

(2) A system is deemed to have optimized corrosion control and is not required to complete the applicable corrosion control treatment steps identified in this section if the system satisfies one of the following criteria specified in paragraphs (2)(a) through (2)(c) of this section. Any such system deemed to have optimized corrosion control under this paragraph, and which has treatment in place, shall continue to operate and maintain optimal corrosion control treatment and meet any requirements that the Department determines appropriate to ensure optimal corrosion control treatment is maintained.

(a) A small or medium-size water system is deemed to have optimized corrosion control if the system meets the lead and copper action levels during each of two consecutive six-month monitoring periods conducted in accordance with Section H below.

(b) Any water system may be deemed by the Department to have optimized corrosion control treatment if the system demonstrates to the satisfaction of the Department that it has conducted activities equivalent to the corrosion control steps applicable to such 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 Section D(6) below. Water systems deemed to have optimized corrosion control under this paragraph shall operate in compliance with the Department-designated optimal water quality control parameters in accordance with Section D(7) below and continue to conduct lead and copper tap and water quality parameter sampling in accordance with Sections H(4)(c) and I(4) below, respectively. A system shall provide the Department with the following information in order to support a determination under this paragraph:

(i) The results of all test samples collected for each of the water quality parameters in Section D(3)(c) below;

(ii) a report explaining the test methods used by the water system to evaluate the corrosion control treatments listed in Section D(3)(a), the results of all tests conducted, and the basis for the system's selection of optimal corrosion control treatment;

(iii) 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,

(iv) the results of tap water samples collected in accordance with Section H below, at least once every six (6) months for one (1) 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 Section H below, and source water monitoring conducted in accordance with Section J below, that demonstrates for two (2) consecutive six (6) month monitoring periods that the difference between the 90th percentile tap water lead level computed under Section B(1)(c) and the highest source water lead concentration, is less than the Practical Quantitation Level for lead specified in Section K(1)(a).

(i) Those systems whose highest source water lead level is below the Method Detection Limit may also be deemed to have optimized corrosion control under this paragraph if the 90th percentile tap water lead level is less than or equal to the Practical Quantitation Level for lead for two consecutive 6-month monitoring

periods.

(ii) Any water system deemed to have optimized corrosion control in accordance with this paragraph shall continue monitoring for lead and copper at the tap no less frequently than once every three calendar years using the reduced number of sites specified in Section H(3) below and collecting the samples at times and locations specified in Section H(4)(d)(iv) below. Any such system that has not conducted a round of monitoring pursuant to Section H(4) below, since September 30, 1997, shall complete a round of monitoring pursuant to this paragraph no later than September 30, 2000.

(iii) Any water system deemed to have optimized corrosion control pursuant to this paragraph shall notify the Department in writing pursuant to Section L(1)(c) below, of any change in treatment or the addition of a new source. The Department may require any such system to conduct additional monitoring or to take other action the Department deems appropriate to ensure that such systems maintain minimal levels of corrosion in the distribution system.

(iv) As of July 12, 2001, a system is not deemed to have optimized corrosion control under this paragraph, and shall implement corrosion control treatment pursuant to paragraph (2)(c)(v) of this section unless it meets the copper action level.

(v) Any system triggered into corrosion control because it is no longer deemed to have optimized corrosion control under this paragraph shall implement corrosion control treatment in accordance with the deadlines in paragraph (5) of this section. Any such large system shall adhere to the schedule specified in that paragraph for medium-size systems, with the time periods for completing each step being triggered by the date the system is no longer deemed to have optimized corrosion control under this paragraph.

(3) Any small or medium-size water system that is required to complete the corrosion control steps due to its exceedance of the lead or copper action level may cease completing the treatment steps whenever the system meets both action levels during each of two consecutive monitoring periods conducted pursuant to Section H below, and submits the results to the Department. If any such water system thereafter exceeds the lead or copper action level during any monitoring period, the system (or the Department, as the case may be) 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 to repeat treatment steps previously completed by the system where the Department determines that this is necessary to implement properly the treatment requirements of this section. The Department shall notify the system in writing of such a determination and explain the basis for its decision. The requirement for any small or medium-size system to implement corrosion control treatment steps in accordance with Paragraph (5) of this section (including systems deemed to have optimized corrosion control under Paragraph (2)(a) of this section) is triggered whenever any small or medium-size system exceeds the lead or copper action level.

(4) Treatment Steps and Deadlines for Large Systems - Except as provided in paragraph (2)(b) and (c) of this section, large systems shall complete the following corrosion control treatment steps (described in the referenced portions of Sections D, H, and I below) by the indicated dates:

(a) Step 1: The system shall conduct initial monitoring (Section H(4)(a) and Section I(2)) during two consecutive six-month monitoring periods by January 1, 1993.

(b) Step 2: The system shall complete corrosion control studies (Section D.(3) below) by July 1, 1994.

(c) Step 3: The Department shall designate optimal corrosion control treatment (Section D(4) below) by January 1, 1995.

(d) Step 4: The system shall install optimal corrosion control treatment (Section D(5) below) by January 1, 1997.

(e) Step 5: The system shall complete follow-up sampling (Section H(4)(b) and Section I(3) below) by January 1, 1998.

(f) Step 6: The Department shall review installation of treatment and designate optimal water quality control parameters (Section D(6) below) by July 1, 1998.

(g) Step 7: The system shall operate in compliance with the Department-specified optimal water quality control parameters (Section D(7) below) and continue to conduct tap sampling (Section H(4)(c) and Section (I)(4) below).

(5) Treatment Steps and Deadlines for Small and Medium-Size Systems - Except as provided in paragraph (2) of this section, small and medium-size systems shall complete the following corrosion control treatment steps (described in the referenced portions of Sections D, H and I below) by the indicated time periods:

(a) Step 1: The system shall conduct initial tap sampling (Section H(4)(a) and Section I(2) below) until the system either exceeds the lead or copper action level or becomes eligible for reduced monitoring under Section (H)(4)(d). A system exceeding the lead or copper action level shall recommend optimal corrosion control treatment (Section D(1) below) within six (6) months after it exceeds one of the action levels.

(b) Step 2: Within twelve (12) months after a system exceeds the lead or copper action level, the Department may require the system to perform corrosion control studies (Section D(2) below). If the Department does not require the system to perform such studies, the Department shall specify optimal corrosion control treatment (Section D(4)) within the following time frames:

(i) For medium-size systems, within eighteen (18) months after such system exceeds the lead or copper action level; and,

(ii) For small systems, within twenty-four (24) months after such system exceeds the lead or copper action level.

(c) Step 3: If the Department requires a system to perform corrosion control studies under Step 2, the system shall complete the studies (Section D(3) below) within eighteen (18) months after the Department requires that such studies be conducted.

(d) Step 4: If the system has performed corrosion control studies under Step 2, the Department shall designate optimal corrosion control treatment (Section D(4) below) within six (6) months after completion of Step 3.

(e) Step 5: The system shall install optimal corrosion control treatment (Section D(5) below) within twenty-four (24) months after the Department designates such treatment.

(f) Step 6: The system shall complete follow-up sampling (Section H(4)(b) and Section I(3) below) within 36 months after the Department designates optimal corrosion control treatment.

(g) Step 7: The Department shall review the system's installation of treatment and designate optimal water quality control parameters (Section D(6) below) within six (6) months after completion of Step 6.

(h) Step 8: The system shall operate in compliance with the Department-designated optimal water quality control parameters (Section D(7) below) and continue to conduct tap sampling (Section H(4)(c) and Section I(4) below).

D. Description of Corrosion Control Treatment Requirements.

Each system shall complete the corrosion control treatment requirements described below which are applicable to such system under Section C above.

(1) System Recommendation Regarding Corrosion Control treatment - Based upon the results of lead and copper tap monitoring and water quality parameter monitoring, small and medium-size water systems exceeding the lead or copper action level shall recommend installation of one or more of the corrosion control treatments listed in paragraph (3)(a) of this section which the system believes constitutes optimal corrosion control for that system. The Department may require the system to conduct additional water quality parameter monitoring in accordance with Section I(2) to assist the Department in reviewing the system's recommendation.

(2) Department Decision to Require Studies of Corrosion Control Treatment (applicable to small and medium-size systems) - The Department may require any small or medium-size system that exceeds the lead or copper action level to perform corrosion control studies under paragraph (3) of this section to identify optimal corrosion control treatment for the system.

(3) Performance of Corrosion Control Studies

(a) Any public water system performing corrosion control studies shall evaluate the effectiveness of each of the following treatments, and, if appropriate, combinations of the following treatments to identify the optimal corrosion control treatment for that system:

(i) Alkalinity and pH adjustment;

(ii) Calcium hardness adjustment; and,

(iii) 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 shall evaluate each of the corrosion control treatments 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 shall measure the following water quality parameters in any tests conducted under this paragraph before and after evaluating the corrosion control treatments listed above:

- (i) Lead;
- (ii) Copper;
- (iii) pH;
- (iv) Alkalinity;
- (v) Calcium;
- (vi) Conductivity;
- (vii) Orthophosphate (when an inhibitor containing a phosphate compound is used);
- (viii) Silicate (when an inhibitor containing a silicate compound is used); and,
- (ix) Water temperature.

(d) The water system shall identify all chemical or physical constraints that limit or prohibit the use of a particular corrosion control treatment and document such constraints with at least one of the following:

- (i) 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; and/or,
- (ii) Data and documentation demonstrating that the water system 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.

(e) The water system 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 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 shall provide a rationale for its recommendation along with all supporting documentation specified in paragraphs (3)(a) through (e) of this section.

(4) Department Designation of Optimal Corrosion Control Treatment

(a) Based upon consideration of available information including, where applicable, studies performed under paragraph (3) of this section and a system's recommended treatment alternative, the Department shall either approve the corrosion control treatment option recommended by the system, or designate alternative corrosion control treatment(s) from among those listed in paragraph (3)(a) of this section. When designating 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 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 shall provide the information.

(5) Installation of Optimal Corrosion Control - Each system shall properly install and operate throughout its distribution system the optimal corrosion control treatment designated by the Department under paragraph (4) of this section.

(6) Department Review of Treatment and Specification of Optimal Water Quality Control Parameters - The Department shall evaluate the results of all lead and copper tap samples and water quality parameter samples submitted by the water system and determine whether the system has properly installed and operated the optimal corrosion control treatment designated by the Department in paragraph (4) of this section. Upon reviewing the results of tap water and water quality parameter monitoring by the system, both before and after the system installs optimal corrosion control treatment, the Department shall designate:

- (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. Such value shall be equal to or greater than 7.0, unless the Department determines 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 form a passivating film on the interior walls of the pipes of the distribution system;
- (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; and,
- (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.

The values for the applicable water quality control parameters listed above shall be those that the Department determines to reflect optimal corrosion control treatment for the system. The Department may designate values for additional water quality control parameters determined by the Department to reflect optimal corrosion control for the system. The Department shall notify the system in writing of these determinations and explain the basis for its decisions.

(7) Continued Operation and Monitoring - All systems shall maintain water quality parameter values at or above minimum values or within ranges designated by the Department under paragraph (6) of this section in each sample collected under Section I(4) below. If the water quality parameter value of any sample is below the minimum value or outside the range designated by the Department, then the system is out of compliance with this paragraph. As specified in Section I(4) below, the system 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 must be averaged with the first sampling result and the average must be used for any compliance determinations under this paragraph. All systems optimizing corrosion control shall continue to operate and maintain optimal corrosion control treatment, including maintaining water quality parameters at or above minimum values or within ranges designated by the Department under paragraph (6) of this section, in accordance with this paragraph for all samples collected under Section I(4)-(6) below. Compliance with the requirements of this paragraph shall be determined every six months,

as specified under Section I(4) below. A water system is out of compliance with the requirements of this paragraph for a six-month period if it has excursions for any Department-specified parameter on more than nine days during the period. An excursion occurs whenever the daily value for one or more of the water quality parameters measured at a sampling location is below the minimum value or outside the range designated by the Department. Daily values are calculated as follows. The Department has discretion to delete results of obvious sampling errors from this calculation.

(a) On days when more than one measurement for the water quality parameter is collected at the sampling location, the daily value shall be the average of all results collected during the day regardless of whether they are collected through continuous monitoring, grab sampling, or a combination of both.

(b) On days when only one measurement for the water quality parameter is collected at the sampling location, the daily value shall be the result of that measurement.

(c) On days when no measurement is collected for the water quality parameter at the sampling location, the daily value shall be the daily value calculated on the most recent day on which the water quality parameter was measured at the sample site.

(8) Modification of Department Treatment Decisions - Upon its own initiative or in response to a request by a water system or other interested party, a Department may modify its determination of the optimal corrosion control treatment under paragraph (4) of this section or optimal water quality control parameters under paragraph (6) of this section. A request for modification by a system or other interested party shall be in writing, explain why the modification is appropriate, and provide supporting documentation. The Department may modify its determination where it concludes that such change is necessary to ensure that the system continues to optimize corrosion control treatment. A revised determination shall be made in writing, set forth the new treatment requirements, explain the basis for the Department's decision, and provide an implementation schedule for completing the treatment modifications.

E. Source Water Treatment Requirements.

Systems shall complete the applicable source water monitoring and treatment requirements (described in the referenced portions of paragraph (2) of this section, and in Sections H and J by the following deadlines.

(1) Deadlines for Completing Source Water Treatment Steps

(a) Step 1: A system exceeding the lead or copper action level shall complete lead and copper source water monitoring (Section J(2) below) and make a treatment recommendation to the Department (paragraph (2)(a) of this section) within 6 months after exceeding the lead or copper action level.

(b) Step 2: The Department shall make a determination regarding source water treatment (paragraph (2)(b) of this section) within six (6) months after submission of monitoring results under Step 1.

(c) Step 3: If the Department requires installation of source water treatment, the system shall install the treatment (paragraph (2)(c) of this section) within twenty-four (24) months after completion of Step 2.

(d) Step 4: The system shall complete follow-up tap water monitoring (Section H(4)(b) below) and source water monitoring (Section J(3) below) within thirty-six (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 (paragraph (2)(d) of the section) within six (6) months after completion of Step 4.

(f) Step 6: The system shall operate in compliance with the Department-specified maximum permissible lead and copper source water levels (paragraph (2)(d) of this section) and continue source water monitoring (Section J(4) below).

(2) Description of Source Water Treatment Requirements

(a) System Treatment Recommendation - Any system which 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 paragraph (2)(b) of this section. A system 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 Department shall complete an evaluation of the results of all source water samples submitted by the water system to determine whether source water treatment is necessary to minimize lead or copper levels in water delivered to users' taps. If the Department determines that treatment is needed, the Department shall either require installation and operation of the source water treatment recommended by the system (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 shall provide the information by the date specified by the Department in its request. The Department shall notify the system in writing of its determination and set forth the basis for its decision.

(c) Installation of Source Water Treatment - Each system shall properly install and operate the source water treatment designated by the Department under paragraph (2)(b) of this section.

(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 both before and after the system installs source water treatment, and determine whether the system has properly installed and operated the source water treatment designated by the Department. Based upon its review, the Department shall designate the maximum permissible lead and copper concentrations for finished water entering the distribution system. Such levels shall reflect the contaminant removal capability of the treatment properly operated and maintained. The Department shall notify the system in writing and explain the basis for its decision.

(e) Continued Operation and Maintenance - Each water system shall maintain lead and copper levels below the maximum permissible concentrations designated by the Department at each sampling point monitored in accordance with Section J. 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 designated by the Department.

(f) Modification of Department Treatment Decisions - Upon its own initiative or in response to a request by a water system or other interested party, the Department may modify its determination of the source water treatment under paragraph (b) of this section,

or maximum permissible lead and copper concentrations for finished water entering the distribution system under paragraph (d) of this section. A request for modification by a system or other interested party shall be in writing, explain why the modification is appropriate, and provide supporting documentation. The Department may modify its determination where it concludes that such change is necessary to ensure that the system 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.

F. Lead Service Line Replacement Requirements.

(1) Systems that fail to meet the lead action level in tap samples taken pursuant to Section H(4)(b), after installing corrosion control and/or source water treatment (whichever sampling occurs later), shall replace lead service lines in accordance with the requirements of this section. If a system is in violation of Section C or Section E for failure to install source water or corrosion control treatment, the Department may require the system to commence lead service line replacement under this section after the date by which the system was required to conduct monitoring under Section H(4)(b) below, has passed.

(2) A water system shall replace annually at least seven (7) percent 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 shall identify the initial number of lead service lines in its distribution system, including an identification of the portions(s) owned by the system, based a materials evaluation, including the evaluation required under Section H(1) below and relevant legal authorities (e.g. contracts, local ordinances) regarding the portion owner by the system. The first year of lead service line replacement shall begin on the date the action level was exceeded in tap sampling referenced in paragraph (1) of this section.

(3) A system is not required to replace an individual lead service line if the lead concentration in all service line samples from that line, taken pursuant to Section H(2)(c), is less than or equal to 0.015 mg/L.

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

(a) At least forty-five (45) days prior to commencing with the partial replacement of a lead service line, the water system shall provide notice to the resident(s) of all buildings served by the line explaining that they may experience a temporary increase of lead levels in their drinking water, along with guidance on measures consumers can take to minimize their exposure to lead. The Department may allow the water system to provide notice under the previous sentence less than forty-five (45) days prior to commencing partial lead service line replacement where such replacement is in conjunction with emergency repairs. In addition, the water system shall inform the resident(s) served by the line that the system will, at the system's expense, collect a sample from each partially-replaced lead service line that is representative of the water in the service line for analysis of lead content, as prescribed under Section H(2)(c) below, within seventy-two (72) hours after the completion of the partial replacement of the service line. The system shall collect the

sample and report the results of the analysis to the owner and the resident(s) served by the line within three (3) business days of receiving the results. Mailed notices post-marked within three (3) business days of receiving the results shall be considered "on time."

(b) The water system shall provide the information required by paragraph (4)(a) of this section to the residents of individual dwellings by mail or by other methods approved by the Department. In instances where multi-family dwellings are served by the line, the water system shall have the option to post the information at a conspicuous location.

(5) The Department shall require a system 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 of its finding within 6 months after the system is triggered into lead service line replacement based on monitoring referenced in paragraph (1) of this section.

(6) Any system may cease replacing lead service lines whenever first draw samples collected pursuant to Section H(2)(b) below, meet the lead action level during each of two consecutive monitoring periods and the system submits the results to the Department. If the first draw tap samples collected in any such system thereafter exceeds the lead action level, the system shall recommence replacing lead service lines pursuant to paragraph (2) of this section.

(7) To demonstrate compliance with paragraphs (1) through (4) of this section, a system shall report to the Department the information specified in Section L(5) below.

G. Public Education and Supplemental Monitoring Requirements.

A water system that exceeds the lead action level based on tap water samples collected in accordance with Section H shall deliver the public education materials contained in paragraphs (1) and (2) of this section in accordance with the requirements in paragraph (3) of this section.

(1) Content of written public education materials.

(a) Community water systems. A community water system shall include the following text in all of the printed materials it distributes through its lead public education program. Systems may delete information pertaining to lead service lines, upon approval by the Department, if no lead service lines exist anywhere in the water system service area. Public education language at paragraphs (1)(a)(iv)(B)(5) and (1)(a)(iv)(D)(2) of this section may be modified regarding building permit record availability and consumer access to these records, if approved by the Department. Systems may also continue to utilize pre-printed materials that meet the public education language requirements in this section. Any additional information presented by a system shall be consistent with the information below and be in plain English that can be understood by laypersons.

(i) **INTRODUCTION** - 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 the portion of each lead service line that we own if the line contributes to

lead concentrations of more than 15 ppb after we have completed the comprehensive treatment program. If you have any questions about how we are carrying out the requirements of the lead regulation please give us a call at [insert water system's phone number]. This brochure explains the simple steps you can take to protect you and your family by reducing your exposure to lead in drinking water.

(ii) **HEALTH EFFECTS OF LEAD** - 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.

(iii) **LEAD IN DRINKING WATER**

(A) 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 percent or more of a person's total exposure to lead.

(B) 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 percent lead, and restricted the lead content of faucets, pipes and other plumbing materials to 8.0 percent.

(C) 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.

(iv) **STEPS YOU CAN TAKE IN THE HOME TO REDUCE EXPOSURE TO LEAD IN DRINKING WATER.**

(A) 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].

(B) 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:

- (1) Let the water run from the tap before using it for drinking or cooking any time the water in a faucet has gone unused for more than six (6) hours. The longer water resides in your home's plumbing the more lead it may contain. Flushing the tap means running the cold water faucet until the water gets noticeably colder, usually about fifteen (15) to thirty (30) seconds. If your house has a lead service line to the water main, you may have to flush the water for a longer time, perhaps one 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 two gallons of water and costs less than [insert a cost estimate based on flushing two 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.
- (2) 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.
- (3) 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 three (3) to five (5) minutes. Thereafter, periodically remove the strainers and flush out any debris that has accumulated over time.
- (4) If your copper pipes are joined with lead solder that has been installed illegally since it was banned in 1986, 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 S.C. Department of Health and Environmental Control about the violation.

(5) 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 home'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 portion of the line we own. If the line is only partially owned by the [insert the name of the city, county, or water system that owns the line], we are required to provide the owner of the privately-owned portion of the line with information on how to replace the privately-owned portion of the line, and offer to replace that portion of the line at the owner's expense. If we replace only the portion of the line that we own, we also are required to notify you in advance and provide you with information on the steps you can take to minimize exposure to any temporary increase in lead levels that may result from the partial replacement, to take a follow-up sample at our expense from the line within seventy-two (72) hours after the partial replacement, and to mail or otherwise provide you with the results of that sample within three business days of receiving the results. Acceptable replacement alternatives include copper, steel, iron, and plastic pipes.

(6) 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.

(C) The steps described above 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:

(1) 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.

(2) Purchase bottled water for drinking and cooking.

(D) 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.

Department and local government agencies that can be contacted include:

(1) [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;

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

(3) S.C. Department of Health and Environmental Control at (803)898-4300 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.

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

(b) Non-transient non-community water systems. A non-transient non-community water system shall either include the text specified in paragraph (1)(a) of this section or shall include the following text in all of the printed materials it distributes through its lead public education program. Water systems may delete information pertaining to lead service lines upon approval by the Department if no lead service lines exist anywhere in the water system service area. Any additional information presented by a system shall be consistent with the information below and be in plain English that can be understood by lay people.

(i) **INTRODUCTION.** The United States Environmental Protection Agency (EPA) and [insert name of water supplier] are concerned about lead in your drinking water. Some drinking water samples taken from this facility have lead levels above the 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 the portion of each lead service line that we own if the line contributes lead concentrations of more than 15 ppb after we have completed the comprehensive treatment program. If you have any questions about how we are carrying out the requirements of the lead regulation

please give us a call at [insert water system's phone number]. This brochure explains the simple steps you can take to protect yourself by reducing your exposure to lead in drinking water.

(ii) **HEALTH EFFECTS OF LEAD.** Lead is found throughout the environment in lead-based paint, air, soil, household dust, food, certain types of pottery porcelain and pewter, and water. Lead can pose a significant risk to your health if too much of it enters your body. Lead builds up in the body over many years and can cause damage to the brain, red blood cells and kidneys. The greatest risk is to young children and pregnant women. Amounts of lead that 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.

(iii) **LEAD IN DRINKING WATER.**

(A) 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 percent or more of a person's total exposure to lead.

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

(C) 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 if the water has not been used all day, can contain fairly high levels of lead.

(iv) **STEPS YOU CAN TAKE TO REDUCE EXPOSURE TO LEAD IN DRINKING WATER.**

(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 six hours. The longer water resides in plumbing the more lead it may contain. Flushing the tap means running the cold water faucet for about fifteen (15) to thirty (30) seconds. Although toilet flushing or showering flushes water through a portion of the plumbing system, you still need to flush the water in each faucet before using it for drinking or cooking. Flushing tap water is a simple and inexpensive measure you can take to

protect your health. It usually uses less than one (1) gallon of water.

(B) Do not 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 then heat it.

(C) The steps described above will reduce the lead concentrations in your drinking water. However, if you are still concerned, you may wish to use bottled water for drinking and cooking.

(D) 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:

(1) [insert the name or title of facility official if appropriate] at [insert phone number] can provide you with information about your facility's water supply; and

(2) S.C. Department of Health and Environmental Control at (803)898-4300 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

(2) Content of Broadcast Materials - A water system shall include the following information in all public service announcements submitted under its lead public education program to television and radio stations for broadcasting:

(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].

(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 language(s).

(b) A community water system that exceeds the lead action level on the basis of tap water samples collected in accordance with Section H below, and that is not already repeating public education tasks pursuant to paragraphs (c), (g), or (h), of this section, shall, within sixty (60) days:

(i) Insert notices in each customer's water utility bill containing the information in paragraph (1) of this section, along with the following alert on the water bill itself in large print: **"SOME HOMES IN THIS COMMUNITY HAVE ELEVATED LEAD LEVELS IN THEIR DRINKING WATER.**

LEAD CAN POSE A SIGNIFICANT RISK TO YOUR HEALTH. PLEASE READ THE ENCLOSED NOTICE FOR FURTHER INFORMATION." A

community water system having a billing cycle that does not include a billing within sixty (60) days of exceeding the action level, or that cannot insert information in the water utility bill without making major changes to its billing system, may use a separate mailing to deliver the information in paragraph (1) of this section as long as the information is delivered to each customer within sixty (60) days of exceeding the action level. Such water systems shall also include the "alert" language specified in this paragraph.

(ii) Submit the information in paragraph (1)(a) of this section to the editorial departments of the major daily and weekly newspapers circulated throughout the community.

(iii) Deliver pamphlets and/or brochures that contain the public education materials in paragraphs (1)(a)(ii) and (1)(a)(iv) of this section 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.

(iv) Submit the public service announcement in paragraph (2) of this section to at least five (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 shall repeat the tasks contained in paragraphs (3)(b)(i), (ii) and (iii) of this section every twelve (12) months, and the tasks contained in paragraphs (3)(b)(iv) of this section every six (6) months for as long as the system exceeds the lead action level.

(d) Within sixty (60) days after it exceeds the lead action level (unless is already is repeating public education tasks pursuant to paragraph (3)(e) of this section), a non-transient non-community water system shall deliver the public education materials specified in paragraphs (1)(a), (b), and (d) of this section as follows:

(i) 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,

(ii) Distribute informational pamphlets and/or brochures on lead in drinking water to each person served by the non-transient non-community water system. The Department may allow the system to utilize electronic transmission in lieu of

or combined with printed materials as long as it achieves at least the same coverage.

(e) A non-transient noncommunity water system shall repeat the tasks contained in paragraph (3)(d) of this section at least once during each calendar year in which the system exceeds the lead action level.

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

(g) A community water system may apply to the Department, in writing, (unless the Department has waived the requirement for prior Department approval) to use the text specified in paragraph (1)(b) of this section in lieu of the text in paragraph (1)(a) of this section and to perform the tasks listed in paragraphs (3)(d) and (3)(e) of this section in lieu of the tasks in paragraphs (3)(b) and (3)(c) of this section if:

(i) The system is a facility, such as a prison or a hospital, where the population served is not capable of or is prevented from making improvements to plumbing or installing point of use treatment devices; and

(ii) The system provides water as part of the cost of services provided and does not separately charge for water consumption.

(h) (i) A community water system serving 3,300 or fewer people may omit the task contained in paragraph (3)(b)(iv) of this section. As long as it distributes notices containing the information contained in paragraph (1)(a) of this section to every household served by the system, such systems may further limit their public education programs as follows:

(A) Systems serving 500 or fewer people may forego the task contained in paragraph (3)(b)(ii) of this section. Such a system may limit the distribution of the public education materials required under paragraph (3)(b)(iii) of this section to facilities and organizations served by the system that are most likely to be visited regularly by pregnant women and children, unless it is notified by the Department in writing that it must make a broader distribution.

(B) If approved by the Department in writing, a system serving 501 to 3,300 people may omit the task in paragraph (3)(b)(ii) of this section and/or limit the distribution of the public education materials required under paragraph (3)(b)(iii) of this section to facilities and organizations served by the system that are most likely to be visited regularly by pregnant women and children.

(ii) A community water system serving 3,300 or fewer people that delivers public education in accordance with paragraph (3)(h)(i) of this section shall repeat the required public education tasks at least once during each calendar year in which the system exceeds the lead action level.

(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 Section H below shall offer to sample the tap water of any customer who requests it. The system is not required to pay for collecting or analyzing the sample, nor is the system required to collect and analyze the sample itself.

H. Monitoring Requirements for Lead and Copper in Tap Water.

(1) Sample Site Location

(a) By the applicable date for commencement of monitoring under paragraph (4)(a) of this section, each water system shall complete a materials evaluation of its distribution system in order to identify a pool of targeted sampling sites that meets the requirements of this section, and which is sufficiently large to ensure that the water system can collect the number of lead and copper tap samples required in paragraph (3) of this section. 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 shall use the information on lead, copper, and galvanized steel that it is required to collect under R.61-58.5.V, Special Corrosivity Characteristics, of this part [special monitoring for corrosivity characteristics] when conducting a materials evaluation. When an evaluation of the information collected pursuant to R.61-58.5.V, Special Monitoring for Corrosivity Characteristics, is insufficient to locate the requisite number of lead and copper sampling sites that meet the targeting criteria in paragraph (1) of this section, the water system shall review the sources of information listed below in order to identify a sufficient number of sampling sites. In addition, the system shall seek to collect such information where possible in the course of its normal operations (e.g., checking service line materials when reading water meters or performing maintenance activities):

(i) All plumbing codes, permits, and records in the files of the building department(s) which indicate the plumbing materials that are installed within publicly and privately owned structures connected to the distribution system;

(ii) 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

(iii) 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:

(i) Contain copper pipes with lead solder installed after 1982 or contain lead pipes; and/or,

(ii) Are served by a lead service line. When multiple-family residences comprise at least twenty (20) percent of the structures served by a water system, the system may include these types of structures in its sampling pool.

(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:

(i) Contain copper pipes with lead solder installed after 1982 or contain lead pipes; and/or,

(ii) Are served by a lead service line.

(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. A community water system with insufficient Tier 1, Tier 2, and Tier 3 sampling sites shall complete its sampling pool with representative sites throughout the distribution system. For the purpose of this paragraph, a representative site is a site in which the plumbing materials used at that site would be commonly found at other sites served by the water system.

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

(i) Contain copper pipes with lead solder installed after 1982 or contain lead pipes; and/or,

(ii) Are served by a lead service line.

(g) A non-transient non-community water system with insufficient tier 1 sites that meet the targeting criteria in paragraph (1)(f) of this section shall complete its sampling pool with sampling sites that contain copper pipes with lead solder installed before 1983. If additional sites are needed to complete the sampling pool, the non-transient non-community water system shall use representative sites throughout the distribution system. For the purpose of this paragraph, a representative site is a site in which the plumbing materials used at that site would be commonly found at other sites served by the water system.

(h) Any water system whose distribution system contains lead service lines shall draw 50 percent of the samples it collects during each monitoring period from sites that contain lead pipes, or copper pipes with lead solder, and 50 percent of the samples from sites served by a lead service line. A water system that cannot identify a sufficient number of sampling sites served by a lead service line shall collect first draw samples from all of the sites identified as being served by such lines.

(2) Sample Collection Methods

(a) All tap samples for lead and copper collected in accordance with this section, with the exception of lead service line samples collected under Section F(3) above, and samples collected under paragraph (2)(e) of this section, shall be first draw samples.

(b) Each first draw tap sample for lead and copper shall be one (1) liter in volume and have stood motionless in the plumbing system of each sampling site for at least six (6) hours. First draw samples from residential housing shall be collected from the cold water kitchen tap or bathroom sink tap. First-draw samples from a nonresidential building shall be one liter in volume and shall be collected at an interior tap from which water is typically drawn for consumption. Non-first-draw samples collected in lieu of first-draw samples pursuant to paragraph (2)(e) of this section shall be one liter in volume and shall

be collected at an interior tap from which water is typically drawn for consumption. First draw samples may be collected by the system 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 fourteen (14) days after the sample is collected. After acidification to resolubilize the metals, the sample must stand in the original container for the time specified in the approved EPA method before the sample can be analyzed. If a system allows residents to perform sampling, the system may not challenge, based on alleged errors in sample collection, the accuracy of sampling results.

(c) Each service line sample shall be one liter in volume and have stood motionless in the lead service line for at least six (6) hours. Lead service line samples shall be collected in one of the following three ways:

- (i) 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;
- (ii) Tapping directly into the lead service line; or,
- (iii) 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 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 cannot gain entry to a sampling site in order to collect a follow-up tap sample, the system may collect the follow-up tap sample from 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.

(e) A non-transient non-community water system, or a community water system that meets the criteria of Section G(3)(g)(i) and (ii) above, that does not have enough taps that can supply first-draw samples, as defined in R.61-58(B), may apply to the Department in writing to substitute non-first-draw samples. Such systems must collect as many first-draw samples from appropriate taps as possible and identify sampling times and locations that would likely result in the longest standing time for the remaining sites. The Department has the discretion to waive the requirement for prior Department approval of non-first-draw sample sites selected by the system, either through State regulation or written notification to the system.

(3) Number of Samples - Water systems shall collect at least one (1) sample during each monitoring period specified in paragraph (4) of this section from the number of sites listed in the first column ("standard monitoring") of the table in this paragraph. A system conducting reduced monitoring under paragraph (4)(d) of this section shall collect at least one (1) sample from the number of sites specified in the second column ("reduced monitoring") of the table in this paragraph during each monitoring period specified in paragraph (4)(d) of this section. Such reduced monitoring sites shall be representative of the sites required for standard monitoring. The Department may specify sampling locations when a system is conducting reduced monitoring. The table is as follows:

System Size (# People Served)	# Of Sites (Standard Monitoring)	# Of sites (Reduced Monitoring)
--	---	--

>100,000	100	50
10,001 to 100,000	60	30
3,301 to 10,000	40	20
501 to 3,300	20	10
101 to 500	10	5
<=100	5	5

(4) Timing of Monitoring

(a) Initial Tap Sampling - The first six (6)-month monitoring period for small, medium-size and large systems shall begin on the following dates:

System Size (# 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

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

(ii) All small and medium-size systems shall monitor during each six (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 Section C above, in which case the system shall continue monitoring in accordance with paragraph (4)(b) of this section; or,

(B) The system meets the lead and copper action levels during two (2) consecutive six (6) month monitoring periods, in which case the system may reduce monitoring in accordance with paragraph (4)(d) of this section

(b) Monitoring After Installation of Corrosion Control and Source Water Treatment

(i) Any large system which installs optimal corrosion control treatment pursuant to Section C(4)(d) above, shall monitor during two (2) consecutive six (6) month monitoring periods by the date specified in Section C(4)(e) above.

(ii) Any small or medium-size system which installs optimal corrosion control treatment pursuant to Section C(5)(e) above, shall monitor during two (2) consecutive six (6) month monitoring periods by the date specified in Section C(5)(f) above.

(iii) Any system which installs source water treatment pursuant to Section E(1)(c) above, shall monitor during two (2) consecutive six (6) month monitoring periods by the date specified in Section E(1)(d) above.

(c) Monitoring After the Department Specifies Water Quality Parameter Values for Optimal Corrosion Control - After the Department specifies the values for water quality

control parameters under Section D(6) above, the system shall monitor during each subsequent six-month monitoring period, with the first monitoring period to begin on the date the Department specifies the optimal values under Section D(6) above.

(d) Reduced Monitoring

(i) A small or medium-size water system that meets the lead and copper action levels during each of two (2) consecutive six (6) month monitoring periods may reduce the number of samples in accordance with paragraph (3) of this section, and reduce the frequency of sampling to once per year.

(ii) Any water system that maintains the range of values for the water quality control parameters reflecting optimal corrosion control treatment specified by the Department under Section D(6) above, during each of two consecutive six-month monitoring periods may reduce the frequency of monitoring to once per year and to reduce the number of lead and copper samples in accordance with paragraph (3) of this section if it receives written approval from the Department. The Department shall review monitoring, treatment, and other relevant information submitted by the water system in accordance with Section L below, and shall notify the system in writing when it determined the system is eligible to commence reduced monitoring pursuant to this paragraph. The Department shall review, and where appropriate, revise its determination when the system submits new monitoring or treatment data, or when other data relevant to the number and frequency of tap sampling becomes available.

(iii) A small or medium-size water system that meets the lead and copper action levels during three consecutive years of monitoring may reduce the frequency of monitoring for lead and copper from annually to once every three years. Any water system that maintains the range of values for the water quality control parameters reflecting optimal corrosion control treatment specified by the Department under Section D(6) above, during three consecutive years of monitoring may reduce the frequency of monitoring from annually to once every three years if it receives written approval from the Department. The Department shall review monitoring, treatment, and other relevant information submitted by the water system and in accordance with Section L below, shall notify the system in writing, when it determines the system is eligible to reduce the frequency of monitoring to once every three years. The Department shall review, and where appropriate, revise its determination when the system submits new monitoring or treatment data, or when other data relevant to the number and frequency of tap sampling becomes available.

(iv) A water system that reduces the number and frequency of sampling shall collect these samples from representative sites included in the pool of targeted sampling sites identified in paragraph (1) of this section. Systems sampling annually or less frequently shall conduct the lead and copper tap sampling during the months of June, July, August or September.

(v) Any water system that demonstrates for two (2) consecutive six (6) month monitoring periods that the tap water lead level computed under Section B(1)(c) above, is less than or equal to 0.005 mg/L and the tap water copper level computed under Section B(1)(c) above, is less than or equal to 0.65 mg/L may reduce the number of samples in accordance with paragraph (3) of this section and reduce the frequency of sampling to once every three (3) calendar years.

(vi) (A) 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 paragraph (4)(c) of this section and collect the number of samples specified for standard monitoring under paragraph (3) of this section. Such a system shall also conduct water quality parameter monitoring in accordance with Section I(2), (3) or (4) below (as appropriate), during the monitoring period in which it exceeded the action level. Any such system may resume annual monitoring for lead and copper at the tap at the reduced number of sites specified in paragraph (3) of this section after it has completed two subsequent consecutive six-month rounds of monitoring that meet the criteria of paragraph (4)(d)(i) of this section and/or may resume triennial monitoring for lead and copper at the reduced number of sites after it demonstrates through subsequent rounds of monitoring that it meets the criteria of either paragraph (4)(d)(iii) or (4)(d)(v) of this section.

(B) Any water system subject to the reduced monitoring frequency that fails to operate at or above the minimum value or within the range of values for the water quality parameters specified by the Department under Section D(6) above, for more than nine days in any six-month period specified in Section I(4) below, shall conduct tap water sampling for lead and copper at the frequency specified in paragraph (4)(c) of this section, collect the number of samples specified for standard monitoring under paragraph (3) of this section, and shall resume monitoring for water quality parameters within the distribution system in accordance with Section I(4) below. Such a system may resume reduced monitoring for lead and copper at the tap and for water quality parameters within the distribution system under the following conditions:

(1) The system may resume annual monitoring for lead and copper at the tap at the reduced number of sites specified in paragraph (3) of this section after it has completed two subsequent six-month rounds of monitoring that meet the criteria of paragraph (4)(d)(ii) of this section and the system has received written approval from the Department that it is appropriate to resume reduced monitoring on an annual frequency.

(2) The system may resume triennial monitoring for lead and copper at the tap at the reduced number of sites after it demonstrates through subsequent rounds of monitoring that it meets the criteria of either paragraph (4)(d)(iii) or (4)(d)(v) of this section and the system has received written approval from the Department that it is appropriate to resume triennial monitoring.

(3) The system may reduce the number of water quality parameter tap water samples required in accordance with Section I(5)(a) below, and the frequency with which it collects such samples in accordance with Section I(5)(b) below. Such a system may not resume triennial monitoring for water quality parameters at the tap until it demonstrates, in accordance with the requirements of Section I(5)(b) below, that it has re-qualified for triennial monitoring.

(vii) Any water system subject to a reduced monitoring frequency under paragraph (4)(d) of this section that either adds a new source of water or changes any water treatment shall inform the Department in writing in accordance with Section L(1)(c) below. The Department may require the system to resume sampling in accordance with paragraph (4)(c) of this section and collect the number of samples specified for standard monitoring under paragraph (3) of this section or take other appropriate steps such as increased water quality parameter monitoring or re-evaluation of its corrosion control treatment given the potentially different water quality considerations

(5) Additional Monitoring by Systems - 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., calculating the 90th percentile lead or copper level) under this section.

(6) Invalidation of lead or copper tap water samples. A sample invalidated under this paragraph does not count toward determining lead or copper 90th percentile levels under Section B(1)(c) above, or toward meeting the minimum monitoring requirements of paragraph (3) of this section.

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

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

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

(iii) The sample container was damaged in transit.

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

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

(c) To invalidate a sample under paragraph (6)(a) of this section, the decision and the rationale for the decision must be documented in writing. The Department may not invalidate a sample solely on the grounds that a follow-up sample result is higher or lower than that of the original sample.

(d) The water system must collect replacement samples for any samples invalidated under this section if, after the invalidation of one or more samples, the system has too few samples to meet the minimum requirements of paragraph (3) of this section. Any such replacement samples must be taken as soon as possible, but no later than 20 days after the date the Department invalidates the sample or by the end of the applicable monitoring period, whichever occurs later. Replacement samples taken after the end of the applicable monitoring period shall not also be used to meet the monitoring requirements of a subsequent monitoring period. The replacement samples shall be taken at the same locations as the invalidated samples or, if that is not possible, at locations other than those already used for sampling during the monitoring period.

(7) Monitoring waivers for small systems. Any small system that meets the criteria of this

paragraph may apply to the Department to reduce the frequency of monitoring for lead and copper under this section to once every nine years (i.e., a "full waiver") if it meets all of the materials criteria specified in paragraph (7)(a) of this section and all of the monitoring criteria specified in paragraph (7)(b) of this section. Any small system that meets the criteria in paragraphs (7)(a) and (b) of this section only for lead, or only for copper, may apply to the Department for a waiver to reduce the frequency of tap water monitoring to once every nine years for that contaminant only (i.e., a "partial waiver").

(a) **Materials criteria.** The system must demonstrate that its distribution system and service lines and all drinking water supply plumbing, including plumbing conveying drinking water within all residences and buildings connected to the system, are free of lead-containing materials and/or copper-containing materials, as those terms are defined in this paragraph, as follows:

(i) **Lead.** To qualify for a full waiver, or a waiver of the tap water monitoring requirements for lead (i.e., a "lead waiver"), the water system must provide certification and supporting documentation to the Department that the system is free of all lead-containing materials, as follows:

(A) It contains no plastic pipes which contain lead plasticizers, or plastic service lines which contain lead plasticizers; and

(B) It is free of lead service lines, lead pipes, lead soldered pipe joints, and leaded brass or bronze alloy fittings and fixtures, unless such fittings and fixtures meet the specifications of any standard established pursuant to 42 U.S.C. 300g-6(e) (SDWA section 1417(e)).

(ii) **Copper.** To qualify for a full waiver, or a waiver of the tap water monitoring requirements for copper (i.e., a "copper waiver"), the water system must provide certification and supporting documentation to the Department that the system contains no copper pipes or copper service lines.

(b) **Monitoring criteria for waiver issuance.** The system must have completed at least one 6-month round of standard tap water monitoring for lead and copper at sites approved by the Department and from the number of sites required by paragraph (3) of this section and demonstrate that the 90th percentile levels for any and all rounds of monitoring conducted since the system became free of all lead-containing and/or copper-containing materials, as appropriate, meet the following criteria.

(i) **Lead levels.** To qualify for a full waiver, or a lead waiver, the system must demonstrate that the 90th percentile lead level does not exceed 0.005 mg/L.

(ii) **Copper levels.** To qualify for a full waiver, or a copper waiver, the system must demonstrate that the 90th percentile copper level does not exceed 0.65 mg/L.

(c) **Department approval of waiver application.** The Department shall notify the system of its waiver determination, in writing, setting forth the basis of its decision and any condition of the waiver. As a condition of the waiver, the Department may require the system to perform specific activities (e.g., limited monitoring, periodic outreach to customers to remind them to avoid installation of materials that might void the waiver) to avoid the risk of lead or copper concentration of concern in tap water. The small system must continue monitoring for lead and copper at the tap as required by paragraphs (4)(a) through (4)(d) of this section, as appropriate, until it receives written notification from the Department that the waiver has been approved.

(d) Monitoring frequency for systems with waivers.

(i) A system with a full waiver must conduct tap water monitoring for lead and copper in accordance with paragraph (4)(d)(iv) of this section at the reduced number of sampling sites identified in paragraph (3) of this section at least once every nine years and provide the materials certification specified in paragraph (7)(a) of this section for both lead and copper to the Department along with the monitoring results.

(ii) A system with a partial waiver must conduct tap water monitoring for the waived contaminant in accordance with paragraph (4)(d)(iv) of this section at the reduced number of sampling sites specified in paragraph (3) of this section at least once every nine (9) years and provide the materials certification specified in paragraph (7)(a) of this section pertaining to the waived contaminant along with the monitoring results. Such a system also must continue to monitor for the non-waived contaminant in accordance with requirements of paragraph (4)(a) through (4)(d) of this section, as appropriate.

(iii) If a system with a full or partial waiver adds a new source of water or changes any water treatment, the system must notify the Department in writing in accordance with Section L(1)(c) below. The Department has the authority to require the system to add or modify waiver conditions (e.g., require recertification that the system is free of lead-containing and/or copper-containing materials, require additional round(s) of monitoring), if it deems such modifications are necessary to address treatment or source water changes at the system.

(iv) If a system with a full or partial waiver becomes aware that it is no longer free of lead-containing or copper-containing materials, as appropriate, (e.g., as a result of new construction or repairs), the system shall notify the Department in writing no later than sixty (60) days after becoming aware of such a change.

(e) Continued eligibility. If the system continues to satisfy the requirements of paragraph (7)(d) of this section, the waiver will be renewed automatically, unless any of the conditions listed in paragraph (7)(e)(i) through (7)(e)(iii) of this section occurs. A system whose waiver has been revoked may re-apply for a waiver at such time as it again meets the appropriate materials and monitoring criteria of paragraphs (7)(a) and (7)(b) of this section.

(i) A system with a full waiver or a lead waiver no longer satisfies the materials criteria of paragraph (7)(a)(i) of this section or has a 90th percentile lead level greater than 0.005 mg/L.

(ii) A system with a full waiver or a copper waiver no longer satisfies the materials criteria of paragraph (7)(a)(ii) of this section or has a 90th percentile copper level greater than 0.65 mg/L.

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

(f) Requirements following waiver revocation. A system whose full or partial waiver has been revoked by the Department is subject to the corrosion control treatment and lead and copper tap water monitoring requirements, as follows:

- (i) If the system exceeds the lead and/or copper action level, the system must implement corrosion control treatment in accordance with the deadlines specified in Section C(5), and any other applicable requirements of this subpart.
 - (ii) If the system meets both the lead and the copper action level, the system must monitor for lead and copper at the tap no less frequently than once every three years using the reduced number of sample sites specified in paragraph (3) of this section.
- (g) Pre-existing waivers. Small system waivers approved by the Department in writing prior to April 11, 2000 shall remain in effect under the following conditions:
- (i) If the system has demonstrated that it is both free of lead-containing and copper-containing materials, as required by paragraph (7)(a) of this section and that its 90th percentile lead levels and 90th percentile copper levels meet the criteria of paragraph (7)(b) of this section, the waiver remains in effect so long as the system continues to meet the waiver eligibility criteria of paragraph (7)(e) of this section. The first round of tap water monitoring conducted pursuant to paragraph (7)(d) of this section shall be completed no later than nine years after the last time the system has monitored for lead and copper at the tap.
 - (ii) If the system has met the materials criteria of paragraph (7)(a) of this section but has not met the monitoring criteria of paragraph (7)(b) of this section, the system shall conduct a round of monitoring for lead and copper at the tap demonstrating that it meets the criteria of paragraph (7)(b) of this section no later than September 30, 2000. Thereafter, the waiver shall remain in effect as long as the system meets the continued eligibility criteria of paragraph (7)(e) of this section. The first round of tap water monitoring conducted pursuant to paragraph (7)(d) of this section shall be completed no later than nine (9) years after the round of monitoring conducted pursuant to paragraph (7)(b) of this section.

I. Monitoring requirements for Water Quality Parameters.

All large water systems, and all small and medium-size systems that exceed the lead or copper action level shall monitor water quality parameters in addition to lead and copper in accordance with this section. The requirements of this section are summarized in the table at the end of this section.

(1) General Requirements

(a) Sample Collection Methods

- (i) 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, and seasonal variability. Tap sampling under this section is not required to be conducted at taps targeted for lead and copper sampling under Section H(1) above. [Note: Systems may find it convenient to conduct tap sampling for water quality parameters at sites used for coliform sampling under R.61-58.5(G), Microbiological Contaminant Sampling and Analytical Requirements.]
- (ii) Samples collected at the entry point(s) 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 must sample at an entry point to the distribution system during periods of normal operating conditions (i.e., when water is representative of all sources being used).

(b) Number of Samples

(i) Systems shall collect two tap samples for applicable water quality parameters during each monitoring period specified under paragraphs (2) through (5) of this section from the following number of sites.

System Size (# People Served)	# Of Sites For Water Quality Parameters
>100,000	25
10,001 to 100,000	10
3,301 to 10,000	3
501 to 3,300	2
101 to 500	1
<=100	1

(ii) Except as provided in paragraph (3)(c) of the section, systems shall collect two (2) samples for each applicable water quality parameter at each entry point to the distribution system during each monitoring period specified in paragraph (2) of this section. During each monitoring period specified in paragraphs (3) through (5) of this section, systems shall collect one (1) sample for each applicable water quality parameter at each entry point to the distribution system .

(2) Initial Sampling - 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 six (6) month monitoring period specified in Section H(4)(a) above. All small and medium-size systems shall measure the applicable water quality parameters at the locations specified below during each six (6) month monitoring period specified in Section H(4)(a) during which the system exceeds the lead or copper action level.

(a) At taps:

- (i) pH;
- (ii) Alkalinity;
- (iii) Orthophosphate, when an inhibitor containing a phosphate compound is used;
- (iv) Silica, when an inhibitor containing a silicate compound is used;
- (v) Calcium;
- (vi) Conductivity; and,
- (vii) Water temperature.

(b) At each entry point to the distribution system: all of the applicable parameters

listed in paragraph (2)(a) above.

(3) Monitoring After Installation of Corrosion Control - Any large system which installs optimal corrosion control treatment pursuant to Section C(4)(d) above, shall measure the water quality parameters at the locations and frequencies specified below during each six (6) month monitoring period specified in Section H(4)(b)(i) above. Any small or medium-size system which installs optimal corrosion control treatment shall conduct such monitoring during each six (6) month monitoring period specified in Section H(4)(b)(ii) above, in which the system exceeds the lead or copper action level.

- (a) At taps, two samples for:
 - (i) pH;
 - (ii) Alkalinity;
 - (iii) Orthophosphate, when an inhibitor containing a phosphate compound is used;
 - (iv) Silica, when an inhibitor containing a silicate compound is used; and,
 - (v) Calcium, when calcium carbonate stabilization is used as part of corrosion control.

(b) Except as provided in paragraph (3)(c) of the section at each entry point to the distribution system, one (1) sample every two (2) weeks (bi-weekly) for:

- (i) pH;
- (ii) 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,
- (iii) When a corrosion inhibitor is used as part of optimal corrosion control, a reading of the dosage rate of the inhibitor used, and the concentration of orthophosphate or silica (whichever is applicable).

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

(4) Monitoring After the Department Specifies Water Quality Parameter Values for Optimal Corrosion Control - After the Department specifies the values for applicable water quality control parameters reflecting optimal corrosion control treatment under Section D(6) above, all large systems shall measure the applicable water quality parameters in accordance with paragraph (3) of this section and determine compliance with the requirements of Section D(7) above, every six month with the first six-month period to begin on the date the Department specified the optimal values under Section D(6) above.

Any small or medium-size system shall conduct such monitoring during each six-month period specified in this paragraph in which the system exceeds the lead or copper action level. For any such small and medium-size system that is subject to a reduced monitoring frequency pursuant to Section H(4)(d) above, at the time of the action level exceedance, the end of the applicable six-month period under this paragraph shall coincide with the end of the applicable monitoring period under Section H(4)(d) above. Compliance with Department-designated optimal water quality parameter values shall be determined as specified under Section D(7).

(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 two consecutive six (6) month monitoring periods under paragraph (4) of this section shall continue monitoring at the entry point(s) to the distribution system as specified in paragraph (3)(b) of this section. Such system may collect two (2) tap samples for applicable water quality parameters from the following reduced number of sites during each six (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) (i) Any water system that maintains the range of values for the water quality parameters reflecting optimal corrosion control treatment specified by the Department under Section D(6) above, during three consecutive years of monitoring may reduce the frequency with which it collects the number of tap samples for applicable water quality parameters specified in this paragraph (5)(a) from every six months to annually. Any water system that maintains the range of values for the water quality parameters reflecting optimal corrosion control treatment specified by the Department under D(6) during three consecutive years of annual monitoring under this paragraph may reduce the frequency with which it collects the number of tap samples for applicable water quality parameters specified in paragraph (5)(a) from annual to every three years.

(ii) A water system may reduce the frequency with which it collects tap samples for applicable water quality parameters specified in paragraph (5)(a) of this section to every three (3) years if it demonstrates during two (2) consecutive monitoring periods that its tap water lead level at the 90th percentile is less than or equal to the PQL for lead specified in Section K(1)(a)(ii) above, that its tap water copper level at the 90th percentile is less than or equal to 0.65 mg/L for copper in Section B(1)(b) above, and that it also has maintained the range of values for the water quality parameters reflecting optimal corrosion control treatment specified by the Department under Section D(6) above.

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

(d) Any water system subject to reduced monitoring frequency that fails to operate at or above the minimum value or within the range of values for the water quality parameters specified by the Department under Section D(6) above, for more than nine (9) days in any six (6) month period specified in Section D(7) above, shall resume distribution system tap water sampling in accordance with the number and frequency requirements in paragraph (4) of this section. Such a system may resume annual monitoring for water quality parameters at the tap at the reduced number of sites specified in paragraph (5)(a) of this section after it has completed two (2) subsequent consecutive six (6) month rounds of monitoring that meet the criteria of that paragraph and/or may resume triennial monitoring for water quality parameters at the tap at the reduced number of sites after it demonstrates through subsequent rounds of monitoring that it meets the criteria of either paragraph (5)(b)(i) or (5)(b)(ii) of this section.

(6) Additional Monitoring by Systems - 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 Section D above.

SUMMARY OF MONITORING REQUIREMENTS FOR WATER QUALITY PARAMETERS¹

Monitoring Period	Parameters ²	Location	Frequency
Initial Monitoring.	pH, alkalinity, orthophosphate or silica ³ , calcium, conductivity, temperature.	Taps and at entry point(s) to distribution system.	Every 6 months.
After Installation of Corrosion Control.	pH, alkalinity, orthophosphate or silica ³ , calcium ⁴ .	Taps.	Every 6 months.
	pH, alkalinity, dosage rate and concentration (if alkalinity adjusted as part of corrosion control), inhibitor dosage rate and inhibitor residual ⁵ .	Entry point(s) to distribution system ⁶ .	No less frequently than every two weeks.
After Department Specifies Parameter Values for Optimal Corrosion Control.	pH, alkalinity, orthophosphate or silica ³ , calcium ⁴ .	Taps.	Every 6 months.
	pH, alkalinity dosage rate and concentration (if alkalinity adjusted as part of corrosion control),	Entry point(s) to distribution system ⁶ .	No less frequently than every two
Reduced Monitoring.	pH, alkalinity, orthophosphate or silica ³ , calcium ⁴ .	Taps.	Every 6 months, annually ⁷ or every 3 years ⁸ ;

	pH, alkalinity dosage rate and concentration (if alkalinity adjusted as part of corrosion control), inhibitor dosage rate and inhibitor residual ⁵ .	Entry point(s) to distribution system ⁶ .	No less frequently than every two weeks.
--	---	--	--

¹Table is for illustrative purposes; consult the text of this section for precise regulatory requirements.

²Small and medium-size systems have to monitor for water quality parameters only during monitoring periods in which the system exceeds the lead or copper action level.

³Orthophosphate must be measured only when an inhibitor containing a phosphate compound is used. Silica must be measured only when an inhibitor containing silicate compound is used.

⁴Calcium must be measured only when calcium carbonate stabilization is used as part of corrosion control.

⁵Inhibitor dosage rates and inhibitor residual concentrations (orthophosphate or silica) must be measured only when an inhibitor is used.

⁶Ground water systems may limit monitoring to representative locations throughout the system.

⁷Water systems may reduce frequency of monitoring for water quality parameters at the tap from every six months to annually if they have maintained the range of values for water quality parameters reflecting optimal corrosion control during 3 consecutive years of monitoring.

⁸Water systems may further reduce the frequency of monitoring for water quality parameters at the tap from annually to once every 3 years if they have maintained the range of values for water quality parameters reflecting optimal corrosion control during 3 consecutive years of annual monitoring. Water systems may accelerate to triennial monitoring for water quality parameters at the tap if they have maintained 90th percentile lead levels less than or equal to 0.005 mg/L, 90th percentile copper levels less than or equal to 0.65 mg/L, and the range of water quality parameters designated by the Department under Section D(5) above, as representing optimal corrosion control during two consecutive six-month monitoring periods.

J. Monitoring Requirements for Lead and Copper in Source Water.

(1) Sample Location, Collection Methods, and Number of Samples

(a) A water system that fails to meet the lead or copper action level on the basis of tap samples collected in accordance with Section H above, shall collect lead and copper source water samples in accordance with the requirements regarding sample location, number of samples, and collection methods.

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

(ii) Surface water systems shall take a minimum of one sample at every entry point to the distribution system after any application of treatment or in the distribution system at a point which is representative of each source after treatment (hereafter called a sampling point). The system shall take each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

NOTE: For the purposes of this paragraph, surface water systems include systems with a combination of surface and ground sources.

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

(iv) The Department may reduce the total number of samples which must be analyzed by allowing the use of compositing. Compositing of samples must be done by certified laboratory personnel. Composite samples from a maximum of five (5) samples are allowed, provided that if the lead concentration in the composite sample is greater than or equal to 0.001 mg/L or the copper concentration is greater than or equal to 0.160 mg/L, then either:

(A) A follow-up sample shall be taken and analyzed within fourteen (14) days at each sampling point included in the composite; or

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

(b) Where the results of sampling indicate an exceedance of maximum permissible source water levels established under Section E(2)(d) above, the Department may require that one additional sample be collected as soon as possible after the initial sample was taken (but not to exceed two weeks) at the same sampling point. 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 the PQL shall either be considered as the measured value or be considered one-half the PQL.

(2) Monitoring Frequency After System Exceeds Tap Water Action Level - Any system which exceeds the lead or copper action level at the tap shall collect one source water sample from each entry point to the distribution system within six months after the exceedance.

(3) Monitoring Frequency After Installation of Source Water Treatment - Any system which installs source water treatment pursuant to Section E(1)(c) above, shall collect an additional source water sample from each entry point to the distribution system during two consecutive six (6) month monitoring periods by the deadline specified in Section E(1)(d) above.

(4) Monitoring frequency after Department specifies maximum permissible source water levels or determines that source water treatment is not needed

(a) A system shall monitor at the frequency specified below in cases where the Department specifies maximum permissible source water levels under Section E(2)(d) above, or determines that the system is not required to install source water treatment under Section E(2)(b) above.

(i) A water system using only groundwater shall collect samples once during the three (3) year compliance period (as that term is defined in R.61-58.A, Definitions) in effect when the applicable Department determination under paragraph (4)(a) of this section is made. Such systems shall collect samples once during each subsequent compliance period.

(ii) 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 is made under paragraph (4)(a) of this section.

(b) A system is not required to conduct source water sampling for lead and/or copper

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 paragraph (4)(a)(i) or (ii) of this section.

(5) Reduced Monitoring Frequency

(a) A water system using only ground water may reduce the monitoring frequency for lead and copper in source water to once during each nine-year compliance cycle (as that term is defined in R.61-58.B, Definitions) if the systems meets one of the following criteria:

(i) The system demonstrates that finished drinking water entering the distribution system has been maintained below the maximum permissible lead and copper concentrations specified by the Department in Section E(2)(d) above, during at least three consecutive compliance periods under paragraph (4)(a) of this section; or

(ii) The Department has determined that source water treatment is not needed and the system demonstrates that, during at least three consecutive compliance periods in which sampling was conducted under paragraph (4)(a) of this section, the concentration of lead in source water was less than or equal to 0.005 mg/L and the concentration of copper in source water was less than or equal to 0.65 mg/L.

(b) A water system using surface water (or a combination of surface and ground waters) may reduce the monitoring frequency in paragraph (4)(a) of this section to once during each nine-year compliance cycle (as that term is defined in R.61-58.B, Definitions) if the system meets one of the following criteria:

(i) The system demonstrates that finished drinking water entering the distribution system has been maintained below the maximum permissible lead and copper concentrations specified by the Department in Section E(2)(d) above, for at least three (3) consecutive years; or

(ii) The Department has determined that source water treatment is not needed and the system demonstrates that, during at least three (3) consecutive years, the concentration of lead in source water was less than or equal to 0.005 mg/L and the concentration of copper in source water was less than or equal to 0.65 mg/L.

(c) A water system that uses a new source of water is not eligible for reduced monitoring for lead and/or copper until concentrations in samples collected from the new source during three consecutive monitoring periods are below the maximum permissible lead and copper concentrations specified by the Department in Section E(1)(e) above.

K. Analytical Methods.

(1) Analyses for lead, copper, pH, conductivity, calcium, alkalinity, orthophosphate, silica, and temperature shall be conducted using EPA-approved methods listed in 40 CFR 141.

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

(b) The Department has the authority to allow the use of previously collected monitoring data for purposes of monitoring, if the data were collected and analyzed in

accordance with the requirements of this section.

(c) All lead and copper levels measured between the PQL and the MDL must be either reported as measured or they can be reported as one-half the PQL specified for lead and copper in paragraph (1)(d) below. All levels below the lead and copper MDL must be reported as zero.

(d) The Practical Quantitation Level, or PQL for lead is 0.005 mg/L. The Practical Quantitation Level, or PQL for copper is 0.050 mg/L.

L. Reporting Requirements.

All water systems 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) Except as provided in paragraph (1)(a)(viii) of this section a water system shall report the information specified below for all tap water samples specified in Section H and for all water quality parameter samples specified in Section I within the first 10 days following the end of each applicable monitoring period specified in Sections H, and I above (i.e., every six-months, annually, every 3 years, or every 9 years).

(i) The results of all tap samples for lead and copper including the location of each site and the criteria under Section H(1)(c), (d), (e), (f), and/or (g) above, under which the site was selected for the system's sampling pool;

(ii) Documentation for each tap water lead or copper sample for which the water system requests invalidation pursuant to Section H(5)(b) above;

(iii) The 90th percentile lead and copper concentrations measured from among all lead and copper tap water samples collected during each monitoring period (calculated in accordance with Section B.3(c) above) unless the Department calculates the system's 90th percentile lead and copper levels under paragraph (8) of this section;

(iv) With the exception of initial tap sampling conducted pursuant to Section H(4)(a) above, the system shall designate any site which was not sampled during previous monitoring periods, and include an explanation of why sampling sites have changed;

(v) The results of all tap samples for pH, and where applicable, alkalinity, calcium, conductivity, temperature, and orthophosphate or silica collected under Section I(2) through (5) above; and,

(vi) The results of all samples collected at the entry point(s) to the distribution system for applicable water quality parameters under Section I(2) through (5) above.

(vii) A water system shall report the results of all water quality parameter samples collected under Section I(3) - (6) above, during each six-month monitoring period specified in Section I(4) above, within the first 10 days

following the end of the monitoring period unless the Department has specified a more frequent reporting requirement.

- (b) For a non-transient non-community water system, or a community water system meeting the criteria of Section G(3)(g)(i) and (ii) above, that does not have enough taps that can provide first-draw samples, the system must either:
 - (i) Provide written documentation to the Department identifying standing times and locations for enough non-first-draw samples to make up its sampling pool under Section H(2)(e) above, by the start of the first applicable monitoring period under Section H(4) above, that commences after April 11, 2000, unless the Department has waived prior Department approval of non-first-draw sample sites selected by the system pursuant to Section H(2)(e) above; or
 - (ii) If the Department has waived prior approval of non-first-draw sample sites selected by the system, identify, in writing, each site that did not meet the six-hour minimum standing time and the length of standing time for that particular substitute sample collected pursuant to Section H(2)(e) above, and include this information with the lead and copper tap sample results required to be submitted pursuant to paragraph (1)(a)(i) of this section
- (c) No later than sixty (60) days after the addition of a new source or any change in water treatment, unless the Department requires earlier notification, a water system deemed to have optimized corrosion control under Section C(2)(c) above, a water system subject to reduced monitoring pursuant to Section H(4)(d) above, or a water system subject to a monitoring waiver pursuant to Section H(7) above, shall send written documentation to the Department describing the change. In those instances where prior Department approval of the treatment change or new source is not required, water systems are encouraged to provide the notification to the Department beforehand to minimize the risk the treatment change or new source will adversely affect optimal corrosion control.
- (d) Any small system applying for a monitoring waiver under Section H(7) above, or subject to a waiver granted pursuant to Section H(7)(c) above, shall provide the following information to the Department in writing by the specified deadline:
 - (i) By the start of the first applicable monitoring period in Section H(4) above, any small water system applying for a monitoring waiver shall provide the documentation required to demonstrate that it meets the waiver criteria of Section H(7)(a) and (b) above.
 - (ii) No later than nine years after the monitoring previously conducted pursuant to Section H (7)(b) or (d)(i) above, each small system desiring to maintain its monitoring waiver shall provide the information required by Section H(7)(d)(i) and (ii) above.
 - (iii) No later than 60 days after it becomes aware that it is no longer free of lead-containing and/or copper-containing material, as appropriate, each small system with a monitoring waiver shall provide written notification to the Department, setting forth the circumstances resulting in the lead-containing and/or copper-containing materials being introduced into the system and what corrective action, if any, the system plans to remove these materials.
 - (iv) By October 10, 2000, any small system with a waiver granted prior to

April 11, 2000 and that has not previously met the requirements of Section H(7)(b) above, shall provide the information required by that paragraph.

(e) Each ground water system that limits water quality parameter monitoring to a subset of entry points under Section I(3)(c) above, shall provide, by the commencement of such monitoring, written correspondence to the Department that identifies the selected entry points and includes information sufficient to demonstrate that the sites are representative of water quality and treatment conditions throughout the system.

(2) Source Water Monitoring Reporting Requirements

(a) A water system shall report the sampling results for all source water samples collected in accordance with Section J above 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 Section J above.

(b) With the exception of the first round of source water sampling conducted pursuant to Section J(2) above, the system 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 Section C above, systems shall report the following information:

(a) For systems demonstrating that they have already optimized corrosion control, information required in Section C(2)(b) or (c) above.

(b) For systems required to optimize corrosion control, their recommendation regarding optimal corrosion control treatment under Section D(1) above.

(c) For systems required to evaluate the effectiveness of corrosion control treatments under Section D(3) above, the information required by that paragraph.

(d) For systems required to install optimal corrosion control designated by the Department under Section D(4) above, a letter certifying that the system has completed installing that treatment.

(4) Source Water Treatment Reporting Requirements - By the applicable dates in Section E above, systems shall provide the following information to the Department:

(a) If required under Section E(2)(a) above, their recommendation regarding source water treatment;

(b) For systems required to install source water treatment under Section E(2)(b) above, a letter certifying that the system has completed installing the treatment designated by the Department within twenty four (24) months after the Department designated the treatment.

(5) Lead Service Line Replacement Reporting Requirements - Systems shall report the following information to the Department to demonstrate compliance with the requirements of Section F above:

(a) Within twelve (12) months after a system exceeds the lead action level in

sampling referred to in Section F(1) above, the system shall demonstrate in writing to the Department that it has conducted a materials evaluation, including the evaluation in Section H(1) above, to identify the initial number of lead service lines in its distribution system, and shall provide the Department with the system's schedule for replacing annually at least 7 percent of the initial number of lead service lines in its distribution system.

(b) Within twelve (12) months after a system exceeds the lead action level in sampling referred to in Section F(1) above, and every twelve (12) months thereafter, the system shall demonstrate to the Department in writing that the system has either:

(i) Replaced in the previous twelve (12) months at least seven (7) percent of the initial lead service lines (or a greater number of lines specified by the Department under Section F(5) above, in its distribution system, or,

(ii) Conducted sampling which demonstrates that the lead concentration in all service line samples from an individual line(s), taken pursuant to Section H(2)(c) above, is less than or equal to 0.015 mg/L. In such cases, the total number of lines replaced and/or which meet the criteria in Section F(3) above, shall equal at least seven (7) percent of the initial number of lead lines identified under paragraph (1) of this section (or the percentage specified by the Department under Section F(5) above).

(c) The annual letter submitted to the Department under paragraph (5)(b) of this section shall contain the following information:

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

(ii) The number and location of each lead service line replaced during the previous year of the system's replacement schedule; and,

(iii) If measured, the water lead concentration and location of each lead service line sampled, the sampling method, and the date of sampling.

(d) Any system which collects lead service line samples following partial lead service line replacement required by Section F shall report the results to the Department within the first ten days of the month following the month in which the system receives the laboratory results, or as specified by the Department. The Department, at its discretion may eliminate this requirement to report these monitoring results. Systems shall also report any additional information as specified by the Department, and in a time and manner prescribed by the Department, to verify that all partial lead service line replacement activities have taken place.

(6) Public Education Program Reporting Requirements:

(a) Any water system that is subject to the public education requirements in Section G above, shall, within ten days after the end of each period in which the system is required to perform public education tasks in accordance with Section G(3) above, send written documentation to the Department that contains:

(i) A demonstration that the system has delivered the public education materials that meet the content requirements in Section G(1) and (2) above, and

the delivery requirements in Section G(3) above; and

(ii) A list of all the newspapers, radio stations, television stations, and facilities and organizations to which the system delivered public education materials during the period in which the system was required to perform public education tasks.

(b) Unless required by the Department, a system that previously has submitted the information required by paragraph (6)(a)(ii) of this section need not resubmit the information required by paragraph (6)(a)(ii) of this section, as long as there have been no changes in the distribution list and the system certifies that the public education materials were distributed to the same list submitted previously.

(7) Reporting of Additional Monitoring Data - Any system which collects sampling data in addition to that required by this section shall report the results to the Department within the first ten (10) days following the end of the applicable monitoring period under Sections H, I and J above, during which the samples are collected.

(8) Reporting of 90th percentile lead and copper concentrations where the Department calculates a system's 90th percentile concentrations. A water system is not required to report the 90th percentile lead and copper concentrations measured from among all lead and copper tap water samples collected during each monitoring period, as required by paragraph (1)(a)(iv) of this section if:

(a) The Department has previously notified the water system that it will calculate the water system's 90th percentile lead and copper concentrations, based on the lead and copper tap results submitted pursuant to paragraph (8)(b)(i) of this section, and has specified a date before the end of the applicable monitoring period by which the system must provide the results of lead and copper tap water samples;

(b) The system has provided the following information to the Department by the date specified in paragraph (8)(a) of this section:

(i) The results of all tap samples for lead and copper including the location of each site and the criteria under Section H(1)(c), (d), (e), (f), and/or (g) above, under which the site was selected for the system's sampling pool, pursuant to paragraph (1)(a)(i) of this section; and (ii) An identification of sampling sites utilized during the current monitoring period that were not sampled during previous monitoring periods, and an explanation why sampling sites have changed; and

(c) The Department has provided the results of the 90th percentile lead and copper calculations, in writing, to the water system before the end of the monitoring period.

M. Recordkeeping Requirements.

Any system subject to the requirements of this regulation shall retain on its premises original records of all sampling data and analyses, reports, surveys, letters, evaluations, schedules, Department determinations, and any other information required by Sections C through J above. Each water system shall retain the records required by this section for no fewer than twelve (12) years.

R.61-58.12 CONSUMER CONFIDENCE REPORTS

A. Applicability.

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

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

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

B. Effective Dates.

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

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

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

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

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

C. Content of the Reports.

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

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

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

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

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

(b) If a source water assessment has been completed, the report shall notify consumers of the availability of this information and the means to obtain it. In addition, systems are encouraged to highlight in the report significant sources of contamination in

the source water area if they have readily available information. Where a system has received a source water assessment from the Department, the report shall include a brief summary of the system's susceptibility to potential sources of contamination, using language provided by the Department or written by the operator.

(3) Definitions.

(a) Each report shall include the following definitions:

(i) Maximum Contaminant Level Goal or MCLG: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

(ii) Maximum Contaminant Level or MCL: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

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

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

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

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

(iii) Maximum residual disinfectant level goal or MRDLG: The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of the disinfectants to control microbial contaminants.

(iv) Maximum residual disinfectant level or MRDL: The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

(4) Information on Detected Contaminants.

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

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

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

- (iii) Disinfection by-products or microbial contaminants for which monitoring is required by Secs. 141.142 and 141.143 (Information Collection Rule for disinfection by-products (DBP) and Microbials (ICR)), of the National Primary Drinking Water Regulations (NPDWR), and which are detected in the finished water.
- (b) The data relating to these contaminants shall be displayed in one table or in several adjacent tables. Any additional monitoring results which a community water system chooses to include in its report shall be displayed separately.
- (c) The data shall be derived from data collected to comply with EPA and Department monitoring and analytical requirements during calendar year 1998 for the first report and subsequent calendar years thereafter except that:
 - (i) Where a system is allowed to monitor for regulated contaminants less often than once a year, the table(s) shall include the date and results of the most recent sampling and the report shall include a brief statement indicating that the data presented in the report are from the most recent testing done in accordance with the regulations. No data older than 5 years need be included.
 - (ii) Results of monitoring in compliance with the ICR (Secs. 141.142 and 141.143 of the NPDWR), need only be included for 5 years from the date of last sample or until any of the detected contaminants becomes regulated and subject to routine monitoring requirements, whichever comes first.
- (d) For detected regulated contaminants (listed in Appendix D to this regulation), the table(s) shall contain:
 - (i) The MCL for that contaminant expressed as a number equal to or greater than 1.0 (as provided in Appendix D to this regulation);
 - (ii) The MCLG for that contaminant expressed in the same units as the MCL;
 - (iii) If there is no MCL for a detected contaminant, the table shall indicate that there is a treatment technique, or specify the action level, applicable to that contaminant, and the report shall include the definitions for treatment technique and/or action level, as appropriate, specified in paragraph(3)(c) of this section;
 - (iv) For contaminants subject to an MCL, except turbidity and total coliforms, the highest contaminant level used to determine compliance with R. 61-58.5, Maximum Contaminant Levels in Drinking Water, and the range of detected levels, as follows:
 - (A) When compliance with the MCL is determined annually or less frequently: The highest detected level at any sampling point and the range of detected levels expressed in the same units as the MCL.
 - (B) When compliance with the MCL is determined by calculating a running annual average of all samples taken at a monitoring location: the highest average of any of the monitoring locations and the range of all monitoring locations expressed in the same units as the MCL. For the MCLs for TTHM and HAA5 in R.61-58.5.P(2)(b), systems must include the highest locational running annual average for TTHM and HAA5 and

the range of individual sample results for all monitoring locations expressed in the same units as the MCL. If more than one location exceeds the TTHM or HAA5 MCL, the system must include the locational running annual averages for all locations that exceed the MCL.

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

Note to paragraph (4)(d)(iv): When rounding of results to determine compliance with the MCL is allowed by the regulations, rounding should be done prior to multiplying the results by the factor listed in Appendix D of this regulation;

(v) For turbidity.

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

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

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

(vi) For lead and copper: the 90th percentile value of the most recent round of sampling and the number of sampling sites exceeding the action level;

(vii) For total coliform:

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

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

(viii) For fecal coliform: The total number of positive samples; and

(ix) The likely source(s) of detected contaminants to the best of the operator's

knowledge. Specific information regarding contaminants may be available in sanitary surveys and source water assessments, and should be used when available to the operator. If the operator lacks specific information on the likely source, the report shall include one or more of the typical sources for that contaminant listed in Appendix D to this regulation which are most applicable to the system.

(5) If a community water system distributes water to its customers from multiple hydraulically independent distribution systems that are fed by different raw water sources, the table should contain a separate column for each service area and the report should identify each separate distribution system. Alternatively, systems could produce separate reports tailored to include data for each service area.

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

(7) For detected unregulated contaminants for which monitoring is required (except *Cryptosporidium*), the table(s) shall contain the average and range at which the contaminant was detected. The report may include a brief explanation of the reasons for monitoring for unregulated contaminants.

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

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

- (i) A summary of the results of the monitoring; and
- (ii) An explanation of the significance of the results.

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

- (i) The results of the monitoring; and
- (ii) An explanation of the significance of the results.

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

- (i) The results of the monitoring; and
- (ii) An explanation of the significance of the results noting the existence of a health advisory or a proposed regulation.

(9) Compliance with the State Primary Drinking Water Regulations (SPDWR). In addition to the requirements of this regulation, the report shall note any violation that occurred during the year covered by the report of a requirement listed below, and include a clear and readily understandable explanation of the violation, any potential adverse health effects, and the steps the system has taken to correct the violation:

(a) Monitoring and reporting of compliance data;

(b) Filtration and disinfection prescribed by R.61-58.10, Filtration and Disinfection. For systems which have failed to install adequate filtration or disinfection equipment or processes, or have had a failure of such equipment or process which constitutes a violation, the report shall include the following language as part of the explanation of potential adverse health effects: "Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches;"

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

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

(e) Recordkeeping of compliance data;

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

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

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

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

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

(c) A brief status report on the steps the system is taking to install treatment, find alternative sources of water, or otherwise comply with the terms and schedules of the variance or exemption; and

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

(11) Additional information:

(a) The report shall contain a brief explanation regarding contaminants which may reasonably be expected to be found in drinking water including bottled water. This explanation may include the language of paragraphs (i) through (iii) below or systems may use their own comparable language. The report also shall include the language of paragraph (iv) below:

(i) "The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity."

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

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

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

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

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

(E) Radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities."

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

(iv) "Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791)."

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

(c) In communities with a large proportion of non-English speaking residents, as determined by the Department, the report shall contain information in the appropriate language(s) regarding the importance of the report or contain a telephone number or address where such residents may contact the system to obtain a translated copy of the report or assistance in the appropriate language.

(d) The report shall include information (e.g., time and place of regularly scheduled board meetings) about opportunities for public participation in decisions that may affect the quality of the water.

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

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

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

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

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

(C) For each significant deficiency or fecal contamination in the ground water source that has not been addressed under R.61-58.16.F(1), the Department approved plan and schedule for correction, including any interim measures completed.

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

(ii) If directed by the Department, a system with significant deficiencies that have been corrected before the next report is issued must inform its customers of the significant deficiency, how the deficiency was corrected, and the date of correction.

D. Required Additional Health Information.

(1) All reports shall prominently display the following language: "Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants,

people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).”

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

(a) Shall include in its report a short informational statement about arsenic, using language such as: While your drinking water meets State and Federal standards for arsenic, it does contain low levels of arsenic. The Federal standard balances the current understanding of arsenic's possible health effects against the cost of removing arsenic from drinking water. EPA continues to research health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

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

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

(a) Shall include a short informational statement about the impacts of nitrate on children using language such as: Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant you should ask advice from your health care provider.

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

(4) Systems which detect lead above the action level in more than five (5) percent and up to and including ten (10) percent of homes sampled:

(a) Shall include a short informational statement about the special impact of lead on children using language such as: “Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the Safe Drinking Water Hotline (800-426-4791).”

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

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

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

arsenic health effects language prescribed by Appendix D to this regulation.

E. Report Delivery and Recordkeeping.

- (1) Except as provided in paragraph (7) below, each community water system shall mail or otherwise directly deliver one copy of the report to each customer.
- (2) The system shall make a good faith effort to reach consumers who do not get water bills, using means recommended by the Department. The Department expects that an adequate good faith effort will be tailored to the consumers who are served by the system but are not bill-paying customers, such as renters or workers. A good faith effort to reach consumers would include a mix of methods appropriate to the particular system such as: Posting the reports on the Internet; mailing to postal patrons in metropolitan areas; advertising the availability of the report in the news media; publication in a local newspaper; posting in public places such as cafeterias or lunch rooms of public buildings; delivery of multiple copies for distribution by single-billed customers such as apartment buildings or large private employers; delivery to community organizations.
- (3) No later than the date the system is required to distribute the report to its customers, each community water system shall mail a copy of the report to the Department, followed within 3 months by a certification that the report has been distributed to customers, and that the information is correct and consistent with the compliance monitoring data either provided by or submitted to the Department.
- (4) No later than the date the system is required to distribute the report to its customers, each community water system shall deliver the report to any other agency or clearinghouse identified by the Department.
- (5) Each community water system shall make its reports available to the public upon request.
- (6) Each community water system serving 100,000 or more persons shall post its current year's report to a publicly-accessible site on the Internet.
- (7) The Department can waive the requirement of paragraph (1) of this section for community water systems serving fewer than 10,000 persons.
 - (a) Such systems shall:
 - (i) Publish the reports in one or more local newspapers serving the area in which the system is located;
 - (ii) Inform the customers that the reports will not be mailed, either in the newspapers in which the reports are published or by other means approved by the Department; and
 - (iii) Make the reports available to the public upon request.
 - (b) Systems serving 500 or fewer persons may forego the requirements of paragraphs (7)(a)(i) above, if they provide notice at least once per year to their customers by mail, door-to-door delivery or by posting in an appropriate location that the report is available upon request.
- (8) Any system subject to this regulation shall retain copies of its Consumer Confidence Report for no less than three (3) years.

R.61-58.13 DISINFECTANT RESIDUALS, DISINFECTION BYPRODUCTS, AND DISINFECTION BYPRODUCT PRECURSORS (STAGE 1 DISINFECTANTS AND DISINFECTION BYPRODUCTS RULE).

A. Applicability.

This regulation establishes criteria and requirements for the control of disinfectants, disinfection byproducts and disinfection byproduct precursors for community water systems (CWSs) and non-transient, non-community water systems (NTNCWSs) which add a chemical disinfectant to the water in any part of the drinking water treatment process. In addition, this regulation establishes criteria and requirements for the control of chlorine dioxide for non-community water systems (NCWSs) that use chlorine dioxide as a disinfectant or oxidant in any part of the drinking water treatment process.

B. General Requirements.

(1) The requirements of this regulation constitute national primary drinking water regulations. This regulation establishes criteria under which community water systems (CWSs) and non-transient, non-community water systems (NTNCWSs) which add a chemical disinfectant to the water in any part of the drinking water treatment process must modify their practices to meet MCLs and MRDLs in R.61-58.5.P and R.61-58.5.Q, respectively, and must meet the treatment technique requirements for disinfection byproduct precursors in Section F of this regulation.

In addition, this regulation establishes criteria under which transient non-community water systems (NCWSs) that use chlorine dioxide as a disinfectant or oxidant must modify their practices to meet the MRDL for chlorine dioxide in R.61-58.5.Q.

(2) Compliance Dates - Unless otherwise noted, systems must comply with the requirements of this regulation as follows:

(a) CWSs and NTNCWSs that use a surface water source or a ground water source under the influence of surface water which serve 10,000 or more persons must comply with this regulation beginning January 1, 2002. CWSs and NTNCWSs that use a surface water source or a ground water source under the influence of surface water which serve fewer than 10,000 persons and systems using only ground water not under the direct influence of surface water must comply with this regulation beginning January 1, 2004.

(b) Transient NCWSs that use a surface water source or a ground water source under the influence of surface water which serve 10,000 or more persons and using chlorine dioxide as a disinfectant or oxidant must comply with any requirements for chlorine dioxide and chlorite in this regulation beginning January 1, 2002. Transient NCWSs that use a surface water source or a ground water source under the influence of surface water which serve fewer than 10,000 persons and use chlorine dioxide as a disinfectant or oxidant and systems that use only ground water not under the direct influence of surface water and use chlorine dioxide as a disinfectant or oxidant must comply with any requirements for chlorine dioxide and chlorite in this regulation beginning January 1, 2004.

(3) Each CWSs and NTNCWSs regulated under paragraph (1) of this section must be operated by a certified operator of appropriate grade.

(4) Control of Disinfectant Residuals - Notwithstanding the MRDLs in R.61-58.5.Q, systems may increase residual disinfectant levels in the distribution system of chlorine or chloramines (but not chlorine dioxide) to a level and for a time necessary to protect public health, to address specific

microbiological contamination problems caused by circumstances such as, but not limited to, distribution line breaks, storm run-off events, source water contamination events, or cross-connection events.

(5) Analytical Methods - Analyses used to determine compliance under this regulation shall be conducted using EPA-approved methods and adhering to EPA approved procedures and minimum reporting levels listed in 40 CFR 141.131 (1-04-06 edition).

(6) Certified Laboratory - Analyses under this regulation for disinfection byproducts must be conducted by a certified laboratory, except as specified in paragraph (7) of this section.

(7) A party approved by the Department must measure daily chlorite samples at the entrance to the distribution system.

(8) Disinfection Residuals - A party approved by the Department must measure residual disinfectant concentration.

(9) Additional Analyses - A party approved by the Department must measure the following parameters where required for compliance with this regulation:

- (a) Alkalinity
- (b) Bromide
- (c) Total Organic Carbon
- (d) Specific Ultraviolet Absorbance (SUVA)
- (e) pH

C. Monitoring Requirements.

(1) General Requirements

- (a) Systems must take all samples during normal operating conditions.
- (b) Systems may consider multiple wells drawing water from a single aquifer as one treatment plant for determining the minimum number of TTHM and HAA5 samples required, with Department approval in accordance with criteria developed by the Department and agreed to by the Administrator
- (c) Failure to monitor in accordance with the monitoring plan required under paragraph (6) of this section is a monitoring violation.
- (d) Failure to monitor will be treated as a violation for the entire period covered by the annual average where compliance is based on a running annual average of monthly or quarterly samples or averages and the system's failure to monitor makes it impossible to determine compliance with MCLs or MRDLs.
- (e) Systems may use only data collected under the provisions of this regulation to qualify for reduced monitoring.

(2) Monitoring Requirements for Disinfection Byproducts.

(a) TTHMs and HAA5 - At least twenty-five (25) percent of all samples collected each quarter shall be at locations representing maximum residence time in the distribution system. Remaining samples shall be collected from locations representative of at least average residence time in the distribution systems and representing the entire distribution system, taking into account number of persons served, different sources of water and different treatment methods. The minimum number of samples required shall be determined based on the source of supply and the populations served by a public water system.

(i) CWSs and NTNCWSs that use a surface water source or a ground water source under the influence of surface water which serve 10,000 or more persons must collect samples as follows:

(A) Routine Monitoring - A minimum of four (4) water samples per treatment plant per quarter in accordance with paragraph (2)(a) of this section.

(B) Reduced Monitoring - If the system has a source water annual average TOC level, before any treatment, less than 4.0 mg/L and a TTHM annual average less than 0.040 mg/L and HAA5 annual average less than 0.030 mg/L, then the minimum number of samples required may be reduced to one (1) sample per treatment plant per quarter at a distribution system location reflecting maximum residence time.

(C) Systems on a reduced monitoring schedule may remain on that reduced schedule as long as the average of all samples taken in the year (for systems which must monitor quarterly) or the result of the sample (for systems which must monitor no more frequently than annually) is no more than 0.060 mg/L and 0.045 mg/L for TTHMs and HAA5, respectively. Systems that do not meet these levels must resume monitoring at the frequency identified in paragraph (2)(a)(i)(A) of this section in the quarter immediately following the monitoring period in which the system exceeds 0.060 mg/L and 0.045 mg/L for TTHMs and HAA5, respectively.

(D) The system may be returned to routine monitoring at any time at the Department's discretion.

(ii) CWSs and NTNCWSs that use a surface water source or a ground water source under the influence of surface water which serve from 500 to 9,999 persons must collect samples as follows:

(A) Routine Monitoring - A minimum of one (1) water sample per treatment plant per quarter at a location representing maximum residence time in the distribution system.

(B) Reduced Monitoring - If the system has a source water annual average TOC level, before any treatment, less than 4.0 mg/L and a TTHM annual average less than 0.040 mg/L and HAA5 annual average less than 0.030 mg/L, then the minimum number of samples required may be reduced to one (1) sample per treatment plant per year during a month of warmest water temperature at a distribution system location reflecting maximum residence time.

(C) Systems on a reduced monitoring schedule may remain on that reduced schedule as long as the average of all samples taken in the year (for systems which must monitor quarterly) or the result of the sample (for systems which must monitor no more frequently than annually) is no more than 0.060 mg/L and 0.045 mg/L for TTHMs and HAA5, respectively. Systems that do not meet these levels must resume monitoring at the frequency identified in paragraph (2)(a)(ii)(A) of this section in the quarter immediately following the monitoring period in which the system exceeds 0.060 mg/L and 0.045 mg/L for TTHMs and HAA5, respectively.

(D) The system may be returned to routine monitoring at any time at the Department's discretion.

(iii) CWSs and NTNCWSs that use a surface water source or a ground water source under the influence of surface water which serve less than 500 persons must collect samples as follows:

(A) Routine Monitoring - A minimum of one water sample per treatment plant per year during a month of warmest water temperature at a location representing maximum residence time in the distribution system.

(B) Reduced Monitoring - There is no reduced monitoring allowed for these systems

(C) Increased Monitoring - If the sample (or average of annual samples, if more than one is taken) exceeds the MCL, the system must increase monitoring to one sample per treatment plant per quarter, taken at a point reflecting the maximum residence time in the distribution system, until the system meets criteria in paragraph (2)(a)(iii)(D) of this section.

(D) Systems on increased monitoring may return to routine monitoring if, after at least one year of monitoring their TTHM annual average is less than or equal to 0.060 mg/L and their HAA5 annual average is less than or equal to 0.045 mg/L.

(iv) CWSs and NTNCWSs that use only ground water not under the influence of surface water which serve 10,000 or more persons and use a chemical disinfectant must collect samples as follows:

(A) Routine Monitoring - A minimum of one water sample per treatment plant per quarter at a location representing maximum residence time in the distribution system.

(B) Reduced Monitoring - If the system has a TTHM annual average less than 0.040 mg/L and HAA5 annual average less than 0.030 mg/L, then the minimum number of samples required may be reduced to one (1) sample per treatment plant per year during a month of warmest water temperature at a distribution system location reflecting maximum residence time.

- (C) Systems on a reduced monitoring schedule may remain on that reduced schedule as long as the average of all samples taken in the year (for systems which must monitor quarterly) or the result of the sample (for systems which must monitor no more frequently than annually) is no more than 0.060 mg/L and 0.045 mg/L for TTHMs and HAA5, respectively. Systems that do not meet these levels must resume monitoring at the frequency identified in paragraph (2)(a)(iv)(A) of this section in the quarter immediately following the monitoring period in which the system exceeds 0.060 mg/L and 0.045 mg/L for TTHMs and HAA5, respectively.
- (D) The system may be returned to routine monitoring at any time at the Department's discretion.
- (v) CWSs and NTNCWSs that use only ground water not under the influence of surface water which serve less than 10,000 persons and use a chemical disinfectant must collect samples as follows:
- (A) Routine Monitoring - A minimum of one (1) water sample per treatment plant per year during a month of warmest water temperature at a location representing maximum residence time in the distribution system.
- (B) Increased Monitoring - If the sample taken, or average of annual samples if more than one (1) sample is taken, exceeds the MCL, the system must increase monitoring to one sample per treatment plant per quarter, taken at a location representing the maximum residence time in the distribution system, until the system meets the criteria in paragraph (2)(a)(v)(F) of this section for reduced monitoring.
- (C) Reduced Monitoring - If the system has a TTHM annual average less than 0.040 mg/L and HAA5 annual average less than 0.030 mg/L for two (2) consecutive years, or a TTHM annual average less than 0.020 mg/L and HAA5 annual average less than 0.015 mg/L for one (1) year, then the minimum number of samples required may be reduced to one sample per treatment plant per three (3) year cycle taken during a month of warmest water temperature at a distribution system location reflecting maximum residence time, with the three (3) year cycle beginning on January 1 following the quarter in which the system qualifies for reduced monitoring.
- (D) Systems on a reduced monitoring schedule may remain on that reduced schedule as long as the average of all samples taken in the year is no more than 0.060 mg/L and 0.045 mg/L for TTHMs and HAA5, respectively. Systems that do not meet these levels must resume monitoring at the frequency identified in paragraph (v)(A) of this section in the quarter immediately following the monitoring period in which the system exceeds 0.060 mg/L and 0.045 mg/L for TTHMs and HAA5, respectively. If either the TTHM annual average is greater than 0.080 mg/L or the HAA5 annual average is greater than 0.060 mg/L, the system must go to the increased monitoring identified in paragraph (v)(B) of this section in the quarter immediately following the monitoring period in which the system exceeds the 0.080 mg/L or 0.060 mg/L for TTHMs or HAA5 respectively.

(E) The system may be returned to routine monitoring at any time at the Department's discretion.

(F) Systems on increased monitoring may return to routine monitoring if, after at least one (1) year of monitoring their TTHM annual average is less than or equal to 0.060 mg/L and their HAA5 annual average is less than or equal to 0.045 mg/L.

(vi) Monitoring requirements for source water TOC.

In order to qualify for reduced monitoring for TTHM and HAA5 under paragraph C(2)(a)(i)(B) or C(2)(a)(ii)(B) of this section, Subpart H systems not monitoring under the provisions of paragraph C(4) of this section must take monthly TOC samples every 30 days at a location prior to any treatment, beginning April 1, 2008 or earlier, if specified by the Department. In addition to meeting other criteria for reduced monitoring in paragraph C(2)(a)(i)(B) or C(2)(a)(ii)(B) of this section, the source water TOC running annual average must be less than or equal to 4.0 mg/L (based on the most recent four quarters of monitoring) on a continuing basis at each treatment plant to reduce or remain on reduced monitoring for TTHM and HAA5. Once qualified for reduced monitoring for TTHM and HAA5 under paragraph C(2)(a)(i)(B) or C(2)(a)(ii)(B) of this section, a system may reduce source water TOC monitoring to quarterly TOC samples taken every 90 days at a location prior to any treatment.

(b) Chlorite. Community and non-transient, non-community water systems using chlorine dioxide, for disinfection or oxidation, must conduct monitoring for chlorite.

(i) Routine Monitoring.

(A) Daily monitoring. Systems must take daily samples at the entrance to the distribution system. For any daily sample that exceeds the chlorite MCL, the system must take additional samples in the distribution system the following day at the locations required by R.61-58.13.C(2)(b)(ii) in addition to the sample required at the entrance to the distribution system.

(B) Monthly monitoring. Systems must take a three-sample set each month in the distribution system. The system must take one sample at each of the following locations: near the first customer, at a location representative of average residence time, and at a location reflecting the maximum residence time in the distribution system. Any additional routine sampling must be conducted in the same manner (as three-sample sets, at the specified locations). The system may use the results of additional monitoring conducted under R.61-58.13.C(2)(b)(ii) to meet the requirement for this monitoring.

(ii) Additional monitoring. On each day following a routine sample monitoring result that exceeds the chlorite MCL at the entrance to the distribution system, the system is required to take three chlorite distribution system samples at the following locations: as close to the first customer as possible, in a location

representative of average residence time, and as close to the end of the distribution system as possible (reflecting maximum residence time in the distribution system).

(iii) Reduced monitoring.

(A) Chlorite monitoring at the entrance to the distribution system required by R.61-58.13.C(2)(b)(i)(A) may not be reduced.

(B) Chlorite monitoring in the distribution system required by R.61-58.13.C(2)(b)(i)(B) may be reduced to one three-sample set per quarter after one year of monitoring where no individual chlorite sample taken in the distribution system under R.61-58.13.C(2)(b)(i)(B) has exceeded the chlorite MCL and the system has not been required to conduct monitoring under R.61-58.13.C(2)(b)(ii). The system may remain on the reduced monitoring schedule until either of the three individual chlorite samples taken quarterly in the distribution system under R.61-58.13.C(2)(b)(i)(B) exceeds the chlorite MCL or the system is required to conduct monitoring under R.61-58.13.C(2)(b)(ii), at which time, the system must revert to routine monitoring.

(c) Bromate

(i) Routine monitoring. Community and non-transient, non-community systems using ozone, for disinfection or oxidation, must take one sample per month for each treatment plant in the system using ozone. Systems must take samples monthly at the entrance to the distribution system while the ozonation system is operating under normal conditions.

(ii) Reduced Monitoring

(A) Until March 31, 2009, Systems required to analyze for bromate may reduce monitoring from monthly to once per quarter, if the system demonstrates that the average source water bromide concentration is less than 0.05 mg/L based upon representative monthly bromide measurements for one year. The system may remain on reduced bromate monitoring until the running annual average source water bromide concentration, computed quarterly, is equal to or greater than 0.05 mg/L based upon representative monthly measurements. If the running annual average source water bromide concentration is greater than or equal to 0.05 mg/L, the system must resume routine monitoring required by R.61-58.13.C(2)(c)(i).

(B) Beginning April 1, 2009, systems may no longer use the provisions of R.61-58.C(2)(c)(ii)(A) to qualify for reduced monitoring. A system required to analyze for bromate may reduce monitoring from monthly to quarterly, if the system's running annual average bromate concentration is less than or equal to 0.0025 mg/L based on monthly bromate measurements under R.61-58.13.C(2)(c)(i) for the most recent four quarters, with samples analyzed using analytical methods identified in 40 CFR 141.132 (b)(3)(ii)(B) (1-04-06 edition). If a system has qualified for reduced bromate monitoring under R.61-58.13.C(2)(c)(ii)(A), that system may remain on reduced monitoring as long as the running annual average of quarterly bromate samples is less than or equal to 0.0025 mg/L based on samples analyzed using analytical

methods identified in 40 CFR 141.132 (b)(3)(ii)(B) (1-04-06 edition). If the running annual average bromate concentration is greater than 0.0025 mg/L, the system must resume routine monitoring required by R.61-58.13.C(2)(c)(i).

- (3) Monitoring requirements for disinfectant residuals.
 - (a) Chlorine and Chloramines.
 - (i) Routine Monitoring - Community and nontransient noncommunity water systems that use chlorine or chloramines must measure the residual disinfectant level at the same points in the distribution system and at the same time as total coliforms are sampled, as specified in R.61-58.5.G. Systems that use a surface water source or a ground water source under the influence of surface water may use the results of residual disinfectant concentration sampling conducted under R.61-58.10.F(2)(f) for unfiltered systems or R.61-58.10.F(3)(c) for systems which filter, in lieu of taking separate samples.
 - (ii) Reduced Monitoring - Monitoring may not be reduced.
 - (b) Chlorine Dioxide.
 - (i) Routine Monitoring - CWSs, NTNCWSs, and TNCWSs that use chlorine dioxide for disinfection or oxidation must take daily samples at the entrance to the distribution system. For any daily sample that exceeds the MRDL, the system must take samples in the distribution system the following day at the locations required by paragraph (3)(b)(ii) of this section, in addition to the sample required at the entrance to the distribution system.
 - (ii) Additional Monitoring - On each day following a routine sample monitoring result that exceeds the MRDL, the system is required to take three chlorine dioxide distribution system samples. If chlorine dioxide or chloramines are used to maintain a disinfectant residual in the distribution system, or if chlorine is used to maintain a disinfectant residual in the distribution system and there are no disinfection addition points after the entrance to the distribution system (i.e., no booster chlorination), the system must take three samples as close to the first customer as possible, at intervals of at least six hours. If chlorine is used to maintain a disinfectant residual in the distribution system and there are one or more disinfection addition points after the entrance to the distribution system (i.e., booster chlorination), the system must take one sample at each of the following locations: as close to the first customer as possible, in a location representative of average residence time, and as close to the end of the distribution system as possible (reflecting maximum residence time in the distribution system).
 - (iii) Reduced Monitoring - Chlorine dioxide monitoring may not be reduced.
- (4) Monitoring Requirements for Disinfection Byproduct Precursors (DBPP).
 - (a) Routine Monitoring - Surface water systems and ground water systems under the influence of surface water which use conventional filtration treatment must monitor each treatment plant for Total Organic Carbon (TOC) no later than the point of combined filter effluent turbidity monitoring and representative of the treated water. All systems required to monitor under this paragraph must also monitor for TOC in the source water prior to

any treatment at the same time as monitoring for TOC in the treated water. These samples (source water and treated water) are referred to as paired samples. At the same time as the source water sample is taken, systems must monitor for alkalinity in the source water prior to any treatment. Systems must take one paired sample and one source water alkalinity sample per month per plant at a time representative of normal operating conditions and influent water quality.

(b) Reduced Monitoring - Surface water systems and ground water systems under the influence of surface water with an average treated water TOC of less than 2.0 mg/L for two consecutive years, or less than 1.0 mg/L for one year, may reduce monitoring for both TOC and alkalinity to one paired sample and one source water alkalinity sample per plant per quarter. The system must revert to routine monitoring in the month following the quarter when the annual average treated water TOC of equal or greater than 2.0 mg/L.

(5) Bromide - Systems required to analyze for bromate may reduce bromate monitoring from monthly to once per quarter, if the system demonstrates that the average source water bromide concentration is less than 0.05 mg/L based upon representative monthly measurements for one year. The system must continue bromide monitoring to remain on reduced bromate monitoring.

(6) Monitoring Plans - Each system required to monitor under this regulation must develop and implement a monitoring plan. The system must maintain the plan and make it available for inspection by the Department and the general public no later than 30 days following the applicable compliance dates in R.61-58.13.B(2). All surface water systems and ground water systems under the influence of surface water serving more than 3300 people must submit a copy of the monitoring plan to the Department no later than the date of the first report required under R.61-58.13.E. The Department may also require the plan to be submitted by any other system. After review, the Department may require changes in any plan elements. The plan must include at least the following elements.

(a) Specific locations and schedules for collecting samples for any parameters included in this regulation.

(b) How the system will calculate compliance with MCLs, MRDLs, and treatment techniques.

(c) If approved for monitoring as a consecutive system, or if providing water to a consecutive system, under the provisions of R.61-58.5.X, the sampling plan must reflect the entire distribution system

D. Compliance Requirements.

(1) General Requirements.

(a) Where compliance is based on a running annual average of monthly or quarterly samples or averages and the system fails to monitor for TTHM, HAA5, or bromate, this failure to monitor will be treated as a monitoring violation for the entire period covered by the annual average. Where compliance is based on a running annual average of monthly or quarterly samples or averages and the system's failure to monitor makes it impossible to determine compliance with MRDLs for chlorine and chloramines, this failure to monitor will be treated as a monitoring violation for the entire period covered by the annual average.

(b) All samples taken and analyzed under the provisions of this regulation must be

included in determining compliance, even if that number is greater than the minimum required.

(c) If, during the first year of monitoring under R.61-58.13.C, any individual quarter's average will cause the running annual average of that system to exceed the MCL, the system is out of compliance at the end of that quarter.

(2) Disinfection Byproducts

(a) TTHMs and HAA5.

(i) For systems monitoring quarterly, compliance with MCLs in R.61-58.5.P must be based on a running annual arithmetic average, computed quarterly, of quarterly arithmetic averages of all samples collected by the system as prescribed in Section C(2)(a) above.

(ii) For systems monitoring less frequently than quarterly, systems demonstrate MCL compliance if the average of samples taken that year under the provisions of Section C(2)(a) above, does not exceed the MCLs in R.61-58.5.P. If the average of these samples exceeds the MCL, the system must increase monitoring to once per quarter per treatment plant and such a system is not in violation of the MCL until it has completed one year of quarterly monitoring, unless the result of fewer than four quarters of monitoring will cause the running annual average to exceed the MCL, in which case the system is in violation at the end of that quarter. Systems required to increase monitoring frequency to quarterly monitoring must calculate compliance by including the sample which triggered the increased monitoring plus the following three quarters of monitoring.

(iii) If the running annual arithmetic average of quarterly averages covering any consecutive four-quarter period exceeds the MCL, the system is in violation of the MCL and must notify the public pursuant to R.61-58.6 in addition to reporting to the Department pursuant to Section E above.

(iv) If a PWS fails to complete four consecutive quarters of monitoring, compliance with the MCL for the last four-quarter compliance period must be based on an average of the available data.

(b) Bromate. Compliance must be based on a running annual arithmetic average, computed quarterly, of monthly samples (or, for months in which the system takes more than one sample, the average of all samples taken during the month) collected by the system as prescribed by R.61-58.13.C(2)(c). If the average of samples covering any consecutive four-quarter period exceeds the MCL, the system is in violation of the MCL and must notify the public pursuant to R.61-58.6, in addition to reporting to the Department pursuant to R.61-58.13.E. If a PWS fails to complete 12 consecutive months' monitoring, compliance with the MCL for the last four-quarter compliance period must be based on an average of the available data.

(c) Chlorite. Compliance must be based on an arithmetic average of each three sample set taken in the distribution system as prescribed by R.61-58.13.C(2)(b)(i)(B) and R.61-58.13.C(2)(b)(ii). If the arithmetic average of any three sample set exceeds the MCL, the system is in violation of the MCL and must notify the public pursuant to R.61-58.6, in addition to reporting to the Department pursuant to R.61-58.13.E.

(3) Disinfectant Residuals.

(a) Chlorine and Chloramines.

(i) Compliance must be based on a running annual arithmetic average, computed quarterly, of monthly averages of all samples collected by the system under Section C(3)(a) above. If the average covering any consecutive four-quarter period exceeds the MRDL, the system is in violation of the MRDL and must notify the public pursuant to R.61-58.6, in addition to reporting to the Department pursuant to Section E below.

(ii) In cases where systems switch between the use of chlorine and chloramines for residual disinfection during the year, compliance must be determined by including together all monitoring results of both chlorine and chloramines in calculating compliance. Reports submitted pursuant to Section E below must clearly indicate which residual disinfectant was analyzed for each sample.

(b) Chlorine Dioxide.

(i) Acute Violations - Compliance must be based on consecutive daily samples collected by the system under Section C(3)(b) above. If any daily sample taken at the entrance to the distribution system exceeds the MRDL, and on the following day one (or more) of the three (3) samples taken in the distribution system exceed the MRDL, the system is in violation of the MRDL and must take immediate corrective action to lower the level of chlorine dioxide below the MRDL and must notify the public pursuant to the procedures for acute health risks in R.61-58.6.E in addition to reporting to the Department pursuant to Section E(3) below. Failure to take samples in the distribution system the day following an exceedance of the chlorine dioxide MRDL at the entrance to the distribution system will also be considered an MRDL violation and the system must notify the public of the violation in accordance with the provisions for acute violations under R.61-58.6.E in addition to reporting to the Department pursuant to Section E(3) below.

(ii) Non-acute Violations - Compliance must be based on consecutive daily samples collected by the system under Section C(3)(b) above. If any two (2) consecutive daily samples taken at the entrance to the distribution system exceed the MRDL and all distribution system samples taken are below the MRDL, the system is in violation of the MRDL and must take corrective action to lower the level of chlorine dioxide below the MRDL at the point of sampling and will notify the public pursuant to the procedures for Non-acute health risks in R.61-58.6.E in addition to reporting to the Department pursuant to Section E(3) below. Failure to monitor at the entrance to the distribution system the day following an exceedance of the chlorine dioxide MRDL at the entrance to the distribution system is also an MRDL violation and the system must notify the public of the violation in accordance with the provisions for Non-acute violations under R.61-58.6.E in addition to reporting to the Department pursuant to Section E(3) below.

(4) Disinfection Byproduct Precursors - Compliance must be determined as specified by Section F(3) below. Systems may begin monitoring to determine whether Step 1 TOC removals can be met twelve (12) months prior to the compliance date for the system. This monitoring is not required and failure to monitor during this period is not a violation. However, any system that

does not monitor during this period, and then determines in the first twelve (12) months after the compliance date that it is not able to meet the Step 1 requirements in Section F(2)(b) below and must therefore apply for alternate minimum TOC removal (Step 2) requirements, is not eligible for retroactive approval of alternate minimum TOC removal (Step 2) requirements as allowed pursuant to Section F(2)(c) below and is in violation. Systems may apply for alternate minimum TOC removal (Step 2) requirements any time after the compliance date. For systems required to meet Step 1 TOC removals, if the value calculated under Section F(3)(a)(iv) below, is less than 1.00, the system is in violation of the treatment technique requirements and must notify the public pursuant to R.61-58.6.E, in addition to reporting to the Department pursuant to R.61-58.13.E(4).

E. Reporting and Recordkeeping Requirements.

(1) Systems required to sample quarterly or more frequently must report to the Department within 10 days after the end of each quarter in which samples were collected, notwithstanding the provisions of R.61-58.6. Systems required to sample less frequently than quarterly must report to the Department within 10 days after the end of each monitoring period in which samples were collected.

(2) Disinfection Byproducts - Systems must report the following information:

(a) Systems monitoring for TTHM and HAA5 under the requirements of R.61-58.13.C(2) on a quarterly or more frequent basis must report:

- (i) The number of samples taken during the last quarter.
- (ii) The location, date, and result of each sample taken during the last quarter.
- (iii) The arithmetic average of all samples taken in the last quarter.
- (iv) The annual arithmetic average of the quarterly arithmetic averages of this section for the last four (4) quarters.
- (v) Whether, based on Section D(2)(a) above, the MCL was violated.

(b) Systems monitoring for TTHMs and HAA5 under the requirements of R.61-58.13.C(2) less frequently than quarterly (but at least annually) must report

- (i) The number of samples taken during the last year.
- (ii) The location, date, and result of each sample taken during the last monitoring period.
- (iii) The arithmetic average of all samples taken over the last year.
- (iv) Whether, based on Section D(2)(a) above, the MCL was violated.

(c) Systems monitoring for TTHMs and HAA5 under the requirements of R.61-58.13.C(2) less frequently than annually must report:

- (i) The location, date, and result of each sample taken.
- (ii) Whether, based on Section D(2)(a) above, the MCL was violated.

(d) Systems monitoring for chlorite under the requirements of R.61-58.13.C(2) must report:

- (i) The number of entry point samples taken each month for the last three (3) months.
- (ii) The location, date, and result of each sample (both entry point and distribution system) taken during the last quarter.
- (iii) For each month in the reporting period, the arithmetic average of all samples taken in each three (3) sample sets taken in the distribution system.
- (iv) Whether, based on Section D(2)(c) above, the MCL was violated, and in which month, and how many times it was violated each month.

(e) System monitoring for bromate under the requirements of R.61-58.13.C(2) must report:

- (i) The number of samples taken during the last quarter.
- (ii) The location, date, and result of each sample taken during the last quarter.
- (iii) The arithmetic average of the monthly arithmetic averages of all samples taken in the last year.
- (iv) Whether, based on Section D(2)(b) above, the MCL was violated.

(3) Disinfectants - Systems must report the following information:

(a) Systems monitoring for chlorine or chloramines under the requirements of R.61-58.13.C(3) must report:

- (i) The number of samples taken during each month of the last quarter.
- (ii) The monthly arithmetic average of all samples taken in each month for the last twelve (12) months.
- (iii) The arithmetic average of all monthly averages for the last twelve (12) months.
- (iv) Whether, based on Section D(3)(a) above, the MRDL was violated.

(b) Systems monitoring for chlorine dioxide under the requirements of R.61-58.13.C(3) must report:

- (i) The dates, results, and locations of samples taken during the last quarter.
- (ii) Whether, based on Section D(3)(b) above, the MRDL was violated.
- (iii) Whether the MRDL was exceeded in any two (2) consecutive daily samples and whether the resulting violation was acute or Non-acute.

(4) Disinfection byproduct precursors and enhanced coagulation or enhanced softening -

Systems must report the following information:

(a) System monitoring monthly or quarterly for TOC under the requirements of R.61-58.13.C(4) and required to meet the enhanced coagulation or enhanced softening requirements in R.61-58.13.F(2)(b) or (c) must report:

(i) The number of paired (source water and treated water) samples taken during the last quarter.

(ii) The location, date, and result of each paired sample and associated alkalinity taken during the last quarter.

(iii) For each month in the reporting period that paired samples were taken, the arithmetic average of the percent reduction of TOC for each paired sample and the required TOC percent removal.

(iv) Calculations for determining compliance with the TOC percent removal requirements, as provided in R.61-58.13(F)(3)(a).

(v) Whether the system is in compliance with the enhanced coagulation or enhanced softening percent removal requirements in R.61-58.13(F)(2) for the last four (4) quarters.

(b) System monitoring monthly or quarterly for TOC under the requirements of R.61-58.13.C(4) and meeting one or more of the alternative compliance criteria in R.61-58.13.F(1)(a) or (b) must report:

(i) The alternative compliance criterion that the system is using.

(ii) The number of paired samples taken during the last quarter.

(iii) The location, date, and result of each paired sample and associated alkalinity taken during the last quarter.

(iv) The running annual arithmetic average based on monthly averages (or quarterly samples) of source water TOC for systems meeting a criterion in R.61-58.13.F(1)(a)(i) or (iii) or of treated water TOC for systems meeting the criterion in R.61-58.13.F(1)(a)(ii).

(v) The running annual arithmetic average based on monthly averages (or quarterly samples) of source water SUVA for systems meeting the criterion in R.61-58.13.F(1)(a)(v) or of treated water SUVA for systems meeting the criterion in R.61-58.13.F(1)(a)(vi).

(vi) The running annual average of source water alkalinity for systems meeting the criterion in R.61-58.13.F(1)(a)(iii) and of treated water alkalinity for systems meeting the criterion in R.61-58.13.F(1)(b)(i).

(vii) The running annual average for both TTHM and HAA5 for systems meeting the criterion in R.61-58.13.F(1)(a)(iii) or (iv).

(viii) The running annual average of the amount of magnesium hardness removal (as CaCO₃, in mg/L) for systems meeting the criterion in R.61-

58.13.F(1)(b)(ii).

(ix) Whether the system is in compliance with the particular alternative compliance criterion in R.61-58.13.F(1)(a) or (b).

(5) The Department may choose to perform calculations and determine whether the treatment technique was met, in lieu of having the system report that information.

F. Treatment Technique for Control of Disinfection Byproduct (DBP) Precursors.

(1) Systems using surface water or a ground water under the influence of surface water which utilize conventional filtration treatment must operate with enhanced coagulation or enhanced softening to achieve the TOC percent removal levels specified in paragraph (2) of this section unless the system meets at least one of the alternative compliance criteria listed in paragraph (1)(a) or (1)(b) of this section.

(a) Alternative Compliance Criteria for Enhanced Coagulation and Enhanced Softening Systems - Systems using surface water or a ground water under the influence of surface water which utilize conventional filtration treatment may use the alternative compliance criteria in paragraphs (1)(a)(i) through (vi) of this section to comply with this section in lieu of complying with paragraph (2) of this section. Systems must still comply with monitoring requirements in R.61-58.13.C(4).

(i) The system's source water TOC level, measured according to EPA approved methods specified in 40 CFR 141.131(d)(3), is less than 2.0 mg/L, calculated quarterly as a running annual average.

(ii) The system's treated water TOC level, measured according to EPA approved methods specified in 40 CFR 141.131(d)(3), is less than 2.0 mg/L, calculated quarterly as a running annual average.

(iii) The system's source water TOC level, measured as according to EPA approved methods specified in 40 CFR 141.131(d)(3), is less than 4.0 mg/L, calculated quarterly as a running annual average; the source water alkalinity, measured according to EPA approved methods specified in 40 CFR 141.131(d)(1), is greater than 60 mg/L (as CaCO₃), calculated quarterly as a running annual average; and either the TTHM and HAA5 running annual averages are no greater than 0.040 mg/L and 0.030 mg/L, respectively; or prior to the effective date for compliance in Section B(2) above, the system has made a clear and irrevocable financial commitment not later than the effective date for compliance in Section B(2) above, to use of technologies that will limit the levels of TTHMs and HAA5 to no more than 0.040 mg/L and 0.030 mg/L, respectively. Systems must submit evidence of a clear and irrevocable financial commitment, in addition to a schedule containing milestones and periodic progress reports for installation and operation of appropriate technologies, to the Department for approval not later than the effective date for compliance in R.61-58.13.B(2). These technologies must be installed and operating not later than June 30, 2005. Failure to install and operate these technologies by the date in the approved schedule will constitute a violation of National Primary Drinking Water Regulations.

(iv) The TTHM and HAA5 running annual averages are no greater than 0.040 mg/L and 0.030 mg/L, respectively, and the system uses only chlorine for primary

disinfection and maintenance of a residual in the distribution system.

(v) The system's source water SUVA, prior to any treatment and measured monthly according to EPA approved methods specified in 40 CFR 141.131(d)(4), is less than or equal to 2.0 L/mg-m, calculated quarterly as a running annual average.

(vi) The system's finished water SUVA, measured monthly according to EPA approved methods specified in 40 CFR 141.131(d)(4), is less than or equal to 2.0 L/mg-m, calculated quarterly as a running annual average.

(b) Additional alternative compliance criteria for softening systems. Systems practicing enhanced softening that cannot achieve the TOC removals required by paragraph (2)(b) of this section may use the alternative compliance criteria in paragraphs (1)(b)(i) and (ii) of this section in lieu of complying with paragraph (2) of this section. Systems must still comply with monitoring requirements in R.61-58.13.C(4).

(i) Softening that results in lowering the treated water alkalinity to less than 60 mg/L (as CaCO₃), measured monthly according to EPA approved methods specified in 40 CFR 141.131(d)(1) and calculated quarterly as a running annual average.

(ii) Softening that results in removing at least 10 mg/L of magnesium hardness (as CaCO₃), measured monthly according to 40 CFR 141.131(d)(6) (1-04-06 edition) and calculated quarterly as a running annual average.

(2) Enhanced coagulation and enhanced softening performance requirements.

(a) Systems must achieve the percent reduction of TOC specified in paragraph (2)(b) of this section between the source water and the combined filter effluent, unless the Department approves a system's request for alternate minimum TOC removal (Step 2) requirements under paragraph (2)(c) of this section.

(b) Required Step 1 TOC reductions, indicated in the following table, are based upon specified source water parameters measured in accordance with EPA approved methods specified in 40 CFR 141.131(d). Systems practicing softening are required to meet the Step 1 TOC reductions in the far-right column (Source water alkalinity greater than 120 mg/L) for the specified source water TOC:

STEP 1 REQUIRED REMOVAL OF TOC BY ENHANCED COAGULATION AND ENHANCED SOFTENING FOR SURFACE WATER SYSTEMS OR GROUND WATER SYSTEMS UNDER THE INFLUENCE OF SURFACE WATER USING CONVENTIONAL TREATMENT^{A,B}

Source-Water TOC, mg/L	Source-Water Alkalinity, mg/L as CaCO ₃		
	0-60	>60-120	>120 ^c
>2.0-4.0	35.0%	25.0%	15.0%
>4.0-8.0	45.0%	35.0%	25.0%
>8.0	50.0%	40.0%	30.0%

- ^a Systems meeting at least one of the conditions in paragraphs (1)(a)(i) through (vi) of this section are not required to operate with enhanced coagulation.
- ^b Softening systems meeting one of the alternative compliance criteria in paragraph (1)(b) of this section are not required to operate with enhanced softening.
- ^c Systems practicing softening must meet the TOC removal requirements in this column.

(c) Systems using surface water or a ground water under the influence of surface water which utilize conventional filtration treatment that cannot achieve the Step 1 TOC removals required by paragraph (2)(b) of this section due to water quality parameters or operational constraints must apply to the Department, within three (3) months of failure to achieve the TOC removals required by paragraph (2)(b) of this section, for approval of alternative minimum TOC (Step 2) removal requirements submitted by the system. If the Department approves the alternative minimum TOC removal (Step 2) requirements, the Department may make those requirements retroactive for the purposes of determining compliance. Until the Department approves the alternate minimum TOC removal (Step 2) requirements, the system must meet the Step 1 TOC removals contained in paragraph (2)(b) of this section.

(d) Alternate minimum TOC removal (Step 2) requirements. Applications made to the Department by enhanced coagulation systems for approval of alternative minimum TOC removal (Step 2) requirements under paragraph (2)(c) of this section must include, as a minimum, results of bench- or pilot-scale testing conducted under paragraph (2)(d)(i) of this section. The submitted bench-or-pilot scale testing must be used to determine the alternate enhanced coagulation level.

(i) Alternate enhanced coagulation level is defined as: Coagulation at a coagulant dose and pH as determined by the method described in paragraphs (2)(d)(i) through (v) of this section such that an incremental addition of 10 mg/L of alum (or equivalent amount of ferric salt) results in a TOC removal of greater than or equal to 0.3 mg/L. The percent removal of TOC at this point on the "TOC removal versus coagulant dose" curve is then defined as the minimum TOC removal required for the system. Once approved by the Department, this minimum requirement supersedes the minimum TOC removal required by the table in paragraph (2)(b) of this section. This requirement will be effective until such time as the Department approves a new value based on the results of a new bench- or pilot-scale test. Failure to achieve Department-set alternative minimum

TOC removal levels is a violation of National Primary Drinking Water Regulations.

(ii) Bench- or pilot-scale testing of enhanced coagulation must be conducted by using representative water samples and adding 10 mg/L increments of alum (or equivalent amounts of ferric salt) until the pH is reduced to a level less than or equal to the enhanced coagulation Step 2 target pH shown in the following table:

ENHANCED COAGULATION STEP 2 TARGET pH

ALKALINITY (mg/L as CaCO ₃)	TARGET pH
0-60	5.5
>60-120	6.3
>120-240	7.0
>240	7.5

(iii) For waters with alkalinities of less than 60 mg/L for which addition of small amounts of alum or equivalent addition of iron coagulant drives the pH below 5.5 before significant TOC removal occurs, the system must add necessary chemicals to maintain the pH between 5.3 and 5.7 in samples until the TOC removal of 0.3 mg/L per 10 mg/L alum added (or equivalent addition of iron coagulant) is reached.

(iv) The system may operate at any coagulant dose or pH necessary (consistent with other NPDWRs) to achieve the minimum TOC percent removal approved under paragraph (2)(c) of this section.

(v) If the TOC removal is consistently less than 0.3 mg/L of TOC per 10 mg/L of incremental alum dose at all dosages of alum (or equivalent addition of iron coagulant), the water is deemed to contain TOC not amenable to enhanced coagulation. The system may then apply to the Department for a waiver of enhanced coagulation requirements.

(3) Compliance Calculations.

(a) Systems using surface water or a ground water under the influence of surface water other than those identified in paragraph (1)(a) or (1)(b) of this section must comply with requirements contained in R.61-58.13.F(2)(b) or (c). Systems must calculate compliance quarterly, beginning after the system has collected 12 months of data, by determining an annual average using the following method:

(i) Determine actual monthly TOC percent removal, equal to:

$$(1 - (\text{treated water TOC} / \text{source water TOC})) \times 100.$$

(ii) Determine the required monthly TOC percent removal (from either the table in paragraph (2)(b) or from paragraph (2)(c) of this section).

- (iii) Divide the value in paragraph (3)(a)(i) of this section by the value in paragraph (3)(a)(ii) of this section.
 - (iv) Add together the results of paragraph (3)(a)(iii) of this section for the last twelve (12) months and divide by twelve (12).
 - (v) If the value calculated in paragraph (3)(a)(iv) of this section is less than 1.00, the system is not in compliance with the TOC percent removal requirements.
- (b) Systems may use the provisions in paragraphs (3)(b)(i) through (v) of this section in lieu of the calculations in paragraph (3)(a)(i) through (v) of this section to determine compliance with TOC percent removal requirements.
- (i) In any month that the system's treated or source water TOC level, measured according to EPA approved methods specified in 40 CFR 141.131(d)(3), is less than 2.0 mg/L, the system may assign a monthly value of 1.0 (in lieu of the value calculated in paragraph (3)(a)(iii) of this section) when calculating compliance under the provisions of paragraph (3)(a) of this section.
 - (ii) In any month that a system practicing softening removes at least 10 mg/L of magnesium hardness (as CaCO₃), the system may assign a monthly value of 1.0 (in lieu of the value calculated in paragraph (3)(a)(iii) of this section) when calculating compliance under the provisions of paragraph (3)(a) of this section.
 - (iii) In any month that the system's source water SUVA, prior to any treatment and measured according to EPA approved methods specified in 40 CFR 141.131(d)(4), is less than or equal to 2.0 L/mg-m, the system may assign a monthly value of 1.0 (in lieu of the value calculated in paragraph (3)(a)(iii) of this section) when calculating compliance under the provisions of paragraph (3)(a) of this section.
 - (iv) In any month that the system's finished water SUVA, measured according to EPA approved methods specified in 40 CFR 141.131(d)(4) (11-8-2006 edition), is less than or equal to 2.0 L/mg-m, the system may assign a monthly value of 1.0 (in lieu of the value calculated in paragraph (3)(a)(iii) of this section) when calculating compliance under the provisions of paragraph (3)(a) of this section.
 - (v) In any month that a system practicing enhanced softening lowers alkalinity below 60 mg/L (as CaCO₃), the system may assign a monthly value of 1.0 (in lieu of the value calculated in paragraph (3)(a)(iii) of this section) when calculating compliance under the provisions of paragraph (3)(a) of this section.
- (c) Systems using surface water or a ground water under the influence of surface water which utilize conventional treatment may also comply with the requirements of this section by meeting the criteria in paragraph (1)(a) or (1)(b) of this section.
- (4) Treatment Technique Requirements for DBP Precursors. The Administrator identifies the following as treatment techniques to control the level of disinfection byproduct precursors in drinking water treatment and distribution systems: For Systems using surface water or a ground water under the influence of surface water which utilize conventional treatment, enhanced coagulation or enhanced softening.

R.61-58.14 INITIAL DISTRIBUTION SYSTEM EVALUATIONS

A. Applicability.

This part R.61-58.14 applies to community water systems that use a primary or residual disinfectant other than ultraviolet light or delivers water that has been treated with a primary or residual disinfectant other than ultraviolet light. This part also applies to non-transient non-community water systems that serve at least 10,000 people and use a primary or residual disinfectant other than ultraviolet light or delivers water that has been treated with a primary or residual disinfectant other than ultraviolet light.

B. General Requirements.

(1) The requirements of this part R.61-58.14 constitute national primary drinking water regulations. The regulations in this part establish monitoring and other requirements for identifying compliance monitoring locations specified in R.61-58.15 for determining compliance with maximum contaminant levels for total trihalomethanes (TTHM) and haloacetic acids (five)(HAA5). Public water systems must use an Initial Distribution System Evaluation (IDSE) to determine locations with representative high TTHM and HAA5 concentrations throughout their distribution system. IDSEs are used in conjunction with, but separate from, R.61-58.13 compliance monitoring, to identify and select R.61-58.15 compliance monitoring locations.

(2) Schedule – Systems subject to this part must comply with the requirements of this part on the following schedule:

(a) For systems that are not part of a combined distribution system and systems that serve the largest population in the combined distribution system and serve 100,000 people or greater:

(i) The standard monitoring plan or system specific study or 40/30 certification must be submitted to the Department by October 1, 2006.

(ii) The standard monitoring or system specific study must be completed by September 30, 2008.

(iii) The IDSE report must be submitted to the Department by January 1, 2009.

(iv) If, within 12 months after the date identified in paragraph 2(a)(i) of this section, the Department does not approve the submitted plan or notify the system that it has not yet completed its review, the submitted plan may be considered approved and the system must complete standard monitoring or a system specific study no later than the date identified in paragraph (2)(a)(ii) of this section.

(v) If, within 3 months after the date identified in R.61-58.14.(2)(a)(iii), the Department does not approve the submitted IDSE report or notify the system that it has not yet completed its review, the submitted report may be considered approved and the system must implement the IDSE recommended monitoring in accordance with R.61-58.15.

(vi) If a system chooses to submit a 40/30 certification, it must be in accordance with R.61-58.14.E.

(b) For systems that are not part of a combined distribution system and systems that serve the largest population in the combined distribution system and serve between 50,000 and 99,999 people:

- (i) The standard monitoring plan or system specific study or a 40/30 certification must be submitted to the Department by April 1, 2007.
- (ii) The standard monitoring or system specific study must be completed by March 31, 2009.
- (iii) The IDSE report must be submitted to the Department by July 1, 2009.

(iv) If, within 12 months after the date identified in paragraph 2(b)(i) of this section, the Department does not approve the submitted plan or notify the system that it has not yet completed its review, the submitted plan may be considered approved and the system must complete standard monitoring or a system specific study no later than the date identified in paragraph (2)(b)(ii) of this section.

(v) If, within 3 months after the date identified in R.61-58.14.B(2)(b)(iii), the Department does not approve the submitted IDSE report or notify the system that it has not yet completed its review, the submitted report may be considered approved and the system must implement the IDSE recommended monitoring in accordance with R.61-58.15.

(vi) If a system chooses to submit a 40/30 certification, it must be in accordance with R.61-58.14.E.

(c) For systems that are not part of a combined distribution system and systems that serve the largest population in the combined distribution system and serve between 10,000 and 49,999 people:

- (i) The standard monitoring plan or system specific study or 40/30 certification must be submitted to the Department by October 1, 2007.
- (ii) The standard monitoring or system specific study must be completed by September 30, 2009.
- (iii) The IDSE report must be submitted to the Department by January 1, 2010.

(iv) If, within 12 months after the date identified in paragraph 2(c)(i) of this section, the Department does not approve the submitted plan or notify the system that it has not yet completed its review, the submitted plan may be considered approved and the system must complete standard monitoring or a system specific study no later than the date identified in paragraph (2)(c)(ii) of this section.

(v) If, within 9 months after the date identified in R.61-58.14.B(2)(c)(iii), the Department does not approve the submitted IDSE report or notify the system that it has not yet completed its review, the submitted report may be considered approved and the system must implement the IDSE recommended monitoring in accordance with R.61-58.15.

(vi) If a system chooses to submit a 40/30 certification, it must be in accordance with R.61-58.14.E.

(d) For systems that are not part of a combined distribution system and systems that serve the largest population in the combined distribution system and serve less than 10,000 people:

(i) The standard monitoring plan or system specific study or 40/30 certification must be submitted to the Department by April 1, 2008 or a very small system waiver must be granted by the Department by April 1, 2008.

(ii) The standard monitoring or system specific study must be completed by March 31, 2010.

(iii) The IDSE report must be submitted to the Department by July 1, 2010.

(iv) If, within 12 months after the date identified in paragraph 2(d)(i) of this section, the Department does not approve the submitted plan or notify the system that it has not yet completed its review, the submitted plan may be considered approved and the system must complete standard monitoring or a system specific study no later than the date identified in paragraph (2)(d)(ii) of this section.

(v) If, within 3 months after the date identified in R.61-58.14.B(2)(d)(iii), the Department does not approve the submitted IDSE report or notify the system that it has not yet completed its review, the submitted report may be considered approved and the system must implement the IDSE recommended monitoring in accordance with R.61-58.15.

(vi) If a system chooses to submit a 40/30 certification, it must be in accordance with R.61-58.14.E.

(e) For systems that are part of a combined distribution system

(i) The standard monitoring plan or system specific study or 40/30 certification must be submitted to the Department at the same time as the system in the combined distribution system with the earliest compliance date.

(ii) The standard monitoring or system specific study must be completed at the same time as the system in the combined distribution system with the earliest compliance date.

(iii) The IDSE report must be submitted to the Department at the same time as the system in the combined distribution system with the earliest compliance date.

(iv) If, within 12 months after the date which is determined by the criteria specified in paragraph 2(e)(i) of this section, the Department does not approve the submitted plan or notify the system that it has not yet completed its review, the submitted plan may be considered approved and the system must complete standard monitoring or a system specific study no later than the date which is determined by the criteria specified in paragraph (2)(e)(ii) of this section.

(v) If, within 3 months after the date identified in R.61-58.14.B(2)(e)(iii), the Department does not approve the submitted IDSE report or notify the system that

it has not yet completed its review, the submitted report may be considered approved and the system must implement the IDSE recommended monitoring in accordance with R.61-58.15.

(vi) If a system chooses to submit a 40/30 certification, it must be in accordance with R.61-58.14.E.

(3) For the purpose of the schedule in this section, the Department may determine that the combined distribution system does not include certain consecutive systems based on factors such as receiving water from a wholesale system only on an emergency basis or receiving only a small percentage and small volume of water from a wholesale system. The Department may also determine that the combined distribution system does not include certain wholesale systems based on factors such as delivering water to a consecutive system only on an emergency basis or delivering only a small percentage and small volume of water to a consecutive system.

(4) Systems must conduct standard monitoring that meets the requirements in R.61-58.14.C, or a system specific study that meets the requirements in R.61-58.14.D, or certify to the Department that the system meets 40/30 certification criteria under R.61-58.14.E, or qualify for a very small system waiver under R.61-58.14.F.

(a) Systems must have taken the full complement of TTHM and HAA5 compliance samples required under R.61-58.13 during the period specified in R.61-58.14.E(1) to meet the 40/30 certification criteria in R.61-58.14.E. The system must have taken TTHM and HAA5 samples under R.61-58.13 to be eligible for the very small system waiver in R.61-58.14.F.

(b) Systems that have not taken the required samples must conduct standard monitoring that meets the requirements in R.61-58.14.C, or a system specific study that meets the requirements in R.61-58.14.D.

(5) All analyses used to determine compliance with the requirements in R.61-58.14 must be conducted using only the analytical methods specified in 40 CFR 141.131 (1-04-06 edition), or otherwise approved by EPA for monitoring under 40 CFR 141 subpart U (1-04-06 edition).

(6) IDSE results will not be used for the purpose of determining compliance with MCLs in R.61-58.5.P.

C. Standard Monitoring.

(1) Standard Monitoring Plan.

For systems that choose to conduct standard monitoring, the standard monitoring plan must comply with paragraphs (1)(a) through (1)(d) of this section. The standard monitoring plan must be prepared and submitted to the Department according to the schedule in section B of this part.

(a) The standard monitoring plan must include a schematic of the system's distribution system (including distribution system entry points and their sources, and storage facilities), with notes indicating locations and dates of all projected standard monitoring, and all projected R.61-58.13 compliance monitoring.

(b) The standard monitoring plan must include justification of standard monitoring location selection and a summary of data relied upon to justify standard monitoring

location selection.

(c) The standard monitoring plan must specify the population served and system type (subpart H or ground water).

(d) The system must retain a complete copy of the standard monitoring plan submitted under this section C, including any Department modification of the standard monitoring plan, for as long as the system is required to retain the IDSE report under R.61-58.14.C(3)(d).

(2) Standard Monitoring.

(a) Systems conducting standard monitoring must monitor as indicated in this paragraph (2)(a). Systems must collect dual sample sets at each monitoring location. One sample in the dual sample set must be analyzed for TTHM. The other sample in the dual sample set must be analyzed for HAA5. Systems must collect one monitoring period during the peak historical month for TTHM levels or HAA5 levels or the month of warmest water temperature. Systems must review available compliance, study, or operational data to determine the peak historical month for TTHM or HAA5 levels or warmest water temperature.

(i) Consecutive systems receiving water from a Subpart H source and serving less than 500 people must collect two (2) dual sample sets taken during the peak historical month for TTHM or HAA5 levels or the during the month of warmest water temperature at the following locations:

(A) One (1) dual sample set near the entry point to the distribution system.

(B) One (1) dual sample set at a high TTHM location.

(ii) Non-consecutive systems utilizing a Subpart H source and serving less than 500 people must collect two (2) dual sample sets taken during the peak historical month for TTHM or HAA5 levels or the during the month of warmest water temperature at the following locations:

(A) One (1) dual sample set at a high TTHM location.

(B) One (1) dual sample set at a high HAA5 location.

(iii) Consecutive systems receiving water from a Subpart H source and serving between 500 and 3,300 people must collect two (2) dual sample sets every 90 days for four (4) consecutive monitoring periods at the following locations:

(A) One (1) dual sample set near the entry point to the distribution system.

(B) One (1) dual sample set at a high TTHM location.

(iv) Non-consecutive systems utilizing a Subpart H source and serving between 500 and 3,300 people must collect two (2) dual sample sets every 90 days for four (4) consecutive monitoring periods at the following locations:

- (A) One (1) dual sample set at a high TTHM location.
- (B) One (1) dual sample set at a high HAA5 location.

(v) Consecutive systems receiving water from a Subpart H source or non-consecutive systems utilizing a Subpart H source and serving between 3,301 and 9,999 people must collect four (4) dual sample sets every 90 days for four (4) consecutive monitoring periods at the following locations:

- (A) One (1) dual sample set at the average residence time.
- (B) Two (2) dual sample sets at high TTHM locations.
- (C) One (1) dual sample set at a high HAA5 location.

(vi) Consecutive systems receiving water from a Subpart H source or non-consecutive systems utilizing a Subpart H source and serving between 10,000 and 49,999 people must collect eight (8) dual sample sets every 60 days for six (6) consecutive monitoring periods at the following locations:

- (A) One (1) dual sample set near the entry point to the distribution system.
- (B) Two (2) dual sample sets at average residence time.
- (C) Three (3) dual sample sets at high TTHM locations.
- (D) Two (2) dual sample sets at high HAA5 locations.

(vii) Consecutive systems receiving water from a Subpart H source or non-consecutive systems utilizing a Subpart H source and serving between 50,000 and 249,999 people must collect sixteen (16) dual sample sets every 60 days for six (6) consecutive monitoring periods at the following locations:

- (A) Three (3) dual sample sets near entry points to the distribution system.
- (B) Four (4) dual sample sets at average residence time.
- (C) Five (5) dual sample sets at high TTHM locations.
- (D) Four (4) dual sample sets at high HAA5 locations.

(viii) Consecutive systems receiving water from a Subpart H source or non-consecutive systems utilizing a Subpart H source and serving between 250,000 and 999,999 people must collect twenty-four (24) dual sample sets every 60 days for six (6) consecutive monitoring periods at the following locations:

- (A) Four (4) dual sample sets near entry points to the distribution system.
- (B) Six (6) dual sample sets at average residence time.

- (C) Eight (8) dual sample sets at high TTHM locations.
- (D) Six (6) dual sample sets at high HAA5 locations.

(ix) Consecutive systems receiving water from a Subpart H source or non-consecutive systems utilizing a Subpart H source and serving between 1,000,000 and 4,999,999 people must collect thirty-two (32) dual sample sets every 60 days for six (6) consecutive monitoring periods at the following locations:

- (A) Six (6) dual sample sets near entry points to the distribution system.
- (B) Eight (8) dual sample sets at average residence time.
- (C) Ten (10) dual sample sets at high TTHM locations.
- (D) Eight (8) dual sample sets at high HAA5 locations.

(x) Consecutive systems receiving water from a Subpart H source or non-consecutive systems utilizing a Subpart H source and serving 5,000,000 or more people must collect forty (40) dual sample sets every 60 days for six (6) consecutive monitoring periods at the following locations:

- (A) Eight (8) dual sample sets near entry points to the distribution system.
- (B) Ten (10) dual sample sets at average residence time.
- (C) Twelve (12) dual sample sets at high TTHM locations.
- (D) Ten (10) dual sample sets at high HAA5 locations.

(xi) Consecutive systems receiving water from a ground water source and serving less than 500 people must collect two (2) dual sample sets taken during the peak historical month for TTHM or HAA5 levels or the during the month of warmest water temperature at the following locations:

- (A) One (1) dual sample set near the entry point to the distribution system.
- (B) One (1) dual sample set at a high TTHM location.

(xii) Non-consecutive systems utilizing a ground water source and serving less than 500 people must collect two (2) dual sample sets taken during the peak historical month for TTHM or HAA5 levels or the during the month of warmest water temperature at the following locations:

- (A) One (1) dual sample set at a high TTHM location.
- (B) One (1) dual sample set at a high HAA5 location.

(xiii) Consecutive systems receiving water from a ground water source or non-

consecutive systems utilizing a ground water source and serving between 500 and 9,999 people must collect two (2) dual sample sets every 90 days for four (4) consecutive monitoring periods at the following locations:

- (A) One (1) dual sample set at a high TTHM location.
- (B) One (1) dual sample set at a high HAA5 location.

(xiv) Consecutive systems receiving water from a ground water source or non-consecutive systems utilizing a ground water source and serving between 10,000 and 99,999 people must collect six (6) dual sample sets every 90 days for four (4) consecutive monitoring periods at the following locations:

- (A) One (1) dual sample set near the entry point to the distribution system.
- (B) One (1) dual sample set at average residence time.
- (C) Two (2) dual sample sets at high TTHM locations.
- (D) Two (2) dual sample sets at high HAA5 locations.

(xv) Consecutive systems receiving water from a ground water source or non-consecutive systems utilizing a ground water source and serving between 100,000 and 499,999 people must collect eight (8) dual sample sets every 90 days for four (4) consecutive monitoring periods at the following locations:

- (A) One (1) dual sample set near the entry point to the distribution system.
- (B) One (1) dual sample set at average residence time.
- (C) Three (3) dual sample sets at high TTHM locations.
- (D) Three (3) dual sample sets at high HAA5 locations.

(xvi) Consecutive systems receiving water from a ground water source or non-consecutive systems utilizing a ground water source and serving 500,000 or more people must collect twelve (12) dual sample sets every 90 days for four (4) consecutive monitoring periods at the following locations:

- (A) Two (2) dual sample sets near entry points to the distribution system.
- (B) Two (2) dual sample sets at average residence time.
- (C) Four (4) dual sample sets at high TTHM locations.
- (D) Four (4) dual sample sets at high HAA5 locations.

(b) Samples must be taken at locations other than the existing monitoring locations utilized for compliance with R.61-58.13. Monitoring locations must be distributed throughout the distribution system.

(c) If the number of entry points to the distribution system is fewer than the specified number of entry point monitoring locations, excess entry point samples must be replaced equally at high TTHM and HAA5 locations. If there is an odd extra location number, the system must take a sample at a high TTHM location. If the number of entry points to the distribution system is more than the specified number of entry point monitoring locations, the system must take samples at entry points to the distribution system having the highest annual water flows.

(d) Monitoring under this section C may not be reduced.

(3) IDSE Report

The IDSE report must include the elements required in paragraphs (3)(a) through (3)(d) of this section C. The system must submit their IDSE report to the Department according to the schedule in R61-58.14.B(2).

(a) The IDSE report must include all TTHM and HAA5 analytical results from R.61-58.13 compliance monitoring and all standard monitoring conducted during the period of the IDSE as individual analytical results and LRAAs presented in a tabular or spreadsheet format acceptable to the Department. If changed from the standard monitoring plan submitted under paragraph (1) of this section C, the report must also include a schematic of the distribution system, the population served, and system type (subpart H or ground water).

(b) The IDSE report must include an explanation of any deviations from the approved standard monitoring plan.

(c) The IDSE report must recommend and justify compliance monitoring locations for compliance with R.61-58.15 and timing based on the protocol in R.61-58.14.G.

(d) Systems must retain a complete copy of the IDSE report submitted under this section for 10 years after the date that the report is submitted. If the Department modifies the monitoring requirements for compliance with R.51-58.15 that is recommended in the IDSE report or if the Department approves alternative monitoring locations, systems must keep a copy of the Department's notification on file for 10 years after the date of the Department's notification. Systems must make the IDSE report and any Department notification available for review by the Department or the public.

D. System Specific Studies.

(1) System Specific Study Plan. For systems that choose to conduct a system specific study, the system specific study plan must be based on either existing monitoring results as required under paragraph (1)(a) of this section or modeling as required under paragraph (1)(b) of this section. The system specific study plan must be prepared and submitted to the Department according to the schedule in section B of this part.

(a) Existing monitoring results. Systems may comply by submitting monitoring results collected before they are required to begin monitoring under section B of this part. The monitoring results and analysis must meet the criteria in paragraphs (1)(a)(i) and (1)(a)(ii) of this section.

(i) Minimum requirements.

(A) TTHM and HAA5 results must be based on samples collected and analyzed in accordance with 40 CFR 141.131 (1-04-06 edition). Samples must be collected no earlier than five years prior to the study plan submission date.

(B) The monitoring locations and frequency must meet the conditions identified in this paragraph (1)(a)(i)(B). Each location must be sampled once during the peak historical month for TTHM levels or HAA5 levels or the month of warmest water temperature for every 12 months of data submitted for that location. Monitoring results must include all R.61-58.13 compliance monitoring results plus additional monitoring results as necessary to meet minimum sample requirements.

System Type	Population size category	Number of monitoring locations	Number of TTHM samples	Number of HAA5 samples
Subpart H	Less than 500	3	3	3
Subpart H	500 – 3,300	3	9	9
Subpart H	3,301 – 9,999	6	36	36
Subpart H	10,000 – 49,999	12	72	72
Subpart H	50,000 – 249,999	24	144	144
Subpart H	250,000 – 999,999	36	216	216
Subpart H	1,000,000 – 4,999,999	48	288	288
Subpart H	5,000,000 or greater	60	360	360
Ground Water	Less than 500	3	3	3
Ground Water	500 – 9,999	3	9	9
Ground Water	10,000 – 99,999	12	48	48
Ground Water	100,000 – 499,999	18	72	72
Ground Water	500,000 or greater	24	96	96

(ii) Reporting monitoring results. The information in this paragraph (1)(a)(ii) must be reported.

(A) Systems must report previously collected monitoring results and certify that the reported monitoring results include all compliance and non-compliance results generated during the time period beginning with the first reported result and ending with the most recent results of samples taken for compliance with R.61-58.13.

(B) Systems must certify that the samples were representative of the entire distribution system and that treatment, and distribution system have not changed significantly since the samples were collected.

(C) The system specific study monitoring plan must include a schematic of the distribution system (including distribution system entry points and their sources, and storage facilities), with notes indicating the locations and dates of all completed or planned system specific study monitoring.

(D) The system specific study plan must specify the population served and system type (subpart H or ground water).

(E) The system must retain a complete copy of the specific study plan submitted under this paragraph (1)(a), including any EPA or Department modification of the system specific study plan, for as long as they are required to retain the IDSE report under paragraph 2(g) of this section.

(F) If previously collected data that fully meet the number of samples required under paragraph (1)(a)(i)(B) of this section is submitted by the system and the Department rejects some of the data, the system must either conduct additional monitoring to replace rejected data on a schedule the Department approves or conduct standard monitoring under section R.61-58.14.C.

(b) Modeling. Systems may comply through analysis of an extended period simulation hydraulic model. The extended period simulation hydraulic model and analysis must meet the criteria in this paragraph (1)(b).

(i) Minimum requirements.

(A) The model must simulate 24-hour variation in demand and show a consistently repeating 24-hour pattern of residence time.

(B) The model must represent the criteria listed in paragraphs (1)(b)(i)(B)(1) through (1)(b)(i)(B)(9) of this section.

(1) 75% of pipe volume;

(2) 50% of pipe length;

(3) All pressure zones;

(4) All 12-inch diameter and larger pipes;

(5) All 8-inch and larger pipes that connect pressure zones, influence zones from different sources, storage facilities, major demand areas, pumps, and control valves, or are known or expected to be significant conveyors of water;

(6) All 6-inch and larger pipes that connect remote areas of a distribution system to the main portion of the system;

(7) All storage facilities with standard operations represented in the model;

(8) All active pump stations with controls represented in the model; and

(9) All active control valves.

(C) The model must be calibrated, or have calibration plans, for the current configuration of the distribution system during the period of high TTHM formation potential. All storage facilities must be evaluated as part of the calibration process. All required calibration must be completed no

later than 12 months after plan submission.

(ii) Reporting modeling. The system specific study plan must include the information in this paragraph (1)(b)(ii).

(A) Tabular or spreadsheet data demonstrating that the model meets requirements in paragraph (1)(b)(i)(B) of this section.

(B) A description of all calibration activities undertaken, and if calibration is complete, a graph of predicted tank levels versus measured tank levels for the storage facility with the highest residence time in each pressure zone, and a time series graph of the residence time at the longest residence time storage facility in the distribution system showing the predictions for the entire simulation period (i.e., from time zero until the time it takes to for the model to reach a consistently repeating pattern of residence time).

(C) Model output showing preliminary 24-hour average residence time predictions throughout the distribution system.

(D) Timing and number of samples representative of the distribution system planned for at least one monitoring period of TTHM and HAA5 dual sample monitoring at a number of locations no less than would be required for the system under standard monitoring in section R.61-58.14.C during the historical month of high TTHM. These samples must be taken at locations other than existing R.61-58.13 compliance monitoring locations.

(E) Description of how all requirements will be completed no later than 12 months after the system submits their system specific study plan.

(F) Schematic of the distribution system (including distribution system entry points and their sources, and storage facilities), with notes indicating the locations and dates of all completed system specific study monitoring (if calibration is complete) and all R.61-58.13 compliance monitoring.

(G) Population served and system type (subpart H or ground water).

(H) Systems must retain a complete copy of their system specific study plan submitted under this paragraph (1)(b), including any EPA or Department modification of their system specific study plan, for as long as they are required to retain their IDSE report under paragraph (2)(g) of this section.

(iii) Systems that submit a model that does not fully meet the requirements under paragraph (1)(b) of this section, must correct the deficiencies and respond to EPA's or the Department's inquiries concerning the model. If the system fails to correct deficiencies or respond to inquiries to the Department's satisfaction, the system must conduct standard monitoring under R.61-58.14.C

(2) IDSE report.

The IDSE report must include the elements required in paragraphs (2)(a) through (2)(f) of this section. Systems must submit their IDSE report according to the schedule in R.61-58.14.B(2).

- (a) The IDSE report must include all TTHM and HAA5 analytical results from R.61-58.13 compliance monitoring and all system specific study monitoring conducted during the period of the system specific study presented in a tabular or spreadsheet format acceptable to the Department. If changed from the system specific study plan submitted under paragraph (1) of this section, the IDSE report must also include a schematic of the distribution system, the population served, and system type (subpart H or ground water).
- (b) If the system used the modeling provision under paragraph (1)(b) of this section, they must include final information for the elements described in paragraph (1)(b)(ii) of this section, and a 24-hour time series graph of residence time for each R.61-58.15 compliance monitoring location selected.
- (c) The IDSE report must recommend and justify R.61-58.15 compliance monitoring locations and timing based on the protocol in R.61-58.14.G
- (d) The IDSE report must include an explanation of any deviations from the system's approved system specific study plan.
- (e) The IDSE report must include the basis (analytical and modeling results) and justification used to select the recommended R.61-58.15 monitoring locations.
- (f) Systems may submit their IDSE report in lieu of a system specific study plan on the schedule identified in R.61-58.14.B(2) for submission of the system specific study plan if the system believes that it has the necessary information by the time that the system specific study plan is due. If the system elects this approach, their IDSE report must also include all information required under paragraph (1) of this section.
- (g) Systems must retain a complete copy of the IDSE report submitted under this section for 10 years after the date that the IDSE report is submitted. If the Department modifies the monitoring requirements for compliance with R.51-58.15 that are recommended in the IDSE report or if the Department approves alternative monitoring locations, water systems must keep a copy of the Department's notification on file for 10 years after the date of the Department's notification. Systems must make the IDSE report and any Department notification available for review by the Department or the public.

E. 40/30 Certification.

(1) Eligibility

Systems are eligible for 40/30 certification if they had no TTHM or HAA5 monitoring violations under R.61-58.13 and no individual sample exceeded 0.040 mg/L for TTHM or 0.030 mg/L for HAA5 during an eight consecutive calendar quarter period beginning no earlier than the date specified in this paragraph (1).

- (a) If 40/30 certification is due October 1, 2006, then eligibility for 40/30 certification is based on eight consecutive calendar quarters of results of monitoring for compliance with R.61-58.13 beginning no earlier than January 2004.
- (b) If 40/30 certification is due April 1, 2007, then eligibility for 40/30 certification is

based on eight consecutive calendar quarters of results of monitoring for compliance with R.61-58.13 beginning no earlier than January 2004.

(c) If 40/30 certification is due October 1, 2007, then eligibility for 40/30 certification is based on eight consecutive calendar quarters of results of monitoring for compliance with R.61-58.13 beginning no earlier than January 2005.

(d) If 40/30 certification is due April 1, 2008, then eligibility for 40/30 certification is based on eight consecutive calendar quarters of results of monitoring for compliance with R.61-58.13 beginning no earlier than January 2005.

(e) If a system is on reduced monitoring under R.61-58.13 and was not required to monitor during the specified monitoring period, eligibility is based on compliance samples taken during the 12 months preceding the specified period.

(2) 40/30 Certification

(a) Systems applying for 40/30 certification must certify to the Department that every individual compliance sample taken under R.61-58.13 during the periods specified in paragraph (1) of this section were less than or equal to 0.040 mg/L for TTHM and less than or equal to 0.030 mg/L for HAA5, and that no TTHM or HAA5 monitoring violations were incurred during the period specified in paragraph (1) of this section.

(b) The Department may require that systems applying for 40/30 certification submit compliance monitoring results, distribution system schematics, and/or recommended R.61-58.15 compliance monitoring locations in addition to their certification. If the system fails to submit the requested information, the Department may require standard monitoring under R.61-58.14.C or a system specific study under R.61-58.14.D

(c) The Department may still require standard monitoring under R.61-58.14.C or a system specific study under R.61-58.14.D even if a system meets the criteria in paragraph (1) of this section.

(d) Systems must retain a complete copy of the 40/30 certification submitted under this section for 10 years after the date that the certification is submitted. Systems must make the certification, all data upon which the certification is based, and any Department notification available for review by the Department or the public.

F. Very Small System Waivers.

(1) If a system serves fewer than 500 people and has taken TTHM and HAA5 samples under R.61-58.13, the system is not required to comply with this part R.61-58.14 unless the Department notifies the system that it must conduct standard monitoring under R.61-58.14.C or a system specific study under R.61-58.14.D.

(2) If a system has not taken TTHM and HAA5 samples under R.61-58.13 or if the Department notifies the system that they must comply with the part R.61-58.14, the system must conduct standard monitoring under R.61-58.14.C or a system specific study under R.61-58.14.D.

G. Stage 2 Disinfection Byproducts Rule Compliance Monitoring Location Recommendations.

(1) The IDSE report must include recommendations and justification for where and during what month(s) TTHM and HAA5 monitoring for compliance with requirements of R.61-58.15

should be conducted. Recommendations must be based on the criteria in paragraphs (2) through (5) of this section.

(2) Systems must select the number of monitoring locations specified in the table in this paragraph (2). These recommended locations will be used as R.61-58.15 (Stage 2 Disinfection Byproducts Requirements) routine compliance monitoring locations, unless the Department requires different or additional locations. Monitoring locations should be distributed throughout the distribution system to the extent possible.

Source Water Type	Population size category	Monitoring frequency	Total monitoring locations per monitoring period	Highest TTHM monitoring locations	Highest HAA5 monitoring locations	Existing R.61-58.13 compliance monitoring locations
Subpart H	Less than 500	per year	2	1	1	-
Subpart H	500 – 3,300	per quarter	2	1	1	-
Subpart H	3,301 – 9,999	per quarter	2	1	1	-
Subpart H	10,000 – 49,999	per quarter	4	2	1	1
Subpart H	50,000 – 249,999	per quarter	8	3	3	2
Subpart H	250,000 – 999,999	per quarter	12	5	4	3
Subpart H	1,000,000 – 4,999,999	per quarter	16	6	6	4
Subpart H	5,000,000 or greater	per quarter	20	8	7	5
Ground Water	Less than 500	per year	2	1	1	-
Ground Water	500 – 9,999	per year	2	1	1	-
Ground Water	10,000 – 99,999	per quarter	4	2	1	1
Ground Water	100,000 – 499,999	per quarter	6	3	2	1
Ground Water	500,000 or greater	per quarter	8	3	3	2

(a) All systems must monitor during the month of highest disinfection byproduct (DBP) concentrations.

(b) Systems on quarterly monitoring must take dual sample sets every 90 days at each monitoring location, except for subpart H systems serving 500- 3,300. Systems on annual monitoring and subpart H systems serving 500-3,300 are required to take individual TTHM and HAA5 samples (instead of a dual sample set) at the locations with the highest TTHM and HAA5 concentrations, respectively. Only one location with a dual sample set per monitoring period is needed if highest TTHM and HAA5 concentrations occur at the same location, and month, if monitored annually.

(3) Systems must recommend R.61-58.15 compliance monitoring locations based on standard

monitoring results, system specific study results, and R.61-58.13 compliance monitoring results. Systems must follow the protocol in paragraphs (3)(a) through (3)(h) of this section. If required to monitor at more than eight locations, a system must repeat the protocol as necessary. If a system does not have existing R.61-58.13 compliance monitoring results or if they do not have enough existing R.61-58.13 compliance monitoring results, they must repeat the protocol, skipping the provisions of paragraphs (3)(c) and (3)(g) of this section as necessary, until the required total number of monitoring locations have been identified.

- (a) Location with the highest TTHM LRAA not previously selected as an R.61-58.15 monitoring location.
 - (b) Location with the highest HAA5 LRAA not previously selected as an R.61-58.15 monitoring location.
 - (c) Existing R.61-58.13 average residence time compliance monitoring location (maximum residence time compliance monitoring location for ground water systems) with the highest HAA5 LRAA not previously selected as an R.61-58.15 monitoring location.
 - (d) Location with the highest TTHM LRAA not previously selected as an R.61-58.15 monitoring location.
 - (e) Location with the highest TTHM LRAA not previously selected as an R.61-58.15 monitoring location.
 - (f) Location with the highest HAA5 LRAA not previously selected as an R.61-58.15 monitoring location.
 - (g) Existing R.61-58.13 average residence time compliance monitoring location (maximum residence time compliance monitoring location for ground water systems) with the highest TTHM LRAA not previously selected as a R.61-58.15 monitoring location.
 - (h) Location with the highest HAA5 LRAA not previously selected as an R.61-58.15 monitoring location.
- (4) A system may recommend locations other than those specified in paragraph (3) of this section if they include a rationale for selecting other locations. If the Department approves the alternate locations, the system must monitor at these locations to determine compliance under R.61-58.15.
- (5) The recommended schedule must include R.61-58.15 monitoring during the peak historical month for TTHM and HAA5 concentration, unless the Department approves another month. Once the peak historical month has been identified, and if the system is required to conduct routine monitoring at least quarterly, the system must schedule R.61-58.15 compliance monitoring at a regular frequency of every 90 days or fewer.

R.61-58.15 STAGE 2 DISINFECTION BYPRODUCTS REQUIREMENTS

A. Applicability.

This part R.61-58.15 applies to community water systems and non-transient non-community water systems that use a primary or residual disinfectant other than ultraviolet light or deliver water that has been treated with a primary or residual disinfectant other than ultraviolet light.

B. General Requirements.

(1) The requirements of this part R.61-58.15 constitute national primary drinking water regulations. The regulations in this part establish monitoring and other requirements for achieving compliance with maximum contaminant levels based on locational running annual averages (LRAA) for total trihalomethanes (TTHM) and haloacetic acids (five)(HAA5), and for achieving compliance with maximum residual disinfectant levels for chlorine and chloramine for certain consecutive systems.

(2) Schedule – Systems subject to this part R.61-58.15 must comply with the requirements of this part on the following schedule:

(a) Systems that are not part of a combined distribution system and systems that serve the largest population in the combined distribution system and serve 100,000 people or greater must comply with this part R.61-58.15 by April 1, 2012.

(b) Systems that are not part of a combined distribution system and systems that serve the largest population in the combined distribution system and serve between 50,000 and 99,999 people must comply with this part R.61-58.15 by October 1, 2012.

(c) Systems that are not part of a combined distribution system and systems that serve the largest population in the combined distribution system and serve between 10,000 and 49,999 people must comply with this part R.61-58.15 by October 1, 2013.

(d) Systems that are not part of a combined distribution system and systems that serve the largest population in the combined distribution system and serve less than 10,000 must comply with this part R.61-58.15 by October 1, 2013 if no *Cryptosporidium* monitoring is required under R.61-58.10.K(2)(a)(iv), or by October 1, 2014 if *Cryptosporidium* monitoring is required under R.61-58.10.K(2)(a)(iv).

(e) Systems that are part of a combined distribution system must comply with this part R.61-58.15 at the same time as the system with the earliest compliance date in the combined distribution system.

(f) The Department may grant systems up to an additional 24 months from the specified date for compliance with MCLs and operational evaluation levels if capital improvements are required to comply with an MCL.

(g) Systems monitoring frequency is specified in R.61-58.15.C(1)(b)

(i) If systems are required to conduct quarterly monitoring, then they must begin monitoring in the first full calendar quarter that includes the compliance date in this paragraph (2).

(ii) If systems are required to conduct monitoring at a frequency that is less

than quarterly, then they must begin monitoring in the calendar month recommended in the IDSE report prepared under R.61-58.14.C or R.61-58.14.D or the calendar month identified in the monitoring plan developed under R.61-58.15.D no later than 12 months after the compliance date in this paragraph (2).

(h) If systems are required to conduct quarterly monitoring, then they must make compliance calculations at the end of the fourth calendar quarter that follows the compliance date and at the end of each subsequent quarter (or earlier if the LRAA calculated based on fewer than four quarters of data would cause the MCL to be exceeded regardless of the monitoring results of subsequent quarters). If systems are required to conduct monitoring at a frequency that is less than quarterly, then they must make compliance calculations beginning with the first compliance sample taken after the compliance date.

(i) Reserved.

(j) For the purpose of the schedule in this paragraph (2), the Department may determine that the combined distribution system does not include certain consecutive systems based on factors such as receiving water from a wholesale system only on an emergency basis or receiving only a small percentage and small volume of water from a wholesale system. The Department may also determine that the combined distribution system does not include certain wholesale systems based on factors such as delivering water to a consecutive system only on an emergency basis or delivering only a small percentage and small volume of water to a consecutive system.

(3) Monitoring and compliance.

(a) In order for systems that are required to monitor quarterly to comply with MCLs in R.61-58.5.P(2)(b), they must calculate LRAAs for TTHM and HAA5 using monitoring results collected under this part R.61-58.15 and determine that each LRAA does not exceed the MCL. If the system fails to complete four consecutive quarters of monitoring, they must calculate compliance with the MCL based on the average of the available data from the most recent four quarters. If the system takes more than one sample per quarter at a monitoring location, they must average all samples taken in the quarter at that location to determine a quarterly average to be used in the LRAA calculation.

(b) In order for systems required to monitor yearly or less frequently to determine compliance with MCLs in R.61-58.5.P(2)(b), they must determine that each sample taken is less than the MCL. If any sample exceeds the MCL, the system must comply with the requirements of section R.61-58.15.G. If no sample exceeds the MCL, the sample result for each monitoring location is considered the LRAA for that monitoring location.

(4) Systems are in violation of the monitoring requirements for each quarter that a monitoring result would be used in calculating an LRAA if they fail to monitor.

C. Routine Monitoring.

(1) Monitoring

(a) If a system submitted an IDSE report, they must begin monitoring at the locations and months recommended in the IDSE report submitted under section R.61-58.14.G following the schedule in R.61-58.15.B(2), unless the Department requires other locations or additional locations after its review. If the system submitted a 40/30 certification under

section R.61-58.14.E or they qualified for a very small system waiver under section R.61-58.14.F or they are a non-transient non-community water system serving less than 10,000 people, they must monitor at the location(s) and dates identified in their monitoring plan in R.61-58.13.C(6), updated as required by section R.61-58.15.D.

(b) Systems must monitor at no fewer than the number of locations identified in this paragraph (1)(b).

Source water type	Population size category	Monitoring frequency	Distribution system monitoring locations per monitoring period
Subpart H	Less than 500	per year	2
Subpart H	500 – 3,300	per quarter	2
Subpart H	3,301 – 9,999	per quarter	2
Subpart H	10,000 – 49,999	per quarter	4
Subpart H	50,000 – 249,999	per quarter	8
Subpart H	250,000 – 999,999	per quarter	12
Subpart H	1,000,000 – 4,999,999	per quarter	16
Subpart H	5,000,000 or greater	per quarter	20
Ground water	Less than 500	per year	2
Ground water	500 – 9,999	per year	2
Ground water	10,000 – 99,999	per quarter	4
Ground water	100,000 – 499,999	per quarter	6
Ground water	500,000 or greater	per quarter	8

(i) All systems must monitor during month of highest DBP concentrations.

(ii) Systems on quarterly monitoring must take dual sample sets every 90 days at each monitoring location, except for subpart H systems serving 500-3,300. Systems on annual monitoring and subpart H systems serving 500-3,300 are required to take individual TTHM and HAA5 samples (instead of a dual sample set) at the locations with the highest TTHM and HAA5 concentrations, respectively. Only one location with a dual sample set per monitoring period is needed if highest TTHM and HAA5 concentrations occur at the same location (and month, if monitored annually).

(c) Undisinfected systems that begin using a disinfectant other than UV light after the dates in R.61-58.14 for complying with the Initial Distribution System Evaluation requirements must consult with the Department to identify compliance monitoring locations for this part R.61-58.15. The systems must then develop a monitoring plan under R.61-58.15.D that includes those monitoring locations.

(2) Analytical Methods – Analyses used to determine compliance with this part R.61-58.15 must be conducted using an approved method listed in 40 CFR 141.131 (1-04-06 edition) for TTHM and HAA5 analyses.

(3) Certified Laboratory - Analyses under this part R.61-58.15 for disinfection byproducts must be conducted by a certified laboratory.

D. Stage 2 DBP Monitoring Plans.

(1) Monitoring Plan Development.

(a) Systems must develop and implement a monitoring plan to be kept on file for Department and public review. The monitoring plan must contain the elements in paragraphs (1)(a)(i) through (1)(a)(iv) of this section and be complete no later than the date the system conducts initial monitoring under this part R.61-58.15.

(i) Monitoring locations;

(ii) Monitoring dates;

(iii) Compliance calculation procedures; and.

(iv) Monitoring plans for any other systems in the combined distribution system if the Department has reduced monitoring requirements under the authority granted in 40 CFR 142.16(m) (1-04-06 edition).

(b) For systems that were not required to submit an IDSE report under either section R.61-58.14.C or section 61-58.14.D, and do not have sufficient R.61-58.13 monitoring locations to identify the required number of R.61-58.15 compliance monitoring locations indicated in R.61-58.14.G(2), they must identify additional locations by alternating selection of locations representing high TTHM levels and high HAA5 levels until the required number of compliance monitoring locations have been identified. Systems must also provide the rationale for identifying the locations as having high levels of TTHM or HAA5. If a system has more R.61-58.13 monitoring locations than required for R.61-58.15 compliance monitoring in R.61-58.14.G(2), they must identify which locations they will use for R.61-58.15 compliance monitoring by alternating selection of locations representing high TTHM levels and high HAA5 levels until the required number of R.61-58.15 compliance monitoring locations have been identified.

(2) Subpart H systems serving > 3,300 people must submit a copy of the monitoring plan required under this section to the Department prior to the date the system begins initial monitoring under this part R.61-58.15, unless the IDSE report submitted under R.61-58.14 contains all the information required by this section.

(3) Systems may revise their monitoring plan to reflect changes in treatment, distribution system operations and layout (including new service areas), or other factors that may affect TTHM or HAA5 formation, or for Department approved reasons, after consultation with the Department regarding the need for changes and the appropriateness of changes. If a system changes monitoring locations, they must replace existing compliance monitoring locations that have the lowest LRAA with new locations that reflect the current distribution system locations with expected high TTHM or HAA5 levels. The Department may also require modifications in the monitoring plan. Subpart H systems serving > 3,300 people, must submit a copy of their modified monitoring plan to the Department prior to the date they are required to comply with the revised monitoring plan.

E. Reduced Monitoring.

(1) Systems may reduce monitoring to the level specified in this paragraph (1) any time the LRAA is less than or equal to 0.040 mg/L for TTHM and less than or equal to 0.030 mg/L for HAA5 at all monitoring locations. Only data collected under the provisions of R.61-58.15 or R.61-58.13 may be used to qualify for reduced monitoring. In addition, the source water annual average

TOC level, before any treatment, must be less than or equal to 4.0 mg/L at each treatment plant treating surface water or ground water under the direct influence of surface water, based on monitoring conducted under either R.61-58.13.C(2)(a)(vi) or R.61-58.13.C(4). Systems on reduced monitoring under this section that are required to monitor quarterly must take dual sample sets every 90 days.

- (a) Subpart H systems serving less than 500 people may not reduce monitoring.
- (b) Subpart H systems serving between 500 and 3,300 people and meeting the criteria in this paragraph (1) may reduce monitoring to one (1) TTHM sample per year taken at the location and during the quarter with the highest TTHM single measurement, and one (1) HAA5 sample per year taken at the location and during the quarter with the highest HAA5 single measurement. One (1) dual sample set per year may be taken if the highest TTHM and HAA5 measurements occurred at the same location during the same quarter.
- (c) Subpart H systems serving between 3,301 and 9,999 people and meeting the criteria in this paragraph (1) may reduce monitoring to one (1) dual sample set per year taken at the location and during the quarter with the highest TTHM single measurement, and one (1) dual sample set per year taken at the location and during the quarter with the highest HAA5 single measurement.
- (d) Subpart H systems serving between 10,000 and 49,999 people and meeting the criteria in this paragraph (1) may reduce monitoring to two (2) dual sample sets per quarter taken at the locations with the highest TTHM and HAA5 LRAAs.
- (e) Subpart H systems serving between 50,000 and 249,999 people and meeting the criteria in this paragraph (1) may reduce monitoring to four (4) dual sample sets per quarter taken at the locations with the two highest TTHM and two highest HAA5 LRAAs.
- (f) Subpart H systems serving between 250,000 and 999,999 people and meeting the criteria in this paragraph (1) may reduce monitoring to six (6) dual sample sets per quarter taken at the locations with the three highest TTHM and three highest HAA5 LRAAs.
- (g) Subpart H systems serving between 1,000,000 and 4,999,999 people and meeting the criteria in this paragraph (1) may reduce monitoring to eight (8) dual sample sets per quarter taken at the locations with the four highest TTHM and four highest HAA5 LRAAs.
- (h) Subpart H systems serving 5,000,000 or more people and meeting the criteria in this paragraph (1) may reduce monitoring to ten (10) dual sample sets per quarter taken at the locations with the five highest TTHM and five highest HAA5 LRAAs.
- (i) Ground water systems serving less than 500 people and meeting the criteria in this paragraph (1) may reduce monitoring to one (1) TTHM sample every third year taken at the location and during the quarter with the highest TTHM single measurement, and one (1) HAA5 sample every third year taken at the location and during the quarter with the highest HAA5 single measurement. One (1) dual sample set every third year may be taken if the highest TTHM and HAA5 measurements occurred at the same location during the same quarter.
- (j) Ground water systems serving between 500 and 9,999 people and meeting the criteria in this paragraph (1) may reduce monitoring to one (1) TTHM sample per year taken at the location and during the quarter with the highest TTHM single measurement,

and one (1) HAA5 sample per year taken at the location and during the quarter with the highest HAA5 single measurement. One (1) dual sample set per year may be taken if the highest TTHM and HAA5 measurements occurred at the same location during the same quarter.

(k) Ground water systems serving between 10,000 and 99,999 people and meeting the criteria in this paragraph (1) may reduce monitoring to one (1) dual sample set per year taken at the location and during the quarter with the highest TTHM single measurement and one (1) dual sample set per year taken at the location and during the quarter with the highest HAA5 single measurement.

(l) Ground water systems serving between 100,000 and 499,999 people and meeting the criteria in this paragraph (1) may reduce monitoring to two (2) dual sample sets per quarter taken at the locations with the highest TTHM and HAA5 LRAAs.

(m) Ground water systems serving 500,000 or more people and meeting the criteria in this paragraph (1) may reduce monitoring to four (4) dual sample sets per quarter taken at the locations with the two highest TTHM and two highest HAA5 LRAAs.

(2) Systems on reduced monitoring may remain on reduced monitoring as long as the TTHM LRAA is less than or equal to 0.040 mg/L and the HAA5 LRAA is less than or equal to 0.030 mg/L at each monitoring location (for systems with quarterly reduced monitoring) or each TTHM sample is less than or equal to 0.060 mg/L and each HAA5 sample is less than or equal to 0.045 mg/L (for systems with annual or less frequent monitoring). In addition, the source water annual average TOC level, before any treatment, must be less than or equal to 4.0 mg/L at each treatment plant treating surface water or ground water under the direct influence of surface water, based on monitoring conducted under either R.61-58.13.C(2)(a)(vi) or R.61-58.13.C(4).

(3) If the LRAA based on quarterly monitoring at any monitoring location exceeds either 0.040 mg/L for TTHM or 0.030 mg/L for HAA5 or if the annual (or less frequent) sample at any location exceeds either 0.060 mg/L for TTHM or 0.045 mg/L for HAA5, or if the source water annual average TOC level, before any treatment, is greater than 4.0 mg/L at any treatment plant treating surface water or ground water under the direct influence of surface water, the system must resume routine monitoring under R.61-58.15.C or begin increased monitoring if R.61-58.15.G applies.

(4) Systems may be returned to routine monitoring at the Department's discretion.

F. Additional Requirements for Consecutive Systems.

A consecutive system that does not add a disinfectant but delivers water that has been treated with a primary or residual disinfectant other than ultraviolet light, must comply with analytical and monitoring requirements for chlorine and chloramines in R.61-58.13.B and R.61-58.13.C(3)(a) and the compliance requirements in R.61-58.13.D(3)(a) beginning April 1, 2009, unless required earlier by the Department, and report monitoring results under R.61-58.13.E(3).

G. Conditions Requiring Increased Monitoring.

(1) If a system is required to monitor at a particular location annually or less frequently than annually under R.61-58.15.C or R.61-58.15.E, they must increase monitoring to dual sample sets once per quarter (taken every 90 days) at all locations if a TTHM sample is greater than 0.080 mg/L or a HAA5 sample is greater than 0.060 mg/L at any location.

(2) A system is in violation of the MCL when the LRAA exceeds the R.61-58.15 MCLs in R.61-58.5.P, calculated based on four consecutive quarters of monitoring (or the LRAA calculated based on fewer than four quarters of data if the MCL would be exceeded regardless of the monitoring results of subsequent quarters). A system is in violation of the monitoring requirements for each quarter that a monitoring result would be used in calculating an LRAA if they fail to monitor.

(3) A system may return to routine monitoring once they have conducted increased monitoring for at least four consecutive quarters and the LRAA for every monitoring location is less than or equal to 0.060 mg/L for TTHM and less than or equal to 0.045 mg/L for HAA5.

H. Operational Evaluation Levels.

(1) A system has exceeded the operational evaluation level at any monitoring location where the sum of the two previous quarters' TTHM results plus twice the current quarter's TTHM result, divided by 4 to determine an average, exceeds 0.080 mg/L, or where the sum of the two previous quarters' HAA5 results plus twice the current quarter's HAA5 result, divided by 4 to determine an average, exceeds 0.060 mg/L.

(2) Operational Evaluations

(a) If a system exceeds the operational evaluation level, they must conduct an operational evaluation and submit a written report of the evaluation to the Department no later than 90 days after being notified of the analytical result that causes them to exceed the operational evaluation level. The written report must be made available to the public upon request.

(b) The operational evaluation must include an examination of system treatment and distribution operational practices, including storage tank operations, excess storage capacity, distribution system flushing, changes in sources or source water quality, and treatment changes or problems that may contribute to TTHM and HAA5 formation and what steps could be considered to minimize future exceedences.

(i) A system may request and the Department may allow them to limit the scope of their evaluation if they are able to identify the cause of the operational evaluation level exceedance.

(ii) A request to limit the scope of the evaluation does not extend the schedule in paragraph (2)(a) of this section for submitting the written report. The Department must approve this limited scope of evaluation in writing and the system must keep that approval with the completed report.

I. Requirements for Remaining on Reduced TTHM and HAA5 Monitoring Based on R.61-58.13 Results.

A system on reduced monitoring under R.61-58.13 may remain on reduced monitoring after the dates identified in R.61-58.15.B for compliance with this subpart only if they qualify for a 40/30 certification under R.61-58.14.E or have received a very small system waiver under R.61-58.14.F, plus they meet the reduced monitoring criteria in R.61-58.15.E(1), and they do not change or add monitoring locations from those used for compliance monitoring under R.61-58.13. If the system's monitoring locations under this part R.61-58.15 differ from the monitoring locations under R.61-58.13, the system may not remain on reduced monitoring after the dates identified R.61-58.15.B for compliance with this part R.61-58.15.

J. Requirements for Remaining on Increased TTHM and HAA5 Monitoring Based on R.61-58.13 Results.

If a system was on increased monitoring under R.61-58.13.C(2)(a), they must remain on increased monitoring until they qualify for a return to routine monitoring under R.61-58.15.G(3). The system must conduct increased monitoring under R.61-58.15.G at the monitoring locations in the monitoring plan developed under R.61-58.15.D beginning at the date identified in R.61-58.15.B for compliance with this part and remain on increased monitoring until they qualify for a return to routine monitoring under R.61-58.15.G(3).

K. Reporting and Recordkeeping Requirements.

(1) Reporting

(a) Systems must report the following information for each monitoring location to the Department within 10 days of the end of any quarter in which monitoring is required:

(i) Number of samples taken during the last quarter.

(ii) Date and results of each sample taken during the last quarter.

(iii) Arithmetic average of quarterly results for the last four quarters for each monitoring location (LRAA), beginning at the end of the fourth calendar quarter that follows the compliance date and at the end of each subsequent quarter. If the LRAA calculated based on fewer than four quarters of data would cause the MCL to be exceeded regardless of the monitoring results of subsequent quarters, the system must report this information to the Department as part of the first report due following the compliance date or anytime thereafter that this determination is made. If a system is required to conduct monitoring at a frequency that is less than quarterly, they must make compliance calculations beginning with the first compliance sample taken after the compliance date, unless they are required to conduct increased monitoring under R.61-58.15.G.

(iv) Whether, based on R.61-58.5.P(2)(b) and this part R.61-58.15, the MCL was violated at any monitoring location.

(v) Any operational evaluation levels that were exceeded during the quarter and, if so, the location and date, and the calculated TTHM and HAA5 levels.

(b) Subpart H systems seeking to qualify for or remain on reduced TTHM/HAA5 monitoring, must report the following source water TOC information for each treatment

plant that treats surface water or ground water under the direct influence of surface water to the Department within 10 days of the end of any quarter in which monitoring is required:

- (i) The number of source water TOC samples taken each month during last quarter.
 - (ii) The date and result of each sample taken during last quarter.
 - (iii) The quarterly average of monthly samples taken during last quarter or the result of the quarterly sample.
 - (iv) The running annual average (RAA) of quarterly averages from the past four quarters.
 - (v) Whether the RAA exceeded 4.0 mg/L.
- (c) The Department may choose to perform calculations and determine whether the MCL was exceeded or the system is eligible for reduced monitoring in lieu of having the system report that information.
- (2) Recordkeeping.

Systems must retain any R.61-58.15 monitoring plans and monitoring results as required by R.61-58.6.D.

R.61-58.16 GROUND WATER RULE

A. Applicability.

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

B. General Requirements.

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

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

(2) Microbial source water monitoring requirements for ground water systems that do not treat all of their ground water to at least 99.99 percent (4-log) treatment of viruses (using inactivation, removal, or a Department-approved combination of 4-log virus inactivation and removal) before or at the first customer as described in R.61-58.16.E

(3) Treatment technique requirements, described in R.61-58.16.F, that apply to ground water systems that have fecally contaminated source waters, as determined by source water monitoring conducted under R.61-58.16.E, or that have significant deficiencies that are identified by the Department or that are identified by EPA under the Safe Drinking Water Act section 1445. A ground water system with fecally contaminated source water or with significant deficiencies subject to the treatment technique requirements of R.61-58.16.F must implement one or more of the following corrective action options: correct all significant deficiencies; provide an alternate source of water; eliminate the source of contamination; or provide treatment that reliably achieves at least 4-log treatment of viruses (using inactivation, removal, or a Department-approved combination of 4-log virus inactivation and removal) before or at the first customer.

(4) Ground water systems that provide at least 4-log treatment of viruses (using inactivation, removal, or a Department-approved combination of 4-log virus inactivation and removal) before or at the first customer are required to conduct compliance monitoring to demonstrate treatment effectiveness, as described in R.61-58.16.F(2).

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

C. Compliance Date.

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

D. Sanitary Surveys For Ground Water Systems.

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

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

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

- (a) Source,
- (b) Treatment,
- (c) Distribution system
- (d) Finished water storage
- (e) Pumps, pump facilities, and controls,
- (f) Monitoring, reporting, and data verification,
- (g) System management and operation, and
- (h) Operator compliance with Department requirements.

E. Ground Water Source Microbial Monitoring and Analytical Methods.

(1) Triggered source water monitoring

(a) A ground water system must conduct triggered source water monitoring if the conditions identified in paragraphs (1)(a)(i) and (1)(a)(ii) of this section apply.

(i) the system does not provide at least 4-log treatment of viruses (using inactivation, removal, or a Department-approved combination of 4-log virus inactivation and removal) before or at the first customer for each ground water source; and

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

(b) Sampling Requirements. A ground water system must collect, within 24 hours of notification of the total coliform positive sample, at least one ground water source sample from each ground water source in use at the time the total coliform positive sample was collected under R.61-58.5.G(1) except as provided in R.61-58.16.E(1)(b)(ii).

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

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

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

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

(d) Consecutive and wholesale systems

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

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

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

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

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

(i) The Department determines, and documents in writing, that the total coliform positive sample collected under R.61-58.5.G(1) is caused by a distribution system deficiency; or

(ii) The total coliform positive sample collected under R.61-58.5.G(1) is collected at a location that meets Department criteria for distribution system conditions that will cause total coliform positive samples.

(2) Assessment source water monitoring. If directed by the Department, ground water systems must conduct assessment source water monitoring that meets Department-determined requirements

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

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

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

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

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

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

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

(3) Analytical methods.

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

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

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

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

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

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

(b) If the Department invalidates a fecal indicator positive ground water source sample, the ground water system must collect another source water sample under R.61-58.16.E(1) within 24 hours of being notified by the Department of its invalidation decision and have it analyzed for the same fecal indicator using the analytical methods listed in 40 CFR 141.402(c)(2) (Federal Register 11-8-2006

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

(5) Sampling location.

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

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

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

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

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

F. Treatment technique requirements for ground water systems.

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

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

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

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

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