ARTICLE 8. PUBLIC WATER SUPPLY

NOTE: IC 13-1 and IC 13-7 were repealed by P.L.1-1996, SECTION 99, effective July 1, 1996.

Rule 1. Public Water Supply Direct Additive and Indirect Additive Standards

327 IAC 8-1-1 Community water system; fluoridation; phosphate additives

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-13-5-1; IC 13-18-2

Sec. 1. Each community water system that adds a fluoride or phosphate compound shall comply with the following:

(1) Fluoride compounds may be added to such water supplies after receiving a construction permit from the commissioner providing the total content of fluoride ion (F^-) after such addition does not exceed two (2.0) milligrams per liter (mg/l) unless the public water system is a participant in an Indiana state department of health approved school fluoride adjustment program for which the concentration of fluoride in a school water supply shall not exceed five and one-half (5.5) mg/l.

(2) Phosphate additives may be added to the water for treatment of iron, manganese, scale, and corrosion problems after receiving a construction permit from the commissioner. Such direct additives shall be in conformance with section 2 of this rule. Total phosphate concentration shall not exceed ten (10) mg/l measured as PO_4. Product may be provided in liquid or dry form. Containers in which the agents are packaged shall be labeled indicating product information and general instructions for use. At a minimum, the label must display the name and application of product, percentage phosphate concentration as PO_4, and certification of American National Standards Institute (ANSI)/National Sanitation Foundation (NSF) International Standard 60, NSF Listings, Drinking Water Treatment Chemicals-Health Effects. In addition, if it is provided in liquid form, the label shall specify pH and specific gravity. The containers must also be marked identifying manufacturing batch number. All liquid products must be treated for bacteria control at the time of manufacture with a potably approved bacteria control agent.

(Water Pollution Control Division; 327 IAC 8-1-1; filed Sep 24, 1987, 3:00 p.m.: 11 IR 705; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1003; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2491; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2945; readopted filed Jul 18, 2012, 2:25 p.m.: 20120815-IR-327120261BFA)

327 IAC 8-1-2 Drinking water direct additives and indirect additives; certification requirements

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 2. (a) All public water systems shall comply with this section before the conclusion of ninety (90) days from the effective date of this rule.

(b) All direct additives in public water systems shall be certified for conformance to American National Standards Institute (ANSI)/National Sanitation Foundation (NSF) International Standard 60, NSF Listings, Drinking Water Treatment Chemicals-Health Effects. All public water systems must compile and maintain on file for inspection by the commissioner a list of all direct additives used that come into contact with the drinking water. This list must contain the name, the description, and the manufacturer of the product and whether the direct additive is certified under this section. The list must be maintained as long as the direct additives are used by the public water system.

(c) The following new or modified indirect additives in public water systems shall be certified for conformance to American National Standards Institute (ANSI)/National Sanitation Foundation (NSF) International Standard 61, Drinking Water System Components-Health Effects, except Section 9, Mechanical Plumbing Product:

(1) All indirect additives found in finished water storage facilities, including lubricants, tank coatings, paints, and epoxies.

(2) All indirect additives between all entry points to the distribution system and the premises of the consumer.

(3) All filter and membrane media.

(4) All indirect additives that are classified in a category of indirect additives for which American National Standards Institute (ANSI)/National Sanitation Foundation (NSF) International Standard 61 is available.

(d) All public water systems must demonstrate certification of direct additives and indirect additives required by subsections (b) and (c) when inspected by the commissioner.

(e) Certification that a direct additive or an indirect additive meets the standards adopted in or under this rule shall be

recognized as being listed with such certification in one (1) of the following publications:

(1) "NSF Listings, Drinking Water Treatment Chemicals-Health Effects".

(2) "Drinking Water System Components-Health Effects".

(f) The commissioner may approve the use of a direct or indirect additive in a public water system only after the applicant has demonstrated that the direct or indirect additive is in compliance with one (1) or more of the following conditions:

(1) The direct or indirect additive has been approved and is listed by one (1) of the publications specified by subsection (e).

(2) The direct or indirect additive has been approved by an organization having a third party certification program for direct or indirect additives that has been approved by the American National Standards Institute.

(g) The commissioner shall maintain a copy of the following:

(1) "NSF Listings, Drinking Water Treatment Chemicals-Health Effects".

(2) "Drinking Water System Components-Health Effects".

(h) A public water system shall not willfully introduce, permit, or suffer the introduction of a direct additive or indirect additive into the drinking water that does not meet the requirements of this rule. *(Water Pollution Control Division; 327 IAC 8-1-2; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2492; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2946; readopted filed Jul 18, 2012, 2:25 p.m.: 20120815-IR-327120261BFA)*

327 IAC 8-1-3 Definitions

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 3. In addition to the definitions in IC 13-11-2, the following definitions apply throughout this rule:

(1) "Direct additives" means additives that are used in public water systems for the treatment of raw water. Direct additives are also used to protect drinking water during storage and distribution. Examples of direct additives include the following:

(A) Agents used for coagulation and flocculation.

(B) Corrosion and scale control.

(C) Softening.

(D) Sequestering.

(E) Precipitation.

(F) pH adjustment.

(G) Disinfection and oxidation.

(H) Miscellaneous treatment applications.

(I) Miscellaneous water supply products.

(2) "Entry point to the distribution system" means one (1) of the following points:

(A) In public water systems that utilize water treatment facilities, the point at which the drinking water has left the treatment facilities and has entered the water distribution system.

(B) In public water systems that do not utilize water treatment facilities, the point at which the drinking water has left the supply facilities and has entered the water distribution system.

(3) "Indirect additives" means additives that are materials or equipment that come in contact with drinking water or come in contact with drinking water direct additives. Examples of indirect additives include the following:

(A) Pipes.

(B) Valves and related products.

(C) Barrier materials.

(D) Joining and sealing materials.

(E) Protective materials and related products.

(F) Mechanical devices used in treatment, transmission, and distribution systems.

(4) "Operator" means the person in direct or responsible charge and supervising the operation of a:

(A) water treatment plant;

(B) wastewater treatment plant; or

(C) water distribution system.

(5) "Public water system" means a system for the provision to the public of water for human consumption through pipes or other constructed conveyances, if such system has at least fifteen (15) service connections or regularly serves at least twenty-five (25) individuals. The term includes any collection, treatment, storage, and distribution facilities under control of the operator of the system and used primarily in connection with the system and any collection or pretreatment storage facilities not under such control that are used primarily in connection with the system.

(Water Pollution Control Division; 327 IAC 8-1-3; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2492; filed Mar 6, 2000, 7:56 a.m.: 23 IR 1622; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2947; readopted filed Jul 18, 2012, 2:25 p.m.: 20120815-IR-327120261BFA)

327 IAC 8-1-4 Incorporation by reference

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-14-8

Sec. 4. The following materials, including titles and the names and addresses of where they may be located for inspection and copying, are incorporated by reference into this rule:

(1) "Drinking Water Treatment Chemicals-Health Effects", November 15, 2004, National Sanitation Foundation (NSF) International, 3475 Plymouth Road, Ann Arbor, Michigan, 48113-0140 or from the Indiana Department of Environmental Management, Office of Water Quality, Indiana Government Center-North, 100 North Senate Avenue, Room N1255, Indianapolis, Indiana 46204.

(2) "Drinking Water System Components-Health Effects", November 15, 2004, National Sanitation Foundation (NSF) International, 3475 Plymouth Road, Ann Arbor, Michigan 48113-0140 or from the Indiana Department of Environmental Management, Office of Water Quality, Indiana Government Center-North, 100 North Senate Avenue, Room N1255, Indianapolis, Indiana 46204.

Notwithstanding language to the contrary in the primarily incorporated documents, the version of all secondarily incorporated documents, which are documents referred to in the primarily incorporated documents, shall be the version in effect on the date of final adoption of this rule. *(Water Pollution Control Division; 327 IAC 8-1-4; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2493; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; errata filed Feb 6, 2006, 11:15 a.m.: 29 IR 1937; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2947; readopted filed Jul 18, 2012, 2:25 p.m.: 20120815-IR-327120261BFA)*

Rule 2. Drinking Water Standards

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 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.

(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.
(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.
(11) "Commissioner" means the commissioner of the Indiana department of environmental management or the designated agent of the commissioner.
(12) "Community water system" or "CWS" means a 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.
(13) "Compliance cycle" means the nine (9) year calendar year cycle during which 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.
(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.
(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.
(iii) The third compliance period runs from January 1, 2017, to December 31, 2019.
(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.
(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.

(18) "Contaminant" means any:
(A) microorganisms;
(B) chemicals;
(C) waste;
(D) physical substance;
(E) radiological substance; or
(F) wastewater;
introduced or found in the drinking water.
(19) "Conventional filtration treatment" means a series of processes including:
(A) coagulation;
(B) flocculation;
(C) sedimentation; and
(D) filtration;
resulting in substantial particulate removal.
(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.
(21) "CT" or "CTcalc" 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 PWS applies disinfectants at more than one (1) point prior to the first customer, the 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 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.
(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 are continuously added to the feed water to maintain the permeability of the filter cake.
(23) "Direct filtration" means a series of processes, including coagulation and filtration but excluding sedimentation resulting in substantial particulate removal.
(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.

(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.

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

(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.

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

(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).

(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.

(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.

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

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

(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.

(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).

(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.

(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.
(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 every:
(A) 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.
(43) "Gross alpha particle activity" means the total radioactivity due to alpha particle emission as inferred from measurements on a dry sample.
(44) "Gross beta particle activity" means the total radioactivity due to beta particle emission as inferred from measurements on a dry sample.
(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.
(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.
(47) "Halogen" means one (1) of the following chemical elements:
(A) Chlorine.
(B) Bromine.
(C) Iodine.
(48) "Initial compliance period" means January 1993 to December 1995 for the contaminants listed in 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.
(viii) Silver.

(B) Section 5 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.
(viii) para-dichlorobenzene.

(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.

(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.

(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 the lead line.

(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.

(54) "Man-made beta particle and photon emitters" means all radionuclides emitting:
(A) beta particle;
(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.

(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 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.

(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.

(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.

(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.

(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.

(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.

(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.

(63) "Noncommunity water system" or "NCWS" means a 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.

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

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

(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.

(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.

(69) "Point of disinfectant application" 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.

(70) "Point-of-entry treatment device" or "POE" 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.

(71) "Point-of-use treatment device" or "POU" 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.

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

(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 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 the system and used primarily in connection with the system; and

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

A PWS is either a CWS or an NCWS, as defined in subdivisions (12) and (63).

(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.

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

(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.

(78) "Sanitary survey" means an on-site review of the:

(A) water source;

(B) facilities;

(C) equipment;

(D) operation; and

(E) maintenance;

of a PWS for the purpose of evaluating the adequacy of clauses (A) through (E) for producing and distributing safe drinking water.

(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.

(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.

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

(A) residence; or

(B) place of business;

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

(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.

(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.

(85) "Standard sample" means the aliquot of finished drinking water that is examined for the presence of coliform bacteria.

(86) "Subpart H system" means a 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.

(87) "Supplier of water" means any person who:

(A) owns;

(B) operates; or

(C) both owns and operates;

a PWS.

(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.

(F) Diffused surface water.

(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).

(90) "System with a single service connection" means a PWS that supplies drinking water to consumers via a single service line.

(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.

(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.

(93) "Total trihalomethanes" or "TTHM" means the sum of the concentration in milligrams per liter of the THM compounds:

(A) trichloromethane (chloroform);

(B) dibromochloromethane;

(C) bromodichloromethane; and

(D) tribromomethane (bromoform);

rounded to two (2) significant figures.

(94) "Transient noncommunity water system" or "TWS" means an NCWS that does not regularly serve at least twenty-five (25) of the same persons over six (6) months per year.

(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.

(97) "Uncovered finished water storage facility" means a facility:

(A) such as:

(i) a tank;

(ii) a reservoir; or

(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).

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

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

(101) "Waterborne disease outbreak" means the significant occurrence of acute infectious illness epidemiologically associated with the ingestion of water from a 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. *(Water Pollution Control Division; 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; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)*

327 IAC 8-2-2 Applicability of rule; modification of monitoring requirements
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. 2. (a) Each public water system shall comply with all of the provisions of this rule and 327 IAC 8-2.1 unless the public water system meets all of the following conditions:
(1) Consists only of distribution and storage facilities and does not have collection and treatment facilities.
(2) Obtains all of its water from, but is not owned or operated by, a public water system to which this article applies.
(3) Does not sell water to any person.
(4) Is not a carrier which conveys passengers in interstate commerce.
(b) When a public water system supplies water to one (1) or more public water systems, the commissioner may modify the monitoring requirements imposed by this rule to the extent that the interconnection of the systems justifies treating them as a single system for monitoring purposes. Any modified monitoring shall be conducted pursuant to a schedule specified by the commissioner and concurred in by the administrator. The commissioner shall provide a copy of the determination to the administrator. *(Water Pollution Control Division; 327 IAC 8-2-2; filed Sep 24, 1987, 3:00 p.m.: 11 IR 706; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1006; errata filed Aug 6, 1991, 3:45 p.m.: 14 IR 2258; filed Nov 20, 2001, 10:20 a.m.: 25 IR 1079)*

327 IAC 8-2-3 Analytical methods
Authority: IC 13-1-3-4; IC 13-7
Affected: IC 13-1-3-4; IC 13-7

Sec. 3. Except as otherwise provided by this rule, the analytical procedures used as methods of analysis to determine the quality of water sampled shall be in accordance with this rule. *(Water Pollution Control Division; 327 IAC 8-2-3; filed Sep 24, 1987, 3:00 p.m.: 11 IR 706; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1006)*

327 IAC 8-2-4 Inorganic chemicals; 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. 4. (a) The following MCLs for inorganic chemicals apply to all CWSs, NTNCWSs, and TWSs except as provided in subsection (b):

Contaminant	Level in Milligrams Per Liter
Nitrate	10 (as nitrogen)
Nitrite	1 (as nitrogen)
Nitrate and nitrite	10 (as nitrogen)

(b) The commissioner may allow nitrate levels up to, but not to exceed, twenty (20) milligrams per liter in a noncommunity water system if the supplier of water meets all of the following conditions:

(1) Such water will not be available to children under six (6) months of age.

(2) There will be continuous posting of the fact that nitrate levels exceed ten (10) milligrams per liter and the potential health effects of exposure.

(3) Local and state public health authorities shall be notified annually of nitrate levels that exceed ten (10) milligrams per liter.

(4) No adverse health effects shall result.

(5) The commissioner may require additional notice to the public as provided by 327 IAC 8-2.1-14.

(c) The following MCL for fluoride applies to all CWSs:

Contaminant	Level in Milligrams Per Liter
Fluoride	4.0

(d) The following MCLs for inorganic chemicals apply to all CWSs and NTNCWSs:

Contaminant	Level in Milligrams Per Liter Except Asbestos
Antimony	0.006
Arsenic	0.010[1]
Asbestos	7 (MFL)[2]
Barium	2
Beryllium	0.004
Cadmium	0.005
Chromium	0.1
Cyanide (free)	0.2
Mercury	0.002
Selenium	0.05
Thallium	0.002

[1]Effective January 1, 2006. Until then, the arsenic MCL is 0.05 mg/l.

[2]MFL = million fibers per liter greater than ten (10) micrometers.

(e) For the inorganic chemicals listed in this section and nickel, the monitoring frequency is specified in section 4.1 of this rule and analytical methods are specified in section 4.2 of this rule.

(f) The commissioner hereby identifies the following as the BAT, treatment technique, or other means available for achieving compliance with the MCLs for inorganic contaminants identified in subsections (a), (c), and (d), except fluoride:

BAT for Inorganic Chemicals Listed in This Section

Chemical Name	BATs
Antimony	2,7
Arsenic[4]	1, 2, 5, 6, 7, 9, 12[5]
Asbestos	2,3,8
Barium	5,6,7,9
Beryllium	1,2,5,6,7
Cadmium	2,5,6,7

Chromium	2,5,6[2],7
Cyanide	5,7,10
Mercury	2[1],4,6[1],7[1]
Nitrate	5,7,9
Nitrite	5,7
Selenium	1,2[3],6,7,9
Thallium	1,5

[1]BAT only if influent mercury concentrations less than ten (10) micrograms per liter.
[2]BAT for Chromium III only.
[3]BAT for Selenium IV only.
[4]BATs for Arsenic V. Preoxidation may be required to convert Arsenic III to Arsenic V. Arsenic BATs apply beginning January 1, 2006.
[5]To obtain high removals, iron to arsenic ratio must be at least 20:1.
Key to BATs in Table
1 = Activated alumina
2 = Coagulation/filtration (not BAT for systems < 500 service connections)
3 = Direct and diatomite filtration
4 = Granular activated carbon
5 = Ion exchange
6 = Lime softening (not BAT for systems < 500 service connections)
7 = Reverse osmosis
8 = Corrosion control
9 = Electrodialysis
10 = Chlorine
11 = Ultraviolet
12 = Oxidation/filtration

(g) The commissioner, pursuant to Section 1412 of the Act, hereby identifies in the following table the affordable technology, treatment technique, or other means available to systems serving ten thousand (10,000) persons or fewer for achieving compliance with the MCL for arsenic that will be applicable beginning January 1, 2006:

Small System Compliance Technologies (SSCTs)[1] for Arsenic[2]

Small system compliance technology	Affordable for listed small system categories[3]
Activated alumina (centralized)	All size categories
Activated alumina (point-of-use)[4]	All size categories
Coagulation/filtration[5]	501-3,300, 3,301-10,000
Coagulation-assisted microfiltration	501-3,300, 3,301-10,000
Electrodialysis reversal[6]	501-3,300, 3,301-10,000
Enhanced coagulation/filtration	All size categories
Enhanced lime softening (pH > 10.5)	All size categories
Ion exchange	All size categories
Lime softening[5]	501-3,300, 3,301-10,000
Oxidation/filtration[7]	All size categories
Reverse osmosis (centralized)[6]	501-3,300, 3,301-10,000
Reverse osmosis (point-of-use)[4]	All size categories

[1]Section 1412(b)(4)(E)(ii) of the Act specifies that SSCTs must be affordable and technically feasible for small systems.
[2]SSCTs for Arsenic V. Preoxidation may be required to convert Arsenic III to Arsenic V.
[3]The Act (ibid.) specifies three (3) categories of small systems as follows:

(A) Those serving twenty-five (25) or more, but fewer than five hundred one (501).

(B) Those serving more than five hundred (500), but fewer than three thousand three hundred one (3,301).

(C) Those serving more than three thousand three hundred (3,300), but fewer than ten thousand one (10,001).

[4]When POU or POE devices are used for compliance, programs to ensure proper long term operation, maintenance, and monitoring must be provided by the water system to ensure adequate performance.

[5]Unlikely to be installed solely for arsenic removal. May require pH adjustment to optimal range if high removals are needed.

[6]Technologies reject a large volume of water; may not be appropriate for areas where water quantity may be an issue.

[7]To obtain high removals, iron to arsenic ratio must be at least 20:1.

(Water Pollution Control Division; 327 IAC 8-2-4; filed Sep 24, 1987, 3:00 p.m.: 11 IR 706; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1006; filed Aug 24, 1994, 8:15 a.m.: 18 IR 22; filed Aug 25, 1997, 8:00 a.m.: 21 IR 34; filed Nov 20, 2001, 10:20 a.m.: 25 IR 1079; filed Jun 13, 2005, 2:30 p.m.: 28 IR 3188)

327 IAC 8-2-4.1 Collection of samples for inorganic chemical testing

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. 4.1. (a) CWSs shall conduct monitoring to determine compliance with the MCLs specified in section 4(a), 4(c), and 4(d) of this rule in accordance with this section. NTNCWSs shall conduct monitoring to determine compliance with the MCLs specified in section 4(a) and 4(d) of this rule in accordance with this section. TWSs shall conduct monitoring to determine compliance with the MCLs specified in section 4(a) of this rule in accordance with this section.

(b) When a contaminant listed in section 4 of this rule exceeds the MCL, the supplier of water shall report to the commissioner under section 13 of this rule and shall give notice to the public under 327 IAC 8-2.1-7 through 327 IAC 8-2.1-16. Monitoring after public notification shall be at a frequency designated by the commissioner and shall continue until the MCL has not been exceeded in two (2) successive samples or until a monitoring schedule as a condition to an enforcement action shall become effective.

(c) Monitoring shall be conducted as follows:

(1) Ground water systems shall take a minimum of one (1) sample at every entry point to the distribution system that is representative of each well after treatment (hereafter called a sampling point) beginning in the compliance period starting January 1, 1993. 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.

(2) Surface water systems, including systems with a combination of surface and ground sources, shall take a minimum of one (1) sample at every entry point to the distribution system after any application of treatment or in the distribution system at a point that is representative of each source after treatment (hereafter called a sampling point) beginning in the compliance period beginning January 1, 1993. 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.

(3) 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, for example, when water is representative of all sources being used.

(4) The commissioner may reduce the total number of samples that must be analyzed by allowing the use of compositing. Composite samples from a maximum of five (5) samples are allowed, provided that the detection limit of the method used for analysis is less than one-fifth ($^1/_5$) of the MCL. Compositing of samples must be completed in the laboratory as follows:

(A) When a composite sample is analyzed, if the concentration in the composite sample is greater than or equal to one-fifth ($^1/_5$) of the MCL of any inorganic chemical, then a follow-up sample must be analyzed within fourteen (14) days at each sampling point included in the composite. These samples must be analyzed for the contaminants that exceeded one-fifth ($^1/_5$) of the MCL in the composite sample. Detection limits for each analytical method and MCLs for each inorganic contaminant are the following:

Contaminant	MCL (mg/l)	Methodology	Detection Limit (mg/l)
Antimony	0.006	Atomic absorption; furnace	0.003
		Atomic absorption; platform	0.0008[5]
		ICP-mass spectrometry	0.0004
		Hydride-atomic absorption	0.001

Arsenic	0.010[6]	Atomic absorption; furnace	0.001
		Atomic absorption; platform - stabilized temperature	0.0005[7]
		Atomic absorption; gaseous hydride	0.001
		ICP-mass spectrometry	0.0014[8]
Asbestos	7 MFL[1]	Transmission electron microscopy	0.01 MFL
Barium	2	Atomic absorption; furnace	0.002
		Atomic absorption; direct aspiration	0.1
		Inductively coupled plasma	0.002
			(0.001)
Beryllium	0.004	Atomic absorption; furnace	0.0002
		Atomic absorption; platform	0.00002[5]
		Inductively coupled plasma[2]	0.0003
		ICP-mass spectrometry	0.0003
Cadmium	0.005	Atomic absorption; furnace	0.0001
		Inductively coupled plasma	0.001
Chromium	0.1	Atomic absorption; furnace	0.001
		Inductively coupled plasma	0.007
			(0.001)
Cyanide	0.2	Distillation, spectrophotometric[3]	0.02
		Distillation, automated spectrophotometric[3]	0.005
		Distillation, selective electrode[3]	0.05
		Distillation, amenable, spectrophotometric[4]	0.02
Fluoride	4.0	Colorimetric SPADNS; with distillation	0.1
		Potentiometric ion selective electrode	0.1
		Automated alizarin fluoride blue; with distillation (complexone)	0.05
		Automated ion selective electrode	0.1
Mercury	0.002	Manual cold vapor technique	0.0002
		Automated cold vapor technique	0.0002
Nitrate	10 (as N)	Manual cadmium reduction	0.01
		Automated hydrazine reduction	0.01
		Automated cadmium reduction	0.05
		Ion selective electrode	1
		Ion chromatography	0.01
Nitrite	1 (as N)	Spectrophotometric	0.01
		Automated cadmium reduction	0.05
		Manual cadmium reduction	0.01
		Ion chromatography	0.004
Selenium	0.05	Atomic absorption; furnace	0.002
		Atomic absorption; gaseous hydride	0.002
Thallium	0.002	Atomic absorption; furnace	0.001
		Atomic absorption; platform	0.0007[5]
		ICP-mass spectrometry	0.0003

[1]MFL = million fibers per liter greater than ten (10) micrometers.

[2]Using a 2 × preconcentration step as noted in Method 200.7. Lower method detection limits may be achieved when using a 4 × preconcentration.

[3]Screening method for total cyanides.

[4]Measures "free" cyanides.

[5]Lower method detection limits are reported using stabilized temperature graphite furnace atomic absorption.

[6]The value for arsenic is effective January 1, 2006. Until then, the MCL is 0.05 mg/l.

[7]The MDL reported for EPA Method 200.9 (Atomic Absorption; Platform - Stabilized Temperature) was determined using a 2× concentration step during sample digestion. The MDL determined for samples analyzed using direct analyses, that is, no sample digestion, will be higher. Using multiple depositions, EPA 200.9 is capable of obtaining MDL of 0.0001 mg/l.

[8]Using selective ion monitoring, EPA Method 200.8 (ICP-MS) is capable of obtaining an MDL of 0.0001 mg/l.

(B) If the population served by the system is greater than three thousand three hundred (3,300) persons, then compositing may only be permitted by the commissioner at sampling points within a single system. In systems serving fewer than or equal to three thousand three hundred (3,300) persons, the commissioner may permit compositing among different systems provided the five (5) sample limit is maintained.

(C) If duplicates of the original sample taken from each sampling point used in the composite sample are available, the system may use these instead of resampling. The duplicate must be analyzed and the results reported to the commissioner within fourteen (14) days after completing analysis of the composite sample, provided the holding time of the sample is not exceeded.

(5) The frequency of monitoring for:

(A) asbestos shall be in accordance with subsection (d);

(B) antimony, arsenic, barium, beryllium, cadmium, chromium, cyanide, fluoride, nickel, mercury, selenium, and thallium shall be in accordance with subsection (e);

(C) nitrate shall be in accordance with subsection (f); and

(D) nitrite shall be in accordance with subsection (g).

(d) The frequency of monitoring conducted to determine compliance with the MCL for asbestos specified in section 4(d) of this rule shall be conducted as follows:

(1) Each CWS and NTNCWS is required to monitor for asbestos during the first three (3) year compliance period of each nine (9) year compliance cycle beginning in the compliance period starting January 1, 1993.

(2) If the system believes it is not vulnerable to either asbestos contamination in its source water or due to corrosion of asbestos-cement pipe, or both, it may apply to the commissioner for a waiver of the monitoring requirement in subdivision (1). If the commissioner grants the waiver, the system is not required to monitor.

(3) The commissioner may grant a waiver based upon a consideration of the following factors:

(A) Potential asbestos contamination of the water source.

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

(4) A waiver remains in effect for the initial monitoring of the first three (3) year compliance period. Systems not receiving a waiver must monitor in accordance with subdivision (1).

(5) A system vulnerable to asbestos contamination due solely to corrosion of asbestos-cement pipe shall take one (1) sample at a tap served by asbestos-cement pipe and under conditions where asbestos contamination is most likely to occur.

(6) A system vulnerable to asbestos contamination due solely to source water shall monitor in accordance with subsection (c).

(7) A system vulnerable to asbestos contamination due both to its source water supply and corrosion of asbestos-cement pipe shall take one (1) sample at a tap served by asbestos-cement pipe and under conditions where asbestos contamination is most likely to occur.

(8) A system that exceeds the MCLs as determined in section 4 of this rule shall monitor quarterly beginning in the next quarter after the violation occurred.

(9) The commissioner may decrease the quarterly monitoring requirement to the frequency specified in subdivision (1) provided the commissioner has determined that the system is reliably and consistently below the MCL. In no case can the commissioner make this determination unless a ground water system takes a minimum of two (2) quarterly samples and a surface (or combined surface/ground) water system takes a minimum of four (4) quarterly samples.

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

(e) The frequency of monitoring conducted for nickel and to determine compliance with the MCLs in section 4 of this rule for antimony, arsenic, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium, and thallium shall be as follows:

(1) Ground water systems shall take one (1) sample at each sampling point during each compliance period. Surface water systems (or combined surface/ground) shall take one (1) sample annually at each sampling point.

(2) The system may apply to the commissioner for a waiver from the monitoring frequencies specified in subdivision (1).

(3) A condition of the waiver shall require that a system take a minimum of one (1) sample while the waiver is effective. The term during which the waiver is effective shall not exceed one (1) compliance cycle, which is nine (9) years.

(4) The commissioner may grant a waiver provided surface water systems have monitored annually for at least three (3) years and ground water systems have conducted a minimum of three (3) rounds of monitoring. (At least one (1) sample shall have been taken since January 1, 1990.) Both surface and ground water systems shall demonstrate that all previous analytical results were less than the MCL. Systems that use a new water source are not eligible for a waiver until three (3) rounds of monitoring from the new source have been completed. The commissioner may grant a public water system a waiver for monitoring of cyanide, provided that the commissioner determines that the system is not vulnerable due to lack of any industrial source of cyanide.

(5) In determining the appropriate reduced monitoring frequency, the commissioner shall consider the following:

(A) Reported concentrations from all previous monitoring.

(B) The degree of variation in reported concentrations.

(C) Other factors that may affect contaminant concentrations such as changes in:

(i) ground water pumping rates;

(ii) the system's configuration;

(iii) the system's operating procedures; or

(iv) stream flows or characteristics.

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

(7) Systems that exceed the MCLs as calculated in subsection (k) shall monitor quarterly beginning in the next quarter after the violation occurred.

(8) The commissioner may decrease the quarterly monitoring requirement to the frequencies specified in subdivisions (1) and (2) provided it has determined that the system is reliably and consistently below the MCL. In no case can the commissioner make this determination unless a ground water system takes a minimum of two (2) quarterly samples and a surface water system takes a minimum of four (4) quarterly samples.

(9) All new systems or systems that use a new source of water that begin operation after January 1, 2004, must demonstrate compliance with the MCL within a period of time specified by the commissioner. The system must also comply with the initial sampling frequencies specified by the commissioner to ensure a system can demonstrate compliance with the MCL. Routine and increased monitoring frequencies shall be conducted in accordance with this section.

(f) All public water systems (CWSs, NTNCWSs, and TWSs) shall monitor to determine compliance with the MCL for nitrate in section 4(a) of this rule under the following monitoring schedules:

(1) CWSs and NTNCWSs served by ground water systems shall monitor annually beginning January 1, 1993; systems served by surface water shall monitor quarterly beginning January 1, 1993.

(2) For CWSs and NTNCWSs, the repeat monitoring frequency for ground water systems shall be quarterly for at least one (1) year following any one (1) sample in which the concentration is greater than or equal to fifty percent (50%) of the MCL. The commissioner may allow a ground water system to reduce the sampling frequency to annually after four (4) consecutive quarterly samples are reliably and consistently less than the MCL.

(3) For CWSs and NTNCWSs, the commissioner may allow a surface water system to reduce the sampling frequency to annually if all analytical results from four (4) consecutive quarters are less than fifty percent (50%) of the MCL. A surface water system shall return to quarterly monitoring if any one (1) sample is greater than or equal to fifty percent (50%) of the MCL.

(4) Each TWS shall monitor annually beginning January 1, 1993.

(5) After the initial round of quarterly sampling is completed, each CWS and NTNCWS that is monitoring annually shall take subsequent samples during the quarter that previously resulted in the highest analytical result.

(g) All public water systems (CWSs, NTNCWSs, and TWSs) shall monitor to determine compliance with the MCL for nitrite in section 4(a) of this rule under the following monitoring schedules:

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

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

(3) For CWSs, NTNCWSs, and TWSs, the repeat monitoring frequency for any water system shall be quarterly for at least one (1) year following any one (1) sample in which the concentration is greater than or equal to fifty percent (50%) of the MCL. The commissioner may allow a system to reduce the sampling frequency from quarterly to annually after determining the system is reliably and consistently less than the MCL.

(4) Systems that are monitoring annually shall take each subsequent sample during the quarter that previously resulted in the highest analytical result.

(h) Confirmation sampling shall be as follows:

(1) Where the results of sampling for:

(A) antimony;

(B) arsenic;

(C) asbestos;

(D) barium;

(E) beryllium;

(F) cadmium;

(G) chromium;

(H) cyanide;

(I) fluoride;

(J) mercury;

(K) selenium; or

(L) thallium;

indicate the MCL has 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.

(2) Where nitrate or nitrite sampling results indicate the MCL has been exceeded, the system shall take a confirmation sample within twenty-four (24) hours of the system's receipt of notification of the analytical results of the first sample. Systems unable to comply with the twenty-four (24) hour sampling requirement must immediately notify the consumers served by the public water system in accordance with 327 IAC 8-2.1-7 through 327 IAC 8-2.1-16. Systems exercising this option must take and analyze a confirmation sample within two (2) weeks of notification of the analytical results of the first sample.

(3) If a commissioner-required confirmation sample is taken for any contaminant, the results of the initial and confirmation sample shall be averaged. The resulting average shall be used to determine the system's compliance in accordance with subsection (k). The commissioner has the discretion to delete results of obvious sampling errors.

(i) The commissioner may require:

(1) more frequent monitoring than specified in subsections (d) through (g); or

(2) confirmation samples;

for positive and negative results.

(j) Systems may apply to the commissioner to conduct more frequent monitoring than the minimum monitoring frequencies

specified in this section.

(k) Compliance with section 4 of this rule shall be determined based on the analytical results obtained at each sampling point in the following manner:

(1) For systems that are conducting monitoring at a frequency greater than annual, compliance with the MCLs for:

(A) antimony;
(B) arsenic;
(C) asbestos;
(D) barium;
(E) beryllium;
(F) cadmium;
(G) chromium;
(H) cyanide;
(I) fluoride;
(J) mercury;
(K) selenium; or
(L) thallium;

is determined by a running annual average at each sampling point. If the average at any sampling point is greater than the MCL, then the system is out of compliance. If any one (1) sample would cause the annual average to be exceeded, then the system is out of compliance immediately. Any sample below the method detection limit shall be calculated at zero (0) for the purpose of determining the annual average. If a system fails to collect the required number of samples, compliance (average concentration) will be based on the total number of samples collected.

(2) For systems that are monitoring annually, or less frequently, the system is out of compliance with the MCLs for:

(A) antimony;
(B) arsenic;
(C) asbestos;
(D) barium;
(E) beryllium;
(F) cadmium;
(G) chromium;
(H) cyanide;
(I) fluoride;
(J) mercury;
(K) selenium; or
(L) thallium;

if the level of a contaminant at any sampling point is greater than the MCL. If a confirmation sample is required by the commissioner, the determination of compliance will be based on the annual average of the initial MCL exceedance and any commissioner-required confirmation samples. If a system fails to collect the required number of samples, compliance (average concentration) will be based on the total number of samples collected.

(3) Compliance with the MCLs for nitrate and nitrite is determined based on one (1) sample if the levels of these contaminants are below the MCLs. If the levels of nitrate or nitrite, or both, exceed the MCLs in the initial sample, a confirmation sample is required in accordance with subsection (h)(2), and compliance shall be determined based upon the average of the initial and confirmation samples.

(4) If a public water system has a distribution system separable from other parts of the distribution system with no interconnections, the commissioner may allow the system to give public notice to only the area served by that portion of the system that is out of compliance.

(5) Beginning January 1, 2006, arsenic sampling results will be reported to the nearest one-thousandth (0.001) mg/l.

(l) Each public water system shall monitor at the time designated by the commissioner during each compliance period.

(m) Sample collection for:

(1) antimony;

(2) arsenic;
(3) asbestos;
(4) barium;
(5) beryllium;
(6) cadmium;
(7) chromium;
(8) cyanide;
(9) fluoride;
(10) mercury;
(11) nickel;
(12) nitrate;
(13) nitrite;
(14) selenium; and
(15) thallium;

under this section shall be conducted using the sample preservation, container, and maximum holding time procedures specified in the following table:

Contaminant	Preservative[3]	Container[1]	Time[2]
Antimony	HNO_3	P or G	6 months
Arsenic	HNO_3	P or G	6 months
Asbestos	4°C	P or G	48 hours[4]
Barium	HNO_3	P or G	6 months
Beryllium	HNO_3	P or G	6 months
Cadmium	HNO_3	P or G	6 months
Chromium	HNO_3	P or G	6 months
Cyanide	4°C, NaOH	P or G	14 days
Fluoride	none	P or G	1 month
Mercury	HNO_3	P or G	28 days
Nickel	HNO_3	P or G	6 months
Nitrate	4°C	P or G	48 hours[5]
Nitrate-nitrite[6]	H_2SO_4	P or G	28 days
Nitrite	4°C	P or G	48 hours
Selenium	HNO_3	P or G	6 months
Thallium	HNO_3	P or G	6 months

[1]P = Plastic, hard or soft; G = glass.

[2]In all cases, samples should be analyzed as soon after collection as possible. Follow additional (if any) information on preservation, containers, or holding times that is specified in method.

[3]When indicated, samples must be acidified at the time of collection to pH < 2 with concentrated acid or adjusted with sodium hydroxide to pH > 12. When chilling is indicated the sample must be shipped and stored at four (4) degrees Celsius or less.

[4]Instructions for containers, preservation procedures, and holding times as specified in Method 100.2 must be adhered to for all compliance analyses including those conducted with Method 100.1.

[5]If the sample is chlorinated, the holding time for an unacidified sample kept at four (4) degrees Celsius is extended to fourteen (14) days.

[6]Nitrate-nitrite refers to a measurement of total nitrate.

(Water Pollution Control Division; 327 IAC 8-2-4.1; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1007; filed Aug 24, 1994, 8:15 a.m.: 18 IR 23; filed Aug 25, 1997, 8:00 a.m.: 21 IR 34; errata filed Dec 10, 1997, 3:45 p.m.: 21 IR 1347; filed Jul 23, 2001, 1:02 p.m.: 24 IR 3946; filed Nov 20, 2001, 10:20 a.m.: 25 IR 1080; filed Jun 13, 2005, 2:30 p.m.: 28 IR 3190)

327 IAC 8-2-4.2 Analytical methods for inorganic chemical testing

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. 4.2. (a) Analyses conducted to determine compliance with section 4 of this rule shall be made in accordance with one (1) of the following methods* for each contaminant:

(1) Antimony as follows:
- (A) Atomic absorption[1]; furnace, Method 3113B*.
- (B) Atomic absorption; platform, Method 200.9*.
- (C) ICP-mass spectrometry, Method 200.8*.
- (D) Hydride-atomic absorption, Method D 3697-92*.

(2) Arsenic* as follows:
- (A) Atomic absorption; furnace, Method D 2972-97C* or Method 3113B*.
- (B) Hydride-atomic adsorption, Method D 2972-97B* or Method 3114B*.
- (C) Atomic absorption, platform[1], Method 200.9[2]*.
- (D) Inductively coupled plasma technique[1]*, Method 200.7[2, 3]* or Method 3120B[3]*.
- (E) ICP-mass spectrometry, Method 200.8[2]*.

(3) Asbestos, transmission electron microscopy, Method 100.1* or Method 100.2*.

(4) Barium as follows:
- (A) Atomic absorption; furnace, Method 3113B*.
- (B) Atomic absorption; direct, Method 3111D*.
- (C) Inductively coupled plasma, Method 200.7* or Method 3120B*.
- (D) ICP-mass spectrometry, Method 200.8*.

(5) Beryllium as follows:
- (A) Atomic absorption; furnace, Method D 3645-97B or Method 3113B.
- (B) Atomic absorption; platform, Method 200.9*.
- (C) Inductively coupled plasma, Method 200.7* or Method 3120B*.
- (D) ICP-mass spectrometry, Method 200.8.

(6) Cadmium as follows:
- (A) Atomic absorption; furnace, Method 3113B*.
- (B) Inductively coupled plasma[1], Method 200.7*.
- (C) ICP-mass spectrometry, Method 200.8*.
- (D) Atomic absorption; platform, Method 200.9*.

(7) Chromium as follows:
- (A) Atomic absorption; furnace, Method 3113B*.
- (B) Inductively coupled plasma, Method 200.7* or Method 3120B*.
- (C) ICP-mass spectrometry, Method 200.8*.
- (D) Atomic absorption; platform, Method 200.9*.

(8) Cyanide as follows:
- (A) Manual distillation followed by:
  - (i) Spectrophotometric; amenable, Method D 2036-98B* or Method 4500-CN-G*.
  - (ii) Spectrophotometric; manual, D 2036-98A*, Method 4500-CN-E*, or Method I-3300-85*.
  - (iii) Spectrophotometric; semiautomated, Method 335.4*.
  - (iv) Method 4500-CN-C*.
  - (v) Method D 2036-98A*.
- (B) Selective electrode, Method 4500-CN-F*.
- (C) UV/Distillation/Spectrophotometric; Method Kelada 01.
- (D) Distillation/Spectrophotometric; Method QuikChem 10-204-00-1-X.

(9) Fluoride as follows:

(A) Ion chromatography, Method 300.0*, Method D 4327-97*, or Method 4110B*.
(B) Manual distillation; color. SPADNS, Method 4500F$^-$B, D*.
(C) Manual electrode, Method D 1179-93B* or Method 4500F$^-$C*.
(D) Automated electrode, Method 380-75WE*.
(E) Automated alizarin, Method 4500F$^-$E* or Method 129-71W*.

(10) Mercury as follows:
(A) Manual cold vapor, Method 245.1, Method D 3223-91*, or Method 3112B*.
(B) Automated cold vapor, Method 245.2*.
(C) ICP-mass spectrometry, Method 200.8*.

(11) Nickel as follows:
(A) Atomic absorption; furnace, Method 3113B*.
(B) Atomic absorption; platform, Method 200.9.
(C) Atomic absorption; direct, Method 3111B*.
(D) Inductively coupled plasma, Method 200.7* or Method 3120B*.
(E) ICP-mass spectrometry, Method 200.8*.

(12) Nitrate as follows:
(A) Manual cadmium reduction, Method D 3867-90B* or Method 4500-NO_3-E*.
(B) Automated cadmium reduction, Method 353.2*, Method D 3867-90A*, or Method 4500-NO_3-F*.
(C) Ion selective electrode, Method 4500-NO_3-D* or Method 601*.
(D) Ion chromatography, Method 300.0*, Method D 4327-97*, Method 4110B*, or Method B-1011*.

(13) Nitrite as follows:
(A) Ion chromatography, Method 300.0*, Method D 4327-97*, Method 4110B*, or Method B-1011*.
(B) Automated cadmium reduction, Method 353.2*, Method D 3867-90A*, or Method 4500-NO_3-F*.
(C) Manual cadmium reduction, Method D 3867-90B* or Method 4500-NO_3-E*.
(D) Spectrophotometric, Method 4500-NO_2-B*.

(14) Selenium as follows:
(A) Hydride-atomic absorption, Method D 3859-98A* or Method 3114B*.
(B) ICP-mass spectrophotometry, Method 200.8*.
(C) Atomic absorption; platform, Method 200.9*.
(D) Atomic absorption; furnace, Method D 3859-98B* or Method 3113B*.

(15) Thallium as follows:
(A) Atomic absorption; platform[1], Method 200.9*.
(B) ICP-mass spectrometry, Method 200.8*.

[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. For direct analysis of cadmium and arsenic by Method 200.7 and arsenic by Method 3120 B, sample preconcentration using pneumatic nebulization may be required to achieve lower detection limits. Preconcentration may also be required for direct analysis of antimony and thallium by Method 200.9 and antimony by Method 3113 B unless multiple in-furnace depositions are made.

[2]If ultrasonic nebulization is used in the determination of arsenic by Method 200.7, 200.8, or 3120 B, the arsenic must be in the pentavalent state to provide uniform signal response. For Methods 200.7 and 3120 B, both samples and standards must be diluted in the same mixed acid matrix concentration of nitric and hydrochloric acid with the addition of one hundred (100) µL of thirty percent (30%) hydrogen peroxide per one hundred (100) ml of solution. For direct analysis of arsenic with Method 200.8 using ultrasonic nebulization, samples and standards must contain one (1) mg/l of sodium hypochlorite.

[3]After January 1, 2006, analytical methods using the ICP-AES technology when analyzing for arsenic may not be used because the detection limits for these methods are eight-thousandths (0.008) mg/l or higher. This restriction means that the two (2) ICP-AES methods (Methods 200.7 and 3120 B) approved for use for the MCL of five-hundredths (0.05) mg/l may not be used for compliance determinations for the revised MCL of ten-thousandths (0.010) mg/l. However, prior to 2005, a system may have compliance samples analyzed with these less sensitive methods.

(b) Analysis under this section shall only be conducted by laboratories that have been certified by EPA or the commissioner.

Laboratories may conduct sample analyses under provisional certification until January 1, 1996. To receive certification to conduct analyses for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, nitrate, nitrite, selenium, and thallium, the laboratory must do the following:

(1) Successfully analyze PE samples provided by EPA, the commissioner, or by a third party with approval of the EPA or the commissioner, at least once a year.

(2) For each contaminant that has been included in the PE sample and for each method for which the laboratory desires certification achieve quantitative results on the analyses that are within the following acceptance limits:

Contaminant	Acceptance Limit
Antimony	±30% at ≥0.006 mg/l
Arsenic[1]	± 30% at ≥ 0.003 mg/l
Asbestos	2 standard deviations based on study statistics
Barium	±15% at ≥0.15 mg/l
Beryllium	±15% at ≥0.001 mg/l
Cadmium	±20% at ≥0.002 mg/l
Chromium	±15% at ≥0.01 mg/l
Cyanide	±25% at ≥0.1 mg/l
Fluoride	±10% at ≥1 to 10 mg/l
Mercury	±30% at ≥0.0005 mg/l
Nickel	±15% at ≥0.01 mg/l
Nitrate	±10% at ≥0.4 mg/l
Nitrite	±15% at ≥0.4 mg/l
Selenium	±20% at ≥0.01 mg/l
Thallium	±30% at ≥0.002 mg/l

[1]Acceptance limit effective January 1, 2006. Until then, limit should be two (2) standard deviations based on study statistics.

*Methods referenced in this section may be obtained as follows:

(1) Method 245.2, "Methods for Chemical Analysis or Water and Wastes", EPA-600/4-79-020, March 1983, available at NTIS, PB84-128677.

(2) Methods 200.8, 200.9, 200.7, and 245.1 may be found in "Methods for the Determination of Metals in Environmental Samples–Supplement I", EPA-600/94-111, May 1994, available from NTIS, PB95-125472, 800-553-6847.

(3) Methods D 3697-92, D 1179-93B, D 3223-91, D 3867-90A, D 3867-90B, D 3859-93A, and D 3859-93B, may be found in "Annual Book of ASTM Standards", 1994 and 1996, Vols. 11.01 and 11.02, 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 D 2972-97C, D 2972-97B, D 3645-97B, D 2036-98A, D 2036-98B, D 4327-97, D 3859-98A, and D 3859-98B may be found in the "Annual Book of ASTM Standards, 1999, Vols. 11.01 and 11.02, 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.

(5) Methods 3113B, 3114B, 3111D, and 3111B may be found in "18th Edition of Standard Methods for the Examination of Water and Wastewater", 1992, or "19th Edition of Standard Methods for the Examination of Water and Wastewater", 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 3120B, 4500-CN^-C, 4500-CN^-G, 4500-CN^-E, 4500-CN^-F, 4110B, 4500F^-B, 4500-F-D, 4500F^-C, 4500F^-E, 3112B, 4500-NO_3-F, 4500-NO_3-D, 4500-NO_3-E, and 4500-NO_2-B may be found in "18th Edition of Standard Methods for the Examination of Water and Wastewater", 1992, "19th Edition of Standard Methods for the Examination of Water and Wastewater", 1995, or "20th Edition of Standard Methods for the Examination of Water and Wastewater", 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) Method I-3300-85 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.
(8) Methods 335.4, 300.0, and 353.2 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.
(9) Method 601 may be found in Technical Bulletin 601 "Standard Method of Test for Nitrate in Drinking Water", July 1994, PN 221890-001, Analytical Technology, Inc., available from ATI Orion, 529 Main Street, Boston, Massachusetts 02129.
(10) Method B-1011 may be found in "Waters Test Method for Determination of Nitrate/Nitrite in Water Using Single Column Ion Chromatography", August 1987, available from Waters Corporation, 34 Maple Street, Milford, Massachusetts 01757.
(11) Method 100.1 may be found in "Analytical Methods for Determination of Asbestos Fibers in Water", EPA-600/4-83-043, EPA, September 1983, available from NTIS, PB83-260471.
(12) Method 100.2 may be found in "Determination of Asbestos Structure Over 10-µm in Length in Drinking Water", EPA-600/R-94-134, June 1994, available from NTIS, PB94-201902.
(13) Method 129-71W may be found in "Fluoride in Water and Wastewater", December 1972, Technicon Industrial Systems, available from Bran & Luebbe, 1025 Busch Parkway, Buffalo Grove, Illinois 60089.
(14) Method 380-75WE may be found in "Fluoride in Water and Wastewater", February 1976, Technicon Industrial Systems, available from Bran & Luebbe, 1025 Busch Parkway, Buffalo Grove, Illinois 60089.
(15) Method Kelada 01 may be found in "Kelada Automated Test Methods for Total Cyanide, Acid Dissolvable Cyanide, and Thiocyanate", Rev 1.2, August 2001, EPA 821-B-01-099, available from the National Technical Information Service (NTIS), PB 2001-108275, 5285 Port Royal Road, Springfield, Virginia 22161, 800-553-6847.
(16) Method QuikChem 10-204-00-1-X may be found in "Digestion and distillation of total cyanide in drinking and wastewaters using MICRO DIST and determination of cyanide by flow injection analysis", Rev 2.1, November 30, 2000, available from Lachat Industries, 6645 West Mill Road, Milwaukee, Wisconsin 53218, 414-358-4200.

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 Division; 327 IAC 8-2-4.2; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1008; errata filed Aug 6, 1991, 3:45 p.m.: 14 IR 2258; filed Aug 24, 1994, 8:15 a.m.: 18 IR 29; errata filed Oct 11, 1994, 2:45 p.m.: 18 IR 531; filed Aug 25, 1997, 8:00 a.m.: 21 IR 40; filed Jul 23, 2001, 1:02 p.m.: 24 IR 3951; filed Jun 13, 2005, 2:30 p.m.: 28 IR 3196; errata filed Jul 6, 2005, 3:15 p.m.: 28 IR 3582; errata filed Aug 22, 2005, 2:55 p.m.: 29 IR 30)*

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 CWSs and NTNCWSs:

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 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 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 Division; 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; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)

327 IAC 8-2-5.1 Collection of samples for organic chemical testing other than volatile organic compounds and total trihalomethanes

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. 5.1. To determine compliance with section 5(a) of this rule, collection of samples for organic chemical testing, other than volatile organic compounds and TTHMs, shall be made as follows:

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

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

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

(4) The monitoring frequency is as follows:

(A) Each CWS and NTNCWS shall take four (4) consecutive quarterly samples for each contaminant listed in section 5(a) of this rule during each compliance period beginning with the initial compliance period.

(B) Systems serving more than three thousand three hundred (3,300) persons that do not detect a contaminant in the initial compliance period may reduce the sampling frequency to a minimum of two (2) quarterly samples in one (1) year during each repeat compliance period.

(C) Systems serving less than or equal to three thousand three hundred (3,300) persons that do not detect a contaminant in the initial compliance period may reduce the sampling frequency to a minimum of one (1) sample during each repeat compliance period.

(5) Each CWS and NTNCWS may apply to the commissioner for a waiver from the requirement of subdivision (4). A system must reapply for a waiver for each compliance period.

(6) The commissioner may grant a waiver after evaluating the knowledge of previous use, including transport, storage, or disposal of the contaminant within the watershed or zone of influence of the system. If a determination by the commissioner

reveals no previous use of the contaminant within the watershed or zone of influence, a waiver may be granted. If previous use of the contaminant is unknown or it has been used previously, then the following factors shall be used to determine whether a waiver is granted:

(A) Previous analytical results.

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

(C) The environmental persistence and transport of the pesticide or polychlorinated biphenyls (PCBs).

(D) How well the water source is protected against contamination due to such factors as:

(i) depth of the well;

(ii) the type of soil; and

(iii) the integrity of the well casing.

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

(F) Use of PCBs in equipment used in the production, storage, or distribution of water, including, but not limited to, PCBs used in pumps or transformers.

(7) If an organic contaminant listed in section 5(a) of this rule is detected as defined by subdivision (16), in any sample, then the monitoring requirements are as follows:

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

(B) The commissioner may decrease the quarterly monitoring requirement specified in clause (A) provided it has determined that the system is reliably and consistently below the MCL. In no case shall the commissioner make this determination unless a ground water system takes a minimum of two (2) quarterly samples and a surface water system takes a minimum of four (4) quarterly samples.

(C) After the commissioner determines the system is reliably and consistently below the MCL, the commissioner may allow the system to monitor annually. Systems that monitor annually must monitor during the quarter that previously yielded the highest analytical result.

(D) Systems that have three (3) consecutive annual samples with no detection of contaminant may apply to the commissioner for a waiver as specified in subdivision (6).

(E) If monitoring results in detection of one (1) or more of certain related contaminants:

(i) aldicarb;

(ii) aldicarb sulfoxide;

(iii) aldicarb sulfone;

(iv) heptachlor; and

(v) heptachlor epoxide;

then subsequent monitoring shall include analyses for all related contaminants.

(8) Systems that violate section 5(a) of this rule as determined by subdivision (11) must monitor quarterly. After a minimum of four (4) quarterly samples shows the system is in compliance and the commissioner determines the system is reliably and consistently below the MCL, as specified in subdivision (11), the system shall monitor at the frequency specified in subdivision (7)(C).

(9) The commissioner may require a confirmation sample for positive or negative results. If a confirmation sample is required by the commissioner, the result must be averaged with the first sampling result and the average used for the compliance determination as specified in subdivision (11). The commissioner has the discretion to delete results of obvious sampling errors from this calculation.

(10) The commissioner may reduce the total number of samples a system must analyze by allowing the use of compositing. Composite samples from a maximum of five (5) sampling points are allowed, provided that the detection limit of the method used for analysis is less than one-fifth ($^1/_5$) of the MCL. Compositing of samples must be done in the laboratory and analyzed within fourteen (14) days of sample collection in accordance with the following:

(A) When a composite sample is analyzed, if the concentration in the composite sample detects one (1) or more

contaminants listed in section 5(a) of this rule, then a follow-up sample must be analyzed within fourteen (14) days from each sampling point included in the composite and analyzed for that contaminant.

(B) If duplicates of the original sample taken from each sampling point used in the composite samples are available, the system may use these instead of resampling. The duplicates must be analyzed and the results reported to the commissioner within fourteen (14) days after completion of the composite analysis or before the holding time for the initial sample is exceeded, whichever is sooner.

(C) If the population served by the system is greater than three thousand three hundred (3,300) persons, then compositing may only be permitted by the commissioner at sampling points within a single system. In systems serving less than or equal to three thousand three hundred (3,300) persons, the commissioner may permit compositing among different systems provided the five (5) sample limit is maintained.

(11) Compliance with section 5(a) of this rule shall be determined such that, if one (1) sampling point is in violation of an MCL, the system is in violation of the MCL and based on the analytical results obtained at each sampling point in the following manner:

(A) For systems that are conducting monitoring at a frequency greater than annual, compliance is determined by a running annual average of all samples taken at each sampling point.

(B) Systems monitoring annually, or less frequently, whose sample results exceed the regulatory detection level as specified in subdivision (16) must begin quarterly sampling. The system will not be considered in violation of the MCL until it has completed one (1) year of quarterly sampling.

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

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

(E) If a sample result is less than the detection limit, zero (0) will be used to calculate the annual average.

(12) If monitoring data collected after January 1, 1990, are generally consistent with this section and section 5.2 of this rule, then the commissioner may allow systems to use that data to satisfy the monitoring requirement for the initial compliance period.

(13) The commissioner may increase the required monitoring frequency, where necessary, to detect variations within the system such as fluctuations in concentration due to seasonal use and changes in water source.

(14) The commissioner has the authority to determine compliance or initiate enforcement action based upon analytical results and other information compiled by the commissioner's sanctioned representatives or agencies, or both.

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

(16) Method detection levels for contaminants listed in section 5(a) of this rule are as follows:

Contaminant	Detection Limit (mg/l)
Alachlor	0.0002
Atrazine	0.0001
Benzo[a]pyrene	0.00002
Carbofuran	0.0009
Chlordane	0.0002
Dalapon	0.001
1,2-dibromo-3-chloropropane (DBCP)	0.00002
Di(2-ethylhexyl)adipate	0.0006
Di(2-ethylhexyl)phthalate	0.0006
Dinoseb	0.0002
Diquat	0.0004
2,4-D	0.0001
Endothall	0.009
Endrin	0.00001

Ethylene dibromide (EDB)	0.00001
Glyphosate	0.006
Heptachlor	0.00004
Heptachlor epoxide	0.00002
Hexachlorobenzene	0.0001
Hexachlorocyclopentadiene	0.0001
Lindane	0.00002
Methoxychlor	0.0001
Oxamyl	0.002
Picloram	0.0001
Polychlorinated biphenyls (PCBs) (as decachlorobiphenyl)	0.0001
Pentachlorophenol	0.00004
Simazine	0.00007
Toxaphene	0.001
2,3,7,8-TCDD (dioxin)	0.000000005
2,4,5-TP (silvex)	0.0002

(17) All new systems or systems that use a new source of water that begin operation after January 1, 2004, must demonstrate compliance with the MCL within a period of time specified by the commissioner. The system must also comply with the initial sampling frequencies specified by the commissioner to ensure a system can demonstrate compliance with the MCL. Routine and increased monitoring frequencies shall be conducted in accordance with the requirements in this section.

(Water Pollution Control Division; 327 IAC 8-2-5.1; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1010; filed Aug 24, 1994, 8:15 a.m.: 18 IR 33; errata filed Oct 11, 1994, 2:45 p.m.: 18 IR 531; filed Aug 25, 1997, 8:00 a.m.: 21 IR 44; filed Apr 21, 1999, 3:22 p.m.: 22 IR 2862; errata filed Apr 28, 1999, 6:36 p.m.: 22 IR 2883; filed Jul 23, 2001, 1:02 p.m.: 24 IR 3953; filed Nov 20, 2001, 10:20 a.m.: 25 IR 1084; filed Jun 13, 2005, 2:30 p.m.: 28 IR 3198)

327 IAC 8-2-5.2 Analytical methods for organic chemical testing other than volatile organic compounds and total trihalomethanes

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. 5.2. (a) Analysis for the contaminants listed in section 5(a) of this rule shall be conducted using the following EPA methods or their equivalents as approved by EPA established as follows:

(1) Dioxin, as described in Method 1613*.

(2) 2,4-D[3] (as acid, salts, and esters), as described in Method 515.2, Rev 1.1*, Method 555, Rev 1.0*, Method 515.1, Rev 4.0*, Method 515.3*, or Method D 5317-93*.

(3) 2,4,5-TP[3] (silvex), as described in Method 515.2, Rev 1.1*, Method 555, Rev 1.0*, Method 515.1, Rev 4.0*, Method 515.3*, or Method D 5317-93*.

(4) Alachlor[1], as described in Method 505, Rev 2.1*, Method 507, Rev 2.1*, Method 525.2, Rev 2.0*, Method 508.1, Rev 2.0*, or Method 551.1, Rev 1.0*.

(5) Atrazine[1], as described in Method 505, Rev 2.1*, Method 507, Rev 2.1*, Method 525.2, Rev 2.0*, Method 508.1, Rev 2.0*, or Method 551.1, Rev 1.0*.

(6) Benzo(a)pyrene, as described in Method 525.2, Rev 2.0*, Method 550*, or Method 550.1*.

(7) Carbofuran, as described in Method 531.1, Rev 3.1*, or Method 6610*.

(8) Chlordane, as described in Method 505, Rev 2.1*, Method 508, Rev 3.1*, Method 525.2, Rev 2.0*, or Method 508.1, Rev 2.0*.

(9) Dalapon, as described in Method 552.1, Rev 1.0*, Method 515.1, Rev 4.0*, Method 552.2, Rev 1.0*, or Method 515.3, Rev 1.0*.

(10) Di(2-ethylhexyl)adipate, as described in Method 506, Rev 1.1* or Method 525.2, Rev 2.0*.
(11) Di(2-ethylhexyl)phthalate, as described in Method 506, Rev 1.1* or Method 525.2, Rev 2.0*.
(12) Dibromochloropropane (DBCP), as described in Method 504.1, Rev 1.1* or Method 551.1, Rev 1.0*.
(13) Dinoseb[3], as described in Method 515.2, Rev 1.1*, Method 555, Rev 1.0*, Method 515.1, Rev 4.0*, or Method 515.3, Rev 1.0*.
(14) Diquat, as described in Method 549.2, Rev 1.0*.
(15) Endothall, as described in Method 548.1, Rev 1.0*.
(16) Endrin, as described in Method 505, Rev 2.1*, Method 508, Rev 3.1*, Method 525.2, Rev 2.0*, Method 508.1, Rev 2.0*, or Method 551.1, Rev 1.0*.
(17) Ethylene dibromide (EDB), as described in Method 504.1, Rev 1.1* or Method 551.1, Rev 1.0*.
(18) Glyphosate, as described in Method 547* or Method 6651*.
(19) Heptachlor, as described in Method 505, Rev 2.1*, Method 508, Rev 3.1*, Method 525.2, Rev 2.0*, Method 508.1, Rev 2.0*, or Method 551.1, Rev 1.0*.
(20) Heptachlor epoxide, as described in Method 505, Rev 2.1*, Method 508, Rev 3.1*, Method 525.2, Rev 2.0*, Method 508.1, Rev 2.0*, or Method 551.1, Rev 1.0*.
(21) Hexachlorobenzene, as described in Method 505, Rev 2.1*, Method 508, Rev 3.1*, Method 525.2, Rev 2.0*, Method 508.1, Rev 2.0*, or Method 551.1, Rev 1.0*.
(22) Hexachlorocyclopentadiene, as described in Method 505, Rev 2.1*, Method 508, Rev 3.1*, Method 525.2, Rev 2.0*, Method 508.1, Rev 2.0*, or Method 551.1, Rev 1.0*.
(23) Lindane, as described in Method 505, Rev 2.1*, Method 508, Rev 3.1*, Method 525.2, Rev 2.0*, Method 508.1, Rev 2.0*, or Method 551.1, Rev 1.0*.
(24) Methoxychlor, as described in Method 505, Rev 2.1*, Method 508, Rev 3.1*, Method 525.2, Rev 2.0*, Method 508.1, Rev 2.0*, or Method 551.1, Rev 1.0*.
(25) Oxymyl, as described in Method 531.1, Rev 3.1* or Method 6610*.
(26) PCBs[1]:
(A) as decachlorobiphenyl, as described in Method 508A, Rev 1.0*; or
(B) as arochlors, as described in Method 505, Rev 2.1*, Method 508, Rev 3.1*, Method 525.2, Rev 2.0*, or Method 508.1, Rev 2.0*.
(27) Pentachlorophenol, as described in Method 515.2, Rev 1.1*, Method 525.2, Rev 2.0*, Method 555, Rev 1.0*, Method 515.1, Rev 4.0*, Method 515.3, Rev 1.0*, or Method D 5317-93*.
(28) Picloram[3], as described in Method 515.2, Rev 1.1*, Method 555, Rev 1.0*, Method 515.1, Rev 4.0*, Method 515.3, Rev 1.0*, or Method D 5317-93*.
(29) Simazine[1], as described in Method 505, Rev 2.1*, Method 507, Rev 2.1*, Method 525.2, Rev 2.0*, Method 508.1, Rev 2.0*, or Method 551.1, Rev 1.0*.
(30) Toxaphene, as described in Method 505, Rev 2.1*, Method 508, Rev 3.1*, Method 525.2, Rev 2.0*, or Method 508.1, Rev 2.0*.

[1]Substitution of the detector specified in Method 505, Rev 2.1, Method 507, Rev 2.1, Method 508, Rev 3.1, or Method 508.1, Rev 3.0 for the purpose of achieving lower detection limits is allowed as follows. Either an electron capture or nitrogen phosphorus detector may be used provided all regulatory requirements and quality control criteria are met.

[2]PCBs are qualitatively identified as Arochlors and measured for compliance purposes as decachlorobiphenyl. Users of Method 505, Rev 2.1 may have more difficulty in achieving the required detection limits than users of Method 508.1, Rev 2.0, Method 525.2, Rev 2.0 or Method 508, Rev 3.1.

[3]Accurate determination of the chlorinated esters requires hydrolysis of the sample as described in Method 515.1, Method 515.2, Rev 1.1, Method 515.3, Method 555, and Method D 5317-93.

(b) Analysis for PCBs shall be conducted as follows using the methods in subsection (a):
(1) Each system that monitors for PCBs shall analyze each sample using either Method 505, Rev 2.1*, Method 508, Rev 3.1*, Method 508.1, Rev 2.0*, or Method 525.2, Rev 2.0*. Users of Method 505, Rev 2.1 may have more difficulty in achieving the required Arochlor detection limits than users of Method 508.1, Rev 2.0, Method 525.2, Rev 2.0 or Method 508, Rev 3.1.

(2) If PCBs (as one (1) of seven (7) arochlors) are detected, as designated as follows, in any sample analyzed using Method 505, Rev 2.1* or Method 508, Rev 3.1*, the system shall reanalyze the sample using Method 508A* to quantitate PCBs (as decachlorobiphenyl):

Arochlor	Detection Limit (mg/l)
1016	0.00008
1221	0.02
1232	0.0005
1242	0.0003
1248	0.0001
1254	0.0001
1260	0.0002

(3) Compliance with the PCB MCL shall be determined based upon the quantitative results of analyses using Method 508A*.

(c) Analysis under this section shall only be conducted by laboratories that have received certification by EPA or the commissioner and have met the following conditions:

(1) Successfully analyze PE samples provided by the EPA, the commissioner, or by a third party with the approval of the EPA or the commissioner, at least once per year by each method for which the laboratory desires certification.

(2) For each contaminant that has been included in the PE sample achieve quantitative results on the analyses that are within the following acceptance limits:

Contaminant	Acceptance Limits (Percent)
DBCP	±40
EDB	±40
Alachlor	±45
Atrazine	±45
Benzo(a)pyrene	2 standard deviations
Carbofuran	±45
Chlordane	±45
Dalapon	2 standard deviations
Di(2-ethylhexyl)adipate	2 standard deviations
Di(2-ethylhexyl)phthalate	2 standard deviations
Dinoseb	2 standard deviations
Diquat	2 standard deviations
Endothall	2 standard deviations
Endrin	±30
Glyphosate	2 standard deviations
Heptachlor	±45
Heptachlor epoxide	±45
Hexachlorobenzene	2 standard deviations
Hexachlorocyclopentadiene	2 standard deviations
Lindane	±45
Methoxychlor	±45
Oxamyl	2 standard deviations
PCBs (as decachlorobiphenyl)	0-200
Picloram	2 standard deviations
Simazine	2 standard deviations
Toxaphene	±45

Pentachlorophenol	±50
2,3,7,8-TCDD (dioxin)	2 standard deviations
2,4-D	±50
2,4,5-TP (silvex)	±50

*The methods referenced in this section may be obtained as follows:

(1) Method 508A, Rev 1.0 and Method 515.1, Rev 4.0 may be found in "Methods for the Determination of Organic Compounds in Drinking Water", EPA-600/4-88-039, December 1988, revised July 1991, available from NTIS, PB91-231480, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, (800) 553-6847.

(2) Methods 547, 550, and 550.1 may be found in "Methods for the Determination of Organic Compounds in Drinking Water–Supplement I", EPA-600-4-90-020, July 1990, available from NTIS, PB91-146027, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, (800) 553-6847.

(3) Methods 548.1, Rev 1.0, 552.1, Rev 1.0, and 555, Rev 1.0 may be found in "Methods for the Determination of Organic Compounds in Drinking Water–Supplement II", EPA-600/R-92-129, August 1992, available from NTIS, PB92-207703, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, (800) 553-6847.

(4) Methods 504.1, Rev 1.1, 505, Rev 2.1, 506, Rev 1.1, 507, Rev 2.1, 508, Rev 3.1, 508.1, Rev 2.0, 515.2, Rev 1.1, 525.2, Rev 2.0, 531.1, Rev 3.1, 551.1, Rev 1.0, and 552.2, Rev 1.0 may be found in "Methods for the Determination of Organic Compounds in Drinking Water - Supplement III", EPA-600/R-95-131, August 1995, available from NTIS, PB95-261616, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, (800) 553-6847.

(5) Method 1613 may be found in "Tetra-through Octa-Chlorinated Dioxins and Furans by Isotope Dilution HRGC/HRMS", EPA 821-B-94-005, October 1994, available from NTIS, PB95-104774, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, (800) 553-6847.

(6) Method 6651 may be found in "18th Edition of Standard Methods for the Examination of Water and Wastewater", "19th Edition of Standard Methods for the Examination of Water and Wastewater", and "20th Edition of Standard Methods for the Examination of Water and Wastewater", 1992, 1995, and 1998, American Public Health Association, available from the American Public Health Association, 1015 Fifteenth Street NW, Washington, D.C. 20005. Any of these three (3) editions may be used.

(7) Method 6610 may be found in "Supplement to the 18th Edition of Standard Methods for Water and Wastewater", "19th Edition of Standard Methods for the Examination of Water and Wastewater", or "20th Edition of Standard Methods for the Examination of Water and Wastewater", 1994, 1995, and 1998, American Public Health Association, available from the National Public Health Association, 1015 Fifteenth Street NW, Washington, D.C. 20005. Any of these three (3) publications may be used.

(8) Other required analytical test procedures germane to the conduct of these analyses are contained in "Technical Notes of Drinking Water Methods", EPA/600/R-94-173, October 1994, available from NTIS, PB95-104766, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, (800) 553-6847.

(9) EPA Methods 515.3, Rev 1.0 and 549.2, Rev 1.0 may be found in "Methods for the Determination of Organic and Inorganic Compounds in Drinking Water, Volume 1", 2000, EPA 815-R-00-014, available from U.S. EPA/NSCEP, Post Office Box 42419, Cincinnati, Ohio 42419, (800) 490-9198.

(10) ASTM Method D 5317-93 may be found in the "Annual Book of ASTM Standards", 1999, Vol. 11.02, available from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428. Method D 5317-93 may also be found in any other edition of the "Annual Book of ASTM Standards" published from 1993 until the effective date of this rule.

(11) Method 531.2, "Measurement of N-methylcarbamoyloximes and N-methylcarbamates in Water by Direct Aqueous Inactivation HPLC with Postcolumn Derivatization", Rev 1.0, September 2001, EPA 815/B/01/002 can be assessed and downloaded directly on-line at www.epa.gov/safewater/methods/sorcalt.html.

These methods 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 Division; 327 IAC 8-2-5.2; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1011; errata filed Aug 6, 1991, 3:45 p.m.: 14 IR 2258; filed Aug 24, 1994, 8:15 a.m.: 18 IR 35; errata filed Oct 11, 1994, 2:45 p.m.: 18 IR 531; filed Aug 25, 1997, 8:00 a.m.: 21 IR 46; errata filed Dec 10, 1997, 3:45 p.m.: 21 IR 1347; filed Jul 23, 2001, 1:02 p.m.: 24 IR 3956; filed Jun 13, 2005, 2:30 p.m.: 28 IR 3200; errata filed Jul 6, 2005, 3:15 p.m.:*

28 IR 3582)

327 IAC 8-2-5.3 Collection of samples for total trihalomethanes testing; community water systems (Repealed)

Sec. 5.3. *(Repealed by Water Pollution Control Division; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)*

327 IAC 8-2-5.4 Volatile organic compounds; maximum contaminant levels for community water systems and nontransient noncommunity water systems

Authority: IC 13-1-3-4; IC 13-7
Affected: IC 13-7

Sec. 5.4. (a) The following MCLs for volatile organic compounds (VOCs) apply to community water systems and nontransient noncommunity water systems:

CAS No.	Contaminant	Level in Milligrams Per Liter
71-43-2	Benzene	0.005
75-01-4	Vinyl chloride	0.002
56-23-5	Carbon tetrachloride	0.005
107-06-2	1,2-dichloroethane	0.005
79-01-6	Trichloroethylene	0.005
75-35-4	1,1-dichloroethylene	0.007
71-55-6	1,1,1-trichloroethane	0.2
106-46-7	para-dichlorobenzene	0.075
156-59-2	cis-1,2-dichloroethylene	0.07
78-87-5	1,2-dichloropropane	0.005
100-41-4	Ethylbenzene	0.7
108-90-7	Monochlorobenzene	0.1
95-50-1	ortho-dichlorobenzene	0.6
100-42-5	Styrene	0.1
127-18-4	Tetrachloroethylene	0.005
108-88-3	Toluene	1
156-60-5	trans-1,2-dichloroethylene	0.1
1330-20-7	Xylenes (total)	10
75-09-2	Dichloromethane	0.005
120-82-1	1,2,4-trichlorobenzene	0.07
79-00-5	1,1,2-trichloroethane	0.005

(b) BAT for achieving compliance with the MCL for the volatile organic compounds listed in subsection (a) is:

(1) central treatment using packed tower aeration except toluene;

(2) central treatment using granular activated carbon for each chemical except vinyl chloride and dichloromethane; or

(3) other means available for achieving compliance with the maximum contaminant levels identified in subsection (a).

(c) Monitoring frequency and compliance with MCLs for VOCs are determined under section 5.5 of this rule. *(Water Pollution Control Division; 327 IAC 8-2-5.4; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1013; filed Aug 24, 1994, 8:15 a.m.: 18 IR 39)*

327 IAC 8-2-5.5 Collection of samples for volatile organic compound testing other than total trihalomethanes; community and nontransient noncommunity 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. 5.5. CWSs and NTNCWSs shall collect samples for volatile organic compound testing in order to determine compliance with section 5.4 of this rule, beginning with the initial compliance period, as follows:

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

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

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

(4) Each CWS and NTNCWS shall take four (4) consecutive quarterly samples for each contaminant listed in section 5.4 of this rule, except vinyl chloride, during each compliance period, beginning in the initial compliance period.

(5) If the initial monitoring for contaminants listed in section 5.4 of this rule, as allowed by subdivision (16), has been completed by December 31, 1992, and the system did not detect any contaminant listed in section 5.4 of this rule, then each ground and surface water system shall take one (1) sample annually beginning with the initial compliance period.

(6) After a minimum of three (3) years of annual sampling, the commissioner may allow ground water systems with no previous detection of any contaminant listed in section 5.4 of this rule to take one (1) sample during each compliance period.

(7) Each community and nontransient noncommunity ground water system that does not detect a contaminant listed in section 5.4 of this rule may apply to the commissioner for a waiver from the requirements of subdivisions (5) and (6) after completing the initial monitoring. As used in this section, "detection" means greater than or equal to five ten-thousandths (0.0005) milligram per liter. A waiver shall be effective for no more than six (6) years (two (2) compliance periods). The commissioner may also issue waivers to small systems for the initial round of monitoring for 1,2,4-trichlorobenzene.

(8) The commissioner may grant a waiver after evaluating the following factors:

(A) Knowledge of previous use (including transport, storage, or disposal) of the contaminant within the watershed or zone of influence of the system. If a determination by the commissioner reveals no previous use of the contaminant within the watershed or zone of influence, a waiver may be granted.

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

(i) Previous analytical results.

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

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

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

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

(9) As a condition of the waiver, a ground water system must take one (1) sample at each sampling point during the time the waiver is effective, for example, one (1) sample during two (2) compliance periods or six (6) years, and update its vulnerability assessment considering the factors listed in subdivision (8). Based on this vulnerability assessment, the

commissioner must reconfirm that the system is nonvulnerable. If the commissioner does not make this reconfirmation within three (3) years of the initial determination, then the waiver is invalidated and the system is required to sample annually as specified in subdivision (5).

(10) Each community and nontransient noncommunity surface water system that does not detect a contaminant listed in section 5.4 of this rule may apply to the commissioner for a waiver from subdivision (5) after completing the initial monitoring. Composite samples from a maximum of five (5) sampling points are allowed provided that the detection limit of the method used for analysis is less than one-fifth ($^1/_5$) of the MCL. Systems meeting this criterion must be determined by the commissioner to be nonvulnerable based on a vulnerability assessment during each compliance period. Each system receiving a waiver shall sample at the frequency specified by the commissioner (if any).

(11) If a contaminant listed in section 5.4 of this rule, except vinyl chloride, is detected at a level exceeding five ten-thousandths (0.0005) milligram per liter in any sample, then the monitoring requirements will be as follows:

(A) The system must monitor quarterly at each sampling point that resulted in a detection.

(B) The commissioner may decrease the quarterly monitoring requirement specified in clause (A) provided it has determined that the system is reliably and consistently below the MCL. In no case shall the commissioner make this determination unless a ground water system takes a minimum of two (2) quarterly samples and a surface water system takes a minimum of four (4) quarterly samples.

(C) If the commissioner determines that the system is reliably and consistently below the MCL, the commissioner may allow the system to monitor annually. Systems that monitor annually must monitor during the quarter or quarters that previously yielded the highest analytical result.

(D) Systems that have three (3) consecutive annual samples with no detection of a contaminant may apply to the commissioner for a waiver as specified in subdivision (7).

(E) Ground systems that have detected one (1) or more two-carbon organic compounds:

(i) trichloroethylene;
(ii) tetrachloroethylene;
(iii) 1,2-dichloroethane;
(iv) 1,1,1-trichloroethane;
(v) cis-1,2-dichloroethylene;
(vi) trans-1,2-dichloroethylene; or
(vii) 1,1-dichloroethylene;

shall monitor quarterly for vinyl chloride. A vinyl chloride sample shall be taken at each sampling point at which one (1) or more of the two-carbon organic compounds was detected. If the results of the first analysis do not detect vinyl chloride, the commissioner may reduce the quarterly monitoring frequency of vinyl chloride monitoring to one (1) sample during each compliance period. Surface water systems are required to monitor for vinyl chloride as specified by the commissioner.

(12) Systems that violate section 5.4 of this rule, as determined by subdivision (15), must monitor quarterly. After a minimum of four (4) consecutive quarterly samples that show the system is in compliance as specified in subdivision (15) if the commissioner determines that the system is reliably and consistently below the MCL, the system may monitor at the frequency and times specified in subdivision (11)(C).

(13) The commissioner may require a confirmation sample for positive or negative results. If a confirmation sample is required by the commissioner, the result must be averaged with the first sampling result and the average is used for the compliance determination as specified by subdivision (15). The commissioner has the discretion to delete results of obvious sampling errors from this calculation.

(14) The commissioner may reduce the total number of samples a system must analyze by allowing the use of compositing. Composite samples from a maximum of five (5) sampling points are allowed, provided that the detection limit of the method used for analysis is less than one-fifth ($^1/_5$) of the MCL. Compositing of samples must be done in the laboratory and analyzed within fourteen (14) days of sample collection as follows:

(A) If the concentration in the composite sample is greater than or equal to five ten-thousandths (0.0005) milligram per liter for any contaminant listed in section 5.4 of this rule, then a follow-up sample must be analyzed within fourteen (14) days from each sampling point included in the composite, and be analyzed for that contaminant.

(B) If duplicates of the original sample taken from each sampling point used in the composite sample are available, the system may use the duplicates instead of resampling. The duplicates must be analyzed and the results reported to the commissioner within fourteen (14) days after completing analysis of the composite sample, provided the holding time of the sample is not exceeded.

(C) Compositing may only be permitted by the commissioner at sampling points within a single system if the population served by the system is greater than three thousand three hundred (3,300) persons. In systems serving less than or equal to three thousand three hundred (3,300) persons, the commissioner may permit compositing among different systems provided the five (5) sample limit is maintained.

(D) Compositing of samples prior to gas chromatography (GC) analysis shall be as follows:

(i) Add five (5) milliliters or equal larger amounts of each sample (up to five (5) samples are allowed) to a twenty-five (25) milliliter glass syringe. Special precautions must be made to maintain zero (0) headspace in the syringe.

(ii) The samples must be cooled at four (4) degrees Celsius during this step to minimize volatilization losses.

(iii) Mix well and draw out a five (5) milliliter aliquot for analysis.

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

(v) If less than five (5) samples are used for compositing, a proportionately smaller syringe may be used.

(E) Compositing of samples prior to gas chromatography/mass spectrometry (GS/MS) analysis shall be as follows:

(i) Inject five (5) milliliters or larger amounts of each aqueous solution (up to five (5) samples are allowed) into a twenty-five (25) milliliter purging device using the sample introduction technique described in the method.

(ii) The total volume of the sample in the purging device must be twenty-five (25) milliliters.

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

(15) Compliance with section 5.4 of this rule shall be determined such that, if one (1) sampling point is in violation of an MCL, the system is in violation of the MCL and based on the analytical results obtained at each sampling point using the following criteria:

(A) For systems that are conducting monitoring at a frequency greater than annually, compliance is determined by a running annual average of all samples taken at each sampling point.

(B) Systems monitoring annually, or less frequently, whose sample results exceed the MCL must begin quarterly sampling. The system will not be considered in violation of the MCL until it has completed one (1) year of quarterly sampling.

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

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

(E) If a sample result is less than the detection limit, zero (0) will be used to calculate the annual average.

(F) If a public water system has a distribution system separable from other parts of the distribution system with no interconnections, the commissioner may allow the system to give public notice to only that area served by that portion of the system that is out of compliance.

(16) The commissioner may allow the use of monitoring data collected after January 1, 1988, for purposes of initial monitoring compliance. If the data are generally consistent with the other requirements of this section, the commissioner may use these data (a single sample rather than four (4) quarterly samples) to satisfy the initial monitoring requirement of subdivision (4). Systems that use grandfathered samples and do not detect any contaminant listed in section 5.4 of this rule, except vinyl chloride, shall begin monitoring annually in accordance with subdivision (5), beginning with the initial compliance period.

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

(18) To receive certification to conduct analyses for the contaminants in section 5.4 of this rule, excluding vinyl chloride, each certified laboratory must meet the following requirements:

(A) Successfully analyze PE samples provided by EPA, the commissioner, or by a third party with the approval of EPA or the commissioner, at least once a year by each method for which the laboratory desires certification.

(B) Achieve the quantitative acceptance limits under clauses (C) and (D) for at least eighty percent (80%) of the

regulated organic chemicals in section 5.4 of this rule, excluding vinyl chloride.

(C) Achieve quantitative results on the analyses performed under clause (A) that are within plus or minus twenty percent (±20%) of the actual amount of the substances in the PE sample when the actual amount is greater than or equal to ten-thousandths (0.010) milligrams per liter.

(D) Achieve quantitative results on the analyses performed under clause (A) that are within plus or minus forty percent (±40%) of the actual amount of the substances in the PE sample when the actual amount is less than ten-thousandths (0.010) milligrams per liter.

(E) Achieve a method detection limit of five ten-thousandths (0.0005) milligram per liter, according to the procedures in 40 CFR 136, Appendix B*.

(19) To receive certification to conduct analyses for vinyl chloride, the laboratory must meet the following requirements:

(A) Successfully analyze PE samples provided by EPA, the commissioner, or by a third party with the approval of EPA or the commissioner, at least once a year by each method for which the laboratory desires certification.

(B) Achieve quantitative results on the analyses performed under clause (A) that are within plus or minus forty percent (±40%) of the actual amount of vinyl chloride in the PE sample.

(C) Achieve a method detection limit of five ten-thousandths (0.0005) milligram per liter, according to the procedures in 40 CFR 136, Appendix B*.

(D) Obtain certification for the contaminants listed in section 5.4 of this rule.

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

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

(22) The commissioner has the authority to determine compliance or initiate enforcement based upon analytical results or other information.

(23) All new systems or systems that use a new source of water that begin operation after January 1, 2004, must demonstrate compliance with the MCL within a period of time specified by the commissioner. The system must also comply with the initial sampling frequencies specified by the commissioner to ensure a system can demonstrate compliance with the MCL. Routine and increased monitoring frequencies shall be conducted in accordance with the requirements in this section.

40 CFR 136, Appendix B is incorporated by reference. Copies of this regulation may be obtained 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, Indianapolis, Indiana 46204. *(Water Pollution Control Division; 327 IAC 8-2-5.5; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1014; 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 Aug 24, 1994, 8:15 a.m.: 18 IR 39; errata filed Oct 11, 1994, 2:45 p.m.: 18 IR 531; filed Oct 24, 1997, 4:30 p.m.: 21 IR 936; filed Jul 23, 2001, 1:02 p.m.: 24 IR 3960; filed Nov 20, 2001, 10:20 a.m.: 25 IR 1089; filed Jun 13, 2005, 2:30 p.m.: 28 IR 3203; errata filed Jul 6, 2005, 3:15 p.m.: 28 IR 3582)*

327 IAC 8-2-5.6 Analytical methods for volatile organic compounds

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. 5.6. (a) Analysis for the contaminants listed in section 5.5 of this rule shall be conducted using the following U.S. EPA methods or their equivalent as approved by EPA:

(1) Benzene, as described in Method 502.2, Rev 2.1* or Method 524.2, Rev 4.1*.

(2) Carbon tetrachloride, as described in Method 502.2, Rev 2.1*, Method 524.2, Rev 4.1*, or Method 551.1, Rev 1.0*.

(3) Chlorobenzene, as described in Method 502.2, Rev 2.1* or Method 524.2, Rev 4.1*.

(4) 1,2-dichlorobenzene, as described in Method 502.2, Rev 2.1* or Method 524.2, Rev 4.1*.

(5) 1,4-dichlorobenzene, as described in Method 502.2, Rev 2.1* or Method 524.2, Rev 4.1*.

(6) 1,2-dichloroethane, as described in Method 502.2, Rev 2.1* or Method 524.2, Rev 4.1*.

(7) cis-dichloroethylene, as described in Method 502.2, Rev 2.1* or Method 524.2, Rev 4.1*.

(8) trans-dichloroethylene, as described in Method 502.2, Rev 2.1* or Method 524.2, Rev 4.1*.

(9) Dichloromethane, as described in Method 502.2, Rev 2.1* or Method 524.2, Rev 4.1*.

(10) 1,2-dichloropropane, as described in Method 502.2, Rev 2.1* or Method 524.2, Rev 4.1*.

(11) Ethylbenzene, as described in Method 502.2, Rev 2.1* or Method 524.2, Rev 4.1*.
(12) Styrene, as described in Method 502.2, Rev 2.1* or Method 524.2, Rev 4.1*.
(13) Tetrachloroethylene, as described in Method 502.2, Rev 2.1*, Method 524.2, Rev 4.1*, or Method 551.1, Rev 1.0*.
(14) 1,1,1-trichloroethane, as described in Method 502.2, Rev 2.1*, Method 524.2, Rev 4.1*, or Method 551.1, Rev 1.0*.
(15) Trichloroethylene, as described in Method 502.2, Rev 2.1*, Method 524.2, Rev 4.1*, or Method 551.1, Rev 1.0*.
(16) Toluene, as described in Method 502.2, Rev 2.1* or Method 524.2, Rev 4.1*.
(17) 1,2,4-trichlorobenzene, as described in Method 502.2, Rev 2.1* or Method 524.2, Rev 4.1*.
(18) 1,1-dichloroethylene, as described in Method 502.2, Rev 2.1* or Method 524.2, Rev 4.1*.
(19) 1,1,2-trichloroethane, as described in Method 502.2, Rev 2.1*, Method 524.2, Rev 4.1*, or Method 551.1, Rev 1.0*.
(20) Vinyl chloride, as described in Method 502.2, Rev 2.1* or Method 524.2, Rev 4.1*.
(21) Xylenes (total), as described in Method 502.2, Rev 2.1* or Method 524.2, Rev 4.1*.

(b) Analysis under this section shall only be conducted by laboratories that are certified by the commissioner or EPA under 40 CFR 141.28*.

(c) The following procedure shall be followed to composite samples prior to analysis:

(1) Compositing of samples prior to gas chromatography (GC) analysis shall be as follows:

(A) Add five (5) milliliters or equal larger amounts of each sample (up to five (5) samples are allowed) to a twenty-five (25) milliliter glass syringe. Special precautions must be made to maintain zero (0) headspace in the syringe.
(B) The samples must be cooled at four (4) degrees Celsius during this step to minimize volatilization losses.
(C) Mix well and draw out a five (5) milliliter aliquot for analysis.
(D) Follow sample introduction, purging, and desorption steps described in the method.
(E) If less than five (5) samples are used for compositing, a proportionately smaller syringe may be used.

(2) Compositing of samples prior to gas chromatography/mass spectrometry (GC/MS) analysis shall be as follows:

(A) Inject five (5) milliliters or equal larger amounts of each aqueous sample (up to five (5) samples are allowed) into a twenty-five (25) milliliter purging device using the sample introduction technique described in the method.
(B) The total volume of the sample in the purging device must be twenty-five (25) milliliters.
(C) Purge and desorb as described in the method.

*Methods referenced in this section may be obtained as follows:

(1) Method 551 may be found in "Methods for the Determination of Organic Compounds in Drinking Water–Supplement I", July 1990, EPA-600-4-90-020, available from NTIS, PB91-146027, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, (800) 553-6847.

(2) Methods 502.2, Rev 2.1, 524.2, Rev 4.1, and 551.1, Rev 1.0 may be found in "Methods for the Determination of Organic Compounds in Drinking Water - Supplement III", EPA/600/R-95-131, August 1995, available from NTIS, PB95-261616, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, (800) 553-6847.

(3) 40 CFR 141.28 may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402.

These methods 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 Division; 327 IAC 8-2-5.6; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1015; errata filed Aug 6, 1991, 3:45 p.m.: 14 IR 2258; filed Aug 24, 1994, 8:15 a.m.: 18 IR 44; errata filed Oct 11, 1994, 2:45 p.m.: 18 IR 531; filed Oct 24, 1997, 4:30 p.m.: 21 IR 939; filed Jul 23, 2001, 1:02 p.m.: 24 IR 3963; errata filed Feb 6, 2006, 11:15 a.m.: 29 IR 1937)*

327 IAC 8-2-6 Turbidity; maximum contaminant level (effective until June 28, 1993) (Repealed)

Sec. 6. *(Repealed by Water Pollution Control Division; filed Jul 23, 2001, 1:02 p.m.: 24 IR 3985)*

327 IAC 8-2-6.1 Collection of samples for turbidity testing (effective until June 28, 1993) (Repealed)

Sec. 6.1. *(Repealed by Water Pollution Control Division; filed Jul 23, 2001, 1:02 p.m.: 24 IR 3985)*

327 IAC 8-2-7 Microbiological contaminants; maximum contaminant levels for all public 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 13-11-2; IC 13-14-8; IC 13-18-1; IC 13-18-2

Sec. 7. (a) The microbiological MCL applies to all public water systems and is based on the presence or absence of total coliforms in a sample, rather than coliform density. For a system:

(1) which collects at least forty (40) samples per month, if no more than five percent (5%) of the samples collected during a month are total coliform-positive, the system is in compliance with the MCL for total coliforms; or

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

(b) Any fecal coliform-positive repeat sample or E. coli-positive repeat sample, or any total coliform-positive repeat sample following a fecal coliform-positive or E. coli-positive routine sample, constitutes a violation of the MCL for total coliforms. For purposes of the public notification requirements in 327 IAC 8-2.1-7 through 327 IAC 8-2.1-16, this is a violation that may pose an acute risk to health.

(c) A public water system must determine compliance with the MCL for total coliforms in subsections (a) and (b) for each month in which it is required to monitor for total coliforms.

(d) The following are BAT for achieving compliance with the MCL for total coliforms in subsections (a) and (b):

(1) Protection of wells from coliform contamination by appropriate placement and construction.

(2) Maintenance of a disinfectant residual throughout the distribution system.

(3) Proper maintenance of the distribution system, including appropriate pipe replacement and repair procedures, main flushing programs, proper operation and maintenance of storage tanks and reservoirs, and continual maintenance of positive water pressure in all parts of the distribution system.

(4) Filtration and/or disinfection of surface water, as described in sections 8.5 and 8.6 of this rule, or disinfection of ground water using strong oxidants such as chlorine, chlorine dioxide, or ozone.

(5) For systems using ground water compliance with the requirements of an EPA approved wellhead protection program developed and implemented under Section 1428 of the Safe Drinking Water Act.

(Water Pollution Control Division; 327 IAC 8-2-7; filed Sep 24, 1987, 3:00 p.m.: 11 IR 707; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1018; filed Apr 12, 1993, 11:00 a.m.: 16 IR 2154; filed Nov 20, 2001, 10:20 a.m.: 25 IR 1092)

327 IAC 8-2-8 Collection of samples for total coliform bacteria testing

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. 8. (a) Public water systems must collect total coliform samples at sites that are representative of water throughout the distribution system according to a written sample siting plan approved by the commissioner.

(b) The monitoring frequency for total coliforms for community water systems is based on the population served by the system and shall be as follows unless the commissioner determines that more frequent sampling is appropriate:

TOTAL COLIFORM MONITORING FREQUENCY FOR COMMUNITY WATER SYSTEMS

Population Served		Minimum Number of Samples Per Month
25	to 1,000[1]	1
1,001	to 2,500	2
2,501	to 3,300	3
3,301	to 4,100	4
4,101	to 4,900	5
4,901	to 5,800	6
5,801	to 6,700	7
6,701	to 7,600	8
7,601	to 8,500	9

8,501	to 12,900	10
12,901	to 17,200	15
17,201	to 21,500	20
21,501	to 25,000	25
25,001	to 33,000	30
33,001	to 41,000	40
41,001	to 50,000	50
50,001	to 59,000	60
59,001	to 70,000	70
70,001	to 83,000	80
83,001	to 96,000	90
96,001	to 130,000	100
130,001	to 220,000	120
220,001	to 320,000	150
320,001	to 450,000	180
450,001	to 600,000	210
600,001	to 780,000	240
780,001	to 970,000	270
970,001	to 1,230,000	300
1,230,001	to 1,520,000	330

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

If a community water system serving twenty-five (25) to one thousand (1,000) persons has no history of total coliform contamination in its current configuration and a sanitary survey conducted in the past five (5) years shows that the system is supplied solely by a protected ground water source and is free of sanitary defects, the commissioner may reduce the monitoring frequency specified in this subsection, in writing, except that in no case may the commissioner reduce the monitoring frequency to less than one (1) sample per quarter.

(c) The monitoring frequency for total coliforms for noncommunity water systems is as follows:

(1) A noncommunity water system:

(A) using only ground water (except ground water under the direct influence of surface water, as defined in section 1(36) of this rule); and

(B) serving one thousand (1,000) or fewer persons;

must monitor each calendar quarter that the system provides water to the public, except that the commissioner may reduce this monitoring frequency, in writing, if a sanitary survey shows that the system is free of sanitary defects. Beginning June 29, 1994, the commissioner shall not reduce the monitoring frequency for a noncommunity water system using only ground water (except ground water under the direct influence of surface water, as defined in section 1(36) of this rule) and serving one thousand (1,000) or fewer persons to less than once per year.

(2) A noncommunity water system:

(A) using only ground water (except ground water under the direct influence of surface water, as defined in section 1(36) of this rule); and

(B) serving more than one thousand (1,000) persons during any month;

must monitor at the same frequency as a like-sized community water system, as specified in subsection (b), except the commissioner may reduce this monitoring frequency, in writing, for any month the system serves one thousand (1,000) or fewer persons. The commissioner shall not reduce the monitoring frequency to less than once per year. For systems using ground water under the direct influence of surface water, subdivision (4) applies.

(3) A noncommunity water system using surface water, in total or in part, must monitor at the same frequency as a like-sized community water system, as specified in subsection (b), regardless of the number of persons it serves.

(4) A noncommunity water system using ground water under the direct influence of surface water, as defined in section 1(36) of this rule, must monitor at the same frequency as a like-sized community water system specified in subsection (b). The system must begin monitoring at this frequency beginning six (6) months after the commissioner determines that the ground water is under the direct influence of surface water.

(d) The public water system must collect samples at regular time intervals throughout the month, except a system that:

(1) uses only ground water (except ground water under the direct influence of surface water, as defined in section 1(36) of this rule); and

(2) serves four thousand nine hundred (4,900) persons or fewer;

may collect all required samples on a single day if they are taken from different sites.

(e) Special purpose samples, such as those taken to determine whether disinfection practices are sufficient following pipe placement, replacement, or repair, shall not be used to determine compliance with the MCL for total coliforms in section 7 of this rule. Repeat samples taken under section 8.1 of this rule:

(1) are not considered special purpose samples; and

(2) must be used to determine compliance with the MCL for total coliforms required by section 7 of this rule.

Any sample not designated as special purpose before analysis by the laboratory shall be used to determine compliance with the MCL for total coliforms in section 7 of this rule.

(f) A total coliform-positive sample invalidated under this subsection does not count towards meeting the minimum monitoring requirements of this section. The total coliform-positive sample may be invalidated only if the following conditions are met:

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

(2) The commissioner, on the basis of the results of repeat samples collected as required by section 8.1(a) through 8.1(d) of this rule, determines that the total coliform-positive sample resulted from a domestic or other nondistribution system plumbing problem. The commissioner cannot invalidate a sample on the basis of repeat sample results unless all repeat samples collected:

(A) at the same tap as the original total coliform-positive sample are also total coliform-positive; and

(B) within five (5) service connections of the original tap are total coliform-negative.

For example, the commissioner cannot invalidate a total coliform-positive sample on the basis of repeat samples if all the repeat samples are total coliform-negative or if the public water system has only one (1) service connection.

(3) The commissioner has substantial grounds to believe that a total coliform-positive result is due to a circumstance or condition that does not reflect water quality in the distribution system. In this case, the system must still collect all repeat samples required by section 8.1(a) through 8.1(d) of this rule and use them to determine compliance with the MCL for total coliforms in section 7 of this rule. To invalidate a total coliform-positive sample under this subsection, the decision must be documented, in writing, and approved and signed by the supervisor of the state official who recommended the decision. The commissioner must make this document available to EPA and the public. The written documentation must state the following:

(A) The specific cause of the total coliform-positive sample.

(B) What action the system has taken, or will take, to correct this problem.

The commissioner may not invalidate a total coliform-positive sample solely on the grounds that all repeat samples are total coliform-negative.

(4) A laboratory must invalidate a total coliform sample, unless total coliforms are detected, if the sample:

(A) produces a turbid culture in the absence of:

(i) gas production using an analytical method where gas formation is examined, for example, the multiple-tube fermentation technique; or

(ii) an acid reaction in the presence-absence (P-A) coliform test; or

(B) exhibits confluent growth or produces colonies too numerous to count with an analytical method using a membrane filter, for example, the membrane filter technique.

If a laboratory invalidates a sample because of such interference, the system must collect another sample from the same location as the original sample within twenty-four (24) hours of being notified of the interference problem and have it analyzed for the presence of total coliforms. The system must continue to resample within twenty-four (24) hours and have

the samples analyzed until it obtains a valid result. The commissioner may waive the twenty-four (24) hour time limit on a case-by-case basis.

(Water Pollution Control Division; 327 IAC 8-2-8; filed Sep 24, 1987, 3:00 p.m.: 11 IR 707; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1019; 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 2155; filed Jul 23, 2001, 1:02 p.m.: 24 IR 3965; filed Jul 13, 2007, 11:58 a.m.: 20070808-IR-327060044FRA)

327 IAC 8-2-8.1 Repeat monitoring for total coliform bacteria

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. 8.1. (a) If a routine sample is total coliform-positive, the public water system must collect a set of repeat samples within twenty-four (24) hours of being notified by the laboratory or the commissioner of the positive result. A system which collects more than one (1) routine sample per month must collect no fewer than three (3) repeat samples for each total coliform-positive sample found. A system which collects one (1) routine sample per month or fewer must collect no fewer than four (4) repeat samples for each total coliform-positive sample found. The commissioner may extend the twenty-four (24) hour limit up to forty-eight (48) hours on a case-by-case basis if the system has a problem beyond its control in collecting the repeat samples within twenty-four (24) hours. The system must have sufficient sample bottles on hand to collect any required repeat samples within twenty-four (24) hours of notification by the laboratory or the commissioner, or must have the ability to acquire sample bottles and collect samples within twenty-four (24) hours of notification by the laboratory or the commissioner or a positive total coliform sample.

(b) The system must collect at least one (1) repeat sample from the sampling tap where the original total coliform-positive sample was taken, at least one (1) repeat sample at a tap within five (5) service connections upstream, and at least one (1) repeat sample at a tap within five (5) service connections downstream of the original sampling site. If a total coliform-positive sample is at the end of the distribution system, or one (1) away from the end of the distribution system, the commissioner may waive the requirement to collect at least one (1) repeat sample upstream or downstream of the original sampling site.

(c) The system must collect all repeat samples on the same day, except that the commissioner may allow a system with a single service connection to collect the required set of repeat samples over a four (4) day period or to collect a larger volume of repeat samples in one (1) or more sample containers of any size, as long as the total volume collected is at least four hundred (400) milliliters or three hundred (300) milliliters for systems which collect more than one (1) routine sample per month.

(d) If one (1) or more repeat samples in the set is total coliform-positive, the public water system must collect an additional set of repeat samples in the manner specified in subsections (a) through (c). The additional samples must be collected within twenty-four (24) hours of being notified of the positive result, unless the commissioner extends the limit as provided in subsection (a). The system must repeat this process until either total coliforms are not detected in one (1) complete set of repeat samples or the system determines that the MCL for total coliforms in section 7 of this rule has been exceeded and notifies the commissioner.

(e) If a system collecting fewer than five (5) routine samples per month has one (1) or more total coliform-positive samples, and the commissioner does not invalidate the samples under section 8(f) of this rule, it must collect at least five (5) routine samples during the next month the system provides water to the public, except that the commissioner may waive this requirement if the following conditions are met:

(1) The commissioner may waive the requirement to collect five (5) routine samples the next month the system provides water to the public if the commissioner, or an agent approved by the commissioner, performs a site visit before the end of the next month the system provides water to the public. Although a sanitary survey need not be performed, the site visit must be sufficiently detailed to allow the commissioner to determine whether additional monitoring or any corrective action or both is needed. An employee of the system shall not be approved to perform this site visit.

(2) The commissioner may waive the requirement to collect five (5) routine samples the next month the system provides water to the public if the commissioner has determined why the sample was total coliform-positive and establishes that the system has corrected the problem or will correct the problem before the end of the next month the system serves water to the public. In this case, the decision to waive the following month's additional monitoring requirement must be documented in writing, approved, and signed by the supervisor of the state official who recommends such a decision and made available to the EPA and public. The written documentation must describe the specific cause of the total coliform-positive sample and what action the system has taken or will take to correct this problem. The requirement to collect five (5) routine samples the

next month the system provides water to the public cannot be waived solely on the grounds that all repeat samples are total coliform-negative. Under this subdivision, a system must still take at least one (1) routine sample before the end of the next month it serves water to the public and use it to determine compliance with the MCL for total coliforms in section 7 of this rule, unless the commissioner has determined that the system has corrected the contamination problem before the system took the set of repeat samples required in subsections (a) through (d) and all repeat samples were total coliform-negative. The commissioner shall not waive the requirement for a system to collect repeat samples in subsections (a) through (d).

(f) After a system collects a routine sample and before it learns the results of the analysis of that sample, if it collects another routine sample from within five (5) adjacent service connections of the initial sample, and the initial sample, after analysis, is found to contain total coliforms, then the system may count the subsequent samples as a repeat sample instead of as a routine sample.

(g) Results of all routine and repeat samples not invalidated by the commissioner must be included in determining compliance with the MCL for total coliforms in section 7 of this rule. Any sample not designated as special purpose prior to analysis by the laboratory shall be used to determine compliance with the MCL for total coliforms in section 7 of this rule. *(Water Pollution Control Division; 327 IAC 8-2-8.1; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1021; 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 2157; filed Jul 23, 2001, 1:02 p.m.: 24 IR 3966)*

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) The following conditions apply to the conducting of sanitary surveys:

(1) Beginning on:

(A) January 1, 2002, a Subpart H PWS must undergo a sanitary 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 shall review the results of each sanitary survey to determine:

(1) whether the existing monitoring frequency is adequate;

(2) what measures the system needs to undertake to improve drinking water quality; and

(3) whether significant deficiencies exist.

(c) In conducting a sanitary survey of a 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.

(d) Sanitary surveys must be performed by the commissioner or an agent approved by the commissioner. The PWS shall ensure that the:

(1) sanitary survey takes place; and

(2) commissioner or agent approved by the commissioner has access to the PWS and its records in order to verify compliance with this article and the federal Act (42 U.S.C.A. 300f through 42 U.S.C.A. 300j-26).

(e) The department shall evaluate each PWS during a sanitary survey in accordance with this section to determine if

deficiencies exist. Deficiencies include the following:

(1) 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 risks.

(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.

(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) 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 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) 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) Deficiencies relating to drinking water distribution and transmission, including the following:

(A) For a Subpart H PWS, a raw water transmission main equipped with a bypass around the treatment.

(B) Improper operation of bypass on a raw water transmission line that produces finished water that does not meet the requirements of this article.

(C) Pressures in the distribution system below twenty (20) pounds per square inch (psi) during all flow conditions except the following:

(i) Scheduled maintenance.

(ii) Corrected distribution system failures.

(iii) Fireflow.

(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) Deficiencies relating to finished water storage, including the following:

(A) Inadequate sealing of a tank to prevent entry of contaminants.

(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) Deficiencies relating to drinking water pumps, pump facilities, and 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) Pump and facilities are not:
(i) designed appropriately; or
(ii) properly operated and maintained.
(6) Deficiencies relating to monitoring, reporting, and data verification, including the following:
(A) The use of improper procedures or methods when conducting required on-site laboratory analyses.
(B) Failure to use a certified laboratory.
(C) Falsification of data.
(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) Deficiencies relating to system management and operations, including the following:
(A) The PWS has inadequate personnel to meet the requirements of 327 IAC 8-12.
(B) Emergency response plan requirements are as 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 PWS does not have an updated emergency 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) Deficiencies relating to operator certification, including the system being in noncompliance with 327 IAC 8-12.

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

(1) Any 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.

(g) Subpart H systems shall respond in writing to any deficiency found during a sanitary survey and reported to the 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 PWS will address deficiencies found during the sanitary survey; and

(ii) 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.

(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:

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

(ii) 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.

(i) If a CPE is required under 327 IAC 8-2.6-5, the PWS shall implement any follow-up recommendations that result as part of the program.

(j) The commissioner may require a shorter time frame than required by this section for response or addressing deficiencies if the commissioner determines the deficiency poses an immediate health risk. *(Water Pollution Control Division; 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; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)*

327 IAC 8-2-8.3 Collection of samples for fecal coliforms or Escherichia coli (E. coli) testing

Authority: IC 13-1-3-4; IC 13-7
Affected: IC 13-7

Sec. 8.3. (a) If any routine or repeat sample is total coliform-positive, the public water supply system must analyze that total coliform-positive culture medium to determine if fecal coliforms are present, except that the system may test for E. coli in lieu of fecal coliforms. If fecal coliforms or E. coli are present, the public water supply system must notify the commissioner by the end of the same business day that the system is notified of the test results. If the system is notified of the result after the close of business, the system shall notify the commissioner before the end of the next business day.

(b) The commissioner has the discretion to allow a public water system, on a case-by-case basis, to forego fecal coliform or E. coli testing on a total coliform-positive sample if that system assumes that the total coliform-positive sample is fecal coliform-positive or E. coli-positive. Accordingly, the system must notify the commissioner as specified in subsection (a), and the provisions of section 7(b) of this rule apply. *(Water Pollution Control Division; 327 IAC 8-2-8.3; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1022; filed Apr 12, 1993, 11:00 a.m.: 16 IR 2158)*

327 IAC 8-2-8.4 Analytical methods for microbiological contaminants

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. 8.4. (a) A public water system shall analyze for microbiological contaminants as follows:

(1) The standard sample volume required for total coliform analysis, regardless of analytical method used, is one hundred (100) milliliters.

(2) Public water systems need only determine the presence or absence of total coliforms, and a determination of total coliform density is not required.

(3) Public water systems must conduct total coliform analyses in accordance with one (1) of the following analytical methods:

(A) Total coliform fermentation technique[1, 2, 3] as set forth in Method 9221A* and Method 9221B*.

(B) Total coliform membrane filter technique[4] as set forth in Method 9222A*, Method 9222B*, and Method 9222C*.

(C) Presence-absence (P-A) coliform test[3, 5] as set forth in Method 9221D*.

(D) ONPG-MUG test[6] as set forth in Method 9223*.

(E) Colisure test*[7].

(F) E*Colite® test*.

(G) m-ColiBlue24® test*.

(4) Public water systems must conduct fecal coliform analysis in accordance with the procedure in this subdivision. When the MTF technique or presence-absence (P-A) coliform test is used to test for total coliforms, shake the lactose-positive presumptive tube or P-A bottle vigorously and transfer the growth with a sterile three (3) millimeter loop or sterile applicator stick into brilliant green lactose bile broth and EC medium to determine the presence of total and fecal coliforms, respectively. For EPA-approved analytical methods which use a membrane filter, transfer the total coliform-positive culture by one (1) of the following methods:

(A) Remove the membrane containing the total coliform colonies from the substrate with a sterile forceps and carefully curl and insert the membrane into a tube of EC medium. (The laboratory may first remove a small portion of selected colonies for verification.)

(B) Alternately, the laboratory may swab the entire membrane filter surface with a sterile cotton swab and transfer the inoculum to EC medium (do not leave the cotton swab in the EC medium), or inoculate individual total coliform-positive colonies into EC medium.

Gently shake the inoculated EC tubes to ensure adequate mixing and incubate in a water bath at forty-four and one-half (44.5) degrees Celsius, plus or minus two-tenths (0.2) degrees Celsius, for twenty-four (24) hours, plus or minus two (2) hours. Gas production of any amount in the inner fermentation tube of the EC medium indicates a positive fecal coliform test. The preparation of EC medium is described in Method 9221E, paragraph 1(a)*. Public water systems need only determine the presence or absence of fecal coliforms; a determination of fecal coliform density is not required.

(5) Public water systems must conduct analysis of Escherichia coli in accordance with one (1) of the following analytical methods:

(A) EC medium supplemented with fifty (50) micrograms per milliliter of 4-methylumbelliferyl-beta-D-glucuronide (MUG) (final concentration). EC medium is described in Method 9221E, paragraph 1(a)*. MUG may be added to EC medium before autoclaving. EC medium supplemented with fifty (50) micrograms per milliliter of MUG is commercially available. At least ten (10) milliliters of EC medium supplemented with MUG must be used. The inner inverted fermentation tube may be omitted. The procedure for transferring a total coliform-positive culture to EC medium supplemented with MUG shall be as specified in subdivision (4) for transferring a total coliform-positive culture to EC medium. Observe fluorescence with an ultraviolet light three hundred sixty-six (366) nanometers (preferably with a six (6) watt lamp) in the dark after incubating tube at forty-four and one-half (44.5) degrees Celsius, plus or minus two-tenths (0.2) degrees Celsius for twenty-four (24) hours, plus or minus two (2) hours.

(B) Nutrient agar supplemented with one hundred (100) micrograms per milliliter of MUG (final concentration). Nutrient agar is described in Method 9221E*. This test is used to determine if a total coliform-positive sample, as determined by the membrane filter technique or any other method in which a membrane filter is used contains E. coli. Transfer the membrane filter containing a total coliform colony(ies) to nutrient agar supplemented with one hundred (100) micrograms per milliliter (final concentration) of MUG. After incubating the agar plate at thirty-five (35) degrees Celsius for four (4) hours, observe the colony(ies) under ultraviolet light three hundred sixty-six (366) nanometers (preferably with a six (6) watt lamp) in the dark for fluorescence. If fluorescence is visible, E. coli are present.

(C) Minimal medium ONPG-MUG (MMO-MUG) test as described in the article "National Field Evaluation of a Defined Substrate Methods for the Simultaneous Detection of Total Coliforms and Escherichia coli from Drinking Water: Comparison with Presence-Absence Techniques*". If the MMO-MUG test is total coliform-positive after a twenty-four (24) hour incubation, test the medium for fluorescence with a three hundred sixty-six (366) nanometer ultraviolet light (preferably with a six (6) watt lamp) in the dark. If fluorescence is observed, the sample is E. coli-positive. If fluorescence is questionable (cannot be definitively read) after twenty-four (24) hours incubation, incubate the culture for an additional four (4) hours, but not to exceed twenty-eight (28) hours total, and again test the medium for fluorescence. The MMO-MUG test with hepes buffer in lieu of phosphate buffer is the only approved formulation for the detection of E. coli.

(D) The Colisure test*.

(E) The Membrane Filter Method with MI agar*.

(F) E*Colite® test*.

(G) m-ColiBlue24® test*.

(6) As an option to subdivision (5)(C), a system with a total coliform-positive, MUG-negative, MMO-MUG test may further analyze the culture for the presence of E. coli by transferring a one-tenth (0.1) milliliter, twenty-eight (28) hour MMO-MUG culture to EC medium plus MUG with a pipet. The formulation and incubation conditions of EC medium plus MUG and observation of the results are described in subdivision (5)(A).

(b) Response to a violation shall be as follows:

(1) A public water system which has exceeded the MCL for total coliforms in section 7 of this rule must report the violation to the commissioner no later than the end of the next business day after it learns of the violation and notify the public in accordance with 327 IAC 8-2.1-7 through 327 IAC 8-2.1-16.

(2) A public water system which has failed to comply with a coliform monitoring requirement, including the sanitary survey requirement, must report the monitoring violation to the commissioner within ten (10) days after the system discovers the violation, and notify the public in accordance with 327 IAC 8-2.1-7 through 327 IAC 8-2.1-16.

(c) The time from sample collection to initiation of analysis cannot exceed thirty (30) hours. Systems are encouraged but not required to hold samples below ten (10) degrees Celsius during transit.

(d) The agency strongly recommends that laboratories evaluate the false-positive and negative rates for the method or methods they use for monitoring total coliforms. The agency also encourages laboratories to establish false-positive and negative rates within their own laboratory and sample matrix (drinking water or source water or both) with the intent that if the method they choose has an unacceptable false-positive or negative rate, another method can be used. The agency suggests that laboratories

perform these studies on a minimum of five percent (5%) of all total coliform-positive samples, except for those methods where verification or confirmation or both is already required, for example, the M-Endo and LES Endo Membrane Filter Tests, Standard Total Coliform Fermentation Technique, and Presence-Absence Coliform Test. Methods for establishing false-positive and negative-rates may be based on lactose fermentation, the rapid test for β-galactosidase and cytochrome oxidase, multi-test identification systems, or equivalent confirmation tests. False-positive and false-negative information is often available in published studies or from the manufacturer, or both.

[1]Lactose broth, as commercially available, may be used in lieu of lauryl tryptose broth, if the system conducts at least twenty-five (25) parallel tests between this medium and lauryl tryptose broth using the water normally tested, and this comparison demonstrates that the false-positive rate and false-negative rate for total coliform, using lactose broth, is less than ten percent (10%).

[2]If inverted tubes are used to detect gas production, the media should cover these tubes at least one-half (½) to two-thirds (b) after the sample is added.

[3]No requirement exists to run the completed phase on ten percent (10%) of all total coliform-positive confirmed tubes.

[4]MI agar may also be used*.

[5]Six-times formulation strength may be used if the medium is filter-sterilized rather than autoclaved.

[6]The OPNG-MUG test is also known as the Autoanalysis Colilert System.

[7]The Colisure Test may be read after an incubation time of twenty-four (24) hours.

*The methods referenced in this section may be obtained as follows:

(1) Methods 9221A, 9221B, 9222A, 9222B, 9222C, 9221D, 9223, and 9221E may be found in "Standard Methods for the Examination of Water and Wastewater", 1992, American Public Health Association, et al., 18th edition, or "Standard Methods for the Examination of Water and Wastewater", 1995, American Public Health Association, et al., 19th edition, available from the American Public Health Association, et al., 1015 Fifteenth Street N.W., Washington, D.C. 20005.

(2) A description of the Colisure test may be obtained from IDEXX Laboratories, Inc., One IDEXX Drive, Westbrook, Maine 04092.

(3) The minimal medium ONPG-MUG test may be found in "National Field Evaluation of a Defined Substrate Method for the Simultaneous Detection of Total Coliforms and Escherichia coli from Drinking Water: Comparison with Presence-Absence Techniques", (Edberg, et al.), Applied and Environmental Microbiology, Volume 55, pages 1003–1008, April 1989.

(4) Preparation and use of MI agar is set forth in the article, "New Medium for the Simultaneous Detection of Total Coliforms and Escherichia coli in Water" by Brenner, K.P., et al., 1993, Applied and Environmental Microbiology, 59:3534-3544, and errata published in Applied and Environmental Microbiology, 59:4378. Also available from the Office of Water Resource Center (RC-4100), 401 M. Street S.W., Washington, D.C. 20460, EPA/600/J-99/225.

(5) A description of the E*Colite® test, "Presence/Absence for Coliforms and E. coli in Water", December 24, 1997, is available from Charm Sciences, Inc., 36 Franklin Street, Malden, Massachusetts 02148-4120.

(6) A description of the m-ColiBlue24® test, August 17, 1999, is available from the Hach Company, 100 Dayton Avenue, Ames, Iowa 50010.

These methods 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 Division; 327 IAC 8-2-8.4; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1023; errata filed Jan 9, 1991, 2:30 p.m.: 14 IR 1070; filed Apr 12, 1993, 11:00 a.m.: 16 IR 2158; filed Aug 25, 1997, 8:00 a.m.: 21 IR 51; errata filed Dec 10, 1997, 3:45 p.m.: 21 IR 1348; filed Jul 23, 2001, 1:02 p.m.: 24 IR 3968; errata filed Jul 25, 2001, 3:25 p.m.: 24 IR 3991; filed Nov 20, 2001, 10:20 a.m.: 25 IR 1092; errata filed Feb 22, 2002, 2:01 p.m.: 25 IR 2254; errata filed Feb 6, 2006, 11:15 a.m.: 29 IR 1937)*

327 IAC 8-2-8.5 Requirement for filtration and disinfection

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. 8.5. (a) Effective June 29, 1993, a public water system that uses a surface water source must provide filtration in accordance with this section.

(b) A public water system that uses a ground water source under the direct influence of surface water shall provide filtration in accordance with this section beginning eighteen (18) months after the commissioner determines that it is under the direct

influence of surface water from the date specified in section 8.2 of this rule.

(c) A public water system that uses a surface water source or a ground water source under the direct influence of surface water must provide treatment consisting of both disinfection, as specified in section 8.6 of this rule, and filtration treatment. Filtration treatment shall be done by one (1) of the following techniques, and the turbidity level of representative samples of a system's filtered water, regardless of filtration technique used, shall at no time exceed five (5) nephelometric turbidity units (NTU) in any given sample, measured as specified in section 8.7 of this rule:

(1) For systems using conventional filtration or direct filtration, the turbidity level of representative samples of a system's filtered water must be less than or equal to one-half (0.5) NTU in at least ninety-five percent (95%) of the total number of measurements taken each month, measured as specified in sections 8.7(4) and 8.8(b) of this rule, except that if the commissioner determines that the system is capable of achieving at least ninety-nine and nine-tenths percent (99.9%) removal or inactivation, or both, of Giardia lamblia cysts at some turbidity level higher than one-half (0.5) NTU in at least ninety-five percent (95%) of the total number of measurements taken each month, the commissioner may substitute this higher turbidity limit for that system. However, in no case may the commissioner approve a turbidity limit that allows more than one (1) NTU in more than five percent (5%) of the samples taken each month, measured as specified in sections 8.7(4) and 8.8(b) of this rule. Upon the effective date of this rule, systems serving a population of:

(A) at least ten thousand (10,000) individuals; and

(B) beginning January 1, 2005, fewer than ten thousand (10,000) individuals;

shall meet the turbidity requirements in 327 IAC 8-2.6-3.

(2) For systems using slow sand filtration, the turbidity level of representative samples of a system's filtered water must be less than or equal to one (1) NTU in at least ninety-five percent (95%) of the measurements taken each month, measured as specified in sections 8.7(4) and 8.8(b) of this rule, except where the commissioner determines that there is no significant interference with disinfection at a higher turbidity level.

(3) For systems using diatomaceous earth filtration, the turbidity level of representative samples of a public water system's filtered water must be less than or equal to one (1) NTU in at least ninety-five percent (95%) of the measurements taken each month, measured as specified in sections 8.7(4) and 8.8(b) of this rule.

(4) A public water system may use a filtration technology not listed in this subsection if it demonstrates to the commissioner, using pilot plant studies or other means, that the alternative filtration technology, in combination with disinfection treatment that meets section 8.6 of this rule, consistently achieves ninety-nine and nine-tenths percent (99.9%) removal or inactivation, or both, of Giardia lamblia cysts and ninety-nine and ninety-nine hundredths percent (99.99%) removal or inactivation, or both, of viruses. For a system that makes this demonstration, this subsection applies. Upon the effective date of this rule, systems serving a population of:

(A) at least ten thousand (10,000) individuals; and

(B) beginning January 1, 2005, fewer than ten thousand (10,000) individuals;

shall meet the requirements for other filtration technologies in 327 IAC 8-2.6-3.

(d) During plant operation, each public water system subject to this section shall be operated only by personnel who have been certified by the commissioner under 327 IAC 8-11 through 327 IAC 8-12.

(e) In addition to complying with requirements in this section, systems serving a population of:

(1) at least ten thousand (10,000) individuals; and

(2) beginning January 1, 2005, fewer than ten thousand (10,000) individuals;

shall also comply with the requirements in 327 IAC 8-2.6. *(Water Pollution Control Division; 327 IAC 8-2-8.5; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1024; errata filed Apr 5, 1991, 3:30 p.m.: 14 IR 1626; errata, 14 IR 1730; filed Apr 12, 1993, 11:00 a.m.: 16 IR 2160; filed May 1, 2003, 12:00 p.m.: 26 IR 2816; filed Jun 13, 2005, 2:30 p.m.: 28 IR 3206)*

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 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 or removal of Giardia lamblia cysts; and
(B) at least ninety-nine and ninety-nine hundredths percent (99.99%) (4-log) inactivation 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), 8.7(7), 8.7(8), and 8.8(e) of this rule, 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), 8.7(7), 8.7(8), and 8.8(c) of this rule, 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 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 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
(B) is providing adequate disinfection in the distribution system.

(Water Pollution Control Division; 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; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)

327 IAC 8-2-8.7 Analytical and monitoring requirements; fecal coliform, total coliform, turbidity, disinfection

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. 8.7. Only the analytical methods and procedures specified in this section, or otherwise approved by EPA, may be used to demonstrate compliance with sections 8.5 and 8.6 of this rule. Measurements for pH, turbidity, temperature, and residual disinfectant concentrations must be conducted using methods specified in this rule. Measurements for total coliforms, fecal coliforms, and HPC must be conducted by a laboratory certified by the commissioner or EPA under 40 CFR 141.28*. Until laboratory certification criteria are developed for the analysis of fecal coliforms and HPC, any laboratory certified for total coliforms analysis by the commissioner or EPA is deemed certified for fecal coliforms and HPC analysis. The following procedures shall be conducted in accordance with the publications listed as follows:

(1) Total coliform[1] as set forth in the following:
(A) Total coliform fermentation technique[2, 3, 4], Method 9221A*, and B*.
(B) Total coliform membrane filter technique[7 6], Method 9222A*, B*, and C*.

(C) ONPG-MUG test membrane[5], Method 9223*.
(D) Presence-Absence (P-A) coliform test [4, 7], Method 9221D*.
(E) Colisure test[8]*.
(F) E*Colite test*.
(G) m-ColiBlue24 test*.
(H) Readycult Coliforms 100 Presence/Absence test*.
(I) Membrane Filter Technique using Chromocult Coliform Agar*.
(J) Colitag test*.

(2) Fecal coliforms[1] as set forth in:
(A) fecal coliform procedure[9], Method 9221E*; or
(B) fecal coliform filter procedure, Method 9222D.

(3) Heterotrophic bacteria[1], Method 9215B*, pour plate method.

(4) Turbidity as set forth in:
(A) nephelometric method, Method 2130B* or Method 180.1*; or
(B) Great Lakes Instruments method, Method 2*.

(5) Residual disinfectant concentrations for free chlorine and combined chlorine (chloramines) as set forth in the following methods:
(A) Method 4500-Cl D*, amperometric titration method.
(B) Method 4500-Cl F*, DPD ferrous titrimetric method.
(C) Method 4500-Cl G*, DPD colorimetric method.
(D) Method 4500-Cl H*, syringaldazine (FACTS).
(E) DPD colorimetric test kits, if approved by the commissioner.
(F) Free chlorine residuals may be measured continuously by adapting a specified chlorine residual method for use with a continuous monitoring instrument, provided the chemistry, accuracy, and precision remain the same. Instruments used for continuous monitoring must be calibrated with a grab sample measurement at least every five (5) days, or with a protocol approved by the commissioner.

(6) Residual disinfectant concentrations for ozone by the indigo method, Method 4500-O_3 B*.

(7) Residual disinfectant concentrations for chlorine dioxide must be measured by Method 4500-ClO_2 C, amperometric method, Method 4500-ClO_2 E*, amperometric method, or Method 4500-ClO_2 D*, DPD method.

(8) Residual disinfectant concentrations for total chlorine by the following methods:
(A) Method 4500-Cl D*, amperometric titration.
(B) Method 4500-Cl E*, amperometric titration (low level measurement).
(C) Method 4500-Cl F*, DPD ferrous titrimetric.
(D) Method 4500-Cl I, iodometric electrode.
(E) Method 4500-Cl G*, DPD colorimetric.
(F) Total chlorine residuals may be measured continuously by adapting a specified chlorine residual method for use with a continuous monitoring instrument, provided the chemistry, accuracy, and precision remain the same. Instruments used for continuous monitoring must be calibrated with a grab sample measurement at least every five (5) days, or with a protocol approved by the commissioner.

[1]The time from sample collection to initiation of analysis may not exceed thirty (30) hours. Systems must hold samples below ten (10) degrees Celsius during transit.

[2]Lactose broth, as commercially available, may be used instead of lauryl tryptose broth if the system conducts at least twenty-five (25) parallel tests between this medium and lauryl tryptose broth using the water normally tested, and this comparison demonstrates that the false-positive rate and false-negative rate for total coliforms using lactose broth, is less than ten percent (10%).

[3]Media should cover inverted tubes at least one-half (½) to two-thirds (b) after the sample is added.

[4]No requirement exists to run the completed phase on ten percent (10%) of all total coliform-positive confirmed tubes.

[5]The ONPG-MUG test is also known as the Autoanalysis Colilert System.

[6]MI Agar may also be used.

[7]Six (6) times formulation strength may be used if the medium is filter-sterilized rather than autoclaved.

[8]The Colisure test may be read after an incubation time of twenty-four (24) hours.
[9]A-1 broth may be held up to three (3) months in a tightly closed screwcap tube at four (4) degrees Celsius.

*The following methods are incorporated by reference:

(1) Methods 2130B, 4500-Cl D, 4500-Cl E, 4500-Cl F, 4500-Cl G, 4500-Cl H, 4500-CL-I, 4500-ClO_2 C, 4500-ClO_2 D, 4500-ClO_2 E, 9215B, 9221A, 9221B, 9221D, 9221E, 9222A, 9222B, 9222C, 9222D, and 9223 may be found in "18th Edition of Standard Methods for the Examination of Water and Wastewater", "19th Edition of Standard Methods for the Examination of Water and Wastewater", and "20th Edition of Standard Methods for the Examination of Water and Wastewater", 1992, 1995, and 1998 available from the American Public Health Association, 1015 Fifteenth Street, Washington, D.C. 20005. The cited methods published in any of these three (3) editions may be used.

(2) Method 4500-O_3 B may be found in "18th Edition of Standard Methods for the Examination of Water and Wastewater" and "19th Edition of Standard Methods for the Examination of Water and Wastewater", 1992 and 1995, available from the American Public Health Association, 1014 Fifteenth Street, Washington, D.C. 20005. Either edition may be used.

(3) A description of the Colisure Test, February 28, 1994, may be obtained from IDEXX Laboratories, Inc., One IDEXX Drive, Westbrook, Maine 04092.

(4) A description of the E*Colite test, "Presence/Absence for Coliforms and E. coli in Water", December 21, 1997, is available from Charm Sciences, Inc., 36 Franklin Street, Malden, Massachusetts 02148-4120.

(5) A description of the m-ColiBlue24 test, August 17, 1999, is available from the Hach Company, 100 Dayton Avenue, Ames, Iowa 50010.

(6) The ReadyCult Coliforms 100 Presence/Absence Test is described in the document "ReadyCult Coliforms 100 Presence/Absence Test for Indication of Coliform Bacteria and Escherichia coli in Finished Waters", November 2000, Version 1.0, available from EM Science, an affiliate of Merck KggA of Darmstadt, Germany, 480 South Democrat Road, Gibbstown, New Jersey 08027-0342.

(7) Membrane Filter Technique using Chromocult Coliform Agar is described in the document "Chromocult Coliform Agar Presence/Absence Membrane Filter Test Method for Detection and Identification of Coliform Bacteria and Escherichia coli in Finished Waters", November 2000, Version 1.0, available from EM Science, an affiliate of Merck KggA of Darmstadt, Germany, 480 South Democrat Road, Gibbstown, New Jersey 08027-0342.

(8) Colitag product for the determination of presence/absence of total coliforms and E. coli is described in "Colitag Product as a Test for Detection and Identification of Coliforms and E. coli Bacteria in Drinking Water and Source Water as Required in National Primary Drinking Water Regulations", August 2001, available from CPI International, Inc., 5580 Skylane Drive, Santa Rosa, California 95403. The telephone number is (800) 878-7654.

(9) Method 180.1 may be found in "Methods for the Determination of Inorganic Substances in Environmental Samples", EPA-600/R-93-100, August 1993, available from NTIS, PB94-121811, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161.

(10) The Great Lakes Instrument (GLI) Method 2 may be found in "Turbidity", November 2, 1992, Great Lakes Instruments, Inc., 8855 North 55th Street, Milwaukee, Wisconsin 53223.

(11) 40 CFR 141.28 may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402.

These methods 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 Division; 327 IAC 8-2-8.7; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1025; errata filed Jan 9, 1991, 2:30 p.m.: 14 IR 1070; filed Apr 12, 1993, 11:00 a.m.: 16 IR 2161; filed Aug 25, 1997, 8:00 a.m.: 21 IR 53; errata filed Dec 10, 1997, 3:45 p.m.: 21 IR 1348; filed Jul 23, 2001, 1:02 p.m.: 24 IR 3970; filed Jun 13, 2005, 2:30 p.m.: 28 IR 3207; errata filed Jul 6, 2005, 3:15 p.m.: 28 IR 3582)*

327 IAC 8-2-8.8 Monitoring requirements; systems that provide filtration treatment

Authority: IC 13-1-3-4; IC 13-7-2-15; IC 13-7-14-5
Affected: IC 13-7

Sec. 8.8. (a) A public water system that uses a surface water source or a ground water source under the influence of surface water and provides filtration treatment must monitor in accordance with this section beginning June 29, 1993, or when filtration

is installed, whichever is later.

(b) Turbidity measurements as required by section 8.5 of this rule must be performed on representative samples of the system's filtered water every four (4) hours (or more frequently) that the system serves water to the public. A public water system may substitute continuous turbidity monitoring for grab sample monitoring if it validates the continuous measurement for accuracy on a regular basis and obtains approval from the commissioner. For any systems using slow sand filtration, filtration treatment other than conventional treatment, direct filtration, or diatomaceous earth filtration, the commissioner may reduce the sampling frequency to once per day if he or she determines that less frequent monitoring is sufficient to indicate effective filtration performance. For systems serving five hundred (500) or fewer persons, the commissioner may reduce the turbidity sampling frequency to once per day, regardless of the type of filtration treatment used, if the commissioner determines that less frequent monitoring is sufficient to indicate effective filtration performance.

(c) The residual disinfectant concentration of the water entering the distribution system must be monitored continuously, and the lowest value must be recorded each day, except that if there is a failure in the continuous monitoring equipment, grab sampling every four (4) hours may be conducted in lieu of continuous monitoring, but for no more than two (2) working days following the failure of the equipment, and systems serving three thousand three hundred (3,300) or fewer persons may take grab samples in lieu of providing continuous monitoring on an ongoing basis at the frequencies each day prescribed as follows:

System size by population	Samples per day*
<500	1
501–1,000	2
1,001–2,500	3
2,501–3,300	4

*The day's samples cannot be taken at the same time. The sampling intervals are subject to review and approval by the commissioner.

If at any time the residual disinfectant concentration falls below two-tenths (0.2) milligram per liter in a system using grab sampling in lieu of continuous monitoring, the system must take a grab sample every four (4) hours until the residual disinfectant concentration is equal to or greater than two-tenths (0.2) milligram per liter.

(d) The residual disinfectant concentration must be measured at least at the same points in the distribution system and at the same time as total coliforms are sampled, as specified in section 8 of this rule, except that the commissioner may allow a public water system which uses both a surface water source or a ground water source under direct influence of surface water, and a ground water source to take disinfectant residual samples at points other than the total coliform sampling points if the commissioner determines that such points are more representative of treated (disinfected) water quality within the distribution system. Heterotrophic bacteria, measured as heterotrophic plate count (HPC), as specified in section 8.7(3) of this rule, may be measured in lieu of residual disinfectant concentration.

(e) If the commissioner determines, based on site-specific considerations, that a system 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(3) of this rule, and that the system is providing adequate disinfection in the distribution system, the requirements of subsection (d) do not apply to that system. *(Water Pollution Control Division; 327 IAC 8-2-8.8; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1026; filed Apr 12, 1993, 11:00 a.m.: 16 IR 2162)*

327 IAC 8-2-9 Radium-226, radium-228, gross alpha particle radioactivity, and uranium; 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. 9. The following are the MCLs for radium-226, radium-228, gross alpha particle radioactivity, and uranium:

(1) Combined radium-226 and radium-228: five (5) picocuri per liter. The combined radium-226 and radium-228 value is determined by the addition of the results of the analysis for radium-226 and the analysis for radium-228.

(2) Gross alpha particle activity (including radium-226 but excluding radon and uranium): fifteen (15) picocuri per liter.

(3) Uranium: thirty (30) micrograms per liter.

(4) The sampling frequency for the contaminants listed in this section shall be under section 10.2 of this rule.

(5) The uranium MCL is effective December 8, 2003.

(Water Pollution Control Division; 327 IAC 8-2-9; filed Sep 24, 1987, 3:00 p.m.: 11 IR 708; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1027; filed Jun 13, 2005, 2:30 p.m.: 28 IR 3209)

327 IAC 8-2-10 Beta and photon radioactivity from manmade radionuclides; maximum contaminant levels

Authority: IC 13-1-3-4; IC 13-7
Affected: IC 13-1-3-4; IC 13-7

Sec. 10. (a) The average annual concentration of beta particle and photon radioactivity from manmade radionuclides in drinking water shall not produce an annual dose equivalent to the total body or any internal organ greater than four (4) millirem per year.

(b) Except for the radionuclides listed in the following table, the concentration of manmade radionuclides causing four (4) millirem total body or organ dose equivalent shall be calculated on the basis of a two (2) liter per day drinking water intake using the one hundred sixty-eight (168) hour data 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 1963, U.S. Department of Commerce. If two (2) or more radionuclides are present, the sum of their annual dose equivalent to the total body or to any organ shall not exceed four (4) millirem per year.

Average annual concentrations assumed to produce a total body organ dose of four (4) millirem per year

Radionuclide	Critical Organ	pCi per liter
Tritium	Total body	20,000
Strontium-90	Bone marrow	8

(c) The sampling frequency for the contaminants listed in subsections (a) through (b) shall be pursuant to section 10.2 of this rule. *(Water Pollution Control Division; 327 IAC 8-2-10; filed Sep 24, 1987, 3:00 p.m.: 11 IR 708; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1027; errata filed Aug 6, 1991, 3:45 p.m.: 14 IR 2258)*

327 IAC 8-2-10.1 Analytical methods for radioactivity

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. 10.1. (a) The following methods shall be used to determine compliance with sections 9 through 10 of this rule, except in cases where alternative methods have been approved in accordance with section 32 of this rule:

(1) One (1) of the following methods shall be used to test for gross alpha and beta[1]:
- (A) Method 900.0*.
- (B) Page 1 of "Interim Radiochemical Methodology for Drinking Water*".
- (C) Method 00-01*.
- (D) Page 1 of "Radiochemical Analytical Procedures for Analysis of Environmental Samples*".
- (E) Method 302*.
- (F) Method 7110 B*.
- (G) Method R-1120-76*.

(2) One (1) of the following methods shall be used to test for gross alpha[1]:
- (A) Method 00-02*.
- (B) Method 7110 C*.

(3) One (1) of the following methods shall be used to test for radium 226:
- (A) Method 903.1*.
- (B) Method 903.0*.
- (C) Page 16 of "Interim Radiochemical Methodology for Drinking Water*".
- (D) Page 13 of "Interim Radiochemical Methodology for Drinking Water*".
- (E) Method Ra-04*.
- (F) Method Ra-03*.
- (G) Page 19 of "Radiochemical Analytical Procedures for Analysis of Environmental Samples*".

(H) Method 7500-Ra C*.
(I) Method 304*.
(J) Method 305*.
(K) Method 7500-Ra B*.
(L) Method D 3454-97*.
(M) Method D 2460-97*.
(N) Method R-1141-76*.
(O) Method R-1140-76*.
(P) Method Ra-04*.
(Q) New York Method*.

(4) One (1) of the following methods shall be used to test for radium 228:
(A) Method 904.0*.
(B) Page 24 of "Interim Radiochemical Methodology for Drinking Water*".
(C) Method Ra-05*.
(D) Page 19 of "Radiochemical Analytical Procedures for Analysis of Environmental Samples*".
(E) Method 7500-Ra D*.
(F) Method R-1142-76*.
(G) New York Method*.
(H) New Jersey Method*.

(5) One (1) of the following methods shall be used to test for uranium[2]:
(A) Method 908.0*.
(B) Method 908.1*.
(C) Method 00-07*.
(D) Page 33 of "Radiochemical Analytical Procedures for Analysis of Environmental Samples*".
(E) Method 7500-U B*.
(F) Method 7500-U C*.
(G) Method D 2907-97*.
(H) Method D 3972-97*.
(I) Method D 5174-97*.
(J) Method R-1180-76*.
(K) Method R-1181-76*.
(L) Method R-1182-76*.
(M) Method U-04*.
(N) Method U-02*.
(O) Method 200.8*.
(P) Method D 5673-03*.
(Q) Method 3125*.

(6) One (1) of the following methods shall be used to test for radioactive cesium:
(A) Method 901.0*.
(B) Method 901.1*.
(C) Page 92 of "Radiochemical Analytical Procedures for Analysis of Environmental Samples*".
(D) Method 7500-Cs B*.
(E) Method 7120*.
(F) Method D 2459-72*.
(G) Method D 3649-91*.
(H) Method R-1111-76*.
(I) Method R-1110-76*.
(J) Method 4.5.2.3*.
(K) Page 4 of "Interim Radiochemical Methodology for Drinking Water*".

(7) One (1) of the following methods shall be used to test for radioactive iodine:
(A) Method 902.0*.
(B) Method 901.1*.
(C) Page 6 of "Interim Radiochemical Methodology for Drinking Water*".
(D) Page 9 of "Interim Radiochemical Methodology for Drinking Water*".
(E) Page 92 of "Radiochemical Analytical Procedures for Analysis of Environmental Samples*".
(F) Method 7500-I B*.
(G) Method 7500-I C*.
(H) Method 7500-I D*.
(I) Method 7120*.
(J) Method 4.5.2.3*.
(K) Method D 3649-91*.

(8) One (1) of the following methods shall be used to test for radioactive strontium 89 and 90:
(A) Method 905.0*.
(B) Page 29 of "Interim Radiochemical Methodology for Drinking Water*".
(C) Method Sr-04*.
(D) Page 65 of "Radiochemical Analytical Procedures for Analysis of Environmental Samples*".
(E) Method 303*.
(F) Method 7500-Sr B*.
(G) Method R-1160-76*.
(H) Method Sr-01*.
(I) Method Sr-02*.

(9) One (1) of the following methods shall be used to test for tritium:
(A) Method 906.0*.
(B) Page 34 of "Interim Radiochemical Methodology for Drinking Water*".
(C) Method H-02*.
(D) Page 87 of "Radiochemical Analytical Procedures for Analysis of Environmental Samples*".
(E) Method 306*.
(F) Method 7500-3H B*.
(G) Method D 4107-91*.
(H) Method R-1171-76*.

(10) One (1) of the following methods shall be used to test for gamma emitters:
(A) Method 901.1*.
(B) Method 902.0*.
(C) Method 901.0*.
(D) Page 92 of "Radiochemical Analytical Procedures for Analysis of Environmental Samples*".
(E) Method 7120*.
(F) Method 7500-Cs B*.
(G) Method 7500-I B*.
(H) Method D 3649-91*.
(I) Method D 4785-93*.
(J) Method R-1110-76*.
(K) Method Ga-01-R*.

[1]Natural uranium and thorium-230 are approved as gross alpha calibration standards for gross alpha with coprecipitation and evaporation methods; americum-241 is approved with coprecipitation methods.

[2]If uranium (U) is determined by mass, a 0.67 pCi/µg of uranium conversion factor must be used. This conversion factor is based on the 1:1 activity ratio of U-235 and U-238 that is characteristic of naturally occurring uranium.

(b) When the identification and measurement of radionuclides other than those listed in subsection (a) is required, the following references are to be used, except in cases where alternative methods have been approved in accordance with section 32

of this rule:

(1) Procedures for Radiochemical Analysis of Nuclear Reactor Aqueous Solutions, H.L. Krieger and S. Gold, EPA-R4-73-014, U.S. EPA, Cincinnati, Ohio, May 1973.

(2) HASL Procedure Manual, edited by John H. Harley. HASL 300, ERDA Health and Safety Laboratory, New York, New York 1973.

(c) For the purpose of monitoring radioactivity concentrations in drinking water, the required sensitivity of the radioanalysis is defined in terms of a detection limit. The detection limit shall be that concentration that can be counted with a precision of plus or minus one hundred percent (100%) at the ninety-five percent (95%) confidence level (one and ninety-six hundredths (1.96) σ where σ is the standard deviation of the net counting rate of the sample). Compliance requirements are as follows:

(1) To determine compliance with section 9(1) of this rule, the detection limit shall not exceed one (1) picocuri per liter.

(2) To determine compliance with section 9(2) of this rule, the detection limit shall not exceed three (3) picocuri per liter.

(3) To determine compliance with section 9(3) of this rule, the detection limit shall not exceed one (1) microgram per liter.

(4) To determine compliance with section 10 of this rule, the detection limits shall not exceed the concentrations listed in the following table:

Detection limits for manmade beta particle and photon emitters:

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

(d) To determine compliance with the MCL listed in sections 9 through 10 of this rule, averages of data shall be used and shall be rounded to the same number of significant figures as the MCL for the contaminant in question.

*The methods referenced in this section may be obtained as follows:

(1) Methods 900.0, 903.1, 903.0, 904.0, 908.0, 908.1, 901.0, 901.1, 902.0, 905.0, and 906.0 may be found in "Prescribed Procedures for Measurement of Radioactivity in Drinking Water", EPA 600/4-80-032, August 1980, PB 80-224744. Available from U.S. Department of Commerce, National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, Virginia 22161, 800-553-6847.

(2) "Interim Radiochemical Methodology for Drinking Water", EPA 600/4-75-008 (revised), March 1976, PB 253258. Available from U.S. Department of Commerce, National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, Virginia 22161, 800-553-6847.

(3) Methods 00-01, 00-02, Ra-04, Ra-03, Ra-05, 00-07, Sr-04, and H-02 may be found in "Radiochemistry Procedures Manual", EPA 520/5-84-006, December 1987, PB 84-215581. Available from U.S. Department of Commerce, National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, Virginia 22161, 800-553-6847.

(4) "Radiochemical Analytical Procedures for Analysis of Environmental Samples", March 1979, EMSL LV 053917. Available from U.S. Department of Commerce, National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, Virginia 22161, 800-553-6847.

(5) Methods 302, 303, 304, 305, 306, 3125, 7110 B, 7110 C, 7120, 7500-Ra C, 7500-Ra B, 7500-Ra D, 7500-U B, 7500-Cs B, 7500-I B, 7500-I C, 7500-I D, 7500-Sr B, 7500-U C, and 7500-3H B may be found in "Standard Methods for the Analysis of Water and Wastewater", 13th, 17th, 18th, 19th, or 20th Editions, 1971, 1989, 1992, 1995, and 1998. Available from American Public Health Association, 1015 Fifteenth Street NW, Washington, D.C. 20005. Methods 302, 303, 304, 305, and 306 are only in the 13th Edition. Methods 7110B, 7500-Ra B, 7500-Ra C, 7500-Ra D, 7500-U B, 7500-Cs B, 7500-I B, 7500-I C, 7500-I D, 7500-Sr B, and 7500-3H C are in the 17th, 18th, 19th, and 20th Editions. Method 7110 C is in the 18th, 19th, and 20th Editions. Method 7500-U C (Fluorometric Uranium) is only in the 17th Edition, and Method 7500-U C (Alpha Spectrometry) is only in the 18th, 19th, and 20th Editions. Method 7120 is only in the 19th and 20th Editions. Method 3125 is only in the 20th Edition.

(6) Methods D 2459-72, D 3649-91, and D 4107-91 may be found in Annual Book of ASTM Standards, Vol 11.02, 1994.

Available from American Society of Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428. Any Annual Book containing the cited version of the method may be used.

(7) Methods D 3454-97, D 2460-97, D 2907-97, D 3972-97, and D 5174-97 may be found in Annual Book of ASTM Standards, Vol. 11.01 and 11.02, 1999. Available from American Society of Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428. Any Annual Book containing the cites version of the method may be used.

(8) Method D 5673-03 may be found in Annual Book of ASTM Standards, Vol. 11.02, May 2004. Available from American Society of Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428. Any Annual Book containing the cited version of the method may be used.

(9) Methods R-1120-76, R-1141-76, R-1140-76, R-1142-76, R-1180-76, R-1181-76, R-1182-76, R-1111-76, R-1110-76, R-1160-76, and R-1171-76 may be found in "Methods for Determination of Radioactive Substances in Water and Fluvial Sediments", Chapter A5 in Book 5 of Techniques of Water-Resources Investigations of the United States Geological Survey, 1977. Available from U.S. Geologic Survey (USGS) Information Services, Box 25286, Federal Center, Denver, Colorado 80225-0425.

(10) Methods U-04, U-2, Ra-04, Ra-05, 4.5.2.3, Sr-01, Sr-02, and Ga-01-R may be found in "EML Procedures Manual", 27th Edition, Volume 1, 1990 or 28th Edition, Volumes 1 and 2, 1997. Either edition may be used. In the 27th Edition, Method Ra-04 is listed as Ra-05 and Method Ga-01-R is listed as Sect. 4.5.2.3. Available from Environmental Measurements Laboratory, U.S. Department of Energy (DOE), 376 Hudson Street, New York, New York 10014-3621.

(11) New York Methods may be found in "Determination of Ra-226 and Ra-228 (Ra-02)", January 1980, Revised June 1982. Available from Radiological Sciences Institute Center for Laboratories and Research, New York State Department of Health, Empire State Plaza, Albany, New York 12201.

(12) New Jersey Method may be found in "Determination of Radium 228 in Drinking Water", August 1980. Available from State of New Jersey, Department of Environmental Protection, Division of Environmental Quality, Bureau of Radiation and Inorganic Analytical Services, 9 Ewing Street, Trenton, New Jersey 08625.

(13) For uranium ICP-MS Method 200.8, refer to "Determination of Trace Elements in Waters and Wastes by Inductively Coupled Plasma-Mass Spectrometry", Revision 5.4, published in "Methods for the Determination of Metals in Environmental Samples- Supplement I", EPA 600-R-94-111, May 1994. Available at NTIS PB 95-125472.

(Water Pollution Control Division; 327 IAC 8-2-10.1; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1028; errata filed Aug 6, 1991, 3:45 p.m.: 14 IR 2258; filed Jul 23, 2001, 1:02 p.m.: 24 IR 3971; filed Jun 13, 2005, 2:30 p.m.: 28 IR 3209; errata filed Jul 6, 2005, 3:15 p.m.: 28 IR 3582)

327 IAC 8-2-10.2 Monitoring frequency for radioactivity; community 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. 10.2. (a) Monitoring requirements for gross alpha particle activity, radium-226, radium-228, and uranium in CWS are as follows:

(1) Initial monitoring requirements for CWSs are as follows:

(A) CWSs must conduct initial monitoring to determine compliance with section 9 of this rule by December 31, 2007. Unless exempted under subdivision (2) or reduced under clause (D), systems must collect four (4) consecutive quarterly samples at all sampling points before December 31, 2007.

(B) For the purposes of monitoring for gross alpha particle activity, radium-226, radium-228, and uranium in drinking water, "detection limit" is as described in section 10.1(c) of this rule.

(C) Applicability and sampling location shall be according to the following:

(i) Every existing CWS or source using ground water or surface water or a system using both ground and surface water (to be known as "system" for purposes of this section) must sample at every entry point to the distribution system that is representative of all sources being used (to be known as "sampling point" for purposes of this section) under normal operating conditions. The system must take each sample at the same sampling point unless conditions make another sampling point more representative of each source.

(ii) Every new CWS or source or CWS that uses a new source of water must conduct initial monitoring for the

new source within the first quarter after initiating use of the source.

(iii) A system must conduct more frequent monitoring when ordered by the commissioner in the event of possible contamination or when changes in the distribution system or treatment processes occur that may increase the concentration of radioactivity in finished water.

(D) The commissioner may waive the final two (2) quarters of initial monitoring for a sampling point if the results of the samples from the previous two (2) quarters are below the detection limit.

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

(2) The commissioner may allow historical monitoring data, that which is collected at a sampling point between June 1, 2000, and December 8, 2003, to satisfy the initial monitoring requirements for that sampling point in the following situations:

(A) A CWS having only one (1) entry point to the distribution system may use its acceptable historical monitoring data from the latest sampling conducted during the specified period.

(B) A CWS with multiple entry points and having appropriate historical monitoring data for each entry point to the distribution system may use the monitoring data from the latest sampling conducted during the specified period.

(3) Sampling after completion of the initial monitoring specified in subdivision (1) is once every three (3) years unless reduced by the commissioner as follows:

(A) If the average of the initial monitoring results for each contaminant (gross alpha particle activity, uranium, radium-226, or radium-228) is below the detection limit specified in section 10.1 of this rule, the system must collect and analyze for at least one (1) sample for that contaminant at that sampling point every nine (9) years.

(B) For gross alpha particle activity and uranium, if the average of the initial monitoring results for each contaminant is at or above the detection limit but at or below one-half (½) the MCL:

(i) the system must collect and analyze at least one (1) sample for that contaminant at that sampling point every six (6) years; and

(ii) for combined radium-226 and radium-228, the analytical results must be combined. If the average of the combined initial monitoring results for radium-226 and radium-228 is at or above the detection limit but at or below one-half (½) the MCL, the system must collect and analyze at least one (1) sample for radium-226 and radium-228 at that sampling point every six (6) years.

(C) Systems must use the samples collected during the most recent monitoring period to determine the monitoring frequency for subsequent monitoring periods. For example, if a system's sampling point is on a nine (9) year monitoring period and the sample result is above one-half (½) the MCL, then the next monitoring period for that sampling point is three (3) years.

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

(4) To fulfill quarterly monitoring requirements for gross alpha particle activity, radium-226, radium-228, or uranium, a system may composite up to four (4) consecutive quarterly samples from a single entry point if analysis is done within one (1) year of the first sample. The commissioner will treat analytical results from the composited sample as the average analytical result to determine compliance with the MCLs and to determine the future monitoring frequency. If the analytical result from the composited sample is greater than one-half (½) the MCL, the commissioner may direct the system to take additional quarterly samples before allowing the system to sample once every three (3) years.

(5) A gross alpha particle activity measurement may be substituted for the required:

(A) radium-226 measurement provided that the measured gross alpha particle activity does not exceed five (5) pCi/l; and

(B) uranium measurement provided that the measured gross alpha particle activity does not exceed fifteen (15) pCi/l.

The gross alpha measurement shall have a confidence interval of ninety-five percent (95%) (1.65 σ, where σ is the standard

deviation of the net counting rate of the sample) for radium-226 and uranium. When a system uses a gross alpha particle activity measurement instead of the measurement for radium-226 or uranium, or both, the gross alpha particle activity analytical result will be used to determine the future monitoring frequency for radium-226 or uranium, or both. If the gross alpha particle activity result is less than detection, one-half (½) the detection limit will be used to determine compliance and the future monitoring frequency.

(b) For purposes of monitoring for beta particle and photon radioactivity in drinking water, "detection limit" is as described in section 10.1(c) of this rule. To determine compliance with the MCLs in section 10 of this rule for beta particle and photon radioactivity, a system must comply with monitoring and sampling frequency requirements as follows:

(1) CWSs (both surface and ground water) designated by the commissioner as vulnerable must sample for beta particle and photon radioactivity. Systems must collect quarterly samples for beta emitters and annual samples for tritium and strontium-90 at each sampling point beginning within one (1) quarter after being notified by the commissioner of the designation. Designated systems must continue to sample until the commissioner reviews and either reaffirms or removes the designation. If the gross beta particle activity minus the naturally occurring potassium-40 beta particle activity at a sampling point has a running annual average (computed quarterly) less than or equal to fifty (50) pCi/l (screening level), the commissioner may reduce the frequency of monitoring at that sampling point to once every three (3) years. A system must continue to collect all other samples required by this subdivision during the reduced monitoring period.

(2) CWSs (both surface and ground water) designated by the commissioner as utilizing waters contaminated by effluents from nuclear facilities must sample for beta particle and photon radioactivity. A system designated under this subdivision must collect quarterly samples for beta emitters and iodine-131 and annual samples for tritium and strontium-90 at each entry point to the distribution system beginning within one (1) quarter after being notified by the commissioner of the designation. A system designated as using waters contaminated by effluents from a nuclear facility must continue to sample until the commissioner reviews and either reaffirms or removes the designation. The following monitoring and frequency of sampling requirements apply to vulnerable systems:

(A) Quarterly monitoring for gross beta particle activity shall be based on the analysis of monthly samples or the analysis of a composite of three (3) monthly samples. The former is recommended.

(B) For iodine-131, a composite of five (5) consecutive daily samples shall be analyzed once each quarter. At the direction of the commissioner, more frequent monitoring shall be conducted when iodine-131 is identified in the finished water.

(C) Annual monitoring for strontium-90 and tritium shall be conducted by analysis of a composite of four (4) consecutive quarterly samples or analysis of four (4) quarterly samples. The latter procedure is recommended.

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

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

(4) If the gross beta particle activity minus the naturally occurring potassium-40 beta particle activity exceeds the appropriate screening level, an analysis of the sample must be performed to identify the major radioactive constituents present in the sample and the appropriate doses must be calculated and summed to determine compliance with section 10 of this rule using the formula in that section. Doses must be calculated and combined for measured levels of major radioactive constituents, tritium, and strontium to determine compliance.

(5) A system must monitor monthly at the sampling point or points that exceed the MCL in section 10 of this rule beginning the month after the exceedance occurs. A system must continue monthly monitoring until the system has established, by a rolling average of three (3) monthly samples, that the MCL is being met. A system that reestablishes compliance with the MCL must return to quarterly monitoring until the requirements set forth in subdivision (1) or (2)(D) are met.

(c) The following general monitoring and compliance requirements for radionuclides apply:

(1) The commissioner has the discretion to require:

(A) more frequent monitoring than specified in subsections (a) and (b); or

(B) confirmation samples.

The results of the initial and confirmation samples shall be averaged for use in compliance determinations.

(2) A CWS shall monitor at the time designated by the commissioner during each compliance period.

(3) The following shall be used to determine whether a CWS is in compliance with sections 9 through 10 of this rule:

(A) Analytical results obtained at each sampling point must meet the applicable requirements of sections 9 through 10 of this rule. If one (1) sampling point is in violation of an MCL, the system is in violation of the MCL.

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

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

(D) A system must include all samples taken and analyzed under this section in determining compliance even if that number is greater than the minimum required.

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

(F) If a sample result is less than the detection limit, zero (0) shall be used to calculate the annual average, unless a gross alpha particle activity is being used instead of radium-226 or uranium, or both. If the gross alpha particle activity result is less than detection, one-half (½) the detection limit will be used to calculate the annual average.

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

(5) If the MCL for radioactivity set forth in sections 9 through 10 of this rule is exceeded, the operator of a CWS must give notice to the commissioner under section 13 of this rule and to the public as required by 327 IAC 8-2.1-7 through 327 IAC 8-2.1-16.

(Water Pollution Control Division; 327 IAC 8-2-10.2; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1029; errata filed Aug 6, 1991, 3:45 p.m.: 14 IR 2258; filed Nov 20, 2001, 10:20 a.m.: 25 IR 1094; errata filed Feb 22, 2002, 2:01 p. m.: 25 IR 2254; filed Jun 13, 2005, 2:30 p.m.: 28 IR 3212; errata filed Jul 6, 2005, 3:15 p.m.: 28 IR 3582)

327 IAC 8-2-10.3 Best available technologies, small systems compliance technologies (SSCTs), and compliance technologies by system size category for radionuclides

Authority: IC 13-13-5-1; IC 13-14-8-7; IC 13-18-3-1; IC 13-18-3-2; IC 13-18-6

Affected: IC 13-14-9

Sec. 10.3. (a) Pursuant to Section 1412 of the Act, BATs for achieving compliance with sections 9 through 10 of this rule for radionuclides are identified in the following table:

Table 10.3(a)

BAT for Combined Radium-226 and Radium-228, Uranium, Gross Alpha Particle Activity, and Beta Particle and Photon Radioactivity

Contaminant	BAT
Combined radium-226 and radium-228	Ion exchange, reverse osmosis, lime softening
Uranium	Ion exchange, reverse osmosis, lime softening, coagulation/filtration
Gross alpha particle activity (excluding radon and uranium)	Reverse osmosis
Beta particle and photon radioactivity	Ion exchange, reverse osmosis

(b) The following table lists the small systems compliance technologies (SSCTs) for radionuclides and limitations of use:

Table 10.3(b)

List of Small Systems Compliance Technologies for Radionuclides and Limitations to Use

Unit Technologies	Limitations (see footnotes)	Operator Skill Level Required[1]	Raw Water Quality Range and Considerations[1]
1. Ion exchange (IE)	(a)	Intermediate	All ground waters.
2. Point of use (POU[2]) IE	(b)	Basic	All ground waters.
3. Reverse osmosis (RO)	(c)	Advanced	Surface waters usually require prefiltration.
4. POU[2] RO	(b)	Basic	Surface waters usually require prefiltration.
5. Lime softening	(d)	Advanced	All waters.
6. Green sand filtration	(e)	Basic	----------
7. Coprecipitation with barium sulfate	(f)	Intermediate to Advanced	Ground waters with suitable water quality.
8. Electrodialysis/electrodialysis reversal.	----	Basic to Intermediate	All ground waters.
9. Preformed hydrous manganese oxide filtration	(g)	Intermediate	All ground waters.
10. Activated alumina	(a), (h)	Advanced	All ground waters; competing anion concentrations may affect regeneration frequency.
11. Enhanced coagulation/filtration	(i)	Advanced	Can treat a wide range of water qualities.

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

[2]A POU, or "point-of-use" technology is a treatment device installed at a single tap used for the purpose of reducing contaminants in drinking water at that one (1) tap. POU devices are typically installed at the kitchen tap. See the April 21, 2000, Federal Register, concerning Notice of Data Availability (NODA) for more details.

Limitations Footnotes: Technologies for Radionuclides:

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

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

[c]Reject water disposal options should be carefully considered before choosing this technology. See other RO limitations described in, "Small System Compliance Technology List for the Surface Water Treatment Rule", 1997, EPA 815-R-97-002, Washington, D.C.

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

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

[f]This technology may be very limited in application to small systems. Since the process requires static mixing, detention basins, and filtration, it is most applicable to systems with sufficiently high sulfate levels that already have a suitable filtration treatment train in place.

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

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

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

(c) The following table lists the compliance technologies by system size category for radionuclide national primary drinking

water regulations (NPDWRs):

Table 10.3(c)
Compliance Technologies by System Size Category for Radionuclide NPDWRs

Contaminant	Compliance technologies[1] for system size categories (population served)		
	25-500	501-3,300	3,300-10,000
1. Combined radium-226 and radium-228	1, 2, 3, 4, 5, 6, 7, 8, 9	1, 2, 3, 4, 5, 6, 7, 8, 9	1, 2, 3, 4, 5, 6, 7, 8, 9
2. Gross alpha particle activity	3, 4	3, 4	3, 4
3. Beta particle activity and photon activity	1, 2, 3, 4	1, 2, 3, 4	1, 2, 3, 4
4. Uranium	1, 2, 4, 10, 11	1, 2, 3, 4, 5, 10, 11	1, 2, 3, 4, 5, 10, 11

[1]Numbers correspond to those technologies found listed in the table in subsection (b).

(Water Pollution Control Division; 327 IAC 8-2-10.3; filed Jun 13, 2005, 2:30 p.m.: 28 IR 3215)

327 IAC 8-2-11 Modification of sampling frequency by board (Repealed)

Sec. 11. *(Repealed by Water Pollution Control Division; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1047)*

327 IAC 8-2-12 Maximum contaminant level exceeded; required procedure (Repealed)

Sec. 12. *(Repealed by Water Pollution Control Division; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1047)*

327 IAC 8-2-13 Reporting requirements; test results and failure to comply

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. 13. (a) Except where a shorter period is specified in this rule, the supplier of water, using forms provided by the commissioner, shall report to the commissioner the results of any test measurement or analysis required by this rule within the shorter of the following periods of time:

(1) The first ten (10) days following the month in which the result is received.

(2) The first ten (10) days following the end of the required monitoring period as stipulated by the commissioner.

(b) Except where a different reporting period is specified in this rule, the supplier of water, using forms provided by the commissioner, shall report to the commissioner within twenty-four (24) hours of completion of laboratory analysis all drinking water results that indicate positive total coliform results, nitrate results that exceed five (5) milligrams per liter (mg/l), and the failure to comply with any MCL. The report must be made by telephone or one (1) of the methods specified in subsection (e). If notification is made by telephone, the results must also be reported to the commissioner using one (1) of the methods specified in subsection (e) within forty-eight (48) hours of the telephone notification. If the supplier of water cannot provide the results under this subsection, the supplier of water shall make arrangements with the certified laboratory performing the analysis to submit the results directly to the commissioner using the methods specified in subsection (e).

(c) The supplier of water is not required to report analytical results to the commissioner when the Indiana state laboratory performs the analysis and reports the results to the commissioner.

(d) The supplier of water, within ten (10) days of completing the public notification required by 327 IAC 8-2.1-7 through 327 IAC 8-2.1-17, for the initial public notice and any repeat notices, shall submit to the commissioner a certification that it has fully complied with the public notification regulations. The public water system must include with this certification a representative copy of each type of notice distributed, published, posted, or made available to the persons served by the system or to the media.

(e) The submittal of the information required under this section shall be submitted in one (1) of the following manners:

(1) Mail.

(2) Facsimile.

(3) Electronic mail.

(4) Hand delivery.

(5) Other means determined by the commissioner to provide the degree of:

(A) confidentiality;

(B) reliability;

(C) convenience; and

(D) security;

appropriate to the information to be submitted.

(Water Pollution Control Division; 327 IAC 8-2-13; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1030; filed Jul 23, 2001, 1:02 p.m.: 24 IR 3974; filed Nov 20, 2001, 10:20 a.m.: 25 IR 1096; errata filed Feb 22, 2002, 2:01 p.m.: 25 IR 2254; filed May 1, 2003, 12:00 p.m.: 26 IR 2817; filed Jun 13, 2005, 2:30 p.m.: 28 IR 3217)

327 IAC 8-2-14 Reporting and record keeping requirements; systems that provide filtration

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. 14. (a) Effective June 29, 1993, a public water system that uses a surface water source or a ground water source under the direct influence of surface water and provides filtration treatment must report monthly to the commissioner the information specified in this section. Systems shall submit information to the commissioner using the methods specified in section 13(e) of this rule.

(b) Turbidity measurements as required by section 8.8(b) of this rule 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:

(1) The total number of filtered water turbidity measurements taken during the month.

(2) The number and percentage of filtered water turbidity measurements taken during the month which are less than or equal to the turbidity limits specified in section 8.5(c) of this rule for the filtration technology being used.

(3) The date and value of any turbidity measurements taken during the month which exceed five (5) nephelometric turbidity units (NTU).

(c) Disinfection information specified in section 8.8 of this rule must be reported to the commissioner 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:

(1) For each day, the lowest measurement of residual disinfectant concentration in milligrams per liter in water entering the distribution system.

(2) The date and duration of each period when the residual disinfectant concentration in water entering the distribution system fell below two-tenths (0.2) milligram per liter and when the commissioner was notified of the occurrence.

(3) The following information on the samples taken in the distribution system in conjunction with total coliform monitoring under section 8.6 of this rule:

(A) Number of instances where the residual disinfectant concentration is measured.

(B) Number of instances where the residual disinfectant concentration is not measured but heterotrophic bacteria plate count (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 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.

(F) For the current and previous month the system serves water to the public, the value of V in the following formula:

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

Where: a = The value in clause (A).

b = The value in clause (B).

c = The value in clause (C).

d = The value in clause (D).

e = The value in clause (E).

(G) The commissioner may determine, based on site-specific considerations, that a system has no means for having a sample transported and analyzed for HPC by a certified laboratory within the requisite time and temperature conditions specified by section 8.7(3) of this rule and that the system is providing adequate disinfection in the distribution system, the requirements of clauses (A) through (F) do not apply.

(4) A system need not report the data listed in subdivision (1) if all data listed in subdivisions (1) through (3) remain on file at the system and the commissioner determines that the system has submitted all the information required by subdivisions (1) through (3) for at least twelve (12) months.

(d) Each system, upon discovering that a waterborne disease outbreak potentially attributable to that water system has occurred, must report that occurrence to the commissioner as soon as possible, but no later than by the end of the next business day. If at any time the turbidity exceeds five (5) NTU, the system must consult with the department of environmental management as soon as practical, but no later than twenty-four (24) hours after the exceedance is known in accordance with the public notification requirements under 327 IAC 8-2.1-9(b)(3). If at any time the residual falls below two-tenths (0.2) milligram per liter in the water entering the distribution system, the system must notify the commissioner as soon as possible, but no later than the end of the next business day. The system also must notify the commissioner by the end of the next business day whether or not the residual was restored to at least two-tenths (0.2) milligram per liter within four (4) hours. *(Water Pollution Control Division; 327 IAC 8-2-14; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1031; filed Apr 12, 1993, 11:00 a.m.: 16 IR 2163; filed Jul 23, 2001, 1:02 p.m.: 24 IR 3974; filed Nov 20, 2001, 10:20 a.m.: 25 IR 1096)*

327 IAC 8-2-15 Failure to comply; maximum contaminant level, treatment technique, or variance schedule (Repealed)

Sec. 15. *(Repealed by Water Pollution Control Division; filed Nov 20, 2001, 10:20 a.m.: 25 IR 1123)*

327 IAC 8-2-16 Public notification; required language for inorganic contaminants (Repealed)

Sec. 16. *(Repealed by Water Pollution Control Division; filed Nov 20, 2001, 10:20 a.m.: 25 IR 1123)*

327 IAC 8-2-17 Public notification; required language for organic contaminants (Repealed)

Sec. 17. *(Repealed by Water Pollution Control Division; filed Nov 20, 2001, 10:20 a.m.: 25 IR 1123)*

327 IAC 8-2-18 Public notification; required language for microbiological contaminants (Repealed)

Sec. 18. *(Repealed by Water Pollution Control Division; filed Nov 20, 2001, 10:20 a.m.: 25 IR 1123)*

327 IAC 8-2-19 Public notification requirements pertaining to lead

Authority: IC 13-1-3-4; IC 13-7
Affected: IC 13-1-3-4; IC 13-7

Sec. 19. (a) Except as provided in subsection (c), by June 19, 1988, the owner or operator of each community water system and each nontransient, noncommunity water system shall issue notice to persons served by the system that may be affected by lead contamination of their drinking water.

(b) The commissioner may require subsequent notices. The owner or operator shall provide notice under this section even if there is no violation of the MCL for lead.

(c) Notice under subsection (a) is not required if the system demonstrates to the commissioner that the water system, including the residential and nonresidential portions connected to the water system, are lead free. For purposes of this section, the term "lead free" when used with respect to solders and flux refers to solders and flux containing not more than two-tenths percent (0.2%) lead, and when used with respect to pipes and pipe fittings refers to pipes and pipe fittings containing not more than eight percent (8%) lead.

(d) Notice shall be given to persons served by the system by:

(1) three (3) newspaper notices, one (1) for each of three (3) consecutive months and the first no later than June 19, 1988;

(2) the water bill or in a separate mailing by June 19, 1988; or

(3) once by hand delivery by June 19, 1988.

(e) For nontransient noncommunity water systems, notice may be given by continuous posting. If posting is used, the notice shall be posted in a conspicuous place in the area served by the system and start no later than June 19, 1988, and continue for three (3) months.

(f) Notices issued under this section shall include the following:

(1) Provide a clear and readily understandable explanation of the potential sources of lead in drinking water, potential adverse health effects, reasonably available methods of mitigating known or potential lead content in drinking water, any steps the water system is taking to mitigate lead content in drinking water, and the necessity for seeking alternative water supplies, if any. Use of the mandatory language in subsection (h) in the notice will be sufficient to explain potential adverse health effects.

(2) Include specific advice on how to determine if materials containing lead have been used in homes or the water distribution system, and how to minimize exposure to water likely to contain high levels of lead. Each notice shall be conspicuous and shall not contain unduly technical language, unduly small print, or similar problems that frustrate the purpose of the notice. Each notice shall contain the telephone number of the owner, operator, or designee of the public water system as a source of additional information regarding the notice. Where appropriate, the notice shall be multilingual.

(g) Optional information to be given may be that each notice should advise persons served by the system to use only the cold water faucet for drinking and for use in cooking or preparing baby formula, and to run the water until it gets as cold as it is going to get before each use. If there has recently been major water use in the household, such as showering or bathing, flushing toilets, or doing laundry with cold water, flushing the pipes should take five (5) to thirty (30) seconds; if not, flushing the pipes could take as long as several minutes. Each notice should also advise persons served by the system to check to see if lead pipes, solder, or flux have been used in plumbing that provides tap water and to ensure that new plumbing and plumbing repairs use lead free materials. The only way to be sure of the amount of lead in the household water is to have the water tested by a competent laboratory. Testing is especially important to apartment dwellers because flushing may not be effective in high-rise buildings that have lead-soldered central piping. As appropriate, the notice should provide information on testing.

(h) When providing the information in public notices required under subsection (f) on the potential adverse health effects of lead in drinking water, the owner or operator of the water system shall include the following specific language in the notice:

"The Indiana Department of Environmental Management sets drinking water standards and has determined that lead is a health concern at certain levels of exposure. There is currently a standard of 0.050 parts per million. Based on new health information, the Indiana Department of Environmental Management is likely to lower this standard significantly.

Part of the purpose of this notice is to inform you of the potential adverse health effects of lead. This is being done even though your water may not be in violation of the current standard.

Indiana Department of Environmental Management and others are concerned about lead in drinking water. Too much lead in the human body can cause serious damage to the brain, kidneys, nervous system, and red blood cells. The greatest risk, even with short-term exposure, is to young children and pregnant women.

Lead levels in your drinking water are likely to be highest:

! if your home or water system has lead pipes, or

! if your home has copper pipes with lead solder, and

! if the home is less than five years old, or

! if you have soft or acidic water, or

! if water sits in the pipes for several hours."

(i) The commissioner may give notice to the public required by this section on behalf of the owner or operator of the water system if the commissioner meets the requirements of subsection (d) and the notice contains all the information specified in subsections (f) and (h). However, the owner or operator of the water system remains legally responsible for ensuring that the requirements of this section are met. *(Water Pollution Control Division; 327 IAC 8-2-19; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1037; errata filed Aug 6, 1991, 3:45 p.m.: 14 IR 2258)*

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 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 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:

(i) a routine distribution system sample;

(ii) a check sample;

(iii) a raw or process water sample; or

(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 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 PWS conducted by:

(A) the PWS itself;

(B) a private consultant; or

(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 under 327 IAC 8-2.1-7 through 327 IAC 8-2.1-16; and

(B) certifications made to the primacy agency 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 Division; 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; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)

327 IAC 8-2-21 Special monitoring for sodium

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

(b) The supplier of water shall report to the commissioner the results of the analyses for sodium within the first ten (10) days of the month following the month in which the sample results were received or within the first ten (10) days following the end of the required monitoring period as stipulated by the commissioner, whichever of these is first. If more than annual sampling is required, the supplier shall report the average sodium concentration within ten (10) days of the month following the month in which the analytical result of the last sample used for the annual average was received. Systems shall submit information to the commissioner using the methods specified in section 13(e) of this rule.

(c) The supplier of water shall notify the commissioner and appropriate local public health officials of the sodium levels by written notice by direct mail within three (3) months. A copy of each notice required to be provided by this subsection shall be sent to the commissioner within ten (10) days of its issuance. The supplier of water is not required to notify the commissioner and appropriate local public health officials of the sodium levels where the commissioner provides such notices in lieu of the supplier.

(d) Analyses for sodium shall be performed by the following methods:

(1) Inductively coupled plasma, Method 200.7*.

(2) Atomic absorption; direct aspiration, Method 3111B*.

*Methods referenced in this section may be obtained as follows:

(1) Method 200.7 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.

(2) Method 3111B may be found in "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, or "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 N.W., Washington, D.C. 20005. Either edition may be used.

These methods 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 Division; 327 IAC 8-2-21; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1039; filed Aug 25, 1997, 8:00 a.m.: 21 IR 68; errata filed Dec 10, 1997, 3:45 p.m.: 21 IR 1348; filed Jul 23, 2001, 1:02 p.m.: 24 IR 3977; errata filed Feb 6, 2006, 11:15 a.m.: 29 IR 1937)*

327 IAC 8-2-22 Special monitoring for corrosivity characteristics and lead ban

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. 22. (a) Community water supply systems shall identify whether the following construction materials are present in their piping, storage structures, pumps, and controls used to deliver water to the public, and report to the commissioner:

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

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

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

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

(5) Asbestos cement pipe.

(b) In addition, the commissioner may require identification and reporting of other construction materials present in their piping, storage structures, pumps, and controls used to deliver water to the public that may contribute contaminants to the drinking water, such as:

(1) vinyl lined asbestos cement pipe;

(2) coal tar lined pipes and tanks; and

(3) solders, flux, pipes, and pipe fittings not in compliance with 675 IAC 16, the Indiana Plumbing Code.

(Water Pollution Control Division; 327 IAC 8-2-22; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1039; errata filed Aug 6, 1991, 3:45 p.m.: 14 IR 2259; filed Aug 25, 1997, 8:00 a.m.: 21 IR 68)

327 IAC 8-2-23 Special monitoring for inorganic and organic contaminants (Repealed)

Sec. 23. *(Repealed by Water Pollution Control Division; filed Jul 23, 2001, 1:02 p.m.: 24 IR 3985)*

327 IAC 8-2-24 Use of noncentralized treatment devices

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

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

(c) The public water system must develop a monitoring plan and obtain approval from the commissioner before point-of-entry devices are installed for compliance. The commissioner may approve a plan if point-of-entry devices provide health protection equivalent to central water treatment. For purposes of this section, "equivalent" means that water would:

(1) meet all national primary drinking water regulations; and

(2) be of acceptable quality similar to water distributed by a central treatment plant meeting the maximum contaminant level. Monitoring must include physical measurements and observations.

(d) Effective technology must be properly applied under a plan approved by the commissioner, and the microbiological safety of the water must be maintained.

(1) Prior to installation, the commissioner shall require:

(A) certification of performance;

(B) field testing; and

(C) design review;

of all point-of-entry devices.

(2) The design and application of the point-of-entry devices must consider the tendency for increase in heterotrophic bacteria concentrations in water treated with activated carbon. It may be necessary to use:

(A) frequent backwashing;

(B) post-contact disinfection; and

(C) heterotrophic plate count monitoring;

to ensure that the microbiological safety of the water is not compromised.

(e) All consumers shall be protected by ensuring that every building connected to the system has a point-of-entry device installed, maintained, and adequately monitored. The rights and responsibilities of the public water system customer shall convey with title upon sale of property.

(f) Public water systems shall not use bottled water to achieve compliance with an MCL. Upon approval by the commissioner, bottled water may be used on a temporary basis to avoid an unreasonable risk to health. *(Water Pollution Control Division; 327 IAC 8-2-24; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1042; filed Aug 24, 1994, 8:15 a.m.: 18 IR 65; filed Jul 23, 2001, 1:02 p.m.: 24 IR 3977; filed Jul 13, 2007, 11:58 a.m.: 20070808-IR-327060044FRA)*

327 IAC 8-2-25 Authority to grant and procedure to request a variance (Repealed)

Sec. 25. *(Repealed by Water Pollution Control Division; filed Jul 23, 2001, 1:02 p.m.: 24 IR 3985)*

327 IAC 8-2-26 Consideration of a variance request (Repealed)

Sec. 26. *(Repealed by Water Pollution Control Division; filed Jul 23, 2001, 1:02 p.m.: 24 IR 3985)*

327 IAC 8-2-27 Public hearings on variances and schedules (Repealed)

Sec. 27. *(Repealed by Water Pollution Control Division; filed Jul 23, 2001, 1:02 p.m.: 24 IR 3985)*

327 IAC 8-2-28 Additional conditions for variances from the maximum contaminant levels for volatile organic compounds (Repealed)

Sec. 28. *(Repealed by Water Pollution Control Division; filed Jul 23, 2001, 1:02 p.m.: 24 IR 3985)*

327 IAC 8-2-29 Reporting and public notification; unregulated contaminants (Repealed)

Sec. 29. *(Repealed by Water Pollution Control Division; filed May 1, 2003, 12:00 p.m.: 26 IR 2859)*

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	0.02

(Water Pollution Control Division; 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; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)

327 IAC 8-2-31 Maximum contaminant level goals; microbiological contaminants

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. 31. Maximum contaminant level goals (MCLGs) are zero (0) for the following microbiological contaminants:
(1) Giardia lamblia.
(2) Viruses.
(3) Legionella.
(4) Total coliforms (including fecal coliforms and Escherichia coli).
(5) Cryptosporidium.

(Water Pollution Control Division; 327 IAC 8-2-31; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1047; filed May 1, 2003, 12:00 p.m.:

26 IR 2818)

327 IAC 8-2-32 Alternate analytical techniques

Authority: IC 13-1-3-4; IC 13-7
Affected: IC 13-1-3-4; IC 13-7

Sec. 32. With the written permission of the commissioner and concurrence of the administrator, an alternate analytical technique may be employed. An alternate technique shall be accepted only if it is substantially equivalent to the prescribed test in both precision and accuracy as it relates to the determination of compliance with any MCL. The use of the alternate analytical technique shall not decrease the frequency of monitoring required by this rule. *(Water Pollution Control Division; 327 IAC 8-2-32; filed Dec 28, 1990, 5:10 p.m.: 14 IR 1047)*

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, a sample may be considered only if 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 the samples to determine compliance by a supplier of water with the applicable requirements of this rule. *(Water Pollution Control Division; 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; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)*

327 IAC 8-2-34 Maximum contaminant level goals; inorganic contaminants

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

Sec. 34. MCLGs for the following contaminants are as indicated:

Contaminant	MCLG in Milligrams per Liter
Fluoride	4.0
Asbestos	7 million fibers per liter (longer than 10 micrometers)
Barium	2
Cadmium	0.005
Chromium	0.1
Copper	1.3

Lead	0
Mercury	0.002
Nitrate	10 (as nitrogen)
Nitrite	1 (as nitrogen)
Total nitrate + nitrite	10 (as nitrogen)
Selenium	0.05
Antimony	0.006
Arsenic	0[1]
Beryllium	0.004
Cyanide (as free cyanide)	0.2
Nickel	0.1
Thallium	0.0005

[1]This value for arsenic is effective January 1, 2006. Until then, there is no MCLG.

(Water Pollution Control Division; 327 IAC 8-2-34; filed Aug 24, 1994, 8:15 a.m.: 18 IR 67; filed Jun 13, 2005, 2:30 p.m.: 28 IR 3218)

327 IAC 8-2-34.1 Maximum contaminant level goals; radionuclides

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

Sec. 34.1. MCLGs for the following contaminants are as indicated:

Contaminant	MCLG
Combined radium-226 and radium-228	0
Gross alpha particle activity (excluding radon and uranium)	0
Beta particle and photon radioactivity	0
Uranium	0

(Water Pollution Control Division; 327 IAC 8-2-34.1; filed Jun 13, 2005, 2:30 p.m.: 28 IR 3218)

327 IAC 8-2-35 Treatment techniques

Authority: IC 13-1-3-4; IC 13-7
Affected: IC 13-7

Sec. 35. (a) The requirements of this section constitute national primary drinking water regulations. These regulations establish treatment techniques in lieu of MCLs for specified contaminants.

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

(1) Acrylamide equals five-hundredths percent (0.05%) dosed at one (1) part per million or equivalent.

(2) Epichlorohydrin equals one-hundredth percent (0.01%) dosed at twenty (20) parts per million or equivalent.

(c) Certifications can rely on manufacturers or third parties, as approved by the commissioner. *(Water Pollution Control Division; 327 IAC 8-2-35; filed Aug 24, 1994, 8:15 a.m.: 18 IR 67)*

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 drinking water regulations for lead and copper. Unless otherwise indicated, each section applies to CWSs and 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, 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, 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) A PWS shall install and operate optimal corrosion control treatment as defined in section 41 of this rule.

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

(f) 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) 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(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.

(4) Analyses of the monitoring results under subdivisions (1) through (3).

(i) A PWS shall do the following:

(1) Report to the commissioner any information required by the treatment provisions of this section and section 46 of this rule.

(2) Maintain records in accordance with section 47 of this rule.

(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 Division; 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; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)*

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

(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 POUs or 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 in order to identify a sufficient number of sampling sites:

(A) All plumbing codes, permits, and records in the files of the building department 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.

(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 CWS's sampling pool (tier one (1) sampling sites) shall consist of:

(A) single family structures; or

(B) multiple family residences if 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).

(4) Any 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).

(5) Any 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 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 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 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).

(7) 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 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 the lines.

(b) The following are requirements for sample collection methods:

(1) All tap samples for lead and copper collected in accordance with this 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;

(B) from residential housing shall be collected from the:

(i) cold water kitchen tap; or

(ii) bathroom sink tap;

(C) from a nonresidential building shall be:

(i) one (1) liter in volume; and

(ii) collected at an interior tap from which water is typically drawn for consumption; and

(D) may be collected by the:

(i) system; or

(ii) residents, 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 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; 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) An NTNCWS, or a CWS meeting the criteria of section 44(b)(7) of this rule, that does not have enough taps that can supply first draw samples, as defined in subsection (a)(1):
(A) may apply to the commissioner in writing to substitute nonfirst draw samples; and
(B) must:
(i) collect as many first draw samples 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);
(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); and
(B) from monitoring sites 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) 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) 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

(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

(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

(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. 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 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 under subsection (a) shall collect their next round of samples during a period that ends 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 under subsection (a) shall collect their next round of samples during a time period that ends 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 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);

(BB) shall 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; 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 resume monitoring for water quality parameters in accordance with section 38(d) of this rule. 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 the samples in accordance with section 38(f)(2) of this rule. 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 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, 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).

(B) Replacement samples required under clause (A) must be taken as soon as possible, but not later than:

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

(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.

(D) Replacement samples shall be taken at:

(i) the same locations as the invalidated samples; or

(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) for lead or 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 the fittings and fixtures meet the specifications of any standard established pursuant to the 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.

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) Any water system with a full or partial waiver 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 the modifications are necessary to address treatment or source water changes at the system. Conditions may include requiring:

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

(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 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 not later than sixty (60) days after becoming aware of 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 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 levels, the system must monitor for lead and copper at the tap not less frequently than once every three (3) years using the reduced number of sample sites specified in subsection (c).

(Water Pollution Control Division; 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; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)

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

(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. Monitoring requirements for water quality parameters at taps are as follows:

(1) The following are water quality parameters:

(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 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 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. Monitoring requirements for water quality parameters at taps are as follows:

(1) The water quality parameters at taps 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.

(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 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.

(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 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, 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 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 monitoring for the applicable water quality parameters during each six (6) month period in which the system exceeds the lead or copper action level; and

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

(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, for example, determining concentrations of water quality parameters under this section or section 41 of this rule. *(Water Pollution Control Division; 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; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)*

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 that is representative of each well after treatment. 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 that is representative of each source after treatment. 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:

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

(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

(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 not later than six (6) months after the end of the monitoring period during which the lead or copper action level 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 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(a) of this rule or determines that the system is not required to install source water treatment under STEP TWO of section 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(14) of this rule) in effect when the applicable determination under this subdivision and section 42 of this rule is made by the commissioner. 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 during the 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(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

(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(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

(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;

(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 Division; 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; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)

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) 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. 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 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 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(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 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 under section 46(c) of this rule of any upcoming long-term change in treatment or 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 the system to:

(AA) conduct additional monitoring; or

(BB) take other action the commissioner deems appropriate to ensure that 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 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). 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. 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 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; and

(2) shall notify the system in writing of 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 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 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 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 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 Division; 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; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA; errata filed Jul 2, 2010, 1:12 p.m.: 20100714-IR-327100432ACA)

327 IAC 8-2-41 Corrosion control treatment

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. 41. (a) Each system shall complete the corrosion control treatment requirements described in this section that are applicable to such system under section 40 of this rule. Based upon the results of lead and copper tap monitoring and water quality parameter monitoring, small and medium size water systems exceeding the lead or copper action level shall recommend installation of one (1) or more of the corrosion control treatments listed in subsection (c)(1) that the system believes constitutes optimal corrosion control for that system. The commissioner may require the system to conduct additional water quality parameter monitoring in accordance with section 38(c) of this rule to assist the commissioner in reviewing the system's recommendation.

(b) The commissioner may require any small or medium size system that exceeds the lead or copper action level to perform corrosion control studies under subsection (c) to identify optimal corrosion control treatment for the system.

(c) Requirements for the performance of corrosion control studies shall be as follows:

(1) Any public water system performing corrosion control studies shall evaluate the effectiveness of each of the following treatments, and, if appropriate, combinations of the following treatments to identify the optimal corrosion control treatment for that system:

(A) Alkalinity and pH adjustment.

(B) Calcium hardness adjustment.

(C) The addition of a phosphate or silicate based corrosion inhibitor at a concentration sufficient to maintain an effective residual concentration in all test tap samples.

(2) The water system shall evaluate each of the corrosion control treatments using either pipe rig/loop tests, metal coupon tests, partial-system tests, or analyses based on analogous treatments with other systems of similar size, water chemistry, and distribution system configuration.

(3) The water system shall measure the following water quality parameters in any tests conducted under subdivision (2) before and after evaluating the corrosion control treatments listed in subdivision (1):

(A) Lead.

(B) Copper.
(C) pH.
(D) Alkalinity.
(E) Calcium.
(F) Conductivity.
(G) Orthophosphate (when an inhibitor containing a phosphate compound is used).
(H) Silicate (when an inhibitor containing a silicate compound is used).
(I) Water temperature.

(4) The water system shall identify all chemical or physical constraints that limit or prohibit the use of a particular corrosion control treatment and document such constraints with at least one (1) of the following:

(A) Data and documentation showing that a particular corrosion control treatment has adversely affected other water treatment processes when used by another water system with comparable water quality and characteristics.

(B) Data and documentation demonstrating that a water system has previously attempted to evaluate a particular corrosion control treatment and has found the treatment is ineffective or adversely affects other water quality treatment processes, or both.

(5) The water system shall evaluate the effect of the chemicals used for corrosion control treatment on other water quality treatment processes.

(6) On the basis of an analysis of the data generated during each evaluation, the water system shall recommend to the commissioner in writing the treatment option that the corrosion control studies indicate constitutes optimal corrosion control treatment for that system. The water system shall provide a rationale for its recommendation along with all supporting documentation specified in subdivisions (1) through (5).

(d) Requirements for the designation of optimal corrosion control treatment shall be as follows:

(1) Based upon consideration of available information including, where applicable, studies performed under subsection (c) and a system's recommended treatment alternative, the commissioner shall either approve the corrosion control treatment option recommended by the system or designate alternative corrosion control treatments from among those listed in subsection (c)(1). When designating optimal treatment, the commissioner shall consider the effects that additional corrosion control treatment will have on water quality parameters and on other water quality treatment processes.

(2) The commissioner shall notify the system of its decision on optimal corrosion control treatment in writing and explain the basis for this determination. If the commissioner requests additional information to aid the review, the water system shall provide the information.

(e) Each system shall properly install and operate throughout its distribution system the optimal corrosion control treatment designated by the commissioner under subsection (d).

(f) The commissioner shall evaluate the results of all lead and copper tap samples and water quality parameter samples submitted by the water system and determine whether the system has properly installed and operated the optimal corrosion control treatment designated by the commissioner in subsection (d). Upon reviewing the results of tap water and water quality parameter monitoring by the system, both before and after the system installs optimal corrosion control treatment, the commissioner shall designate the following:

(1) A minimum value or range of values for pH measured at each entry point to the distribution system.

(2) A minimum pH value, measured in all tap samples. Such value shall be equal to or greater than seven (7.0) unless the commissioner determines that meeting a pH level of seven (7.0) is not technologically feasible or is not necessary for the system to optimize corrosion control.

(3) If a corrosion inhibitor is used, a minimum concentration or a range of concentrations for the inhibitor, measured at each entry point to the distribution system and in all tap samples, that the commissioner determines is necessary to form a passivating film on the interior walls of the pipes of the distribution system.

(4) If alkalinity is adjusted as part of optimal corrosion control treatment, a minimum concentration or a range of concentrations for alkalinity measured at each entry point to the distribution system and in all tap samples.

(5) If calcium carbonate stabilization is used as part of corrosion control, a minimum concentration or a range of concentrations for calcium measured in all tap samples.

The values for the applicable water quality control parameters listed in this subsection shall be those the commissioner determines

to reflect optimal corrosion control treatment for the system. The commissioner may designate values for additional water quality control parameters determined by the commissioner to reflect optimal corrosion control for the system. The commissioner shall notify the system in writing of these determinations and explain the basis for the decisions.

(g) All systems optimizing corrosion control shall continue to operate and maintain optimal corrosion control treatment, including maintaining water quality parameter values at or above minimum values or within ranges designated by the commissioner under subsection (f) in all samples collected under section 38(d) through 38(f) of this rule. Compliance with the requirements shall be determined every six (6) months, as specified in section 38(d) of this rule. A water system is out of compliance with the requirements for a six (6) month period if it has excursions for any commissioner-specified parameter for more than nine (9) days during the period. An excursion occurs whenever the daily value for one (1) or more of the water quality parameters measured at a sampling location is below the minimum value or outside the range designated by the commissioner. The commissioner may delete results of obvious sampling errors from this calculation. Daily values are calculated as follows:

(1) On days when more than one (1) measurement for the water quality parameter is collected at the sampling location, the daily value shall be the average of all results collected during the day regardless of whether they are collected through continuous monitoring, grab sampling, or a combination of both.

(2) On days when only one (1) measurement for the water quality parameter is collected at the sampling location, the daily value shall be the results of that measurement.

(3) On days when no measurement is collected for the water quality parameter at the sampling location, the daily value shall be the daily value calculated on the most recent day on which the water quality parameter was measured at the sample site.

(h) Upon its own initiative or in response to a request by a water system or other interested party, the commissioner may modify its determination of the optimal corrosion control treatment under subsection (d) or optimal water quality control parameters under subsection (f). A request for modification by a system or other interested party shall be in writing, explain why the modification is appropriate, and provide supporting documentation. The commissioner may modify the determination where the commissioner concludes that such change is necessary to ensure that the system continues to optimize corrosion control treatment. A revised determination shall be made in writing, set forth the new treatment requirements, explain the basis for the commissioner's decision, and provide an implementation schedule for completing the treatment modifications. *(Water Pollution Control Division; 327 IAC 8-2-41; filed Aug 24, 1994, 8:15 a.m.: 18 IR 75; filed Oct 26, 2001, 4:55 p.m.: 25 IR 776)*

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));

not later than one hundred eighty (180) days after 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 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); 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.

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

(i) The source water treatment recommended by the system (if any).

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

(AA) Ion exchange.

(BB) Reverse osmosis.

(CC) Lime softening.

(DD) Coagulation/filtration.

(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.

(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;

(B) determine whether the system has properly installed and operated the source water treatment designated by the commissioner;

(C) designate, based on the review under clause (A), the maximum permissible lead and copper concentrations for finished water entering the distribution system. The concentrations shall reflect the contaminant removal capability of the treatment properly operated and maintained; and

(D) notify the system in writing and explain the basis for the commissioner's decision under this subdivision.

(5) 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; 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) 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 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;
(BB) set forth the new treatment requirements;
(CC) explain the basis for the decision; and
(DD) provide an implementation schedule for completing the treatment modifications.

(Water Pollution Control Division; 327 IAC 8-2-42; filed Aug 24, 1994, 8:15 a.m.: 18 IR 77; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)

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;
(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; and
(2) requirements of section 40 or 42 of this rule for failure to install source water or corrosion control treatment may be required to commence lead service line replacement under this section after the date has passed when the system was required to conduct monitoring under section 37(d)(2) of this rule.
(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 first day following the end of the monitoring period in which the action level was exceeded 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 water users may experience a temporary increase of lead levels in their drinking water; 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.

(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; 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; 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) 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 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 Division; 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; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)*

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 in accordance with the requirements in subsection (b):

(1) A CWS or an NTNCWS shall include the 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. 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 information contained under clauses (A) through (F) and be in plain language that can be understood by 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) "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. Lead can cause serious health problems if too much enters your body from drinking water or other sources. It can cause damage to the brain and kidneys and can interfere with the production of red blood cells that carry oxygen to all parts of your body. The greatest risk of lead exposure is to infants, young children, and pregnant women. Scientists have linked the effects of lead on the brain with a lowered IQ in children. Adults with kidney problems and high blood pressure can be affected by low levels of lead more than healthy adults. Lead is stored in the bones, and it can be released later in life. During pregnancy, the child receives lead from the mother's bones, which may affect the child's brain development.".

(C) Sources of lead shall be described in the water system's public education materials as follows:

(i) The public education materials must explain what lead is.

(ii) Possible sources of lead in drinking water and how lead enters drinking water must be explained, including information on:

(AA) home and building plumbing materials; and

(BB) service lines;

that can contain lead.

(iii) Other important sources of lead exposure in addition to drinking water, for example, paint, must be discussed.

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

(i) Encourage running the water to flush out the lead.

(ii) Explain concerns with using hot water from the tap and specifically caution against the use of hot water for preparing baby formula.

(iii) Explain that boiling water does not reduce lead levels.

(iv) Discuss other options consumers may take to reduce exposure to lead in drinking water, such as alternative

sources or treatment of water.

(v) 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) In addition to including the informational elements specified in subdivision (1) in public education materials, CWSs shall tell consumers how to get their water tested.

(b) Requirements for delivery of public education materials shall be as follows:

(1) For PWSs serving a large proportion of 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 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 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 conducting public education under this section shall meet the following, within sixty (60) days after the end of the monitoring period in which the exceedance occurred:

(A) Deliver printed materials meeting the content requirements of subsection (a) to all bill paying customers.

(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.

(ii) Deliver the public education materials to the following organizations that are located within the water system's service area, along with an informational notice that encourages distribution to all the organization's potentially affected customers or CWS's users:

(AA) Public and private schools or school boards.

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

(CC) Public and private hospitals and medical clinics.

(DD) Pediatricians.

(EE) Family planning clinics.

(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) For systems serving a population greater than one hundred thousand (100,000), post the public education material meeting the content requirements of subsection (a) on the water 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 CWS exceeds the 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 the end of the monitoring period in which the exceedance occurred, unless it is already repeating public education tasks according to subdivision (5), an NTNCWS shall deliver the public education materials contained in subsection (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;
(ii) brochures; or
(iii) both informational pamphlets and brochures;
on lead in drinking water to each person served by the 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) 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 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.
(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 CWS may apply to the commissioner, in writing, to use only the text specified in subsection (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.
(8) A CWS serving three thousand three hundred (3,300) or fewer people may limit certain aspects of its public education program if the following conditions are met:
(A) At least one (1) of the activities listed in subdivision (2)(F) is implemented.
(B) The distribution of the public education materials required under subdivision (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.
(C) The commissioner may waive the requirements under subdivision (2)(E) as long as the system distributes notices to every household served by the system.
(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;
(2) is not required to pay for collecting or analyzing the sample; and
(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 Division; 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; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)*

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.

(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 (1/2) 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 Division; 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; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)*

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) 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

(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.

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(b)(7) of this rule that does not have enough taps that can provide first-draw samples, the system 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 the information under item (i) with the lead and copper tap sample results required to be submitted under subdivision (1)(A).

(3) 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, the following apply:

(A) The following systems shall send written documentation to the commissioner describing the change 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) 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) Not later than sixty (60) days after the 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)(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.

(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) 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:

(A) submit written documentation to the commissioner of the material evaluation conducted as required in section 37(a) of this rule;

(B) identify the initial number of lead service lines in its distribution system at the time the system exceeds the lead action level; and

(C) provide the system's schedule for annually replacing at least seven percent (7%) of the initial number of lead service lines within its distribution system.

(2) 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. 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 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;

(ii) sampling method; and

(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; 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.

(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(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) of this rule; and

(ii) delivery requirements in section 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 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

(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 Division; 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; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)*

327 IAC 8-2-47 Record keeping requirements; lead and copper

Authority: IC 13-1-3-4; IC 13-7
Affected: IC 13-7

Sec. 47. Any system subject to the requirements of sections 37 through 44 of this rule shall retain on its premises original records of all sampling data and analyses, reports, surveys, letters, evaluations, schedules, commissioner determinations, and any other information required by sections 37 through 44 of this rule. Each water system shall retain the records required by this section for no fewer than twelve (12) years. *(Water Pollution Control Division; 327 IAC 8-2-47; filed Aug 24, 1994, 8:15 a.m.: 18 IR 86)*

327 IAC 8-2-48 Monitoring of consecutive public water systems

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

Sec. 48. When a public water system supplies water to one (1) or more other public water systems, the commissioner may modify the monitoring requirements imposed by this article to the extent that the interconnection of the systems justifies treating them as a single system for monitoring purposes. Any modified monitoring shall be conducted pursuant to a schedule specified by the commissioner and concurred by the administrator of the U.S. EPA. *(Water Pollution Control Division; 327 IAC 8-2-48; filed May 1, 2003, 12:00 p.m.: 26 IR 2818)*

Rule 2.1. Consumer Confidence Reports

327 IAC 8-2.1-1 Purpose; applicability; definitions

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. 1. (a) This rule establishes the minimum requirements for the content of annual reports that a community water system shall deliver to its customers. These reports must contain information on the quality of the water delivered by the system and characterize the risks, if any, from exposure to contaminants detected in the drinking water in an accurate and understandable manner.

(b) This rule applies only to community water systems.

(c) In addition to the definitions contained in 327 IAC 8-2-1, the following definitions apply throughout this rule:

(1) "Customers" means billing units or service connections to which water is delivered by a community water system.

(2) "Department" means the Indiana department of environmental management.

(3) "Detected" means at or above the levels prescribed by 327 IAC 8-2-4.1, 327 IAC 8-2-5.1, 327 IAC 8-2-5.5, and 327 IAC 8-2-10.1.

(Water Pollution Control Division; 327 IAC 8-2.1-1; filed Mar 22, 2000, 3:23 p.m.: 23 IR 1898)

327 IAC 8-2.1-2 Effective dates

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. 2. (a) An existing community water system shall deliver its first report no later than October 19, 1999, its second report no later than July 1, 2000, and subsequent reports no later than July 1 annually thereafter. The first report must contain data collected during, or prior to, calendar year 1998, as specified in section 3(d)(5) of this rule. Each report thereafter must contain data collected during, or prior to, the previous calendar year.

(b) A new community water system shall deliver its first report no later than July 1 of the year after its first full calendar year in operation and no later than July 1 annually thereafter.

(c) A community water system that sells water to another community water system shall deliver the applicable information required in section 3 of this rule to the buyer system:

(1) no later than April 19, 1999, no later than April 1, 2000, and no later than April 1 annually thereafter; or

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

(Water Pollution Control Division; 327 IAC 8-2.1-2; filed Mar 22, 2000, 3:23 p.m.: 23 IR 1898)

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

(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.

(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; 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 monitoring location, systems shall report the following:
(AA) The highest average of any of the monitoring locations and the range of all 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 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 8-2-8.5 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 8-2-8.5 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 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 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 Division; 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; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)*

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

(1) A short informational statement about lead in drinking water and its effects on children. The statement must include the following information: "If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. (NAME OF UTILITY) is responsible for providing high quality drinking water but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 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. 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 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. 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)(75) contained in section 17 of this rule. *(Water Pollution Control Division; 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; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)*

327 IAC 8-2.1-5 Report delivery; record keeping

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. 5. (a) A community water system shall mail or otherwise directly deliver one (1) copy of the consumer confidence report to each customer.

(b) The system shall make a good faith effort to inform consumers who do not get water bills, using means recommended by the commissioner. The commissioner expects that an adequate good faith effort will be tailored to the consumers who are served by the system, but are not bill-paying customers, such as renters or workers. A good faith effort to inform consumers may include, but is not limited to, methods appropriate to the particular system, including any of the following:

(1) Posting the reports on the Internet.

(2) Mailing to postal patrons in metropolitan areas.

(3) Advertising the availability of the report in the news media.

(4) Publication in a local newspaper.

(5) Posting in public places such as cafeterias or lunch rooms of public buildings.

(6) Delivery of multiple copies for distribution by single-biller customers, such as apartment buildings or large private employers.

(7) Delivery to community organizations.

(c) No later than the date the system is required to distribute the report to its customers, a community water system shall mail a copy of the report to the department, followed within three (3) months by a certification that the report has been distributed to customers, and that the information is correct and consistent with the compliance monitoring data previously submitted to the commissioner.

(d) No later than the date the system is required to distribute the report to its customers, a community water system shall deliver the report to any other agency or clearinghouse identified by the commissioner, including the county health department or departments serving the county or counties where the system's distribution system is located.

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

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

(g) A community water system shall retain copies of its consumer confidence report for no less than five (5) years. *(Water Pollution Control Division; 327 IAC 8-2.1-5; filed Mar 22, 2000, 3:23 p.m.: 23 IR 1903)*

327 IAC 8-2.1-6 Other required 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. 6. (a) In order to convert MCLs to numbers greater than or equal to one and zero-tenths (1.0) for the required table referenced in section 3 of this rule, a CWS shall use the following table:

Table 6-1: Converting MCL Compliance Values for Consumer Confidence Reports

Contaminant	MCL in Compliance Units (mg/l)	multiply by...	MCL in CCR Units	MCLG in CCR Units
Microbiological contaminants				
1. Total coliform bacteria	5% of monthly samples are positive (systems that collect forty (40) or more samples per month); one (1) positive monthly sample (systems that collect fewer than forty (40) samples per month).		5% of monthly samples are positive (systems that collect forty (40) or more samples per month); one (1) positive monthly sample (systems that collect fewer than forty (40) samples per month).	0
2. Fecal coliform and E. coli	0		A routine sample and a repeat sample are total coliform positive, and one (1) is also fecal coliform or E. coli positive.	0
3. Total organic carbon	TT		TT	n/a
4. Turbidity	TT		TT (NTU)	n/a
Radioactive contaminants				
5. Beta/photon emitters	4 mrem/year		4 mrem/year	0
6. Alpha emitters	15 pCi/l		15 pCi/l	0
7. Combined radium	5 pCi/l		5 pCi/l	0
8. Uranium	0.030	1,000	30 ppb	0
Inorganic contaminants				
9. Antimony	0.006	1,000	6 ppb	6
10. Arsenic	0.010[1]	1,000	10[1] ppb	0[1]
11. Asbestos	7 MFL		7 MFL	7
12. Barium	2		2 ppm	2

13. Beryllium	0.004	1,000	4 ppb	4
14. Bromate	0.10	1,000	10 ppb	0
15. Cadmium	0.005	1,000	5 ppb	5
16. Chloramines	MRDL = 4.0		MRDL = 4.0 ppm	MRDLG = 4
17. Chlorine	MRDL = 4.0		MRDL = 4.0 ppm	MRDLG = 4
18. Chlorine dioxide	MRDL = 0.8	1,000	MRDL = 800 ppb	MRDLG = 800
19. Chlorite	1		1 ppm	0.8
20. Chromium	0.1	1,000	100 ppb	100
21.Copper	AL = 1.3		AL = 1.3 ppm	1.3
22. Cyanide	0.2	1,000	200 ppb	200
23. Fluoride	4		4 ppm	4
24. Lead	AL = 0.015	1,000	AL = 15 ppb	0
25. Mercury (inorganic)	0.002	1,000	2 ppb	2
26. Nitrate (as nitrogen)	10		10 ppm	10
27. Nitrite (as nitrogen)	1		1 ppm	1
28. Selenium	0.05	1,000	50 ppb	50
29. Thallium	0.002	1,000	2 ppb	0.5
Synthetic organic contaminants including pesticides and herbicides				
30. 2,4-D	0.07	1,000	70 ppb	70
31. 2,4,5-TP (silvex)	0.05	1,000	50 ppb	50
32. Acrylamide	TT		TT	0
33. Alachlor	0.002	1,000	2 ppb	0
34. Atrazine	0.003	1,000	3 ppb	3
35. Benzo(a)pyrene (PAH)	0.0002	1,000,000	200 ppt	0
36. Carbofuran	0.04	1,000	40 ppb	40
37. Chlordane	0.002	1,000	2 ppb	0
38. Dalapon	0.2	1,000	200 ppb	200
39. Di(2-ethylhexyl)adipate	.4	1,000	400 ppb	400
40. Di(2-ethylhexyl)phthalate	0.006	1,000	6 ppb	0
41. Dibromochloropropane	0.0002	1,000,000	200 ppt	0
42. Dinoseb	0.007	1,000	7 ppb	7
43. Diquat	0.02	1,000	20 ppb	20
44. Dioxin (2,3,7,8-TCDD)	0.00000003	1,000,000,000	30 ppq	0
45. Endothall	0.1	1,000	100 ppb	100
46. Endrin	0.002	1,000	2 ppb	2
47. Epichlorohydrin	TT		TT	0
48. Ethylene dibromide	0.00005	1,000,000	50 ppt	0
49. Glyphosate	0.7	1,000	700 ppb	700
50. Heptachlor	0.0004	1,000,000	400 ppt	0
51. Heptachlor epoxide	0.0002	1,000,000	200 ppt	0
52. Hexachlorobenzene	0.001	1,000	1 ppb	0
53. Hexachlorocyclopentadiene	0.05	1,000	50 ppb	50
54. Lindane	0.0002	1,000,000	200 ppt	200
55. Methoxychlor	0.04	1,000	40 ppb	40
56. Oxamyl (vydate)	0.2	1,000	200 ppb	200
57. PCBs (polychlorinated biphenyls)	0.0005	1,000,000	500 ppt	0
58. Pentachlorophenol	0.001	1,000	1 ppb	0

59. Picloram	0.5	1,000	500 ppb	500
60. Simazine	0.004	1,000	4 ppb	4
61. Toxaphene	0.003	1,000	3 ppb	0
Volatile organic contaminants				
62. Benzene	0.005	1,000	5 ppb	0
63. Carbon tetrachloride	0.005	1,000	5 ppb	0
64. Chlorobenzene	0.1	1,000	100 ppb	100
65. o-Dichlorobenzene	0.6	1,000	600 ppb	600
66. p-Dichlorobenzene	0.075	1,000	75 ppb	75
67. 1,2-Dichloroethane	0.005	1,000	5 ppb	0
68. 1,1-Dichloroethylene	0.007	1,000	7 ppb	7
69. cis-1,2-Dichloroethylene	0.07	1,000	70 ppb	70
70. trans-1,2-Dichloroethylene	0.1	1,000	100 ppb	100
71. Dichloromethane	0.005	1,000	5 ppb	0
72. 1,2-Dichloropropane	0.005	1,000	5 ppb	0
73. Ethylbenzene	0.7	1,000	700 ppb	700
74. Haloacetic acids (HAA)	0.060	1,000	60 ppb	n/a
75. Styrene	0.1	1,000	100 ppb	100
76. Tetrachloroethylene	0.005	1,000	5 ppb	0
77. 1,2,4-Trichlorobenzene	0.07	1,000	70 ppb	70
78. 1,1,1-Trichloroethane	0.2	1,000	200 ppb	200
79. 1,1,2-Trichloroethane	0.005	1,000	5 ppb	3
80. Trichloroethylene	0.005	1,000	5 ppb	0
81. TTHMs (total trihalomethanes)	0.080	1,000	80 ppb	n/a
82. Toluene	1		1 ppm	1
83. Vinyl chloride	0.002	1,000	2 ppb	0
84. Xylenes	10		10 ppm	10

[1]These arsenic values are effective January 1, 2006. Until then, the MCL is 0.05 mg/L and there is no MCLG.

Key:
AL = Action level.
MCL = Maximum contaminant level.
MCLG = Maximum contaminant level goal.
MFL = Million fibers per liter.
MRDL = Maximum residual disinfectant level.
MRDLG = Maximum residual disinfectant level goal.
mrem/year = Millirems per year (a measure of radiation absorbed by the body).
N/A = Not applicable
NTU = Nephelometric turbidity units.
pCi/l = Picocuries per liter (a measure of radioactivity).
ppm = Parts per million, or milligrams per liter (mg/l).
ppb = Parts per billion, or micrograms per liter (µg/l).
ppt = Parts per trillion, or nanograms per liter (ng/l).
ppq = Parts per quadrillion, or picograms per liter (pg/l).
TT = Treatment technique.

(b) In order to show potential sources of contamination for the table required by section 3 of this rule, a CWS shall use the following table:

Table 6-2: Regulated Contaminants

Contaminant (units)	MCLG	MCL	Major Sources in Drinking Water
Microbiological contaminants			

1. Total coliform bacteria	0	5% of monthly samples are positive (systems that collect forty (40) or more samples per month); one (1) positive monthly sample (systems that collect fewer than forty (40) samples per month).	Naturally present in the environment.
2. Fecal coliform and E. coli	0	A routine sample and a repeat sample are total coliform positive, and one (1) is also fecal coliform or E. coli positive.	Human and animal fecal waste.
3. Total organic carbon	n/a	TT	Naturally present in the environment.
4. Turbidity	n/a	TT	Soil run-off.
Radioactive contaminants			
5. Beta/photon emitters (mrem/year)	0	4	Decay of natural and manmade deposits.
6. Alpha emitters (pCi/l)	0	15	Erosion of natural deposits.
7. Combined radium (pCi/l)	0	5	Erosion of natural deposits.
8. Uranium (ppb)	0	30	Erosion of natural deposits.
Inorganic contaminants			
9. Antimony (ppb)	6	6	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder.
10. Arsenic (ppb)	0[1]	10[1]	Erosion of natural deposits; run-off from orchards; run-off from glass and electronics production wastes.
11. Asbestos (MFL)	7	7	Decay of asbestos cement water mains; erosion of natural deposits.
12. Barium (ppm)	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.
13. Beryllium (ppb)	4	4	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries.
14. Bromate (ppb)	0	10	Byproduct of drinking water disinfection.
15. Cadmium (ppb)	5	5	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; run-off from waste batteries and paints.
16. Chloramines (ppm)	MRDLG = 4	MRDL = 4.0	Water additive used to control microbes.
17. Chlorine (ppm)	MRDLG = 4	MRDL = 4.0	Water additive used to control microbes.
18. Chlorine dioxide (ppb)	MRDLG = 800	MRDL = 800	Water additive used to control microbes.
19. Chlorite (ppm)	0.8	1	Byproduct of drinking water disinfection.

20. Chromium (ppb)	100	100	Discharge from steel and pulp mills; erosion of natural deposits.
21. Copper (ppm)	1.3	AL = 1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.
22. Cyanide (ppb)	200	200	Discharge from steel/metal factories; discharge from plastic and fertilizer factories.
23. Fluoride (ppm)	4	4	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories.
24. Lead (ppb)	0	AL = 15	Corrosion of household plumbing systems; erosion of natural deposits.
25. Mercury (inorganic) (ppb)	2	2	Erosion of natural deposits; discharge from refineries and factories; run-off from landfills; run-off from cropland.
26. Nitrate (as nitrogen) (ppm)	10	10	Run-off from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
27. Nitrite (as nitrogen) (ppm)	1	1	Run-off from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
28. Selenium (ppb)	50	50	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines.
29. Thallium (ppb)	0.5	2	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories.
Synthetic organic contaminants, including pesticides and herbicides			
30. 2,4-D (ppb)	70	70	Run-off from herbicide used on row crops.
31. 2,4,5-TP (Silvex) (ppb)	50	50	Residue of banned herbicide.
32. Acrylamide	0	TT	Added to water during sewage/wastewater treatment.
33. Alachlor (ppb)	0	2	Run-off from herbicide used on row crops.
34. Atrazine (ppb)	3	3	Run-off from herbicide used on row crops.
35. Benzo(a)pyrene (PAH) (ppt)	0	200	Leaching from linings of water storage tanks and distribution lines.
36. Carbofuran (ppb)	40	40	Leaching of soil fumigant used on rice and alfalfa.
37. Chlordane (ppb)	0	2	Residue of banned termiticide.
38. Dalapon (ppb)	200	200	Run-off from herbicide used on rights-of-way.
39. Di(2-ethylhexyl)adipate (ppb)	400	400	Discharge from chemical factories.

40. Di(2-ethylhexyl)phthalate (ppb)	0	6	Discharge from rubber and chemical factories.
41. Dibromochloropropane (ppt)	0	200	Run-off/leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards.
42. Dinoseb (ppb)	7	7	Run-off from herbicide used on soybeans and vegetables.
43. Diquat (ppb)	20	20	Run-off from herbicide use.
44. Dioxin (2,3,7,8-TCDD) (ppq)	0	30	Emissions from waste incineration and other combustion; discharge from chemical factories.
45. Endothall (ppb)	100	100	Run-off from herbicide use.
46. Endrin (ppb)	2	2	Residue of banned insecticide.
47. Epichlorohydrin	0	TT	Discharge from industrial chemical factories; an impurity of some water treatment chemicals.
48. Ethylene dibromide (ppt)	0	50	Discharge from petroleum refineries.
49. Glyphosate (ppb)	700	700	Run-off from herbicide use.
50. Heptachlor (ppt)	0	400	Residue of banned pesticide.
51. Heptachlor epoxide (ppt)	0	200	Breakdown of heptachlor.
52. Hexachlorobenzene (ppb)	0	1	Discharge from metal refineries and agricultural chemical factories.
53. Hexachlorocyclopentadiene (ppb)	50	50	Discharge from chemical factories.
54. Lindane (ppt)	200	200	Run-off/leaching from insecticide used on cattle, lumber, and gardens.
55. Methoxychlor (ppb)	40	40	Run-off/leaching from insecticide used on fruits, vegetables, alfalfa, and livestock.
56. Oxamyl (vydate) (ppb)	200	200	Run-off/leaching from insecticide used on apples, potatoes, and tomatoes.
57. PCBs (polychlorinated biphenyls) (ppt)	0	500	Run-off from landfills; discharge of waste chemicals.
58. Pentachlorophenol (ppb)	0	1	Discharge from wood preserving factories.
59. Picloram (ppb)	500	500	Herbicide run-off.
60. Simazine (ppb)	4	4	Herbicide run-off.
61. Toxaphene (ppb)	0	3	Run-off/leaching from insecticide used on cotton and cattle.
Volatile organic contaminants			
62. Benzene (ppb)	0	5	Discharge from factories; leaching from gas storage tanks and landfills.
63. Carbon tetrachloride (ppb)	0	5	Discharge from chemical plants and other industrial activities.
64. Chlorobenzene (ppb)	100	100	Discharge from chemical and agricultural chemical factories.
65. o-Dichlorobenzene (ppb)	600	600	Discharge from industrial chemical factories.

66. p-Dichlorobenzene (ppb)	75	75	Discharge from industrial chemical factories.
67. 1,2-Dichloroethane (ppb)	0	5	Discharge from industrial chemical factories.
68. 1,1-Dichloroethylene (ppb)	7	7	Discharge from industrial chemical factories.
69. cis-1,2-Dichloroethylene (ppb)	70	70	Discharge from industrial chemical factories.
70. trans-1,2-Dichloroethylene (ppb)	100	100	Discharge from industrial chemical factories.
71. Dichloromethane (ppb)	0	5	Discharge from pharmaceutical and chemical factories.
72. 1,2-Dichloropropane (ppb)	0	5	Discharge from industrial chemical factories.
73. Ethylbenzene (ppb)	700	700	Discharge from petroleum refineries.
74. Haloacetic Acids (HAA) (ppb)	n/a	60	Byproduct of drinking water disinfection.
75. Styrene (ppb)	100	100	Discharge from rubber and plastic factories; leaching from landfills.
76. Tetrachloroethylene (ppb)	0	5	Discharge from factories and dry cleaners.
77. 1,2,4-Trichlorobenzene (ppb)	70	70	Discharge from textile-finishing factories.
78. 1,1,1-Trichloroethane (ppb)	200	200	Discharge from metal degreasing sites and other factories.
79. 1,1,2-Trichloroethane (ppb)	3	5	Discharge from industrial chemical factories.
80. Trichloroethylene (ppb)	0	5	Discharge from metal degreasing sites and other factories.
81. TTHMs (total trihalomethanes) (ppb)	n/a	80	Byproduct of drinking water chlorination.
82. Toluene (ppm)	1	1	Discharge from petroleum factories.
83. Vinyl chloride (ppb)	0	2	Leaching from PVC piping; discharge from plastics factories.
84. Xylenes (ppm)	10	10	Discharge from petroleum factories; discharge from chemical factories.

[1]These arsenic values are effective January 1, 2006. Until then, the MCL is 0.05 mg/l and there is no MCLG.

Key:
AL = Action level.
MCL = Maximum contaminant level.
MCLG = Maximum contaminant level goal.
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ppt = Parts per trillion, or nanograms per liter (ng/l).
ppq = Parts per quadrillion, or picograms per liter (pg/l).
TT = Treatment technique.

(c) The language in section 17 of this rule shall be used if there is a violation referenced in section 3 of this rule and health effects language is required. *(Water Pollution Control Division; 327 IAC 8-2.1-6; filed Mar 22, 2000, 3:23 p.m.: 23 IR 1903; filed Nov 20, 2001, 10:20 a.m.: 25 IR 1100; filed May 1, 2003, 12:00 p.m.: 26 IR 2822; filed Jun 13, 2005, 2:30 p.m.: 28 IR 3227)*

327 IAC 8-2.1-7 Public notification of drinking water violations

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. 7. (a) Each of the following owners or operators of a public water system must give notice for all violations of drinking water regulations and for other situations that are listed in subsection (b):

(1) Community water systems.
(2) Nontransient noncommunity water systems.
(3) Transient noncommunity water systems.

(b) The following are violation categories and other situations that require a public notice:

(1) The following drinking water violations:
(A) Failure to comply with an applicable maximum contaminant level (MCL) or maximum residual disinfectant level (MRDL).
(B) Failure to comply with a prescribed treatment technique (TT).
(C) Failure to perform water quality monitoring, as required by the drinking water regulations.
(D) Failure to comply with testing procedures as prescribed by a drinking water regulation.

(2) The following special public notices:
(A) Occurrence of a waterborne disease outbreak or other waterborne emergency.
(B) Exceedance of the nitrate MCL by noncommunity water systems (NCWS), where granted permission by the commissioner under 327 IAC 8-2-4(b).
(C) Exceedance of the secondary maximum contaminant level (SMCL) for fluoride.
(D) Availability of unregulated contaminant monitoring data.
(E) Other violations and situations determined by the commissioner to require a public notice under this subdivision, not already listed.

(c) Public notice requirements are divided into three (3) tiers, to take into account the seriousness of the violation or situation and of any potential adverse health effects that may be involved. They are divided as follows:

(1) A Tier 1 public notice is required for drinking water violations and situations with significant potential to have serious adverse effects on human health as a result of short term exposure.
(2) Tier 2 public notice is required for all other drinking water violations and situations with potential to have serious adverse effects on human health.
(3) Tier 3 public notice required for all other drinking water violations and situations not included in Tier 1 and Tier 2.

(d) Public notification requirements are as follows:

(1) Each public water system must provide public notice to persons served by the water system.
(2) Public water systems that sell or otherwise provide drinking water to other public water systems are required to give public notice to the owner or operator of the consecutive system; the consecutive system is responsible for providing public notice to the persons it serves.
(3) If a public water system has a violation in a portion of the distribution system that is physically or hydraulically isolated from other parts of the distribution system, the commissioner may allow the system to limit distribution of the public notice to only persons served by that portion of the system which is out of compliance. Permission from the commissioner for limiting distribution of the notice must be granted in writing.

(4) A copy of the notice must also be sent to the commissioner, within ten (10) days of completion of each public notification. The public water system shall submit to the commissioner a representative copy of each type of notice distributed, published, posted, or made available to the persons served by the system and the media, where appropriate.

(Water Pollution Control Division; 327 IAC 8-2.1-7; filed Nov 20, 2001, 10:20 a.m.: 25 IR 1109)

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 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

(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

(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 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 not later than twenty-four (24) hours after the 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) 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 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 PWS as soon as possible but in no case later than seventy-two (72) hours after the violation. *(Water Pollution Control Division; 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; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)*

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
(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) PWSs shall provide the public notice as soon as practical, but 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

(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 PWS shall repeat the notice every three (3) months as long as the violation or situation persists 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's determinations must be in writing to allow repeat notices to be given less frequently than once every three (3) months.

(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 PWSs shall do the following:

(A) Consult with the commissioner as soon as practical but not later than twenty-four (24) hours after the 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 shall distribute a Tier 1 notice of the violation within the next twenty-four (24) hours (for example, 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) 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 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 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). 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, 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). 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 Division; 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; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)

327 IAC 8-2.1-10 Tier 3 public 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. 10. (a) The following violations or situations require a Tier 3 public notice:

(1) Monitoring violations under 327 IAC 8-2, except where:

(A) a Tier 1 notice is required under section 8 of this rule; or

(B) the commissioner determines that a Tier 2 notice is required.

(2) Failure to comply with a testing procedure established in 327 IAC 8-2, except where:

(A) a Tier 1 notice is required under section 8(a) of this rule; or

(B) the commissioner determines that a Tier 2 notice is required.

(3) Exceedance of the fluoride secondary maximum contaminant level (SMCL) as required under section 13 of this rule.

(4) Availability of unregulated contaminant monitoring results as required under section 14.5 of this rule.

(b) Tier 3 public notice needs to be provided as follows:

(1) Public water systems must provide the public notice not later than one (1) year after the public water system learns of the violation or situation. Following the initial notice, the public water system must repeat the notice annually for as long as the violation or other situation persists. If the public notice is posted, the notice must remain in place for as long as the violation or other situation persists, but in no case less than seven (7) days even if the violation or situation is resolved.

(2) Instead of individual Tier 3 public notices, a public water system may use an annual report detailing all violations and situations that occurred during the previous twelve (12) months, as long as the timing requirements of subdivision (1) are met.

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

(1) Unless directed otherwise by the commissioner in writing, community water systems must provide notice by the following methods:

(A) Mail or other direct delivery to the following:

(i) Each customer receiving a bill.

(ii) Other service connections to which water is delivered by the public water system.

(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). These persons may include those who do not pay water bills or do not have service connection addresses, such as 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 either of the following:
(AA) Apartment building owners.
(BB) Large private employers.
(iii) Posting in public places or on the Internet.
(iv) Delivery to community organizations.
(2) Unless directed otherwise by the commissioner in writing, noncommunity water systems must provide notice by the following methods:
(A) Posting the notice in conspicuous locations throughout the distribution system frequented by persons served by the system, or by mail or direct delivery to each customer and service connection if known.
(B) Any other method reasonably calculated to reach other persons served by the system, if they would not normally be reached by the notice required in item (i). Such persons may include those who may not see a posted notice because the notice is not in a location they routinely pass by. Other methods may include any of the following:
(i) Publication in a local newspaper or newsletter distributed to customers.
(ii) Use of e-mail to notify employees or students.
(iii) Delivery of multiple copies in central locations such as community centers.
(d) For community water systems, the consumer confidence report (CCR) required under sections 1 through 6 of this rule may be used as a vehicle for the initial Tier 3 public notice and all required repeat notices as long as:
(1) the CCR is provided to persons served not later than twelve (12) months after the system learns of the violation or situation as required in this section;
(2) the Tier 3 notice contained in the CCR follows the content requirements under section 11 of this rule; and
(3) the CCR is distributed following the delivery requirements under subsection (c).
(Water Pollution Control Division; 327 IAC 8-2.1-10; filed Nov 20, 2001, 10:20 a.m.: 25 IR 1111; filed Jul 13, 2007, 11:58 a.m.: 20070808-IR-327060044FRA)

327 IAC 8-2.1-11 Contents of the public 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. 11. (a) When a public water system violates a drinking water regulation or has a situation requiring public notification, each public notice must include the following elements:
(1) A description of the violation or situation, including the contaminant or contaminants of concern and the contaminant level or levels as applicable.
(2) When the violation or situation occurred.
(3) Any potential adverse health effects from the violation or situation, including the standard language under subsection (c)(1) or (c)(2), whichever is applicable.
(4) The population at risk, including subpopulations particularly vulnerable if exposed to the contaminant in their drinking water.
(5) Whether alternative water supplies should be used.
(6) What actions consumers should take, including when they should seek medical help, if known.
(7) What the system is doing to correct the violation or situation.
(8) When the water system expects to return to compliance or resolve the situation.
(9) The name, business address, and phone number of the water system owner, operator, or designee of the public water system as a source of additional information concerning the notice.

(10) A statement to encourage the notice recipient to distribute the public notice to other persons served, using the standard language under subsection (c)(3), where applicable.

(b) The following requirements need to be included when a public notice is presented:

(1) Each public notice must do the following:

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

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

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

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

(2) 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 notice must contain information in the appropriate language or languages regarding the importance of the notice or contain a telephone number or address where such residents may contact the system to obtain a translated copy of the notice or assistance in the appropriate language or languages.

(c) Public water systems are required to include the following standard language in their public notice:

(1) Standard health effects language for MCL or MRDL violations and treatment technique violations. Public water systems must include in each public notice the health effects language specified in section 17 of this rule corresponding to each MCL, MRDL, and treatment technique violation listed in section 16 of this rule.

(2) Public water systems must include standard language in their notice about monitoring and testing procedure violations, including language necessary to fill in the blanks, for all monitoring and testing procedure violations listed in section 16 of this rule. The standard language must state, "We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not your drinking water meets health standards. During [compliance period], we "did not monitor or test" or "did not complete all monitoring or testing" for [contaminant(s)], and therefore cannot be sure of the quality of your drinking water during that time.".

(3) Public water systems must include standard language in their notice to encourage the distribution of the public notice to all persons served. Where applicable, the standard language must state, "Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.".

(Water Pollution Control Division; 327 IAC 8-2.1-11; filed Nov 20, 2001, 10:20 a.m.: 25 IR 1112)

327 IAC 8-2.1-12 Notice to new billing units or new customers

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

(b) Noncommunity water systems must continuously post the public notice in conspicuous locations in order to inform new consumers of any continuing violation or other situation requiring a public notice for as long as the violation or other situation persists. *(Water Pollution Control Division; 327 IAC 8-2.1-12; filed Nov 20, 2001, 10:20 a.m.: 25 IR 1113)*

327 IAC 8-2.1-13 Special notice for exceedance of the SMCL for fluoride

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. 13. (a) A community water system that exceeds the fluoride secondary maximum contaminant level (SMCL) of two (2) milligrams per liter as specified in 40 CFR § 143.3*, determined by the last single sample taken in accordance with 327 IAC 8-2-4.1, but does not exceed the maximum contaminant level (MCL) of four (4) milligrams per liter for fluoride as specified in 327 IAC 8-2-4, must provide the public notice in subsection (c) to persons served. Public notice must be provided as soon as practical, but no later than twelve (12) months from the day the water system learns of the exceedance. A copy of the notice must also be sent to all new billing units and new customers at the time service begins and to the state public health officer. The public water system

must repeat the notice at least annually for as long as the SMCL is exceeded. If the public notice is posted, the notice must remain in place for as long as the SMCL is exceeded, but in no case less than seven (7) days even if the exceedance is eliminated. On a case-by-case basis, the commissioner may require an initial notice sooner than twelve (12) months and repeat notices more frequently than annually.

(b) The form and manner of the public notice, including repeat notices, must follow the requirements for a Tier 3 public notice in section 10(c), 10(d)(1), and 10(d)(3) of this rule.

(c) The notice must contain the standard language, including the language necessary to fill in the blanks, that states, "This is an alert about your drinking water and a cosmetic dental problem that might affect children under nine (9) years of age. At low levels, fluoride can help prevent cavities, but children drinking water containing more than two (2) milligrams per liter (mg/l) of fluoride may develop cosmetic discoloration of their permanent teeth (dental fluorosis). The drinking water provided by your community water system [name] has a fluoride concentration of [insert value] mg/l. Dental fluorosis, in its moderate or severe forms, may result in a brown staining and/or pitting of the permanent teeth. This problem occurs only in developing teeth, before they erupt from the gums. Children under nine (9) should be provided with alternative sources of drinking water or water that has been treated to remove the fluoride to avoid the possibility of staining and pitting of their permanent teeth. You may also want to contact your dentist about proper use by young children of fluoride-containing products. Older children and adults may safely drink the water. Drinking water containing more than four (4) mg/L of fluoride (the U.S. Environmental Protection Agency's and Indiana Department of Environmental Management's drinking water standard) can increase your risk of developing bone disease. Your drinking water does not contain more than four (4) mg/l of fluoride, but we're required to notify you when we discover that the fluoride levels in your drinking water exceed two (2) mg/l because of this cosmetic dental problem. For more information, please call [name of water system contact] of [name of community water system] at [phone number]. Some home water treatment units are also available to remove fluoride from drinking water. To learn more about available home water treatment units, you may call NSF International at 1-877-867-3435.".

*40 CFR 143.3 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 Division; 327 IAC 8-2.1-13; filed Nov 20, 2001, 10:20 a.m.: 25 IR 1113; errata filed Feb 22, 2002, 2:01 p.m.: 25 IR 2254; errata filed Feb 6, 2006, 11:15 a.m.: 29 IR 1937; errata filed Apr 10, 2006, 2:46 p.m.: 29 IR 2547)*

327 IAC 8-2.1-14 Special notice for nitrate exceedances above MCL by noncommunity water systems; granted permission by the commissioner under 327 IAC 8-2-4(b)

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. 14. (a) The owner or operator of a noncommunity water system granted permission by the commissioner under 327 IAC 8-2-4(b) to exceed the nitrate MCL must provide notice to persons served according to the requirements for a Tier 1 notice under section 8 of this rule.

(b) Noncommunity water systems granted permission by the commissioner to exceed the nitrate MCL under 327 IAC 8-2-4(b) must provide continuous posting of the:

(1) fact that nitrate levels exceed ten (10) milligrams per liter; and

(2) potential health effects of exposure;

in accordance with the requirements for Tier 1 notice delivery under section 8 of this rule and the content requirements under section 11 of this rule. *(Water Pollution Control Division; 327 IAC 8-2.1-14; filed Nov 20, 2001, 10:20 a.m.: 25 IR 1114; filed Jun 13, 2005, 2:30 p.m.: 28 IR 3235)*

327 IAC 8-2.1-14.5 Special notice of the availability of unregulated contaminant monitoring results

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. 14.5. (a) The owner or operator of a community water system or nontransient noncommunity water system required to monitor under 40 CFR 141.40 must notify persons served by the system of the availability of the results of the sampling not later

than twelve (12) months after the monitoring results are known.

(b) The form and manner of the public notice must follow the requirements of the Tier 3 public notice described in section 10 of this rule. The notice must also:

(1) identify a person; and

(2) provide the telephone number;

to contact for information on the monitoring results. *(Water Pollution Control Division; 327 IAC 8-2.1-14.5; filed Jul 13, 2007, 11:58 a.m.: 20070808-IR-327060044FRA)*

327 IAC 8-2.1-15 Notice by the commissioner on behalf of the public water system

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. 15. (a) The commissioner may give the notice required by sections 7 through 14 of this rule, this section, and sections 16 and 17 of this rule on behalf of the owner and operator of the public water system if the commissioner complies with this section.

(b) The owner or operator of the public water system remains responsible for ensuring that this section is met. *(Water Pollution Control Division; 327 IAC 8-2.1-15; filed Nov 20, 2001, 10:20 a.m.: 25 IR 1114)*

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 (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 8-2.6-3(3)	3	327 IAC 8-2-8.8(b); 327 IAC 8-2.6-4
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; 327 IAC 8-2-44	3	327 IAC 8-2-37; 327 IAC 8-2-38; 327 IAC 8-2-39; 327 IAC 8-2-45
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. TTHMs	2	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. HAA5	2	327 IAC 8-2.5-2	3	327 IAC 8-2.5-6(a), 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 monitoring	N/A	N/A	3	40 CFR 141.40*
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
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, 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.
(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 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.
(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 Division; 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; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)*

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 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/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. TTHMs	N/A	0.080[6, 9]	Some people who drink water containing 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 (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	TOC has no health effects. However, TOC provides a medium for the formation of disinfection byproducts. These byproducts include 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.

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 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 Division; 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; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)

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 Division; 327 IAC 8-2.1-18; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)

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 Division; 327 IAC 8-2.3-1; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)

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 combination of 4-log virus inactivation and removal approved by the commissioner;

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 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 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 Division; 327 IAC 8-2.3-2; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA; errata filed Jul 2, 2010, 1:12 p.m.: 20100714-IR-327100432ACA)

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 Division; 327 IAC 8-2.3-3; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)*

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 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]	9221 F
	NA-MUG[3]	9222 G
Enterococci	Multiple Tube Technique	9230 B
	Membrane Filter Technique	9230 C
	Membrane Filter Technique	EPA Method 1600
	Enterolert	
Coliphage	Two-Step Enrichment Presence-Absence Procedure	EPA Method 1601
	Single Agar Layer Procedure	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 Division; 327 IAC 8-2.3-4; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA; errata filed Jul 2, 2010, 1:12 p.m.: 20100714-IR-327100432ACA)*

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 Division; 327 IAC 8-2.3-5; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)

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 Division; 327 IAC 8-2.3-6; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)*

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 Division; 327 IAC 8-2.3-7; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)

Rule 2.5. Disinfectants and Disinfection

327 IAC 8-2.5-1 Maximum residual disinfectant level goals; disinfectants

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. 1. MRDLGs for disinfectants are as follows:

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

(Water Pollution Control Division; 327 IAC 8-2.5-1; filed May 1, 2003, 12:00 p.m.: 26 IR 2840)

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)
TTHM	0.080
HAA5	0.060
Bromate	0.010
Chlorite	1.0

(1) Subpart H systems shall comply with this 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.

(2) The commissioner hereby identifies the following as the best technology, treatment techniques, or other means available for achieving compliance with the MCLs for disinfection byproducts identified in this subsection:

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 Division; 327 IAC 8-2.5-2; filed May 1, 2003, 12:00 p.m.: 26 IR 2840; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)

327 IAC 8-2.5-3 Maximum residual disinfectant levels

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. 3. (a) MRDLs are as follows:

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

(b) The commissioner hereby identifies the following as the best technology, treatment techniques, or other means available for achieving compliance with the MRDLs identified in subsection (a):

(1) Control of treatment processes to reduce disinfectant demand.

(2) Control of disinfection treatment processes to reduce disinfectant levels.

(Water Pollution Control Division; 327 IAC 8-2.5-3; filed May 1, 2003, 12:00 p.m.: 26 IR 2840)

327 IAC 8-2.5-4 General 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. 4. (a) The general requirements for disinfectant residuals, disinfection byproducts, and disinfection byproducts precursors are as follows:

(1) A CWS or an NTNCWS, which adds a chemical disinfectant to the water in any part of the drinking water treatment process, shall modify its practices to meet MCLs and MRDLs in sections 2(a) and 3(a) of this rule, respectively, and shall meet the treatment technique requirements for disinfection byproduct precursors in section 9 of this rule.

(2) A TWS that uses chlorine dioxide as a disinfectant or oxidant shall modify its practices to meet the MRDL for chlorine dioxide in section 3(a) of this rule.

(b) Compliance dates for CWSs and NTNCWSs are as follows:

(1) A subpart H system serving a population of ten thousand (10,000) or more individuals shall comply with this section upon the effective date of this rule.

(2) A subpart H system serving a population of fewer than ten thousand (10,000) individuals and a system using only ground water not under the direct influence of surface water shall comply with this section beginning January 1, 2004.

(c) Compliance dates for TWSs are as follows:

(1) A subpart H system serving a population of ten thousand (10,000) or more individuals and using chlorine dioxide as a disinfectant or oxidant shall comply with requirements for chlorine dioxide in this section upon the effective date of this rule.

(2) A subpart H system serving a population of fewer than ten thousand (10,000) individuals and using chlorine dioxide as a disinfectant or oxidant and a system using only ground water not under the direct influence of surface water and using chlorine dioxide as a disinfectant or oxidant shall comply with requirements for chlorine dioxide in this section beginning January 1, 2004.

(d) A CWS or a NTNCWS regulated under subsection (a) must be operated by qualified personnel who meet the requirements specified by 327 IAC 8-12.

(e) Notwithstanding the MRDLs in section 3 of this rule, systems may increase residual disinfectant levels in the distribution system of chlorine or chloramines, but not chlorine dioxide, to a level and for a time necessary to protect public health and to address specific microbiological contamination problems caused by circumstances, including the following:

(1) Distribution line breaks.

(2) Storm water run-off events.

(3) Source water contamination events.

(4) Cross-connection events.

(Water Pollution Control Division; 327 IAC 8-2.5-4; filed May 1, 2003, 12:00 p.m.: 26 IR 2840)

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 Methods 300.1 and 321.8 are in Methods for the Determination of Organic and Inorganic Compounds in Drinking Water Volume 1, U.S. EPA, August 2000, EPA 815-R-00-014 (available through NTIS, 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.

(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, 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.

(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.

(17) ASTM Methods D 1253-86 and 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 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 followed 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 tables:

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 sections 2(a) and 9 through 20 of this rule, the laboratory must 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 tables:

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.

(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 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 be acidified at the time of sample collection to achieve pH less than two (2.0) by minimal addition of the acid 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, 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) 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 DOC that is less than five-tenths (0.5) milligram per liter.

(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 Division; 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; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA; errata filed Jul 2, 2010, 1:12 p.m.: 20100714-IR-327100432ACA)*

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 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 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	1 sample per year per treatment	Locations representing maximum residence

under direct influence of surface water using chemical disinfectant and serving fewer than 10,000 persons	plant[2] during month of warmest water temperature	time[1]. If the sample (or average of annual samples, if more than 1 sample is taken) exceeds the MCL, the system 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.

(D) Systems on a reduced monitoring schedule shall comply with the following:

(i) Systems may remain on the reduced schedule as long as the:

(AA) average of all samples taken in the year (for systems that must monitor quarterly); or

(BB) result of the sample (for systems that must monitor 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 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:

(AA) TTHM annual average is greater than eighty-thousandths (0.080) milligram per liter; or

(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.

(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.

(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; 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 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 Division; 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; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)*

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 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 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 the samples taken under item (i) exceeds the MCL, the system:

(AA) shall increase monitoring to once per quarter per treatment plant; 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) 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 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 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 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 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) 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 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 result in the following:

(AA) Be considered an MRDL violation.

(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 shall:

(AA) take corrective action to lower the level of chlorine dioxide below the MRDL at the point of sampling; and

(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 will result in the following:

(AA) Be considered an MRDL violation.

(BB) The system 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) 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 Division; 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; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)

327 IAC 8-2.5-8 Reporting and record keeping 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. 8. (a) Systems required to sample:

(1) quarterly or more frequently shall report to the commissioner within ten (10) days after the end of each quarter in which samples were collected, notwithstanding the provisions of 327 IAC 8-2-13; and

(2) less frequently than quarterly report to the commissioner within ten (10) days after the end of each monitoring period in which samples were collected.

(b) For disinfection byproducts, systems must report the information specified in the following table:

IF YOU ARE A:	YOU MUST REPORT:
(1) System monitoring for TTHMs and HAA5 under the requirements of section 6(b) of this rule on a quarterly or more frequent basis:	(i) The number of samples taken during the last quarter. (ii) The location, date, and result of each sample taken during the last quarter. (iii) The arithmetic average of all samples taken in the last quarter. (iv) The annual arithmetic average of the quarterly arithmetic averages of this section for the last four (4) quarters. (v) Whether, based on section 7(b)(1) of this rule, the MCL was violated.

(2) System monitoring for TTHMs and HAA5 under the requirements of section 6(b) of this rule less frequently than quarterly (but at least annually):	(i) The number of samples taken during the last year. (ii) The location, date, and result of each sample taken during the last monitoring period. (iii) The arithmetic average of all samples taken over the last year. (iv) Whether, based on section 7(b)(1) of this rule, the MCL was violated.
(3) System monitoring for TTHMs and HAA5 under the requirements of section 6(b) of this rule less frequently than annually:	(i) The location, date, and result of the last sample taken. (ii) Whether, based on section 7(b)(1) of this rule, the MCL was violated.
(4) System monitoring for chlorite under the requirements of section 6(b) of this rule:	(i) The number of entry point samples taken each month for the last three (3) months. (ii) The location, date, and result of each sample (both entry point and distribution system) taken during the last quarter. (iii) For each month in the reporting period, the arithmetic average of all samples taken in each three sample set taken in the distribution system. (iv) Whether, based on section 7(b)(3) of this rule, the MCL was violated, and in which month, and how many times it was violated each month.
(5) System monitoring for bromate under the requirements of section 6(b) of this rule:	(i) The number of samples taken during the last quarter. (ii) The location, date, and result of each sample taken during the last quarter. (iii) The arithmetic average of the monthly arithmetic averages of all samples taken in the last year. (iv) Whether, based on section 7(b)(2) of this rule, the MCL was violated.

(c) For disinfectants, systems shall report the information specified in the following table:

IF YOU ARE A:	YOU MUST REPORT:
(1) System monitoring for chlorine or chloramines under the requirements of section 6(c) of this rule:	(i) The number of samples taken during each month of the last quarter. (ii) The monthly arithmetic average of all samples taken in each month for the last twelve (12) months. (iii) The arithmetic average of all monthly averages for the last twelve (12) months. (iv) Whether, based on section 7(c)(1) of this rule, the MRDL was violated.
(2) System monitoring for chlorine dioxide under the requirements of section 6(c) of this rule:	(i) The dates, results, and locations of samples taken during the last quarter. (ii) Whether, based on section 7(c)(2) of this rule, the MRDL was violated. (iii) Whether the MRDL was exceeded in any two (2) consecutive daily samples and whether the resulting violation was acute or nonacute.

(d) For disinfection byproduct precursors and enhanced coagulation or enhanced softening, systems shall report the information specified in the following table:

IF YOU ARE A:	YOU MUST REPORT:
(1) System monitoring monthly or quarterly for TOC under the requirements of section 6(d) of this rule and required to meet the enhanced coagulation or enhanced softening requirements in section 9(b)(2) or 9(b)(3) of this rule:	(i) The number of paired (source water and treated water) samples taken during the last quarter. (ii) The location, date, and results of each paired sample and associated alkalinity taken during the last quarter. (iii) For each month in the reporting period that paired samples were taken, the arithmetic average of the percent reduction of TOC for each paired sample and the required TOC percent removal. (iv) Calculations for determining compliance with the TOC percent removal requirements, as provided in section 9(c)(1) of this rule.

	(v) Whether the system is in compliance with the enhanced coagulation or enhanced softening percent removal requirements in section 9(b) of this rule for the last four (4) quarters.
(2) System monitoring monthly or quarterly for TOC under the requirements of section 6(d) of this rule and meeting one (1) or more of the alternative compliance criteria in section 9(a)(2) or 9(a)(3) of this rule:	(i) The alternative compliance criterion that the system is using. (ii) The number of paired samples taken during the last quarter. (iii) The location, date, and result of each paired sample and associated alkalinity taken during the last quarter. (iv) The running annual arithmetic average based on monthly averages (or quarterly samples) of source water TOC for systems meeting a criterion in section 9(a)(2)(A) or 9(a)(2)(C) of this rule or of treated water TOC for systems meeting the criterion in section 9(a)(2)(B) of this rule. (v) The running annual arithmetic average based on monthly averages (or quarterly samples) of source water SUVA for systems meeting the criterion in section 9(a)(2)(E) of this rule or of treated water SUVA for systems meeting the criterion in section 9(a)(2)(F) of this rule. (vi) The running annual average of source water alkalinity for systems meeting the criterion in section 9(a)(2)(C) of this rule and of treated water alkalinity for systems meeting the criterion in section 9(a)(3)(A) of this rule. (vii) The running annual average for both TTHM and HAA5 for systems meeting the criterion in section 9(a)(2)(C) or 9(a)(2)(D) of this rule. (viii) The running annual average of the amount of magnesium hardness removal (as $CaCO_3$, in mg/L) for systems meeting the criterion in section 9(a)(3)(B) of this rule. (ix) Whether the system is in compliance with the particular alternative compliance criterion in section 9(a)(2) or 9(a)(3) of this rule.

(Water Pollution Control Division; 327 IAC 8-2.5-8; filed May 1, 2003, 12:00 p.m.: 26 IR 2849; filed Oct 24, 2006, 3:03 p.m.: 20061122-IR-327050255FRA)

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 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 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 alternate minimum TOC (Step 2) removal requirements submitted by the system as provided by subdivision (4).

(B) If the commissioner approves the 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 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, the minimum TOC removal requirement calculated under item (ii):

(AA) supersedes the minimum TOC removal required by the table in subdivision (2); 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 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; and

(ii) system may 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 Division; 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; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)

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 Division; 327 IAC 8-2.5-10; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)*

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 Division; 327 IAC 8-2.5-11; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)*

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 Division; 327 IAC 8-2.5-12; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)*

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 Division; 327 IAC 8-2.5-13; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)

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 14 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 (1) at the location and during the quarter with the highest TTHM single measurement; one (1) 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 (1) at the location and during the quarter with the highest TTHM single measurement; one (1) 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 (1) at the location and during the quarter with the highest TTHM single measurement; one (1) 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 (1) at the location and during the quarter with the highest TTHM single measurement; one (1) 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 (1) at the location and during the quarter with the highest TTHM single measurement; one (1) 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 commissioner's discretion. *(Water Pollution Control Division; 327 IAC 8-2.5-14; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA; errata filed Jul 2, 2010, 1:12 p.m.: 20100714-IR-327100432ACA)*

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 Division; 327 IAC 8-2.5-15; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)

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 (0.080) 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 Division; 327 IAC 8-2.5-16; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA; errata filed Nov 8, 2012, 8:37 a.m.: 20121121-IR-327120591ACA)

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 Division; 327 IAC 8-2.5-17; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)

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 Division; 327 IAC 8-2.5-18; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)

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 Division; 327 IAC 8-2.5-19; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)

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 Division; 327 IAC 8-2.5-20; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)*

Rule 2.6. Enhanced Filtration and Disinfection

327 IAC 8-2.6-1 General requirements; enhanced filtration and disinfection

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. 1. (a) Upon the effective date of this rule, unless otherwise specified in this section, all Subpart H systems serving a population of at least ten thousand (10,000) individuals and, beginning January 1, 2005, systems serving a population of fewer than ten thousand (10,000) individuals shall establish treatment technique requirements instead of MCLs for the following contaminants:

(1) Giardia lamblia.

(2) Viruses.

(3) Heterotrophic plate count bacteria.

(4) Legionella.

(5) Cryptosporidium.

(6) Turbidity.

The systems shall also provide treatment of their source water that complies with these treatment technique requirements in addition to those identified in 327 IAC 8-2-8.5.

(b) The treatment technique requirements consist of installing and properly operating water treatment processes that reliably achieve the following:

(1) At least ninety-nine percent (99%) (2-log) removal of Cryptosporidium between a point where the raw water is not subject to recontamination by surface water run-off and a point downstream before or at the first customer for filtered systems or Cryptosporidium control under the water shed control plan for unfiltered systems.

(2) Compliance with the profiling and benchmark requirements under section 2 of this rule for systems serving a population of at least ten thousand (10,000) individuals and, beginning January 1, 2005, section 2.1 of this rule for systems serving a population of fewer than ten thousand (10,000) individuals.

(c) A public water system subject to this section is considered to be in compliance with subsections (a) and (b) if it meets the:

(1) disinfection requirements in 327 IAC 8-2-8.6 and section 2 of this rule; or

(2) applicable filtration requirements in either 327 IAC 8-2-8.5 or section 3 of this rule and the disinfection requirements in 327 IAC 8-2-8.6 and section 2 of this rule;

for systems serving a population of at least ten thousand (10,000) individuals and, beginning January 1, 2005, section 2.1 of this rule for systems serving a population of fewer than ten thousand (10,000) individuals.

(d) Subpart H systems are not permitted to begin construction of uncovered finished water storage facilities after the effective date of this rule.

(e) Subpart H systems that did not conduct optional monitoring under section 2 of this rule when such monitoring was required because they served fewer than ten thousand (10,000) individuals but served more than ten thousand (10,000) individuals prior to January 1, 2005, must comply with this section and sections 3 through 5 of this rule. These systems must also consult with the commissioner to establish a disinfection benchmark. A system that decides to make a significant change to its disinfection practice, as described in section 2(c)(1)(A) through 2(c)(1)(D) of this rule must consult with the commissioner before making such change. *(Water Pollution Control Division; 327 IAC 8-2.6-1; filed May 1, 2003, 12:00 p.m.: 26 IR 2854; filed Jun 13, 2005, 2:30 p.m.: 28 IR 3247; errata filed Aug 22, 2005, 2:55 p.m.: 29 IR 30)*

327 IAC 8-2.6-2 Disinfection profiling and benchmarking for systems serving a population of at least 10,000 individuals

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) A public water system subject to this section will determine its TTHM annual average using the procedure in subdivision (1) and its HAA5 annual average using the procedure in subdivision (2). The annual average is the arithmetic average of the quarterly averages of four (4) consecutive quarters of monitoring. A public water system subject to this section shall meet the following monitoring requirements to determine its TTHM annual average and its HAA5 annual average:

(1) The TTHM annual average must be the annual average during the same period as is used for the HAA5 annual average. Those Subpart H systems serving a population of at least ten thousand (10,000) individuals that:

(A) collected data under 40 CFR 141* must use the results of the samples collected during the last four (4) quarters of required monitoring under 40 CFR 141.142*;

(B) use grandfathered HAA5 occurrence data that meet the provisions of subdivision (2)(B) must use the TTHM data collected at the same time under 327 IAC 8-2-5(a) and 327 IAC 8-2-5.3; and

(C) use HAA5 occurrence data that meet the provisions of subdivision (2)(C)(i) must use the TTHM data collected at the same time under 327 IAC 8-2-5(a) and 327 IAC 8-2-5.3.

(2) The HAA5 annual average must be the annual average during the same period as is used for the TTHM annual average. Those Subpart H systems serving a population of at least ten thousand (10,000) individuals that:

(A) collected data under 40 CFR 141* must use the results of the samples collected during the last four (4) quarters of required monitoring under 40 CFR 141.142*;

(B) have collected four (4) quarters of HAA5 occurrence data that meets the routine monitoring sample number and location requirements for TTHM in 327 IAC 8-2-5(a) and 327 IAC 8-2-5.3 and handling and analytical method requirements of 40 CFR 141.142(b)(1)* may use those data to determine whether this section applies; and

(C) have not collected four (4) quarters of HAA5 occurrence data that meets the provisions of clause (A) or (B) by March 16, 1999, must either:

(i) conduct monitoring for HAA5 that meets the routine monitoring sample number and location requirements for TTHM in 327 IAC 8-2-5(a), 327 IAC 8-2-5.3, and handling and analytical method requirements of 40 CFR 141.142(b)(1)* to determine the HAA5 annual average and whether subsection (b) applies. This monitoring must be completed so that the applicability determination can be made no later than March 31, 2000; or

(ii) comply with all other provisions of this section as if the HAA5 monitoring had been conducted and the results required compliance with subsection (b).

(3) Subpart H systems serving a population of at least ten thousand (10,000) individuals may request that the commissioner approve a more representative annual data set than the data set determined under subdivision (1) or (2) for the purpose of determining applicability of this section.

(4) The commissioner may require that a system use a more representative annual data set than the data set determined under subdivision (1) or (2) for the purpose of determining applicability of this section.

(5) Subpart H systems serving a population of at least ten thousand (10,000) individuals shall submit data to the commissioner based on the following schedules:

(A) Those Subpart H systems serving a population of at least ten thousand (10,000) individuals that collected TTHM and HAA5 data under 40 CFR 141*, as required by subdivisions (1)(A) and (2)(A), shall submit the results of the samples collected during the last twelve (12) months of monitoring required under 40 CFR 141.142* not later than

December 31, 1999.

(B) Those Subpart H systems serving a population of at least ten thousand (10,000) individuals that have collected four (4) consecutive quarters of HAA5 occurrence data that meets the routine monitoring sample number and location for TTHM in 327 IAC 8-2-5(a), 327 IAC 8-2-5.3, and handling and analytical method requirements of 40 CFR 141.142(b)(1)*, as allowed by subdivisions (1)(B) and (2)(B), must submit those data to the commissioner not later than April 15, 1999. Until the commissioner has approved the data, the system shall conduct monitoring for HAA5 using the monitoring requirements specified under subdivision (2)(C).

(C) Subpart H systems serving a population of at least ten thousand (10,000) individuals that conduct monitoring for HAA5 using the monitoring requirements specified by subdivision (2)(C)(i) shall submit TTHM and HAA5 data not later than March 31, 2000.

(D) Those systems that elect to comply with all other provisions of this section as if the HAA5 monitoring had been conducted and the results required compliance with this section, as allowed under subdivision (2)(C)(ii), shall notify the commissioner in writing of their election not later than December 31, 1999.

(E) If the system elects to represent that the commissioner approve a more representative annual data set than the data set determined under subdivision (2)(A), the system must submit this request in writing not later than December 31, 1999.

(6) Any Subpart H systems serving a population of at least ten thousand (10,000) individuals having either a TTHM annual average greater than or equal to sixty-four thousandths (0.064) milligram per liter or an HAA5 annual average greater than or equal to forty-eight thousandths (0.048) milligram per liter during the period identified in subdivisions (1) and (2) shall comply with subsection (b).

(b) Disinfection profiling requirements are as follows:

(1) Any Subpart H system serving a population of at least ten thousand (10,000) individuals that meets the criteria in subsection (a)(6) shall develop a disinfection profile of its disinfection practice for a period of up to three (3) years.

(2) Not later than April 1, 2000, Subpart H systems serving a population of at least ten thousand (10,000) individuals shall monitor daily for a period of twelve (12) consecutive calendar months to determine the total logs of inactivation for each day of operation based on the CT99.9 values in Tables 1.1 through 1.6, 2.1, and 3.1 of 40 CFR 141.74(b)*, as appropriate, through the entire treatment plant. At a minimum, Subpart H systems serving a population of at least ten thousand (10,000) individuals with a single or multiple point of disinfectant application prior to entrance to the distribution system shall conduct the monitoring in clauses (A) through (D) for each disinfection segment. The system shall monitor the parameters necessary to determine the total inactivation ratio using analytical methods in 327 IAC 8-2-8.7 as follows:

(A) The temperature of the disinfection water shall be measured one (1) time per day at each residual disinfectant concentration sampling point during peak hourly flow.

(B) If the system uses chlorine, the pH of the disinfected water shall be measured one (1) time per day at each chlorine residual disinfectant concentration sampling point during peak hourly flow.

(C) The disinfectant contact time (T) shall be determined for each day during peak hourly flow.

(D) The residual disinfectant concentration (C) of the water before or at the first customer and prior to each additional point of disinfection shall be measured each day during peak hourly flow.

(3) Instead of the monitoring conducted under subdivision (2) to develop the disinfection profile, Subpart H systems serving a population of at least ten thousand (10,000) individuals may elect to meet either of the following requirements:

(A) Not later than March 31, 2000, Subpart H systems serving a population of at least ten thousand (10,000) individuals that have three (3) years of existing operational data may submit those data, a profile generated using those data, and a request that the commissioner approve use of those data instead of monitoring under subdivision (2). The commissioner shall determine whether these operational data are substantially equivalent to data collected under subdivision (2) and whether these data are representative of Giardia lamblia inactivation through the entire treatment plant and not just of certain treatment segments. Until the commissioner approves this request, the system is required to conduct monitoring under subdivision (2).

(B) In addition to the disinfection profile generated under subdivision (2), Subpart H systems serving a population of at least ten thousand (10,000) individuals that have existing operational data may use those data to develop a disinfection profile for additional years. Subpart H systems serving a population of at least ten thousand (10,000)

individuals may use these additional yearly disinfection profiles to develop a benchmark under subsection (c). The commissioner shall determine whether these operational data are substantially equivalent to data collected under subdivision (2). These data must also be representative of inactivation through the entire treatment plant and not just of certain treatment segments.

(4) Subpart H systems serving a population of at least ten thousand (10,000) individuals shall calculate the total inactivation ratio as follows:

(A) If the system uses only one (1) point of disinfectant application, the system may determine the total inactivation ratio for the disinfection segment by using either of the following methods:

(i) Determine one (1) inactivation ratio ($CTcalc/CT_{99.9}$) before or at the first customer during peak hourly flow.

(ii) 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. Under this alternative, the system must calculate the total inactivation ratio by determining ($CTcalc/CT_{99.9}$) for each sequence and then adding the ($CTcalc/CT_{99.9}$) values together to determine (Σ ($CTcalc/CT_{99.9}$)).

(B) Subpart H systems serving a population of at least ten thousand (10,000) individuals that use more than one (1) point of disinfectant application before the first customer shall determine the CT value of each disinfection segment immediately prior to the next point of disinfectant application, or for the final segment, before or at the first customer, during peak hourly flow. The ($CTcalc/CT_{99.9}$) value of each segment and (Σ ($CTcalc/CT_{99.9}$) shall be calculated using the method in clause (A).

(C) Subpart H systems serving a population of at least ten thousand (10,000) individuals shall determine the total logs of inactivation by multiplying the value calculated in clause (A) or (B) by three and zero-tenths (3.0).

(5) Subpart H systems serving a population of at least ten thousand (10,000) individuals that use either chloramines or ozone for primary disinfection shall also calculate the logs of inactivation for viruses using a method approved by the commissioner.

(6) Subpart H systems serving a population of at least ten thousand (10,000) individuals shall retain disinfection profile data in graphic form, as a spreadsheet, or in some other format acceptable to the commissioner for review as part of sanitary surveys conducted by the commissioner.

(c) Disinfection benchmarking requirements are as follows:

(1) A Subpart H system serving a population of at least ten thousand (10,000) individuals required to develop a disinfection profile under subsections (a) and (b) that decides to make a significant change to its disinfection practice shall consult with the commissioner before making the change. As used in this subdivision, "significant changes" means changes to the following:

(A) Point of disinfection.

(B) Disinfectants used in the treatment plant.

(C) Disinfection process.

(D) Any other modification identified by the commissioner.

(2) A Subpart H system serving a population of at least ten thousand (10,000) individuals that is modifying its disinfection practice shall calculate its disinfection benchmark using the following procedures:

(A) Subpart H systems serving a population of at least ten thousand (10,000) individuals shall determine the lowest average monthly Giardia lamblia inactivation for each year of profiling data collected and calculated under subsection (b). The system shall determine the average Giardia lamblia inactivation for each calendar month for each year of profiling data by dividing the sum of daily Giardia lamblia inactivation by the number of values calculated for that month.

(B) The disinfection benchmark is the lowest monthly average value (for Subpart H systems serving a population of at least ten thousand (10,000) with one (1) year of profiling data) or average of lowest monthly average values (for Subpart H systems serving a population of at least ten thousand (10,000) individuals with more than one (1) year of profiling data) of the monthly logs of Giardia lamblia inactivation for each year of profiling data.

(C) Subpart H systems serving a population of at least ten thousand (10,000) individuals that use either chloramines or ozone for primary disinfection shall also calculate the disinfection benchmark for viruses using a method approved by the commissioner.

(D) The system shall submit the following information to the commissioner as part of its consultation process:

(i) A description of the proposed change in disinfection practice.

(ii) The disinfection profile for Giardia lamblia (and, if necessary, viruses) under subsection (b) and benchmark as required by this subsection.

(iii) An analysis of how the proposed change will affect the current levels of disinfection.

*40 CFR 141, 40 CFR 141.142, 40 CFR 141.142(b)(1), and 40 CFR 141.74(b) 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 Division; 327 IAC 8-2.6-2; filed May 1, 2003, 12:00 p.m.: 26 IR 2854; filed Jun 13, 2005, 2:30 p.m.: 28 IR 3248; errata filed Jul 6, 2005, 3:15 p.m.: 28 IR 3583)*

327 IAC 8-2.6-2.1 Disinfection profiling and benchmarking for systems serving a population of fewer than 10,000 individuals beginning January 1, 2005

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

Sec. 2.1. (a) A disinfection profile is a graphical representation of a system's level of Giardia lamblia or virus inactivation measured during the course of a year. Beginning January 1, 2005, Subpart H systems serving a population of fewer than ten thousand (10,000) individuals must develop a disinfection profile unless the commissioner determines that the system's profile is unnecessary. The commissioner may approve the use of a more representative data set for disinfection profiling than the data set required under subsection (c).

(b) The commissioner may only determine that a system's profile is unnecessary if a system's TTHM and HAA5 levels are below sixty-four thousandths (0.064) mg/l and forty-eight thousandths (0.048) mg/l, respectively. To determine these levels, TTHM and HAA5 samples must be collected after January 1, 1998, during the month with the warmest water temperature and at the point of maximum residence time in a system's distribution system.

(c) Disinfection profiling requirements are as follows:

(1) A disinfection profile consists of three (3) steps:

(A) Subpart H systems serving a population of fewer than ten thousand (10,000) individuals must collect data for several parameters from the plant over the course of twelve (12) months according to subdivision (2). If the system serves more than five hundred (500) and fewer than ten thousand (10,000) individuals, the system must begin to collect data no later than July 1, 2003. If the system serves fewer than five hundred (500) individuals, the system must begin to collect data no later than January 1, 2004.

(B) The system must use this data to calculate weekly log inactivation according to subdivisions (3) and (4).

(C) The system must use these weekly log inactivations to develop a disinfection profile as specified in subdivisions (5) through (8).

(2) Subpart H systems serving a population of fewer than ten thousand (10,000) individuals must monitor the following parameters to determine the total log inactivation using the analytical methods in 327 IAC 8-2-8.7, once per week on the same calendar day, over twelve (12) consecutive months:

(A) The temperature of the disinfected water at each residual disinfectant concentration sampling point during peak hourly flow.

(B) If the system uses chlorine, the pH of the disinfected water at each residual disinfectant concentration sampling point during peak hourly flow.

(C) The disinfectant contact time or times (T) during peak hourly flow.

(D) The residual disinfectant concentration or concentrations (C) of the water before or at the first customer and prior to each additional point of disinfection during peak hourly flow.

(3) Calculate the total inactivation ratio using the following table and multiply the value by three and zero-tenths (3.0) to determine log inactivation of Giardia lamblia:

For systems that ***	The system must determine ***
(A) Use only one (1) point of disinfectant application	(i) One (1) inactivation ratio ($CT_{calc}/CT_{99.9}$) before or at the first customer during peak hourly flow or (ii) Successive $CT_{calc}/CT_{99.9}$ values, representing sequential

	inactivation ratios, between the point of disinfectant application and a point before or at the first customer during peak hourly flow. Under this alternative, systems must calculate the total inactivation ratio by determining ($CT_{calc}/CT_{99.9}$) for each sequence and then adding the ($CT_{calc}/CT_{99.9}$) values together to determine ($3CT_{calc}/CT_{99.9}$).
(B) Use more than one (1) point of disinfectant application before the first customer	The ($CT_{calc}/CT_{99.9}$) value of each disinfection segment immediately prior to the next point of disinfectant application, or, for the final segment, before or at the first customer during peak hourly flow using the procedure specified in (A)(ii) of this table.

(4) Subpart H systems serving a population of fewer than ten thousand (10,000) individuals that use chloramines, ozone, or chlorine dioxide for primary disinfection must also calculate the logs of inactivation for viruses and develop an additional disinfection profile for viruses using methods approved by the commissioner.

(5) Develop a disinfection profile by plotting each log inactivation as a data point. Systems should have fifty-two (52) measurements to plot (one (1) for every week of the year).

(6) Subpart H systems serving a population of fewer than ten thousand (10,000) individuals and the commissioner should evaluate the disinfection profile to examine microbial inactivation variations over the course of the year by looking at all fifty-two (52) measurements.

(7) Subpart H systems serving a population of fewer than ten thousand (10,000) individuals must retain the disinfection profile data in graphic form, such as a spreadsheet, that must be available for review by the commissioner as part of a sanitary survey.

(8) Subpart H systems serving a population of fewer than ten thousand (10,000) individuals must use this data to calculate a benchmark if they are considering changes to disinfection practices.

(d) Disinfection benchmark requirements are as follows:

(1) Subpart H systems serving a population of fewer than ten thousand (10,000) individuals that are required to develop a disinfection profile under subsections (a) through (c) must develop a disinfection benchmark if a significant change is made to the system's disinfection practices.

(2) Subpart H systems serving a population of fewer than ten thousand (10,000) individuals must consult with the commissioner for approval before implementing a significant disinfection practice change. Significant changes to disinfection practices include changes to the following:

(A) Point of disinfection.

(B) Disinfectant or disinfectants used in the treatment plant.

(C) Disinfection process.

(D) Any other modification identified by the commissioner.

(3) Subpart H systems serving a population of fewer than ten thousand (10,000) individuals that are considering a significant change to their disinfection practices must calculate a disinfection benchmark or benchmarks according to subdivisions (4) and (5) and provide the benchmark or benchmarks to the commissioner. Subpart H systems serving a population of fewer than ten thousand (10,000) individuals may make a significant disinfection practice change only after consulting with the commissioner for approval. Subpart H systems serving a population of fewer than ten thousand (10,000) individuals must submit the following information to the commissioner as part of the consultation and approval process:

(A) A description of the proposed change.

(B) The disinfection profile for Giardia lamblia (and, if necessary, viruses) and disinfection benchmark.

(C) An analysis of how the proposed change will affect the current levels of disinfection.

(D) Any additional information requested by the commissioner.

(4) Subpart H systems serving a population of fewer than ten thousand (10,000) individuals that are making a significant change to their disinfection practices must calculate a disinfection benchmark using the following procedure:

(A) Using the data collected by the system to develop the disinfection profile, determine the average Giardia lamblia inactivation for each calendar month by dividing the sum of all Giardia lamblia inactivations for that month by the

number of values calculated for that month.

(B) Determine the lowest monthly average value out of the twelve (12) values. This value becomes the disinfection benchmark.

(5) Subpart H systems serving a population of fewer than ten thousand (10,000) individuals and using chloramines, ozone, or chlorine dioxide for primary disinfection must calculate the disinfection benchmark from the data collected for viruses by the system to develop the disinfection profile in addition to the Giardia lamblia disinfection benchmark calculated under subdivision (4). This viral benchmark must be calculated in the same manner used to calculate the Giardia lamblia disinfection benchmark in subdivision (4).

(Water Pollution Control Division; 327 IAC 8-2.6-2.1; filed Jun 13, 2005, 2:30 p.m.: 28 IR 3250; errata filed Jul 6, 2005, 3:15 p.m.: 28 IR 3583)

327 IAC 8-2.6-3 Enhanced filtration

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. 3. By December 31, 2001, Subpart H systems serving a population of at least ten thousand (10,000) individuals and, beginning January 1, 2005, Subpart H systems serving a population of fewer than ten thousand (10,000) individuals shall provide treatment consisting of both disinfection, as specified in 327 IAC 8-2-8.6, and filtration treatment that complies with the following:

(1) Requirements for systems using conventional filtration or direct filtration are as follows:

(A) For Subpart H systems using conventional filtration or direct filtration, the turbidity level of representative samples of the system's filtered water must be less than or equal to three-tenths (0.3) nephelometric turbidity unit in at least ninety-five percent (95%) of the measurements taken each month, measured as specified in 327 IAC 8-2-8.7 and 327 IAC 8-2-8.8.

(B) The turbidity level of representative samples of the system's filtered water must at no time exceed one (1) nephelometric turbidity unit, measured as specified in 327 IAC 8-2-8.7 and 327 IAC 8-2-8.8.

(C) A system that uses lime softening may acidify representative samples prior to analysis using a protocol approved by the commissioner.

(2) A Subpart H system may use filtration technologies other than:

(A) conventional filtration treatment;

(B) direct filtration;

(C) slow sand filtration; or

(D) diatomaceous earth filtration;

if it demonstrates to the commissioner, using pilot plant studies or other means, that the alternative filtration technology, in combination with disinfection treatment that meets the requirements of 327 IAC 8-2-8.6, consistently achieves ninety-nine and nine-tenths percent (99.9%) removal or inactivation of Giardia lamblia cysts and ninety-nine and ninety-nine hundredths percent (99.99%) removal or inactivation of viruses, and ninety-nine percent (99%) removal of Cryptosporidium oocysts, and the commissioner approves the use of the filtration technology.

(3) For each approval under subdivision (2), the commissioner will set turbidity performance requirements that the system must meet at least ninety-five percent (95%) of the time (not to exceed 1 NTU) and that the system may not exceed at any time at a level that consistently achieves ninety-nine and nine-tenths percent (99.9%) removal or inactivation of Giardia lamblia cysts, ninety-nine and ninety-nine hundredths percent (99.99%) removal or inactivation of viruses, and ninety-nine percent (99%) removal of Cryptosporidium oocysts (not to exceed 5 NTU).

(Water Pollution Control Division; 327 IAC 8-2.6-3; filed May 1, 2003, 12:00 p.m.: 26 IR 2857; filed Jun 13, 2005, 2:30 p.m.: 28 IR 3252)

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 8-2-8.8, 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 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 Division; 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; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)

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 are subject to the requirements of section 3 of this rule and 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 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 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 not later than thirty (30) days following the exceedance and have the evaluation completed and submitted to the commissioner 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 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 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 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 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 shall conduct a self- assessment on both filters. The system 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 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. 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 the CPE was triggered;

within ten (10) days after the end of each month that water is served to the public.

(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 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 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 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 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 Division; 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; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)

327 IAC 8-2.6-6 Filter backwash

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. All subpart H systems that employ conventional filtration or direct filtration treatment and recycle spent filter backwash water, thickener supernatant, or liquids from dewatering processes shall meet the following requirements:

(1) A system shall notify the commissioner in writing by December 8, 2003, if the system recycles spent filter backwash water, thickener supernatant, or liquids from dewatering processes. This notification shall include, at a minimum, the following information:

(A) A plant schematic showing the following:

(i) The origin of all flows that are recycled, including, but not limited to, spent filter backwash water, thickener supernatant, and liquids from dewatering processes.

(ii) The hydraulic conveyance used to transport all flows that are recycled, including spent filter backwash water, thickener supernatant, and liquids from dewatering processes.

(iii) The location where all flows that are recycled, including spent filter backwash water, thickener supernatant, and liquids from dewatering processes, are reintroduced back into the treatment plant.

(B) Typical recycle flow in gallons per minute.

(C) The highest observed plant flow experienced in the previous year in gallons per minute.

(D) Design flow for the treatment plant in gallons per minute.

(E) Commissioner-approved operating capacity for the plant where the commissioner has made such determinations.

(2) Any system that recycles spent filter backwash water, thickener supernatant, or liquids from dewatering processes shall return these flows:

(A) through the processes of a system's existing conventional or direct filtration system as defined in 327 IAC 8-2-1(14) and 327 IAC 8-2-1(18); or

(B) at an alternate location approved by the commissioner by June 8, 2004.

If capital improvements are required to modify the recycle location to meet the requirement in this subdivision, all capital improvements shall be completed no later than June 8, 2006.

(3) Subpart H systems shall collect and retain on file the following recycle flow information on forms provided by the department for review and evaluation by the commissioner beginning June 8, 2004:

(A) A copy of the recycle notification and information submitted to the commissioner under subdivision (1)(B) through (1)(E).

(B) A list of all recycle flows and the frequency with which they are returned.

(C) The average and maximum:

(i) backwash flow rate through the filters; and

(ii) duration of the filter backwash process in minutes.

(D) The typical filter run length and a written summary of how the filter run length is determined.

(E) The type of treatment provided for the recycle flow.

(F) Data on the following:

(i) The physical dimensions of the equalization and treatment units.

(ii) The typical and maximum hydraulic loading rates.

(iii) The type of treatment chemicals used and average dose and frequency of use.

(iv) The frequency at which solids are removed, if applicable.

(Water Pollution Control Division; 327 IAC 8-2.6-6; filed May 1, 2003, 12:00 p.m.: 26 IR 2859; filed Oct 24, 2006, 3:03 p.m.: 20061122-IR-327050255FRA)

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 Division; 327 IAC 8-2.6-7; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)

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 United States 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 Division; 327 IAC 8-2.6-8; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)*

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 Division; 327 IAC 8-2.6-9; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)

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
Affected: IC 13-18-3-11

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 $\sum(CTcalc/CT_{99.9})$.

(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 $\sum(CTcalc/CT_{99.9})$ 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 Division; 327 IAC 8-2.6-10; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)*

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 Division; 327 IAC 8-2.6-11; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)

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 Division; 327 IAC 8-2.6-12; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)

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 Division; 327 IAC 8-2.6-13; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)

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 Division; 327 IAC 8-2.6-14; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)*

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 Division; 327 IAC 8-2.6-15; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)

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 Division; 327 IAC 8-2.6-16; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)

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 Division; 327 IAC 8-2.6-17; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)

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 Division; 327 IAC 8-2.6-18; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)

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:

$$LRV_{DIT} = LOG_{10} (Q_p/(VCF \text{ X } Q_{breach}))$$

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 Division; 327 IAC 8-2.6-19; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)

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 Division; 327 IAC 8-2.6-20; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)

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
Affected: IC 13-18-3-11

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.

Table 21		
Microbial Toolbox Reporting Requirements		
Toolbox option	A PWS shall submit the following information:	On the following schedule:
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.

Table 21		
Microbial Toolbox Reporting Requirements		
Toolbox option	A PWS shall submit the following information:	On the following schedule:
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 Division; 327 IAC 8-2.6-21; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)

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 Division; 327 IAC 8-2.6-22; filed May 7, 2010, 9:30 a.m.: 20100602-IR-327080198FRA)

Rule 3. Public Water Supply Construction Permits

327 IAC 8-3-1 Definitions

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-3-12; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2; IC 25-17.6; IC 25-31; IC 25-39-3

Sec. 1. In addition to the definitions in IC 13-11-2 and 327 IAC 8-1, the following definitions apply throughout this rule:
(1) "Connection ban" means an order imposed by the commissioner in accordance with section 4.2 of this rule.
(2) "Early warning order" means an order imposed by the commissioner in accordance with section 4.2 of this rule.
(3) "Experimental permit" means a construction permit issued for an installation, treatment process, or technique for which extensive experience and records of use have not been accumulated to meet the Safe Drinking Water Act requirements.
(4) "Licensed professional geologist" means a person who is licensed as a professional geologist under IC 25-17.6.
(5) "Licensed well driller" means a person who is licensed as a well driller under IC 25-39-3.
(6) "Normal operating pressure" means the water main pressure maintained regardless of public service load in the absence of extenuating circumstances.
(7) "Peak operating flow rate" means the flow rate equal to the maximum achievable capacity of the public water system.
(8) "Professional engineer" means a person who is registered as a professional engineer by the Indiana state board of registration for professional engineers under IC 25-31.
(9) "Satisfactory quality" means the physical, chemical, and bacteriological quality of drinking water meeting the requirements set forth in this article.
(10) "Small nontransient noncommunity public water system" means a public water system that:
(A) meets the definition of a nontransient noncommunity public water system under 327 IAC 8-2-1;
(B) serves one hundred (100) or fewer individuals; and
(C) does not utilize surface water or ground water under the influence of surface water as its water source.
(11) "Small transient noncommunity public water system" means a public water system that:
(A) meets the definition of a transient noncommunity public water system under 327 IAC 8-2-1;
(B) serves two hundred fifty (250) or fewer individuals per day; and
(C) does not utilize surface water or ground water under the influence of surface water as its water source.
(12) "Two (2) year average peak" means the arithmetic mean of the highest five (5) daily pumpages as reported over the

previous two (2) year period on the public water system's monthly report of operations on record with the department. If the public water system is less than two (2) years old, the term means the arithmetic mean of the highest five (5) daily pumpages as reported on the public water system's monthly report of operations on record with the department.

(13) "Water main" means any pipe located between all entry points to the water distribution system and the premises of the consumer.

(Water Pollution Control Division; 327 IAC 8-3-1; filed Sep 24, 1987, 3:00 p.m.: 11 IR 709; filed Oct 22, 1991, 5:00 p.m.: 15 IR 223; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2493; filed Mar 6, 2000, 7:56 a.m.: 23 IR 1626; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2948; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-3-1.1 Proof of capacity

Authority: IC 13-13-5; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-21-3
Affected: IC 13-18-16

Sec. 1.1. (a) A new community public water system and a new nontransient noncommunity public water system that will commence operation after October 1, 1999, must fulfill the requirements of 327 IAC 8-3.6 before making a submission to the commissioner for a permit to construct as described in sections 2 and 3 of this rule.

(b) The commissioner shall deny and return to the applicant a construction permit application, plans, or specifications that are submitted for review without the proof of public water system technical, financial, and managerial capacity as required by 327 IAC 8-3.6. *(Water Pollution Control Division; 327 IAC 8-3-1.1; filed Aug 10, 1999, 8:54 a.m.: 22 IR 3678; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2948; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3-2 Permits for construction of public water systems; exemptions; experimental construction permits; emergency construction permits; after-the-fact construction permits

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 2. (a) No person shall cause or allow the construction, installation, or modification of any facility, equipment, or device for any public water system without having a valid construction permit issued by the commissioner, except for replacement of equipment of similar design and capacity, none of which will change adversely:

(1) the plant operation;

(2) its hydraulic design or waste products; or

(3) the water distribution system design, operation, or capacity;

or where specifically allowed in section 2.1 of this rule.

(b) After the commissioner has granted a construction permit, no changes in the application, plans, or specifications shall be made other than changes involving the replacement of equipment of similar design and capacity, none of which will change adversely:

(1) the plant operation;

(2) its hydraulic design or waste products; or

(3) the water distribution system design, operation, or capacity;

without first submitting in writing to the commissioner a detailed statement of the proposed changes and receiving an amended construction permit from the commissioner. Construction permits shall become void if the construction is not started within one (1) year from the date of issuance of the permit unless the duration of the permit has been extended by the commissioner after receiving a written request from the permittee, before the expiration of the permit, requesting the extension with no other changes to the permit, application, plans, or specifications as approved by the commissioner.

(c) The commissioner shall have the authority to specify in the permit any limits and conditions necessary to meet the issuance requirements of section 4 of this rule.

(d) The commissioner may revoke any construction permit for noncompliance with the limits and conditions specified in the permit, or if significant and unapproved changes are made in construction that differ from the application, plans, and

specifications on which the issuance of the permit was based.

(e) The commissioner may issue construction permits for public water system facilities, equipment, or devices that are to be installed or constructed in stages. These construction permits may allow site preparation or foundation construction to begin where the following conditions have been met:

(1) Plans and specifications for additional facilities, equipment, or devices that will be used in the treatment, pumping, withdrawal, or conveyance of water for public consumption must be approved by the commissioner before the construction of the facilities, equipment, or devices in accordance with this section.

(2) Public water system facilities, equipment, or devices that are not used for the treatment, pumping, withdrawal, or conveyance of water for public consumption must conform to the requirements of the "Recommended Standards for Water Works" established by the Great Lakes—Upper Mississippi River Board of State Public Health and Environmental Managers, and the American Water Works Association (AWWA) standards or other standards set out in this rule, 327 IAC 8-3.1, 327 IAC 8-3.2, 327 IAC 8-3.3, 327 IAC 8-3.4, 327 IAC 8-3.5, 327 IAC 8-4, and 327 IAC 8-6.

(f) In order to encourage the development of new or more efficient treatment processes, the following type of construction permits may be issued:

(1) Experimental construction permits may be issued by the commissioner for installations, treatment processes, or techniques that have not developed extensive experience or records of use in the state of Indiana, provided that the applicant submits evidence that the installation, process, or technique will produce drinking water of satisfactory quality and normal operating pressure at the peak operating flow rate in accordance with this article.

(2) Regular construction permits may be issued for installations, treatment processes, or techniques that have been used for sufficient time to show that the installation, treatment process, or technique will produce drinking water of satisfactory quality and normal operating pressure at the peak operating flow rate in accordance with this article.

(g) For an emergency condition, as a result of a drought, storm, flood, or other natural or manmade disaster, the commissioner may issue an emergency construction permit.

(h) An after-the-fact construction permit must be obtained from the commissioner upon notification to the public water system by the commissioner of completed or progressing construction, installation, or modification of any facility, equipment, or device for any public water system lacking a valid construction permit issued from the department, except where replacement of equipment of similar design and capacity will not change adversely the plant operation, its hydraulic design or waste products, or the water distribution system design, operation, or capacity. The following additional conditions apply to after-the-fact construction permits:

(1) The commissioner may order that no additional construction may commence or continue progress until the after-the-fact construction permit has been obtained.

(2) As-built plans and specifications certified by a professional engineer registered in Indiana, covering all work performed without a valid construction permit issued by the commissioner must be submitted to the commissioner within one hundred twenty (120) days of notification to the public water system by the commissioner.

(3) Modifications as required by the commissioner after review of the as-built plans and specifications shall be made within the time limits specified by the commissioner.

(4) The commissioner may require interim measures taken during review of an after-the-fact construction permit, including boil orders to ensure safe drinking water of satisfactory quality and normal operating pressure at the peak operating flow rate in accordance with this article.

(5) An after-the-fact construction permit does not relieve a public water system or any other person of any liability for construction without a valid permit from the commissioner.

(Water Pollution Control Division; 327 IAC 8-3-2; filed Sep 24, 1987, 3:00 p.m.: 11 IR 709; filed Oct 22, 1991, 5:00 p.m.: 15 IR 224; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2494; errata filed Aug 30, 1999, 12:06 p.m.: 23 IR 25; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2949; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-3-2.1 Permits for construction of small transient and small nontransient noncommunity public water systems

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1

Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2; IC 25-31-1-19

Sec. 2.1. (a) Small transient and small nontransient noncommunity public water systems may construct facilities specified in 327 IAC 8-4-2 without obtaining a construction permit, provided that they have met all the conditions set forth in 327 IAC 8-4-2.

(b) For construction at small transient and small nontransient noncommunity public water systems that are not subject to subsection (c), the design as shown on an application, plans, and specifications may be certified by any of the following:

(1) A professional engineer.

(2) A licensed well driller.

(3) A licensed professional geologist.

(c) As required under IC 25-31-1-19(a), design on construction and maintenance projects for:

(1) a county;

(2) a city;

(3) a town;

(4) a township;

(5) a school corporation; or

(6) any other political subdivision;

must have a professional engineer certify that the design as shown on the application, plans, and specifications are in compliance with the rule.

(d) Where a permit is required, an application form shall be submitted in accordance with section 3 of this rule. If specifications for small transient and small nontransient noncommunity public water systems are not included in this section, the requirements of section 2 of this rule must be met. *(Water Pollution Control Division; 327 IAC 8-3-2.1; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2950; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3-3 Application for permits

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1

Affected: IC 4-21.5-3-5; IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 3. (a) A properly executed application form shall accompany the plans and specifications submitted to the commissioner for the purposes of obtaining a permit. Application forms may be obtained from the commissioner upon request or computer-generated if the computer-generated form is similar in appearance and identical in content to the form generated by the commissioner. A properly executed application form shall include the following:

(1) The name, address, identification number, and telephone number of the public water system.

(2) The name, address, and telephone number of the engineering firm or other entity specified in section 2.1 of this rule and the developing firm.

(3) The name, address, and title of the person who is to receive the permit (generally the person representing the funding entity of the construction project).

(4) The location, a brief description, and the source of funding for the construction project.

(5) A list and corresponding mailing labels of all potentially affected parties as defined by IC 4-21.5-3-5(b).

(6) A dated signature certifying that, to the best of the public water system's knowledge, all potentially affected parties, as defined by IC 4-21.5-3-5(b), have been listed.

(b) The applications, plans, and specifications along with any reports and other information shall be submitted using a format and meeting content requirements approved by the commissioner.

(c) All plans, specifications, and applications must be prepared by or under the direct supervision of a professional engineer registered in Indiana and shall bear the seal and certification of the professional engineer certifying that construction of the proposed project following the application, plans, and specifications will produce drinking water of satisfactory quality and normal operating pressure at the peak operating flow rate in accordance with this article. Plans, specifications, and applications for small transient and small nontransient noncommunity public water systems must be prepared in accordance with section 2.1 of this rule.

(d) A proposed construction project that is the subject of an application for a construction permit must be entirely independently based on existing public water system facilities or proposed construction projects with effective construction permits, issued by the commissioner, that are not the subject of the application.

(e) The commissioner may require additional information, within the context of a permit application, to determine whether the proposed facility will meet the issuance requirements of section 4 of this rule.

(f) Whenever the commissioner requires information, within the context of a permit application, regarding:

(1) existing water supply facilities or water treatment works; or

(2) the operation and maintenance thereof;

this information shall be submitted to the commissioner within thirty (30) days of such request.

(g) A public water system proposing to install or construct facilities, equipment, or devices under a staged permitting process must submit proposed schedules for the following along with the initial permit application as allowed under section 2(e) of this rule:

(1) The construction of the entire project.

(2) The application or applications for the remainder of the staged parts of the total construction project.

(Water Pollution Control Division; 327 IAC 8-3-3; filed Sep 24, 1987, 3:00 p.m.: 11 IR 710; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2496; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2950; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-3-4 Issuance requirements

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 4. The commissioner may deny the application for any permit required by this rule unless the applicant submits evidence that the following issuance requirements are met:

(1) The facility is designed to be constructed, modified, or installed, and operated in such a manner that it will not violate any of the sanitary or health regulations or requirements existing at the time of application for the permit.

(2) The facility conforms to the design criteria in the "Recommended Standards for Water Works" established by the Great Lakes—Upper Mississippi River Board of State Public Health and Environmental Managers, the American Water Works Association (AWWA) standards, or is based on such criteria acceptable to the commissioner which the applicant shows will produce drinking water of satisfactory quality and normal operating pressure at the peak operating flowrate in accordance with this article.

(3) The facility will conform to any additional requirements specified by the commissioner to produce consistently satisfactory results.

(4) The plans for wastewater disposal meet the requirements of the commissioner.

(5) All additional substantiating information requested by the commissioner has been submitted.

(Water Pollution Control Division; 327 IAC 8-3-4; filed Sep 24, 1987, 3:00 p.m.: 11 IR 710; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2496; errata filed Aug 30, 1999, 12:06 p.m.: 23 IR 25; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-3-4.2 Public water system water main extension early warning order and connection ban

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 4-21.5; IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 4.2. (a) For use in this section, the public water system's capacity shall be calculated by the methods outlined in 327 IAC 8-3.3.

(b) The commissioner may issue an early warning order to a public water system if the public water system's highest daily pumpage, as reported over the previous two (2) year period, on the public water system's monthly report of operations, on record with the department, exceeds ninety percent (90%) of the public water system's capacity.

(c) An early warning order shall require the public water system to submit one (1) of the following within one hundred twenty (120) days of the date of an early warning order:

(1) A report regarding the public water system's:

(A) technical, managerial, and financial capacity demonstrating that the public water system can maintain normal

operations and remain viable; and

(B) anticipated capacity utilization plans covering, in the minimum, the upcoming twenty-four (24) months.

(2) A report regarding the public water system's proposed plans covering, in the minimum, the upcoming twenty-four (24) months to increase the capacity of the public water system or to decrease the customer demand.

(3) A report demonstrating that the public water system's current two (2) year average peak does not exceed ninety percent (90%) of the public water system's capacity.

(d) The commissioner may impose a connection ban under circumstances where:

(1) one hundred twenty (120) calender days have passed since the issuance date of the early warning order;

(2) the public water system's current two (2) year average peak exceeds ninety percent (90%) of the public water system's capacity; and

(3) one (1) of the following has occurred:

(A) The public water system has not complied with subsection (c).

(B) The public water system has failed to demonstrate that the public water system's technical, managerial, and financial capacity can maintain normal operations and remain viable.

(C) The public water system has failed to implement the public water system's proposed twenty-four (24) month plan to increase the capacity of the public water system or decrease the customer demand.

(e) The connection ban imposed by the commissioner shall prohibit the connection of additional water main extensions to the public water system.

(f) The commissioner shall give written notification to the public water system, by certified mail with return receipt requested, of the decision to impose an early warning order or a connection ban.

(g) The commissioner may terminate an early warning order or a connection ban only after the commissioner has approved one (1) of the following:

(1) A report submitted pursuant to subsection (c).

(2) A report demonstrating that the public water system's current two (2) year average peak does not exceed ninety percent (90%) of the public water system's capacity.

(h) A project with a valid construction permit, issued by the commissioner, with an effective date preceding a connection ban issued by the commissioner, is exempt from the connection ban.

(i) An emergency construction permit, as described in section 2(f) of this rule, may be issued by the commissioner to a public water system with a connection ban.

(j) A public water system aggrieved by the imposition of an early warning order, a connection ban, or a denial to terminate an early warning order or a connection ban may appeal the decision of the commissioner at a hearing held in accordance with IC 4-21.5. *(Water Pollution Control Division; 327 IAC 8-3-4.2; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2497; errata filed Aug 30, 1999, 12:06 p.m.: 23 IR 25; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3-5 Modification or revocation of permits

Authority: IC 13-7-7-5; IC 13-7-14-5
Affected: IC 13-7

Sec. 5. Permits shall be modified or revoked pursuant to the provision of IC 13-7-10-5 *[IC 13-7 was repealed by P.L.1-1996, SECTION 99, effective July 1, 1996.]. (Water Pollution Control Division; 327 IAC 8-3-5; filed Sep 24, 1987, 3:00 pm: 11 IR 711; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3-5.5 Duration of the commissioner's review of an application, plans, and specifications

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-15-4-11; IC 13-18-2

Sec. 5.5. (a) The commissioner must approve or deny a construction permit application:

(1) for water treatment facilities within a total of one hundred twenty (120) days; or

(2) for all other proposed construction to a public water system within a total of sixty (60) days.

(b) The total of days, as specified in subsection (a), shall include all calendar days from the commissioner's date-stamped receipt of the application, plans, specifications, and, if required, fee, excluding the calendar days between the following activities:

(1) A commissioner's written notification to the applicant that the application, plans, and specifications do not fulfill the requirements of section 4 of this rule or are incomplete, inaccurate, or indicate the proposed construction will not produce drinking water of satisfactory quality and normal operating pressure at the peak operating flowrate in accordance with this article.

(2) The commissioner's date-stamped receipt of the applicant's submittal of additional information subsequent to the commissioner's notification, as described in subdivision (1) to demonstrate that the application, plans, and specifications fulfill the requirements of section 4 of this rule and are complete, are accurate, and indicate the proposed construction will produce drinking water of satisfactory quality and normal operating pressure at the peak operating flowrate in accordance with this article.

(c) The commissioner's failure to comply with this section is subject to IC 13-15-4-11. *(Water Pollution Control Division; 327 IAC 8-3-5.5; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2497; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3-5.7 Notification of construction

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 5.7. The permittee must notify the commissioner a minimum of ten (10) days, excluding Saturdays, Sundays, and state of Indiana holidays, before exercising a permit issued by the commissioner in accordance with this rule. The notification must include the following information:

(1) The construction permit number assigned by the commissioner.
(2) The location of the construction.
(3) A description of the construction.
(4) Anticipated duration of the construction.
(5) The phone number of the permittee or permittee's representative who will be present during the construction.

(Water Pollution Control Division; 327 IAC 8-3-5.7; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2498; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-3-6 Permit no defense to violations

Authority: IC 13-7-7-5; IC 13-7-14-5
Affected: IC 13-7-7-5; IC 13-7-14-5

Sec. 6. The possession of any permit authorized by this rule (327 IAC 8-3) shall not be construed to authorize the holder of the permit to violate any law of the state of Indiana or rule. *(Water Pollution Control Division; 327 IAC 8-3-6; filed Sep 24, 1987, 3:00 pm: 11 IR 711; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3-7 Fees

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-16-1-2; IC 13-18-2; IC 36-1-2-23

Sec. 7. (a) The following governmental entities shall be excluded from payment of fee as described in subsection (b):

(1) County, municipality, or township that is defined as a unit under IC 36-1-2-23.
(2) A nonprofit organization.
(3) A conservancy district.
(4) A school corporation.

(5) A regional water or sewage district.

(b) The following fee schedule has been established to defer administrative costs, pursuant to IC 13-16-1-2:

TYPE	PROCESSING FEE
New public water supply treatment plant:	
Ground water:	
Up to 500,000 gallons per day	$875
Greater than 500,000 gallons per day	$1,750
Surface water:	
Up to 500,000 gallons per day	$1,250
Greater than 500,000 gallons per day	$2,500
Public water supply treatment plant expansion:	
Up to fifty percent (50%) design capacity:	
Greater than 500,000 gallons per day	$1,250
Up to 500,000 gallons per day	$625
Greater than fifty percent (50%) design capacity:	
Greater than 500,000 gallons per day	$2,500
Up to 500,000 gallons per day	$1,250
Other water treatment facilities:	
Wells	$500
Pump or pump station	$100
Chemical addition	$250
Storage tank	$200
Miscellaneous process modification	$50 per process
All water distribution system:	
2,501 - 5,000 linear feet	$150
5,001 - 10,000 linear feet	$250
Greater than 10,000 linear feet	$500

(c) A fee shall be remitted with each application made in accordance with the schedule in subsection (b). Checks shall be made payable to the department of environmental management.

(d) The fee shall not be refundable once staff review and processing of the permit application has commenced. *(Water Pollution Control Division; 327 IAC 8-3-7; filed Oct 22, 1991, 5:00 p.m.: 15 IR 225; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2498; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3-8 Incorporation by reference

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 8. Recommended Standards for Waterworks, 2003 Edition, Great Lakes—Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, is incorporated by reference into this rule and may be obtained from Health Education Services, P.O. Box 7126, Albany, New York 12224 or from 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 Division; 327 IAC 8-3-8; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2499; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; errata filed Feb 6, 2006, 11:15 a.m.: 29 IR 1937; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2951; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

Rule 3.1. Permitting Authority of Units for Water Main Extension Construction

327 IAC 8-3.1-1 Definitions

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-3-12; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2; IC 25-31; IC 36-1-2-23

Sec. 1. (a) The applicable definitions in IC 13-11-2 and 327 IAC 8-3.2-1 apply throughout this rule.

(b) For purposes of this rule, "unit" means county, municipality, or township as set forth in IC 36-1-2-23. *(Water Pollution Control Division; 327 IAC 8-3.1-1; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2499; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2951; readopted filed Jul 18, 2012, 2:25 p.m.: 20120815-IR-327120261BFA)*

327 IAC 8-3.1-2 Permitting authority and responsibilities

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-3-12; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 2. (a) The plans for a water main extension are not required to be submitted to any state agency for a permit, permission, or review, unless required by the federal law, if the following are met:

(1) A person submits plans to a unit concerning the design or construction of a public water main.

(2) A professional engineer prepared the plans.

(3) The unit provided a review of the plans by a qualified engineer and subsequently approved the plans.

(4) All other requirements specified in this rule and all other rules adopted by the water pollution control board are met.

(b) The proposed construction of a water main must be in accordance with the following:

(1) The Safe Drinking Water Act, 42 U.S.C. 300f-300j-26, as amended*.

(2) The Clean Water Act, 33 U.S.C. 1251-1387, as amended**.

(c) The other requirements specified in rules that have been adopted by the water pollution control board and must be adhered to in the permitting of a public water main include the following:

(1) 327 IAC 8-1: Public Water Supply Direct Additive and Indirect Additive Standards.

(2) 327 IAC 8-2: Drinking Water Standards.

(3) 327 IAC 8-3.2: Technical Standards for Water Mains.

(4) 327 IAC 8-3.3: Public Water System Quantity Requirement Standards.

(5) 327 IAC 8-3.3-4: Additional public water system quantity requirement standards for school buildings and related facilities.

(6) 327 IAC 8-3.3-5: Additional public water system quantity requirement standards for mobile home parks.

(7) 327 IAC 8-3.3-6: Additional public water system quantity requirement standards for agricultural labor camps.

(8) 327 IAC 8-10: Cross Connections; Control; Operation.

(d) Units shall notify the commissioner of all public water main construction permits that the unit has issued by submitting to the department, on the effective date of the permit, a copy of each issued permit. Each submission shall contain the following information for each issued permit:

(1) The identification number that has been issued by the local unit.

(2) The effective date of the permit.

(3) The county where the construction project is to be located.

(4) The location of the construction project in terms of the following:

(A) The nearest public intersection.

(B) Quarter section, section, township, and range of the approximate center of the construction project.

(C) If the information requested by clause (B) is not available, the latitude and longitude of the approximate center of the construction project to the nearest fifteen (15) seconds.

(5) The maximum number of proposed service connections to the water main.

(6) A description and numerical count of the type or types of facilities to be located at each proposed service connection whether:

(A) residential;

(B) commercial; or

(C) industrial.

(7) A project layout map on an eight and one-half (8.5) inch by eleven (11) inch sheet of paper.

(e) The commissioner may approve alternatives to the notification procedure described in subsection (d) if requested. The alternative notification procedure must provide equivalent information to that required under subsection (d) to be considered for approval.

*The Safe Drinking Water Act as amended on August 6, 1996, is incorporated by reference and may be found at 42 U.S.C. 300f to 42 U.S.C. 300j-26 and is 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, Indianapolis, Indiana 46204.

**The Clean Water Act in effect on January 1, 1989, and amended on December 16, 1996, is incorporated by reference and may be found at 33 U.S.C. 1251 to 33 U.S.C. 1387 and is 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, Indianapolis, Indiana 46204. *(Water Pollution Control Division; 327 IAC 8-3.1-2; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2499; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; errata filed Feb 6, 2006, 11:15 a.m.: 29 IR 1937; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2951; readopted filed Jul 18, 2012, 2:25 p.m.: 20120815-IR-327120261BFA)*

Rule 3.2. Technical Standards for Water Mains

327 IAC 8-3.2-1 Definitions

Authority: IC 13-13-5-1; IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-2; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 25-31

Sec. 1. In addition to the definitions in IC 13-11-2 and 327 IAC 8-3-1, the following definitions apply throughout this rule:

(1) "100-year flood" means a flood with an occurrence probability of one percent (1%) each year as determined by the Indiana department of natural resources.

(2) "Accessories" means the constituent elements of a water main, such as the following:

(A) Pipes.

(B) Fittings.

(C) Valves.

(D) Pumps.

(E) Hydrants.

(3) "ASTM standards" means the recommended standards certified by the American Society for Testing and Materials.

(4) "AWWA/ANS standards" means the American National Standard approved by the American Water Works Association.

(5) "Dead-end main" means a portion of a water main that has:

(A) flow in only one (1) direction; and

(B) no planned future extension.

(6) "Fire flow" means the rate of water flow intended for providing fire protection.

(7) "Nonpermeable" means to be constructed of ductile iron with solvent-resistant gasket materials or welded steel pipes.

(8) "Transmission main" means any pipe that:

(A) transports water from a:

(i) surface water intake to a surface water treatment plant; or

(ii) well to a water treatment plant;

(B) transports:

(i) finished water from the treatment plant to the entry point to the water distribution system; or

(ii) water from a well to the entry point to the water distribution system if there is no water treatment plant; or

(C) is installed for the purpose of interconnecting separate public water systems.

(Water Pollution Control Division; 327 IAC 8-3.2-1; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2500; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2952; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-

327070553BFA)

327 IAC 8-3.2-2 Incorporation by reference

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 2. The following materials, including titles and the names and addresses of where they may be located for inspection and copying, are incorporated by reference into this rule:

(1) The American Society for Testing and Materials standards listed throughout this rule are available in the 2004 Annual Book of ASTM Standards, Part 34, Plastic Pipe and Building Products, 2004 Edition, American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103 or from the Indiana Department of Environmental Management, Office of Water Quality, Indiana Government Center-North, 100 North Senate Avenue, Room N1255, Indianapolis, Indiana 46204.

(2) The American Water Works Association (AWWA) standards listed throughout this rule are available from the American Water Works Association, 6666 West Quincy Avenue, Denver, Colorado 80235 or from the Indiana Department of Environmental Management, Office of Water Quality, Indiana Government Center-North, 100 North Senate Avenue, Room N1255, Indianapolis, Indiana 46204.

Notwithstanding language to the contrary in the primarily incorporated documents, the version of all secondarily incorporated documents, which are documents referred to in the primarily incorporated documents, shall be the version in effect on the date of final adoption of this rule. *(Water Pollution Control Division; 327 IAC 8-3.2-2; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2500; errata filed Aug 30, 1999, 12:06 p.m.: 23 IR 25; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; errata filed Feb 6, 2006, 11:15 a.m.: 29 IR 1937; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2953; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3.2-3 Applicability

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 3. The technical standards established in this rule are applicable to the design and construction of all new or modified water main extensions constructed in Indiana as specified in 327 IAC 8-3 or 327 IAC 8-3.1 and to the applications, plans, and specifications of those water main extensions. *(Water Pollution Control Division; 327 IAC 8-3.2-3; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2501; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3.2-4 Certification

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 4. A professional engineer must certify that the water main designs as shown on the application, plans, and specifications are in compliance with this rule except as allowed by 327 IAC 8-3-2.1. *(Water Pollution Control Division; 327 IAC 8-3.2-4; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2501; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2953; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3.2-5 Additional information on construction permit applications

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 5. (a) In addition to the information on the application for construction permit required in 327 IAC 8-3-3, the following information shall be provided with each application for water main extension covered by this rule:

(1) Information describing the project as a new water main, the replacement of an existing water main, or the relocation of an existing water main.
(2) The piping material types, sizes, classes, pressure ratings, and length.
(3) The total length of water main piping.
(4) Types of joints.
(5) Minimum depth of cover.
(6) A statement that indicates the following:
(A) If the water main will provide fire protection.
(B) How the water main will be pressure and leak tested, and disinfected.
(C) If the water main will cross any streams, rivers, or other bodies of water.
(D) If the project area has a history of external corrosion problems.
(7) Information describing how the water main will be anchored at:
(A) each tee, bend, and dead-end; and
(B) any hydrants or other accessories.
(8) The minimum horizontal and vertical separation distances from the water mains and any sanitary or storm sewers.
(9) The spacing between isolation valves and the spacing between hydrants.
(10) The current number of service connections served by the public water system.
(11) The public water system's current two (2) year average peak.
(12) The capacity of the public water system as determined by use of the methods described in 327 IAC 8-3.3-3.
(13) The number and type of service connections added by the water main extension and the corresponding fire flow, average and peak daily customer demand, and the peaking factor as determined by use of the methods described in 327 IAC 8-3.3-2.
(14) Flow test information indicating the flowrate, static pressure, residual pressure, date and time of flow test, elevation of flow test location, and the lengths, material types, and diameters of the water main from the flow test location to the point of connection to the water main extension.

(b) In addition to the certifications on the application for construction permit required in 327 IAC 8-3-3, a certification signed and dated by the public water system certifying the public water system has agreed to furnish drinking water to the water main extension and that the public water system has acknowledged the responsibility for examining the application, plans, and specifications to determine that the water main extension meets local rules, laws, regulations, and ordinances shall be provided with each application for water main extension covered by this rule.

(c) The plans required to be submitted, with an application for construction permit specified in 327 IAC 8-3-3, must bear, on each page of the plans, a dated signature and seal of a professional engineer and must include the following:
(1) Location of existing and proposed roads and lot boundaries.
(2) Location of existing and proposed water main pipes indicating the lengths, diameters, and material types of the water main pipes.
(3) Location of existing and proposed hydrants, isolation valves, road casings, blow-off assemblies, and other accessories.
(4) Location of proposed reaction blocking.
(5) Location of existing and proposed sanitary sewers, storm sewers, and culverts.
(6) Elevation contours at one (1) or two (2) foot intervals.
(7) Delineation of the 100-year floodway and flood plain.

(Water Pollution Control Division; 327 IAC 8-3.2-5; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2501; errata filed Aug 30, 1999, 12:06 p.m.: 23 IR 25; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-3.2-6 Required easements; other permits

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 6. (a) All easements for water main rights-of-way must prohibit the construction of any permanent structure over the water main and must also provide enough access for maintenance with modern mechanical equipment.

(b) All required permits or exemptions from other government entities must be obtained prior to the commencement of construction of any water mains covered by this rule. *(Water Pollution Control Division; 327 IAC 8-3.2-6; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2502; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3.2-7 Additional issuance requirements for construction permits

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 7. (a) For use in this section, the public water system's capacity, the average daily customer demand, and the peaking factor shall be calculated by the methods outlined in 327 IAC 8-3.3-2.

(b) In addition to the issuance requirements for a construction permit described in 327 IAC 8-3-4, the commissioner may deny an application for construction of a water main extension unless the applicant submits evidence that the following issuance requirements are met:

(1) The public water system's current two (2) year average peak is less than ninety percent (90%) of the public water system's capacity.

(2) The sum of the public water system's current two (2) year average peak and the product of the following is less than ninety percent (90%) of the public water system's capacity:

(A) The average daily customer demand resulting from the proposed water main extension.

(B) The peaking factor resulting from the proposed water main extension.

(Water Pollution Control Division; 327 IAC 8-3.2-7; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2502; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-3.2-8 Water main materials

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 8. (a) All piping, accessories, and other materials in a water main shall conform to 327 IAC 8-1, contain less than eight percent (8%) by mass lead, and conform to the following applicable standards:

(1) For ductile-iron and fittings, the following standards apply:

(A) C104/A21.4-03 American National Standard for Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water.

(B) C105/A21.5-99 American National Standard for Polyethylene Encasement for Ductile-Iron Pipe Systems.

(C) C110/A21.10-03 American National Standard for Ductile-Iron and Gray-Iron Fittings for Water.

(D) C111/A21.11-00 American National Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.

(E) C115/A21.15-99 American National Standard for Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges.

(F) C150/A21.50-02 Thickness Design of Ductile-Iron Pipe.

(G) C151/A21.51-02 American National Standard for Ductile-Iron Pipe, Centrifugally Cast, for Water.

(H) C153/A21.53-00 American National Standard for Ductile-Iron Compact Fittings for Water Service.

(2) For steel pipe, the following standards apply:

(A) C200-97 AWWA Standard for Steel Water Pipe-6 In. (150 mm) and Larger.

(B) C203-02 AWWA Standard for Coal-Tar Protective Coatings and Linings for Steel Water Pipelines-Enamel and Tape-Hot Applied.

(C) C205-00 AWWA Standard for Cement-Mortar Protective Lining and Coating for Steel Water Pipe-4 In. (100 mm) and Larger-Shop Applied.

(D) C206-97 AWWA Standard for Field Welding of Steel Water Pipe.

(E) C207-01 AWWA Standard for Steel Pipe Flanges for Waterworks Service-Sizes 4 In. through 144 In. (100 mm

through 3,600 mm).

(F) C208-01 AWWA Standard for Dimensions for Fabricated Steel Water Pipe Fittings.

(G) C209-00 AWWA Standard for Cold-Applied Tape Coatings for the Exterior of Special Sections, Connections, and Fittings for Steel Water Pipelines.

(H) C210-03 Liquid-Epoxy Coating Systems for the Interior and Exterior of Steel Water Pipelines.

(I) C213-01 AWWA Standard for Fusion-Bonded Epoxy Coating for the Interior and Exterior of Steel Water Pipelines.

(J) C214-00 AWWA Standard for Tape Coating Systems for the Exterior of Steel Water Pipelines.

(K) C215-04 Extruded Polyolefin Coatings for the Exterior of Steel Water Pipelines.

(L) C216-00 AWWA Standard for Heat-Shrinkable Cross-Linked Polyolefin Coatings for the Exterior of Special Sections, Connections, and Fittings for Steel Water Pipelines.

(M) C217-04 Cold-Applied Petrolatum and Petroleum Wax Tape Coatings for the Exterior of Connections and Fittings for Steel Water Pipelines.

(N) C218-02 AWWA Standard for Coating the Exterior of Aboveground Steel Water Pipelines and Fittings.

(O) C219-01 AWWA Standard for Bolted, Sleeve-Type Couplings for Plain-End Pipe.

(P) C220-98 AWWA Standard for Stainless-Steel Pipe, 4 In. (100 mm) and Larger.

(3) For concrete pipe, the following standards apply:

(A) C300-04 Reinforced Concrete Pressure Pipe, Steel-Cylinder Type.

(B) C301-99 AWWA Standard for Prestressed Concrete Pressure Pipe, Steel-Cylinder Type.

(C) C302-04 Reinforced Concrete Pressure Pipe, Noncylinder Type.

(D) C303-02 Concrete Pressure Pipe, Bar-Wrapped, Steel-Cylinder Type.

(E) C304-99 AWWA Standard for Design of Prestressed Concrete Cylinder Pipe.

(4) For asbestos-cement pipe, the following standards apply:

(A) C400-03 Asbestos-Cement Pressure Pipe, 4 In. through 16 In. (100 mm through 400 mm), for Water Distribution Systems.

(B) C401-03 The Selection of Asbestos-Cement Pressure Pipe, 4 In. through 16 In. (100 mm through 400 mm), for Water Distribution Systems.

(C) C402-00 AWWA Standard for Asbestos-Cement Transmission Pipe, 18 In. through 42 In. (450 mm through 1,050 mm), for Water Supply Service.

(D) C403-00 AWWA Standard for the Selection of Asbestos-Cement Transmission Pipe, Sizes 18 In. through 42 In. (450 mm through 1,050 mm), for Water Supply Service.

(5) For valves and hydrants, the following standards apply:

(A) C500-02 Metal-Seated Gate Valves for Water Supply Service.

(B) C502-94 AWWA Standard for Dry-Barrel Fire Hydrants (includes addendum C502a-95).

(C) C503-97 AWWA Standard for Wet-Barrel Fire Hydrants.

(D) C504-00 AWWA Standard for Rubber-Seated Butterfly Valves.

(E) C507-99 AWWA Standard for Ball Valves, 6 In. through 48 In. (150 mm through 1,200 mm).

(F) C508-01 AWWA Standard for Swing-Check Valves for Waterworks Service, 2 In. through 24 In. (50 mm through 600 mm) NPS.

(G) C509-01 AWWA Standard for Resilient-Seated Gate Valves for Water Supply Service.

(H) C510-97 AWWA Standard for Double Check Valve Backflow-Prevention Assembly.

(I) C511-97 AWWA Standard for Reduced-Pressure Principle Backflow-Prevention Assembly.

(J) C512-04 Air-Release, Air/Vacuum, and Combination Air Valves for Waterworks Service.

(K) C540-02 Power-Actuating Devices for Valves and Slide Gates for Waterworks Service.

(L) C550-01 AWWA Standard for Protective Epoxy Interior Coatings for Valves and Hydrants.

(M) C560-00 AWWA Standard for Cast-Iron Slide Gate.

(6) For plastic pipe, the following standards apply:

(A) C900-97 AWWA Standard for Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. through 12 In. (100 mm through 300 mm), for Water Distribution.

(B) C901-96 AWWA Standard for Polyethylene (PE) Pressure Pipe and Tubing, ½ In. (13 mm) through 3 In. (76 mm),

for Water Service.

(C) C905-97 AWWA Standard for Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 14 In. through 36 In (350 mm through 1,200 mm), for Water Transmission and Distribution.

(D) C906-99 AWWA Standard for Polyethylene (PE) Pressure Pipe and Fittings, 4 In. (100 mm) through 63 In. (1,575 mm), for Water Distribution and Transmission.

(E) C907-91 AWWA Standard for Polyvinyl Chloride (PVC) Pressure Fittings for Water, 4 In. through 8 In. (100 mm through 200 mm).

(F) American Society for Testing and Materials (ASTM) D2239-03 Standard Specifications for Polyethylene (PE) Plastic Pipe (SIDR-PN) Based on Controlled Inside Diameter.

(G) ASTM D2241-04b Standard Specification for Polyvinyl Chloride (PVC) Pressure-Rated Pipe (SDR Series).

(H) ASTM D3350-04 Standard Specification for Polyethylene Plastic Pipe and Fittings Materials.

(b) All water mains installed in areas of ground water contamination, consisting of solvent, petroleum, or other volatile or semivolatile organic compounds, shall be constructed with nonpermeable piping and accessories.

(c) Piping and accessories previously used exclusively for water mains may be reused if the piping or accessories:

(1) comply with the requirements of subsection (a); and

(2) have been restored to their original condition.

(d) All connections between pipes shall have mechanical joints or slip-on joints with rubber gaskets with the exception of:

(1) steel pipe that may be welded;

(2) polyethylene (PE) pipes that may be thermojointed by a person who is a manufacturer's certified thermojointer; or

(3) piping described in section 10(d) of this rule.

(e) Water mains constructed with PVC and installed under existing or proposed roadways and railroads shall be cased in conformance with AWWA Standard C900-97 or AWWA Standard C905-97.

(f) Water mains that are cased shall conform to AWWA Standard C600-99.

(g) Water mains constructed with nonmetallic materials must be equipped with tracing wire or other metallic identification equipment. *(Water Pollution Control Division; 327 IAC 8-3.2-8; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2502; errata filed Aug 30, 1999, 12:06 p.m.: 23 IR 25; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2953; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3.2-9 Separation of water mains from potential sources of contamination or damage

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1

Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 9. (a) Water mains shall not be located within ten (10) feet measured horizontally from the outside edge of the water main to the outside edge of any existing and proposed sanitary sewers or storm sewers (sewers), unless the water main and the sewers comply with the following:

(1) The water main and sewers must cross with the water main and sewers separated by a minimum of eighteen (18) inches measured vertically from the outside edge of the water main to the outside edge of the sewers.

(2) The crossing specified in subdivision (1) must be at a minimum angle of forty-five (45) degrees measured from the center lines of the water main and sewers.

(3) The conditions specified in subdivisions (1) and (2) must be maintained for a minimum distance of ten (10) feet from either side of the water main as measured from the outside edge of the water main to the outside edge of the sewers. All sewer pipe joints within this ten (10) feet distance must be compression type joints.

(4) All sewer pipe must be marked to identify it as a sewer pipe wherever a point of crossing with a water main pipe occurs.

(b) A shorter separation distance than that specified in subsection (a) is allowed if the following is conducted within the separation distances specified in subsection (a):

(1) The sewers are joined with compression type joints and meet all water main requirements as described in sections 8 and 17(a) of this rule.

(2) The water main and sewers are not in contact.

(c) Water mains shall be separated from existing and proposed aboveground or underground storage tanks and their

distribution devices containing or potentially containing hazardous materials, petroleum products, or waste materials by a distance of twenty-five (25) feet horizontally measured from the outside edge of the water main to the outside edge of the tank or distribution device and shall not cross such tanks or distribution devices.

(d) Water mains shall be separated from the following existing and proposed potential sources of contamination or damage (sources) by ten (10) feet measured horizontally from the outside edge of the water main to the outside edge of the source and shall not cross such potential sources:

(1) Aboveground and underground storage tanks containing materials other than those under subsection (b) or potable water.

(2) Sewage or septic treatment equipment and septic tank absorption field trenches, lift stations, and grave sites.

(e) No water main shall be within eight (8) feet of a sanitary sewer manhole, a storm sewer manhole, or a drainage grate support structure as measured from the outside edge of the water main to the outside edge of the sanitary sewer manhole, storm sewer manhole, or drainage grate support structure.

(f) Water mains shall be separated from existing or proposed landfills by fifty (50) feet measured horizontally from the edge of the water main to the outside edge of the waste boundary of an existing or proposed landfill. In addition, water mains within three hundred (300) linear feet of the outside edge of a waste boundary of an existing or proposed landfill shall be constructed of nonpermeable materials. Water mains shall not cross or pass through the waste boundary of an existing or proposed landfill. *(Water Pollution Control Division; 327 IAC 8-3.2-9; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2504; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3.2-10 Water mains near surface water bodies

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 10. (a) Water mains shall be separated from existing or proposed water bodies by ten (10) feet horizontally measured from the outside edge of the water main to the edge of the typical water line.

(b) Water mains located above surface water bodies shall be:

(1) adequately supported and anchored;

(2) protected from damage and freezing; and

(3) accessible for repair or replacement.

(c) Water mains located under surface water bodies less than fifteen (15) feet in width shall be covered with a minimum of two (2) feet of material.

(d) Water mains going under surface water bodies greater than fifteen (15) feet in width at the crossing point shall:

(1) be constructed with watertight, flexible joints;

(2) have valves placed at both ends of the surface water body that are accessible from the ground surface and not subject to flooding; and

(3) have the upstream valve installed in a manhole structure or meter pit, with permanent taps made on each side of the valve in the manhole structure or meter pit to allow insertion of a leakage meter and to allow for sampling purposes.

(Water Pollution Control Division; 327 IAC 8-3.2-10; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2505; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-3.2-11 Flow rate and pressure in the water main

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 11. (a) The flow rate and the pressure requirements of subsection (b) shall be provided at all service connections in a water main extension applicable to this rule.

(b) At a flow rate equal to the peak daily customer demand as determined in 327 IAC 8-3.3-2, the normal operating pressure in the water main shall not be less than twenty (20) pounds per square inch (psi) under all conditions of flow at the ground level at all points in the water main when demonstrated in conformance with subsection (c).

(c) The flow rate and the pressure requirements of subsection (b) shall be demonstrated to the commissioner with either:

(1) a computer-based model; or

(2) other hydraulic calculations.

(d) In addition to the requirements in subsections (a) through (c), the water supply and water distribution system at noncommunity public water systems shall be sized and constructed to deliver water at twenty (20) psi minimum pressure to all fixtures and appurtenances during periods of peak water demand. *(Water Pollution Control Division; 327 IAC 8-3.2-11; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2505; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2955; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3.2-12 Sizing of piping and accessories

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 12. (a) If the water main is to include fire flow with fire hydrants, the minimum size of piping and accessories supplying water to the water main and fire hydrants shall be six (6) inches in diameter. The minimum size of hydrant leads shall be six (6) inches in diameter.

(b) No water main shall be less than three (3) inches in diameter unless:

(1) the material requirements of section 8 of this rule are met;

(2) the water main is a dead-end main less than three hundred fifty (350) feet in length; and

(3) the flowrate and pressure requirements of section 11 of this rule are met.

(c) If a public water system is not providing fire flow, then fire hydrants shall not be installed on water mains. *(Water Pollution Control Division; 327 IAC 8-3.2-12; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2505; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3.2-13 Use of dead-end mains

Authority: IC 13-13-5-1; IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-2; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2

Sec. 13. (a) All dead-end mains shall end with a valve and one (1) additional length of pipe beyond the valve that is properly plugged and capped.

(b) All dead-end main end points shall have flushing devices attached to the valve specified in subsection (a) that is sized to provide at least two and one-half (2.5) feet per second and a maximum of five (5) feet per second in the dead-end main during flushing. No flushing device may be connected directly to a sewer. A flushing device shall be selected in accordance with the following:

(1) The flushing device shall be a fire hydrant, flushing hydrant, or blow-off assembly if the diameter of the water main pipe is at least six (6) inches in diameter.

(2) The flushing device shall be a flushing hydrant or blow-off assembly if the diameter of the water main pipe is less than six (6) inches in diameter.

(Water Pollution Control Division; 327 IAC 8-3.2-13; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2505; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-3.2-14 Placement of isolation valves and air relief valves

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 14. (a) Isolation valves shall be provided on water mains in accordance with the following:

(1) Isolation valves shall be located at points necessary so that the maximum distance along the water main not served by an isolation valve shall be less than six hundred (600) linear feet.

(2) Where water suppliers serve widely scattered customers and where future development is not expected, the isolation valve spacing shall not exceed two thousand five hundred (2,500) linear feet.

(b) Air relief valves or other air relief devices shall be installed at any intermediate apex points in the water main where air may accumulate in the water main. All air relief valves must be equipped with an exhaust pipe extending to a downward facing elbow with a corrosion-resistant, twenty-four (24) mesh screened opening at an elevation of eighteen (18) inches above ground level. Automatic or manually operated air relief valves shall be selected in accordance with the following:

(1) Automatic air relief valves shall not be used in areas within the one hundred (100) year flood plain, in a pit, chamber or manhole where flooding may occur unless the automatic air relief valve is equipped with a downward facing exhaust pipe with a corrosion resistant, twenty-four (24) mesh screened opening at an elevation of eighteen (18) inches above the ground surface and above the one hundred (100) year flood elevation.

(2) Manually operated air relief valves shall be used in areas within the one hundred (100) year flood plain, in a pit, chamber, or manhole where flooding may occur.

(Water Pollution Control Division; 327 IAC 8-3.2-14; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2505; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-3.2-15 Fire and flushing hydrants

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 15. (a) All fire or flushing hydrant leads shall have auxiliary valves.

(b) Fire hydrant and flushing hydrant drains shall be separated from potential sources of contamination by ten (10) feet horizontally measured from the outside edge of the hydrant to the outside edge of the potential sources of contamination.

(c) Fire hydrants or flushing hydrants shall be located at points necessary so that the maximum distance along a water main not served by a fire hydrant or flushing hydrant shall be less than six hundred (600) linear feet.

(d) Fire hydrants shall be connected to a water main at least six (6) inches in diameter that has been designed to carry fire flow and shall have a bottom valve size at least five (5) inches in diameter, one (1) four and one-half (4.5) inch pumper nozzle, and two (2) two and one-half (2.5) inch nozzles.

(e) Hydrants, when used for flushing the water main, shall be able to provide at least two and one-half (2.5) cubic feet per second of water velocity at the point immediately preceding the exit point. *(Water Pollution Control Division; 327 IAC 8-3.2-15; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2506; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3.2-16 Chamber drainage

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 16. The chambers, pits, or manholes containing valves, air relief valves, blow-offs, cross-connection prevention devices, meters, or other devices connected directly or indirectly to the water main shall not be connected directly to any storm drain or sanitary sewer. All chambers, pits, or manholes shall be drained to the ground surface that is not prone to flooding by surface water or to absorption pits underground. *(Water Pollution Control Division; 327 IAC 8-3.2-16; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2506; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3.2-17 Installation

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 17. (a) All water mains and their accessories shall be installed and pressure and leak tested in accordance with the applicable provisions of one (1) of the following:

(1) C600-99 AWWA Standard for Installation of Ductile-Iron Water Mains and Their Appurtenances.

(2) C602-00 AWWA Standard for Cement-Mortar Lining of Water Pipelines in Place, 4 in (100 mm) and Larger.

(3) C603-96(R00) AWWA Standard for Installation of Asbestos Cement Pressure Pipe.

(4) C605-94 AWWA Standard for Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water.

(5) C606-04 Grooved and Shouldered Joints.

If an AWWA Standard is not available for the particular installation, the manufacturer's recommended installation procedure shall be followed.

(b) Continuous and uniform bedding shall be provided in the trench for all buried pipe. Backfill material shall be tamped in layers around the pipe and to a sufficient height above the pipe to adequately support and protect the pipe. All stones unable to pass through a U.S. Standard Sieve opening of two (2) inches that are found in the trench within six (6) inches of the outside edge of the pipe shall be removed.

(c) All necessary reaction blocking, tie rods, or joints designed to prevent movement for pipes and fittings (regardless of material type) at tees, bends, plugs, and hydrants shall be installed to prevent movement in conformance with AWWA Standard C600-99.

(d) Water mains shall be covered with earthen cover in accordance with the following:

Depth of Cover Requirements for Water Mains

County	Cover[1] (in)
Adams	60
Allen	60
Bartholomew	48
Benton	60
Blackford	60
Boone	54
Brown	48
Carroll	60
Cass	60
Clark	36
Clay	54
Clinton	54
Crawford	36
Daviess	48
Dearborn	48
Decatur	48
Dekalb	60
Delaware	60
Dubois	42
Elkhart	60
Fayette	54
Floyd	36
Fountain	60
Franklin	48
Fulton	60
Gibson	42
Grant	60
Greene	54
Hamilton	54
Hancock	54

Harrison	36
Hendricks	54
Henry	54
Howard	60
Huntington	60
Jackson	48
Jasper	60
Jay	60
Jefferson	42
Jennings	48
Johnson	54
Knox	48
Kosciusko	60
LaGrange	60
Lake	60
LaPorte	60
Lawrence	48
Madison	60
Marion	54
Marshall	60
Martin	48
Miami	60
Monroe	48
Montgomery	60
Morgan	48
Newton	60
Noble	60
Ohio	42
Orange	42
Owen	54
Parke	60
Perry	36
Pike	42
Porter	60
Posey	42
Pulaski	60
Putnam	54
Randolph	54
Ripley	48
Rush	54
St. Joseph	60
Scott	36
Shelby	54
Spencer	36

Starke	60
Steuben	60
Sullivan	54
Switzerland	42
Tippecanoe	60
Tipton	60
Union	48
Vanderburgh	36
Vermillion	60
Vigo	60
Wabash	60
Warren	60
Warrick	36
Washington	36
Wayne	54
Wells	60
White	60
Whitley	60

[1] The cover dimension is measured from the top of pipe to the proposed finish grade.

(Water Pollution Control Division; 327 IAC 8-3.2-17; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2506; errata filed Aug 30, 1999, 12:06 p.m.: 23 IR 25; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2956; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-3.2-18 Disinfection

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 18. (a) All new, cleaned, or repaired water mains shall be disinfected in accordance with C651-99 AWWA Standard for Disinfecting Water Mains.

(b) All chlorinated water shall be disposed of by either disposal to a:

(1) sanitary sewer with the approval of the local sewer authority; or

(2) location other than a sanitary sewer after obtaining a discharge permit from the commissioner.

(c) All laboratory reports documenting the conformance with AWWA Standard C651-99, Section 7, shall be submitted to the commissioner before the water main is brought into service. The laboratory used shall be approved by the commissioner. The laboratory report presenting the sample results shall be sent to the commissioner within ten (10) working days of receipt from the laboratory. The laboratory results shall have the commissioner's assigned permit number marked on the upper right hand corner of the top page. *(Water Pollution Control Division; 327 IAC 8-3.2-18; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2508; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2957; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3.2-19 Cross connection control

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 19. All service connections to facilities designated as a cross connection hazard by 327 IAC 8-10-4(c) shall be equipped with either a reduced pressure principle or an air gap backflow preventer according to 327 IAC 8-10-7. *(Water Pollution Control Division; 327 IAC 8-3.2-19; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2508; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518;*

readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-3.2-20 Technical standard alternative demonstration

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 20. (a) An alternative to technical standards required by this rule may be approved by the commissioner for either a single application or for public water system-wide applications of the technical standard if the applicant demonstrates in a written submission that the alternative will achieve the following:

(1) Meet the issuance requirements of 327 IAC 8-3-4.

(2) Provide drinking water of at least the same satisfactory quality and normal operating pressure at the peak operating flow rate as the technical standards of this rule would provide.

(b) An alternative to technical standards required by this rule may be approved by the commissioner for all systems or a specific subset of systems if the alternative will achieve the following:

(1) Meet the issuance requirements of 327 IAC 8-3-4.

(2) Provide drinking water of at least the same satisfactory quality and normal operating pressure at the peak operating flow rate as the technical standards of this rule would provide.

(c) Continued operation of the approved alternative technical standard shall require no renewal if the alternative technical standard is operated in the manner approved by the commissioner.

(d) An alternative to a technical standard approved under subsection (a) shall only apply to the application or the public water system for which the alternative is requested. *(Water Pollution Control Division; 327 IAC 8-3.2-20; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2508; errata filed Aug 30, 1999, 12:06 p.m.: 23 IR 25; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2957; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

Rule 3.3. Public Water System Quantity Requirement Standards

327 IAC 8-3.3-1 Definitions

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2; IC 16-41-26-1; IC 16-41-26-8

Sec. 1. In addition to definitions contained in IC 13-11-2, 327 IAC 8-1-1, and 327 IAC 8-3-1, the following definitions apply throughout this rule:

(1) "Agricultural labor camp" means an area as described in IC 16-41-26-1.

(2) "Primary pumps" means any pumps used to deliver drinking water to the distribution system. Primary pumps are the high service pumps in a staged treatment system. Primary pumps are the well pumps in a public water system that utilizes no treatment.

(3) "Rated capacity" means the optimum flowrate output for the intended use from a device as determined by the manufacturer of the device.

(Water Pollution Control Division; 327 IAC 8-3.3-1; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2508; errata filed Aug 30, 1999, 12:06 p.m.: 23 IR 25; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-3.3-2 Calculation of public water system quantity requirement standards for average and peak demand conditions

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 2. (a) The calculated average and peak flowrate values required for a water main extension to a public water system shall be equal to the average and peak daily consumer demands of the proposed additional service connections calculated as follows:

(1) The public water supply quantity requirement for the average daily consumer demand for residential service connections

shall be determined by using a general average daily demand value. The following method shall be used to calculate average and peak supply quantity requirements:

$$ADCD = (General\ Avg) \times PRSC$$
$$PDCD = (ADCD \times PF) + FF$$

Where:
- ADCD = Average daily consumer demand in gallons per residential service connection per day.
- PDCD = Peak daily consumer demand in gallons per residential service connection per day.
- General Avg = General average daily consumer demand value of five hundred (500) gallons per residential service connection per day.
- PRSC = Proposed number of residential service connections.
- PF = Peak daily consumer demand factor of two and one-half (2.5).
- FF = Fire flow demand value equal to the fire protection flowrate provided by the public water system or zero (0) if the public water system is not providing fire protection.

(2) The public water supply quantity requirement for the average and peak daily consumer demand for residential service connections may be determined from the monthly reports of operations (MROs) as follows:

(A) The following method may be used to calculate average and peak supply quantity requirements for a public water system that has been in operation for at least ten (10) years and has an accurate record of MROs for that time period:

$$ADCD = (Max\ Average) \times PRSC$$
$$PDCD = (ADCD \times PF) + FF$$

Where:
- ADCD = Average daily consumer demand in gallons per residential service connection per day.
- PDCD = Peak daily consumer demand in gallons per residential service connection per day.
- Max Average = Maximum average daily consumer demand in gallons per service connection as calculated by:

$$Max\ Average = (ADCD10) \div (SC10)$$

Where:
- ADCD10 = The highest average daily demand as reported on the MROs over the previous ten (10) year period.
- SC10 0 The number of service connections at ADCD10.
- PRSC = Proposed number of residential service connections.
- PF = Peak daily demand factor as calculated by the following:

$$PF = MDD10 \div 10YADD$$

Where:
- MDD10 0 The maximum single day demand as reported on the MROs over the previous ten (10) year period.
- 10YADD = The ten (10) year average daily demand as calculated from the previous ten (10) year period.
- FF = Fire flow demand value equal to the fire protection flowrate provided by the public water system or zero (0) if the public water system is not providing fire protection.

(B) If a public water service has not been in operation for at least ten (10) years, then all available MROs shall be used to determine the highest average daily demand (ADCD10), the number of service connections at ADCD10 (SC10), the maximum single day demand (MDD10), and the ten (10) year average daily demand (10YADD).

(3) The public water supply quantity requirement for the average and peak daily consumer demand for service connections described by Table 2-1 in subsection (b). The following method may be used to calculate the average and peak public water supply quantity requirements:

$$ADCD = DCF \times PSC$$
$$PDCD = (ADCD \times PF) + FF$$

Where:
- ADCD = Average daily consumer demand in gallons per service connection per day.
- PDCD = Peak daily consumer demand in gallons per service connection per day.
- DCF = Demand calculation factors as contained in Table 2-1 in subsection (b).
- PSC = Proposed number of service connections.
- PF = Peak daily consumer demand factor of two and one-half (2.5).
- FF = Fire flow demand value equal to the fire protection flowrate provided by the public water system or zero (0) if the public water system is not providing fire protection.

(4) If the average and peak daily consumer demand cannot be determined or calculated using the methods described in subdivision (1), (2), or (3), the determination of the average and peak daily consumer demand must be approved by the commissioner. The source and any calculations or assumptions must be approved by the commissioner.

(b) The following demand calculation factors shall be used in the calculations under subsection(a)(3):

Table 2-1

Demand Calculation Factors (DCF)

Service Connection Description	DCF (gallons per day)
Airport	3 per passenger plus 20 per employee
Assembly Hall	3 per seat
Bar (without Food Service)	10 per seat
Beauty Salon	35 per customer
Bowling Alley (with Bar and/or Food)	125 per lane
Bowling Alley (without Food Service)	75 per lane
Bus Station	3 per passenger
Campground Organizational with Flush Toilets	40 per camper
Campground Organizational without Flush Toilets	20 per camper
Campground Recreational with Individual Sewer Connection	100 per campsite
Campground Recreational without Individual Sewer Connection	50 per campsite
Church with Kitchen	5 per sanctuary seat
Church without Kitchen	3 per sanctuary seat
Correctional Facilities	120 per inmate
Day Care Center	20 per person
Dentist	750 per chair plus 75 per employee
Factory with Showers	35 per employee
Factory without Showers	20 per employee
Food Service Operations Cocktail Lounge	35 per seat
Food Service Operations Restaurant, not Open 24 Hours	35 per seat
Food Service Operations Restaurant, Open 24 Hours	50 per seat
Food Service Operations Restaurant, open 24 hours and Located Along an Interstate	70 per seat
Food Service Operations Tavern	35 per seat
Food Service Operations Curb Service (Drive-In)	50 per car space
Hospital, Medical Facility	200 per bed
Hotel	100 per room
Kennel	20 per animal enclosure
Mental Health Facility	100 per patient
Motel	100 per room
Nursing Home	100 per bed
Office Building	20 per employee
Outpatient Surgical Center	50 per patient
Picnic Area	5 per visitor
School Elementary	15 per pupil
School Secondary	25 per pupil
School with Dormitory	100 per bed
Service Station (Gas Station)	400 per restroom

Shopping Center	0.1 per square foot of floor space, plus 20 per employee
Swimming Pool Bathhouse	10 per swimmer
Theater Drive-In	5 per car space
Theater Inside Building	5 per seat

(Water Pollution Control Division; 327 IAC 8-3.3-2; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2508; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-3.3-3 Determination of public water system capacity

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 3. (a) A public water system's daily capacity shall be determined by adding together the production capacity determined under subsection (b) and the purchased capacity, if any, determined under subsection (c).

(b) The production capacity is the lesser of the following amounts:

(1) The "design daily production" in gallons per day as reported on the most recent Public Water System Sanitary Survey conducted by the commissioner pursuant to 327 IAC 8-2-8.2.

(2) The sum of the rated daily capacity of all primary pumps utilized by a public water supplier less the primary pump with the largest rated capacity. For example, a public water system with a five hundred (500) gallons per minute pump and a four hundred (400) gallons per minute pump would have a system capacity of four hundred (400) gallons per minute.

(c) A public water system that supplements its own capacity by purchasing water may add the amount of the purchase capacity to the public water system daily capacity. The purchase capacity is one (1) of the following amounts:

(1) The contractual amount, expressed as a daily quantity, of water purchased from a separate public water system.

(2) The commissioner's approved amount, expressed as a daily quantity, of water purchased from a separate public water system. The commissioner's approval of the purchase capacity is required when:

(A) no purchase water contract exists; or

(B) no finite daily quantity of water is specified in the purchase water contract.

(Water Pollution Control Division; 327 IAC 8-3.3-3; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2510; errata filed Aug 30, 1999, 12:06 p.m.: 23 IR 25; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-3.3-4 Additional public water system quantity requirement standards for school buildings and related facilities

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 4. (a) All school buildings and related facilities shall be supplied with safe, potable water from an approved source and an approved water distribution system.

(b) The drinking water for school buildings and related facilities shall be supplied at the flow rate and pressure required by 327 IAC 8-3.2-11, at the quality required by 327 IAC 8-2, and in accordance with the following:

(1) The water supply and water distribution system shall be sized and constructed to deliver water at twenty (20) pounds per square inch minimum pressure to all fixtures and appurtenances during periods of peak water demand.

(2) Notwithstanding subdivision (1), school buildings may be served by hand-operated well pumps where religious custom precludes using electrically or gasoline driven well pumps providing the well and well pump are located and constructed in compliance with this rule and applicable sections of 410 IAC 6-5.1.

(c) A connection to a public water system shall be made with its potable water used exclusively wherever the system is available or becomes available within a reasonable distance from the school facility, with the exception that nonpotable sources of water are available and may be utilized for the following nonpotable activities:

(1) Lawn sprinkling.

(2) Bus washing.

(3) Firefighting.

(4) Other nonpotable uses provided by a nonpotable distribution system having no connection to the potable system.

(d) Where a community public water system is not available, a properly located and constructed private water supply shall be provided. Beginning on the effective date of this rule, all new and modified public water systems exclusively serving schools and related facilities shall be equipped with a backup system capable of providing drinking water in accordance with subsection (b).

(e) Well pumps, pressure tanks, storage tanks, treatment facilities, and piping shall be sized to meet peak daily consumer demands. The minimum usable capacity of the pressure tank, in gallons, shall be three (3) times the installed well pump capacity in gallons per minute. For example, a pump of thirty (30) gallons per minute capacity would require a pressure tank of ninety (90) gallons usable capacity. If the well or pump cannot meet peak demands, sufficient additional usable storage capacity shall be provided to meet peak demands.

(f) Each school building or addition to a school building may have a potable water supply where necessary to provide adequate service. However, where two (2) or more school potable water supply systems are located on the same site, the water supply systems shall be sufficiently interconnected to allow for the maximum possible utilization of each should a system fail.

(g) Unless lower water system demands can be documented to the satisfaction of the commissioner, all school buildings and additions to school buildings constructed after February 17, 1985, shall have a water supply system capable of furnishing a minimum of:

(1) fifteen (15) gallons per day per student up through the elementary grades;

(2) twenty-five (25) gallons per day per student in grades greater than elementary; and

(3) one hundred (100) gallons per day per dormitory bed based on maximum building occupancy.

(Water Pollution Control Division; 327 IAC 8-3.3-4; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2511; errata filed Aug 30, 1999, 12:06 p.m.: 23 IR 25; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2958; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-3.3-5 Additional public water system quantity requirement standards for mobile home parks

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 5. (a) An accessible, adequate, safe, and potable supply of water shall be provided in all mobile home parks and additions.

(b) Where a public water system is available, a connection shall be made thereto and its water used exclusively.

(c) A watertight casing pipe extending at least twelve (12) inches above the ground shall surround any part of a suction pipe, drop pipe, or delivery pipe not normally under constant pressure and located within twenty-five (25) feet of the ground surface.

(d) Each mobile home lot shall be provided with a cold water tap extending at least four (4) inches above the ground surface. The outlet shall be protected from freezing by the use of a heater tape, insulation, or draining when not in use. In no case shall a stop-and-waste valve or other device that would allow aspiration, backflow, or contaminated water into the potable water system be used.

(e) The individual water and sewer connections on each mobile home lot shall be separated not less than five (5) feet horizontally.

(f) The water supply system shall be capable of furnishing a minimum of two hundred (200) gallons per day per mobile home lot in all mobile home parks constructed after June 14, 1974, as well as in all additions to mobile home parks constructed after the date. *(Water Pollution Control Division; 327 IAC 8-3.3-5; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2511; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2958; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3.3-6 Additional public water system quantity requirement standards for agricultural labor camps

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1; IC 16-41-26-8
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 6. (a) An adequate and convenient supply of water that meets the water quality standards of the department under 327 IAC 2 shall be available at all times in each agricultural labor camp for culinary, drinking, bathing, and laundry purposes. Where a public water system is available, it shall be used to provide water for the agricultural labor camp.

(b) A cold water tap shall be available within one hundred (100) feet of each individual living unit when water is not provided in the unit. Adequate drainage facilities shall be provided for overflow and spillage. *(Water Pollution Control Division; 327 IAC 8-3.3-6; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2512; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2959; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

Rule 3.4. Public Water System Wells

327 IAC 8-3.4-1 Definitions

Authority: IC 13-13-5-1; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-2; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 16-41-26-1; IC 25-17.6; IC 25-31; IC 25-39-3

Sec. 1. In addition to the definitions in IC 13-11-2, the following definitions apply throughout this rule:

(1) "Agricultural labor camp" means an area as described in IC 16-41-26-1.

(2) "Annulus" means the space between the:
- (A) exterior of a well casing; and
- (B) inside diameter of the borehole.

(3) "Bentonite" has the meaning set forth in 312 IAC 13-1-4.

(4) "Bentonite slurry" means a mixture, made according to manufacturer specifications, of water and commercial grouting or plugging bentonite that contains high concentrations of solids. The term does not include sodium bentonite products that:
- (A) contain low solid concentration; or
- (B) are designed for drilling fluid purposes.

(5) "Community public water supply system", "CPWSS", "community", or "community public water system" means a public water system that:
- (A) serves at least fifteen (15) service connections used by year-round residents; or
- (B) regularly serves at least twenty-five (25) year-round residents.

(6) "Course grade crushed bentonite" means natural bentonite crushed to an average size range of three-eighths (d) to three-fourths (¾) inches.

(7) "Direct additives" means chemical additives that are used in public water systems for the treatment of raw water. Direct additives are also used to protect drinking water during storage and distribution. Examples of direct additives include agents used for the following:
- (A) Coagulation and flocculation.
- (B) Corrosion and scale control.
- (C) Softening.
- (D) Sequestering.
- (E) Precipitation.
- (F) pH adjustment.
- (G) Disinfection.
- (H) Oxidation.

(8) "Drawdown" means the vertical difference measured between the static and the pumping water levels. The term is commonly expressed in units of length.

(9) "Entry point to the water distribution system" means one (1) of the following points:
- (A) For public water systems that utilize water treatment facilities, the point at which the drinking water has:
  - (i) left the treatment facilities; and
  - (ii) entered the water distribution system.
- (B) For public water systems that do not utilize water treatment facilities, the point at which the water has:
  - (i) left the supply facilities; and

(ii) entered the water distribution system.

(10) "Flowing well" means a well completed in a confined aquifer where the water rises naturally to an elevation above land surface.

(11) "Indirect additives" means additives that are materials or equipment that come in contact with drinking water or direct additives. Examples of indirect additives include the following:

(A) Pipes, valves, and related products.

(B) Barrier or baffle materials.

(C) Joining and sealing materials.

(D) Protective materials and related products.

(E) Mechanical devices or structures used in:

(i) treatment;

(ii) storage;

(iii) transmission; and

(iv) distribution;

systems.

(12) "Isolation area" means the separation distance of a public water system production well from a potential or existing source of contamination or damage as described in section 9 of this rule.

(13) "Licensed professional geologist" means a person who is licensed as a professional geologist by the Indiana board of licensure for professional geologists under IC 25-17.6.

(14) "Licensed well driller" means a person who is licensed as a well driller under IC 25-39-3.

(15) "Medium grade crushed bentonite" means natural bentonite crushed to an average size range of one-fourth (¼) to three-eighths (d) inch.

(16) "Noncommunity public water supply system" or "NCPWSS" means a public water system that serves at least fifteen (15) service connections used by nonresidents or regularly serves twenty-five (25) or more nonresident individuals daily for at least sixty (60) days per year.

(17) "Nontransient noncommunity public water supply system" means a public water system that is not a community water system that regularly serves the same twenty-five (25) or more persons at least six (6) months per year.

(18) "Normal operating pressure" means the water pressure maintained in a system regardless of public service load in the absence of extenuating circumstances.

(19) "Peak daily consumer demand" means the flow rate as determined in 327 IAC 8-3.3.

(20) "Pitless adapter"means a device or assembly of parts that:

(A) will permit water to pass through the wall of the well casing or extension thereof; and

(B) provides access to the well and parts of the water system within the well in a manner to prevent the entrance of contaminants into the well and the water produced.

(21) "Primary pump" means a pump used to deliver drinking water to a water distribution system.

(22) "Production well" or "well" means a well that provides water for human consumption within the applicability of section 2 of this rule.

(23) "Professional engineer" means a person who is registered as a professional engineer by the state board of registration for professional engineers under IC 25-31.

(24) "Pumping test" means a test that is conducted to determine well performance or aquifer characteristics.

(25) "Rated capacity" means the flow rate that a pump is capable of producing at a total dynamic head as determined by the manufacturer of that pump. The term is usually expressed as a unit of volume produced from a well within a unit of time.

(26) "Regulatory flood" has the meaning set forth in 312 IAC 10-2-35.

(27) "Sanitary setback" means an isolation area.

(28) "Schedule 40" refers to the unit of size of standard steel pipe. Standard pipe sizes are designated by the nominal size and schedule number. The schedule numbers are related to the:

(A) permissible operating pressure; and

(B) allowable stress of the steel;

of the pipe. The range of schedule numbers is from ten (10) to one hundred sixty (160) with the higher numbers indicating

a heavier wall thickness. Since all schedules of pipe of a given nominal size have the same outside diameter, the higher schedules have a smaller inside diameter.

(29) "Small nontransient noncommunity public water system" means a public water system that:

(A) meets the definition of a nontransient noncommunity public water system under 327 IAC 8-2-1;

(B) serves one hundred (100) or fewer individuals; and

(C) does not utilize surface water or ground water under the influence of surface water as its water source.

(30) "Small transient noncommunity public water system" means a public water system that:

(A) meets the definition of a transient noncommunity public water system under 327 IAC 8-2-1;

(B) serves two hundred fifty (250) or fewer individuals per day; and

(C) does not utilize surface water or ground water under the influence of surface water as its water source.

(31) "Specific capacity" means the rate of discharge of a production well per unit of drawdown. The term is commonly expressed as a unit of volume produced from a well within a unit of time per length or depth of drawdown.

(32) "Static water level" means the level of water (including seasonal fluctuations) in the production well that is not influenced by pumping.

(33) "Test well" means a well that is installed to:

(A) obtain hydrogeological information; or

(B) monitor the quality or quantity of ground water.

(34) "Unconsolidated formations" means geologic materials overlying bedrock, such as sand, gravel, and clay.

(35) "Usable capacity" means the volume of water available in a hydropneumatic or other tank as measured from the pump shut-off pressure to the pump starting pressure.

(36) "Water distribution system" means that part of the public water system in which water is conveyed from the water treatment plant to the premises of the consumer.

(Water Pollution Control Division; 327 IAC 8-3.4-1; filed Jun 17, 1999, 1:50 p.m.: 22 IR 3366; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; errata filed Feb 6, 2006, 11:15 a.m.: 29 IR 1937; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2959; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-3.4-2 Applicability

Authority: IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 2. The technical standards established in this rule are applicable to the design and construction of new or modified public water system production wells constructed in Indiana as specified in 327 IAC 8-3 and to the applications, plans, and specifications of those water wells that are reviewed by the commissioner. *(Water Pollution Control Division; 327 IAC 8-3.4-2; filed Jun 17, 1999, 1:50 p.m.: 22 IR 3368; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2961; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3.4-3 Certification

Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2; IC 25-31-1-19

Sec. 3. (a) A professional engineer must certify that the well design as shown on an application, plans, and specifications for a public water system well is in compliance with this rule except as provided in subsection (b).

(b) For a well design at small transient or small nontransient noncommunity water systems that are not subject to subsection (c), the well design as shown on an application, plans, and specifications for a public water system well may be certified by any of the following:

(1) A professional engineer.

(2) A licensed well driller.

(3) A licensed professional geologist.

(c) As required under IC 25-31-1-19(a), a well design on projects for:

(1) a county;
(2) a city;
(3) a town;
(4) a township;
(5) a school corporation; or
(6) any other political subdivision;

must have a professional engineer certify that the well design as shown on an application, plans, and specifications for a public water system well is in compliance with the rule. *(Water Pollution Control Division; 327 IAC 8-3.4-3; filed Jun 17, 1999, 1:50 p.m.: 22 IR 3368; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2961; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3.4-4 Required information regarding the location of a proposed production well

Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2; IC 25-31-1-19

Sec. 4. (a) Two (2) copies of the following information shall be provided with each application for a proposed production well or for the conversion of an existing well to a production well:

(1) A description of the purpose of the proposed well, including the following:
  (A) The anticipated well yield.
  (B) The anticipated system demand.
(2) The following, as applicable, to demonstrate ownership or control of the sanitary setback of the proposed well:
  (A) A copy of a recorded deed or easement.
  (B) A certified statement attesting to the ownership or control of the sanitary setback of the proposed well.
(3) The rated capacity of the existing well or wells if the proposed well is in an existing well field.
(4) The number of wells proposed for construction in the application.
(5) The highest flood elevation on record with the Indiana department of natural resources in the proposed sanitary setback, as determined in section 9 of this rule, if any part of the sanitary setback is in an area identified by the Federal Emergency Management Agency (FEMA) as a flood hazard.

(b) The following two (2) types of public water systems shall submit an application, for a new production well, that provides the information as specified:

(1) A CPWSS subject to this rule shall submit two (2) copies of the following:
  (A) The information required by 327 IAC 8-4.1-13.
  (B) Driving directions to the well site.
(2) A NCPWSS subject to this rule shall submit two (2) copies of the following:
  (A) A detailed map, drawn to a scale, showing the following:
    (i) The proposed well site with ownership or easement boundaries.
    (ii) The location of the proposed well.
    (iii) The standard sanitary setback in accordance with section 9 of this rule.
    (iv) The results of a visual survey showing all sources of contamination within a radius of one thousand (1,000) feet.
  (B) The United States Geological Survey (USGS) quadrangle name for the proposed production well site.
  (C) A summary of geologic and ground water quality information, where available, for the aquifer system utilized by a proposed well.
  (D) Driving directions to the production well site.

(c) The plans required to be submitted with an application for a construction permit specified in 327 IAC 8-3-3 shall be submitted in duplicate and include plans of the proposed well site in accordance with the following:

(1) Each sheet of the plans must bear a dated signature and seal of a professional engineer or, in the case of a small transient or small nontransient noncommunity public water system:
  (A) a dated signature and seal of a professional engineer; or

(B) a dated signature and license number of a licensed:
(i) well driller; or
(ii) professional geologist.

Where a professional engineer is required under IC 25-31-1-19(a), each sheet of the plans at a small transient or small nontransient noncommunity public water system must bear a dated signature and seal of a professional engineer.

(2) Include the entire sanitary setback, as described in section 9 of this rule, or the area within a one hundred (100) foot radius from the proposed well casing, whichever is greater, along with a description specifying the following:
(A) The finished grade that will prevent surface water ponding near the well location.
(B) The highest flood elevation on record with the Indiana department of natural resources in the proposed sanitary setback if any part of the sanitary setback is in an area identified by the FEMA as a flood hazard.
(C) The location of the following existing or proposed facilities:
(i) Wells.
(ii) Roads and buildings.
(iii) Discharge piping.
(iv) Raw water transmission main.
(v) Sanitary sewers, storm sewers, manholes, and culverts.
(vi) Septic or sewage treatment equipment, including absorption field trenches.
(vii) Aboveground storage tanks, underground storage tanks, and the distribution device serving a tank of either type.
(viii) Surface waterbodies.
(ix) A potential source of contamination not described in this clause.

(3) If an existing or proposed facility listed in subdivision (2)(C) is not present in the sanitary setback, the application for a construction permit shall specify that fact.

(Water Pollution Control Division; 327 IAC 8-3.4-4; filed Jun 17, 1999, 1:50 p.m.: 22 IR 3368; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2961; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-3.4-5 Required information regarding the mechanics of a new production well

Authority: IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 5. (a) The information required in this section shall be provided:
(1) when a construction permit application is submitted; or
(2) in accordance with section 6 of this rule as a postconstruction submittal.
(b) The following information shall be provided for a production well, whether it is proposed for construction or modification:
(1) The type of proposed well described as tubular, gravel pack, radial collector, rock, or other type of well.
(2) The type of drilling method described as rotary, cable tool, bucket, or other type of drilling method.
(3) The depth of the proposed well.
(4) The following information regarding the casing of the proposed well:
(A) Length.
(B) Diameter of the casing.
(C) Diameter of the borehole.
(D) Casing material characteristics, including the following:
(i) Material type.
(ii) Schedule or thickness.
(iii) Pressure rating if polyvinyl chloride (PVC) is utilized as the casing material.
(E) Relative elevation or mean sea level elevation of the following:
(i) Top of casing.
(ii) Finished well house floor or slab.

(iii) Top of gravel pack.
(iv) Pump base.
(v) Finished grade.

(5) The following information regarding the well screen:
(A) Material type.
(B) Length.
(C) Diameter.
(D) Slot size of screen.
(E) Design entrance velocity.
(F) Elevation of the following:
(i) Top of screen.
(ii) Base of screen.

(6) The following information regarding the grout:
(A) Material type.
(B) Depth and the extent of the grouting.

(7) The following information regarding the well pump:
(A) Type.
(B) Total dynamic head.
(C) Number of stages.
(D) Rated capacity.
(E) Pump curves.
(F) Type of lubrication.
(G) Provisions for power source.
(H) Provisions for emergency operation.

(8) A description of equipment utilized for water level measurement.

(9) The following information regarding the discharge piping:
(A) Material type.
(B) Pressure rating.
(C) Diameter.
(D) Description of the flow measuring equipment.
(E) Location of the following:
(i) Check valve.
(ii) Shut off valve.
(iii) Pressure gauge.
(iv) Smooth nosed sample tap.
(v) Air relief or vacuum relief valves where applicable.
(vi) Threaded or flanged port for maintenance and testing.

(c) The plans required to be submitted with an application for construction permit under 327 IAC 8-3-3 must include a cross section and plan view of the applicable proposed production well mechanics that includes the following:
(1) Overall depth.
(2) Depth of grouting.
(3) Well screen location.
(4) Casing details.
(5) Discharge piping or raw water transmission main and components.
(6) Well house and other protective equipment.
(7) Pumping equipment.
(8) Storage equipment.
(9) Water treatment equipment.

(Water Pollution Control Division; 327 IAC 8-3.4-5; filed Jun 17, 1999, 1:50 p.m.: 22 IR 3369; readopted filed Jan 10, 2001, 3:23

p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-3.4-6 Postconstruction submittal of information

Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2; IC 13-18-16-2

Sec. 6. (a) If the applicant has elected to submit the information required in section 5 of this rule as a postconstruction submittal, the following must be received by the commissioner at least thirty (30) days before a new or modified production well with an effective construction permit is placed into production:

(1) The construction permit number assigned by the commissioner.

(2) Proposed commencement date of production.

(3) Information required in section 5 of this rule.

(4) As-built construction drawings, in accordance with section 5 of this rule and 327 IAC 8-3.

(b) The total of thirty (30) days, as specified in subsection (a), shall include all calendar days from the commissioner's date-stamped receipt of the items, specified in subsection (a), excluding the calendar days that occur between the following two (2) activities:

(1) A commissioner's written notification to the applicant that the submittal does not fulfill the requirements of subsection (a) or is incomplete, is inaccurate, or indicates the proposed construction was not in accordance with this rule or 327 IAC 8-3-4.

(2) The commissioner's date-stamped receipt of the applicant's submittal of additional information subsequent to the commissioner's notification, as described in subdivision (1), to demonstrate that the submittal has achieved the requirements of subsection (a) and is complete, is accurate, and indicates the proposed construction was in accordance with this rule and 327 IAC 8-3-4.

(c) The commissioner may modify or revoke the construction permit based on the information submitted under subsection (a) in accordance with IC 13-18-16-2. *(Water Pollution Control Division; 327 IAC 8-3.4-6; filed Jun 17, 1999, 1:50 p.m.: 22 IR 3370; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3.4-7 Required easements, other permits

Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 7. (a) An easement, deed restriction, or right-of-way granted for a production well must:

(1) prohibit the construction of any permanent structure, with the exception of structures associated with the housing of the well equipment, over the production well; and

(2) provide access to the production well site for maintenance purposes.

(b) A permit or exemption required by another government entity for a production well must be obtained prior to the commencement of construction under this rule. *(Water Pollution Control Division; 327 IAC 8-3.4-7; filed Jun 17, 1999, 1:50 p.m.: 22 IR 3370; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3.4-8 Production well materials

Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 8. (a) A direct or indirect additive used with or in a production well must be in accordance with 327 IAC 8-1.

(b) A lead packer shall not be used in a production well.

(c) A public water system shall not introduce, permit, or allow the introduction of a material into the drinking water that does not meet the requirements of this rule or 327 IAC 8-1. *(Water Pollution Control Division; 327 IAC 8-3.4-8; filed Jun 17, 1999,*

1:50 p.m.: 22 IR 3370; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; errata filed Feb 6, 2006, 11:15 a.m.: 29 IR 1937; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2962; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-3.4-9 Separation of a production well from a potential or existing source of microbiological or chemical contamination or damage

Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2; IC 15-16-4; IC 15-16-5

Sec. 9. A public water system shall comply with the following provisions for the separation of a production well from a potential or existing source of contamination or damage, except replacement wells as allowed under section 9.1 of this rule:

(1) The sanitary setback from a potential or existing source of contamination for the construction of a public water system production well is the circular area within a radius as stated in the following table:

Table 9-1

Sanitary Setback Radius Provisions (Linear Feet Measured from the Outside Edge of the Well Casing)

Public Water System Type	Sanitary Setback Radius	Well Subjected to Automatic Disinfection*	Favorable Hydrogeologic Conditions are Present**
Community	200	100	100
Noncommunity greater than or equal to 70 gpm***	200	100	100
Noncommunity, Susceptible Populations****	200	100	100
Noncommunity, Nonsusceptible, less than 70 gpm***	100	100	100

*Automatic disinfection as described in subdivision (2).

**Favorable hydrogeologic conditions as described in subdivision (3).

***70 gallons per minute (gpm) as measured per pump (rated capacity).

****Schools, correctional facilities, health care facilities, and agricultural labor camps.

(2) The radius creating the sanitary setback shall be one hundred (100) feet for a well that will be subject to automatic disinfection treatment before entering the water distribution system. To meet this provision at systems using chlorine or chlorine dioxide, the:

(A) free chlorine residual disinfectant concentration in the water entering the water distribution system cannot be less than two-tenths (0.2) milligrams per liter (mg/l) for more than four (4) hours; and

(B) residual disinfectant level in the water distribution system cannot be undetectable in more than five percent (5%) of the samples collected each month in accordance with 327 IAC 8-2.5-6(c).

Systems using disinfectants other than chlorine or chlorine dioxide must maintain an equivalent level of disinfection as determined by the commissioner.

(3) A determination of favorable hydrogeological conditions may be approved by the commissioner after the submission of a report that is signed, dated, and sealed by a licensed professional geologist or other person legally authorized to perform geological services or a professional engineer who applies geology to the practice of engineering. The report must include the following information:

(A) The thickness, vertical permeability, and spatial continuity of a protective layer or layers overlying the production aquifer.

(B) The local and regional geologic conditions of the well site area.

(C) The relative susceptibility to contamination of the proposed production aquifer.

(4) A well discharging into the inlet side of a surface water treatment process plant that meets the requirements of 327 IAC 8-2-8.5, 327 IAC 8-2-8.6, and 327 IAC 8-2.6 shall not be held to a sanitary setback requirement.

(5) The sanitary setback shall be subject to the following additional requirements:

(A) The separation distance between two (2) or more wells of a public water system shall be maintained in accordance with the following:

(i) A production well with a pumping capacity of less than seventy (70) gallons per minute (gpm) shall not be located closer than fifty (50) feet from another production well.

(ii) A production well with a pumping capacity of greater than or equal to seventy (70) gpm shall not be located closer than one hundred (100) feet from another production well.

(iii) A public water system drinking water well that is a part of a transient noncommunity public water system shall not be closer than fifty (50) feet, regardless of the capacity of pumping equipment, from another well in the system.

(B) A storm or sanitary sewer shall not be located within the sanitary setback of a production well unless the storm or sanitary sewer is:

(i) more than fifty (50) feet, as measured from all directions, from a public water system production well; and

(ii) constructed in accordance with 327 IAC 8-3.2-8, 327 IAC 8-3.2-17(a), and 327 IAC 8-3.2-17(b).

(C) The sanitary setback for a public water system production well shall conform to the following requirements concerning transportation routes:

(i) Roadways, paved surfaces, and parking areas for service vehicles that:

(AA) service the proposed well, pump, and appurtenances;

(BB) are owned or controlled by the public water system; and

(CC) are restricted from access by the public;

shall not be held to a sanitary setback requirement.

(ii) Roadways, paved surfaces, and parking areas that are part of the following shall not be located within fifty (50) feet of a well:

(AA) Residential subdivisions.

(BB) Apartment communities.

(CC) Mobile home parks.

(DD) Recreational parks.

(iii) A transportation route, such as a railway, roadway, paved area, or parking area, including paved or unpaved roadway or surface areas, that is:

(AA) accessible in full or in part for commercial or industrial transportation activities; or

(BB) listed as a hazardous material route;

shall not be located within the sanitary setback as measured from the outside edge of the well casing to the traveled portion of the transportation route.

(D) The distance between the location of a public water system production well casing and a surface water body, such as:

(i) a stream;

(ii) a pond;

(iii) a lake;

(iv) a river;

(v) an impoundment; or

(vi) a drainage ditch;

shall be a minimum of twenty-five (25) feet.

(6) The commissioner may modify the requirements of a sanitary setback, control area, or a separation distance to an alternative area or distance so long as the alternative area or distance shall be able to provide the same factor of safety for filtering pathogenic contaminants as the sanitary setback or separation distance. The commissioner's decision to allow an alternative sanitary setback or separation distance shall be based on the following conditions:

(A) The applicant's submission of a report describing the following:

(i) Treatment processes.

(ii) Geologic features.

(iii) Additional water monitoring provisions.

(iv) Other means of providing pathogenic contaminant filtration.

(v) Other means of mitigating contaminant sources relative to the location of the well.

(B) The report required by clause (A) must:

(i) be signed and sealed by a professional engineer, licensed well driller, or licensed professional geologist; or

(ii) cite the applicable provisions of 327 IAC 8-4.1.

(7) A supplier of water to a public water system shall own or control the sanitary setback by recorded deed, easement, or long term lease. A small nontransient noncommunity public water system or small transient noncommunity public water system shall own or control a fifty (50) foot sanitary setback by recorded deed, easement, or long term lease.

(8) The use, application, storage, mixing, loading, and transportation of pesticides in accordance with IC 15-3-3.5 *[IC 15-3 was repealed by P.L.2-2008, SECTION 83, effective July 1, 2008. See IC 15-16-4.]*, IC 15-3-3.6 *[IC 15-3 was repealed by P.L.2-2008, SECTION 83, effective July 1, 2008. See IC 15-16-5.]*, and the rules and guidance thereunder, developed by the Indiana pesticide review board and the office of the Indiana state chemist, may occur within the sanitary setback if the following requirements are met by the public water system:

(A) The production well casing is constructed of steel in accordance with section 16 of this rule.

(B) The product is stored within a containment system:

(i) designed;

(ii) constructed;

(iii) operated; and

(iv) maintained;

to contain spills or leaks.

(9) Water treatment chemicals and fuels for water production equipment containing contaminants that are not registered pesticides regulated under the federal Safe Drinking Water Act, 42 U.S.C. 300f et seq., as amended August 6, 1996* may be used, stored, mixed, loaded, and transported within the standard sanitary setback if the following conditions are met:

(A) The production well casing is constructed of steel in accordance with section 16 of this rule.

(B) The product is stored:

(i) within a containment system designed, constructed, operated, and maintained to contain spills or leaks; and

(ii) in an underground or aboveground storage tank that is in conformance with applicable federal, state, and local laws and regulations.

*The federal Safe Drinking Water Act is incorporated by reference. Copies of this law may be obtained 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, Indianapolis, Indiana 46204. *(Water Pollution Control Division; 327 IAC 8-3.4-9; filed Jun 17, 1999, 1:50 p.m.: 22 IR 3371; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; errata filed Feb 6, 2006, 11:15 a.m.: 29 IR 1937; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2963; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3.4-9.1 Sanitary setback requirements for replacement wells at noncommunity public water systems

Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 9.1. All replacement wells at noncommunity public water systems shall be located as far as practicable from all potential contaminant sources on property that the public water system already owns or controls if the provisions of section 9(1) through 9(5) of this rule cannot be met. *(Water Pollution Control Division; 327 IAC 8-3.4-9.1; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2965; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3.4-10 Production well design criteria

Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 10. (a) A new public water supply system production well must have capacity to meet the pressure and flowrate demands of the system as calculated in section 12 of this rule.

(b) A public water supply system production well that is equipped with a well screen shall:

(1) possess a sustainable yield that prevents the pumping level from dropping below the top of the well screen; and

(2) operate with an entrance velocity less than or equal to one-tenth (0.1) foot per second.

(c) A public water supply system production well shall be evaluated to determine whether it is under the direct influence of surface water as required under 327 IAC 8-2-8.5(b). *(Water Pollution Control Division; 327 IAC 8-3.4-10; filed Jun 17, 1999, 1:50 p.m.: 22 IR 3372; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3.4-11 Production well minimum diameter

Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 11. (a) The minimum inside diameter of a production well casing shall be five (5) inches.

(b) The minimum inside diameter of a production well casing shall be in accordance with the following table:

Table 11-1

Production Well Casing Minimum Diameter Requirements (inches) Based on Outside Diameter of Pump Assembly

Outside Diameter of Pump Assembly	Minimum (Actual) Inside Diameter of Well Casing
4	5
5	6
6	8
8	10
10	12
12	14
14	16
16	20
18	22
20	24
22	26

For a pump assembly with an outside diameter of between four (4) inches and twenty-two (22) inches but not appearing on this table, linear interpolation shall be used to determine the minimum inside diameter of the production well casing. For a pump assembly with an outside diameter greater than twenty-two (22) inches, the minimum inside diameter of the production well casing shall be at least one and twenty-five hundredths (1.25) times the outside diameter of the pump assembly. *(Water Pollution Control Division; 327 IAC 8-3.4-11; filed Jun 17, 1999, 1:50 p.m.: 22 IR 3373; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3.4-12 Flow rate and pressure requirements

Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 12. (a) The normal operating pressure in the water distribution system of a noncommunity public water system shall meet the following conditions:

(1) Be a minimum of thirty-five (35) pounds per square inch (psi) at ground level for a flow rate equal to the average daily consumer demand as determined in 327 IAC 8-3.3-2.

(2) Be at least twenty (20) psi under all conditions of flow in the water distribution system and at ground level for a flow rate equal to the peak daily consumer demand as determined in 327 IAC 8-3.3-2.

(b) Flow rate and pressure requirements for a community public water system shall be in accordance with the requirements of 327 IAC 8-3.2-11. *(Water Pollution Control Division; 327 IAC 8-3.4-12; filed Jun 17, 1999, 1:50 p.m.: 22 IR 3373; readopted*

filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2965; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-3.4-13 Backup provisions for production wells

Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 13. (a) The following backup provisions shall apply to both a community public water system and a noncommunity public water system having a pumping capacity greater than or equal to seventy (70) gallons per minute:

(1) The backup provisions shall be designed to provide system conformance with section 12 of this rule when the largest pump is out of service.

(2) A system shall have one (1) or more backup wells designed to provide system conformance with section 12 of this rule.

(b) Schools, correctional facilities, health care facilities, and agricultural labor camps, regardless of pumping capacity, must comply with the requirements of subsection (a). *(Water Pollution Control Division; 327 IAC 8-3.4-13; filed Jun 17, 1999, 1:50 p.m.: 22 IR 3373; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2965; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3.4-14 Hydropneumatic storage tanks

Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2; IC 22-12

Sec. 14. (a) A hydropneumatic storage tank shall conform with the following:

(1) The requirements of IC 22-12 and 680 IAC.

(2) Shall not be buried except when in accordance with subdivisions (3) and (4).

(3) A tank shall be protected from freezing and flooding.

(4) Provide housing as follows:

(A) A hydropneumatic storage tank with an air-water diaphragm separator shall be within the housing.

(B) Hydropneumatic storage tanks without an air-water separator shall have all nontank mechanical parts, including valves, piping, and components, within the housing.

(5) Be equipped to provide the following:

(A) The ability to isolate the tank from the rest of the public water system.

(B) A drain.

(C) Control equipment consisting of the following:

(i) A pressure gauge.

(ii) Pressure relief valve.

(iii) Air addition as follows:

(AA) Manual air addition may suffice for a hydropneumatic storage tank with an air-water diaphragm separator.

(BB) Equipment for automatic air addition shall be required for all other hydropneumatic storage tanks.

(iv) Start and stop controls for the pumps.

(b) The usable capacity of a hydropneumatic storage tank must meet one (1) of the following:

(1) Be a minimum of three (3) times the installed rated capacity, in gallons per minute, of the primary pump, or pumps if more than one (1) pump is used to meet peak system demand, at an operating pressure of at least thirty-five (35) pounds per square inch.

(2) Be based on the manufacturer's pump specifications.

(3) Meet an alternative criteria approved by the commissioner.

(c) Unless required by IC 22-12 or 680 IAC to be certified by ASME, a hydropneumatic storage tank shall be certified by American National Standards Institute (ANSI), The American Society of Mechanical Engineers (ASME), National Sanitation Foundation (NSF International), or Underwriter's Laboratories, Inc. (UL). The applicant must submit information showing that

the tank used is properly certified.

(d) Hydropneumatic tank storage of water shall not be designated for fire protection purposes.

(e) A hydropneumatic tank shall not be used in a community public water system when more than four hundred (400) persons are served.

(f) If more than one (1) hydropneumatic tank is used in series, each tank must:

(1) be able to be hydraulically isolated from the others using valves or similar devices;

(2) have sampling taps for performing water quality sampling; and

(3) be operated and maintained to ensure adequate water turnover.

(Water Pollution Control Division; 327 IAC 8-3.4-14; filed Jun 17, 1999, 1:50 p.m.: 22 IR 3373; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2966; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-3.4-15 Discharge piping

Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 15. Discharge piping shall:

(1) meet the material requirements of 327 IAC 8-3.2-8;

(2) meet the installation requirements of 327 IAC 8-3.2-17;

(3) have control valves and other accessories located above the pumphouse floor when the discharge piping is located above grade; and

(4) be equipped with:

(A) check valve;

(B) shut off valve;

(C) pressure gauge;

(D) flow measuring equipment for individual or collective flow measurement;

(E) smooth nosed sample tap installed where positive pressure is maintained; and

(F) threaded or flanged port for maintenance and testing.

(Water Pollution Control Division; 327 IAC 8-3.4-15; filed Jun 17, 1999, 1:50 p.m.: 22 IR 3374; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-3.4-16 Casing and screen requirements

Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 16. (a) A drinking water production well casing shall meet the following requirements:

(1) A steel or stainless steel casing is required for the following:

(A) A community public water system.

(B) A public water system production well casing with an inside diameter greater than six (6) inches.

(2) Steel or stainless steel shall meet the following:

(A) Schedule 40 if the casing is less than or equal to ten (10) inches in diameter.

(B) Be at least three hundred seventy-five thousandths (0.375) of an inch in thickness if the casing is greater than ten (10) inches in diameter.

(3) Steel or stainless steel pipe used in a well casing shall be joined by:

(A) threading and the use of screwed couplings; or

(B) welding with full circumference welds.

(4) A production well not regulated under subdivision (1) may be equipped with a polyvinyl chloride (PVC) well casing when all of the following are met:

(A) The production well is not located within two hundred (200) feet of:

(i) stored or staged petroleum products; or

(ii) any known sources of volatile or semivolatile organic contaminants.

(B) The PVC casing is joined by solvent welding or mechanical joints that use PVC locking strips and synthetic watertight sealing gaskets.

(C) The PVC well casing and joints meet the requirements of ANSI/ASTM F480-02 "Standard Specification for Thermoplastic Well Casing Pipe and Couplings made in Standard Dimension Ratios (SDR), SCH 40 and SCH 80"*.

(D) The minimum wall thickness of PVC casing is at least the equivalent of SDR 21 according to ANSI/ASTM F480-02 for "Standard Specification for Thermoplastic Well Casing Pipe and Couplings made in Standard Dimension Ratios (SDR), SCH 40 and SCH 80"*.

(E) PVC casing shall be protected from damage from collision in accordance with the following:

(i) Three (3) posts shall be placed in an equilateral formation no more than twenty-four (24) inches in radius from the outside edge of the casing.

(ii) The posts specified in item (i) shall:

(AA) be concrete-filled steel posts at least four (4) inches in diameter or hollow steel at least twenty-five hundredths (0.25) of an inch in thickness; and

(BB) extend at least three (3) feet above grade and four (4) feet below grade.

(5) A permanent well casing shall terminate as follows:

(A) At the higher level of one (1) of the following:

(i) At least eighteen (18) inches above finished grade.

(ii) At least thirty-six (36) inches above the regulatory flood elevation if located in a designated flood hazard area identified by the Federal Emergency Management Agency (FEMA).

(B) At least twelve (12) inches above the pump house floor or concrete apron.

(b) The casing shall be vented to the atmosphere with a vent that terminates in a downturned position at or above the top of the casing or the pitless adapter unit. The vent shall have a minimum one and one-half (1½) inch diameter opening covered with a twenty-four (24) mesh, noncorrodible screen.

(c) A production well shall meet the following construction requirements:

(1) Have a maximum deviation from plumb not in excess of two-thirds (b) of the inside diameter of the well casing per one hundred (100) feet of well depth.

(2) Be aligned to permit proper operation of the type of permanent pump intended for the well. Alignment shall be tested as follows:

(A) By lowering into the well, through its entire depth, a section of pipe forty (40) feet long or a dummy of the same length.

(B) The pipe or dummy used as specified by clause (A) shall be in accordance with the following:

(i) One-half (½) inch less in diameter than the inside diameter of the part of the casing or hole being tested when the casing or hole diameter is ten (10) inches or less.

(ii) One (1) inch smaller than the inside diameter when that part of the casing or hole being tested is greater than ten (10) inches.

(C) An alignment test shall not be required inside well screens.

(d) A production well completed in an unconsolidated formation shall have screens installed and constructed of one (1) of the following materials:

(1) Stainless steel.

(2) PVC only if the casing material is also PVC.

(e) A production well casing shall be fitted to permit measurements of static and pumping water levels.

(f) A production well in an unconsolidated formation shall be packed with silica gravel if it has artificial gravel wall filters.

(g) The well house floor shall be at least six (6) inches above grade.

*This document is incorporated by reference. Notwithstanding language to the contrary in the primarily incorporated documents, the versions of all secondarily incorporated documents, which are those documents referred to in the primarily incorporated documents, shall be the versions in effect on the date of final adoption of this rule. Copies of this standard may be obtained from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103 or from 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 Division; 327 IAC 8-3.4-16; filed Jun 17, 1999, 1:50 p.m.: 22 IR 3374; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; errata filed Feb 6, 2006, 11:15 a.m.: 29 IR 1937; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2966; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3.4-17 Pitless adapter unit requirements

Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 17. A production water well equipped with a pitless unit shall meet the following requirements:

(1) A pitless unit shall be:

(A) constructed of steel, stainless steel, or other material compatible with the casing as approved by the commissioner, unless the well casing is constructed of PVC in accordance with section 16 of this rule; and

(B) installed on the well casing using one (1) of the following types of joints:

(i) Welded, with either mechanical or chemical weld.

(ii) Flanged.

(iii) Threaded.

(2) The discharge connection of a pitless unit shall be pressurized at all times.

(3) A pitless unit shall:

(A) be designed so that the pump can be removed for servicing and maintenance without disturbing the underground discharge piping; and

(B) have an inside diameter greater than or equal to the casing diameter if the casing diameter is less than twelve (12) inches.

(4) At least one (1) check valve shall be installed inside the well casing if a submersible pump is used.

(5) A compression joint shall not be used for the installation of a pitless unit.

(6) A buried suction line is not permitted.

(7) A saddle-type pitless adapter is not permitted except at systems with a well casing and a diameter of six (6) inches or less. At these systems, a saddle-type pitless adapter may be used if:

(A) it maintains positive pressure;

(B) the pitless adapter is designed to support the weight of the column and pump; and

(C) the pump is accessible.

(Water Pollution Control Division; 327 IAC 8-3.4-17; filed Jun 17, 1999, 1:50 p.m.: 22 IR 3375; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2967; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-3.4-18 Cross connection control requirements

Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 18. Backflow and back siphonage prevention must be provided in accordance with 327 IAC 8-10. *(Water Pollution Control Division; 327 IAC 8-3.4-18; filed Jun 17, 1999, 1:50 p.m.: 22 IR 3375; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3.4-19 Emergency operation of a production well

Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 19. Unless an alternate water supply capable of meeting average demand is available, a production well shall have the electrical equipment necessary for the use of one (1) of the following:

(1) Dual power feeds.
(2) Standby generators.
(Water Pollution Control Division; 327 IAC 8-3.4-19; filed Jun 17, 1999, 1:50 p.m.: 22 IR 3375; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-3.4-20 Rotary well drilling procedure requirements
Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 20. A well constructed using rotary drilling shall be drilled in accordance with the following:
(1) The borehole shall be at least three (3) inches greater in diameter than the outside diameter of the proposed casing.
(2) The well shall be cased to a minimum depth of fifty (50) feet below the ground surface unless otherwise approved by the commissioner according to section 27 of this rule.
(3) A production well constructed in an unconsolidated formation shall be gravel packed with silica gravel to an elevation at least ten (10) feet above the elevation of the top of the well screen.
(4) The well shall have a minimum of twenty-five (25) feet of the borehole annulus grouted in accordance with section 23 of this rule.
(5) A well penetrating bedrock shall have the borehole annulus grouted, in accordance with section 23 of this rule, from the bottom of the well casing, or the top of the formation packer to the ground surface or pitless adapter connection.
(Water Pollution Control Division; 327 IAC 8-3.4-20; filed Jun 17, 1999, 1:50 p.m.: 22 IR 3376; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-3.4-21 Cable tool well drilling procedure requirements
Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 21. A well constructed using cable tool drilling shall be drilled in accordance with the following:
(1) A borehole, with an inside diameter at least three (3) inches greater than the outside diameter of the well casing to be driven, shall be dug to a depth of at least three (3) feet, but no more than five (5) feet, below the ground surface.
(2) The well casing shall be centered in the larger diameter borehole, and the borehole shall remain full of a bentonite slurry or granular bentonite during the installation of the well casing.
(3) Notwithstanding section 23 of this rule, bentonite slurry may be introduced into the borehole annulus by gravity methods in a manner to prevent bridging.
(4) The well shall be cased to a minimum depth of fifty (50) feet below the ground surface unless otherwise approved by the commissioner according to section 27 of this rule.
(5) The well must be grouted in accordance with section 23 of this rule if one (1) of the following occurs:
(A) A larger diameter temporary casing is used to install a smaller diameter permanent well casing.
(B) A larger diameter borehole is drilled to install a smaller diameter well casing.
(Water Pollution Control Division; 327 IAC 8-3.4-21; filed Jun 17, 1999, 1:50 p.m.: 22 IR 3376; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-3.4-22 Bucket well requirements
Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 22. Bucket well use, materials, and procedures must be presented as alternative technical standards in accordance with section 27 of this rule. *(Water Pollution Control Division; 327 IAC 8-3.4-22; filed Jun 17, 1999, 1:50 p.m.: 22 IR 3376; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3.4-23 Grouting requirements

Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 23. This section governs grouting materials and the installation of grouting materials as follows:

(1) Grouting materials shall consist of the following:

(A) Neat cement grout shall consist of cement conforming to ASTM C150-04 Standard Specification for Portland Cement* and contain at least two percent (2%) but not more than five percent (5%) by weight of bentonite additive.

(B) Bentonite slurry that can include polymers designed to retard swelling.

(C) Pelletized, granular, medium-grade, or coarse-grade crushed bentonite.

(D) Concrete grout shall consist of equal amounts of:

(i) cement, conforming to AWWA A100-97 AWWA Standard for Water Wells**; and

(ii) sand mixed with the addition of water to make a mixture not exceeding six (6) gallons of water per one (1) cubic foot of cement;

and contain at least two percent (2%) but not more than five percent (5%) by weight of bentonite additive.

(2) The installation of grouting materials shall be in accordance with the following:

(A) Except as provided in section 21(2) of this rule, neat cement and bentonite slurry shall be pressure pumped into place with a grout pipe from the bottom of the annular space upward in a continuous operation.

(B) Pelletized, granular, medium-grade, or coarse-grade crushed bentonite shall be introduced in a manner to prevent bridging of the borehole annulus.

(C) Concrete grout shall be installed according to one (1) of the following:

(i) Pressure pumped.

(ii) Placed by gravity through a grout pipe from the bottom of the annular space upward in a continuous operation.

(iii) Introduced in a manner to prevent bridging of the borehole annulus.

(3) The annulus of a well shall be grouted with one (1) of the types of grout as specified in subdivision (1) and in accordance with the applicable grout installation methods specified in subdivision (2), with the exception of a prohibition against using the method named in subdivision (2)(C)(iii) if:

(A) the diameter of the borehole is eight (8) inches or larger than the outside diameter of the well casing; and

(B) the well is equal to or less than one hundred (100) feet in depth.

(4) The annulus of a well shall be pressure grouted with neat cement, concrete grout, or a bentonite slurry if:

(A) the diameter of the borehole is less than eight (8) inches larger than the outside diameter of the well casing; or

(B) the well is greater than one hundred (100) feet in depth.

(5) The annulus of a well may be grouted, with concrete grout containing gravel not larger than one-half (½) inch in size, by using gravity without the use of a grout pipe if:

(A) the diameter of the borehole is greater than twelve (12) inches larger than the outside diameter of the well casing; and

(B) the depth to be grouted is equal to or less than ten (10) feet.

(6) Grouting of the borehole annulus shall be accomplished upon the earlier of the following events:

(A) Within twenty-four (24) hours following the installation of the well casing.

(B) The removal of drilling equipment from the proposed well location.

(7) All work on the well shall cease during the grout setup time as specified by the grout material supplier.

*This document is incorporated by reference. Notwithstanding language to the contrary in the primarily incorporated documents, the versions of all secondarily incorporated documents, which are those documents referred to in the primarily incorporated documents, shall be the versions in effect on the date of final adoption of this rule. Copies of this standard may be obtained from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103 or from the Indiana Department of Environmental Management, Office of Water Quality, Indiana Government Center-North, 100 North Senate Avenue, Room N1255, Indianapolis, Indiana 46204.

**This document is incorporated by reference. Notwithstanding language to the contrary in the primarily incorporated

documents, the versions of all secondarily incorporated documents, which are those documents referred to in the primarily incorporated documents, shall be the versions in effect on the date of final adoption of the primarily incorporated document. Copies of this standard may be obtained from the American Water Works Association, 6666 West Quincy Avenue, Denver, Colorado 80235 or from 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 Division; 327 IAC 8-3.4-23; filed Jun 17, 1999, 1:50 p.m.: 22 IR 3376; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; errata filed Feb 6, 2006, 11:15 a.m.: 29 IR 1937; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2968; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3.4-24 Disinfection procedure requirements

Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 24. (a) The disinfection procedures described in this section shall be performed with one (1) of the following approved forms of chlorine:

(1) Calcium hypochlorite.

(2) Sodium hypochlorite.

(b) Gravel installed in a new production well must be chlorinated by use of the following method:

(1) Silica gravel for gravel pack shall be disinfected with calcium hypochlorite or sodium hypochlorite before installation in a well at a rate that will produce a liquid concentration of at least fifty (50) milligrams per liter (mg/l) as the gravel is installed.

(2) The gravel, disinfected according to subdivision (1), shall be fed into a gravel chute or tremie to completely fill the annular void outside the well casing to the top gravel pack level.

(3) Chlorine shall be added to the well, following the activity described in subdivision (2), and circulated until a chlorine concentration of not less than fifty (50) mg/l in the entire volume of fluid is achieved.

(c) Immediately before placement in the void caused by settled gravel in a well, replacement gravel shall be soaked in a chlorine solution of at least fifty (50) mg/l for a duration not less than thirty (30) minutes during initial construction or subsequent repairs.

(d) Permanent equipment and material used in a production well shall be chlorinated before installation by spraying exposed areas with a solution containing a chlorine residual of not less than two hundred (200) mg/l.

(e) A new or modified well proposed to be a production well shall be chlorinated in accordance with one (1) of the following:

(1) The water in the well casing shall be treated for disinfection as follows:

(A) To create a chlorine residual of one hundred (100) mg/l to the entire volume of water in the casing, well screen, and rock hole, if present.

(B) The well must be:

(i) chlorinated using the compound requirements in Table 24-1; and

(ii) surged at least three (3) times following chlorination.

(C) The chlorinated water must remain in the well casing at least twelve (12) hours following the surging activity of clause (B)(ii).

(2) The water in the well casing shall be treated for disinfection as follows:

(A) To create a chlorine residual of fifty (50) mg/l to the entire volume of water in the casing, well screen, and rock hole, if present.

(B) The well must be:

(i) chlorinated using the compound requirements in Table 24-1; and

(ii) surged at least three (3) times following chlorination.

(C) The chlorinated water must then remain in the well casing at least twenty-four (24) hours following the surging activity of clause (B)(ii).

The following table demonstrates the amount of chemical compound needed for chlorination of wells:

Table 24-1
Amount of Chemical Compound Needed for Chlorination of Wells

Well-Hole or Well-Casing Diameter (in.)	Volume per 100 Feet of Water Depth (gal)	Calcium Hypochlorite* (65 percent available Cl_2)	Sodium Hypochlorite† (12 trade percent‡)
5	106.09	1.1 oz	5.65 fl oz
6	146.9	1.5 oz	7.8 fl oz
8	261.1	2.7 oz	13.9 fl oz
10	408.0	4.2 oz	1.4 pt
12	587.5	6.0 oz	2.0 pt
16	1,044.0	10.7 oz	3.5 pt
20	1,632.0	1 lb 1 oz	0.7 gal
24	2,350.0	1 lb 8 oz	1.0 gal
30	3,672.0	2 lb 6 oz	1.5 gal
36	5,287.0	3 lb 6 oz	2.2 gal
48	9,400.0	6 lb 1 oz	3.9 gal
60	11,690.0	9 lb 7 oz	6.1 gal

Notes:

*Quantities of Ca $(OCl)_2$ based on 65 percent available chlorine by dry weight (16 oz = 1 lb).

†Quantities of NaOCl based on 12 trade percent available chlorine by U.S. liquid measure (1 gal = 4 qt = 8 pt = 128 fl oz).

‡Trade percent is a term used by chlorine manufacturers; trade percent × 10 = grams of available chlorine in 1 liter of solution.

(f) After disinfection accomplished in accordance with subsection (e), a new or modified public water system production well and a flowing well shall be sampled for the presence of coliform at least twice, with sampling done not less than twenty-four (24) hours apart, by a laborat+ory certified by the Indiana state department of health or the United States Environmental Protection Agency using methods specified in 327 IAC 8-2-8.7. If the presence of coliform is indicated by the sample results, the disinfection of the well shall be repeated.

(g) Disposal of chlorinated water from well disinfection shall be to one (1) of the following sources:

(1) A sanitary sewer with the approval of the local sewer authority.

(2) A location other than a sanitary sewer in accordance with local, state, and federal regulations.

(Water Pollution Control Division; 327 IAC 8-3.4-24; filed Jun 17, 1999, 1:50 p.m.: 22 IR 3377; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2969; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-3.4-25 Postconstruction testing and reporting requirements

Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2; IC 13-18-16-2

Sec. 25. (a) The following information must be submitted to the commissioner before a new or modified production well is placed into production:

(1) Results of a production well performance test (PWPT) that was performed for a period of at least twenty-four (24) hours for a community public water system and a nontransient noncommunity public water system serving more than two hundred fifty (250) individuals. The PWPT information submitted to the commissioner shall include the following:

(A) Pumping rate of test (at least one (1) times the maximum daily pumping rate).

(B) Static water level (stable before pumping).

(C) Water level at:

(i) start up and at interim readings; and

(ii) the end of the PWPT.

(D) Specific capacity at the end of the PWPT.

(2) Every well shall be tested for specific capacity of the well. The well shall be test pumped at a capacity at least equal to the pumping rate desired from the well during normal usage.

(3) A copy of the Indiana department of natural resources' record of water well completed in accordance with the requirements of 312 IAC 13-2-6.

(4) The results of:

(A) water quality samples obtained during test pumping; and

(B) disinfection confirmation samples obtained during disinfection.

(5) Completed copies of the chemical analytical reports of sampling done and analyzed by a laboratory certified by the Indiana department of health or the United States Environmental Protection Agency using methods set forth in 327 IAC 8-2-4.2 for the following constituents:

(A) Nitrate (NO_3).

(B) Fluoride.

(b) The commissioner may modify or revoke a construction permit based on the information submitted under subsection (a) in accordance with IC 13-18-16-2. *(Water Pollution Control Division; 327 IAC 8-3.4-25; filed Jun 17, 1999, 1:50 p.m.: 22 IR 3378; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2970; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3.4-26 Conversion of a nonproduction well to a production well

Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 26. (a) A nonproduction well, such as a test well or a nonpublic water supply system well, must receive a construction permit in accordance with 327 IAC 8-3 before the well can be used as a production well to provide drinking water to a public water supply system.

(b) The commissioner may require the following information, in accordance with sections 4 and 5 of this rule and 327 IAC 8-3-3, for the purpose of reviewing a proposed conversion of a nonproduction well to a production well to confirm that the proposed production well conforms with this rule:

(1) As-built drawings.

(2) Report discussing the proposed production well and its conformance to this rule and 327 IAC 8-3-4.

(Water Pollution Control Division; 327 IAC 8-3.4-26; filed Jun 17, 1999, 1:50 p.m.: 22 IR 3379; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-3.4-27 Alternative to technical standards

Authority: IC 13-14-8; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 27. (a) An alternative to a technical standard required by this rule may be approved by the commissioner for either a single application or for a public water system system-wide application if the applicant demonstrates, in a written submission, that the alternative will meet the following:

(1) The requirements of 327 IAC 8-3-4.

(2) Provide drinking water of at least the same quality and normal operating pressure at the peak flow rate as the technical standards in this rule would provide.

(b) An alternative to a technical standard required by this rule may be approved by the commissioner for all public water systems or a subset of public water systems if the alternative will meet the following:

(1) The requirements of 327 IAC 8-3-4.

(2) Provide drinking water of at least the same quality and normal operating pressure at the peak flow rate as the technical standards in this rule would provide.

(c) Continuing operation of the approved alternative technical standard shall require no renewal if the alternative technical standard is operated in the manner approved by the commissioner.

(d) An alternative to a technical standard approved under subsection (a) shall only apply to the application or the public water system for which the alternative is requested. *(Water Pollution Control Division; 327 IAC 8-3.4-27; filed Jun 17, 1999, 1:50 p.m.: 22 IR 3379; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2970; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

Rule 3.5. General Construction Permit for Water Mains

327 IAC 8-3.5-1 Definitions

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-2; IC 13-18-1; IC 13-18-3; IC 13-18-4; IC 13-18-16-8
Affected: IC 13-11-2; IC 13-15-2; IC 13-18

Sec. 1. In addition to the definitions in 327 IAC 8-3-1, the following definitions apply throughout this rule:
(1) "Alternative technical standard" means alternative technical standards as described in 327 IAC 8-3.2-20.
(2) "Average daily customer demand" means the average daily customer demand as determined in accordance with 327 IAC 8-3.3-2.
(3) "General construction permit ban" means a decision issued in conformance with section 8 of this rule.
(4) "Notice of intent letter" or "NOI" means a written notification indicating a responsible person has elected to comply with the terms of this general construction permit rule instead of applying for an individual construction permit.
(5) "Peaking factor" means the peak daily customer demand factor as determined in accordance with 327 IAC 8-3.3-2.
(6) "Public water system's daily capacity" means the public water system's daily capacity as determined in accordance with 327 IAC 8-3.3-3.
(7) "Responsible person" means a person as described by section 6 of this rule.
(8) "Transmission main" means any pipe that:
(A) transports water from a:
(i) surface water intake to a surface water treatment plant; or
(ii) well to a water treatment plant;
(B) transports:
(i) finished water from the treatment plant to the entry point to the water distribution system; or
(ii) water from a well to the entry point to the water distribution systems if there is no water treatment plant; or
(C) is installed for the purpose of interconnecting separate public water systems.
(Water Pollution Control Division; 327 IAC 8-3.5-1; filed Mar 31, 1999, 10:20 a.m.: 22 IR 2522; errata filed Aug 17, 1999, 3:15 p.m.: 23 IR 25; filed Mar 6, 2000, 7:56 a.m.: 23 IR 1627; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2971; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-3.5-2 Incorporation by reference

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-2; IC 13-18-1; IC 13-18-3; IC 13-18-4; IC 13-18-16-8
Affected: IC 13-11-2; IC 13-18

Sec. 2. (a) The following materials are incorporated by reference into this rule, to the extent provided in other sections of this rule:
(1) C700-02 Cold-Water Meters - Displacement Type, Bronze Main Case.
(2) C701-02 Cold-Water Meters - Turbine Type for Customer Service.
(3) C702-01 AWWA Standard for Cold-Water Meters - Compound Type.
(4) C703-96(R04) AWWA Standard for Cold-Water Meters - Fire Service Type.
(b) The matters incorporated by reference in subsection (a) may be obtained from either of the following:
(1) American Water Works Association, 6666 West Quincy Avenue, Denver, Colorado 80235.
(2) Indiana Department of Environmental Management, Office of Water Quality, Indiana Government Center-North, 100 North Senate Avenue, Room N1255, Indianapolis, Indiana 46204.

Notwithstanding language to the contrary in the primarily incorporated documents, the secondarily incorporated documents, which are documents referred to in the primarily incorporated documents, shall be the version in effect on the date of final adoption of this rule. *(Water Pollution Control Division; 327 IAC 8-3.5-2; filed Mar 31, 1999, 10:20 a.m.: 22 IR 2522; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; errata filed Feb 6, 2006, 11:15 a.m.: 29 IR 1937; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2971; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3.5-3 Eligibility and exclusions for eligibility

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-2; IC 13-18
Affected: IC 13-11-2; IC 13-18

Sec. 3. (a) A responsible person as defined by section 6 of this rule is eligible for a general construction permit.

(b) A responsible person, responsible person's engineer, responsible person's developer, or the proposed public water system that has been issued a general construction permit program ban by the commissioner in accordance with section 8 of this rule is not eligible for a general construction permit.

(c) Proposed water main projects to a public water system under a connection ban in accordance with 327 IAC 8-3-4.2 are not eligible for a general construction permit.

(d) Proposed water main projects that meet any of the following criteria are not eligible for a general construction permit as defined by this rule:

(1) The corresponding public water system has a two (2) year average peak that is between ninety percent (90%) and one hundred percent (100%) of the public water system's daily capacity, and the product of the following is equal to or exceeds two percent (2%) of the public water system's daily capacity:

(A) The average daily customer demand of the proposed water main.

(B) The peaking factor of the proposed water main.

(2) The corresponding public water system's two (2) year average peak is equal to or less than ninety percent (90%) of the public water system's daily capacity and the sum of corresponding public water system's two (2) year average peak, and the product of the following is equal to or exceeds ninety-two percent (92%) of the public water system's daily capacity:

(A) The average daily customer demand of the proposed water main.

(B) The peaking factor of the proposed water main.

(3) The sum of corresponding public water system's two (2) year average peak and the product of the following is equal to or exceeds one hundred percent (100%) of the public water system's daily capacity:

(A) The average daily customer demand of the proposed water main.

(B) The peaking factor of the proposed water main.

(e) Proposed projects that meet the definition of a transmission main as defined by section 1 of this rule are not eligible for a general construction permit.

(f) An individual construction permit issued under 327 IAC 8-3 is required for all other water main extension construction meeting the criteria of 327 IAC 8-3-2(a) that is not eligible for a general construction permit in accordance with this section or does not meet the general construction permit conditions listed in section 5 of this rule. *(Water Pollution Control Division; 327 IAC 8-3.5-3; filed Mar 31, 1999, 10:20 a.m.: 22 IR 2522; errata filed Aug 17, 1999, 3:15 p.m.: 23 IR 25; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA; filed Jul 14, 2011, 1:34 p.m.: 20110810-IR-327100403FRA)*

327 IAC 8-3.5-4 Notice of intent letter

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-2; IC 13-18-1; IC 13-18-3; IC 13-18-4; IC 13-18-16-8
Affected: IC 13-11-2; IC 13-18

Sec. 4. (a) A responsible person who elects to participate in the General Construction Permit Program shall submit a NOI that complies with this section and is received by the commissioner at least thirty (30) calendar days before the commencement of construction of the proposed water main.

(b) A NOI must be submitted on forms obtained from the commissioner or a computer generated reproduction that is similar

in appearance and identical in content to the forms generated by the commissioner.

(c) The NOI must be submitted by certified mail to the address provided on the NOI form.

(d) The NOI must include the following:

(1) The names, firms, addresses, and telephone numbers of the following:

(A) The responsible person.

(B) The responsible person's professional engineer.

(C) The responsible person's developer, resident project representative, or person who by other means is representing the construction aspects of the proposed project.

(2) The title of the proposed project for which the NOI is submitted.

(3) The name of the public water system and the corresponding public water system identification number, mailing address, and telephone number.

(4) The county and nearest public intersection and the nearest quarter section in which the construction project is located or, if the section, township, and range are not available, the latitude and longitude of the approximate center of the construction project to the nearest fifteen (15) seconds.

(5) A statement from the responsible person that indicates which one (1) of the following two (2) methods of construction activity notification the responsible person will comply with:

(A) The proposed construction schedule is included with the NOI.

(B) The proposed construction schedule will be submitted separate from the NOI at least ten (10) working days before the commencement of the construction and will include a copy of the information required in subdivisions (1) through (4).

(6) The certifications required in section 7 of this rule.

(7) A dated signature from the public water system certifying that the public water system will fulfill the requirements of section 12 of this rule.

(8) The average daily customer demand and the peaking factor of the proposed water main.

(9) The public water system's:

(A) daily capacity; and

(B) two (2) year average peak.

(10) Any fees as required by 327 IAC 8-3-7.

(11) A copy of any approvals from the commissioner of alternative technical standards that will apply to the proposed water main.

(12) A copy of any approvals from the commissioner of alternate average daily customer demand, peaking factor, or peak daily customer demand that will apply to the proposed water main.

(13) A copy of any written authorization of a duly authorized representative of a responsible person.

(Water Pollution Control Division; 327 IAC 8-3.5-4; filed Mar 31, 1999, 10:20 a.m.: 22 IR 2523; errata filed Aug 17, 1999, 3:15 p.m.: 23 IR 26; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-3.5-5 General construction permit conditions

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-2; IC 13-18-1; IC 13-18-3; IC 13-18-4; IC 13-18-16-8
Affected: IC 13-11-2; IC 13-18; IC 13-30

Sec. 5. (a) The proposed water main extension must meet the issuance requirements of 327 IAC 8-3-4.

(b) A copy of the NOI, all documentation supporting the project, plans, and specifications must be submitted to the public water system before the commencement of the water main construction.

(c) All documentation supporting the project must be readily accessible for review and copying for the duration of water main construction activities. In addition, a copy of the plans conforming to 327 IAC 8-3.2-5(c) and specifications must be available in accordance with the following:

(1) These items shall be on-site and readily accessible for review and copying throughout the duration of water main construction activities at the site if an office is present at the site.

(2) If there is no office present at the site, these items shall be producible for review and copying throughout the duration of water main construction activities at the site within sixty (60) minutes upon notification by the commissioner.

(d) Persons in violation of this rule shall take all reasonable steps to correct any adverse impact on the public health resulting from their noncompliance.

(e) Nothing in this rule shall be construed to relieve anyone from any responsibility, liability, or penalty to which they are or may be subject to under the local, state, or federal laws and regulations.

(f) Responsible persons identified by and regulated by this rule shall ensure that the construction to the public water system achieves compliance with the terms and conditions of this rule.

(g) During construction, where the:

(1) public water system;

(2) responsible person; or

(3) responsible person's:

(A) professional engineer;

(B) developer;

(C) resident project representative; or

(D) person who by other means is representing the construction aspects of the proposed project;

becomes aware of a failure to submit any relevant facts or the submittal of incorrect information in an NOI, the responsible person shall promptly submit the facts or corrected information to the commissioner in writing utilizing certified mail and the address on the NOI form.

(h) The design and construction of the water main must meet all technical standards in 327 IAC 8-3.2, or, if any alternate technical standards are proposed for the project, the alternate technical standard must be approved by the commissioner in accordance with 327 IAC 8-3.2-20, and a copy of this approval must be submitted with the NOI.

(i) All nonresidential service connections must be equipped with a meter, and the size of the meter must be specified on the plans and specification of the water main. The metering devices must not be capable of exceeding the corresponding "Safe Maximum Operating Capacity" as specified on Table 1 of AWWA C700-02, AWWA C701-02, AWWA C702-01, or AWWA C703-96(04).

(j) At a peak flow rate equal to the peak daily customer demand as determined in subsection (k), the normal operating pressure in the water main shall not be less than twenty (20) pounds per square inch at the ground level at all points in the water main under all conditions of flow when demonstrated in conformance with subsection (l).

(k) For use in this section, the peak flow rate is equal to the sum of subdivisions (1) and (2) defined as follows:

(1) The fire flow value that is one (1) of the following:

(A) The fire protection flow rate that is provided by the public water system for the entire water main extension.

(B) Zero (0) if the public water system is not providing fire protection.

(2) The peak daily demand for each of the individual service connections defined as follows:

(A) For residential service connections, the peak daily customer demand is determined in accordance with 327 IAC 8-3.3-2(a)(1), or the peak daily customer demand as approved by the commissioner in accordance with 327 IAC 8-3.3-2(a)(4).

(B) For nonresidential service connections with meter sizes less than one (1) inch in diameter, the peak daily customer demand is equal to fifty (50) gallons per minute.

(C) For nonresidential service connections, the peak daily customer demand is equal to the "Safe Maximum Operating Capacity" as specified on Table 1 of AWWA C700-02, AWWA C701-02, AWWA C702-01, or AWWA C703-96(R04).

(D) For nonresidential service connections, the peak daily customer demand as approved by the commissioner in accordance with 327 IAC 8-3.3-2(a)(4).

(l) The conformance with subsection (j) must be demonstrated with the use of a computer model or with hydraulic calculations, which must be included with the documentation supporting the project, that are to be readily accessible in accordance with subsection (c) and at the public water system in accordance with subsection (b).

(m) Persons in violation of this rule are subject to enforcement and legal action under IC 13-30. *(Water Pollution Control Division; 327 IAC 8-3.5-5; filed Mar 31, 1999, 10:20 a.m.: 22 IR 2524; errata filed Aug 17, 1999, 3:15 p.m.: 23 IR 26; readopted*

filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2972; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-3.5-6 Responsible person

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-2; IC 13-18-1; IC 13-18-3; IC 13-18-4; IC 13-18-16-8
Affected: IC 13-11-2; IC 13-18

Sec. 6. (a) A responsible person is described as follows:

(1) For a corporation, a responsible corporate officer. As used in this subsection, "responsible corporate officer" means:

(A) a president;
(B) a secretary;
(C) a treasurer;
(D) any vice president of the corporation in charge of a principal business function; or
(E) any other person who performs similar policy or decision making functions for the corporation.

(2) For a partnership or sole proprietorship, a general partner or the proprietor, respectively.

(3) For a municipality, state, federal, or other public agency or political subdivision thereof, either a principal executive officer or ranking elected official.

(4) For a limited liability company, a registered agent.

(b) A responsible person may be represented by a person in accordance with each of the following:

(1) The authorization is made in writing by a person described under subsection (a).

(2) The authorization specifies either an individual or a position having responsibility for the overall design and construction of the project, such as the position of project manager, professional engineer, superintendent, or position of equivalent responsibility (a duly authorized representative may thus be either a named individual or any individual occupying a named position).

(3) The written authorization is submitted to the commissioner with the NOI.

(Water Pollution Control Division; 327 IAC 8-3.5-6; filed Mar 31, 1999, 10:20 a.m.: 22 IR 2525; errata filed Aug 17, 1999, 3:15 p.m.: 23 IR 26; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-3.5-7 Certification

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-2; IC 13-18-1; IC 13-18-3; IC 13-18-4; IC 13-18-16-8
Affected: IC 13-11-2; IC 13-18

Sec. 7. (a) The responsible person must sign and date the NOI, making the following certification, "I certify that I have reviewed and understand the applicability and eligibility requirements of this rule and that the water main proposed with the submission of this NOI meets the applicability and eligibility requirements of this rule. I also certify that the design and construction of this project will be performed under my direction or supervision to assure conformance with 327 IAC 8-3.5, and will meet all local rules or laws, regulations, and ordinances. The information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.".

(b) A responsible person's professional engineer who is representing the design aspects of the proposed project must sign and date the NOI, making the following certification, "I certify under penalty of law that the design of this project will be performed under my direction or supervision to assure conformance with 327 IAC 8-3.5 and that the plans and specifications will require the construction of said project to be performed in conformance with this rule. The design of the proposed project will meet all local rules or laws, regulations, and ordinances. The information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.".

(c) A responsible person's developer, resident project representative, or person who by other means is representing the construction aspects of the proposed project must sign and date the NOI, making the following certification, "I certify under penalty

of law that the construction of this project will be performed under my direction or supervision to assure conformance with 327 IAC 8-3.5. The construction of the proposed project will meet all local rules or laws, regulations, and ordinances. The information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.".

(d) The responsible person representing the public water system for which the water main is proposed must sign and date the NOI, making the following certification, "I certify under penalty of law that I agree to furnish water to the area in which the water main is proposed. I acknowledge the public water system's responsibility for examining the plans and specifications to determine that the proposed water main meets local rules or laws, and ordinances. I also acknowledge the public water system's responsibilities as outlined in 327 IAC 8-3.5-12. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.". *(Water Pollution Control Division; 327 IAC 8-3.5-7; filed Mar 31, 1999, 10:20 a.m.: 22 IR 2525; errata filed Aug 17, 1999, 3:15 p.m.: 23 IR 26; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3.5-8 General construction permit program ban

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-2; IC 13-18-1; IC 13-18-3; IC 13-18-4; IC 13-18-16-8
Affected: IC 4-21.5-3-7; IC 13-18

Sec. 8. (a) The commissioner may issue a general construction permit program ban to a person or a public water system who has been issued a notice of violation from the commissioner or has entered into an agreed order with the commissioner as the result of noncompliance with this rule, 327 IAC 8-3, or 327 IAC 8-3.2 within the previous five (5) years of the commissioner's general construction permit ban issuance.

(b) The commissioner shall notify the person or the public water system in writing of such decision to impose a general construction permit program ban by certified mail, return receipt requested.

(c) A NOI received by the commissioner before the effective date of the general construction permit program ban is exempted from the general construction permit program ban.

(d) A person or a public water system aggrieved by the imposition of a general construction permit program ban may appeal the decision of the commissioner at a hearing held in accordance with IC 4-21.5.

(e) A general construction permit program ban may remain effective for a time period established by the commissioner not to exceed five (5) years.

(f) A person or public water system that has been issued a general construction permit program ban may apply for an individual construction permit in accordance with 327 IAC 8-3. *(Water Pollution Control Division; 327 IAC 8-3.5-8; filed Mar 31, 1999, 10:20 a.m.: 22 IR 2526; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3.5-9 Effect of general permit rule

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-2; IC 13-18-1; IC 13-18-3; IC 13-18-4; IC 13-18-16-8
Affected: IC 13-11-2; IC 13-18

Sec. 9. Compliance with the general construction permit rule does not:

(1) convey any property rights of any sort or any exclusive privileges;

(2) authorize any injury to persons or private property or invasion of other private rights or any infringement of federal, state, or local laws or regulations;

(3) substitute any duty to obtain other state or local approval or permits required by law for the proposed construction project; or

(4) construe as guaranteeing that the proposed construction project shall meet standards, limitations, or requirements of any agency of state or federal government.

(Water Pollution Control Division; 327 IAC 8-3.5-9; filed Mar 31, 1999, 10:20 a.m.: 22 IR 2526; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-3.5-10 Modification, nontransferability, retraction, and expiration

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-2; IC 13-18-1; IC 13-18-3; IC 13-18-4; IC 13-18-16-8
Affected: IC 13-11-2; IC 13-18

Sec. 10. (a) The information on the NOI may be modified with a written submittal of an amendment to the NOI received by the commissioner at least fifteen (15) calendar days before the commencement of the construction of the water main.

(b) A general construction permit may not be transferred.

(c) If a responsible person chooses not to commence construction of a water main that is the subject of a NOI, the responsible person must notify the commissioner of the decision.

(d) The proposed project for a general construction permit must commence within twelve (12) months of the submittal of the NOI. The commissioner may extend the duration upon receipt of a written request from the responsible person that states no changes have occurred with the NOI. Such request must be submitted using certified mail to the address on the NOI form and be received by the commissioner within twelve (12) months of the NOI submission. *(Water Pollution Control Division; 327 IAC 8-3.5-10; filed Mar 31, 1999, 10:20 a.m.: 22 IR 2526; errata filed Aug 17, 1999, 3:15 p.m.: 23 IR 26; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3.5-11 Inspection and enforcement

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-2; IC 13-18-1; IC 13-18-3; IC 13-18-4; IC 13-18-16-8
Affected: IC 13-11-2; IC 13-14-2-2; IC 13-14-5; IC 13-18

Sec. 11. (a) The commissioner may inspect any site, pursuant to IC 13-14-2-2 and IC 13-14-5, including the public water system, involved in the construction of a project regulated by this rule. The commissioner may take samples or test at any site involved in the construction of a project regulated by this rule.

(b) If the commissioner determines, based on the inspection of the NOI, plans or specifications, or the construction of the project, that the project does not comply with the general construction permit rule, the commissioner may do the following:

(1) Require the responsible person to undertake necessary action to achieve compliance with the general construction permit rule.

(2) Notify the responsible person of the commissioner's order of an immediate stop to the commencement or further progression of the construction of the project in the area of the noncompliance.

(3) Notify the responsible person of the commissioner's order of an immediate stop to the commencement or further progression of the construction of the entire project.

(4) Revoke the ability to construct with the general construction permit.

(c) Persons regulated by this rule shall furnish to the commissioner any information requested by the commissioner to determine compliance with this rule and whether cause exists for revoking approval to construct under this rule. *(Water Pollution Control Division; 327 IAC 8-3.5-11; filed Mar 31, 1999, 10:20 a.m.: 22 IR 2526; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3.5-12 Requirements for the public water system

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-2; IC 13-18-1; IC 13-18-3; IC 13-18-4; IC 13-18-16-8
Affected: IC 13-11-2; IC 13-18

Sec. 12. (a) The public water system must maintain the information contained on each NOI and all documents submitted with each NOI for all water main construction with a general construction permit.

(b) The public water system must maintain the information contained on the plans and specifications for each corresponding NOI for all water main construction with a general construction permit. *(Water Pollution Control Division; 327 IAC 8-3.5-12; filed Mar 31, 1999, 10:20 a.m.: 22 IR 2527; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

Rule 3.6. Demonstration of New Public Water Supply System Capacity

327 IAC 8-3.6-1 Definitions

Authority: IC 13-13-5; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-21-3
Affected: IC 13-11-2; IC 13-18-16

Sec. 1. In addition to the applicable definitions contained in IC 13-11-2, 327 IAC 8-3.2-1, and 327 IAC 8-3.4-1, the following definitions apply throughout this rule:

(1) "Financial capacity" means the ability of a public water supply system to acquire and manage sufficient financial resources to allow the system to achieve and maintain compliance with this article.

(2) "Managerial capacity" means the ability of a public water supply system to conduct its affairs in a manner enabling the system to achieve and maintain compliance with this article.

(3) "New public water supply system" means the following:

(A) A community water supply system or nontransient noncommunity water supply system that is newly constructed and will commence operation after October 1, 1999.

(B) A community water supply system or nontransient noncommunity water supply system that has not previously met the definition of a public water supply system but will have expanded infrastructure after October 1, 1999, to meet the definition of a public water supply system.

(C) A community water supply system, nontransient noncommunity water supply system, or transient water supply system that currently meets the definition of a public water supply system and expands its infrastructure after October 1, 1999, if such expansion results in a change in the classification of the system to a community water supply system or a nontransient noncommunity water supply system.

(4) "Technical capacity" means the physical and operational ability of a public water supply system to meet the requirements of this article.

(Water Pollution Control Division; 327 IAC 8-3.6-1; filed Aug 10, 1999, 8:54 a.m.: 22 IR 3678; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-3.6-2 Applicability

Authority: IC 13-13-5; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-21-3
Affected: IC 13-18-16

Sec. 2. (a) This rule applies to a new public water supply system that commences operation after October 1, 1999.

(b) This rule does not apply to a public water supply system in operation prior to October 1, 1999, except as provided in section 1(3)(C) of this rule. *(Water Pollution Control Division; 327 IAC 8-3.6-2; filed Aug 10, 1999, 8:54 a.m.: 22 IR 3679; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3.6-3 Water system management plan submission

Authority: IC 13-13-5; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-21-3
Affected: IC 13-18-16

Sec. 3. (a) A new public water supply system shall submit to the commissioner a water system management plan that demonstrates the capacity of the proposed public water supply system. The plan shall include, at a minimum, an assessment of the following:

(1) Technical capacity according to section 4 of this rule.

(2) Financial capacity according to section 5 of this rule.

(3) Managerial capacity according to section 6 of this rule.

(b) Four (4) copies of the water system management plan shall be submitted to the commissioner in advance of the public water supply system's intended submission to the commissioner of application for a construction permit with sufficiency to allow the commissioner one hundred twenty (120) days for review of the water system management plan.

(c) Information requested by section 4, 5, or 6 of this rule that the applicant cannot provide shall be:

(1) identified as being not applicable or not available; and

(2) accompanied by an explanation of its absence.

(d) A written request by the commissioner for additional information from the applicant, due to an incomplete water system management plan, shall extend the one hundred twenty (120) days allowed for the commissioner's review. *(Water Pollution Control Division; 327 IAC 8-3.6-3; filed Aug 10, 1999, 8:54 a.m.: 22 IR 3679; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3.6-4 Technical capacity of a new public water supply system

Authority: IC 13-13-5; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-21-3
Affected: IC 13-18-16; IC 25-31

Sec. 4. (a) A water system management plan shall provide the following technical capacity information:

(1) Details of the public water supply system that include the following:

(A) A description of the type of system, including:

(i) whether it is a community public water supply system or a nontransient noncommunity public water supply system and the basis for determining the system type; and

(ii) the population to be served.

(B) A description of the planned service area, including:

(i) the anticipated growth for the next twenty (20) years; and

(ii) the plans to provide for the demand of the anticipated growth.

(C) A description of the public water supply system by county, section, township, and range.

(D) A site plan that includes the location of the following, as applicable:

(i) Wells.

(ii) Surface water intakes.

(iii) Treatment facilities.

(iv) Storage facilities.

(v) Pumping facilities.

(vi) Connections to another public water supply system.

(vii) Other applicable facilities.

(E) A description, design basis, and anticipated useful life for treatment and transmission facilities, including the following:

(i) Treatment plants.

(ii) Pipes.

(iii) Pumping stations.

(iv) Storage facilities.

(F) The identification of interconnections with other systems.

(G) A description and design basis of the fire protection demand on the system.

(H) A description of a plan for metering water production by source and water use by consumers.

(I) A description of plans to manage waste generated by the treatment processes of the public water supply system.

(J) A description of the highest flood elevation at the site of sources and treatment facilities, if the site is within the one hundred (100) year frequency flood plain.

(2) Details of an assessment of the water supply source adequacy that include the following:

(A) A site map for each water supply source that must be drawn to scale with the scale disclosed on the map.

(B) A narrative describing each source, and a description of land uses within a three thousand (3,000) foot radius of each water supply source.

(C) The design basis for system demands, including:

(i) average daily; and

(ii) peak daily;

consumer demand according to 327 IAC 8-3.3-2.

(D) An analysis of a proposed source to reliably meet consumer demand.

(E) A geological or hydrogeological characterization of the source of the drinking water supply.

(F) A summary of a source water quality analysis that includes the applicable primary and secondary drinking water standards.

(G) The proposed activities to protect source water.

(3) A public water supply system that proposes to purchase water from another public water supply system must provide documentation of a planned purchase agreement with the other public water supply system.

(4) A method to meet the requirements of the following public drinking water rules:

(A) 327 IAC 8-1 concerning drinking water direct additives and indirect additives.

(B) 327 IAC 8-2-8.5 concerning filtration and disinfection.

(C) 327 IAC 8-3 concerning public water supply construction permits.

(D) 327 IAC 8-3.4 concerning public water system wells.

(E) 327 IAC 8-4.1 concerning wellhead protection.

(F) 327 IAC 8-10 concerning cross connection control.

(5) A method to provide for the operation, maintenance, inspection, testing, repair, replacement, and associated record keeping for the following, according to the American Water Works Association Standards, Section A100 through Section F100 (February 1998 Edition)* and the Recommended Standards for Water Works, Great Lakes—Upper Mississippi River Board of State Public Health and Environmental Managers (1997 Edition)**:

(A) Source of supply facilities.

(B) Pumping facilities.

(C) Water meters.

(D) All components of the treatment process.

(E) Storage tanks, including the following:

(i) Cleaning.

(ii) Painting.

(F) Water mains, including the following:

(i) Flushing.

(ii) Exercising valves.

(G) Approved cross connection control devices.

(6) Details of an infrastructure replacement plan that include the following:

(A) A schedule of equipment replacement.

(B) Estimated life expectancy of equipment.

(C) Expected replacement date.

(D) Estimated cost of replacement.

(7) Details for providing a certified operator in charge of the public water supply system and complying with applicable state and federal requirements concerning certified operators, including 327 IAC 8-12.

(b) The technical capacity information required by subsection (a) shall:

(1) be prepared by:

(A) a professional engineer, as described under IC 25-31, who is registered in Indiana;

(B) a licensed professional geologist, as described in 305 IAC 1-2-5, who is registered in Indiana; or

(C) a qualified person under the direct supervision of a professional engineer or licensed professional geologist registered in Indiana;

as applicable according to the information required; and

(2) demonstrate that the proposed public water supply system shall produce drinking water that meets public water supply requirements of this article.

*This document is incorporated by reference. Notwithstanding language to the contrary in the primarily incorporated documents, the versions of all secondarily incorporated documents, which are those documents referred to in the primarily incorporated documents, shall be the versions in effect on the date of final adoption of the primarily incorporated document. Copies of this publication may be obtained from the American Water Works Association, 6666 West Quincy Avenue, Denver, Colorado 80235 or from the Indiana Department of Environmental Management, Office of Water Quality, Indiana Government Center-

North, 100 North Senate Avenue, Room N1255, Indianapolis, Indiana 46204.

**This document is incorporated by reference. Notwithstanding language to the contrary in the primarily incorporated documents, the versions of all secondarily incorporated documents, which are those documents referred to in the primarily incorporated documents, shall be the versions in effect on the date of final adoption of the primarily incorporated document. Copies of this publication may be obtained from Health Education Services, P.O. Box 7126, Albany, New York 12224 or from 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 Division; 327 IAC 8-3.6-4; filed Aug 10, 1999, 8:54 a.m.: 22 IR 3679; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; errata filed Feb 6, 2006, 11:15 a.m.: 29 IR 1937; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3.6-5 Financial capacity of a new public water supply system

Authority: IC 13-13-5; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-21-3
Affected: IC 13-18-16

Sec. 5. (a) A new community public water supply system shall provide the following financial capacity information as part of the water system management plan:

(1) A five (5) year budget plan that includes the following:

(A) A pro forma income statement, balance sheet, statement of retained earnings, and statement of cash flows for each of the next five (5) years.

(B) An accounting of operating revenues for the following:

(i) Metered water revenues.
(ii) Unmetered water revenues.
(iii) Fire protection revenues.
(iv) Sales for resale.
(v) Other water revenues.

(C) An accounting of operating expenses for the following:

(i) Operation and maintenance, including the following:

(AA) Operating expenses by category.
(BB) The greater of depreciation or extensions and replacements.
(CC) Taxes other than income.
(DD) Operating income before income taxes.
(EE) Current federal income taxes.
(FF) Current state income taxes.
(GG) Deferred income taxes.
(HH) Income tax credits.
(II) Other charges and credits.
(JJ) Net operating income.
(KK) Debt service and debt service reserve, including an anticipated amortization schedule on any proposed borrowings.

(ii) Administration expenses, including the following:

(AA) Salaries.
(BB) Benefits.
(CC) Supplies.
(DD) Insurance.
(EE) Legal fees.
(FF) Engineering fees, studies, and plans.
(GG) Reporting requirements.
(HH) Accounting services.
(II) Costs to comply with other applicable state or local requirements.

(2) A twenty (20) year financial plan, in five (5) year increments, including the following:

(A) Projected growth and a description of the ability to meet expected growth.

(B) An infrastructure replacement plan, required by section 4(a)(6) of this rule, including funding of the plan.

(C) An account for funding necessary repairs to the proposed public water system to meet the drinking water standards and projected growth.

(b) A new nontransient noncommunity public water supply system shall submit a five (5) year budget plan that describes the public water supply system's source of revenue and ability to meet the costs associated with the public water supply system portion of the business, including the following:

(1) A summary of the revenues directed to the construction, operation, maintenance, and administration of the new nontransient noncommunity public water supply system.

(2) A detailed listing of the expenses associated with the construction, operation, maintenance, and administration of the new nontransient noncommunity public water supply system.

(c) The financial capacity information required by subsections (a) and (b) shall be prepared by a certified public accountant who is registered in Indiana. *(Water Pollution Control Division; 327 IAC 8-3.6-5; filed Aug 10, 1999, 8:54 a.m.: 22 IR 3681; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-3.6-6 Managerial capacity of a new public water supply system

Authority: IC 13-13-5; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-21-3
Affected: IC 13-18-16; IC 25-31

Sec. 6. A water system management plan shall provide the following managerial capacity information:

(1) A description of the organization, the purpose, the corporate status, and the nature of the entity, and its ownership that includes the following:

(A) Name of the owner of the public water supply system.

(B) Name of the following, where applicable:

(i) Chief executive officer.

(ii) Director.

(iii) Agency head.

(iv) Members of the board of directors.

(C) An organizational structure chart showing the following:

(i) The chain of command.

(ii) Other aspects of management related to operation.

(D) An assessment of the job responsibilities and estimated time commitment in hours for each management job position.

(2) A description of the ability to respond to an emergency situation that includes the following:

(A) Identification of:

(i) risks, whether they be:

(AA) known;

(BB) potential;

(CC) natural in origin; or

(DD) human caused;

(ii) staff members, by job position, that are responsible to act in response to risks; and

(iii) the risk response actions to be taken by staff.

(B) Notification procedures to be implemented during an emergency.

(C) A means to obtain an alternate water supply.

(D) The existence and limits of casualty insurance.

(3) An assessment of consolidation with or interconnection to another public water supply system, including the following:

(A) A narrative describing:

(i) the accessibility to another public water supply system;

(ii) efforts by a proposed public water supply system to notify other operating public water supply systems, within a ten (10) mile radius, that there is a proposal to develop a new public water supply system;
(iii) the response to notification required by item (ii); and
(iv) whether an agreement can be obtained for consolidation with or interconnection to an operating public water supply system within a ten (10) mile radius.

(B) A cost benefit analysis comparing:
(i) development of a new public water supply system;
(ii) consolidation with an existing public water supply system; and
(iii) interconnection with an existing public water supply system.

(C) The information required by this subdivision shall be prepared by a professional engineer, as described under IC 25-31, who is registered in Indiana, or by a qualified person under the direct supervision of a professional engineer registered in Indiana.

(4) An assessment of authority and responsibility, including the following:
(A) A narrative describing proposed policies, ordinances, rules, or regulations, that, at a minimum, define the following:
(i) Conditions required for providing water service for existing or new connections.
(ii) Responsibilities of the public water supply system to the consumer.
(iii) Responsibilities of the consumer to the public water supply system.

(B) A summary of existing local, state, or federal requirements pertaining to and explaining the effects upon the proposed public water supply system.

(5) A description of the following:
(A) The minimum required qualifications for the following staff:
(i) Owners.
(ii) Directors.
(iii) Managers.
(iv) Operators.
(v) Other responsible persons.

(B) A proposal for continuing training.

(Water Pollution Control Division; 327 IAC 8-3.6-6; filed Aug 10, 1999, 8:54 a.m.: 22 IR 3681; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-3.6-7 Certification of capacity

Authority: IC 13-13-5; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-21-3
Affected: IC 13-18-16

Sec. 7. (a) The commissioner shall do the following:

(1) Review a water system management plan that contains the following:
(A) The information required by this rule.
(B) A statement signed by the owner or person in responsible charge of the public water supply system attesting to having reviewed and to understanding the contents of the water system management plan.

(2) Deny the water system management plan and return it to the applicant if the plan fails to demonstrate the technical, financial, or managerial capacity of the proposed public water supply system.

(3) Issue a written determination that the public water supply system has met the technical, financial, and managerial capacity requirements of this rule.

(b) The commissioner may contact the applicant, by letter, to request omitted or supplemental information that is related to the water system management plan of the public water supply system. *(Water Pollution Control Division; 327 IAC 8-3.6-7; filed Aug 10, 1999, 8:54 a.m.: 22 IR 3682; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

Rule 4. Approval of Public Water Supply Plans

327 IAC 8-4-1 Public water system plans; approval by board

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-2; IC 13-18-1; IC 13-18-3; IC 13-18-4; IC 13-18-16-8
Affected: IC 13-11-2; IC 13-18

Sec. 1. (a) No:
(1) city;
(2) town;
(3) county;
(4) public institution;
(5) firm;
(6) corporation;
(7) officer or employee thereof; or
(8) other person;
shall install or contract for the construction of any public water system facilities, including water purification or treatment works, or make any material change in any such existing facilities or works, until plans and specifications, together with an engineer report supporting in detail the design set forth in the plans, shall have been submitted to and approved by the commissioner, so far as relates to their sanitary features except for at small transient or small nontransient noncommunity public water systems that are set forth in section 2 of this rule.

(b) After the plans and specifications have been approved by the commissioner, no material changes in the:
(1) location;
(2) plans;
(3) construction; or
(4) operation;
of the system or works may be made without first submitting to the commissioner a detailed statement of the proposed changes and receiving its approval.

(c) The:
(1) plans;
(2) specifications;
(3) reports; and
(4) other information;
shall be submitted in the form and contents as may from time to time be specified by the commissioner.

(d) Whenever information regarding:
(1) already existing water system facilities or water treatment works; or
(2) the operation and maintenance thereof;
may be required by the commissioner, the public officials or person, firm, or corporation having the works in charge shall promptly furnish such information.

(e) All such plans hereafter to be submitted to the commissioner for approval shall:
(1) have been prepared by or under the supervision of a professional engineer legally registered in the state of Indiana;
(2) be certified by the professional engineer; and
(3) bear the professional engineer's official seal;
except as allowed for small transient or small nontransient noncommunity public water systems under section 2 of this rule.

(f) Provided that nothing contained in this rule shall apply to water supplies installed or to be installed in connection with a private dwelling or residence. *(Water Pollution Control Division; 327 IAC 8-4-1; filed Sep 24, 1987, 3:00 p.m.: 11 IR 711; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2973; readopted filed Jul 18, 2012, 2:25 p.m.: 20120815-IR-327120261BFA)*

327 IAC 8-4-2 Construction requirements at noncommunity public water systems serving 250 or fewer individuals

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 2. (a) Construction at a noncommunity public water system serving two hundred fifty (250) or fewer individuals must be in accordance with section 1 of this rule and 327 IAC 8-3-2.1 except as allowed in subsections (b) and (c).

(b) Construction for the following items, if not installed to meet the requirements of 327 IAC 8-2, 327 IAC 8-2.5, or 327 IAC 8-2.6, are not required to obtain a permit:

(1) Ion exchange softeners.
(2) Ultraviolet treatment.
(3) Cartridge filters.
(4) Reverse osmosis.
(5) Other items similar in function or purpose to those listed in subdivisions (1) through (4), determined by the commissioner to not require a permit. The commissioner may make such a determination if the items are installed to alter characteristics or properties of water not regulated under 327 IAC 8-2, 327 IAC 8-2.5, or 327 IAC 8-2.6, including hardness or other aesthetic properties.

(c) A noncommunity water system serving two hundred fifty (250) or fewer individuals may proceed with construction of items listed in subsection (b) without meeting the requirements of section 1 of this rule, provided the following criteria are met:

(1) The installed construction or device must meet the requirements of 327 IAC 8-1.
(2) The noncommunity water system serving two hundred fifty (250) or fewer individuals must notify the commissioner within thirty (30) days of completion of construction of the installation. The notification must be in writing and must include the following:
    (A) The type of construction or device installed.
    (B) The date of installation.
    (C) Contact information for the contractor (if used).

Any construction must be designed and operated to meet the requirements of 327 IAC 8-6. *(Water Pollution Control Division; 327 IAC 8-4-2; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2974; readopted filed Jul 18, 2012, 2:25 p.m.: 20120815-IR-327120261BFA)*

Rule 4.1. Wellhead Protection

327 IAC 8-4.1-1 Definitions

Authority: IC 13-14-8; IC 13-18-3; IC 13-18-17-6
Affected: IC 13-11-2-43; IC 13-13-2; IC 13-18; IC 15-16-4; IC 15-16-5; IC 25-17.6-1; IC 25-39-4

Sec. 1. In addition to the definition in IC 13-11-2-43, the following definitions apply throughout this rule:

(1) "Aquifer" means an underground geological formation that has the ability to receive, store, and transmit water in amounts sufficient for the satisfaction of any beneficial use.
(2) "Best management practices" means schedules of activities, prohibitions of practice, treatment requirements, operation and maintenance procedures, use of containment facilities, and other management practices to prevent or reduce the pollution of waters of the state.
(3) "Calibration" means the process of refining the model representation of the hydrogeologic framework, hydraulic properties, and boundary conditions to achieve a desired degree of correspondence between the model simulation and observations of the ground water flow system.
(4) "Certified professional geologist" means a professional geologist certified by the state of Indiana under IC 25-17.6-1.
(5) "Community public water supply system" or "CPWSS" means a public water supply system that serves at least fifteen (15) service connections used by year-round residents or regularly serves at least twenty-five (25) year-round residents.
(6) "Conceptual model" means a description of the hydrogeologic system that represents the movement of ground water, for example:
    (A) geologic and hydrologic framework;

(B) media type;
(C) physical processes;
(D) hydraulic properties; and
(E) water budget.

(7) "Confined aquifer" means an aquifer in which ground water is confined under pressure that is significantly greater than atmospheric pressure.
(8) "Critical water users" means water users whose immediate health or welfare would be affected in an adverse manner if water use is denied.
(9) "Customers" means number of persons served by the public water supply system.
(10) "Delineation" means a process used to define boundaries of the wellhead protection area.
(11) "Department" means the department of environmental management created under IC 13-13-2.
(12) "Emergency condition" means a condition related to ground water contamination which threatens to disrupt water supply service from a community public water supply system wellfield.
(13) "Hydrogeology" means the study of the geology of ground water, with particular emphasis on the chemistry and movement of water.
(14) "Hydrostratigraphic unit" means a grouping of geologic units of similar hydrogeologic properties, for example, aquifers and confining units.
(15) "Large community public water supply system" means a public water supply system serving greater than fifty thousand (50,000) customers.
(16) "Medium community public water supply system" means a public water supply system serving from three thousand three hundred one (3,301) up to and including fifty thousand (50,000) customers.
(17) "Model" means an investigative technique using a mathematical or physical representation of a system or theory that accounts for all or some of its known properties.
(18) "Pesticide review board" means the Indiana pesticide review board created by IC 15-3-3.5 *[IC 15-3 was repealed by P.L.2-2008, SECTION 83, effective July 1, 2008. See IC 15-16-4.]* to collect, analyze, and interpret information on matters relating to the use of pesticides.
(19) "Potential source of contamination" means a facility, site, practice, or activity that possesses the ability to contaminate ground water.
(20) "Public water supply system" or "PWSS" means a public water supply for the provision to the public of water for human consumption through pipes or other constructed conveyances, if such system has at least fifteen (15) service connections or regularly serves of at least twenty-five (25) individuals daily at least sixty (60) days out of the year. The term includes any collection, treatment, storage, and distribution facilities under control of the operator of such system and used primarily in connection with such system and any collection or pretreatment storage facilities not under such control that are used primarily in connection with such system.
(21) "Qualified ground water scientist" means an individual who possesses a bachelor's degree or higher in the physical sciences, for example, geology or engineering, with a sufficient level of experience to make sound professional judgments regarding site characterization and hydrogeology. This level of experience may be demonstrated by certification or registration as a professional geologist or engineer, either of whom shall have education or professional experience in hydrogeology or ground water hydrology.
(22) "Sanitary setback" means an area established around a CPWSS production well to protect ground water from direct contamination.
(23) "Small community public water supply system" means a public water supply system serving up to and including three thousand three hundred (3,300) customers.
(24) "State chemist" means the office of the Indiana state chemist authorized by IC 15-3-3.5 *[IC 15-3 was repealed by P.L.2-2008, SECTION 83, effective July 1, 2008. See IC 15-16-4.]* and IC 15-3-3.6 *[IC 15-3 was repealed by P.L.2-2008, SECTION 83, effective July 1, 2008. See IC 15-16-5.]* to administer the use, application, storage, mixing, loading, transportation, and disposal of pesticides in Indiana under those chapters.
(25) "Time of travel" or "TOT" means the calculated length of time a particle of water takes to reach a CPWSS production well from a certain point.

(26) "Time of travel (TOT) threshold" means a threshold determined by the community or CPWSS to suit the hydrogeologic conditions and needs of the community; however, a minimum five (5) year TOT for modeled wellhead protection areas and three thousand (3,000) feet for fixed radius wellhead protection area is allowed.

(27) "Wellhead protection area" or "WHPA" means the surface and subsurface area, delineated by fixed radius, hydrogeological mapping, analytical, semianalytical, or numerical flow/solute transport methods, which contributes water to a CPWSS production well or wellfield and through which contaminants are likely to move through and reach the well within a specified period.

(28) "Wellhead protection program" or "WHPP" means a program to sustain drinking water quality in ground waters that supply public water supply wells and wellfields. The program is mandated by the 1986 amendments to the federal Safe Drinking Water Act, Title II, Section 205, Subsection 1428.

(29) "Well log" means a drilling record that describes the subsurface formations that have been drilled through and gives details of well completion as required by IC 25-39-4 and 310 IAC 16-2-6 *[310 IAC 16 was repealed filed Nov 22, 1999, 3:34 p.m.: 23 IR 776. See 312 IAC 13.]*.

(Water Pollution Control Division; 327 IAC 8-4.1-1; filed Feb 28, 1997, 4:18 p.m.: 20 IR 1723; filed Mar 6, 2000, 7:56 a.m.: 23 IR 1627; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-4.1-2 Applicability of rule

Authority: IC 13-14-8; IC 13-18-3; IC 13-18-17-6
Affected: IC 13-11; IC 13-13; IC 13-18

Sec. 2. The WHPP is required for each well or wellfield providing ground water to a CPWSS. *(Water Pollution Control Division; 327 IAC 8-4.1-2; filed Feb 28, 1997, 4:18 p.m.: 20 IR 1724; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-4.1-3 Enforcement

Authority: IC 13-14-8; IC 13-18-3; IC 13-18-17-6
Affected: IC 13-11; IC 13-14-2; IC 13-30-3; IC 13-30-4

Sec. 3. This rule may be enforced through administrative or judicial proceedings under IC 13-30-3 and the penalty provisions of IC 13-14-2, IC 13-30-4, and IC 13-30-6 *[IC 13-30-6 was repealed by P.L.137-2007, SECTION 37, effective July 1, 2007.]*. *(Water Pollution Control Division; 327 IAC 8-4.1-3; filed Feb 28, 1997, 4:18 p.m.: 20 IR 1724; errata filed Jun 25, 1997, 3:55 p.m.: 20 IR 3016; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-4.1-4 Local planning teams

Authority: IC 13-14-8; IC 13-18-3; IC 13-18-17-6
Affected: IC 13-11; IC 13-13; IC 13-18

Sec. 4. (a) The CPWSS shall coordinate and form or participate in a local planning team (LPT) to guide the development and implementation of the CPWSS's WHPP.

(b) The local planning team must have representation of parties that may be affected by the development and implementation of the WHPP.

(c) The CPWSS must public notice the formation of a local planning team in the newspaper of largest general circulation within the area where the LPT is being formed. *(Water Pollution Control Division; 327 IAC 8-4.1-4; filed Feb 28, 1997, 4:18 p.m.: 20 IR 1724; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-4.1-5 Criteria for selecting the delineation method for determining the wellhead protection area

Authority: IC 13-14-8; IC 13-18-3; IC 13-18-17-6
Affected: IC 13-11; IC 13-13; IC 13-18; IC 14-25-7

Sec. 5. (a) During Phase I of the WHPP, the CPWSS must delineate the WHPA using one (1) of the five (5) accepted methods of delineation.

(b) Any CPWSS may use the following methods:

(1) The analytical method.

(2) The numerical flow/solute transport model methods.

(3) The semianalytical method.

(c) A CPWSS may use the hydrogeologic mapping method as set out in the "Guidelines for Delineation of Wellhead Protection Areas"* as the sole method of delineation with prior approval from the department.

(d) A CPWSS may use the fixed radius method after receiving prior approval from the department. Approval to use the fixed radius method is based on either of the following criteria:

(1) A CPWSS does not qualify as a significant water withdrawal facility (in accordance with IC 14-25-7).

(2) A CPWSS qualifies as a significant water withdrawal facility, in accordance with IC 14-25-7, and the average daily withdrawal is less than one hundred thousand (100,000) gallons per day demonstrated by:

(A) submittal of annual total pumping data for the previous five (5) years of operation to the department; and

(B) statistical determination by the department of an upper confidence interval of one hundred thousand (100,000) gallons per day or less by the following formula:

$$\overline{x} = t_{(0.95,\ n-1)}(S/n^{1/2})$$

$\overline{x}$ = Mean of pumping data

S = Standard deviation of pumping data

$t_{(0.95,n-1)}$ = t statistic at 95%, n degrees of freedom

n = Number of observations

(e) Upon selecting and carrying out a delineation method, a CPWSS must submit justifying data in accordance with section 8 of this rule.

(f) All delineation methods available to CPWSSs for defining the WHPA are outlined within "Guidelines for Delineation of Wellhead Protection Areas"*.

(g) Site characterization and WHPA delineation, using either the modeling methods, described in subsection (b), or hydrogeological mapping methods described in subsection (c), must be performed by a qualified ground water scientist.

*"Guidelines for Delineation of Wellhead Protection Areas", United States Environmental Protection Agency, Office of Ground Water Protection, Washington, D.C. 20460, June 1987, EPA Publication No. 440/5-93-001. Copies of "Guidelines for Delineation of Wellhead Protection Areas" are available at the Indiana Department of Environmental Management, Office of Water Quality, Drinking Water Branch, Ground Water Section, 100 North Senate Avenue, Room N1255, Indianapolis, Indiana 46204. *(Water Pollution Control Division; 327 IAC 8-4.1-5; filed Feb 28, 1997, 4:18 p.m.: 20 IR 1724; errata filed Jun 25, 1997, 3:55 p.m.: 20 IR 3016; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; errata filed Feb 6, 2006, 11:15 a.m.: 29 IR 1937; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-4.1-6 Map requirements

Authority: IC 13-14-8; IC 13-18-3; IC 13-18-17-6
Affected: IC 13-11; IC 13-13; IC 13-18

Sec. 6. (a) All maps required by this rule, except topographic maps, must be drawn to a scale between 1" = 400′ and 1" = 1,000′.

(b) All topographic maps required by this rule must be United States Geological Survey (USGS) seven and one-half (7.5) minute series. *(Water Pollution Control Division; 327 IAC 8-4.1-6; filed Feb 28, 1997, 4:18 p.m.: 20 IR 1725; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-4.1-7 Delineation

Authority: IC 13-14-8; IC 13-18-3; IC 13-18-17-6
Affected: IC 13-11; IC 13-13; IC 13-18; IC 14-25-7

Sec. 7. (a) If a CPWSS delineates the WHPA using a model, a report with a narrative description of the regional hydrogeologic setting, the conceptual model, and modeling efforts must be submitted. The report must include the following:

(1) Analysis of hydrogeologic setting and the conceptual model including the following:

(A) Map of the area of interest.

(B) Review of published hydrogeologic and geologic interpretations over the area of interest.

(C) Geologic cross sections showing the following:

(i) Hydrostratigraphic units.

(ii) Water levels.

(iii) Relationship of surface water bodies to the hydrostratigraphic units.

(iv) Pumping wells with screened intervals.

(D) Well logs and records used in cross section development. If the number of well logs used in cross section development is greater than fifty (50), the maximum number of well logs submitted to represent the cross section(s) may be negotiated with the department.

(E) A map that illustrates over the area of interest the following:

(i) Location of CPWSS wells.

(ii) Location of high capacity wells registered as significant water withdrawal facilities as defined in IC 14-25-7.

(iii) Surface water features.

(iv) Thickness and extent of hydrostratigraphic units.

(v) Regional water levels.

(vi) Bedrock topography.

(F) Summary of raw data used in the development of the conceptual model.

(G) Discussion of hydrogeologic parameters.

(H) Discussion of the ground water flow system, including the following:

(i) Distribution of recharge.

(ii) Current CPWSS pumping rates and planned changes in pumping rates.

(iii) Pumping rates of neighboring high capacity wells.

(2) Presentation and discussion of the modeling effort must include the following:

(A) The rationale for delineation method selection.

(B) A tabulated summary of the model input parameters showing the range over which the parameters were varied.

(C) An example input file.

(D) A map showing the following:

(i) The domain of the modeled area within the area of interest.

(ii) Location of any boundary conditions used.

(iii) Calibration target locations if used.

(iv) Modeled potentiometric surfaces.

(v) Resultant WHPA boundaries.

(E) Discussion of the following:

(i) Assumptions used in the modeling effort.

(ii) Changes made to initial conditions.

(iii) Calibration analysis if used.

(iv) Water budget of the model if available.

(v) Effects of uncertainty in input parameters and boundary conditions on modeled WHPA boundaries.

(b) A CPWSS that, after approval from the department, delineates the WHPA using the fixed radius method must submit the following data to the department:

(1) A map depicting the following:

(A) The wellhead protection area boundary.

(B) The CPWSS pumping well locations.

(C) The location of wells in the area registered as significant water withdrawal facilities as defined in IC 14-25-7.

(2) A topographic map of the area.

(3) Well logs for the CPWSS pumping well.

(c) A CPWSS that delineates the WHPA using the hydrogeologic mapping method must submit data as set out in the "Guidelines for Delineation of Wellhead Protection Areas"* and agreed to by the department and the CPWSS.

*"Guidelines for Delineation of Wellhead Protection Areas", United States Environmental Protection Agency, Office of Ground Water Protection, Washington, D.C. 20460, June 1987, EPA Publication No. 440/5-93-001. Copies of "Guidelines for Delineation of Wellhead Protection Areas" are available at the Indiana Department of Environmental Management, Office of Water Quality, Drinking Water Branch, Ground Water Section, 100 North Senate Avenue, Room N1255, Indianapolis, Indiana 46204.

(Water Pollution Control Division; 327 IAC 8-4.1-7; filed Feb 28, 1997, 4:18 p.m.: 20 IR 1725; errata filed Jun 25, 1997, 3:55 p.m.: 20 IR 3016; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; errata filed Feb 6, 2006, 11:15 a.m.: 29 IR 1938; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-4.1-8 Phase I submittal requirements

Authority: IC 13-14-8; IC 13-18-3; IC 13-18-17-6

Affected: IC 9-21-2; IC 9-21-3; IC 13-11; IC 13-13; IC 13-18; IC 15-16-4; IC 15-16-5; IC 25-31; IC 25-39-4-6

Sec. 8. To have Phase I of a WHPP approved by the department, a CPWSS must submit the following material as prescribed in section 16 of this rule:

(1) The names and affiliations of the members of the local planning team, as well as any subcommittees designated by the local planning team.

(2) A complete WHPA delineation as described in section 7 of this rule. Items submitted in compliance with section 7(a)(1)(C), 7(a)(1)(E)(iv), 7(a)(1)(E)(vi), and 7(c) of this rule must be performed by or under the supervision of a certified professional geologist and bear his/her seal. Items submitted in compliance with section 7(a)(1)(C), 7(a)(1)(E)(iv), 7(a)(1)(E)(vi), and 7(c) of this rule are exempt from certification by a certified professional geologist when performed by:

(A) an officer or employee of the United States government, state government, or local government while engaged in providing geological services for the officer's or employee's employers;

(B) a person engaged solely in geological research or instruction of geology; or

(C) a professional engineer registered under IC 25-31 who applies geology to the practice of engineering.

(3) An inventory of potential sources of contamination containing a complete list of existing facilities, sites, practices, and activities for both regulated and unregulated potential sources of contamination. The inventory of potential sources of contamination must be submitted in the following forms:

(A) A narrative description of land use within the WHPA.

(B) A land use map with potential sources of contamination plotted, showing their locations relative to the WHPA boundaries.

(C) A table containing information describing the potential sources of contamination, including the following:

(i) Facility identification number (cross-referenced to clause (B)).

(ii) Facility name and location.

(iii) Site description.

(iv) Any environmental permits issued for the site, including number and agency issuing the permit.

(v) Types of contaminants at site.

(vi) Operating status of site.

(4) A management plan that must include the following:

(A) A plan to manage the sanitary setback area that includes the following:

(i) Measures for the management of the area, consistent with the requirements of 327 IAC 8-3.

(ii) Measures to prohibit the storage and mixing of chemicals, other than:

(AA) those used for drinking water treatment; or

(BB) pesticides that are regulated by the pesticide review board through IC 15-3-3.5 *[IC 15-3 was repealed by P.L.2-2008, SECTION 83, effective July 1, 2008. See IC 15-16-4.]* and IC 15-3-3.6 *[IC 15-3 was repealed by P.L.2-2008, SECTION 83, effective July 1, 2008. See IC 15-16-5.]*.

(iii) Provisions to secure the wellhead to prevent unauthorized access.

(iv) Guidelines that employ best management practices for transportation routes within the sanitary setback area.

(B) A plan to manage the WHPA that addresses the following:

(i) Management or monitoring measures for all potential sources of contamination as identified in subdivision (3) to effectively protect the ground water and drinking water supply. The management or monitoring measures must consider the locations and type of potential sources of contamination and hydrogeologic characteristics of the WHPA.

(ii) Compliance of CPWSS production wells with state construction standards and permit requirements under 327 IAC 8-3 and 310 IAC 16 *[310 IAC 16 was repealed filed Nov 22, 1999, 3:34 p.m.: 23 IR 776. See 312 IAC 13.]*.

(iii) Monitoring for contaminants associated with identified potential sources of contamination according to the department's standardized monitoring framework under 327 IAC 8-2.

(iv) Methods or procedures for maintaining and updating records concerning changes to potential sources of contamination within the WHPA.

(v) Identification of abandoned wells not in compliance with IC 25-39-4-6 and 310 IAC 16-10 *[310 IAC 16 was repealed filed Nov 22, 1999, 3:34 p.m.: 23 IR 776. See 312 IAC 13.]*.

(vi) Use, application, storage, mixing, loading, transportation, and disposal of pesticides in accordance with IC 15-3-3.5 *[IC 15-3 was repealed by P.L.2-2008, SECTION 83, effective July 1, 2008. See IC 15-16-4.]*, IC 15-3-3.6 *[IC 15-3 was repealed by P.L.2-2008, SECTION 83, effective July 1, 2008. See IC 15-16-5.]*, and the rules and guidance thereunder, developed by the pesticide review board and the state chemist.

(vii) Notification of property owners, mineral owners and leaseholders of record that they are located within a WHPA.

(viii) Provide owners and operators of identified potential sources of contamination access to a copy of the local WHPP.

(ix) The establishment of a public outreach program to educate the public and owners or operators of identified potential sources of contamination about the consequences of ground water contamination, and the methods available for preventing ground water contamination.

(x) The posting of wellhead protection signs along major thoroughfares at the perimeter of the WHPA.

(xi) Other management measures required to comply with this section.

(5) A contingency plan to provide safe drinking water in emergency conditions must include the following:

(A) Description of plan to train local responders.

(B) Description of emergency response to leaks, spills, or illegal discharges.

(C) A list of information to be provided to local responders, including the following:

(i) Location of WHPA boundaries.

(ii) CPWSS operators to contact during an emergency.

(iii) A twenty-four (24) hour telephone number for the following:

(AA) IDEM, office of emergency response.

(BB) State, local, and city/county police.

(CC) State, local, and city/county fire/hazmat team.

(DD) City or county disaster services agency.

(EE) Water supply owner, superintendent, and operator.

(FF) City or county hospital.

(D) Identification and description of potential alternate sources of water.

(E) Identification of procedures and description of methods to notify critical water users of an emergency.

(F) The posting of procedures to follow in an emergency and information on the location and availability of the complete contingency plan.

(Water Pollution Control Division; 327 IAC 8-4.1-8; filed Feb 28, 1997, 4:18 p.m.: 20 IR 1726; errata filed Jun 25, 1997, 3:55 p.m.: 20 IR 3016; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-4.1-9 Phase II submittal requirements

Authority: IC 13-14-8; IC 13-18-3; IC 13-18-17-6
Affected: IC 13-11; IC 13-13; IC 13-18

Sec. 9. To have Phase II of a WHPP approved by the department, a CPWSS must submit the following material within the time frame prescribed in section 16 of this rule:

(1) Phase II delineation must include the following:

(A) An updated Phase I submittal reflecting changes, if any.

(B) A discussion describing how the updated WHPA compares with the previously delineated WHPA.

(2) Phase II potential sources of contamination inventory must include an update to the source inventory provided in the Phase I submittal.

(3) Phase II management plan must include the results of the implementation of Phase I management plan.

(4) Phase II contingency plan must include documentation of training given to local responders.

(Water Pollution Control Division; 327 IAC 8-4.1-9; filed Feb 28, 1997, 4:18 p.m.: 20 IR 1727; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-4.1-10 Department review of Phase I and Phase II submittal requirements

Authority: IC 13-14-8; IC 13-18-3; IC 13-18-17-6
Affected: IC 13-11; IC 13-13; IC 13-18

Sec. 10. (a) The department shall review Phase I and Phase II submittals based on the following criteria:

(1) WHPA delineation, including the following:

(A) The completeness and accuracy of the data used to determine the hydrogeologic conceptualization as required in section 7 of this rule.

(B) The information provided in the submittal demonstrates that the chosen delineation method properly accounts for site specific hydrogeology.

(2) Potential sources of contamination inventory, including the following:

(A) The completeness of the specific data supplied regarding each facility, site, practice, and activity, including the following:

(i) The inventory, identification, and location of all potential sources of contamination according to the data requirements of section 8(3) of this rule.

(ii) Identification of all potential sources of contamination in the WHPA on a map that includes the boundaries of the time of travel.

(iii) Characterization of the potential sources of contamination as specified in section 8(3)(C) of this rule is sufficient to develop a management plan as prescribed by section 8(4)(A) and 8(4)(B) of this rule.

(B) The department shall evaluate Phase II based on the completeness of the update to adequately characterize the status of all potential sources of contamination identified and inventoried under Phase I, and any new potential sources of contamination that have located within the WHPA.

(C) The department shall evaluate the updates made to the potential sources of contamination inventory every five (5) years, as required by section 9(2) of this rule, for completeness with respect to the status of all potential sources of contamination identified in the Phase I and Phase II submittals.

(3) Management plan including the following:

(A) The Phase I management plan will be considered effective when all management plans and submittal requirements of section 8(4)(A) and 8(4)(B) of this rule and subdivision (1) have been met. The management plan must consider the following:

(i) Site-specific hydrogeology.
(ii) Land use.
(iii) Conditions of potential sources of contamination.

(B) The department will approve Phase II, results of implementation of Phase I, upon finding that the management plan has been implemented as proposed under section 8(4)(B) of this rule.

(b) Under Phase I, the department may require the use of a different delineation method. Under both Phase I and Phase II, the department may require submittal of additional data to support information provided as part of the WHPP.

(c) For a CPWSS using the fixed radius method to delineate a WHPA, the department may require the use of a different delineation method if the CPWSS fails to maintain the qualification for use of the fixed radius method as outlined in section 5(d) of this rule. *(Water Pollution Control Division; 327 IAC 8-4.1-10; filed Feb 28, 1997, 4:18 p.m.: 20 IR 1727; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-4.1-11 Tracking of potential sources of contamination inventory and management plan

Authority: IC 13-14-8; IC 13-18-3; IC 13-18-17-6
Affected: IC 13-11; IC 13-13; IC 13-18

Sec. 11. (a) The department shall track Phase I accomplishments by mailing two (2) surveys to each CPWSS as follows:

(1) The first survey shall be mailed two (2) years, and the second shall be mailed one (1) year, prior to the deadline for Phase I submittal for a large CPWSS.

(2) The first survey shall be mailed two and one-half (2½) years, and the second survey shall be mailed one (1) year, prior to the deadline for Phase I submittal, for a medium CPWSS.

(3) The first survey shall be mailed three (3) years, and the second survey shall be mailed one (1) year, prior to the deadline for Phase I submittal, for a small CPWSS.

(b) The department shall track Phase II progress by sending an additional survey, that includes an update of the potential sources of contamination inventory, to each CPWSS two (2) years before the Phase II requirements must be submitted to the department as follows:

(1) The survey shall be mailed three (3) years after the department's approval of the Phase I submittal for a large CPWSS.

(2) The survey shall be mailed five (5) years after the department's approval of the Phase I submittal for a medium CPWSS.

(3) The survey shall be mailed eight (8) years after the department's approval of the Phase I submittal for a small CPWSS.

(c) Continued tracking of management plans will begin five (5) years after the department's approval of the Phase II submittal and will continue in five (5) year cycles as long as the CPWSS is in operation.

(d) Any CPWSS that has not applied for approval of the WHPP within the designated period set forth in section 16 of this rule will be considered in noncompliance.

(e) All surveys must be completed and submitted to the department within forty-five (45) days of receipt. *(Water Pollution Control Division; 327 IAC 8-4.1-11; filed Feb 28, 1997, 4:18 p.m.: 20 IR 1728; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-4.1-12 Submittal requirements for proposed new wells

Authority: IC 13-14-8; IC 13-18-3; IC 13-18-17-6
Affected: IC 13-11; IC 13-13; IC 13-18

Sec. 12. (a) For a proposed well site in a department approved Phase I or Phase II WHPP, with the proposed well included in the WHPA delineation, the CPWSS shall apply for a construction permit, as provided for in 327 IAC 8-3, and shall describe the proposed well site in relation to the approved WHPA.

(b) For a proposed well site in a department approved Phase I or Phase II WHPP, with the proposed well not included in the WHPA delineation, the CPWSS shall apply for a construction permit as provided for in 327 IAC 8-3, and shall submit new well site submittal requirements as described in section 13 of this rule.

(c) For a proposed well site in a wellfield not in a department approved Phase I or Phase II WHPP, the CPWSS must apply for a construction permit as provided for in 327 IAC 8-3, and shall submit new well site submittal requirements as described in

section 13 of this rule. *(Water Pollution Control Division; 327 IAC 8-4.1-12; filed Feb 28, 1997, 4:18 p.m.: 20 IR 1728; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-4.1-13 New well site submittal requirements

Authority: IC 13-14-8; IC 13-18-3; IC 13-18-17-6
Affected: IC 13-11; IC 13-13; IC 13-18

Sec. 13. (a) All CPWSSs subject to this rule must receive approval for a new well site and shall submit the following:

(1) A United States Geological Survey seven and one-half (7.5) minute series topographic map illustrating the area surrounding the well and proposed well site.

(2) A detailed map, drawn to a scale between 1" = 400′ and 1" = 1,000′, showing the following:

(A) Proposed well site with ownership or easement boundaries.

(B) The location of the proposed well.

(C) The sanitary setback area.

(3) A WHPA delineated using the following:

(A) Fixed radius method, with a radius of three thousand (3,000) feet, regardless of the pumping capacity of the system.

(B) An analytical, semianalytical, or numerical model, executed by a qualified ground water scientist, using input parameters calculated from:

(i) regional data from published reports; or

(ii) site-specific data.

(C) Any approved method described in section 5 of this rule.

(4) A potential sources of contamination inventory performed by methods outlined in section 8(3) of this rule.

(5) A summary of geologic and ground water quality information for the aquifer system utilized by a proposed well, where available.

(6) A schedule for the development of a Phase I WHPP.

(b) Approval of a CPWSS proposed well site is dependent on the ability of each CPWSS to provide safe drinking water, as determined by the department under 327 IAC 8-2.

(c) To maintain well site approval status, the CPWSS must meet the following requirements:

(1) Allow no new potential sources of contamination to locate within the sanitary setback area.

(2) The CPWSS is operated in such a manner that it will not violate any sanitary or health regulations or requirements.

(3) Maintenance of additional requirements specified by the CPWSS construction permit.

(Water Pollution Control Division; 327 IAC 8-4.1-13; filed Feb 28, 1997, 4:18 p.m.: 20 IR 1729; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-4.1-14 Well site denial criteria

Authority: IC 13-14-8; IC 13-18-3; IC 13-18-17-6
Affected: IC 13-11; IC 13-13; IC 13-18

Sec. 14. The department may deny a well site if:

(1) a source of chemical or pathogenic contamination is found within the sanitary setback area that is so severe that it cannot be consistently treated or managed to a level considered safe by standards under 327 IAC 8-2; or

(2) a chemical or pathogenic contaminant reported in the ground water quality information submitted under section 13(b)(6) of this rule is so severe that it cannot be consistently treated or managed to a level considered safe by standards under 327 IAC 8-2.

(Water Pollution Control Division; 327 IAC 8-4.1-14; filed Feb 28, 1997, 4:18 p.m.: 20 IR 1729; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-4.1-15 Alternative approaches to WHPP

Authority: IC 13-14-8; IC 13-18-3; IC 13-18-17-6
Affected: IC 13-11; IC 13-13; IC 13-18

Sec. 15. (a) The department may approve alternate approaches to section 8(4)(A) of this rule upon a showing that water from a well or wellfield providing ground water to a CPWSS exceeds the standard for conventional ground water treatment as set forth in 327 IAC 8-2.

(b) In reviewing the alternative management plan under this section, the department shall consider whether the proposed alternative management plan will result in the consistent provision of finished water in compliance with 327 IAC 8-2. *(Water Pollution Control Division; 327 IAC 8-4.1-15; filed Feb 28, 1997, 4:18 p.m.: 20 IR 1729; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-4.1-16 Community public water supply systems submittal deadlines; department approval deadlines

Authority: IC 13-14-8; IC 13-18-3; IC 13-18-17-6
Affected: IC 13-11; IC 13-13; IC 13-18

Sec. 16. (a) Each CPWSS must submit all materials required by this rule as follows: (See Table 1 in subsection (c).)

(1) Phase I submittals are as follows:

(A) All materials must be submitted within three (3) years for large CPWSS.

(B) All materials must be submitted within four (4) years for medium CPWSS.

(C) All materials must be submitted within five (5) years for small CPWSS.

(2) Phase II submittals are as follows:

(A) All materials must be submitted within five (5) years after department approval of Phase I material for large CPWSS.

(B) All materials must be submitted within seven (7) years after department approval of Phase I material for medium CPWSS.

(C) All materials must be submitted within ten (10) years after department approval of Phase I material for small CPWSS.

(b) The department will approve or disapprove the materials submitted within one hundred eighty (180) days after submission.

(c) The wellhead protection overview shall be as follows:

Table 1 - Wellhead Protection Overview

	PHASE I		PHASE II	
Public Water Supply System Size (population served)	Submittal Time (years)	Submittal Requirements	Submittal Time from Phase I Approval (years)	Submittal and Update Requirements

Large >50,001	3	1. Names, roles, and affiliation of the local planning team members. 2. WHPA delineation, including: A. Summary of geologic and hydrologic condition of the WHPA. B. Model input data. C. Justification of model choice. 3. Potential sources of contamination inventory. 4. Management strategy with schedule for implementation. 5. Contingency plan. 6. Description of public participation. 7. Description of public education program.	5	1. Comprehensive WHPP. 2. Updated schedule of implementation. 3. Updated WHPA, considering new data if any. 4. Updated potential sources of contamination inventory. 5. Report of any problems or concerns regarding WHPP. 6. Contingency plan revisions (if needed). 7. Documentation to confirm: A. Sanitary Setback Area meets requirements. B. Abandoned wells are identified. C. Wellhead is secured from unauthorized access. D. All potential sources of contamination within the WHPA are managed. E. Signs are posted at WHPA perimeter. F. Public education is ongoing. G. Any new ground water contamination within the WHPA is reported.
Medium 3,301 to 50,000	4		7	
Small ≤3,300	5		10	

(Water Pollution Control Division; 327 IAC 8-4.1-16; filed Feb 28, 1997, 4:18 p.m.: 20 IR 1729; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

Rule 5. Construction of Public Water Supply Systems Under Order of the DEM

327 IAC 8-5-1 Construction of public water supply system; hearing

Authority: IC 13-7-7-5; IC 13-7-14-5
Affected: IC 13-7-7-5; IC 13-7-14-5

Sec. 1. (a) Whenever investigation by the commissioner shall show that the lack of proper or adequate public water supply system, in an incorporated city or town, results in insanitary conditions, or conditions causative of disease, and that the construction of a public water supply system, will abate, and is a practical method to abate such conditions, said incorporated city or town shall, upon receipt of an official order from the commissioner, immediately proceed to construct, cause to be constructed, or allow to be constructed, a public water supply system, including a source of supply, distribution lines and other necessary appurtenances, sufficient to abate the insanitary conditions causative of disease and to protect the public health.

(b) Provided, that such official order shall not be issued by the commissioner until after an opportunity for a hearing has been given to the proper officials of such incorporated city or town, at which hearing the facts as shown by the investigation made by the commissioner shall be presented to said officials. *(Water Pollution Control Division; 327 IAC 8-5-1; filed Sep 24, 1987, 3:00 pm: 11 IR 711; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

Rule 6. Improvements of Public Water Supply Systems or Treatment Works Under Order of the DEM

327 IAC 8-6-1 Improvements required in public water system or treatment works

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 1. (a) Whenever investigation by the commissioner shall show:

(1) any public water system, water treatment works, or any part thereof to be inadequate or to be improperly located, constructed, or operated and by reason thereof to be causative of disease; or

(2) that the water obtained therefrom fails to meet the drinking water standards of 327 IAC 8-2;

the person, firm, corporation or municipality owning or operating, or both, the public water system or water treatment works, upon receipt of an official order from the commission, shall proceed within such time as is therein provided to carry out the changes, extensions, or improvements or to institute the changes in the methods of operation of the public water system or water treatment works as may be necessary to abate the conditions.

(b) Any order of the commissioner shall:

(1) be a written order; and

(2) establish a time within which the steps contemplated in the order shall be carried out.

(c) The official order shall not be issued by the commissioner until an opportunity for a hearing has been given to the person, firm, corporation, or municipality owning or operating, or both, the public water system or water treatment works, at which hearing the facts as shown by the investigation made by the commissioner shall be presented to the person, firm, corporation, or municipality. Notice of the hearing shall be given not less than ten (10) days before the date set for the hearing. *(Water Pollution Control Division; 327 IAC 8-6-1; filed Sep 24, 1987, 3:00 p.m.: 11 IR 712; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; filed Apr 24, 2006, 3:00 p.m.: 29 IR 2974; readopted filed Jul 18, 2012, 2:25 p.m.: 20120815-IR-327120261BFA)*

Rule 7. Water Supply and Distribution Systems; School Buildings and Related Facilities (Repealed)

(Repealed by Water Pollution Control Division; filed Jun 17, 1999, 1:50 p.m.: 22 IR 3379)

Rule 8. Water Supply and Distribution Systems; Mobile Home Parks (Repealed)

(Repealed by Water Pollution Control Division; filed Jun 17, 1999, 1:50 p.m.: 22 IR 3379)

Rule 9. Water Supply and Distribution Systems; Agricultural Camps (Repealed)

(Repealed by Water Pollution Control Division; filed Jun 17, 1999, 1:50 p.m.: 22 IR 3379)

Rule 10. Cross Connections; Control; Operation

327 IAC 8-10-1 Definitions

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

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

(1) "Air gap" means an unobstructed vertical distance through atmosphere between the:

(A) discharge end of a pipeline supplied from a public water supply; and

(B) overflow rim of the receiving portion of the customer water system.

(2) "Atmospheric vacuum breaker backsiphonage prevention assembly" means an assembly containing:

(A) an air inlet valve;

(B) a check valve seat; and

(C) an air inlet port.

(3) "Backflow" means the flow of water or contaminants into the public water supply distribution system from a source other than the public water supply.

(4) "Booster pump" means a pump installed on a pipeline to increase water pressure or flow.

(5) "Commissioner" means the commissioner of the Indiana department of environmental management, or the commissioner's authorized representative.

(6) "Cross connection" means any physical arrangement, including cross connection control devices not in working order, whereby a public water supply distribution system is directly connected, either continuously or intermittently, with any secondary source of supply, sewer, drain, conduit, pool, piping, storage reservoir, plumbing fixture, or other device that contains, or may contain, and is capable of imparting to the public water supply, contaminants, contaminated water, sewage,

or other waste or liquid of unknown or unsafe quality.

(7) "Cross connection control device" means any device or assembly, approved by the commissioner for construction on or installation in water supply piping, that is capable of preventing contaminants from entering the public water supply distribution system.

(8) "Cross connection control device inspector" means a person who has:

(A) successfully completed training in testing and inspection of cross connection control devices from a training provider approved by the commissioner;

(B) received a registration number from the commissioner; and

(C) not been notified by the commissioner that the registration number has been revoked in accordance with section 11(b) of this rule.

(9) "Cross connection hazard" means any customer facility that, because of the nature and extent of activities on the premises or the materials used in connection with the activities or stored on the premises, would present an immediate or potential danger or health hazard to customers of the public water supply should backflow occur.

(10) "Customer" means any person who receives water from a public water supply.

(11) "Customer service line" means the pipeline from the public water supply to the:

(A) first tap, fixture, receptacle, or other point of customer water use; or

(B) secondary source of supply or pipeline branch in a building.

(12) "Customer water system" means all piping, fixtures, and appurtenances, including secondary sources of supply, used by a customer to convey water on his or her premises.

(13) "Double check valve assembly" means a device or assembly composed of two (2) tightly closing shutoff valves surrounding two (2) independently acting check valves, with four (4) test cocks, one (1) upstream of the four (4) valves and one (1) between each of the four (4) check and shutoff valves.

(14) "Downstream" means the direction of flow when only the public water supply is supplying water through the customer water system and backflow is not occurring.

(15) "Pressure vacuum breaker" means a device or assembly containing an independently operating internally loaded check valve and an independently operating loaded air inlet valve located on the downstream side of the check valve for relieving a vacuum or partial vacuum in a pipeline.

(16) "Public water system" means a public water supply for the provision to the public of water for human consumption through pipes or other constructed conveyances, if 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 collection, treatment, storage, and distribution facilities under control of the operator of the system, and used primarily in connection with such the system and any collection or pretreatment storage facilities not under the control that are used primarily in connection with the system.

(17) "Reduced pressure principle backflow preventer" means a device composed of two (2) tightly closing shutoff valves surrounding two (2) independently acting pressure reducing check valves that, in turn, surround an automatic pressure differential relief valve, and four (4) test cocks, one (1) upstream of the five (5) valves and one (1) between each of the four (4) check and shutoff valves. The check valves effectively divide the structure into three (3) chambers. Pressure is reduced in each downstream chamber allowing the pressure differential relief valve to vent the center chamber to atmosphere should either or both check valves malfunction.

(18) "Registration number" means a unique number assigned to a person by the commissioner demonstrating that the person:

(A) has fulfilled the education and examination requirements as described in section 11 of this rule; and

(B) is recognized by the state as a cross connection control device inspector.

(19) "Secondary source of supply" means any well, spring, cistern, lake, stream, or other water source, intake structure, pumps, piping, treatment units, tanks, and appurtenances used, either continuously or intermittently, to supply water other than from the public water supply to the customer, including tanks used to store water to be used only for firefighting, even though the water contained therein is supplied from the public water supply.

(20) "Spill resistant vacuum breaker" means an assembly containing an independently operating, internally loaded check valve, and an independently operating, loaded air inlet valve, located on the discharge side of the check valve. The assembly is to be equipped with a properly located, resilient seated test cock, a properly located bleed or vent valve, and tightly closing,

resilient seated shutoff valves, attached at each end of the assembly.

(21) "Supplier of water" means any person who owns or operates a public water supply.

(22) "Training provider" means an organization that conducts or presents a cross connection control device inspector course approved by the commissioner in conformance with section 12 of this rule.

(23) "Upstream" means the direction of flow opposite to downstream.

(Water Pollution Control Division; 327 IAC 8-10-1; filed Sep 24, 1987, 3:00 p.m.: 11 IR 714; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2515; errata filed Aug 30, 1999, 12:06 p.m.: 23 IR 25; filed Mar 6, 2000, 7:56 a.m.: 23 IR 1629; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA; filed Nov 13, 2012, 11:39 a.m.: 20121212-IR-327100414FRA)

327 IAC 8-10-2 Cross connection prohibited; bypass

Authority: IC 13-7-7-5; IC 13-7-14-5
Affected: IC 13-7-7-5; IC 13-7-14-5

Sec. 2. No customer shall cause or allow the construction or maintenance of a cross connection. Piping installed to bypass a cross connection control device constitutes a cross connection unless the bypass piping is also fitted with a similar cross connection control device. *(Water Pollution Control Division; 327 IAC 8-10-2; filed Sep 24, 1987, 3:00 pm: 11 IR 715; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-10-3 Booster pump connection

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 3. No customer shall cause or allow the installation or maintenance of a booster pump in a public water system unless a device is installed to control operation of the booster pump when pressure to pump suction drops as follows:

(1) Wherever a fire suppression system has a booster pump installed only for fire suppression, it shall have an audible or visual alarm to provide warning when flow occurs and a control valve shall be installed on the booster pump discharge to automatically throttle the flow as necessary to maintain a minimum of ten (10) pounds per square inch, gauge, pump suction pressure.

(2) For all booster pumps other than those described in subdivision (1), a control device shall be installed to either prevent operation of the booster pump, or else to automatically throttle flow to or from the booster pump as necessary to maintain a minimum of twenty (20) pounds per square inch, gauge, pump suction pressure. The supplier of water may require that the control device be calibrated to maintain a higher than twenty (20) pounds per square inch, gauge, pump suction pressure, where necessary to provide a minimum pressure of twenty (20) pounds per square inch, gauge, throughout the pressure zone of the public water system distribution system to which the customer is connected.

(Water Pollution Control Division; 327 IAC 8-10-3; filed Sep 24, 1987, 3:00 p.m.: 11 IR 715; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2516; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)

327 IAC 8-10-4 Cross connection hazards; notice; exemptions

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 4. (a) Wherever a cross connection hazard as specified by subsection (c) is designated:

(1) an air gap shall be constructed or a reduced pressure principle backflow preventer shall be installed, in accordance with section 7 of this rule, on the customer service line for:

(A) any new facility;

(B) any modified customer service line; or

(C) any existing facility where a higher capacity meter is installed; and

(2) neither an air gap nor a reduced pressure principle backflow preventer shall be required to be incorporated into customer service lines that both are utilized solely for fire suppression and are fitted with an audible alarm that will activate when water is detected to be flowing in the customer service line.

(b) Customers who have a cross connection that has resulted in a contaminant being introduced into a public water system or a customer water system:

(1) shall immediately construct an air gap or install a reduced pressure principle backflow preventer on the customer service line in accordance with section 7 of this rule; or

(2) is exempt from the requirements of subdivision (1) because the affected customer service line is both utilized solely for fire suppression and is fitted with an audible alarm that will activate when water is detected to be flowing in the line.

(c) The following customer facilities are designated cross connection hazards:

(1) Aircraft and missile manufacturing plants.

(2) Automotive plants, including those plants that manufacture motorcycles, automobiles, trucks, recreational vehicles, and construction and agricultural equipment.

(3) Beverage bottling plants, including dairies and breweries.

(4) Canneries, packing houses, and reduction plants.

(5) Car washes.

(6) Chemical, biological, and radiological laboratories, including those in high schools, trade schools, colleges, universities, and research institutions.

(7) Hospitals, clinics, medical buildings, autopsy facilities, morgues, other medical facilities, and mortuaries.

(8) Metal and plastic manufacturing, fabricating, cleaning, plating, and processing facilities.

(9) Plants manufacturing paper and paper products.

(10) Plants manufacturing, refining, compounding, or processing fertilizer, film, herbicides, natural or synthetic rubber, pesticides, petroleum or petroleum products, pharmaceuticals, radiological materials, or any chemical that could be a contaminant to the public water supply.

(11) Commercial facilities that use herbicides, pesticides, fertilizers, or any chemical that could be a contaminant to the public water supply.

(12) Plants processing, blending, or refining animal, vegetable, or mineral oils.

(13) Commercial laundries and dye works, excluding coin-operated laundromats.

(14) Sewage, storm water, and industrial waste treatment plants and pumping stations.

(15) Waterfront facilities, including piers, docks, marinas, and shipyards.

(16) Industrial facilities that recycle water.

(17) Restricted or classified facilities (federal government defense or military installations), or other facilities closed to the supplier of water or to the commissioner.

(d) Customer facilities not designated as a cross connection hazard by subsection (c) may be designated a cross connection hazard by written notification from the commissioner to the customer and to the customer's public water system. The notice shall specify the nature of the customer activity that necessitates designation of the customer's facility as a cross connection hazard, and the date by which the customer shall install a cross connection control device in accordance with section 7 of this rule, on the customer service line to the facility so designated.

(e) The commissioner may issue a letter exempting a customer from the requirements of subsection (a) if the customer can show to the satisfaction of the commissioner that the activities taking place at the customer's facility, and the materials used in connection with these activities or stored on the premises, cannot endanger the health of customers of the public water system should backflow occur. An exemption shall remain valid for no more than three (3) years from the date of issuance. If the commissioner finds that the customer facility has become a cross connection hazard, the commissioner will void the exemption and so notify the customer. *(Water Pollution Control Division; 327 IAC 8-10-4; filed Sep 24, 1987, 3:00 p.m.: 11 IR 716; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2516; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-10-5 Secondary sources of supply; installation of air gaps or other devices

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 5. (a) Customers shall construct an air gap or install a reduced pressure principle backflow preventer or a double check valve assembly in accordance with section 7 of this rule on the customer service line to:

(1) tanks used only to store water from the public water supply for fire suppression that are constructed to maintain the bacteriological quality of the water, in compliance with 327 IAC 8-2; or

(2) secondary sources of supply that:

(A) use well water as the only private source of supply;

(B) are constructed to maintain the bacteriological quality of the water, in compliance with 327 IAC 8-2; and

(C) produce, without treatment, water meeting the drinking water quality standards enumerated in 327 IAC 8-2.

(b) Customers shall construct an air gap, or install a double check valve assembly or reduced pressure principle backflow preventer in accordance with section 7 of this rule for a fire sprinkler system, to prevent stagnant water from backflowing into the drinking water supply. For a fire sprinkler system with a chemical additive, customers shall install a reduced pressure principle backflow preventer to prevent the chemical additive backflowing into the drinking water supply.

(c) No secondary source of supply of a type other than those enumerated in subsections (a) and (b) shall be physically connected on the customer service line to or into the facility. *(Water Pollution Control Division; 327 IAC 8-10-5; filed Sep 24, 1987, 3:00 p.m.: 11 IR 716; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2517; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA; filed Nov 13, 2012, 11:39 a.m.: 20121212-IR-327100414FRA)*

327 IAC 8-10-6 Land irrigation facility buried below ground; installation of air gaps or other devices

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 6. Customers shall construct an air gap, or install a reduced pressure principle backflow preventer or pressure type vacuum breaker in accordance with section 7 of this rule, on the water line connecting the public water supply to any land irrigation facility buried below ground that has a sprinkler outlet located less than six (6) inches above grade and is constructed after July 19, 1985. *(Water Pollution Control Division; 327 IAC 8-10-6; filed Sep 24, 1987, 3:00 p.m.: 11 IR 717; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2518; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-10-7 Construction and installation requirements for air gaps or other devices

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2; IC 22-13-2

Sec. 7. (a) The discharge pipe of an air gap shall terminate a minimum of:

(1) two (2) pipe diameters of the discharge pipe or six (6) inches, whichever is less, above the maximum recorded flood level or above the flood level rim of the receiving vessel, whichever is higher; or

(2) three (3) pipe diameters of the discharge pipe or six (6) inches, whichever is less, above the maximum recorded flood level or above the flood level rim of the receiving vessel, whichever is higher, where:

(A) a side wall, rib, or similar obstruction is spaced closer than three (3) diameters from the piping affecting the air gap; or

(B) two (2) intersecting walls are located closer than four (4) pipe diameters from the piping affecting the air gap.

(b) Only those models of double check valve assemblies, reduced pressure principle backflow preventers, and pressure vacuum breakers that have been listed by the "List of Approved Backflow Prevention Assemblies", by the Foundation for Cross Connection Control and Hydraulic Research of the University of Southern California, February 7, 2012, or those acceptable under the Indiana plumbing code under the fire prevention and building safety commission rules at 675 IAC 16-1.2 *[675 IAC 16-1.2 was*

repealed filed Jun 30, 1999, 2:53 p.m.: 22 IR 3414] and 675 IAC 16-1.3, shall be installed.

(c) Reduced pressure principle backflow preventers shall be installed horizontally or vertically as listed by the Foundation for Cross Connection Control and Hydraulic Research of the University of Southern California, February 7, 2012, with:

(1) no plug or additional piping affixed to the pressure differential relief valve port; and

(2) the pressure differential relief valve port a minimum of twelve (12) inches above floor level.

Additionally, the device must be installed at a location where any leakage from the pressure differential relief valve port will be noticed, and that allows access to the valve for maintenance and testing from floor level, without use of a ladder or other similar temporary apparatus. The device must not be installed below ground grade level and must not be subject to flooding, excessive heat, or freezing.

(d) All double check valve assemblies shall be installed at a location that allows access to the device for maintenance and testing from floor level, without use of a ladder or other similar temporary apparatus, and that will not subject the device to flooding, excessive heat, or freezing.

(e) Pressure vacuum breakers and spill resistant vacuum breakers shall be installed as near as possible to the irrigation facility, at a location that allows access to the device for maintenance and testing from floor or ground level, without use of a ladder or other similar temporary apparatus, and that will not subject the device to flooding, excessive heat, or freezing. Additionally, the device must be installed between two (2) tightly closing shutoff valves, with its center line or datum point a minimum of twelve (12) inches above:

(1) floor level;

(2) the highest downstream piping or shutoff valve; and

(3) the highest downstream overflow rim or discharge point.

(f) Atmospheric vacuum breaker backsiphonage prevention assemblies must be installed at a location that allows access to the device for maintenance and testing from floor or ground level, without use of a ladder or other similar apparatus, and that will not subject the device to flooding, excessive heat, or freezing. Additionally, the device must be installed as follows:

(1) A minimum of six (6) inches clearance above the overflow rim or downstream piping.

(2) Absolutely no means of shutoff on the discharge side of vacuum breaker.

(3) Must not be under continuous pressure for more than twelve (12) hours in any twenty-four (24) hour period.

(Water Pollution Control Division; 327 IAC 8-10-7; filed Sep 24, 1987, 3:00 p.m.: 11 IR 717; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2518; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA; filed Nov 13, 2012, 11:39 a.m.: 20121212-IR-327100414FRA)

327 IAC 8-10-8 Inspection of devices; time limits

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 8. (a) The customer shall install and maintain in working order at all times any cross connection control device or booster pump control device required by this rule.

(b) To ensure that each cross connection control device required by this rule is in working order, the customer shall have each device inspected or tested by a cross connection control device inspector at the time of construction or installation, and at the following intervals, in the following manner:

(1) Air gaps shall be inspected at intervals not exceeding one (1) year to ensure that they continue to meet the requirements of section 7 of this rule.

(2) Reduced pressure principle backflow preventers shall be tested at intervals not exceeding one (1) year to ensure that:

(A) both check valves are drip-tight under all pressure differentials; and

(B) the pressure differential relief valve will maintain pressure in the center chamber at least two (2) pounds per square inch below that of the inlet chamber.

(3) Double check valve assemblies shall be tested at intervals not exceeding one (1) year to ensure that both check valves are drip-tight under all pressure differentials.

(4) Pressure vacuum breakers and spill resistant vacuum breakers shall be tested at intervals not exceeding one (1) year to ensure that the air inlet opens fully when water pressure is at or below atmospheric pressure.

(5) Atmospheric vacuum breaker backsiphonage prevention assemblies must be inspected at intervals not exceeding one (1) year to ensure proper operation of the air inlet valve. Removal of canopy may be necessary to determine free movement of air inlet valve.

(c) The customer shall permit access to the customer's premises by the inspector, the customer's public water system, or the commissioner, at reasonable times, and upon presentation of identification, for inspection of the customer water system or testing of cross connection control devices installed in accordance with this rule.

(d) Those customers granted an exemption in accordance with section 4(e) of this rule shall report to the commissioner and to the supplier of water any proposed change in process, plumbing, or materials used or stored at the exempted facility at least fourteen (14) days prior to making the change. Failure to do so shall void the exemption. *(Water Pollution Control Division; 327 IAC 8-10-8; filed Sep 24, 1987, 3:00 p.m.: 11 IR 717; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2518; errata filed Aug 30, 1999, 12:06 p.m.: 23 IR 25; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA; filed Nov 13, 2012, 11:39 a.m.: 20121212-IR-327100414FRA)*

327 IAC 8-10-9 Inspectors; reports of inspection or test

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-16-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 9. (a) All cross connection control device inspectors shall do the following:

(1) Be registered with the commissioner in accordance with section 11 of this rule.

(2) Submit reports of all inspections as required by subsection (b).

(3) Annually test and calibrate testing equipment for accuracy.

(4) Install an inspection tag upon completion of testing, calibration, or repair, of any cross connection control device. The inspection tag must have at least the following information:

(A) The name of the inspector.

(B) The date of the inspection.

(C) The registration number, model number, serial number, and size of the cross connection control device.

The inspection tag must be waterproof and protected against tampering.

(b) The inspector shall report to the public water system, the customer and, if requested, the commissioner, on a form provided by the commissioner, the results of inspections or tests conducted under section 8(b) of this rule on the following:

(1) Air gaps.

(2) Reduced pressure principle backflow preventers.

(3) Double check valve assemblies.

(4) Pressure vacuum breakers.

Reports shall be submitted to the public water system and to the customer within thirty (30) days of the inspection or test. *(Water Pollution Control Division; 327 IAC 8-10-9; filed Sep 24, 1987, 3:00 p.m.: 11 IR 718; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2519; errata filed Aug 30, 1999, 12:06 p.m.: 23 IR 25; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA; filed Nov 13, 2012, 11:39 a.m.: 20121212-IR-327100414FRA)*

327 IAC 8-10-10 Noncompliance; retention of reports; access

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 10. (a) Because cross connections may cause disease through transmission of contaminants via the public water system, the commissioner shall order the public water system to remove the customer service meter or otherwise sever the public water system connection to any customer which the commissioner finds or has reason to believe is in violation of any provision of this rule.

(b) The supplier of water shall retain the three (3) most recent reports of tests conducted on air gaps, reduced pressure principle backflow preventers, double check valve assemblies, and pressure vacuum breakers installed in accordance with this rule. The supplier of water shall permit access to these files at reasonable times and upon presentation of identification by the

commissioner.

(c) If so requested, the public water system shall submit to the commissioner copies of any report required to be retained by subsection (b). *(Water Pollution Control Division; 327 IAC 8-10-10; filed Sep 24, 1987, 3:00 p.m.: 11 IR 718; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2519; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA)*

327 IAC 8-10-11 Registration of inspectors; list of registered inspectors; list of approved devices

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 4-21.5; IC 13-11-2; IC 13-13-5-1; IC 13-18-2; IC 13-18-11-8

Sec. 11. (a) Upon reviewing and finding the information certified by the training provider acceptable, the commissioner shall issue a registration number to each person whose training provider has certified that the applicant has met the following requirements of education and examination:

(1) The information supplied by the applicant must be reviewed and acceptable to the training provider.

(2) Each applicant must attend forty (40) hours of education and successfully complete a written and oral examination for cross connection device inspectors administered by a training provider.

(b) The commissioner may revoke the registration of any cross connection control inspector, following a hearing under IC 4-21.5, when it is found that the inspector has violated any of the provisions set out in this rule or IC 13-18-11-8.

(c) The commissioner shall maintain a list entitled "Indiana Registered Cross Connection Control Device Inspectors, All Inspectors", which is comprised of cross connection control device inspectors registered in Indiana.

(d) The commissioner shall maintain a list entitled "Indiana Registered Cross Connection Control Device Inspectors, Active Inspectors", which is comprised of cross connection control device inspectors:

(1) that are registered in Indiana in accordance with subsection (a); and

(2) who have requested their inclusion on this list in writing to the commissioner during the previous two (2) years.

(e) The commissioner shall maintain a list entitled "List of Approved Backflow Prevention Assemblies, February 7, 2012, by the Foundation for Cross Connection Control and Hydraulic Research, University of Southern California", which is comprised of a listing of cross connection control devices from the Foundation for Cross Connection Control and Hydraulic Research of the University of Southern California.

(f) The commissioner shall make the following lists as described in this section available to the public upon request:

(1) Indiana Registered Cross Connection Control Device Inspectors, All Inspectors.

(2) Indiana Registered Cross Connection Control Device Inspectors, Active Inspectors.

(3) List of Approved Backflow Prevention Assemblies, February 7, 2012, Foundation for Cross Connection Control and Hydraulic Research, University of Southern California.

(Water Pollution Control Division; 327 IAC 8-10-11; filed Sep 24, 1987, 3:00 p.m.: 11 IR 718; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2519; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA; filed Nov 13, 2012, 11:39 a.m.: 20121212-IR-327100414FRA)

327 IAC 8-10-12 Approval of an organization as a training provider of cross connection control device inspectors; record keeping

Authority: IC 13-13-5-1; IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18
Affected: IC 4-21.5; IC 13-11-2; IC 13-18-11-8

Sec. 12. (a) The commissioner shall approve an organization as a training provider of cross connection control device inspectors if the training provider's proposed course meets the following requirements:

(1) The proposed course instruction and examination have a total duration of at least forty (40) hours.

(2) The proposed course deals with matters directly related to the cross connection control devices that include, but are not limited to, the following:

(A) Cross connection identification, degree of hazard, prevention, control devices, and practices.

(B) Backflow prevention assembly field test procedures and gage accuracy verification, Section 9 from the "Manual

of Cross Connection Control", Tenth Edition, published October 2009, by the Foundation for Cross Connection Control and Hydraulic Research, University of Southern California.

(C) Cross connection control device inspection, repair, and maintenance.

(D) Content, intent, and related policy of this rule.

(E) Responsibilities of the customer, public water system, and cross connection control device inspector.

(3) Each instructor of the proposed course must be recognized by Indiana as a cross connection control device inspector and qualified by academic work or practical experience directly related to cross connection control device inspection to teach the assigned subject.

(4) Includes both a written and oral examinations proctored by different instructors and meets the following requirements:

(A) A written examination that tests the student's comprehension of the material discussed in subdivision (2).

(B) An oral examination that tests the student's ability and competency to perform inspections, test procedures specified under subdivision (2)(B), and troubleshooting on cross connection control devices.

(5) The organization submits a written request to the commissioner for approval as a training provider of cross connection control device inspectors. The request shall contain the following:

(A) The:

(i) name, address, and telephone number of the organization;

(ii) name of the course;

(iii) specific topics on which there are to be presentations;

(iv) time devoted to each topic; and

(v) dates and locations where the course will be offered.

(B) All instructors':

(i) names;

(ii) registration numbers;

(iii) educational backgrounds;

(iv) professional experiences; and

(v) current professional affiliations.

(C) Information to demonstrate fulfillment of the requirements of subdivision (2) to the satisfaction of the commissioner.

(D) A written class outline.

(b) The commissioner's approval of an organization as a training provider of cross connection control device inspectors shall be valid for a duration of five (5) years.

(c) All training providers must maintain records on the following:

(1) The dates of all courses.

(2) The names of all individuals attending the course.

(3) The duration of the course.

(4) All instructors' names.

(5) The program content.

These records shall be maintained for five (5) years.

(d) Training providers must submit to the commissioner a record of individuals attending courses within thirty (30) days of the conclusion of the course. These records shall be maintained for a five (5) year period. The records shall contain the following:

(1) The name of the course.

(2) The name, address, and current phone number of the individual attending the course.

(3) The date of the course.

(4) Performance on the written and oral examinations required by subsection (a)(4).

(e) The commissioner may revoke the approval of a training provider, following a hearing under IC 4-21.5, when it is found that the training provider has violated any of the provisions set out in the approval of the training provider's cross connection control device inspectors course, in this rule, or IC 13-18-11-8. *(Water Pollution Control Division; 327 IAC 8-10-12; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2520; errata filed Aug 30, 1999, 12:06 p.m.: 23 IR 25; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA; filed Nov 13, 2012, 11:39 a.m.: 20121212-IR-*

327100414FRA)

327 IAC 8-10-13 Incorporation by reference

Authority: IC 13-14-8; IC 13-14-9; IC 13-15-1-2; IC 13-15-2-1; IC 13-18-3-1; IC 13-18-4-1
Affected: IC 13-11-2; IC 13-13-5-1; IC 13-18-2

Sec. 13. (a) The following materials, including titles and names and addresses of where they may be located for inspection and copying, are incorporated by reference into this rule:

(1) "List of Approved Backflow Prevention Assemblies, February 7, 2012, by the Foundation for Cross Connection Control and Hydraulic Research, University of Southern California", Foundation for Cross Connection Control and Hydraulic Research, University of Southern California, Kaprielian Hall 200, Los Angeles, California 90089-2531 or from the Indiana Department of Environmental Management, Office of Water Quality, Indiana Government Center North, 100 North Senate Avenue, Room N1255, Indianapolis, Indiana 46204.

(2) Backflow Prevention Assembly Field Test Procedures and Gage Accuracy Verification, Section 9 from the "Manual of Cross Connection Control", Tenth Edition, 1993, published October 2009, by the Foundation for Cross Connection Control and Hydraulic Research, University of Southern California, Kaprielian Hall 200, Los Angeles, California 90089-2531 or from the Indiana Department of Environmental Management, Office of Water Quality, Indiana Government Center North, 100 North Senate Avenue, Room N1255, Indianapolis, Indiana 46204.

(b) The technical standards presented in subsection (a) are continuously revised on a twenty-four (24) month cycle. The commissioner shall commence rulemaking efforts to update the documents incorporated by reference in this section. *(Water Pollution Control Division; 327 IAC 8-10-13; filed Mar 31, 1999, 1:50 p.m.: 22 IR 2521; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; errata filed Feb 6, 2006, 11:15 a.m.: 29 IR 1938; readopted filed Nov 21, 2007, 1:16 p.m.: 20071219-IR-327070553BFA; filed Nov 13, 2012, 11:39 a.m.: 20121212-IR-327100414FRA)*

Rule 11. Water Purification and Treatment Works; Operation; Requirements

327 IAC 8-11-1 Water purification or treatment works; operation; reports

Authority: IC 13-14-8; IC 13-18-11-1.5; IC 13-18-11-13
Affected: IC 13-11-2; IC 13-18-11

Sec. 1. (a) All purification or treatment works producing water to be used or available for drinking purposes by the public shall be properly and efficiently operated under the supervision of a competent operator or superintendent.

(b) The commissioner may require the qualified operator or superintendent in responsible charge to attend training whenever, in the opinion of the commissioner, the training is deemed necessary for the protection of the public health.

(c) Monthly reports of operation of the following system classifications must be submitted by the operator to the commissioner:

(1) WT2.
(2) WT3.
(3) WT4.
(4) WT5.
(5) Community public water systems purchasing water from WT4 or WT5 systems.
(6) Other systems determined by the commissioner to require monthly reporting.

(d) Reports of operation required under subsection (c) must be submitted on forms to be provided or approved by the commissioner and must include the following data, if applicable:

(1) Daily quantities of the following:
  (A) Water treated.
  (B) Water distributed.
  (C) Chemicals added to the water.

(2) Daily operation of treatment processes, including backwashing of filters by amount of filter run time and total gallons

of backwash.
(3) Results of the following:
(A) All chemical, physical, and other tests performed for plant control.
(B) Disinfectant residual in the distribution system where disinfection is provided.
(4) Totals and averages of the above measurements where spaces are provided on the report form.
(5) Other data found to be necessary by the commissioner.
(e) The commissioner may reduce or modify the reporting requirements for any of the items in subsection (d).
(f) All monthly reports of operation must be:
(1) submitted to the commissioner:
(A) within the first ten (10) days following the month for which the report is prepared; and
(B) using the methods specified in 327 IAC 8-2-13(e); and
(2) retained by the water systems for five (5) years.
(Water Pollution Control Division; 327 IAC 8-11-1; filed Sep 24, 1987, 3:00 p.m.: 11 IR 718; readopted filed Jan 10, 2001, 3:23 p.m.: 24 IR 1518; filed Oct 24, 2006, 3:03 p.m.: 20061122-IR-327050255FRA; readopted filed Jul 18, 2012, 2:25 p.m.: 20120815-IR-327120261BFA)

Rule 12. Classification of Community Public Water System and Nontransient Noncommunity Public Water System Treatment Plants and Distribution Systems; Examination and Certification of Operators

327 IAC 8-12-0.3 Purpose

Authority: IC 13-14-8; IC 13-18-11-1.5; IC 13-18-11-13
Affected: IC 13-18-11

Sec. 0.3. (a) The purpose of this rule is to establish the following:
(1) A classification system for community public water system and nontransient noncommunity public water system treatment plants and distribution systems.
(2) The criteria by which a person may become a water treatment plant and water distribution system certified operator.
(b) The intended result of this rule is to ensure that the water treatment plant and water distribution system operators of:
(1) community public water systems;
(2) nontransient noncommunity public water systems;
(3) transient noncommunity public water systems using surface water or ground water under the direct influence of surface water; and
(4) transient noncommunity public water systems that employ complex treatment;
are trained, certified, and have knowledge of the public health reasons for drinking water standards thereby providing consumers with a safe drinking water supply. *(Water Pollution Control Division; 327 IAC 8-12-0.3; filed Nov 20, 2000, 4:11 p.m.: 24 IR 972)*

327 IAC 8-12-0.5 Applicability

Authority: IC 13-14-8; IC 13-18-11-1.5; IC 13-18-11-13
Affected: IC 13-18-11

Sec. 0.5. This rule applies to:
(1) a certified operator who works at;
(2) a person endeavoring to become a certified operator at; and
(3) the owner of;
a community public water system, nontransient noncommunity public water system, transient noncommunity public water system using surface water or ground water under the direct influence of surface water, or a transient noncommunity public water system that requires complex treatment. *(Water Pollution Control Division; 327 IAC 8-12-0.5; filed Nov 20, 2000, 4:11 p.m.: 24 IR 973)*

327 IAC 8-12-1 Definitions

Authority: IC 13-14-8; IC 13-18-11-1.5; IC 13-18-11-13
Affected: IC 13-11-2; IC 13-18-11

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

(1) "Acceptable experience" means employment in the actual hands-on operation of a water treatment plant or water distribution system. Experience in:

(A) water treatment plant maintenance; or

(B) water treatment plant laboratory;

that directly relates to plant operation will be given a maximum of fifty percent (50%) credit for operational experience for those employed solely in that respective area. Acceptable experience shall be obtained under the oversight of a certified operator, as a certified operator, or by otherwise demonstrating to the commissioner that the applicant's experience meets the requirements described by this subdivision.

(2) "Adequate supervision" means that sufficient time is spent at a water treatment plant or water distribution system on a regular basis to assure that the facility is operated and maintained in a manner that protects public health.

(3) "Applicant" means a person seeking certification as a water treatment plant or water distribution system certified operator, whether or not the person is currently employed as an operator.

(4) "Application" means a written request for certification under this rule addressed to the commissioner.

(5) "Automated monitoring" means a continuous monitoring system that will cause an alarm, dialer, or pager to notify a certified operator in cases where a water treatment plant or water distribution system may fail during periods of normal operation.

(6) "Available" means that, based on water treatment plant or water distribution system size, complexity, and source water quality, a certified operator must be on site or able to be contacted if needed to initiate appropriate action in a timely manner.

(7) "Certificate" means an appropriate document issued by the commissioner containing the following information:

(A) Affirmation that the named person has fulfilled the requirements, including receiving a passing examination grade, necessary for the operation of the water treatment plant or water distribution system for which application was made.

(B) The water treatment plant or water distribution system classification that may be operated under the issued certificate.

(C) The date of issuance.

(D) An identification number unique to each certificate document.

(8) "Certification card" means a card issued by the commissioner to a person who has fulfilled the requirements to be a water treatment plant or water distribution system certified operator and containing the following information:

(A) The name and certificate number of the person.

(B) The classification of the water treatment plant or water distribution system that the named person may operate.

(C) An expiration date.

(9) "Certified operator" means a person who has:

(A) met the requirements of this rule;

(B) a valid certificate in a classification identified in section 2 of this rule for water treatment plant or water distribution system operation; and

(C) the ability to make decisions regarding the daily operational activities of a public water system water treatment plant or water distribution system that will directly impact the quality or quantity of the drinking water.

(10) "Certified operator in responsible charge" means a person designated by the owner or governing body of a water treatment plant or water distribution system to be the certified operator who:

(A) has complete responsibility for the proper operation of a water treatment plant or water distribution system; and

(B) makes decisions regarding the daily operational activities of a public water system treatment plant or distribution system that will directly impact the quality or quantity of drinking water from community public water supply systems and nontransient noncommunity public water supply systems.

(11) "Commissioner" means the commissioner of the department of environmental management.
(12) "Contact hour" means a fifty (50) to sixty (60) minute instructional session involving an instructor or lecturer approved by the commissioner. Ten (10) contact hours equals one (1) continuing education unit (CEU) as defined by the National Task Force on the Continuing Education Unit.
(13) "Daily visit" means the time that:
(A) a certified operator in responsible charge; or
(B) another properly certified operator under the direction of the operator in responsible charge;
is present on site at the facility of responsibility during a twenty-four (24) hour period.
(14) "Operating shift" means that period of time when operator decisions that affect public health are necessary for the proper operation of the system.
(15) "Plant operation" means the time of:
(A) actual production; or
(B) pumping to produce drinking water supply.
(16) "Population served" means the currently accepted population equivalent.
(17) "Training provider" means a person who conducts or presents a course training session approved under section 7.1 of this rule.

(Water Pollution Control Division; 327 IAC 8-12-1; filed Sep 24, 1987, 3:00 p.m.: 11 IR 719; filed Sep 19, 1990, 3:00 p.m.: 14 IR 259; filed Dec 12, 1994, 4:39 p.m.: 18 IR 1230; filed Nov 20, 2000, 4:11 p.m.: 24 IR 973; filed Oct 24, 2006, 3:03 p.m.: 20061122-IR-327050255FRA)

327 IAC 8-12-1.1 Responsibilities

Authority: IC 13-14-8; IC 13-18-11-1.5; IC 13-18-11-13
Affected: IC 13-18-11

Sec. 1.1. The owner or governing body of a water treatment plant or water distribution system shall be responsible to accomplish the following:
(1) Place each water treatment facility and water distribution system under the direct supervision of a certified operator in responsible charge who:
(A) has a valid certification of a grade eligible for operation at the classification of water treatment facility or water distribution system of responsibility; and
(B) is available to make process control or system integrity decisions about water quality or quantity that affect public health.
(2) Designate one (1) certified operator to have complete responsibility for the proper operation of the water treatment plant or water distribution system.
(3) Assure that a minimum of one (1) operator certified according to this rule must be available for each operating shift.
(4) Notify the commissioner of the name of the person designated according to subdivision (1) to be the certified operator in responsible charge.
(5) Submit written notice to the commissioner no later than thirty (30) days after the occurrence of one (1) of the following:
(A) A change in the person serving as the certified operator in responsible charge.
(B) A change in conditions or circumstances that were used as the basis for the original classification of the water treatment plant or water distribution system.

(Water Pollution Control Division; 327 IAC 8-12-1.1; filed Sep 19, 1990, 3:00 p.m.: 14 IR 259; filed Nov 20, 2000, 4:11 p.m.: 24 IR 974)

327 IAC 8-12-2 Classification of water distribution systems and water treatment plants

Authority: IC 13-14-8; IC 13-18-11-1.5; IC 13-18-11-13
Affected: IC 13-18-11

Sec. 2. (a) A water distribution system shall be classified in one (1) of three (3) classifications as follows:

(1) Class DSS (distribution system small) includes systems that:

(A) serve a population of less than three thousand three hundred one (3,301); and

(B) have no components other than:

(i) pressure tanks; or

(ii) storage tanks.

Nontransient noncommunity public water systems serving a population less than five hundred one (501) utilizing no treatment other than ion exchange or inline filtration are DSS systems.

(2) Class DSM (distribution system medium) includes systems that meet one (1) of the following:

(A) Serve a population greater than three thousand three hundred (3,300) but less than ten thousand one (10,001) people and have no mechanical means of movement of water other than one (1) of the following:

(i) Pressure tanks.

(ii) Storage tanks.

(iii) Booster pumps to storage tanks.

(B) Serve a population of less than three thousand three hundred one (3,301) and consist of at least one (1) of the following:

(i) Pumps, not including well pumps, before the entry point to the distribution system.

(ii) Booster pumps to storage tanks.

(3) Class DSL (distribution system large) includes systems that meet one (1) of the following:

(A) Serve a population greater than ten thousand (10,000) people.

(B) Serve a population of less than ten thousand one (10,001) and consist of at least one (1) of the following:

(i) Booster pumps in the distribution system other than booster pumps to storage tanks.

(ii) Mechanical devices for movement of water beyond storage.

(b) A water treatment plant shall be classified in one (1) of six (6) classifications, based on population served and type of treatment, as follows:

(1) Class WT 1 includes systems that meet the following:

(A) Serve a population less than five hundred one (501) people.

(B) Are a community water system.

(C) Acquire water from one (1) or both of the following:

(i) Ground water.

(ii) Purchase.

(D) Have one (1) or both of the following:

(i) Ion exchange softening process for cation removal.

(ii) Inline filtration device with no chemical treatment.

(2) Class WT 2 includes, with no population limitations, systems that meet the requirements of clause (A) and either clause (B) or (C), or both, as follows:

(A) Acquire water from one (1) or more of the following:

(i) Ground water.

(ii) Purchase.

(B) Utilize chemical feed to achieve one (1) of the following:

(i) Disinfection.

(ii) Fluoride standardization.

(iii) Water stabilization.

(C) Have one (1) or both of the following:

(i) An ion exchange softening process for cation removal if the population served is greater than five hundred (500) and less than three thousand three hundred one (3,301).

(ii) An inline filtration device if the population served is greater than five hundred (501) and less than three thousand three hundred one (3,301).

(3) Class WT 3 includes systems that meet the following:

(A) Acquire water from one (1) or both of the following:

(i) Ground water.
(ii) Purchase.
(B) Utilize chemical feed.
(C) Have one (1) or more of the following:
(i) Pressure or gravity filtration.
(ii) Ion exchange processes if the population served is greater than three thousand three hundred (3,300).
(iii) Lime soda softening.
(iv) Reverse osmosis.
(v) Inline filtration if the population served is greater than three thousand three hundred (3,300).
(4) Class WT 4 includes systems that meet the following:
(A) Serve a population less than ten thousand one (10,001) people.
(B) Acquire water from one (1) or both of the following:
(i) Surface water.
(ii) Ground water under the direct influence of surface water.
(5) Class WT 5 includes systems that meet the following:
(A) Serve a population greater than ten thousand (10,000) people.
(B) Acquire water from one (1) or both of the following:
(i) Surface water.
(ii) Ground water under the direct influence of surface water.
(6) Class WT 6 includes systems that utilize newly emerging treatment technology not commonly in use for drinking water treatment in Indiana, as determined by the commissioner.
(7) The commissioner may determine the classification of a system based on system complexity and operational requirements where necessary.
(Water Pollution Control Division; 327 IAC 8-12-2; filed Sep 24, 1987, 3:00 p.m.: 11 IR 719; filed Sep 19, 1990, 3:00 p.m.: 14 IR 259; filed Dec 12, 1994, 4:39 p.m.: 18 IR 1230; errata filed Mar 9, 1995, 4:15 p.m.: 18 IR 1836; filed Nov 20, 2000, 4:11 p.m.: 24 IR 974; filed Oct 24, 2006, 3:03 p.m.: 20061122-IR-327050255FRA)

327 IAC 8-12-2.5 Reclassification of water treatment plants and water distribution systems
Authority: IC 13-14-8; IC 13-18-11-1.5; IC 13-18-11-13
Affected: IC 13-18-11

Sec. 2.5. (a) Water treatment plants and water distribution systems will be reclassified by the commissioner if there are changes in the conditions or circumstances upon which the original classification was based.
(b) A water treatment plant or water distribution system may be reclassified by the commissioner if one (1) of the following situations exists:
(1) The treatment plant or water distribution system utilizes:
(A) special or complex equipment;
(B) newly emerging treatment technology; or
(C) features of design requiring a change in operation.
(2) The demonstration of the reliability of new technology.
(3) Change necessitated by law.
(4) The commissioner determines that a new classification is required to protect public health.
(c) Notice of the commissioner's decision according to subsection (a) or (b) to reclassify a water treatment plant or water distribution system shall be given to the governing body or owner and to the operators, and such notice shall indicate the grade of the certified operator in responsible charge who will be required to supervise the reclassified plant or system and how soon an operator with such qualifications must be obtained. *(Water Pollution Control Division; 327 IAC 8-12-2.5; filed Nov 20, 2000, 4:11 p.m.: 24 IR 977)*

327 IAC 8-12-3 Qualifications of a certified operator

Authority: IC 13-14-8; IC 13-18-11-1.5; IC 13-18-11-13
Affected: IC 13-11-2; IC 13-18-11

Sec. 3. (a) In order to become a certified operator of a water treatment plant or a water distribution system, a person must do the following:

(1) Meet the minimum qualifications specified in subsection (b).

(2) Pass the certification examination required by the commissioner unless exempted by statute or rule.

(b) Before applying to take the water treatment plant or water distribution system operator certification examination given by the commissioner, a person must have the following qualifications:

(1) The educational skills necessary to do the following:

(A) Make simple computations:

(i) with fractions and decimals; and

(ii) of multiplication and division.

(B) Read a linear scale.

(C) Calculate volumes of simple shapes.

(D) Keep records.

(E) Read and write the English language to the extent of:

(i) interpreting service manuals and work orders; and

(ii) submitting written reports.

(F) Understand basic principles of the following:

(i) Sanitation.

(ii) Science.

(2) With the exception of an operator-in-training, experience acceptable to the commissioner in the field of water treatment or water distribution that meets the following requirements:

(A) Demonstrates the examination applicant's technical knowledge.

(B) Can be verified based on information from available sources, primarily the applicant's water treatment plant or water distribution system employer.

(C) Is the result of satisfactory accomplishment of work in accordance with the following:

(i) Measured from the date of employment of the applicant to the date of the next scheduled examination.

(ii) Received under the oversight of a certified operator qualified to operate the same classification of water treatment plant or water distribution system as that of the applicant's certification application except where one (1) of the following is used to meet the requirements for acceptable work experience:

(AA) Section 3.2(b)(2)(C)(ii) of this rule.

(BB) Section 3.3(b)(3)(D)(ii) of this rule *[sic., section 3.2(b)(3)(D)(ii) of this rule]*.

(CC) Section 3.2(b)(3)(D)(iii) of this rule.

(DD) Section 3.2(b)(3)(D)(iv) of this rule.

(EE) Section 3.2(c)(2)(D)(ii) of this rule.

(FF) Section 3.2(c)(4)(D)(iii) of this rule.

(GG) Section 3.2(c)(5)(D)(i)(BB) of this rule.

(HH) Section 3.2(c)(5)(D)(iii) of this rule.

(II) Section 3.4 of this rule.

(JJ) Section 3.5 of this rule.

Where acceptable work experience is gained under these provisions, oversight may be under an operator qualified to operate the water treatment plant or water distribution system where the experience was obtained. If the applicant holds a certification license for the classification of system where the experience is obtained, the applicant's manager may certify that the experience has been obtained.

(Water Pollution Control Division; 327 IAC 8-12-3; filed Sep 24, 1987, 3:00 p.m.: 11 IR 721; filed Sep 19, 1990, 3:00 p.m.: 14 IR 262; filed Dec 12, 1994, 4:39 p.m.: 18 IR 1232; errata filed Mar 9, 1995, 4:15 p.m.: 18 IR 1836; filed Nov 20, 2000, 4:11 p.m.:

24 IR 977; filed Oct 24, 2006, 3:03 p.m.: 20061122-IR-327050255FRA; errata filed Dec 6, 2006, 10:10 a.m.: 20061227-IR-327050255ACA)

327 IAC 8-12-3.2 Certified operator grades

Authority: IC 13-14-8; IC 13-18-11-1.5; IC 13-18-11-13
Affected: IC 13-18-11

Sec. 3.2. (a) Grade operator-in-training (O.I.T.) is available under the following guidelines:

(1) To a person meeting the following:

(A) Currently employed at a public water system with facilities classified as a Class WT 3, WT 4, or WT 5 water treatment plant or a Class DSL water distribution system.

(B) Has fulfilled the qualifications of section 3(a)(2) and 3(b)(1) of this rule.

(2) In accordance with the following:

(A) Until the O.I.T. meets the experience requirement needed for the classification of treatment plant or distribution system where the O.I.T. is accumulating work experience.

(B) Operating work must be accomplished under the supervision of a certified operator in responsible charge who must verify to the commissioner the satisfactory achievement of acceptable experience by the O.I.T.

(C) An O.I.T. may not do any of the following:

(i) Serve as a certified operator in responsible charge.

(ii) Transfer an O.I.T. certification to a water treatment plant or water distribution system with a public water system identification number (PWSID) different than the PWSID for which the certification was issued.

(iii) Hold two (2) water treatment plant or water distribution system O.I.T. certifications concurrently.

(iv) Renew the O.I.T. certification.

(b) A water distribution system certified operator may possess a valid certification in one (1) or more of the following three (3) grades:

(1) Grade DSS is a certified operator qualified to operate a Class DSS water distribution system after having fulfilled the following requirements:

(A) Possess a high school diploma or its equivalent.

(B) Meet the qualifications of section 3 of this rule.

(C) Attain a minimum of one (1) year of acceptable work experience in the operation of a Class DSS water distribution system.

(2) Grade DSM is a certified operator qualified to operate a Class DSS and Class DSM water distribution system after having fulfilled the following requirements:

(A) Possess a high school diploma or its equivalent.

(B) Meet the qualifications of section 3 of this rule.

(C) Attain one (1) of the following acceptable work experience requirements:

(i) One (1) year in the operation of a Class DSM water distribution system.

(ii) Two (2) years in the operation of a Class DSS water distribution system.

(3) Grade DSL is a certified operator qualified to operate a Class DSS, Class DSM, and Class DSL water distribution system after having fulfilled the following requirements:

(A) Possess a high school diploma or its equivalent.

(B) Meet the qualifications of section 3 of this rule.

(C) Must be able to do the following:

(i) Maintain inventories.

(ii) Order supplies and equipment.

(iii) Interpret chemical and bacteriological sample reports.

(D) Attain one (1) of the following acceptable work experience requirements:

(i) One (1) year in the operation of a Class DSL water distribution system.

(ii) Three (3) years in the operation of a Class DSM water distribution system.

(iii) Five (5) years in the operation of a Class DSS water distribution system.

(iv) An acceptable number of years of experience approved by the commissioner if gained in operation of a combination of the various classifications of water distribution systems.

(c) A water treatment plant certified operator may possess a valid certification in one (1) or more of the following six (6) grades:

(1) Grade WT 1 is a certified operator qualified to operate a Class WT 1 water treatment plant or a Class DSS water distribution system at a nontransient noncommunity water system serving five hundred (500) or fewer individuals or a community water system serving one hundred (100) or fewer individuals after having fulfilled the following requirements:

(A) Possess a high school diploma or its equivalent.

(B) Meet the qualifications of section 3 of this rule.

(C) Must be able to do the following:

(i) Maintain inventories.

(ii) Order supplies and equipment.

(iii) Interpret chemical and bacteriological sample reports.

(D) Attain a minimum of one (1) year of acceptable work experience in the operation of a Class WT 1 water treatment plant.

(2) Grade WT 2 is a certified operator qualified to operate a Class WT 1 and a Class WT 2 water treatment plant and a Class DSS water distribution system at a nontransient noncommunity water system serving five hundred (500) or fewer individuals or a community water system serving one hundred (100) or fewer individuals after having fulfilled the following requirements:

(A) Possess a high school diploma or its equivalent.

(B) Meet the qualifications of section 3 of this rule.

(C) Must be able to do the following:

(i) Maintain inventories.

(ii) Order supplies and equipment.

(iii) Interpret chemical and bacteriological sample reports.

(D) Attain one (1) of the following acceptable work experience requirements:

(i) One (1) year in the operation of a Class WT 2 water treatment plant.

(ii) Two (2) years in the operation of a Class WT 1 water treatment plant.

(3) Grade WT 3 is a certified operator qualified to operate a Class WT 1, Class WT 2, and Class WT 3 water treatment plant and a Class DSS water distribution system at a nontransient noncommunity water system serving five hundred (500) or fewer individuals or a community water system serving one hundred (100) or fewer individuals after having fulfilled the following requirements:

(A) Possess a high school diploma or its equivalent.

(B) Meet the qualifications of section 3 of this rule.

(C) Must be able to do the following:

(i) Maintain inventories.

(ii) Order supplies and equipment.

(iii) Interpret chemical and bacteriological sample reports.

(D) Attain the following acceptable work experience at a minimum:

(i) Two (2) years in the operation of a Class WT 3 water treatment plant.

(ii) Successful completion of educational work at college level in:

(AA) engineering;

(BB) chemistry; or

(CC) science;

related to water treatment may be substituted for work experience required according to item (i) at the ratio of four (4) semesters or six (6) quarters of schooling for a maximum substitution of one (1) year of experience.

(4) Grade WT 4 is a certified operator qualified to operate a Class WT 1, Class WT 2, and Class WT 4 water treatment plant and a Class DSS water distribution system at a nontransient noncommunity water system serving five hundred (500) or fewer

individuals or a community water system serving one hundred (100) or fewer individuals after having fulfilled the following requirements:

(A) Possess a high school diploma or its equivalent.

(B) Meet the qualifications of section 3 of this rule.

(C) Must be able to do the following:

(i) Maintain inventories.

(ii) Order supplies and equipment.

(iii) Interpret chemical and bacteriological sample reports.

(D) Attain the following acceptable work experience at a minimum:

(i) Two (2) years in the operation of a Class WT 4 water treatment plant.

(ii) Successful completion of educational work at college level in:

(AA) engineering;

(BB) chemistry; or

(CC) science;

related to water treatment may be substituted for work experience required according to item (i) at the ratio of four (4) semesters or six (6) quarters of schooling for a maximum substitution of one (1) year of experience.

(iii) Two (2) years in the operation of a Class WT 3 water treatment plant may substitute for a maximum of one (1) year of experience required according to item (i).

(5) Grade WT 5 is a certified operator qualified to operate a Class WT 1, Class WT 2, Class WT 4, and Class WT 5 water treatment plant and a Class DSS water distribution system at a nontransient noncommunity water system serving five hundred (500) or fewer individuals or a community water system serving one hundred (100) or fewer individuals after having fulfilled the following requirements:

(A) Possess a high school diploma or its equivalent.

(B) Meet the qualifications of section 3 of this rule.

(C) Must have the ability to do the following:

(i) Use conversion factors.

(ii) Solve simple mathematical equations.

(iii) Understand the following:

(AA) Simple chemical laboratory equipment.

(BB) The bacteriological procedures used in water supply work.

(iv) Maintain inventories.

(v) Order supplies and equipment.

(D) Attain the following acceptable work experience at a minimum:

(i) One (1) of the following:

(AA) Three (3) years in the operation of a Class WT 5 water treatment plant.

(BB) Five (5) years in the operation of a Class WT 4 water treatment plant.

(ii) Successful completion of educational work at college level in:

(AA) engineering;

(BB) chemistry; or

(CC) science;

related to water treatment may be substituted for work experience required according to item (i) at the ratio of four (4) semesters or six (6) quarters of schooling for one (1) year of experience, up to a maximum of two (2) years of experience.

(iii) Two (2) years in the operation of a WT 3 water treatment plant may be substituted for one (1) year of experience required according to item (i) up to a maximum substitution of two (2) years experience.

(6) Grade WT 6 is a certified operator qualified to operate a Class WT 6 water treatment plant that requires operator qualifications determined by the commissioner on an individual plant basis in response to the specialized nature of the water treatment plant.

(d) An applicant for water treatment plant or water distribution system operator certification may submit proof to the

commissioner to demonstrate the achievement of an equivalent level of acceptable training or work experience for that required by the following subsections:

(1) (b)(1)(C).
(2) (b)(2)(C).
(3) (b)(3)(D).
(4) (c)(1)(D).
(5) (c)(2)(D).
(6) (c)(3)(D).
(7) (c)(4)(D).
(8) (c)(5)(D).

(e) A Grade WT 3, Grade WT 4, and Grade WT 5 operator is qualified to apply for the appropriate wastewater treatment plant certification according to 327 IAC 5-22 to treat wastewater from a water treatment plant provided the operator is certified to operate that classification of water treatment plant. *(Water Pollution Control Division; 327 IAC 8-12-3.2; filed Nov 20, 2000, 4:11 p.m.: 24 IR 980; filed Oct 24, 2006, 3:03 p.m.: 20061122-IR-327050255FRA)*

327 IAC 8-12-3.4 Grandparenting

Authority: IC 13-14-8; IC 13-18-11-1.5; IC 13-18-11-10.5; IC 13-18-11-13
Affected: IC 13-18-11

Sec. 3.4. (a) For purposes of this rule, grandparenting is the process through which the commissioner may issue operator certification to a person who has been working at a water treatment plant or water distribution system that, before the effective date of this rule, was not required to be under the supervision of a certified operator. An operator certificate to be conferred through grandparenting may be issued if:

(1) the owner or governing body meets the criterion of subsection (b); and
(2) the recipient of the certificate abides by the requirements of subsection (d).

(b) The commissioner may issue an operator certification in the operator grade appropriate to the classification of water treatment plant or water distribution system where the recipient has been an employee acting in the capacity of an operator making process control decisions that affect the quality or quantity of water from the treatment plant or distribution system if the owner or governing body submits an application to the commissioner before September 1, 2002, requesting certification of each person intended to be designated as one (1) of the facility's operators in responsible charge.

(c) A certification conferred under grandparenting shall be as follows:

(1) Valid only at the site where the person receiving the grandparent certification gained operator experience.
(2) Valid for three (3) years during which time the operator must do the following:
    (A) Fulfill the continuing education requirements for the grade of operator certification that has been conferred through grandparenting as listed in section 7.5 of this rule in order to be eligible for certification renewal according to section 7(e)(3) of this rule.
    (B) Successfully complete an operator training course specified by the commissioner.
(3) Invalid if the classification of the water treatment plant or water distribution system changes to one (1) requiring a certified operator with more extensive education or experience qualifications, such as may be based on any of the following:
    (A) Increased capacity.
    (B) An increase in population served.
    (C) A basic change in the method of water treatment.
    (D) Another change in conditions that causes a more difficult or complex operation.
(4) The commissioner may allow a grandparented operator to continue operation of a system where the classification has changed under subdivision (3) if the operator demonstrates to the commissioner that the facility will be properly operated. For a grandparented operator to continue operation of a system where the classification has changed under subdivision (3), a written request must be made by the owner of the public water system.

(d) If an operator certified under grandparenting according to this section:

(1) fails to meet the continuing education requirements of section 7.5 of this rule within the required time according to

subsection (c)(2); or

(2) goes to work at water treatment plant or water distribution system other than the one that the grandparent certification was conferred;

then the grandparent certification is voided and the operator must become certified according to the requirements of this rule. *(Water Pollution Control Division; 327 IAC 8-12-3.4; filed Nov 20, 2000, 4:11 p.m.: 24 IR 982; filed Oct 24, 2006, 3:03 p.m.: 20061122-IR-327050255FRA)*

327 IAC 8-12-3.5 Facility specific operator

Authority: IC 13-14-8; IC 13-18-11-1.5; IC 13-18-11-13
Affected: IC 13-18-11

Sec. 3.5. (a) Operators of nontransient noncommunity public water systems of the following facility classifications may be granted facility specific operator (FSO) certifications:

(1) Class DSS systems.

(2) Class WT1 systems.

(3) Noncommunity public water systems of other facility classifications may be granted FSO certifications for their classifications if the commissioner determines that the FSO applicant will adequately perform the tasks necessary for proper operation of the system.

(b) Operators of community public water systems serving one hundred (100) or fewer people with the following facility classifications may be granted FSO certifications:

(1) Class DSS systems.

(2) Class WT1 systems.

(c) The following requirements must be met in order for a FSO certification to be granted for a public water system:

(1) The owner of the system shall designate a person to be in responsible charge of the system.

(2) The designee (applicant) must be an employee or member of the public water system.

(3) Each applicant shall do the following:

(A) Demonstrate proficiency to the commissioner in accordance with section 4.5 of this rule.

(B) Meet the requirements of section 3(b)(1) of this rule.

(C) Be able to do the following:

(i) Maintain inventories.

(ii) Order supplies.

(iii) Interpret chemical and bacteriological sample reports.

(4) A person may hold only one (1) FSO certification at a time unless the commissioner has determined that the FSO operator can maintain each system that an FSO certification is requested.

(d) An FSO certification is valid as follows:

(1) Only at the facility that the FSO certification is granted.

(2) For three (3) years, during which time the operator shall fulfill the continuing education requirements for the FSO certification as listed in section 7.5 of this rule in order to be eligible for certification renewal in accordance with section 7(e)(3) of this rule.

(e) An FSO certification will be invalid if the classification of water treatment plant or water distribution system changes to one (1) requiring a certified operator with more extensive education or experience, such as any of the following:

(1) Increased capacity.

(2) An increase in population served.

(3) A basic change in the method of water treatment.

(4) Another change in conditions that causes a more difficult or complex operation.

(f) If a person granted an FSO certification fails to meet the continuing education requirements of section 7.5 of this rule within the required time set forth in subsection (d)(2), then:

(1) the FSO certification is voided; and

(2) the operator must become certified according to the requirements of this rule.

(g) The commissioner may revoke an FSO certification due to failure to do any of the following:
(1) Conduct any of the following:
(A) Monitoring and reporting to meet the requirements of 327 IAC 8-2.
(B) Reporting to meet the requirements of 327 IAC 8-2.1.
(C) Monitoring and reporting to meet the requirements of 327 IAC 8-2.5.
(2) Operate and maintain the system in a manner that protects human health.
(Water Pollution Control Division; 327 IAC 8-12-3.5; filed Oct 24, 2006, 3:03 p.m.: 20061122-IR-327050255FRA)

327 IAC 8-12-3.6 Certified operator in responsible charge
Authority: IC 13-14-8; IC 13-18-11-1.5; IC 13-18-11-13
Affected: IC 13-18-11

Sec. 3.6. (a) A certified operator may be in responsible charge of more than one (1) water treatment plant or water distribution system if the following conditions are met:
(1) The certified operator will be able to provide adequate supervision to all units involved.
(2) Before undertaking multiple operator positions of responsible charge, a letter signed by the certified operator is submitted to the owner or governing body of each water treatment plant and water distribution system to be under the responsible charge of the certified operator providing the following information:
(A) The name and location of each water treatment plant and water distribution system to be under the responsible charge of the certified operator.
(B) The number of hours per week the certified operator shall work at each water treatment plant and water distribution system.
(b) The following establishes minimum criteria regarding adequate supervision at each classification of water distribution system and water treatment plant:
(1) DSS must do the following:
(A) Be monitored daily by a dependable person or automated system.
(B) Meet the following conditions based on system size and type:
(i) A community water system must have a certified operator on site for a minimum of two (2) daily visits every week.
(ii) A nontransient noncommunity water system serving greater than five hundred (500) individuals must have a certified operator on site for a minimum of one (1) daily visit every week.
(iii) A nontransient noncommunity water system serving five hundred (500) or fewer individuals must have a certified operator on site for a minimum of one (1) daily site visit every two (2) weeks.
(2) DSM must do the following:
(A) Be monitored daily by a dependable person or automated system.
(B) Have a certified operator on site for a minimum of three (3) daily visits every week.
(3) DSL must do the following:
(A) Be monitored daily by a dependable person or automated system.
(B) Have a certified operator on site for a minimum of five (5) daily visits every week.
(4) WT 1 must do the following:
(A) Be monitored daily by a dependable person or automated system.
(B) Have a certified operator on site for a minimum of three (3) daily visits every week.
(5) WT 2 must do the following:
(A) Be monitored daily by a dependable person or automated system.
(B) Have a certified operator on site for a minimum of five (5) daily visits every week.
(6) WT 3 must do the following:
(A) Be monitored daily by a dependable person or automated system.
(B) Have a certified operator on site for a minimum of five (5) daily visits every week.
(7) WT 4 must have a certified operator on site during water treatment plant operation unless the plant is equipped with an

automated system approved by the commissioner.

(8) WT 5 must have a certified operator on site during water treatment plant operation unless the plant is equipped with an automated system approved by the commissioner.

(c) When requested by the commissioner, the certified operator shall provide written submission documenting the following:

(1) The name, location, and classification of each water treatment plant and water distribution system under the responsible charge of a certified operator.

(2) The amount of time that a certified operator in responsible charge spends at a facility of responsibility identified according to subdivision (1).

(d) The commissioner shall evaluate information required by this section and any other information pertinent to a water treatment plant or water distribution system under the supervision of a certified operator in responsible charge and may determine the following:

(1) The time spent on site during a daily visit is inadequate for the duties required to properly operate the system in compliance with 327 IAC 8 this article.

(2) An amount of time that the certified operator in responsible charge shall be required to spend in the operation of each water treatment plant or water distribution system where the operator is in charge of more than one (1) system.

(3) A reduction of the number of water treatment plants or water distribution systems over which the certified operator may have responsible charge.

(4) The number of daily site visits required under subsection (b)(1) through (b)(6) may be modified by the commissioner on a case-by-case basis.

(Water Pollution Control Division; 327 IAC 8-12-3.6; filed Nov 20, 2000, 4:11 p.m.: 24 IR 982; filed Oct 24, 2006, 3:03 p.m.: 20061122-IR-327050255FRA; errata filed Dec 6, 2006, 10:10 a.m.: 20061227-IR-327050255ACA)

327 IAC 8-12-3.8 Certification transition

Authority: IC 13-14-8; IC 13-18-11-1.5; IC 13-18-11-13
Affected: IC 13-18-11

Sec. 3.8. (a) A certified operator whose certification is valid on the effective date of this rule shall transition to a grade of certification according to the following:

(1) A Grade DS certified operator shall transition to a Grade DSM certification.

(2) A Grade DS certified operator shall transition to a Grade DSL certification if the certified operator has experience in the operation of a distribution system that:

(A) serves a population of more than ten thousand one (10,001); or

(B) is classified as DSL according to section 2 of this rule.

(3) A Grade DS-L certified operator shall transition to a Grade DSL certification.

(4) A Grade CT certified operator shall transition to a Grade WT 2 certification.

(5) A Grade PF certified operator shall transition to a Grade WT 3 certification.

(6) A Grade GF certified operator shall transition to a Grade WT 4 certification.

(7) A Grade GF certified operator shall transition to a Grade WT 5 certification if the certified operator has experience in the operation of a water treatment plant that is classified as Class WT 5 according to section 2 of this rule.

(8) A Grade AT certified operator shall transition to a Grade WT 3 and Grade WT 5 certification.

(b) A certified operator having certification that:

(1) is valid on the effective date of this rule; and

(2) was obtained by virtue of the position held July 1, 1972;

shall be eligible to operate only the water treatment plant or water distribution system that is designated on the issued certification.

(c) A certified operator shall be qualified to operate at the same classification of facility as the operator was certified to operate prior to the effective date of this rule.

(d) The commissioner may request proof of required experience to transition to a grade identified in subsection (a).

(e) A certified operator affected by the transition of certification according to this section may submit additional information to substantiate a request to transition to a grade other than that indicated in subsection (a) if the substantiating information is

submitted to the commissioner by July 1, 2002. *(Water Pollution Control Division; 327 IAC 8-12-3.8; filed Nov 20, 2000, 4:11 p.m.: 24 IR 983)*

327 IAC 8-12-4 Examination of applicants to become a certified operator of a water treatment plant or water distribution system

Authority: IC 13-14-8; IC 13-18-11-1.5; IC 13-18-11-13
Affected: IC 13-18-11

Sec. 4. (a) A standardized examination prepared to reflect the duties and responsibilities required of each grade of water treatment plant and water distribution system certified operator shall be as follows:

(1) Used to test knowledge, ability, and judgment of an applicant to become a water treatment plant or water distribution system certified operator.

(2) Conducted at least annually.

(3) Held at places and times established by the commissioner:

(A) with at least sixty (60) days advanced announcement; and

(B) except in such cases as may be declared necessary exceptions by the commissioner.

(b) A person wishing to be examined for water treatment plant or water distribution system certification shall fulfill the following requirements:

(1) Complete an application on a form approved by the commissioner that:

(A) contains true and accurate information to the best of the applicant's knowledge; and

(B) is free of omissions and misrepresentations, either of which may result in rejection of the application or revocation of any certificate previously granted.

(2) Submit a completed application, with the necessary fee, to the commissioner postmarked not later than forty-five (45) days preceding the date of the examination.

(c) The commissioner shall do the following:

(1) Review an application and supporting documents concerning the eligibility of an applicant for water treatment plant or water distribution system certification.

(2) Issue a written notification in the form of an admission slip, providing the time and place of the examination, to be presented by an applicant deemed eligible for examination.

(d) A person who has been notified and scheduled to take an examination:

(1) may submit a written request to the commissioner for a postponement to take the examination one (1) offering later than the examination granted by the commissioner if:

(A) the postponement:

(i) for a nonemergency reason is requested not later than fourteen (14) days before the examination date noticed to the applicant under subsection (c)(2); and

(ii) request for an emergency reason is submitted as soon as conditions of the emergency warrant; and

(B) the applicant:

(i) provides the commissioner an explicit description of extenuating circumstances necessitating the requested postponement; and

(ii) understands that only one (1) postponement shall be allowed; or

(2) will be considered to have failed that examination if the person:

(A) does not attend the examination and has not requested a postponement according to subdivision (1); or

(B) is caught cheating on an examination, an occurrence that will make an applicant ineligible to take any operator certification examination for a period of two (2) years following the examination date of the incidence of cheating.

(e) Completed examinations shall be managed by the commissioner according to the following:

(1) Graded in a manner prescribed by the commissioner with a minimum result of seventy percent (70%) needed in order to pass the examination.

(2) The commissioner shall notify an applicant of the examination result as follows:

(A) In writing.

(B) Not later than two (2) months after the date of the examination.

(3) Examination papers shall be retained by the commissioner with an opportunity afforded to an applicant notified of having failed the examination for review of the graded examination until a date ninety (90) days before the next scheduled examination if the applicant submits the following to the commissioner:

(A) A written request for review of the graded examination.

(B) A statement affirming the applicant's understanding that examination review does not include the right to copy, by any means, the following:

(i) The examination.

(ii) Any portion of the examination.

(f) A person previously certified as a water treatment plant or water distribution system operator under this rule but who has failed to meet the renewal requirements within a grace period of one (1) year according to section 7(e)(4) of this rule must retake an examination. *(Water Pollution Control Division; 327 IAC 8-12-4; filed Sep 24, 1987, 3:00 p.m.: 11 IR 723; filed Sep 19, 1990, 3:00 p.m.: 14 IR 265; filed Dec 12, 1994, 4:39 p.m.: 18 IR 1235; filed Nov 20, 2000, 4:11 p.m.: 24 IR 984; filed Oct 24, 2006, 3:03 p.m.: 20061122-IR-327050255FRA)*

327 IAC 8-12-4.5 Demonstration of proficiency for applicants to become a facility specific operator

Authority: IC 13-14-8; IC 13-18-11-1.5; IC 13-18-11-13
Affected: IC 13-18-11

Sec. 4.5. (a) A person may become certified as a facility specific operator (FSO) by a demonstration of proficiency:

(1) through an examination;

(2) based on completion of an approved training course; or

(3) through another method approved by the commissioner.

(b) A standardized examination prepared to reflect the duties and responsibilities required of each FSO water treatment plant and water distribution system certified operator shall be as follows:

(1) Conducted at least annually.

(2) Held at places and times established by the commissioner.

(c) A person wishing to apply for water treatment plant or water distribution system FSO certification shall fulfill the following requirements:

(1) Complete an application on a form approved by the commissioner that:

(A) contains true and accurate information to the best of the applicant's knowledge; and

(B) is free of omissions and misrepresentations, either of which may result in rejection of the application or revocation of any certificate previously granted.

(2) Submit the following:

(A) A completed application, with the necessary fee, to the commissioner.

(B) Any additional information requested by the commissioner.

(Water Pollution Control Division; 327 IAC 8-12-4.5; filed Oct 24, 2006, 3:03 p.m.: 20061122-IR-327050255FRA)

327 IAC 8-12-5 Certification fees

Authority: IC 13-14-8; IC 13-18-11-1.5; IC 13-18-11-6.5; IC 13-18-11-13
Affected: IC 13-18-11

Sec. 5. (a) Fees for water treatment plant and water distribution system operator certification shall be as follows:

(1) Certification, including certificate	$30
(2) Certification by examination for a new classification	$30
(3) Triennial renewal fee	$30
(4) Duplicate or replacement certificate	$15
(5) Replacement card	$15

(b) An application fee will not be returned to an applicant:

(1) who is deemed by the commissioner to be ineligible for water treatment plant or water distribution system certification examination;

(2) who does not receive a minimum score of seventy percent (70%) as required by section 4(e)(1) of this rule; or

(3) whose examination is voided for cheating according to section 4(d)(2)(B) of this rule.

(Water Pollution Control Division; 327 IAC 8-12-5; filed Sep 24, 1987, 3:00 p.m.: 11 IR 724; filed Sep 19, 1990, 3:00 p.m.: 14 IR 266; filed Oct 22, 1991, 5:00 p.m.: 15 IR 225; filed Dec 12, 1994, 4:39 p.m.: 18 IR 1236; errata filed Mar 9, 1995, 4:15 p.m.: 18 IR 1836; filed Sep 3, 1996, 3:00 p.m.: 20 IR 12; filed Nov 20, 2000, 4:11 p.m.: 24 IR 985)

327 IAC 8-12-6 Certification; reciprocity; provisional certificate

Authority: IC 13-14-8; IC 13-18-11-1.5; IC 13-18-11-13
Affected: IC 13-18-11-9

Sec. 6. (a) The commissioner shall issue a certificate designating competency in the appropriate certified operator's grade to each person who makes proper application if the applicant:

(1) meets the necessary requirements of education and experience; and

(2) successfully completes a grade appropriate examination.

Upon successful completion of examination according to section 4 of this rule, the commissioner shall issue a certification in the certified operator grade that the applicant was examined.

(b) The commissioner may issue a certificate by reciprocity as outlined in IC 13-18-11-9 if the following conditions are met:

(1) A person seeking reciprocal certification submits an application for such a certificate that includes the following:

(A) Proof of current certification.

(B) Grade of the applicant.

(2) A person from another state seeking a certificate by reciprocity earns the number of continuing education contact hours for all future renewal periods, in the time period required by section 7.5(a) of this rule, though no continuing education contact hours shall be required at the time of conferring the reciprocal certification.

(c) The commissioner may issue a provisional water treatment plant or water distribution operator's certificate if the following occur:

(1) The governing body or owner of a water treatment plant or water distribution system submits a written request specifying the existence of the vacancy and a reason necessitating the provisional certification, including one (1) of the following:

(A) To fill a vacancy created by death.

(B) Resignation of the certified operator in responsible charge.

(C) Extended illness of the certified operator in responsible charge.

(D) A justifiable cause due to unforeseen circumstances beyond the control of the governing body or owner that leaves the treatment plant or distribution system without a certified operator.

(2) The written request required by subdivision (1) provides the name, education, and experience of the person for whom the provisional certificate is requested.

(3) The provisional certificate nominee named under subdivision (2):

(A) submits, simultaneously with the request submitted under subdivision (1), an application as required by section 4(b) of this rule requesting examination and certification; and

(B) is eligible at the time of the request submitted under subdivision (1) for the next scheduled certification examination.

(d) A provisional certificate shall be as follows:

(1) Issued by the commissioner in the form of a letter that specifies the conditions of the certification.

(2) Valid for one (1) of the following lengths of time as determined by the commissioner:

(A) The period between the:

(i) date of application; and

(ii) end of the thirty (30) day grading period following the next examination that is available to the provisional certificate nominee.

(B) One (1) year.

(C) Another time period designated by the commissioner.

(e) The commissioner may also issue a provisional water treatment plant or water distribution operator's certificate if the following occur:

(1) The classification of a treatment plant or water distribution system changes due to the following:

(A) Installation of treatment to meet a new requirement of the Safe Drinking Water Act (42 U.S.C. 300f and 42 U.S.C. 300j-26) or 327 IAC 8 this article.

(B) An increase in the population served that:

(i) is not the result of consolidation of one (1) or more public water systems; and

(ii) is less than ten percent (10%) of population previously served.

(2) The written request required by subdivision (1)(A) provides the name, education, and experience of the person for whom the provisional certificate is requested.

(3) The provisional certificate nominee named under subdivision (1)(B) submits, simultaneously with the request submitted under subdivision (1)(A), an application as required by section 4(b) of this rule requesting examination and certification.

(f) The commissioner may waive the hands-on experience requirements for application for the examination for the new treatment classification for the provisional certificate nominee.

(g) A provisional certificate must be as follows:

(1) Issued by the commissioner in the form of a letter that specifies the conditions of the certification.

(2) Valid for one (1) of the following lengths of time as determined by the commissioner:

(A) The period between the:

(i) date of application; and

(ii) end of the thirty (30) day grading period following the next examination that is available to the provisional certificate nominee.

(B) One (1) year.

(C) Another time period designated by the commissioner.

(3) Granted only for continued operation of a system where the classification has changed under subsection (e) if the operator demonstrates to the commissioner that the facility will be properly operated.

(Water Pollution Control Division; 327 IAC 8-12-6; filed Sep 24, 1987, 3:00 p.m.: 11 IR 724; filed Sep 19, 1990, 3:00 p.m.: 14 IR 266; filed Dec 12, 1994, 4:39 p.m.: 18 IR 1236; filed Nov 20, 2000, 4:11 p.m.: 24 IR 985; filed Oct 24, 2006, 3:03 p.m.: 20061122-IR-327050255FRA; errata filed Dec 6, 2006, 10:10 a.m.: 20061227-IR-327050255ACA)

327 IAC 8-12-7 Certificates and certification cards; renewal; duplicates

Authority: IC 13-14-8; IC 13-18-11-1.5; IC 13-18-11-13
Affected: IC 13-18-11-6.5

Sec. 7. (a) A water treatment plant and water distribution system operator's certificate shall be as follows:

(1) Be issued after an applicant's successful completion of the grade appropriate examination.

(2) Specify the following:

(A) The month and year that the applicant qualified.

(B) The issuance date of the certificate.

(3) Be permanent in nature but will be effective only when validated by a current certification card.

(4) Not be valid if obtained:

(A) through fraud or deceit; or

(B) by the submission of inaccurate data on the application.

(b) A water treatment plant or water distribution system certified operator must do the following:

(1) Provide permanent and visible display of his or her certificate at the water treatment plant or water distribution system office.

(2) Obtain a duplicate certificate to display in the office of each water treatment plant and water distribution system supervised if the certified operator supervises more than one (1) water treatment plant or water distribution system.

(c) A certification card shall be as follows:

(1) Be issued as follows:
(A) Simultaneously with the certificate.
(B) For a time period of not more than thirty-six (36) months.
(2) Expire on the last day of June nearest the end of the triennial period following issuance.
(d) A water treatment plant or water distribution system certified operator needing a replacement or duplicate certificate or card must submit a written request to the commissioner that includes the following:
(1) The following information:
(A) The grade of the water treatment plant or water distribution system certified operator.
(B) The name and classification of the water treatment plant or water distribution system to be operated.
(C) The date of issuance of the original certificate if known.
(D) The certificate number.
(2) A fee specified according to section 5(a)(4) or 5(a)(5) of this rule.
(e) The commissioner shall accomplish the following:
(1) Issue to each certified operator of a water treatment plant or water distribution system a renewal notification stating the following:
(A) The expiration date of the certified operator's certification card.
(B) The amount of the fee required for certification card renewal.
(2) Mail certification card renewal notifications as follows:
(A) At least thirty (30) days before the expiration of the certification card.
(B) To the last known address filed with the commissioner.
(3) Renew a certification card if:
(A) the continuing education requirements of section 7.5 of this rule are met;
(B) a renewal fee described in section 5(a)(3) of this rule is submitted to the commissioner on or before the first day of July of the triennial period for which a certification card is to be issued; and
(C) the notice is signed and returned by the certified operator to the commissioner.
(4) Reinstate certification if the operator does the following:
(A) Submits payment of the following:
(i) Any arrearage of fees.
(ii) The current renewal fee.
(B) Fulfills arrearage of continuing education credit requirements.
(C) Is current in meeting continuing education credit requirements.
(5) Deny renewal of a certification card that is not renewed within the time limit established in section 7.5(a) of this rule and IC 13-18-11-6.5(c). An operator may reapply and retake the examination following the requirements of section 4 of this rule.
(Water Pollution Control Division; 327 IAC 8-12-7; filed Sep 24, 1987, 3:00 p.m.: 11 IR 724; filed Sep 19, 1990, 3:00 p.m.: 14 IR 267; filed Dec 12, 1994, 4:39 p.m.: 18 IR 1236; filed Nov 20, 2000, 4:11 p.m.: 24 IR 986; filed Oct 24, 2006, 3:03 p.m.: 20061122-IR-327050255FRA)

327 IAC 8-12-7.1 Continuing education credit; criteria for approval
Authority: IC 13-14-8; IC 13-18-11-1.5; IC 13-18-11-6.5; IC 13-18-11-13
Affected: IC 13-18-11

Sec. 7.1. (a) Continuing education contact hour credit shall be given only for completed course work that has been approved by the commissioner according to the following:
(1) A training provider has submitted an application and received continuing education course approval from the commissioner prior to publicly offering a water treatment plant or water distribution system continuing education course. The application must:
(A) be submitted on a form approved by the commissioner;
(B) be submitted no less than sixty (60) days before the first date when the course is conducted;
(C) be accompanied by a written course outline or brochure; and

(D) contain the following information:

(i) Name, address, and telephone number of a course sponsor, training provider, or other contact person.

(ii) Name of course.

(iii) Specific topics that are included in the course presentations.

(iv) Amount of time devoted to each topic.

(v) Instructor's name and qualifications, including the following:

(AA) Educational background.

(BB) Professional experience.

(CC) Current professional affiliation.

(vi) Dates and locations where the course will be offered.

(2) The water treatment plant or water distribution system continuing education course meets the following requirements:

(A) The course deals with one (1) or more of the following as determined by the commissioner:

(i) Technical matters related directly to water distribution or water treatment.

(ii) General matters related to the responsibilities of a certified operator.

(B) Each instructor or speaker is qualified by academic work or practical experience to teach the proposed water treatment plant or water distribution system continuing education course.

(b) A water treatment plant or water distribution system certified operator may petition the commissioner for approval of a water treatment plant or water distribution system continuing education course if the following procedures are met:

(1) An application of petition is submitted to the commissioner prior to or within thirty (30) days of course completion.

(2) The application must contain the information required by subsection (a)(1)(A), (a)(1)(C), and (a)(1)(D).

(3) The certified operator must supply written proof of attendance within thirty (30) days after course completion.

(c) Continuing education contact hours of credit earned in another state, whether that state has reciprocity with Indiana for the purpose of transferring a certificate of water treatment plant or water distribution system operator competency, may be eligible for credit if the commissioner is provided the information required by subsection (a)(1)(A), (a)(1)(C), and (a)(1)(D) for the course work from which the contact hours were earned.

(d) A certified operator who is an instructor or speaker at a water treatment plant or water distribution system continuing education course shall be credited the same number of contact hours as the students of the course. *(Water Pollution Control Division; 327 IAC 8-12-7.1; filed Sep 19, 1990, 3:00 p.m.: 14 IR 268; filed Dec 12, 1994, 4:39 p.m.: 18 IR 1237; filed Nov 20, 2000, 4:11 p.m.: 24 IR 988)*

327 IAC 8-12-7.5 Continuing education requirements

Authority: IC 13-14-8; IC 13-18-11-1.5; IC 13-18-11-6.5; IC 13-18-11-13

Affected: IC 13-18-11

Sec. 7.5. (a) All water treatment plant and water distribution system certified operators shall fulfill continuing education requirements in amounts specified in Table 7.5(b) in subsection (b):

(1) during each three (3) year period following the issuance of the certification card; and

(2) before having that certification card renewed.

(b) Continuing education credits required for certification card renewal in the grades of water treatment plant and water distribution system certified operators are listed in the following table:

Table 7.5(b)

Certified Operator Grades, Water Distribution System and Water Treatment Plant	Continuing Education Credits Required for Renewal
Grade O.I.T.	Contact hours shall match those required for the classification where operator is in training; certification card not renewable
Grade FSO	10 contact hours
Grade DSS	10 contact hours
Grade DSM	15 contact hours

Grade DSL	15 contact hours
Grade WT 1	10 contact hours
Grade WT 2	15 contact hours
Grade WT 3	25 contact hours
Grade WT 4	30 contact hours
Grade WT 5	30 contact hours
Grade WT 6	30 contact hours

(c) Continuing education credits required according to Table 7.5(b) in subsection (b) must adhere to a distribution of subject matter according to the following:

(1) A minimum of seventy percent (70%) of the required continuing education contact hours shall be obtained from the technical category of approved continuing education courses.

(2) Not more than thirty percent (30%) of the required continuing education contact hours shall be obtained from nontechnical subject matter of approved continuing education courses.

(d) A person having a valid certification card in more than one (1) classification of water treatment plant or water distribution system:

(1) may be given duplicate continuing education credit from a single approved continuing education course for each water treatment plant and water distribution system certification to which the subject matter is applicable; and

(2) must obtain the greatest number of continuing education contact hours required by the various certifications held within the shared time period of overlap in order not to be required to obtain continuing education for each certificate held.

(Water Pollution Control Division; 327 IAC 8-12-7.5; filed Nov 20, 2000, 4:11 p.m.: 24 IR 989; filed Oct 24, 2006, 3:03 p.m.: 20061122-IR-327050255FRA)

327 IAC 8-12-7.6 Continuing education credit; training provider responsibilities

Authority: IC 13-14-8; IC 13-18-11-1.5; IC 13-18-11-6.5; IC 13-18-11-13
Affected: IC 13-18-11

Sec. 7.6. (a) A training provider shall generate records of each water treatment plant or water distribution system continuing education course conducted that include the following:

(1) The date of the water treatment plant or water distribution system continuing education course.

(2) The name of each person attending the water treatment plant or water distribution system continuing education course.

(3) The length of time of the course.

(4) The instructor's name.

(5) The course content.

(6) The name of the organization sponsoring the course.

(b) Records required by subsection (a) shall be maintained for a five (5) year period following the presentation of each water treatment plant or water distribution system continuing education course.

(c) A training provider must submit the information required by subsection (a) to the commissioner according to the following:

(1) On a form approved by the commissioner.

(2) Within thirty (30) days of the conclusion of the water treatment plant or water distribution system continuing education course.

(Water Pollution Control Division; 327 IAC 8-12-7.6; filed Nov 20, 2000, 4:11 p.m.: 24 IR 989)

327 IAC 8-12-8 Suspension or revocation of certification

Authority: IC 13-14-8; IC 13-18-11-1.5; IC 13-18-11-8; IC 13-18-11-13
Affected: IC 4-21.5; IC 13-18-11

Sec. 8. The commissioner may suspend or revoke the certificate of a water treatment plant or water distribution system certified operator, following a hearing pursuant to IC 4-21.5, if it is found that the certified operator has violated any provision of

IC 13-18-11-8. *(Water Pollution Control Division; 327 IAC 8-12-8; filed Sep 24, 1987, 3:00 p.m.: 11 IR 725; filed Nov 20, 2000, 4:11 p.m.: 24 IR 990)*

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