

Public Drinking Water Quality Standards

19-13-B102. Standards for quality of public drinking water

The following standards for the quality of drinking water, minimum treatment methods, and requirements for the design and operation of treatment works and water sources shall be met by all public water systems.

- (a) Definitions. As used in Section 19-13-B102:
- (1) "Action level" means the concentration of lead or copper in water specified in subsection (j)(6)(B) of this section which determines, in some cases, the treatment requirements contained in subsection (j)(6) of this section that a water system is required to complete;
 - (2) "Active source of supply" means all springs, streams, watercourses, brooks, rivers, lakes, ponds, wells, or underground water from which water is taken on a regular or periodic basis for water supply purposes. A number of wells drawing water from a single aquifer or more than one surface water body or a combination of surface water and groundwater sources connected to a common distribution system may, at the discretion of the department, be considered a single source of supply;
 - (3) "Annual average" means the arithmetic average of the quarterly averages of four (4) consecutive quarters of monitoring;
 - (4) "CFR" means Code of Federal Regulations;
 - (5) "Certified distribution system operator" means an operator who has met the education, experience, and examination requirements specified in section 25- 32- 11 of the Regulations of Connecticut State Agencies;
 - (6) "Certified treatment plant operator" means an operator who has met the education, experience, and examination requirements of section 25-32-9 of the Regulations of Connecticut State Agencies;
 - (7) "Coagulation" means a process using coagulant chemicals and mixing by which colloidal and suspended materials are destabilized and agglomerated into flocs;
 - (8) "Community water system" or "(CWS)" means a public water system that serves at least twenty-five (25) residents;
 - (9) "Complete conventional treatment" means coagulation, sedimentation or dissolved air flotation, rapid granular filtration, and disinfection unless approved otherwise by the department;
 - (10) "Compliance period" means a three (3) calendar-year period within a compliance cycle. Each compliance cycle has three (3) three-year compliance periods. Within the first compliance cycle, the first compliance period runs from January 1, 1993 to December 31, 1995; the second from January 1, 1996 to December 31, 1998; the third from January 1, 1999 to December 31, 2001;
 - (11) "Compliance cycle" means the nine (9) calendar-year cycle during which public water systems shall monitor. Each compliance cycle consists of three (3) three-year compliance periods. The first calendar year cycle begins January 1, 1993 and ends December 31, 2001; the second begins January 1, 2002 and ends December 31, 2010; the third begins January 1, 2011 and ends December 31, 2019;
 - (12) "Composite correction program" or "(CCP)" means a program consisting of two (2) elements: a comprehensive performance evaluation and comprehensive technical assistance;
 - (13) "Comprehensive performance evaluation" or "(CPE)" means a thorough review and analysis of a treatment plant's performance-based capabilities and associated administrative, operation and maintenance practices. It is conducted to identify factors that may be adversely impacting a plant's capability to achieve compliance and emphasizes approaches that can be implemented without significant capital improvements. The comprehensive performance evaluation

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- shall comprise a written report consisting of at least the following components:
- (A) Assessment of plant performance;
 - (B) Evaluation of major unit processes;
 - (C) Identification and prioritization of performance limiting factors;
 - (D) Assessment of the applicability of comprehensive technical assistance;
 - (E) Identification of improvements selected by a public water system to enhance the treatment plant's capability to achieve compliance; and
 - (F) A schedule of dates for the implementation of the improvements;
- (14) "Comprehensive technical assistance" means a performance improvement phase that is implemented using results from the comprehensive performance evaluation;
 - (15) "Confluent growth" means a continuous bacterial growth covering the entire filtration area of a membrane filter, or a portion thereof, in which bacterial colonies are not discrete;
 - (16) "Consecutive public water system" means a public water system that purchases all of its water from one or more public water systems;
 - (17) "Consultation" means a telephone call at which the public water system reports to the department the nature of the violation and the department, in turn, determines the action that shall be taken by the public water system;
 - (18) "Consumer" means one that meets the requirements of section 25-32a of the Connecticut General Statutes;
 - (19) "Contaminant" means any physical, chemical, biological, or radiological substance or matter in water as in section 1401 Title XIV of the Federal Public Health Service Act;
 - (20) "Conventional filtration treatment" means a series of processes including coagulation, flocculation, sedimentation or dissolved air flotation, and filtration resulting in substantial particulate removal;
 - (21) "Corrosion inhibitor" means a substance capable of reducing the corrosivity of water toward metal plumbing materials, especially lead and copper, by forming a protective film on the interior surface of those materials;
 - (22) "CT" or "CT CALC" means the product of the "residual disinfectant concentration" (C) in milligrams per liter (mg/l) determined before or at the first customer, and the corresponding "disinfectant contact time" (T) in minutes (i.e., "C" X "T"). If a public water system applies disinfectants at more than one point prior to the first customer, it shall determine the CT of each disinfectant sequence before or at the first customer to determine the total percent inactivation;
 - (23) "Customer" means consumer as defined in section 25-32a of the Connecticut General Statutes;
 - (24) "Department" means Connecticut Department of Public Health;
 - (25) "Diatomaceous earth filtration" means a process resulting in substantial particulate removal in which a pre-coat cake of diatomaceous earth filter media is deposited on a support membrane (septum), and while the water is filtered by passing through the cake on the septum, additional filter media known as body feed is continuously added to the feed water to maintain the permeability of the filter cake;
 - (26) "Direct filtration" means a series of processes including coagulation and filtration, but excluding sedimentation, resulting in substantial particulate removal;
 - (27) "Disinfectant contact time" ("T" in CT calculations) means the time in minutes that it takes for water to move from the point of disinfectant application or the previous point of disinfectant residual measurement to a point before or at the point where residual disinfectant concentration ("C") is measured;
 - (A) Where only one "C" is measured (single application point), "T" is the time in minutes that it takes for water to move from the point of disinfectant application to a point before or at which residual disinfectant concentration ("C") is measured;

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- (B) Where more than one "C", is measured (multiple application points), "T" is:
 - (i) for the first measurement of "C", the time in minutes that it takes for water to move from the first point of disinfectant application to a point before or at the point where the first "C" is measured; and
 - (ii) for subsequent measurements of "C", the time in minutes that it takes for water to move from the previous "C" measurement point to the "C" measurement point for which the subsequent "T" is being calculated;
- (C) Disinfectant contact time in pipelines shall be calculated by dividing the internal volume of the pipe by the maximum hourly flow rate through that pipe (plug flow); and
- (D) Disinfectant contact time within mixing basins, clearwells, and storage reservoirs shall be determined by tracer studies or an equivalent demonstration;
- (28) "Disinfection" means a process which inactivates pathogenic organisms in water by chemical oxidants or equivalent agents;
- (29) "Disinfection profile" means a summary of daily giardia lamblia inactivation through the treatment plant;
- (30) "Domestic or other non-distribution system plumbing problem" means a coliform contamination problem in a public water system with more than one service connection that is limited to the specific service connection from which the coliform-positive sample was taken;
- (31) "EC medium/mug tests" means analytical tests for waterborne bacteria as specified in 40 CFR 141.21(f);
- (32) "Effective corrosion inhibitor residual" means a concentration sufficient to form a passivating film on the interior walls of a pipe;
- (33) "End of distribution system" means the last service connection on a dead-end water main;
- (34) "Enhanced coagulation" means the addition of sufficient coagulant for improved removal of disinfection byproduct precursors by conventional filtration treatment;
- (35) "Enhanced softening" means the improved removal of disinfection byproduct precursors by precipitative softening;
- (36) "EPA" means the United States Environmental Protection Agency;
- (37) "Filter profile" means a graphical representation of individual filter performance, based on continuous turbidity measurements or total particle counts versus time for an entire filter run, from startup to backwash inclusively, that includes an assessment of filter performance while another filter is being backwashed;
- (38) "Filtration" means a process for removing particulate matter from water by passage through porous media;
- (39) "First draw sample" means a one-liter sample of tap water, collected in accordance with subsection(e)(8)(B)(ii) of this section, that has been standing in plumbing pipes at least six (6) hours and is collected without flushing the tap;
- (40) "Flocculation" means a process to enhance agglomeration or collection of smaller floc particles into larger, more easily settleable particles through gentle stirring by hydraulic or mechanical means;
- (41) "GAC10" means granular activated carbon filter beds with an empty-bed contact time of 10 minutes based on average daily flow and a carbon reactivation frequency of every 180 days;
- (42) "Groundwater under the direct influence of surface water" or "(GWUDI)" means any water beneath the surface of the ground with either significant occurrence of insects or other macroorganisms, algae, or large-diameter pathogens such as giardia lamblia or cryptosporidium, or significant and relatively rapid shifts in water characteristics such as turbidity, temperature, conductivity, or pH which

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- closely correlate to climatological or surface water conditions. Direct influence shall be determined for individual sources in accordance with criteria established by the department. The department determination of direct influence may be based on site-specific measurements of water quality and/or documentation of well construction characteristics and geology with field evaluation according to "Department of Health Services criteria-determination of groundwater under the direct influence of surface water";
- (43) "Haloacetic acid five" or "(HAA5)" means the sum of the concentrations in milligrams per liter of the haloacetic acid compounds (monochloroacetic acid, dichloroacetic acid, trichloroacetic acid, monobromoacetic acid, and dibromoacetic acid), rounded to two (2) significant figures;
- (44) "Initial compliance period" means the first full three-year compliance period which begins at least eighteen (18) months after promulgation. Initial compliance period runs from January 1, 1993 to December 31, 1995;
- (45) "Large water system" means a water system that serves more than fifty thousand (50,000) persons;
- (46) "Lead service line" means a service line made of lead that connects the water main to a building inlet and any lead pigtail, gooseneck or other fitting connected to such lead line;
- (47) "Legionella" means a genus of bacteria, some species of which have caused a type of pneumonia called legionnaires' disease;
- (48) "Local director of health" means a city, town, borough, or district director of health or his authorized agent;
- (49) "mg/L" means milligrams per liter;
- (50) "Maximum contaminant level" or "(MCL)" means the maximum permissible level of a contaminant in water that is delivered to any consumer of a public water system;
- (51) "Maximum contaminant level goal" or "(MCLG)" means the maximum level of a contaminant in drinking water at which no known or anticipated adverse effect on the health of persons would occur; and which allows an adequate margin of safety. Maximum contaminant level goals are non-enforceable health goals;
- (52) "Maximum residual disinfectant level" or "(MRDL)" means a level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap without an unacceptable possibility of adverse health effects. MRDL is enforceable in the same manner as maximum contaminant level;
- (53) "Maximum residual disinfectant level goal" or "(MRDLG)" means the maximum level of a disinfectant added for water treatment at which no known or anticipated adverse effect on the health of persons would occur, and which allows an adequate margin of safety. MRDLG is a non-enforceable health goal and does not reflect the benefit of the addition of the chemical for control of waterborne microbial contaminants;
- (54) "Medium-size water system" means a water system that serves greater than three thousand three hundred (3,300) and less than or equal to fifty thousand (50,000) persons;
- (55) "Method detection limit" or "(MDL)" means the minimum concentration of a substance that can be measured and reported with ninety-nine percent (99%) confidence that the true value is greater than zero (0);
- (56) "Near the first service connection" means at one of the twenty percent (20%) of all service connections in the entire system that are nearest the water supply treatment facility, as measured by water transport time within the distribution system;
- (57) "Non-community water system" means a public water system that serves at least twenty-five (25) persons at least sixty (60) days out of the year and is not a community water system;
- (58) "Non-transient non-community water system" or "(NTNC)" means a public water

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- system that is not a community system and that regularly serves at least twenty-five (25) of the same persons over six (6) months per year;
- (59) "Notification level" means the level of a contaminant that if exceeded shall require public notification by a public water system to its consumers;
- (60) "Optimal corrosion control treatment" means the corrosion control treatment that minimizes the lead and copper concentrations at users' taps while ensuring that the treatment does not cause the water system to violate any drinking water statutes or regulations;
- (61) "Other unregulated contaminants" means contaminants that meet or exceed the department's action level or contaminant level for which the maximum contaminant goal has been proposed for drinking water by EPA;
- (62) "Physical parameters" means color, turbidity, pH and odor;
- (63) "Point of disinfectant application" is the point where the disinfectant is applied and water downstream of that point is not subject to recontamination by surface water;
- (64) "Point of entry" means a location on an active source of supply that is after any treatment and before entrance to the distribution system;
- (65) "Public water system" or "System" means any water company supplying water to fifteen (15) or more consumers or twenty-five (25) or more persons, based on the "Design Population" as defined in section 16-262m-8(a)(3) of the Regulations of Connecticut State Agencies, jointly administered by the department and the Department of Public Utility Control, daily at least sixty days (60) of the year. A system is not a public water system if it meets all of the following conditions:
- (A) consists only of distribution and storage facilities;
 - (B) does not have any treatment facilities, other than those for non-potable use;
 - (C) obtains all of its water from, but is not owned or operated by, a public water system;
 - (D) does not separately bill the consumers for water use or consumption; and
 - (E) is not a carrier which conveys passengers in interstate commerce;
- (66) "Practical quantification level" or "(PQL)" means the lowest concentration that can be reliably measured within specific limits of precision and accuracy during routine laboratory operating conditions;
- (67) "Repeat compliance period" means any subsequent compliance period after the initial compliance period;
- (68) "Repeat sample" means a sample that is collected as a result of a total coliform-positive routine sample;
- (69) "Residual disinfectant concentration" ("C" in CT calculations) means the concentration of disinfectant measured in mg/L in a representative sample of water;
- (70) "Routine sample" means a sample that is collected at a location and frequency as specified in the approved sample siting plan;
- (71) "Sanitarian" means a person who is trained in environmental health and who is qualified to carry out educational and investigational duties in the fields of environmental health such as investigation of air, water, sewage, foodstuffs, housing and refuse by observing, sampling, testing and reporting; and who is licensed pursuant to section 20-361 of the Connecticut General Statutes;
- (72) "Sanitary survey" means an onsite inspection of the water source, treatment, distribution system, finished water storage, pumping facilities and controls, monitoring and reporting data, system management and operation, and operator compliance with department requirements. Components of the sanitary survey may be completed as part of a staged or phased review process by the department within the established frequency;
- (73) "Second compliance period" means the second full three-year compliance period

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- in the first compliance cycle. Second compliance period runs from January 1, 1996 to December 31, 1998;
- (74) "Sedimentation" means a process for removal of solids before filtration by gravity or separation;
 - (75) "Self assessment" means an assessment which shall comprise a written report consisting of at least the following components:
 - (A) Assessment of filter performance;
 - (B) Development of a filter profile;
 - (C) Identification and prioritization of factors limiting filter performance;
 - (D) Assessment of the applicability of improvements;
 - (E) Identification of improvements selected by a public water system to enhance filtration and achieve compliance; and
 - (F) A schedule of dates for the implementation of the improvements;
 - (76) "Service line sample" means a one (1) liter sample of water, collected in accordance with subsection (e)(8)(B)(iii) of this section, that has been standing for at least six (6) hours in a service line;
 - (77) "Significant deficiency" means a violation of section 19-13-B102(j)(2) of the Regulations of Connecticut State Agencies;
 - (78) "Single family structure" means a building constructed as a single-family residence that is currently used as either a residence or a place of business;
 - (79) "Slow sand filtration" means a process involving passage of raw water through a bed of sand at low velocity (generally less than 0.16 gallons per minute per square foot, gpm/sq. ft.) resulting in substantial particulate removal by physical and biological mechanisms;
 - (80) "Small water system" means a water system that serves three thousand three hundred (3,300) persons or fewer;
 - (81) "Source water" means raw water before any kind or type of treatment at the source of supply;
 - (82) "Special purpose sample" means a sample that is taken to determine whether disinfection practices are sufficient following routine maintenance work on the distribution system;
 - (83) "Surface water" means all water that is open to the atmosphere and subject to surface runoff;
 - (84) "SUVA" means specific ultraviolet absorption at 254 nanometers (nm), an indicator of the humic content of water. It is a calculated parameter obtained by dividing a sample's ultraviolet absorption at a wavelength of 254 nm (UV254) (in M-1) by its concentration of dissolved organic carbon (DOC) in mg/L;
 - (85) "System with a single service connection" means a system that supplies drinking water to consumers via a single service line;
 - (86) "Tier 1 notice" means a notice that is required when a public water system has failed to comply with requirements for any of the following:
 - (A) The maximum contaminant level (MCL) for total coliforms when fecal coliform or E.coli are present in the water distribution system, or when the public water system fails to test for fecal coliforms or E.coli when any repeat sample tests positive for coliform;
 - (B) The MCL for nitrate, nitrite, or total nitrate and nitrite, or when the public water system fails to take a confirmation sample within twenty-four (24) hours of the system's receipt of the first sample showing an exceedance of the nitrate or nitrite MCL;
 - (C) The maximum residual disinfectant level (MRDL) for chlorine dioxide when one or more samples taken in the distribution system the day following an exceedance of the MRDL at the entrance of the distribution system exceed the MRDL, or when the public water system does not take the required samples in the distribution system;
 - (D) The MCL for turbidity as specified in sections 19-13-B102(e)(7)(H)(ii) and

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- 19-13-B102(j)(2)(D) of the Regulations of Connecticut State Agencies, where the department determines after consultation that the violation of the MCL for turbidity combined with other site-specific information indicate that potential pathogens may have passed the point of entry to the water distribution system, or where consultation does not take place within twenty-four (24) hours after the public water system learns of the violation;
- (E) The MCL for turbidity as specified in section 19-13-B102(j)(4) of the Regulations of Connecticut State Agencies, where the department determines after consultation that the violation of the MCL for turbidity combined with other site-specific information indicate that potential pathogens may have passed the point of entry to the water distribution system, or where consultation does not take place within twenty-four (24) hours after the public water system learns of the violation;
 - (F) Occurrence of a waterborne disease outbreak, as defined in section 19-13-B102(a) of the Regulations of Connecticut State Agencies; or
 - (G) Any chemical listed in sections 19-13-B102(e)(2) to 19-13-B102(e)(4), inclusive of the Regulations of Connecticut State Agencies is found at a level that is determined in writing by the department to have serious adverse effects on human health as a result of short term exposure based on available scientific and epidemiological findings.
- (87) "Tier 2 notice" means a notice that is required when a public water system has failed to comply with requirements for any of the following:
- (A) The MCL, MRDL, or treatment technique requirements, except where a tier 1 notice is required under section 19-13-B102(a) of the Regulations of Connecticut State Agencies;
 - (B) Monitoring or testing procedure requirements for total coliforms, nitrate, nitrite, total nitrate and nitrite, or chlorine dioxide, except where a tier 1 notice is required under section 19-13-B102(a) of the Regulations of Connecticut State Agencies; or
 - (C) The terms and conditions of any variance, consent order, consent agreement or exemption in place.
- (88) "Tier 3 notice" means a notice that is required when a public water system has:
- (A) Violated a monitoring requirement, except where a tier 1 notice or a tier 2 notice is required under section 19-13-B102(a) of the Regulations of Connecticut State Agencies;
 - (B) Violated a testing procedure requirement, except where a tier 1 notice or a tier 2 notice is required under section 19-13-B102(a) of the Regulations of Connecticut State Agencies;
 - (C) Operated under an administrative order, variance, or an exemption;
 - (D) Failed to provide the notice of the availability of unregulated contaminant monitoring results, as required under 40 CFR 141.207; or
 - (E) Exceeded the fluoride secondary maximum contaminant level (SMCL), as required under 40 CFR 141.208.
- (89) "Too numerous to count" means that the total number of bacterial colonies exceeds two hundred (200) on a forty-seven (47) mm diameter membrane filter used for coliform detection;
- (90) "Total organic carbon" or "(TOC)" means total organic carbon in mg/L measured using heat, oxygen, ultraviolet irradiation, chemical oxidants, or combinations of these oxidants that convert organic carbon to carbon dioxide, rounded to two (2) significant figures;
- (91) "Total trihalomethanes" or "(TTHM)" means the sum of the concentrations in milligrams per liter of bromodichloromethane, dibromochloromethane, tribromoethane (bromoform) and trichloromethane (chloroform) rounded, to two (2) significant figures;

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- (92) "Transient non-community water system" or "(TNC)" means a noncommunity water system that does not meet the definition of a non-transient noncommunity water system;
 - (93) "Uncovered finished water clearwell, tank or basin" means a container that stores water shall undergo no further treatment except disinfection and is open to the atmosphere.
 - (94) "Virus" means a microorganism of fecal origin which is infectious to humans by waterborne transmission;
 - (95) "Water company" means one that meets the requirements of section 25- 32a of the Connecticut General Statutes;
 - (96) "Water system" means all community water systems and non-transient non-community water systems;
 - (97) "Waterborne disease outbreak" means the significant occurrence of acute infectious illness, epidemiologically associated with the ingestion of water from a public water system as determined by the department; and
 - (98) "Zone of influence" means the land area that directly overlies and has the same horizontal extent as the part of the water table or other potentiometric surface that is perceptibly lowered by the withdrawal of water. The zone of influence delineated by the use of modeling is that area of land in which the water table or potentiometric surface is lowered by at least one-half (0.5) foot. In the event of inadequate information and data to delineate the zone of influence, a radius of one (1) mile shall be utilized for unconsolidated aquifer groundwater sources and a radius of one thousand (1000) feet shall be utilized for confined and bedrock aquifer groundwater sources.
- (b) Watershed survey. A public water system using surface water as an active source of supply shall make a sanitary survey of the watershed to the intake at least annually. A report on the survey shall be submitted to the Department by March 1 each year covering the preceding calendar year.
- (c) Standards for quality of untreated water prior to treatment. All parameters shall be tested for each surface source at least annually, except bacteriological and physical tests which shall be done quarterly.

Groundwater sources shall be tested for these parameters when the department determines that the source is vulnerable to contamination.

	Parameter Disinfection and Chemical Treatment	Degree of Treatment Filtration
(1) BACTERIOLOGICAL		
	Coliform Organisms* Not to exceed 100/100 ml monthly monthly average, based on a running arithmetic average for the most recent twelve month period. No individual sample is to exceed 500/100 ml	Not to exceed 20,000/100 ml ml as measured by a monthly geometric mean.
(2) PHYSICAL		
Color	Not to exceed twenty (20) standard units in more than ten percent (10%) of samples for most recent twelve (12) month period.	Not to exceed two hundred fifty (250) standard units as measured by a monthly geometric mean.
Turbidity	The turbidity level as specified in 40 CFR 141.74 (a) (4),	Not to exceed two hundred fifty (250) standard units as

*If coliform organisms are demonstrated to be not associated with a fecal source on the basis sanitary survey and differential tests, exception may be made.

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in a representative sample of the source water immediately prior to the first or only point of disinfection application shall not exceed (5) Nephelometric Turbidity Units (NTU).

measured by a monthly geometric mean.

(3) INORGANIC CHEMICALS

Arsenic ^(a)	.01	.01
Barium	1	1
Cadmium	.01	.01
Chloride	250	250
Chromium	.05	.05
Copper	.05	1.0
Cyanide	.01	0.2
Flouride	2.0	2.0
Lead	.05	.05
MBAS (methylen blue active substance)	0.5	0.5
Mercury	.002	.005
Nitrate plus	10	10
Nitrite as N		
Selenium	.01	.01
Silver	.05	.05

^(a) The MCL for arsenic is effective January 23, 2006. Until then the MCL is 0.05 mg/L.

(4) PESTICIDES

All Degrees of Treatment Level mg/L

Endrin	0.002
Lindane	0.0002
Methoxychlor	0.04
Toxaphene	0.003
2,4-D	0.07
2,4,5-TP (silvex)	0.05

(d) Facility location. Such as but not limited to treatment plants, pumping stations, storage tanks, etc., but not including water intakes and connecting pipelines.

(1) New facilities are to be located:

- (A) Above the level of the one hundred year flood.
- (B) Where chlorine gas will not be stored or used within three hundred feet of any residence.
- (C) Where the facility is not likely to be subject to fires or other natural or manmade disasters.

(2) The state health department must be notified before entering into a financial commitment for a new public water system or increasing the capacity of an existing public water system, and the approval of the state health department must be obtained before any construction is begun. This includes construction of supply and treatment works, transmission lines, storage tanks, pumping stations and other works of sanitary significance. It does not include the routine extension of laterals or tapping of new service connections.

(e) Water ready for consumption.

(1) Physical Tests. Color is not to exceed fifteen (15) standard units leaving the

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treatment plant nor at representative sampling points in the distribution system. Turbidity is not to exceed five (5) standard units at representative sampling points in the distribution system.

Odor is not to exceed a value of two (2) in the treatment plant effluent on a scale of 0-5 as follows:

0-None	3-Distinct
1-Very Faint	4-Decided
2-Faint	5-Strong

The pH value is not to be less than 6.4 nor to exceed 10.0 at a point of entry to the distribution system or in the distribution system. A system conducting water quality parameter monitoring for pH in accordance with section 19-13-B102(e)(9)(D) of the Regulations of Connecticut State Agencies shall comply with the pH requirements pursuant to section 19-13-B102(j)(8)(G) of the Regulations of Connecticut State Agencies.

(2) Inorganic Chemicals

Community and non-transient non-community water systems shall test for inorganic chemicals specified below. Transient non-community water systems shall test for nitrate and nitrite only.

Inorganic chemicals^(a) and their limits

Chemical	Maximum Contaminant Level (mg/L)
Antimony	0.006
Arsenic ^(b)	0.01
Asbestos	7 MFL ¹
Barium	2
Beryllium	0.004
Cadmium	0.005
Chromium	0.1
Cyanide	0.2
Fluoride	4.0
Mercury	0.002
Nickel	0.1
Nitrate nitrogen	10(as N)
Nitrite nitrogen	1(as N)
Nitrate nitrogen plus nitrite nitrogen	10(as N)
Selenium	0.05
Silver	0.05
Sulfate	**
Chloride	250
Thallium	0.002
Lead	***
Copper	***
Sodium	*

Notes

(a) The method detection limits for inorganic chemicals shall conform to those accepted and approved by EPA as described in 40 CFR 141.23(a), as amended January 22, 2001.

(b) The MCL for arsenic is effective January 23, 2006. Until then the MCL is 0.05 mg/L.

* Sodium has no MCL, but has a notification level of 28 mg/L. See section 19-13-B102(i)(5)(B) of the Regulations of Connecticut State Agencies for the notification

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requirements.

** MCL has not been established for this chemical.

*** See Section 19-13-B102(j)(6) of the Regulations of Connecticut State Agencies. The MCLG for lead is zero (0) and for copper is 1.3 mg/L.

¹ MFL = million fibers per liter longer than ten (10) micrometers.

(3) Pesticides, Herbicides and PCBs. Community and non-transient non- community water systems shall test for pesticides, herbicides and PCB specified below.

Pesticides, Herbicides, PCB, and their limits

Chemical ¹	Maximum Contaminant Level (mg/l)
Alachlor	0.002
Aldicarb	**
Aldicarb sulfoxide	**
Aldicarb sulfone	**
Aldrin	**
Atrazine	0.003
Benzo(A)pyrene	0.0002
Butachlor	**
Carbaryl	**
Carbofuran	0.04
Chlordane	0.002
Dalapon	0.2
Di(2-ethylhexyl)adipate	0.4
Di(2-ethylhexyl)phthalates	0.006
Dicamba	**
Dieldrin	**
Dinoseb	0.007
Diquat	0.02
Dibromochloropropane (DBCP)	0.0002
2, 4-D	0.07
Ethylene dibromide (EDB)	0.00005
Endrin	0.002
Endothall	0.1
Glyphosate	0.7
Heptachlor	0.0004*
Heptachlor epoxide	0.0002*
Hexachlorobenzene	0.001
Hexachlorocyclopentadiene	0.05
3-Hydroxycarbofuran	**
Lindane	0.0002
Methoxychlor	0.04
Methomyl	**
Metolachlor	**
Metribuzin	**
Oxamyl (vydate)	0.2
Picloram	0.5
Propachlor	**
Simazine	0.004
2,3,7,8-TCDD (dioxin)	0.00000003
Polychlorinated biphenyls (PCB)	0.0005

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Pentachlorophenol	0.001
Toxaphene	0.003
2,4,5-TP (silvex)	0.05

Notes:

¹ The method detection limits for all pesticides, herbicides and PCB shall conform to those accepted and approved by EPA.

** MCL has not been established for this chemical.

* If monitoring results in detection of one (1) or more of these contaminants, then subsequent monitoring shall analyze for all these contaminants.

(4) Organic Chemicals. Community and non-transient non-community water systems shall test for organic chemicals specified below.

Organic chemicals^(a) and their limits.

Chemical ^(b)	Maximum Contaminant Level (mg/l)
Benzene	0.005
Bromobenzene	**
Bromomethane	**
n-Butyl Benzene	**
Carbon Tetrachloride	0.005
Chlorobenzene	0.1
Chloroethane	**
Chloromethane	**
o-Chlorotoluene	**
p-Chlorotoluene	**
Dibromomethane	**
m-Dichlorobenzene	**
o-Dichlorobenzene	0.6
p-Dichlorobenzene	0.075
1, 1-Dichloroethane	**
1, 2-Dichloroethane (EDC)	0.005
1, 1-Dichloroethylene	0.007
cis-1, 2-Dichloroethylene	0.07
Trans-1, 2-Dichloroethylene	0.1
Dichloromethane (Methylene chloride)	0.005
1, 2-Dichloropropane	0.005
1, 3-Dichloropropane	**
2, 2-Dichloropropane	**
1, 1-Dichloropropene	**
1, 3-Dichloropropene	**
Ethylbenzene	0.7
Methyl Tert Butyl Ether (MTBE)	**
Naphthalene	**
n-Propyl Benzene	**
Styrene	0.1
1, 1, 1, 2-Tetrachloroethane	**
1, 1, 2, 2-Tetrachloroethane	**
Tetrachloroethylene	0.005
Toluene	1
Total Trihalomethanes (TTHM)	0.100
Bromodichloromethane	*
Bromoform	*
Chlorodibromomethane	*

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Chloroform	*
1, 1, 1-Trichloroethane	0.2
1, 1, 2-Trichloroethane	0.005
1, 2, 4-Trichlorobenzene	0.07
Trichloroethylene	0.005
1, 2, 3-Trichloropropane	**
1, 2, 4-Trimethylbenzene	**
1, 3, 5-Trimethylbenzene	**
Vinyl Chloride ^(c)	0.002
Xylenes (total)	10
m-Xylene	***
o-Xylene	***
p-Xylene	***

Notes:

- * The MCL for Total Trihalomethanes (TTHM) is 0.100 mg/l, which is the sum of the four (4) constituent Trihalomethanes. This level applies to any CWS until the following dates, on which the MCL for TTHM is lowered to 0.080 MG/L. All systems using surface water and GWUDI in whole or in part and serving at least 10,000 persons shall comply with the TTHM MCL of 0.080 MG/L and all other public water systems shall comply with the MCL for TTHM of 0.080 MG/L by January 1, 2004.
- ** MCL has not been established for this chemical.
- *** The MCL for Xylenes (total) is 10 mg/l, which is the sum of the three (3) constituent Xylenes.
- (a) The method detection limit (MDL) for all organic chemicals is 0.0005 mg/l with the exception of MTBE which has an MDL of 0.002 mg/l.
- (b) The department may require the testing of other chemicals for which a Maximum Contaminant Level Goal has been proposed by EPA or which the department has reason to believe may be health threatening.
- (c) Quarterly analysis for vinyl chloride is required for ground water systems only when one or more of the following compounds are detected: trichloroethylene, 1, 2, Tetrachloroethylene, 1, 2 Dichloroethane, 1, 1, 1 Trichloroethane, Cis 1,2 Dichloroethylene, Trans 1, 2 Dichloroethylene, or 1, 1 Dichloroethylene. If the first analysis does not detect vinyl chloride, the Department may reduce the frequency of vinyl chloride monitoring to once every three (3) years.
- (5) Radioactivity.
 - (A) Analysis for the contaminants listed in the table in 40 CFR 141.25(a), as amended January 22, 2001, shall be conducted to determine compliance with section 19-13-B102(e)(5)(I) to (L), inclusive, of the Regulations of Connecticut State Agencies in accordance with the methods described in 40 CFR 141.25(a), as amended January 22, 2001, or their equivalent determined by EPA in accordance with 40 CFR 141.27, as amended August 27, 1980.
 - (B) When the identification and measurement of radionuclides other than those listed in 40 CFR 141.25(a), as amended January 22, 2001, is required, the references listed in 40 CFR 141.25(b)(1), as amended January 22, 2001, and 40 CFR 141.25(b)(2), as amended January 22, 2001, are to be used, except in cases where alternative methods have been approved in accordance with 40 CFR 141.27, as amended August 27, 1980.
 - (C) For the purpose of monitoring radioactivity concentrations in drinking water, the required sensitivity of the radioanalysis is defined in terms of a detection limit. The detection limit shall be that concentration which can be counted with a precision of plus or minus 100 percent at the 95

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percent confidence level (1.96σ where σ is the standard deviation of the net counting rate of the sample).

- (i) To determine compliance with section 19-13-B102(e)(5)(I) of the Regulations of Connecticut State Agencies, the detection limit shall not exceed the concentrations in Table 1.

Table 1.

Detection Limits for Gross Alpha Particle Activity, Radium 226, Radium 228, and Uranium

Contaminant	Detection limit
Gross alpha particle activity	3 pCi/L
Radium 226	1 pCi/L
Radium 228	1 pCi/L
Uranium	1 µg/L

- (ii) To determine compliance with Section 19-13-B102(e)(5)(J) of the Regulations of Connecticut State Agencies, the detection limits shall not exceed the concentrations listed in Table 2.

Table 2.

Detection Limits for Man-Made Beta Particle and Photon Emitters

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

- (D) To judge compliance with the maximum contaminant levels listed in section 19-13-B102(e)(5)(I) to (L), inclusive, of the Regulations of Connecticut State Agencies, averages of data shall be used and shall be rounded to the same number of significant figures as the maximum contaminant level for the substance in question.
- (E) The department may determine compliance or initiate enforcement action based upon analytical results or other information compiled by their sanctioned representatives and agencies.
- (F) Monitoring and compliance requirements for gross alpha particle activity, radium-226, radium-228, and uranium.
 - (i) Community water systems (CWS) shall conduct initial monitoring to determine compliance with section 19-13-B102(e)(5)(I) of the Regulations of Connecticut State Agencies by December 31, 2007. For the purposes of monitoring for gross alpha particle activity, radium-226, radium-228, uranium, and beta particle and photon radioactivity in drinking water, "detection limit" is defined as in section 19-13-B102(e)(5)(C) of the Regulations of Connecticut State Agencies.
 - (I) Applicability and sampling location for existing community water systems or sources. All existing CWS using ground water, surface water or systems using both ground and surface water (for the purpose of this section hereafter referred to as systems) shall sample at every

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- entry point to the distribution system that is representative of all sources being used (hereafter called a sampling point) under normal operating conditions. The system shall take each sample at the same sampling point unless conditions make another sampling point more representative of each source.
- (II) Applicability and sampling location for new community water systems or sources. All new CWS or CWS that use a new source of water shall begin to conduct initial monitoring for the new source within the first quarter after initiating use of the source. CWS shall conduct more frequent monitoring when ordered by the department in the event of possible contamination or when changes in the distribution system or treatment processes occur which may increase the concentration of radioactivity in finished water.
- (ii) Initial monitoring: systems shall conduct initial monitoring for gross alpha particle activity, radium-226, radium-228, and uranium as follows:
 - (I) Systems shall collect four consecutive quarterly samples at all sampling points before December 31, 2007.
 - (II) For gross alpha particle activity, uranium, radium-226, and radium-228 monitoring, the department may waive the final two quarters of initial monitoring for a sampling point if the results of the samples from the previous two quarters are below the detection limit specified in Table 1 of section 19-13-B102(e)(5)(C)(i) of the Regulations of Connecticut State Agencies.
 - (III) If the average of the initial monitoring results for a sampling point is above the MCL, the system shall collect and analyze quarterly samples at that sampling point until the system has results from four consecutive quarters that are at or below the MCL, unless the system enters into another schedule as part of a formal compliance agreement with the department.
 - (iii) Reduced monitoring: the department may grant permission to a community water system to reduce the future frequency of monitoring from once every three years to once every six or nine years at each sampling point, based on the following criteria:
 - (I) If the average of the initial monitoring results for each contaminant (i.e., gross alpha particle activity, uranium, radium-226, or radium-228) is below the detection limit specified in Table 1, in section 19-13- B102(e)(5)(c)(i) of the Regulations of Connecticut State Agencies, the system shall collect and analyze for that contaminant using at least one sample at that sampling point every nine years.
 - (II) For gross alpha particle activity and uranium, if the average of the initial monitoring results for each contaminant is at or above the detection limit but at or below 1/2 the MCL, the system shall collect and analyze for that contaminant using at least one sample at that sampling point every six years. For combined radium-226 and radium-228, the analytical results shall be combined. If the average of the combined initial

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monitoring results for radium-226 and radium-228 is at or above the detection limit but at or below 1/2 the MCL, the system shall collect and analyze for that contaminant using at least one sample at that sampling point every six years.

- (III) For gross alpha particle activity and uranium, if the average of the initial monitoring results for each contaminant is above 1/2 the MCL but at or below the MCL, the system shall collect and analyze at least one sample at that sampling point every three years. For combined radium-226 and radium-228, the analytical results shall be combined. If the average of the combined initial monitoring results for radium-226 and radium-228 is above 1/2 the MCL but at or below the MCL, the system shall collect and analyze at least one sample at that sampling point every three years.
- (IV) Systems shall use the samples collected during the reduced monitoring period to determine the monitoring frequency for subsequent monitoring periods (e.g., if a system's sampling point is on a nine year monitoring period, and the sample result is above 1/2 MCL, then the next monitoring period for that sampling point is three years).
- (V) If a system has a monitoring result that exceeds the MCL while on reduced monitoring, the system shall collect and analyze quarterly samples at that sampling point until the system has results from four consecutive quarters that are below the MCL, unless the system enters into another schedule as part of a formal compliance agreement with the department.
- (iv) A gross alpha particle activity measurement may be substituted for the required radium-226 measurement provided that the measured gross alpha particle activity does not exceed 5 pCi/L. A gross alpha particle activity measurement may be substituted for the required uranium measurement provided that the measured gross alpha particle activity does not exceed 15 pCi/L. The gross alpha measurement shall have a confidence interval of 95% (1.65σ , where σ is the standard deviation of the net counting rate of the sample) for radium-226 and uranium. When a system uses a gross alpha particle activity measurement in lieu of a radium-226 and/or uranium measurement, the gross alpha particle activity analytical result shall be used to determine the future monitoring frequency for radium-226 and/or uranium. If the gross alpha particle activity result is less than detection, 1/2 the detection limit shall be used to determine compliance and the future monitoring frequency.
- (G) Monitoring and compliance requirements for beta particle and photon radioactivity. To determine compliance with the maximum contaminant levels in Section 19-13-B102(e)(5)(J) of the Regulations of Connecticut State Agencies for beta particle and photon radioactivity, a system shall monitor at a frequency as follows:
 - (i) Community water systems (both surface and ground water) designated by the department as vulnerable shall sample for beta particle and photon radioactivity. Systems shall collect quarterly samples for beta emitters and annual samples for

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tritium and strontium-90 at each entry point to the distribution system (hereafter called a sampling point), beginning within one quarter after being notified by the department. Systems already designated by the department shall continue to sample until the department reviews and either reaffirms or removes the designation.

- (I) If the gross beta particle activity, or the gross beta particle activity minus the naturally occurring potassium-40 beta particle activity at a sampling point has a running annual average (computed quarterly) less than or equal to 50 pCi/L (screening level), the department may reduce the frequency of monitoring at that sampling point to once every 3 years. Systems shall collect all samples required in paragraph (G)(i) of this section during the reduced monitoring period.
- (ii) Community water systems (both surface and ground water) designated by the department as utilizing waters contaminated by effluents from nuclear facilities shall sample for beta particle and photon radioactivity. Systems shall collect quarterly samples for beta emitters and iodine-131 and annual samples for tritium and strontium-90 at each entry point to the distribution system (hereafter called a sampling point), beginning within one quarter after being notified by the department. Systems already designated by the department as systems using waters contaminated by effluents from nuclear facilities shall continue to sample until the department reviews and either reaffirms or removes the designation.
 - (I) Quarterly monitoring for gross beta particle activity shall be based on the analysis of monthly samples. The quarterly result is an average of the three monthly results.
 - (II) For iodine-131, a composite of five consecutive daily samples shall be analyzed once each quarter. As ordered by the department, and in consultation with the community water system, more frequent monitoring shall be conducted when iodine-131 is identified in the finished water.
 - (III) Annual monitoring for strontium-90 and tritium shall be conducted by means of the analysis of four quarterly samples. The annual result is an average of the four quarterly results.
 - (IV) If the gross beta particle activity beta minus the naturally occurring potassium-40 beta particle activity at a sampling point has a running annual average (computed quarterly) less than or equal to 15 pCi/L (screening level), the department may reduce the frequency of monitoring at that sampling point to every 3 years. Systems shall collect all samples required in subparagraph (G)(ii) of this subdivision during the reduced monitoring period.
- (iii) Community water systems designated by the department to monitor for beta particle and photon radioactivity may not apply to the Department for a waiver from the monitoring frequencies specified in Section 19-13-B102(e)(5)(G)(i) or (ii) of the Regulations of Connecticut State Agencies.

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- (iv) Community water systems may analyze for naturally occurring potassium-40 beta particle activity from the same or equivalent sample used for the gross beta particle activity analysis. Systems may subtract the potassium-40 beta particle activity value from the total gross beta particle activity value to determine if the screening level is exceeded. The potassium-40 beta particle activity shall be calculated by multiplying elemental potassium concentrations (in mg/L) by a factor of 0.82.
- (v) If the gross beta particle activity minus the naturally occurring potassium-40 beta particle activity exceeds the screening level, an analysis of the sample shall be performed to identify the major radioactive constituents present in the sample and the appropriate doses shall be calculated and summed to determine compliance with Section 19-13-B102(e)(5)(J) of the Regulations of Connecticut State Agencies, using the formula in 40 CFR 141.66(d)(2), as amended December 7, 2000. Doses shall also be calculated and combined for measured levels of tritium and strontium to determine compliance.
- (vi) Systems shall monitor monthly at the sampling point(s) which exceed the maximum contaminant level in Section 19-13-B102(e)(5)(J) of the Regulations of Connecticut State Agencies, beginning the month after the exceedance occurs. Systems shall continue monthly monitoring until the system has established, by a rolling average of 3 monthly samples, that the MCL is being met. Systems who establish that the MCL is being met shall return to quarterly monitoring until they meet the requirements set forth in Section 19-13-B102(e)(5)(G)(i)(I) or section 19-13-B102(e)(5)(G)(ii)(I) of the Regulations of Connecticut State Agencies.
- (H) General monitoring and compliance requirements for radionuclides.
 - (i) The Department may require more frequent monitoring than specified in Section 19-13-B102(e)(5)(F) or (G) of the Regulations of Connecticut State Agencies, or may require confirmation samples for positive and negative results when the department determines that the source of supply is vulnerable or subject to contamination. The results of the initial and confirmation samples shall be averaged for use in compliance determinations.
 - (ii) Each public water systems shall monitor at the time designated by the department during each compliance period.
 - (iii) Compliance: Compliance with Section 19-13-B102(e)(5)(I) and (J) of the Regulations of Connecticut State Agencies, shall be determined based on the analytical result(s) obtained at each sampling point. If one sampling point is in violation of an MCL, the system is in violation of the MCL.
 - (I) For systems monitoring more than once per year, compliance with the MCL is determined by a running annual average at each sampling point. If the average of any sampling point is greater than the MCL, then the system is out of compliance with the MCL.
 - (II) For systems monitoring more than once per year, if any sample result causes the running average to exceed the MCL at any sample point, the system is out of compliance with the MCL immediately.
 - (III) Systems shall include all samples taken and analyzed

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- under the provisions of this section in determining compliance, even if that number is greater than the minimum required.
- (IV) If a system does not collect all required samples when compliance is based on a running annual average of quarterly samples, compliance shall be based on the running average of the samples collected.
 - (V) If a sample result is less than the detection limit, zero shall be used to calculate the annual average, unless a gross alpha particle activity is being used in lieu of radium-226 and/or uranium. If the gross alpha particle activity result is less than detection, 1/2 the detection limit shall be used to calculate the annual average.
 - (iv) If the department determines there has been an error in the methods applied to the collection or analysis of the sample, the department shall invalidate the sample result.
 - (v) If the MCL for radioactivity set forth in Section 19-13-B102(e)(5)(I) and (J) of the Regulations of Connecticut State Agencies, is exceeded, the community water system shall give notice to the department pursuant to section 19-13-B102(h) and (i), of the Regulations of Connecticut State Agencies and shall conform to public notification and consumer confidence reporting requirements pursuant to section 19-13-B102(i) of the Regulations of Connecticut State Agencies.
 - (I) MCL for uranium, combined radium-226 and radium-228, and gross alpha particle activity (excluding radon and uranium). The maximum contaminant levels for uranium, combined radium-226 and radium-228 and gross alpha particle activity (including radium-226 but excluding radon and uranium) are listed in Table 3.

Table 3

Contaminant	Maximum Contaminant Level
Combined radium-226 and radium-228	5 Picouries Per Liter (pCi/L)
Gross alpha particle activity (including radium-226 but excluding radon and uranium)	15 pCi/L
Uranium	30 ug/L (Micrograms/Liter)

NOTE: The combined radium-226 and radium-228 value is determined by the addition of the results of the analysis for radium-226 and the analysis for radium-228.

- (J) MCL for beta particle and photon radioactivity. The average annual concentration of beta particle and photon radioactivity from man-made radionuclides in drinking water shall not produce an annual dose equivalent to the total body or any internal organ greater than 4 millirem/year (mrem/yr), as listed in Table 4. Except for radionuclides listed in Table 5, the concentration of man-made radionuclides causing 4 mrem total body or organ dose equivalents shall be calculated as described in 40 CFR 141.66(d)(2), as amended December 7, 2000. If two or more radionuclides are present, the sum of their annual dose

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equivalent to the total body or to any organ shall not exceed 4 mrem/yr.

Table 4

Contaminant	Maximum Contaminant Level
Beta particle and photon radioactivity.	Concentration shall not produce an annual dose equivalent to the total body or any internal organ greater than 4 mrem/yr

Table 5

TABLE 5 -- average annual concentrations assumed to produce: a total body or organ dose of 4 mrem/yr

Contaminant	Critical Organ	Level
Tritium	Total Body	20,000 pCi/L
Strontium-90	Bone Marrow	8 pCi/L

- (K) Compliance dates. Compliance dates for combined radium-226 and radium-228, gross alpha particle activity, gross beta particle and photon radioactivity, and uranium: Community water systems shall comply with the MCLS listed in paragraphs (I) and (J) of this section and compliance shall be determined in accordance with the requirements of paragraphs (A) to (H), inclusive, of this section. Compliance with reporting requirements for the radionuclides under section 19-13-B102(i) of the Regulations of Connecticut State Agencies is required.
- (L) The best available technologies (BATS) for compliance with the MCLS for radionuclides shall conform to those approved by the U.S. EPA and specified in 40 CFR 141.66, as amended December 7, 2000.
- (6) Total coliforms.
 - (A) The MCLG for microbiological contaminants which includes E. coli and fecal coliforms is zero (0).
 - (B) The maximum contaminant level (MCL) is based on the presence or absence of total coliforms in a sample, rather than coliform density. Compliance shall be based on a monthly MCL for total coliforms.
 - (i) For a system which collects at least forty (40) samples per month, if more than five percent (5.0%) of the samples collected during a month are total coliform-positive, the system is in violation of the MCL for total coliforms.
 - (ii) For a system which collects fewer than forty (40) samples per month, if more than one (1) sample collected during a month is total coliform-positive, the system is in violation of the MCL for total coliforms.
 - (C) A system shall determine compliance with the MCL for total coliforms for each month in which it is required to monitor for total coliforms.
 - (D) Analytical methodology.
 - (i) Analytical methods for total coliform. The analysis for total coliform should be conducted using either the membrane filter (MF) technique, or the 10-tube multiple tube fermentation (MTF) technique (five (5) tubes may be utilized provided they collectively equal one hundred (100) ml), or the presence-

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- absence (P-A) coliform test, or the colilert system as approved and specified in 40 CFR 141.21 (f). The standard sample volume required for total coliform analysis, regardless of analytical method used, is one hundred (100) ml.
- (ii) Analytical methods for fecal coliforms. The use of EC medium for determining the presence of fecal coliform in a total coliform-positive culture is required. The procedure for fecal coliform analysis shall conform to those approved by EPA.
 - (iii) Analytical methods for E. Coli. The analysis for E. Coli shall be conducted using either the EC medium plus MUG (4-methylumbelliferyl-B-D-glucuronide), the nutrient agar plus MUG test or other testing methods which conform to those approved by EPA.
- (7) Monitoring requirements
- (A) The monitoring frequency for total coliforms and physical parameters for a community water system (CWS) and a consecutive public water system is based on the population served by the system, and the frequency is as follows:

Table 1

Population Served	Minimum Number Of Routine Samples Per Month
25 to 1,000	1
1,001 to 2,500	2
2,501 to 3,300	3
3,301 to 4,100	4
4,101 to 4,900	5
4,901 to 5,800	6
5,801 to 6,700	7
6,701 to 7,600	8
7,601 to 8,500	9
8,501 to 12,900	10
12,901 to 17,200	15
17,201 to 21,500	20
21,501 to 25,000	25
25,001 to 33,000	30
33,001 to 41,000	40
41,001 to 50,000	50
50,001 to 59,000	60
59,001 to 70,000	70
70,001 to 83,000	80
83,001 to 96,000	90
96,001 to 130,000	100
130,001 to 220,000	120
220,001 to 320,000	150
320,001 to 450,000	180
450,001 to 600,000	210
600,001 to 780,000	240
780,001 to 970,000	270

If a CWS serving twenty-five (25) to one-thousand (1,000) persons has no history of total coliform violation in its current configuration, and a sanitary survey conducted in the past five (5) years shows that the system is supplied solely by a protected ground water source, and is free

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of sanitary defects pursuant to sections 19-13-B51a through 19-13-B51m of the Regulations of Connecticut State Agencies; the department may, if it is satisfied that this water is safe for consumption, reduce the monitoring frequency specified to no less than one (1) sample per quarter. Department approval of the reduced monitoring frequency shall be in writing. Water samples shall be collected by technical personnel employed by an environmental laboratory approved by the department under section 25-40 of the Connecticut General Statutes, or a certified distribution system operator, or a certified treatment plant operator, or a sanitarian, or an employee of the department, or a person under the direct supervision of either a certified distribution system operator, or a certified treatment plant operator.

The residual disinfectant concentration shall be measured at the same point in the distribution system and at the same time as total coliforms are sampled, as specified in this subparagraph and subparagraph (G) of this subdivision. The presence of a residual disinfectant concentration in a sample from a system that is not approved for continuous chlorination shall invalidate the sample.

- (B) The monitoring frequency for total coliforms and physical parameters for non-community water systems is as follows:
- (i) A non-community water system using only ground water sources that are not under the direct influence of surface water and serving one thousand (1,000) persons or fewer shall monitor during each calendar quarter that the system provides water to the public, except that the department may reduce this monitoring frequency, in writing, to no less than once a year if a sanitary survey shows that the system is free of sanitary defects pursuant to sections 19-13-B51a through 19-13-B51m of the Regulations of Connecticut State Agencies.
 - (ii) A non-community water system using only ground water sources that are not under the direct influence of surface water and serving more than one thousand (1,000) persons shall monitor as specified in Table I. Monitoring shall begin no later than December 31, 1990.
 - (iii) A non-community water system using surface water, in total or in part, shall monitor at the frequency specified in Table 1, regardless of the number of persons it serves. Monitoring shall begin no later than December 31, 1990.
 - (iv) A non-community water system using groundwater under the direct influence of surface water, shall monitor at the frequency specified in Table I. Monitoring shall begin six (6) months after the department determines that the ground water is under direct influence of surface water.
 - (v) The residual disinfectant concentration shall be measured at the same point in the distribution system and at the same time as total coliforms are sampled, as specified in this subparagraph and subparagraph (G) of this subdivision. The presence of a residual disinfectant concentration in a sample from a system that is not approved for continuous chlorination shall invalidate the sample.
- (C) Community and non-transient non-community water systems shall conduct monitoring beginning in the initial compliance period to determine compliance with the MCLS specified in subdivisions 2, 3, and 4 of subsection 19-13-B102(e) of the Regulations of Connecticut State

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Agencies. Systems serving fewer than one hundred and fifty (150) service connections shall begin monitoring in the second compliance period for the following chemicals: Benzo(a)pyrene, Dalapon, Di(2-ethylhexyl) adipate, Di(2-ethylhexyl)phthalate, Dinoseb, Diquat, Endothall, Endrin, glyphosate, Hexachlorobenzene, Hexachlorocyclopentadiene, oxamyl(vydate), Picloram, Simazine, 2,3,7,8-TCDD(Dioxin).

(i) Monitoring frequency for community and non-transient non-community water systems

Contaminant	BASE SAMPLING REQUIREMENT		REDUCED SAMPLING REQUIREMENT ⁽⁵⁾	
	Ground Water Systems	Surface Water Systems ⁽⁴⁾	Ground Water Systems	Surface Water Systems
Asbestos	Every 9 yrs.	Every 9 yrs.	Not Applicable	Not Applicable
Nitrate ⁽¹⁾ Nitrite ⁽¹⁾	Annually	Quarterly	Not Applicable	Annually ⁽²⁾
Inorganic Chemicals	Every 3 yrs.	Annually	Not Applicable	Not Applicable
Organic chemicals	Quarterly ⁽⁶⁾	Quarterly ⁽⁶⁾	Annually ^{*(3)}	Annually ⁽³⁾
Pesticides Herbicides And PCBs	Quarterly ⁽⁶⁾	Quarterly ⁽⁶⁾	Systems serving more than 3300 persons: two quarters per year every 3 years ⁽³⁾ . Systems serving 3300 persons or less; every 3 years ⁽³⁾	

Notes:

- (1) Each transient non-community water system shall monitor annually for nitrate and nitrite beginning January 1, 1993.
- (2) Applicable only if all analytical results from four consecutive quarters are less than fifty percent (50%) of the MCL.
- (3) Applicable only if no single contaminant is detected in the results of the four (4) consecutive quarters of the base sampling requirement.
- * Reduce to once every three (3) years after three (3) years of no detection of any contaminant in annual sampling.
- (4) Or groundwater under the influence of surface water systems.
- (5) Applicable only if granted in writing by the department.
- (6) See sections 19-13-B102(e)(7)(C)(x), (xiv) and (xvi) of the Regulations of Connecticut State Agencies for exception.

- (ii) A system shall monitor quarterly beginning in the next quarter, if in any one sample Inorganic chemical, with the exception of nitrate and nitrite, exceeds the MCL; organic chemical, pesticide, herbicide or PCB is detected at a level exceeding the MDL; or nitrate or nitrite exceeds or equals fifty percent (50%) of the MCL.
- (iii) The department may decrease the quarterly monitoring requirement of section 19-13-B102(e)(7)(C)(ii) of the Regulations of Connecticut State Agencies for inorganic chemicals, with the exception of nitrate and nitrite, to the base sampling requirement and organic chemicals along with

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- pesticides, herbicides and PCB to annual sampling provided it has determined that the system is reliably and consistently below the MCL for a minimum of two (2) consecutive quarters for a groundwater system and a minimum of four(4) consecutive quarters for a surface water system. The department may decrease the quarterly monitoring requirement for systems which violated the MCL for organic chemicals, pesticides, herbicides and PCB to annual sampling provided that the system is reliably and consistently below the MCL for a minimum of four (4) consecutive quarters. The department may decrease the quarterly monitoring requirement for systems, which exceeded the MDL for a contaminant that does not have an established MCL, to the reduced sampling requirement.
- (iv) After three (3) consecutive annual samples as required in section 19-13-B102(e)(7)(C)(iii) of the Regulations of Connecticut State Agencies are less than the MDL the department may allow a system to reduce the sampling frequency for organic chemicals, pesticides, herbicides and PCB to the reduced sampling requirement.
 - (v) After four (4) consecutive quarterly samples as required in section 19- 13-B102(e)(7)(C)(ii) of the Regulations of Connecticut State Agencies are reliably and consistently less than the MCL for a groundwater system and less than fifty percent (50%) of the MCL for a surface water system, the department may allow a system to reduce the sampling frequency for nitrate and nitrite to annually.
 - (vi) After the initial round of quarterly sampling is completed, a system that is monitoring annually shall take subsequent samples during the quarter(s) that resulted in the highest analytical result.
 - (vii) The department may increase the required monitoring frequency to detect variations within the system.
 - (viii) Each public water system shall monitor at the time designated by the department within each compliance period.
 - (ix) The department may determine compliance or initiate enforcement action based upon analytical results or other information compiled by its representatives.
 - (x) With the exception of nitrate, nitrite and TTHM, the department may allow the use of monitoring data collected after January 1, 1990 to satisfy the base sampling requirement provided the data is generally consistent with subsection 19-13-B102(e) of the Regulations of Connecticut State Agencies for pesticides, herbicides, PCBs, organic chemicals and inorganic chemicals. Systems which use grandfathered samples of organic chemicals and did not detect any contaminant listed in subsection 19-13-B102(e)(4) of the Regulations of Connecticut State Agencies shall monitor annually beginning January 1, 1993.
 - (xi) Public water systems utilizing surface water or groundwater under the direct influence of surface water as a source of supply and serving less than 10,000 persons and community water systems that serve 10,000 or more persons shall analyze for total trihalomethanes (TTHM) at quarterly intervals on at least four (4) water samples for each entry point to the system.

Samples shall be collected in the distribution system at a

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location(s) approved by the department. The monitoring frequency of (TTHM) may be reduced pursuant to 40 CFR 141.30. The reduced monitoring frequency shall be approved in writing by the department. When trihalomethanes are detected in water entering the distribution system as a result of disinfection, the department may exempt public water systems serving less than 10,000 people and utilizing groundwater from the quarterly testing requirement of section 19-13-102(e)(7)(C)(ii) of the Regulations of Connecticut State Agencies provided the department determines that such testing is not necessary for the protection of the public health.

CWS that detects TTHM above 0.080 mg/L, but below 0.100 mg/L, as an annual average monitored and calculated under this subclause shall include health effects language prescribed in appendix A to 40 CFR 141 subpart O to their annual consumer confidence report.

Revised requirements detailed in subdivision (11) of this subsection take precedence over these requirements beginning on the effective date of this section. After December 31, 2003, this subclause is no longer applicable.

- (xii) The department may grant a public water system a waiver from monitoring for dioxin if the department determines that the watershed or zone of influence has not been or is not being used for any of the following land uses: pesticides and herbicides manufacturer, pulp and paper manufacturer, plastics manufacturer, wood preservative manufacturer, landfill and domestic waste transfer station, or hazardous waste disposal facility; and that the public water system has no water quality history indicating the presence of dioxin. The waiver shall be in writing and is subject to renewal for each compliance period.
- (xiii) The department may grant a public water system a waiver from monitoring for endoathal if the department determines that within the past year treatment with endoathal has not been applied to any body of water, turf on sod farms or golf courses within the watershed or zone of influence of the source of supply. The waiver shall be in writing and is subject to renewal for each compliance period.
- (xiv) The department may grant a public water system a waiver from the monitoring requirement for pesticides, herbicides and PCB if the department determines that the public water systems previous analytical results, collected from the source of supply and analyzed in accordance with the EPA's approved testing techniques and methodologies, showed no detectable limit of the contaminant to be waived and the source of supply is constructed and protected pursuant to sections 19-13-B32 and 19-13-B51d of the Regulations of Connecticut State Agencies. The waiver shall be in writing and is subject to renewal for each compliance period.
- (xv) Instead of performing the monitoring requirements for the chemicals in section 19-13-B102(c)(3) of the Regulations of Connecticut State Agencies that do not have an established MCL, systems serving fewer than one hundred and fifty (150)

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service connections may send a letter to the department stating that the system is available for sampling. This letter shall be sent to the department by January 1, 1994. The system shall not send such samples to the department, unless requested to do so by the department.

- (xvi) The department may grant a public water system a waiver from the monitoring requirement for organic chemicals (VOCs) if the department determines that the contaminant has not been previously used within the watershed or zone of influence and that the system's initial monitoring results showed no detectable limit of the contaminant to be waived. The waiver shall be in writing and is subject to renewal for each compliance period. As a condition of the waiver, the system shall take one (1) sample at each sampling point during the time the waiver is effective.
 - (xvii) All systems that use a new source of water that began operation after January 22, 2004, shall demonstrate compliance with the MCL for inorganic chemicals, organic chemicals, pesticides, herbicides, and PCBs. The system shall also comply with the initial sampling frequencies specified by the department to ensure a system can demonstrate compliance with the MCL. Routine and increased monitoring frequencies shall be conducted in accordance with the requirements in this section.
- (D) Sampling sites.
- (i) Systems shall collect total coliform and physical samples at sites that are representative of water throughout the distribution system, according to that system's written sample siting plan. These plans are subject to department review, revision and approval. Systems shall collect the monthly samples at regular intervals throughout the month, except that a system that uses ground water sources that are not under the direct influence of surface water and serves one thousand (1,000) persons or fewer, may collect all required samples on a single day if they are taken from different sites. The siting plan is to be reviewed as necessary and is subject to approval by the department, usually in conjunction with the sanitary surveys.
 - (ii) Samples for organic chemicals, inorganic chemicals, pesticides, herbicides and PCB shall be collected after treatment, if any, at every entry point to the distribution system which is representative of each active source of supply. If the system draws water from more than one active source of supply and the sources are blended before distribution, and the system elects to sample the blended water, the system shall then sample at an entry point to the system during periods when water representative of these sources is being used. The department may designate additional sampling points within the distribution system or at consumers' taps, which more accurately determine consumer exposure. All samples shall be taken at the same sampling point unless the department determines that conditions make another sampling point more representative of each source, treatment plant or the distribution system. If a source is not active, it shall be tested when activated and subject to approval by the department prior to being put into service.
 - (iii) Systems shall collect the asbestos sample(s) from the distribution system at a location that is representative of each entry point. When applicable, the sample(s) shall be collected

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- (iv) from a tap served by an asbestos cement pipe and under conditions where asbestos contamination is most likely to occur. The department may reduce the total number of samples a system shall analyze for asbestos, organic chemicals, pesticides, herbicides and PCB by allowing the use of compositing. Composite samples from a maximum of five (5) sampling points within a single system for all public water systems and from different systems for systems serving three thousand three hundred (3,300) persons or less are allowed, provided that the method detection limit (MDL) used for analysis multiplied by the number of composite samples is less than the MCL (e.g., MDL multiplied by the number of samples is less than the MCL). Compositing of samples shall be done in a state approved laboratory and analyzed within fourteen (14) days of sample collection. If the concentration in the composite sample is greater than or equal to the method detection limit of any contaminant listed in subsections (e)(2) through (e)(4) of this section, then a follow-up sample shall be taken and analyzed within fourteen (14) days from each sampling point included in the composite. These samples shall be analyzed for the contaminants that were detected in the composite sample. If duplicates of the original sample taken from each sampling point used in the composite are available, then the system may use these instead of resampling. The duplicates shall be analyzed and the results reported to the department within fourteen (14) days of collection.
- (E) Sanitary surveys.
 - (i) Frequency of sanitary surveys for a public water system collecting fewer than five (5) total coliform samples/month is as follows:

System Type	Initial Survey Completed By	Frequency Of Subsequent Surveys
Community Water System	6/29/94	Every 5 Years
Non-community Water	6/29/99	Every five years ¹

Note:

¹ For a non-community water system which uses only protected and disinfected groundwater in accordance with sections 19-13-B51a through 19-13-B51(1) of the regulations of Connecticut State Agencies, the sanitary survey may be repeated ever ten (10) years, instead of every five (5) years.

- (ii) Only the department or an agent approved by the department may conduct a sanitary survey. The department shall review the sanitary survey results to determine the adequacy of the system, including the existing monitoring frequency. The system is responsible for ensuring that the survey takes place.
- (iii) In conducting a sanitary survey of a system using groundwater, information on sources of contamination within the delineated wellhead protection area shall be considered. If such information had been collected since the last sanitary survey, a special study to collect new information is not necessary.
- (iv) A system that provides water from a surface water source or a

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groundwater source under the direct influence of surface water, and that provides and operates treatment pursuant to section 19-13-B102 (j)(2) of the Regulations of Connecticut State Agencies, shall respond in writing to a significant deficiency stated in a department's sanitary survey report no later than forty- five (45) days after the system's receipt of such a report. The system's response shall indicate how and on what schedule the system will address the significant deficiency as defined in subsection (a) of this section. The department, or an agent approved by the Department, shall perform a sanitary survey of community water systems every three (3) years. The department, or an agent approved by the department, shall perform a sanitary survey of non- community water systems every five (5) years.

- (F) Invalidation of total coliform-positive samples. The department may invalidate a total coliform-positive sample only if:
 - (i) The department approved laboratory establishes and verifies in writing that improper sample analysis caused the total coliform-positive result.
 - (ii) The system determines that the contamination is a domestic or other non- distribution system plumbing problem on the basis that one (1) or more repeat sample(s) taken at the same tap as the original total coliform-positive sample is total coliform-positive, but all repeat samples at nearby sampling locations are total coliform-negative. (The department cannot invalidate a total coliform-positive sample on the basis of repeat samples if all the repeat samples are total coliformnegative, or if the system has only one (1) service connection.)
 - (iii) The department has substantial grounds to believe that a total coliformpositive result is due to some circumstance or condition that does not reflect water quality in the distribution system, if the basis for this determination with the rationale for the decision is documented in writing, this document is signed and approved by the supervisor of the department official who makes this determination, and the documentation is made available to EPA and the public. In this case, the system shall still collect all repeat samples as required in subparagraph (G) of subsection 19-13-B102(e)(7) of the regulations of Connecticut State Agencies. The department may not invalidate a total coliform-positive sample solely on the grounds that all repeat samples are total coliform-negative.
- (G) Repeat monitoring/additional routine samples:
 - (i) If a routine sample is confirmed total coliform-positive, the system shall collect a set of repeat samples within twenty-four (24) hours of the confirmed positive result according to Table 2.

Table 2 - Monitoring Requirements Following A Total Coliform-Positive Routine Sample:

Routine Samples/Mo	Repeat Samples ⁽¹⁾	Routine Samples Next Month ⁽²⁾
1/Mo. or fewer	4	5/Mo.
2/Mo.	3	5/Mo.
3/Mo.	3	5/Mo.
4/Mo.	3	5/Mo.
5/Mo. or more	3	Table 1 ⁽³⁾

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- (1) Number of repeat samples in the same month for each total coliform-positive routine sample.
 - (2) Except where the department has invalidated the original routine sample.
 - (3) System need not take any additional samples beyond those it is required to take according to Table 1.
-

The department shall extend the twenty-four (24) hour limit to no more than ninety-six (96) hours provided the system verifies that their contract laboratory is closed for the weekend or holidays or their sample sites are unavailable. (Waiver shall be requested and granted before the original twenty-four(24) hour period elapses.)

- (ii) The system shall collect at least one (1) repeat sample from the sampling tap where the original total coliform-positive sample was taken and at least one (1) repeat sample at a tap within five (5) service connections upstream and at least one repeat sample at a tap within five (5) service connections downstream of the original sampling site. For those systems that shall collect four (4) repeat samples, the fourth repeat sample can be collected from any distribution sampling point within the system. If a total coliform-positive sample is at the end or at the beginning of the distribution system, the system shall collect one (1) repeat sample at the original sampling point and the other required repeat samples at sampling points within five (5) service connections upstream or downstream from the original sampling point.
- (iii) The system shall collect all repeat samples on the same day, except that the department may allow a system with a single service connection to collect the required set of repeat samples over a four-day period or to collect a larger volume repeat sample(s) in one (1) or more sample containers of any size, as long as the total volume collected is at least 400 ml (300 ml for systems that collect more than one (1) routine sample/month) provided four (4) separate sampling locations are not available.
- (iv) If a system collecting fewer than five (5) routine samples per month has one (1) or more total coliform-positive samples and the department does not invalidate the sample(s), it shall collect at least five (5) routine samples during the next month the system provides water to the public.
- (v) If after a system collects a routine sample and before it learns the results of the analysis of that sample, it collects another routine sample(s) from within five (5) adjacent service connections of the initial sample, and the initial sample after analysis is found to contain total coliforms; then the system may count the subsequent sample(s) as a repeat sample instead of as a routine sample.
- (vi) If one (1) or more repeat samples in the set is confirmed total coliformpositive, the system shall collect an additional set of repeat samples. The system shall collect the additional samples within twenty-four (24) hours of the confirmed positive result, unless the department extends the limit as noted in subparagraph (7)(G)(i) of this subsection. The system shall repeat this process until either total coliforms are not detected in one (1) complete set of repeat samples or the system determines that the MCL for total coliforms has been exceeded

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- and notifies the department.
- (vii) Results of all routine and repeat samples not invalidated by the department shall be included in determining compliance with the MCL for total coliforms. Special purpose samples shall not be used to determine compliance with the MCL for total coliforms.
- (H) A system that uses a groundwater source under the direct influence of surface water, and that does not provide and operate treatment pursuant to section 19-13-B102(j)(2) of the Regulations of Connecticut State Agencies, shall collect and test for total coliform and turbidity levels as specified in the following subclauses:
 - (i) The system shall collect at least one (1) total coliform sample which shall be collected near the first service connection each day the turbidity level of the source water exceeds one (1) nephelometric turbidity unit (NTU). The system shall collect this coliform sample within twenty-four (24) hours of the first exceedance of one (1) NTU, unless the department waives this requirement as noted in subparagraph (7)(G)(i) of this subsection. Sample results from this coliform monitoring shall be included along with the results of all acceptable, as determined by the department, routine and repeat samples in determining compliance with the MCL for total coliforms.
 - (ii) The system shall perform tests for turbidity on samples collected, at least daily, at a point or points representative of water entering the distribution system. The system shall conduct such tests in accordance with the method as specified in 40 CFR 141.74(a)(1). When the turbidity of any such sample exceeds one (1) nephelometric turbidity unit (NTU), the sampling shall be repeated and a new test made for turbidity within one hour of the original test or as soon as practical. If the repeat test also exceeds the turbidity limit of one (1) NTU, this shall be reported to the department within twenty-four (24) hours. If the monthly average exceeds one (1) NTU, or if the average of two (2) samples taken on consecutive days exceeds five (5) NTU, it shall be reported to the department within twenty-four (24) hours.
- (I) Fecal coliform and Ecoli requirements.
 - (i) If any routine or repeat sample is total coliform-positive, the system shall analyze that total coliform-positive culture medium to determine if fecal coliforms or Ecoli are present. The system shall notify the department by the end of the day on which the system is notified of the positive test result but no later than ninety-six (96) hours from the time of sample collection. If the department office is closed, notification shall be made before the end of the next business day.
 - (ii) If any repeat sample is fecal coliform-positive or Ecoli-positive, or if a fecal coliform-positive or Ecoli-positive routine sample is followed by a total coliformpositive repeat sample and the repeat sample is not invalidated, the system is in violation of the MCL for total coliforms. This is an acute risk violation of the MCL for total coliforms.
- (J) Heterotrophic bacteria interference (HBI). The department approved laboratory shall invalidate any total coliform sample which produces: a turbid culture in the absence of gas production using the multiple tube fermentation (MTF) technique, or a turbid culture in the absence of an acid reaction using the presence-absence (P-A) coliform test, or confluent growth or a colony number that is "too numerous to count" using the

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membrane filter (MF) technique (unless total coliforms are detected). The system shall collect another sample from the same location within twenty-four (24) hours of the confirmed interference problem, and have it analyzed for total coliforms. If HBI occurs in replacement samples, the system shall continue to resample the same location within twenty-four (24) hours until an acceptable sample is obtained. The results of the acceptable sample shall be included in compliance calculations.

- (K) Sampling protocol.
 - (i) Where a different schedule is prescribed pursuant to federal regulations, as they may be amended from time to time, the more stringent testing schedule shall apply.
 - (ii) Laboratory analyses shall be conducted using EPA sampling and testing methods and by an environmental laboratory approved by the department under section 25-40 of the Connecticut General Statutes.
 - (iii) Water samples shall be collected by technical personnel employed by an environmental laboratory approved by the department under section 25-40 of the Connecticut General Statutes, or a certified distribution system operator, or a certified treatment plant operator, or a sanitarian, or an employee of the department, or a person under the direct supervision of either a certified laboratory, a certified distribution system operator or a certified treatment plant operator.
 - (iv) Analytical methods for all inorganic chemicals, organic chemicals, pesticides, herbicides and PCB shall conform to those approved by EPA and described in 40 CFR 141.23(k), and 141.24(e), as amended October 29, 2002. Analyses for lead, copper, pH, conductivity, calcium, alkalinity, orthophosphate, silica, and temperature shall be conducted pursuant to 40 CFR 141.89.
 - (v) Inorganic samples shall be collected and handled in accordance with 40CFR 141.23(k)(2), as amended March 25, 2003. Samples shall be collected, handled, and tested in accordance with the latest edition of "standard methods for the examination of water and wastewater" or in accordance with EPA guidelines as specified in the most current edition of the "handbook for sampling and sample preservation of water and wastewater" (EPA--600/4-82--029).
 - (vi) Arsenic sampling results shall be reported to the nearest 0.001 mg/L.
- (L) Where the fluoride content is artificially adjusted, tests for fluoride shall be made on each source so adjusted at least daily. The fluoride content of such supplies shall be maintained between 0.8 mg/l and 1.2 mg/l. If the monthly average of the daily tests does not fall within these limits it shall be reported as a failure to comply with this subparagraph. If warranted by conditions that may be detrimental to the health of consumers, samples from each fluoridated source shall be submitted to the department for testing.
- (M) Where the water is chlorinated, at least daily tests shall be made for residual chlorine. A system that uses a groundwater source under the direct influence of surface water, and that does not provide and operate treatment pursuant to section 19-13-B102(j)(2) of the Regulations of Connecticut State Agencies, shall disinfect in accordance with section 19-13-B102(j)(3)(B) of the Regulations of Connecticut State Agencies. When groundwater source not under the direct influence of surface water

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- is chlorinated, a free chlorine residual of at least 0.2 mg/l after ten (10) minutes contact, or the equivalent thereof, shall be used.
- (N) pH and phosphate monitoring.
 - (i) Where the pH value is artificially adjusted, tests for pH value shall be made of the treated water daily, or as required by the department.
 - (ii) Where phosphate or other corrosion control chemicals are used, tests shall be made for the phosphate level or for other chemicals involved in the corrosion control treatment at least once every two weeks, or as required by the department. The tests shall be done at a location(s) approved by the department.
 - (O) In cases where one (1) system supplies water to a consecutive public water system, tests for inorganic chemicals, organic chemicals, pesticides, herbicides, PCB and radioactive substances need not be made by the consecutive public water system except for lead, copper and asbestos which shall be tested in both systems according to subsection (e)(8) and (e)(7)(C) of this section. Bacteriological and physical tests shall be performed at the required frequencies by both systems. The department may waive asbestos testing for consecutive public water systems if the system can verify that it does not have any asbestos cement pipes in its distribution system.
 - (P) Confirmation samples.
 - (i) Where the results of sampling for inorganic chemicals, organic chemicals, pesticides, herbicides and PCB, with the exception of nitrate, nitrite and TTHM exceed the MCL, the department may require that one additional sample be collected no later than two (2) weeks after the first sample is taken. The confirmation sample shall be collected at the same sampling point as the first sample.
 - (ii) Where nitrate or nitrite sampling results exceed the MCL, the system shall take a confirmation sample within twenty-four (24) hours of the system's receipt of notification of the analytical results of the first sample. Systems unable to comply with the twenty-four (24) hour sampling requirement shall immediately notify the consumers in accordance with subsection 19-13-B 102(i) of the regulations of Connecticut State Agencies. Systems exercising this option shall take and analyze a confirmation sample within two (2) weeks of notification of the analytical results of the first sample.
 - (iii) The results of the initial and confirmation sample shall be averaged. The resulting average shall be used to determine the system's compliance in accordance with subparagraph (Q) of this subsection. The department has the discretion to delete results of obvious sampling errors.
 - (iv) The department may require more frequent monitoring than specified or may require confirmation samples for positive and negative results when the department determines that the source of supply is vulnerable and subject to contamination.
 - (Q) Compliance.
 - (i) For systems that are conducting monitoring at a frequency greater than annual compliance with the MCL, with the exception of TTHM, nitrate and nitrite shall be determined based on the results of a running annual average of quarterly sampling for each sampling location. If more than one (1) sample is collected at a location during a quarter, the results of the samples shall be

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averaged to obtain a single result of that quarter. If one (1) location's running annual average is greater than the MCL, then the system shall be deemed to be out of compliance. A system deemed out of compliance shall be subject to a departmental enforcement action. If any one (1) positive sample result would cause the annual average to be exceeded, then the system shall be deemed to be out of compliance immediately. The department may also require a resample of a negative result when the validity of the results, as determined by the department, may be inaccurate. All sample results shall be compiled in determining compliance. When calculating results for compliance, any chemical result that is reported as being below the MDL for that chemical shall be counted as a zero (0). If a system fails to collect the required number of samples, compliance shall be based on the average concentration of the total number of samples collected. The system shall not be considered in violation of the MCL until it has completed one year of quarterly sampling. If a confirmation sample is required by the department the determination of compliance shall be based on the average of the two (2) samples.

- (ii) If any sample exceeds the MCL for nitrate or nitrite, the system shall take a confirmation sample. The compliance determination is based on the average of the results of the initial and confirmation samples of each sampling point.
 - (iii) If a system has a distribution system that is physically or hydraulically isolated from other parts of the distribution system, only that part of the system that exceeds an MCL shall be deemed out of compliance. The department shall apply the public notice requirement to that portion of the system, which is out of compliance. Public notice shall be effected pursuant to subsection 19-13-B102(i) of the Regulations of Connecticut State Agencies.
 - (iv) The best available technologies for compliance with the MCL shall conform to those approved by EPA and specified in 40 CFR 141.61(b), 40 CFR 141.62(c), as amended June 29, 2004, and 40 CFR 141.64(c). Control of treatment processes to reduce disinfectant demand and control of disinfection treatment processes to reduce disinfectant levels is identified as the best means available for achieving compliance with maximum residual disinfectant levels. For surface water and GWUDI systems using conventional treatment, enhanced coagulation or enhanced softening are identified as treatment techniques for controlling disinfection byproduct precursors in drinking water treatment and distribution systems.
- (R) Monitoring requirements for systems with a groundwater source under the direct influence of surface water.

For a groundwater source under the direct influence of surface water that is required to provide and operate treatment pursuant to section 19-13-B102(j)(2) of the Regulations of Connecticut State Agencies, the department shall be guided by its document entitled, "Determination Of Groundwater Under The Direct Influence Of Surface Water." Interim monitoring requirements shall be required prior to installation of filtration. Specific requirements shall be determined pursuant to subsections (j)(2)(D), (j)(3)(A), (e)(7)(H), and(e)(7)(M) of this section.

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(S) Monitoring requirements for systems that use a surface water source or a groundwater source under the direct influence of surface water, and that provide and operate treatment pursuant to section 19-13-B102(j)(2) of the Regulations of Connecticut State Agencies.

(i) Turbidity measurements as required by section 19-13-B102(j)(4) of the Regulations of Connecticut State agencies shall be performed on representative samples of the system's combined filtered water at a point prior to entering a distribution system using a continuous turbidimeter for the time period the filter(s) contribute(s) water to the system, and the system shall record a turbidity result at least every four (4) hours.

Additionally, if a system serves 10,000 or more persons and uses conventional or direct filtration, the system shall perform turbidity measurements on samples representative of effluent water from each individual filter, using a continuous turbidimeter during the time period the filter contributes water to the combined filter water or serves water to the public. The system shall record the turbidity result at least every fifteen (15) minutes during this period.

Additionally, beginning on January 1, 2005, if a system serves fewer than 10,000 persons and uses conventional or direct filtration, the system shall perform turbidity measurements on samples representative of effluent water from each individual filter, using a continuous turbidimeter during the time period the filter contributes water to the combined filter water or serves water to the public. The system shall record the turbidity result at least every fifteen (15) minutes during this period. If the system only consists of two or fewer filters, the system may conduct continuous monitoring of combined filter effluent turbidity in lieu of individual filter effluent turbidity monitoring. Combined filter effluent turbidity monitoring shall meet the same requirements set forth in this subclause.

If there is a failure in the continuous monitoring equipment, grab sampling every four (4) hours shall be conducted in lieu of continuous monitoring, but for no more than five (5) working days following the failure of the equipment for systems serving 10,000 or more persons and for no more than 14 calendar days for systems serving fewer than 10,000 people. A system shall validate the continuous measurement on a daily basis using the appropriate procedure in the latest edition of "Standard Methods For The Examination Of Water And Wastewater" and shall calibrate the turbidimeters using a procedure specified by the equipment manufacturer. A copy of this publication can be obtained by request to the American Public Health Association in Washington, DC.

The system shall conduct all turbidity measurements in accordance with a method specified in 40 CFR 141.74(a)(1).

(ii) The residual disinfectant concentration of the water entering the distribution system shall be monitored continuously, and the lowest value shall be recorded each day, except that if there is a

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failure in the continuous monitoring equipment, grab sampling every four (4) hours may be conducted in lieu of continuous monitoring, but for no more than five (5) working days following the failure of the equipment.

- (iii) The residual disinfectant concentration shall be measured at least at the same points in the distribution system and at the same time as total coliforms are sampled, as specified in section 19-13-B102(e)(7) of the Regulations of Connecticut State Agencies. Heterotrophic bacteria, measured as heterotrophic plate count (HPC) as specified in 40 CFR 141.74 (a)(1), may additionally be measured and used in conjunction with the measurement for residual disinfectant concentration when determining compliance pursuant to section 19-13-B102(j)(3)(B)(iii) of the Regulations of Connecticut State Agencies.
- (iv) A system serving 10,000 or more persons, having a TTHM annual average of greater than or equal to 0.064 mg/L or a HAA5 annual average of greater than or equal to 0.048 mg/L, shall develop a disinfection profile in accordance with 40 CFR 141.172(b) and submit the disinfection profile pursuant to section 19-13-B102(h)(6)(B)(iv) of the Regulations of Connecticut State Agencies.

TTHM and HAA5 annual averages under this subclause, as defined in subsection (a) of this section, shall be based on the monitoring requirement of 40 CFR 141.172(a)(1) through (5) for each respective treatment plant with a surface water source or a groundwater source under the direct influence of surface water.

A system shall monitor and calculate logs of inactivation in accordance with 40 CFR 141.172(b) when developing a disinfection profile, and inactivation values achieved by various disinfectants for giardia lamblia cysts and viruses.

- (v) A system serving fewer than 10,000 persons, having a TTHM annual average of greater than or equal to 0.064 mg/L or a HAA5 annual average of greater than or equal to 0.048 mg/L, shall develop a disinfection profile in accordance with 40 CFR 141.532, as amended January 14, 2002, 40 CFR 141.533, as amended January 14, 2002, 40 CFR 141.534, as amended January 14, 2002, 40 CFR 141.535, as amended January 14, 2002 and 40 CFR 141.536, as amended January 14, 2002, and submit the disinfection profile pursuant to section 19-13-B102(h)(6)(B)(iv) of the Regulations of Connecticut State Agencies.

TTHM and HAA5 annual averages under this subclause, as defined in subparagraph (a) of this section, shall be based on samples collected, during the month of the warmest water temperature and at the point of maximum residence time in the distribution system for each respective treatment plant with a surface water source or a groundwater source under the direct influence of surface water.

A system shall monitor and calculate logs of inactivation in

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accordance with 40 CFR 141.532, as amended January 14, 2002, 40 CFR 141.533, as amended January 14, 2002, 40 CFR 141.534, as amended January 14, 2002, 40 CFR 141.535, as amended January 14, 2002, and 40 CFR 141.536, as amended January 14, 2002, when developing a disinfection profile, and inactivation values achieved by various disinfectants for giardia lamblia cysts and viruses.

- (8) Monitoring requirements for lead and copper in tap water.
 - (A) Sample site location.
 - (i) By the applicable date for commencement of monitoring under subparagraph (D)(i) of this subdivision, 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 subdivision, and that is sufficiently large to ensure that the water system can collect the number of lead and copper tap samples required in subparagraph (C) of this subdivision. All sites from which first draw samples are collected shall be selected from this pool of targeted sampling sites. Sampling sites shall not include faucets that have point-of-use or point-of-entry treatment devices designed to remove inorganic contaminants.
 - (ii) A water system shall use the information on lead, copper, and galvanized steel that it is required to collect under 40 CFR 141.42(d) (special monitoring for corrosivity characteristics) when conducting a materials evaluation. When an evaluation of the information collected pursuant to 40 CFR 141.42(d) is insufficient to locate the requisite number of lead and copper sampling sites to meet the targeting criteria of this subparagraph, 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 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): all plumbing codes, permits, and records in the files of the building department(s) that indicate the plumbing materials that are installed within publicly and privately owned structures connected to the distribution system; 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 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.
 - (iii) The sampling sites selected for a community water system's sampling pool (tier 1 sampling sites) shall consist of single family structures that: contain copper pipes with lead solder installed after 1982 or contain lead pipes; or are served by a lead service line. When multiple-family residences comprise at least twenty percent (20%) of the structures served by a water system, the system may include this type of structures in its sampling pool.
 - (iv) 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: contain copper pipes with lead solder installed after 1982 or

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- (v) contain lead pipes; or are served by a lead service line. 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 subclause, 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.
 - (vi) The sampling sites selected for a non-transient non-community water system (tier 1 sampling sites) shall consist of buildings that: contain copper pipes with lead solder installed after 1982 or contain lead pipes; or are served by a lead service line.
 - (vii) A non-transient non-community water system with insufficient tier 1 sites to meet the targeting criteria in subparagraph (A)(vi) of this subdivision 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 subclause, 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.
 - (viii) Any water system having a distribution system containing lead service lines shall draw fifty percent (50%) of the samples it collects during each monitoring period from sites that contain lead pipes, or copper pipes with lead solder, and fifty percent (50%) of those 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.
- (B) Sample collection methods.
- (i) All tap samples for lead and copper collected in accordance with this subsection, with the exception of lead service line samples collected pursuant to sections 19-13-B102(e)(8)(B)(iii) and (v) of the Regulations of Connecticut State Agencies, shall be first-draw samples.
 - (ii) 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 non-residential building shall be one (1) 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 section 19-13-B102(e)(8)(B)(v) of the Regulations of Connecticut State Agencies shall be one (1) liter in volume and shall be collected at an interior tap from which water is typically drawn for consumption. First-draw samples may be collected by the system or the system may allow residents to collect first-draw samples after instructing the residents of the sampling

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procedures specified in this subparagraph. 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 shall stand in the original container for the time specified in the approved EPA method, pursuant to section 19-13-B102(e)(7)(k) of the Regulations of Connecticut State Agencies, before the sample is analyzed.

- (iii) Each service line sample shall be one (1) liter in volume and have stood motionless in the lead service line for at least six (6) hours. Lead service line samples shall be collected in one (1) of the following three (3) ways: 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); tapping directly into the lead service line; or 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.
 - (iv) A water system shall collect each first-draw tap sample from the same sampling site from which it collected a previous sample. If 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.
 - (v) A non-transient non-community water system, or a community water system whose operation mandates continuous daily flow, such as a prison or hospital, that does not have enough taps that can supply first-draw samples, as defined in section 19-13-B102(a) of the Regulations of Connecticut State Agencies, shall notify the Department in writing when it substitutes non-first-draw samples, pursuant to section 19-13-B102(h)(5)(A)(vii) of the Regulations of Connecticut State Agencies. Such systems shall collect as many first-draw samples from appropriate taps as possible and identify sampling times and locations that would likely result in the longest standing time for the remaining sites.
- (C) Number of samples. Water systems shall collect at least one (1) sample during each monitoring period specified in subparagraph (D) of this subdivision from the number of sites listed ("Standard Monitoring") in the table in this subparagraph. A system conducting reduced monitoring under subparagraph (G) of this subdivision shall collect at least one (1) sample from the number of sites specified "Reduced Monitoring" in the table in this subparagraph during each monitoring period specified in subparagraph (G) of this subdivision. 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.

System Size (# People Served)	# of Sites (Standard Monitoring)	# of Sites (Reduced Monitoring)
Greater than 100,000	100	50
10,001-100,000	60	30

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3,301 to 10,000	40	20
501 to 3,300	20	10
101 to 500	10	5
Less than or equal to 100	5	5

In the case of a consecutive public water system, the number of sampling sites shall be based on the total population of the consecutive system and the supplier's system. The number of sites for each system shall then be apportioned according to the percentage of the total population served by each system.

- (D) 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 (6) Month Monitoring Period Begins
Greater than 50,000	January 1, 1992
3,301 to 50,000	July 1, 1992
Less than or equal to 3,300	July 1, 1993

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

All small and medium-size systems shall monitor during each six (6) month monitoring period until: the system exceeds the lead or copper action level and is therefore required to implement the corrosion control treatment requirements under subsection (j)(7) of this section, in which case the system shall continue monitoring in accordance with subparagraph (E) of this subdivision, or 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 subparagraph (G) of this subdivision.

- (E) Monitoring after installation of corrosion control and source water treatment. Any large system that installs optimal corrosion control treatment pursuant to subsection (j)(7)(D)(iv) of this section shall monitor during two (2) consecutive six (6) month monitoring periods by the date specified in subsection (j)(7)(D)(v) of this section. Any small or medium-size system that installs optimal corrosion control treatment pursuant to subsection (j)(7)(E)(v) of this section shall monitor during two (2) consecutive six (6) month monitoring periods by the date specified in subsection (j)(7)(E)(vi) of this section. Any system that installs source water treatment pursuant to subsection (j)(9)(A)(iii) of this section shall monitor during two (2) consecutive six (6) month monitoring periods by the date specified in subsection (j)(9)(A)(iv) of this section.
- (F) 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 subsection (j)(8)(F) of this section, the system shall monitor during each subsequent six (6) month monitoring period, with the first monitoring period to begin on the date the department specifies the optimal values under subsection (j)(8)(F) of this section.

- (G) Reduced monitoring.

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- (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 subparagraph (c) of this subdivision, 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 subsection (j)(8)(F) of this section during each of two (2) consecutive six (6) month monitoring periods may reduce the frequency of monitoring to once per year and reduce the number of lead and copper samples in accordance with subparagraph (C) of this subdivision 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 19-13-B102(h)(5) of the Regulations of Connecticut State Agencies and shall notify the system in writing, when it determines the system is eligible to commence reduced monitoring pursuant to this subclause. 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 (3) consecutive years of monitoring may reduce the frequency of monitoring for lead and copper from annually to once every three (3) years. Any water system that maintains the range of values for the water quality control parameters reflecting optimal corrosion control treatment specified by the department under subsection (j)(8)(F) of this section during three (3) consecutive years of monitoring may reduce the frequency of monitoring from annually to once every three (3) years if it receives written approval from the department. The department shall review monitoring, treatment, and other relevant information submitted by the water system in accordance with section 19-13-B102(h)(5) of the Regulations of Connecticut State Agencies, and shall notify the system in writing, when it determines the system is eligible to reduce the frequency of monitoring to once every three (3) 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 subparagraph (A) of this subdivision. Systems sampling annually or less frequently shall conduct the lead and copper tap sampling during the months of June, July, August or September unless the department has approved a different sampling period in accordance with this subclause.

The Department, in its discretion, may approve a different period for conducting the lead and copper tap sampling for systems collecting a reduced number of samples. Such a period shall be

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no longer than four (4) consecutive months and shall represent a time of normal operation when the highest levels of lead are most likely to occur. For a non-transient, non-community water system that does not operate during the months of June through September, and for which the period of normal operation when the highest levels of lead are most likely to occur is not known, the department shall designate a period that represents a time of normal operation for the system.

Systems monitoring annually, that have been collecting samples during the months of June through September and that receive department approval to alter their sample collection period under this subclause, shall collect their next round of samples during a time period that ends no later than twenty-one (21) months after the previous round of sampling. Systems monitoring once every three (3) calendar years that have been collecting samples during the months of June through September and that receive department approval to alter their sampling collection period under this subclause, shall collect their next round of samples during a time period that ends no later than forty-five (45) months after the previous round of sampling. Subsequent rounds of sampling shall be collected annually or once every three (3) calendar years, as required by this section.

- (v) Any water system that demonstrates for two (2) consecutive six (6) month monitoring periods that the tap water lead level computed under section 19-13-B102(j)(6)(B)(iii) of the Regulations of Connecticut State Agencies is less than or equal to 0.005 mg/l and the tap water copper level computed under section 19-13-B102(j)(6)(B)(iii) of the Regulations of Connecticut State agencies is less than or equal to 0.65 mg/l may reduce the number of samples in accordance with section 19-13-B102(e)(8)(C) of the Regulations of Connecticut State Agencies and reduce the frequency of sampling to once every three (3) calendar years.
- (vi) 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 section 19-13-B102(e)(8)(F) of the Regulations of Connecticut State Agencies and collect the number of samples specified for standard monitoring under subparagraph (C) of this subdivision. Such system shall also conduct water quality parameter monitoring in accordance with subdivision (9) (B), (C) or (D) of this subsection (as appropriate) during the designated four (4) consecutive month 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 section 19-13-B102(e)(8)(C) of the Regulations of Connecticut State Agencies after it has completed two (2) subsequent consecutive six (6) month rounds of monitoring that meet the criteria of section 19-13-B102(e)(8)(G)(i) of the Regulations of Connecticut State Agencies and may resume monitoring once every three (3) calendar years 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 section 19-13-B102(e)(8)(G)(iii) or (v) of the Regulations of

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- Connecticut State Agencies.
- (vii) 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 19-13- B102(j)(8)(F) of the Regulations of Connecticut State Agencies, for more than nine (9) days in any six (6) month period specified in section 19-13- B102(e)(9)(D) of the Regulations of Connecticut State Agencies, shall conduct tap water sampling for lead and copper at the frequency specified in section 19-13-B102(e)(8)(F) of the Regulations of Connecticut State Agencies, collect the number of samples specified for standard monitoring in section 19-13- B102(e)(8)(C) of the Regulations of Connecticut State Agencies and shall resume monitoring for water quality parameters within the distribution system in accordance with section 19-13- B102(e)(9)(D) of the Regulations of Connecticut State Agencies. 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:
 - (I) The system may resume annual monitoring for lead and copper at the tap at the reduced number of sites specified in section 19-13-B102(e)(8)(C) of the Regulations of Connecticut State Agencies after it has completed two (2) subsequent six (6) month rounds of monitoring that meet the criteria of section 19-13- B102(e)(8)(G)(ii) of the Regulations of Connecticut State Agencies and the system has received written approval from the department that it is appropriate to resume reduced monitoring on an annual frequency;
 - (II) The system may resume monitoring once every three (3) calendar years 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 section 19-13-B102(e)(8)(G)(iii) or (iv) of the Regulations of Connecticut State Agencies and the system has received written approval from the department that it is appropriate to resume monitoring once every three (3) calendar years; and
 - (III) The system may reduce the number of water quality parameter tap water samples required in accordance with section 19-13-B102(e)(9)(E)(i) of the Regulations of Connecticut State Agencies and the frequency with which it collects such samples in accordance with section 19-13-B102(e)(9)(E)(ii) of the Regulations of Connecticut State Agencies. Such a system may not resume monitoring once every three (3) calendar years for water quality parameters at the tap until it demonstrates, in accordance with the requirements of section 19-13-B102(e)(9)(E)(ii) of the Regulations of Connecticut State Agencies, that it has re-qualified for monitoring once every three (3) calendar years.
 - (viii) Any water system subject to a reduced monitoring frequency under this subparagraph shall obtain the approval of the department in writing, pursuant to section 19-13-B102(d)(2) of the Regulations of Connecticut State Agencies, prior to any

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change in treatment or the addition of a new source. The department may require the system to resume routine sampling in accordance with subparagraph (F) of this subdivision and collect the number of samples specified for standard monitoring under section 19-13-B102(e)(8)(C) of the Regulations of Connecticut State Agencies 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.

- (H) Additional monitoring by systems. The results of any monitoring conducted in addition to the minimum requirements of this subsection 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 subsection.
- (I) Invalidation of lead or copper tap water samples. A sample invalidated under this subparagraph does not count toward determining lead or copper 90th percentile levels under section 19-13-B102(j)(6)(B)(iii) of the Regulations of Connecticut State Agencies or toward meeting the minimum monitoring requirements of section 19-13-B102(e)(8)(C) of the Regulations of Connecticut State Agencies.
 - (i) The department may invalidate a lead or copper tap water sample if at least 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; or
 - (V) There is substantial reason to believe that the sample was collected improperly.
 - (ii) The system shall report the results of all samples to the department and all, supporting documentation for samples the system believes should be invalidated.
 - (iii) To invalidate a sample under this subparagraph, the department shall document, in writing, the decision and the rationale for the decision. 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.

The water system shall 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 section 19-13-B102(e)(8)(C) of the Regulations of Connecticut State Agencies. Any such replacement samples shall be taken as soon as possible, but no later than twenty (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

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- during the monitoring period.
- (9) 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 subdivision. The requirements of this subdivision are summarized in the table at the end of this subdivision.
- (A) General requirements.
- (i) Sample collection methods.
 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 subdivision is not required to be conducted at taps targeted for lead and copper sampling under subdivision (8)(A)(i) of this subsection. 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 (1) source and the sources are combined before distribution, the system shall sample at an entry point to the distribution system during periods of normal operating conditions (i.e., when water is representative of all sources being used).
- (ii) Number of samples.
 Systems shall collect two (2) tap samples for applicable water quality parameters during each monitoring period specified under subparagraphs (B) through (E) of this subdivision from the following number of sites.

System Size (Number People Served)	Number of Sites For Water Quality Parameters
Greater than 100,000	25
10,001-100,000	10
3,301 to 10,000	3
501 to 3,300	2
101 to 500	1
Less than or equal to 100	1

- 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 subparagraph (B) of this subdivision. During each monitoring period specified in subparagraphs (C) through (E) of this subdivision, systems shall collect one (1) sample for each applicable water quality parameter at each entry point to the distribution system.
- (B) Initial sampling. All large water systems shall measure the applicable water quality parameters as specified in this subparagraph at taps and at each entry point to the distribution system during each six (6) month monitoring period specified in subdivision (8)(D) of this subsection. All small and medium-size systems shall measure the applicable water quality parameters at the locations specified in this subparagraph during each six (6) month monitoring period specified in subdivision (8)(D) of this subsection during which the system exceeds the lead or copper action level.
- (i) Monitoring at taps shall include: PH; alkalinity; orthophosphate

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- when an orthophosphate compound is used; orthophosphate and hydrolyzable phosphate when a condensed or blended phosphate is used; silica, when a silicate compound is used; calcium; conductivity; and water temperature.
- (ii) At each entry point to the distribution system all of the applicable parameters listed in subparagraph (B)(i).
- (C) Monitoring after installation of corrosion control. Any large system that installs optimal corrosion control treatment pursuant to subsection (j)(7)(D)(iv) of this section shall measure the water quality parameters at the locations and frequencies specified in this subparagraph during each six (6) month monitoring period specified in subdivision (8)(E) of this subsection. Any small or medium-size system that installs optimal corrosion control treatment shall conduct such monitoring during each six-month monitoring period specified in subdivision (8)(E) of this subsection in which the system exceeds the lead or copper action level.
- (i) Monitoring at taps, two (2) samples for: pH; alkalinity; orthophosphate, when an inhibitor containing an orthophosphate compound is used; orthophosphate and hydrolyzable phosphate when an inhibitor containing condensed or blended phosphate compounds is used; silica, when an inhibitor containing a silicate compound is used; calcium, when calcium carbonate stabilization is used as part of corrosion control.
 - (ii) At each entry point to the distribution system, at least one (1) sample no less frequently than every two (2) weeks for: PH; 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 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 orthophosphate and hydrolyzable phosphate or silica (whichever is applicable).
- (D) 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 19-13-B102 (j)(8)(F) of the Regulations of Connecticut State Agencies, all large systems shall measure the applicable water quality parameters in accordance with subparagraph (C) of this subdivision and determine compliance with the requirements of section 19-13- B102(j)(8)(G) of the Regulations of Connecticut State Agencies every six (6) months with the first six (6) month period to begin on the date the department specifies the optimal values under section 19-13-B102(j)(8)(F) of the Regulations of Connecticut State Agencies. Any small or medium-size system shall conduct such monitoring during each six (6) month period specified in this subparagraph in which the system exceeds the lead or copper action level. For any such small and medium-size system that is on a reduced monitoring frequency pursuant to section 19-13-B102(e)(8)(G) of the Regulations of Connecticut State Agencies at the time of the action level exceedance, the end of the applicable monitoring period under this subparagraph shall coincide with the end of the applicable monitoring period under section 19-13- B102(e)(8)(G) of the Regulations of Connecticut State Agencies. Compliance with department-designated optimal water quality parameter values shall be determined as specified under section 19-13-B102(j)(8)(G) of the Regulations of Connecticut State Agencies.

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- (E) Reduced monitoring.
 - (i) Any water system that maintains the range of values for the water quality parameters reflecting optimal corrosion control treatment during each of two (2) consecutive six (6) month monitoring periods under subparagraph (D) of this subdivision shall continue monitoring at the entry point(s) to the distribution system as specified in subparagraph (C) (ii) of this subdivision. 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 (Number People Served)	Reduced Number of Sites For Water Quality Parameters
Greater than 100,000	10
10,001 to 100,000	7
3,301 to 10,000	3
501 to 3,300	2
101 to 500	1
Less than or equal to 100	1

- (ii) 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 19-13-B102(j)(8)(F) of the Regulations of Connecticut State Agencies during three (3) consecutive years of monitoring may reduce the frequency with which it collects the number of tap samples for applicable water quality parameters specified in this subparagraph from every six (6) 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 section 19-13-B102(j)(8)(F) of the Regulations of Connecticut State Agencies during three (3) 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 subclause (i) of this subparagraph from annually to every three (3) years.
- (iii) A water system may reduce the frequency with which it collects tap samples for applicable water quality parameters specified in subclause (i) of this subparagraph 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 of 0.005 milligrams per liter, that its tap water copper level at the 90th percentile is less than or equal to the PQL for copper of 0.65 mg/l, 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 19-13- B102(j)(8)(F) of the Regulations of Connecticut State Agencies.
- (iv) A water system that conducts sampling annually shall collect these samples evenly throughout the year so as to reflect seasonal variability.
- (v) Any water system subject to reduced monitoring frequency that fails to operate at or above the minimum value or within the

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range of values for the water quality parameters specified by the department under Section 19-13- B102(j)(8)(F) of the Regulations of Connecticut State Agencies for more than nine (9) days in any six (6) month period specified in section 19-13-B102(j)(8)(G) of the Regulations of Connecticut State Agencies shall resume distribution system tap water sampling for water quality parameters in accordance with the number and frequency requirements in subparagraph (D) of this subdivision, shall conduct tap water sampling for lead and copper at the frequency specified in section 19-13-B102(e)(8)(F) of the Regulations of Connecticut State Agencies, and shall collect the number of samples specified for standard monitoring in section 19-13-B102(e)(8)(C) of the Regulations of Connecticut State Agencies. Such a system may resume annual monitoring for water quality parameters at the tap, at the reduced number of sites specified in subclause (i) of this subparagraph, after it has completed two (2) subsequent consecutive six (6) month rounds of monitoring that meet the criteria of subclause (l) of this subparagraph and may resume monitoring once every three (3) calendar years 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 subclause (ii) or (iii) of this subparagraph.

- (F) Additional monitoring by systems. The results of any monitoring conducted in addition to the minimum requirements of this subdivision shall be considered by the system and the department in making any determinations (i.e. determining concentrations of water quality parameters) under this subdivision or section 19-13-B102(j)(8) of the Regulations of Connecticut State Agencies.

SUMMARY OF MONITORING REQUIREMENTS FOR WATER QUALITY PARAMETERS⁽¹⁾

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

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Reduced Monitoring	and inhibitor residual ⁽⁵⁾	Taps	Every six (6) Months, annually ⁽⁶⁾ , or every three (3) years ⁽⁷⁾ , at reduced number of sites
	pH, alkalinity, orthophosphate or silica, ⁽³⁾ calcium ⁽⁴⁾		
	pH, alkalinity dosage rate and concentration (if alkalinity adjusted as part of corrosion control), inhibitor dosage rate and inhibitor residual ⁽⁵⁾	Entry point(s) to distribution system	No less frequently than every two (2) weeks

Notes:

- (1) Table is for illustrative purposes. Consult the text of this section for detailed regulatory requirements.
- (2) Small and medium-size systems shall monitor for water quality parameters only during monitoring periods in which the system exceeds the lead or copper action level.
- (3) Orthophosphate shall be measured only when an inhibitor containing phosphate compound is used. Silica shall be measured only when an inhibitor containing silicate compound is used.
- (4) Calcium shall be measured only when calcium carbonate stabilization is used as part of corrosion control.
- (5) Inhibitor dosage rates and inhibitor residual concentrations (orthophosphate or silica) shall be measured only when an inhibitor is used.
- (6) A water system may reduce frequency of monitoring for water quality parameters at the tap, from every six (6) months to annually, if it has maintained the range of values for water quality parameters reflecting optimal corrosion control during three (3) consecutive years of monitoring.
- (7) A water system may further reduce the frequency of monitoring for water quality parameters at the tap, from annually to once every three (3) years, if it has maintained the range of values for water quality parameters reflecting optimal corrosion control during three (3) consecutive years of annual monitoring. Water system may reduce monitoring from every six (6) months to once every three (3) calendar years for water quality parameters at the tap if it has maintained all of the following 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 19-13-B102(j)(8)(F) of the Regulations of Connecticut State Agencies, as representing optimal corrosion control, during two (2) consecutive six (6) month monitoring periods.
- (10) Monitoring requirements for lead and copper in source water.
 - (A) Sample location, collection methods, and number of samples.
 - (i) A water system that fails to meet the lead or copper action level on the basis of tap samples collected in accordance with subdivision (8) of this subsection shall collect lead and copper source water samples in accordance with the following requirements regarding sample location, number of samples, and collection methods:

Groundwater systems shall take a minimum of one sample, at every point of entry to the distribution system which is representative of each active source of supply after treatment, unless conditions make another location more representative of each source or treatment plant. Surface water systems and systems with a combination of active surface and groundwater sources shall take a minimum of one sample, at every point of entry to the distribution system after any application of treatment

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or in the distribution system at a point which is representative of each active source after treatment, unless conditions make another location more representative of each source or treatment plant.

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

- (ii) Where the results of sampling exceed the maximum permissible source water levels established under subsection (j)(9)(B)(iv) of this section, the department may require that one (1) additional sample be collected as soon as possible after the initial sample was taken (but not to exceed two (2) weeks) at the same sampling point. 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 be considered as either the measured value or one-half the PQL.
- (B) 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 (6) months after the end of the tap monitoring period, pursuant to sections 19-13-B102(e)(8)(D) through (G) of the Regulations of Connecticut State Agencies, in which the exceedance occurred.
- (C) Monitoring frequency after installation of source water treatment. Any system that installs source water treatment pursuant to subsection (j)(9)(A)(iii) of this section, shall collect an additional source water sample from each entry point to the distribution system during two (2) consecutive six (6) month monitoring periods by the deadline specified in subsection (j)(9)(A)(iv) of this section.
- (D) Monitoring frequency after the department specifies maximum permissible source water levels or determines that source water treatment is not needed.
 - (i) A system shall monitor at the frequency specified in this subparagraph in cases where the department specifies maximum permissible source water levels under subsection (j)(9)(B)(iv) of this section or determines that the system is not required to install source water treatment under subsection (j)(9)(B)(ii) of this section. A water system using only groundwater shall collect samples once during the three-year compliance period in effect when the applicable department determination under this subparagraph is made. Such systems shall collect samples once during each subsequent compliance period. A water system using surface water or a combination of surface water 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 this subparagraph.

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- (ii) A system is not required to conduct source water sampling for lead 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 this subparagraph.
- (11) Monitoring requirements for disinfection byproducts, residuals, and precursors
 - (A) Compliance dates and applicability
 - (i) Chlorine, chloramines, and ozone
CWS or NTNC that uses at least one of these chemicals in any part of the treatment process, uses surface water or GWUDI as a source in whole or in part and serves at least 10,000 persons shall comply with the requirements of this subdivision. Any other CWS and NTNC that uses at least one of these chemicals in any part of the treatment process shall comply with the requirements of this subdivision beginning January 1, 2004. Additionally, any CWS or NTNC that purchases water from a system that uses at least one of these chemicals and is not part of the supplying system's monitoring plan, developed in accordance with subsection 19-13-B102(e)(11)(F), shall comply with the requirements of this subdivision if it serves at least 10,000 persons, and beginning January 1, 2004 if it serves fewer than 10,000 persons or uses only groundwater not under the direct influence of surface water.
 - (ii) Chlorine Dioxide
Any public water system that uses chlorine dioxide as a disinfectant or oxidant, or purchases water from a system that uses chlorine dioxide and is not part of the supplying system's monitoring plan developed in accordance with section 19-13-B102(e)(11)(F), shall comply with any requirements for chlorine dioxide in this subdivision if it serves at least 10,000 persons, or beginning January 1, 2004 if it serves fewer than 10,000 persons.
 - (iii) A system that is installing granular activated carbon or membrane technology to comply with this subdivision may apply to the department for an extension of up to twenty-four (24) months past the dates in subclauses (i) and (ii) of this subparagraph but not later than December 31, 2003. In granting the extension, the department shall set a schedule for compliance and may specify any interim measures that the system shall take.
 - (B) General Requirements
 - (i) A system that is required to monitor for disinfection byproducts in accordance with subparagraph (A) of this subdivision shall test for the following disinfectant residuals and disinfection byproducts according to the requirements of this subdivision.

DISINFECTANTS AND THEIR LIMITS

DISINFECTANT RESIDUAL	MRDLG (MG/L)	MRDL (MG/L)	COMPLIANCE BASED ON
Chlorine	4 (AS Cl ₂)	4.0 (AS Cl ₂)	Annual Average ⁽¹⁾
Chloramine	4 (AS Cl ₂)	4.0 (AS Cl ₂)	Annual Average ⁽¹⁾
Chlorine Dioxide	0.8(AS ClO ₂)	0.8 (AS ClO ₂)	Consecutive Daily Samples ⁽²⁾

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NOTES:

- (1) See Subparagraph (G)(vii) of this subdivision.
- (2) See Subparagraph (G)(viii) of this subdivision.

DISINFECTION BYPRODUCTS AND THEIR LIMITS

DISINFECTION BYPRODUCTS	MCLG (MG/L)	MCL (MG/L)	COMPLIANCE BASED ON
Total Trihalomethanes	N/A	0.080	Running Annual Average
Bromodichloromethane	ZERO	*	
Dibromochloromethane	0.06	*	
Bromoform	ZERO	*	
Chloroform	NOT AVAILABLE	*	
Haloacetic acids (five)	N/A	0.060	
-dichloroacetic acid	ZERO	*	
-trichloroacetic acid	0.3	*	
Bromate	ZERO	0.010	
Chlorite	0.8	1.0	3 Sample Set

N/A Not applicable.

* No individual MCL for TTHM and HAA5 constituents

- (ii) A system shall take all samples during normal operating conditions.
 - (iii) A system may use previously collected data to qualify for reduced monitoring if the data meets the location and frequency requirements of this subdivision.
 - (iv) A system shall use only the analytical method(s) specified in 40 CFR 141.131 for monitoring under this subdivision.
 - (v) All samples, including those described in subclause (iii), shall be analyzed by a department approved laboratory pursuant to section 19-13- B102(g) of the Regulations of Connecticut State Agencies. The department may grant an exemption, in writing, for the daily chlorite samples when the chlorite analysis is conducted by a certified treatment operator using a method approved by the department.
- (C) Disinfection byproducts
- (i) Routine monitoring for TTHM and HAA5
A system shall conduct routine monitoring at the locations and frequencies indicated in the following table:

TYPE OF SYSTEM	MINIMUM MONITORING FREQUENCY ⁽¹⁾	SAMPLE LOCATION IN THE DISTRIBUTION SYSTEM ⁽²⁾
A system using surface water or GWUDI in whole or in part and serving 10,000 or more persons	Four (4) samples per quarter per treatment plant	At least 25% of all samples collected each quarter at locations representing maximum residence time. Remaining samples taken at locations representative of at least average residence time in the distribution system and representing the entire distribution system.

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A system using surface water or GWUDI in whole or in part and serving fewer than 10,000 persons	One (1) sample per quarter per treatment plant	Location representing maximum residence time
A system using only groundwater not under the direct influence of surface water and serving 10,000 or more persons	One (1) sample per quarter per treatment plant	Location representing maximum residence time
A system using only groundwater not under the direct influence of surface water and serving fewer than 10,000 persons	One (1) sample per year per treatment plant during the third calendar quarter	Location representing maximum residence time ⁽³⁾

Notes:

- (1) Multiple wells drawing water from a single aquifer may be considered one treatment plant for determining the minimum number of samples required, with written approval from the department.
- (2) If a system elects to sample more frequently than the minimum required, at least twenty-five (25) percent of all samples collected each quarter, including those taken in excess of the required frequency, shall be taken at locations that represent the maximum residence time of the water in the distribution system. The remaining samples shall be taken at locations representative of at least average residence time in the distribution system.
- (3) If the sample, or average of annual samples if more than one sample is taken, exceeds the MCL, the system shall increase monitoring to one sample per treatment plant per quarter, taken at a point reflecting the maximum residence time in the distribution system. Systems on increased monitoring may return to routine monitoring if, after at least one year of monitoring, their TTHM annual average is <0.060 mg/l and haa5 annual average is <0.045 mg/l and the system is granted approval by the department in writing.

(ii) Reduced monitoring for TTHM and HAA5

A system may reduce monitoring in accordance with the following table with the written approval of the department:

TYPE OF SYSTEM	CRITERIA FOR MONITORING REDUCTION ⁽¹⁾	MINIMUM MONITORING FREQUENCY	SAMPLE LOCATION IN THE DISTRIBUTION SYSTEM
A system using surface water or GWUDI in whole or in part and serving at least 10,000 persons	Source water annual average TOC level, before any treatment, <4.0 mg/l; TTHM annual average <0.040 mg/l; and HAA5 annual average <0.030 mg/l	One (1) sample per quarter per treatment plant	Location representing maximum residence time
A system using surface water or GWUDI in whole or in part and serving fewer than 10,000 persons	Source water annual average TOC level, before any treatment, <4.0 mg/l; TTHM annual average <0.040 mg/l; and HAA5 annual average <0.030 mg/l	One (1) sample per year per treatment plant during the third calendar quarter	Location representing maximum residence time

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A system using only groundwater not under the direct influence of surface water and serving at least 10,000 persons	TTHM annual average <0.040 mg/l; and HAA5 annual average <0.030 mg/l	One (1) sample per year per treatment plant during the third calendar quarter	Location representing maximum residence time
A system using only groundwater not under the direct influence of surface water and serving fewer than 10,000 persons	TTHM annual average <0.040 mg/l; and haa5 annual average <0.030 mg/l ⁽²⁾	One (1) sample every three (3) years per treatment plant during the third calendar quarter ⁽³⁾	Location representing maximum residence time

Notes:

- (1) A System shall have monitored for at least one (1) year.
- (2) Averages for two (2) consecutive years, or TTHM annual average <0.020 mg/l and HAA5 annual average <0.015 mg/l for one year.
- (3) Three (3) year cycle begins January 1 following quarter in which system qualifies for reduced monitoring.

A system 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 shall monitor quarterly) or the result of the sample (for systems which shall monitor no more frequently than annually) is no more than 0.060 mg/l and 0.045 mg/l for TTHM and HAA5, respectively. Systems that do not meet these levels shall resume routine monitoring in the quarter immediately following the quarter in which the system exceeds either of these levels. For a system using only groundwater not under the direct influence of surface water and serving fewer than 10,000 persons, if either the TTHM annual average is >0.080 mg/l or the HAA5 annual average is >0.060 mg/l, the system shall begin increased monitoring, as indicated in section 19-13-B102(e)(11)(C)(i), in the quarter immediately following the monitoring period in which the system exceeds 0.080 mg/l or 0.060 mg/l for TTHM or HAA5 respectively.

- (iii) Routine monitoring for chlorite
A system using chlorine dioxide for disinfection or oxidation, shall conduct monitoring for chlorite. The system shall take daily chlorite samples at the entrance to the distribution system and shall also take a three (3) sample set for chlorite each month in the distribution system. The system shall take one sample at each of the following locations: near the first customer, at a location representative of average residence time and at a location reflecting maximum residence time in the distribution system. Any additional routine sampling shall be conducted in the same manner (as three-sample sets, at the specified locations). The system may use the results of additional monitoring conducted according to subclause (iv) of this subparagraph to meet their monthly requirement.
- (iv) Additional monitoring for chlorite
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 (3) chlorite distribution system samples at the following locations: as close to the first customer as possible, in a location representative of average residence time and as close to the end of the distribution system as possible (reflecting maximum residence

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- time in the distribution system).
 - (v) Reduced monitoring for chlorite
 Routine chlorite monitoring at the entrance to the distribution system may not be reduced. Chlorite monitoring in the distribution system may be reduced to one three (3) sample set per quarter after one year of monitoring where no routine individual chlorite sample taken in the distribution system has exceeded the chlorite MCL and the system has not been required to conduct additional monitoring in accordance with subclause (iv) of this subparagraph. The system may remain on the reduced monitoring schedule until (1) any of the three (3) individual chlorite samples taken quarterly in the distribution system exceeds the chlorite MCL; or (2) the system is required to conduct additional monitoring according to subclause (iv) of this subparagraph, at which time the system shall revert to routine monitoring.
 - (vi) Routine monitoring for bromate
 A system using ozone in any part of the treatment process shall take one bromate sample each month at the entrance to the distribution system for each treatment plant in the system using ozone.
 - (vii) Reduced monitoring for bromate
 A system 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. The system shall continue bromide monitoring to remain on reduced bromate monitoring. If the running annual average source water bromide concentration is equal to or greater than 0.05 mg/l, the system shall resume routine monitoring for bromate in accordance with subclause (vi) of this subparagraph. Public water systems that purchase water from systems that are eligible for reduced bromate monitoring are also eligible for reduced bromate monitoring.
 - (viii) A system required to comply with this subdivision shall determine their minimum monitoring frequency for disinfection byproducts using:
 - (I) Their own sources of water, if any, as well as each seller's source(s) of water to determine if they use surface water or GWUDI, in whole or in part, or if they use only groundwater not under the direct influence of surface water;
 - (II) Their own population, without considering the population of any system that purchases water from or sells water to their system; and
 - (III) A sum for the number of treatment plants calculated as the number of treatment plants in their own system plus one (1) for each applicable system that sells water to their system.
- (D) Disinfectant residuals
 - (i) Routine monitoring for chlorine and chloramines

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CWS and NTNC that uses chlorine or chloramines in any part of the treatment process shall measure the residual disinfectant level in the distribution system, at the same point in the distribution system and at the same time as total coliforms are sampled in accordance with subdivision (7) of this subsection. Surface water or GWUDI systems may use the results of residual disinfectant concentration sampling conducted under 40 CFR 141.74(c)(3)(i) in lieu of taking separate samples. Monitoring may not be reduced.

- (ii) Routine monitoring for chlorine dioxide
A system using chlorine dioxide for disinfection or oxidation shall take daily chlorine dioxide samples at the entrance to the distribution system. For any daily sample that exceeds the MRDL, the system shall take chlorine dioxide samples in the distribution system the following day at the locations required by subclause (iii) of this subparagraph, in addition to the sample required at the entrance to the distribution system. Systems that purchase water from a system that is required to conduct additional monitoring shall also comply with subclause (iii) of this subparagraph. Routine monitoring may not be reduced.

- (iii) Additional monitoring for chlorine dioxide
On each day following a routine sample monitoring result that exceeds the MRDL, the system shall take three (3) chlorine dioxide distribution system samples. If chlorine dioxide or chloramines are used to maintain a disinfectant residual in the distribution system, or if chlorine is used to maintain a disinfectant residual in the distribution system and there are no disinfection addition points after the entrance to the distribution system (i.e., no booster chlorination), the system shall take three (3) samples as close to the first customer as possible, at intervals of at least six (6) hours. If chlorine is used to maintain a disinfectant residual in the distribution system and there are one or more disinfection addition points after the entrance to the distribution system (i.e., booster chlorination), the system shall take one sample at each of the following locations: as close to the first customer as possible, in a location representative of average residence time, and as close to the end of the distribution system as possible (reflecting maximum residence time in the distribution system).

(E) Disinfection byproduct precursors

- (i) Routine monitoring
A surface water or GWUDI system, which uses conventional treatment, shall monitor each treatment plant for TOC, no later than the point of combined filter effluent turbidity monitoring and representative of the treated water. The system shall also monitor for TOC in the source water, prior to any treatment, at the same time as monitoring for TOC in the treated water. These samples (source water and treated water) are referred to as paired samples. At the same time as the source water sample is taken, all systems shall monitor for alkalinity in the source water prior to any treatment. System shall take one paired sample and one source water alkalinity sample each month for each plant, at a time representative of normal operating conditions and influent water quality.

- (ii) Reduced monitoring

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A Surface water or GWUDI system 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 for Each plant for each quarter. The system shall revert to routine monitoring in the month following the quarter when the annual average treated water TOC is 2.0 mg/l or greater.

- (F) **Monitoring plans**
 Each system required to monitor under this subdivision shall develop and implement a monitoring plan. The system shall maintain the plan and make it available for inspection by the department and the general public no later than thirty (30) days following the applicable compliance dates in subparagraph (a) of this subdivision. Any surface water or GWUDI system serving more than 1000 persons shall submit a copy of the monitoring plan to the department no later than the date of the first report required under section 19-13-B102(h)(7) of the Regulations of Connecticut State Agencies. The department may also require any other system to submit a monitoring plan. After review, the department may require changes in any plan elements. Failure by a system to monitor in accordance with its monitoring plan is a monitoring violation. The plan shall include the following elements:
 - (i) Specific locations and schedules for collecting samples for any parameters included in this subdivision. Sample locations that represent a point of average or maximum residence time for multiple treatment plants may be used to satisfy the requirements of subparagraph (C) of this subdivision for each applicable treatment plant, with the department's written approval; and
 - (ii) How the system will calculate compliance with MCL, MRDL, and treatment techniques.
- (G) **Compliance**
 - (i) 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 MRDL for chlorine and chloramines, this failure to monitor will be treated as a monitoring violation for the entire period covered by the annual average.
 - (ii) All samples taken and analyzed under the provisions of this subdivision shall be included in determining compliance, even if that number is greater than the minimum required.
 - (iii) If, during the first year of monitoring, 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.
 - (iv) TTHM and HAA5
 For a system monitoring quarterly, compliance with MCL shall be based on a running annual average, computed quarterly, of quarterly averages of all samples collected by the system as prescribed by this subdivision. If a system fails to complete four (4) consecutive quarters of monitoring, compliance with the MCL

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for the last four (4) quarter compliance period shall be based on an average of the available data.

For a system monitoring less frequently than quarterly, the system shall demonstrate MCL compliance if the average of samples taken under the provisions of section 19-13-B102(e)(11)(C)(i) do not exceed any MCL. If the average of these samples exceeds the MCL, the system shall increase monitoring to once each quarter for each treatment plant and such a system is not in violation of the MCL until it has completed one (1) year of quarterly monitoring, unless the result of fewer than four (4) quarters of monitoring will cause the running annual average to exceed the MCL, in which case the system is in violation at the end of that quarter. Systems required to increase monitoring frequency to quarterly monitoring shall calculate compliance by including the sample which triggered the increased monitoring plus the following three (3) quarters of monitoring.

If the running annual arithmetic average of quarterly averages covering any consecutive four (4) quarter period exceeds the MCL, the system is in violation of the MCL.

(v)

Bromate

Compliance shall be based on a running annual 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 section 19-13-B102(e)(11)(C) of the Regulations of Connecticut State Agencies. If the average of samples covering any consecutive four- quarter period exceeds the MCL, the system is in violation of the MCL. If a system fails to complete twelve (12) consecutive months' monitoring, compliance with the MCL for the last four-quarter compliance period shall be based on an average of the available data.

(vi)

Chlorite

Compliance shall be based on an arithmetic average of each three-sample set taken in the distribution system as prescribed by sections 19-13- B102(e)(11)(C)(iii) and (e)(11)(C)(iv) of the Regulations of Connecticut State Agencies. If the arithmetic average of any three (3) sample set exceeds the MCL, the system is in violation of the MCL.

(vii)

Chlorine and chloramines

Compliance shall be based on a running annual average, computed quarterly, of monthly averages of all samples collected by the system under subparagraph (D) of this subdivision. If the average of quarterly averages covering any consecutive four (4) quarter period exceeds the MRDL, the system is in violation of the MRDL.

In cases where systems switch between the use of chlorine and chloramines for residual disinfection during the year, compliance shall be determined by including together all monitoring results of both chlorine and chloramines in calculating compliance.

Reports submitted pursuant to section 19-13- B102(h)(7) of the Regulations of Connecticut State Agencies shall clearly indicate

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which residual disinfectant was analyzed for each sample.

Notwithstanding the MRDL in subparagraph (B) of this subdivision, 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, including but not limited to, distribution line breaks, storm run-off events, source water contamination events, or cross-connection events.

(viii)

Chlorine dioxide

Tier 1 notice. Compliance shall be based on consecutive daily samples collected by the system under subparagraph (D) of this subdivision. 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 shall take immediate corrective action to lower the level of chlorine dioxide below the MRDL and shall notify the public pursuant to the procedures for a tier 1 notice in section 19-13-B102(i)(1) of the Regulations of Connecticut State Agencies. 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 shall notify the public of the violation in accordance with the procedures for tier 1 notices in section 19-13-B102(i)(1) of the Regulations of Connecticut State Agencies.

Tier 2 notice. Compliance shall be based on consecutive daily samples collected by the system under subparagraph (D) of this subdivision. If any two (2) consecutive daily samples taken at the entrance to the distribution system exceed the MRDL and all distribution system samples taken are below the MRDL, the system is in violation of the MRDL and shall 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 a tier 2 notice in section 19-13-B102(i)(2) of the Regulations of Connecticut State Agencies. 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 shall notify the public of the violation in accordance with the procedures for tier 2 notice in section 19-13-B102(i)(2) of the Regulations of Connecticut State Agencies.

(ix)

Disinfection byproduct precursors

Compliance shall be determined as specified by section 19-13-B102(j)(11) of the Regulations of Connecticut State Agencies. 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

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requirements in section 19-13-B102(j)(11)(B)(i) of the Regulations of Connecticut State Agencies and shall 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 19-13-B102(j)(11)(B)(ii) of the Regulations of Connecticut State Agencies 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 19-13-B102(j)(11)(C)(iv) of the Regulations of Connecticut State Agencies is less than 1.00, the system is in violation of the treatment technique requirements.

- (f) Protection of distribution system.
 - (1) All service connections shall have a water pressure at the main of at least 25 psi under normal conditions. Where pressure is normally less than 25 psi, special provision as approved by the department, shall be made to furnish adequate service to the consumer.
 - (2) Each public water system which serves water to any of the consumer premises listed in subparagraph (a) of this subdivision shall report the following information to the Department by March 1 of each year covering the preceding calendar year, or upon notification by the department.
 - (A) A list of all consumer premises where the following categories of concern are known to exist:
 - (1) Any water supply source other than that of the public water system is known to exist.
 - (2) Toxic or objectionable chemical or biological substances are used in water solution on public, commercial or industrial premises.
 - (3) Water pressure is raised by pumping on other than residential premises above that furnished by the supplier.
 - (4) There is a water storage tank, public swimming pool or water filter, for other than residential use.
 - (5) There is known to be a sprinkler system for either fire protection or irrigation. This list shall identify the category or categories of concern for each premise listed.
 - (B) Date of last inspection of each consumer premises listed in item (A). Also, the number of violations detected of the Public Health Code regulations relating to water distribution systems, and the status of correction of these violations, listings under item (A)(2) shall be inspected at least once each year and the remaining items shall be inspected at least once every five years. At premises where the public water system has determined a reduced pressure principle backflow preventer, double check valve assembly or pressure vacuum breaker is required, the type(s) of device(s) shall be specified and a summary of test results shall be included.
 - (3) Each public water system which serves water to any of the consumer premises listed in subdivision (2)(a) of this subsection shall have those premises inspected for cross connections by a person who has met the requirements of section 25-32-11(h) of the Regulations of Connecticut State Agencies.
 - (4) Each public water system which does not serve water to any of the consumer premises listed in subdivision (2)(a) of this subsection shall verify to the department that it does not serve water to any of those premises. The system shall provide such verification on a form provided by the department by March 1, 2002, and every five years thereafter.

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- (5) Finished water storage tanks, basins and clearwells.
 - (A) All finished water storage tanks, basins and clearwells connected to a public water distribution system shall be constructed and located so as to adequately protect the water from contamination. Finished water storage tanks, basins and clearwells shall be properly constructed in a sanitary manner to prevent stormwater and precipitation from entering; and vents and overflows shall be provided and suitably protected and screened to prevent entry of insects, birds or other foreign matter. Overflow pipes shall not be directly connected to sanitary sewers or to storm drainage systems.
 - (B) In-ground finished water clearwells, basins or tanks shall be at least fifty feet from any part of the nearest subsurface sewage disposal system and twenty-five feet from the nearest watercourse or storm drain or other source of pollution. They shall be at least fifty feet from the nearest sanitary sewer unless the sewer is constructed in accordance with the technical standards for subsurface sewage disposal systems pursuant to section 19-13-B103d of the Regulations of Connecticut State Agencies, in which case it may be no closer than twenty-five (25) feet. Exemptions may be sought for existing structures which do not conform to these requirements.
 - (C) All atmospheric finished water storage tanks, basins and clearwells shall be inspected at a minimum of once every ten years for sanitary conditions and structural integrity. The inspection report shall be retained for reference and submitted to the department upon request.
 - (D) Uncovered finished water clearwells, tanks and basins are prohibited.
- (6) An annual distribution system flushing program shall be conducted to maintain the distribution system free from excessive accumulation of sediment, organic growths, products of corrosion and erosion, and other extraneous matter. The program shall be made available to the department upon request.
- (g) Laboratory and operating tests. The water samples taken to conform with the monitoring requirements of these regulations must be analyzed and reported to the public water system by a laboratory approved by the department for the parameters tested. Laboratory techniques shall conform to those approved by the federal environmental protection agency. The department may grant an exemption from this requirement in writing for chlorine, pH, temperature, turbidity, fluoride and color when the analysis is conducted by a certified treatment operator using a method approved by the department. Continuous analyzers may be used provided the instruments used are approved by the department and are maintained by a certified treatment plant operator or technical personnel employed by an environmental laboratory approved by the department under section 25-40 of the Connecticut General Statutes.
- (h) Reporting of tests.
 - (1) A system that has exceeded the MCL for total coliforms shall report the violation to the department and the local director of health of each city, town, borough, or district served by the system no later than the end of the next business day after it learns of the violation, and notify the public in accordance with subsection (i) of this section.
 - (2) A system that has failed to comply with a monitoring requirement, pursuant to subsections 19-13-B102 (e) (6) and (e) (7) of the Regulations of Connecticut State Agencies, shall report the monitoring violation to the department within ten (10) days after the system discovers the violation, and notify the public in accordance with subsection (i) of this section.
 - (3) Except where a different reporting period is specified in this section, the supplier of water must report to the department and the local director of health of each city, town, borough, or district served by the system within forty-eight (48) hours the failure to comply with any established MCL.

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- (4) The system shall ensure that the department receives a report no later than nine (9) calendar days following the end of each month. The report shall be in a format and manner prescribed by the department and shall contain the results of required samples that are collected during the month in compliance with Section 19-13-B102 of the Regulations of Connecticut State Agencies.
- (5) Lead and copper. All water systems shall report all of the following information to the department.
 - (A) Reporting requirements for tap water monitoring for lead and copper and for water quality parameter monitoring. Unless the department has specified a more frequent reporting requirement, a water system shall report the information specified in this subparagraph for all tap water samples specified in section 19-13-B102(e)(8) of the Regulations of Connecticut State Agencies and for all water quality parameter samples specified in section 19-13- B102(e)(9) of the Regulations of Connecticut State Agencies no later than nine (9) calendar days following the end of each applicable monitoring period specified in sections 19-13-B102(e)(8) and 19-13-B102(e)(9) of the Regulations of Connecticut State Agencies:
 - (i) The results of all tap samples for lead and copper including the location of each site and the criteria under subsection (e)(8)(A) of this section under which the site was selected for the system's sampling pool; upon request of the department, a certification that each first-draw sample collected by the water system is one (1) liter in volume and, has stood motionless in the service line, or in the interior plumbing of a sampling site, for at least six (6) hours; where residents collected samples, a certification that each tap sample collected by the residents was taken after the water system informed them of proper sampling procedures specified in section 19-13- B102(e)(8)(B)(ii) of the Regulations of Connecticut State Agencies;
 - (ii) Documentation for each tap water lead or copper sample for which the water system requests invalidation pursuant to section 19-13- B102(e)(8)(I)(i) of the Regulations of Connecticut State Agencies;
 - (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 19-13-B102(j)(6)(B)(iii) of the Regulations of Connecticut State Agencies);
 - (iv) With the exception of initial tap sampling conducted pursuant to section 19-13-B102(e)(8)(D) of the Regulations of Connecticut State Agencies, 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 sections 19-13- B102(e)(9)(B) through (E) of the Regulations of Connecticut State Agencies;
 - (vi) The results of all samples collected at the entry point(s) to the distribution system for applicable water quality parameters under sections 19-13-B102(e)(9)(B) through (E) of the Regulations of Connecticut State Agencies; and
 - (vii) For a non-transient non-community water system, or a community water system whose operation mandates continuous daily flow, such as a prison or hospital, that does not have

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enough taps that can provide first-draw samples, the system shall identify, in writing, each site that did not meet the six (6) hour minimum standing time and the length of standing time for that particular substitute sample collected pursuant to section 19-13-B102(e)(8)(B)(v) of the Regulations of Connecticut State Agencies and include this information with the lead and copper tap sample results required to be submitted pursuant to subclause (i) of this subparagraph.

- (B) Source water reporting requirements:
 - (i) A water system shall report the sampling results for all source water samples collected in accordance with section 19-13-B102(e)(10) of the Regulations of Connecticut State Agencies within the first ten (10) days following the end of each source water monitoring period (i.e., annually, per compliance period) specified in subsection(e)(10)(A) through (D) of this section.
 - (ii) With the exception of the first round of source water sampling conducted pursuant to section 19-13-B102(e)(10)(B) of the Regulations of Connecticut State Agencies, the system shall specify any site which was not sampled during the previous monitoring periods, and include an explanation of why the sampling point has changed.
- (C) Corrosion control treatment reporting requirements. By the applicable dates under section 19-13-B102(j)(7) of the Regulations of Connecticut State Agencies, systems shall report the following information:
 - (i) For systems demonstrating that they have already optimized corrosion control, information required in section 19-13-B102(j)(7)(B) of the Regulations of Connecticut State Agencies;
 - (ii) For systems required to optimize corrosion control, their recommendation regarding optimal corrosion control treatment under section 19-13- B102(j)(8)(A) of the Regulations of Connecticut State Agencies;
 - (iii) For systems required to evaluate the effectiveness of corrosion control treatments under section 19-13-B102(j)(8)(C) of the Regulations of Connecticut State Agencies, the information required by that subparagraph; and
 - (iv) For systems required to install optimal corrosion control approved by the department under section 19-13-B102(j)(8)(D) of the Regulations of Connecticut State Agencies, a letter certifying that the system has completed installing that treatment.
- (D) Source water treatment reporting requirements; By the applicable dates in section 19-13-B102(j)(9) of the Regulations of Connecticut State Agencies, systems shall provide the following information to the department:
 - (i) If required under section 19-13-B102(j)(9)(B)(i) of the Regulations of Connecticut State Agencies, their proposal regarding source water treatment; and
 - (ii) For systems required to install source water treatment under section 19-13-B102(j)(9)(B)(ii) of the Regulations of Connecticut State Agencies, a letter certifying that the system has completed installing the treatment approved by the department within twenty four (24) months after the department approved the treatment.
- (E) Lead service line replacement reporting requirements. Systems shall report the following information to the department to demonstrate compliance with the requirements of section 19-13-B102(j)(10) of the

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Regulations of Connecticut State Agencies:

- (i) Within twelve (12) months after a system exceeds the lead action level in sampling referred to in section 19-13-B102(j)(10)(A) of the Regulations of Connecticut State Agencies, the system shall demonstrate in writing to the department that it has conducted a materials evaluation, including but not necessarily limited to the evaluation in section 19-13-B102(e)(8)(A)(i) of the Regulations of Connecticut State Agencies, to identify the initial number of lead service lines in its distribution system, and shall provide the department with the system's schedule for annually replacing at least seven percent (7%) of the initial, number of lead service lines in its distribution system.
 - (ii) Within twelve (12) months after a system exceeds the lead action level in sampling referred to in section 19-13-B102(j)(10)(A) of the Regulations of Connecticut State Agencies, and every twelve (12) months thereafter, the system shall demonstrate in writing to the department that the system has either: replaced in the previous twelve (12) months at least seven percent (7%) of the initial lead service lines or a greater number of lines specified by the department under section 19-13-B102(j)(10)(E) of the Regulations of Connecticut State Agencies in its distribution system, or conducted sampling that demonstrates that the lead concentration in all service line samples from individual line(s), taken pursuant to section 19-13-B102(e)(8)(B)(iii) of the Regulations of Connecticut State Agencies, is less than or equal to 0.015 mg/l. In such cases, the total number of lines replaced and those that meet the criteria in section 19-13-B102(j)(10)(C) of the Regulations of Connecticut State Agencies equals at least seven percent (7%) of the initial number of lead lines identified under subparagraph (A) of this subdivision or the number of lines specified by the department under section 19-13- B102(j)(10)(E) of the Regulations of Connecticut State Agencies.
 - (iii) The letter submitted annually to the department under subparagraph (E)(ii) of this subdivision shall contain the following information: the number of lead service lines that were scheduled to have been replaced during the previous year of the system's replacement schedule; the number and location of each lead service line replaced during the previous year of the system's replacement schedule; if measured, the water lead concentration and location of each lead service line sampled, the sampling method, and the date of sampling.
 - (iv) Any system which collects lead service line samples following partial lead service line replacement, required by section 19-13-B102(j)(10) of the Regulations of Connecticut State Agencies, shall report the results, to the department no later than nine (9) calendar days following the end of the month in which the system receives the laboratory results, or as specified by the department. Systems shall also report any additional information as specified by the department, in a time and manner prescribed by the department, to verify that all partial lead service line replacement activities have taken place.
- (F) Public education program reporting requirements. Any water system that is subject to the public education requirements in section 19-13-

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B102(i)(6) of the Regulations of Connecticut State Agencies shall, no later than nine (9) calendar days after the end of each period in which the system is required to perform public education tasks in accordance with 40 CFR 141.85(c), 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 paragraphs (a) to (b) inclusive, of 40 CFR 141.85 and the delivery requirements in 40 CFR 141.85(c); 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.
- (G) Reporting of additional monitoring data. Any system that collects sampling data in addition to that required by this subsection shall report the results to the department by the end of the applicable monitoring period under sections 19-13-B102(e)(8) through (10) of the Regulations of Connecticut State Agencies during which the samples are collected.
- (6) Reporting requirements--Surface water source and groundwater source under the direct influence of surface water.
- (A) For a system with a groundwater source under the direct influence of surface water and that does not provide and operate treatment pursuant to section 19-13-B102(j)(2) of the Regulations of Connecticut State Agencies, interim reporting shall be required prior to installation of treatment. Specific requirements shall be determined on a case-by-case basis depending on raw water quality, proficiency of existing treatment, and adequate watershed protection. In addition, total coliform test results, turbidity measurements and daily test for residual chlorine as required by sections 19-13- B102(e)(7)(H) and (M) of the Regulations of Connecticut State Agencies, respectively, shall be reported to the department no later than nine (9) calendar days after the end of each month the system serves water to the public.
 - (B) A system that uses a surface water source or a groundwater source under the direct influence of surface water, and that provides and operates treatment pursuant to section 19-13-B102(j)(2) of the Regulations of Connecticut State Agencies, shall report monthly to the department the information specified in the following sub clauses.
 - (i) Combined filtered water turbidity measurements as required by section 19-13-B102(e)(7)(S)(i) of the Regulations of Connecticut State Agencies shall be reported to the department within nine (9) calendar days after the end of each month the system serves water to the public. Information that shall be reported includes: the total number of measurements taken during the month; the maximum daily measurement; the number and percentage of measurements taken during the month that are less than or equal to the turbidity limits specified in section 19-13-B102(j)(4) of the Regulations of Connecticut State Agencies, for the filtration technology being used; the date and value of any measurements taken during the month that exceed one (1) NTU. In addition, for any system using conventional filtration treatment or direct filtration and required to monitor the turbidity of each individual filter (or the turbidity of combined filter effluent for systems serving fewer than 10,000 persons and having two or fewer filters) under section 19-13-B102(e)(7)(S)(i) of the Regulations of Connecticut State Agencies:

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- (I) The system shall submit a report to the department, no later than nine (9) calendar days following the end of each month, indicating that the system has conducted individual filter monitoring or combined filter effluent (CFE) for systems serving fewer than 10,000 persons that have 2 or fewer filters as required under section 19-13-B102(e)(7)(S)(i) of the Regulations of Connecticut State Agencies;
- (II) If any individual filter or combined filter effluent (CFE) for systems serving fewer than 10,000 persons that have 2 or fewer filters has a measured turbidity level of greater than 1.0 NTU in two (2) consecutive measurements taken fifteen (15) minutes apart, the system shall submit a report to the department, no later than nine (9) calendar days following the end of each month. The report shall indicate the filter number, the turbidity measurements and date(s) on which an exceedance occurred.

For systems serving 10,000 or more persons, the report shall also include either a filter profile, as defined in section 19-13-B102(a) of the Regulations of Connecticut State Agencies, which shall be produced no later than seven (7) days of an exceedance, or a reason for the exceedance.

For systems serving fewer than 10,000 persons, the report shall also include the cause of the exceedance(s), if known;

- (III) For systems serving 10,000 or more persons, if any individual filter has a measured turbidity level of greater than 0.5 NTU in two (2) consecutive measurements, taken fifteen (15) minutes apart at the end of the first four (4) hours of continuous filter operation, after the filter has been backwashed or otherwise taken off line, the system shall submit a report to the department, no later than nine (9) calendar days following the end of each month. The report shall indicate the filter number, the turbidity measurements, date(s) on which an exceedance occurred, and provide either a filter profile, as defined in subsection (a) of this section, which shall be produced no later than seven (7) days of an exceedance, or a reason for the exceedance;
- (IV) If any individual filter or combined filter effluent (CFE) for systems serving fewer than 10,000 persons that have 2 or fewer filters has a measured turbidity level of greater than 1.0 NTU in two (2) consecutive measurements, taken fifteen (15) minutes apart at any time in each of three (3) consecutive months, the system shall submit a report to the department, no later than nine (9) calendar days following the end of each month. The report shall indicate the filter number, the turbidity measurements, and date(s) on which an exceedance occurred. In addition, the system shall produce a self assessment of

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- the filter (if monitoring CFE in lieu of monitoring each individual filter, the system shall produce a self-assessment of both filters), as defined in section 19-13-B102(a) of the Regulations of Connecticut State Agencies, within fourteen (14) days of the exceedance and provide it to the department within 9 days of the end of the month in which the exceedance occurred or within 14 days of the exceedance, whichever is sooner. Systems serving fewer than 10,000 persons shall not be required to complete a filter self-assessment if a comprehensive performance evaluation (CPE) is required under section (V) of this subclause; and
- (V) If any individual filter or combined filter effluent (CFE) for systems serving fewer than 10,000 persons that have 2 or fewer filters has a measured turbidity level of greater than 2.0 NTU in two (2) consecutive measurements, taken fifteen (15) minutes apart at any time in each of two (2) consecutive months, the system shall submit a report to the department, no later than nine (9) calendar days following the end of each month. The report shall indicate the filter number, the turbidity measurements, dates on which an exceedance occurred, and that a comprehensive performance evaluation (CPE) is required. In addition the system shall arrange to have a comprehensive performance evaluation conducted by a third party, approved by the department, no later than thirty (30) days following an exceedance for systems serving 10,000 or more persons and no later than sixty (60) days following an exceedance for systems serving fewer than 10,000 persons and have the evaluation completed and submitted to the department no later than ninety (90) days following the exceedance for systems serving 10,000 or more persons and no later than one-hundred-twenty (120) days following an exceedance for systems serving fewer than 10,000 persons.
- (ii) Disinfection information specified in subsections (e)(7)(S)(ii) and (e)(7)(S)(iii) shall be reported to the department within nine (9) calendar days after the end of each month the system serves water to the public. Information that shall be reported includes: for each day, the lowest measurement of residual disinfectant concentration in mg/L in the water entering the distribution system, the dates and duration of each period when the residual disinfectant concentration in water entering the distribution system fell below 0.2 mg/L and when the department was notified of the occurrence. The following information shall be submitted on the samples taken in the distribution system in conjunction with total coliform monitoring pursuant to section 19-13B102(e)(7) of the Regulations of Connecticut State Agencies: number of instances where the residual disinfectant concentration is measured, number of instances where the residual disinfection concentration is not measured but heterotrophic bacteria plate count (HPC) is measured, number of instances where the residual disinfectant concentration is measured but not detected and no HPC is measured, number of instances where no residual disinfectant concentration is

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detected and where HPC is greater than (500)/ml, number of instances where the residual disinfectant concentration is not measured and HPC is greater than (500)/ml and for the current and previous month the system serves water to the public the value of "V" in the formula specified in section 19-13-B102(j)(3)(B)(iii) of the Regulations of Connecticut State Agencies.

- (iii) Each system, upon discovering that a waterborne disease outbreak potentially attributable to that water system has occurred, shall report that occurrence to the department as soon as possible, but no later than by the end of the next business day. If at any time the combined filtered water turbidity exceeds one (1) NTU, the system shall inform the department as soon as possible, but no later than the end of the next business day. If at any time the residual falls below 0.2 mg/L in the water entering the distribution system, the system shall notify the department as soon as possible, but no later than by the end of the next business day. The system also shall notify the department by the end of the next business day whether the residual was restored to at least 0.2 mg/L within four (4) hours from the time of discovery of insufficient chlorine residual.
 - (iv) A system required to develop a disinfection profile pursuant to section 19-13-B102(e)(7)(S)(iv) or (v) of the Regulations of Connecticut State Agencies shall submit the disinfection profile to the department no later than nine (9) calendar days following the end of each month.
 - (v) A system required to develop a disinfection profile and which decides to make a significant change to its disinfection practice, as defined in 40 CFR 141.172(c)(1), and in 40 CFR 141.541, as amended January 14, 2002, shall submit to the department the following: (1) a description of the proposed disinfection practice change; (2) a disinfection benchmark in accordance with paragraphs (2) to (3) inclusive, of 40 CFR 141.172(c), 40 CFR 141.543, as amended January 14, 2002 and 141.544, as amended January 14, 2002; (3) disinfection profiling data used to determine the disinfection benchmark as monitored pursuant to sections 19-13-B102(e)(7)(S)(iv) or 19-13-B102(e)(7)(S)(v) of the Regulations of Connecticut State Agencies, and; (4) an analysis of how the proposed change will affect current levels of disinfection. Prior to implementing the proposed disinfection practice change, the system shall consult with and obtain approval from the department.
- (7) Reporting and recordkeeping requirements -- disinfectants and disinfection byproducts
 Disinfectant residual, disinfection byproduct, and disinfection byproduct precursor information collected under section 19-13-B102(e) of the Regulations of Connecticut State Agencies shall be reported to the department no later than nine (9) calendar days after the end of each monitoring period in which samples were collected.
- (A) Disinfectants.
 - (i) A system monitoring for chlorine or chloramines as required by section 19-13-B102(e)(11)(D)(i) of the Regulations of Connecticut State Agencies shall report:
 - (I) The number of samples taken during each month of the last quarter;

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- (II) The monthly arithmetic average of all samples taken in each month for the last 12 months;
 - (III) The arithmetic average of all monthly averages for the last 12 months; and
 - (IV) Whether, based on section 19-13-B102(e)(11)(G), the MRDL was violated.
- (ii) A system monitoring for chlorine dioxide as required by sections 19- 13-B102(e)(11)(D)(ii) and (iii) of the Regulations of Connecticut State Agencies shall report:
- (I) The dates, results, and locations of samples taken during the last quarter;
 - (II) Whether, based on section 19-13-B102(e)(11)(G), the MRDL was violated;
 - (III) Whether the MRDL was violated in any two consecutive daily samples; and
 - (IV) Whether the resulting violation was a tier 1 or tier 2 notice.
- (B) Disinfection byproducts.
- A system monitoring for disinfection byproducts as required by section 19- 13-B102(e)(11)(C) of the Regulations of Connecticut State Agencies shall report the following information to the department.
- (i) A system monitoring for TTHM and HAA5 on a quarterly or more frequent basis shall report:
- (I) The number of samples taken during the last quarter;
 - (II) The location, date, and result of each sample taken in 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 for the last four (4) quarters; and
 - (V) Whether, based on section 19-13-B102(e)(11)(G), the MCL was violated.
- (ii) A system monitoring for TTHM and HAA5 less frequently than quarterly (but at least annually) shall report:
- (I) The number of samples taken during the last monitoring period;
 - (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; and
 - (IV) Whether, based on section 19-13-B102(e)(11)(G), the MCL was violated.
- (iii) A system monitoring for TTHM and HAA5 less frequently than annually shall report the location, date, and result of each sample taken as well as whether, based on section 19-13-B102(e)(11)(G), the MCL was violated.
- (iv) A system monitoring for chlorite shall report:
- (I) The number of entry point samples taken each month for the last three 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 individual arithmetic averages of each three (3) sample set taken in the distribution system; and

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- (IV) Whether, based on section 19-13-B102(e)(11)(G), the MCL was violated and in which month it was violated.
- (v) A system monitoring for bromate shall 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; and
 - (IV) Whether, based on section 19-13-B102(e)(11)(G), the MCL was violated.
- (C) Disinfection byproduct precursors and enhanced coagulation or enhanced softening.
 - (i) Systems monitoring monthly or quarterly for TOC under the requirements of section 19-13-B102(e)(11)(E) of the Regulations of Connecticut State Agencies and required to meet the enhanced coagulation or enhanced softening requirements in section 19-13-B102(j)(11)(B)(i) or (ii) of the Regulations of Connecticut State Agencies shall report the following to the department:
 - (I) The number of paired 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 section 19-13-B102(j)(11)(C) of the Regulations of Connecticut State Agencies; and
 - (V) Whether the system is in compliance with the enhanced coagulation or enhanced softening percent removal requirements in section 19-13- B102(j)(11)(B) of the Regulations of Connecticut State Agencies for the last four (4) quarters.
 - (ii) Systems monitoring monthly or quarterly for TOC under the requirements of section 19-13-B102(e)(11)(E) of the Regulations of Connecticut State Agencies and meeting one or more of the alternative compliance criteria in section 19-13-B102(j)(11)(A) of the Regulations of Connecticut State Agencies shall report the following to the department:
 - (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 average based on monthly averages, or quarterly samples, of source water TOC for systems meeting a criterion in section 19- 13- B102(j)(11)(A)(i) or (ii) of the Regulations of Connecticut State Agencies or of treated water TOC for systems meeting the criterion in subsection (j)(11)(A)(i) of this section;

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- (V) The running annual average based on monthly samples, or quarterly samples, of source or finished water SUVA for systems meeting the criterion in section 19-13-B102(j)(11)(A)(iv) of the Regulations of Connecticut State Agencies;
 - (VI) The running annual average of source water alkalinity for systems meeting the criterion in section 19-13-B102(j)(11)(A)(ii) of Regulations of Connecticut State Agencies and of treated water alkalinity for systems meeting the criterion in section 19-13-B102(j)(A)(v) of the Regulations of Connecticut State Agencies;
 - (VII) The running annual average for both TTHM and HAA5 for systems meeting the criterion in section 19-13-B102(j)(11)(A)(iii) of the Regulations of Connecticut State Agencies;
 - (VIII) The running annual average of the amount of magnesium hardness removal (as CaCO₃, in mg/l) for systems meeting the criterion in section 19-13-B102(j)(11)(A)(vi) of the Regulations of Connecticut State Agencies; and
 - (IX) Whether the system is in compliance with the particular alternative compliance criterion in section 19-13-B102(j)(11)(A) of the Regulations of Connecticut State Agencies.
- (8) Reporting and recordkeeping requirements -- filter backwash recycling
- (A) A system shall notify the department in writing by December 8, 2003, if the system recycles spent filter backwash water, thickener supernatant, or liquids from dewatering processes. This notification shall include the following:
 - (i) A plant schematic showing the origin of all flows, which are recycled including, but not limited to, spent filter backwash water, thickener supernatant, and liquids from dewatering processes, the hydraulic conveyance used to transport them, and the location where they are reintroduced back into the treatment plant; and
 - (ii) Typical recycle flow in gallons per minute (gpm), the highest observed plant flow experienced in the previous year in gpm, design flow for the treatment plant in gpm, and the approved operating capacity for the plant where the department has made such determinations.
 - (B) A system shall collect and retain on file for review and evaluation by the department beginning June 8, 2004, the following recycle flow information:
 - (i) A copy of the recycle notification and information submitted to the department pursuant to subparagraph (A) of this subdivision;
 - (ii) A list of all recycle flows and the frequency with which they are returned;
 - (iii) Average and maximum backwash flow rates through the filters and the average and maximum duration of the filter backwash process in minutes;
 - (iv) Typical filter run length and a written summary of how filter run length is determined;
 - (v) The type of treatment provided for the recycle flow; and
 - (vi) Data on the physical dimensions of the equalization and treatment units, typical and maximum hydraulic loading rates,

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type of treatment chemicals used and average dose and frequency of use, and frequency at which solids are removed, if applicable.

- (i) Public notification and consumer confidence report requirements.
 - (1) A public water system that has a tier 1 notice shall do the following:
 - (A) Provide a public notice to its customers as soon as practical but no later than twenty four (24) hours after the system learns of the violation in one or more of the following forms of delivery:
 - (i) Appropriate broadcast media, such as radio and television;
 - (ii) Posting of the notice in conspicuous location(s) throughout the area served by the public water system;
 - (iii) Hand delivery of the notice to persons served by the public water system; or
 - (iv) Another delivery method approved in writing by the department.
 - (B) Initiate consultation with the department as soon as practical but no later than twenty-four (24) hours after the public water system learns of the violation or situation, to determine additional public notice requirements. The system shall, comply with any additional public notification requirements that are established as a result of the consultation with the department. Such requirements may include the timing, form, manner, frequency, and content of repeat notices (if any) and other actions designed to reach all persons served.
 - (2) A public water system that has a tier 2 notice shall do the following:
 - (A) Provide a public notice to its customers as soon as practical but no later than thirty (30) days after the system learns of the violation in one or more of the following forms of delivery:
 - (i) Mail or other direct delivery to each customer receiving a bill and to other service connections to which water is delivered by the system; and publication in a local newspaper or newsletter;
 - (ii) Posting the notice in conspicuous locations throughout the distribution system and frequented by persons served by the system; or
 - (iii) Any other delivery method approved in writing by the department.
 - (B) After the initial notice, the public water system shall repeat the notice every three (3) months for as long as the violation or situation persists.
 - (C) If the public notice is posted, the notice shall remain in place for as long as the violation or situation persists, but in no case for less than seven (7) days, even if the violation or situation is resolved.
 - (3) A public water system that has a tier 3 notice shall do the following:
 - (A) Provide a public notice no later than one (1) year after the system learns of the violation or situation or begins operating under a variance or exemption in one or more of the following forms of delivery:
 - (i) Mail or other direct delivery to each customer receiving a bill and to other service connections to which water is delivered by the system; and
 - (ii) Publication in a local newspaper or newsletter; or
 - (iii) Posting the notice in conspicuous locations throughout the distribution system frequented by persons served by the system; or
 - (iv) Any other delivery method approved in writing by the department.
 - (B) After the initial notice, the notice shall be repeated annually for as long as the violation, variance, exemption or other situation persists. If the notice is posted, the notice shall remain in place for as long as the

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- violation, variance, exemption or other situation persists, but in no case less than seven (7) days even if the violation or situation is resolved.
- (C) The consumer confidence report (CCR) required under section 19-13-B102(i)(10) of the Regulations of Connecticut State Agencies may be used as a vehicle for the initial public notice of a tier 3 notice and all required repeat notices, provided:
 - (i) The CCR is provided to persons served no later than twelve (12) months after the system learns of the violation or situation, as required under section 19-13-B102(i)(3)(A) of the Regulations of Connecticut state agencies;
 - (ii) The tier 3 notice contained in the CCR follows the content requirements under section 19-13-B102(i)(4) of the Regulations of Connecticut State Agencies; and
 - (iii) The CCR is distributed following the delivery requirements under section 19-13-B102(i)(3)(A) of the Regulations of Connecticut State Agencies.
 - (4) General content of public notice for tier 1, tier 2 or tier 3 notice. Each notice required by this section shall be approved by the department.
 - (A) Each public notice for a tier 1, tier 2 or tier 3 notice shall contain the following information:
 - (i) a description of the violation or situation, including the contaminant(s) of concern, and when applicable the contaminant level(s);
 - (ii) any potential adverse health effects from the violation or situation, including, but not limited to, any applicable standard language required by 40 CFR 141.205 as amended from time to time;
 - (iii) the population at risk, including any subpopulation particularly vulnerable if exposed to the contaminant in their drinking water;
 - (iv) what the system is doing to correct the violation or situation;
 - (v) whether alternative water supplies should be used;
 - (vi) what action the consumer should take, including when the consumer should seek medical help, if known;
 - (vii) the name, business address, and the telephone number of the owner, operator or designee of the public water system as a source of additional information concerning the notice;
 - (viii) when the violation or situation occurred;
 - (ix) when the water system expects to return to compliance or resolve the situation; and
 - (x) a statement to encourage the recipient of notice to distribute the public notice to other persons served, using the following language, where applicable: "please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail."
 - (B) Each notice for public water systems operating under a variance, administrative order or an exemption shall contain the following information:
 - (i) an explanation of the reasons for the variance, order or exemption;
 - (ii) the date on which the variance, order or exemption was issued;
 - (iii) a brief status report on the steps the system is taking to install treatment, find alternative sources of water, or otherwise comply

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- with the terms and schedules of the variance, order or exemption; and
 - (iv) a notice of any opportunity for public input in the review of the variance, order or exemption.
 - (C) Each public notice required by this section:
 - (i) shall be displayed in a conspicuous way when printed or posted;
 - (ii) shall not contain overly technical language or very small print;
 - (iii) shall not be formatted in a way that defeats the purpose of the notice; and
 - (iv) shall not contain language that nullifies the purpose of the notice.
 - (D) For systems serving a large proportion of non-english speaking consumers, as determined in writing by the department, the notice shall also contain information in the appropriate foreign language regarding the importance of the notice or contain a telephone number or address where persons served may contact the water system to obtain a translated copy of the notice or to request assistance in the appropriate foreign language.
 - (5) General notice requirements for other than tier 1, tier 2 or tier 3 notice.
 - (A) A water system that exceeds the copper action level, based on tap water samples collected in accordance with section 19-13-B102(e)(8), shall notify consumers of the concentration by direct mail, no later than thirty (30) days after the system learns of the exceedance. The form and manner of the public notice shall follow the requirements for a tier 2 notice as prescribed in section 19-13-B102(i)(2). At a minimum, the notice shall include the following mandatory language: "if you have been diagnosed with copper intolerance due to a genetic deficiency, please inform your physician that the 90th percentile level of copper in our water is (BLANK) milligrams per liter." (the blank space should contain the 90th percentile level of copper in the water).
 - (B) When the sodium concentration for water ready for consumption exceeds twenty eight (28.0) mg/l consumers of the public water system shall be notified of the concentration by direct mail or in the next billing cycle, and such notification shall be repeated annually for as long as the exceedance exists. At a minimum the notice shall include the following mandatory language: "If you have been placed on a sodium-restricted diet, please inform your physician that our water contains (BLANK) mg/l of sodium." (the blank ___ should contain the level of sodium in the water.)
 - (C) A public water system that is required to monitor for the unregulated contaminants, pursuant to 40 CFR 141.40, shall notify persons served by the system of the availability of the results of such sampling no longer than twelve (12) months after the monitoring results are known. The form and manner of the public notice shall follow the requirements for a tier 3 notice prescribed in section 19-13-B102(i)(3). The notice shall also identify a person and provide a telephone number for information on the monitoring results.
 - (D) A public water system with fluoride concentration between 2 mg/l and 4.1 mg/l shall provide public notice to persons served as soon as practical, but no later than twelve (12) months from the day the water system learns of the fluoride level. The notice shall be repeated annually for as long as the fluoride level remains between 2 mg/l and 4.1 mg/l. If the notice is posted, it shall remain in place for as long as the fluoride level remains between 2 mg/l and 4.1 mg/l, but in no case for less than seven (7) days. The notice shall follow the requirements for a tier 3 notice as specified in section 19-13-B102(i)(3), and shall contain at a minimum, the

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- language required in 40 CFR 141.208(c).
- (6) Public education requirements. A water system that exceeds the head action level based on tap water samples collected in accordance with subsection (e)(8) of this section shall deliver the public education materials contained in 40 CFR 141.85(a) and 40 CFR 141.85(b) in accordance with the requirements in 40 CFR 141.85(c) within sixty (60) days after the end of the monitoring period in which the exceedance occurs and shall offer to sample the tap water of any customer who requests it according to 40 CFR 141.85(d) as amended from time to time.
 - (7) A public water system that sells or otherwise provides drinking water to a consecutive public water system is required to give public notice to the owner or operator of the consecutive public water system. The consecutive public water system is responsible for providing public notice to the persons it serves.
 - (8) A public water system, no later than ten (10) days after completing the public notification requirements of this section for the initial public notice and any repeat notices, shall submit to the department a certification that it has fully complied with the requirements of section 19-13-B102(i). The public water system shall include with this certification a representative copy of each type of notice distributed, published, posted, and made available to the persons served by the system and to the media.
 - (9) Notice to new customers or billing units.
 - (A) A community water system shall give a copy of the most recent public notice for any continuing violation or for the existence of a variance, order, exemption, or other ongoing situations requiring a public notice, to all new billing units or new customers, prior to or at the time service begins.
 - (B) A non-community water system shall continuously post the public notice in conspicuous locations in order to inform new customers of any continuing violation, variance, order exemption, or other situation requiring a public notice, for as long as the violation, variance, order, exemption, or other situation persists.
 - (10) Consumer confidence report requirements.
 - (A) A community water system shall annually prepare a consumer confidence report that contains data collected during the previous calendar year and includes the information specified in 40 CFR 141.153 and 40 CFR 141.154.
 - (B) No later than July 1st of each year, a community water system serving 10,000 or more persons shall mail or directly deliver the report to its customers, a good faith effort to reach the customers who do not get water bills, using methods acceptable to the department, shall be made. Systems serving 100,000 persons or more shall post the report to a publicly accessible site on the internet. A new community water system shall deliver its first report by July 1st of the year after its first full calendar year in operation and annually thereafter.
 - (C) A community water system that sells water to another community water system shall deliver the applicable information required in 40 CFR 141.153 to the buyer system by April 1st of each year.
 - (D) Community water systems serving more than 500 persons and fewer than 10,000 persons shall, by July 1st of each year, do the following:
 - (i) publish the report in one or more local newspapers serving the area in which the system's customers are located;
 - (ii) inform the customers, by mail or door-to-door delivery, that the report is available upon request; and
 - (iii) make copies of the report available to the public upon request.
 - (E) Community water systems serving 500 or fewer persons shall, by July 1st of each year, do the following:

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- (i) inform the customers, by mail, door-to-door delivery, or by posting in a location approved by the department that the report is available upon request; and
 - (ii) make copies of the report available to the public upon request.
 - (F) No later than July 1st of each year, a community water system shall mail three (3) copies of the report to the department and one (1) copy to the local director of health of each city, town, borough or district served by the community water system.
 - (G) No later than August 9th of each year a community water system shall submit to the department a certification that the report has been distributed or, when applicable, made available to customers, and that the information is correct and consistent with the compliance monitoring data previously submitted to the department. The certification shall be on a form provided by the department.
 - (H) Each community water system shall make its reports available to the public upon request.
 - (I) For the purpose of section 19-13-B102(i)(10) of the Regulations of Connecticut State Agencies, the term "detected" is defined in 40 CFR 141.151(d).
 - (J) Each community water system serving one thousand or more persons or two hundred fifty consumers or more shall include in its consumer confidence report educational materials or information on:
 - (i) water conservation;
 - (ii) water supply source protection methods, including methods to reduce contamination; and
 - (iii) health effects and sources of lead and copper.
- (j) Treatment techniques.
 - (1) A MCLG of zero (0) is set for the following microbiological contaminants: *Giardia lamblia*, cryptosporidium, viruses and legionella.
 - (2) General Requirements--Surface Water source and groundwater source under the direct influence of surface water.
 - (A) Each system with a surface water source or a groundwater source under the direct influence of surface water shall install and properly operate water treatment processes that reliably achieve:
 - (i) At least 99.9 percent (3-LOG) removal and/or inactivation of *Giardia lamblia* cysts between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer;
 - (ii) At least 99.99 percent (4-LOG) removal and/or inactivation of viruses between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer; and
 - (iii) For systems serving 10,000 or more persons, and for systems serving fewer than 10,000 persons, at least 99 percent (2-log) removal of cryptosporidium between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer.
 - (B) A system using a surface water source or a groundwater source under the direct influence of surface water is considered to be in compliance with the requirements of subparagraph (A) of this subdivision if it meets the filtration requirements in subsection (j)(4) and the disinfection requirements in subsection (j)(3)(B) of this section.
 - (C) Each system using a surface water source or a groundwater source under the direct influence of surface water shall be operated by qualified personnel pursuant to sections 25-32-7a through 25-32-14 of the

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- Regulations of Connecticut State Agencies.
- (D) A system shall install and have operational treatment consisting of disinfection and filtration in accordance with section 19-13-B102(j)(2) of the Regulations of Connecticut State Agencies within eighteen (18) months following the department's determination that treatment is required for a groundwater source. Such determination shall be made if that groundwater source is at risk of contamination from surface water. In making this determination, the department shall be guided by its document entitled "Determination Of Groundwater Under The Direct Influence of Surface Water." As an interim requirement until such treatment is operational, turbidity shall not exceed a monthly average of one (1) NTU or a two (2) consecutive day average of five (5) NTUS as monitored pursuant to section 19-13-B102(e)(7)(H) of the Regulations of Connecticut State Agencies and the system supplied by this source shall be free of any waterborne disease outbreak.
- (3) Disinfection.
- (A) A system that uses a groundwater source under the direct influence of surface water, and that does not provide and operate treatment pursuant to section 19-13-B102(j)(2) of the Regulations of Connecticut State Agencies, shall provide interim disinfection pursuant to section 19-13-B102(e)(7)(M) of the Regulations of Connecticut State Agencies.
 - (B) A system that uses a surface water source or a groundwater source under the direct influence of surface water, and that provides and operates treatment pursuant to section 19-13-B102(j)(2) of the Regulations of Connecticut state agencies, shall provide disinfection treatment as specified in the following subchauses of this subparagraph.
 - (i) The disinfection treatment shall be sufficient to ensure that the total treatment processes of that source achieve at least 99.9 percent (3-LOG) inactivation and/or removal of *Giardia lamblia* cysts and at least 99.99 percent (4-LOG) inactivation and/or removal of viruses. Disinfection effectiveness shall be determined by the calculation of "CT" values as specified in the most recent edition of the EPA "Guidance Manual For Compliance With The Filtration And Disinfection Requirements For Public Water Systems Using Surface Water Sources."
 - (ii) The residual disinfectant concentration in the water entering the distribution system, measured as specified in 40 CFR 141.74(a)(2) and section 19-13-B102(e)(7)(S)(ii) of the Regulations of Connecticut State Agencies shall not be less than 0.2 mg/l for more than four (4) hours.
 - (iii) The residual disinfectant concentration in the distribution system, measured as free chlorine, combined chlorine, or chlorine dioxide, as specified in 40 CFR 141.74(a)(2) and section 19-13-B102(e)(7)(S)(ii) of the Regulations of Connecticut state Agencies, shall not be undetectable in more than five percent (5%) of the samples each month, for any two (2) consecutive months that the system serves water to the public. Water in the distribution system with a heterotrophic bacteria concentration less than or equal to five hundred (500)/ML, measured as heterotrophic plate count (HPC) as specified in 40 CFR 141.74(a)(1) is deemed to have a detectable disinfectant residual for purposes of determining compliance with this requirement. The value "V" in the following formula shall not exceed five percent (5%) in one (1) month, for any two (2) consecutive months.

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$$V = \frac{C + D + E}{A + B} \times 100$$

Where:

A = Number of instances where the residual disinfectant concentration is measured;

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

C = Number of instances where the residual disinfectant concentration is measured but not detected and no HPC is measured;

D = Number of instances where no residual disinfectant concentration is detected and where the HPC is greater than five hundred (500)/ml; and

E = Number of instances where the residual disinfectant concentration is not measured and HPC is greater than five hundred (500)/ml.

(4) Filtration.

A system that uses a surface water source or a groundwater source under the direct influence of surface water, and that provides and operates treatment pursuant to section 19-13-B102(j)(2), shall provide filtration which complies with the requirements of subparagraphs (A), (B), (C), or (D) of this subdivision.

(A) Conventional filtration treatment or direct filtration.

- (i) For systems serving 10,000 or more persons and using conventional or direct filtration, and for systems serving fewer than 10,000 persons and using conventional or direct filtration, the turbidity level of representative samples of a system's combined filtered water shall be less than or equal to 0.3 NTU in at least ninety five percent (95%) of the measurements taken each month pursuant to section 19-13-B102(e)(7)(S)(i) of the Regulations of Connecticut State Agencies.
- (ii) The turbidity level of representative samples of a system's combined filtered water (treatment effluent) shall at no time exceed one (1) NTU, measured pursuant to section 19-13-B102(e)(7)(S)(i) of the Regulations of Connecticut State Agencies.
- (iii) A system required to submit a report to the department for a self assessment or comprehensive performance evaluation, pursuant to section 19-13-B102(h)(6)(B)(i) of the Regulations of Connecticut State Agencies, shall implement the improvements identified in accordance with a schedule as approved in writing by the department.

(B) Slow sand filtration.

For systems using slow sand filtration, the turbidity level of representative samples of a system's combined filtered water shall be less than or equal to one (1) NTU in all of the measurements taken each month, measured as specified in 40 CFR 141.74(a)(4) and subsection (e)(7)(S)(i) of this section.

(C) Diatomaceous earth filtration.

For systems using diatomaceous earth filtration, the turbidity level of representative samples of a system's combined filtered water shall be less than or equal to one (1) NTU in all of the measurements taken each month, measured as specified in 40 CFR 141.74(a)(4) and subsection (e)(7)(S)(i) of this section.

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- (D) Other filtration technologies.
A system may use filtration technology not listed in subparagraphs (A) through (C) of this subdivision if it demonstrates to the department, using pilot plant studies or other means, that the alternative filtration technology, in combination with disinfection treatment that meets the requirements of subdivision (3)(13) of this subsection, consistently achieves ninety nine and nine tenths percent (99.9%) removal and/or inactivation of *Giardia lamblia* cysts and ninety nine and ninety nine hundredths percent (99.99%) removal and/or inactivation of viruses. For a system that makes this demonstration, the requirements of subparagraphs (3)(13) and (4)(A) of this subsection apply.
- (E) A system serving 10,000 or more persons shall achieve ninety nine percent (99%) removal of cryptosporidium. Systems serving fewer than 10,000 persons shall achieve ninety nine percent (99%) removal of cryptosporidium. A system is deemed to be in compliance with this requirement if it meets the combined filtered water turbidity level requirements of subparagraphs (4)(A) through (4)(D) of this subsection.
- (F) Any system that recycles spent filter backwash water, thickener supernatant, or liquids from dewatering processes shall return these flows through the processes of a system's existing conventional or direct filtration or at an alternate location approved by the department by June 8, 2004. If capital improvements are required to modify the recycle location to meet this requirement, all capital improvements shall be completed, as approved by the department, no later than June 8, 2006.
- (5) Treatment techniques for acrylamide and epichlorohydrin. Each public water system shall certify annually in writing to the department that when acrylamide and epichlorohydrin are used in drinking water systems, the combination of dose and monomer level does not exceed the levels specified in 40 CFR 141.111.
- (6) General Requirements - control of lead and copper.
 - (A) Applicability and effective dates.
 - (i) The requirements of this subsection constitute the drinking water regulations for lead and copper. Unless otherwise indicated, each of the provisions of this subsection applies to community water systems and non- transient, non-community water systems (hereinafter referred to as "water systems" or "systems").
 - (ii) The requirements set forth in subsections (e) (7) (L), (e) (8) through (e) (10), (h) (5) and (l) (1) (G) of this section shall take effect July 7, 1991. The requirements in subdivisions (7) through (10) of this subsection and subsection (i) (6) of this section shall take effect December 7, 1992.
 - (B) Lead and copper action levels.
 - (i) The lead action level is exceeded if the concentration of lead in more than ten percent (10%) of tap water samples collected during any monitoring period conducted in accordance with subsection (e) (8) of this section is greater than 0.015 mg/l (i.e., if the "90th percentile" lead level is greater than 0.015 mg/l).
 - (ii) The copper action level is exceeded if the concentration of copper in more than ten percent (10%) of tap water samples collected during any monitoring period conducted in accordance with subsection (e) (8) of this section is greater than 1.3 mg/l (i.e., if the "90th percentile" copper level is greater than 1.3 mg/l).
 - (iii) The 90th percentile lead and copper levels shall be computed as follows:

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The results of all lead or copper samples taken during a monitoring period shall be placed in ascending order from the sample with the lowest concentration to the sample with the highest concentration. Each sampling result shall be assigned a number, ascending by single integers beginning with the number one (1) for the sample with the lowest contaminant level. The number assigned to the sample with the highest contaminant level shall be equal to the total number of samples taken. The number of samples taken during the monitoring period shall be multiplied by 0.9. The contaminant concentration in the numbered sample yielded by the calculation above is the 90th percentile contaminant level. For water systems serving fewer than one hundred (100) people that collect five (5) samples per monitoring period, the 90th percentile is computed by taking the average of the highest and second highest concentrations.

- (C) Corrosion control treatment requirements
 - (i) All water systems shall install and operate optimal corrosion control treatment as defined in subsection (a) (44) of this section.
 - (ii) Any public system that complies with the applicable corrosion control treatment requirements approved by the department under subdivisions (7) and (8) of this subsection shall be deemed to be in compliance with the treatment requirement contained in subparagraph (D) (i) of this subdivision.
- (D) Source water treatment requirements. Any system exceeding the lead or copper action level shall implement all applicable source water treatment requirements approved by the department under subdivision (9) of this subsection.
- (E) Lead service line replacement requirements. Any system exceeding the lead action level after implementation of applicable corrosion control and source water treatment requirements shall complete the lead service line replacement requirements contained in subdivision (10) of this subsection.
- (F) Public education requirements.
 - (i) Any system exceeding the lead action level shall implement the public education requirements contained in 40 CFR 141.85 as amended within sixty (60) days after the end of the monitoring period in which the exceedance occurs.
 - (ii) Any system exceeding the copper action level shall notify consumers as required in section 19-13-B102(i)(5)(A) of the Regulations of Connecticut State Agencies.
- (G) Monitoring and analytical requirements. Tap water monitoring for lead and copper, monitoring for water quality parameters, source water monitoring for lead and copper, and analyses of the monitoring results under this subsection shall be completed in compliance with subsections (e) (7) (L) and (e) (8) through (e) (10) of this section.
- (H) Reporting requirements. Systems shall report to the department any information required by the treatment provisions of this subsection and subsection (h) (5) of this section.
- (I) Recordkeeping requirements. Systems shall maintain records in accordance with subsection (l) (1) (G) of this section.
- (J) Violation of drinking water regulations. Failure to comply with the applicable requirements of subsections (e) (7) (L), (e) (8) through (e) (10), (h) (5) (i) (6), (j) (6) through (j) (10) and (l) (1) (G) of this section, including requirements established by the department pursuant to these

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- provisions, shall constitute a violation of the drinking water regulations for lead and/or copper.
- (7) Applicability of corrosion control treatment steps to small, medium-size and large water systems.
- (A) Systems shall complete the applicable corrosion control treatment requirements described in subdivision (8) of this subsection by the deadlines established in this subdivision.
- (i) A large system (serving greater than fifty thousand (50,000) persons) shall complete the corrosion control treatment steps specified in subparagraph (D) of this subdivision, unless it is deemed by the department to have optimized corrosion control under subparagraph (B) (ii) or (B) (iii) of this subdivision.
- (ii) A small system (serving less than or equal to 3,300 persons) and a medium-size system (serving greater than 3,300 and less than or equal to 50,000 persons) shall complete the corrosion control treatment steps specified in subparagraph (E) of this subdivision, unless it is deemed to have optimized corrosion control under subparagraph (B) (i), (B) (ii), or (B) (iii) of this subdivision.
- (B) A system is deemed to have optimized corrosion control and is not required to complete the applicable corrosion control treatment steps identified in this subdivision if the system satisfies one (1) of the criteria specified in subclauses (i) through (iii) of this subparagraph. Any such system deemed to have optimized corrosion control under this subparagraph, 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.
- (i) A small or medium-size water system is deemed to have optimized corrosion control if the system meets the lead and copper action levels during each of two (2) consecutive six (6) month monitoring periods conducted in accordance with section 19-13-B102(e)(8) of the Regulations of Connecticut State Agencies.
- (ii) 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 subdivision. 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 subdivision (8)(F) of this subsection. Water systems deemed to have optimized corrosion control under this subclause shall operate in compliance with the department-designated optimal water quality control parameters in accordance with section 19-13-B102(j)(8)(G) of the Regulations of Connecticut State Agencies and continue to conduct lead and copper tap and water quality parameter sampling in accordance with sections 19-13- B102(e)(8)(F) and 19-13-B102(e)(9)(D) of the Regulations of Connecticut State Agencies, respectively. A system shall provide the department with the following information in order to support a determination under this subparagraph: the results of all test samples collected for each of the water quality parameters in subdivision (8)(C)(iii) of this subsection; a report explaining the test methods used by the

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water system to evaluate the corrosion control treatments listed in subdivision (8)(C)(i) of this subsection, the results of all tests conducted, and the basis for the system's selection of optimal corrosion control treatment, 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 the results of tap water samples collected in accordance with section 19-13-B102(e)(10)(B) of the Regulations of Connecticut State Agencies at least once every six (6) months for one (1) year after corrosion control has been installed.

- (iii) Any water system is deemed to have optimized corrosion control if it submits results of tap water monitoring conducted in accordance with section 19-13-B102(e)(8) of the Regulations of Connecticut State Agencies and source water monitoring conducted in accordance with section 19-13-B102(e)(10) of the Regulations of Connecticut State Agencies that demonstrate for two (2) consecutive six (6) month monitoring periods that the difference between the 90th percentile tap water lead level computed under subdivision (6)(C)(iii) of this subsection and the highest source water head concentration, is less than the practical quantification level for lead of 0.005 mg/l.

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 subclause if the 90th percentile tap water lead level is less than or equal to the practical quantification level for lead for two consecutive six (6) month monitoring periods.

Any water system deemed to have optimized corrosion control in accordance with this subclause 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 19-13-B102(e)(8)(C) of the Regulations of Connecticut State Agencies and collecting the samples at times and locations specified in section 19-13-B102(e)(8)(G) of the Regulations of Connecticut State Agencies.

Any water system deemed to have optimized corrosion control pursuant to this subclause shall obtain the approval of the department in writing, pursuant to section 19-13-B102(d)(2) of the Regulations of Connecticut State Agencies, prior to 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 system maintains minimal levels of corrosion in its distribution system.

A system is not deemed to have optimized corrosion control under this subclause unless it meets the copper action level.

Any system that is required to implement corrosion control because it is no longer deemed to have optimized corrosion control under this subclause shall implement corrosion control

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treatment in accordance with the deadlines in section 19-13-B102(j)(7)(E) of the Regulations of Connecticut State Agencies. Any such large system shall adhere to the schedule specified in that subparagraph for medium-size systems, with the time periods for completing each step being determined as of the date the system is no longer deemed to have optimized corrosion control under this subclause.

- (C) Any small water system or medium-size water system that is required to complete the corrosion control steps because it exceeded the lead or copper action level may cease completing the treatment steps whenever the system meets both action levels during each of two (2) consecutive monitoring periods conducted pursuant to section 19-13-B102(e)(8) of the Regulations of Connecticut State Agencies and submits the result 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 that 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 properly implement the treatment requirements of this subdivision. 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 section 19-13-B102(j)(7)(E) of the Regulations of Connecticut State Agencies, including systems deemed to have optimized corrosion control under section 19-13-B102(j)(7)(B) of the Regulations of Connecticut State Agencies, is triggered whenever any small or medium-size system exceeds the lead or copper action level.
- (D) Treatment steps and deadlines for large systems. Except as provided in subparagraphs (B)(ii) and (B)(iii) of this subdivision, large water systems shall complete the following corrosion control treatment steps (described in the referenced portions of subdivision (8)(A) of this subsection and sections 19-13-B102(e)(8) and (9) of the Regulations of Connecticut State Agencies by the indicated dates.
 - (i) Step 1: The system shall conduct initial monitoring (sections 19-13-B102(e)(8)(D) and (e)(9)(B) of the Regulations of Connecticut State Agencies) during two (2) consecutive six (6) month monitoring periods by January 1, 1993.
 - (ii) Step 2: The system shall complete and submit corrosion control studies and proposed treatment to the department (subdivision (8)(c) of this subsection) by July 1, 1994.
 - (iii) Step 3: The department shall review and either approve or reject, with written reasons, the proposed optimal corrosion control treatment in accordance with subdivision (8)(D) of this subsection by January 1, 1995. If rejected, the system shall revise proposed treatment and resubmit to the department for review by July 1, 1995.
 - (iv) Step 4: The system shall install the approved optimal corrosion control treatment in accordance with subdivision (8)(E) of this subsection by January 1, 1997.
 - (v) Step 5: The system shall complete follow-up sampling (sections 19-13-B102(e)(8)(E) and (e)(9)(C) of the Regulations of Connecticut State Agencies) by January 1, 1998.
 - (vi) Step 6: The department shall review installation of treatment

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and designate optimal water quality control parameters in accordance with subdivision (8)(F) of this subsection by July 1, 1998.

- (vii) Step 7: The system shall operate in compliance with the department- specified optimal water quality control parameters (subdivision (8)(G) of this subsection) and continue to conduct tap sampling (sections 19-13- B102(e)(8)(F) and (e)(9)(D) of the Regulations of Connecticut State Agencies).
- (E) Treatment steps and deadlines for small water systems and medium-size water systems. Except as provided in subparagraph (B) of this subdivision, small water systems and medium-size water systems shall complete the following corrosion control treatment steps (described in the referenced portions of subdivision (8) of this subsection and sections 19-13-B102(e)(8) and (9) of the Regulations of Connecticut State Agencies) by the indicated time periods.
 - (i) Step 1: The system shall conduct initial tap sampling in accordance with sections 19-13-B102(e)(8)(D) and (e)(9)(B) of the Regulations of Connecticut State Agencies until the system either exceeds the lead or copper action level or becomes eligible for reduced monitoring under section 19-13- B102(e)(8)(G) of the Regulations of Connecticut State Agencies. A water system exceeding the lead or copper action level shall propose optimal corrosion control treatment in accordance with subdivision (8)(A) of this subsection within six (6) months after the end of the tap monitoring period, pursuant to section 19-13- B102(e)(8)(D) through (G) of the Regulations of Connecticut State Agencies, in which the exceedance occurred.
 - (ii) Step 2: Within twelve (12) months after a water system exceeds the lead or copper action level, the department may require the system to perform corrosion control studies in accordance with subdivision (8)(B) of this subsection. If the department does not require the system to perform such studies, the department shall review and either approve or reject with written reasons the optimal corrosion control treatment in accordance with subdivision (8)(D) of this subsection proposed in step 1 and the system shall obtain department approval for its proposed optimal corrosion control treatment within the following time frames: for medium-size systems, within eighteen (18) months after it exceeds the lead or copper action level; for small systems, within twenty-four (24) months after such system exceeds the head or copper action level.
 - (iii) Step 3: If the department requires a water system to perform corrosion control studies under (ii) of this subparagraph, the system shall complete the studies in accordance with subdivision (8)(C) of this subsection and propose optimal corrosion control treatment within eighteen (18) months after the department requires that such studies be conducted.
 - (iv) Step 4: If the water system has performed corrosion control studies under (ii) of this subparagraph, the department shall review and either approve or reject with written reasons optimal corrosion control treatment in accordance with subdivision (8)(D) of this subsection. The system shall obtain department approval for its proposed optimal corrosion control treatment within six (6) months after completion of (iii) of this subparagraph.
 - (v) Step 5: The water system shall install and have operational the

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- calcium, conductivity, orthophosphate (when an inhibitor containing a phosphate compound is used), silicate (when an inhibitor containing a silicate compound is used), water temperature.
- (iv) The water system shall identify all chemical or physical constraints that limit or prohibit the use of a particular corrosion control treatment and document such constraints with at least one (1) of the following: 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 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.
 - (v) The water system shall evaluate the effect of the chemicals used for corrosion control treatment on other water quality treatment processes.
 - (vi) On the basis of an analysis of the data generated during each evaluation, the water system shall propose 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 proposal along with all supporting documentation specified in this subparagraph.
- (D) Department review of optimal corrosion control treatment.
- (i) Based upon consideration of available information including, where applicable, studies performed under subparagraph (C) of this subdivision and a water system's proposed treatment alternative, the department shall either approve or reject with written reasons the corrosion control treatment option proposed by the system. If rejected, the water system shall propose an alternative corrosion control treatment(s) from among those listed in subparagraph (c)(i) of this subdivision, or revise the original proposal based on the department's recommendations, and then resubmit for department review in consideration for approval.
 - (ii) 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.
- (E) Installation of optimal corrosion control. Each system shall properly install and operate throughout its distribution system the optimal corrosion control treatment approved by the department under subparagraph (D) of this subdivision.
- (F) 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 approved by the department in accordance with subparagraph (D) of this subdivision. After the department reviews the results of tap water and water quality parameter monitoring by the system, both before and after

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the system installs optimal corrosion control treatment, the system shall operate in accordance with specific parameter values defined by the department that are within the following water quality parameter ranges, unless the water system can demonstrate to the satisfaction of the department that other measurable parameter values are necessary for optimal corrosion control treatment:

- (i) For pH measured at each entry point to the distribution system, a range of seven (7.0) to ten (10.0) must be maintained;
- (ii) A minimum pH value, measured in all tap samples. Such value shall be equal to or greater than seven (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;
- (iii) If a corrosion inhibitor is used, concentrations for the inhibitor, measured at each entry point to the distribution system and in all tap samples, shall be maintained within the following ranges:

Corrosion Inhibitor	Range (mg/l)
Silicates	2.0 - 12.0
Orthophosphate	0.1 - 10.0

- (iv) If alkalinity is adjusted as part of optimal corrosion control treatment, a range of concentrations for alkalinity, measured at each entry point to the distribution system and in all tap samples, shall be determined based on the results of tap water and water quality parameter monitoring;
 - (v) If calcium carbonate stabilization is used as part of corrosion control, a range of concentrations for calcium, measured in all tap samples, shall be determined based on the results of tap water and water quality parameter monitoring.
 - (vi) The values for the applicable water quality control parameters listed in this subparagraph 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.
- (G) 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 section 19-13-B102(j)(8)(F) of the Regulations of Connecticut State Agencies, in accordance with this subparagraph for all samples collected under sections 19-13-B102(e)(9)(D) through (F), inclusive, of the Regulations of Connecticut State Agencies. Compliance with the requirements of this subparagraph shall be determined every six months, as specified under section 19-13-B102(e)(9)(D) of the Regulations of Connecticut State Agencies. A water system is out of compliance with the requirements of this subparagraph for a six (6) month period if it has excursions for any department-specified parameter on more than nine (9) days during the period. An excursion occurs whenever the daily value for one or more of the water quality parameters measured at a sampling location is below the minimum value or outside the range designated by the department. Daily values are calculated as indicated in subclauses (i) through (iii) of

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

- (i) 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.
 - (ii) 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.
 - (iii) On days when no measurement is collected for the water quality parameter at the sampling location, the daily value shall be the daily value calculated on the most recent day on which the water quality parameter was measured at the sample site.
- (H) 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 optimal corrosion control treatment under subparagraph (D) of this subdivision or optimal water quality control parameters under subparagraph (F) of this subdivision. 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.
- (9) Source water treatment requirements. Systems shall complete the applicable source water monitoring and treatment requirements by the following deadlines.
- (A) Deadlines for completing source water treatment steps.
 - (i) Step 1: A system exceeding the lead or copper action level shall complete lead and copper source water monitoring in accordance with section 19-13- B102(e)(10)(B) of the Regulations of Connecticut State Agencies and make a treatment proposal to the department in accordance with subparagraph (9)(B)(i) of this subsection within six (6) months after exceeding the lead or copper action level.
 - (ii) Step 2: The department shall make a determination regarding source water treatment in accordance with subparagraph (9)(B)(ii) of this subsection within six (6) months after submission of monitoring results in (i).
 - (iii) Step 3: If the department requires installation of source water treatment, the system shall install the treatment in accordance with subparagraph (9)(B)(iii) of this subsection within twenty four (24) months after completion of (ii).
 - (iv) Step 4: The system shall complete follow-up tap water monitoring in accordance with section 19-13-B102(e)(8)(E) of the Regulations of Connecticut State Agencies and source water monitoring in accordance with section 19-13-B102(e)(10)(C) of the Regulations of Connecticut State Agencies within thirty six (36) months after completion of (ii).
 - (v) Step 5: The department shall review the system's installation and operation of source water treatment and specify maximum permissible source water levels in accordance with

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- subparagraph (9)(B)(iv) of this subsection within six (6) months after completion of (iv).
- (vi) Step 6: The system shall operate in compliance with the department- specified maximum permissible lead and copper source water levels in accordance with subparagraph (9)(B)(v) of this subsection and continue source water monitoring in accordance with section 19-13-B102(e)(10)(D) of the Regulations of Connecticut State Agencies.
- (B) Description of source water treatment requirements.
- (i) Water system treatment proposal. Any water system that exceeds the lead or copper action level shall propose in writing to the department the installation and operation of one (1) of the source water treatments listed in subparagraph (B) (ii) of this subdivision. A water system may propose 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.
 - (ii) 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 review and either approve or reject with written reasons the installation and operation of the source water treatment proposed by the system. If rejected, the water system shall propose, in consideration for approval, the installation and operation of another source water treatment from among the following: ion exchange, reverse osmosis, lime softening or coagulation/filtration; or revise the original proposal based upon the department's recommendations and resubmit this to the department for review in consideration for approval. 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 water system in writing of its determination and set forth the basis for its decision.
 - (iii) Installation of source water treatment. Each water system shall properly install and operate the source water treatment approved by the department under subparagraph (B) (ii) of this subdivision.
 - (iv) 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 system both before and after the system installs source water treatment, and determine whether the water system has properly installed and operated the source water treatment approved 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 water system in writing and explain the basis for its decision.
 - (v) Continued operation and maintenance. Each water system shall maintain lead and copper levels below the maximum permissible

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concentrations designated by the department at each sampling point monitored in accordance with subsection (e) (10) of this section. The system is out of compliance with this subparagraph if the level of lead or copper at any sampling point is greater than the maximum permissible concentration designated by the department.

- (vi) 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 subparagraph (B) (ii) of this subdivision, or maximum permissible lead and copper concentrations for finished water entering the distribution system under subparagraph (B) (iv) of this subdivision. 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.
- (10) Lead service line replacement requirements.
 - (A) Water systems that fail to meet the head action level in tap samples taken pursuant to section 19-13-B102(e)(8)(E) of the Regulations of Connecticut State Agencies, after installing corrosion control or source water treatment, whichever sampling occurs later, shall replace lead service lines in accordance with the requirements of this subdivision. If a water system is in violation of subdivisions (7) or (9) of this subsection for failure to install source water or corrosion control treatment, the department may require the water system to commence lead service line replacement under this subdivision after the date by which the water system was required to conduct monitoring under section 19-13-B102(e)(8)(E) of the Regulations of Connecticut State Agencies has passed.
 - (B) A water system shall annually replace at least seven percent (7%) of the initial number of lead service lines in its distribution system. The initial number of lead service lines is the number of lead lines in place at the time the replacement program begins. The water system shall identify the initial number of lead service lines in its distribution system, including an identification of the portion(s) owned by the system, based on a materials evaluation, including the evaluation required under section 19-13- B102(e)(8)(A) of the Regulations of Connecticut State Agencies and relevant legal documents such as, contractual agreements, local land records and local land ordinances regarding the portion owned by the system. The first year of lead service line replacement shall begin on the date the action level has exceeded in tap sampling referenced in subparagraph (A) of this subdivision.
 - (C) A water 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 19-13-B102(e)(8)(B)(iii) of the Regulations of Connecticut State Agencies, is less than or equal to 0.015 mg/l.
 - (D) A water system shall replace that portion of the lead service line that it owns. In cases where the system does not own the entire lead service

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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.

- (i) at least forty-five (45) days prior to commencing with the partial replacement of a head 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 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 19-13- B102(e)(8)(B)(iii) of the Regulations of Connecticut State Agencies, no later than 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 no later than three (3) business days after receiving the results. Mailed notices post- marked no later than three (3) business days after receiving the results shall be considered "on time."
- (ii) the water system shall provide, by mail or by other methods approved by the department, the information required by section 19-13-B102(j)(10)(D)(11) of Regulations of Connecticut State Agencies, to the residents of individual dwellings. 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.
- (E) The department shall require a system to replace lead service lines on a shorter schedule than that required by this subdivision, taking into account the number of lead service lines in the water 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 six (6) months after the system is triggered into lead service line replacement based on monitoring referenced in subparagraph (A) of this subdivision.
- (F) Any system may cease replacing lead service lines whenever first-draw samples collected pursuant to section 19-13-B102(e)(8)(F) of the Regulations of Connecticut State Agencies meet the lead action level during each of two (2) consecutive monitoring periods and the system submits the results to the department. If first-draw tap samples in any such water system thereafter exceed the lead action level, the system shall recommence replacing lead service lines, pursuant to

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request for alternate minimum TOC removal (Step 2) requirements under subclause (ii) of this subparagraph.

- (i) Required Step 1 TOC reductions, indicated in the following table, are based upon specified source water parameters. Systems practicing softening are required to meet the Step 1 TOC reductions in the far-right column (Source water alkalinity >120 MG/L) for the specified source water TOC:

Step 1 required removal of TOC by enhanced coagulation and enhanced softening			
Source Water TOC, mg/l	Source Water Alkalinity, mg/l as CaCO ₃		
	0-60	>60-120	>120 ¹
>2.0-4.0	35.0%	25.0%	15.0%
>4.0-8.0	45.0%	35.0%	25.0%
>8.0	50.0%	40.0%	30.0%

¹ Systems practicing softening shall meet the TOC removal requirements in this column.

- (ii) A system that cannot achieve the Step 1 TOC removals required by subclause (i) of this subparagraph due to water quality parameters or operational constraints shall apply to the department, no later than three (3) months after failure to achieve the TOC removals required by subclause (i) of this subparagraph, 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 shall meet the Step 1 TOC removals contained in subclause (i) of this subparagraph. Alternate minimum TOC removal (Step 2) requirements shall be determined in accordance with 40 CFR 141.135(b)(4).
- (C) Compliance calculations
Systems using conventional filtration treatment that are required to comply with subdivision (2) of this subsection, other than those identified in subparagraph (A) of this subdivision, shall comply with requirements contained in subparagraph (B) of this subdivision. Systems shall calculate compliance quarterly, beginning after the system has collected twelve (12) months of data, by determining an annual average using the following method:
- (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 subparagraph (B)(i) of this subdivision or from subparagraph (B)(ii) of this subdivision;
 - (iii) Divide the value in (i) by the value in (ii);
 - (iv) Add together the results of (iii) for the last twelve (12) months and divide by 12; and
 - (v) If the value calculated in (iv) is less than 1.00, the system is not in compliance with the TOC percent removal requirements.
- (D) Systems may use the provisions in subclauses (i) through (v) of this subparagraph in lieu of the calculations in subparagraph (C) of this subdivision to determine compliance with TOC percent removal requirements.
- (i) In any month that the system's treated or source water TOC

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- (5) The system has undergone a sanitary survey conducted by a party approved by the department within the past twelve (12) months;
 - (6) The system has a cross connection control program acceptable to the department and performs an audit of the effectiveness program;
 - (7) The system agrees to submit a biofilm control plan to the department within twelve (12) months of the granting of the first request for a variance;
 - (8) The system monitors general distribution system bacterial quality by conducting heterotrophic bacteria plate counts on at least a weekly basis at a minimum of ten percent (10%) of the number of total coliform sites specified for that system size in Section 19-13-B102 (e); and
 - (9) The system conducts daily monitoring at distribution system sites approved by the department and maintains a detectable disinfectant residual at a minimum of ninety five percent (95%) of those points and a heterotrophic plate count of less than five hundred (500) colonies per ml at sites without a disinfectant residual.
- (l) Record maintenance.
- (1) Any owner or operator of a public water system subject to the provisions of this section shall retain on its premises or at a convenient location near its premises the following records,
 - (A) Records of all bacteriological analyses shall be kept for not less than five (5) years. Records of chemical analyses shall be kept for not less than ten (10) years. Actual laboratory reports may be kept; or data may be transferred to tabular summaries, provided that the following information is included:
 - (i) the date, place and time of sampling, and the name of the person who collected the sample;
 - (ii) identification of the sample as to whether it was a routine distribution system sample, check sample, raw or processed water sample or other special purpose sample;
 - (iii) date of analysis;
 - (iv) laboratory and person responsible for performing analysis;
 - (v) the analytical technique/method used; and
 - (vi) the results of the analysis.
 - (B) Records of action taken by the system to correct violations of primary drinking water regulations, shall be kept for a period not less than three (3) years after the last action taken with respect to the particular violation involved.
 - (C) Copies of any written reports, summaries or communications relating to sanitary surveys of the system conducted by the system itself, by a private consultant, or by any local, state or federal agency, shall be kept for a period not less than ten (10) years after completion of the sanitary survey involved.
 - (D) Records concerning a variance or exemption granted to the system shall be kept for a period ending not less than five (5) years following the expiration of such variance or exemption.
 - (E) Accurate and up-to-date maps and records showing the location of all mains, valves, hydrants, service connections, and other facilities including pumps, tanks and treatment plants shall be maintained for each community water system. An integrated map of the system showing supply, treatment, pumping and storage facilities and major mains shall be filed with the department and updated at least every five (5) years.
 - (F) Records of each complaint received about water quality or adequacy shall be retained for each community water system and made available for inspection by the department on request. A record of the original complaint shall be kept for a period of three (3) years subsequent to the final resolution of the complaint.

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- (G) Recordkeeping requirements for lead and copper. Any water system subject to the requirements of this section 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 subsections (e)(7)(L),(e)(8) through (e)(10),(i)(6), and (j)(7) through (j)(10) of this section. Each water system shall retain the records required by this subsection for no fewer than twelve (12) years.
- (H) Records of any reports, test results, correspondence or other records collected as part of the system's cross connection control program, pursuant to subsection (f) of this section, shall be kept for a period of not less than five (5) years.
- (I) The system shall keep a copy of the consumer confidence report for no less than five (5) years.
- (J) The system shall keep a copy of the public records for combined and individual filter turbidity measurements, as required in subsection (e)(7)(S), for not less than three (3) years.
- (K) The system shall keep a copy of the public notice and certification of compliance pursuant to section 19-13-B102 (i)(8) of the Regulations of Connecticut State Agencies for no less than three (3) years.
- (2) Records of each of the following decisions shall be retained by the department for five (5) years:
 - (A) Any decision to waive the twenty four (24) hour time limit for collecting repeat samples after a total coliform-positive routine sample; and
 - (B) Any decision to invalidate a total coliform-positive sample.
- (3) Records of each of the following decisions shall be retained by the department in such a manner so that each system's current status may be determined by the department:
 - (A) Any decision to reduce the total coliform and physical parameters monitoring frequency for a community water system serving one thousand (1,000) persons or fewer to less than once per month;
 - (B) Any decision to reduce the total coliform and physical parameter monitoring frequency for a non-community water system using only ground water and serving one thousand (1,000) persons or fewer to less than once per quarter;
 - (C) Any decision to waive the twenty four (24) hour limit for taking a total coliform sample near the first service connection when the source water turbidity level exceeds one (1) NTU pursuant to section 19-13-B102(e)(7)(H)(i) of the Regulations of Connecticut State Agencies;
 - (D) Any decision that a non-community water system is using only protected and disinfected groundwater and therefore may reduce the frequency of its sanitary survey to less than once every five (5) years;
 - (E) Any decision made on records of consultation by a system concerning the modification to a disinfection practice under 40 CFR 141.172 (c), or 40 CFR 141.542, as amended January 14, 2002, with respect to disinfection benchmarking;
 - (F) Any decision allowing a system to use an alternative filtration technology in accordance with section 19-13-B102(j)(4)(D) of the Regulations of Connecticut State Agencies; and
 - (G) Any decision made on records for systems required to do a filter self assessment, comprehensive performance evaluation, or composite correction program.
- (4) The department shall maintain a copy of the consumer confidence reports required pursuant to section 19-13-B102(i)(10)(F) of the Regulations of Connecticut State Agencies for a period of one (1) year and the certification

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- required pursuant to section 19-13-B102(i)(10)(G) for a period of five (5) years.
- (5) The department shall retain the following records for the duration indicated:
 - (A) Records for turbidity measurements and other information, which are required to be reported in accordance with section 19-13-B102(h)(6)(B)(i) of the Regulations of Connecticut State Agencies, shall be retained for not less than one (1) year; and
 - (B) Records for disinfection residual and other parameters necessary to document disinfection effectiveness, which are required to be reported in accordance with section 19-13-B102(h)(6)(B)(ii) of the Regulations of Connecticut State Agencies, shall be retained for not less than one (1) year.
 - (6) The department shall maintain a copy of the public notice and the certification of compliance required to be submitted pursuant to section 19-13-B102(i)(8) for a period of three (3) years.
 - (m) Emergency powers. The state commissioner of public health may, upon receipt of information that the security of a public water system is threatened or suspicious activities are observed on or near water company land or the treatment of a public water supply is interrupted or the source of supply is damaged so as to impair the quality or the sufficiency of the supply or a contaminant is present in or is likely to enter a public water system which constitutes an imminent and substantial danger to health, take such actions and issue such orders as the commissioner may deem necessary in order to protect the health of any persons that may be affected.
 - (n) Reservoir, ground water and water use monitoring. Meters shall be provided at all sources of water supply for community water systems so that the amount of water delivered to the distribution system can be measured. Representative weekly readings of instantaneous flow rate and total quantity of water delivered over the previous week shall be taken, recorded and retained for reference. Such records shall be submitted to the department upon request. More frequent readings shall be taken upon request of the department. Any water company maintaining a reservoir shall submit records of reservoir status to the department according to a schedule specified by the department which shall include at least weekly measurements of water elevation, instantaneous usable storage capacity, reservoir withdrawals and amount of precipitation. Any water company with a ground water source in an unconsolidated unconfined aquifer shall submit records of groundwater status to the department according to a schedule specified by the department which shall include at least weekly measurements of instantaneous pumping rates and ground water elevations. A system of observation wells, approved by the department, shall be maintained to provide sufficient information on ground water elevations and ground water quality. Any water company serving more than 1,000 people or 250 service connections, and any other water company notified by the department, shall submit to the department according to a schedule specified by the department records of water use which shall include at least weekly measurements of the volume of water withdrawn from each source and for the total system. The volume of water bought from or sold to another water company and the type of restrictions, if any, imposed on water use and at least annual records of the volume of water used and average number of customers. Forms provided by the department shall be utilized when available.
 - (o) The supply capacity of each community water system shall be maintained in excess of the demand of the system, with sufficient margin of safety to properly allow for:
 - (1) Sudden increases in consumption which may occur during a dry period.
 - (2) The time required to bring new sources of supply on line.
 - (3) Increases or growth in the service area which may be reasonably expected.

A plan shall be prepared for each community water system relating the safe yield and available water, as defined in sections 25-32d-1a(4) and 25-32d-1a(30) of the regulations of Connecticut State Agencies, of the supply system to the existing and protected demands of the service area. The plan shall be updated on a regular basis. If for any reason it becomes evident that the demands of the service area will exceed the

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- supply capability of the system for a significant period of time, measures to effectively reduce consumption shall be promptly instituted for the system, and a program to provide sufficient supply capacity to meet existing and projected demands shall be implemented.
- (p) Sources of supply, treatment, pumping, transmission and storage facilities of sufficient capacity shall be maintained to provide flows in excess of the maximum flows experienced in the community water system, and in individual service zones within integrated systems. Whenever peak period consumption interrupts water service to consumers under normal conditions conservation measures that effectively reduce consumption shall be promptly instituted for the community water supply, and a program to provide sufficient supply, treatment, pumping, transmission and storage capacity to meet existing and projected peak period consumption shall be implemented.
- (q) Essential water supply valves shall be maintained in operating condition.
- (r) All customers served by a community water system shall be notified at least annually of an emergency telephone number which is continuously available for personal contact and reporting service problems. A crew shall be available to deal with emergencies within each community water system or a working arrangement or contract shall exist with others, such as pump installers, pipe layers, electricians or another water system for such coverage. Sufficient spare parts and clean up and disinfectant equipment shall be available. On or before January 1 of each year, or upon any change, the continuously available emergency telephone number and other methods of contact shall be reported in writing to the department.
- (s) A program to reduce the amount of water which cannot be accounted for, shall be established and filed with the Department for review and approval. Such program shall include a schedule of implementation and consideration of the following elements:
- (1) Calibration of supply and main line meters.
 - (2) Calibration of consumers' meters.
 - (3) Pipeline flow measurements.
 - (4) Leakage surveys.
 - (5) Inspection of bleeders.

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