CR 91-183

WISCONSIN
DEPT. OF NATURAL RESOURCES

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

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STATE OF WISCONSIN)
) ss
DEPARTMENT OF NATURAL RESOURCES)

TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETINGS:

I, Ronald L. Semmann, Deputy Secretary of the Department of Natural Resources and custodian of the official records of said Department, do hereby certify that the annexed copy of Natural Resources Board Order No. WS-46-91 was duly approved and adopted by this Department on January 28, 1993. I further certify that said copy has been compared by me with the original on file in this Department and that the same is a true copy thereof, and of the whole of such original.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the official seal of the Department at the Natural Resources Building in the City of Madison, this 9th day of April, 1993.

Ronald L. Semmann, Deputy Secretary

(SEAL)

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ORDER OF THE STATE OF WISCONSIN NATURAL RESOURCES BOARD REPEALING, RENUMBERING, AMENDING, REPEALING AND RECREATING, AND CREATING RULES

IN THE MATTER repealing ss. 109.26(1)(f) and 109.81(2)(f); renumbering ch. NR 109 to NR 809, ss. NR 109.04(1) to (47), 109.26(1)(g) to (k), 109.725, and 109.81(5)(a) to (l); amending ss. 109.04(10), (16)(b), (34), (38) & (39), 109.10, 109.11(title), (1) & (2), 109.13(1), 109.14(title), 109.22, 109.23(3)(a), 109.24(title) & (1), 109.24(2)(a), 109.26(1)(e), (g) & (k), 109.30(title), 109.31(1)(b)1., (c), (d)1., (2)(e)2., (g), (3)(a) & (b)1., (5)(c) & (10), 109.40(title), 109.41(2), 109.50(title), 109.51(title), 109.52(1), 109.53(title), 109.60(2), 109.72(1), 109.75(1)(b) &(2), 109.755(1)(a) & (b)(intro.), 109.76, 109.77(intro.), (1)(c) & (d), (2)(b) & (c), 109.78(1) (intro.), (c)2. & 6. Tables 2 & 4, (f) & (2)(c), 109.80(2), (5)(b)9.(intro.), (6)(a) & (b)(intro.), 109.81(1)(intro.), (a)3. & (d), (2)(a), (c) & (d) and 109.91(1)(intro.); repealing and recreating 109.09, 109.12, 109.20, 109.21, 109.25, and 109.725 Tables A to E; and creating ss. NR 809.02, 809.04(1), (5), (6), (12), (20) to (22), (24), (28) to (30), (36), (40), (49), (52), (56), (57), (59), & (64), 109.11(4), 809.24(3), 809.26(3), (4) & (5), 809.31(1)(g), 809 subch. IM, 809.725(1) Tables F, G & H, (2) & (3), 809.80(9), 809.81(5)(a) to (ct), (de), (dt), (ee) to (fe), (h) to (j), (k) to (le), (m) to (ot), (pe), (pt) & (r), 809.82(5) and 809.90(2)(c) & (d) of the Wisconsin Administrative Code pertaining to safe drinking water

WS-46-91

Analysis Prepared by Department of Natural Resources

Statutory authority: ss. 144.025(2)(t) and 227.11(2)(a), Stats.
Statutes interpreted: s. 144.025(2)(t), Stats.

Chapter NR 809, Safe Drinking Water, is submitted for approval to the Natural Resources Board. The revisions conform with two final regulations promulgated by the U.S. Environmental Protection Agency. The first federal rule is referred to as the Phase Two Rule. Specific revisions parallelling federal regulations for incorporation of the Phase Two Rule include: establishment of maximum contaminant levels for new inorganic and organic contaminants, increased monitoring requirements for community and noncommunity water systems for inorganic and organic contaminants, new monitoring requirements for unregulated organic contaminants, increased new nitrate monitoring requirements for noncommunity water systems, options to reduce certain monitoring requirements through performing water system vulnerability assessments, and additional mandatory wording requirements for public notices.

The second federal regulation which will be incorporated into ch. NR 809 is referred to as the Lead and Copper Rule. Revisions parallelling federal regulations include: establishment of "action levels" for lead and copper, greatly increased monitoring requirements for community and nontransient, noncommunity water systems, treatment requirements for reduction of lead and copper levels, and requirements for public education and mandatory wording of public notices.

SECTION 1. NR 809.02 is created to read:

NR 809.02 Departmental justification. Where the department exercises discretion allowed under this chapter to require a public water system owner or operator 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.

SECTION 2. NR 109.04(1) to (47) are renumbered NR 809.04(2) to (4), (7) to (11), (13) to (19), (23), (25) to (27), (31) to (35), (37) to (39), (41) to (48), (50), (53) to (55), (58), (60) to (63), (65), and (66), respectively. NR 809.04(10), (16)(b), (34), (38) and (39) as renumbered are amended to read:

NR 809.04(10) "CT" or "CTcalc" is the product of "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:

$$\frac{\text{CTcalc}}{\text{CT}_{99.9}}$$

where "CT99.9" is the CT value required for 99.9% (3 log) inactivation of Giardia lamblia cysts. The sum of the inactivation ratios, or total inactivation ratio for a series of disinfection sequences is:

$$\frac{(\text{CTcalc})}{\text{CT}_{99.9}}$$

and is calculated by adding together the inactivation ratio for each disinfection sequence. In determining the total inactivation ratio, the public water system owner or operator shall determine 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 a 3 log inactivation of Giardia lamblia cysts.

(16)(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 shall be 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.

(34) "Maximum contaminant level" or "MCL" means the maximum permissible level of a contaminant in water which is delivered to ~~the consumer service outlet of the ultimate~~ any user of a public water system~~, except in the case of turbidity where the maximum permissible level is measured at the point of entry to the distribution system. Contaminants added to the water under circumstances controlled by the user, except those resulting from corrosion of piping and plumbing caused by water quality, are excluded from this definition~~.

(38) "Non-community water system" means a public water system that ~~serves fewer than 25 year round residents~~ 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.

(39) "Non-transient non-community water system" means a non-community water system that regularly serves at least 25 of the same persons over 6 months per year. Examples of non-transient non-community water systems include those serving schools, day care centers and factories.

SECTION 3. NR 809.04(1), (5), (6), (12), (20) to (22), (24), (28) to (30), (36) (40), (49), (52), (56), (57), (59), and (64) are created to read:

NR 809.04(1) "Action level" is the concentration of lead or copper in water which determines, in some cases, the treatment requirements that a water system is required to complete.

(5) "Compliance cycle" means the 9-year calendar year cycle during which public water systems shall 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.

(6) "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.

(12) "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.

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

(21) "Entry point" means a location in the 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.

(22) "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.

(24) "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.

(28) "Initial compliance period" means the first full 3-year compliance period which begins at least 18 months after promulgation of the federal regulations.

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

(30) "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.

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

(40) "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 water system to violate any national primary drinking water regulations as listed in part 141 of the code of federal regulations (CFR) 40.

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

(52) "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 shall be used. If multiple compliance samples are collected in a single calendar quarter, the sample which yielded the highest concentration shall be used to calculate the running annual average.

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

(57) "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.

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

(64) "Transient non-community water system" means a non-community water system that serves at least 25 people at least 60 days of the year. Examples of transient non-community water systems include those serving taverns, motels, restaurants, churches, campgrounds and parks.

SECTION 4. NR 109.09 is repealed and recreated to read:

NR 809.09 Maximum contaminant level goals for primary contaminants. (1) Maximum contaminant level goals (MCLGs) are zero for the following contaminants:

Giardia lamblia
Legionella
Total Coliforms
Fecal Coliforms
Escherichia coli

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

Contaminants	MCLG (mg/L)
Acrylamide	0.00001
Alachlor	0.0004
Benzene	0.001
Carbon tetrachloride	0.0003
Chlordane	0.00003
Dibromochloropropane	0.00003
1,2-Dichloroethane	0.0004
1,2-Dichloropropane	0.0005

Epichlorohydrin	0.004
Ethylene Dibromide	0.0000004
Heptachlor	0.000008
Heptachlor Epoxide	0.000004
Pentachlorophenol	0.0003
Polychlorinated biphenyls (PCBs)	0.000005
Tetrachloroethylene	0.0007
Toxaphene	0.00003
Trichloroethylene	0.003
Vinyl chloride	0.000015

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

Contaminants	**MCLG (mg/L)**
Atrazine, total chlorinated residue[1]	0.003
Asbestos	7 Million fibers/L (longer than 10 micrometers)
Barium	2.0
Cadmium	0.005
Carbofuran	0.04
Chromium	0.1
Copper	1.3
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
2,4-D	0.07
Ethylbenzene	0.7
Fluoride	4.0
Lead	0.015
Lindane	0.0002
Mercury	0.002
Methoxychlor	0.04
Monochlorobenzene	0.1
Nitrate	10 (as Nitrogen)
Nitrite	1 (as Nitrogen)
Nitrate + Nitrite	10 (as Nitrogen)
Selenium	0.05
Styrene	0.1
Toluene	1.0
1,1,1-Trichloroethane	0.20
2,4,5-TP	0.05
Xylenes (Total)	10.0

[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 system owner or operator 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 system owner or operator 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 system owner or operator to prepare and submit a report which:

1. Assesses the cause and significance of the problem, and

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 system owner or operator to treat or replace the water source.

SECTION 5. NR 109.10 is amended to read:

NR 809.10 Applicability of primary maximum contaminant levels to new or reconstructed water sources. ~~No new or reconstructed~~ 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.

SECTION 6. NR 109.11(title), (1) and (2) are amended to read:

NR 809.11 (Title) Inorganic chemical maximum contaminant levels. (1)(a) The maximum contaminant levels for nitrate and nitrite are applicable to both community water systems and non-community water systems, except as provided in sub. (3).

(b) The maximum contaminant levels for arsenic and fluoride only apply to community water systems.

(c) The maximum contaminant levels for ~~the other inorganic chemicals~~ asbestos, barium, cadmium, chromium, mercury and selenium apply ~~only~~ 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 809.12.

(2) The following are the maximum contaminant levels for inorganic contaminants:

Contaminant	~~Level, milligrams per liter~~ **MCL in mg/L**
Arsenic	0.05

Asbestos	7 Million fibers/liter (longer than 10 um)
Barium	~~1.~~ 2.
Cadmium	~~0.010~~ 0.005
Chromium	~~0.05~~ 0.1
Fluoride	4.0
Mercury	0.002
Nitrate ~~(as N)~~	10 (as Nitrogen)
Nitrite	1 (as Nitrogen)
Total Nitrate + Nitrite	10 (as Nitrogen)
Selenium	~~0.01~~ 0.05
~~Silver~~	~~0.05~~

SECTION 7. NR 809.11(4) is created to read:

NR 809.11(4)(a) The following are the BATs available for achieving compliance with the maximum contaminant levels for the inorganic contaminants listed in sub. (2), except for arsenic and fluoride:

Contaminant	**BAT(s)**
Asbestos	2,3,8
Barium	5,6,7,9
Cadmium	2,5,6,7
Chromium	2,5,6[2],7
Mercury	2[1],4,6[1],7[1]
Nitrate	5,7,9
Nitrite	5,7
Selenium	1,2[3],6,7,9

[1] BAT only if influent Hg concentration ≤10 ug/l.
[2] BAT for Chromium III only.
[3] BAT for Selenium IV only.

Key to BATs in Table:

1 = Activated Alumina
2 = Coagulation/Filtration
3 = Direct and Diatomite Filtration
4 = Granular Activated Carbon
5 = Ion Exchange
6 = Lime Softening
7 = Reverse Osmosis
8 = Corrosion Control
9 = Electrodialysis

(b) A public water system owner or operator 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).

SECTION 8. NR 109.12 is repealed and recreated to read:

NR 809.12 Inorganic chemical sampling and analytical requirements. Monitoring for the contaminants listed in s. NR 809.11 for the purposes of determining compliance with the maximum contaminant levels shall be conducted as follows:

(1) SAMPLING WATER SOURCES. (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 entry point unless conditions make another sampling location more representative of each source after treatment.

(b) Surface water sources or combined surface water and groundwater sources shall be sampled at every point of entry 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. Each sample shall be taken at the same entry point unless conditions make another sampling location more representative of each source after treatment.

(c) If a system draws water from more than one source and the sources are combined before distribution, the 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.

(2) ASBESTOS. The frequency of monitoring to determine compliance with the maximum contaminant level for asbestos specified in s. NR 809.11(2) shall be conducted as follows:

(a) Each community and non-transient, non-community water system is required to 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.

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

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

1. Potential asbestos contamination of the water source, and

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

(d) A waiver remains in effect until the completion of the 3-year compliance period. Systems not receiving a waiver shall monitor in accordance with the provisions of par. (a).

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

(f) A system vulnerable to asbestos contamination due solely to source water shall monitor in accordance with the provisions in sub. (1).

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

(h) A system which exceeds the MCL as determined in s. NR 809.12(9) shall monitor 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) provided the department has determined that the 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) If monitoring data collected after January 1, 1990 are generally consistent with the requirements of this subsection, then the department may allow system owners to use that data to satisfy the monitoring requirement for the initial compliance period beginning January 1, 1993.

(3) METALS AND FLUORIDE. Each community water system and non-transient non-community water system owner or operator shall monitor for arsenic, barium, cadmium, chromium, fluoride, mercury and selenium as follows:

(a) Groundwater sources shall be sampled at each entry point during each compliance period beginning in the compliance period starting January 1, 1993. Suppliers of water having surface water sources or combined surface water and groundwater sources shall take one sample annually at each entry point beginning January 1, 1993.

(b) The system owner or operator may apply to the department for a waiver from the monitoring frequencies specified in par (a).

(c) A condition of the waiver shall require 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.

(d) The department may grant a waiver provided surface water systems have monitored annually for at least three years and groundwater systems have conducted a minimum of 3 rounds of monitoring. At least one of the three samples shall have been taken since January 1, 1990. Both surface and groundwater systems shall demonstrate that all previous analytical results were less than the maximum contaminant level. Systems that use a new water source are not eligible for a waiver until 3 rounds of monitoring from the new source have been completed.

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

1. Reported concentrations from all previous monitoring;

2. The degree of variation in reported concentrations; and

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

(f) Systems which exceed the MCLs as calculated in sub. (9) 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) provided it has determined that the 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) NITRATE. All public water system owners or operators shall monitor to determine compliance with the MCL for nitrate specified in s. NR 809.11(2) as follows:

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

(b) Transient non-community water systems shall be monitored annually beginning January 1, 1993.

(c) 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) 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.

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

(5) NITRITE. All public water system owners and operators shall monitor to determine compliance with the MCL for nitrite specified in s. NR 809.11(2) as follows:

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

(b) After the initial sample, systems where an analytical result for nitrite is less than 0.5 mg/L nitrate as nitrogen shall monitor at the frequency specified by the department. Notwithstanding par. (c), the frequency may not exceed one sample per year.

(c) 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.

(6) (a) The department may require the collection of a confirmation sample where sample results indicate an exceedance of the MCL for arsenic, asbestos, barium, cadmium, chromium, fluoride, mercury, or selenium. 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) Where nitrate or nitrite sampling results indicate an exceedance of the MCL, the system shall take a confirmation sample within 24 hours of the system's receipt of notification of the analytical results of the first sample. Systems unable to comply with the 24-hour sampling requirement shall immediately notify the consumers served by the public water system in accordance with s. NR 809.81. Systems exercising this option shall take and analyze a confirmation sample within 2 weeks of notification of the analytical results of the first sample.

(c) If the department requires a confirmation sample for any contaminant, the results of the initial and confirmation samples shall be averaged. The resultant average shall be used to determine the system's compliance in accordance with sub. (9). 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.

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

(9)(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 systems which are conducting monitoring more frequently than annual, compliance with the MCLs for arsenic, asbestos, barium, cadmium, chromium, fluoride, mercury and selenium 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 system is out of compliance. If any one or more samples would cause the annual average to exceed a MCL, then the 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.

(c) For systems which are monitoring annually, or less frequently, the system is out of compliance with the MCL for arsenic, asbestos, barium, cadmium, chromium, fluoride, mercury or selenium 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.

(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 par. (6)(b). Compliance shall be determined based on the average of the initial and confirmation samples.

(e) 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 system to give public notice to only the area served by that portion of the system which is out of compliance.

(10) Each public water system shall monitor during the month, quarter or year designated by the department during each compliance period.

(11) Analyses conducted to determine compliance with s. NR 809.11 shall be made in accordance with methods listed in s. NR 809.725(1), Table A.

(12) Sample collection for arsenic, asbestos, barium, cadmium, chromium, fluoride, mercury, nitrate, nitrite and selenium under this section shall be conducted using the sample preservation, containers and maximum holding time procedures specified in s. NR 809.725(1), Table F.

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

SECTION 9. NR 109.13(1) is amended to read:

NR 809.13 Sodium monitoring, reporting and notification requirements. (1) The supplier of water for a community water system shall collect and analyze one sample per plant at ~~a representative~~ the entry point ~~on~~ to the distribution system for the determination of sodium concentration; samples will be collected and analyzed annually for systems utilizing surface water sources in whole or in part, and at least every 3 years for systems utilizing solely groundwater sources. The minimum number of samples required to be taken by the system shall be based on the number of plants used by the 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 supplier of water may be required by the department to collect and analyze water samples for sodium more frequently in locations where the sodium content is variable.

SECTION 10. NR 109.14(title) is amended to read:

NR 809.14 (title) Corrosivity monitoring - special characteristics.

SECTION 11. NR 109.20 is repealed and recreated to read:

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

Contaminant	**MCL (mg/L)**
Alachlor	0.002
Atrazine	0.003
Carbofuran	0.04
Chlordane	0.002
Dibromochloropropane	0.0002
2,4-D	0.07
Ethylene Dibromide	0.00005
Heptachlor	0.0004
Heptachlor epoxide	0.0002
Lindane	0.0002
Methoxychlor	0.04
Polychlorinated biphenyls (PCBs)	0.0005
Pentachlorophenol	0.001
Toxaphene	0.003
2,4,5-TP	0.05

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

(a) Central treatment using granular activated carbon, and

(b) Packed tower aeration for dibromochloropropane, ethylene dibromide and toxaphene only.

(3) A public water system owner or operator 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).

SECTION 12. NR 109.21 is repealed and recreated to read:

NR 809.21 (title) Synthetic organic contaminant sampling and analytical requirements. (1) Owners or operators of 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 at every entry point to the distribution system which is representative of each well after treatment. Each sample shall be taken at the same entry point unless 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 points in the distribution system that are representative of each source after treatment. Each sample shall be taken at the same entry point unless conditions make another sampling location more representative of each source or treatment plant.

(c) If the system draws water from more than one source and the sources are combined before distribution, the 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.

(2)(a) Each community and non-transient, non-community water system shall take 4 consecutive quarterly samples for each contaminant listed in s. NR 809.20 during each compliance period beginning with the compliance period starting January 1, 1993.

(b) 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.

(c) Systems serving fewer than or equal to 3,300 persons 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) Each community and non-transient non-community water system may apply to the department for a waiver from the requirements of sub. (2). A system shall reapply for a waiver for each compliance period.

(4) The department may grant a waiver after evaluating the following factors:

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

(b) If previous use of the contaminant is unknown or 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 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, transformers, etc.

(5)(a) If an organic contaminant listed in s. NR 809.20 is detected as defined by sub. (6) in any sample, then the system owner or operator shall monitor quarterly at each entry point which resulted in a detection.

(b) The department may decrease the quarterly monitoring requirement specified in par. (a) provided it has determined that the system is reliably and consistently below the MCL. 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.

(c) After the department determines the system is reliably and consistently below the MCL, the department may allow the system to monitor annually. Systems which monitor annually shall monitor during the quarter that previously yielded the highest analytical results.

(d) 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).

(e) 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.

(6) 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. Atrazine	0.0001
3. Carbofuran	0.0009
4. Chlordane	0.0002
5. Dibromochloropropane	0.00002
6. 2,4-D	0.0001
7. Endrin	0.00001
8. Ethylene dibromide	0.00001
9. Heptachlor	0.00004
10. Heptachlor epoxide	0.00002
11. Lindane	0.00002
12. Methoxychlor	0.0001
13. Polychlorinated biphenyls (PCBs as decachlorobyphenyls)	0.0001
14. Pentachlorophenol	0.00004
15. Toxaphene	0.001
16. 2,4,5-TP	0.0002

(7)(a) If an organic contaminant listed in s. NR 809.20 is detected at a level exceeding the MCL in any sample, then the system owner or operator shall take a confirmation sample at each entry point which exceeded a MCL.

(b) Systems which exceed a MCL listed in s. NR 809.20 as determined by sub. (10) shall monitor quarterly. After a minimum of 4 quarterly samples show the system is in compliance and the department determines the system is reliably and consistently below the MCL as specified in sub. (10), the system shall monitor at the frequency specified in sub. (5)(c).

(8) 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 sub. (10). 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)(a) The department may reduce the total number of samples a system shall analyze by allowing the use of compositing. Composite samples from a maximum of 5 entry points are allowed. Compositing is only permitted at entry points within a single 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 within 14 days from each entry point included in the composite.

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

(10)(a) Compliance with the MCLs specified in s. NR 809.20 shall be determined based on the analytical results obtained at each entry point.

(b) For 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 system is out of compliance. If the initial sample or a subsequent sample would cause the annual average to be exceeded, then the system is out of compliance immediately.

(c) If monitoring is conducted annually or less frequently, the 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 has a distribution system separable from other parts of the distribution system with no interconnections, the department may allow the system to give public notice to only that portion of the system which is out of compliance.

(11) Analysis for the organic contaminants listed in s. NR 809.20 shall be conducted using the methods prescribed in s. NR 809.725(1), Table B.

(12) Analysis for PCBs shall be conducted as follows:

(a) Each system which monitors for PCBs shall analyze each sample using either Method 505 or Method 508 as specified in s. NR 809.725(1), Table B.

(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.

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

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

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

(14) If monitoring data collected after January 1, 1990 are generally consistent with the requirements of s. NR 809.21, then the department may allow systems to use that data to satisfy the monitoring requirements for the initial compliance period beginning January 1, 1993.

(15) The department may increase the required monitoring frequency, where necessary, to detect variations within the system. Examples of variations include fluctuations in concentration due to seasonal use or changes in water source.

(16) The department may determine compliance or initiate enforcement action based upon analytical results and other information complied by their sanctioned representatives and agencies.

(17) Each public water system shall monitor during the month, quarter or year designated by the department within each compliance period.

SECTION 13. NR 109.22 is amended to read:

NR 809.22 (title) Total trihalomethane maximum contaminant level. The maximum contaminant level for total trihalomethanes (the sum of the concentrations of bromodichloromethane, dibromochloromethane, tribromomethane (bromoform), and trichloromethane (chloroform)) shall be ~~0.1~~ 0.10 milligrams per liter. This maximum contaminant level applies to community water systems which add a disinfectant (oxidant) to the water in any part of the drinking water treatment process. Compliance with the maximum contaminant level for total trihalomethanes shall be calculated pursuant to s. NR 809.23.

SECTION 14. NR 109.23(3)(a) is amended to read:

NR 809.23(3)(a) The supplier of water for a community water system utilizing only groundwater sources may seek to have the monitoring frequency required by sub. (2) (a) reduced to a minimum of one sample for maximum TTHM potential per year for each plant used by the system, taken at a point in the distribution system reflecting maximum residence time of the water in the system. The supplier of water shall submit to the department the results of at least one sample analyzed for maximum TTHM potential for each plant used by the system, taken at a point in the distribution system reflecting the maximum residence time of the water in the system, taken at a point in the distribution system reflecting the maximum residence time of the water in the system. The system's monitoring frequency may ~~ony~~ only be reduced upon a determination by the department that, based upon the data submitted by the system, the system has a maximum TTHM potential of less than 0.10 mg/l and that, based upon an assessment of the local conditions of the system, the system is not likely to approach or exceed the maximum contaminant level for total TTHMs. The results of all analyses shall be reported to the department within 30 days of the system's receipt of such results. All samples collected shall be used for determining whether the system must comply with the monitoring requirements of sub. (2), unless the analytical results are invalidated for technical reasons. Sampling and analyses shall be conducted in accordance with the methods listed in sub. (5).

SECTION 15. NR 109.24(title) & (1) are amended to read:

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

Contaminant	~~Maximum contaminant level in mg/l~~ 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
1,2-Dichloropropane	0.005
Ethylbenzene	0.7
Monochlorobenzene	0.1
o-Dichlorobenzene	0.6
Styrene	0.1
Tetrachloroethylene	0.005
Toluene	1.0
trans-1,2-Dichloroethylene	0.1
Xylenes (total)	10.0

SECTION 16. NR 109.24(2)(a) is amended to read:

NR 809.24(2)(a) Central treatment using packed tower aeration, except for toluene, and

SECTION 17. NR 809.24(3) is created to read:

NR 809.24(3) A public water system owner or operator 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).

SECTION 18. NR 109.25 is repealed and recreated to read:

NR 809.25 Volatile organic contaminant sampling and analytical requirements. (1) Owners or operators of 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 entry point unless conditions make another sampling 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 in the distribution system that are representative of each source after treatment. Each sample shall be taken at the same entry point unless conditions make another sampling location more representative of each source, treatment plant or within the distribution system.

(c) If the system draws water from more than one source and the sources are combined before distribution, the 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.

(2) Each community and non-transient non-community water system owner or operator shall take 4 consecutive quarterly samples for each VOC contaminant specified in s. NR 809.24 during each compliance period, beginning in the compliance period starting January 1, 1993.

(3) If the initial monitoring for VOC contaminants listed in s. NR 809.24 as allowed in sub. (19) has been completed by December 31, 1992 and the analysis did not detect any VOC contaminant specified in s. NR 809.24, then the system owner or operator shall take one sample annually beginning January 1, 1993.

(4) After a minimum of 3 years of annual sampling, the department may allow groundwater systems with no previous detection of any VOC contaminant specified in s. NR 809.24 to take one sample during each compliance period.

(5) Each community and 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 subs. (3) and (4) after completing the initial monitoring. For the purposes of this section, detection is defined as >0.0005 mg/l, except for vinyl chloride for which detection is defined as >0.0003 mg/L. A waiver shall be effective for no more than 6 years or 2 compliance periods.

(6) The department may grant a waiver after evaluating the following factors:

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

(b) If previous use of the contaminant is unknown or 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 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 system to a larger system.

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

(7) As a condition of the waiver a groundwater system shall take one sample at each entry point during the time the waiver is effective, and update its vulnerability assessment considering the factors listed in sub. (6). Based on this vulnerability assessment, the department shall reconfirm that the system is non-vulnerable. If the department does not make this reconfirmation within 3 years of the initial determination, then the waiver is invalidated and the system is required to sample annually as specified in sub. (3).

(8) Each community and non-transient non-community surface water system which does not detect a contaminant specified in s. NR 809.24 may apply to the department for a waiver from the requirements of sub. (3) after completing initial monitoring. Systems meeting this criteria shall be determined by the department to be non-vulnerable based on a vulnerability assessment during each compliance period. Each system receiving a waiver shall sample at the frequency specified by the department.

(9) If vinyl chloride is detected at a level exceeding 0.0003 mg/L, or 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 system shall monitor quarterly at each entry point which resulted in a detection.

(b) The department may decrease the quarterly monitoring requirement specified in par. (a) provided it has determined that the system is reliably and consistently below the MCL. 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.

(c) If the department determines that the system is reliably and consistently below the MCL, the department may allow the system to monitor annually. Systems which monitor annually shall monitor during the quarter which previously yielded the highest analytical result.

(d) 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. (5).

(10) If a VOC contaminant specified in s. NR 809.24 is detected at a level exceeding the MCL in any sample, then:

(a) The system shall take a confirmation sample at each entry point which exceeded a MCL.

(b) A system which exceeds a MCL listed in s. NR 809.24 as determined under sub. (13) shall monitor quarterly. After a minimum of 4 consecutive quarterly samples which show the system is in compliance as specified in sub. (13), and the department determines that the system is reliably and consistently below the maximum contaminant level, the system may monitor at the frequency and time specified in sub. (9)(c).

(11) 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 sub. (13).

(12)(a) The department may reduce the total number of samples a system shall analyze by allowing the use of compositing. Compositing shall only be permitted for entry points within a single system. Composite samples from a maximum of 5 entry points are allowed.

(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 809.725(2) and (3).

(c) If the concentration in the composite sample is greater than 0.0003 mg/L for vinyl chloride or 0.0005 mg/L for any other contaminant listed under s. NR 809.24, then a follow-up sample shall be taken and analyzed 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 system may use these instead of resampling. The duplicate shall be analyzed and the results reported to the department within 14 days of collection.

(13)(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.

(b) For systems which are conducting monitoring 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 system is out of compliance. If the initial sample or a subsequent sample would cause the annual average to exceed the MCL, the system is out of compliance immediately.

(c) If monitoring is conducted annually, or less frequently, the 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 this sample and the confirmation sample.

(d) Any contaminant listed in s. NR 809.24 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 has a distribution system separable from other parts of the distribution system with no interconnections, the department may allow the system to give public notice to only that area served by that portion of the system which is out of compliance.

(14) The department may increase monitoring requirements when necessary to detect contaminant variations within a system.

(15) Analyses under this section shall be conducted using the methods prescribed in s. NR 809.725(1), Table B. Samples shall be collected using the containers, preservative and holding times specified in s. NR 809.725(1), Table G.

(16) Analyses under this section shall only be conducted by laboratories that have received approval by EPA or certified under ch. NR 149.

(17) Each approved laboratory shall determine the method detection limit (MDL) at which it is capable of detecting VOCs as defined under 40 Code of Federal Regulations, Part 136, Appendix B. The maximum acceptable MDL is 0.0005 mg/L for all VOCs except vinyl chloride, which is 0.0003 mg/L. These are the detection concentrations for purposes of this section.

(18) The department may increase monitoring requirements when necessary to detect contaminant variations within a system.

(19) The department may allow the use of monitoring data collected after January 1, 1988 for purposes of monitoring compliance. If the data are generally consistent with the other requirements in this section, the department may use a single sample rather than 4 quarterly samples to satisfy the initial monitoring requirement of sub.(2).

(20) Each public water system shall monitor at the during the month, quarter or year designated by the department within each compliance period.

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

SECTION 19. NR 109.26(1)(e) is amended to read:

NR 809.26(1)(e) Suppliers of water having community water systems or non-transient, non-community water systems shall monitor for the following contaminants:

1. Chloroform
2. Bromodichloromethane
3. Chlorodibromomethane
4. Bromoform

~~5. trans-1,2 Dichloroethylene~~
~~6. Chlorobenzene~~
~~7.~~ 5. m-Dichlorobenzene
~~8.~~ 6. Dichloromethane
~~9. cis-1,2 Dichloroethylene~~
~~10. o-Dichlorobenzene~~
~~11.~~ 7. Dibromomethane
~~12.~~ 8. 1,1-Dichloropropene
~~13. Tetrachloroethylene~~
~~14. Toluene~~
~~15. p-Xylene~~
~~16. o-Xylene~~
~~17. m-Xylene~~
~~18.~~ 9. 1,1-Dichloroethane
~~19. 1,2-Dichloropropane~~
~~20.~~ 10. 1,1,2,2-Tetrachloroethane

~~21. Ethylbenzene~~
~~22.~~ 11. 1,3-Dichloropropane
~~23. Styrene~~
~~24.~~ 12. Chloromethane
~~25.~~ 13. Bromomethane
~~26.~~ 14. 1,2,3-Trichloropropane
~~27.~~ 15. 1,1,1,2-Tetrachloroethane
~~28.~~ 16. Chloroethane
~~29.~~ 17. 1,1,2-Trichloroethane
~~30.~~ 18. 2,2-Dichloropropane
~~31.~~ 19. o-Chlorotoluene
~~32.~~ 20. p-Chlorotoluene
~~33.~~ 21. Bromobenzene
~~34.~~ 22. 1,3-Dichloropropene
~~35. Ethylene dibromide (EDB)~~
~~36. 1,2-Dibromo-3-chloropropane (DBCP)~~

SECTION 20. NR 109.26(1)(f) is repealed.

SECTION 21. NR 109.26(1)(g) to (k) are renumbered NR 809.26(1)(f) to (j), and pars. (f), (g) and (j), as renumbered, are amended to read:

NR 809.26(1)~~(g)~~(f) Analysis under this section shall be conducted using the methods prescribed in s. NR 809.725(1), Table B.

(g) Analysis under this section shall only be conducted by laboratories ~~approved under 40 Code of Federal Regulations 141.24 (g) (11). In addition, each laboratory analyzing for EDB and DBCP shall achieve a method detection limit for EDB and DBCP of 0.00002 mg/l, according to the procedures in Appendix B of Part 136, 40 Code of Federal Regulations~~ that have received approval by the U.S. environmental protection agency or are certified under ch. NR 149.

~~(k)~~(j) Suppliers of water having a community water system or a non-transient, non-community water system shall repeat the monitoring required in this subsection no less frequently than every 5 years.

SECTION 22. NR 809.26(3), (4), and (5) are created to read:

NR 809.26(3) Monitoring of the contaminants listed in pars. (j) and (k) shall be conducted as follows:

(a) Suppliers of water for community and non-transient, non-community water systems shall take 4 consecutive quarterly samples at each entry point for the organic contaminants listed in par. (j) and report the results to the department. Monitoring shall be completed by December 31, 1995.

(b) Suppliers of water for community or non-transient, non-community water systems shall take one sample at each entry point for the inorganic contaminants listed in par. (k) and report the results to the department. Monitoring shall be completed by December 31, 1995.

(c) Each community and non-transient non-community water system owner may apply to the department for a waiver from the requirements of pars. (a) and (b).

(d) The department may grant a waiver from the requirements of par. (a) based on the criteria specified in s. NR 809.20(4). The department may grant a waiver from the requirement of par. (b) if previous analytical results indicate contamination would not occur, provided this data was collected after January 1, 1990.

(e) 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 entry point unless conditions make another sampling location more representative of each source or treatment plant.

(f) 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 in the distribution system that are representative of each source after treatment. Each sample shall be taken at the same entry point unless conditions make another sampling location more representative of each source or treatment plant.

(g) If the system draws water from more than one source and the sources are combined before distribution, the 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.

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

(i) The department may reduce the total number of samples a system shall analyze by allowing the use of compositing. Compositing shall only be permitted at entry points within a single system. Composite samples from a maximum of 5 entry points are allowed. Compositing of samples shall be done in the laboratory and the composite sample shall be analyzed within 14 days of collection.

(j) List of unregulated organic contaminants

1. Aldrin
2. Aldicarb
3. Aldicarb Sulfoxide
4. Aldicarb Sulfone
5. Benzo(a)pyrene
6. Butachlor
7. Carbaryl
8. Dalapon
9. Di(2-ethylhexyl)adipate
10. Di(ethylhexyl)phthalate
11. Dicamba
12. Dieldrin
13. Dinoseb
14. Diquat
15. Endothall
16. Glyphosate
17. Hexachlorobenzene
18. Hexachlorocyclopentadiene
19. 3-Hydroxycarbofuran
20. Methomyl
21. Metolachlor
22. Metribuzin
23. Oxamyl (vydate)
24. Picloram
25. Propachlor

26. Simazine
27. 2,3,7,8-TCDD (Dioxin)

(k) List of unregulated inorganic contaminants

1. Antimony
2. Beryllium
3. Nickel
4. Sulfate
5. Thallium
6. Cyanide

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

(4) Analyses under this section shall be conducted using the methods prescribed in s. NR 809.725(1), Tables A and B.

(5) In lieu of MCLs and monitoring for acrylamide and epichlorohydrin, the following treatment techniques and reporting are required. Each 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 drinking water systems, 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.

Suppliers of water may rely on certifications from manufacturers or third parties, as approved by the department.

SECTION 23. NR 109.30(title) is amended to read:

NR 809.30 (title) Microbiological contaminant maximum contaminant levels.

SECTION 24. NR 109.31(1)(b)1. is amended to read:

NR 809.31(1)(b)1. 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 system. Suppliers required to collect multiple samples each month shall sample at geographically representative locations and on dates evenly spaced during the month. Except as specified in subd. 2., the minimum sampling frequency shall be as set forth in the following:

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
~~3,960,000~~ 3,960,001 or more	480

SECTION 25. NR 109.31(1)(c) and (d)1., (2)(e)2. and (g), (3)(a) and (b)1. are amended to read:

NR 809.31(1)(c) The supplier of water for a non-community school or a non-transient, non-community water system shall sample for coliform bacteria in each calendar quarter during which the system provides water to the public, unless the department, on the basis of a sanitary survey conducted in the past 5 years, or other factors, determines that ~~some other frequency~~ more frequent monitoring is ~~more~~ appropriate.

(d) 1. ~~On or after June 29, 1994, a~~ A non-community water system using only groundwater and serving 1,000 persons per day or fewer shall monitor each calendar quarter that the system provides water to the public, except that the department may reduce the monitoring frequency, in writing, if a sanitary survey shows that the system is free of sanitary defects. In no case may the monitoring frequency be reduced to less than once per year. The department may require monitoring to begin prior to June 29, 1994, but in no case may monitoring begin later than June 29, 1994.

(2)(e)2. The department may waive the requirement to collect 5 routine samples the next month the system provides water to the public if the department has determined why the sample was total coliform-positive and establishes that the water supplier has corrected the problem or will correct the problem before the end of the next month the system serves water to the public. In this case, the decision to waive the following month's additional monitoring requirement 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. The requirement to collect 5 routine samples the next month the system provides water to the public is not waiveable solely on the grounds that all repeat samples are total coliform-negative. The system owner or operator shsall still collect at least one routine sample before the end of the next month it serves water to the public and use it to determine compliance with the MCL for total coliforms in s. NR 809.30, unless the department has determined that the system corrected the contamination problem before the system collected the set of repeat samples required in sub. (2)(a) to (d), and all repeat samples were total coliform negative.

(g) Results of all routine and repeat samples not invalidated by the department shall be included in determining compliance with the MCL for total coliforms in s. NR 809.30 and the minimum routine requirements of this section.

(3)(a) A total ~~coliform positive~~ coliform-positive sample invalidated under this subsection does not count towards meeting the minimum monitoring requirements of this section.

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

SECTION 26. NR 809.31(1)(g) is created to read:

NR 809.31(1)(g) A public water system that uses groundwater under the direct influence of surface water as defined in s. NR 809.04(27), and does not provide filtration in compliance with s. NR 809.76, 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 809.78(b), exceeds 1 NTU. This sample shall be analyzed for the presence of total coliforms. The system owner or operator shall collect this coliform sample within 24 hours of the first exceedance unless the department determines that the system, for logistical reasons beyond its control, cannot have the sample analyzed within 30 hours of collection. Results from this coliform monitoring shall be included in determining compliance with the MCL for total coliforms in s. NR 809.30.

SECTION 27. NR 109.31(5)(c) and (10) are amended to read:

NR 809.31(5)(c) Samples collected in compliance with requirements of s. NR 809.30 shall be analyzed as prescribed in s. NR 809.725(1), Table C.

(10) 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 809.725(1), Table C.

SECTION 28. NR 109.40(title) is amended to read:

NR 809.40 (title) Turbidity maximum contaminant levels.

SECTION 29. NR 109.41(2) is amended to read:

NR 809.41(2) Samples shall be taken by suppliers of water for both community water systems and non-community water systems at representative entry points to the water distribution system at least once per day, for the purpose of making turbidity measurements to determine compliance with s. NR 809.40. The department may reduce the required sampling frequency at a non-community water system if it determines in writing that a reduced sampling frequency will not pose a risk to public health. The measurement shall be made by the Nephelometric Method as specified in s. NR 809.725(1), Table E.

SECTION 30. NR 109.50(title) is amended to read:

NR 809.50 (title) Radium-226, radium-228 and gross alpha particle radioactivity maximum contaminant levels.

SECTION 31. NR 109.51(title) is amended to read:

NR 809.51 (title) Beta particle and photon radioactivity from man-made radionuclides maximum contaminant levels.

SECTION 32. NR 109.52(1) is amended to read:

NR 809.52(1) Analyses conducted to determine compliance with ss. NR 809.50 and 809.51 shall be made in accordance with approved methods listed in s. NR 109.725(1), Table D.

SECTION 33. NR 109.53(title) is amended to read:

NR 809.53 (title) Radioactivity monitoring frequency for community water systems.

SECTION 34. NR 809, subch. IM is created to read:

Subchapter IM -- Control of Lead and Copper

NR 809.541 GENERAL REQUIREMENTS. (1) APPLICABILITY AND EFFECTIVE DATES.

(a) The requirements of this subchapter constitute the state 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 i.e., 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, i.e., 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. For water systems serving fewer than 100 people that collect 5 samples per monitoring period, the 90th percentile is computed by taking the average of the highest and second highest concentrations.

4. The contaminant concentration in the numbered sample yielded by the calculation in subd. 2. is the 90th percentile contaminant level.

(4) CORROSION CONTROL TREATMENT REQUIREMENTS. (a) All water system owners or operators shall install and operate optimal corrosion control treatment as defined in s. NR 809.04.

(b) Any 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 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 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 system exceeding the lead action level shall implement the public education requirements contained in s. NR 809.546.

(8) MONITORING AND ANALYTICAL REQUIREMENTS. (a) 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 NR 809.725, Table A.

(b) 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.

(9) REPORTING REQUIREMENTS. System owners or operators shall report to the department any information required by the treatment provisions of this subchapter and s. NR 809.55.

(10) RECORDKEEPING REQUIREMENTS. System owners or operators shall maintain records in accordance with s. NR 809.82.

(11) VIOLATION OF NATIONAL PRIMARY DRINKING WATER REGULATIONS. Failure to comply with the applicable requirements of ss. NR 809.541 to 809.549, 809.725, 809.80, and 809.82., including requirements established by the department pursuant to these provisions, shall constitute a violation of the state primary drinking water regulations for lead or copper, or both.

(12) PREMISE OWNER NOTIFICATION OF LEAD AND COPPER RESULTS. System owners or operators 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 exceed action levels, system owners or operators must inform premise owners or occupants of health effects and measures necessary to lower lead or copper levels.

NR 809.542 APPLICABILITY OF CORROSION CONTROL TREATMENT STEPS FOR SMALL, MEDIUM AND LARGE-SIZE WATER SYSTEMS. (1) CORROSION CONTROL TREATMENT REQUIREMENTS. System owners or operators shall complete the applicable corrosion control treatment requirements described in s. NR 809.543 by the deadlines established.

(a) The owner or operator of a large system shall complete the corrosion control treatment steps specified in sub. (4), unless the system is deemed to have optimized corrosion control under sub. (2)(b) or (c).

(b) The owner or operator of a small system and a medium-size system shall complete the corrosion control treatment steps specified in sub. (5), unless the system is deemed to have optimized corrosion control under sub. (2)(a), (b) or (c).

(2) DETERMINATION OF OPTIMUM CORROSION CONTROL. A system is deemed to have optimized corrosion control and is not required to complete the applicable corrosion control treatment steps if the system satisfies one of the following criteria:

(a) A small or medium-size water system is deemed to have optimized corrosion control if the system meets the lead and copper action levels during each of 2 consecutive 6-month monitoring periods conducted in accordance with s. NR 809.547.

(b) Any water system may be deemed by the department to have optimized corrosion control treatment if the system owner or operator demonstrates to the satisfaction of the department that it has conducted activities equivalent to the corrosion control steps applicable to the system under this section. If the department makes this determination, it shall provide the system 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). A system owner or operator shall provide the department with 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 system owner or operator 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 system owner or operator'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; and

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 water system is deemed to have optimized corrosion control if it 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 809.541(3)(c), and the highest source water lead concentration, is less than 5 ug/l.

(3) CRITERIA FOR CLASSIFYING CORROSION CONTROL TREATMENT STUDIES FOR SMALL AND MEDIUM-SIZE SYSTEMS. Any small or medium-size water system owner or operator 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 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 water system thereafter exceeds the lead or copper action level during any monitoring period, the system owner or operator 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 system owner or operator to repeat treatment steps previously completed by the system owner or operator where the department determines that this is necessary to implement properly the treatment requirements. The department shall notify the system owner or operator in writing of such a determination and explain the basis for its decision.

(4) TREATMENT STEPS AND DEADLINES FOR LARGE SYSTEMS. Except as provided in sub. (2)(b) and (c), owners or operators of large systems shall complete the following corrosion control treatment steps by the indicated dates:

(a) Step 1: The system owner or operator shall conduct initial monitoring during 2 consecutive 6-month monitoring periods by January 1, 1993.

(b) Step 2: The system owner or operator shall complete corrosion control studies by July 1, 1994.

(c) Step 3: The system owner or operator shall submit information for optimal corrosion control to the department for approval by January 1, 1995.

(d) Step 4: The system owner or operator shall install optimal corrosion control treatment by January 1, 1997.

(e) Step 5: The system owner or operator 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 system owner or operator 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), owners or operators of small and medium-size systems shall complete the following corrosion control treatment steps by the indicated time periods:

(a) Step 1: The system owner or operator shall conduct initial tap sampling until the system either exceeds the lead or copper action level or becomes eligible for reduced monitoring under s. NR 809.547(4)(d). The owner or operator of a system that exceeds the lead or copper action level shall recommend optimal corrosion control treatment within 6 months after it exceeds one of the action levels.

(b) Step 2: Within 12 months after a system exceeds the lead or copper action level, the department shall require the system owner or operator to perform corrosion control studies.

(c) Step 3: If the department requires a system owner or operator to perform corrosion control studies under step 2, the system owner or operator shall complete the studies within 18 months after the department requires the studies be conducted.

(d) Step 4: If the system owner or operator has performed corrosion control studies under step 2, the department shall review and determine adequacy of system's optimal corrosion control treatment within 6 months after completion of step 3.

(e) Step 5: The system owner or operator shall install optimal corrosion control treatment within 24 months after the department approves the treatment.

(f) Step 6: The system owner or operator shall complete follow-up sampling within 36 months after the department approves optimal corrosion control treatment.

(g) Step 7: The department shall review the system's installation of treatment and approve optimal water quality control parameters within 6 months after completion of step 6.

(h) Step 8: The system owner or operator shall operate in compliance with the department-approved optimal water quality control parameters and continue to conduct tap sampling.

NR 809.543 DESCRIPTION OF CORROSION CONTROL TREATMENT REQUIREMENTS. Each system owner or operator shall complete the following corrosion control treatment requirements which are applicable to their system under s. NR 809.542.

(1) SYSTEM OWNER OR OPERATOR RECOMMENDATION REGARDING CORROSION CONTROL TREATMENT. Based upon the results of lead and copper tap monitoring and water quality parameter monitoring, owners or operators of 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 system owner or operator believes constitutes optimal corrosion control for that system. The department may require the system owner or operator to conduct additional water quality parameter monitoring in accordance with s. NR 809.548(2) to assist the department in reviewing the system owner or operator'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 owner or operator 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 system.

(3) PERFORMANCE OF CORROSION CONTROL STUDIES. (a) Any public water system owner or operator performing corrosion control studies shall evaluate the effectiveness of each of the following treatments, and, if appropriate, combinations of the following treatments to identify the optimal corrosion control treatment for that system:

1. Alkalinity and pH adjustment;

2. Calcium hardness adjustment; and

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 system owner or operator shall evaluate each of the corrosion control treatments listed in par. (a) using either pipe rig/loop tests, metal coupon tests, partial-system tests, or analyses based on documented analogous treatments with other systems of similar size, water chemistry and distribution system configuration.

(c) The water system owner or operator shall measure 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 system owner or operator 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 water system with comparable water quality characteristics; or

2. Data and documentation demonstrating that the water system owner or operator 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 system owner or operator 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 system owner or operator shall recommend to the department in writing the treatment option that the corrosion control studies indicate constitutes optimal corrosion control treatment for that system. The water system owner or operator 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 system owner or operator's recommended treatment alternative, the department shall either approve the corrosion control treatment option recommended by the system owner or operator, 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 system owner or operator 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 system owner or operator shall provide the information.

(5) INSTALLATION OF OPTIMAL CORROSION CONTROL. Each system owner or operator shall properly install and operate throughout its 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 system owner or operator and determine whether the system owner or operator 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 system owner or operator, both before and after the system owner or operator 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 system owner or operator recommendations and select the values for the applicable water quality control parameters listed in sub. (3) which reflect optimal corrosion control treatment for the system. The department may specify values for additional water quality control parameters to reflect optimal corrosion control for the system. The department shall notify the water system owner in writing of these determinations and explain the basis for its decision. At a minimum, the department shall establish:

(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 system owner provides information to indicate that meeting a pH level of 7.0 is not technologically feasible or is not necessary for the 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 system owners or operators shall maintain water quality parameter values at or above minimum values or within ranges approved by the department under sub. (6) in each sample collected under s. NR 809.548(4). If the water quality parameter value of any sample is below the minimum value or outside the range approved by the department, then the system is out of compliance with this subchapter. As specified in s. NR 809.548(4), the system owner or operator may take a confirmation sample for any water quality parameter value no later than 3 days after the first sample. If a confirmation sample is taken, the result shall be averaged with the first sampling result and the average shall be used for any compliance determinations under this

subsection. The department has the discretion to delete results of obvious sampling errors from this calculation.

(9) MODIFICATION OF DEPARTMENT TREATMENT DECISIONS. Upon its own initiative or in response to a request by a water system owner or operator 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 system owner or operator 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 system owner or operator 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 where the regional administrator finds that:

(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, or

(c) The technical aspects of the department's determination would be indefensible in an expected federal enforcement action taken against a system owner or operator.

<u>NR 809.544 SOURCE WATER TREATMENT REQUIREMENTS</u>. (1) DEADLINES FOR COMPLETING SOURCE WATER TREATMENT STEPS. System owners or operators shall complete the applicable source water monitoring and treatment requirements by the following deadlines:

(a) Step 1: A system exceeding the lead or copper action level shall complete lead and copper source water monitoring and when necessary propose an optimal treatment alternative to the department within 6 months after exceeding the lead or copper action level.

(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 system owner or operator shall install the treatment within 24 months after completion of step 2.

(d) Step 4: The system owner or operator 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 system's 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 system owner or operator 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) System treatment recommendation. Any owner or operator of a 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 system owner or operator 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 system owner or operator shall complete an evaluation of the results of all source water samples collected by the water system owner or operator 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 system owner or operator, 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 system owner or operator shall provide the information by the date specified by the department in its request. The department shall notify the system owner or operator in writing of its determination and set forth the basis for its decision.

(c) Installation of source water treatment. Each system owner or operator 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 system owner or operator both before and after the system owner or operator installs source water treatment, and determine whether the system owner or operator 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 system owner or operator in writing and explain the basis for its decision.

(e) Continued operation and maintenance. Each water system owner or operator 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 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 system owner or operator 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 system owner or operator 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 system owner or operator 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 where the administrator finds that:

1. The department has failed to issue a treatment determination by the applicable deadlines contained in s. NR 809.544(1),

2. The department has abused its discretion in a substantial number of cases or in cases affecting a substantial population, or

3. The technical aspects of the department's determination would be indefensible in an expected federal enforcement action taken against a system owner or operator.

NR 809.545 LEAD SERVICE LINE REPLACEMENT REQUIREMENTS. (1) System owners or operators with 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 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 system owner or operator to commence lead service line replacement under this section after the date by which the system owner or operator was required to conduct monitoring under s. NR 809.547(4)(b) has passed.

(2) A system owner or operator 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 system owner or operator shall identify the initial number of lead service lines in its distribution system based upon a materials evaluation, including the evaluation required under s. NR 809.547(1). The first year of lead service line replacement shall begin on the date the action level was exceeded in tap sampling referenced in sub. (1).

(3) A system owner or operator 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) A water system owner or operator shall replace the entire service line, up to the building inlet, unless he or she demonstrates to the satisfaction of the department under sub. (5), that he or she controls less than the entire service line. In such cases, the system owner or operator shall replace the portion of the line which the department determines is under the system owner or operator's control. The system owner or operator shall notify the user served by the line that the system owner or operator will replace the portion of the service line under his or her control and 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. For buildings where only a portion of the lead service line is replaced, the water system owner or operator shall inform the residents that the system owner or operator will collect a first flush tap water sample after partial replacement of the service line is completed if the residents so desire. In cases where the residents accept the offer, the system owner or operator shall collect the sample and report the results to the residents within 14 days after the sample was collected.

(5) A water system owner or operator is presumed to control the entire lead service line, up to the building inlet, unless the system owner or operator demonstrates to the satisfaction of the department, in a letter submitted under s. NR 809.55(5)(d), that it does not have any of the following forms of control over the entire line, as defined by state statutes, municipal ordinances, public service contracts or other applicable legal authority: authority to set standards for construction, repair or maintenance of the line; authority to replace, repair or maintain the service line; or ownership of the service line. The department shall review the information supplied by the system owner or operator and determine whether the system owner or operator controls less than the entire service line and, in such cases, shall determine the extent of the system owner or operator's control. The department's determination shall be in writing and explain the basis for its decision.

(6) The department shall require a system owner or operator 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 system, where such a shorter replacement schedule is feasible. The department shall make this determination in writing and notify the system owner or operator of its finding within 6 months after the system owner or operator is triggered into lead service line replacement based on monitoring referenced in sub. (1).

(7) Any system owner or operator may cease replacing all lead service lines whenever 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 system owner or operator submits the results to the department. If the lead service line samples in any such water system thereafter exceeds the lead action level, the system owner or operator shall recommence replacing lead service lines, pursuant to sub. (2).

(8) To demonstrate compliance with subs. (1) to (4), a system owner or operator shall report to the department the information specified in s. NR 809.55(5).

NR 809.546 PUBLIC EDUCATION AND SUPPLEMENTAL MONITORING REQUIREMENTS. The owner or operator of a water system that exceeds the lead action level based on tap water samples collected in accordance with s. NR 809.547 shall deliver the public education materials contained in subs. (1) and (2) in accordance with the requirements in sub. (3).

(1) CONTENT OF WRITTEN MATERIALS. A water system owner or operator shall include the following text in all of the printed materials it distributes through its lead public education program. Any additional information presented by a system owner or operator shall be consistent with the information below and be in plain English that can be understood by laypersons.

(a) The United States Environmental Protection Agency (EPA) and [insert name of water supplier] are concerned about lead in your drinking water. Although most homes have very low levels of lead in their drinking water, some homes in the community have lead levels above the EPA action level of 15 parts per billion (ppb), or 0.015 milligrams of lead per liter of water (mg/L). Under federal law we are required to have a program in place to minimize lead in your drinking water by [insert date when corrosion control will be completed for your system]. This program includes corrosion control treatment, source water treatment, and public education. We are also required to replace each lead service line that we control if the line contributes lead concentrations of 15 ppb or more after we have completed the comprehensive treatment program. If you have any questions about how we are carrying out the requirements of the lead regulation please give us a call at [insert water system's phone number]. This brochure explains the simple steps you can take to protect you and your family by reducing your exposure to lead in drinking water.

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

(c) 1. Lead in drinking water, although rarely the sole cause of lead poisoning, can significantly increase a person's total lead exposure, particularly the exposure of infants who drink baby formulas and concentrated juices that are mixed with water. The EPA estimates that drinking water can make up 20% or more of a person's total exposure to lead.

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

3. When water stands in lead pipes or plumbing systems containing lead for several hours or more, the lead may dissolve into your drinking water. This means the first water drawn from the tap in the morning, or later in the afternoon after returning from work or school, can contain fairly high levels of lead.

(d) 1. Despite our best efforts mentioned earlier to control water corrosivity and remove lead from the water supply, lead levels in some homes or buildings can be high. To find out whether you need to take action in your own home, have your drinking water tested to determine if it contains excessive concentrations of lead. Testing the water is essential because you cannot see, taste or smell lead in drinking water. Some local laboratories that can provide this service are listed at the end of this booklet. For more information on having your water tested, please call [insert phone number of water system].

2. If a water test indicates that the drinking water drawn from a tap in your home contains lead above 15 ppb, then you should take the following precautions:

a. Let the water run from the tap before using it for drinking or cooking any time the water in a faucet has gone unused for more than 6 hours. The longer water resides in your home's plumbing the more lead it may contain. Flushing the tap means running the cold water faucet until the water gets noticeably colder, usually about 15-30 seconds. If your house has a lead service line to the water main, you may have to flush the water for a longer time, perhaps one minute, before drinking. Although toilet flushing or showering flushes water through a portion of your home's plumbing system, you still need to flush the water in each faucet before using it for drinking or cooking. Flushing tap water is a simple and inexpensive measure you can take to protect your family's health. It usually uses less than one or 2 gallons of water and costs less than [insert a cost estimate based on flushing 2 times a day for 30 days] per month. To conserve water, fill a couple of bottles for drinking water after flushing the tap, and whenever possible use the first flush water to wash the dishes or water the plants. If you live in a high-rise building, letting the water flow before using it may not work to lessen your risk from lead. The plumbing systems have more, and sometimes larger pipes than smaller buildings. Ask your landlord for help in locating the source of the lead and for advice on reducing the lead level.

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

c. Remove loose lead solder and debris from the plumbing materials installed in newly constructed homes, or homes in which the plumbing has recently been replaced, by removing the faucet strainers from all taps and running the water from 3 to 5 minutes. Thereafter, periodically remove the strainers and flush out any debris that has accumulated over time.

d. If your copper pipes are joined with lead solder that has been installed illegally since it was banned in Wisconsin on September 24, 1984, notify the plumber who did the work and request that he or she replace the lead solder with lead-free solder. Lead solder looks dull gray, and when scratched with a key looks shiny. In addition, notify the Department of Natural Resources about the violation.

e. Determine whether or not the service line that connects your home or apartment to the water main is made of lead. The best way to determine if your service line is made of lead is by either hiring a licensed plumber to inspect the line or by contacting the plumbing contractor who installed the line. You can identify the plumbing contractor by checking the city's record of building permits which should be maintained in the files of the [insert name of department that issues building permits]. A licensed plumber can at the same time check to see if your homes's plumbing contains lead solder, lead pipes or pipe fittings that contain lead. The public water system that delivers water to your home should also maintain records of the materials located in the distribution system. If the service line that connects your dwelling to the water main contributes more than 15 ppb to drinking water, after our comprehensive treatment program is in place, we are required to replace the line. If the line is only partially controlled by the [insert name of the city, county, or water system that controls the line], we are required to provide you with information on how to replace your portion of the service line, and offer to replace that portion of the line at your expense and take a follow-up tap water sample within 14 days of the replacement. Acceptable replacement alternatives include copper, steel, iron and plastic pipes.

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

3. The steps described in subd. 2 will reduce the lead concentrations in your drinking water. However, if a water test indicates that the drinking water coming from your tap contains lead concentrations in excess of 15 ppb after flushing, or after we have completed our actions to minimize lead levels, then you may want to take the following additional measures:

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

b. Purchase bottled water for drinking and cooking.

4. You can consult a variety of sources for additional information. Your family doctor or pediatrician can perform a blood test for lead and provide you with information about the health effects of lead. State and local government agencies that can be contacted include:

a. [insert the name of city or county department of public utilities] at [insert phone number] can provide you with information about your community's water supply, and a list of local laboratories that have been certified by EPA for testing water quality;

b. [insert the name of city of county department that issues building permits] at [insert phone number] can provide you with information about building permit records that should contain the names of plumbing contractors that plumbed your home; and

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

5. The following is a list of some state approved laboratories in your area that you can call to have your water tested for lead. [Insert names and phone numbers of at least 2 laboratories].

(2) CONTENT OF BROADCAST MATERIALS. A water system owner or operator shall include the following information in all public service announcements submitted under its lead public education program to television and radio stations for broadcasting:

(a) Why should everyone want to know the facts about lead and drinking water? Because unhealthy amounts of lead can enter drinking water through the plumbing in your home. That's why I urge you to do what I did. I had my water tested for [insert free or $ per sample]. You can contact the [insert the name of the city or water system] for information on testing and on simple ways to reduce your exposure to lead in drinking water.

(b) To have your water tested for lead, or to get more information about this public health concern, please call [insert the phone number of the city or water system owner or operator].

(3) DELIVERY OF A PUBLIC EDUCATION PROGRAM. (a) In communities where a significant proportion of the population speaks a language other than English, public education materials shall be communicated in the appropriate languages.

(b) The owner or operator of a community water system that fails to meet the lead action level on the basis of tap water samples collected in accordance with s. NR 809.547 shall, within 60 days:

1. Insert notices in each customer's water utility bill containing the information in par. (a), along with the following alert on the water bill itself in large print:

"SOME HOMES IN THIS COMMUNITY HAVE ELEVATED LEAD LEVELS IN THEIR DRINKING WATER. LEAD CAN POSE A SIGNIFICANT RISK TO YOUR HEALTH. PLEASE READ THE ENCLOSED NOTICE FOR FURTHER INFORMATION."

2. Submit the information in sub. (1) to the editorial departments of the major daily and weekly newspapers circulated throughout the community.

3. Deliver pamphlets and/or brochures that contain the public education materials in sub. (1)(b) and (d) to facilities and organizations, including the following:

a. Public schools and/or local school boards;

b. City or county health department;

c. Women, Infants, and Children and/or Head Start Program(s) whenever available;

d. Public and private hospitals and/or clinics;

e. Pediatricians;

f. Family planning clinics; and

g. Local welfare agencies.

4. Submit the public service announcement in sub. (2) to at least 5 of the radio and television stations with the largest audiences that broadcast to the community served by the water system.

(c) A community water system owner or operator shall repeat the tasks contained in sub. (3)(b)1. to 3. every 12 months, and the tasks contained in par. (b)4. every 6 months for as long as the system exceeds the lead action level.

(d) Within 60 days after it exceeds the lead action level, a non-transient, non-community water system owner or operator shall deliver the public education materials contained in sub. (1)(a), (b) and (d) as follows:

1. Post informational posters on lead in drinking water in a public place or common area in each of the buildings served by the system; and

2. Distribute informational pamphlets and/or brochures on lead in drinking water to each person served by the non-transient, non-community water system.

(e) A non-transient, non-community water system owner or operator shall repeat the tasks contained in par. (d) at least once during each calendar year in which the system exceeds the lead action level.

(f) A water system owner or operator may discontinue delivery of public education materials if the system has met the lead action level during the most recent 6-month monitoring period conducted pursuant to s. NR 809.547. Such a system owner or operator shall recommence public education in accordance with this section if it subsequently exceeds the lead action level during any monitoring period.

(4) SUPPLEMENTAL MONITORING AND NOTIFICATION OF RESULTS. A 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 system owner or operator is not required to pay for collecting or analyzing the sample, nor is the system owner or operator required to collect and analyze the sample itself.

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 system owner or operator shall complete a materials evaluation of its distribution 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 system owner or operator 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 system owner or operator shall use the information on lead, copper and galvanized steel that it is required to collect under s. NR 809.14(4) when conducting a materials evaluation. When an evaluation of the information collected pursuant to s. NR 809.14(4) is insufficient to locate the requisite number of lead and copper sampling sites that meet the targeting criteria in this subsection, the water system owner or operator shall review the following sources of information in order to identify a sufficient number of sampling sites. In addition, the system owner or operator shall seek to collect such information where possible in the course of its normal operations, e.g., 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; and

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

(c) The sampling sites selected for a community water system's sampling pool, "tier 1 sampling sites", shall consist of single family structures that:

1. Contain copper pipes with lead solder installed after 1982 or contain lead pipes; or

2. Are served by a lead service line. When multiple-family residences comprise at least 20% of the structures served by a water system, the system may include these types of structures in its sampling pool, or both.

(d) Any community water system with insufficient tier 1 sampling sites shall complete its sampling pool with "tier 2 sampling sites", consisting of buildings, including multiple-family residences that:

1. Contain copper pipes with lead solder installed after 1982 or contain lead pipes; or

2. Are served by a lead service line, or both.

(e) Any community water system with insufficient tier 1 and tier 2 sampling sites shall complete its sampling pool with "tier 3 sampling sites", consisting of single family structures that contain copper pipes with lead solder installed before 1983.

(f) The sampling sites selected for a non-transient non-community water system, "tier 1 sampling sites", shall consist of buildings that:

1. Contain copper pipes with lead solder installed after 1982 or contain lead pipes; or

2. Are served by a lead service line, or both

(g) A non-transient, non-community water system with insufficient tier 1 sites that meet the targeting criteria in par. (f) shall complete its sampling pool with sampling sites that contain copper pipes with lead solder installed before 1983.

(h) Water system owners or operators whose sampling pool does not consist exclusively of tier 1 sites shall demonstrate in a letter submitted to the department under s. NR 809.55(1)(d) why a review of the information listed in par. (b) was inadequate to locate a sufficient number of tier 1 sites. Any owner or operator of a community water system which includes tier 3 sampling sites in its sampling pool shall demonstrate in such a letter why they were unable to locate a sufficient number of tier 1 and tier 2 sampling sites.

(i) Any water system owner or operator 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 system owner or operator who cannot identify a sufficient number of sampling sites served by a lead service line shall demonstrate in a letter submitted to the department under s. NR 809.55(1)(f) why the system owner or operator was unable to locate a sufficient number of such sites. Such a water system owner or operator 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) 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.

(c) If the sample is not acidified immediately after collection, then the sample shall stand in the original container for at least 28 hours after acidification.

1. First-draw samples from residential housing shall be collected from the cold-water kitchen tap or bathroom sink tap.

2. First-draw samples from a non-residential building shall be collected at an interior tap from which water is typically drawn for consumption.

3. For systems that conduct business 24 hours per day, a first draw sample shall represent water that has been standing in the pipes for the longest time possible.

4. First-draw samples may be collected by the system owner or operator or the system 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.

5. If a system owner or operator allows residents to perform sampling, the system owner or operator 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; or

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 system owner or operator shall collect each first-draw tap sample from the same sampling site from which it collected a previous sample. If for any reason the water system owner or operator cannot gain entry to a sampling site in order to collect a follow-up tap sample, the system owner or operator may collect the follow-up tap sample from another sampling site in its sampling pool as long as the new site meets the same targeting criteria, and is within reasonable proximity of the original site.

(3) NUMBER OF SAMPLES. Water system owners or operators 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 system owner or operator 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).

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:

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 owners and operators of all large systems shall monitor during 2 consecutive 6-month periods.

2. The owners and operators of all small and medium-size systems shall monitor during each 6-month monitoring period until:

a. The 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 system owner or operator shall continue monitoring in accordance with par. (b), or

b. The system meets the lead or copper action levels during 2 consecutive 6-month monitoring periods, in which case the system owner or operator 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 system owner or operator 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 system owner or operator 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 owner or operator of 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.

2. Any water system owner or operator that 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 each of 2 consecutive 6-month monitoring periods may request that the department allow the system owner or operator to reduce the frequency of monitoring to once per year and to reduce the number of lead and copper samples in accordance with sub. (3). The department shall review the information submitted by the water system owner or operator and shall make its decision in writing, setting forth the basis for its determination. The department shall review, and where appropriate, revise its determination when the system owner or operator submits new monitoring or treatment data, or when other data relevant to the number and frequency of tap sampling becomes available.

3. The owner or operator of a small or medium-size water system that meets the lead and copper action levels during 3 consecutive years of monitoring may reduce the frequency of monitoring for lead and copper from annually to once every 3 years. Any owner or operator of a water system that 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 3 consecutive years of monitoring may request that the department allow the system owner or operator to reduce the frequency of monitoring from annually to once every 3 years. The department shall review the information submitted by the water system owner or operator and shall make its decision in writing, setting forth the basis for its determination. 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 system owner or operator that reduces the number and frequency of sampling shall collect these samples from sites included in the pool of targeted sampling sites identified in sub. (1). System owners or operators sampling annually or less frequently shall conduct the lead and copper tap sampling during the months of June, July, August or September.

5. Water suppliers for a small or medium-size 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). Such a system owner or operator 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. Any 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).

(5) ADDITIONAL MONITORING BY SYSTEM OWNER OR OPERATORS. The results of any monitoring conducted in addition to the minimum requirements of this section shall be considered by the system owner or operator and the department in making any determinations, i.e., calculating the 90th percentile lead or copper level, under this subchapter.

NR 809.548 MONITORING REQUIREMENTS FOR WATER QUALITY PARAMETERS. Owners or operators of all large systems, and 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 system owner or operator, 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 system draws water from more than one source and the sources are combined before distribution, the system owner or operator 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. System owners or operators 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.

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. 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). During each monitoring period specified in subs. (3) to (5), system owners or operators shall collect one sample for each applicable water quality parameter at each entry point to the distribution system.

(2) INITIAL SAMPLING. Owners or operators 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). Owners or operators 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 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 owner or operator 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 owner or operator 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 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;
5. Calcium, when calcium carbonate stabilization is used as part of corrosion control.

(b) At each entry point to the distribution system, one sample every 2 weeks (bi-weekly) 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.

(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), water system owners or operators for all large systems shall measure the applicable water quality parameters in accordance with sub. (3) during each monitoring period specified in s. NR 809.547(4)(c). Water system owners or operators for any small or medium-size system shall conduct such monitoring during each monitoring period specified in s. NR 809.547(4)(c) in which the system exceeds the lead or copper action level. The system owner or operator may take a confirmation sample for any water quality parameter value no later than 3 days after the first sample. If a confirmation sample is taken, the result shall be averaged with the first sampling result and the average shall be used for any compliance determinations under s. NR 809.543(7). The department has discretion to delete results of obvious sampling errors from this calculation.

(5) REDUCED MONITORING. (a) Any 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). Such system may collect 2 tap samples for applicable water quality parameters from the following reduced number of sites during each 6-month monitoring period.

System Size (# People Served)	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) Any 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 it collects the number of tap samples for applicable water quality parameters specified in par. (a) from every 6 months to annually.

(c) Any 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 it collects the number of tap samples for applicable water quality parameters specified in par. (a) from annually to every 3 years.

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

(e) Any owner or operator that has a 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) shall resume tap water sampling in accordance with the number and frequency requirements in sub. (3).

(6) ADDITIONAL MONITORING BY SYSTEM OWNER OR OPERATORS. The results of any monitoring conducted in addition to the minimum requirements of this section shall be considered by the system and the department in making any determinations, i.e., determining concentrations of water quality parameters, under this section or s. NR 809.543.

NR 809.549 MONITORING REQUIREMENTS FOR LEAD AND COPPER IN SOURCE WATER. (1) SAMPLE LOCATION, COLLECTION METHODS AND NUMBER OF SAMPLES. (a) The owner or operator of a 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 specified in s. NR 809.12(1)(a) to (d). The timing of sampling for lead and copper shall be in accordance with subs. (2) and (3), and not dates specified in s. NR 809.12(1)(a) and (b).

(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 SYSTEM EXCEEDS TAP WATER ACTION LEVEL. Any owner or operator of a system that exceeds the lead or copper action level at the tap shall collect one source water sample from each entry point to the distribution system within 6 months after the exceedance.

(3) MONITORING FREQUENCY AFTER INSTALLATION OF SOURCE WATER TREATMENT. Any system owner or operator 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 system owner or operator 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 system owner or operator is not required to install source water treatment under s. NR 809.544(2)(b).

1. An owner or operator of a 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. System owners or operators shall collect samples once during each subsequent compliance period.

2. An owner or operator of a water system using surface water, or a combination of surface and groundwater, shall collect samples once during each year, the first annual monitoring period to begin on the date on which the applicable department determination under par. (a) is made.

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

(5) REDUCED MONITORING FREQUENCY. (a) A water system using only groundwater which demonstrates that finished drinking water entering the distribution system has been maintained below the maximum permissible lead or copper concentrations or both specified by the department in s. NR 809.544(2)(d) during at least 3 consecutive compliance periods under sub. (4)(a) may reduce the monitoring frequency for lead or copper or both to once during each 9-year compliance cycle.

(b) A water system using surface water, or a combination of surface and groundwater which 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 may reduce the monitoring frequency in sub. (4)(a) to once during each 9-year compliance cycle.

(c) A 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).

NR 809.55 REPORTING REQUIREMENTS. All water system owners or operators 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 809.541(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 809.541(3)(c).

(c) A water system owner or operator shall report the following information for all tap water samples within the first 10 days following the end of each applicable monitoring period specified in ss. NR 809.547, 809.548 and 809.549, i.e., every 6-months, annually, or every 3 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 system's sampling pool;

2. A certification that each first draw sample collected by the water system is one-liter in volume and, to the best of their knowledge, has stood motionless in the service line, or in the interior plumbing of a sampling site, for at least 6 hours;

3. Where residents collected samples, a certification that each tap sample collected by the residents was taken after the water system owner or operator informed them of proper sampling procedures specified in s. NR 809.547(2)(b);

4. The 90th percentile lead and copper concentrations measured from among all lead and copper tap water samples collected during each monitoring period;

5. With the exception of initial tap sampling conducted pursuant to s. NR 809.547(4)(a), the system owner or operator 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).

(d) By the applicable date in s. NR 809.547(4)(a) for commencement of monitoring, the owner or operator of each community water system that does not complete its targeted sampling pool with tier 1 sampling sites meeting the criteria in s. NR 809.547(1)(c) shall send a letter to the department justifying its selection of tier 2 or tier 3 or both sampling sites under s. NR 809.547(1)(d) or (e) or both.

(e) By the applicable date in s. NR 809.547(4)(a) for commencement of monitoring, the owner or operator of each non-transient, non-community water system which does not complete its sampling pool with tier 1 sampling sites meeting the criteria in s. NR 809.547(1)(f) shall send a letter to the department justifying its selection of sampling sites under s. NR 809.547(1)(g).

(f) By the applicable date in s. NR 809.547(4)(a) for commencement of monitoring, the owner or operator of each water system with lead service lines that is not able to locate the number of sites served by such lines required under s. NR 809.547(1)(i) shall send a letter to the department demonstrating why they were unable to locate a sufficient number of such sites based upon the information listed in s. NR 809.547(1)(b).

(g) Each water system owner or operator that requests that the department reduce the number and frequency of sampling shall provide the information required under s. NR 809.547(4)(d).

(2) SOURCE WATER MONITORING REPORTING REQUIREMENTS. (a) A water system owner or operator 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 system owner or operator 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, system owners or operators shall report the following information:

(a) For owners or operators of systems demonstrating that they have already optimized corrosion control, information required in s. NR 809.543(2)(b) or (c).

(b) For owners or operators of systems required to optimize corrosion control, their recommendation regarding optimal corrosion control treatment under s. NR 809.543(1).

(c) For owners or operators of systems required to evaluate the effectiveness of corrosion control treatments under s. NR 809.543(3), the information required by that section.

(d) For owners or operators of systems required to install optimal corrosion control approved by the department under s. NR 809.543(4), a letter certifying that the system owner or operator has completed installing that treatment.

(4) SOURCE WATER TREATMENT REPORTING REQUIREMENTS. By the applicable dates in s. NR 809.544, system owners or operators 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 system owners or operators required to install source water treatment under s. NR 809.544(2)(b), a letter certifying that the system owner or operator 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. System owners or operators shall report the following information to the department to demonstrate compliance with the requirements of s. NR 809.545:

(a) Within 12 months after a system exceeds the lead action level in sampling referred to in s. NR 809.545(1), the system owner or operator shall demonstrate in writing to the department that materials evaluations were conducted, including the evaluation in s. NR 809.547(1), to identify the initial number of lead service lines in the distribution system, and shall provide the department with the system owner or operator's schedule for replacing annually at least 7% of the initial number of lead service lines in the distribution system.

(b) Within 12 months after a system exceeds the lead action level in sampling referred to in s. NR 809.545(1), and every 12 months thereafter, the system owner or operator shall demonstrate to the department in writing that the system owner or operator has either:

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 its distribution system, or

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(2) shall equal at least 7% of the initial number of lead lines identified under sub. (1), or the percentage specified by the department under s. NR 809.545(6).

(c) The annual letter submitted to the department under par. (b) shall contain the following information:

1. The number of lead service lines scheduled to be replaced during the previous year of the system's replacement schedule;

2. The number and location of each lead service line replaced during the previous year of the system'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) As soon as practicable, but in no case later than 3 months after a system exceeds the lead action level in sampling referred to in s. NR 809.545(1), any system owner or operator seeking to rebut the presumption that it has control over the entire lead service line pursuant to s. NR 809.545(4) shall submit a letter to the department describing the legal authority, e.g., state statutes, municipal ordinances, public service contracts or other applicable legal authority, which limits the system owner or operator's control over the service lines and the extent of the system owner or operator's control.

(6) PUBLIC EDUCATION PROGRAM REPORTING REQUIREMENTS. By December 31st of each year, any 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 system owner or operator 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 system owner or operator delivered public education materials during the previous year. The water system owner or operator shall submit the letter required by this subsection annually for as long as it exceeds the lead action level.

(7) REPORTING OF ADDITIONAL MONITORING DATA. Any system owner or operator who collects sampling data in addition to that required by this subchapter shall report the results to the department by the end of the applicable monitoring period under ss. 809.547, 809.548 and 809.549 during which the samples are collected.

SECTION 35. NR 109.60(2) is amended to read:

NR 809.60(2) The following are the secondary standards for inorganic chemicals:

Standard	Milligrams per liter
Aluminum	0.05 to 0.2
Chloride	250
Color	15 units
Copper	1.0
Corrosivity	Noncorrosive
Fluoride*	2.0
Foaming agents	
MBAS (Methylene-Blue Active Substances)	0.5
Hydrogen Sulfide	not detectable
Iron	0.3
Manganese	0.05
Odor	3 (Threshold No.)
Silver	0.1
Sulfate	250
Total Residue	500
Zinc	5

* Note: The primary maximum contaminant level for fluoride is contained in s. NR 809.11.

SECTION 36. NR 109.72(1) is amended to read:

NR 809.72(1) For the purpose of compliance with ss. NR 809.12, 809.13, 809.14, 809.21, 809.23, 809.25 ~~and~~, 809.26, 809.547 and 809.549, 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 809.31, 809.52 and 809.78, bacteriological and radiological samples shall be analyzed at a laboratory facility certified or approved by the department of health and social services, or at a laboratory facility acceptable to the U.S. environmental protection agency.

SECTION 37. NR 109.725(1) Tables A to E are repealed and recreated to read:

Parameter and Methodology	Reference (Method Number)			
	EPA^{15}	ASTM^{2}	SM^{3}	
Antimony				
Atomic absorption; furnace technique^{6}	204.2	-	3113	-
Atomic absorption; platform furnace^{6}	200.9	-	-	-
Inductively Coupled Plasma; Mass Spectrometry (ICP/MS)^{6}	200.8	-	-	-
Atomic absorption; gaseous hydride^{9}	-	D3697-87	-	-
Asbestos				
Transmission Electron Microscopy	(12)	-	3113	-
Arsenic				
Atomic absorption; furnace technique^{6}	206.2	-	-	-
Atomic absorption; gaseous hydride^{9,10}	206.3	D2972-88B	3114^{3}	7
Spectrophotometric; silver diethyldithiocarbamate	206.4	D2972-88A	3500-As C^{3}	-
Inductively Coupled Plasma (ICP)^{6}	200.7A$^{5, 16}$	-	-	-
Barium				
Atomic absorption; direct aspiration^{6}	208.1	-	3113 B	-
Atomic absorption; furnace technique^{6}	208.2	-	3111 D	-
ICP^{6}	200.7A$^{5, 16}$	-	3120	-
Beryllium				
Atomic absorption; furnace technique^{6}	210.2	D3645-84B	3120	-
Atomic absorption; platform furnace^{6}	200.9	-	-	-
ICP^{6}	200.7^{5}	-	3120	-
ICP/MS^{6}	200.8	-	-	-
Cadmium				
Atomic absorption; furnace technique^{6}	213.2	-	3113 B	-
ICP^{6}	200.7A$^{5, 16}$	-	-	-
Copper				
Atomic absorption; furnace technique^{6}	220.2	D1688-90C	3113	-
Atomic absorption; direct aspiration^{6}	220.1	D1688-90A	3111 B	-
ICP^{6}	200.7^{5}	-	3120	-
ICP/MS^{6}	200.8	-	-	-
Atomic absorption; platform furnace^{6}	200.9	-	-	-
Chromium				
Atomic absorption; furnace technique^{6}	218.2	-	3113 B	-
ICP^{6}	200.7A$^{5, 16}$	-	3120	-
Cyanide				
Distillation, spectrophotometric	335.2	D2036-89A	4500-CN D	5
Distillation, automated spectrophotometric	335.3	-	4500-CN E	-
Distillation, selective electrode	-	D2036-89A	4500-CN F	-
Distillation, amenable, spectrophotometric	335.1	D2036-89B	4500-CN G	-
Fluoride				
Colorimetric SPADNS; with distillation	340.1	D1179-72A	4500-F^{-} D, B^{3}	-
Potentiometric ion selective electrode	340.2	D1179-72B	4500-F^{-} C^{3}	-
Automated Alizarin flouride blue; with distillation	340.3	-	4500-F^{-} E, B^{3}	4
Automated ion selective electrode	-	-	-	5
Lead				
Atomic absorption; furnace technique^{6}	239.2	D3559-85D	3113	-
ICP/MS^{6}	200.8	-	-	-
Atomic absorption; platform furnace^{6}	200.9	-	-	-
Mercury				
Manual cold vapor technique^{9}	245.1	D3223-86	3112 B	-
Automated cold vapor technique^{9}	245.2	-	-	-
Nickel				
Atomic absorption; direct aspiration^{6}	249.1	-	3111 B	-
Atomic absorption; furnace technique^{6}	249.2	-	3113	-
Atomic absorption; platform furnace^{6}	200.9	-	-	-

TABLE A (continued)
Approved Methodology for Primary Inorganic Contaminants

	Reference(Method Number)			
Parameter and Methodology	EPA[15]	ASTM[2]	SM[3]	
ICP[6]	200.7[5]	-	3120	-
ICP/MS[6]	200.8	-	-	-
Nitrate				
Manual cadmium reduction	353.3	D3867-90B	4500-NO_3 E	-
Automated hydrazine reduction	353.1	-	-	-
Automated cadmium reduction	353.2	D3867-90A	4500-NO_3 F	-
Ion selective electrode	-	-	-	
Ion Chromatography	300.0A[11]	-	-	8
Nitrite				
Spectrophotometric	354.1	-	-	-
Automated cadmium reduction	353.2	D3867-90-A	4500-NO_3 F	-
Manual cadmium reduction	353.3	D3867-90-B	4500-NO_3 E	-
Ion chromatography	300.0A[11]	-	-	8
Selenium				
Atomic absorption; furnace technique[6]	270.2	D3859-88-B	3113 B	-
Atomic absorption; gaseous hydride[9,10]	270.3	D3859-84A	3114 B	-
Sulfate				
Spectrophotometric	375.1	-	-	-
Spectrophotometric	375.2	-	-	-
Turbidimetric	375.4	-	-	-
Ion chromatography	300.0A[11]	-	-	-
Thallium				
Atomic absorption; furnace technique[6]	279.2	-	3113	-
Atomic absorption; platform furnace[6]	200.9	-	-	-
ICP/MS[6]	200.8	-	-	-
Turbidity				
Nephelometric	180.1	-	2130 B	-

[1] "Methods for Chemical Analysis of Water and Wastes", EPA Environmental Monitoring and Support Laboratory, Cincinnati, Ohio, 45268 (EPA-600/4-79-020), March 1983, Available from ORD Publications, CERI, EPA, 26 W. Martin Luther King Drive, Cincinnati, Ohio, 45268. For approved analytical procedures for metals, the technique applicable to total metals shall be used.

[2] "Annual Book of ASTM Standards", Vol. 11.01. Available from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania, 19103.

[3] "Standard Methods for the Examination of Water and Wastewater", 17th Edition, American Public Health Association, American Water Works Association, Water Pollution Control Federation, 1989. American Public Health Association, 1015 Fifteenth Street, N.W., Washington, D.C., 20005.

[4] "Methods for Determination of Inorganic Substances in Water and Fluvial Sediments", Techniques of Water Resources Investigation of the United States Geological Survey, Chapter A-1, Third Edition, 1989. Available from Open-File Services Section, Western Distribution Branch, U.S. Geological Survey, MS 306 Box 24525, Denver Federal Center, Denver, CO 80225.

[5] The method is found in "Methods for the Determination of Metals in Environmental Samples", ORD Publications, EPA/600/4-91/010, June 1991. Available from National Technical Information Service, Order #PB91-231498, 5285 Port Royal Road, Springfield, VA 22161.

[6] Samples that contain less than 1 NTU (nephelometric turbidity unit) and are properly preserved (conc. HNO_3 to pH <2) may be analyzed directly (without digestion) for total metals, otherwise, digestion is required. Turbidity must be measured on preserved samples just prior to the initiation of metal analysis. When digestion is required the total recoverable technique as defined in the method must be used.

[7] "Orion Guide to Water and Wastewater Analysis." From WeWWG/5880, p. 5, 1985. Orion Research, Inc. Cambridge, MA.

[8] "Waters Test Method for the Determination of Nitrite/Nitrate in Water Using Single Column Ion Chromatography", Method B-1011, Millipore Corporation, Waters Chromatography Division, 34 Maple Street, Milford, MA 01757.

TABLE A (continued)
Approved Methodology for Primary Inorganic Contaminants

[9] For the gaseous hydride determinations of antimony, arsenic, and selenium and for the determination of mercury by the cold vapor techniques, the proper digestion technique as defined in the method must be followed to ensure the element is in the proper state for analyses.

[10] Add 2 mL of 30% H_2O_2 and an appropriate concentration of matrix modifier $Ni(NO_3)_2 \bullet 6H_2O$ (nickel nitrate) to samples.

[11] "Method 300.0 Determination of Inorganic Anions in Water by Ion Chromatography." Inorganic Chemistry Branch, Enviromental Monitoring Systems Laboratory. August 1991.

[12] "Analytical Method for the Determination of Asbestos Fibers in Water", EPA-600/4-83-043, September 1983, U.S. EPA, Environmental Research Laboratory, Athens, GA 30613.

[13] "Standard Methods for the Examination of Water and Wastewater", 16th Edition, American Public Health Association, American Water Works Association, Water Pollution Control Federation, 1985. American Public Health Association, 1015 Fifteenth Street, N.W., Washington, D.C. 20005. (16th Edition is available on inter-library loan.)

[14] "Fluoride in Water and Wastewater Industrial Method #129-71W". December 1972. Available from Technicon Industrial Systems, Benedict Avenue, Tarrytown, New York, 10591.

[15] "Fluoride in Water and Wastewater", February 1976. Available from Technicon Industrial Systems, Benedict Avenue, Tarrytown, New York, 10591.

[16] a 4x preconcentration step may be required for ICP metals analyzed by method 200.7.

TABLE B
SDWA Approved Methodology for Organic Contaminants

Contaminant	Reference (Method Number) EPA[1]
Regulated Parameters:	
Alachlor	505, 507, 525.1
Adicarb.	531.1
Aldicarb sulfone	531.1
Aldicarb Sulfoxide	531.1
Atrazine	505, 507, 525.1
Benzo[a]pyrene	550, 550.1, 525.1
Carbofuran	531.1
Chlordane	505, 508, 525.1
Dalapon	515.1
Dibromochloropropane	504
Di(2-ethylhexyl)adipate	506, 525.1
Di(2-ethylhexyl)phthalate	506, 525.1
Dinoseb	515.1
Diquat	549
2,4-D	515.1
Endothall	548
Endrin	505, 508, 525.1
Ethylene Dibromide (EDB)	504
Glyphosate	547
Heptachlor	505, 508, 525.1
Heptachlor Epoxide	505, 508, 525.1
Hexachlorobenzene	505, 508, 525.1
Hexachlorocyclopentadiene	505, 525.1
Lindane	505, 508, 525.1
Methoxychlor	505, 508, 525.1
Oxamyl (Vydate)	531.1
Picloram	515.1
Polychlorinated Biphenyls	505, 508, 508A[2]
Pentachlorophenol	515.1, 525.1
Total Trihalomethanes (TTHM)	502.1, 502.2, 524.1, 524.2
Simazine	505, 507, 525.1
Toxaphene	505, 508, 525.1
2,3,7,8-TCDD (Dioxin)	1613A
2,4,5-TP	515.1
Volatile Organic Chemicals (VOCs)	502.1, 502.2, 503.1, 524.1, 524.2
Unregulated Parameters	
Aldrin	505, 508, 525.1
Butachlor	507, 525.1
Carbaryl	531.1
Dicamba	515.1
Dieldrin	505, 508, 525.1
3-Hydroxycarbofuran	531.1
Methomyl	531.1
Metolachlor	507, 525.1
Metribuzin	507, 508, 525.1
Propachlor	507, 525.1

[1] "Methods for the Determination of Organic Compounds in Drinking Water", ORD Publications, CERI, EPA/600/4-88/039, December 1988, and "Methods for the Determination of Organic Compounds in Drinking Water, Supplement I", ORD Publications, CERI, EPA/600/4-90/020, July 1990. 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 1-800-336-4700.

[2] 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.

TABLE C
SDWA Approved Methodology for Microbiological Measurements

	Methodology	EPA[1]	Standard Methods (16th Edition[2])
Total Coliform Bacteria	Multiple tube fermentation[3] (preferred for turbid or high noncoliform populations)	Part III, Section B, 4.1 thru 4.6.4(c) (pp. 114-118)	908, 908A, and 908B (pp. 870-878)
	Membrane filter[4] (preferred because large volumes of samples analyzed in much shorter time)	Part III, Section B, 2.1 thru 2.6 (pp. 108-112)	909, 909A, and 909B (pp. 886-896)
	Minimal Media ONPG-MUG(MMO-MUG) Test[5]		
	Presence - Absence (P-A) Coliform Test		908E (pp. 882-886)
Total Coliform, Concentration	Standard Total Coliform Multiple Tube (MPN) Tests		908A, 908B, and 908D
	Standard Total Coliform Membrane Filter (MF) Procedure		909A or 909B
	Minimal Medium ONPG-MUG Test[7]		
Fecal Coliform, follow up for positive total coliform test[6]	EC Medium		908C (pp. 879, par. 1a)
Escherichia coli	EC Medium + MUG[7]		908C (pp. 879)
	Nutrient Agar + MUG[7]		908B (pp. 874)
Fecal Coliform Concentration	Fecal Coliform MPN Procedures		908C or 908D, (pp. 878-882)
	Fecal Coliform MF Procedures		909C (pp. 896-898)
Heterotrophic Plate Count	Pour Plate Method		907A (pp. 864-866)

[1] "Microbiological Methods for Monitoring the Environment, Water and Wastes", EPA-600/8-78-017, December 1978. Available from the U.S. EPA, Environmental Monitoring and Support Laboratory, 26 W. Martin Luther King Drive, Cincinnati, Ohio, 54268.

[2] "Standard Methods for the Examination of Water and Wastewater", 16th Edition, American Public Health Association, American Water Works Association, Water Pollution Control Federation, 1985.

[3] The standard sample size for MPN procedure shall be 10 times the standard portion of 10 ml.

[4] A standard sample size of 100 ml shall be used for the membrane filter.

[5] Analyses shall be conducted in accordance with the analytical recommendations set forth in "National Field Evaluation of a Defined Substrate Method for the Simultaneous Detection of Total Coliforms and Escherichia Coli from Drinking Water: Comparison with Presence - Absence Techniques", (Edberg et al.), Applied and Environmental Microbiology, 55, pp. 1003-1008, April 1989. Available from the American Water Works Association Research Foundation, 6666 West Quincy Ave., Denver, CO 80235.

[6] Analyses shall be conducted in accordance with the analytical recommendations set forth in "National Field Evaluation of a Defined Substrate Method for the Simultaneous Enumeration of Total Coliforms and Escherichia Coli from Drinking Water: Comparison with the Standard Multiple Tube Fermentation Method", (Edberg et al.), pp. 1595-1601, June 1988 (as amended under Erratum, Volume 54, p. 3197, December, 1988). Available from the American Water Works Association Research Foundation, 6666 West Quincy Ave., Denver, CO 80235.

[7] Analyses shall be conducted in accordance with the analytical procedure described in Federal Register, Vol 56, No. 5, Tuesday, January 8, 1991, Rules and Regulations, pp. 642-643, 40 CFR Part 141.21(f)(5&6) and Federal Register, Vol 57, No. 112, Wednesday, June 10, 1992, Rules and Regulations, p. 24747, 40 CFR Part 141.21(f)(3, 6, & 7).

TABLE D
SDWA Approved Methodology for Radiological Measurements

Parameter	Method	EPA[1]	Standard Methods[2]	ASTM[3] (1975)	Others
Gross alpha & beta	Total suspended and dissolved	900.0	302		
Total radium	Precipitation	903.0	304		
Radium 226	Soluble, suspended and total	903.1	305		
Strontium - 89, 90	Total	905.0	303		
Tritium	Liquid Scintillation	906.0	306		
Cesium - 134	Precipitation & beta counting[4]	901.0		D3459	
Uranium	Fluorometry	908.1		D2907	
Others					(5)(6)

[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] "Standard Methods for the Examination of Water and Wastewater", 13th Edition, (1971), APHA, 1015 Fifteenth Street, N.W., Washington, D.C. 20005 (13th Edition no longer available).

[3] "1975 Annual Book of ASTM Standards, Water and Atmospheric Analysis", Part 31, (1975). Available from the ASTM, 1916 Race Street, Philadelphia, PA, 19103.

[4] Use gamma spectrometry if total radiocesium determined by beta counting exceeds 30 pCi/L.

[5] "Procedures for Radiochemical Analysis of Nuclear Reactor Aqueous Solutions", May 1973, H. L. Krieger and S. Gold, EPA-R4-73-014. Available from U.S. EPA, 26 W. Martin Luther King Drive, Cincinnati, Ohio, 45268.

[6] "HASL Procedures Manual", Edited by John H. Hasley (1972), U.S., DOE, HASL-300. Available from the Environmental Measurements Laboratory, 376 Hudston Street, New York, NY, 10014.

TABLE E
SDWA Approved Methodology for Physical Parameters, Residual Chlorine, Sodium, Corrosivity, and Secondary Contaminants

Parameter and Method	EPA 1979[1]	Standard Methods[2]	ASTM[3]	USGS[4]	Other
Alkalinity	310.1	2320	D1067-88(B)	I-1030-85	-
Aluminum - Total[5], Digestion, followed by:					
Atomic absorption (AA); direct aspiration	202.1	3111 D	-	I-3051-85	-
Atomic absorption (AA); graphite furnace	202.2	3113 B		-	-
Inductively-coupled plasma (ICP)	200.7[13]	.3120 B	-	-	-
Inductively-coupled plasma; mass spectrometry (ICP/MS)	200.8[13]	-	-	-	-
Atomic absorption (AA); platform furnace	200.9[13]	-	-	-	-
Calcium					
EDTA titrimetric[10]	215.2	3500-Ca D	D511-88(A)	-	-
AA; direct aspiration	215.1	3111 B	D511-88(B)	-	-
ICP	200.7[13]	3120 B	-	-	-
Chloride					
Potentiometric[10]	-	4500-Cl$^-$ D	-	-	-
Colorimetric (ferricyanide) manual or	-	-	D512-89(C)	I-1187-85	-
Automated	325.1, 325.2	4500-Cl$^-$ E	-	I-2187-85	-
Titrimetric, Mercuric Nitrate	325.3	4500-Cl$^-$ C	D512-89(A)	I-1184-85	973.51[6]
Ion Chromatography	300.0A[9]	-	-	-	-
Chlorine dioxide residual					
Amperometric	-	4500-ClO$_2$ C	-	-	-
DPD	-	4500-ClO$_2$ D	-	-	-
Color					
Colorimetric, Pt-Co	110.2	2120 B	-	I-1250-85	-
Spectrophotometric	110.3	2120 C	-	-	-
Conductivity	120.1	2510	D1125-82(B)	-	-
Corrosivity					
Langelier Index[10]	-	2330	-	-	-
Aggressive Index	-	-	-	-	C400-77[7]
Foaming Agents (MBAS)					
Colorimetric	425.1	5540 C	-	-	-
Free chlorine residual[11]					
Colorimetric or titrimetric DPD	-	4500-Cl G or F	-	-	-
Amperometric	330.1	4500-Cl D	D1253-76(A)	-	-

TABLE E (continued)
SDWA Approved Methodology for Physical Parameters, Residual Chlorine, Sodium, Corrosivity, and Secondary Contaminants

Parameter and Method	EPA 1979[1]	Standard Methods[2]	ASTM[3]	USGS[4]	Other
Iron - Total[5], Digestion, followed by:					
AA; direct aspiration	236.1	3111 B or C	D1068-84 (C or D)	I-3381-84(C or D)	973.27[6]
AA; graphite furnace	236.2	3113 B	-	-	-
ICP	200.7[13]	3120 B	-	-	-
Manganese - Total[5], Digestion, followed by:					
AA; direct aspiration	243.1	3111 B or C	D858-90(A)	I-3454-85	974.27[6]
AA; graphite furnace	243.2	3113 B	-	-	-
ICP	200.7[13]	3120 B	-	-	-
Colorimetric (Persulfate)	-	3500-Mn D	-	-	-
Odor - Threshold Odor	140.1	2150	-	-	-
Orthophosphate, Unfiltered, no digestion or hydrolysis					
Colorimetric, automated, ascorbic acid	365.1	4500-P F	-	-	-
Colorimetric, ascorbic acid, two reagent	365.3	4500-P E	-	-	-
Colorimetric, ascorbic acid, single reagent	365.2	4500-P E	D515-88(A)	-	-
Colorimetric, phosphomolybdate;	-	-	-	I-1601-85	-
automated segment flow		-	-	I-2601-85	-
automated discrete		-	-	I-2598-85	-
Ion chromatography	300.0A[9]	4110	D4327-88	-	-
Ozone					
Indigo Method	-	-	-	-	pp. 169-176[12]
pH					
Electrometric	150.1	4500-H$^+$	D1293-84(B)	-	-
	150.2	-	-	-	-
Silica					
Colorimetric, molybdate blue	-	-	-	I-1700-85	-
Automated-segmented flow:	-	-	-	I-2700-85	-
Colorimetric	370.1	-	D859-88	-	-
Molybdosilicate	-	4500-Si D	-	-	-
Heteropoly blue	-	4500-Si E	-	-	-
Automated method for molybdate-reactive silica	-	4500-Si F	-	-	-
ICP	200.7[13]	3120	-	-	-
Sodium - Total[5], Digestion, followed by:					
AA; direct aspiration	273.1	3111 B	-	-	-
AA; graphite furnace	273.2	-	-	-	-
Flame photometric	-	3500-Na D	D1428-82	-	-

TABLE E (continued)

SDWA Approved Methodology for Physical Parameters, Residual Chlorine, Sodium, Corrosivity, and Secondary Contaminants

Parameter and Method	EPA 1979[1]	Standard Methods[2]	ASTM[3]	USGS[4]	Other
ICP	200.7[13]	3120 B	-	-	-
Silver - Total[5], Digestion, followed by:					
AA; direct aspiration	272.1	3111 B or C	-	I-3720-85	-
AA; graphite furnace	272.2	3113 B	-	-	-
AA; platform furnace	200.9[13]	-	-	-	-
ICP	200.7[13]	3120 B	-	-	-
ICP/MS	200.8[13]	-	-	-	-
Temperature, Thermometric	-	2550	-	-	-
Total Filterable Residue (TDS), gravimetric	160.1	2540 C	-	-	-
Turbidity, nephelometric method	180.1	2130 B	-	-	-
Zinc - Total[5], Digestion followed by:					
AA; direct aspiration	289.1	3111 B or C	D1691-90	I-3900-85	974.27[6]
AA; graphite furnace	289.2	-	-	-	-
AA; platform furnace	200.9[13]	-	-	-	-
ICP	200.7[13]	3120 B	-	-	-
ICP/MS	200.8[13]	-	-	-	-
Colorimetric (Dithizone)	-	3500-Zn E	-	-	-
Zincon	-	-	-	-	8009[8]

[1] "Methods for Chemical Analysis of Water and Wastes", (EPA-600/4-79-020), March 1983, EPA Environmental Monitoring and Support Laboratory, Cincinnati, Ohio, 45268. Available from ORD Publications, CERI, EPA, 26 W. Martin Luther King Drive, Cincinnati, Ohio 45268. For approved analytical procedures for metals, the technique applicable to total metals shall be used.

[2] "Standard Methods for the Examination of Water and Wastewater", American Public Health Association, American Water Works Association, Water Pollution Control Federation, 17th edition, 1989, 1015 Fifteenth Street, N.W., Washington, D.C. 20005.

[3] "Annual Book of ASTM Standards, Vol. 11.01 Water", 1991. Available from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103. The same method in the current edition may be used if the date of method revision is the same as the 1991 edition.

[4] "Methods for Analysis of Inorganic Substances in Water and Fluvial Sediments", U.S. Department of the Interior, U.S. Geological Survey, Open-File Report 85-495, N.W. Skongstad, et al; U.S. Geological Survey, 1989. Available from U.S. Geological Survey, 604 S. Pickett Street, Alexandria, VA 22304.

[5] Samples that contain less than 1 NTU (nephelometric turbidity unit) and are properly preserved (conc. HNO_3 to pH <2) may be analyzed directly (without digestion) for total metals, otherwise, digestion is required. Turbidity must be measured on the preserved samples just prior to the initiation of metal analysis. When digestion is required the total recoverable technique as defined in the method must be used.

[6] "Official Methods of Analysis of the AOAC" methods manual, 13th ed. (1980). Current edition available from the Association of Official Analytical Chemists, 1111 N. 19th Street, Suite 210, Arlington, VA 22209. (The method in the current edition may be used if the date of method revision is the same as the 13th edition.)

[7] "AWWA Standards for Asbestos - Cement Pipe, 4 in. through 16 in. for Water and Other Liquids", AWWA C400-77, Revision of C400-75. Available from the AWWA, 6666 West Quincy Avenue, Denver Colorado, 80235.

TABLE E (continued)

SDWA Approved Methodology for Physical Parameters, Residual Chlorine, Sodium, Corrosivity, and Secondary Contaminants

[8] Zinc, Zincon Method, Method 8009, Hach Handbook of Water Analysis, 1979, pages 2-231 and 2-333. Available from the Hach Chemical Company, P.O. Box 389, Loveland, Colorado 80537.

[9] "Determination of Inorganic Ions in Water by Ion Chromatography", December 1989, US EPA EMSL, available from the EMSL-Cincinnati, Cincinnati, Ohio 45268.

[10] This is the method to use for corrosivity determination.

[11] Residual disinfectant concentrations for free chlorine and combined chlorine may also be measured by using DPD colorimetric test kits if approved by the department.

[12] "Determination of Ozone in Water by the Indigo Method; A Submitted Standard Method"; Ozone Science and Engineering, Vol. 4, pp. 169-176, Pergamon Press Ltd., 1982, or automated methods which are calibrated in reference to the results obtained by the Indigo Method on a regular basis, if approved by the department.

[13] "Methods for the Determination of Metals in Environmental Samples", ORD Publications, EPA/600/4-91/010, June 1991. Available from the National Technical Information Service, Order #PB91-231498, 5285 Port Royal Road, Springfield, VA 22161.

SECTION 38. NR 809.725(1) Tables F to H are created to read:

TABLE E (continued)
SDWA Approved Methodology for Physical Parameters, Residual Chlorine, Sodium, Corrosivity, and Secondary Contaminants

Parameter	Preservation[1]	Container[2]	g[3]
Asbestos	Cool, 4°C[4]	P or G	
METALS			
Aluminum	HNO_3	P or G	s
Antimony	HNO_3	P or G	s
Arsenic	HNO_3	P or G	s
Barium	HNO_3	P or G	s
Beryllium	HNO_3	P or G	s
Cadmium	HNO_3	P or G	s
Copper	HNO_3	P or G	s
Chromium	HNO_3	P or G	s
Iron	HNO_3	P or G	s
Lead	HNO_3	P or G	s
Manganese	HNO_3	P or G	s
Mercury	HNO_3	P or G	s
Nickel	HNO_3	P or G	s
Selenium	HNO_3	P or G	s
Silver	HNO_3	P or G	s
Thallium	HNO_3	P or G	s
Zinc	HNO_3	P or G	s
GENERAL CHEMISTRY PARAMETERS			
Chloride	None Required	P or G	s
Color	Cool, 4°C	P or G	s
Cyanide	Cool, 4°C	P	s
Fluoride	None	P	s
Foaming Agents	Cool, 4°C	P or G	s
Nitrate (as N)			s
Chlorinated	Cool, 4°C	P or G	s
Non-Chlorinated	Cool + Conc. H_2SO_4	P or G	s
Nitrite (as N)	Cool, 4°C	P or G	s
Odor	Cool, 4°C	P or G	s
pH	None Required	P or G	y
Solids (TDS)	Cool, 4°C	P or G	s
Sulfate	Cool, 4°C	P or G	s
Turbidity	Cool, 4°C	P or G	s

[1] If HNO_3 cannot be used because of shipping restrictions, sample may be initially preserved by icing and immediately shipping it to the laboratory. Upon receipt in the laboratory, the sample must be acidified with conc HNO_3 to pH <2. At time of analysis, sample container should be thoroughly rinsed with 1:1 HNO_3; washings should be added to sample.

[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] These samples should never be frozen.

TABLE G
Sample Preservation Requirements and Holding Times for Organic Parameters

			HOLDING TIME	
Parameter/Method	Preservation	Container	Sample	Extract
502.1,502.3,503.1	Sodium Thiosulfate (3 mg) or Ascorbic Acid (25 mg) 4°C, HCl pH<2	40 mL, G[1]	14 days	-
504	Sodium Thiosulfate (3 mg) Cool, 4°C, HCl pH<2	40 mL, G[1]	28 days	Analyze immediately
505	Sodium Thiosulfate (3 mg) Cool, 4°C	40 mL, G[1]	14 days (Heptachlor=7 days)	Analyze immediately
506	Sodium Thiosulfate (60 mg) Cool, 4°C, dark	1L, Amber G[2]	14 days	4°C, dark, 14 days
507	Mercuric Chloride (10 mg/L) Sodium Thiosulfate (80 mg) Cool, 4°C	1L, Amber G[2]	14 days (see method for exceptions)	4°C, dark, 14 days
508	Mercuric Chloride (10 mg/L) Sodium Thiosulfate (80 mg) Cool, 4°C	1L, G[2]	7 days (see method for exceptions)	4°C, dark 14 days
508A	Cool, 4°C	1L, G[2]	14 days	30 days
515.1	Mercuric Chloride (10 mg/L) Sodium Thiosulfate (80 mg) Cool, 4°C	1L, Amber G[2]	14 days	4°C, dark, 28 days
524.1, 524.2	Ascorbic Acid (25 mg) HCl pH<2, Cool 4°C	40 mL, G[1]	14 days	-
525.1	Sodium Sulfite (40-50 mg) or Sodium Arsenite (40-50 mg) Cool, 4°C, HCl pH<2	1L, G[2]	7 days	30 days
531.1	Monochloroacetic acid pH<3 Sodium Thiosulfate (80 mg) Cool, 4°C	60 mL, G[1]	Freeze -10°C, 28 days	-
547	Sodium Thiosulfate (100 mg/L) Cool, 4°C	60 mL, G[1]	14 days (18 mo. frozen)	-
548	Cool, 4°C	60 mL, G[1]	7 days	1 day
549	Sodium Thiosulfate (100 mg/L) H_2SO_4 pH<2, Cool, 4°C, dark	1L, High Density Amber PVC or Silanized Amber Glass	7 days	21 days
550, 550.1	Sodium Thiosulfate (100 mg/L) Cool, 4°C, HCl pH<2	1L, Amber G[2]	7 days	4°C, dark, 40 days
1613	Sodium Thiosulfate (80 mg) Cool, 4°C, dark	1L, Amber G[2]	-	40 days

[1] Teflon-lined septa.

TABLE G
Sample Preservation Requirements and Holding Times for Organic Parameters

[2] Teflon-lined cap.

TABLE H
Sample Preservation Requirements and Holding Times for Microbiological and Radiological Parameters

Parameter/Method	Preservation	Container	HOLDING TIME	
			Sample	Extract
Coliform, E.Coli, Fecal Coliform	Cool, <10°C Sodium Thiosulfate		30 hours	
Heterotrophs	Room temperature or Cool 4°C		6 hours or 24 hours	100 mL
All Radionuclides except the following	HNO_3 or HCl pH<2	1L, P or G	1 year	
Radon 222	none	30 mL, G[1]	4 days	
Cesium	HCl to pH<2	1L, P or G	1 year	
Iodine	none	1L, P or G	7 days	
Tritium	none	1L, P or G	1 year	

[1] Teflon lined septa required.

SECTION 39. NR 809.725(2) and (3) are created to read:

NR 809.725(2) The following procedure is to be used for compositing VOC samples prior to GC analysis.

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

b. The samples shall be cooled at 4°C during this step to minimize volatilization losses.

c. Mix well and draw out a 5 ml aliquot for analysis.

d. Follow sample introduction, purging and desorption steps described in the method.

e. If fewer than 5 samples are used for compositing, a proportionately smaller syringe may be used.

(3) The following procedure is to be used to composite VOC samples prior to GC/MS analysis.

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

b. The total volume of the sample in the purging device shall be 25 ml.

c. Purge and desorb as described in the method.

SECTION 40. NR 109.75(1)(b) and (2) are amended to read:

NR 809.75(1)(b) At least ~~99.9~~ 99.99% (4 log) removal or inactivation of viruses between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer.

2) A public water system using a surface water source or a ground water under the direct influence of surface water is considered to be in compliance with the requirements of sub. (1) if it meets the filtration requirements in s. NR 809.76 and the disinfection requirements in s. NR 809.77, or it meets the criteria for avoiding filtration in s. NR 809.755 and it meets the disinfection requirements in s. NR 809.77.

SECTION 41. NR 109.755(1)(a) and (b)(intro.) are amended to read:

(1) SOURCE WATER QUALITY CONDITIONS. (a) The fecal coliform concentration shall be equal to or less than 20/100ml, or the total coliform concentration shall be equal to or less than 100/100 ml, measured as specified in s. NR 809.725(1) Table C, in representative samples of the source water immediately prior to the first or only point of disinfectant application in at least 90% of the measurements made for the 6 previous months that the system served water to the public on an ongoing basis. If a system measures both fecal and total coliforms, the fecal coliform criterion, but not the total coliform criterion, in this paragraph shall be met.

(b) The turbidity level may not exceed 5 NTU, measured as specified in s. NR 809.725(1) Table A, in representative samples of the source water immediately prior to the first or only point of disinfectant application unless:

SECTION 42. NR 109.76 is amended to read:

NR 809.76 FILTRATION REQUIREMENTS. Public water systems that use a surface water source shall provide filtration which complies with the requirements of sub. (1) and meets the disinfection criteria for filtered systems specified in s. NR 809.77 ~~(1)~~ (2) by June 29, 1993. Public water systems that use a ground water source under the direct influence of surface water shall provide filtration which complies with the specifications of sub. (1), (2), (3), (4) or (5) and meets the disinfection criteria for filtered systems specified in s. NR 809.77 by June 29, 1993 or within 18 months of the date that a source is determined to be under the direct influence of surface water, whichever is later. Failure to meet any requirement of this section after the dates specified in this paragraph is a treatment technique violation.

(1) CONVENTIONAL FILTRATION TREATMENT. (a) For systems using conventional filtration, the turbidity level of representative samples of a system's filtered water shall be less than or equal to 0.5 NTU in at least 95% of the measurements taken each month, measured as specified in s. NR 809.725(1), Table E. The department may approve a turbidity limit up to 1 NTU if the water supplier provides the department with documentation which reliably indicates the system achieves at least 99.9% removal or inactivation of Giardia lamblia cysts at a turbidity level above 0.5 NTU at least 95% of the time that the system delivers water to the public.

(b) The turbidity level of representative samples of a system's filtered water may not exceed 5 NTU, measured as specified in s. NR 809.725(1) Table E.

(2) DIRECT FILTRATION. (a) For systems using direct filtration, the turbidity level of representative samples of a system's filtered water shall be less than or equal to 0.5 NTU in at least 95% of the measurements taken each month, measured as specified in s. NR 809.725(1), Table E. The department may approve a turbidity limit up to 1 NTU if the water supplier provides the department with documentation which reliably indicates the

system achieves at least 99.9% removal or inactivation of Giardia lamblia cysts at a turbidity level above 0.5 NTU at least 95% of the time that the system delivers water to the public.

(b) The turbidity level of representative samples of a system's filtered water may not exceed 5 NTU, measured as specified in s. NR 809.725(1), Table E.

(3) SLOW SAND FILTRATION. (a) For systems using slow sand filtration, the turbidity level of representative samples of a system's filtered water shall be less than or equal to 1 NTU in at least 95% of the measurements taken each month, measured as specified in s. NR 809.725(1), Table E.

(b) The turbidity level of representative samples of a system's filtered water may not exceed 5 NTU, measured as specified in s. NR 809.725(1), Table E.

(4) DIATOMACEOUS EARTH FILTRATION. (a) For systems using diatomaceous earth filtration, the turbidity level of representative samples of a system's filtered water shall be less than or equal to 1 NTU in at least 95% of the measurements taken each month, measured as specified in s. NR 809.725(1), Table E.

(b) The turbidity level of representative samples of a system's filtered water may not exceed 5 NTU, measured as specified in s. NR 109.725(1), Table E.

(5) OTHER FILTRATION TECHNOLOGIES. A public water system supplier may use a filtration technology not listed in subs. (1) to (4) if the supplier demonstrates to the department, using pilot studies or other means, that the alternative filtration technology, in combination with disinfection treatment that meets the requirements of s. NR 809.78, consistently achieves 99.9% removal or inactivation of Giardia lamblia cysts and ~~99.9~~ 99.99% removal or inactivation of viruses. For a system that makes this demonstration, the requirements of sub. (3) apply.

SECTION 43. NR 109.77(intro.), (1)(c) & (d), (2)(b) &(c) are amended to read:

NR 809.77 Disinfection requirements. A system which uses ground water under the direct influence of surface water and does not provide filtration treatment shall provide disinfection treatment specified in sub. (1) on or after December ~~31~~ 30, 1991, or 18 months after the department determines that the ground water source is under the influence of surface water, whichever is later. A system which filters and uses surface water or ground water under the direct influence of surface water as a source, shall provide the disinfection treatment specified in sub. (2) on or after June 29, 1993, or when filtration is installed, whichever is later. Failure to meet any requirement of this section after June 29, 1993 is a treatment technique violation.

(1)(c) The residual disinfectant concentration in the water entering the distribution system, measured as specified in s. NR 809.725(1), Table E, may not be less than 0.2 mg/l for more than 4 hours.

(d) 1. The residual disinfectant concentration in the distribution system, measured as total chlorine, combined chlorine, or chlorine dioxide, as specified in s. NR 109.725(1) Table E, may not be undetectable in more than 5% of the samples each month, for any 2 consecutive months that the system serves water to the public. Water in the distribution system with a heterotrophic bacteria concentration less than or equal to 500/ml, measured as heterotrophic plate count (HPC) as specified in s. NR 109.725(1), Table C, is deemed to have a detectable disinfectant residual for purposes of determining compliance with this requirement. Thus, the value "V" in the following formula cannot exceed 5% in one month for any 2 consecutive months.

$$V = c+d+e/a+b \times 100$$

where:

a = number of instances where the residual disinfectant concentration is measured;

b = number of instances where the residual disinfectant concentration is not measured but 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 the HPC is > 500/ml; and

e = number of instances where the residual disinfectant concentration is not measured and HPC is > 500/ml.

2. If the department determines, based on site specific considerations, that a system has no means for having a sample transported and analyzed for HPC by a certified laboratory under the requisite time and temperature conditions required in s. NR 109.725(1), Table C, and that the system is providing adequate disinfection in the distribution system, the requirements of subd. 1. do not apply.

(2)(b) The residual disinfectant concentration in the water entering the distribution system, measured as specified in s. NR 109.725(1), Table E, may not be less than 0.2 mg/l for more than 4 hours.

(c) 1. The residual disinfectant concentration in the distribution system, measured as total chlorine, combined chlorine or chlorine dioxide, as specified in s. NR 109.725(1), Table E, may not be undetectable in more than 5% of the samples each month, for any 2 consecutive months that the system serves water to the public. Water in the distribution system with a heterotrophic bacteria concentration less than or equal to 500/ml, measured as heterotrophic plate count (HPC) as specified in s. NR 809.725(1), Table C, is deemed to have a detectable disinfectant residual for purposes of determining compliance with this requirement. Thus, the value "V" in the following formula may not exceed 5% in one month, for any 2 consecutive months.

$$V = c+d+e/a+b \times 100$$

where:

a = number of instances where the residual disinfectant concentration is measured;

b = number of instances where the residual disinfectant concentration is not measured but 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 the HPC is > 500/ml; and

e = number of instances where the residual disinfectant concentration is not measured and HPC is > 500/ml.

2. If the department determines, based on site specific considerations, that a system has no means for having a sample transported and analyzed for HPC by a certified laboratory under the requisite time and temperature conditions required in s. NR 109.725(1), Table C, and that the system is providing adequate disinfection in the distribution system, the requirements of subd. 1. do not apply.

SECTION 44. NR 109.78(1)(intro.) and (c)2. are amended to read:

NR 809.78 Monitoring requirements. (1)(intro.) Monitoring requirements for ground water systems under the direct influence of surface water that do not provide filtration. A public water system that uses a ground water source under the direct influence of surface water and does not provide filtration treatment shall begin monitoring as specified in sub. ~~(2)~~(1) on December 31, 1990, or 6 months after the department determines that the ground water source is under the direct influence of surface water, whichever is later.

(c)2. If the system uses chlorine, the pH of the disinfected water shall be measured at least once per day at each chlorine residual ~~disinfecant~~ disinfectant concentration sampling point.

SECTION 45. NR 109.78(1)(c)6. Tables 2 and 4 are amended to read:

Table 2 - CT Values ($CT_{99.9}$) for 99.9 Percent Inactivation of Giardia Lamblia Cysts by Free Chlorine at ~~0.5~~ 5.0 ^0C[1]

RESIDUAL (mg/l)	pH						
	<=6.0	6.5	7.0	7.5	8.0	8.5	<=9.0
< or = 4.0	97	117	139	166	198	239	279
0.6	100	120	143	171	204	244	291
0.8	103	122	146	175	210	252	301
1.0	105	125	149	179	216	260	312
1.2	107	127	152	183	221	267	320
1.4	109	130	155	187	227	274	329
1.6	111	132	158	192	232	281	337
1.8	114	135	162	196	238	287	345
2.0	116	138	165	200	243	294	353
2.2	118	140	169	204	248	300	361
2.4	120	143	172	209	253	306	368
2.6	122	146	175	213	258	312	375
2.8	124	148	178	217	263	318	382
3.0	126	151	182	221	268	324	389

[1] These CT values achieve greater than a 99.99 percent inactivation of viruses. CT values between the indicated pH values may be determined by linear interpolation. CT values between the indicated temperatures of different tables may be determined by linear interpolation. If no interpolation is used, use the $CT_{99.9}$ value at the lower temperature and at the higher pH.

Table 4 - CT Values ($CT_{99.9}$) for 99.9 Percent Inactivation of Giardia Lamblia Cysts by Free Chlorine at 15.0 ^{0}C[1]

RESIDUAL (mg/l)	pH						
	<=6.0	6.5	7.0	7.5	8.0	8.5	<=9.0
< or = 4.0	49	59	70	83	99	118	140
0.6	50	60	72	86	102	122	146
0.8	52	61	73	88	105	126	151
1.0	53	63	75	90	108	130	156
1.2	54	~~63~~64	~~75~~76	92	111	134	160
1.4	55	65	78	94	114	137	165
1.6	56	66	79	96	116	141	169
1.8	57	68	81	98	119	144	173
2.0	58	69	83	100	122	147	177
2.2	59	70	85	102	124	150	181
2.4	60	72	86	105	127	153	184
2.6	61	73	88	107	129	156	188
2.8	62	74	89	109	132	159	191
3.0	63	76	91	111	134	162	195

[1] These CT values achieve greater than a 99.99 percent inactivation of viruses. CT values between the indicated pH values may be determined by linear interpolation. CT values between the indicated temperatures of different tables may be determined by linear interpolation. If no interpolation is used, use the $CT_{99.9}$ value at the lower temperature and at the higher pH.

SECTION 46. NR 109.78(1)(f) and (2)(c) are amended to read:

NR 809.78(1)(f) 1. The residual disinfectant concentration shall be measured at least at the same points in the distribution system and at the same time as total coliforms are sampled, except that the department may allow a public water system which uses a ground water source, 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 treated (disinfected) water quality within the distribution system. Heterotrophic bacteria, measured as heterotrophic plate count (HPC) as specified in s. NR 109.725(1), Table C, may be measured in lieu of residual disinfectant concentration, when approved by the department.

2. If the department determines, based on site specific considerations, that a system has no means for having a sample transported and analyzed for HPC by a certified laboratory under the requisite time and temperature conditions specified by s. NR 109.725, Table C, and that the system is providing adequate disinfection in the distribution system, the requirements of subd. 1. do not apply to that system.

(2)(c) 1. The residual disinfectant concentration shall be measured at least at the same points in the distribution system and at the same time as total coliforms are sampled. The department may allow a public water system which uses both a surface water source or a ground water source under direct influence of surface water, and a ground water source to take disinfectant residual samples at points other than the total coliform sampling points if the department determines that such points are more representative of treated (disinfected) water quality within the distribution system. Heterotrophic bacteria, measured as heterotrophic plate count (HPC) as specified in s. NR 109.725(1), Table C, may be measured in lieu of residual disinfectant concentration, when approved by the department.

2. If the department determines, based on site specific considerations, that a system has no means for having a sample transported and analyzed for HPC by a certified laboratory under the requisite time and temperature conditions specified in s. NR 109.725(1), Table C, and that the system is providing adequate disinfection in the distribution system, the requirements of subd 1. do not apply to that system.

SECTION 47. NR 109.80(2), (5)(b)9.(intro.), (6)(a) and (b)(intro.) are amended to read:

NR 809.80(2) Except where some other period is specified in this chapter, the supplier of water shall report to the department within ~~48~~ 24 hours the failure to comply with any maximum contaminant level, ~~or~~ monitoring requirement, or treatment technique set forth in this chapter.

(5)(b)9. A public water system owner or operator need not report the data listed in subds. 1. ~~to~~ , and 3. through 6. if all data listed in par. ~~(a)~~ (b) remain on file at the system and department determines that:

(6)(a) Turbidity measurements as required by s. NR ~~809.785~~ 809.78 (2)(a) shall be reported within 10 days after the end of each month the 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.

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 ~~809.78~~ 809.76 for the filtration technology being used.

3. The date and value of any turbidity measurements taken during the month which exceed 5 NTU.

(b)(intro.) Disinfection information specified in s. NR ~~809.76~~ 809.78 shall be reported to the department within 10 days after the end of each month the public serves water to the public. Information that shall be reported includes:

SECTION 48. NR 809.80(9) is created to read:

NR 809.80(9) The department may specify the format for reporting analytical results required under this chapter.

SECTION 49. NR 109.81(1)(intro.), (a)3. and (d) are amended to read:

NR 809.81(1) MAXIMUM CONTAMINANT LEVEL (MCL), TREATMENT TECHNIQUE, VARIANCE, AND CONDITIONAL WAIVER VIOLATIONS. (intro.) The owner or operator of a public water system which fails to comply with an applicable MCL or treatment ~~techinque~~ technique established by this chapter or which fails to comply with the requirements of any variance under s. NR 809.91 or conditional waiver under s. NR 809.90 shall notify persons served by the system as follows:

(a)3.a. ~~Any violation specified by the department as posing an acute risk to human health.~~ Occurrence of a waterborne disease outbreak, as defined in s. NR 809.04(65), or a violation of the microbiological MCL which poses an acute risk to public health as defined in s. NR 809.30 (2).

b. Any violation of the microbiological MCL in which the department determines warrants a notification to boil water.

c. Violation of the MCL for nitrate, nitrite or combined nitrate and nitrite as defined in s. NR 809.11 (2) and determined according to s. NR 809.12(9)(d).

(d) The owner or operator of a non-community water system shall give notice within 72 hours after the violation or failure by continuous posting in conspicuous places within the area served by the system. The owner or operator of a ~~system such as a restraurant~~ restaurant or tavern which is permitted to serve water exceeding a maximum contaminant level to customers away from water outlets shall provide a written public notice at each table. Posting shall continue for as long as the violation or failure exists.

SECTION 50. NR 109.81(2)(a), (c) and (d) are amended to read:

NR 809.81(2)(a) Except as provided in par. (c) or (d), the owner or operator of a community water system shall give notice within ~~3 months~~ 30 days of being notified of the violation or granting of a conditional waiver under s. NR 109.90 by publication in a daily newspaper of general circulation in the area served by the system. If the area served by a community water system is not served by a daily newspaper of general circulation, notice shall instead be given by publication in a weekly newspaper of general circulation serving the area.

(c) In lieu of the requirements of par. (a) or (b), the owner or operator of a community water system in an area that is not served by a daily or weekly newspaper of general circulation shall give notice, within ~~3 months~~ 30 days of being notified of the violation, or granting of a conditional waiver under s. NR 809.90, by hand delivery or by continuous posting in conspicuous places within the area served by the system. Posting shall continue for as long as the violation exists or the conditional waiver remains in effect. Notice by hand delivery shall be repeated at least every 3 months for as long as the violation exists or the conditional waiver remains in effect.

(d) The owner or operator of a non-community water system shall give notice, within ~~72 hours~~ 30 days of being notified of the violation or the granting of the variance under s. NR 809.91 or conditional waiver under s. NR 109.90, by continuous posting at all drinking water outlets within the area served by the system. Posting shall continue for a period of 30 days or as long as the violation exists, or the variance or conditional waiver remains in effect.

SECTION 51. NR 109.81(2)(f) is repealed.

SECTION 52. NR 109.81(5)(a) to (l) are renumbered NR 809.81(5)(qe), (e), (g), (qt), (d), (gt), (ft), (q), (jt), (p), (je) and (lt), respectively, and 809.81(5)(jt)(title) is amended to read:

NR 809.81(5)(jt) Fluoride.

SECTION 53. NR 809.81(5)(a) to (ct), (de), (dt), (ee) to (fe), (h) to (j), (k) to (le), (m) to (ot), (pe), (pt) and (r) are created to read:

NR 109.81(5)(a) Acrylamide. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that acrylamide is a health concern at certain levels of exposure. Polymers made from acrylamide are sometimes used to treat water supplies to remove particulate contaminants. Acrylamide has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. Sufficiently large doses of acrylamide are known to cause neurological injury. EPA has set the drinking water standard for acrylamide using a treatment technique to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. This treatment technique limits the amount of acrylamide in the polymer and the amount of the polymer which may be added to drinking water to remove particulates. Drinking water systems which comply with this treatment technique have little to no risk and are considered safe with respect to acrylamide.

(am) Alachlor. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that alachlor is a health concern at certain levels of exposure. This organic chemical is a pesticide. When soil and climatic conditions are favorable, alachlor may get into drinking water by runoff into surface water or by leaching into ground water. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for alachlor at 0.002 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to alachlor.

(c) Atrazine. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that atrazine is a health concern at certain levels of exposure. This organic chemical is a pesticide. When soil and climatic conditions are favorable, atrazine may get into drinking water by runoff into surface water or by leaching into ground water. This chemical has been shown to affect offspring of rats and the hearts of dogs. EPA has set the drinking water standard for atrazine at 0.003 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to atrazine.

(ce) Asbestos. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that asbestos fibers greater than 10 micrometers in length are a health concern at certain levels of exposure. Asbestos is a naturally occurring mineral. Most asbestos fibers in drinking water are less than 10 micrometers in length and occur in drinking water from natural sources and from corroded asbestos-cement pipes in the distribution system. The major uses of asbestos were in the production of cements, floor tiles, paper products paint, and caulking; in transportation-related applications; and in the production of textiles and plastics. Asbestos was once a popular insulating and fire retardant material. Inhalation studies have shown that various forms of asbestos have produced lung tumors in laboratory animals. The available information on the risk of developing gastrointestinal tract cancer associated with the ingestion of asbestos from drinking water is limited. Ingestion of intermediate-range chrysotile asbestos fibers greater than 10 micrometers in length is associated with causing benign tumors in male rats. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for asbestos at 7 million long fibers per liter to reduce the potential risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water which meets the EPA standard is associated with little to none of this risk and should be considered safe with respect to asbestos.

(ct) Barium. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that barium is a health concern at certain levels of exposure. This inorganic chemical occurs naturally in some aquifers that serve as sources of ground water. It is also used in oil and gas drilling muds, automotive paints, bricks, tiles and jet fuels. It generally gets into drinking water after dissolving from naturally occurring minerals in the ground. This chemical may damage the heart and cardiovascular system, and is associated with high blood pressure in laboratory animals such as rats exposed to high levels during their lifetimes. In humans, EPA believes that effects from barium on blood pressure should not occur below 2 parts per million (ppm) in drinking water. EPA has set the drinking water standard for barium at 2 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to barium.

(de) Cadmium. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that cadmium is a health concern at certain levels of exposure. Food and the smoking of tobacco are common sources of general exposure. This inorganic metal is a contaminant in the metals used to galvanize pipe. It generally gets into water by corrosion of galvanized pipes or by improper waste disposal. This chemical has been shown to damage the kidney in animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Some industrial workers who were exposed to relatively large amounts of this chemical during working careers also suffered damage to the kidney. EPA has set the drinking water standard for cadmium at 0.005 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to cadmium.

(dt) Carbofuran. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that carbofuran is a health concern at certain levels of exposure. This organic chemical is a pesticide. When soil and climatic conditions are favorable, carbofuran may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to damage the nervous and reproductive systems of laboratory animals such as rats and mice exposed at high levels over their lifetimes. Some humans who were exposed to relatively large amounts of this chemical during their working careers also suffered damage to the nervous system. Effects on the nervous system are generally rapidly reversible. EPA has set the drinking water standard for carbofuran at 0.04 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to carbofuran.

(ee) Chlordane. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that chlordane is a health concern at certain levels of exposure. This organic chemical is a pesticide used control termites. Chlordane is not very mobile in soils. It usually gets into drinking water after application near water supply intakes or wells. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for chlordane at 0.002 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to chlordane.

(et) Chromium. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that chromium is a health concern at certain levels of exposure. This inorganic metal occurs naturally in the ground and is often used in the electroplating of metals. It generally gets into water from runoff from old mining operations and improper waste disposal from plating operations. This chemical has been shown to damage the kidney, nervous system, and the circulatory system of laboratory animals such as rats and mice when the animals are exposed at high levels. Some humans who were exposed to high levels of this chemical suffered liver and kidney damage, dermatitis and respiratory problems. EPA has set the drinking water standard for chromium at 0.1 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of the risk and is considered safe with respect to chromium.

(eu) Copper. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that copper is a health concern at certain exposure levels. Copper, a reddish- brown metal, is often used to plumb residential and commercial structures that are connected to water distribution systems. Copper contaminating drinking water as a corrosion by-product occurs as the result of the corrosion of copper pipes that remain in contact with water for a prolonged period of time. Copper is an essential nutrient, but at high doses it has been shown to cause stomach and intestinal distress, liver and kidney damage, and anemia. Persons with Wilson's disease may be at a higher risk of health effects due to copper than the general public. EPA's national primary drinking water regulation requires all public water systems to install optimal corrosion control to minimize copper contamination resulting from the corrosion of plumbing materials. Public water systems serving 50,000 people or fewer that have copper concentrations below 1.3 parts per million (ppm) in more than 90% of tap water samples (the EPA "action level") are not required to install or improve their treatment. Any water system that exceeds the action level shall also monitor their source water to determine whether treatment to remove copper in source water is needed.

(f) Dibromochloropropane (DBCP). The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that DBCP is a health concern at certain levels of exposure. This organic chemical was once a popular pesticide. When soil and climatic conditions are favorable, dibromochloropropane may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals may also increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for DBCP at 0.0002 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to DBCP.

(fe) o-Dichlorobenzene. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that o-dichlorobenzene is a health concern at certain levels of exposure. This organic chemical is used as solvent in the production of pesticides and dyes. It generally gets into water by improper waste disposal. This chemical has been shown to damage the liver, kidney and the blood cells of laboratory animals such as rats and mice exposed to high levels during their lifetimes. Some industrial workers who were exposed to relatively large amounts of this chemical during their working careers also suffered damage to the liver, nervous system, and circulatory system. EPA has set the drinking standard for o-dichlorobenzene at 0.6 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to o-dichlorobenzene.

(h) cis-1,2-Dichloroethylene. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that cis-1,2-dichloroethylene is a health concern at certain levels of exposure. This organic chemical is used as a solvent and intermediate in chemical production. It generally gets into water by improper waste disposal. This chemical has been shown to damage the liver, nervous system, and circulatory system of laboratory animals such as rats and mice when exposed at high levels over their lifetimes. Some humans who were exposed to relatively large amounts of this chemical also suffered damage to the nervous system. EPA has set the drinking water standard for cis-1,2-dichloroethylene at 0.07 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to cis-1,2-dichloroethylene.

(he) trans-1,2,-Dichloroethylene. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that trans-1,2,-dichloroethylene is a health concern at certain levels of exposure. This organic chemical is used as a solvent and intermediate in chemical production. It generally gets into water by improper waste disposal. This chemical has been shown to damage the liver, nervous system, and the circulatory system of laboratory animals such as rats and mice when exposed at high levels over their lifetimes. Some humans who were exposed to relatively large amounts of this chemical also suffered damage to the nervous system. EPA has set drinking water standard for trans-1,2,-dichloroethylene at 0.1 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to trans-1,2,-dichloroethylene.

(ht) 1,2-Dichloropropane. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that 1,2-dichloropropane is a health concern at certain levels of exposure. This organic chemical is used as a solvent and pesticide. When soil and climatic conditions are favorable, 1,2-dichloropropane may get into drinking water by runoff into surface water or by leaching into groundwater. It may also get into drinking water through improper waste disposal. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for 1,2-dichloropropane at 0.005 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which may have been observed in laboratory animals. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to 1,2-dichloropropane.

(i) 2,4-D. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that 2,4-D is a health concern at certain levels of exposure. This organic chemical is used as a herbicide and to control algae in reservoirs. When soil and climatic conditions are favorable, 2,4-D may get into drinking water by runoff into surface water or by leaching into ground water. This chemical has been shown to damage the liver and kidney of laboratory animals such as rats exposed at high levels during their lifetimes. Some humans who were exposed to relatively large amounts of this chemical also suffered damage to the nervous system. EPA has set the drinking water standard for 2,4-D at 0.07 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to 2,4-D.

(ie) Epichlorohydrin. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that epichlorohydrin is a health concern at certain levels of exposure. Polymers made from epichlorohydrin are sometimes used in the treatment of water supplies as a flocculent to remove particulates. Epichlorohydrin generally gets into drinking water by improper use of these polymers. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for epichlorohydrin using a treatment technique to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. This treatment technique limits the amount of epichlorohydrin in the polymer and the amount of the polymer which may be added to drinking water as a flocculent to remove particulates. Drinking water systems which comply with this treatment technique have little to no risk and are considered safe with respect to epichlorohydrin.

(it) Ethylbenzene. The United States Environmental Agency (EPA) sets drinking water standards and has determined ethylbenzene is a health concern at certain levels of exposure. This organic chemical is a major component of gasoline. It generally gets into water by improper waste disposal or leaking gasoline tanks. This chemical has been shown to damage the kidney, liver, and nervous system of laboratory animals such as rats exposed to high levels during their lifetimes. EPA has set the drinking water standard for ethylbenzene at 0.7 part per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to ethylbenzene.

(j) Ethylene dibromide (EDB). The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that EDB is a health concern at certain levels of exposure. This organic chemical was once a popular pesticide. When soil and climatic conditions are favorable, EDB may get into drinking water by runoff into surface water or by leaching into ground water. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for EDB at 0.00005 part per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standards is associated with little to none of this risk and is considered safe with respect to EDB.

(k) Heptachlor. The United States Environmental Agency (EPA) sets drinking water standards and has determined that heptachlor is a health concern at certain levels of exposure. This organic chemical was once a popular pesticide. When soil and climatic conditions are favorable, heptachlor may get into drinking water by runoff into surface water or by leaching into ground water. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standards for heptachlor at 0.0004 part per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to heptachlor.

(ke) Heptachlor epoxide. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that heptachlor epoxide is a health concern at certain levels of exposure. This organic chemical was once a popular pesticide. When soil and climatic conditions are favorable, heptachlor epoxide may get into drinking water by runoff into surface water or by leaching into ground water. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standards for heptachlor epoxide at 0.0002 part per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to heptachlor epoxide.

(kr) Lead. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that lead is a health concern at certain exposure levels. Materials that contain lead have frequently been used in the construction of water supply distribution systems, and plumbing systems in private homes and other buildings. The most commonly found materials include service lines, pipes, brass and bronze fixtures, and solders and fluxes. Lead in these materials can contaminate drinking water as a result of the corrosion that takes place when water comes into contact with those materials. Lead can cause a variety of adverse health effects in humans. At relatively low levels of exposure, these effects may include interference with red blood cell chemistry, delays in normal physical and mental development in babies and young children, slight deficits in the attention span, hearing, and learning abilities of children, and slight increases in the blood pressure of some adults. EPA's national primary drinking water regulation requires all public water systems to optimize corrosion control to minimize lead contamination resulting from the corrosion of plumbing materials. Public water systems serving 50,000 people or fewer that have lead concentrations below 15 parts per billion (ppb) in more than 90% of tap water samples (the EPA "action level") have optimized their corrosion control treatment. Any water system that exceeds the action level shall also monitor their source water to determine whether treatment to remove lead in source water is needed. Any water system that continues to exceed the action level after installation of corrosion control and/or source water treatment shall eventually replace all lead service lines contributing in excess of 15 ppb of lead to drinking water. Any water system that exceeds the action level shall also undertake a public education program to inform consumers of ways they can reduce their exposure to potentially high levels of lead in drinking water.

(kt) Lindane. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that lindane is a health concern at certain levels of exposure. This organic chemical is used as a pesticide. When soil and climatic conditions are favorable, lindane may get into drinking water by runoff into surface water or by leaching into ground water. This chemical has been shown to damage the liver, kidney, nervous system, and immune system of laboratory animals such as rats, mice and dogs exposed at high levels during their lifetimes. Some humans who were exposed to relatively large amounts of this chemical also suffered damage to the nervous system and circulatory system. EPA has established the drinking water standard for lindane at 0.0002 part per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to lindane.

(l) Mercury. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that mercury is a health concern at certain levels of exposure. This inorganic metal is used in electrical equipment and some water pumps. It usually gets into water as a result of improper waste disposal. This chemical has been shown to damage the kidney of laboratory animals such as rats when the animals are exposed at high levels over their lifetimes. EPA has set the drinking water standard for mercury at 0.002 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to mercury.

(le) Methoxychlor. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that methoxychlor is a health concern at certain levels of exposure. This organic chemical is used as a pesticide. When soil and climatic conditions are favorable, methoxychlor may get into drinking water by runoff into surface water or by leaching into ground water. This chemical has been shown to damage the liver, kidney, nervous system, and reproductive system of laboratory animals such as rats exposed at high levels during their lifetimes. It has also been shown to produce growth retardation in rats. EPA has set the drinking water standard for methoxychlor at 0.04 part per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to methoxychlor.

(m) Monochlorobenzene. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that monochlorobenzene is a health concern at certain levels of exposure. This organic chemical is used as a solvent. It generally gets into water by improper waste disposal. This chemical has been shown to damage the liver, kidney and nervous system of laboratory animals such as rats and mice exposed to high levels during their lifetimes. EPA has set the drinking water standard for monochlorobenzene at 0.1 part per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to monochlorobenzene.

(me) Nitrate. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that nitrate poses an acute health concern at certain levels of exposure. Nitrate is used in fertilizer and is found in sewage and wastes from human and/or farm animals and generally gets into drinking water from those activities. Excessive levels of nitrate in drinking water have caused serious illness and sometimes death in infants under six months of age. The serious illness in infants is caused because nitrate is converted to nitrite in the body. Nitrite interferes with the oxygen carrying capacity of the child's blood. This is an acute disease in that symptoms can develop rapidly in infants. In most cases, health deteriorates over a period of days. Symptoms include shortness of breath and blueness of the skin. Clearly, expert medical advise should be sought immediately if these symptoms occur. The purpose of this notice is to encourage parents and other responsible parties to provide infants with an alternate source of drinking water. Local and State health authorities are the best source for information concerning alternate sources of drinking water for infants. EPA has set the drinking water standard at 10 parts per million (ppm) for nitrate to protect against the risk of these adverse effects. EPA has also set a drinking water standard for nitrite at 1 ppm. To allow for the fact that the toxicity of nitrate and nitrite are additive, EPA has also established a standard for the sum of nitrate and nitrite at 10 ppm. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to nitrate.

(mt) Nitrite. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that nitrite poses an acute health concern at certain levels of exposure. This inorganic chemical is used in fertilizers and is found in sewage and wastes from humans and/or farm animals and generally gets into drinking water as a result of those activities. While excessive levels of nitrite in drinking water have not been observed, other sources of nitrite have caused serious illness and sometimes death in infants under six months of age. The serious illness in infants is caused because nitrite interferes with the oxygen carrying capacity of the child's blood. This is an acute disease in that symptoms can develop rapidly. However, in most cases, health deteriorates over a period of days. Symptoms include shortness of breath and blueness of the skin. Clearly, expert medical advice should be sought immediately if these symptoms occur. The purpose of this notice is to encourage parents and other responsible parties to provide infants with an alternate source of drinking water. Local and State health authorities are the best source for information concerning alternate sources of drinking water for infants. EPA has set the drinking water standard at 1 part per million (ppm) for nitrite to protect against the risk of these adverse effects. EPA has also set a drinking water standard for nitrate (converted to nitrite in humans) at 10 ppm and for the sum of nitrate and nitrite at 10 ppm. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to nitrite.

(n) Pentachlorophenol. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that pentachlorophenol is a health concern at certain levels of exposure. This organic chemical is used as a wood preservative, herbicide, disinfectant, and defoliant. It generally gets into drinking water by runoff into surface water or leaching into ground water. This chemical has been shown to produce adverse reproductive effects and to damage the liver and kidneys of laboratory animals such as rats exposed to high levels during their lifetimes. Some humans who were exposed to relatively large amounts of this chemical also suffered damage to the liver and kidneys. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed to high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for pentachlorophenol at 0.001 parts per million (ppm) to protect against the risk of cancer or other adverse health effects. Drinking water that meets the EPA standard is associated with little or no risk and is considered safe with respect to pentachlorophenol.

(ne) Polychlorinated biphenyls (PCBs). The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that polychlorinated biphenyls (PCBs) are a health concern at certain levels of exposure. These organic chemicals were once widely used in electrical transformers and other industrial equipment. They generally get into drinking water by improper waste disposal or leaking electrical industrial equipment. This chemical has been shown to cause cancer in laboratory animals such as rates and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for PCBs at 0.0005 part per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to PCBs.

(nt) Selenium. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that selenium is a health concern at certain high levels of exposure. Selenium is also an essential nutrient at low levels of exposure. This inorganic chemical is found naturally in food and soils and is used in electronics, photocopy operations, the manufacture of glass, chemicals and drugs, and as a fungicide and a feed additive. In humans, exposure to high levels of selenium over a long period of time has resulted in a number of adverse health effects, including a loss of feeling and control in the arms and legs. EPA has set the drinking water standard for selenium at 0.05 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to selenium.

(o) Styrene. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that styrene is a health concern at certain levels of exposure. This organic chemical is commonly used to make plastics and is sometimes a component of resins used for drinking water treatment. Styrene may get into drinking water from improper waste disposal. This chemical has been shown to damage the liver and nervous system in laboratory animals when exposed at high levels during their lifetimes. EPA has set the drinking water standard to styrene at 0.1 part per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to styrene.

(oe) Tetrachloroethylene. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that tetrachloroethylene is a health concern at certain levels of exposure. This organic chemical has been a popular solvent, particularly for dry cleaning. It generally gets into drinking water by improper waste disposal. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for tetrachloroethylene at 0.005 part per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to tetrachloroethylene.

(ot) Toluene. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that toluene is a health concern at certain levels of exposure. This organic chemical is used as a solvent and in the manufacture of gasoline for airplanes. It generally gets into water by improper waste disposal or leaking underground storage tanks. This chemical has been shown to damage the kidney, nervous system, and circulatory system of laboratory animals such as rats and mice exposed to high levels during their lifetimes. Some industrial workers who were exposed to relatively large amounts of this chemical during working careers also suffered damage to the liver, kidney and nervous system. EPA has set the drinking water standard for toluene at 1 part per million (ppm) to protect against the risk of adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to toluene.

(pe) Toxaphene. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that toxaphene is a health concern at certain levels of exposure. This organic chemical was once a pesticide widely used on cotton, corn, soybeans, pineapples and other crops. When soil and climatic conditions are favorable, toxaphene may get into drinking water by runoff into surface water or by leaching into ground water. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. EPA has set the drinking water standard for toxaphene at 0.003 part per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to toxaphene.

(pt) 2,4,5-TP. The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that 2,4,5-TP is a health concern at certain levels of exposure. This organic chemical is used as a herbicide. When soil and climatic conditions are favorable, 2,4,5-TP may get into drinking water by runoff into surface water or by leaching into ground water. This chemical has been shown to damage the liver and kidney of laboratory animals such as rats and dogs exposed to high levels during their lifetimes. Some industrial workers who were exposed to relatively large amounts of this chemical during working careers also suffered damage to the nervous system. EPA has set the drinking water standard for 2,4,5-TP at 0.05 part per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to 2,4,5-TP.

(r) Xylenes. The United States Environmental Agency (EPA) sets drinking water standards and has determined that xylene is a health concern at certain levels of exposure. This organic chemical is used in the manufacture of gasoline for airplanes and as a solvent for pesticides, and as a cleaner and degreaser of metals. It usually gets into water by improper waste disposal. This chemical has been shown to damage the liver, kidney and nervous system of laboratory animals such as rats and dogs exposed to high levels during their lifetimes. Some humans who were exposed to relatively large amounts of this chemical also suffered damage to the nervous system. EPA has set the drinking water standard for xylene at 10 parts per million (ppm) to protect against the risk of these adverse health effects. Drinking water that meets the EPA standard is associated with little to none of this risk and is considered safe with respect to xylene.

SECTION 54. NR 809.82(5) is created to read:

NR 809.82(5) The owner or operator of any system subject to the requirements of Subch. IM 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 s. NR 809.542 to 809.549. Each water system owner or operator shall retain the records for no fewer than 12 years.

SECTION 55. NR 809.90(2)(c) and (d) are created to read:

NR 809.90(2)(c) Public water systems that use bottled water as a requirement for receiving a conditional waiver shall meet the following requirements:

1. The department shall require and approve a monitoring program for bottled water. The public water system owner or operator shall develop and put in place a monitoring program that provides reasonable assurances that the bottled water meets all MCLs. The public water system owner or operator shall monitor a representative sample of the bottled water for all contaminants regulated under ss. NR 809.24(1) to (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.

2. The public water system owner or operator shall receive a certification from the bottled water company that the bottled water supplied meets all requirements of Ag 40.07. The public water system owner or operator shall provide the certification to the department the first quarter after it supplies bottled water and annually thereafter.

3. The public water system is 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.

(d) 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.

SECTION 56. NR 109.91(1)(intro.) is amended to read:

NR 809.91(1) (intro.) A ~~non-commumity~~ non-community water system is eligible for a variance from the nitrate as nitrogen maximum contaminant level if:

The foregoing rules were approved and adopted by the State of Wisconsin Natural Resources Board on January 28, 1993.

The rules shall take effect on the first day of the month following publication in the Wisconsin administrative register as provided in s. 227.22(2)(intro.), Stats.

Dated at Madison, Wisconsin April 8, 1993

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

By George E. Meyer
George E. Meyer, Secretary

(SEAL)