Chapter NR 809

SAFE DRINKING WATER

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Note: Chapter NR 809 as it existed on November 30, 2010, was repealed and a new chapter NR 809 was created effective December 1, 2010.

NR 809.01 Purpose. The purpose of this chapter is to establish minimum standards and procedures for the protection of the public health, safety and welfare in the obtaining of safe drinking water. This chapter is adopted under the authority granted in chs. 280 and 281, Stats.

Note: See chs. NR 108, 114, 810, 811 and 812 for other requirements pertaining to public and private drinking water systems.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10.

NR 809.02 Departmental justification. (1) Where the department exercises discretion allowed under this chapter to require a water supplier for a public water system to perform construction, repairs, monitoring or other activities which would necessitate expenditure of resources, the department shall explain in writing the reasons for the requirements.

(2) A decision by the department to grant a waiver shall be made in writing and shall set forth the basis for the determination. The waiver determination may be initiated by the department or upon an application by the water supplier for a public water system.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10.

NR 809.03 Applicability. The provisions of this chapter shall apply to all new and existing public water systems, water suppliers, and laboratories certified to analyze drinking water.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. Register March 2016 No. 723, ef. 4−1−16.**

NR 809.04 Definitions. In this chapter:

(1) "Action level" is the concentration of lead or copper in water which determines, in some cases, the treatment requirements that a public water system is required to complete.

(2) "Best available technology" or "BAT" means the best technology treatment techniques, or other means which the U.S. environmental protection agency finds, after examination for efficacy under field conditions and not solely under laboratory conditions, are available, taking cost into consideration.

(2g) "Circuit rider" means a roving technical expert employed by a state rural water association to provide training and assistance to rural and small water utilities within the state.

(2r) "Clean compliance history" means a record of no *E. coli* MCL violations under s. NR 809.31; no monitoring violations under s. NR 809.312; and no coliform treatment technique trigger exceedances or treatment technique violations under s. NR 809.313.

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

(4) "Combined distribution system" means an interconnected distribution system consisting of the distribution systems of wholesale systems and of the consecutive systems that receive finished water.

(5) "Community water system" or "CWS" means a public water system which serves at least 15 service connections used by year−round residents or regularly serves at least 25 year−round residents. Any public water system serving 7 or more homes, 10 or more mobile homes, 10 or more apartment units, or 10 or more condominium units is a community water system unless information is available to indicate that 25 year−round residents will not be served.

(6) "Compliance cycle" means the 9−year calendar year cycle during which public water systems monitor. Each compliance cycle consists of 3, 3 year compliance periods. The first compliance cycle begins January 1, 1993 and ends December 31, 2001; the second begins January 1, 2002 and ends December 31, 2010; the third begins January 1, 2011 and ends December 31, 2019.

(7) "Compliance period" means a 3−year calendar year period within a compliance cycle. Each compliance cycle has 3, 3−year compliance periods. Within the first compliance cycle, the first compliance period runs from January 1, 1993 to December 31, 1995; the second from January 1, 1996 to December 31, 1998; the third from January 1, 1999 to December 31, 2001.

(8) "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 this chapter, the comprehensive performance evaluation consists of at least the following components: Assessment of plant performance; evaluation of major unit processes; identification and prioritization of performance limiting factors; assessment of the applicability of comprehensive technical assistance; and preparation of a CPE report.

(9) "Confirmed presence" means the presence of coliform bacteria in a water sample confirmed by a total coliform−positive repeat sample.

(10) "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.

(11) "Consecutive System" means a public water system that receives some or all of its finished water from one or more wholesale systems through a master metering system. This public water system may also be known as a wholesale purchaser or wholesale customer. Delivery may be through a direct connection or through the distribution system of one or more consecutive systems.

(12) "Conventional filtration treatment" means a series of processes including coagulation, flocculation, sedimentation, and filtration resulting in substantial particulate removal.

(13) "Contaminant" means any physical, chemical, biological, or radiological substance or matter in water.

(14) "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.

(15) "CT" or "CTcalc" is the product of the residual disinfectant concentration (C) in mg/l determined before or at the first customer, and the corresponding disinfectant contact time (T) in minutes, i.e., "C" x "T". If a public water system applies disinfectants at more than one point prior to the first customer, it shall determine the CT of each disinfectant sequence before or at the first customer, to determine the total percent inactivation or "total inactivation ratio." The inactivation ratio for a single disinfectant sequence is:

$$\frac{CT_{calc}}{CT_{table}}$$

where "CT_{table}" is the CT value required for the target organism and the target level of inactivation as contained in ss. NR 810.47 to 810.61. The sum of the inactivation ratios, or total inactivation ratio for a series of disinfection sequences is:

$$\sum \frac{(CT_{calc})}{CT_{table}}$$

and is calculated by adding together the inactivation ratio for each disinfection sequence. In determining the total inactivation ratio, the water supplier determines the residual disinfectant concentration of each sequence and corresponding contact time before any subsequent disinfection application points. A total inactivation ratio equal to or greater than 1.0 is assumed to provide the target level of disinfection of the target organism.

(16) "Department" means the department of natural resources.

(17) "Diatomaceous earth filtration" means a process resulting in substantial particulate removal in which:

(a) A pre−coat cake of diatomaceous earth filter media is deposited on a support membrane (septum); and

(b) While the water is filtered by passing through the cake on the septum, additional filter media known as body feed is continuously added to the feed water to maintain the permeability of the filter cake.

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

(19) "Disinfectant contact time" ("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 "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 where residual disinfectant concentration ("C") is measured. Where more than one "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 is calculated based on "plug flow" by dividing the internal volume of the pipe by the maximum hourly flow rate through the pipe. Disinfectant contact time within mixing basins and storage reservoirs shall be determined by tracer studies or other department approved equivalent demonstration.

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

(21) "Disinfection profile" means a summary of daily *Giardia lamblia* inactivation through the treatment plant. The procedure for developing a disinfection profile is contained in s. NR 810.32.

(22) "Distribution system" means all pipes or conduits by which water is delivered to consumers except piping and fixtures inside buildings served, water services and private water mains as defined in ch. SPS 381.

(23) "Domestic or other non−distribution system plumbing problem" means a coliform contamination problem in a public water system with more than one service connection that is limited to the specific service connection from which the coliform−positive sample was taken.

(24) "Dose equivalent" means the product of the absorbed dose for 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).

(24m) "Dual purpose sample" means a repeat coliform sample collected at the groundwater source to meet requirements for both triggered source water monitoring, and repeat coliform monitoring following a routine positive distribution sample. It is only allowed at groundwater systems serving a population of less than 1,000 people.

(25) "Dual sample set" means a set of two samples collected at the same time and same location, with one sample analyzed for total trihalomethanes (TTHM) and the other sample analyzed for Haloacetic acids five (HAA5).

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

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

(28) "Effective corrosion inhibitor residual" means a concentration sufficient to form a protective coating on the interior walls of a pipe.

(29) "Entry point" means a location in the public water system after treatment or chemical addition, if any, but prior to the distribution system. A sample collected in the distribution system may be considered an entry point sample if the department has determined it is more representative of the water sources.

(30) "Environmental protection agency" or "EPA" means the agency of the United States federal government ultimately responsible for establishing and enforcing national primary drinking water regulations.

(31) "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.

(32) "Filtration" means a process for removing particulate matter from water by passage through porous media.

(33) "Finished water" means water that is introduced into the distribution system of a public water system and is intended for distribution and consumption without further treatment, except as treatment necessary to maintain water quality in the distribution system, for example booster disinfection or addition of corrosion control chemicals.

(34) "First draw sample" means a one−liter sample of tap water that has been standing in plumbing pipes at least 6 hours and is collected without flushing the tap.

(35) "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.

(36) "4 log treatment of viruses" means a treatment process or a combination of treatment processes that provides inactivation or removal of 99.99% of viruses.

(37) "GAC10" means granular activated carbon filter beds with an empty−bed contact time of 10 minutes based on average daily flow and a carbon reactivation frequency of every 180 days, except that the reactivation frequency of GAC10 used as a best available technology for compliance with MCLs at LRAA monitoring locations is every 120 days.

(37m) "GAC20" means granular activated carbon filter beds with an empty−bed contact time of 20 minutes based on average daily flow and a carbon reactivation frequency of every 240 days.

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

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

(40) "Groundwater under the direct influence of surface water"(GWUDI) means any water beneath the surface of the ground with:

(a) Occurrence of insects or other macroorganisms, algae or large diameter pathogens such as *Giardia lamblia* or *Cryptosporidium*, in greater than or equal to 10% of representative source water samples collected over a period of 6 months, immediately prior to the first or only point of disinfectant application, or

(b) Evidence of relatively rapid shifts in water characteristics such as turbidity, temperature, conductivity, or pH which closely correlate to climatological or surface water conditions where the department determines that these shifts are indications of the potential for contamination of the groundwater by the organisms identified in par. (a).

(41) "Haloacetic acids (five)" or "HAA5" means the sum of the concentrations in milligrams per liter of the haloacetic acid compounds (monochloroacetic acid, dichloroacetic acid, trichloroacetic acid, monobromoacetic acid and dibromoacetic acid), rounded to 2 significant figures after addition.

(42) "Holding time" means the period from time of sampling to time of analysis.

(42m) "Human consumption" means drinking; bathing, including all personal hygiene needs in a home, business, or school setting; showering; hand washing; cooking; dishwashing; and maintaining oral hygiene.

(43) "Initial compliance period" means the first full 3−year compliance period which begins at least 18 months after promulgation of the federal regulations. For monitoring contaminants in ss. NR 809.11 (2) and 809.20 (1), the initial compliance period means January 1993 — December 1995 for public water systems with 150 or more service connections and January 1996 — December 1998 for public water systems having fewer than 150 service connections.

(44) "Initial Distribution System Evaluation or "IDSE" means an evaluation using monitoring to determine locations with representative high TTHM and HAA5 concentrations throughout the distribution system of a public water system.

(45) "Large water system" means, for the purpose of monitoring lead and copper, a public water system that serves more than 50,000 persons.

(46) "Lead service line" means a service line made of lead which connects the water main to the building inlet and any lead pigtail, gooseneck or other fitting which is connected to such lead line.

(46m) "Learns of the violation" for the purpose determining public notification timing requirements under subch. VII means any of the following:

(a) The date that a laboratory notifies a water supplier of results demonstrating exceedances of MCLs, MRDLs, or action levels.

(b) The day after a specified deadline in NR 809, for violation of deadlines that are not related to MCL, MRDL or action level exceedances.

(c) The date on which the violation, incident, or condition occurred, for any other type of violation, incident, or condition requiring public notification.

(d) The date specified in writing by the department to the water supplier.

(47) "*Legionella*" means a genus of bacteria, some species of which have caused a type of pneumonia called Legionnaires disease.

(47g) "Level 1 assessment" means an evaluation to identify the possible presence of sanitary defects, defects in distribution system coliform monitoring practices, and, when possible, the likely reason that the system triggered the assessment. It is triggered by total coliform detections under s. NR 809.31. It is conducted by the system operator or owner.

(47r) "Level 2 assessment" means an evaluation to identify the possible presence of sanitary defects, defects in distribution system coliform monitoring practices, and, when possible, the likely reason that the system triggered the assessment. A Level 2 assessment provides a more detailed examination of the system, including the system's monitoring and operational practices, than does a Level 1 assessment through the use of more comprehensive investigation and review of available information, additional internal and external resources, and other relevant practices. It is conducted by an individual approved by the department, which may include the system operator.

(48) "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 calendar quarters.

(49) "Long term 2 surface water treatment rule" or "LT2" means the monitoring and requirements under the federal rule 40 CFR part 141 Subpart W.

(50) "Man−made beta particle and photon emitters" means all radionuclides emitting beta particles or photons, or both, listed in Maximum Permissible Body Burdens and Maximum Permissible Concentration of Radionuclides in Air or Water for Occupational Exposure, NBS Handbook 69, except the daughter products of thorium−232, uranium−235 and uranium−238.

(51) "Maximum contaminant level" or "MCL" means the maximum permissible level of a contaminant in water which is delivered to any user of a public water system.

(52) "Maximum contaminant level goal" or "MCLG" means the maximum level of a contaminant in drinking water at which no known or anticipated adverse effect on the health of persons would occur, and which allows an adequate margin of safety. Maximum contaminant level goals are non−enforceable health goals, unless the department determines that action is necessary to protect public health.

(53) "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.

(54) "Maximum residual disinfectant level goal" or "MRDLG" means the maximum level of a disinfectant added for water treatment at which no known or anticipated adverse effect on the health of persons would occur, and which allows an adequate margin of safety. MRDLGs are nonenforceable health goals and do not reflect the benefit of the addition of the chemical for control of waterborne microbial contaminants.

(55) "Medium−size water system" means, for the purpose of monitoring lead and copper, a public water system that serves greater than 3,300 and less than or equal to 50,000 persons.

(56) "Near the first service connection" means at one of the 20% of all service connections in the entire distribution system that are nearest the water supply treatment facility or water supply source, as measured by water transport time within the distribution system.

(57) "Non−community water system" or "NCWS" means a public water system that is not a community water system. A non−community water system is either a non−transient non−community water system or a transient non−community water system.

(58) "Non−transient non−community water system" or "NTNCWS" means a non−community water system that regularly serves at least 25 of the same persons over 6 months per year.

Note: Examples of non−transient non−community water systems include those serving schools, day care centers and factories.

(59) "Optimal corrosion control treatment" means the corrosion control treatment that minimizes the lead and copper concentrations at users' taps while insuring that the treatment does not cause the public water system to violate any national primary drinking water regulations as listed in 40 CFR part 141.

(59m) "Performance evaluation 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 department. The true value of the concentration of the reference material is unknown to the laboratory at the time of the analysis.

Note: Performance evaluation samples are also known as proficiency testing samples.

(60) "Person" means an individual, corporation, company, association, cooperative, trust, institution, partnership, state, municipality, or federal agency.

(61) "Picocurie" or "pCi" means that quantity of radioactive material producing 2.22 nuclear transformations per minute.

(62) "Plant" means any facility for the obtainment of potable water, whether from surface water or groundwater sources, for a community water system.

(63) "Point−of−disinfectant application" is the point where the disinfectant is applied and water downstream of that point is not subject to recontamination by surface runoff.

(64) "Point−of−entry treatment device" or "POE" is a water treatment device applied to the drinking water entering a house or building for the purpose of reducing contaminants in the drinking water distributed throughout the house or building.

(65) "Point−of−use treatment device" or "POU" is a water treatment device applied to a single tap used for the purpose of reducing contaminants in drinking water at that one tap.

(66) "Primary maximum contaminant levels" means those maximum contaminant levels which represent minimum public health standards.

(67) "Public water system"or "PWS" means a system for the provision to the public of piped water for human consumption through pipes or other constructed conveyances, if the system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. A public water system is either a "community water system" or a "non−community water system." A public water system:

(a) Includes any collection, treatment, storage and distribution facilities under control of the water supplier for the public water system and used primarily in connection with the system.

(b) Includes any collection or pretreatment storage facilities not under the control of the water supplier for the public water system, which are used primarily in connection with the system.

(c) Does not include any "special irrigation district."

Note: The definition of public water system as regulated by this chapter is broader and includes more water systems than those governed by the public service commission under its definition of a public utility in ch. 196, Stats.

(68) "Rem" means the unit of dose equivalent from ionizing radiation to the total body or any internal organ or organ system. A "millirem" or "mrem" is 1/1000 of a rem.

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

(70) "Residual disinfectant concentration" ("C" in CT calculations) means the concentration of disinfectant measured in mg/l in a representative sample of water.

(71) "Running annual average" means the sum of 1, 2, 3, or 4 calendar quarter sample results divided by 4. The first sample may be the average of the initial and confirmation sample results. If more than 4 calendar quarters of samples have been collected in more than 4 consecutive calendar quarters, the results from the 4 most recent quarters are used. If multiple compliance samples are collected in a single calendar quarter, the sample which yielded the highest concentration is used to calculate the running annual average. If a quarterly sample is not taken within a required consecutive quarter then the divisor is the number of quarterly samples that have been analyzed within the required time period.

(71m) "Sanitary defect" means a defect that could provide a pathway of entry for microbial contamination into the distribution system or that is indicative of a failure or imminent failure in a barrier that is already in place.

(72) "Sanitary survey" means an on−site inspection of the water source, facilities, equipment, operation and maintenance of a public water system for the purpose of evaluating the adequacy of the source, facilities, equipment, operation and maintenance for producing and distributing safe drinking water.

(72m) "Seasonal system" means a non−community water system that is not operated as a public water system on a year−round basis and that starts up and shuts down at the beginning and end of each operating season.

(73) "Secondary drinking water standards" means those standards for aesthetic parameters which represent minimum public welfare concerns but do not represent health standards.

(74) "Sedimentation" means a process for removal of solids before filtration by gravity or separation.

(74m) "Serves or serving" means provides or providing the opportunity for human consumption.

(75) "Service line sample" means a one−liter sample of water that has been standing for at least 6 hours in a service line.

(76) "Significant deficiency" includes, but is not limited to, defects in design, operation, or maintenance of a public water system, or a failure or malfunction of the water sources, treatment, storage or distribution system of a public water system that the department determines to be causing the introduction of contamination into the water delivered to consumers or when the department determines that a health risk exists to consumers of the water.

(77) "Single family structure" means a building constructed as a single−family residence that is currently used as either a residence or a place of business.

(78) "Slow sand filtration" means a process involving passage of raw water through a bed of sand at low velocity, generally less than 0.4 m/h, resulting in substantial particulate removal by physical and biological mechanisms.

(79) "Small water system" means, for the purposes of monitoring lead and copper, a public water system that serves 3,300 persons or fewer.

(80) "Special irrigation district" means an irrigation district in existence prior to May 18, 1994 that provides primarily agricultural service through a piped water system with only incidental residential or similar use where the system or the residential or similar users of the system are supplied with water that meets all maximum contaminant levels of subch. I.

(81) "Stage 1 Disinfection Byproducts" or "Stage 1 DBP" means the compliance requirements under the federal rule 40 CFR part 141 Subpart L.

(82) "Stage 2 Disinfection Byproducts" or "Stage 2 DBP" means the compliance requirements under the federal rule 40 CFR part 141 Subpart U.

(83) "Surface water" means all water which is open to the atmosphere and subject to surface runoff.

(84) "Surface water systems" means public water systems using surface water or groundwater under the direct influence of surface water as a source and that are subject to the requirements of 40 CFR 141, subpart H, which contains the national primary drinking water regulations.

(85) "SUVA" means specific ultraviolet absorption at 254 nanometers (nm).

Note: SUVA is 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 254 nm

(UV_{254}) (measured in m^{-1}) by its concentration of dissolved organic carbon (DOC) (in mg/L).

(86) "System with a single service connection" means a public water system which supplies drinking water to consumers via a single service line.

(87) "Too numerous to count" means that the total number of bacterial colonies exceeds 200 on a 47−mm diameter membrane filter used for coliform detection.

(88) "Total organic carbon" or "TOC" means total organic carbon in mg/L measured using heat, oxygen, ultraviolet irradiation, chemical oxidants or combinations of these oxidants that convert organic carbon to carbon dioxide, rounded to 2 significant figures.

(89) "Transient non−community water system" or "TNCWS" means a non−community water system that serves at least 25 people at least 60 days of the year but does not regularly serve at least 25 of the same persons over 6 months per year.

Note: Examples of transient non−community water systems include those serving taverns, motels, restaurants, churches, campgrounds and parks.

(89m) "Virus" means a virus of fecal origin which is infectious to humans by waterborne transmission.

(90) "Waterborne disease outbreak" means the significant occurrence of acute infectious illness, epidemiologically associated with the ingestion of water from a public water system which is deficient in treatment or is supplied from a contaminated source, as determined by the department or other local or state agency.

(91) "Water supplier" means any person who owns or operates a public water system.

(92) "Wholesale system" means a public water system that treats source water as necessary to produce finished water and then delivers some or all of that finished water to another public water system. Delivery may be through a direct connection or through the distribution system of one or more consecutive systems.

(93) "Year−round resident" means a resident who resides in the same living unit for 6 months per year or more.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; corrections in (43) made under s. 13.92 (4) (b) 7., Stats., Register November 2010 No. 659; correction in (22) made under s. 13.92 (4) (b) 7., Stats., Register February 2012 No. 674; correction in (59) made under s. 13.92 (4) (b) 7., Stats., Register January 2013 No. 685; **CR 15−049: cr. (2g), (2r), am. (5) to (8), (15), (19) (b), cr. (24m), am. (37), cr. (37m), (42m), (46m), (47g), (47r), am. (52), cr. (59m), am. (71), cr. (71m), (72m), (74m), renum. (93) to (89m), cr. (93) Register March 2016 No. 723, eff. 4−1−16; correction in (46m) made under s. 35.17, Stats., Register March 2016 No. 723.**

NR 809.05 Coverage. This chapter applies to each public water system, unless the public water system meets all of the following conditions:

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

(2) Obtains all of its water from, but is not owned or operated by, a public water system to which the regulations in this chapter apply.

(3) Does not sell water to any person.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: r. (4) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.06 General requirements. Water suppliers shall conduct the minimum monitoring required by this chapter. The department may increase any monitoring requirements in this chapter, if the department determines that any increase is necessary to protect public health, safety or welfare. The department may require additional monitoring and analysis when necessary to verify water quality, treatment effectiveness, or to ensure representative sampling throughout an entire distribution system. The department may decrease any monitoring requirements in this chapter, if the department determines that such a decrease will not adversely affect protection of public health, safety or welfare.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. Register March 2016 No. 723, eff. 4−1−16.**

Subchapter I — Maximum Contaminant Levels, Monitoring and Analytical Requirements for Primary Drinking Water Contaminants

NR 809.07 Maximum contaminant level goals for primary contaminants. (1) Maximum contaminant level goals (MCLGs) are zero for the following contaminants:

Giardia lamblia
Cryptosporidium
Legionella
Escherichia coli
Viruses
Lead
Arsenic
Chloroform
Bromodichloromethane
Bromoform
Bromate
Dichloroacetic acid
Combined radium−226 and radium−228
Beta particle and photon radioactivity
Gross alpha particle activity (excluding radon and uranium)
Uranium

(2) Maximum contaminant level goals (MCLGs) which are less than the MCLs are as follows:

Contaminant	MCLG in mg/ L
Acrylamide	0.00001
Alachlor	0.0004
Benzene	0.001
Benzo[a]pyrene	0.000002
Carbon tetrachloride	0.0003
Chlordane	0.00003
Chlorite	0.8
Dibromochoromethane	0.06
Dibromochloropropane	0.00003
Di(2−ethylhexyl)phthalate	0.003
1,2−Dichloroethane	0.0004
1,2−Dichloropropane	0.0005
Epichlorohydrin	0.004
Ethylene Dibromide	0.0000004
Heptachlor	0.000008
Heptachlor Epoxide	0.000004
Hexachlorobenzene	0.00002
Pentachlorophenol	0.0003
Polychlorinated biphenyls (PCBs)	0.000005
2,3,7,8−TCDD (Dioxin)	2×10^{-10}
Tetrachloroethylene	0.0007
Thallium	0.0005
Toxaphene	0.00003
1,1,2−Trichloroethane	0.003
Trichloroethylene	0.003
Vinyl chloride	0.000015

(3) MCLGs which equal the MCLs are as follows:

Contaminant	MCLG in mg/ L
Atrazine, (total chlorinated residue)[1]	0.003
Antimony	0.006
Asbestos	7 Million fibers/L (longer than 10 micrometers)
Barium	2
Beryllium	0.004
Cadmium	0.005
Carbofuran	0.04
Chromium	0.1
Copper	1.3
Cyanide(as free Cyanide)	0.2
2,4−D	0.07
Dalapon	0.2
o−Dichlorobenzene	0.6
para−Dichlorobenzene	0.075
1,1−Dichloroethylene	0.007
cis−1,2−Dichloroethylene	0.07
trans−1,2−Dichloroethylene	0.1
Dichloromethane	0.005
Di(2−ethylhexyl)adipate	0.4
Dinoseb	0.007
Diquat	0.02
Endothall	0.1
Endrin	0.002
Ethylbenzene	0.7
Fluoride	4.0
Glyphosate	0.7
Hexachlorocyclopentadiene	0.05
Lindane	0.0002
Mercury	0.002
Methoxychlor	0.04
Monochlorobenzene	0.1
Nickel	0.1
Nitrate	10 (as Nitrogen)
Nitrite	1 (as Nitrogen)
Nitrate+Nitrite	10 (as Nitrogen)
Oxamyl	0.2
Picloram	0.5
Selenium	0.05
Simazine	0.004
Styrene	0.1
Toluene	1
1,2,4−Trichlorobenzene	0.07
1,1,1−Trichloroethane	0.2

[1] Atrazine, total chlorinated residue includes atrazine and its metabolites, diaminoatrazine, diethylatrazine and deisopropylatrazine.

(4) If a contaminant is not detected in a sample and if the limit of detection is higher than the MCLG, the MCLG shall be considered not to have been exceeded.

(5) Notwithstanding any other provisions of this chapter, if a contaminant listed in sub. (2) is detected at a concentration above the MCLG but below the MCL for that contaminant, the following shall apply:

(a) The water supplier shall collect a confirmation sample to verify the presence of the contaminant, unless collected by the department.

(b) Based upon verified results and following a determination by the department on the need for further action as specified in par. (c), the water supplier shall provide public information to its customers indicating the analytical results achieved and the health effects of ingesting the substance at the concentration found.

(c) The department may require the water supplier to prepare and submit a report which does all of the following:

1. Assesses the cause and significance of the problem.

2. Analyzes the cost, effectiveness and feasibility of alternatives for treating the water or developing alternative water sources.

(d) If, based on the conclusions of the report if required under par. (c), the department determines that action is necessary to protect public health, it may require the water supplier to treat or replace the water source.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (1) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.09 Applicability of primary maximum contaminant levels to water sources. Except as otherwise allowed in this chapter, no water source exceeding any primary maximum contaminant level in this chapter may be connected to a public water system unless blending or treatment is provided such that the primary maximum contaminant level is not exceeded upon entry to the distribution system.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10.

NR 809.10 Use of bottled water. Public water systems may not use bottled water to achieve compliance with an MCL. Bottled water may be used temporarily to avoid unreasonable risk to health.

History: CR 15−049: cr. Register March 2016 No. 723, eff. 4−1−16.

NR 809.11 Inorganic chemical maximum contaminant levels and BATs. (1) APPLICABILITY. The following requirements apply to all of the maximum contaminant levels for inorganic contaminants:

(a) The maximum contaminant levels for nitrate and nitrite apply to both community water systems and non−community water systems, except as provided in sub. (3).

(b) The maximum contaminant level for fluoride only applies to community water systems.

(c) The maximum contaminant levels for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, mercury, nickel, selenium and thallium apply to community water systems and non−transient, non−community water systems.

(d) Compliance with maximum contaminant levels for inorganic chemicals is calculated under s. NR 809.117.

(2) MCLS FOR INORGANICS. The following are the maximum contaminant levels for inorganic contaminants:

Contaminant	MCL in mg/ L
Antimony	0.006
Arsenic	0.010
Asbestos	7 Million fibers/Liter (longer than 10 um)
Barium	2
Beryllium	0.004
Cadmium	0.005
Chromium	0.1
Cyanide(as free Cyanide)0.2	
Fluoride	4.0
Mercury	0.002
Nickel	0.1
Nitrate	10 (as Nitrogen)
Nitrite	1 (as Nitrogen)
Total Nitrate Nitrite	10 (as Nitrogen)
Selenium	0.05
Thallium	0.002

(3) OPERATION WITH NITRATES NOT EXCEEDING 20 MG/L. At the discretion of the department, nitrate as nitrogen levels not to exceed 20 mg/l may be allowed in a non−community water system if the water supplier demonstrates all of the following to the satisfaction of the department:

(a) The water will not be available to children under 6 months of age or any female who is or may become pregnant.

(b) The water supplier meets the public notification requirements under s. NR 809.958, including continuous posting of the fact that nitrate as nitrogen levels exceed 10 mg/l and the potential health effects of exposure.

(c) Local and state public health authorities will be notified annually of nitrate as nitrogen levels that exceed 10 mg/l.

(d) A supply of bacteriologically safe drinking water, containing less than 10 mg/l nitrate as nitrogen, is provided for infants less than 6 months of age and any female who is or may become pregnant.

(e) No adverse health effects will result.

(4) BEST AVAILABLE TREATMENT. The best available treatment technologies for inorganic contaminants are as follows:

(a) The best available technologies or BATs for achieving compliance with the maximum contaminant levels for the inorganic contaminants listed in sub. (2), except for fluoride, are as follows:

Contaminant	BAT(s)
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	5,7,10,13
Mercury	2[1],4,6[1],7[1]
Nickel	5,6,7
Nitrate	5,7,9
Nitrite	5,7
Selenium	1,2[3],6,7,9
Thallium	1,5

[1] BAT only if influent Hg concentration.

[2] BAT for Chromium III only.

[3] BAT for Selenium IV only.

[4] BATs for Arsenic V. Pre−oxidation may be required to convert Arsenic III to Arsenic V.

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

Key to BATs in Table:
1 = Activated Alumina
2 = Coagulation/Filtration (not BAT for public water systems < 500 service connections)
3 = Direct and Diatomite Filtration
4 = Granular Activated Carbon
5 = Ion Exchange
6 = Lime Softening (not BAT for public water systems < 500 service connections)
7 = Reverse Osmosis
8 = Corrosion Control
9 = Electrodialysis
10 = Oxidation (Chlorine)
11 = Ultraviolet
12 = Oxidation/Filtration
13 = Alkaline Chlorination (pH ≥ 8.5)

(b) A water supplier may use an alternative treatment not listed in par. (a) if it is demonstrated to the department, using pilot studies or other means, that the alternative treatment is sufficient to achieve compliance with the MCLs in sub. (2).

(5) SMALL WATER SYSTEM COMPLIANCE TECHNOLOGIES FOR ARSENIC. (a) The EPA identifies the following table as the affordable technology, treatment technique, or other means available to public water systems serving 10,000 persons or fewer for achieving compliance with the maximum contaminant level for arsenic:

Small Water System Compliance Technologies[1] for Arsenic[2]

Small water system compliance technology	Affordable for listed small water system categories[3]
Activated Alumina (centralized)	All size categories
Activated Alumina (Point−of−Use)[4]	All size categories
Coagulation/Filtration[5] 3,301–10,000	501–3,300,
Coagulation−assisted Microfiltration 3,301–10,000	501–3,300,
Electrodialysis reversal[6] 3,301–10,000	501–3,300,
Enhanced coagulation/filtration	All size categories
Enhanced lime softening (pH> 10.5)	All size categories
Ion Exchange	All size categories
Lime Softening[5] 3,301–10,000	501–3,300,
Oxidation/Filtration[7]	All size categories
Reverse Osmosis (centralized)[6] 3,301–10,000	501–3,300,
Reverse Osmosis (Point−of−Use)[4]	All size categories

[1] Section 1412(b)(4)(E)(ii) of the Safe Drinking Water Act or SDWA specifies that small water system compliance technologies must be affordable and technically feasible for small systems.

[2] Small water system compliance technology for Arsenic V. Pre−oxidation may be required to convert Arsenic III to Arsenic V.

[3] Section 1412(b)(4)(E)(ii) of the Safe Drinking Water Act or SDWA specifies 3 categories of small water systems: (i) those serving 25 or more, but fewer than 501, (ii) those serving more than 500, but fewer than 3,301, and (iii) those serving more than 3,300, but fewer than 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 supplier 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.

(b) The department may allow Point of Use (POU) treatment only if the department determines that treatment prior to entry to the distribution system is not feasible.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (2), (3) (a), (d), (4) (a) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.113 Sample collection and analytical requirements for inorganic contaminants. (1) ANALYTICAL METHODS. Analyses conducted to determine compliance with s. NR 809.11 shall be made in accordance with methods listed in Table A.

Table A
Approved Methodology for Inorganic Contaminants

Contaminant	Methodology[13]	EPA	ASTM[3]	SM[4] (18th, 19th Ed.)	SM[4] (20th Ed.)	SM[4] (21st, 22nd Ed)	SM Online[21]	Other
1. Alkalinity	Titrimetric		D1067–92, 02 B D1067−06 B, 11B	2320 B	2320 B	2320 B	2320 B–97	
	Electrometric titration						I–1030–85[5]	
2. Antimony	Inductively Coupled Plasma (ICP) — Mass Spectrometry	200.8[2]						
	Hydride−Atomic Absorption		D3697–92, 02 D3697−07					
	Atomic Absorption; Platform	200.9[2]						
	Atomic Absorption; Furnace			3113 B		3113 B	3113 B–99 3113 B−04	
	Axially Viewed Inductively Coupled Plasma−Atomic Emission Spectrometry (AVICP−AES)	200.5, Revision 4.225						
3. Arsenic[14]	ICP−Mass Spectrometry	200.8[2]						
	Atomic Absorption; Platform	200.9[2]						
	Atomic Absorption; Furnace		D2972–97, 03 C D2972−08 C	3113 B		3113 B	3113 B–99 3113 B−04, B−10	
	Hydride Atomic Absorption		D1972–97, 03 B D2972−08 B	3114 B		3114 B	3114 B–97 3114 B−09	
	Axially Viewed Inductively Coupled Plasma−Atomic Emission Spectrometry (AVICP−AES)	200.5, Revision 4.2[25]						
4. Asbestos	Transmission Electron Microscopy	100.1[9]						
	Transmission Electron Microscopy	100.2[10]						
5. Barium	Inductively Coupled Plasma	200.72		3120 B	3120 B	3120 B	3120 B–99	
	ICP−Mass Spectrometry	200.8[2]						
	Atomic Absorption; Direct Aspiration			3111D		3111 D	3111 D–99	
	Atomic Absorption; Furnace			3113 B		3113 B	3113 B–99 3113 B−04, B−10	

Table A
Approved Methodology for Inorganic Contaminants (Continued)

Contaminant	Methodology[13]	EPA	ASTM[3]	SM[4] (18th, 19th Ed.)	SM[4] (20th Ed.)	SM[4] (21st, 22nd Ed)	SM Online[21]	Other
	Axially Viewed Inductively Coupled Plasma−Atomic Emission Spectrometry (AVICP−AES)	200.5, Revision 4.2[25]						
6. Beryllium	Inductively Coupled Plasma	200.7[2]		3120 B	3120 B	3120 B	3120 B–99	
	ICP−Mass Spectrometry	200.8[2]						
	Atomic Absorption; Platform	200.9[2]						
	Atomic Absorption; Furnace		D3645–97, 03 B D3645−08 B	3113 B		3113 B	3113 B–99 3113 B−04, B−10	
	Axially Viewed Inductively Coupled Plasma−Atomic Emission Spectrometry (AVICP−AES)	200.5, Revision 4.2[25]						
7. Cadmium	Inductively Coupled Plasma	200.7[2]						
	ICP−Mass Spectrometry	200.8[2]						
	Atomic Absorption; Platform	200.9[2]						
	Atomic Absorption; Furnace			3113 B		3113 B	3113 B–99 3113 B−04, B−10	
	Axially Viewed Inductively Coupled Plasma−Atomic Emission Spectrometry (AVICP−AES)	200.5, Revision 4.2[25]						
8. Calcium	EDTA titrimetric		D511–93, 03 A D511−09 A	3500–Ca D	3500–Ca B	3500−Ca B	3500–Ca B–97	
	Atomic Absorption; Direct Aspiration		D511–93, 03 B D511−09 B	3111 B		3111 B	3111 B–99	
	Inductively Coupled Plasma	200.7[2]		3120 B	3120 B	3120 B	3120 B–99	
	Ion Chromatography		D6919–03 D6919−09					
	Axially Viewed Inductively Coupled Plasma−Atomic Emission Spectrometry (AVICP−AES)	200.5, Revision 4.2[25]						
9. Chromium	Inductively Coupled Plasma	200.7[2]		3120 B	3120 B	3120 B	3120 B–99	
	ICP−Mass Spectrometry	200.8[2]						

Table A
Approved Methodology for Inorganic Contaminants (Continued)

Contaminant	Methodology[13]	EPA	ASTM[3]	SM[4] (18th, 19th Ed.)	SM[4] (20th Ed.)	SM[4] (21st, 22nd Ed)	SM Online[21]	Other
	Atomic Absorption; Platform	200.9[2]						
	Atomic Absorption; Furnace			3113 B		3113 B	3113 B–99 3113 B−04, B−10	
	Axially Viewed Inductively Coupled Plasma−Atomic Emission Spectrometry (AVICP−AES)	200.5, Revision 4.2[25]						
10. Copper	Atomic Absorption; Furnace		D1688–95, 02 C D1688−07 C	3113 B		3113 B	3113 B–99 3113 B−04, B−10	
	Atomic Absorption; Direct Aspiration		D1688–95, 02 A	3111 B		3111 B	3111 B–99	
	Inductively Coupled Plasma	200.7[2]		3120 B	3120 B	3120 B	3120 B–99	
	ICP−Mass Spectrometry	200.8[2]						
	Atomic Absorption; Platform	200.9[2]						
	Axially Viewed Inductively Coupled Plasma−Atomic Emission Spectrometry (AVICP−AES)	200.5, Revision 4.2[25]						
11. Conductivity	Conductance		D1125–95 (Reapproved 1999) A	2510 B	2510 B	2510 B	2510 B–97	
12. Cyanide	Manual Distillation followed by		D2036–98 A D2036−06 A	4500–CN⁻C	4500–CN⁻C			
	Spectrophotometric, Amenable		D2036–98 B D2036−06 B	4500–CN⁻G	4500–CN⁻G	4500–CN⁻G	4500–CN⁻G–99	
	Spectro−photometric Manual		D2036–98 A D2036−06 A	4500–CN⁻E	4500–CN⁻E	4500–CN⁻E	4500–CN⁻E–99	I–3300–85[5]
	Spectro−photometric Semi−automated	335.4[6]						
	Selective Electrode			4500–CN⁻F	4500–CN⁻F	4500−CN⁻F	4500–CN⁻F–99	
	UV, Distillation, Spectrophotometric							Kelada–01[16]
	Micro Distillation, Flow Injection, Spectrophotometric							QuikChem 10–204–00–1–X[17]
	Ligand Exchange and Amperometry[20]		D6888–04					OIA–1677, DW[19]
	Gas Chromatography/ Mass Spectrometry Headspace							MME355.01[26]
13. Fluoride	Ion Chromatography	300.0[6], 300.1[18]	D4327–97, 03	4110 B	4110 B		4110 B–00	
	Manual Distill.; Color. SPADNS			4500–F⁻B, D	4500–F⁻B, D	4500–F⁻B, D	4500–F⁻B, D–97	

Table A
Approved Methodology for Inorganic Contaminants (Continued)

Contaminant	Methodology[13]	EPA	ASTM[3]	SM[4] (18th, 19th Ed.)	SM[4] (20th Ed.)	SM[4] (21st, 22nd Ed)	SM Online[21]	Other
	Manual Electrode		D1179–93, 99 B D1179−04, 10 B	4500–F⁻C	4500–F⁻C	4500–F⁻C	4500–F⁻C–97	
	Automated Electrode							380–75WE[11]
	Automated Alizarin			4500–F⁻E	4500–F⁻E	4500–F⁻E	4500–F⁻E–97	129–71W[11]
	Capillary Ion Electrophoresis							D6508, Rev. 2[22]
	Arsenite−Free Colorimetric SPADNS							Hach SPADNS 2 Method 10225[27]
14. Lead	Atomic Absorption; Furnace		D3559–96, 03 D D3559−08 D	3113 B		3113 B	3113 B–99 3113 B−04, B−10	
	ICP–Mass spectrometry	200.8[2]						
	Atomic Absorption; Platform	200.9[2]						
	Differential Pulse Anodic Stripping Voltametry							Method 1001[15]
	Axially Viewed Inductively Coupled Plasma−Atomic Emission Spectrometry (AVICP−AES)	200.5, Revision 4.2[25]						
15. Magnesium	Atomic Absorption		D511–93, 03 B D511−09 B	3111 B		3111 B	3111 B–99	
	ICP	200.7[2]		3120 B	3120 B	3120 B	3120 B–99	
	Complexation Titrimetric Methods		D511–93, 03 A D511−09 A	3500–Mg E	3500–Mg B	3500–Mg B	3500–Mg B–97	
	Ion Chromatography		D6919–03 D6919−09					
	Axially Viewed Inductively Coupled Plasma−Atomic Emission Spectrometry (AVICP−AES)	200.5, Revision 4.2[25]						
16. Mercury	Manual, Cold Vapor	245.1[2]	D3223–97, 02	3112 B		3112 B	3112 B–99 3112 B−09	
	Automated, Cold Vapor	245.2[1]						
	ICP–Mass Spectrometry	200.8[2]						
17. Nickel	Inductively Coupled Plasma	200.7[2]		3120 B	3120 B	3120 B	3120 B–99	
	ICP–Mass Spectrometry	200.8[2]						
	Atomic Absorption; Platform	200.9[2]						

Table A
Approved Methodology for Inorganic Contaminants (Continued)

Contaminant	Methodology[13]	EPA	ASTM[3]	SM[4] (18th, 19th Ed.)	SM[4] (20th Ed.)	SM[4] (21st, 22nd Ed)	SM Online[21]	Other
	Atomic Absorption; Direct			3111 B		3111 B	3111 B–99	
	Atomic Absorption; Furnace			3113 B		3113 B	3113 B–99 3113 B−04	
	Axially Viewed Inductively Coupled Plasma−Atomic Emission Spectrometry (AVICP−AES)	200.5, Revision 4.2[25]						
18. Nitrate	Ion Chromatography	300.0[6]300.1[18]	D4327–97, 03 D4327−11	4110 B	4110 B	41410 B	4110 B–00	B–1011[8]
	Automated Cadmium Reduction	353.2[6]	D3867–90 A	4500–NO3⁻F	4500–NO3⁻F	4500–NO3⁻F	4500–NO3⁻F–00	
	Ion Selective Electrode			4500–NO3⁻D	4500–NO3⁻D	4500–NO3⁻D	4500–NO3⁻D–00	601[7]
	Manual Cadmium Reduction		D3867–90 B	4500–NO3⁻E	4500–NO3⁻E	4500–NO3⁻E	4500–NO3⁻E–00	
	Capillary Ion Electrophoresis							D6508, Rev. 2[22]
	Reduction/Colorimetric							Systea Easy (1−Reagent)[28]
19. Nitrite	Ion Chromatography	300.0[6]300.1[18]	D4327–97, 03	4110 B	4110 B	4110 B	4110 B–00	B–1011[8]
	Automated Cadmium Reduction	353.2[6]	D3867–90 A	4500–NO3⁻F	4500–NO3⁻F	4500–NO3⁻F	4500–NO3⁻F–00	
	Manual Cadmium Reduction		D3867–90 B	4500–NO3⁻E	4500–NO3⁻E	4500–NO3⁻E	4500–NO3⁻E–00	
	Spectrophotometric			4500–NO2⁻B	4500–NO2⁻B	4500–NO2⁻B	4500–NO2⁻B–00	
	Capillary Ion Electrophoresis							D6508, Rev. 2[22]
	Reduction/Colorimetric							Systea Easy (1−Reagent)[28]
20. Ortho−phosphate[12]	Colorimetric, Automated, Ascorbic Acid	365.1[6]		4500–P F	4500–P F	4500–P F	4500−P F−99	
	Colorimetric, ascorbic acid, single reagent		D515–88 A	4500–P E	4500–P E	4500–P E		
	Colorimetric Phosphomolybdate;							I–1601–85[5]
	Automated−segmented flow;							I–2601–90[5]
	Automated Discrete							I–2598–85[5]
	Ion Chromatography	300.0[6] 300.1[18]	D4327–97, 03	4110 B	4110 B		4110 B–00	
	Capillary Ion Electrophoresis							D6508, Rev. 2[22]
21. pH	Electrometric	150.1, 150.2[1]	D1293–95, 99 D1293−12	4500–H⁺B	4500–H⁺B	4500–H⁺B	4500–H⁺B–00	
22. Selenium	Hydride−Atomic Absorption		D3859–98, 03 A	3114 B		3114 B	3114 B–97 3114 B−09	

Table A
Approved Methodology for Inorganic Contaminants (Continued)

Contaminant	Methodology[13]	EPA	ASTM[3]	SM[4] (18th, 19th Ed.)	SM[4] (20th Ed.)	SM[4] (21st, 22nd Ed)	SM Online[21]	Other
	ICP–Mass Spectrometry	200.8[2]						
	Atomic Absorption; Platform	200.9[2]						
	Atomic Absorption; Furnace		D3859–98, 03 B D3859−08 B	3113 B		3113 B	3113 B–99 3113 B−04	
	Axially Viewed Inductively Coupled Plasma−Atomic Emission Spectrometry (AVICP−AES)	200.5, Revision 4.2[25]						
23. Silica	Colorimetric, Molybdate Blue							I–1700–85[5]
	Automated−segmented Flow							I–2700–85[5]
	Colorimetric		D859–94, 00 D859−05, 10					
	Molybdosilicate			4500–Si D	4500–SiO2 C	4500–SiO2 C	4500–SiO2 C–97	
	Heteropoly blue			4500–Si E	4500–SiO2 D	4500–SiO2 D	4500–SiO2 D–97	
	Automated for Molybdate−reactive Silica			4500–Si F	4500–SiO2 E	4500–SiO2 E	4500–SiO2 E–97	
	Inductively Coupled Plasma	200.7[2]		3120 B	3120 B	3120 B	3120 B–99	
	Axially Viewed Inductively Coupled Plasma−Atomic Emission Spectrometry (AVICP−AES)	200.5, Revision 4.2[25]						
24. Sodium	Inductively Coupled Plasma	200.7[2]						
	Atomic Absorption; Direct Aspiration			3111 B		3111 B	3111 B–99	
	Ion Chromatography		D6919–03 D6919−09					
	Axially Viewed Inductively Coupled Plasma−Atomic Emission Spectrometry (AVICP−AES)	200.5, Revision 4.2[25]						
25. Temperature	Thermometric			2550	2550	2550	2550–00 2550−10	
26. Thallium	ICP–Mass Spectrometry	200.8[2]						
	Atomic Absorption; Platform	200.9[2]						
27. Turbidity	Nephelometric	180.1[23]		2130 B		2130 B	2130 B−01	

Table A
Approved Methodology for Inorganic Contaminants (Continued)

Contaminant	Methodology[13]	EPA	ASTM[3]	SM[4] (18th, 19th Ed.)	SM[4] (20th Ed.)	SM[4] (21st, 22nd Ed)	SM Online[21]	Other
	Great Lakes Instrument							Instruments Method 2[24]
	Laser Nephelometry (on−line)							Mitchell M5271[29]
	LED Nephelometry (on−line)							Mitchell M5331[30]
	LED Nephelometry (on−line)							AMI Turbiwell[31]
	LED Nephelometry (portable)							Orion AQ4500[32]
	Hach FilterTrak							10133[33]

Copies of the documents may be obtained from the sources listed below. Information regarding obtaining these documents can be obtained from the Safe Drinking Water Hotline at 800–426–4791, or go to: http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

1 "Methods for Chemical Analysis of Water and Wastes," EPA/600/4–79/020, March 1983. Available at NTIS, PB84–128677.

2 "Methods for the Determination of Metals in Environmental Samples—Supplement I," EPA/600/R–94/111, May 1994. Available at NTIS, PB95–125472.

3 *Annual Book of ASTM Standards*, 1994, 1996, 1999, or 2003, Vols. 11.01 and 11.02, ASTM International; any year containing the cited version of the method may be used. The previous versions of D1688–95A, D1688–95C (copper), D3559–95D (lead), D1293–95 (pH), D1125–91A (conductivity) and D859–94 (silica) are also approved. These previous versions D1688–90A, C; D3559–90D, D1293–84, D1125–91A and D859–88, respectively are located in the *Annual Book of ASTM Standards*, 1994, Vol. 11.01. Copies may be obtained from ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428.

4 *Standard Methods for the Examination of Water and Wastewater*, 18th edition (1992), 19th edition (1995), 20th edition (1998), 21st edition (2005), or 22nd edition (2012). American Public Health Association, 1015 Fifteenth Street, NW., Washington, DC 20005. The cited methods published in any of these three editions may be used, except that the versions of 3111 B, 3111 D, 3113 B and 3114 B in the 20th edition may not be used.

5 Method I–2601–90, Methods for Analysis by the U.S. Geological Survey National Water Quality Laboratory—Determination of Inorganic and Organic Constituents in Water and Fluvial Sediment, Open File Report 93–125, 1993; For Methods I–1030–85; I–1601–85; I–1700–85; I–2598–85; I–2700–85; and I–3300–85 See 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, CO 80225–0425.

6 "Methods for the Determination of Inorganic Substances in Environmental Samples," EPA/600/R–93/100, August 1993. Available at NTIS, PB94–120821.

7 The procedure shall be done in accordance with the Technical Bulletin 601 " Standard Method of Test for Nitrate in Drinking Water," July 1994, PN 221890–001, Analytical Technology, Inc. Copies may be obtained from ATI Orion, 529 Main Street, Boston, MA 02129.

8 Method B–1011, "Waters Test Method for Determination of Nitrite/Nitrate in Water Using Single Column Ion Chromatography," August 1987. Copies may be obtained from Waters Corporation, Technical Services Division, 34 Maple Street, Milford, MA 01757, Telephone: 508/482–2131, Fax: 508/482–3625.

9 Method 100.1, "Analytical Method For Determination of Asbestos Fibers in Water," EPA/600/4–83/043, EPA, September 1983. Available at NTIS, PB83–260471.

10 Method 100.2, "Determination of Asbestos Structure Over 10−ìm In Length In Drinking Water," EPA/600/R–94/134, June 1994. Available at NTIS, PB94–201902.

11 Industrial Method No. 129–71W, "Fluoride in Water and Wastewater," December 1972, and Method No. 380–75WE, "Fluoride in Water and Wastewater," February 1976, Technicon Industrial Systems. Copies may be obtained from Bran & Luebbe, 1025 Busch Parkway, Buffalo Grove, IL 60089.

12 Unfiltered, no digestion or hydrolysis.

13 Because MDLs reported in EPA Methods 200.7 and 200.9 were determined using a 2x preconcentration step during sample digestion, MDLs determined when samples are analyzed by direct analysis (*i.e.* , 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, lead, and thallium by Method 200.9; antimony and lead by Method 3113 B; and lead by Method D3559–90D, unless multiple in−furnace depositions are made.

14 If ultrasonic nebulization is used in the determination of arsenic by Methods 200.7, 200.8, or SM 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 100 ìL of 30% hydrogen peroxide per 100 mL of solution. For direct analysis of arsenic with Method 200.8 using ultrasonic nebulization, samples and standards must contain 1 mg/L of sodium hypochlorite.

15 The description for Method Number 1001 for lead is available from Palintest, LTD, 21 Kenton Lands Road, P.O. Box 18395, Erlanger, KY 41018. Or from the Hach Company, P.O. Box 389, Loveland, CO 80539.

16 The description for the Kelada−01 Method, "Kelada Automated Test Methods for Total Cyanide, Acid Dissociable Cyanide, And Thiocyanate," Revision 1.2, August 2001, EPA # 821–B–01–009 for cyanide is available from the National Technical Information Service (NTIS), PB 2001–108275, 5285 Port Royal Road, Springfield, VA 22161. The toll free telephone number is 800–553–6847.

Note: A 450–W UV lamp may be used in this method instead of the 550–W lamp specified if it provides performance within the quality control (QC) acceptance criteria of the method in a given instrument. Similarly, modified flow cell configurations and flow conditions may be used in the method, provided that the QC acceptance criteria are met.

17 The description for the QuikChem Method 10–204–00–1–X, "Digestion and distillation of total cyanide in drinking and wastewaters using MICRO DIST and determination of cyanide by flow injection analysis," Revision 2.1, November 30, 2000, for cyanide is available from Lachat Instruments, 6645 W. Mill Rd., Milwaukee, WI 53218. Telephone: 414–358–4200.

18 "Methods for the Determination of Organic and Inorganic Compounds in Drinking Water," Vol. 1, EPA 815–R–00–014, August 2000. Available at NTIS, PB2000–106981.

19 Method OIA–1677, DW "Available Cyanide by Flow Injection, Ligand Exchange, and Amperometry," January 2004. EPA–821–R–04–001, Available from ALPKEM, A Division of OI Analytical, P.O. Box 9010, College Station, TX 77842–9010.

20 Sulfide levels below those detected using lead acetate paper may produce positive method interferences. Test samples using a more sensitive sulfide method to determine if a sulfide interference is present, and treat samples accordingly.

[21] Standard Methods Online are available at http://www.standardmethods.org . The year in which each method was approved by the Standard Methods Committee is designated by the last two digits in the method number. The methods listed are the only online versions that may be used.

[22] Method D6508, Rev. 2, "Test Method for Determination of Dissolved Inorganic Anions in Aqueous Matrices Using Capillary Ion Electrophoresis and Chromate Electrolyte," available from Waters Corp, 34 Maple St, Milford, MA, 01757, Telephone: 508/482–2131, Fax: 508/482–3625.

[23] "Methods for the Determination of Inorganic Substances in Environmental Samples", EPA−600/R−93−100, August 1993, Available at NTIS, PB94−121811

[24] GLI Method 2, "Turbidity", November 2, 1992, Great Lakes Instruments, Inc., 8855 North 55th Street, Milwaukee, Wisconsin 53223.

[25] EPA Method 200.5 Revision 4.2. "Determination of Trace Elements in Drinking Water by Axially Viewed Inductively Coupled Plasma−Atomic Emission Spectrometry." 2003. EPA/600/R−06/115. Available at http:/www.epa.gov/nerlcwww/ordmeth.htm.

[26] Method ME355.01, Revision 1.0. "Determination of Cyanide in Drinking Water by GC/MS Headspace." May 26, 2009. Available at http://www.nemi.gov or from James Eaton , H & E Testing Laboratory, 221 State Street, Augusta, ME 04333. (207) 287−2727

[27] Hach Company Method, "Hach Company SPADNS 2 (Arsenite –free) Fluoride Method 10255−Spectrophotometric Measurement of Fluoride in Water and Wastewater," January 2011. 5600 Lindbergh Drive, P.O. Box 389, Loveland , Colorado 80539. Available at http://www.hach.com.

[28] Systea Easy (1−Reagent). "Systea Easy (1−Reagent) Nitrate Method," February 4, 2009. Available at http://www.nemi.gov or from Systea Scientific, LLC., 900 Jorie Blvd., Suite 35, Oak Brook, IL 60523.

[29] Mitchell Method M5271, Revision 1.1." Determination of Turbidity by Laser Nephelometry," March 5, 2009. Available at http://www.nemi.gov or from Leck Mitchell, PhD, PE, 656 Independence Valley Dr., Grand Junction, CO 81507.

[30] Mitchell Method M5331, Revision 1.1. "Determination of Turbidity by LED Nephelometry," March 5, 2009. Available at http://www.nemi.gov or from Leck Mitchell, PhD, PE, 656 Independence Valley Dr., Grand Junction, CO 81507.

[31] AMI Turbiwell. "Continuous Measurement of turbidity Using a SWAN AMI Turbiwell Turbidimeter," August 2009. Available at http://www.nemi.gov or from Markus Bernasconi, SWAN Analytische Instrumente AG, Studbachstrasse 13, CH−8340 Hinwil, Switzerland.

[32] Orion Method AQ4500, Revision 1.0. "Determination of Turbidity by LED Nephelometry," May 8, 2009. Available at http://www.nemi.gov or from Thermo Scientific, 166 Cummings Center, Beverly, MA 0'9'5, http://www.thermo.com.

[33] Hach FilterTrak Method 10133, "Determination of Turbidity by Laser Nephelomemtry," January 2000, Revision 2.0. Available from Hach Co., P.O. Box389, Loveland, CO 80539−0389.

(2) SAMPLE COLLECTION. Sample collection for the inorganic contaminants under s. NR 809.11 (2) shall be conducted using the sample preservation, containers and maximum holding time procedures specified in Table B. In all cases, samples should be analyzed as soon after collection as possible.

Table B
Sample Preservation, Containers and Maximum Holding Times for Inorganic Parameters

Parameter	Preservation[1]	Container[2]	Holding Time[3]
METALS			
Aluminum	HNO_3	P or G	6 months
Antimony	HNO_3	P or G	6 months
Arsenic	HNO_3	P or G	6 months
Barium	HNO_3	P or G	6 months
Beryllium	HNO_3	P or G	6 months
Cadmium	HNO_3	P or G	6 months
Copper	HNO_3	P or G	6 months
Chromium	HNO_3	P or G	6 months
Iron	HNO_3	P or G	6 months
Lead	HNO_3	P or G	6 months
Manganese	HNO_3	P or G	6 months
Mercury	HNO_3	P or G	28 days
Nickel	HNO_3	P or G	6 months
Selenium	HNO_3	P or G	6 months
Silver	HNO_3	P or G	6 months
Thallium	HNO_3	P or G	6 months
Zinc	HNO_3	P or G	6 months
OTHER PARAMETERS			
Asbestos	Cool, 4°C	P or G	48 hours[4]
Bromate	Ethylenediamine	P or G	28 days
Chloride	None	P or G	28 days
Chlorite	50 mg/L EDA, Cool to 4°C	P or G	14 days
Color	Cool, 4°C	P or G	48 hours
Cyanide	Cool, 4°C+NaOH to pH>12	P or G	14 days
Fluoride	None	P or G	28 days
Foaming Agents	Cool, 4°C	P or G	48 hours
Nitrate (as N)			
Chlorinated	Cool, 4°C	P or G	14 days
Non−Chlorinated	Cool, 4°C	P or G	48 hours[5]
Nitrite (as N)	Cool, 4°C	P or G	48 hours
Nitrate + Nitrite[6]	Conc. H_2SO_4 to pH<2	P or G	28 days

Parameter	Preservation[1]	Container[2]	Holding Time[3]
Odor	Cool, 4°C	G	48 hours
pH	None	P or G	Analyze Immediately
Solids (TDS)	Cool, 4°C	P or G	7 days
Sulfate	Cool, 4°C	P or G	28 days
Turbidity	Cool, 4°C	P or G	48 hours

[1] For cyanide determinations samples must be adjusted with sodium hydroxide to pH 12 at the time of collection. When chilling is indicated the sample must be shipped and stored at 4 5C or less. Acidification of nitrate or metals samples may be done with a concentrated acid or a dilute (50% by volume) solution of the applicable concentrated acid. Acidification of samples for metals analysis is encouraged and allowed at the laboratory rather than at the time of sampling provided the shipping time and other instructions in Section 8.3 of EPA Methods 200.7 or 200.8 or 200.9 are followed.

[2] P = plastic, hard or soft. G = glass, hard or soft.

[3] In all cases, samples should be analyzed as soon after collection as possible.

[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 101.1.

[5] If the sample is chlorinated, the holding time for an unacidified sample kept at 4°C is extended to 14 days.

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

(3) LABORATORY CERTIFICATION. Analyses under this section shall only be conducted by laboratories that have received certification under ch. NR 149 or approval by EPA.

(a) To receive certification to conduct analyses for antimony, arsenic, asbestos, barium, beryllium, cadmium, cyanide, fluoride, mercury, nickel, nitrate, nitrite, selenium and thallium, a laboratory shall carry out annual analyses of performance evaluation samples approved by the department or EPA.

(b) For each contaminant that has been included in the performance evaluation sample and for each method for which a laboratory desires certification, the laboratory shall achieve quantitative results that are within the following acceptance limits:

Contaminant	Acceptance limit
Antimony	±30% at ≥0.006 mg/L
Arsenic	±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

(4) COMPOSITE SAMPLING. Composite sampling for inorganic contaminants shall meet the following requirements:

(a) The department may reduce the total number of samples a public water system is required to analyze by allowing the use of compositing. Compositing shall only be permitted for entry points within a single public water system. Composite samples from a maximum of 5 entry points are allowed, provided that the detection limit of the method used for analysis is less than one−fifth of the MCL.

(b) Compositing of samples shall be done in the laboratory.

(c) If the concentration in the composite sample is greater than or equal to one−fifth of the MCL of any inorganic contaminant, a follow−up sample shall be taken from each entry point included in the composite and analyzed within 14 days. These samples shall be analyzed for the contaminants which exceeded one−fifth of the MCL in the composite sample.

(d) If duplicates of the original sample taken from each entry point used in the composite are available and the holding time listed in sub. (2) Table B has not been exceeded, the water supplier may use these instead of resampling. The duplicates shall be analyzed and the results reported to the department within 14 days of the composite analysis.

(e) The detection limits in Table C, are the detection limits that laboratories shall use for each analytical method and MCLs for inorganic contaminants specified in this section and s. NR 809.11:

TABLE C
Detection Limits for Inorganic Contaminants

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	Atomic Absorption; Furnace	0.001
		Atomic Absorption; Platform—Stabilized Temperature	0.0005[6]
		Atomic Absorption; Gaseous Hydride	0.001
		ICP−Mass Spectrometry	0.0014[7]
Asbestos	7 MFL[1]	Transmission Electron Microscopy	0.01 MFL
Barium	2	Atomic Absorption; furnace technique	0.002
		Atomic Absorption; direct aspiration	0.1

Contaminant	MCL (mg/l)	Methodology	Detection limit (mg/l)
		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 technique	0.0001
		Inductively Coupled Plasma	0.001
Chromium	0.1	Atomic Absorption; furnace technique	0.001
		Inductively Coupled Plasma	0.007 (0.001)
Cyanide	0.2	Distillation, Spectrophotometric[3]	0.02
		Distillation, Automated, Spectrophotometric[3]	0.005
		Distillation, Amenable, Spectrophotometric[4]	0.02
		Distillation, Selective Electrode[3, 4]	0.05
		UV, Distillation, Spectrophotometric[9]	0.0005
		Micro Distillation, Flow Injection, Spectrophotometric[3]	0.0006
		Ligand Exchange with Amperometry[4]	0.0005
Mercury	0.002	Manual Cold Vapor Technique	0.0002
		Automated Cold Vapor Technique	0.0002
Nickel	0.l	Atomic Absorption; Furnace	0.001
		Atomic Absorption; Platform	0.0006[5]
		Inductively Coupled Plasma[2]	0.005
		ICP−Mass Spectrometry	0.0005
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
		Capillary Ion Electrophoresis	0.076
Nitrite	1 (as N)	Spectrophotometric	0.01
		Automated Cadmium Reduction	0.05
		Manual Cadmium Reduction	0.01
		Ion Chromatography	0.004
		Capillary Ion Electrophoresis	0.103
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 >10 µm.

[2] Using a 2X preconcentration step as noted in Method 200.7. Lower MDLs may be achieved when using a 4X preconcentration.

[3] Screening method for total cyanides.

[4] Measures "free" cyanides when distillation, digestion, or ligand exchange is omitted.

[5] Lower MDLs are reported using stabilized temperature graphite furnace atomic absorption.

[6] The MDL reported for EPA method 200.9 (Atomic Absorption; Platform—Stabilized Temperature) was determined using a 2x concentration step during sample digestion. The MDL determined for samples analyzed using direct analyses (*i.e.*, no sample digestion) will be higher. Using multiple depositions, EPA 200.9 is capable of obtaining MDL of 0.0001 mg/L.

[7] Using selective ion monitoring, EPA Method 200.8 (ICP−MS) is capable of obtaining a MDL of 0.0001 mg/L.

[8] Measures total cyanides when UV−digestor is used, and "free" cyanides when UV−digestor is bypassed.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (1) Table A, (4) Table C Register March 2016 No. 723, eff. 4−1−16.**

NR 809.115 Monitoring requirements for inorganic contaminants. (1) GENERAL. Water suppliers shall conduct monitoring for the contaminants listed in s. NR 809.11 (2) for the purpose of determining compliance with the maximum contaminant levels shall be conducted as follows:

(a) Groundwater sources shall be sampled under normal operating conditions at every entry point to the distribution system which is representative of each well being used after treatment, beginning in the initial compliance period. Each sample shall be

taken at the same location unless conditions make another location more representative of each source or treatment plant.

(b) Surface water sources or combined surface water and groundwater sources shall be sampled under normal operating conditions, at every entry point to the distribution system after any application of treatment or in the distribution system at a point which is representative of each source after treatment, beginning in the initial compliance period. Each sample shall be taken at the same location unless conditions make another location more representative of each source or treatment plant.

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

(d) Water suppliers for all new public water systems or for public water systems that use a new source of water that begin operation after January 22, 2004 shall demonstrate compliance with the MCLs specified in s. NR 809.11 (2) in accordance with the requirements in this section. The water supplier shall also comply with the initial and routine sampling frequencies specified by the department to ensure a water supplier can demonstrate that the public water supply is in compliance with the MCLs. Routine and increased monitoring frequencies shall be conducted in accordance with the requirements of this section.

(2) MONITORING FREQUENCY FOR ASBESTOS. Water suppliers shall monitor public water systems to determine compliance with the maximum contaminant level for asbestos specified in s. NR 809.11 (2) at the following frequencies:

(a) *Initial and routine monitoring.* Each community and non−transient, non−community water system shall monitor for asbestos during the first 3−year compliance period of each 9−year compliance cycle beginning in the compliance period starting January 1, 1993, unless a waiver is granted under par. (d).

(b) *Waiver request.* If the water supplier believes the public water system it is not vulnerable to either asbestos contamination in its source water or due to corrosion of asbestos−cement pipe, or both, the water supplier may apply to the department for a waiver of the monitoring requirement in par. (a).

(c) *Waiver evaluation.* The department may grant a waiver based on a consideration of all the following factors:

1. Potential asbestos contamination of the water source.

2. The use of asbestos−cement pipe for finished water distribution.

3. The corrosive nature of the water.

(d) *Waiver conditions.* The department may grant a waiver if the conditions in par. (b) and (c) are satisfied. A waiver remains in effect until the completion of the 3−year compliance period. Water suppliers for public water systems that do not receive a waiver shall monitor in accordance with the provisions of par. (a).

(e) *Monitoring frequency with waiver.* If the department grants the waiver, the water supplier is not required to monitor under par. (a).

(f) *Sample location for vulnerable public water systems.* 1. A public water system vulnerable to asbestos contamination due solely to corrosion of asbestos−cement pipe shall be sampled once at a tap served by asbestos−cement pipe and under conditions where asbestos contamination is most likely to occur.

2. A public water system vulnerable to asbestos contamination due both to its source water supply and corrosion of asbestos−cement pipe shall be sampled once at a tap served by asbestos−cement pipe and under conditions where asbestos contamination is most likely to occur.

(g) *Sample frequency for public water systems with vulnerable source water.* A public water system vulnerable to asbestos contamination due solely to source water shall be monitored in accordance with the provisions in par. (a).

(h) *Monitoring when an MCL is exceeded.* A public water system which exceeds the MCL as determined in s. NR 809.117 shall be monitored quarterly beginning in the next quarter after the violation occurred. The department may decrease the quarterly monitoring requirement to one sample as specified in par. (a) if the department has determined that the public water system is reliably and consistently below the maximum contaminant level. In no case may the department make this determination unless a groundwater system takes a minimum of 2 quarterly samples and a surface water system or a combined surface water and groundwater system takes a minimum of 4 quarterly samples.

(i) *Grandfathered data.* If monitoring data collected after January 1, 1990 is generally consistent with the requirements of this subsection, then the department may allow water suppliers for public water systems to use that data to satisfy the monitoring requirement for the initial compliance period beginning January 1, 1993.

(3) MONITORING FREQUENCY FOR MCLS OTHER THAN ASBESTOS, NITRATE, AND NITRITE. The water supplier shall conduct monitoring for each community and non−transient, non−community water system to determine compliance with the MCLs specified in s. NR 809.11 (2) for antimony, arsenic, barium, beryllium, cadmium, chromium, cyanide, mercury, nickel, selenium and thallium at the frequencies specified in this subsection. The water supplier shall conduct monitoring for each community water system to determine compliance with the MCL in s. NR 809.11 (2) for fluoride at the frequencies specified in this subsection:

(a) *Initial monitoring.* New community public water systems or community public water systems with new sources shall demonstrate compliance with the MCLs listed under s. NR 809.11 (2) for antimony, arsenic, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium and thallium prior to initiating water service. New non−transient non−community public water systems or non−transient non−community public water systems with new sources shall take one sample for each contaminant listed in s. NR 809.11 (2) beginning with the year the public water system initiates service or the new water source is put into service. If a waiver from cyanide monitoring has been granted under par. (c) cyanide is not required to be sampled for in the initial monitoring.

(b) *Routine monitoring.* Groundwater sources shall be sampled at each sampling point during each compliance period as determined by the department. Water suppliers for public water systems having surface water sources or combined surface water and groundwater sources shall take one sample annually at each sampling point. If a waiver from cyanide monitoring has been granted under par. (c), cyanide is not required to be sampled for routine monitoring.

(c) *Waiver request.* The water supplier may apply to the department for a waiver from the monitoring frequencies specified in par. (b). Public water systems that use a new water source are not eligible for a waiver until monitoring from the new source has been conducted in at least three compliance periods except that the department may grant a waiver for monitoring of cyanide beginning with initial monitoring, provided the public water system is not vulnerable to contamination because there is no industrial source of cyanide present.

(d) *Waiver evaluation.* In determining the appropriate reduced monitoring frequency, the department shall consider all of the following:

1. Reported concentrations from all previous monitoring.

2. The degree of variation in reported concentrations.

3. Other factors which may affect contaminant concentrations such as changes in groundwater pumping rates, changes in the public water system's configuration, changes in the public

water system's operating procedures, or changes in stream flows or characteristics.

(e) *Waiver conditions.* The department may grant a waiver if surface water systems have been monitored annually for at least 3 years and groundwater systems have been monitored in at least three compliance periods. At least one of the 3 samples shall have been taken since January 1, 1990. Water suppliers for both surface and groundwater systems shall demonstrate that all previous analytical results were less than the maximum contaminant level. Public water systems that use a new water source are not eligible for a waiver until monitoring from the new source has been conducted in at least three compliance periods. A condition of the waiver shall be the collection of a minimum of one sample while the waiver is effective. The term during which the waiver is effective may not exceed 9 years.

(f) *Monitoring frequency when an MCL has been exceeded.* Public water systems which exceed the MCLs in s. NR 809.11 (2) shall be monitored quarterly beginning in the next quarter after the violation occurred. The department may decrease the quarterly monitoring requirement to the frequencies specified in pars. (a) and (b) if the department has determined that the public water system is reliably and consistently below the maximum contaminant level. In no case may the department make this determination unless a groundwater system takes a minimum of 2 quarterly samples and a surface water system takes a minimum of 4 quarterly samples.

(4) MONITORING FREQUENCY FOR NITRATE. The water supplier for public water systems shall conduct monitoring for the public water systems to determine compliance with the MCL for nitrate specified in s. NR 809.11 (2) at the following frequencies:

(a) *Initial monitoring.* Water suppliers for new public water systems or public water systems with new sources shall demonstrate compliance with the MCLs listed under s. NR 809.11 (2) for nitrate prior to initiating water service.

(b) *Routine monitoring.* Each community water system and non−community water system shall be monitored according to the following frequencies:

1. Community water systems and non−transient non−community water systems served by groundwater shall be monitored annually.

2. Community water systems and non−transient non−community water systems served by surface water shall be monitored quarterly.

3. Transient non−community water systems shall be monitored annually.

(c) *Increased monitoring due to detection at one−half the MCL and greater.* For community and non−transient non−community water systems, the repeat monitoring frequency for groundwater systems shall be quarterly for at least one year following any one sample in which the concentration is greater than or equal to 5 mg/L nitrate as nitrogen. The department may reduce a groundwater system's sampling frequency to annual after 4 consecutive quarterly samples are reliably and consistently less than the MCL.

(d) *Timing of samples after increased monitoring is ended.* After quarterly sampling is completed, any community or non−transient non− community water system which is allowed to resume routine monitoring, under par. (b), shall be monitored during the quarter which previously resulted in the highest analytical result.

(e) *Reduction of quarterly monitoring for surface water systems.* The department may reduce a surface water system's sampling frequency to annual if all analytical results from 4 consecutive quarters are less than 5 mg/L nitrate as nitrogen. A surface water system shall return to quarterly monitoring if any one sample is greater than or equal to 5 mg/L nitrate.

(f) *Monitoring if an MCL is exceeded.* Where nitrate sampling results indicate an exceedance of the MCL, the water supplier shall take a confirmation sample as required under sub. (6) (b)

(5) MONITORING FREQUENCY FOR NITRITE. The water supplier shall conduct monitoring for the public water system to determine compliance with the MCL for nitrite specified in s. NR 809.11 (2) at the following frequencies:

(a) *Initial monitoring.* Water suppliers for new public water systems or public water systems with new sources shall demonstrate compliance with the MCLs listed under s. NR 809.11 (2) for nitrite prior to initiating water service.

(b) *Routine monitoring.* After the initial sample, water suppliers for public water systems where an analytical result for nitrite is less than 0.5 mg/L nitrite as nitrogen shall monitor at the frequency specified by the department. Community and non−transient non−community water systems shall be sampled at the same frequency as the monitoring required under sub. (3).

(c) *Increased monitoring due to detection at one−half the MCL and greater.* The repeat monitoring frequency shall be quarterly for at least one year following any one sample in which the concentration of nitrite is greater than or equal to 0.5 mg/L nitrite as nitrogen. The department may reduce the sampling frequency to annual after determining the concentration is reliably and consistently less than the MCL. Each subsequent annual sample shall be taken during the quarter which previously resulted in the highest analytical result.

(d) *Monitoring if an MCL is exceeded.* If nitrite sampling results indicate an exceedance of the MCL, the water supplier shall take a confirmation sample as required under sub. (6) (b).

(6) CONFIRMATION SAMPLES. The collection of confirmation samples shall comply with the following requirements:

(a) *Department required confirmation samples.* The department may require the collection of a confirmation sample where sample results indicate an exceedance of the MCL for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium or thallium. The confirmation sample shall be collected as soon as possible after the initial sample results were received, but not exceeding 2 weeks, at the same entry point.

(b) *Mandatory confirmation samples.* If nitrate or nitrite sampling results indicate an exceedance of the MCL, the water supplier shall take a confirmation sample within 24 hours of the water supplier's receipt of notification of the analytical results of the first sample. Water suppliers unable to comply with the 24−hour sampling requirement shall immediately notify the consumers served by the public water system in accordance with subch. VII and meet other Tier 1 public notification requirements under subch. VII. Water suppliers exercising this option shall take and analyze a confirmation sample within 2 weeks of notification of the analytical results of the first sample.

(c) *Averaging of confirmation samples.* If a confirmation sample is required for any contaminant, the results of the original and the confirmation sample shall be averaged. The resultant average shall be used to determine the public water system's compliance in accordance with s. NR 809.117 (1).

(7) SAMPLING FREQUENCY. The department may require more frequent monitoring than specified in subs. (2), (3), (4) and (5) and may require confirmation samples for positive and negative results at its discretion.

(8) INCREASED MONITORING. Water suppliers may apply to the department to conduct more frequent monitoring than the minimum monitoring frequencies specified in this section.

(9) DESIGNATED SAMPLING TIME. Each public water system shall be monitored during the month, quarter or year designated

by the department during each compliance period for all monitoring required under subs. (2), (3), (4) and (5).

(10) SAMPLING ERRORS. The department may delete results of obvious sampling errors, or may require the collection of additional samples to determine whether the result is or is not in error.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (1) (d), (2) (f) 2., (3) (intro.), (a), (b) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.117 Compliance requirements for inorganic contaminants. (1) COMPLIANCE DETERMINATIONS. Compliance for inorganic contaminants shall be determined based on all of the following:

(a) Compliance with s. NR 809.11 shall be determined based on the analytical results obtained at each entry point. Any contaminant listed in s. NR 809.11 which is detected shall be quantified.

(b) For public water systems which are monitored more frequently than annually, compliance with the MCLs for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium or thallium is determined by a running annual average at each entry point. If the average at any sampling point is greater than the MCL, then the public water system is out of compliance. If any one or more samples would cause the annual average to exceed an MCL, then the public water system is out of compliance immediately. Any sample below the reported method detection limit shall be calculated at zero for the purpose of determining the annual average. If a water supplier fails to collect the required number of samples, compliance shall be based on the total number of samples collected.

(c) For public water systems which are monitored annually, or less frequently, the public water system is out of compliance with the MCL for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium or thallium if the level of a contaminant at any entry point is greater than the MCL. If a confirmation sample is required by the department, compliance shall be based on the average of the 2 samples. If a water supplier fails to collect the required number of samples, compliance shall be based on the total number of samples collected.

(d) Compliance with the MCLs for nitrate, nitrite or combined nitrate and nitrite is determined based on one sample if the levels of these contaminants are below the MCLs. If the levels exceed a MCL in the initial sample, a confirmation sample is required in accordance with s. NR 809.115 (6) (b). Compliance shall be determined based on the average of the initial and confirmation samples.

(e) Arsenic sampling results shall be reported to the nearest 0.001 mg/L.

(f) Public water systems remain out of compliance with the MCLs for nitrate, nitrite, or combined nitrate and nitrite until the results of 4 consecutive quarterly samples do not exceed the MCL. The department may specify alternate means for returning to compliance with the MCLs for nitrate, nitrite, or combined nitrate and nitrite. Alternate compliance agreements shall be in writing.

(2) MONITORING AND REPORTING VIOLATIONS. Failure to monitor shall result in a monitoring and reporting violation.

(3) USE OF ANALYTICAL RESULTS. The department may determine compliance or initiate enforcement action based upon analytical results and other information compiled by their sanctioned representatives and agencies.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (1) (f) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.118 Sodium monitoring, reporting and notification requirements. (1) GENERAL. The water supplier for a community water system shall collect and analyze one sample per plant at the entry point to the distribution system for the determination of sodium concentration. Samples shall be collected and analyzed annually for public water systems utilizing surface water sources in whole or in part, and at least every 3 years for public water systems utilizing solely groundwater sources. The minimum number of samples required to be taken by the public water system shall be based on the number of plants used by the public water system, except that multiple wells drawing raw water from a single aquifer may, with department approval, be considered one plant for determining the minimum number of samples. The water supplier may be required by the department to collect and analyze water samples for sodium more frequently in locations where the sodium content is variable.

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

(3) HEALTH OFFICIALS NOTIFICATION. The water supplier shall notify appropriate local health officials of the sodium concentration by written notice by direct mail within 3 months of receipt of sample results. A copy of each notice required to be provided by this subsection and a list of health officials notified shall be sent to the department within 10 days of its issuance.

(4) ANALYTICAL METHODS. Analyses for sodium shall be performed as prescribed in s. NR 809.113 (1), Table A.

Note: A primary maximum contaminant level has not been established for sodium.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10.

NR 809.119 Materials identification for corrosivity characteristics. Suppliers of water for community water systems shall identify whether the following construction materials are present in their distribution system and report their findings to the department:

(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.

(6) Vinyl lined asbestos cement pipe.

(7) Coal tar lined pipes and tanks.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10.

NR 809.20 Synthetic organic contaminant maximum contaminant levels and BATS. (1) APPLICABILITY. The following maximum contaminant levels for synthetic organic contaminants apply to community water systems and non−transient non−community water systems.

Contaminant	MCL (mg/L)
Alachlor	0.002
Atrazine	0.003
Benzo[a]pyrene	0.0002
Carbofuran	0.04
Chlordane	0.002
2,4−D	0.07
Dalapon	0.2
Dibromochloropropane	0.0002
Di(2−ethylhexyl)adipate	0.4
Di(2−ethylhexyl)phthalate	0.006
Dinoseb	0.007
Diquat	0.02

Contaminant	MCL (mg/L)
Endothall	0.1
Endrin	0.002
Ethylene Dibromide	0.00005
Glyphosate	0.7
Heptachlor	0.0004
Heptachlor epoxide	0.0002
Hexachlorobenzene	0.001
Hexachlorocyclopentadiene	0.05
Lindane	0.0002
Methoxychlor	0.04
Oxamyl	0.2
Pentachlorophenol	0.001
Picloram	0.5
Polychlorinated biphenyls (PCBs)	0.0005
Simazine	0.004
2,3,7,8−TCDD (Dioxin)	$3x10^{-8}$
Toxaphene	0.003
2,4,5−TP	0.05

(2) BEST AVAILABLE TREATMENT. The following are the BATs available for achieving compliance with the maximum contaminant levels for the organic contaminants listed in sub. (1):

(a) Central treatment using granular activated carbon, except for glyphosate.

(b) Packed tower aeration for dibromochloropropane, di(2−ethylhexyl)adipate, ethylene dibromide, and hexachlorocyclopentadiene.

(c) Oxidation for glyphosate.

(3) ALTERNATIVE TREATMENT. A water supplier may use an alternative treatment not listed in sub. (2) if it is demonstrated to the department, using pilot studies or other means, that the alternative treatment is sufficient to achieve compliance with the MCLs in sub. (1).

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10.

NR 809.203 Analytical requirements for synthetic organic contaminants. (1) DETECTION LIMITS. Detection as used in this section shall be defined as greater than or equal to the following concentrations for each contaminant:

Contaminant	Detection Limit (mg/L)
1. Alachlor	0.0002
2. Aldicarb	0.0005
3. Aldicarb sulfoxide	0.0005
4. Aldicarb sulfone	0.0008
5. Atrazine	0.0001
6. Benzo[a]pyrene	0.00002
7. Carbofuran	0.0009
8. Chlordane	0.0002
9. 2,4−D	0.0001
10. Dalapon	0.001
11. Dibromochloropropane	0.00002
12. Di(2−ethylhexyl)adipate	0.0006
13. Di(2−ethylhexyl)phthalate	0.0006
14. Dinoseb	0.0002
15. Diquat	0.0004
16. Endothall	0.009
17. Endrin	0.00001
18. Ethylene dibromide	0.00001
19. Glyphosate	0.006
20. Heptachlor	0.00004
21. Heptachlor epoxide	0.00002
22. Hexachlorobenzene	0.0001
23. Hexachlorocyclopentadiene	0.0001
24. Lindane	0.00002
25. Methoxychlor	0.0001
26. Oxamyl	0.002
27. Picloram	0.0001
28. Polychlorinated biphenyls (PCBs as decchlorobiphenyls)	0.0001
29. Pentachlorophenol	0.00004
30. Simazine	0.00007
31. Toxaphene	0.001
32. 2,3,7,8−TCDD (Dioxin)	0.000000005
33. 2,4,5−TP (Silvex)	0.0002

(2) ANALYTICAL METHODS. Analysis for the synthetic organic contaminants listed in s. NR 809.20 shall be conducted using the methods prescribed in Table CM.

Table CM
SDWA Approved Methodology for Synthetic Organic Contaminants

Contaminant	EPA Methods[1]	SM[9]	SM Online[10]	ASTM	Other
Regulated Parameters:					
Synthetic Organic Chemicals					
2,3,7,8−TCDD (dioxin)	1613				
2,4−D [2] (as acids, salts and esters)	515.2, 555, 515.1, 515.3, 515.4			D5317−93, 98 (Reapproved 2003)	
2,4,5−TP [2] (Silvex)	515.2, 555, 515.1, 515.3, 515.4	6640 B,	6640 B−01, B−06[11]	D5317−93, 98 (Reapproved 2003)	

Table CM
SDWA Approved Methodology for Synthetic Organic Contaminants (Continued)

Contaminant	EPA Methods[1]	SM[9]	SM Online[10]	ASTM	Other
Regulated Parameters:					
Alachlor	507, 525.2, 525.3[2] 508.1, 505[8], 551.1				
Atrazine [3]	507, 525.2, 525.3 508.1, 505[8], 551.1, 536				Syngenta[4] AG−625
Benzo(a)pyrene	525.2, 525.3, 550, 550.1				
Carbofuran	531.1, 531.2	6610[5] 6610 B	6610 B−04		
Chlordane	508, 525.2, 525.3, 508.1, 505				
Dalapon	552.1 515.1, 552.2, 515.3, 515.4, 552.3, 557	6640 B	6640 B−01, 06		
Di(2−ethylhexyl)adipate	506, 525.2, 525.3				
Di(2−ethylhexyl)phthalate	506, 525.2, 525.3				
Dibromochloropropane (DBCP)	504.1, 551.1, 524.3[9]				
Dinoseb	515.2, 555, 515.1, 515.3, 515.4	6640 B	6640 B−01, 06		
Diquat	549.2				
Endothall	548.1				
Endrin	508, 525.2, 525.3, 508.1, 505, 551.1				
Ethylene dibromide (EDB)	504.1, 551.1, 524.3				
Glyphosate	547	6651[6] 6651 B	6651 B−01, B−06		
Heptachlor	508, 525.2, 525.3, 508.1, 505, 551.1				
Heptachlor Epoxide	508, 525.2, 525.3, 508.1, 505, 551.1				
Hexachlorobenzene	508, 525.2, 525.3, 508.1, 505, 551.1				
Hexachlorocyclopentadiene	508, 525.2, 525.3, 508.1, 505, 551.1				
Lindane	508, 525.2, 525.3, 508.1, 505, 551.1				
Methoxychlor	508, 525.2, 525.3, 508.1, 505, 551.1				
Oxamyl	531.1, 531.2	6610[5] 6610 B	6610 B−04		
PCBs (as decachlorobiphenyl)	508A[7]				
(as Aroclors)	508.1, 508, 525.2, 525.3, 505				
Pentachlorophenol	515.2, 525.2, 525.3, 555, 515.1, 515.3, 515.4			D5317−93, 98 (Reapproved 2003)	
Picloram [2]	515.2, 555, 515.1, 515.3, 515.4	6640 B	6640 B−01	D5317−93, 98 s (Reapproved 2003)	

Table CM
SDWA Approved Methodology for Synthetic Organic Contaminants (Continued)

Contaminant	EPA Methods[1]	SM[9]	SM Online[10]	ASTM	Other
Regulated Parameters:					
Simazine	507, 525.2, 525.3, 523, 536, 508.1, 505[8], 551.1				
Toxaphene	508, 508.1, 525.2, 525.3, 505				
Unregulated Parameters:					
Aldicarb	531.1, 531.2	6610[5] 6610 B	6610 B−04		
Aldicarb sulfone	531.1, 531.2	6610[5] 6610 B	6610 B−04		
Aldicarb Sulfoxide	531.1 , 531.2	6610[5] 6610 B	6610 B−04		
Aldrin	505, 508, 525.2, 525.3, 508.1				
Butachlor	507, 525.2, 525.3				
Carbaryl	531.1, 531.2	6610[5] 6610 B	6610 B−04		
Dicamba	515.1, 555, 515.2, 515.3, 515.4	6640 B	6640 B−01, B−06		
Dieldrin	505, 508, 525.2, 525.3, 508.1				
3−Hydroxcarbofuran	531.1, 531.2	6610[5] 6610 B	6610 B−04		
Methomyl	531.1, 531.2	6610[5] 6610 B	6610 B−04		
Metolachlor	507, 525.2, 525.3, 508.1				
Metribuzin	507, 525.2, 525.3, 508.1				
Propachlor	507, 525.2, 525.3, 508.1				

1 EPA methods are available at http://epa.gov/safewater/methods/analyticalmethods_ogwdw.htm.

2 Accurate determination of the chlorinated esters requires hydrolysis of the sample as described in EPA Methods 515.1, 515.2, 515.3, 515.4 and 555 and ASTM Method D 5317−93, 98 (Reapproved 2003).

3 Substitution of the detector specified in Method 505, 507, 508, or 508.1 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.

4 This method may not be used for the analysis of atrazine in any system where chlorine dioxide is used for drinking water treatment. In samples from all other systems, any result generated by Method AG−625 that is greater than one−half the maximum contaminant level (MCL) (in other words, greater than 0.0015 mg/L or 1.5 ìg/L) must be confirmed using another approved method for this contaminant and should use additional volume of the original sample collected for compliance monitoring. In instances where a result from Method AG−625 triggers such confirmatory testing, the confirmatory result is to be used to determine compliance.

5 Method 6610 shall be followed in accordance with the "Supplement to the 18th edition of Standard Methods for the Examination of Water and Wastewater", 1994, or with the 19th edition of Standard Methods for the Examination of Water and Wastewater, 1995, APHA; either publication may be used. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 USC 552 (a) and 1 CFR Part 51. Copies may be obtained from the American Public Health Association, 1015 Fifteenth Street, N.W., Washington, D.C., 2005. Other required analytical test procedures germane to conducting these analyses are contained in Technical Notes on Drinking Water Methods, EPA/600/R−94−173, October 1994, NTIS PB95−104766.

6 Method 6651 shall be followed in accordance with the "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, and 19th edition, 1995, American Public Health Association. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552 (a) and 1 CFR Part 51. Copies may be obtained from the American Public Health Association, 1015 Fifteenth Street, N.W., Washington, D.C., 20005.

7 Method 505 or 508 can be used as a screen for PCBs. Method 508A shall be used to quantitate PCBs as decachlorobiphenyl if detected in Method 505 or 508. PCBs are qualitatively identified as Aroclors and measured for compliance purposes as decachlorobiphenyl

8 A nitrogen−phosphorus detector should be substituted for the electron capture detector in Method 505 (or a different approved method should be used) to determine alachlor, atrazine and simizine, if lower detection limits are required.

9 *Standard Methods for the Examination of Water and Wastewater,* 18th edition (1992), 19th edition (1995), 20th edition (1998), 21st edition (2005), 22nd edition (*2012).* Available from American Public Health Association, 800 I Street, NW., Washington, DC, 20001−3710.

[10]Standard Methods online are available at http://www.standardmethods.org. The year in which each method was approved by the Standard Methods Committee is designated by the last two digits in the method number. The methods listed are the only online versions that may be used.

(3) PCB ANALYSIS. Analysis for PCBs shall be conducted as follows:

(a) Each water supplier that monitors for PCBs shall have each sample analyzed by a laboratory certified under ch. NR 149 using Method 505, 508, 508.1 or 525.2 as specified in Table CM and must achieve the required detection limits in this subsection.

(b) If one or more of 7 PCB Aroclors are detected as designated in this paragraph in any sample analyzed using Methods 505 and 508, the sample shall be reanalyzed using Method 508A to quantitate PCBs as decachlorobiphenyl.

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

Aroclor	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

(4) SAMPLE COLLECTION. Samples shall be collected using containers and preservatives, and meeting the holding times specified in Table D. When an approved method that is not included in Table D is used to analyze samples, samples shall be collected using containers and preservatives, and meeting the holding times specified in the approved method. In all cases, samples should be analyzed as soon after collection as possible.

Table D
Sample Preservation, Holding Times, and Sampling Containers for Organic Parameters

Method	Preservative[2]	Sample Holding Time	Extract Holding Time and Storage Conditions	Suggested Sample Size	Type of Container
502.2[2]	Sodium Thiosulfate or Ascorbic Acid, 4°C, HCl pH<2	14 days	NA	40 – 120 mL	Glass with PTFE[1] Lined Septum
504.1	Sodium Thiosulfate, Cool, 4°C	14 days	4°C, 24 hours	40 mL	Glass with PTFE[1] Lined Septum
505	Sodium Thiosulfate, Cool, 4°C	14 days (7 days for Heptachlor)	4°C, 24 hours	40 mL	Glass with PTFE[1] Lined Septum
506	Sodium Thiosulfate, Cool, 4°C, Dark	14 days	4°C, Dark 14 days	1 L	Amber Glass with PTFE[1] Lined Septum
507	Sodium Thiosulfate, Cool, 4°C, Dark	14 days (See method for exceptions.)	4°C, Dark 14 days	I L	Amber Glass with PTFE[1] Lined Cap
508	Sodium Thiosulfate, Cool, 4°C, Dark	7 days (See method for exceptions.)	4°C, Dark 14 days	I L	Glass with PTFE[1] Lined Cap
508A	Cool, 4°C	14 days	30 days	I L	Amber Glass with PTFE[1] Lined Cap
508.1	Sodium Sulfite, HCl pH<2, Cool, 4°C	14 days (See method for exceptions.)	30 days	I L	Glass with PTFE Lined Cap
515.1	Sodium Thiosulfate, Cool, 4°C, Dark	14 days	4°C, Dark 28 days	I L	Amber Glass with PTFE[1] Lined Cap
515.2	Sodium Thiosulfate or Sodium Sulfite, HCl pH<2 Cool, 4°C, Dark	14 Days	≤4°C, Dark 14 Days	I L	Amber Glass with PTFE[1] Lined Cap
515.3	Sodium Thiosulfate, Cool, 4°C, Dark	14 days	≤4°C, Dark 14 Days	50 mL	Amber Glass with PTFE[1] Lined Cap
515.4	Sodium Sulfite, Dark, Cool ≤10°C for First 48 hrs, ≤6°C thereafter	14 days	≤0°C 21 days	40 mL	Amber Glass with PTFE[1] Lined Cap
524.2[2]	Ascorbic Acid or Sodium Thiosulfate, HCl pH<2, Cool 4°C	14 days	NA	40 – 120 mL	Glass with PTFE[1] Lined Septum

Table D
Sample Preservation, Holding Times, and Sampling Containers for Organic Parameters (Continued)

Method	Preservative[2]	Sample Holding Time	Extract Holding Time and Storage Conditions	Suggested Sample Size	Type of Container
524.3[2]	Maleic and Ascorbic Acids pH<2, ≤10°C for first 48 hrs., ≤6 thereafter. If only analyzing TTHM: Sodium Thiosulfate pH<2, ≤10°C for first 48 hrs., ≤6 thereafter	14 days	NA	40 – 120 mL	Amber Glass with PTFE[1] Lined Septum
525.2	Sodium Sulfite, Dark, Cool, 4°C, HCl pH<2	14 days (See method for exceptions)	≤4°C 30 days	1 L	Amber Glass with PTFE[1] Lined Cap
531.1, 6610	Sodium Thiosulfate, Monochloroacetic Acid pH<3, Cool, 4ºC	Cool 4°C from collection until storage at laboratory; <−10°C at the laboratory; 28 days	NA	60 mL	Glass with PTFE[1] Lined Septum
531.2	Sodium Thiosulfate, Potassium Dihydrogen Citrate Buffer pH<4, Dark ≤10°C for first 48 hrs., ≤6ºC thereafter	28 days	NA	40 mL	Glass with PTFE[1] Lined Septum
547	Sodium Thiosulfate, Cool, 4°C	14 days; 18 mos. Frozen	NA	60 mL	Glass with PTFE[1] Lined Septum
548.1	Sodium Thiosulfate, HCl pH 1.5 −2 if High Biological Activity, Cool, 4°C, Dark	7 days	≤4°C 14 days	≥ 250 mL	Amber Glass with PTFE[1] Lined Septum
549.2	Sodium Thiosulfate, H_2SO_4 pH<2, if Biologically Active, Cool 4°C, Dark	7 days	21 days	≥ 250 mL	High Density Amber Plastic or Silanized Amber Glass
550	Sodium Thiosulfate, Cool, 4°C, HCl pH<2	7 days	4°C, Dark 30 days	1 L	Amber Glass with PTFE[1] Lined Septum
550.1	Sodium Thiosulfate, Cool, 4°C, HCl pH<2	7 days	4°C, Dark 40 days	1 L	Amber Glass with PTFE[1] Lined Septum
551.1	Sodium Sulfite, Ammonium Chloride, pH 4.5−5.0 with Phosphate Buffer, Cool, 4°C	14 days	14 days <−10°C	≥ 40 mL	Glass with PTFE[1] Lined Septum
552.1	Ammonium Chloride, Cool, 4°C, Dark	28 days	≤4°C, Dark 48 hrs.	250 mL	Amber Glass with PTFE[1] Lined Cap
552.2	Ammonium Chloride, Cool, 4°C, Dark	14 days	≤4°C, Dark, 7 days ≤−10°C, 14 days	50 mL	Amber Glass with PTFE[1] Lined Cap

Table D
Sample Preservation, Holding Times, and Sampling Containers for Organic Parameters (Continued)

Method	Preservative[2]	Sample Holding Time	Extract Holding Time and Storage Conditions	Suggested Sample Size	Type of Container
555	Sodium Sulfite,HCl pH ≤2,Dark, Cool, 4°C	14 days	NA	≥ 100 mL	Glass wit PTFE[1] Lined Cap
1613	Sodium Thiosulfate,Cool, 0 − 4°C, Dark	1 year	40 days recommended	1 L	Amber Glass with PTFE[1] Lined Cap

[1] Polytetrafluoroethylene. Teflon is a brand name of a PTFE product.

[2] Chlorinated samples need to be dechlorinated at the time of collection. Samplers should follow the dechlorinating procedures contained in the approved methods.

(5) LABORATORY CERTIFICATION. Analyses under this section shall only be conducted by laboratories that have received certification under ch. NR 149 or have been approved by EPA.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (1), (2), renum. (2) Table C to Table CM and am, am. (3) (a), (4) (intro.), r. and recr. (4) Table D Register March 2016 No. 723, eff. 4−1−16.**

NR 809.205 Monitoring requirements for synthetic organic contaminants. (1) GENERAL. Water suppliers for community and non−transient non−community water systems shall monitor for the synthetic organic contaminants listed in s. NR 809.20 for the purposes of determining compliance with the maximum contaminant levels as follows:

(a) Groundwater sources shall be sampled under normal operating conditions at every entry point to the distribution system which is representative of each well after treatment. Each sample shall be taken at the same location unless, if approved by the department, conditions make another sampling location more representative of each source or treatment plant.

(b) Surface water sources or combined surface water and groundwater sources shall be sampled at each entry point to the distribution system after treatment, or at locations in the distribution system that are representative of each source after treatment. Each sample shall be taken at the same sampling location unless, if approved by the department, conditions make another sampling location more representative of each source or treatment plant.

(c) If the public water system draws water from more than one source and the sources are combined before distribution, the public water system shall be sampled 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 water supplier for all new public water systems or for public water systems that use a new source of water that begin operation after January 22, 2004 shall demonstrate compliance with the MCLs specified in s. NR 809.20 in accordance with the requirements in this section. The water supplier shall also comply with the initial sampling frequencies specified by the department to ensure the public water system can demonstrate compliance with the MCLs. Routine and increased monitoring frequencies shall be conducted in accordance with the requirements of this section.

(2) MONITORING FREQUENCY FOR SYNTHETIC ORGANIC CONTAMINANTS. Water suppliers shall monitor to determine compliance with the maximum contaminant level for synthetic organic contaminants specified in s. NR 809.20 at the following frequencies:

(a) *Initial monitoring.* Water suppliers for new community public water systems or for community public water systems with new sources shall demonstrate compliance with the MCLs listed under s. NR 809.20 for synthetic organic contaminants prior to initiating water service. Water suppliers for each community and non−transient, non−community water system shall take 4 consecutive quarterly samples for each contaminant listed in s. NR 809.20 beginning with the year the public water system initiates water service, or a new source is put into service, and every compliance period after that unless they meet the requirements of par. (b).

(b) *Routine monitoring*. Sampling may be reduced to routine monitoring after the initial monitoring period as follows:

1. Public water systems serving greater than 3,330. Public water systems serving more than 3,300 persons which do not detect a contaminant in the initial compliance period may reduce the sampling frequency to a minimum of 2 quarterly samples in one year during each repeat compliance period.

2. Public water systems serving 3,300 or less. Public water systems serving 3,300 persons or less which do not detect a contaminant in the initial compliance period may reduce the sampling frequency to a minimum of one sample during each repeat compliance period.

(3) WAIVER REQUEST. Water suppliers for community and non−transient non−community systems or groundwater systems with new sources may apply to the department for a waiver from the requirements of sub. (2) for the contaminants listed under s. NR 809.20. A water supplier shall reapply for a waiver for each compliance period.

(4) WAIVER EVALUATION. The department may grant a waiver from the requirements of sub. (2) after evaluating the factors listed in this subsection:

(a) *Waiver evaluation when the department determines a contaminant has not been used.* The department may grant a waiver as described in subds. 1. to 3. of this paragraph when the department determines a contaminant has not been used based on a system's previous use information, including transport, storage or disposal of the contaminant within the watershed or zone of influence of the public water system, or the results of analysis of a system's water source.

1. When a groundwater system can demonstrate that a synthetic organic contaminant has not been used, the department may grant waivers for the contaminant based on results of the analysis of a minimum of one sample at the water source, except as noted in subd. 2. of this paragraph.

2. The department may grant waivers to ground water systems for dioxin, PCBs, di(2−ethylhexyl)adipate, and di(2−ethylhexyl)phthalate without requiring analysis of the water source, if the system can demonstrate lack of use of the contaminant.

3. The department may grant waivers for benzo(a)pyrene to ground water, surface water, and GWUDI systems without requiring analysis of the water source, if the system can demonstrate a lack of use of coal tar to line or seal a system's tanks or pipes.

(b) *Waiver evaluation when a contaminant has been used or its use is unknown.* If previous use of the contaminant is unknown or it has been used previously, then all of the following factors shall be used to determine whether a waiver is granted:

1. Previous analytical results.

2. The proximity of the public water system to a potential point or non−point source of contamination. Point sources

include spills and leaks of chemicals at or near a water treatment facility or at manufacturing, distribution, or storage facilities, or from hazardous and municipal waste landfills and other waste handling or treatment facilities. Non−point sources include the use of pesticides to control insect and weed pests on agricultural areas, forest lands, home and gardens, and other land application uses.

3. The environmental persistence and transport of the pesticide or PCBs.

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

5. Elevated nitrate levels at the water supply source.

6. Use of PCBs in equipment used in the production, storage or distribution of water such as pumps and transformers.

(5) WAIVER CONDITIONS AND MONITORING ASSESSMENTS. As a condition of the waiver under sub. (4), the water supplier for a groundwater system shall update the monitoring assessment considering the factors listed in sub. (4). Based on this monitoring assessment, the department shall reconfirm that the public water system is non−vulnerable. If the department does not make this reconfirmation within 3 years of the initial determination or each subsequent determination, then the waiver is invalidated and the public water system is required to sample during each compliance period as specified in sub. (2) (b).

(6) MONITORING FOR DETECTED CONTAMINANTS. If a synthetic organic contaminant listed in s. NR 809.20 is detected, as provided by s. NR 809.203 (1) in any sample, then the water supplier shall monitor quarterly at each entry point which resulted in detection. Quarterly monitoring may be modified by the department as follows:

(a) The department may decrease the quarterly monitoring requirement specified in par. (a) provided it has determined that the public water system is reliably and consistently below the MCL. In no case may the department make this determination unless a groundwater system has been monitored in a minimum of 2 quarters and a surface water system has been monitored in a minimum of 4 quarters.

(b) After the department determines the public water system is reliably and consistently below the MCL, the department may allow the public water system to be monitored annually. Public water systems which are monitored annually shall be monitored during the quarter that previously yielded the highest analytical results.

(c) Water suppliers for public water systems which have 3 consecutive annual samples with no detection of a contaminant may apply to the department for reduced monitoring under sub. (2) (a) or (b) or a waiver as specified in sub. (3).

(d) If monitoring results in detection of one or more of certain related contaminants such as heptachlor and heptachlor epoxide, then subsequent monitoring shall analyze for all related contaminants.

(7) MONITORING WHEN AN MCL IS EXCEEDED. Additional monitoring for synthetic organic contaminants shall be required as follows in order to maintain compliance:

(a) If an organic contaminant listed in s. NR 809.20 is detected at a level exceeding the MCL in any sample, then the water supplier shall begin to take quarterly samples at each entry point which exceeded an MCL.

(b) Public water systems which exceed an MCL listed in s. NR 809.20 as determined by s. NR 809.207 (1) shall be monitored quarterly. After a minimum of 4 quarterly samples show that the public water system is back in compliance and the department determines the public water system is reliably and consistently below the MCL as specified in s. NR 809.207 (1), the public water system shall be monitored at the frequency specified in sub. (6) (b).

(8) CONFIRMATION SAMPLES. The department may require a confirmation sample for positive or negative results. If a confirmation sample is required by the department, the result shall be averaged with the first sampling result and the average used for the compliance determination as specified by s. NR 809.207 (1). The department may delete results of obvious sampling errors from this calculation, or may require additional samples to determine whether the result is or is not in error.

(9) COMPOSITE SAMPLING. The department may reduce the total number of samples a public water system is required to analyze by allowing the use of compositing. If the department allows compositing, the following composite sampling requirements shall be met:

(a) Composite samples from a maximum of 5 entry points are allowed, if the detection limit of the method used for analysis is less than one−fifth of the MCL. Compositing is only permitted at entry points within a single public water system. Compositing of samples shall be done in the laboratory and analyzed within 14 days of sample collection.

(b) If the concentration in the composite sample detects one or more contaminants listed in s. NR 809.20, then a follow−up sample shall be taken and analyzed for each contaminant detected within 14 days from each entry point included in the composite.

(c) If duplicate aliquots of the original sample taken from each entry point used in the composite are available, the public water system may use these duplicates instead of re−sampling. The duplicate shall be analyzed and the results reported to the department within 14 days of collection.

(10) INCREASING MONITORING FREQUENCY. The department may increase the required monitoring frequency, if necessary, to detect variations within the public water system. Examples of variations include fluctuations in concentration due to seasonal use or changes in the water source.

(11) DESIGNATION OF SAMPLING TIMES. Each public water system shall be monitored during the month, quarter or year designated by the department within each compliance period.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (2) (a), (3), (4) (intro.), renum. (4) (a) to (a) (intro.) and am., cr. (4) (a) 1. to 3., am. (4) (b), (5) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.207 Compliance requirements for synthetic organic contaminants. (1) MCL COMPLIANCE DETERMINATION. Compliance with synthetic organic contaminant MCLs shall be determined as follows:

(a) Compliance with the synthetic organic contaminant MCLs specified in s. NR 809.20 shall be determined based on the analytical results obtained at each entry point. If one entry point is in violation of an MCL, the public water system is in violation of the MCL.

(b) For public water systems which are conducting monitoring more frequently than annual, compliance is determined by a running annual average of all samples taken at each entry point. If the annual average of any entry point is greater than the MCL, then the public water system is out of compliance. If the initial sample or a subsequent sample would cause the annual average to be exceeded, then the public water system is out of compliance immediately.

(c) If monitoring is conducted annually or less frequently, the public water system is out of compliance if the level of a contaminant at any entry point is greater than the MCL. Compliance shall be based on the average value of the initial sample and the confirmation sample.

(d) Any contaminant listed in s. NR 809.20 that is detected shall be quantified. Any sample below the reported method detection limit shall be calculated at zero for the purposes of determining the averages in pars. (b) and (c).

(e) If a public water system fails to collect the required number of samples, compliance shall be based on the total number of samples collected.

(2) DETECTION OF SYNTHETIC CONTAMINANTS NOT LISTED IN S. NR 809.20 (1). Any detection of a synthetic organic contaminant not listed in s. NR 809.20 (1) shall be reported to the department with the other monitoring reports required under this section. The laboratory shall indicate whether any detected synthetic organic contaminant not listed in s. NR 809.20 (1) has been confirmed or tentatively identified, and when a numerical result is reported, whether the result is quantitative or an estimate.

(3) USE OF ANALYTICAL RESULTS. The department may determine compliance or initiate enforcement action based upon analytical results and other information compiled by their sanctioned representatives and agencies.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (2) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.24 Volatile organic contaminant maximum contaminant levels and BATS. (1) APPLICABILITY. The following maximum contaminant levels for volatile organic contaminants (VOC) apply to community water systems and non−transient, non−community water systems.

Contaminant	MCL (mg/L)
Benzene	0.005
Vinyl chloride	0.0002
Carbon tetrachloride	0.005
1,2−Dichloroethane	0.005
Trichloroethylene	0.005
1,1−Dichloroethylene	0.007
1,1,1−Trichloroethane	0.20
para−Dichlorobenzene	0.075
cis−1,2−Dichloroethylene	0.07
trans−1,2−Dichloroethylene	0.1
Dichloromethane	0.005
1,2−Dichloropropane	0.005
Ethylbenzene	0.7
Monochlorobenzene	0.1
ortho−Dichlorobenzene	0.6
Styrene	0.1
Tetrachloroethylene	0.005
Toluene	1
1,2,4−Trichlorobenzene	0.07
1,1,2−Trichloroethane	0.005
Xylenes (total)	10

(2) BEST AVAILABLE TREATMENT. The following are the BATs available for achieving compliance with the maximum contaminant level for the volatile organic chemicals listed in sub. (1):

(a) Central treatment using packed tower aeration.

(b) Central treatment using granular activated carbon, except for vinyl chloride and dichloromethane.

(3) ALTERNATIVE TREATMENT. The department may approve the use of alternative treatment not listed in sub. (2), if a water supplier demonstrates to the department, using pilot studies or other means, that the alternative treatment is sufficient to achieve compliance with the MCLs in sub. (1).

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10.

NR 809.243 Analytical requirements for volatile organic contaminants. (1) DETECTION LIMITS. For the purposes of this section, detection is defined as >0.0005 mg/l, except for vinyl chloride for which detection is defined as >0.0002 mg/L.

(2) ANALYTICAL METHODS. Analysis for the volatile organic contaminants listed in s. NR 809.24 shall be conducted using the methods prescribed in Table E.

Table E
SDWA Approved Methodology for Volatile Organic Contaminants

Contaminant Regulated Parameters:	EPA Methods [1,2]
Benzene	502.2, 524.2, 524.3
Carbon tetrachloride	502.2, 524.2, 551.1,524.3
Chlorobenzene	502.2, 524.2, 524.3
1,2−Dichlorobenzene	502.2, 524.2, 524.3
1,4−Dichlorobenzene	502.2, 524.2, 524.3
1,2−Dichloroethane	502.2, 524.2, 524.3
cis−Dichloroethylene	502.2, 524.2, 524.3
trans−Dichloroethylene	502.2, 524.2, 524.3
Dichloromethane	502.2, 524.2, 524.3
1,2−Dichloropropane	502.2, 524.2, 524.3
Ethylbenzene	502.2, 524.2, 524.3
Styrene	502.2, 524.2, 524.3
Tetrachloroethylene	502.2, 524.2, 551.1, 524.3
1,1,1−Trichloroethane	502.2, 524.2, 551.1, 524.3
Trichloroethylene	502.2, 524.2, 551.1, 524.3
Toluene	502.2, 524.2, 524.3
1,2,4−Trichlorobenzene	502.2, 524.2, 524.3
1,1−Dichloroethylene	502.2, 524.2, 524.3
1,1,2−Trichloroethane	502.2, 524.2, 551.1, 524.3
Vinyl chloride	502.2, 524.2, 524.3
Xylenes (total)	502.2, 524.2, 524.3

[1] Procedures for Methods 502.2, 524.2, and 551.1 are in Methods for the Determination of Organic Compounds in Drinking Water Supplement III, EPA/600/R−95−131, August 1995. These documents are available from the National Technical Information Service (NTIS), U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161. The toll free number is 1−800−553−6847.

[2] EPA Method 524.3, Version 1.0. "Measurement of Purgeable Organic Compounds in Water by Capillary Column Gas Chromatography/Mass Spectrometry," June 2009. EPA 815–B–09–009. Available at http://epa.gov/safewater/methods/analyticalmethods_ogwdw.html.

(3) SAMPLE COLLECTION. Samples shall be collected using containers, preservatives and holding times specified in s. NR 809.203 (4) Table D. In all cases, samples should be analyzed as soon after collection as possible.

(4) LABORATORY CERTIFICATION. Analyses under this section shall only be conducted by laboratories that have received certification under ch. NR 149 or have been approved by EPA.

(5) LABORATORY EVALUATION. Each certified laboratory shall determine the method detection limit (MDL) at which it is capable of detecting VOCs as defined in federal law under 40 CFR, Part 136, Appendix B. The maximum acceptable MDL is 0.0005 mg/L for all VOCs except vinyl chloride, which is 0.0002 mg/L.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (1), (2) Table E footnotes, (5) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.245 Monitoring requirements for volatile organic contaminants. (1) GENERAL. Water suppliers for community and non−transient non−community water systems shall monitor for the contaminants listed in s. NR 809.24 for purposes of determining compliance with the maximum contaminant levels as follows:

(a) Groundwater sources shall be sampled at every entry point to the distribution system which is representative of each well after treatment. Each sample shall be taken at the same location unless, if approved by the department, conditions make another

location more representative of each source, treatment plant, or within the distribution system.

(b) Surface water sources or combined surface water and groundwater sources shall be sampled at each entry point to the distribution system after treatment or at points, if approved by the department, in the distribution system that are more representative of each source after treatment. Each sample shall be taken at the same location unless, if approved by the department, conditions make another location more representative of each source, treatment plant or within the distribution system.

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

(d) Water suppliers for new public water systems or public water systems that use a new source of water shall demonstrate compliance with the MCLs specified in s. NR 809.24 in accordance with the requirements in this section. The water supplier shall also comply with the initial sampling frequencies specified by the department to ensure the public water system can demonstrate compliance with the MCLs. Routine and increased monitoring frequencies shall be conducted in accordance with the requirements in this section.

(2) MONITORING FREQUENCY FOR VOLATILE ORGANIC CONTAMINANTS. The frequency of monitoring to determine compliance with the maximum contaminant level for volatile organic contaminants specified in s. NR 809.24 shall be conducted as follows:

(a) *Initial monitoring.* 1. Water suppliers for new community public water systems or community public water systems with new sources shall demonstrate compliance with the MCLs listed under s. NR 809.24 for volatile organic contaminants prior to initiating water service.

2. Each water supplier for a community or a non−transient non−community water system shall take 4 consecutive quarterly samples for each VOC contaminant specified in s. NR 809.24, beginning with the first quarter a new source goes into service.

3. If the initial monitoring under subds. 1. and 2. for the VOC contaminants listed in s. NR 809.24, did not detect any VOC contaminant, then the water supplier shall take one sample annually.

(b) *Routine monitoring.* Each water supplier for a community or a non−transient non−community water system shall take annual samples for VOC contaminants specified in s. NR 809.24.

(c) *Reduced monitoring.* 1. After a minimum of 3 years of annual sampling, under par. (a) 3. or (b) the department may allow water suppliers for groundwater systems with no previous detection of any VOC contaminant specified in s. NR 809.24 to take one sample during each three year compliance period.

2. After a minimum of 3 years of annual sampling, under par. (a) 3. or (b) the department may allow water suppliers for surface water systems with no previous detection of any VOC contaminant specified in s. NR 809.24 to take one sample during each three year compliance period, if the surface water system meets criteria specified by the department.

(3) WAIVER REQUESTS. Each water supplier for a community or a non−transient groundwater system which does not detect a VOC contaminant specified in s. NR 809.24 may apply to the department for a waiver from the requirements of sub. (2) (c) after completing all of the initial monitoring under sub. (2) (a). For the purposes of this section, detection is defined as >0.0005 mg/l, except for vinyl chloride for which detection is defined as >0.0002 mg/L. A water supplier for a groundwater system shall reapply for a waiver for each compliance period. A waiver shall be effective for no more than 6 years or 2 compliance periods.

(4) WAIVER EVALUATION. The department may grant a waiver from sub. (2) (c) 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 public water system. If a determination by the department reveals no previous use of the contaminant within zone of influence for the well, a waiver may be granted.

(b) 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.

1. Previous analytical results.

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

3. The environmental persistence and transport of the contaminants.

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

5. How well the water source is protected against contamination. Groundwater systems shall consider factors such as depth of the well, the type of soil and wellhead protection.

(5) WAIVER CONDITIONS AND MONITORING ASSESSMENTS. A water supplier for a groundwater system shall take one sample at each entry point during the time the waiver is effective. As a condition of the waiver under sub. (4), water supplier for the groundwater system shall update the monitoring assessment considering the factors listed in sub. (4). Based on this monitoring assessment, the department shall reconfirm that the public water system is non−vulnerable. If the department does not make this reconfirmation within 3 years of the initial determination or each subsequent determination, then the waiver is invalidated and the public water system is required to sample during each compliance period as specified in sub. (2) (b).

(6) MONITORING FOR DETECTED COMPOUNDS. If vinyl chloride is detected at a level exceeding 0.0002 mg/L, or any other VOC contaminant specified in s. NR 809.24 is detected at a level exceeding 0.0005 mg/1 in any sample, then:

(a) The public water system shall be monitored quarterly for all VOCs under s. NR 809.24 at each sampling location which resulted in a detection.

(b) The department may decrease the quarterly monitoring requirement specified in par. (a) if the department has determined that the public water system is reliably and consistently below the MCL. In no case may the department make this determination unless a groundwater system has been sampled a minimum of 2 quarters and a surface water system has been sampled a minimum of 4 quarters.

(c) If the department determines that the public water system is reliably and consistently below the MCL, the department may allow the system to be monitored annually. Public water systems which are monitored annually shall be monitored during the quarter which previously yielded the highest analytical result.

(d) Water suppliers for public water systems which have 3 consecutive annual samples with no detection of a contaminant may apply to the department for a waiver as specified in sub. (3).

(7) MONITORING WHEN AN MCL IS EXCEEDED. Additional monitoring for volatile organic contaminants shall be required as follows in order to maintain compliance.

(a) If a VOC contaminant specified in s. NR 809.24 is detected at a level exceeding the MCL in any sample, then the water supplier shall begin to take quarterly samples at each entry point which exceeded a MCL.

(b) Water suppliers for public water systems which exceed a MCL listed in s. NR 809.24 shall be monitored quarterly. After

a minimum of 4 quarterly samples that show the public water system is back in compliance and the department determines the public water system is reliably and consistently below the MCL as specified in s. NR 809.247 (1), the water supplier for the public water system shall be monitored at the frequency specified in sub. (6) (c).

(8) CONFIRMATION SAMPLES. The department may require a confirmation sample for positive or negative results. The department may delete results of sampling errors from any compliance calculation, or may require the collection of additional samples to determine whether the result is or is not in error. When a confirmation sample is required, the result shall be averaged with the first sampling result and the average used for the compliance determination as specified in s. NR 809.247 (1) (c)

(9) COMPOSITE SAMPLES. The department may reduce the total number of samples a water supplier for a public water system shall analyze by allowing the use of compositing. The following composite sampling requirements shall be met:

(a) Compositing may only be permitted for entry points within a single public water system. Composite samples from a maximum of 5 entry points may be allowed, if the detection limit of the method used for analysis is less than one−fifth of the MCL.

(b) Compositing of samples shall be done in the laboratory and analyzed within 14 days of sample collection according to the procedures in s. NR 809.243 (1) Table E.

(c) If the concentration in the composite sample is greater than 0.0002 mg/L for vinyl chloride or 0.0005mg/L for any other contaminant listed under s. NR 809.24, then a follow−up sample shall be taken and analyzed for each contaminant detected within 14 days from each entry point included in the composite.

(d) If duplicates of the original sample taken from each sampling point used in the composite are available, the water supplier may use these instead of re−sampling. The duplicate shall be analyzed and the results reported to the department within 14 days of collection.

(10) INCREASING MONITORING FREQUENCY. The department may increase monitoring requirements if necessary to detect contaminant variations within a public water system.

(11) DESIGNATION OF SAMPLING TIMES. Each public water system shall be monitored during the month, quarter or year designated by the department within each compliance period.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (2) (a) 1., (b), (5), (7) (b), (9) (c) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.247 Compliance requirements for volatile organic contaminants. (1) MCL COMPLIANCE DETERMINATION. Compliance with volatile organic contaminant MCLs shall be determined as follows:

(a) Compliance with the VOC MCLs specified in s. NR 809.24 shall be determined based on the analytical results obtained at each entry point. If one entry point is in violation of an MCL, the public water system is in violation of the MCL.

(b) For public water systems which are monitored more frequently than annually, compliance is determined by a running annual average of all samples taken at each entry point. If the annual average of any entry point is greater than the MCL, the public water system is out of compliance. If the initial sample or a subsequent sample would cause the annual average to exceed the MCL, the public water system is out of compliance immediately.

(c) If monitoring is conducted annually, or less frequently, the public water system is out of compliance if the level of a contaminant at any entry point is greater than the MCL. Compliance shall be based on the concentration of this sample or the average value of this sample and the confirmation sample, if the department required a confirmation sample.

(d) If a water supplier fails to collect the required number of samples, compliance shall be based on the total number of samples collected.

(e) Any concentration reported at or above the method detection limit for any contaminant listed in s. NR 809.24 shall be used in determining the averages in pars. (b) and (c). Any concentration reported below the method detection limit shall be calculated at zero for the purposes of determining the averages in pars. (b) and (c).

(2) DETECTION OF VOLATILE CONTAMINANTS NOT LISTED IN S. NR 809.24. Any detection of a volatile organic contaminant not listed in s. NR 809.24 shall be reported to the department with the other monitoring reports required under this section. The laboratory shall indicate whether any detected volatile organic contaminant not listed in s. NR 809.24 has been confirmed or tentatively identified, and when a numerical result is reported, whether the result is quantitative or an estimate.

(3) SEPARATE DISTRIBUTION SYSTEM NOTICE. If a public water system has a distribution system separable from other parts of the distribution system with no interconnections, the department may allow the water supplier to give public notice to only that area served by that portion of the public water system which is out of compliance.

(4) USE OF ANALYTICAL RESULTS. The department may determine compliance or initiate enforcement action based upon analytical results and other information compiled by its sanctioned representatives and agencies.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (1) (c), (e), (4) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.25 Special monitoring and reporting for selected organic contaminants and sulfate. (1) GENERAL. (a) Community systems with populations of 10,000 and greater shall be monitored for the contaminants listed in pars. (e) and (f) on a schedule to be determined by the department. Community water systems with populations less than 10,000 and non−transient, non−community water systems shall be monitored for the contaminants listed in pars. (e) and (f) at the discretion of the department.

(b) Surface water systems shall be sampled at the entry points to the distribution system after any application of treatment. The minimum number of samples is one year of quarterly samples per water source.

(c) Groundwater systems shall be sampled at points of entry to the distribution system representative of each well after any application of treatment. The minimum number of samples is one sample per entry point to the distribution system.

(d) The department may require confirmation and follow−up samples for positive or negative results.

(e) List of unregulated volatile organic compounds:

Chloroform
Bromoform
Chlorodibromomethane
Bromodichloromethane
Bromobenzene
Bromomethane
Chloromethane
Chloroethane
o−Chlorotoluene
p−Chlorotoluene
Dibromomethane
m−Dichlorobenzene
1,1−Dichloropropene
1,1−Dichloroethane

1,3−Dichloropropane
2,2−Dichloropropane
1,3−Dichloropropene
1,1,1,2−Tetrachloroethane
1,1,2,2−Tetrachloroethane
1,2,3−Trichloropropane
1,2,4−Trimethylbenzene
1,2,3−Trichlorobenzene
n−Propylbenzene
n−Butylbenzene
Naphthalene
Hexachlorobutadiene
1,3,5−Trimethylbenzene
p−Isopropyltoluene
Isopropylbenzene
Tert−butylbenzene
Sec−butylbenzene
Fluorotrichloromethane
Dichlorodifluoromethane
Bromochloromethane
Methyl−t−butyl ether (MTBE)

(f) List of unregulated synthetic organic contaminants:
Aldrin
Aldicarb
Aldicarb Sulfoxide
Aldicarb Sulfone
Butachlor
Carbaryl
Dicamba
Dieldrin
3−Hydroxycarbofuran
Methomyl
Metolachlor
Metribuzin
Propachlor

(g) Analysis under this section shall be conducted by a laboratory certified under ch. NR 149 using EPA methods 502.2, 524.2, 524.3, 551.1 for contaminants listed in par. (e) and EPA methods listed in s. NR 809.203, Table CM for contaminants listed in par. (f).

(2) SULFATE MONITORING. Monitoring for sulfate shall be conducted as required by the department.

(3) REPORTING REQUIREMENTS. Reporting requirements under this section shall be as required under s. NR 809.80.

(4) TREATMENT TECHNIQUES FOR ACRYLAMIDE AND EPICHLOROHYDRIN. In lieu of MCLs and monitoring for acrylamide and epichlorohydrin, the following treatment techniques and reporting are required. Each water supplier for public water system shall certify annually in writing to the department using third party or manufacturer's certification, that when acrylamide and epichlorohydrin are used in the treatment of drinking water, the combination, or product, of dose and monomer level does not exceed the levels specified as follows:

(a) Acrylamide = 0.05% dosed at 1 ppm or equivalent.

(b) Epichlorohydrin = 0.01% dosed at 20 ppm or equivalent.

(c) A water supplier may rely on certification from manufacturers or third parties, as approved by the department.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (1) (g) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.30 Distribution system microbiological contaminant maximum contaminant levels. The following are the maximum contaminant levels for coliform bacteria applicable to public water systems.

(1) MCL FOR ESCHERICHIA COLI (*E. COLI*). (a) The MCL for *E. coli* is exceeded if any of the following occurs:

1. The public water system has an *E. coli*−positive repeat sample following a total coliform−positive routine sample.

2. The public water system has a total coliform−positive repeat sample following an *E. coli*−positive routine sample.

3. The public water system fails to take all required repeat samples following an *E. coli*−positive routine sample.

4. The public water system fails to test for *E. coli* when any repeat sample tests positive for total coliform.

(b) For purposes of public notification requirements in subch. VIII, this is a violation that may pose an acute risk to health.

Note: Subchapter VIII was repealed by CR 15−049. Corrections will be made in future rulemaking.

(2) DETERMINING COMPLIANCE. The water supplier for a public water system shall determine compliance with the MCL for *E. coli* in sub. (1) for each monitoring period in which the public water system is required to monitor for total coliforms.

(3) CORRECTIVE ACTION. The water supplier shall initiate action to identify the cause of the positive bacteriological sample results and to eliminate potential health hazards which may exist in the public water system when monitoring pursuant to sub. (1) shows the presence of any coliform organisms.

(4) HETEROTROPHIC BACTERIA LIMITS. If heterotrophic bacterial plate counts on water distributed to the consumer exceed 500 organisms per milliliter, the department shall determine if the bacterial count is of public health or nuisance significance and may require appropriate action.

(5) BEST AVAILABLE TREATMENT TECHNIQUES. Any of the following are best technology, treatment techniques, or other means available for achieving compliance with the maximum contaminant level for *E. coli* in sub. (1):

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

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

(c) 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, cross connection control, and continual maintenance of positive water pressure in all parts of the distribution system.

(d) Filtration and disinfection of surface water, or disinfection of groundwater using strong oxidants such as chlorine, chlorine dioxide or ozone.

(e) The development and implementation of a department−approved wellhead protection program.

Note: The basic purpose of a wellhead protection program is to restrict potentially polluting activities near wells and well fields and within recharge areas of aquifers supplying water to these wells. In general, activities are more restricted close to the well and less so farther away.

(6) AFFORDABILITY DETERMINATION. The EPA identifies the technology, treatment techniques, or other means available identified in sub. (5) as affordable technology, treatment techniques, or other means available to systems serving 10,000 or fewer people for achieving compliance with the maximum contaminant level for *E. coli* in sub. (1).

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; correction in (4) made under s. 13.92 (4) (b) 7., Stats., Register November 2010 No. 659; **CR 15−049: r. and recr. (1), r. (2), renum. (3) and (4) to (2) and (3) and am., renum. (5) to (4), renum. (6) to (5) and am. (intro.), (a), (c), cr. (6) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.31 Distribution system microbiological contaminant monitoring requirements. (1) ROUTINE AND REDUCED MONITORING. (a) *Monitoring site plans.* Water suppliers

for all public water systems shall collect total coliform samples at sites which are representative of water throughout the distribution system according to a written sample siting plan. These plans are subject to department review and revision. Monitoring required by this section and s. NR 809.32 may take place at a customer's premise, dedicated sampling station, or other designated compliance sampling location. Routine and repeat sample sites and any sampling points necessary to meet the requirements of s. NR 809.325 shall be identified in the sampling plan.

(ag) *Action after total coliform positive sample.* Following any total coliform−positive sample taken under the provisions of this section, water suppliers shall comply with the repeat monitoring requirements and *E. coli* analytical requirements in subs. (2) and (5).

(ar) *Transition from total coliform rule to revised total coliform rule.* 1. Water suppliers of public water systems, including seasonal systems, shall continue to monitor according to the total coliform monitoring schedules that were in effect on March 31, 2016, unless any of the conditions for increased monitoring in sub. (3) (a) are triggered on or after April 1, 2016, or unless otherwise directed by the department.

2. Beginning April 1, 2016, the department shall perform a special monitoring evaluation during each sanitary survey to review the status of each public water system, including the distribution system, to determine whether the public water system is on an appropriate monitoring schedule. After the department has performed the special monitoring evaluation during each sanitary survey, the department may modify the public water system's monitoring schedule, as necessary, or it may allow the public water system to stay on its existing monitoring schedule, consistent with the provisions of this section. The department may not allow public water systems to begin less frequent monitoring under the special monitoring evaluation unless the public water system has already met the applicable criteria for less frequent monitoring in this section. For seasonal systems on quarterly or annual monitoring, this evaluation shall include review of the approved sample siting plan, which shall designate the time period(s) for monitoring based on site−specific considerations (e.g., during periods of highest demand or highest vulnerability to contamination). The water supplier of the seasonal system shall collect compliance samples during these time periods.

(b) *Monitoring frequency at community water systems.* Water suppliers for community water systems shall take water samples for coliform determination at regular intervals, and in a number proportionate to the population served by the community water system. Water suppliers required to collect multiple samples each month shall sample at geographically representative locations and on dates evenly spaced during the month. The minimum sampling frequency shall be as set forth in the following table:

Population served:	**Minimum number of samples per month**
25 to 1,000 (Not serving a municipality)	1
25 to 1,000 (Serving a municipality)	2
1,001 to 2,500	2
2,501 to 3,300	3
3,301 to 4,100	4
4,101 to 4,900	5
4,901 to 5,800	6
5,801 to 6,700	7
6,701 to 7,600	8
7,601 to 8,500	9
8,501 to 12,900	10
12,901 to 17,200	15
17,201 to 21,500	20
21,501 to 25,000	25
25,001 to 33,000	30
33,001 to 41,000	40
41,001 to 50,000	50
50,001 to 59,000	60
59,001 to 70,000	70
70,001 to 83,000	80
83,001 to 96,000	90
96,001 to 130,000	100
130,001 to 220,000	120
220,001 to 320,000	150
320,001 to 450,000	180
450,001 to 600,000	210
600,001 to 780,000	240
780,001 to 970,000	270
970,001 to 1,230,000	300
1,230,001 to 1,520,000	330
1,520,001 to 1,850,000	360
1,850,001 to 2,270,000	390
2,270,001 to 3,020,000	420
3,020,001 to 3,960,000	450
3,960,001 or more	480

(c) *Monitoring frequency for coliforms at non−community water systems.* The monitoring frequency for total coliforms for non−community water systems, notwithstanding pars. (dg) and (dr), is as follows:

1. A water supplier for a non−community water system using only groundwater and serving 1,000 persons per day or fewer shall monitor each calendar quarter that the non−community water system provides water to the public.

2. A water supplier for a non−community water system using only groundwater and serving on average more than 1,000 persons per day for any month shall monitor at the same frequency as a like−sized community water system, as specified in par. (b), except that the department may reduce the monitoring frequency, in writing, for any month the average daily population served is 1,000 persons or fewer per day.

3. A water supplier for a non−community water system using surface water, or groundwater under the direct influence of surface water as defined in s. NR 809.04 (40), in total or in part, shall monitor at the same frequency as a like−sized municipal community water system, as specified in par. (b). GWUDI public water systems shall begin monitoring at this frequency beginning 6 months after the department determines that the groundwater source is under the direct influence of surface water.

4. The water supplier for a transient non−community water system serving a school shall sample for coliform bacteria in each calendar quarter during which the public water system provides water to the public, unless the department, on the basis of sub. (2m), determines that more frequent monitoring is appropriate. Transient non−community systems serving schools are not eligible for reduced monitoring under par. (dg) of this section.

(de) *Annual site visits.* Beginning no later than calendar year 2017, transient non−community systems on annual monitoring, including seasonal systems, shall have an initial and recurring annual site visit by the department that is equivalent to a Level 2 assessment or an annual voluntary Level 2 assessment that meets the criteria in s. NR 809.313 (2) to remain on annual monitoring.

The periodic required sanitary survey may be used to meet the requirement for an annual site visit for the year in which the sanitary survey was completed. Transient non−community systems with little−to−no distribution system may, at the discretion of the department, be exempt from the annual site visit requirements in this section, and still remain on annual monitoring.

(dg) *Criteria for annual monitoring at transient non−community systems.* Beginning April 1, 2016, the department may reduce the monitoring frequency for a well−operated transient non−community ground water system serving 1,000 persons per day or fewer from quarterly routine monitoring to no less than annual monitoring, if the transient non−community system demonstrates that it meets the criteria for reduced monitoring in subds. 1. to 4., except for a transient non−community system that has been on increased monitoring under the provisions of sub. (2m). A transient non−community system on increased monitoring under sub. (2m) shall meet the provisions of sub. (2m) (b) to go to quarterly monitoring and shall meet the provisions of sub. (2m) (c) to go to annual monitoring.

1. The transient non−community system has a clean compliance history for a minimum of 12 months.

2. The most recent sanitary survey shows that the transient non−community system is free of sanitary defects or has corrected all identified sanitary defects, has a protected water source, and meets approved construction standards.

3. The department has conducted an annual site visit within the last 12 months and the water supplier has corrected all identified sanitary defects. A Level 2 assessment that meets the criteria in s. NR 809.313 (2) may be substituted for the department annual site visit. 4. The public water system is not a school.

(dr) *Seasonal system requirements.* 1. Beginning April 1, 2016, all water suppliers of seasonal systems shall demonstrate completion of a department−approved start−up procedure, which may include a requirement for start−up sampling prior to serving water to the public.

2. Seasonal systems shall be monitored every month that they are in operation unless they meet the criteria in subd. 2. a. to c. to be eligible for monitoring less frequently than monthly beginning April 1, 2016, except as provided under par. (ar).

a. Seasonal systems that are monitored less frequently than monthly shall have an approved sample siting plan that designates the time period for monitoring based on site−specific considerations (e.g., during periods of highest demand or highest vulnerability to contamination). Water suppliers of seasonal systems shall collect compliance samples during this time period.

b. To be eligible for quarterly monitoring, seasonal systems shall meet the criteria in sub. (2m) (b).

c. To be eligible for annual monitoring, seasonal systems shall meet the criteria under sub. (2m) (c).

3. The department may exempt any seasonal system from some or all of the requirements for seasonal systems if the entire distribution system remains pressurized during the entire period that the seasonal system is not operating, except that seasonal systems that are monitored less frequently than monthly shall be monitored during the vulnerable period as designated by the department.

(e) *Sample collection time intervals.* Water suppliers for public water systems shall collect samples at regular time intervals throughout the month, except that for public water systems which use only groundwater and serve 4,900 persons or fewer, may collect all required samples on a single day if the samples are taken from different sites.

(eg) *Minimum required number of samples after MCL violation or treatment technique trigger.* Water suppliers shall take at least the minimum number of required samples even if the public water system has had an *E. coli* MCL violation or has exceeded the coliform treatment technique triggers in s. NR 809.313.

(er) *Sampling in excess of requirements.* Water suppliers may conduct more compliance monitoring than is required by this section to investigate potential problems in the distribution system and use monitoring as a tool to assist in uncovering problems. Water suppliers may take more than the minimum number of required routine samples and shall include the results in calculating whether the coliform treatment technique trigger in s. NR 809.313 has been exceeded only if the samples are taken in accordance with the existing sample siting plan and are representative of water throughout the distribution system.

(f) *Special purpose samples.* Special purpose samples such as those taken to determine whether disinfection practices are sufficient following pipe placement, replacement or repair, may not be used to determine whether the coliform treatment technique trigger has been exceeded. Repeat samples taken pursuant to sub. (2) are not considered special purpose samples, and shall be used to determine whether the coliform treatment technique trigger has been exceeded.

(g) *Analyses required after turbidity exceedances at selected systems.* A water supplier for a public water system that uses surface water or groundwater under the direct influence of surface water as defined in s. NR 809.04 (40), and does not provide filtration in compliance with s. NR 810.29, shall collect at least one sample in the distribution system near the first service connection each day one or more turbidity measurements of the source water obtained as specified in s. NR 810.38 (1) (c), exceeds 1 NTU. This sample shall be analyzed for the presence of total coliforms. The water supplier shall collect this coliform sample within 24 hours of the first exceedance unless the department determines that the water supplier, for logistical reasons beyond their control, cannot have the sample analyzed within 30 hours of collection. Results from this coliform monitoring shall be used to determine whether the coliform treatment technique trigger has been exceeded in s. NR 809.313.

(2) REPEAT MONITORING. (a) If a routine sample is total coliform−positive, the water supplier for a public water system shall collect a set of repeat samples within 24 hours of being notified of the positive result. The water supplier shall collect no fewer than 3 repeat samples for each total coliform−positive sample found. The department may extend the 24−hour limit on a case−by−case basis if the water supplier has a logistical problem that is beyond its control in collecting the repeat samples within 24 hours. In the case of an extension, the department shall specify how much time the water supplier has to collect repeat samples. The department may not waive the requirement for a water supplier to collect repeat samples in this paragraph or pars. (b) to (c).

(b) Unless the provisions of subds. 1. and 2. are met, the water supplier shall collect at least one repeat sample from the sampling tap where the original total coliform−positive sample was taken, and at least one repeat sample at a tap within 5 service connections upstream and at least one repeat sample at a tap within five service connections downstream of the original sampling site. If a total coliform−positive sample is at the end of the distribution system, or one service connection away from the end of the distribution system, the water supplier shall take all required repeat samples. However, the department may allow an alternative sampling location in lieu of the requirement to collect at least one repeat sample upstream or downstream of the original sampling site. Except as provided in subd. 2., public water systems required to conduct triggered source water monitoring under s. NR 809.325 shall take ground water source samples in addition to repeat samples required under this paragraph.

1. A water supplier may propose repeat monitoring locations to the department that the water supplier believes to be representative of a pathway for contamination of the distribution system. A water supplier may elect to specify either alternative fixed locations or criteria for selecting repeat sampling sites on a situational basis in a standard operating procedure (SOP) in its sample siting plan. The water supplier shall design its SOP to focus the repeat

samples at locations that best verify and determine the extent of potential contamination of the distribution system area based on specific situations. The department may modify the SOP or require alternative monitoring locations as needed.

2. A water supplier of a ground water system serving 1,000 or fewer people may propose repeat sampling locations to the department that differentiate potential source water and distribution system contamination (e.g., by sampling at entry points to the distribution system). A water supplier of a ground water system with a single well required to conduct triggered source water monitoring may, with written department approval, take one of the repeat samples at the monitoring location required for triggered source water monitoring under s. NR 809.325 if the water supplier demonstrates to the department's satisfaction that the sample siting plan remains representative of water quality in the distribution system. If approved by the department, the water supplier may use that dual purpose sample result to meet the monitoring requirements in both s. NR 809.325 and this section.

a. If a dual purpose repeat sample taken at the monitoring location required for triggered source water monitoring is *E. coli*−positive, the public water system has violated the *E. coli* MCL and shall also comply with s. NR 809.325 (2) (e). If a water supplier takes more than one repeat sample at the monitoring location required for triggered source water monitoring, the water supplier may reduce the number of additional source water samples required under s. NR 809.325 (2) (e) by the number of repeat samples taken at that location that were not *E. coli*−positive.

b. If a water supplier takes more than one repeat sample at the monitoring location required for triggered source water monitoring under s. NR 809.325 (2). and more than one repeat sample is *E. coli*−positive, the public water system has violated the *E. coli* MCL and shall comply with s. NR 809.327.

c. If all repeat samples taken at the monitoring location required for triggered source water monitoring are *E. coli*−negative and a repeat sample taken at a monitoring location other than the one required for triggered source water monitoring is *E. coli*−positive, the public water system has violated the *E. coli* MCL, but is not required to comply with s. NR 809.325 (2) (e).

3. The department may review, revise, and approve, as appropriate, repeat sampling proposed by water suppliers under subds. 1. and 2. The water supplier shall demonstrate that the sample siting plan remains representative of the water quality in the distribution system. The department may determine that monitoring at the entry point to the distribution system, especially at ground water systems without disinfection is effective to differentiate between potential source water and distribution system problems.

(c) Water suppliers at ground water systems may use a repeat sample, taken at the source or all of the sources serving the location of each routine positive sample, to meet the requirements of both this paragraph and s. NR 809.325 (2) (d). In cases where more than one source serves the location of the routine positive sample or samples, repeat samples shall be taken from each of the sources to satisfy the requirements of this paragraph and s. NR 809.325 (2) (d).

(d) The water supplier shall collect all repeat samples on the same day, except that the department may allow a water supplier for a public water system with a single service connection to collect the required set of repeat samples over a 3−day period or to collect a larger volume repeat sample in one or more sample containers of any size, as long as the total volume collected is at least 300 mL.

(e) If one or more repeat samples in the set is total coliform−positive, the water supplier shall collect an additional set of repeat samples in the manner specified in pars. (a) to (d). The additional set of samples shall be collected within 24 hours after the water supplier is notified of the positive result, unless the department extends the limit as provided in par. (a). The water supplier shall repeat this process until either total coliforms are not detected in one complete set of repeat samples or the water supplier determines that the coliform treatment technique trigger specified in s. NR 809.313 has been exceeded and the water supplier notifies the department as specified in s. NR 809.80 (2). If a trigger identified in s. NR 809.313 is exceeded as a result of a routine sample being total coliform−positive, water suppliers are required to conduct only one round of repeat monitoring for each total coliform−positive routine sample.

(f) Water suppliers collecting samples on a quarterly or annual frequency shall conduct additional routine monitoring the month following one or more total coliform−positive samples regardless of whether the positive samples resulted in a Level 1 treatment technique trigger. Water suppliers shall collect at least three routine samples during the next month, after consultation with the department, except that the department may waive this requirement if the conditions of subd. 1., 2., or 3. are met. Water suppliers may either collect samples at regular time intervals throughout the month or may collect all required routine samples on a single day if samples are taken from different sites. Water suppliers shall use the results of additional routine samples in coliform treatment technique trigger calculations under s. NR 809.313 (1).

1. The department may waive the requirement to collect 3 routine samples during the next month the public water system provides water to the public if the department performs a site visit before the end of the next month the public water system provides water to the public. Although a sanitary survey need not be performed, the site visit shall be sufficiently detailed to allow the department to determine whether additional monitoring or any corrective action is needed. The department may not approve an employee of the public water system to perform this site visit, even if the employee is an agent approved by the department to perform sanitary surveys.

2. The department may waive the requirement to collect 3 routine samples during the next month the public water system provides water to the public if the department has determined why the sample was total coliform positive and establishes that the water supplier has corrected the problem or will correct the problem before the end of the next month the public water system serves water to the public. In this case, the decision to waive the following month's additional monitoring requirement will be documented in writing, signed by a qualified department official, and made available to the public. The written documentation shall describe the specific cause of the total coliform positive sample and what action the water supplier has taken or will take to correct this problem.

3. The requirement to collect 3 routine samples during the next month the public water system provides water to the public shall not be waived solely on the grounds that all repeat samples are total coliform−negative. The water supplier shall collect at least one routine sample before the end of the next month the public water system serves water to the public and use it to determine compliance with the treatment technique trigger for total coliforms in s. NR 809.31, unless the department has determined that the water supplier corrected the contamination problem before the water supplier collected the set of repeat samples required in pars. (a) to (e) and all repeat samples were total coliform negative.

(g) After a water supplier collects a routine sample and before learning the results of the analysis of that sample, if the water supplier collects another routine sample from within 5 adjacent service connections of the initial sample, and the initial sample after analysis is found to contain total coliforms, then the water supplier may count the subsequent sample as a repeat sample instead of as a routine sample.

(h) Results of all routine and repeat samples not invalidated by the department shall be included in determining whether any coliform treatment technique triggers specified in s. NR 809.313 have

been exceeded. If any trigger has been exceeded, water suppliers shall complete assessments as required in s. NR 809.313.

(2m) INCREASED MONITORING. (a) *Increased monitoring requirements for public water systems on quarterly or annual monitoring.* Except as specified in pars. (d) and (e), water suppliers at public water systems on quarterly or annual monitoring that experience any of the events identified in subds. 1. to 4. shall begin monthly monitoring the month following the event. A water supplier at a public water system on annual monitoring that experiences the event identified in subd. 5. shall begin quarterly monitoring the quarter following the event. The water supplier shall continue monthly or quarterly monitoring until the requirements in par. (b) for quarterly monitoring or par. (c) for annual monitoring are met. A public water system on monthly monitoring for reasons other than those identified in subds. 1. to 4. is not considered to be on increased monitoring for the purposes of pars. (b) and (c).

1. The public water system triggers a Level 2 assessment or two Level 1 assessments under the provisions of s. NR 809.313 in a rolling 12−month period.

2. The public water system has an *E. coli* MCL violation.

3. The public water system has a coliform treatment technique violation.

4. The public water system has two coliform monitoring violations in a rolling 12−month period, or is a non−community public water system and has one coliform monitoring violation and one Level 1 assessment under the provisions of s. NR 809.313 in a rolling 12−month period for a public water system on quarterly monitoring.

5. The public water system has one coliform monitoring violation for a public water system on annual monitoring. For transient non−community public water systems, the department may elect to not count monitoring violations under sub. (9) if the missed sample is collected no later than the end of the monitoring period following the monitoring period in which the sample was missed. The water supplier shall collect the make−up sample in a different week than the routine sample for that monitoring period and shall collect the sample as soon as possible during the monitoring period, except that this is not allowed under par. (c). This authority does not affect the provisions of sub. (9) and s. NR 809.312 (2).

(b) *Requirements for public water systems on increased monitoring to return to quarterly monitoring.* The department may reduce the monitoring frequency for a public water system on monthly monitoring triggered under par. (a) to quarterly monitoring if the public water system meets the criteria in subds. 1. and 2.

1. Within the last 12 months, the public water system shall have a completed sanitary survey or a site visit by the department or a voluntary Level 2 assessment by a party approved by the department, be free of sanitary defects, and have a protected water source.

2. The public water system shall have a clean compliance history for a minimum of 12 months. For transient non−community public water systems, the department may elect to not count monitoring violations, as allowed under sub. (9), if the missed sample is collected no later than the end of the monitoring period following the monitoring period in which the sample was missed. The water supplier shall collect the make−up sample in a different week than the routine sample for that monitoring period and should collect the sample as soon as possible during the monitoring period, except that this is not allowed under par. (c). This authority does not affect the provisions of sub. (9) and s. NR 809.312 (2).

(c) *Requirements for systems on increased monitoring to qualify for annual monitoring.* The department may reduce the monitoring frequency for a transient non−community public water system on increased monitoring under par. (a) if the transient non−community public water system meets the criteria in par. (d) and the criteria in subds. 1. and 2.

1. The department shall conduct an annual site visit and the water supplier shall correct all identified sanitary defects. The water supplier may substitute a voluntary Level 2 assessment conducted by a party approved by the department in place of the department's annual site visit in any given year.

2. The water supplier shall have in place or adopt one or more additional enhancements to the water system barriers to contamination in subds. 2. a. to 2. e.

a. Cross connection control, as approved by the department.

b. Regular visits by a circuit rider approved by the department.

c. Continuous disinfection entering the distribution system and a residual in the distribution system in accordance with criteria specified by the department.

d. Demonstration of maintenance of at least a 4−log removal or inactivation of viruses as provided for under s. NR 809.327 (4).

e. Other equivalent enhancements to public water system barriers to contamination as approved by the department.

(d) *Allowance for transient non−community water systems to monitor annually.* The department may allow water suppliers at transient non−community water systems to monitor annually for total coliform and *E. coli* following conditions that would require increased monitoring under par. (a), provided the water supplier meets the requirements of subd. 1. or 2.

1. For water systems that began operation and conducted coliform monitoring prior to April 1, 2016, the water supplier shall have done all of the following:

a. Completed all required total coliform monitoring in the previous calendar year.

b. Received a sanitary survey within the previous 5 years.

c. Corrected all significant deficiencies or is following a department agreed upon schedule for correcting all significant deficiencies.

d. Received a level 2 assessment within 30 days of any level 1 assessment trigger identified after April 1, 2016, and corrected all sanitary defects or is following a department agreed upon schedule for correcting all sanitary defects.

e. Completed all repeat sampling requirements associated with any total coliform positive identified after April 1, 2016.

f. Had no *E. coli* MCL exceedances in the previous 2 years.

2. For public water systems that began operation or began coliform monitoring on or after April 1, 2016, the water supplier shall meet all of the requirements of subd. 1 and shall have completed at least one year of coliform monitoring at a frequency of no less than quarterly.

(e) *Allowance for non−transient non−community water systems to monitor quarterly.* The department may allow a water supplier of a non−transient non−community water system to monitor quarterly for total coliform and *E. coli* following conditions that would require increased monitoring under par. (a), provided the water supplier meets the same requirements specified for transient non−community water systems in par. (d) 1. a. to f.

(3) INVALIDATION OF TOTAL COLIFORM SAMPLES. (a) A total coliform−positive sample invalidated under this subsection does not count towards meeting the minimum monitoring requirements of this section.

(b) The department may invalidate a total coliform−positive sample only if the conditions of subd. 1., 2. or 3. are met.

1. A certified laboratory establishes that improper sample analysis caused the total coliform−positive result.

2. The department, on the basis of the results of repeat samples collected as required by sub. (2) (a) to (e), determines that the total coliform−positive sample resulted from a domestic or other non−distribution system plumbing problem. A sample may not be

invalidated by the department on the basis of repeat sample results alone, unless all repeat samples collected at the same tap as the original total coliform−positive sample are also total coliform−positive, and all repeat samples collected at a location other than the original tap are total coliform−negative. The department will not invalidate a total coliform−positive sample on the basis of repeat samples if all the repeat samples are total coliform−negative, or if the public water system has only one service connection.

3. The department has substantial grounds to believe that a total coliform−positive result is due to a circumstance or condition which does not reflect water quality in the distribution system. In this case, the water supplier shall still collect all repeat samples required, and shall use them to determine whether a coliform treatment technique trigger in s. NR 809.313 has been exceeded. To invalidate a total coliform−positive sample under this paragraph, the decision with the rationale for the decision shall be documented in writing, approved by a qualified department official and available to the public for inspection. The document shall state the specific cause of the total coliform−positive sample, and what action the water supplier has taken or will take, to correct this problem. The department may not invalidate a total coliform−positive sample solely on the grounds that all repeat samples are total coliform−negative.

(c) A laboratory shall invalidate a total coliform sample if the sample produces a turbid culture in the absence of gas production using an analytical method where gas formation is examined for, example, the Multiple Tube Fermentation Technique, produces a turbid culture in the absence of an acid reaction in the Presence−Absence Coliform Test, or exhibits confluent growth or produces colonies too numerous to count with an analytical method using a membrane filter, for example, Membrane Filter Technique, except that a laboratory shall not invalidate a total coliform sample if total coliforms are detected. If a laboratory invalidates a sample because of such interference, the water supplier shall collect another sample from the same location as the original sample within 24 hours of being notified of the interference problem, and have it analyzed for the presence of total coliforms. The water supplier shall continue to re−sample every 24 hours and have the samples analyzed until a valid result is obtained. The department may waive the 24 hour time limit on a case−by−case basis. Alternatively, the department may implement criteria for waiving the 24−hour sampling time limit to use in lieu of case−by−case extensions.

(4) *E. COLI* TESTING. (a) If any routine or repeat sample is total coliform−positive, the water supplier shall analyze that total coliform−positive culture medium to determine if *E. coli* are present. If *E. coli* are present, the water supplier shall notify the department by the end of the day when the water supplier is notified of the test result, unless the water supplier is notified of the result after normal department business hours, in which case the water supplier shall notify the department before the end of the next business day.

(b) The department may allow a water supplier for a public water system, on a case−by−case basis, to forgo *E. coli* testing on a total coliform−positive sample if that water supplier assumes that the total coliform−positive sample is *E. coli* positive. Accordingly, the water supplier shall notify the department as specified in par. (a) and the provisions of s. NR 809.30 (2) apply.

(5) GROUNDWATER SYSTEM RAW WATER SAMPLING. In addition to sampling from the distribution system, each water supplier for a public water system providing disinfection shall obtain at least one sample every 3 months from each well prior to the point of treatment. For public water systems which have more than one well in the same location and utilizing the same aquifer, the supplier of water may sample only one of the wells each time on an alternating basis. If a well has a high potential for contamination, the department may, in individual cases, require more frequent sampling.

(6) SURFACE WATER SYSTEM RAW WATER SAMPLING. At surface water facilities, the microbiological quality of the source water shall be monitored sufficiently to maintain quality control of the treatment process. Water suppliers shall establish a schedule for each plant, subject to review and modification by the department.

Note: Generally, enumeration methods such as membrane filter, numeric enzyme substrate, or 5 tube fermentation tests and heterotrophic plate counts of the raw, settled and finished water on an established schedule will be necessary to meet this requirement.

(7) HETEROTROPHIC PLATE COUNTS. At all waterworks which have a potential for high total bacteria levels because of the water quality, the method of treatment, chemical addition or other cause, the department may require heterotrophic plate counts pursuant to an established schedule. Analyses shall be conducted in accordance with the analytical requirements in s. NR 809.311 (1), Table F.

(9) MONITORING VIOLATION. (a) Failure to take every required routine or additional routine sample in a compliance period is a monitoring violation.

(b) Failure to analyze for *E. coli* following a total coliform−positive routine sample is a monitoring violation.

(10) REPORTING VIOLATION. (a) Failure to submit a monitoring report or completed assessment form after a water supplier properly conducts monitoring or assessment in a timely manner is a reporting violation.

(b) Failure to notify the department following an *E. coli*−positive sample as required by sub. (4) in a timely manner is a reporting violation.

(c) Failure to submit certification of completion of department−approved start−up procedure by a seasonal system is a reporting violation.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (1) (title), (a), cr. (1) (ag), (ar), renum. (1) (b) 1. to (b) and am., r. (1) (b) 2., renum. (1) (c) to (d) 4. and am., renum. (1) (d) to (c) and am., cr. (1) (de), (dg), (dr), am. (1) (e), cr. (1) (eg), (er), am. (1) (f), (g), (2) (a), renum. (2) (b) to (b) (intro.) and am., cr. (2) (b) 1. to 3., am. (2) (c) to (e), r. and recr. (2) (f) (intro.), am. (2) (f) 1., 2., cr. (2) (f) 3., am. (2) (h), cr. (2m), am. (3) (b) 2., 3., (c), (4) to (6), cr. (9), (10) Register March 2016 No. 723, eff. 4−1−16; corrections in (1) (d) 2. (intro.), (2) (a) (intro.), (b) (intro.), (f) (intro.), (2m) (d) (intro.), (e), (3) (b) 2. made under s. 35.17, Stats., Register March 2016 No. 723.**

NR 809.311 Analytical requirements for microbiological contaminants. (1) ANALYTICAL METHODS. Analyses conducted to determine compliance with s. NR 809.31 shall be made in accordance with methods listed in Table F.

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

(3) SAMPLE COLLECTION PRESERVATION AND HOLDING TIME. (a) Sample collection for microbiological contaminants under s. NR 809.30 shall be conducted using the sample preservation, containers and maximum holding time procedures specified in par. (b).

(b) Sample preservation requirements and holding times for microbiological samples are specified in subds. 1. and 2. In all cases, samples shall be analyzed as soon after collection as possible.

1. Total Coliform and *E. coli* samples are not required to be preserved by cooling to 10° C, however it is encouraged during transit. Sodium thiosulfate shall be added to the sample container prior to adding water containing chlorine and the holding time shall be 30 hours.

2. Heterotrophs may be either held at room temperature with a holding time of 6 hours or preserved by cooling to 4° C with a holding time of 24 hours.

(4) LABORATORY CERTIFICATION. Analyses under this section shall only be conducted by laboratories that have received certification under ch. ATCP 77 or approval by EPA.

(5) PRESENCE OR ABSENCE. Water suppliers need only determine the presence or absence of total coliforms; a determination of total coliform density is not required.

Note: The coliform density may, however, be helpful in selecting a remedial option.

(6) REQUIRED METHODS. Samples collected to determine compliance with s. NR 809.30 (1) shall be analyzed by enzyme substrate test methods.

(7) OTHER METHODS. The department may approve, on a case−by−case basis, other methods for use in determining compliance with s. NR 809.30 (1) if they have been approved by EPA.

(8) SAMPLE INTEGRITY. If chlorine odor is present in a drinking water sample the laboratory shall test the sample for the presence of chlorine. If chlorine is detected in the sample, the laboratory shall reject the sample for analysis, based on the improper preservation. The water supplier shall submit a new sample for analysis to replace the rejected sample.

TABLE F

SDWA Approved Methodology for Microbiological Measurements

Organism	Methodology	Method	SM 20th Edition[1]	SM 21st Edition[2]	SM 22nd Edition[3]	SM Online[4]	Other
Total Coliform	Total Coliform Fermentation Technique		9221 B.1, B.2 [5]	9221 C	9221 C	9221 B.1, B.2−99 [5]	
				9221 B.1, B.2 [5]			
	Presence−Absence (P−A) Coliform Test		9221 D.1, D.2 [6]	9221 D.1, D.2 [6]		9221 D.1, D.2−99 [6]	
	Lactose Fermentation Methods	Standard Total Coliform Fermentation Technique			9221 B.1, B.2		
	Enzyme Substrate Methods	MI Agar					EPA Method 1604[7]
		Colilert®	9223 B [8]	9223 B [8]	9223 B	9223 B−97 [8]	
		Colisure®	9223 B [8, 9]	9223 B [8, 9]	9223 B	9223 B−97 [8, 9]	
		E*Colite® Test [10]					
		Readycult® Test [11]					
		modified Colitag® Test [12]					
Heterotrophic bacteria	Pour Plate Method			9215 B	9215 B		
E. coli	Enzyme Substrate Methods	MI Agar					EPA Method 1604[7]
		Colilert®	9223 B [8]	9223 B [8]	9223 B	9223 B−97 [8, 9]	
		Colisure®	9223 B [8, 9]	9223 B [8, 9]	9223 B	9223 B−97 [8, 9]	
		E*Colite® Test [10]					
		Colilert−18	9223 B	9223 B	9223 B	*9223 B−97*	
		Readycult®					Ready cult® [11]
		Colitag					Modified Coli-tag[TM12]
	Escherichia coli Procedure (following Lactose Fermentation Methods)	EC−MUG medium	9221 F.1	9221 F.1	9221 F.1		

[1] *Standard Methods for the Examination of Water and Wastewater, 20th edition (1998). Available from American Public Health Association, 800 I Street, NW., Washington, DC 20001−3710.*

[2] *Standard Methods for the Examination of Water and Wastewater,* 21st edition (2005). Available from American Public Health Association, 800 I Street, NW., Washington, DC 20001−3710.

[3] *Standard Methods for the Examination of Water and Wastewater,* 22nd edition (2012). Available from American Public Health Association, 800 I Street NW., Washington, DC 20001−3710.

[4] Standard Methods Online are available at *http://www.standardmethods.org*. The year in which each method was approved by the Standard Methods Committee is designated by the last two digits in the method number. The methods listed are the only online versions that may be used.

[5] Lactose broth, as commercially available, may be used in lieu of lauryl tryptose broth, if the system conducts at least 25 parallel tests between lactose broth and lauryl tryptose broth using the water normally tested, and if the findings from this comparison demonstrate that the false−positive rate and false−negative rate for total coliforms, using lactose broth, is less than 10 percent.

[6] A multiple tube enumerative format, as described in *Standard Methods for the Examination of Water and Wastewater* 9221, is approved for this method for use in presence−absence determination under this regulation.

[7] EPA Method 1604, EPA 821−R−02−024—"EPA Method 1604: Total Coliforms and *Escherichia coli* in Water by Membrane Filtration Using a Simultaneous Detection Technique (MI Medium)," September 2002, *http://www.epa.gov/nerlcwww/1604sp02.pdf.*

[8] Multiple−tube and multi−well enumerative formats for this method are approved for use in presence−absence determination under this regulation.

[9] Colisure® results may be read after an incubation time of 24 hours.

[10] E*Colite®—"Charm E*Colite™ Presence/Absence Test for Detection and Identification of Coliform Bacteria and *Escherichia coli* in Drinking Water," January 9, 1998.

[11] Readycult®—"Readycult® Coliforms 100 Presence/Absence Test for Detection and Identification of Coliform Bacteria and *Escherichia coli* in Finished Waters," January 2007, Version 1.1. Available from EMD Millipore (division of Merck KGaA, Darmstadt, Germany), 290 Concord Road, Billerica, MA 01821.

[12] modified Colitag®, ATP D05−0035—"Modified Colitag™ Test Method for the Simultaneous Detection of *E. coli* and other Total Coliforms in Water," August 28, 2009. Available at *http://www.nemi.gov* or from CPI, International, 580 Skylane Boulevard, Santa Rosa, CA 95403.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (3) (b) 1., (6), (7), r. and recr. Table F Register March 2016 No. 723, eff. 4−1−16.**

NR 809.312 Compliance reporting for microbiological contaminants. (1) MCL VIOLATION REPORTING. When a sample collected under s. NR 809.31 (1), (2), (2m), (4), or (5) exceeds maximum contaminant level in s. NR 809.30 (1), the water supplier shall report the violation to the department no later than the end of the next business day after it learns of the violation, and shall provide public notice of the violation in accordance with s. NR 809.951.

(1m) TREATMENT TECHNIQUE VIOLATION REPORTING. The water supplier for a public water system that has violated the treatment technique for coliforms in s. NR 809.313 shall report the violation to the department by no later than the end of the next business day after it learns of the violation, and shall provide public notice of the violation in accordance with s. NR 809.952.

(2) MONITORING VIOLATION REPORTING. A water supplier who has failed to comply with a coliform monitoring requirement shall report the monitoring violation to the department within 10 days after discovering the violation, and shall notify the public as specified in s. NR 809.952.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (1), cr. (1m) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.313 Coliform treatment technique triggers and assessment requirements for protection against potential fecal contamination. (1) TREATMENT TECHNIQUE TRIGGERS. Water suppliers of public water systems shall conduct assessments in accordance with sub. (2) after public water systems exceed treatment technique triggers in par. (a) or (b).

(a) *Level 1 treatment technique triggers.* 1. For public water systems taking 40 or more samples per month, the public water system exceeds 5.0% total coliform−positive samples for the month.

2. For public water systems taking fewer than 40 samples per month, the public water system has two or more total coliform−positive samples in the same month.

3. The water supplier fails to take every required repeat sample after any single total coliform−positive sample.

(b) *Level 2 treatment technique triggers.* 1. An *E. coli* MCL violation, as specified in s. NR 809.30.

2. A second Level 1 trigger as defined in par. (a) 1. within a rolling 12−month period, unless the department has determined a likely reason that the samples that caused the first Level 1 treatment technique trigger were total coliform−positive and has established that the water supplier has corrected the problem.

3. For public water systems with approved annual monitoring, a Level 1 trigger in two consecutive years.

(2) REQUIREMENTS FOR ASSESSMENTS. (a) *General requirements.* 1. Water suppliers shall ensure that Level 1 and 2 assessments are conducted in order to identify the possible presence of sanitary defects, and defects in distribution system coliform monitoring practices. Level 2 assessments shall be conducted by parties approved by the department.

2. When conducting assessments, water suppliers shall ensure that the assessor evaluates minimum elements that include review and identification of inadequacies in sample sites; sampling protocol; sample processing; atypical events that could affect distributed water quality or indicate that distributed water quality was impaired; changes in distribution system maintenance and operation that could affect distributed water quality, including water storage; source and treatment considerations that bear on distributed water quality, where appropriate, as for example, small ground water systems; and existing water quality monitoring data. The water supplier shall conduct the assessment consistent with any department directives that tailor specific assessment elements with respect to the size and type of the public water system and the size, type, and characteristics of the distribution system.

(b) *Level 1 assessments.* A water supplier shall conduct a Level 1 assessment consistent with department requirements if the public water system exceeds one of the treatment technique triggers in sub. (1) (a). The department may conduct a Level 2 assessment in response to a Level 1 treatment technique trigger at a non−community water system, which may include the collection of a large−volume sample.

1. The water supplier shall complete a Level 1 assessment as soon as practical after any trigger in sub. (1) (a). In the completed assessment form, the water supplier shall describe sanitary defects detected, corrective actions completed, and a proposed timetable for any corrective actions not already completed. The assessment form may also note that no sanitary defects were identified. The water supplier shall submit the completed Level 1 assessment form to the department within 30 days after the water supplier learns that the public water system has exceeded a trigger.

2. If the department reviews the completed Level 1 assessment and determines that the assessment is not sufficient, including any proposed timetable for any corrective actions not already completed, the department shall consult with the water supplier. If the department requires revisions after consultation, the water supplier shall submit a revised assessment form to the department

on an agreed−upon schedule not to exceed 30 days from the date of the consultation.

3. Upon completion and submission of the assessment form by the water supplier, the department shall determine if the water supplier has identified a likely cause for the Level 1 trigger and, if so, establish that the water supplier has corrected the problem, or has included a schedule acceptable to the department for correcting the problem.

(c) *Level 2 assessments.* A water supplier shall ensure that a Level 2 assessment consistent with department requirements is conducted if the public water system exceeds one of the treatment technique triggers in sub. (1) (b). The water supplier shall comply with any expedited actions or additional actions required by the department in the case of an *E. coli* MCL violation.

1. The water supplier shall ensure that a Level 2 assessment is completed by the department or by a party approved by the department as soon as practical after any trigger in sub. (1) (b). The water supplier shall submit a completed Level 2 assessment form to the department within 30 days after the water supplier learns that it has exceeded a trigger. The assessment form shall describe sanitary defects detected, corrective actions completed, and a proposed timetable for any corrective actions not already completed. The assessment form may also note that no sanitary defects were identified.

2. The water supplier may conduct Level 2 assessments if the water supplier has staff or management with the certification or qualifications specified by the department unless otherwise directed by the department.

3. If the department reviews the completed Level 2 assessment and determines that the assessment is not sufficient, including any proposed timetable for any corrective actions not already completed, the department shall consult with the water supplier. If the department requires revisions after consultation, the water supplier shall submit a revised assessment form to the department on an agreed−upon schedule not to exceed 30 days.

4. Upon completion and submission of the assessment form by the water supplier, the department shall determine if the water supplier has identified a likely cause for the Level 2 trigger and determine whether the water supplier has corrected the problem, or has included a schedule acceptable to the department for correcting the problem.

(3) CORRECTIVE ACTION. Water suppliers shall correct sanitary defects found through Level 1 or Level 2 assessments conducted under sub. (2). For corrections not completed by the time of submission of the assessment form, the water supplier shall complete the corrective action in compliance with a timetable approved by the department in consultation with the water supplier. The water supplier shall notify the department when each scheduled corrective action is completed.

(4) CONSULTATION. At any time during the assessment or corrective action phase, the water supplier or the department may request a consultation with the other party to determine the appropriate actions to be taken. The water supplier may consult with the department on all relevant information that may affect the ability to comply with a requirement of this subsection, including the method of accomplishment, an appropriate timeframe, and other relevant information.

History: CR 15−049: cr. Register March 2016 No. 723, eff. 4−1−16; correction in (1) (intro.) made under s. 35.17, Stats., Register March 2016 No. 723.

NR 809.314 Treatment technique compliance with distribution system microbiological contaminants. A treatment technique violation occurs when sub. (1) or (2) occurs.

(1) A public water system exceeds a treatment technique trigger specified in s. NR 809.313 (1) and the water supplier fails to conduct the required assessment or corrective actions within the timeframe specified in s. NR 809.313 (2) and (3).

(2) The water supplier of a seasonal system fails to complete a department−approved start−up procedure prior to serving water to the public.

History: CR 15−049: cr. Register March 2016 No. 723, eff. 4−1−16.

NR 809.32 Groundwater microbiological source water monitoring — general requirements. (1) APPLICABILITY OF GROUNDWATER SOURCE MICROBIOLOGICAL CONTAMINANTS. (a) This section applies to all public water systems using groundwater, except for public water systems that combine all of their groundwater with surface water or with groundwater under the direct influence of surface water prior to surface water treatment.

(b) This section applies to any public water system meeting the applicability statement in sub. (1), including consecutive systems that receive finished groundwater from another public water system.

(2) COMPLIANCE DATE. Unless otherwise noted, all groundwater systems shall comply with the requirements of this section beginning December 1, 2009.

(3) REQUIREMENTS. All public water systems using groundwater as a source shall comply with the following requirements:

(a) Provide all information required by the department for sanitary surveys conducted under s. NR 809.35.

(b) Groundwater systems that do not treat all of their groundwater to at least 4−log treatment of viruses, using inactivation, removal, or a department−approved combination of 4−log virus inactivation and removal before or at the first customer, shall meet all the microbiological source water monitoring requirements under s. NR 809.325.

(c) Groundwater systems that have fecally contaminated source waters, as determined by source water monitoring conducted under s. NR 809.325, or have significant deficiencies that are identified by the department or that are identified by EPA, under Subpart S of 40 CFR part 141 of the U.S. Code, shall meet the treatment technique requirements in s. NR 809.327. Groundwater systems with fecally contaminated source water or with significant deficiencies are subject to the treatment technique requirements of s. NR 809.327 and shall implement one or more of the following corrective action options:

1. Correct all significant deficiencies.

2. Provide an alternate source of water.

3. Eliminate the source of contamination.

4. Provide treatment that reliably achieves at least 4−log treatment of viruses, before or at the first customer.

(d) Groundwater systems that provide at least 4−log treatment of viruses before or at the first customer shall conduct compliance monitoring to demonstrate treatment effectiveness, as required under s. NR 809.327 (3).

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10.

NR 809.323 Analytical requirements for groundwater source microbiological contaminants. (1) ANALYTICAL METHODS. (a) A water supplier for a groundwater system subject to the source water monitoring requirements of s. NR 809.325 (2) shall collect a standard sample volume of at least 100 mL for *E. coli* analysis regardless of the analytical method used.

(b) A water supplier for a groundwater system shall analyze all groundwater source samples, collected under s. NR 809.325 (2), using one of the analytical methods listed in Table G for the presence of *E. coli*. If the department requires a public water system to be tested for the presence of enterococci or coliphage, the water supplier shall use one of the methods listed in Table G.

(c) Sample volumes of at least 100 mL shall be used for all analyses using the methods in Table G. Analyses shall be conducted in accordance with the documents listed in the footnotes to Table G.

(d) The sample holding time shall not exceed 30 hours. In all cases, samples should be analyzed as soon after collection as possible.

Table G
Analytical Methods for Source Water Monitoring

Fecal indicator	Methodology	Method Citation
E. coli	Colilert [2]	9223 B[1]
	Colisure [2]	9223 B[1]
	Membrane Filter Method EPA Method with MI Agar.	1604[3]
	m−ColiBlue24 Test [4] E*Colite Test [5] EC−MUG [6]	9221 F[1]
	NA−MUG [6]	9222 G[1]
Entero-cocci	Multiple−Tube Technique.	9230 B[1]
	Membrane Filter Technique.	9230 C[1]
	Membrane Filter Technique.	1600 [7]
	Enterolert [8]	
Coliphage	Two−Step Enrichment EPA Method Presence−Absence Procedure.	1601[9]
	Single Agar Layer Procedure.	1602[10]

Note: Copies of the documents listed in the footnotes may be obtained from the sources listed in the footnotes. Copies may be inspected at EPA's Drinking Water Docket, EPA West, 1301 Constitution Avenue, NW., Room B102, Washington DC 20460, Telephone: 202−566−2426, or at the National Archives and Records Administration (NARA). For information on 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.

[1] Methods are described in Standard Methods for the Examination of Water and Wastewater 20th edition (1998) and copies may be obtained from the American Public Health Association, 1015 Fifteenth Street, NW., Washington, DC 20005−2605.

[2] Medium is available through IDEXX Laboratories, Inc., One IDEXX Drive, Westbrook, Maine 04092.

[3] EPA Method 1604: Total Coliforms and Escherichia 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/microbes/documents/1604sp02.pdf or from EPA's Water Resource Center (RC−4100T), 1200 Pennsylvania Avenue, NW., Washington, DC 20460.

[4] 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 Ave., Ames, IA 50010 or from EPA's Water Resource Center (RC−4100T), 1200 Pennsylvania Avenue, NW., Washington, DC 20460.

[5] 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 St., Lawrence, MA 01843−1032 or from EPA's Water Resource Center (RC−4100T), 1200 Pennsylvania Avenue, NW., Washington, DC 20460.

[6] EC−MUG (Method 9221F) or NA−MUG (Method 9222G) can be used for E. coli testing step as described in Sec. 141.21(f)(6)(i) or (ii) after use of Standard Methods 9221 B, 9221 D, 9222 B, or 9222 C.

[7] EPA Method 1600: Enterococci in Water by Membrane Filtration Using membrane−Enterococcus Indoxyl−[beta]−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/microbes/documents/1600sp02.pdf or from EPA's Water Resource Center (RC−4100T), 1200 Pennsylvania Avenue, NW., Washington, DC 20460.

[8] Medium is available through IDEXX Laboratories, Inc., One IDEXX Drive, Westbrook, Maine 04092. Preparation and use of the medium is set forth in the article "Evaluation of Enterolert for Enumeration of Enterococci in Recreational Waters," by Budnick, G.E., Howard, R.T., and Mayo, D.R., 1996, Applied and Environmental Microbiology, 62:3881−3884.

[9] 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/microbes/documents/1601ap01.pdf or from EPA's Water Resource Center (RC−4100T), 1200 Pennsylvania Avenue, NW., Washington, DC 20460.

[10] 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/microbes/documents/1602ap01.pdf or from EPA's Water Resource Center (RC−4100T), 1200 Pennsylvania Avenue, NW., Washington, DC 20460.

(2) INVALIDATION OF AN *E. COLI*−POSITIVE GROUNDWATER SOURCE SAMPLE. (a) The department may invalidate an *E. coli*−positive groundwater source sample collected under s. NR 809.325 (2) under the conditions specified in subd. 1. or 2.

1. The water supplier provides the department with written notice from the laboratory that improper sample analysis occurred.

2. The department determines and documents in writing that there is substantial evidence that an *E. coli*−positive groundwater source sample is not related to source water quality.

(b) If the department invalidates an *E. coli*−positive groundwater source sample, the water supplier shall collect another source water sample under s. NR 809.325 (2) no later than 24 hours after being notified by the department that the sample has been invalidated. The water supplier shall have the sample analyzed for *E. coli* using the analytical methods in s. NR 809.323 (1) (b) Table G.

(c) The department may extend the 24−hour time limit on a case−by−case basis if the water supplier cannot collect the source water sample within the 24−hour time limit due to circumstances beyond the water supplier's control. In the case of an extension, the department shall specify in writing how much time the water supplier has to collect the sample.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (1) (a), (b), (d) Table G, (2) (title), (a), (b) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.325 Groundwater source microbiological monitoring requirements. (1) SAMPLING LOCATION. (a) Any groundwater source sample required under sub. (2) shall be collected at a location prior to any treatment of the groundwater source unless the department approves a sampling location after treatment.

(b) If the public water system's configuration does not allow for sampling at the well itself, the water supplier may collect a sample at a department−approved location to meet the requirements of par. (a), if the sample is representative of the source water quality of that well.

(c) Source water samples taken in response to positive total coliform samples collected under s. NR 809.31 shall be referred to as triggered source water samples.

(2) TRIGGERED SOURCE WATER MONITORING. (a) Water suppliers for groundwater systems shall conduct triggered source water monitoring if all of the following conditions exist:

1. The public water system does not provide at least 4−log treatment of viruses before or at the first customer for each groundwater source.

2. The public water system is notified that a sample collected under s. NR 809.31 (1) is total coliform−positive and the sample is not invalidated under s. NR 809.31 (3).

(b) The following sampling requirements apply:

1. No later than 24 hours after notification of a total coliform−positive distribution system sample, a water supplier for a groundwater system shall collect at least one groundwater source sample, for each total coliform−positive sample, from each groundwater source in use at the time the total coliform−positive sample was collected, except as provided in par. (c).

2. The department may extend the 24−hour time limit on a case−by−case basis if the water supplier cannot collect the groundwater source water sample within the 24−hour time limit due to circumstances beyond the water supplier's control. In the case of an extension, the department shall specify, in writing, how much time the water supplier has to collect the sample.

3. If approved by the department, water suppliers for groundwater systems with more than one groundwater source may meet the requirements of this paragraph by sampling a representative groundwater source or sources if they have an approved triggered source water monitoring plan.

(c) A triggered source water monitoring plan shall evaluate each sample site in the sample siting plan for the public water system under s. NR 809.31 (1) (a) and identify the sources that are representative of each monitoring site. If directed by the department, a water supplier for a public water system shall submit for department approval a triggered source water monitoring plan that identifies one or more groundwater sources that are representative of each monitoring site in the sample siting plan for the public water system and that the water supplier intends to use for representative sampling under par. (b).

(d) A water supplier for a groundwater system serving 1,000 people or fewer may use a repeat sample collected from a groundwater source to meet both the requirements of s. NR 809.31 (2) and to satisfy the monitoring requirements of par. (b) for that groundwater source. If the repeat samples collected from the groundwater source are *E. coli* positive, the water supplier shall comply with the requirements of par. (e) unless the department requires immediate corrective action under s. NR 809.327 (2) (b).

(e) If the department does not require corrective action under s. NR 809.327 (2) (b) for an *E. coli*−positive source water sample collected under par. (b), the water supplier shall collect five additional source water samples from the same source no later than 24 hours after being notified of the *E. coli* positive sample. If any of the 5 samples collected under this paragraph is *E. coli*−positive, the water supplier shall conduct a corrective action as outlined in s. NR 809.327 (2).

(3) CONSECUTIVE AND WHOLESALE SYSTEMS. (a) In addition to the other requirements of this section, a water supplier for a consecutive groundwater system that has a total coliform−positive sample collected under s. NR 809.31 (2) shall notify any wholesale system from which it receives water no later than 24 hours after being notified of the total coliform−positive sample.

(b) A water supplier for a wholesale groundwater system that receives notice from a water supplier for a consecutive system served by the wholesale system that a sample collected under s. NR 809.31 (2) was total coliform−positive shall, no later than 24 hours after being notified, collect samples from its groundwater sources under sub. (2) (b) and analyze them for *E. coli* under s. NR 809.323 (1) (b) Table G. The department may extend the 24−hour time limit on a case−by−case basis if the public water system cannot collect the groundwater source water sample within the 24−hour time limit due to circumstances beyond the water supplier's control. In the case of an extension, the department shall specify, in writing, how much time the water supplier has to collect the sample.

(c) If the sample collected under par. (b) is *E. coli*−positive, the water supplier for the wholesale groundwater system shall notify all water suppliers for the consecutive systems served by that groundwater source no later than 24 hours after being notified of the groundwater source sample monitoring result and shall meet the requirements of sub. (2) (e) unless the department requires immediate corrective action under s. NR 809.327 (2) (b).

(4) EXCEPTION TO THE TRIGGERED SOURCE WATER MONITORING REQUIREMENTS. A water supplier for a groundwater system is not required to comply with the triggered source water monitoring requirements of sub. (2) if the department determines, and documents in writing, that the total coliform−positive sample collected under s. NR 809.31 (1) was caused by a distribution system deficiency.

(5) FAILURE TO MEET MONITORING REQUIREMENTS. If a water supplier fails to meet any of the monitoring requirements of subs. (1) to (3), the public water system is in violation and is required to complete public notification requirements under s. NR 809.953.

(6) PUBLIC NOTIFICATION. A water supplier for a groundwater system with a groundwater source sample collected under subs. (2) or (3) that is fecal indicator−positive and that is not invalidated under s. NR 809.323, including consecutive systems served by the groundwater source, shall conduct public notification under s. NR 809.951 (1) (b) 9.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; correction in (5) made under s. 13.92 (4) (b) 7., Stats., Register November 2010 No. 659; **CR 15−049: am. (1) (b), (2) (b) 1., (d), (e), (3) (b), (c), renum. (4) (a) to (4) and am. Register March 2016 No. 723, eff. 4−1−16.**

NR 809.327 Compliance requirements for groundwater source microbiological monitoring. (1) COMPLIANCE REQUIREMENTS. Treatment technique submittal requirements for water suppliers for public water systems with significant deficiencies or confirmed source water fecal contamination are as follows:

(a) No later than 30 days after receiving written notice from the department of significant deficiencies, or notified by a laboratory of source water fecal contamination, water suppliers for groundwater systems shall consult with the department regarding appropriate corrective action, unless the department directs the water supplier to implement a specific corrective action.

(b) If the department specifies interim measures for protection of the public health, pending department approval of the corrective action plan and schedule or pending completion of the corrective action plan, the water supplier shall comply with these interim measures in addition to the other requirements of this section.

(c) No later than 120 days after receiving written notification from the department of a significant deficiency, or notified by a laboratory of confirmed source water fecal contamination, the water supplier for a groundwater system shall have one of the following:

1. A completed corrective action in accordance with the applicable department plan review processes contained in ch. NR 811 for community systems or ch. NR 812 for noncommunity systems.

2. A written and approved department corrective action plan and schedule.

(2) CORRECTIVE ACTION ALTERNATIVES. A water supplier for a groundwater systems receiving written notice from the department of significant deficiencies under s. NR 809.35 or confirmed source water fecal contamination under s. NR 809.325 shall implement one 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 before or at the first customer for the groundwater source.

(3) NOTIFICATION AND SUBMITTAL REQUIREMENTS FOR SYSTEMS PROVIDING 4 LOG TREATMENT OF VIRUSES. (a) A public water system that has an existing or new groundwater source and serves customers on or after November 30, 2009 and provides department−approved treatment that achieves 4 log inactivation or removal of viruses before the first customer, is not required to meet the triggered source water monitoring requirements of s. NR 809.325 (2) if all of the following conditions are met:

1. The water supplier notifies the department in writing that the public water system provides at least 4−log treatment of viruses.

2. The notification from the water supplier to the department shall include a submittal for review that includes the engineering and operational information that the department will need to evaluate the adequacy of the treatment.

3. The water supplier provides any other information that the department requests to aid in its evaluation of the sufficiency of the public water system's treatment process for viruses.

(b) A water supplier for a public water system that provides at least 4−log treatment of viruses before or at the first customer and places a new groundwater source into service after November 30, 2009, is not required to meet the triggered source water monitoring requirements of s. NR 809.325 if the water supplier complies with all of the following requirements:

1. The water supplier notifies the department in writing that it provides at least 4−log treatment of viruses before or at the first customer for the groundwater source.

2. The notification the water supplier provides to the department shall include an engineering, operational, or other information that the department requests to evaluate the submission.

3. The water supplier conducts compliance monitoring as required under sub. (4) within 30 days of placing the source in service.

(c) If a water supplier for a public water system subsequently discontinues 4−log treatment of viruses before or at the first customer for a groundwater source, the water supplier shall conduct triggered source water monitoring in accordance with the requirements of s. NR 809.325 (2).

(4) TREATMENT COMPLIANCE MONITORING. A groundwater system that provides 4 log treatment of viruses shall monitor the effectiveness and reliability of treatment for that groundwater source before or at the first customer as follows:

(a) *Chemical disinfection.* 1. All water suppliers for community water systems shall continuously monitor the residual disinfectant concentration using analytical methods and requirements specified in s. NR 809.563 at a location approved by the department and shall record the lowest residual disinfectant concentration each day that water from the groundwater source is served to the public, unless the department allows less frequent monitoring as outlined in subd. 2.

a. The groundwater system shall maintain the department determined residual disinfectant concentration every day the public water system serves water from the groundwater source to the public.

b. If there is a failure in the continuous monitoring equipment, the water supplier shall conduct grab sampling every four hours until the continuous monitoring equipment is returned to service.

c. The water supplier for the public water system shall resume continuous residual disinfectant monitoring, as soon as possible, but no later than 14 days after the failure.

2. The water supplier for a community water systems serving 3,300 or fewer people shall be allowed to monitor the residual disinfectant concentration less than continuously, if the water supplier receives approval under s. NR 811.48 (3) (b) to monitor less than continuously. The monitoring shall be done using analytical methods and requirements specified in s. NR 809.563 at a location approved by the department and the residual disinfection concentration shall be recorded from that water every day the groundwater source is served to the public.

a. The groundwater system shall maintain the department determined residual disinfectant concentration every day the groundwater system serves water from the groundwater source to the public. The water supplier for a groundwater system shall take a daily grab sample during the hour of peak flow or at another time specified by the department.

b. If any daily grab sample measurement falls below the department determined residual disinfectant concentration, the water supplier shall take follow−up samples at the frequency determined by the department under s. NR 811.48 (3) (b) but no less than four hours until the residual disinfectant concentration is restored to the department determined level.

3. Water suppliers for non−community systems serving 3,300 or fewer people, unless otherwise required by the department under s. NR 812.37, shall monitor the residual disinfectant concentration using analytical methods and requirements specified in s. NR 809.563 at a location approved by the department and record the residual disinfection concentration once each day that water from the groundwater source is served to the public.

a. The water supplier for a groundwater system shall maintain the department determined residual disinfectant concentration every day the groundwater system serves water from the groundwater source to the public. The water supplier for a groundwater system shall take a daily grab sample during the hour of peak flow or at another time specified by the department.

b. If any daily grab sample measurement falls below the department determined residual disinfectant concentration, the water supplier shall take follow−up samples every four hours until the residual disinfectant concentration is restored to the department determined level.

c. Alternatively, water suppliers for non−community groundwater systems that serve 3,300 or fewer people may monitor continuously in order to meet the requirements of subd. 1.

(b) *Membrane filtration.* A water supplier for a groundwater system that uses membrane filtration to meet the requirements of sub. (2) shall monitor the membrane filtration process in accordance with all department specified monitoring requirements and shall operate the membrane filtration in accordance with all department specified compliance requirements. To be in compliance with the requirement to achieve at least 4−log treatment of viruses when a public water system uses membrane filtration exclusively, the public water system shall meet all of the following:

1. The membrane shall have an absolute molecular weight cut−off (MWCO), or an alternate parameter that describes the exclusion characteristics of the membrane, that can reliably achieve at least 4−log removal of viruses.

2. The membrane process shall be operated in accordance with department−specified compliance requirements.

3. The integrity of the membrane is intact.

4. The public water system shall be provided with at least 2 log of additional treatment of viruses using a chemical disinfectant.

(c) *Alternative treatment.* A water supplier for a groundwater system that uses a department−approved alternative treatment to meet the requirements of sub. (2) (d) for providing at least 4−log treatment of viruses before or at the first customer shall do all of the following:

1. Monitor the alternative treatment in accordance with all department specified monitoring requirements.

2. Operate the alternative treatment in accordance with all compliance requirements that the department determines to be necessary to achieve at least 4−log treatment of viruses.

(5) DISCONTINUING TREATMENT. A water supplier for a groundwater system may discontinue 4−log treatment of viruses before or at the first customer for a groundwater source if the department determines and documents in writing that 4−log treatment of viruses is no longer necessary for that water source. A public water system where 4−log treatment of viruses is discontinued is subject to the source water monitoring requirements of s. NR 809.325.

(6) FAILURE TO MEET MONITORING REQUIREMENTS. If a water supplier fails to meet any of the monitoring requirements of sub. (4), the public water system is in violation and the water supplier

shall complete public notification requirements under s. NR 809.953.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; correction in (4) (a) 2. b. made under s. 13.92 (4) (b) 7., Stats., Register November 2010 No. 659; **CR 15−049: am. (1) (a), (c) (intro.), (3) (a) 2., (4) (a) 3., (6) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.328 Treatment technique compliance for groundwater source microbiological contaminants. (1) TREATMENT TECHNIQUE VIOLATIONS FOR GROUNDWATER SYSTEMS. (a) A groundwater system with a significant deficiency is in violation of the treatment technique requirement if, within 120 days of the water supplier receiving written notice from the department of the significant deficiency or earlier if directed by the department, subd. 1. or 2. are not met.

1. The water supplier has not completed a corrective action in accordance with any applicable department plan approval processes under chs. NR 811 and 812, including any department specified interim actions.

2. The public water system is not in compliance with a department−approved corrective action plan and schedule.

(b) Unless the department invalidates an *E. coli*−positive groundwater source sample collected under s. NR 809.325, a public water system is in violation of the treatment technique requirement under s. NR 809.327 if within 120 days or earlier if directed by the department, the conditions of subd. 1. or 2 are not met.

1. The water supplier does not complete corrective action in accordance with any applicable department plan review processes under chs. NR 811 and 812, including department specified interim measures.

2. The public water system is not in compliance with a department−approved corrective action plan and schedule.

(c) A water supplier for a groundwater system subject to the requirements of s. NR 809.327 (4) that fails to maintain at least 4−log treatment of viruses before or at the first customer for a groundwater source is in violation of the treatment technique requirement if the failure is not corrected within 4 hours of determining the public water system is not maintaining at least 4−log treatment of viruses before or at the first customer.

(2) PUBLIC NOTIFICATION FOR TREATMENT TECHNIQUE VIOLATIONS. Water suppliers for groundwater systems shall give public notification under s. NR 809.952 for the treatment technique violations specified under this section.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (1) (b) (intro.) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.329 Reporting and recordkeeping requirements for groundwater systems. (1) REPORTING. In addition to the requirements of ss. NR 809.31 and 809.80, a water supplier for a groundwater system regulated under s. NR 809.32 shall provide the following information to the department:

(a) A water supplier for a groundwater system conducting compliance monitoring under s. NR 809.327 (3) shall notify the department any time the public water system fails to meet any department−specified requirements including, but not limited to, minimum residual disinfectant concentration, membrane operating criteria or membrane integrity, and alternative treatment operating criteria, if the operation is not restored in accordance with the criteria or requirements within four hours. The water supplier shall notify the department as soon as possible, but in no case later than the end of the next business day after the failure.

(b) After completing any corrective action under s. NR 809.327 (2), a water supplier shall notify the department within 30 days of completion of the corrective action.

(2) RECORDKEEPING. In addition to the requirements of s. NR 809.80, a water supplier for a public water system regulated under s. NR 809.32 shall maintain the following information in its records:

(a) Documentation of corrective actions. Documentation shall be kept for a period of not less than ten years.

(b) Documentation of notice to the public as required under s. NR 809.80. Documentation shall be kept for a period of not less than three years.

(c) Records of decisions under s. NR 809.325 (4) and records of invalidation of an *E. coli*−positive groundwater source sample under s. NR 809.323 (2). Documentation shall be kept for a period of not less than five years.

(d) For consecutive systems, documentation of notification to its wholesale systems of total−coliform positive samples that are not invalidated under s. NR 809.31 (3). Documentation shall be kept for a period of not less than five years.

(e) For public water systems, including wholesale systems, which are required to perform compliance monitoring under s. NR 809.327 (4) all of the following apply:

1. Records of the department specified minimum disinfectant residual. Documentation shall be kept for a period of not less than ten years.

2. Records of the lowest daily residual disinfectant concentration and records of the date and duration of any failure to maintain the department prescribed minimum residual disinfectant concentration for a period of more than four hours. Documentation shall be kept for a period of not less than five years.

3. Records of department−specified compliance requirements for membrane filtration and of parameters specified by the department for department−approved alternative treatment and records of the date and duration of any failure to meet the membrane operating, membrane integrity, or alternative treatment operating requirements for more than 4 hours. Documentation shall be kept for a period of not less than five years.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (2) (c), (d), (e) (intro.) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.33 Surface water microbiological organisms and indicators. (1) GENERAL REQUIREMENTS. The requirements in this section establish or extend treatment techniques in lieu of maximum contaminant levels for *Cryptosporidium*. These requirements are in addition to requirements for filtration and disinfection in subch. II of ch. NR 810.

(2) APPLICABILITY. These requirements apply to all surface water and GWUDI public water systems.

(a) Wholesale systems that supply water from a surface water or GWUDI source shall comply with the requirements of this section based on the population of the largest public water system in the combined distribution system.

(b) The requirements of this section for filtered public water systems apply to all public water systems required by s. NR 810.29 to provide filtration treatment, whether or not the public water system is currently operating a filtration system.

(c) The requirements of this section for unfiltered public water systems apply only to unfiltered public water systems that met and continue to meet the filtration avoidance criteria in s. NR 810.30 as applicable.

(3) REQUIREMENTS. Public water systems subject to this section shall comply with the following requirements:

(a) The following monitoring is required under this section:

1. Water suppliers shall have conducted and submitted to EPA an initial round of source water monitoring for treatment plants existing as of January 5, 2006 under 40 CFR part 141 National Primary Drinking Water Regulations Subpart W that determined the level of treatment for *Cryptosporidium* needed under s. NR 810.34.

2. Water suppliers shall conduct source water monitoring as part of the treatment approval process for plants constructed after January 5, 2006 under s. NR 811.21 (1) (f). This monitoring shall include *Cryptosporidium*, *E. coli*, and turbidity to determine what

level of *Cryptosporidium* treatment shall be provided using the requirements of the bin classifications under s. NR 810.34.

3. A second round of source water monitoring for each plant that treats a surface water or GWUDI source shall be conducted by the water supplier and submitted to the department as required in s. NR 809.331 (2). This monitoring may include sampling for *Cryptosporidium, E. coli,* and turbidity as described in ss. NR 809.331 to 809.336, to determine what level, if any, of additional *Cryptosporidium* treatment the public water system shall provide.

(b) Water suppliers that plan to make a significant change to the disinfection practice at a public water system shall develop disinfection profiles and calculate disinfection benchmarks, as described in s. NR 810.32.

(c) Water suppliers for filtered public water systems shall determine their *Cryptosporidium* treatment bin classification as described in s. NR 810.34 and provide additional treatment for *Cryptosporidium,* if required, as described in s. NR 810.35. All unfiltered public water systems shall provide treatment for *Cryptosporidium* as described in s. NR 810.36. Filtered and unfiltered public water systems shall implement *Cryptosporidium* treatment according to the schedule in s. NR 810.37.

(d) Water suppliers for public water systems with an uncovered finished water storage facilities shall comply with the requirements to cover the facility or treat the discharge from the facility as described in s. NR 810.28.

(e) Water suppliers for public water systems required to provide additional treatment for *Cryptosporidium* shall implement microbial toolbox options that are designed and operated as described in ss. NR 810.41 to 810.46.

(f) Water supplier shall comply with the applicable recordkeeping and reporting requirements described in ss. NR 809.336 and 809.82.

(4) SURFACE WATER TREATMENT TECHNIQUE VIOLATIONS. Surface water and GWUDI public water systems are in violation of the treatment technique requirements for turbidity if any of the requirements of s. NR 810.29 (1) to (4) are not met.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (4) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.331 Surface water source monitoring. (1) INITIAL ROUND OF SOURCE WATER MONITORING. Water suppliers shall have conducted the following monitoring according to the schedule in sub. (3) Table H, at treatment plants existing as of January 5, 2006 unless the public water system meets the monitoring exemption criteria in sub. (4). The initial source water monitoring requirements were conducted under 40 CFR part 141 National Primary Drinking Water Regulations Subpart W with EPA wholly responsible for implementation. For public water systems with treatment plants constructed after January 5, 2006 the department may require the following initial monitoring as part of the approval process under s. NR 811.21 (1) (f).

(a) Water suppliers for filtered public water systems serving at least 10,000 people shall sample their source water for *Cryptosporidium, E. coli,* and turbidity at least monthly for 24 months.

(b) Water suppliers for unfiltered public water systems serving at least 10,000 people shall sample their source water for *Cryptosporidium* at least monthly for 24 months.

(c) Water suppliers for filtered public water systems serving fewer than 10,000 people shall sample their source water for *E. coli* at least once every two weeks for 12 months. A filtered public water system serving fewer than 10,000 people may avoid *E. coli* monitoring if the water supplier notifies the department that *Cryptosporidium* will be monitored for as described in sub. (3). The water supplier shall notify the department no later than 3 months prior to the date the public water system is required to start *E. coli* monitoring under sub. (3).

(d) Water suppliers for filtered public water systems serving fewer than 10,000 people shall sample their source water for *Cryptosporidium* at least twice per month for 12 months or at least monthly for 24 months if based on monitoring conducted under par. (c), and if they meet one of the following:

1. For public water systems using lake or reservoir sources, the annual mean *E. coli* concentration is greater than 10 *E. coli* /100 mL.

2. For public water systems using flowing stream sources, the annual mean *E. coli* concentration is greater than 50 *E. coli* /100 mL.

3. The public water system was not monitored for *E. coli* as described in par. (c).

4. Public water systems using groundwater under the direct influence of surface water (GWUDI) shall comply with the requirements of this paragraph based on the *E. coli* level that applies to the nearest surface water body. If no surface water body is nearby, the public water system shall comply based on the requirements that apply to public water systems using lake or reservoir sources.

(e) For filtered public water systems serving fewer than 10,000 people, the department may approve monitoring for an indicator other than *E. coli* under par. (c). The department also may approve an alternative to the *E. coli* concentration in par. (d) 1. to 3. to trigger *Cryptosporidium* monitoring. This approval by the department shall be provided to the public water system in writing and shall include the basis for the department's determination that the alternative indicator or trigger level will provide a more accurate identification of whether a public water system will exceed the Bin 1 *Cryptosporidium* level in s. NR 810.34.

(f) Water suppliers for unfiltered public water systems serving fewer than 10,000 people shall sample their source water for *Cryptosporidium* at least twice per month for 12 months or at least monthly for 24 months.

(g) Water suppliers may sample more frequently than required under this section if the sampling frequency is evenly spaced throughout the monitoring period.

(2) SECOND ROUND OF SOURCE WATER MONITORING. Water supplier shall conduct a second round of source water monitoring that meets the requirements for monitoring parameters, frequency, and duration described in sub. (1), unless they meet the monitoring exemption criteria in sub. (4). Water suppliers shall conduct this monitoring on the schedule in sub. (3).

(3) MONITORING SCHEDULE. According to EPA requirements, water supplier shall begin the monitoring required in subs. (1) and (2) no later than the month beginning with the date listed in Table H:

TABLE H
Source Water Monitoring Starting Dates

Public water systems that serve . . .	The initial round of source water monitoring shall begin no later than the month beginning:	The second round of source water monitoring shall begin no later than the month beginning:
(1) At least 100,000 people	October 1, 2006	April 1, 2015
(2) From 50,000 to 99,999 people	April 1, 2007	October 1, 2015
(3) From 10,000 to 49,999 people	April 1, 2008	October 1, 2016
(4) Fewer than 10,000 and monitor for *E. coli*[1]	October 1, 2008	October 1, 2017
(5) Fewer than 10,000 and monitor for *Cryptosporidium* [2]	April 1, 2010	April 1, 2019

[1] Applies only to filtered public water systems.

[2] Applies to filtered public water systems that meet the conditions of sub. (1) (e) and unfiltered public water systems.

(4) MONITORING AVOIDANCE. (a) Water suppliers for filtered public water systems are not required to conduct source water monitoring under this section if the public water system will provide a total of at least 5.5−log of treatment for *Cryptosporidium*, equivalent to meeting the treatment requirements of Bin 4 in s. NR 810.35.

(b) Water supplier for unfiltered public water systems are not required to conduct source water monitoring under this section if the public water system will provide a total of at least 3−log *Cryptosporidium* inactivation, equivalent to meeting the treatment requirements for unfiltered public water systems with a mean *Cryptosporidium* concentration of greater than 0.01 oocysts/L in s. NR 810.36.

(c) If a water supplier chooses to provide the level of treatment in par. (a) or (b), as applicable, rather than start source water monitoring, the water supplier shall notify the department in writing no later than the date the public water system is otherwise required to submit a sampling schedule for monitoring under s. NR 809.332. Alternatively, a water supplier may choose to stop sampling at any point after the public water system has initiated monitoring if the water supplier notifies the department in writing that the public water system will provide this level of treatment. Water supplier shall install and operate technologies to provide this level of treatment by the applicable treatment compliance date in s. NR 810.37.

(5) PLANTS OPERATING ONLY PART OF THE YEAR. Water suppliers for public water systems with surface water treatment plants that operate for only part of the year shall conduct source water monitoring in accordance with this section, but with the following modifications:

(a) Water supplier shall sample their source water only during the months that the plant operates unless the department specifies another monitoring period based on plant operating practices.

(b) Water supplier for public water systems with plants that operate less than six months per year and that monitor for *Cryptosporidium* shall collect at least six *Cryptosporidium* samples per year during each of two years of monitoring. Samples shall be evenly spaced throughout the period the plant operates.

(6) NEW SOURCES. (a) A water supplier for a public water system that begins using a new source of surface water or GWUDI after the public water system is required to begin monitoring under sub. (3) shall monitor the new source on a schedule the department approves. Source water monitoring shall meet the requirements of this section. The public water system shall also meet the bin classification and *Cryptosporidium* treatment requirements of ss. NR 810.34 and 810.35 or s. NR 810.36, as applicable, for the new source on a schedule the department approves.

(b) The requirements of this section apply to public water systems with surface water treatment plants that begin operation after the monitoring start date applicable to the public water system's size under sub. (3).

(c) The water supplier shall begin a second round of source water monitoring no later than 6 years following initial bin classification under s. NR 810.34 or determination of the mean *Cryptosporidium* level under s. NR 810.36, as applicable.

(7) MONITORING VIOLATION. Failure to collect any source water sample required under this section in accordance with the sampling schedule, sampling location, analytical method, approved laboratory, and reporting requirements of s. NR 809.332 to s. NR 809.336 is a monitoring violation.

(8) GRANDFATHERING MONITORING DATA. The water supplier may use monitoring data collected prior to the applicable monitoring start date in sub. (3) to meet the initial source water monitoring requirements in sub. (1). This data, referred to as grandfathered data, may substitute for an equivalent number of months of data at the end of the monitoring period. All data submitted under this section shall meet the requirements in s. NR 809.334.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; correction in (8) made under s. 13.92 (4) (b) 7., Stats., Register November 2010 No. 659.

NR 809.332 Sampling schedules for surface water source water monitoring. (1) SAMPLING SCHEDULES. Water suppliers for public water systems required to conduct source water monitoring under s. NR 809.331 shall submit a sampling schedule that specifies the calendar dates when the water supplier will collect each required sample.

(a) Water suppliers shall submit sampling schedules no later than 3 months prior to the applicable date listed in s. NR 809.331 (3), Table H, for each round of required monitoring.

(b) Water suppliers for public water systems serving at least 10,000 people shall submit their sampling schedule for the initial round of source water monitoring under s. NR 809.331 (1) to EPA. If a water supplier is unable to submit the sampling schedule electronically, the water supplier may use an alternative approach for submitting the sampling schedule subject to EPA approval.

(c) Water suppliers for public water systems serving fewer than 10,000 people shall submit their sampling schedules for the initial round of source water monitoring under s. NR 809.331 (1) to the EPA or the department.

(d) Water suppliers shall submit sampling schedules for the second round of source water monitoring under s. NR 809.331 (2) to the department.

(e) If EPA or the department does not respond to a water supplier regarding its sampling schedule, the water supplier shall sample at the reported schedule.

(2) SAMPLE COLLECTION. Water suppliers shall collect samples no later than two days before or two days later than the dates indicated in their sampling schedule. Thus samples shall be collected within a five−day period around the scheduled date, unless one of the conditions of par. (a) or (b) applies.

(a) If an extreme condition or situation exists that may pose danger to the sample collector, or that cannot be avoided and causes the water supplier to be unable to sample in the scheduled five−day period, the water supplier shall sample as close to the

scheduled date as feasible unless the department approves an alternative sampling date. The water supplier shall submit an explanation for the delayed sampling date to the department concurrent with the shipment of the sample to the laboratory.

(b) If a water supplier is unable to report a valid analytical result for a scheduled sampling date due to equipment failure, loss of or damage to the sample, failure to comply with the analytical method requirements, including the quality control requirements in s. NR 809.334, or the failure of an approved laboratory to analyze the sample, then the water supplier shall collect a replacement sample. The water supplier shall collect the replacement sample no later than 21 days after receiving information that an analytical result cannot be reported for the scheduled date unless the water supplier demonstrates that collecting a replacement sample within this time frame is not feasible or the department approves an alternative resampling date. The water supplier shall submit an explanation for the delayed sampling date to the department concurrent with the shipment of the sample to the laboratory.

(3) REVISING SAMPLING SCHEDULES. Water supplier for public water systems that fail to meet the criteria of sub. (2) for any source water sample required under s. NR 809.331 shall revise their sampling schedules to add dates for collecting all missed samples. The water supplier shall submit the revised schedule to the department for approval before the water supplier begins collecting the missed samples.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; correction in (1) (b) made under s. 13.92 (4) (b) 6., Stats., Register January 2013 No. 685.

NR 809.333 Sampling locations for surface water source water monitoring. (1) GENERAL REQUIREMENTS. Water suppliers for public water systems required to conduct source water monitoring under s. NR 809.331 shall collect samples for each plant that treats a surface water or GWUDI source. Where multiple plants draw water from the same influent, such as the same pipe or intake, the department may approve one set of monitoring results to be used to satisfy the requirements of s. NR 809.331 for all plants.

(2) SAMPLE COLLECTION LOCATION. The water supplier shall collect source water samples prior to chemical treatment, such as coagulants, oxidants and disinfectants, unless the public water system meets the condition of this subsection. The department may approve a water supplier to collect a source water sample after chemical treatment if the department determines that collecting a sample prior to chemical treatment is not feasible for the public water system and that the chemical treatment is unlikely to have a significant adverse effect on the analysis of the sample.

(3) RECYCLED FILTER BACKWASH. Water suppliers for public water systems that recycle filter backwash water shall collect source water samples prior to the point of filter backwash water. All public water systems that recycle filter backwash water shall comply with all of the requirements under ss. NR 810.295, 811.860, and 811.862.

(4) BANK FILTRATION. (a) Water suppliers for public water systems that receive *Cryptosporidium* treatment credit for bank filtration under s. NR 810.29 (5) or 810.37 (2), as applicable, shall collect source water samples in the surface water prior to bank filtration.

(b) Water suppliers for public water systems that use bank filtration as pretreatment to a filtration plant shall collect source water samples from the collector well after bank filtration. Use of bank filtration during monitoring shall be consistent with routine operational practice. When samples are collected after a bank filtration process, public water systems may not receive treatment credit for the bank filtration under s. NR 810.43 (3).

(5) MULTIPLE SOURCES. Water suppliers for public water systems with plants that use multiple water sources, including multiple surface water sources and blended surface water and groundwater sources, shall collect samples as specified in par. (a) or (b). The use of multiple sources during monitoring shall be consistent with routine operational practice.

(a) If a sampling tap where the sources are combined prior to treatment is available, the water supplier shall collect samples from that tap.

(b) If a sampling tap where the sources are combined prior to treatment is not available, the water supplier shall collect samples at each source near the intake on the same day and shall follow either subd. 1. or 2. for sample analysis.

1. Water suppliers may composite samples from each source into one sample prior to analysis. The volume of sample from each source shall be weighted according to the proportion of the source in the total plant flow at the time the sample is collected.

2. Water suppliers may analyze samples from each source separately and calculate a weighted average of the analysis results for each sampling date. The weighted average shall be calculated by multiplying the analysis result for each source by the fraction the source contributed to total plant flow at the time the sample was collected and then summing these values.

(6) ADDITIONAL REQUIREMENTS. Water suppliers shall submit a description of their sampling locations to the department at the same time as the sampling schedule required under s. NR 809.332. This description shall address the position of the sampling location in relation to the public water system's water sources and treatment processes, including pretreatment, points of chemical treatment, and filter backwash recycle. If the department does not respond to a water supplier regarding sampling locations, the water supplier shall sample at the reported locations.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; correction in (3) made under s. 13.92 (4) (b) 7., Stats., Register November 2010 No. 659.

NR 809.334 Analytical methods for surface water source water monitoring. (1) CRYPTOSPORIDIUM. Water suppliers shall analyze for *Cryptosporidium* using *Method 1623: Cryptosporidium and Giardia in Water by Filtration/IMS/FA*, 2005, United States Environmental Protection Agency, EPA–815−R–05–002 or *Method 1622: Cryptosporidium in Water by Filtration/IMS/FA*, 2005, United States Environmental Protection Agency, EPA–815–R–05–001. The water supplier may obtain a copy of these methods online from *http://www.epa.gov/safewater/disinfection/lt2*. Water suppliers may also use *EPA Method 1623.1: Cryptosporidium and Giardia in Water by Filtration/IMS/FA*, 2012. EPA−816−R−12−001. (Available at http://water.epa.gov/drink.)

(a) Water suppliers shall analyze at least a 10 L sample or a packed pellet volume of at least 2 mL as generated by the methods listed in this subsection. Water suppliers unable to process a 10 L sample shall analyze as much sample volume as can be filtered by two filters approved by EPA for the methods listed in this subsection, up to a packed pellet volume of at least 2 mL.

(b) Matrix spike (MS) samples, as required by the methods in this subsection, shall be spiked and filtered by a laboratory approved for *Cryptosporidium* analysis under s. NR 809.335. If the volume of the MS sample is greater than 10 L, the water supplier may filter all but 10 L of the MS sample in the field, and ship the filtered sample and the remaining 10 L of source water to the laboratory. In this case, the laboratory shall spike the remaining 10 L of water and filter it through the filter used to collect the balance of the sample in the field.

(c) Flow cytometer−counted spiking suspensions shall be used for MS samples and ongoing precision and recovery (OPR) samples.

(2) *E. COLI.* Water suppliers shall use methods for enumeration of *E. coli* in source water listed in Table I.

(a) The time from sample collection to initiation of analysis may not exceed 30 hours unless the condition of par. (b) are met. In all cases, samples should be analyzed as soon after collection as possible.

(b) The department may approve on a case−by−case basis the holding of an *E. coli* sample for up to 48 hours between sample collection and initiation of analysis if the department determines that analyzing an *E. coli* sample within 30 hours is not feasible. *E. coli* samples held between 30 to 48 hours shall be analyzed by the Colilert reagent version of Standard Method 9223B as listed in sub. (2), Table I.

(c) Water suppliers shall maintain samples between 0 °C and 10 °C during storage and transit to the laboratory.

(3) TURBIDITY. Water suppliers shall use methods for turbidity measurement under s. NR 809.113 (1) Table A.

Table I
***E. coli* Analytical Methods**

Organism	Methodology	Method	SM 20th Edition[1]	SM 21st Edition[2]	SM 22nd Edition[3]	SM Online[4]	Other
E. coli	Enzyme Substrate Methods	Colilert®	9223 B [5]	9223 B [5]	9223 B	9223 B−97 [5, 6]	
		Colilert−18	9223 B	9223 B	9223 B	9223 B−97	
		ONPG−MUG Test	9223 B	9223 B	9223 B	9223 B−97	
	Escherichia coli Procedure (following Lactose Fermentation Methods)	EC−MUG medium	9221 F, 9221 F.1	9221 F.1	9221 F.1		
		NA−MUG[7]	9222 G				
Enterococci		Multiple−Tube Technique	9230B			9230 B−04	
		Membrane Filter Technique	9230C				EPA Method 1600[8]
		Enterolert[9]					
Coliphage		Two−Step Enrichment Presence−Absence Procedure					Fast Phage [10]
							EPA Method 1601.[11]
		Single Agar Layer Procedure					EPA Method 1602.[12]

[1]Standard Methods for the Examination of Water and Wastewater, 20th edition (1998). Available from American Public Health Association, 800 I Street, NW., Washington, DC 20001−3710.

[2]*Standard Methods for the Examination of Water and Wastewater*, 21st edition (2005). Available from American Public Health Association, 800 I Street, NW., Washington, DC 20001−3710.

[3]*Standard Methods for the Examination of Water and Wastewater*, 22nd edition (2012). Available from American Public Health Association, 800 I Street NW., Washington, DC 20001−3710.

[4]Standard Methods Online are available at *http://www.standardmethods.org*. The year in which each method was approved by the Standard Methods Committee is designated by the last two digits in the method number. The methods listed are the only online versions that may be used.

[5] Multiple−tube and multi−well enumerative formats for this method are approved for use in presence−absence determination under this regulation.

[6] Colisure® results may be read after an incubation time of 24 hours.

[7]EC−MUG (Method 9221F) or NA−MUG (Method 9222G) can be used for *E. coli* testing step as described in §141.21(f)(6)(i) or (ii) after use of Standard Methods 9221 B, 9221 D, 9222 B, or 9222 C.

[8]EPA Method 1600: Enterococci in Water by Membrane Filtration Using membrane−Enterococcus Indoxyl−â−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, DC 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.

[9]Medium is available through IDEXX Laboratories, Inc., One IDEXX Drive, Westbrook, Maine 04092. Preparation and use of the medium is set forth in the article "Evaluation of Enterolert for Enumeration of Enterococci in Recreational Waters," by Budnick, G.E., Howard, R.T., and Mayo, D.R., 1996, Applied and Environmental Microbiology, 62:3881−3884.

[10] Charm Sciences Inc. "Fast Phage Test Procedure. Presence/Absence for Coliphage in Ground Water with Same Day Positive Prediction". Version 009. November 2012. 659 Andover Street, Lawrence, MA 01843. Available at *www.charmsciences.com*.

[11]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, DC 20460.

[12]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, DC 20460.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (1), (2) (intro.), r. and recr. (2) Table I Register March 2016 No. 723, eff. 4−1−16.**

NR 809.335 Approved laboratories for surface water source monitoring. (1) CRYPTOSPORIDIUM. Water suppliers shall have *Cryptosporidium* samples analyzed by a laboratory that is approved under EPA's Laboratory Quality Assurance Evaluation Program for Analysis of *Cryptosporidium* in Water or a laboratory that has been certified for *Cryptosporidium* analysis by an equivalent department laboratory certification program.

(2) *E. COLI.* Any laboratory certified by the EPA, The NELAC Institute (TNI), or the department of agriculture, trade and consumer protection for total coliform or *E. coli.* analysis under s. NR 809.323 (1) (c), Table F is approved for *E. coli* analysis under this section when the laboratory uses the same technique for *E. coli* that the laboratory uses for s. NR 809.334 (2), Table I.

(3) TURBIDITY. Measurements of turbidity shall be made by a party approved by the department.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (2) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.336 Reporting source water monitoring results. (1) Water suppliers shall report results from the source water monitoring required under s. NR 809.331 (1) and (2) no later than 10 days after the end of the first month following the month when the sample is collected.

(a) All water suppliers for public water systems serving at least 10,000 people shall report the results from the initial source water monitoring required under s. NR 809.331 (1) to EPA.

(b) If a water supplier is unable to report monitoring results electronically, the water supplier may use an alternative approach for reporting monitoring results that EPA approves.

(2) Water suppliers for public water systems serving fewer than 10,000 people shall report results from the initial source water monitoring required under s. NR 809.331 (1) to the department.

(3) All water suppliers shall report results from the second round of source water monitoring required under s. NR 809.331 (2) to the department.

(4) Water suppliers shall report the applicable information in pars. (a) and (b) for the source water monitoring required under s. NR 809.331 (1) and (2).

(a) Water suppliers shall report the following data elements for each Cryptosporidium analysis:

Data element.

1. PWS ID.

2. Facility ID.

3. Sample collection date.

4. Sample type (field or matrix spike).

5. Sample volume filtered (L), to nearest 1/4 L.

6. Was 100% of filtered volume examined.

7. Number of oocysts counted.

1. For matrix spike samples, water suppliers shall also report the sample volume spiked and estimated number of oocysts spiked. These data are not required for field samples.

2. For samples in which less than 10 L is filtered or less than 100% of the sample volume is examined, water suppliers shall also report the number of filters used and the packed pellet volume.

3. For samples in which less than 100% of sample volume is examined, water suppliers shall also report the volume of resuspended concentrate and volume of this resuspension processed through immunomagnetic separation.

(b) Water suppliers shall report the following data elements for each *E. coli* analysis:

Data element.

1. PWS ID.

2. Facility ID.

3. Sample collection date.

4. Analytical method number.

5. Method type.

6. Source type (flowing stream, lake/reservoir, GWUDI).

7. *E. coli* /100 mL.

8. Turbidity.

(c) Water suppliers for public water systems serving fewer than 10,000 people that are not required to monitor for turbidity under s. NR 809.331 (1) and (2) are not required to report turbidity with their E. coli results.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; correction in (1) (a) made under s. 13.92 (4) (b) 6., Stats., Register January 2013 No. 685; **CR 15−049: am. (4) (b) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.35 Sanitary survey requirements for all public water systems. (1) SANITARY SURVEYS. (a) Community water systems shall undergo a sanitary survey every 3 years, unless the public water system meets the requirements of sub. (2) for outstanding performance of a public water system, then a sanitary survey may be conducted every 5 years.

(b) Non−community water systems shall undergo a sanitary survey every 5 years.

(c) The department will review the results of each sanitary survey to determine whether the existing monitoring frequency is adequate and what additional measures, if any, the water supplier needs to undertake to improve drinking water quality.

(d) Sanitary surveys shall be performed by the department or an agent approved by the department. If the department requests a water supplier to have a sanitary survey performed, the water supplier is responsible for ensuring the survey is completed.

(2) OUTSTANDING PERFORMANCE. (a) At the discretion of the department, community water systems may be designated as demonstrating outstanding performance and eligible for a reduced frequency of sanitary surveys. For community water systems determined by the department to have outstanding performance based on prior sanitary surveys, subsequent sanitary surveys may be conducted no less than every five years. The following criteria shall be used to determine outstanding performance:

1. No violations of MCLs since the last sanitary survey.

2. No violations of monitoring and reporting requirements since the last sanitary survey.

3. No violations of primary drinking water regulations during the past five years or similar time period.

4. No significant deficiencies shall have been identified in the current sanitary survey or the previous sanitary survey.

5. Existence of emergency preparedness measures and backup facilities.

6. Expert operation and management of the public water system, for example, skilled, certified personnel in adequate numbers, existence of quality O&M manuals that are used by the staff; adequate budget and revenues.

7. Effective cross−connection program developed and implemented.

8. Stable water source with no significant interruptions in supply.

(3) INFORMATION AVAILABILITY. A water supplier shall provide the department any existing information that will enable the department to conduct a sanitary survey.

(4) SURVEY DETAILS. A sanitary survey, as conducted by the department under this section, includes but is not limited to, an onsite review of the water sources facilities, equipment, operation, maintenance, and monitoring compliance of a public water system to evaluate the adequacy of the public water system, its sources and operations and the distribution of safe drinking water. In addition, the department shall identify sources of potential contamination by using results of source water monitoring assessments or other relevant information.

(5) COMPONENTS OF A SURVEY. The sanitary survey shall include an evaluation of all or the applicable components listed in pars. (a) to (h):

(a) Source.

(b) Treatment.

(c) Distribution system.

(d) Finished water storage.

(e) Pumps, pump facilities, and controls.

(f) Monitoring, reporting, and data verification.

(g) Public water system management and operation.

(h) Operator compliance with department requirements.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (4) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.50 Maximum contaminant levels, compliance dates and BATs for radionuclides. The following are the maximum contaminant levels, compliance dates and best available technologies for radium−226, radium−228 and gross alpha particle radioactivity:

(1) MAXIMUM CONTAMINANT LEVELS FOR RADIONUCLIDES. The following are the maximum contaminant levels for radium−226, radium−228 and gross alpha particle radioactivity:

(a) *MCL for combined radium−226 and radium−228.* The maximum contaminant level for combined radium−226 and radium−228 is 5 pCi/l. The combined radium−226 and radium−228 value is determined by the addition of the results of the analysis for radium−226 and the analysis for radium−228.

(b) *MCL for gross alpha particle activity, excluding radon and uranium.* The maximum contaminant level for gross alpha particle activity, including radium−226 but excluding radon and uranium, is 15 pCi/l.

(c) *MCL for uranium.* The maximum contaminant level for uranium is 30 ug/l.

(2) COMPLIANCE DATES FOR COMBINED RADIUM−226 AND RADIUM−228, GROSS ALPHA PARTICLE ACTIVITY, GROSS BETA PARTICLE AND PHOTON RADIOACTIVITY AND URANIUM. Community water systems shall comply with the MCLs listed in sub. (1) and with s. NR 809.51 (1) beginning December 8, 2003 and compliance shall be determined in accordance with the requirements of ss. NR 809.50 and 809.51. Compliance with reporting requirements for the radionuclides under Appendix A to subch. VII is required on and after December 8, 2003.

(3) BEST AVAILABLE TECHNOLOGIES (BATS) FOR RADIONUCLIDES. (a) The department identifies, as indicated in the following table, the best available technology for achieving compliance with the maximum contaminant levels for combined radium−226 and radium−228, uranium, gross alpha particle activity and beta particle and photo radioactivity. A community water system that shall treat to reduce radionuclide levels below the MCLs specified in sub. (1) or s. NR 809.51 shall achieve compliance using one of the methods listed in Table J, Table K or Table L.

(4) SMALL WATER SYSTEMS COMPLIANCE TECHNOLOGIES FOR RADIONUCLIDES. (a) The department identifies, as indicated in the following table, the best available technology for achieving compliance with the maximum contaminant levels for combined radium−226 and radium−228, uranium, gross alpha particle activity and beta particle and photo radioactivity for small systems serving a population of 10,000 or less:

(b) Point of Use (POU) treatment may only be allowed if the department determines that treatment prior to entry is not feasible.

(5) ALTERNATIVE TREATMENT. The department may approve the use of alternative treatment not listed in subs. (3) and (4), if a water supplier demonstrates to the department, using pilot studies or other means, that the alternative treatment is sufficient to achieve compliance with the MCLs in sub. (1).

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

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

Table K
List of Small Water Systems Compliance Technologies for Radionuclides and Limitations To Use

Unit technologies	Limitations (see footnotes)	Operator skill level required[1]	Raw water quality range and consideration[1]
1. Ion exchange (IE).	(a)	Intermediate	All groundwaters.
2. Point of use (POU [2]) IE	(b)	Basic	All groundwaters
3. Reverse osmosis (RO)	(c)	Advanced	Surface waters usually require pre−filtration
4. POU [2] RO	(b)	Basic	Surface waters usually require pre−filtration.
5. Lime softening	(d)	Advanced	All waters.
6. Green sand filtration	(e)	Basic	
7. Co−precipitation with barium sulfate	(f)	Intermediate to Advanced	Groundwaters with suitable water quality
8. Electrodialysis/electrodialysis reversal		Basic to Intermediate	All groundwaters.

Table K
List of Small Water Systems Compliance Technologies for Radionuclides and Limitations To Use (Continued)

Unit technologies	Limitations (see footnotes)	Operator skill level required[1]	Raw water quality range and consideration[1]
9. Pre−formed hydrous manganese oxide filtration.	(g)	Intermediate	All groundwaters
10. Activated alumina	(a), (h)	Advanced	All groundwaters; 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] POU devices are typically installed at the kitchen tap. See the April 21, 2000 NODA for more details.

Limitations Footnotes: Technologies for Radionuclides:

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

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

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

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

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

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

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

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

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

Table L
Compliance Technologies by Public Water System Size Category for Radionuclide NPDWR's

Contaminant	Compliance technologies [1] for public water 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 K of s. NR 809.50 (4).

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (4) Table K Register March 2016 No. 723, eff. 4−1−16.**

NR 809.51 Beta particle and photon radioactivity from man−made radionuclides maximum contaminant levels. (1) ALLOWABLE DOSE. The average annual concentration of beta particle and photon radioactivity from man−made radionuclides in drinking water shall not produce an annual dose equivalent to the total body or any internal organ greater than 4 millirem/year.

(2) MCL CALCULATION. Except for the radionuclides listed in Table M, the concentration of man–made radionuclides causing 4 mrem total body or organ dose equivalents shall be calculated on the basis of a 2 liter per day drinking water intake using the 168 hour data listed in "Maximum Permissible Body Burdens and Maximum Permissible Concentrations of Radionuclides in Air or Water for Occupational Exposure", NBS Handbook 69 as amended August, 1963, U.S. Department of Commerce. Copies of this document are available for inspection at the office of the department of natural resources, the secretary of state's office and the office of the revisor of statutes, and may be obtained for personal use from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. If 2 or more radionuclides are present, the sum of their annual dose equivalent to the total body or to any organ may not exceed 4 millirem/year.

Table M
Average Annual Concentrations Assumed to Produce a Total Body or Organ Dose of 4 mrem/yr.

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

Note: Sections ss. NR 809.50 to 809.52 are identical to the radioactivity standards of the department of health services in ch. DHS 157, Wis. Adm. Code, and to the National Interim Primary Drinking Water Regulations, 40 CFR part 141. These sections are adopted pursuant to s. 254.34, Stats.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10.

NR 809.52 Analytical methods for radionuclides. (1) ANALYTICAL METHODS. Analyses conducted to determine compliance with ss. NR 809.50 and 809.51 shall be made in accordance with approved methods listed in Table N.

Table N
SDWA Approved Methodology for Radiological Measurements Reference (method or page number)

Parameter	Method	EPA[1]	EPA[2]	EPA[3]	EPA[4]	SM[5] SM Online	ASTM[6]	USGS[7]	DOE[8]	Others
Naturally Occurring:								R−1120−76	−−−	
Gross alpha[11] & beta	Evaporation	900.0	p1	00−01	p1	302, 7110 B 7110 B−00		R−1120−76	−−−	
Gross alpha[11]	co−precipitation	−−−		00−02		7110 C 7110 C−00	−−−	−−−	−−−	
Radium 226	Radon emanation, Radiochemical	903.1 903.0	P 16 p13	Ra−04 Ra−03	p19	7500−Ra C 304,305, 7500−Ra B 7550−Ra C−01 7500−Ra B−01	D 3454−91 D 2460−90 D3454−05 D2460−07	R−1141−76 R−1140−76	Ra−05	N.Y.[9]
Radium 228	Radiochemical	904.0	P 24	Ra−05	p19	304,7500 Ra D 7500−Ra D−01	−−−	R−1142−76	−−−	N.Y.[9] N.J.[10]
Uranium[12]	Radiochemical	908.0				7500−UB 7500−U B−00	D 2907−91	R−1180−76	U−04 U−2	
	Fluorometric	908.1				7500−UC (17th Ed)	D 2907−97	R−1180−76 R−1181−76 R−1182−76	U−04	
	Alpha spectrometry	−−−		00−07	p33	7500−UC (18th or 19th Ed) 7500−U C−00	D 3972−90 D3972−09	−−−	−−−	
	Laser Phosphorimetry	−−−				−	D5174−97, 02			
	ICP−MS	200.8[13]				3125	D 5673−03 D5673−05, 10			
Man−Made:										
Radioactive							−−−			
Strontium − 89,90	Radiochemical	905.0	p 29	Sr−04	p65	303, 7500−Sr B 7500−Sr B−01	−−−	R1160−76	Sr−01 Sr−02	
Tritium	Liquid Scintillation	906.0	p 34	H−02	p 87	306, 7500−H B[3] 7500−3H B−00		D 4107–91 D 4107−08	R 1171−76	−−−
Radioactive Cesium −	Radiochemical, Gamma ray spectrophotometry	901.0 901.1	p 4		p 92	7500−Cs B, 7120 (19th Ed.)	D 2459−72 D 3649−91 D3649−06	−−− R−1110−76	4.5.2.3	
Radioactive Iodine	Radiochemical, Gamma ray spectrophotometry	902.0 901.1	P 6 p 9		p 92	7500−I B 7500−I C 7500−I D 7120 (19th Ed) 7500−I C−00, 7500−I D−00	D 3649−91 D 4785−88 D3649−06 D4785−08	−−−	4.5.2.3	
Gamma Emitters	Gamma ray spectrometry	901.1 902.0 901.0			p 92	7120 (19th Ed.) 7500−Cs B 7500−I B 7120−97	D 3649−91 D 4785−88 D3649−0 D4785−08	−−−	4.5.2.3	

[1] "Prescribed Procedures for Measurement of Radioactivity in Drinking Water", EPA−600/4−80/032. August, 1980. Available from the EMSL, Office of Research and Development, U.S. EPA, 26 W. Martin Luther King Drive, Cincinnati, Ohio, 45268.

2 "Interim Radiochemical Methodology for Drinking Water", EPA 600/4−75/008 (revised), March 1976, Available at NTIS, ibid PB 253258.

[3] "Radiochemistry Procedures Manual", EPA 520/5−84/006, December 1987, Available at NTIS, ibid, PB 84−215581

[4] "Radiochemical Analytical Procedures for Analysis of Environmental Samples", March 1979, Available at NTIS, ibid, EMSL LV 053917

[5] "Standard Methods for the Examination of Water and Wastewater," 13th, 17th, 18th, 19th, 20th, 21st, or 22nd, edition, 1971, 1989, 1992, 1995, 1998, 2005, 2012, available at American Public Health Association, 800 I Street NW., Washington, DC. 20001−3710. 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−^{3}H B are in the 17th, 18th, 19th 20th, 21st, and 22nd editions. Method 7110 C and 7500−U C Alpha spectrometry is in the 18th, 19th, 20th, 21st, and 22nd editions. Method 7500−U C Fluorometric Uranium is only in the 17th edition, Method 7120 is only in the 19th and 20th editions. Method 3125 is only in the 20th edition. Standard Methods online are available at *http://www.standardmethods.org*. The year in which each method was approved by the Standard Methods Committee is designated by the last two digits in the method number. The methods listed are the only online versions that may be used.

[6] Annual Book of ASTM Standards, Vol. 11.02, 1994. Available at American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428.

[7] "Methods for Determination of Radioactive Substances in Water and Fluvial Sediments", Chapter A 5 in Book 5 of Techniques of Water Resources Investigations of the United States Geological Survey, 1997. Available at U.S. Geological Survey (USGS) Information Services, Box 25286 Federal Center, Denver, CO 80225−0425.

[8] "EML Procedures Manual", 27th Edition, Volume 1, 1990. Available at the Environmental Measurements Laboratory, U.S. Department of Energy (DOE), 376 Hudson Street, New York, NY 10014−3621.

[9] "Determination of Ra−226 and Ra−228 (Ra−02)", January 1980, Revised June 1982. Available at Radiological Sciences Institute Center for Laboratories and Research, New York State Department of Health, Empire State Plaza, Albany, NY 12201.

[10] "Determination of Radium 228 in Drinking Water", August 1980. Available at State of New Jersey, Department of Environmental Protection, Division of Environmental Quality, Bureau of Radiation and Inorganic Analytical Services, 9 Ewing Street, Trenton, N.J. 08625.

[11] Natural uranium and thorium−230 or approved as gross alpha calibration standards for gross alpha with co−precipitation and evaporation methods, americium−241 is approved with co−precipitation methods.

[12] If uranium (U) is determined by mass a 0.67 pCi/g of uranium conversion factor shall be used. This conservative factor is based on the 1:1 activity ratio of U−234 to U−238 that is characteristic of naturally occurring uranium.

(2) DETECTION LIMITS. To determine compliance with s. NR 809.50 (1), the detection limit may not exceed the concentrations in Table O.

Table O
Detection Limits for Gross Alpha Particle Activity, Radium 226, Radium 228, and Uranium

Contaminant	Detection Limit
Gross alpha particle activity	3 pCi/l
Radium 226	1 pCi/l
Radium 228	1 pCi/l
Uranium	Reserve

(3) RESULTS ROUNDING. To judge compliance with the maximum contaminant levels listed in s. NR 809.50, averages of data shall be used and shall be rounded to the same number of significant figures as the maximum contaminant level for the substance in question.

(4) SENSITIVITY LIMITS. For the purpose of monitoring radionuclide 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 which can be counted with a precision of plus or minus 100% at the 95% confidence level, 1.96 ó where ó is the standard deviation of the net counting rate of the sample.

(5) DETECTION LIMITS FOR MAN−MADE BETA PARTICLE AND PHOTON EMITTERS. To determine compliance with s. NR 809.51, the detection limits may not exceed the concentrations listed in Table P.

Table P
Detection Limits for Man−made Beta Particle and Photon Emitters

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

Note: Sections NR 809.50 to 809.52 are identical to the radioactivity standards of the department of health services in ch. DHS 157, Wis. Adm. Code, and to the National Interim Primary Drinking Water Regulations, 40 CFR part 141. These sections are adopted pursuant to s. 254.34, Stats.

(6) SAMPLE COLLECTION METHODS. Sample collection for radionuclide contaminants under s. NR 809.50 shall be conducted using the sample preservation, containers and maximum holding time procedures specified in Table Q. If a composite sample is prepared, a holding time cannot exceed 12 months. In all cases, samples should be analyzed as soon after collection as possible.

Table Q
Radionuclide sample preservation, containers and maximum holding time

Parameter	Preservative[1]	Container[2]	Holding Time
Gross Alpha	Conc. HCl or HNO_3 to pH <2	P or G	6 mo
Gross beta	Conc. HCl or HNO_3 to pH <2	P or G	6 mo
Strontium−89	Conc. HCl or HNO_3 to pH <2	P or G	6 mo
Strontium−90	Conc. HCl or HNO_3 to pH <2	P or G	6 mo
Radium−226	Conc. HCl or HNO_3 to pH <2	P or G	6 mo
Radium−228	Conc. HCl or HNO_3 to pH <2	P or G	6 mo
Cesium−134	Conc. HCl to pH <2	P or G	6 mo

Table Q
Radionuclide sample preservation, containers and maximum holding time (Continued)

Parameter	Preservative[1]	Container[2]	Holding Time
Iodine−131	None	P or G	8 days
Tritium	None	G	6 mo
Uranium	Conc. HCl or HNO3 to pH <2	P or G	6 mo
Photon emitters	Conc. HCl or HNO3 to pH <2	P or G	6 mo

[1] It is recommended that the preservative be added to the sample at the time of collection unless suspended solids activity is to be measured. If the sample has to be shipped to a laboratory or storage area unpreserved, acidification of the sample (in its original container) may be delayed for a period not to exceed 5 days. A minimum of 16 hours shall elapse between acidification and analysis.

[2] P = Plastic, hard or soft; G = Glass, hard or soft.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (1) Table N Register March 2016 No. 723, eff. 4−1−16.**

NR 809.53 Radionuclide monitoring frequency and compliance requirements for community water systems. (1) MONITORING REQUIREMENTS FOR GROSS ALPHA PARTICLE ACTIVITY, RADIUM−226, RADIUM−228 AND URANIUM. (a) *Detection limits.* For the purposes of monitoring for gross alpha particle activity, radium−226, radium−228, uranium and beta particle and photon radioactivity in drinking water, "detection limit" is defined in s. NR 809.52 (4).

(b) *Applicability and sampling location.* Community water system applicability and sampling location requirements shall be as follows:

1. Applicability and sampling location for existing community water systems or sources. All water suppliers for existing community water systems shall sample at every entry point to the distribution system that is representative of all sources being used, under normal operating conditions. The water supplier shall take each sample at the same location unless conditions make another location more representative of each source or the department has designated a distribution system location, in accordance with par. (c) 2. c.

2. Applicability and sampling location for new community water systems or sources. Water suppliers for all new community water systems or community water systems that use a new source of water shall begin to conduct initial monitoring for the new source within the first quarter after initiating use of the source. Water suppliers shall conduct more frequent monitoring when ordered by the department in the event of possible contamination or when changes in the distribution system or treatment processes occur which may increase the concentration of radionuclides in finished water.

(c) *Initial monitoring.* Water suppliers for community water systems shall conduct initial monitoring for gross alpha particle activity, radium−226, radium−228 and uranium as follows:

1. Except as provided in subd. 2., water suppliers shall collect 4 consecutive quarterly samples at all sampling points before December 31, 2007.

2. As an alternative to the requirement of subd. 1., water suppliers may use historical monitoring data collected at a sampling point to satisfy the initial monitoring requirements for that sampling point for the following situations:

a. To satisfy initial monitoring requirements, a water supplier for a community water system having only one entry point to the distribution system may use the monitoring data from the last compliance monitoring period that began between June 1, 2000 and December 8, 2003.

b. To satisfy initial monitoring requirements, a water supplier for a community water system with multiple entry points and having appropriate historical monitoring data for each entry point to the distribution system may use the monitoring data from the last compliance monitoring period that began between June 1, 2000 and December 8, 2003.

c. To satisfy initial monitoring requirements, a water supplier for a community water system with appropriate historical data for a representative point in the distribution system may use the monitoring data from the last compliance monitoring period that began between June 1, 2000 and December 8, 2003, provided that the department finds that the historical data satisfactorily demonstrate that each entry point to the distribution system is expected to be in compliance based upon the historical data and reasonable assumptions about the variability of contaminant levels between entry points. The department shall make a written finding indicating how the data conforms to these requirements.

3. For gross alpha particle activity, uranium, radium−226 and radium−228 monitoring, the department may waive the final 2 quarters of initial monitoring for a sampling point if the results of the samples from the previous 2 quarters are below the detection limit.

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

(d) *Reduced monitoring.* Upon completion of initial monitoring the department may allow monitoring once every 3 years, once every 6 years, or once every 9 years, for each sampling point based on the following criteria:

1. If the average of the initial monitoring results for each contaminant, i.e., gross alpha particle activity, uranium, radium−226 or radium−228, is below the detection limit specified in s. NR 809.52 (2), Table O, the water supplier for a community water system shall collect and analyze for that contaminant using at least one sample at that sampling point every 9 years.

2. 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 the MCL, the water supplier for a community water system shall collect and analyze for that contaminant using at least one sample at that sampling point every 6 years. For combined radium−226 and radium−228, the analytical results shall 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 the MCL, the water supplier for a community water system shall collect and analyze for that contaminant using at least one sample at that sampling point every 6 years.

3. For gross alpha particle activity and uranium, if the average of the initial monitoring results for each contaminant is above one−half the MCL but at or below the MCL, the water supplier for a community water system shall collect and analyze at least one sample at that sampling point every 3 years. For combined radium−226 and radium−228, the analytical results shall be combined. If the average of the combined initial monitoring results for radium−226 and radium−228 is above one−half the MCL, but at or below the MCL, the water supplier for a community water system shall collect and analyze at least one sample at that sampling point every 3 years.

4. Results of samples collected during a reduced monitoring period shall be used to determine the monitoring frequency for subsequent monitoring periods.

5. If a community water system has a monitoring result that exceeds the MCL while on reduced monitoring, the water supplier for a community water system shall collect and analyze quarterly samples at that sampling point until the community water system has results from 4 consecutive quarters that are below the MCL, unless the water supplier for a community water system enters into another schedule as part of a formal compliance agreement with the department.

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

(f) *Gross alpha particle activity measurement substitutions.* A gross alpha particle activity measurement may be substituted for the required radium−226 measurement provided that the measured gross alpha particle activity does not exceed 5 pCi/l. A gross alpha particle activity measurement may be substituted for the required uranium measurement provided that the measured gross alpha particle activity does not exceed 15 pCi/l. The gross alpha measurement shall have a confidence interval of 95% confidence level, 1.65 ó where ó is the standard deviation of the net counting rate of the sample for radium−226 and uranium. When a water supplier for a community water system uses a gross alpha particle activity measurement in lieu of a measurement for radium−226 or uranium, or both, the gross alpha particle activity analytical result shall 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 the detection limit shall be used to determine compliance and the future monitoring frequency.

(2) MONITORING REQUIREMENTS FOR BETA PARTICLE AND PHOTON RADIOACTIVITY. To determine compliance with the maximum contaminant levels in s. NR 809.51 for beta particle and photon radioactivity, a water supplier for a community water system shall monitor at a frequency as follows:

(a) Community water systems designated by the department as vulnerable, shall be sampled for beta particle and photon radioactivity. Water suppliers for community water systems shall collect quarterly samples for beta emitters and annual samples for tritium and strontium−90 at each entry point to the distribution system, no later than one quarter after being notified by the department. Community water systems already designated by the department shall continue to be sampled until the department reviews and either reaffirms or removes the designation.

1. If the gross beta particle activity minus the naturally occurring potassium−40 beta particle activity at an entry point has a running annual average, computed quarterly, less than or equal to 50 pCi/l, the department may reduce the frequency of monitoring at that entry point to once every 3 years. Water suppliers for community water systems shall collect all samples required in this subsection during the reduced monitoring period.

2. For community water systems in the vicinity of a nuclear facility, the department may allow the water supplier for the community water system to utilize environmental surveillance data collected by the nuclear facility in lieu of monitoring at the community water system's entry points, if the department determines that the data is applicable to a particular community water system. If there is a release from a nuclear facility, water suppliers for community water systems which are using surveillance data shall begin monitoring at the community water system's entry points in accordance with this subsection.

3. At the discretion of the department, water suppliers for the community water systems utilizing only groundwater may be required to monitor for manmade radioactivity.

(b) Water suppliers for community water systems designated by the department as utilizing waters contaminated by effluents from nuclear facilities shall sample for beta particle and photon radioactivity. Water suppliers shall 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 no later than one quarter after being notified by the department. Water suppliers for community water systems already designated by the department as community water systems using water contaminated by effluents from nuclear facilities shall continue to sample until the department reviews and either reaffirms or removes the designation.

1. Quarterly monitoring for gross beta particle activity shall be based on the analysis of monthly samples or the analysis of a composite of 3 monthly samples.

Note: Quarterly monitoring for gross beta particle activity based on the analysis of monthly samples is recommended.

2. For iodine−131, a composite of 5 consecutive daily samples shall be analyzed once each quarter. As ordered by the department, more frequent monitoring shall be conducted when iodine−131 is identified in the finished water.

3. Annual monitoring for strontium−90 and tritium shall be conducted by means of the analysis of a composite of 4 consecutive quarterly samples or analysis of 4 quarterly samples.

Note: Annual monitoring for strontium−90 and tritium by means of the analysis of a composite of 4 consecutive quarterly samples is recommended.

4. 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 15 pCi/l, the department may reduce the frequency of monitoring at that sampling point to once every 3 years. Water suppliers for community water systems shall collect all samples required in this paragraph during the reduced monitoring period.

5. For community water systems in the vicinity of a nuclear facility, the department may allow the water supplier for community water system to utilize environmental surveillance data collected by the nuclear facility in lieu of monitoring at the community water system's entry points, if the department determines that the data is applicable to a particular community water system. If there is a release from a nuclear facility, water suppliers for community water systems which are using surveillance data shall begin monitoring at the community water system's entry points in accordance with this paragraph.

(c) Water suppliers for community water systems designated by the department to monitor for beta particle and photon radioactivity may not apply to the department for a waiver from the monitoring frequencies specified in either par. (a) or (b).

(d) Water suppliers for community water systems may analyze for naturally occurring potassium−40 beta particle activity from the same or equivalent sample used for the gross beta particle activity analysis. Water suppliers for community water systems may subtract the potassium−40 beta particle activity value from the total gross beta particle activity value to determine if 50 pCi/l is exceeded. The potassium−40 beta particle activity shall be calculated by multiplying elemental potassium concentrations, in mg/l, by a factor of 0.82.

(e) If the gross beta particle activity minus the naturally occurring potassium−40 beta particle activity exceeds 50 pCi/l, an analysis of the sample shall be performed to identify the major radioactive constituents present in the sample and the appropriate doses shall be calculated and summed to determine compliance with s.

NR 809.51 (1) using the formula in s. NR 809.51 (2). Doses shall also be calculated and combined for measured levels of tritium and strontium to determine compliance.

(f) Water suppliers for community water systems shall monitor monthly at the sampling points that exceed the maximum contaminant level in s. NR 809.51 beginning the month after the exceedance occurs. Water suppliers shall continue monthly monitoring until the water supplier has established, by a rolling average of 3 monthly samples, that the MCL is being met. Water suppliers for community water systems that establish that the MCL is being met shall return to quarterly monitoring until the requirements in par. (a) 1. or (b) 4. are met.

(3) GENERAL MONITORING AND COMPLIANCE REQUIREMENTS FOR RADIONUCLIDES. (a) The department may require more frequent monitoring than specified in subs. (1) and (2), or may require confirmation samples at its discretion. The results of the initial and confirmation samples shall be averaged for use in compliance determinations.

(b) Water suppliers for each public water system shall monitor at the time designated by the department during each compliance period.

(c) Compliance with ss. NR 809.50 (1) and 809.51 (1) shall be determined based on the analytical results obtained at each sampling point. If one sampling point is in violation of an MCL, the community water system is in violation of the MCL. In addition:

1. For community water systems monitored more than once per year, compliance with the MCL is determined by using a running annual average calculated for each sampling point. If the average of any sampling point is greater than the MCL, the community water system is out of compliance with the MCL.

2. For community water systems monitored more than once per year, if any sample result will cause the running annual average to exceed the MCL at any sample point, the community water system is out of compliance with the MCL immediately.

3. For community water systems on reduced monitoring where monitoring results exceed an MCL, and a community water system is placed on quarterly monitoring as required by sub. (1) (d) 5., compliance with the MCL is determined based on a running annual average at each sample point, as required by sub. (3) (c) 1. if sample results exceed the MCL.

4. Water suppliers for community water systems shall include all samples taken and analyzed under this section in determining compliance, even if that number is greater than the minimum required.

5. If a water supplier for a community water system does not collect all required samples when compliance is based on a running annual average of quarterly samples, compliance shall be based on the running average of the samples collected.

6. If a sample result is less than the detection limit, zero will be used to calculate the annual average, unless a gross alpha particle activity is being used in lieu of radium−226 or uranium, or both. If the gross alpha particle activity result is less than detection, 1/2 the detection limit shall be used to calculate the annual average.

(d) The department may delete results of obvious sampling or analytic errors.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (1) (d) 1. Register March 2016 No. 723, eff. 4−1−16.**

Subchapter II — Control of Lead and Copper

NR 809.54 General requirements for the control of lead and copper. (1) APPLICABILITY. (a) The requirements of this subchapter constitute the primary drinking water regulations for lead and copper. Unless otherwise indicated, each of the provisions of this subchapter applies to community water systems and non−transient, non−community water systems.

(2) SCOPE. These regulations establish a treatment technique that includes requirements for corrosion control treatment, source water treatment, lead service line replacement and public education. These requirements are triggered, in some cases, by lead and copper action levels measured in samples collected at consumers' taps.

(3) LEAD AND COPPER ACTION LEVELS. (a) The lead action level is exceeded if the concentration of lead in more than 10% of tap water samples collected during any monitoring period conducted in accordance with s. NR 809.547 is greater than 0.015 mg/L, which means if the "90th percentile" lead level is greater than 0.015 mg/L.

(b) The copper action level is exceeded if the concentration of copper in more than 10% of tap water samples collected during any monitoring period conducted in accordance with s. NR 809.547 is greater than 1.3 mg/L, which means if the "90th percentile" copper level is greater than 1.3 mg/L.

(c) The 90th percentile lead and copper levels shall be computed as follows:

1. 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 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.

2. The number of samples taken during the monitoring period shall be multiplied by 0.9.

3. The contaminant concentration in the numbered sample yielded by the calculation in subd. 2. is the 90th percentile contaminant level.

4. For water public water systems serving fewer than 100 people that are sampled at a rate of 5 samples per monitoring period, the 90th percentile is computed by taking the average of the highest and second highest concentrations.

5. For a public water system that has been allowed by the department to be sampled at a rate of fewer than five samples in accordance with federal rule 40 CFR part 141.86(c), the sample result with the highest concentration is considered the 90th percentile value.

(4) CORROSION CONTROL TREATMENT REQUIREMENTS. (a) All water suppliers shall install and operate optimal corrosion control treatment as defined in s. NR 809.04.

(b) Any public water system that complies with the applicable corrosion control treatment requirements specified by the department under ss. NR 809.542 and 809.543 shall be deemed in compliance with the treatment requirement contained in par. (a).

(5) SOURCE WATER TREATMENT REQUIREMENTS. Any water supplier for a public water system exceeding the lead or copper action level shall implement all applicable source water treatment requirements specified by the department under s. NR 809.544.

(6) LEAD SERVICE LINE REPLACEMENT REQUIREMENTS. Any water supplier for a public water system 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 s. NR 809.545.

(7) PUBLIC EDUCATION REQUIREMENTS. Any water supplier for a public water system exceeding the lead action level shall implement the public education requirements contained in s. NR 809.546. Any water supplier for a public water system exceeding the copper action level shall annually provide public education on the health effects of copper using language in Appendix B to subch. VII, and information on reducing exposure to copper in drinking water similar to s. NR 809.546.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10.

NR 809.541 Monitoring and analytical requirements for lead and copper. (1) GENERAL. Tap water monitoring for lead and copper, monitoring for water quality parameters, and source water monitoring for lead and copper shall be completed in compliance with ss. NR 809.548 and 809.549. The analyses shall be conducted using methods as prescribed in s. NR 809.113 (1), Table A. Holding times and preservation for Lead and Copper shall be done in accordance with s. NR 809.113, Table B. In all cases, samples should be analyzed as soon after collection as possible.

(2) USE OF PREVIOUSLY COLLECTED DATA. The department may allow the use of previously collected monitoring data for the purposes of monitoring if the data were collected and analyzed in accordance with the requirements of this subchapter.

(3) LABORATORY CERTIFICATION. Analyses for alkalinity, calcium, conductivity, orthophosphate, pH, silica, and temperature may be performed by any person acceptable to the department. Analyses under this section for lead and copper shall only be conducted by laboratories that have been certified by EPA or the department. To obtain certification to conduct analyses for lead and copper, laboratories shall meet all of the requirements in sub. (4) (a) to (c).

(4) LABORATORY EVALUATION SAMPLES. For certification under sub. (3) laboratories shall analyze performance evaluation samples, which include lead and copper, provided by or acceptable to EPA or the department at least once a year by each method for which the laboratory desires certification; and the following:

(a) Achieve quantitative acceptance limits as follows:

1. For lead: ±30 percent of the actual amount in the Performance Evaluation sample when the actual amount is greater than or equal to 0.005 mg/L. The Practical Quantitation Level, or PQL for lead is 0.005 mg/L.

2. For copper: ±10 percent of the actual amount in the Performance Evaluation sample when the actual amount is greater than or equal to 0.050 mg/L. The Practical Quantitation Level, or PQL for copper is 0.050 mg/L.

(b) Achieve the method detection limit for lead of 0.001 mg/L according to the procedures in appendix B of 40 CFR part 136. This need only be accomplished if the laboratory will be processing source water composite samples under s. NR 809.549 (1) (a) 4.

(c) Be currently certified by EPA or the department under ch. NR 149 to perform analyses to the specifications described in pars. (a) and (b).

(5) DATA REPORTING REQUIREMENTS. Laboratories shall report data as follows:

(a) All lead and copper levels measured between the PQL and MDL shall be either reported as measured or they can be reported as one−half the PQL specified for lead and copper in par. (a). All levels below the lead and copper MDLs shall be reported as zero.

(b) All copper levels measured between the PQL and the MDL shall be either reported as measured or they can be reported as one−half the PQL at 0.025 mg/L. All levels below the copper MDL shall be reported as zero.

(6) TREATMENT REPORTING REQUIREMENTS. Water suppliers shall report to the department any information required by the treatment provisions of this subchapter and s. NR 809.55.

(7) RECORDKEEPING REQUIREMENTS. Water suppliers shall maintain records in accordance with s. NR 809.82.

(8) VIOLATION OF NATIONAL PRIMARY DRINKING WATER REGULATIONS. Failure to comply with the applicable requirements of ss. NR 809.113, 809.541 to 809.549, 809.80, and 809.82, including requirements established by the department pursuant to these provisions, shall constitute a violation of the primary drinking water regulations for lead or copper, or both.

(9) PREMISE OWNER NOTIFICATION OF LEAD AND COPPER RESULTS. Water suppliers shall provide owners or occupants of all premises used in the lead and copper monitoring program the analytical results of all samples collected at that site. If sample results at a sample location exceed 15 *u*g/L for lead and 1300 *u*g/L for copper, water supplier shall inform premise owners or occupants of health effects and measures necessary to lower lead or copper levels.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; correction in (4) (b) made under s. 13.92 (4) (b) 7., Stats., Register January 2013 No. 685; **CR 15−049: am. (4) (c) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.542 Applicability of corrosion control treatment steps for small, medium and large−size water systems. (1) CORROSION CONTROL TREATMENT REQUIREMENTS. Water suppliers shall complete the applicable corrosion control treatment requirements described in s. NR 809.543 by the deadlines established.

(a) The water supplier for a large system shall complete the corrosion control treatment steps specified in sub. (4), unless the public water system is deemed to have optimized corrosion control under sub. (2) (b) or (c).

(b) The water supplier for a small system and a medium−size system shall complete the corrosion control treatment steps specified in sub. (5), unless the public water system is deemed to have optimized corrosion control under sub. (2) (a), (b) or (c).

(2) DETERMINATION OF OPTIMUM CORROSION CONTROL. A public water 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 public water system satisfies one of the criteria specified in pars. (a) to (c). Any public water system deemed to have optimized corrosion control under this subsection, and which has treatment in place, shall continue to operate and maintain optimal corrosion control treatment and meet any requirements that the department determines appropriate to ensure optimal corrosion control treatment is maintained.

(a) A small or medium−size water system is deemed to have optimized corrosion control if the public water system meets the lead and copper action levels during each of 2 consecutive 6−month monitoring periods conducted in accordance with s. NR 809.547.

(b) Any public water system may be deemed by the department to have optimized corrosion control treatment if the water supplier demonstrates to the satisfaction of the department that they have conducted activities equivalent to the corrosion control steps applicable to the public water systems under this section. If the department makes this determination, it shall provide the water supplier with written notice explaining the basis for its decision and shall specify the water quality control parameters representing optimal corrosion control in accordance with s. NR 809.543 (6). Public water systems deemed to have optimized corrosion control under this paragraph shall operate in compliance with the department−designated optimal water quality control parameters in accordance with s. NR 809.543 (8) and continue to conduct lead and copper tap and water quality parameter sampling in accordance with ss. NR 809.547 (4) (c) and 809.548 (4), respectively. A water supplier shall provide the department with all of the following information in order to support a determination under this subsection:

1. The results of all test samples collected for each of the water quality parameters in s. NR 809.543 (3) (c).

2. A report explaining the test methods used by the water supplier to evaluate the corrosion control treatments listed in s. NR 809.543 (3) (a), the results of all tests conducted, and the basis for the water supplier's selection of optimal corrosion control treatment.

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

4. The results of tap water samples collected in accordance with s. NR 809.547 at least once every 6 months for one year after corrosion control has been installed.

(c) Any public water system is deemed to have optimized corrosion control if the water supplier submits results of tap water monitoring conducted in accordance with s. NR 809.547 and source water monitoring conducted in accordance with s. NR 809.549 that demonstrates for 2 consecutive 6−month monitoring periods that the difference between the 90th percentile tap water lead level computed under s. NR 809.54 (3) (c), and the highest source water lead concentration, is less than the practical quantitation level for lead specified in 40 CFR 141.89(a)(1)(ii).

1. The department may deem that public water systems whose highest source water lead level is below method detection limit have optimized corrosion control under this subsection if the 90th percentile tap water lead level is less than or equal to the practical quantitation level for 2 consecutive 6−month monitoring periods.

2. Any public water system deemed to have optimized corrosion control in accordance with this subsection shall continue monitoring for lead and copper at the tap no less frequently than once every 3 calendar years using the reduced number of sites specified in s. NR 809.547 (3) and collecting the samples at times and locations specified in s. NR 809.547 (4) (d) 4. Any water supplier for a public water system that has not conducted a round of monitoring pursuant to s. NR 809.547 (4) (d) since September 30, 1997, shall complete a round of monitoring pursuant to this subsection as specified by the department.

3. Any water suppliers for a public water system deemed to have optimized corrosion control pursuant to this paragraph shall notify the department in writing pursuant to s. NR 809.55 (1) (c) 3. of any upcoming long−term change in treatment or addition of a new source as described in that section. The department shall review and approve the addition of a new source or long−term change in water treatment before it is implemented by the water supplier. The department may require any water supplier to conduct additional monitoring or to take other action the department deems appropriate to ensure that the water supplier maintains minimal levels of corrosion in the distribution system.

4. As of December 1, 2002, a public water system is not deemed to have optimized corrosion control under this subsection, and the water supplier shall implement corrosion control treatment pursuant to subd. 5. unless the public water system meets the copper action level.

5. Any public water system triggered into corrosion control because it is no longer deemed to have optimized corrosion control under this subsection shall implement corrosion control treatment in accordance with the deadlines in sub. (5). Any large system shall adhere to the schedule specified in that paragraph for medium−size systems, with the time periods for completing each step being triggered by the date the public water system is no longer deemed to have optimized corrosion control under this subsection.

(3) CRITERIA FOR COMPLETING CORROSION CONTROL TREATMENT STUDIES FOR SMALL AND MEDIUM−SIZE SYSTEMS. Any water supplier for a small or medium−size water system that is required to complete the corrosion control steps due to the exceedance of the lead or copper action level may cease completing the treatment steps whenever the public water system meets both action levels during each of 2 consecutive monitoring periods conducted pursuant to s. NR 809.547 and the results are submitted to the department. If any such public water system thereafter exceeds the lead or copper action level during any monitoring period, the water supplier shall recommence completion of the applicable treatment steps, beginning with the first treatment step which was not previously completed in its entirety. The department may require a water supplier to repeat treatment steps previously completed by the water supplier if the department determines that this is necessary to properly implement the treatment requirements. The department shall notify the water supplier in writing of such a determination and explain the basis for its decision. The water supplier for a small or medium−size water system shall implement corrosion control treatment steps in accordance with sub. (5), including a public water system deemed to have optimized corrosion control under sub. (2) (a), whenever it exceeds the lead or copper action level.

(4) TREATMENT STEPS AND DEADLINES FOR LARGE SYSTEMS. Except as provided in sub. (2) (b) and (c), water suppliers for large systems shall complete the following corrosion control treatment steps by the indicated dates:

(a) Step 1: The water supplier shall conduct initial monitoring during 2 consecutive 6−month monitoring periods by January 1, 1993.

(b) Step 2: The water supplier shall complete corrosion control studies and submit option for optimal corrosion control treatment to the department by July 1, 1994.

(c) Step 3: The department shall approve optimal corrosion control treatment by January 1, 1995.

(d) Step 4: The water supplier shall install optimal corrosion control treatment by January 1, 1997.

(e) Step 5: The water supplier shall complete follow−up sampling by January 1, 1998.

(f) Step 6: The department shall review installation of treatment and approve optimal water quality control parameters by July 1, 1998.

(g) Step 7: The water supplier shall operate in compliance with the department−approved optimal water quality control parameters and continue to conduct tap sampling.

(5) TREATMENT STEPS AND DEADLINES FOR SMALL AND MEDIUM−SIZE SYSTEMS. Except as provided in sub. (2), water suppliers for small and medium−size systems shall complete the following corrosion control treatment steps by the indicated time periods:

(a) Step 1: The water supplier shall conduct initial tap sampling until the public water system either exceeds the lead or copper action level or becomes eligible for reduced monitoring under s. NR 809.547 (4) (d). A water supplier exceeding the lead or copper action level shall recommend optimal corrosion control treatment, under s. NR 809.543 (1), within six months after the end of the monitoring period during which the public water system exceeds one of the action levels.

(b) Step 2: Within 12 months after the end of the monitoring period during which a public water system exceeds the lead or copper action level, the department may require the water supplier to perform corrosion control studies, under s. NR 809.54 (2). If the department does not require the water supplier to perform such studies, the department shall specify optimal corrosion control treatment, under s. NR 809.543 (4) within the following timeframes:

1. For medium−size systems, within 18 months after the end of the monitoring period during which such public water system exceeds the lead or copper action level.

2. For small systems, within 24 months after the end of the monitoring period during which such public water system exceeds the lead or copper action level.

(c) Step 3: If the department requires a water supplier to perform corrosion control studies under step 2, the water supplier shall complete the studies within 18 months after the department requires the studies be conducted.

(d) Step 4: If the water supplier has performed corrosion control studies under step 2, the department shall review and determine adequacy of public water system's optimal corrosion control treatment within 6 months after completion of step 3.

(e) Step 5: The water supplier shall install optimal corrosion control treatment within 24 months after the department approves the treatment.

(f) Step 6: The water supplier shall complete follow−up sampling within 36 months after the department approves optimal corrosion control treatment.

(g) Step 7: The department shall review the installation of treatment and approve optimal water quality control parameters within 6 months after completion of step 6.

(h) Step 8: The water supplier shall operate in compliance with the department−approved optimal water quality control parameters and continue to conduct tap sampling.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; correction in (2) (c) made under s. 13.92 (4) (b) 7., Stats., Register November 2010 No. 659; **CR 15−049: am. (2) (c) 3. Register March 2016 No. 723, eff. 4−1−16.**

NR 809.543 Description of corrosion control treatment requirements. Each water supplier shall complete the following corrosion control treatment requirements which are applicable to their public water system under s. NR 809.542.

(1) WATER SUPPLIER RECOMMENDATION REGARDING CORROSION CONTROL TREATMENT. Based upon the results of lead and copper tap monitoring and water quality parameter monitoring, water supplier for a small and medium−size water systems exceeding the lead or copper action level shall recommend installation of one or more of the corrosion control treatments listed in sub. (3) (a) which the water supplier believes constitutes optimal corrosion control for that public water system. The department may require the water supplier to conduct additional water quality parameter monitoring in accordance with s. NR 809.548 (2) to assist the department in reviewing the water supplier's recommendation. In no case may the time period for installation of optimal corrosion control treatment on a small or medium−size system exceed the schedule as listed in s. NR 809.542 (5) (a) to (h).

(2) DEPARTMENT DECISION TO REQUIRE STUDIES OF CORROSION CONTROL TREATMENT BY SMALL AND MEDIUM−SIZE SYSTEMS. The department may require the water supplier of any small or medium−size system that exceeds the lead or copper action level to perform corrosion control studies under sub. (3) to identify optimal corrosion control treatment for the public water system.

(3) PERFORMANCE OF CORROSION CONTROL STUDIES. (a) Any water supplier 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 public water system:

1. Alkalinity and pH adjustment.
2. Calcium hardness adjustment.
3. 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.

(b) The water supplier shall evaluate each of the corrosion control treatments listed in par. (a) using either pipe rig or loop tests, metal coupon tests, partial−system tests, or analyses based on documented analogous treatments with other public water systems of similar size, water chemistry and distribution system configuration.

(c) The water supplier shall measure all of the following water quality parameters in any tests conducted before and after evaluating the corrosion control treatments listed in par. (a):

1. Lead.
2. Copper.
3. pH.
4. Alkalinity.
5. Calcium.
6. Conductivity.
7. Orthophosphate (when an inhibitor containing a phosphate compound is used).
8. Silicate when an inhibitor containing a silicate compound is used.
9. Water temperature.

(d) The water supplier 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 of the following:

1. Data and documentation showing that a particular corrosion control treatment has adversely affected other water treatment processes when used by another public water system with comparable water quality characteristics.

2. Data and documentation demonstrating that the water supplier has previously attempted to evaluate a particular corrosion control treatment and has found that the treatment is ineffective or adversely affects other water quality treatment processes, or both.

(e) The water supplier shall evaluate the effect of the chemicals used for corrosion control treatment on other water quality treatment processes.

(f) On the basis of an analysis of the data generated during each evaluation, the water supplier shall recommend to the department in writing the treatment option that the corrosion control studies indicate constitutes optimal corrosion control treatment for that public water system. The water supplier shall provide a rationale for its recommendation along with all supporting documentation specified in pars. (a) to (e).

(4) DEPARTMENT EVALUATION OF OPTIMAL CORROSION CONTROL TREATMENT. (a) Based upon consideration of available information including, where applicable, studies performed under sub. (3) and a water supplier's recommended treatment alternative, the department shall either approve the corrosion control treatment option recommended by the water supplier, or designate alternative corrosion control treatments from among those listed in sub. (3) (a). When approving optimal treatment, the department shall consider the effects that additional corrosion control treatment will have on water quality parameters and on other water quality treatment processes.

(b) The department shall notify the water supplier of its decision on optimal corrosion control treatment in writing and explain the basis for this determination. If the department requests additional information to aid its review, the water supplier shall provide the information.

(5) INSTALLATION OF OPTIMAL CORROSION CONTROL. Each water supplier shall properly install and operate throughout the public water system's distribution system the optimal corrosion control treatment approved by the department under sub. (4).

(6) DEPARTMENT REVIEW OF TREATMENT. The department shall evaluate the results of all lead and copper tap samples and water quality parameter samples submitted by the water supplier and determine whether the water supplier has properly installed and operated the optimal corrosion control treatment approved by the department in sub. (4). Upon reviewing the results of tap water and water quality parameter monitoring by the water supplier, both before and after the water supplier installs optimal corrosion control treatment, the department shall establish ranges for water quality parameters.

(7) APPROVAL OF OPTIMAL WATER QUALITY CONTROL PARAMETERS. The department shall review the water supplier's recommendations and select the values for the applicable water quality control parameters listed in sub. (3) which reflect optimal corrosion control treatment for the public water system. The department may specify values for additional water quality control parameters to reflect optimal corrosion control for the public water system. The department shall notify the water supplier in writing of these determinations and explain the basis for its deci-

sion. At a minimum, the department shall establish all of the following:

(a) A minimum value or a range of values for pH measured at each entry point to the distribution system.

(b) A minimum pH value, measured in all tap samples. The value shall be equal to or greater than 7.0, unless the water supplier provides information to indicate that meeting a pH level of 7.0 is not technologically feasible or is not necessary for the public water system to optimize corrosion control.

(c) 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 department determines is necessary to protect the interior walls of the pipes of the distribution system from corrosion.

(d) 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.

(e) 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.

(8) CONTINUED OPERATION AND MONITORING. All water suppliers optimizing corrosion control shall continue to operate and maintain optimal corrosion control treatment, including maintaining water quality parameters at or above minimum values or within ranges designated by the department under sub. (7), in accordance with this subsection for all samples collected under s. NR 809.548 (4). Compliance with the requirements of this subsection shall be determined every 6 months, as specified under s. NR 809.548 (4). A public water system is out of compliance with the requirements of this subsection for a 6−month period if it has excursions for any department−specified parameter on more than 9 days during the period. An excursion occurs whenever the daily value for one or more of the water quality parameters measured at a sampling location is below the minimum value or outside the range designated by the department. The department may delete results of obvious sampling errors from this calculation. Daily values are calculated as follows:

(a) On days when more than one 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. If EPA has approved an alternative formula under 40 CFR 142.16 in the department's application for a program revision submitted pursuant to 40 CFR 142.12, the department's formula shall be used to aggregate multiple measurements taken at a sampling point for the water quality parameter in lieu of the formula in this paragraph.

(b) On days when only one measurement for the water quality parameter is collected at the sampling location, the daily value shall be the result of that measurement.

(c) 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.

(9) MODIFICATION OF DEPARTMENT TREATMENT DECISIONS. Upon its own initiative or in response to a request by a water supplier or other interested party, the department may modify its determination of the optimal corrosion control treatment under sub. (4) or optimal water quality control parameters under sub. (6). A request for modification by a water supplier or other interested party shall be in writing, explain why the modification is appropriate, and provide supporting documentation. The department may modify its determination if it concludes that a change is necessary to ensure that the water supplier 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 department's decision, and provide an implementation schedule for completing the treatment modifications.

(10) TREATMENT DECISIONS BY EPA IN LIEU OF THE DEPARTMENT. The EPA regional administrator may review treatment determinations made by the department under sub. (4), (6) or (8) and issue federal treatment determinations consistent with the requirements of those subsections if the regional administrator finds any of the following:

(a) The department has failed to issue a treatment determination by the applicable deadlines contained in s. NR 809.542.

(b) The department has abused its discretion in a substantial number of cases or in cases affecting a substantial population.

(c) The technical aspects of the department's determination would be indefensible in an expected federal enforcement action taken against a water supplier.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; correction in (8) (intro.) made under s. 13.92 (4) (b) 7., Stats., Register November 2010 No. 659.

NR 809.544 Source water treatment requirements for corrosion control. (1) DEADLINES FOR COMPLETING SOURCE WATER TREATMENT STEPS. Water suppliers shall complete the applicable source water monitoring and treatment requirements by the following deadlines:

(a) Step 1: A water supplier for a public water system exceeding the lead or copper action level shall complete lead and copper source water monitoring under s. NR 809.549 (2) and make a treatment recommendation to the department under s. NR 809.544 (2) (a) no later than 180 days after the end of the monitoring period during which the lead or copper action level was exceeded.

(b) Step 2: The department shall make a determination regarding proposed source water treatment within 6 months after receipt of proposed treatment alternatives under step 1.

(c) Step 3: If the department approves installation of source water treatment, the water supplier shall install the treatment within 24 months after completion of step 2.

(d) Step 4: The water supplier shall complete follow−up tap water monitoring and source water monitoring within 36 months after completion of step 2.

(e) Step 5: The department shall review the installation and operation of source water treatment and specify maximum permissible source water levels within 6 months after completion of step 4.

(f) Step 6: The water supplier shall operate in compliance with the department−specified maximum permissible lead and copper source water levels and continue source water monitoring.

(2) DESCRIPTION OF SOURCE WATER TREATMENT REQUIREMENTS. (a) *Water supplier treatment recommendation.* Any water supplier for a public water system that exceeds the lead or copper action level shall recommend in writing to the department the installation and operation of one of the source water treatments listed in par. (b). A water supplier 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.

(b) *Department determination regarding source water treatment.* The water supplier shall complete an evaluation of the results of all source water samples collected by the water supplier to determine whether source water treatment is necessary to minimize lead or copper levels and the evaluation shall be submitted to the department. If the department determines that treatment is needed, the department shall either approve installation and operation of the source water treatment recommended by the water supplier, if any, or require the installation and operation of another source water treatment from among the following: ion exchange, reverse osmosis, lime softening or coagulation−filtration. If the department requests additional information to aid in its review, the water supplier shall provide the information by the

date specified by the department in its request. The department shall notify the water supplier in writing of its determination and set forth the basis for its decision.

(c) *Installation of source water treatment.* Each water supplier shall properly install and operate the source water treatment approved by the department under par. (b).

(d) *Department review of source water treatment and specification of maximum permissible source water levels.* The department shall review the source water samples taken by the water supplier both before and after the water supplier installs source water treatment, and determine whether the water supplier has properly installed and operated the source water treatment approved by the department. Based upon its review, the department shall establish the maximum permissible lead and copper concentrations for finished water entering the distribution system. Levels shall reflect the contaminant removal capability of the treatment properly operated and maintained. The department shall notify the water supplier in writing and explain the basis for its decision.

(e) *Continued operation and maintenance.* Each water supplier shall maintain lead and copper levels below the maximum permissible concentrations established by the department at each sampling point monitored in accordance with s. NR 809.549. The public water system is out of compliance with this paragraph if the level of lead or copper at any sampling point is greater than the maximum permissible concentration approved by the department.

(f) *Modification of department treatment decisions.* Upon its own initiative or in response to a request by a water supplier or other interested party, the department may modify its determination of the source water treatment under par. (b), or maximum permissible lead and copper concentrations for finished water entering the distribution system under par. (d). A request for modification by a water supplier or other interested party shall be in writing, explain why the modification is appropriate, and provide supporting documentation. The department may modify its determination where it concludes that such change is necessary to ensure that the water supplier continues to minimize lead and copper concentrations in source water. A revised determination shall be made in writing, set forth the new treatment requirements, explain the basis for the department's decision, and provide an implementation schedule for completing the treatment modifications.

(g) *Treatment decisions by EPA in lieu of the department.* The EPA regional administrator may review treatment determinations made by the department under par. (b), (d) or (f) and issue federal treatment determinations consistent with the requirements of those paragraphs if the administrator finds any of the following:

1. The department has failed to issue a treatment determination by the applicable deadlines contained in sub. (1).

2. The department has abused its discretion in a substantial number of cases or in cases affecting a substantial population.

3. The technical aspects of the department's determination would be indefensible in an expected federal enforcement action taken against a water supplier.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (1) (a) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.545 Lead service line replacement requirements. (1) GENERAL. Water suppliers for public water systems that fail to meet the lead action level in tap samples taken pursuant to s. NR 809.547 (4) (b), after installing corrosion control or source water treatment, or both, whichever sampling occurs later, shall replace lead service lines in accordance with the requirements of this section. If a public water system is in violation of s. NR 809.542 or 809.544 for failure to install source water or corrosion control treatment, the department may require the water supplier to commence lead service line replacement under this section after the date by which the water supplier was required to conduct monitoring under s. NR 809.547 (4) (b) has passed.

(2) RATE AND SCHEDULE FOR SERVICE LINE REPLACEMENT. (a) A water supplier shall replace annually at least 7% of the initial number of lead service lines in its distribution system. The initial number of lead service lines is the number of lead lines in place at the time the replacement program begins. The water supplier shall identify the initial number of lead service lines in its distribution system, including an identification of the portions owned by the public water system, based on a materials evaluation, including the evaluation required under s. NR 809.547 (1) and relevant legal authorities, such as contracts and local ordinances regarding the portion owned by the public water system. 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 sub. (1). If monitoring is required annually or less frequently, the end of the monitoring period is September 30 of the calendar year in which the sampling occurs unless the department has established an alternate monitoring period.

(b) Any water supplier resuming a lead service line replacement program, after the cessation of its lead service line replacement program, as allowed by sub. (6), shall update the public water system's inventory of lead service lines to include those sites that were previously determined not to require replacement through the sampling provision under sub. (3). The water supplier shall then 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 lead service line replacement is based on a 15−year replacement program, so, for example, water suppliers resuming lead service line replacement after previously conducting two years of replacement would divide the updated inventory by 13. For those water suppliers for public water systems that have completed a 15−year lead service line replacement program, the department will determine a schedule for replacing or retesting lines that were previously tested out under the replacement program when the public water system exceeds the action level again after completing a 15−year replacement program.

(3) INDIVIDUAL SERVICE LINE CONSIDERATIONS. A water supplier is not required to replace an individual lead service line if the lead concentration in all service line samples from that line, taken pursuant to s. NR 809.547 (2) (c), is less than or equal to 0.015 mg/L.

(4) EXTENT OF SERVICE LINE REPLACEMENT. A water supplier shall replace the entire service line, up to the building inlet, unless the water supplier demonstrates to the satisfaction of the department under sub. (5), that the public water system controls less than the entire service line. In such cases, the water supplier shall replace the portion of the line which the department determines is under the water supplier's control. The water supplier shall notify the user served by the line that the water supplier will replace the portion of the service line under the public water system's control and the water supplier shall offer to replace the building owner's portion of the line, but is not required to bear the cost of replacing the building owner's portion of the line. A water supplier is not required to bear the cost of replacing the privately−owned portion of the line, nor is the water supplier required to replace the privately−owned portion where the building owner chooses not to pay the cost of replacing the privately−owned portion of the line, or where replacing the privately−owned system would be precluded by department, local or common law. An water supplier that does not replace the entire length of the service line shall also complete all of the following tasks:

(a) At least 45 days prior to commencing with the partial replacement of a lead service line, the water supplier shall provide notice to the residents of all buildings served by the line explaining that they may experience a temporary increase of lead levels in their drinking water, and shall provide guidance on measures consumers can take to minimize their exposure to lead. The department may allow the water supplier to provide notice under this paragraph less than 45 days prior to commencing partial lead ser-

vice line replacement if the replacement is in conjunction with emergency repairs. In addition, the water supplier shall inform the residents served by the line that the water supplier will, at the public water 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 s. NR 809.547 (2) (c), no later than 72 hours after the completion of the partial replacement of the service line. The water supplier shall collect the sample and report the results of the analysis to the building owner and each resident served by the line no later than 3 business days after receiving the results. Mailed notices post−marked no later than 3 business days after receiving the results shall be considered timely.

(b) The water supplier shall provide the information required by par. (a) to the residents of individual dwellings by mail or by other methods approved by the department. In instances where multi−family dwellings are served by the line, the water supplier may post the information at a conspicuous location likely to give notice to all residents of the multi−family dwellings.

(5) ACCELERATED SCHEDULE FOR SERVICE LINE REPLACEMENT. The department shall require a water supplier to replace lead service lines on a shorter schedule than that required by this section, taking into account the number of lead service lines in the public water system, if a shorter replacement schedule is feasible. The department shall make this determination in writing and notify the water supplier of its finding no later than 6 months after the water supplier is required to begin service line replacement based on monitoring under sub. (1).

(6) CEASING AND RECOMMENCING SERVICE LINE REPLACEMENT. Any water supplier may cease replacing lead service lines when lead service line samples collected pursuant to s. NR 809.547 (2) (b) meet the lead action level during each of 2 consecutive monitoring periods and the water supplier submits the results to the department. If the lead service line samples in any such public water system thereafter exceed the lead action level, the water supplier shall recommence replacing lead service lines, pursuant to sub. (2).

(7) COMPLIANCE REPORTING. To demonstrate compliance with subs. (1) to (4), a water supplier shall report to the department the information specified in s. NR 809.55 (5).

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10.

NR 809.546 Public education and supplemental monitoring requirements. All water suppliers shall deliver a consumer notice of lead tap water monitoring results to persons served by the public water system at sites that are tested, as specified in sub. (4). If a public water system that exceeds the lead action level based on tap water samples collected in accordance with s. NR 809.547, the water supplier shall deliver the public education materials contained in sub. (1) in accordance with the requirements in sub. (2). Water suppliers for public water systems that exceed the lead action level shall sample the tap water of any customer who requests it in accordance with sub. (3).

(1) CONTENT OF WRITTEN PUBLIC EDUCATION MATERIALS FOR LEAD AND COPPER CONTROL. (a) *Content for community water systems and non−transient noncommunity water systems*. Water suppliers shall include the following elements in printed materials, for example, brochures and pamphlets, in the same order as listed below. In addition, the language in subds. 1., 2., and 6. shall be included in the materials, exactly as written, except for the text in brackets in those subdivisions for which the water supplier shall include public water system−specific information. Any additional information presented by a water supplier shall be consistent with the information below and be in plain language that can be understood by the general public. Water suppliers shall submit all written public education materials to the department prior to delivery. The department may require the water supplier to modify the language before the department approves of the content of written public materials prior to delivery.

1. IMPORTANT INFORMATION ABOUT LEAD IN YOUR DRINKING WATER. [INSERT NAME OF PUBLIC 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.

2. 'Health effects of lead.' Lead can cause serious health problems if too much enters your body from drinking water or other sources. It can cause damage to the brain and kidneys, and can interfere with the production of red blood cells that carry oxygen to all parts of your body. The greatest risk of lead exposure is to infants, young children, and pregnant women. Scientists have linked the effects of lead on the brain with lowered IQ in children. Adults with kidney problems and high blood pressure can be affected, more than healthy adults at lower levels of lead. 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 while in utero, which may affect the child's brain development.

3. 'Sources of lead.' a. Explain what lead is.

b. Explain possible sources of lead in drinking water and how lead enters drinking water. Include information on home and building plumbing materials and service lines that may contain lead.

c. Discuss other important sources of lead exposure in addition to drinking water, for example, paint.

4. 'Reducing lead exposure.' Discuss the steps the consumer can take to reduce their exposure to lead in drinking water.

a. Encourage running the water to flush out the lead.

b. Explain concerns with using hot water from the tap and specifically caution against the use of hot water for preparing baby formula.

c. Explain that boiling water does not reduce lead levels.

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

e. Suggest that parents have their child's blood tested for lead.

5. 'Reasons for elevated lead levels and water supplier response.' Explain why there are elevated levels of lead in the public water system's drinking water, if known, and what the water supplier is doing to reduce the lead levels in homes and buildings in this area.

6. For more information, call us at [INSERT YOUR NUMBER] [(IF APPLICABLE), or visit our Web site at [INSERT YOUR WEB SITE HERE]]. For more information on reducing lead exposure around your home or building and the health effects of lead, visit EPA's Web site at http://www.epa.gov/lead or contact your health care provider.

(b) *Additional content for community water systems*. In addition to including the elements specified in par. (a), water suppliers for community water systems shall:

1. Tell consumers how to get their water tested.

2. Discuss lead in plumbing components and the difference between low lead and lead free.

(2) DELIVERY OF PUBLIC EDUCATION MATERIALS. (a) *Multilingual public education materials.* For public water systems serving a large proportion of non−English speaking consumers, as determined by the department, the public education materials shall contain information in the appropriate language or languages regarding the importance of the notice or shall contain a telephone number or address where persons served may contact the water supplier to obtain a translated copy of the public education materials or to request assistance in the appropriate language.

(b) *Community water system public education tasks.* A water supplier for a community water system that exceeds the lead action level on the basis of tap water samples collected in accordance with s. NR 809.547 and that is not already conducting public

education tasks under this section, shall conduct all of the following public education tasks no later than 60 days after the end of the monitoring period in which the exceedance occurred:

1. Deliver printed materials meeting the content requirements of sub. (1) to all bill−paying customers.

2. Contact customers who are most at risk by:

a. Delivering education materials that meet the content requirements of sub. (1) to local public health agencies even if they are not located within the public water system's service area, along with an informational notice that encourages distribution to all the organization's potentially affected customers or community water system's users. The water supplier shall contact the local public health agencies directly by phone or in person. The local public health agencies may provide a specific list of additional community based organizations serving target populations, which may include organizations outside the service area of the public water system. If such lists are provided, water suppliers shall deliver education materials that meet the content requirements of sub. (1) to all organizations on the provided lists.

b. Delivering materials that meet the content requirements of sub. (1) to organizations that are located within the public water system's service area such as public and private schools or school boards, Women, Infants and Children (WIC) and Head Start programs, public and private hospitals and medical clinics, pediatricians, family planning clinics, and local welfare agencies along with an informational notice that encourages distribution to all the organization's potentially affected customers or community water system's users.

c. Making a good faith effort to locate licensed childcare centers, public and private preschools, obstetricians−gynecologists and midwives within the service area and deliver materials that meet the content requirements of sub. (1) to them, along with an informational notice that encourages distribution to all potentially affected customers or users. The good faith effort to contact at−risk customers may include requesting a specific contact list of these organizations from the local public health agencies, even if the agencies are not located within the public water system's service area.

3. Provide information with the water bills. No less often than quarterly, water suppliers shall provide information on or in each water bill as long as the public water system exceeds the action level for lead. The message on the water bill shall include the following statement exactly as written except for the text in brackets for which the water supplier shall include public water system−specific information: [INSERT NAME OF PUBLIC 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 PUBLIC WATER SYSTEM] [or visit (INSERT YOUR WEB SITE HERE)]. The message or delivery mechanism may be modified in consultation with the department to allow a separate mailing of public education materials to customers if the water supplier cannot place the information on water bills.

4. Post material meeting the content requirements of sub. (1) on the public water system's Web site if the public water system serves a population greater than 100,000.

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

6. Conduct additional education activities. In addition to subd. 2. b., water suppliers shall implement at least three activities from one or more categories listed in this subdivision. The educational content and selection of these activities shall be determined in consultation with the department.

a. Public service announcements.

b. Paid advertisements.

c. Public area information displays.

d. E−mails to customers.

e. Public meetings.

f. Household deliveries.

g. Targeted individual customer contact.

h. Direct material distribution to all multi−family homes and institutions.

i. Other methods approved by the department.

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

(c) *Requirements for continuing community water system exceedances*. As long as a community water system exceeds the action level, the water supplier shall repeat the activities pursuant to par. (b) as described in this paragraph.

1. A water supplier for a community water system shall repeat the tasks contained in par. (b) 1., 2., and 6. every 12 months.

2. A water supplier for a community water system shall repeat the tasks contained in par. (b) 3. with each billing cycle.

3. A water supplier for a community water system serving a population greater than 100,000 shall post and retain material on a publicly accessible Web site pursuant to par. (b) 4.

4. A water supplier for a community water system shall repeat the task in par. (b) 5., twice every 12 months on a schedule agreed upon with the department. The department may allow activities in par. (b) to extend beyond the 60−day requirement if needed for implementation purposes on a case−by−case basis. However, this extension must be approved in writing by the department in advance of the 60−day deadline.

(d) *Non−transient non−community water system public education tasks.* No later than 60 days after the end of the monitoring period in which the exceedance occurred, unless it already is repeating public education tasks pursuant to par. (e), the water supplier for a non−transient non−community water system shall deliver the public education materials specified in sub. (1), by posting informational posters regarding lead in drinking water in a public place or common area in each of the buildings served by the public water system; and distributing informational pamphlets or brochures, or both, regarding lead in drinking water to each person served by the non−transient non−community water system. The department may allow the water supplier to utilize electronic transmission in lieu of, or combined with, printed materials as long as the same coverage is achieved. For public water systems that are required to be monitored annually or less frequently, the end of the monitoring period is September 30 of the calendar year in which the sampling occurs, or, if the department has established an alternate monitoring period, the last day of that period.

(e) *Requirements for continuing non−transient non−community water system exceedances*. A water supplier for a non−transient non−community water system shall repeat the tasks contained in par. (d) at least once during each calendar year in which the public water system exceeds the lead action level. The department may, on a case−by−case basis, allow activities in par. (d) to extend beyond the 60−day requirement if needed for implementation purposes. However, this extension is required to be approved in writing by the department in advance of the 60−day deadline.

(f) *Requirements for discontinuing public education materials.* A water supplier may discontinue delivery of public education materials if the public water system has met the lead action level during the most recent six−month monitoring period conducted pursuant to s. NR 809.547. The water supplier shall recommence public education in accordance with this section if the public water system subsequently exceeds the lead action level during any monitoring period.

(g) *Community water system text waiver.* A water supplier for a community water system may apply to the department in writing

unless the department has waived the requirement for prior approval, to use only the text specified in sub. (1) (a) in lieu of the text in sub. (1) (a) and (b) and to perform the tasks listed in pars. (d) and (e) in lieu of the tasks in pars. (b) and (c) if all of the following are met:

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

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

(h) *Reduction in public education requirements for public water systems serving 3300 or fewer people.* A water supplier for a community water system serving 3,300 or fewer people may limit certain aspects of the public education programs as follows:

1. With respect to the requirements of par. (b) 6., a water supplier for a public water system serving 3,300 or fewer shall implement at least one of the activities listed in that paragraph.

2. With respect to the requirements of par. (b) 2., a water supplier for a public water system serving 3,300 or fewer people may limit the distribution of the public education materials required under that paragraph to facilities and organizations served by the public water system that are most likely to be visited regularly by pregnant women and children.

3. With respect to the requirements of par. (b) 5., the department may waive this requirement for public water systems serving 3,300 or fewer persons as long as the water supplier distributes notices to every household served by the public water system.

(3) SUPPLEMENTAL MONITORING FOR LEAD. A water supplier for a public water system that fails to meet the lead action level on the basis of tap samples collected in accordance with s. NR 809.547 shall offer to sample the tap water of any customer who requests it. The water supplier is not required to pay for collecting or analyzing the sample, nor is the water supplier required to collect and analyze the sample.

(4) NOTIFICATION OF TAP SAMPLE RESULTS. (a) *Reporting requirement.* All water suppliers for public water systems shall provide a notice of the individual tap results from lead tap water monitoring carried out under the requirements of s. NR 809.547 to the persons served by the public 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.

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

(c) *Content.* The consumer notice shall include the results of lead tap water monitoring for the tap that was tested, an explanation of the health effects of lead, steps consumers can take to reduce exposure to lead in drinking water and contact information for the water utility. The notice shall also provide the maximum contaminant level goal and the action level for lead and the definitions for these two terms from s. NR 809.833 (2).

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

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; correction in (intro.) made under s. 13.92 (4) (b) 7., Stats., Register November 2010 No. 659; **CR 15−049: am. (intro.), (1) (a) 1., (2) (b) 1., 2., (c) 1., (d) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.547 Monitoring requirements for lead and copper in tap water. (1) SAMPLE SITE LOCATION. (a) By the applicable date for commencement of monitoring under sub. (4) (a), each water supplier shall complete a materials evaluation of the distribution system of this public water system in order to identify a pool of targeted sampling sites that meet the requirements as specified in pars. (c) to (f), and which is sufficiently large to ensure that the water supplier can collect the number of lead and copper tap samples required in sub. (3). All sites from which first draw samples are collected shall be selected from this pool of targeted sampling sites. Sampling sites may not include faucets that have point−of−use or point−of−entry treatment devices designed to remove inorganic contaminants.

(b) A water supplier shall use the information on lead, copper and galvanized steel that they are required to collect under s. NR 809.119 when conducting a materials evaluation. When an evaluation of the information collected pursuant to s. NR 809.119 (4) is insufficient to locate the requisite number of lead and copper sampling sites that meet the targeting criteria in this subsection, the water supplier shall review the following sources of information in order to identify a sufficient number of sampling sites. In addition, the water supplier shall seek to collect such information where possible in the course of its normal operations, including, checking service line materials when reading water meters or performing maintenance activities:

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

2. 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.

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

(c) The "tier 1 sampling sites" selected for a community water system's sampling pool shall consist of single family structures that meet at least one of the following requirements:

1. Contain copper pipes with lead solder installed after 1982 or contain lead pipes.

2. Are served by a lead service line.

(d) When multiple−family residences comprise at least 20% of the structures served by a public water system, the water supplier may include the types of structures described in par. (c) in its sampling pool.

(e) Any water supplier for a community water system with insufficient tier 1 sampling sites shall complete the sampling pool with "tier 2 sampling sites," consisting of buildings, including multiple−family residences that meet at least one of the following requirements:

1. Contain copper pipes with lead solder installed after 1982 or contain lead pipes.

2. Are served by a lead service line.

(f) Any water supplier for a community water system with insufficient tier 1 and tier 2 sampling sites shall complete the sampling pool with "tier 3 sampling sites", consisting of single family structures that contain copper pipes with lead solder installed before 1983. A water supplier for a community water system with insufficient tier 1, tier 2 and tier 3 sampling sites shall complete its sampling pool with representative sites throughout the distribution system. For the purpose of this paragraph, a representative site is a site at which the plumbing materials used at that site would be commonly found at other sites served by the public water system.

(g) The "tier one sampling sites" selected for a non−transient non−community water system shall consist of buildings that meet at least one of the following requirements:

1. Contain copper pipes with lead solder installed after 1982 or contain lead pipes.

2. Are served by a lead service line.

(h) A water supplier for a non−transient, non−community water system with insufficient tier 1 sites that meet the targeting criteria in par. (g) shall complete their 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 water supplier shall use representative sites throughout the distribution system. For the purpose of this paragraph, a representative site is a site at which the plumbing materials used at that site would be commonly found at other sites served by the public water system.

(i) Any water supplier whose distribution system contains lead service lines shall draw 50% of the samples collected during each monitoring period from sites that contain lead pipes, or copper pipes with lead solder, and 50% of those samples from sites served by a lead service line. A water supplier who cannot identify a sufficient number of sampling sites served by a lead service line shall collect first draw samples from all of the sites identified as being served by such lines.

(2) SAMPLE COLLECTION METHODS. (a) All tap samples for lead and copper collected in accordance with this subchapter, with the exception of lead service line samples collected under s. NR 809.545 (3) and samples collected under par. (e), shall be first draw samples.

(b) Each first−draw tap sample for lead and copper shall be one liter in volume and have stood motionless in the plumbing system of each sampling site for at least 6 hours. First−draw samples from residential housing shall be collected from the cold water kitchen tap or bathroom sink tap. First−draw samples from a nonresidential building shall be collected at an interior tap from which water is typically drawn for consumption. Non−first−draw samples collected in lieu of first−draw samples pursuant to par. (e) shall be one liter in volume and shall be collected at an interior tap from which water is typically drawn for consumption. First−draw samples may be collected by the water supplier or the water supplier may allow residents to collect first−draw samples after instructing the residents of the sampling procedures specified in this paragraph. To avoid problems of residents handling nitric acid, acidification of first−draw samples may be done up to 14 days after the sample is collected. After acidification to resolubilize the metals, the sample shall stand in the original container for the time specified in the approved EPA method before the sample can be analyzed. If a water supplier allows residents to perform sampling, the water supplier may not challenge, based on alleged errors in sample collection, the accuracy of sampling results.

(c) Each service line sample shall be one liter in volume and have stood motionless in the lead service line for at least 6 hours. Lead service line samples shall be collected in one of the following 3 ways:

1. 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.

2. Tapping directly into the lead service line.

3. 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 which would be indicative of water that has been standing in the lead service line.

(d) A water supplier shall collect each first−draw tap sample from the same sampling site from which they collected a previous sample. If for any reason the water supplier cannot gain entry to a sampling site in order to collect a follow−up tap sample, the water supplier may collect the follow−up tap sample from another sampling site in their sampling pool as long as the new site meets the same targeting criteria, and is within reasonable proximity of the original site.

(e) The water supplier for a non−transient non−community water system or a community water system that meets the criteria of s. NR 809.546 (2) (g) that does not have enough taps that can supply first−draw samples, may apply to the department in writing to substitute non−first−draw samples. Water suppliers for these public water systems shall collect as many first−draw samples from appropriate taps as possible and identify sampling times and locations that would likely result in the longest standing time for the remaining sites. The department may waive the requirement for prior departmental approval of non−first−draw sample sites selected by the water supplier, either through department rule or written notification to the water supplier.

(3) NUMBER OF SAMPLES. Water suppliers shall collect at least one sample during each monitoring period specified in sub. (4) from the number of sites listed in the following column titled "standard monitoring." A water supplier conducting reduced monitoring under sub. (4) (d) may collect one sample from the number of sites specified in the second following column during each monitoring period specified in sub. (4) (d). The department may specify sampling locations when a water supplier is conducting reduced monitoring. Such reduced monitoring sites shall be representative of the sites required for standard monitoring. A water supplier for a public water system that has fewer than five drinking water taps that can be used for human consumption meeting the sample site criteria of sub. (1) of this section to reach the required number of sample sites listed in this subsection, shall collect at least one sample from each tap and then shall collect additional samples from those taps on different days during the monitoring period to meet the required number of sites. Alternatively the department may allow water suppliers of these public water systems to collect a number of samples less than the number of sites specified in this subsection, provided that 100 percent of all taps that can be used for human consumption are sampled. The department may approve this reduction of the minimum number of samples in writing based on a request from the water supplier or onsite verification by the department.

Public Water System Size (# People Served)	# of sites (Standard Monitoring)	# of sites (Reduced Monitoring)
>100,000	100	50
10,001−100,000	60	30
3,301 to 10,000	40	20
501 to 3,300	20	10
101 to 500	10	5
≤ 100	5	5

(4) TIMING OF MONITORING. (a) *Initial tap sampling.* The first 6−month monitoring period for small, medium and large−size systems shall begin on the following dates:

Public Water System Size (# People Served)	First six−month Monitoring Period Begins On
>50,000	January 1, 1992
3,301 to 50,000	July 1, 1992
≤ 3,300	July 1, 1993

1. The water suppliers of all large systems shall monitor during 2 consecutive 6−month periods.

2. The water suppliers of all small and medium−size systems shall monitor during each 6−month monitoring period until one of the following occurs:

a. The public water system exceeds the lead or copper action level and is therefore required to implement the corrosion control treatment requirements under s. NR 809.542, in which case the water supplier shall continue monitoring in accordance with par. (b).

b. The public water system meets the lead or copper action levels during 2 consecutive 6−month monitoring periods, in which case the water supplier may reduce monitoring in accordance with par. (d).

(b) *Monitoring after installation of corrosion control and source water treatment.* 1. Any large system with optimal corrosion control treatment installed pursuant to s. NR 809.542 (4) (d) shall be monitored during 2 consecutive 6−month periods by the date specified in s. NR 809.542 (4) (e).

2. Any small or medium−size system with optimal corrosion control treatment installed pursuant to s. NR 809.542 (5) (e) shall be monitored during 2 consecutive 6−month monitoring periods by the date specified in s. NR 809.542 (5) (f).

3. Any water supplier that installs source water treatment pursuant to s. NR 809.544 (1) (c) shall monitor during 2 consecutive 6−month monitoring periods by the date specified in s. NR 809.544 (1) (d).

(c) *Monitoring after the department specifies water quality parameter values for optimal corrosion control.* After the department approves the values for water quality control parameters under s. NR 809.543 (6), the water supplier shall monitor during each subsequent 6−month monitoring period, with the first monitoring period to begin on the date the department specifies the optimal values under s. NR 809.543 (6).

(d) *Reduced monitoring.* 1. The water supplier for a small or medium−size water system that meets the lead and copper action levels during each of 2 consecutive 6−month monitoring periods may reduce the number of samples in accordance with sub. (3), and reduce the frequency of sampling to once per year. The water supplier for a small or medium water system collecting fewer than five samples as specified in sub. (3) of this section, that meets the lead and copper action levels during each of two consecutive six−month monitoring periods may reduce the frequency of sampling to once per year. In no case may the water supplier reduce the number of samples required below the minimum of one sample per available tap. The water supplier shall begin this sampling during the calendar year immediately following the end of the second consecutive six−month monitoring period.

2. The water supplier for a public 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 department under s. NR 809.543 (6) and (7) during each of two consecutive six−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 sub. (3) of this section if they receive written approval from the department. This sampling shall begin during the calendar year immediately following the end of the second consecutive six−month monitoring period. The department shall review monitoring, treatment, and other relevant information submitted by the water supplier in accordance with s. NR 809.55, and shall notify the water supplier in writing when it determines the public water system is eligible to commence reduced monitoring pursuant to this paragraph. The department shall review, and where appropriate, revise its determination when the water supplier submits new monitoring or treatment data, or when other data relevant to the number and frequency of tap sampling becomes available.

3. The water supplier for a small or medium−size water system that meets the lead and copper action levels during three consecutive years of monitoring may reduce the frequency of monitoring for lead and copper from annually to once every three years. The water supplier for a public 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 department under s. NR 809.543 (6) during three consecutive years of monitoring may reduce the frequency of monitoring from annually to once every three years if they receives written approval from the department. Samples collected once every three years shall be collected no later than every third calendar year. The department shall review monitoring, treatment, and other relevant information submitted by the water supplier in accordance with s. NR 809.55, and shall notify the water supplier in writing when it determines the public water system is eligible to reduce the frequency of monitoring to once every three years. The department shall review, and where appropriate, revise its determination when the water supplier submits new monitoring or treatment data, or when other data relevant to the number and frequency of tap sampling becomes available.

4. A water supplier 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 sub. (1). A water supplier sampling annually or less frequently shall conduct the lead and copper tap sampling during the months of June, July, August or September unless the department has approved a different sampling month.

a. The department, at its discretion, may approve a different period for conducting the lead and copper tap sampling for water suppliers collecting a reduced number of samples. Such a period shall be no longer than four consecutive months and must represent a time of normal operation where the highest levels of lead are most likely to occur. For a non−transient noncommunity water system that does not operate during the months of June through September, and for which the period of normal operation where the highest levels of lead are most likely to occur is not known, the department shall designate a period that represents a time of normal operation for the public water system. This sampling shall begin during the period approved or designated by the department in the calendar year immediately following the end of the second consecutive six−month monitoring period for water suppliers initiating annual monitoring and during the three−year period following the end of the third consecutive calendar year of annual monitoring for public water systems initiating triennial monitoring.

b. Water suppliers monitoring annually, that have been collecting samples during the months of June through September and that receive department approval to alter their sample collection period under this subd. 4. a. shall collect their next round of samples during a time period that ends no later than 21 months after the previous round of sampling. Water suppliers monitoring triennially that have been collecting samples during the months of June through September, and receive department approval to alter the sampling collection period as under this subd. 4. a. shall collect their next round of samples during a time period that ends no later than 45 months after the previous round of sampling. Subsequent rounds of sampling shall be collected annually or triennially, as required by this section. Water suppliers for small water systems with waivers, granted pursuant to sub. (7), that have been collecting samples during the months of June through September and receive department approval to alter their sample collection period under this subd. 4. a. shall collect their next round of samples before the end of the 9−year period.

5. Any water supplier that demonstrates for 2 consecutive 6−month monitoring periods that the tap water lead level computed under s. NR 809.54 (3) (c) is less than or equal to 0.005 mg/L and the tap water copper level computed under s. NR 809.54 (3) (c) is less than or equal to 0.65 mg/L may reduce the number of samples in accordance with sub. (3) and reduce the frequency of sampling to once every 3 calendar years.

6. a. Water suppliers for public water systems that are on reduced monitoring shall increase monitoring by the following: Water suppliers for a small or medium−sized water system subject to reduced monitoring that exceeds the lead or copper action level

shall resume sampling in accordance with par. (c) and collect the number of samples specified for standard monitoring under sub. (3). A water supplier shall also conduct water quality parameter monitoring in accordance with s. NR 809.548 (2), (3) or (4) during the monitoring period in which the action level was exceeded. A water supplier for any public water system subject to reduced monitoring frequency that fails to operate within the range of values for the water quality control parameters specified by the department under s. NR 809.543 (6) shall resume tap water sampling in accordance with par. (c) and collect the number of samples specified for standard monitoring under sub. (3).

b. A water supplier for any public water system subject to the reduced monitoring frequency that fails to meet the lead action level during any four−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 department under s. NR 809.543 (6) for more than 9 days in any 6−month period specified in s. NR 809.548 (4) shall conduct tap water sampling for lead and copper at the frequency specified in par. (c), collect the number of samples specified for standard monitoring under sub. (3), and shall resume monitoring for water quality parameters within the distribution system in accordance with s. NR 809.548 (4). This standard tap water sampling shall begin no later than the six−month period beginning January 1 of the calendar year following the lead action level exceedance or water quality parameter excursion.

7. A water supplier for a public water system under subd. 6. b. may resume reduced monitoring for lead and copper at the tap and for water quality parameters within the distribution system under the following conditions:

a. The water supplier may resume annual monitoring for lead and copper at the tap at the reduced number of sites specified in sub. (3) after they have completed two subsequent six−month rounds of monitoring that meet the criteria of par. (d) 2. and the public water system has received written approval from the department that it is appropriate to resume reduced monitoring on an annual frequency. This sampling shall begin during the calendar year immediately following the end of the second consecutive six−month monitoring period.

b. The water supplier may resume triennial monitoring for lead and copper at the tap at the reduced number of sites after they demonstrate through subsequent rounds of monitoring that the public water system meets the criteria of either par. (d) 3. or 5. and the water supplier has received written approval from the department that it is appropriate to resume triennial monitoring.

c. The water supplier may reduce the number of water quality parameter tap water samples required in accordance with s. NR 809.548 (5) (a) and the frequency with which they collect such samples in accordance with s. NR 809.548 (5) (b). The water supplier may not resume triennial monitoring for water quality parameters at the tap until they demonstrate, in accordance with the requirements of s. NR 809.548 (5) (b) that the public water system has re−qualified for triennial monitoring.

8. A water supplier for a public water system subject to a reduced monitoring frequency under par. (d) shall notify the department in writing in accordance with s. NR 809.55 (1) (c) 3. of any upcoming long−term change in treatment or addition of a new source as described in that section. The department must review and approve the addition of a new source or long−term change in water treatment before it is implemented by the water supplier. After approved modifications are completed the water supplier may resume reduced monitoring for lead and copper under the following conditions:

a. The water supplier may resume annual monitoring for lead and copper at the tap at the reduced number of sites specified in sub. (3) after they have completed 2 subsequent 6−month rounds of monitoring that meet the criteria in subd. 2. and the water supplier has received written approval from the department that it is appropriate to resume reduced monitoring on an annual frequency.

b. The water supplier may resume triennial monitoring for lead and copper at the tap at the reduced number of sites after they demonstrate through subsequent rounds of monitoring that the public water system meets the criteria of either subd. 3. or 5. and the water supplier has received written approval from the department that it is appropriate to resume triennial monitoring.

c. The water supplier for a public water system may reduce the number of water quality parameter tap water samples required in accordance with s. NR 809.548 (5) (a) and the frequency with which they collect such samples in accordance with s. NR 809.548 (5) (b). The water supplier may not resume triennial monitoring for water quality parameters at the tap until the public water system demonstrates, in accordance with the requirements of s. NR 809.548 (5) (b), that the public water system has re−qualified for triennial monitoring.

9. The water supplier for a public water system subject to a reduced monitoring frequency under this paragraph that either adds a new source of water or changes any water treatment shall inform the department in writing in accordance with s. NR 809.55 (1) (e). The department may require the water supplier to resume sampling in accordance with sub. (2) (c) and collect the number of samples specified for standard monitoring under sub. (3) or take other appropriate steps such as increased water quality parameter monitoring or re−evaluation of its corrosion control treatment given the potentially different water quality considerations.

(5) ADDITIONAL MONITORING BY WATER SUPPLIERS. The results of any monitoring conducted in addition to the minimum requirements of this section shall be considered by the water supplier and the department in making any determinations, i.e., calculating the 90th percentile lead or copper level, under this subchapter.

(6) INVALIDATION OF LEAD OR COPPER TAP WATER SAMPLES. A sample invalidated under this subsection does not count toward determining lead or copper 90th percentile levels under s. NR 809.54 (3) (c) or toward meeting the minimum monitoring requirements of sub. (3).

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

1. The laboratory establishes that improper sample analysis caused erroneous results.

2. The department determines that the sample was taken from a site that did not meet the site selection criteria of this section.

3. The sample container was damaged in transit.

4. There is substantial reason to believe that the sample was subject to tampering.

(b) The water supplier shall report the results of all samples to the department and all supporting documentation for samples the water supplier believes should be invalidated.

(c) To invalidate a sample under par. (a), the decision and the rationale for the decision shall be documented in writing. The department may not invalidate a sample solely on the grounds that a follow−up sample result is higher or lower than that of the original sample.

(d) The water supplier shall collect replacement samples for any samples invalidated under this subsection if, after the invalidation of one or more samples, the public water system has too few samples to meet the minimum requirements of sub. (3). Any replacement samples shall be taken as soon as possible, but no later than 20 days after the date the department invalidates the sample or by the end of the applicable monitoring period, whichever occurs later. Replacement samples taken after the end of the applicable monitoring period may not also be used to meet the monitoring requirements of a subsequent monitoring period. The replacement samples shall be taken at the same locations as the invalidated samples or, if that is not possible, at locations other

than those already used for sampling during the monitoring period.

(7) MONITORING WAIVERS FOR SMALL WATER SYSTEMS. The water supplier of any small water system that meets the criteria of this subsection may apply to the department to reduce the frequency of monitoring for lead and copper under this section to once every 9 years, also known as a "full waiver," if the public water system meets all of the materials criteria specified in par. (a) and all of the monitoring criteria specified in par. (b). If department rules permit, the water supplier for any small water system that meets the criteria in pars. (a) and (b) only for lead, or only for copper, may apply to the department for a waiver to reduce the frequency of tap water monitoring to once every 9 years for that contaminant only, also known as a "partial waiver."

(a) *Materials criteria.* The water supplier shall demonstrate that the distribution system of their public water supply system and service lines and all drinking water supply plumbing, including plumbing conveying drinking water within all residences and buildings connected to the public water system, are free of lead−containing materials or copper−containing materials, as those terms are defined in this paragraph, as follows:

1. 'Lead waiver.' To qualify for a full waiver, or a waiver of the tap water monitoring requirements for lead, known as a "lead waiver," the water supplier shall provide certification and supporting documentation to the department that the public water system is free of all lead−containing materials, and complies with all of the following:

a. The public water system contains no plastic pipes which contain lead plasticizers, or plastic service lines which contain lead plasticizers.

b. The public water system is free of lead service lines, lead pipes, lead soldered pipe joints, and leaded brass or bronze alloy fittings and fixtures, unless the fittings and fixtures meet the specifications of any standard established pursuant to 42 USC 300g−6(e).

Note: 42 USC 300g−6(e) is section 1417 (e) of the federal Safe Drinking Water Act.

2. 'Copper waiver.' To qualify for a full waiver, or a waiver of the tap water monitoring requirements for copper, hereafter known as a "copper waiver," the water supplier shall provide certification and supporting documentation to the department that the public water system contains no copper pipes or copper service lines.

(b) *Monitoring criteria for waiver issuance.* The water supplier for the public water system shall have completed at least one 6−month round of standard tap water monitoring for lead and copper at sites approved by the department and from the number of sites required by sub. (3) and demonstrate that the 90th percentile levels for any and all rounds of monitoring conducted since the public water system became free of all lead−containing and copper−containing materials, as appropriate, meet the following criteria:

1. 'Lead waiver.' To qualify for a lead waiver, the water supplier shall demonstrate that the 90th percentile lead level does not exceed 0.005 mg/L.

2. 'Copper waiver.' To qualify for a copper waiver, the water supplier shall demonstrate that the 90th percentile copper level does not exceed 0.65 mg/L.

(c) *Department approval of waiver application.* The department shall notify the water supplier of its waiver determination, in writing, setting forth the basis of its decision and any condition of the waiver. As a condition of the waiver, the department may require the water supplier to perform specific activities, such as limited monitoring, periodic outreach to customers to remind them to avoid installation of materials that might void the waiver, to avoid the risk of lead or copper concentration of concern in tap water. The water supplier for the small water system shall continue monitoring for lead and copper at the tap as required by sub. (4) (a) to (d), as appropriate, until water supplier receives written notification from the department that the waiver has been approved.

(d) *Monitoring frequency for public water systems with waivers.* 1. A water supplier with a full waiver shall conduct tap water monitoring for lead and copper in accordance with sub. (4) (d) 4. at the reduced number of sampling sites identified in sub. (3) at least once every 9 years and provide the materials certification specified in par. (a) for both lead and copper to the department along with the monitoring results.

2. A water supplier with a partial waiver shall conduct tap water monitoring for the waived contaminant in accordance with sub. (4) (d) 4. at the reduced number of sampling sites specified in sub. (3) at least once every 9 years and provide the materials certification specified in par. (a) pertaining to the waived contaminant along with the monitoring results. The water supplier shall also continue to monitor for the non−waived contaminant in accordance with requirements of sub. (4) (a) to (d), as appropriate.

3. Any water supplier for a public water system with a full or partial waiver shall notify the department in writing in accordance with s. NR 809.55 (1) (c) 3. of any upcoming long−term change in treatment or addition of a new source, as described in that section. The department must review and approve the addition of a new source or long−term change in water treatment before it is implemented by the public water system. The department has the authority to require the public water system to add or modify waiver conditions. The department may require recertification that the public water system is free of lead−containing or copper−containing materials, or both, and may require additional rounds of monitoring, if it deems the modifications are necessary to address treatment or source water changes at the public water system.

4. If a water supplier for a public water system with a full or partial waiver becomes aware that the public water system is no longer free of lead−containing or copper−containing materials as a result of new construction or repairs, the water supplier shall notify the department in writing no later than 60 days after becoming aware of a change.

(e) *Continued eligibility.* If the public water system continues to satisfy the requirements of par. (d), the waiver shall be renewed automatically, unless any of the conditions listed in subds. 1. to 3. occurs. A water supplier for a public water system whose waiver has been revoked may re−apply for a waiver at the time the public water system again meets the appropriate materials and monitoring criteria of pars. (a) and (b).

1. A public water system with a lead waiver no longer satisfies the materials criteria of par. (a) 1. if the 90th percentile lead level is greater than 0.005 mg/L.

2. A public water system with a copper waiver no longer satisfies the materials criteria of par. (a) 2. if the 90th percentile copper level is greater than 0.65 mg/L.

3. The department notifies the water supplier, in writing, that the waiver has been revoked, setting forth the basis of its decision.

(f) *Requirements following waiver revocation.* A public water system whose full or partial waiver has been revoked by the department is subject to the corrosion control treatment and lead and copper tap water monitoring requirements, as follows:

1. If the public water system exceeds the lead or copper action level, or both, the water supplier shall implement corrosion control treatment in accordance with the deadlines specified in s. NR 809.542 (5), and any other applicable requirements of this paragraph.

2. If the public water system meets both the lead and the copper action level, the water supplier shall monitor for lead and copper at the tap no less frequently than once every 3 years using the reduced number of sample sites specified in sub. (3).

(g) *Pre−existing waivers.* Small water system waivers approved by the department in writing prior to April 11, 2000 shall remain in effect under the following conditions:

1. If the water supplier for a public water system has demonstrated that the public water system is free of both lead−containing and copper−containing materials, as required by par. (a) and that its 90th percentile lead levels and 90th percentile copper levels meet the criteria of par. (b), the waiver remains in effect so long as the public water system continues to meet the waiver eligibility criteria of par. (e). The first round of tap water monitoring conducted pursuant to par. (d) shall be completed no later than 9 years after the last time the water supplier has monitored for lead and copper at the tap. Samples collected every nine years shall be collected no later than every ninth calendar year.

2. If the public water system has met the materials criteria of par. (a) but has not met the monitoring criteria of par. (b), the water supplier shall conduct a round of monitoring for lead and copper at the tap demonstrating that the public water system meets the criteria of par. (b) to meet initial monitoring requirements. Thereafter, the waiver shall remain in effect as long as the public water system meets the continued eligibility criteria of par. (e). The first round of tap water monitoring conducted pursuant to par. (d) shall be completed no later than 9 years after the round of monitoring conducted pursuant to par. (b).

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; corrections in (4) (d) 5. and (6) (intro.) made under s. 13.92 (4) (b) 7., Stats., Register November 2010 No. 659; **CR 15−049: am. (3), (4) (d) 2. Register March 2016 No. 723, eff. 4−1−16.**

NR 809.548 Monitoring requirements for water quality parameters. Water suppliers for all large systems, and for all small and medium−size 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 at the end of this section.

(1) GENERAL REQUIREMENTS. (a) *Sample collection methods.* 1. Tap samples shall be representative of water quality throughout the distribution system taking into account the number of persons served, the different sources of water, the different treatment methods employed by the water supplier, and seasonal variability. Tap sampling under this section is not required to be conducted at taps targeted for lead and copper sampling under s. NR 809.547 (1).

2. Samples collected at the entry points to the distribution system shall be from locations representative of each source after treatment. If a public water system draws water from more than one source and the sources are combined before distribution, the water supplier shall sample at an entry point to the distribution system during periods of normal operating conditions, i.e., when water is representative of all sources being used.

(b) *Number of samples.* 1. The water supplier shall collect 2 tap samples for applicable water quality parameters during each monitoring period specified under subs. (2) to (5) from the following number of sites:

Public Water System Size (# People Served)	# of Sites For Water Quality Parameters
>100,000	25
10,001−100,000	10
3,301 to 10,000	3
501 to 3,300	2
101 to 500	1
≤100	1

2. Except as provided in sub. (3) (c), water suppliers shall collect 2 samples for each applicable water quality parameter at each entry point to the distribution system during each monitoring period specified in sub. (2).

(2) INITIAL SAMPLING. Water suppliers of all large water systems shall measure the applicable water quality parameters as specified below at taps and at each entry point to the distribution system during each 6−month monitoring period specified in s. NR 809.547 (4) (a). Water suppliers of all small and medium−size systems shall measure the applicable water quality parameters at the locations specified below during each 6−month monitoring period specified in s. NR 809.547 (4) (a) during which the public water system exceeds the lead or copper action level.

(a) At taps:

1. pH;

2. Alkalinity;

3. Orthophosphate, when an inhibitor containing a phosphate compound is used;

4. Silica, when an inhibitor containing a silicate compound is used;

5. Calcium;

6. Conductivity; and

7. Water temperature.

(b) At each entry point to the distribution system: all of the applicable parameters listed in par. (a).

(3) MONITORING AFTER INSTALLATION OF CORROSION CONTROL. The water supplier of any large system which installs optimal corrosion control treatment pursuant to s. NR 809.542 (4) (d) shall measure the water quality parameters at the following locations and frequencies during each 6−month monitoring period specified in s. NR 809.547 (4) (b) 1. The water supplier of any small or medium−size system which installs optimal corrosion control treatment shall conduct such monitoring during each 6−month monitoring period specified in s. NR 809.547 (4) (b) 2. in which the public water system exceeds the lead or copper action level.

(a) At taps, 2 samples for:

1. pH;

2. Alkalinity;

3. Orthophosphate, when an inhibitor containing a phosphate compound is used;

4. Silica, when an inhibitor containing a silicate compound is used; and

5. Calcium, when calcium carbonate stabilization is used as part of corrosion control.

(b) Except as provided in par. (c), at each entry point to the distribution system, one sample every 2 weeks for:

1. pH;

2. When alkalinity is adjusted as part of optimal corrosion control, a reading of the dosage rate of the chemical used to adjust alkalinity and the alkalinity concentration; and

3. 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 orthophosphate or silica, whichever is applicable.

(c) The water supplier for a groundwater system can limit entry point sampling described in par. (b) to those entry points that are representative of water quality and treatment conditions throughout the public water system. If water from untreated groundwater sources mixes with water from treated groundwater sources, the water supplier shall 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 subsection, the water supplier shall provide to the department written information identifying the selected entry points and documentation, including information on seasonal variability, sufficient to demonstrate that the sites are representa-

tive of water quality and treatment conditions throughout the public water system.

(4) MONITORING AFTER THE DEPARTMENT SPECIFIES WATER QUALITY PARAMETER VALUES FOR OPTIMAL CORROSION CONTROL. After the department specifies the values for applicable water quality control parameters reflecting optimal corrosion control treatment under s. NR 809.543 (6) and (7), water suppliers for all large systems shall measure the applicable water quality parameters in accordance with sub. (3) and determine compliance with the requirements of s. NR 809.543 (8) every six months with the first six−month period to begin on either January 1 or July 1, whichever comes first, after the department specifies the optimal values under s. NR 809.543 (6). Water suppliers for any small or medium−size systems shall conduct such monitoring during each six−month period specified in this paragraph in which the public water system exceeds the lead or copper action level. For any such small and medium−size system that is subject to a reduced monitoring frequency pursuant to s. NR 809.547 (4) (d) at the time of the action level exceedance, the start of the applicable six−month monitoring period under this paragraph shall coincide with the start of the applicable monitoring period under s. NR 809.547 (4) (d). Compliance with department designated optimal water quality parameter values shall be determined as specified under s. NR 809.543 (8).

(5) REDUCED MONITORING. (a) Water suppliers for any public water system that maintains the range of values for the water quality parameters reflecting optimal corrosion control treatment during each of 2 consecutive 6−month monitoring periods under sub. (4) shall continue monitoring at the entry points to the distribution system as specified in sub. (3) (b). Water suppliers for such public water systems may collect 2 tap samples for applicable water quality parameters from the following reduced number of sites during each 6−month monitoring period.

(# People Served) Public Water System Size	Reduced # of Sites for 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
≤100	1

(b) 1. Water suppliers for any public water system that maintains the range of values for the water quality parameters reflecting optimal corrosion control treatment specified by the department under s. NR 809.543 (6) during 3 consecutive years of monitoring may reduce the frequency with which they collect the number of tap samples for applicable water quality parameters specified in par. (a) from every six 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−month monitoring occurs. Water suppliers for any public water system that maintains the range of values for the water quality parameters reflecting optimal corrosion control treatment specified by the department under s. NR 809.543 (6) during 3 consecutive years of annual monitoring under this paragraph may reduce the frequency with which they collect the number of tap samples for applicable water quality parameters specified in par. (a) of this section from annually to every 3 years. This sampling begins no later than the third calendar year following the end of the monitoring period in which the third consecutive year of monitoring occurs.

2. A water supplier for a public water system may reduce the frequency with which they collect tap samples for applicable water quality parameters specified in par. (a) to every 3 years if the public water system demonstrates during 2 consecutive monitoring periods that the public water system's tap water lead level at the 90th percentile is less than or equal to the practical quantitation limit for lead specified in s. NR 809.541 (4) (a), that its tap water copper level at the 90th percentile is less than or equal to 0.65 mg/L for copper in s. NR 809.54 (3) (b), and that it also has maintained the range of values for the water quality parameters reflecting optimal corrosion control treatment specified by the department under s. NR 809.543 (6). Monitoring conducted every three years shall be done no later than every third calendar year.

(c) Water suppliers for any public water system that maintains the range of values for the water quality parameters reflecting optimal corrosion control treatment specified by the department under s. NR 809.543 (6) during 3 consecutive years of annual monitoring may reduce the frequency with which they collect the number of tap samples for applicable water quality parameters specified in par. (a) from annually to every 3 years.

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

(e) Any water supplier that has a public water system subject to reduced monitoring frequency that fails to operate within the range of values for the water quality parameters specified by the department under s. NR 809.543 (6) for more than 9 days in any 6−month period specified in s. NR 809.543 (8) shall resume distribution system tap water sampling in accordance with the number and frequency requirements in sub. (4). A water supplier may resume annual monitoring for water quality parameters at the tap at the reduced number of sites specified in par. (a) after they have completed 2 subsequent consecutive 6−month rounds of monitoring that meet the criteria of that paragraph or may resume triennial monitoring for water quality parameters at the tap at the reduced number of sites after the water supplier demonstrates through subsequent rounds or monitoring that the public water system meets the criteria of either par. (b) 1. or 2., or both.

Summary of Monitoring Requirements for Water Quality Parameters[1]

Monitoring period	Parameters[2]	Location	Frequency
Initial monitoring	pH, alkalinity, orthophosphate or silica[3], calcium, conductivity, temperature.	Taps and at entry points to distribution system.	Every 6 months.
After installation of corrosion control	pH, alkalinity, orthophosphate or silica[3], calcium[4]. pH, alkalinity, dosage rate and concentration (if alkalinity adjusted as part of corrosion control), inhibitor dosage rate and inhibitor residual[5].	Taps Entry points to the distribution system[6].	Every 6 months. No less frequently than every 2 weeks.
After department specifies parameter values for optimal corrosion control	pH, alkalinity, orthophosphate or silica[3], calcium[4]. pH, alkalinity, dosage rate and concentration (if alkalinity adjusted as part of corrosion control), inhibitor dosage rate and inhibitor residual[5].	Taps Entry points to the distribution system[6].	Every 6 months. No less frequently than every 2 weeks
Reduced monitoring	pH, alkalinity, orthophosphate or silica[3], calcium[4]. pH, alkalinity, dosage rate and concentration (if alkalinity adjusted as part of corrosion control), inhibitor dosage rate and inhibitor residual[5].	Taps Entry points to the distribution system[6].	Every 6 months, annually[7]or every 3 years[8]; reduced number of sites No less frequently than every 2 weeks

[1] Table is for illustrative purposes; consult the text of this section for precise regulatory requirements.

[2] Water supplier for small and medium−size systems have to monitor for water quality parameters only during monitoring periods in which the public water system exceeds the lead or copper action level.

[3] Orthophosphate must be measured only when an inhibitor containing a phosphate compound is used. Silica must be measured only when an inhibitor containing silicate compound is used.

[4] Calcium must be measured only when calcium carbonate stabilization is used as part of corrosion control.

[5] Inhibitor dosage rates and inhibitor residual concentrations (orthophosphate or silica) must be measured only when an inhibitor is used.

[6] Water supplier for groundwater systems may limit monitoring to representative locations throughout the public water system.

[7] Water suppliers for public water systems may reduce frequency of monitoring for water quality parameters at the tap from every 6 months to annually if they have maintained the range of values for water quality parameters in the public water system reflecting optimal corrosion control during 3 consecutive years of monitoring.

[8] Water suppliers for public water systems may further reduce the frequency of monitoring for water quality parameters at the tap from annually to once every 3 years if they have maintained the range of values for water quality parameters in the public water system reflecting optimal corrosion control during 3 consecutive years of annual monitoring. Water suppliers for public water systems may accelerate to triennial monitoring for water quality parameters at the tap if the public water system has maintained 90th percentile lead levels less than or equal to 0.005 mg/L, 90th percentile copper levels less than or equal to 0.65 mg/L, and the range of water quality parameters designated by the department under s. NR 809.543 (7) as representing optimal corrosion control during 2 consecutive 6−month monitoring periods.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; corrections in (5) (b) 2. made under s. 13.92 (4) (b) 7., Stats., Register November 2010 No. 659; **CR 15−049: am. (4) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.549 Monitoring requirements for lead and copper in source water. (1) SAMPLE LOCATION, COLLECTION METHODS AND NUMBER OF SAMPLES. (a) The water supplier of a public water system that fails to meet the lead or copper action level on the basis of tap samples collected in accordance with s. NR 809.547 shall collect lead and copper source water samples in accordance with the requirements regarding sample location, number of samples and collection methods:

1. The water suppliers for groundwater systems shall take a minimum of one sample at every entry point to the distribution system which is representative of each well after treatment. The water supplier shall take one sample at the same sampling location unless conditions make another sampling location more representative of each source or treatment plant.

2. The water suppliers for surface water systems shall take a minimum of one sample at every entry point to the distribution system after any application of treatment or in the distribution system at a point which is representative of each source after treatment. The water supplier shall take each sample at the same sampling location unless conditions make another sampling location more representative of each source or treatment plant. For the purposes of this paragraph, surface water systems include public water systems with a combination of surface water and groundwater sources.

3. If a public water system draws water from more than one source and the sources are combined before distribution, the water supplier shall sample at an entry point to the distribution system during periods of normal operating conditions, and when water is representative of all sources being used.

4. The department may reduce the total number of samples which are to be analyzed by allowing the use of compositing. Compositing of samples shall be done by certified laboratory personnel. Composite samples from a maximum of 5 samples are allowed, provided that if the lead concentration in the composite sample is greater than or equal to 0.001 mg/L or the copper concentration is greater than or equal to 0.160 mg/ L, one of the following applies:

a. A follow−up sample shall be taken and analyzed within 14 days at each sampling point included in the composite.

b. If duplicates of or sufficient quantities from the original samples from each sampling point used in the composite are available, the water supplier may use these instead of resampling.

(b) Where the results of sampling indicate an exceedance of maximum permissible source water levels established under s. NR 809.544 (2) (d), the department may require that one additional sample be collected as soon as possible after the initial sample was taken, but not to exceed 2 weeks, at the same sampling point. If a department−required confirmation sample is taken for lead or copper, then the results of the initial and confirmation sample shall be averaged in determining compliance with the department−specified maximum permissible levels. Any sample value below the detection limit shall be considered to be zero. Any value above the detection limit but below 5 ug/l, shall be considered as the measured value.

(2) MONITORING FREQUENCY AFTER A PUBLIC WATER SYSTEM EXCEEDS TAP WATER ACTION LEVEL. A water supplier for any public water system which exceeds the lead or copper action level at the tap shall collect one source water sample from each entry point to the distribution system no later than six 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 September 30 of the calendar year in which the sampling occurs, or if the department has established an alternate monitoring period, the last day of that period.

(3) MONITORING FREQUENCY AFTER INSTALLATION OF SOURCE WATER TREATMENT. Any water supplier which installs source water treatment pursuant to s. NR 809.544 (1) (b) shall collect an additional source water sample from each entry point to the distribution system during 2 consecutive 6−month monitoring periods by the deadline specified in s. NR 809.544 (1) (d).

(4) MONITORING FREQUENCY AFTER DEPARTMENT SPECIFIES MAXIMUM PERMISSIBLE SOURCE WATER LEVELS OR DETERMINES THAT SOURCE WATER TREATMENT IS NOT NEEDED. (a) A water supplier shall monitor at the frequency specified below in cases where the department specifies maximum permissible source water levels under s. NR 809.544 (2) (d) or determines that the water supplier is not required to install source water treatment under s. NR 809.544 (2) (b).

1. A water supplier of a public water system using only groundwater shall collect samples once during the 3−year compliance period in effect when the applicable department determination under par. (a) is made. The water supplier shall collect samples once during each subsequent compliance period. Triennial samples shall be collected every third calendar year.

2. A water supplier for a public water system using surface water, or a combination of surface and groundwater, shall collect samples once during each calendar year, the first annual monitoring period to begin during the year in which the applicable department determination is made under sub. (4) (a).

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

(5) REDUCED MONITORING FREQUENCY. (a) A water supplier for a public water system using only groundwater may reduce the monitoring frequency for lead and copper in source water to once during each compliance cycle provided that the samples are collected no later than every ninth calendar year and if the public water system meets one of the following criteria:

1. The water supplier for a public water 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 department in s. NR 809.544 (2) (d) during at least 3 consecutive compliance periods under sub. (4) (a).

2. The department has determined that source water treatment is not needed and the water supplier for a public water system demonstrates that, during at least 3 consecutive compliance periods in which sampling was conducted under sub. (4) (a), the concentration of lead in source water was less than or equal to 0.005 mg/L and the concentration of copper in source water was less than or equal to 0.65 mg/L.

(b) A water supplier for a public water system using surface water, or a combination of surface water and groundwater may reduce the monitoring frequency in sub. (4) (a) to once during each compliance cycle provided that the samples are collected no later than every ninth calendar year and if the public water system meets one of the following criteria:

1. The water supplier for the public water system demonstrates that finished drinking water entering the distribution system has been maintained below the maximum permissible lead and copper concentrations specified by the department in s. NR 809.544 (2) (d) for at least 3 consecutive years.

2. The department has determined that source water treatment is not needed and the water supplier for the public water system demonstrates that, during at least 3 consecutive years, the concentration of lead in source water was less than or equal to 0.005 mg/L and the concentration of copper in source water was less than or equal to 0.65 mg/L.

(c) A public water system that uses a new source of water is not eligible for reduced monitoring for lead or copper, or both, until concentrations in samples collected from the new source during 3 consecutive monitoring periods are below the maximum permissible lead and copper concentrations specified by the department in s. NR 809.544 (1) (e).

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10.

NR 809.55 Reporting requirements for lead and copper. All water suppliers shall report all of the following information to the department in accordance with this section:

(1) REPORTING REQUIREMENTS FOR TAP WATER MONITORING FOR LEAD AND COPPER AND FOR WATER QUALITY PARAMETER MONITORING. (a) All lead samples that are detected shall be quantified. Any sample below the method detection limit shall be calculated at zero for the purposes of determining compliance with s. NR 809.54 (3) (c).

(b) All copper samples that are detected shall be quantified. Any sample below the method detection limit shall be calculated as zero for the purposes of determining compliance with s. NR 809.54 (3) (c).

(c) Except as provided in subd. 8., a water supplier shall report the following information for all tap water samples specified in s. NR 809.547 and for all water quality parameter samples specified in s. NR 809.548 within the first 10 days following the end of each applicable monitoring period specified in ss. NR 809.547, 809.548 and 809.549, which is 6 months, annually, every 3 years, or every 9 years:

1. The results of all tap samples for lead and copper including the location of each site and the criteria under s. NR 809.547 (1) (c), (d), (e), (f) or (g) under which the site was selected for the public water system's sampling pool. For monitoring periods with a duration less than six months, the end of the monitoring period is the last date samples can be collected during that period as specified in ss. NR 809.547 and 809.548.

2. Documentation for each tap water lead or copper sample for which the water supplier requests invalidation pursuant to s. NR 809.547 (6) (b).

3. At a time specified by the department, or if no specific time is designated by the department, then as early as possible prior to the addition of a new source or any long−term change in water treatment, a water supplier for a public water system deemed to have optimized corrosion control under s. NR 809.542 (2) (c), a public water system subject to reduced monitoring pursuant to s. NR 809.547 (4) (d), or a public water system subject to a monitoring waiver pursuant to s. NR 809.547 (7) shall submit written documentation to the department describing the change or addition.

The department must review and approve the addition of a new source or long−term change in treatment to the public water system before it is implemented by the water supplier. Examples of long−term treatment changes include the addition of a new treatment process or modification of an existing treatment process. Examples of modifications include switching secondary disinfectants, switching coagulants, for example, alum to ferric chloride, and switching corrosion inhibitor products, for example, orthophosphate to blended phosphate. Long−term changes may include dose changes to existing chemicals if the water supplier is planning long−term changes to the public water system finished water pH or residual inhibitor concentration. Long−term treatment changes may not include chemical dose fluctuations associated with daily raw water quality changes.

4. The 90th percentile lead and copper concentrations measured from among all lead and copper tap water samples collected during each monitoring period, calculated in accordance with s. NR 809.54 (3) (c), unless the department calculates the public water system's 90th percentile lead and copper levels under sub. (8).

5. With the exception of initial tap sampling conducted pursuant to s. NR 809.547 (4) (a), the water supplier shall designate any site which was not sampled during previous monitoring periods, and include an explanation of why sampling sites have changed;

6. The results of all tap samples for pH and, where applicable, alkalinity, calcium, conductivity, temperature and orthophosphate or silica collected under s. NR 809.548 (2) to (5);

7. The results of all samples collected at the entry points to the distribution system for applicable water quality parameters under s. NR 809.548 (2) to (5).

8. A water supplier shall report the results of all water quality parameter samples collected under s. NR 809.548 (3) to (5) during each 6−month monitoring period specified in s. NR 809.548 (4) within the first 10 days following the end of the monitoring period unless the department has specified a more frequent reporting requirement.

(d) For the water supplier of a non−transient non−community water system, or the water supplier of a community water system meeting the criteria of s. NR 809.546 (2) (g) 1. and 2., that does not have enough taps that can provide first−draw samples, the water supplier shall complete one of the following:

1. Provide written documentation to the department identifying standing times and locations for enough non−first−draw samples to make up its sampling pool under s. NR 809.547 (1) by the start of the first applicable monitoring period under s. NR 809.547 (4) that commences after April 11, 2000, unless the department has waived prior departmental approval of non−first−draw sample sites selected by the water supplier pursuant to s. NR 809.547 (2) (e).

2. If the department has waived prior approval of non−first−draw sample sites selected by the water supplier, identify, in writing, each site that did not meet the 6−hour minimum standing time and the length of standing time for that particular substitute sample collected pursuant to s. NR 809.547 (2) (e) and include this information with the lead and copper tap sample results required to be submitted pursuant to par. (c) 1.

(e) No later than 60 days after the addition of a new source or any change in water treatment, unless the department requires earlier notification, a water supplier for a public water system deemed to have optimized corrosion control under s. NR 809.542 (2) (c), a public water system subject to reduced monitoring pursuant to s. NR 809.547 (4) (d), or a public water system subject to a monitoring waiver pursuant to s. NR 809.547 (7), shall send written documentation to the department describing the change.

Note: In those instances where prior department approval of the treatment change or new source is not required, the water supplier are encouraged to provide the notification to the department beforehand to minimize the risk the treatment change or new source will adversely affect optimal corrosion control.

(f) The water supplier of any small water system applying for a monitoring waiver under s. NR 809.547 (7) or subject to a waiver granted pursuant to s. NR 809.547 (7) (c), shall provide the following information to the department in writing by the specified deadline:

1. By the start of the first applicable monitoring period in s. NR 809.547 (4), the water supplier of any small water system applying for a monitoring waiver shall provide the documentation required to demonstrate that the public water system meets the waiver criteria of s. NR 809.547 (7) (a) and (b).

2. No later than 9 years after the monitoring previously conducted pursuant to s. NR 809.547 (7) (b) or (d) 1., the water supplier of each small water system desiring to maintain the monitoring waiver for a public water system shall provide the information required by s. NR 809.547 (7) (d) 1. and 2.

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

4. The water supplier of any small water system with a waiver granted prior to April 11, 2000 and that has not previously met the requirements of s. NR 809.547 (7) (b) shall provide the information required by that paragraph as required by the department.

(g) The water supplier for each groundwater system that limits water quality parameter monitoring to a subset of entry points under s. NR 809.548 (3) (c) shall provide, by the commencement of the monitoring, written correspondence to the department that identifies the selected entry points and includes information sufficient to demonstrate that the sites are representative of water quality and treatment conditions throughout the public water system.

(2) SOURCE WATER MONITORING REPORTING REQUIREMENTS. (a) A water supplier shall report the sampling results for all source water samples collected in accordance with s. NR 809.549 within the first 10 days following the end of each source water monitoring period, i.e., annually, per compliance period, per compliance cycle specified in s. NR 809.549.

(b) With the exception of the first round of source water sampling conducted pursuant to s. NR 809.549 (2), the water supplier shall specify any site which was not sampled during previous monitoring periods, and include an explanation of why the sampling point has changed.

(3) CORROSION CONTROL TREATMENT REPORTING REQUIREMENTS. By the applicable dates under s. NR 809.542, the water supplier shall report the following information:

(a) For water supplier of public water systems demonstrating that they have already optimized corrosion control, information required in s. NR 809.542 (2) (b) or (c).

(b) For water supplier of public water systems required to optimize corrosion control, their recommendation regarding optimal corrosion control treatment under s. NR 809.543 (1).

(c) For water supplier of public water systems required to evaluate the effectiveness of corrosion control treatments under s. NR 809.543 (3), the information required by that section.

(d) For water supplier of public water systems required to install optimal corrosion control approved by the department under s. NR 809.543 (4), a letter certifying that the water supplier has completed installing that treatment.

(4) SOURCE WATER TREATMENT REPORTING REQUIREMENTS. By the applicable dates in s. NR 809.544, water supplier shall provide the following information to the department:

(a) If required under s. NR 809.544 (2) (a), their recommendation regarding source water treatment;

(b) For water suppliers required to install source water treatment under s. NR 809.544 (2) (b), a letter certifying that the water supplier has completed installing the treatment approved by the department within 24 months after the department approved the treatment.

(5) LEAD SERVICE LINE REPLACEMENT REPORTING REQUIREMENTS. Water suppliers shall report the following information to the department to demonstrate compliance with the requirements of s. NR 809.545:

(a) No later than 12 months after the end of a monitoring period in which a public water system exceeds the lead action level in sampling referred to in s. NR 809.545 (1), the water supplier must submit written documentation to the department of the material evaluation conducted as required in s. NR 809.547 (1), identify the initial number of lead service lines in the distribution system of the public water system at the time the public water system exceeded the lead action level, and provide the public water system's schedule for annually replacing at least 7% of the initial number of lead service lines in its distribution system.

(b) No later than 12 months after the end of a monitoring period in which a public water system exceeds the lead action level in sampling referred to in s. NR 809.545 (1), and every 12 months thereafter, the water supplier shall demonstrate to the department in writing that the public water system has done one of the following:

1. Replaced in the previous 12 months at least 7% of the initial lead service lines, or a greater number of lines specified by the department under s. NR 809.545 (6), in the distribution system of the public water system.

2. Conducted sampling which demonstrates that the lead concentration in all service line samples from an individual line, taken pursuant to s. NR 809.547 (2) (c), is less than or equal to 0.015 mg/L. In such cases, the total number of lines replaced or which meet the criteria in s. NR 809.545 (3), or both, shall equal at least 7% of the initial number of lead lines identified under sub. (5) (a), or the percentage specified by the department under s. NR 809.545 (5).

(c) The annual letter submitted to the department under par. (b) shall contain all of the following information:

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

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

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

(d) The water supplier for any public water system which collects lead service line samples following partial lead service line replacement required by s. NR 809.545 shall report the results to the department within the first 10 days of the month following the month in which the water supplier receives the laboratory results, or as specified by the department. The department may waive this requirement to report these monitoring results. Water suppliers shall also report any additional information as specified by the department, and in a time and manner prescribed by the department, to verify that all partial lead service line replacement activities have taken place.

(6) PUBLIC EDUCATION PROGRAM REPORTING REQUIREMENTS. By December 31st of each year, the water supplier for any public water system that is subject to the public education requirements in s. NR 809.546 shall submit a letter to the department demonstrating that the water supplier has delivered the public education materials that meet the content requirements in s. NR 809.546 (1) and (2) and the delivery requirements in s. NR 809.546 (3). This information shall include a list of all the newspapers, radio stations, television stations, facilities and organizations to which the water supplier delivered public education materials during the previous year. The water supplier shall submit the letter required by this subsection annually for as long as the public water system exceeds the lead action level.

(a) The water supplier for any public water system that is subject to the public education requirements in s. NR 809.546 shall, within ten days after the end of each period in which the public water system is required to perform public education in accordance with s. NR 809.546 (2), send written documentation to the department that contains all of the following:

1. A demonstration that the water supplier has delivered the public education materials that meet the content requirements in s. NR 809.546 (1) and the delivery requirements in s. NR 809.546 (2).

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

(b) Unless required by the department, a water supplier that previously has submitted the information required by par. (a) 2. is not required to resubmit the information required by par. (a) 2., as long as there have been no changes in the distribution list and the water supplier certifies that the public education materials were distributed to the same list submitted previously.

(c) No later than 3 months following the end of the monitoring period, each water supplier shall mail a sample copy of the consumer notification of tap results to the department along with a certification that the notification has been distributed in a manner consistent with the requirements of s. NR 809.546 (4).

(7) REPORTING OF ADDITIONAL MONITORING DATA. Any water supplier that collects sampling data in addition to that required by this subchapter shall report the results to the department within the first 10 days following the end of the applicable monitoring period under ss. NR 809.547, 809.548 and 809.549 during which the samples are collected.

(8) REPORTING OF 90TH PERCENTILE LEAD AND COPPER CONCENTRATIONS WHERE THE DEPARTMENT CALCULATES A PUBLIC WATER SYSTEM'S 90TH PERCENTILE CONCENTRATIONS. The water supplier of a public water system is not required to report the 90th percentile lead and copper concentrations measured from among all lead and copper tap water samples collected during each monitoring period, as required by sub. (1) (c) 4. if any of the following are met:

(a) The department has previously notified the water supplier that it will calculate the water system's 90th percentile lead and copper concentrations, based on the lead and copper tap results submitted pursuant to par. (b) 1., and has specified a date before the end of the applicable monitoring period by which the water supplier shall provide the results of lead and copper tap water samples.

(b) The water supplier has provided all of the following information to the department by the date specified in par. (a):

1. The results of all tap samples for lead and copper including the location of each site and the criteria under s. NR 809.547 (1) (c), (d), (e), (f) or (g) under which the site was selected for the public water system's sampling pool, pursuant to sub. (1) (c) 1.

2. An identification of sampling sites utilized during the current monitoring period that were not sampled during previous monitoring periods, and an explanation why sampling sites have changed.

(c) The department has provided the results of the 90th percentile lead and copper calculations, in writing, to the water supplier before the end of the monitoring period.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; corrections in (1) (a), (b), (c) 4., 8., (d) (intro.) and (5) (b) 2. made under s. 13.92 (4) (b) 7.,

Stats., Register November 2010 No. 659; **CR 15−049: am. (1) (c) (intro.), 3., (6) (a) (intro.), 1. Register March 2016 No. 723, eff. 4−1−16.**

Subchapter III — Maximum Contaminant Levels, Maximum Residual Disinfectant Levels, Monitoring, Analytical Requirements and Control of Disinfection Byproducts, Disinfection Residuals and Stage 1 and Stage 2 DBP

NR 809.561 Maximum residual disinfectant level goals (MRDLGs), and maximum contaminant levels (MCLs) for disinfection byproducts, maximum residual disinfectant levels (MRDLs) and best available treatment. (1) MAXIMUM RESIDUAL DISINFECTANT LEVEL GOALS. MRDLGs for disinfectants are as follows:

Disinfectant residual	MRDLG (mg/L)
Chlorine	4 (as Cl_2)
Chloramines	4 (as Cl_2)
Chlorine dioxide	0.8 (as ClO_2)

(2) MAXIMUM CONTAMINANT LEVELS. The maximum contaminant levels (MCLs) for disinfection byproducts are as follows:

Disinfection byproduct	MCL (mg/L)
Total trihalomethanes (TTHM)	0.080
Haloacetic acids (five) (HAA5)	0.060
Bromate	0.010
Chlorite	1.0

(3) MAXIMUM RESIDUAL DISINFECTANT LEVELS. (a) The maximum residual disinfectant levels (MRDLs) for disinfectants are as follows:

Residual Disinfectants	MRDL (mg/L)
Chlorine	4.0 (as $C1_2$)
Chloramines	4.0 (as $C1_2$)
Chlorine dioxide	0.8 (as ClO_2)

(b) To achieve compliance with the maximum residual disinfectant levels identified in this subsection, water suppliers shall control treatment processes by reducing disinfectant demand and by controlling disinfection treatment processes to reduce disinfectant levels.

(c) Free chlorine or total chlorine may be measured for demonstrating compliance with the chlorine MRDL. Combined chlorine or total chlorine may be used for demonstrating compliance with the chloramine MRDL.

(4) BEST AVAILABLE TREATMENT. The department, pursuant to section 1412 of the Safe Drinking Water Act and related regulations applicable to public water systems, identifies the following as the best available treatment technology, treatment techniques or other means available for achieving compliance with the maximum contaminant levels for disinfection byproducts identified in sub. (1):

Disinfectant byproduct	Best available treatment
TTHM and HAA5	Enhanced coagulation or enhanced softening or GAC10, with chlorine as the primary and residual disinfectant. Enhanced coagulation or enhanced softening, plus GAC10; or nanofiltration with a molecular weight cutoff = 1000 Daltons; or GAC20.
TTHM and HAA5 in Consecutive Systems	Systems serving = 10,000: Improved distribution system and storage tank management to reduce residence time, plus the use of chloramines for disinfectant residual maintenance. Systems serving < 10,000: Improved distribution system and storage tank management to reduce residence time.
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.

(5) ALTERNATIVE TREATMENT. The department may approve the use of alternative treatment not listed in sub. (4), if a water supplier demonstrates to the department, using pilot studies or other means, that the alternative treatment is sufficient to achieve compliance with the MCLs in sub. (2).

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: cr. (3) (c), am. (4) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.562 General requirements for disinfection byproducts and disinfection residuals Stage 1 DBP. (1) GENERAL. The following requirements establish criteria under which water supplier for community water systems, or CWSs, and nontransient, noncommunity water systems, or NTNCWSs, which add a chemical disinfectant to the water in any part of the drinking water treatment process shall modify their practices to meet MCLs and MRDLs in s. NR 809.561 (2) and (3) (a), respectively, and shall meet the treatment technique requirements for disinfection byproduct precursors in s. NR 809.561 (4). Water suppliers for transient noncommunity water systems, or TNCWSs, that use chlorine dioxide as a disinfectant or oxidant shall modify their practices to meet the MRDL for chlorine dioxide in s. NR 809.561 (3) (a) according to the criteria established in this section. MCLs have been established for TTHM and HAA5 and treatment technique requirements for disinfection byproduct precursors to limit the levels of known and unknown disinfection byproducts which may have adverse health effects. These disinfection byproducts may include chloroform, bromodichloromethane, dibromochloromethane, bromoform, dichloroacetic acid, and trichloroacetic acid.

(2) COMPLIANCE TIMEFRAMES. Unless otherwise noted, all public water systems shall comply with the requirements of this subchapter as follows:

(a) All public water systems serving 10,000 or more persons that are CWSs or NTNCWSs and that are supplied by a surface water source or by a groundwater source under the direct influence of surface water shall comply with this subchapter beginning January 1, 2002.

(b) Public water systems serving fewer than 10,000 persons that are CWSs or NTNCWSs and that are supplied by a surface water source or by a groundwater source under the direct influence of surface water and all public water systems using only groundwater not under the direct influence of surface water shall comply with this subchapter beginning January 1, 2004.

(c) Public water systems serving 10,000 or more persons that are transient NCWSs and use chlorine dioxide as a disinfectant or oxidant and are supplied by a surface water source or by a groundwater source under the direct influence of surface water shall comply with any requirements for chlorine dioxide and chlorite in this subchapter beginning January 1, 2002.

(d) Public water systems that are transient NCWSs and use chlorine dioxide as a disinfectant or oxidant and that serve fewer than 10,000 persons and are supplied by a surface water source or

by a groundwater source under the direct influence of surface water or that are public water systems using only groundwater not under the direct influence of surface water shall comply with any requirements for chlorine dioxide in this subchapter beginning January 1, 2004.

(e) A consecutive system that does not add a disinfectant but delivers water that has been treated with a primary or residual disinfectant other than ultraviolet light, shall comply with analytical and monitoring requirements for chlorine and chloramines in s. NR 809.565 (6) (a) and the compliance requirements in s. NR 809.566 (3) (a) beginning April 1, 2009 and shall report monitoring results under s. NR 809.567 (3).

(3) OPERATOR CERTIFICATION. Each CWS and NTNCWS regulated under s. NR 809.561 shall be operated by qualified personnel who meet the requirements specified in ch. NR 114, subchs. I and III and are included in a department register of qualified operators.

(4) RESPONSE TO MICROBIOLOGICAL CONTAMINATION. Notwithstanding the MRDLs in s. NR 809.561 (3) (a), water suppliers for public water systems may increase in the distribution system residual disinfectant levels of chlorine or chloramines, but not chlorine dioxide, to a level and for a time necessary to protect public health, to address specific microbiological contamination problems caused by circumstances such as, but not limited to, distribution line breaks, storm run−off events, source water contamination events or cross−connection events.

(5) PUBLIC NOTIFICATION OF MCL OR MRDL VIOLATIONS. The water supplier of a public water system shall provide public notification in compliance with subch. VII when the MCL or MRDL or disinfectant residual is exceeded.

(6) REQUIRED ADDITIONAL HEALTH INFORMATION. Water suppliers for CWSs that detect TTHM above 0.080 mg/l, but are not in violation of the MCL in s. NR 809.561 (2), based on an annual average, monitored and calculated under the provisions of s. NR 809.565, shall provide copies of health effects language prescribed in subch. VII and s. NR 809.835 to the users of the CWS in the CCR.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (3) Register March 2016 No. 723, eff. 4−1−16; correction in (3) made under s. 35.17, Stats., Register March 2016 No. 723, eff. 4−1−16.**

NR 809.563 Analytical requirements for disinfection byproducts and disinfection residuals Stage 1 DBP and Stage 2 DBP. (1) GENERAL. Water suppliers shall use only the analytical methods specified in this section, or otherwise approved by EPA for monitoring under this subchapter, to demonstrate compliance with the requirements of this subchapter.

(2) APPROVED ANALYTICAL METHODS FOR DISINFECTANT RESIDUALS. Water suppliers shall measure residual disinfectant concentrations for total chlorine, free chlorine, combined chlorine chloramines, and chlorine dioxide by the methods listed in Table R. Water suppliers may also measure residual disinfectant concentrations for chlorine, chloramines and chlorine dioxide by using N,N−diethly−p−phenylenediamine (DPD) colorimetric using a colorimeter as prescribed in the approved methods.

(3) APPROVED ANALYTICAL METHODS FOR DISINFECTANT BYPRODUCTS. Water suppliers shall measure disinfection byproducts by the methods, as modified by the footnotes, prescribed in Table S. Samples for TTHM shall be dechlorinated upon collection to prevent further production of trihalomethanes, according to the procedures described in the methods, except acidification is not required if only THMs or TTHMs are to be determined. Samples for maximum TTHM potential shall not be dechlorinated or acidified, and shall be held for 7 days at 25° C or above prior to analysis. Samples for bromate analyzed using EPA method 321.8 samples must be preserved at the time of sampling with 50 mg ethylenediamine (EDA)/L of sample and must be analyzed within 28 days. Samples for TTHM and HAA5 shall be collected using the containers, preservative and holding times specified in s. NR 809.203 (4) Table D. In all cases, samples should be analyzed as soon after collection as possible.

Table R
Approved Methodology for Disinfectant Residuals

Methodology	SM (19th, 20th, 21st, and 22nd ed)[2]	SM Online[3]	ASTM[4] method	EPA method	Residual measured[1]			
					$FreeCl_2$	Combined Cl_2	Total Cl_2	ClO_2
Amperometric Titration	4500−Cl D	4500−Cl D−00	D 1253−86 (96), 03, D1253−08		X	X	X	
Low Level Amperometric Titration	4500−Cl E	4500−Cl E−00					X	
DPD Ferrous Titrimetric	4500−Cl F	4500−Cl F−00			X	X	X	
DPD Colorimetric	4500−Cl G	4500−Cl G−00			X	X	X	
Syringaldazine (FACTS)	4500−Cl H	4500−Cl H−00			X			
Iodometric Electrode	4500−Cl I	4500−Cl I−00					X	
DPD	4500−ClO2 D							X
Amperometric Method II	4500−ClO2 E	4500−ClO2 E−00						X
Lissamine Green Spectrophotometric				327.0 Rev 1.1				X

[1] X indicates method is approved for measuring specified disinfectant residual. Free chlorine or total chlorine may be measured for demonstrating compliance with the chlorine MRDL and combined chlorine, or total chlorine may be measured for demonstrating compliance with the chloramine MRDL.

[2] Standard *Methods for the Examination of Water and Wastewater,* 19th edition (1995), 20th edition (1998), 21st edition (2005), 22nd edition (*2012).* Available from American Public Health Association, 800 I Street, NW., Washington, DC, 20001−3710.

[3] The Standard Methods Online version that is approved is indicated by the last two digits in the method number which is the year of approval by the Standard Method Committee. Standard Methods Online are available athttp://www.standardmethods.org.

[4] Available from ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428−2859, or http://astm.org.

Table S
Approved Methods for Disinfectant Byproduct Compliance Monitoring

Contaminant and methodology[1]	EPA method[10]	Standard Methods[2]	SM online[9]	ASTM method[3]
TTHM				
P&T/GC/ELCD & PID	502.2[4]			
P&T/GC/MS	524.2			
LLE/GC/ECD	551.1			
HAA5				
LLE (diazomethane) GC/ELCD		6251 B[5] 6610 (20th Edition)	6251 B−94	
SPE (acidic methanol) GC/ECD	552.1[5]			
LLE (acidic methanol) GC/ECD	552.2, 552.3			
Ion chromatography electrospray ionization tandem mass spectrometry (IC−ESI−MS/MS)	557			
Bromate				
Ion chromatography	300.1			D 6581−00 D6581−08 A D6581−08 B
Ion chromatography and post−column reaction	317.0 Rev 2.0[6], 326.0[6]			
IC/ICP−MS	321.8[6, 7]			
Chlorite				
Amperometric titration		4500−ClO_2 E[8]	4500−ClO_2 E−00[8]	
Spectrophotometry	327.0 Rev 1.1[8]			
Ion chromatography	300.0, 300.1, 317.0 Rev 2.0, 326.0			D 6581−00 D 6581−08 A D 6581−08 B

[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 extraction; IC = ion chromatography; ICP−MS= inductively coupled plasma/mass spectrometer.

[2] Standard *Methods for the Examination of Water and Wastewater,* 19th edition (1995), 20th edition (1998), 21st edition (2005), 22nd edition (*2012).* Available from American Public Health Association, 800 I Street, NW., Washington, DC, 20001−3710.

[3] Available from ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428−2859, or http://astm.org.,

[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 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.

[7] Samples must be preserved at the time of sampling with 50 mg ethylenediamine (EDA)/L of sample and must be analyzed within 28 days.

[8] Amperometric titration or spectrophotometry may be used for routine daily monitoring of chlorite at the entrance to the distribution system, as prescribed in NR 809.565(3)(a)1. Ion chromatography must be used for routine monthly monitoring of chlorite and additional monitoring of chlorite in the distribution system, as prescribed in NR 809.565(30(a) 2. and. NR 809.565 (3) (a)3.

[9] The Standard Methods Online version that is approved is indicated by the last two digits in the method number which is the year of approval by the Standard Method Committee. Standard Methods Online are available at http://www.standardmethods.org.

[10] EPA methods are available at http://epa.gov/safewater/methods/analyticalmethods_ogwdw.html.

(4) LABORATORY CERTIFICATION FOR DISINFECTANT BYPRODUCTS. Laboratories that are certified by the department or EPA shall conduct the analysis under this section for disinfection byproducts.

(a) To receive certification to conduct analyses for the contaminants in this subchapter, a laboratory shall analyze performance evaluation samples approved by the department or EPA at least once during each consecutive 12−month period by each method for which a laboratory desires certification.

(b) When analyzing performance evaluation samples, the laboratory shall achieve quantitative results on the PE sample analyses that are within the acceptance limits in Table T.

(c) The acceptance limit shall be the 95% confidence interval calculated around the mean of the PE study data between a maximum and minimum acceptance limit of +/−50% and +/−15% of the study mean.

(e) Laboratories shall report quantitative data for concentrations as low as the ones listed in Table U for all DBP samples analyzed for compliance.

Table U
Minimum Reporting Levels for DBP Samples

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 s. NR 809.565 (3) (a) 2. and 3.
Bromate	0.0050 or 0.0010	Laboratories that use EPA Methods 317.0 Revision 2.0, 326.0 or 321.8 must meet a 0.0010 mg/L detection limit for bromate.

[1] The calibration curve must encompass the regulatory minimum reporting level (MRL) concentration. Data may be reported for 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 must 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 110% of the MRL with each batch of samples. The measured concentration for the MRL check standard must be ±50% of the expected value, if any field sample in the batch has a concentration less than 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 trihalomethane or haloacetic acid concentrations to calculate the TTHM or HAA5 concentrations, respectively, a zero is used for any analytical result that is less than the MRL concentration for that DBP, unless otherwise specified by the department.

(5) APPROVAL OF PERSONS MEASURING DISINFECTANT RESIDUAL CONCENTRATIONS AND CHLORITE. A person approved by the department or EPA shall measure residual disinfectant concentrations and daily chlorite samples at the entrance to the distribution system.

(6) ANALYTICAL METHODS FOR ADDITIONAL REQUIRED PARAMETERS. Water suppliers for public water systems required to analyze for additional parameters not included in sub. (3) shall have these parameters analyzed by a person approved by the department or EPA using the following methods:

(a) *Alkalinity.* For measuring alkalinity use the methods allowed in s. NR 809.113 Table A.

(b) *Bromide.* For measuring bromide use EPA Method 300.0 or EPA Method 300.1.

(c) *Total organic carbon (TOC).* For measuring total organic carbon, use Standard Method 5310 B (High−Temperature Combustion Method) or Standard Method 5310 C (Persulfate−Ultraviolet or Heated−Persulfate Oxidation Method) or Standard Method 5310 D (Wet−Oxidation Method).

1. TOC samples may not be filtered prior to analysis.

2. TOC samples shall either be analyzed or shall be acidified to achieve pH less than 2.0 by minimal addition of phosphoric or sulfuric acid as soon as practical after sampling, not to exceed 24 hours.

3. Acidified TOC samples shall be analyzed within 28 days.

(d) *Specific ultraviolet absorbance (SUVA).* SUVA is equal to the UV absorption at 254nm (UV_{254}) measured in m^{-1} divided by the dissolved organic carbon (DOC) concentration measured as mg/L.

1. In order to determine SUVA, it is necessary to separately measure UV_{254} and DOC.

2. When determining SUVA, water suppliers shall use the methods stipulated in par. (e) to measure DOC and the method stipulated in par. (f) to measure UV_{254} SUVA shall be determined on water prior to the addition of disinfectants or oxidants, or both, by the water supplier.

3. DOC and UV_{254} samples used to determine a SUVA value shall be taken at the same time and at the same location.

(e) *Dissolved organic carbon (DOC).* For measuring dissolved organic carbon, use Standard Method 5310 B (High−Temperature Combustion Method) or Standard Method 5310 C (Persulfate−Ultraviolet or Heated−Persulfate Oxidation Method) or Standard Method 5310 D (Wet−Oxidation Method). Prior to analysis, DOC samples shall be filtered through a 0.45 µm pore−diameter filter. Water passed through the filter prior to filtration of the sample shall serve as the filtered blank. This filtered blank shall be analyzed using procedures identical to those used for analysis of the samples and shall meet the following criteria: DOC < 0.5 mg/L. DOC samples shall be filtered through the 0.45 µm pore−diameter filter prior to acidification. DOC samples shall either be analyzed or shall be acidified to achieve pH less than 2.0 by minimal addition of phosphoric or sulfuric acid as soon as practical after sampling, not to exceed 48 hours. Acidified DOC samples shall be analyzed within 28 days.

(f) *Ultraviolet absorption at 254 nm (UV_{254}).* For measuring ultraviolet absorption at 254 nm, use Method 5910 B (Ultraviolet Absorption Method). UV absorption shall be measured at 253.7 nm (may be rounded off to 254 nm). Prior to analysis, UV_{254} samples shall be filtered through a 0.45 µm pore−diameter filter. The pH of UV_{254} samples may not be adjusted. Samples shall be analyzed as soon as practical after sampling, not to exceed 48 hours.

(g) *pH.* For measuring pH, use any method allowed in s. NR 809.113 (1) Table A.

(h) *Magnesium.* All methods allowed in s. NR 809.113 (1) Table A.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (1), (2), r. and recr. (2) Table R, (3) Table S, am. (4) (a), (b), r. (4) (d), am. (4) (e), Table U, (5), (6) (intro.), cr. (6) (h) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.565 Monitoring requirements for disinfection byproducts and disinfection residuals Stage 1 DBP.

(1) GENERAL REQUIREMENTS. General requirements under this subchapter for analytical requirements, determining maximum contaminant levels, conducting monitoring and control of disinfection byproducts are as follows:

(a) Water suppliers shall take all samples during normal operating conditions.

(b) Water suppliers may consider multiple wells drawing water from a single aquifer as one treatment plant for determining the minimum number of TTHM and HAA5 samples required, on a case−by−case basis with department approval.

(c) Failure to monitor in accordance with the monitoring plan required under sub. (6) is a monitoring violation.

(d) Failure to monitor shall 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 sam-

ples or averages and the water supplier's failure to monitor makes it impossible to determine compliance with MCLs or MRDLs.

(e) Water suppliers may use only data collected under the provisions of this subchapter

(2) MONITORING FREQUENCY AND LOCATION FOR TTHMS AND HAA5S. Water suppliers shall monitor at the following frequency and locations for TTHMs and HAA5 disinfection byproducts:

(a) *Routine monitoring.* 1. Water suppliers for public water systems serving at least 10,000 persons which are supplied by a surface water source or by a groundwater source under the direct influence of surface water shall collect and have analyzed 4 water samples per quarter per treatment plant.

a. At least 25% of all samples collected each quarter at each treatment plant shall be at locations representing the maximum residence time in the public water system.

b. The remaining samples shall be taken in the distribution system at locations representing at least average residence time in the public water system and representative of the entire distribution system, taking into account the number of people served, different sources of water and different treatment methods.

2. Water suppliers for public water systems serving from 500 to 9,999 persons which are supplied by a surface water source or by a groundwater source under the direct influence of surface water shall collect and have analyzed one water sample per quarter per treatment plant. The samples shall be collected at locations representing the maximum residence time of water in the public water system.

3. Water suppliers for public water systems serving fewer than 500 people which are supplied by a surface water source or by a groundwater source under the direct influence of surface water shall collect one sample per treatment plant annually. The samples shall be collected during the month with the warmest water temperature at locations representing the maximum residence time in the public water system.

4. Water suppliers for public water systems using chemical disinfection, using only groundwater not under the direct influence of surface water, and serving at least 10,000 people shall collect one sample per treatment plant per quarter. The sample or samples shall be collected at the location representing the maximum residence time in the public water system.

5. Water suppliers for public water systems using chemical disinfection, using only groundwater not under the direct influence of surface water, and serving fewer than 10,000 people shall collect one sample per treatment plant annually. The sample shall be collected during the month with the warmest water temperature, at locations representing the maximum residence time, in the public water system.

(b) *Monitoring after exceeding an MCL.* If a sample or the average of samples, if more than one sample is taken, exceeds the MCL for TTHMs or HAA5 disinfection byproducts, the water supplier shall collect quarterly samples until the public water system meets the requirements of reduced monitoring in par. (c).

(c) *Reduced monitoring.* Water suppliers may reduce monitoring for TTHMs and HAA5s as follows:

1. Water suppliers for surface water systems or groundwater systems under the direct influence of surface water with an annual average of TTHM of $\leq$ 0.040 mg/L and HAA5 =0.030 mg/L with an annual average TOC concentration of $\leq$ 4.0 mg/L, before any treatment may reduce monitoring to the following:

a. Water suppliers for a public water system serving at least 10,000 people may reduce monitoring to one sample per quarter per treatment plant so long as the sample is taken at a location representing maximum residence time in the public water system.

b. Water suppliers for a public water system serving from 500 to 9,999 people may reduce monitoring to one sample per year per treatment plant so long as the sample is taken at a location representing maximum residence time in the public water system during the month of warmest water temperature.

c. A water supplier for a public water system serving less than 500 people may not reduce monitoring to less than one sample during the month of warmest water temperature per treatment plant per year.

2. A water supplier for a public water system using only groundwater not under the direct influence of surface water using chemical disinfection with an annual average of TTHM of $\leq$ 0.040 mg/L and HAA5 $\leq$ 0.030 mg/L may reduce sampling to the following:

a. A water supplier for a public water system serving at least 10,000 people may reduce monitoring to one sample per year per treatment plant during the month of warmest water temperature at a location representing maximum residence time in the public water system.

b. A water supplier for a public water system serving fewer than 10,000 people may reduce monitoring to one sample per treatment plant per 3 year monitoring cycle during the month of warmest water temperature at a location representing maximum residence time in the public water system. The reduced monitoring will begin on January 1 following the quarter in which the public water system first qualifies for reduced monitoring.

2m. To qualify for reduced monitoring for TTHM and HAA5 under this paragraph, water suppliers for surface water systems or groundwater systems under the direct influence of surface water not monitoring under the provisions of sub. (5) shall take monthly TOC samples every 30 days at a location prior to any treatment, beginning April 1, 2008, or earlier, if specified by the department. In addition to meeting other criteria for reduced monitoring in this paragraph, the source water TOC running annual average shall be =4.0 mg/L, based on the most recent four quarters of monitoring, on a continuing basis at each treatment plant to reduce or remain on reduced monitoring for TTHM and HAA5. Once qualified for reduced monitoring for TTHM and HAA5 under this paragraph, a system may reduce source water TOC monitoring to quarterly TOC samples taken every 90 days at a location prior to any treatment.

3. Public water systems on a reduced monitoring schedule may remain on that reduced schedule as long as the average of all samples taken in the year, for public water systems which shall monitor quarterly, or the result of the sample, for public water systems which shall monitor no more frequently than annually, is no more than 0.060 mg/L and 0.045 mg/L for TTHMs and HAA5, respectively. A water supplier for a public water systems that do not meet these levels shall resume monitoring at the frequency identified in par. (a) in the quarter immediately following the quarter in which the public water system exceeds 0.060 mg/L and 0.045 mg/L for TTHMs and HAA5, respectively.

(d) *Return to routine monitoring.* The department may return a public water system to routine monitoring at the department's discretion.

(3) MONITORING FREQUENCY AND LOCATION FOR CHLORITE AND BROMATE. Water suppliers for public water systems shall monitor at the following frequency and locations for chlorite and bromate disinfection byproducts:

(a) *Chlorite.* Water supplier for community and nontransient noncommunity water systems using chlorine dioxide, for disinfection or oxidation, shall conduct monitoring for chlorite as follows:

1. 'Routine daily monitoring.' A water supplier for a public water system shall take daily samples at the entrance to the distribution system. For any daily sample that exceeds the chlorite MCL, the water supplier shall take additional samples in the distribution system the following day at the locations required by subd. 3. in addition to the sample required at the entrance to the distribution system.

2. 'Routine monthly monitoring.' A water supplier shall take a 3−sample set each month in the distribution system. The water supplier shall take one sample at each of the following locations: near the first customer, at a location representative of average residence time, and at a location reflecting maximum residence time in the distribution system. Any additional routine sampling shall be conducted in the same manner, as 3−sample sets, at the specified locations. The water supplier may use the results of additional monitoring conducted under subd. 3. to meet the requirement for monitoring in this subdivision.

3. 'Additional monitoring.' On each day following a routine sample monitoring result that exceeds the chlorite MCL at the entrance to the distribution system, the water supplier shall take 3 chlorite distribution system samples at the following locations: as close to the first customer as possible, in a location representative of average residence time, and as close to the end of the distribution system as possible, reflecting maximum residence time in the distribution system.

4. 'Reduced monitoring.' Chlorite monitoring at the entrance to the distribution system required under subd. 1. may not be reduced. Chlorite monitoring in the distribution system required under subd. 2 may be reduced to one 3−sample set per quarter after one year of monitoring where no individual chlorite sample taken in the distribution system under subd. 2. has exceeded the chlorite MCL and the public water system has not been required to conduct monitoring under subd. 3. The public water system may remain on the reduced monitoring schedule until either any of the 3 individual chlorite samples taken quarterly in the distribution system under subd. 2. exceeds the chlorite MCL or the water supplier is required to conduct monitoring under subd. 3., at which time the public water system shall revert to routine monitoring.

(b) *Bromate.* 1. 'Routine monitoring.' Water suppliers for community and nontransient noncommunity systems using ozone, for disinfection or oxidation, shall take one sample per month for each treatment plant in the public water system using ozone. Water suppliers shall take samples monthly at the entrance to the distribution system while the ozonation treatment system is operating under normal conditions.

2. 'Reduced monitoring.' Water suppliers for public water systems may reduce monitoring for bromate from monthly to once per quarter, if the water supplier demonstrates that the public water system's running annual average concentration for bromate is =0.0025 mg/L based on monthly bromate measurements under par. (b) for the most recent four quarters. Samples shall be analyzed using Method 317.0 Revision 2.0, 326.0 or 321.8. If the running annual average bromate concentration is >0.0025 mg/L, the system must resume routine monitoring required by par. (b).

(4) MONITORING FREQUENCY AND LOCATION FOR DISINFECTANT RESIDUALS. Water suppliers for systems shall monitor at the following frequency and locations for disinfectant residuals:

(a) *Chlorine and chloramines.* Water suppliers for public water systems shall perform routine monitoring by measuring the residual disinfectant level at the same points in the distribution system and at the same time as total coliforms are sampled, as specified in s. NR 809.31. The department may allow suppliers for surface water systems to take disinfectant residual samples at points other than the total coliform sampling points if the department determines that such points are more representative of disinfected water quality within the distribution system. Water suppliers for surface water systems may use the results of residual disinfectant concentration sampling conducted under s. NR 810.38 (1) (h) for unfiltered systems or s. NR 810.38 (2) (d) for public water systems that filter, in lieu of taking separate samples. Monitoring may not be reduced.

(b) *Chlorine dioxide.* 1. 'Routine monitoring.' Water suppliers for community, nontransient noncommunity, and transient noncommunity water systems that use chlorine dioxide for disinfection or oxidation shall take daily samples at the entrance to the distribution system. For any daily sample that exceeds the MRDL, the water supplier shall take samples in the distribution system the following day at the locations required by subd. 2., in addition to the sample required at the entrance to the distribution system.

2. 'Additional monitoring.' On each day following a routine sample monitoring result that exceeds the MRDL, the water supplier shall take 3 chlorine dioxide distribution system samples. 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, i.e., no booster chlorination, the water supplier shall take 3 samples as close to the first customer as possible, at intervals of at least 6 hours. If chlorine is used to maintain a disinfectant residual in the distribution system and there are one or more disinfection addition points after the entrance to the distribution system, i.e., booster chlorination, the water supplier shall take one sample at each of the following locations: as close to the first customer as possible, in a location representative of average residence time, and as close to the end of the distribution system as possible, reflecting maximum residence time in the distribution system.

3. 'Reduced monitoring.' Chlorine dioxide monitoring may not be reduced.

(5) MONITORING FREQUENCY AND LOCATION FOR DISINFECTANT BYPRODUCT PRECURSORS. Water suppliers for public water systems shall monitor at the following frequency and locations for disinfection byproduct precursors (DBPP):

(a) *Routine monitoring.* 1. Water suppliers for public water systems which use conventional filtration treatment and are supplied by a surface water source or by a groundwater source under the direct influence of surface water shall monitor each treatment plant monthly for TOC no later than the point of combined filter effluent turbidity monitoring and representative of the treated water.

2. All water suppliers for public water systems required to monitor under subd. 1. shall also monitor for TOC in the source water prior to any treatment at the same time as monitoring for TOC in the treated water.

Note: These samples, source water and treated water, are referred to as paired samples.

3. At the same time as the source water sample is taken, all water suppliers shall monitor for alkalinity in the source water prior to any treatment. Water suppliers shall take one paired sample and one source water alkalinity sample per month per plant at a time representative of normal operating conditions and influent water quality.

(b) *Reduced monitoring.* Water suppliers for public water systems which use conventional filtration treatment and are supplied by a surface water source or by a groundwater source under the direct influence of surface water and which have an average treated water TOC of less than 2.0 mg/L for 2 consecutive years, or less than 1.0 mg/L for one year, may reduce monitoring for both TOC and alkalinity to one paired sample and one source water alkalinity sample per plant per quarter. The water supplier shall revert to routine monitoring in the month following the quarter when the annual average treated water TOC ≥2.0 mg/L for the public water system.

(6) MONITORING PLANS. Each water supplier for a public water system required to monitor under this subchapter shall develop and implement a monitoring plan, and shall maintain the plan and make it available for inspection by the department and the general public no later than 30 days following the applicable compliance dates in s. NR 809.562 (2).

(a) Water suppliers for public water systems which are supplied by a surface water source or by a groundwater source under the direct influence of surface water and which serve more than

3,300 people shall submit a copy of the monitoring plan to the department no later than the date of the first report required under s. NR 809.567. The department may also require water suppliers for any other public water system to submit a monitoring plan. After review, the department may require changes in any plan elements.

(b) The plan shall include at least the following elements:

1. Specific locations and schedules for collecting samples for any parameters included in this subchapter.

2. How the water supplier will calculate compliance with MCLs, MRDLs and treatment techniques.

3. If approved for monitoring as a consecutive system, or if providing water to a consecutive system, under s. NR 809.77, the sampling plan shall reflect the entire distribution system.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 14−049: cr. (2) (c) 2m., r. (3) (b) 2., renum. (3) (b) 3. to (3) (b) 2. and am., am. (4) (a) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.566 Compliance requirements for disinfection byproducts and disinfection residuals Stage 1 DBP. (1) GENERAL REQUIREMENTS. The general requirements for compliance with this subchapter are as follows:

(a) If compliance is based on a running annual average of monthly or quarterly samples or an annual average and the water supplier for a public water system fails to monitor for TTHM, HAA5 or bromate, this failure to monitor shall be treated as a monitoring violation for the entire period covered by the annual average.

(b) If compliance is based on a running annual average of monthly or quarterly samples or averages and the water supplier's failure to monitor the public water system makes it impossible to determine compliance with MRDLs for chlorine and chloramines, failure to monitor shall be treated as a monitoring violation for the entire period covered by the annual average.

(c) All samples taken and analyzed under the provisions of this subchapter shall be included in determining compliance, even if that number is greater than the minimum required.

(d) If, during the first year of monitoring under s. NR 809.565, any individual quarter's average will cause the running annual average of that public water system to exceed the MCL, the public water system is out of compliance at the end of that quarter.

(2) COMPLIANCE REQUIREMENTS FOR DISINFECTION BYPRODUCTS. (a) *TTHMs and HAA5s.* Compliance for TTHMs and HAA5s shall be based one of the following:

1. For public water systems monitored quarterly, compliance with MCLs in s. NR 809.561 (3) shall be based on a running annual arithmetic average, computed quarterly, of quarterly arithmetic averages of all samples collected by the water supplier as prescribed by s. NR 809.565 (2). If the running annual arithmetic average of quarterly averages covering any consecutive 4−quarter period exceeds the MCL, the public water system is in violation of the MCL and the water supplier shall notify the public pursuant to subch. VII, in addition to reporting to the department pursuant to s. NR 809.567. If the water supplier for a public water system fails to complete 4 consecutive quarters of monitoring, compliance with the MCL for the last 4−quarter compliance period shall be based on an average of the available data.

2. For public water systems monitored less frequently than quarterly, compliance with MCLs in s. NR 809.561 (3) shall be based on an average of samples taken that year under the provisions of s. NR 809.565 (2). If the average of these samples exceeds the MCL, the water supplier shall increase monitoring to once per quarter per treatment plant and the public water system is not in violation of the MCL until it has completed one year of quarterly monitoring, unless the result of fewer than 4 quarters of monitoring will cause the running annual average to exceed the MCL, in which case the public water system is in violation at the end of that quarter. Water supplier for public water systems required to increase monitoring frequency to quarterly monitoring shall calculate compliance by including the sample which triggered the increased monitoring plus the following 3 quarters of monitoring.

3. If the running annual arithmetic average of quarterly averages covering any consecutive 4−quarter period exceeds the MCL, the public water system is in violation of the MCL and the water supplier shall notify the public pursuant to subch. VII, in addition to reporting to the department pursuant to s. NR 809.567.

(b) *Bromate.* Compliance for bromate shall be based on a running annual arithmetic average, computed quarterly, of monthly samples or, for months in which the water supplier for the public water system takes more than one sample, the average of all samples taken during the month, collected by the water supplier as prescribed by s. NR 809.565 (3) (b). If the average of samples covering any consecutive 4−quarter period exceeds the MCL, the public water system is in violation of the MCL and the water supplier shall notify the public pursuant to subch. VII, in addition to reporting to the department pursuant to s. NR 809.567. If the water supplier for a public water system fails to complete 12 consecutive months of monitoring, compliance with the MCL for the last 4−quarter compliance period shall be based on an average of the available data.

(c) *Chlorite.* Compliance for chlorite shall be based on an arithmetic average of each 3−sample set taken in the distribution system as prescribed by s. NR 809.565 (3) (a) 2. and 3. If the arithmetic average of any 3−sample set exceeds the MCL, the public water system is in violation of the MCL and the water supplier shall notify the public pursuant to subch. VII, in addition to reporting to the department pursuant to s. NR 809.567.

(3) COMPLIANCE REQUIREMENTS FOR DISINFECTANT RESIDUALS. (a) *Chlorine and chloramines.* 1. Compliance shall be based on a running annual arithmetic average, computed quarterly, of monthly averages of all samples collected by the water supplier for a public water system under s. NR 809.565 (4) (a). If the average of quarterly averages covering any consecutive 4−quarter period exceeds the MRDL, the public water system is in violation of the MRDL and the water supplier shall notify the public pursuant to subch. VII, in addition to reporting to the department pursuant to s. NR 809.567.

2. In cases where chlorine and chloramines are used for residual disinfection during the year, compliance shall be determined by including together all monitoring results of both chlorine and chloramines in calculating compliance. Reports submitted pursuant to s. NR 809.567 shall clearly indicate which residual disinfectant was analyzed for each sample.

(b) *Chlorine dioxide.* Compliance shall be based on consecutive daily samples collected by the water supplier under s. NR 809.565 (4) (b).

1. A public water system has an acute violation of the MRDL for chlorine dioxide when any daily sample taken at the entrance to the distribution system exceeds the MRDL and on the following day one or more of the 3 samples taken in the distribution system exceeds the MRDL. If both exceedances occur, the public water system is in violation of the MRDL and the water supplier shall take immediate corrective action to lower the level of chlorine dioxide below the MRDL and shall notify the public pursuant to the procedures for acute health risks in s. NR 809.951. 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 shall also be considered an MRDL violation and the water supplier shall notify the public of the violation in accordance with the provisions for acute violations under s. NR 809.951.

2. A public water system has a nonacute violation for chlorine dioxide when any 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. A water supplier for a public water system with a nonacute violation shall

take corrective action to lower the level of chlorine dioxide below the MRDL at the point of sampling and shall notify the public pursuant to the procedures for nonacute health risks in subch. VII. Failure to monitor at the entrance to the distribution system the day following an exceedance of the chlorine dioxide MRDL at the entrance to the distribution system is also an MRDL violation and the water supplier shall notify the public of the violation in accordance with the provisions for nonacute violations under subch. VII.

(4) COMPLIANCE REQUIREMENTS FOR DISINFECTION BYPRODUCT PRECURSORS (DBPP). Compliance with disinfection byproduct precursors shall be determined as specified in s. NR 809.569 (1). Water suppliers for public water systems may begin monitoring to determine whether Step 1 TOC removals can be met 12 months prior to the compliance date for the public water system. This monitoring is not required and failure to monitor during this period is not a violation. However, any water supplier that does not monitor during this period, and then determines in the first 12 months after the compliance date that it is not able to meet the Step 1 requirements in s. NR 809.569 (1) (b) and therefore applies for alternate minimum TOC removal (Step 2) requirements, is not eligible for retroactive approval of alternate minimum TOC removal (Step 2) requirements as allowed pursuant to s. NR 809.569 (1) (c) and is in violation. Water supplier may apply for alternate minimum TOC removal (Step 2) requirements any time after the compliance date. For public water systems required to meet Step 1 TOC removals, if the value calculated under s. NR 809.569 (3) (a) or (b) is less than 1.00, the public water system is in violation of the treatment technique requirements and the water supplier shall notify the public pursuant to subch. VII in addition to reporting to the department pursuant to s. NR 809.567.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10.

NR 809.567 Reporting and recordkeeping requirements for disinfection byproducts and disinfection residuals for Stage 1 DBP. (1) REPORTING REQUIREMENTS. Water suppliers for public water systems required to be sampled quarterly or more frequently shall report to the department within 10 days after the end of each quarter in which samples were collected, notwithstanding the provisions of s. NR 809.563. Water suppliers for public water systems required to be sampled less frequently than quarterly shall report to the department within 10 days after the end of each monitoring period in which samples were collected.

(2) REPORTING AND RECORDKEEPING REQUIREMENTS FOR DISINFECTION BYPRODUCTS. Water suppliers for public water systems monitored for disinfection byproducts shall report the information specified in the following requirements:

(a) Water supplier for public water systems monitored for TTHM and HAA5 under the requirements of s. NR 809.565 (2) on a quarterly or more frequent basis shall report all of the following:

1. The number of samples taken during the last quarter.

2. The location, date and result of each sample taken during the last quarter.

3. The arithmetic average of all samples taken in the last quarter.

4. The annual arithmetic average of the quarterly arithmetic averages for the last 4 quarters.

5. Whether the MCL was exceeded, as determined according to s. NR 809.566 (2).

(b) Water supplier for public water systems monitored for TTHMs and HAA5s under the requirements of s. NR 809.565 (2) less frequently than quarterly but at least annually shall report all of the following:

1. The number of samples taken during the last year.

2. The location, date and result of each sample taken during the last quarter.

3. The arithmetic average of all samples taken over the last year.

4. Whether the MCL was exceeded, as determined according to s. NR 809.566 (2).

(c) Water supplier for public water systems monitored for TTHMs and HAA5s under the requirements of s. NR 809.565 (2) less frequently than annually shall report all of the following:

1. The location, date and result of the last sample taken.

2. Whether the MCL was exceeded, as determined according to s. NR 809.566 (2).

(d) Water supplier for public water systems monitored for chlorite under the requirements of s. NR 809.565 (3) (a) shall report all of the following:

1. The number of samples taken each month for the last 3 months.

2. The location, date and result of each sample taken during the last quarter.

3. For each month in the reporting period, the arithmetic average of all samples taken in each 3 sample set collected in the distribution system.

4. Whether, based on s. NR 809.566 (2) (c), the MCL was exceeded, and how many times it was exceeded each month.

(e) Water supplier for public water systems monitored for bromate under the requirements of s. NR 809.565 (3) (b) shall report all of the following:

1. The number of samples taken during the last quarter.

2. The location, date and result of each sample taken during the last quarter.

3. The arithmetic average of the monthly arithmetic averages of all samples taken in the last year.

4. Whether the MCL was exceeded, as determined according to s. NR 809.566 (2) (b).

(3) REPORTING AND RECORDKEEPING REQUIREMENTS FOR DISINFECTANTS. Water supplier for public water systems monitored for disinfectants shall report the information specified in the following:

(a) Water supplier for public water systems monitored for chlorine or chloramines under the requirements of s. NR 809.565 (4) (a) shall report all of the following:

1. The number of samples taken during each month of the last quarter.

2. The monthly arithmetic average of all samples taken in each month for the last 12 months.

3. The arithmetic average of all monthly averages for the last 12 months.

4. Whether the MRDL was exceeded, as determined according to s. NR 809.566 (3) (a).

(b) Water supplier for public water systems monitored for chlorine dioxide under the requirements of s. NR 809.565 (4) (b) shall report all of the following information:

1. The dates, results and locations of samples taken during the last quarter.

2. Whether the MRDL was exceeded, as determined according to s. NR 809.566 (3) (b).

3. Whether the MRDL was exceeded in any 2 consecutive daily samples and whether the resulting violation was acute or nonacute as determined according to s. NR 809.566 (3) (b).

(4) DISINFECTION BYPRODUCT PRECURSORS, ENHANCED COAGULATION OR ENHANCED SOFTENING TREATMENT SYSTEMS. Water supplier for public water systems containing disinfection byproduct precursors or using enhanced coagulation or enhanced softening, shall report the information specified in the following:

(a) Water supplier for public water systems monitored monthly or quarterly for TOC under the requirements of s. NR 809.565 (5) and required to meet the enhanced coagulation or enhanced soft-

ening requirements in s. NR 809.569 (1) (b) or (c) shall report all of the following:

1. The number of paired samples of source water and treated water, both prior to continuous disinfection, taken during the last quarter.

2. The location, date and result of each paired sample and associated alkalinity taken during the last quarter.

3. For each month in the reporting period that paired samples were taken, the arithmetic average of the percent reduction of TOC for each paired sample and the required TOC percent removal.

4. Calculations for determining compliance with the TOC percent removal requirements, as provided in s. NR 809.569 (3).

5. Whether the public water system is in compliance with the enhanced coagulation or enhanced softening percent removal requirements in s. NR 809.569 (1) for the last 4 quarters.

(b) Water supplier for public water systems monitored monthly or quarterly for TOC under the requirements of s. NR 809.565 (5) and meeting one or more of the alternative compliance criteria in s. NR 809.569 (2) (b) or (c) shall report all of the following:

1. The alternative compliance criterion that the water supplier for the public water system is using.

2. The number of paired samples taken during the last quarter.

3. The location, date and result of each paired sample and associated alkalinity taken during the last quarter.

4. The running annual arithmetic average based on monthly averages or quarterly samples of source water TOC for public water systems meeting a criterion in s. NR 809.569 (2) (b) 1. and 3. or of treated water TOC for public water systems meeting the criterion in s. NR 809.569 (2) (b) 2.

5. The running annual arithmetic average based on monthly averages or quarterly samples of source water SUVA for public water systems meeting the criterion in s. NR 809.569 (2) (b) 6. or of treated water SUVA for public water systems meeting the criterion in s. NR 809.569 (2) (b) 7.

6. The running annual average of source water alkalinity for public water systems meeting the criterion in s. NR 809.569 (2) (b) 3. and 4. and of treated water alkalinity for public water systems meeting the criterion in s. NR 809.569 (2) (c) 1.

7. The running annual average for both TTHM and HAA5 for public water systems meeting the criterion in s. NR 809.569 (2) (b) 3., 4., and 5.

8. The running annual average of the amount of magnesium hardness removal (as $CaCO_3$ mg/L) for public water systems meeting the criterion in s. NR 809.567 (2) (c) 2.

9. Whether the public water system is in compliance with the particular alternative compliance criterion in s. NR 809.569 (2) (b) and (c).

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10.

NR 809.569 Treatment technique for control of disinfection byproduct (DBP) precursors. For public water systems using conventional treatment which are supplied by a surface water source or by a groundwater source under the direct influence of surface water, the department identifies enhanced coagulation or enhanced softening as treatment techniques to control the level of disinfection byproduct precursors in drinking water and distribution systems. Treatment technique requirements for DBP precursors shall comply with the following:

(1) ENHANCED COAGULATION AND ENHANCED SOFTENING PERFORMANCE REQUIREMENTS. (a) Public water systems using enhanced coagulation or enhanced softening shall achieve the percent reduction of TOC specified in par. (b) between the source water and the combined filter effluent, unless the department approves the water supplier's request for alternate minimum TOC removal (Step 2) requirements under par. (c).

(b) Required Step 1 TOC reductions, indicated in Table V, are based upon specified source water parameters measured in accordance with s. NR 809.563 (6). Public water systems practicing softening are required to meet the Step 1 TOC reductions in the far−right column, source water alkalinity >120 mg/L, for the specified source water TOC:

Table V

Step 1 Required Removal of TOC by Enhanced Coagulation and Enhanced Softening for Surface Water Systems Using Conventional Treatment

Source water TOC, mg/l	Removal of TOC (in percentages) for source water alkalinity concentration ranges(in mg/L) as $CaCO_3$		
	0 − 60 mg/L	> 60 − 120 mg/L	> 120 mg/L
>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. Public water systems meeting at least one of the conditions in sub. (2) (b) 1. to 7. are not required to operate with enhanced coagulation.

2. Softening treatment systems meeting one of the alternative compliance criteria in sub. (2) (c) are not required to operate with enhanced softening.

3. Public water systems practicing softening shall meet the TOC removal requirements in the column marked >120 for source water alkalinity in mg/L as $CaCO_3$.

(c) Water supplier for public water systems using conventional treatment which are supplied by a surface water source or by a groundwater source under the direct influence of surface water which cannot achieve the Step 1 TOC removals required by par. (b) due to water quality parameters or operational constraints shall apply to the department, within 3 months of failure to achieve the TOC removals required by par. (b), for approval of alternative minimum TOC (Step 2) removal requirements submitted by the water supplier. If the department approves the alternative minimum TOC removal (Step 2) requirements, the department may make those requirements retroactive for the purposes of determining compliance. Until the department approves the alternative minimum TOC removal (Step 2) requirements, the public water system shall meet the Step 1 TOC removals contained in par. (b).

(d) Applications made to the department by the water supplier for enhanced coagulation treatment systems for approval of alternative minimum TOC removal (Step 2) requirements under par. (c) shall include, as a minimum, results of bench− or pilot−scale testing conducted under subd. 1. and used to determine the alternate enhanced coagulation level.

1. Alternate enhanced coagulation level shall be determined to be coagulation at a coagulant dose and pH as determined by the method described in this subdivision and subds. 2. to 5. such that an incremental addition of 10 mg/L of alum, or equivalent amount of ferric salt, results in a TOC removal of $\leq$ 0.3 mg/ L. The percent removal of TOC at this point on the "TOC removal versus coagulant dose'' curve shall be determined to be the minimum TOC removal required for the public water system. Once approved by the department, this minimum requirement supersedes the minimum TOC removal required by the table in par. (b). This requirement will be effective until the department approves a new value based on the results of a new bench− and pilot−scale test. Failure to achieve department−set alternative minimum TOC removal levels is a violation of this chapter and the federal national primary drinking water regulations.

2. Bench− or pilot−scale testing of enhanced coagulation shall be conducted by using representative water samples and adding 10 mg/L increments of alum, or equivalent amounts of fer-

ric salt, until the pH is reduced to a level less than or equal to the enhanced coagulation Step 2 target pH shown in Table W:

Table W
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

3. For waters with alkalinity of less than 60 mg/L for which addition of small amounts of alum or equivalent addition of iron coagulant drives the pH below 5.5 before significant TOC removal occurs, the public water system shall add necessary chemicals to maintain the pH between 5.3 and 5.7 in samples until the TOC removal of 0.3 mg/L per 10 mg/L alum added, or equivalent addition of iron coagulant, is reached.

4. The public water system may be operated at any coagulant dose or pH necessary, consistent with other national public drinking water rules or NPDWRs, to achieve the minimum TOC percent removal approved under par. (c).

5. If the TOC removal is consistently less than 0.3 mg/L of TOC per 10 mg/L of incremental alum dose at all dosages of alum, or equivalent addition of iron coagulant, the water is deemed to contain TOC not amenable to enhanced coagulation. The water supplier may then apply to the department for a waiver of enhanced coagulation requirements.

(2) CONVENTIONAL FILTRATION TREATMENT. (a) Public water systems using conventional filtration treatment which are supplied by a surface water source or by a groundwater source under the direct influence of surface water shall operate with enhanced coagulation or enhanced softening to achieve the TOC percent removal levels specified in sub. (1) unless the public water system meets at least one of the alternative compliance criteria listed in par. (b) or (c).

(b) Public water systems using conventional filtration treatment which are supplied by a surface water source or by a groundwater source under the direct influence of surface water may use the alternative compliance criteria in subds. 1. to 7. to comply with this section in lieu of complying with sub. (1). Public water systems shall still comply with monitoring requirements in s. NR 809.565 (5).

1. The public water system's source water TOC level, measured according to s. NR 809.563 (6) (c), is less than 2.0 mg/L, calculated quarterly as a running annual average.

2. The public water system's treated water TOC level, measured according to s. NR 809.563 (6) (c), is less than 2.0 mg/L, calculated quarterly as a running annual average.

3. The public water public water system's source water TOC level, measured as required by s. NR 809.563 (6) (c), is less than 4.0 mg/L, calculated quarterly as a running annual average; the source water alkalinity, measured according to s. NR 809.563 (6) (a), is greater than 60 mg/L (as $CaCO_3$), calculated quarterly as a running annual average; and either the TTHM and HAA5 running annual averages are no greater than 0.040 mg/L and 0.030 mg/L, respectively; or prior to the effective date for compliance in s. NR 809.562 (2), the water supplier for the public water system has made a clear and irrevocable financial commitment not later than the effective date for compliance in s. NR 809.562 (2) to use technologies that will limit the levels of TTHMs and HAA5 to no more than 0.040 mg/L and 0.030 mg/L, respectively.

4. Water suppliers 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 department for approval not later than the effective date for compliance in s. NR 809.562 (2).

a. These technologies shall be installed and operating not later than June 30, 2005.

b. Failure to install and operate these technologies by the date in the approved schedule shall constitute a violation of this chapter and the national primary drinking water regulations.

5. The TTHM and HAA5 running annual averages are no greater than 0.040 mg/L and 0.030 mg/L, respectively, and the public water system uses only chlorine for primary disinfection and maintenance of a residual in the distribution system.

6. The public water system's source water SUVA, prior to any treatment and measured monthly according to s. NR 809.563 (6) (d), is less than or equal to 2.0 L/mg−m, calculated quarterly as a running annual average.

7. The public water system's finished water SUVA, measured monthly according to s. NR 809.563 (6) (d), is less than or equal to 2.0 L/mg−m, calculated quarterly as a running annual average.

(c) Public water systems practicing enhanced softening that cannot achieve the TOC removals required by sub. (1) (b) may use the alternative compliance criteria in subds. 1. and 2. in lieu of complying with sub. (1) (b). Public water systems shall still comply with monitoring requirements in s. NR 809.565 (5).

1. Softening that results in lowering the treated water alkalinity to less than 60 mg/L (as $CaCO_3$), measured monthly according to s. NR 809.563 (6) (a) and calculated quarterly as a running annual average.

2. Softening that results in removing at least 10 mg/L of magnesium hardness (as $CaCO_3$), measured monthly according to s. NR 809.113 Table A and calculated quarterly as an annual running average.

(3) COMPLIANCE CALCULATIONS. (a) Public water systems which are supplied by a surface water source or by a groundwater source under the direct influence of surface water, other than those identified in sub. (2) (b) or (c) shall comply with requirements contained in sub. (1) (b) or (c). Water suppliers shall calculate compliance quarterly, beginning after the water supplier for the public water system has collected 12 months of data, by determining an annual average using the following method:

1. Determine actual monthly TOC percent removal, by using the following equation: (1−(treated water TOC/source water TOC)) x 100 = percent TOC removal.

2. Determine the required monthly TOC percent removal from either the table in sub. (1) (b) or from sub. (1) (c).

3. Divide the value in subd. 1. by the value in subd. 2.

4. Add together the results of subd. 3. for the last 12 months and divide by 12.

5. If the value calculated in subd. 4. is less than 1.00, the public water system is not in compliance with the TOC percent removal requirements.

(b) Water supplier may use the provisions in subds. 1. to 5. in lieu of the calculations in par. (a) 1. to 5. to determine compliance with TOC percent removal requirements.

1. In any month that the public water system's treated or source water TOC level, measured according to s. NR 809.563 (6) (c), is less than 2.0 mg/L, the water supplier may assign a monthly value of 1.0, in lieu of the value calculated in par. (a) 3. when calculating compliance under the provisions of par. (a).

2. In any month that a public water system practicing softening removes at least 10 mg/L of magnesium hardness as $CaCO_3$, the water supplier may assign a monthly value of 1.0 in lieu of the value calculated in par. (a) 3. when calculating compliance under the provisions of par. (a).

3. In any month that the public water system's source water SUVA, prior to any treatment and measured according to s. NR 809.563 (6) (d), is $\leq$ 2.0 L/mg−M, the water supplier may assign a monthly value of 1.0, in lieu of the value calculated in par. (a) 3. when calculating compliance under the provisions of par. (a).

4. In any month that the public water system's finished water SUVA, measured according to s. NR 809.563 (6) (d), is $\leq$ 2.0 L/mg−M, the water supplier may assign a monthly value of 1.0 in

lieu of the value calculated in par. (a) 3. when calculating compliance under the provisions of par. (a).

5. In any month that a public water system practicing enhanced softening lowers alkalinity below 60 mg/L as $CaCO_3$, the water supplier may assign a monthly value of 1.0, in lieu of the value calculated in par. (a) 3. when calculating compliance under the provisions of par. (a).

(c) Public water systems which are supplied by a surface water source or by a groundwater source under the direct influence of surface water and which are using conventional filtration treatment may also comply with the requirements by meeting the criteria in sub. (2) (b) or (c).

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (1) (b) Table V, 3., (2) (c) 2. Register March 2016 No. 723, eff. 4−1−16.**

NR 809.60 General requirements for Stage 2 DBP disinfection byproducts control. (1) GENERAL. The following establish monitoring and other requirements for achieving compliance with maximum contaminant levels based on locational running annual averages (LRAA) for total trihalomethanes (TTHM) and haloacetic acids five (HAA5), and for achieving compliance with maximum residual disinfectant levels for chlorine and chloramine for certain consecutive systems.

(2) APPLICABILITY. A public water system is subject to these requirements if the public water system is a community water system or a nontransient noncommunity water system that uses a primary or residual disinfectant other than ultraviolet light or delivers or receives water that has been treated with a primary or residual disinfectant other than ultraviolet light.

(3) SCHEDULE. Public water systems shall comply with the requirements on the schedule in Table X based on public water system population:

Table X

Public Water System Population	Monitoring Compliance Dates:[1]
Public water systems that are not part of a combined distribution system and public water systems that serve the largest population in the combined distribution system	
(1) PWS serving ≥ 100,000	April 1, 2012.
(2) PWS serving 50,000–99,999	October 1, 2012.
(3) PWS serving 10,000–49,999	October 1, 2013.
(4) PWS serving < 10,000	October 1, 2013 if no *Cryptosporidium* monitoring is required under s. NR 809.331 (1) (d), or October 1, 2014 if *Cryptosporidium* monitoring is required under s. NR 809.331 (1) (d) or (f)
Public water systems that are part of a combined distribution system	
(5) Consecutive system or wholesale system	Water suppliers shall sample using the earliest compliance date of all the public water systems in the combined distribution system determined by the public water system with the largest population using the dates indicated in (1) to (4) of this table.

[1] The department may grant up to an additional 24 months for compliance with MCLs and operational evaluation levels if the public water system requires capital improvements to comply with an MCL.

(4) MONITORING FREQUENCY. The frequency of monitoring is specified in s. NR 809.61 (1) (c), Table Y.

(a) Water suppliers for public water systems required to be monitored quarterly shall begin monitoring in the first full calendar quarter that includes the compliance date in the table in sub. (3).

(b) Water suppliers for public water systems required to be monitored at a frequency less than quarterly shall begin monitoring in the calendar month recommended in the initial distribution system evaluation (IDSE) report they prepared for the EPA under Subpart U of 40 CFR part 141 or in the calendar month identified in the monitoring plan developed under s. NR 809.62 which shall be no later than 12 months after the compliance date in the table in par. (3).

(c) Water suppliers for public water systems required to be monitored quarterly, shall make compliance calculations at the end of the fourth calendar quarter that follows the compliance date and at the end of each subsequent quarter or earlier if the LRAA calculated based on fewer than four quarters of data would cause the MCL to be exceeded regardless of the monitoring results of subsequent quarters.

(d) If the public water system is required to be monitored at a frequency that is less than quarterly, the water supplier shall make compliance calculations beginning with the first compliance sample taken after the compliance date.

(5) CONSECUTIVE SYSTEMS. The department may determine that a public water system that receives some or all of its water supply from a wholesale system is not a consecutive system, based on any of the following factors:

(a) Receives water from a wholesale system only on an emergency basis.

(b) Receives only a small percentage and small volume of water from a wholesale system.

(6) WHOLESALE SYSTEMS. The department may determine that a public water system that provides some or all of the water supply for another public water system is not a wholesale system, based on any of the following factors:

(a) Delivers water to a consecutive system only on an emergency basis.

(b) Delivers only a small percentage and small volume of water to a consecutive system.

(7) MONITORING AND COMPLIANCE. (a) Water suppliers for public water systems required to be monitored quarterly shall calculate LRAAs for TTHM and HAA5 to determine that each monitoring location LRAA does not exceed the MCL.

1. If four consecutive quarters of monitoring are not completed, compliance with the MCL shall be based on the average of the available data from the most recent four quarters.

2. If more than one sample per quarter is collected at a monitoring location, all samples taken in the quarter at that location shall be averaged to determine a quarterly average to be used in the LRAA calculation.

(b) Water suppliers for public water systems required to be monitored yearly or less frequently shall establish compliance for TTHM and HAA5 by using each sample collected to determine if it is less than the MCL.

1. If any sample exceeds the MCL, the public water system shall comply with the requirements of s. NR 809.63 (2).

2. If no sample exceeds the MCL, the sample result for each monitoring location is considered the LRAA for that monitoring location.

(c) A public water system is in violation of the monitoring requirements for each quarter that a LRAA is calculated using a quarter in which the water supplier failed to monitor.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (3) Table X, (4) (b) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.61 Routine monitoring for Stage 2 DBP. (1) MONITORING. (a) A water supplier that submitted an IDSE report to EPA under Subpart U of 40 CFR part 141 shall begin monitoring at the locations and months recommended in the IDSE

report submitted to EPA under Subpart U of 40 CFR part 141.605 following the schedule in s. NR 809.60 (3), unless the department requires other locations or additional locations after its review.

(b) A water supplier that submitted a 40/30 certification from EPA under Subpart U of 40 CFR part 141.603 or the department under s. NR 809.974 or for a public water system that qualified for a very small system waiver from EPA under Subpart U of 40 CFR 141.604 or the department under s. NR 809.975 or for a public water system that is a nontransient noncommunity water system serving <10,000, shall monitor at the location or locations and dates identified in the public water system's monitoring plan in s. NR 809.565 (6), updated as required by s. NR 809.62.

Note: Sections NR 809.974 and 809.975 were repealed by CR 15−049. Corrections will be made in future rulemaking.

(c) Monitoring shall be conducted at no fewer than the number of locations identified in Table Y.

Table Y

Stage 2 DBP — Disinfection byproducts monitoring frequency, locations, and sample type

Source water type	Population size category	Monitoring frequency	Distribution system monitoring location total per monitoring period	Sample type
Surface water and GWUDI:				
	<500	Annual	2	Individual; option of one dual sample at one location if highest DBP concentrations are at the same location and month
	500–3,300	quarterly	2	Individual
	3,301–9,999	quarterly	2	Dual
	10,000–49,999	quarterly	4	Dual
	50,000–249,999	quarterly	8	Dual
	250,000–999,999	quarterly	12	Dual
	1,000,000–4,999,999	quarterly	16	Dual
	≥ 5,000,000	quarterly	20	Dual
Groundwater:				
	<500	Annual	2	Individual; option of one dual sample at one location if highest DBP concentrations are at the same location and month
	500–9,999	Annual	2	Dual
	10,000–99,999	quarterly	4	Dual
	100,000–499,999	quarterly	6	Dual
	≥ 500,000	quarterly	8	Dual

(d) All public water systems shall be monitored during the month of highest DBP concentrations.

(e) Water suppliers for public water systems on quarterly monitoring shall take dual sample sets every 90 days at each monitoring location, except for water supplier for surface water systems or groundwater under the direct influence of surface water systems serving 500–3,300. Water suppliers for groundwater systems serving 500–9,999 on annual monitoring shall take dual sample sets at each monitoring location. All other public water systems on annual monitoring and surface water systems or groundwater under the direct influence of surface water systems serving 500–3,300 shall take individual TTHM and HAA5 samples, instead of a dual sample set, at the locations with the highest TTHM and HAA5 concentrations, respectively. For public water systems serving fewer than 500 people, only one location with a dual sample set per monitoring period is required if the highest TTHM and HAA5 concentrations occur at the same location and month.

(f) Water suppliers for undisinfected systems that begin using a disinfectant other than UV light after the dates for complying with the Initial Distribution System Evaluation requirements shall consult with the department to identify compliance monitoring locations for s. NR 809.60 and develop a monitoring plan under s. NR 809.62 that includes those monitoring locations.

(2) ANALYTICAL METHODS AND LABORATORIES. (a) Samples shall be analyzed using an approved method listed in s. NR 809.563 (3) Table S for TTHM and HAA5.

(b) The analysis under par. (a) shall be conducted by laboratories that are certified by EPA or the department under ch. NR 149.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (1) (a), (c) Table Y, (2) (a) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.62 Monitoring plan for Stage 2 DBP. (1) GENERAL MONITORING PLAN REQUIREMENTS. Monitoring plans shall be developed, implemented and kept up to date by water suppliers for all public water systems that are required to be monitored for TTHMs and HAA5s and shall be kept on file for department and public review.

(a) Monitoring plans under this section shall be completed no later than the date the public water system is required to begin initial compliance monitoring under s. NR 809.60 (3).

(b) The monitoring plan shall contain the all of the following elements:

1. Monitoring locations.
2. Monitoring dates.
3. Compliance calculation procedures.
4. Monitoring plans for any other public water systems in a combined distribution system.

(c) If a public water system was not required to submit an IDSE report to the EPA under Subpart U of 40 CFR 141.601 or 141.602 and does not have sufficient monitoring locations to identify the required number of locations indicated in Subpart U of 40 CFR 141.605(b) or under s. NR 809.976; the water supplier shall do all of the following:

Note: Section NR 809.976 was repealed by CR 15−049. Corrections will be made in future rulemaking.

1. Identify additional 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.

2. Provide the rationale for identifying the locations as having high levels of TTHM or HAA5. Water suppliers should compare the number of monitoring locations required under s. NR 809.565 with the number of monitoring locations under s. NR 809.61 Table Y. If the public water system was required to have more monitoring locations under s. NR 809.565 than under s. NR 809.62 compliance monitoring, the water supplier shall identify which locations will be used by alternating selection of locations representing high TTHM levels and high HAA5 levels until the required number of compliance monitoring locations under s. NR 809.61 Table Y have been identified.

(2) SUBMITTAL OF MONITORING PLANS. If a public water system serves > 3,300 people, the water supplier shall submit a copy of a monitoring plan to the department prior to the date the water supplier for the public water system is required to conduct initial monitoring under s. NR 809.60 (3), unless the IDSE report submitted under Subpart U of 40 CFR part 141 of the Federal Regulation contains all the information required by this subsection.

(3) REVISING MONITORING PLANS. Water suppliers shall revise monitoring plans to reflect changes in treatment, distribution system operations and layout including new service areas, or other factors that may affect TTHM or HAA5 formation, or as approved by the department.

(a) The department shall be consulted regarding the need for changes and the appropriateness of changes to a monitoring plan.

(b) If monitoring locations are changed, existing compliance monitoring locations with the lowest LRAA shall be replaced with new locations that are expected have the highest TTHM or HAA5 levels in the distribution system.

(c) The department may also require other modifications in the public water systems monitoring plan.

(d) If the public water system serves > 3,300 people, the water supplier shall submit a copy of the modified monitoring plan to the department prior to the date the public water system is required to comply with the revised monitoring plan.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; correction to numbering of (3) (a) to (d) made under s. 13.92 (4) (b) 1., Stats., Register November 2010 No. 659; **CR 15−049: am. (1) (a), (c) (intro.), 2., (2) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.63 Requirements for reduced and increased monitoring for Stage 2 DBP. (1) REDUCED MONITORING. The department may reduce the monitoring frequency when the LRAA is less than or equal to 0.040 mg/L for TTHM and less than or equal to 0.030 mg/L for HAA5 at all compliance monitoring locations. Systems may only use data collected in compliance with s. NR 809.565 and under this section to qualify for reduced monitoring. In addition, the source water annual average TOC level, before any treatment, must be ≤4.0 mg/L at each treatment plant treating surface water or GWUDI, based on monitoring conducted under s. NR 809.565 (2) (c) 2m. The reduced sampling frequency and number of sample sites are given in Table Z:

Table Z
Reduced Stage 2 Monitoring Frequency and Number of Sites

Source Water Type	Population Size Category	Monitoring Frequency	Distribution System Monitoring Location Total per Monitoring Period
Surface Water or GWUDI	less than 500	Annual	Monitoring may not be reduced.
	500 to 3,300	Annual	1 TTHM and 1 HAA5 at the respective locations and quarters with the highest individual DBP; 1 dual sample set per year if the highest TTHM and HAA5 measurements occurred at the same location and quarter.
	3,301 to 9,999	Annual	2 dual sample sets: one at the location and during the quarter with the highest TTHM single measurement, one at the location and during the quarter with the highest HAA5 single measurement.
	10,000 to 49,999	quarterly	2 dual sample sets at the locations with the highest TTHM and highest HAA5 LRAAs
	50,000 to 249,999	quarterly	4 dual sample sets at the locations with the two highest TTHM and two highest HAA5 LRAAs
	250,000 to 999,999	quarterly	6 dual sample sets at the locations with the three highest TTHM and three highest HAA5 LRAAs
	1,000,000 to 4,999,999	quarterly	8 dual sample sets at the locations with the four highest TTHM and four highest HAA5 LRAAs
	5,000,000 or more	quarterly	10 dual sample sets at the locations with the five highest TTHM and five highest HAA5 LRAAs
Groundwater	less than 500	every third year (triennial)	1 TTHM and 1 HAA5 at the respective locations and quarters with the highest individual DBP; 1 dual sample set per year if the highest TTHM and HAA5 measurements occurred at the same location and quarter.
	500 to 9,999	Annual	1 TTHM and 1 HAA5 at the respective locations and quarters with the highest individual DBP; 1 dual sample set per year if the highest TTHM and HAA5 measurements occurred at the same location and quarter.

Table Z
Reduced Stage 2 Monitoring Frequency and Number of Sites (Continued)

Source Water Type	Population Size Category	Monitoring Frequency	Distribution System Monitoring Location Total per Monitoring Period
	10,000 to 99,999	Annual	2 dual sample sets: one at the location and during the quarter with the highest TTHM single measurement, one at the location and during the quarter with the highest HAA5 single measurement
	100,000 to 499,999	quarterly	2 dual sample sets at the locations with the highest TTHM and highest HAA5 LRAAs
	500,000 or more	quarterly	4 dual sample sets at the locations with the two highest TTHM and two highest HAA5 LRAAs

(a) Water suppliers for public water systems on quarterly monitoring shall take dual sample sets every 90 days.

(b) Public water systems on annual monitoring and surface water or GWUDI systems serving 500 to 3,300 people may use a single site if the highest TTHM and HAA5 concentrations occur at the same time and place. Any such public water system may be required to take individual TTHM and HAA5 samples, instead of a dual sample set, at sites identified as the highest TTHM and HAA5 sites, respectively. If separate sites for individual TTHM and HAA5 samples are used, then the TTHM sample shall be collected during the quarter with highest historical TTHM levels and the HAA5 sample shall be collected during the quarter with the highest historical HAA5 level.

(c) Only data collected under the provisions of s. NR 809.565 and under this section may be used to qualify for reduced monitoring.

(d) To remain on reduced monitoring, a public water system shall meet the following conditions:

1. Public water systems on a quarterly reduced monitoring schedule may remain on that reduced schedule as long as the TTHM LRAA ≤0.040 mg/L and the HAA5 LRAA ≤0.030 mg/L at each monitoring location.

2. Public water systems on an annual or less frequent reduced monitoring schedule may remain on that reduced schedule as long as each TTHM sample ≤0.060 mg/L and each HAA5 sample ≤0.045 mg/L.

3. In addition to subds. 1. and 2., for a surface water or GWUDI system, the source water annual average TOC level, before any treatment, shall be ≤4.0 mg/L, based on monitoring conducted under s. NR 809.565 (2) (c) 2m.

(e) If the LRAA based on quarterly monitoring at any monitoring location exceeds either 0.040 mg/L for TTHM or 0.030 mg/L for HAA5 or if the annual (or less frequent) sample at any location exceeds either 0.060 mg/L for TTHM or 0.045 mg/L for HAA5, or if the source water annual average TOC level, before any treatment, is >4.0 mg/L at any treatment plant treating surface water or groundwater under the direct influence of surface water, the water supplier shall resume routine monitoring under s. NR 809.61 or begin increased monitoring under sub. (2).

(f) The department may return a public water system to routine monitoring, at any time, at the department's discretion.

(2) CONDITIONS REQUIRING INCREASED MONITORING. (a) A public water system that is required to monitor at a particular location annually or less frequently than annually under s. NR 809.62 or 809.63 (1), shall increase monitoring to dual sample sets once per quarter at all locations if a TTHM sample is >0.080 mg/L or a HAA5 sample is >0.060 mg/L at any location.

(am) Water suppliers shall conduct increased monitoring under this paragraph at the monitoring locations in the monitoring plan developed under s. NR 809.62 beginning on the date identified in s. NR 809.60 (3) for compliance with this subchapter. The public water system shall remain on increased monitoring until it qualifies to return to routine monitoring under s. NR 809.61.

(b) Samples shall be taken every 90 days plus or minus 5 days beginning from the date of collection of the original sample that exceeded the MCL for either TTHM or HAA5.

(3) MCL VIOLATION DETERMINATION. A public water system is in violation of the MCL when the LRAA for TTHM or HAA5 exceeds the MCLs in s. NR 809.561 (3), calculated based on four consecutive quarters of monitoring or the LRAA calculated based on fewer than four quarters of data if the MCL would be exceeded regardless of the monitoring results of subsequent quarters.

(4) RETURN TO ROUTINE MONITORING. The department may return a public water system to routine monitoring once the water supplier has completed increased monitoring for at least four consecutive quarters and the LRAA for every monitoring location is ≤0.060 mg/L for TTHM and ≤0.045 mg/L for HAA5.

(5) VIOLATION OF MONITORING REQUIREMENTS. A public water system is in violation of the monitoring requirements if the water supplier fails to monitor during a quarter and for each subsequent quarter that the monitoring result would have been used in calculating a LRAA.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (1) (intro.), (d) 3., (e), cr. (2) (am), am. (4) (title) Register March 2016 No. 723, eff. 4−1−16; s. 35.17 correction made in (1) (intro.) under s. 35.17, Stats., Register March 2016.**

NR 809.64 Additional disinfection byproducts requirements for consecutive systems under Stage 2 DBP. A consecutive system that does not add a disinfectant but receives and delivers water that has been treated with a primary or residual disinfectant other than ultraviolet light, shall comply with analytical and monitoring requirements for chlorine and chloramines in s. NR 809.565 (4) (a) and the compliance requirements in s. NR 809.566 (3) (a) beginning April 1, 2009, unless required to comply earlier by the department, and shall report monitoring results under s. NR 809.567 (3) (a).

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10.

NR 809.65 Operational evaluation levels for disinfection byproducts under Stage 2 DBP. (1) OPERATIONAL EVALUATION. An operational evaluation shall be conducted if any of the following occurs:

(a) The sum of the two previous quarters' TTHM results plus twice the current quarter's TTHM result, divided by 4, exceeds 0.080 mg/L at any monitoring location.

(b) The sum of the two previous quarters' HAA5 results plus twice the current quarter's HAA5 result, divided by 4, exceeds 0.060 mg/L at any monitoring location.

(2) OPERATIONAL EVALUATION REPORTING. If an operational evaluation must be performed as required in sub. (1), it shall be submitted as a written report to the department no later than 90 days after being notified of the analytical result that causes the public water system to exceed the operational evaluation level. The written report shall be made available to the public upon request.

(3) CONTENTS OF AN OPERATIONAL REPORT. An operational evaluation shall include an examination of the system treatment

and distribution operational practices, including storage tank operations, excess storage capacity, distribution system flushing, changes in sources or source water quality, and treatment changes or problems that may contribute to TTHM and HAA5 formation and what steps could be considered to minimize future exceedances.

(4) LIMITING THE SCOPE OF AN OPERATIONAL EVALUATION. A water supplier may request and the department may allow the water supplier to limit the scope of the operational evaluation if the water supplier is able to identify the cause of the operational evaluation level exceedance. The request to limit the scope of the evaluation does not extend the schedule required under sub. (2) for submitting the written report. If the department approves this limited scope of evaluation, the approval shall be in writing and the water supplier shall keep the written approval with the completed report.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (1) (a), (b) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.66 Requirements for remaining on reduced TTHM and HAA5 monitoring based on Stage 1 DBP results. (1) REMAINING ON REDUCED MONITORING. A public water system may remain on reduced monitoring after the dates identified in s. NR 809.60 (3) for compliance with this subchapter only if the public water system qualified for a 40/30 certification by EPA under Subpart U of 40 CFR 141.603, or received a very small system waiver under Subpart U of 40 CFR 141.604, and if the public water system meets the reduced monitoring criteria in NR 809.63 (1) and all of the following criteria:

(a) The public water system does not change or add monitoring locations from those used for compliance monitoring under ss. NR 809.565 (6) and 809.566.

(b) The public water system's monitoring locations under s. NR 809.62 have not been changed from the public water system's monitoring locations under s. NR 809.565 (6) after the compliance dates identified in s. NR 809.60 (3).

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; correction in (1) (intro.) made under s. 13.92 (4) (b) 7., Stats., Register January 2013 No. 685; **CR 15−049: am. (1) (intro.) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.67 Requirements for remaining on increased TTHM and HAA5 monitoring based on Stage 1 DBP results. A public water system that is on increased monitoring under ss. NR 809.565 and 809.566 shall remain on increased monitoring until the public water system qualifies for a return to routine monitoring under s. NR 809.61.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: r. (1) (title), renum. (1) to 809.67, r. (2) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.68 Reporting and recordkeeping requirements for Stage 2 DBP. (1) REPORTING. (a) Water suppliers shall report all of the following information for each monitoring location to the department no later than 10 days after the end of any quarter in which monitoring is required:

1. Number of samples taken during the quarter.

2. Date and results of each sample taken during the quarter.

3. Arithmetic average of quarterly results for the four quarters immediately previous for each monitoring location (LRAA), beginning at the end of the fourth calendar quarter that follows the compliance date and at the end of each subsequent quarter. If the LRAA calculated based on fewer than four quarters of data would cause the MCL to be exceeded regardless of the monitoring results of subsequent quarters, the water supplier shall report this information to the department as part of the first report due following the compliance date or anytime thereafter that this determination is made. If the public water system is required to conduct monitoring at a frequency that is less than quarterly, the water supplier shall make compliance calculations beginning with the first compliance sample taken after the compliance date, unless the public water system is required to conduct increased monitoring under s. NR 809.63 (2).

4. If the MCL for TTHM or HAA5s was violated at any monitoring location.

5. Any operational evaluation levels that were exceeded during the quarter and, if so, the location and date, and the calculated TTHM and HAA5 levels.

(b) Water suppliers for surface water or groundwater under the direct influence of surface water systems seeking to qualify for or remain on reduced TTHM or HAA5 monitoring, shall report the following source water TOC information for each treatment plant that treats surface water or groundwater under the direct influence of surface water to the department no later than 10 days after the end of any quarter in which monitoring is required:

1. The number of source water TOC samples taken each month during the previous quarter.

2. The date and result of each sample taken during the previous quarter.

3. The quarterly average of monthly samples taken during the previous quarter or the result of the quarterly sample.

4. The running annual average (RAA) of quarterly averages from the past four quarters.

5. Whether the RAA exceeded 4.0 mg/L.

(c) The department may choose to perform calculations and determine whether the MCL was exceeded or the public water system is eligible for reduced monitoring in lieu of having the water supplier report that information

(2) RECORDKEEPING. The water supplier shall retain any s. NR 809.62 monitoring plans and monitoring results collected under s. NR 809.61 as required by s. NR 809.82.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; correction in (2) made under s. 13.92 (4) (b) 7., Stats., Register November 2010 No. 659; **CR 15−049: am. (1) (a) 3., (2) Register March 2016 No. 723, eff. 4−1−16.**

Subchapter IV — Miscellaneous Chemical Monitoring Requirements, Raw Surface Water Standards, and Certified Laboratories

NR 809.70 Secondary inorganic chemical and physical standards. (1) SECONDARY STANDARDS. Waters containing inorganic chemicals in quantities above the limits contained in this section are not hazardous to health but may be objectionable to an appreciable number of persons. The following secondary standards for inorganic chemicals are listed in Table AA:

Table AA

Parameters	Standard (Milligrams per liter)
Aluminum	0.05 to 0.2
Chloride	250
Color	15 units
Copper	1.0
Corrosivity	Noncorrosive
Fluoride[1]	2.0
Foaming agents	0.5
Hydrogen Sulfide	Not detectable
Iron	0.3
Manganese	0.05
Odor	3 (Threshold No.)
Silver	0.1
Sulfate	250
Total Dissolved Solids (TDS)	500
Zinc	5

[1] The primary maximum contaminant level for fluoride is contained in s. NR 809.11.

(2) APPLICABILITY OF SECONDARY STANDARDS. The secondary standards contained in this section apply to all public water systems.

(3) COMPLIANCE WITH THE SECONDARY DRINKING WATER STANDARD AND PUBLIC NOTIFICATION FOR FLUORIDE. Water suppliers for community water systems that exceed the secondary maximum contaminant level for fluoride as determined by the last single sample taken in accordance with the requirement of s. NR 809.113, but do not exceed the maximum contaminant level for fluoride as specified in s. NR 809.11, shall provide the notice as specified in s. NR 809.957 to all billing units annually, all new billing units at the time service begins and annually to the department and the department of health services.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; corrections in (3) made under s. 13.92 (4) (b) 6. and 7., Stats., Register November 2010 No. 659; **CR 15−049: am. (1) Table AA, (2) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.71 Sampling and analytical requirements for secondary standards. (1) COMPLAINTS ON AESTHETIC WATER QUALITY. If the department receives complaints regarding the aesthetic quality of the water, the water supplier may be required to implement a monitoring program to determine compliance with s. NR 809.70.

(2) DEPARTMENT REQUIRED REMEDIAL ACTION. If it is determined by the department that physical or chemical substances or both in excess of those standards contained in s. NR 809.70 are objectionable to an appreciable number of persons and are detrimental to the public welfare, the department may, on its own motion, require remedial action by the water supplier to insure that the public receives the highest quality water practicably obtainable.

(3) LABORATORY REQUIREMENTS. The department may require that laboratory test results submitted to the department under this section be performed by a laboratory certified or registered under ch. NR 149.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (1), (2) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.73 Sampling and analytical requirements for other chemicals. (1) OTHER CHEMICAL TESTING. If the department determines that the public health, safety or welfare requires testing for chemical or physical constituents in water which are not contained in this chapter, the department may order such testing as it deems necessary.

(a) The department shall provide public notice and an opportunity for public hearing within 90 days after any order under this subsection.

(b) Hearings under this subsection shall be class 1 hearings and shall be held in accordance with ch. 227, Stats.

(c) Such testing shall be done at a laboratory certified or registered by EPA or under ch. NR 149 as the department may require on a case−by−case basis.

(2) TREATMENT CONTROL TESTING. Testing for other constituents shall be performed at public water systems as determined necessary by the department for design and control of treatment processes for contaminants which may affect public health or welfare. Such testing shall be done at a laboratory certified or registered by EPA or under ch. NR 149 as the department may require on a case−by−case basis.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10.

NR 809.74 Additional requirements for public water systems which chlorinate or fluoridate water. (1) PUBLIC WATER SYSTEMS WHICH ADD FLUORIDE. (a) The water supplier for a community water system artificially fluoridating the water shall establish a monitoring program in order to maintain the fluoride concentration within the range of 0.6 to 0.8 milligrams per liter recommended by the dental health section of the department of health services for optimum dental benefits.

(b) The monitoring program shall include:

1. Submission of the results of daily fluoride tests of samples from the distribution system.

2. One sample per month taken from a representative location in the distribution system and submitted to the state laboratory of hygiene. The sample submitted to the state laboratory of hygiene shall be a portion of a split sample so that the operator can determine the fluoride concentration with the operator's equipment and compare it to the state laboratory results. The fluoride concentration obtained by the operator shall be noted on the data sheet prior to submission to the state laboratory.

3. For public water systems with large distribution systems and multiple sources, more than one fluoride test per day may be necessary to assure proper feed rates. See s. NR 811.51 (7) for testing equipment requirements.

4. The department may approve exceptions to the daily fluoride test requirement if the water supplier is able to demonstrate that the optimum fluoride concentration in par. (a) can be maintained utilizing a reduced monitoring program.

(2) CHLORINE. The water suppliers for all waterworks which chlorinate water shall test chlorine residuals at locations and intervals necessary to control the chlorination process. At groundwater supplies, the chlorine residual of a sample from a representative location in the distribution system shall be checked at least twice per week. Water suppliers for public water systems having surface water treatment plants or GWUDI systems shall determine the chlorine residual in the plant effluent continuously and in the distribution system at least daily in representative locations. Where water quality changes rapidly, residuals shall be tested at more frequent intervals as specified by the department and in those individual cases, continuous monitoring equipment may be required if the department determines it is necessary to protect public health. Chlorine residual testing is required when bacteriological samples are taken.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (1) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.75 Raw surface water standards. The intake water for surface water treatment plants shall be the highest quality reasonably available and which, with appropriate treatment and adequate safeguards, will meet the drinking water standards in this chapter.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10.

NR 809.76 Laboratory certification. (1) LABORATORY CERTIFICATION FOR COMPLIANCE SAMPLES. For the purpose of compliance with ss. NR 809.113, 809.118, 809.119, 809.203, 809.25, 809.243, 809.54, 809.549 and 809.563, samples shall be analyzed at the state laboratory of hygiene, at a laboratory facility acceptable to the U.S. environmental protection agency, or at a laboratory certified for the safe drinking water test category under ch. NR 149. For the purpose of compliance with ss. NR 809.311, 809.323 and 809.334, bacteriological samples shall be analyzed at a laboratory facility certified or approved by the department of agriculture, trade and consumer protection, or at a laboratory facility acceptable to the U.S. environmental protection agency. For the purpose of compliance with s. NR 809.52 radiological samples shall be analyzed at a laboratory facility certified or acceptable to the U.S. environmental protection agency.

Note: Section NR 149.42 describes procedures for allowing alternative methods from certified laboratories.

(2) LABORATORY CERTIFICATION FOR OPERATIONAL SAMPLES. Water suppliers for all community water systems utilizing surface water sources or GWUDI shall analyze bacteriological samples for in−plant operational control at a laboratory facility approved by the department of agriculture, trade and consumer protection.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10.

NR 809.77 Monitoring of consecutive public water systems. When a public water system supplies water to one or more other public water systems, the department may modify the monitoring requirements imposed by this chapter to the extent that

the interconnection of the public water systems justifies treating them as a single public water system for monitoring purposes. Any modified monitoring shall be conducted pursuant to a schedule specified by the department and concurred in by the administrator of the U.S. environmental protection agency.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10.

Subchapter V — Reporting, Consumer Confidence Reports and Record Keeping

NR 809.80 Reporting requirements. (1) REPORTING PERIODS. Unless a shorter reporting period is specified in this chapter, the water supplier shall use a laboratory that will report to the department the results of any test measurement or analysis required by this chapter within one of the following time periods, whichever is shortest:

(a) The first 10 days following the month in which the analysis is completed.

(b) The first 10 days following the end of the required monitoring period as stipulated by the department.

(2) VIOLATION REPORTING. Unless another time period is specified in this chapter, the water supplier shall report to the department, no later than 24 hours after receiving the test results, the failure to comply with any maximum contaminant level, or monitoring requirement, or treatment technique set forth in this chapter.

(3) REPORTING RESPONSIBILITY. The supplier of water is not required to report analytical results to the department if the laboratory doing the analysis has reported the results electronically to the department within the time frames contained in this section. The water supplier is responsible for analytical results that are not reported within the required time frames.

(4) ELECTRONIC REPORTING. (a) When determining compliance with any water quality monitoring, or drinking water maximum contaminant levels specified in this chapter, the department shall accept analytical results only from laboratories that report results directly to the department in a department approved electronic format and are certified under ch. ATCP 77, ch. NR 149 for safe drinking water analyses or laboratories approved by EPA for radionuclide analyses.

(b) Results of microbiological samples collected to satisfy requirements of subch. I shall be reported to the department and the water supplier within 24 hours of the time the results are obtained by the laboratory. When results are obtained on a weekend or holiday, the results shall be provided to the water supplier and the department as soon as practicable.

(c) Analytical results other than those under par. (b) obtained to satisfy requirements of this chapter shall be reported as required under subs. (1) and (2).

(d) The department may approve submission of compliance data required under this chapter in alternate formats on a case−by−case basis if the alternate format does not create a delay in determining compliance with any requirement in this chapter or have the potential for delaying response to a public health threat.

(5) PUBLIC NOTICE REPORTING. The water supplier, within 10 days of completion of each public notification required under subch. VII, shall submit to the department a certification that it has fully complied with the public notification regulations. The water supplier shall include with this certification a representative copy of each type of notice distributed, published, posted, or made available to the persons served by the public water system or to the media, or both.

(6) MONTHLY OPERATING REPORTS — WITHOUT FILTRATION. A water supplier for a public water system that uses a groundwater source under the direct influence of surface water and does not provide filtration treatment shall report monthly to the department the information specified in this subsection.

(a) Source water quality information shall be reported to the department within 10 days after the end of each month the public water system serves water to the public. Information that shall be reported includes:

1. The cumulative number of months for which results are reported.

2. The number of fecal or total coliform samples, whichever are analyzed during the month, or if the water supplier monitors for both, only the number of fecal coliform samples, the dates of sample collection, and the dates when the turbidity level exceeded 1 NTU.

3. The number of samples during the month that had equal to or less than 20/100 ml fecal coliforms or equal to or less than 100/100 ml total coliforms, whichever are analyzed.

4. The cumulative number of fecal or total coliform samples, whichever are analyzed, during the previous 6 months the public water system served water to the public.

5. The cumulative number of samples that had equal to or less than 20/100 ml fecal coliforms or equal to or less than 100/100 ml total coliforms, whichever are analyzed, during the previous 6 months the public water system served water to the public.

6. The percentage of samples that had equal to or less than 20/100 ml fecal coliforms or equal to or less than 100/100 ml total coliforms, whichever are analyzed, during the previous 6 months the public water system served water to the public.

7. The maximum turbidity level measured during the month, the dates of occurrence for any measurements which exceeded 5 NTU, and the dates the occurrences were reported to the department.

8. For the first 12 months of record keeping, the dates and cumulative number of events during which the turbidity exceeded 5 NTU, and after one year of record keeping for turbidity measurements, the dates and cumulative number of events during which the turbidity exceeded 5 NTU in the previous 12 months the public water system served water to the public.

9. For the first 120 months of record keeping, the dates and cumulative number of events during which the turbidity exceeded 5 NTU, and after 10 years of record keeping for turbidity measurements, the dates and cumulative number of events during which the turbidity exceeded 5 NTU in the previous 120 months the public water system served water to the public.

(b) Disinfection information specified in s. NR 810.38 (1) shall be reported to the department within 10 days after the end of each month the public water system serves water to the public. Information that shall be reported includes:

1. For each day, the lowest measurement of residual disinfectant concentration in mg/l in water entering the distribution system.

2. The date and duration of each period when the residual disinfectant concentration in water entering the distribution system fell below 0.2 mg/l and when the department was notified of the occurrence.

3. The daily residual disinfectant concentrations (in mg/l) and disinfectant contact times (in minutes) used for calculating the CT values.

4. If chlorine is used, the daily measurements of pH of disinfected water following each point of chlorine disinfection.

5. The daily measurements of water temperature in ºC following each point of disinfection.

6. The daily CTcalc and $CTcalc/CT_{99.9}$ values for each disinfectant measurement or sequence and the sum of all $CTcalc/CT_{99.9}$ values ($\Sigma(CTcalc/CT_{99.9})$) before or at the first customer.

7. The daily determination of whether disinfection achieves adequate *Giardia lamblia* cyst and virus inactivation, i.e., whether ($CTcalc/CT_{99.9}$) is at least 1.0, or where disinfectants other than

chlorine are used, other indicator conditions that the department determines are appropriate, are met.

8. The following information on the samples taken in the distribution system in conjunction with total coliform monitoring pursuant to s. NR 810.31:

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 > 500/ml;

e. Number of instances where the residual disinfectant concentration is not measured and HPC is > 500/ml;

f. For the current and previous month the public water system serves water to the public, the value of "V" in the following formula:

$$V = c + d + e/a + b \times 100$$

where:

a = the value in this subd. 8. a.

b = the value in this subd. 8. b.

c = the value in this subd. 8. c.

d = the value in this subd. 8. d.

e = the value in this subd. 8. e.

g. If the department determines, based on site specific considerations, that a water supplier 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 s. NR 810.38 and that the public water system is providing adequate disinfection in the distribution system, the requirements of this subd. 8. a. to f. do not apply.

9. A water supplier need not report the data listed in subds. 1. and 3. to 6. if all data listed in par. (b) remain on file at the public water system and department determines that:

a. The water supplier has submitted to the department all the information required by subds. 1. to 8. for at least 12 months; and

b. The department has determined that the public water system is not required to provide filtration treatment.

(c) No later than 10 days after September 30, the end of each federal fiscal year, each water supplier shall provide to the department a report which summarizes the public water system's compliance with all wellhead protection program requirements specified in s. NR 810.30 (2) (b).

(d) No later than 10 days after September 30, the end of each federal fiscal year, each water supplier shall provide to the department a report of the on−site inspection conducted during that year pursuant to s. NR 810.32 (2) (c), unless the on−site inspection was conducted by the department. If the inspection was conducted by the department, the department shall provide a copy of its report to the public water system.

(e) 1. Each water supplier, upon discovering that a waterborne disease outbreak potentially attributable to their public water system has occurred, shall report that occurrence to the department as soon as possible, but no later than by the end of the next business day.

2. If at any time the turbidity exceeds 5 NTU, the water supplier shall consult with the department as soon as possible, but no later than 24 hours after the exceedance is known, in accordance with the public notification requirements under s. NR 809.952 (2) (c).

3. If at any time the disinfectant residual falls below 0.2 mg/l in the water entering the distribution system, the water supplier shall notify the department as soon as possible, but no later than by the end of the next business day. The water supplier also shall notify the department by the end of the next business day whether or not the residual was restored to at least 0.2 mg/l within 4 hours.

(7) MONTHLY OPERATING REPORTS — WITH FILTRATION. A water supplier for a public water system that uses a surface water source or a groundwater source under the direct influence of surface water and provides filtration treatment shall report monthly to the department the information specified in this subsection.

(a) Turbidity measurements as required by s. NR 810.38 (2) (a) shall be reported within 10 days after the end of each month the public water system serves water to the public. Information that shall be reported includes:

1. The total number of filtered water turbidity measurements taken during the month and the highest daily turbidity measurement for each day.

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 s. NR 810.29 for the filtration technology being used.

3. The date and value of any turbidity measurements taken during the month which exceed 1.0 NTU for public water systems using conventional or direct filtration, or which exceed the maximum level set in s. NR 810.29.

(b) Disinfection information specified in s. NR 810.38 shall be reported to the department within 10 days after the end of each month the public water system serves water to the public. Information that shall be reported includes:

1. For each day, the lowest measurement of residual disinfectant concentration in mg/l in water entering the distribution system.

2. The date and duration of each period when the residual disinfectant concentration in water entering the distribution system fell below 0.2 mg/l and when the department was notified of the occurrence.

3. The following information on the samples taken in the distribution system in conjunction with total coliform monitoring pursuant to s. NR 810.31:

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 > 500/ml;

e. Number of instances where the residual disinfectant concentration is not measured and HPC is > 500/ml;

f. For the current and previous month the public water system serves water to the public, the value of "V" in the following formula:

$$V = c + d + e/a + b \times 100$$

where:

a = the value in this subd. 3. a.

b = the value in this subd. 3. b.

c = the value in this subd. 3. c.

d = the value in this subd. 3. d.

e = the value in this subd. 3. e.

g. If the department determines, based on site specific considerations, that a water supplier 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 s. NR 810.38 and that the public water system is providing adequate disinfection in the distribution system, the requirements of this subd. 3. a. to f. do not apply.

4. A water supplier need not report the data listed in subd. 1. if all data listed in this paragraph remains on file at the public water system and the department determines that the water supplier has submitted all the information required by this paragraph for at least 12 months.

(c) 1. If during any 4 hour monitoring period the turbidity exceeds 0.3 NTU or at any time during the month, turbidity measurements indicate the 95th percentile turbidity level of 0.5 NTU will be exceeded for that month, the water supplier shall inform the department as soon as possible, but no later than the end of the next business day.

2. If at any time the disinfectant residual falls below 0.2 mg/l in the water entering the distribution system, the water supplier shall notify the department as soon as possible, but no later than the end of the next business day. The water supplier also shall notify the department by the end of the next business day whether or not the residual was restored to at least 0.2 mg/l within 4 hours.

(8) RECORDS RETENTION AND REPORTING. Public water systems shall maintain the results of individual filter monitoring taken under s. NR 810.38 (2) for at least 3 years. Water suppliers shall report that they have conducted individual filter turbidity monitoring under s. NR 810.38 (2) (b) within 10 days after the end of each month the public water system serves water to the public. Water suppliers shall report individual filter turbidity measurement results taken under s. NR 810.38 (2) within 10 days after the end of each month the public water system serves water to the public only if measurements demonstrate one or more of the conditions in pars. (a) to (d). Water suppliers for public water systems that use lime softening may apply to the department for alternative exceedance levels for the levels specified in pars. (a) to (d) if they can demonstrate that higher turbidity levels in individual filters are due to lime carryover only and not due to degraded filter performance.

(a) For any individual filter that has a measured turbidity level of greater than 1.0 NTU in 2 consecutive measurements taken 15 minutes apart, the water supplier shall report the filter number, the turbidity measurement, and the dates on which the exceedance occurred. In addition, the water supplier shall either produce a filter profile for the filter within 7 days of the exceedance, if the water supplier 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 0.5 NTU in 2 consecutive measurements taken 15 minutes apart at the end of the first 4 hours of continuous filter operation after the filter has been backwashed or otherwise taken offline, the water supplier shall report the filter number, the turbidity, and the dates on which the exceedance occurred. In addition, the water supplier shall either produce a filter profile for the filter within 7 days of the exceedance, if the water supplier 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 1.0 NTU in 2 consecutive measurements taken 15 minutes apart at any time in each of 3 consecutive months, the water supplier shall report the filter number, the turbidity measurement, and the dates on which the exceedance occurred. In addition, the water supplier shall conduct a self−assessment of the filter within 14 days of the exceedance and report that the self−assessment was conducted. The self−assessment shall consist of at least the following components: assessment of filter performance; development of a filter profile; identification and prioritization of factors limiting filter performance; assessment of the applicability of corrections; and preparation of a filter self−assessment report.

(d) For any individual filter that has a measured turbidity level of greater than 2.0 NTU in 2 consecutive measurements taken 15 minutes apart at any time in each of 2 consecutive months, the water supplier shall report the filter number, the turbidity measurement, and the dates on which the exceedance occurred. In addition, the water supplier shall arrange for the conduct of a comprehensive performance evaluation by the department or a third party approved by the department no later than 30 days following the exceedance and have the evaluation completed and submitted to the department no later than 90 days following the exceedance.

(e) The following turbidity exceedances shall be reported as follows:

1. If at any time the turbidity exceeds 1 NTU on representative samples of filtered water in a public water system using conventional filtration treatment or direct filtration, the water supplier system shall inform the department as soon as possible, but no later than the end of the next business day.

2. If at any time the turbidity in representative samples of filtered water exceeds the maximum level set by the department under s. NR 810.29 (5) for filtration technologies other than conventional filtration treatment, direct filtration, slow sand filtration or diatomaceous earth filtration, the water supplier shall inform the department as soon as possible, but no later than the end of the next business day.

(9) WATERBORNE DISEASE REPORTING. Each water supplier, upon discovering that a waterborne disease outbreak potentially attributable to the water supplier's public water system has occurred, shall report that occurrence to the department as soon as possible, but no later than by the end of the next business day.

(9m) SEASONAL SYSTEM START−UP PROCEDURE REPORTING. Before serving water to the public, the water supplier for a seasonal public water system must certify to the department that it has complied with the department−approved start−up procedure.

(10) ADDITIONAL RECORD REPORTING. Upon the request of the department, the water supplier shall submit to the department copies of any records required to be maintained under s. NR 809.82 or copies of any documents then in existence which the department is entitled to inspect under the authority of s. 281.97, Stats.

(11) REPORTING FORMAT. The department may specify the format for reporting analytical results required under this chapter.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; correction in (8) (intro.) made under s. 13.92 (4) (b) 7., Stats., Register November 2010 No. 659; **CR 15−049: am. (7) (c) 1., cr. (9m) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.82 Record maintenance. Any water supplier of a public water system subject to the provisions of this chapter shall retain on the premises or at a convenient location near the premises the following records:

(1) ANALYTICAL RESULT RECORDS. Records of microbiological analyses and turbidity analyses made pursuant to chs. NR 810 and 811 and this chapter shall be kept for not less than 5 years. Records of chemical analyses made pursuant to chs. NR 810 and 811 and this chapter shall be kept for not less than 10 years. Actual laboratory reports may be kept, or data may be transferred to tabular summaries, provided that all of the following information is included:

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

(b) Identification of the sample as to whether it was a routine distribution system sample, check sample, raw or process water sample or other special purpose sample.

(c) Date of analysis.

(d) Laboratory and person responsible for performing analysis.

(e) The analytical technique/method used.

(f) The results of the analysis.

(2) VIOLATION CORRECTION RECORDS. Records of action taken by the water supplier to correct violations of this chapter shall be kept for a period of not less than 3 years after the last action taken with respect to the particular violation involved.

(3) SANITARY SURVEY RECORDS. Copies of any written reports, summaries or communications relating to sanitary surveys of the public water system conducted by the water supplier, by a private consultant, or by any local, state or federal agency, shall be kept for a period of not less than 10 years after completion of the sanitary survey involved.

(4) CONDITIONAL WAIVER OR VARIANCE RECORDS. Records concerning a conditional waiver or variance granted to the public water system shall be kept for a period of not less than 5 years following the expiration of the conditional waiver or variance.

(5) LEAD AND COPPER CONTROL RECORDS. The water supplier for any public water system subject to the requirements of subch. II shall retain on the premises original records of all sampling data and analyses, reports, surveys, letters, evaluations, schedules, department determinations, and any other information required by ss. NR 809.542 to 809.549. Each water supplier shall retain the records for no less than 12 years.

(6) PUBLIC NOTICE RECORDS. The department shall keep copies of public notices issued pursuant to subch. VII and certifications made to the department pursuant to s. NR 809.80 for 3 years after issuance.

(7) MONITORING PLAN RECORDS. Copies of monitoring plans developed pursuant to this chapter shall be kept for the same period of time as the records of analyses taken under the plan are required to be kept under sub. (1), except as specified elsewhere in this chapter.

(8) ASSESSMENT FORMS. The water supplier shall maintain any assessment form, regardless of who conducts the assessment, and documentation of corrective actions completed as a result of those assessments, or other available summary documentation of the sanitary defects and corrective actions taken under s. NR 809.313. The water supplier shall maintain the records for department review for a period not less than 5 years after completion of the assessment or corrective action.

(9) REPEAT SAMPLE EXTENSIONS. The water supplier shall maintain a record of any repeat sample taken that meets department criteria for an extension of the 24−hour period for collecting repeat samples as provided under s. NR 809.31 (2).

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: cr. (8), (9) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.83 Consumer confidence report applicability and deadlines. (1) PURPOSE AND APPLICABILITY. Water supplier for community water systems shall deliver to their customers an annual report containing information on the quality of the water and the characterization of risks, if any, from exposure to contaminants detected in the drinking water delivered by their public water system. The report shall be written in an accurate and understandable manner.

(a) Customers under this paragraph are defined as billing units or service connections to which water is delivered by a community water system.

(b) Detected under this paragraph refers to all contaminants identified at or above the detection limits specified in subch. I and reported by a safe drinking water certified laboratory.

(2) DEADLINES. (a) Each existing community water system shall deliver its report by July 1 annually. Reports shall contain data collected during, or prior to, the previous calendar year.

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

(c) A community water system that sells water to another community water system shall deliver the applicable information required in s. NR 809.833 to the buyer system by one of the following dates:

1. No later than April 1 annually.

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

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (1) (b) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.833 Content of consumer confidence reports. Water suppliers for each community water system shall provide to their customers an annual report that contains all of the information specified in this section and s. NR 809.835.

(1) INFORMATION ON THE SOURCE OF THE WATER DELIVERED. Each report shall identify the sources of the water delivered by the community water system by providing information on all of the following:

(a) The type of the water, including, surface water, groundwater.

(b) The commonly used name, if any, and location of the bodies of water.

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

(2) DEFINITIONS. (a) Each report shall include all of the following definitions:

1. Maximum contaminant level goal or MCLG: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

2. Maximum contaminant level or MCL: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

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

Note: Subchapter VIII was repealed by CR 15−049. Corrections will be made in future rulemaking.

(c) A report which contains data on contaminants which EPA regulates using any of the following terms shall include the applicable definitions:

1. "Treatment technique: A required process intended to reduce the level of a contaminant in drinking water."

2. "Action level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a public water system shall follow."

3. "Maximum residual disinfectant level goal or MRDLG: The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants."

4. "Maximum residual disinfectant level or MRDL: The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants."

(d) A report that contains information regarding a Level 1 or Level 2 Assessment required in s. NR 809.313 shall include the following definitions:

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

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

(3) INFORMATION ON DETECTED CONTAMINANTS. With the exception of *Cryptosporidium*, reports shall contain the following information in the specified format, for regulated contaminants subject to a MCL, action level, maximum residual disinfectant level, microbial contaminants, or treatment technique, unregulated contaminants for which monitoring is required under subch. I, and disinfection by−products for which monitoring is required under subch. III:

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

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

1. If a public water system is allowed to be monitored for regulated contaminants less often than once a year, the tables shall include the date and results of the most recent sampling and the report shall include a brief statement indicating that the data presented in the report are from the most recent testing done in accordance with the regulations. No data older than 5 years need be included.

2. Results of monitoring in compliance with requirements issued under 40 CFR Sub. D, part 141.142 and 141.143 under the information collection rule need only be included for 5 years from the date of last sample or until any of the detected contaminants becomes regulated and subject to routine monitoring requirements, whichever comes first.

(c) For detected regulated contaminants, listed in Appendix A to this subchapter, the tables shall contain all of the following:

1. The MCL for that contaminant expressed as a number equal to or greater than 1.0, as provided in Appendix A to this subchapter.

2. The MCLG for that contaminant expressed in the same units as the MCL.

3. If there is no MCL for a detected contaminant, the table shall indicate that there is a treatment technique, or specify the action level, applicable to that contaminant, and the report shall include the definitions for treatment technique or action level, or both, as appropriate, specified in this paragraph.

4. For contaminants subject to an MCL, except turbidity and *E. coli*, the highest contaminant level used to determine compliance with requirements of this chapter and the range of detected levels as follows:

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

b. When compliance with the MCL is determined by calculating a running annual average of all samples taken at a sampling point: the highest average of any of the sampling points and the range of all sampling points expressed in the same units as the MCL. When the MCL for TTHM or HAA5 in s. NR 809.561 (2) is exceeded at a locational running annual average monitoring location, systems must include the highest locational running annual average for TTHM and HAA5 and the range of individual sample results for all monitoring locations expressed in the units as the MCL. If more than one location exceeds the TTHM or HAA5 MCL, the system must include the locational running annual averages for all locations that exceed the MCL.

c. When compliance with the MCL is determined on a public water system−wide basis by calculating a running annual average of all samples at all sampling points: the average and range of detection expressed in the same units as the MCL.

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

5. For turbidity:

a. When it is reported pursuant to s. NR 810.29, the highest average monthly value.

b. When it is reported pursuant to s. NR 810.29, the highest monthly value. The report should include an explanation of the reasons for measuring turbidity.

c. When it is reported pursuant to s. NR 810.29, the highest single measurement and the lowest monthly percentage of samples meeting the turbidity limits specified in s. NR 810.29 for the filtration technology being used. The report should include an explanation of the reasons for measuring turbidity.

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

7. For *E. coli* analytical results under s. NR 809.31, the total number of positive samples.

8. The likely sources of detected contaminants to the best of the water supplier's knowledge. Specific information regarding contaminants may be available in sanitary surveys and source water assessments, and should be used when available to the water supplier. If the water supplier lacks specific information on the likely source, the report shall include one or more of the typical sources for that contaminant listed in Appendix A to this subchapter that are most applicable to the public water system.

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

(e) The tables shall clearly identify any data indicating violations of MCLs or treatment techniques and the report shall contain a clear and readily understandable explanation of the violation including: the length of the violation, the potential adverse health effects, and actions taken by the water supplier to address the violation. To describe the potential health effects, the water supplier shall use the relevant language of Appendix A to this subchapter.

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

(4) INFORMATION ON CRYPTOSPORIDIUM, RADON AND OTHER CONTAMINANTS. (a) If the water supplier has performed any monitoring for *Cryptosporidium*, including monitoring performed to satisfy the requirements of 40 CFR sub. D, part 141, s. 141.143 (information collection rule), which indicates that *Cryptosporidium* may be present in the source water or the finished water, the report shall include all of the following:

1. A summary of the results of the monitoring.

2. An explanation of the significance of the results.

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

1. The results of the monitoring.

2. An explanation of the significance of the results.

(c) If the water supplier has performed additional monitoring which indicates the presence of other contaminants in the finished water, the report shall include all of the following:

1. The results of the monitoring.

2. An explanation of the significance of the results noting the existence of a health advisory or a proposed regulation.

Note: To determine the significance of the results it is recommended that water supplier call the Safe Drinking Water Hotline at 800–426–4791.

(5) COMPLIANCE WITH ALL DRINKING WATER REGULATIONS. In addition to the requirements of sub. (3) (f), the report shall note any violation that occurred during the year covered by the report of a requirement listed in this subsection. The report also shall include a clear and readily understandable explanation of the violation, any potential adverse health effects, and the steps the water supplier has taken to correct the violation. All of the following violations shall be included:

(a) Failure to comply with requirements for monitoring and reporting of compliance data.

(b) For public water systems which have failed to install adequate filtration or disinfection equipment or processes, or have had a failure of the equipment or processes which constitutes a violation, the report shall include the following language as part of the explanation of potential adverse health effects. Inadequately treated water may contain disease−causing organisms. These organisms include bacteria, viruses and parasites, which can cause symptoms such as nausea, cramps, diarrhea and associated headaches.

(c) Lead and copper control requirements that are prescribed by subch. II. For public water systems that fail to take one or more actions prescribed by s. NR 809.541 (4), 809.542, 809.543, 809.544 or 809.545, the report shall include the applicable language of Appendix A to this subchapter for lead, copper or both.

(d) Treatment techniques for Acrylamide and Epichlorohydrin that are prescribed by subch. I. For public water systems that violate the requirements of s. NR 809.25 (4), the report shall include the relevant language from Appendix A to this subchapter.

(e) Failure to comply with required recordkeeping of compliance data.

(f) Failure to comply with special monitoring requirements prescribed by ss. NR 809.118 and 809.25.

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

(6) EXEMPTIONS. If a public water system is operating under the terms of a conditional waiver or variance issued under subch. VIII, the report shall contain all of the following:

Note: Subchapter VIII was repealed by CR 15−049. Corrections will be made in future rulemaking.

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

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

(c) A brief status report on the steps the water supplier is taking to install treatment, find alternative sources of water or otherwise comply with the terms and schedules of the variance or exemption.

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

(7) ADDITIONAL INFORMATION. (a) *Contaminants in drinking water.* The report shall contain a brief explanation regarding contaminants, which may reasonably be expected to be found in drinking water including bottled water. This explanation may include the language of subds. 1. to 3. or water supplier may use their own comparable language. The report also shall include the language of subd. 4.

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

2. "Contaminants that may be present in source water include:"

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

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

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

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

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

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

4. "Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the environmental protection agency's safe drinking water hotline (800−426−4791)."

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

(c) *Non−English translations.* In communities where non−English speaking residents comprise a significant portion of the population served, the report shall contain information in the appropriate language or languages regarding the importance of the report, or contain a telephone number or address where the residents may contact the public water system to obtain a translated copy of the report or assistance in the appropriate language. In communities where a specific non−English speaking group comprises at least 5% of the population of the community served, the report shall be translated into that language.

(d) *Public participation opportunities.* The report shall include information, including, time and place of regularly scheduled board meetings, about opportunities for public participation in decisions that may affect the quality of the water.

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

(f) *Public water systems with significant deficiencies or E. coli positives under s. NR 809.325.* 1. A water supplier for any groundwater system that receives notice from the department of a significant deficiency or notice from a laboratory of a fecal indicator−positive groundwater source sample required under s. NR 809.325 (2), that is not invalidated by the department under s. NR 809.323 (2), must inform its customers of any significant deficiency that is uncorrected at the time of the next report or of any fecal indicator−positive groundwater source sample in the next report.

2. The water supplier must continue to inform the public annually until the department determines that particular significant deficiency is corrected or the fecal contamination in the

groundwater source is addressed under s. NR 809.327 (1). Each report must include all the following applicable elements:

a. The nature of the particular significant deficiency or the source of the fecal contamination, if the source is known, and the date the significant deficiency was identified by the department or the dates of the fecal indicator−positive groundwater source samples.

b. If the fecal contamination in the groundwater source has been addressed under s. NR 809.327 (1) and the date of such action.

c. For each significant deficiency or fecal contamination in the groundwater source that has not been addressed under s. NR 809.327 (1), the department approved plan and schedule for correction, including interim measures, progress to date, and any interim measures completed.

d. If the public water system receives notice of a fecal indicator−positive groundwater source sample that is not invalidated by the department under s. NR 809.323 (2), the potential health effects using the health effects language of Appendix A of subch. V.

3. If directed by the department, a water supplier for a public water system with significant deficiencies that have been corrected before the next report is issued must inform the customers, of the public water system, of the significant deficiency, how the deficiency was corrected, and the date of correction under subd. 1.

(g) *Water suppliers required to conduct Level 1 or Level 2 assessments not resulting from an E. coli MCL violation.* Any water supplier required to comply with the Level 1 assessment requirement or a Level 2 assessment requirement that is not resulting from an *E. coli* MCL violation must include in the report the text found in subds. 1. to 3. as appropriate, filling in the blanks accordingly. Any water supplier that has failed to complete all the required assessments or correct all identified sanitary defects is in violation of the treatment technique requirement and must also include one or both of the statements in subds. 4. and 5. of this paragraph, as appropriate.

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

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

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

4. During the past year we failed to conduct all of the required assessments.

5. During the past year we failed to correct all identified defects that were found during the assessments.

(h) *Water suppliers required to conduct Level 2 assessments resulting from an E. coli MCL violation.* Any water supplier required to conduct a Level 2 assessment resulting from an *E. coli* MCL violation must include in the report the text found in subds. 1. and 2., filling in the blanks accordingly, if appropriate. Any system that has failed to complete the required assessment or correct all identified sanitary defects is in violation of the treatment technique requirement and must also include the statements in subds. 3. and 4., as appropriate.

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

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

3. We failed to conduct the required assessment.

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

(i) *Water suppliers detecting E. coli and violating the E. coli MCL.* If a water supplier detects *E. coli* and has violated the *E. coli MCL*, in addition to completing the table as required in sub. (3) (c), the water supplier must include one or more of the statements in subds.1. to 4. to describe any noncompliance, as applicable:

1. We had an *E. coli*−positive repeat sample following a total coliform−positive routine sample.

2. We had a total coliform−positive repeat sample following an *E. coli*−positive routine sample.

3. We failed to take all required repeat samples following an *E. coli*−positive routine sample.

4. We failed to test for *E. coli* when any repeat sample tests positive for total coliform.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; corrections in (5) (d) and (f) made under s. 13.92 (4) (b) 7., Stats., Register November 2010 No. 659; **CR 15−049: cr. (2) (d), am. (3) (c) 4. (intro.), b., r. and recr. (3) (c) 7., r. (3) (c) 8., renum. (3) (c) 9. to (c) 8., am. (7) (f) 1., 2. d., cr. (7) (g) to (i) Register March 2016 No. 723, eff. 4−1−16; correction in (7) (i) (intro.) made under s. 35.17, Stats., Register March 2016 No. 723.**

NR 809.835 Required additional health information for consumer confidence reports. (1) ADDITIONAL HEALTH INFORMATION FOR VULNERABLE POPULATIONS. All reports shall prominently display the following language: "Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno−compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the environmental protection agency's safe drinking water hotline at 800−426−4791."

(2) ADDITIONAL ARSENIC INFORMATION. Beginning July 1, 2002 a water supplier for a public water system that detects arsenic above 0.005 mg/L and up to and including 0.01 mg/L:

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

effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

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

(2m) ADDITIONAL NITRATE INFORMATION. A system which detects nitrate at levels above 5 mg/L, but below the MCL:

(a) Shall include a short informational statement about the effects of nitrate on children using language such as: "Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant you should ask advice from your health care provider. Females who are or may become pregnant should not consume water with nitrate concentrations that exceed 10 ppm. There is some evidence of an association between exposure to high nitrate levels in drinking water during the first weeks of pregnancy and certain birth defects."

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

(3) ADDITIONAL LEAD INFORMATION. Every report shall include the following lead−specific information:

(a) 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 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at http://www.epa.gov/safewater/lead."

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

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: cr. (2m), r. and recr. (3) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.837 Consumer confidence report delivery and recordkeeping. (1) GENERAL DELIVERY REQUIREMENTS. Except as provided in sub. (7), water suppliers for each community water system shall mail or otherwise directly deliver one copy of the report to each customer. Electronic delivery of the report is allowed if the water supplier of a community water system uses paper or electronic communication containing uniform resource locator (URL) information providing a direct link to the report and if the communication prominently displays the URL and a notice explaining the nature of the link. The electronic link shall take the customer to the entire report without directing the customer to another internet page.

(2) DELIVERY TO CONSUMERS THAT ARE NOT BILLED. The water supplier shall make a good faith effort to reach consumers who do not get water bills, using means recommended by the department. EPA expects that an adequate good faith effort will be tailored to the consumers who are served by the public water system but are not bill−paying customers, such as renters or workers. A good faith effort to reach consumers would include a mix of methods appropriate to the particular public water system such as: Posting the reports on the Internet; mailing to postal patrons in metropolitan areas; advertising the availability of the report in the news media; publication in a local newspaper; posting in public places such as cafeterias or lunch rooms of public buildings; delivery of multiple copies for distribution by single−biller customers such as apartment buildings or large private employers; delivery to community organizations.

(3) DELIVERY TO THE DEPARTMENT. No later than the date the public water system is required to distribute the report to its customers, the water supplier for each community water system shall also mail a copy of the report to the department, along with a certification that the report has been distributed to customers, and that the information is correct and consistent with the compliance monitoring data previously submitted to the department.

(4) DELIVERY TO OTHER AGENCIES. No later than the date the public water system is required to distribute the report to its customers, the water supplier for each community water system shall deliver the report to any other agency or clearinghouse identified by the department.

(5) REPORT AVAILABILITY. The water supplier for each community water system shall make its reports available to the public upon request.

(6) INTERNET POSTING. The water supplier for each community water system serving 100,000 or more persons shall post its current year's report to a publicly accessible site on the Internet.

(7) GOVERNOR'S WAIVER OF REPORT DELIVERY. The Governor of Wisconsin or the governor's designee may waive the requirement of sub. (1) for community water systems serving fewer than 10,000 persons.

(a) The water supplier for a public water system that has received a waiver under this subsection shall do all of the following:

1. Publish the reports in one or more local newspapers serving the area in which the public water system is located.

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

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

(b) The water supplier for a public water system serving 500 or fewer persons that has received a waiver under this subsection may forego the requirements of par. (a) 1. and 2. if they provide notice at least once per year to their customers by mail, door−to−door delivery or by posting in an appropriate location that the report is available upon request.

(8) RETENTION OF REPORTS. Any public water systems subject to this subchapter shall retain copies of its consumer confidence report for no less than 3 years.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (1), (3), Appendix A to Subchapter V Register March 2016 No. 723, eff. 4−1−16.**

Appendix A to Subchapter V
Consumer Confidence Report Information

Contaminant (units)	**Traditional MCL in mg/L**	**To convert for CCR; multiply by**	**MCL in CCR units**	**MCLG**	**Major sources in drinking water**	**Health effects language**
Microbiological contaminants:						
Total Coliform Bacteria	TT	N/A	TT	NA	Naturally present in the environment.	Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and to correct any problems that were found during these assessments.
E. coli	Routine and repeat samples are total coliform−positive and either is *E. coli*−positive or system fails to take repeat samples following *E. coli*−positive routine sample or system fails to analyze total coliform−positive repeat sample for *E. coli*.		Routine and repeat samples are total coliform−positive and either is *E. coli*−positive or system fails to take repeat samples following *E. coli*−positive routine sample or system fails to analyze total coliform−positive repeat sample for *E. coli*.	0	Human and animal fecal waste.	*E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short−term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.
Total organic carbon (ppm)	TT	N/A	TT	N/A	Naturally present in the environment.	Total organic carbon has no health effects. However, total organic carbon provides a medium for the formation of disinfection byproducts. Their byproducts include trihalomethanes and haloacetic acids. Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer.

Appendix A to Subchapter V
Consumer Confidence Report Information (Continued)

Contaminant (units)	Traditional MCL in mg/L	To convert for CCR; multiply by	MCL in CCR units	MCLG	Major sources in drinking water	Health effects language
Turbidity (NTU)	TT	N/A	TT	N/A	Soil runoff.	Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease−causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea and associated headaches.
Fecal Indicators: enterococci or coliphage	TT		TT	N/A	Human and animal fecal waste	Fecal indicators are microbes whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short−term health effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems
Radioactive contaminants:						
Beta/photon emitters (mrem/yr)	4 mrem/yr	N/A	4	N/A	Decay of natural and man−made deposits.	Certain minerals are radioactive and may emit forms of radiation known as photons and beta radiation. Some people who drink water containing beta and photon emitters in excess of the MCL over many years may have an increased risk of getting cancer.
Alpha emitters (pCi/l)	15 pCi/l	N/A	15	N/A	Erosion of natural deposits.	Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.
Combined radium (pCi/l)	5 pCi/l	N/A	5	N/A	Erosion of natural deposits.	Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer.
Uranium (ug/1)	30 ug/1	N/A	30	0	Erosion of natural deposits.	Some people who drink water containing uranium in excess of the MCL over many years may have an increased risk of getting cancer or kidney toxicity.

Appendix A to Subchapter V
Consumer Confidence Report Information (Continued)

Contaminant (units)	Traditional MCL in mg/L	To convert for CCR; multiply by	MCL in CCR units	MCLG	Major sources in drinking water	Health effects language
Inorganic contaminants:						
Antimony (ppb)	.006	1000	6	6	Discharge from petroleum refineries, fire retardants, ceramics, electronics, solder.	Some people who drink water containing antimony well in excess of the MCL over many years could experience increases in blood cholesterol and decreases in blood sugar.
Arsenic (ppb)	0.010[1]	1000	10[1]	0[1]	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes.	Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.
Asbestos (MFL)	7 MFL	N/A	7	7	Decay of asbestos cement water; Erosion of natural deposits.	Some people who drink water containing asbestos in excess of the MCL over many years may have an increased risk of developing benign intestinal polyps.
Barium (ppm)	2	N/A	2	2	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.	Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure.
Beryllium (ppb)	.004	1000	4	4	Discharge from metal refineries and coal−burning factories; Discharge from electrical, aerospace, and defense industries.	Some people who drink water containing beryllium well in excess of the MCL over many years could develop intestinal lesions.
Bromate (ppb)	.010	1000	10	0	By−product of drinking water disinfection.	Some people who drink water containing bromate in excess of the MCL over many years may have an increased risk of getting cancer.

Appendix A to Subchapter V
Consumer Confidence Report Information (Continued)

Contaminant (units)	Traditional MCL in mg/L	To convert for CCR; multiply by	MCL in CCR units	MCLG	Major sources in drinking water	Health effects language
Cadmium (ppb)	.005	1000	5	5	Corrosion of galvanized pipes; Erosion of natural deposits; Discharge from metal refineries; Runoff from waste batteries and paints.	Some people who drink water containing cadmium in excess of the MCL over many years could experience kidney damage.
Chloramines (ppm)	MRDL = 4	N/A	MRDL = 4	MRDLG = 4	Water additive used to control microbes.	Some people who use water containing chloramines well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chloramines well in excess of the MRDL could experience stomach discomfort or anemia.
Chlorine (ppm)	MRDL = 4	N/A	MRDL = 4	MRDLG = 4	Water additive used to control microbes.	Some people who use water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort or anemia.
Chlorine dioxide (ppb)	MRDL = .8	1000	MRDL = 800	MRDLG = 800	Water additive used to control microbes.	Some infants and young children who drink water containing chlorine dioxide in excess of the MRDL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorine dioxide in excess of the MRDL. Some people may experience anemia.
Chlorite (ppm)	1	N/A	1	0.8	By−product of drinking water disinfection.	Some infants and young children who drink water containing chlorite in excess of the MCL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorite in excess of the MCL. Some people may experience anemia.
Chromium (ppb)	.1	1000	100	100	Discharge from steel and pulp mills; Erosion of natural deposits.	Some people who drink water containing chromium well in excess of the MCL over many years could experience allergic dermatitis.

Appendix A to Subchapter V
Consumer Confidence Report Information (Continued)

Contaminant (units)	Traditional MCL in mg/L	To convert for CCR; multiply by	MCL in CCR units	MCLG	Major sources in drinking water	Health effects language
Copper (ppm)	AL = 1.3	N/A	AL = 1.3	1.3	Corrosion of household plumbing systems; Erosion of natural deposits.	Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.
Cyanide (ppb)	.2	1000	200	200	Discharge from steel/metal factories; Discharge from plastic and fertilizer factories.	Some people who drink water containing cyanide well in excess of the MCL over many years could experience nerve damage or problems with their thyroid.
Fluoride (ppm)	4	N/A	4	4	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories.	Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of bones. Fluoride in drinking water at half the MCL or more may cause mottling of children's teeth, usually in children less than 9 years old. Mottling, also known as dental fluorosis, may include brown staining and/or pitting of the teeth, and occurs only in developing teeth before they erupt from the gums.
Lead (ppb)	AL = .015	1000	AL = 15	0	Corrosion of household plumbing system; Erosion of natural deposits.	Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attentions span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.
Mercury [inorganic] (ppb)	.002	1000	2	2	Erosion of natural deposits; Discharge from refineries and factories; Runoff from landfills; Runoff from cropland.	Some people who drink water containing inorganic mercury well in excess of the MCL over many years could experience kidney damage.

Appendix A to Subchapter V
Consumer Confidence Report Information (Continued)

Contaminant (units)	Traditional MCL in mg/L	To convert for CCR; multiply by	MCL in CCR units	MCLG	Major sources in drinking water	Health effects language
Nitrate (ppm)	10	N/A	10	10	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.	Infants below the age of 6 months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome. Females who are or may become pregnant should not consume water with nitrate concentrations that exceed the MCL. There is some evidence of an association between exposure to high nitrate levels in drinking water during the first weeks of pregnancy and certain birth defects.
Nitrite (ppm)	1	N/A	1	1	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.	Infants below the age of 6 months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.
Selenium (ppb)	.05	1000	50	50	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines.	Selenium is an essential nutrient. However, some people who drink water containing selenium in excess of the MCL over many years could experience hair or fingernail loss, numbness in fingers or toes, or problems with their circulation.
Thallium (ppb)	.002	1000	2	0.5	Leaching from ore−processing sites; Discharge from electronic, glass, and drug factories.	Some people who drink water containing thallium in excess of the MCL over many years could experience hair loss, changes in their blood, or problems with their kidneys, intestines, or liver.
Synthetic organic contaminants including pesticides and herbicides:						
2,4−D (ppb)	.07	1000	70	70	Runoff from herbicide used on row crops.	Some people who drink water containing the weed killer 2,4−D well in excess of the MCL over many years could experience problems with their kidneys, liver, or adrenal glands.
2,4,5−TP [Silvex] (ppb)	.05	1000	50	50	Residue of banned herbicide.	Some people who drink water containing silvex in excess of the MCL over many years could experience liver problems.
Acrylamide	TT	N/A	TT	0	Added to water during sewage/wastewater treatment.	Some people who drink water containing high levels of acrylamide over a long period of time could have problems with their nervous system or blood, and may have an increased risk of getting cancer.

Appendix A to Subchapter V
Consumer Confidence Report Information (Continued)

Contaminant (units)	Traditional MCL in mg/L	To convert for CCR; multiply by	MCL in CCR units	MCLG	Major sources in drinking water	Health effects language
Alachlor (ppb)	.002	1000	2	0	Runoff from herbicide used on row crops.	Some people who drink water containing alachlor in excess of the MCL over many years could have problems with their eyes, liver, kidneys, or spleen, or experience anemia, and may have an increased risk of getting cancer.
Atrazine (ppb)	.003	1000	3	3	Runoff from herbicide used on row crops.	Some people who drink water containing atrazine well in excess of the MCL over many years could experience problems with their cardiovascular system or reproductive difficulties.
Benzo(a)−pyrene [PAH] (nanograms/l)	.0002	1,000,000	200	0	Leaching from lining of water storage tanks and distribution lines.	Some people who drink water containing benzo(a)pyrene in excess of the MCL over many years may experience reproductive difficulties and may have an increased risk of getting cancer.
Carbofuran (ppb)	.04	1000	40	40	Leaching of soil fumigant used on rice and alfalfa.	Some people who drink water containing carbofuran in excess of the MCL over many years could experience problems with their blood, or nervous or reproductive systems.
Chlordane (ppb)	.002	1000	2	0	Residue of banned termiticide.	Some people who drink water containing chlordane in excess of the MCL over many years could experience problems with their liver or nervous system, and may have an increased risk of getting cancer.
Dalapon (ppb)	.2	1000	200	200	Runoff from herbicide used on rights of way.	Some people who drink water containing dalapon well in excess of the MCL over many years could experience minor kidney changes.
Di(2−ethylhexyl) adipate (ppb)	.4	1000	400	400	Discharge from chemical factories.	Some people who drink water containing di (2−ethylhexyl) adipate well in excess of the MCL over many years could experience toxic effects such as weight loss, liver enlargement or possible reproductive difficulties.
Di(2−ethylhexyl) phthalate (ppb)	.006	1000	6	0	Discharge from rubber and chemical factories.	Some people who drink water containing di (2−ethylhexyl) phthalate well in excess of the MCL over many years may have problems with their liver, or experience reproductive difficulties, and may have an increased risk of getting cancer.

Appendix A to Subchapter V
Consumer Confidence Report Information (Continued)

Contaminant (units)	Traditional MCL in mg/L	To convert for CCR; multiply by	MCL in CCR units	MCLG	Major sources in drinking water	Health effects language
Dibromo−chloropropane (ppt)	.0002	1,000,000	200	0	Runoff/leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards.	Some people who drink water containing DBCP in excess of the MCL over many years could experience reproductive problems and may have an increased risk of getting cancer.
Dinoseb (ppb)	.007	1000	7	7	Runoff from herbicide used on soybeans and vegetables.	Some people who drink water containing dinoseb well in excess of the MCL over many years could experience reproductive difficulties.
Diquat (ppb)	.02	1000	20	20	Runoff from herbicide use.	Some people who drink water containing diquat in excess of the MCL over many years could get cataracts.
Dioxin [2,3,7,8−TCDD] (ppq)	.00000003	1,000,000,000	30	0	Emissions from waste incineration and other combustion; Discharge from chemical factories.	Some people who drink water containing dioxin in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer.
Endothall (ppb)	.1	1000	100	100	Runoff from herbicide use.	Some people who drink water containing endothall in excess of the MCL over many years could experience problems with their stomach or intestines.
Endrin (ppb)	.002	1000	2	2	Residue of banned insecticide.	Some people who drink water containing endrin in excess of the MCL over many years could experience liver problems.
Epichloro−hydrin	TT	N/A	TT	0	Discharge from industrial chemical factories; An impurity of some water treatment chemicals.	Some people who drink water containing high levels of epichlorohydrin over a long period of time could experience stomach problems, and may have an increased risk of getting cancer.
Ethylene dibromide (ppt)	.00005	1,000,000	50	0	Discharge from petroleum refineries.	Some people who drink water containing ethylene dibromide in excess of the MCL over many years could experience problems with their liver, stomach, reproductive systems, or kidneys, and may have an increased risk of getting cancer.
Glyphosate (ppb)	.7	1000	700	700	Runoff from herbicide use.	Some people who drink water containing glyphosate in excess of the MCL over many years could experience problems with their kidneys or reproductive difficulties.

Appendix A to Subchapter V
Consumer Confidence Report Information (Continued)

Contaminant (units)	Traditional MCL in mg/L	To convert for CCR; multiply by	MCL in CCR units	MCLG	Major sources in drinking water	Health effects language
Heptachlor (ppt)	.0004	1,000,000	400	0	Residue of banned pesticide.	Some people who drink water containing heptachlor in excess of the MCL over many years could experience liver damage and may have an increased risk of getting cancer.
Heptachlor−epoxide (ppt)	.0002	1,000,000	200	0	Breakdown of heptachlor.	Some people who drink water containing heptachlor epoxide in excess of the MCL over many years could experience liver damage, and may have an increased risk of getting cancer.
Hexachlorobenzene (ppb)	.001	1000	1	0	Discharge from metal refineries and agricultural chemical factories.	Some people who drink water containing hexachlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys, or adverse reproductive effects, and may have an increased risk of getting cancer.
Hexachlorocyclopentadiene (ppb)	.05	1000	50	50	Discharge from chemical factories.	Some people who drink water containing hexachlorocyclopentadiene well in excess of the MCL over many years could experience problems with their kidneys or stomach.
Lindane (ppt)	.0002	1,000,000	200	200	Runoff/leaching from insecticide used on cattle, lumber and gardens.	Some people who drink water containing lindane in excess of the MCL over many years could experience problems with their kidneys or liver.
Methoxychlor (ppb)	.04	1000	40	40	Runoff/leaching from insecticide used on fruits, vegetables, alfalfa and livestock.	Some people who drink water containing methoxychlor in excess of the MCL over many years could experience reproductive difficulties.
Oxamyl [Vydate] (ppb)	.2	1000	200	200	Runoff/leaching from insecticide used on apples, potatoes and tomatoes.	Some people who drink water containing oxamyl in excess of the MCL over many years could experience slight nervous system effects.
PCBs [Polychlorinated biphenyls] (ppt)	.0005	1,000,000	500	0	Runoff from landfills; Discharge of waste chemicals.	Some people who drink water containing PCBs in excess of the MCL over many years could experience changes in their skin, problems with their thymus gland, immune deficiencies, or reproductive or nervous system difficulties, and may have an increased risk of getting cancer.

Appendix A to Subchapter V
Consumer Confidence Report Information (Continued)

Contaminant (units)	Traditional MCL in mg/L	To convert for CCR; multiply by	MCL in CCR units	MCLG	Major sources in drinking water	Health effects language
Pentachloro-phenol (ppb)	.001	1000	1	0	Discharge from wood preserving factories.	Some people who drink water containing pentachlorophenol in excess of the MCL over many years could experience problems with their liver or kidneys, and may have an increased risk of getting cancer.
Picloram (ppb)	.5	1000	500	500	Herbicide runoff.	Some people who drink water containing picloram in excess of the MCL over many years could experience problems with their liver.
Simazine (ppb)	.004	1000	4	4	Herbicide runoff.	Some people who drink water containing simazine in excess of the MCL over many years could experience problems with their blood.
Toxaphene (ppb)	.003	1000	3	0	Runoff/leaching from insecticide used on cotton and cattle.	Some people who drink water containing toxaphene in excess of the MCL over many years could have problems with their kidneys, liver, or thyroid, and may have an increased risk of getting cancer.
Volatile organic contaminants:						
Benzene (ppb)	.005	1000	5	0	Discharge from factories; Leaching from gas storage tanks and landfills.	Some people who drink water containing benzene in excess of the MCL over many years could experience anemia or a decrease in blood platelets, and may have an increased risk of getting cancer.
Carbon tetra-chloride (ppb)	.005	1000	5	0	Discharge from chemical plants and other industrial activities.	Some people who drink water containing carbon tetrachloride in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.
Chlorobenzene (ppb)	.1	1000	100	100	Discharge from chemical and agricultural chemical factories.	Some people who drink water containing chlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys.
0−Dichloroben-zene (ppb)	.6	1000	600	600	Discharge from industrial chemical factories.	Some people who drink water containing o−dichlorobenzene well in excess of the MCL over many years could experience problems with their liver, kidneys, or circulatory systems.
p−Dichloroben-zene (ppb)	.075	1000	75	75	Discharge from industrial chemical factories.	Some people who drink water containing p−dichlorobenzene in excess of the MCL over many years could experience anemia, damage to their liver, kidneys, or spleen, or changes in their blood.

Appendix A to Subchapter V
Consumer Confidence Report Information (Continued)

Contaminant (units)	Traditional MCL in mg/L	To convert for CCR; multiply by	MCL in CCR units	MCLG	Major sources in drinking water	Health effects language
1,2−Dichlorobenzene (ppb)	.005	1000	5	0	Discharge from industrial chemical factories.	Some people who drink water containing 1,2−dichlorobenzene in excess of the MCL over many years may have an increased risk of getting cancer.
1,1,−Dichlorobenzene (ppb)	.007	1000	7	7	Discharge from industrial chemical factories.	Some people who drink water containing 1,1−dichlorobenzene in excess of the MCL over many years could experience problems with their liver.
cis−1,2−Dichloroethylene (ppb)	.07	1000	70	70	Discharge from industrial chemical factories.	Some people who drink water containing cis−1,2−dichloroethylene in excess of the MCL over many years could experience problems with their liver.
trans−1,2−Dichloroethylene (ppb)	.1	1000	100	100	Discharge from industrial chemical factories.	Some people who drink water containing trans−1,2−dichloroethylene well in excess of the MCL over many years could experience problems with their liver.
Dichloro−methane (ppb)	.005	1000	5	0	Discharge from pharmaceutical and chemical factories.	Some people who drink water containing dichloromethane in excess of the MCL over many years could have liver problems and may have an increased risk of getting cancer.
1,2−Dichloropropane (ppb)	.005	1000	5	0	Discharge from industrial chemical factories.	Some people who drink water containing 1,2−dichloropropane in excess of the MCL over many years may have an increased risk of getting cancer.
Ethylbenzene (ppb)	.7	1000	700	700	Discharge from petroleum refineries.	Some people who drink water containing ethylbenzene well in excess of the MCL over many years could experience problems with their liver or kidneys.
Haloacetic Acids (pbb)	.060	1000	60	N/A	By−product of drinking water disinfection.	Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.
Styrene (ppb)	.1	1000	100	100	Discharge from rubber and plastic factories; Leaching from landfills.	Some people who drink water containing styrene well in excess of the MCL over many years could have problems with their liver, kidneys, or circulatory system.
Tetrachloroethylene (ppb)	.005	1000	5	0	Discharge from factories and dry cleaners.	Some people who drink water containing tetrachloroethylene in excess of the MCL over many years could have problems with their liver, and may have an increased risk of getting cancer.

Appendix A to Subchapter V
Consumer Confidence Report Information (Continued)

Contaminant (units)	Traditional MCL in mg/L	To convert for CCR; multiply by	MCL in CCR units	MCLG	Major sources in drinking water	Health effects language
1,2,4−Trichlorobenzene (ppb)	.07	1000	70	70	Discharge from textile−finishing factories.	Some people who drink water containing 1,2,4−trichlorobenzene well in excess of the MCL over many years could experience changes in their adrenal glands.
1,1,1−Trichloroethane (ppb)	.2	1000	200	200	Discharge from metal degreasing sites and other factories.	Some people who drink water containing 1,1,1−trichloroethane in excess of the MCL over many years could experience problems with their liver, nervous system, or circulatory system.
1,1,2−Trichloroethane (ppb)	.005	1000	5	3	Discharge from industrial chemical factories.	Some people who drink water containing 1,1,2−trichloroethane well in excess of the MCL over many years could have problems with their liver, kidneys, or immune systems.
Trichloroethylene (ppb)	.005	1000	5	0	Discharge from metal degreasing sites and other factories.	Some people who drink water containing trichoroethylene in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.
TTHMs [Total trihalomethanes] (ppb)	0.10/0.80	1000	100/80	N/A	By−product of drinking water disinfection.	Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.
Toluene (ppm)	1	N/A	1	1	Discharge from petroleum factories.	Some people who drink water containing toluene well in excess of the MCL over many years could have problems with their nervous system, kidneys, or liver.
Vinyl Chloride (ppb)	.0002	1000	.2	0	Leaching from PVC piping; Discharge from plastics factories.	Some people who drink water containing vinyl chloride in excess of the MCL over many years may have an increased risk of getting cancer.
Xylenes (ppm)	10	N/A	10	10	Discharge from petroleum factories; Discharge from chemical factories.	Some people who drink water containing xylenes in excess of the MCL over many years could experience damages to their nervous system.

Key:

AL = Action Level
MCL = Maximum Contaminant Level
MCLG = Maximum Contaminant Level Goal
MFL = million fibers per liter
MRDL = Maximum Residual Disinfectant Level
MRDLG = Maximum Residual Disinfectant Level Goal
mrem/year = millirems per year (a measure of radiation absorbed by the body)
N/A = Not Applicable
NTU = Nephelometric Turbidity Units (a measure of water clarity)
pCi/l = picocuries per liter (a measure of radioactivity)
ppm = parts per million, or milligrams per liter (mg/l)
ppb = parts per billion, or micrograms per liter (g/l)
ppt = parts per trillion, or nanograms per liter
ppq = parts per quadrillion, or picograms per liter
TT = Treatment Technique

Subchapter VI — Conditional Waivers and Variances

NR 809.90 Conditional waivers. (1) GENERAL APPLICATION REQUIREMENTS. A water supplier for a public water system may apply to the department for a conditional waiver for nonmicrobial contaminants respecting compliance with a maximum contaminant level or treatment technique requirement for a period up to 3 years if all of the following apply:

(a) One of the following situations exists:

1. Because of the characteristics of the raw water sources which are reasonably available, the public water system cannot comply with a maximum contaminant level despite application of best technology, treatment techniques or other means generally available, taking costs into consideration.

2. Compelling factors, which may include economic factors, indicate that the public water system cannot comply with a maximum contaminant level or treatment technique requirement for a limited period of time.

(b) The public water system was in operation on the effective date of the maximum contaminant level or treatment technique requirement.

(c) Granting of a conditional waiver will not result in an unreasonable risk to public health.

(d) The public water system shall have entered into a consent order agreement with the department regarding the conditional waiver.

(2) SMALL SYSTEM APPLICATION REQUIREMENTS. Water suppliers for small systems serving less than 3,300 persons, may apply for a conditional waiver for nonmicrobial contaminants only when all of the following conditions are met:

(a) The contaminant or treatment technique to be waived has a maximum contaminant level or treatment technique requirement established in national primary drinking water regulations promulgated on or after January 1, 1986.

(b) The technology used to comply with the maximum contaminant level or treatment technique is approved by the department.

(c) Compliance with maximum contaminant levels or treatment techniques is not reasonably affordable through restructuring or consolidation changes, including ownership change or physical consolidation or both with another public water system, or obtaining financial assistance through the Wisconsin drinking water state revolving loan fund (DWSRF).

(d) The small system is financially and technically capable of installing, operating and maintaining the applicable small system technology under par. (b).

(e) Granting of a conditional waiver will not result in an unreasonable risk to public health.

(f) The public water system shall have entered into a signed consent order agreement with the department regarding the conditional waiver.

(3) GENERAL WAIVER REQUIREMENTS. The department may grant a conditional waiver if the water supplier has established that the criteria of sub. (1) or (2) have been met. Any conditional waiver granted shall require all of the following:

(a) Compliance, including increments of progress, by the water supplier with each maximum contaminant level or treatment technique requirement within the time frame specified by the department in the compliance schedule.

(b) Implementation by the water supplier of control measures the department deems necessary until compliance with the maximum contaminant level or treatment technique requirement is achieved.

(4) BOTTLED WATER USE AS A REQUIREMENT OF A WAIVER. Public water systems that use bottled water as a requirement for receiving a conditional waiver shall meet all of the following requirements:

(a) The department shall require and approve a monitoring program for bottled water. The water supplier shall develop and put in place a monitoring program that provides reasonable assurances that the bottled water meets all MCLs. The water supplier shall monitor a representative sample of the bottled water for all contaminants regulated under ss. NR 809.24 (1) and (2) and 809.11 during the first 3−month period that it supplies the bottled water to the public, and annually thereafter. Results of the monitoring program shall be provided to the department annually.

(b) The water supplier shall receive a certification from the bottled water company that the bottled water supplied meets all requirements of s. 97.34, Stats., and s. ATCP 70.26. The water supplier shall provide the certification to the department the first quarter after it supplies bottled water and annually thereafter.

(c) The water supplier shall be fully responsible for the provision of sufficient quantities of bottled water to every person supplied by the public water system via door−to−door bottled water delivery.

(5) POINT OF ENTRY TREATMENT AS A REQUIREMENT OF A WAIVER. If the department approves the use of a point−of−entry device as a requisite for granting a conditional waiver, the water supplier shall provide documentation that the device will not cause increased corrosion of plumbing materials which could increase contaminant levels at the consumer's tap.

(6) ADDITIONAL WAIVER REQUIREMENTS. Additional requirements for conditional waivers shall include all of the following:

(a) Proof of proper and effective installation, operation and maintenance of any applicable treatment technologies.

(b) Department specified monitoring requirements for the contaminant for which the conditional waiver is sought.

(c) Other terms or conditions specified by the department to ensure adequate public health protection, including but not limited to all of the following:

1. Public education requirements.

2. Source water protection requirements.

3. Quarterly conditional waiver compliance reports to the department.

(7) PUBLIC NOTICE OF WAIVERS. Before the department may grant a conditional waiver under this section, a class 1 public notice under ch. 985, Stats., and opportunity for a public hearing on the proposed conditional waiver shall be provided by the department. A hearing held pursuant to a request under this subsection is a class 1 hearing and shall be conducted in accordance with ch. 227, Stats.

(8) EXTENSION OF WAIVERS. The department may extend a compliance deadline not to exceed 3 years, or 2 years for a small system conditional waiver under sub. (2), beyond the expiration date of the original conditional waiver if the water supplier establishes all of the following:

(a) The public water system cannot meet the maximum contaminant level or treatment technique requirement without capital improvements which cannot be completed within the period of the conditional waiver.

(b) The water supplier has entered into an enforceable agreement to become part of a regional public water system or, if the water supplier needs financial assistance for the necessary capital improvements, the water supplier has entered into an agreement to obtain the financial assistance.

(c) The water supplier is taking all practicable steps to meet the standard.

(9) RENEWAL OF WAIVER EXTENSIONS. The department may renew an extension granted under sub. (8) if the water supplier establishes all of the following:

(a) The public water system does not serve more than 500 service connections.

(b) The public water system cannot meet a maximum contaminant level or treatment technique requirement without financial assistance for the necessary capital improvements.

(c) The public water system is taking all practicable steps to achieve compliance with a maximum contaminant level or treatment technique requirement.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10.

NR 809.905 Conditional waivers from the maximum contaminant levels for uranium. (1) GENERAL REQUIREMENTS FOR URANIUM WAIVERS. The department may grant conditional waivers from the maximum contaminant level for uranium if all of the following occur:

(a) The department has identified the best available technology, treatment techniques, or other means available for achieving compliance with the maximum contaminant levels for the radionuclides listed in ss. NR 809.50 (1) and 809.51, for the purposes of issuing a conditional waiver, as shown in s. NR 809.50 (3), Table B.

(b) The department identifies the best available technology, treatment techniques or other means available for achieving compliance with the maximum contaminant levels for the radionuclides listed in ss. NR 809.50 (1) and 809.51 for the purposes of issuing conditional waivers to small drinking water systems, defined as those serving 10,000 persons or fewer, as shown in s. NR 809.50 (4), Tables K and L.

(c) The water supplier has entered into a signed consent order agreement with the department regarding the conditional waiver.

(2) TREATMENT AS A CONDITION OF URANIUM WAIVERS. The department shall require community water systems to install or use, or both install and use, any treatment technology identified in s. NR 809.50 (3), Table B, or in the case of community water systems that serve 10,000 persons or fewer, s. NR 809.50 (3), Table C and Table E, as a condition for granting a conditional waiver except as provided in sub. (3).

(3) WAIVER FOR ALTERNATIVE TREATMENT IF BATS ARE NOT EFFECTIVE. If a water supplier for a community water system can demonstrate through comprehensive engineering assessments, which may include pilot plant studies, that the treatment technologies identified in this section would only achieve a de minimus reduction in the contaminant level, the department may issue a schedule for compliance that requires the community water system being granted the conditional waiver to examine other treatment technologies as a condition of obtaining the conditional waiver.

(4) REQUIREMENT TO INSTALL ALTERNATIVE TREATMENT. If the department determines that a treatment technology identified under sub. (3) is technically feasible, the department may require the public water system to install or use, or both install and use, that treatment technology in connection with a compliance schedule issued under s. NR 809.90. The department's determination shall be based upon studies by the water supplier for the public water system and other relevant information.

(5) BOTTLED WATER, POINT OF ENTRY, POINT OF USE OR OTHER MEANS AS A CONDITION OF GRANTING A WAIVER. The department may require a community water system to use bottled water, point−of−use devices, point−of−entry devices or other means as a condition of granting a conditional waiver from the requirements of s. NR 809.50 or 809.51 to avoid an unreasonable risk to health.

(6) REQUIREMENTS FOR BOTTLED WATER USE. Community water systems that use bottled water as a condition for receiving a conditional waiver from s. NR 809.50 or 809.51 shall meet the requirements in either s. NR 809.90 (4) (a) or (b) and (c).

(7) CONDITIONS FOR USING POINT OF USE OR POINT OF ENTRY DEVICES. Community water systems that use point−of−use or point−of−entry devices as a condition for obtaining a conditional waiver from the uranium MCL shall meet the conditions in ss. NR 809.50 (4) (b) and 809.90 (3).

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10.

NR 809.91 Nitrate variances. (1) VARIANCES FOR NON−COMMUNITY WATER SYSTEMS. A non−community water system is eligible for a variance from the nitrate as nitrogen maximum contaminant level if all of the following are met:

(a) The department determines that because of the characteristics of the raw water sources which are reasonably available, the non−community water system cannot comply with the maximum contaminant level for nitrate as nitrogen.

(b) The non−community water system has not had a nitrate as nitrogen sample which exceeds 20 mg/l, confirmed by a check sample.

(c) The water supplier continuously posts a department approved notice at all water taps supplied with water by the non−community water system. The notice shall state that the nitrate as nitrogen level exceeds 10 mg/l and describe the potential health effects of exposure.

(d) The water supplier ensures that water from their public water system will not be available to children under 6 months of age and provides bottled water which complies with all maximum contaminant levels for such children.

(e) No adverse health effects will result.

(2) VARIANCES FOR COMMUNITY WATER SYSTEMS. A community water system serving a nursing home, prison or mental health care facility, is eligible for a variance from the nitrate as nitrogen maximum contaminant level if all of the following are met:

(a) The water supplier for the institution does not permit infants under 6 months of age as residents.

(b) The community water system has not had a nitrate as nitrogen sample which exceeds 20 mg/l, confirmed by a check sample.

(c) The water supplier for the institution continuously posts a department approved notice at all water taps supplied with water by the community water system. The notice shall state that the nitrate as nitrogen level exceeds 10 mg/l and describe the potential health effects of exposure.

(d) The water supplier for the institution ensures that water from its public water system will not be available to children under 6 months of age and provides bottled water which complies with all maximum contaminant levels for such children.

(e) No adverse health effects will result.

(3) CONTROL MEASURES FOR VARIANCES. The department may condition the issuance of a variance under this section on compliance with such control measures as it deems necessary. Failure to comply with any term or condition of a variance granted by the department under this section voids the variance.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10.

Subchapter VII — Public Notification of Drinking Water Violations

NR 809.950 General public notification requirements. (1) GENERAL REQUIREMENTS. All water suppliers for public water systems shall comply with the requirements in this subchapter.

(2) WHO SHALL GIVE PUBLIC NOTICE. Each water supplier for a public water system including, community water systems, non−transient non−community water systems, and transient non−community water systems, shall give notice for all violations of national primary drinking water regulations (NPDWR) and for other situations, as listed in sub. (3). The term "NPDWR violations" is used in this subchapter to include violations of the maximum contaminant level, maximum residual disinfection level, treatment technique, monitoring requirements, and testing procedures in this chapter. Appendix A to this subchapter identifies the tier assignment for each specific violation or situation requiring a public notice.

(3) VIOLATION CATEGORIES AND OTHER SITUATIONS REQUIRING A PUBLIC NOTICE. (a) All of the following NPDWR violations require a public notice:

1. Failure to comply with an applicable maximum contaminant level or maximum residual disinfectant level.

2. Failure to comply with a treatment technique prescribed by this chapter.

3. Failure to perform water quality monitoring, as required by the drinking water regulations.

4. Failure to comply with testing procedures as prescribed in this chapter or by a drinking water regulation.

(b) Conditional waiver to public notice requirements under subch. VI, including all of the following, require a public notice:

1. Operation under a conditional waiver.

2. Failure to comply with the requirements of any schedule that has been set under a conditional waiver.

(c) Special public notices, including all of the following, require a public notice:

1. Occurrence of a waterborne disease outbreak or other waterborne emergency.

2. Exceedance of the nitrate MCL by non−community water systems, if granted permission by the department under s. NR 809.11 (3).

3. Exceedance of the secondary maximum contaminant level for fluoride.

4. Availability of unregulated contaminant monitoring data.

5. Other violations and situations determined by the department to require a public notice under this subchapter, not listed in Appendix A.

(4) TYPE OF PUBLIC NOTICE REQUIRED FOR EACH VIOLATION OR SITUATION. (a) *Public notice tiers.* Public notice requirements are divided into 3 tiers, to take into account the seriousness of the violation or situation and of any potential adverse health effects that may be involved. The public notice requirements for each violation or situation listed in sub. (3) are determined by the tier to which it is assigned. The definition of each tier is provided in par. (b). Appendix A identifies the tier assignment for each specific violation or situation.

(b) *Definition of public notice tiers.* 1. Tier 1 public notice is required for NPDWR 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 NPDWR violations and situations with potential to have serious adverse effects on human health.

3. Tier 3 public notice is required for NPDWR violations or situations not included in Tier 1 and Tier 2.

(5) WHO SHALL BE NOTIFIED. (a) Each water supplier for a public water system shall provide public notice to persons served by the public water system, in accordance with this subchapter. All water suppliers for public water systems that sell or otherwise provide drinking water to consecutive systems are required to give public notice to the water supplier for the consecutive system. The water supplier for a consecutive system is responsible for providing public notice to the persons it serves.

(b) If a public water system has a violation in a portion of the distribution system that is physically or hydraulically isolated from other parts of the distribution system, the department may allow the water supplier to limit distribution of the public notice to only persons served by that portion of the public water system which is out of compliance. If the department grants permission for limiting distribution of the notice, permission shall be granted in writing.

(c) A copy of the notice shall also be sent to the department, in accordance with the requirements under s. NR 809.80 (5).

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10.

NR 809.951 Tier 1 public notice — form, manner, and frequency of notice. (1) VIOLATIONS OR SITUATIONS WHICH REQUIRE A TIER 1 PUBLIC NOTICE. (a) Appendix A identifies the tier assignment for each specific violation or situation requiring a Tier 1 public notice.

(b) Violation categories and other situations requiring a Tier 1 public notice include all of the following:

1. Violation of the MCL for *E. coli*, as specified in s. NR 809.30.

2. Violation of the MCL for nitrate, nitrite, or total nitrate and nitrite, as defined in s. NR 809.11, or when the water supplier for the public water system fails to take a confirmation sample within 24 hours of the water supplier's receipt of the first sample showing an exceedance of the nitrate or nitrite MCL, as specified in s. NR 809.115 (6) (b).

3. Exceedance of the nitrate MCL by non−community water systems, where permitted to exceed the MCL by the department under s. NR 809.11 (3), as required under s. NR 809.958.

4. Violation of the MRDL for chlorine dioxide, as defined in s. NR 809.561 (2), when one or more samples taken in the distribution system the day following an exceedance of the MRDL at the entrance of the distribution system exceed the MRDL, or when the water supplier for the public water system does not take the required samples in the distribution system, as specified in s. NR 809.566 (3) (b) 1.

5. Violation of the turbidity treatment technique MCL under s. NR 810.29 (1), where the department determines after consultation that a Tier 1 notice is required or where consultation does not take place within 24 hours after the public water system learns of the violation.

6. Violation of the surface water treatment rule (SWTR) or interim enhanced surface water treatment rule (IESWTR) treatment technique requirement resulting from a single exceedance of the maximum allowable turbidity limit as identified in Appendix A, if the department determines after consultation that a Tier 1 notice is required or if consultation does not take place within 24 hours after the water supplier for the public water supply learns of the violation.

7. Occurrence of a waterborne disease outbreak, as defined in s. NR 809.04 (90), or other waterborne emergency, such as a failure or significant interruption in key water treatment processes, a natural disaster that disrupts the water supply or distribution system, or a chemical spill or unexpected loading of possible pathogens into the source water that significantly increases the potential for drinking water contamination.

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

9. Detection of *E. coli*, enterococci, or coliphage in source water samples as specified under s. NR 809.325 (2).

(2) TIMING OF A TIER 1 PUBLIC NOTICE AND ADDITIONAL STEPS. Water suppliers public water systems shall do all of the following if Tier 1 public notice is required:

(a) Provide a public notice as soon as practical but no later than 24 hours after the water supplier learns of the violation.

(b) Initiate consultation with the department as soon as practical, but no later than 24 hours after the public water system learns of the violation or situation, to determine additional public notice requirements.

(c) Comply with any additional public notification requirements, including any repeat notices or direction on the duration of the posted notices, that are established as a result of the consultation with the department. Requirements may include the timing, form, manner, frequency, and content of repeat notices, if any, and other actions designed to reach all persons served.

(3) FORM AND MANNER OF THE PUBLIC NOTICE. Water suppliers for public water systems shall provide the Tier 1 public notice within 24 hours in a form and manner reasonably calculated to reach all persons served. The form and manner used by the water supplier shall be designed to fit the specific situation, and to reach residential, transient and non−transient users of the public water system. To reach all persons served, water supplier shall use, at a minimum, one or more of the following forms of delivery:

(a) Appropriate broadcast media, such as radio and television.

(b) Posting of the notice in conspicuous locations throughout the area served by the public water system.

(c) Hand delivery of the notice to persons served by the public water system.

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

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; correction in (1) (b) 2. made under s. 13.92 (4) (b) 7., Stats., Register November 2010 No. 659; **CR 15−049: am. (1) (b) 1. Register March 2016 No. 723, eff. 4−1−16.**

NR 809.952 Tier 2 public notice−−form, manner, and frequency of notice. (1) VIOLATIONS OR SITUATIONS WHICH REQUIRE A TIER 2 PUBLIC NOTICE. (a) Appendix A identifies the tier assignment for each specific violation or situation requiring a Tier 2 public notice.

(b) Violation categories and other situations requiring a Tier 2 public notice include all of the following:

1. All violations of the MCL, MRDL, and treatment technique requirements, except if a Tier 1 notice is required under s. NR 809.951 (1) or if the department determines that a Tier 1 notice is required.

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

3. Failure to comply with the terms and conditions of any variance or exemption in place.

(2) TIMING OF A TIER 2 PUBLIC NOTICE. (a) Water suppliers for public water systems shall provide the Tier 2 public notice as soon as practical, but no later than 30 days after the public water system learns of the violation. If the public notice is posted, the notice shall remain in place for as long as the violation or situation persists, but in no case for less than 7 days, even if the violation or situation is resolved. The department may, in appropriate circumstances, allow additional time for the initial notice of up to 3 months from the date the public water system learns of the violation. The department may not grant an extension to the 30−day deadline for any unresolved violation nor allow across−the−board extensions by rule or policy for other violations or situations requiring a Tier 2 public notice. Extensions granted by the department shall be in writing.

(b) For MCL or treatment technique violations, the water supplier shall repeat the notice every 3 months as long as the violation or situation persists. For violations other than MCL or treatment technique violations the water supplier shall repeat the notice every 3 months as long as the violation or situation persists, unless the department determines that appropriate circumstances warrant a different notice frequency, but in no circumstance may the repeat notice be given less frequently than once per year. The department may not allow across−the−board reductions in the repeat notice frequency for other ongoing violations requiring a Tier 2 repeat notice. Department determinations allowing repeat notices to be given less frequently than once every 3 months shall be in writing.

(c) For turbidity violations specified in this paragraph, water supplier shall consult with the department as soon as practical but no later than 24 hours after the public water system learns of the violation, to determine whether a Tier 1 public notice under s. NR 809.951 (1) is required to protect public health. When consultation does not take place within the 24−hour period, the water supplier shall distribute a Tier 1 notice of the violation, no later than 48 hours after the public water system learns of the violation, following the requirements under s. NR 809.951 (2) and (3). Consultation with the department is required for any of the following:

1. Violation of the turbidity treatment technique MCL under s. NR 810.29 (1).

2. Violation of the surface water treatment rule or interim enhanced surface water treatment rule treatment technique requirement resulting from a single exceedance of the maximum allowable turbidity limit.

(3) FORM AND MANNER OF THE TIER 2 PUBLIC NOTICE. Water suppliers shall provide the initial Tier 2 public notice and any repeat notices in a form and manner that is reasonably calculated to reach persons served in the required time period. The form and manner of the public notice may vary based on the specific situation and type of public water system, but it shall at a minimum meet all of the following requirements:

(a) *Community water systems.* Unless directed otherwise by the department in writing, water suppliers for community water systems shall provide notice by both of the following:

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

2. Any other method reasonably calculated to reach other persons regularly served by the public water system, if they would not normally be reached by the notice required in subd. 1. Persons may include those who do not pay water bills or do not have service connection addresses, such as house renters, apartment dwellers, university students, nursing home patients and prison inmates. Other methods may include publication in a local newspaper; delivery of multiple copies for distribution by customers that provide their drinking water to others, such as apartment building owners or large private employers; posting in public places served by the public water system or on the internet; or delivery to community organizations.

(b) *Non−community water systems.* Unless directed otherwise by the department in writing, water supplier for non−community water systems shall provide notice by all of the following:

1. Posting the notice in conspicuous locations throughout the distribution system frequented by persons served by the public water system, or by mail or direct delivery to each customer and service connection, if known.

2. Any other method reasonably calculated to reach other persons served by the public water system if they would not normally be reached by the notice required in subd. 1. Other methods may include publication in a local newspaper or newsletter distributed to customers; use of E−mail to notify employees or students; or, delivery of multiple copies in central locations, such as community centers.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (2) (b) Register March 2016 No. 723, eff. 4−1−16.**

NR 809.953 Tier 3 public notice−−form, manner, and frequency of notice. (1) VIOLATIONS OR SITUATIONS WHICH REQUIRE A TIER 3 PUBLIC NOTICE. (a) Appendix A identifies the tier assignment for each specific violation or situation requiring a Tier 3 public notice.

(b) Violation categories and other situations requiring a Tier 3 public notice include all of the following:

1. Monitoring violations under this chapter, except if a Tier 1 notice is required under s. NR 809.951 (1) or if the department determines that a Tier 2 notice is required

2. Failure to comply with a testing procedure established in this chapter, except if a Tier 1 notice is required under s. NR 809.951 (1) or if the department determines that a Tier 2 notice is required.

3. Operation under a conditional waiver or variance, or both, under subch. VIII.

Note: Subchapter VIII was repealed by CR 15−049. Corrections will be made in future rulemaking.

4. Availability of unregulated contaminant monitoring results, as required under s. NR 809.956.

5. Exceedance of the fluoride secondary maximum contaminant level, as required under s. NR 809.957.

6. Reporting and recordkeeping violations under this chapter.

(2) TIMING OF A TIER 3 PUBLIC NOTICE. (a) Water suppliers for public water systems shall provide Tier 3 public notice not later than one year after the public water system learns of the violation or situation or begins operating under a variance or exemption. Following the initial notice, the water supplier shall repeat the Tier 3 public notice annually for as long as the violation, variance, exemption or other situation persists. If the public notice is posted, the notice shall remain in place for as long as the violation, variance, exemption or other situation persists, but in no case less than 7 days, even if the violation or situation is resolved.

(b) Instead of individual Tier 3 public notices, a water supplier may use an annual report detailing all violations and situations that occurred during the previous 12 months, as long as the timing requirements of par. (a) are met.

(3) FORM AND MANNER OF THE TIER 3 PUBLIC NOTICE. Water suppliers for public water systems shall provide the initial Tier 3 public notice and any repeat notices in a form and manner that is reasonably calculated to reach persons served in the required time period. The form and manner of the public notice may vary based on the specific situation and type of public water system, but it shall at a minimum meet all of the following requirements:

(a) *Community water systems.* Unless directed otherwise by the department in writing, water suppliers for community water systems shall provide notice by both of the following:

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

2. Any other method reasonably calculated to reach other persons regularly served by the public water system, if they would not normally be reached by the notice required in subd. 1. Persons may include those who do not pay water bills or do not have service connection addresses, including, house renters, apartment dwellers, university students, nursing home patients, and prison inmates. Other methods may include publication in a local newspaper; delivery of multiple copies for distribution by customers that provide their drinking water to others, such as apartment building owners or large private employers; posting in public places or on the internet; or delivery to community organizations.

(b) *Non−community water systems.* Unless directed otherwise by the department in writing, water suppliers for non−community water systems shall provide notice by all of the following:

1. Posting the notice in conspicuous locations throughout the distribution system frequented by persons served by the public water system, or by mail or direct delivery to each customer and service connection, if known.

2. Any other method reasonably calculated to reach other persons served by the public water system, if they would not normally be reached by the notice required in subd. 1. Other methods may include publication in a local newspaper or newsletter distributed to customers; use of E−mail to notify employees or students; or delivery of multiple copies in central locations, such as community centers.

(4) USE OF CONSUMER CONFIDENCE REPORTS. For community water systems, the consumer confidence report required under this subchapter may be used as a vehicle for the initial Tier 3 public notice and all required repeat notices, as long as all of the following occur:

(a) The consumer confidence report is provided to persons served no later than 12 months after the water supplier learns of the violation or situation as required under sub. (2).

(b) The Tier 3 notice contained in the consumer confidence report follows the content requirements under s. NR 809.954.

(c) The consumer confidence report is distributed according to the delivery requirements under sub. (3).

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (1) (b) 1., 2., cr. (1) (b) 6. Register March 2016 No. 723, eff. 4−1−16.**

NR 809.954 Public notice content. (1) PUBLIC NOTICE ELEMENTS FOR VIOLATIONS OF NATIONAL PRIMARY DRINKING WATER REGULATIONS (NPDWR) OR OTHER SITUATIONS REQUIRING A PUBLIC NOTICE. When a public water system violates a national primary drinking water regulation or has a situation requiring public notification, each public notice shall include all of the following elements:

(a) A description of the violation or situation, including the contaminants of concern, and, as applicable, the contaminant levels.

(b) When the violation or situation occurred.

(c) Any potential adverse health effects from the violation or situation, including the standard language under sub. (4) (a) or (b), whichever is applicable.

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

(e) Whether alternative water supplies should be used.

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

(g) What the water supplier is doing to correct the violation or situation.

(h) When the water supplier expects the public water system to return to compliance or resolve the situation.

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

(j) A statement to encourage the notice recipient to distribute the public notice to other persons served, using the standard language under sub. (4) (c), if applicable.

(2) PUBLIC NOTICE ELEMENTS FOR PUBLIC WATER SYSTEMS OPERATING UNDER A VARIANCE OR EXEMPTION. (a) If a public water system has been granted a variance or an exemption, the public notice shall contain all of the following:

1. An explanation of the reasons for the variance or exemption.

2. The date on which the variance or exemption was issued.

3. A brief status report on the steps the water supplier is taking to install treatment, find alternative sources of water, or otherwise comply with the terms and schedules of the variance or exemption.

4. A notice of any opportunity for public input in the review of the variance or exemption.

(b) If a public water system violates the conditions of a variance or exemption, the public notice shall contain all of the elements in sub. (1).

(3) PUBLIC NOTICE PRESENTATION. (a) Each public notice required by this subchapter shall meet all of the following requirements:

1. Shall be displayed in a conspicuous way when printed or posted.

2. May not contain overly technical language or very small print.

3. May not be formatted in a way that defeats the purpose of the notice.

4. May not contain language which nullifies the purpose of the notice.

(b) Each public notice required by this subchapter shall comply with multilingual requirements, as follows:

1. For public water systems where 5% or more of the population served consists of non−English speaking consumers, the public notice shall 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 public water system to obtain a translated copy of the notice or to request assistance in the appropriate languages.

2. In cases where the public water system is unable to accurately determine whether non−English speaking consumers constitute 5% of the population served, the department may require that the public notice shall include the same information as in subd. 1., to reach non−English speaking persons served by the public water system.

(4) PUBLIC NOTICE STANDARD LANGUAGE. Water suppliers for public water systems shall include the following standard language in their public notice:

(a) *Standard health effects language for MCL or MRDL violations, treatment technique violations, and violations of the condition of a variance or exemption.* Water suppliers shall include in each public notice the health effects language specified in Appendix B corresponding to each MCL, MRDL and treatment technique violation listed in Appendix A, and for each violation of a condition of a variance or exemption.

(b) *Standard language for monitoring and testing procedure violations.* Water suppliers shall include the following language in their notice, including the language necessary to fill in the blanks, for all monitoring and testing procedure violations listed in Appendix A: 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.

(c) *Standard language to encourage the distribution of the public notice to all persons served.* Water suppliers shall include in their notice the following language, if applicable: Please share this information with all the other people who drink this water, especially those who may not have received this notice directly, for example, people in apartments, nursing homes, schools, and businesses. You can do this by posting this notice in a public place or distributing copies by hand or mail.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10.

NR 809.955 Notice to new billing units or new customers. (1) COMMUNITY WATER SYSTEMS. Water suppliers for community water systems shall give a copy of the most recent public notice for any continuing violation, the existence of a variance or exemption, or other ongoing situations requiring a public notice to all new billing units or new customers prior to or at the time service begins.

(2) NON−COMMUNITY WATER SYSTEMS. Water suppliers for non−community water systems shall continuously post the public notice in conspicuous locations in order to inform new consumers of any continuing violation, variance or exemption, or other situation requiring a public notice for as long as the violation, variance, exemption, or other situation persists.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10.

NR 809.956 Special notice of the availability of unregulated contaminant monitoring results. (1) TIMING OF THE SPECIAL NOTICE. The water supplier for a community water system or non−transient non−community water system required to monitor under 40 CFR 141.401 and s. NR 809.25 shall notify persons served by the public water system of the availability of the results of such sampling no later than 12 months after the monitoring results are known.

(2) FORM AND MANNER OF THE SPECIAL NOTICE. The form and manner of the public notice shall follow the requirements for a Tier 3 public notice prescribed in s. NR 809.953 (3) and (4) (a) and (c). The notice shall also identify a person and provide the telephone number to contact for information on the monitoring results.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10.

NR 809.957 Special notice for exceedance of the secondary maximum contaminant level for fluoride. (1) TIMING OF THE SPECIAL NOTICE. Water suppliers for community water systems that exceed the fluoride secondary maximum contaminant level of 2 mg/l as specified in s. NR 809.70, determined by the last single sample taken in accordance with s. NR 809.113, but that do not exceed the maximum contaminant level (MCL) of 4 mg/l for fluoride, as specified in s. NR 809.11, shall provide the public notice in sub. (3) to persons served. Public notice shall be provided as soon as practical but no later than 12 months from the day the public water system learns of the exceedance. A copy of the notice shall also be sent to all new billing units and new customers at the time service begins and to the state public health officer at the department of health services. The water supplier shall repeat the notice at least annually for as long as the secondary maximum contaminant level is exceeded. If the public notice is posted, the notice shall remain in place for as long as the secondary maximum contaminant level is exceeded, but in no case less than 7 days, even if the exceedance is eliminated. On a case−by−case basis, the department may require an initial notice sooner than 12 months and repeat notices more frequently than annually.

(2) FORM AND MANNER OF THE SPECIAL NOTICE. The form and manner of the public notice, including repeat notices, shall follow the requirements for a Tier 3 public notice in s. NR 809.953 (3) and (4) (a) and (c).

(3) SPECIAL NOTICE STANDARD LANGUAGE. The notice shall contain the following language, including the language necessary to fill in the blanks: This is an alert about your drinking water and a cosmetic dental problem that might affect children under 9 years of age. At low levels, fluoride can help prevent cavities, but children drinking water containing more than 2 milligrams per liter (mg/l) of fluoride may develop cosmetic discoloration of their permanent teeth known as 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 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 4 mg/L of fluoride, the U.S. Environmental Protection Agency's drinking water standard, can increase your risk of developing bone disease. Your drinking water does not contain more than 4 mg/l of fluoride, but we are required to notify you when we discover that the fluoride levels in your drinking water exceed 2 mg/l because of this cosmetic dental problem. For more information, please call [name of the public water system contact] of [name of community water system] at [phone number]. Some home water treatment units are also available to remove fluoride from drinking water. To learn more about available home water treatment units, you may call NSF International at 1−877−8−NSF−HELP.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; correction in (1) made under s. 13.92 (4) (b) 7., Stats., Register November 2010 No. 659.

NR 809.958 Special notice for nitrate exceedances above MCL by non−community water systems, where granted permission by the department under s. NR 809.11 (3). (1) TIMING OF THE SPECIAL NOTICE. The water supplier for a non−community water system granted permission by the department under s. NR 809.11 (3) to exceed the nitrate MCL shall provide notice to persons served according to the requirements for a Tier 1 public notice under s. NR 809.951 (1) and (2).

(2) FORM AND MANNER OF THE SPECIAL NOTICE. Water suppliers for non−community water systems granted permission by the department to exceed the nitrate MCL under s. NR 809.11 (3) shall provide continuous posting of the fact that nitrate levels exceed 10 mg/l and the potential health effects of exposure, according to the requirements for Tier 1 public notice delivery under s. NR 809.951 (3) and the content requirements under s. NR 809.954.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10.

NR 809.959 Public notice by the department on behalf of the public water system. (1) DEPARTMENT RESPONSIBILITIES. The department may give the notice required by this subchapter on behalf of the water supplier if the department complies with the requirements of this subchapter.

(2) PUBLIC WATER SYSTEM RESPONSIBILITIES WHEN PUBLIC NOTICE IS PROVIDED BY THE DEPARTMENT. The water supplier remains responsible for ensuring that the requirements of this subchapter are met.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10.

NR 809.960 Special notice for significant deficiencies or source groundwater fecal contamination. In addition to public notices required elsewhere in this subchapter, a special notice is required for public water systems with significant deficiencies or source water fecal contamination.

(1) TIMING AND MANNER OF SPECIAL PUBLIC NOTICE. Timing and manner of the special notice shall be done as follows:

(a) *Community water systems.* In addition to public notification requirements under this subchapter, a water supplier for a community groundwater system that receives notice from the department of a significant deficiency or notification of a fecal indicator−positive groundwater source sample that is not invalidated by the department shall inform the public served by the public water system of any uncorrected significant deficiency or fecal indicator−positive source sample. Water suppliers shall provide the special public notice in the Consumer Confidence Report (CCR) required under ss. NR 809.833 (7) (f) for the calendar year in which the uncorrected significant deficiency or source water fecal positive sample was detected. The water supplier shall continue to inform the public annually in the CCR, from the date of notification from the department, until the significant deficiency is corrected or the fecal contamination in the groundwater source is determined by the department to be corrected.

(b) *Non−community systems.* In addition to public notification requirements under this subchapter, a water supplier for a non−community groundwater system that receives notice from the department of a significant deficiency shall inform the public served by the public water system in a manner approved by the department of any significant deficiency that has not been corrected within 12 months of being notified by the department, or earlier if directed by the department. The water supplier must continue to inform the public annually until the significant deficiency is corrected. This information shall include:

1. The nature of the significant deficiency and the date the significant deficiency was identified by the department.

2. The department−approved plan and schedule for correction of the significant deficiency, including interim measures, progress to date, and any interim measures completed.

3. For public water systems with a large proportion of non−English speaking consumers, as determined by the department, information in the appropriate language or languages regarding the importance of the notice or a telephone number or address consumers may use to contact the water supplier to obtain a translated copy of the notice or assistance in the appropriate language.

(3) NOTICE OF RETURN TO COMPLIANCE. If directed by the department, a water supplier for a non−community water system with significant deficiencies that have been corrected shall inform its customers of the significant deficiencies, how the deficiencies were corrected, and the dates of correction.

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. (1) (a) renum. (1) (b) to (b) (intro.) and am., r. (2) (intro.), renum. (2) (a) to (c) to (1) (b) 1. to 3. Register March 2016 No. 723, eff. 4−1−16.**

NR 809.970 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. (1) TIMING FOR SPECIAL NOTICE FOR REPEATED FAILURE TO MONITOR. The water supplier for a community or non−community water system that is required to monitor source water under s. NR 809.331 (1) (a) and (b) must notify persons served by the public water system that monitoring has not been completed as specified no later than 30 days after the water supplier for the public water system has failed to collect any 3 months of monitoring as specified in s. NR 809.331 (3). The notice must be repeated as specified in s. NR 809.952 (2).

(2) TIMING FOR SPECIAL NOTICE FOR FAILURE TO DETERMINE BIN CLASSIFICATION OR MEAN CRYPTOSPORIDIUM LEVEL. The water suppliers for a community or non−community water system that is required to determine a bin classification under s. NR 810.34, or to determine mean Cryptosporidium level under s. NR 810.36, must notify persons served by the public water system that the determination has not been made as required no later than 30 days after the water suppliers for the public water system has failed report the determination as specified in s. NR 810.34 (5) (a) or 810.36 (1), respectively. The notice must be repeated as specified in s. NR 809.952 (2). The notice is not required if the public water system is complying with a department approved schedule to address the violation.

(3) THE FORM AND MANNER OF THE SPECIAL NOTICE. The form and manner of the public notice must follow the requirements for a Tier 2 public notice prescribed in s. NR 809.952 (3). The public notice must be presented as required in s. NR 809.954 (3).

(4) MANDATORY LANGUAGE THAT MUST BE CONTAINED IN THE SPECIAL NOTICE. The notice must contain the following language, including the language necessary to fill in the blanks.

(a) The special notice for repeated failure to conduct monitoring must contain all of the following language: We are required to monitor the source of your drinking water for Cryptosporidium. Results of the monitoring are to be used to determine whether water treatment at the (treatment plant name) is sufficient to adequately remove *Cryptosporidium* from your drinking water. We are required to complete this monitoring and make this determination by (required bin determination date). We "did not monitor or test" or "did not complete all monitoring or testing" on schedule and, therefore, we may not be able to determine by the required date what treatment modifications, if any, must be made to ensure adequate *Cryptosporidium* removal. Missing this deadline may, in turn, jeopardize our ability to have the required treatment modifications, if any, completed by the deadline required, (date). For more information, please call (name of the public water system contact) of (name of public water system) at (phone number).

(b) The special notice for failure to determine bin classification or mean *Cryptosporidium* level must contain all of 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 the public water system contact) of (name of public water system) at (phone number).

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

History: CR 09−073: cr. Register November 2010 No. 659, eff. 12−1−10; **CR 15−049: am. Appendices A and B to Subchapter VII Register March 2016 No. 723, eff. 4−1−16.**

Appendix A to Subchapter VII
NPDWR Violations and Other Situations Requiring Public Notice[1]

Contaminant	MCL/MRDL/TT violations[2]		Monitoring & testing procedure violations	
	Tier of public notice required	Citation (Wis. Adm. Code)	Tier of public notice required	Citation (Wis. Adm. Code)
I. Violations of National Primary Drinking Water Regulations:[3]				
A. Microbiological Contaminants				
1. Total coliform: Monitoring or TT violations resulting from failure to perform assessments or corrective actions	2	NR 809.314	3	NR 809.31 (9)
1m. Total coliform: Seasonal system failure to follow department−approved start−up plan prior to serving water to the public	2	NR 809.314 (2)	3	Xx
2. *E. Coli* MCL	1	NR 809.30	1[4], 3	NR 809.31 (9)
2m. *E. coli*: TT violations resulting from failure to perform Level 2 assessments or corrective action	1	NR 809.30	3	Xx
3. Turbidity MCL	2	NR 810.29 (1)	3	NR 810.38 (1) b) NR 810.38 (2) (a), NR 810.38 (2) (b) NR 810.29
4. Turbidity MCL (average 2 days' samples >5 NTU)	2[5], 1	NR 810.29 (1)	3	NR 810.38 (1) (b) NR 810.38 (2) (a), NR 810.38 (2) (b), NR 810.29

Contaminant	MCL/MRDL/TT violations[2]		Monitoring & testing procedure violations	
	Tier of public notice required	Citation (Wis. Adm. Code)	Tier of public notice required	Citation (Wis. Adm. Code)
5. Turbidity (for TT violations resulting from a single exceedance of maximum allowable turbidity level)	2[6], 1	NR 810.29 (1), NR 810.29 (2), NR 810.29 (3), NR 810.29 (4), NR 810.30 (1), NR 810.30 (4) (a), NR 810.30 (4) (b)	3	NR 810.38 (1) (b) NR 810.38 (2) (a), NR 810.38 (2) (b), NR 810.29
6. Surface Water Treatment Rule violations, other than violations resulting from single exceedance of max. allowable turbidity level (TT)	2	NR 810.27 – 810.33	3	NR 810.38
7. Interim Enhanced Surface Water Treatment Rule violations, other than violations resulting from single exceedance of max. turbidity level (TT)	2	NR 810 subch. 2	3	NR 810.29, NR 810.38
8. Filter Backwash Rule (FBWR)	2	NR 809.333 (3) NR 811.860 NR 811.862	3	NR 810.29
9. Long Term 2 Enhanced Surface Water Treatment Rule violations	2	NR 810.34 − 810.45	2[15],3	NR 809.331− NR 809.335 NR 810.32 (1) and (2)
10. Source water sample positive for Groundwater Rule (GWR) fecal indicators: *E. coli*, enterococci, or coliphage	1	NR 809.325(6)	3	NR 809.325 (5) NR 809.327 (6)
B. Inorganic Chemicals (IOCs)				
1. Antimony	2	NR 809.11 (2)	3	NR 809.115 (1) to (3) and (6) (a) and (c)
2. Arsenic	2	NR 809.11 (2)	3	NR 809.115 (1) to (3) and (6) (a) and (c)
3. Asbestos (fibers >10 µm)	2	NR 809.11 (2)	3	NR 809.115(1) to (3) and (6)(a)and (c)
4. Barium	2	NR 809.11 (2)	3	NR 809.115 (1) to (3) and (6) (a) and (c)
5. Beryllium	2	NR 809.11 (2)	3	NR 809.115 (1) to (3) and (6) (a) and (c)
6. Cadmium	2	NR 809.11 (2)	3	NR 809.115 (1) to (3) and (6) (a) and (c)
7. Chromium (total)	2	NR 809.11 (2)	3	NR 809.115 (1) to (3) and (6) (a) and (c)
8. Cyanide	2	NR 809.11 (2)	3	NR 809.115 (1) to (3) and (6) (a) and (c)
9. Fluoride	2	NR 809.11 (2)	3	NR 809.115 (1) to (3) and (6) (a) and (c)

Contaminant	MCL/MRDL/TT violations[2]		Monitoring & testing procedure violations	
	Tier of public notice required	Citation (Wis. Adm. Code)	Tier of public notice required	Citation (Wis. Adm. Code)
10. Mercury (inorganic)	2	NR 809.11 (2)	3	NR 809.115 (1) to (3) and (6) (a) and (c)
11. Nitrate	1	NR 809.11 (2)	1[8], 3	NR 809.115 (4), (5) and (6) (b)
12. Nitrite	1	NR 809.11 (2)	1[8], 3	NR 809.115 (4), (5) and (6) (b)
13. Total Nitrate and Nitrite	1	NR 809.11 (2)	3	NR 809.115 (4) and (5)
14. Selenium	2	NR 809.11 (2)	3	NR 809.115 (1) to (3) and (6) (a) and (c)
15. Thallium	2	NR 809.11 (2)	3	NR 809.115 (1) to (3) and (6) (a) and (c)
C. Lead and Copper Rule (Action Level for lead is 0.015 mg/L, copper is 1.3 mg/L)				
1. Lead and Copper Rule (TT)	2	NR 809.541 – NR 809.55	3	NR 809.541 – NR 809.55
D. Synthetic Organic Chemicals (SOCs)				
1. 2,4−D	2	NR 809.20 (1)	3	NR 809.205
2. 2,4,5−TP (Silvex)	2	NR 809.20 (1)	3	NR 809.205
3. Alachlor	2	NR 809.20 (1)	3	NR 809.205
4. Atrazine	2	NR 809.20 (1)	3	NR 809.205
5. Benzo(a)pyrene (PAHs)	2	NR 809.20 (1)	3	NR 809.205
6. Carbofuran	2	NR 809.20 (1)	3	NR 809.205
7. Chlordane	2	NR 809.20 (1)	3	NR 809.205
8. Dalapon	2	NR 809.20 (1)	3	NR 809.205
9. Di (2−ethylhexyl) adipate	2	NR 809.20 (1)	3	NR 809.205

Contaminant	MCL/MRDL/TT violations[2]		Monitoring & testing procedure violations	
	Tier of public notice required	Citation (Wis. Adm. Code)	Tier of public notice required	Citation (Wis. Adm. Code)
10. Di (2−ethylhexyl) phthalate	2	NR 809.20 (1)	3	NR 809.205
11. Dibromochloropropane	2	NR 809.20 (1)	3	NR809.205
12. Dinoseb	2	NR 809.20 (1)	3	NR 809.205
13. Dioxin (2, 3, 7, 8−TCDD)	2	NR 809.20 (1)	3	NR809.205
14. Diquat	2	NR 809.20 (1)	3	NR 809.205
15. Endothall	2	NR 809.20 (1)	3	NR 809.205
16. Endrin	2	NR 809.20 (1)	3	NR 809.205
17. Ethylene dibromide	2	NR 809.20 (1)	3	NR 809.205
18. Glyphosate	2	NR 809.20 (1)	3	NR 809.205
19. Heptachlor	2	NR 809.20 (1)	3	NR 809.205
20. Heptachlor epoxide	2	NR 809.20 (1)	3	NR 809.205
21. Hexachlorobenzene	2	NR 809.20 (1)	3	NR 809.205
22. Hexachlorocyclo−pentadiene	2	NR 809.20 (1)	3	NR 809.205
23. Lindane	2	NR 809.20 (1)	3	NR 809.205

24. Methoxychlor	2	NR 809.20 (1)	3	NR 809.205
25. Oxamyl (Vydate)	2	NR 809.20 (1)	3	NR 809.205
26. Pentachlorophenol	2	NR 809.20 (1)	3	NR 809.205
27. Picloram	2	NR 809.20 (1)	3	NR 809.205
28. Polychlorinated biphenyls	2	NR 809.20 (1)	3	NR 809.205
29. Simazine	2	NR 809.20 (1)	3	NR 809.205
30. Toxaphene	2	NR 809.20 (1)	3	NR 809.205
E. Volatile Organic Chemicals (VOCs)	2	NR 809.24 (1)	3	NR 809.245
1. Benzene	2	NR 809.24 (1)	3	NR 809.245
2. Carbon tetrachloride	2	NR 809.24 (1)	3	NR 809.245
3. Chlorobenzene (monochlorobenzene)	2	NR 809.24 (1)	3	NR 809.245
4. o−Dichlorobenzene	2	NR 809.24 (1)	3	NR 809.245
5. p−Dichlorobenzene	2	NR 809.24 (1)	3	NR 809.245
6. 1,2−Dichloroethane	2	NR 809.24 (1)	3	NR 809.245
7. 1,1−Dichloroethylene	2	NR 809.24 (1)	3	NR 809.245
8. cis−1,2−Dichloroethylene	2	NR 809.24 (1)	3	NR 809.245
9. trans−1,2−Dichloroethylene	2	NR 809.24 (1)	3	NR 809.245
10. Dichloromethane	2	NR 809.24 (1)	3	NR 809.245
11. 1,2−Dichloropropane	2	NR 809.24 (1)	3	NR 809.245
12. Ethylbenzene	2	NR 809.24 (1)	3	NR 809.245
13. Styrene	2	NR 809.24 (1)	3	NR 809.245
14. Tetrachloroethylene	2	NR 809.24 (1)	3	NR 809.245
15. Toluene	2	NR 809.24 (1)	3	NR 809.245
16. 1,2,4−Trichlorobenzene	2	NR 809.24 (1)	3	NR 809.245
17. 1,1,1−Trichloroethane	2	NR 809.24 (1)	3	NR 809.245
18. 1,1,2−Trichloroethane	2	NR 809.24 (1)	3	NR 809.245
19. Trichloroethylene	2	NR 809.24 (1)	3	NR 809.245
20. Vinyl chloride	2	NR 809.24 (1)	3	NR 809.245
21. Xylenes (total)	2	NR 809.24 (1)	3	NR 809.245
F. Radioactive Contaminants				
1. Beta/photon emitters	2	NR 809.51	3	NR 809.52 (1), NR 809.53 (2)

Contaminant	MCL/MRDL/TT violations[2]		Monitoring & testing procedure violations	
	Tier of public notice required	Citation (Wis. Adm. Code)	Tier of public notice required	Citation (Wis. Adm. Code)
2. Alpha emitters	2	NR 809.50 (2)	3	NR 809.52 (1), NR 809.53 (1)
3. Combined radium (226 & 228)	2	NR 809.50 (1)	3	NR 809.52 (1), NR 809.53 (1)
G. Disinfection Byproducts (DBPs), Byproduct Precursors, Disinfectant Residuals. Where disinfection is used in the treatment of drinking water, disinfectants combine with organic and inorganic matter present in water to form chemicals called disinfection byproducts. EPA sets standards for controlling the levels of disinfectants and disinfection byproducts in drinking water, including trihalomethanes and haloacetic acids. [9]				
1. Total trihalomethanes	2	NR 809.561 (1)	3	NR 809.565(1)−(2)
2. Haloacetic Acids	2	NR 809.561 (1)	3	NR 809.565(1)−(2)
3. Bromate	2	NR 809.561 (2)	3	NR 809.565(1), (3)
4. Chlorite	2	NR 809.561 (2)	3	NR 809.565(1), (3)
5. Chlorine (MRDL)	2	NR 809.561 (2) NR 809.566 (3) (a)	2	NR 809.565(1), (4) NR 809.566(3)(a)
6. Chloramine (MRDL)	[2]	NR 809.561 (2) NR 809.566 (3) (a)	3	NR 809.565(1), (4) NR 809.566(3)(a)
7. Chlorine dioxide (MRDL), where any 2 consecutive daily samples at entrance to distribution system only are above MRDL	2	NR 809.566(1), (3) (b)	2, 3[11]	NR 809.565(1), (4)
8. Chlorine dioxide (MRDL), where samples in distribution system the next day are also above MRDL	1[10]	NR 809.566 (1), (3) (b)	1	NR 809.565(1), (4)
9. Control of disinfection byproducts precursors – TOC (TT)	2	NR 809.569	3	NR 809.565(1),(5)
10. Bench marking and disinfection profiling	N/A	N/A	3	NR 810.32
11. Development of monitoring plan	N/A	N/A	3	NR 809.565 (6)
H. Other Treatment Techniques				
1. Acrylamide (TT)	2	NR 809.25 (4)	N/A	N/A
2. Epichlorohydrin (TT)	2	NR 809.25 (4)	N/A	N/A
II. Unregulated Contaminant Monitoring:[12]				
A. Unregulated contaminants	N/A	N/A	3	NR 809.25; 40 CFR Part 141, Section 141.40
B. Nickel	N/A	N/A	3	NR 809.115 (3) Table A
III. Public Notification for Conditional Waivers and Variances				
A. Operation under a conditional waiver or variance	3	NR 809.90, NR 809.91	N/A	N/A
B. Violation of a conditional waiver or variance	2	NR 809 Subch. VI	N/A	N/A

Contaminant	MCL/MRDL/TT violations[2]		Monitoring & testing procedure violations	
	Tier of public notice required	Citation (Wis. Adm. Code)	Tier of public notice required	Citation (Wis. Adm. Code)
IV. Other Situations Requiring Public Notification:				
A. Fluoride secondary maximum contaminant level exceedance	3	NR 809.70	N/A	N/A
B. Exceedance of nitrate MCL for non−community systems, as allowed by the department	1	NR 809.11 (3)	N/A	N/A
C. Availability of unregulated contaminant monitoring data	3	NR 809.956	N/A	N/A
D. Waterborne disease outbreak	1	NR 809.04 (90) NR 809.80 (6) (e), NR 809.951 (1) (b) 7.	N/A	N/A
E. Other waterborne emergency[13]	1	NR 809.951 (1) (b) 8.	N/A	N/A
F. Other situations as determined by the department	1, 2, 3[14]	N/A	N/A	N/A
G. Groundwater Rule TT violations for failure to complete corrective actions according to a state approved schedule	2	NR 809.328(2)	N/A	N/A

Appendix A Footnotes

[1] Violations and other situations not listed in this table, for example, reporting violations and failure to prepare Consumer Confidence Reports, do not require notice, unless otherwise determined by the department. The department may also require a more stringent public notice tier, for example, Tier 1 instead of Tier 2 or Tier 2 instead of Tier 3, for specific violations and situations listed in this Appendix, as authorized under s. NR 809.951(1) and s. NR 809.952 (1).

[2] MCL−−Maximum contaminant level, MRDL—Maximum residual disinfectant level, TT—Treatment technique.

[3] The term Violations of National Primary Drinking Water Regulations is used here to include violations of MCL, MRDL, TT, monitoring and testing procedure requirements.

[4] Failure to test for *E. coli* is a Tier 1 violation if testing is not done after any repeat sample tests positive for coliform. All other total coliform monitoring and testing procedure violations are Tier 3.

[5] Water supplier for public water systems that violate the turbidity MCL of 5 NTU based on an average of measurements over 2 consecutive days shall consult with the department within 24 hours after learning of the violation. Based on this consultation, the department may subsequently decide to elevate the violation to Tier 1. If a water supplier is unable to make contact with the department in the 24−hour period, the violation is automatically elevated to Tier 1.

[6] Water supplier for public water systems with a treatment technique violation involving a single exceedance of a maximum turbidity limit under the Surface Water Treatment Rule or the Interim Enhanced Surface Water Treatment Rule are required to consult with the department within 24 hours after learning of the violation. Based on this consultation, the department may subsequently decide to elevate the violation to Tier 1. If a water supplier is unable to make contact with the department in the 24−hour period, the violation is automatically elevated to Tier 1.

[7] Most of the requirements of the Interim Enhanced Surface Water Treatment Rule (63 FR 69477) become effective January 1, 2002 for public water systems using surface water or groundwater under the direct influence of surface water serving at least 10,000 persons. However, s. NR 809.77 has some requirements that become effective as early as April 16, 1999. The Surface Water Treatment Rule remains in effect for public water systems serving at least 10,000 persons even after 2002; the Interim Enhanced Surface Water Treatment Rule adds additional requirements and does not in many cases supersede the Surface Water Treatment Rule.

[8] Failure to take a confirmation sample within 24 hours for nitrate or nitrite after an initial sample exceeds the MCL is a Tier 1 violation. Other monitoring violations for nitrate are Tier 3.

[9] Public water water systems using surface water or groundwater under the direct influence of surface water community and non−transient non−community systems serving greater than or equal to 10,000 must comply with the new disinfection byproducts MCLs, disinfectant MRDLs, and related monitoring requirements beginning January 1, 2002. All other community and non−transient non−community systems must meet the MCLs and MRDLs beginning January 1, 2004. Public water systems using surface water or groundwater under the direct influence of surface water transient non−community systems serving 10,000 or more persons and using chlorine dioxide as a disinfectant or oxidant must comply with the chlorine dioxide MRDL beginning January 1, 2002. Public water systems using surface water or groundwater under the direct influence of surface water transient non−community systems serving fewer than 10,000 persons and using only groundwater not under the direct influence of surface water and using chlorine dioxide as a disinfectant or oxidant must comply with the chlorine dioxide MRDL beginning January 1, 2004.

[10] If any daily sample taken at the entrance to the distribution system exceeds the MRDL for chlorine dioxide and one or more samples taken in the distribution system the next day exceed the MRDL, Tier 1 notification is required. Failure to take the required samples in the distribution system after the MRDL is exceeded at the entry point also triggers Tier 1 notification.

[11] Failure to monitor for chlorine dioxide at the entrance to the distribution system the day after exceeding the MRDL at the entrance to the distribution system is a Tier 2 violation.

[12] Some public water systems must monitor for certain unregulated contaminants listed in s. NR 809.25.

[13] Other waterborne emergencies require a Tier 1 public notice under 40 CFR 141.202(a) or s. NR 809.951 (1) (b) 8. for situations that do not meet the definition of a waterborne disease outbreak given in 40 CFR 141.2 or s. NR 809.04 (90) but that still have the potential to have serious adverse effects on health as a result of short−term exposure. These could include outbreaks not related to treatment deficiencies, as well as situations that have the potential to cause outbreaks, such as failure or significant interruption in water treatment processes, natural disasters that disrupt the water supply, chemical spills, or unexpected loading of possible pathogens into the source water.

[14] The department may place other situations in any tier they believe appropriate, based on threat to public safety.

[15] Failure to collect three or more samples for *Cryptosporidium* analysis is a Tier 2 violation requiring special notice as specified in section 141.211. All other monitoring and testing procedure violations are Tier 3.

Appendix B to Subchapter VII
Standard Health Effects Language for Public Notification

Contaminant	**MCLG[1] mg/L**	**MCL[2] mg/L**	**Standard health effects language for public notification**
National Primary Drinking Water Regulations:			
A. Microbiological Contaminants:			
1 a. *E. coli*	Zero	In compliance unless one of the following conditions occurs: (1) The system has an *E. coli*−positive repeat sample following a total coliform−positive routine sample. (2) The system has a total coliform−positive repeat sample following an *E. coli*−positive routine sample. (3) The system fails to take all required repeat samples following an *E. coli*−positive routine sample. (4) The system fails to test for *E. coli* when any repeat sample tests positive for total coliform.	*E. coli* are bacteria whose presence indicate that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short−term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.
1 b. Coliform Assessment or Corrective Action Violations, or both	N/A	TT	Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessments to identify problems and to correct any problems that are found. [THE SYSTEM MUST USE THE FOLLOWING APPLICABLE SENTENCES.] We failed to conduct the required assessment. We failed to correct all identified sanitary defects that were found during the assessments.

Appendix B to Subchapter VII
Standard Health Effects Language for Public Notification (Continued)

Contaminant	MCLG[1] mg/L	MCL[2] mg/L	Standard health effects language for public notification
1 c. *E .coli* Assessment or Corrective Action Violations, or both	N/A	TT	*E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short−term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems. We violated the standard for *E. coli*, indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct a detailed assessment to identify problems and to correct any problems that are found. [THE SYSTEM MUST USE THE FOLLOWING APPLICABLE SENTENCES.] We failed to conduct the required assessment. We failed to correct all identified sanitary defects that were found during the assessment that we conducted.
1 d. Seasonal System TT Violations	N/A	TT	When this violation includes the failure to monitor for total coliforms or *E. coli* prior to serving water to the public, the mandatory language found at s. NR 809.954 (4) (b) must be used. When this violation includes failure to complete other actions, the appropriate elements found in s. NR 809.954 (1) to describe the violation must be used.
1 e. Fecal indicators (GWR): *E. coli* ii. Enterococci, iii. Coliphage	 Zero None None	 TT TT TT	Fecal indicators are microbes whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short−term health effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.
1 f. Groundwater 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.

Appendix B to Subchapter VII
Standard Health Effects Language for Public Notification (Continued)

Contaminant	MCLG[1] mg/L	MCL[2] mg/L	Standard health effects language for public notification
2 a. Turbidity (MCL)[4]	None	1 NTU[5]/5 NTU	Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate 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.
2 b. Turbidity (SWTR TT)[6]	None	TT[7]	Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease−causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea and associated headaches.
2 c. Turbidity (IESWTR TT)[8]	None	TT	Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease−causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea and associated headaches.
B. Surface Water Treatment Rule and Interim Enhanced Surface Water Treatment Rule violations:			
3. Giardia lamblia	Zero	TT[9]	Inadequately treated water may contain disease−causing organisms. These organisms include bacteria, viruses, and parasites which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.
4. Viruses			
5. Heterotrophic plate count bacteria[10]			
6. Legionella			
7. Cryptosporidium			
C. Inorganic Chemicals:			
8. 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.
9. Arsenic	0	0.010	Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.

Appendix B to Subchapter VII
Standard Health Effects Language for Public Notification (Continued)

Contaminant	MCLG[1] mg/L	MCL[2] mg/L	Standard health effects language for public notification
10. Asbestos (10 µm)	7 MFL[11]	7 MFL[11]	Some people who drink water containing asbestos in excess of the MCL over many years may have an increased risk of developing benign intestinal polyps.
11. Barium	2	2	Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure.
12. Beryllium	0.004	0.004	Some people who drink water containing beryllium well in excess of the MCL over many years could develop intestinal lesions.
13. Cadmium	0.005	0.005	Some people who drink water containing cadmium in excess of the MCL over many years could experience kidney damage.
14. Chromium (total)	0.1	0.1	Some people who use water containing chromium well in excess of the MCL over many years could experience allergic dermatitis.
15. Cyanide	0.2	0.2	Some people who drink water containing cyanide well in excess of the MCL over many years could experience nerve damage or problems with their thyroid.
16. Fluoride	4.0	4.0	Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Fluoride in drinking water at half the MCL or more may cause mottling of children's teeth, usually in children less than 9 years old. Mottling, also known as dental fluorosis, may include brown staining and/or pitting of the teeth, and occurs only in developing teeth before they erupt from the gums.
17. Mercury (inorganic)	0.002	0.002	Some people who drink water containing inorganic mercury well in excess of the MCL over many years could experience kidney damage.
18. Nitrate	10	10	Infants below the age of 6 months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome. Females who are or may become pregnant should not consume water with nitrate concentrations that exceed the MCL. There is some evidence of an association between exposure to high nitrate levels in drinking water during the first weeks of pregnancy and certain birth defects.
19. Nitrite	1	1	Infants below the age of 6 months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.

Appendix B to Subchapter VII
Standard Health Effects Language for Public Notification (Continued)

Contaminant	MCLG[1] mg/L	MCL[2] mg/L	Standard health effects language for public notification
20. Total Nitrate and Nitrite	10	10	Infants below the age of 6 months who drink water containing nitrate and nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.
21. Selenium	0.05	0.05	Selenium is an essential nutrient. However, some people who drink water containing selenium in excess of the MCL over many years could experience hair or fingernail losses, numbness in fingers or toes, or problems with their circulation.
22. Thallium	0.0005	0.002	Some people who drink water containing thallium in excess of the MCL over many years could experience hair loss, changes in their blood, or problems with their kidneys, intestines, or liver.
D. Lead and Copper Rule:			
23. Lead	Zero	TT[12]	Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.
24. Copper	1.3	TT[13]	Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.
E. Synthetic Organic Chemicals:			
25. 2,4−D	0.07	0.07	Some people who drink water containing the weed killer 2,4−D well in excess of the MCL over many years could experience problems with their kidneys, liver, or adrenal glands.
26. 2,4,5−TP (Silvex)	0.05	0.05	Some people who drink water containing silvex in excess of the MCL over many years could experience liver problems.
27. Alachlor	Zero	0.002	Some people who drink water containing alachlor in excess of the MCL over many years could have problems with their eyes, liver, kidneys, or spleen, or experience anemia, and may have an increased risk of getting cancer.

Appendix B to Subchapter VII
Standard Health Effects Language for Public Notification (Continued)

Contaminant	MCLG[1] mg/L	MCL[2] mg/L	Standard health effects language for public notification
28. Atrazine	0.003	0.003	Some people who drink water containing atrazine well in excess of the MCL over many years could experience problems with their cardiovascular system or reproductive difficulties.
29. Benzo(a)pyrene (PAHs)	Zero	0.0002	Some people who drink water containing benzo(a)pyrene in excess of the MCL over many years may experience reproductive difficulties and may have an increased risk of getting cancer.
30. Carbofuran	0.04	0.04	Some people who drink water containing carbofuran in excess of the MCL over many years could experience problems with their blood, or nervous or reproductive systems.
31. Chlordane	Zero	0.002	Some people who drink water containing chlordane in excess of the MCL over many years could experience problems with their liver or nervous system, and may have an increased risk of getting cancer.
32. Dalapon	0.2	0.2	Some people who drink water containing dalapon well in excess of the MCL over many years could experience minor kidney changes.
33. Di (2−ethylhexyl) adipate	0.4	0.4	Some people who drink water containing di (2−ethylhexyl) adipate well in excess of the MCL over many years could experience toxic effects such as weight loss, liver enlargement or possible reproductive difficulties.
34. Di (2−ethylhexyl) phthalate	Zero	0.006	Some people who drink water containing di (2−ethylhexyl) phthalate well in excess of the MCL over many years may have problems with their liver, or experience reproductive difficulties, and may have an increased risk of getting cancer.
35. Dibromochloropropane	Zero	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.
36. Dinoseb	0.007	0.007	Some people who drink water containing dinoseb well in excess of the MCL over many years could experience reproductive difficulties.
37. Dioxin (2,3,7,8−TCDD)	Zero	$3x10^{-8}$	Some people who drink water containing dioxin in excess of the MCL over many years could experience reproductive difficulties and many have an increased risk of getting cancer.

Appendix B to Subchapter VII
Standard Health Effects Language for Public Notification (Continued)

Contaminant	MCLG[1] mg/L	MCL[2] mg/L	Standard health effects language for public notification
38. Diquat	0.02	0.02	Some people who drink water containing diquat in excess of the MCL over many years could get cataracts.
39. Endothall	0.1	0.1	Some people who drink water containing endothall in excess of the MCL over many years could experience problems with their stomach or intestine.
40. Endrin	0.002	0.002	Some people who drink water containing endrin in excess of the MCL over many years could experience liver problems.
41. Ethylene dibromide	Zero	0.00005	Some people who drink water containing ethylene dibromide in excess of the MCL over many years could experience problems with their liver, stomach, reproductive system, or kidneys, and may have an increased risk of getting cancer.
42. Glyphosate	0.7	0.7	Some people who drink water containing glyphosate in excess of the MCL over many years could experience problems with their kidneys or reproductive difficulties.
43. Heptachlor	Zero	0.0004	Some people who drink water containing heptachlor in excess of the MCL over many years could experience liver damage and may have an increased risk of getting cancer.
44. Heptachlor epoxide	Zero	0.0002	Some people who drink water containing heptachlor epoxide in excess of the MCL over many years could experience liver damage, and may have an increased risk of getting cancer.
45. Hexachlorobenzene	Zero	0.001	Some people who drink water containing hexachlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys, or adverse reproductive effects, and may have an increased risk of getting cancer.
46. Hexachlorocyclopentadiene	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.
47. Lindane	0.0002	0.0002	Some people who drink water containing lindane in excess of the MCL over many years could experience problems with their kidneys or liver.
48. Methoxychlor	0.04	0.04	Some people who drink water containing methoxychlor in excess of the MCL over many years could experience reproductive difficulties.

Appendix B to Subchapter VII
Standard Health Effects Language for Public Notification (Continued)

Contaminant	MCLG[1] mg/L	MCL[2] mg/L	Standard health effects language for public notification
49. Oxamyl (Vydate)	0.2	0.2	Some people who drink water containing oxamyl in excess of the MCL over many years could experience slight nervous system effects.
50. Pentachlorophenol	Zero	0.001	Some people who drink water containing pentachlorophenol in excess of the MCL over many years could experience problems with their liver or kidneys, and may have an increased risk of getting cancer.
51. Picloram	0.5	0.5	Some people who drink water containing picloram in excess of the MCL over many years could experience problems with their liver.
52. Polychlorinated biphenyls	Zero	0.0005	Some people who drink water containing PCBs in excess of the MCL over many years could experience changes in their skin, problems with their thymus gland, immune deficiencies, or reproductive or nervous system difficulties, and may have an increased risk of getting cancer.
53. Simazine	0.004	0.004	Some people who drink water containing simazine in excess of the MCL over many years could experience problems with their blood.
54. Toxaphene	Zero	0.003	Some people who drink water containing toxaphene in excess of the MCL over many years could have problems with their kidneys, liver, or thyroid, and may have an increased risk of getting cancer.
F. Volatile Organic Chemicals:			
55. Benzene	Zero	0.005	Some people who drink water containing benzene in excess of the MCL over many years could experience anemia or a decrease in blood platelets, and may have an increased risk of getting cancer.
56. Carbon tetrachloride	Zero	0.005	Some people who drink water containing carbon tetrachloride in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.
57. Chlorobenzene (monochlorobenzene)	0.1	0.1	Some people who drink water containing chlorobenzene in excess of the MCL over many years could experience problems with their liver r kidneys.
58. *o*−Dichlorobenzene	0.6	0.6	Some people who drink water containing o−dichlorobenzene well in excess of the MCL over many years could experience problems with their liver, kidneys, or circulatory systems.

Appendix B to Subchapter VII
Standard Health Effects Language for Public Notification (Continued)

Contaminant	MCLG[1] mg/L	MCL[2] mg/L	Standard health effects language for public notification
59. *p*−Dichlorobenzene	0.075	0.075	Some people who drink water containing p−dichlorobenzene in excess of the MCL over many years could experience anemia, damage to their liver, kidneys, or spleen, or changes in their blood.
60. 1,2−Dichloroethane	Zero	0.005	Some people who drink water containing 1,2−dichloroethane in excess of the MCL over many years may have an increased risk of getting cancer.
61. 1,1−Dichloroethylene	0.007	0.007	Some people who drink water containing 1,1−dichloroethylene in excess of the MCL over many years could experience problems with their liver.
62. *cis*−1,2−Dichloroethylene	0.07	0.07	Some people who drink water containing cis−1,2−dichloroethylene in excess of the MCL over many years could experience problems with their liver.
63. *trans*−1,2−Dichloroethylene	0.1	0.1	Some people who drink water containing trans−1,2−dichloroethylene well in excess of the MCL over many years could experience problems with their liver.
64. Dichloromethane	Zero	0.005	Some people who drink water containing dichloromethane in excess of the MCL over many years could have liver problems and may have an increased risk of getting cancer.
65. 1,2−Dichloropropane	Zero	0.005	Some people who drink water containing 1,2−dichloropropane in excess of the MCL over many years may have an increased risk of getting cancer.
66. Ethylbenzene	0.7	0.7	Some people who drink water containing ethylbenzene well in excess of the MCL over many years could experience problems with their liver or kidneys.
67. Styrene	0.1	0.1	Some people who drink water containing styrene well in excess of the MCL over many years could have problems with their liver, kidneys, or circulatory system.
68. Tetrachloroethylene	Zero	0.005	Some people who drink water containing tetrachloroethylene in excess of the MCL over many years could have problems with their liver, and may have an increased risk of getting cancer.
69. Toluene	1	1	Some people who drink water containing toluene well in excess of the MCL over many years could have problems with their nervous system, kidneys, or liver.

Appendix B to Subchapter VII
Standard Health Effects Language for Public Notification (Continued)

Contaminant	MCLG[1] mg/L	MCL[2] mg/L	Standard health effects language for public notification
70. 1,2,4−Trichlorobenzene	0.07	0.07	Some people who drink water containing 1,2,4−trichlorobenzene well in excess of the MCL over many years could experience changes in their adrenal glands.
71. 1,1,1−Trichloroethane	0.2	0.2	Some people who drink water containing 1,1,1−trichloroethane in excess of the MCL over many years could experience problems with their liver, nervous system, or circulatory system.
72. 1,1,2−Trichloroethane	0.003	0.005	Some people who drink water containing 1,1,2−trichloroethane well in excess of the MCL over many years could have problems with their liver, kidneys, or immune systems.
73. Trichloroethylene	Zero	0.005	Some people who drink water containing trichloroethylene in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.
74. Vinyl chloride	Zero	0.002	Some people who drink water containing vinyl chloride in excess of the MCL over many years may have an increased risk of getting cancer.
75. Xylenes (total)	10	10	Some people who drink water containing xylenes in excess of the MCL over many years could experience damage to their nervous system.
G. Radioactive Contaminants:			
76. Beta/photon emitters	Zero	4 mrem/yr[14]	Certain minerals are radioactive and may emit forms of radiation known as photons and beta radiation. Some people who drink water containing beta and photon emitters in excess of the MCL over many years may have an increased risk of getting cancer.
77. Alpha emitters	Zero	15 pCi/L[15]	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 getting cancer.
78. Combined radium (226 & 228)	Zero	5 pCi/L	Some people who drink water containing radium 226 and 228 in excess of the MCL over many years may have an increased risk of getting cancer.

Appendix B to Subchapter VII
Standard Health Effects Language for Public Notification (Continued)

Contaminant	MCLG[1] mg/L	MCL[2] mg/L	Standard health effects language for public notification
H. Disinfection Byproducts, Byproduct Precursors, and Disinfectant Residuals: Where disinfection is used in the treatment of drinking water, disinfectants combine with organic and inorganic matter present in water to form chemicals called disinfection byproducts. EPA sets standards for controlling the levels of disinfectants and DBPs in drinking water, including trihalomethanes and haloacetic acids:[16]			
79. Total trihalomethanes	N/A	0.80[17]	Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer.
80. Haloacetic Acids	N/A	0.060[18]	Some people who drink water containing haloacetic acids in excess of the MCL over many years may have increased risk of getting cancer.
81. Bromate	Zero	0.010	Some people who drink water containing bromate in excess of the MCL over many years may have an increased risk of getting cancer.
82. 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.
83. Chlorine	4 (MRDLG)[19]	4.0 (MRDL)[20]	Some people who use water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort.
84. Chloramines	4 (MRDLG)	4.0 (MRDL)	Some people who use water containing chloramines well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chloramines well in excess of the MRDL could experience stomach discomfort or anemia.

Appendix B to Subchapter VII
Standard Health Effects Language for Public Notification (Continued)

Contaminant	MCLG[1] mg/L	MCL[2] mg/L	Standard health effects language for public notification
85a. Chlorine dioxide, where any 2 consecutive daily samples taken at the entrance to the distribution system are above the MRDL.	0.8 (MRDLG)	0.8 (MRDL)	Some infants and young children who drink water containing chlorine dioxide in excess of 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.
85b. 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 which delivers water to consumers. Violations of the chlorine dioxide standard within the distribution system may harm human health based on short−term exposures. Certain groups, including fetuses, infants, and young children, may be especially susceptible to nervous system effects from excessive chlorine dioxide exposure.
86. Control of DBP precursors (TOC)	None	TT	Total organic carbon (TOC) has no health effects. However, total organic carbon provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes and haloacetic acids. Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer.

Appendix B to Subchapter VII
Standard Health Effects Language for Public Notification (Continued)

Contaminant	MCLG[1] mg/L	MCL[2] mg/L	Standard health effects language for public notification
I. Other Treatment Techniques:			
87. Acrylamide	Zero	TT	Some people who drink water containing high levels of acrylamide over a long period of time could have problems with their nervous system or blood, and may have an increased risk of getting cancer.
88. Epichlorohydrin	Zero	TT	Some people who drink water containing high levels of epichlorohydrin over a long period of time could experience stomach problems, and may have an increased risk of getting cancer.

Appendix B Footnotes:

[1] MCLG−−Maximum contaminant level goal.

[2] MCL−−Maximum contaminant level.

[3] For public water systems analyzing at least 40 samples per month, no more than 5.0 percent of the monthly samples may be positive for total coliforms. For public water systems analyzing fewer than 40 samples per month, no more than one sample per month may be positive for total coliforms.

[4] There are various regulations that set turbidity standards for different types of public water systems, including 40 CFR 141.13, the 1989 Surface Water Treatment Rule, and the 1998 Interim Enhanced Surface Water Treatment Rule. The MCL for the monthly turbidity average is 1 NTU; the MCL for the 2−day average is 5 NTU for public water systems that are required to filter but have not yet installed filtration (40 CFR 141.13).

[5] NTU−−Nephelometric turbidity unit.

[6] There are various regulations that set turbidity standards for different types of public water systems, including 40 CFR 141.13, the 1989 Surface Water Treatment Rule, and the 1998 Interim Enhanced Surface Water Treatment Rule. Systems subject to the Surface Water Treatment Rule (both filtered and unfiltered) may not exceed 5 NTU. In addition, in filtered systems, 95 percent of samples each month shall not exceed 0.5 NTU in public water systems using conventional or direct filtration and shall not exceed 1 NTU in public water systems using slow sand or diatomaceous earth filtration or other filtration technologies approved by the department.

[7] TT−−Treatment technique.

[8] There are various regulations that set turbidity standards for different types of public water systems, including 40 CFR 141.13, the 1989 Surface Water Treatment Rule, and the 1998 Interim Enhanced Surface Water Treatment Rule. For public water systems subject to the interim enhanced surface water treatment rule (public water systems serving at least 10,000 people, using surface water or groundwater under the direct influence of surface water), that use conventional filtration or direct filtration, after January 1, 2002, the turbidity level of a public water system's combined filter effluent may not exceed 0.3 NTU in at least 95 percent of monthly measurements, and the turbidity level of a public water system's combined filter effluent shall not exceed 1 NTU at any time. Public water systems subject to the interim enhanced surface water treatment rule using technologies other than conventional, direct, slow sand, or diatomaceous earth filtration shall meet turbidity limits set by the department.

[9] Surface water treatment rule and interim enhanced surface water treatment rule treatment technique violations that involve turbidity exceedances may use the health effects language for turbidity instead.

[10] The bacteria detected by heterotrophic plate count are not necessarily harmful. HPC is simply an alternative method of determining disinfectant residual levels. The number of bacteria is an indicator of whether there is enough disinfectant in the distribution system.

[11] Million fibers per liter.

[12] Action Level = 0.015 mg/L.

[13] Action Level = 1.3 mg/L.

[14] Millirems per year.

[15] Picocuries per liter.

[16] Surface water systems and groundwater systems under the direct influence of surface water are regulated under Subpart H of 40 CFR part 141. Community and non−transient non−community systems using groundwater under the direct influence of surface water serving 10,000 or more shall comply with DBP MCLs and disinfectant maximum residual disinfectant levels beginning January 1, 2002. All other community and non−transient non−community systems shall meet the MCLs and MRDLs beginning January 1, 2004. Transient non−community systems using groundwater under the direct influence of surface water serving 10,000 or more persons and using chlorine dioxide as a disinfectant or oxidant shall comply with the chlorine dioxide MRDL beginning January 1, 2002. Transient non−community systems using groundwater under the direct influence of surface water serving fewer than 10,000 persons and public water systems using only groundwater not under the direct influence of surface water and using chlorine dioxide as a disinfectant or oxidant shall comply with the chlorine dioxide MRDL beginning January 1, 2004.

[17] The MCL for total trihalomethanes is the sum of the concentrations of the individual trihalomethanes.

[18] The MCL for haloacetic acids is the sum of the concentrations of the individual haloacetic acids.

[19] MRDLG — Maximum residual disinfectant level goal.

[20] MRDL — Maximum residual disinfectant level.

Appendix C to Subchapter VII
List of Acronyms Used in Public Notification Regulation

CCR . . . . . Consumer Confidence Report
CWS . . . . . Community Water System
DBP . . . . . Disinfection Byproduct
EPA . . . . . Environmental Protection Agency
HPC . . . . . Heterotrophic Plate Count
IESWTR . . . Interim Enhanced Surface Water Treatment Rule
IOC . . . . . Inorganic Chemical
LCR . . . . . Lead and Copper Rule
MCL . . . . . Maximum Contaminant Level
MCLG . . . . Maximum Contaminant Level Goal
MRDL . . . Maximum Residual Disinfectant Level
MRDLG . . . Maximum Residual Disinfectant Level Goal
NCWS . . . . Non−Community Water System
NPDWR . . . National Primary Drinking Water Regulation
NTNCWS . . Non−Transient Non−Community Water System
NTU . . . . . Nephelometric Turbidity Unit
OGWDW . . Office of Groundwater and Drinking Water
OW . . . . . Office of Water
PN . . . . . Public Notification
PWS . . . . . Public Water System
SDWA . . . . Safe Drinking Water Act
SMCL . . . . Secondary Maximum Contaminant Level
SOC . . . . . Synthetic Organic Chemical
SWTR . . . . Surface Water Treatment Rule
TCR . . . . . Total Coliform Rule
TT . . . . . Treatment Technique
TWS . . . . . Transient Non−Community Water System
VOC . . . . . Volatile Organic Chemical