpart W pertaining to unfiltered water systems are not incorporated by reference under subsection (a):
(1) 40 CFR 141.701(a)(2).
(2) 40 CFR 141.701(a)(6).

(3) 40 CFR 141.701(d)(2).
(4) Other portions of 40 CFR 141.701 pertaining to unfiltered water systems.

(e) The commissioner does not allow unfiltered PWSs using surface water or ground water under the direct influence of surface water to operate.

***These documents are incorporated by reference and are available for review and copying at the Indiana Department of Environmental Management, Office of Water Quality, 100 North Senate Avenue, Room N1255, Indianapolis, Indiana 46204.**

**** These documents can be obtained online from http://www.epa.gov/safewater/disinfection/lt2 or from the U.S. Environmental Protection Agency, Office of Ground Water and Drinking Water, 1201 Constitution Avenue NW, Washington, D.C. 20460 (Telephone: 800-426-4791). A copy can also be inspected at the Water Docket in the EPA Docket Center, 1301 Constitution Avenue NW, Washington, D.C. 20460 (Telephone: 202-566-2426) or at the National Archives and Records Administration (NARA). For information about the availability of this material at NARA, call 202-741-6030 or go to http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html. These documents are also available for review and copying at the Indiana Department of Environmental Management, Office of Water Quality, 100 North Senate Avenue, Room N1255, Indianapolis, Indiana 46204.**

(Water Pollution Control Board; 327 IAC 8-2.6-8)

SECTION 46. 327 IAC 8-2.6-9 IS ADDED TO READ AS FOLLOWS:

327 IAC 8-2.6-9 Requirements when making a significant change in disinfection practice; disinfection profiling and benchmarking requirements; enhanced treatment for Cryptosporidium

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3-2; IC 13-18-16
Affected: IC 13-18-3-11

Sec. 9. (a) Following the completion of initial source water monitoring under 40 CFR 141.701(a), as incorporated by reference in section 8(a)(1) of this rule, a PWS that plans to make a significant change to its disinfection practice, as defined in subsection (b), shall do the following:
(1) Develop disinfection profiles and calculate disinfection benchmarks for Giardia lamblia and viruses as described in section 10 of this rule.
(2) Notify the commissioner prior to changing the disinfection practice and include in this notice the following information:
(A) A completed disinfection profile and disinfection benchmark for Giardia lamblia and viruses as described in section 10 of this rule.
(B) A description of the proposed change in disinfection practice.
(C) An analysis of how the proposed change will affect the current level of disinfection.

(b) Significant changes to disinfection practices are defined as follows:
(1) Changes to the point of disinfection.
(2) Changes to the disinfectant or disinfectants used in the treatment plant.
(3) Changes to the disinfection process.
(4) Any other modification identified by the commissioner as a significant change to disinfection practice.

(Water Pollution Control Board; 327 IAC 8-2.6-9)

SECTION 47. 327 IAC 8-2.6-10 IS ADDED TO READ AS FOLLOWS:

327 IAC 8-2.6-10 Developing the disinfection profile and benchmark; disinfection profiling and benchmarking requirements; enhanced treatment for Cryptosporidium

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3-2; IC 13-18-16

Sec. 10. (a) A PWS required to develop a disinfection profile under section 9 of this rule shall follow the requirements of this section, including the following:

(1) A PWS shall monitor at least weekly for a period of twelve (12) consecutive months to determine the total log inactivation for Giardia lamblia and viruses as required under subdivision (4).

(2) If a PWS monitors more frequently than required under subdivision (1), the monitoring frequency must be evenly spaced.

(3) A PWS that operates for fewer than twelve (12) months per year shall monitor weekly during the period of operation.

(4) Each PWS shall determine log inactivation for the following:

(A) Giardia lamblia through the entire plant based on $CT_{99.9}$ values (where C is the residual disinfectant concentration and T is the disinfectant contact time) in Tables 1.1 through 1.6, 2.1, and 3.1 of 40 CFR 141.74(b)* as applicable.

(B) Viruses through the entire treatment plant based on a protocol approved by the commissioner.

(b) Disinfectant monitoring requirements to develop a disinfection profile are as follows:

(1) A PWS with a single point of disinfectant application prior to the entrance to the distribution system shall monitor according to this subsection.

(2) A PWS with more than one (1) point of disinfectant application shall monitor according to this subsection for each disinfection segment.

(3) A PWS shall monitor the parameters necessary to determine the total inactivation ratio using analytical methods in 327 IAC 8-2-8.7.

(4) A PWS using a disinfectant other than UV shall measure the temperature of the water at:

(A) each residual disinfectant concentration sampling point during peak hourly flow; or

(B) an alternative location approved by the commissioner.

(5) A PWS using chlorine shall measure the pH of the disinfected water at:

(A) each chlorine residual disinfectant concentration sampling point during peak hourly flow; or

(B) an alternative location approved by the commissioner.

(6) A PWS shall determine the disinfectant contact time or times (t) during peak hourly flow.

(7) A PWS shall measure the residual disinfectant concentration or concentrations (C) of the water before or at the first customer and prior to each additional point of disinfectant application during peak hourly flow.

(c) In lieu of conducting new monitoring under subsection (b), a PWS may elect to meet the requirements of either of the following:

(1) A PWS that has at least one (1) year of existing data that are substantially equivalent to data collected under the requirements of subsection (b) may use these data to develop disinfection profiles as specified in this section if the PWS has not:

(A) made a significant change to the treatment practice; or

(B) changed sources;

since the data were collected. A PWS may develop a disinfection profile using up to three (3) years of existing data.

(2) A PWS may use a disinfection profile developed under section 2 or 2.1 of this rule in lieu of developing a new profile if the system has not:

(A) made a significant change to the treatment practice; or

(B) changed sources;

since the profile was developed. A PWS that did not develop a virus profile under section 2 or 2.1 of this rule shall develop a virus profile using the same monitoring data on which the Giardia lamblia profile is based.

(d) A PWS shall calculate the total inactivation ratio for Giardia lamblia according to the following:

(1) A PWS using only one (1) point of disinfectant application may determine the total inactivation ratio for the disinfection segment based on either of the following methods:

(A) Determine one (1) inactivation ratio ($CTcalc/CT_{99.9}$) before or at the first customer during peak hourly flow.

(B) Determine successive ($CTcalc/CT_{99.9}$) values, representing sequential inactivation ratios, between the point of disinfectant application and a point before or at the first customer during peak

hourly flow. The PWS shall calculate the total inactivation ratio by determining CTcalc/$CT_{99.9}$ for each sequence and use the sum of the (CTcalc/$CT_{99.9}$) values to determine #(CTcalc/$CT_{99.9}$).

(2) A PWS using more than one (1) point of disinfectant application before the first customer shall determine the CT value:

(A) of each disinfection segment immediately prior to the next point of disinfectant application; or

(B) for the final segment, before or at the first customer;

during peak hourly flow. The (CTcalc/$CT_{99.9}$) value of each segment and #(CTcalc/$CT_{99.9}$) must be calculated using the method in subdivision (1)(B).

(3) A PWS shall determine the total logs of inactivation by multiplying the value calculated in subdivision (1) or (2) by three and zero-tenths (3.0).

(4) A PWS shall calculate the log of inactivation for viruses using a protocol approved by the commissioner.

(e) A PWS shall use the following procedures to calculate a disinfection benchmark:

(1) For each year of profiling data collected and calculated under subsections (a) through (d), a PWS shall determine the lowest mean monthly level of both Giardia lamblia and virus inactivation. A PWS shall determine the mean Giardia lamblia and virus inactivation for each calendar month for each year of profiling data by dividing the sum of daily or weekly Giardia lamblia and virus log inactivation by the number of values calculated for that month.

(2) For a PWS with:

(A) one (1) year of profiling data, the disinfection benchmark is the lowest monthly mean value; or

(B) more than one (1) year of profiling data, the disinfection benchmark is the lowest monthly mean values of Giardia lamblia and virus log inactivation in each year of profiling data.

*** Tables 1.1 through 1.6, 2.1, and 3.1 of 40 CFR 141.74(b) are incorporated by reference and are available for review and copying at the Indiana Department of Environmental Management, Office of Water Quality, 100 North Senate Avenue, Room N1255, Indianapolis, Indiana 46204.**

(Water Pollution Control Board; 327 IAC 8-2.6-10)

SECTION 48. 327 IAC 8-2.6-11 IS ADDED TO READ AS FOLLOWS:

327 IAC 8-2.6-11 Bin classification for filtered systems; treatment technique requirements; enhanced treatment for Cryptosporidium

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3-2; IC 13-18-16
Affected: IC 13-18-3-11

Sec. 11. (a) Following completion of the initial round of source water monitoring required under 40 CFR 141.701(a), as incorporated by reference in section 8(a)(1) of this rule, each filtered PWS shall calculate an initial Cryptosporidium bin concentration for each plant for which monitoring was required by:

(1) using the Cryptosporidium results reported under 40 CFR 141.701(a), as incorporated by reference in section 8(a)(1) of this rule; and

(2) following the procedures in subsection (b).

(b) The following calculations shall be used to determine bin concentrations for the PWS as described:

(1) For a PWS that collects at least forty-eight (48) samples, the bin concentration is equal to the arithmetic mean of all sample concentrations.

(2) For a PWS that collects at least twenty-four (24) samples, but not more than forty-eight (48) samples, the bin concentration is equal to the highest arithmetic mean of all sample concentrations in any twelve (12) consecutive months during which Cryptosporidium samples were collected.

(3) For a PWS serving fewer than ten thousand (10,000) people that monitors for Cryptosporidium for only one (1) year, the bin concentration is equal to the arithmetic mean of all sample concentrations.

(4) For a PWS that has a plant that:

(A) operates only part of the year; and

(B) monitors fewer than twelve (12) months per year under 40 CFR 141.701(e), as incorporated in section 8(a)(1) of this rule;

the bin concentration is equal to the highest arithmetic mean of all sample concentrations during any

year of Cryptosporidium monitoring.
(5) If the monthly Cryptosporidium sampling frequency varies, a PWS shall:
(A) first calculate a monthly average for each month of monitoring; and
(B) then use the monthly average concentrations calculated under clause (A), rather than individual sample concentrations, in the applicable calculation for bin classification in subdivisions (1) through (4).

(c) A filtered system shall determine its initial bin classification from the following table and using the Cryptosporidium bin concentration calculated under subsections (a) and (b):

Table 11

For systems that are:	With a Cryptosporidium bin concentration of:[1]	The bin classification is:
Required to monitor for Cryptosporidium under 40 CFR 141.701, as incorporated by reference in section 8(a)(1) of this rule.	Cryptosporidium < 0.075 oocysts/L	Bin 1
	0.075 oocysts/L ≤ Cryptosporidium < 1.0 oocysts/L	Bin 2
	1.0 oocysts/L ≤ Cryptosporidium < 3.0 oocysts/L	Bin 3
	Cryptosporidium ≥ 3.0 oocysts/L	Bin 4
Serving fewer than 10,000 people and NOT required to monitor for Cryptosporidium under 40 CFR 141.701(a)(4), as incorporated by reference in section 8(a)(1) of this rule.	NA	Bin 1

[1]Based on calculations in subsection (a) or (d), as applicable.

(d) Following completion of the second round of source water monitoring required under 40 CFR 141.701(b), as incorporated by reference in section 8(a)(1) of this rule, a filtered PWS shall do the following:
(1) Recalculate its Cryptosporidium bin concentration using the Cryptosporidium results reported under 40 CFR 141.701(b), as incorporated by reference in section 8(a)(1) of this rule and following the procedures in subsection (b)(1) through (b)(4).
(2) Redetermine its bin classification using the bin concentration calculated under subdivision (1) and Table 11 in subsection (c).

(e) A filtered PWS shall report its bin classifications as follows:
(1) A PWS shall report its initial bin classification under subsection (c) to the commissioner for approval not later than six (6) months after the PWS is required to complete initial source water monitoring based on the schedule in 40 CFR 141.701(c), as incorporated by reference in section 8(a)(1) of this rule.
(2) A PWS shall report its bin classification under subsection (d) to the commissioner for approval not later than six (6) months after the PWS is required to complete the second round of source water monitoring based on the schedule in 40 CFR 141.701(c), as incorporated by reference in section 8(a)(1) of this rule.
(3) The bin classification report to the commissioner must include the following:
(A) A summary of source water monitoring data.
(B) The calculation procedure used to determine bin classification.

(f) Failure to comply with the conditions of subsection (e):
(1) is a violation of the treatment technique requirement; and
(2) requires public notification under 327 IAC 8-2.1.

(Water Pollution Control Board; 327 IAC 8-2.6-11)

SECTION 49. 327 IAC 8-2.6-12 IS ADDED TO READ AS FOLLOWS:

327 IAC 8-2.6-12 Filtered system additional Cryptosporidium treatment requirements; treatment technique

requirements; enhanced treatment for Cryptosporidium

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3-2; IC 13-18-16
Affected: IC 13-18-3-11

Sec. 12. (a) A filtered PWS shall provide the level of additional treatment for Cryptosporidium specified in the following table based on the system's bin classification calculated under section 11 of this rule and according to the schedule in section 13 of this rule:

Table 12

If the system bin classification is:	And the system uses the following filtration treatment in full compliance with 327 IAC 8-2-8.5, 327 IAC 8-2-8.6, 327 IAC 8-2-8.7, 327 IAC 8-2-8.8, 327 IAC 8-2-14, and sections 2 through 5 of this rule (as applicable), then the additional Cryptosporidium treatment requirements are:			
	Conventional filtration treatment (including softening)	Direct filtration	Slow sand or diatomaceous earth filtration	Alternative filtration technologies
Bin 1	No additional treatment	No additional treatment	No additional treatment	No additional treatment
Bin 2	1-log treatment	1.5-log treatment	1-log treatment	([1])
Bin 3	2-log treatment	2.5-log treatment	2-log treatment	([2])
Bin 4	2.5-log treatment	3-log treatment	2.5-log treatment	([3])

[1]As determined by the commissioner such that the total Cryptosporidium removal and inactivation is at least 4.0-log.

[2]As determined by the commissioner such that the total Cryptosporidium removal and inactivation is at least 5.0-log.

[3]As determined by the commissioner such that the total Cryptosporidium removal and inactivation is at least 5.5-log.

(b) Treatment requirements are as follows:
(1) A filtered PWS shall use one (1) or more of the treatment and management options listed under section 15 of this rule, termed the microbial toolbox, to comply with the additional Cryptosporidium treatment required under subsection (a).
(2) A PWS classified as Bin 3 or Bin 4 shall achieve at least 1-log of additional Cryptosporidium treatment required under subsection (a) using either one (1) or a combination of:
(A) bag filters;
(B) bank filtration;
(C) cartridge filters;
(D) chlorine dioxide;
(E) membranes;
(F) ozone; or
(G) ultraviolet filtration;

as described under sections 16 through 20 of this rule.

(c) Failure by a PWS in any month to achieve treatment credit by meeting criteria in sections 16 through 20 of this rule for microbial toolbox options that is at least equal to the level of treatment required under subsection (a):
(1) is a violation of the treatment technique requirement; and
(2) requires public notification under 327 IAC 8-2.1.

(d) If the commissioner determines during a sanitary survey or equivalent source water assessment that, after a system completed the monitoring in 40 CFR 141.701(a) or 40 CFR 141.701(b), as incorporated by reference in section 8(a)(1) of this rule, significant changes occurred in the watershed of the PWS that

could lead to increased contamination of the source water by Cryptosporidium, the PWS shall take actions specified by the commissioner to address the contamination. These actions can include one (1) or both of the following:

(1) Additional source water monitoring.

(2) Implementing microbial toolbox options listed under section 15 of this rule.

(Water Pollution Control Board; 327 IAC 8-2.6-12)

SECTION 50. 327 IAC 8-2.6-13 IS ADDED TO READ AS FOLLOWS:

327 IAC 8-2.6-13 Schedule for compliance with Cryptosporidium treatment requirements; treatment technique requirements; enhanced treatment for Cryptosporidium

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3-2; IC 13-18-16
Affected: IC 13-18-3-11

Sec. 13. (a) Following initial bin classification under section 11(c) of this rule, a filtered PWS shall provide the level of treatment required under section 12 of this rule according to Table 13 in subsection (b).

(b) Cryptosporidium treatment compliance dates are as follows:

Table 13. Cryptosporidium Treatment Compliance Dates Table

Systems that serve:	Shall comply with Cryptosporidium treatment requirements not later than[1]:
At least 100,000 people	April 1, 2012
From 50,000 to 99,999 people	October 1, 2012
From 10,000 to 49,999 people	October 1, 2013
Fewer than 10,000 people	October 1, 2014

[1] The commissioner may allow up to an additional two (2) years for complying with the treatment requirements for systems making capital improvements.

(c) If the bin classification for a filtered PWS changes following the second round of source water monitoring, as determined under section 11(d) of this rule, the PWS shall:

(1) provide the level of treatment for Cryptosporidium required under section 12 of this rule; and

(2) meet the level of treatment required under subdivision (1) on a schedule approved by the commissioner.

(Water Pollution Control Board; 327 IAC 8-2.6-13)

SECTION 51. 327 IAC 8-2.6-14 IS ADDED TO READ AS FOLLOWS:

327 IAC 8-2.6-14 Requirements for uncovered finished water storage facilities; treatment technique requirements; enhanced treatment for Cryptosporidium

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3-2; IC 13-18-16
Affected: IC 13-18-3-11

Sec. 14. (a) This section applies to the following systems:

(1) A Subpart H system using an uncovered finished water storage facility.

(2) A PWS that purchases water from a Subpart H system where the purchasing system uses an uncovered finished water storage facility.

(b) A PWS shall notify the commissioner of the use of each uncovered finished water storage facility not later than the effective date of this rule.

(c) A PWS shall meet the following conditions for each uncovered finished water storage facility or be in compliance with a schedule approved by the commissioner to meet these conditions not later than April 1, 2009:
(1) A PWS shall cover any uncovered finished water storage facility.
(2) A PWS shall treat the discharge from the uncovered finished water storage facility to the distribution system to achieve inactivation or removal or both of at least 4-log virus, 3-log Giardia lamblia, and 2-log Cryptosporidium using a protocol approved by the commissioner.

(d) Failure to comply with the requirements of this section is a violation of the treatment technique requirement.

(Water Pollution Control Board; 327 IAC 8-2.6-14)

SECTION 52. 327 IAC 8-2.6-15 IS ADDED TO READ AS FOLLOWS:

327 IAC 8-2.6-15 Microbial toolbox options for meeting Cryptosporidium treatment requirements; requirements for microbial toolbox components; enhanced treatment for Cryptosporidium

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3-2; IC 13-18-16
Affected: IC 13-18-3-11

Sec. 15. (a) A PWS may:
(1) receive the treatment credits listed under Table 15 in subsection (b) by meeting the conditions for microbial toolbox options described in sections 16 through 20 of this rule; and
(2) apply the treatment credits received under subdivision (1) to meet the treatment requirements in section 12 of this rule.

(b) The following table summarizes options in the microbial toolbox:

Table 15
Microbial Toolbox Summary Table: Options, Treatment Credits, and Criteria

Toolbox Option	Cryptosporidium treatment credit with design and implementation criteria
Source Protection and Management Toolbox Options	
Watershed Control Plan	0.5-log credit for commissioner-approved program comprising required elements, annual program status, report to commissioner, and regular watershed survey. Specific criteria are under section 16(a) of this rule.
Alternative source/intake management	No prescribed credit. Systems may conduct simultaneous monitoring for treatment bin classification at alternative intake locations or under alternative intake management strategies. Specific criteria are under section 16(b) of this rule.
Prefiltration Toolbox Options	
Presedimentation basin with coagulation	0.5-log credit during any month that presedimentation basins achieve a monthly mean reduction of 0.5-log or greater in turbidity or alternative commissioner-approved performance criteria. To be eligible, basins must be operated continuously with coagulant addition and all plant flow must pass through the basins. Specific criteria are under section 17(a) of this rule.
Two-stage lime softening	0.5-log credit for two-stage lime softening where chemical addition and hardness precipitation occur in both stages. All plant flow must pass through both stages. Single-stage softening is credited as equivalent to conventional treatment. Specific criteria are under section 17(b) of this rule.
Bank filtration	0.5-log credit for 25-foot setback; 1-log credit for 50-foot setback; aquifer must be unconsolidated sand containing at least 10% fines; average turbidity in wells must be less than one NTU. Systems using wells followed by filtration, when conducting source water monitoring must sample the well to determine bin classification and are not eligible for additional

	credit. Specific criteria are under section 17(b) of this rule.
Treatment performance toolbox options	
Combined filter performance	**0.5-log credit for combined filter effluent turbidity less than or equal to 0.15 NTU in at least 95% of measurements each month. Specific criteria are in section 18(a) of this rule.**
Individual filter performance	**0.5-log credit (in addition to 0.5-log combined filter performance credit) if individual filter effluent turbidity is less than or equal to 0.15 NTU in at least 95%) of samples each month in each filter and never greater than 0.3 NTU in two consecutive measurements in any filter. Specific criteria are under section 18(b) of this rule.**
Demonstration of performance	**Credit awarded to unit processes or treatment train based on a demonstration to the commissioner with a commissioner-approved protocol. Specific criteria are under section 18(c) of this rule.**
Additional filtration toolbox options	
Bag or cartridge filters (individual filters)	**Up to 2-log credit based on the removal efficiency demonstrated during challenge testing with a 1.0-log factor of safety. Specific criteria are under section 19(a) of this rule.**
Bag or cartridge filters (in series)	**Up to 2.5-log credit based on the removal efficiency demonstrated during challenge testing with a 0.5-log factor of safety. Specific criteria are under section 19(a) of this rule.**
Membrane filtration	**Log credit equivalent to removal efficiency demonstrated in challenge test for device if supported by direct integrity testing. Specific criteria are under section 19(b) of this rule.**
Second stage filtration	**0.5-log credit for second separate granular media filtration stage if treatment train includes coagulation prior to first filter. Specific criteria are under section 19(c) of this rule.**
Slow sand filters	**2.5-log credit as a secondary filtration step; 3.0-log credit as a primary filtration process. No prior chlorination for either option. Specific criteria are under section 19(d) of this rule.**
Inactivation toolbox options	
Chlorine dioxide	**Log credit based on measured CT in relation to CT table. Specific criteria are under section 20(b) of this rule.**
Ozone	**Log credit based on measured CT in relation to CT table. Specific criteria are under section 20(b) of this rule.**
UV	**Log credit based on validated UV dose in relation to UV dose table; reactor validation testing required to establish UV dose and associated operating conditions. Specific criteria are under section 20(d) of this rule.**

(Water Pollution Control Board; 327 IAC 8-2.6-15)

SECTION 53. 327 IAC 8-2.6-16 IS ADDED TO READ AS FOLLOWS:

327 IAC 8-2.6-16 Source toolbox components; requirements for microbial toolbox components; enhanced treatment for Cryptosporidium

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3-2; IC 13-18-16
Affected: IC 13-18-3-11

Sec. 16. (a) A PWS may receive a 0.5-log Cryptosporidium treatment credit for implementing a watershed control program that meets the requirements of this section, if the PWS meets the following:

(1) A PWS that intends to apply for the watershed control program credit shall notify the commissioner of this intent not later than two (2) years prior to the treatment compliance date applicable to the system under section 13 of this rule.

(2) In order for a PWS to receive watershed control program treatment credit, a watershed control plan must be approved by the commissioner. A PWS shall submit to the commissioner a proposed watershed control plan not later than one (1) year before the applicable treatment compliance date in section 13 of this rule. The watershed control plan must include the following elements:

(A) Identification of an area of influence outside of which the likelihood of Cryptosporidium or fecal

contamination affecting the treatment plant intake is not significant. The area of influence is the area to be evaluated in future watershed surveys under subdivision (5)(B).

(B) Identification of both potential and actual sources of Cryptosporidium contamination and an assessment of the relative impact of these sources on the source water quality for the PWS.

(C) An analysis of the effectiveness and feasibility of control measures that could reduce Cryptosporidium loading from sources of contamination to the source water for the PWS.

(D) A statement of goals and specific actions the PWS will undertake to reduce source water Cryptosporidium levels, including the following:

(i) An explanation of how the actions are expected to:

(AA) contribute to specific goals;

(BB) identify watershed partners and their roles; and

(CC) identify resource requirements and commitments.

(ii) A schedule for plan implementation with deadlines for completing specific actions identified in the plan.

(3) A PWS with a watershed control program already in place on January 5, 2006, is eligible to seek the watershed control program credit if the watershed control plan:

(A) meets the criteria in subdivision (2); and

(B) specifies ongoing and future actions that will reduce source water Cryptosporidium levels.

(4) If the PWS meets the requirements of this section, but the commissioner does not respond to the PWS regarding approval of its watershed control plan submitted under this section by the date in Table 13 in section 13(b) of this rule, the:

(A) watershed control program will be considered approved; and

(B) 0.5-log Cryptosporidium treatment credit will be awarded;

unless and until the commissioner subsequently withdraws the approval.

(5) A PWS shall complete the following actions to maintain the 0.5-log Cryptosporidium treatment credit:

(A) Submit to the commissioner an annual watershed control program status report that contains the following:

(i) A description of the PWS's implementation of the approved plan.

(ii) An assessment of the adequacy of the plan to meet its goals.

(iii) An explanation of how the PWS is addressing any shortcomings in plan implementation, including shortcomings identified:

(AA) previously by the commissioner; or

(BB) as the result of the watershed survey conducted under clause (B).

(iv) A description of any significant changes that have occurred in the watershed since the last watershed sanitary survey. A PWS shall notify the commissioner prior to making any significant changes to its watershed control program and the notice must include the following:

(AA) The reason for proposing a significant change, such as a determination by the PWS during implementation of the watershed control program that making a significant change to its approved watershed control program is necessary.

(BB) The actions the PWS will take to mitigate any likelihood that the significant change could reduce the level of source water protection.

(B) Undergo a watershed sanitary survey every three (3) years for a CWS and every five (5) years for an NCWS. The watershed sanitary survey must:

(i) be conducted according to guidelines set by the commissioner and by persons approved by the commissioner;

(ii) result in a survey report submitted to the commissioner; and

(iii) meet the following criteria:

(AA) Encompass the region identified as the area of influence in the watershed control plan approved by the commissioner.

(BB) Assess the implementation of actions to reduce source water Cryptosporidium levels.

(CC) Identify any significant new sources of Cryptosporidium.

If the commissioner determines that significant changes have occurred in the watershed since the previous watershed sanitary survey, the PWS shall undergo another watershed sanitary survey by a date required by the commissioner that may be at an earlier interval than the three (3) or five (5) year interval specified under this clause.

(C) Make the following documents available to the public upon request:

(i) The watershed control plan.

(ii) Annual status reports.

(iii) Watershed sanitary survey reports.

These documents must be in a plain language style and include criteria by which to evaluate the

success of the program in achieving plan goals. The commissioner may allow systems to withhold from the public those portions of the documents that concern water supply security considerations.
If the commissioner determines that a PWS is not carrying out the approved watershed control plan, the commissioner may withdraw the watershed control program treatment credit.

(b) Requirements for determining a different bin classification based on an alternative source are as follows:
(1) A PWS may:
(A) conduct source water monitoring that reflects a different:
(i) intake location in either the same source or for an alternate source; or
(ii) procedure for the timing or level of withdrawal from the source; and
(B) determine, with the commissioner's approval, its bin classification under section 11 of this rule based on the alternative source monitoring results.
(2) If a PWS conducts alternative source monitoring under subdivision (1), the PWS shall also monitor its current plant intake concurrently as described in 40 CFR 141.701, as incorporated under section 8(a)(1) of this rule.
(3) Alternative source monitoring under subdivision (1) must:
(A) meet the requirements for source water monitoring to determine bin classification as described in 40 CFR 141.701 through 40 CFR 141.706, as incorporated under section 8(a)(1) through 8(a)(6) of this rule; and
(B) be reported to the commissioner.
The report of the results must include supporting information documenting the operating conditions under which the samples were collected.
(4) If a PWS determines its bin classification under section 11 of this rule according to subdivision (1)(A) using alternative source monitoring results that reflect a different intake location or a different procedure for managing the timing or level of withdrawal from the source, the PWS shall:
(A) relocate the intake; or
(B) permanently adopt the withdrawal procedure;
as applicable, not later than the applicable compliance date in section 13 of this rule.

(Water Pollution Control Board; 327 IAC 8-2.6-16)

SECTION 54. 327 IAC 8-2.6-17 IS ADDED TO READ AS FOLLOWS:

327 IAC 8-2.6-17 Prefiltration treatment toolbox components; requirements for microbial toolbox components; enhanced treatment for Cryptosporidium

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3-2; IC 13-18-16
Affected: IC 13-18-3-11

Sec. 17. (a) A PWS may receive a 0.5-log Cryptosporidium treatment credit for a presedimentation basin during any month the process meets the following criteria:
(1) The presedimentation basin must:
(A) be in continuous operation; and
(B) treat the entire plant flow taken from a:
(i) surface water; or
(ii) ground water under the direct influence of surface water;
source.
(2) The PWS shall continuously add a coagulant to the presedimentation basin.
(3) The presedimentation basin must achieve the following performance criteria:
(A) Demonstrate at least 0.5-log mean reduction of influent turbidity that:
(i) is determined using daily turbidity measurements in the presedimentation process influent and effluent; and
(ii) must be calculated according to the following formula:
Reduction = $\log_{10}$ (monthly mean of daily influent activity) - $\log_{10}$ (monthly mean of daily effluent turbidity).
(B) Comply with performance criteria approved by the commissioner that demonstrate at least 0.5-log mean removal of micron-sized particulate material through the presedimentation process.

(b) A PWS may receive an additional 0.5-log Cryptosporidium treatment credit for a two (2)-stage lime softening plant if:
(1) chemical addition and hardness precipitation occur in two (2) separate and sequential softening stages prior to filtration; and
(2) both softening stages must treat the entire plant flow taken from a:
(A) surface water; or
(B) ground water under the direct influence of surface water;
source.

(c) The following determine if a PWS is eligible for Cryptosporidium treatment credit for bank filtration:
(1) A PWS may, as follows:
(A) Receive Cryptosporidium treatment credit for bank filtration that serves as pretreatment to a filtration plant by meeting the conditions under subdivision (2).
(B) Not receive the Cryptosporidium treatment credit for bank filtration if the system is using bank filtration when it begins source water monitoring under 40 CFR 141.701(a), as incorporated by reference in section 8(a)(1) of this rule, but the system shall collect samples as described in 40 CFR 141.703(d), as incorporated by reference in section 8(a)(3) of this rule.
(C) Not receive Cryptosporidium treatment credit for bank filtration under this section for springs or infiltration galleries but may be eligible for credit under section 18(c) of this rule.
(2) The following conditions shall determine the applicability of the Cryptosporidium treatment credit for bank filtration:
(A) Wells with a ground water flow path of at least:
(i) twenty-five (25) feet receive a 0.5-log treatment credit; and
(ii) fifty (50) feet receive a 1.0-log treatment credit.
The ground water flow path must be determined according to clause (D).
(B) Only wells in granular aquifers are eligible for treatment credit. Granular aquifers are those comprised of sand, clay, silt, rock fragments, pebbles, or larger particles, and minor cement. A PWS shall:
(i) characterize the aquifer at the well site to determine aquifer properties; and
(ii) extract a core from the aquifer and demonstrate that in at least ninety percent (90%) of the core length, grains less than one and zero-tenths (1.0) millimeters in diameter constitute at least ten percent (10%) of the core material.
(C) Only horizontal and vertical wells are eligible for treatment credit.
(D) The ground water flow path for a:
(i) vertical well is the measured distance from the edge of the surface water body under high flow conditions, as determined by the:
(AA) one hundred (100) year floodplain elevation boundary; or
(BB) floodway;
as defined in Federal Emergency Management Agency flood hazard maps, to the well screen; and
(ii) horizontal well is the measured distance from the bed of the river under normal flow conditions to the closest horizontal well lateral screen.
(E) Turbidity monitoring requirements and conditions are as follows:
(i) A PWS shall monitor each wellhead for turbidity at least once every four (4) hours while the bank filtration process is in operation.
(ii) If monthly average turbidity levels, based on daily maximum values in the well, exceed one (1) NTU, the PWS shall:
(AA) report this result to the commissioner; and
(BB) conduct an assessment within thirty (30) days to determine the cause of the high turbidity levels in the well.
(iii) If the commissioner determines that microbial removal has been compromised, the commissioner may revoke treatment credit until the PWS implements corrective actions approved by the commissioner to remediate the problem.
(F) Cryptosporidium treatment credit for bank filtration may be:
(i) approved by the commissioner based on a demonstration of performance study that must:
(AA) follow a protocol approved by the commissioner and must involve the collection of data on the removal of Cryptosporidium or a surrogate for Cryptosporidium and related hydrogeologic and water quality parameters during the full range of operating conditions; and
(BB) include sampling both from the production well or wells and from monitoring wells that are screened and located along the shortest flow path between the surface water source and the production well or wells; and

(ii) greater than 1.0-log and can be awarded to bank filtration that does not meet the criteria under clauses (A) through (E).

(Water Pollution Control Board; 327 IAC 8-2.6-17)

SECTION 55. 327 IAC 8-2.6-18 IS ADDED TO READ AS FOLLOWS:

327 IAC 8-2.6-18 Treatment performance toolbox options; requirements for microbial toolbox components; enhanced treatment for Cryptosporidium

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3-2; IC 13-18-16
Affected: IC 13-18-3-11

Sec. 18. (a) A PWS using conventional filtration treatment or direct filtration treatment may receive an additional 0.5-log Cryptosporidium treatment credit during any month the system meets the following:
(1) Combined filter effluent (CFE) turbidity must be less than or equal to fifteen-hundredths (0.15) NTU in at least ninety-five percent (95%) of the measurements recorded each month.
(2) Turbidity must be measured as described in 327 IAC 8-2-8.7(4).

(b) A PWS using conventional filtration treatment or direct filtration treatment may receive a 0.5-log Cryptosporidium treatment credit, which may be in addition to the 0.5-log credit under subsection (a), during any month the PWS meets the following criteria that must be based on monitoring as described in section 4 of this rule, as applicable:
(1) The filtered water turbidity for each individual filter must be less than or equal to fifteen-hundredths (0.15) NTU in at least ninety-five percent (95%) of the measurements recorded each month.
(2) No individual filter may have a measured turbidity greater than three-tenths (0.3) NTU in two (2) consecutive measurements taken fifteen (15) minutes apart.
(3) A PWS that has received credit for individual filter performance and fails to meet the requirements of subdivision (1) or (2) during any month will not receive a treatment technique violation under section 12(c) of this rule if the commissioner determines that the following conditions exist:
(A) The failure was due to unusual and short-term circumstances that could not reasonably be prevented through optimizing treatment plant:
(i) design;
(ii) operation; or
(iii) maintenance.
(B) The PWS has experienced not more than two (2) failures under this subsection in any calendar year.

(c) Cryptosporidium treatment credit for drinking water treatment processes may be awarded to a PWS according to the following:
(1) Credits may be approved by the commissioner based on a demonstration of performance study or continuing operation that meets the following criteria:
(A) A PWS may not receive the prescribed credit for any toolbox option in section 17 of this rule, this section, and sections 19 and 20 of this rule if that toolbox option is included in a demonstration of performance study for which treatment credit is awarded under this subsection.
(B) The demonstration of performance study must:
(i) follow a protocol approved by the commissioner; and
(ii) demonstrate the level of Cryptosporidium reduction the treatment process will achieve under the full range of expected operating conditions for the PWS.
(C) Approval by the commissioner of the demonstration of performance study:
(i) must be in writing; and
(ii) may include monitoring and treatment performance criteria that:
(AA) shall be demonstrated and reported by the PWS to the commissioner on an ongoing basis in order to remain eligible for the treatment credit; and
(BB) the commissioner may designate, where necessary, to verify that routine operation continues to reflect the conditions under which the demonstration of performance credit was approved.
(2) The treatment credits may be:
(A) greater than or less than the prescribed treatment credits in section 12 or 17 of this rule, this section, and sections 19 and 20 of this rule; and

(B) awarded to treatment processes that do not meet the criteria for the prescribed credits.

(Water Pollution Control Board; 327 IAC 8-2.6-18)

SECTION 56. 327 IAC 8-2.6-19 IS ADDED TO READ AS FOLLOWS:

327 IAC 8-2.6-19 Additional filtration toolbox components; requirements for microbial toolbox components; enhanced treatment for Cryptosporidium

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3-2; IC 13-18-16
Affected: IC 13-18-3-11

Sec. 19. (a) A PWS using additional filtration toolbox components may receive Cryptosporidium treatment credit of up to 2.0-log for individual bag or cartridge filters and up to 2.5-log credit for bag or cartridge filters operated in series if the PWS complies with the following:

(1) The PWS shall report to the commissioner the results of challenge testing that meets the requirements of subdivision (3)(B) through (3)(I).

(2) The filters must treat the entire plant flow taken from a Subpart H system source.

(3) The PWS shall meet the following criteria:

(A) The Cryptosporidium treatment credit awarded to bag or cartridge filters must be based on the removal efficiency demonstrated during challenge testing that meets the following:

(i) Challenge testing is conducted according to clauses (B) through (I).

(ii) A factor of safety equal to:

(AA) 1-log for individual bag or cartridge filters; and

(BB) 0.5-log for bag or cartridge filters in series;

must be applied to challenge testing results to determine removal credit.

(iii) A PWS may use challenge testing results conducted prior to January 5, 2006, if the prior testing was consistent with the criteria specified under clauses (B) through (I).

(B) Challenge testing must be performed according to the following:

(i) Testing must be performed on full-scale bag or cartridge filters and the associated filter housing or pressure vessel that are identical in material and construction to the filters and housing the PWS will use for removal of Cryptosporidium.

(ii) Bag or cartridge filters must be challenge tested in the same configuration that the PWS will use, either as individual filters or as a series configuration of filters.

(C) Challenge testing must be conducted using Cryptosporidium or a surrogate, either of which are referred to during challenge testing as the challenge particulate, according to the following:

(i) A surrogate, if used, must be a microorganism that is removed not more efficiently than Cryptosporidium.

(ii) The concentration of the challenge particulate must be determined using a method capable of discreetly quantifying the specific microorganism or surrogate used in the test.

(iii) Gross measurements, such as turbidity, may not be used.

(D) The maximum feed water concentration that may be used during a challenge test must be based on the detection limit of the challenge particulate in the filtrate (filtrate detection limit) and must be calculated using the following equation:

$$\text{Maximum Feed Concentration} = 1 \times 10^4 \times (\text{Filtrate Detection Limit})$$

(E) Challenge testing must be conducted at the maximum design flow rate for the filter as specified by the manufacturer.

(F) Each filter evaluated must be tested for a duration sufficient to reach one hundred percent (100%) of the terminal pressure drop in order to establish the maximum pressure drop under which the filter can be used to comply with the requirements of sections 7 through 18 of this rule, this section, and sections 20 through 22 of this rule.

(G) Removal efficiency of a filter must be determined from the results of the challenge test and expressed in terms of log removal values using the following equation:

$$LRV = LOG_{10}(C_f) - LOG_{10}(C_p)$$

Where: LRV = **log removal value demonstrated during challenge testing**

C_f = **the feed concentration measured during the challenge test**

C_p = **the filtrate concentration measured during the challenge test**

In applying this equation, the same units must be used for the feed and filtrate concentrations. If the

challenge particulate is not detected in the filtrate, then the term C_p must be set equal to the detection limit.

(H) Each filter tested must be challenged with the challenge particulate during three (3) periods over the filtration cycle, as follows:

(i) Within the first two (2) hours of start-up of a new filter.

(ii) When the pressure drop is between forty-five percent (45%) and fifty-five percent (55%) of the terminal pressure drop.

(iii) At the end of the cycle after the pressure drop has reached one hundred percent (100%).

An LRV must be calculated for each of the challenge periods listed under items (i) and (ii) for each filter tested. The LRV for the filter (LRV_{filter}) must be assigned the value of the minimum LRV observed during the three (3) challenge periods for that filter.

(I) Overall removal efficiency for the filter product line shall be established as follows:

(i) If fewer than twenty (20) filters are tested, the overall removal efficiency for the filter product line must be set equal to the lowest LRV_{filter} among the filters tested.

(ii) If twenty (20) or more filters are tested, the following apply:

(AA) Overall removal efficiency for the filter product line must be set equal to the tenth percentile of the set of LRV_{filter} values for the various filters tested.

(BB) The percentile is defined by (i/(n+1)) where i is the rank of n individual data points ordered lowest to highest.

(CC) If necessary, the tenth percentile may be calculated using linear interpolation.

(J) If a previously tested filter is modified in a manner that could change the removal efficiency of the filter product line, challenge testing to demonstrate the removal efficiency of the modified filter must be:

(i) conducted; and

(ii) submitted to the commissioner.

(b) The following requirements apply to the use of membrane filtration for Cryptosporidium treatment credit:

(1) A PWS may receive Cryptosporidium treatment credit for membrane filtration according to the following:

(A) The PWS meets the criteria of this subsection.

(B) Membrane cartridge filters that meet the definition of membrane filtration in 327 IAC 8-2-1 are eligible for this credit.

(C) The level of treatment credit a PWS receives is equal to the lower of the values determined under the following:

(i) The removal efficiency demonstrated during challenge testing conducted under subdivision (2).

(ii) The maximum removal efficiency that can be verified through direct integrity testing used with the membrane filtration process under the conditions in subdivision (3).

(2) The PWS shall comply with the following regarding challenge testing in order to be eligible for Cryptosporidium treatment credit:

(A) Conduct challenge testing on the membrane used by the PWS to evaluate removal efficiency.

(B) Report the results of challenge testing to the commissioner.

(C) A PWS may use data from challenge testing conducted prior to January 5, 2006, if the prior testing was consistent with the criteria under clause (D).

(D) Challenge testing must be conducted according to the following criteria:

(i) Challenge testing must be conducted on either a:

(AA) full-scale membrane module that is identical in material and construction to the membrane modules used in the PWS's treatment facility; or

(BB) smaller-scale membrane module that is identical in material and similar in construction to the full-scale module.

A module is defined as the smallest component of a membrane unit in which a specific membrane surface area is housed in a device with a filtrate outlet structure.

(ii) Challenge testing must be conducted using Cryptosporidium oocysts or a surrogate either of which are referred to during challenge testing as the challenge particulate, according to the following:

(AA) A surrogate, if used, must be a microorganism that is removed not more efficiently than Cryptosporidium oocysts.

(BB) The concentration of the challenge particulate, in both the feed and filtrate water, must be determined using a method capable of discretely quantifying the specific challenge particulate used in the test.

(CC) Gross measurements, such as turbidity, may not be used.

(iii) The maximum feed water concentration that may be used during a challenge test is based on the detection limit of the challenge particulate in the filtrate and must be determined according to the following equation:

$$\text{Maximum Feed Concentration} = 3.16 \times 10^6 \times (\text{Filtrate Detection Limit})$$

(iv) Challenge testing must be conducted under representative hydraulic conditions at the maximum design flux and maximum design process recovery specified by the manufacturer for the membrane module, where:

(AA) flux is defined as the throughput of a pressure driven membrane process expressed as flow per unit of membrane area; and

(BB) recovery is defined as the volumetric percent of feed water that is converted to filtrate over the course of an operating cycle uninterrupted by events such as chemical cleaning or a solids removal process like backwashing.

(v) Removal efficiency of a membrane module must be calculated from the challenge test results and expressed as a log removal value according to the following equation:

$$LRV = LOG_{10}(C_f) - LOG_{10}(C_p)$$

Where: LRV = log removal value demonstrated during challenge testing

C_f = the feed concentration measured during the challenge test

C_p = the filtrate concentration measured during the challenge test

In applying this equation, the same units must be used for the feed and filtrate concentrations. If the challenge particulate is not detected in the filtrate, then the term C_p must be set equal to the detection limit for the purpose of calculating the LRV. An LRV must be calculated for each membrane module evaluated during the challenge test.

(vi) The overall removal efficiency of a membrane filtration process demonstrated during challenge testing must be expressed as a log removal value ($LRV_{C\text{-}Test}$) and established according to the following:

(AA) If fewer than twenty (20) modules are tested, then $LRV_{C\text{-}Test}$ is equal to the lowest of the representative LRVs among the modules tested.

(BB) If twenty (20) or more modules are tested, then $LRV_{C\text{-}Test}$ is equal to the tenth percentile of the representative LRVs among the modules tested. The percentile is defined by (i/(n+1)) where i is the rank of n individual data points ordered lowest to highest. If necessary, the tenth percentile can be calculated using linear interpolation.

(vii) The PWS shall establish a quality control release value (QCRV) according to the following:

(AA) The challenge test must establish a QCRV for a nondestructive performance test that demonstrates the Cryptosporidium removal capability of the membrane filtration module.

(BB) The performance test must be applied to each production membrane module used by the system that was not directly challenge tested in order to verify Cryptosporidium removal capability.

(CC) Production modules that do not meet the established QCRV are not eligible for the treatment credit demonstrated during the challenge test.

(viii) If a previously tested membrane is modified in a manner that could change the removal efficiency of the membrane or the applicability of the nondestructive performance test and associated QCRV, additional challenge testing to demonstrate the removal efficiency of, and determine a new QCRV for, the modified membrane must be conducted and submitted to the commissioner.

(3) A PWS shall conduct direct integrity testing that meets the following criteria:

(A) For the purpose of this section, a direct integrity test is defined as a physical test applied to a membrane unit in order to identify and isolate integrity breaches, for example, one (1) or more leaks that could result in contamination of the filtrate.

(B) Direct integrity testing must be conducted in a manner that demonstrates a removal efficiency equal to or greater than the removal credit awarded to the membrane filtration process.

(C) Direct integrity testing must meet the following requirements:

(i) The direct integrity test must be independently applied to each membrane unit in service. A membrane unit is defined as a group of membrane modules that share common valving that allows the unit to be isolated from the rest of the system for the purpose of integrity testing or other maintenance.

(ii) The direct integrity method must have a resolution of at least three (3) micrometers (µm) or less, where resolution is defined as the size of the smallest integrity breach that contributes to a response from the direct integrity test.

(iii) The direct integrity test must have a sensitivity sufficient to verify the log treatment credit awarded to the membrane filtration process by the commissioner, where sensitivity is defined as the maximum log removal value that can be reliably verified by a direct integrity test. Sensitivity must be determined using the approach in either of the following, as applicable to the type of direct integrity test the system uses:

(AA) For direct integrity tests that use an applied pressure or vacuum, the direct integrity test sensitivity must be calculated according to the following equation:

$$LRV_{DIT} = LOG_{10} (Q_p/(VCF \times Q_{breach}))$$

Where:

LRV_{DIT}	=	the sensitivity of the direct integrity test
Q_p	=	total design filtrate flow from the membrane unit
Q_{breach}	=	flow of water from an integrity breach associated with the smallest integrity test response that can be reliably measured
VCF	=	volumetric concentration factor

The volumetric concentration factor is the ratio of suspended solids concentration on the high pressure side of the membrane relative to that in the feed water.

(BB) For direct integrity tests that use a particulate or molecular marker, the direct integrity test sensitivity must be calculated according to the following equation:

$$LRV_{DIT} = LOG_{10}(C_f) - LOG_{10}(C_p)$$

Where:

LRV_{DIT}	=	the sensitivity of the direct integrity test
C_f	=	the typical feed concentration of the marker used in the test
C_p	=	the filtrate concentration of the marker from an integral membrane unit

(iv) A PWS shall establish a control limit within the sensitivity limits of the direct integrity test that is indicative of an integral membrane unit capable of meeting the removal credit awarded by the commissioner.

(v) If the result of a direct integrity test exceeds the control limit established under item (iv), the PWS:

(AA) shall remove the membrane unit from service;

(BB) shall conduct a direct integrity test to verify any repairs; and

(CC) may return the unit to service only if the direct integrity test is within the established control limit.

(vi) A PWS shall conduct direct integrity testing on each membrane unit at a frequency of not less than once each day that the membrane unit is in operation. The commissioner may approve less frequent direct integrity testing based on:

(AA) demonstrated process reliability;

(BB) the use of multiple barriers effective for Cryptosporidium; or

(CC) reliable process safeguards.

(4) A PWS shall conduct continuous indirect integrity monitoring that meets the following criteria:

(A) For the purpose of this section, indirect integrity monitoring is defined as monitoring some aspect of filtrate water quality that is indicative of the removal of particulate matter.

(B) A PWS that implements continuous direct integrity testing of membrane units in accordance with the criteria under subdivision (3)(C)(i) through (3)(C)(v) is not subject to the requirements of this subdivision for continuous indirect integrity monitoring.

(C) A PWS shall submit a monthly report to the commissioner that includes the following:

(i) A summary of all continuous indirect integrity monitoring results triggering direct integrity testing.

(ii) The corrective action that was taken in each case that direct integrity testing was triggered.

(D) Continuous indirect integrity monitoring must be conducted on each membrane unit according to the following criteria:

(i) Unless the commissioner approves an alternative parameter, continuous indirect integrity monitoring must include continuous filtrate turbidity monitoring.

(ii) Continuous monitoring must be conducted at a frequency of not less than once every fifteen (15) minutes.

(iii) Continuous monitoring must be separately conducted on each membrane unit.

(iv) If indirect integrity monitoring includes turbidity and if the filtrate turbidity readings are above fifteen-hundredths (0.15) NTU for a period greater than fifteen (15) minutes (for example, two (2)

consecutive fifteen (15) minute readings are above fifteen-hundredths (0.15) NTU), direct integrity testing must immediately be performed on the associated membrane unit as specified under subdivision (3)(C)(i) through (3)(C)(v).
(v) If indirect integrity monitoring includes an alternative parameter approved by the commissioner under item (i) and if the alternative parameter exceeds the control limit approved by the commissioner for a period greater than fifteen (15) minutes, direct integrity testing must immediately be performed on the associated membrane units as specified under subdivision (3)(C)(i) through (3)(C)(v).

(c) A PWS may receive 0.5-log Cryptosporidium treatment credit for a separate second stage of filtration if the following are met:
(1) The separate second stage of filtration must consist of:
(A) sand;
(B) dual media;
(C) granular activated carbon (GAC); or
(D) other fine grain media;
following granular media filtration if the commissioner approves.
(2) To be eligible for this credit, the PWS shall meet the following:
(A) The first stage of filtration must be preceded by a coagulation step.
(B) Both filtration stages must treat the entire plant flow taken from a:
(i) surface water source; or
(ii) ground water under the direct influence of surface water source.
(3) A cap, for example, a cap comprised of GAC, on a single stage of filtration is not eligible for this credit.
(4) The commissioner shall approve the treatment credit based on an assessment of the design characteristics of the filtration process.

(d) A PWS may receive 2.5-log Cryptosporidium treatment credit for a slow sand filtration process that follows a separate stage of filtration if the following are met:
(1) Both filtration stages must treat the entire plant flow taken from a:
(A) surface water source; or
(B) ground water under the direct influence of surface water source.
(2) No disinfectant residual is present in the influent water of the slow sand filtration process.
(3) This treatment credit is not available where treatment credit is awarded to slow sand filtration used as a primary treatment process.
(4) The commissioner shall approve the treatment credit based on an assessment of the design characteristics of the filtration process.

(Water Pollution Control Board; 327 IAC 8-2.6-19)

SECTION 57. 327 IAC 8-2.6-20 IS ADDED TO READ AS FOLLOWS:

327 IAC 8-2.6-20 Inactivation toolbox components; requirements for microbial toolbox components; enhanced treatment for Cryptosporidium

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3-2; IC 13-18-16
Affected: IC 13-18-3-11

Sec. 20. (a) The following requirements are for calculation of CT values:
(1) CT is the product of C and T.

Where: C = disinfectant concentration expressed in milligrams per liter
T = disinfectant contact time expressed in minutes

(2) A PWS with treatment credit for chlorine dioxide or ozone under subsection (b) or (c) shall calculate CT at least once each day with both C and T measured during peak hourly flow as described under 327 IAC 8-2-8.7.
(3) A PWS with several disinfection segments in sequence, where a disinfection segment is defined as a treatment unit process with a measurable disinfectant residual level and a liquid volume:
(A) may calculate CT for each segment; and

(B) shall add the Cryptosporidium CT values in each segment to determine the CT for the treatment plant.

(b) The following requirements are for calculation of CT values for chlorine dioxide and ozone:
(1) A PWS receives the Cryptosporidium treatment credit listed in the following table by meeting the corresponding chlorine dioxide CT value for the applicable water temperature, using the procedure described under subsection (a):

Table 20(a)											
CT Values (mg•min/L) for Cryptosporidium Inactivation by Chlorine Dioxide[1]											
Log Credit	Water Temperature, °C										
	≤ 0.5	1	2	3	5	7	10	15	20	25	30
0.25	159	153	140	128	107	90	69	45	29	19	12
0.5	319	305	279	259	214	180	138	89	58	38	24
1.0	637	610	558	511	429	360	277	179	116	75	49
1.5	956	915	838	767	643	539	415	268	174	113	73
2.0	1275	1220	1117	1023	858	719	553	357	232	150	98
2.5	1594	1525	1396	1278	1072	899	691	447	829	188	122
3.0	1912	1830	1675	1537	1286	1079	830	536	347	226	147

[1]A PWS may use this equation to determine log credit between the indicated values: Log credit = $(0.001506 \times (1.09116)^{Temp}) \times CT$.

(2) A PWS receives the Cryptosporidium treatment credit listed in the following table by meeting the corresponding ozone CT values for the applicable water temperature, using the procedure described under subsection (a):

Table 20(b)											
CT Values (mg•min/L) for Cryptosporidium Inactivation by Ozone[1]											
Log Credit	Water Temperature, °C										
	≤ 0.5	1	2	3	5	7	10	15	20	25	30
0.25	6.0	5.8	5.2	4.8	4.0	3.3	2.5	1.6	1.0	0.6	0.39
0.5	12	12	10	9.5	7.9	6.5	4.9	3.1	2.0	1.2	0.78
1.0	24	23	21	19	16	13	9.9	6.2	3.9	2.5	1.6
1.5	36	35	31	29	24	20	15	9.3	5.9	3.7	2.4
2.0	48	46	48	38	32	26	20	12	7.8	4.9	3.1
2.5	60	58	52	48	40	33	25	16	9.8	6.2	3.9
3.0	72	69	63	57	47	39	30	19	12	7.4	4.7

[1]A PWS may use this equation to determine log credit between the indicated values: Log credit = $(0.0397 \times (1.09757)^{Temp}) \times CT$).

(c) The commissioner may approve alternative chlorine dioxide or ozone CT values to those listed in subsection (b):
(1) on a site-specific basis; and
(2) based on a site-specific study conducted by the PWS that follows a protocol approved by the commissioner.

(d) A PWS may receive Cryptosporidium, Giardia lamblia, and virus treatment credits for ultraviolet (UV) light reactors by meeting the following:
(1) The ultraviolet (UV) light reactors must achieve the corresponding UV dose values shown under subdivision (3).
(2) A PWS shall validate and monitor UV reactors as described under subdivisions (4) and (5) to demonstrate that they are achieving a particular UV dose value for treatment credit.
(3) The UV light treatment credits listed under Table 20(c) in clause (C) are available under the following conditions:

(A) For UV light at a wavelength of two hundred fifty-four (254) nanometers as produced by a low pressure mercury vapor lamp.
(B) To receive treatment credit for lamp types other than two hundred fifty-four (254) nanometers, a PWS shall demonstrate an equivalent germicidal dose through reactor validation testing described under subdivision (4).
(C) The UV dose values under the following table are applicable only to post-filter applications of UV in filtered systems:

Table 20(c)			
UV Dose Table for Cryptosporidium, Giardia Lamblia, and Virus Inactivation Credit			
Log Credit	Cryptosporidium UV dose (mJ/cm^2)	Giardia lamblia UV dose (mJ/cm^2)	Virus UV dose (mJ/cm^2)
0.5	1.6	1.5	39
1.0	2.5	2.1	58
1.5	3.9	3.0	79
2.0	5.8	5.2	100
2.5	8.5	7.7	121
3.0	12	11	143
3.5	15	15	163
4.0	22	22	186

(4) PWSs shall use UV reactors that have undergone validation testing to determine the operating conditions under which the reactor delivers the UV dose required under subdivision (3), for example, validated operating conditions. These operating conditions must include flow rate, UV intensity as measured by a UV sensor, and UV lamp status and meet the following:
(A) When determining validated operating conditions, a PWS shall account for the following factors:
(i) UV absorbance of the water.
(ii) Lamp fouling and aging.
(iii) Measurement uncertainty of online sensors.
(iv) UV dose distributions arising from the velocity profiles through the reactor.
(v) Failure of UV lamps or other critical system components.
(vi) Inlet and outlet piping or channel configurations of the UV reactor.
(B) Validation testing must include the following:
(i) Full scale testing of a reactor that conforms uniformly to the UV reactors used by the PWS.
(ii) Inactivation of a test microorganism whose dose response characteristics have been quantified with a low pressure mercury vapor lamp.
(5) Reactor monitoring requirements are as follows:
(A) A PWS shall monitor its UV reactors to determine if the reactors are operating within validated conditions, as determined under subdivision (4).
(B) UV reactor monitoring must include the following:
(i) UV intensity as measured by a UV sensor that must undergo:
(AA) verification of calibration; and
(BB) recalibration;
in accordance with a protocol approved by the commissioner.
(ii) Flow rate.
(iii) Lamp status.
(iv) Other parameters the commissioner designates based on UV reactor operations.
(6) To receive treatment credit for UV light, a PWS shall treat at least ninety-five percent (95%) of the water delivered to the public each month by UV reactors operating within validated conditions for the required UV dose, as described under subdivisions (3) and (4). A PWS shall demonstrate compliance with this condition through the monitoring required under subdivision (5)(A).

(Water Pollution Control Board; 327 IAC 8-2.6-20)

SECTION 58. 327 IAC 8-2.6-21 IS ADDED TO READ AS FOLLOWS:

327 IAC 8-2.6-21 Reporting requirements; reporting and record keeping requirements; enhanced treatment for Cryptosporidium

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3-2; IC 13-18-16

Sec. 21. (a) A PWS shall report:
(1) sampling schedules under 40 CFR 141.702, as incorporated under section 8(a)(2) of this rule; and
(2) source water monitoring under section 8(a)(6) of this rule;
unless the PWS notifies the commissioner that it will not conduct source water monitoring due to meeting the criteria under 40 CFR 141.701(d), as incorporated under section 8(a)(1) of this rule.

(b) A PWS shall report the use of uncovered finished water storage facilities to the commissioner as described under section 14 of this rule.

(c) A PWS using filtration shall report their Cryptosporidium bin classification as described under section 11 of this rule.

(d) A PWS shall report disinfection profiles and benchmarks to the commissioner as described under sections 9 and 10 of this rule prior to making a significant change in disinfection practice.

(e) A PWS shall report one (1) of the following to the commissioner:
(1) If approved by the commissioner, a PWS may certify operation within required parameters for treatment credit rather than reporting monthly operational data for toolbox options.
(2) In accordance with the schedule set forth in the following table, a PWS shall report the specified information for any microbial toolbox options used to comply with treatment requirements under section 12 of this rule:

Table 21		
Microbial Toolbox Reporting Requirements		
Toolbox option	A PWS shall submit the following information:	On the following schedule:
Watershed control program (WCP)	Notice of intention to develop a new or continue an existing watershed control program.	Not later than two (2) years before the applicable treatment compliance date in section 13 of this rule.
	Watershed control plan.	Not later than one (1) year before the applicable treatment compliance date in section 13 of this rule.
	Annual watershed control program status report.	Every twelve (12) months, beginning one (1) year after the applicable compliance date in section 13 of this rule.
	Watershed sanitary survey report.	For community PWSs, every three (3) years beginning three (3) years after the applicable compliance date in section 13 of this rule. For noncommunity PWSs, every five (5) years beginning five (5) years after the applicable compliance date in section 13 of this rule.
Alternative source/intake management	Verification that the PWS has relocated the intake or adopted the intake withdrawal procedure reflected in monitoring results.	Not later than the applicable treatment compliance date in section 13 of this rule.
Presedimentation	Monthly verification of the following: (1) continuous basin operation; (2) treatment of one hundred percent (100%) of the flow; (3) continuous addition of coagulant; (4) at least 0.5-log mean reduction of influent turbidity or compliance with alternative performance criteria approved by the commissioner.	Monthly reporting within ten (10) days following the month in which the monitoring was conducted, beginning on the applicable compliance date in section 13 of this rule.
Two-stage lime softening	Monthly verification of the following: (1) chemical addition and hardness precipitation occurred in two (2) separate and sequential softening stages prior to filtration; (2) both stages treated one hundred percent (100%) of plant flow.	Monthly reporting within ten (10) days following the month in which the monitoring was conducted, beginning on the applicable compliance date in section 13 of this rule.

Bank filtration	**Initial demonstration of the following: (1) unconsolidated, predominantly sandy aquifer; (2) setback distance of at least twenty-five (25) feet (0.5-log credit) or fifty (50) feet (1.0-log credit).**	**Not later than the applicable treatment compliance date in section 13 of this rule.**
	If monthly average of daily maximum turbidity is greater than one (1) NTU, then the PWS shall report result and submit an assessment of the cause.	**Report within thirty (30) days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in section 13 of this rule.**
Combined filter performance	**Monthly verification of combined filter effluent (CFE) turbidity levels less than or equal to fifteen-hundredths (0.15) NTU in at least ninety-five percent (95%) of the four (4) hour CFE measurements taken each month.**	**Monthly reporting within ten (10) days following the month in which the monitoring was conducted, beginning with the applicable treatment compliance date in section 13 of this rule.**
Individual filter performance	**Monthly verification of the following: (1) individual filter effluent (IFE) turbidity levels less than or equal to fifteen-hundredths (0.15) NTU in at least ninety-five percent (95%) of samples each month in each filter; (2) no individual filter greater than three-tenths (0.3) NTU in two (2) consecutive readings fifteen (15) minutes apart.**	**Monthly reporting within ten (10) days following the month in which the monitoring was conducted, beginning with the applicable treatment compliance date in section 13 of this rule.**
Demonstration of performance	**Results from testing following a protocol approved by the commissioner.**	**Not later than the applicable treatment compliance date in section 13 of this rule.**
	As required by the commissioner, monthly verification of operation within conditions of commissioner approval for demonstration of performance credit.	**Within ten (10) days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in section 13 of this rule.**
Bag filters and cartridge filters	**Demonstration that the following criteria are met: (1) process meets the definition of bag or cartridge filtration; (2) removal efficiency established through challenge testing meets criteria in sections 7 through 22 of this rule.**	**Not later than the applicable treatment compliance date in section 13 of this rule.**
	Monthly verification that one hundred percent (100%) of plant flow was filtered.	**Within ten (10) days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in section 13 of this rule.**
Membrane filtration	**Results of verification testing demonstrating the following: (1) removal efficiency established through challenge testing that meets criteria in sections 7 through 22 of this rule; (2) integrity test method and parameters, including: (A) resolution; (B) sensitivity; (C) test frequency; (D) control limits; and (E) associated baseline.**	**Not later than the applicable treatment compliance date in section 13 of this rule.**
	Monthly report summarizing the following: (1) all direct integrity tests above the control limit; (2) if applicable, any turbidity or results of alternative indirect integrity monitoring approved by the commissioner triggering direct integrity testing and the corrective action that was taken.	**Within ten (10) days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in section 13 of this rule.**
Second stage filtration	**Monthly verification that one hundred percent (100%) of flow was filtered through both stages and that the first stage was preceded by a coagulation step.**	**Within ten (10) days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in section 13 of this rule.**
Slow sand filtration (as secondary filter)	**Monthly verification that both a slow sand filter and a preceding separate stage of filtration treated one hundred percent (100%) of the flow from Subpart H sources.**	**Within ten (10) days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in section 13 of this rule.**

Chlorine dioxide	**Summary of CT values for each day as described in section 20 of this rule.**	**Within ten (10) days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in section 13 of this rule.**
Ozone	**Summary of CT values for each day as described in section 20 of this rule.**	**Within ten (10) days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in section 13 of this rule.**
UV	**Validation test results demonstrating operating conditions that achieve required UV dose.**	**Not later than the applicable treatment compliance date in section 13 of this rule.**
	Monthly report summarizing the percentage of water entering the distribution system that was not treated by UV reactors operating within validated conditions for the required dose as specified in section 20(d) of this rule.	**Within ten (10) days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in section 13 of this rule.**

(Water Pollution Control Board; 327 IAC 8-2.6-21)

SECTION 59. 327 IAC 8-2.6-22 IS ADDED TO READ AS FOLLOWS:

327 IAC 8-2.6-22 Record keeping requirements; reporting and record keeping requirements; enhanced treatment for Cryptosporidium

Authority: IC 13-13-5; IC 13-14-8-7; IC 13-14-9; IC 13-18-3-2; IC 13-18-16
Affected: IC 13-18-3-11

Sec. 22. (a) A PWS shall keep results from the:
(1) initial round of source water monitoring under 40 CFR 141.701(a), as incorporated by reference in section 8(a)(1) of this rule; and
(2) second round of source water monitoring under 40 CFR 141.701(b), as incorporated by reference in section 8(a)(1) of this rule;
until three (3) years after bin classification under section 11 of this rule for filtered PWSs for the particular round of monitoring.

(b) A PWS shall keep for three (3) years any notification to the commissioner that it will not conduct source water monitoring due to meeting the criteria of 40 CFR 141.701(d), as incorporated by reference in section 8(a)(1) of this rule.

(c) A PWS shall keep for three (3) years the results of treatment monitoring associated with:
(1) microbial toolbox options under sections 16 through 20 of this rule; and
(2) uncovered finished water reservoirs under section 14 of this rule, as applicable.

(Water Pollution Control Board; 327 IAC 8-2.6-22)

SECTION 60. 327 IAC 8-2-5.3 IS REPEALED.

Notice of Public Hearing

Posted: 09/16/2009 by Legislative Services Agency
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